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Issue 2001-02 Doc No. EM-81500-0102

TBA/21 050V 2(2)
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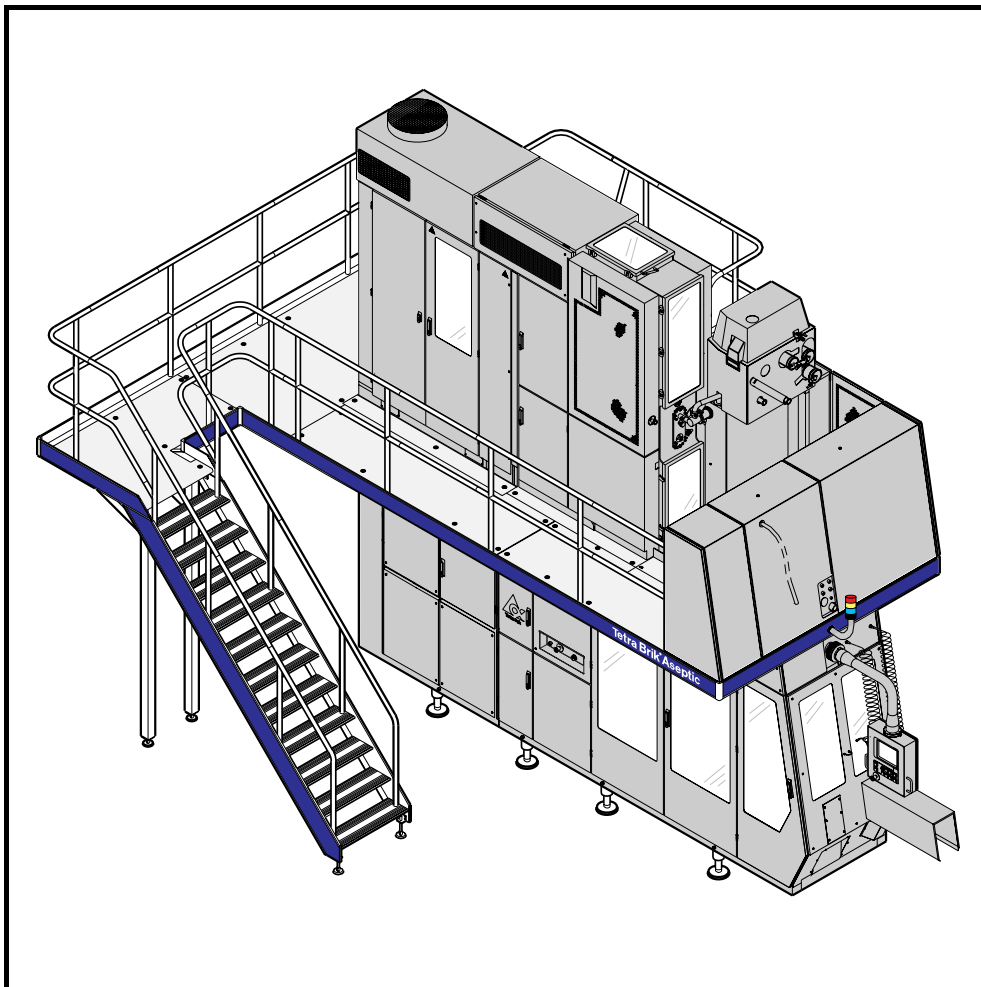
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Issue 2001-02 Doc No. EM-81500-0102

EM

Electrical Manual

TBA/21 050V



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Doc No. EM-81500-0102

This document is valid for:

Series No/ Machine No

Sign.

Tetra Brik Aseptic TBA/21 648570-0500

El. ECM:
85501, 85498

Valid from Machine Series No.:
21201-00002 (Italy)
15011-189 (Sweden)

- 1 Introduction
(1-82409-0102)
- 2 Safety precautions
(2-82410-0103)
- 3 Electrical system description
(3-82411-0102)
- 4 Component location
(EM-81500-0102)
- 5 Engineering change description
(EM-81500-0102)
- 6 Circuit diagrams
(EM-81500-0102)
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Tetra Pak
Tetra Brik Packaging Systems

1 Introduction

To ensure maximum safety, always read the *Safety precautions* section before doing any work on the equipment or making any adjustments.

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Equipment information

Purpose

The purpose of this Tetra Pak equipment is to pack liquid food products.

Manufacturer

This Tetra Pak equipment has been manufactured by:

Tetra Brik Packaging Systems AB
Ruben Rausings gata
221 86 LUND
Sweden

or by:

Tetra Brik Packaging Systems S.p.A.
Via Delfini 1
411 00 MODENA
Italy

Service

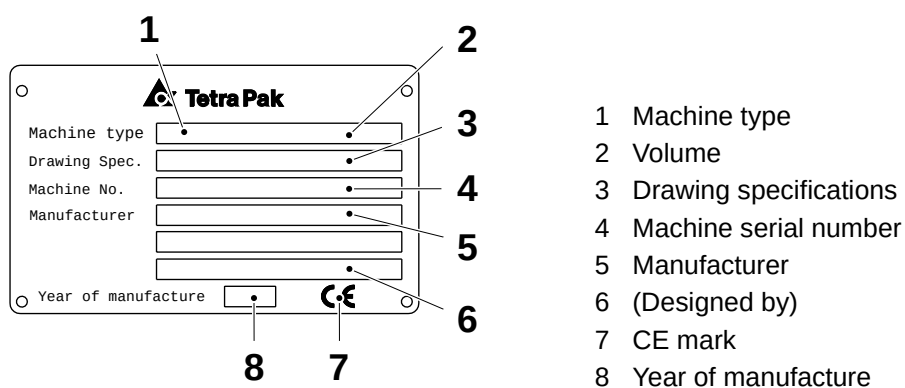
Contact the nearest Tetra Pak service station.

Identification

The figure shows an example of the equipment sign. The sign carries data needed when contacting Tetra Pak concerning this specific equipment.

CE marking

This equipment complies with the basic health and safety regulations of the European Economic Area (EEA).



Document information

Purpose of Electrical Manual (EM)

The purpose of this Electrical Manual is to provide service technicians and electricians with all information on the electrical equipment required for service and maintenance of this Tetra Pak equipment.

It is important to:

- keep the manual for the life of the equipment,
- pass the manual on to any subsequent holder or user of the equipment.

Design modifications

The directives in this document are in accordance with the design and construction of the equipment at the time it was delivered from the Tetra Pak production plant.

Technical publications

The technical publications for this equipment are:

- Electrical Manual (EM)
- Installation Manual (IM)
- Maintenance Manual (MM)
- Operation Manual (OM)
- Spare Parts Catalogue (SPC)

Additional copies can be ordered from the nearest Tetra Pak service station. When ordering technical publications, always quote the **document number**.

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How to use the EM

General

How to use the EM is an explanation of how to find your way through the chapters **Circuit diagrams**, **Component location**, **Connection diagrams**, **Mains connection diagrams** and **Program documents** in the EM.

The first page in each chapter is always a Table of Contents, listing all drawings included in the chapter.

The documents in the above-mentioned chapters are identified by:

- a main number (1)
- a sheet number (2)
- a version number (3)

CIRCULATION COOLING MEDIA			
Date 970307	Approved MB1	Date 970307	Doc Class -
Denomination MOTORS			
Drawing No 44495-023:02			Page -


1


2


3

- 1 Main number
- 2 Sheet number
- 3 Version number

The sheet number is the consecutive numbering of the sheets which belong to the main number and is used as a reference in the diagrams.

In the **Circuit diagrams**, the sheet(s):

- 02 is the position summary
- 03 is the line summary
- 04 is the terminal summary
- 05 - 156 are the drawings
- 900 - 902 are the protective bonding circuits

(Cont'd)

1 Introduction

(Cont'd)

The **Mains connection** diagram (the second connection diagram) shows how the machine should be connected to the local supply, the dimensions of the connection cable and the connection of the matching transformer (when used).

Caution! Always follow local regulations regarding the dimensions of the connection cable.

The PLC-listing in the section **Program documents** consists of lists of blocks, lists of addresses and programme lists.

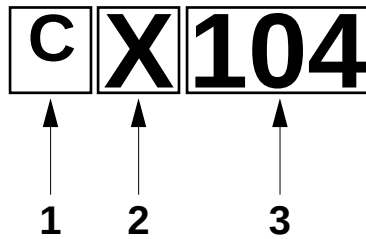
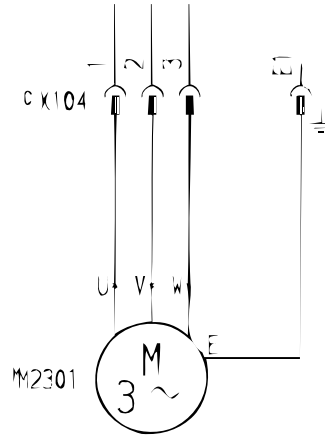
Enclosed are some examples of how to use the EM.

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Numbering system for components

The position number is divided into three parts:

- location (1)
- function designation (2)
- running number (3)



- 1 Location
- 2 Function designation
- 3 Running number

Location (1)

This prefix shows the location of the component.

- the prefix M indicates that the component is fitted on the machine, outside the electrical cabinet
- the prefix C indicates that the component is fitted on the electrical cabinet, on TPOP and on the process panel
- the prefix D.O. indicates that the component is fitted on the dairy office

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1 Introduction

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Function designation (2)

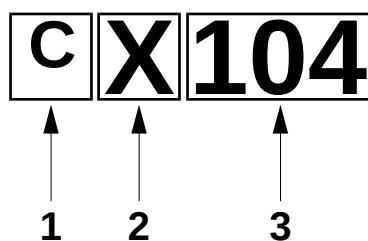
The function designation is indicated in accordance with international standards, see table below.

Designation	Signification in electrical diagram
A	Assemblies, Subassemblies
B	Transducers
C	Capacitors
D	Binary element, Delay devices, Storage devices
E	Miscellaneous
F	Protective devices
G	Generators, Power supplies
H	Signalling devices
K	Relays, Contactors
L	Inductors, Reactors
M	Motors
N	Analogue elements
P	Measuring equipment, Testing equipment
Q	Switching devices for power circuits
R	Resistors
S	Switching devices for control circuits selectors
T	Transformers
U	Modulators, Changers
V	Tubes, Semiconductors
W	Transmission paths, Waveguide aerals
X	Terminals, Plugs, Sockets
Y	Electrically operated mechanical devices
Z	Terminations, Hybrids, Filters, Equalizers, Limiters

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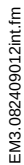
Running number (3)

The electrical components are given numbers in a consecutive non-logical order.



- 1 Location
- 2 Function designation
- 3 Running number

This prefix shows if the component belongs to a specific optional equipment.



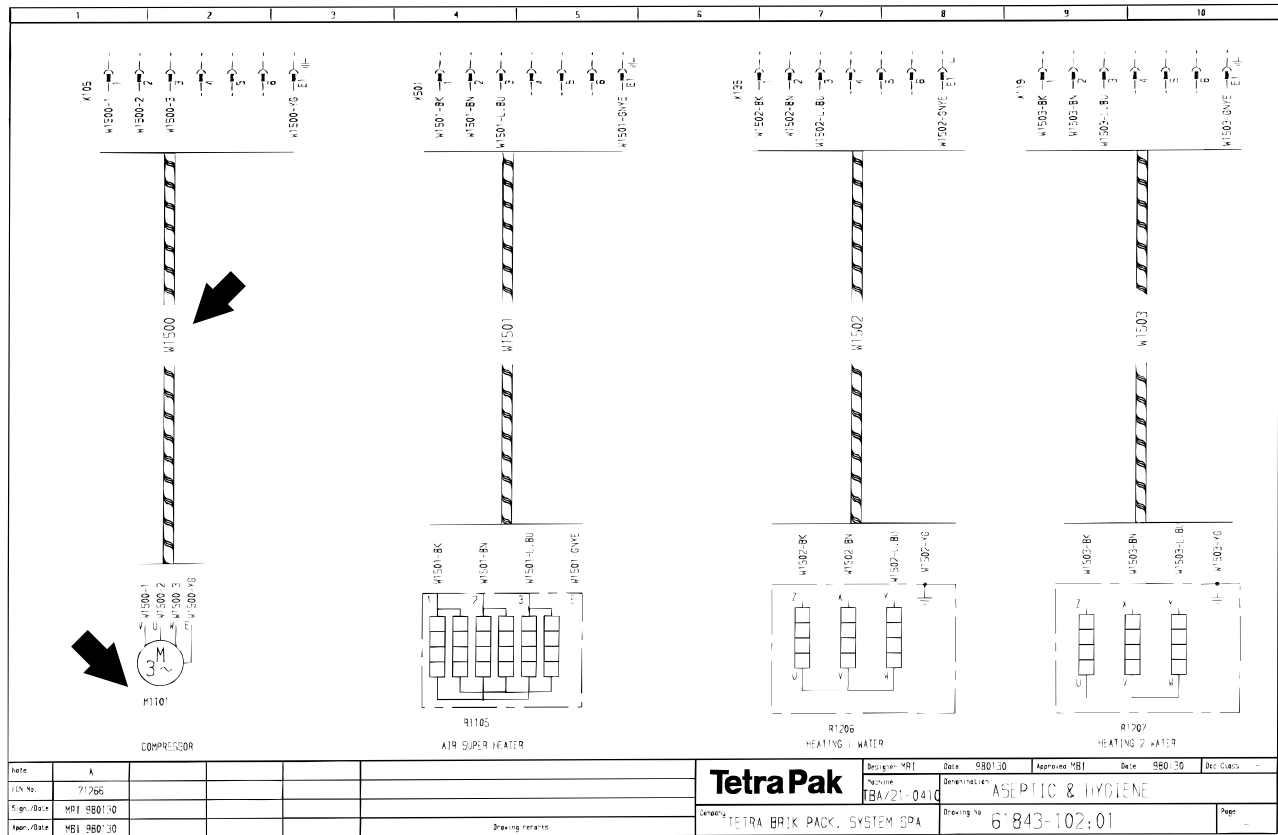
How to trace a cable

Example: How to trace cable No. W1500

- a) Go to the **Connection diagrams** chapter.
- b) Find cable No. W1500.
- c) Note the component connected to the cable (M1101).
- d) Go to the **Circuit diagrams** chapter.
- e) Go to the **Position summary** (first page(s) in the **Circuit diagrams**).
- f) The sheet No. is located opposite the component No. (pos. M1101). This tells you on which sheet in the **Circuit diagrams** the connection is shown.
- g) Go to sheet 023 in the **Circuit diagrams**.
- h) Find the component (M1101).
- i) If the component, as in this example, is controlled by a separate component, the sheet reference for this component (sheet 133) is found in the **Circuit diagrams**.

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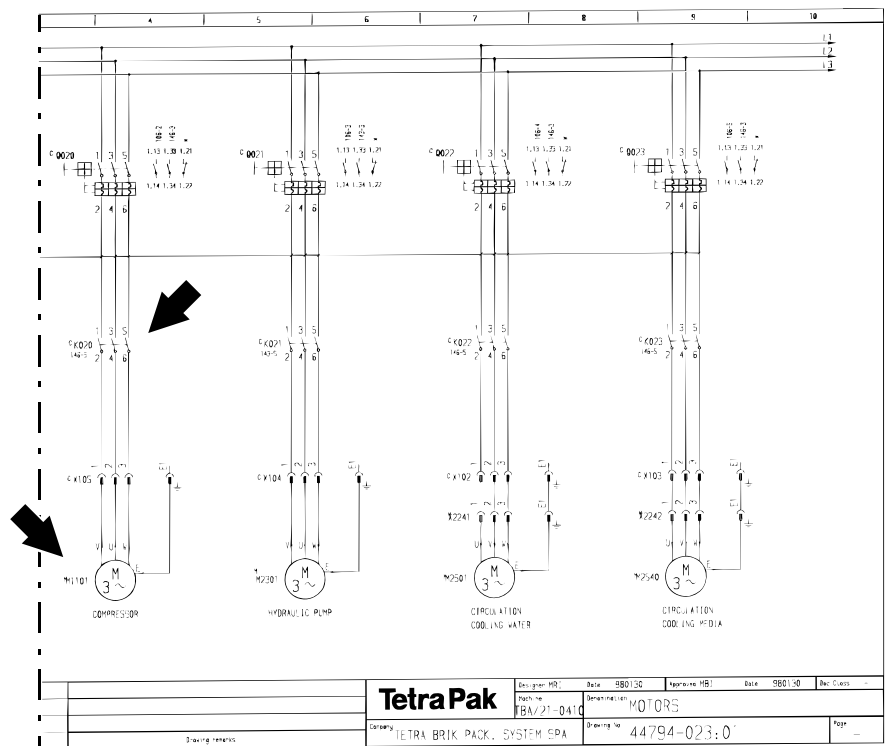


Pos	Comp	L	She	Ver	Pos
6	M4**	M	022	01	9
7	M001	C	023	01	2
7	M002	C	025	01	2
2	M003	C	025	01	4
3	M1101	M	023	01	4
3	M1205	M	022	01	2
2	M1213	M	022	01	3
3	M1501	M	016	01	2
6	M2301	M	023	01	5
7	M2501	M	023	01	7
2	M2540	M	023	01	9
4	M3102	M	022	01	5
7	M4105	M	019	01	2
9	M4107	M	031	01	5
2	M4302	M	021	01	3
3	M4304	M	020	01	3
3	M5503	M	022	01	7
3	M7208	M	017	01	2
3	M7217	M	017	01	7
3					
3	P002	C	035	01	6
6	P003	C	036	01	7
6	P100	C	156	02	4
3	P101	C	156	02	4
7					
8	Q001	C	022	01	2
7	Q001.1	C	106	01	3
6	Q001.1	C	146	01	3
5	Q002	C	022	01	4

POSITION SUMMARY CIRCUIT DESIGN

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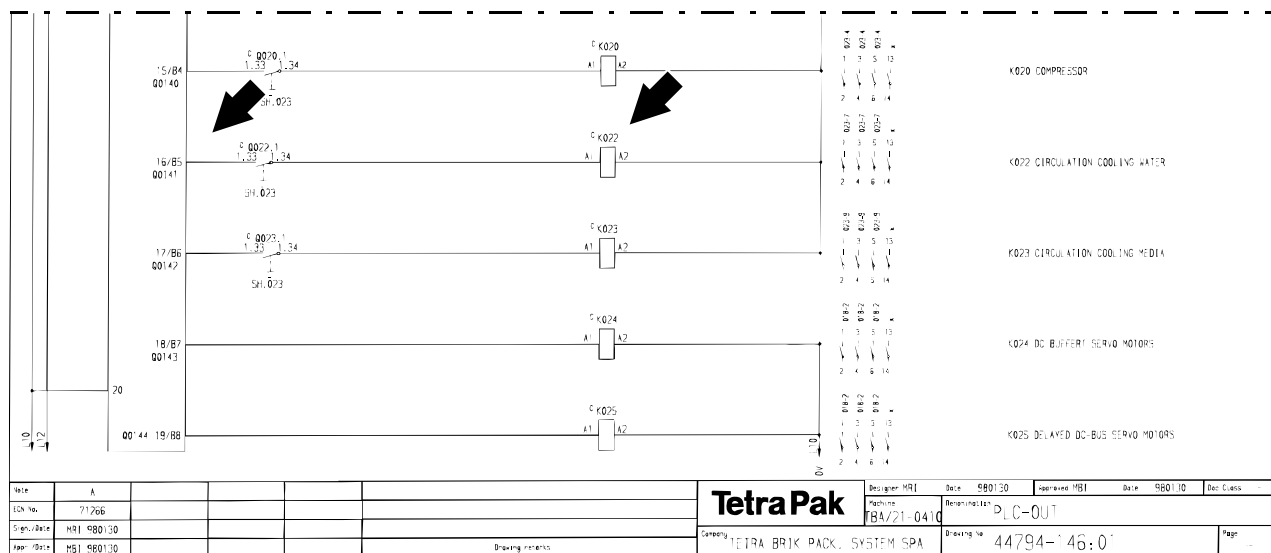
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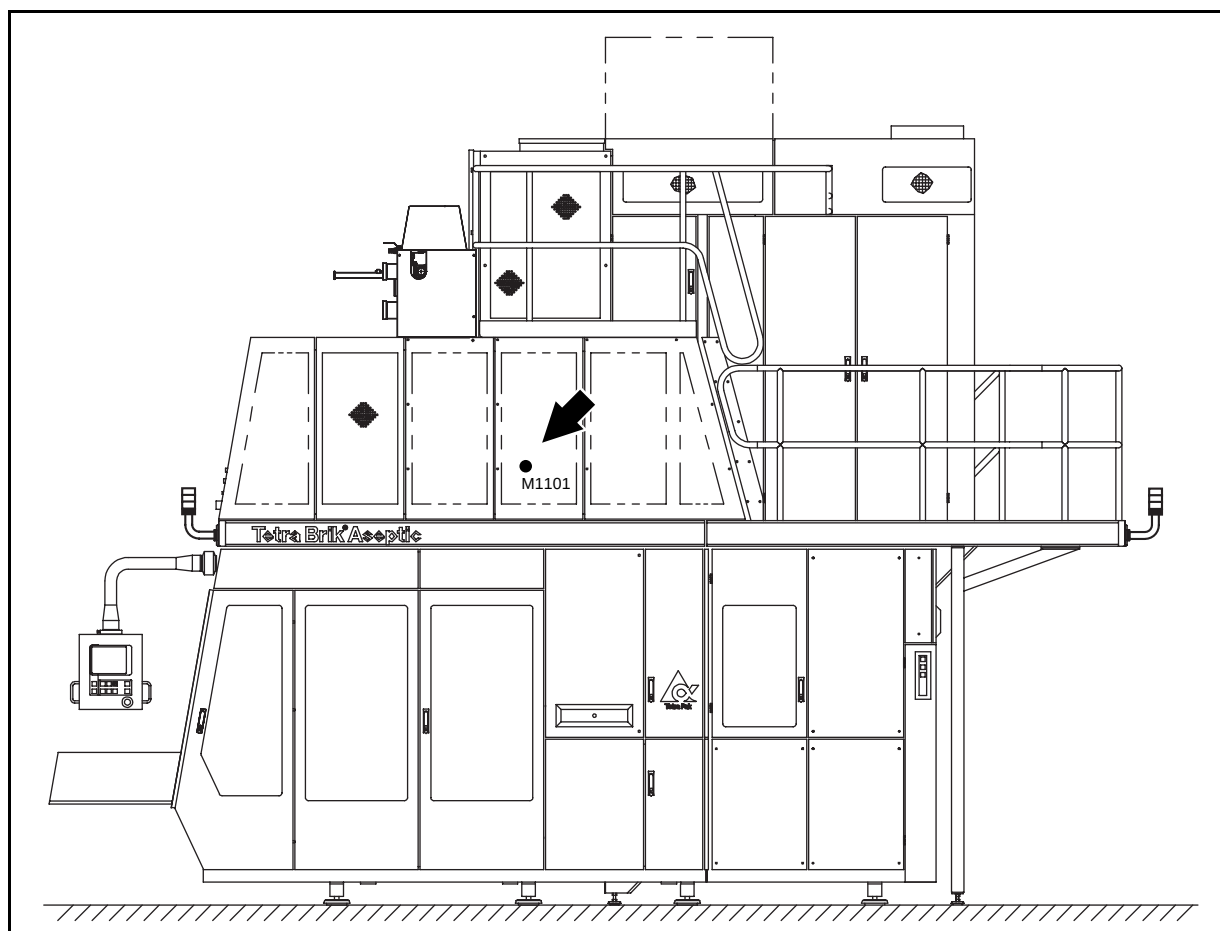
- j) Go to sheet 133 in the **Circuit diagrams**.
- k) Find the controlling component. (K020).



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- l) The location M indicates that the component is fitted on the machine.
- m) Go to the **Component location** chapter to find the position of the component (M1101).



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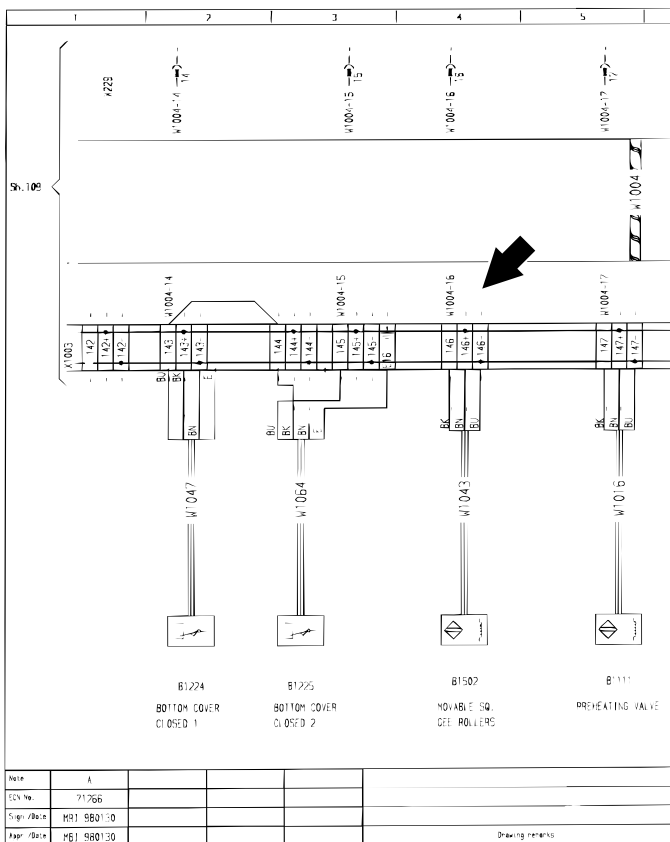
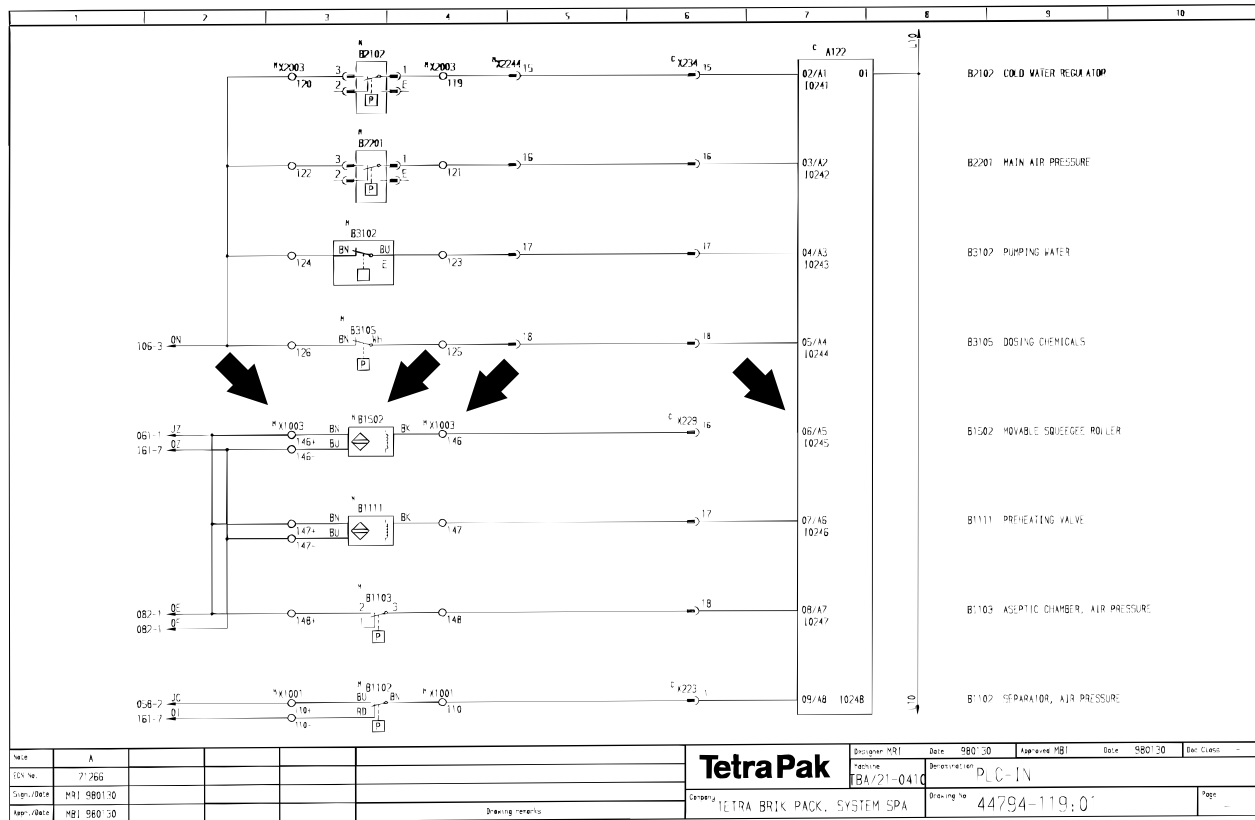
How to trace a component

Example: How to trace sensor B1502

- a) Go to the **Circuit diagrams** chapter.
- b) Go to the **Position summary** (first page(s) in the **Circuit diagrams**).
- c) The sheet No. (sh.109) is located opposite the component No. (pos B1502). This tells you on which sheet in the **Circuit diagrams** the connection is shown.
- d) Go to sheet 109 in the **Circuit diagrams**.
- e) Find the component (B1502).
- f) Note the connections (X1003, 146, 146+, 146-).
- g) Go to the **Connection diagrams** chapter.
- h) Find the connection (X1003, 146, 146+, 146-).
- i) The **Connection diagram** shows how the sensor is connected (in this case via a connection box).

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Supply voltage/Line connection order

The supply voltage in the electrical cabinet is named:

- L01 - L09: Power voltage
- L10 - : Control voltage

L10 is reserved for 0V, control voltage.

L11 is reserved for 24V, control voltage.

L12 is reserved for 24V, control voltage.

L13 is reserved for 24V, control voltage.

L14 is reserved for 24V, control voltage.

L15 is reserved for 24V, control voltage.

L50 is reserved for 0V, control voltage.

L51 is reserved for 220V, control voltage.

L52 is reserved for 220V, control voltage.

In the **Circuit diagrams** chapter the line connection order is shown in the **Line summary** (sheet 003).

How to trace a line

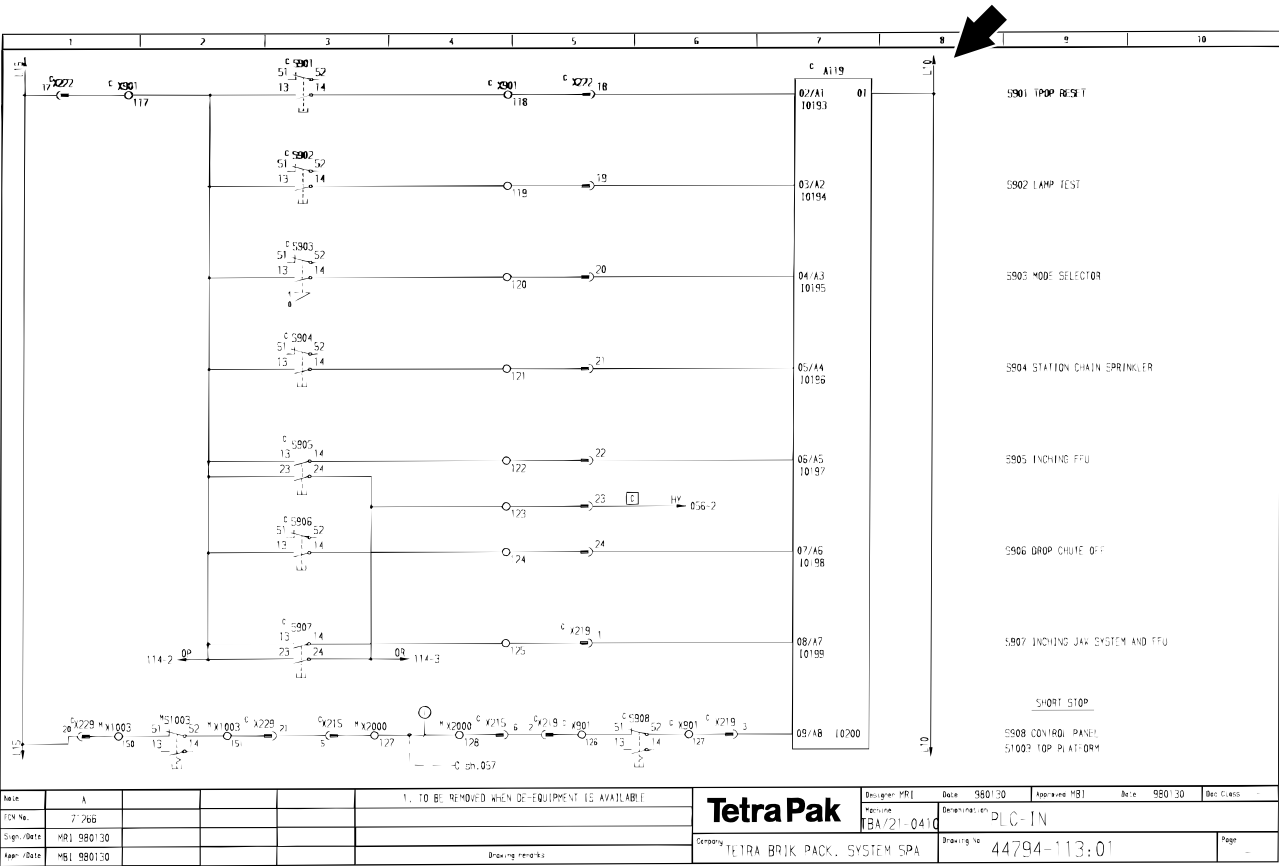
Example: Line connection L10 to the component A119

- a) Go to the **Circuit diagrams** chapter
- b) Find the component A119 (Input module)
- c) Note the line connection (L10 to pin 01)
- d) Go to the **Line summary** (sheet 003)
- e) Find the component A119:01
- f) Note the relative line terminal connection order (XL10:112)

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1 Introduction

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Line	Component	She	Ver	Pos	Area	Color	Line	Component	She	Ver	Pos	Area	Color	Line	Component	She	Ver	Pos	Area	Color				
L10	XL10:101	034:02	3		Not Wired		L10	XL10:111				0.75	BU	A134:20	144:02	2								
L10	XL10:102				0.75	BU	L10	A117:1	109:01	7				L10	XL10:119				0.75	BU				
	A102:1	081:01	8					A118:1	111:01	7					A135:10	145:01	2							
L10	XL10:103				0.75	BU	L10	XL10:112				0.75	BU		A135:20	146:01	2							
	A103:10	083:02	2					A119:1	113:01	7				L10	XL10:120				0.75	BU				
	A103:20	084:01	2				L10	XL10:113				0.75	BU		A136:10	147:01	2							
L10	XL10:104				Not Wired			A120:1	115:01	7					A136:20	148:01	2							
								A121:1	117:01	7				L10	XL10:121				0.75	BU				
L10	XL10:105				Not Wired		L10	XL10:114				0.75	BU		A137:10	149:01	2							
L10	XL10:106				Not Wired			A122:1	119:01	7					A137:20	150:02	2							
								A123:1	121:02	7				L10	XL10:122				0.75	BU				
L10	XL10:107				0.75	BU	L10	XL10:115				0.75	BU		A138:10	151:01	2							
	A110:6	095:01	7					A124:1	123:01	7					A138:20	152:01	2							
	A110:18	096:01	2					A125:1	125:02	7				L10	XL10:123				0.75	BU				
L10	XL10:108				0.75	BU	L10	XL10:116				0.75	BU		A139:10	153:01	2							
	A111:18	097:01	1					A126:1	127:01	7					A139:20	154:01	2							
								A127:1	129:01	7				L10	XL10:124				0.75	BU				
L10	XL10:109				0.75	BU	L10	XL10:117				0.75	BU		A140:10	155:01	2							
	A114:1	103:02	7					A128:1	131:01	7					A140:20	156:02	2							
L10	XL10:110				0.75	BU		A129:1	133:01	7				L10	XL10:125				0.75	BU				
	A115:1	105:01	7				L10	XL10:118				0.75	BU		A141:10	157:02	2							
	A116:1	107:01	7					A134:10	143:01	2					A141:20	158:02	2							
INTRODUCED WITH EC NO: 71429										DATE: 980327					SIGN: MRI					DESCRIPTION: LINE SUMMARY				
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DATE :																								
SIGN :																								
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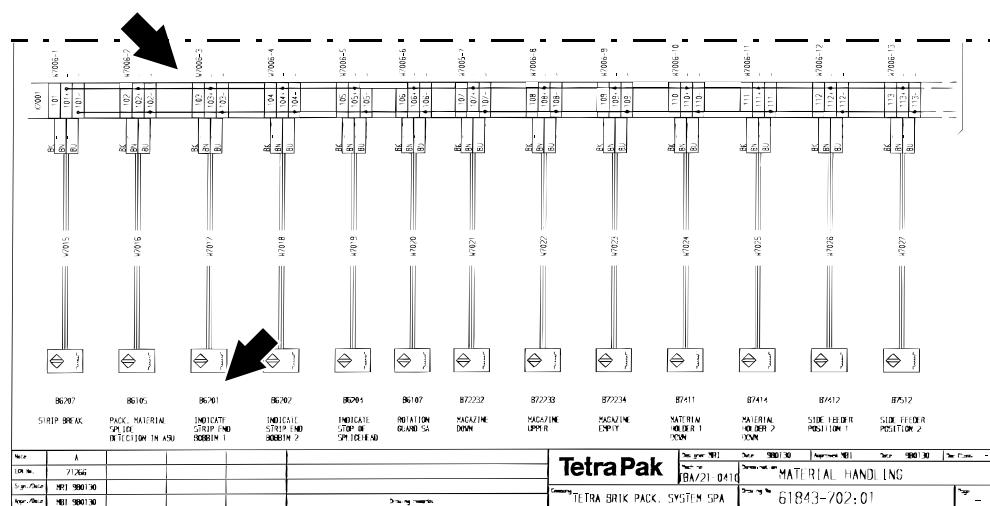
How to trace a terminal

Example: Connection in connection terminal box X7001, block 103, 103+, 103-

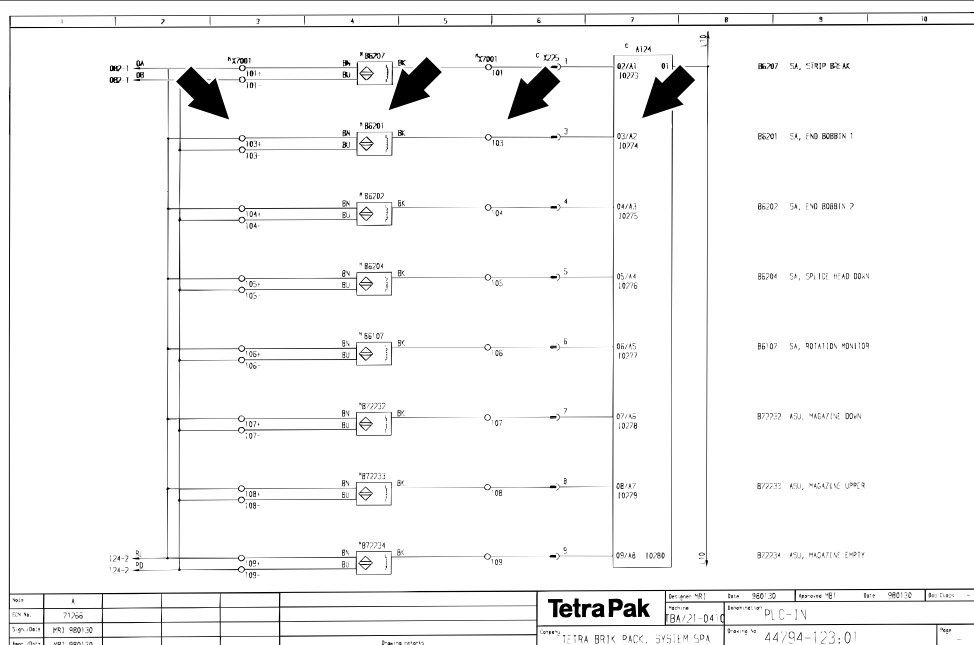
- a) Go to the **Connection diagrams** chapter.
- b) Find the connection box (X7001 terminal block 103, 103+, 103-).
- c) Note the component connected (B6201).
- d) Go to the **Circuit diagrams** chapter.
- e) Go to the **Terminal summary** (sheet 004).
- f) The sheet No. (sh.111) is located opposite the terminal No. (pos. X7001, terminal block 103, 103+, 103-). This tells you on which sheet in the **Circuit diagrams** the connection is shown.
- g) Go to sheet 111 in the **Circuit diagrams**.
- h) Note the connections (X7001, 103, 103+, 103-).
- i) Find the component (B6201).
- j) The location M indicates that the component is fitted on the machine.

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Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos
X6001	101	M				X6001	110-	M	051	01	3	X601	5	C				X7001	16	M	011	02	3
	101+	M					111	M	051	01	3		6	C					101	M	123	01	3
	102	M					111+	M				E1	C	023	01	2			101+	M	123	01	3
	102+	M					111-	M											101-	M	123	01	3
	102+	M					112	M	051	01	4	X602	1	C	025	01	2		102	M	082	01	5
	102-	M					112+	M				2	C	025	01	3			102+	M	082	01	2
	103	M					112-	M				3	C	025	01	4			102-	M	082	01	2
	103+	M					113	M	051	01	5		4	C	122	02	1		103	M	123	01	5
	103-	M					113+	M	051	01	3		5	C	122	02	6		103+	M	123	01	3
	104	M					113-	M	051	01	6		6	C					103-	M	123	01	3
	104+	M					114	M	051	01	5		E1	C					104	M	123	01	5
	104-	M					114+	M											104+	M	123	01	3
	105	M					114-	M	051	01	6	X6050	1	M	014	01	7		104-	M	123	01	3
	105+	M					115	M	051	01	4								105	M	123	01	5
	105-	M					115+	M	051	01	3	X7001	1	M	014	01	2		105+	M	123	01	3
	106	M					115-	M				2	M	014	01	2			105-	M	123	01	3
	106+	M					116	M	121	02	5		3	M	014	01	3		106	M	123	01	5
	106-	M					116+	M	121	02	3		4	M	014	01	3		106+	M	123	01	3
	107	M					116-	M	121	02	3		5	M	014	01	2		106-	M	123	01	3
	107+	M					E1	M				6	M	014	01	3			107	M	123	01	5
	107-	M					E2	M				7	M	032	01	5			107+	M	123	01	3
	108	M					E3	M	051	01	4		8	M	032	01	5		107-	M	123	01	3
	108+	M					E4	M	051	01	6		9	M	032	01	6		108	M	123	01	5
	108-	M					E5	M	051	01	6		10	M	032	01	6		108+	M	123	01	3
	109	M										11	M	032	01	7			108-	M	123	01	3
	109+	M				X601	1	C	023	01	2		12	M	032	01	7		109	M	123	01	5
	109-	M					2	C	023	01	2		13	M	056	01	4		109+	M	123	01	3
	110	M	051	01	5		3	C	023	01	2		14	M	056	01	6		109-	M	123	01	3
	110+	M	051	01	3		4	C				15	M	011	02	2			110	M	124	01	5
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ISSUR:																							
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DATE :																		44/94-004:02					
SIGN :																		20/26					

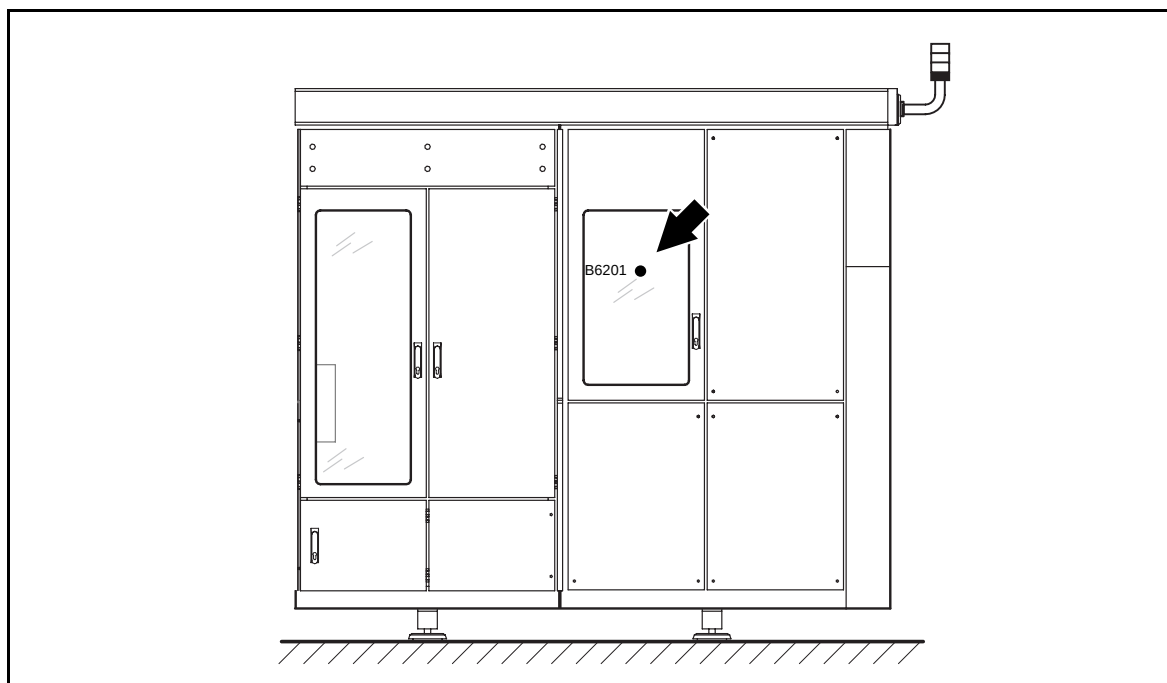


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- k) Go to the **Component location** chapter to find the position of the component (B6201) on the machine.



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Abbreviations and terminology

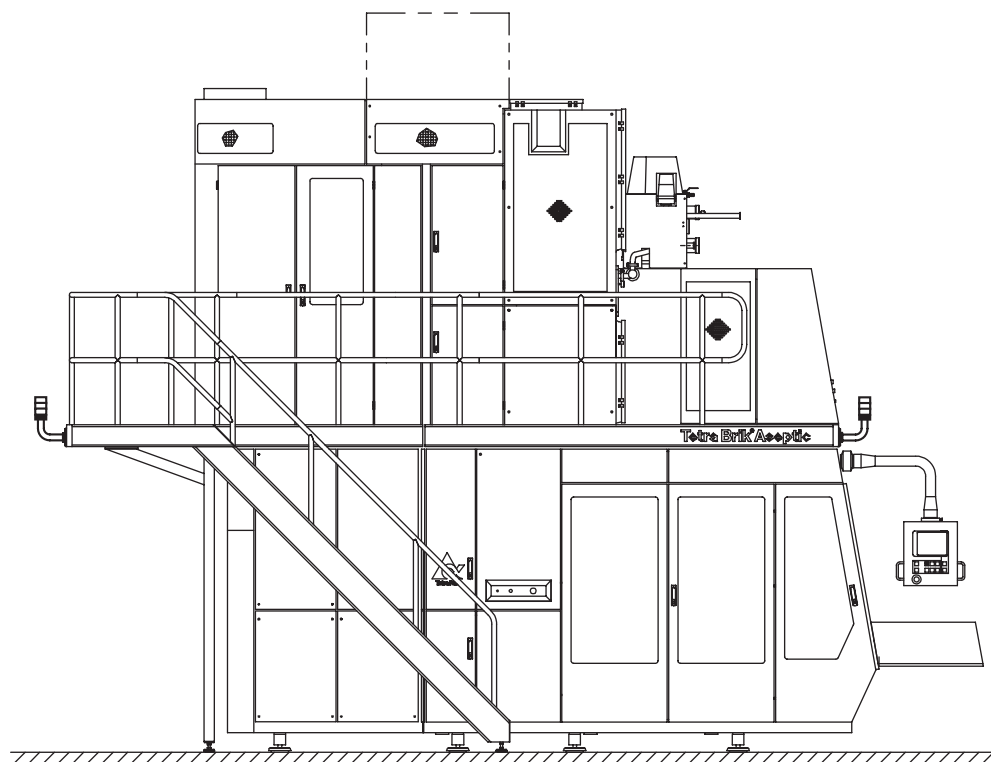
Abbreviations and terminology used in this manual.

Abbreviation	Explanation
AB	Aseptic Brik (Step Production)
AP	Aseptic Product
ASSU	Automatic Strip Splicing Unit
AS room	Automatic Splicing Unit in Separate Room
C	Cabinet
CIP SUP	Cleaning In Place Supervision
CPU	Central Processing Unit
DMC	Digital Motion Controller
DO	Dairy Office
ECN	Engineering Change Notice
F	Filler
FF	Final Folder
HF	High Frequency
HI	Headspace by Gas Injection
IH	Induction Heating
JUM	Jaw Unit Module
LRF	Level Regulated Filling
LS	Longitudinal Seal(ing)
M	Machine
M Floater	Magnetic Floater Filling system
MM	Main Motor
PE H	Perforation Heater
PLC	Programmable Logic Controller
PLE	Packaging Line Equipment (Distribution Equipment)
PLMS	Production Line Monitoring System
PR REC	Production Recorder
PT	PullTab
SA	Strip Applicator
SASP	Sales Administration Spare Parts
S COMM	TPOP Serial Communication
SS	Short Stop
SU	Splicing Unit
TB	Tetra Brik
TBA	Tetra Brik Aseptic
TMCC	Tetra Pak Multipurpose Compact Controller
TPIH	Tetra Pak Induction Heating
TS	Transversal Seal(ing)
UPG CL	Upgraded Cleaning
WEAC	Work Environment Aseptic Chamber

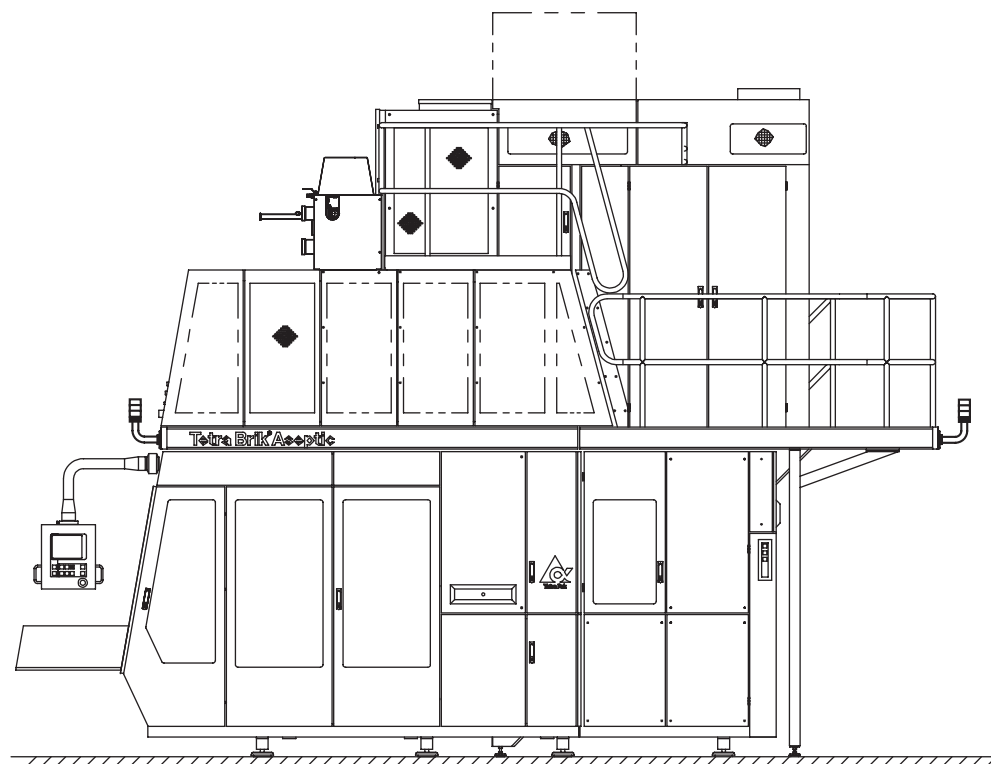
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Machine orientation

LH side of machine



RH side of machine



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2 Safety precautions

To ensure maximum safety, always read this section carefully before doing any work on the equipment or making any adjustments.

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Hazard information

General



Failure to observe information marked with “DANGER!” **puts your life in danger.**



Failure to observe information marked with “WARNING!” can result in **personal injury and/or serious damage to or destruction of equipment.**

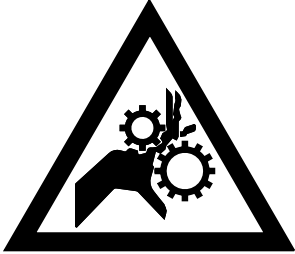
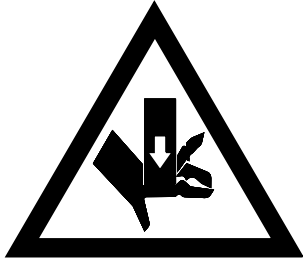
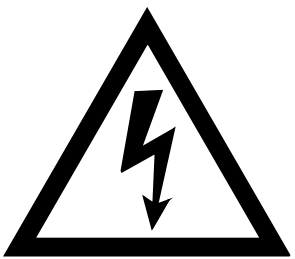
Caution! Failure to observe information marked with “Caution!” can result in **damage to equipment.**

Mandatory signs

 Wear eye protection	 Wear hearing protection
 Wear head protection	 Wear protective gloves
 Disinfect hands/gloves	

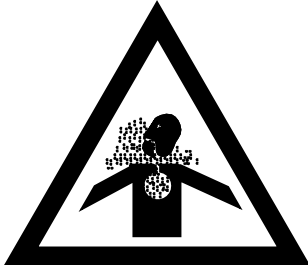
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Warning signs

	
Risk of entanglement!	Risk of corrosion and acid burns!
	
Risk of crushing!	Risk of cutting/amputation!
	
Risk of burns!	Risk of electrocution!

(Cont'd)

(Cont'd)

 Risk of crushing!	 Risk of intoxication!
 Risk of falling!	

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Personnel

Only skilled or instructed persons are allowed to work on the equipment.

The manufacturer declines all responsibility for injury or damage if the instructions in this manual are not followed.

Personnel are responsible for:

- the equipment and the work area around the equipment
- all personnel in the vicinity of the equipment
- making sure that all safety devices are fully operational

Personnel must regard all electrical equipment as live. In general switch the equipment off at the mains power and padlock the switch before carrying out maintenance or repair work.

Electricians should be certified according to local regulations and have experience of similar types of installations, proven skills in reading and working from drawings and cable lists, and knowledge of local safety regulations regarding power and automation. Work with the electrical equipment must be performed only by skilled or instructed technicians.

According to EN 60204-1, 3.30 an instructed person is:

- *An individual adequately advised or supervised by a skilled person to enable that individual to avoid hazards which electricity can create (e.g. operating and maintenance staff).*

According to EN 60204-1, 3.55 a skilled person is:

- *An individual with technical knowledge or sufficient experience to enable that individual to avoid hazards which electricity can create.*



General safety precautions

Wear hearing protection while the equipment is running.

Hygiene

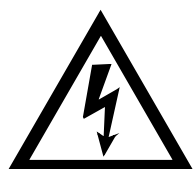
It is important to keep hands and/or gloves clean.

Disinfect hands and/or gloves before touching the packaging material, the strip(s) or any other equipment part that may come into contact with the product.

Clean the platforms, the ladder and the area around the equipment.

To avoid production faults, it is important that the packaging material and the strip(s) never touch the floor, the platform or the area around the equipment.

High voltage



Work with parts marked with this symbol must be performed by **skilled or instructed** persons **only**.

Make sure that the mains power is disconnected before starting any work on electrical equipment marked with this symbol.

In case of accident, call for medical attention immediately.

2 Safety precautions

Electrical cabinet

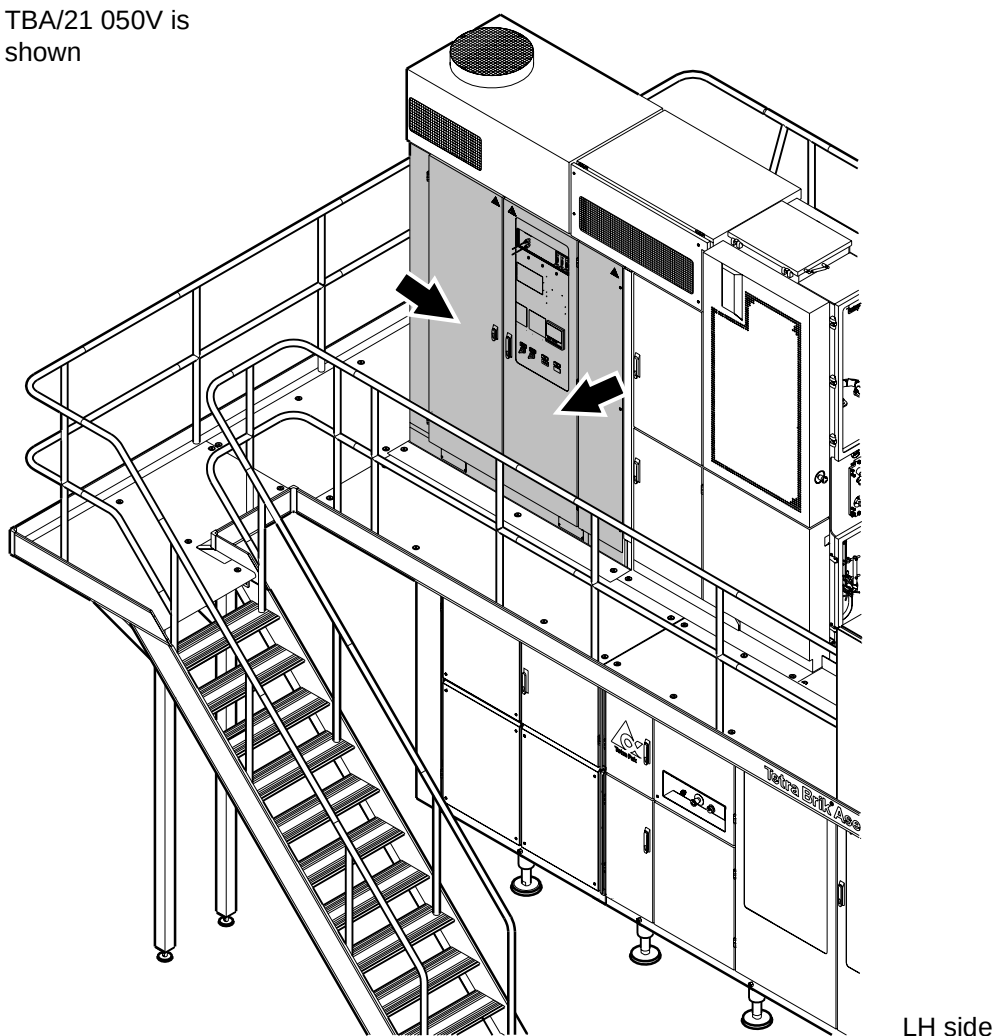


There is high voltage in the electrical cabinet (up to 400 V). In case of accident call for medical attention immediately.

Work inside the electrical cabinet must be performed by skilled or instructed persons only.

Electrical cabinet doors locked with screws may be opened only by skilled or instructed persons.

TBA/21 050V is shown



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TPIH generator

During operation the voltage in the TPIH generator can be up to 2000 V (400 V when not in operation). In case of accident call for medical attention immediately.

Never open the TPIH generator. Remove and return the unit to an authorised service centre for servicing and repair.

Machine safety devices

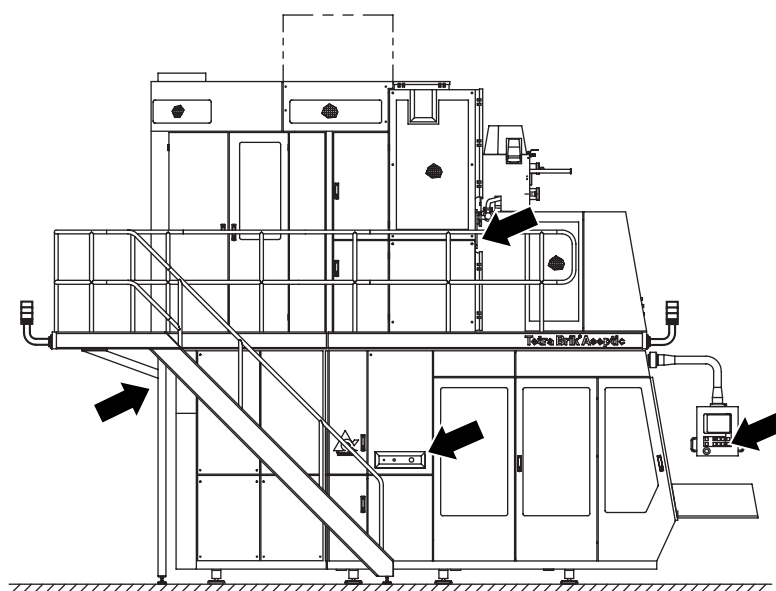
Emergency stop buttons

Learn the position of the **Emergency stop** buttons in order to stop the equipment immediately in case of danger to people or damage to the equipment.

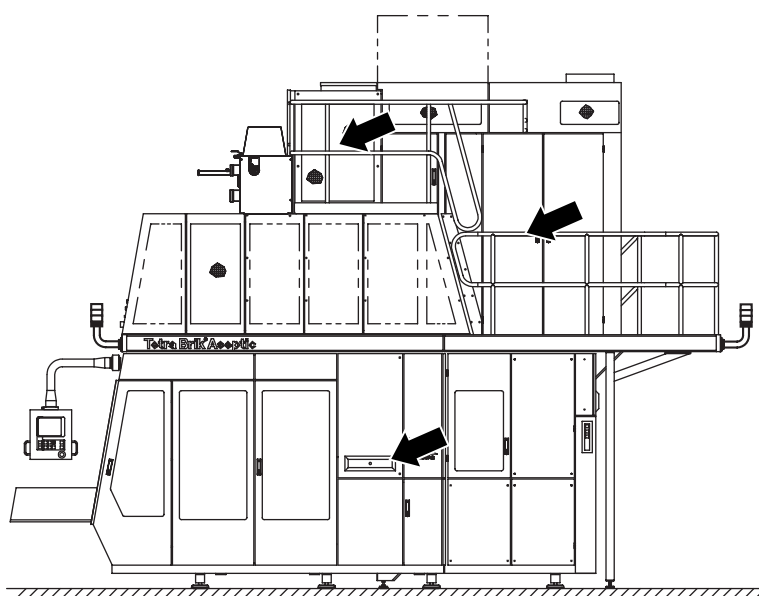
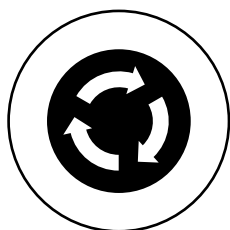
The **Emergency stop** buttons do not switch off the power at the mains power switch.

Pushing the **Emergency stop** buttons will reset the equipment program to **Zero** position and deactivate all pneumatic cylinders.

TBA/21 050V is shown



LH side



RH side

2 Safety precautions

Doors, covers and guards



WARNING!



WARNING!

Make sure that all doors, covers and guards are in place and functioning.

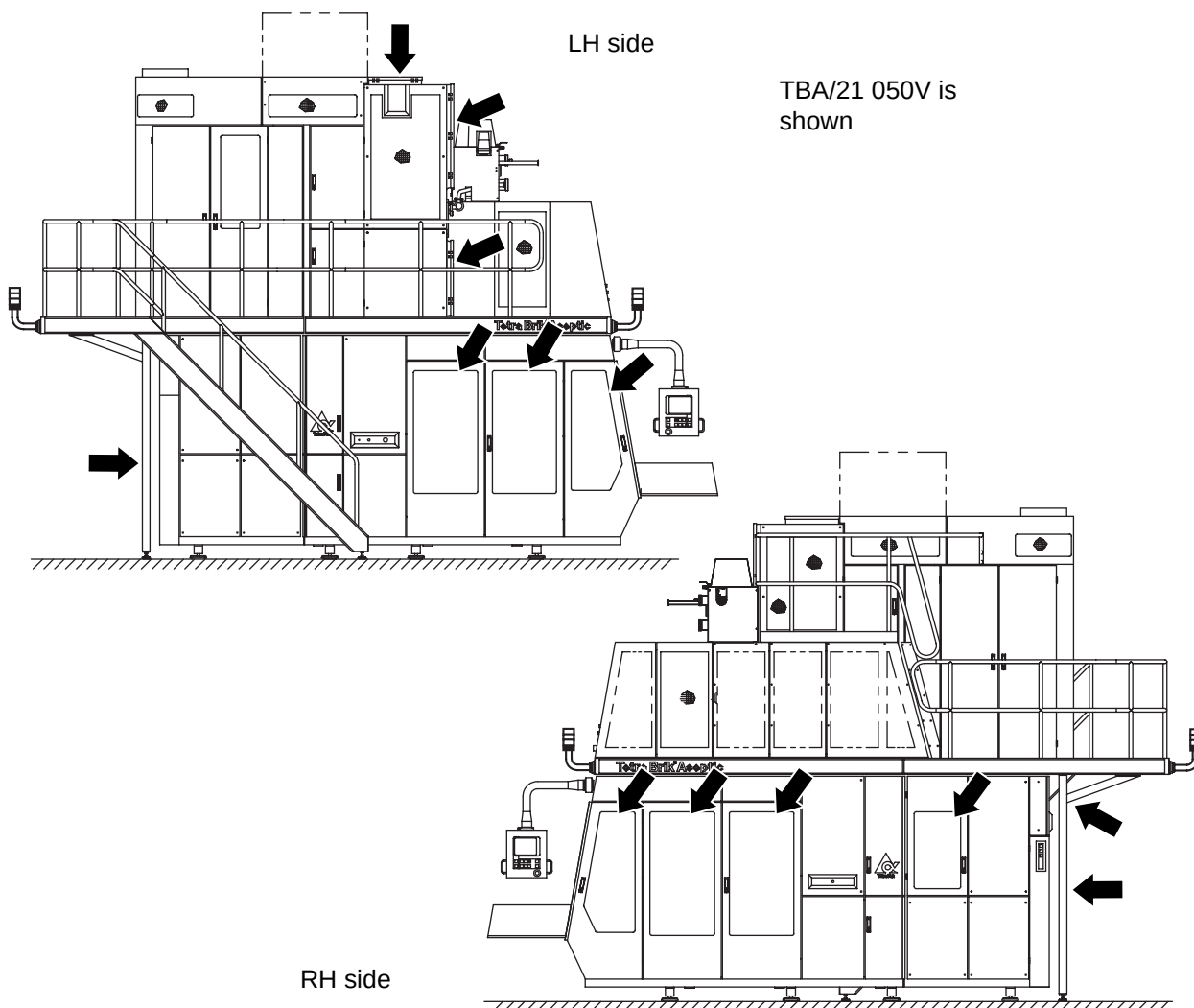
Never remove covers or guards while the equipment is operating.

Certain doors, covers and guards are fitted with safety switches. These switches are part of the safety system and must **never** be bridged, by-passed or otherwise made non-operational.

Never stop the equipment by opening a door or a cover fitted with a safety switch.

The equipment may perform a reciprocating movement during the first few seconds after a stop. Some equipment parts may also be hot.

In case of accident, call for medical attention.



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Cooling system (electrical cabinet - service unit)



Risk of personal injury!

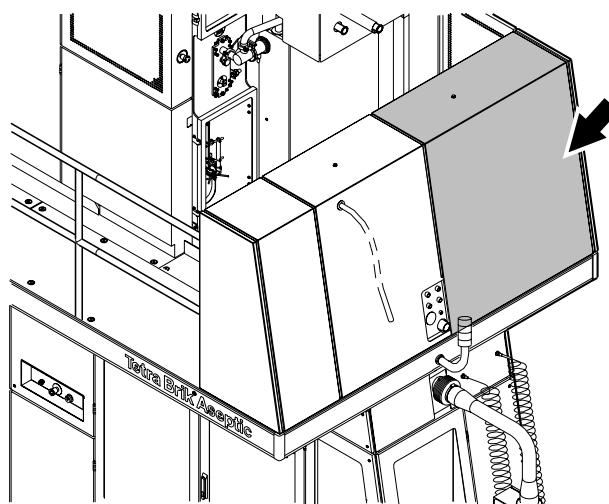
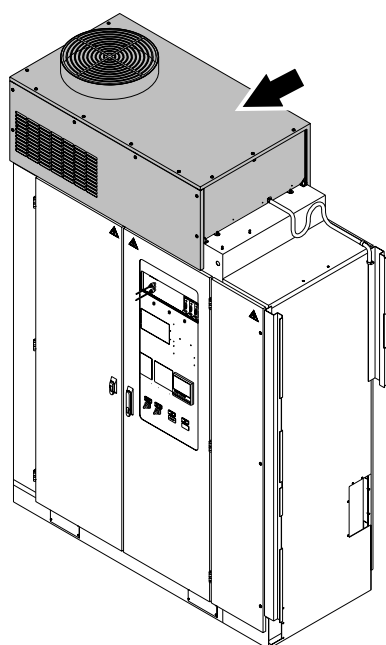
Cooling media R134A.

Carefully follow the supplier's instructions for handling and disposal of the R134A (freon).

Cooling media R134A container

- Ensure good ventilation
- Keep the container well closed and in a cool and dry place away from sources of heat
- Avoid direct contact with the product
- Wear suitable protective clothing, gloves, goggles, and eye/face protection
- In case of contact with eyes, rinse immediately with plenty of water for 15 minutes and call for medical attention
- Inhalation of a high concentration can cause shortage of breath and unconsciousness
- In case of inhalation move to fresh air; if needed use oxygen gas or artificial respiration
- Very fast evaporation can cause freezing injuries

Caution! Only specially trained personnel is allowed to operate with the compressor unit in case of compressor leakages.



TBA/21 050V is shown

Chemical products



Risk of personal injury!

Certain chemical products are toxic and/or inflammable. Carefully follow the instructions on the container label.

Follow the supplier's instructions for handling and disposal of the chemical products.

Personal protective equipment

- **Safety goggles**, TP No. 90303-0011
- **Apron**, TP No. 90303-0013
- **Shoes** made of PVC, PE plastic or rubber
- **Protective gloves** made of neoprene, TP No. 90303-0012

Before starting work with any chemical products, make sure that:

- the showers work
- a portable, TP No. 90303-6, or wall-mounted eyewash device is available at or near each machine site
- there are additional washing facilities



General emergency procedures

If you accidentally **swallow** chemical products, drink large amounts of lukewarm water.

If you get splashes or vapour from chemical products in your **eyes**, wash your eyes thoroughly with lukewarm water for 15 minutes (keeping eyelids wide apart).

If chemical products come into contact with **skin** or **clothes**:

- rinse immediately with plenty of water
- if skin burns appear, call for medical attention immediately
- thoroughly wash clothes before wearing them again

If you experience irritation or pain due to having **inhaled** chemical products vapour:

- leave the affected area and get some fresh air
- if the symptoms get worse, call for medical attention

Hydrogen peroxide

The liquid used for sterilising the packaging material consist of 35% hydrogen peroxide (H_2O_2).



WARNING!

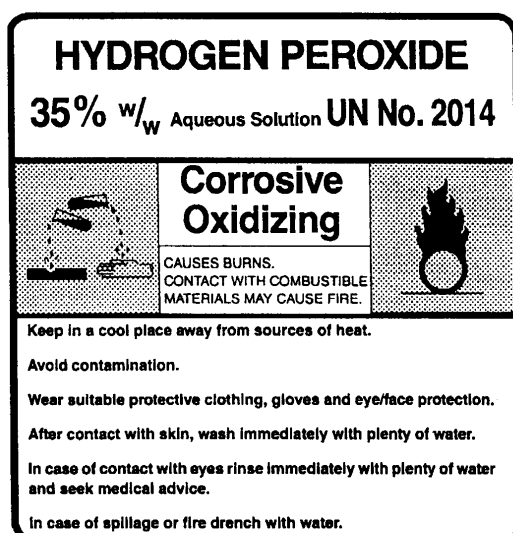
Hydrogen peroxide in liquid and gas form can cause irritation and injury if it comes into contact with the skin, mucous membranes, the eyes or clothes. Carefully follow the instructions on the can label.

Hydrogen peroxide can

HYDROGEN PEROXIDE:

- 35% w/w Aqueous Solution UN No. 2014
- Corrosive
- Oxidizing
- Causes burns. Contact with combustible materials may cause fire
- Keep in a cool place away from sources of heat
- Avoid contamination
- Wear suitable protective clothing, gloves, and eye/face protection
- After contact with skin, wash immediately with plenty of water and call for medical attention
- In case of contact with eyes, rinse immediately with plenty of water and call for medical attention
- In case of spillage or fire, drench with water

Reference: TP document No. M 1751.80



Example of can label

(Cont'd)

2 Safety precautions

(Cont'd)

Storage of hydrogen peroxide

Make sure that the area or room used for storage is:

- cool, clean and well ventilated
- shielded from direct sunlight
- free from combustible materials

Hydrogen peroxide must be stored only in its **original container** as delivered by the suppliers.

Keep the container upright and closed with a **proper ventilation cap** which allows oxygen to escape.

Pumps and other equipment used for hydrogen peroxide must be used **for this purpose only**.

Never put used hydrogen peroxide back into storage.

Disposal of hydrogen peroxide

Hydrogen peroxide should be sent for destruction by waste disposal specialists.



Risk of explosion!

Do not pour surplus hydrogen peroxide back into its original container. Hydrogen peroxide may decompose. In case of accident, call for medical attention immediately.

In some countries it is permitted to dilute hydrogen peroxide with water to a concentration below 1% and to dispose of it in the normal waste water drain. Hydrogen peroxide with a concentration below 1% is considered harmless.

2.2c 82410013sp.fm



WARNING!

Ink

Risk of personal injury!

Ink is inflammable and can be harmful if it comes into contact with the eyes or skin. Carefully follow the instructions on the container label.

Ink container

- INFLAMMABLE
- Avoid direct contact with the product
- Use gloves and goggles
- Care for good ventilation
- Propylene glycol mono methyl ether >30%
- Ethanol 1-5%
- SHAKE BEFORE USE



**BLACK MARKFLEX
MF 7011
INFLAMMABLE**

Avoid direct contact with
the product

Use gloves and goggles

Care for good ventilation

Propylene glycol mono
methyl ether >30%
Ethanol 1 - 5%

Manufacturer:
G-man AB
tel. 0410-59200
Trelleborg
SWEDEN

TP No. 90299-72

SHAKE BEFORE USE

Equipment for lifting and moving loads



Make sure that the capacity of the lifting equipment is adequate and that the equipment itself is in good working order.

If lifting tackle has to be joined to make up the necessary lengths, make sure that the joins are secure and have the same lifting capacity as the rest of the tackle.

Always engage the safety clip on lifting hooks to prevent the tackle from slipping off.

Use ropes or poles to steady and manoeuvre loads. Do **not** use hands or feet.

Make sure that the route and the destination are free from obstacles before moving a suspended load. It must be possible to lower the load to the floor quickly and safely in an emergency.

When depositing loads, keep the lifting equipment in place until the stability of the load has been checked.

3 Electrical system description

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Safety system 3-3

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Safety system

The safety system is controlled by three safety relay modules plus an emergency stop time relay to take advantage of an active breaking in the servo motor system. When the modules are not in a safety condition, the relay outputs contacts are logically true.

An emergency condition is created by pressing the emergency stop buttons. A safety condition is created by opening a door fitted with a safety switch, see the *Safety precautions* section.

To reset the machine from the emergency condition, release the emergency stop buttons and push **Alarm reset**.

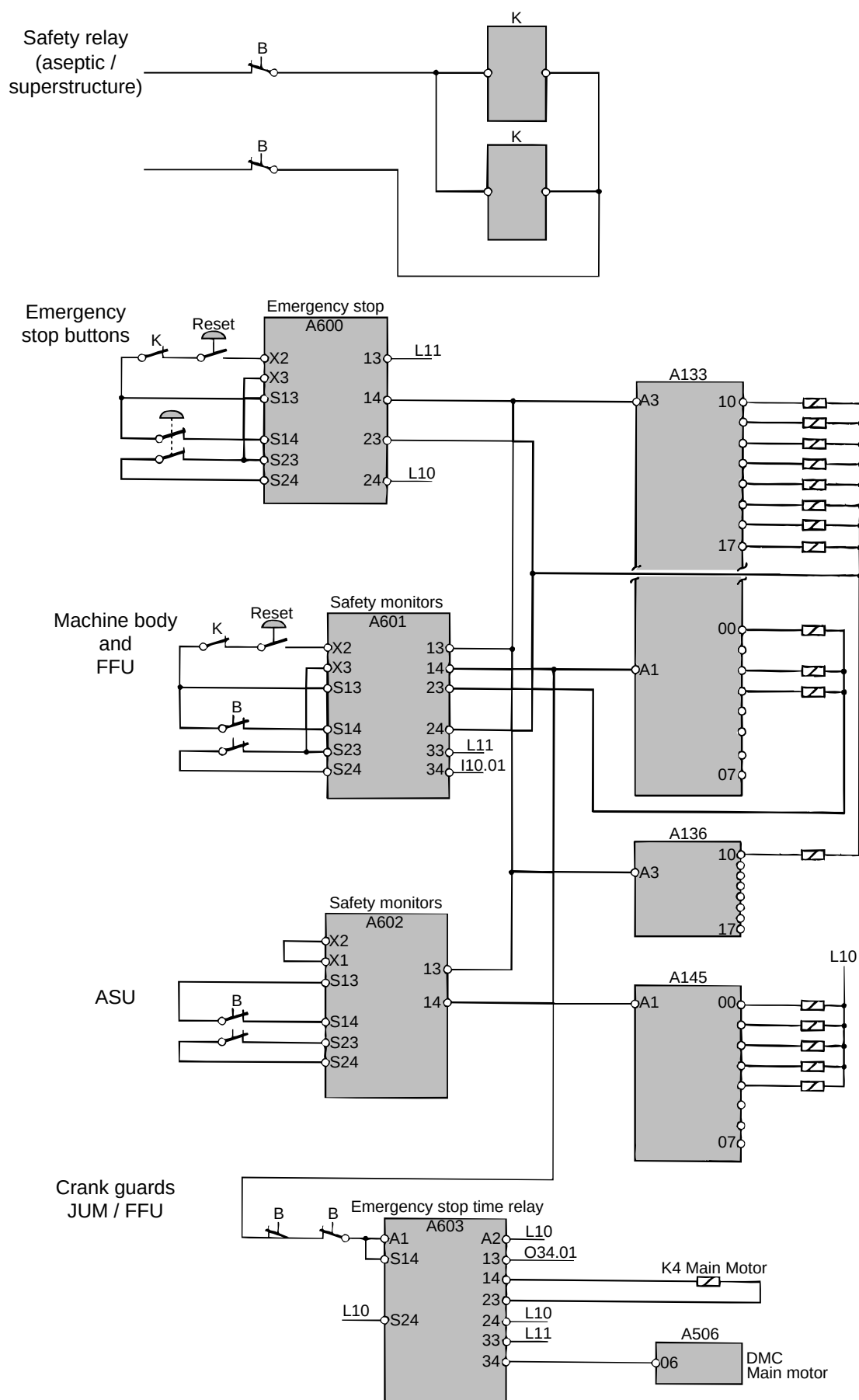
To reset the machine from the safety condition, close the door and push **Alarm reset**.

Some motors are provided with the double safety feature of electronic and electromechanical cutouts.

(Cont'd)

3 Electrical system description

(Cont'd)



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4 Component location

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Components on the machine 4-3

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Components on the machine

Comp.	Description	Drawing No.	Part n°	Option
A1304	Amplifier - level sensor filling system	4-595042-	5	
A7417	TPIH generator ASU / SA	4-595042-	3	
A7901	Mimic panel ASU	4-595042-	7	AS room
A951	Control panel TPOP remote unit	4-595042-	4	
B001	Temp. monitor HI spray	4-595042-	2	
B1102	Air pressure, separator	4-595042-	5	
B1103	Air pressure, aseptic chamber	4-595042-	5	
B1104	Level sensor seal water	4-595042-	5	
B1105	Temperature air super heater	4-595042-	5	
B1106	Heat sterilisation	4-595042-	5	
B1109	Temperature guard top	4-595042-	5	
B1111	Preheating valve	4-595042-	2	
B1201	Filling water	4-595042-	5	
B1208	Temperature water	4-595042-	2	
B1209	Temperature water heat exchanger	4-595042-	2	
B1210	Level sensor peroxide tank	4-595042-	6	
B1212	Temperature hydrogen peroxide tank	4-595042-	6	
B1220	Filling peroxide bath	4-595042-	2	
B1222	Temperature hydrogen peroxide bath	4-595042-	2	
B1224	Bottom cover closed 1	4-595042-	2	
B1225	Bottom cover closed 2	4-595042-	5	
B1230	Hydrogen peroxide - filling spray tank	4-595042-	2	
B1240	Lower forming ring	4-595042-	2	
B1241	Butterfly valve position 1	4-595042-	5	
B1242	Butterfly valve position 2	4-595042-	5	
B1301	A-valve position	4-595042-	1	
B1302	B-valve position	4-595042-	1	
B1303	C-valve position	4-595042-	1	
B1304	Level sensor filling system - sensor	4-595042-	2	
B1305	Cleaning sleeve position	4-595042-	4	
B1306	Cleaning pipe infeed in position	4-595042-	2	
B1307	Sterile air pipe position	4-595042-	2	
B1308	B-valve pipe position	4-595042-	2	
B1310	Steam temperature	4-595042-	1	
B1314	Magnetic floater	4-595042-	4	
B1315	Conductivity sensor	4-595042-	1	UPG CL
B1316	Flow meter	4-595042-	1	UPG CL
B1317	Cleaning pipe outfeed in position	4-595042-	4	
B1321	Regulating valve position	4-595042-	2	
B1322	Regulating valve leakage	4-595042-	2	

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4 Component location

Comp.	Description	Drawing No.	Part n°	Option
B1403	Packaging material splice detection in column	4-595042-	5	
B1404	Rotation guard column	4-595042-	2	
B1501	Feed packaging material	4-595042-	5	
B1502	Movable squee-gee roller	4-595042-	5	
B1504	Top door	4-595042-	5	
B1505	Top front door	4-595042-	5	
B1506	Bottom front door	4-595042-	2	
B2102	Cold water regular	4-595042-	1	
B2201	Air treatment	4-595042-	1	
B2310	Hydraulic oil filtration	4-595042-	4	
B2320	Hydraulic oil temperature (high / low level)	4-595042-	4	
B2330	Hydraulic unit low pressure	4-595042-	4	
B2401	Lubrication pressure	4-595042-	4	
B2410	Lubrication oil tank high level	4-595042-	4	
B2501	Circulation cooling water	4-595042-	1	
B2510	Cooling of circulation water	4-595042-	1	
B2520	Conductive sensor de-ionisation of circulation water	4-595042-	1	
B2540	Circulation cooling media - low / high pressure	4-595009-	1	
B2810	Door guard 10	4-595042-	6	
B2811	Door guard 11	4-595042-	6	
B2812	Door guard 12	4-595042-	6	
B2813	Door guard 13	4-595042-	6	
B2830	Door guard 30	4-595042-	4	
B2831	Door guard 31	4-595042-	4	
B2832	Door guard 32	4-595042-	4	
B2833	Door guard 33	4-595042-	4	
B3102	Pumping water	4-595042-	1	
B3105	Dosing chemicals	4-595042-	1	
B4001	Angle display	4-595042-	6	
B4102	Crank position jum	4-595042-	4	
B4103	Jaw system position	4-595042-	6	
B4104	Type of package	4-595042-	4	
B4106	Position machine drive	4-595042-	6	
B4200	Hold down device jum	4-595042-	6	
B4201	Overload protection left jaw	4-595042-	4	
B4202	Overload protection right jaw	4-595042-	6	
B43011	Design correction photocell bar code 3	4-595042-	4	
B43012	Design correction photocell bar code 4	4-595042-	4	
B4303	Position DCS, motor left	4-595042-	4	
B4305	Position DCS, motor right	4-595042-	6	
B4315	Home position left	4-595042-	4	
B4316	DMC home position right	4-595042-	6	
B5103	Home position	4-595042-	4	

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4 Component location

Comp.	Description	Drawing No.	Part n°	Option
B5104	Crank position FFU	4-595042-	4	
B5203	Infeed station rotation monitor	4-595042-	6	
B5302	Pressure device rotation monitor	4-595042-	6	
B5307	Temperature flap heating, top left	4-595042-	4	
B5308	Temperature flap heating, top right	4-595042-	4	
B5309	Temperature flap heating, bottom left	4-595042-	4	
B5314	Station wheel rotation monitor	4-595042-	4	
B5401	Outfeed station overload	4-595042-	4	
B5402	Package counter after FFU - receiver	4-595042-	4	
B5403	Package counter after FFU - sender	4-595042-	6	
B5501	Congestion guard external conveyor - receiver	4-595042-	4	
B5502	Congestion guard external conveyor - sender	4-595042-	6	
B5601	Package counter last point DE 1	4-595042-	4	
B5602	Package counter last point DE 1	4-595042-	4	
B6105	Packaging material splice detection in ASU	4-595042-	7	
B6107	Rotation guard SA	4-595042-	7	
B6201	Indicate strip end bobbin 1	4-595042-	7	
B6202	Indicate strip end bobbin 2	4-595042-	7	
B6207	Strip break	4-595042-	7	
B6208	Strip break rotation monitor	4-595042-	7	
B72101	Loop empty - sender	4-595042-	7	
B72102	Loop empty - receiver	4-595042-	7	
B72111	Adjustment loop - sender	4-595042-	7	
B72112	Adjustment loop - receiver	4-595042-	7	
B72232	Magazine down	4-595042-	3	
B72233	Magazine upper	4-595042-	3	
B72234	Magazine empty	4-595042-	3	
B74011	Packaging material reel 1 empty - sender	4-595042-	7	
B74031	ASU bar code 3	4-595042-	7	
B74032	ASU bar code 4	4-595042-	7	
B7411	Material holder 1 down	4-595042-	7	
B7412	Side feeder position 1	4-595042-	7	
B7414	Material holder 2 down	4-595042-	3	
B7423	Material holder 1 up	4-595042-	7	
B7424	Material holder 2 up	4-595042-	3	
B75011	Packaging material reel 2 empty - sender	4-595042-	3	
B7512	Side feeder position 2	4-595042-	3	
B7801	Mechanical guard 17	4-595042-	7	
B7805	Door guard 21 ASU top	4-595042-	3	
B7806	Door guard 22 ASU line 1	4-595042-	7	
B7807	Door guard 22 ASU line 2	4-595042-	3	
B9104	HI pressure guard	4-595042-	6	HI
B9106	Temperature monitor HI spray	4-595042-	2	

4 Component location

Comp.	Description	Drawing No.	Part n°	Option
B9107	No HI	4-595042-	5	HI
B9108	HI spray nozzle	4-595042-	5	HI
B9109	HI cleaning	4-595042-	5	HI
B9110	HI production	4-595042-	5	HI
B9113	HI level sensor peroxide spray tank	4-595042-	2	HI
C1314	I / P transducer	4-595042-	1	
E2001	Left side	4-595042-	4	
E2002	Right side	4-595042-	6	
E7702	Lighting ASU	4-595042-	4	
E7704	Lighting splice table	4-595042-	7	
E7705	Lighting ASU front	4-595042-	7	
H2801	Beacon lamp front	4-595042-	4	
H2802	Beacon lamp back	4-595042-	3	
H7703	Hooter	4-595042-	3	
H7901	Alarm reset lamp test	4-595042-	7	
H7902	Hooter platform	4-595042-	3	
K1001	Filling machine ready for CIP	4-595042-		
K1003	Machine ready prod.	4-595042-		
K1004	Steam C-valve ok	4-595042-		
K1005	CIP communication out 2	4-595042-		
K2000	Filling machine in production (start external conveyor)	4-595042-		
K7416	Inductor switch ASU / SA	4-595042-	3	
L1402	Inductor LS	4-595042-	2	
L4309	Inductor TS left	4-595042-	4	
L4310	Inductor TS right	4-595042-	6	
L6101	Inductor SA	4-595042-	7	
L7417	Inductor ASU	4-595042-	7	
M1101	Compressor	4-595042-	5	
M1205	Water pump	4-595042-	2	
M1206	Peroxide heat exchanger, water circulation pump	4-595042-	2	
M1213	Hydrogen peroxide bath	4-595042-	6	
M1501	Feed packaging material	4-595042-	2	
M2301	Hydraulic pump	4-595042-	4	
M2501	Circulation cooling water	4-595042-	1	
M2540	Circulation cooling media	4-595042-	1	
M3102	Cleaning pump	4-595042-	1	
M4105	Machine drive	4-595042-	6	

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4 Component location

Comp.	Description	Drawing No.	Part n°	Option
M4107	Fan, servo motor	4-595042-	6	
M4302	Top forming, left side	4-595042-	4	
M4304	Top forming, right side	4-595042-	6	
M5503	Transportation of waste	4-595042-	4	
M7208	Drive roller 3	4-595042-	7	
M7217	Drive roller 7	4-595042-	7	
Q100	Main switch	4-595042-	1	
R1105	Air super heater	4-595042-	5	
R1206	Heating 1 water	4-595042-	2	
R1207	Heating 2 water	4-595042-	2	
R1208	Peroxide tank heater 1	4-595042-	2	
R1209	Peroxide tank heater 2	4-595042-	2	
R1501	Drive roller aseptic chamber	4-595042-	5	
R5307	Flap heating, top left	4-595042-	4	
R5308	Flap heating, top right	4-595042-	4	
R5309	Flap heating, bottom left	4-595042-	4	
R6203	Splicing head	4-595042-	7	
R7417	TPIH generator resistance	4-595042-	3	
R74181	Potentiometer ASU / SA	4-595042-	3	
R74182	Resistance ASU / SA	4-595042-	3	
S1003	Top platform	4-595042-	5	
S1801	Front platform	4-595042-	1	
S1802	Top platform	4-595042-	5	
S2803	Right side panel	4-595042-	6	
S2804	Left side panel	4-595042-	4	
S6206	Manual start ASSU	4-595042-	7	
S7303	Material lock	4-595042-	3	
S7402	Manual start ASU	4-595042-	7	
S7701	Short stop	4-595042-	7	
S7813	ASU back	4-595042-	3	
S7901	Alarms reset lamp test	4-595042-		AS room
T1304	Level sensor filling system - transformer	4-595042-	2	
T1402	Transformer	4-595042-	2	
T4309	Transformer	4-595042-	4	
T4310	Transformer	4-595042-	6	
T6101	Transformer	4-595042-	7	
T6203	Transformer 1-phase	4-595042-	3	
T7417	Transformer	4-595042-	7	

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4 Component location

Comp.	Description	Drawing No.	Part n°	Option
V1501	Drive roller aseptic chamber	4-595042-	5	
X4001	Test socket	4-595042-	6	
X001	Terminal	4-595042-	1	
X1001	Terminal	4-595042-	5	
X1003	Terminal	4-595042-	5	
X1053	Terminal	4-595042-	2	
X1250	Terminal	4-595042-	2	
X1251	Terminal	4-595042-	2	
X1300	Terminal	4-595042-	5	
X1301	Terminal	4-595042-	5	
X1302	Terminal	4-595042-	5	
X1303	Terminal	4-595042-	2	
X1304	Terminal	4-595042-	6	
X1305	Terminal	4-595042-	2	
X1306	Terminal	4-595042-	2	
X1307	Terminal	4-595042-	1	
X1314	Terminal	4-595042-	1	
X1402	Terminal	4-595042-	2	
X2000	Terminal	4-595042-	6	
X2001	Terminal	4-595042-	6	
X2003	Terminal	4-595042-	1	
X2038	Terminal	4-595042-	1	
X2050	Terminal	4-595042-	1	
X2051	Terminal	4-595042-	1	
X2062	Terminal	4-595042-	6	
X2241	Terminal	4-595042-	6	
X2242	Terminal	4-595042-	6	
X2243	Terminal	4-595042-	6	
X2244	Terminal	4-595042-	6	
X2320	Terminal	4-595042-	4	
X4000	Terminal	4-595042-	4	
X4050	Terminal	4-595042-	4	
X4051	Terminal	4-595042-	6	
X4054	Terminal	4-595042-	4	
X4055	Terminal	4-595042-	4	
X4056	Terminal	4-595042-	6	
X4057	Terminal	4-595042-	6	
X4058	Terminal	4-595042-	4	
X4070	Terminal	4-595042-	4	
X4071	Terminal	4-595042-	4	
X4072	Terminal	4-595042-	6	
X4073	Terminal	4-595042-	6	

EM3.0TB045002en.fm

4 Component location

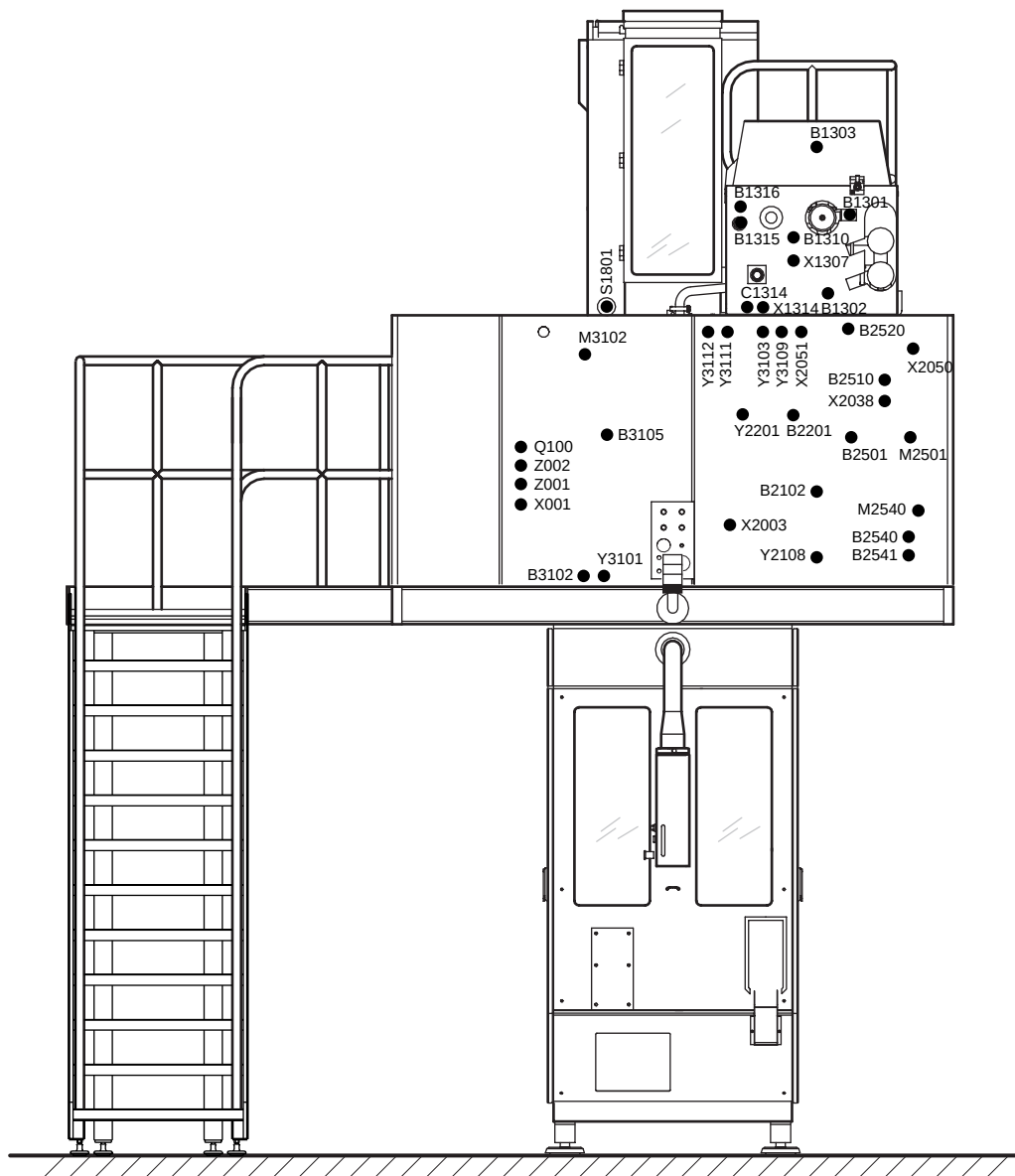
Comp.	Description	Drawing No.	Part n°	Option
X4100	Terminal	4-595042-	6	
X4306	Terminal	4-595042-	4	
X4307	Terminal	4-595042-	4	
X4308	Terminal	4-595042-	4	
X4309	Terminal	4-595042-	4	
X4311	Terminal	4-595042-	4	
X4312	Terminal	4-595042-	4	
X5002	Terminal	4-595042-	4	
X5003	Terminal	4-595042-	4	
X5004	Terminal	4-595042-	4	
X5006	Terminal	4-595042-	4	
X5007	Terminal	4-595042-	4	
X5008	Terminal	4-595042-	4	
X5601	Terminal	4-595042-	4	
X6050	Terminal	4-595042-	7	
X7001	Terminal	4-595042-	3	
X7050	Terminal	4-595042-	3	
X7051	Terminal	4-595042-	7	
X7901	Terminal	4-595042-	7	AS room
X79011	Terminal	4-595042-	7	AS room
X79012	Terminal	4-595042-	7	AS room
X9100	Terminal	4-595042-	6	HI
X9106	Terminal	4-595042-	2	HI
Y1104	Seal water	4-595042-	5	
Y1105	Cooling water bath	4-595042-	5	
Y1107	Heat exchanger valve step 1	4-595042-	2	
Y1108	Heat exchanger valve step 2	4-595042-	2	
Y1111	Preheating valve	4-595042-	2	
Y1112	Reference point	4-595042-	2	
Y1210	Filling peroxide tank	4-595042-	6	
Y1220	Peroxide bath filling	4-595042-	4	
Y1221	Peroxide bath draining	4-595042-	2	
Y1230	Filling spray tank	4-595042-	2	
Y1231	Spraying	4-595042-	2	
Y1241	Butterfly valve	4-595042-	2	
Y1303	C-valve	4-595042-	2	
Y1312	A-valve position closed	4-595042-	2	
Y1323	B-valve	4-595042-	2	
Y1401	Movable lower forming ring	4-595042-	2	
Y1501	Feed packaging material	4-595042-	2	
Y1502	Movable squee-gee roller	4-595042-	2	
Y1601	Tab folder	4-595042-	2	

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4 Component location

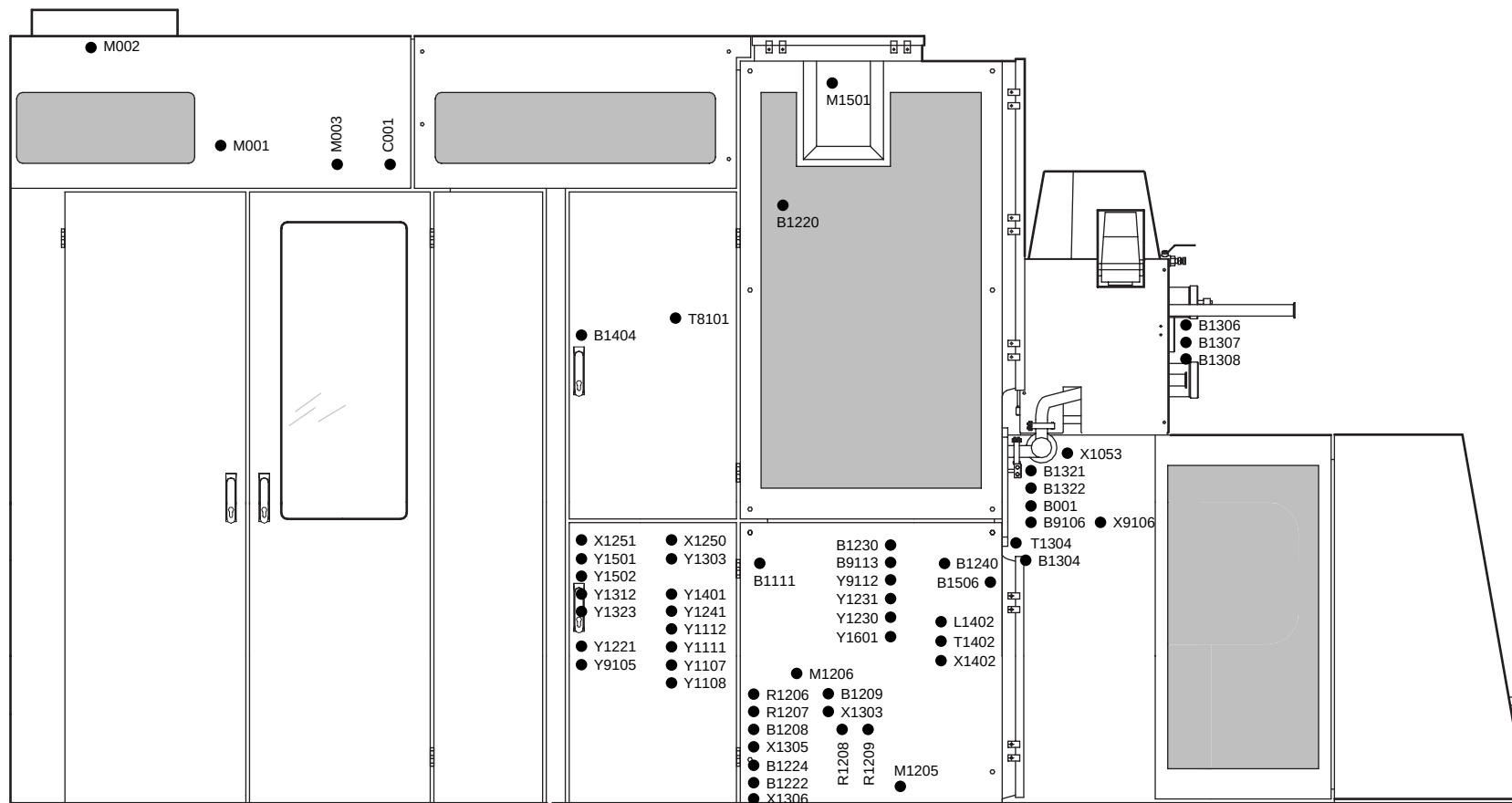
Comp.	Description	Drawing No.	Part n°	Option
Y2106	Tube flusher	4-595042-	4	
Y2108	Flushing FFU	4-595042-	1	
Y2201	Air treatment	4-595042-	1	
Y2401	Lubricant pump	4-595042-	4	
Y3101	Hot water supply	4-595042-	1	
Y3103	Flushing	4-595042-	1	
Y3105	Dosing chemicals / air tubeflushing	4-595042-	4	
Y3109	Foaming	4-595042-	1	
Y3111	Jaw system cleaning	4-595042-	1	
Y3112	FFU cleaning	4-595042-	1	
Y4100	Connection of jaw system	4-595042-	6	
Y4101	Stop of jaw system	4-595042-	6	
Y4200	Hold down device jum	4-595042-	4	
Y4306	Jaw pressure left	4-595042-	4	
Y4307	Jaw pressure right	4-595042-	4	
Y4308	Jaw pressure left off	4-595042-	4	
Y4309	Jaw pressure right off	4-595042-	4	
Y4311	Cutting left	4-595042-	4	
Y4312	Cutting right	4-595042-	4	
Y5306	Flap heating air, FFU	4-595042-	4	
Y5315	Preblowing, FFU	4-595042-	4	
Y5501	Drop chute, FFU	4-595042-	4	
Y5504	Outfeed of waste in front, FFU	4-595042-	4	
Y6203	Moving of the splicing head	4-595042-	3	
Y6205	Cool strip seal	4-595042-	3	
Y7303	Lock cylinder 1	4-595042-	3	
Y7315	Lock cylinder 2	4-595042-	3	
Y7407	Web tension	4-595042-	3	
Y7408	Pressure rail	4-595042-	3	
Y7410	Cutting	4-595042-	3	
Y7411	Material holders	4-595042-	3	
Y7412	Side feeder 1-2	4-595042-	3	
Y7413	Side feeder 2-1	4-595042-	3	
Y7425	Ventilating valve	4-595042-	3	
Y9101	Air / N2 supply	4-595042-	6	HI
Y9102	HI by-pass	4-595042-	6	HI
Y9103	HI on / off	4-595042-	6	HI
Y9105	HI injection	4-595042-	2	HI
Y9112	HI spray peroxide	4-595042-	2	HI
Z001	Power line filter	4-595042-	1	
Z002	Overvoltage protector filter	4-595042-	1	
Z004		4-595042-		

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Component location on the machine

Designer: MRI Date: 010208 Mach.: TBA/21 0500 4-595042-0000 001
 Approval: PGN Date: 010208 ECM 85498 Version 02



Component location on the machine

Designer: MRI

Date: 010208

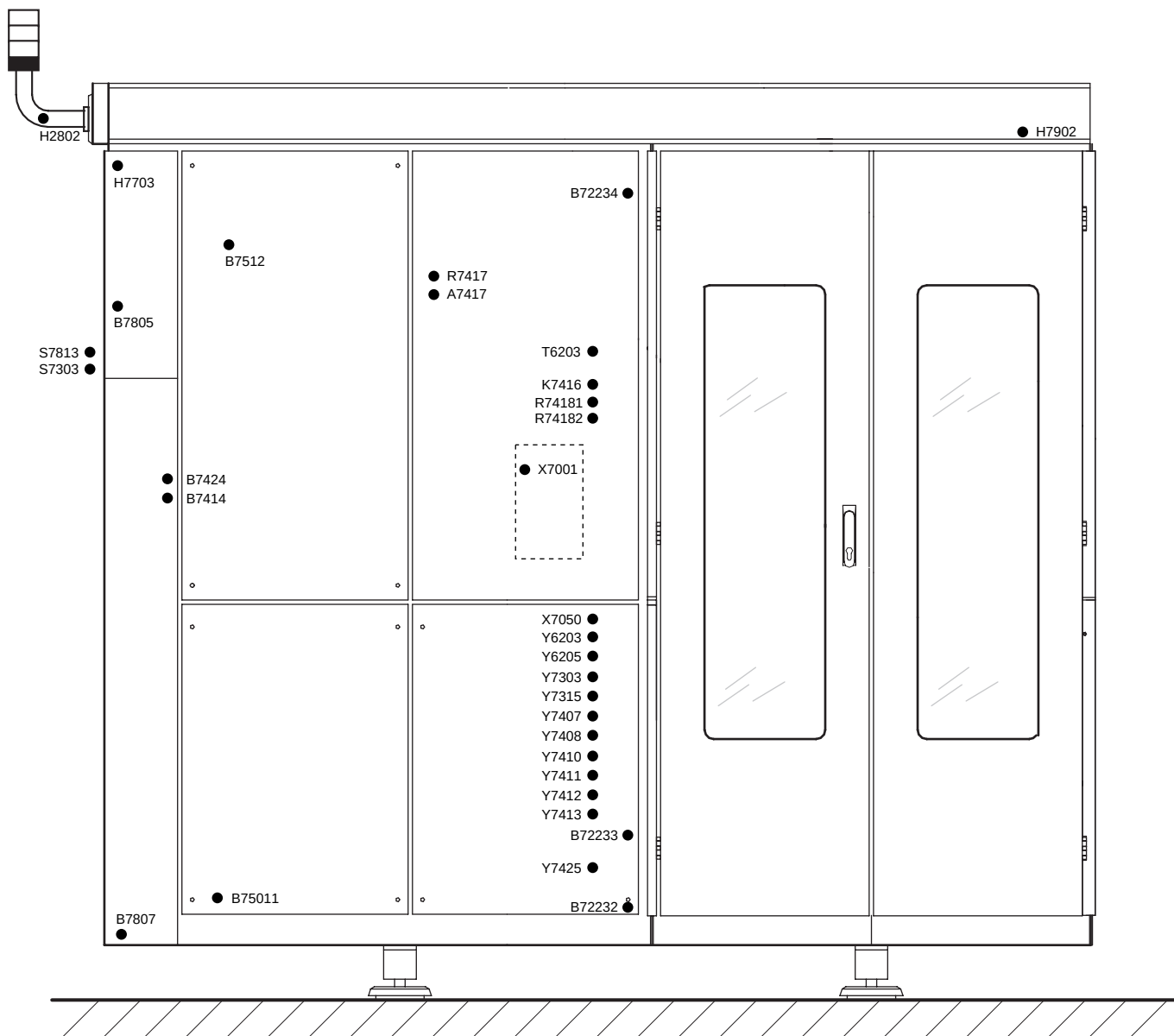
Mach.: TBA/21 0500

Approval: PGN

Date: 010208

4-595042-0000 002

ECM 85498 Version 02



Component location on the machine

Designer: MRI

Date: 010208

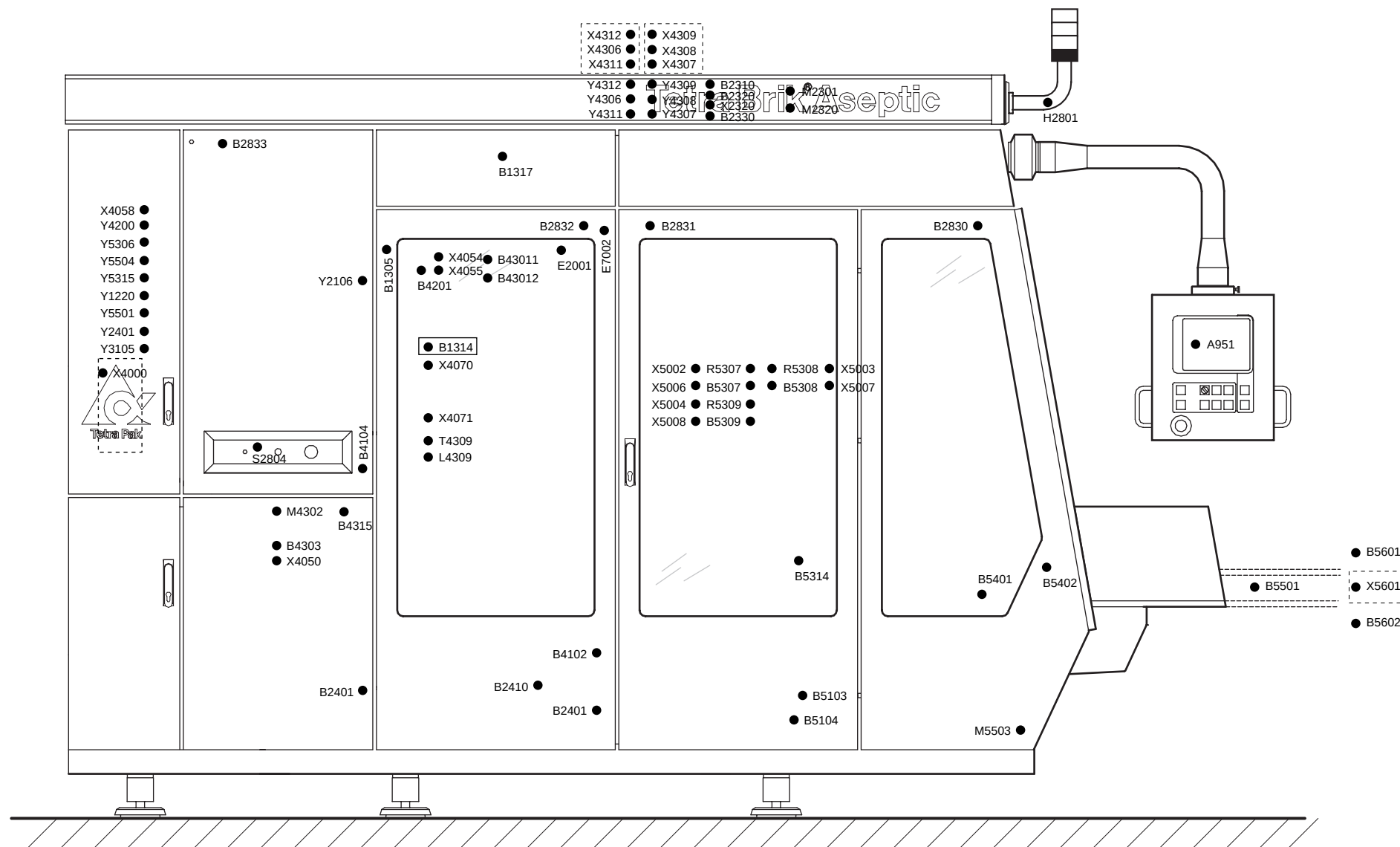
Mach.: TBA/21 0500

Approval: PGN

Date: 010208

4-595042-0000 003

ECM 85498 Version 02



Component location on the machine

Designer: MRI

Date: 010208

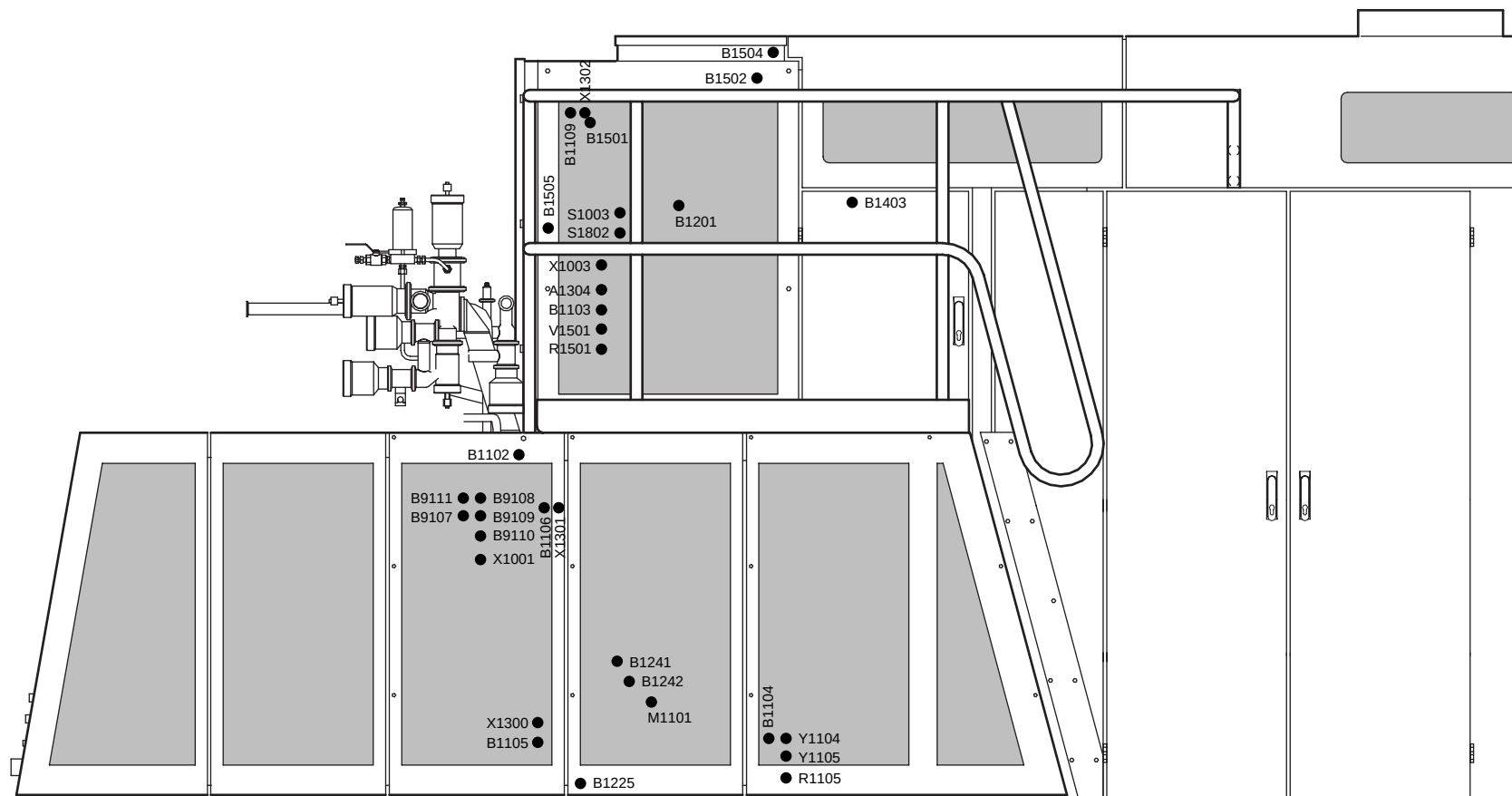
Mach.: TBA/21 0500

4-595042-0000 004

Approval: PGN

Date: 010208

ECM 85498 Version 02



Component location on the machine

Designer: MRI

Date: 010208

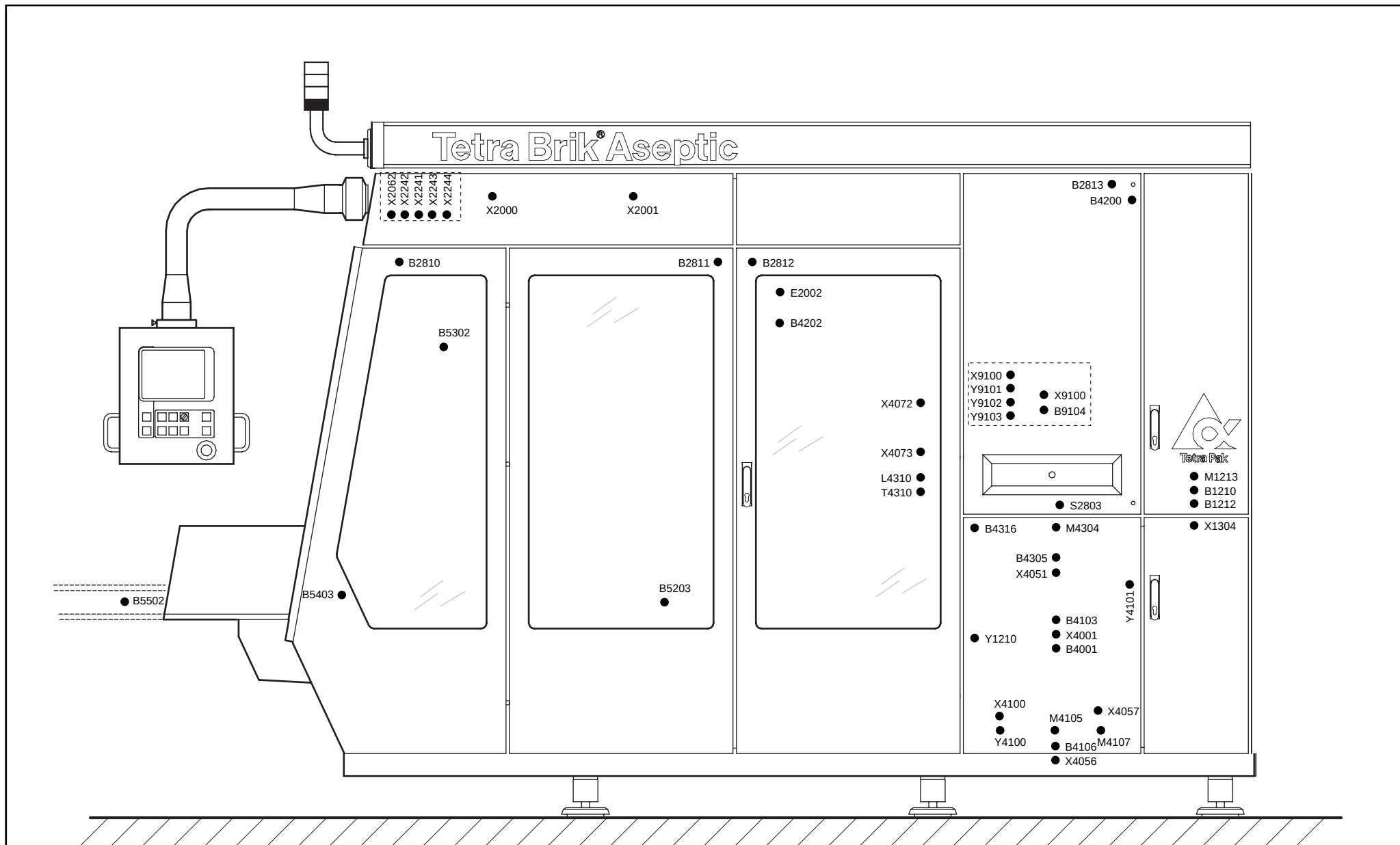
Mach.: TBA/21 0500

Approval: PGN

Date: 010208

4-595042-0000 005

ECM 85498 Version 02



Component location on the machine

Designer: MRI

Date: 010208

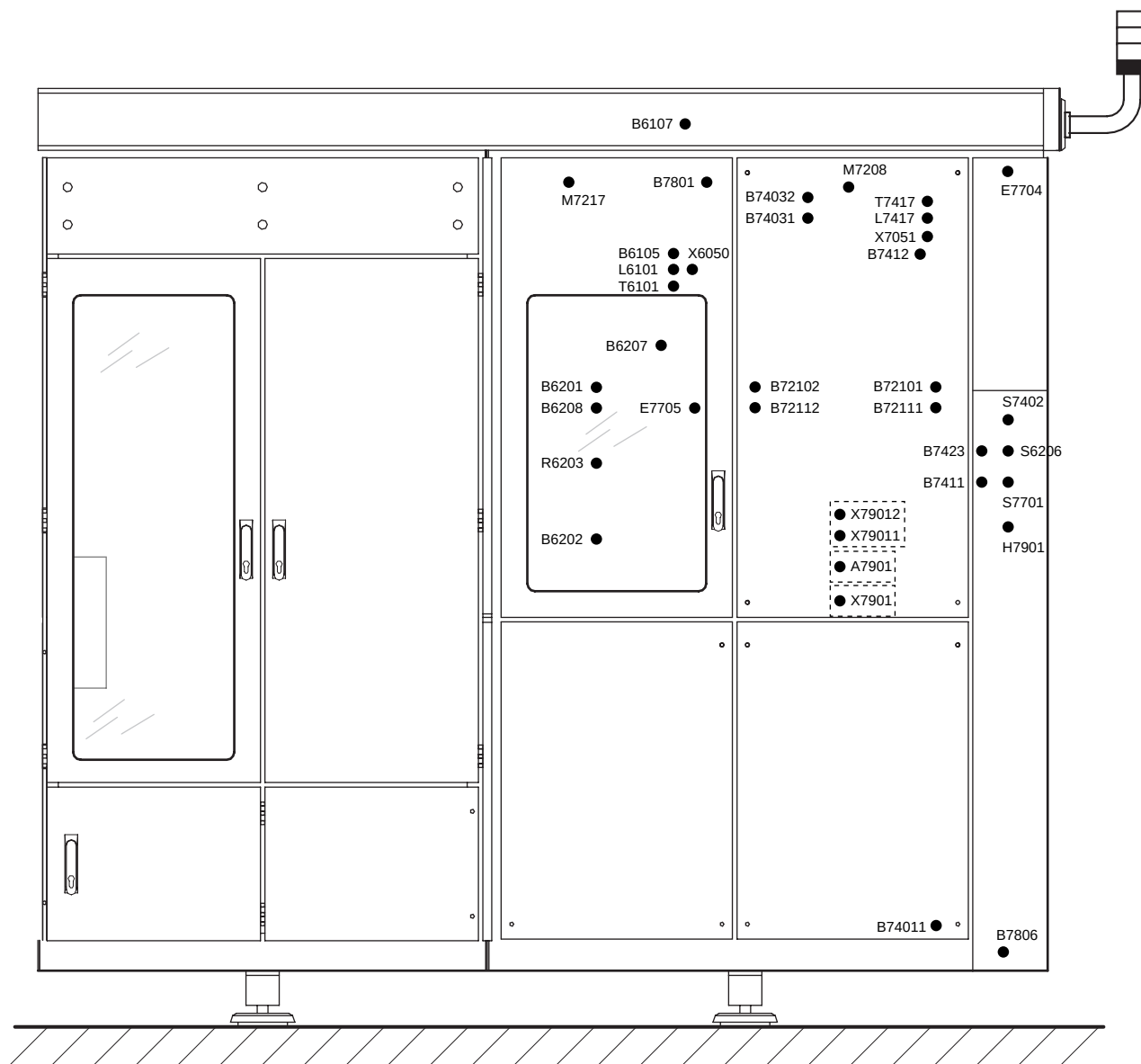
Mach.: TBA/21 0500

Approval: PGN

Date: 010208

4-595042-0000 006

ECM 85498 Version 02



Component location on the machine

Designer: MRI

Date: 010208

Mach.: TBA/21 0500

Approval: PGN

Date: 010208

4-595042-0000 007

ECM 85498 Version 02

5 Engineering change description

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Table of contents

Engineering change description. 595013

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Ecn No	Drawing No	Alteration
71072	-	DOCUMENTATION RELEASED (TBA/21-0500)
72689	-	DOCUMENTATION UPDATING FOR PRODUCTION
		FOR CHANGES ON LISTS SEE APPENDIX
	44711-002:02	POSITION SUMMARY: CHANGED ACCORDING TO
		UPDATE CIRCUIT DIAGRAM
	44711-003:02	LINE SUMMARY: CHANGED ACCORDING TO
		UPDATE CIRCUIT DIAGRAM
	44711-004:02	TERMINAL SUMMARY: CHANGED ACCORDING TO
		UPDATE CIRCUIT DIAGRAM
	44711-016:02	AS CONNECTION REFERENCE IS MOVED ON A410:6.
		CABLE W204 IS ERASED.
		WIRE'S REFERENCE FOR THE CABLE W200 ARE
		ADDED.
		DELTA CONNECTION IS ADDED ON THE M1501.
		X1003:E19 IS ADDED.
	44711-017:02	CABLES W206, W208 ARE ERASED.
		WIRE'S REFERENCE FOR THE CABLES W201 AND
		W202 ARE ADDED.
		DELTA CONNECTION IS ADDED ON THE M7208 AND
		M7217.
	44711-019:02	CONNECTION REFERENCE BO IS ERASED.
	44711-025:02	COLOR OF THE WIRE CONNECTION FROM F010:2 IS
		NOW BLACK.
		X003:113 IS NOW X003:14.
	44711-046:02	X1001:E1 IS ADDED.
	44711-047:02	X1003:E7 IS ADDED.
	44711-049:02	X1003:E20 IS ADDED.
	44711-050:02	CONNECTION REFERENCE GH, GG AND GJ ARE
		NOW RIGHT CONNECTION.
	44711-053:02	CONNECTION REFERENCE AX AND BO ARE ADDED.
	44711-054:02	CONNECTION REFERENCE CI, CP, CR AND CV ARE
		ADDED.

Company: Tetra Brik Packaging System S.p.a.

ECN: 73362

Issued by/Date: AMI/010130

Approved/Date: PGE/010130

Version:04

Engineering Change Description

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Ecn No	Drawing No	Alteration
	44711-056:02	CHAIN REFERENCE ARE ADDED.
	44711-087:02	CABLE W175 IS ADDED.
	44711-088:02	CABLE W176 IS ADDED.
	44711-095:02	CONNECTION REFERENCE DQ IS MOVED. WIRE'S REFERENCE FOR THE CABLE W128 AND W129 IS ADDED.
	44711-096:02	CABLE W177 IS ADDED.
	44711-097:02	WIRE'S REFERENCE FOR THE CABLE W120, W121, W122 AND W123 IS ADDED. CABLE W178 IS ADDED.
	44711-098:02	WIRE'S REFERENCE FOR THE CABLE W124, W125, W126 AND W127 IS ADDED.
	44711-103:02	OPTION IS ADDED IN A114:04
	44711-110:02	CONNECTION REFERENCE AX AND BO ARE ADDED.
	44711-115:02	CONNECTION REFERENCE CV IS ADDED.
	44711-119:02	THE NAME OF THE PINS OF THE COMPONENT B1103 ARE NOW RIGHT.
	44711-121:02	X6001:116,116+,116- ARE ERESED. B1242 IS NOW CONNECTED ON THE A123:09.
	44711-151:02	CONNECTION REFERENCE BO IS ERASED.
	44711-153:02	TEXTS CHANGED.
	44711-155:02	CONNECTION REFERENCE CI, CP AND CR ARE ADDED.
	44711-157:02	Y1226 IS CHANGED IN Y1241.
	44711-164:02	TEXT IS ADDED.
	44711-070:02	CHAIN REFERENCE ARE ADDED.
	44711-900:02	X002:23 IS NOW FREE. THE X121 EARTH WIRE HAS NOW SECTION 1,5mm2
	44711-901:02	X002:101 AND 102 ARE NOW FREE. X126 AND X127 ARE ADDED.
	61815:101:02	W2040 COLOR WIRE ARE NOW BN AND L.BU
	61815-103:02	W1051:YG IS NOW CONNECT ON THE B1316.
	61815-105:02	W1015:YG IS NOW CONNECT ON THE B1104.

Company: Tetra Brik Packaging System S.p.a.
ECN: 73362
Issued by/Date: AMI/010130
Approved/Date: PGE/010130
Version:04

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Ecn No	Drawing No	Alteration
	61815-106:02	TEXT CHANGED. CONNECTION MOVED BETWEEN X1001:E5 AND X1001:127-.
	61815-108:02	X1003:E19 AND X1003:E20 ARE ADDED. W1065:YG IS NOW CONNECED ON THE B1322. W9113:YG IS NOW CONNECTED ON THE B9113.
	61815-109:02	X1003:E12 ANDE13 ARE ADDED AND CONNECTED ON THE Y1230 AND Y1231.
	61815-110:02	B1103 IS CHANGED IN ACCORDING WITH THE CIRCUIT DIAGRAM. X1003:E15 IS ADDED.
	61815-111:02	CORRECTIONS IN THE X1003:160+ AND 160- REFERENCES.
	61815-113:02	Y1226 IS CHANGED IN Y1241.
	61815-114:02	Y1323 AND Y1311 ARE CHANGED IN ACCORDING WITH THE CIRCUIT DIAGRAM.
	61815-203:02	DISCONNECT THE EARTH WIRE IN ALL THE COMPONENTS.
	61815-207:02	CORRECTIONS.
	61815-210:02	B2102 AND B2201 ARE CHANGED IN ACCORDING WITH THE CIRCUIT DIAGRAM.
	61815-401:02	W4110:2 IS NOW CONNECTED.
	61815-407:02	RED AND YELLOW REFERENCEON THE X1304 ARE ERASED.
	61815-503:02	X2000:E12, X214:E1 ARE ADDED AND CONNECTED.
	61815-705:02	CORRECTION.
	61815-707:02	W7028, W7902, W7901, W7903, X7901, H7901, H7902 AND A7901 ARE ADDED LIKE OPTIONAL EQUIPMENT.
	61815-904:02	W2068 IS CHANGED.
	61815-906:02	X2000:E11, E12 ARE ERASED.
	595013-0001 (02)	ENGINEERING CHANGE DESCRIPTION: CHANGED ACCORDING THIS ECN.
72992	EM-81500-0101 -	ELECTRICAL MANUAL IS RELEASED FOR CHANGES ON LISTS SEE APPENDIX

Company: Tetra Brik Packaging System S.p.a.

ECN: 73362

Issued by/Date: AMI/010130

Approved/Date: PGE/010130

Version:04

Engineering Change Description

4-595013-0001

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Ecn No	Drawing No	Alteration
	48246-000:01	PLC PROGRAM HAS BEEN RELEASED
	44711-002:03	POSITION SUMMARY IS CHANGED ACCORDING TO UPDATE CIRCUIT DIAGRAM
	44711-003:03	LINESUMMARY IS CHANGED ACCORDING TO UPDATE CIRCUIT DIAGRAM
	44711-004:03	TERMINAL SUMMARY IS CHANGED ACCORDING TO UPDATE CIRCUIT DIAGRAM
	44711-006:03	UNDER FO12 AND UNDER F011, THE WIRE'S SIZE IS CHANGED
	44711-014:03	TEXT IS CHANGED ON L7417
	44711-016:03	COMPONENTS Z020 AND Z021 ARE ADDED. RELAY'S CONTACT K100 IS ADDED. TEXT IN CABLE'S WIRE W200 IS CHANGED. TEXTS ON B1316 ARE CHANGED.
	44711-017:03	COMPONENTS Z022, Z023, Z024 AND Z025 ARE ADDED. TEXT IN WIRE'S CABLE W201 AND W202 ARE CHANGED.
	44711-036:03	TEXT ON P003 IS CHANGED.
	44711-049:03	TEXTS ERASED ON B9113.
	44711-050:03	TEXTS CHANGED ON A414 AND ON B1315.
	44711-052:03	CONNECTION REFERENCE (FC) AND (FB) ARE ADDED.
	44711-053:03	CONNECTION REFERENCE (FB), (FC), (RC) AND (RE) ARE ADDED.
	44711-054:03	COMPONENT B1314 IS ADDED. CONNECTION REFERENCE (BX) AND (BY) ARE ADDED.
	44711-056:03	CHAIN'S REFERENCE AND CONNECTION'S LINE ARE ERASED. CONNECTION REFERENCE (DG), (DI), (DN) AND (DU) ARE ADDED.

Company: Tetra Brik Packaging System S.p.a.

ECN: 73362

Issued by/Date: AMI/010130

Approved/Date: PGE/010130

Version:04

Engineering Change Description

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Ecn No	Drawing No	Alteration
	44711-059:03	BRIDGE CONNECTION BETWEEN X2000:129 AND X2000:130 IS ADDED
	44711-062:03	REFERENCE CHAIN IS ADDED.
	44711-079:03	CABLE W104 IS ADDED.
	44711-103:03	TEXT CHANGED. INPUT 115 AND 117 ARE NOW SPARE.
	44711-104:03	OPTION ADDED IN INPUT 127.
	44711-108:03	TEXT CHANGED.
	44711-109:03	TEXT CHANGED.
	44711-115:03	CONNECTION REFERENCE (BY) IS ADDED. TEXTS CHANGED.
	44711-120:03	COMPONENTS B13111 AND B13112 ARE ERASED.
	44711-121:03	COMPONENT B13113 IS ERASED.
	44711-124:03	TEXT ADDED ON S7901.
	44711-126:03	TERMINAL X4000:E8 IS ADDED. TERMINAL X4000:E7 IS ERASED. TEXT CHANGED.
	44711-128:03	COMPONENT B5601 AND B5602 ARE ADDED.
	44711-143:03	CHAIN'S REFERENCES ARE ADDED.
	44711-144:03	CHAIN'S REFERENCE IS ADDED.
	44711-148:03	CONTACTS K014 ARE ADDED. TEXT CHANGED.
	44711-150:03	TEXT CHANGED.
	44711-152:03	TEXT CHANGED.
	44711-155:03	CONNECTION REFERENCE (BX) IS ADDED.
	44711-156:03	COMPONENT H7902 IS ADDED.
	44711-157:03	COMPONENT Y1324 IS ERASED.
	44711-158:03	COMPONENT Y1311 IS ERASED.
	44711-162:03	COMPONENTS A7901, H7901, X7901 AND X79012 ARE ADDED.
	44711-170:03	CONNECTION REFERENCES (DG), (DI), (DN) AND (DU) ARE ADDED. CONNECTION REFERENCES (QW), (QX), (QY) AND (QZ) ARE CHANGED.
	61815-005:03	SOME CORRECTIONS ON M002

Company: Tetra Brik Packaging System S.p.a.

ECN: 73362

Issued by/Date: AMI/010130

Approved/Date: PGE/010130

Version:04

Engineering Change Description

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Ecn No	Drawing No	Alteration
	61815-101:03	CORRECTIONS ON W2029 AND M1501.
	61815-103:03	CORRECTIONS ON B1316.
	61815-104:03	COMPONENTS B13111, B13112 AND B13113 ARE ERASED.
		THE WIRE W1002-YG IS NOW CONNECTED.
	61815-108:03	CORRECTIONS ON B9113
	61815-110:03	THE CABLE W1026 INSTEAD W1059.
	61815-112:03	TEXT CORRECTION ON B1315.
	61815-113:03	COMPONENT Y1324 IS ERASED.
	61815-114:03	COMPONENT Y1311 IS ERASED.
	61815-203:03	TEXTS CORRECTION.
	61815-207:03	COLOR REFERENCE ADDED ON H2801.
	61815-401:03	CORRECTION ON W4052 AND W4053.
	61815-407:03	COMPONENT B1314 IS ADDED.
		CABLE W1056 IS ADDED.
	61815-504:03	COMPONENT B5601 AND B5602 ARE ADDED.
		CABLES W5601, W5602 AND W5603 ARE ADDED.
		BRIDGE CONNECTION IS ADDED BETWEEN X2000:129 AND X2000:130.
	61815-701:03	TRIANGLE REFERENCES ARE ADDED.
	61815-703:03	TEXT ADDED ON S7901
	61815-706:03	TEXTS CHANGED.
	61815-707:03	CORRECTIONS BETWEEN X7001 AND A7901.
	61815-904:03	TEXT CORRECTIONS.
	61815-906:03	CORRECTIONS ON W4500.
	595013-0001 (03)	ENGINEERING CHANGE DESCRIPTION IS CHANGED IN ACCORDING TO THIS ECN.
73362	EM-81500-0102	ELECTRICAL MANUAL IS RELEASED
	-	FOR CHANGES ON LISTS SEE APPENDIX
	48246-000:02	PLC PROGRAM VERSION 2 HAS BEEN RELEASED
	44711-002:04	POSITION SUMMARY IS CHANGED ACCORDING TO UPDATE CIRCUIT DIAGRAM
	44711-003:04	LINESUMMARY IS CHANGED ACCORDING TO UPDATE CIRCUIT DIAGRAM

Company: Tetra Brik Packaging System S.p.a.

ECN: 73362

Issued by/Date: AMI/010130

Approved/Date: PGE/010130

Version:04

Engineering Change Description

4-595013-0001

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Ecn No	Drawing No	Alteration
	44711-004:04	TERMINAL SUMMARY IS CHANGED ACCORDING TO UPDATE CIRCUIT DIAGRAM
	44711-006:04	R1208 AND R1209 ARE SWAPPED
	44711-016:04	A410:20 CHANGED FROM L11 TO L12
	44711-017:04	A412:20 CHANGED FROM L11 TO L12
		A413:20 CHANGED FROM L11 TO L12
	44711-018:04	Z003:EARTH IS NOW CONNECT TO A505:3104(EARTH)
		COMPONENTS C010 AND C011 ARE ADDED
	44711-020:04	CONNECTOR SD IN A507:7B34 HAS BEEN ERASED
	44711-021:04	CONNECTOR EA IN A508:7B34 HAS BEEN ERASED
	44711-022:04	THE COMPONENTS Q015, K015, X114 AND THE MOTOR FOR SECOND EXTERNAL CONVEYOR HAS BEEN ADDED
	44711-023:04	CORRECTION ON M2301
	44711-025:04	F014 HAS BEEN ERASED AND HAS BEEN ADDED Q014
	44711-032:04	FUSE F029 HAS BEEN ADDED
		WIRES CHAIN HAS BEEN CHANGED
	44711-034:04	COMPONENT F013 HAS BEEN ERASED
		COMPONENT F028 HAS BEEN ADDED
		COMPONENT A500 HAS BEEN CHANGED
	44711-058:04	TEXT CHANGED
	44711-059:04	TEXT CHANGED AND SHORT STOP DE-SIGNAL HAS BEEN ERASED
	44711-060:04	CORRECTION IN THE CONNECTION BETWEEN X2000:145/146/147/148 AND A4500.
		LINE SUPERVISION IS NOW STANDARD.
	44711-062:04	CHANGES ON THE CHAIN REFERENCE ON X206:5.
		AUX. CONT. K015 IS ADDED.
	44711-079:04	W110, W111, W112, W113 AND W114 ARE ADDED.
	44711-082:04	B6204 MOVED IN A102:16
	44711-087:04	TEXT CORRECTION
	44711-104:04	BRIDGE CONNECTION IN A114:15 HAS BEEN REMOVED.
	44711-106:04	AUX. CONT. Q014 AND Q015 ARE ADDED

Company: Tetra Brik Packaging System S.p.a.

ECN: 73362

Issued by/Date: AMI/010130

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Engineering Change Description

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Ecn No	Drawing No	Alteration
	44711-108:04	CONNECTOR "SD" HAS BEEN ERESED. TEXT CORRECTION.
	44711-109:04	CONNECTOR "EA" HAS BEEN ERESED.
	44711-113:04	CONNECTOR "C" HAS BEEN ERASED
	44711-116:04	TEXTS CHANGED
	44711-117:04	TEXTS CHANGED
	44711-118:04	TEXT ADDED
	44711-122:04	B2320 SYSBOL HAS BEEN CHANGED
	44711-123:04	B6208 HAS BEEN MOVED
	44711-127:04	CORRECTION ON THE CONNECTOR "AL" AND "AJ". TEXT CHANGED
	44711-128:04	CONGESTION GUARD EXTERNAL CONVEYIOR 2 IS ADDED IN A126:12. PACKAGE COUNTER LAST POINT DE 2 IS ADDED IN A126:13
	44711-143:04	TEXT CHANGED
	44711-144:04	AUX. CONT. Q015 AND K015 ARE ADDED IN A134:13
	44711-147:04	TEXTS CHANGED
	44711-148:04	AUX. CONT. K014:13/14, K014:43/44 ARE ADDED. AUX. CONT. Q014:33/34 IS ADDED
	44711-156:04	TEXT CHANGED
	44711-158:04	TEXT CHANGED
	44711-160:04	TEXT ADDED
	44711-900:04	EARTH CONNECTION BETWEEN X002:15 AND X114 HAS BEEN ADDED. EARTH CONNECTION BETWEEN X002:91 AND X502 HAS BEEN REMOVED.
	61815-101:04	R1208 AND R1209 ARE SWAPPED
	61815-108:04	CORRECTION
	61815-202:04	CORRECTION
	61815-206:04	B2320 SYMBOL HAS BEEN CHANGED
	61815:407:04	SHIELD CONNECTION ON B1314 HAS BEEN ADDED.
	61815-501:04	X114, W2016 AND THE MOTOR FOR SECOND EXTERNAL CONVEYOR ARE ADDED

Company: Tetra Brik Packaging System S.p.a.

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Engineering Change Description

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Ecn No	Drawing No	Alteration
	61815-504:04	TEXT CHANGED.
	61815-505:04	SHORT STOP SIGNAL FROM DE HAS BEEN ERASED. CONGESTION GUARD EXTERNAL CONVEYIOR 2 IS ADDED . PACKAGE COUNTER LAST POINT DE 2 IS ADDED .
	61815-901:04	CORRECTION.
	61815:904:04	W2068 COLORS WIRES HAS BEEN CHANGED
	61815-906:04	W4504 HAS BEEN ADDED.
	595013-0001 (04)	LINE SUPERVISION IS NOW STANDARD. ENGINEERING CHANGE DESCRIPTION IS CHANGED IN ACCORDING TO THIS ECN.

Company: Tetra Brik Packaging System S.p.a.

ECN: 73362

Issued by/Date: AMI/010130

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Version:04

Engineering Change Description

4-595013-0001

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Comp	L	She	Ver	Pos	Comp	L	She	Ver	Pos	Comp	L	She	Ver	Pos	Comp	L	She	Ver	Pos
A****	DO	060	04	6	A123	C	122	04	7	A141	C	158	04	2	A410	C	016	04	3
A102	C	081	01	8	A123	C	121	03	7	A141	C	157	03	2	A412	C	017	04	3
A102	C	082	04	7	A124	C	124	03	7	A142	C	159	01	2	A413	C	017	04	7
A103	C	083	01	2	A124	C	123	04	7	A142	C	160	04	2	A414	C	050	03	4
A103	C	084	01	2	A125	C	125	01	7	A143	C	161	01	2	A418	C	052	03	3
A105	C	087	04	7	A125	C	126	03	7	A143	C	162	03	2	A419	C	053	03	2
A106	C	088	02	7	A126	C	128	04	7	A144	C	163	01	2	A420	C	054	03	8
A110	C	096	02	3	A126	C	127	04	7	A144	C	164	02	2	A450	C	060	04	2
A110	C	095	02	8	A127	C	130	01	7	A145	C	166	01	2	A4500	DO	060	04	5
A111	C	097	02	1	A127	C	129	01	7	A145	C	165	01	2	A451	C	060	04	4
A111	C	098	02	1	A128	C	131	01	7	A146	C	167	01	2	A500	C	034	04	3
A114	C	104	04	7	A128	C	132	01	7	A146	C	168	01	2	A501	C	012	01	2
A114	C	103	03	7	A129	C	133	01	7	A147	C	169	01	2	A502	C	012	01	6
A115	C	105	01	7	A129	C	134	01	7	A147	C	170	03	2	A504	C	012	01	8
A115	C	106	04	7	A1304	M	049	03	5	A160	C	079	04	1	A505	C	018	04	6
A116	C	107	01	7	A134	C	144	04	2	A161	C	079	04	1	A506	C	019	02	8
A116	C	108	04	7	A134	C	143	04	2	A162	C	079	04	1	A506	C	019	02	2
A117	C	109	04	7	A135	C	145	01	2	A163	C	079	04	6	A507	C	020	04	8
A117	C	110	02	7	A135	C	146	01	2	A164	C	079	04	6	A507	C	020	04	3
A118	C	111	01	7	A136	C	147	04	2	A300	C	046	02	6	A508	C	021	04	3
A118	C	112	01	7	A136	C	148	04	2	A301	C	046	02	6	A508	C	021	04	8
A119	C	113	04	7	A137	C	149	01	2	A302	C	046	02	6	A600	C	062	04	7
A119	C	114	01	7	A137	C	150	03	2	A303	C	047	02	5	A601	C	063	01	7
A120	C	115	03	7	A138	C	151	02	2	A304	C	047	02	5	A602	C	064	01	6
A120	C	116	04	7	A138	C	152	03	2	A305	C	047	02	5	A603	C	065	01	6
A121	C	117	04	7	A139	C	153	02	2	A306	C	048	01	6	A7417	M	014	03	3
A121	C	118	04	7	A139	C	154	01	2	A307	C	048	01	6	A7901	M	162	03	5
A122	C	120	03	7	A140	C	155	03	2	A308	C	048	01	6	A951	M	060	04	3
A122	C	119	02	7	A140	C	156	04	2	A309	C	049	03	6	A952	C	060	04	4

INTRODUCED WITH EC NO: 73362 DATE: 010130 SIGN: AMI

DESCRIPTION: POSITION SUMMARY CIRCUIT DESIGN

ISSUE:
EC NO:
DATE :
SIGN :

MACHINE: TBA/21-0500 44711-002:04

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INTRODUCED WITH EC NO: 73362 DATE: 010130 SIGN: AMI DESCRIPTION: POSITION SUMMARY CIRCUIT DESIGN

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INTRODUCED WITH EC NO: 73362 DATE: 010130 SIGN: AMI DESCRIPTION: POSITION SUMMARY CIRCUIT DESIGN

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Comp	L	She	Ver	Pos	Comp	L	She	Ver	Pos	Comp	L	She	Ver	Pos	Comp	L	She	Ver	Pos
Q001.1	C	146	01	3	Q022.1	C	146	01	3	R809	C	036	03	5	T1304	M	049	03	2
Q002	C	022	04	4	Q023	C	023	04	9						T1402	M	012	01	3
Q002.1	C	106	04	2	Q023.1	C	106	04	5	S001	C	062	04	6	T4309	M	012	01	7
Q002.1	C	143	04	3	Q023.1	C	146	01	3	S003	C	114	01	4	T4310	M	012	01	8
Q003	C	022	04	5	Q100	M	005	01	3	S004	C	114	01	4	T6101	M	014	03	7
Q003.1	C	106	04	3	Q011	C	023	04	2	S005	C	062	04	5	T6203	M	011	01	3
Q003.1	C	145	01	3						S1003	M	113	04	2	T7417	M	014	03	7
Q009	C	022	04	7	R001	C	018	04	3	S1801	M	062	04	4					Y2201
Q009.1	C	106	04	3	R002	C	018	04	3	S1802	M	062	04	2	V017	C	056	03	4
Q009.1	C	145	01	3	R003	C	018	04	4	S2803	M	062	04	2	V1501	M	095	02	3
Q010	C	022	04	9	R004	C	055	01	5	S2804	M	062	04	3					Y3101
Q010.1	C	106	04	4	R010	C	054	03	5	S6206	M	124	03	4	X002	C	005	01	10
Q010.1	C	143	04	3	R1105	M	006	04	3	S7303	M	125	01	4	X011	C	032	04	10
Q011.1	C	106	04	5	R1206	M	007	01	3	S7402	M	124	03	4	X4001	M	081	01	4
Q011.1	C	146	01	3	R1207	M	007	01	7	S7701	M	124	03	4					Y3111
Q014	C	025	04	7	R1208	M	006	04	9	S7813	M	062	04	5	Y1104	M	161	01	5
Q014.1	C	148	04	4	R1209	M	006	04	6	S7901	M	124	03	4	Y1105	M	161	01	5
Q014.1	C	106	04	5	R1501	M	095	02	3	S900	C	062	04	2	Y1107	M	157	03	5
Q015	C	022	04	10	R501	C	012	01	4	S901	C	113	04	3	Y1108	M	157	03	5
Q015.1	C	144	04	3	R505	C	018	04	7	S902	C	113	04	3	Y1111	M	157	03	5
Q015.1	C	106	04	6	R5307	M	010	01	3	S903	C	113	04	3	Y1112	M	157	03	5
Q020	C	023	04	4	R5308	M	010	01	4	S904	C	113	04	3	Y1210	M	165	01	5
Q020.1	C	106	04	2	R5309	M	010	01	8	S905	C	113	04	3	Y1220	M	166	01	5
Q020.1	C	146	01	3	R6203	M	011	01	3	S906	C	113	04	3	Y1221	M	167	01	5
Q021	C	023	04	6	R7417	M	014	03	5	S907	C	113	04	3	Y1230	M	161	01	5
Q021.1	C	106	04	3	R74181	M	014	03	7	S908	C	113	04	6	Y1231	M	161	01	5
Q021.1	C	143	04	3	R74182	M	014	03	6	S911	C	114	01	2	Y1241	M	157	03	5
Q022	C	023	04	7	R807	C	036	03	5	S912	C	114	01	2	Y1303	M	157	03	5
Q022.1	C	106	04	4	R808	C	036	03	5						Y1312	M	158	04	5
																			Y6203

INTRODUCED WITH EC NO: 73362 DATE: 010130 SIGN: AMI

DESCRIPTION: POSITION SUMMARY CIRCUIT DESIGN

ISSUE:
EC NO:
DATE :
SIGN :

MACHINE: TBA/21-0500 44711-002:04

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Comp	L	She	Ver	Pos	Comp	L	She	Ver	Pos	Comp	L	She	Ver	Pos	Comp	L	She	Ver	Pos
Y6205	M	164	02	6															
Y7303	M	164	02	6															
Y7315	M	164	02	6															
Y7407	M	163	01	5															
Y7408	M	163	01	5															
Y7410	M	163	01	5															
Y7411	M	163	01	5															
Y7412	M	163	01	5															
Y7413	M	163	01	5															
Y7425	M	164	02	6															
Y9101	M	167	01	4															
Y9102	M	167	01	4															
Y9103	M	167	01	4															
Y9105	M	159	01	5															
Y9112	M	167	01	4															
Z001	M	005	01	7															
Z002	M	005	01	6															
Z003	C	018	04	3															
Z004	M	005	01	6															
Z010	C	016	04	2															
Z012	C	017	04	2															
Z013	C	017	04	7															
Z020	C	016	04	1															
Z021	C	016	04	3															
Z022	C	017	04	1															
Z023	C	017	04	3															
Z024	C	017	04	6															
Z025	C	017	04	7															

INTRODUCED WITH EC NO: 73362 DATE: 010130 SIGN: AMI

DESCRIPTION: POSITION SUMMARY CIRCUIT DESIGN

ISSUE:

EC NO:

DATE :

SIGN :

MACHINE: TBA/21-0500 44711-002:04

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Line	Component	She	Ver	Pos	Area	Color	Line	Component	She	Ver	Pos	Area	Color	Line	Component	She	Ver	Pos	Area	Color
L10	XL10:101				Not Wired		L10	XL10:111				0.75	BU		A134:20	144:04		2		
L10	XL10:102				0.75	BU		A117:1	109:04		7				XL10:119				0.75	BU
	A102:1	081:01		8				A118:1	111:01		7			L10	A135:10	145:01		2		
							L10	XL10:112				0.75	BU		A135:20	146:01		2		
L10	XL10:103				0.75	BU		A119:1	113:04		7			L10	XL10:120				0.75	BU
	A103:10	083:01		2								0.75	BU		A136:10	147:04		2		
	A103:20	084:01		2			L10	XL10:113							A136:20	148:04		2		
L10	XL10:104				Not Wired			A120:1	115:03		7									
								A121:1	117:04		7			L10	XL10:121				0.75	BU
L10	XL10:105				Not Wired		L10	XL10:114				0.75	BU		A137:10	149:01		2		
								A122:1	119:02		7				A137:20	150:03		2		
L10	XL10:106				Not Wired			A123:1	121:03		7									
														L10	XL10:122				0.75	BU
L10	XL10:107				0.75	BU	L10	XL10:115				0.75	BU		A138:10	151:02		2		
	A110:6	095:02		8				A124:1	123:04		7				A138:20	152:03		2		
	A110:18	096:02		3				A125:1	125:01		7									
														L10	XL10:123				0.75	BU
L10	XL10:108				0.75	BU	L10	XL10:116				0.75	BU		A139:10	153:02		2		
	A111:18	097:02		1				A126:1	127:04		7				A139:20	154:01		2		
								A127:1	129:01		7									
L10	XL10:109				0.75	BU								L10	XL10:124				0.75	BU
	A114:1	103:03		7			L10	XL10:117				0.75	BU		A140:10	155:03		2		
								A128:1	131:01		7				A140:20	156:04		2		
L10	XL10:110				0.75	BU		A129:1	133:01		7									
	A115:1	105:01		7										L10	XL10:125				0.75	BU
	A116:1	107:01		7			L10	XL10:118				0.75	BU		A141:10	157:03		2		
								A134:10	143:04		2				A141:20	158:04		2		

INTRODUCED WITH EC NO: 73362 DATE: 010130 SIGN: AMI DESCRIPTION: LINE SUMMARY

ISSUE:
EC NO: MACHINE: TBA/21-0500 44711-003:04
DATE :
SIGN : 1/10

TETRA PAK

This list must not without the consent of Tetra Pak
be copied, transmitted or disclosed to any third party

Line	Component	She	Ver	Pos	Area	Color	Line	Component	She	Ver	Pos	Area	Color	Line	Component	She	Ver	Pos	Area	Color
L10	XL10:126				0.75	BU	L10	XL10:135				0.75	BU	L10	XL10:143				0.75	BU
	A142:10	159:01	2					K201:4	006:04	3					X451:3	060:04	4			
	A142:20	160:04	2					K203:4	007:01	3										
								K205:4	007:01	7				L10	XL10:144				0.75	BU
L10	XL10:127				0.75	BU		K207:4	006:04	6					A450:-	060:04	2			
	A143:10	161:01	2																	
	A143:20	162:03	2				L10	XL10:136				0.75	BU	L10	XL10:145					Not Wired
								K208:4	010:01	2										
L10	XL10:128				0.75	BU		K209:4	010:01	4				L10	XL10:146				0.75	BU
	A144:10	163:01	2					K210:4	010:01	7					A600:A2	062:04	7			
	A144:20	164:02	2												A600:24	062:04	7			
							L10	XL10:137				0.75	BU		A601:A2	063:01	7			
L10	XL10:129				0.75	BU		K213:4	055:01	3					A602:A2	064:01	6			
	A145:10	165:01	2					K214:4	055:01	3					A603:A2	065:01	6			
	A145:20	166:01	2												A603:S24	065:01	6			
							L10	XL10:138				0.75	BU		A603:24	065:01	6			
L10	XL10:130				0.75	BU		K215:4	083:01	3										
	A146:10	167:01	2					K216:4	083:01	3				L10	XL10:147				0.75	BU
	A146:20	168:01	2												R004:2	055:01	5			
							L10	XL10:139					Not Wired							
L10	XL10:131				0.75	BU								L10	XL10:148				0.75	BU
	A147:10	169:01	2				L10	XL10:140					Not Wired		X009:2	056:03	5			
	A147:20	170:03	2												X009:4	054:03	5			
							L10	XL10:141				0.75	BU		X009:9	106:04	1			
L10	XL10:132				Not Wired			A414:23	050:03	4					X009:12	106:04	3			
								A414:7	050:03	4					X009:15	106:04	4			
L10	XL10:133				Not Wired										X009:18	106:04	5			
							L10	XL10:142					Not Wired							
L10	XL10:134				Not Wired									L10	XL10:149				0.75	BU

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Line	Component	She	Ver	Pos	Area	Color	Line	Component	She	Ver	Pos	Area	Color	Line	Component	She	Ver	Pos	Area	Color
	K001:A2	146:01	5		0.75	BU		K101:10	149:01	6		0.75	BU		X209:6	167:01	7			
	K011:A2	146:01	5					K102:10	149:01	6										
	K020:A2	146:01	5					K104:10	149:01	6				L10	XL10:161				0.75	BU
	K022:A2	146:01	5					K105:10	056:03	5					X213:24	167:01	7			
	K023:A2	146:01	5					K106:10	149:01	6										
								K107:10	149:01	6				L10	XL10:162				0.75	BU
L10	XL10:150				0.75	BU									X214:24	127:04	2			
	K024:A2	146:01	5				L10	XL10:154				0.75	BU		X215:22	059:04	2			
	K025:A2	146:01	5					K115:10	061:01	6					X215:24	128:04	1			
	K026:A2	147:04	6					K118:10	150:03	6										
	K027:A2	147:04	6					K120:10	145:01	5				L10	XL10:163				0.75	BU
	K028:A2	147:04	6					K124:10	150:03	6					X218:11	121:03	1			
								K130:10	150:03	6					X218:24	121:03	1			
L10	XL10:151				1.50	BU		K134:10	150:03	7										
	X206:2	034:04	4											L10	XL10:164				0.75	BU
							L10	XL10:155				0.75	BU		X219:9	169:01	7			
L10	XL10:152				0.75	BU		K012:A2	148:04	6					X220:15	165:01	7			
	K029:A2	147:04	6					K013:A2	148:04	6										
	K030:A2	147:04	6					K014:A2	148:04	6				L10	XL10:165				0.75	BU
	K031:A2	147:04	6												X223:24	058:04	6			
	K032:A2	147:04	6				L10	XL10:156				Not Wired								
	K033:A2	147:04	6											L10	XL10:166				0.75	BU
							L10	XL10:157				Not Wired			X224:1	061:01	1			
L10	XL10:153				0.75	BU									X224:24	095:02	2			
	K121:10	150:03	6				L10	XL10:158				Not Wired			X225:24	124:03	1			
	K123:10	150:03	6																	
	K126:10	150:03	6				L10	XL10:159				Not Wired		L10	XL10:167				0.75	BU
	K100:10	149:01	6												X226:19	014:03	8			
	K108:10	149:01	6				L10	XL10:160				0.75	BU		X226:24	014:03	3			

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Line	Component	She	Ver	Pos	Area	Color	Line	Component	She	Ver	Pos	Area	Color	Line	Component	She	Ver	Pos	Area	Color
	X227:24	122:04		1			L10	XL10:177				Not Wired		L10	XL10:187				0.75	BU
L10	XL10:168				0.75	BU	L10	XL10:178				0.75	BU		A504:2	012:01		8		
	X229:10	061:01		1				K217:4	083:01		3			L10	XL10:188				0.75	BU
	X229:24	082:04		1				K218:4	083:01		3				A506:7A05	019:02		8		
L10	XL10:169				0.75	BU	L10	XL10:179				Not Wired			A506:7B24	019:02		8		
	X230:6	157:03		7											A508:7A05	021:04		8		
	X230:12	157:03		7			L10	XL10:180				0.75	BU		A508:7B24	021:04		8		
	X230:18	158:04		7				X031:2	052:03		1				A507:7A05	020:04		8		
	X230:24	158:04		7											A507:7B24	020:04		8		
							L10	XL10:181				Not Wired		L10	XL10:189				0.75	BU
L10	XL10:170				0.75	BU									A410:2	016:04		3		
	X231:24	125:01		2			L10	XL10:182				0.75	BU							
								P003:14	036:03		7			L10	XL10:190				0.75	BU
L10	XL10:171				0.75	BU		P003:17	036:03		7				A410:4	016:04		3		
	X234:24	161:01		7				P003:20	036:03		7									
L10	XL10:172				Not Wired		L10	XL10:183				0.75	BU	L10	XL10:191				0.75	BU
								P100:-	156:04		4				A412:2	017:04		3		
L10	XL10:173				0.75	BU		P101:4	156:04		4			L10	XL10:192				0.75	BU
	A502:212	012:01		6											A412:4	017:04		3		
L10	XL10:174				Not Wired		L10	XL10:184				0.75	BU	L10	XL10:193				0.75	BU
								A501:212	012:01		2				A413:2	017:04		7		
L10	XL10:175				Not Wired		L10	XL10:185				Not Wired								
														L10	XL10:194				0.75	BU
L10	XL10:176				Not Wired		L10	XL10:186				Not Wired			A413:4	017:04		7		

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Line	Component	She	Ver	Pos	Area	Color	Line	Component	She	Ver	Pos	Area	Color	Line	Component	She	Ver	Pos	Area	Color
L10	XL10:195				Not	Wired	L11	XL11:104				Not	Wired	L11	XL11:112				0.75	BU
L10	XL10:196				Not	Wired	L11	XL11:105				0.75	BU		X031:3	052:03		1		
L10	XL10:197				Not	Wired		A600:A1	062:04		7			L11	XL11:113				0.75	BU
L10	XL10:198				Not	Wired		A601:A1	063:01		7				A506:7B25	019:02		8		
L10	XL10:199				Not	Wired		A602:A1	064:01		6				A507:7B25	020:04		8		
L10	XL10:200				Not	Wired	L11	XL11:106				0.75	BU		A508:7B25	021:04		8		
L11	XL11:101				2.50	BU		A600:13	062:04		7			L11	XL11:114				0.75	BU
	F022:5	034:04		3			L11	XL11:107				0.75	BU		A501:224	012:01		2		
								A601:33	063:01		7			L11	XL11:115				0.75	BU
								A602:33	064:01		6				A501:214	012:01		2		
								A603:33	065:01		6									
L11	XL11:102				0.75	BU	L11	XL11:108				0.75	BU	L11	XL11:116				0.75	BU
	A300:15	046:02		6				K122:7	055:01		3				A502:214	012:01		6		
	A303:15	047:02		5				K123:7	055:01		3			L11	XL11:117				Not	Wired
	A301:15	046:02		6			L11	XL11:109				0.75	BU	L11	XL11:118				0.75	BU
	A304:15	047:02		5				X214:23	127:04		2				A502:224	012:01		6		
	A302:15	046:02		6				X215:23	128:04		1			L11	XL11:119				Not	Wired
	A305:15	047:02		5			L11	XL11:110				0.75	BU	L11	XL11:120				0.75	BU
	A306:15	048:01		6				X221:19	065:01		2				A504:1	012:01		8		
	A307:15	048:01		6				X216:23	122:04		1									
	A308:15	048:01		6																
	A309:15	049:03		6																
L11	XL11:103				Not	Wired	L11	XL11:111				Not	Wired	L12	XL12:101				2.50	BU
															F022:3	034:04		3		

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Line	Component	She	Ver	Pos	Area	Color	Line	Component	She	Ver	Pos	Area	Color	Line	Component	She	Ver	Pos	Area	Color
L12	XL12:102				0.75	BU		X218:10	121:03		1				A137:1	149:01		2	0.75	BU
	A103:1	083:01		2											A137:11	150:03		2		
	A103:11	084:01		2			L12	XL12:113				0.75	BU	L13	XL13:104				0.75	BU
								K113:3	105:01		3				A138:1	151:02		2		
L12	XL12:103				Not	Wired	L12	XL12:114				0.75	BU		A138:11	152:03		2		
	A110:1	096:02		3				A410:20	016:04		3			L13	XL13:105				0.75	BU
L12	XL12:104				0.75	BU	L12	XL12:115				0.75	BU		A139:1	153:02		2		
	A111:1	097:02		1				A412:20	017:04		3				A139:11	154:01		2		
L12	XL12:105				0.75	BU	L12	XL12:116				Not	Wired	L13	XL13:106				Not	Wired
	A115:15/B6	106:04		7				A413:20	017:04		7									
L12	XL12:106				0.75	BU	L12	XL12:117				Not	Wired	L13	XL13:107				0.75	BU
	A135:11	146:01		2								Not	Wired		K121:4	060:04		2		
L12	XL12:107				0.75	BU	L12	XL12:118				Not	Wired	L13	XL13:108				Not	Wired
	A136:1	147:04		2								Not	Wired	L13	XL13:109				0.75	BU
L12	XL12:108				Not	Wired	L12	XL12:119				Not	Wired		A450:+	060:04		2		
L12	XL12:109				Not	Wired	L12	XL12:120				Not	Wired	L13	XL13:110				Not	Wired
L12	XL12:110				Not	Wired	L13	XL13:101				2.50	BU							
								F022:1	034:04		3			L13	XL13:111				Not	Wired
L12	XL12:111				0.75	BU	L13	XL13:102				0.75	BU	L13	XL13:112				Not	Wired
	X213:23	081:01		6				A136:11	148:04		2									
L12	XL12:112				0.75	BU	L13	XL13:103				0.75	BU	L13	XL13:113				Not	Wired

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Line	Component	She	Ver	Pos	Area	Color	Line	Component	She	Ver	Pos	Area	Color	Line	Component	She	Ver	Pos	Area	Color
L13	XL13:114				Not	Wired	L14	XL14:105				0.75	BU		K216:1	083:01		3		
L13	XL13:115				Not	Wired		A143:1	161:01		2			L14	XL14:117				0.75	BU
								A143:11	162:03		2				K217:1	083:01		3		
L13	XL13:116				Not	Wired	L14	XL14:106				Not	Wired		K218:1	083:01		3		
L13	XL13:117				Not	Wired	L14	XL14:107				0.75	BU	L14	XL14:118				Not	Wired
								A115:16/B7	106:04		7									
L13	XL13:118				Not	Wired								L14	XL14:119				Not	Wired
							L14	XL14:108				Not	Wired							
L13	XL13:119				Not	Wired								L14	XL14:120				Not	Wired
							L14	XL14:109				Not	Wired							
L13	XL13:120				Not	Wired								L15	XL15:101				2.50	BU
							L14	XL14:110				0.75	BU		F020:1	034:04		2		
L14	XL14:101				2.50	BU		K111:3	105:01		3									
	F020:3	034:04		2										L15	XL15:102				0.75	BU
							L14	XL14:111				0.75	BU		A114:17/B8	104:04		7		
L14	XL14:102				0.75	BU		K115:3	105:01		4									
	A140:1	155:03		2										L15	XL15:103				0.75	BU
	A140:11	156:04		2			L14	XL14:112				Not	Wired		A144:11	164:02		2		
L14	XL14:103				0.75	BU	L14	XL14:113				Not	Wired	L15	XL15:104				0.75	BU
	A141:1	157:03		2											A145:1	165:01		2		
	A141:11	158:04		2			L14	XL14:114				Not	Wired		A145:11	166:01		2		
L14	XL14:104				0.75	BU	L14	XL14:115				0.75	BU	L15	XL15:105				0.75	BU
	A142:1	159:01		2				K215:1	083:01		3				A146:1	167:01		2		
	A142:11	160:04		2											A146:11	168:01		2		
							L14	XL14:116				0.75	BU							

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Line	Component	She	Ver	Pos	Area	Color	Line	Component	She	Ver	Pos	Area	Color	Line	Component	She	Ver	Pos	Area	Color
L15	XL15:106				0.75	BU	L15	XL15:112				0.75	BU	L15	XL15:120					Not Wired
	A147:1	169:01	2					X223:23	058:04	2				L50	XL50:1				0.75	L.BU
	A147:11	170:03	2					X224:23	121:03	1					X003:2	034:04	9			
								X224:2	061:01	1										
L15	XL15:107				0.75	BU	L15	XL15:113				0.75	BU	L50	XL50:2				0.75	L.BU
	A414:2	050:03	4					X225:23	125:01	2					P002:L2/N	035:01	6			
	A414:5	050:03	4											L50	XL50:3				0.75	L.BU
	A414:10	050:03	4				L15	XL15:114				0.75	BU		P003:L2/N	036:03	7			
	A414:16	050:03	4					X226:23	014:03	3										
	A414:21	050:03	4					X227:23	122:04	1				L50	XL50:4				0.75	L.BU
	A414:26	050:03	4					X229:11	061:01	1					A300:A2	046:02	6			
L15	XL15:108				0.75	BU		X229:20	113:04	1					A301:A2	046:02	6			
	F019:13	106:04	7					X229:23	082:04	1					A302:A2	046:02	6			
	Q001.1:1.13	106:04	2				L15	XL15:115				0.75	BU		A303:A2	047:02	5			
								X231:23	125:01	2					A304:A2	047:02	5			
L15	XL15:109				0.75	BU		X234:23	106:04	1				L50	XL50:5				0.75	L.BU
	X009:8	106:04	1												A305:A2	047:02	5			
	S003:13	114:01	4				L15	XL15:116					Not Wired		A306:A2	048:01	6			
	S004:13	114:01	4												A307:A2	048:01	6			
L15	XL15:110				0.75	BU	L15	XL15:117				0.75	BU		A308:A2	048:01	6			
	X209:2	133:01	2					K213:1	055:01	3					A309:A2	049:03	6			
	X215:7	059:04	2				L15	XL15:118				0.75	BU	L50	XL50:6				0.75	L.BU
L15	XL15:111				0.75	BU		K214:1	055:01	3					A414:13	050:03	4			
	X218:23	121:03	1				L15	XL15:119				0.75	BU							
	X220:14	126:03	2					X602:4	122:04	1				L50	XL50:7					Not Wired
	X222:17	113:04	1																	

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L50	XL50:8				0.75	L.BU	L50	XL50:19					Not Wired	K101:7		035:01		1		
	G100:N	079:04		1			L50	XL50:20					Not Wired	L51	XL51:7					Not Wired
	G101:N	079:04		1			L51	XL51:1				0.75	BK	L51	XL51:8					0.75 BK
	G102:N	079:04		1			F002:2	034:04			7			K126:3		035:01		1		
	G103:N	079:04		7																
	G104:N	079:04		7																
L50	XL50:9				0.75	L.BU	L51	XL51:2					0.75 BK	L51	XL51:9					Not Wired
	A501:130	012:01		2			A300:A1	046:02			6			L51	XL51:10					0.75 BK
L50	XL50:10				0.75	L.BU	A301:A1	046:02			6				G100:L1	079:04		1		
	A502:130	012:01		6			A302:A1	046:02			6				G101:L1	079:04		1		
							A303:A1	047:02			5				G102:L1	079:04		1		
L50	XL50:11					Not Wired	A304:A1	047:02			5				G103:L1	079:04		7		
							L51	XL51:3					0.75 BK		G104:L1	079:04		7		
L50	XL50:12					Not Wired	A305:A1	047:02			5			L51	XL51:11					Not Wired
							A306:A1	048:01			6									
L50	XL50:13					Not Wired	A307:A1	048:01			6			L51	XL51:12					Not Wired
							A308:A1	048:01			6									
L50	XL50:14					Not Wired	A309:A1	049:03			6			L51	XL51:13					Not Wired
L50	XL50:15					Not Wired	L51	XL51:4					0.75 BK	L51	XL51:14					Not Wired
							K130:3	034:04			8									
L50	XL50:16					Not Wired	L51	XL51:5					0.75 BK	L51	XL51:15					Not Wired
							A414:14	050:03			4									
L50	XL50:17					Not Wired								L51	XL51:16					Not Wired
L50	XL50:18					Not Wired	L51	XL51:6					0.75 BK	L51	XL51:17					Not Wired
							K100:3	036:03			3									

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Line	Component	She	Ver	Pos	Area	Color	Line	Component	She	Ver	Pos	Area	Color	Line	Component	She	Ver	Pos	Area	Color
L51	XL51:18				Not	Wired														
L51	XL51:19				Not	Wired														
L51	XL51:20				Not	Wired														
L52	XL52:1 K130:1	034:04		8	0.75	BK														
L52	XL52:2 A501:126	012:01		2	0.75	BK														
L52	XL52:3 A502:126	012:01		6	0.75	BK														
L52	XL52:4				Not	Wired														
L52	XL52:5 X128:5	014:03		2	0.75	BK														
L52	XL52:6				Not	Wired														

Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos
X****	1	M	128	04	5	X003	108	C	014	03	3	X025	+	C	088	02	3	X031	31	C			
	2	M	128	04	3		112	C	011	01	3		-	C	088	02	3		32	C			
	3	M	128	04	3		113	C	025	04	9								33	C			
	4	M	128	04	3							X031	1	C					34	C			
	5	M	128	04	3	X004	1	C	005	01	4		2	C	052	03	1		35	C			
	6	M					2	C	005	01	4		3	C	052	03	1		36	C			
	7	M										4	C	052	03	5		37	C	052	03	2	
	8	M				X009	1	C	056	03	4		5	C	052	03	5		38	C	052	03	2
	E1	M					2	C	056	03	5		6	C	052	03	5		39	C			
	E2	M					3	C	054	03	6		7	C	052	03	5		40	C			
							4	C	054	03	5		8	C	052	03	5		41	C			
X001	1	M	005	01	8		7	C	106	04	2		9	C	052	03	5		42	C	053	03	1
	2	M	005	01	8		8	C	106	04	1		14	C					43	C	053	03	1
	3	M	005	01	8		9	C	106	04	1		15	C					44	C			
	N	M	005	01	8		10	C	106	04	4		16	C	053	03	5		45	C			
	PE	M	005	01	8		11	C	106	04	3		17	C	053	03	5		46	C			
							12	C	106	04	3		18	C	053	03	5		47	C	054	03	7
X003	2	C	034	04	9		13	C	106	04	5		19	C	053	03	5		48	C	054	03	7
	3	C	032	04	3		14	C	106	04	4		20	C	053	03	5		49	C			
	4	C	016	04	2		15	C	106	04	4		21	C	053	03	5		50	C			
	5	C	025	04	3		16	C	106	04	7		22	C	054	03	3		51	C			
	7	C	017	04	3		17	C	106	04	5		23	C	054	03	3		52	C			
	10	C	025	04	5		18	C	106	04	5		24	C	054	03	3		53	C			
	14	C	025	04	7							25	C						54	C			
	16	C	016	04	6	X020	1	C	019	02	1		26	C	054	03	3		55	C			
	101	C	010	01	3		2	C	019	02	1		27	C					56	C			
	102	C	010	01	8		3	C	019	02	1		28	C					57	C			
	106	C	012	01	2		4	C	019	02	2		29	C					58	C			
	107	C	012	01	6		E1	C	019	02	2		30	C					59	C			

INTRODUCED WITH EC NO: 73362 DATE: 010130 SIGN: AMI

DESCRIPTION: TERMINAL SUMMARY

ISSUE:

EC NO:

MACHINE: TBA/21-0500

44711-004:04

DATE :

SIGN :

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Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos
X031	60	C				X1001	102-	M	120	03	3	X1001	112+	M				X1001	122	M			
	61	C					103	M	120	03	5		112-	M					122+	M			
	62	C					103+	M	120	03	3		113	M					122-	M			
	63	C					103-	M	120	03	3		113+	M					123	M	058	04	5
	64	C					104	M	120	03	5		113-	M					123+	M	058	04	2
	65	C					104+	M	120	03	3		114	M	161	01	4		123-	M			
	66	C					104-	M	120	03	3		114+	M					124	M	058	04	5
X100							105	M	120	03	5		114-	M	161	01	6		124+	M	058	04	2
	1	C	023	04	2		105+	M	120	03	3		115	M	161	01	4		124-	M			
	2	C	023	04	2		105-	M	120	03	3		115+	M					125	M	058	04	5
	3	C	023	04	2		106	M	120	03	5		115-	M	161	01	6		125+	M	058	04	2
	4	C	025	04	1		106+	M	120	03	3		116	M	161	01	4		125-	M			
	5	C	025	04	2		106-	M	120	03	3		116+	M					126	M	058	04	5
	6	C	025	04	2		107	M	120	03	5		116-	M	161	01	6		126+	M	058	04	2
	7	C	025	04	2		107+	M	120	03	3		117	M					126-	M			
	8	C	025	04	3		107-	M	120	03	3		117+	M					127	M	058	04	5
	9	C	122	04	3		108	M	120	03	5		117-	M					127+	M	058	04	2
	10	C	122	04	4		108+	M	120	03	3		118	M					127-	M	058	04	6
	11	C	122	04	6		108-	M	120	03	3		118+	M					E1	M			
	E1	C	023	04	2		109	M	121	03	6		118-	M					E1	M	046	02	3
	E2	C	025	04	2		109+	M	121	03	2		119	M					E2	M	161	01	6
	E3	C	025	04	4		109-	M	121	03	2		119+	M					E3	M	161	01	6
X1001	E4	C	122	04	6		110	M	119	02	4		119-	M					E4	M	161	01	6
							110+	M	119	02	3		120	M					E5	M			
	101	M	120	03	5		110-	M	119	02	3		120+	M									
	101+	M	120	03	3		111	M	046	02	3		120-	M				X1003	1	M	016	04	6
	101-	M	120	03	3		111+	M					121	M					2	M	016	04	6
	102	M	120	03	5		111-	M					121+	M					101	M	061	01	2
	102+	M	120	03	3		112	M	046	02	3		121-	M					101+	M			

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DESCRIPTION: TERMINAL SUMMARY

ISSUE:
EC NO:
DATE :
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MACHINE: TBA/21-0500 44711-004:04

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Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos
X1003	101-	M				X1003	111+	M				X1003	122	M	047	02	3	X1003	131-	M			
	102	M	061	01	2		111-	M					122+	M					132	M	046	02	3
	102+	M					112	M	062	04	3		122-	M					132+	M			
	102-	M					112+	M					123	M	047	02	3		132-	M			
	103	M	061	01	3		112-	M					123+	M					133	M	046	02	3
	103+	M					113	M	062	04	2		123-	M					133+	M			
	103-	M					113+	M					124	M	016	04	7		133-	M			
	104	M	061	01	3		113-	M					124+	M					134	M	046	02	3
	104+	M					114	M	062	04	2		124-	M	016	04	7		134+	M			
	104-	M					114+	M					125	M	049	03	3		134-	M			
	105	M	061	01	4		114-	M					125+	M					135	M	046	02	3
	105+	M					115	M	062	04	2		125-	M					135+	M			
	105-	M					115+	M					126	M	049	03	3		135-	M			
	106	M	061	01	4		115-	M					126+	M					136	M	161	01	4
	106+	M					116	M	062	04	2		126-	M					136+	M			
	106-	M					116+	M					127	M	167	01	4		136-	M	161	01	6
	107	M	061	01	5		116-	M					127+	M					137	M	161	01	4
	107+	M					118	M					127-	M	167	01	5		137+	M			
	107-	M					118+	M					128	M	095	02	5		137-	M	161	01	6
	108	M	061	01	5		118-	M					128+	M	095	02	4		138	M	061	01	2
	108+	M					119	M	054	03	5		128-	M	095	02	4		138+	M			
	108-	M					119+	M	054	03	5		129	M	047	02	3		138-	M			
	109	M	062	04	4		119-	M	054	03	5		129+	M					139	M	061	01	2
	109+	M					120	M	049	03	6		129-	M					139+	M			
	109-	M					120+	M	049	03	6		130	M	047	02	3		139-	M			
	110	M	062	04	4		120-	M	049	03	6		130+	M					140	M	061	01	3
	110+	M					121	M	121	03	6		130-	M					140+	M			
	110-	M					121+	M	121	03	2		131	M	046	02	3		140-	M			
	111	M	062	04	3		121-	M	121	03	2		131+	M					141	M	061	01	3

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Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos
X1003	141+	M				X1003	151	M	113	04	2	X1003	160+	M	095	02	2	X1003	E12	M	161	01	6
	141-	M					151+	M					160-	M	095	02	2		E13	M	161	01	6
	142	M					151-	M					161	M	121	03	6		E14	M			
	142+	M					152	M	121	03	6		161+	M	121	03	2		E15	M	061	01	3
	142-	M					152	M					161-	M	121	03	2		E16	M	061	01	5
	143	M	061	01	3		152+	M					162	M	050	03	4		E17	M			
	143+	M	061	01	2		152+	M	121	03	2		163	M	050	03	4		E18	M			
	143-	M					152-	M	121	03	2		164	M	050	03	4		E19	M	016	04	7
	144	M	061	01	4		152-	M					165	M	050	03	4		E20	M	049	03	3
	144+	M					153	M	133	01	5		166	M	050	03	4						
	144-	M					153+	M	133	01	3		167	M	050	03	4	X101	1	C	032	04	7
	145	M	061	01	5		153-	M	133	01	3		168	M	050	03	5		2	C	032	04	7
	145+	M					154	M	133	01	5		169	M	050	03	5		3	C			
	145-	M					154+	M	133	01	3		170	M	095	02	3		4	C			
	146	M	119	02	4		154-	M	133	01	3		170	M	095	02	2		5	C			
	146+	M	119	02	3		155	M	133	01	5		171	M	095	02	3		6	C			
	146-	M	119	02	3		155+	M	133	01	3		171	M	095	02	2		E1	C			
	147	M	119	02	4		155-	M	133	01	3		E1	M	016	04	7						
	147+	M	119	02	3		156	M	133	01	5		E2	M				X102	1	C	023	04	7
	147-	M	119	02	3		156+	M	133	01	3		E3	M					2	C	023	04	7
	148	M	119	02	4		156-	M	133	01	3		E4	M					3	C	023	04	7
	148+	M	119	02	3		157	M	121	03	6		E5	M					4	C			
	148-	M					157+	M	121	03	2		E6	M					5	C			
	149	M	082	04	5		157-	M	121	03	2		E7	M	047	02	3		6	C			
	149+	M	082	04	2		158	M	121	03	6		E7	M					E1	C	023	04	8
	149-	M	082	04	2		158+	M	121	03	2		E8	M	167	01	5						
	150	M	113	04	1		158-	M	121	03	2		E9	M	047	02	3	X103	1	C	023	04	9
	150+	M					159+	M					E10	M	046	02	3		2	C	023	04	9
	150-	M					159-	M					E11	M	046	02	3		3	C	023	04	9

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Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos
X103	4	C				X1053	E	M	049	03	3	X110	3	C	022	04	2	X114	1	C	022	04	10
	5	C					E	M	049	03	3		4	C					2	C	022	04	10
	6	C				X106							5	C					3	C	022	04	10
	E1	C	023	04	9		1	C	025	04	8	X111	6	C				X115	4	C			
X104							2	C	025	04	9		E1	C	022	04	2		5	C			
	1	C	023	04	5		3	C	025	04	9								6	C			
	2	C	023	04	5		4	C					1	C	022	04	7		E1	C	022	04	10
	3	C	023	04	6		5	C				X112	2	C	022	04	7						
	4	C					6	C	025	04	9		3	C	022	04	7		1	C	022	04	3
	5	C				X107	E1	C					4	C					2	C	022	04	3
X105	6	C					1	C	021	04	3		5	C					3	C	022	04	4
	E1	C	023	04	6		2	C	021	04	3		6	C					4	C			
							3	C	021	04	3	X113	E1	C	022	04	7		5	C			
	1	C	023	04	4		4	C	021	04	2							X116	6	C			
	2	C	023	04	4		5	C	021	04	2		1	C	022	04	8		E1	C	022	04	4
	3	C	023	04	4	X108	6	C	021	04	3		2	C	022	04	8						
X1053	4	C					E1	C	021	04	2	X117	3	C	022	04	9		1	C	010	01	2
	5	C											4	C					2	C	010	01	3
	6	C					1	C	020	04	3		5	C					3	C			
	E1	C	023	04	4		2	C	020	04	3		6	C					4	C			
						X110	3	C	020	04	3	X113	E1	C	022	04	5		5	C			
	A	M	049	03	3		4	C	020	04	2							X117	6	C			
X1053	A	M	049	03	3		5	C	020	04	2		1	C	025	04	5		E1	C			
	B	M	049	03	3		6	C	020	04	3		2	C	025	04	5						
	B	M	049	03	3		E1	C	020	04	2	X117	3	C					1	C	010	01	4
	C	M	049	03	3	X110							4	C					2	C	010	01	4
	C	M	049	03	3		1	C	022	04	2		5	C					3	C			
	D	M	049	03	3		2	C	022	04	2		6	C					4	C			
X1053	D	M	049	03	3							X110	E1	C	025	04	5		5	C			

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TETRA PAK

This list must not without the consent of Tetra Pak
be copied, transmitted or disclosed to any third party

Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos
X117	6	C				X1250	6	M	157	03	5	X1251	6	M	158	04	5	X127	1	C	017	04	8
	E1	C					6-	M	157	03	6		6-	M	158	04	6		2	C	017	04	9
							7	M	157	03	5		7	M	159	01	5		3	C	017	04	9
X119	1	C	007	01	6		7-	M	157	03	6		7-	M	159	01	6		4	C	017	04	9
	2	C	007	01	7		8	M	157	03	5		8	M	159	01	5		6	C			
	3	C	007	01	8		8-	M	157	03	6		8-	M	159	01	6		E1	C	017	04	9
	4	C					9	M	158	04	5		9	M	159	01	5						
	5	C					9-	M	158	04	6		9-	M	159	01	6	X128	1	C	014	03	2
	6	C					E1	M	157	03	6		10	M	159	01	5		2	C	014	03	2
	E1	C					E2	M	157	03	6		10-	M	159	01	6		3	C	014	03	3
							E3	M	157	03	6		E1	M	158	04	6		4	C	014	03	3
X121	1	C	010	01	7		E4	M	157	03	6		E2	M	158	04	6		5	C	014	03	2
	2	C	010	01	8		E5	M	157	03	6		E3	M	158	04	6		6	C			
	3	C					E6	M	157	03	6		E4	M	158	04	6		E1	C	014	03	2
	4	C					E7	M	157	03	6		E5	M	158	04	6						
	5	C					E8	M	157	03	6		E6	M	158	04	6	X129	1	C	016	04	6
	6	C					E9	M	158	04	6		E7	M	159	01	6		2	C	016	04	6
	E1	C					E10	M					E8	M	159	01	6		3	C			
X1250	1	M	157	03	5	X1251	1	M	158	04	5		E9	M	159	01	6		4	C			
	1-	M	157	03	6		1-	M	158	04	6		E10	M	159	01	6		5	C			
	2	M	157	03	5		2	M	158	04	5	X126	1	C	017	04	4		6	C			
	2-	M	157	03	6		2-	M	158	04	6		2	C	017	04	4		E1	C			
	3	M	157	03	5		3	M	158	04	5		3	C	017	04	4	X130	1	C	016	04	4
	3-	M	157	03	6		3-	M	158	04	6		4	C	017	04	5		2	C	016	04	4
	4	M	157	03	5		4	M	158	04	5		6	C					3	C	016	04	4
	4-	M	157	03	6		4-	M	158	04	6		E1	C	017	04	4		4	C	016	04	4
	5	M	157	03	5		5	M	158	04	5								5	C			
	5-	M	157	03	6		5-	M	158	04	6								6	C			

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Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos
X130	E1	C	016	04	4	X132	1	C	032	04	4	X136	6	C				X2000	3	M	022	04	7
							2	C					E1	C	025	04	8		4	M	022	04	8
X1300	+	M	087	04	2		3	C	032	04	4								5	M	022	04	8
	-	M	087	04	2		4	C				X137	1	C	006	04	5		6	M	022	04	9
							5	C					2	C	006	04	6		7	M	022	04	10
X1301	+	M	087	04	2		6	C					3	C	006	04	7		7	M			
	-	M	087	04	2		E1	C					4	C					8	M	022	04	10
													5	C					8	M			
X1302	+	M	087	04	2	X133	1	C	011	01	2		6	C					9	M	022	04	10
	-	M	087	04	2		2	C	011	01	3		E1	C					9	M			
							3	C											101	M	065	01	6
X1303	+	M	087	04	2		4	C				X138	1	C	006	04	7		102	M	065	01	5
	-	M	087	04	2		5	C					2	C	006	04	8		103	M	065	01	6
							6	C					3	C	006	04	8		103+	M	065	01	5
X1304	+	M	087	04	2		E1	C					4	C					104	M	127	04	5
	-	M	087	04	2								5	C					104+	M	127	04	4
						X135	1	C	007	01	2		6	C					104-	M	127	04	4
X1305	+	M	087	04	2		2	C	007	01	3		E1	C					105	M	082	04	5
	-	M	087	04	2		3	C	007	01	4								105+	M	082	04	2
							4	C				X1402	1	M	012	01	3		105-	M	082	04	2
X1306	+	M	087	04	2		5	C											106	M	082	04	5
	-	M	087	04	2		6	C				X160	1	C	012	01	7		106+	M	082	04	2
							E1	C											106-	M	082	04	2
X1307	+	M	087	04	2							X161	1	C	012	01	8		107	M	082	04	5
	-	M	087	04	2	X136	1	C	025	04	7								107+	M	082	04	2
							2	C	025	04	7	X162	1	C	012	01	3		107-	M	082	04	2
X1314	1	M	054	03	5		3	C											108	M	127	04	5
	2	M	054	03	5		4	C				X2000	1	M	022	04	7		108+	M	127	04	4
	3	M	054	03	5		5	C					2	M	022	04	7		108-	M	127	04	4

INTRODUCED WITH EC NO: 73362 DATE: 010130 SIGN: AMI

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Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos
X2000	109	M	127	04	5	X2000	122+	M				X2000	132+	M	128	04	3	X2000	139-	M			
	109+	M	127	04	4		122-	M					132-	M	128	04	3		139-	M	128	04	3
	109-	M	127	04	4		123	M	062	04	5		133	M	128	04	6		140	M			
	110	M					123+	M					133+	M	128	04	3		140+	M			
	110+	M	127	04	4		124	M	062	04	5		133-	M	128	04	3		140-	M			
	110-	M	127	04	4		124+	M					134	M					141	M			
	111	M					124-	M					134+	M	128	04	3		141+	M			
	111+	M					125	M	062	04	6		134-	M	128	04	3		141-	M			
	111-	M					125+	M					135	M	128	04	6		142	M			
	112	M					125-	M					135+	M	128	04	3		142+	M			
	112+	M					126	M	062	04	6		135-	M					142-	M			
	112-	M					126+	M					136	M	128	04	6		143	M			
	113	M					126-	M					136+	M	128	04	3		143+	M			
	113+	M					127	M	113	04	3		136-	M					143-	M			
	113-	M					127+	M					137	M					144	M			
	114	M					127-	M					137	M	128	04	6		144+	M			
	114+	M					128	M	113	04	4		137+	M	128	04	3		144-	M			
	114-	M					128+	M					137+	M					145	M	060	04	4
	115	M					128-	M					137-	M					146	M	060	04	4
	115+	M					129	M	059	04	3		137-	M	128	04	3		147	M	060	04	4
	115-	M					129+	M					138	M	128	04	6		148	M	060	04	4
	116	M					129-	M					138	M					149	M	060	04	6
	116+	M					130	M	059	04	3		138+	M	128	04	3		150	M	060	04	6
	116-	M					130+	M					138+	M					151	M	060	04	6
	117	M					130-	M					138-	M	128	04	3		152	M	060	04	6
	117+	M					131	M	128	04	6		138-	M					E1	M	022	04	7
	117-	M					131+	M	128	04	3		139	M					E2	M	022	04	9
	121+	M					131-	M	128	04	3		139+	M					E3	M			
	122	M					132	M					139+	M	128	04	3		E3	M	022	04	10

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TETRA PAK

This list must not without the consent of Tetra Pak
be copied, transmitted or disclosed to any third party

Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos
X2000	E4	M				X2001	109	M	063	01	2	X2001	138	M	122	04	6	X2001	167	M	055	01	6
	E5	M	059	04	6		110	M	063	01	2		139	M	122	04	6		168	M	055	01	4
	E6	M	059	04	6		111	M	063	01	1		140	M	047	02	4		169	M	055	01	6
	E7	M	059	04	3		112	M	063	01	1		141	M	047	02	4		170	M	083	01	5
	E8	M					113	M	063	01	5		142	M					171	M	083	01	7
	E9	M					114	M	063	01	5		143	M					172	M	083	01	5
	E10	M	060	04	6		115	M	063	01	5		144	M					173	M	083	01	7
	E11	M	060	04	7		116	M	063	01	5		145	M					174	M	122	04	6
	E12	M					117	M	063	01	4		146	M					175	M	122	04	2
	E13	M					118	M	063	01	4		147	M					176	M	122	04	2
	E14	M					119	M	063	01	3		148	M					177	M	083	01	5
	E15	M					120	M	063	01	3		149	M					178	M			
	E16	M					121	M	063	01	2		150	M					179	M	083	01	7
	E17	M					122	M	063	01	2		151	M					180	M	083	01	5
							123	M	063	01	1		152	M					181	M			
							124	M	063	01	1		153	M					182	M	083	01	7
X2001	1	M	032	04	9	X2001	125	M	063	01	1	X2001	154	M				X2001	183	M			
	2	M	032	04	9		126	M	063	01	1		155	M					183	M	126	03	5
	3	M	032	04	7		127	M	063	01	2		156	M					184	M	126	03	3
	4	M	032	04	7		128	M	063	01	2		157	M					184	M			
	5	M					129	M	063	01	3		158	M	122	04	2		185	M	056	03	3
	6	M					130	M	063	01	3		159	M					186	M	056	03	3
	101	M	063	01	5		131	M	063	01	4		160	M	122	04	2		187	M	056	03	3
	102	M	063	01	5		132	M	063	01	4		161	M	122	04	6		188	M	056	03	3
	103	M					133	M	063	01	5		162	M	122	04	2		189	M	056	03	5
	104	M					134	M	063	01	5		163	M	122	04	6		190	M			
	105	M	063	01	4		135	M	063	01	5		164	M	122	04	6		191	M			
	106	M	063	01	4		136	M	063	01	5		165	M	122	04	6		192	M			
	107	M	063	01	3		137	M	122	04	2		166	M	055	01	4		193	M			
	108	M	063	01	3																		

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Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos
X2001	194	M				X2001	E23	M	126	03	5	X2003	127	M	106	04	5	X2003	E15	M			
	195	M					E24	M	056	03	5		128	M	106	04	3						
	196	M										129	M					X2038	+	M	088	02	2
	197	M				X2003	101	M	159	01	4		130	M					-	M	088	02	2
	198	M					102	M	159	01	4		131	M									
	199	M	122	04	2		103	M	159	01	4		132	M				X2050	101	M	122	04	3
	200	M	122	04	2		104	M	159	01	4		133	M					102	M	122	04	4
	E1	M					105	M	160	04	4		134	M					103	M	122	04	2
	E2	M	032	04	7		106	M	159	01	7		135	M					104	M	122	04	2
	E3	M					107	M	160	04	4		136	M					105	M			
	E4	M					108	M	160	04	4		137	M					106	M			
	E5	M					109	M	160	04	4		138	M					107	M	047	02	3
	E6	M					110	M	160	04	7		139	M					108	M	047	02	3
	E7	M					111	M	144	04	5		140	M					E1	M	122	04	4
	E8	M					112	M	144	04	7		E1	M					E2	M	122	04	4
	E9	M					113	M	145	01	4		E1	M	160	04	7		E3	M			
	E10	M					114	M	145	01	5		E2	M	144	04	7						
	E11	M					115	M	165	01	5		E3	M	145	01	5	X2051	1	M	159	01	5
	E12	M					116	M	165	01	6		E4	M	165	01	6		1-	M	159	01	6
	E13	M					117	M	161	01	4		E5	M	161	01	6		2	M	159	01	5
	E14	M					118	M	161	01	6		E6	M					2-	M	159	01	6
	E15	M	122	04	6		119	M	119	02	4		E7	M					3	M	159	01	5
	E16	M	122	04	2		120	M	119	02	3		E8	M					3-	M	159	01	6
	E17	M	055	01	4		121	M	119	02	4		E9	M					4	M	159	01	5
	E18	M	055	01	4		122	M	119	02	3		E10	M					4-	M	159	01	6
	E19	M	083	01	5		123	M	119	02	4		E11	M					5	M	160	04	4
	E20	M	083	01	5		124	M	119	02	3		E12	M					5-	M	160	04	6
	E21	M	083	01	5		125	M	119	02	4		E13	M					6	M	160	04	4
	E22	M	083	01	5		126	M	119	02	3		E14	M					6-	M	160	04	6

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Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos
X2051	7	M	160	04	4	X206	17	C				X209	13	C				X213	16	C	166	01	2
	7-	M	160	04	6		18	C					14	C					17	C	166	01	2
	8	M	160	04	4		19	C					15	C					18	C	167	01	2
	8-	M	160	04	6		20	C					16	C					19	C	167	01	2
	E1	M	159	01	6		21	C					17	C					20	C			
	E2	M	159	01	6		22	C	080	01	3		18	C					21	C			
	E3	M	159	01	6		23	C	080	01	3		19	C					22	C			
	E4	M	159	01	6		24	C	080	01	3		20	C					23	C	081	01	6
	E5	M	160	04	6		E1	C					21	C					24	C	167	01	7
	E6	M	160	04	6								22	C					E1	C			
	E7	M	160	04	6	X2062	1	M	122	04	3		23	C									
	E8	M	160	04	6		2	M	122	04	5		24	C				X214	1	C	065	01	6
							3	M	122	04	5		E1	C					2	C	065	01	4
X206	1	C	034	04	4		4	M	047	02	3								3	C	065	01	6
	2	C	034	04	4		5	M	047	02	3	X213	1	C	081	01	5		4	C	127	04	6
	3	C					E1	M					2	C	081	01	5		5	C	082	04	6
	4	C											3	C	081	01	5		6	C	082	04	6
	5	C	062	04	5	X209	1	C	133	01	6		4	C	081	01	5		7	C	082	04	6
	6	C	062	04	8		2	C	133	01	2		5	C	081	01	5		8	C	127	04	6
	7	C	132	01	6		3	C	167	01	2		6	C	081	01	5		9	C	127	04	6
	8	C	132	01	6		4	C	167	01	2		7	C	081	01	5		10	C			
	9	C	132	01	6		5	C	167	01	2		8	C	081	01	5		11	C			
	10	C	162	03	3		6	C	167	01	7		9	C	081	01	5		12	C			
	11	C	162	03	3		7	C					10	C	166	01	2		13	C			
	12	C					8	C					11	C	166	01	2		14	C			
	13	C					9	C					12	C	166	01	2		15	C			
	14	C					10	C					13	C	166	01	2		16	C			
	15	C					11	C					14	C	166	01	2		17	C			
	16	C					12	C					15	C	166	01	2		18	C			

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Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos
X214	19	C				X215	20	C				X216	23	C	122	04	1	X219	1	C	113	04	5
	20	C					21	C	059	04	2		24	C					2	C	113	04	5
	21	C					22	C	059	04	2		E1	C					3	C	113	04	6
	22	C					23	C	128	04	1					4	C						
	23	C	127	04	2		24	C	128	04	1	X218	1	C	120	03	6	5	C				
	24	C	127	04	2		E1	C					2	C	120	03	6	6	C	114	01	6	
	E1	C									3		C	120	03	6	7	C	114	01	6		
X215	1	C	062	04	5	X216	1	C	063	01	5		4	C	120	03	6	8	C	169	01	2	
	2	C	062	04	5		2	C	063	01	5	5	C	120	03	6	9	C	169	01	7		
	3	C	062	04	6		3	C				6	C	120	03	6	10	C	169	01	2		
	4	C	062	04	6		4	C	063	01	2	7	C	120	03	6	11	C	169	01	2		
	5	C	062	04	6		5	C	063	01	1	8	C	120	03	6	12	C	169	01	2		
	6	C	113	04	3		6	C	063	01	4	9	C	121	03	6	13	C	169	01	2		
	7	C	113	04	4		7	C	063	01	3	10	C	121	03	1	14	C	169	01	2		
	8	C	059	04	2		8	C	063	01	1	11	C	121	03	1	15	C	169	01	2		
	9	C	059	04	2		9	C	063	01	3	12	C	133	01	6	16	C	169	01	2		
	10	C	128	04	6		10	C	063	01	4	13	C	133	01	6	17	C					
	11	C	128	04	6		11	C	063	01	6	14	C	133	01	6	18	C					
	12	C	128	04	6		12	C	063	01	6	15	C	133	01	6	19	C					
	13	C	128	04	6		13	C	122	04	6	16	C	121	03	6	20	C					
	13	C	128	04	6		14	C	122	04	6	17	C	121	03	6	21	C					
	13	C					15	C	047	02	4	19	C				22	C					
	14	C					16	C	047	02	4	20	C	121	03	6	23	C					
	14	C	128	04	6		17	C				21	C				24	C					
	15	C					18	C				22	C				E1	C					
	16	C					19	C				23	C	121	03	1	X220	1	C	055	01	4	
	17	C					20	C				24	C	121	03	1		2	C	055	01	4	
18	C				21	C				E1	C				3	C		165	01	3			
19	C				22	C				E2	C												

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Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos		
X220	4	C	165	01	3	X221	7	C				X222	10	C				X223	13	C					
	5	C	165	01	3		8	C	126	03	6		11	C					14	C	058	04	6		
	6	C	165	01	3		9	C	126	03	6		12	C					15	C	058	04	6		
	7	C					10	C	126	03	6		13	C	062	04	3		16	C	058	04	6		
	8	C					11	C	082	04	6		14	C	062	04	3		17	C	058	04	6		
	9	C	126	03	6		12	C	127	04	6		15	C	062	04	1		18	C	058	04	6		
	10	C	126	03	6		13	C	127	04	6		16	C	062	04	1		19	C	058	04	6		
	11	C	126	03	6		14	C	062	04	1		17	C	113	04	1		20	C	058	04	6		
	12	C	126	03	6		15	C	062	04	1		18	C	113	04	5		21	C	058	04	6		
	13	C	165	01	3		16	C	062	04	3		19	C	113	04	5		22	C	058	04	6		
	14	C	126	03	2		17	C	062	04	4		20	C	113	04	5		23	C	058	04	2		
	15	C	165	01	7		18	C	062	04	4		21	C	113	04	5		24	C	058	04	6		
	16	C	048	01	3		19	C	065	01	2		22	C	113	04	5		E1	C					
	17	C	048	01	3		20	C	065	01	2		23	C	113	04	5		X224	1	C	061	01	1	
	18	C	048	01	3		21	C	065	01	3		24	C	113	04	5			2	C	061	01	1	
	19	C	048	01	3		22	C	065	01	3		E1	C			3			C	061	01	4		
	20	C	048	01	3		23	C	127	04	6		X223	1	C	119	02			6	4	C	061	01	5
	21	C					24	C			2			C	046	02	4			5	C	061	01	5	
	22	C					E1	C	065	01	4			3	C	046	02			4	6	C	062	04	4
	23	C					X222	1	C					4	C					7	C	062	04	4	
	24	C						2	C					5	C	161	01			2	8	C	062	04	3
	E1	C						3	C					6	C	161	01		2	9	C	062	04	1	
	X221	1	C						4	C					7	C	161		01	2	10	C	062	04	1
		2	C						5	C					8	C				11	C				
3		C				6		C			9	C			12	C									
4		C				7		C			10	C			13	C	054	03	7						
5		C				8		C			11	C			14	C	049	03	6						
6		C				9	C			12	C			15	C	121	03	6							

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Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos
X224	16	C	047	02	3	X2244	4	M	159	01	3	X225	7	C	123	04	6	X226	10	C	163	01	2
	17	C	047	02	3		5	M	160	04	3		8	C	123	04	6		11	C	163	01	2
	18	C	016	04	8		6	M	160	04	3		9	C	123	04	6		12	C	163	01	2
	19	C	049	03	3		7	M	160	04	3		10	C	124	03	6		13	C	163	01	2
	20	C	049	03	3		8	M	160	04	3		11	C	124	03	6		14	C	163	01	2
	21	C	167	01	2		9	M	144	04	4		12	C	124	03	6		15	C	163	01	2
	22	C	095	02	6		10	M	144	04	7		13	C	124	03	6		16	C	014	03	4
	23	C	121	03	1		11	M	145	01	4		14	C	124	03	6		17	C	112	01	6
	24	C	095	02	2		12	M	145	01	6		15	C	124	03	6		18	C	014	03	4
E1	C				13	M	165	01	3	16	C	124	03	6	19	C	014	03	8				
X2241	1	M	023	04	7	14	M	161	01	3	17	C	124	03	6	20	C	014	03	8			
	2	M	023	04	7	15	M	119	02	4	18	C	062	04	6	21	C	014	03	6			
	3	M	023	04	7	16	M	119	02	4	19	C	062	04	6	22	C						
	E1	M	023	04	8	17	M	119	02	4	20	C	062	04	5	23	C	014	03	3			
						18	M	119	02	4	21	C	062	04	5	24	C	014	03	3			
X2242	1	M	023	04	9	19	M	106	04	5	22	C	125	01	6	E1	C						
	2	M	023	04	9	20	M				23	C	125	01	2	X227	1	C	122	04	6		
	3	M	023	04	9	21	M				24	C	124	03	1		2	C	122	04	6		
	E1	M	023	04	9	22	M				E1	C			3		C	122	04	6			
X2243	1	M	022	04	5	23	M	106	04	2	X226	1	C	150	03		3	4	C	122	04	6	
	2	M	022	04	5	24	M	161	01	6		2	C	125	01	6	5	C	055	01	4		
	3	M	022	04	5	E1	M					3	C	125	01	6	6	C	055	01	4		
	E1	M	022	04	6							4	C	125	01	6	7	C	083	01	5		
X2244	1	M	159	01	3	X225	1	C	123	04	6	5	C	164	02	3	8	C	083	01	5		
	2	M	159	01	3		2	C	082	04	6	6	C	125	01	6	9	C	122	04	6		
	3	M	159	01	3		3	C	123	04	6	7	C	164	02	3	10	C	083	01	5		
						4	C	123	04	6	8	C	164	02	3	11	C						
						5	C	082	04	6	9	C	164	02	3	11	C	083	01	5			
						6	C	123	04	6													

INTRODUCED WITH EC NO: 73362 DATE: 010130 SIGN: AMI

DESCRIPTION: TERMINAL SUMMARY

ISSUE:

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DATE :

SIGN :

MACHINE: TBA/21-0500

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Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos
X227	12	C	126	03	6	X229	14	C	061	01	4	X230	16	C	158	04	3	X231	17	C			
	12	C					15	C	061	01	5		17	C	158	04	3		18	C			
	13	C	056	03	3		16	C	119	02	6		18	C	158	04	7		19	C	156	04	3
	14	C	056	03	3		17	C	119	02	6		19	C	158	04	3		20	C	162	03	2
	15	C	056	03	3		18	C	119	02	6		20	C	159	01	2		21	C	162	03	2
	16	C	056	03	3		19	C	082	04	6		21	C	159	01	2		22	C	162	03	2
	17	C					20	C	113	04	1		22	C	159	01	2		23	C	125	01	2
	18	C					21	C	113	04	2		23	C	159	01	2		24	C	125	01	2
	19	C					22	C					24	C	158	04	7		E1	C			
	20	C					22	C	121	03	6		E1	C	158	04	7						
	21	C					23	C	082	04	1		E2	C	159	01	7	X2320	1	M	122	04	3
	22	C					24	C	082	04	1								2	M	122	04	4
	23	C	122	04	1		E1	C				X231	1	C	064	01	5		3	M	122	04	4
	24	C	122	04	1								2	C	064	01	5		4	M	122	04	4
	E1	C				X230	1	C	157	03	4		3	C	064	01	3		E	M	122	04	3
							2	C	157	03	4		4	C	064	01	1						
X229	1	C	047	02	3		3	C	157	03	4		5	C	064	01	5	X234	1	C	159	01	2
	2	C	047	02	3		4	C	157	03	4		6	C	064	01	5		2	C	159	01	2
	3	C	046	02	4		5	C	157	03	4		7	C	156	04	3		3	C	159	01	2
	4	C	046	02	4		6	C	157	03	7		8	C	125	01	6		4	C	159	01	2
	5	C	046	02	4		7	C	157	03	4		9	C	125	01	6		5	C	160	04	2
	6	C	046	02	4		8	C	157	03	4		10	C	164	02	3		6	C	160	04	2
	7	C	046	02	4		9	C	157	03	4		11	C	125	01	6		7	C	160	04	2
	8	C	161	01	2		10	C	158	04	3		12	C	056	03	3		8	C	160	04	2
	9	C	161	01	2		11	C					13	C	056	03	3		9	C	144	04	2
	10	C	061	01	1		12	C	157	03	7		14	C	056	03	3		10	C	144	04	7
	11	C	061	01	1		13	C	158	04	3		15	C	056	03	3		11	C	145	01	2
	12	C	061	01	4		14	C	158	04	3		16	C	162	03	2		12	C	145	01	6
	13	C	061	01	4		15	C	158	04	3		16	C					13	C	165	01	3

INTRODUCED WITH EC NO: 73362 DATE: 010130 SIGN: AMI

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Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos
X234	14	C	161	01	2	X307	+	C	087	04	3	X4000	102-	M	055	01	6	X4000	112+	M			
	15	C	119	02	6		-	C	087	04	3		103	M	165	01	5		112-	M			
	16	C	119	02	6								103+	M					113	M	165	01	5
	17	C	119	02	6	X308	+	C	087	04	3		103-	M	165	01	6		113+	M	126	03	2
	18	C	119	02	6		-	C	087	04	3		104	M	165	01	5		113-	M	165	01	6
	19	C	106	04	6								104+	M					114	M	048	01	3
	20	C				X309	+	C	087	04	3		104-	M	165	01	6		114+	M			
	21	C					-	C	087	04	3		105	M	165	01	5		114-	M			
	22	C											105+	M					115	M	048	01	3
	23	C	106	04	1	X310	+	C	087	04	3		105-	M	165	01	6		115+	M			
	24	C	161	01	7		-	C	087	04	3		106	M	165	01	5		115-	M			
	E1	C											106+	M					116	M	048	01	3
						X311	+	C	087	04	3		106-	M	165	01	6		116+	M			
X301	+	C	088	02	3		-	C	087	04	3		107	M					116-	M			
	-	C	088	02	3								107+	M					117	M	048	01	3
						X313	+	C	087	04	3		107-	M					117+	M			
X302	+	C	088	02	3		-	C	087	04	3		108	M					117-	M			
	-	C	088	02	3								108+	M					118	M	048	01	3
						X314	+	C	088	02	3		108-	M					118+	M			
X303	+	C	088	02	3		-	C	088	02	3		109	M	126	03	5		118-	M			
	-	C	088	02	3								109+	M	126	03	3		119	M			
						X315	+	C	087	04	3		109-	M	126	03	3		119+	M			
X304	+	C	088	02	3		-	C	087	04	3		110	M	126	03	5		119-	M			
	-	C	088	02	3								110+	M	126	03	3		120	M			
						X4000	101	M	055	01	4		110-	M					120+	M			
X306	+	C	087	04	3		101+	M					111	M	126	03	5		120-	M			
	-	C	087	04	3		101-	M	055	01	6		111+	M	126	03	3		121	M			
							102	M	055	01	4		111-	M					121+	M			
							102+	M					112	M	126	03	5		121-	M			

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Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos	
X4000	122	M				X4000	131-	M	127	04	4	X4000	141+	M				X4000	151	M	081	01	5	
	122+	M					132	M	127	04	5		141-	M					151+	M				
	122-	M					132+	M	127	04	4		142	M	065	01	2		151-	M				
	123	M					132-	M	127	04	4		142+	M					152	M	081	01	5	
	123+	M					133	M	062	04	2		142-	M					152+	M				
	123-	M					133+	M					143	M	065	01	3		152-	M				
	124	M					133-	M					143+	M					153	M	081	01	5	
	124+	M					134	M	062	04	2		143-	M					153+	M				
	124-	M					134+	M					144	M	065	01	3		153-	M	081	01	5	
	125	M					134-	M					144+	M					154	M	081	01	5	
	125+	M					135	M	062	04	2		144-	M					154+	M				
	125-	M					135+	M					145	M	127	04	5		154-	M				
	126	M					135-	M					145+	M	127	04	4		155	M	081	01	5	
	126+	M					136	M	062	04	2		145-	M	127	04	4		155+	M				
	126-	M					136+	M					146	M					155-	M				
	127	M	126	03	5		136-	M					146+	M					156	M	166	01	4	
	127+	M	126	03	3		137	M	062	04	3		146-	M					156+	M				
	127-	M	126	03	3		137+	M					147	M	081	01	5		156-	M				
	128	M	126	03	5		137-	M					147+	M	081	01	5		157	M	166	01	4	
	128+	M	126	03	3		138	M	062	04	3		147-	M					157+	M				
	128-	M	126	03	3		138+	M					148	M	081	01	5		157-	M				
	129	M	126	03	5		138-	M					148+	M					158	M	166	01	4	
	129+	M	126	03	3		139	M	062	04	4		148-	M					158+	M				
	129-	M	126	03	3		139+	M					149	M	081	01	5		158-	M				
	130	M	082	04	5		139-	M					149+	M					159	M	166	01	4	
	130+	M	082	04	2		140	M	062	04	4		149-	M					159+	M				
	130-	M	082	04	2		140+	M					150	M	081	01	5		159-	M				
	131	M	127	04	5		140-	M					150+	M					160	M	166	01	4	
	131+	M	127	04	4		141	M	065	01	2		150-	M					160+	M				

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Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos
X4000	160-	M	166	01	7	X4000	E5	M				X402	4	C	053	03	6	X4055	5	M	052	03	6
	161	M	166	01	4		E6	M					5	C	053	03	6						
	161+	M					E8	M	126	03	3							X4056	1	M	019	02	3
	161-	M					E8	M				X4050	1	M	021	04	4		2	M	019	02	3
	162	M	166	01	4		E9	M	165	01	6		2	M	021	04	4		3	M	019	02	4
	162+	M					E10	M					3	M	021	04	4		4	M	019	02	4
	162-	M					E11	M	048	01	3		4	M	021	04	4		5	M	019	02	4
	163	M	166	01	4		E12	M					5	M	021	04	4		6	M	019	02	4
	163+	M					E13	M					6	M	021	04	4		E1	M	019	02	3
	163-	M					E14	M					E1	M	021	04	4						
	164	M	167	01	3		E15	M				X4051	1	M	020	04	4	X4057	1	M	025	04	5
	164+	M					E16	M					2	M	020	04	4		2	M	025	04	5
	164-	M					E17	M					3	M	020	04	4		3	M			
	165	M	167	01	3		E18	M					4	M	020	04	4		4	M			
	165+	M					E19	M	065	01	3		5	M	020	04	4		5	M			
	165-	M	167	01	7		E20	M	081	01	5		6	M	020	04	4		6	M	025	04	5
	166	M					E21	M					E1	M	020	04	4						
	166+	M					E21	M	167	01	7							X4058	1	M	166	01	5
	166-	M					E22	M											1-	M	166	01	6
	167	M										X4054	1	M	052	03	6		2	M	166	01	5
	167+	M				X401	1	C	053	03	6		2	M	052	03	6		2-	M	166	01	6
	167-	M					2	C	053	03	6		3	M	052	03	6		3	M	166	01	5
	168	M					3	C	053	03	6		4	M	052	03	6		3-	M	166	01	6
	168+	M	081	01	6		4	C	053	03	6		5	M	052	03	6		4	M	166	01	5
	168-	M	167	01	7		5	C	053	03	6								4-	M	166	01	6
	E1	M	165	01	6							X4055	1	M	052	03	6		5	M	166	01	5
	E2	M	165	01	6	X402	1	C	053	03	6		2	M	052	03	6		5-	M	166	01	6
	E3	M	165	01	6		2	C	053	03	6		3	M	052	03	6		6	M	166	01	5
	E4	M	165	01	6		3	C	053	03	6		4	M	052	03	6		6-	M	166	01	6

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Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos
X4058	7	M	166	01	5	X4100	2	M	055	01	6	X4312	1	M	055	01	5	X452	15	C			
	7-	M	166	01	6		2	M	055	01	6		2	M	055	01	6		16	C			
	8	M	166	01	5								3	M	055	01	6		17	C			
	8-	M	166	01	6	X4306	1	M	083	01	5		E	M	055	01	5		18	C			
	9	M	167	01	5		2	M	083	01	6								19	C			
	9-	M	167	01	6		3	M	083	01	6	X450		C	060	04	3		20	C			
	10	M	167	01	5		E	M	083	01	5								21	C			
	10-	M	167	01	6							X4501	X4501	M	060	04	6		22	C			
	E1	M	166	01	6	X4307	1	M	083	01	5								23	C			
	E2	M	166	01	6		2	M	083	01	6	X45011	X4501	M	060	04	7		24	C			
	E3	M	166	01	6		3	M	083	01	6								25	C			
	E4	M	166	01	6		E	M	083	01	5	X451	1	C	060	04	3		26	C			
	E5	M	166	01	6								2	C					27	C			
	E6	M	166	01	6	X4308	1	M	083	01	5		3	C	060	04	4		28	C			
	E7	M	166	01	6		2	M	083	01	6								29	C			
	E8	M	166	01	6		3	M	083	01	6	X452	1	C					30	C			
	E9	M	167	01	6		E	M	083	01	5		2	C					31	C			
	E10	M	167	01	6								3	C					32	C			
						X4309	1	M	083	01	5		4	C					33	C			
X4070	1	M	012	01	7		2	M	083	01	6		5	C					34	C			
							3	M	083	01	6		6	C					35	C			
X4071	1	M	012	01	7		E	M	083	01	6		7	C					36	C			
													8	C					37	C			
X4072	1	M	012	01	8	X4311	1	M	055	01	5		9	C					38	C			
							2	M	055	01	6		10	C					39	C			
X4073	1	M	012	01	8		3	M	055	01	6		11	C					40	C			
							E	M	055	01	5		12	C					41	C			
X4100	1	M	055	01	5								13	C					42	C			
	1	M	055	01	5								14	C					43	C			

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Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos
X452	44	C				X5007	E1	M				X503	4	C				X602	6	C			
	45	C					+	M	088	02	2		5	C					E1	C			
	46	C					-	M	088	02	2		6	C									
	47	C										E1	C	022	04	6		X6050	1	M	014	03	7
	48	C				X5008	E1	M										X7001	1	M	014	03	2
	49	C					+	M	088	02	2	X5601	1	M	128	04	5		2	M	014	03	2
	50	C					-	M	088	02	2		2	M	128	04	3		3	M	014	03	3
		C	060	04	4								3	M	128	04	3		4	M	014	03	3
X453		C	060	04	4	X5009	E1	M					4	M	128	04	3		5	M	014	03	2
													5	M	128	04	3		6	M	014	03	3
X454	X454	C	060	04	4	X501	1	C	006	04	2		6	M					7	M	032	04	4
							2	C	006	04	3		7	M					8	M	032	04	4
							3	C	006	04	3		8	M					9	M	032	04	5
X5002	1	M	010	01	2		4	C				E1	M						10	M	032	04	5
	2	M	010	01	3		5	C				E2	M						11	M	032	04	6
	E1	M					6	C											12	M	032	04	6
							E1	C	006	04	4	X601	1	C	023	04	2		15	M	011	01	2
X5003	1	M	010	01	4								2	C	023	04	2		16	M	011	01	3
	2	M	010	01	4	X502	1	C	019	02	3		3	C	023	04	2		101	M	123	04	5
	E1	M					2	C	019	02	3		4	C					101+	M	123	04	3
							3	C	019	02	3		5	C					101-	M	123	04	3
X5004	1	M	010	01	7		4	C	019	02	2		6	C					102	M	082	04	5
	2	M	010	01	8		5	C	019	02	2		E1	C	023	04	2		102+	M	082	04	2
	E1	M					6	C	019	02	2								102-	M	082	04	2
							E1	C	019	02	1	X602	1	C	025	04	1		103	M	123	04	5
X5006	E1	M											2	C	025	04	2		103+	M	123	04	3
	+	M	088	02	2	X503	1	C	022	04	5		3	C	025	04	3		103-	M	123	04	3
	-	M	088	02	2		2	C	022	04	5		4	C	122	04	1		104	M	123	04	5
							3	C	022	04	5		5	C	122	04	6						

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Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos
X7001	104+	M	123	04	3	X7001	114	M	124	03	5	X7001	123-	M	150	03	6	X7001	133-	M			
	104-	M	123	04	3		114+	M	124	03	3		124	M	125	01	5		134	M	164	02	5
	105	M	082	04	5		114-	M					124+	M	125	01	3		134+	M			
	105+	M	082	04	2		115	M	124	03	5		124-	M	125	01	3		134-	M			
	105-	M	082	04	2		115+	M					125+	M	125	01	3		135	M	164	02	5
	106	M	123	04	5		115-	M					125-	M	125	01	3		135+	M			
	106+	M	123	04	3		116	M	124	03	5		126	M	125	01	5		135-	M			
	106-	M	123	04	3		116+	M					126+	M	125	01	3		136	M	164	02	5
	107	M	123	04	5		116-	M					126-	M	125	01	3		136+	M			
	107+	M	123	04	3		117	M	124	03	5		127	M					136-	M			
	107-	M	123	04	3		117+	M					127+	M					137	M	163	01	3
	108	M	123	04	5		117-	M					127-	M					137+	M			
	108+	M	123	04	3		118	M	062	04	5		128	M	125	01	5		137-	M	164	02	7
	108-	M	123	04	3		118+	M					128+	M	125	01	3		138	M	163	01	3
	109	M	123	04	5		118-	M					128-	M	125	01	3		138+	M			
	109+	M	123	04	3		119	M	062	04	5		129	M					138-	M			
	109-	M	123	04	3		119+	M					129+	M					139	M	163	01	3
	110	M	124	03	5		119-	M					129-	M					139+	M			
	110+	M	124	03	3		120	M	062	04	5		130	M	164	02	3		139-	M			
	110-	M	124	03	3		120+	M					130+	M	164	02	3		140	M	163	01	3
	111	M	124	03	5		120-	M					130-	M					140+	M			
	111+	M	124	03	3		121	M	062	04	5		131	M	164	02	4		140-	M			
	111-	M	124	03	3		121+	M					131+	M					141	M	163	01	3
	112	M	124	03	5		121-	M					131-	M					141+	M			
	112+	M	124	03	3		122	M	125	01	5		132	M	164	02	4		141-	M			
	112-	M	124	03	3		122+	M	125	01	3		132+	M					142	M	163	01	3
	113	M	124	03	5		122-	M	124	03	2		132-	M					142+	M			
	113+	M	124	03	3		123	M	150	03	3		133	M	164	02	5		142-	M	163	01	7
	113-	M	124	03	3		123+	M					133+	M					143	M	014	03	4

INTRODUCED WITH EC NO: 73362 DATE: 010130 SIGN: AMI

DESCRIPTION: TERMINAL SUMMARY

ISSUE:

EC NO:

MACHINE: TBA/21-0500

44711-004:04

DATE :

SIGN :

21/26

Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos
X7001	143+	M	014	03	3	X7001	153	M	064	01	3	X7001	162-	M	156	04	5	X7001	172+	M			
	143-	M	014	03	3		153+	M					163	M	125	01	5		172-	M	162	03	5
	144	M	112	01	5		153-	M					163+	M	125	01	3		173	M			
	144+	M	014	03	4		154	M	064	01	2		163-	M	125	01	3		173+	M			
	144-	M					154+	M					164	M	125	01	5		173-	M			
	145	M	014	03	4		154-	M					164+	M	125	01	3		174	M			
	145+	M					155	M	064	01	2		164-	M	125	01	3		174+	M			
	145-	M					155+	M					165	M	164	02	5		174-	M			
	146	M	014	03	8		155-	M					165+	M					175	M	156	04	3
	146+	M					156	M	064	01	1		165-	M	164	02	7		175+	M			
	146-	M					156+	M					166	M	125	01	5		175-	M	156	04	5
	147	M	014	03	8		156-	M					166+	M	125	01	3		176	M	162	03	3
	147+	M					157	M	064	01	1		166-	M	125	01	3		176+	M			
	147-	M					157+	M					167	M					176-	M			
	148	M	014	03	6		157-	M					167+	M	125	01	3		177	M	162	03	3
	148+	M					158	M	064	01	5		167-	M	125	01	3		177+	M			
	148-	M					158+	M					168	M	056	03	3		177-	M			
	149	M					158-	M					168+	M					178	M	162	03	3
	149+	M	014	03	3		159	M	064	01	5		168-	M					178+	M	125	01	2
	149-	M	014	03	3		159+	M					169	M	056	03	3		178-	M	125	01	2
	150	M	064	01	5		159-	M					169+	M					E1	M	014	03	2
	150+	M					160	M	064	01	3		169-	M					E2	M	014	03	2
	150-	M					160+	M					170	M	056	03	3		E3	M	032	04	4
	151	M	064	01	5		160-	M					170+	M					E4	M	032	04	5
	151+	M					161	M	064	01	3		170-	M					E5	M	032	04	6
	151-	M					161+	M					171	M	056	03	3		E6	M			
	152	M	064	01	3		161-	M					171+	M					E7	M			
	152+	M					162	M	156	04	3		171-	M	056	03	5		E8	M			
	152-	M					162+	M					172	M	162	03	3		E9	M			

INTRODUCED WITH EC NO: 73362 DATE: 010130 SIGN: AMI

DESCRIPTION: TERMINAL SUMMARY

ISSUE:

EC NO:

DATE :

SIGN :

MACHINE: TBA/21-0500 44711-004:04

22/26

Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos
X7001	E10	M				X7050	10	M	163	01	5	X79012	1	M	162	03	4	X901	120	C	113	04	4
	E11	M	164	02	4		10-	M	163	01	6		2	M	162	03	4		121	C	113	04	4
	E12	M	163	01	7		E1	M	164	02	6		3	M	162	03	4		122	C	113	04	4
	E13	M	014	03	4		E2	M	164	02	6		4	M	162	03	6		123	C	113	04	4
	E14	M					E3	M	164	02	6		5	M	162	03	6		124	C	113	04	4
	E15	M	164	02	7		E4	M	164	02	6		6	M				125	C	113	04	4	
	E16	M					E5	M	163	01	6		7	M				126	C	113	04	5	
	E17	M					E6	M	163	01	6		8	M				127	C	113	04	6	
	E18	M	056	03	5		E7	M	163	01	6		9	M				128	C				
E19	M					E8	M	163	01	6							129	C					
						E9	M	163	01	6		X901	101	C					130	C	114	01	4
						E10	M	163	01	6			102	C					131	C	114	01	4
X7050	1	M	164	02	5								103	C					132	C	169	01	3
	1-	M	164	02	6								104	C					133	C	169	01	7
	2	M	164	02	5	X7051	1	M	014	03	7		105	C					134	C	169	01	3
	2-	M	164	02	6								106	C					135	C	169	01	3
	3	M	164	02	5	X7901	6	M					107	C					136	C	169	01	3
	3-	M	164	02	6		7	M					108	C					137	C			
	4	M	164	02	5		8	M					109	C					138	C			
	4-	M	164	02	6								110	C					139	C	169	01	3
	5	M	163	01	5	X79011	1	M	162	03	3		111	C					140	C	169	01	3
	5-	M	163	01	6		2	M	162	03	3		112	C					141	C			
	6	M	163	01	5		3	M	162	03	3		113	C					142	C			
	6-	M	163	01	6		4	M	162	03	6		114	C	062	04	2		143	C			
	7	M	163	01	5		5	M	162	03	6		115	C	062	04	2		144	C			
	7-	M	163	01	6		6	M					116	C	062	04	2		145	C			
	8	M	163	01	5		7	M					117	C	113	04	1		146	C			
	8-	M	163	01	6		8	M					118	C	113	04	4		147	C			
	9	M	163	01	5		9	M					119	C	113	04	4		148	C			
9-	M	163	01	6																			

INTRODUCED WITH EC NO: 73362 DATE: 010130 SIGN: AMI

DESCRIPTION: TERMINAL SUMMARY

ISSUE:

EC NO:

MACHINE: TBA/21-0500

44711-004:04

DATE :

SIGN :

23/26

TETRA PAK

This list must not without the consent of Tetra Pak
be copied, transmitted or disclosed to any third party

Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos
X901	E1	C				XL10	108	C				XL10	137	C				XL10	166	C			
	E2	C					109	C					138	C					167	C			
							110	C					139	C					168	C			
X9100	101	M	133	01	5		111	C					140	C					169	C			
	102	M	133	01	3		112	C					141	C					170	C			
	103	M	167	01	4		113	C					142	C					171	C			
	104	M	167	01	5		114	C					143	C					172	C			
	105	M	167	01	4		115	C					144	C					173	C			
	106	M	167	01	5		116	C					145	C					174	C			
	107	M	167	01	4		117	C					146	C					175	C			
	108	M	167	01	5		118	C					147	C					176	C			
	109	M					119	C					148	C					177	C			
	110	M	167	01	6		120	C					149	C					178	C			
	E1	M					121	C					150	C					179	C			
	E2	M	167	01	5		122	C					151	C					180	C			
	E3	M	167	01	5		123	C					152	C					181	C			
	E4	M	167	01	5		124	C					153	C					182	C			
	E5	M					125	C					154	C					183	C			
							126	C					155	C					184	C			
X9106	+	M	088	02	2		127	C					156	C					185	C			
	-	M	088	02	2		128	C					157	C					186	C			
							129	C					158	C					187	C			
XL10	101	C					130	C					159	C					188	C			
	102	C					131	C					160	C					189	C			
	103	C					132	C					161	C					190	C			
	104	C					133	C					162	C					191	C			
	105	C					134	C					163	C					192	C			
	106	C					135	C					164	C					193	C			
	107	C					136	C					165	C					194	C			

INTRODUCED WITH EC NO: 73362 DATE: 010130 SIGN: AMI

DESCRIPTION: TERMINAL SUMMARY

ISSUE:

EC NO:

DATE :

SIGN :

MACHINE: TBA/21-0500

44711-004:04

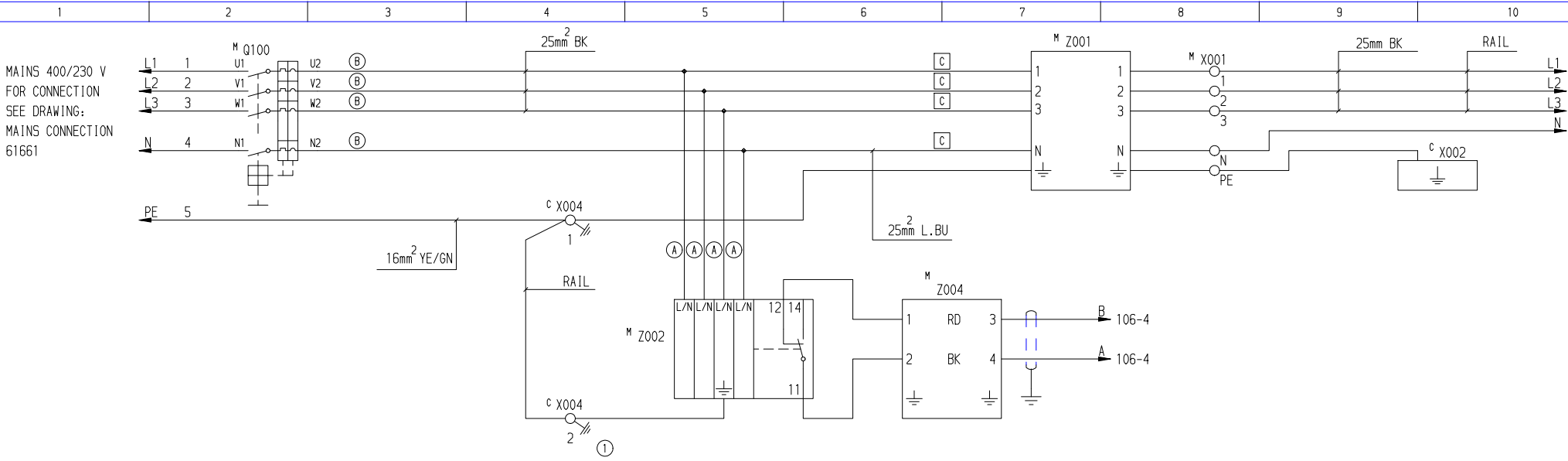
24/26

Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos			
XL10	195	C				XL12	101	C				XL13	109	C				XL14	117	C
	196	C					102	C					110	C					118	C
	197	C					103	C					111	C					119	C
	198	C					104	C					112	C					120	C
	199	C					105	C					113	C						
	200	C					106	C					114	C						
XL11							107	C										XL15	101	C
	101	C					108	C									102		C	
	102	C					109	C									103		C	
	103	C					110	C									104		C	
	104	C					111	C									105		C	
	105	C					112	C									106		C	
	106	C					113	C									107	C		
	107	C					114	C									108	C		
	108	C					115	C									109	C		
	109	C					116	C									110	C		
	110	C					117	C									111	C		
	111	C					118	C									112	C		
	112	C					119	C									113	C		
	113	C					120	C									114	C		
	114	C															115	C		
	115	C				XL13	101	C									116	C		
	116	C					102	C										117	C	
	117	C					103	C										118	C	
	118	C					104	C										119	C	
	119	C					105	C										120	C	
	120	C					106	C												
							107	C												
							108	C												
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INTRODUCED WITH EC NO: 73362 DATE: 010130 SIGN: AMI

DESCRIPTION: TERMINAL SUMMARY

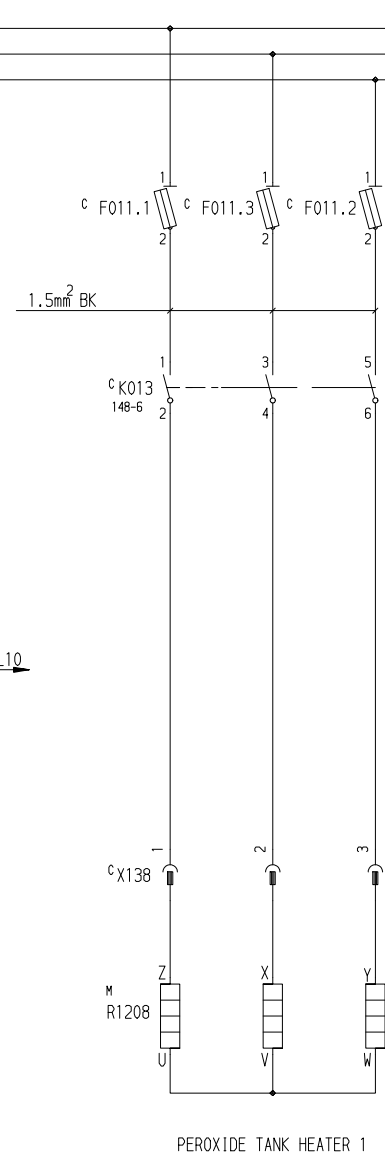
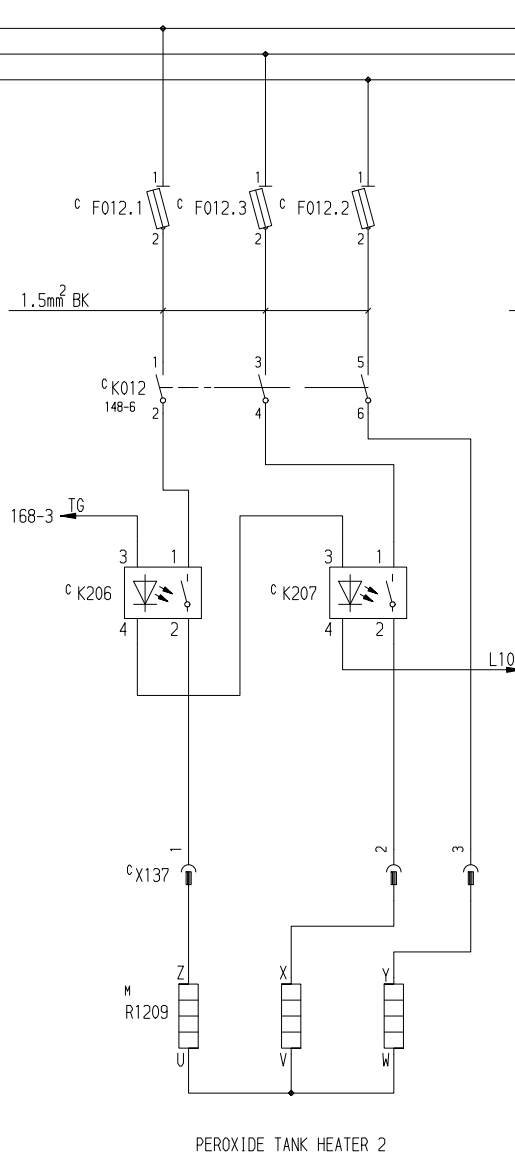
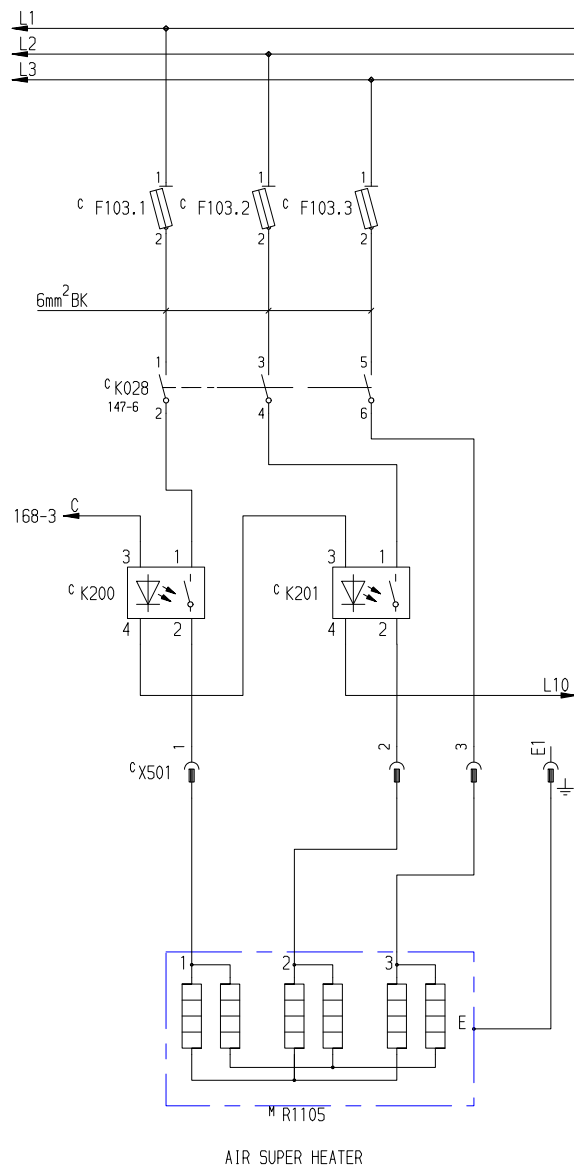
Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos	Term	Block	L	She	Ver	Pos
XL50	4	C				XL51	12	C									
	5	C					13	C									
	6	C					14	C									
	7	C					15	C									
	8	C					16	C									
	9	C					17	C									
	10	C					18	C									
	11	C					19	C									
	12	C					20	C									
	13	C				XL52	1	C									
	14	C					2	C									
	15	C					3	C									
	16	C					4	C									
	17	C					5	C									
	18	C					6	C									
	19	C															
	20	C															
XL51	1	C															
	2	C															
	3	C															
	4	C															
	5	C															
	6	C															
	7	C															
	8	C															
	9	C															
	10	C															
	11	C															



FOR TYPE OF WIRING, INSTRUCTIONS ETC.
SEE SPECIFICATION FOR SUBSUPPLIERS TPUS 3502.22

WHERE NOTHING ELSE IS SAID
OR LINE SUMMARY IS VALID: 0,75 mm² BU.

Note	A				1. CONNECTED TO CHASSIS	Tetra Pak	Designer AMI	Date 990329	Approved BGZ	Date 990329	Doc. Class -
ECN No.	71072						Machine TBA/21-0500	Denomination	CIRCUIT DIAGRAM		
Sign./Date	AMI 990329						Company	TETRA BRIK PACK. SYSTEM SPA			Page -
Appr./Date	BGZ 990329				Drawing remarks			Drawing No	44711-005:01		



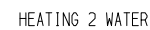
Note	A			
ECN No.	73362			
Sign./Date	AMI 010130			
Appr./Date	PGE 010130			

Tetra Pak

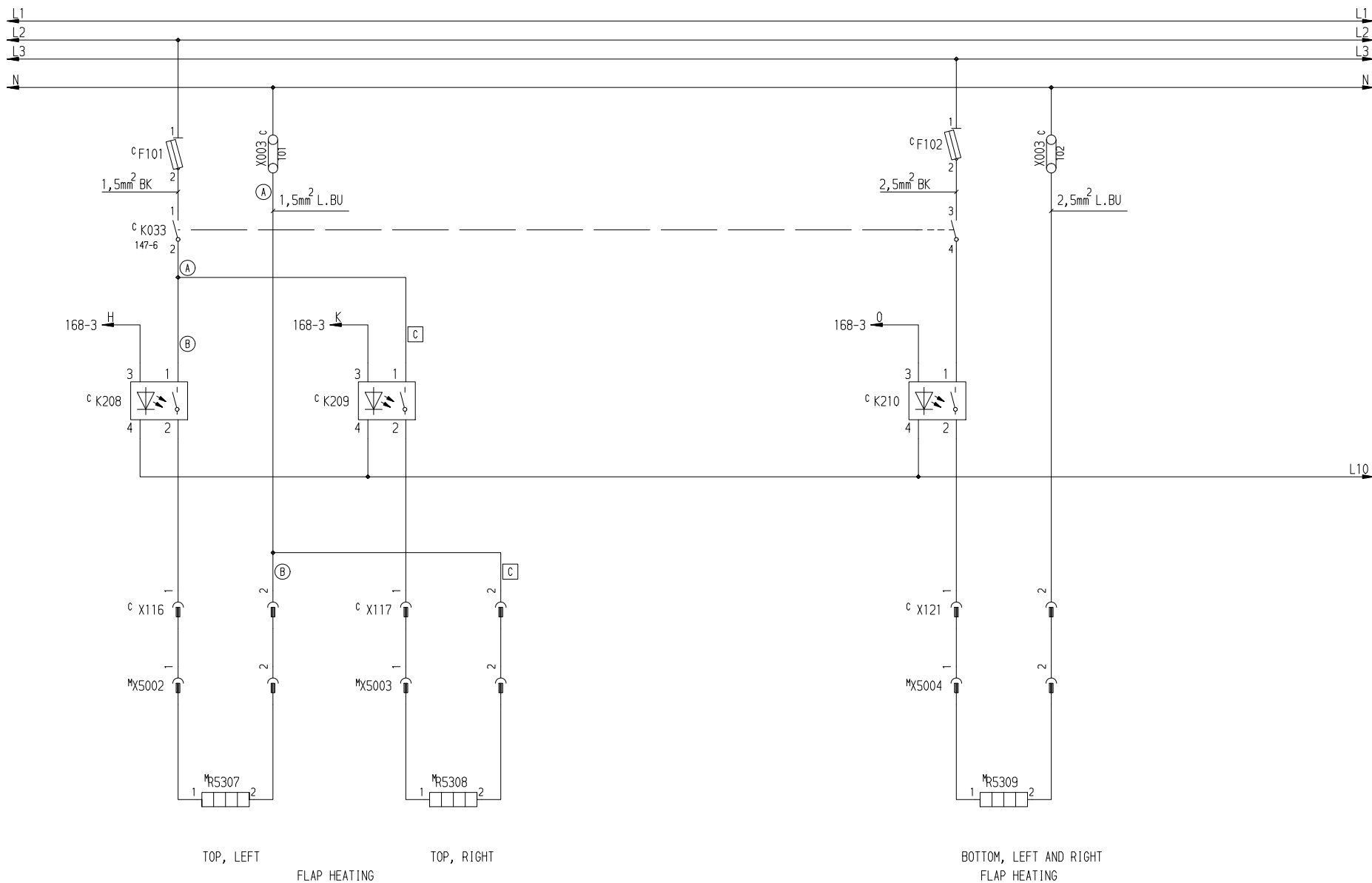
Company TETRA BRIK PACK. SYSTEM SPA

Designer AMI	Date 010130	Approved PGE	Date 010130	Doc.Class -
Machine TBA/21-0500	Denomination HEATERS			
	Drawing No 44711-006:04			Page -

Drawing remarks



Note	A					Tetra Pak Machine TBA/21-0500 Company TETRA BRIK PACK. SYSTEM SPA Designer AMI Date 990329 Drawing No 44711-007:01 Approved BGZ Date 990329 Page - Denomination HEATERS
ECN No.	71072					
Sign./Date	AMI 990329					
Appr./Date	BGZ 990329				Drawing remarks	



Note	A				
ECN No.	71072				
Sign./Date	AMI 990329				
Appr./Date	BGZ 990329				

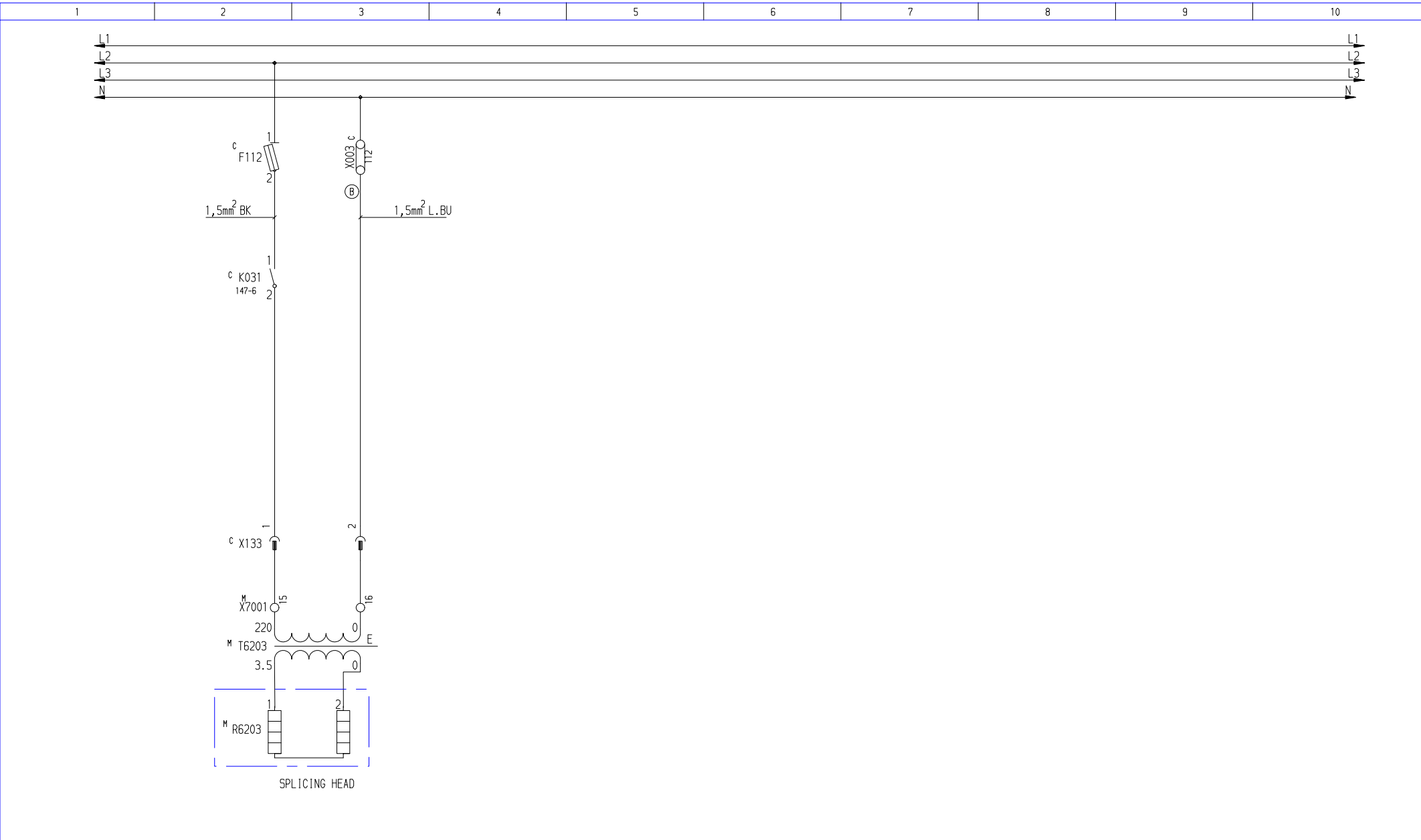
Tetra Pak

Company

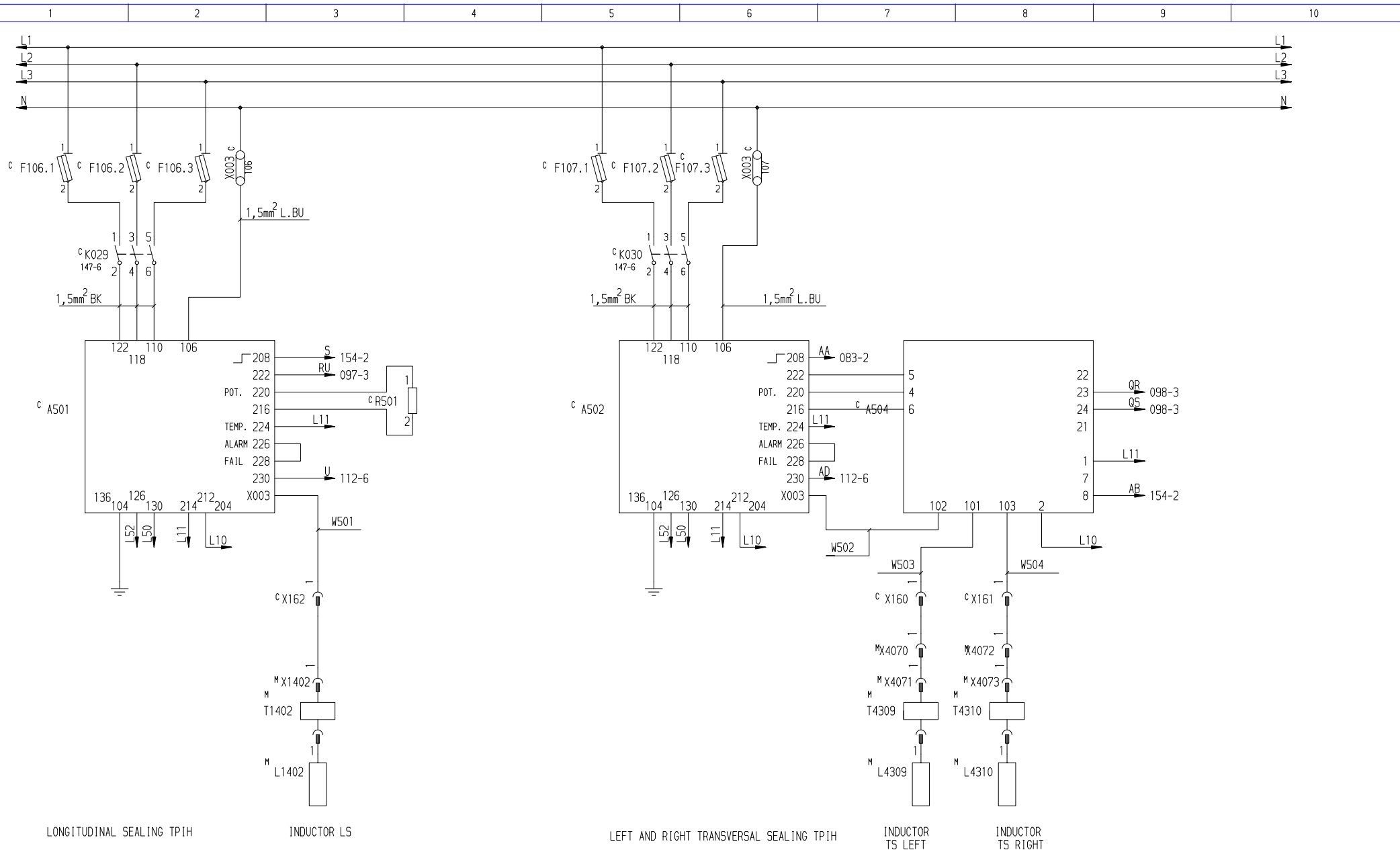
TETRA BRIK PACK. SYSTEM SPA

Designer: AMI	Date: 990329	Approved: BGZ	Date: 990329	Doc. Class: -
Machine: TBA/21-0500	Denomination: ELEMENTS			
Drawing No: 44711-010:01				Page: -

Drawing remarks



Note	A					Tetra Pak	Designer AMI	Date 990329	Approved BGZ	Date 990329	Doc.Class -
ECN No.	71072						Machine TBA/21-0500	Denomination ELEMENTS			
Sign./Date	AMI 990329						Drawing No 44711-011:01				
Appr./Date	BGZ 990329				Drawing remarks		Page -				



LONGITUDINAL SEALING TP1H

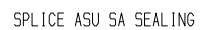
INDUCTOR LS

LEFT AND RIGHT TRANSVERSAL SEALING TP1H

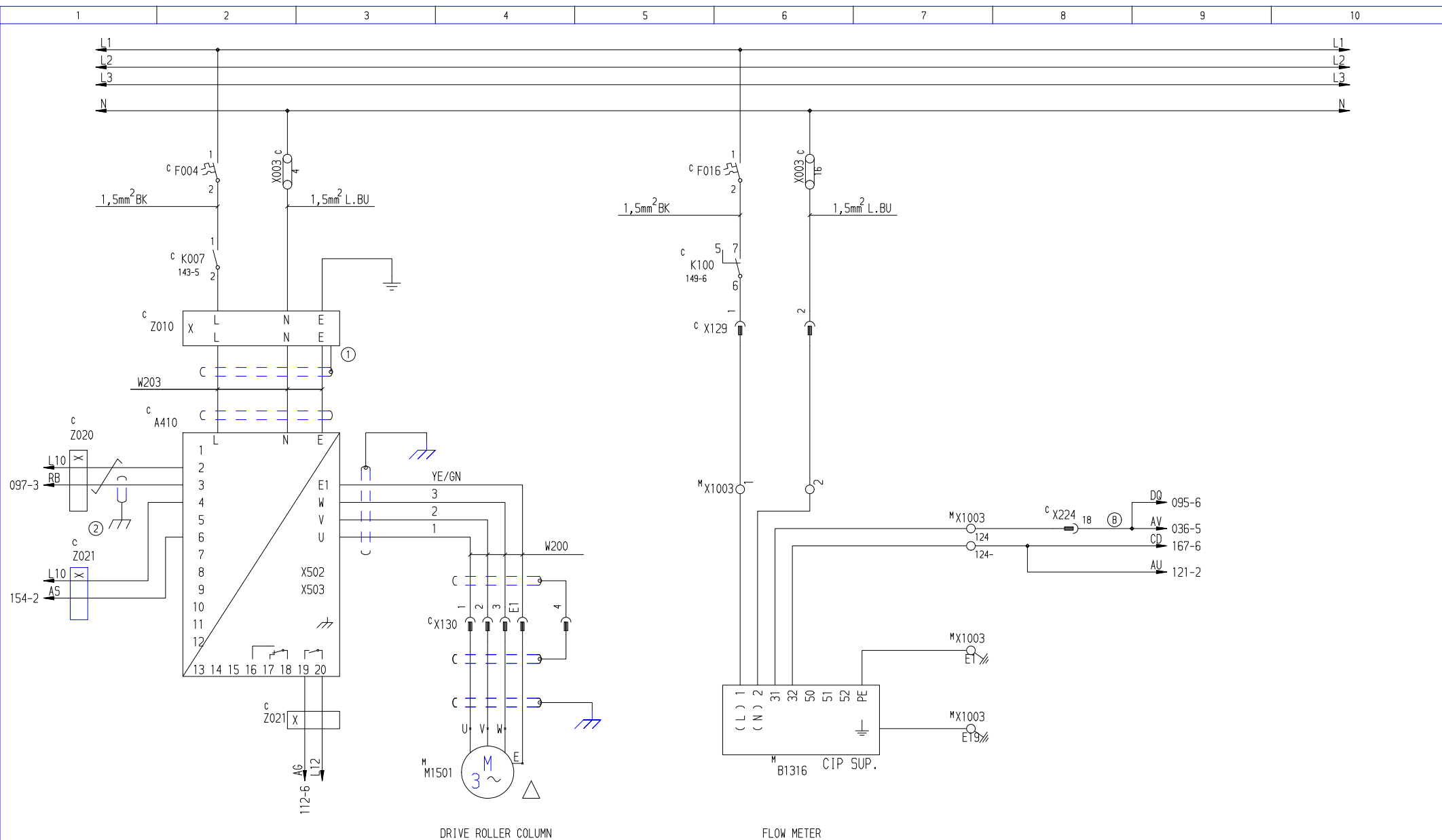
INDUCTOR
TS LEFTINDUCTOR
TS RIGHT

Note	A						Designer: AMI	Date: 990329	Approved: BGZ	Date: 990329	Doc. Class: -
ECN No.	71072						Machine: TBA/21-0500	Denomination: IH-GENERATORS			
Sign./Date	AMI 990329						Company: TETRA BRIK PACK. SYSTEM SPA				Page: -
Appr./Date	BGZ 990329					Drawing remarks	Drawing No: 44711-012:01				

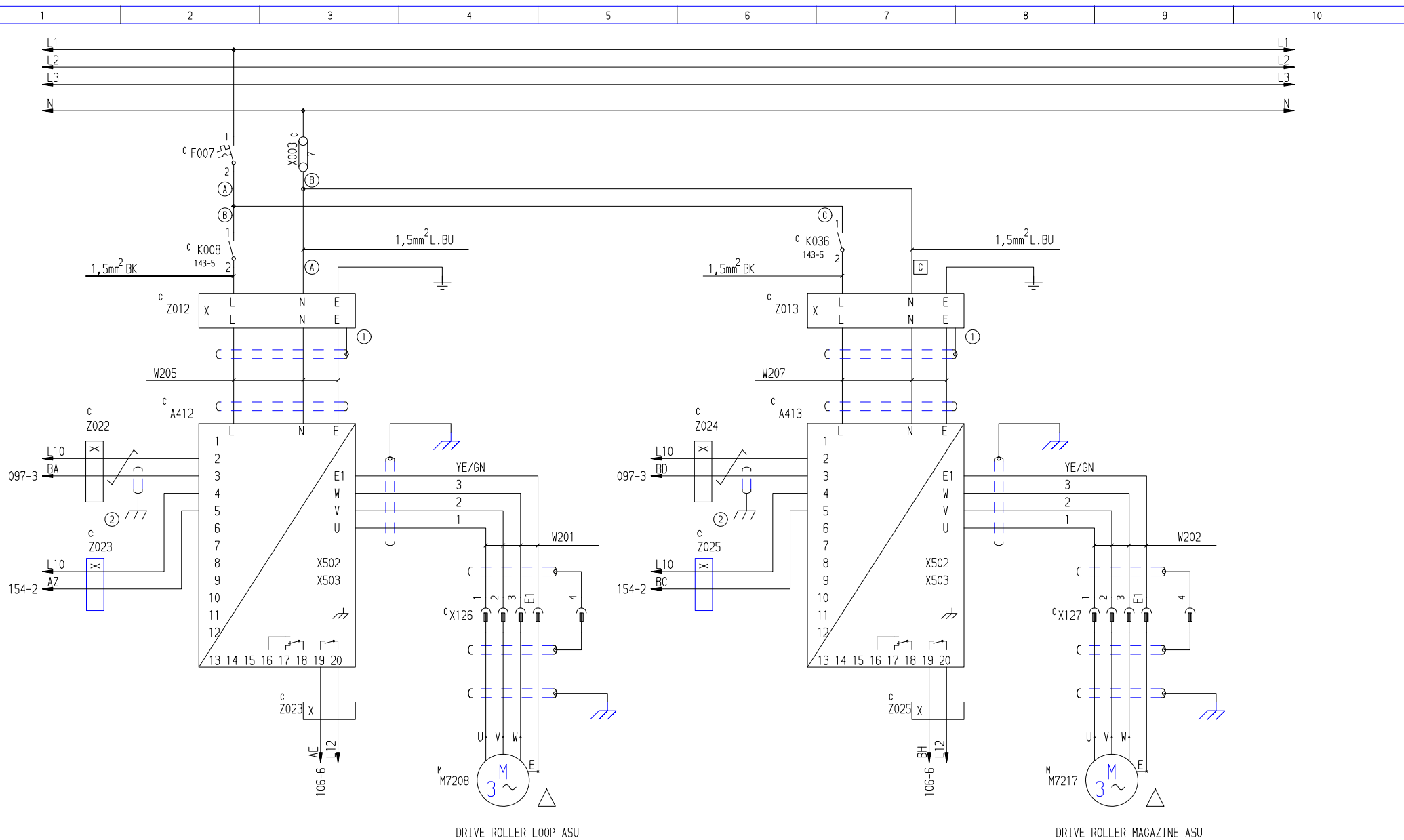
Tetra Pak



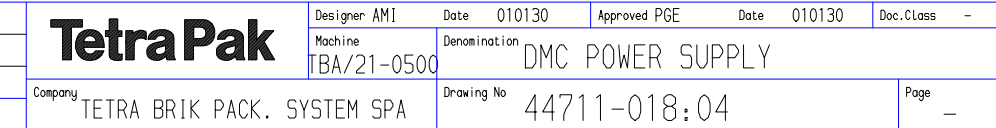
Note	A					Tetra Pak Machine TBA/21-0500 Company TETRA BRIK PACK. SYSTEM SPA Designer AMI Date 991029 Approved BGZ Date 991029 Doc.Class - Denomination ELEMENTS Drawing No 44711-014:03 Page -
ECN No.	72992					
Sign./Date	AMI 990928					
Appr./Date	BGZ 990928				Drawing remarks	



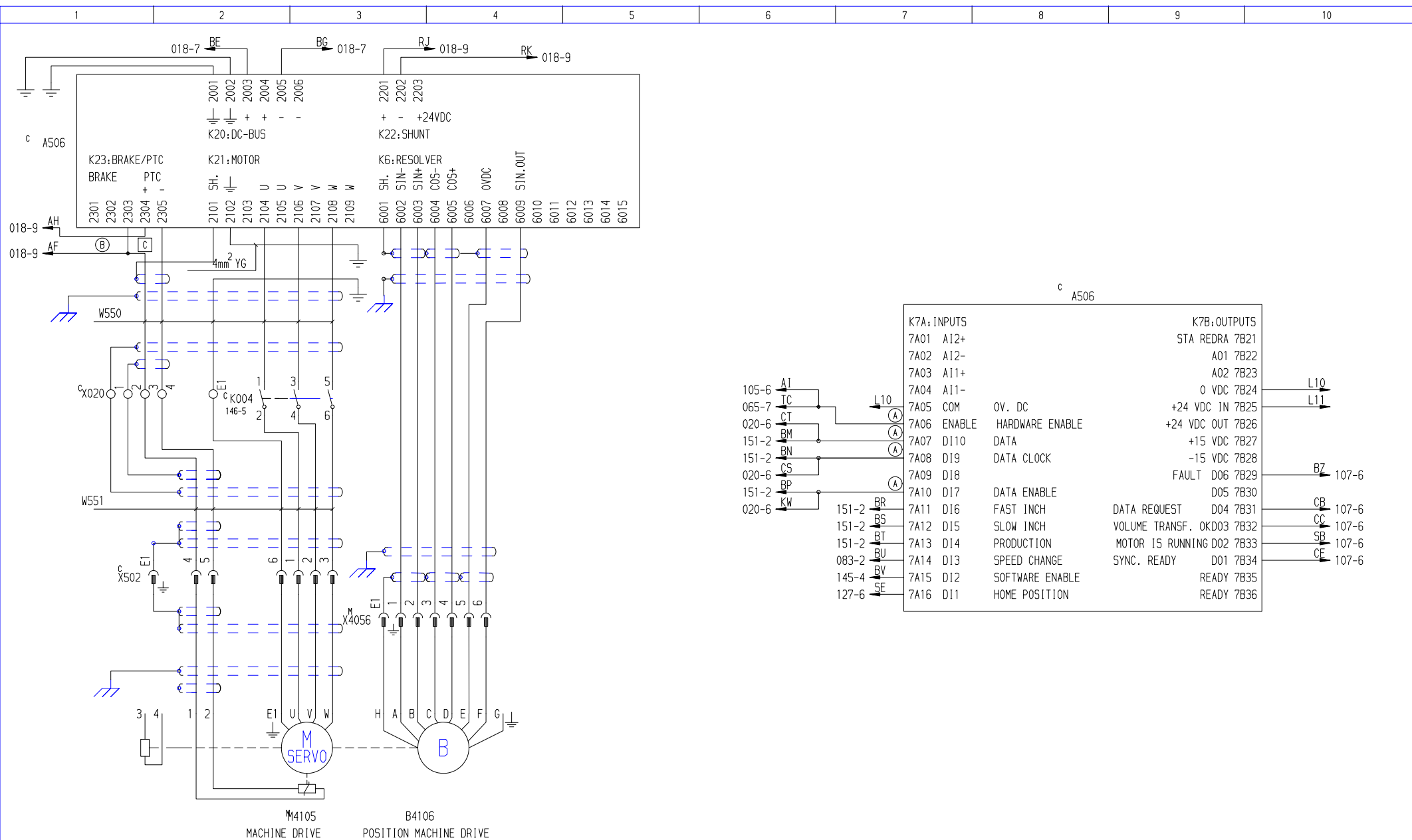
Note	A				1. CONNECT TO THE CHASSIS	TetraPak Designer: AMI Date: 010130 Approved: PGE Date: 010130 Doc. Class: - Machine: TBA/21-0500 Denomination: MOTORS Company: TETRA BRIK PACK. SYSTEM SPA Drawing No: 44711-016:04 Page: -
ECN No.	73362				2. CONNECT TO THE EARTH BAR	
Sign./Date	AMI 010130					
Appr./Date	PGE 010130					
					Drawing remarks	



Note	A				1. CONNECT TO THE CHASSIS	Designer: AMI	Date: 010130	Approved: PGE	Date: 010130	Doc. Class: -
ECN No.	73362				2. CONNECT TO THE EARTH BAR	Machine: TBA/21-0500	Denomination: MOTORS			
Sign./Date	AMI 010130					Company: TETRA BRIK PACK. SYSTEM SPA	Drawing No: 44711-017:04			Page: -
Appr./Date	PGE 010130				Drawing remarks					



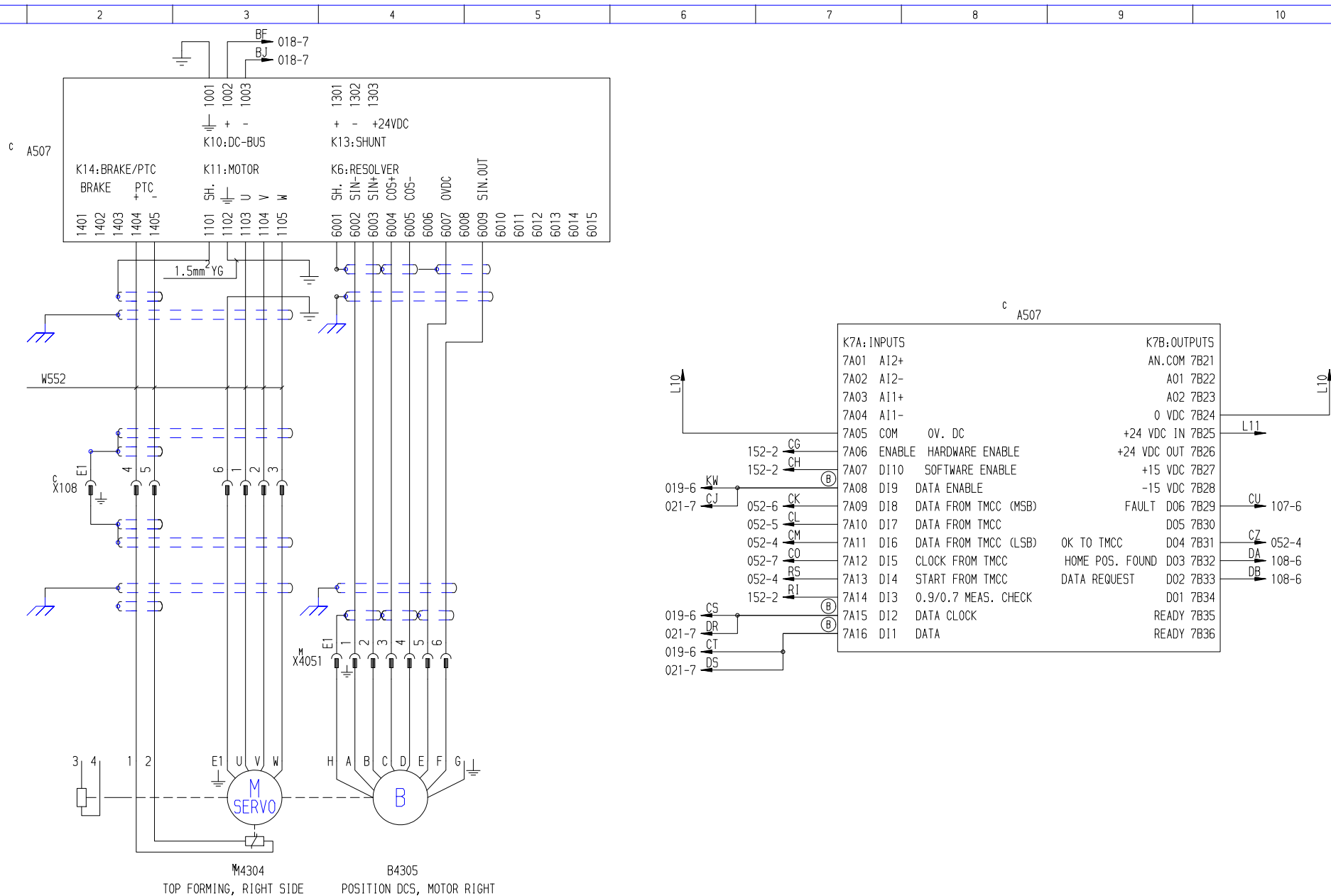
Note	A				
ECN No.	73362				
Sign./Date	AMI 010130				
Appr./Date	PGE 010130				Drawing remarks



Note	A			
ECN No.	72689			
Sign./Date	AMI 990618			
Appr./Date	BGZ 990618			

Tetra Pak

Designer: AMI	Date: 990728	Approved: BGZ	Date: 990728	Doc. Class: -
Machine: TBA/21-0500	Denomination: DMC MACHINE DRIVES			
Company: TETRA BRIK PACK. SYSTEM SPA	Drawing No: 44711-019:02			Page: -

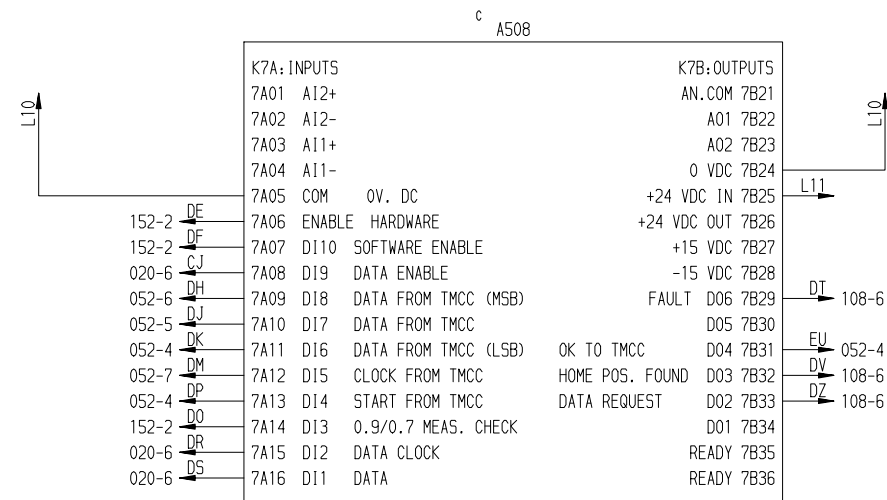


Note	A				
ECN No.	73362				
Sign./Date	AMI 010130				
Appr./Date	PGE 010130				

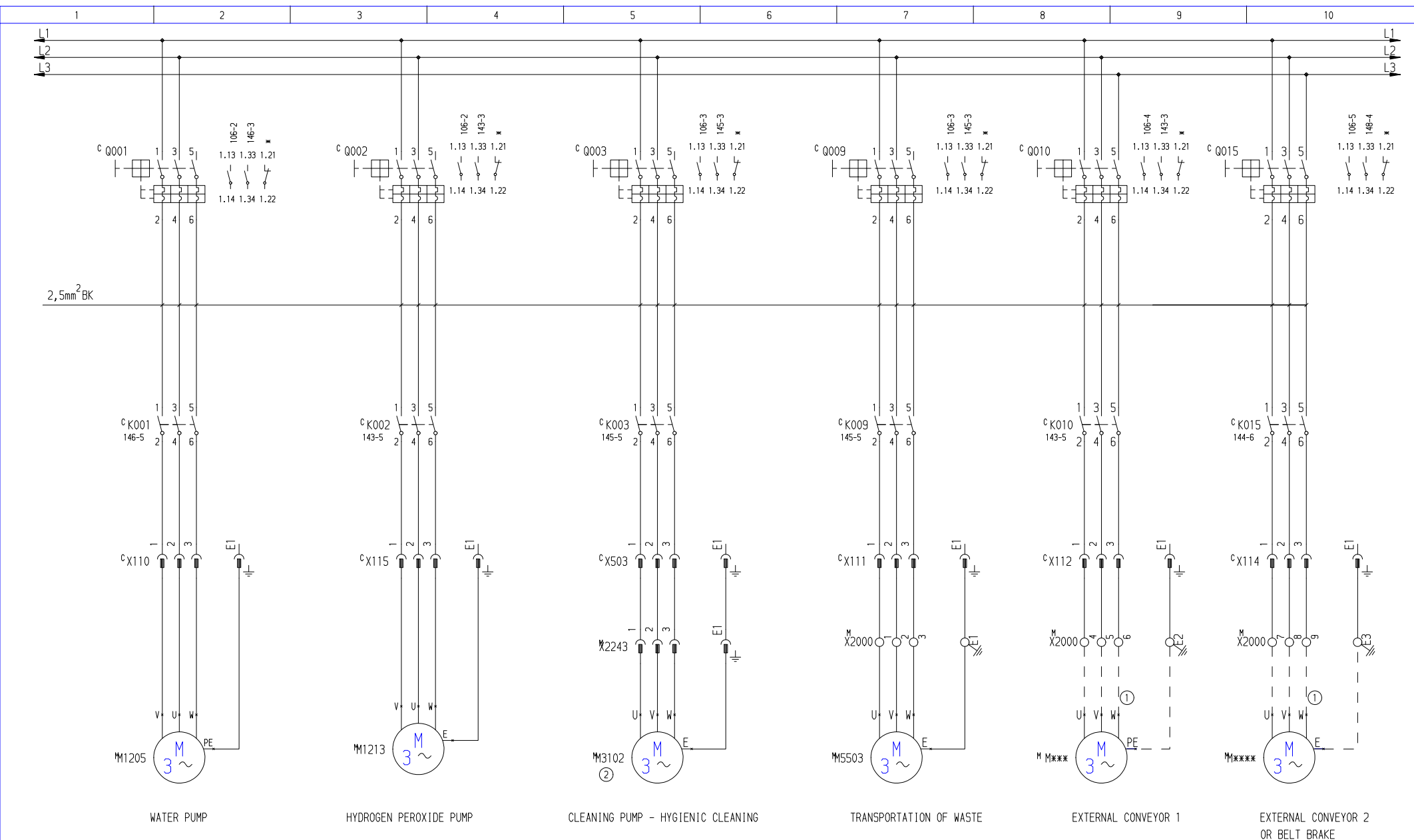
Tetra Pak

Company TETRA BRIK PACK. SYSTEM SPA

Designer AMI	Date 010130	Approved PGE	Date 010130	Doc.Class -
Machine TBA/21-0500	Denomination DMC DCS RIGHT			
Drawing No 44711-020:04				Page -

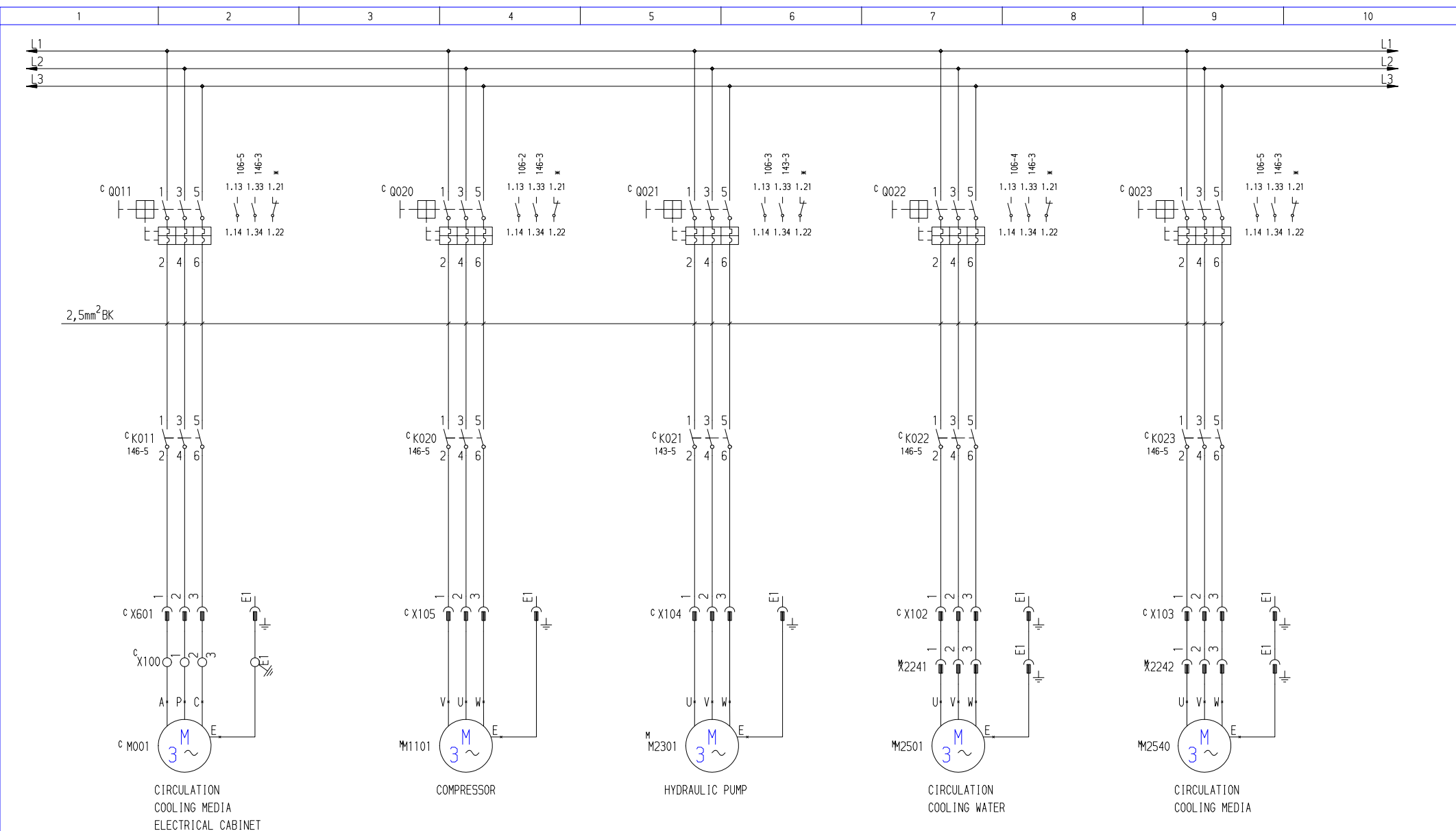


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ECN No.	73362					
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Appr./Date	PGE 010130					
Drawing remarks						

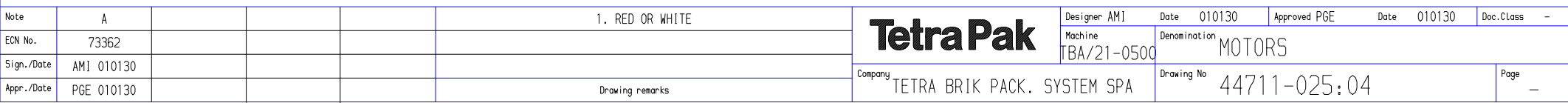


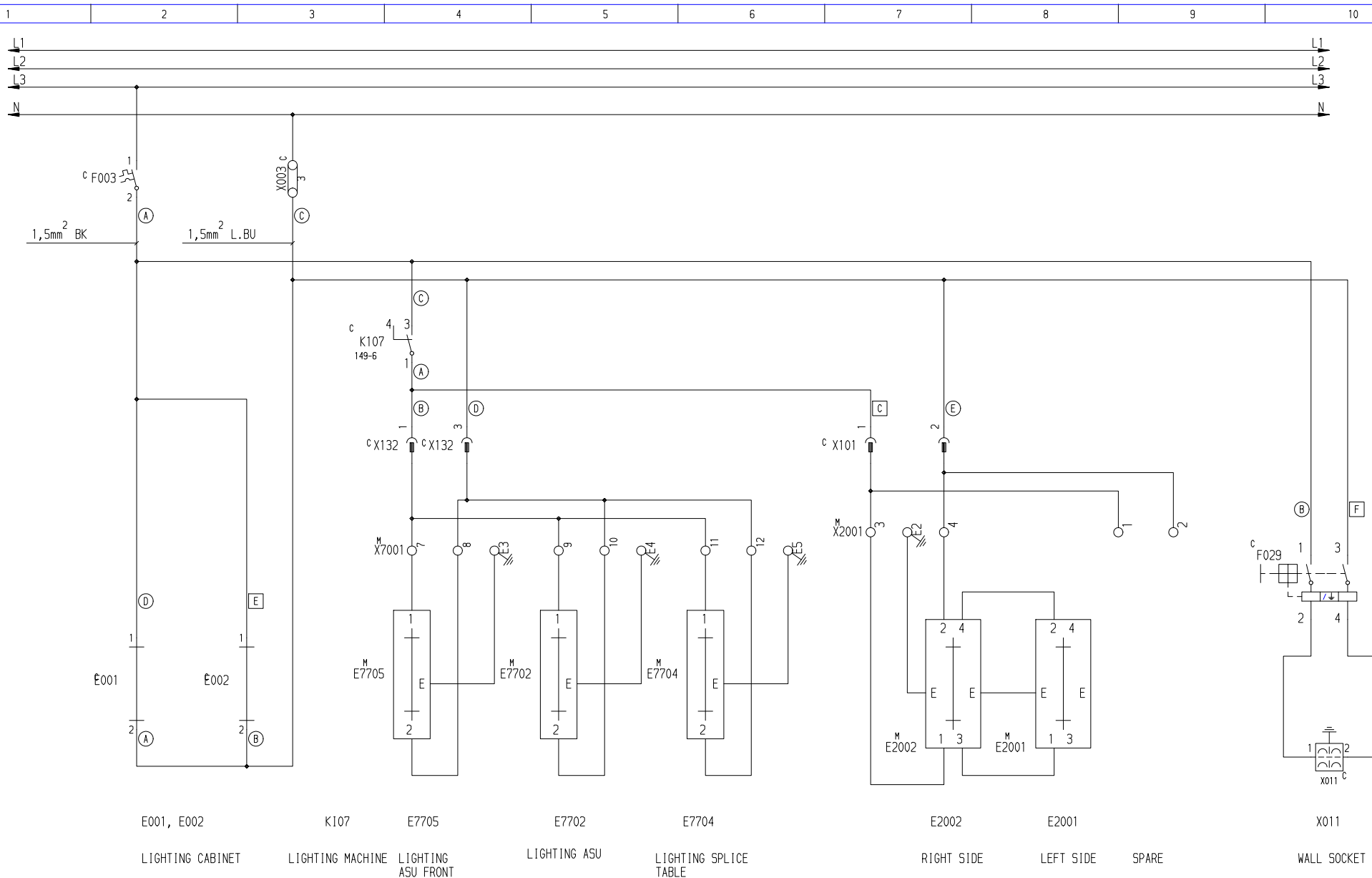
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Sign./Date	AMI 010130				
Appr./Date	PGE 010130				Drawing remarks

Tetra Pak	Designer AMI	Date 010130	Approved PGE	Date 010130	Doc.Class -
	Machine TBA/21-0500	Denomination MOTORS			
Company TETRA BRIK PACK. SYSTEM SPA	Drawing No 44711-022:04				Page -



Note	A					Tetra Pak	Designer AMI	Date 010130	Approved PGE	Date 010130	Doc.Class -	
ECN No.	73362						Machine TBA/21-0500	Denomination MOTORS				
Sign./Date	AMI 010130						Drawing No 44711-023:04					Page -
Appr./Date	PGE 010130				Drawing remarks		TETRA BRIK PACK. SYSTEM SPA					



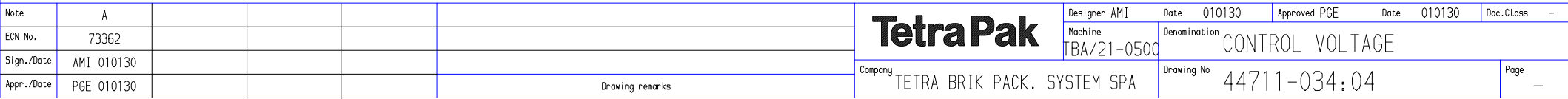


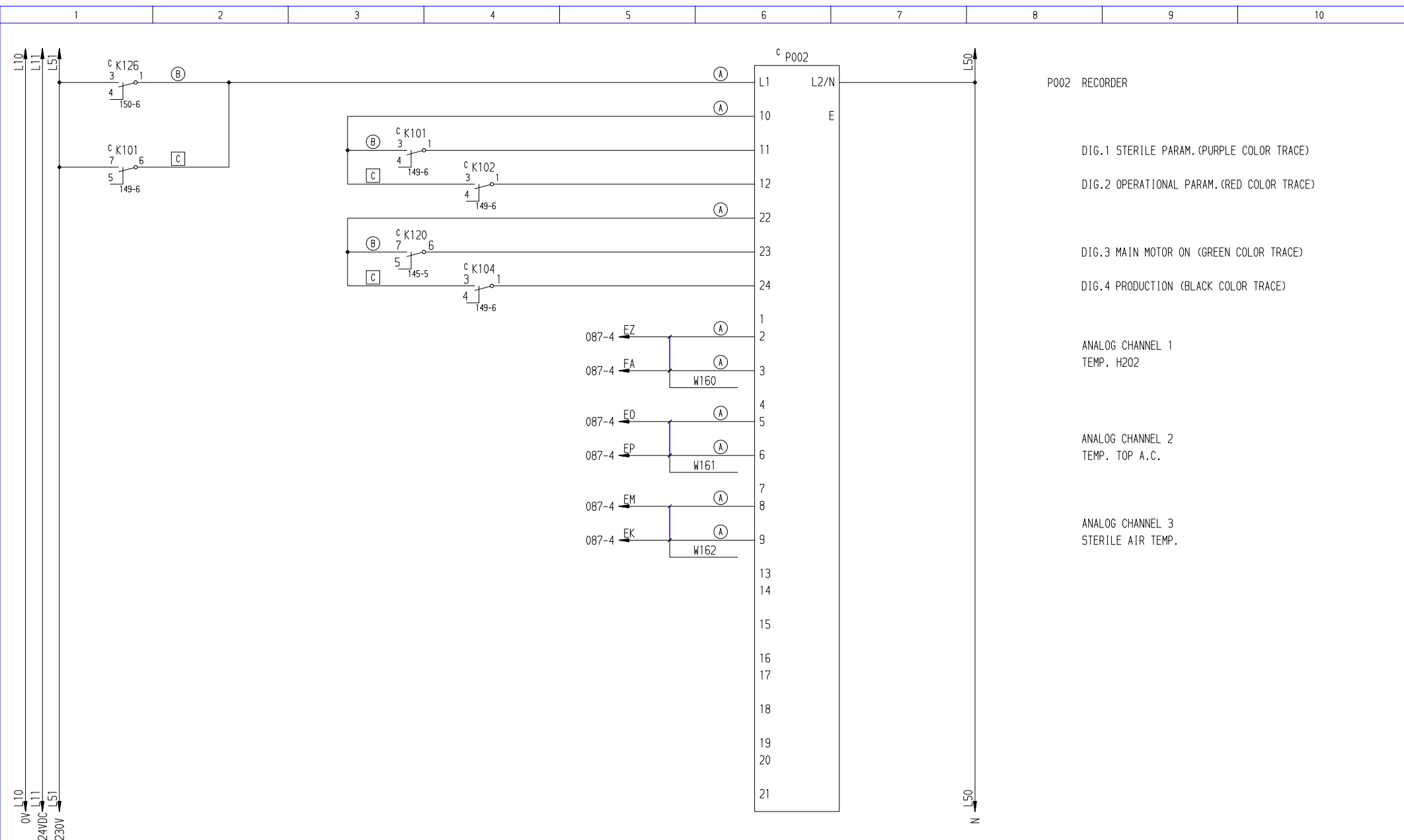
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Sign./Date	AMI 010130				
Appr./Date	PGE 010130				
					Drawing remarks

Tetra Pak

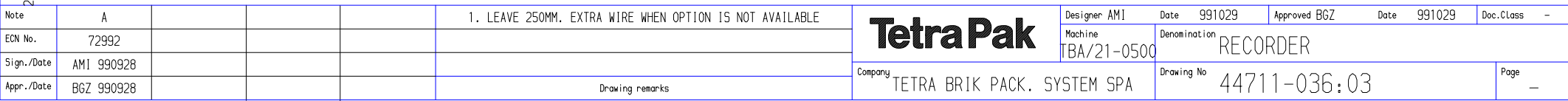
Company TETRA BRIK PACK. SYSTEM SPA

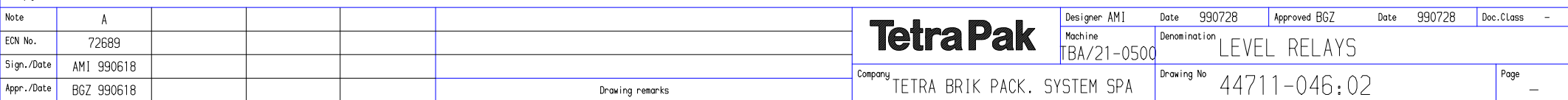
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Machine: TBA/21-0500	Denomination: LIGHT FIXTURES			
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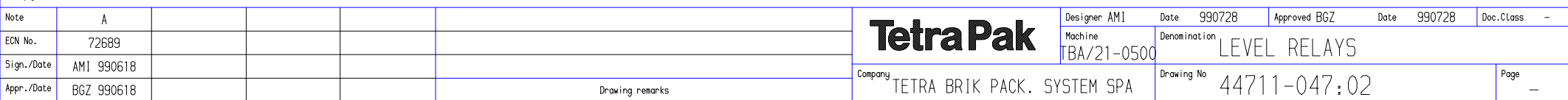


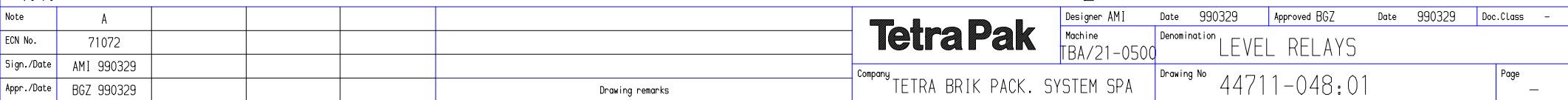


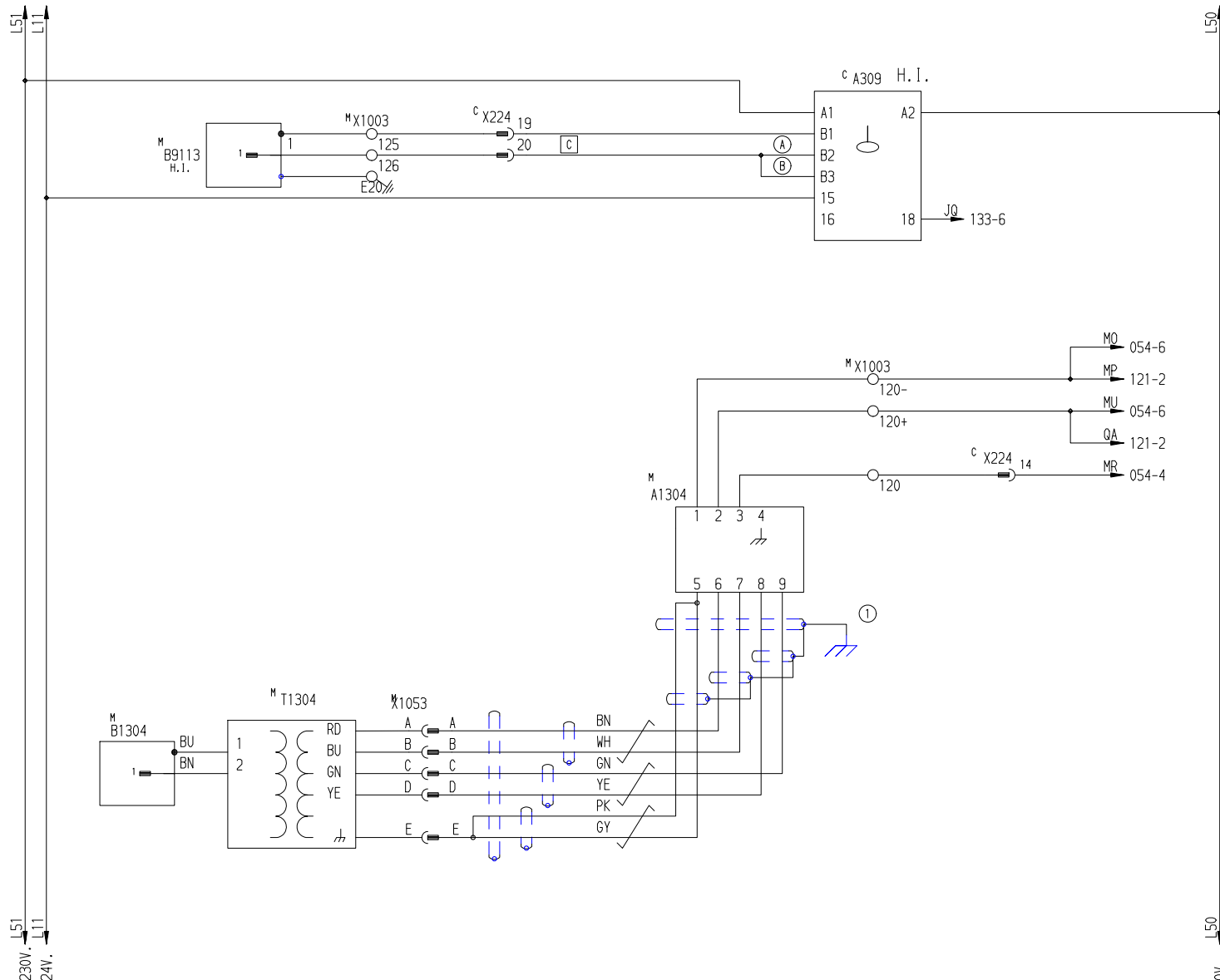
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Sign./Date	AMI 990329						Company: TETRA BRIK PACK. SYSTEM SPA	Drawing No: 44711-035:01			Page: -
Appr./Date	BGZ 990329					Drawing remarks					



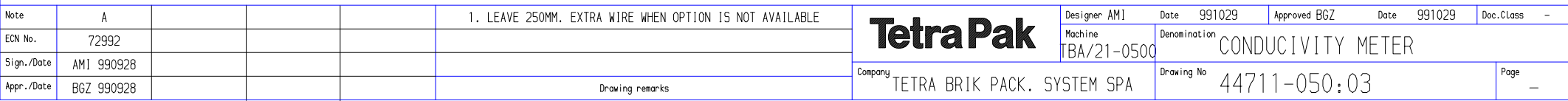


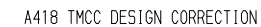






Note	A				1. CONNECT TO THE GLAND	Designer AMI	Date 991029	Approved BGZ	Date 991029	Doc.Class -
ECN No.	72992					Machine	TBA/21-0500	Denomination	LEVEL RELAYS	
Sign./Date	AMI 990928					Company	TETRA BRIK PACK. SYSTEM SPA	Drawing No	44711-049:03	Page -
Appr./Date	BGZ 990928				Drawing remarks					





B43011 DESIGN CORRECTION PHOTOCELL BAR CODE 3



B43012 DESIGN CORRECTION PHOTOCELL BAR CODE 4



Tetra Pak	Designer AMI	Date 991029	Approved BGZ	Date 991029	Doc.Class -
	Machine TBA/21-0500	Denomination TMCC DESIGN CORRECTIONS			
Company TETRA BRIK PACK. SYSTEM SPA	Drawing No 44711-052:03			Page —	

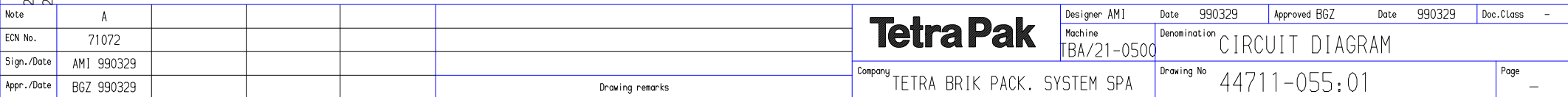


B74032 ASU BAR CODE 4

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Designer	AMI	Date	991029	Approved		BGZ	Date	991029	Doc.Class	-																									
Machine	TBA/21-0500	Denomination	TMCC AUXILIARY FUNCTIONS																																
Company	TETRA BRIK PACK. SYSTEM SPA			Drawing No		44711-053:03			Page	-																									
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Sign./Date	AMI 990928																																		
Appr./Date	BGZ 990928				Drawing remarks																														

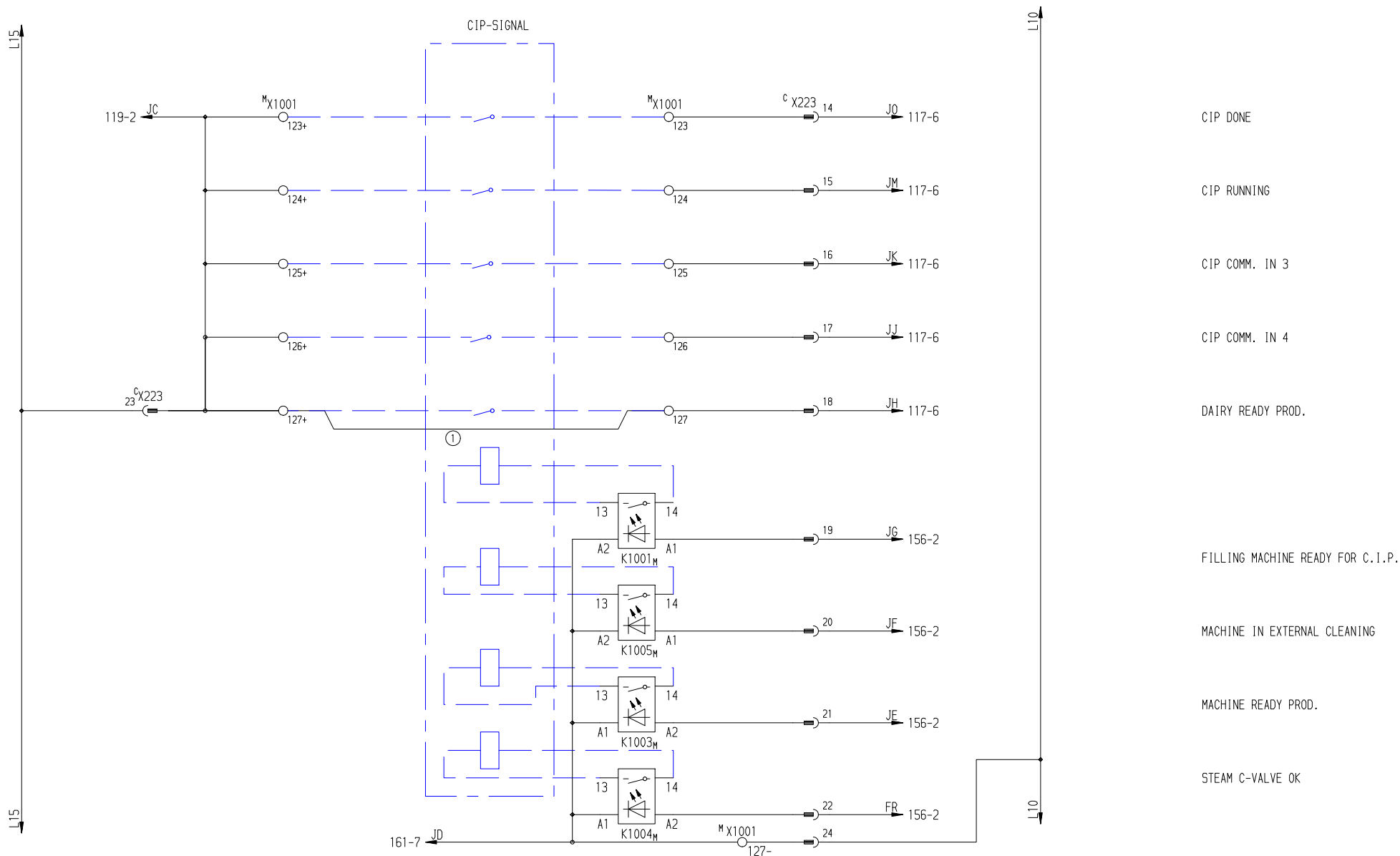


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Sign./Date	AMI 990928				3. TO BE CONNECT AT THE EARTH-BAR		TBA/21-0500					
Appr./Date	BGZ 990928				Drawing remarks		Drawing No 44711-054:03					Page -





Note	A				Tetra Pak Designer AMI Machine TBA/21-0500 Company TETRA BRIK PACK. SYSTEM SPA Date 991029 Denomination CIRCUIT DIAGRAM Drawing No 44711-056:03 Approved BGZ Date 991029 Doc. Class -
ECN No.	72992				
Sign./Date	AMI 990928				
Appr./Date	BGZ 990928			Drawing remarks	

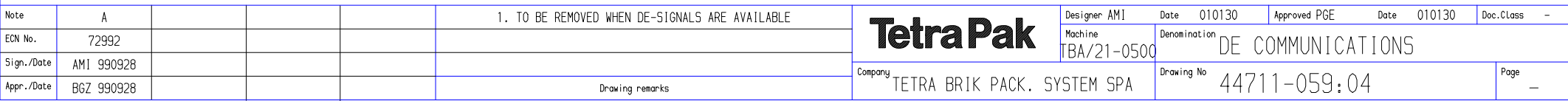


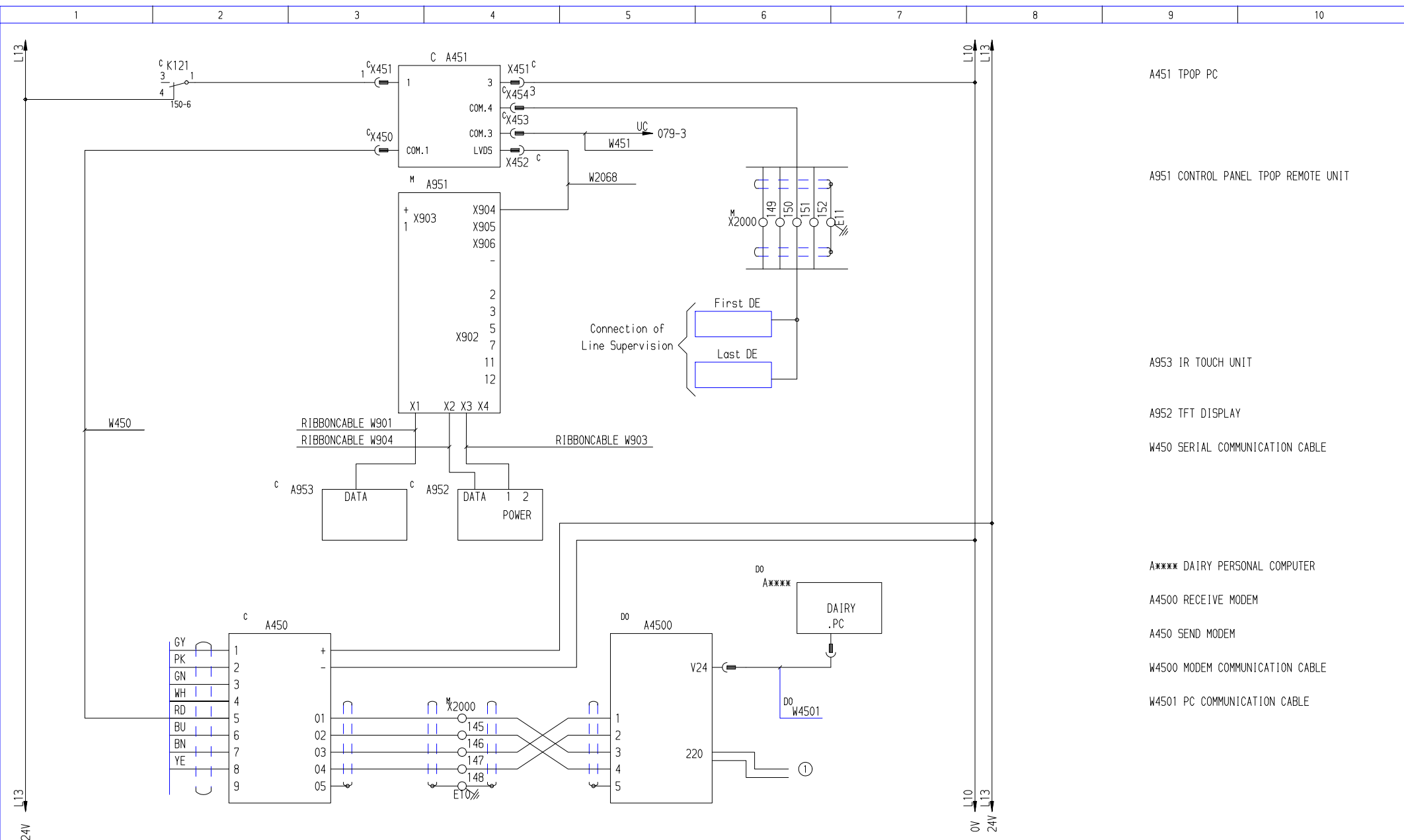
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Sign./Date	AMI 010130				
Appr./Date	PGE 010130				
Drawing remarks					

Tetra Pak

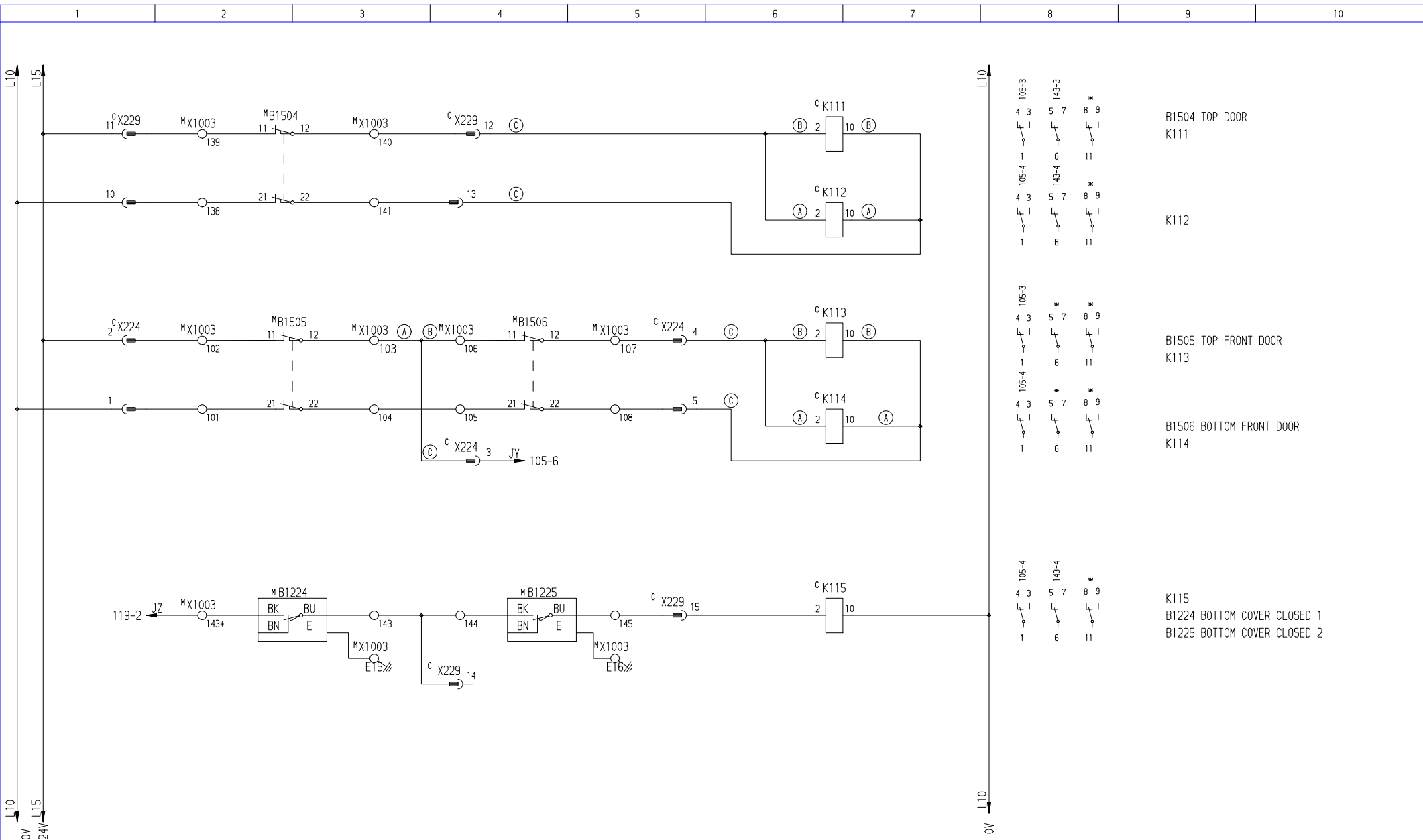
Company TETRA BRIK PACK. SYSTEM SPA

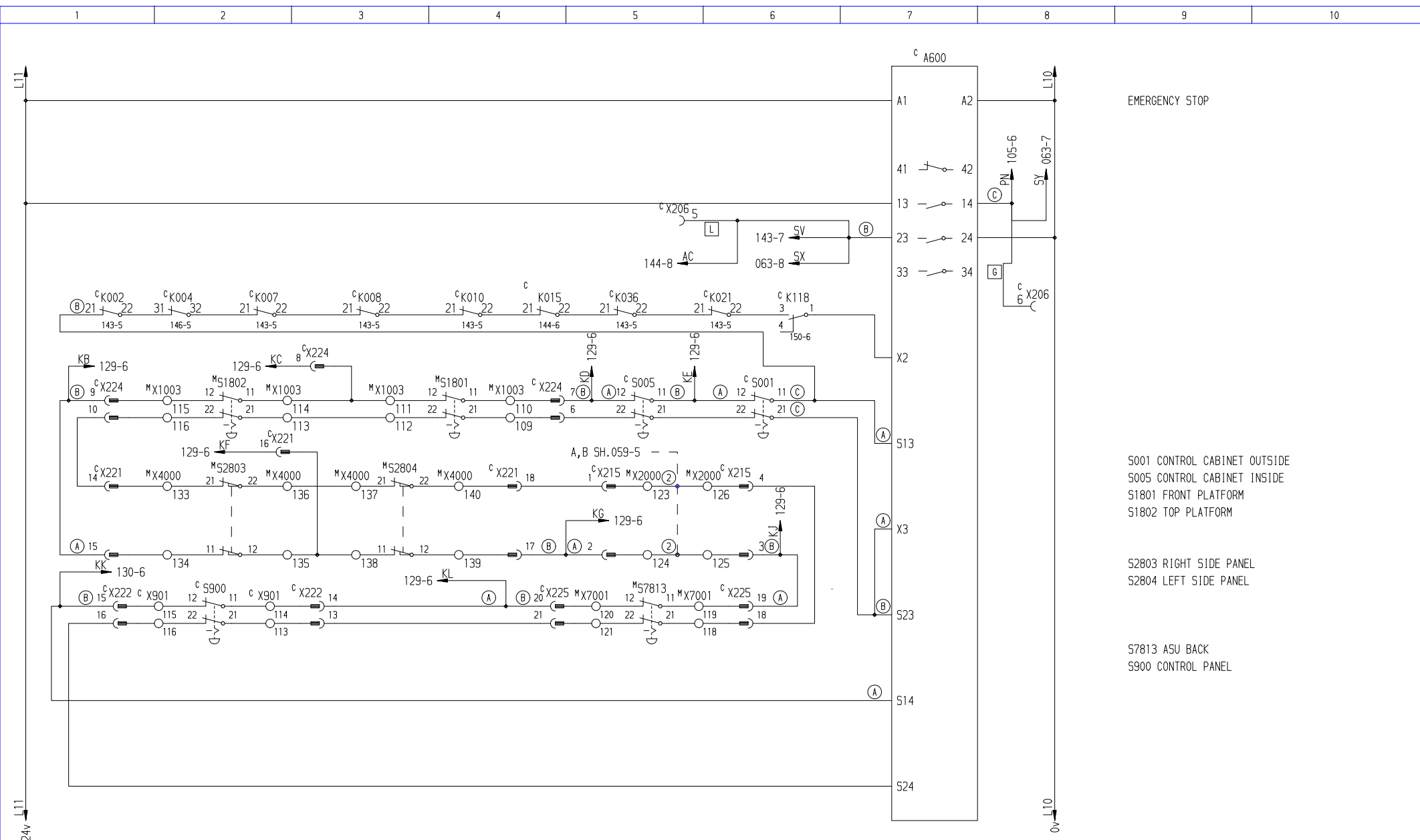
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Machine TBA/21-0500	Denomination DAIRY COMMUNICATION			
Drawing No 44711-058:04				Page -





Note	A				1. 220V. SUPPLY FROM THE DAIRY	Designer AMI	Date 010130	Approved PGE	Date 010130	Doc.Class -
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Sign./Date	AMI 010130					Company	TETRA BRIK PACK. SYSTEM SPA		Drawing No	44711-060:04
Appr./Date	PGE 010130				Drawing remarks					Page -





Note	A				
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Appr./Date	PGE 010130				Drawing remarks

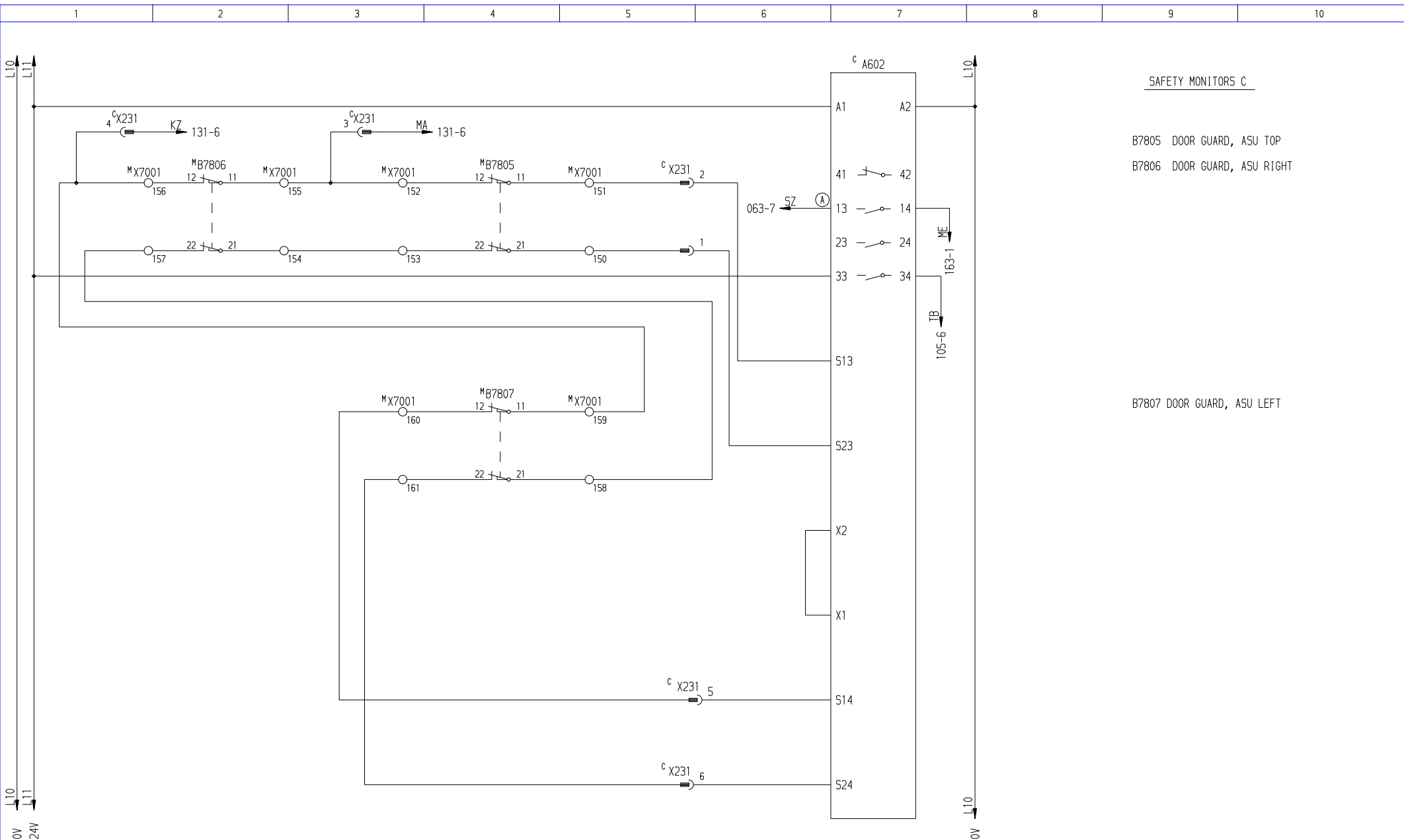
Tetra Pak

Company TETRA BRIK PACK. SYSTEM SPA

Designer AMI	Date 010130	Approved PGE	Date 010130	Doc.Class -
Machine TBA/21-0500	Denomination	CIRCUIT DIAGRAM		
Drawing No	44711-062:04			Page -



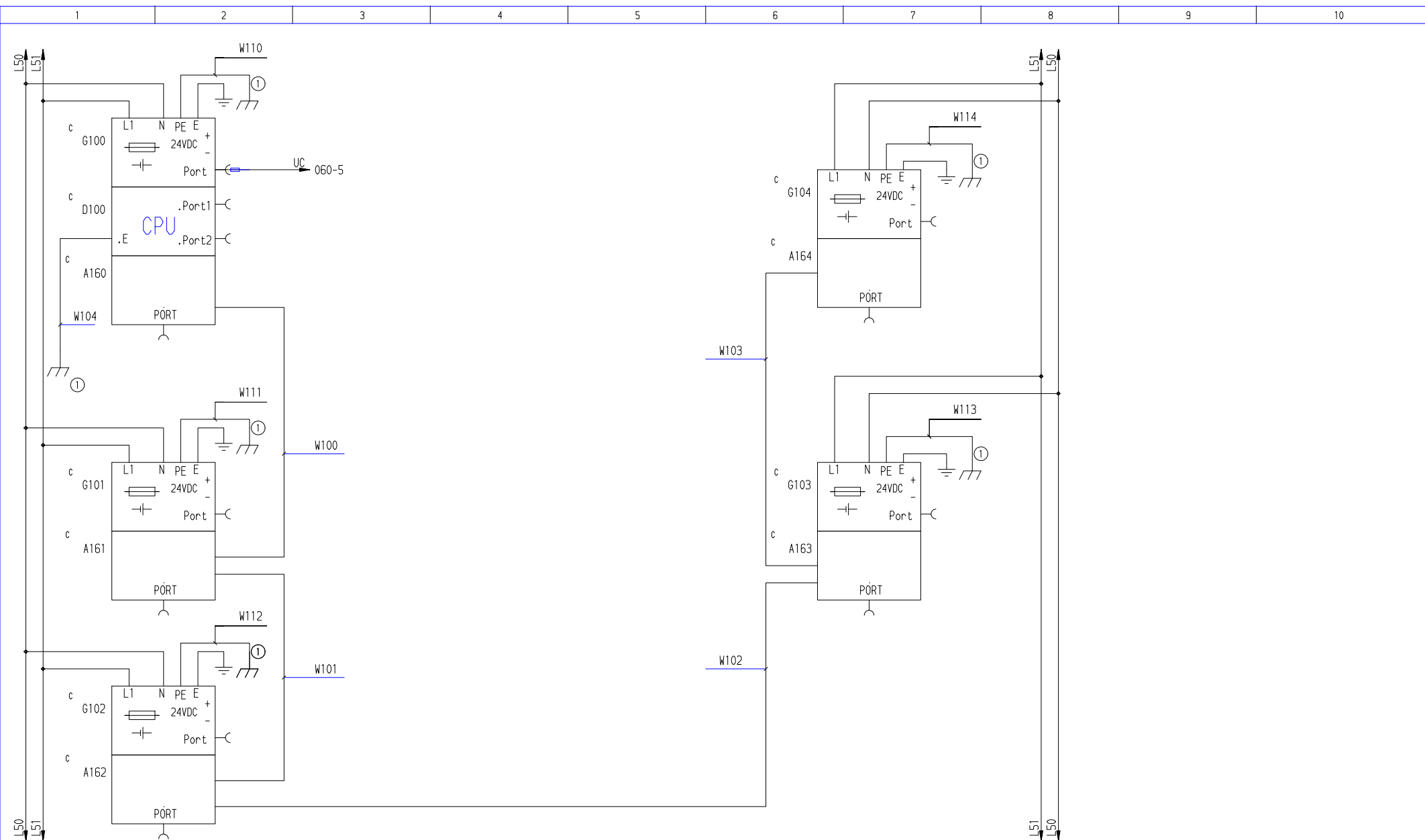
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ECN No.	71072					
Sign./Date	AMI 990329					
Appr./Date	BGZ 990329				Drawing remarks	



Note	A					Tetra Pak	Designer AMI	Date 990329	Approved BGZ	Date 990329	Doc. Class -	
ECN No.	71072						Machine TBA/21-0500	Denomination CIRCUIT DIAGRAM				
Sign./Date	AMI 990329						Drawing No 44711-064:01					Page -
Appr./Date	BGZ 990329				Drawing remarks		TETRA BRIK PACK. SYSTEM SPA					



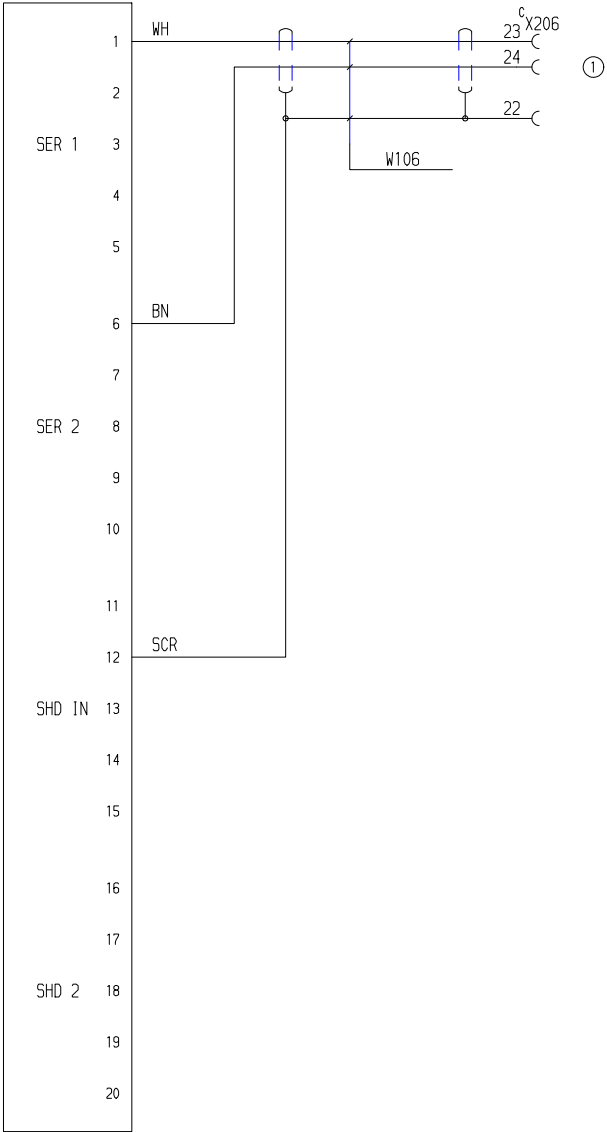
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ECN No.	71072				
Sign./Date	AMI 990329				
Appr./Date	BGZ 990329			Drawing remarks	



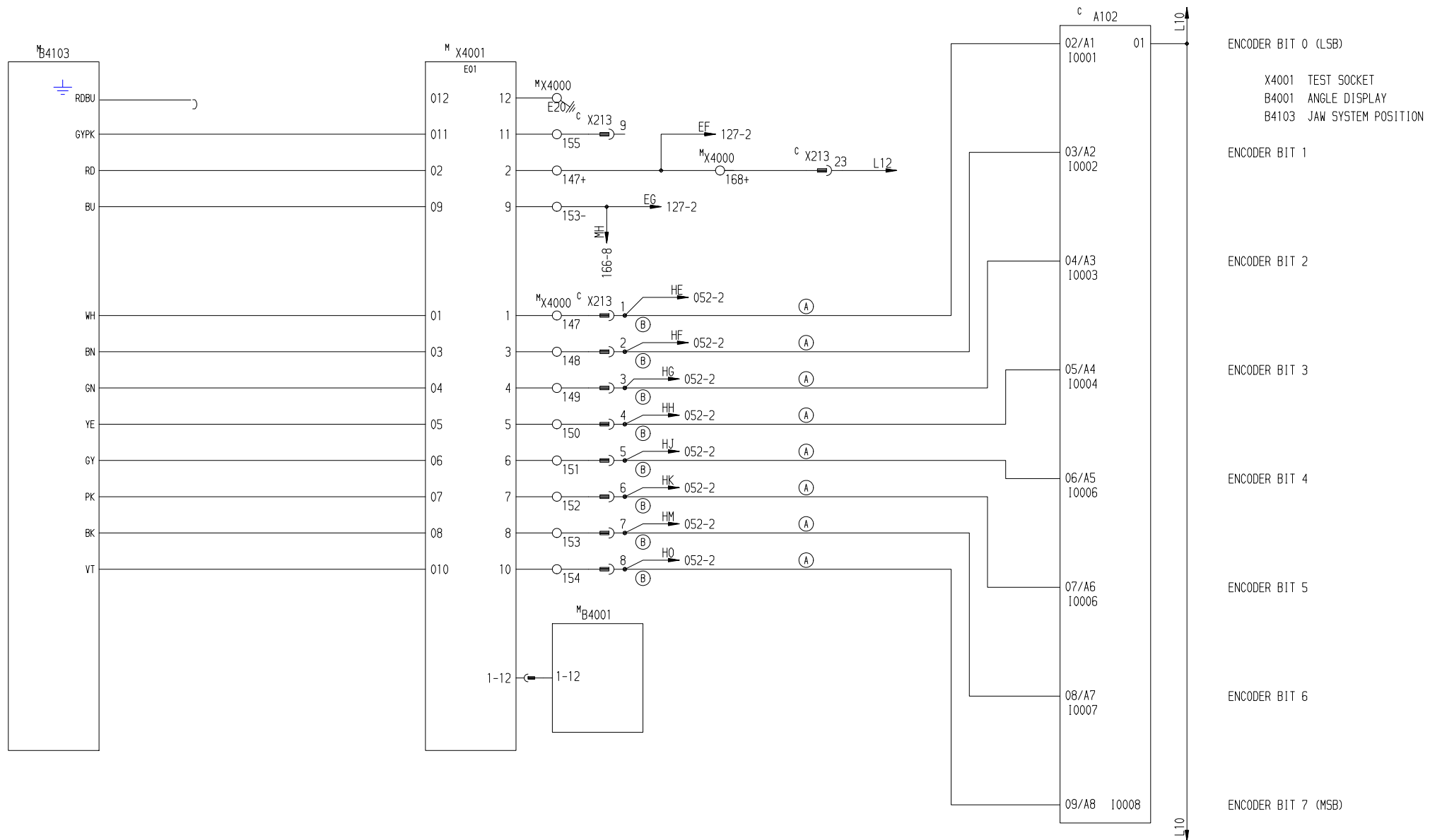
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ECN No.	73362					
Sign./Date	AMI 010130					
Appr./Date	PGE 010130				Drawing remarks	

1	2	3	4	5	6	7	8	9	10

C D101



Note	A				1. VALID WHEN PT/21 IS INSTALLED	Tetra Pak	Designer: AMI	Date: 990329	Approved: BGZ	Date: 990329	Doc. Class: -
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Sign./Date	AMI 990329					Company: TETRA BRIK PACK. SYSTEM SPA	Drawing No: 44711-080:01				Page: -
Appr./Date	BGZ 990329				Drawing remarks						



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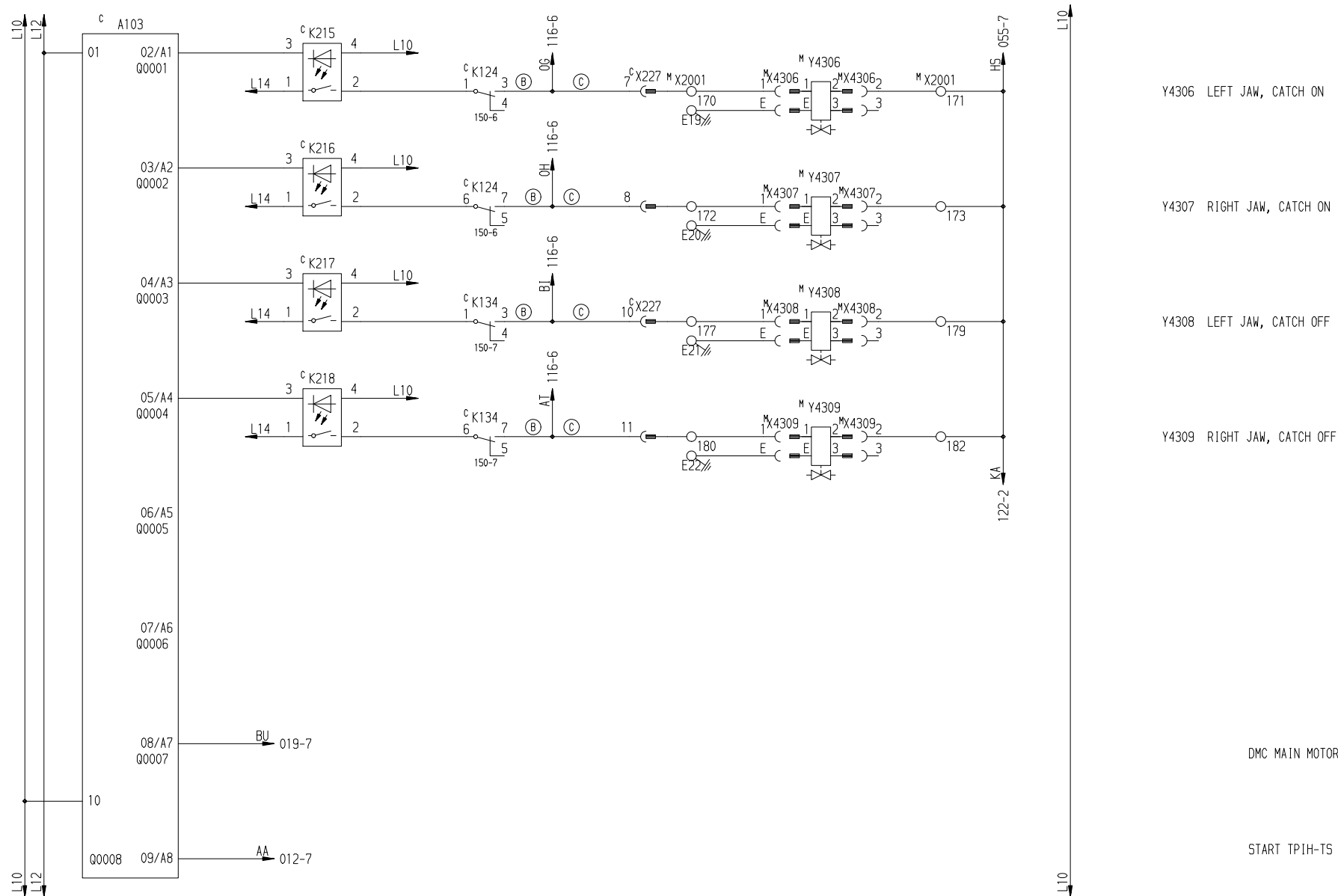
Tetra Pak

CompanyTETRA BRIK PACK. SYSTEM SPA

Designer AMI	Date 990329	Approved BGZ	Date 990329	Doc.Class -
Machine TBA/21-0500	Denomination PLC-IN, FAST SCAN			
	Drawing No 44711-081:01			Page -



Note	A				Tetra Pak Designer AMI Date 010130 Approved PGE Date 010130 Doc.Class - Machine TBA/21-0500 Denomination PLC-IN, FAST SCAN Company TETRA BRIK PACK. SYSTEM SPA Drawing No 44711-082:04 Page -
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Appr./Date	PGE 010130			Drawing remarks	



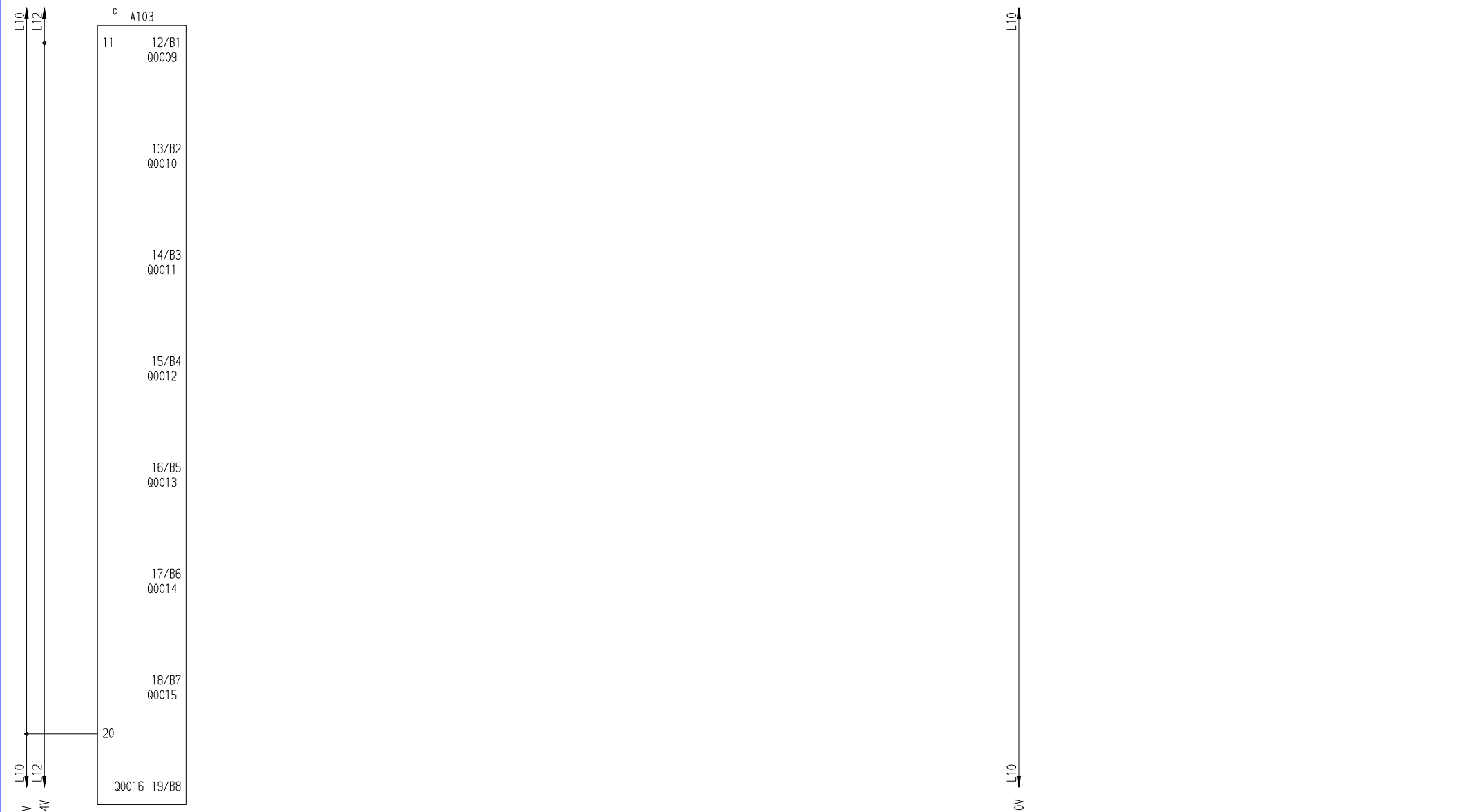
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Appr./Date	BGZ 990329			

Tetra Pak

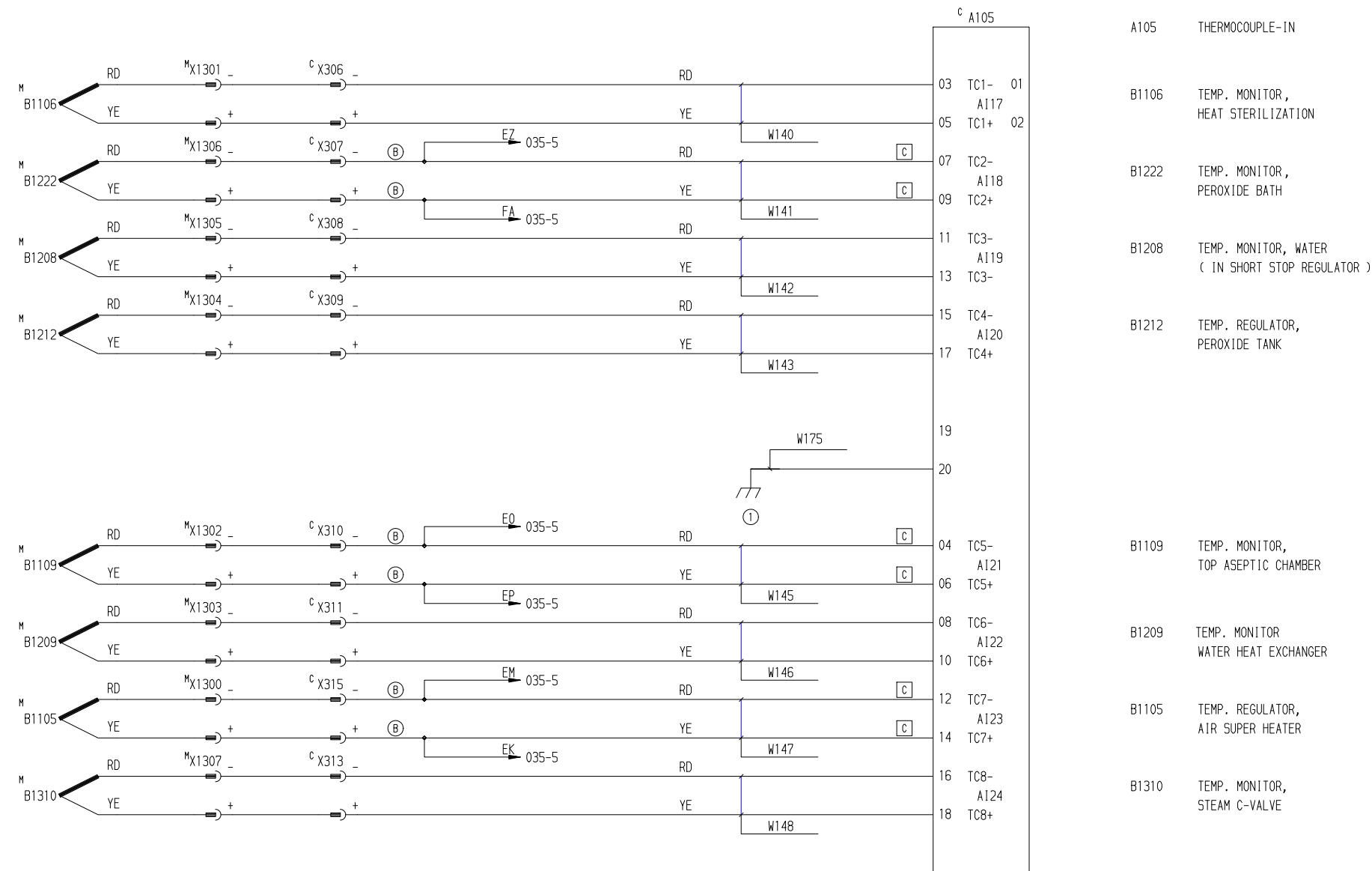
Company TETRA BRIK PACK. SYSTEM SPA

Designer AMI	Date 990329	Approved BGZ	Date 990329	Doc.Class -
Machine TBA/21-0500	Denomination PLC-OUT, FAST SCAN			
Drawing No 44711-083:01				Page -

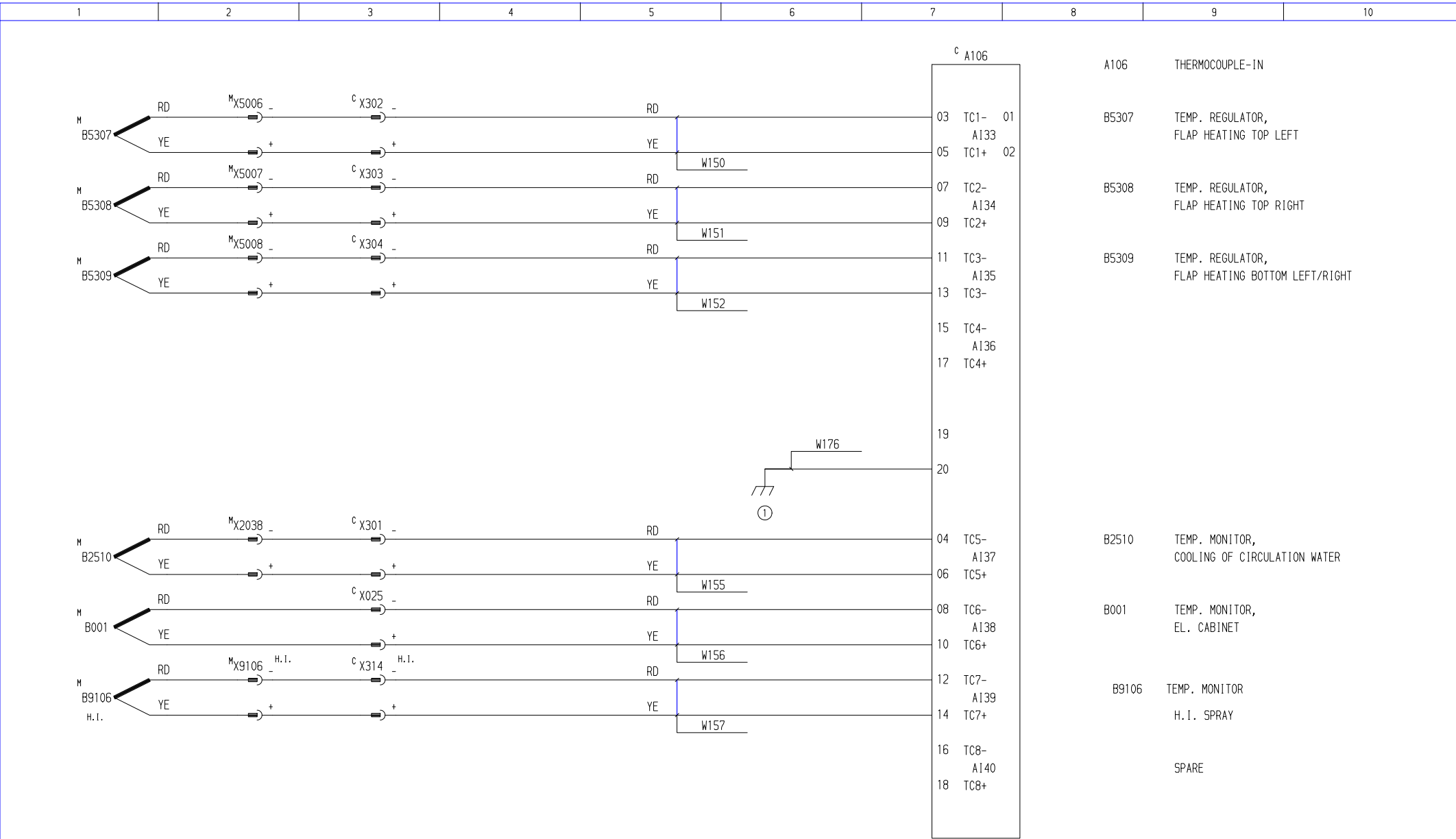
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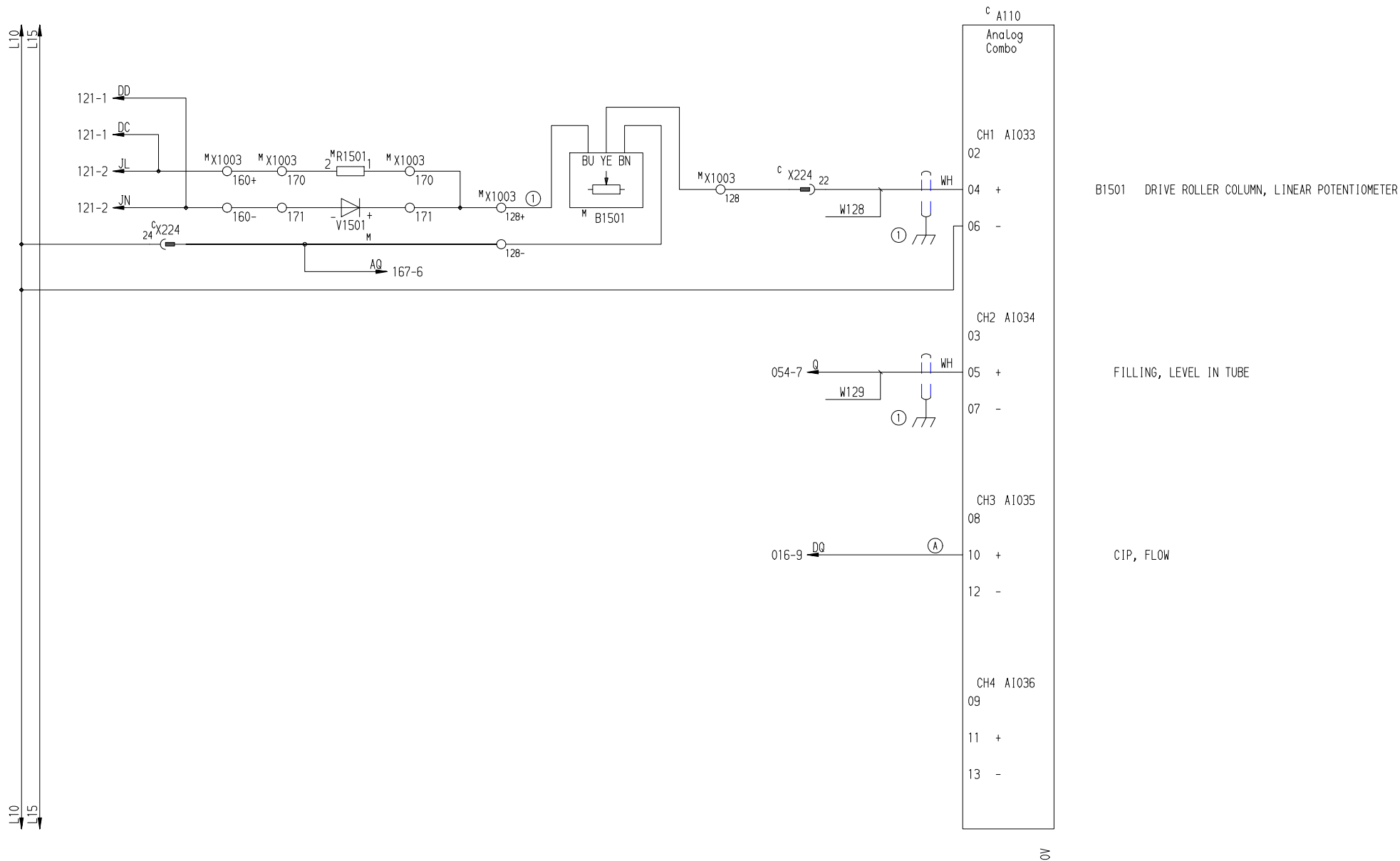


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Sign./Date	AMI 990329						TBA/21-0500					
Appr./Date	BGZ 990329				Drawing remarks		Company	TETRA BRIK PACK. SYSTEM SPA				Drawing No 44711-084:01



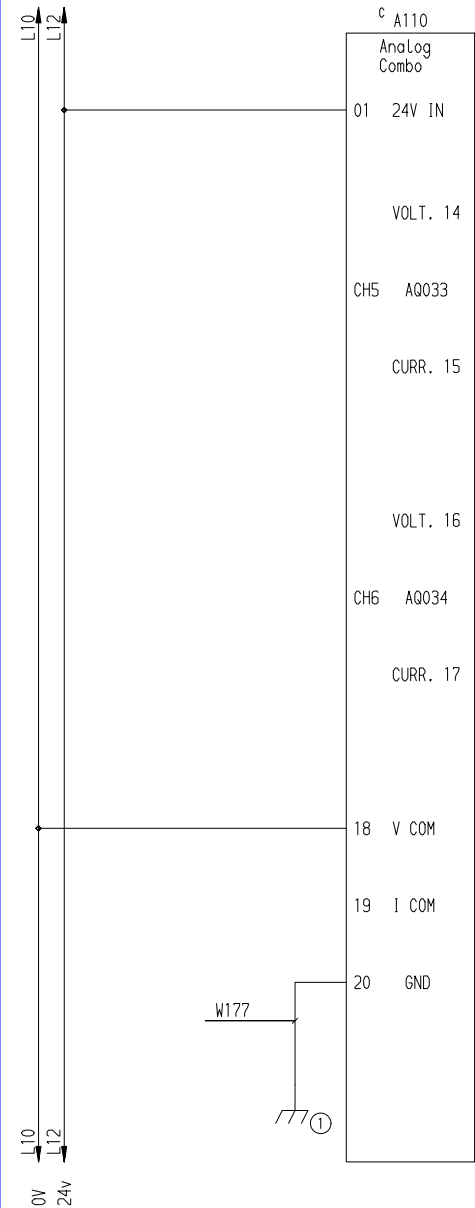
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Sign./Date	AMI 010130					Company	TETRA BRIK PACK. SYSTEM SPA	Drawing No	44711-087:04	Page: -
Appr./Date	PGE 010130				Drawing remarks					



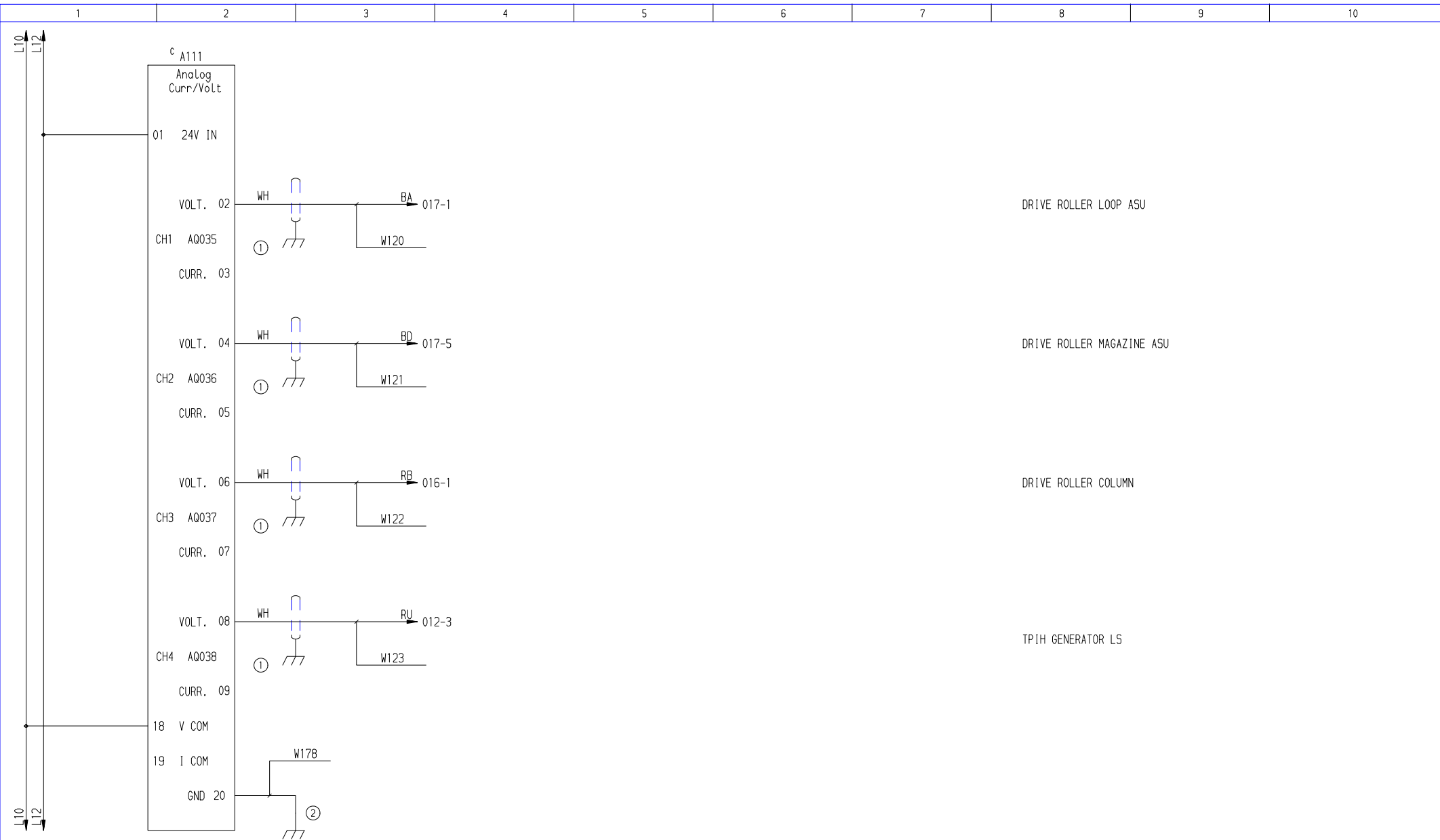


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Sign./Date	AMI 990618						Drawing No: 44711-095:02				Page: -
Appr./Date	BGZ 990618				Drawing remarks	TETRA BRIK PACK. SYSTEM SPA					

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Note	A				1. CONNECT TO THE COMMON EARTH BAR	Tetra Pak	Designer: AMI	Date: 990728	Approved: BGZ	Date: 990728	Doc. Class: -
ECN No.	72689						Machine: TBA/21-0500	Denomination: PLC-OUT, ANALOG COMBO			
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Appr./Date	BGZ 990618				Drawing remarks						Page: -



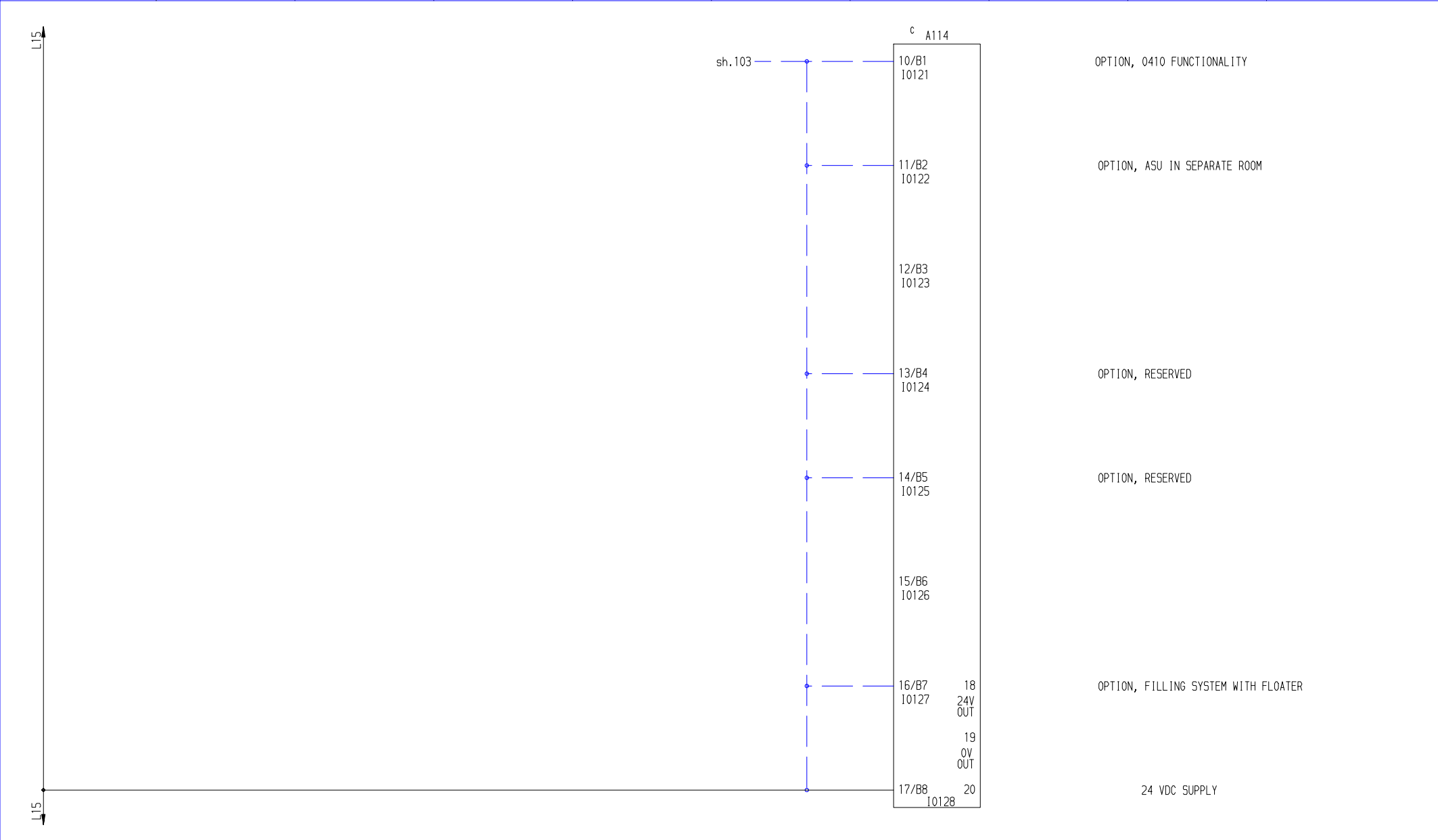
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Sign./Date	AMI 990618					Company TETRA BRIK PACK. SYSTEM SPA	Drawing No 44711-097:02				Page -
Appr./Date	BGZ 990618				Drawing remarks						

Note	A				1.CONNECT TO THE EARTH BAR	Tetra Pak Designer AMI Date 990728 Approved BGZ Date 990728 Doc.Class - Machine TBA/21-0500 Denomination PLC-OUT, ANALOG Company TETRA BRIK PACK. SYSTEM SPA Drawing No 44711-098:02 Page -
ECN No.	72689					
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Appr./Date	BGZ 990618				Drawing remarks	

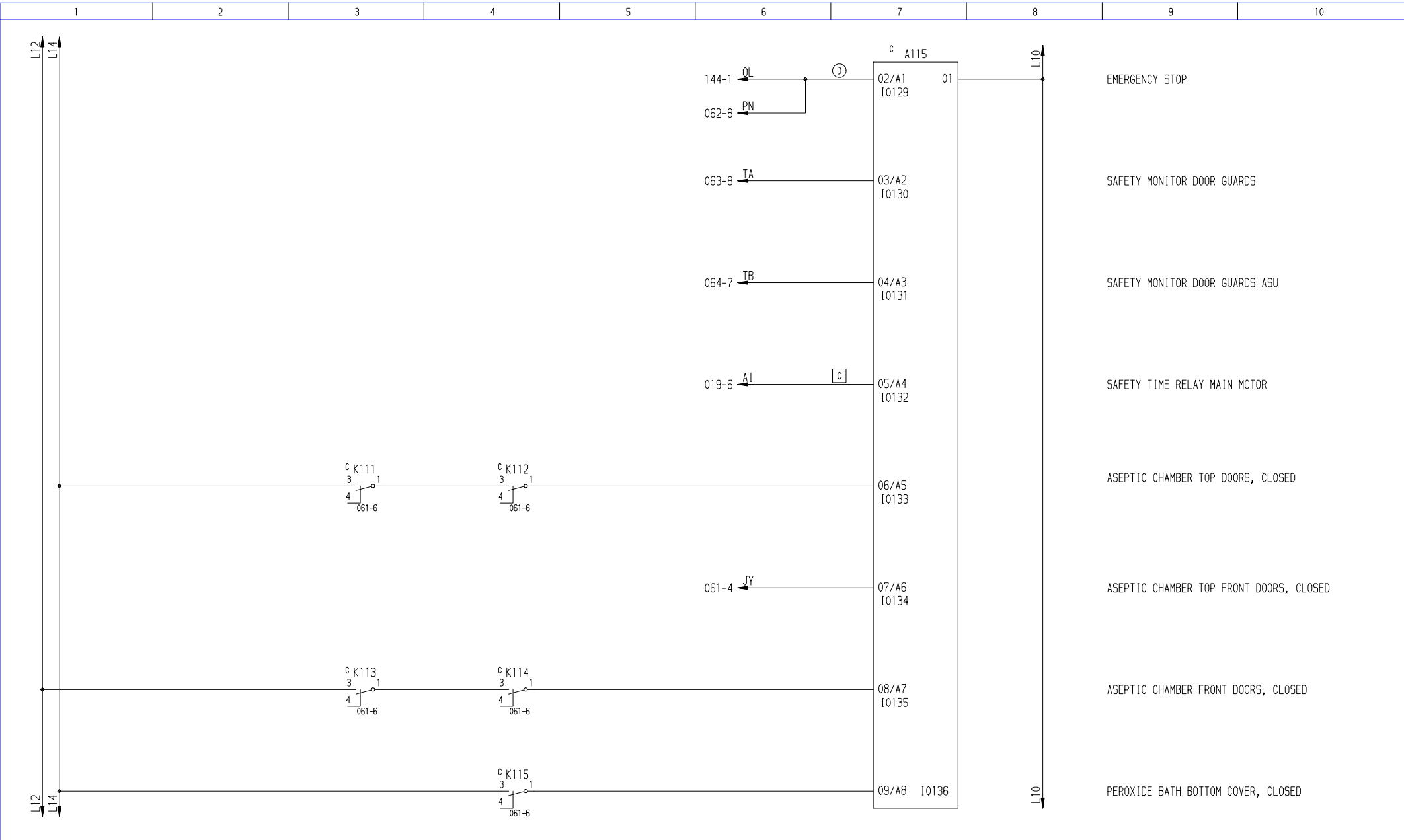
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03/A2 I0114			OPTION, CIP SUPERVISION
04/A3 I0115			
05/A4 I0116			OPTION, COOLING SYSTEM ICE WATER
06/A5 I0117			
07/A6 I0118			RESERVED FOR FUTURE OPTIONS
08/A7 I0119			OPTION, PT/21
09/A8 I0120			OPTION, HEADSPACE BY INJECTION

Note	A				TetraPak Machine TBA/21-0500 Company TETRA BRIK PACK. SYSTEM SPA Designer AMI Date 991029 Approved BGZ Date 991029 Doc.Class - Denomination PLC-IN Drawing No 44711-103:03 Page —
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Appr./Date	BGZ 990928			Drawing remarks	

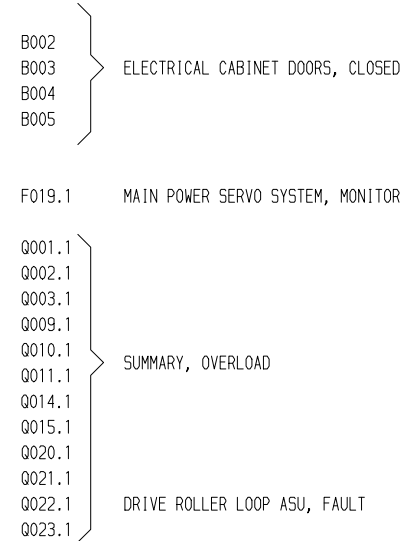
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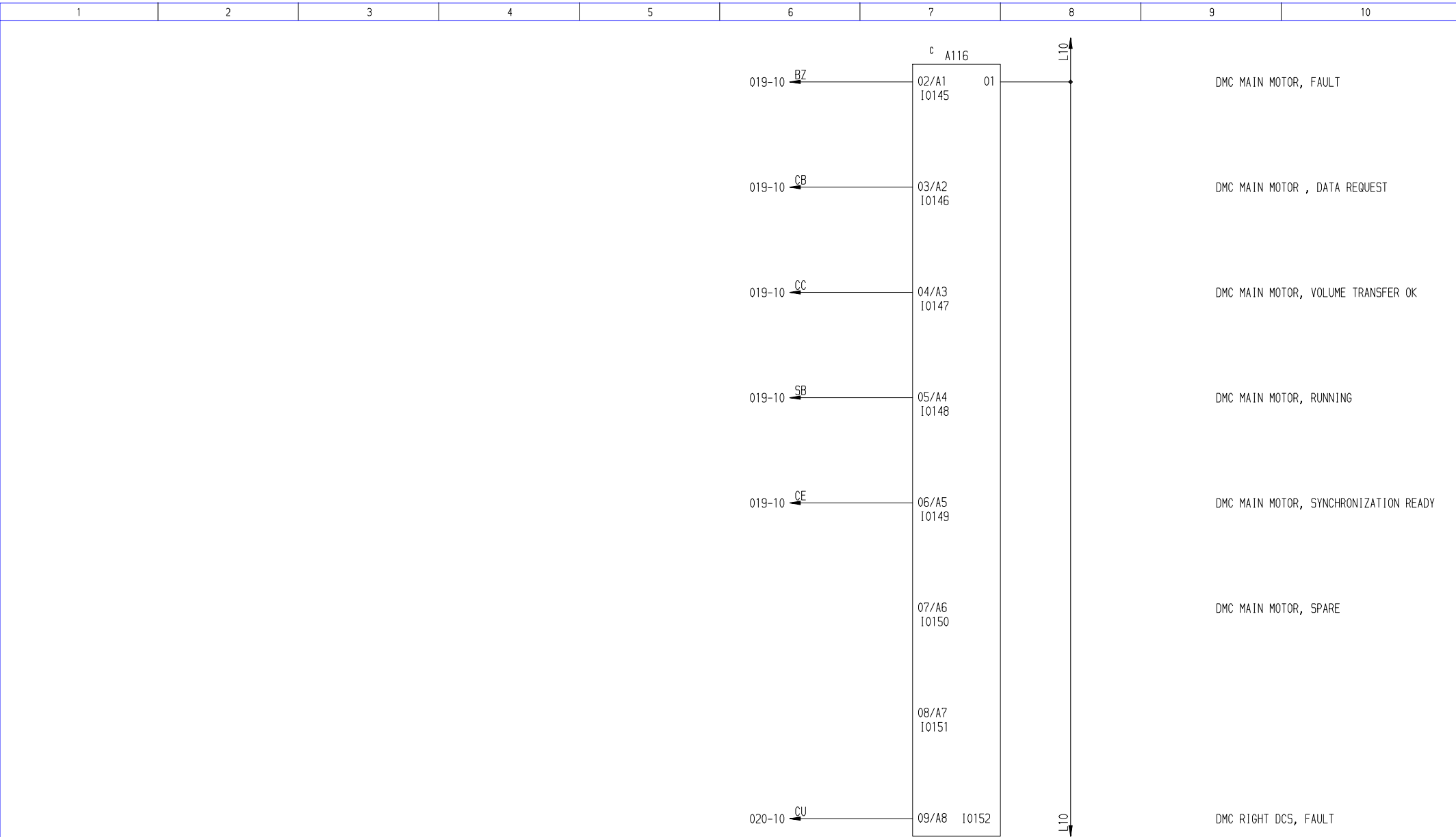
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Sign./Date	AMI 010130						Company TETRA BRIK PACK. SYSTEM SPA				
Appr./Date	PGE 010130										
Drawing remarks							Drawing No 44711-104:04				Page -



Note	A					Tetra Pak TETRA BRIK PACK. SYSTEM SPA	Designer AMI	Date 990329	Approved BGZ	Date 990329	Doc.Class -	
ECN No.	71072						Machine TBA/21-0500	Denomination PLC-IN				
Sign./Date	AMI 990329						Drawing No 44711-105:01					Page -
Appr./Date	BGZ 990329				Drawing remarks							



Note	A				Tetra Pak Machine TBA/21-0500 Company TETRA BRIK PACK. SYSTEM SPA Designer AMI Date 010130 Denomination PLC-IN Drawing No 44711-106:04 Approved PGE Date 010130 Page -
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Appr./Date	PGE 010130			Drawing remarks	



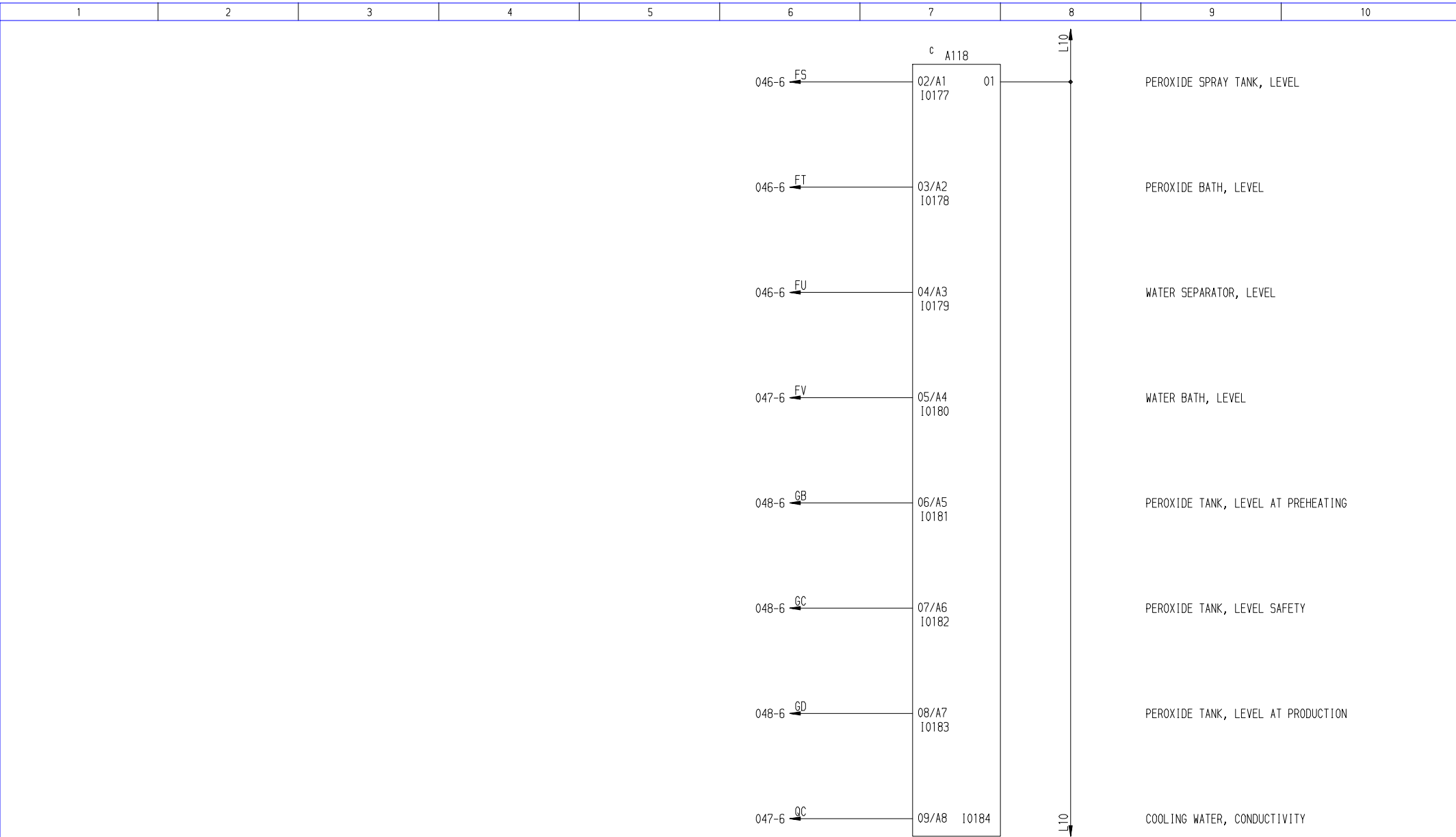
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Sign./Date	AMI 990329						Drawing No: 44711-107:01				Page: -
Appr./Date	BGZ 990329				Drawing remarks						

C A116		
020-10	DA	10/B1 10153
020-10	DB	11/B2 10154
		12/B3 10155
		13/B4 10156
		14/B5 10157
021-10	DT	15/B6 10158
021-10	DV	16/B7 10159
		18 24V OUT
		19 0V OUT
021-10	DZ	17/B8 10160
		20

Note	A				Tetra Pak Designer AMI Date 010130 Approved PGE Date 010130 Doc.Class - Machine TBA/21-0500 Denomination PLC-IN Company TETRA BRIK PACK. SYSTEM SPA Drawing No 44711-108:04 Page -
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Appr./Date	PGE 010130				
Drawing remarks					

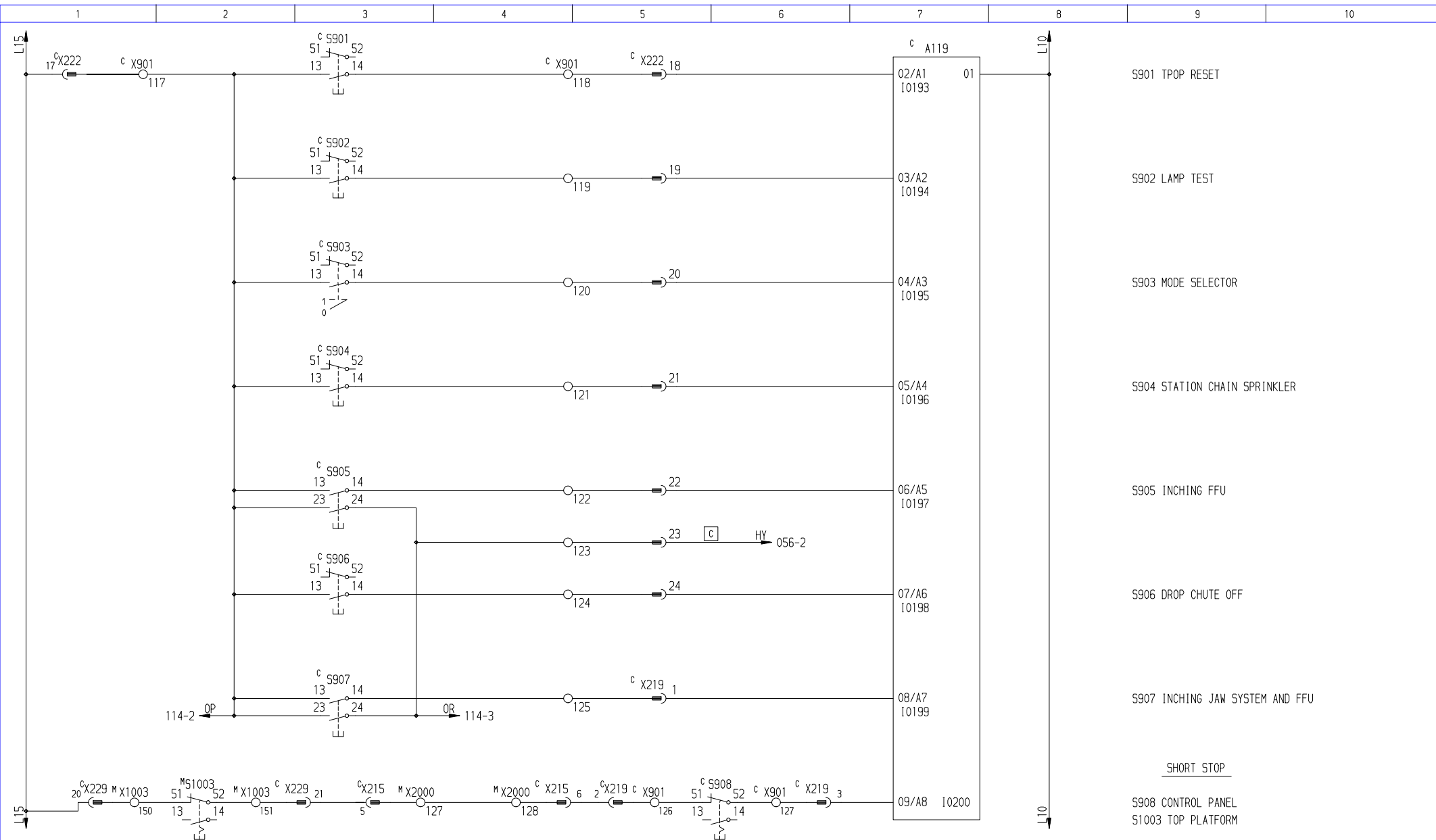
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MachineTBA/21-0500	DenominationPLC-IN																			
Drawing No44711-109:04			Page-																	
ECN No.	73362																			
Sign./Date	AMI 010130																			
Appr./Date	PGE 010130			Drawing remarks																

Note	A				Tetra Pak Designer AMI Date 990728 Approved BGZ Date 990728 Doc.Class - Machine TBA/21-0500 Denomination PLC-IN Company TETRA BRIK PACK. SYSTEM SPA Drawing No 44711-110:02 Page -
ECN No.	72689				
Sign./Date	AMI 990618				
Appr./Date	BGZ 990618			Drawing remarks	

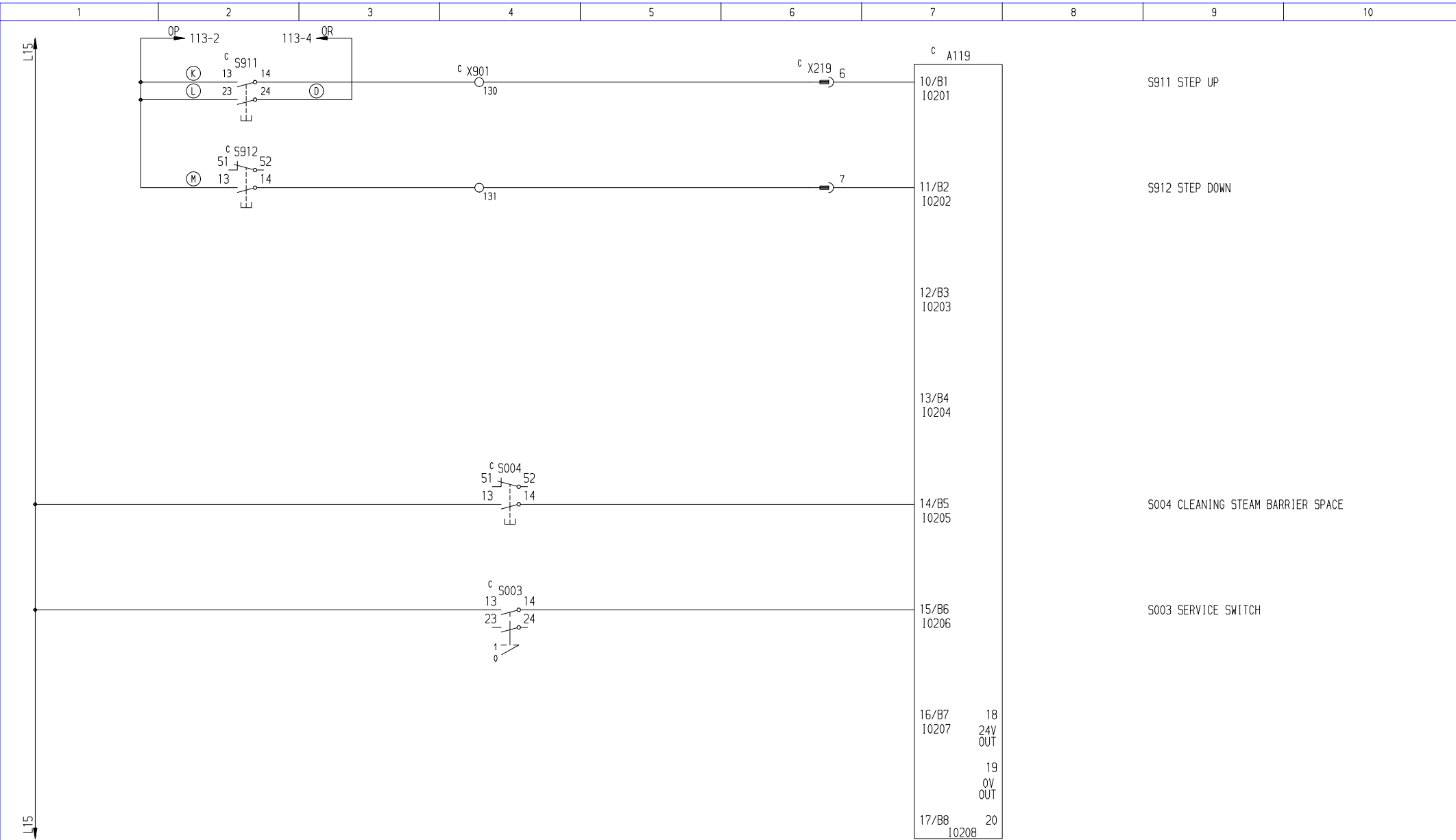


Note	A					Tetra Pak CompanyTETRA BRIK PACK. SYSTEM SPA	Designer: AMI	Date990329	Approved BGZ	Date990329	Doc. Class-
ECN No.	71072						MachineTBA/21-0500	DenominationPLC-IN			
Sign./Date	AMI 990329						Drawing No44711-111:01				
Appr./Date	BGZ 990329				Drawing remarks		Page-				

Note	A					Tetra Pak CompanyTETRA BRIK PACK. SYSTEM SPA <table><tr><td>Designer AMI</td><td>Date 990329</td><td>Approved BGZ</td><td>Date 990329</td><td>Doc.Class -</td></tr><tr><td>MachineTBA/21-0500</td><td colspan="4">DenominationPLC-IN</td></tr><tr><td colspan="4">Drawing No44711-112:01</td><td>Page-</td></tr></table>	Designer AMI	Date 990329	Approved BGZ	Date 990329	Doc.Class -	MachineTBA/21-0500	DenominationPLC-IN				Drawing No44711-112:01				Page-
Designer AMI	Date 990329	Approved BGZ	Date 990329	Doc.Class -																	
MachineTBA/21-0500	DenominationPLC-IN																				
Drawing No44711-112:01				Page-																	
ECN No.	71072																				
Sign./Date	AMI 990329																				
Appr./Date	BGZ 990329				Drawing remarks																



Note	A				1. TO BE REMOVED WHEN DE-EQUIPMENT IS AVAILABLE	Designer: AMI	Date: 010130	Approved: PGE	Date: 010130	Doc. Class: -
ECN No.	71072					Machine: TBA/21-0500	Denomination: PLC-IN			
Sign./Date	AMI 990329					Company: TETRA BRIK PACK. SYSTEM SPA	Drawing No: 44711-113:04			Page: -
Appr./Date	BGZ 990329				Drawing remarks					



Note	A					Tetra Pak TETRA BRIK PACK. SYSTEM SPA	Designer AMI	Date 990329	Approved BGZ	Date 990329	Doc.Class -
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Sign./Date	AMI 990329						Drawing No 44711-114:01				
Appr./Date	BGZ 990329				Drawing remarks		Page -				

c A120

02/A1 10209 01

03/A2 10210

054-9 BY 04/A3 10211

054-9 QE 05/A4 10212

054-9 QF 06/A5 10213

054-9 QG 07/A6 10214

054-9 QH 08/A7 10215

054-9 CV 09/A8 10216

L10

L10

START FLOW VALUE FROM TMCC A420 TO TPOP

TMCC FILLING, HIGH LEVEL

TMCC FILLING, LOW LEVEL

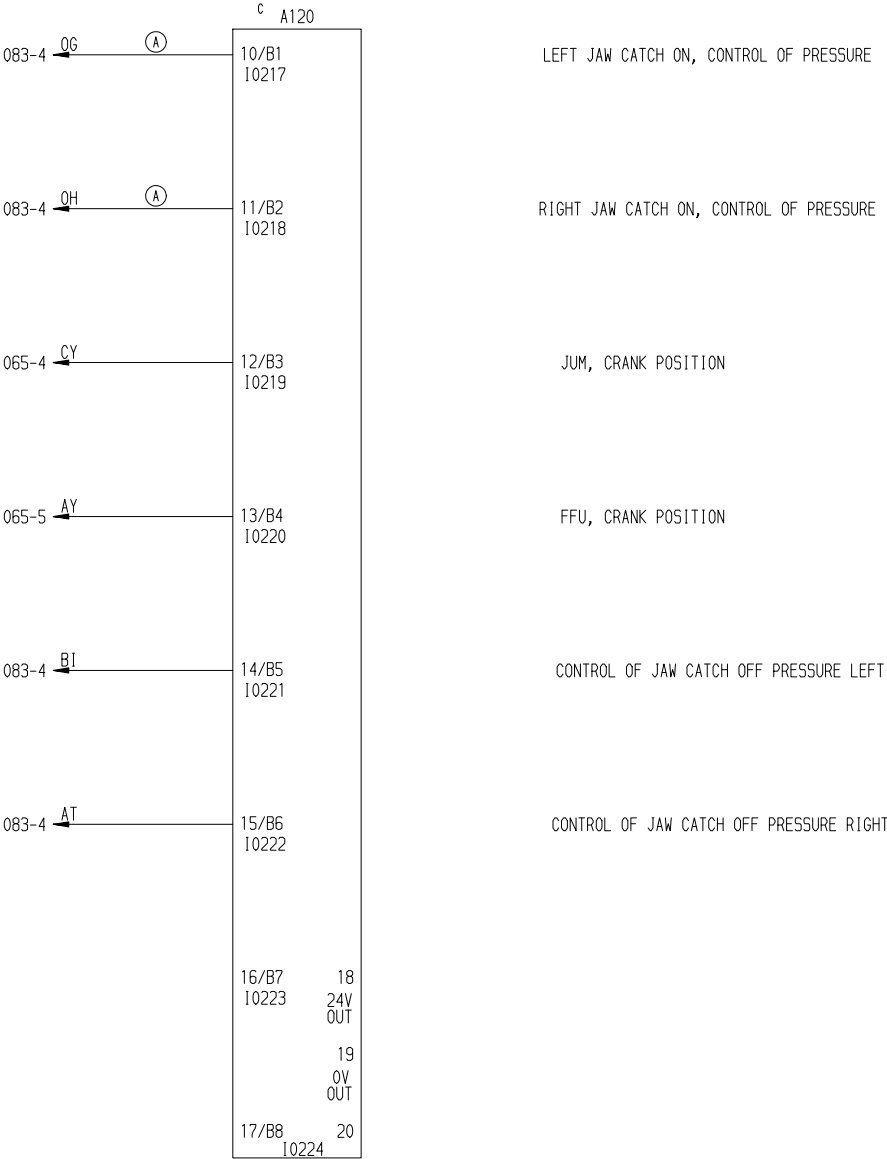
TMCC FILLING, FILLING OK

TMCC FILLING, ENABLED

TMCC FILLING, DATA REQUEST.

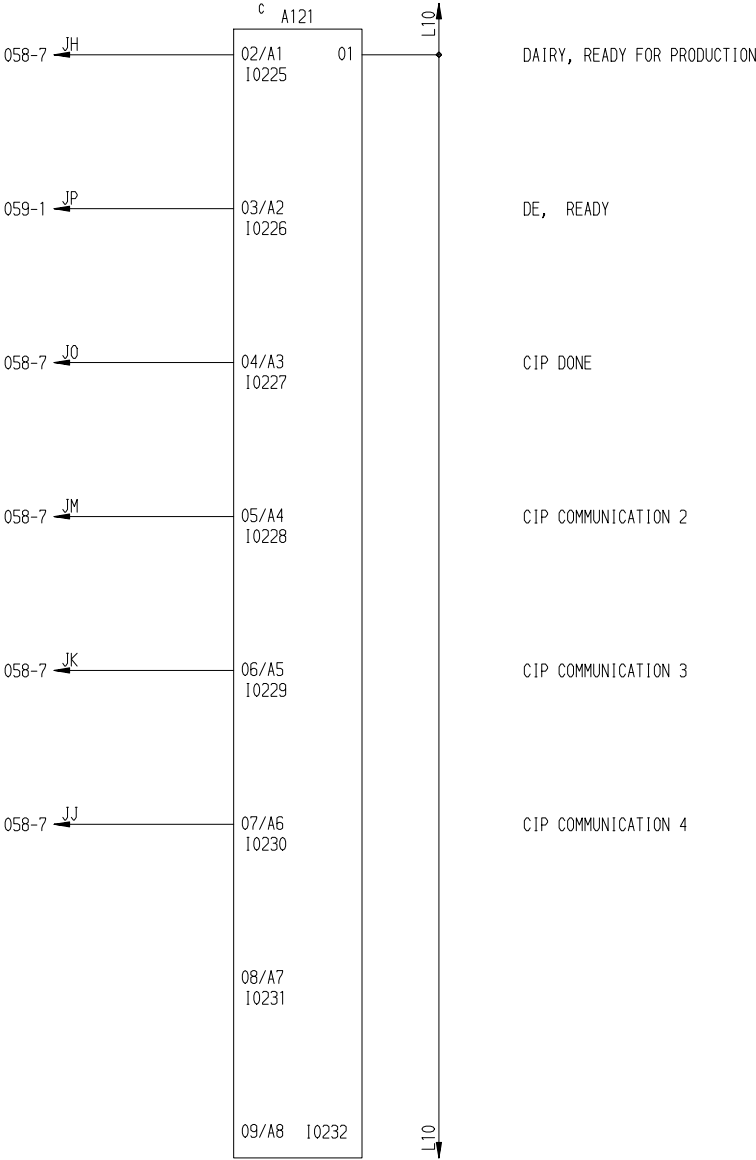
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ECN No.	72992						Denomination	PLC-IN			
Sign./Date	AMI 990928						Drawing No	44711-115:03			
Appr./Date	BGZ 990928				Drawing remarks						Page -

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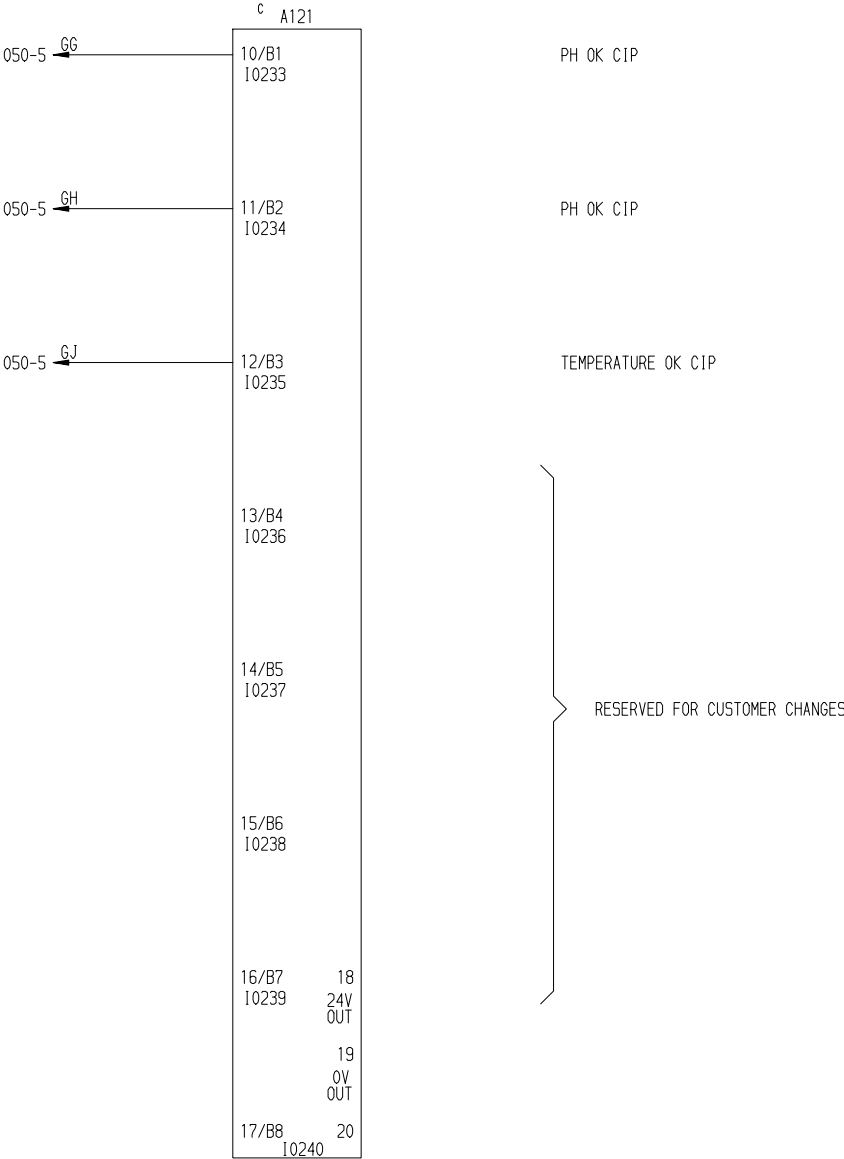
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Sign./Date	AMI 010130						Drawing No: 44711-116:04				Page: -
Appr./Date	PGE 010130				Drawing remarks						

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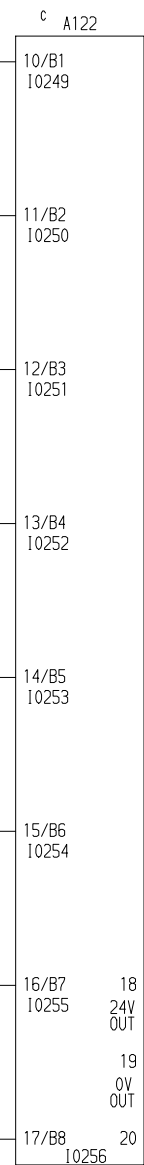
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Appr./Date	BGZ 990329				Drawing remarks						

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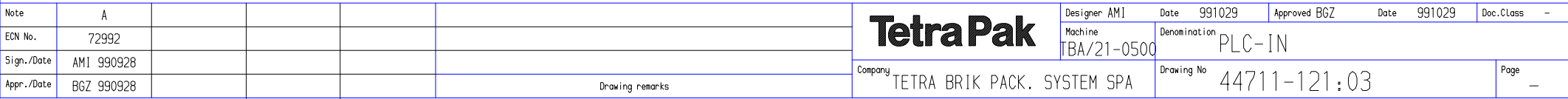


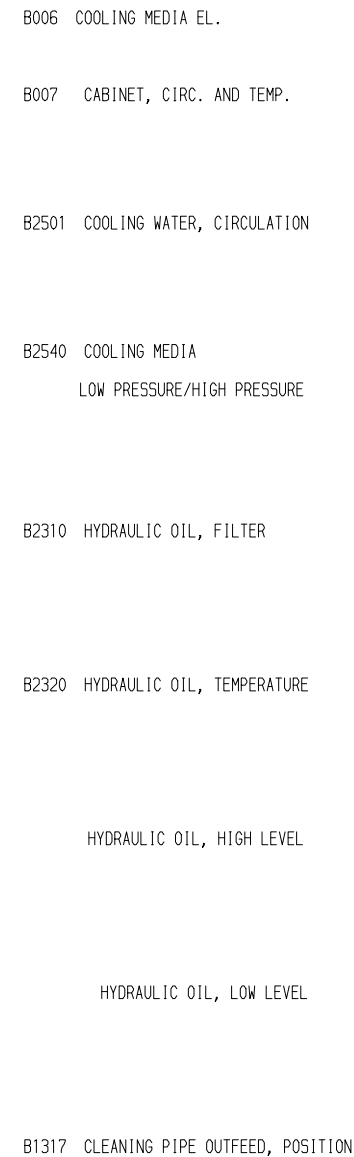
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Appr./Date	PGE 010130				Drawing remarks						

Note	A				Tetra Pak Designer AMI Date 990728 Approved BGZ Date 990728 Doc. Class - Machine TBA/21-0500 Denomination PLC-IN Company TETRA BRIK PACK. SYSTEM SPA Drawing No 44711-119:02 Page -
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Appr./Date	BGZ 990618			Drawing remarks	

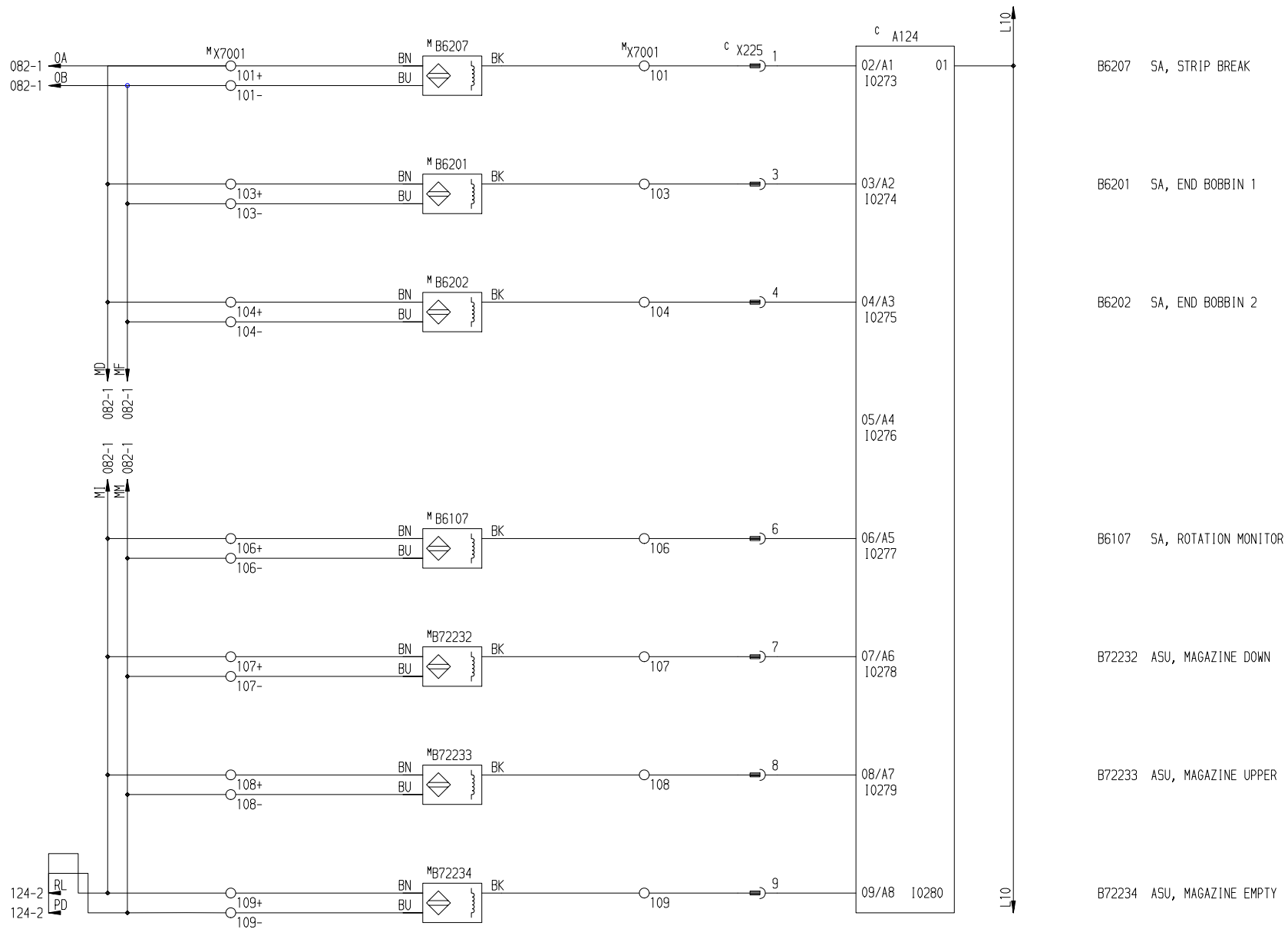


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ECN No.	72992				
Sign./Date	AMI 990928				
Appr./Date	BGZ 990928			Drawing remarks	





Note	A					Tetra Pak Machine TBA/21-0500 Company TETRA BRIK PACK. SYSTEM SPA Designer AMI Date 010130 Approved PGE Date 010130 Doc.Class - Denomination PLC-IN Drawing No 44711-122:04 Page -
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Appr./Date	BGZ 990329				Drawing remarks	

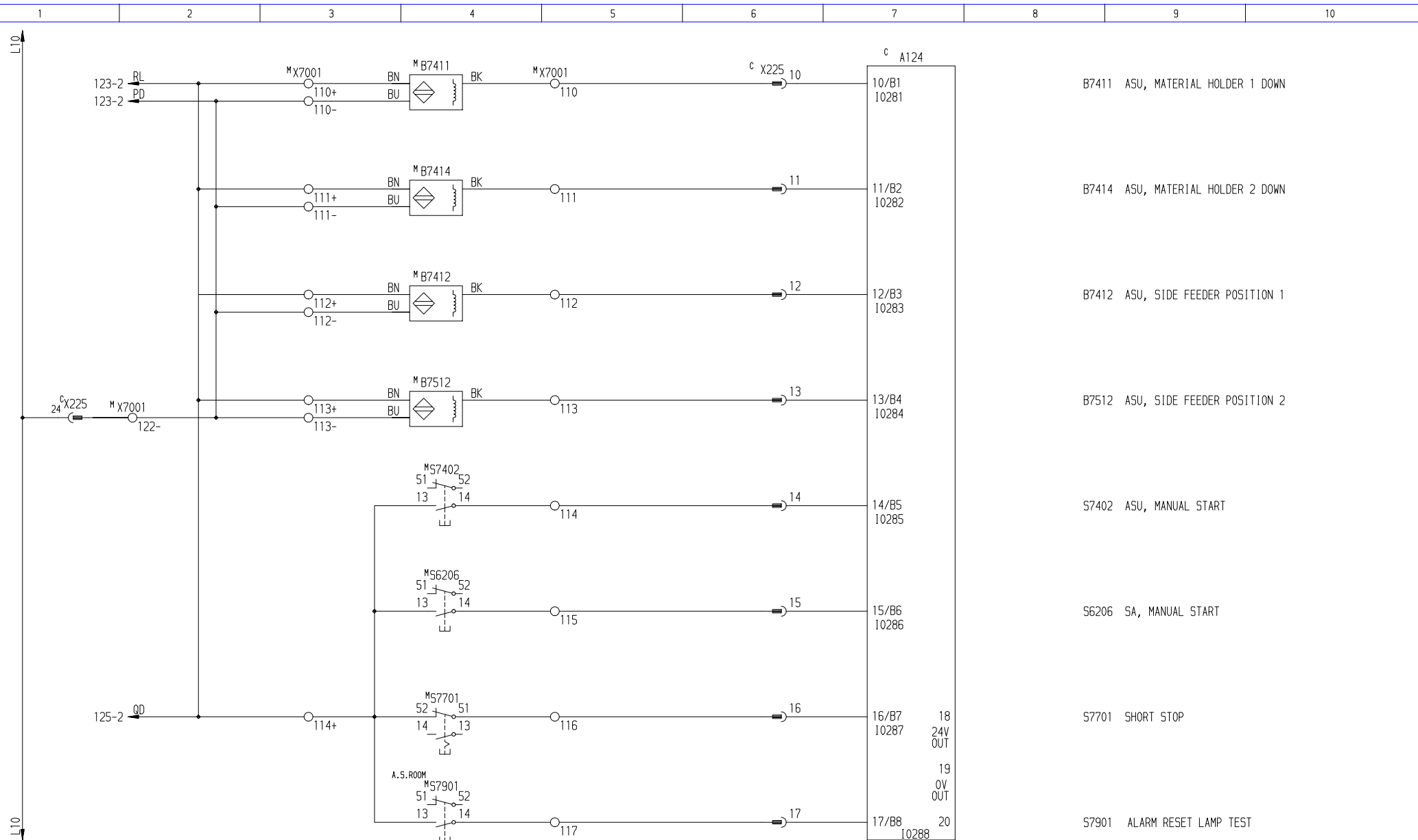


Note	A				
ECN No.	73362				
Sign./Date	AMI 010130				
Appr./Date	PGE 010130				
Drawing remarks					

Tetra Pak

Company TETRA BRIK PACK. SYSTEM SPA

Designer AMI	Date 010130	Approved PGE	Date 010130	Doc.Class -
Machine TBA/21-0500	Denomination PLC-IN			
Drawing No 44711-123:04				Page -



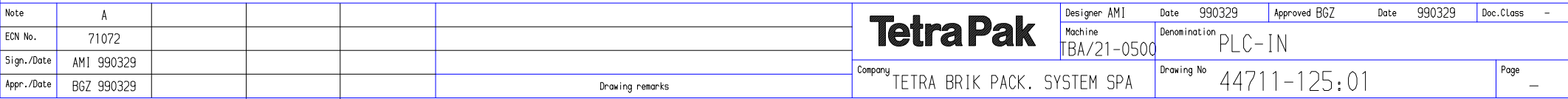
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Appr./Date	BGZ 990928				

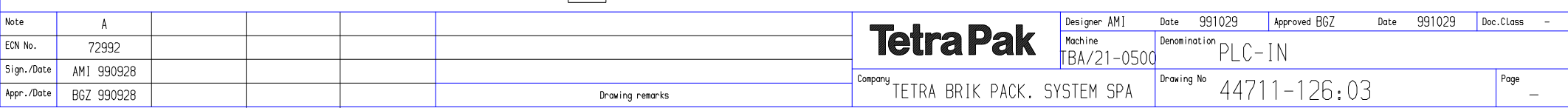
Tetra Pak

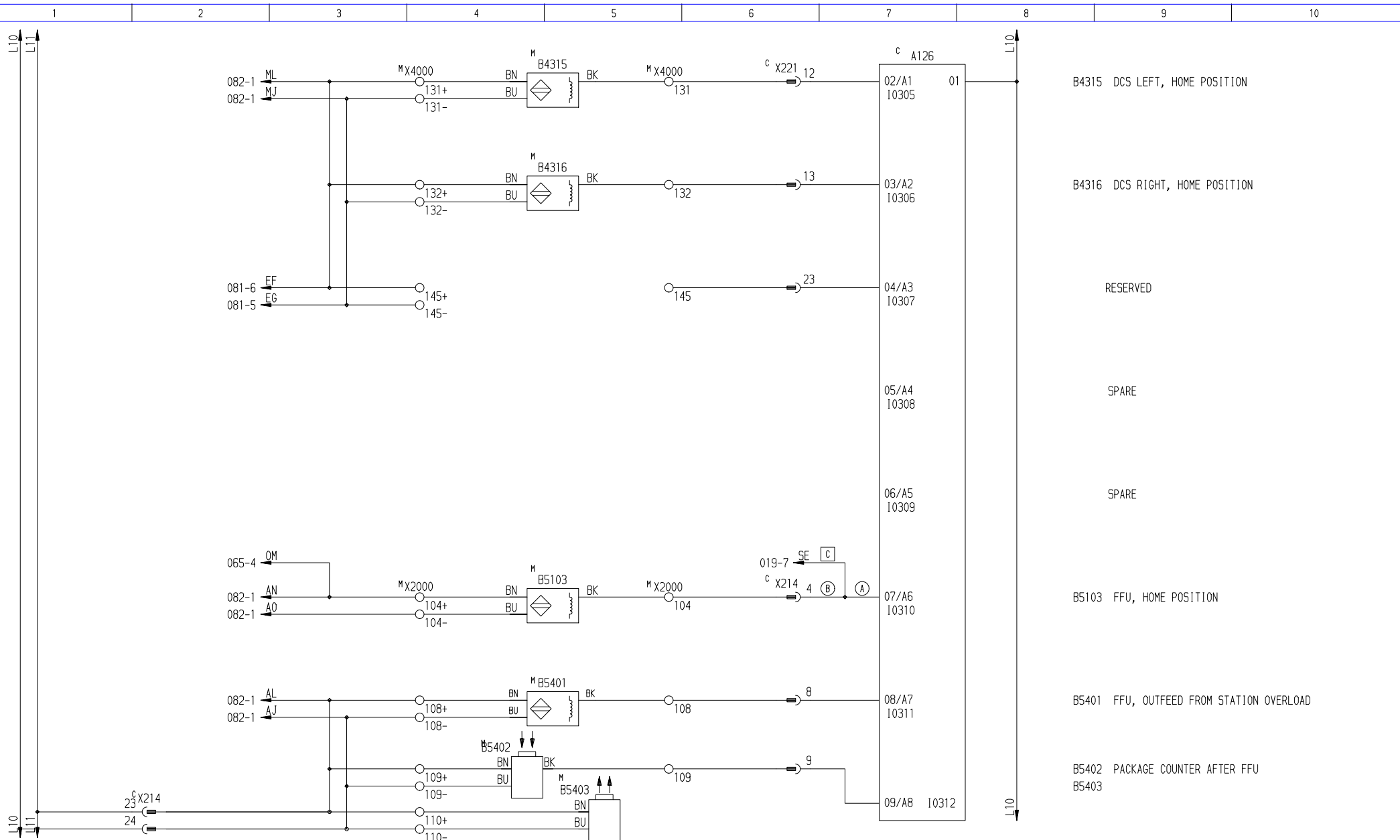
Company TETRA BRIK PACK. SYSTEM SPA

Designer AMI	Date 991029	Approved BGZ	Date 991029	Doc.Class -
Machine TBA/21-0500	Denomination PLC-IN			
Drawing No 44711-124:03				Page -

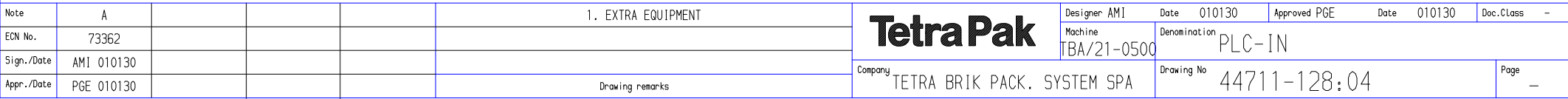
Drawing remarks







Note	A				Tetra Pak Machine TBA/21-0500 Company TETRA BRIK PACK. SYSTEM SPA Designer AMI Date 010130 Denomination PLC-IN Brawing No 44711-127:04 Approved PGE Date 010130 Page —
ECN No.	73362				
Sign./Date	AMI 010130				
Appr./Date	PGE 010130			Drawing remarks	



PLC Address	PLC Input	PLC Output	PLC Description
062-5	KE	02/A1 10321	EMERGENCY STOP ELECTRICAL CABINET OUTSIDE
062-5	KD	03/A2 10322	EMERGENCY STOP ELECTRICAL CABINET INSIDE
062-2	KC	04/A3 10323	EMERGENCY STOP FRONT PLATFORM
062-1	KB	05/A4 10324	EMERGENCY STOP TOP PLATFORM
062-2	KF	06/A5 10325	EMERGENCY STOP RIGHT SIDE PANEL
062-5	KG	07/A6 10326	EMERGENCY STOP LEFT SIDE PANEL
062-6	KJ	08/A7 10327	EMERGENCY STOP DE EQUIPMENT
062-4	KL	09/A8 10328	EMERGENCY STOP ASU BACK

Note	A					Tetra Pak Designer AMI Date 990329 Approved BGZ Date 990329 Doc.Class - Machine TBA/21-0500 Denomination PLC-IN Company TETRA BRIK PACK. SYSTEM SPA Drawing No 44711-129:01 Page -
ECN No.	71072					
Sign./Date	AMI 990329					
Appr./Date	BGZ 990329				Drawing remarks	

C A127		
062-1	KK	10/B1 10329
		11/B2 10330
063-3	KN	12/B3 10331
063-2	KM	13/B4 10332
063-4	KS	14/B5 10333
063-2	KR	15/B6 10334
063-1	KP	16/B7 10335
		18 24V OUT
		19 0V OUT
063-3	KT	17/B8 10336
		20

EMERGENCY STOP CONTROL PANEL

DOOR GUARD, FFU FRONT RIGHT

DOOR GUARD, FFU RIGHT

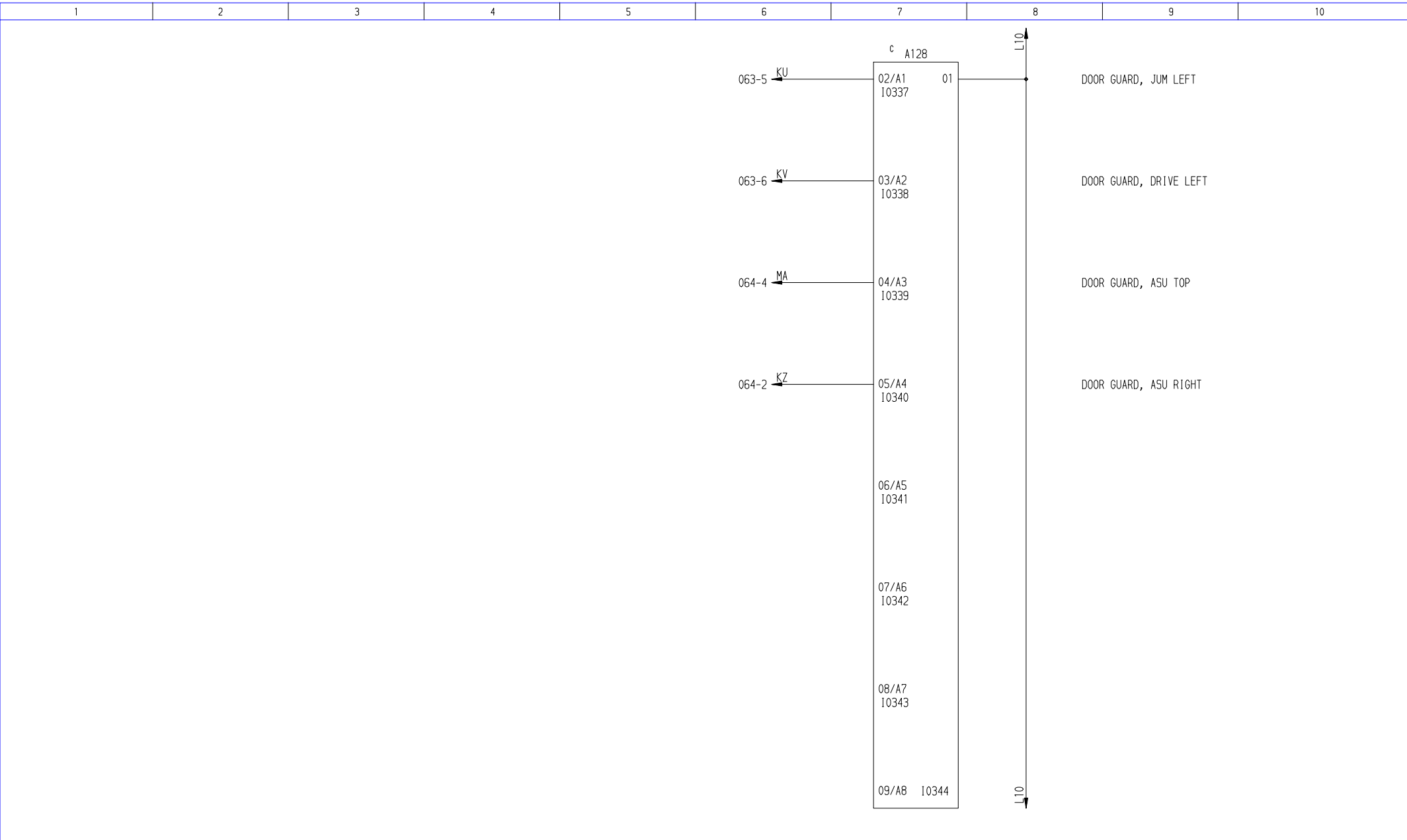
DOOR GUARD, JUM RIGHT

DOOR GUARD, DRIVE RIGHT

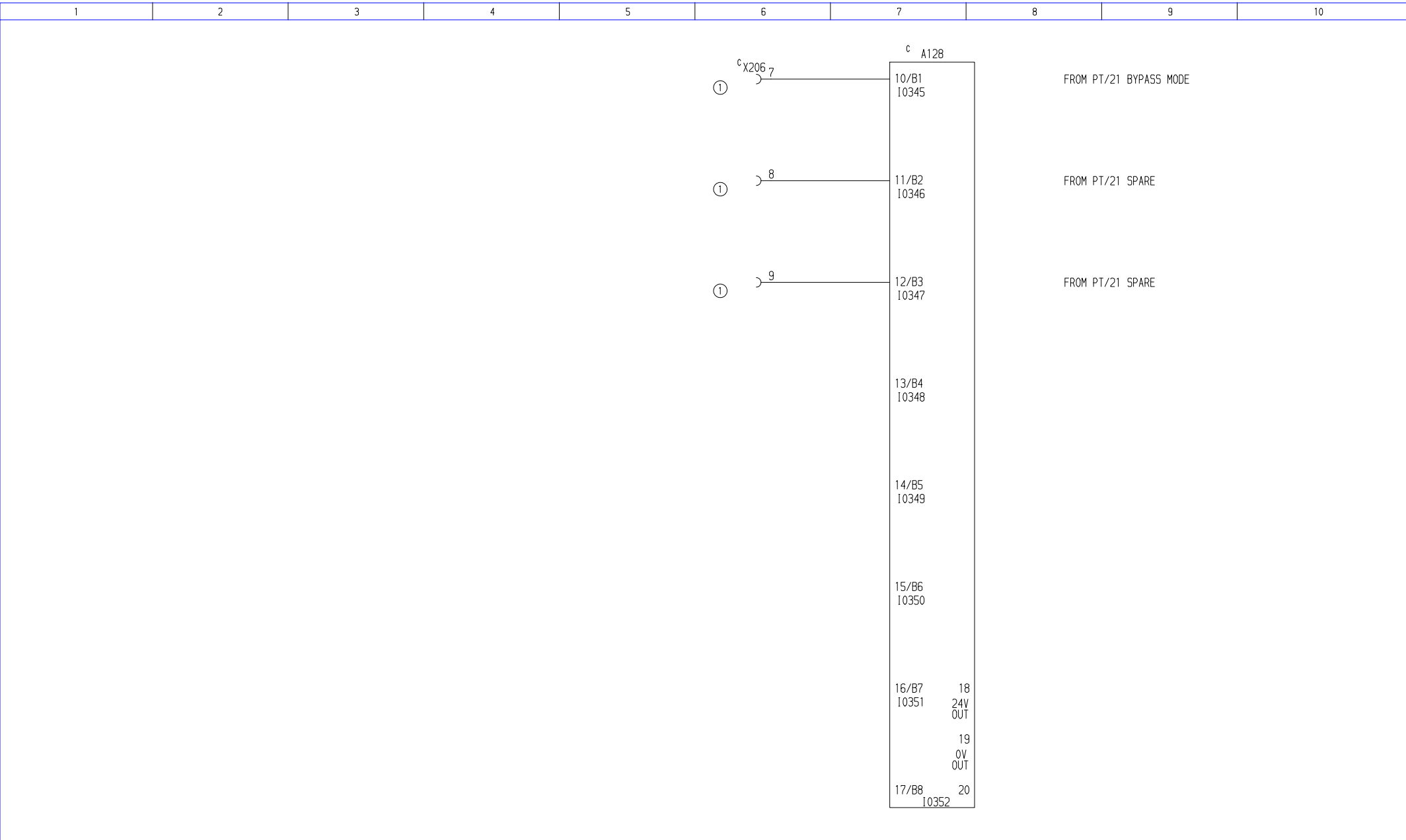
DOOR GUARD, FFU FRONT LEFT

DOOR GUARD, FFU LEFT

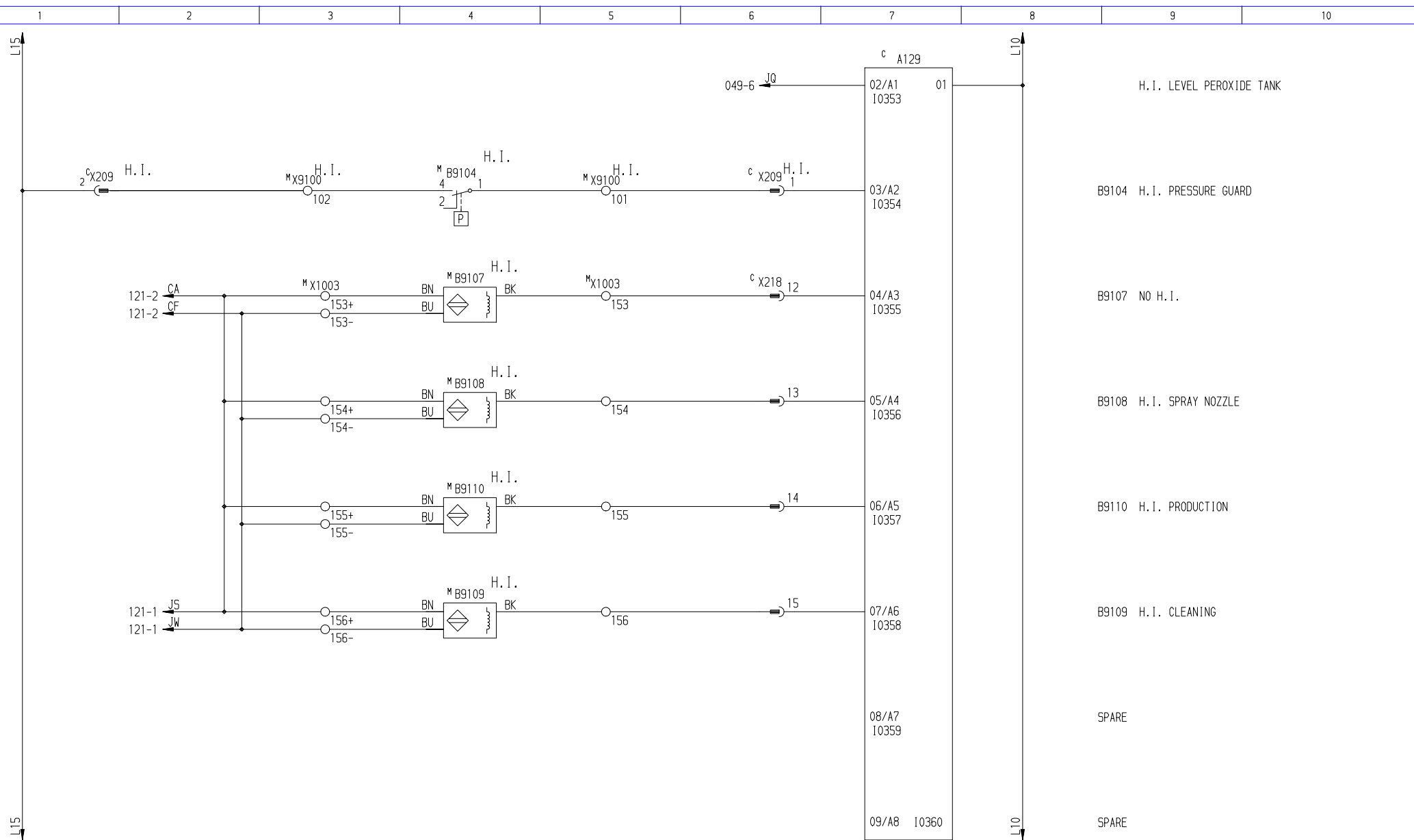
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ECN No.	71072					
Sign./Date	AMI 990329					
Appr./Date	BGZ 990329				Drawing remarks	



Note	A					Tetra Pak TETRA BRIK PACK. SYSTEM SPA	Designer: AMI	Date: 990329	Approved BGZ	Date: 990329	Doc.Class: -
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Appr./Date	BGZ 990329				Drawing remarks						



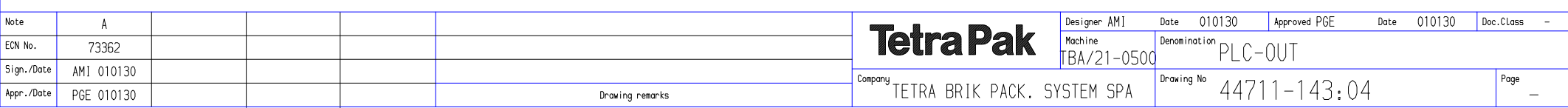
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Sign./Date	AMI 990329									
Appr./Date	BGZ 990329				Drawing remarks					

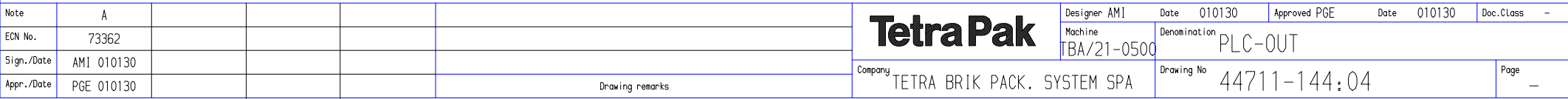


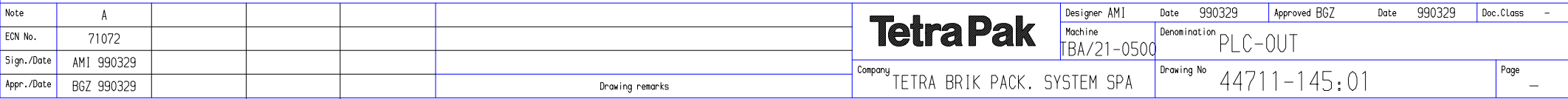
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Sign./Date	AMI 990329				
Appr./Date	BGZ 990329				

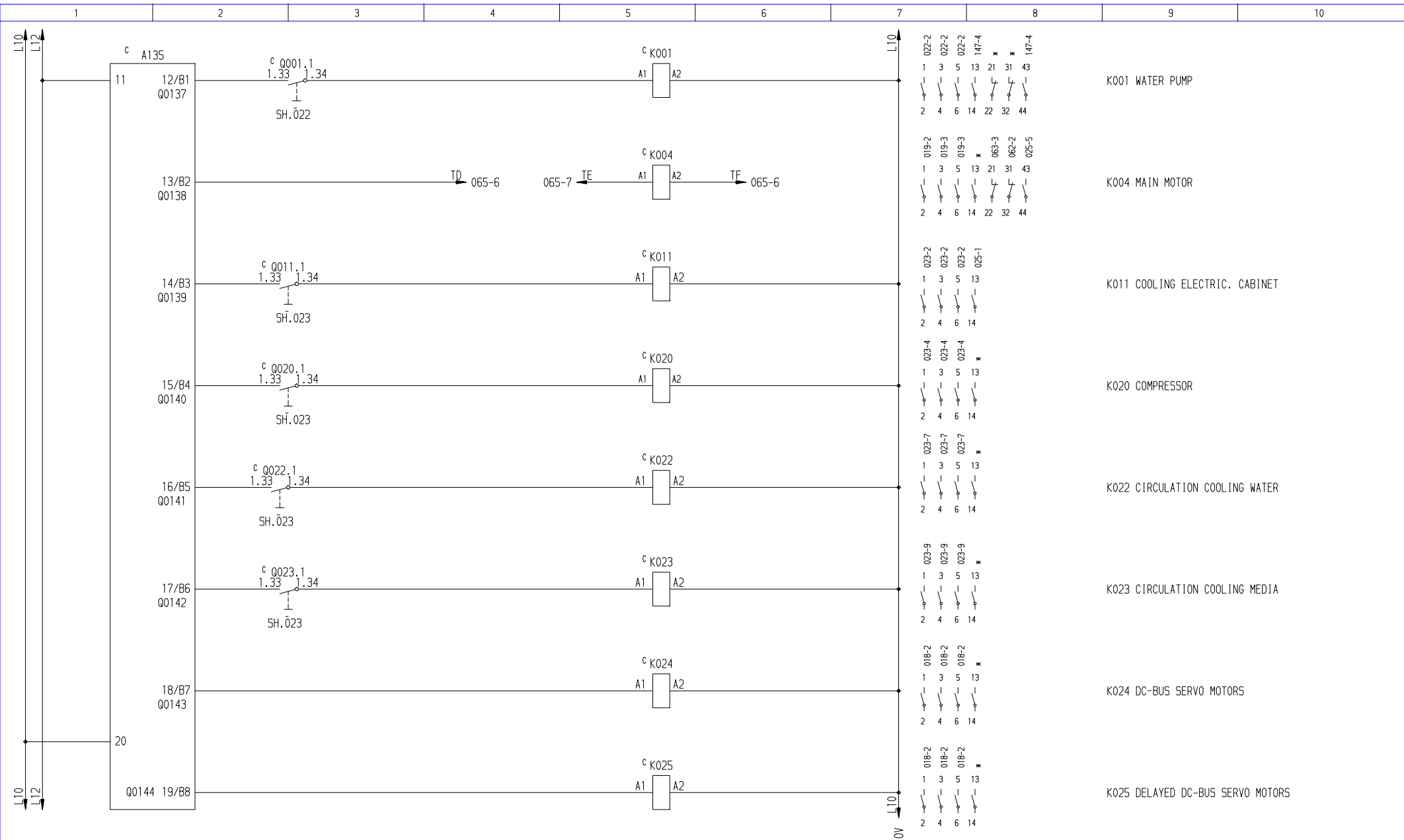
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Company: TETRA BRIK PACK. SYSTEM SPA		Drawing No: 44711-133:01				Page: -

Note	A					 Designer AMI Date 990329 Approved BGZ Date 990329 Doc.Class -	
ECN No.	71072						Machine TBA/21-0500 Denomination PLC-OUT
Sign./Date	AMI 990329						
Appr./Date	BGZ 990329				Drawing remarks		Company TETRA BRIK PACK. SYSTEM SPA Drawing No 44711-134:01 Page -

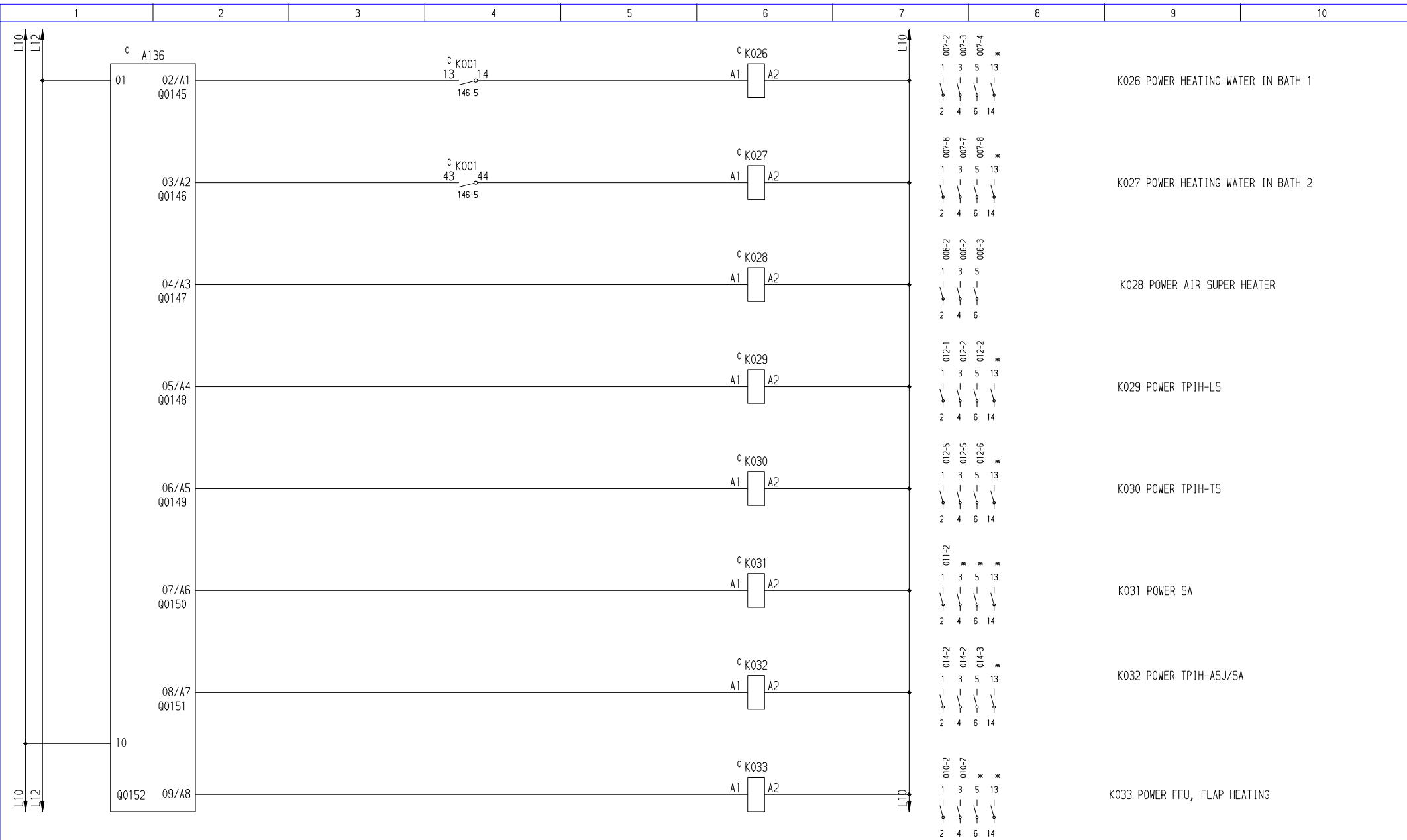




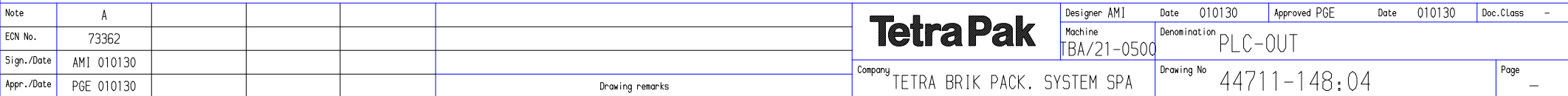


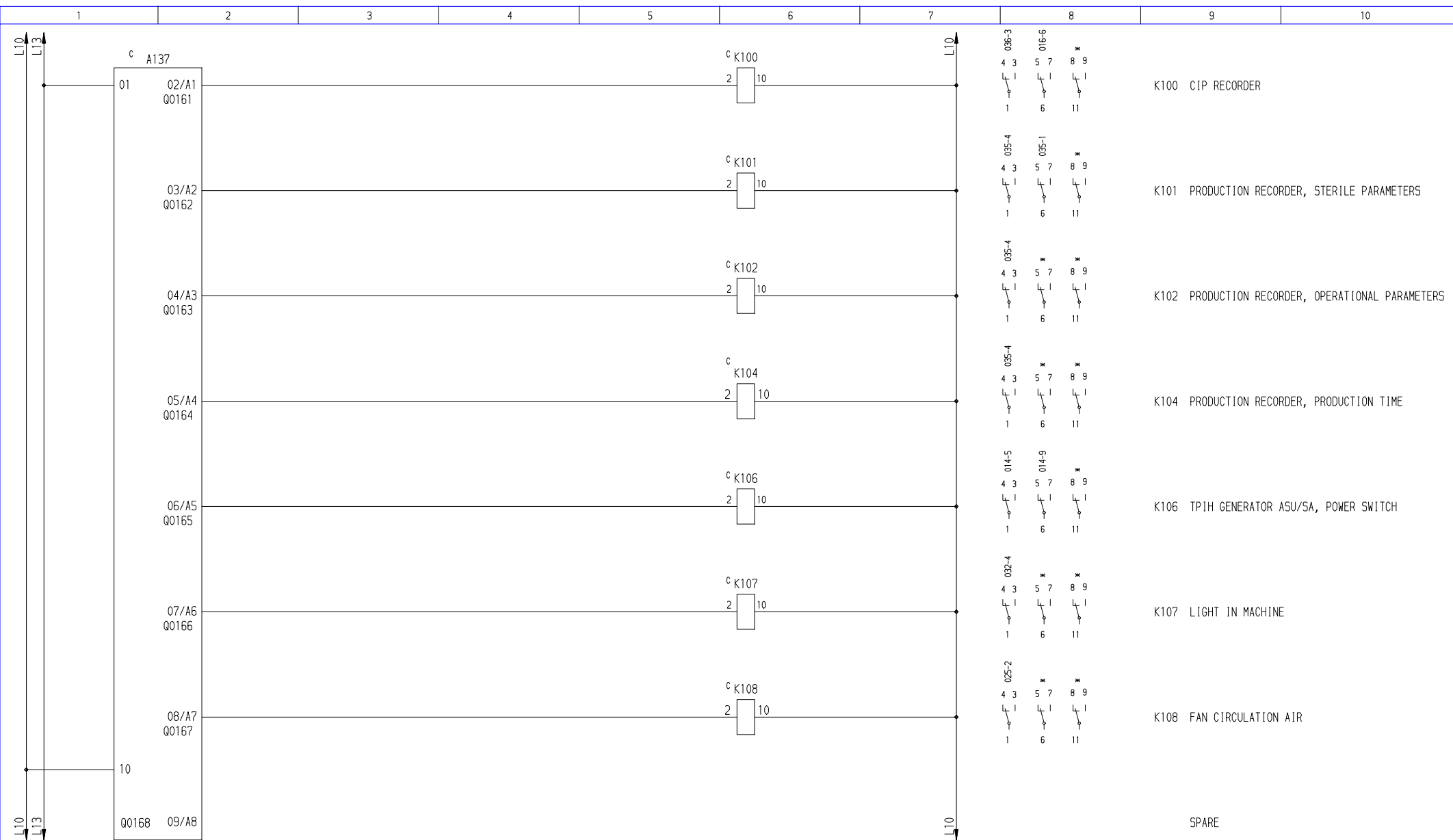


Note	A					TetraPak Machine TBA/21-0500 Company TETRA BRIK PACK. SYSTEM SPA	Designer AMI	Date 990329	Approved BGZ	Date 990329	Doc.Class -
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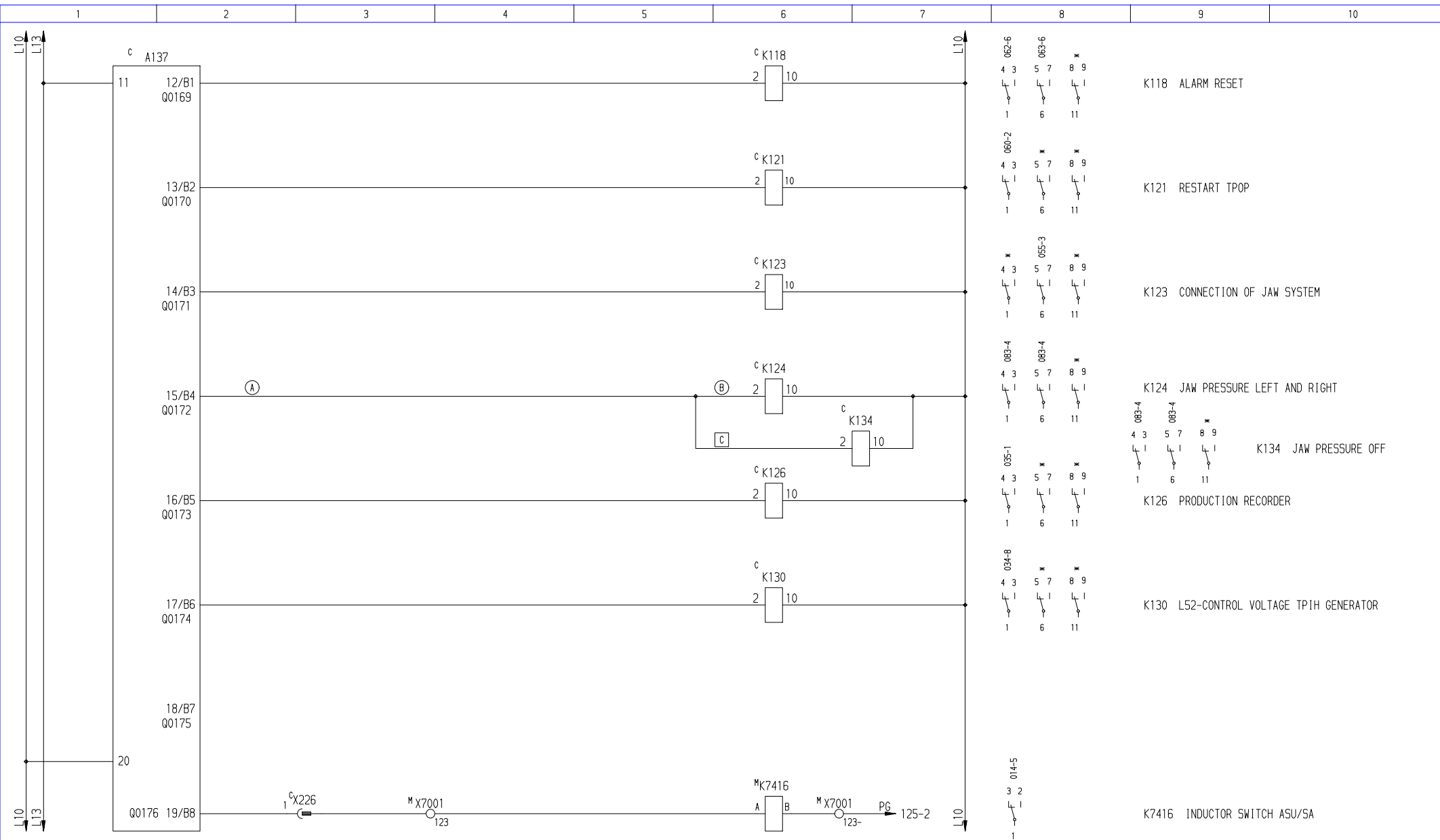


Note	A					Tetra Pak TETRA BRIK PACK. SYSTEM SPA	Designer AMI	Date 010130	Approved PGE	Date 010130	Doc.Class -
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Appr./Date	PGE 010130				Drawing remarks						

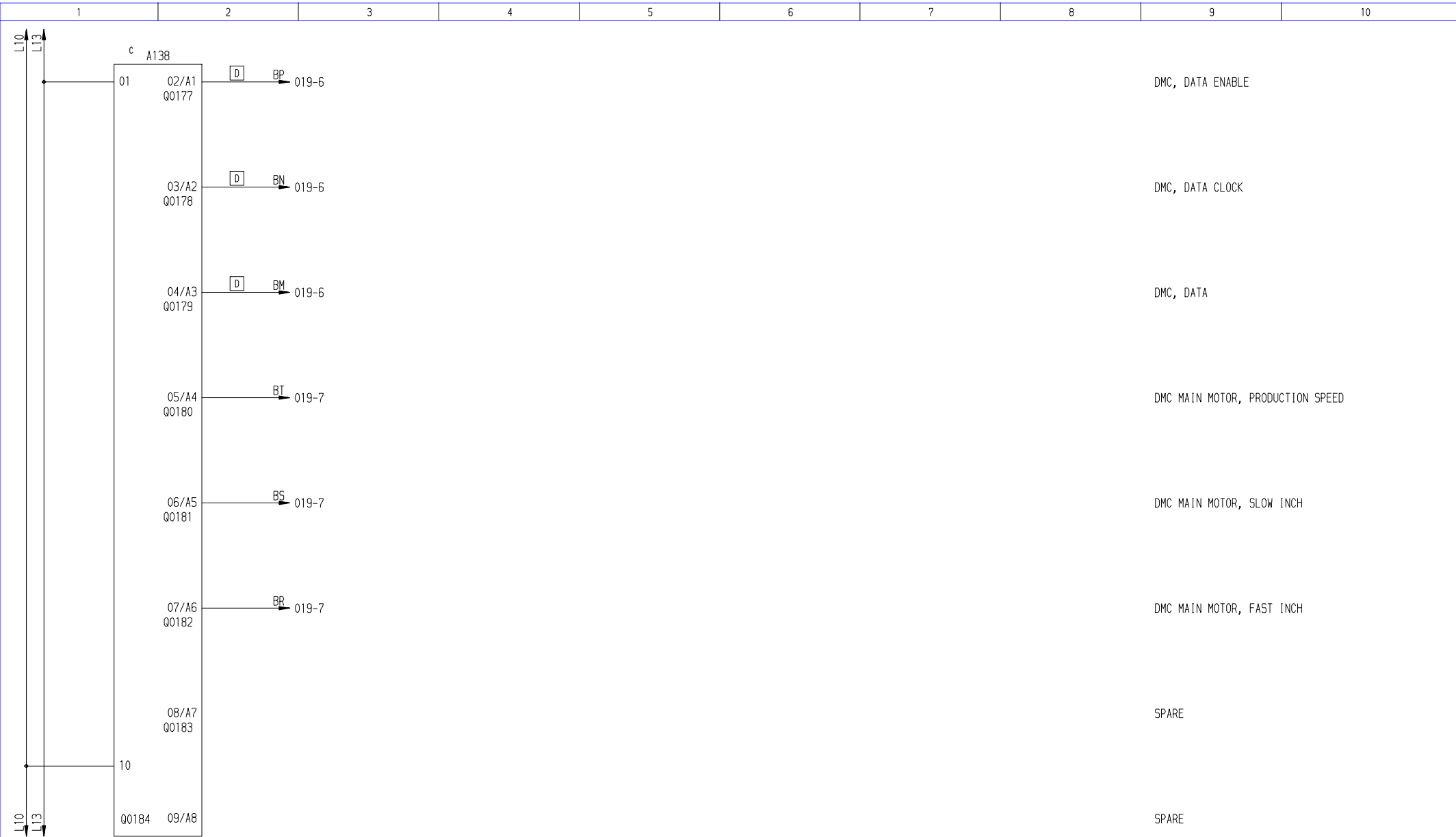




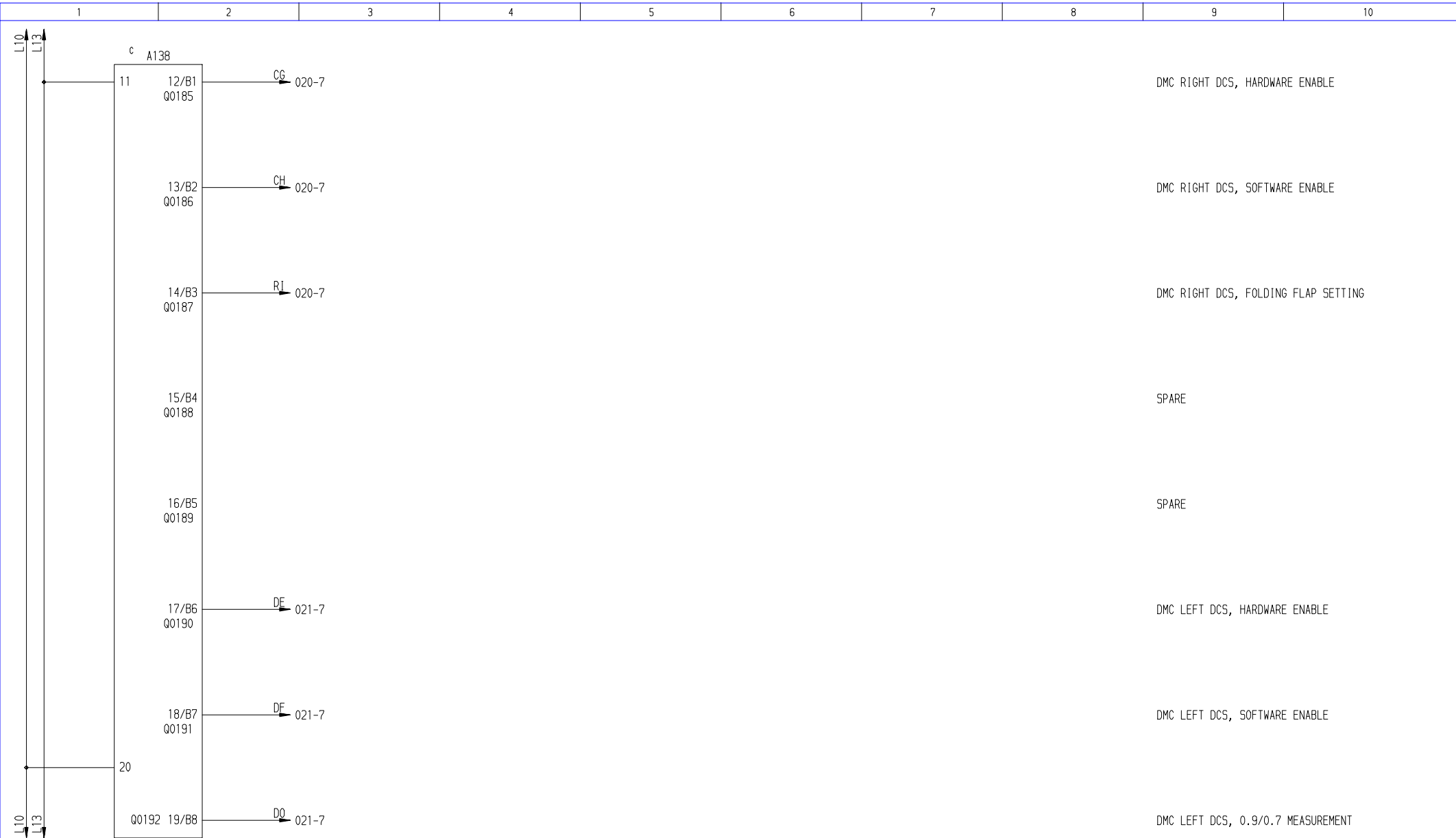
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Sign./Date	AMI 990329						Drawing No 44711-149:01					Page -
Appr./Date	BGZ 990329				Drawing remarks							



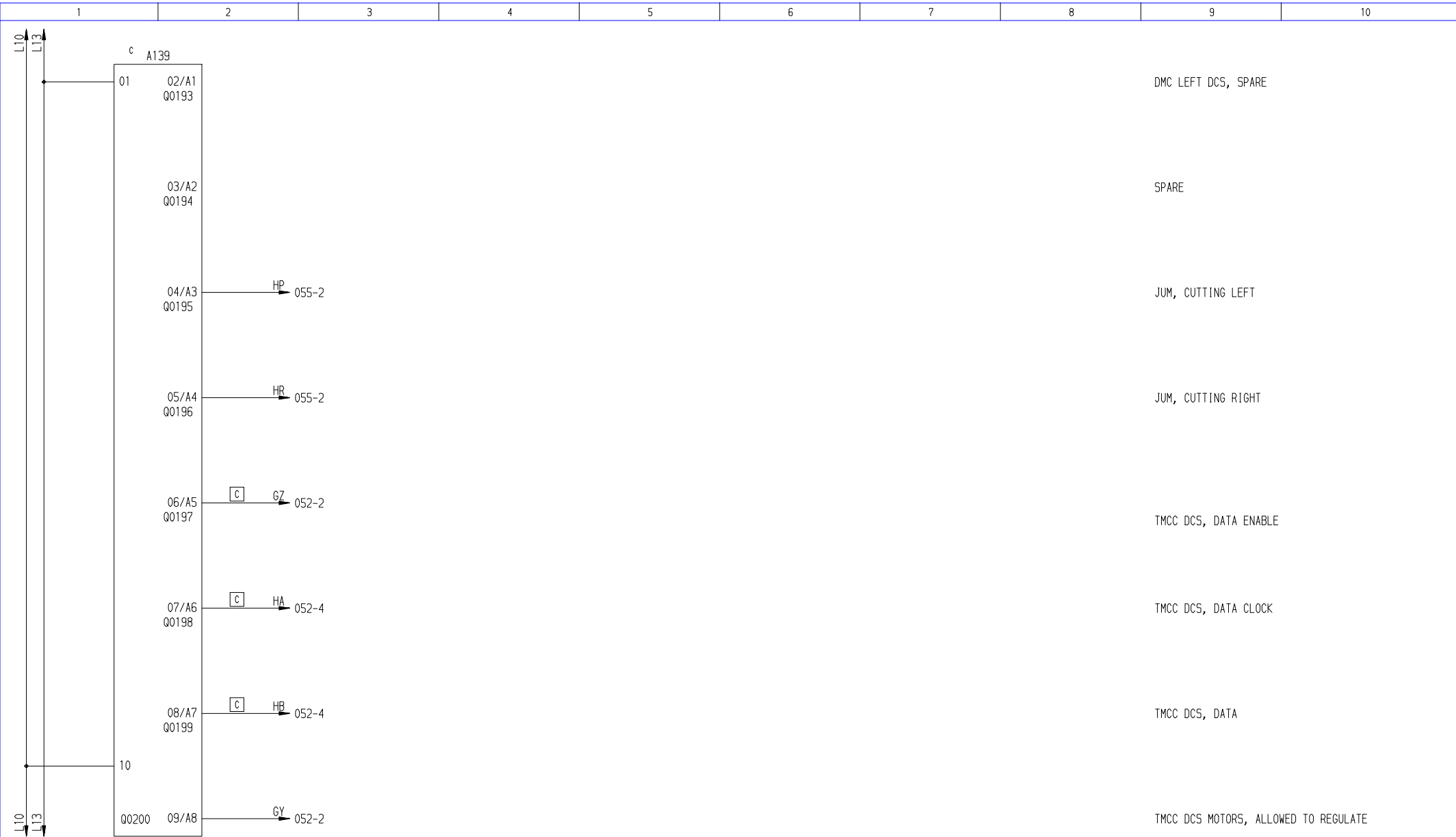
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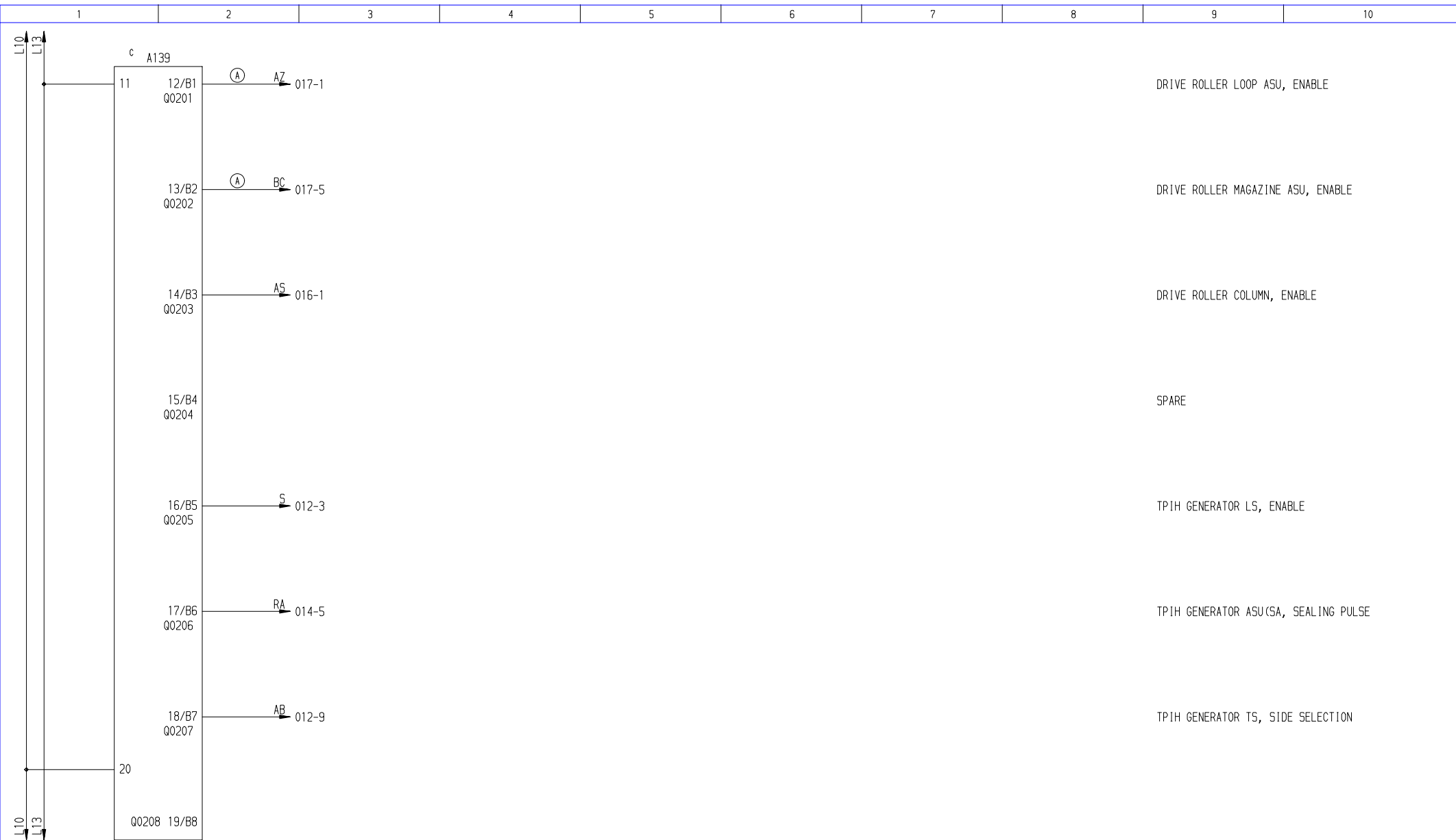
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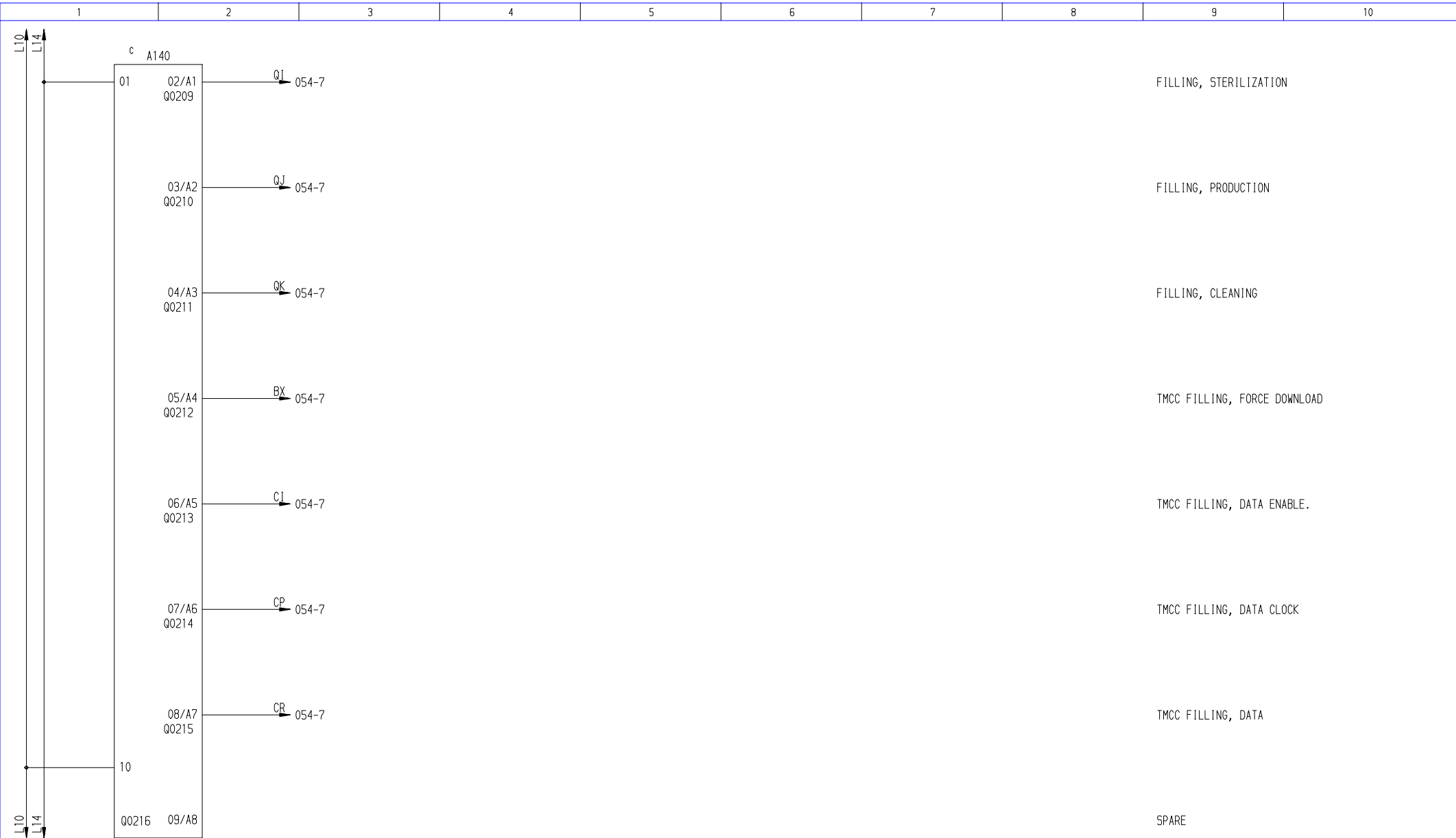
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Appr./Date	BGZ 990928										



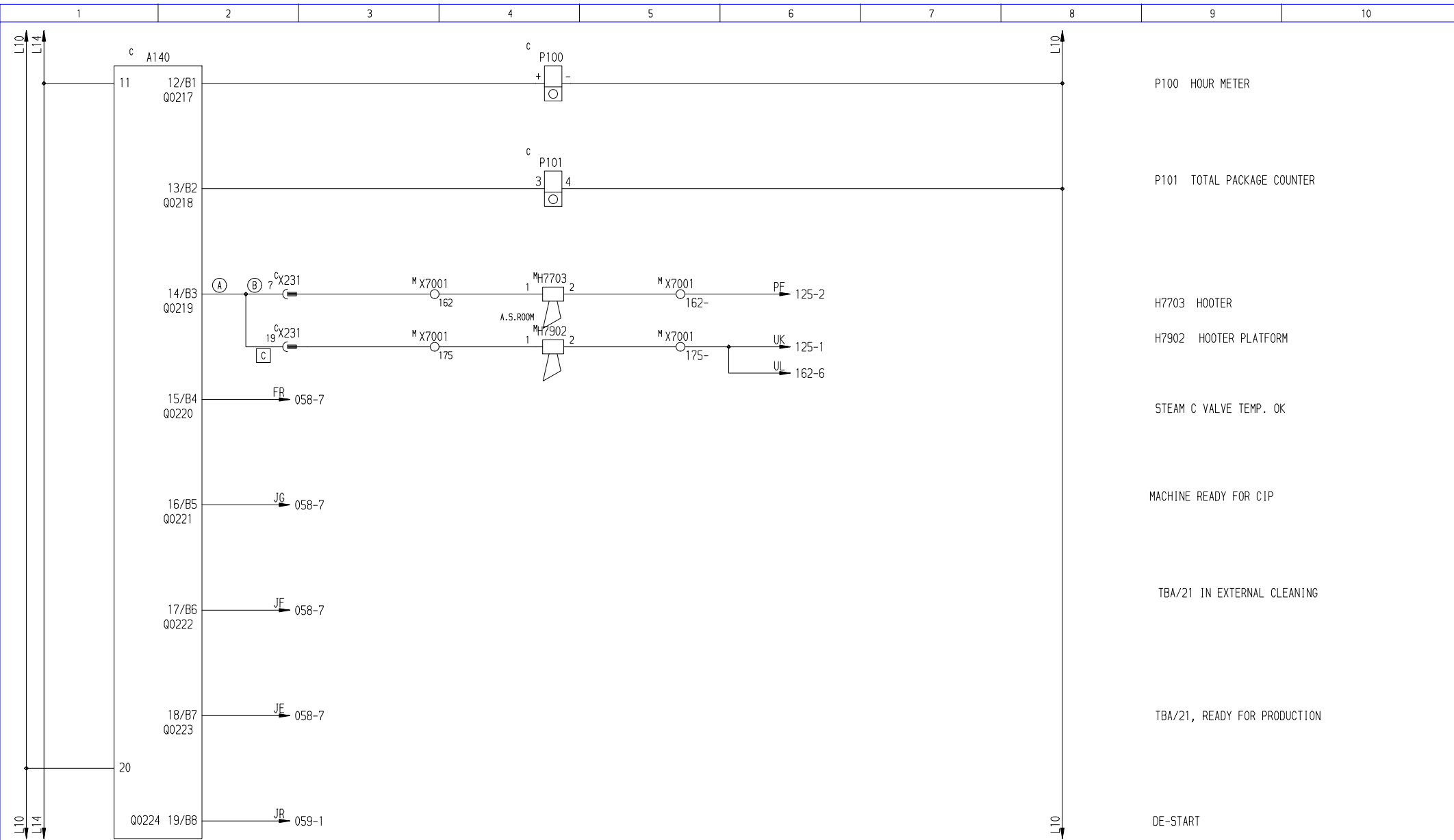
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Appr./Date	BGZ 990618				Drawing remarks		Page -				



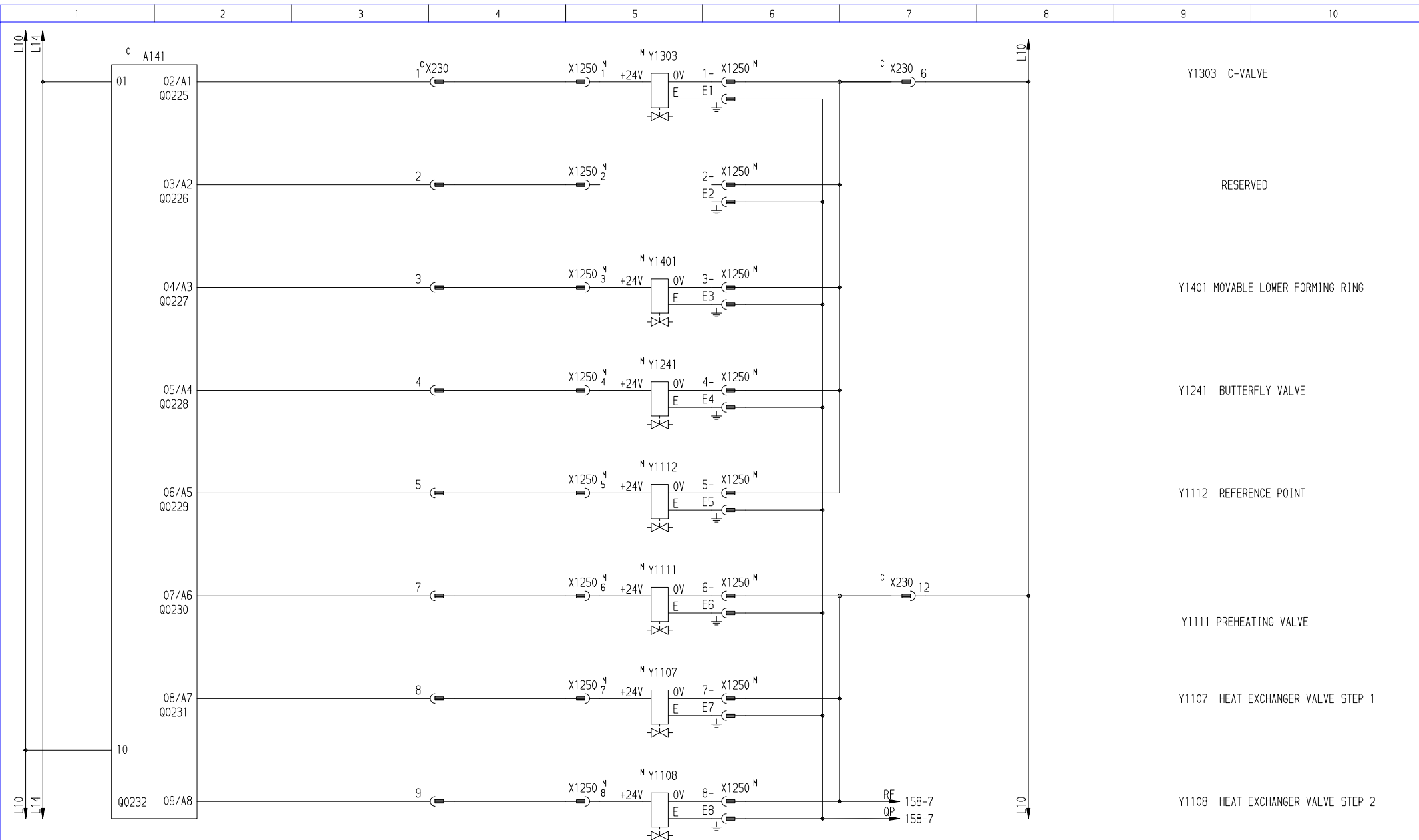
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Appr./Date	BGZ 990329			Drawing remarks	



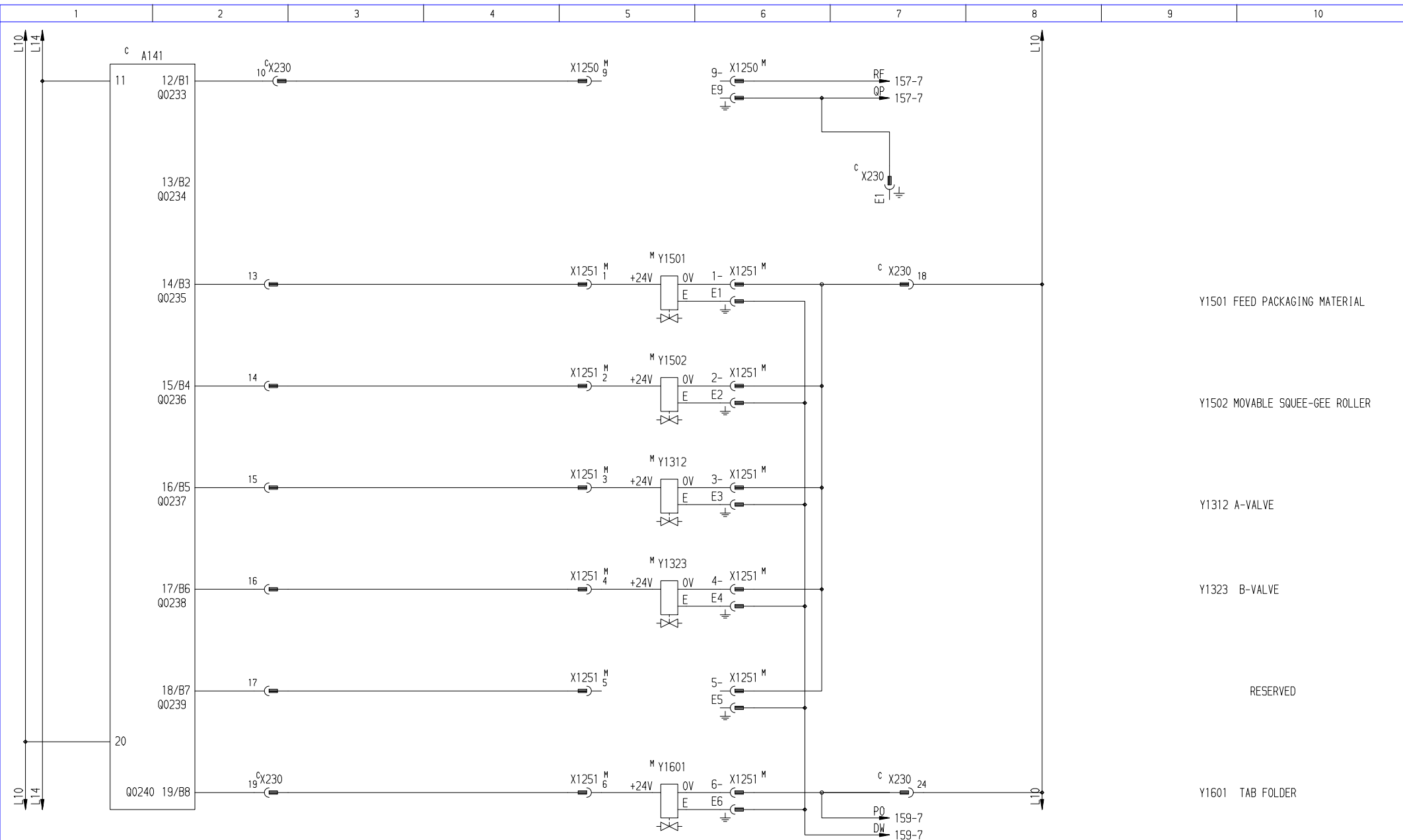
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Sign./Date	AMI 990928					Company TETRA BRIK PACK. SYSTEM SPA	Drawing No 44711-155:03				Page —
Appr./Date	BGZ 990928				Drawing remarks						



Note	A					Tetra Pak	Designer AMI	Date 010130	Approved PGE	Date 010130	Doc.Class -	
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Appr./Date	PGE 010130				Drawing remarks		Company TETRA BRIK PACK. SYSTEM SPA					



Note	A					Tetra Pak Machine TBA/21-0500 Company TETRA BRIK PACK. SYSTEM SPA	Designer AMI	Date 991029	Approved BGZ	Date 991029	Doc.Class -
ECN No.	72992						Denomination	PLC-OUT			
Sign./Date	AMI 990928						Drawing No	44711-157:03			
Appr./Date	BGZ 990928						Page	-			

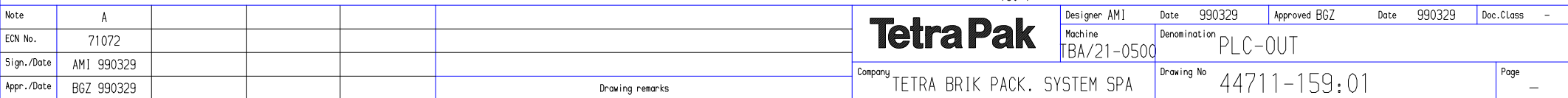


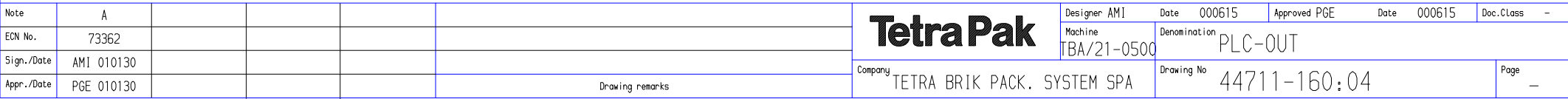
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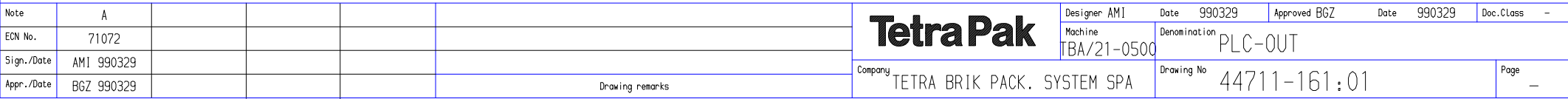
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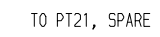
Company TETRA BRIK PACK. SYSTEM SPA

Designer AMI	Date 010130	Approved PGE	Date 010130	Doc. Class -
Machine TBA/21-0500	Denomination PLC-OUT			
Drawing No 44711-158:04				Page -

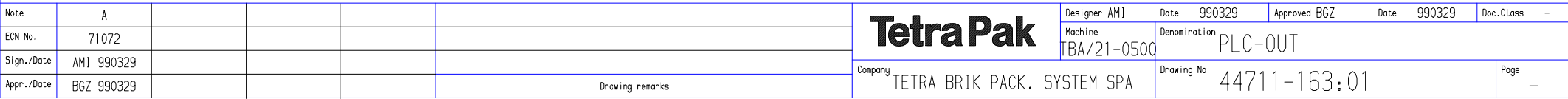


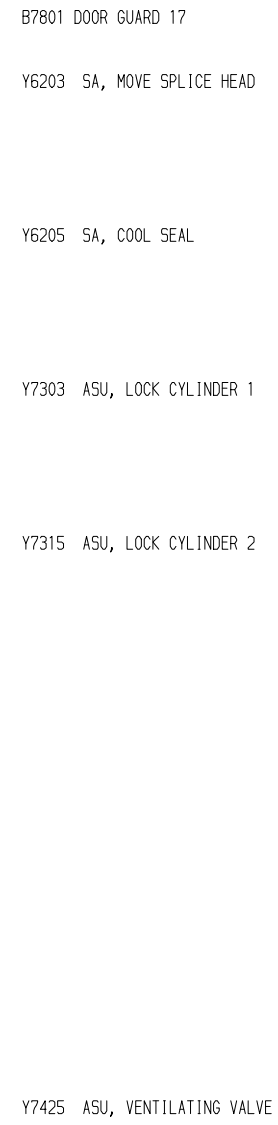




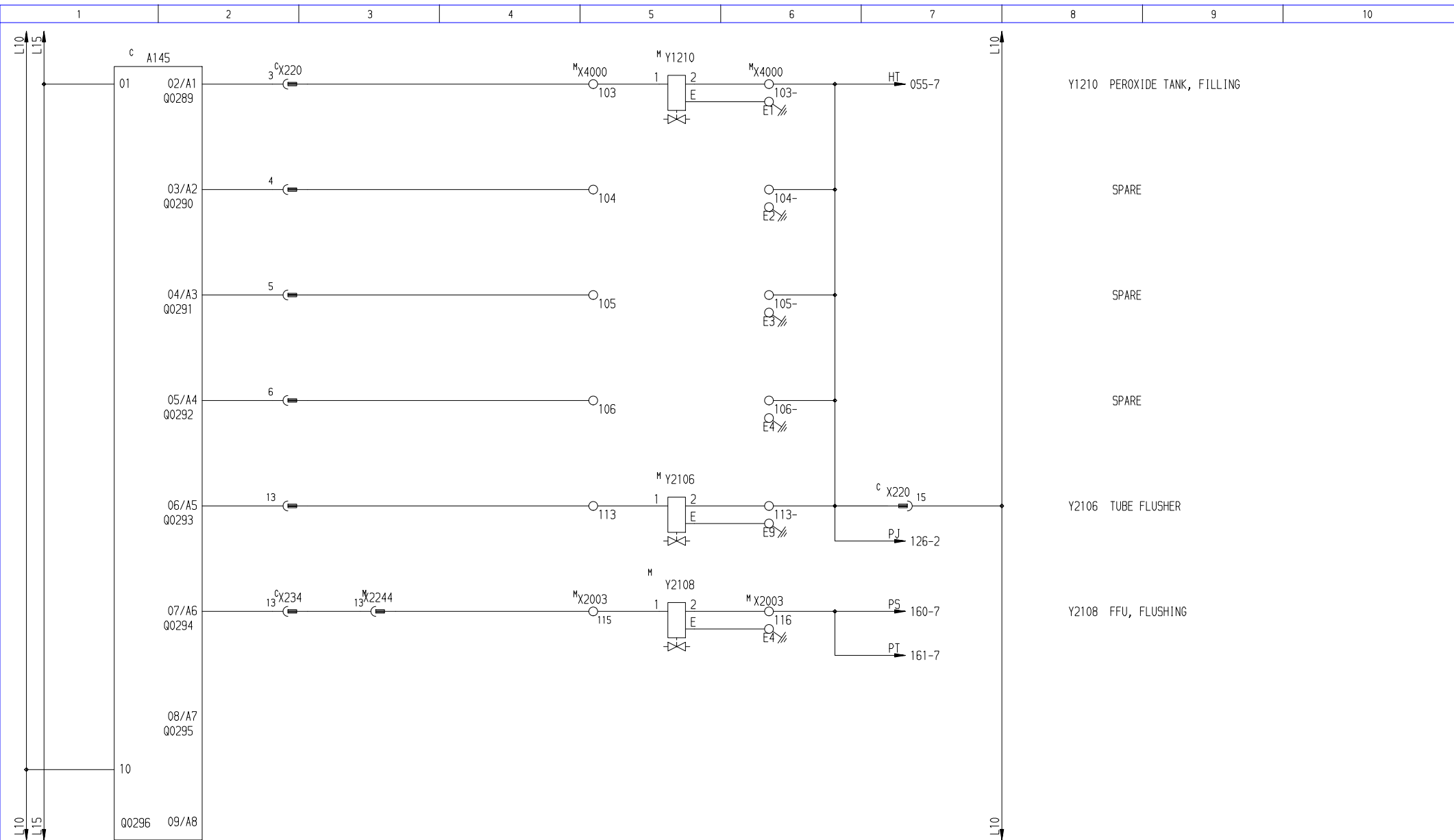


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Appr./Date	BGZ 990928				
Drawing remarks					

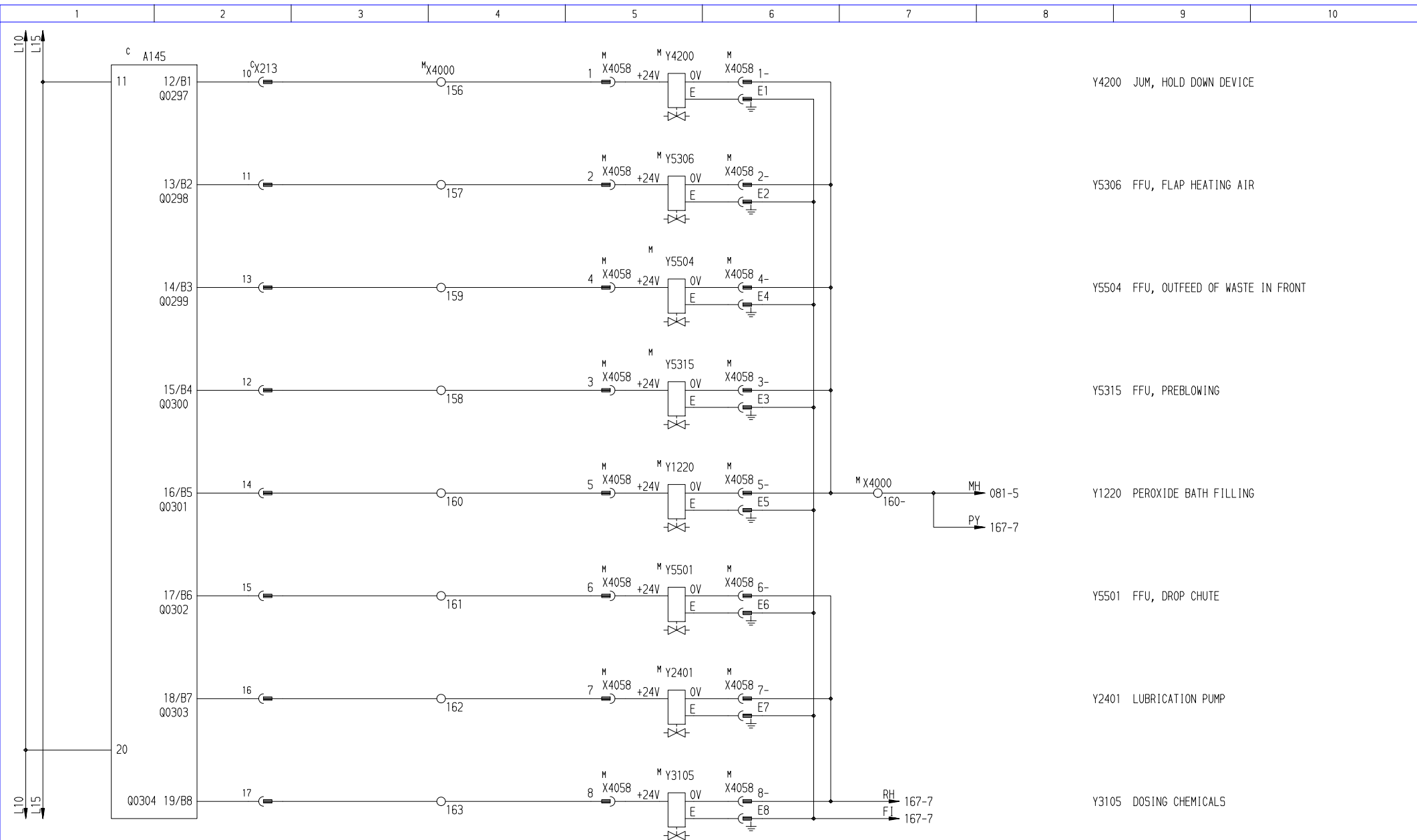




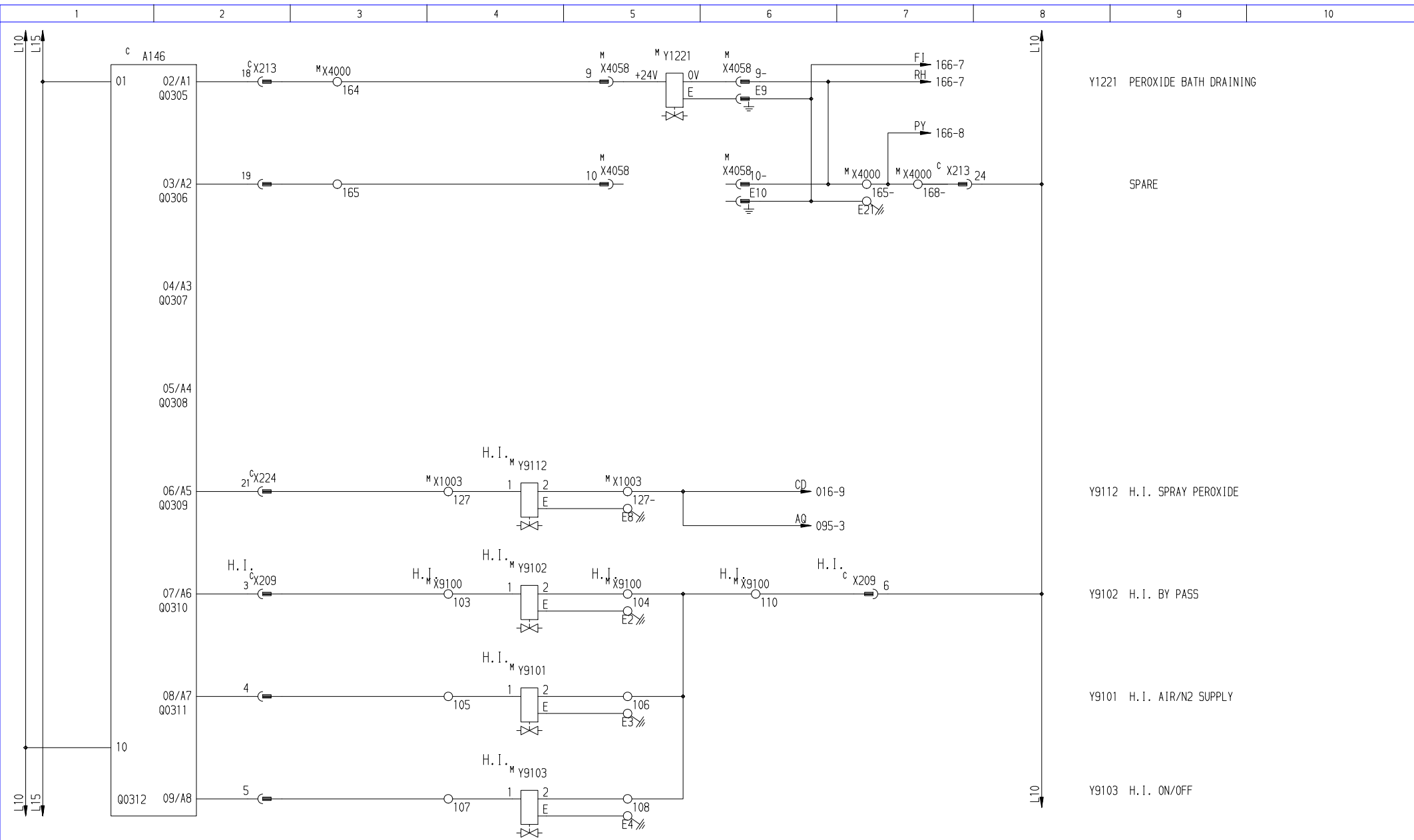
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ECN No.	72689					
Sign./Date	AMI 990618					
Appr./Date	BGZ 990618				Drawing remarks	



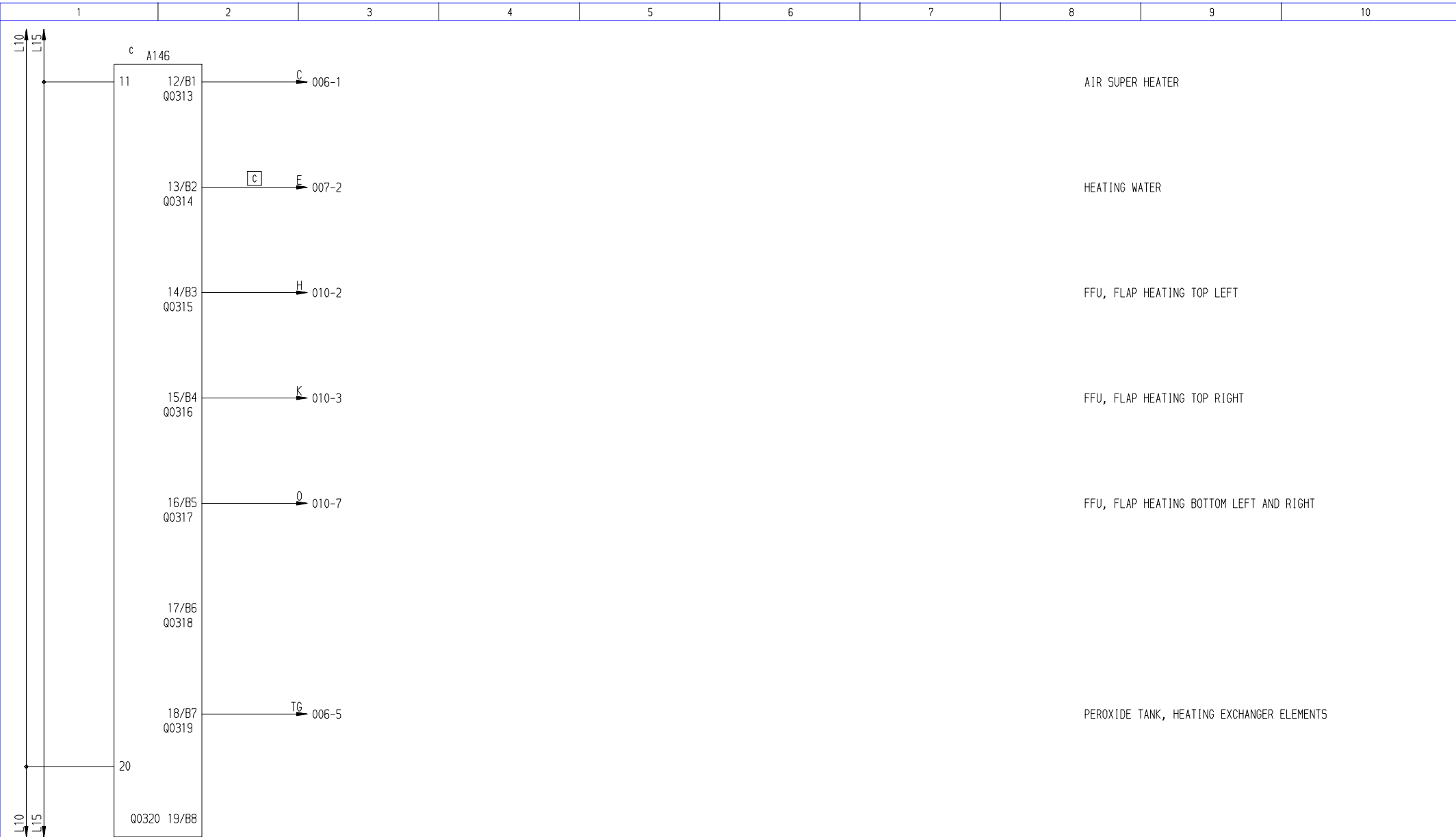
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Appr./Date	BGZ 990329					
Drawing remarks						



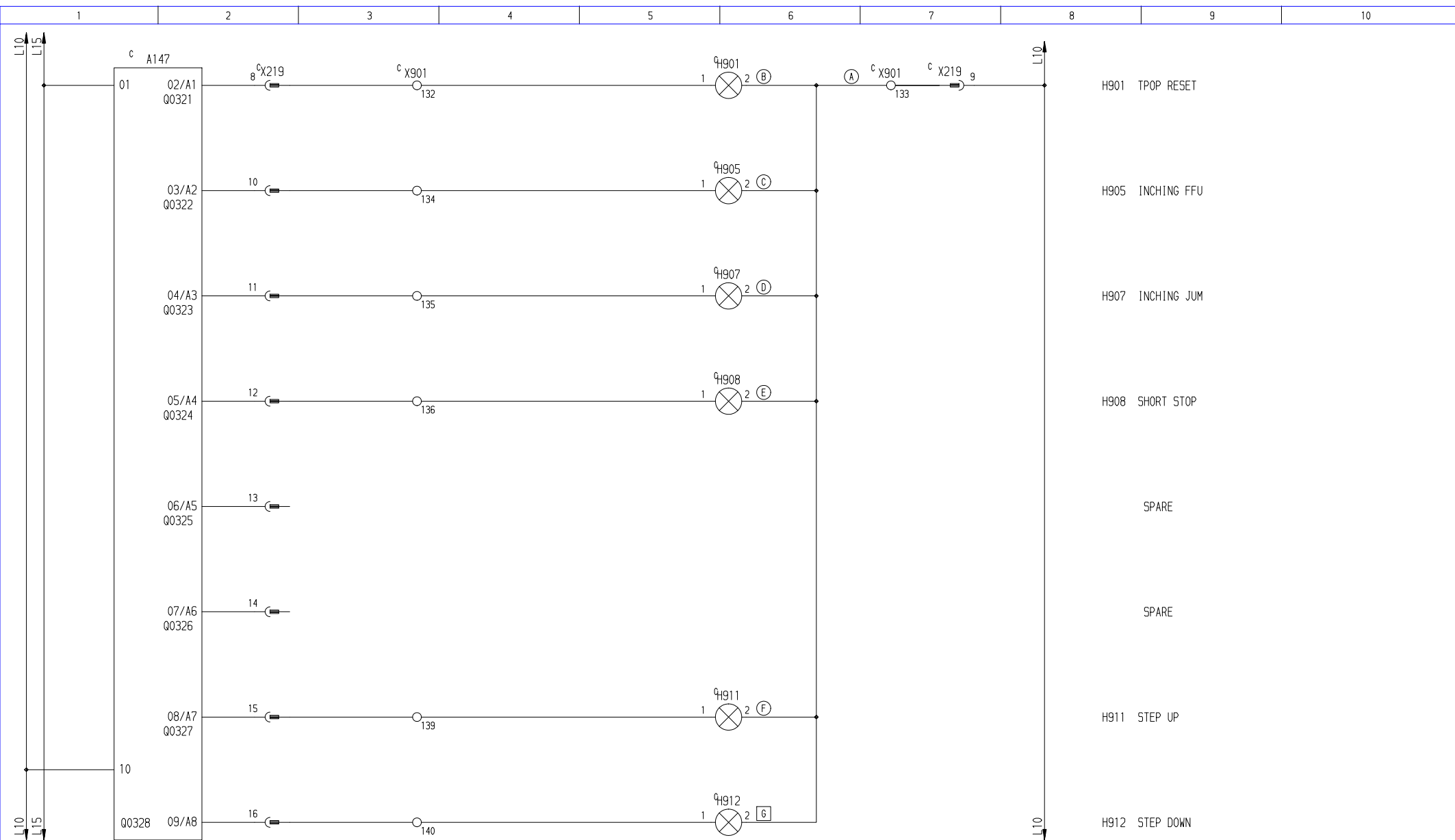
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Note	A				Tetra Pak Designer AMI Date 990329 Approved BGZ Date 990329 Doc. Class - Machine TBA/21-0500 Denomination PLC-OUT Company TETRA BRIK PACK. SYSTEM SPA Drawing No 44711-167:01 Page -
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Sign./Date	AMI 990329				
Appr./Date	BGZ 990329			Drawing remarks	



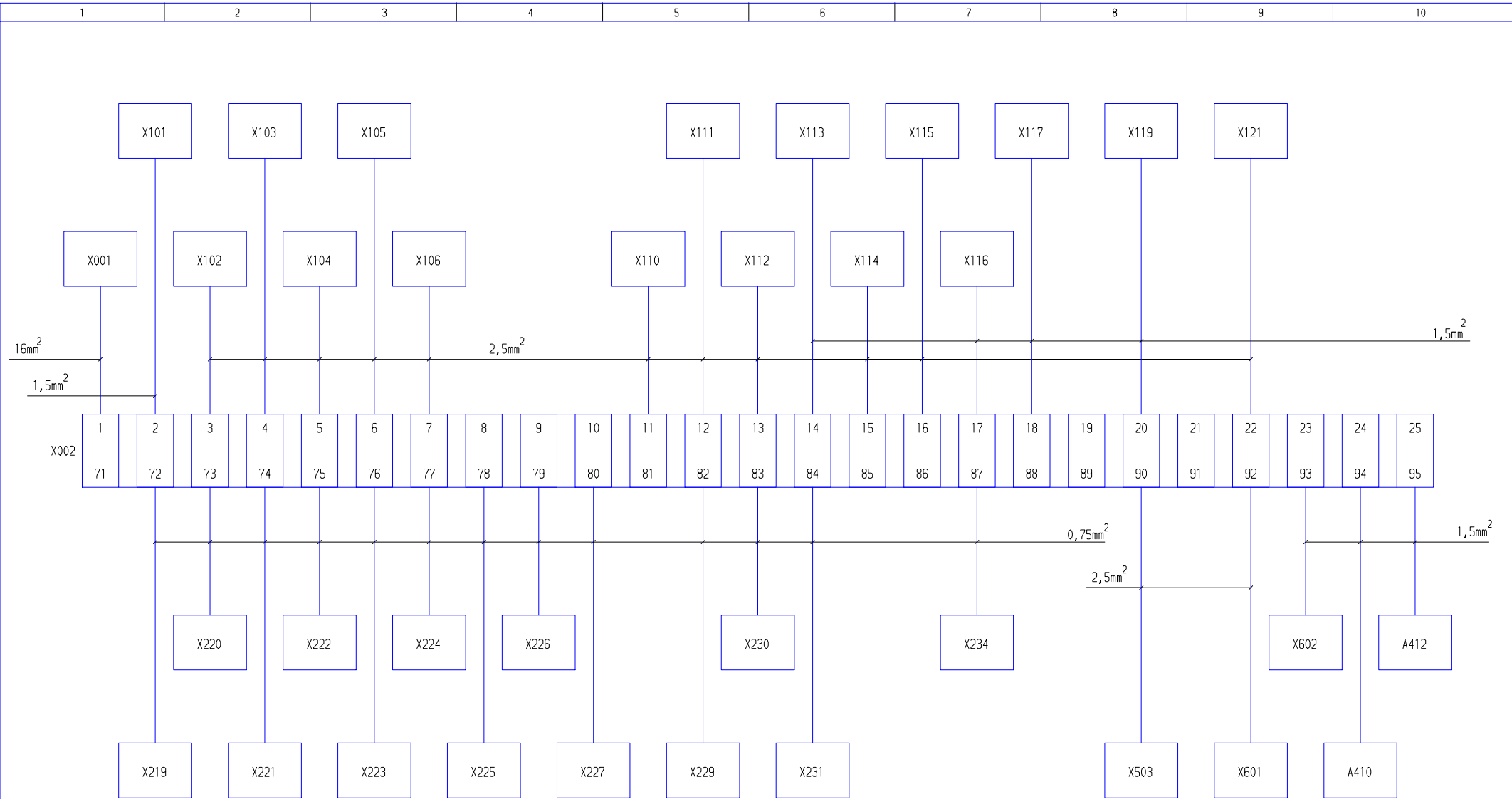
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Drawing remarks												



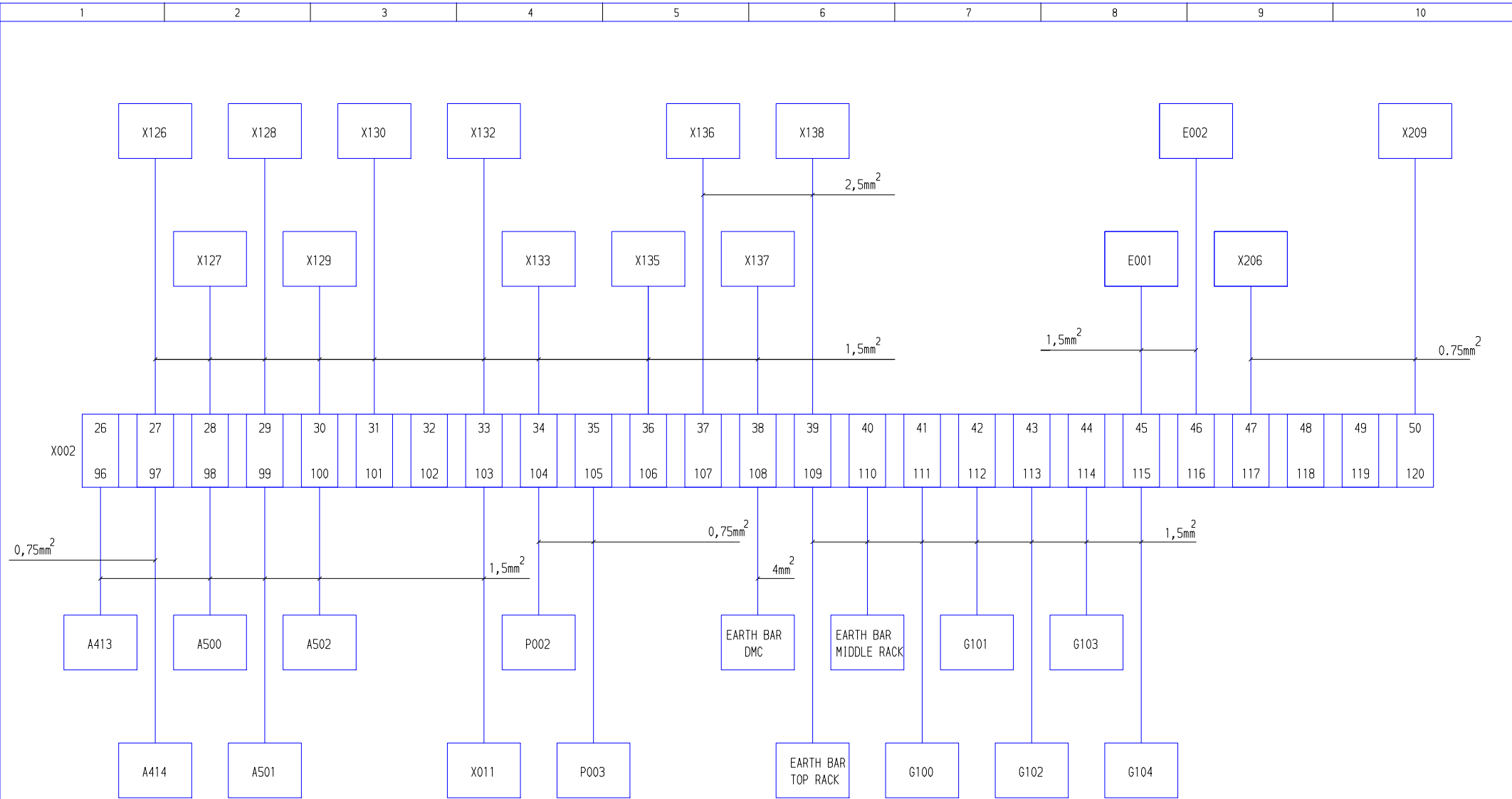
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Sign./Date	AMI 990329						Company TETRA BRIK PACK. SYSTEM SPA				
Appr./Date	BGZ 990329										
Drawing remarks											



Note	A					Tetra Pak TETRA BRIK PACK. SYSTEM SPA	Designer: AMI	Date: 991029	Approved BGZ	Date: 991029	Doc. Class: -
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Appr./Date	BGZ 990928				Drawing remarks						

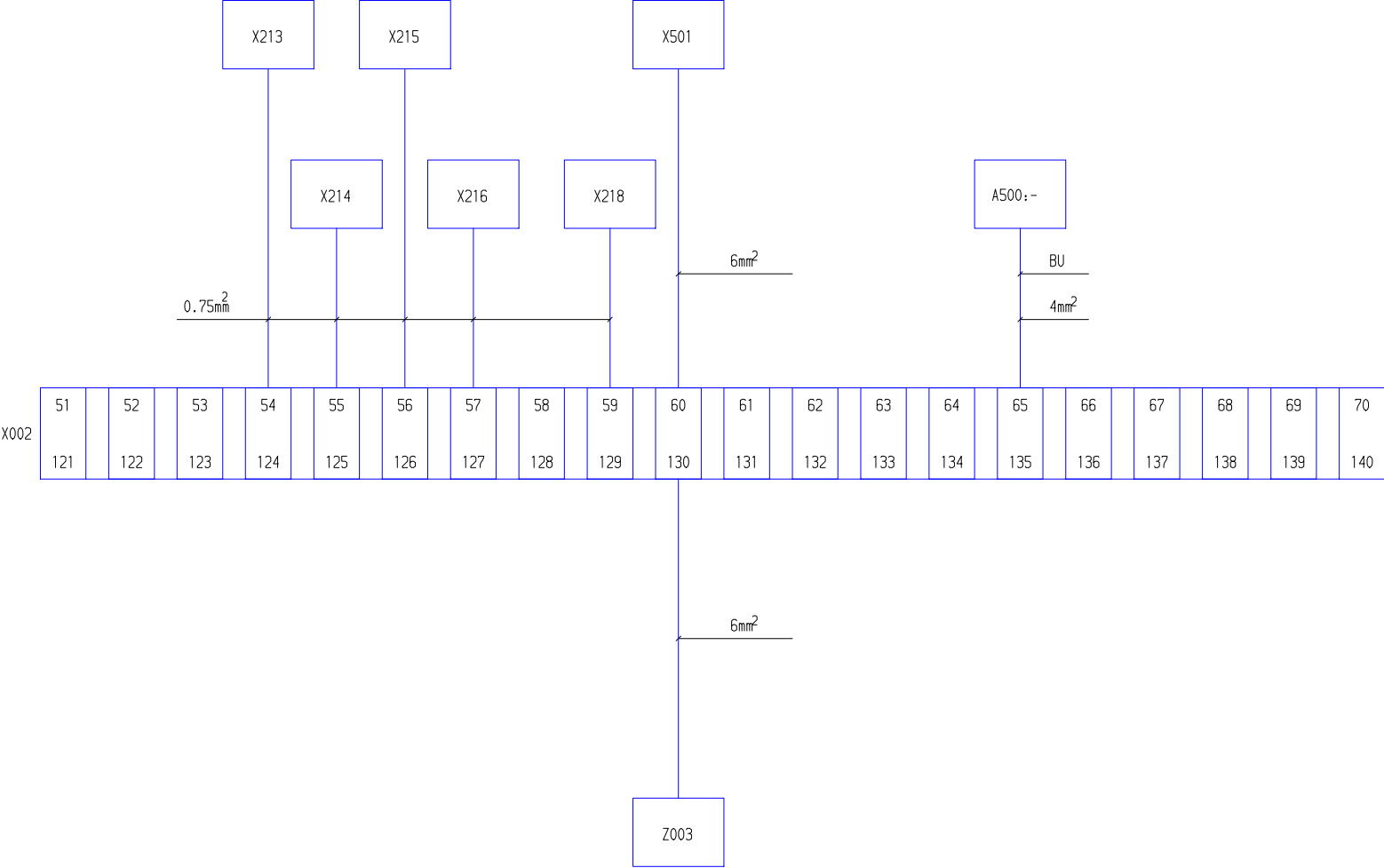


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Sign./Date	AMI 010130						Drawing No: 44711-900:04				Page: -
Appr./Date	PGE 010130						Drawing remarks				



Note	A					Tetra Pak CompanyTETRA BRIK PACK. SYSTEM SPA	Designer AMI	Date 990728	Approved BGZ	Date 990728	Doc.Class -
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Sign./Date	AMI 990618						Drawing No 44711-901:02				Page -
Appr./Date	BGZ 990618				Drawing remarks						

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Note	A					Tetra Pak Company TETRA BRIK PACK. SYSTEM SPA	Designer AMI	Date 990329	Approved PGE	Date 990329	Doc.Class -
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Sign./Date	AMI 990329						Drawing No 44711-902:03				Page -
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7 Connections diagrams

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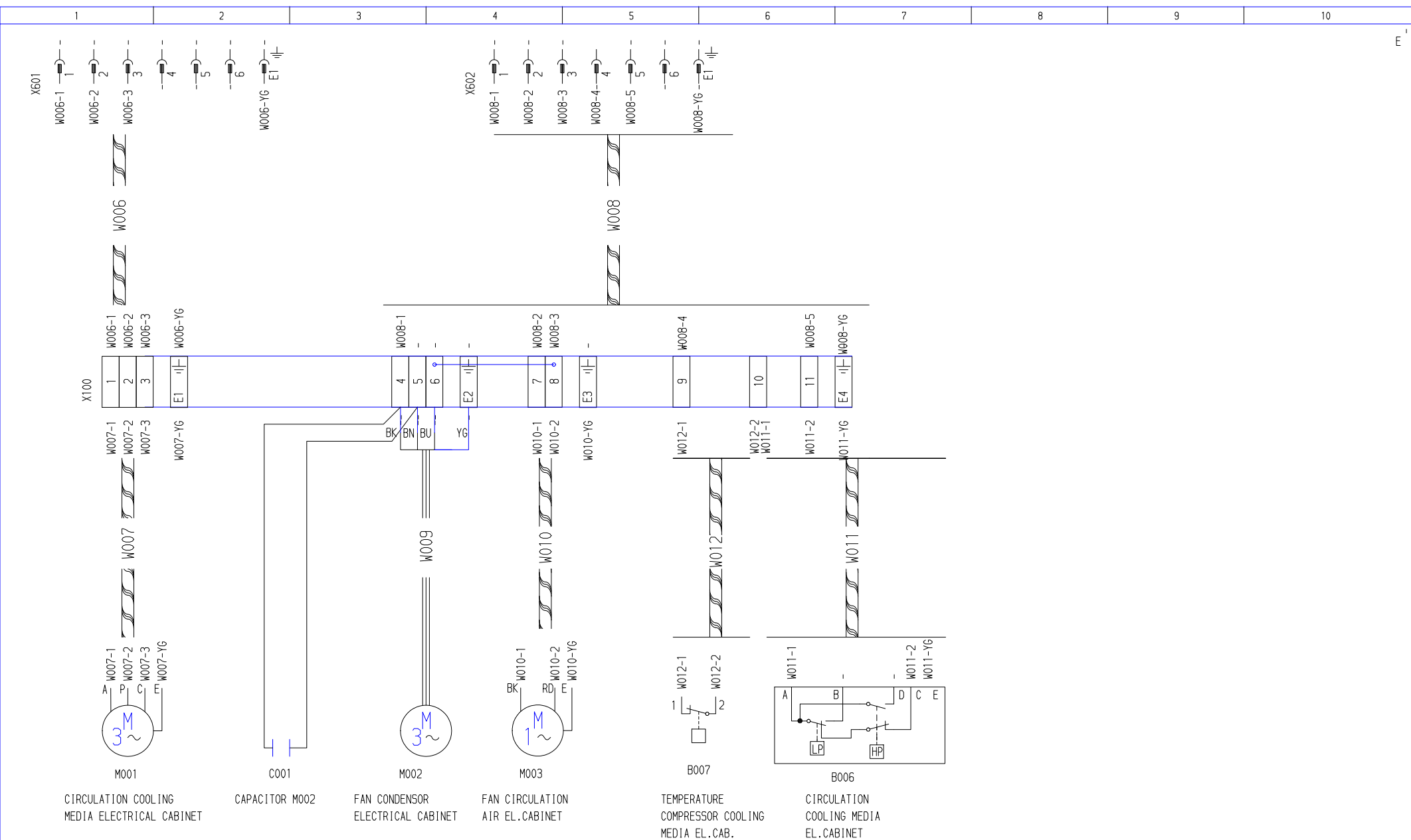
Connection diagram. 61815-906:04

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7 Connections diagrams

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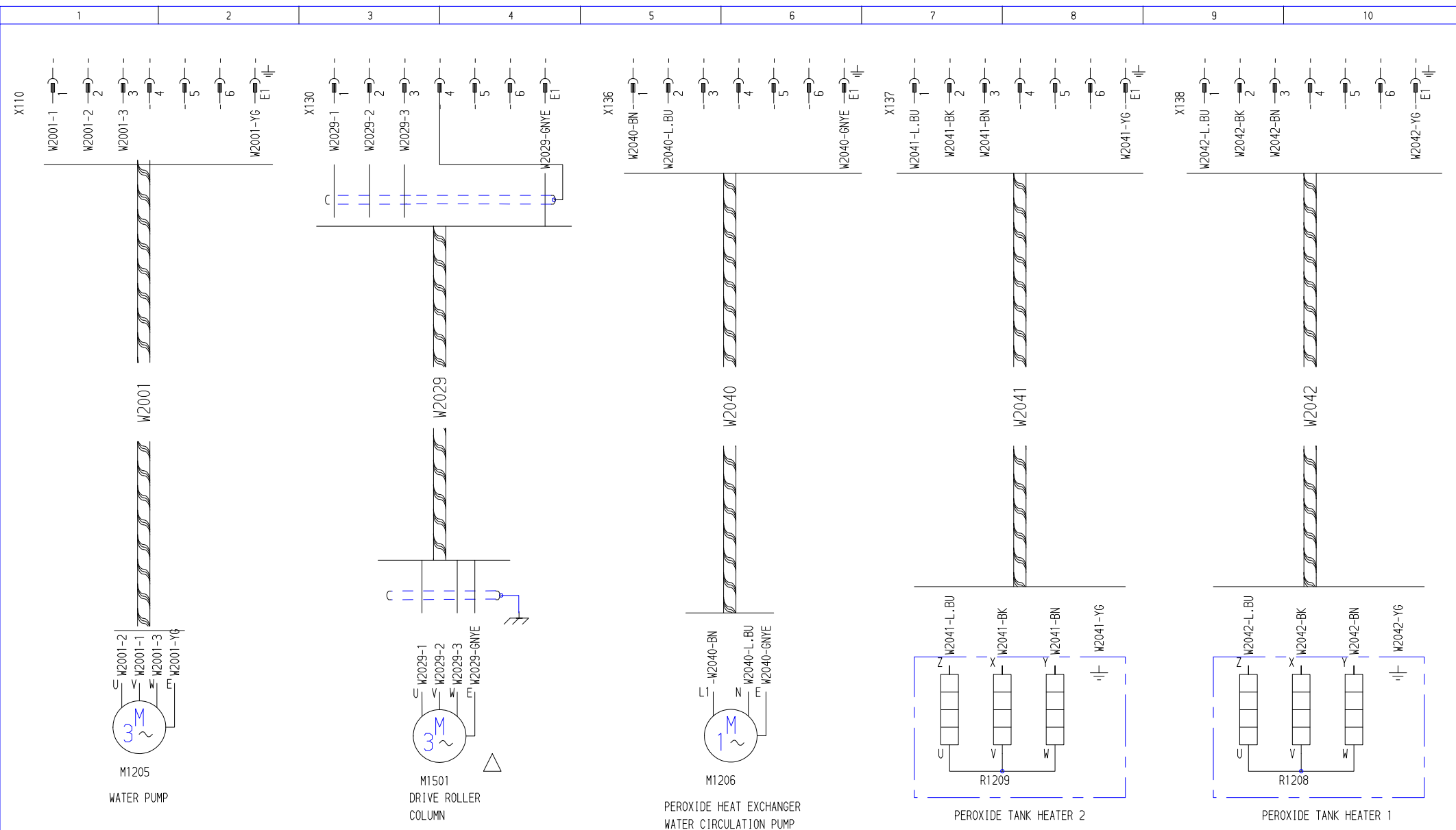


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Sign./Date	AMI 990928				
Appr./Date	BGZ 990928				
Drawing remarks					

Tetra Pak

Company TETRA BRIK PACK. SYSTEM SPA

Designer AMI	Date 991029	Approved BGZ	Date 991029	Doc.Class -
Machine TBA/21-0500	Denomination ASEPTIC & HYGIENE			
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Appr./Date	PGE 010130				
Drawing remarks					

Tetra Pak

Company

TETRA BRIK PACK. SYSTEM SPA

Designer AMI

Machine
TBA/21-0500

Date 010130

Denomination

ASEPTIC & HYGIENE

Drawing No

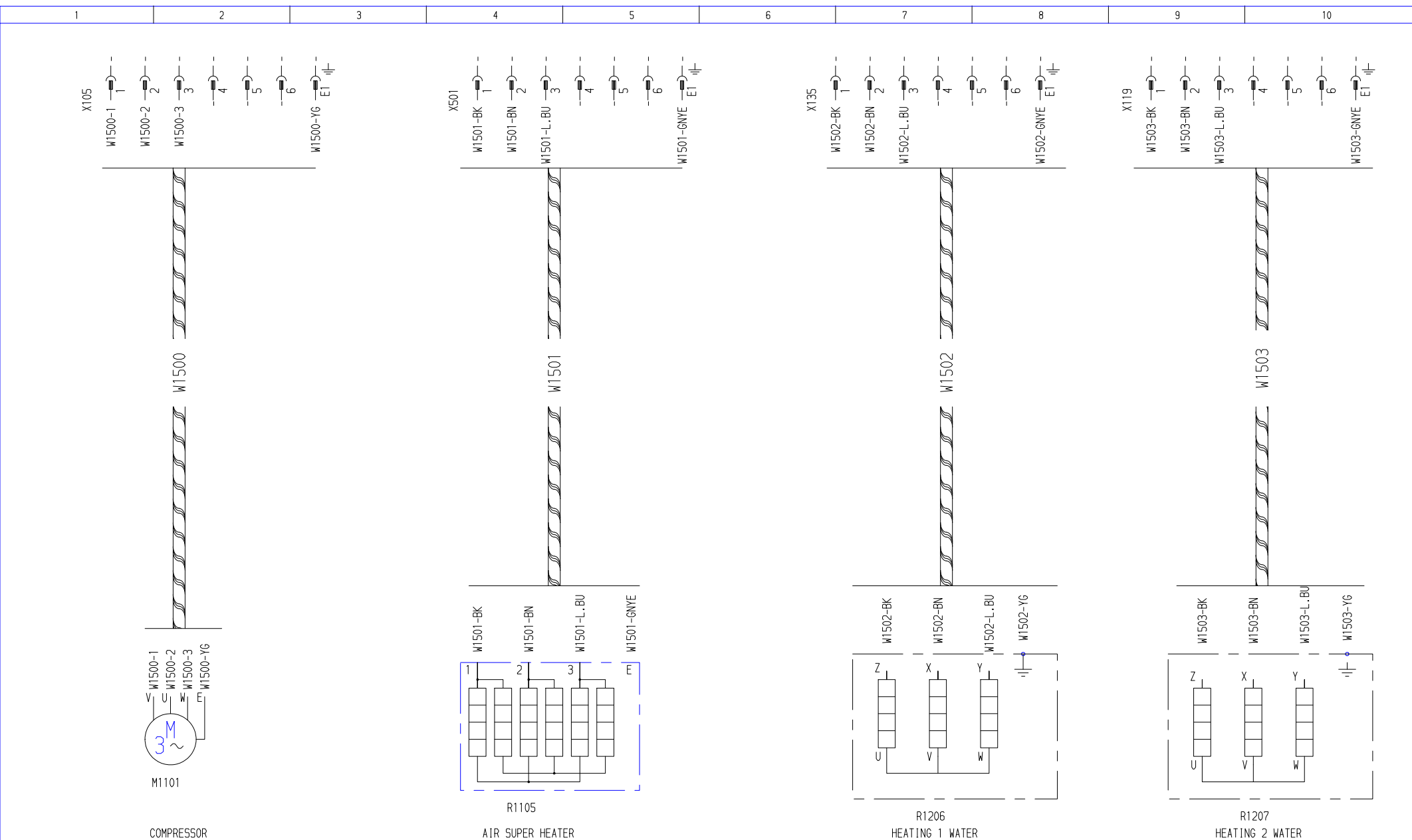
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Date 010130

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Drawing remarks					

Tetra Pak

Company

TETRA BRIK PACK. SYSTEM SPA

Designer AMI

Machine

TBA/21-0500

Date

990329

Approved BGZ

Date

990329

Drawing No

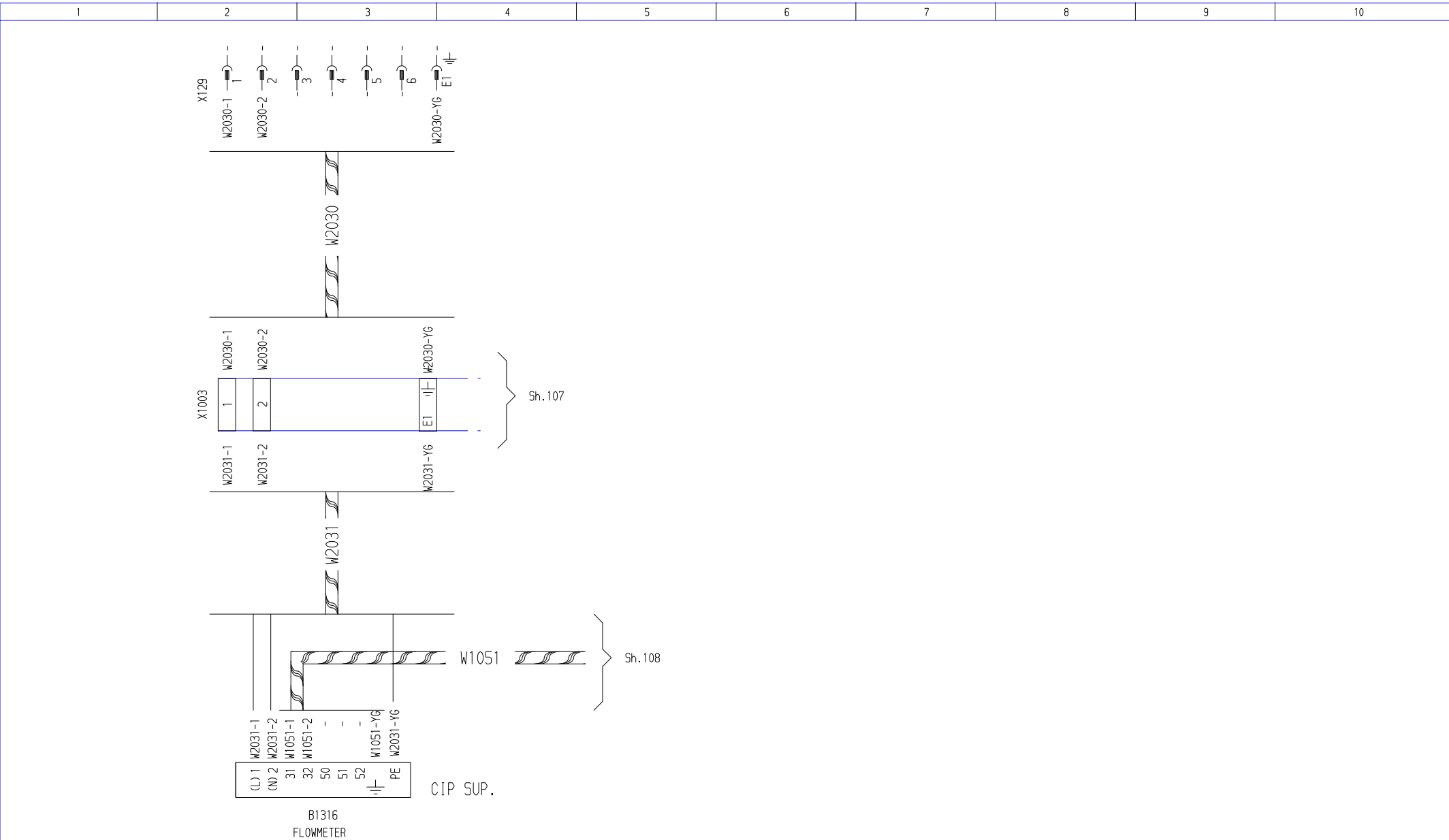
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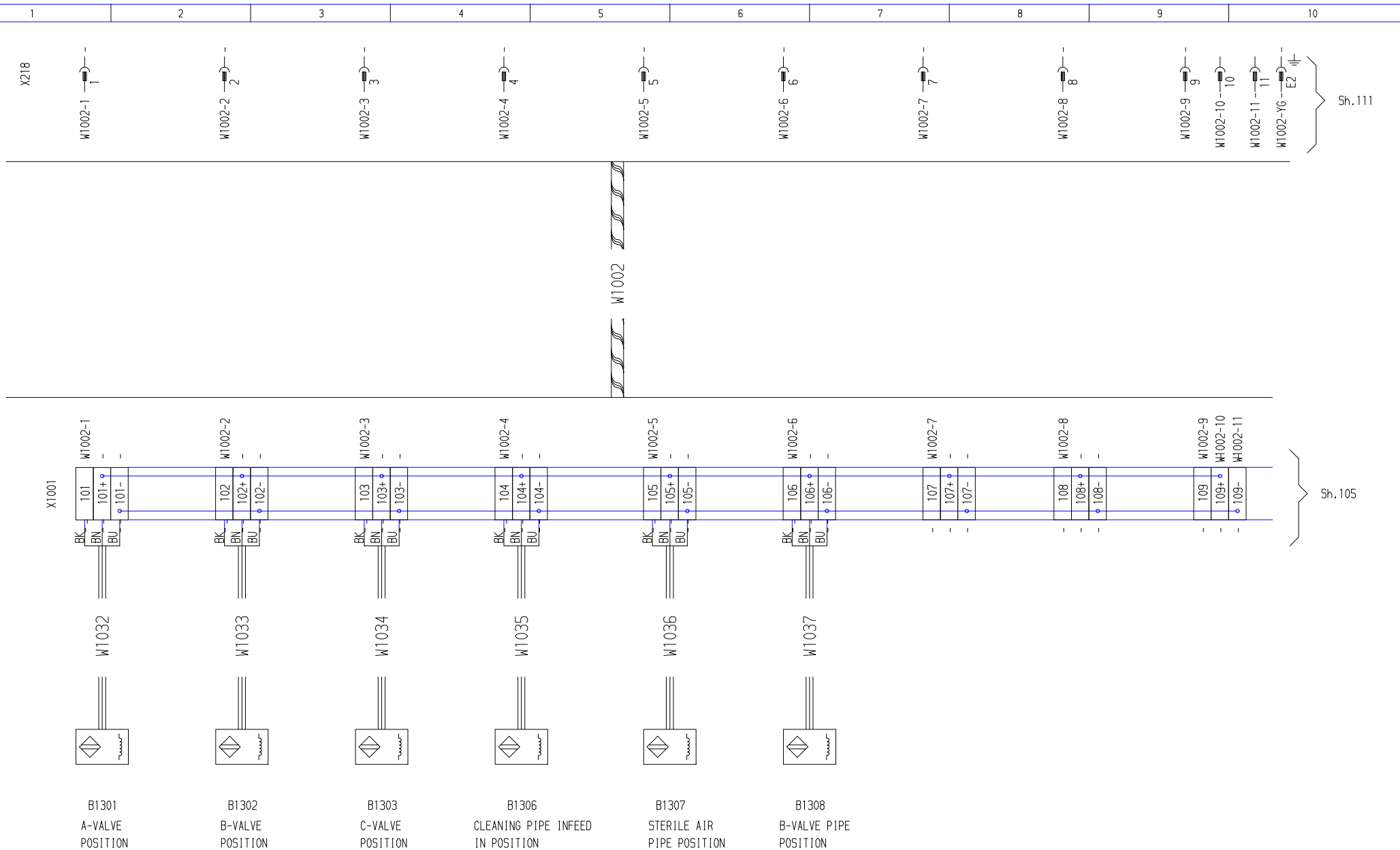
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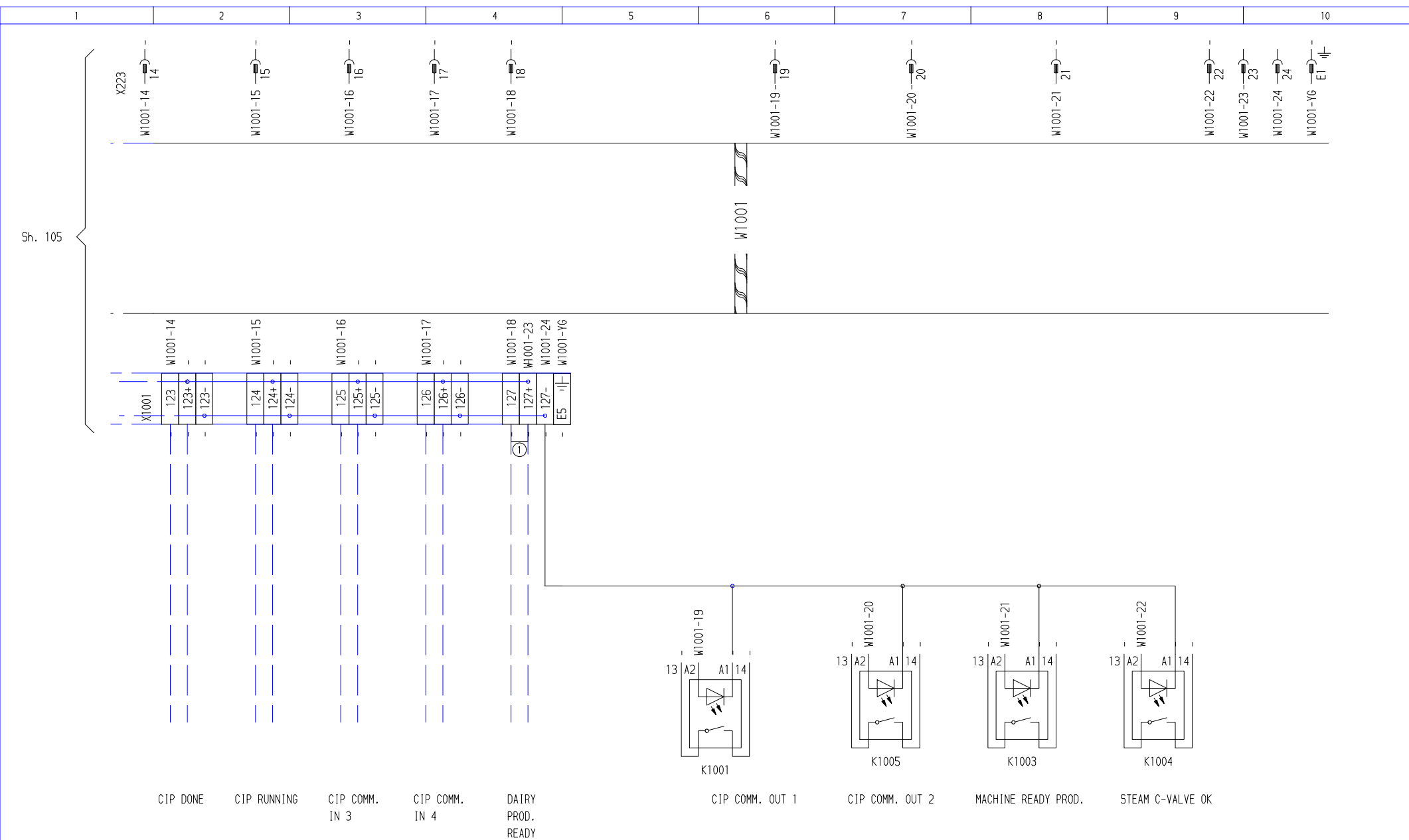
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Note	A					TetraPak Company TETRA BRIK PACK. SYSTEM SPA	Designer AMI	Date 991029	Approved BGZ	Date 991029	Doc.Class -
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Note	A					Tetra Pak Designer AMI Date 990728 Approved B6Z Date 990728 Doc.Class -	
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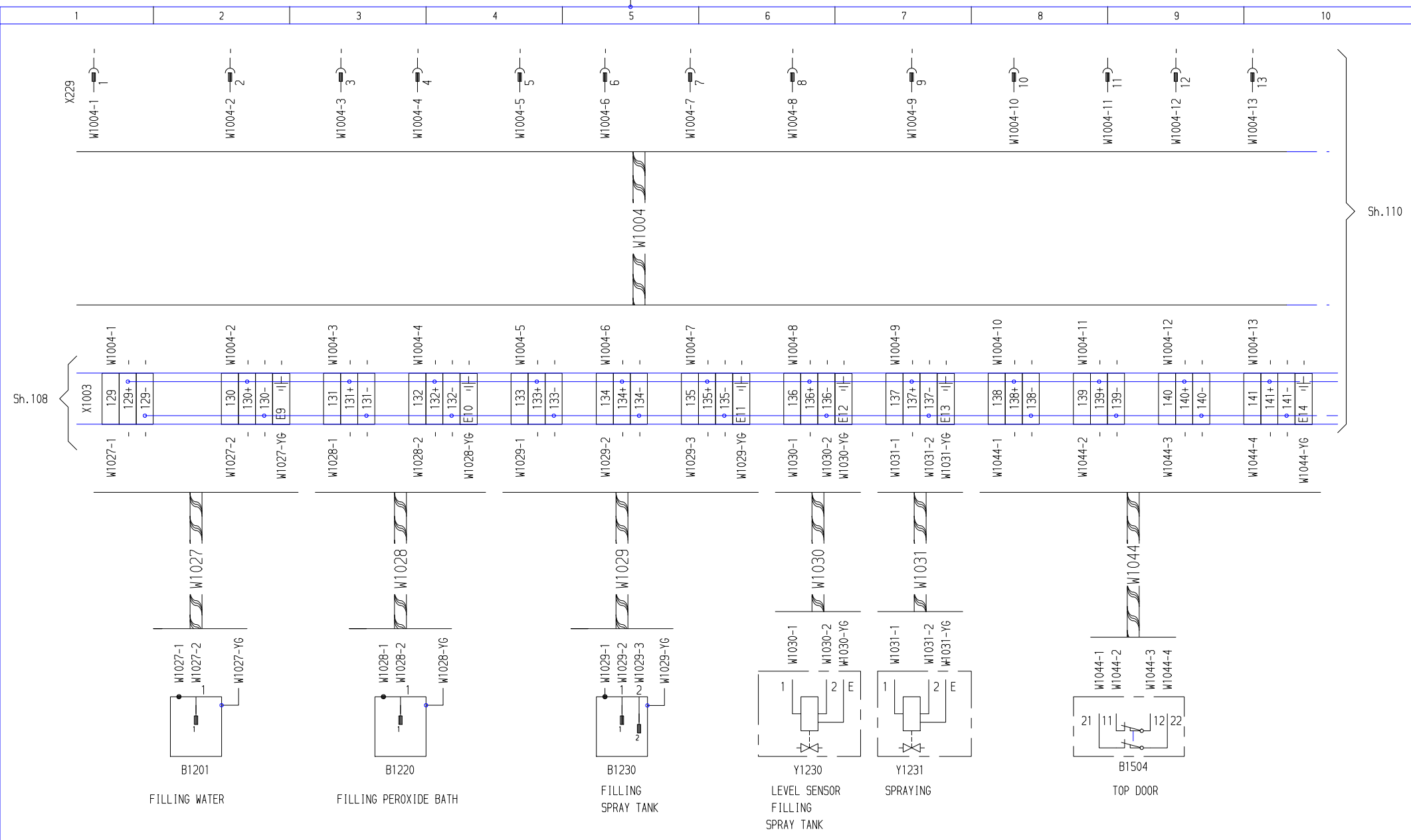
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Sign./Date	AMI 990618						Company	TETRA BRIK PACK. SYSTEM SPA		Drawing No	61815-106:02
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Appr./Date	BGZ 990329			Drawing remarks	



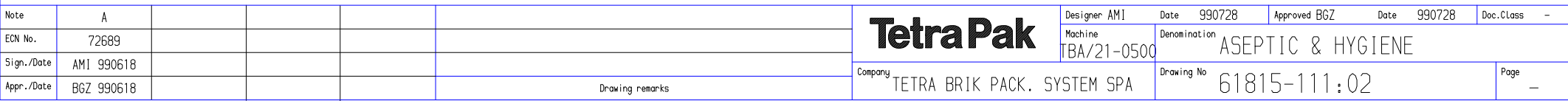
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Appr./Date	PGE 010130				Drawing remarks			Drawing No	61815-108:04			Page -
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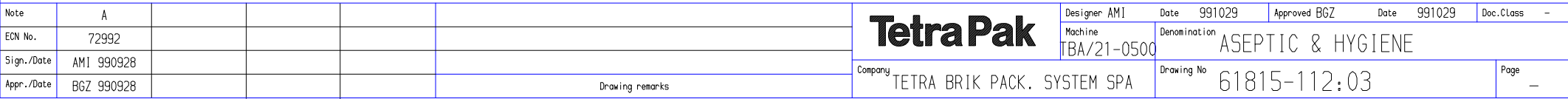


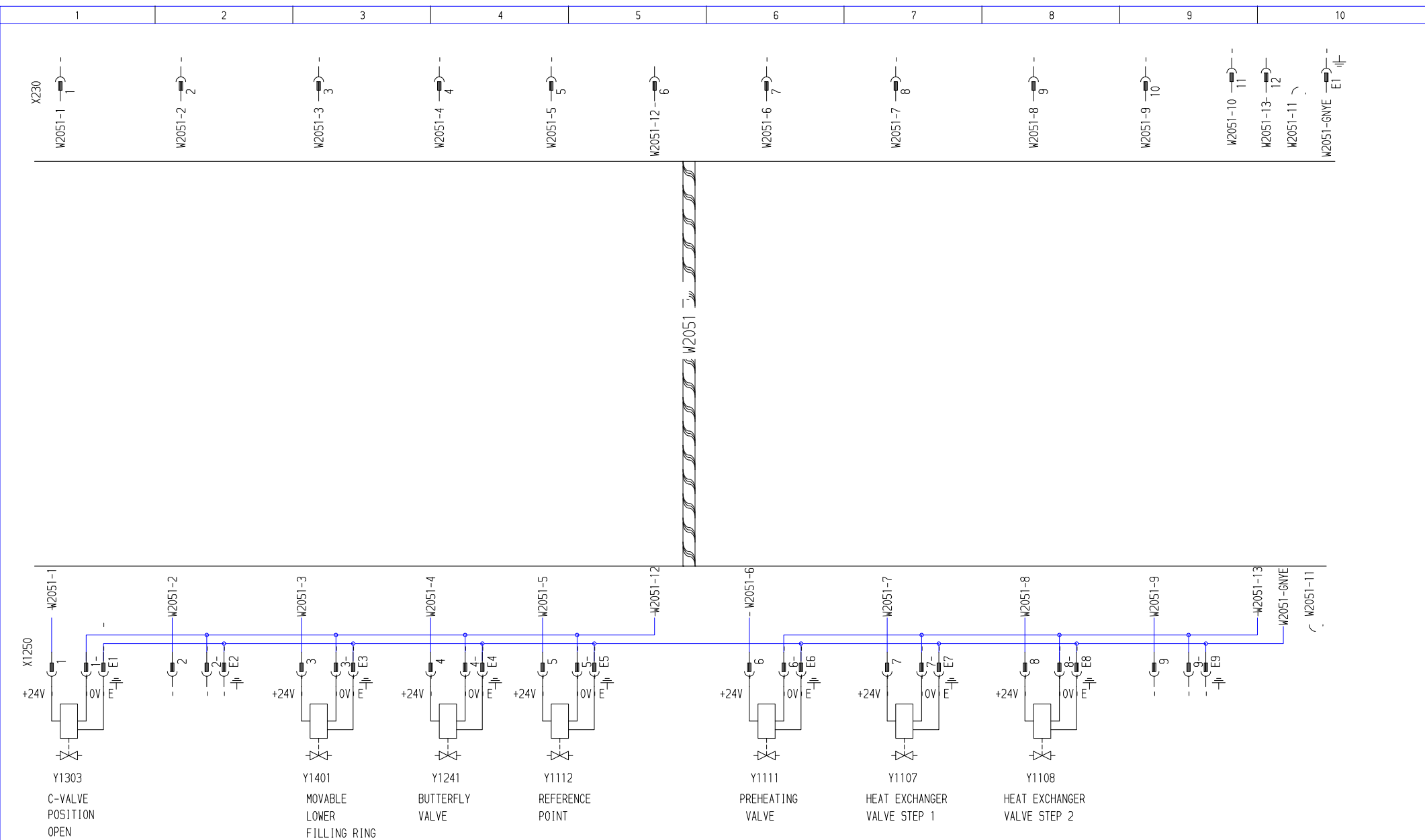
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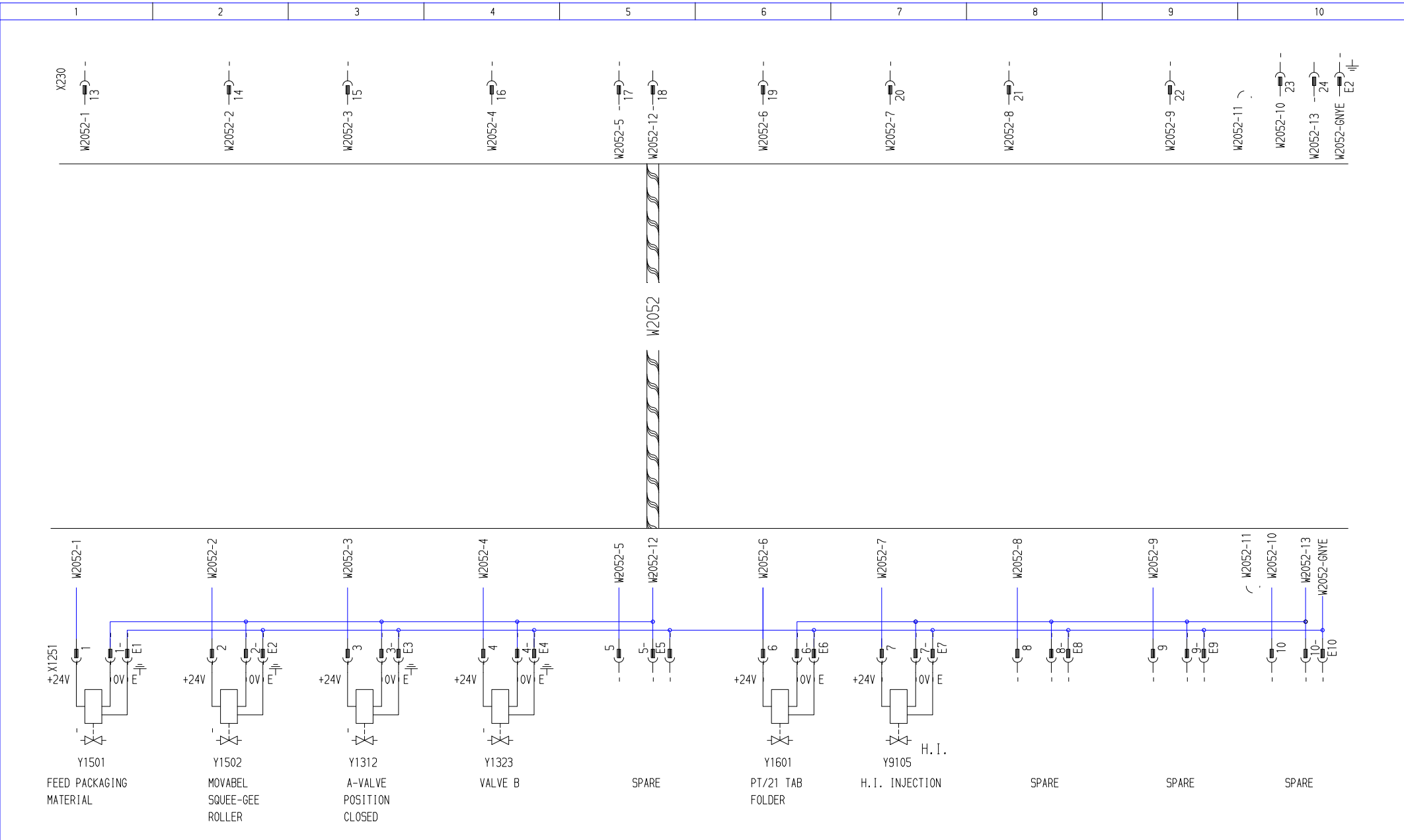
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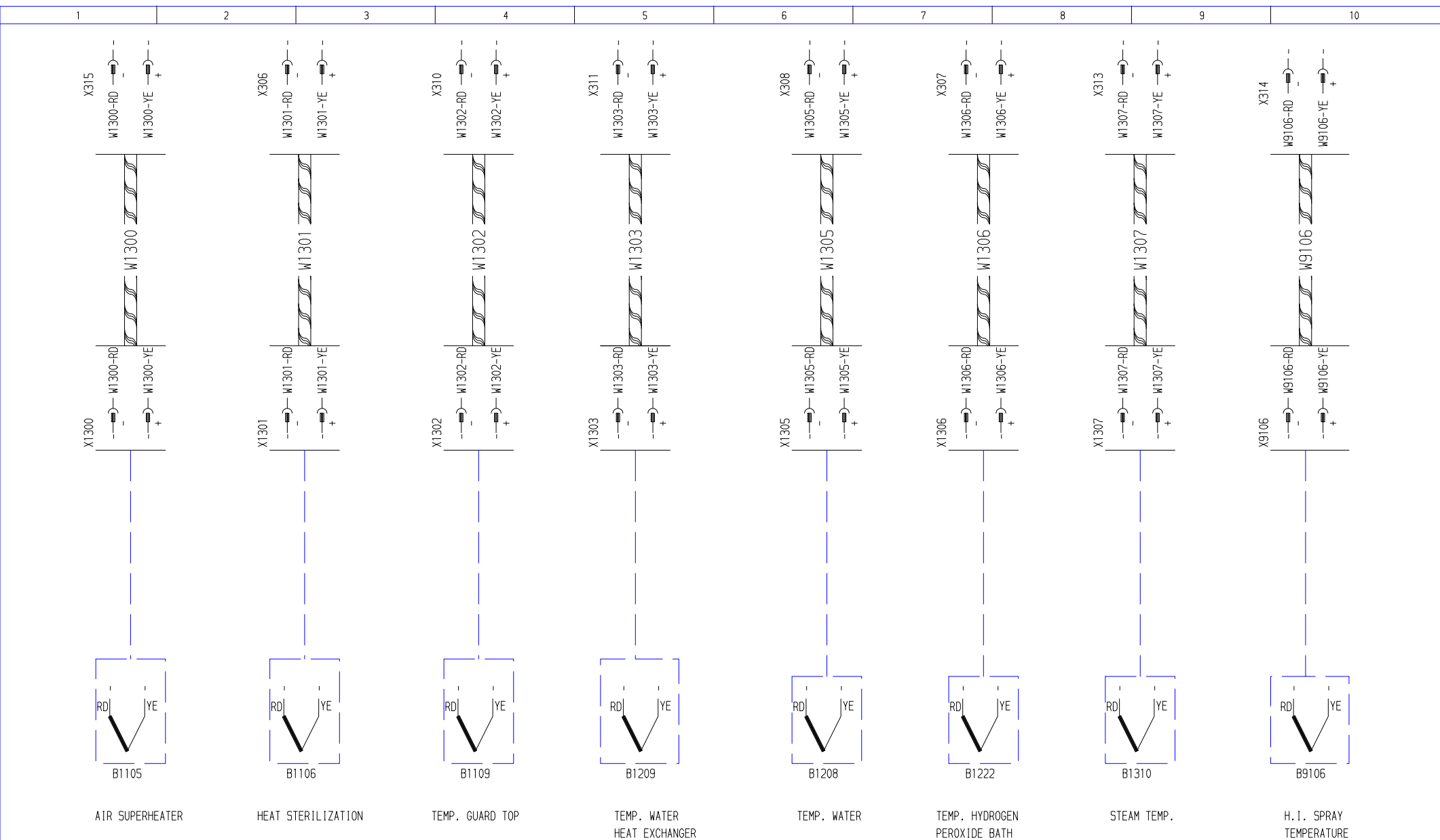




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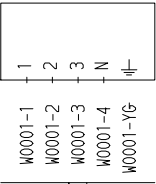
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Appr./Date	BGZ 990928											
Drawing remarks												



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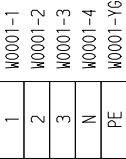
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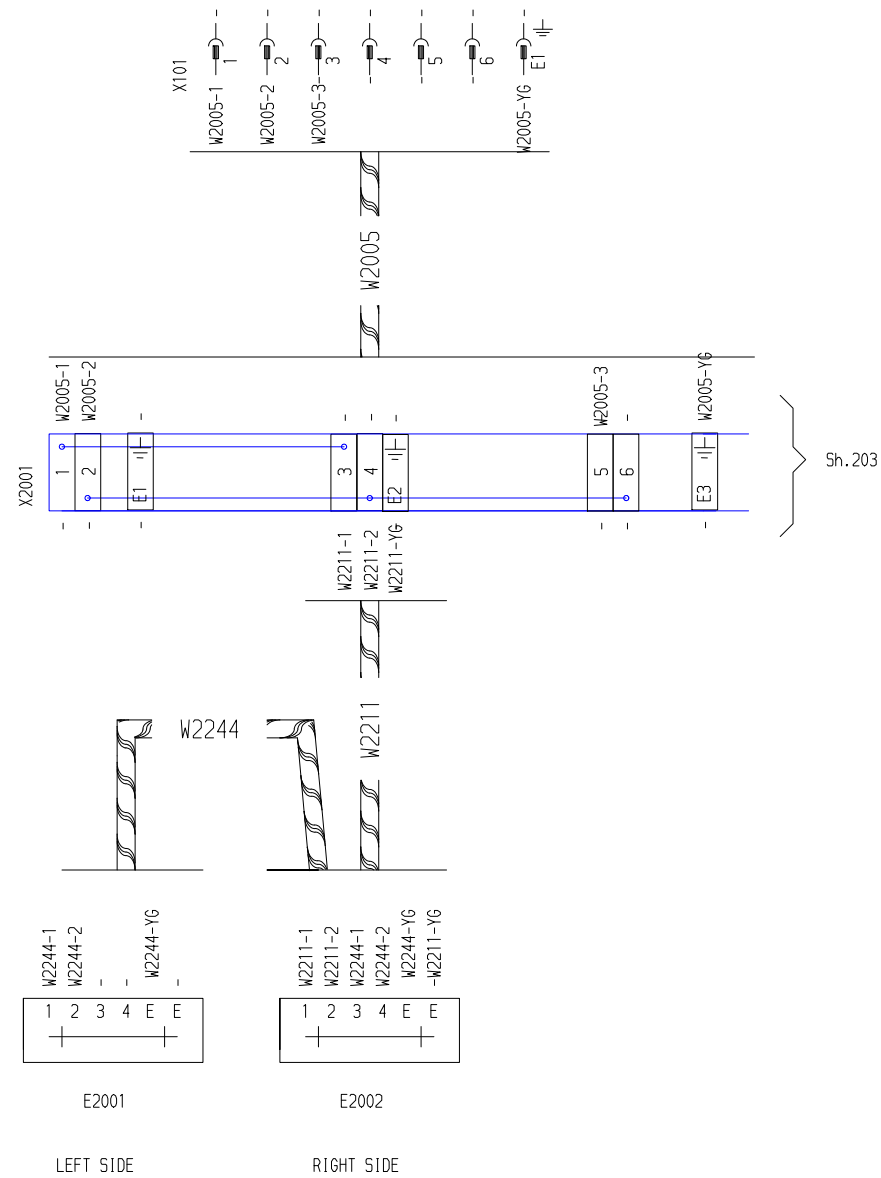
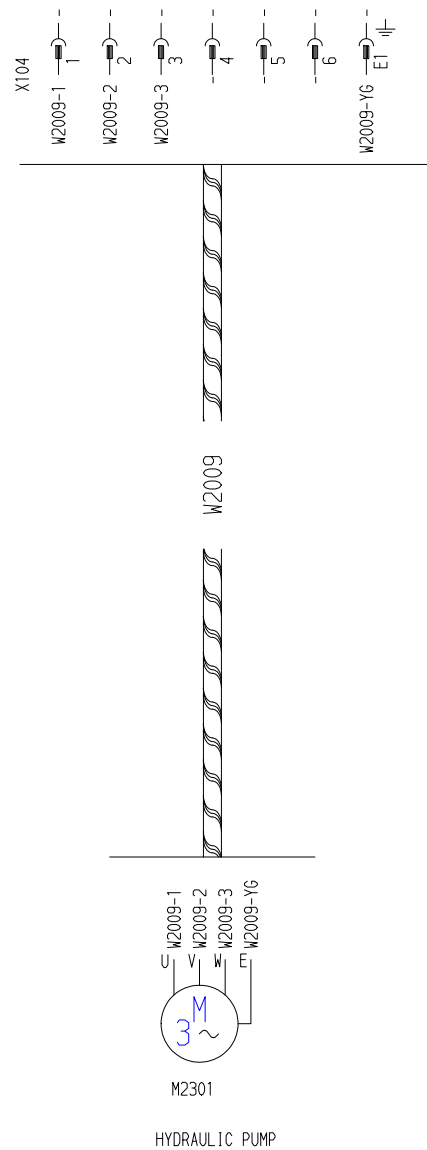


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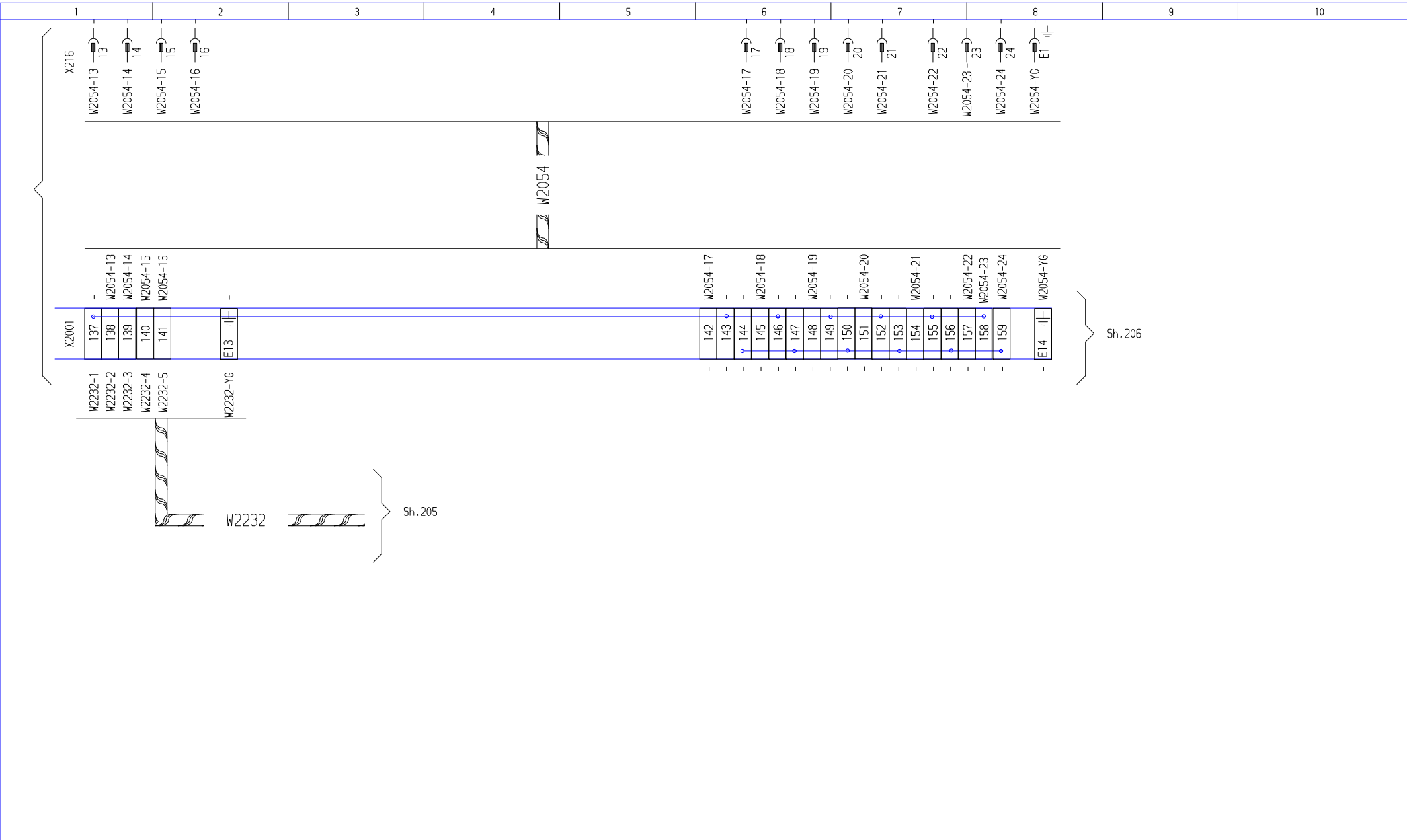
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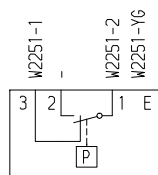
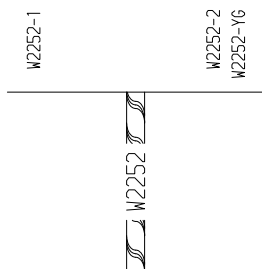
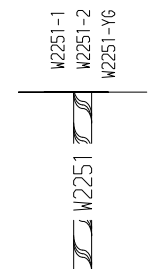
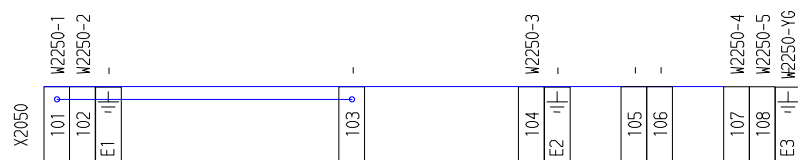
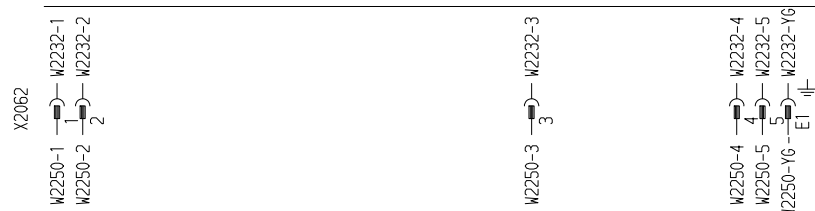
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Appr./Date	PGE 010130				
Drawing remarks					



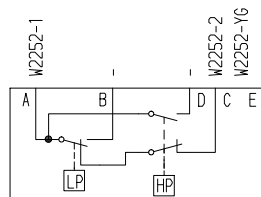
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Appr./Date	BGZ 990928			Drawing remarks	



Note	A					Tetra Pak Company TETRA BRIK PACK. SYSTEM SPA	Designer AMI	Date 990329	Approved BGZ	Date 990329	Doc.Class -
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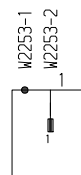


B2501



B2540

CIRC. COOLING MEDIA
LOW. PRESS. HIGH PRESS.

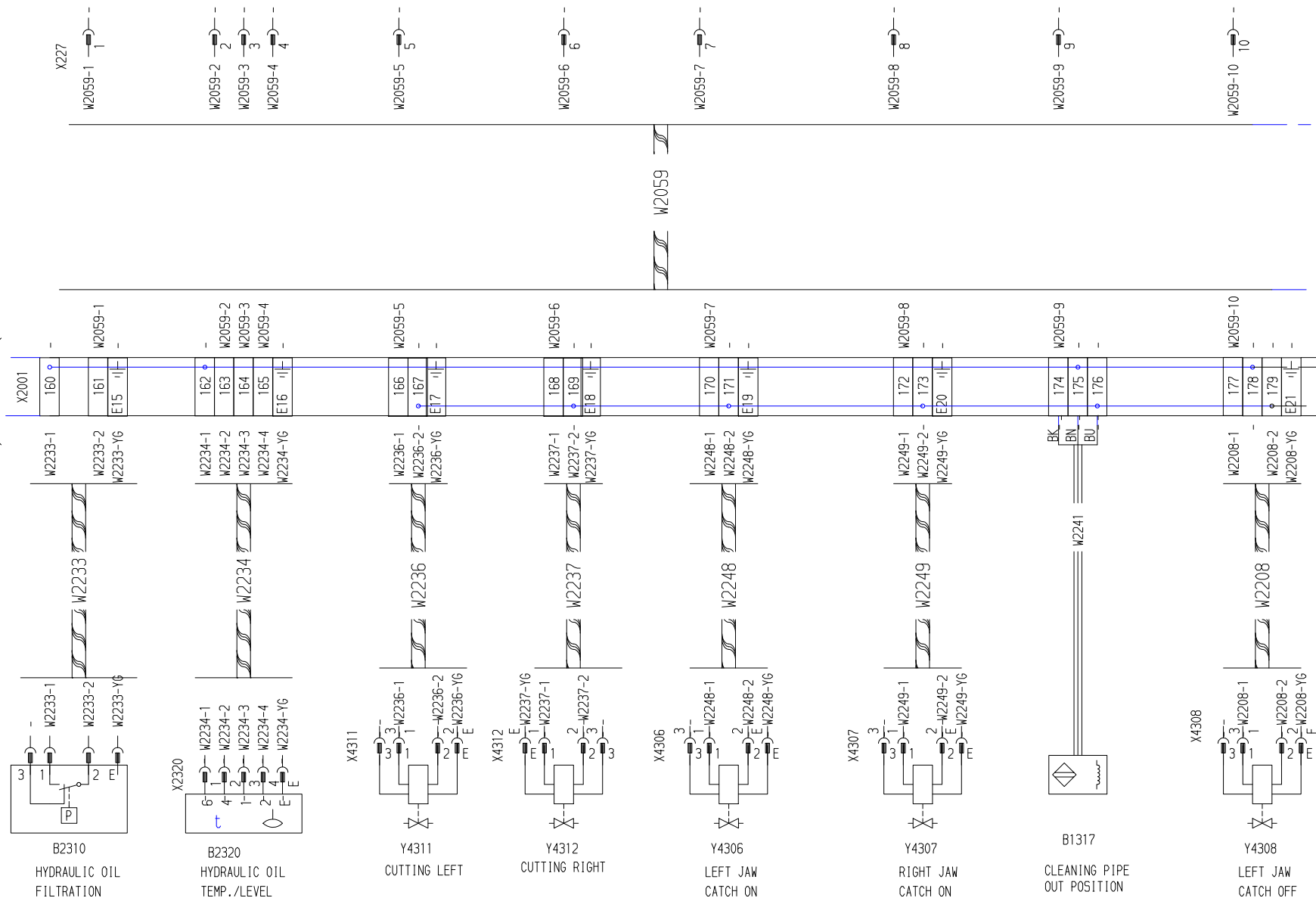


B2520

CONDUCTIVITY
DE-IONIZATION
OF CIRC. WATER

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Sh. 204



Sh. 207

Note	A				
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Sign./Date	AMI 010130				
Appr./Date	PGE 010130				

Drawing remarks

Tetra Pak

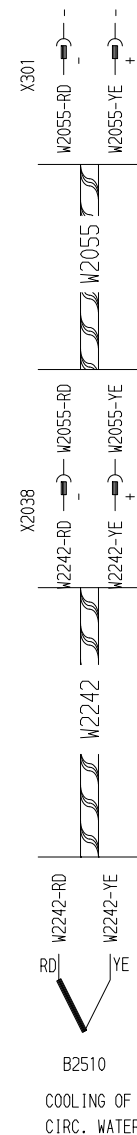
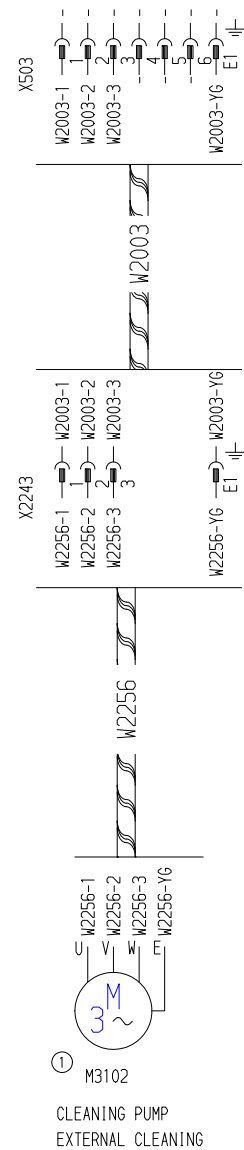
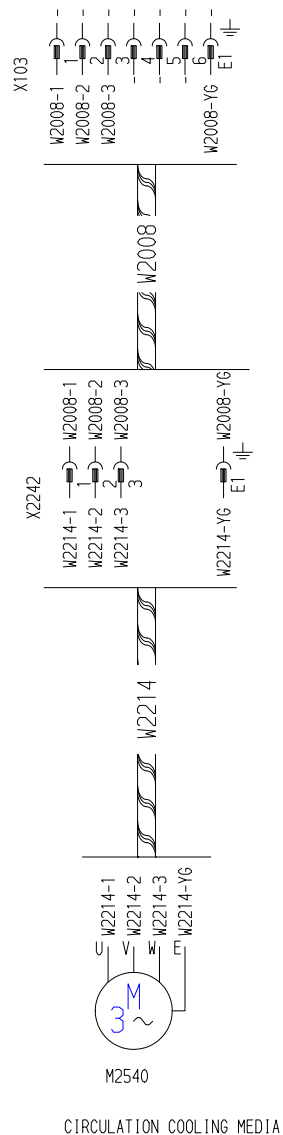
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TETRA BRIK PACK. SYSTEM SPA

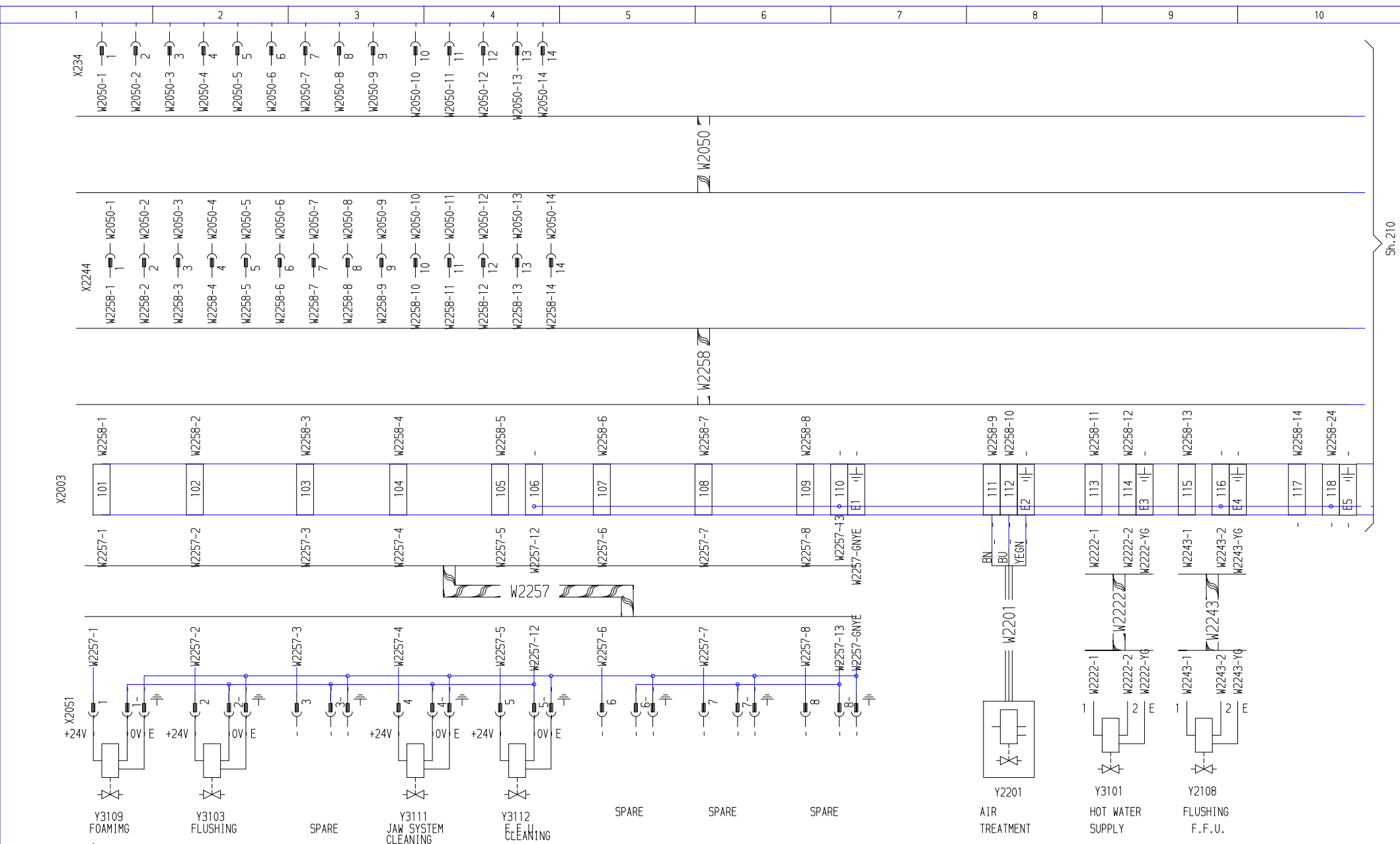
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Drawing No 61815-206:04				Page -



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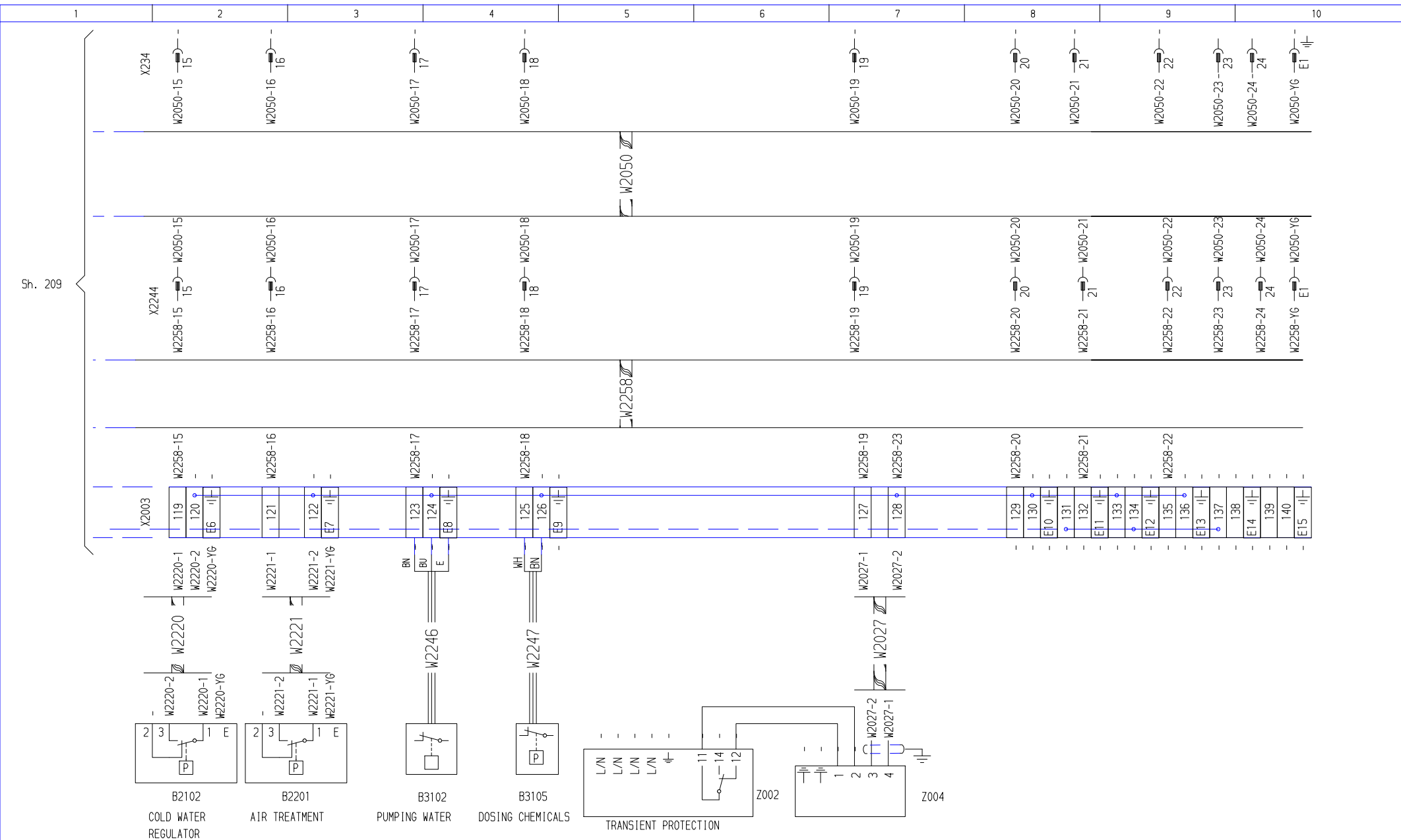


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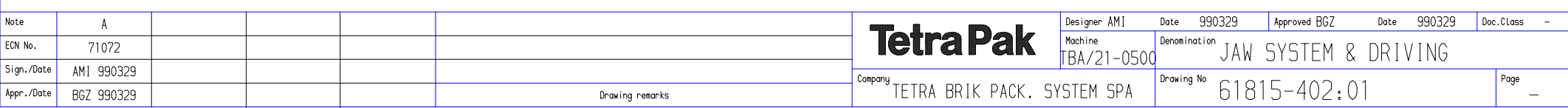
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Company TETRA BRIK PACK. SYSTEM SPA		Drawing No 61815-209:01			Page -

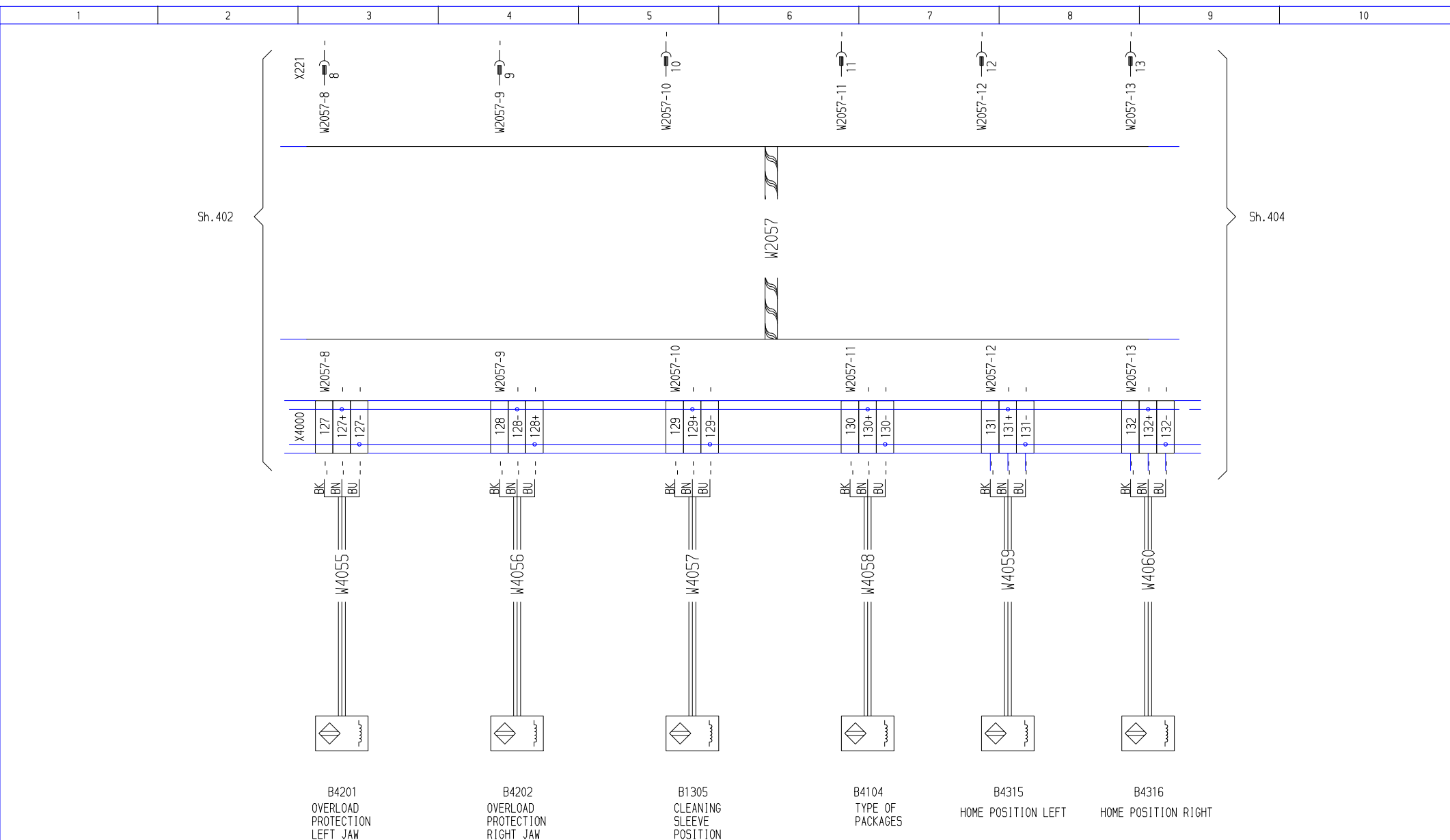


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Sign./Date	AMI 990928					
Appr./Date	B6Z 990928				Drawing remarks	



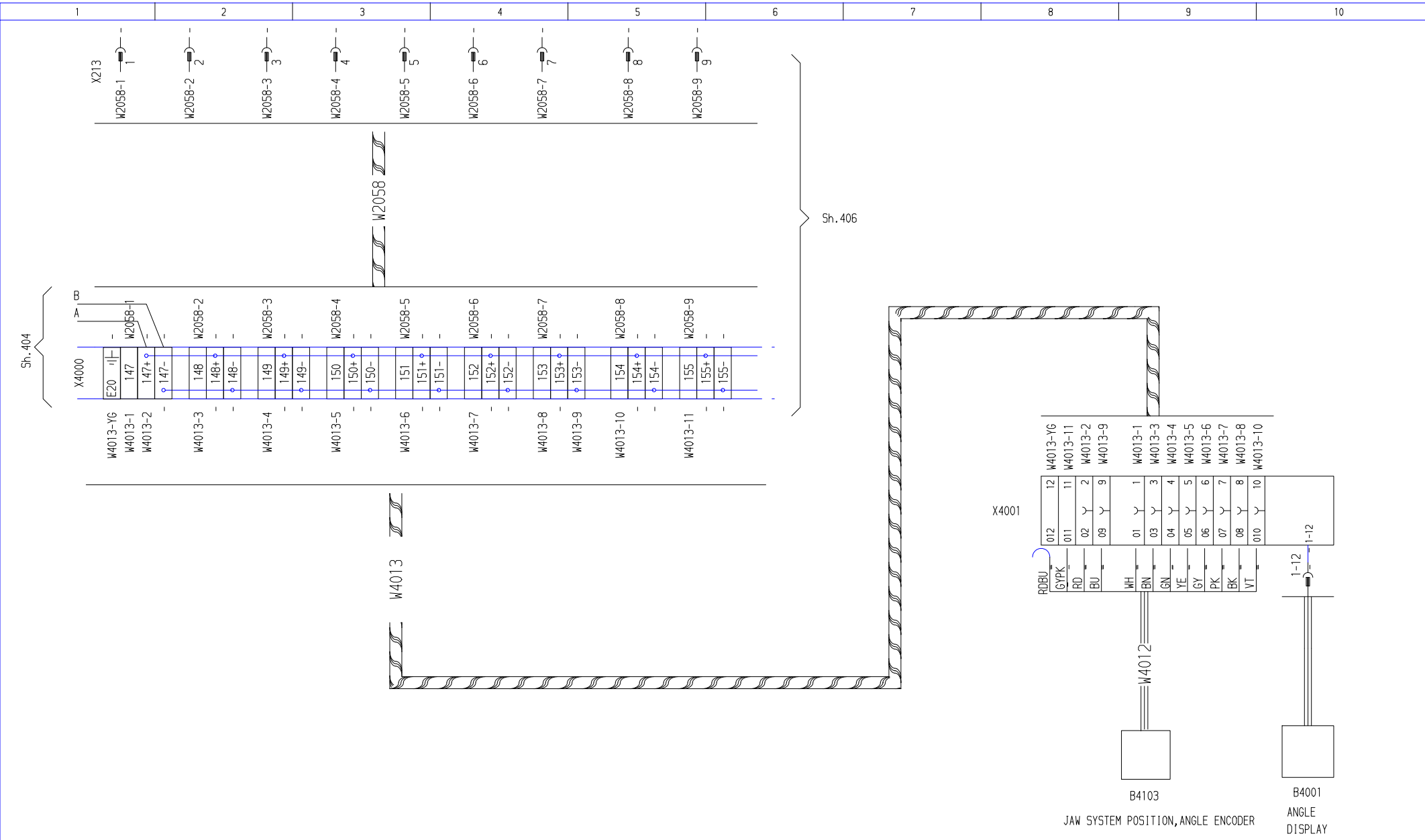


Note	A				
ECN No.	71072				
Sign./Date	AMI 990329				
Appr./Date	BGZ 990329				

Tetra Pak	Designer: AMI	Date: 990329	Approved: BGZ	Date: 990329	Doc. Class: -
	Machine: TBA/21-0500	Denomination: JAW SYSTEM & DRIVING			
	Company: TETRA BRIK PACK. SYSTEM SPA	Drawing No: 61815-403:01			Page: -

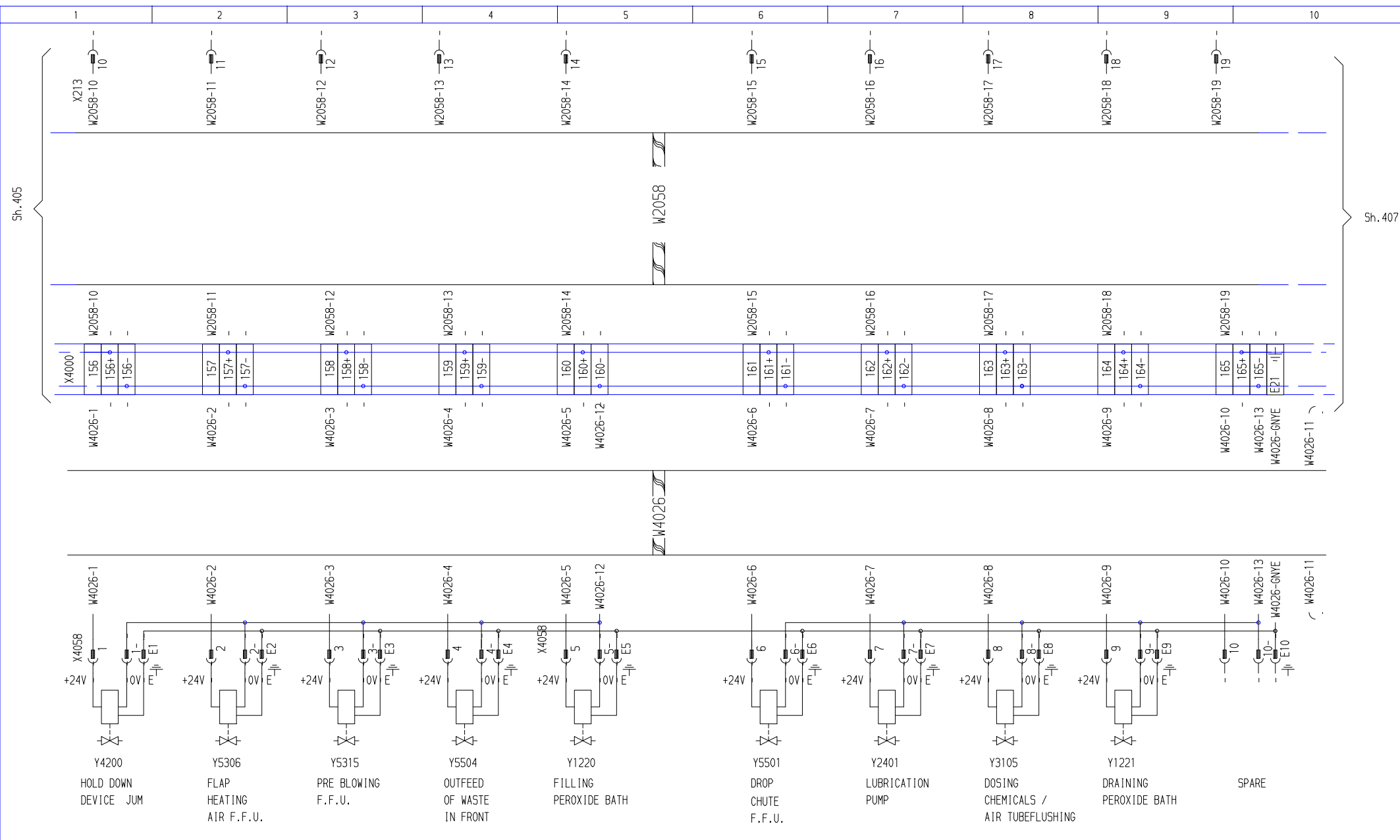


Note	A				Tetra Pak Designer AMI Date 990329 Approved BGZ Date 990329 Doc. Class - Machine TBA/21-0500 Denomination JAW SYSTEM & DRIVING Company TETRA BRIK PACK. SYSTEM SPA Drawing No 61815-404:01 Page -
ECN No.	71072				
Sign./Date	AMI 990329				
Appr./Date	BGZ 990329			Drawing remarks	



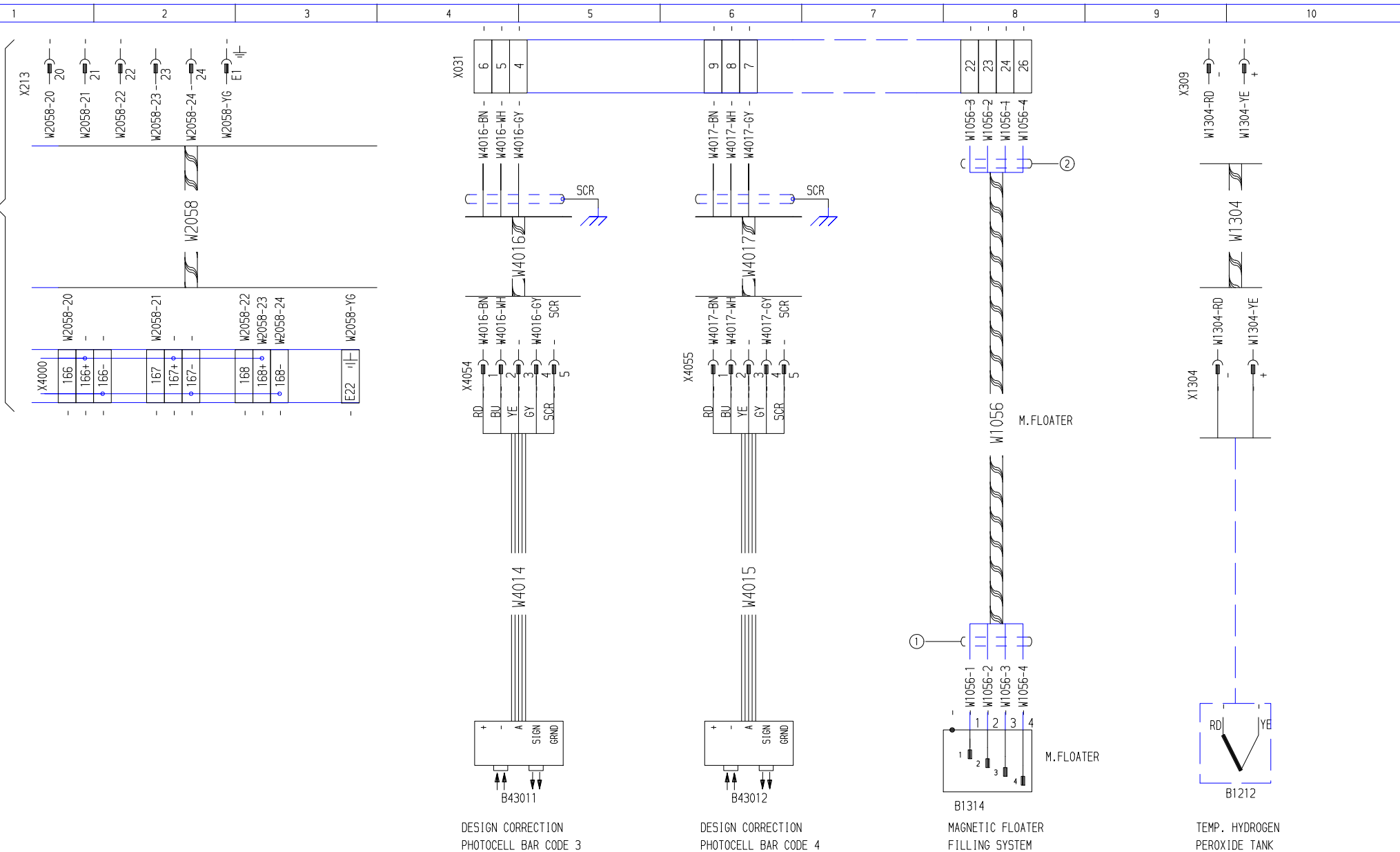
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ECN No.	71072				
Sign./Date	AMI 990329				
Appr./Date	BGZ 990329				

Tetra Pak		Designer AMI	Date 990329	Approved BGZ	Date 990329	Doc.Class -
		Machine TBA/21-0500	Denomination JAW SYSTEM & DRIVING			
Company TETRA BRIK PACK. SYSTEM SPA		Drawing No 61815-405:01				Page -

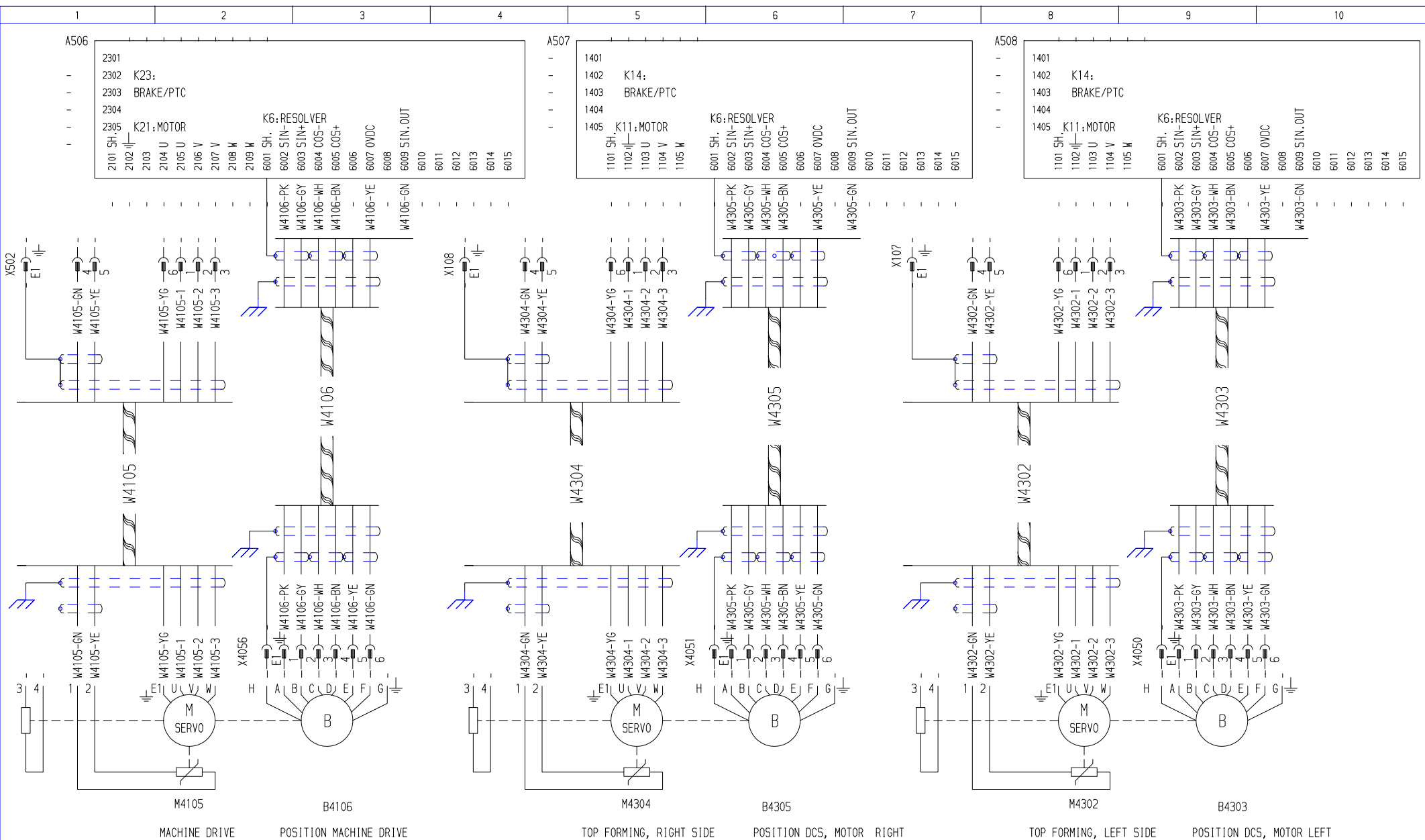


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Sign./Date	AMI 990329						TBA/21-0500				
Appr./Date	BGZ 990329						Company	TETRA BRIK PACK. SYSTEM SPA			Page -
Drawing remarks							Drawing No	61815-406:01			

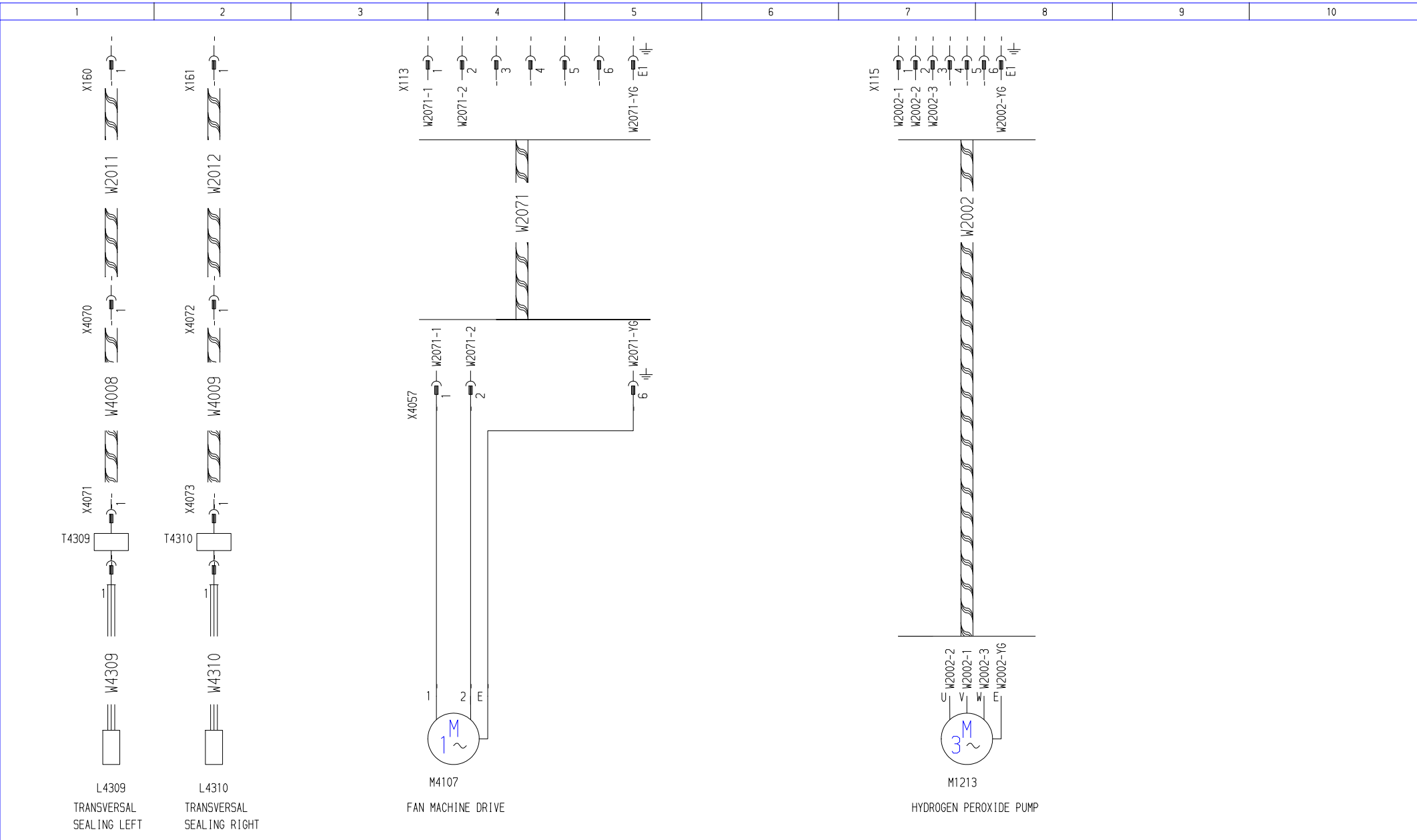
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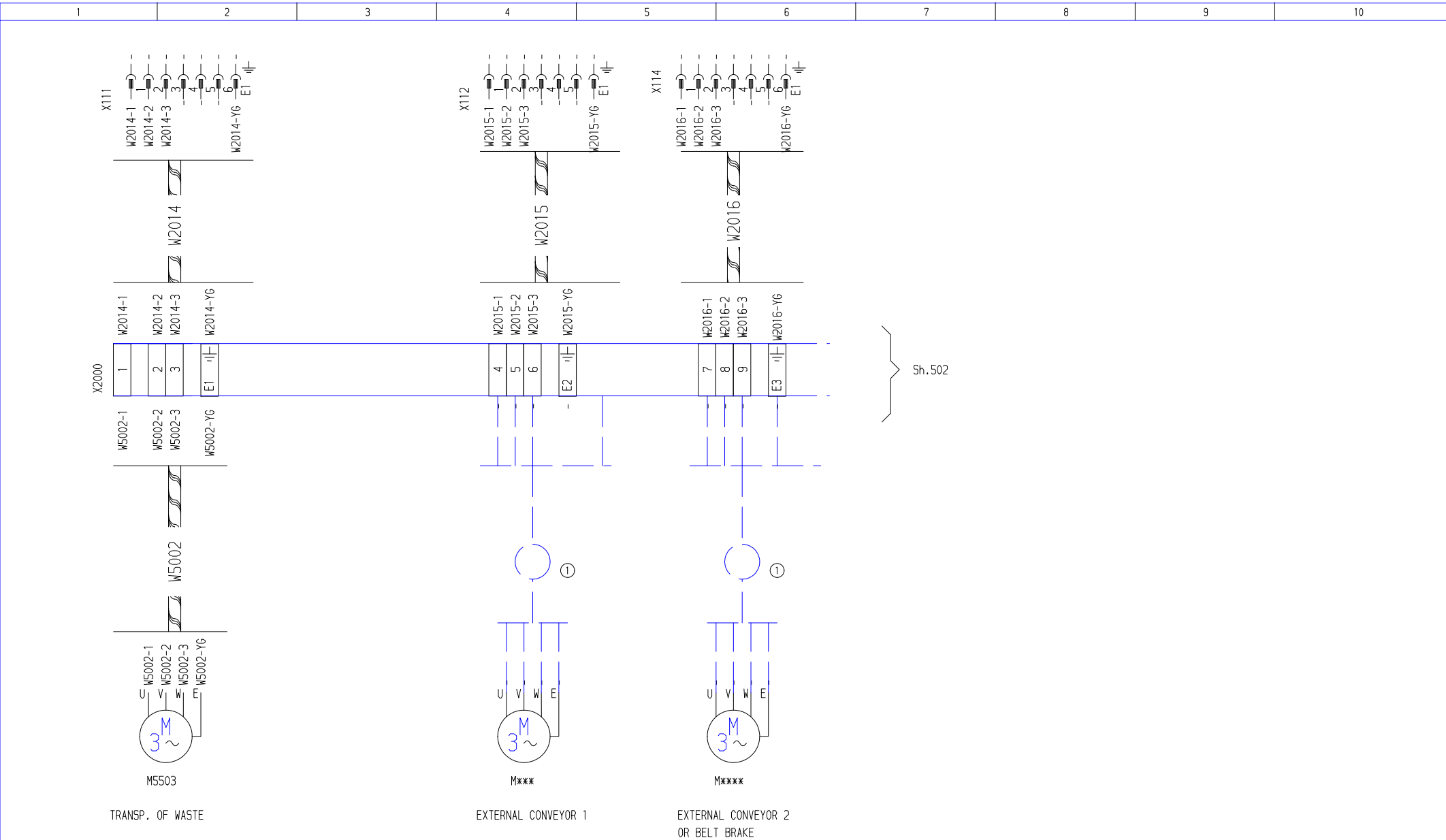
Note	A				1. TO BE CONNECT AT CABLE GLAND	Tetra Pak Designer: AMI Date: 010130 Machine: TBA/21-0500 Denomination: JAW SYSTEM & DRIVING Company: TETRA BRIK PACK. SYSTEM SPA Drawing No: 61815-407:04	Approved PGE	Date: 010130	Doc. Class: -
ECN No.	73362				2. TO BE CONNECT AT EARTH BAR				
Sign./Date	AMI 010130								
Appr./Date	PGE 010130				Drawing remarks				Page: -



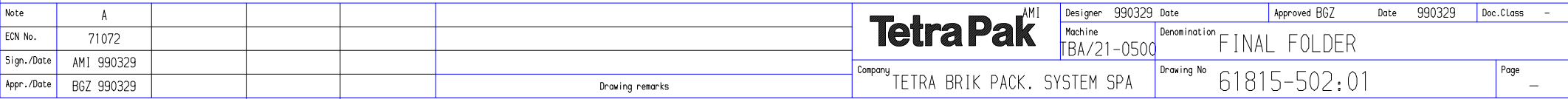
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Sign./Date	AMI 990329						Company	TETRA BRIK PACK. SYSTEM SPA	Drawing No	61815-408:01	
Appr./Date	BGZ 990329						Drawing remarks				Page -

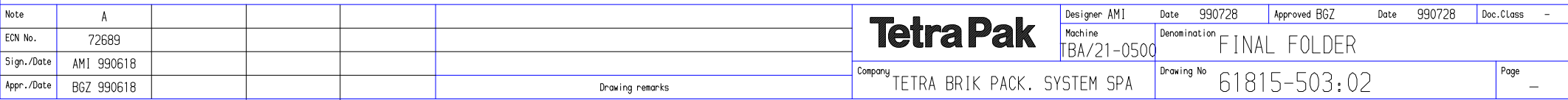


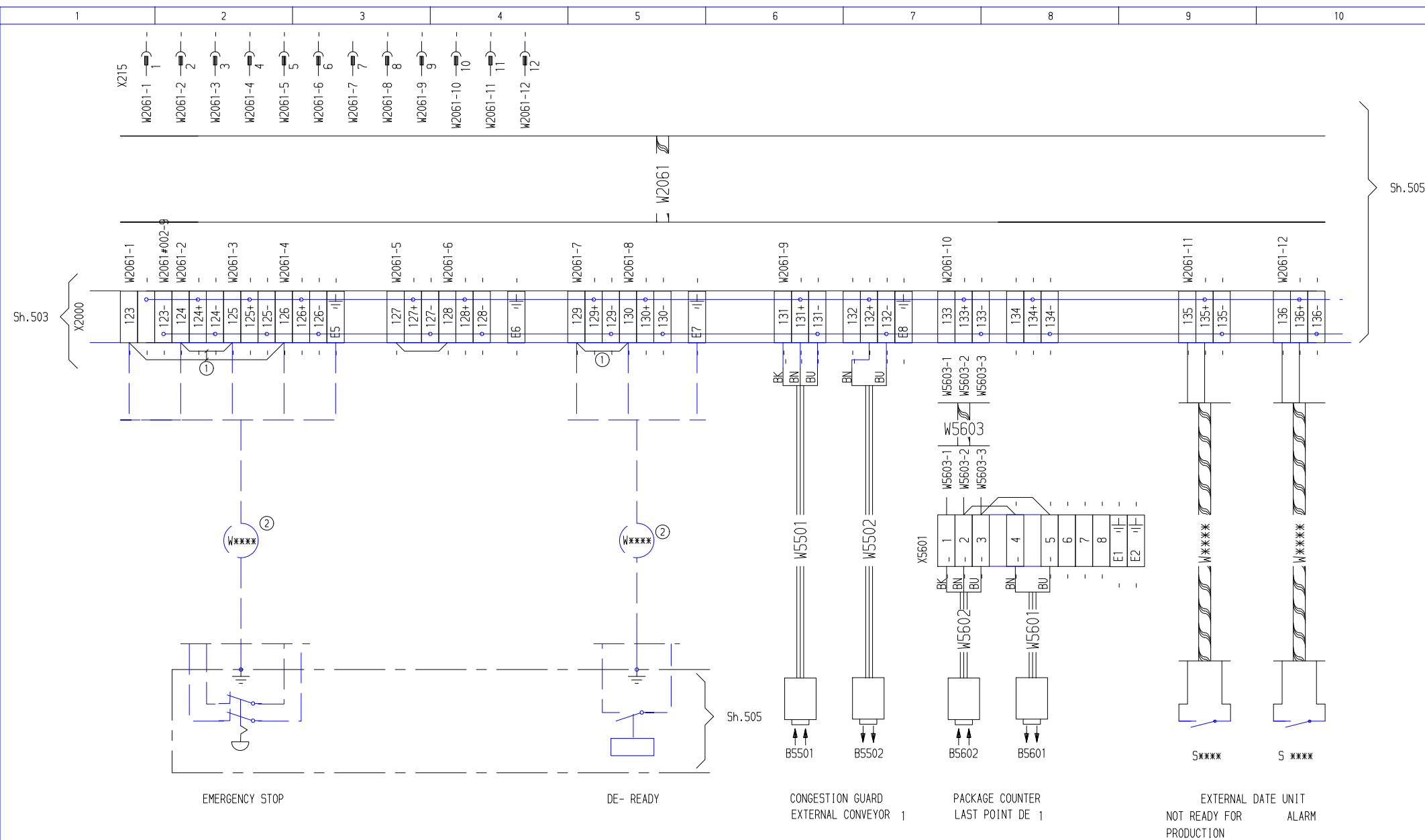
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ECN No.	71072						Machine TBA/21-0500	Denomination JAW SYSTEM & DRIVING			
Sign./Date	AMI 990329						Drawing No 61815-409:01				
Appr./Date	BGZ 990329				Drawing remarks		Page -				



Note	A				① EXTRA EQUIPMENT	Tetra Pak CompanyTETRA BRIK PACK. SYSTEM SPA	Designer AMI	Date 010130	Approved PGE	Date 010130	Doc.Class -
ECN No.	73362						Machine TBA/21-0500	Denomination FINAL FOLDER			
Sign./Date	AMI 010130						Drawing No 61815-501:04				Page -
Appr./Date	PGE 010130				Drawing remarks						





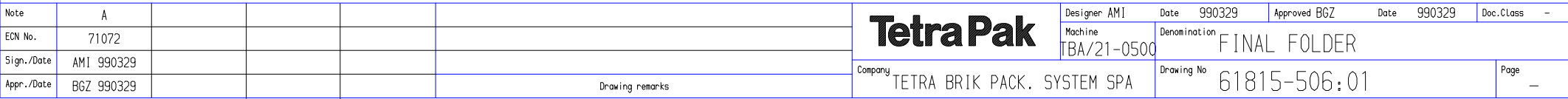


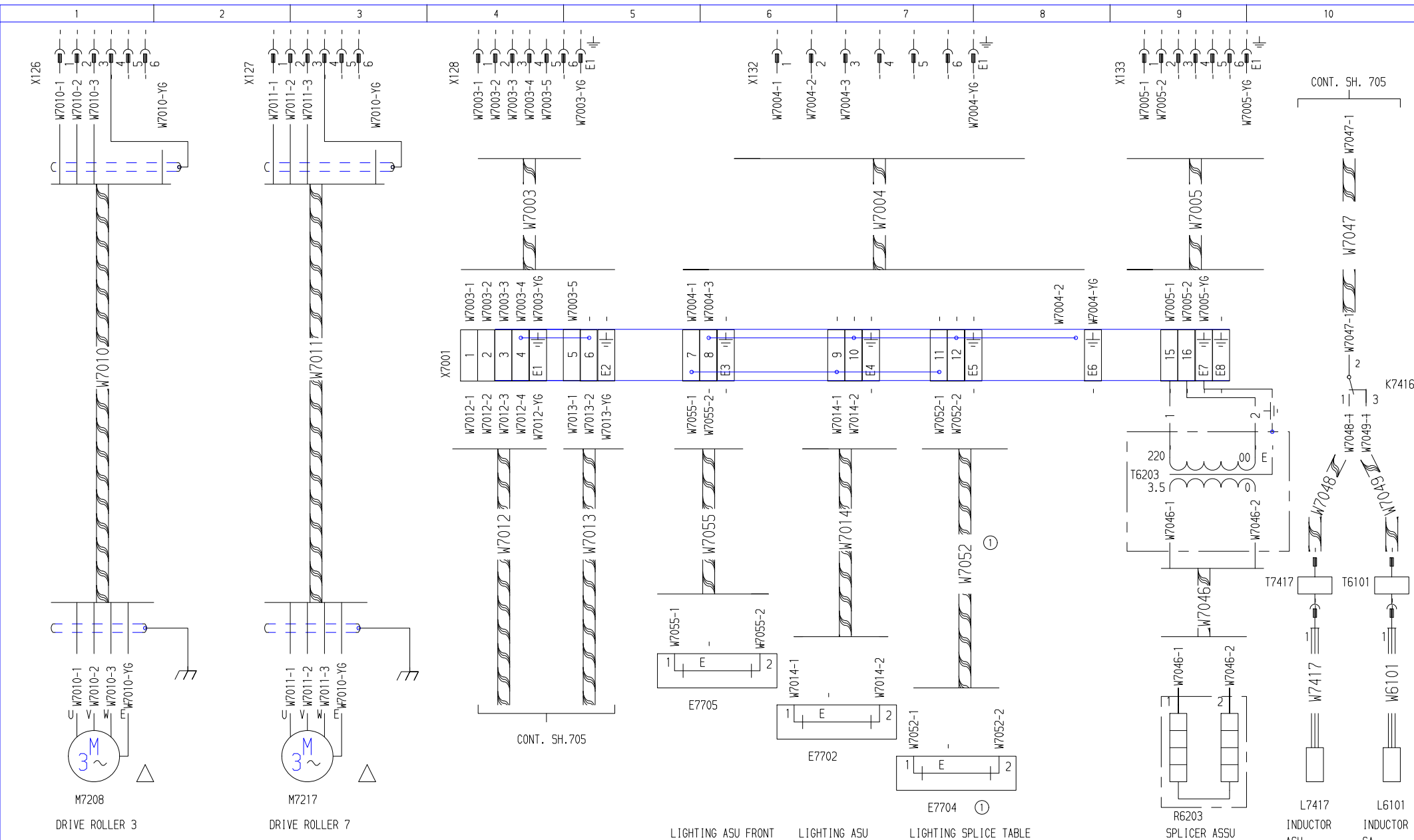
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ECN No.	73362				② EXTRA EQUIPMENT
Sign./Date	AMI 010130				
Appr./Date	PGE 010130				
Drawing remarks					

Tetra Pak	Designer AMI	Date 010130	Approved PGE	Date 010130	Doc.Class -
	Machine TBA/21-0500	Denomination	FINAL FOLDER		
Company TETRA BRIK PACK. SYSTEM SPA		Drawing No	61815-504:04		
		Page	-		



Note	A				1. EXTRA EQUIPMENT	Tetra Pak Designer AMI Date 010130 Approved PGE Date 010130 Doc.Class - Machine TBA/21-0500 Denomination FINAL FOLDER Company TETRA BRIK PACK. SYSTEM SPA Drawing No 61815-505:04 Page -
ECN No.	73362					
Sign./Date	AMI 010130					
Appr./Date	PGE 010130				Drawing remarks	





Note	A				1. TO BE REMOVED WHEN PT/21 IS INSTALLED
ECN No.	72992				
Sign./Date	AMI 990928				
Appr./Date	BGZ 990928				
Drawing remarks					

Tetra Pak

Company TETRA BRIK PACK. SYSTEM SPA

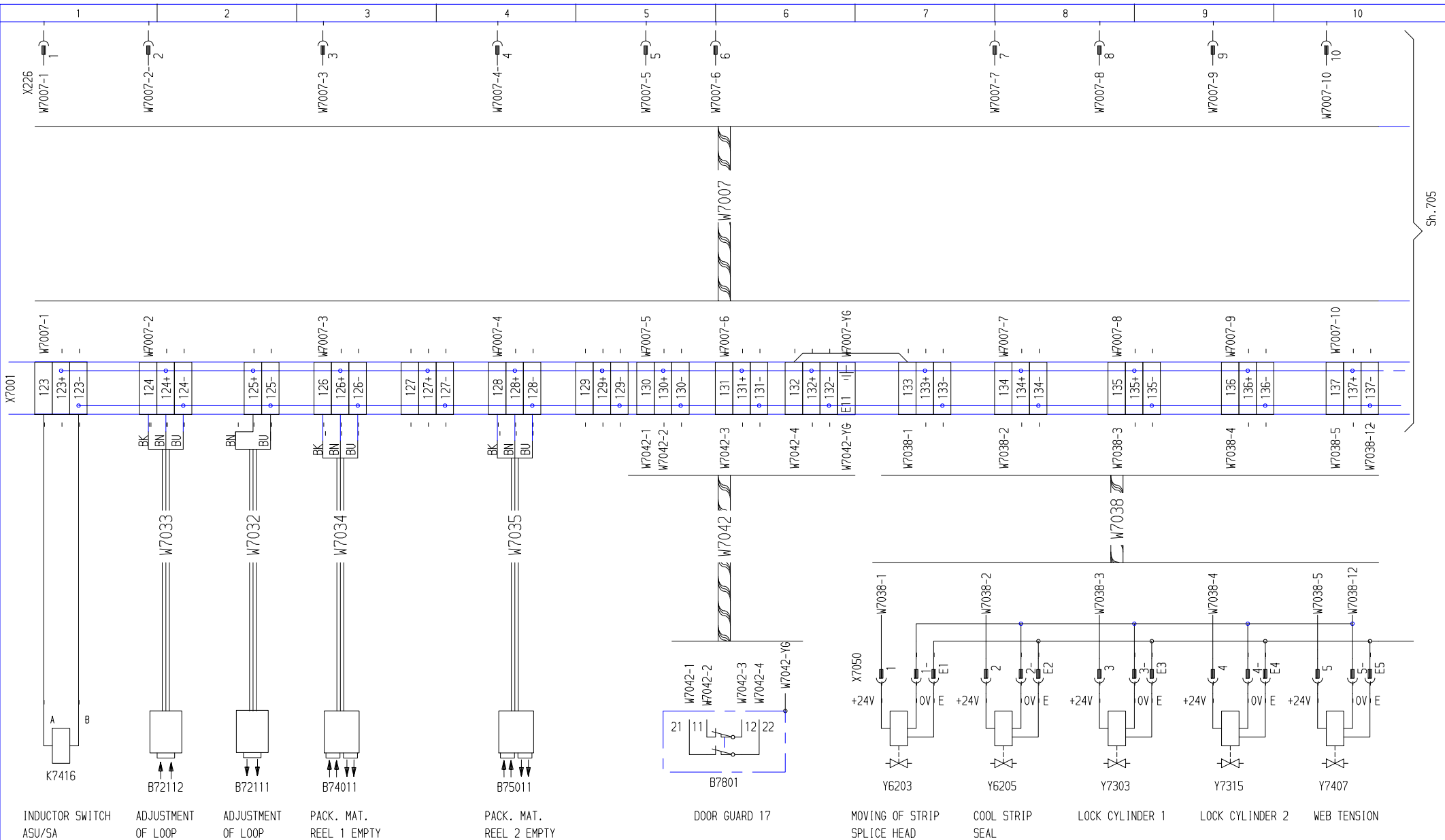
Designer AMI	Date 991029	Approved BGZ	Date 991029	Doc. Class -
Machine TBA/21-0500	Denomination MATERIAL HANDLING			
Drawing No 61815-701:03				Page -



Note	A					Tetra Pak Designer AMI Date 990329 Approved BGZ Date 990329 Doc. Class -	
ECN No.	71072						Machine TBA/21-0500 Denomination MATERIAL HANDLING
Sign./Date	AMI 990329						Company TETRA BRIK PACK. SYSTEM SPA Drawing No 61815-702:01 Page -
Appr./Date	BGZ 990329				Drawing remarks		



Note	A				Tetra Pak Machine TBA/21-0500 Company TETRA BRIK PACK. SYSTEM SPA Designer AMI Date 991029 Approved BGZ Date 991029 Doc.Class - Denomination MATERIAL HANDLING Drawing No 61815-703:03 Page —
ECN No.	72992				
Sign./Date	AMI 990928				
Appr./Date	BGZ 990928			Drawing remarks	



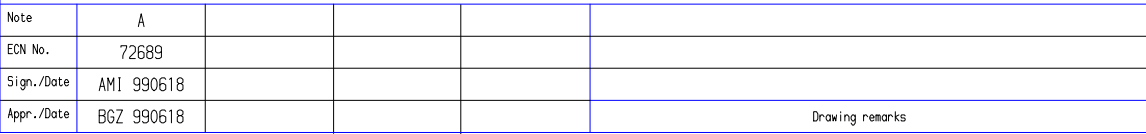
Sh.705

Note	A				
ECN No.	71072				
Sign./Date	AMI 990329				
Appr./Date	BGZ 990329				
Drawing remarks					

Tetra Pak

Company TETRA BRIK PACK. SYSTEM SPA

Designer AMI	Date 990329	Approved BGZ	Date 990329	Doc.Class -
Machine TBA/21-0500	Denomination MATERIAL HANDLING			
Drawing No 61815-704:01				Page -



Company TETRA BRIK PACK. SYSTEM SPA

SYSTEM SPA	Drawing No 61815-705:02	Page —

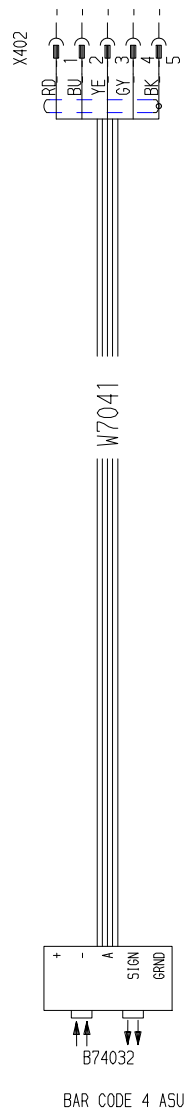
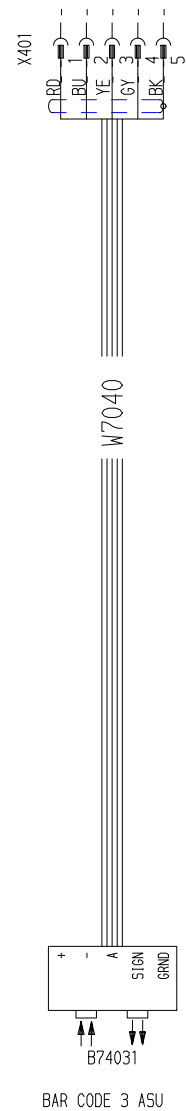
POWER ADJUSTMENT
SPLICE ASU SA SEALING



Note	A				Tetra Pak Machine TBA/21-0500 Company TETRA BRIK PACK. SYSTEM SPA Designer AMI Date 991029 Approved BGZ Date 991029 Doc.Class - Denomination MATERIAL HANDLING Drawing No 61815-706:03 Page —
ECN No.	72992				
Sign./Date	AMI 990928				
Appr./Date	BGZ 990928			Drawing remarks	

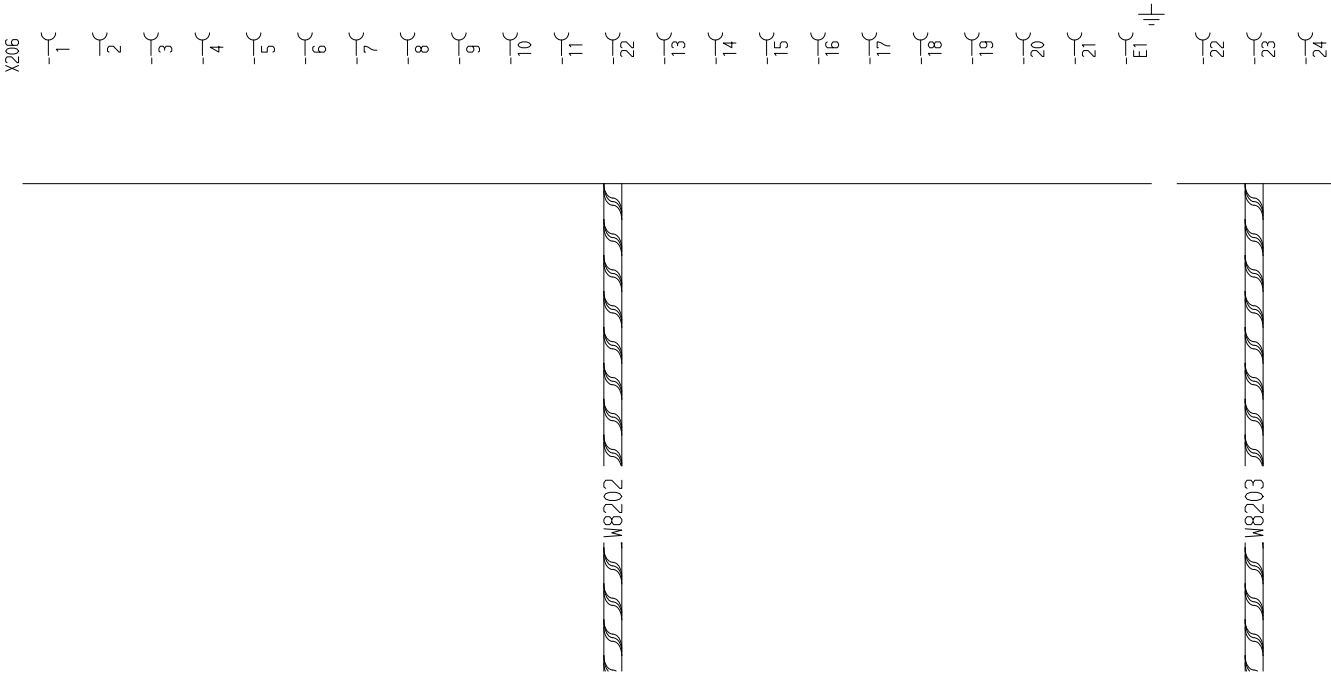
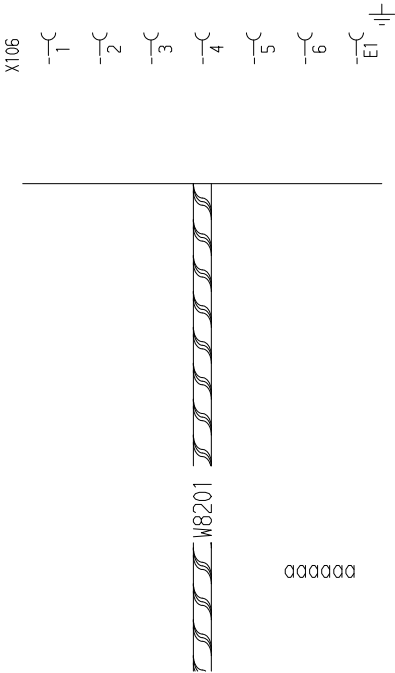


Note	A				1.CONNECT TO THE CHASSIS	TetraPak Machine TBA/21-0500 Company TETRA BRIK PACK. SYSTEM SPA	Designer AMI	Date 991029	Approved BGZ	Date 991029	Doc.Class -
ECN No.	72992						Denomination	MATERIAL HANDLING			
Sign./Date	AMI 990928						Drawing No	61815-707:03			Page -
Appr./Date	BGZ 990928				Drawing remarks						



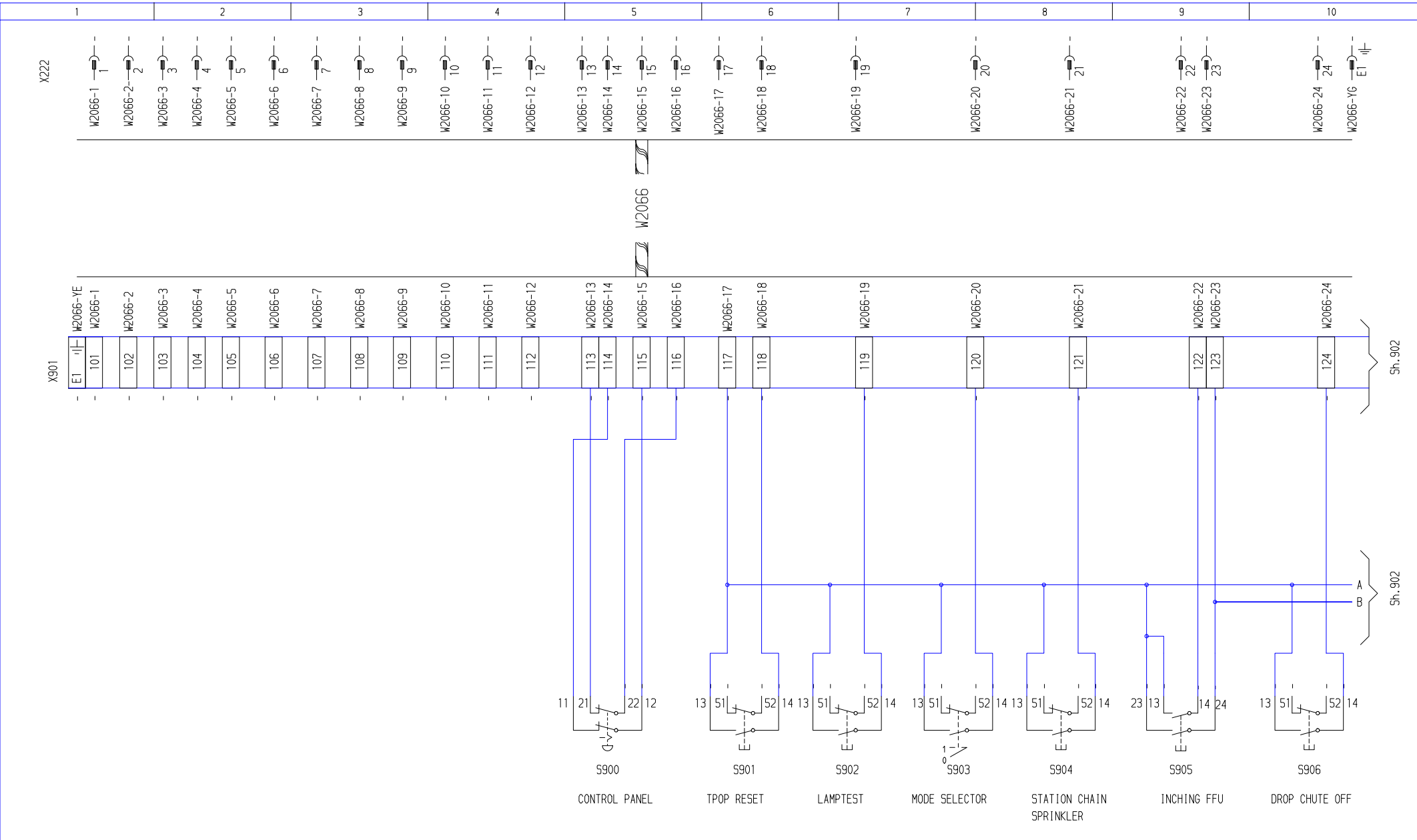
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ECN No.	71072						Machine TBA/21-0500	Denomination MATERIAL HANDLING				
Sign./Date	AMI 990329						Drawing No 61815-708:01					Page -
Appr./Date	BGZ 990329											
Drawing remarks												

1	2	3	4	5	6	7	8	9	10

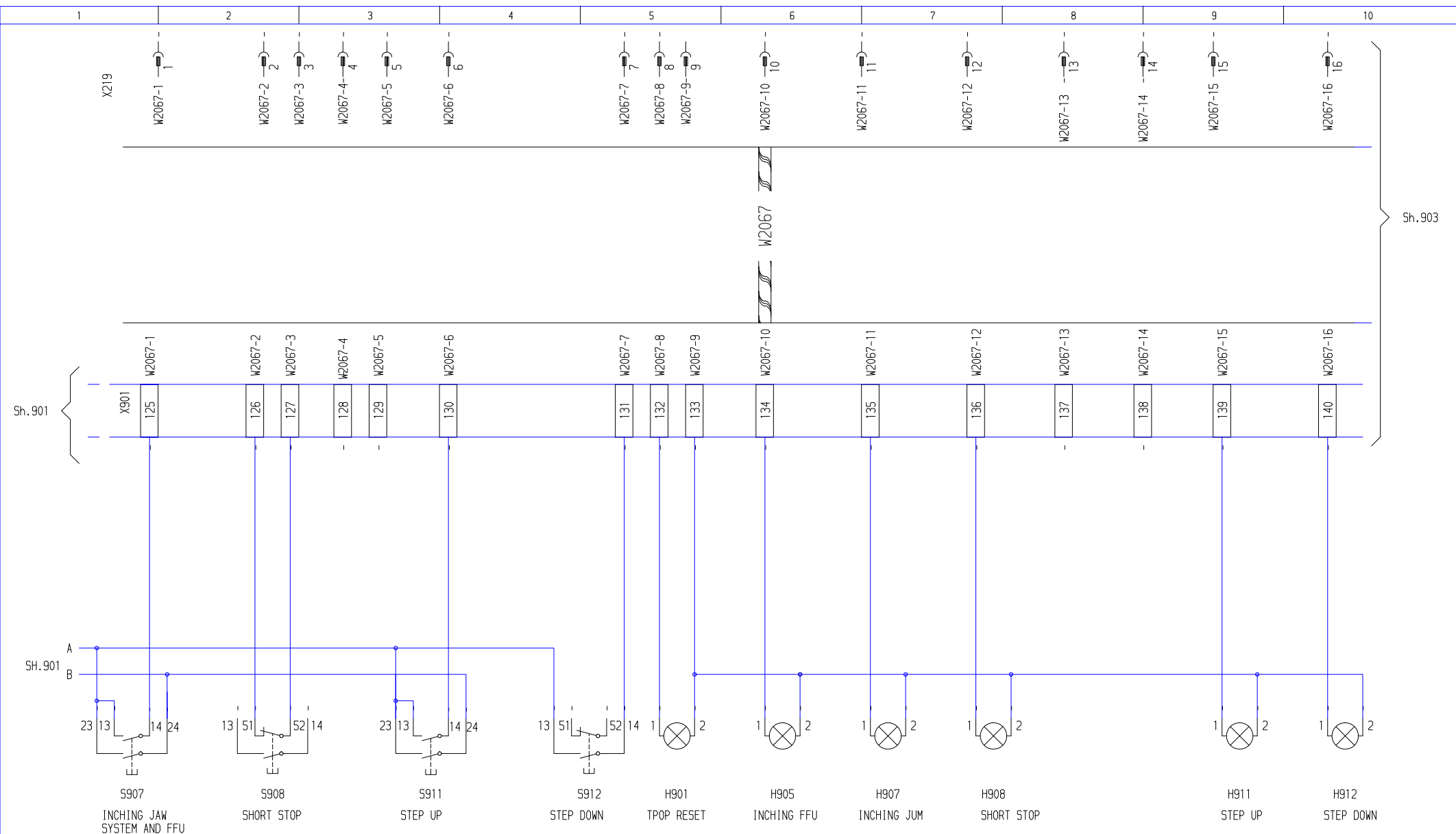


FOR MORE INFORMATION SEE PT/21 EM

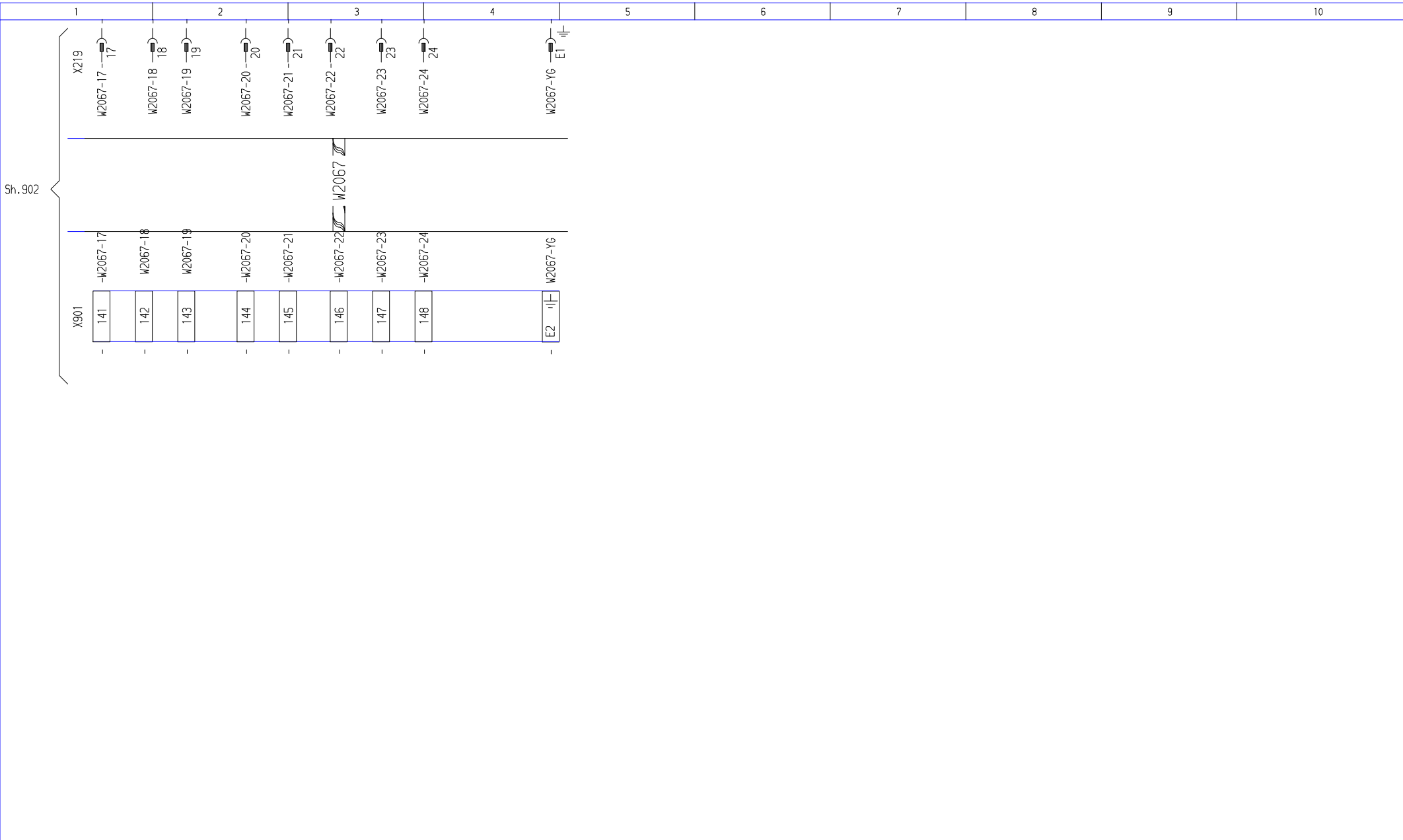
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Sign./Date	AMI 990329					Company TETRA BRIK PACK. SYSTEM SPA	Drawing No 61815-801:01				Page -
Appr./Date	BGZ 990329										



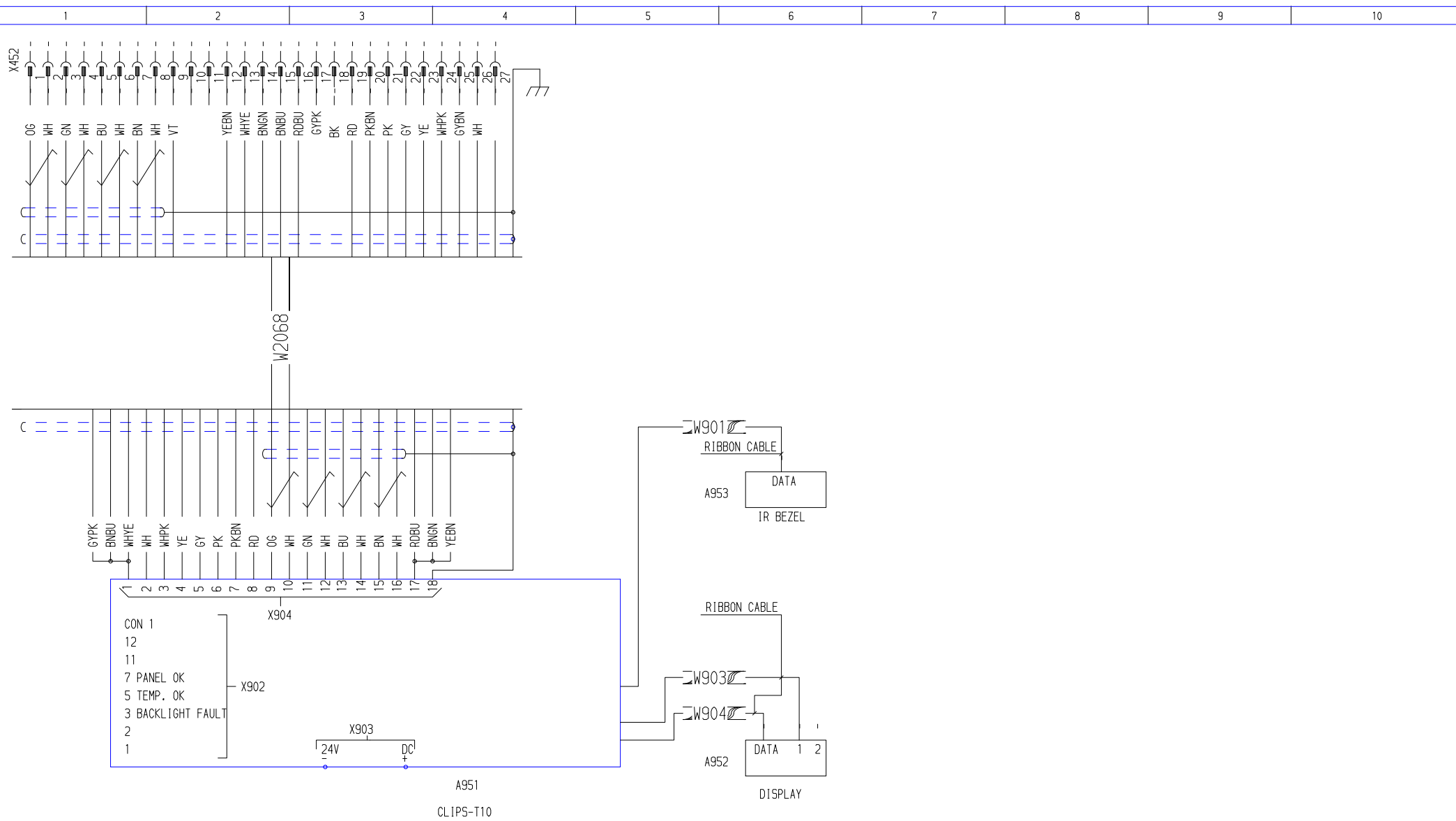
Note	A					Tetra Pak	Designer AMI	Date 010130	Approved PGE	Date 010130	Doc.Class -	
ECN No.	73362						Machine TBA/21-0500	Denomination TPOF FUNCTIONS				
Sign./Date	AMI 010130						Drawing No 61815-901:04					Page -
Appr./Date	PGE 010130				Drawing remarks		Company TETRA BRIK PACK. SYSTEM SPA					



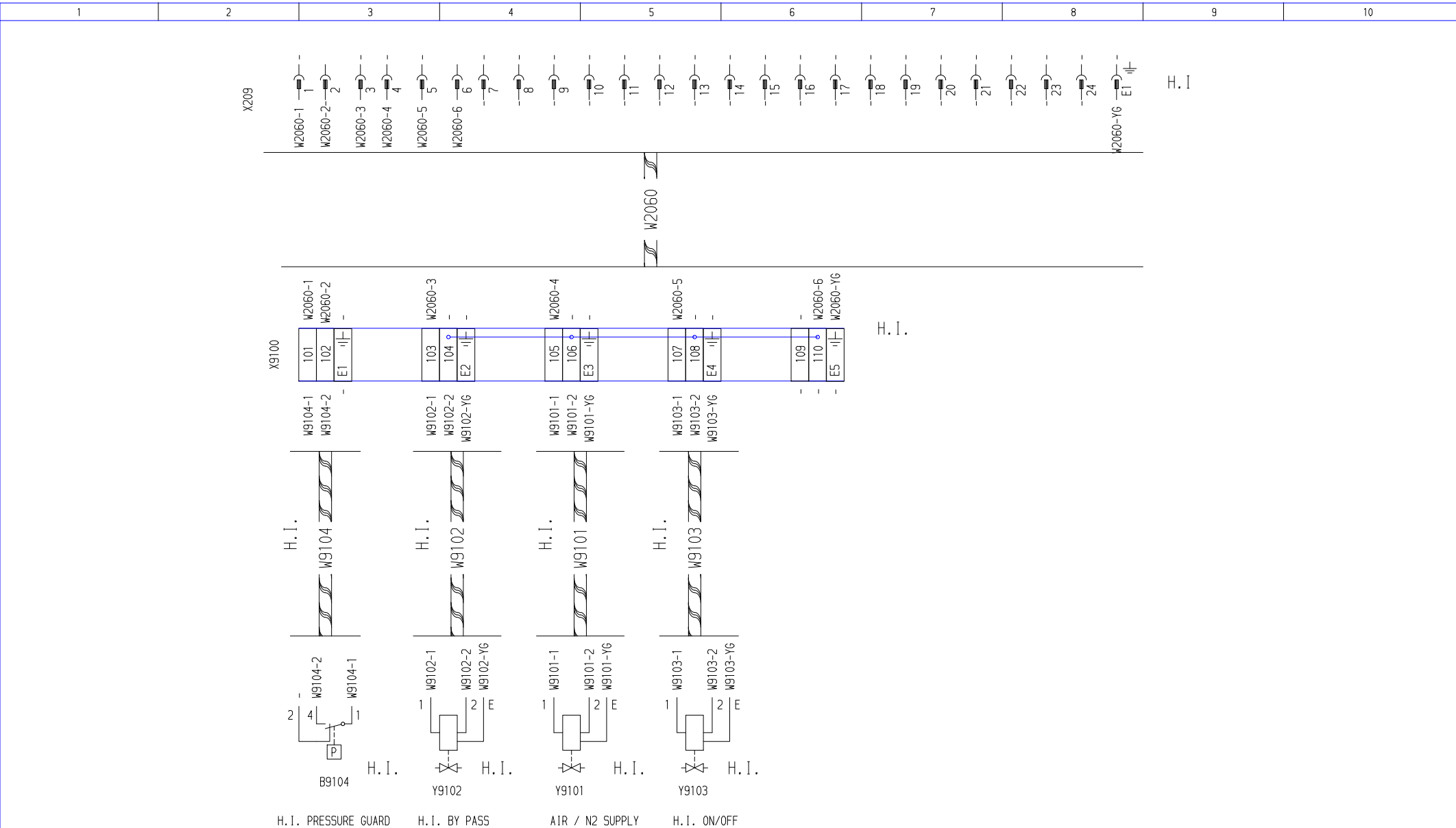
Note	A					TetraPak	Designer AMI	Date 990329	Approved BGZ	Date 990329	Doc.Class -
ECN No.	71072						Machine TBA/21-0500	Denomination TPOP FUNCTIONS			
Sign./Date	AMI 990329						Drawing No 61815-902:01				
Appr./Date	BGZ 990329				Drawing remarks		Page -				



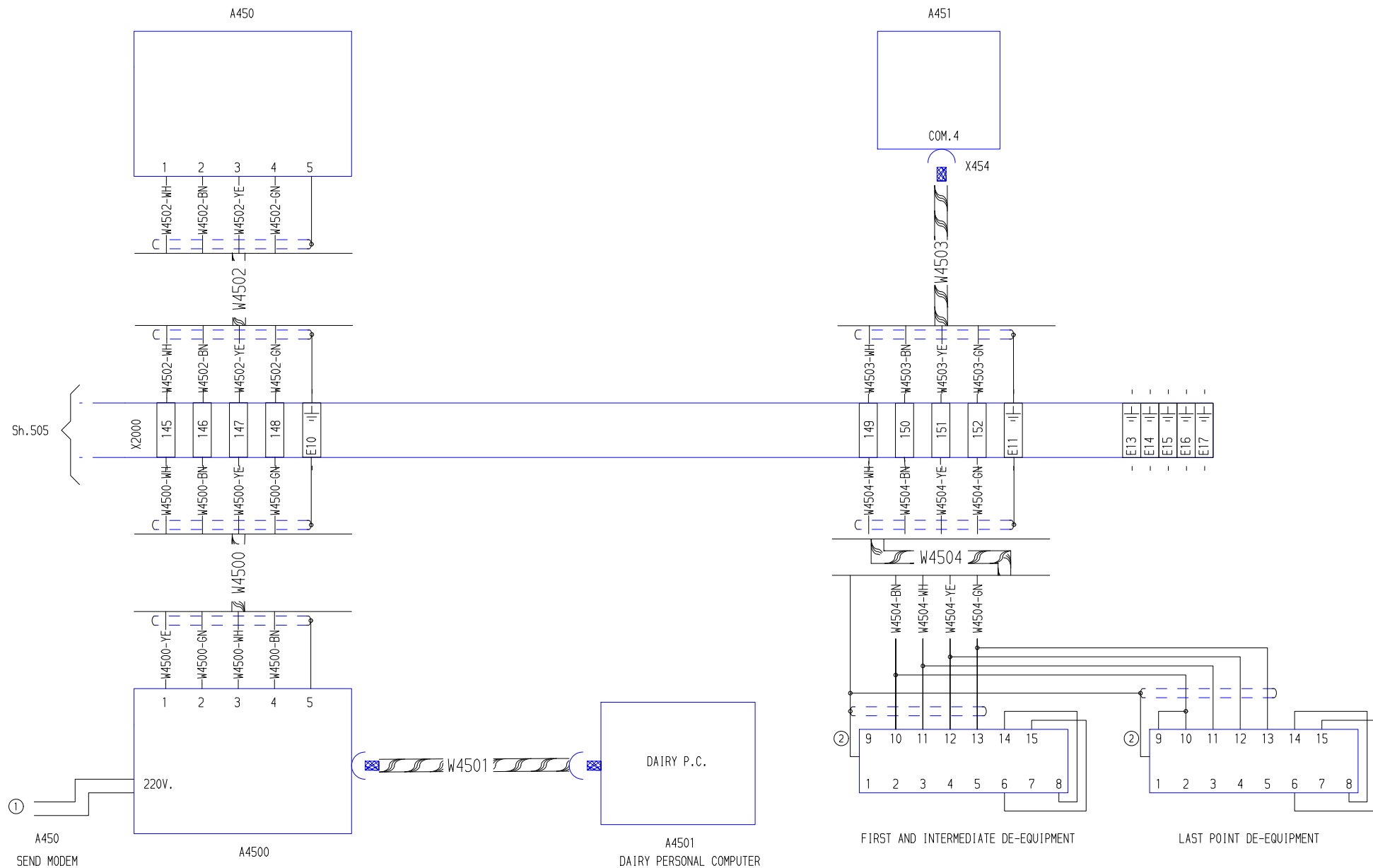
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ECN No.	71072						MachineTBA/21-0500	DenominationTPOP FUNCTIONS			
Sign./Date	AMI 990329						Drawing No61815-903:01				Page-
Appr./Date	BGZ 990329				Drawing remarks						



Note	A					Tetra Pak CompanyTETRA BRIK PACK. SYSTEM SPA	Designer AMI	Date 010130	Approved PGE	Date 010130	Doc.Class -	
ECN No.	73362						MachineTBA/21-0500	DenominationTPOP FUNCTIONS				
Sign./Date	AMI 010130						Drawing No61815-904:04					Page-
Appr./Date	PGE 010130				Drawing remarks							



Note	A					Tetra Pak CompanyTETRA BRIK PACK. SYSTEM SPA	Designer AMI	Date 990329	Approved BGZ	Date 990329	Doc.Class -
ECN No.	71072						Machine TBA/21-0500	Denomination HEADSPACE BY INJECTION			
Sign./Date	AMI 990329						Drawing No 61815-905:01				Page -
Appr./Date	BGZ 990329										



Note	A				1. 220V. SUPPLY FROM THE DAIRY	Designer AMI	Date 010130	Approved PGE	Date 010130	Doc.Class -
ECN No.	73362				2. CONNECT TO THE GLAND	Machine	TBA/21-0500	Denomination	TPOP COMMUNICATIONS	
Sign./Date	AMI 010130					Company	TETRA BRIK PACK. SYSTEM SPA	Drawing No	61815-906:04	Page -
Appr./Date	PGE 010130				Drawing remarks					

8 Mains connections diagrams

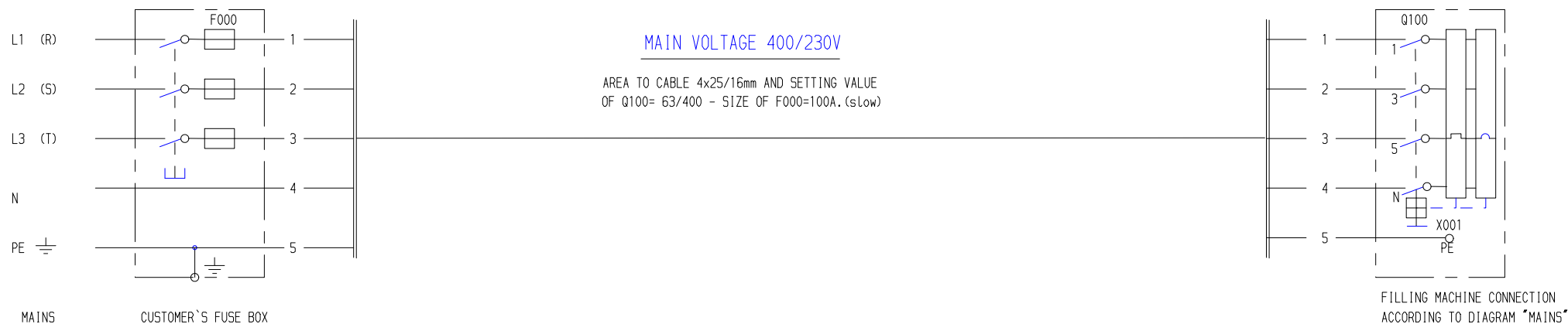
EM3.0TB085002en.fm

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Mains connection 61816-005:01

Mains connection 61816-006:01

EM3.0TB085002en.fm



FILLING MACHINE CONNECTION
ACCORDING TO DIAGRAM "MAINS"

Note	A				Tetra Pak Designer AMI Date 990329 Approved BGZ Date 990329 Doc. Class -	
ECN No.	71072					Machine TBA/21-0500 Denomination MAINS CONNECTIONS
Sign./Date	AMI 990329					Company TETRA BRIK PACK. SYSTEM SPA Drawing No 61816-005:01 Page -
Appr./Date	BGZ 990329			Drawing remarks		

Note	A				1. RECOMMENDED MAINS FUSE TO ACHIEVE SELECTIVITY	 Tetra Pak Company TETRA BRIK PACK. SYSTEM SPA	Designer AMI	Date 990329	Approved BGZ	Date 990329	Doc.Class -
ECN No.	71072						Machine TBA/21-0500	Denomination MATCHING TRANSFORMER			
Sign./Date	AMI 990329						Drawing No 61816-006:01	Page -			
Appr./Date	BGZ 990329				Drawing remarks						

9 Program documents

EM3.0TB095002en.fm

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PLC programme list	.48246-503:02
PLC programme list	.48246-006:02
PLC programme list	.48246-007:02
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PLC programme list	.48246-054:02
PLC programme list	.48246-056:02
PLC programme list	.48246-069:02
PLC programme list	.48246-070:02
PLC programme list	.48246-075:02

```

| [ START OF LD PROGRAM EC73362 ]      (* TBA/21 0410-0500          *)
| [ VARIABLE DECLARATIONS           ]
| [ BLOCK DECLARATIONS              ]

.001 INTR 0004 |T0004 |      LANG: LD  (* 4ms Fast scan          *)
+-----+
SUBR 1 |BLK_05 |      LANG: LD  (* Volume handling            *)
+-----+
SUBR 2 |BLK_501|      LANG: LD  (* Speed parameter          *)
+-----+
SUBR 3 |BLK_502|      LANG: LD  (* Volume parameters (vol.> 330ml) *)
+-----+
SUBR 30 |BLK_503|      LANG: LD  (* Volume parameters (vol.<= 330ml) *)
+-----+
SUBR 4 |BLK_06 |      LANG: LD  (* Data transfer              *)
+-----+
SUBR 5 |BLK_07 |      LANG: LD  (* System                      *)
+-----+
SUBR 6 |BLK_08 |      LANG: LD  (* Machine steps              *)
+-----+
SUBR 7 |BLK_10 |      LANG: LD  (* Temperature regulators/monitors *)
+-----+
SUBR 8 |BLK_20 |      LANG: LD  (* Automatic Splicing Unit (ASU) *)
+-----+
SUBR 9 |BLK_21 |      LANG: LD  (* Drive roller loop ASU       *)
+-----+
SUBR 10 |BLK_22 |      LANG: LD  (* Drive roller magazine ASU    *)
+-----+
SUBR 11 |BLK_23 |      LANG: LD  (* Strip applicator (SA)       *)
+-----+
SUBR 12 |BLK_24 |      LANG: LD  (* Peroxide system             *)
+-----+
SUBR 13 |BLK_25 |      LANG: LD  (* Sterile air system          *)
+-----+
SUBR 14 |BLK_26 |      LANG: LD  (* Drive roller aseptic chamber *)
+-----+
SUBR 15 |BLK_27 |      LANG: LD  (* Superstructure              *)
+-----+
SUBR 16 |BLK_28 |      LANG: LD  (* Filling                     *)
+-----+
SUBR 17 |BLK_29 |      LANG: LD  (* Design Correction System (DCS) *)
+-----+
SUBR 18 |BLK_30 |      LANG: LD  (* Jaw Unit(JUM) & Transv.Seal.(TS) *)
+-----+
SUBR 19 |BLK_32 |      LANG: LD  (* Package dumping             *)
+-----+

```

TBA/21-0410/0500
BLOCK: MAIN

```

+-----+
SUBR 20 |BLK_33 | LANG: LD (* Final Folder Unit (FFU) *)
+-----+

+-----+
SUBR 21 |BLK_50 | LANG: LD (* Cleaning CIP/EC *)
+-----+

+-----+
SUBR 22 |BLK_51 | LANG: LD (* Service system *)
+-----+

+-----+
SUBR 23 |BLK_53 | LANG: LD (* Option PT21 *)
+-----+

+-----+
SUBR 24 |BLK_54 | LANG: LD (* Option HI *)
+-----+

+-----+
SUBR 25 |BLK_56 | LANG: LD (* Option ASU in separate room *)
+-----+

+-----+
SUBR 29 |BLK_69 | LANG: LD (* Customer changes reserved *)
+-----+

+-----+
SUBR 26 |BLK_70 | LANG: LD (* Stop reasons *)
+-----+

+-----+
SUBR 27 |BLK_75 | LANG: LD (* TPOP communications *)
+-----+

```

```
[ START OF PROGRAM LOGIC ]
```

```

(*****
(* Block 05 "Volume handling" *)
(* -Determine present volume running on machine *)
(* -Set correct volume values *)
(*****

```

```

STEP_0                                     << RUNG 6 STEP #0003 >>
|M0100 +-----+
+--] [--+ CALL BLK_05 +
      || (SUBROUTINE)|
STEP_1 +-----+
|M0101 |
+--] [--+
      |
STEP_2 |
|M0102 |
+--] [--+
|

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M0100	BLK_05 STEP_0	Volume handling Step 0 Off

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M0101	STEP_1	Step 1 Preparation
%M0102	STEP_2	Step 2 Tube sealing

TBA/21-0410/0500
BLOCK: MAIN

```

(*****
* Block 06 "Data transfer"
* - Transfer data to TMCC AZAD,DCS
* - Transfer data to DMC main and DCS servo system
* - Transfer synch. position from PLC to DMC
*
* Block 07 "System"
* - Start sequence
* - Angle encoder check
* - Pulse generating
*
* Block 08 "Machine steps"
* - Step up/down pushbuttons
* - Step up conditions
* - Jump to machine steps
* - Set memorycells for machine steps
*
* Block 10 "Temperature regulators and monitors"
*****)

ALW_ON                                     << RUNG 8 STEP #0008 >>
%S0007 +-----+ +-----+ +-----+ +-----+
+--] [---+ CALL BLK_06 +-+ CALL BLK_07 +-+ CALL BLK_08 +-+ CALL BLK_10 +
      | (SUBROUTINE)| | (SUBROUTINE)| | (SUBROUTINE)| | (SUBROUTINE)|
      +-----+ +-----+ +-----+ +-----+

(*****
* Block 20 "Automatic splicing unit (ASU)"
*
* Block 21 "Drive roller loop ASU"
*
* Block 22 "Drive roller magazine ASU"
*
* Block 23 "Strip applicator (SA)"
*
*****)

ALW_ON                                     << RUNG 10 STEP #0014 >>
%S0007 +-----+ +-----+ +-----+ +-----+
+--] [---+ CALL BLK_20 +-+ CALL BLK_21 +-+ CALL BLK_22 +-+ CALL BLK_23 +
      | (SUBROUTINE)| | (SUBROUTINE)| | (SUBROUTINE)| | (SUBROUTINE)|
      +-----+ +-----+ +-----+ +-----+

(*****
* Block 24 "Peroxide system"
* - Heating/cooling peroxide
* - Peroxide handling
* - Spray sequence
* - Alarms Peroxide system
*
* Block 25 "Sterile air system"
* - Alarms Sterile air system
*
* Block 26 "Drive roller aseptic chamber"
* - Control of drive roller
*
*****)

ALW_ON                                     << RUNG 12 STEP #0020 >>
%S0007 +-----+ +-----+ +-----+
+--] [---+ CALL BLK_24 +-+ CALL BLK_25 +-+ CALL BLK_26 +
      | (SUBROUTINE)| | (SUBROUTINE)| | (SUBROUTINE)|
      +-----+ +-----+ +-----+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%S0007	ALW_ON		BLK_21	Drive roller loop ASU	
	BLK_06	Data transfer	BLK_22	Drive roller magazine ASU	
	BLK_07	System	BLK_23	Strip applicator (SA)	
	BLK_08	Machine steps	BLK_24	Peroxide system	
	BLK_10	Temperature regulators/monitors	BLK_25	Sterile air system	
	BLK_20	Automatic Splicing Unit (ASU)	BLK_26	Drive roller aseptic chamber	

TBA/21-0410/0500
BLOCK: MAIN

```

(*****
(* Block 27 "Superstructure"
(* - Tight tube
(* - Longitudinal sealing (LS)
(* - Alarms Superstructure
(*
(* Block 28 "Filling"
(* - Filling with TMCC
(* - A- and C-valve
(* - Alarms filling
(*
*****
ALW_ON
%S0007 +-----+ +-----+
+---] [---+ CALL BLK_27 +-+ CALL BLK_28 +
      | (SUBROUTINE)| | (SUBROUTINE)|
      +-----+ +-----+

(*****
(* Block 29 "Design Correction System (DCS)"
(* - Controls for servo system DCS
(* - Out of design counter
(* - Alarms Design Correction System
(*
(* Block 30 "Jaw Unit Module (JUM) and Transversal Sealing (TS)"
(* - Conditions to run main motor
(* - Controls for servo system JUM
(* - Jaw pressure and cutting
(* - Alarms Jaw unit module and transversal sealing
(* - Transversal Sealing (TS)"
(*
*****
ALW_ON
%S0007 +-----+ +-----+
+---] [---+ CALL BLK_29 +-+ CALL BLK_30 +
      | (SUBROUTINE)| | (SUBROUTINE)|
      +-----+ +-----+

(*****
(* Block 32 "Package dumping"
(* - Load dump values
(* - Load dump values for SA
(* - Shiftregisters package dumping
(* - Control of "drop chute"
(*
(* Block 33 "Final Folder Unit (FFU)"
(* - Alarms final folder unit
(*
*****
ALW_ON
%S0007 +-----+ +-----+
+---] [---+ CALL BLK_32 +-+ CALL BLK_33 +
      | (SUBROUTINE)| | (SUBROUTINE)|
      +-----+ +-----+

```

<< RUNG 14 STEP #0025 >>

<< RUNG 16 STEP #0029 >>

<< RUNG 18 STEP #0033 >>

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%S0007	ALW_ON	
	BLK_27	Superstructure
	BLK_28	Filling
	BLK_29	Design Correction System (DCS)

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
	BLK_30	Jaw Unit(JUM) & Transv.Seal.(TS)
	BLK_32	Package dumping
	BLK_33	Final Folder Unit (FFU)

TBA/21-0410/0500
BLOCK: MAIN

```

(*****
* Block 50 "Cleaning CIP/EC"
*)
(*****

STEP_0                                     << RUNG 20 STEP #0037 >>
%M0100 +-----+
+--] [---+ CALL BLK_50 +
      || (SUBROUTINE)|
STEP_1 +-----+
%M0101
+--] [---+

STEP_13
%M0113
+--] [---+

CLN_01
%M3065
+--] [---+

CLN_09
%M3073
+--] [---+

(*****
* Block 51 "Service systems"
* - Hour and package counter
* - "Kienzle" recorder
* - "Yokogawa" recorder for sterile parameters
* - Cooling systems (Machine and el. cabinet)
* - Hydraulic unit
* - Lubrication
* - Alarms service unit left and right
* - Alarms safety left and right
*)
(*****

ALW_ON                                     << RUNG 22 STEP #0044 >>
%S0007 +-----+
+--] [---+ CALL BLK_51 +
      || (SUBROUTINE)|
      +-----+

(*****
* Block 53 "Option PT21"
*)
(*****

OPT_PT                                     PT_RDY << RUNG 24 STEP #0047 >>
%M0119                                     %M1800
+--]/[---+------( )-- (* PT21, Ready for production *)

PT_RDY|
%M0897|
+--] [---+

PT21_BP|
%M0345|
+--] [---+

OPT_PT                                     << RUNG 25 STEP #0051 >>
%M0119 +-----+
+--] [---+ CALL BLK_53 +
      || (SUBROUTINE)|
FST_SCN +-----+
%M0001
+--] [---+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%S0007	ALW_ON		%I0119	OPT_PT	Option, PT/21
	BLK_50	Cleaning CIP/EC	%I0345	PT21_BP	From PT21, Bypass mode
	BLK_51	Service system	%M1800	PT_RDY	PT21, Ready for production
	BLK_53	Option PT21	%G0897	PT_RDY	From PT21, Ready for production
%M3065	CLN_01	Clean, External cleaning select	%M0100	STEP_0	Step 0 Off
%M3073	CLN_09	Clean, CIP select	%M0101	STEP_1	Step 1 Preparation
%S0001	FST_SCN		%M0113	STEP_13	Step 13 Cleaning

TBA/21-0410/0500
BLOCK: MAIN

```

(*****
* Block 54 "options"
* - Head Space by Injection (HI)
*)
*****
)

OPT_HI                                     << RUNG 27 STEP #0055 >>
%I0120 +-----+
+---] [---+ CALL BLK_54 +
          | (SUBROUTINE)|
          +-----+

(*****
* Block 56 "options"
* - Option ASU in separate room
*)
*****
)

OPT_ASR                                     << RUNG 29 STEP #0058 >>
%I0122 +-----+
+---] [---+ CALL BLK_56 +
          | (SUBROUTINE)|
          +-----+

(*****
* Block 69 "Customer Changes reserved"
*)
* Block reserved for changes made on field by Customer.
*)
*****
)

ALW_ON                                     << RUNG 31 STEP #0061 >>
%S0007 +-----+
+---] [---+ CALL BLK_69 +
          | (SUBROUTINE)|
          +-----+

(*****
* Block 70 "Stop reasons"
* - Protection stop
* - Short stop
* - Jump to machine step 0
* - Jump to machine step 5
* - Normal stop
* - End of production
*)
*****
)

ALW_ON                                     << RUNG 33 STEP #0064 >>
%S0007 +-----+
+---] [---+ CALL BLK_70 +
          | (SUBROUTINE)|
          +-----+

(*****
* Block 12 "TPOP communication"
* - Package counters
* - Alarm transfer
* - Step status signals
* - PLMS signals
*)
*****
)

ALW_ON                                     << RUNG 35 STEP #0067 >>
%S0007 +-----+
+---] [---+ CALL BLK_75 +
          | (SUBROUTINE)|
          +-----+

[      END OF PROGRAM LOGIC      ]

```

REFERENCE NICKNAME
 %S0007 ALW_ON
 BLK_54
 BLK_56
 BLK_69

REFERENCE DESCRIPTION
 Option HI
 Option ASU in separate room
 Customer changes reserved

REFERENCE NICKNAME
 BLK_70
 BLK_75
 %I0122 OPT_ASR
 %I0120 OPT_HI

REFERENCE DESCRIPTION
 Stop reasons
 TPOP communications
 Option, ASU in separate room
 Option, Headspace by injection

TBA/21-0410/0500
 BLOCK: MAIN

GLOBAL (%G) GLOBAL CROSS REFERENCES			
REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
%G0001	BLK_53	PT_VOL	To PT21, Volume parameter FBIO 6
%G0017	BLK_53	PT_TCOR	To PT21, Pull tab correction FBIO 8
%G0033	BLK_53	PT_PPWR	To PT21, Patch power FBIO 11
%G0049	BLK_53	PT_RPWR	To PT21, Reseal power FBIO 14
%G0081	BLK_53	PT_PST1	To PT21, Set point 1 pad FBIO 23
%G0113	BLK_53	PT_PS1H	To PT21, Alarm level S1 high pad FBIO 23
%G0129	BLK_53	PT_PS1L	To PT21, Alarm level S1 low pad FBIO 23
%G0273	BLK_53	PT_LWAC	To PT21, Left window active FBIO 6
%G0305	BLK_53	PT_RES	To PT21, Alarm reset -(M) 32
%G0306	BLK_53	PT_STEP	To PT21, TBA21 in step 1-14 -(M) 33
%G0307	BLK_53	PT_WTDG	To PT21, Watchdog -(SM) 26 -(RM) 25
%G0308	BLK_53	PT_MAGF	To PT21, Magazine full ASU -(M) 34
%G0309	BLK_53	PT_HWEB	To PT21, Paper web high speed -(M) 35
%G0310	BLK_53	PT_DCS	To PT21, Register mark DCS -(M) 36
%G0311	BLK_53	PT_LGHT	To PT21, Machine light -(M) 37
%G0312	BLK_53	PT_MAGE	To PT21, Magazine empty ASU -(M) 38
%G0313	BLK_53	PT_STUP	To PT21, Step up -(M) 39
%G0314	BLK_53	PT_041V	To PT21, 041V functionality -(M) 40
%G0315	BLK_53	PT_PREP	To PT21, TBA21 in step 1 -(M) 41
%G0513	BLK_75	PTL_AL1	From PT21, Alarm left 1 FBIO 179
%G0524	BLK_53	PTL_BYP	From PT21, Bypass mode -(M) 29
%G0528	BLK_53	PT_WADG	From PT21, Watchdog fault -(M) 30
%G0529	BLK_75	PTL_AL2	From PT21, Alarm left 2 FBIO 179
%G0545	BLK_75	PTR_AL1	From PT21, Alarm right 1 FBIO 180
%G0561	BLK_75	PTR_AL2	From PT21, Alarm right 2 FBIO 180
%G0577	BLK_53	PT_OFST	From PT21, Default pull tab corr FBIO 9
%G0593	BLK_53	PT_PDEF	From PT21, Default patch power FBIO 12
%G0609	BLK_53	PT_RDEF	From PT21, Default reseal power FBIO 15
%G0641	BLK_53	PT_PEL	From PT21, Process value el. cab FBIO 17
%G0657	BLK_53	PT_AHEL	From PT21, Alarm low el. cab. FBIO 17
%G0673	BLK_53	PT_ALEL	From PT21, Alarm high el. cab. FBIO 17
%G0689	BLK_53	PT_SET1	From PT21, Pad set point 1 FBIO 19
%G0721	BLK_53	PT_AL1H	From PT21, Pad alarm1 high FBIO 20
%G0737	BLK_53	PT_AL1L	From PT21, Pad alarm1 low FBIO 20
%G0849	BLK_53	PT_OUT	From PT21, Pad output value FBIO 21
%G0865	BLK_53	PT_PPAD	From PT21, Pad process value FBIO 21
%G0897	_MAIN	PT_REDY	From PT21, Ready for production -] [- 24
%G0899	BLK_32	PT_DUMP	From PT21, Dump packages -]/[- 37
%G0900	BLK_22	PT_PULL	From PT21, Pull paper -] [- 15 -]/[- 16
%G0901	BLK_51	PT_D_RF	From PT21, Door right front -] [- 157
%G0902	BLK_51	PT_D_RR	From PT21, Door right rear -] [- 158
%G0903	BLK_51	PT_D_L	From PT21, Door left -] [- 137

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BLOCK: MAIN

REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
%G0904	BLK_53	PT_WDOG	From PT21, Watchdog -] [- 25,27 -]/[- 26,28
%G0905	BLK_10	PT_BW	From PT21, Broken wire -]/[- 207
%G0906	BLK_27	PT_TBFO	From PT21, Tab folder ON -] [- 61
%G0908	BLK_20	PT_REGM	From PT21, Register mark -] [- 91
%G0909	BLK_51	PT_SSEL	From PT21, Srv func. rdy start -] [- 92
%G0910	BLK_20	PT_SACT	From PT21, Srv func. active -] [- 24,26 -] [- 5 -]/[- 5,19 -]/[- 22 -] [- 5,7 -] [- 93 -]/[- 92
	BLK_21		
	BLK_22		
	BLK_23		
	BLK_51		

 INPUT (%I) GLOBAL CROSS REFERENCES

REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
%I0001	1T0004	ENC_01	Encoder bit 1 (LSB) -] [- 14 -]/[- 14 FBI0 5
%I0002	1T0004	ENC_02	Encoder bit 2 -] [- 13 -]/[- 13
%I0003	1T0004	ENC_03	Encoder bit 3 -] [- 12 -]/[- 12
%I0004	1T0004	ENC_04	Encoder bit 4 -] [- 11 -]/[- 11
%I0005	1T0004	ENC_05	Encoder bit 5 -] [- 10 -]/[- 10
%I0006	1T0004	ENC_06	Encoder bit 6 -] [- 9 -]/[- 9
%I0007	1T0004	ENC_07	Encoder bit 7 -] [- 8 -]/[- 8
%I0008	1T0004	ENC_08	Encoder bit 8 (MSB) -] [- 7 -] [- 25 -]/[- 25
	BLK_70		
%I0009	1T0004	B6105	Pkg. mtrl. splice detect ASU -]/[- 21
%I0010	1T0004	B1403	Pkg. mtrl. splice detect column -]/[- 23
%I0011	1T0004	B4104	Main cam, Volume sensor -] [- 18
%I0012	1T0004	B5203	FFU, Infeed station rot. mon. -] [- 61
%I0013	1T0004	B5302	FFU, Pressure device rot. mon. -] [- 60,62,73
%I0014	1T0004	B5314	FFU, Station wheel rot. mon. -] [- 60,63,73
%I0015	1T0004	B6208	SA, Strip break rotation monitor -] [- 77
%I0016	1T0004		FBI0 5
%I0017	BLK_10	BW_1106	Broken wire Heat sterilization -]/[- 150,151,206 -]/[- 23
	BLK_70		
%I0018	BLK_10	BW_1222	Broken wire Peroxide bath -]/[- 27,139,140,144,206 -]/[- 23
	BLK_70		
%I0019	BLK_10	BW_1208	Broken wire Water bath -]/[- 17,18,19,20,21,26,206 -]/[- 23
	BLK_70		
%I0020	BLK_10	BW_1212	Broken wire Peroxide tank -]/[- 43,44,45,46,47,48,52,206 -]/[- 30,31 -]/[- 23
	BLK_24		
	BLK_70		
%I0021	BLK_10	BW_1109	Broken wire Top aseptic chamber -]/[- 206 -]/[- 23
	BLK_70		
%I0022	BLK_10	BW_1209	Broken wire W-H2O2 heat exc. -]/[- 198,201,206 -]/[- 30,31 -]/[- 24
	BLK_24		
	BLK_70		
%I0023	BLK_10	BW_1105	Broken wire Air super heater -]/[- 121,122,126,206 -]/[- 23
	BLK_70		

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 BLOCK: MAIN

REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
%I0024	BLK_10	BW_1310	Broken wire Steam C-valve -]/[- 187,206 -]/[- 23
%I0033	BLK_70	BW_5307	Broken wire Flap heat top left -]/[- 67,72,206 -]/[- 23
%I0034	BLK_10	BW_5308	Broken wire Flap heat top right -]/[- 87,90,207 -]/[- 24
%I0035	BLK_70	BW_5309	Broken wire Flap heat bott.L/R -]/[- 105,108,207 -]/[- 24
%I0037	BLK_10	BW_2510	Broken wire Cool.circ water -]/[- 171,207 -]/[- 24
%I0038	BLK_70	BW_001	Broken wire Cool electrical cab -]/[- 179,207
%I0039	BLK_10	BW_9106	Broken wire H.I. spray -]/[- 193,207 -]/[- 24
%I0113	BLK_70	OPT_001	Option, Spare FBI0 6
%I0114	BLK_50	OPT_SUP	Option, CIP supervision -]/[- 15,16
%I0116	BLK_51	OPT_ICE	Option, Cooling system ice water -]/[- 122
%I0117	BLK_27	OPT_EDU	Option, External date unit -]/[- 60 -]/[- 39
%I0119	BLK_33	OPT_PT	Option, PT/21 -]/[- 25 -]/[- 24
	BLK_502		-]/[- 13,15,28,30,32,34,45,47,58,60,71,73 -]/[- 11,26,43,56,69
	BLK_503		-]/[- 13,15,26,28,39,41,52,54 -]/[- 11,24,37,50
	BLK_20		-]/[- 92 -]/[- 92
	BLK_22		-]/[- 15,16
	BLK_32		-]/[- 37
	BLK_75		-]/[- 179,180 -]/[- 181
%I0120	_MAIN	OPT_HI	Option, Headspace by injection -]/[- 27 -]/[- 195 -]/[- 207
	BLK_10		-]/[- 24
%I0121	BLK_70	OPT_041	Option, 041V functionality -]/[- 24,32,34 -]/[- 23,26,28,30
	BLK_502		-]/[- 44 -]/[- 43
	BLK_21		-]/[- 60 -]/[- 61
	BLK_27		-]/[- 42,48
	BLK_32		-]/[- 39
	BLK_33		-]/[- 39
	BLK_50		-]/[- 5,12
	BLK_53		-]/[- 34,40
	BLK_75		-]/[- 95
%I0122	_MAIN	OPT_ASR	Option, ASU in separate room -]/[- 29 -]/[- 13,76,83,88
	BLK_20		-]/[- 13,76,83,88
	BLK_23		-]/[- 55 -]/[- 55
	BLK_32		-]/[- 42,48
	BLK_51		-]/[- 130,148,149 -]/[- 130,148,149
	BLK_75		-]/[- 98,100,102 -]/[- 98,100,102
%I0127	BLK_28	OPT_MF	Option, Magnetic floater -]/[- 30,31,32,36,37,47,61 -]/[- 33,34,35,48,62
	BLK_54		-]/[- 24 -]/[- 25
%I0129	BLK_08	A600_14	Emergency Stop -]/[- 6 -]/[- 41,45
	BLK_29		-]/[- 16
	BLK_30		-]/[- 9,11,61,63,88
	BLK_50		-]/[- 30,40,51,75,76 -]/[- 73
	BLK_51		-]/[- 43
	BLK_70		-]/[- 55,170
%I0130	BLK_75	A601_34	Safety monitor door guards -]/[- 46 -]/[- 37
	BLK_30		-]/[- 8,11,61,63

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BLOCK: MAIN

REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
	BLK_51		-] [- 20,75,76 -]/[- 73
	BLK_70		-] [- 11
	BLK_75		-]/[- 57
%I0131	BLK_07	A602_34	Safety monitor door guards ASU -]/[- 88,89,90,91
	BLK_20		-] [- 5,11,32,39,45,61 -]/[- 27,32,77,78
	BLK_21		-] [- 5
	BLK_22		-] [- 7
	BLK_51		-]/[- 8 -] [- 20 -]/[- 130
%I0132	BLK_30	A603_34	Safety time relay main motor -]/[- 43
	BLK_50		-] [- 7,10,13
	BLK_51		-] [- 88 -] [- 78 -]/[- 76
%I0133	BLK_08	B1504	A. chamber top door, Closed -] [- 9,10,14,17
	BLK_26		-] [- 6
	BLK_30		-] [- 9
	BLK_50		-] [- 61,63
	BLK_51		-] [- 131,150 -]/[- 151 -]/[- 57
%I0134	BLK_08	B1505	A. chamber top front door,Closed -] [- 9,12,14,17
	BLK_30		-] [- 9
	BLK_50		-] [- 62,63,89
	BLK_51		-] [- 131 -]/[- 150 -]/[- 57
%I0135	BLK_08	B1506	A. chamber front doors, Closed -] [- 9,12,14,17
	BLK_30		-] [- 9
	BLK_50		-] [- 9,12,62,63,89
	BLK_51		-]/[- 131,150 -]/[- 57
%I0136	BLK_08	B1225	Per. bath bottom cover, Closed -] [- 14
	BLK_24		-] [- 21
	BLK_51		-]/[- 139
%I0137	BLK_51	B005	Electrical cabinet doors, Closed -] [- 38
%I0138	BLK_08	F019_14	Main power servo system, Monitor -] [- 8
	BLK_30		-] [- 16
	BLK_51		-]/[- 20 -]/[- 123
%I0139	BLK_51	F026_14	Summary, Overload -]/[- 117
%I0140	BLK_20	A412_19	Drive roller loop, Overload -]/[- 8,102
%I0141	BLK_20	A413_19	Drive roller magazine, Overload -]/[- 8,103
%I0142	BLK_08	L12	24V DC monitor L12 -] [- 6
	BLK_51		-]/[- 121
%I0143	BLK_08	L14	24V DC monitor L14 -] [- 6
	BLK_51		-]/[- 121
%I0144	BLK_08	Z002	Transient Main Failure -] [- 6
	BLK_51		-]/[- 97
%I0145	BLK_29	A506_29	DMC Main motor, Fault -] [- 41,45
	BLK_30		-] [- 7,10,13,25
	BLK_50		-]/[- 45
%I0146	BLK_06	A506_31	DMC Main motor, Data request -] [- 6,7
			-]/[- 9
%I0147	BLK_29	A506_32	DMC Main motor, Volume trans. OK -] [- 41,45
	BLK_30		-] [- 7,10,13,25
	BLK_50		-] [- 88
%I0148	1T0004	A506_33	DMC Main motor, Running -] [- 31
	BLK_07		-]/[- 73,75
	BLK_08		-] [- 18,21,104
	BLK_20		-]/[- 6,13,19,103
	BLK_21		-] [- 28,44,48
			-]/[- 14,17,18,19,30,32,38,44,49
			-] [- 92,98
			-]/[- 39
			-] [- 22,27
			-]/[- 13

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BLOCK: MAIN

REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
	BLK_22		-] [- 26
	BLK_24		-] / [- 54
	BLK_29		-] / [- 32, 36, 43, 47
	BLK_30		-] [- 40
			-] / [- 20, 25, 42, 68, 78, 87
	BLK_32		-] [- 59, 61
	BLK_33		-] [- 15, 16, 18, 20, 22
			-] / [- 29
	BLK_50		-] / [- 92
	BLK_51		-] [- 8, 9, 56
			-] / [- 130, 148, 149
	BLK_53		-] [- 38
	BLK_70		-] / [- 38
	BLK_75		-] [- 10, 21, 39
%I0149	BLK_30	A506_34	DMC Main motor, Synch. ready
			-] [- 36
			-] / [- 44
%I0152	BLK_29	A507_29	DMC Right DCS, Fault
			-] [- 9, 45
			-] / [- 30
%I0153	BLK_08	A507_32	DMC Right DCS, Home pos. found
			-] [- 10, 23, 32
	BLK_29		-] [- 32, 45
	BLK_50		-] [- 88
%I0154	BLK_06	A507_33	DMC Right DCS, Data request
			-] [- 6, 7
			-] / [- 9
%I0158	BLK_29	A508_29	DMC Left DCS, Fault
			-] [- 10, 41
			-] / [- 30
%I0159	BLK_08	A508_32	DMC Left DCS, Home pos. found
			-] [- 10, 23, 32
	BLK_29		-] [- 36, 41
	BLK_50		-] [- 88
%I0160	BLK_06	A508_33	DMC Left DCS, Data request
			-] [- 6, 7
			-] / [- 9
%I0164	BLK_06	A418_21	TMCC DCS, Enabled
			-] / [- 68
	BLK_08		-] [- 10, 25
%I0165	BLK_06	A418_23	TMCC DCS, Data request
			-] [- 20, 21
			-] / [- 23
%I0166	BLK_07	A418_31	TMCC DCS, Register mark signal
			-] [- 66
	BLK_28		-] [- 22
			-] / [- 23
	BLK_32		-] [- 37
%I0167	BLK_29	A418_32	TMCC DCS, Design OK
			-] [- 15, 18
			-] / [- 18
%I0170	BLK_07	A419_27	TMCC AF, ASU Registermark signal
			-] [- 67
	BLK_20		-] [- 37, 40
			-] / [- 15, 16, 17
%I0171	BLK_07	A419_29	TMCC AF-DUINK, PH, Reg. mark signal
			-] [- 68
%I0173	BLK_06	A419_31	TMCC AF, Data request
			-] [- 20, 21
			-] / [- 23
%I0174	BLK_06	A419_32	TMCC AF, Enabled
			-] / [- 69
	BLK_08		-] [- 10, 26
%I0177	BLK_24	A300_18	Peroxide spray tank, Level
			-] [- 71, 75, 77
			-] / [- 75, 77
%I0178	BLK_24	A301_18	Peroxide bath, Level
			-] [- 40, 41
			-] / [- 41
%I0179	BLK_08	A302_18	Water separator, Level
			-] / [- 14
	BLK_25		-] [- 73
			-] / [- 72
%I0180	BLK_08	A303_18	Water bath, Level
			-] [- 16, 21
	BLK_24		-] [- 15, 32
			-] / [- 82
%I0181	BLK_24	A306_18	Peroxide tank, Level at preheat.
			-] [- 94
			-] / [- 45
%I0182	BLK_24	A307_18	Peroxide tank, Level safety
			-] [- 50, 94
			-] / [- 49, 94
%I0183	BLK_08	A308_18	Peroxide tank, Level at prod.
			-] [- 16
	BLK_24		-] / [- 20, 47, 54, 94
%I0184	BLK_51	A304_18	Cooling water, Conductivity
			-] [- 32
%I0187	BLK_27	A501_23	TPIH Generator LS, Fault

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BLOCK: MAIN

REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
			-]/[- 28
%I0188	BLK_30	A502_23	TPIH Generator TS, Fault
			-]/[- 83
%I0189	BLK_26	A410_19	Drive roller A.C., overload
			-]/[- 14
%I0190	BLK_20	A741723	TPIH Generator ASU/SA, Fault
			-]/[- 89
	BLK_23		-]/[- 87
			-]/[- 56
			-]/[- 54
%I0193	BLK_75	S901	TPOP Reset
			-]/[- 92,137
%I0194	BLK_07	S902	Lamp test
			-]/[- 7,8,10,11
	BLK_70		-]/[- 16
	BLK_75		-]/[- 95,96,97,99,101,135
			-]/[- 96
%I0195	BLK_07	S903	Mode selector
			-]/[- 10,11
			-]/[- 10,11
	BLK_30		-]/[- 29
			-]/[- 32
	BLK_70		-]/[- 25
			-]/[- 25
%I0196	BLK_33	S904	Station chain sprinkler
			-]/[- 37
%I0197	BLK_07	S905	Inching final folder
			-]/[- 13,18,62
			-]/[- 19
	BLK_08		-]/[- 34
	BLK_30		-]/[- 19,29,32
			-]/[- 10,12
%I0198	BLK_32	S906	Drop chute off
			-]/[- 59
	BLK_75		-]/[- 39
%I0199	BLK_07	S907	Inching JUM and FFU
			-]/[- 13,18,21,63
			-]/[- 19
	BLK_08		-]/[- 34
	BLK_10		-]/[- 27
			-]/[- 53,136
	BLK_21		-]/[- 12
	BLK_22		-]/[- 7
	BLK_24		-]/[- 29,39
			-]/[- 17,30,31,38,42
	BLK_28		-]/[- 45
	BLK_29		-]/[- 43,47
	BLK_30		-]/[- 12,19,27,30,77
			-]/[- 6,27
	BLK_53		-]/[- 39
%I0200	BLK_50	S908	Short stop
			-]/[- 103
	BLK_70		-]/[- 25
	BLK_75		-]/[- 46,48
%I0201	BLK_07	S911	Step up
			-]/[- 21,59,60
	BLK_08		-]/[- 29,40,51,54,55
			-]/[- 39,46
	BLK_21		-]/[- 12
	BLK_22		-]/[- 7
	BLK_24		-]/[- 38,42
	BLK_27		-]/[- 6
	BLK_28		-]/[- 65
	BLK_29		-]/[- 42,46
			-]/[- 43,47
	BLK_50		-]/[- 94,104
			-]/[- 92
	BLK_51		-]/[- 52,55
	BLK_53		-]/[- 39
	BLK_75		-]/[- 52
			-]/[- 46
%I0202	BLK_07	S912	Step down
			-]/[- 61
			-]/[- 42
	BLK_75		-]/[- 46,52
%I0205	BLK_28	S904	Cleaning steam barrier space
			-]/[- 43
%I0206	BLK_07	S903	Service switch
			-]/[- 64,65
			-]/[- 75
	BLK_08		-]/[- 19,22,23,24,25,38,46
			-]/[- 30,40,44
	BLK_10		-]/[- 164
	BLK_20		-]/[- 84
			-]/[- 14,17,32
	BLK_23		-]/[- 40
	BLK_24		-]/[- 5,23,41,44,46
	BLK_25		-]/[- 5,7,75,90
	BLK_27		-]/[- 11,36,57

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BLOCK: MAIN

REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
			-]/[- 21,34
	BLK_28		-]/[- 62,80
	BLK_29		-]/[- 25
	BLK_30		-]/[- 9,10,12,34
	BLK_33		-]/[- 7
	BLK_51		-]/[- 11,14,16,18,87
	BLK_53		-]/[- 35
	BLK_54		-]/[- 23
			-]/[- 22
	BLK_70		-]/[- 18
			-]/[- 27,44,46
	BLK_75		-]/[- 107,150
			-]/[- 142,143
%I0211	BLK_06	A420_31	TMCC Filling, Str.flow data com.
			-]/[- 59
%I0212	BLK_28	A420_25	TMCC Filling, High level
			-]/[- 56
	BLK_75		-]/[- 27
%I0213	BLK_28	A420_26	TMCC Filling, Low level
			-]/[- 56
	BLK_75		-]/[- 27
%I0214	BLK_28	A420_27	TMCC Filling, Filling OK
			-]/[- 57
			-]/[- 57
	BLK_29		-]/[- 12,15
	BLK_30		-]/[- 89
	BLK_32		-]/[- 19
	BLK_75		-]/[- 27
%I0215	BLK_06	A420_28	TMCC Filling, Enabled
			-]/[- 34,35,36
			-]/[- 70
	BLK_08		-]/[- 10,26
%I0216	BLK_06	A420_32	TMCC Filling, Data request
			-]/[- 33,38
			-]/[- 40,49,55
	BLK_28		-]/[- 38
%I0217	BLK_30	K124_3	Ctrl.of press. LE jaw catch ON
			-]/[- 62
			-]/[- 62
%I0218	BLK_30	K124_7	Ctrl.of press. RI jaw catch ON
			-]/[- 65
			-]/[- 65
%I0219	BLK_08	B4102	JUM, Crank position
			-]/[- 6
	BLK_51		-]/[- 79,141
%I0220	1T0004	B5104	FFU, Crank position
			-]/[- 73
	BLK_08		-]/[- 6
	BLK_51		-]/[- 79,142
%I0221	BLK_30	K134_3	Ctrl.of press. LE jaw catch OFF
			-]/[- 63
			-]/[- 62
%I0222	BLK_30	K134_7	Ctrl.of press. RI jaw catch OFF
			-]/[- 66
			-]/[- 65
%I0225	BLK_07	EXT_01	Dairy, Ready for production
			-]/[- 75
	BLK_08		-]/[- 22,25
	BLK_28		-]/[- 49,80
%I0226	BLK_08	EXT_02	DE, Equipment Ready
			-]/[- 20
	BLK_33		-]/[- 52
%I0227	BLK_50	EXT_03	CIP Done
			-]/[- 14,57,83
%I0228	BLK_50	EXT_04	CIP running
			-]/[- 15,18,51,56
			-]/[- 23,50,57,76,78,80
%I0233	BLK_50	A414_4	PH alkali OK CIP
			-]/[- 79
			-]/[- 77,82
%I0235	BLK_50	A414_20	Temperature OK CIP
			-]/[- 79
			-]/[- 82
%I0241	BLK_51	B2102	Cold water regulator
			-]/[- 115
%I0242	BLK_08	B2201	Main air, Pressure
			-]/[- 7
	BLK_27		-]/[- 16
	BLK_28		-]/[- 64
	BLK_29		-]/[- 41,45
	BLK_50		-]/[- 88
	BLK_51		-]/[- 116
%I0243	BLK_50	B3102	Pumping water
			-]/[- 109
			-]/[- 109
%I0244	BLK_50	B3105	Dosing chemicals
			-]/[- 161
%I0245	BLK_27	B1502	Movable squeegee roller
			-]/[- 55

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BLOCK: MAIN

REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
%I0246	BLK_51 BLK_25	B1111	-]/[- 16 Preheating valve -] [- 24 -]/[- 24
%I0247	BLK_25	B1103	Aseptic chamber, Air pressure -]/[- 7,91
%I0248	BLK_25	B1102	Separator, Air pressure -] [- 11,12,13,20 -]/[- 7,97
%I0249	BLK_28	B1301	A - Valve, Position -] [- 41 -]/[- 41
%I0250	BLK_25	B1302	B - Valve, Position -] [- 65 -]/[- 65
%I0251	BLK_28	B1303	C - Valve, Position -] [- 52 -]/[- 52
%I0252	BLK_50	B1306	Cleaning pipe infeed, Position -] [- 8,295 -]/[- 61,295
%I0253	BLK_08 BLK_50	B1307	Sterile air pipe, Position -] [- 15 -] [- 61 -]/[- 296
%I0254	BLK_08 BLK_50	B1308	B - Valve pipe, Position -] [- 15 -] [- 8,61 -]/[- 297
%I0255	BLK_08 BLK_50	B13111	CIP Valve D, Position -] [- 15 -] [- 26 -]/[- 26
%I0256	BLK_08 BLK_50	B13112	CIP Valve E, Position -] [- 15 -] [- 27 -]/[- 27
%I0257	BLK_08 BLK_50	B13113	CIP Valve F, Position -] [- 15 -] [- 28 -]/[- 28
%I0258	BLK_07	B1404	Column, Rotation monitor -] [- 70
%I0259	BLK_25	B1241	Butterfly valve restriction ON -] [- 85 -]/[- 85
%I0260	BLK_27	B1240	SUP, lower forming ring up -] [- 17,19 -]/[- 17,19
%I0261	BLK_50	B3116	Column, Cleaning Ball/Lid -] [- 116,151 -]/[- 114,116
%I0262	BLK_08 BLK_28	B1321	Regulating valve, Position -]/[- 12 -] [- 16 -]/[- 16
%I0263	BLK_08 BLK_28 BLK_50	A305_18	Regulating valve, Leakage -]/[- 14 -] [- 75 -]/[- 8,11
%I0264	BLK_25	B1242	Butterfly valve restriction OFF -] [- 85 -]/[- 85
%I0265	BLK_51	B006	Cooling media el cab., Circ&temp -] [- 38 -]/[- 111
%I0266	BLK_51	B2501	Cooling water, Circulation -] [- 25 -]/[- 23
%I0267	BLK_51	B2541	Cooling media, Low/high press. -] [- 31 -]/[- 122
%I0268	BLK_51	B2310	Hydraulic oil, Filter -] [- 49 -]/[- 48
%I0269	BLK_08 BLK_51	B2320_2	Hydraulic oil, Temperature -] [- 10 -] [- 40,51 -]/[- 107
%I0270	BLK_51	B2320_3	Hydraulic oil, High level -] [- 42 -]/[- 41
%I0271	BLK_08 BLK_51	B2320_4	Hydraulic oil, Low level -] [- 11 -] [- 41,42 -]/[- 43,106
%I0272	BLK_50	B1317	Cleaning pipe outfeed, Position -] [- 8,11,294 -]/[- 61,63,294

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BLOCK: MAIN

REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
%I0273	BLK_23	B6207	SA, Strip break -] [- 46 -]/[- 49 -]/[- 10
%I0274	BLK_56 BLK_23	B6201	SA, End bobbin 1 -] [- 41
%I0275	BLK_23	B6202	SA, End bobbin 2 -] [- 41
%I0277	BLK_07	B6107	SA, Rotation monitor -] [- 79
%I0278	BLK_20 BLK_22	B72232	ASU, Magazine down -] [- 21,94 -] [- 16,17,29,37,40 -]/[- 22,28,36,39 -] [- 34
%I0279	BLK_22	B72233	ASU, Magazine upper -] [- 15
%I0280	BLK_20	B72234	ASU, Magazine empty -] [- 7,98 -] [- 38
%I0281	BLK_53 BLK_07	B7411	ASU, Material holder 1 down -] [- 99 -]/[- 58
%I0282	BLK_07	B7414	ASU, Material holder 2 down -] [- 99 -]/[- 58
%I0283	BLK_20 BLK_07	B7412	ASU, Side feeder position 1 -] [- 90,91,97,98 -] [- 15,16,23,24,27,28,32,61 -]/[- 26
%I0284	BLK_07 BLK_20	B7512	ASU, Side feeder position 2 -] [- 88,89,97,98 -] [- 15,16,25,26,27,28,32,61 -]/[- 24
%I0285	BLK_07 BLK_20	S7402	ASU, Manual start -] [- 96 -] [- 32 -]/[- 32
%I0286	BLK_23	S6206	SA, Manual start -] [- 29,52
%I0287	BLK_70	S7701	Short Stop -] [- 25 -]/[- 46,48
%I0288	BLK_75 BLK_20	S7901	ASU, alarm reset -] [- 13,76,83,88 -] [- 55 -] [- 6,7,22,28,34,36,57
%I0289	BLK_56 BLK_07	S7303	ASU, Material lock -] [- 87 -] [- 27
%I0290	BLK_20 BLK_21	B721112	ASU, Adjustment loop -] [- 13,28,36,39 -]/[- 12,16,17,20,29,37,40
%I0291	BLK_20	B740112	ASU, Pkg. material reel 1 empty -] [- 30 -]/[- 27
%I0292	BLK_20	B750112	ASU, Pkg. material reel 2 empty -] [- 31 -]/[- 27
%I0293	BLK_20 BLK_22 BLK_23 BLK_51 BLK_56	B7801	SA, Door guard, SA -] [- 11 -] [- 7 -]/[- 8 -] [- 30,41 -]/[- 42,53 -] [- 20 -]/[- 148 -]/[- 45
%I0294	BLK_21 BLK_22	B721012	ASU, Loop empty -]/[- 22 -] [- 19 -]/[- 13
%I0295	BLK_20	B7423	ASU, Material holder 1 up -] [- 23,54,70
%I0296	BLK_20	B7424	ASU, Material holder 2 up -] [- 25,54,70
%I0297	BLK_30	B4200	JUM, Hold down device -]/[- 95
%I0298	BLK_51	B2401	Lubrication, Pressure -] [- 70,71 -]/[- 68
%I0300	BLK_51	B2410_2	Lubrication oil tank, Low level -]/[- 65,66,103
%I0301	BLK_30	B4201	Left jaw, Overload -]/[- 96
%I0302	BLK_30	B4202	Right jaw, Overload -]/[- 100
%I0303	BLK_08	B1305	Cleaning sleeve, Position -]/[- 11

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BLOCK: MAIN

REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
	BLK_50		-] [- 8,11,35,293 -]/[- 46,61,63,293
%I0304	BLK_51	B2330	Hydraulic oil, low pressure -]/[- 46
%I0305	BLK_29	B4315	DCS left, Home position -]/[- 37,38
%I0306	BLK_29	B4316	DCS right, Home position -]/[- 33,34
%I0307	BLK_30	B4317	Tube support, Position -]/[- 74
%I0310	BLK_33	B5103	FFU, Home position -]/[- 30
%I0311	BLK_33	B5401	FFU, Outfeed fr.station overload -]/[- 45
%I0312	BLK_33	B5402	Package counter after FFU -] [- 33 -] [- 9 -] [- 10
%I0313	BLK_75	EXT_08	Package counter last point DE 1 -] [- 17
%I0314	BLK_33	EXT_09	External conveyor cong. guard 1 -] [- 27 -]/[- 24
%I0315	BLK_33	EXT_15	External conveyor cong. guard 2 -] [- 27 -]/[- 24
%I0316	BLK_75	EXT_16	Package counter last point DE 2 -] [- 17
%I0317	BLK_33	EDU_00	External date unit, Ready -]/[- 39
%I0321	BLK_51	S001	Emergency Stop El. Cabinet -] [- 135,136,152,153,154,155,159 -]/[- 156
%I0322	BLK_51	S005	Emergency Stop El. Cabinet -] [- 152,153,154,155 -]/[- 156,159
%I0323	BLK_51	S1801	Emergency Stop Front Platform -] [- 135,136,152,153,154 -]/[- 155,156,159
%I0324	BLK_51	S1802	Emergency Stop Top Platform -] [- 135,152,153,154 -]/[- 136,155,156,159
%I0325	BLK_51	S2803	Emergency Stop Right Side Panel -] [- 135,152,153 -]/[- 136,154,155,156,159
%I0326	BLK_51	S2804	Emergency Stop Left Side Panel -] [- 152,153 -]/[- 135,136,154,155,156,159
%I0328	BLK_51	S7813	Emergency Stop ASU Back -] [- 152 -]/[- 135,136,153,154,155,156,159
%I0329	BLK_51	S900	Emergency Stop Control Panel -] [- 79 -]/[- 135,136,152,153,154,155,156,159
%I0330	BLK_51	B2805	Door guard, Front -] [- 126,127,128,129,144,145,146,147 -]/[- 133
%I0331	BLK_51	B2810	Door guard, FFU front right -] [- 126,127,128,129,145,146,147 -]/[- 133,144
%I0332	BLK_51	B2811	Door guard, FFU right -] [- 126,127,128,129,146,147 -]/[- 133,144,145
%I0333	BLK_51	B2812	Door guard, JUM right -] [- 126,127,128,129,147 -]/[- 133,144,145,146
%I0334	BLK_51	B2813	Door guard, Drive right -] [- 126,127,128,129 -]/[- 133,144,145,146,147
%I0335	BLK_51	B2830	Door guard, FFU front left -] [- 127,128,129 -]/[- 126,133,144,145,146,147
%I0336	BLK_51	B2831	Door guard, FFU left -] [- 128,129 -]/[- 126,127,133,144,145,146,147
%I0337	BLK_51	B2832	Door guard, JUM left -] [- 129 -]/[- 126,127,128,133,144,145,146,147
%I0338	BLK_51	B2833	Door guard, Drive left -] [- 79 -]/[- 126,127,128,129,134,144,145,146,147
%I0339	BLK_51	B7805	Door guard, ASU Top -] [- 130,149 -]/[- 132 -] [- 41,43
%I0340	BLK_51	B7806	Door guard, ASU right -] [- 130 -]/[- 149 -] [- 43
	BLK_56		

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BLOCK: MAIN

REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
%I0345	_MAIN	PT21_BP	-]/[- 41 From PT21, Bypass mode
	BLK_502		-] [- 24 -] [- 13,28,32,45,58,71
	BLK_503		-]/[- 15,30,34,47,60,73 -] [- 13,26,39,52
	BLK_20		-]/[- 15,28,41,54 -] [- 92
	BLK_22		-]/[- 92 -] [- 15
	BLK_32		-]/[- 15 -]/[- 37
	BLK_53		-] [- 29
%I0353	BLK_54	A309_18	H.I. Level peroxide tank -] [- 12,15,16 -]/[- 15,16
%I0354	BLK_54	B9104	H.I. Pressure guard -]/[- 9
%I0355	BLK_54	B9107	No H.I. -]/[- 5,38
%I0356	BLK_54	B9108	H.I. Spray nozzle pipe -] [- 29,43 -]/[- 8,32,33,36,41,46
%I0357	BLK_54	B9110	H.I. Production -] [- 34,44 -]/[- 8,29,34,42
%I0358	BLK_54	B9109	H.I. Cleaning -] [- 29,34 -]/[- 33,34,47
%I0995	BLK_53	COM_OK	Communication PT21 OK -]/[- 30

 OUTPUT (%Q) GLOBAL CROSS REFERENCES

REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
%Q0001	1T0004	Y4306	JUM left catch closed -() 55 FBIO 80 -] [- 72 -] [- 62 -]/[- 62
%Q0002	1T0004	Y4307	JUM right catch closed -() 57 -] [- 73 -] [- 65 -]/[- 65
%Q0003	1T0004	Y4308	JUM left catch open -() 56 -] [- 62 -]/[- 63
%Q0004	1T0004	Y4309	JUM right catch open -() 58 -] [- 65 -]/[- 66
%Q0007	1T0004	A506_14	DMC main motor, Speed change -() 33
%Q0008	1T0004	A502_20	TPIH Generator TS, Start -() 29 FBIO 80
%Q0016	1T0004	K002	Peroxide pump -() 21
%Q0114	BLK_26	K007	Drive roller aseptic chamber -() 6
%Q0115	BLK_21	K008	Drive roller loop ASU -] [- 24 -() 5
%Q0116	BLK_33	K010	External conveyor 1 -] [- 24,25 -]/[- 23 -() 21 -] [- 16
%Q0117	1T0004	K021	Hydraulic pump -] [- 55,57 -] [- 50 -] [- 45,47 -() 40
%Q0119	BLK_22	K036	Drive roller magazine ASU -] [- 19 -() 5
%Q0120	BLK_22	K122	Stop of jaw system -] [- 15 -]/[- 78 -() 38
%Q0121	BLK_51	Y2201	Main air -] [- 20 -() 20
%Q0122	BLK_33	K015	External conveyor 2

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 BLOCK: MAIN

REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
			-] [- 24
			-] / [- 21, 25
			- () 23
			-] / [- 16
%Q0129	BLK_75 BLK_50	K003	Cleaning Pump External Cleaning
			-] [- 109
			-] / [- 109
			- () 151
%Q0130	BLK_32	K009	FFU, Transport of waste
			-] [- 62
			- () 61
%Q0131	BLK_07	K120	DMC main motor, Software enable
			-] [- 71
			-] / [- 102
	BLK_30		-] [- 29, 32, 34, 36, 45
			-] / [- 23, 46, 56, 59
			- (S) 19
			- (R) 20
%Q0132	BLK_50	Y3101	Hot Water Supply
			-] [- 151
			- (S) 142, 143, 144, 145, 146, 147, 148, 149, 150
			- (R) 141
%Q0137	BLK_24	K001	Water Pump
			- () 15
%Q0138	BLK_30	K004	Main motor
			-] / [- 25
			- (S) 19
			- (R) 23
%Q0139	BLK_51	K011	Cooling electrical cabinet
			- () 38
%Q0140	BLK_25	K020	Compressor
			-] [- 13
			- () 12
%Q0141	BLK_51	K022	Circulation Cooling Water
			-] [- 31, 119
			- () 30
%Q0142	BLK_51	K023	Circulation Cooling Media
			- () 31
%Q0143	BLK_30	K024	DC-bus servo motors
			-] [- 17
			- () 16
%Q0144	BLK_29	K025	Delayed DC-bus servo motors
			-] [- 6, 29, 32, 34, 36, 38
	BLK_30		-] [- 46
			- () 17
%Q0145	BLK_24	K026	Water bath heating element n.1
			- () 15
%Q0146	BLK_24	K027	Water bath heating element n.2
			- () 15
%Q0147	BLK_25	K028	Air Super Heater
			-] [- 14
			- () 13
%Q0148	BLK_27	K029	TPIH generator LS
			-] [- 27
			- () 11
%Q0149	1T0004	K030	TPIH generator TS
			-] [- 29
	BLK_30		- () 76
%Q0150	BLK_23	K031	SA, Power splicing head
			-] [- 33
			- () 32
%Q0151	BLK_23	K032	TPIH generator ASU/SA
			- () 5
%Q0152	BLK_33	K033	FFU, Flap heating
			-] [- 11, 12, 13
			-] / [- 8
			- () 7
%Q0154	BLK_24	K12	PER, heat. el. 1-2 separate circ
			- () 30
%Q0155	BLK_24	K13	PER, heat. el. 2 separate circ.
			- () 31
%Q0156	BLK_24	K14	PER, water pump separate circuit
			-] [- 29, 30, 31
			- () 32
%Q0161	BLK_50	K100	CIP Recorder
			- () 59
%Q0162	BLK_51	K101	Prod. recorder, Ster. parameters
			- () 15
%Q0163	BLK_51	K102	Prod. recorder, Op. parameters
			- () 17
%Q0164	BLK_51	K104	Prod. recorder, Production time
			- () 18
%Q0165	BLK_20	K106	TPIH gen. ASU/SA, Power switch
			-] [- 100
			- (S) 66
			- (R) 67, 68
	BLK_22		-] / [- 19
	BLK_23		-] [- 17
			-] / [- 58

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BLOCK: MAIN

REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
%Q0166	BLK_51	K107	Light in machine -() 6
%Q0167	BLK_51	K108	Fan Circulation Air -() 37
%Q0169	BLK_51	K118	Alarm reset -] [- 84 -() 81
%Q0170	BLK_75	K121	Restart TPOP -() 137
%Q0171	BLK_20	K123	Connection of jaw system -] [- 92 -] / [- 7, 11 -] [- 38, 40 -() 36 -] [- 59
%Q0172	BLK_30	K124	Jaw Pressure Left and Right -] [- 61 -() 53
%Q0173	BLK_51	K126	Production Recorder -() 11
%Q0174	BLK_23	K130	L52 contr. voltage TPIH generat. -() 5
%Q0176	BLK_20	K7416	TPIH gen. ASU/SA, Inductor switch -(S) 66 -(R) 67, 68
%Q0177	BLK_06	A506_10	DMC, Data enable -] [- 7, 17, 18 -] / [- 16 -() 6
%Q0178	BLK_06	A506_08	DMC, Data clock -] [- 17 -(/) 17 -(S) 16
%Q0179	BLK_06	A506_07	DMC, Data -() 18
%Q0180	BLK_29	A506_13	DMC Main motor, Production speed -] [- 12 -] [- 34, 40 -() 34 -] [- 15, 18 -] / [- 16 -] / [- 40
%Q0181	BLK_30	A506_12	DMC Main motor, Slow inch -] [- 27, 40 -() 32 -] [- 15 -] / [- 16 -] [- 94, 104
%Q0182	BLK_30	A506_11	DMC Main motor, Fast inch -] [- 27, 40 -() 30 -] [- 18 -] / [- 16
%Q0185	BLK_29	A507_06	DMC Right DCS, Hardware enable -] [- 9 -() 7
%Q0186	BLK_29	A507_07	DMC Right DCS, Software enable -() 9
%Q0187	BLK_29	A507_14	DMC Right DCS, 0, 9/0, 7 measure. -() 54
%Q0190	BLK_29	A508_06	DMC Left DCS, Hardware enable -] [- 10 -() 8
%Q0191	BLK_29	A508_07	DMC Left DCS, Software enable -() 10
%Q0192	BLK_29	A508_14	DMC Left DCS, 0, 9/0, 7 measure. -() 54
%Q0195	BLK_30	K213	JUM, Cutting left -() 51
%Q0196	BLK_30	K214	JUM, Cutting right -() 51
%Q0197	BLK_06	A418_8	TMCC, Data enable -] [- 21, 27, 28 -] / [- 26 -() 20
%Q0198	BLK_06	A418_22	TMCC, Data clock -] [- 27 -(/) 27 -(S) 26
%Q0199	BLK_06	A418_24	TMCC, Data -() 28
%Q0200	BLK_22	A418_7	TMCC DCS motors, Allowed to reg. -] [- 39, 40 -] / [- 36, 37 -] [- 12 -] / [- 32, 36 -() 12
%Q0201	BLK_07	A412_EN	Drive roller loop ASU, Enable -] [- 84

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BLOCK: MAIN

REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
	BLK_20		-] [- 8,14,93,102
	BLK_21		-] [- 13,27
			-() 24
	BLK_22		-] [- 19
	BLK_75		-] [- 8
%Q0202	BLK_07	A413_EN	Drive roller mag. ASU, Enable
			-] [- 78,85,86
			-]/[- 77
	BLK_20		-] [- 8,14,18,84,103
	BLK_21		-] [- 18
			-]/[- 16
	BLK_22		-] [- 22,26
			-() 20
	BLK_23		-] [- 7,9,10,13,14,15,23,40,45
			-]/[- 11
	BLK_53		-]/[- 34
%Q0203	BLK_26	A410_EN	Drive roll.asept.chamber, Enable
			-] [- 14
			-() 13
%Q0205	BLK_27	A501_20	TPIH generator LS, Enable
			-() 25
%Q0206	BLK_23	A741720	TPIH generator ASU/SA,Seal pulse
			-() 7
%Q0207	BLK_30	A504_8	TPIH generator TS, Side select.
			-(/) 80
%Q0209	BLK_28	A420_9	Filling, Sterilization
			-] [- 16
			-]/[- 16
			-() 13
%Q0210	BLK_28	A420_10	Filling, Production
			-() 14
%Q0211	BLK_28	A420_11	Filling, Cleaning
			-] [- 16
			-]/[- 16
			-() 15
%Q0212	BLK_06	A420_13	Filling, Force download
			-] [- 31
			-(S) 35
			-(R) 37
%Q0213	BLK_06	A420_14	Filling, Communication enable
			-] [- 38,49,50
			-() 33
%Q0214	BLK_06	A420_15	Filling, Communication clock
			-] [- 49
			-]/[- 49
			-() 49
%Q0215	BLK_06	A420_16	Filling, Communication data
			-() 50
%Q0217	BLK_51	P801	Hour Meter
			-() 8
%Q0218	BLK_51	P802	Total package counter
			-() 9
%Q0219	BLK_07	H7703	Hooter
			-() 13
%Q0220	BLK_10	EXT_10	TBA/21, Steam C-valve OK
			-() 187
%Q0221	BLK_50	EXT_11	TBA/21, Ready for CIP
			-() 49
	BLK_75		-]/[- 62
%Q0222	BLK_50	EXT_12	TBA/21, CIP Communication
			-() 288
%Q0223	BLK_51	EXT_13	TBA/21, Ready for production
			-() 87
%Q0224	BLK_51	EXT_14	TBA/21, In Production
			-() 88
%Q0225	BLK_28	Y1303	C - Valve
			-] [- 6,7,52
			-]/[- 52
			-(S) 46
			-(R) 51
%Q0226	BLK_50	Y1324	E - valve
			-] [- 27
			-]/[- 27
			-() 38
%Q0227	BLK_27	Y1401	Movable lower forming ring
			-] [- 17,19
			-]/[- 17,19
			-() 16
%Q0228	BLK_25	Y1241	Butterfly valve
			-] [- 85
			-]/[- 85
			-() 83
%Q0229	BLK_25	Y1112	Reference point valve
			-() 33
%Q0230	BLK_25	Y1111	Preheating valve
			-] [- 24
			-]/[- 24,79
			-() 23
%Q0231	BLK_25	Y1107	Heat exchanger valve, Step 1

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BLOCK: MAIN

REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
%Q0232	BLK_25	Y1108	-() 54 Heat exchanger valve, Step 2
%Q0235	BLK_26	Y1501	-() 55 Feed pkg. mtrl. aseptic chamber
%Q0236	BLK_26	Y1502	-] [- 7 -() 6 Movable squeegee roller
%Q0237	BLK_27 BLK_06	Y1312	-() 15 -] [- 54 A - Valve
	BLK_28		-] [- 52 -] [- 14,41 -] [- 10,41 -() 40
%Q0238	BLK_54 BLK_25	Y1323	-] [- 31 B - valve
			-] [- 65 -] [- 65 -() 64
%Q0239	BLK_50	Y1311	D/F - valves -] [- 26,28 -] [- 26,28 -() 36
%Q0240	BLK_27	Y1601	SUP, Tab folder -() 61
%Q0241	BLK_54	Y9105	H. I. Injection -() 29
%Q0242	BLK_50	Y3116	Column, Cleaning Ball/Lid -] [- 113,116 -] [- 116 -() 112
%Q0245	BLK_50	Y3109	Foaming/Draining -(S) 189,190,191,192,193,194,196 -(R) 188
%Q0246	BLK_50	Y3103	Flushing -(S) 174,175,176,177 -(R) 173
%Q0247	BLK_50	Y3110	Column cleaning -(S) 199,200,201,202,203,204,205,206,207,208,209 -(R) 198
%Q0248	BLK_50	Y3111	Upper system cleaning -(S) 212,213,214,215,216,217,218,219,220,221,222,223,224,225,226,227 -(R) 211
%Q0249	BLK_50	Y3112	Lower system cleaning -(S) 230,231,232,233,234,235,236,237,238,239,240,241,242,243,244,245,246,247 -(R) 229
%Q0257	BLK_50	Y3113	Rinsing Chemical Parts -(S) 250,251,252 -(R) 249
%Q0259	BLK_25	Y1104	Seal Water -() 11
%Q0260	BLK_24	Y1105	Cooling Water Bath -] [- 14 -() 17
%Q0261	BLK_24	Y1230	Filling Spray Tank -() 69
%Q0262	BLK_54 BLK_24	Y1231	-] [- 19 Spraying -() 73 -] [- 69
%Q0269	BLK_56	ASUPACK	ASU panel, ack/lamp test -() 94
%Q0270	BLK_56	CLOCK	Clock signal -() 120
%Q0271	BLK_56	DATA1	Data out KA1 -() 121
%Q0272	BLK_56	DATA2	Data out KB1 -() 122
%Q0273	BLK_20	Y7407	ASU, Web tension -(S) 42 -(R) 43
%Q0274	BLK_20	Y7408	ASU, Pressure rail -] [- 58 -(S) 53,54 -(R) 55,56
%Q0275	BLK_20	Y7410	ASU, cutting -() 58
%Q0276	BLK_20	Y7411	ASU, Material holders -(S) 45 -(R) 46,47
%Q0277	BLK_20	Y7412	ASU, Side feeder 1 - 2 -() 61
%Q0278	BLK_20	Y7413	ASU, Side feeder 2 - 1 -() 61
%Q0281	BLK_23	Y6203	SA, Move splice head -] [- 35 -() 33
%Q0282	BLK_23	Y6205	SA, Cool seal -() 38

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BLOCK: MAIN

REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
%Q0283	BLK_07	Y7303	ASU, UNlock paper on spl.table 1 -] [- 89 -]/[- 88 - (S) 24 - (R) 23
%Q0284	BLK_07	Y7315	ASU, UNlock paper on spl.table 2 -] [- 91 -]/[- 90 - (S) 26 - (R) 25
%Q0288	BLK_20	Y7425	ASU, Ventilating Valve - () 5
%Q0289	BLK_24	Y1210	Peroxide tank, Filling - () 51
%Q0290	BLK_50	Y3106	Alkali Detergent Supply - (S) 180,181,182,183,184 - (R) 179
%Q0291	BLK_50	Y3107	Acid Detergent Supply - () 186
%Q0292	BLK_50	Y3114	Desinfectant Supply - () 254
%Q0293	BLK_51	Y2106	Tube Flusher - () 21
%Q0294	BLK_33	Y2108	FFU, Flushing - () 37
%Q0298	BLK_33	Y5306	FFU, Flap heating air - () 8
%Q0299	BLK_32	Y5504	FFU, Outfeed waste front - () 62
%Q0300	BLK_33	Y5315	FFU, Preblowing - () 9
%Q0301	BLK_24	Y1220	Peroxidebath, filling - () 40
%Q0302	BLK_07	Y5501	FFU, Drop chute into FFU -]/[- 104 -] [- 59 -]/[- 61 - () 60 -] [- 9, 24, 34 -]/[- 21
%Q0303	BLK_33		
%Q0303	BLK_75		
%Q0303	BLK_51	Y2401	Lubrication Pump -] [- 67,71 -]/[- 69 - (S) 60,61,62,63,64 - (R) 59
%Q0304	BLK_50	Y3105	Dosing Chemicals - () 171
%Q0305	BLK_24	Y1221	Peroxide bath, Draining -] [- 39 - () 39
%Q0309	BLK_24	Y9112	HI, Spray peroxide -]/[- 58 - () 19
%Q0310	BLK_54	Y9102	HI, Bypass - () 22
%Q0311	BLK_54	Y9101	HI, Air/N2 supply -] [- 45 -]/[- 45 - () 23
%Q0312	BLK_54	Y9103	HI, On/off - () 21
%Q0313	BLK_10	K200	Air super heater - () 126
%Q0314	BLK_10	K202	Heating water - () 27
%Q0315	BLK_10	K208	FFU, Flap heating top left - () 72
%Q0316	BLK_10	K209	FFU, Flap heating top right - () 90
%Q0317	BLK_10	K210	FFU, Flap heating bottom L/R - () 108
%Q0319	BLK_10	K206	P-tank, heat exchanger elements - () 53
%Q0321	BLK_75	H901	TPOP Reset - () 135
%Q0322	BLK_07	H905	Inching FFU - () 10
%Q0323	BLK_07	H907	Inching JUM - () 11
%Q0324	BLK_70	H908	Short Stop - () 16
%Q0327	BLK_07	H911	Step Up - () 7
%Q0328	BLK_07	H912	Step Down - () 8
%Q0329	BLK_75	H2801_1	Alarm beacon front (blue) - () 97
%Q0330	BLK_75	H2801_2	Alarm beacon front (yellow) - () 99

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REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
%Q0331	BLK_75	H2801_3	Alarm beacon front (red) -() 101
%Q0332	BLK_75	H2801	Alarm beacon front (TBA21 041V) -() 95
%Q0333	BLK_75	H2802_1	Alarm beacon rear (blue) -() 98
%Q0334	BLK_75	H2802_2	Alarm beacon rear (yellow) -() 100
%Q0335	BLK_75	H2802_3	Alarm beacon rear (red) -() 102

INTERNAL (%M) GLOBAL CROSS REFERENCES

REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
%M0001	1T0004	BIN_01	Angle encoder binary bit 1 -() 14 FBI0 16
%M0002	1T0004	BIN_02	Angle encoder binary bit 2 -] [- 14 -]/ [- 14 -() 13
%M0003	1T0004	BIN_03	Angle encoder binary bit 3 -] [- 13 -]/ [- 13 -() 12
%M0004	1T0004	BIN_04	Angle encoder binary bit 4 -] [- 12 -]/ [- 12 -() 11
%M0005	1T0004	BIN_05	Angle encoder binary bit 5 -] [- 11 -]/ [- 11 -() 10
%M0006	1T0004	BIN_06	Angle encoder binary bit 6 -] [- 10 -]/ [- 10 -() 9
%M0007	1T0004	BIN_07	Angle encoder binary bit 7 -] [- 9 -]/ [- 9 -() 8
%M0008	BLK_07 1T0004	BIN_08	Angle encoder binary bit 8 -] [- 52 -]/ [- 8 -() 8 -() 7
%M0010	BLK_07	ENCOUNT	Speed check counter enable -] [- 53,54 -() 51
%M0011	BLK_07	SP_CHON	Machine speed check pulse -] [- 53,54,55,56 -() 54
%M0012	BLK_07	HIGH_SP	High machine speed alarm -(S) 56 -(R) 57
%M0017	BLK_30 BLK_07	ENC_OK	Angle encoder OK -] [- 106 -]/ [- 44 -(S) 40,44 -(R) 42 -]/ [- 101
%M0018	BLK_30 BLK_07	FLASH	1/2 Hz flash -] [- 10,11,108 -]/ [- 107 -(S) 109 -(R) 110
%M0026	BLK_07	CHK_SRV	Check service switch -(S) 16 -(R) 15 -]/ [- 7
%M0027	BLK_08 BLK_51 BLK_07	CHK_INC	Check inching pushbuttons -] [- 140 -]/ [- 13 -(S) 18 -(R) 19 -]/ [- 34 -]/ [- 19
%M0040	BLK_32	PACKDMP	Package dumping -] [- 59 -(S) 54 -(R) 53
%M0041	BLK_32	CLOSE	Close drop chute -] [- 59 -() 56
%M0042	BLK_32	OPEN	Open drop chute -] [- 59 -() 57

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BLOCK: MAIN

REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
%M0050	1T0004	READVOL	Read volume sensor on main cam -]/[- 18 -(S) 19
	BLK_05		-] [- 6 -(R) 7
%M0051	BLK_05	NOVOL_1	No volume value (R500=0) -] [- 27 -() 25
%M0052	BLK_05	NOVOL_2	No volume value (word M57-72=0) -] [- 27 -() 26
%M0053	BLK_05	NO_VOL	No volume value -() 27 -]/[- 7 -] [- 104
%M0054	BLK_05	SPD7000	7000 packages per hour -] [- 34 -(S) 33 -(R) 31,32 -] [- 9,10 -] [- 36,48
%M0055	BLK_05	SPD8000	8000 packages per hour -] [- 35 -(S) 32 -(R) 31,33 -] [- 12,13 -] [- 37,49 -] [- 6 -] [- 21 -] [- 60
%M0056	BLK_05	SPD5500	5500 packages per hour -] [- 34 -(S) 31 -(R) 32,33 -] [- 6,7 -] [- 38,50
%M0057	BLK_05	VOL_01	Volume 01, 1000cc baseline -(SM) 10 FBIO 9,26 -] [- 6,7,9,11,13,15,17 FBIO 84
%M0058	BLK_05	VOL_02	Volume 02, 200cc slimline -(SM) 11 -] [- 6,7,9,11,13,15,17
%M0059	BLK_05	VOL_03	Volume 03, 250cc baseline -(SM) 12 -] [- 19,20,22,24,26,28,30
%M0060	BLK_05	VOL_04	Volume 04, 200cc baseline -(SM) 13 -] [- 32,33,35,37,39,41,43
%M0061	BLK_05	VOL_05	Volume 05, 1000cc slimline -(SM) 14 -] [- 19,21,23,24,26,28,30,32,34,36
%M0062	BLK_05	VOL_06	Volume 06, 1000cc slimline P48 -(SM) 15 -] [- 20,21,23,24,26,28,30,32,34,36 -]/[- 83
%M0063	BLK_05	VOL_07	Volume 07, 1500cc slimline -(SM) 16 -] [- 38,39,41,43,45,47,49
%M0064	BLK_05	VOL_08	Volume 08, 1000cc square -(SM) 17 -] [- 51,52,54,56,58,60,62 -]/[- 83
%M0065	BLK_05	VOL_09	Volume 09, 500cc slimline -(SM) 18 -] [- 64,65,67,69,71,73,75
%M0067	BLK_05	VOL_11	Volume 11, 330cc prisma square -(SM) 19 -] [- 45,46,48,50,52,54,56 -]/[- 83
%M0080	BLK_06	DT_EN	Data trans., Str.flow com.enable -] [- 49,55,57 -(S) 54 -(R) 64
%M0081	BLK_06	DT_CLK	Data trans., Str.flow data clock -] [- 49 -]/[- 49,55,56,59 -() 55
%M0082	BLK_06	DT_CNT	Data trans., Str.flow data count -] [- 58,60,66 -]/[- 55 -() 56
%M0083	BLK_06	DT_IDLE	Data trans., Str.flow clock idle -] [- 56 -() 58
%M0084	BLK_06	DT_TROK	Data trans., Str.flow transm.OK -] [- 62,63 -() 61

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REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
%M0085	BLK_06	DT_FLT	Data trans., Str.flow data fault -] [- 64 -(S) 66 -(R) 65 -] [- 72
%M0086	BLK_28 BLK_06	DCS_EN	Data trans., TMCC DCS enabled -() 68 -] [- 98
%M0087	BLK_51 BLK_06	AF_EN	Data trans., TMCC AF enabled -() 69 -] [- 99
%M0088	BLK_51 BLK_06	FCS_EN	Data trans., TMCC FCS enabled -() 70 -] [- 100
%M0089	BLK_51 BLK_06	FCS_RDY	Data trans., TMCC data tr. ready -] [- 41,42,43,44,45,46,47,48 -() 40
%M0090	BLK_06	DT_BITS	Data trans., number of bit -] [- 59 -() 57
%M0100	_MAIN	STEP_0	Step 0 Off -] [- 6,20 -] [- 7,21 -] [- 65,66 -]/[- 68,69,70 -] [- 6,8,15 -]/[- 16 -] [- 6,54,55 -(S) 36,37 FBIO 36,37,38,39,40,41,42,43,44,45,46,47,48,50,51,52,53,54,55 -] [- 164,192 -] [- 23,25,33,80 -]/[- 7,9,24,26,27,100 -]/[- 45,46,58 -] [- 8,78 -]/[- 39,82 -] [- 18,77,86 -] [- 16 -]/[- 17,54,65 -] [- 50,66 -] [- 43,47,53 -] [- 48 -]/[- 6,15 -] [- 75,86,92,95,97 -] [- 35,53 -]/[- 37,38,102,106,110,111 -] [- 7,11,18,28 -]/[- 22,29 -]/[- 43 -] [- 6,73,139,163
%M0101	_MAIN	STEP_1	Step 1 Preparation -] [- 6,20 -] [- 23 -] [- 78,92 -]/[- 16,77 -] [- 10,36,57 -]/[- 59,64 -(S) 38,39 -] [- 14,32,84,98 -]/[- 14,17,32,84,98 -] [- 12,22 -]/[- 22 -] [- 7,19 -]/[- 40 -] [- 67 -] [- 9,11,57 -]/[- 11,57 -] [- 25 -]/[- 25 -] [- 9,74 -]/[- 9,27 -] [- 293 -] [- 33,55 -]/[- 119 -] [- 29,35,38,41 -]/[- 35,38 -] [- 40,46 -]/[- 8,23,40,45 -]/[- 47 -] [- 68,113,116,141
%M0102	_MAIN	STEP_2	Step 2 Tube sealing -] [- 6 -] [- 14,39,57 -(S) 40,41 -] [- 17 -] [- 8,54,69,78 -] [- 18,26 -]/[- 30 -] [- 6,23,32

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BLOCK: MAIN

REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
			-]/[- 21,24,34
	BLK_30		-]/[- 6
	BLK_32		-]/[- 59
	BLK_53		-]/[- 29
	BLK_54		-]/[- 11,40
			-]/[- 40
	BLK_70		-]/[- 47
	BLK_75		-]/[- 143
%M0103	BLK_07	STEP_3	Step 3 Heat sterilization
			-]/[- 6
	BLK_08		-]/[- 17,38,40,41,57,67
			-(S) 42
	BLK_24		-]/[- 7,30,73
	BLK_25		-]/[- 20,23,29,44,54,55,79
			-]/[- 30
	BLK_75		-]/[- 145
%M0104	BLK_07	STEP_4	Step 4 Spraying
			-]/[- 6
	BLK_08		-]/[- 18,40,41,58,66
			-(S) 43
	BLK_10		-]/[- 165
	BLK_24		-]/[- 30,57,77
	BLK_25		-]/[- 23,55,67,69,83
			-]/[- 30
	BLK_26		-]/[- 6
	BLK_30		-]/[- 6
	BLK_54		-]/[- 21
	BLK_75		-]/[- 146
%M0105	BLK_08	STEP_5	Step 5 Drying
			-]/[- 19,49,58,60
			-(S) 44
	BLK_10		-]/[- 53,165
	BLK_25		-]/[- 69,81
			-]/[- 62
	BLK_26		-]/[- 6
	BLK_27		-]/[- 9
	BLK_28		-]/[- 13,49,62
	BLK_29		-]/[- 12
	BLK_30		-]/[- 12,34
	BLK_51		-]/[- 87
	BLK_70		-]/[- 39
	BLK_75		-]/[- 104,147
			-]/[- 105
%M0106	BLK_07	STEP_6	Step 6 Signal to sterilizer
			-]/[- 6
	BLK_08		-]/[- 22,44,58,60
			-(S) 45
	BLK_28		-]/[- 80
	BLK_30		-]/[- 12
	BLK_75		-]/[- 149
%M0107	BLK_08	STEP_7	Step 7 Signal from sterilizer
			-]/[- 23,38,44,58,60
			-(S) 46
	BLK_25		-]/[- 75
	BLK_28		-]/[- 18,80
	BLK_29		-]/[- 14
			-]/[- 12,14
	BLK_30		-]/[- 12,34
	BLK_33		-]/[- 11,12,13
	BLK_51		-]/[- 66
	BLK_70		-]/[- 26,39
	BLK_75		-]/[- 151
%M0108	BLK_07	STEP_8	Step 8 Motorstart
			-]/[- 6
			-]/[- 18,103
	BLK_08		-]/[- 27,28,46,59,60,61,62
			-(S) 47
	BLK_25		-]/[- 19
	BLK_28		-]/[- 18,24
			-]/[- 25
	BLK_29		-]/[- 12
			-]/[- 14
	BLK_30		-]/[- 44
	BLK_32		-]/[- 28
	BLK_70		-]/[- 26,32,40
	BLK_75		-]/[- 46,153
%M0109	BLK_07	STEP_9	Step 9 Production
			-]/[- 51
	BLK_08		-]/[- 29,46,47,59,60,61,62,69
			-(S) 48
	BLK_25		-]/[- 45,52
			-]/[- 53
	BLK_26		-]/[- 35
	BLK_28		-]/[- 57,70
			-]/[- 25,57
	BLK_29		-]/[- 18
			-]/[- 14,18
	BLK_30		-]/[- 83,89
			-]/[- 89

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BLOCK: MAIN

REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
	BLK_32		-] [- 28
	BLK_33		-] [- 34
	BLK_51		-] [- 18,88
	BLK_70		-] [- 26,32
	BLK_75		-] [- 15,24,27,42,44,51,154
%M0110	BLK_08	STEP_10	Step 10 Production ended
			-] [- 30,38,44,62,65
			-(S) 50
	BLK_28		-] [- 50
	BLK_29		-] / [- 12
	BLK_30		-] [- 34
	BLK_54		-] / [- 29
	BLK_75		-] [- 155
%M0111	BLK_07	STEP_11	Step 11 Venting
			-] / [- 6,16
	BLK_08		-] [- 31,53,62,66
			-(S) 51,52
	BLK_24		-] [- 78
			-] / [- 5,44
	BLK_25		-] [- 18,54,55
			-] / [- 13,62,95
	BLK_30		-] / [- 6
	BLK_51		-] / [- 11,16,40
	BLK_54		-] [- 11,28
			-] / [- 29
	BLK_70		-] / [- 46
	BLK_75		-] [- 70,74,125,157
			-] / [- 71
%M0112	BLK_07	STEP_12	Step 12 Doors OK
			-] [- 8
			-] / [- 16
	BLK_08		-] [- 32,36,54,63,68
			-(S) 53
	BLK_22		-] [- 19
	BLK_25		-] [- 33
	BLK_30		-] [- 9
	BLK_50		-] [- 86
	BLK_75		-] [- 158
%M0113	_MAIN	STEP_13	Step 13 Cleaning
			-] [- 20
	BLK_07		-] / [- 16
	BLK_08		-] [- 37,68
			-(S) 54
	BLK_26		-] / [- 13,15
	BLK_28		-] [- 51
	BLK_30		-] [- 22
			-] / [- 6,15
	BLK_33		-] / [- 20,22
	BLK_50		-] [- 86,91,92,104
	BLK_70		-] [- 16
	BLK_75		-] [- 70
			-] / [- 71
%M0114	BLK_07	STEP_14	Step 14 Service window
			-] [- 8
	BLK_08		-] [- 36
			-(S) 55
	BLK_23		-] / [- 40
	BLK_26		-] / [- 13
	BLK_29		-] [- 43,47,54
			-] / [- 32,36
	BLK_53		-] [- 33,38
	BLK_75		-] [- 164
%M0115	BLK_08		-] / [- 49
			-() 44
%M0120	BLK_08	COND_0	Step 0 Step up condition
			-] [- 33,38
			-() 9
	BLK_75		-] [- 140
%M0121	BLK_08	COND_1	Step 1 Step up condition
			-] [- 33,40,46
			-() 13
	BLK_27		-] [- 6
	BLK_75		-] [- 142,150
%M0122	BLK_08	COND_2	Step 2 Step up condition
			-] [- 33,42
			-() 16
	BLK_75		-] [- 144
%M0123	BLK_08	COND_3	Step 3 Step up condition
			-] [- 33,43
			-() 17
	BLK_25		-] [- 31
%M0124	BLK_08	COND_4	Step 4 Step up condition
			-] [- 33,44
			-() 18
%M0125	BLK_08	COND_5	Step 5 Step up condition
			-] [- 33,45
			-() 21
	BLK_75		-] [- 148
%M0126	BLK_08	COND_6	Step 6 Step up condition

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BLOCK: MAIN

REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
			-] [- 33,46
			- () 22
%M0127	BLK_75		-] [- 150
	BLK_08	COND_7	Step 7 Step up condition
			-] [- 33,47
			- () 26
%M0128	BLK_75		-] [- 152
	BLK_08	COND_8	Step 8 Step up condition
			-] [- 34,48
			- () 28
%M0129	BLK_08	COND_9	Step 9 Step up condition
			-] [- 34,49
			- () 29
%M0130	BLK_08	COND_10	Step 10 Step up condition
			-] [- 34,51,52
			- () 30
	BLK_75		-] [- 156
%M0131	BLK_08	COND_11	Step 11 Step up condition
			-] [- 34
			- () 31
%M0132	BLK_08	COND_12	Step 12 Step up condition
			-] [- 34
			- () 32
%M0135	BLK_07	ST_COND	Step up condition
			-] [- 6,21
			-] / [- 8
	BLK_08		-] [- 34
			-] / [- 46
			- () 33,34
%M0140	BLK_08	STP1_3	Step 1-3 Prep.to heatster.
			-] [- 58
			- () 57
	BLK_10		-] [- 164
	BLK_25		-] [- 67
	BLK_28		-] [- 62
	BLK_54		-] [- 6
%M0141	BLK_08	STP1_7	Step 1-7 Prep.to sign from ster.
			-] [- 59,62
			- () 58
%M0142	BLK_08	STP2_9	Step 2-9 Tube sealing to prod.
			- () 59
	BLK_27		-] [- 60
	BLK_28		-] [- 13
	BLK_75		-] [- 69,113,116
%M0143	BLK_07	STP5_9	Step 5-9 Drying to prod.
			-] [- 21
	BLK_08		-] [- 44,65
			- () 60
	BLK_24		-] [- 23,30
	BLK_28		-] / [- 13
	BLK_30		-] [- 74
	BLK_33		-] [- 29,52
	BLK_51		-] [- 87
	BLK_54		-] [- 26
	BLK_75		-] [- 36
%M0144	BLK_06	STP8_9	Step 8-9 Motorstart to prod.
			-] [- 65,66
			-] / [- 34
	BLK_07		-] [- 21
			-] / [- 6
	BLK_08		-] [- 46
			- () 61
	BLK_10		-] [- 27,30
			-] / [- 31,136
	BLK_24		-] [- 10,29,39
			-] / [- 17,30,31
	BLK_25		-] [- 75
	BLK_28		-] [- 56,80
	BLK_29		-] [- 34,38
	BLK_30		-] [- 19,34,76,77
			-] / [- 6
	BLK_32		-] [- 6
	BLK_33		-] [- 11,12,13
	BLK_51		-] [- 21,65
	BLK_54		-] / [- 23
	BLK_70		-] [- 32,40
	BLK_75		-] [- 30,33,72
%M0145	BLK_07	STP1_11	Step 1-11 Prep. to venting
			-] [- 6,77
	BLK_08		-] [- 63
			- () 62
	BLK_20		-] [- 14,17,32,39,84,87,97,98,99
	BLK_21		-] [- 22
	BLK_23		-] [- 43,51,54,59
	BLK_24		-] [- 44
	BLK_27		-] [- 11,57
	BLK_28		-] [- 61
	BLK_29		-] [- 25
	BLK_50		-] [- 296,297

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BLOCK: MAIN

REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
	BLK_51		-] [- 11,16
	BLK_53		-] [- 35,38
	BLK_54		-] [- 8,21,23,29,41,42,45
	BLK_56		-] [- 19
%M0146	BLK_08	STP1_12	Step 1-12 Prep. to doors OK
			-] [- 64
			-] [- 63
	BLK_21		-] [- 5,43,44,45
	BLK_22		-] [- 5
	BLK_23		-] [- 5,7
	BLK_26		-] [- 6
	BLK_51		-] [- 30,32,40,120
	BLK_53		-] [- 33
%M0147	BLK_08	STP2_12	Step 2-12 Tube seal. to doors OK
			-] [- 64
	BLK_22		-] [- 19
	BLK_51		-] [- 9
	BLK_75		-] [- 10
%M0148	BLK_08	STP5_10	Step 5-10 Drying to prod.end
			-] [- 66
			-] [- 70
			-] [- 65
	BLK_25		-] [- 7,36,54,55,90
	BLK_33		-] [- 7,39
%M0149	BLK_08	STP4_11	Step 4-11 Spraying to venting
			-] [- 67
			-] [- 66
	BLK_70		-] [- 46
%M0150	BLK_08	STP3_11	Step 3-11 Heat ster. to venting
			-] [- 67
	BLK_24		-] [- 5
	BLK_25		-] [- 5,95
	BLK_70		-] [- 44,45
%M0151	BLK_08	ST12_13	Step 12-13 Doors OK to cleaning
			-] [- 68
	BLK_27		-] [- 16
%M0152	BLK_08	STP9_10	Step First prod. to prod. end
			-] [- 69
			-] [- 70
	BLK_30		-] [- 70
%M0160	1T0004	STOPJUM	Protection stop JUM
			-] [- 55,57
	BLK_30		-] [- 53
	BLK_70		-] [- 11
			-] [- 13
			-] [- 6
			-] [- 7
%M0161	BLK_70	STOPFFU	Protection stop FFU
			-] [- 11
			-] [- 8,9
			-] [- 10
%M0162	BLK_08	P_STOP	Protection stop
			-] [- 7,11,15,19,25,28,32
			-] [- 38,39
	BLK_29		-] [- 41,45
	BLK_30		-] [- 7,10,13
			-] [- 20
	BLK_32		-] [- 19
	BLK_50		-] [- 89
	BLK_70		-] [- 26,40
			-] [- 11
	BLK_75		-] [- 170
%M0164	BLK_30	Q_STOP	Quick stop JUM
			-] [- 36
			-] [- 38
	BLK_70		-] [- 14
%M0165	BLK_70	S_STOP1	Demand 1 for short stop
			-] [- 18
			-] [- 17
%M0166	BLK_70	S_STOP2	Demand 2 for short stop
			-] [- 19
			-] [- 18
%M0167	BLK_70	S_STOP3	Demand 3 for short stop
			-] [- 20
			-] [- 19
%M0168	BLK_08	S_STOP4	Demand 4 for short stop
			-] [- 39
	BLK_30		-] [- 9,13
	BLK_70		-] [- 21
			-] [- 20
%M0169	BLK_70	S_STOP5	Demand 5 for short stop
			-] [- 25
			-] [- 24
	BLK_75		-] [- 170
%M0170	BLK_07	S_STOP6	Demand 6 for short stop
			-] [- 21
	BLK_08		-] [- 23,28
	BLK_70		-] [- 26
			-] [- 25

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BLOCK: MAIN

REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
%M0171	BLK_07	S_STOP	Short stop on -] [- 21 -] / [- 21 -] [- 46 BLK_08 BLK_10 -] [- 15,22,53 -] / [- 14 BLK_24 -] [- 9,17 -] / [- 18,44 BLK_28 BLK_29 -] [- 25 -] [- 12 -] / [- 14 BLK_30 -] [- 34 -] / [- 12 BLK_32 BLK_54 -] / [- 19,28 -] [- 27 -] / [- 23 BLK_70 -] [- 16,26,27,29,30,40 -] / [- 28 -] [- 26 BLK_75 -] [- 48,64,126 -] / [- 49
%M0172	BLK_70	SS_LIM	Short stop time 13-15 minutes -] [- 16 -] / [- 16 - () 29
%M0173	BLK_08	SS_OUT	Short stop time too long -] [- 44 BLK_70 -] / [- 26 - (S) 27 - (R) 28
%M0174	BLK_30	SS_FFU	Empty FFU at short stop -] / [- 34 BLK_70 -] [- 40 - () 30
%M0180	BLK_08	N_STOP	Normal stop -] [- 29 BLK_24 BLK_28 BLK_30 -] [- 9 -] [- 8 -] [- 34,36 -] / [- 13 BLK_32 BLK_70 -] [- 23 -] [- 37,38,40 - (S) 32,33 - (R) 38 BLK_75 -] [- 169
%M0181	BLK_30	JAWSTOP	Disconnection of jaw system -] / [- 36 BLK_70 - (S) 35 - (R) 38
%M0182	BLK_30	MM_STOP	Stop of main motor -] / [- 34 BLK_70 -] [- 38 - () 37
%M0183	BLK_07	JUMP_5	Jump to machine step 5 -] / [- 21 BLK_08 BLK_70 -] [- 44,46 - (S) 40 - (R) 39
%M0190	BLK_07	JUMP_0	Jump to machine step 0 -] / [- 80 BLK_08 -] [- 7 -] / [- 36 BLK_20 BLK_30 BLK_51 BLK_70 -] / [- 78 -] [- 20 -] [- 20 - (S) 42 - (R) 43,44,45,46,47,48 -] / [- 170
%M0200	BLK_07	TMR1_0	Startseq, (>0,01) - () 22 BLK_24 -] [- 37 -] / [- 18,22,23,27,44 BLK_25 BLK_30 BLK_33 -] [- 50 -] [- 19 -] / [- 30
%M0201	BLK_07	TMR1_1	Startseq, (>3,00) - () 23 BLK_30 -] [- 76,83
%M0202	BLK_07	TMR1_2	Startseq, Synch.ready (>8,00) - () 24 BLK_29 BLK_30 -] [- 12 -] [- 36,44 -] / [- 70 BLK_33 -] [- 18 -] / [- 15
%M0203	BLK_07	TMR1_3	Startseq, (>9,80) - () 25 BLK_24 BLK_32 -] [- 26,41,50 -] / [- 60

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BLOCK: MAIN

REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
%M0204	BLK_51	TMR1_4	-] [- 16
	BLK_07		Startseq, Ended (>10,00)
			-] [- 21
			- () 26
	BLK_08		-] [- 48
%M0205	BLK_24	TMR1_5	-]/[- 27,46
	BLK_28		-] [- 8,46
	BLK_30		-] [- 45
			-] [- 30
	BLK_07		Startseq, (>45,00)
%M0210		TMR1_10	-]/[- 27,28,29,30,31
			- () 21
	BLK_07		Startseq, Going on (0,01-9,99)
			-] [- 13,83
			- () 27
%M0211	BLK_24	TMR1_11	-]/[- 20
	BLK_25		-] [- 49
	BLK_32		-] [- 60
	BLK_70		-] [- 26
	BLK_75		-] [- 45
%M0212	BLK_07	TMR1_12	Startseq, (0,01-1,00)
			- () 28
	BLK_24		-] [- 41,49
	BLK_07		Startseq, Fill H202 bath (2-9,9)
			- () 29
%M0213	BLK_24	TMR1_13	-]/[- 40
	BLK_07		Startseq, Lower formring (7-9,5)
			- () 30
	BLK_27		-] [- 16
	BLK_07		Startseq, Preheat. LS (8,4-9,5)
%M0214		TMR1_14	- () 31
	BLK_27		-] [- 24,40
	BLK_07		Startseq, (>=12,5s)
			- () 32
	BLK_07		UtilityBit, 1scan ON / 3scan OFF
%M0250		D_C_25%	-]/[- 121
			- () 122
	BLK_23		-] [- 6
	BLK_07		UtilityBit, auxiliary for M250
			-] [- 124
%M0251		UTB_251	- () 121
	BLK_07		UtilityBit, auxiliary for M250
			-] [- 123
			-]/[- 121
			- () 124
%M0252	BLK_07	UTB_252	UtilityBit, auxiliary for M250
			-] [- 123
			-]/[- 121
			- () 124
	BLK_07		UtilityBit, auxiliary for M250
%M0253		UTB_253	-] [- 122
			-]/[- 121
			- () 123
	BLK_23		SA, Start up power
			-]/[- 13,14
%M0300		SA_STRT	- () 23
	BLK_23		SA, Detect pkg mtrl splice in SA
			- (S) 21
			-] [- 25
			- (R) 25
%M0305	BLK_07	SA_EPWR	SA, Extra SA power at splice
			-] [- 77
	BLK_23		-] [- 15
			- (S) 27
			- (R) 26
%M0311	BLK_23	SA_COOL	SA, Cool SA splice
			-] [- 36,38
			-]/[- 32
			- () 35
	BLK_07		SA, Splice going on
%M0312		SA_SPL	-]/[- 76
	BLK_22		-]/[- 19
	BLK_23		-] [- 30,31,32,33,35
			- () 30
	BLK_75		-] [- 76
%M0314	BLK_23	SA_HEAD	SA, delay splice head down
			-] [- 32,33
			- () 31
	BLK_23		SA, Strip end
			-] [- 30,51,53
%M0320		SA_END	- () 41
	BLK_23		SA, Bobbin not prepared
			-] [- 42,51,59
			-]/[- 30,50
			- (S) 43
%M0321		SA_PREP	- (R) 42
	BLK_56		-] [- 13
			-]/[- 12,16
	BLK_20		SA, Strip break
			-] [- 7
%M0322	BLK_22	SA_BRK	-]/[- 19
	BLK_23		-] [- 48,60
			- (S) 46

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BLOCK: MAIN

REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES

%M0323	BLK_20	SA_ENDP	-(R) 49
			SA, Strip end bobbin not prep.
	BLK_23		-] [- 7
			-] [- 61
%M0324	BLK_20	SA_ENDD	-(S) 51
			SA, Strip end open door
	BLK_22		-(R) 50
			-] [- 7
%M0331	BLK_22		-] [- 19
			-] [- 30
	BLK_23		-(S) 53
			-(R) 52
%M0332	BLK_23	SATPIHF	SA ASU, TPIH fault
			-] [- 55,58
	BLK_23	SA_ACK	-(S) 54
			SA ASU, TPIH fault acknowledge
%M0333	BLK_23		-(R) 56
			-] [- 56
	BLK_23		-(S) 55
			-(R) 56
%M0334	BLK_23	SBRK_AK	SA rot.monitor Fast Detected
			-(S) 78
	BLK_23		-] [- 47
			-] [- 46
%M0400	BLK_08	ASUSTOP	-(R) 47
			SA, Strip break alarm ACKnowl.
	BLK_20		-] [- 49
			-(S) 48
%M0401	BLK_08	ASUDOOR	-(R) 49
			ASU, Stop reasons
	BLK_20		-] [- 11,23
			-] [- 9
%M0402	BLK_08	ASU_MON	-() 7,9
			-] [- 9,12
	BLK_20		-] [- 20
			-] [- 20
%M0403	BLK_08	ASU_MIS	ASU, Door guards
			-] [- 7,11,23
	BLK_20		-() 11
			-] [- 9,12
%M0404	BLK_20	ASU_MON	ASU, Monitor register mark
			-] [- 7,77,96
	BLK_21		-(S) 15,16,17
			-(R) 13
%M0405	BLK_22	ASU_MIS	-] [- 24
			-] [- 20
	BLK_20		-] [- 19
			-() 19
%M0406	BLK_20	ASU_MRK	-] [- 8
			ASU, Start check for reg. mark
	BLK_20		-] [- 15,16
			-() 14
%M0410	BLK_20	ASU_SPD	ASU, High speed after splice
			-(S) 20
	BLK_21		-(R) 21
			-] [- 39,40
%M0420	BLK_22		-] [- 36,37
			-] [- 42
	BLK_23		-] [- 28,36,37,39,40
			-] [- 9,14
%M0421	BLK_20	NOTPREP	-] [- 10,13
			ASU, Splice not prepared
	BLK_56		-] [- 32,97
			-] [- 32,39
%M0430	BLK_20	REEL_1	-(S) 28
			-(R) 27
	BLK_20		-] [- 19
			-] [- 18
%M0431	BLK_20	REEL_2	ASU, Reel 1 empty
			-] [- 16,28,32
	BLK_20		-] [- 15
			-() 30
%M0432	BLK_20	REEL_2	ASU, Reel 2 empty
			-] [- 16,28,32
	BLK_20		-] [- 15
			-() 31
%M0433	BLK_20	MTRLPRP	ASU, Pkg. mtrl. end not prepared
			-] [- 9,101
	BLK_21		-(S) 32
			-(R) 33
%M0434	BLK_20	MTRLDOR	-] [- 24
			ASU, Pkg. mtrl. end doors open
	BLK_20		-] [- 9,105
			-(S) 32
%M0450	BLK_07	SPL_ON	-(R) 33
			ASU, Splice sequence going on
	BLK_20		-] [- 78,93
			-] [- 37

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BLOCK: MAIN

REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
			-]/[- 32,94
			-(S) 32
			-(R) 34
	BLK_21		-]/[- 22
	BLK_75		-]/[- 78
%M0451	BLK_20	SPL_2ND	ASU, 2:nd last pkg before splice
			-]/[- 38
			-(S) 37
			-(R) 36
	BLK_21		-]/[- 42
			-]/[- 36,37,39,40
%M0452	BLK_07	SPL_SPD	ASU, Low speed before splice
			-]/[- 94,95
	BLK_20		-]/[- 17,28,42,45,77
			-]/[- 14
			-(S) 39
			-(R) 40
	BLK_21		-]/[- 24,43,44,45
			-]/[- 36,37,39,40,42
%M0453	BLK_20	SPL_PKG	ASU, Pkg. mtrl. in splice pos.
			-]/[- 46,50,51,53,60
			-(S) 49
			-(R) 50
	BLK_21		-]/[- 9
%M0454	BLK_20	CUT_SEQ	ASU, Cut sequence (0,01-0,80)
			-]/[- 23,25
			-() 51
%M0455	BLK_20	SPL_MOV	ASU, Side feeder allowed moving
			-]/[- 61
			-(S) 60
			-(R) 67,68
%M0456	BLK_20	SPL_POS	ASU, Side feeder in splice pos.
			-]/[- 36,45,54,66,70
			-(S) 62
			-(R) 63,64
%M0457	BLK_07	SPL_SEQ	ASU, Splice sequence
			-]/[- 100
	BLK_20		-]/[- 71,72,73,74
			-(S) 70
			-(R) 71
%M0458	BLK_20	SPL_TM1	ASU, Splice sequence (0,10-0,55)
			-]/[- 64
			-() 72
	BLK_23		-]/[- 7
%M0459	BLK_20	SPL_TM2	ASU, Splice sequence (0,40-0,70)
			-]/[- 24,26,43
			-() 73
%M0460	BLK_20	SPL_TM3	ASU, Splice sequence (1,60-1,90)
			-]/[- 20,33,47,80
			-() 74
	BLK_21		-]/[- 10
	BLK_22		-]/[- 13
%M0470	BLK_20	SPL_INT	ASU, Splice sequence interrupted
			-]/[- 7,78,99
			-(S) 77
			-(R) 76
	BLK_22		-]/[- 20
%M0471	BLK_20	SPL_RES	ASU, Splice sequence reset
			-]/[- 24,26,34,36,40,43,47,55,63,68,80
			-]/[- 49
			-() 78
	BLK_21		-]/[- 10
	BLK_22		-]/[- 13
%M0472	BLK_20	SPL_MON	ASU, Splice sequence monitor
			-]/[- 77,81
			-(S) 79
			-(R) 80
%M0473	BLK_20	SPL_OUT	ASU, Splice sequence timeout
			-]/[- 77
			-() 81
%M0474	BLK_08	SA_ROT	SA ASU, Rotation monitor
			-]/[- 39
	BLK_20		-]/[- 7,104
			-(S) 85
			-(R) 83
	BLK_22		-]/[- 20
	BLK_23		-]/[- 7
%M0475	BLK_20	IHFAULT	SA ASU, TPIH fault
			-]/[- 9,78,88,100
			-(S) 87
			-(R) 89
	BLK_21		-]/[- 24
	BLK_22		-]/[- 20
%M0476	BLK_20	IH_ACK	SA ASU, TPIH fault acknowledge
			-]/[- 89
			-(S) 88
			-(R) 89
%M0477	BLK_23	SA_PPWM	SA, power modulation (D.C. 75%)
			-]/[- 7

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BLOCK: MAIN

REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
%M0501	BLK_21	LP_PROT	-() 6 ASU, DR loop brake card prot. -]/[- 24 -() 7
%M0502	BLK_22 BLK_20	LP_STOP	-]/[- 19 ASU, DR loop stop at splice pos. -]/[- 62 -]/[- 39 BLK_21 -]/[- 24 -(S) 9 -(R) 10
%M0503	BLK_21	LP_NOMT	ASU, DR loop no material in loop -]/[- 24 -(S) 12 -(R) 13 BLK_22 -]/[- 19
%M0504	BLK_21	LP_FULL	ASU, Loop full -]/[- 24 -(S) 16,18,20 -(R) 15 BLK_22 -]/[- 19
%M0505	BLK_20	LP_EMPTY	ASU, Loop empty -]/[- 7,106 BLK_21 -() 22
%M0510	BLK_21	LP_CTRL	ASU, DR loop speed control -]/[- 28,29 -() 27
%M0511	BLK_21	LP_INCR	ASU, DR loop increase speed -]/[- 28 -() 28
%M0512	BLK_21	LP_DECR	ASU, DR loop decrease speed -]/[- 29 -() 29
%M0550	BLK_22	MG_DOOR	ASU, DR mag. no start doors open -]/[- 20 -(S) 8 -(R) 7
%M0551	BLK_22	MG_PROT	ASU, DR mag. brake card prot. -]/[- 20 -() 10
%M0552	BLK_22	MG_SPLC	ASU, DR mag. move during splice -]/[- 19 -(S) 12 -(R) 13
%M0553	BLK_22	MG_STRT	ASU, DR mag. start -]/[- 20 -(S) 15 -(R) 16,17
%M0554	BLK_20 BLK_22	MG_TOUT	ASU, DR mag. timeout while still -]/[- 98 -]/[- 20 -(S) 22 -(R) 23
%M0560	BLK_22	MG_CTRL	ASU, DR mag. speed control -]/[- 27,29 -() 26
%M0561	BLK_22	MG_INCR	ASU, DR mag. increase speed -]/[- 28 -() 28
%M0562	BLK_22	MG_DECR	ASU, DR mag. decrease speed -]/[- 29 -() 29
%M0600	BLK_07 BLK_08 BLK_27	T_SEAL	SUP, Tube sealing going on -]/[- 74,101 -]/[- 39 -]/[- 15,39 BLK_27 -]/[- 7,9 -() 6 BLK_30 -]/[- 19,29,36
%M0601	BLK_27	TMR3_1	SUP, Tube sealing (>3s) -]/[- 6 -() 7
%M0602	BLK_07 BLK_08 BLK_27	TMR3_2	SUP, Tube sealing (0-3s) -]/[- 13 -]/[- 39 -() 8
%M0603	BLK_08	T_END	SUP, Tube sealing ended -]/[- 16 -]/[- 39 BLK_24 -]/[- 54 BLK_27 -]/[- 6 -() 9
%M0610	BLK_27	LS_SPD	SUP, LS at production speed -]/[- 23,24 -(S) 13 -(R) 14
%M0611	BLK_27	LS_PULS	SUP, Pulse LS pwr at small vols. -]/[- 21,25 -() 21

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REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
%M0612	BLK_27	LSFAULT	SUP, Fault LS TPIH generator -] [- 65 -() 28
%M0613	1T0004	LS_DTCT	SUP, Pkg mtrl splice detected -(S) 23 -] [- 69 BLK_07 -] [- 43,47,49,50,51 BLK_27 -]/[- 43 -(R) 47
%M0614	BLK_27	EX_PWR	SUP, Extra power at mtrl splice -] [- 41 -(S) 45,46 -(R) 44
%M0616	BLK_27	AUX_LS	SUP, AUX enable TPIH gener.LS -] [- 25,32 -]/[- 34 -() 24 BLK_29 -] [- 25
%M0620	BLK_08	LWFRPOS	SUP, Lower form. ring wrong pos. -]/[- 20,25 BLK_27 -] [- 18,64 -(S) 17 -(R) 19
%M0622	BLK_30	LWFRACK	SUP, Lower form. ring ackn. al. -]/[- 10,13 BLK_27 -] [- 19 -(S) 18 -(R) 19
%M0630	BLK_27	SQUEGEE	SUP, Squee-gee roller position -] [- 63 -(S) 55 -(R) 53
%M0631	BLK_08	COL_ROT	SUP, Rotation monitor column -] [- 39 BLK_27 -] [- 68 -]/[- 24 -(S) 58 -(R) 56
%M0632	BLK_27	DU_REG	SUP, Register mark date unit -] [- 66 -(S) 60 -(R) 59
%M0633	BLK_27	ASUBATH	SUP, pkg.matrl.splice inside bath -() 51 BLK_70 -] [- 40
%M0640	BLK_28	RVOPN_1	FIL, reg.v. open when C upwards -] [- 13 -() 10
%M0641	BLK_28	RVOPN_2	FIL, reg.v. open when C downwards -] [- 13 -() 11
%M0642	BLK_28	RVOPN_3	FIL, reg.v. open when N.Stop ON -] [- 13 -() 12
%M0643	BLK_25	RV_WRG	FIL, Reg. valve in wrong pos. -] [- 67,69 BLK_28 -() 16 BLK_50 -] [- 25
%M0644	BLK_28	CNTFILL	FIL, Cnt pkgs before start fill. -] [- 24 -() 18
%M0645	BLK_28	IN_SECT	FIL, Filling sector OK -] [- 24 -(S) 22 -(R) 23
%M0646	BLK_28	STRFILL	FIL, Filling allowed to start -] [- 40 -]/[- 18 -(S) 24 -(R) 25
%M0647	BLK_06	FRC_DWL	FIL, Force download param. TMCC -] [- 35 BLK_28 -() 38
%M0650	BLK_28	A_POS	FIL, A-valve in position -]/[- 73 -() 41
%M0651	BLK_28	C_CLEAN	FIL, Prep. for clean steam barr. -] [- 46 -]/[- 54,79 -(S) 43 -(R) 44 BLK_50 -]/[- 6 BLK_75 -] [- 60,120 -]/[- 59
%M0652	BLK_28	C_NOPRD	FIL, C valve down at no product -] [- 51 -() 49
%M0653	BLK_08	C_POS	FIL, C-valve in position -] [- 20,25

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REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
	BLK_28		-]/[- 79 -() 52
	BLK_50		-]/[- 32,69,302
%M0654	BLK_28	C_STEAM	FIL, Low temp steam (info alarm) -]/[- 54,76 -() 53 -]/[- 6
%M0655	BLK_50		
	BLK_08	C_STLOW	FIL, low temp steam too long -]/[- 17,21,25 -]/[- 74 -]/[- 76 -() 54 -]/[- 16
%M0660	BLK_51		
	BLK_08	LEVEL_H	FIL, High level reached -]/[- 29 -]/[- 78 -(S) 56 -(R) 58 -]/[- 33
%M0661	BLK_70		
	BLK_28	LVL_L	FIL, Low level reached -]/[- 78 -(S) 56 -(R) 58 -]/[- 33
%M0662	BLK_70		
	BLK_28	LVL_OUT	FIL, product level out of range -]/[- 78 -(S) 57 -(R) 58 -]/[- 22
%M0663	BLK_70		
	BLK_08	MALREAD	FIL, Malf. level reading system -]/[- 12,20,26 -]/[- 77 -(S) 61,62 -(R) 60
%M0667	BLK_28	SV_RGAL	FIL, Reg. valve allowed to start -]/[- 65 -() 64 -]/[- 92
%M0668	BLK_51		
	BLK_28	SV_RGRU	FIL, Reg. valve running -]/[- 13 -(S) 65 -(R) 66 -]/[- 93 -]/[- 92
%M0669	BLK_51		
	BLK_07	M_FILOF	FIL, Manual filling off -]/[- 6 -]/[- 46,47 -]/[- 46 -]/[- 25 -(S) 70 -(R) 69 -]/[- 14 -]/[- 12 -]/[- 26
%M0670	BLK_70		
	BLK_26	MANFEED	DRAC, Manual feed packaging mtrl -]/[- 13,15,26 -() 7
%M0671	BLK_26	HIGHLOW	DRAC, High or low spd main motor -]/[- 13,15,27,29,35 -(S) 9 -(R) 11
%M0672	BLK_26	DRACOV	DRAC, Drive roller overload -() 14 -]/[- 67
%M0673	BLK_27		
	BLK_26	SPD_OK	DRAC, High speed within limits -]/[- 39 -() 38
%M0700	BLK_10	H202_ON	PER, Peroxide system on -]/[- 53 -]/[- 9,12,15,17,21,25,32,40,49,50,57,59,60,61,62,63,64,65,66,67 -]/[- 13 -() 5 -]/[- 13,14
%M0701	BLK_54		
	BLK_07	SETFRST	PER, Setpoint at first start -]/[- 53,54 -]/[- 14,41 -]/[- 15,40 -]/[- 14,18,22,31 -]/[- 17,18,22,31 -(S) 7 -(R) 8
%M0702	BLK_10	H20_HT	PER, H2O bath heating ON -]/[- 27 -() 14
%M0703	BLK_24		
	BLK_10	SET_BYP	PER, Bypass temp regs. at stop -]/[- 27 -]/[- 15 -]/[- 29 -(S) 25
	BLK_24		

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REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
%M0704	BLK_08	H20TEMP	-(R) 27 PER, Temp. water bath OK -] [- 19,23 -] / [- 23,87 -() 18 -] [- 12
%M0705	BLK_24	PUMPSTP	PER, Stop peroxide pump -] / [- 21 -() 20
%M0706	BLK_08	TNKTEMP	PER, Temp. peroxide tank OK -] [- 19,24 -] / [- 23,86 -() 22 -] [- 12
%M0707	BLK_10	SP_STOP	PER, 2nd sp H2O2 tank at stop -] [- 41 -] / [- 40 -(S) 9 -(R) 10
%M0708	BLK_24	PERWAIT	PER, waiting time H2O2, H2O temp. -] [- 86,87 -() 23 -] [- 124
%M0709	BLK_24	WBDELHT	PER, delay water bath heating -] [- 14 -(S) 12 -(R) 13
%M0710	BLK_24	STR_ON	PER, Startsequence going on -] [- 38 -() 34
%M0712	BLK_24	DRAIN	PER, Drain peroxide bath -] [- 36 -] / [- 39 -(S) 38 -(R) 37
%M0713	BLK_24	BATHSTR	PER, Per. bath level in startseq -] [- 92 -(S) 41 -(R) 42
%M0714	BLK_24	BATHLVL	PER, Level peroxide bath -] [- 81 -(S) 41 -(R) 42 -] [- 16
%M0715	BLK_24	BATHTMP	PER, Temperature peroxide bath -] [- 80 -(S) 41 -(R) 42 -] [- 16
%M0720	BLK_24	TNKEMPTY	PER, Fill per. tank, empty bath -] [- 51,52 -] / [- 55 -() 45
%M0721	BLK_24	TNKPROD	PER, Fill per. tank, at prod. -] [- 51,53 -] / [- 55 -() 47
%M0722	BLK_24	TNKCHK	PER, Check safety sond per. tank -] [- 93 -] / [- 51 -(S) 49 -(R) 48
%M0723	BLK_24	TNKSAFE	PER, Safety at prod per. tank -] [- 88 -] / [- 51 -(S) 50 -(R) 48
%M0724	BLK_24	CHGCONT	PER, Change peroxide container -] [- 85 -(S) 52,53,54 -(R) 55
%M0730	BLK_08	SPR_RDY	PER, Spray sequence ready -] [- 18 -] / [- 57 -(S) 58 -(R) 78 -] [- 57 -] / [- 33 -] [- 16 -] [- 17
%M0731	BLK_24	SPRAY_1	PER, Spray sequence 0,01-3,00 -] [- 75 -() 59 -] [- 15
%M0732	BLK_08	SPRAY_2	PER, Spray sequence 0,01-11,00 -] [- 40,41 -] [- 69 -() 60 -] [- 67

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BLOCK: MAIN

REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
	BLK_70		-]/[- 46
%M0733	BLK_24	SPRAY_3	PER, Spray sequence 10,00-12,00
			-]/[- 71,75
			-() 61
	BLK_54		-]/[- 12,15
%M0734	BLK_24	SPRAY_4	PER, Spray sequence 12,00-30,00
			-]/[- 77
			-() 62
%M0735	BLK_24	SPRAY_5	PER, Spray sequence 45,00-50,00
			-]/[- 77
			-() 63
%M0736	BLK_24	SPRAY_6	PER, Spray sequence 12,00-45,00
			-]/[- 73
			-() 64
	BLK_54		-]/[- 19
%M0737	BLK_24	SPRAY_7	PER, Spray sequence 12,00-50,00
			-() 65
	BLK_25		-]/[- 23
%M0738	BLK_24	SPRAY_8	PER, Spray sequence 51,00-52,00
			-() 66
	BLK_25		-]/[- 23
%M0739	BLK_24	SPRAY_9	PER, Spray sequence 51,00-52,00
			-() 67
	BLK_25		-]/[- 55
%M0740	BLK_24	SPR_FUL	PER, Spray tank filled
			-]/[- 73
			-(S) 71
			-(R) 78
	BLK_25		-]/[- 33,87
%M0741	BLK_08	SPR_FIL	PER, Spray tank, fast/slow fill.
			-]/[- 40
			-]/[- 15
	BLK_24		-]/[- 78,83
			-]/[- 78
			-(S) 75
			-(R) 78
%M0742	BLK_08	SPR_EMT	PER, Spray tank, fast/slow empt.
			-]/[- 49
	BLK_24		-]/[- 58,84
			-(S) 77
			-(R) 78
	BLK_33		-]/[- 6
	BLK_75		-]/[- 104
%M0800	BLK_25	AIR_ON	AIR, Sterile air system on
			-]/[- 9,10,11,12,13,23,27,33,62
			-]/[- 26
			-() 5
%M0801	BLK_08	AIRSTOP	AIR, Sterile air system stop
			-]/[- 40
	BLK_25		-]/[- 97
			-(S) 7
			-(R) 6
	BLK_50		-]/[- 70
%M0805	BLK_25	AIR_TM1	AIR, Start ster.air (>30,00)
			-]/[- 7
			-]/[- 11,12
			-() 9
%M0806	BLK_25	AIR_TM2	AIR, Start ster.air (>7,00)
			-]/[- 12
			-() 10
%M0807	BLK_08	SUP_TO	AIR, Air superheater timeout
			-]/[- 41
	BLK_25		-]/[- 95
			-(S) 15
			-(R) 16
	BLK_50		-]/[- 70
%M0808	BLK_25	PRE_DEL	AIR, Delay preheating valve
			-]/[- 23
			-(S) 22
			-(R) 18
%M0809	BLK_25	HT_DONE	AIR, Machine already preheated
			-]/[- 21
			-(S) 22
			-(R) 19
%M0810	BLK_25	PIPEVEN	AIR, Filling pipe & AC ventil.
			-]/[- 54,55
			-]/[- 23
			-() 21
%M0811	BLK_08	PRE_POS	AIR, Preheating valve in pos.
			-]/[- 40
	BLK_25		-]/[- 96
			-() 24
%M0812	BLK_08	AIRTEMP	AIR, Heat ster. temp. reached
			-]/[- 17
	BLK_25		-]/[- 23,35,57,79,95
			-(S) 27
			-(R) 26
%M0813	BLK_08	AC_400K	AIR, Asept. cham 40 deg. reached
			-]/[- 17

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REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
	BLK_25		-] [- 23 -(S) 29 -(R) 30
%M0814	BLK_08	UP_TO_4	AIR, Stepping up to step 4 -] [- 43 -() 31
%M0815	BLK_25	AC_W RTP	AIR, AC wrong temperature -] [- 76,92 -(S) 75 -(R) 77
%M0816	BLK_51 BLK_25	AC_ACK	AIR, AC wrong temp acknowledge -] [- 16 -] [- 77 -(S) 76 -(R) 77
%M0818	BLK_08 BLK_25	AC_HSTO	AIR, AC temp.TimeOut in heat.ste -] [- 38 -] [- 92 -(S) 79 -(R) 78
%M0820	BLK_25	AC_TEMP	AIR, AC ctrl heat ster temp. -] [- 55 -() 35
%M0821	BLK_25	EXC_FLP	AIR, FLP heat exchanger valve -] [- 55 -() 37
%M0830	BLK_25	DRYING	AIR, Drying aseptic chamber -] [- 60 -() 57 -] [- 124
%M0831	BLK_08 BLK_10 BLK_24 BLK_25 BLK_26 BLK_28 BLK_30 BLK_33 BLK_51 BLK_54 BLK_70 BLK_75	DRY_RDY	AIR, Drying ready aseptic chamb -] [- 19,49 -] [- 53,166 -] [- 165 -] [- 23 -] [- 41,42,47,48 -] [- 50,62,69,81,87 -() 60 -] [- 6 -] [- 13 -] [- 12 -] [- 39 -] [- 12,87 -] [- 22 -] [- 47,48 -] [- 124
%M0832	BLK_25	DRY_BVO	AIR, B-valve open in drying -] [- 64 -() 62
%M0833	BLK_25	AUX_BVO	AIR, B-valve open (aux.contact) -] [- 62 -() 63
%M0835	BLK_08 BLK_25 BLK_50	B_POS	AIR, B-valve in position -] [- 40 -] [- 93 -() 65 -] [- 32,69
%M0836	BLK_25	H2O_SEP	AIR, High level water separator -] [- 94 -(S) 73 -(R) 72
%M0837	BLK_08 BLK_25	REG_BEF	AIR, Reg.valve pos.before spray -] [- 40 -] [- 16 -] [- 98 -(S) 67 -(R) 68
%M0838	BLK_25 BLK_70 BLK_75	REG_AFT	AIR, Reg.valve pos. after spray -] [- 98 -(S) 69 -(R) 70 -] [- 48 -] [- 104
%M0839	BLK_08 BLK_25	BUT_DRY	AIR, Butterfly ON in drying -] [- 16 -] [- 83 -() 82
%M0841	BLK_08 BLK_25	BUT_POS	AIR, Butterfly valve wrong pos. -] [- 41 -] [- 87,99 -(S) 85 -(R) 84 -] [- 70
%M0842	BLK_50 BLK_25	BUTPOS2	AIR, Butt.wrong pos.after spray -(S) 87 -(R) 86 -] [- 48 -] [- 104
%M0850	BLK_25	LIM+PUL	Heating limit increment pulse

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REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
			-] [- 41 -] / [- 39 - (^) 39
%M0851	BLK_25	LIM-PUL	Heating Limit decrement pulse
			-] [- 42 -] / [- 40 - (^) 40
%M0852	BLK_25	COOLEOP	Cooling during End Of Production
			-] [- 51 -] / [- 50 - () 53
%M0853	BLK_25	BYP-ON	Bypass ON
			-] / [- 51,55 - () 50
%M0854	BLK_25	MAXCOOL	Max-Cooling on
			-] [- 54 -] / [- 36 - () 51
%M0855	BLK_25	PRODOFF	30 sec.Production off delay
			-] [- 53 - () 52
%M0860	BLK_25	BYP_LAC	Bypass for low temp.Aseptic Ch.
			-] [- 50 - () 48
%M0861	BLK_25	BYP_ST	Bypass during start sequence
			-] [- 50 - () 49
%M0862	BLK_25	BYP_LIM	Bypass limit ON
			-] / [- 48 - (S) 46 - (R) 44
%M0900	BLK_07	INC_FFU	JUM, Condition inching FFU
	BLK_30		-] [- 10,13 -] [- 19,29,32 - () 7
%M0901	BLK_07	INC_JUM	JUM, Condition inching JUM
	BLK_29		-] [- 11,13 -] [- 43,47
	BLK_30		-] [- 9,19,29,32,36 - () 10 -] / [- 59
%M0902	BLK_07	STR_JUM	JUM, Condition ster. inching JUM
	BLK_24		-] [- 11,21 -] [- 29,39 -] / [- 25
	BLK_29		-] [- 12,19,30,36,76,77 - () 13 -] / [- 59 -] [- 21
	BLK_30		-] [- 21
%M0903	BLK_30	INC_ON	JUM, Condition inching going on
			-] [- 29,32,36 - () 27
%M0909	BLK_30	STP_13D	JUM, Step 13 - delay 1 scan
			-] [- 20 - () 22
%M0910	BLK_07	MM_RDY	JUM, DMC main motor ready start
	BLK_08		-] [- 10,11 -] [- 11,24 -] / [- 47 - () 25
	BLK_30		-] [- 47
%M0911	BLK_07	SLW_WEB	JUM, Paper web slow speed
	BLK_20		-] [- 35,42,46 -] [- 32 -] [- 5 -] / [- 27 -] [- 16
	BLK_21		-] / [- 8,15,16,26 -] [- 9,24,29 -] / [- 14 - () 40
	BLK_22		-] / [- 40
%M0912	BLK_07	FST_WEB	JUM, Paper web fast speed
	BLK_20		-] [- 36,37,38,42,46,48,49,50,51 -] [- 14,32,84 -] [- 5,43,44 -] / [- 45 -] / [- 8,16,22 -] [- 40 -] / [- 20,35 -] [- 9,22,35 -] [- 13,57,60 -] / [- 14 -] [- 22,23,40 -] / [- 62 -] [- 25,26 -] [- 41 -] / [- 70 - () 40 -] [- 35 -] [- 28
	BLK_21		-] [- 14,32,84 -] [- 5,43,44 -] / [- 45 -] / [- 8,16,22 -] [- 40 -] / [- 20,35 -] [- 9,22,35 -] [- 13,57,60 -] / [- 14 -] [- 22,23,40 -] / [- 62 -] [- 25,26 -] [- 41 -] / [- 70 - () 40 -] [- 35 -] [- 28
	BLK_22		-] / [- 8,16,22 -] [- 40 -] / [- 20,35 -] [- 9,22,35 -] [- 13,57,60 -] / [- 14 -] [- 22,23,40 -] / [- 62 -] [- 25,26 -] [- 41 -] / [- 70 - () 40 -] [- 35 -] [- 28
	BLK_23		-] [- 40
	BLK_24		-] / [- 20,35
	BLK_26		-] [- 9,22,35
	BLK_27		-] [- 13,57,60
	BLK_28		-] / [- 14
	BLK_29		-] [- 22,23,40
	BLK_30		-] / [- 62
			-] [- 25,26
			-] [- 41
			-] / [- 70
			- () 40
			-] [- 35
			-] [- 28

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REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES

%M0913	1T0004	FSTCTCH	-]/[- 26 JUM, fast speed catches -] [- 55,56,57,58 -]/[- 55,56,57,58 - (S) 41 - (R) 42
	BLK_30		
%M0915	BLK_08	MMFAULT	JUM, Servo fault main motor -] [- 44 -] [- 99 - (S) 44,45,47 - (R) 48
	BLK_30		
%M0920	1T0004	L_START	JUM, Press.left jaw start sector -] [- 55 -]/[- 55 - (S) 55 - (R) 56
	BLK_30		
%M0921	1T0004	R_START	JUM, Press.right jaw start sec. -] [- 57 -]/[- 57 - (S) 58 - (R) 59
	BLK_30		
%M0922	1T0004	LE_JAW	JUM, Press.left jaw el. error -]/[- 55,57 -] [- 102 - (S) 64 - (R) 68
	BLK_30		
%M0923	1T0004	RI_JAW	JUM, Press.right jaw el. error -]/[- 55,57 -] [- 103 - (S) 67 - (R) 68
	BLK_30		
%M0924	1T0004	STPRESS	JUM, No jaw press. at stop -]/[- 55,57 - () 70
	BLK_30		
%M0925	1T0004	L_SIDE	JUM, Left side -] [- 44,50 -]/[- 44,50 - () 35 -] [- 51 -]/[- 51
	BLK_30		
%M0926	1T0004	L_CLSTR	JUM, Left catch closed at start -] [- 55 - () 37
%M0927	1T0004	R_CLSTR	JUM, Right catch closed at start -] [- 57 - (/) 38
%M0928	1T0004	L_CLFST	JUM, Left catch closed fast spd -] [- 55 - () 40
%M0929	1T0004	R_CLFST	JUM, Right catch closed fast spd -] [- 57 - (/) 41
%M0930	1T0004	L_OPFST	JUM, Left catch open at fast spd -] [- 56 - () 44
%M0931	1T0004	R_OPFST	JUM, Right catch open at fst spd -] [- 58 - () 44
%M0932	1T0004	L_CLSLW	JUM, Left catch closed slow spd -] [- 55 - () 46
%M0933	1T0004	R_CLSLW	JUM, Right catch closed slow spd -] [- 57 - (/) 47
%M0934	1T0004	L_OPSLW	JUM, Left catch open slow spd -] [- 56 - () 50
%M0935	1T0004	R_OPSLW	JUM, Right catch open slow spd -] [- 58 - () 50
%M0936	1T0004	L_OPSRV	JUM, Left catch open in service -] [- 56 - (/) 52
%M0937	1T0004	R_OPSRV	JUM, Right catch open in service -] [- 58 - () 53
%M0938	BLK_30	LE_FLT	JUM, Pr. L jaw el. err.(partial) -] [- 64 - () 62
%M0939	BLK_30	RI_FLT	JUM, Pr. R jaw el. err.(partial) -] [- 67 - () 65
%M0943	BLK_30	CHK_JAW	JUM, Start check of jaw control -] [- 62,63,65,66 - () 61
%M0950	BLK_08	SUPPROL	JUM, Tube supp.roll. wrong pos. -]/[- 12,20,25 -] [- 105 -]/[- 10,12
	BLK_30		

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REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
%M1000	BLK_08	DCS_OK	- () 74 DCS, Machine in design
	BLK_27		-] [- 48 -] [- 45
	BLK_29		-]/[- 46 -] [- 18 - (S) 15 - (R) 14 -]/[- 28
%M1001	BLK_32	CNT2_1	DCS, >10 pkgs out of design
	BLK_29		-] [- 57 - (S) 18 - (R) 17
%M1002	BLK_29	CNT2_2	DCS, 2-10 pkgs. out of design
	BLK_32		- () 19 -] [- 28
	BLK_75		-] [- 24
%M1010	BLK_08	DCS_MON	DCS, Monitor register mark
	BLK_29		-] [- 39 -] [- 56 - (S) 25 - (R) 24
%M1011	BLK_20	DCS_MIS	DCS, Missed register mark
	BLK_27		-] [- 92 -] [- 9,43
	BLK_28		-] [- 57
	BLK_29		-]/[- 27 - () 27 -] [- 19,28,37,53,54 -] [- 36 -] [- 21,24,27,39
%M1012	BLK_29	DCS_RI	DCS, Right servo fault
			-] [- 58 - (S) 30 - (R) 39
%M1013	BLK_29	DCS_LE	DCS, Left servo fault
			-] [- 59 - (S) 30 - (R) 39
%M1014	BLK_29	RI_HOME	DCS, Right home position fault
			-] [- 61 -]/[- 7,9 - (S) 33,34 - (R) 39
%M1015	BLK_29	LE_HOME	DCS, Left home position fault
			-] [- 60 -]/[- 8,10 - (S) 37,38 - (R) 39
%M1020	BLK_29	SV_LFAL	DCS, Left flap allowed to start
			-] [- 42 - () 41 -] [- 92
%M1021	BLK_51	SV_LFRU	DCS, Left flap running
	BLK_29		-] [- 49,51,54 - (S) 42 - (R) 43 -] [- 93 -]/[- 92
%M1022	BLK_29	SV_RFAL	DCS, Right flap allowed t.start
			-] [- 46 - () 45 -] [- 92
%M1023	BLK_51	SV_RFRU	DCS, Right flap running
	BLK_29		-] [- 49,52,54 - (S) 46 - (R) 47 -] [- 93 -]/[- 92
%M1024	BLK_07	SV_FLAP	DCS, Inch flaps to position
	BLK_29		-] [- 13 -]/[- 54 - (S) 50 - (R) 51,52,53 -] [- 19,32,36
%M1050	BLK_33	FLAP_ON	FFU, Flap heaters ON in drying
			-] [- 7 - () 6
%M1051	BLK_33	FLAP_1	FFU, Wrong temp. flap L/R bottom
			-] [- 47 - () 11
%M1053	BLK_33	FLAP_3	FFU, Wrong temp. flap left top
			-] [- 48 - () 12
%M1054	BLK_33	FLAP_4	FFU, Wrong temp. flap right top
			-] [- 49 - () 13
%M1060	1T0004	NOT_SNC	FFU, Not synchronized
			- (S) 65,66

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BLOCK: MAIN

REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
			-(R) 74
			-] [- 50
%M1061	BLK_33 1T0004	OVR_INF	FFU, Overload infeed station
			-(S) 67,68
			-(R) 75
			-] [- 43
%M1062	BLK_33 1T0004	OVR_PRS	FFU, Overload pressure device
			-(S) 69,70
			-(R) 74
			-] [- 42
%M1063	BLK_33 1T0004	OVR_STN	FFU, Overload station wheel
			-(S) 71,72
			-(R) 74
			-] [- 44
%M1070	BLK_33 1T0004	MON_SLW	FFU, Mon. overloads slow speed
			-] [- 65,67,69,71
			-() 16
%M1071	BLK_33 1T0004	MON_FST	FFU, Mon. overloads fast speed
			-] [- 66,68,70,72
			-() 18
%M1080	BLK_33 BLK_08	EXT_DU	FFU, External date unit not rdy
			-]/[- 19
			-] [- 54
			-() 39
%M1090	BLK_33	EXTCONG	FFU, Ext.conveyor cong. guard
			-] [- 25,26,46
			-(S) 24
			-(R) 27
%M1091	BLK_08	HOMEPOS	FFU, Machine not in home pos.
			-]/[- 19,22,24
	BLK_30		-]/[- 13
	BLK_33		-] [- 41
			-() 30
%M1092	BLK_33	PKGMAIF	FFU, Pkg cnt malf. photocells
			-] [- 51
			-(S) 35
			-(R) 32
%M1093	BLK_33	EXTCACK	FFU, Ext. conv. cong. ackn.
			-] [- 27
			-(S) 26
			-(R) 27
%M1094	BLK_33	XTCONG1	FFU, Ext.congestn. is in conv.1
			-] [- 27
			-]/[- 25,27
			-(S) 25
			-(R) 27
%M1100	1T0004	TS_ON	TS, Transversal sealing on
			-] [- 25
	BLK_30		-(S) 77
			-(R) 78
%M1101	BLK_30	LEFAULT	TS, Fault left hand jaw
			-] [- 85,97
			-]/[- 83
			-(S) 83
			-(R) 87
%M1102	BLK_30	RIFAUULT	TS, Fault right hand jaw
			-] [- 86,98
			-]/[- 83
			-(S) 83
			-(R) 87
%M1103	BLK_30	TSFAULT	TS, Stop main motor at fault
			-(S) 85,86
			-(R) 87
%M1104	BLK_30	TSSIDE	TS, Side select at alarm
			-] [- 83
			-]/[- 83
			-() 82
%M1105	1T0004	TSLNGTH	TS, Control pulse length
			-] [- 27
			-]/[- 28
	BLK_30		-() 89
%M1200	BLK_07	STD_RDY	CIP, Ready to start standard
			-] [- 6
	BLK_50		-] [- 23
			-]/[- 32
			-() 9
%M1201	BLK_07	AUT_RDY	CIP, Ready to start with DEF val
			-] [- 6
	BLK_50		-] [- 23
			-]/[- 32
			-() 12
%M1202	BLK_50	CIP_RUN	CIP, Cip is running
			-] [- 19,20,21,33,40
			-]/[- 22,53
			-(S) 18
			-(R) 20
	BLK_75		-] [- 59,60
%M1203	BLK_07	CIP_END	CIP, Cip ended,Cip dry can start
			-] [- 7

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BLOCK: MAIN

REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
			-] / [- 8 -] [- 54 -] / [- 8 BLK_50 -] [- 35,40,45,62,63,66,293,294,295,296,297 -] / [- 44,53 - (SM) 20 - (RM) 21 BLK_54 -] [- 34,42 BLK_75 -] [- 161 %M1204 BLK_07 CIP_ON CIP, TBA21 ready for CIP -] [- 8 -] / [- 6,7 BLK_08 -] [- 54 -] / [- 37 BLK_28 -] [- 46 -] / [- 43,51 BLK_50 -] [- 15,16,18,22,31,32,33,36,37,39,41,44,49,52,56,59,74,75,97 -] / [- 6,51 - (S) 23 - (R) 22 BLK_51 -] [- 17 BLK_54 -] [- 29 -] / [- 48 BLK_75 -] [- 162 -] / [- 161 %M1205 BLK_08 CIP_INT CIP, interrupted -] [- 54 -] / [- 8,38 BLK_50 -] [- 22,36,45,46,59,298,299,302 -] / [- 44 - (S) 32,33 - (R) 31 BLK_75 -] [- 170 %M1206 BLK_08 CIPLOWT CIP, not allow low temp steam -] / [- 8 BLK_50 -] / [- 8,11 - () 6 %M1207 BLK_50 B_AUT CIP, B valve open in cip DEF val -] [- 43 - () 40 %M1208 BLK_50 B_STD CIP, B valve open in cip std.eq. -] [- 43 - () 42 %M1209 BLK_25 CIP_BVO CIP, B valve open in cip -] [- 64 BLK_50 -] [- 44 - () 43 %M1210 BLK_50 RV_POS CIP, reg. valve wrong pos.in CIP -] [- 32,69,298 -] / [- 9,11 - (S) 25 - (R) 29 %M1211 BLK_50 D_POS CIP, D valve in wrong position -] [- 32,69,290 - (S) 26 - (R) 29 %M1212 BLK_50 E_POS CIP, E valve in wrong position -] [- 32,69,291 - (S) 27 - (R) 29 %M1213 BLK_50 F_POS CIP, F valve in wrong position -] [- 32,69,292 - (S) 28 - (R) 29 %M1214 BLK_28 CIPRV01 CIP, Reg.v.open at cip on (4bar) -] [- 15 BLK_50 -] [- 25 -] / [- 45 - () 44 %M1215 BLK_28 CIPRV02 CIP, Reg.v.open cip int/dry 2bar -] [- 13 BLK_50 -] [- 25 - () 45 %M1216 BLK_50 CUP_POS CIP, cleaning cup out of posit. -] [- 293 - (S) 46 - (R) 47 %M1217 BLK_07 COMFLT1 CIP,comm.fault1 Wrong sig.exch. -] / [- 6 BLK_50 -] [- 308 - (S) 51 - (R) 50 %M1218 BLK_08 COMFLT2 CIP,comm.fault2 Wrong sig.exch. -] / [- 8,38 BLK_50 -] [- 308 - (S) 53 - (R) 52 %M1219 BLK_50 COMFLT3 CIP,comm.fault3 Wrong sig.exch. -] [- 33,308

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BLOCK: MAIN

REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
			-(S) 57
			-(R) 55
%M1220	BLK_08	AUT_CIP	CIP, Automatic CIP (DEF valve)
			-] [- 15
			-]/ [- 15
	BLK_50		-] [- 11, 26, 27, 28, 32, 35, 36, 37, 39, 40, 44, 63, 69
			-]/ [- 8, 32, 41, 42, 44, 61, 69, 295, 296, 297
			-() 5
%M1230	BLK_07	CIPDRY1	CIP, Ready for cip dry std. eq.
			-] [- 7
	BLK_50		-] [- 66
			-]/ [- 69
			-() 62
%M1231	BLK_07	CIPDRY2	CIP, Ready for aut.CIP dry (DEF)
			-] [- 7
	BLK_50		-] [- 66
			-]/ [- 69
			-() 64
%M1232	BLK_07	CIP_DRY	CIP, Cip drying going on
			-]/ [- 6, 7
	BLK_08		-]/ [- 37
	BLK_25		-] [- 5, 20, 23, 54, 55, 83
			-]/ [- 22
	BLK_50		-] [- 42, 67, 68, 69, 70, 71, 81
			-]/ [- 36
			-(S) 66
			-(R) 65
	BLK_54		-] [- 21
	BLK_75		-] [- 118, 127, 162
%M1233	BLK_08	DRY_INT	CIP, Cip drying interrupted
			-]/ [- 8, 38
	BLK_50		-] [- 65, 298, 307
			-(S) 69, 70
			-(R) 68
%M1234	BLK_25	WARMSEQ	CIP, Cip drying warm seq. ended
			-]/ [- 13
	BLK_50		-(S) 71
			-(R) 72
%M1235	BLK_08	DRY_END	CIP, Cip drying ended
			-] [- 37
	BLK_50		-] [- 21, 65, 72
			-() 67
	BLK_54		-] [- 35
%M1250	BLK_50	CIPFLOW	CIP, Flow>8m3/h;0-16000=0-10m3/h
			-] [- 54, 77, 79, 82
			-]/ [- 16
			-(S) 74
			-(R) 75
%M1252	BLK_50	FR_OK	CIP, First rinsing phase done
			-] [- 76
			-]/ [- 16, 77
			-(S) 76
			-(R) 83
%M1253	BLK_50	CIP_FR	CIP, First rinsing going on
			-] [- 76
			-() 77
%M1254	BLK_50	ALC_OK	CIP, Alkali phase done
			-] [- 78, 80
			-]/ [- 16, 77, 79
			-(S) 78
			-(R) 83
%M1255	BLK_50	CIP_ALC	CIP, Alkali phase going on
			-] [- 16, 78
			-() 79
%M1256	BLK_50	LR_ALLW	CIP, Last rinsing phase allowed
			-] [- 82
			-(S) 79
			-(R) 81
%M1257	BLK_50	LR_OK	CIP, Last rinsing phase done
			-] [- 80, 81
			-]/ [- 16, 77, 82
			-(S) 80
			-(R) 83
%M1258	BLK_50	CIP_LR	CIP, Last rinsing phase going on
			-] [- 16, 80
			-() 82
%M1259	BLK_50	CIP_SUP	CIP, Cip phases supervision
			-] [- 306
			-(S) 16
			-(R) 17
%M1310	BLK_07	EC_SEL	EC, TPOP selection OK
			-] [- 6
			-]/ [- 8
	BLK_08		-] [- 54
	BLK_50		-] [- 94
			-() 86
%M1311	BLK_07	EC_ALWD	EC, Allowed
			-] [- 6
	BLK_08		-] [- 54

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BLOCK: MAIN

REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
	BLK_50		-] [- 91,94,106 -]/[- 103 -() 89
%M1312	BLK_07	EC_INCH	EC, Slow inching -] [- 13 -]/[- 37
	BLK_08		-] [- 19,32,36
	BLK_30		-]/[- 20
	BLK_50		-(S) 91 -(R) 92
%M1313	BLK_07	EC_ON	EC, Going on -] [- 8,81 -]/[- 6
	BLK_08		-]/[- 37
	BLK_32		-]/[- 62
	BLK_33		-]/[- 8,21,23
	BLK_50		-] [- 98,101,103,112,118,119,120,121,122,123,124,125,126,127,128,129,130,131,132,133,135,136,137,138,139, 142,143,144,145,146,147,148,149,150,154,155,156,157,158,159,163,164,165,166,167,168,169,174,175, 176,177,180,181,182,183,184,186,189,190,191,192,193,194,196,199,200,201,202,203,204,205,206,207, 208,209,212,213,214,215,216,217,218,219,220,221,222,223,224,225,226,227,230,231,232,233,234,235, 236,237,238,239,240,241,242,243,244,245,246,247,250,251,252,254,277,280,281,282,283,285,286,288 -]/[- 98,104 -(S) 94 -(R) 95
	BLK_75		-] [- 62,123,160 -]/[- 159
%M1314	BLK_08	EC_RDY	EC, Ready -] [- 37
	BLK_50		-] [- 92,95,97 -(S) 98,99 -(R) 97
%M1315	BLK_50	EC_LUB	EC, Start long lubrication -() 101
	BLK_51		-] [- 55
%M1316	BLK_07	EC_INTR	EC, Interrupted -] [- 82 -] [- 92,106 -]/[- 98,142,143,144,145,146,147,148,149,150,154,155,156,157,158,159,163,164,165,166,167,168,169,174,175, 176,177,180,181,182,183,184,186,189,190,191,192,193,194,196,199,200,201,202,203,204,205,206,207, 208,209,212,213,214,215,216,217,218,219,220,221,222,223,224,225,226,227,230,231,232,233,234,235, 236,237,238,239,240,241,242,243,244,245,246,247,250,251,252,254,277,280,281,282,283 -(S) 103 -(R) 104
	BLK_70		-] [- 16 -]/[- 16
%M1317	BLK_07	EC_RSTR	EC, Ready for restart -] [- 6
	BLK_50		-] [- 104 -() 106
%M1320	BLK_50	EC_SUPL	EC, Hot water supply missing -] [- 300 -]/[- 89 -(S) 110 -(R) 108
%M1321	BLK_50	EC_COVR	EC, Column cover not closed -] [- 115,301 -]/[- 89 -(S) 114 -(R) 116
%M1322	BLK_50	COVRACK	EC, Column cover ackn -] [- 116 -(S) 115 -(R) 116
%M1330	BLK_50	EC_FILL	EC, Filling chemical pipes -] [- 171 -(S) 154,155,156,157,158,159 -(R) 153
%M1331	BLK_50	EC_DOSN	EC, Dosing chemicals -] [- 170 -(S) 163,164,165,166,167,168,169 -(R) 162
%M1500	BLK_08	LP_COOL	SRV, Low pressure cooling water -]/[- 11,20 -] [- 24,26,118 -]/[- 27 -(S) 23 -(R) 25
%M1501	BLK_08	CONDUCT	SRV, Wrong cond. circ water -]/[- 11 -] [- 120 -() 32
%M1502	BLK_51	COOLACK	SRV, Low pressure cooling ack. -] [- 25 -(S) 24 -(R) 25
%M1503	BLK_51	STERRDY	SRV, Sign. ster. rdy honeywell -] [- 15 -() 13
%M1504	BLK_51	HYDRSTP	SRV, Hydr. oil, stop low pr.cool

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BLOCK: MAIN

REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
			-]/[- 30,40
			-(S) 26
			-(R) 27
%M1509	BLK_51	HOILPRE	SRV, Hydraulic oil, low pressure
			-] [- 109
			-]/[- 40
			-(S) 46
			-(R) 44
%M1510	BLK_08	FILTER	SRV, Hydraulic unit filter
			-]/[- 15
	BLK_51		-] [- 108
			-(S) 48
			-(R) 49
%M1511	BLK_51	SV_HYAL	SRV, Hydr. pump allowed start
			-] [- 52,92
			-]/[- 141
			-() 51
%M1512	1T0004	SV_HYRU	SRV, Hydr. pump running
			-] [- 56,58
			-]/[- 56,58
	BLK_51		-] [- 40,93
			-]/[- 92
			-(S) 52
			-(R) 53
	BLK_70		-] [- 47
%M1513	BLK_51	HYDCOOL	SRV, Hydr.oil allowed by cool.w.
			-] [- 40
			-(S) 28
			-(R) 29
%M1520	BLK_51	LUB_END	SRV, Lubr. sequence ended
			-] [- 56
			-() 56
%M1521	BLK_51	LUBLONG	SRV, Lubr. long seq. ordered
			-] [- 56,61,62,63,64
			-]/[- 55
			-(S) 57
			-(R) 58
%M1522	BLK_08	LUB_LOW	SRV, Lubr. max time low level
			-]/[- 23
	BLK_51		-] [- 104
			-]/[- 103
			-() 66
%M1523	BLK_08	LUB_PRS	SRV, Lubr. wrong pressure
			-]/[- 20
	BLK_51		-] [- 102
			-(S) 68,70
			-(R) 71
%M1530	BLK_51	SAFREL1	SRV, Saf. relay A600,601 tripped
			-] [- 74,82
			-(S) 73
			-(R) 75
%M1531	BLK_51	SAF1ACK	SRV, Saf. relay A600,601 acknow.
			-] [- 75,79
			-(S) 74
			-(R) 75
%M1532	BLK_51	SAFREL2	SRV, Saf. relay A603 tripped
			-] [- 77,82
			-(S) 76
			-(R) 78
%M1533	BLK_51	SAF2ACK	SRV, Saf. relay A603 acknow.
			-] [- 78,79
			-(S) 77
			-(R) 78
%M1535	BLK_51	CIRC_OK	SRV, Circ.OK, relays not reset
			-] [- 80,81
			-]/[- 84
			-() 79
%M1536	BLK_51	PLS_SAF	SRV, Circuits OK pulse
			-] [- 84
			-(^) 80
%M1537	BLK_51	SAF_ALM	SRV, Safety relays malfunction
			-] [- 138
			-() 85
%M1538	BLK_51	SAF_NOA	SRV, No alarms in safety windows
			-] [- 85
			-() 83
%M1600	BLK_07	SRV_SEL	SRV, Serv.func.selected to start
			-]/[- 8
	BLK_08		-]/[- 8
	BLK_51		-() 91
%M1601	BLK_07	SRV_STR	SRV, Serv.func. ready to start
			-] [- 6
	BLK_08		-] [- 55
	BLK_51		-() 92
	BLK_75		-] [- 163
%M1602	BLK_08	SRV_ACT	SRV, Serv.func. active
			-]/[- 36
	BLK_51		-() 93
%M1603	BLK_07	SRV_STP	SRV, Serv.func. selected to stop

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BLOCK: MAIN

REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
			-] [- 8
	BLK_08		-] [- 36
	BLK_51		-() 95
%M1604	BLK_51	WAIT_OW	SRV, wait cooling water in stp1
			-] [- 119
			-(S) 34
			-(R) 35
%M1800	_MAIN	PT_RDY	PT21, Ready for production
			-() 24
	BLK_08		-] [- 12,24
	BLK_30		-] [- 9
	BLK_70		-] [- 20
%M1900	BLK_502	HI_ON	HI, system ready for HI
			-] [- 17,36,49,62,75
	BLK_503		-] [- 17,30,43,56
	BLK_24		-] / [- 71
	BLK_25		-] [- 58
			-] / [- 59
	BLK_33		-] [- 6
			-] / [- 6
	BLK_54		-] [- 8,9,12,15,16,17,19,21,22,23,29,31,33,34,35,41,42,46,47
			-] / [- 6,19,40,43,48
			-() 5
%M1901	BLK_54	HI_DIS	HI, Filler with HI disabled
			-] [- 38
			-(S) 6
			-(R) 7
%M1902	BLK_08	HINOSTE	HI, HI sys.not ready for steril.
			-] [- 41
			-] / [- 16
	BLK_54		-() 8
	BLK_70		-] [- 46
%M1903	BLK_08	HINOSTR	HI, HI sys. not rdy. motor start
			-] / [- 26
	BLK_54		-] [- 45
			-() 9
%M1904	BLK_24	HISPFUL	HI, HI spray tank filled
			-] [- 71
	BLK_54		-(S) 12
			-(R) 11
%M1905	BLK_54	HISPR_1	HI, HI Spray sequence 12s-12s05
			-] [- 16
			-() 13
%M1906	BLK_54	HISPR_2	HI, HI Spray sequence 25s-50s
			-] [- 16
			-() 14
%M1907	BLK_08	HISPFIL	HI, HI spr.tank slow/fast fill.
			-] [- 41
	BLK_24		-] [- 89
	BLK_54		-] [- 11
			-] / [- 11
			-(S) 15
			-(R) 11
%M1908	BLK_08	HISPEMP	HI, HI spr.tank slow/fast empty
			-] / [- 49
	BLK_24		-] [- 58,90
	BLK_33		-] / [- 6
	BLK_54		-(S) 16
			-(R) 11
	BLK_75		-] [- 104
%M1909	BLK_08	HITMPLW	HI, Low temp. during spraying
			-] / [- 49
	BLK_24		-] [- 58,91
	BLK_33		-] / [- 6
	BLK_54		-(S) 17
			-(R) 11,18
	BLK_75		-] [- 104
%M1910	BLK_54	HI0FFSS	HI, HI off short stp(tube fill.)
			-] / [- 29
			-(S) 27
			-(R) 28
%M1911	BLK_54	HI_PROD	HI, Production with HI
			-] [- 33,46
			-(S) 31
			-(R) 32
%M1912	BLK_50	HINOCIP	HI, HI sys. not ready for CIP
			-] / [- 9,12
	BLK_54		-() 33
%M1913	BLK_50	HICIPDR	HI, HI syst.NOTready for CIP dry
			-] / [- 62,64
	BLK_54		-() 34
%M1914	BLK_08	NOZ_OFF	HI, HI nozzle off after CIP dry
			-] / [- 13
	BLK_54		-] [- 8,46
			-(S) 35
			-(R) 36
%M1915	BLK_54	MALFSEN	HI, Malf. B9107 when HI disabled
			-] [- 40
			-(S) 38

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BLOCK: MAIN

REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
%M1916	BLK_28	HI_FIL1	-(R) 39 HI, Alarm HI disabled -] [- 81 BLK_54 -() 40 BLK_70 -] [- 47
%M1917	BLK_28	HI_FIL2	HI, Alarm spray nozz. pipe pos. -] [- 82 BLK_54 -(S) 41 -(R) 43
%M1918	BLK_28	HI_FIL3	HI, Alarm HI produc. pipe posit. -] [- 83 BLK_54 -(S) 42 -(R) 44
%M1920	BLK_51	HI_SRV1	HI, Alarm low air pressure -] [- 113 BLK_54 -() 45
%M1921	BLK_51	HI_SRV2	HI, Alarm low N2 pressure -] [- 114 BLK_54 -() 45
%M1922	BLK_50	HI_CLN1	HI, Alarm HI nozzle wrong pos. -] [- 303 BLK_54 -() 46
%M1923	BLK_50	HI_CLN2	HI, Alarm HI cleaning pipe pos. -] [- 304 BLK_54 -() 47
%M1924	BLK_50	HI_CLN3	HI, Alarm HI cln.dis.(Plug pipe) -] [- 305 BLK_54 -() 48
%M1925	BLK_54	HICPDY	HI, HI system ready for CIP dry -] [- 29 -() 34
%M2301	BLK_56	LAMP_TE	Lamp test ASU -] [- 91,92,93,126 BLK_75 -() 7 -] [- 96 -] / [- 96
%M2302	BLK_56	ALLED1	ASR panel, stripbreak -] [- 51,86,96 -] / [- 52,84 -(S) 11 -(R) 10
%M2303	BLK_56	ALLED2	ASR panel, supply empty -] [- 83,97 -] / [- 82 -(S) 13 -(R) 12
%M2304	BLK_56	ALLED3	ASR panel, sealing SA -] [- 53,86,98 -] / [- 54,84 -(S) 15 -(R) 14
%M2305	BLK_56	ALLED4	ASR panel, supply empty -] [- 83,99 -] / [- 82 -(S) 13 -(R) 12
%M2306	BLK_56	ALLED5	ASR panel, strip end no prep -] [- 55,86,100 -] / [- 56,84 -(S) 17 -(R) 16
%M2307	BLK_56	ALLED10	ASR panel, mtrl not prep -] [- 57,83,101 -] / [- 58,82 -(S) 19 -(R) 18
%M2308	BLK_56	ALLED11	ASR panel, mtrl end not prep -] [- 59,86,102 -] / [- 60,84 -(S) 21 -(R) 20
%M2309	BLK_56	ALLED12	ASR panel, mtrl end door open -] [- 103 -] / [- 84 -(S) 23 -(R) 22
%M2310	BLK_56	ALLED13	ASR panel, overload roller 3 -] [- 61,86,104 -] / [- 62,84 -(S) 25 -(R) 24
%M2311	BLK_56	ALLED14	ASR panel, asu loop empty -] [- 63,87,105 -] / [- 64,84 -(S) 27 -(R) 26
%M2312	BLK_56	ALLED15	ASR panel, sa rotation monitor -] [- 106 -] / [- 84

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REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES

			-(S) 29
			-(R) 28
%M2313	BLK_56	ALLED16	ASR panel, overload roller 7
			-] [- 65,87,107
			-]/[- 66,84
			-(S) 31
			-(R) 30
%M2314	BLK_56	ALLED17	ASR panel, asu magaz. empty
			-] [- 67,87,108
			-]/[- 68,85
			-(S) 33
			-(R) 32
%M2315	BLK_56	ALLED20	ASR panel, asu splice interrupt
			-] [- 109
			-]/[- 85
			-(S) 35
			-(R) 34
%M2316	BLK_56	ALLED21	ASR panel, asu malf photocells
			-] [- 110
			-]/[- 85
			-(S) 37
			-(R) 36
%M2317	BLK_56	ALLED22	ASR panel, asu sealing
			-] [- 69,88,111
			-]/[- 70,85
			-(S) 39
			-(R) 38
%M2318	BLK_56	ALLED30	ASR panel, door asu right
			-] [- 71,88,112
			-]/[- 72,85
			-(S) 41
			-(R) 40
%M2319	BLK_56	ALLED31	ASR panel, door asu left
			-] [- 73,88,113
			-]/[- 74,85
			-(S) 43
			-(R) 42
%M2320	BLK_56	ALLED32	ASR panel, door SA right
			-] [- 75,88,114
			-]/[- 76,85
			-(S) 45
			-(R) 44
%M2321	BLK_56	ALLED33	ASR panel, door asu top
			-] [- 77,88,115
			-]/[- 78,85
			-(S) 47
			-(R) 46
%M2322	BLK_56	ALLED34	ASR panel, emergency stop top
			-] [- 79,90,116
			-]/[- 80,89
			-(S) 49
			-(R) 48
%M2326	BLK_56	AKN_1	ASR panel, ACK stripbreak
			-] [- 10,86,96
			-(S) 51
			-(R) 52
%M2328	BLK_56	AKN_3	ASR panel, ACK sealing sa
			-] [- 14,86,98
			-(S) 53
			-(R) 54
%M2330	BLK_56	AKN_5	ASR panel, ACK strip end no prep
			-] [- 16,86,100
			-(S) 55
			-(R) 56
%M2331	BLK_56	AKN_10	ASR panel, ACK asu spl not prep
			-] [- 18,83,101
			-(S) 57
			-(R) 58
%M2332	BLK_56	AKN_11	ASR panel, ACK mtrl end no spli
			-] [- 20,86,102
			-(S) 59
			-(R) 60
%M2334	BLK_56	AKN_13	ASR panel, ACK overload roller 3
			-] [- 24,86,104
			-(S) 61
			-(R) 62
%M2335	BLK_56	AKN_14	ASR panel, ACK asu loop empty
			-] [- 26,87,105
			-(S) 63
			-(R) 64
%M2337	BLK_56	AKN_16	ASR panel, ACK overload roller 7
			-] [- 30,87,107
			-(S) 65
			-(R) 66
%M2338	BLK_56	AKN_17	ASR panel, ACK mag empty
			-] [- 32,87,108
			-(S) 67
			-(R) 68
%M2341	BLK_56	AKN_22	ASR panel, ACK asu sealing

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BLOCK: MAIN

REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
			-] [- 38,88,111
			-(S) 69
			-(R) 70
%M2342	BLK_56	AKN_30	ASR panel, ACK door asu right
			-] [- 40,88,112
			-(S) 71
			-(R) 72
%M2343	BLK_56	AKN_31	ASR panel, ACK door asu left
			-] [- 42,88,113
			-(S) 73
			-(R) 74
%M2344	BLK_56	AKN_32	ASR panel, ACK door sa right
			-] [- 44,88,114
			-(S) 75
			-(R) 76
%M2345	BLK_56	AKN_33	ASR panel, ACK door asu top
			-] [- 46,88,115
			-(S) 77
			-(R) 78
%M2346	BLK_56	AKN_34	ASR panel, ACK emerg stop asu
			-] [- 48,90,116
			-(S) 79
			-(R) 80
%M2350	BLK_56	ASU_RED	ASR, Alarm beacon rear red
			-] [- 94
			-() 91
			-] [- 102
%M2351	BLK_75 BLK_56	ASU_YEL	ASR, Alarm beacon rear yellow
			-] [- 94
			-() 92
			-] [- 100
%M2352	BLK_75 BLK_56	ASU_BLU	ASR, Alarm beacon rear blu
			-] [- 94
			-() 93
			-] [- 98
%M2361	BLK_75 BLK_56	ASRLDS1	ASU separate room, al.LEDs word1 FBIO 124
%M2370	BLK_56	ASRLD15	ASU separate room, Led 15
			-() 106
%M2371	BLK_56	ASRLD14	ASU separate room, Led 14
			-() 105
%M2372	BLK_56	ASRLD13	ASU separate room, Led 13
			-() 104
%M2373	BLK_56	ASRLD12	ASU separate room, Led 12
			-() 103
%M2374	BLK_56	ASRLD11	ASU separate room, Led 11
			-() 102
%M2375	BLK_56	ASRLD10	ASU separate room, Led 10
			-() 101
%M2376	BLK_56	ASRLD5	ASU separate room, Led 5
			-() 100
%M2377	BLK_56	ASRLD4	ASU separate room, Led 4
			-() 99
%M2378	BLK_56	ASRLD3	ASU separate room, Led 3
			-() 98
%M2379	BLK_56	ASRLD2	ASU separate room, Led 2
			-() 97
%M2380	BLK_56	ASRLD1	ASU separate room, Led 1
			-() 96
%M2393	BLK_56	ASRLDS2	ASU separate room, al.LEDs word2 FBIO 125
%M2403	BLK_56	ASRLD34	ASU separate room, Led 34
			-() 116
%M2404	BLK_56	ASRLD33	ASU separate room, Led 33
			-() 115
%M2405	BLK_56	ASRLD32	ASU separate room, Led 32
			-() 114
%M2406	BLK_56	ASRLD31	ASU separate room, Led 31
			-() 113
%M2407	BLK_56	ASRLD30	ASU separate room, Led 30
			-() 112
%M2408	BLK_56	ASRLD22	ASU separate room, Led 22
			-() 111
%M2409	BLK_56	ASRLD21	ASU separate room, Led 21
			-() 110
%M2410	BLK_56	ASRLD20	ASU separate room, Led 20
			-() 109
%M2411	BLK_56	ASRLD17	ASU separate room, Led 17
			-() 108
%M2412	BLK_56	ASRLD16	ASU separate room, Led 16
			-() 107
%M2425	BLK_56	ASRMXP	ASR, sync. pulse to mult. card
			-] [- 119,120
			-]/[- 117
			-() 117
			-(R) 118
%M2426	BLK_56	ASR_MXP	ASR, Pause to mux card
			-] [- 119,123
			-() 119

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REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
%M2427	BLK_56	ASR_MXV	ASR, New value multip card -] [- 124,125 -]/[- 8 -(v) 123
%M2450	BLK_56	ASR_FLS	ASR, Leds flasher -] [- 96,97,98,99,100,101,102,103,104,105,106,107,108,109,110,111,112,113,114,115,116 -]/[- 8 -() 8
%M2460	BLK_56	ASR_BLU	ASR, blue alarms present -] [- 93 -(/) 82
%M2461	BLK_56	ASRBLAK	ASR, all blue alarms ack. -] [- 93 -() 83
%M2462	BLK_56	ASR_YEL	ASR, yellow alarms present -] [- 92 -]/[- 93 -(/) 85
%M2463	BLK_56	ASRYEAK	ASR, all yellow alarms ack. -] [- 92 -]/[- 93 -() 88
%M2464	BLK_56	ASR_RED	ASR, red alarms present -] [- 91 -]/[- 92,93 -(/) 89
%M2465	BLK_56	ASRREAK	ASR, all red alarms ack. -] [- 91 -]/[- 92,93 -() 90
%M2993	BLK_56	LMPTSTR	Beacon lamp test (Red) -] [- 91 -] [- 97 FBI0 96
%M2994	BLK_56	LMPTSTY	Beacon lamp test (Yellow) -] [- 92 -] [- 99
%M2995	BLK_56	LMPTSTB	Beacon lamp test (Blu) -] [- 93 -] [- 101
%M3016	BLK_75	PLMS_00	PLMS, First start sequence int. -() 46
%M3017	BLK_75	PLMS_01	PLMS, Manual short stop -(S) 48 -(R) 49
%M3018	BLK_75	PLMS_02	PLMS, Step down from production -] [- 53 -(S) 52 -(R) 53
%M3019	BLK_75	PLMS_03	PLMS, Emergency stop -() 55
%M3020	BLK_75	PLMS_04	PLMS, Door guards -() 57
%M3021	BLK_75	PLMS_05	PLMS, Intermediate CIP -() 59
%M3022	BLK_75	PLMS_06	PLMS, Final CIP -() 60
%M3023	BLK_75	PLMS_07	PLMS, External cleaning -() 62
%M3024	BLK_75	PLMS_08	PLMS, Short stop on -() 64
%M3025	BLK_75	PLMS_09	PLMS, Paper splice detect. -() 66
%M3026	BLK_75	PLMS_10	PLMS, Auto start of attendance -() 69
%M3027	BLK_75	PLMS_11	PLMS, Preparation phase -] [- 72 -() 71
%M3028	BLK_75	PLMS_12	PLMS, Production phase -] [- 72,73,74 -]/[- 71 -() 72
%M3029	BLK_75	PLMS_13	PLMS, Production end? Zero -() 73
%M3030	BLK_75	PLMS_14	PLMS, Production end? Venting -() 74
%M3031	BLK_75	PLMS_15	PLMS, Strip splice -() 76
%M3032	BLK_75	PLMS_16	PLMS, Packaging material splice -() 78
%M3040	BLK_75	PLMS_24	PLMS, PLMSDDE OK -]/[- 132
%M3041	BLK_75	PLMS_25	PLMS, Test 1 -() 80
%M3042	BLK_75	PLMS_26	PLMS, Test 2 -() 81
%M3043	BLK_75	PLMS_27	PLMS, Test 3 -() 82
%M3049	BLK_75	PLMS_33	PLMS, Attendance time ON

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BLOCK: MAIN

REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
%M3050	1T0004	RESET	-] [- 44,70,71,72
			-]/[- 112,115
			Alarm reset
			-] [- 75
			-] [- 40,57
			BLK_10 -] [- 199
			BLK_20 -] [- 13,76,83,88
			-]/[- 87
			BLK_21 -] [- 12
			BLK_22 -] [- 23
			BLK_23 -] [- 48,55
			-]/[- 54
			BLK_24 -] [- 42,48,78
			BLK_25 -] [- 6,16,68,70,76,78,84,89
			-]/[- 75,85
			BLK_27 -] [- 18,53,56,59
			-]/[- 17
			BLK_28 -] [- 58
			-]/[- 16,56
			BLK_29 -] [- 17,24,39
			-]/[- 29
			BLK_30 -] [- 48,68,87
			-]/[- 46
			BLK_33 -] [- 26,32
			BLK_50 -] [- 17,29,47,55,108,115
			BLK_51 -] [- 24,44,74,77
			-]/[- 23
			BLK_53 -] [- 32
			BLK_54 -] [- 11,39
			-]/[- 38
			BLK_70 -] [- 8
			BLK_75 -] [- 93,186
%M3052	BLK_75	GEN_04	-(S) 92
			-(R) 93
%M3053	BLK_75	GEN_05	Watchdog to TPOP
			-() 129
%M3054	BLK_75	GEN_06	Watchdog to PLC
			-] [- 131
%M3055	BLK_08	GEN_07	-]/[- 129,130
			Beacon flash
%M3056	BLK_75	GEN_08	-]/[- 6,10,14,19,22,23,27,29,30,32
			-] [- 95,99,101
%M3057	BLK_75	GEN_09	-]/[- 95,99,101,185
			Beacon red
%M3058	BLK_75	GEN_10	-] [- 95,101
			Beacon yellow
%M3059	BLK_75	GEN_11	-] [- 95,99
			Beacon blue
%M3060	BLK_75	GEN_12	-] [- 95,97
			Jump 0 after drying
%M3061	BLK_10	GEN_13	-(S) 104
			-(R) 105
%M3062	BLK_23	GEN_14	Service switch
			-() 107
%M3063	BLK_27	GEN_15	General default push button
			-] [- 63,83,101
%M3064	BLK_28	GEN_16	-] [- 19,34
			BLK_29 -] [- 30
%M3065	BLK_30	GEN_17	-] [- 20
			BLK_53 -] [- 21
%M3066	BLK_50	GEN_18	-] [- 91,92
			Open gen. def. parameters window
%M3067	BLK_75	GEN_19	-] [- 9,12,15,19
			-(S) 109
%M3068	BLK_75	GEN_20	TBA/21 to DE enable
			-]/[- 115
%M3069	BLK_75	GEN_21	-(S) 113
			-(R) 112
%M3070	BLK_75	GEN_22	DE communication signal
			-] [- 113
%M3071	BLK_75	GEN_23	-(S) 116
			-(R) 115
%M3072	BLK_75	GEN_24	Clean, External cleaning select
			-] [- 20
%M3073	BLK_07	GEN_25	-]/[- 8
			BLK_08 -]/[- 7,37
%M3074	BLK_30	GEN_26	-] [- 15
			BLK_50 -] [- 88,91
%M3075	BLK_75	GEN_27	-] [- 159
			Clean, External cleaning stop
%M3076	BLK_07	GEN_28	-] [- 8
			BLK_50 -] [- 99,103
%M3077	BLK_50	GEN_29	-]/[- 106
			BLK_70 -] [- 16
%M3078	BLK_50	GEN_30	Clean, Jaw system + FFU select
			-] [- 86,118,119,120,121,122,123,124,127,128,129,130,132,133,138,143,145,164,166,181,183,190,192,257,259,
%M3079	BLK_50	GEN_31	261,263,265
			Clean, JUM + FFU + column select
%M3080	BLK_50	GEN_32	-] [- 86,112,119,125,126,131,139,144,146,151,165,167,182,184,191,193,199,200,201,202,203,204,205,206,207,

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BLOCK: MAIN

REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
			208,209,267,269,271,273,275
%M3069	BLK_50	CLN_05	-] [- 89,151 Clean, Alkali select -] [- 86,118,120,121,122,123,124,125,126,127,257,259,261,267,271
%M3070	BLK_50	CLN_06	-] [- 119,265,275 Clean, Acid select -] [- 86,118,120,122,123,128,129,130,131,132,261,263,269,273
%M3071	BLK_50	CLN_07	-] [- 119,265,275 Clean, Desinfectant select -] [- 86,119,124,125,261,263,265,271,273,275
%M3072	BLK_75	CLN_08	-] [- 121,126,127,131,132,257,259,261,267,269 Clean, CIP drying -() 118
%M3073	_MAIN	CLN_09	Clean, CIP select -] [- 20
	BLK_07		-] [- 6
	BLK_08		-] [- 7,8
	BLK_28		-] [- 54
	BLK_50		-] [- 7,37,54
	BLK_54		-] [- 44
	BLK_75		-] [- 6,8,11,23,51,293,294,295,297
%M3074	BLK_07	CLN_10	-] [- 66,293,294,295,296 Clean, CIP stop -] [- 33,46,47,48
	BLK_08		-] [- 42
	BLK_50		-] [- 161
%M3075	BLK_75	CLN_11	Clean, Steam barrier space -() 120
%M3130	BLK_23	TPSA02	Default SA power TPIH -] [- 19
%M3131	BLK_23	TPSA03	Default SA splice time -] [- 34
%M3178	BLK_27	TPSUP02	Default LS power TPIH -] [- 30
%M3193	BLK_28	TPFIL01	Default filling start flow -] [- 28
%M3196	BLK_28	TPFIL04	Opening of regulating valve -] [- 64
	BLK_51		-] [- 91
%M3197	BLK_51	TPFIL05	-(R) 90 Opening of regulating valve stop -] [- 95
			-(R) 94
%M3200	BLK_28	TPFIL09	Default start filling sector -] [- 20
%M3210	BLK_29	TPDCS02	Default design correction offset -] [- 21
%M3211	BLK_29	TPDCS03	Left fold. flap 0,7/0,9 set -] [- 41
	BLK_30		-] [- 15
	BLK_51		-] [- 91
%M3212	BLK_51	TPDCS04	-(R) 90 Left fold. flap 0,7/0,9 stop -] [- 95
			-(R) 94
%M3213	BLK_29	TPDCS05	Right fold. flap 0,7/0,9 set -] [- 45
	BLK_30		-] [- 15
	BLK_51		-] [- 91
%M3214	BLK_51	TPDCS06	-(R) 90 Right fold. flap 0,7/0,9 stop -] [- 95
			-(R) 94
%M3226	BLK_30	TPDRV02	Default left TS power TPIH -] [- 91
%M3227	BLK_30	TPDRV03	Default right TS power TPIH -] [- 92
%M3242	BLK_10	TPFFU02	Default t.reg flap top left op. -] [- 63
%M3245	BLK_10	TPFFU05	Alarm t.reg flap top left -() 74
%M3248	BLK_10	TPFFU08	Default t.reg flap top right op. -] [- 83
%M3249	BLK_10	TPFFU09	Alarm t.reg flap top right -() 92
%M3250	BLK_10	TPFFU10	Default t.reg flap bot. op. -] [- 101
%M3253	BLK_10	TPFFU13	Alarm t.reg flap bottom L/R -() 110
%M3276	BLK_51	TPSRL04	Manual lubrication start -] [- 55
%M3278	BLK_51	TPSRL06	Hydraulic oil level low, yellow -() 43
%M3279	BLK_51	TPSRL07	Hydraulic oil level medium, blue -] [- 101
			-() 42

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REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
%M3280	BLK_51	TPSRL08	Hydraulic oil level high, green -() 41
%M3281	BLK_51	TPSRL09	Light TBA21 and PT21 on -] [- 6
%M3283	BLK_51	TPSRL11	Hydraulic pump start -] [- 37 -] [- 30,51,91 -(R) 90
%M3284	BLK_51	TPSRL12	Hydraulic pump stop -] [- 95 -(R) 94
%M3305	BLK_53	TPPTL01	Pulltab left window active FBIO 6
%M3308	BLK_53	TPPTL04	Default pulltab correction -] [- 9
%M3309	BLK_51	TPPTL05	Punch and patch start -] [- 91 -(R) 90
%M3310	BLK_51	TPPTL06	Punch and patch stop -] [- 33 -] [- 95 -(R) 94
%M3311	BLK_51	TPPTL07	Punch and reseal start -] [- 91 -(R) 90
%M3312	BLK_51	TPPTL08	Punch and reseal stop -] [- 33 -] [- 95 -(R) 94
%M3313	BLK_51	TPPTL09	Punch and tab start -] [- 91 -(R) 90
%M3314	BLK_51	TPPTL10	Punch and tab stop -] [- 33 -] [- 95 -(R) 94
%M3322	BLK_53	TPPTR02	Default t.reg pad operator -] [- 19
%M3326	BLK_53	TPPTR06	Default patch power -] [- 12
%M3327	BLK_53	TPPTR07	Default reseal power -] [- 15
%M3465	BLK_75	FIX_0	TPOP Machine step 0 Fixed -() 139 FBIO 165
%M3466	BLK_75	FIX_1	TPOP Machine step 1 Fixed -() 141
%M3467	BLK_75	FIX_2	TPOP Machine step 2 Fixed -() 143
%M3468	BLK_75	FIX_3	TPOP Machine step 3 Fixed -() 145
%M3469	BLK_75	FIX_4	TPOP Machine step 4 Fixed -() 146
%M3470	BLK_75	FIX_5	TPOP Machine step 5 Fixed -() 147
%M3471	BLK_75	FIX_6	TPOP Machine step 6 Fixed -() 149
%M3472	BLK_75	FIX_7	TPOP Machine step 7 Fixed -() 151
%M3473	BLK_75	FIX_8	TPOP Machine step 8 Fixed -() 153
%M3474	BLK_75	FIX_9	TPOP Machine step 9 Fixed -() 154
%M3475	BLK_75	FIX_10	TPOP Machine step 10 Fixed -() 155
%M3476	BLK_75	FIX_11	TPOP Machine step 11 Fixed -() 157
%M3477	BLK_75	FIX_12	TPOP Machine step 12 Fixed -() 158
%M3478	BLK_75	FIX_13E	TPOP Machine step 13 EC Fixed -() 160
%M3479	BLK_75	FIX_13C	TPOP Machine step 13 CIP Fixed -() 162
%M3480	BLK_75	FIX_14	TPOP Machine step 14 Fixed -() 164 FBIO 166
%M3481	BLK_75	FLSH_1	TPOP Machine step 1 Flashing -() 140
%M3483	BLK_75	FLSH_2	TPOP Machine step 2 Flashing -() 142
%M3484	BLK_75	FLSH_3	TPOP Machine step 3 Flashing -() 144
%M3487	BLK_75	FLSH_6	TPOP Machine step 6 Flashing -() 148
%M3488	BLK_75	FLSH_7	TPOP Machine step 7 Flashing -() 150
%M3489	BLK_75	FLSH_8	TPOP Machine step 8 Flashing -() 152
%M3492	BLK_75	FLSH_11	TPOP Machine step 11 Flashing

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BLOCK: MAIN

REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES

%M3494	BLK_75	FLSH13E	-() 156 TPOP Machine step 13 EC Flash.
%M3495	BLK_75	FLSH13C	-() 159 TPOP Machine step 13 CIP Flash.
%M3496	BLK_75	FLSH_14	-() 161 TPOP Machine step 14 Flashing
%M3569	BLK_24	H202_17	-() 163 PER, Peroxide tank high temp.
	BLK_70		-() 96
	BLK_75		-]/[- 17
%M3585	BLK_50	CLEAN17	FBI0 173 CIP phase not correct
	BLK_75		-() 306
%M3586	BLK_50	CLEAN18	FBI0 176 CIP drying interrupted
	BLK_75		-() 307
%M3587	BLK_50	CLEAN19	CIP unit communication fault
	BLK_75		-() 308
%M3601	BLK_20	ASU_01	ASU, Malfunction photocells
	BLK_56		-() 96
	BLK_75		-] [- 37
%M3604	BLK_20	ASU_04	FBI0 172 ASU, Pkg mtrl not prepared
	BLK_56		-() 97
%M3605	BLK_20	ASU_05	ASU, Magazine empty
	BLK_56		-() 98
%M3606	BLK_20	ASU_06	-] [- 33 ASU, Splice seq. interrupted
	BLK_56		-() 99
%M3608	BLK_20	ASU_08	-] [- 35 ASU, Sealing packaging material
	BLK_56		-() 100
	BLK_70		-] [- 39
%M3609	BLK_20	ASU_09	-]/[- 20 ASU, Pkg mtrl end not prepared
	BLK_56		-() 101
	BLK_70		-] [- 21
%M3610	BLK_20	ASU_10	-]/[- 20 ASU, Overload DR loop
	BLK_56		-() 102
%M3611	BLK_20	ASU_11	-] [- 25 ASU, Overload DR magazine
	BLK_56		-() 103
%M3612	BLK_20	ASU_12	-] [- 31 Rotation monitor SA
	BLK_56		-() 104
	BLK_70		-] [- 29
%M3613	BLK_20	ASU_13	-]/[- 19 ASU, Pkg mtrl end door open
	BLK_56		-() 105
%M3614	BLK_20	ASU_14	-] [- 23 ASU, Loop empty
	BLK_56		-() 106
%M3617	BLK_23	SA_01	-] [- 27 Strip applicator, Sealing
	BLK_56		-() 58
	BLK_75		-] [- 15
%M3618	BLK_23	SA_02	-]/[- 14 Strip applicator, Supply Empty
	BLK_56		FBI0 172
%M3619	BLK_23	SA_03	-() 59 Strip break
	BLK_56		-() 60
%M3621	BLK_23	SA_05	-] [- 11 Strip end and bobbin not prep.
	BLK_56		-() 61
%M3633	BLK_24	H202_01	-] [- 17 Peroxide bath, Low temperature
	BLK_70		-() 80
	BLK_75		-]/[- 17
%M3634	BLK_24	H202_02	FBI0 173 Peroxide bath, Level
	BLK_70		-() 81
%M3635	BLK_24	H202_03	-]/[- 17 Water bath, Level
	BLK_70		-() 82
%M3636	BLK_24	H202_04	-]/[- 22 Spray container, Low level
	BLK_70		-() 83
%M3637	BLK_24	H202_05	Spray container, Emptying
	BLK_70		-() 84
%M3638	BLK_24	H202_06	-] [- 47 Peroxide container, Level
	BLK_70		-() 85
%M3639	BLK_24	H202_07	Peroxide tank, Low temperature
	BLK_70		-() 86
%M3640	BLK_24	H202_08	Water bath, High temperature
	BLK_70		-() 87
%M3641	BLK_24	H202_09	Peroxide tank, High lvl in prod.

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BLOCK: MAIN

REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
			-() 88
	BLK_70		-]/[- 17
%M3642	BLK_24	H202_10	HI, container low level
			-() 89
%M3643	BLK_24	H202_11	HI, Spray emptying
			-() 90
	BLK_70		-]/[- 47
%M3644	BLK_24	H202_12	HI, Spray temperature
			-() 91
	BLK_70		-]/[- 47
%M3645	BLK_24	H202_13	Peroxide bath, Level in str. seq
			-() 92
	BLK_70		-]/[- 17
%M3646	BLK_24	H202_14	Peroxide tank, Safety sensor
			-() 93
	BLK_70		-]/[- 17
%M3647	BLK_24	H202_15	H202 tank sensors supervision
			-() 94
%M3648	BLK_24	H202_16	H202 heat.exch. water guard
			-() 95
%M3649	BLK_25	STER_01	Aseptic chamber, Pressure
			-(S) 91
			-(R) 89
	BLK_70		-]/[- 46
	BLK_75		FBI0 174
%M3650	BLK_25	STER_02	Aseptic chamber, low temperature
			-() 92
	BLK_70		-]/[- 17
%M3651	BLK_25	STER_03	B-valve, Position
			-() 93
	BLK_70		-]/[- 46
%M3652	BLK_25	STER_04	Separator, Level
			-() 94
	BLK_70		-]/[- 44
%M3653	BLK_25	STER_05	Air super heater, Temperature
			-() 95
	BLK_70		-]/[- 46
%M3654	BLK_25	STER_06	Preheating valve, Position
			-() 96
	BLK_70		-]/[- 46
%M3655	BLK_25	STER_07	Separator air, Pressure
			-() 97
	BLK_70		-]/[- 46
%M3656	BLK_25	STER_08	Regulating valve, Position
			-() 98
%M3657	BLK_25	STER_09	Butterfly valve, position
			-() 99
	BLK_70		-]/[- 17
%M3665	BLK_27	SUPER_1	Squee-gee rollers, Position
			-() 63
	BLK_70		-]/[- 20
	BLK_75		FBI0 174
%M3666	BLK_27	SUPER_2	SUP, lower forming ring position
			-() 64
	BLK_70		-]/[- 18
%M3667	BLK_27	SUPER_3	Longitudinal sealing
			-() 65
	BLK_70		-]/[- 11
%M3668	BLK_27	SUPER_4	Date unit, Register mark
			-() 66
	BLK_70		-]/[- 19
%M3669	BLK_27	SUPER_5	Drive roller A.C. overload
			-() 67
	BLK_70		-]/[- 11
%M3680	BLK_27	SUPER16	Column, Rotation monitor
			-() 68
	BLK_70		-]/[- 19
%M3681	BLK_28	FILL_01	Spare
			-() 72
	BLK_75		FBI0 174
%M3683	BLK_28	FILL_03	A valve, Position
			-() 73
	BLK_70		-]/[- 32
%M3684	BLK_28	FILL_04	C valve, Steam temperature
			-() 74
	BLK_70		-]/[- 32
%M3685	BLK_28	FILL_05	Regulating valve, Leakage
			-() 75
	BLK_70		-]/[- 44
%M3686	BLK_28	FILL_06	C valve steam temp. low (info)
			-() 76
%M3688	BLK_28	FILL_08	Malfunction level reading system
			-() 77
%M3689	BLK_28	FILL_09	product level out of range
			-() 78
%M3690	BLK_28	FILL_10	C valve, Position
			-() 79
	BLK_70		-]/[- 32
%M3692	BLK_28	FILL_12	No product

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BLOCK: MAIN

REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
			-() 80
	BLK_70		-] [- 32
%M3693	BLK_28	FILL_13	HI disabled
			-() 81
%M3694	BLK_28	FILL_14	HI spray nozzle pipe position
			-() 82
%M3696	BLK_28	FILL_16	HI pipe production position
			-() 83
%M3697	BLK_29	DCS_01	Malfunction photocells
			-() 56
	BLK_70		-] [- 19
	BLK_75		FBI0 175
%M3698	BLK_29	DCS_02	Out of design
			-() 57
	BLK_70		-] [- 32
%M3699	BLK_29	DCS_03	DCS right, Servo fault
			-() 58
	BLK_70		-] [- 18
%M3700	BLK_29	DCS_04	DCS left, Servo fault
			-() 59
	BLK_70		-] [- 18
%M3701	BLK_29	DCS_05	DCS left, Homposition fault
			-() 60
%M3702	BLK_29	DCS_06	DCS right, Homeposition fault
			-() 61
%M3713	BLK_75	JUM_01	Machine out of synchronization
			FBI0 175
%M3714	BLK_30	JUM_02	Jaw system, Hold down device
			-() 95
	BLK_70		-] [- 7
			-] [- 6
%M3715	BLK_30	JUM_03	Jaw system, Overload left
			-() 96
	BLK_70		-] [- 7
			-] [- 6
%M3716	BLK_30	JUM_04	Transversal sealing left
			-() 97
	BLK_70		-] [- 21
%M3717	BLK_30	JUM_05	Transversal sealing right
			-() 98
	BLK_70		-] [- 21
%M3718	BLK_30	JUM_06	Main motor, Servo fault
			-() 99
	BLK_70		-] [- 10
%M3719	BLK_30	JUM_07	Jaw system, Overload right
			-() 100
	BLK_70		-] [- 7
			-] [- 6
%M3720	BLK_30	JUM_08	Jaw system, Angle encoder
			-() 101
	BLK_70		-] [- 7
			-] [- 6
%M3721	BLK_30	JUM_09	Jaw pressure, Hydr. valve left
			-() 102
	BLK_70		-] [- 7
			-] [- 6
%M3722	BLK_30	JUM_10	Jaw pressure, Hydr. valve right
			-() 103
	BLK_70		-] [- 7
			-] [- 6
%M3723	BLK_30	JUM_11	No volume value
			-() 104
%M3724	BLK_30	JUM_12	Tube support roller
			-() 105
%M3725	BLK_08	JUM_13	Machine speed too high
			-] [- 21
	BLK_30		-() 106
	BLK_70		-] [- 33
%M3729	BLK_33	FFU_01	Final folder in wrong position
			-() 41
	BLK_75		FBI0 175
%M3730	BLK_33	FFU_02	Pressure device, Rotation mon.
			-() 42
	BLK_70		-] [- 10
			-] [- 9
%M3731	BLK_33	FFU_03	Infeed station, Rotation mon.
			-() 43
	BLK_70		-] [- 10
			-] [- 9
%M3732	BLK_33	FFU_04	Station wheel, Rotation mon.
			-() 44
	BLK_70		-] [- 10
			-] [- 9
%M3734	BLK_33	FFU_06	Outfeed station, Overload
			-() 45
	BLK_70		-] [- 10
%M3735	BLK_33	FFU_07	Conveyor congestion
			-() 46
	BLK_70		-] [- 20

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BLOCK: MAIN

REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
%M3736	BLK_33	FFU_08	Flap heat bottom L/R, Temp. -() 47 -]/[- 21
%M3738	BLK_33	FFU_10	Flap heat top left, Temp. -() 48 -]/[- 21
%M3739	BLK_33	FFU_11	Flap heat top right, Temp. -() 49 -]/[- 21
%M3740	BLK_33	FFU_12	Final folder out of synch. -() 50 -]/[- 10 -]/[- 9
%M3741	BLK_33	FFU_13	Pkg cnt, Malfunction photocell -() 51
%M3742	BLK_33	FFU_14	DE not ready -() 52 -]/[- 22
%M3743	BLK_33	FFU_15	External date unit, supply -() 53
%M3744	BLK_33	FFU_16	External date unit -() 54 -]/[- 21
%M3745	BLK_50	CLEAN01	CIP valve D -() 290 -]/[- 45 FBI0 176
%M3746	BLK_50	CLEAN02	CIP valve E -() 291 -]/[- 45
%M3747	BLK_50	CLEAN03	CIP valve F -() 292 -]/[- 45
%M3748	BLK_50	CLEAN04	Cleaning sleeve -() 293
%M3749	BLK_50	CLEAN05	Cleaning pipe, Out position -() 294
%M3750	BLK_50	CLEAN06	Cleaning pipe, In position -() 295
%M3751	BLK_50	CLEAN07	Sterile air pipe, Position -() 296 -]/[- 45
%M3752	BLK_50	CLEAN08	B valve pipe, Position -() 297 -]/[- 45
%M3753	BLK_50	CLEAN09	Regulating valve, Position -() 298
%M3754	BLK_50	CLEAN10	CIP interrupted -() 299
%M3755	BLK_50	CLEAN11	No water external cleaning -() 300
%M3756	BLK_50	CLEAN12	Column cover cleaning, Position -() 301
%M3757	BLK_50	CLEAN13	C valve, Position -() 302
%M3758	BLK_50	CLEAN14	HI nozzle -() 303
%M3759	BLK_50	CLEAN15	HI pipe cleaning -() 304
%M3760	BLK_50	CLEAN16	HI cleaning disabled -() 305
%M3761	BLK_51	SRVL_01	Transient mains failure -() 97 FBI0 177
%M3762	BLK_51	SRVL_02	TMCC DCS not enabled -() 98
%M3763	BLK_51	SRVL_03	TMCC Auxiliary Func. not enabled -() 99
%M3764	BLK_10	SRVL_04	Broken wire sum up -(/) 207
%M3765	BLK_51	SRVL_05	TMCC Filling system not enabled -() 100 -]/[- 20
%M3766	BLK_51	SRVL_06	Hydraulic oil, Medium level -() 101
%M3767	BLK_51	SRVL_07	Central lubrication, Pressure -() 102 -]/[- 22
%M3768	BLK_51	SRVL_08	Central lubrication, low level -() 103
%M3769	BLK_51	SRVL_09	Central lubr. Low level max time -() 104 -]/[- 19
%M3770	BLK_51	SRVL_10	PLC battery low -() 105
%M3771	BLK_51	SRVL_11	Hydraulic oil, Low level -() 106 -]/[- 19
%M3772	BLK_51	SRVL_12	Hydraulic oil, Temperature

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BLOCK: MAIN

REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
			-() 107
	BLK_70		-] [- 47
			-] [- 19
%M3773	BLK_51	SRVL_13	Hydraulic oil, Filter
			-() 108
%M3774	BLK_51	SRVL_14	Hydraulic oil, Low pressure
			-() 109
	BLK_70		-] [- 47
			-] [- 18
%M3775	BLK_51	SRVL_15	Temperature electrical cabinet
			-() 110
%M3776	BLK_51	SRVL_16	Cooling media, El cab press/temp
			-() 111
%M3777	BLK_51	SRVR_01	-() 113
	BLK_75	SRVR_01	FBI0 177
%M3778	BLK_51	SRVR_02	HI pressure guard
			-() 114
	BLK_70		-] [- 22
%M3779	BLK_08	SRVR_03	Water supply
			-] [- 6,12,16,20,26
	BLK_51		-() 115
	BLK_70		-] [- 22
%M3780	BLK_51	SRVR_04	Air supply
			-() 116
	BLK_70		-] [- 43
%M3781	BLK_51	SRVR_05	Tripped motor overload
			-() 117
	BLK_70		-] [- 11
%M3782	BLK_51	SRVR_06	Water, Circulating pressure
			-() 118
	BLK_70		-] [- 19
%M3783	BLK_51	SRVR_07	Water, Circulating temperature
			-() 119
	BLK_70		-] [- 47
			-] [- 20
%M3784	BLK_51	SRVR_08	Water, Circulating conductivity
			-() 120
%M3785	BLK_51	SRVR_09	Supervision, Control voltage
			-() 121
	BLK_70		-] [- 43
%M3786	BLK_51	SRVR_10	Cooling media pressure
			-() 122
	BLK_70		-] [- 21
%M3787	BLK_51	SRVR_11	DMC power supply
			-() 123
	BLK_70		-] [- 11
%M3792	BLK_51	SRVR_16	Waiting for temperature stabiliz
			-() 124
%M3793	BLK_51	SAFL_01	Door guard, Front left
			-() 126
	BLK_75		FBI0 83
	BLK_51	SAFL_02	FBI0 178
%M3794			Door guard, FFU left
			-() 127
%M3795	BLK_51	SAFL_03	Door guard, JUM left
			-() 128
%M3796	BLK_51	SAFL_04	Door guard, Drive unit left
			-() 129
%M3797	BLK_51	SAFL_05	Door guard, ASU left
			-() 130
%M3798	BLK_51	SAFL_06	Door guard, A.cham. bottom front
			-() 131
	BLK_70		-] [- 46
%M3799	BLK_51	SAFL_07	Door guard, ASU top
			-() 132
	BLK_56		-] [- 47
%M3800	BLK_51	SAFL_08	Door guard, Front
			-() 134
%M3801	BLK_51	SAFL_09	Emergency stop, Bottom left
			-() 135
%M3802	BLK_51	SAFL_10	Emergency stop, Sterile system
			-() 136
%M3803	BLK_51	SAFL_11	Door guard, PT21 left
			-() 137
%M3804	BLK_51	SAFL_12	Safety relay tripped
			-() 138
%M3805	BLK_51	SAFL_13	Hatch under peroxide bath
			-() 139
	BLK_70		-] [- 44
%M3806	BLK_51	SAFL_14	Service switch activated
			-() 140
	BLK_70		-] [- 43
%M3807	BLK_51	SAFL_15	Crank guard, Jaw system
			-() 141
	BLK_70		-] [- 43
%M3808	BLK_51	SAFL_16	Crank guard, Final folder
			-() 142
	BLK_70		-] [- 10
%M3809	BLK_51	SAFR_01	Door guard, Front right

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BLOCK: MAIN

REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
			-() 144
			FBI0 83
%M3810	BLK_75		FBI0 178
	BLK_51	SAFR_02	Door guard, FFU right
			-() 145
%M3811	BLK_51	SAFR_03	Door guard, JUM right
			-() 146
%M3812	BLK_51	SAFR_04	Door guard, Drive unit right
			-() 147
%M3813	BLK_51	SAFR_05	Door guard, SA right
			-() 148
%M3814	BLK_51	SAFR_06	Door guard, ASU right
			-() 149
%M3815	BLK_51	SAFR_07	Door guard, A.cham. top front
			-() 150
	BLK_70		-] [- 46
%M3816	BLK_51	SAFR_08	Door guard, A.chamber top
			-() 151
	BLK_70		-] [- 44
%M3817	BLK_51	SAFR_09	Emergency stop, Control panel
			-() 152
%M3818	BLK_51	SAFR_10	Emergency stop, ASU
			-() 153
	BLK_56		-] [- 49
%M3819	BLK_51	SAFR_11	Emergency stop, Bottom right
			-() 154
%M3820	BLK_51	SAFR_12	Emergency stop, Aseptic chamber
			-() 155
%M3821	BLK_51	SAFR_13	Emergency stop, El cab outside
			-() 156
%M3822	BLK_51	SAFR_14	Door guard, PT21 right front
			-() 157
%M3823	BLK_51	SAFR_15	Door guard, PT21 right rear
			-() 158
%M3824	BLK_51	SAFR_16	Emergency stop, El cab inside
			-() 159
%M3900	BLK_10	HS_OK	Heat ster, Temp OK (>280)
			-() 150
	BLK_25		-] [- 27,35
%M3901	BLK_10	TA_OK	Top AC, Temp.OK (>90,<110)
			-() 156
	BLK_25		-] [- 77
			-]/[- 75
%M3902	BLK_10	TA_CTRL1	Top AC, Ctrl 1 (40deg heat ster)
			-(S) 158
			-(R) 159
	BLK_25		-] [- 23,29
			-]/[- 79
%M3903	BLK_10	TA_CTRL2	Top AC, Ctrl 2 (<39or<100or<94)
			-(S) 160
			-(R) 161
	BLK_25		-] [- 39,48,50
%M3904	BLK_10	TA_CTRL3	Top AC, Ctrl 3 (<40or<102or<95)
			-(S) 162
			-(R) 163
	BLK_25		-] [- 46
			-]/[- 40,51
%M3905	BLK_08	QW_OK	Cool.circ.water, Temp OK (7-15)
			-] [- 13,21
	BLK_10		-() 171
	BLK_30		-] [- 10
	BLK_51		-] [- 28,34,51
			-]/[- 29,119
%M3906	BLK_10	QW_CTRL	Cool.circ.water, Control (8-11)
			-(S) 173
			-(R) 174
	BLK_51		-] [- 31
%M3907	BLK_10	CC_OK	EL-cab, Temp OK (18-38)
			-() 179
	BLK_51		-]/[- 110
%M3908	BLK_10	CC_CTRL	EL-cab, Control (30-36)
			-(S) 181
			-(R) 182
	BLK_51		-] [- 38
%M3909	BLK_10	ST_>125	Steam, Temp OK (>125)
			-() 187
	BLK_28		-]/[- 53
%M3910	BLK_10	HI_OK	HI spraying, Temp OK
			-(S) 193
			-(R) 192
	BLK_54		-]/[- 17
%M3911	BLK_10	WEXC>90	Water-H2O2 heat exchanger (>90)
			-(S) 198
			-(R) 199
	BLK_24		-] [- 95
			-]/[- 30,31
%M3912	BLK_10	WEXC<81	Water-H2O2 heat exchanger (<81)
			-] [- 53
			-() 201

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BLOCK: MAIN

REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
%M3913	BLK_10	HS_>50	Heat ster, Temp OK (>=50) -() 151 -]/[- 15 -] [- 71
%M3950	BLK_10	WB_ACTV	W-bath, Loop active -] [- 24,26 -() 13
%M3951	BLK_10	WB_<85	W-bath, Temp OK (<85) -() 17 -] [- 15
%M3952	BLK_10	WB_>=71	W-bath, Temp OK (>=71) -() 18 -] [- 18
%M3953	BLK_10	WB_<=65	W-bath, Temp OK (<=65) -() 19 -] [- 18
%M3954	BLK_10	WB_COOL	W-bath, Cooling (61<PV<65) -() 22 -] [- 17
%M3955	BLK_10	WB_PWM	W-bath, PWM timer -]/[- 24 -() 24
%M3956	BLK_10	WB_HETN	W-bath, Heating control ON -] [- 27 -() 26
%M3957	BLK_10	PT_ACTV	P-tank, Active -] [- 50,52 -() 39
%M3959	BLK_10	PT>=60	P-tank, Temp OK (>60) -() 43 -] [- 12 -]/[- 31
%M3960	BLK_10	PT>=75A	P-tank, Temp OK (>75) SETFIRST -(S) 44 -(R) 45 -] [- 22
%M3961	BLK_10	PT_PWM	P-tank, PWM timer -]/[- 50 -() 50
%M3962	BLK_10	PT>=75B	P-tank, temperature >=75 -]/[- 53 -(S) 46 -(R) 47 -] [- 14,22 -]/[- 31
%M3963	BLK_08	PT_>85	P-tank, temperature >85 -]/[- 8,12,16 -() 48 -] [- 96
%M3965	BLK_10	WB_TC00	W-bath, Cooling win. (61<PV<65) -] [- 22 -(S) 20 -(R) 21
%M3970	BLK_10	TL_ACTV	Flap TL, Loop active -] [- 69,72 -() 64
%M3971	BLK_08	TL_OK	Flap TL, Temperature OK -] [- 24 -]/[- 74 -() 67 -]/[- 12
%M3972	BLK_10	FLP_PWM	Flaps , PWM timer -] [- 71,89,107 -]/[- 69 -() 69
%M3973	BLK_10	TR_ACTV	Flap TR, Loop active -] [- 69,90 -() 84
%M3974	BLK_08	TR_OK	Flap TR, Temperature OK -] [- 24 -]/[- 92 -() 87 -]/[- 13
%M3975	BLK_10	BM_ACTV	Flap Bottom L/R, Loop active -] [- 69,108 -() 102
%M3976	BLK_08	BM_OK	Flap Bottom L/R, Temperature OK -] [- 24 -]/[- 110 -() 105 -]/[- 11
%M3980	BLK_10	AS_ACTV	Airsup, Loop active -] [- 124,126 -() 119
%M3982	BLK_10	AS_OKLO	Airsup, Temp > 330 degr. -() 121 -]/[- 95
%M3983	BLK_08	AS_OKHI	Airsup, Temp > 360 degr. -] [- 17

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BLOCK: MAIN

REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
	BLK_10		-() 122
%M3984	BLK_10	AS_PWM	Airsup, PWM timer
			-]/[- 124
			-() 124
%M3985	BLK_10	PB_ACTV	P-bath, Temp. control active
			-] [- 142,144
			-() 137
%M3986	BLK_10	PB_PWM	P-bath, PWM timer
			-]/[- 142
			-() 142
%M3987	BLK_10	PB_HETN	P-bath, Heating control ON
			-] [- 27
			-() 144
%M3988	BLK_10	PB_>=73	P-bath, Temp >= 73
			-() 140
	BLK_24		-] [- 27
%M3989	BLK_10	PB_>70	P-bath, Temp OK (70-80)
			-() 139
	BLK_24		-]/[- 41
%M3990	BLK_10	PB_MAN	P-bath, PID manual mode ON
			-] [- 137
			-() 136
%M4000	BLK_75	PRP_FIL	PLMS, preparation Phase filter
			-] [- 70
			-]/[- 71
			-() 70
%M4002	BLK_75	COM_FLT	Communication fault
			-] [- 135,137
			-() 133
%M4003	BLK_75	WD_PLMS	Watchdog PLMS DDE
			-] [- 133
			-() 132
%M4004	BLK_75	WD_0	Watchdog = 0
			-] [- 133
			-() 130
%M4005	BLK_75	WD_1	Watchdog = 1
			-] [- 133
			-() 131
%M4006	BLK_53	PT_STP1	PT/21 processor stopped
			-] [- 30
			-() 27
%M4007	BLK_53	PT_STP2	PT/21 processor stopped
			-] [- 30
			-() 28
%M4008	BLK_75	PKG_TCS	Packages to cold store
			-] [- 16,17
			-() 15
%M4009	BLK_75	EC_1	External conveyor 1
			-] [- 16,17
			-]/[- 17
			-() 16
%M4010	BLK_75	PLCINIT	PLC initialized
			-]/[- 109
			-(SM) 110
%M4021	BLK_75	PRE_AA	A-alarm present
			-] [- 183
			-(^) 170
%M4022	BLK_75	LOCK_AA	A-alarm lock to TPOP
			-] [- 185
			-]/[- 172,173,174,175,176,177,178,179,180
			-(S) 183
			-(R) 187
%M4024	BLK_75	STRTDN	PLMS, First start done
			-] [- 44
			-]/[- 46
			-() 44
%M4050	BLK_33	DUMMY	Dummy
			-] [- 53
%M4065	BLK_75	OPTRK_1	
			-() 86
			FBIO 90
%M4066	BLK_75	OPTRK_2	
			-() 87
%M4078	BLK_50	OPTRK14	Internal option D-E-F Valves
			-] [- 5
	BLK_75		-() 88
%M4080	BLK_27	OPTRK_3	TBA21 050V field test
			-]/[- 60
	BLK_30		-] [- 74
	BLK_33		-] [- 39
			-]/[- 39
	BLK_50		-] [- 5,86,112,250,251,252,259
			-]/[- 86,121,147,234,257
	BLK_51		-] [- 133
			-]/[- 126,127,128,129,144,145,146,147
	BLK_53		-] [- 34
	BLK_75		-() 89

TEMPORARY (%T) GLOBAL CROSS REFERENCES			
REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
%T0001	BLK_07	P+001	Pulse + Step up -(^) 59 -] [- 38,42,45,46,47 -] [- 6 -] [- 69 -] [- 23,51,66 -] [- 32 -]/[- 170
%T0002	BLK_07	P-002	Pulse - Step up -(v) 60
%T0003	BLK_07	P+003	Pulse + Step down -(^) 61 -] [- 36,37,38,39,40,44,49 -] [- 70 -] [- 22,33,53,99 -] [- 32 -]/[- 170
%T0004	BLK_07	P-004	Pulse - Inching FFU -(v) 62 -] [- 20
%T0005	BLK_07	P-005	Pulse - Inching JUM and FFU -(v) 63 -] [- 20
%T0006	BLK_07	P+006	Pulse + Service switch -] [- 16 -(^) 64
%T0007	BLK_07	P-007	Pulse - Service switch -] [- 16 -(v) 65
%T0008	BLK_07	P+008	Pulse + DCS register mark -(^) 66 -] [- 92 -] [- 9,43 -] [- 18,57 -] [- 18 -]/[- 25,27 -] [- 19,28,53,54 -] [- 36 -] [- 21,24,27,39
%T0009	BLK_07	P+009	Pulse + ASU register mark -(^) 67 -] [- 93 -]/[- 19 -] [- 8
%T0010	BLK_07	P+010	Pulse + Date unit register mark -(^) 68 -]/[- 60
%T0011	BLK_07	P+011	Pulse + Pkg.spl. detect. column -(^) 69 -] [- 33,34,35 -] [- 30,66
%T0012	BLK_07	P+012	Pulse + Column, Rotation monitor -(^) 70 -]/[- 58
%T0013	BLK_07	P+013	Pulse + Enable main motor -(^) 71 -] [- 55,58
%T0014	BLK_07	P-014	Pulse - Left jaw pressure -(v) 72 -] [- 56
%T0015	BLK_07	P-015	Pulse - Right jaw pressure -(v) 73 -] [- 59
%T0016	BLK_07	P+016	Pulse + Tight tube -(^) 74
%T0017	BLK_07	P+017	Pulse + No product to machine -(^) 75
%T0018	BLK_07	P+018	Pulse + SA, Splice finished -(^) 76 -] [- 20 -] [- 43 -] [- 43,44,45 -] [- 33
%T0019	BLK_07	P+019	Pulse + SA, Dump stop pkgs -(^) 77 -] [- 49,50,51 -] [- 36
%T0020	BLK_07	P-020	Pulse - SA, Cool strip at stop -(v) 78 -] [- 37
%T0021	BLK_07	P+021	Pulse + SA, Rotation monitor -(^) 79 -]/[- 85
%T0022	BLK_07	P+022	Pulse + Angle encoder bin.bit 7 -] [- 53 -(^) 52

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BLOCK: MAIN

REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
%T0024	BLK_07	P+024	Pulse + Jump to position 0 -(^) 80 -] [- 14
%T0025	BLK_51 BLK_07	P+025	Pulse + External cleaning on -(^) 81 -] [- 277,279
%T0026	BLK_50 BLK_07	P+026	Pulse + Ext.clean. interrupted -(^) 82 -] [- 135,136,137,138,139,285,286
%T0027	BLK_50 BLK_07	P+027	Pulse + Startsequence started -(^) 83 -] [- 25,34
%T0029	BLK_24 BLK_07	P-029	Pulse - Enable DR loop -(v) 84 -] [- 7
%T0030	BLK_21 BLK_07	P+030	Pulse + Enable DR magazine -(^) 85 -] [- 19
%T0031	BLK_21 BLK_07	P-031	Pulse - Enable DR magazine -(v) 86 -] [- 10
%T0032	BLK_22 BLK_07	P+032	Pulse + Material locking ASU -] [- 88,89,90,91 -(^) 87
%T0033	BLK_07	P+033	Pulse + Unlock material reel 1 -(^) 88 -] [- 24
%T0034	BLK_20 BLK_07	P+034	Pulse + Lock material reel 1 -(^) 89 -] [- 23
%T0035	BLK_20 BLK_07	P+035	Pulse + Unlock material reel 2 -(^) 90 -] [- 26
%T0036	BLK_20 BLK_07	P+036	Pulse + Lock material reel 2 -(^) 91 -] [- 25
%T0037	BLK_20 BLK_07	P+037	Pulse + Step 1 -] [- 20 -(^) 92 -] [- 24,26
%T0038	BLK_20 BLK_22 BLK_07	P+038	Pulse + ASU splice going on -(^) 93 -] [- 36,42,45,79 -] [- 12
%T0039	BLK_20 BLK_07	P+039	Pulse + ASU splice speed -(^) 94 -] [- 79
%T0040	BLK_20 BLK_07	P-040	Pulse - ASU in splice position -(v) 95 -] [- 49
%T0041	BLK_20 BLK_07	P+041	Pulse + Manual start ASU splice -(^) 96 -] [- 39
%T0042	BLK_20 BLK_07	P+042	Pulse + Side feeder in pos. -(^) 97 -] [- 62
%T0043	BLK_20 BLK_07	P-043	Pulse - Side feeder leave pos. -(v) 98 -] [- 55
%T0044	BLK_20 BLK_07	P+044	Pulse + Material holders down -(^) 99 -] [- 61
%T0045	BLK_20 BLK_07	P+045	Pulse + ASU splice seq. ended -(^) 100 -] [- 34
%T0047	BLK_30 BLK_07	P-047	Pulse - Tube sealing ended -(v) 101 -] [- 20
%T0048	BLK_30 BLK_07	P+048	Pulse + Software enable off MM -(^) 102 -] [- 20
%T0049	BLK_30 BLK_07	P+049	Pulse + Main motor disable -(^) 103 -] [- 21
%T0050	BLK_75 BLK_06	P+050	Pulse + Drop chute open -(^) 104 -] [- 21
%T0051	BLK_06	P+051	Pulse + Data trans DMC ready -] [- 10,11,12,13,14,15 -(^) 9
%T0052	BLK_06	P+052	Pulse + Data trans DCS ready -] [- 24,25 -(^) 23
%T0054	BLK_06	P+054	Pulse + Reset Force download -] [- 37 -(^) 36
%T0055	BLK_06	P-055	Pulse - Startflow data start com -] [- 53,54,56,66 -(v) 52
%T0057	BLK_28	P+057	Pulse + From probe to mag.float.

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BLOCK: MAIN

REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
			-] [- 38
			-(^) 36
%T0058	BLK_28	P+058	Pulse - From mag.float. to probe
			-] [- 38
			-(v) 37
%T0059	BLK_06	P+059	Pulse + Force download TMCC A420
			-] [- 32
			-(^) 31
%T0060	BLK_32	P+060	Pulse + Dump LS and pox. bath
			-] [- 7,8,9,11,12,13,15,16,17,21
			-(^) 6
%T0061	BLK_32	P+061	Pulse + Dump at normal stop
			-] [- 24,25,26
			-(^) 23
%T0062	BLK_32	P+062	Pulse + Dump out of design
			-] [- 29,30,31
			-(^) 28
%T0090	BLK_07	P+090	Pulse + 1/2 Hz flash
			-] [- 107,108
			-(^) 106
%T0091	BLK_07	P+091	Pulse + Set 1/2 Hz flash
			-] [- 109
			-(^) 107
%T0092	BLK_07	P+092	Pulse + Reset 1/2 Hz flash
			-] [- 110
			-(^) 108
%T0093	BLK_07	P+093	Pulse + Jawhit
			-(^) 111
	BLK_26		-] [- 17,20,22,24
%T0094	BLK_07	P+094	Pulse + Jawout
			-(^) 112
	BLK_26		-] [- 18,20,22,24
%T0095	BLK_07	P+095	Pulse + Brake JUM
			-(^) 113
	BLK_70		-] [- 35
%T0096	BLK_07	P+096	Pulse + Brake JUM after HC
			-(^) 114
	BLK_30		-] / [- 27
	BLK_50		-] [- 92
%T0097	BLK_07	P+097	Pulse + Brake JUM at short stop
			-(^) 115
	BLK_70		-] [- 26
%T0098	BLK_07	P+098	Pulse + Stop JUM after tube seal
			-(^) 116
	BLK_27		-] / [- 6
%T0099	BLK_07	P+099	Pulse + Brake JUM fast inching
			-(^) 117
	BLK_30		-] / [- 27
%T0100	1T0004	P+100	Pulse + Volume sensor
			-] [- 19
			-(^) 18
%T0101	BLK_05	P+101	Pulse + Load volume variables
			-] [- 9,10,11,12,13,14,15,16,17,18,19
			-(^) 6
%T0102	BLK_05	P+102	Pulse + Check new volume
			-] [- 22
			-(^) 21
%T0103	BLK_05	P+103	Pulse + New volume value
			-(^) 23
	BLK_21		-] [- 26
	BLK_22		-] [- 25
	BLK_26		-] [- 39
	BLK_27		-] [- 30
	BLK_28		-] [- 20
	BLK_30		-] [- 91,92
%T0104	1T0004	P+104	Pulse + FFU sychronized
			-] / [- 65,66
			-(^) 60
%T0105	1T0004	P+105	Pulse + FFU infeed stn rot. mon.
			-] / [- 67,68
			-(^) 61
%T0106	1T0004	P+106	Pulse + FFU press. dev. rot. mon
			-] / [- 69,70
			-(^) 62
%T0107	1T0004	P+107	Pulse + FFU stn. wheel rot. mon.
			-] / [- 71,72
			-(^) 63
%T0108	1T0004	P+108	Pulse + Reset FFU alarm
			-] [- 74
			-(^) 73
%T0109	1T0004	P+109	Pulse + Decrease MainMotor's speed
			-] [- 33
			-(^) 31
%T0110	BLK_51	P+110	Pulse + Start long lubrication
			-] [- 56,57
			-(^) 55
%T0111	BLK_32	P+111	Pulse + Dump PT21 packages
			-] [- 38
			-(^) 37

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BLOCK: MAIN

REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
	BLK_75		-] [- 42
%T0112	BLK_20	P+112	Pulse + PT21 bar code
			-] [- 92
			-(^) 91
%T0115	BLK_26	P+115	Pulse + Save slow speed
			-] [- 30
			-(v) 29
%T0116	BLK_26	P+116	Pulse + Save high speed
			-] [- 36
			-(v) 35
%T0117	BLK_24	P+117	Pulse + Peroxide bath drain
			-] [- 38
			-(^) 35
%T0118	BLK_20	P+118	Pulse + Switch speed DR loop
			-] [- 39
			-(^) 38
%T0119	BLK_56	P+119	ASU alarm reset pulse
			-] [- 51,53,55,59,61,63,65,67,69,71,73,75,77,79
			-(^) 6
%T0120	BLK_50	P+120	Pulse + Dosing chemicals
			-] [- 163,164,165,166,167,168,169
			-(^) 161
%T0121	BLK_29	P+121	Pulse + Inch flap to position
			-] [- 50
			-(^) 49
%T0124	BLK_75	P+124	Pulse + Pkg. cnt. after FFU
			-] [- 11
			-(^) 10
%T0125	BLK_75	P+125	Pulse + Pkg. cnt. last point DE
			-] [- 18
			-(^) 17
%T0126	BLK_75	P-126	Pulse - Step down from prod.
			-] [- 52
			-(v) 51
%T0127	BLK_75	P-127	Pulse - Start sequence interrupt
			-] [- 46
			-(v) 45
%T0128	BLK_70	P+128	Pulse + P_stop in JUM
			-] [- 14
			-(^) 13
%T0129	BLK_75	P+129	Pulse + Reset A-alarm lock
			-] [- 187
			-(^) 186
%T0130	BLK_28	P+130	Pulse + C valve moves upwards
			-] [- 9
			-(^) 6
%T0131	BLK_28	P-131	Pulse - C valve moves downwards
			-] [- 11
			-(v) 7
%T0132	BLK_28	P+132	Pulse + Open reg.valve at nor.st
			-] [- 12
			-(^) 8
%T0134	BLK_75	P+134	Pulse + Normal stop
			-] [- 170
			-(^) 169
%T0135	BLK_51	P+135	Pulse + Sterilization ready
			-] [- 13
			-(^) 12
%T0136	BLK_33	P+136	Pulse + pack. counter after FFU
			-]/[- 35
			-(^) 33
%T0138	BLK_23	P-138	Pulse - SA cooling done
			-]/[- 30
			-(v) 36
%T0139	1T0004	P+139	Pulse + SA rotation monitor
			-] [- 78
			-(^) 77
%T0140	BLK_50	P+140	Pulse + CIP ended (from extrnl)
			-] [- 16,20,22
			-(^) 14
%T0141	BLK_50	P+141	Pulse + CIP running
			-] [- 81
			-(^) 19
%T0142	BLK_25	P+142	Pulse + Preheating valve
			-] [- 21,22
			-(^) 20
%T0144	BLK_25	P+144	Pulse + Butterfly valve in dry
			-] [- 82
			-(^) 81
%T0145	BLK_50	P+145	Pulse + CIP flow start
			-] [- 57
			-(^) 54
%T0146	BLK_23	P+146	Pulse + Manual strip splice
			-] [- 30
			-(^) 29

REGISTER (%R) GLOBAL CROSS REFERENCES			
REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
%R0002	1T0004	SEC_127	Angle sector (0-127 decimal deg) FBIO 16,26,31,43,49
	BLK_06		FBIO 12
	BLK_07		FBIO 111,112,113,114,115,116,117
	BLK_28		FBIO 22,23
	BLK_30		FBIO 50
	BLK_32		FBIO 56,57
%R0003	1T0004	SEC_255	Angle sector (0-255 decimal deg) FBIO 16,19,35,37,38,40,41,46,47,52,53
	BLK_07		FBIO 42
	BLK_29		FBIO 34,38,51,52
	BLK_30		FBIO 55,58,72,80,82,85,86
%R0005	BLK_07	NEW_POS	New position JUM FBIO 42,44,46
%R0006	BLK_07	OLD_POS	Old position JUM FBIO 42,44,46
%R0007	BLK_07	DIF_POS	Difference in position JUM FBIO 44
%R0008	BLK_07	LOW_LIM	Angle enc. update lower limit FBIO 35,36,37,38,44
%R0009	BLK_07	HI_LIM	Angle enc. update higher limit FBIO 35,36,37,38,44
%R0010	BLK_07	RP4MIN	Machine cam rounds per 4 minutes FBIO 55
%R0011	BLK_07	CAM_RPH	Machine cam rounds per hours FBIO 55,56
%R0012	BLK_07	H_SPEED	High machine speed limit FBIO 48,49,50,56
%R0030	BLK_32	SHIFT01	Shiftregister 01 for pkg dumping FBIO 7,8,9,11,12,13,15,16,17,19,21,24,25,26,29,30,31,33,34,35,38,43,44,45,49,50,51,54
%R0050	BLK_32	DMP_L5	Dump L5, packs to rotate FBIO 7
%R0051	BLK_32	DMP_BATH	Dump bath, packs to rotate FBIO 15
%R0052	BLK_32	DMP_NORM	Dump normal stop, packs to rot. FBIO 24
%R0053	BLK_32	DMP_DESN	Dump design, packs to rotate FBIO 29
%R0054	BLK_32	DMP_SPLI	Dump paper splice, pack to rot. FBIO 33
%R0055	BLK_32	DMP_STR	Dump strip stop, pack to rotate FBIO 43
%R0056	BLK_32	DMP_STST	Dump SA stop, pack to rotate FBIO 49
%R0057	BLK_32	DMP_SPOF	Dump strip splice, pack. offset FBIO 41,42,43
%R0058	BLK_32	DMP_SPL	Dump strip splice, start dump FBIO 43,45
%R0059	BLK_32	DMP_SAOF	Dump SA stop, package offset FBIO 47,48,49
%R0060	BLK_32	DMP_SA	Dump SA stop, start dumping FBIO 49,51
%R0061	BLK_32	DMP_TOP	Dump top form.ring, packs to rot FBIO 11
%R0100	BLK_07	TMR_1	Tmr 1, Start sequence (0,01s) FBIO 21,22,23,24,25,26,27,28,29,30,31,32
%R0103	BLK_70	TMR_2	Tmr 2, Short stop (0,10s) FBIO 27,29
	BLK_75		FBIO 126
%R0106	BLK_27	TMR_3	Tmr 3, Tight tube (0,10s) FBIO 7,8
%R0109	BLK_23	TMR_4	Tmr 4, Ext. Sapwr at spl.(0,01s) FBIO 25,27
%R0112	BLK_24	TMR_5	Tmr 5, Spray sequence (0,01s) FBIO 57,59,60,61,62,63,64,65,66,67
	BLK_54		FBIO 13,14
%R0115	BLK_25	TMR_6	Tmr 6, Start ster. air (0,01s) FBIO 9,10
%R0118	BLK_25	TMR_7	Tmr 7, Heat exch. valve (0,01s) FBIO 36,37
%R0121	BLK_24	TMR_8	Tmr 8, Drying time (0,10s) FBIO 22
	BLK_25		FBIO 60,63
	BLK_33		FBIO 6
	BLK_75		FBIO 124
%R0124	BLK_51	TMR_9	Tmr 9, Lubrication seq. (0,10s) FBIO 56,58,60,61,62,63,64
%R0127	BLK_20	TMR_10	Tmr 10, Spd at ASU spl. (0,001s) FBIO 38
%R0130	BLK_20	TMR_11	Tmr 11, ASU cut sequence (0,01s) FBIO 46,50,51,53,58,60
%R0133	BLK_20	TMR_12	Tmr 12, ASU splice seq. (0,01s) FBIO 56,67,71,72,73,74
%R0136	BLK_08	TMR_13	Tmr 13, Venting (0,10s) FBIO 53
	BLK_75		FBIO 125

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REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
%R0139	BLK_23	TMR_14	TMR 14, SA power ramp at start FBIO 23
%R0142	BLK_07	TMR_15	TMR 15, Speed control interval FBIO 54
%R0151	BLK_27	CNT_1	CNT1, Extra pwr at mtrl splice FBIO 43,45,46,47,51
%R0154	BLK_29	CNT_2	CNT2, Pkgs out of design FBIO 18,19
%R0157	BLK_28	CNT_3	CNT3, Start filling FBIO 18
%R0160	BLK_28	CNT_4	CNT4, Wrong prod. level in tube FBIO 57
%R0163	BLK_50	CNT_5	CNT5, External cleaning FBIO 98,101,110,118,119,120,121,122,123,124,125,126,127,128,129,130,131,132,133,135,136,137,138,139,142,143,144,145,146,147,148,149,150,154,155,156,157,158,159,163,164,165,166,167,168,169,174,175,176,177,180,181,182,183,184,186,189,190,191,192,193,194,196,199,200,201,202,203,204,205,206,207,208,209,212,213,214,215,216,217,218,219,220,221,222,223,224,225,226,227,230,231,232,233,234,235,236,237,238,239,240,241,242,243,244,245,246,247,250,251,252,254,280,281,282,283,285,286
%R0166	BLK_50	CNT_6	CNT6, EC time on TPOP FBIO 277,280,281,282,283,285,286
%R0169	BLK_75 BLK_20	CNT_7	CNT7, Dumping ASU packages FBIO 123 92,93,94
%R0172	BLK_32 BLK_27	CNT_8	CNT8, Tube sealing FBIO 43,49 9
%R0175	BLK_07	CNT_9	CNT9, Speed control roundcounter FBIO 53,55
%R0200	BLK_06	DMC_CNT	DMC data transfer, Counter FBIO 6,7,8,10
%R0201	BLK_06	DMC_W1	DMC data transfer, Word 1 FBIO 10,18
%R0202	BLK_06	DMC_W2	DMC data transfer, Word 2 FBIO 11
%R0203	BLK_06	DMC_W3	DMC data transfer, Word 3 FBIO 12
%R0204	BLK_06	DMC_W4	DMC data transfer, Word 4 FBIO 13
%R0205	BLK_06	DMC_W5	DMC data transfer, Word 5 FBIO 14
%R0206	BLK_06	DMC_W6	DMC data transfer, Word 6 FBIO 15
%R0207	BLK_06	DMC_W7	DMC data transfer, Word 7 FBIO 15
%R0208	BLK_06	DMC_W8	DMC data transfer, Word 8 FBIO 15
%R0210	BLK_06	DCS_CNT	TMCC data trans., DCS counter FBIO 20,21,22,24
%R0211	BLK_06	DCS_W1	TMCC data trans., Repeat length FBIO 24,28
%R0212	BLK_06	DCS_W2	TMCC data trans., Prod. angle FBIO 24
%R0213	BLK_06	DCS_W3	TMCC data trans., Servo angle in FBIO 25
%R0214	BLK_06	DCS_W4	TMCC data trans, Servo angle out FBIO 25
%R0215	BLK_06	AF_W1	TMCC data trans., Aux.Fun. Date FBIO 25
%R0220	BLK_06	FCS_CNT	TMCC data trans., FCS counter FBIO 33,38,39,41
%R0221	BLK_06	FCS_W1	TMCC data trans., Word 1 FCS FBIO 42,50
%R0222	BLK_06	FCS_W2	TMCC data trans., Word 2 FCS FBIO 43
%R0223	BLK_06	FCS_W3	TMCC data trans., Word 3 FCS FBIO 44
%R0224	BLK_06	FCS_W4	TMCC data trans., Word 4 FCS FBIO 45
%R0225	BLK_06	FCS_W5	TMCC data trans., Word 5 FCS FBIO 46
%R0226	BLK_06	FCS_W6	TMCC data trans., Word 6 FCS FBIO 47
%R0227	BLK_06	FCS_W7	TMCC data trans., Word 7 FCS FBIO 48
%R0230	BLK_06	STFL_CN	TMCC data trans., Start flow cnt FBIO 56,57
%R0233	BLK_06	STFL_DL	TMCC data trans., Start flow del FBIO 58
%R0236	BLK_06	FLOW_W1	TMCC data tr., Strt/Prod flow w1 FBIO 53,59,60,61,62
%R0237	BLK_06	FLOW_W2	TMCC data tr., Strt/Prod flow w2 FBIO 60
%R0238	BLK_06	ST_FLOW	TMCC data trans., Start flow FBIO 62,63
%R0239	BLK_06	PRDFLOW	TMCC data trans., Product. flow FBIO 62
%R0240	BLK_06	PRDFLRT	TMCC data trans., Prod.flow rot. FBIO 62,63
%R0243	BLK_06	DEL0243	Delay,

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REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
%R0246	BLK_06	DEL0246	FBIO 68 Delay,
%R0249	BLK_06	DEL0249	FBIO 69 Delay,
%R0252	BLK_06	DEL0252	FBIO 70 Delay,
%R0255	BLK_06	TRFLCNT	FBIO 52 TMCC data trans., Transm.flt.cnt
%R0258	1T0004	DEL0258	FBIO 66 Delay,
%R0300	1T0004	DEL0300	FBIO 33 Delay,
%R0303	1T0004	DEL0303	FBIO 65 Delay,
%R0306	1T0004	DEL0306	FBIO 66 Delay,
%R0309	1T0004	DEL0309	FBIO 67 Delay,
%R0312	1T0004	DEL0312	FBIO 68 Delay,
%R0315	1T0004	DEL0315	FBIO 69 Delay,
%R0318	1T0004	DEL0318	FBIO 70 Delay,
%R0321	1T0004	DEL0321	FBIO 71 Delay,
%R0330	BLK_07	DEL0330	FBIO 72 Delay,
%R0333	BLK_08	DEL0333	FBIO 42 Delay,
%R0336	BLK_08	DEL0336	FBIO 27 Delay,
%R0339	BLK_08	DEL0339	FBIO 51 Delay,
%R0342	BLK_70	DEL0342	FBIO 52 Delay,
%R0345	BLK_70	DEL0345	FBIO 14 Delay,
%R0348	BLK_70	DEL0348	FBIO 30 Delay,
%R0500	BLK_05	VOLUME	FBIO 35,37 Volume running
%R0501	BLK_53	CHK_VOL	FBIO 9,10,11,12,13,14,15,16,17,18,19,22,23,25,31,32,33 Check for new volume
%R0502	BLK_05	CHK_VOL	FBIO 6 Position of volume knob
%R0510	1T0004	KNOBPOS	FBIO 22,23 Position of volume knob
%R0511	BLK_05	PAR_01	FBIO 19 Sector, Catch open fast speed
%R0512	1T0004	PAR_02	FBIO 10,11,12,13,14,15,16,17,18,19 Sector, Catch open fast speed
%R0513	1T0004	PAR_03	FBIO 43 Sector, Left catch closed fast
%R0514	1T0004	PAR_04	FBIO 40 Sector, Left catch closed fast
%R0515	1T0004	PAR_05	FBIO 40 Sector, Right catch closed fast
%R0516	1T0004	PAR_06	FBIO 41 Sector, Right catch closed fast
%R0517	1T0004	PAR_07	FBIO 41 Sector, Left catch start
%R0518	BLK_501	PAR_08	FBIO 37 Sector, Left catch start
%R0519	1T0004	PAR_09	FBIO 6,9,12 Sector, Right catch start
%R0520	BLK_30	PAR_10	FBIO 38 Sector, Right catch start
%R0521	BLK_30	PAR_11	FBIO 38 Sector, Cutting ON
%R0522	1T0004	PAR_12	FBIO 50 Sector, Cutting OFF
%R0523	1T0004	PAR_13	FBIO 50 Sector, TS not allowed
%R0524	1T0004	PAR_14	FBIO 26 Sector, TS not allowed
%R0526	BLK_501	PAR_15	FBIO 26 TS length
%R0527	BLK_20	PAR_17	FBIO 27 Switch to low spd before splice
%R0528	BLK_29	PAR_18	FBIO 38 DCS, delay Missed reg.mark signl
%R0531	BLK_20	PAR_19	FBIO 27 ASU, delay Missed reg.mark signl
%R0531	BLK_501	PAR_22	FBIO 19 Spare, speed parameter

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REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
%R0538	1T0004	PAR_29	FBIO 7,10,13 Del.Rot.Mon. Synchronization FFU
	BLK_501		FBIO 66
%R0539	1T0004	PAR_30	FBIO 7,10,13 Del.Rot.Mon. Infeed station
%R0540	1T0004	PAR_31	FBIO 68 Del.Rot.Mon. Pressure device
%R0541	1T0004	PAR_32	FBIO 70 Del.Rot.Mon. Station wheel
%R0600	BLK_502	PAR_100	FBIO 72 Machine speed
	BLK_503		FBIO 6,19,20,38,51,64
	BLK_06		FBIO 6,19,32,45
%R0601	BLK_06	PAR_101	FBIO 10 Speed time decrease
%R0602	BLK_06	PAR_102	FBIO 11 Speed time increase
%R0603	BLK_06	PAR_103	FBIO 11 FFU volume correction
%R0604	BLK_06	PAR_104	FBIO 12 Flap IN acceleration
%R0605	BLK_06	PAR_105	FBIO 13 Flap IN retardation
%R0606	BLK_06	PAR_106	FBIO 13 Flap OUT acceleration
%R0607	BLK_502	PAR_107	FBIO 14 Flap OUT retardation
	BLK_503		FBIO 6,19,20,38,51,64
	BLK_06		FBIO 6,19,32,45
%R0608	BLK_06	PAR_108	FBIO 14 Flap precorrection
%R0609	BLK_06	PAR_109	FBIO 15 Flap Offset
%R0610	BLK_06	PAR_110	FBIO 15 Flap One step
%R0613	BLK_30	PAR_113	FBIO 15 TPIH TS, Default Power (L/R)
%R0614	BLK_502	PAR_114	FBIO 91,92 Sector, start filling
	BLK_503		FBIO 6,19,20,38,51,64
	BLK_28		FBIO 6,19,32,45
%R0615	BLK_06	PAR_115	FBIO 20 Repeat length
%R0616	BLK_06	PAR_116	FBIO 24 Sector, Production angle
%R0617	BLK_06	PAR_117	FBIO 24 Sector, Folding flaps IN
%R0618	BLK_06	PAR_118	FBIO 25 Sector, Folding flaps OUT
%R0619	1T0004	PAR_119	FBIO 25 Main motor speed decrease
%R0620	BLK_07	PAR_120	FBIO 31 Stop of JUM after tube sealing
%R0621	BLK_502	PAR_121	FBIO 116 Pkg LS ext. pwr.ASU spl (design)
	BLK_503		FBIO 7,21,39,52,65
	BLK_27		FBIO 7,20,33,46
%R0622	BLK_27	PAR_122	FBIO 45 Start pkg LS ext. pwr. ASU spl.
%R0623	BLK_27	PAR_123	FBIO 46 Stop pkg LS ext. pwr. ASU spl.
%R0624	BLK_23	PAR_124	FBIO 46,47 TPIH SA, Power at nom ++
%R0625	BLK_23	PAR_125	FBIO 9 TPIH SA, Power at nom +- FBIO 10
%R0626	BLK_23	PAR_126	FBIO 10 TPIH ASU, Power at splice
%R0628	BLK_502	PAR_128	FBIO 17 Start spd drive roller loop ASU
	BLK_503		FBIO 7,21,39,52,65
	BLK_21		FBIO 7,20,33,46
%R0629	BLK_22	PAR_129	FBIO 26,31,32 Start spd drv roll. magazine ASU
%R0630	BLK_26	PAR_130	FBIO 25,31,32 Start spd drive roller column
%R0631	BLK_28	PAR_131	FBIO 39 Dump pkg before filling allowed
%R0632	BLK_27	PAR_132	FBIO 18 Dump pkg at tube sealing
%R0633	BLK_25	PAR_133	FBIO 9 Delay butterfly ON during drying
%R0634	BLK_32	PAR_134	FBIO 82 Extra pkgs.offset ASR -050V ONLY
%R0635	BLK_502	PAR_135	FBIO 42,48 Del.start ext. pwr.SA paper spl.
	BLK_503		FBIO 7,21,39,52,65
	BLK_23		FBIO 7,20,33,46
%R0636	BLK_23	PAR_136	FBIO 27 Del.stop ext. pwr.SA paper spl.

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REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
%R0637	BLK_27	PAR_137	FBIO 27 LS extra pwr. (% of LS pwr.)
%R0638	BLK_27	PAR_138	FBIO 41 Default val. LS pwr at tube seal
%R0639	BLK_27	PAR_139	FBIO 30 Default val. LS pwr Production
%R0640	BLK_27	PAR_140	FBIO 30 Default val. LS pwr in Service
%R0641	BLK_07	PAR_141	FBIO 115 JUM ShortStop sector
%R0660	BLK_502	PAR_160	Dump LS, offset FBIO 9,17,23,24,36,41,49,54,62,67,75
	BLK_503		FBIO 9,17,22,30,35,43,48,56
	BLK_32		FBIO 7,9
%R0661	BLK_502	PAR_161	Dump LS, packs FBIO 17,36,49,62,75
	BLK_503		FBIO 17,30,43,56
	BLK_32		FBIO 7,8
%R0662	BLK_27	PAR_162	Dump Pox bath, offset FBIO 49,50
	BLK_32		FBIO 15,17
%R0663	BLK_27	PAR_163	Dump Pox bath, packs FBIO 49
	BLK_32		FBIO 15,16
%R0664	BLK_32	PAR_164	Dump norm stop, offset FBIO 24,26
%R0665	BLK_32	PAR_165	Dump norm stop, packs FBIO 24,25
%R0666	BLK_32	PAR_166	Dump design error, offset FBIO 29,31
%R0667	BLK_502	PAR_167	Dump design error, packs FBIO 9,23,24,41,54,67
	BLK_503		FBIO 9,22,35,48
	BLK_32		FBIO 29,30
%R0668	BLK_27	PAR_168	Dump paper splice, offset FBIO 49,50
	BLK_32		FBIO 33,35
%R0669	BLK_27	PAR_169	Dump paper splice, packs FBIO 50
	BLK_32		FBIO 33,34
	BLK_75		FBIO 30
%R0670	BLK_32	PAR_170	Dump top A.C. form. ring, offset FBIO 11,13
%R0671	BLK_32	PAR_171	Dump top A.C. forming ring, packs FBIO 11,12
%R0672	BLK_502	PAR_172	Dump pkgs in JUM, absolute (HEX) FBIO 9,23,24,41,54,67
	BLK_503		FBIO 9,22,35,48
	BLK_32		FBIO 21
%R0674	BLK_502	PAR_174	Dump strip splice, offset FBIO 11,13,15,26,28,30,32,34,43,45,47,56,58,60,69,71,73
	BLK_503		FBIO 11,13,15,24,26,28,37,39,41,50,52,54
	BLK_32		FBIO 41,42
%R0675	BLK_32	PAR_175	Dump strip splice, packs FBIO 43,44
	BLK_75		FBIO 33
%R0676	BLK_32	PAR_176	Dump strip stop, offset FBIO 47,48
%R0677	BLK_32	PAR_177	Dump strip stop, packs FBIO 49,50
	BLK_75		FBIO 36
%R1000	BLK_23	SA_OUT	SA, Output FBIO 9,10,11,13,14,15,17,21
%R1001	BLK_23	SA_OFFS	SA, Offset FBIO 20,21
%R1200	BLK_21	LP_SPD	ASU, Speed drive roller loop FBIO 26,28,29,31,32,34
%R1201	BLK_21	LP_LOW	ASU, Lower speed limit DR loop FBIO 31
%R1202	BLK_21	LP_HIGH	ASU, Higher speed limit DR loop FBIO 32
%R1300	BLK_22	MG_SPD	ASU, Speed drive roller magazine FBIO 25,28,29,31,32,34
%R1301	BLK_22	MG_LOW	ASU, Lower speed limit DR mag. FBIO 31
%R1302	BLK_22	MG_HIGH	ASU, Higher speed limit DR mag. FBIO 32
%R1320	BLK_22	MG_D1	ASU, Timeout DR mag. while still FBIO 22
%R1500	BLK_20	DEL1500	Delay, ASU FBIO 8
%R1503	BLK_20	DEL1503	Delay, ASU FBIO 9
%R1506	BLK_20	DEL1506	Delay, ASU FBIO 14
%R1509	BLK_20	DEL1509	Delay, ASU FBIO 15
%R1512	BLK_20	DEL1512	Delay, ASU

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REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
%R1515	BLK_20	DEL1515	FBIO 17 Delay, ASU
%R1518	BLK_20	DEL1518	FBIO 18 Delay, ASU
%R1521	BLK_20	DEL1521	FBIO 19 Delay, ASU
%R1527	BLK_20	DEL1527	FBIO 16 Delay, ASU
%R1533	BLK_20	DEL1533	FBIO 81 Delay, ASU
%R1536	BLK_20	DEL1536	FBIO 84 Delay, ASU
%R1539	BLK_20	DEL1539	FBIO 85 Delay, ASU
%R1600	BLK_21	DEL1600	FBIO 87 Delay, LOOP ASU
%R1603	BLK_21	DEL1603	FBIO 7 Delay, LOOP ASU
%R1606	BLK_21	DEL1606	FBIO 17 Delay, LOOP ASU
%R1609	BLK_21	DEL1609	FBIO 19 Delay, LOOP ASU
%R1612	BLK_21	DEL1612	FBIO 20 Delay, LOOP ASU
%R1615	BLK_21	DEL1615	FBIO 13 Delay, LOOP ASU
%R1618	BLK_21	DEL1618	FBIO 28 Delay, LOOP ASU
%R1621	BLK_21	DEL1621	FBIO 29 Delay, LOOP ASU
%R1700	BLK_22	DEL1700	FBIO 22 Delay, Magazine ASU
%R1703	BLK_22	DEL1703	FBIO 10 Delay, Magazine ASU
%R1706	BLK_22	DEL1706	FBIO 17 Delay, Magazine ASU
%R1709	BLK_22	DEL1709	FBIO 27 Delay, Magazine ASU
%R1712	BLK_22	DEL1712	FBIO 28 Delay, Magazine ASU
%R1803	BLK_23	DEL1803	FBIO 29 Delay, SA
%R1806	BLK_23	DEL1806	FBIO 35 Delay, SA
%R1809	BLK_23	DEL1809	FBIO 37 Delay, SA
%R1812	BLK_23	DEL1812	FBIO 40 Delay, SA
%R1815	BLK_23	DEL1815	FBIO 46 Delay, SA
%R1821	BLK_23	DEL1821	FBIO 49 Delay, SA
%R1824	BLK_23	DEL1824	FBIO 54 Delay, SA
%R1827	BLK_23	DEL1827	FBIO 33 SA splice head down
%R1830	BLK_23	DEL1830	FBIO 31 Delay SA
%R1833	BLK_23	DEL1833	FBIO 35 Delay, SA
%R2000	BLK_27	CTR_1	FBIO 45 SUP, Counter 1 reset
%R2005	BLK_27	LS_WATT	FBIO 47 SUP, LS power in watt
%R2010	BLK_26	ACT_HIT	FBIO 32,34,36,38 DRAC, Actual value at jawhit
%R2011	BLK_26	ACT_OUT	FBIO 17,20 DRAC, Actual value at jawout
%R2012	BLK_26	ACT_VAL	FBIO 18,20 DRAC, Actual value
%R2013	BLK_26	ERROR	FBIO 20 DRAC, Control error
%R2014	BLK_26	SPD_ADJ	FBIO 20,22,24 DRAC, Speed adjustment
%R2015	BLK_26	SPD_OUT	FBIO 22,24 DRAC, Speed output
%R2016	BLK_26	SLOWSPD	FBIO 22,24,27,30,36 DRAC, Slow speed
%R2017	BLK_26	HIGHSPD	FBIO 24,30,32,33 DRAC, High speed
%R2031	BLK_06	FIL_PRD	FBIO 22,36,38,39 FIL, Production flow
%R2032	BLK_06	FIL_STR	FBIO 42,63 FIL, Start flow
%R2037	BLK_06	FIL_TRI	FBIO 28 FIL, PID trigger level
			FBIO 45

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REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
%R2038	BLK_28 BLK_06	FIL_SET	FBI0 30,33 FIL, Miscellaneous settings FBI0 45
%R2039	BLK_28 BLK_06	FIL_PST	FBI0 30,33 FIL, Steady P constant FBI0 46
%R2040	BLK_28 BLK_06	FIL_P	FBI0 31,34 FIL, P constant FBI0 46
%R2041	BLK_28 BLK_06	FIL_IST	FBI0 31,34 FIL, Steady I constant FBI0 47
%R2042	BLK_28 BLK_06	FIL_I	FBI0 31,34 FIL, I constant FBI0 47
%R2043	BLK_28 BLK_06	FIL_DST	FBI0 32,35 FIL, Steady D constant FBI0 48
%R2044	BLK_28 BLK_06	FIL_D	FBI0 32,35 FIL, D constant FBI0 48
%R2045	BLK_28 BLK_28	FIL_OFF	FBI0 32,35 FIL, Filling sector stop FBI0 21,22,23
%R2046	BLK_28	FIL_CVD	FIL, C-valve down at no product FBI0 47,48,49
%R2050	BLK_27	INBATH	SUP, pkg mat.splice inside bath FBI0 49,51
%R2051	BLK_27	OUTBATH	SUP, pkg mat.splice outside bath FBI0 50,51
%R2100	BLK_25	HEATLIM	Heat sterilization heating limit FBI0 41,42,43,47
%R2500	BLK_25	DRYTIME	AIR, Drying time FBI0 58,59,60
%R2501	BLK_75 BLK_25	BVO_DRY	FBI0 124 AIR, B valve open in drying FBI0 58,59,63
%R2502	BLK_25	FLP_DRY	AIR, Flap heating on in drying FBI0 58,59
%R2503	BLK_33 BLK_24	DEL2503	FBI0 6 Delay, FBI0 18
%R2506	BLK_24	DEL2506	Delay, FBI0 20
%R2509	BLK_24	DEL2509	Delay, FBI0 34
%R2515	BLK_24	DEL2515	Delay, FBI0 36
%R2518	BLK_24	DEL2518	Delay, FBI0 44
%R2521	BLK_24	DEL2521	Delay, FBI0 45
%R2524	BLK_24	DEL2524	Delay, FBI0 46
%R2527	BLK_24	DEL2527	Delay, FBI0 50
%R2530	BLK_24	DEL2530	Delay, FBI0 52
%R2533	BLK_24	DEL2533	Delay, FBI0 53
%R2536	BLK_24	DEL2536	Delay, FBI0 29
%R2542	BLK_24	DEL2542	Delay, FBI0 30
%R2545	BLK_24	DEL2545	Delay, FBI0 26
%R2548	BLK_24	DEL2548	Delay, FBI0 86
%R2551	BLK_24	DEL2551	Delay, FBI0 87
%R2600	BLK_25	DEL2600	Delay, FBI0 20
%R2603	BLK_25	DEL2603	Delay, FBI0 24
%R2606	BLK_25	DEL2606	Delay, FBI0 31
%R2609	BLK_25	DEL2609	Delay, FBI0 65
%R2612	BLK_25	DEL2612	Delay, FBI0 73
%R2615	BLK_25	DEL2615	Delay, FBI0 14
%R2618	BLK_25	DEL2618	Delay, FBI0 21
%R2621	BLK_25	DEL2621	Delay, FBI0 82
%R2627	BLK_25	DEL2627	Delay, FBI0 85
%R2630	BLK_25	DEL2630	Delay,

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REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
%R2633	BLK_25	DEL2633	FBIO 90 Delay,
%R2650	BLK_25	DEL2650	FBIO 79 Delay,
%R2653	BLK_25	DEL2653	FBIO 39 Delay,
%R2656	BLK_25	DEL2656	FBIO 40 Delay,
%R2659	BLK_25	DEL2659	FBIO 49 Delay,
%R2662	BLK_25	DEL2662	FBIO 52 Delay,
%R2700	BLK_26	DEL2700	FBIO 45 Delay,
%R2706	BLK_26	DEL2706	FBIO 7 Delay,
%R2800	BLK_27	DEL2800	FBIO 15 Delay,
%R2803	BLK_27	DEL2803	FBIO 13 Delay,
%R2806	BLK_27	DEL2806	FBIO 14 Delay,
%R2809	BLK_27	DEL2809	FBIO 27 Delay,
%R2812	BLK_27	DEL2812	FBIO 27 Delay,
%R2818	BLK_27	DEL2818	FBIO 54 Delay,
%R2821	BLK_27	DEL2821	FBIO 57 Delay,
%R2824	BLK_27	DEL2824	FBIO 58 Delay,
%R2827	BLK_27	DEL2827	FBIO 60 Delay,
%R2830	BLK_27	DEL2830	FBIO 17 Delay,
%R2900	BLK_28	DEL2900	FBIO 23 Delay,
%R2906	BLK_28	DEL2906	FBIO 41 Delay,
%R2909	BLK_28	DEL2909	FBIO 45 Delay,
%R2912	BLK_28	DEL2912	FBIO 50 Delay,
%R2915	BLK_28	DEL2915	FBIO 52 Delay,
%R2918	BLK_28	DEL2918	FBIO 53 Delay,
%R2921	BLK_28	DEL2921	FBIO 54 Delay,
%R2924	BLK_28	DEL2924	FBIO 9 Delay,
%R2927	BLK_28	DEL2927	FBIO 11 Delay,
%R2930	BLK_28	DEL2930	FBIO 12 Delay,
%R3000	1T0004	TS_TIME	FBIO 16 FSTSCN, Pulse time
	BLK_30		FBIO 25,26,29
%R3001	1T0004	TS_LIM	FBIO 78 FSTSCN, Length of pulse
			FBIO 27,28,29
%R3500	BLK_29	DEL3500	Delay,
%R3503	BLK_29	DEL3503	FBIO 6 Delay,
%R3506	BLK_29	DEL3506	FBIO 7 Delay,
%R3509	BLK_29	DEL3509	FBIO 8 Delay,
%R3512	BLK_29	DEL3512	FBIO 25 Delay,
%R3515	BLK_29	DEL3515	FBIO 26 Delay,
%R3518	BLK_29	DEL3518	FBIO 27 Delay,
%R3521	BLK_29	DEL3521	FBIO 29 Delay,
%R3524	BLK_29	DEL3524	FBIO 32 Delay,
%R3600	BLK_30	DEL3600	FBIO 36 Delay,
%R3603	BLK_30	DEL3603	FBIO 15 Delay,
%R3606	BLK_30	DEL3606	FBIO 17 Delay,
%R3609	BLK_30	DEL3609	FBIO 23 Delay,
%R3612	BLK_30	DEL3612	FBIO 29 Delay,

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REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES

%R3615	BLK_30	DEL3615	FBIO 32 Delay,
%R3618	BLK_30	DEL3618	FBIO 38 Delay,
%R3621	BLK_30	DEL3621	FBIO 46 Delay,
%R3624	BLK_30	DEL3624	FBIO 70 Delay,
%R3627	BLK_30	DEL3627	FBIO 62 delay,
%R3630	BLK_30	DEL3630	FBIO 65 Delay,
%R3633	BLK_30	DEL3633	FBIO 61 Delay,
%R3636	BLK_30	DEL3636	FBIO 63 Delay,
%R3700	BLK_30	DEL3700	FBIO 66 Delay,
%R3800	BLK_32	DEL3800	FBIO 76 Delay,
%R3900	BLK_33	DEL3900	FBIO 61 Delay,
%R3903	BLK_33	DEL3903	FBIO 8 Delay,
%R3906	BLK_33	DEL3906	FBIO 9 Delay,
%R3912	BLK_33	DEL3912	FBIO 11 Delay,
%R3915	BLK_33	DEL3915	FBIO 12 Delay,
%R3918	BLK_33	DEL3918	FBIO 13 Delay,
%R3921	BLK_33	DEL3921	FBIO 15 Delay,
%R3924	BLK_33	DEL3924	FBIO 18 Delay,
%R3927	BLK_33	DEL3927	FBIO 20 Delay,
%R3930	BLK_33	DEL3930	FBIO 24 Delay,
%R3933	BLK_33	DEL3933	FBIO 29 Delay,
%R3936	BLK_33	DEL3936	FBIO 34 Delay,
%R3939	BLK_33	DEL3939	FBIO 35 Delay,
%R4000	BLK_50	EC_TOT	FBIO 22 EC, Total time chosen
%R4001	BLK_50	EC_TIME	FBIO 257,259,261,263,265,267,269,271,273,275,277,285 EC, Interrupted time
%R4500	BLK_50	DEL4500	FBIO 279,280,281,282,283,286 Delay,
%R4506	BLK_50	DEL4506	FBIO 15 Delay,
%R4509	BLK_50	DEL4509	FBIO 49 Delay,
%R4512	BLK_50	DEL4512	FBIO 59 Delay,
%R4515	BLK_50	DEL4515	FBIO 109 Delay,
%R4518	BLK_50	DEL4518	FBIO 113 Delay,
%R4521	BLK_50	DEL4521	FBIO 170 Delay,
%R4524	BLK_50	DEL4524	FBIO 26 Delay,
%R4527	BLK_50	DEL4527	FBIO 27 Delay,
%R4530	BLK_50	DEL4530	FBIO 28 Delay,
%R4533	BLK_50	DEL4533	FBIO 38 Delay,
%R4539	BLK_50	DEL4539	FBIO 44 Delay,
%R4542	BLK_50	DEL4542	FBIO 41 Delay,
%R4545	BLK_50	DEL4545	FBIO 35 Delay,
%R4548	BLK_50	DEL4548	FBIO 37 Delay,
%R4551	BLK_50	DEL4551	FBIO 39 Delay,
%R4554	BLK_75 BLK_50	DEL4554	FBIO 67 FBIO 127 Delay,
%R4557	BLK_50	DEL4557	FBIO 76 Delay,
%R4560	BLK_50	DEL4560	FBIO 78 Delay,

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REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
%R4563	BLK_50	DEL4563	FBIO 80 Delay,
%R5500	BLK_51	DEL5500	FBIO 56 Delay,
%R5503	BLK_51	DEL5503	FBIO 14 Delay,
%R5506	BLK_51	DEL5506	FBIO 16 Delay,
%R5509	BLK_51	DEL5509	FBIO 32 Delay,
%R5512	BLK_51	DEL5512	FBIO 47 Delay,
%R5515	BLK_51	DEL5515	FBIO 65 Delay,
%R5518	BLK_51	DEL5518	FBIO 67 Delay,
%R5521	BLK_51	DEL5521	FBIO 69 Delay,
%R5524	BLK_51	DEL5524	FBIO 76 Delay,
%R5533	BLK_51	DEL5533	FBIO 81,84 Delay,
%R5536	BLK_51	DEL5536	FBIO 115 Delay,
%R5539	BLK_51	DEL5539	FBIO 45 Delay,
%R5542	BLK_51	DEL5542	FBIO 13 Delay,
%R5545	BLK_51	DEL5545	FBIO 23 Delay,
%R5548	BLK_51	DEL5548	FBIO 82 Delay,
%R5551	BLK_51	DEL5551	FBIO 26 Delay,
%R5554	BLK_51	DEL5554	FBIO 29 Delay,
%R6400	BLK_56	DEL6400	FBIO 33 Delay, ASU separate room
%R6403	BLK_56	PLS_MUX	FBIO 7 Sync.pulse count to mux
%R6406	BLK_56	ASRWRD1	FBIO 118,119,120 Alarm bits to MUX, card 100
%R6410	BLK_56	ASRWRD5	FBIO 121,124,126 Alarm bits to MUX.
%R6420	BLK_56	FLASH1	FBIO 122,125 Timer1 flasher Leds
%R6423	BLK_56	FLASH2	FBIO 8 Timer2 flasher Leds
%R6500	BLK_54	DEL6500	FBIO 8 Delay,
%R6550	BLK_54	HI_LEV	FBIO 27 HI, fill lev. to stop HI
%R8334	BLK_75	PERALM2	FBIO 24,25,26 Alarm peroxide (2)
%R8335	BLK_75	CLNALM2	FBIO 173 Alarm cleaning (2)
%R8340	BLK_75	SFL_ALM	FBIO 176 Alarm safety left
%R8341	BLK_75	SFR_ALM	FBIO 178 Alarm safety right
%R8342	BLK_75	JUM_ALM	FBIO 178 Alarm drive unit
%R8343	BLK_75	FFU_ALM	FBIO 175 Alarm final folder
%R8344	BLK_75	SA_ALM	FBIO 175 Alarm strip applicator
%R8345	BLK_75	FIL_ALM	FBIO 172 Alarm filling
%R8346	BLK_75	SRL_ALM	FBIO 174 Alarm service unit left
%R8347	BLK_75	SRR_ALM	FBIO 177 Alarm service unit right
%R8348	BLK_75	STR_ALM	FBIO 177 Alarm sterile
%R8349	BLK_75	PERALM1	FBIO 174 Alarm peroxide (1)
%R8350	BLK_75	ASU_ALM	FBIO 173 Alarm ASU
%R8351	BLK_75	SUP_ALM	FBIO 172 Alarm super structure
%R8352	BLK_75	CLNALM1	FBIO 174 Alarm cleaning (1)
%R8353	BLK_75	PTL1ALM	FBIO 176 Alarm PT/21 left 1
%R8354	BLK_75	PTR1ALM	FBIO 179,181 Alarm PT/21 right 1
%R8355	BLK_75	DCS_ALM	FBIO 180 Alarm design correction
			FBIO 175

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REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
%R8356	BLK_75	PTL2ALM	Alarm PT/21 left 2 FBIO 179,181
%R8357	BLK_75	PTR2ALM	Alarm PT/21 right 2 FBIO 180
%R8358	BLK_75	FIX_STP	TPOP Reg. for fixed machine step FBIO 165
%R8359	BLK_75	FLSHSTP	TPOP Reg. for flashing mach.step FBIO 166
%R8362	BLK_75	TIMEBAR	Time bar on TPOP FBIO 122,123,124,125,126,127
%R8363	BLK_75	VOL_PAR	Volume parameter FBIO 84
%R8365	BLK_75	REB_KIT	Rebuilding kits activated FBIO 90
%R8367	BLK_75	OPTIONS	Options installed FBIO 6
%R8375	BLK_75	WASTE	Waste, Total TBA/21 FBIO 20,21
%R8376	BLK_75	WST_DCS	Waste, Design correction system FBIO 23,24
%R8377	BLK_75	WST_FIL	Waste, Filling system FBIO 26,27
%R8378	BLK_75	WST_SPL	Waste, Pacakging material splice FBIO 29,30
%R8379	BLK_75	WST_SAS	Waste, Strip applicator splice FBIO 32,33
%R8380	BLK_75	WST_STP	Waste, strip applicator stop FBIO 35,36
%R8381	BLK_75	WST_MAN	Waste, manual drop chute FBIO 38,39
%R8382	BLK_75	PKG_IN	Packages in, resettable FBIO 8
%R8384	BLK_75	PKG_OUT	Packages out, resettable FBIO 11
%R8386	BLK_75	PKG_LP	Packages last point,resettable FBIO 18
%R8388	BLK_75	PLMS_IN	PLMS, Packages in FBIO 9
%R8390	BLK_75	PLMSOUT	PLMS, Packages out FBIO 11
%R8392	BLK_75	PLMS_LP	PLMS, Packages last point FBIO 18
%R8394	BLK_75	PLMS_TR	PLMS, Packages in tray FBIO 14,18
%R8400	BLK_10	L4_SP1	Loop 4, Set point 1 FBIO 63,65
%R8402	BLK_10	L4_AL1H	Loop 4, Alarm 1 high FBIO 75
%R8403	BLK_10	L4_AL1L	Loop 4, Alarm 1 low FBIO 75
%R8410	BLK_10	L4_OUT	Loop 4, Output TPOP FBIO 76
%R8411	BLK_10	L4_PV	Loop 4, Process value FBIO 76
%R8412	BLK_10	L5_SP1	Loop 5, Set point 1 FBIO 83,85
%R8414	BLK_10	L5_AL1H	Loop 5, Alarm 1 high FBIO 93
%R8415	BLK_10	L5_AL1L	Loop 5, Alarm 1 low FBIO 93
%R8422	BLK_10	L5_OUT	Loop 5, Output TPOP FBIO 94
%R8423	BLK_10	L5_PV	Loop 5, Process value FBIO 94
%R8424	BLK_10	L6_SP1	Loop 6, Set point 1 FBIO 101,103
%R8426	BLK_10	L6_AL1H	Loop 6, Alarm 1 high FBIO 111
%R8427	BLK_10	L6_AL1L	Loop 6, Alarm 1 low FBIO 111
%R8434	BLK_10	L6_OUT	Loop 6, Output TPOP FBIO 112
%R8435	BLK_10	L6_PV	Loop 6, Process value FBIO 112
%R8448	BLK_10	L1_SP1	Loop 1, Set point 1 FBIO 29
%R8450	BLK_10	L1_AL1H	Loop 1, Alarm 1 high FBIO 29
%R8451	BLK_10	L1_AL1L	Loop 1, Alarm 1 low FBIO 29
%R8458	BLK_10	L1_OUT	Loop 1, Output TPOP FBIO 30,31
%R8459	BLK_10	L1_PV	Loop 1, Process value FBIO 32
%R8460	BLK_10	L2_SP1	Loop 2, Set point 1 FBIO 55
%R8462	BLK_10	L2_AL1H	Loop 2, Alarm 1 high FBIO 55
%R8463	BLK_10	L2_AL1L	Loop 2, Alarm 1 low

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REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
%R8470	BLK_10	L2_OUT	FBIO 55 Loop 2, Output TPOP
%R8471	BLK_10	L2_PV	FBIO 56 Loop 2, Process value
%R8472	BLK_10	L8_SP1	FBIO 56 Loop 8, Set point 1
%R8474	BLK_10	L8_AL1H	FBIO 128 Loop 8, Alarm 1 high
%R8475	BLK_10	L8_AL1L	FBIO 128 Loop 8, Alarm 1 low
%R8482	BLK_10	L8_OUT	FBIO 128 Loop 8, Output TPOP
%R8483	BLK_10	L8_PV	FBIO 129 Loop 8, Process value
%R8496	BLK_53	L11_SP1	FBIO 21 Loop 11, Set point 1
%R8498	BLK_53	L11_A1H	FBIO 19,23 Loop 11, Alarm 1 high
%R8499	BLK_53	L11_A1L	FBIO 20,23 Loop 11, Alarm 1 low
%R8506	BLK_53	L11_OUT	FBIO 20,23 Loop 11, Output TPOP
%R8507	BLK_53	L11_PV	FBIO 21 Loop 11, Process value
%R8508	BLK_10	L9_SP1	FBIO 21 Loop 9, Set point 1
%R8510	BLK_10	L9_AL1H	FBIO 146 Loop 9, Alarm 1 high
%R8511	BLK_10	L9_AL1L	FBIO 146 Loop 9, Alarm 1 low
%R8518	BLK_10	L9_OUT	FBIO 146 Loop 9, Output TPOP
%R8519	BLK_10	L9_PV	FBIO 147 Loop 9, Process value
%R8534	BLK_10	M1_PV	FBIO 147 Heat ster, Process value
%R8535	BLK_25 BLK_10	M1_AL1H	FBIO 153 FBIO 47 Heat ster, Alarm 1 high
%R8536	BLK_10	M1_AL1L	FBIO 154 Heat ster, Alarm 1 low
%R8540	BLK_10	M3_PV	FBIO 154 Top AC, Process value
%R8541	BLK_10	M3_ALH	FBIO 168 Top AC, Alarm high
%R8542	BLK_10	M3_ALL	FBIO 169 Top AC, Alarm low
%R8543	BLK_10	M4_PV	FBIO 169 Cool circ.water, Process value
%R8544	BLK_10	M4_ALH	FBIO 171,176 Cool circ.water, Alarm high
%R8545	BLK_10	M4_ALL	FBIO 171,177 Cool circ.water, Alarm low
%R8546	BLK_10	M5_PV	FBIO 171,177 El cabinet, Process value
%R8547	BLK_10	M5_ALH	FBIO 179,184 El cabinet, Alarm high
%R8548	BLK_10	M5_ALL	FBIO 179,185 El cabinet, Alarm low
%R8549	BLK_10	M6_PV	FBIO 179,185 Steam, Process value
%R8550	BLK_10	M6_ALH	FBIO 189 Steam, Alarm high
%R8551	BLK_10	M6_ALL	FBIO 190 Steam, Alarm low
%R8552	BLK_53	MPT_PV	FBIO 190 PT21 el cab, Process value
%R8553	BLK_53	MPT_ALH	FBIO 17 PT21 el cab, Alarm high
%R8554	BLK_53	MPT_ALL	FBIO 17 PT21 el cab, Alarm low
%R8555	BLK_10	M7_PV	FBIO 17 HI, Process value
%R8556	BLK_10	M7_ALH	FBIO 195 HI, Alarm high
%R8557	BLK_10	M7_ALL	FBIO 196 HI, Alarm low
%R8558	BLK_10	M8_PV	FBIO 196 W-H202 heat exch., Process value
%R8559	BLK_10	M8_ALH	FBIO 203 W-H202 heat exch., Alarm high
%R8560	BLK_10	M8_ALL	FBIO 204 W-H202 heat exch., Alarm low
%R8561	BLK_10	M4_DLY	FBIO 204 Delay signal "Cool.water OK"
%R8588	BLK_23	SA_SPLT	FBIO 171 SA, Splice time
%R8589	BLK_06	STR_FLW	FBIO 34,35 FIL, Filling start flow

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REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES

	BLK_28		FBIO 32,34,63
%R8590	BLK_23	SA_PWR	FBIO 28 SA, Power TPIH
%R8591	BLK_30	TSL_PWR	FBIO 19,20 TS left, Power TPIH
%R8592	BLK_30	TSR_PWR	FBIO 91,93 TS right, Power TPIH
%R8593	BLK_29	DCS_OFF	FBIO 92,93 Design correction offset
%R8594	BLK_75	PKGTRAY	FBIO 21,22 Packages per tray
%R8595	BLK_28	FIL_LEV	FBIO 13,14 Filling level
%R8596	BLK_30	ANGLE	FBIO 68 Machine angle
%R8597	BLK_28	FIL_ON	FBIO 72 Filling sector (start)
%R8598	BLK_27	LST_PWR	FBIO 20,21,22,23 Power TPIH LS tight tube
%R8599	BLK_27	LSP_PWR	FBIO 30,32 Power TPIH LS production
%R8600	BLK_27	LSS_PWR	FBIO 30,34 Power TPIH LS service
%R8604	BLK_75	WST_PT	FBIO 30,36 Waste, PT21
%R8608	BLK_53	RES_PWR	FBIO 41,42 Reseal power
%R8609	BLK_53	PAT_PWR	FBIO 14,15 Patch power
%R8610	BLK_53	PTC_OFS	FBIO 11,12 Pull tab correction offset
%R8996	BLK_75	CIPDRTM	FBIO 8,9 Remaining time cip drying
%R8997	BLK_75	STP_TIM	FBIO 127 Remaining time short stop
%R8998	BLK_75	VNT_TIM	FBIO 126 Remaining time venting
%R8999	BLK_75	DRY_TIM	FBIO 125 Remaining time drying
%R9000	BLK_10	LOOP1	FBIO 124 Water bath
%R9002	BLK_10	L1_SPER	FBIO 9,13 Loop 1, Sample periode
%R9003	BLK_10	L1_DB+	FBIO 9 Loop 1, Dead band +
%R9004	BLK_10	L1_DB-	FBIO 9 Loop 1, Dead band -
%R9005	BLK_10	L1_PGN	FBIO 10 Loop 1, Prop. gain
%R9006	BLK_10	L1_DGN	FBIO 10 Loop 1, Der. gain
%R9007	BLK_10	L1_IGN	FBIO 10 Loop 1, Integ. gain
%R9008	BLK_10	L1_BIAS	FBIO 11 Loop 1, Bias
%R9009	BLK_10	L1_UCLP	FBIO 11 Loop 1, Upper clamp
%R9010	BLK_10	L1_LCLP	FBIO 11 Loop 1, Lower clamp
%R9011	BLK_10	L1_MSLW	FBIO 12 Loop 1, Min. slew time
%R9040	BLK_10	LOOP2	FBIO 35,39 Peroxide tank
%R9042	BLK_10	L2_SPER	FBIO 35 Loop 2, Sample periode
%R9043	BLK_10	L2_DB+	FBIO 35 Loop 2, Dead band +
%R9044	BLK_10	L2_DB-	FBIO 35 Loop 2, Dead band -
%R9045	BLK_10	L2_PGN	FBIO 36 Loop 2, P-gain
%R9046	BLK_10	L2_DGN	FBIO 36 Loop 2, D-gain
%R9047	BLK_10	L2_IGN	FBIO 36 Loop 2, I-gain
%R9048	BLK_10	L2_BIAS	FBIO 37 Loop 2, Bias
%R9049	BLK_10	L2_UCLP	FBIO 37 Loop 2, Upper clamp
%R9050	BLK_10	L2_LCLP	FBIO 37 Loop 2, Lower clamp
%R9051	BLK_10	L2_MSLW	FBIO 38 Loop 2, Min. slew time
%R9120	BLK_10	LOOP4	FBIO 38 FFU element top left
%R9122	BLK_10	L4_SPER	FBIO 59,64 Loop 4, Sample periode
%R9123	BLK_10	L4_DB+	FBIO 59 Loop 4, Dead band +

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REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
%R9124	BLK_10	L4_DB-	FBIO 59 Loop 4, Dead band -
%R9125	BLK_10	L4_PGN	FBIO 60 Loop 4, P-gain
%R9126	BLK_10	L4_DGN	FBIO 60 Loop 4, D-gain
%R9127	BLK_10	L4_IGN	FBIO 60 Loop 4, I-gain
%R9128	BLK_10	L4_BIAS	FBIO 61 Loop 4, Bias
%R9129	BLK_10	L4_UCLP	FBIO 61 Loop 4, Upper clamp
%R9130	BLK_10	L4_LCLP	FBIO 61 Loop 4, Lower clamp
%R9131	BLK_10	L4_MSLW	FBIO 62 Loop 4, Min. slew time
%R9160	BLK_10	LOOP5	FBIO 62 FFU element top right
%R9162	BLK_10	L5_SPER	FBIO 79,84 Loop 5, Sample periode
%R9163	BLK_10	L5_DB+	FBIO 79 Loop 5, Dead band +
%R9164	BLK_10	L5_DB-	FBIO 79 Loop 5, Dead band -
%R9165	BLK_10	L5_PGN	FBIO 80 Loop 5, P-gain
%R9166	BLK_10	L5_DGN	FBIO 80 Loop 5, D-gain
%R9167	BLK_10	L5_IGN	FBIO 80 Loop 5, I-gain
%R9168	BLK_10	L5_BIAS	FBIO 81 Loop 5, Bias
%R9169	BLK_10	L5_UCLP	FBIO 81 Loop 5, Upper clamp
%R9170	BLK_10	L5_LCLP	FBIO 81 Loop 5, Lower clamp
%R9171	BLK_10	L5_MSLW	FBIO 82 Loop 5, Min. slew time
%R9200	BLK_10	LOOP6	FBIO 82 FFU element bottom L/R
%R9202	BLK_10	L6_SPER	FBIO 97,102 Loop 6, Sample periode
%R9203	BLK_10	L6_DB+	FBIO 97 Loop 6, Dead band +
%R9204	BLK_10	L6_DB-	FBIO 97 Loop 6, Dead band -
%R9205	BLK_10	L6_PGN	FBIO 98 Loop 6, P-gain
%R9206	BLK_10	L6_DGN	FBIO 98 Loop 6, D-gain
%R9207	BLK_10	L6_IGN	FBIO 98 Loop 6, I-gain
%R9208	BLK_10	L6_BIAS	FBIO 99 Loop 6, Bias
%R9209	BLK_10	L6_UCLP	FBIO 99 Loop 6, Upper clamp
%R9210	BLK_10	L6_LCLP	FBIO 99 Loop 6, Lower clamp
%R9211	BLK_10	L6_MSLW	FBIO 100 Loop 6, Min. slew time
%R9280	BLK_10	LOOP8	FBIO 100 Air super heater
%R9282	BLK_10	L8_SPER	FBIO 115,119 Loop 8, Sample periode
%R9283	BLK_10	L8_DB+	FBIO 115 Loop 8, Dead band +
%R9284	BLK_10	L8_DB-	FBIO 115 Loop 8, Dead band -
%R9285	BLK_10	L8_PGN	FBIO 116 Loop 8, P-gain
%R9286	BLK_10	L8_DGN	FBIO 116 Loop 8, D-gain
%R9287	BLK_10	L8_IGN	FBIO 116 Loop 8, I-gain
%R9288	BLK_10	L8_BIAS	FBIO 117 Loop 8, Bias
%R9289	BLK_10	L8_UCLP	FBIO 117 Loop 8, Upper clamp
%R9290	BLK_10	L8_LCLP	FBIO 117 Loop 8, Lower clamp
%R9291	BLK_10	L8_MSLW	FBIO 118 Loop 8, Min. slew time
%R9320	BLK_10	LOOP9	FBIO 118 H2O2 bath
%R9322	BLK_10	L9_SPER	FBIO 132,137 Loop 9, Sample periode
%R9323	BLK_10	L9_DB+	FBIO 132 Loop 9, Dead band +
			FBIO 132

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REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
%R9324	BLK_10	L9_DB-	Loop 9, dead band - FBIO 133
%R9325	BLK_10	L9_PGN	Loop 9, P gain FBIO 133
%R9326	BLK_10	L9_DGN	Loop 9, D gain FBIO 133
%R9327	BLK_10	L9_IGN	Loop 9, I gain FBIO 134
%R9328	BLK_10	L9_BIAS	Loop 9, Bias FBIO 134
%R9329	BLK_10	L9_UCLP	Loop 9, Lower clamp FBIO 134
%R9330	BLK_10	L9_LCLP	Loop 9, Upper clamp FBIO 135
%R9331	BLK_10	L9_MSLW	Loop 9, Min. slew time FBIO 135
%R9400	BLK_10	L1_SP	Loop 1, Set point FBIO 13,14,15,29
%R9401	BLK_10	L1_CV	Loop 1, Control value (H2O bath) FBIO 13,24
%R9402	BLK_10	L1_TMR	Loop 1, Timer 10 sec FBIO 24,26
%R9405	BLK_10	L1_SSR	Loop 1, Solid state relay FBIO 24,26,31
%R9410	BLK_10	L2_SP	Loop 2, Set point FBIO 39,40,41,55
%R9411	BLK_10	L2_CV	Loop 2, Control value (Per.tank) FBIO 39,50
%R9412	BLK_10	L2_TMR	Loop 2, Timer FBIO 50,52
%R9415	BLK_10	L2_SSR	Loop 2, Solide state relay FBIO 50,52,56
%R9430	BLK_10	L4_SP	Loop 4, Set point FBIO 64,65,67
%R9431	BLK_10	L4_CV	Loop 4, Control value (FFU TL) FBIO 64,71
%R9432	BLK_10	L4_LOW	Loop 4, Low limit FBIO 67,75
%R9433	BLK_10	L4_HIGH	Loop 4, High limit FBIO 67,75
%R9434	BLK_10	L47_TMR	Loop 4-7, Timer FBIO 69,72,90,108
%R9437	BLK_10	L4_SSR	Loop 4, Solid state relay FBIO 71,72,76
%R9438	BLK_10	L5_SP	Loop 5, Set point FBIO 84,85,87
%R9439	BLK_10	L5_CV	Loop 5, Control value (FFU TR) FBIO 84,89
%R9440	BLK_10	L5_LOW	Loop 5, Low limit FBIO 87,93
%R9441	BLK_10	L5_HIGH	Loop 5, High limit FBIO 87,93
%R9442	BLK_10	L5_SSR	Loop 5, Solid state relay FBIO 89,90,94
%R9443	BLK_10	L6_SP	Loop 6, Set point FBIO 102,103,105
%R9444	BLK_10	L6_CV	Loop 6, Control value (FFU BL) FBIO 102,107
%R9445	BLK_10	L6_LOW	Loop 6, Low limit FBIO 105,111
%R9446	BLK_10	L6_HIGH	Loop 6, High limit FBIO 105,111
%R9447	BLK_10	L6_SSR	Loop 6, Solide state relay FBIO 107,108,112
%R9461	BLK_10	L8_CV	Loop 8, Control value FBIO 119,124
%R9462	BLK_10	L8_TMR	Loop 8, Timer FBIO 124,126
%R9465	BLK_10	L8_SSR	Loop 8, SSR FBIO 124,126,129
%R9470	BLK_10	TA_LOW	Top AC, Hysteresis low FBIO 161
%R9471	BLK_10	TA_HIGH	Top AC, Hysteresis high FBIO 163
%R9472	BLK_10	CTRL_HI	Top AC, Ctrl. high tmp heat exch FBIO 162,163,164,165,166
%R9473	BLK_10	CTRL_LW	Top AC, Ctrl. low temp heat exch FBIO 160,161,164,165,166
%R9481	BLK_10	L9_CV	Loop 9, Control value FBIO 137,142
%R9482	BLK_10	L9_TMR	Loop 9, Timer FBIO 142,144
%R9485	BLK_10	L9_SSR	Loop 9, SSR FBIO 30,142,144,147
%R9500	BLK_75	DEL9500	Delay, 1 pkg. to cold store FBIO 15
%R9503	BLK_75	DEL9503	Delay, 2 pkg. to cold store FBIO 15
%R9506	BLK_75	DEL9506	Delay

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BLOCK: MAIN

REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
%R9509	BLK_75	DEL9509	FBIO 130 Delay, Manual step down
%R9512	BLK_75	DEL9512	FBIO 53 Delay
%R9518	BLK_75	DEL9518	FBIO 131 Delay,
%R9521	BLK_53	DEL9521	FBIO 132 Delay,
%R9524	BLK_53	DEL9524	FBIO 27 Delay,
%R9527	BLK_75	DEL9527	FBIO 28 Delay,
%R9530	BLK_75	DEL9530	FBIO 93 Delay,
%R9533	BLK_75	DEL9533	FBIO 115 Delay,
%R9536	BLK_75	DEL9536	FBIO 116 Delay,
%R9539	BLK_75	DEL9539	FBIO 112 Delay,
%R9542	BLK_75	DEL9542	FBIO 137 Delay
%R9545	BLK_75	DEL9545	FBIO 112 Delay,
%R9548	BLK_75	DEL9548	FBIO 185 Delay,
%R9551	BLK_75	DEL9551	FBIO 96 Delay,
%R9557	BLK_75	DEL9557	FBIO 46 Delay
%R9560	BLK_75	DEL9560	FBIO 113 Delay
%R9563	BLK_75	DEL9563	FBIO 68 Delay
			FBIO 66

 ANALOG INPUT (%AI) GLOBAL CROSS REFERENCES

REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
%AI0001	BLK_10	B1106	Temp. monitor, Heat steril. FBIO 150,151,153
%AI0002	BLK_10	B1222	Temp. monitor, Peroxide bath FBIO 137,139,140,147
%AI0003	BLK_10	B1208	Temp. mon/reg, Water bath FBIO 13,17,18,19,20,21,32
%AI0004	BLK_10	B1212	Temp. regulator, Peroxide tank FBIO 39,43,44,45,46,47,48,56
%AI0005	BLK_10	B1109	Temp. monitor, Top asept.chamber FBIO 156,158,159,160,161,162,163,168
%AI0006	BLK_10	B1209	Temp. monitor, W-H202 heat exch. FBIO 198,201,203
%AI0007	BLK_10	B1105	Temp. regulator,Air super heater FBIO 119,121,122,129
%AI0008	BLK_10	B1310	Temp. monitor, Steam C-valve FBIO 187,189
%AI0009	BLK_10	B5307	Temp. reg, Flap heat. top left FBIO 64,67,76
%AI0010	BLK_10	B5308	Temp. reg, Flap heat. top right FBIO 84,87,94
%AI0011	BLK_10	B5309	Temp. reg, Flap heat. bottom L/R FBIO 102,105,112
%AI0013	BLK_10	B2510	Temp. monitor, Cool.circ water FBIO 173,174,176
%AI0014	BLK_10	B001	Temp. monitor, Electrical cab. FBIO 181,182,184
%AI0015	BLK_10	B9106	Temp. monitor, H. I. spray FBIO 193,195
%AI0033	BLK_26	B1501	Dr.roll.asept.chamb, Linear pot. FBIO 7,10,17,18
%AI0034	BLK_28	A420	Filling, Level in tube FBIO 49,61,62,68
	BLK_54		FBIO 26
%AI0035	BLK_50	B1316	CIP flow FBIO 74,75

 ANALOG OUTPUT (%AQ) GLOBAL CROSS REFERENCES

REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
%AQ035	BLK_21	A412	Drive roller loop ASU FBIO 34,36,37,39,40,42,43,44,45
%AQ036	BLK_22	A413	Drive roller magazine ASU FBIO 34,36,37,39,40,42
%AQ037	BLK_26	A410	Drive roller aseptic chamber FBIO 26,27
%AQ038	BLK_27	A501	TPIH generator LS

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REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
%AQ039	BLK_23	A7417	FBIO 38,40,41 TPIH generator ASU/SA
%AQ040	BLK_30	A504_23	FBIO 21 TPIH generator TS left
%AQ041	BLK_30	A504_24	FBIO 93 TPIH generator TS right
%AQ042	BLK_29	A418_3	FBIO 93 Design correction offset
			FBIO 22

 SYSTEM REFERENCE (%S) GLOBAL CROSS REFERENCES

REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
%S0001	_MAIN	FST_SCN	-] [- 25
	BLK_07	FST_SCN	-] [- 40
	BLK_10	FST_SCN	-] [- 9, 10, 11, 12, 35, 36, 37, 38, 59, 60, 61, 62, 79, 80, 81, 82, 97, 98, 99, 100, 115, 116, 117, 118, 132, 133, 134, 135, 196, 204
	BLK_20	FST_SCN	-] [- 21, 28, 78
	BLK_23	FST_SCN	-] [- 43
	BLK_26	FST_SCN	-] [- 33
	BLK_30	FST_SCN	-] [- 17
	BLK_51	FST_SCN	-] [- 90, 94
	BLK_56	FST_SCN	-] [- 118
	BLK_70	FST_SCN	-] [- 6
	BLK_75	FST_SCN	-] [- 13, 109
%S0005	BLK_07	T_SEC	-] [- 6, 7, 8, 10, 11, 106
	BLK_50	T_SEC	-] [- 98, 154, 155, 156, 157, 158, 159, 277
	BLK_51	T_SEC	-] [- 81
	BLK_56	T_SEC	-] [- 91, 92, 93
	BLK_70	T_SEC	-] [- 16
	BLK_75	T_SEC	-] [- 95, 96, 97, 99, 101, 135
%S0007	_MAIN	ALW_ON	-] [- 8, 10, 12, 14, 16, 18, 22, 31, 33, 35
	1T0004	ALW_ON	-] [- 5, 16, 26, 35, 37, 38, 40, 41, 43, 46, 47, 49, 52, 53, 80
	BLK_05	ALW_ON	-] [- 25, 26, 29, 31, 32, 33
	BLK_06	ALW_ON	-] [- 8, 22, 39
	BLK_07	ALW_ON	-] [- 22, 23, 24, 25, 26, 32, 111, 112, 113, 114, 115, 116, 117
	BLK_08	ALW_ON	-] [- 46
	BLK_10	ALW_ON	-] [- 13, 29, 32, 39, 55, 56, 64, 65, 75, 76, 84, 85, 93, 94, 102, 103, 111, 112, 119, 128, 129, 137, 146, 147, 153, 154, 156, 158, 159, 160, 161, 162, 163, 168, 169, 173, 174, 176, 177, 181, 182, 184, 185, 189, 190, 203
	BLK_20	ALW_ON	-] [- 56, 67
	BLK_21	ALW_ON	-] [- 15, 31, 32, 34
	BLK_22	ALW_ON	-] [- 31, 32, 34
	BLK_23	ALW_ON	-] [- 20, 21, 26, 27
	BLK_25	ALW_ON	-] [- 37, 43, 63
	BLK_26	ALW_ON	-] [- 10, 32, 38
	BLK_27	ALW_ON	-] [- 8, 38, 44
	BLK_28	ALW_ON	-] [- 21, 27, 60, 68
	BLK_29	ALW_ON	-] [- 19, 22
	BLK_30	ALW_ON	-] [- 72, 80, 82, 93
	BLK_32	ALW_ON	-] [- 41, 47, 54, 56, 57
	BLK_50	ALW_ON	-] [- 141, 153, 162, 173, 179, 188, 198, 211, 229, 249
	BLK_51	ALW_ON	-] [- 58, 59, 60
	BLK_53	ALW_ON	-] [- 6, 8, 11, 14, 17, 20, 21, 23
	BLK_56	ALW_ON	-] [- 121, 122
			-] [- 121, 122
	BLK_70	ALW_ON	-] [- 42
	BLK_75	ALW_ON	-] [- 14, 20, 23, 26, 29, 32, 35, 38, 41, 84, 90, 96, 110, 122, 165, 166
%S0008	BLK_06	ALW_OFF	-] [- 18, 28, 50
	BLK_10	ALW_OFF	-] [- 13, 39, 64, 84, 102, 119, 137
	BLK_32	ALW_OFF	-] [- 8, 12, 16, 25, 30, 34, 44, 50
	BLK_75	ALW_OFF	-] [- 80, 81, 82, 86, 87, 88, 89
%S0014	BLK_51	PLC_BAT	-] [- 105

 IDENTIFIER NAME GLOBAL CROSS REFERENCES

IDENTIFIER	BLOCK	REF. DESCRIPTION / CROSS REFERENCES
BLK_05	_MAIN	Volume handling CALL 6
BLK_501	BLK_05	Speed parameter CALL 29
BLK_502	BLK_05	Volume parameters (vol.> 330ml) CALL 34
BLK_06	_MAIN	Data transfer CALL 8
BLK_07	_MAIN	System CALL 8
BLK_08	_MAIN	Machine steps CALL 8
BLK_10	_MAIN	Temperature regulators/monitors CALL 8
BLK_20	_MAIN	Automatic Splicing Unit (ASU) CALL 10
BLK_21	_MAIN	Drive roller loop ASU CALL 10
BLK_22	_MAIN	Drive roller magazine ASU

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BLOCK: MAIN

IDENTIFIER	BLOCK	REF. DESCRIPTION / CROSS REFERENCES
BLK_23	_MAIN	CALL 10 Strip applicator (SA)
BLK_24	_MAIN	CALL 10 Peroxide system
BLK_25	_MAIN	CALL 12 Sterile air system
BLK_26	_MAIN	CALL 12 Drive roller aseptic chamber
BLK_27	_MAIN	CALL 12 Superstructure
BLK_28	_MAIN	CALL 14 Filling
BLK_29	_MAIN	CALL 14 Design Correction System (DCS)
BLK_30	_MAIN	CALL 16 Jaw Unit(JUM) & Transv.Seal.(TS)
BLK_32	_MAIN	CALL 16 Package dumping
BLK_33	_MAIN	CALL 18 Final Folder Unit (FFU)
BLK_50	_MAIN	CALL 18 Cleaning CIP/EC
BLK_51	_MAIN	CALL 20 Service system
BLK_53	_MAIN	CALL 22 Option PT21
BLK_54	_MAIN	CALL 25 Option HI
BLK_56	_MAIN	CALL 27 Option ASU in separate room
BLK_70	_MAIN	CALL 29 Stop reasons
BLK_75	_MAIN	CALL 33 TPOP communications
BLK_69	_MAIN	CALL 35 Customer changes reserved
BLK_503	BLK_05	CALL 31 Volume parameters (vol.<= 330ml)
		CALL 35

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BLOCK: MAIN

```

[ START LD SUBROUTINE 1T0004 ]
[ VARIABLE DECLARATIONS ]
[ START OF SUBROUTINE LOGIC ]

(*****
* Read inputs for fast scan.
*)
(
* The constant 3 shows that the fast input module is located
* in slot 3 of the main rack.
*)
(*****)

ALW_ON                                     << RUNG 5 STEP #0003 >>
%I0007 +-----+
+--] [---DO_IO+
ENC_01 |
%I0001 -+ST |
%I0016 -+END |
CONST -+ALT |
0003 +-----+

(*****
* Angle encoder
*)
(*****)

ENC_08                                     BIN_08 << RUNG 7 STEP #0006 >>
%I0008                                     %M0008
+--] [-----] ( )-- (* Angle encoder binary bit 8 *)

BIN_08 ENC_07                             BIN_07 << RUNG 8 STEP #0008 >>
%M0008 %I0007                             %M0007
+--] [-----]/[-----] ( )-- (* Angle encoder binary bit 7 *)

BIN_08 ENC_07 |
%M0008 %I0007 |
+--]/[-----] [---+

BIN_07 ENC_06                             BIN_06 << RUNG 9 STEP #0014 >>
%M0007 %I0006                             %M0006
+--] [-----]/[-----] ( )-- (* Angle encoder binary bit 6 *)

BIN_07 ENC_06 |
%M0007 %I0006 |
+--]/[-----] [---+

BIN_06 ENC_05                             BIN_05 << RUNG 10 STEP #0020 >>
%M0006 %I0005                             %M0005
+--] [-----]/[-----] ( )-- (* Angle encoder binary bit 5 *)

BIN_06 ENC_05 |
%M0006 %I0005 |
+--]/[-----] [---+

BIN_05 ENC_04                             BIN_04 << RUNG 11 STEP #0026 >>
%M0005 %I0004                             %M0004
+--] [-----]/[-----] ( )-- (* Angle encoder binary bit 4 *)

BIN_05 ENC_04 |
%M0005 %I0004 |
+--]/[-----] [---+

BIN_04 ENC_03                             BIN_03 << RUNG 12 STEP #0032 >>
%M0004 %I0003                             %M0003
+--] [-----]/[-----] ( )-- (* Angle encoder binary bit 3 *)

BIN_04 ENC_03 |
%M0004 %I0003 |
+--]/[-----] [---+

BIN_03 ENC_02                             BIN_02 << RUNG 13 STEP #0038 >>
%M0003 %I0002                             %M0002
+--] [-----]/[-----] ( )-- (* Angle encoder binary bit 2 *)

BIN_03 ENC_02 |
%M0003 %I0002 |
+--]/[-----] [---+

REFERENCE NICKNAME      REFERENCE DESCRIPTION      REFERENCE NICKNAME      REFERENCE DESCRIPTION
%I0016                  ALW_ON
%S0007                  ALW_ON
%M0002                  BIN_02          Angle encoder binary bit 2
%M0003                  BIN_03          Angle encoder binary bit 3
%M0004                  BIN_04          Angle encoder binary bit 4
%M0005                  BIN_05          Angle encoder binary bit 5
%M0006                  BIN_06          Angle encoder binary bit 6
%M0007                  BIN_07          Angle encoder binary bit 7
%M0008                  BIN_08          Angle encoder binary bit 8
%I0001                  ENC_01          Encoder bit 1 (LSB)
%I0002                  ENC_02          Encoder bit 2
%I0003                  ENC_03          Encoder bit 3
%I0004                  ENC_04          Encoder bit 4
%I0005                  ENC_05          Encoder bit 5
%I0006                  ENC_06          Encoder bit 6
%I0007                  ENC_07          Encoder bit 7
%I0008                  ENC_08          Encoder bit 8 (MSB)

```

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BLOCK: 1T004 4mS FAST SCAN


```

BIN_02 ENC_01                               BIN_01 << RUNG 14 STEP #0044 >>
%M0002 %I0001                               %M0001
+--] [-----] / [-----] ( )-- (* Angle encoder binary bit 1 *)

BIN_02 ENC_01
%M0002 %I0001
+--] / [-----] [-----]

(*****
*)
*) In register 2 "SE0-127" 0 to 127 degrees are stored.
*)
*) If a range instruction with SE0-127 is set to >10 to <20
*) degrees, the output will be on 10-20 and 138-148.
*)
*) Register 2 should be used as soon as something has to be done
*) on both halves of the machine revolution, but not passing 0 or 127.
*)
*)
*) In register 3 "SE0-255" 0 to 255 degrees are stored.
*)
*) This register should be used if something only is done
*) once per machine revolution, or if the sector is passing 127.
*)
*)
*) If the sector is passing 0 degrees (ex. 250-10) a special
*) solution is needed. The range instruction is then set to
*) >10 and <250 and a not contact as output.
*)
*)
*) (*****

ALW_ON                                       << RUNG 16 STEP #0051 >>
%S0007 +-----+
+--] [---+ AND +-----+ AND +-----+
      | WORD |      | WORD |
BIN_01 SEC_127 BIN_01 SEC_255
%M0001 -+I1 Q+-%R0002 %M0001 -+I1 Q+-%R0003
      |      |      |      |
CONST -+I2      CONST -+I2
 007F +-----+ 00FF +-----+

(*****
*)
*) Read volume knob on main cam.
*)
*) See also block 05.
*)
*) (*****

READVOL B4104                               P+100 << RUNG 18 STEP #0055 >>
%M0050 %I0011                               %T0100
+--] / [-----] [-----] ( ^ )-- (* Pulse + Volume sensor *)

P+100                                       READVOL << RUNG 19 STEP #0058 >>
%T0100 +-----+                           %M0050
+--] [---+ MOVE +-----+ (S)-- (* Read volume sensor on main cam *)
      | INT |
SEC_255 KNOBPOS
%R0003 -+IN Q+-%R0502
      | LEN |
      | 00001 |
      +-----+

(*****
*)
*) Detect packaging material splice to increase SA power
*)
*) See also block 21
*)
*) (*****

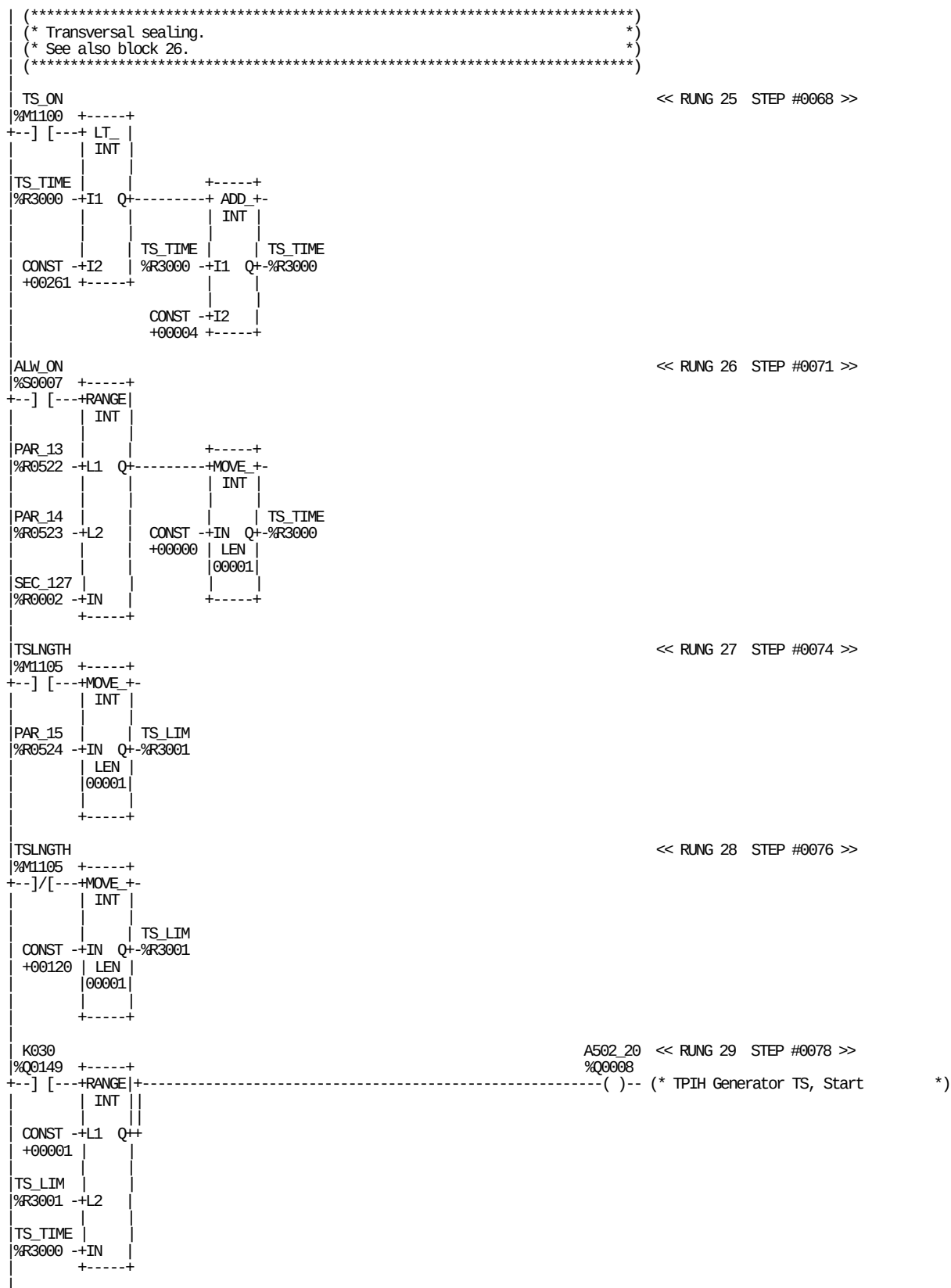
B6105                                       SA_DTCT << RUNG 21 STEP #0062 >>
%I0009                                       %M0305
+--] / [-----] (S)-- (* SA, Detect pkg mtrl splice in SA *)

(*****
*)
*) Detect packaging material splice for dumping
*)
*) and extra LS power.
*)
*) See also block 27
*)
*) (*****

B1403                                       LS_DTCT << RUNG 23 STEP #0065 >>
%I0010                                       %M0613
+--] / [-----] (S)-- (* SUP, Pkg mtrl splice detected *)

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%S0007	ALW_ON		%R0502	KNOBPOS	Position of volume knob
%I0010	B1403	Pkg. mtrl. splice detect column	%M0613	LS_DTCT	SUP, Pkg mtrl splice detected
%I0011	B4104	Main cam, Volume sensor	%T0100	P+100	Pulse + Volume sensor
%I0009	B6105	Pkg. mtrl. splice detect ASU	%M0050	READVOL	Read volume sensor on main cam
%M0001	BIN_01	Angle encoder binary bit 1	%M0305	SA_DTCT	SA, Detect pkg mtrl splice in SA
%M0002	BIN_02	Angle encoder binary bit 2	%R0002	SEC_127	Angle sector (0-127 decimal deg)
%I0001	ENC_01	Encoder bit 1 (LSB)	%R0003	SEC_255	Angle sector (0-255 decimal deg)



REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%Q0008	A502_20	TPIH Generator TS, Start	%R0002	SEC_127	Angle sector (0-127 decimal deg)
%S0007	ALW_ON		%M1105	TSLNGTH	TS, Control pulse length
%Q0149	K030	TPIH generator TS	%R3001	TS_LIM	FSTSCN, Length of pulse
%R0522	PAR_13	Sector, TS not allowed	%M1100	TS_ON	TS, Transversal sealing on
%R0523	PAR_14	Sector, TS not allowed	%R3000	TS_TIME	FSTSCN, Pulse time
%R0524	PAR_15	TS length			

```

(*****
* Speed/torque optimisation main motor.
*)
*****
A506_33                                     P+109  << RUNG 31 STEP #0082 >>
%I0148 +-----+                         %T0109
+--] [---+ GE_ INT |-----+-----+ (* Pulse + Decrease MainMotor's speed *)
          |      |
SEC_127  |      |
%R0002  -+I1  Q++ |
PAR_119  |      |
%R0619  -+I2  |
          +-----+

(*****
* In Fast Scan block 1T0004, timer (TMR) function blocks are about
* 7.5 times faster than the assigned timebase.
*)
*****
P+109                                     A506_14 << RUNG 33 STEP #0086 >>
%T0109 +-----+                         %Q0007
+--] [---+ OFDT |-----+-----+ (* DMC main motor, Speed change *)
          |      |
          |0.10s|
CONST -+PV |
+00008 |
          +-----+
          DEL0258
          %R0258

(*****
* Left/Right side control
*)
*****
ALW_ON                                     L_SIDE  << RUNG 35 STEP #0090 >>
%S0007 +-----+                         %M0925
+--] [---+ GT_ INT |-----+-----+ (* JUM, Left side *)
          |      |
SEC_255  |      |
%R0003  -+I1  Q++ |
CONST -+I2  |
+00127 +-----+

(*****
* Catches closed at start
*)
(* NOTE:
*)
(* (M927 is true between PAR_10 and PAR_9)
*)
*****
ALW_ON                                     L_CLSTR << RUNG 37 STEP #0094 >>
%S0007 +-----+                         %M0926
+--] [---+ RANGE|-----+-----+ (* JUM, Left catch closed at start *)
          |      |
          | INT |
PAR_07   |      |
%R0516  -+L1  Q++ |
PAR_08   |      |
%R0517  -+L2  |
SEC_255  |      |
%R0003  -+IN  |
          +-----+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%Q0007	A506_14	DMC main motor, Speed change	%T0109	P+109	Pulse + Decrease MainMotor's speed
%I0148	A506_33	DMC Main motor, Running	%R0516	PAR_07	Sector, Left catch start
%S0007	ALW_ON		%R0517	PAR_08	Sector, Left catch start
%R0258	DEL0258	Delay,	%R0619	PAR_119	Main motor speed decrease
%M0926	L_CLSTR	JUM, Left catch closed at start	%R0002	SEC_127	Angle sector (0-127 decimal deg)
%M0925	L_SIDE	JUM, Left side	%R0003	SEC_255	Angle sector (0-255 decimal deg)

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```

|ALW_ON                                     R_CLSTR << RUNG 38 STEP #0097 >>
|S0007 +-----+                           %M0927
+--] [---+RANGE|+-----+ (/)-- (* JUM, Right catch closed at start *)
      | INT |
PAR_09 |
%R0518 --+L1 Q++
PAR_10 |
%R0519 --+L2 |
SEC_255 |
%R0003 --+IN |
      +-----+
|

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%S0007	ALW_ON	
%R0518	PAR_09	Sector, Right catch start
%R0519	PAR_10	Sector, Right catch start

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M0927	R_CLSTR	JUM, Right catch closed at start
%R0003	SEC_255	Angle sector (0-255 decimal deg)

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BLOCK: 1T004 4mS FAST SCAN

```

(*****
* Catches closed at fast speed
*
* NOTE:
* (M929 is true between PAR_6 and PAR_5)
*)
(*****)

ALW_ON                                L_CLFST << RUNG 40 STEP #0101 >>
%S0007 +-----+                      %M0928
+-- ] [---+RANGE|+-----+-----+ (* JUM, Left catch closed fast spd *)
      | INT |
      |-----|
PAR_03
%R0512 --+L1 Q++
PAR_04
%R0513 --+L2
SEC_255
%R0003 --+IN
+-----+

ALW_ON                                R_CLFST << RUNG 41 STEP #0104 >>
%S0007 +-----+                      %M0929
+-- ] [---+RANGE|+-----+-----+ (/)-- (* JUM, Right catch closed fast spd *)
      | INT |
      |-----|
PAR_05
%R0514 --+L1 Q++
PAR_06
%R0515 --+L2
SEC_255
%R0003 --+IN
+-----+

(*****
* Catches open at fast speed
*
* NOTE:
* Range values below refer to right catch sector: add 128 for left one
*)
(*****)

ALW_ON                                << RUNG 43 STEP #0108 >>
%S0007 +-----+
+-- ] [---+RANGE|+-----+-----+ <+>
      | INT |
      |-----|
PAR_01
%R0510 --+L1 Q++
PAR_02
%R0511 --+L2
SEC_127
%R0002 --+IN
+-----+

L_SIDE                                L_OPFST << RUNG 44 STEP #0111 >>
%M0925                                %M0930
+<+>--+-- ] [-----+-----+-----+ ( )-- (* JUM, Left catch open at fast spd *)
      | L_SIDE |
      |-----|
L_SIDE                                R_OPFST
%M0925                                %M0931
+-- ]/[-----+-----+-----+ ( )-- (* JUM, Right catch open at fst spd *)

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%S0007	ALW_ON		%R0513	PAR_04	Sector, Left catch closed fast
%M0928	L_CLFST	JUM, Left catch closed fast spd	%R0514	PAR_05	Sector, Right catch closed fast
%M0930	L_OPFST	JUM, Left catch open at fast spd	%R0515	PAR_06	Sector, Right catch closed fast
%M0925	L_SIDE	JUM, Left side	%M0929	R_CLFST	JUM, Right catch closed fast spd
%R0510	PAR_01	Sector, Catch open fast speed	%M0931	R_OPFST	JUM, Right catch open at fst spd
%R0511	PAR_02	Sector, Catch open fast speed	%R0002	SEC_127	Angle sector (0-127 decimal deg)
%R0512	PAR_03	Sector, Left catch closed fast	%R0003	SEC_255	Angle sector (0-255 decimal deg)

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BLOCK: 1T004 4mS FAST SCAN

```

{*****}
{ * Catches closed at slow speed * }
{ * NOTE: * }
{ * (M933 is true between 203 and 73) * }
{*****}

ALW_ON                                     L_CLSLW << RUNG 46 STEP #0119 >>
%S0007 +-----+                         %M0932
+--] [---+RANGE|+-----+ ( )-- (* JUM, Left catch closed slow spd *)
      | INT |
CONST --+L1 Q++
+00076 |
CONST --+L2 |
+00200 |
SEC_255 |
%R0003 --+IN |
      +-----+

ALW_ON                                     R_CLSLW << RUNG 47 STEP #0122 >>
%S0007 +-----+                         %M0933
+--] [---+RANGE|+-----+ (/)-- (* JUM, Right catch closed slow spd *)
      | INT |
CONST --+L1 Q++
+00073 |
CONST --+L2 |
+00203 |
SEC_255 |
%R0003 --+IN |
      +-----+

{*****}
{ * Catches open at slow speed * }
{ * NOTE: * }
{ * Range values below refer to right catch sector: add 128 for left one * }
{*****}

ALW_ON                                     << RUNG 49 STEP #0126 >>
%S0007 +-----+
+--] [---+RANGE|+-----+ <+>
      | INT |
CONST --+L1 Q++
+00073 |
CONST --+L2 |
+00075 |
SEC_127 |
%R0002 --+IN |
      +-----+

L_SIDE                                     L_OPSSLW << RUNG 50 STEP #0129 >>
%M0925                                     %M0934
<+>+--] [---+-----+ ( )-- (* JUM, Left catch open slow spd *)
      | L_SIDE |
      %M0925 |
      +--] [---+-----+ ( )-- (* JUM, Right catch open slow spd *)
      | R_OPSSLW |
      %M0935 |
      +--] [---+-----+

```

REFERENCE	NICKNAME	REFERENCE	DESCRIPTION	REFERENCE	NICKNAME	REFERENCE	DESCRIPTION
%S0007	ALW_ON			%M0933	R_CLSLW	JUM	Right catch closed slow spd
%M0932	L_CLSLW	JUM	Left catch closed slow spd	%M0935	R_OPSPW	JUM	Right catch open slow spd
%M0934	L_OPSPW	JUM	Left catch open slow spd	%R0002	SEC_127		Angle sector (0-127 decimal deg)
%M0925	L_SIDE	JUM	Left side	%R0003	SEC_255		Angle sector (0-255 decimal deg)

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BLOCK: 1T004 4mS FAST SCAN

```

(*****
* Catches open in Service
* NOTE:
* (M936 is true between 200 and 76)
*****)

ALW_ON                                L_OPSRV << RUNG 52 STEP #0137 >>
%S0007 +-----+                      %M0936
+--] [---+RANGE|+-----+-----+ ( / )-- (* JUM, Left catch open in service *)
      | INT |
      +---+
CONST --+L1 Q+
+00076 |
CONST --+L2
+00200 |
SEC_255 |
%M0003 --+IN
      +-----+

ALW_ON                                R_OPSRV << RUNG 53 STEP #0140 >>
%S0007 +-----+                      %M0937
+--] [---+RANGE|+-----+-----+ ( )-- (* JUM, Right catch open in service *)
      | INT |
      +---+
CONST --+L1 Q+
+00073 |
CONST --+L2
+00203 |
SEC_255 |
%M0003 --+IN
      +-----+

(*****
* Right and Left catch control
*****)

FSTCTCH L_START L_CLFST K021 STOPJUM LE_JAW RI_JAW STPRESS          Y4306 << RUNG 55 STEP #0144 >>
%M0913 %M0920 %M0928 %Q0117 %M0160 %M0922 %M0923 %M0924          %Q0001
+--] [---+]/[-----] [---+ ] [-----] [-----]/[-----]/[-----]/[-----] ( )-- (* JUM left catch closed *)
      | L_START L_CLSTR |
      | %M0920 %M0926 |
      +--] [-----] [---+
FSTCTCH L_CLSLW
%M0913 %M0932
+--]/[-----] [-----]
FSTCTCH L_OPFST                      Y4308 << RUNG 56 STEP #0160 >>
%M0913 %M0930                      %Q0003
+--] [-----] [-----] ( )-- (* JUM left catch open *)
FSTCTCH SV_HYRU L_OPSLV
%M0913 %M1512 %M0934
+--]/[---+]/[-----] [---+
      | SV_HYRU L_OPSRV |
      | %M1512 %M0936 |
      +--] [-----] [---+
FSTCTCH R_START R_CLFST K021 STOPJUM LE_JAW RI_JAW STPRESS          Y4307 << RUNG 57 STEP #0171 >>
%M0913 %M0921 %M0929 %Q0117 %M0160 %M0922 %M0923 %M0924          %Q0002
+--] [---+]/[-----] [---+ ] [-----] [-----]/[-----]/[-----]/[-----] ( )-- (* JUM right catch closed *)
      | R_START R_CLSTR |
      | %M0921 %M0927 |
      +--] [-----] [---+
FSTCTCH R_CLSLW
%M0913 %M0933
+--]/[-----] [-----]

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%S0007	ALW_ON		%M0929	R_CLFST	JUM, Right catch closed fast spd
%M0913	FSTCTCH	JUM, fast speed catches	%M0933	R_CLSLW	JUM, Right catch closed slow spd
%Q0117	K021	Hydraulic pump	%M0927	R_CLSTR	JUM, Right catch closed at start
%M0922	LE_JAW	JUM, Press.left jaw el. error	%M0937	R_OPSRV	JUM, Right catch open in service
%M0928	L_CLFST	JUM, Left catch closed fast spd	%M0921	R_START	JUM, Press.right jaw start sec.
%M0932	L_CLSLW	JUM, Left catch closed slow spd	%R0003	SEC_255	Angle sector (0-255 decimal deg)
%M0926	L_CLSTR	JUM, Left catch closed at start	%M0160	STOPJUM	Protection stop JUM
%M0930	L_OPFST	JUM, Left catch open at fast spd	%M0924	STPRESS	JUM, No jaw press. at stop
%M0934	L_OPSLV	JUM, Left catch open slow spd	%M1512	SV_HYRU	SRV, Hydr. pump running
%M0936	L_OPSRV	JUM, Left catch open in service	%Q0001	Y4306	JUM left catch closed
%M0920	L_START	JUM, Press.left jaw start sector	%Q0002	Y4307	JUM right catch closed
%M0923	RI_JAW	JUM, Press.right jaw el. error	%Q0003	Y4308	JUM left catch open

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BLOCK: 1T004 4mS FAST SCAN

```

|FSTCTCH R_OPFST                                Y4309 << RUNG 58 STEP #0187 >>
|%M0913 %M0931                                %Q0004
+--] [-----] [-----] +----- ( )-- (* JUM right catch open *)
|
|FSTCTCH SV_HYRU R_OPSLW|
|%M0913 %M1512 %M0935 |
+--]/[---+]/[-----] [---+
|
|SV_HYRU R_OPSRV|
|%M1512 %M0937 |
+--] [-----] [---+
|

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M0913	FSTCTCH	JUM, fast speed catches	%M0937	R_OPSRV	JUM, Right catch open in service
%M0931	R_OPFST	JUM, Right catch open at fst spd	%M1512	SV_HYRU	SRV, Hydr. pump running
%M0935	R_OPSLW	JUM, Right catch open slow spd	%Q0004	Y4309	JUM right catch open

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BLOCK: 1T004 4mS FAST SCAN


```

(*****
* Final folder unit
* See also block 31.
*****
)

B5302 B5314 P+104 << RUNG 60 STEP #0199 >>
%I0013 %I0014 %T0104
+--] [----] [-----] ( ^ )-- (* Pulse + FFU synchronized *)

B5203 P+105 << RUNG 61 STEP #0202 >>
%I0012 %T0105
+--] [-----] ( ^ )-- (* Pulse + FFU infeed stn rot. mon. *)

B5302 P+106 << RUNG 62 STEP #0204 >>
%I0013 %T0106
+--] [-----] ( ^ )-- (* Pulse + FFU press. dev. rot. mon *)

B5314 P+107 << RUNG 63 STEP #0206 >>
%I0014 %T0107
+--] [-----] ( ^ )-- (* Pulse + FFU stn. wheel rot. mon. *)

(*****
* In Fast Scan block 1T0004, timer (TMR) function blocks are about
* 7.5 times faster than the assigned timebase (depending on Plc scan time) *
*****
)

MON_SLW P+104 NOT_SNC << RUNG 65 STEP #0209 >>
%M1070 %T0104 %M1060
+--] [----]/[----] TMR (S)-- (* FFU, Not synchronized *)
|0.10s|
CONST -+PV
+00550
+-----+
DEL0300
%R0300

MON_FST P+104 NOT_SNC << RUNG 66 STEP #0213 >>
%M1071 %T0104 %M1060
+--] [----]/[----] TMR (S)-- (* FFU, Not synchronized *)
|0.10s|
PAR_29 -+PV
%R0538
+-----+
DEL0303
%R0303

MON_SLW P+105 OVR_INF << RUNG 67 STEP #0217 >>
%M1070 %T0105 %M1061
+--] [----]/[----] TMR (S)-- (* FFU, Overload infeed station *)
|0.10s|
CONST -+PV
+00200
+-----+
DEL0306
%R0306

MON_FST P+105 OVR_INF << RUNG 68 STEP #0221 >>
%M1071 %T0105 %M1061
+--] [----]/[----] TMR (S)-- (* FFU, Overload infeed station *)
|0.10s|
PAR_30 -+PV
%R0539
+-----+
DEL0309
%R0309

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0012	B5203	FFU, Infeed station rot. mon.
%I0013	B5302	FFU, Pressure device rot. mon.
%I0014	B5314	FFU, Station wheel rot. mon.
%R0300	DEL0300	Delay,
%R0303	DEL0303	Delay,
%R0306	DEL0306	Delay,
%R0309	DEL0309	Delay
%M1071	MON_FST	FFU, Mon. overloads fast speed
%M1070	MON_SLW	FFU, Mon. overloads slow speed

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M1060	NOT_SNC	FFU, Not synchronized
%M1061	OVR_INF	FFU, Overload infeed station
%T0104	P+104	Pulse + FFU synchronized
%T0105	P+105	Pulse + FFU infeed stn rot. mon.
%T0106	P+106	Pulse + FFU press. dev. rot. mon
%T0107	P+107	Pulse + FFU stn. wheel rot. mon.
%R0538	PAR_29	Del.Rot.Mon. Synchronization FFU
%R0539	PAR_30	Del.Rot.Mon. Infeed station

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BLOCK: 1T004 4mS FAST SCAN

```

MON_SLW P+106
[%M1070 %T0106 +-----+
+---] [-----]/[-----] TMR +-----+
| 0.10s |
CONST -+PV
+00550 |
+-----+
DEL0312
%R0312

MON_FST P+106
[%M1071 %T0106 +-----+
+---] [-----]/[-----] TMR +-----+
| 0.10s |
PAR_31 -+PV
%R0540 |
+-----+
DEL0315
%R0315

MON_SLW P+107
[%M1070 %T0107 +-----+
+---] [-----]/[-----] TMR +-----+
| 0.10s |
CONST -+PV
+00550 |
+-----+
DEL0318
%R0318

MON_FST P+107
[%M1071 %T0107 +-----+
+---] [-----]/[-----] TMR +-----+
| 0.10s |
PAR_32 -+PV
%R0541 |
+-----+
DEL0321
%R0321

A506_33 B5104 B5302 B5314
[%I0148 %I0220 %I0013 %I0014
+---]/[-----] [-----] [-----] [-----]
P+108 << RUNG 73 STEP #0241 >>
%T0108 %M1062 (S) ( * FFU, Overload pressure device *)
NOT_SNC << RUNG 74 STEP #0246 >>
%T0108 %M1060 (R) ( * FFU, Not synchronized *)
OVR_PRS << RUNG 69 STEP #0225 >>
%T0108 %M1062 (R) ( * FFU, Overload pressure device *)
OVR_STN << RUNG 71 STEP #0233 >>
%T0108 %M1063 (R) ( * FFU, Overload station wheel *)
OVR_STN << RUNG 72 STEP #0237 >>
%T0108 %M1063 (S) ( * FFU, Overload station wheel *)

A506_33 RESET
[%I0148 %M3050 +-----+
+---]/[-----] [-----]
P+139 << RUNG 77 STEP #0254 >>
%T0139 %M0333 (R) ( * FFU, Overload infeed station *)
B6208FD << RUNG 78 STEP #0256 >>
%T0139 %M0333 (S) ( * SA rot.monitor Fast Detected *)

(*****
* Strip break. See also BLK_23.
*****)

B6208
[%I0015 +-----+
+---] [-----]
P+139 << RUNG 77 STEP #0254 >>
%T0139 %M0333 (R) ( * FFU, Overload station wheel *)
B6208FD << RUNG 78 STEP #0256 >>
%T0139 %M0333 (S) ( * SA rot.monitor Fast Detected *)

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0148	A506_33	DMC Main motor, Running	%M1060	NOT_SNC	FFU, Not synchronized
%I0220	B5104	FFU, Crank position	%M1061	OVR_INF	FFU, Overload infeed station
%I0013	B5302	FFU, Pressure device rot. mon.	%M1062	OVR_PRS	FFU, Overload pressure device
%I0014	B5314	FFU, Station wheel rot. mon.	%M1063	OVR_STN	FFU, Overload station wheel
%I0015	B6208	SA, Strip break rotation monitor	%T0106	P+106	Pulse + FFU press. dev. rot. mon
%R0333	B6208FD	SA rot.monitor Fast Detected	%T0107	P+107	Pulse + FFU stn. wheel rot. mon.
%R0312	DEL0312	Delay,	%T0108	P+108	Pulse + Reset FFU alarm
%R0315	DEL0315	Delay,	%T0139	P+139	Pulse + SA rotation monitor
%R0318	DEL0318	Delay,	%R0540	PAR_31	Del.Rot.Mon. Pressure device
%R0321	DEL0321	Delay,	%R0541	PAR_32	Del.Rot.Mon. Station wheel
%M1071	MON_FST	FFU, Mon. overloads fast speed	%M3050	RESET	Alarm reset
%M1070	MON_SLW	FFU, Mon. overloads slow speed			

TBA/21-0410/0500
BLOCK: 1T004 4mS FAST SCAN

```
(*****)  
(* Set outputs for fast scan. *)  
(* *)  
(* The constant 4 shows that the fast output module is located *)  
(* in slot 4 of the main rack. *)  
(*****)  
ALW_ON << RUNG 80 STEP #0259 >>  
%S0007 +-----+  
+--] [---DO_IO+--  
Y4306 |  
%Q0001 -+ST |  
%Q0016 -+END |  
CONST -+ALT |  
0004 +-----+  
[ END OF SUBROUTINE LOGIC ]
```

REFERENCE NICKNAME	REFERENCE DESCRIPTION
%Q0016	
%S0007	ALW_ON

REFERENCE NICKNAME	REFERENCE DESCRIPTION
%Q0001	Y4306
	JUM left catch closed

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BLOCK: 1T004 4mS FAST SCAN

```

[ START LD SUBROUTINE BLK_05 ]
[ VARIABLE DECLARATIONS ]
[ START OF SUBROUTINE LOGIC ]

(*****
* Block 05 "Volume handling"
*
* Related items can also be found in block 1T0004.
*****)

(*****
*
* Vol 1 1000cc baseline. M57 R500=1000. Knob at 103,1 degrees.
* Vol 2 200cc slimline. M58 R500=201. Knob at 124,4 degrees.
* Vol 3 250cc baseline. M59 R500=250. Knob at 131,6 degrees.
* Vol 4 200cc baseline. M60 R500=200. Knob at 138,7 degrees.
* Vol 5 1000cc slimline. M61 R500=1001. Knob at 110,2 degrees.
* Vol 6 1000cc slimline P48. M62 R500=1048. Knob at 145,8 degrees.
* Vol 7 1500cc slimline. M63 R500=1500. Knob at 152,9 degrees.
* Vol 8 1000cc square. M64 R500=1002. Knob at 160,7 degrees.
* Vol 9 500cc slimline. M65 R500=501. Knob at 117,3 degrees.
* Vol 11 330cc prisma square M67 R500=382. Knob at 182,0 degrees.
*****)

READVOL P+101 << RUNG 6 STEP #0004 >>
%M0050 %T0101
+--] [------(^)-- (* Pulse + Load volume variables *)

STEP_0 READVOL << RUNG 7 STEP #0006 >>
%M0100 %M0050
+--] [------(R)-- (* Read volume sensor on main cam *)

(*****
* When pulse P+101 comes clear volume word M57-M72 and
* volume register R500.
*
* Check in which range the volumeknob is located and load register
* R500 with volume value. Also set corresponding bit.
*
* If pulse P+101 comes and the knobpos is not within any of the defined
* ranges alarm "No volume value" will be set.
*****)

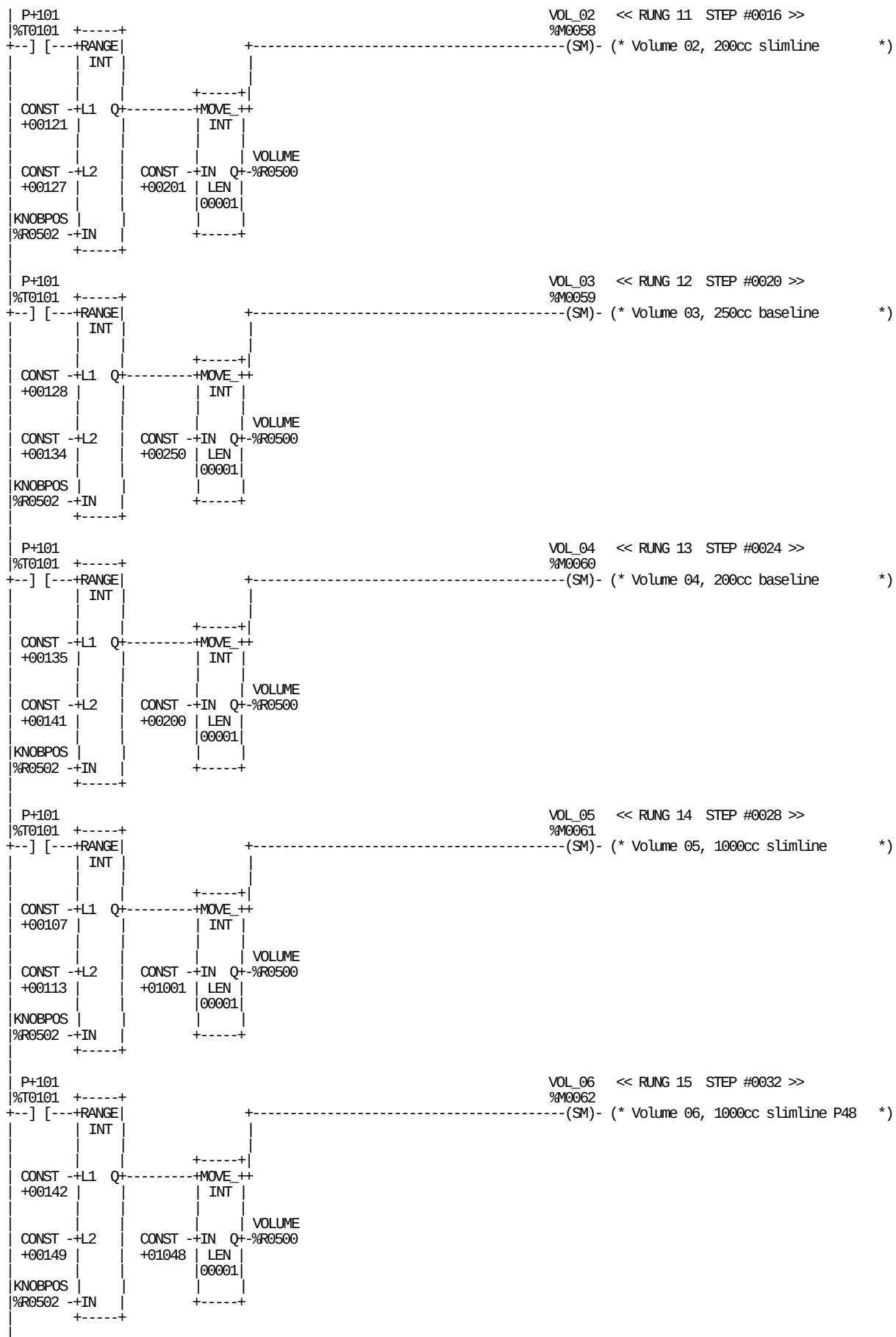
P+101 << RUNG 9 STEP #0009 >>
%M0101 +-----+ +-----+
+--] [---+ BLK +-----+MOVE +---+
| CLR | | INT |
| WORD | | |
VOL_01 | | | VOLUME
%M0057 +---IN | CONST +---IN Q+-%R0500
| LEN | +00000 | LEN |
| 00001 | | 00001 |
+-----+ +-----+

P+101 VOL_01 << RUNG 10 STEP #0012 >>
%M0101 +-----+ %M0057
+--] [---+RANGE| +-----+------(SM)- (* Volume 01, 1000cc baseline *)
| INT |
CONST +---L1 Q+-----+MOVE +---+
+00100 | | INT |
| | |
CONST +---L2 | CONST +---IN Q+-%R0500
+00106 | +01000 | LEN |
| | | 00001 |
KNOBPOS | | |
%R0502 +---IN | +-----+
+-----+ +-----+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%R0502	KNOBPOS	Position of volume knob	%M0100	STEP_0	Step 0 Off
%T0101	P+101	Pulse + Load volume variables	%R0500	VOLUME	Volume running
%M0050	READVOL	Read volume sensor on main cam	%M0057	VOL_01	Volume 01, 1000cc baseline

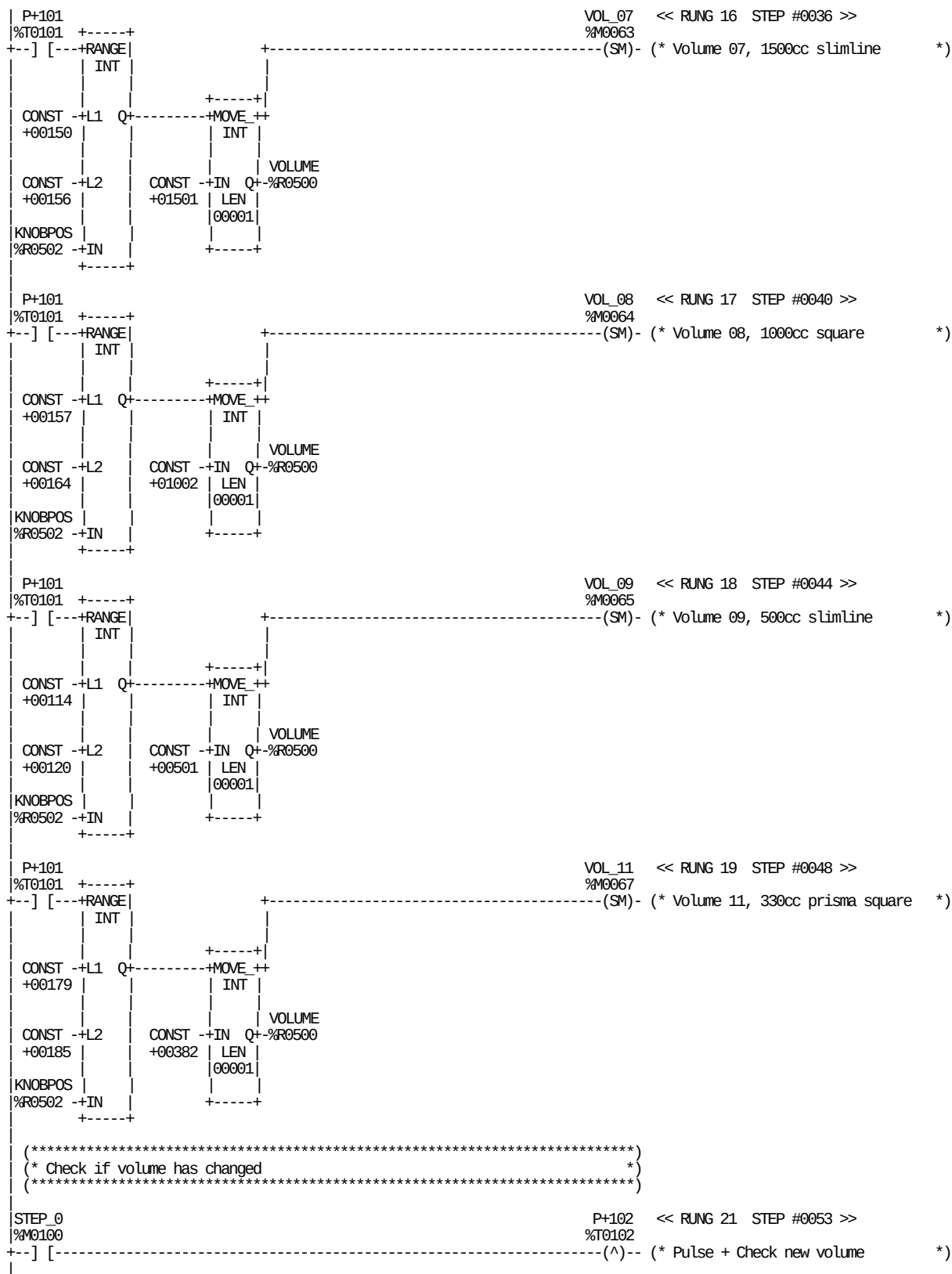
TBA/21-0410/0500
BLOCK: VOLUME HANDLING



REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%R0502	KNOBPOS	Position of volume knob
%T0101	P+101	Pulse + Load volume variables
%R0500	VOLUME	Volume running
%M0058	VOL_02	Volume 02, 200cc sLimLine

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M0059	VOL_03	Volume 03, 250cc baseLine
%M0060	VOL_04	Volume 04, 200cc baseLine
%M0061	VOL_05	Volume 05, 1000cc sLimLine
%M0062	VOL_06	Volume 06, 1000cc sLimLine P48

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BLOCK: VOLUME HANDLING



REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%R0502	KNOBPOS	Position of volume knob	%M0063	VOL_07	Volume 07, 1500cc slimline
%T0101	P+101	Pulse + Load volume variables	%M0064	VOL_08	Volume 08, 1000cc square
%T0102	P+102	Pulse + Check new volume	%M0065	VOL_09	Volume 09, 500cc slimline
%M0100	STEP_0	Step 0 Off	%M0067	VOL_11	Volume 11, 330cc prisma square
%R0500	VOLUME	Volume running			

TBA/21-0410/0500
BLOCK: VOLUME HANDLING

```

| P+102                                     << RUNG 22 STEP #0055 >>
| %T0102 +-----+
+---] [---+MOVE_+
|      |      |
|      |      | INT
|      |      |
| VOLUME |      | CHK_VOL
| %R0500 -+IN Q+-%R0501
|      |      |
|      |      | LEN
|      |      | 00001
|      |      |
+-----+

STEP_1                                     P+103 << RUNG 23 STEP #0057 >>
| %M0101 +-----+                                     %T0103
+---] [---+ NE |-----+-----+-----+-----+-----+-----+
|      |      | INT |-----+-----+-----+-----+-----+-----+
|      |      |      |
| VOLUME |      | Q+
| %R0500 -+I1 Q+-
|      |      |
| CHK_VOL |      |
| %R0501 -+I2
|      |      |
+-----+

(*****
(* If register R500 "Volume" is 0 alarm "No volume value" is set. *)
*****)

ALW_ON                                     NOVOL_1 << RUNG 25 STEP #0061 >>
| %S0007 +-----+                                     %M0051
+---] [---+ EQ |-----+-----+-----+-----+-----+-----+
|      |      | INT |-----+-----+-----+-----+-----+-----+
|      |      |      |
| CONST -+I1 Q+-
| +00000 |
| VOLUME |      |
| %R0500 -+I2
|      |      |
+-----+

ALW_ON                                     NOVOL_2 << RUNG 26 STEP #0064 >>
| %S0007 +-----+                                     %M0052
+---] [---+ EQ |-----+-----+-----+-----+-----+-----+
|      |      | INT |-----+-----+-----+-----+-----+-----+
|      |      |      |
| VOL_01 |      | Q+
| %M0057 -+I1 Q+-
|      |      |
| CONST -+I2
| +00000 |
+-----+

NOVOL_1                                     NO_VOL << RUNG 27 STEP #0067 >>
| %M0051 +-----+                                     %M0053
+---] [---+-----+-----+-----+-----+-----+-----+
|
| NOVOL_2 |
| %M0052 |
+---] [---+
|

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%S0007	ALW_ON		%T0102	P+102	Pulse + Check new volume
%R0501	CHK_VOL	Check for new volume	%T0103	P+103	Pulse + New volume value
%M0051	NOVOL_1	No volume value (R500=0)	%M0101	STEP_1	Step 1 Preparation
%M0052	NOVOL_2	No volume value (word M57-72=0)	%R0500	VOLUME	Volume running
%M0053	NO_VOL	No volume value	%M0057	VOL_01	Volume 01, 1000cc baseline

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BLOCK: VOLUME HANDLING

```

(*****
* Definition of all speed parameter
*)
(*****

ALW_ON                                     << RUNG 29 STEP #0071 >>
%SQ007 +-----+
+--] [---+ CALL BLK_501+
      | (SUBROUTINE)|
      +-----+

(*****
* Go to block with corresponding volume values
*)
(*****

ALW_ON                                     SPD5500 << RUNG 31 STEP #0074 >>
%SQ007 +-----+                               %M0056
+--] [---+ GT_ |------(S)-- (* 5500 packages per hour *)
      | INT |
      ||
VOLUME                                     SPD8000
%R0500 +I1 Q+------(R)-- (* 8000 packages per hour *)
      |    |                               %M0055
      ||
CONST +I2 |------(R)-- (* 7000 packages per hour *)
+01048 +-----+                               %M0054

ALW_ON                                     SPD8000 << RUNG 32 STEP #0079 >>
%SQ007 +-----+                               %M0055
+--] [---+ LT_ |------(S)-- (* 8000 packages per hour *)
      | INT |
      ||
VOLUME                                     SPD7000
%R0500 +I1 Q+------(R)-- (* 7000 packages per hour *)
      |    |                               %M0054
      ||
CONST +I2 |------(R)-- (* 5500 packages per hour *)
+00383 +-----+                               %M0056

ALW_ON                                     SPD7000 << RUNG 33 STEP #0084 >>
%SQ007 +-----+                               %M0054
+--] [---+ RANGE|------(S)-- (* 7000 packages per hour *)
      | INT |
      ||
CONST +L1 Q+------(R)-- (* 8000 packages per hour *)
+01048 +-----+                               %M0055
      |    |
CONST +L2 |------(R)-- (* 5500 packages per hour *)
+00383 +-----+                               %M0056

VOLUME
%R0500 +IN |
      +-----+

SPD7000                                     << RUNG 34 STEP #0089 >>
%M0054 +-----+
+--] [---+ CALL BLK_502+
      | (SUBROUTINE)|
      +-----+
SPD5500
%M0056 |
+--] [---+

SPD8000                                     << RUNG 35 STEP #0092 >>
%M0055 +-----+
+--] [---+ CALL BLK_503+
      | (SUBROUTINE)|
      +-----+

[ END OF SUBROUTINE LOGIC ]

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%SQ007	ALW_ON		%M0056	SPD5500	5500 packages per hour
	BLK_501	Speed parameter	%M0054	SPD7000	7000 packages per hour
	BLK_502	Volume parameters (vol.> 330ml)	%M0055	SPD8000	8000 packages per hour
	BLK_503	Volume parameters (vol.<= 330ml)	%R0500	VOLUME	Volume running

TBA/21-0410/0500
BLOCK: VOLUME HANDLING


```

[ START LD SUBROUTINE BLK_501 ]
[ VARIABLE DECLARATIONS ]
[ START OF SUBROUTINE LOGIC ]

(*****
* SPEED PARAMETERS *)
* *)
* (NOTE: Add 128 to PAR_01,PAR_02 for left catch open fast speed sector) *)
* *)
* PAR_01 R. catch open fast speed begin PAR_08 L. catch closed start end *)
* PAR_02 R. catch open fast speed end PAR_09 R. catch closed start end *)
* PAR_03 L. catch closed fast speed begin PAR_10 R. catch closed start beg *)
* PAR_04 L. catch closed fast speed end PAR_11 Cutting begin *)
* PAR_05 R. catch closed fast speed end PAR_12 Cutting end *)
* PAR_06 R. catch closed fast speed begin PAR_13 TS not allowed begin *)
* PAR_07 L. catch closed at start begin PAR_14 TS not allowed end *)
* *)
* PAR_15 TS length PAR_22 Spare *)
* PAR_16 Spare PAR_23 Spare *)
* PAR_17 Low speed before paper splice PAR_24 Spare *)
* PAR_18 DCS, delay miss.reg.mark signl PAR_25 Spare *)
* PAR_19 ASU, delay miss.reg.mark signl PAR_26 Spare *)
* PAR_20 Spare PAR_27 Spare *)
* PAR_21 Spare PAR_28 Spare *)
* *)
* PAR_29 Delay rot. mon. synchron. FFU *)
* PAR_30 Delay rot. mon. infeed station *)
* PAR_31 Delay rot. mon. pressure device *)
* PAR_32 Delay rot. mon. station wheel *)
* PAR_33 Spare *)
* PAR_34 Spare *)
* PAR_35 Spare *)
* *)
* *)
(*****

```

```

(*****
* Speed parameters 5500 p/h
*****
)

SPD5500
%M0056 +-----+
+---] [---+BLKMM+-----+BLKMM+-----+BLKMM+-----+
      | INT |      | INT |      | INT |
      |-----|      |-----|      |-----|
CONST +IN1 Q+-%R0510  CONST -+IN1 Q+-%R0517  CONST -+IN1 Q+-%R0524
+00080 |          |          |          |
CONST +IN2 |          |          |          |
+00089 |          |          |          |
CONST +IN3 |          |          |          |
+00073 |          |          |          |
CONST +IN4 |          |          |          |
+00207 |          |          |          |
CONST +IN5 |          |          |          |
+00079 |          |          |          |
CONST +IN6 |          |          |          |
+00201 |          |          |          |
CONST +IN7 |          |          |          |
+00082 +-----+      +-----+      +-----+

SPD5500
%M0056 +-----+
+---] [---+BLKMM+-----+BLKMM+-----+BLKMM+-----+
      | INT |      | INT |      | INT |
      |-----|      |-----|      |-----|
CONST +IN1 Q+-%R0531  CONST -+IN1 Q+-%R0538
+09999 |          |          |          |
CONST +IN2 |          |          |          |
+09999 |          |          |          |
CONST +IN3 |          |          |          |
+09999 |          |          |          |
CONST +IN4 |          |          |          |
+09999 |          |          |          |
CONST +IN5 |          |          |          |
+09999 |          |          |          |
CONST +IN6 |          |          |          |
+09999 |          |          |          |
CONST +IN7 |          |          |          |
+09999 +-----+      +-----+

<< RUNG 6 STEP #0004 >>

<< RUNG 7 STEP #0008 >>

```

REFERENCE NICKNAME
 %R0510 PAR_01
 %R0517 PAR_08
 %R0524 PAR_15

REFERENCE DESCRIPTION
 Sector, Catch open fast speed
 Sector, Left catch start
 TS length

REFERENCE NICKNAME
 %R0531 PAR_22
 %R0538 PAR_29
 %M0056 SPD5500

REFERENCE DESCRIPTION
 Spare, speed parameter
 Del.Rot.Mon. Synchronization FFU
 5500 packages per hour

TBA/21-0410/0500
 BLOCK: SPEED PARAMETERS

```

{*****
 * Speed parameters 7000 p/h
 *****}

SPD7000
%M0054 +-----+
+-] [---+BLKMM+-----+BLKMM+-----+BLKMM+-----+
      |INT|          |INT|          |INT|
      PAR_01        PAR_08        PAR_15
CONST -+IN1 Q+-%R0510 CONST -+IN1 Q+-%R0517 CONST -+IN1 Q+-%R0524
+00075
CONST -+IN2           CONST -+IN2           CONST -+IN2
+00091               +00069               +09999
CONST -+IN3           CONST -+IN3           CONST -+IN3
+00064               +00204               +00400
CONST -+IN4           CONST -+IN4           CONST -+IN4
+00202               +00044               +00065
CONST -+IN5           CONST -+IN5           CONST -+IN5
+00075               +00061               +00070
CONST -+IN6           CONST -+IN6           CONST -+IN6
+00190               +00045               +09999
CONST -+IN7           CONST -+IN7           CONST -+IN7
+00076 +-----+    +00092 +-----+    +09999 +-----+

SPD7000
%M0054 +-----+
+-] [---+BLKMM+-----+BLKMM+-----+
      |INT|          |INT|
      PAR_22        PAR_29
CONST -+IN1 Q+-%R0531 CONST -+IN1 Q+-%R0538
+09999
CONST -+IN2           CONST -+IN2
+09999               +00040
CONST -+IN3           CONST -+IN3
+09999               +00080
CONST -+IN4           CONST -+IN4
+09999               +00080
CONST -+IN5           CONST -+IN5
+09999               +09999
CONST -+IN6           CONST -+IN6
+09999               +09999
CONST -+IN7           CONST -+IN7
+09999 +-----+    +09999 +-----+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%R0510	PAR_01	Sector, Catch open fast speed	%R0531	PAR_22	Spare, speed parameter
%R0517	PAR_08	Sector, Left catch start	%R0538	PAR_29	Del.Rot.Mon. Synchronization FFU
%R0524	PAR_15	TS length	%M0054	SPD7000	7000 packages per hour

TBA/21-0410/0500
BLOCK: SPEED PARAMETERS

```

(*****
* Speed parameters 8000 p/h
*****
)

SPD8000
%M0055 +-----+
+--] [---+BLKMV+-----+BLKMV+-----+BLKMV+-----+
      | INT |      | INT |      | INT |
      |     |      |     |      |     |
      | PAR_01 |      | PAR_08 |      | PAR_15 |
      |-----|      |-----|      |-----|
CONST -+IN1 Q+-%R0510  CONST -+IN1 Q+-%R0517  CONST -+IN1 Q+-%R0524
+00077 |             +00196 |             +00190 |
      |             |             |             |
CONST -+IN2 |             CONST -+IN2 |             CONST -+IN2 |
+00091 |             +00068 |             +00999 |
      |             |             |             |
CONST -+IN3 |             CONST -+IN3 |             CONST -+IN3 |
+00065 |             +00207 |             +00300 |
      |             |             |             |
CONST -+IN4 |             CONST -+IN4 |             CONST -+IN4 |
+00204 |             +00040 |             +00055 |
      |             |             |             |
CONST -+IN5 |             CONST -+IN5 |             CONST -+IN5 |
+00076 |             +00065 |             +00060 |
      |             |             |             |
CONST -+IN6 |             CONST -+IN6 |             CONST -+IN6 |
+00193 |             +00040 |             +00999 |
      |             |             |             |
CONST -+IN7 |             CONST -+IN7 |             CONST -+IN7 |
+00079 +-----+      +00097 +-----+      +00999 +-----+

SPD8000
%M0055 +-----+
+--] [---+BLKMV+-----+BLKMV+-----+
      | INT |      | INT |
      |     |      |     |
      | PAR_22 |      | PAR_29 |
      |-----|      |-----|
CONST -+IN1 Q+-%R0531  CONST -+IN1 Q+-%R0538
+09999 |             +00080 |
      |             |             |
CONST -+IN2 |             CONST -+IN2 |
+09999 |             +00040 |
      |             |             |
CONST -+IN3 |             CONST -+IN3 |
+09999 |             +00080 |
      |             |             |
CONST -+IN4 |             CONST -+IN4 |
+09999 |             +00080 |
      |             |             |
CONST -+IN5 |             CONST -+IN5 |
+09999 |             +09999 |
      |             |             |
CONST -+IN6 |             CONST -+IN6 |
+09999 |             +09999 |
      |             |             |
CONST -+IN7 |             CONST -+IN7 |
+09999 +-----+      +09999 +-----+

[   END OF SUBROUTINE LOGIC   ]

```

REFERENCE NICKNAME
 %R0510 PAR_01
 %R0517 PAR_08
 %R0524 PAR_15

REFERENCE DESCRIPTION
 Sector, Catch open fast speed
 Sector, Left catch start
 TS length

REFERENCE NICKNAME
 %R0531 PAR_22
 %R0538 PAR_29
 %M0055 SPD8000

REFERENCE DESCRIPTION
 Spare, speed parameter
 Del.Rot.Mon. Synchronization FFU
 8000 packages per hour

TBA/21-0410/0500
 BLOCK: SPEED PARAMETERS

```

[ START LD SUBROUTINE BLK_502 ]
[ VARIABLE DECLARATIONS ]
[ START OF SUBROUTINE LOGIC ]
(*****
* VOLUME PARAMETERS *)
* *)
* *)
* PAR100 Machine speed PAR107 Flap OUT retardation *)
* PAR101 Speed time decrease PAR108 Flap Precorrection *)
* PAR102 Speed time increase PAR109 Flap Offset *)
* PAR103 FFU volume correction PAR110 Flap One step *)
* PAR104 Flap IN acceleration PAR111 Spare *)
* PAR105 Flap IN retardation PAR112 Spare *)
* PAR106 Flap OUT acceleration PAR113 TPIH TS, default power (L/R) *)
* *)
* PAR114 Filling sector PAR121 Pkg LS ext.pwr ASU spl(desn) *)
* PAR115 Repeat length PAR122 Start LS ext. pwr. ASU spl. *)
* PAR116 Production angle PAR123 Stop LS ext. pwr. ASU spl. *)
* PAR117 Folding flaps IN PAR124 TPIH SA, power at nom ++ *)
* PAR118 Folding flaps OUT PAR125 TPIH SA, power at nom +- *)
* PAR119 Main motor speed decrease PAR126 TPIH ASU Power at splice *)
* PAR120 Stop of JUM aftr tube seal. PAR127 Spare *)
* *)
* PAR128 Start speed DR3 *)
* PAR129 Start speed DR7 *)
* PAR130 Start speed DR15 *)
* PAR131 Dump pkg. bef.fill.allowed *)
* PAR132 Dump pkg. at tube seal *)
* PAR133 Butterfly valve ON in drying *)
* PAR134 Extra offset pkg dumping for ASU separate room (050 only) *)
* *)
* PAR135 Start ext.pwr. SA at spl. PAR136 Stop ext.pwr. SA at spl. *)
* PAR137 LS extra pwr. (% of LS pwr) PAR138 Def.val. LS pwr at tube seal *)
* PAR139 Def.val. LS pwr production PAR140 Def.val. LS pwr in Service *)
* PAR141 JUM ShortStop sector *)
* *)
(*****

```

```

(*****
* Volume parameters 1000cc BaseLine
*****
)

VOL_01                                     << RUNG 6 STEP #0004 >>
%M0057 +-----+                         +-----+                         +-----+
+---] [---+BLKMM+-----+BLKMM+-----+BLKMM+-----+
          |INT|                         |INT|                         |INT|
          |   |                         |   |                         |   |
          |PAR_100|                     |PAR_107|                     |PAR_114|
CONST +IN1 Q+-%R0600  CONST -IN1 Q+-%R0607  CONST -IN1 Q+-%R0614
+07000
CONST +IN2             CONST -IN2             CONST -IN2
+00110                 +12800                 +02450
CONST +IN3             CONST -IN3             CONST -IN3
+00000                 +17181                 +00015
CONST +IN4             CONST -IN4             CONST -IN4
+00055                 +00076                 +00077
CONST +IN5             CONST -IN5             CONST -IN5
+00035                 +09999                 +00206
CONST +IN6             CONST -IN6             CONST -IN6
+00020                 +09999                 +00120
CONST +IN7             CONST -IN7             CONST -IN7
+00046 +-----+      +00660 +-----+      +00109 +-----+

VOL_01                                     << RUNG 7 STEP #0008 >>
%M0057 +-----+                         +-----+                         +-----+
+---] [---+BLKMM+-----+BLKMM+-----+BLKMM+-----+
          |INT|                         |INT|                         |INT|
          |   |                         |   |                         |   |
          |PAR_121|                     |PAR_128|                     |PAR_135|
CONST +IN1 Q+-%R0621  CONST -IN1 Q+-%R0628  CONST -IN1 Q+-%R0635
+00033
CONST +IN2             CONST -IN2             CONST -IN2
+00031                 +14000                 +00080
CONST +IN3             CONST -IN3             CONST -IN3
+00034                 +16000                 +00130
CONST +IN4             CONST -IN4             CONST -IN4
+16700                 +00030                 +00700
CONST +IN5             CONST -IN5             CONST -IN5
+15420                 +00040                 +00500
CONST +IN6             CONST -IN6             CONST -IN6
+32120                 +01800                 +00600
CONST +IN7             CONST -IN7             CONST -IN7
+09999 +-----+      +00011 +-----+      +00077 +-----+

```

REFERENCE NICKNAME
 %R0600 PAR_100
 %R0607 PAR_107
 %R0614 PAR_114
 %R0621 PAR_121

REFERENCE DESCRIPTION
 Machine speed
 Flap OUT retardation
 Sector, start filling
 Pkg LS ext. pwr.ASU spl (design)

REFERENCE NICKNAME
 %R0628 PAR_128
 %R0635 PAR_135
 %M0057 VOL_01

REFERENCE DESCRIPTION
 Start spd drive roller loop ASU
 Del.start ext. pwr.SA paper spl.
 Volume 01, 1000cc baseline

TBA/21-0410/0500
 BLOCK: VOLUMES > 330ml

```

(*****
* PACKAGE DUMPING
*
* Dump reason      Package dump offset    No. of packs to dump
*
* LS sealing       PAR_160                PAR_161
* Peroxide bath    PAR_162                PAR_163
* Normal stop      PAR_164                PAR_165
* Out of design    PAR_166                PAR_167
* Paper splice     PAR_168                PAR_169
* Top forming ring PAR_170                PAR_171
* Strip splice     PAR_174                PAR_175
* Strip appl. stop PAR_176                PAR_177
*
* JUM for ShortStop      PAR_172 (absolute; HEX format)
*
*****)

```

VOL_01 << RUNG 9 STEP #0013 >>

```

%I0057 +-----+ +-----+ +-----+
+---] [---] BLKMOV+-----+ BLKMOV+-----+ MOVE+-----+
      | INT |      | INT |      | WORD |
      +-----+      +-----+      +-----+
CONST -+IN1 Q+-%R0660  CONST -+IN1 Q+-%R0667  CONST -+IN Q+-%R0672
+00006 |          | +00002 |          | FFFF | LEN |
      |          |      |          |      | 00001 |
      +-----+      +-----+      +-----+
CONST -+IN2          CONST -+IN2
+00003 |          | +00039 |
      |          |      |
CONST -+IN3          CONST -+IN3
+00023 |          | +00003 |
      |          |      |
CONST -+IN4          CONST -+IN4
+00014 |          | +00012 |
      |          |      |
CONST -+IN5          CONST -+IN5
+00002 |          | +00002 |
      |          |      |
CONST -+IN6          CONST -+IN6
+00010 |          | +00000 |
      |          |      |
CONST -+IN7          CONST -+IN7
+00003 +-----+ +00000 +-----+

```

```

(*****
* Package dumping 1000cc Baseline,
* No PT21
*****)

```

VOL_01 OPT_PT << RUNG 11 STEP #0018 >>

```

%I0057 %I0119 +-----+
+---] [---] BLKMOV+-----+
      | INT |
      +-----+
CONST -+IN1 Q+-%R0674  PAR_174
+00092 |          |
      |          |
CONST -+IN2
+00003 |
      |
CONST -+IN3
+00088 |
      |
CONST -+IN4
+00003 |
      |
CONST -+IN5
+00000 |
      |
CONST -+IN6
+00000 |
      |
CONST -+IN7
+00000 +-----+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0119	OPT_PT	Option, PT/21	%R0672	PAR_172	Dump pkgs in JUM, absolute (HEX)
%R0660	PAR_160	Dump LS, offset	%R0674	PAR_174	Dump strip splice, offset
%R0667	PAR_167	Dump design error, packs	%I0057	VOL_01	Volume 01, 1000cc baseline

TBA/21-0410/0500
BLOCK: VOLUMES > 330ml

```

{
*****
* Package dumping 1000cc baseline,
* PT21 in bypass
*****
}

VOL_01 OPT_PT PT21_BP
%M0057 %I0119 %I0345 +-----+
+---] [-----] [-----] [---+BLKMM+---
|
| INT |
|
| PAR_174 |
CONST -+IN1 Q+-%R0674
+00098
|
CONST -+IN2
+00003
|
CONST -+IN3
+00094
|
CONST -+IN4
+00003
|
CONST -+IN5
+00000
|
CONST -+IN6
+00000
|
CONST -+IN7
+00000 +-----+

{
*****
* Package dumping 1000cc baseline
* with PT21
*****
}

VOL_01 OPT_PT PT21_BP
%M0057 %I0119 %I0345 +-----+
+---] [-----] [-----]/[---+BLKMM+---
|
| INT |
|
| PAR_174 |
CONST -+IN1 Q+-%R0674
+00117
|
CONST -+IN2
+00004
|
CONST -+IN3
+00113
|
CONST -+IN4
+00006
|
CONST -+IN5
+00000
|
CONST -+IN6
+00000
|
CONST -+IN7
+00000 +-----+

{
*****
* Package dumping 1000cc Baseline
* Start from short stop with HI kit ON
*****
}

VOL_01 HI_ON
%M0057 %M1900 +-----+
+---] [-----] [---+MOVE_+-----+
|
| INT |
|
| PAR_160 |
CONST -+IN Q+-%R0660
+00000 | LEN |
| 00001 |
+-----+
|
| INT |
|
| PAR_161 |
CONST -+IN Q+-%R0661
+00009 | LEN |
| 00001 |
+-----+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M1900	HI_ON	HI, system ready for HI	%R0674	PAR_174	Dump strip splice, offset
%I0119	OPT_PT	Option, PT/21	%I0345	PT21_BP	From PT21, Bypass mode
%R0660	PAR_160	Dump LS, offset	%M0057	VOL_01	Volume 01, 1000cc baseLine
%R0661	PAR_161	Dump LS, packs			

TBA/21-0410/0500
BLOCK: VOLUMES > 330mL

ECM: 73362

DATE: 010205

SIGNATURE: EFi

48246-502:02


```

(*****
(* Volumeparameters 1000cc SlimLine and Prisma P48
*****
)

```

```

VOL_05                                     << RUNG 19 STEP #0037 >>
%M0061 +-----+                         +-----+                         +-----+
+---] [-+---+BLKMM+-----+BLKMM+-----+BLKMM+-----+
      | INT |                         | INT |                         | INT |
      |-----|                       |-----|                       |-----|
CONST +IN1 Q+-%R0600 PAR_100  CONST -IN1 Q+-%R0607 PAR_107  CONST -IN1 Q+-%R0614 PAR_114
+07000 |-----|                       |-----|                       |-----|
CONST +IN2 |-----|                       |-----|                       |-----|
+00110 |-----|                       |-----|                       |-----|
CONST +IN3 |-----|                       |-----|                       |-----|
+00000 |-----|                       |-----|                       |-----|
CONST +IN4 |-----|                       |-----|                       |-----|
+00055 |-----|                       |-----|                       |-----|
CONST +IN5 |-----|                       |-----|                       |-----|
+00035 |-----|                       |-----|                       |-----|
CONST +IN6 |-----|                       |-----|                       |-----|
+00020 |-----|                       |-----|                       |-----|
CONST +IN7 |-----|                       |-----|                       |-----|
+00046 +-----+                         +-----+                         +-----+

```

```

VOL_06                                     << RUNG 20 STEP #0041 >>
%M0062 +-----+                         +-----+                         +-----+
+---] [-+---+BLKMM+-----+BLKMM+-----+BLKMM+-----+
      | INT |                         | INT |                         | INT |
      |-----|                       |-----|                       |-----|
CONST +IN1 Q+-%R0600 PAR_100  CONST -IN1 Q+-%R0607 PAR_107  CONST -IN1 Q+-%R0614 PAR_114
+07000 |-----|                       |-----|                       |-----|
CONST +IN2 |-----|                       |-----|                       |-----|
+00170 |-----|                       |-----|                       |-----|
CONST +IN3 |-----|                       |-----|                       |-----|
+00050 |-----|                       |-----|                       |-----|
CONST +IN4 |-----|                       |-----|                       |-----|
+00055 |-----|                       |-----|                       |-----|
CONST +IN5 |-----|                       |-----|                       |-----|
+00035 |-----|                       |-----|                       |-----|
CONST +IN6 |-----|                       |-----|                       |-----|
+00020 |-----|                       |-----|                       |-----|
CONST +IN7 |-----|                       |-----|                       |-----|
+00046 +-----+                         +-----+                         +-----+

```

```

VOL_05                                     << RUNG 21 STEP #0045 >>
%M0061 +-----+                         +-----+                         +-----+
+---] [-+---+BLKMM+-----+BLKMM+-----+BLKMM+-----+
      | INT |                         | INT |                         | INT |
      |-----|                       |-----|                       |-----|
VOL_06
%M0062 +-----+                         +-----+                         +-----+
+---] [-+---+BLKMM+-----+BLKMM+-----+BLKMM+-----+
      | INT |                         | INT |                         | INT |
      |-----|                       |-----|                       |-----|
CONST +IN1 Q+-%R0621 PAR_121  CONST -IN1 Q+-%R0628 PAR_128  CONST -IN1 Q+-%R0635 PAR_135
+00029 |-----|                       |-----|                       |-----|
CONST +IN2 |-----|                       |-----|                       |-----|
+00028 |-----|                       |-----|                       |-----|
CONST +IN3 |-----|                       |-----|                       |-----|
+00031 |-----|                       |-----|                       |-----|
CONST +IN4 |-----|                       |-----|                       |-----|
+17000 |-----|                       |-----|                       |-----|
CONST +IN5 |-----|                       |-----|                       |-----|
+16000 |-----|                       |-----|                       |-----|
CONST +IN6 |-----|                       |-----|                       |-----|
+32120 |-----|                       |-----|                       |-----|
CONST +IN7 |-----|                       |-----|                       |-----|
+09999 +-----+                         +-----+                         +-----+

```

REFERENCE NICKNAME
 %R0600 PAR_100
 %R0607 PAR_107
 %R0614 PAR_114
 %R0621 PAR_121

REFERENCE DESCRIPTION
 Machine speed
 Flap OUT retardation
 Sector, start filling
 Pkg LS ext. pwr.ASU spl (design)

REFERENCE NICKNAME
 %R0628 PAR_128
 %R0635 PAR_135
 %M0061 VOL_05
 %M0062 VOL_06

REFERENCE DESCRIPTION
 Start spd drive roller loop ASU
 Del.start ext. pwr.SA paper spl.
 Volume 05, 1000cc sLimline
 Volume 06, 1000cc sLimline P48

TBA/21-0410/0500
 BLOCK: VOLUMES > 330ml

[illegible]

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0121	OPT_041	Option, 041V functionality	%R0672	PAR_172	Dump pkgs in JUM, absolute (HEX)
%R0660	PAR_160	Dump LS, offset	%M0061	VOL_05	Volume 05, 1000cc slimline
%R0667	PAR_167	Dump design error, packs	%M0062	VOL_06	Volume 06, 1000cc slimline P48

TBA/21-0410/0500
BLOCK: VOLUMES > 330ml

ECM: 73362

DATE: 010205

SIGNATURE: EFi

48246-502:02

```

|VOL_05  OPT_041  OPT_PT          << RUNG 26  STEP #0064 >>
| %M0061  %I0121  %I0119  +-----+
+---] [---+---]/[-----]/[---+BLKMW+
|VOL_06
| %M0062
+---] [---+
|
|          CONST  --IN1  Q+-%R0674  PAR_174
|          +00083
|
|          CONST  --IN2
|          +00003
|
|          CONST  --IN3
|          +00079
|
|          CONST  --IN4
|          +00003
|
|          CONST  --IN5
|          +00000
|
|          CONST  --IN6
|          +00000
|
|          CONST  --IN7
|          +00000  +-----+
|

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0121	OPT_041	Option, 041V functionality
%I0119	OPT_PT	Option, PT/21
%R0674	PAR_174	Dump strip splice, offset

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M0061	VOL_05	Volume 05, 1000cc slimline
%M0062	VOL_06	Volume 06, 1000cc slimline P48

TBA/21-0410/0500
BLOCK: VOLUMES > 330ml

```

(*****
* Package dumping 1000cc Slim and prisma, TBA21 0500
* PT21 in bypass
*****)

VOL_05 OPT_041 OPT_PT PT21_BP          << RUNG 28 STEP #0070 >>
%M0061 %I0121 %I0119 %I0345 +-----+
+--] [---+]/[-----] [-----] [---+BLKMV+
VOL_06
%M0062
+--] [---+
CONST -+IN1 Q+-%R0674
+00009
CONST -+IN2
+00003
CONST -+IN3
+00005
CONST -+IN4
+00003
CONST -+IN5
+00000
CONST -+IN6
+00000
CONST -+IN7
+00000 +-----+

(*****
* Package dumping 1000cc Slim and Prisma, TBA21 0500
* with PT21
*****)

VOL_05 OPT_041 OPT_PT PT21_BP          << RUNG 30 STEP #0077 >>
%M0061 %I0121 %I0119 %I0345 +-----+
+--] [---+]/[-----] [-----]/[---+BLKMV+
VOL_06
%M0062
+--] [---+
CONST -+IN1 Q+-%R0674
+00105
CONST -+IN2
+00004
CONST -+IN3
+00101
CONST -+IN4
+00006
CONST -+IN5
+00000
CONST -+IN6
+00000
CONST -+IN7
+00000 +-----+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0121	OPT_041	Option, 041V functionality
%I0119	OPT_PT	Option, PT/21
%R0674	PAR_174	Dump strip splice, offset

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0345	PT21_BP	From PT21, Bypass mode
%M0061	VOL_05	Volume 05, 1000cc slimline
%M0062	VOL_06	Volume 06, 1000cc slimline P48

TBA/21-0410/0500
BLOCK: VOLUMES > 330ml

```

{*****}
{ * TBA21 0410 (double magazine and ASU in separate room) * }
{ * * * }
{ * Package dumping 1000cc Slim and Prisma, PT21 in bypass * }
{*****}

VOL_05 OPT_041 OPT_PT PT21_BP
%M0061 %I0121 %I0119 %I0345 +-----+
+--] [--+--] [-----] [-----] [---BLKMM+--
|
|VOL_06| |INT|
|M0062| |PAR_174|
+--] [--+
CONST -+IN1 Q+-%R0674
+00095
CONST -+IN2
+00003
CONST -+IN3
+00091
CONST -+IN4
+00003
CONST -+IN5
+00000
CONST -+IN6
+00000
CONST -+IN7
+00000 +-----+

{*****}
{ * TBA21 0410 (double magazine and ASU in separate room) * }
{ * Package dumping 1000cc Slim and Prisma, with PT21 * }
{*****}

VOL_05 OPT_041 OPT_PT PT21_BP
%M0061 %I0121 %I0119 %I0345 +-----+
+--] [--+--] [-----] [-----]/[---BLKMM+--
|
|VOL_06| |INT|
|M0062| |PAR_174|
+--] [--+
CONST -+IN1 Q+-%R0674
+00113
CONST -+IN2
+00004
CONST -+IN3
+00109
CONST -+IN4
+00006
CONST -+IN5
+00000
CONST -+IN6
+00000
CONST -+IN7
+00000 +-----+

{*****}
{ * Package dumping 1000cc Slimline * }
{ * Start from short stop with HI kit ON * }
{*****}

VOL_05 HI_ON
%M0061 %M1900 +-----+ +-----+
+--] [--+--] [---+MOVE_+ +MOVE_+
| |INT| |INT|
|VOL_06| |PAR_160| |PAR_161|
|M0062| |Q+-%R0660| |Q+-%R0661|
+--] [--+ CONST -+IN Q+-%R0660 CONST -+IN Q+-%R0661
+00000 |LEN| +00008 |LEN|
|00001| |00001|
+-----+ +-----+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M1900	HI_ON	HI, system ready for HI
%I0121	OPT_041	Option, 041V functionality
%I0119	OPT_PT	Option, PT/21
%R0660	PAR_160	Dump LS, offset
%R0661	PAR_161	Dump LS, packs

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%R0674	PAR_174	Dump strip splice, offset
%I0345	PT21_BP	From PT21, Bypass mode
%M0061	VOL_05	Volume 05, 1000cc slimline
%M0062	VOL_06	Volume 06, 1000cc slimline P48

TBA/21-0410/0500
BLOCK: VOLUMES > 330ml

ECM: 73362

DATE: 010205

SIGNATURE: EFi

48246-502:02

```

(*****
(* Volume parameters 1500cc SlimLine
*****
)

VOL_07
%M0063 +-----+
+---] [---+BLKMM+-----+BLKMM+-----+BLKMM+-----+
      | INT |      | INT |      | INT |
      | PAR_100 |      | PAR_107 |      | PAR_114 |
CONST +IN1 Q+-%R0600 CONST -+IN1 Q+-%R0607 CONST --+IN1 Q+-%R0614
+05500
CONST +IN2          CONST --+IN2          CONST --+IN2
+00130          +12800          +03300
CONST +IN3          CONST --+IN3          CONST --+IN3
+00000          +17181          +00005
CONST +IN4          CONST --+IN4          CONST --+IN4
+00112          +00076          +00077
CONST +IN5          CONST --+IN5          CONST --+IN5
+00035          +09999          +00206
CONST +IN6          CONST --+IN6          CONST --+IN6
+00020          +09999          +00008
CONST +IN7          CONST --+IN7          CONST --+IN7
+00046          +00665          +00125

VOL_07
%M0063 +-----+
+---] [---+BLKMM+-----+BLKMM+-----+BLKMM+-----+
      | INT |      | INT |      | INT |
      | PAR_121 |      | PAR_128 |      | PAR_135 |
CONST +IN1 Q+-%R0621 CONST -+IN1 Q+-%R0628 CONST --+IN1 Q+-%R0635
+00024
CONST +IN2          CONST --+IN2          CONST --+IN2
+00023          +15800          +00080
CONST +IN3          CONST --+IN3          CONST --+IN3
+00025          +17300          +00130
CONST +IN4          CONST --+IN4          CONST --+IN4
+16000          +00026          +00700
CONST +IN5          CONST --+IN5          CONST --+IN5
+15400          +00030          +00500
CONST +IN6          CONST --+IN6          CONST --+IN6
+32120          +01800          +00600
CONST +IN7          CONST --+IN7          CONST --+IN7
+09999          +00008          +00109

```

<< RUNG 38 STEP #0104 >>

<< RUNG 39 STEP #0108 >>

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%R0600	PAR_100	Machine speed
%R0607	PAR_107	Flap OUT retardation
%R0614	PAR_114	Sector, start filling
%R0621	PAR_121	Pkg LS ext. pwr.ASU spl (design)

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%R0628	PAR_128	Start spd drive roller loop ASU
%R0635	PAR_135	Del.start ext. pwr.SA paper spl.
%M0063	VOL_07	Volume 07, 1500cc sLimLine

TBA/21-0410/0500
BLOCK: VOLUMES > 330ml

```

(*****
* PACKAGE DUMPING
*
* Dump reason      Package dump offset    No. of packs to dump
*
* LS sealing       PAR_160                PAR_161
* Peroxide bath    PAR_162                PAR_163
* Normal stop      PAR_164                PAR_165
* Out of design    PAR_166                PAR_167
* Paper splice     PAR_168                PAR_169
* Top forming ring PAR_170                PAR_171
* Strip splice     PAR_174                PAR_175
* Strip appl. stop PAR_176                PAR_177
*
* JUM for ShortStop      PAR_172 (absolute; HEX format)
*
*****)

```

VOL_07 << RUNG 41 STEP #0113 >>

```

%I0063 +-----+ +-----+ +-----+
+---] [---+BLKM+-----+BLKM+-----+MOVE+
      | INT |      | INT |      | WORD |
      |-----|      |-----|      |-----|
CONST +IN1 Q+-%R0660  CONST +IN1 Q+-%R0667  CONST +IN Q+-%R0672
+00004 |          | +00002 |          | FFFF | LEN |
      |          |      |          |      | 00001 |
      |          |      |          |      |-----+
CONST +IN2          CONST +IN2
+00002 |          | +00029 |
      |          |      |
CONST +IN3          CONST +IN3
+00016 |          | +00003 |
      |          |      |
CONST +IN4          CONST +IN4
+00010 |          | +00008 |
      |          |      |
CONST +IN5          CONST +IN5
+00002 |          | +00002 |
      |          |      |
CONST +IN6          CONST +IN6
+00007 |          | +00000 |
      |          |      |
CONST +IN7          CONST +IN7
+00002 +-----+ +00000 +-----+

```

```

(*****
* Package dumping 1500 Slimline,
* No PT21
*
* NOT TESTED
*****)

```

VOL_07 OPT_PT << RUNG 43 STEP #0118 >>

```

%I0063 %I0119 +-----+
+---] [-----]/[---+BLKM+-----+
      | INT |
      |-----|
CONST +IN1 Q+-%R0674  PAR_174
+00070 |          |
      |          |
CONST +IN2
+00003 |
      |
CONST +IN3
+00067 |
      |
CONST +IN4
+00003 |
      |
CONST +IN5
+00000 |
      |
CONST +IN6
+00000 |
      |
CONST +IN7
+00000 +-----+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0119	OPT_PT	Option, PT/21	%R0672	PAR_172	Dump pkgs in JUM, absolute (HEX)
%R0660	PAR_160	Dump LS, offset	%R0674	PAR_174	Dump strip splice, offset
%R0667	PAR_167	Dump design error, packs	%M0063	VOL_07	Volume 07, 1500cc sLimLine

TBA/21-0410/0500
BLOCK: VOLUMES > 330ml

```

{*****}
{ * Package dumping 1500 SlimLine, *}
{ * PT21 in bypass *}
{*****}

VOL_07 OPT_PT PT21_BP
%M0063 %I0119 %I0345 +-----+
+---] [-----] [-----] [---+BLKMM+---
|
| INT |
|
| PAR_174 |
CONST -+IN1 Q+-%R0674
+00072 |
|
CONST -+IN2
+00003 |
|
CONST -+IN3
+00069 |
|
CONST -+IN4
+00003 |
|
CONST -+IN5
+00000 |
|
CONST -+IN6
+00000 |
|
CONST -+IN7
+00000 +-----+

{*****}
{ * Package dumping 1500cc SlimLine, *}
{ * with PT21 *}
{*****}

VOL_07 OPT_PT PT21_BP
%M0063 %I0119 %I0345 +-----+
+---] [-----] [-----]/[---+BLKMM+---
|
| INT |
|
| PAR_174 |
CONST -+IN1 Q+-%R0674
+00085 |
|
CONST -+IN2
+00004 |
|
CONST -+IN3
+00083 |
|
CONST -+IN4
+00006 |
|
CONST -+IN5
+00000 |
|
CONST -+IN6
+00000 |
|
CONST -+IN7
+00000 +-----+

{*****}
{ * Package dumping 1500cc SlimLine *}
{ * Start from short stop with HI kit ON *}
{*****}

VOL_07 HI_ON
%M0063 %M1900 +-----+ +-----+
+---] [-----] [---+MOVE_+---+MOVE_+---
| | | |
| INT | | INT |
| | | |
| PAR_160 | | PAR_161 |
CONST -+IN Q+-%R0660 CONST -+IN Q+-%R0661
+00000 | LEN | +00006 | LEN |
| 00001 | | 00001 |
+-----+ +-----+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M1900	HI_ON	HI, system ready for HI	%R0674	PAR_174	Dump strip splice, offset
%I0119	OPT_PT	Option, PT/21	%I0345	PT21_BP	From PT21, Bypass mode
%R0660	PAR_160	Dump LS, offset	%M0063	VOL_07	Volume 07, 1500cc slimLine
%R0661	PAR_161	Dump LS, packs			

TBA/21-0410/0500
BLOCK: VOLUMES > 330mL

ECM: 73362

DATE: 010205

SIGNATURE: EFi

48246-502:02


```

(*****
* Volume parameters 1000cc SquareLine
*****
)

VOL_08                                     << RUNG 51 STEP #0137 >>
%M0064 +-----+                         +-----+                         +-----+
+---] [---+BLKMM+-----+BLKMM+-----+BLKMM+-----+
          |INT|                         |INT|                         |INT|
          |    |                         |    |                         |    |
          |PAR_100|                       |PAR_107|                       |PAR_114|
CONST +IN1 Q+-%R0600  CONST -+IN1 Q+-%R0607  CONST -+IN1 Q+-%R0614
+07000
CONST +IN2             CONST -+IN2             CONST -+IN2
+00085                 +15000                 +02850
CONST +IN3             CONST -+IN3             CONST -+IN3
+00050                 +17811                 +00070
CONST +IN4             CONST -+IN4             CONST -+IN4
+00065                 +00066                 +00077
CONST +IN5             CONST -+IN5             CONST -+IN5
+00035                 +09999                 +00206
CONST +IN6             CONST -+IN6             CONST -+IN6
+00020                 +09999                 +00005
CONST +IN7             CONST -+IN7             CONST -+IN7
+00046 +-----+       +00650 +-----+       +00109 +-----+

VOL_08                                     << RUNG 52 STEP #0141 >>
%M0064 +-----+                         +-----+                         +-----+
+---] [---+BLKMM+-----+BLKMM+-----+BLKMM+-----+
          |INT|                         |INT|                         |INT|
          |    |                         |    |                         |    |
          |PAR_121|                       |PAR_128|                       |PAR_135|
CONST +IN1 Q+-%R0621  CONST -+IN1 Q+-%R0628  CONST -+IN1 Q+-%R0635
+00028
CONST +IN2             CONST -+IN2             CONST -+IN2
+00027                 +15800                 +00080
CONST +IN3             CONST -+IN3             CONST -+IN3
+00029                 +19000                 +00130
CONST +IN4             CONST -+IN4             CONST -+IN4
+17600                 +00029                 +00700
CONST +IN5             CONST -+IN5             CONST -+IN5
+16900                 +00034                 +00500
CONST +IN6             CONST -+IN6             CONST -+IN6
+32120                 +01800                 +00600
CONST +IN7             CONST -+IN7             CONST -+IN7
+09999 +-----+       +00009 +-----+       +00077 +-----+

```

REFERENCE NICKNAME
 %R0600 PAR_100
 %R0607 PAR_107
 %R0614 PAR_114
 %R0621 PAR_121

REFERENCE DESCRIPTION
 Machine speed
 Flap OUT retardation
 Sector, start filling
 Pkg LS ext. pwr.ASU spl (design)

REFERENCE NICKNAME
 %R0628 PAR_128
 %R0635 PAR_135
 %M0064 VOL_08

REFERENCE DESCRIPTION
 Start spd drive roller loop ASU
 Del.start ext. pwr.SA paper spl.
 Volume 08, 1000cc square

TBA/21-0410/0500
 BLOCK: VOLUMES > 330ml

```

(*****
* PACKAGE DUMPING
*
* Dump reason      Package dump offset    No. of packs to dump
*
* LS sealing       PAR_160                PAR_161
* Peroxide bath    PAR_162                PAR_163
* Normal stop      PAR_164                PAR_165
* Out of design    PAR_166                PAR_167
* Paper splice     PAR_168                PAR_169
* Top forming ring PAR_170                PAR_171
* Strip splice     PAR_174                PAR_175
* Strip appl. stop PAR_176                PAR_177
*
* JUM for ShortStop      PAR_172 (absolute; HEX format)
*
*****)

```

VOL_08 << RUNG 54 STEP #0146 >>

```

%I0064 +-----+ +-----+ +-----+
+---] [---+BLKMV+-----+BLKMV+-----+MOVE_+
      | INT |      | INT |      | WORD |
      +-----+      +-----+      +-----+
CONST -+IN1 Q+-%R0660  CONST -+IN1 Q+-%R0667  CONST -+IN Q+-%R0672
+00005 |          | +00002 |          | FFF9 | LEN |
      |          |      |          |      | 00001 |
      +-----+      +-----+      +-----+
CONST -+IN2          CONST -+IN2
+00003 |          | +00033 |
      |          |      |
CONST -+IN3          CONST -+IN3
+00020 |          | +00003 |
      |          |      |
CONST -+IN4          CONST -+IN4
+00012 |          | +00010 |
      |          |      |
CONST -+IN5          CONST -+IN5
+00001 |          | +00002 |
      |          |      |
CONST -+IN6          CONST -+IN6
+00010 |          | +00000 |
      |          |      |
CONST -+IN7          CONST -+IN7
+00003 +-----+ +00000 +-----+

```

```

(*****
* Package dumping 1000cc SquareLine
* NO PT21
*****)

```

VOL_08 OPT_PT << RUNG 56 STEP #0151 >>

```

%I0119 +-----+
+---] [---+BLKMV+-----+
      | INT |
      +-----+
CONST -+IN1 Q+-%R0674  PAR_174
+00078 |          |
      |          |
CONST -+IN2
+00003 |
      |
CONST -+IN3
+00075 |
      |
CONST -+IN4
+00003 |
      |
CONST -+IN5
+00000 |
      |
CONST -+IN6
+00000 |
      |
CONST -+IN7
+00000 +-----+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0119	OPT_PT	Option, PT/21	%R0672	PAR_172	Dump pkgs in JUM, absolute (HEX)
%R0660	PAR_160	Dump LS, offset	%R0674	PAR_174	Dump strip splice, offset
%R0667	PAR_167	Dump design error, packs	%M0064	VOL_08	Volume 08, 1000cc square

TBA/21-0410/0500
BLOCK: VOLUMES > 330ml

```

{
*****
* Package dumping 1000cc SquareLine
*
* PT21 in bypass
*****
}

VOL_08 OPT_PT PT21_BP
%M0064 %I0119 %I0345 +-----+
+---] [-----] [-----] [---+BLKMM+---
|
| INT |
|
| PAR_174 |
CONST -+IN1 Q+-%R0674
+00084 |
|
CONST -+IN2
+00003 |
|
CONST -+IN3
+00080 |
|
CONST -+IN4
+00004 |
|
CONST -+IN5
+00000 |
|
CONST -+IN6
+00000 |
|
CONST -+IN7
+00000 +-----+

{
*****
* Package dumping 1000cc SquareLine,
*
* with PT21
*****
}

VOL_08 OPT_PT PT21_BP
%M0064 %I0119 %I0345 +-----+
+---] [-----] [-----]/[---+BLKMM+---
|
| INT |
|
| PAR_174 |
CONST -+IN1 Q+-%R0674
+00099 |
|
CONST -+IN2
+00004 |
|
CONST -+IN3
+00096 |
|
CONST -+IN4
+00006 |
|
CONST -+IN5
+00000 |
|
CONST -+IN6
+00000 |
|
CONST -+IN7
+00000 +-----+

{
*****
* Package dumping 1000cc Squareline
*
* Start from short stop with HI kit ON
*****
}

VOL_08 HI_ON
%M0064 %M1900 +-----+
+---] [-----] [---+MOVE_+-----+
|
| INT |
|
| PAR_160 |
CONST -+IN Q+-%R0660
+00000 | LEN |
| 00001 |
+-----+
|
| INT |
|
| PAR_161 |
CONST -+IN Q+-%R0661
+00008 | LEN |
| 00001 |
+-----+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M1900	HI_ON	HI, system ready for HI	%R0674	PAR_174	Dump strip splice, offset
%I0119	OPT_PT	Option, PT/21	%I0345	PT21_BP	From PT21, Bypass mode
%R0660	PAR_160	Dump LS, offset	%M0064	VOL_08	Volume 08, 1000cc square
%R0661	PAR_161	Dump LS. packs			

TBA/21-0410/0500
BLOCK: VOLUMES > 330ml

ECM: 73362

DATE: 010205

SIGNATURE: EFi

48246-502:02

```

(*****
* Volume parameters 500cc sLimLine
*****
)

VOL_09                                     << RUNG 64 STEP #0170 >>
%M0065 +-----+                         +-----+                         +-----+
+---] [---+BLKMM+-----+BLKMM+-----+BLKMM+-----+
      | INT |                         | INT |                         | INT |
      |     |                         |     |                         |     |
      | PAR_100 |                     | PAR_107 |                     | PAR_114 |
CONST +IN1 Q+-%R0600 | CONST -+IN1 Q+-%R0607 | CONST -+IN1 Q+-%R0614 |
+06980 |                         +00020 | +00096 |
      |     |                         |     |                         |     |
CONST +IN2 |                     | CONST -+IN2 |                     | CONST -+IN2 |
+00095 |                         +14000 | +02100 |
      |     |                         |     |                         |     |
CONST +IN3 |                     | CONST -+IN3 |                     | CONST -+IN3 |
+00000 |                         +17551 | +00005 |
      |     |                         |     |                         |     |
CONST +IN4 |                     | CONST -+IN4 |                     | CONST -+IN4 |
+00055 |                         +00071 | +00077 |
      |     |                         |     |                         |     |
CONST +IN5 |                     | CONST -+IN5 |                     | CONST -+IN5 |
+00026 |                         +09999 | +00206 |
      |     |                         |     |                         |     |
CONST +IN6 |                     | CONST -+IN6 |                     | CONST -+IN6 |
+00014 |                         +09999 | +00000 |
      |     |                         |     |                         |     |
CONST +IN7 |                     | CONST -+IN7 |                     | CONST -+IN7 |
+00046 +-----+                 +00650 +-----+                 +00109 +-----+

VOL_09                                     << RUNG 65 STEP #0174 >>
%M0065 +-----+                         +-----+                         +-----+
+---] [---+BLKMM+-----+BLKMM+-----+BLKMM+-----+
      | INT |                         | INT |                         | INT |
      |     |                         |     |                         |     |
      | PAR_121 |                     | PAR_128 |                     | PAR_135 |
CONST +IN1 Q+-%R0621 | CONST -+IN1 Q+-%R0628 | CONST -+IN1 Q+-%R0635 |
+00037 |                         +17100 | +00045 |
      |     |                         |     |                         |     |
CONST +IN2 |                     | CONST -+IN2 |                     | CONST -+IN2 |
+00036 |                         +11700 | +00080 |
      |     |                         |     |                         |     |
CONST +IN3 |                     | CONST -+IN3 |                     | CONST -+IN3 |
+00040 |                         +14000 | +00130 |
      |     |                         |     |                         |     |
CONST +IN4 |                     | CONST -+IN4 |                     | CONST -+IN4 |
+13000 |                         +00047 | +00700 |
      |     |                         |     |                         |     |
CONST +IN5 |                     | CONST -+IN5 |                     | CONST -+IN5 |
+12400 |                         +00047 | +00500 |
      |     |                         |     |                         |     |
CONST +IN6 |                     | CONST -+IN6 |                     | CONST -+IN6 |
+32120 |                         +01800 | +00600 |
      |     |                         |     |                         |     |
CONST +IN7 |                     | CONST -+IN7 |                     | CONST -+IN7 |
+09999 +-----+                 +00013 +-----+                 +00077 +-----+

```

REFERENCE NICKNAME
 %R0600 PAR_100
 %R0607 PAR_107
 %R0614 PAR_114
 %R0621 PAR_121

REFERENCE DESCRIPTION
 Machine speed
 Flap OUT retardation
 Sector, start filling
 Pkg LS ext. pwr.ASU spl (design)

REFERENCE NICKNAME
 %R0628 PAR_128
 %R0635 PAR_135
 %M0065 VOL_09

REFERENCE DESCRIPTION
 Start spd drive roller loop ASU
 Del.start ext. pwr.SA paper spl.
 Volume 09, 500cc sLimLine

TBA/21-0410/0500
 BLOCK: VOLUMES > 330ml

```

(*****
* PACKAGE DUMPING
*
* Dump reason      Package dump offset    No. of packs to dump
*
* LS sealing       PAR_160                PAR_161
* Peroxide bath    PAR_162                PAR_163
* Normal stop      PAR_164                PAR_165
* Out of design    PAR_166                PAR_167
* Paper splice     PAR_168                PAR_169
* Top forming ring PAR_170                PAR_171
* Strip splice     PAR_174                PAR_175
* Strip appl. stop PAR_176                PAR_177
*
* JUM for ShortStop      PAR_172 (absolute; HEX format)
*
*****)

```

VOL_09 << RUNG 67 STEP #0179 >>

```

%I0065 +-----+ +-----+ +-----+
+---] [---] BLKMOV+-----+ BLKMOV+-----+ MOVE+-----+
      | INT |      | INT |      | WORD |
      +-----+      +-----+      +-----+
CONST -+IN1 Q+-%R0660  CONST -+IN1 Q+-%R0667  CONST -+IN Q+-%R0672
+00007 |          | +00002 |          | FFFF | LEN |
      |          |      |          |      | 00001 |
      +-----+      +-----+      +-----+
CONST -+IN2          CONST -+IN2
+00004 |          | +00046 |
      |          |      |
CONST -+IN3          CONST -+IN3
+00022 |          | +00003 |
      |          |      |
CONST -+IN4          CONST -+IN4
+00024 |          | +00014 |
      |          |      |
CONST -+IN5          CONST -+IN5
+00002 |          | +00002 |
      |          |      |
CONST -+IN6          CONST -+IN6
+00012 |          | +00000 |
      |          |      |
CONST -+IN7          CONST -+IN7
+00004 +-----+ +00000 +-----+

```

```

(*****
* Package dumping 500cc sLimLine,
* No PT21
*****)

```

VOL_09 OPT_PT << RUNG 69 STEP #0184 >>

```

%I0119 %I0119 +-----+
+---] [---] BLKMOV+-----+
      | INT |
      +-----+
CONST -+IN1 Q+-%R0674  PAR_174
+00108 |          |
      |          |
CONST -+IN2
+00003 |
      |
CONST -+IN3
+00103 |
      |
CONST -+IN4
+00004 |
      |
CONST -+IN5
+00000 |
      |
CONST -+IN6
+00000 |
      |
CONST -+IN7
+00000 +-----+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0119	OPT_PT	Option, PT/21	%R0672	PAR_172	Dump pkgs in JUM, absolute (HEX)
%R0660	PAR_160	Dump LS, offset	%R0674	PAR_174	Dump strip splice, offset
%R0667	PAR_167	Dump design error, packs	%M0065	VOL_09	Volume 09, 500cc sLimLine

TBA/21-0410/0500
BLOCK: VOLUMES > 330ml

```

(*****
* Package dumping 500cc sLimLine,
* PT21 in bypass
*
* NOT TESTED
*****)

VOL_09 OPT_PT PT21_BP
%M0065 %I0119 %I0345 +-----+
+--] [-----] [-----] [---+BLKMW+--
      |
      | INT
      |
      | PAR_174
CONST -+IN1 Q+-%R0674
+00114 |
      |
CONST -+IN2
+00003 |
      |
CONST -+IN3
+00109 |
      |
CONST -+IN4
+00004 |
      |
CONST -+IN5
+00000 |
      |
CONST -+IN6
+00000 |
      |
CONST -+IN7
+00000 +-----+

(*****
* Package dumping 500cc sLimLine
* with PT21
*
* NOT TESTED
*****)

VOL_09 OPT_PT PT21_BP
%M0065 %I0119 %I0345 +-----+
+--] [-----] [-----]/[---+BLKMW+--
      |
      | INT
      |
      | PAR_174
CONST -+IN1 Q+-%R0674
+00135 |
      |
CONST -+IN2
+00004 |
      |
CONST -+IN3
+00130 |
      |
CONST -+IN4
+00006 |
      |
CONST -+IN5
+00000 |
      |
CONST -+IN6
+00000 |
      |
CONST -+IN7
+00000 +-----+

(*****
* Package dumping 500cc sLimLine
* Start from short stop with HI kit ON
*
* NOT TESTED
*****)

```

<< RUNG 71 STEP #0188 >>

<< RUNG 73 STEP #0193 >>

REFERENCE NICKNAME	REFERENCE DESCRIPTION
%I0119 OPT_PT	Option, PT/21
%R0674 PAR_174	Dump strip splice, offset

REFERENCE NICKNAME	REFERENCE DESCRIPTION
%I0345 PT21_BP	From PT21, Bypass mode
%M0065 VOL_09	Volume 09, 500cc sLimLine

TBA/21-0410/0500
BLOCK: VOLUMES > 330ml

```

VOL_09 HI_ON
%M0065 %M1900 +-----+
+-] [-----] [-+MOVE+-----+MOVE+--+
| | | INT | | | INT |
| | | PAR_160 | | | PAR_161 |
CONST -+IN Q+-%R0660 CONST -+IN Q+-%R0661
+00000 LEN +00011 LEN
|00001| |00001|
| | | |
+-----+ +-----+
[ END OF SUBROUTINE LOGIC ]

```

```
<< RUNG 75  STEP #0198 >>
```

REFERENCE	NICKNAME	REFERENCE	DESCRIPTION
%M1900	HI_ON	HI,	system ready for HI
%R0660	PAR_160	Dump LS,	offset

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%R0661	PAR_161	Dump LS, packs
%M0065	VOL_09	Volume 09, 500cc slimline

TBA/21-0410/0500
BLOCK: VOLUMES > 330ml

ECM: 73362

DATE: 010205

SIGNATURE: EFi

48246-502:02

```

[ START LD SUBROUTINE BLK_503 ]
[ VARIABLE DECLARATIONS ]
[ START OF SUBROUTINE LOGIC ]

(*****
* VOLUME PARAMETERS *)
* *)
* *)
* PAR100 Machine speed PAR107 Flap OUT retardation *)
* PAR101 Speed time decrease PAR108 Flap Precorrection *)
* PAR102 Speed time increase PAR109 Flap Offset *)
* PAR103 FFU volume correction PAR110 Flap One step *)
* PAR104 Flap IN acceleration PAR111 Spare *)
* PAR105 Flap IN retardation PAR112 Spare *)
* PAR106 Flap OUT acceleration PAR113 TPIH TS, default power (L/R) *)
* *)
* PAR114 Filling sector PAR121 Pkg LS ext.pwr ASU spl(desn) *)
* PAR115 Repeat length PAR122 Start LS ext. pwr. ASU spl. *)
* PAR116 Production angle PAR123 Stop LS ext. pwr. ASU spl. *)
* PAR117 Folding flaps IN PAR124 TPIH SA, power at nom ++ *)
* PAR118 Folding flaps OUT PAR125 TPIH SA, power at nom +- *)
* PAR119 Main motor speed decrease PAR126 TPIH ASU Power at splice *)
* PAR120 Stop of JUM aftr tube seal. PAR127 Spare *)
* PAR128 Start speed DR3 *)
* PAR129 Start speed DR7 *)
* PAR130 Start speed DR15 *)
* PAR131 Dump pkg. bef. fill.allowed *)
* PAR132 Dump pkg. at tube seal *)
* PAR133 Butterfly valve ON in drying *)
* PAR134 Extra offset pkg dumping for ASU separate room (050 only) *)
* *)
* PAR135 Start ext.pwr. SA at spl. PAR136 Stop ext.pwr. SA at spl. *)
* PAR137 LS extra pwr. (% of LS pwr) PAR138 Def.val. LS pwr at tube seal *)
* PAR139 Def.val. LS pwr Production PAR140 Def.val. LS pwr in Service *)
* PAR141 JUM ShortStop sector *)
* *)
(*****

```



```

(*****
* Volume parameters 200cc SlimLine
*****
)

VOL_02                                     << RUNG 6 STEP #0004 >>
%M0058 +-----+                         +-----+                         +-----+
+---] [-+BLKMM+-----+BLKMM+-----+BLKMM+-----+
          |INT|                         |INT|                         |INT|
          |   |                         |   |                         |   |
          |PAR_100|                     |PAR_107|                     |PAR_114|
CONST +IN1 Q+-%R0600  CONST -IN1 Q+-%R0607  CONST -IN1 Q+-%R0614
+00000
CONST +IN2           CONST -IN2           CONST -IN2
+00090              +08800              +01733
CONST +IN3           CONST -IN3           CONST -IN3
+00040              +17047              +00005
CONST +IN4           CONST -IN4           CONST -IN4
+00055              +00079              +00077
CONST +IN5           CONST -IN5           CONST -IN5
+00026              +09999              +00206
CONST +IN6           CONST -IN6           CONST -IN6
+00014              +09999              +00122
CONST +IN7           CONST -IN7           CONST -IN7
+00046              +00650              +00101
+-----+                         +-----+                         +-----+

VOL_02                                     << RUNG 7 STEP #0008 >>
%M0058 +-----+                         +-----+                         +-----+
+---] [-+BLKMM+-----+BLKMM+-----+BLKMM+-----+
          |INT|                         |INT|                         |INT|
          |   |                         |   |                         |   |
          |PAR_121|                     |PAR_128|                     |PAR_135|
CONST +IN1 Q+-%R0621  CONST -IN1 Q+-%R0628  CONST -IN1 Q+-%R0635
+00046              +16100              +00077
CONST +IN2           CONST -IN2           CONST -IN2
+00044              +11000              +00123
CONST +IN3           CONST -IN3           CONST -IN3
+00048              +13200              +00130
CONST +IN4           CONST -IN4           CONST -IN4
+17500              +00042              +00570
CONST +IN5           CONST -IN5           CONST -IN5
+16600              +00057              +00530
CONST +IN6           CONST -IN6           CONST -IN6
+32120              +05100              +00530
CONST +IN7           CONST -IN7           CONST -IN7
+09999              +00016              +00070
+-----+                         +-----+                         +-----+

```

REFERENCE NICKNAME
 %R0600 PAR_100
 %R0607 PAR_107
 %R0614 PAR_114
 %R0621 PAR_121

REFERENCE DESCRIPTION
 Machine speed
 Flap OUT retardation
 Sector, start filling
 Pkg LS ext. pwr.ASU spl (design)

REFERENCE NICKNAME
 %R0628 PAR_128
 %R0635 PAR_135
 %M0058 VOL_02

REFERENCE DESCRIPTION
 Start spd drive roller loop ASU
 Del.start ext. pwr.SA paper spl.
 Volume 02, 200cc slimLine

TBA/21-0410/0500
 BLOCK: VOLUMES <= 330ml

```

(*****
* PACKAGE DUMPING
*
* Dump reason      Package dump offset    No. of packs to dump
*
* LS sealing       PAR_160                PAR_161
* Peroxide bath    PAR_162                PAR_163
* Normal stop      PAR_164                PAR_165
* Out of design    PAR_166                PAR_167
* Paper splice     PAR_168                PAR_169
* Top forming ring PAR_170                PAR_171
* Strip splice     PAR_174                PAR_175
* Strip appl. stop PAR_176                PAR_177
*
* JUM for ShortStop      PAR_172 (absolute; HEX format)
*
*****

```

VOL_02 << RUNG 9 STEP #0013 >>

```

%I0058 +-----+ +-----+ +-----+
+---] [---] BLKMOV+-----+ BLKMOV+-----+ MOVE+-----+
      | INT |      | INT |      | WORD |
      +-----+      +-----+      +-----+
CONST -+IN1 Q+-%R0660  CONST -+IN1 Q+-%R0667  CONST -+IN Q+-%R0672
+00008 |          | +00002 |          | FFF9 | LEN |
      |          |      |          |      | 00001 |
      +-----+      +-----+      +-----+
CONST -+IN2          CONST -+IN2
+00004 |          | +00055 |
      |          |      |
CONST -+IN3          CONST -+IN3
+00031 |          | +00003 |
      |          |      |
CONST -+IN4          CONST -+IN4
+00020 |          | +00014 |
      |          |      |
CONST -+IN5          CONST -+IN5
+00002 |          | +00002 |
      |          |      |
CONST -+IN6          CONST -+IN6
+00014 |          | +00000 |
      |          |      |
CONST -+IN7          CONST -+IN7
+00004 +-----+ +00000 +-----+

```

```

(*****
* Package dumping 200 Slimline,
* No PT21
*****

```

VOL_02 OPT_PT << RUNG 11 STEP #0018 >>

```

%I0058 %I0119 +-----+
+---] [---] BLKMOV+-----+
      | INT |
      +-----+
CONST -+IN1 Q+-%R0674  PAR_174
+00131 |          |
      |          |
CONST -+IN2
+00003 |
      |
CONST -+IN3
+00124 |
      |
CONST -+IN4
+00006 |
      |
CONST -+IN5
+00000 |
      |
CONST -+IN6
+00000 |
      |
CONST -+IN7
+00000 +-----+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0119	OPT_PT	Option, PT/21	%R0672	PAR_172	Dump pkgs in JUM, absolute (HEX)
%R0660	PAR_160	Dump LS, offset	%R0674	PAR_174	Dump strip splice, offset
%R0667	PAR_167	Dump design error, packs	%M0058	VOL_02	Volume 02, 200cc slimline

TBA/21-0410/0500
BLOCK: VOLUMES <= 330ml

```

(*****
* Package dumping 200 SlimLine,
* PT21 in bypass
*****)

VOL_02 OPT_PT PT21_BP                                     << RUNG 13 STEP #0022 >>
%M0058 %I0119 %I0345 +-----+
+--] [-----] [-----] [---+BLKMW+---
      |      |      |
      |      |      | INT
      |      |      |
      |      |      | PAR_174
      |      |      | Q+-%R0674
      |      |      |
      |      |      | CONST -+IN1
      |      |      | +00139
      |      |      |
      |      |      | CONST -+IN2
      |      |      | +00003
      |      |      |
      |      |      | CONST -+IN3
      |      |      | +00132
      |      |      |
      |      |      | CONST -+IN4
      |      |      | +00006
      |      |      |
      |      |      | CONST -+IN5
      |      |      | +00000
      |      |      |
      |      |      | CONST -+IN6
      |      |      | +00000
      |      |      |
      |      |      | CONST -+IN7
      |      |      | +00000 +-----+

(*****
* Package dumping 200cc SlimLine,
* with PT21
*
* NOT TESTED
*****)

VOL_02 OPT_PT PT21_BP                                     << RUNG 15 STEP #0027 >>
%M0058 %I0119 %I0345 +-----+
+--] [-----] [-----]/[---+BLKMW+---
      |      |      |
      |      |      | INT
      |      |      |
      |      |      | PAR_174
      |      |      | Q+-%R0674
      |      |      |
      |      |      | CONST -+IN1
      |      |      | +00164
      |      |      |
      |      |      | CONST -+IN2
      |      |      | +00004
      |      |      |
      |      |      | CONST -+IN3
      |      |      | +00157
      |      |      |
      |      |      | CONST -+IN4
      |      |      | +00006
      |      |      |
      |      |      | CONST -+IN5
      |      |      | +00000
      |      |      |
      |      |      | CONST -+IN6
      |      |      | +00000
      |      |      |
      |      |      | CONST -+IN7
      |      |      | +00000 +-----+

(*****
* Package dumping 200cc SlimLine
* Start from short stop with HI kit ON
*****)

VOL_02 HI_ON                                               << RUNG 17 STEP #0032 >>
%M0058 %M1900 +-----+
+--] [-----] [---+MOVE+-----+
      |      |      |      |      |
      |      |      |      |      | INT
      |      |      |      |      |
      |      |      |      |      | PAR_160
      |      |      |      |      | Q+-%R0660
      |      |      |      |      |
      |      |      |      |      | CONST -+IN
      |      |      |      |      | +00000
      |      |      |      |      |
      |      |      |      |      | LEN
      |      |      |      |      | 00001
      |      |      |      |      |
      |      |      |      |      | +-----+

      |      |      |      |      | PAR_161
      |      |      |      |      | Q+-%R0661
      |      |      |      |      |
      |      |      |      |      | CONST -+IN
      |      |      |      |      | +00012
      |      |      |      |      |
      |      |      |      |      | LEN
      |      |      |      |      | 00001
      |      |      |      |      |
      |      |      |      |      | +-----+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M1900	HI_ON	HI, system ready for HI	%R0674	PAR_174	Dump strip splice, offset
%I0119	OPT_PT	Option, PT/21	%I0345	PT21_BP	From PT21, Bypass mode
%R0660	PAR_160	Dump LS, offset	%M0058	VOL_02	Volume 02, 200cc slimLine
%R0661	PAR_161	Dump LS, packs			

TBA/21-0410/0500
BLOCK: VOLUMES <= 330mL

[illegible]

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%R0600	PAR_100	Machine speed	%R0628	PAR_128	Start spd drive roller loop ASU
%R0607	PAR_107	Flap OUT retardation	%R0635	PAR_135	Del.start ext. pwr.SA paper spl.
%R0614	PAR_114	Sector, start filling	%M0059	VOL_03	Volume 03, 250cc baseline
%R0621	PAR_121	Pkg LS ext. pwr.ASU spl (design)			

TBA/21-0410/0500
BLOCK: VOLUMES <= 330ml

ECM: 73362

DATE: 010205

SIGNATURE: EFi

48246-503:02

```

(*****
* PACKAGE DUMPING
*
* Dump reason      Package dump offset    No. of packs to dump
*
* LS sealing       PAR_160                 PAR_161
* Peroxide bath    PAR_162                 PAR_163
* Normal stop      PAR_164                 PAR_165
* Out of design    PAR_166                 PAR_167
* Paper splice     PAR_168                 PAR_169
* Top forming ring PAR_170                 PAR_171
* Strip splice     PAR_174                 PAR_175
* Strip appl. stop PAR_176                 PAR_177
*
* JUM for ShortStop      PAR_172 (absolute; HEX format)
*
*****)

```

VOL_03 << RUNG 22 STEP #0046 >>

```

%I0059 +-----+ +-----+ +-----+
+---] [---] BLKMOV+-----+ BLKMOV+-----+ MOVE+
      | INT |      | INT |      | WORD |
      +-----+      +-----+      +-----+
CONST -+IN1 Q+-%R0660  CONST -+IN1 Q+-%R0667  CONST -+IN Q+-%R0672
+00009 |      |      +00002 |      |      FFF9 | LEN |
      |      |      |      |      |      | 00001 |
      |      |      |      |      |      +-----+
CONST -+IN2      CONST -+IN2
+00004 |      +00059 |
      |      |
CONST -+IN3      CONST -+IN3
+00034 |      +00003 |
      |      |
CONST -+IN4      CONST -+IN4
+00021 |      +00017 |
      |      |
CONST -+IN5      CONST -+IN5
+00002 |      +00002 |
      |      |
CONST -+IN6      CONST -+IN6
+00015 |      +00000 |
      |      |
CONST -+IN7      CONST -+IN7
+00005 +-----+ +00000 +-----+

```

```

(*****
* Package dumping 250cc BaseLine,
* No PT21
*****)

```

VOL_03 OPT_PT << RUNG 24 STEP #0051 >>

```

%I0119 %I0119 +-----+
+---] [---] BLKMOV+-----+
      | INT |
      +-----+
CONST -+IN1 Q+-%R0674  PAR_174
+00139 |      |
      |      |
CONST -+IN2
+00003 |
      |
CONST -+IN3
+00132 |
      |
CONST -+IN4
+00006 |
      |
CONST -+IN5
+00000 |
      |
CONST -+IN6
+00000 |
      |
CONST -+IN7
+00000 +-----+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0119	OPT_PT	Option, PT/21	%R0672	PAR_172	Dump pkgs in JUM, absolute (HEX)
%R0660	PAR_160	Dump LS, offset	%R0674	PAR_174	Dump strip splice, offset
%R0667	PAR_167	Dump design error, packs	%M0059	VOL_03	Volume 03, 250cc baseLine

TBA/21-0410/0500
BLOCK: VOLUMES <= 330mL

```

(*****
* Package dumping 250cc BaseLine,
* PT21 in bypass
*****)

VOL_03 OPT_PT PT21_BP                                     << RUNG 26 STEP #0055 >>
%M0059 %I0119 %I0345 +-----+
+--] [-----] [-----] [---+BLKMW+---
      |      |      |
      |      |      | INT
      |      |      |
      |      |      | PAR_174
      |      |      | Q+-%R0674
      |      |      |
      |      |      | CONST -+IN1
      |      |      | +00147
      |      |      |
      |      |      | CONST -+IN2
      |      |      | +00003
      |      |      |
      |      |      | CONST -+IN3
      |      |      | +00140
      |      |      |
      |      |      | CONST -+IN4
      |      |      | +00006
      |      |      |
      |      |      | CONST -+IN5
      |      |      | +00000
      |      |      |
      |      |      | CONST -+IN6
      |      |      | +00000
      |      |      |
      |      |      | CONST -+IN7
      |      |      | +00000 +-----+

(*****
* Package dumping 250cc BaseLine,
* with PT21
*
* NOT TESTED
*****)

VOL_03 OPT_PT PT21_BP                                     << RUNG 28 STEP #0060 >>
%M0059 %I0119 %I0345 +-----+
+--] [-----] [-----] [---+BLKMW+---
      |      |      |
      |      |      | INT
      |      |      |
      |      |      | PAR_174
      |      |      | Q+-%R0674
      |      |      |
      |      |      | CONST -+IN1
      |      |      | +00174
      |      |      |
      |      |      | CONST -+IN2
      |      |      | +00004
      |      |      |
      |      |      | CONST -+IN3
      |      |      | +00167
      |      |      |
      |      |      | CONST -+IN4
      |      |      | +00006
      |      |      |
      |      |      | CONST -+IN5
      |      |      | +00000
      |      |      |
      |      |      | CONST -+IN6
      |      |      | +00000
      |      |      |
      |      |      | CONST -+IN7
      |      |      | +00000 +-----+

(*****
* Package dumping 250cc BaseLine
* Start from short stop with HI kit ON
*****)

VOL_03 HI_ON                                               << RUNG 30 STEP #0065 >>
%M0059 %M1900 +-----+
+--] [-----] [---+MOVE+-----+
      |      |      |      |      |
      |      |      |      |      | INT
      |      |      |      |      |
      |      |      |      |      | PAR_160
      |      |      |      |      | Q+-%R0660
      |      |      |      |      |
      |      |      |      |      | CONST -+IN
      |      |      |      |      | +00000
      |      |      |      |      |
      |      |      |      |      | LEN
      |      |      |      |      | 00001
      |      |      |      |      |
      |      |      |      |      | +-----+

      |      |      |      |      | PAR_161
      |      |      |      |      | Q+-%R0661
      |      |      |      |      |
      |      |      |      |      | CONST -+IN
      |      |      |      |      | +00014
      |      |      |      |      |
      |      |      |      |      | LEN
      |      |      |      |      | 00001
      |      |      |      |      |
      |      |      |      |      | +-----+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M1900	HI_ON	HI, system ready for HI	%R0674	PAR_174	Dump strip splice, offset
%I0119	OPT_PT	Option, PT/21	%I0345	PT21_BP	From PT21, Bypass mode
%R0660	PAR_160	Dump LS, offset	%M0059	VOL_03	Volume 03, 250cc baseLine
%R0661	PAR_161	Dump LS, packs			

TBA/21-0410/0500
BLOCK: VOLUMES <= 330ml

```

(*****
* Volume parameters 200cc BaseLine
*****
)

VOL_04                                     << RUNG 32 STEP #0070 >>
%M0060 +-----+                         +-----+                         +-----+
+---] [---+BLKMM+-----+BLKMM+-----+BLKMM+-----+
      | INT |                         | INT |                         | INT |
      |     |                         |     |                         |     |
      | PAR_100 |                         | PAR_107 |                         | PAR_114 |
CONST +IN1 Q+-%R0600 | CONST -+IN1 Q+-%R0607 | CONST -+IN1 Q+-%R0614 |
+07950 |                         +00020 |                         +00056 |
      |     |                         |     |                         |     |
CONST +IN2 |                         CONST -+IN2 |                         CONST -+IN2 |
+00000 |                         +11800 |                         +01400 |
      |     |                         |     |                         |     |
CONST +IN3 |                         CONST -+IN3 |                         CONST -+IN3 |
+00000 |                         +17047 |                         +00005 |
      |     |                         |     |                         |     |
CONST +IN4 |                         CONST -+IN4 |                         CONST -+IN4 |
+00055 |                         +00079 |                         +00077 |
      |     |                         |     |                         |     |
CONST +IN5 |                         CONST -+IN5 |                         CONST -+IN5 |
+00026 |                         +09999 |                         +00206 |
      |     |                         |     |                         |     |
CONST +IN6 |                         CONST -+IN6 |                         CONST -+IN6 |
+00014 |                         +09999 |                         +00000 |
      |     |                         |     |                         |     |
CONST +IN7 |                         CONST -+IN7 |                         CONST -+IN7 |
+00046 +-----+                         +00660 +-----+                         +00101 +-----+

VOL_04                                     << RUNG 33 STEP #0074 >>
%M0060 +-----+                         +-----+                         +-----+
+---] [---+BLKMM+-----+BLKMM+-----+BLKMM+-----+
      | INT |                         | INT |                         | INT |
      |     |                         |     |                         |     |
      | PAR_121 |                         | PAR_128 |                         | PAR_135 |
CONST +IN1 Q+-%R0621 | CONST -+IN1 Q+-%R0628 | CONST -+IN1 Q+-%R0635 |
+00058 |                         +14500 |                         +00132 |
      |     |                         |     |                         |     |
CONST +IN2 |                         CONST -+IN2 |                         CONST -+IN2 |
+00056 |                         +09200 |                         +00162 |
      |     |                         |     |                         |     |
CONST +IN3 |                         CONST -+IN3 |                         CONST -+IN3 |
+00060 |                         +11300 |                         +00130 |
      |     |                         |     |                         |     |
CONST +IN4 |                         CONST -+IN4 |                         CONST -+IN4 |
+16000 |                         +00050 |                         +00510 |
      |     |                         |     |                         |     |
CONST +IN5 |                         CONST -+IN5 |                         CONST -+IN5 |
+14600 |                         +00064 |                         +00450 |
      |     |                         |     |                         |     |
CONST +IN6 |                         CONST -+IN6 |                         CONST -+IN6 |
+32120 |                         +05100 |                         +00470 |
      |     |                         |     |                         |     |
CONST +IN7 |                         CONST -+IN7 |                         CONST -+IN7 |
+09999 +-----+                         +00019 +-----+                         +00065 +-----+

```

REFERENCE NICKNAME
 %R0600 PAR_100
 %R0607 PAR_107
 %R0614 PAR_114
 %R0621 PAR_121

REFERENCE DESCRIPTION
 Machine speed
 Flap OUT retardation
 Sector, start filling
 Pkg LS ext. pwr.ASU spl (design)

REFERENCE NICKNAME
 %R0628 PAR_128
 %R0635 PAR_135
 %M0060 VOL_04

REFERENCE DESCRIPTION
 Start spd drive roller loop ASU
 Del.start ext. pwr.SA paper spl.
 Volume 04, 200cc baseLine

TBA/21-0410/0500
 BLOCK: VOLUMES <= 330ml

```

(*****
* PACKAGE DUMPING
*
* Dump reason      Package dump offset    No. of packs to dump
*
* LS sealing       PAR_160                PAR_161
* Peroxide bath    PAR_162                PAR_163
* Normal stop      PAR_164                PAR_165
* Out of design    PAR_166                PAR_167
* Paper splice     PAR_168                PAR_169
* Top forming ring PAR_170                PAR_171
* Strip splice     PAR_174                PAR_175
* Strip appl. stop PAR_176                PAR_177
*
* JUM for ShortStop      PAR_172 (absolute; HEX format)
*
*****)

```

VOL_04 << RUNG 35 STEP #0079 >>

```

%I0060 +-----+ +-----+ +-----+
+---] [---] BLKMOV+-----+ BLKMOV+-----+ MOVE+-----+
          | INT |          | INT |          | WORD |
          +-----+          +-----+          +-----+
CONST -+IN1 Q+-%R0660  CONST -+IN1 Q+-%R0667  CONST -+IN Q+-%R0672
+00011 |          | +00002 |          | FFF9 | LEN |
          |          |          |          | 00001 |
          |          |          |          +-----+
CONST -+IN2          CONST -+IN2
+00004 |          | +00069 |
          |          |
CONST -+IN3          CONST -+IN3
+00037 |          | +00003 |
          |          |
CONST -+IN4          CONST -+IN4
+00029 |          | +00020 |
          |          |
CONST -+IN5          CONST -+IN5
+00002 |          | +00002 |
          |          |
CONST -+IN6          CONST -+IN6
+00018 |          | +00000 |
          |          |
CONST -+IN7          CONST -+IN7
+00005 +-----+ +00000 +-----+

```

```

(*****
* Package dumping 200cc BaseLine,
* No PT21
*****)

```

VOL_04 OPT_PT << RUNG 37 STEP #0084 >>

```

%I0119 %I0119 +-----+
+---] [---] BLKMOV+-----+
          | INT |
          +-----+
CONST -+IN1 Q+-%R0674  PAR_174
+00162 |          |
          |
CONST -+IN2
+00003 |
          |
CONST -+IN3
+00153 |
          |
CONST -+IN4
+00007 |
          |
CONST -+IN5
+00000 |
          |
CONST -+IN6
+00000 |
          |
CONST -+IN7
+00000 +-----+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0119	OPT_PT	Option, PT/21	%R0672	PAR_172	Dump pkgs in JUM, absolute (HEX)
%R0660	PAR_160	Dump LS, offset	%R0674	PAR_174	Dump strip splice, offset
%R0667	PAR_167	Dump design error, packs	%M0060	VOL_04	Volume 04, 200cc baseLine

TBA/21-0410/0500
BLOCK: VOLUMES <= 330ml


```

{*****}
{* Package dumping 200cc Baseline, *}
{* PT21 in bypass *}
{* *}
{* NOT TESTED *}
{*****}

VOL_04 OPT_PT PT21_BP                                << RUNG 39 STEP #0088 >>
%M0060 %I0119 %I0345 +-----+
+--] [-----] [-----] [---+BLKMM+-
      |          |
      |          | INT
      |          |
      | PAR_174
CONST -+IN1 Q+-%R0674
+00172 |
      |
CONST -+IN2
+00003 |
      |
CONST -+IN3
+00164 |
      |
CONST -+IN4
+00003 |
      |
CONST -+IN5
+00000 |
      |
CONST -+IN6
+00000 |
      |
CONST -+IN7
+00000 +-----+

{*****}
{* Package dumping 200cc Baseline, *}
{* with PT21 *}
{* *}
{* NOT TESTED *}
{*****}

VOL_04 OPT_PT PT21_BP                                << RUNG 41 STEP #0093 >>
%M0060 %I0119 %I0345 +-----+
+--] [-----] [-----]/[---+BLKMM+-
      |          |
      |          | INT
      |          |
      | PAR_174
CONST -+IN1 Q+-%R0674
+00203 |
      |
CONST -+IN2
+00004 |
      |
CONST -+IN3
+00195 |
      |
CONST -+IN4
+00006 |
      |
CONST -+IN5
+00000 |
      |
CONST -+IN6
+00000 |
      |
CONST -+IN7
+00000 +-----+

{*****}
{* Package dumping 200cc Baseline *}
{* Start from short stop with HI kit ON *}
{*****}

VOL_04 HI_ON                                           << RUNG 43 STEP #0098 >>
%M0060 %M1900 +-----+
+--] [-----] [---+MOVE_+-----+
      |          |          |          |
      |          |          |          | INT
      |          |          |          |
      | PAR_160   |          |          | PAR_161
CONST -+IN Q+-%R0660 CONST -+IN Q+-%R0661
+00000 | LEN       +00016 | LEN
        | 00001     | 00001
        +-----+    +-----+
```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE NICKNAME	REFERENCE DESCRIPTION
%M1900	HI_ON	HI, system ready for HI	%R0674	PAR_174
%I0119	OPT_PT	Option, PT/21	%I0345	PT21_BP
%R0660	PAR_160	Dump LS, offset	%M0060	VOL_04
%R0661	PAR_161	Dump LS, packs		

```

(*****
* Volume parameters 330cc Prisma square
*****)

VOL_11                                     << RUNG 45 STEP #0103 >>
%M0067 +-----+                         +-----+                         +-----+
+---] [---+BLKMM+-----+BLKMM+-----+BLKMM+-----+
      | INT |                         | INT |                         | INT |
      |     |                         |     |                         |     |
      | PAR_100 |                         | PAR_107 |                         | PAR_114 |
CONST +IN1 Q+-%R0600 | CONST -+IN1 Q+-%R0607 | CONST -+IN1 Q+-%R0614 |
+07950 |                         +00020 |                         +00060 |
      |     |                         |     |                         |     |
CONST +IN2 |                         |     |                         |     |
+00000 |                         +13000 |                         +01900 |
      |     |                         |     |                         |     |
CONST +IN3 |                         |     |                         |     |
+00000 |                         +17173 |                         +00005 |
      |     |                         |     |                         |     |
CONST +IN4 |                         |     |                         |     |
+00055 |                         +00077 |                         +00077 |
      |     |                         |     |                         |     |
CONST +IN5 |                         |     |                         |     |
+00026 |                         +09999 |                         +00206 |
      |     |                         |     |                         |     |
CONST +IN6 |                         |     |                         |     |
+00014 |                         +09999 |                         +00000 |
      |     |                         |     |                         |     |
CONST +IN7 |                         |     |                         |     |
+00046 +-----+                         +00660 +-----+                         +00101 +-----+

VOL_11                                     << RUNG 46 STEP #0107 >>
%M0067 +-----+                         +-----+                         +-----+
+---] [---+BLKMM+-----+BLKMM+-----+BLKMM+-----+
      | INT |                         | INT |                         | INT |
      |     |                         |     |                         |     |
      | PAR_121 |                         | PAR_128 |                         | PAR_135 |
CONST +IN1 Q+-%R0621 | CONST -+IN1 Q+-%R0628 | CONST -+IN1 Q+-%R0635 |
+00041 |                         +20000 |                         +00093 |
      |     |                         |     |                         |     |
CONST +IN2 |                         |     |                         |     |
+00040 |                         +13200 |                         +00123 |
      |     |                         |     |                         |     |
CONST +IN3 |                         |     |                         |     |
+00044 |                         +15700 |                         +00130 |
      |     |                         |     |                         |     |
CONST +IN4 |                         |     |                         |     |
+19500 |                         +00038 |                         +00570 |
      |     |                         |     |                         |     |
CONST +IN5 |                         |     |                         |     |
+18000 |                         +00052 |                         +00520 |
      |     |                         |     |                         |     |
CONST +IN6 |                         |     |                         |     |
+32120 |                         +05100 |                         +00520 |
      |     |                         |     |                         |     |
CONST +IN7 |                         |     |                         |     |
+09999 +-----+                         +00019 +-----+                         +00091 +-----+

```

REFERENCE NICKNAME
 %R0600 PAR_100
 %R0607 PAR_107
 %R0614 PAR_114
 %R0621 PAR_121

REFERENCE DESCRIPTION
 Machine speed
 Flap OUT retardation
 Sector, start filling
 Pkg LS ext. pwr.ASU spl (design)

REFERENCE NICKNAME
 %R0628 PAR_128
 %R0635 PAR_135
 %M0067 VOL_11

REFERENCE DESCRIPTION
 Start spd drive roller loop ASU
 Del.start ext. pwr.SA paper spl.
 Volume 11, 330cc prisma square

TBA/21-0410/0500
 BLOCK: VOLUMES <= 330ml

```

(*****
* PACKAGE DUMPING
*
* Dump reason      Package dump offset    No. of packs to dump
*
* LS sealing       PAR_160                PAR_161
* Peroxide bath    PAR_162                PAR_163
* Normal stop      PAR_164                PAR_165
* Out of design    PAR_166                PAR_167
* Paper splice     PAR_168                PAR_169
* Top forming ring PAR_170                PAR_171
* Strip splice     PAR_174                PAR_175
* Strip appl. stop PAR_176                PAR_177
*
* JUM for ShortStop      PAR_172 (absolute; HEX format)
*
*****)

```

VOL_11 << RUNG 48 STEP #0112 >>

```

%I0067 +-----+ +-----+ +-----+
+---] [---+BLKM+-----+BLKM+-----+MOVE+
      | INT |      | INT |      | WORD |
      |-----|      |-----|      |-----|
CONST +IN1 Q+-%R0660  CONST +IN1 Q+-%R0667  CONST +IN Q+-%R0672
+00008 |      | +00002 |      | FFF9 | LEN |
      |      |      |      | 00001 |
      |      |      |      |-----|
CONST +IN2          CONST +IN2
+00004 |      | +00050 |
      |      |
CONST +IN3          CONST +IN3
+00025 |      | +00003 |
      |      |
CONST +IN4          CONST +IN4
+00026 |      | +00018 |
      |      |
CONST +IN5          CONST +IN5
+00002 |      | +00002 |
      |      |
CONST +IN6          CONST +IN6
+00013 |      | +00000 |
      |      |
CONST +IN7          CONST +IN7
+00004 +-----+ +00000 +-----+

```

```

(*****
* Package dumping 330cc Prisma square
* No PT21
*
* NOT TESTED
*****)

```

VOL_11 OPT_PT << RUNG 50 STEP #0117 >>

```

%I0067 %I0119 +-----+
+---] [---]/[---+BLKM+-----+
      | INT |
      |-----|
CONST +IN1 Q+-%R0674  PAR_174
+00119 |      |
      |      |
CONST +IN2
+00003 |
      |
CONST +IN3
+00114 |
      |
CONST +IN4
+00004 |
      |
CONST +IN5
+00000 |
      |
CONST +IN6
+00000 |
      |
CONST +IN7
+00000 +-----+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0119	OPT_PT	Option, PT/21	%R0672	PAR_172	Dump pkgs in JUM, absolute (HEX)
%R0660	PAR_160	Dump LS, offset	%R0674	PAR_174	Dump strip splice, offset
%R0667	PAR_167	Dump design error, packs	%M0067	VOL_11	Volume 11, 330cc prisma square

TBA/21-0410/0500
BLOCK: VOLUMES <= 330ml

```

(*****
* Package dumping 330cc prisma square
* PT21 in bypass
*
* NOT TESTED
*****
)

```

```

VOL_11 OPT_PT PT21_BP
%M0067 %I0119 %I0345 +-----+
+--] [-----] [-----] [---+BLKMW+--

```

<< RUNG 52 STEP #0121 >>

```

      INT
      PAR_174
CONST --+IN1 Q+-%R0674
+00126
CONST --+IN2
+00003
CONST --+IN3
+00121
CONST --+IN4
+00004
CONST --+IN5
+00000
CONST --+IN6
+00000
CONST --+IN7
+00000 +-----+

```

```

(*****
* Package dumping 330cc prisma square
* with PT21
*****
)

```

```

VOL_11 OPT_PT PT21_BP
%M0067 %I0119 %I0345 +-----+
+--] [-----] [-----] [---+BLKMW+--

```

<< RUNG 54 STEP #0126 >>

```

      INT
      PAR_174
CONST --+IN1 Q+-%R0674
+00149
CONST --+IN2
+00004
CONST --+IN3
+00144
CONST --+IN4
+00006
CONST --+IN5
+00000
CONST --+IN6
+00000
CONST --+IN7
+00000 +-----+

```

```

(*****
* Package dumping 330cc prisma square
* Start from short stop with HI kit ON
*****
)

```

```

VOL_11 HI_ON
%M0067 %M1900 +-----+
+--] [-----] [---+MOVE+-----+

```

<< RUNG 56 STEP #0131 >>

```

      INT
      PAR_160
CONST --+IN Q+-%R0660
+00000 LEN
00001
      INT
      PAR_161
CONST --+IN Q+-%R0661
+00012 LEN
00001

```

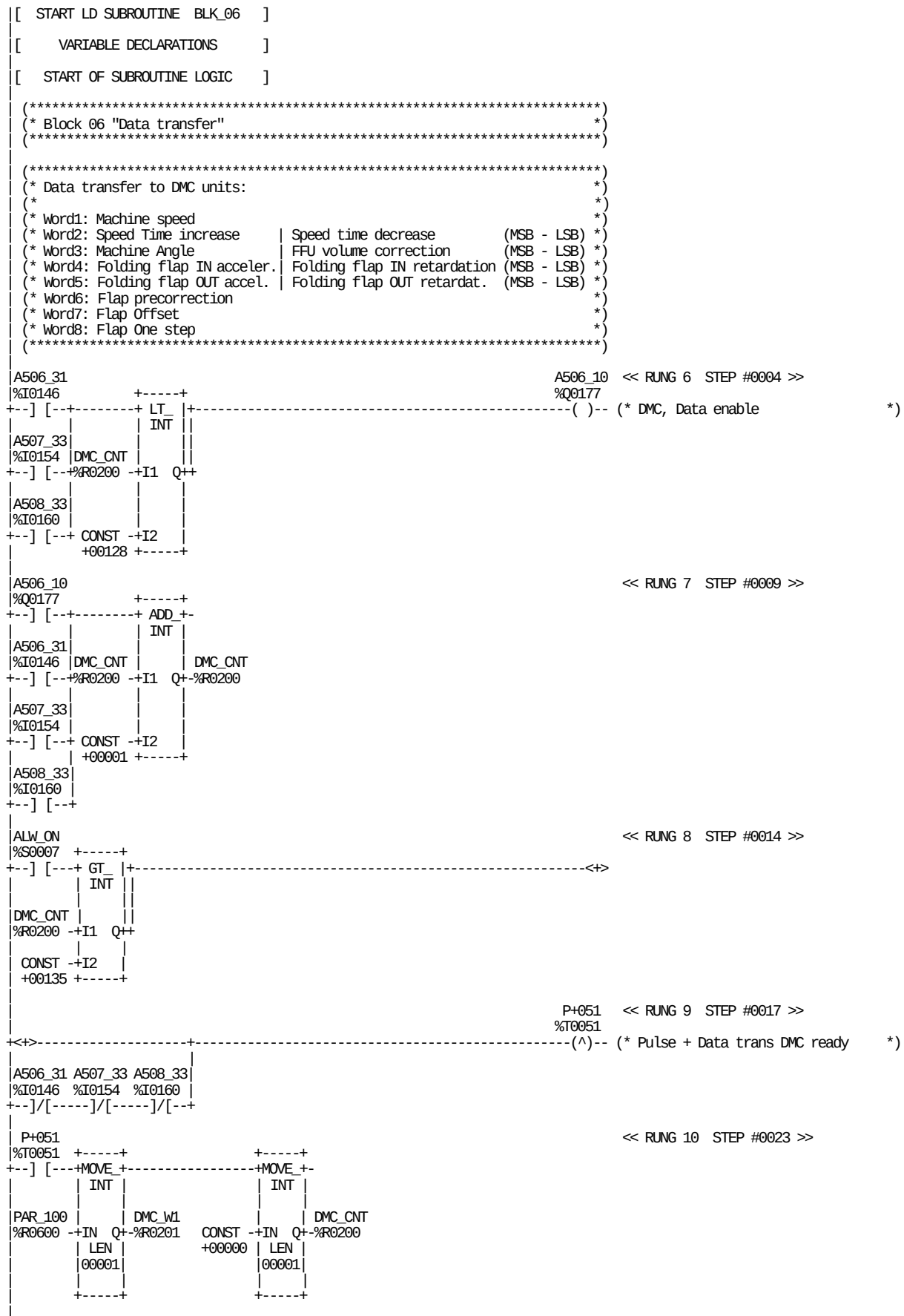
```

[ END OF SUBROUTINE LOGIC ]

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M1900	HI_ON	HI, system ready for HI	%R0674	PAR_174	Dump strip splice, offset
%I0119	OPT_PT	Option, PT/21	%I0345	PT21_BP	From PT21, Bypass mode
%R0660	PAR_160	Dump LS, offset	%M0067	VOL_11	Volume 11, 330cc prisma square
%R0661	PAR_161	Dump LS, packs			

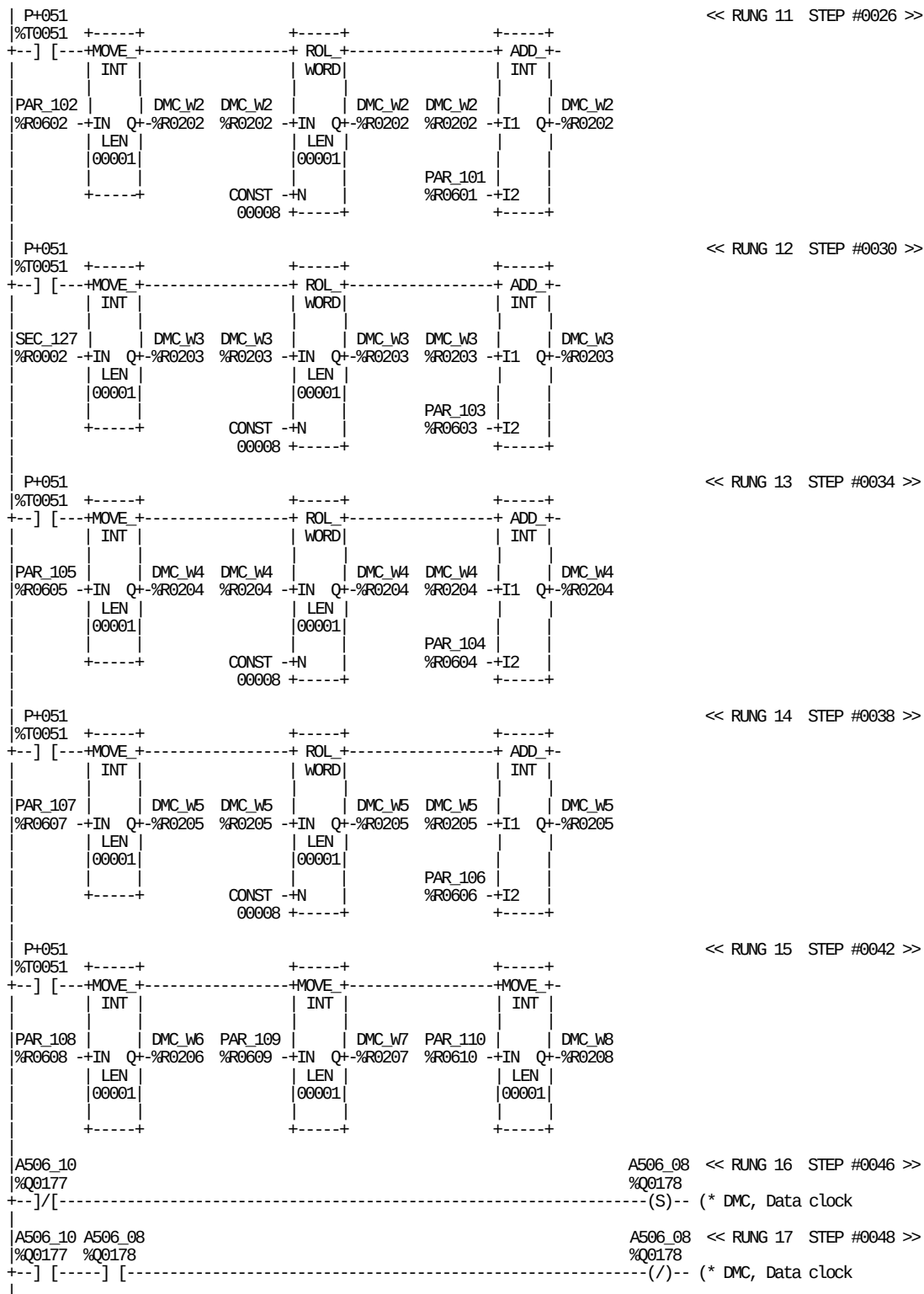
TBA/21-0410/0500
BLOCK: VOLUMES <= 330ml



REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%Q0177	A506_10	DMC, Data enable
%I0146	A506_31	DMC Main motor, Data request
%I0154	A507_33	DMC Right DCS, Data request
%I0160	A508_33	DMC Left DCS, Data request
%S0007	ALW_ON	

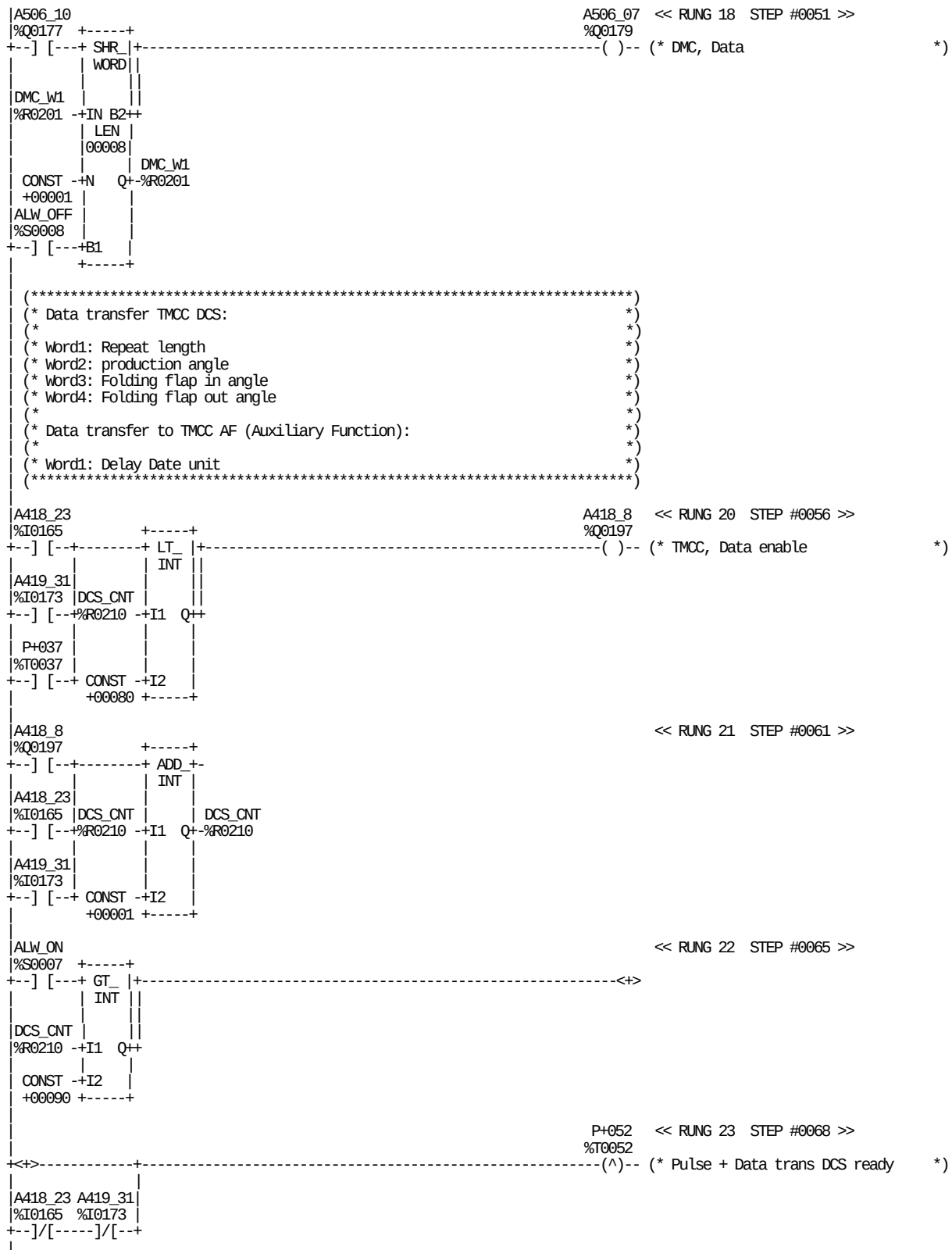
REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%R0200	DMC_CNT	DMC data transfer, Counter
%R0201	DMC_W1	DMC data transfer, Word 1
%T0051	P+051	Pulse + Data trans DMC ready
%R0600	PAR_100	Machine speed

TBA/21-0410/0500
BLOCK: DATA TRANSFER



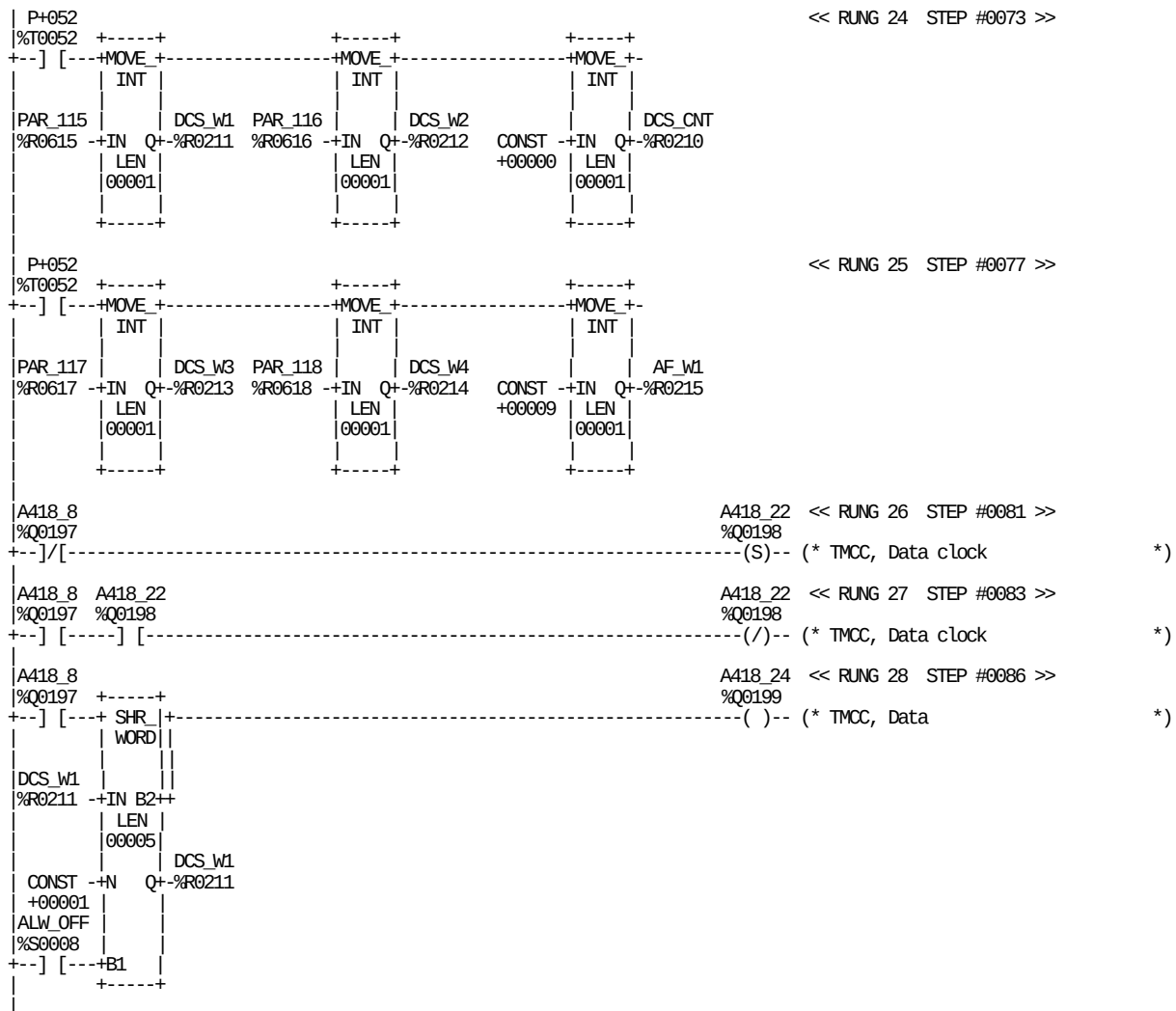
REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%Q0178	A506_08	DMC, Data clock	%R0602	PAR_102	Speed time increase
%Q0177	A506_10	DMC, Data enable	%R0603	PAR_103	FFU volume correction
%R0202	DMC_W2	DMC data transfer, Word 2	%R0604	PAR_104	Flap IN acceleration
%R0203	DMC_W3	DMC data transfer, Word 3	%R0605	PAR_105	Flap IN retardation
%R0204	DMC_W4	DMC data transfer, Word 4	%R0606	PAR_106	Flap OUT acceleration
%R0205	DMC_W5	DMC data transfer, Word 5	%R0607	PAR_107	Flap OUT retardation
%R0206	DMC_W6	DMC data transfer, Word 6	%R0608	PAR_108	Flap pre correction
%R0207	DMC_W7	DMC data transfer, Word 7	%R0609	PAR_109	Flap Offset
%R0208	DMC_W8	DMC data transfer, Word 8	%R0610	PAR_110	Flap One step
%T0051	P+051	Pulse + Data trans DMC ready	%R0002	SEC_127	Angle sector (0-127 decimal deg)
%R0601	PAR_101	Speed time decrease			

TBA/21-0410/0500
BLOCK: DATA TRANSFER



REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0165	A418_23	TMCC DCS, Data request	%S0007	ALW_ON	
%Q0197	A418_8	TMCC, Data enable	%R0210	DCS_CNT	TMCC data trans., DCS counter
%I0173	A419_31	TMCC AF, Data request	%R0201	DMC_W1	DMC data transfer, Word 1
%Q0179	A506_07	DMC, Data	%T0037	P+037	Pulse + Step 1
%Q0177	A506_10	DMC, Data enable	%T0052	P+052	Pulse + Data trans DCS ready
%S0008	ALW_OFF				

TBA/21-0410/0500
BLOCK: DATA TRANSFER



REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%Q0198	A418_22	TMCC, Data clock
%Q0199	A418_24	TMCC, Data
%Q0197	A418_8	TMCC, Data enable
%R0215	AF_W1	TMCC data trans., Aux.Fun. Date
%S0008	ALW_OFF	
%R0210	DCS_CNT	TMCC data trans., DCS counter
%R0211	DCS_W1	TMCC data trans., Repeat length
%R0212	DCS_W2	TMCC data trans., Prod. angle

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%R0213	DCS_W3	TMCC data trans., Servo angle in
%R0214	DCS_W4	TMCC data trans, Servo angle out
%T0052	P+052	Pulse + Data trans DCS ready
%R0615	PAR_115	Repeat length
%R0616	PAR_116	Sector, Production angle
%R0617	PAR_117	Sector, Folding flaps IN
%R0618	PAR_118	Sector, Folding flaps OUT

TBA/21-0410/0500
BLOCK: DATA TRANSFER


```

(*****
* Data transfer TMCC filling system:
*
* Word1: Production flow (0-255) | Start flow (0-255) (MSB - LSB) *
* Word2: Cleaning flow (0-255) | Sterilization flow (0-255) (MSB - LSB) *
* Word3: Setpoint level (0-100%) | Prefill. threshold (0-100%) (MSB - LSB) *
* Word4: PID trigger level(0-100%) | _/_/Ptr/Pre/Apt/Ast/Apd/0 (MSB - LSB) *
* _: Not used
* _: Not used
* Ptr: PID triggered on filtered level (ON/OFF)
* Pre: Prefilling function (ON/OFF)
* Apr: Autotuning on prefilling (ON/OFF)
* Ast: Autotuning on start flow (ON/OFF)
* Apd: Autotuning on production flow (ON/OFF)
* 0: Output type (0-10V) (ON/OFF)
* Word5: Steady P const. (0-255) | P const. (0-255) (MSB - LSB) *
* Word6: Steady I const. (0-255) | I const. (0-255) (MSB - LSB) *
* Word7: Steady D const. (0-255) | D const. (0-255) (MSB - LSB) *
*****
)

(* Request for forced download of parameters to TMCC A420
*)
*****

A420_13 P+059 << RUNG 31 STEP #0092 >>
%Q0212 %T0059
+--] [-----] (^)-- (* Pulse + Force download TMCC A420 *)

P+059 << RUNG 32 STEP #0094 >>
%T0059 +-----+
+--] [-----+MOVE+
| INT |
STR_FLW | FIL_STR
%R8589 -+IN Q+-%R2032
| LEN |
| 00001 |
+-----+

A420_32 A420_14 << RUNG 33 STEP #0096 >>
%I0216 +-----+ %Q0213
+--] [-----+ LT | +-----] ( )-- (* Filling, Communication enable *)
| INT |
FCS_CNT |
%R0220 -+I1 Q++
CONST -+I2 |
+00112 +-----+

A420_28 STP8_9 << RUNG 34 STEP #0099 >>
%I0215 %M0144 +-----+
+--] [-----]/[-----+ NE | +-----] <+>
| INT |
STR_FLW |
%R8589 -+I1 Q++
FIL_STR |
%R2032 -+I2 |
+-----+

A420_13 << RUNG 35 STEP #0103 >>
%Q0212
+<+>-----] (S)-- (* Filling, Force download *)

A420_28 FRC_DWL
%I0215 %M0647
+--] [-----] [-----]

A420_28 P+054 << RUNG 36 STEP #0108 >>
%I0215 %T0054
+--] [-----] (^)-- (* Pulse + Reset Force download *)

P+054 A420_13 << RUNG 37 STEP #0110 >>
%T0054 %Q0212
+--] [-----] (R)-- (* Filling, Force download *)

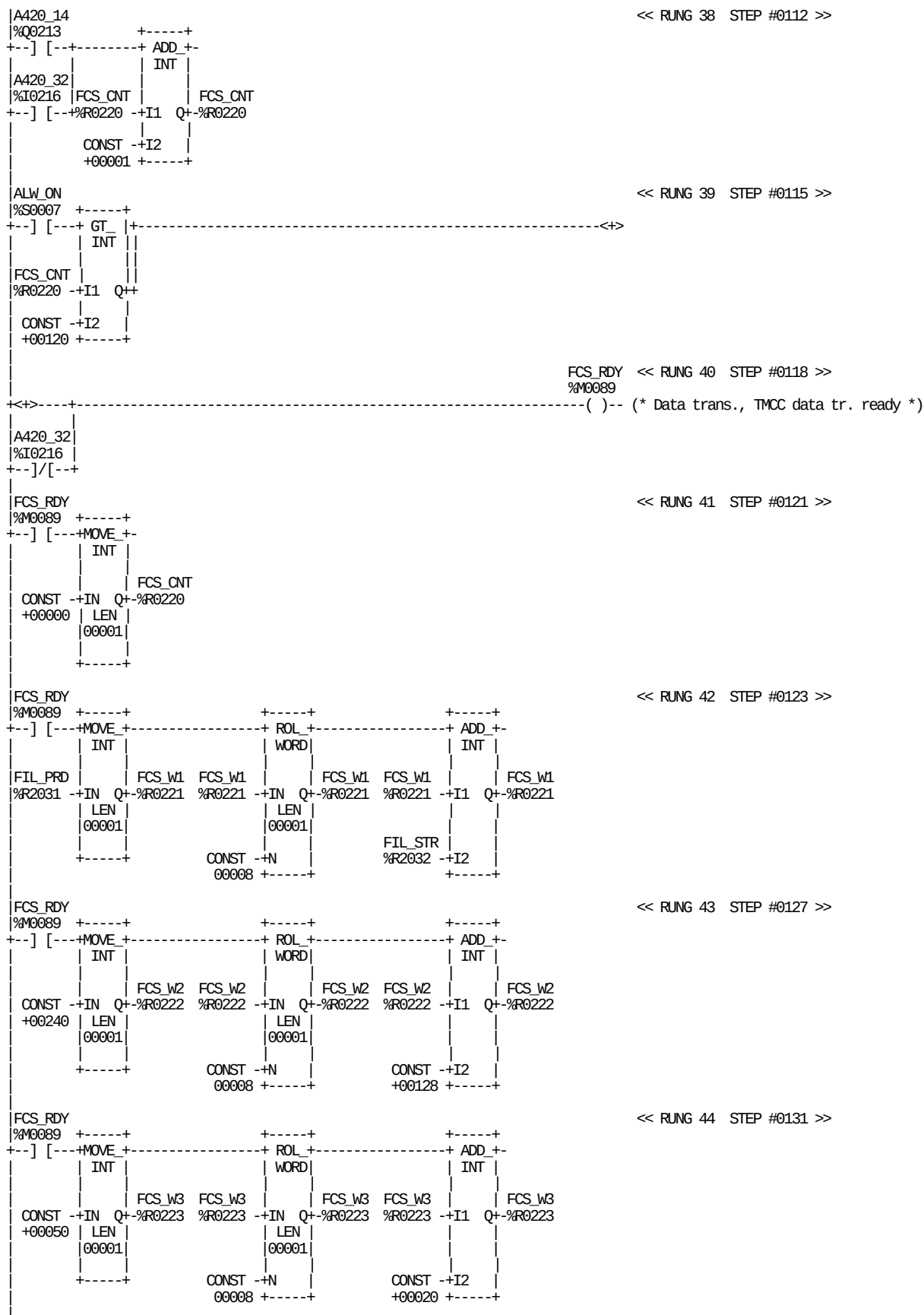
```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%Q0212	A420_13	Filling, Force download
%Q0213	A420_14	Filling, Communication enable
%I0215	A420_28	TMCC Filling, Enabled
%I0216	A420_32	TMCC Filling, Data request
%R0220	FCS_CNT	TMCC data trans., FCS counter
%R2032	FIL_STR	FIL, Start flow

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M0647	FRC_DWL	FIL, Force download param. TMCC
%T0054	P+054	Pulse + Reset Force download
%T0059	P+059	Pulse + Force download TMCC A420
%M0144	STP8_9	Step 8-9 Motorstart to prod.
%R8589	STR_FLW	FIL, Filling start flow

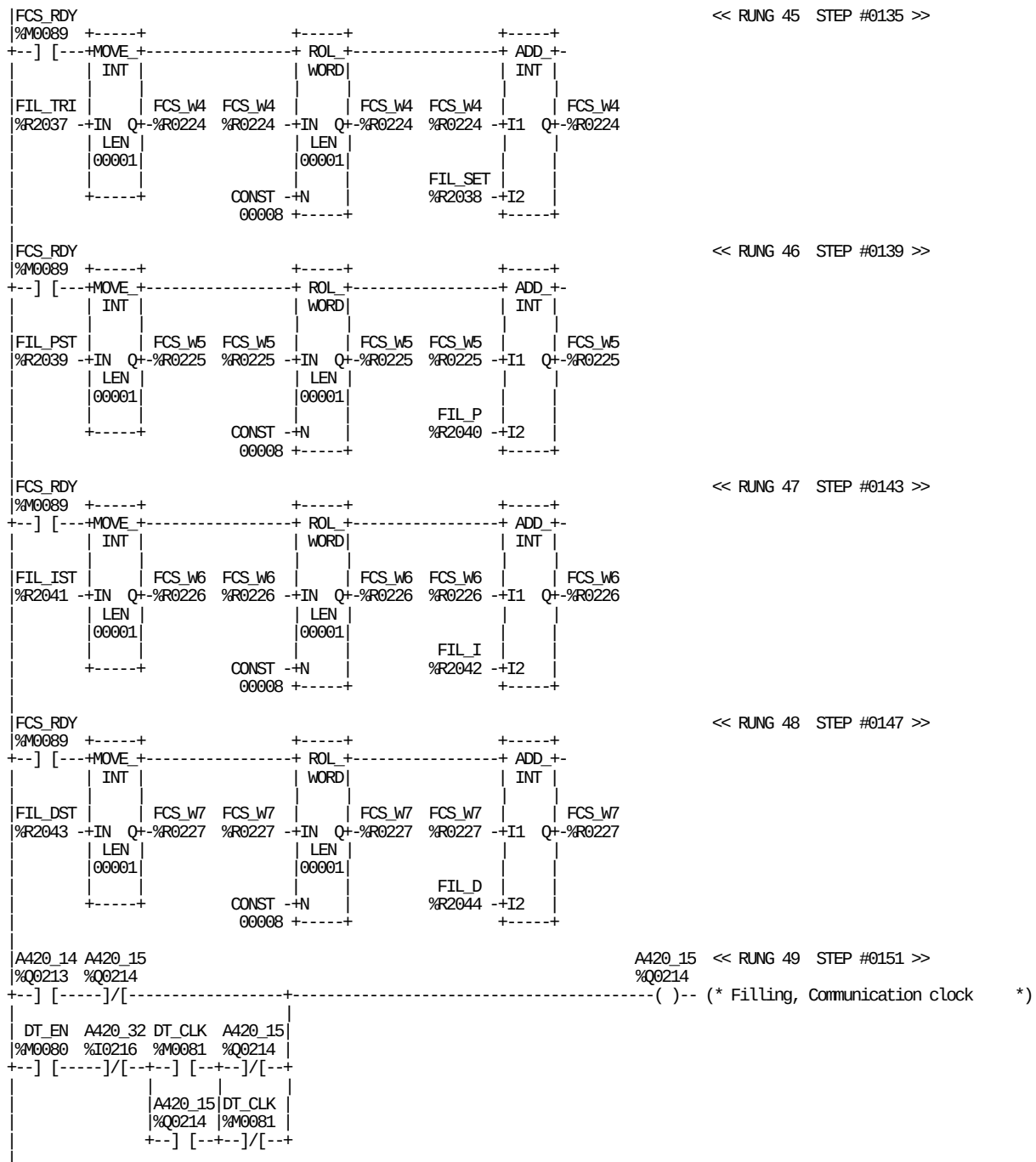
REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M0647	FRC_DWL	FIL, Force download param. TMCC
%T0054	P+054	Pulse + Reset Force download
%T0059	P+059	Pulse + Force download TMCC A420
%M0144	STP8_9	Step 8-9 Motorstart to prod.
%R8589	STR_FLW	FIL, Filling start flow

TBA/21-0410/0500
BLOCK: DATA TRANSFER



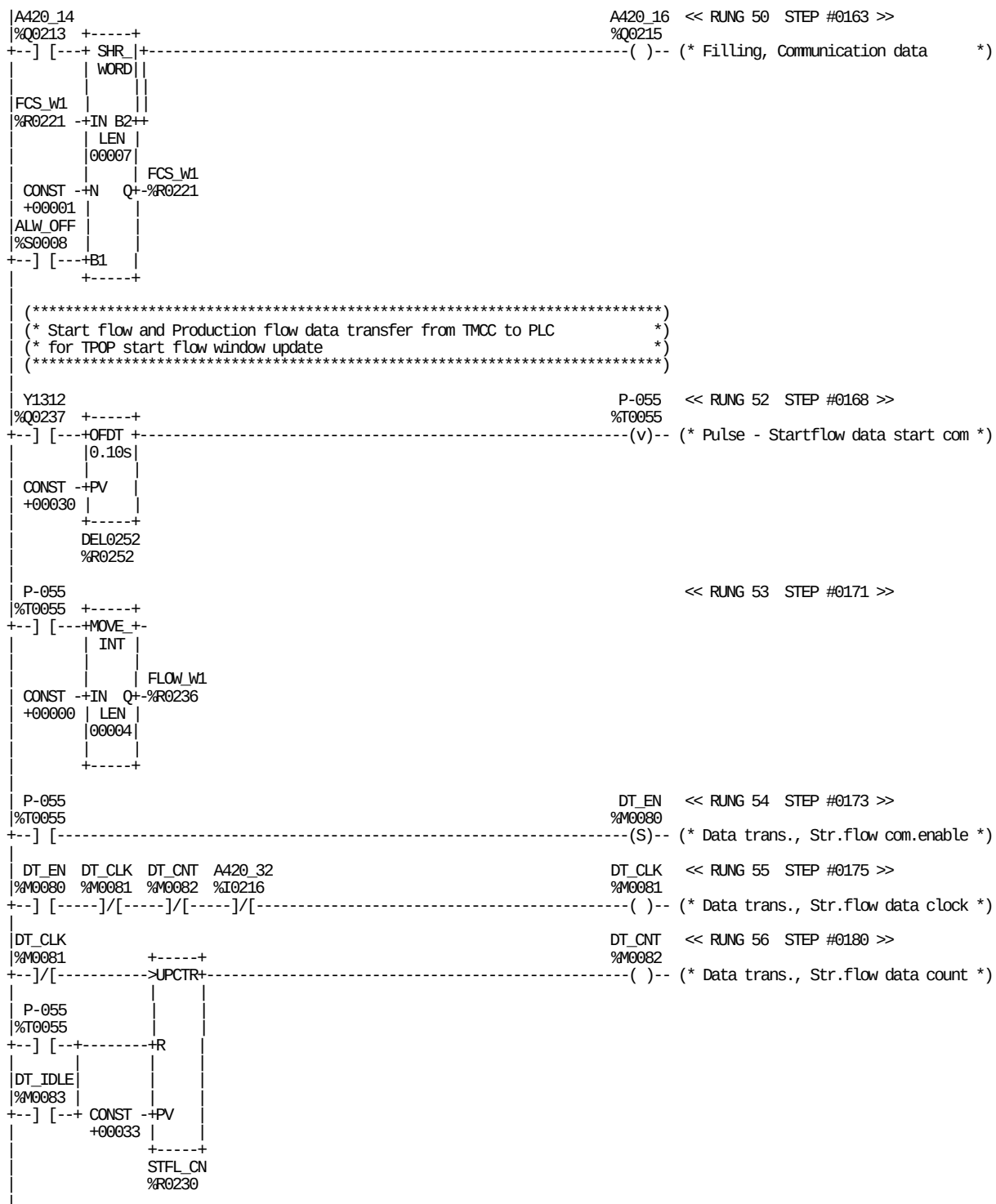
REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%Q0213	A420_14	Filling, Communication enable	%R0221	FCS_W1	TMCC data trans., Word 1 FCS
%I0216	A420_32	TMCC Filling, Data request	%R0222	FCS_W2	TMCC data trans., Word 2 FCS
%S0007	ALW_ON		%R0223	FCS_W3	TMCC data trans., Word 3 FCS
%R0220	FCS_CNT	TMCC data trans., FCS counter	%R2031	FIL_PRD	FIL, Production flow
%M0089	FCS_RDY	Data trans., TMCC data tr. ready	%R2032	FIL_STR	FIL, Start flow

TBA/21-0410/0500
BLOCK: DATA TRANSFER



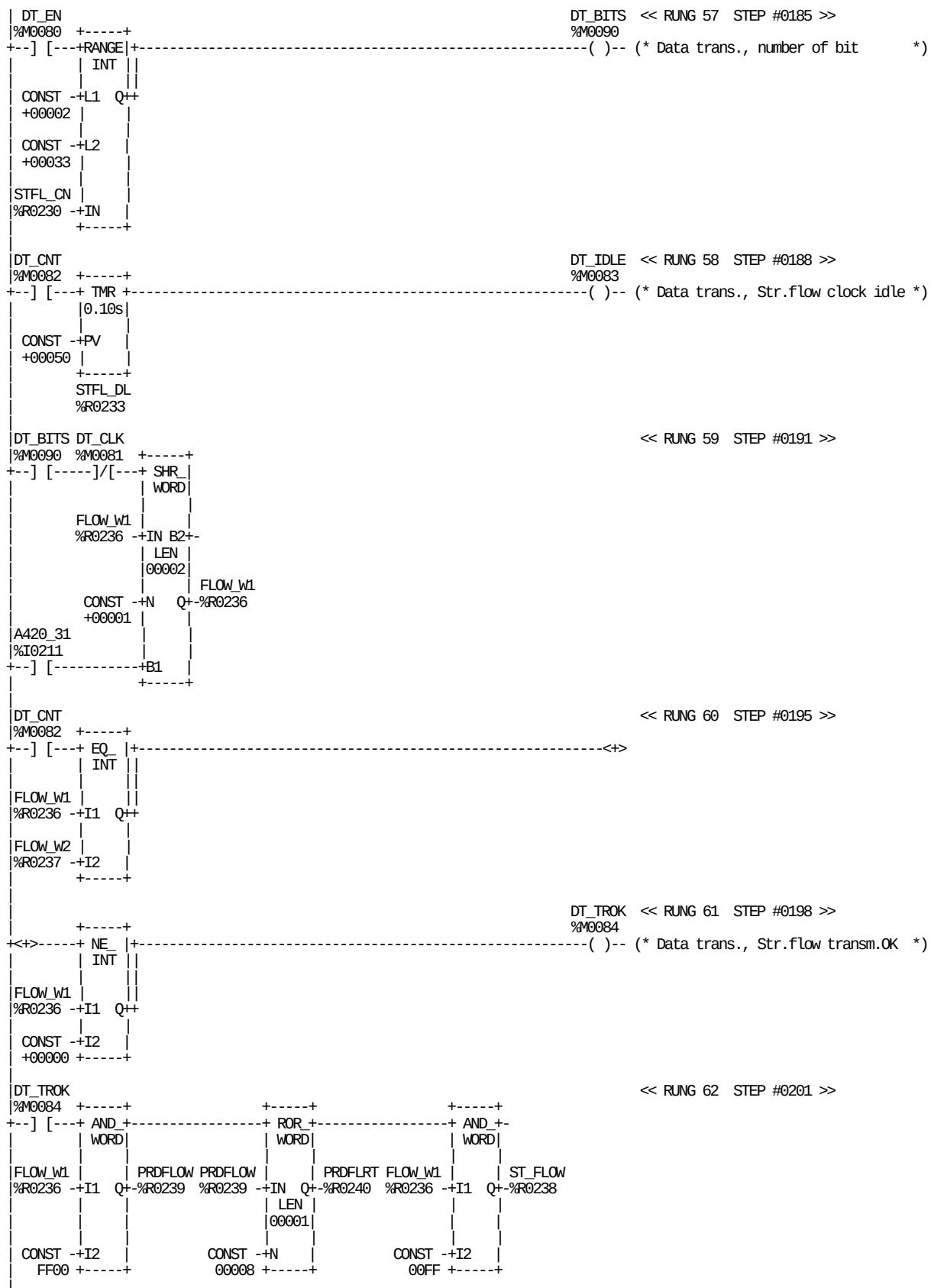
REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%Q0213	A420_14	Filling, Communication enable	%R0227	FCS_W7	TMCC data trans., Word 7 FCS
%Q0214	A420_15	Filling, Communication clock	%R2044	FIL_D	FIL, D constant
%I0216	A420_32	TMCC Filling, Data request	%R2043	FIL_DST	FIL, Steady D constant
%M0081	DT_CLK	Data trans., Str.flow data clock	%R2042	FIL_I	FIL, I constant
%M0080	DT_EN	Data trans., Str.flow com.enable	%R2041	FIL_IST	FIL, Steady I constant
%M0089	FCS_RDY	Data trans., TMCC data tr. ready	%R2040	FIL_P	FIL, P constant
%R0224	FCS_W4	TMCC data trans., word 4 FCS	%R2039	FIL_PST	FIL, Steady P constant
%R0225	FCS_W5	TMCC data trans., word 5 FCS	%R2038	FIL_SET	FIL, Miscellaneous settings
%R0226	FCS_W6	TMCC data trans., word 6 FCS	%R2037	FIL_TRI	FIL, PID trigger level

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BLOCK: DATA TRANSFER



REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%Q0213	A420_14	Filling, Communication enable	%M0080	DT_EN	Data trans., Strt.flow com.enable
%Q0215	A420_16	Filling, Communication data	%M0083	DT_IDLE	Data trans., Strt.flow clock idle
%Q0216	A420_32	TMCC Filling, Data request	%R0221	FCS_W1	TMCC data trans., word 1 FCS
%S0008	ALW_OFF		%R0236	FLOW_W1	TMCC data tr., Strt/Prod flow w1
%R0252	DEL0252	Delay,	%T0055	P-055	Pulse - Startflow data start com
%M0081	DT_CLK	Data trans., Strt.flow data clock	%R0230	STFL_CN	TMCC data trans., Start flow cnt
%M0082	DT_CNT	Data trans., Strt.flow data count	%Q0237	Y1312	A - Valve

TBA/21-0410/0500
BLOCK: DATA TRANSFER



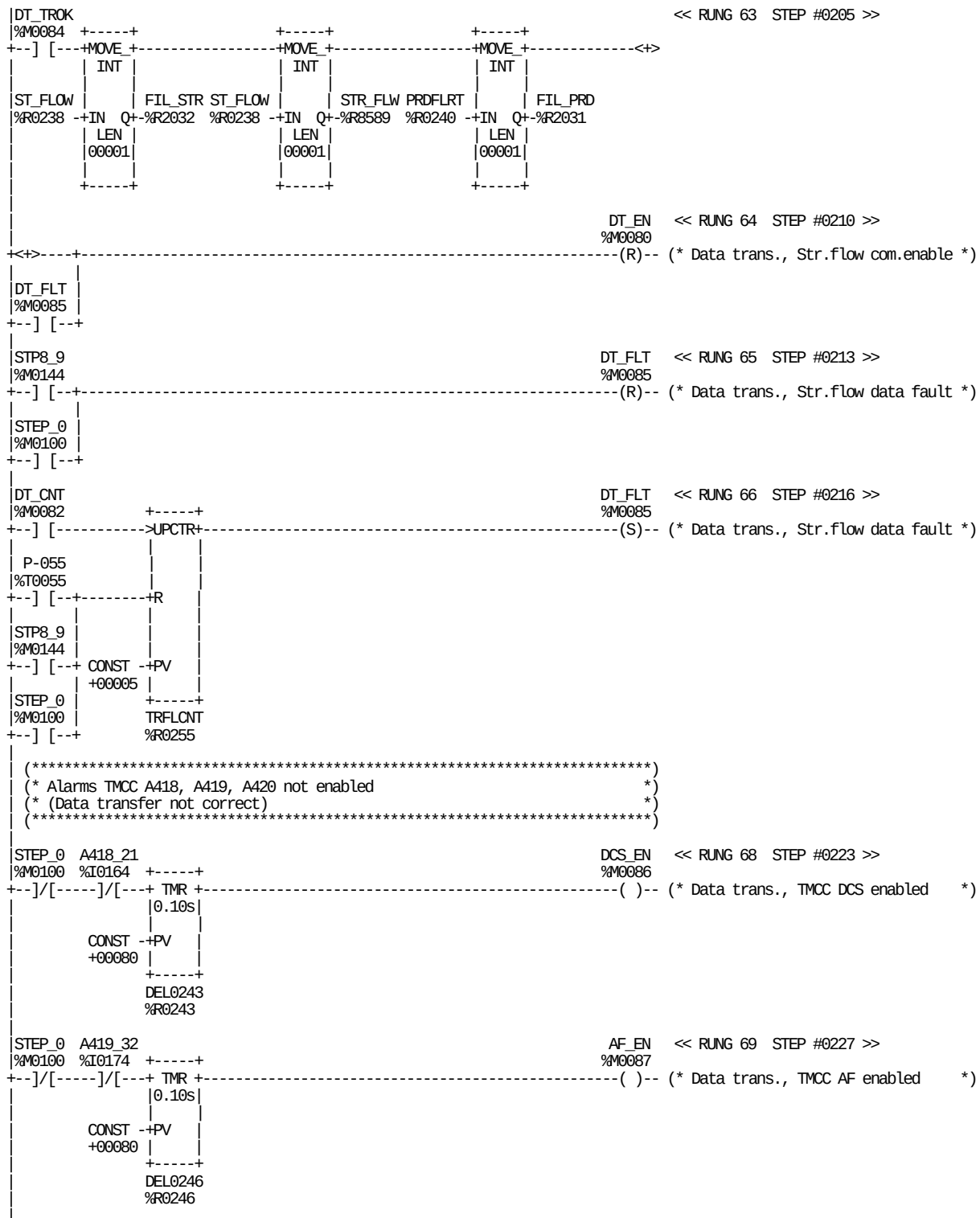
REFERENCE NICKNAME
%I0211 A420_31
%M0090 DT_BITS
%M0081 DT_CLK
%M0082 DT_CNT
%M0080 DT_EN
%M0083 DT_IDLE
%M0084 DT_TROK

REFERENCE DESCRIPTION
TMCC Filling, Str.flow data com.
Data trans., number of bit
Data trans., Str.flow data clock
Data trans., Str.flow data count
Data trans., Str.flow com.enable
Data trans., Str.flow clock idle
Data trans., Str.flow transm.OK

REFERENCE NICKNAME
%R0236 FLOW_W1
%R0237 FLOW_W2
%R0239 PRDFLOW
%R0240 PRDFLRT
%R0230 STFL_CN
%R0233 STFL_DL
%R0238 ST_FLOW

REFERENCE DESCRIPTION
TMCC data tr., Strt/Prod flow w1
TMCC data tr., Strt/Prod flow w2
TMCC data trans., Product. flow
TMCC data trans., Prod.flow rot.
TMCC data trans., Start flow cnt
TMCC data trans., Start flow del
TMCC data trans., Start flow

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BLOCK: DATA TRANSFER



REFERENCE	NICKNAME	REFERENCE	DESCRIPTION	REFERENCE	NICKNAME	REFERENCE	DESCRIPTION
%I0164	A418_21	TMCC DCS, Enabled		%R2031	FIL_PRD	FIL, Production flow	
%I0174	A419_32	TMCC AF, Enabled		%R2032	FIL_STR	FIL, Start flow	
%M0087	AF_EN	Data trans., TMCC AF enabled		%T0055	P-055	Pulse - Startflow data start com	
%M0086	DCS_EN	Data trans., TMCC DCS enabled		%R0240	PRDFLRT	TMCC data trans., Prod.flow rot.	
%R0243	DEL0243	Delay,		%M0100	STEP_0	Step 0 Off	
%R0246	DEL0246	Delay,		%M0144	STR8_9	Step 8-9 Motorstart to prod.	
%M0082	DT_CNT	Data trans., Str.flow data count		%R8589	STR_FLW	FIL, Filling start flow	
%M0080	DT_EN	Data trans., Str.flow com.enable		%R0238	ST_FLOW	TMCC data trans., Start flow	
%M0085	DT_FLT	Data trans., Str.flow data fault		%R0255	TRFLCNT	TMCC data trans., Transm.fl.t.cnt	
%M0084	DT_TROK	Data trans., Str.flow transm.OK					

TBA/21-0410/0500
BLOCK: DATA TRANSFER

```
|STEP_0 A420_28                                FCS_EN  << RUNG 70 STEP #0231 >>
|M0100 %I0215 +-----+                      M0088
+--]/[-----]/[---+ TMR +-----+ ( )-- (* Data trans., TMCC FCS enabled *)
|                                |0.10s|
|                                |
|CONST -+PV
|+00150 |
|-----+
|                                |
|                                |DEL0249
|                                |%R0249
|
|[ END OF SUBROUTINE LOGIC ]
```

```
[ START LD SUBROUTINE BLK_07 ]
```

```
[ VARIABLE DECLARATIONS ]
```

```
[ START OF SUBROUTINE LOGIC ]
```

```
{*****}
```

```
{ * Block 07 "System" }
```

```
{*****}
```

```
{*****}
```

```
{ * Step up/down pushbuttons on operating panel }
```

```
{*****}
```

```
ST_COND A506_33 STEP_0 T_SEC << RUNG 6 STEP #0004 >>
```

```
%M0135 %I0148 %M0100 %S0005
```

```
+--] [-----]/[---] [-----]<+>
```

```
| STP1_11 STEP_3 STEP_4 STEP_6 STP8_9 STEP_11 |
```

```
+--] [-----]/[-----]/[-----]/[-----]/[-----]/[---]
```

```
CLN_09 CIP_ON STD_RDY COMFLT1 CIP_DRY
```

```
%M3073 %M1204 %M1200 %M1217 %M1232
```

```
+--] [-----]/[---] [---+]/[-----]/[-----]
```

```
| AUT_RDY |
```

```
+--] [---+
```

```
EC_ON EC_SEL EC_ALWD
```

```
%M1313 %M1310 %M1311
```

```
+--]/[-----] [-----] [-----]
```

```
EC_RSTR
```

```
%M1317
```

```
+--] [-----]
```

```
SRV_STR
```

```
%M1601
```

```
+--] [-----]
```

```
STEP_8 M_FILOF
```

```
%M0108 %M0669
```

```
+--] [-----] [-----]
```

```
H911 << RUNG 7 STEP #0034 >>
```

```
%Q0327
```

```
<+>----- ( )-- (* Step Up *)
```

```
S902
```

```
%I0194
```

```
+--] [---+
```

```
CLN_09 CIP_ON CIP_DRY CIP_END CIPDRY1 T_SEC
```

```
%M3073 %M1204 %M1232 %M1203 %M1230 %S0005
```

```
+--]/[-----]/[-----]/[-----] [---+] [---+] [---+
```

```
| CIPDRY2 |
```

```
+--] [---+
```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0148	A506_33	DMC Main motor, Running	%M0669	M_FILOF	FIL, Manual filling off
%M1201	AUT_RDY	CIP, Ready to start with DEF val	%I0194	S902	Lampstest
%M1230	CIPDRY1	CIP, Ready for cip dry std. eq.	%M1601	SRV_STR	SRV, Serv.func. ready to start
%M1231	CIPDRY2	CIP, Ready for aut.CIP dry (DEF)	%M1200	STD_RDY	CIP, Ready to start standard
%M1232	CIP_DRY	CIP, Cip drying going on	%M0100	STEP_0	Step 0 Off
%M1203	CIP_END	CIP, Cip ended,Cip dry can start	%M0111	STEP_11	Step 11 Venting
%M1204	CIP_ON	CIP, TBA21 ready for CIP	%M0103	STEP_3	Step 3 Heat sterilization
%M3073	CLN_09	Clean, CIP select	%M0104	STEP_4	Step 4 Spraying
%M1217	COMFLT1	CIP,comm.fault1 Wrong sig.exch.	%M0106	STEP_6	Step 6 Signal to sterilizer
%M1311	EC_ALWD	EC, Allowed	%M0108	STEP_8	Step 8 Motorstart
%M1313	EC_ON	EC, Going on	%M0145	STP1_11	Step 1-11 Prep. to venting
%M1317	EC_RSTR	EC, Ready for restart	%M0144	STP8_9	Step 8-9 Motorstart to prod.
%M1310	EC_SEL	EC, TPOP selection OK	%M0135	ST_COND	Step up condition
%Q0327	H911	Step Up	%S0005	T_SEC	

TBA/21-0410/0500
BLOCK: SYSTEM


```

|STEP_0 ST_COND CLN_09 CLN_01 CIP_END SRV_SEL          H912  << RUNG 8 STEP #0046 >>
|M0100  %M0135 %M3073 %M3065 %M1203 %M1600          %Q0328
+--] [-----]/[-----]/[-----]/[-----]/[-----]----- ( )-- (* Step Down *)

|CIP_ON CLN_10      T_SEC
|M1204  %M3074      %S0005
+--] [-----] [-----] [-----]

|EC_ON CLN_02
|M1313  %M3066
+--] [-----] [-----]

|STEP_14 SRV_STP
|M0114  %M1603
+--] [-----] [-----]

|STEP_12 CLN_09 EC_SEL
|M0112  %M3073 %M1310
+--] [-----]/[-----]/[-----]

|S902
|I0194
+--] [-----]

|
| (*****
| (* Inching symbols on operating panel *)
| (*****
|

|INC_FFU S903 FLASH MM_RDY          H905  << RUNG 10 STEP #0069 >>
|M0900  %I0195 %M0018 %M0910          %Q0322
+--] [-----]/[-----] [-----] [-----]----- ( )-- (* Inching FFU *)

|INC_FFU S903 T_SEC
|M0900  %I0195 %S0005
+--] [-----] [-----] [-----]

|S902
|I0194
+--] [-----]

|INC_JUM S903 FLASH MM_RDY          H907  << RUNG 11 STEP #0079 >>
|M0901  %I0195 %M0018 %M0910          %Q0323
+--] [-----]/[-----] [-----] [-----]----- ( )-- (* Inching JUM *)

|INC_JUM S903 T_SEC
|M0901  %I0195 %S0005
+--] [-----] [-----] [-----]

|STR_JUM
|M0902
+--] [-----]

|S902
|I0194
+--] [-----]

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M1203	CIP_END	CIP, Cip ended,Cip dry can start
%M1204	CIP_ON	CIP, TBA21 ready for CIP
%M3065	CLN_01	Clean, External cleaning select
%M3066	CLN_02	Clean, External cleaning stop
%M3073	CLN_09	Clean, CIP select
%M3074	CLN_10	Clean, CIP stop
%M1313	EC_ON	EC, Going on
%M1310	EC_SEL	EC, TPOP selection OK
%M0018	FLASH	1/2 Hz flash
%Q0322	H905	Inching FFU
%Q0323	H907	Inching JUM
%Q0328	H912	Step Down
%M0900	INC_FFU	JUM, Condition inching FFU

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M0901	INC_JUM	JUM, Condition inching JUM
%M0910	MM_RDY	JUM, DMC main motor ready start
%I0194	S902	Lamptest
%I0195	S903	Mode selector
%M1600	SRV_SEL	SRV, Serv.func.selected to start
%M1603	SRV_STP	SRV, Serv.func. selected to stop
%M0100	STEP_0	Step 0 Off
%M0112	STEP_12	Step 12 Doors OK
%M0114	STEP_14	Step 14 Service window
%M0902	STR_JUM	JUM, Condition ster. inching JUM
%M0135	ST_COND	Step up condition
%S0005	T_SEC	

TBA/21-0410/0500
BLOCK: SYSTEM

```

(*****
(* Sound in hooter
*)
*****
S905 INC_FFU CHK_INC A506_33 H7703 << RUNG 13 STEP #0091 >>
%I0197 %M0900 %M0027 %I0148 %Q0219
+--] [-----] [---+]/[-----]/[---+-----] (* Hooter *)

S907 INC_JUM
%I0199 %M0901
+--] [-----] [---+

SV_FLAP
%M1024
+--] [-----+

EC_INCH
%M1312
+--] [-----+

TMR1_10
%M0210
+--] [-----+

TMR3_2
%M0602
+--] [-----+

(*****
(* Check if service switch changed position.
*)
*****
STEP_0 CHK_SRV << RUNG 15 STEP #0104 >>
%M0100 %M0026
+--] [-----] (R)-- (* Check service switch *)

P+006 STEP_0 STEP_1 STEP_11 STEP_12 STEP_13 CHK_SRV << RUNG 16 STEP #0106 >>
%T0006 %M0100 %M0101 %M0111 %M0112 %M0113 %M0026
+--] [---+]/[-----]/[-----]/[-----]/[-----] (S)-- (* Check service switch *)

P-007
%T0007
+--] [---+

(*****
(* Check function of inching pushbuttons.
*)
*****
S905 A506_33 STEP_8 CHK_INC << RUNG 18 STEP #0115 >>
%I0197 %I0148 %M0108 %M0027
+--] [---+]/[-----]/[-----] (S)-- (* Check inching pushbuttons *)

S907
%I0199
+--] [---+

A506_33 S905 S907 CHK_INC << RUNG 19 STEP #0120 >>
%I0148 %I0197 %I0199 %M0027
+--]/[-----]/[-----]/[-----] (R)-- (* Check inching pushbuttons *)

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0148	A506_33	DMC Main motor, Running	%I0199	S907	Inching JUM and FFU
%M0027	CHK_INC	Check inching pushbuttons	%M0100	STEP_0	Step 0 Off
%M0026	CHK_SRV	Check service switch	%M0101	STEP_1	Step 1 Preparation
%M1312	EC_INCH	EC, Slow inching	%M0111	STEP_11	Step 11 Venting
%Q0219	H7703	Hooter	%M0112	STEP_12	Step 12 Doors OK
%M0900	INC_FFU	JUM, Condition inching FFU	%M0113	STEP_13	Step 13 Cleaning
%M0901	INC_JUM	JUM, Condition inching JUM	%M0108	STEP_8	Step 8 Motorstart
%T0006	P+006	Pulse + Service switch	%M1024	SV_FLAP	DCS, Inch flaps to position
%T0007	P-007	Pulse - Service switch	%M0210	TMR1_10	Startseq, Going on (0,01-9,99)
%I0197	S905	Inching final folder	%M0602	TMR3_2	SUP, Tube sealing (0-3s)

```

(*****
(* Start sequence timer
*)
*)
(* M200 true after 0,01 seconds "Startseq, (>0,01)"
*)
(* M201 true after 3,00 seconds "Startseq, (>3,00)"
*)
(* M202 true after 8,00 seconds "Startseq, Synch. ready (>8,00)"
*)
(* M203 true after 9,80 seconds "Startseq, (>9,80)"
*)
(* M204 true after 10,00 seconds "Startseq, Ended (10,00)"
*)
(* M205 true after 45,00 seconds "Startseq, (>45,00)"
*)
(* M210 true between 0,01-9,99 seconds "Startseq, Going on (0,01-9,99)"
*)
(* M211 true between 0,01-1,00 seconds "Startseq, (0,01-1,00)"
*)
(* M212 true between 3,00-9,99 seconds "Startseq, Fill H202 bath (3-9,9)"
*)
(* M213 true between 7,00-9,50 seconds "Startseq, Lower forming (7-9,5)"
*)
(* M214 true between 8,40-9,50 seconds "Startseq, Preheat LS (8,4-9,5)"
*)
(*****

S911 ST_COND STP8_9 S_STOP STP5_9 JUMP_5 TMR1_5 << RUNG 21 STEP #0125 >>
%I0201 %M0135 %M0144 %M0171 %M0143 %M0183 +-----+ %M0205
+--] [-----] [-----] [-----] [-----] [-----] TMR +----- ( )-- (* Startseq, (>45,00) *)
|0.01s|
TMR1_4 A506_33 STP8_9 S_STOP6 S_STOP
%M0204 %I0148 %M0144 %M0170 %M0171
+--] [-----] [-----] [-----] [-----] [-----]
CONST +PV
+04500
+-----+
STR_JUM S907
%M0902 %I0199
+--] [-----] [-----]
TMR_1
%R0100

ALW_ON TMR1_0 << RUNG 22 STEP #0144 >>
%S0007 +-----+ %M0200
+--] [-----] GE +----- ( )-- (* Startseq, (>0,01) *)
|INT|
TMR_1
%R0100 +I1 Q++
CONST +I2
+00001 +-----+

ALW_ON TMR1_1 << RUNG 23 STEP #0147 >>
%S0007 +-----+ %M0201
+--] [-----] GE +----- ( )-- (* Startseq, (>3,00) *)
|INT|
TMR_1
%R0100 +I1 Q++
CONST +I2
+00300 +-----+

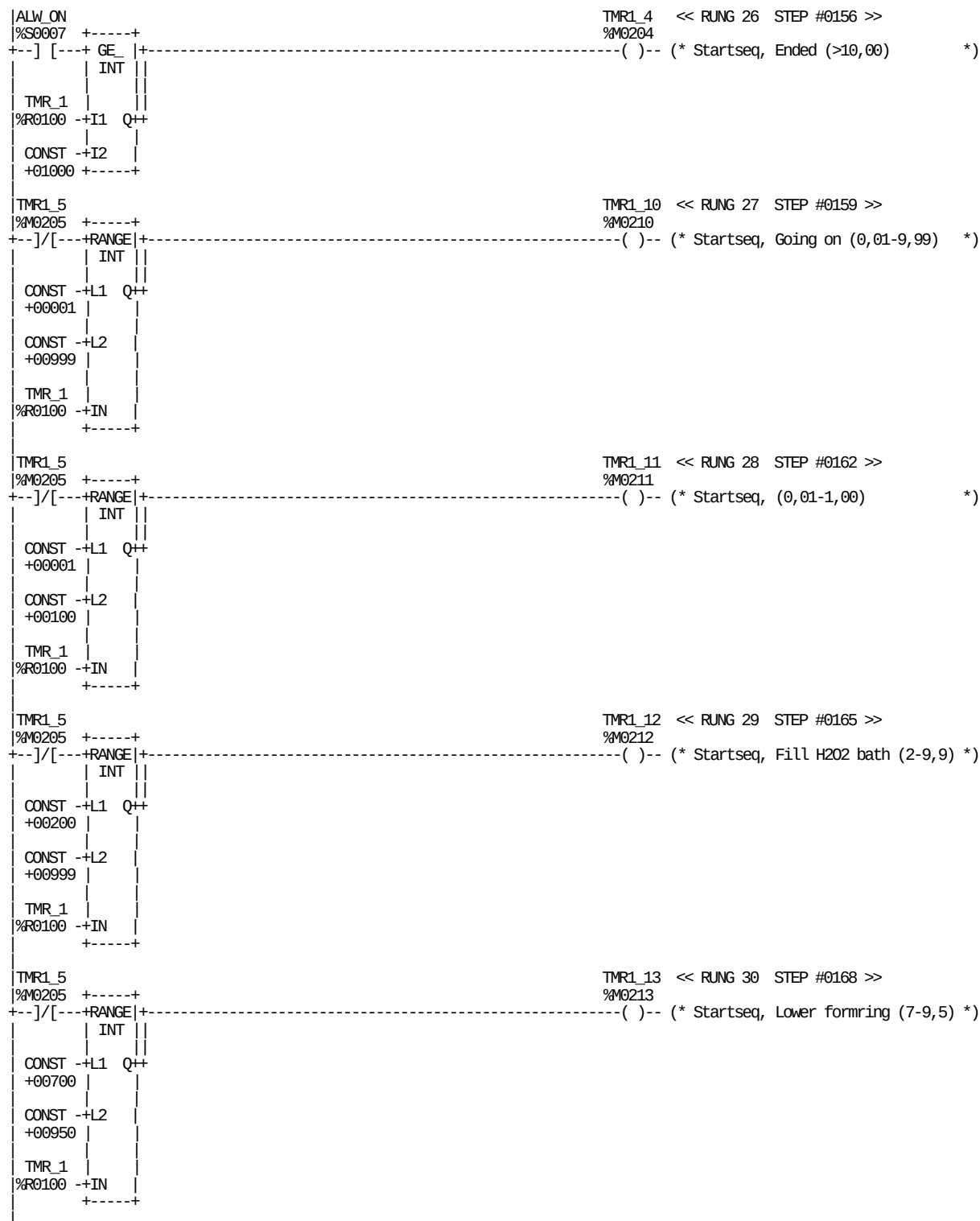
ALW_ON TMR1_2 << RUNG 24 STEP #0150 >>
%S0007 +-----+ %M0202
+--] [-----] GE +----- ( )-- (* Startseq, Synch.ready (>8,00) *)
|INT|
TMR_1
%R0100 +I1 Q++
CONST +I2
+00800 +-----+

ALW_ON TMR1_3 << RUNG 25 STEP #0153 >>
%S0007 +-----+ %M0203
+--] [-----] GE +----- ( )-- (* Startseq, (>9,80) *)
|INT|
TMR_1
%R0100 +I1 Q++
CONST +I2
+00980 +-----+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0148	A506_33	DMC Main motor, Running	%M0171	S_STOP	Short stop on
%S0007	ALW_ON		%M0170	S_STOP6	Demand 6 for short stop
%M0183	JUMP_5	Jump to machine step 5	%M0200	TMR1_0	Startseq, (>0,01)
%I0199	S907	Inching JUM and FFU	%M0201	TMR1_1	Startseq, (>3,00)
%I0201	S911	Step up	%M0202	TMR1_2	Startseq, Synch.ready (>8,00)
%M0143	STP5_9	Step 5-9 Drying to prod.	%M0203	TMR1_3	Startseq, (>9,80)
%M0144	STP8_9	Step 8-9 Motorstart to prod.	%M0204	TMR1_4	Startseq, Ended (>10,00)
%M0902	STR_JUM	JUM, Condition ster. inching JUM	%M0205	TMR1_5	Startseq, (>45,00)
%M0135	ST_COND	Step up condition	%R0100	TMR_1	Tmr 1, Start sequence (0,01s)

TBA/21-0410/0500
BLOCK: SYSTEM



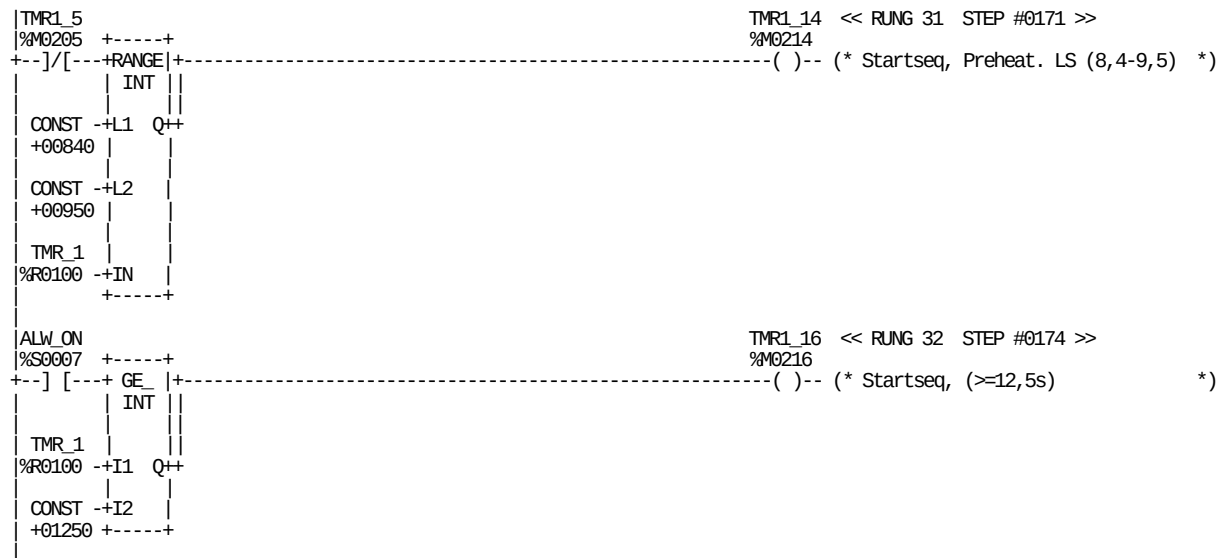
REFERENCE NICKNAME
 %S0007 ALW_ON
 %M0210 TMR1_10
 %M0211 TMR1_11
 %M0212 TMR1_12

REFERENCE DESCRIPTION
 Startseq, Going on (0,01-9,99)
 Startseq, (0,01-1,00)
 Startseq, Fill H202 bath (2-9,9)

REFERENCE NICKNAME
 %M0213 TMR1_13
 %M0204 TMR1_4
 %M0205 TMR1_5
 %R0100 TMR_1

REFERENCE DESCRIPTION
 Startseq, Lower formring (7-9,5)
 Startseq, Ended (>10,00)
 Startseq, (>45,00)
 Tmr 1, Start sequence (0,01s)

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 BLOCK: SYSTEM



REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%S0007	ALW_ON		%M0205	TMR1_5	Startseq, (>45,00)
%M0214	TMR1_14	Startseq, Preheat. LS (8,4-9,5)	%R0100	TMR_1	Tmr 1, Start sequence (0,01s)
%M0216	TMR1_16	Startseq, (>=12,5s)			

TBA/21-0410/0500
BLOCK: SYSTEM

```

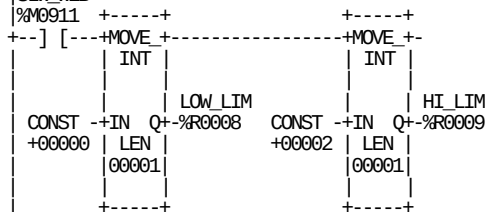
(*****
* Angle encoder check.
* To secure the function of the eletrically controlled hydraulic valves
* for the jaw pressure, it is very important that the angle encoder
* works correct.
* To verify the correct function we calculate how many degrees the
* angle encoder has been updated in one scan. This figure should be
* within a certain window.
*
* 1 package is 128 degrees.
*
* 5500pkg/h = 1,52pkg/s = 0,654s/pkg = 5,10mS/degree
* 7000pkg/h = 1,94pkg/s = 0,514s/pkg = 4,02mS/degree
* 8000pkg/h = 2,22pkg/s = 0,450s/pkg = 3,52mS/degree
*
* If scantime is 30 mS:
* 5500pkg/h = 5,87degrees/scan
* 7000pkg/h = 7,47degrees/scan
* 8000pkg/h = 8,53degrees/scan
*
* If scantime is 25 mS:
* 5500pkg/h = 4,89degrees/scan
* 7000pkg/h = 6,22degrees/scan
* 8000pkg/h = 7,10degrees/scan
*
*****
)

(*****
* Set high and low Limits for angle encoder update
*****
)

```

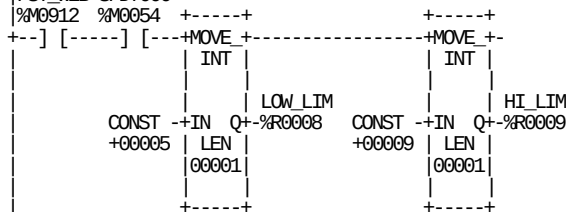
SLW_WEB

<< RUNG 35 STEP #0179 >>



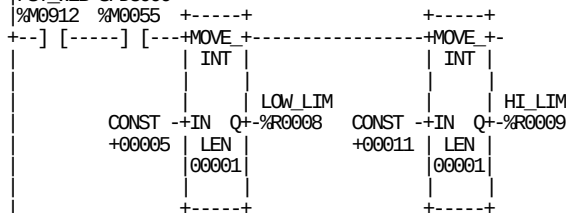
FST_WEB SPD7000

<< RUNG 36 STEP #0182 >>



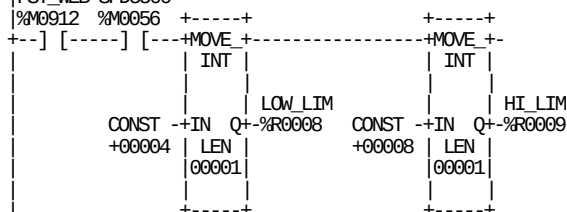
FST_WEB SPD8000

<< RUNG 37 STEP #0186 >>



FST_WEB SPD5500

<< RUNG 38 STEP #0190 >>



REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M0912	FST_WEB	JUM, Paper web fast speed	%M0056	SPD5500	5500 packages per hour
%R0009	HI_LIM	Angle enc. update higher limit	%M0054	SPD7000	7000 packages per hour
%R0008	LOW_LIM	Angle enc. update lower limit	%M0055	SPD8000	8000 packages per hour
%M0911	SLW_WEB	JUM, Paper web slow speed			

TBA/21-0410/0500
BLOCK: SYSTEM

```

*****
* Reset ENC_OK. *
*****

FST_SCN          ENC_OK << RUNG 40 STEP #0195 >>
%M0001           %M0017
+---] [---+------(S)--- (* Angle encoder OK *)

RESET
%M3050
+---] [---+

(*****
* At high/low speed move angle sector to NEW_POS. *
* * *
* Delay calculation 2 seconds in order to reach full speed. *
* * *
* To avoid calculation when passing 0 check if OLD_POS is *
* less than 245. If it is less than 245 ENC_OK is reset. *
* * *
*****)

SLW_WEB          ENC_OK << RUNG 42 STEP #0199 >>
%M0911           %M0017
+---] [---+------(R)--- (* Angle encoder OK *)

      +-----+       +-----+       +-----+
      | MOVE |       | TMR |       | LT_ |
      | INT  |       | 0.10s|       | INT |
+---] [---+-----+-----+-----+
| FST_WEB S912 | | NEW_POS | | OLD_POS | |   |
|M0912 %I0202 | | %R0005 | | %R0006 | |   |
+---] [---+-----+-----+-----+
| SEC 255     | | IN_Q+-%R0003 | | PV    | |   |
|             | | LEN         | | +00020 | |   |
|             | | 00001       | | DEL0330| |   |
|             | |             | | %R0330 | |   |
|             | |             | | CONST -+I2| |   |
|             | |             | | +00244 | |   |
+-----+-----+-----+-----+

(*****
* If ENC_OK is reset calculate the difference between NEW_POS *
* and OLD_POS and put the result in DIF_POS. *
* * *
* Then check if DIF_POS is within the allowed range. *
* * *
* If OK the ENC_OK will be set again. *
*****)

ENC_OK           ENC_OK << RUNG 44 STEP #0208 >>
%M0017           %M0017
+---]/[---+------(S)--- (* Angle encoder OK *)

      +-----+       +-----+
      | SUB |       | RANGE|
      | INT |       | INT  |
+---]/[---+-----+-----+
| NEW_POS | | DIF_POS | | LOW LIM | |   |
|%R0005 -+I1 Q+-%R0007 %R0008 -+L1 Q++
| OLD_POS | | HI_LIM  | |         | |   |
|%R0006 -+I2 | | %R0009 -+L2      | |   |
+-----+-----+-----+
| DIF_POS | |         | |         | |   |
|%R0007 -+IN | |         | |         | |   |
+-----+-----+-----+

(*****
* NEW_POS will be OLD_POS at next calculation. *
*****)

FST_WEB          << RUNG 46 STEP #0213 >>
%M0912
+---] [---+-----+
| SLW_WEB | | NEW_POS | | OLD_POS |
|M0911 | | %R0005 -+IN Q+-%R0006
+---] [---+-----+
| LEN |
| 00001 |
+-----+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%R0330	DEL0330	Delay,	%R0005	NEW_POS	New position JUM
%R0007	DIF_POS	Difference in position JUM	%R0006	OLD_POS	Old position JUM
%M0017	ENC_OK	Angle encoder OK	%M3050	RESET	Alarm reset
%S0001	FST_SCN		%I0202	S912	Step down
%M0912	FST_WEB	JUM, Paper web fast speed	%R0003	SEC_255	Angle sector (0-255 decimal deg)
%R0009	HI_LIM	Angle enc. update higher limit	%M0911	SLW_WEB	JUM, Paper web slow speed
%R0008	LOW_LIM	Angle enc. update lower limit			

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```

(*****
* Machine speed check
* machine speed must not be 1% higher than preset speed in order not to
* decrease the exposure time of packaging material in the peroxide bath.
* The check is done by counting the number of half turns of the main cam
* (encoder bit7) in during 4min.
*****)

FST_WEB SPD7000                                << RUNG 48 STEP #0217 >>
%M0912 %M0054 +-----+
+---] [-----] [---+MOVE+---
                    |INT|
                    |H_SPEED|
CONST  +---IN Q+-%R0012
+07085 |LEN|
        |00001|
        +-----+

FST_WEB SPD8000                                << RUNG 49 STEP #0220 >>
%M0912 %M0055 +-----+
+---] [-----] [---+MOVE+---
                    |INT|
                    |H_SPEED|
CONST  +---IN Q+-%R0012
+08095 |LEN|
        |00001|
        +-----+

FST_WEB SPD5500                                << RUNG 50 STEP #0223 >>
%M0912 %M0056 +-----+
+---] [-----] [---+MOVE+---
                    |INT|
                    |H_SPEED|
CONST  +---IN Q+-%R0012
+05570 |LEN|
        |00001|
        +-----+

FST_WEB STEP_9                                ENCOUNTER << RUNG 51 STEP #0226 >>
%M0912 %M0109                                %M0010
+---] [-----] [-----)--- (* Speed check counter enable *)

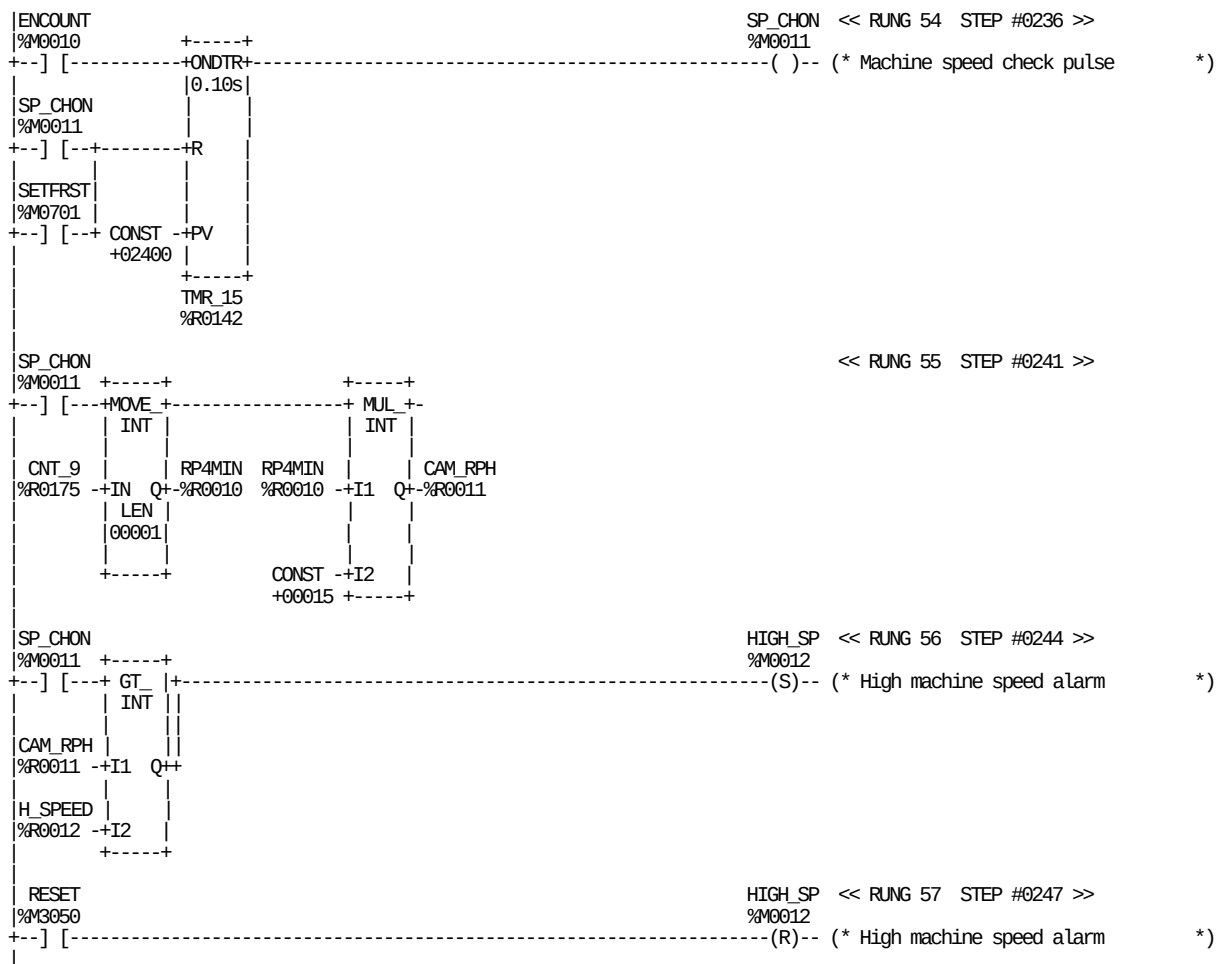
BIN_07                                         P+022 << RUNG 52 STEP #0229 >>
%M0007                                         %T0022
+---] [-----)--- (^)--- (* Pulse + Angle encoder bin.bit 7 *)

ENCOUNTER P+022                                << RUNG 53 STEP #0231 >>
%M0010 %T0022 +-----+
+---] [-----] [--->UPCTR+---
SP_CHON
%M0011
+---] [-----+R
SETFRST
%M0701
+---] [---+CONST +PV
        +01000
        +-----+
        CNT_9
        %R0175

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M0007	BIN_07	Angle encoder binary bit 7	%M0701	SETFRST	PER, Setpoint at first start
%R0175	CNT_9	CNT9, Speed control roundcounter	%M0056	SPD5500	5500 packages per hour
%M0010	ENCOUNT	Speed check counter enable	%M0054	SPD7000	7000 packages per hour
%M0912	FST_WEB	JUM, Paper web fast speed	%M0055	SPD8000	8000 packages per hour
%R0012	H_SPEED	High machine speed limit	%M0011	SP_CHON	Machine speed check pulse
%T0022	P+022	Pulse + Angle encoder bin.bit 7	%M0109	STEP 9	Step 9 Production

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REFERENCE NICKNAME
%R0011 CAM_RPH
%R0175 CNT_9
%M0010 ENCOUNT
%M0012 HIGH_SP
%R0012 H_SPEED

REFERENCE DESCRIPTION
Machine cam rounds per hours
CNT9, Speed control roundcounter
Speed check counter enable
High machine speed alarm
High machine speed Limit

REFERENCE NICKNAME
%M3050 RESET
%R0010 RP4MIN
%M0701 SETFRST
%M0011 SP_CHON
%R0142 TMR_15

REFERENCE DESCRIPTION
Alarm reset
Machine cam rounds per 4 minutes
PER, Setpoint at first start
Machine speed check pulse
TMR 15, Speed control interval

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```

(*****
(* Pulse generating *)
*****)

S911          P+001 << RUNG 59 STEP #0250 >>
%I0201        %T0001
+--] [-----] (^)-- (* Pulse + Step up *)

S911          P-002 << RUNG 60 STEP #0252 >>
%I0201        %T0002
+--] [-----] (v)-- (* Pulse - Step up *)

S912          P+003 << RUNG 61 STEP #0254 >>
%I0202        %T0003
+--] [-----] (^)-- (* Pulse + Step down *)

S905          P-004 << RUNG 62 STEP #0256 >>
%I0197        %T0004
+--] [-----] (v)-- (* Pulse - Inching FFU *)

S907          P-005 << RUNG 63 STEP #0258 >>
%I0199        %T0005
+--] [-----] (v)-- (* Pulse - Inching JUM and FFU *)

S003          P+006 << RUNG 64 STEP #0260 >>
%I0206        %T0006
+--] [-----] (^)-- (* Pulse + Service switch *)

S003          P-007 << RUNG 65 STEP #0262 >>
%I0206        %T0007
+--] [-----] (v)-- (* Pulse - Service switch *)

A418_31       P+008 << RUNG 66 STEP #0264 >>
%I0166        %T0008
+--] [-----] (^)-- (* Pulse + DCS register mark *)

A419_27       P+009 << RUNG 67 STEP #0266 >>
%I0170        %T0009
+--] [-----] (^)-- (* Pulse + ASU register mark *)

A419_29       P+010 << RUNG 68 STEP #0268 >>
%I0171        %T0010
+--] [-----] (^)-- (* Pulse + Date unit register mark *)

LS_DTCT       P+011 << RUNG 69 STEP #0270 >>
%I0613        %T0011
+--] [-----] (^)-- (* Pulse + Pkg.spl. detect. column *)

B1404         P+012 << RUNG 70 STEP #0272 >>
%I0258        %T0012
+--] [-----] (^)-- (* Pulse + Column, Rotation monitor *)

K120          P+013 << RUNG 71 STEP #0274 >>
%Q0131        %T0013
+--] [-----] (^)-- (* Pulse + Enable main motor *)

Y4306         P-014 << RUNG 72 STEP #0276 >>
%Q0001        %T0014
+--] [-----] (v)-- (* Pulse - Left jaw pressure *)

Y4307         P-015 << RUNG 73 STEP #0278 >>
%Q0002        %T0015
+--] [-----] (v)-- (* Pulse - Right jaw pressure *)

T_SEAL        P+016 << RUNG 74 STEP #0280 >>
%I0600        %T0016
+--] [-----] (^)-- (* Pulse + Tight tube *)

EXT_01 S003    P+017 << RUNG 75 STEP #0282 >>
%I0225 %I0206 %T0017
+--]/[-----]/[-----] (^)-- (* Pulse + No product to machine *)

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0166	A418_31	TMCC DCS, Register mark signal	%T0016	P+016	Pulse + Tight tube
%I0170	A419_27	TMCC AF, ASU Registermark signal	%T0017	P+017	Pulse + No product to machine
%I0171	A419_29	TMCC AF-DUINK, PH, Reg. mark signal	%T0002	P-002	Pulse - Step up
%I0258	B1404	Column, Rotation monitor	%T0004	P-004	Pulse - Inching FFU
%I0225	EXT_01	Dairy, Ready for production	%T0005	P-005	Pulse - Inching JUM and FFU
%Q0131	K120	DMC main motor, Software enable	%T0007	P-007	Pulse - Service switch
%I0613	LS_DTCT	SUP, Pkg mtrl splice detected	%T0014	P-014	Pulse - Left jaw pressure
%T0001	P+001	Pulse + Step up	%T0015	P-015	Pulse - Right jaw pressure
%T0003	P+003	Pulse + Step down	%I0206	S003	Service switch
%T0006	P+006	Pulse + Service switch	%I0197	S905	Inching final folder
%T0008	P+008	Pulse + DCS register mark	%I0199	S907	Inching JUM and FFU
%T0009	P+009	Pulse + ASU register mark	%I0201	S911	Step up
%T0010	P+010	Pulse + Date unit register mark	%I0202	S912	Step down
%T0011	P+011	Pulse + Pkg.spl. detect. column	%I0600	T_SEAL	SUP, Tube sealing going on
%T0012	P+012	Pulse + Column, Rotation monitor	%Q0001	Y4306	JUM left catch closed
%T0013	P+013	Pulse + Enable main motor	%Q0002	Y4307	JUM right catch closed

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```

|SA_SPL                                P+018 << RUNG 76 STEP #0285 >>
|M0312                                %T0018
+--]/[------(^)-- (* Pulse + SA, Splice finished *)

STEP_1 STP1_11 A413_EN                P+019 << RUNG 77 STEP #0287 >>
|M0101 %M0145 %Q0202                %T0019
+--]/[------(^)-- (* Pulse + SA, Dump stop pkgs *)

|SA_EPWR|
|M0306|
+--]/[-----

STEP_1 A413_EN                        P-020 << RUNG 78 STEP #0293 >>
|M0101 %Q0202                        %T0020
+--]/[------(v)-- (* Pulse - SA, Cool strip at stop *)

SPL_ON
|M0450
+--]/[-----

B6107                                P+021 << RUNG 79 STEP #0297 >>
|M0277                                %T0021
+--]/[------(^)-- (* Pulse + SA, Rotation monitor *)

JUMP_0                                P+024 << RUNG 80 STEP #0299 >>
|M0190                                %T0024
+--]/[------(^)-- (* Pulse + Jump to position 0 *)

EC_ON                                P+025 << RUNG 81 STEP #0301 >>
|M1313                                %T0025
+--]/[------(^)-- (* Pulse + External cleaning on *)

EC_INTR                                P+026 << RUNG 82 STEP #0303 >>
|M1316                                %T0026
+--]/[------(^)-- (* Pulse + Ext.clean. interrupted *)

TMR1_10                              P+027 << RUNG 83 STEP #0305 >>
|M0210                                %T0027
+--]/[------(^)-- (* Pulse + Startsequence started *)

A412_EN                                P-029 << RUNG 84 STEP #0307 >>
|M0201                                %T0029
+--]/[------(v)-- (* Pulse - Enable DR loop *)

A413_EN                                P+030 << RUNG 85 STEP #0309 >>
|M0202                                %T0030
+--]/[------(^)-- (* Pulse + Enable DR magazine *)

A413_EN                                P-031 << RUNG 86 STEP #0311 >>
|M0202                                %T0031
+--]/[------(v)-- (* Pulse - Enable DR magazine *)

S7303                                P+032 << RUNG 87 STEP #0313 >>
|M0289                                %T0032
+--]/[------(^)-- (* Pulse + Material locking ASU *)

P+032 B7512 A602_34 Y7303            P+033 << RUNG 88 STEP #0315 >>
%M0032 %I0284 %I0131 %Q0283          %T0033
+--]/[------(^)-- (* Pulse + Unlock material reel 1 *)

P+032 B7512 A602_34 Y7303            P+034 << RUNG 89 STEP #0320 >>
%M0032 %I0284 %I0131 %Q0283          %T0034
+--]/[------(^)-- (* Pulse + Lock material reel 1 *)

P+032 B7412 A602_34 Y7315            P+035 << RUNG 90 STEP #0325 >>
%M0032 %I0283 %I0131 %Q0284          %T0035
+--]/[------(^)-- (* Pulse + Unlock material reel 2 *)

P+032 B7412 A602_34 Y7315            P+036 << RUNG 91 STEP #0330 >>
%M0032 %I0283 %I0131 %Q0284          %T0036
+--]/[------(^)-- (* Pulse + Lock material reel 2 *)

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%Q0201	A412_EN	Drive roller loop ASU, Enable
%Q0202	A413_EN	Drive roller mag. ASU, Enable
%I0131	A602_34	Safety monitor door guards ASU
%I0277	B6107	SA, Rotation monitor
%I0283	B7412	ASU, Side feeder position 1
%I0284	B7512	ASU, Side feeder position 2
%M1316	EC_INTR	EC, Interrupted
%M1313	EC_ON	EC, Going on
%M0190	JUMP_0	Jump to machine step 0
%T0018	P+018	Pulse + SA, Splice finished
%T0019	P+019	Pulse + SA, Dump stop pkgs
%T0021	P+021	Pulse + SA, Rotation monitor
%T0024	P+024	Pulse + Jump to position 0
%T0025	P+025	Pulse + External cleaning on
%T0026	P+026	Pulse + Ext.clean. interrupted
%T0027	P+027	Pulse + Startsequence started
%T0030	P+030	Pulse + Enable DR magazine

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%T0032	P+032	Pulse + Material locking ASU
%T0033	P+033	Pulse + Unlock material reel 1
%T0034	P+034	Pulse + Lock material reel 1
%T0035	P+035	Pulse + Unlock material reel 2
%T0036	P+036	Pulse + Lock material reel 2
%T0020	P-020	Pulse - SA, Cool strip at stop
%T0029	P-029	Pulse - Enable DR loop
%T0031	P-031	Pulse - Enable DR magazine
%I0289	S7303	ASU, Material lock
%M0306	SA_EPWR	SA, Extra SA power at splice
%M0312	SA_SPL	SA, Splice going on
%M0450	SPL_ON	ASU, Splice sequence going on
%M0101	STEP_1	Step 1 Preparation
%M0145	STP1_11	Step 1-11 Prep. to venting
%M0210	TMR1_10	Startseq, Going on (0,01-9,99)
%Q0283	Y7303	ASU, UNLock paper on spl.table 1
%Q0284	Y7315	ASU, UNLock paper on spl.table 2

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```

STEP_1                                P+037  << RUNG 92  STEP #0335 >>
%M0101                                %T0037
+--] [-----] [-----] [-----] (^)-- (* Pulse + Step 1 *)

SPL_ON                                P+038  << RUNG 93  STEP #0337 >>
%M0450                                %T0038
+--] [-----] [-----] [-----] (^)-- (* Pulse + ASU splice going on *)

SPL_SPD                               P+039  << RUNG 94  STEP #0339 >>
%M0452                                %T0039
+--] [-----] [-----] [-----] (^)-- (* Pulse + ASU splice speed *)

SPL_SPD                               P-040  << RUNG 95  STEP #0341 >>
%M0452                                %T0040
+--] [-----] [-----] [-----] (v)-- (* Pulse - ASU in splice position *)

S7402                                P+041  << RUNG 96  STEP #0343 >>
%I0285                                %T0041
+--] [-----] [-----] [-----] (^)-- (* Pulse + Manual start ASU splice *)

B7412                                P+042  << RUNG 97  STEP #0345 >>
%I0283                                %T0042
+--] [-----] [-----] [-----] (^)-- (* Pulse + Side feeder in pos. *)

B7512
%I0284
+--] [-----] [-----] [-----]

B7412                                P-043  << RUNG 98  STEP #0348 >>
%I0283                                %T0043
+--] [-----] [-----] [-----] (v)-- (* Pulse - Side feeder leave pos. *)

B7512
%I0284
+--] [-----] [-----] [-----]

B7411  B7414                        P+044  << RUNG 99  STEP #0351 >>
%I0281  %I0282                      %T0044
+--] [-----] [-----] [-----] (^)-- (* Pulse + Material holders down *)

SPL_SEQ                               P+045  << RUNG 100 STEP #0354 >>
%M0457                               %T0045
+--] [-----] [-----] [-----] (^)-- (* Pulse + ASU splice seq. ended *)

T_SEAL                               P-047  << RUNG 101 STEP #0356 >>
%M0600                               %T0047
+--] [-----] [-----] [-----] (v)-- (* Pulse - Tube sealing ended *)

K120                                 P+048  << RUNG 102 STEP #0358 >>
%Q0131                               %T0048
+--] [-----] [-----] [-----] (^)-- (* Pulse + Software enable off MM *)

STEP_8  A506_33                     P+049  << RUNG 103 STEP #0360 >>
%M0108  %I0148                      %T0049
+--] [-----] [-----] [-----] (^)-- (* Pulse + Main motor disable *)

A506_33  Y5501                       P+050  << RUNG 104 STEP #0363 >>
%I0148  %Q0302                      %T0050
+--] [-----] [-----] [-----] (^)-- (* Pulse + Drop chute open *)

(*****
(* 1/2 Hz flash *)
(*****

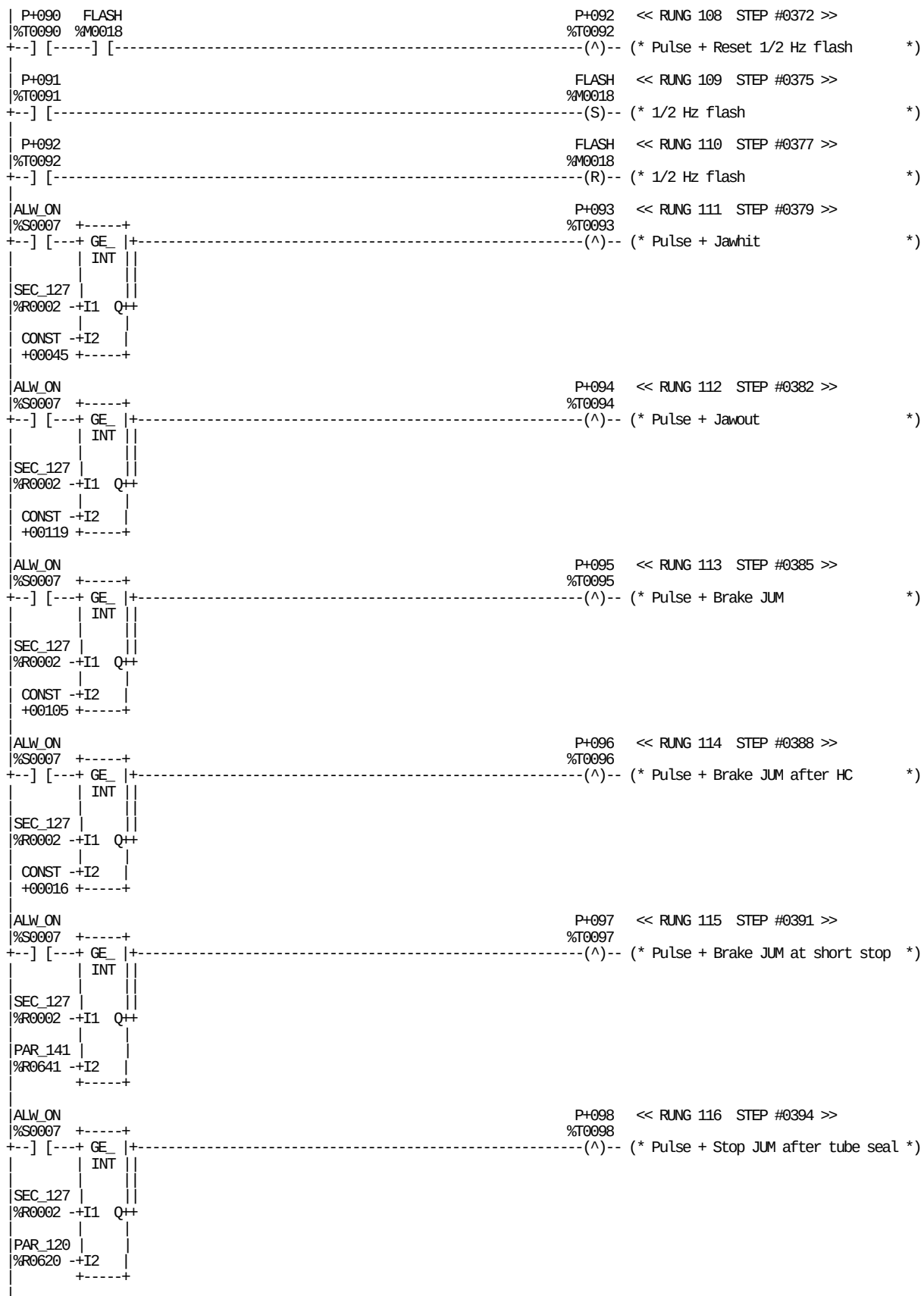
T_SEC                                 P+090  << RUNG 106 STEP #0367 >>
%S0005                               %T0090
+--] [-----] [-----] [-----] (^)-- (* Pulse + 1/2 Hz flash *)

P+090  FLASH                         P+091  << RUNG 107 STEP #0369 >>
%T0090  %M0018                      %T0091
+--] [-----] [-----] [-----] (^)-- (* Pulse + Set 1/2 Hz flash *)

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0148	A506_33	DMC Main motor, Running	%T0050	P+050	Pulse + Drop chute open
%I0281	B7411	ASU, Material holder 1 down	%T0090	P+090	Pulse + 1/2 Hz flash
%I0283	B7412	ASU, Side feeder position 1	%T0091	P+091	Pulse + Set 1/2 Hz flash
%I0282	B7414	ASU, Material holder 2 down	%T0040	P-040	Pulse - ASU in splice position
%I0284	B7512	ASU, Side feeder position 2	%T0043	P-043	Pulse - Side feeder leave pos.
%M0018	FLASH	1/2 Hz flash	%T0047	P-047	Pulse - Tube sealing ended
%Q0131	K120	DMC main motor, Software enable	%I0285	S7402	ASU, Manual start
%T0037	P+037	Pulse + Step 1	%M0450	SPL_ON	ASU, Splice sequence going on
%T0038	P+038	Pulse + ASU splice going on	%M0457	SPL_SEQ	ASU, Splice sequence
%T0039	P+039	Pulse + ASU splice speed	%M0452	SPL_SPD	ASU, Low speed before splice
%T0041	P+041	Pulse + Manual start ASU splice	%M0101	STEP_1	Step 1 Preparation
%T0042	P+042	Pulse + Side feeder in pos.	%M0108	STEP_8	Step 8 Motorstart
%T0044	P+044	Pulse + Material holders down	%M0600	T_SEAL	SUP, Tube sealing going on
%T0045	P+045	Pulse + ASU splice seq. ended	%S0005	T_SEC	
%T0048	P+048	Pulse + Software enable off MM	%Q0302	Y5501	FFU, Drop chute into FFU
%T0049	P+049	Pulse + Main motor disable			

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REFERENCE NICKNAME
 %S0007 ALW_ON
 %M0018 FLASH
 %T0090 P+090
 %T0091 P+091
 %T0092 P+092
 %T0093 P+093
 %T0094 P+094

REFERENCE DESCRIPTION
 ALW_ON
 1/2 Hz flash
 Pulse + 1/2 Hz flash
 Pulse + Set 1/2 Hz flash
 Pulse + Reset 1/2 Hz flash
 Pulse + Jawhit
 Pulse + Jawout

REFERENCE NICKNAME
 %T0095 P+095
 %T0096 P+096
 %T0097 P+097
 %T0098 P+098
 %R0620 PAR_120
 %R0641 PAR_141
 %R0002 SEC_127

REFERENCE DESCRIPTION
 Pulse + Brake JUM
 Pulse + Brake JUM after HC
 Pulse + Brake JUM at short stop
 Pulse + Stop JUM after tube seal
 Stop of JUM after tube sealing
 JUM ShortStop sector
 Angle sector (0-127 decimal deg)

```
|ALW_ON
|S0007 +-----+
+--] [---+ GE |-----+
| INT |
|
SEC_127 |
|R0002 -+I1 Q++
|
CONST -+I2 |
+00100 +-----+

(*****
(* Temporary memorycells %T0100 and forward are reserved for *)
(* local use in the blocks. *)
(*****)
```

```

(*****
*)
*) Utility bits to be used in the program
*)
*)
(*****

(*****
*)
*) M250: Flag active for 1 scan, 3 scans OFF (Duty cycle 25%)
*)
(*****

D_C_25% UTB_252 UTB_253          UTB_251 << RUNG 121 STEP #0403 >>
%M0250 %M0252 %M0253          %M0251
+--]/[-----]/[-----]/[-----]----- ( )-- (* UtilityBit, auxiliary for M250 *)

UTB_253          D_C_25% << RUNG 122 STEP #0407 >>
%M0253          %M0250
+--] [-----]----- ( )-- (* UtilityBit, 1scan ON / 3scan OFF *)

UTB_252          UTB_253 << RUNG 123 STEP #0409 >>
%M0252          %M0253
+--] [-----]----- ( )-- (* UtilityBit, auxiliary for M250 *)

UTB_251          UTB_252 << RUNG 124 STEP #0411 >>
%M0251          %M0252
+--] [-----]----- ( )-- (* UtilityBit, auxiliary for M250 *)

[   END OF SUBROUTINE LOGIC   ]

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M0250	D_C_25%	UtilityBit, 1scan ON / 3scan OFF
%M0251	UTB_251	UtilityBit, auxiliary for M250

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M0252	UTB_252	UtilityBit, auxiliary for M250
%M0253	UTB_253	UtilityBit, auxiliary for M250

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BLOCK: SYSTEM

```

[ START LD SUBROUTINE BLK_08 ]
[ VARIABLE DECLARATIONS ]
[ START OF SUBROUTINE LOGIC ]

(*****
* Block 08 "Machine steps"
*****)

(*****
* Step up conditions
*****)

STEP_0 GEN_06 A600_14 L12 L14 Z002 B4102 B5104 SRVR_03 << RUNG 6 STEP #0004 >>
%M0100 %M3054 %I0129 %I0142 %I0143 %I0144 %I0219 %I0220 %M3779
+--] [-----]/[-----] [-----] [-----] [-----] [-----]/[-----]/[-----]/[-----]<+>

B2201 CHK_SRV NO_VOL P_STOP JUMP_0 ASUD00R CLN_09 CLN_01 << RUNG 7 STEP #0014 >>
%I0242 %M0026 %M0053 %M0162 %M0190 %M0401 %M3073 %M3065
+<+>-----] [-----]/[-----]/[-----] [-----] [-----] [-----]/[-----]/[-----]<+>

SRV_SEL CIPLOWT CIP_INT DRY_INT CIP_END COMFLT2 F019_14 PT_>85 << RUNG 8 STEP #0024 >>
%M1600 %M1206 %M1205 %M1233 %M1203 %M1218 %I0138 %M3963
+<+>-----]/[-----]/[-----]/[-----]/[-----]/[-----] [-----]/[-----]<+>

B1504 B1505 B1506 COND_0 << RUNG 9 STEP #0034 >>
%I0133 %I0134 %I0135 %M0120
+<+>-----] [-----] [-----] [-----]----- ( )-- (* Step 0 Step up condition *)

STEP_1 GEN_06 B1504 A507_32 A508_32 A418_21 A419_32 A420_28 B2320_2 << RUNG 10 STEP #0039 >>
%M0101 %M3054 %I0133 %I0153 %I0159 %I0164 %I0174 %I0215 %I0269
+--] [-----]/[-----] [-----] [-----] [-----] [-----] [-----] [-----]<+>

B2320_4 B1305 P_STOP ASUSTOP ASUD00R MM_RDY LP_COOL CONDUCT << RUNG 11 STEP #0049 >>
%I0271 %I0303 %M0162 %M0400 %M0401 %M0910 %M1500 %M1501
+<+>-----] [-----]/[-----] [-----] [-----] [-----] [-----]/[-----]/[-----]<+>

PT_RDY SUPPROL B1505 B1506 B1321 SRVR_03 MALREAD PT_>85 << RUNG 12 STEP #0059 >>
%M1800 %M0950 %I0134 %I0135 %I0262 %M3779 %M0663 %M3963
+<+>-----] [-----]/[-----] [-----] [-----]/[-----]/[-----]/[-----]/[-----]<+>

NOZ_OFF CW_OK COND_1 << RUNG 13 STEP #0069 >>
%M1914 %M3905 %M0121
+<+>-----]/[-----] [-----]----- ( )-- (* Step 1 Step up condition *)

STEP_2 GEN_06 B1504 B1505 B1506 B1225 A506_33 A302_18 A305_18 << RUNG 14 STEP #0073 >>
%M0102 %M3054 %I0133 %I0134 %I0135 %I0136 %I0148 %I0179 %I0263
+--] [-----]/[-----] [-----] [-----] [-----] [-----] [-----] [-----]<+>

AUT_CIP B13111 B13112 B13113 P_STOP T_SEAL SPR_FIL FILTER << RUNG 15 STEP #0083 >>
%M1220 %I0255 %I0256 %I0257 %M0162 %M0600 %M0741 %M1510
+<+>-----] [-----] [-----] [-----] [-----] [-----]/[-----]/[-----]/[-----]<+>

AUT_CIP B1307 B1308
%M1220 %I0253 %I0254
+--]/[-----] [-----] [-----]<+>

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REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0179	A302_18	Water separator, Level	%M3065	CLN_01	Clean, External cleaning select
%I0263	A305_18	Regulating valve, Leakage	%M3073	CLN_09	Clean, CIP select
%I0164	A418_21	TMCC DCS, Enabled	%M1218	COMFLT2	CIP, comm.fault2 Wrong sig.exch.
%I0174	A419_32	TMCC AF, Enabled	%M1501	CONDUCT	SRV, Wrong cond. circ water
%I0215	A420_28	TMCC Filling, Enabled	%M0120	COND_0	Step 0 Step up condition
%I0148	A506_33	DMC Main motor, Running	%M0121	COND_1	Step 1 Step up condition
%I0153	A507_32	DMC Right DCS, Home pos. found	%M3905	CW_OK	Cool.circ.water, Temp OK (7-15)
%I0159	A508_32	DMC Left DCS, Home pos. found	%M1233	DRY_INT	CIP, CIP drying interrupted
%I0129	A600_14	Emergency Stop	%I0138	F019_14	Main power servo system, Monitor
%M0401	ASUD00R	ASU, Door guards	%M1510	FILTER	SRV, Hydraulic unit filter
%M0400	ASUSTOP	ASU, Stop reasons	%M3054	GEN_06	Beacon flash
%M1220	AUT_CIP	CIP, Automatic CIP (DEF valve)	%M0190	JUMP_0	Jump to machine step 0
%I0136	B1225	Per. bath bottom cover, Closed	%I0142	L12	24V DC monitor L12
%I0303	B1305	Cleaning sleeve, Position	%I0143	L14	24V DC monitor L14
%I0253	B1307	Sterile air pipe, Position	%M1500	LP_COOL	SRV, Low pressure cooling water
%I0254	B1308	B - Valve pipe, Position	%M0663	MALREAD	FIL, Malf. level reading system
%I0255	B13111	CIP Valve D, Position	%M0910	MM_RDY	JUM, DMC main motor ready start
%I0256	B13112	CIP Valve E, Position	%M1914	NOZ_OFF	HI, HI nozzle off after CIP dry
%I0257	B13113	CIP Valve F, Position	%M0053	NO_VOL	No volume value
%I0262	B1321	Regulating valve, Position	%M3963	PT_>85	P-tank, temperature >85
%I0133	B1504	A. chamber top door, Closed	%M1800	PT_RDY	PT21, Ready for production
%I0134	B1505	A. chamber top front door, Closed	%M0162	P_STOP	Protection stop
%I0135	B1506	A. chamber front doors, Closed	%M0741	SPR_FIL	PER, Spray tank, fast/slow fill.
%I0242	B2201	Main air, Pressure	%M3779	SRVR_03	Water supply
%I0269	B2320_2	Hydraulic oil, Temperature	%M1600	SRV_SEL	SRV, Serv.func.selected to start
%I0271	B2320_4	Hydraulic oil, Low level	%M0100	STEP_0	Step 0 Off
%I0219	B4102	JUM, Crank position	%M0101	STEP_1	Step 1 Preparation
%I0220	B5104	FFU, Crank position	%M0102	STEP_2	Step 2 Tube sealing
%M0026	CHK_SRV	Check service switch	%M0950	SUPPROL	JUM, Tube supp.roll. wrong pos.
%M1206	CIPLOWT	CIP, not allow low temp steam	%M0600	T_SEAL	SUP, Tube sealing going on
%M1203	CIP_END	CIP, CIP ended, CIP dry can start	%I0144	Z002	Transient Main Failure
%M1205	CIP_INT	CIP, interrupted			

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BLOCK: MACHINE STEPS


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      BUT_DRY T_END SRVR_03 HINOSTE PT_>85 REG_BEf A303_18 A308_18 COND_2  << RUNG 16 STEP #0098 >>
      %M0839 %M0603 %M3779 %M1902 %M3963 %M0837 %I0180 %I0183 %M0122
+<+>-----]/[-----] [-----]/[-----]/[-----]/[-----]/[-----] [-----] [-----] [-----] (* Step 2 Step up condition *)

STEP_3 B1504 B1505 B1506 A506_33 C_STLOW AIRTEMP AC_400K AS_OKHI COND_3  << RUNG 17 STEP #0108 >>
%M0103 %I0133 %I0134 %I0135 %I0148 %M0655 %M0812 %M0813 %M3983 %M0123
+--] [-----] [-----] [-----] [-----]/[-----]/[-----] [-----] [-----] [-----] [-----] (* Step 3 Step up condition *)

STEP_4 A506_33 SPR_RDY COND_4  << RUNG 18 STEP #0118 >>
%M0104 %I0148 %M0730 %M0124
+--] [-----]/[-----] [-----] [-----] [-----] [-----] [-----] [-----] (* Step 4 Step up condition *)

STEP_5 GEN_06 A506_33 EXT_DU P_STOP H20TEMP TNKTEMP DRY_RDY HOMEPOS  << RUNG 19 STEP #0122 >>
%M0105 %M3054 %I0148 %M1080 %M0162 %M0704 %M0706 %M0831 %M1091
+--] [-----]/[-----]/[-----]/[-----] [-----] [-----] [-----] [-----] [-----] [-----] [-----]
      S003
      %I0206
      +--] [-----]

LWFRPOS SUPPROL C_POS EXT_02 LUB_PRS MALREAD SRVR_03 LP_COOL  << RUNG 20 STEP #0134 >>
%M0620 %M0950 %M0653 %I0226 %M1523 %M0663 %M3779 %M1500
+<+>-----]/[-----]/[-----] [-----] [-----]/[-----]/[-----]/[-----]/[-----] [-----] [-----] [-----]

CW_OK C_STLOW JUM_13 A303_18 COND_5  << RUNG 21 STEP #0144 >>
%M3905 %M0655 %M3725 %I0180 %M0125
+<+>-----] [-----]/[-----]/[-----] [-----] [-----] [-----] [-----] [-----] [-----] (* Step 5 Step up condition *)

STEP_6 GEN_06 EXT_01 HOMEPOS COND_6  << RUNG 22 STEP #0150 >>
%M0106 %M3054 %I0225 %M1091 %M0126
+--] [-----]/[-----] [-----] [-----] [-----] [-----] [-----] [-----] [-----] (* Step 6 Step up condition *)
      S003
      %I0206
      +--] [-----]

STEP_7 GEN_06 A507_32 A508_32 LUB_LOW S_STOP6 ASUSTOP ASUD00R H20TEMP  << RUNG 23 STEP #0157 >>
%M0107 %M3054 %I0153 %I0159 %M1522 %M0170 %M0400 %M0401 %M0704
+--] [-----]/[-----] [-----] [-----]/[-----] [-----]/[-----] [-----] [-----] [-----]
      S003
      %I0206
      +--] [-----]

TNKTEMP MM_RDY HOMEPOS PT_RDY TL_OK TR_OK BM_OK  << RUNG 24 STEP #0169 >>
%M0706 %M0910 %M1091 %M1800 %M3971 %M3974 %M3976
+<+>-----] [-----] [-----]/[-----] [-----] [-----] [-----] [-----] [-----] [-----]
      S003
      %I0206
      +--] [-----]

P_STOP SUPPROL LWFRPOS C_STLOW EXT_01 C_POS A418_21  << RUNG 25 STEP #0180 >>
%M0162 %M0950 %M0620 %M0655 %I0225 %M0653 %I0164
+<+>-----] [-----]/[-----]/[-----]/[-----] [-----] [-----] [-----] [-----] [-----]
      S003
      %I0206
      +--] [-----]

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REFERENCE NICKNAME

%I0180 A303_18

%I0183 A308_18

%I0164 A418_21

%I0148 A506_33

%I0153 A507_32

%I0159 A508_32

%M0813 AC_400K

%M0812 AIRTEMP

%M0401 ASUD00R

%M0400 ASUSTOP

%M3983 AS_OKHI

%I0133 B1504

%I0134 B1505

%I0135 B1506

%M3976 BM_OK

%M0839 BUT_DRY

%M0122 COND_2

%M0123 COND_3

%M0124 COND_4

%M0125 COND_5

%M0126 COND_6

%M3905 CW_OK

%M0653 C_POS

%M0655 C_STLOW

%M0831 DRY_RDY

%I0225 EXT_01

%I0226 EXT_02

%M1080 EXT_DU

%M3054 GEN_06

REFERENCE DESCRIPTION

Water bath, Level

Peroxide tank, Level at prod.

TMCC DCS, Enabled

DMC Main motor, Running

DMC Right DCS, Home pos. found

DMC Left DCS, Home pos. found

AIR, Asept. cham 40 deg. reached

AIR, Heat ster. temp. reached

ASU, Door guards

ASU, Stop reasons

Airsup, Temp > 360 degr.

A. chamber top door, Closed

A. chamber top front door, Closed

A. chamber front doors, Closed

Flap Bottom L/R, Temperature OK

AIR, Butterfly ON in drying

Step 2 Step up condition

Step 3 Step up condition

Step 4 Step up condition

Step 5 Step up condition

Step 6 Step up condition

Cool.circ.water, Temp OK (7-15)

FIL, C-valve in position

FIL, low temp steam too long

AIR, Drying ready aseptic chamb

Dairy, Ready for production

DE, Equipment Ready

FFU, External date unit not rdy

Beacon flash

REFERENCE NICKNAME

%M0704 H20TEMP

%M1902 HINOSTE

%M1091 HOMEPOS

%M3725 JUM_13

%M1500 LP_COOL

%M1522 LUB_LOW

%M1523 LUB_PRS

%M0620 LWFRPOS

%M0663 MALREAD

%M0910 MM_RDY

%M3963 PT_>85

%M1800 PT_RDY

%M0162 P_STOP

%M0837 REG_BEf

%I0206 S003

%M0730 SPR_RDY

%M3779 SRVR_03

%M0103 STEP_3

%M0104 STEP_4

%M0105 STEP_5

%M0106 STEP_6

%M0107 STEP_7

%M0950 SUPPROL

%M0170 S_STOP6

%M3971 TL_OK

%M0706 TNKTEMP

%M3974 TR_OK

%M0603 T_END

REFERENCE DESCRIPTION

PER, Temp. water bath OK

HI, HI sys.not ready for steril.

FFU, Machine not in home pos.

Machine speed too high

SRV, Low pressure cooling water

SRV, Lubr. max time low level

SRV, Lubr. wrong pressure

SUP, Lower form. ring wrong pos.

FIL, Malf. level reading system

JUM, DMC main motor ready start

P-tank, temperature >85

PT21, Ready for production

Protection stop

AIR, Reg.valve pos.before spray

Service switch

PER, Spray sequence ready

Water supply

Step 3 Heat sterilization

Step 4 Spraying

Step 5 Drying

Step 6 Signal to sterilizer

Step 7 Signal from sterilizer

JUM, Tube supp.roll. wrong pos.

Demand 6 for short stop

Flap TL, Temperature OK

PER, Temp. peroxide tank OK

Flap TR, Temperature OK

SUP, Tube sealing ended

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BLOCK: MACHINE STEPS

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A419_32 A420_28 MALREAD SRVR_03 HINOSTR          COND_7 << RUNG 26 STEP #0191 >>
%I0174 %I0215 %M0663 %M3779 %M1903              %M0127
+<+>-----] [-----] [-----]/[-----]/[-----]/[-----]----- ( )-- (* Step 7 Step up condition *)

STEP_8 GEN_06 TMR1_4                                << RUNG 27 STEP #0198 >>
%M0108 %M3054 %M0204 +-----+
+--] [-----]/[-----]/[-----]+OFDT +-----+<+>
|0.01s|
CONST +PV |
+00020 | +-----+
|DEL0333
|R0333
P_STOP S_STOP6 COND_8 << RUNG 28 STEP #0203 >>
%M0162 %M0170 %M0128
+<+>-----] [-----] [-----]----- ( )-- (* Step 8 Step up condition *)

STEP_8 A506_33
%M0108 %I0148
+--] [-----] [-----]

STEP_9 GEN_06 S911 N_STOP LEVEL_H COND_9 << RUNG 29 STEP #0210 >>
%M0109 %M3054 %I0201 %M0180 %M0660 %M0129
+--] [-----]/[-----] [-----] [-----]/[-----]----- ( )-- (* Step 9 Step up condition *)

STEP_10 GEN_06 A506_33 S003 COND_10 << RUNG 30 STEP #0216 >>
%M0110 %M3054 %I0148 %I0206 %M0130
+--] [-----]/[-----]/[-----]/[-----]----- ( )-- (* Step 10 Step up condition *)

STEP_11 COND_11 << RUNG 31 STEP #0221 >>
%M0111 %M0131
+--] [-----]----- ( )-- (* Step 11 Step up condition *)

STEP_12 GEN_06 A506_33 A507_32 A508_32 P_STOP COND_12 << RUNG 32 STEP #0223 >>
%M0112 %M3054 %I0148 %I0153 %I0159 %M0162 %M0132
+--] [-----]/[-----]/[-----] [-----] [-----] [-----]----- ( )-- (* Step 12 Step up condition *)

COND_0 ST_COND << RUNG 33 STEP #0230 >>
%M0120 %M0135
+--] [-----]----- ( )-- (* Step up condition *)

COND_1
%M0121
+--] [-----]

COND_2
%M0122
+--] [-----]

COND_3
%M0123
+--] [-----]

COND_4
%M0124
+--] [-----]

COND_5
%M0125
+--] [-----]

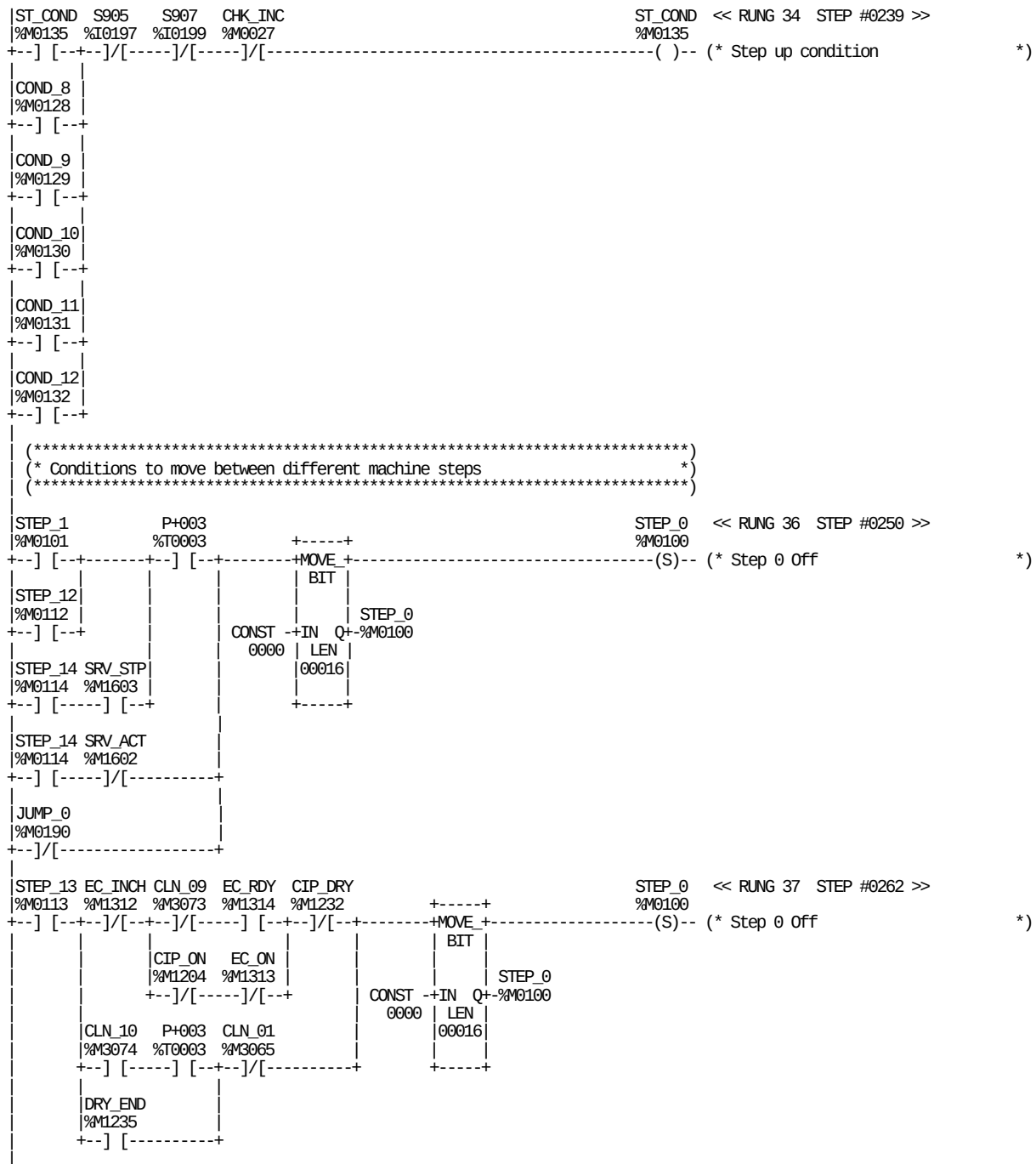
COND_6
%M0126
+--] [-----]

COND_7
%M0127
+--] [-----]

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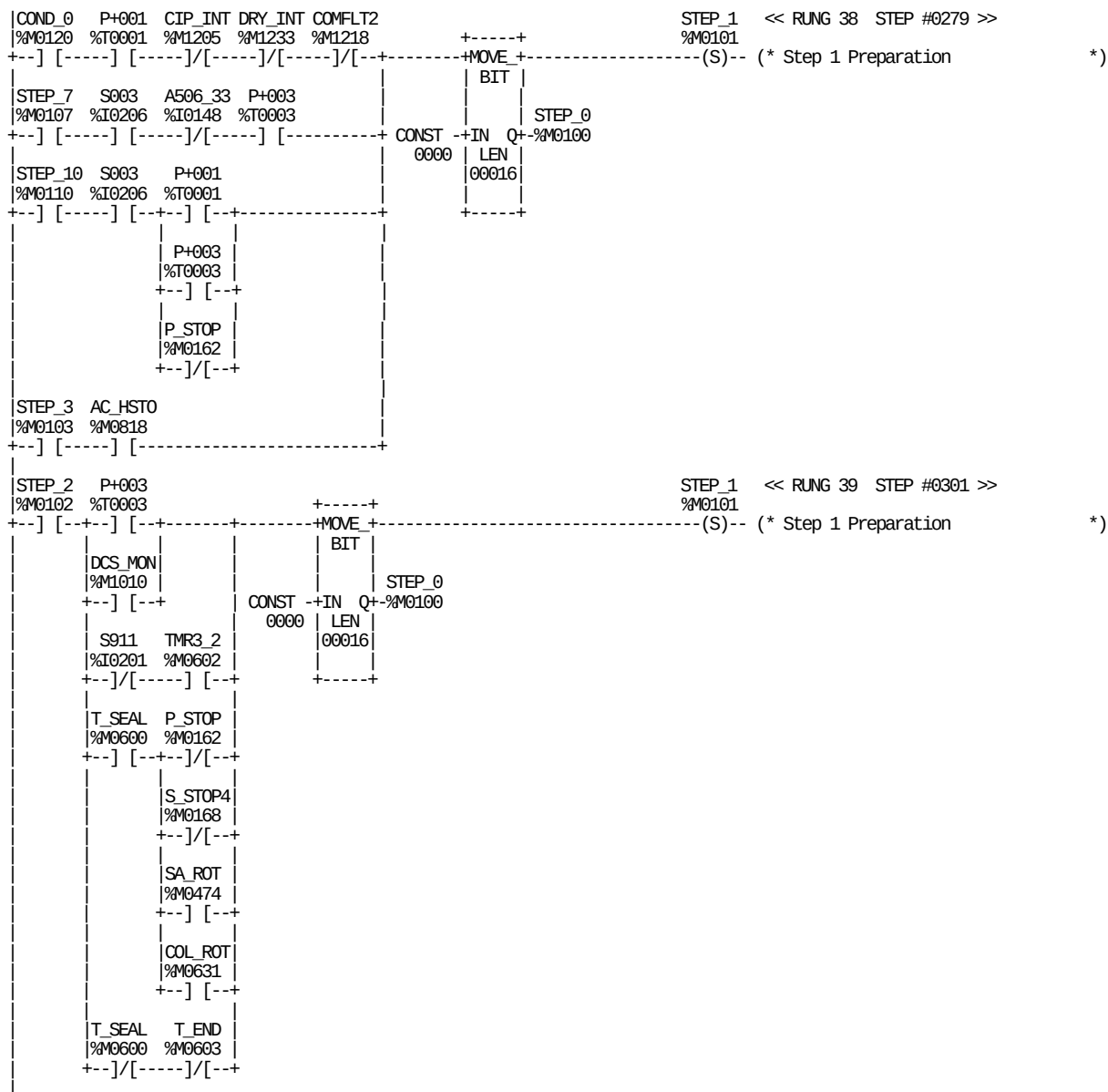
REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0174	A419_32	TMCC AF, Enabled	%R0333	DEL0333	Delay,
%I0215	A420_38	TMCC Filling, Enabled	%M3054	GEN_06	Beacon flash
%I0148	A506_33	DMC Main motor, Running	%M1903	HINOSTR	HI, HI sys. not rdy. motor start
%I0153	A507_32	DMC Right DCS, Home pos. found	%M0660	LEVEL_H	FIL, High level reached
%I0159	A508_32	DMC Left DCS, Home pos. found	%M0663	MALREAD	FIL, Malf. level reading system
%M0120	COND_0	Step 0 Step up condition	%M0180	N_STOP	Normal stop
%M0121	COND_1	Step 1 Step up condition	%M0162	P_STOP	Protection stop
%M0130	COND_10	Step 10 Step up condition	%I0206	S003	Service switch
%M0131	COND_11	Step 11 Step up condition	%I0201	S911	Step up
%M0132	COND_12	Step 12 Step up condition	%M3779	SRVR_03	Water supply
%M0122	COND_2	Step 2 Step up condition	%M0110	STEP_10	Step 10 Production ended
%M0123	COND_3	Step 3 Step up condition	%M0111	STEP_11	Step 11 Venting
%M0124	COND_4	Step 4 Step up condition	%M0112	STEP_12	Step 12 Doors OK
%M0125	COND_5	Step 5 Step up condition	%M0108	STEP_8	Step 8 Motorstart
%M0126	COND_6	Step 6 Step up condition	%M0109	STEP_9	Step 9 Production
%M0127	COND_7	Step 7 Step up condition	%M0135	ST_COND	Step up condition
%M0128	COND_8	Step 8 Step up condition	%M0170	S_STOP6	Demand 6 for short stop
%M0129	COND_9	Step 9 Step up condition	%M0204	TMR1_4	Startseq. Ended (>10.00)

TBA/21-0410/0500
BLOCK: MACHINE STEPS



REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M0027	CHK_INC	Check inching pushbuttons	%M1314	EC_RDY	EC, Ready
%M1232	CIP_DRY	CIP, Cip drying going on	%M0190	JUMP_0	Jump to machine step 0
%M1204	CIP_ON	CIP, TBA21 ready for CIP	%T0003	P+003	Pulse + Step down
%M3065	CLN_01	Clean, External cleaning select	%I0197	S905	Inching final folder
%M3073	CLN_09	Clean, CIP select	%I0199	S907	Inching JUM and FFU
%M3074	CLN_10	Clean, CIP stop	%M1602	SRV_ACT	SRV, Serv.func. active
%M0130	COND_10	Step 10 Step up condition	%M1603	SRV_STP	SRV, Serv.func. selected to stop
%M0131	COND_11	Step 11 Step up condition	%M0100	STEP_0	Step 0 Off
%M0132	COND_12	Step 12 Step up condition	%M0101	STEP_1	Step 1 Preparation
%M0128	COND_8	Step 8 Step up condition	%M0112	STEP_12	Step 12 Doors OK
%M0129	COND_9	Step 9 Step up condition	%M0113	STEP_13	Step 13 Cleaning
%M1235	DRY_END	CIP, Cip drying ended	%M0114	STEP_14	Step 14 Service window
%M1312	EC_INCH	EC, Slow inching	%M0135	ST_COND	Step up condition
%M1313	EC_ON	EC, Going on			

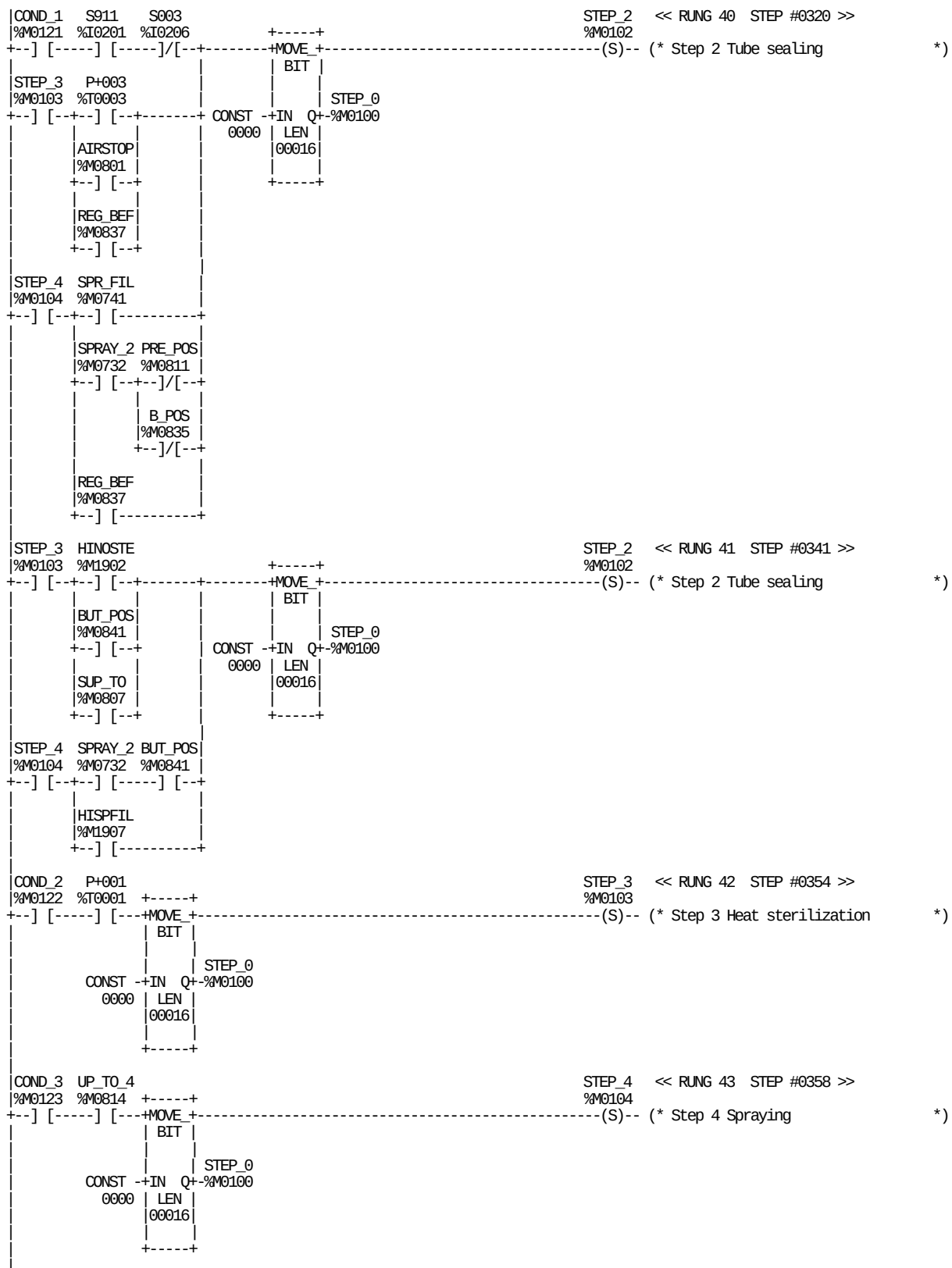
TBA/21-0410/0500
BLOCK: MACHINE STEPS



REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0148	A506_33	DMC Main motor, Running
%M0818	AC_HSTO	AIR, AC temp.TimeOut in heat.ste
%M1205	CIP_INT	CIP, interrupted
%M0631	COL_ROT	SUP, Rotation monitor column
%M1218	COMFLT2	CIP,comm.fault2 Wrong sig.exch.
%M0120	COND_0	Step 0 Step up condition
%M01010	DCS_MON	DCS, Monitor register mark
%M1233	DRY_INT	CIP, Cip drying interrupted
%T0001	P+001	Pulse + Step up
%T0003	P+003	Pulse + Step down
%M0162	P_STOP	Protection stop
%I0206	S003	Service switch

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0201	S911	Step up
%M0474	SA_ROT	SA ASU, Rotation monitor
%M0100	STEP_0	Step 0 Off
%M0101	STEP_1	Step 1 Preparation
%M0110	STEP_10	Step 10 Production ended
%M0102	STEP_2	Step 2 Tube sealing
%M0103	STEP_3	Step 3 Heat sterilization
%M0107	STEP_7	Step 7 Signal from sterilizer
%M0168	S_STOP4	Demand 4 for short stop
%M0602	TMR3_2	SUP, Tube sealing (0-3s)
%M0603	T_END	SUP, Tube sealing ended
%M0600	T_SEAL	SUP, Tube sealing going on

TBA/21-0410/0500
BLOCK: MACHINE STEPS



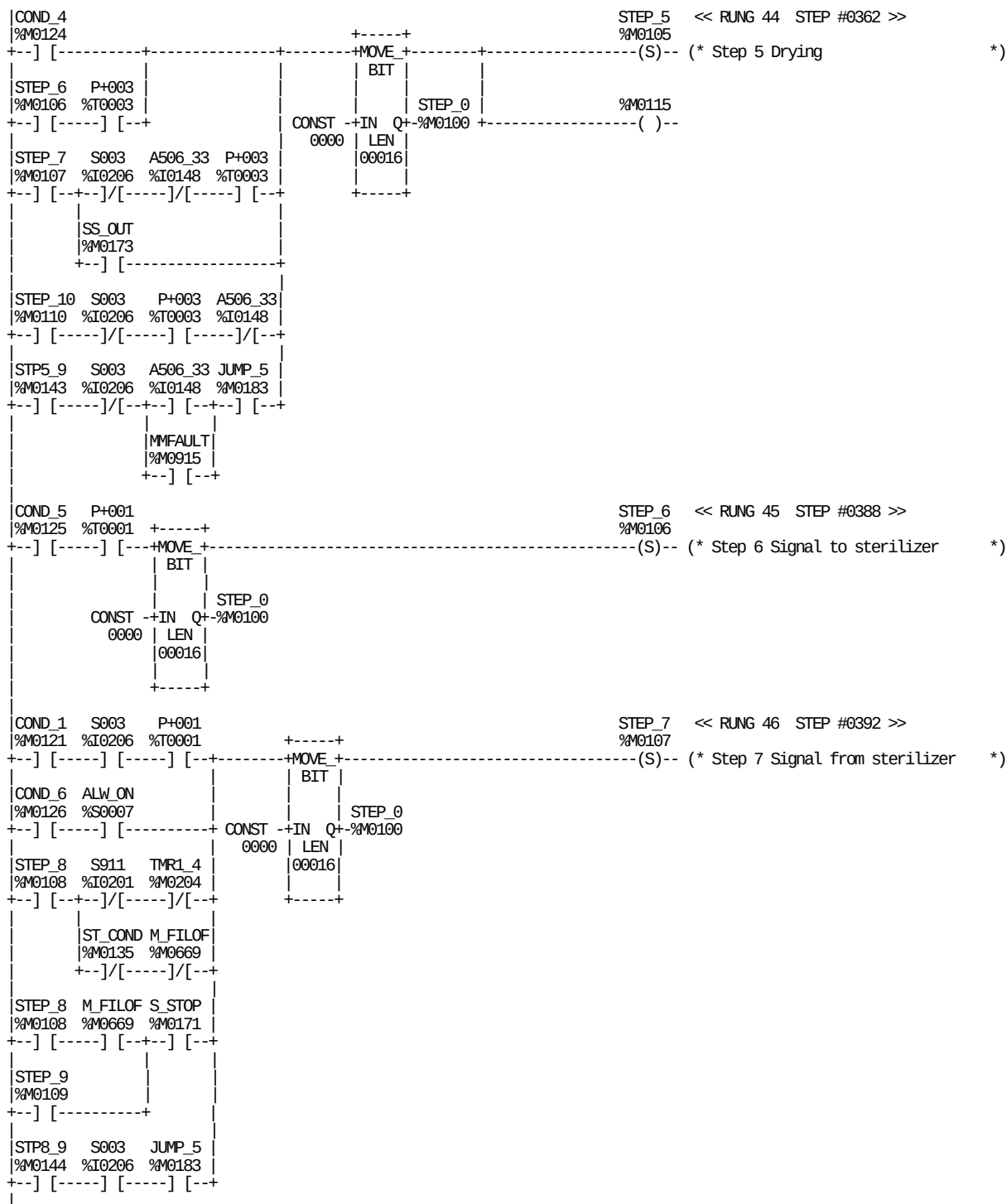
REFERENCE NICKNAME
%M0801 AIRSTOP
%M0841 BUT_POS
%M0835 B_POS
%M0121 COND_1
%M0122 COND_2
%M0123 COND_3
%M1902 HINOSTE
%M1907 HISPFIL
%T0001 P+001
%T0003 P+003
%M0811 PRE_POS

REFERENCE DESCRIPTION
AIR, Sterile air system stop
AIR, Butterfly valve wrong pos.
AIR, B-valve in position
Step 1 Step up condition
Step 2 Step up condition
Step 3 Step up condition
HI, HI sys.not ready for steril.
HI, HI spr.tank slow/fast fill.
Pulse + Step up
Pulse + Step down
AIR, Preheating valve in pos.

REFERENCE NICKNAME
%M0837 REG_BEF
%I0206 S003
%I0201 S911
%M0732 SPRAY_2
%M0741 SPR_FIL
%M0100 STEP_0
%M0102 STEP_2
%M0103 STEP_3
%M0104 STEP_4
%M0807 SUP_TO
%M0814 UP_TO_4

REFERENCE DESCRIPTION
AIR, Reg.valve pos.before spray
Service switch
Step up
PER, Spray sequence 0,01-11,00
PER, Spray tank, fast/slow fill.
Step 0 Off
Step 2 Tube sealing
Step 3 Heat sterilization
Step 4 Spraying
AIR, Air superheater timeout
AIR, Stepping up to step 4

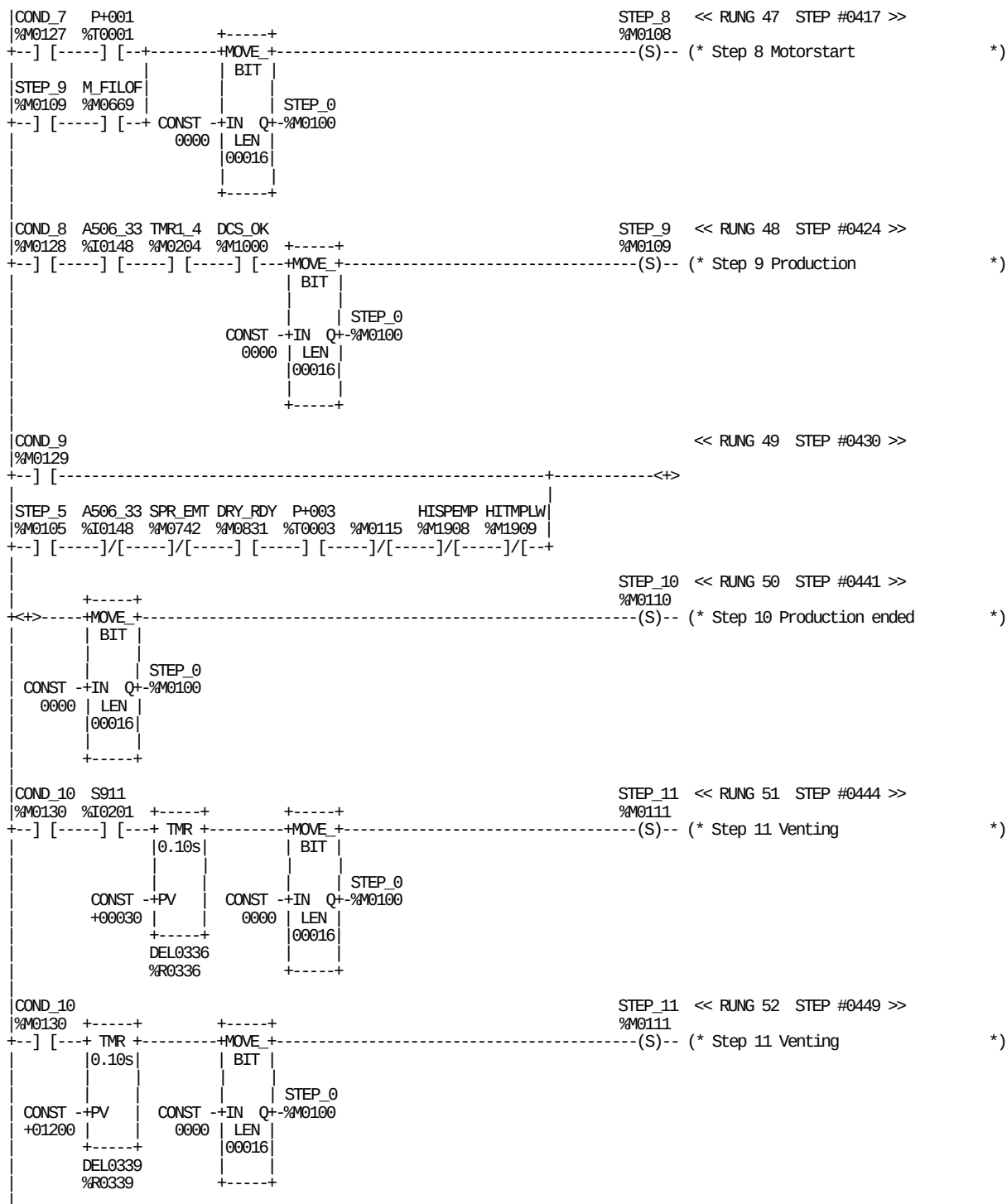
TBA/21-0410/0500
BLOCK: MACHINE STEPS



REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M0115		DMC Main motor, Running
%I0148	A506_33	
%S0007	ALW_ON	
%M0121	COND_1	Step 1 Step up condition
%M0124	COND_4	Step 4 Step up condition
%M0125	COND_5	Step 5 Step up condition
%M0126	COND_6	Step 6 Step up condition
%M0183	JUMP_5	Jump to machine step 5
%M0915	MMFAULT	JUM, Servo fault main motor
%M0669	M_FILOF	FIL, Manual filling off
%T0001	P+001	Pulse + Step up
%T0003	P+003	Pulse + Step down
%I0206	S003	Service switch
%I0201	S911	Step up

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M0173	SS_OUT	Short stop time too long
%M0100	STEP_0	Step 0 Off
%M0110	STEP_10	Step 10 Production ended
%M0105	STEP_5	Step 5 Drying
%M0106	STEP_6	Step 6 Signal to sterilizer
%M0107	STEP_7	Step 7 Signal from sterilizer
%M0108	STEP_8	Step 8 Motorstart
%M0109	STEP_9	Step 9 Production
%M0143	STP5_9	Step 5-9 Drying to prod.
%M0144	STP8_9	Step 8-9 Motorstart to prod.
%M0135	ST_COND	Step up condition
%M0171	S_STOP	Short stop on
%M0204	TMR1_4	Startseq, Ended (>10,00)

TBA/21-0410/0500
BLOCK: MACHINE STEPS



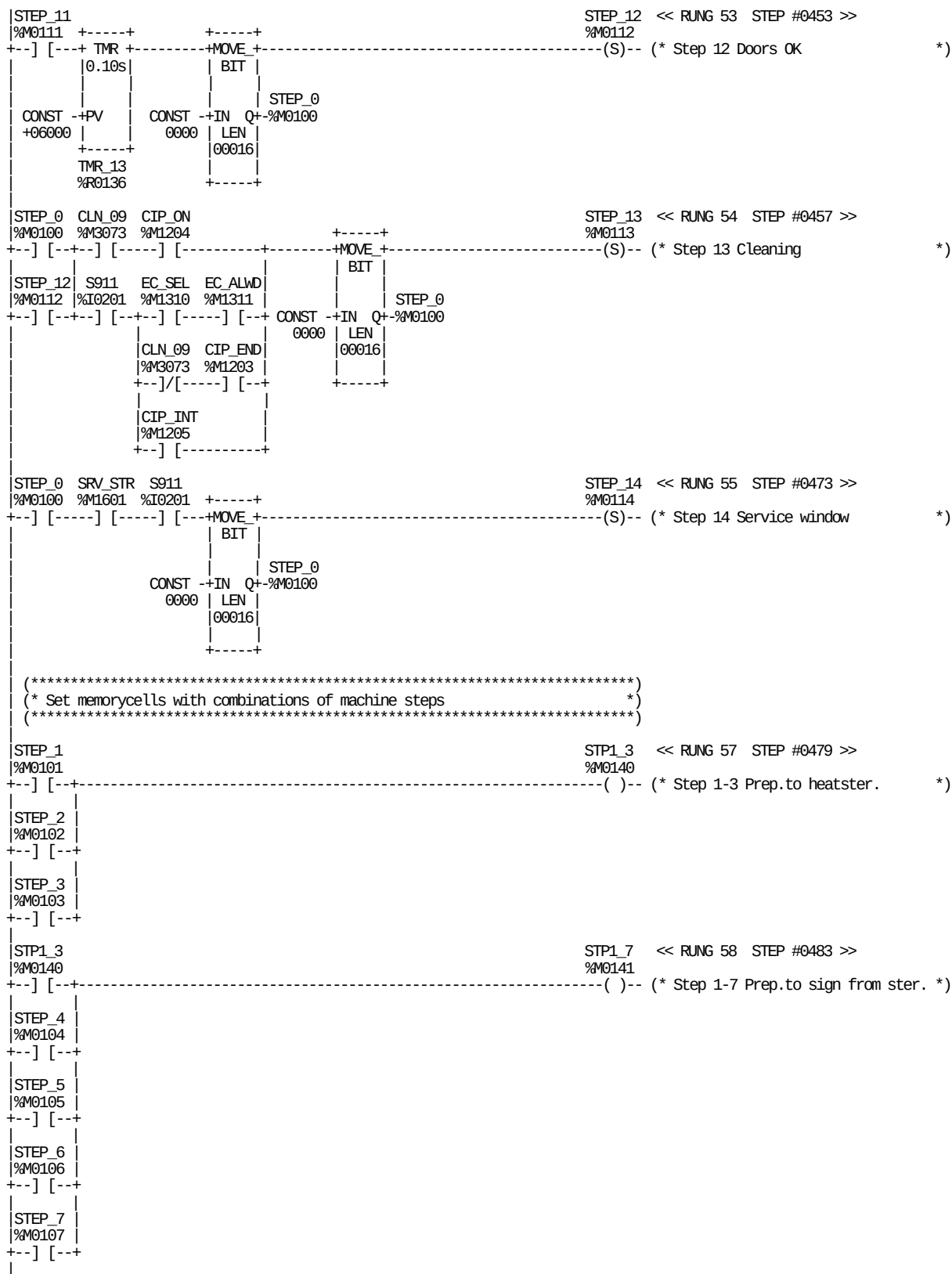
REFERENCE NICKNAME
 %M0115
 %I0148 A506_33
 %M0130 COND_10
 %M0127 COND_7
 %M0128 COND_8
 %M0129 COND_9
 %M1000 DCS_OK
 %R0336 DEL0336
 %R0339 DEL0339
 %M0831 DRY_RDY
 %M1908 HISPEMP
 %M1909 HITMPLW

REFERENCE DESCRIPTION
 DMC Main motor, Running
 Step 10 Step up condition
 Step 7 Step up condition
 Step 8 Step up condition
 Step 9 Step up condition
 DCS, Machine in design
 Delay,
 Delay,
 AIR, Drying ready aseptic chamb
 HI, HI spr.tank slow/fast empty
 HI, Low temp. during spraying

REFERENCE NICKNAME
 %M0669 M_FILOF
 %T0001 P+001
 %T0003 P+003
 %I0201 S911
 %M0742 SPR_EMT
 %M0100 STEP_0
 %M0110 STEP_10
 %M0111 STEP_11
 %M0105 STEP_5
 %M0108 STEP_8
 %M0109 STEP_9
 %M0204 TMR1_4

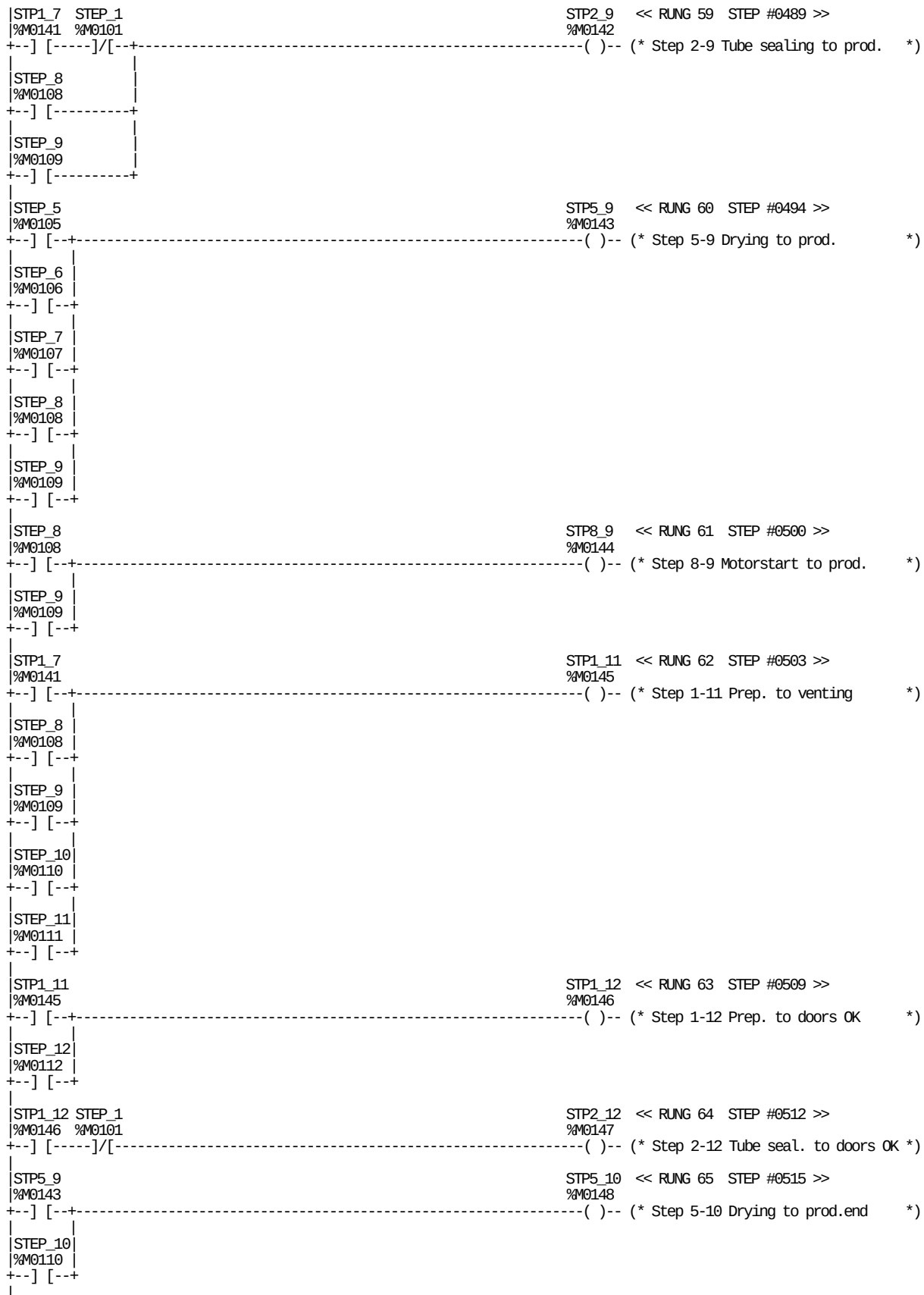
REFERENCE DESCRIPTION
 FIL, Manual filling off
 Pulse + Step up
 Pulse + Step down
 Step up
 PER, Spray tank, fast/slow empt.
 Step 0 Off
 Step 10 Production ended
 Step 11 Venting
 Step 5 Drying
 Step 8 Motorstart
 Step 9 Production
 Startseq, Ended (>10,00)

TBA/21-0410/0500
 BLOCK: MACHINE STEPS



REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M1203	CIP_END	CIP, Cip ended,Cip dry can start
%M1205	CIP_INT	CIP, interrupted
%M1204	CIP_ON	CIP, TBA21 ready for CIP
%M3073	CLN_09	Clean, CIP select
%M1311	EC_ALWD	EC, Allowed
%M1310	EC_SEL	EC, TPOP selection OK
%I0201	S911	Step up
%M1601	SRV_STR	SRV, Serv.func. ready to start
%M0100	STEP_0	Step 0 Off
%M0101	STEP_1	Step 1 Preparation
%M0111	STEP_11	Step 11 Venting
%M0112	STEP_12	Step 12 Doors OK

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M0113	STEP_13	Step 13 Cleaning
%M0114	STEP_14	Step 14 Service window
%M0102	STEP_2	Step 2 Tube sealing
%M0103	STEP_3	Step 3 Heat sterilization
%M0104	STEP_4	Step 4 Spraying
%M0105	STEP_5	Step 5 Drying
%M0106	STEP_6	Step 6 Signal to sterilizer
%M0107	STEP_7	Step 7 Signal from sterilizer
%M0140	STP1_3	Step 1-3 Prep.to heatster.
%M0141	STP1_7	Step 1-7 Prep.to sign from ster.
%R0136	TMR_13	Tmr 13, Venting (0,10s)



REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M0101	STEP_1	Step 1 Preparation
%M0110	STEP_10	Step 10 Production ended
%M0111	STEP_11	Step 11 Venting
%M0112	STEP_12	Step 12 Doors OK
%M0105	STEP_5	Step 5 Drying
%M0106	STEP_6	Step 6 Signal to sterilizer
%M0107	STEP_7	Step 7 Signal from sterilizer
%M0108	STEP_8	Step 8 Motorstart
%M0109	STEP_9	Step 9 Production

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M0145	STP1_11	Step 1-11 Prep. to venting
%M0146	STP1_12	Step 1-12 Prep. to doors OK
%M0141	STP1_7	Step 1-7 Prep.to sign from ster.
%M0147	STP2_12	Step 2-12 Tube seal. to doors OK
%M0142	STP2_9	Step 2-9 Tube sealing to prod.
%M0148	STP5_10	Step 5-10 Drying to prod.end
%M0143	STP5_9	Step 5-9 Drying to prod.
%M0144	STP8_9	Step 8-9 Motorstart to prod.

TBA/21-0410/0500
BLOCK: MACHINE STEPS

```

|STEP_4                                STP4_11 << RUNG 66 STEP #0518 >>
| %M0104                                %M0149
+--] [---+----- ( )-- (* Step 4-11 Spraying to venting *)
|
|STP5_10|
| %M0148 |
+--] [---+
|
|STEP_11|
| %M0111 |
+--] [---+
|
|STEP_3                                STP3_11 << RUNG 67 STEP #0522 >>
| %M0103                                %M0150
+--] [---+----- ( )-- (* Step 3-11 Heat ster. to venting *)
|
|STP4_11|
| %M0149 |
+--] [---+
|
|STEP_12                                ST12_13 << RUNG 68 STEP #0525 >>
| %M0112                                %M0151
+--] [---+----- ( )-- (* Step 12-13 Doors OK to cleaning *)
|
|STEP_13|
| %M0113 |
+--] [---+
|
|STEP_9                                STP9_10 << RUNG 69 STEP #0528 >>
| %M0109                                %M0152
+--] [----- (S)-- (* Step First prod. to prod. end *)
|
|STP5_10                                STP9_10 << RUNG 70 STEP #0530 >>
| %M0148                                %M0152
+--] /----- (R)-- (* Step First prod. to prod. end *)
|
| [ END OF SUBROUTINE LOGIC ]

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M0151	ST12_13	Step 12-13 Doors OK to cleaning	%M0109	STEP_9	Step 9 Production
%M0111	STEP_11	Step 11 Venting	%M0150	STP3_11	Step 3-11 Heat ster. to venting
%M0112	STEP_12	Step 12 Doors OK	%M0149	STP4_11	Step 4-11 Spraying to venting
%M0113	STEP_13	Step 13 Cleaning	%M0148	STP5_10	Step 5-10 Drying to prod.end
%M0103	STEP_3	Step 3 Heat sterilization	%M0152	STP9_10	Step First prod. to prod. end
%M0104	STEP_4	Step 4 Spraying			

TBA/21-0410/0500
BLOCK: MACHINE STEPS

```

[ START LD SUBROUTINE BLK_10 ]
[ VARIABLE DECLARATIONS ]
[ START OF SUBROUTINE LOGIC ]

(*****
*)
*) Temperature regulator loops          PID reference    TPOP reference *)
*) Loop 1 Water bath                   (A202)    R9000      R8448      *)
*) Loop 2 Peroxide tank                 (A203)    R9040      R8460      *)
*) Loop 3 Heater aseptic chamber        (A205)    R9080      R8484      *)
*) Loop 4 Flap heating top left         (A208)    R9120      R8400      *)
*) Loop 5 Flap heating top right        (A209)    R9160      R8412      *)
*) Loop 6 Flap heating bottom L/R       (A210)    R9200      R8424      *)
*) Loop 8 Air super heater              (A213)    R9280      R8472      *)
*) Loop 9 Peroxide bath                 (A201)    R9320      R8508      *)
*) Loop 10 Spare                       R9360      *)
*)
*)
(*****

(*****
*)
*) Internal registers for PID regulators (9000 registers)
*) Ref+0: Loop number
*) Ref+2: Sample period, time in increments of 0.01s between executions of
*) the function block
*) Ref+3: Upper dead band, in counts 0-32000 equals 0-100% of the error
*) Ref+4: Lower dead band, in counts 0-32000 equals 0--100% of the error
*) If the error is inside the dead band, the error is considered
*) as 0
*) Ref+5: Proportional gain, in 0.01%/
*) Ref+6: Derivate gain, in 0.01 sec
*) Ref+7: Integral gain, in repeats per 1000 sec
*) Ref+8: Bias, in counts 0-32000 equals -100-100%, Feed forward function
*) Ref+9: Upper output clamp, in counts 0-32000, upper limit for CV output
*) Ref+10: Lower output clamp, in counts 0-32000, lower limit for CV output
*) Ref+11: Minimum slew time, in seconds per full travel, limits how
*) quickly the output is allowed to change from 0-100%
*)
*)
(*****

(*****
*)
*) Registers for displaying parameters on TPOP (8000 registers)
*) Ref+0: Set value 1
*) Ref+1: Set value 2
*) Ref+2: Alarm level S1 high
*) Ref+3: Alarm level S1 low
*) Ref+4: Alarm level S2 high
*) Ref+5: Alarm level S3 low
*) Ref+10: Output
*) Ref+11: Process value
*)
*)
(*****

```

```

*****
* Loop 1 Temp reg. Water bath
* This Temp reg. monitors the temperature in the water bath
* After a stop the temp. reg. waits to control the temp. of the water
* until the peroxide temperature is OK (to avoid edgewicking).
* During this time the temp.reg for the Peroxide tank loop 2 controls the
* heating of the water bath.
*****

```

```
(*****
* Loop 1 default PID regulator settings
*****)
```

FST_SCN										<< RUNG 9 STEP #0007 >>									
%S0001																			
[]										-									
MOVE										MOVE									
INT										INT									
CONST										CONST									
+00001										+00300									
IN										IN									
Q										Q									
-%R000										-%R0002									
LOOP1										L1_SPER									
LEN										LEN									
00001										00001									
CONST										CONST									
+00000										+00000									
IN										IN									
Q										Q									
-%R0003										-%R0003									
L1_DB+										L1_DB+									
LEN										LEN									
00001										00001									

```

FST_SCN                                     << RUNG 10  STEP #0011 >>
| %S0001 | +---+ |
|-----+ |
|  [---] | +---+ |
|  MOVE | +---+ |
|  INT  | +---+ |
|-----+ |
|  L1_DB- |
|  IN Q+  |
|  %R9004 |
|  CONST  |
|  +00000 |
|  LEN    |
|  00001  |
|-----+ |
|  L1_PGN |
|  IN Q+  |
|  %R9005 |
|  CONST  |
|  +20000 |
|  LEN    |
|  00001  |
|-----+ |
|  L1_DGN |
|  IN Q+  |
|  %R9006 |
|  CONST  |
|  +00100 |
|  LEN    |
|  00001  |
|-----+ |

```

```

FST_SCN                                << RUNJ 11 STEP #0015 >>
|S0001 |-----+-----+-----+
+-] [- +-----+-----+-----+
      |   MOVE_+-----+-----+
      |   INT  |-----+-----+
      |         |-----+-----+
CONST -IN Q+ L1 IGN          CONST -IN Q+ L1_BIAS          CONST -IN Q+ L1_UCLP
+01000 LEN +%R9007          +00000 LEN +%R9008          +32000 LEN +%R9009
00001 00001                00001 00001                00001 00001
      |         |-----+-----+
      |         |-----+-----+

```

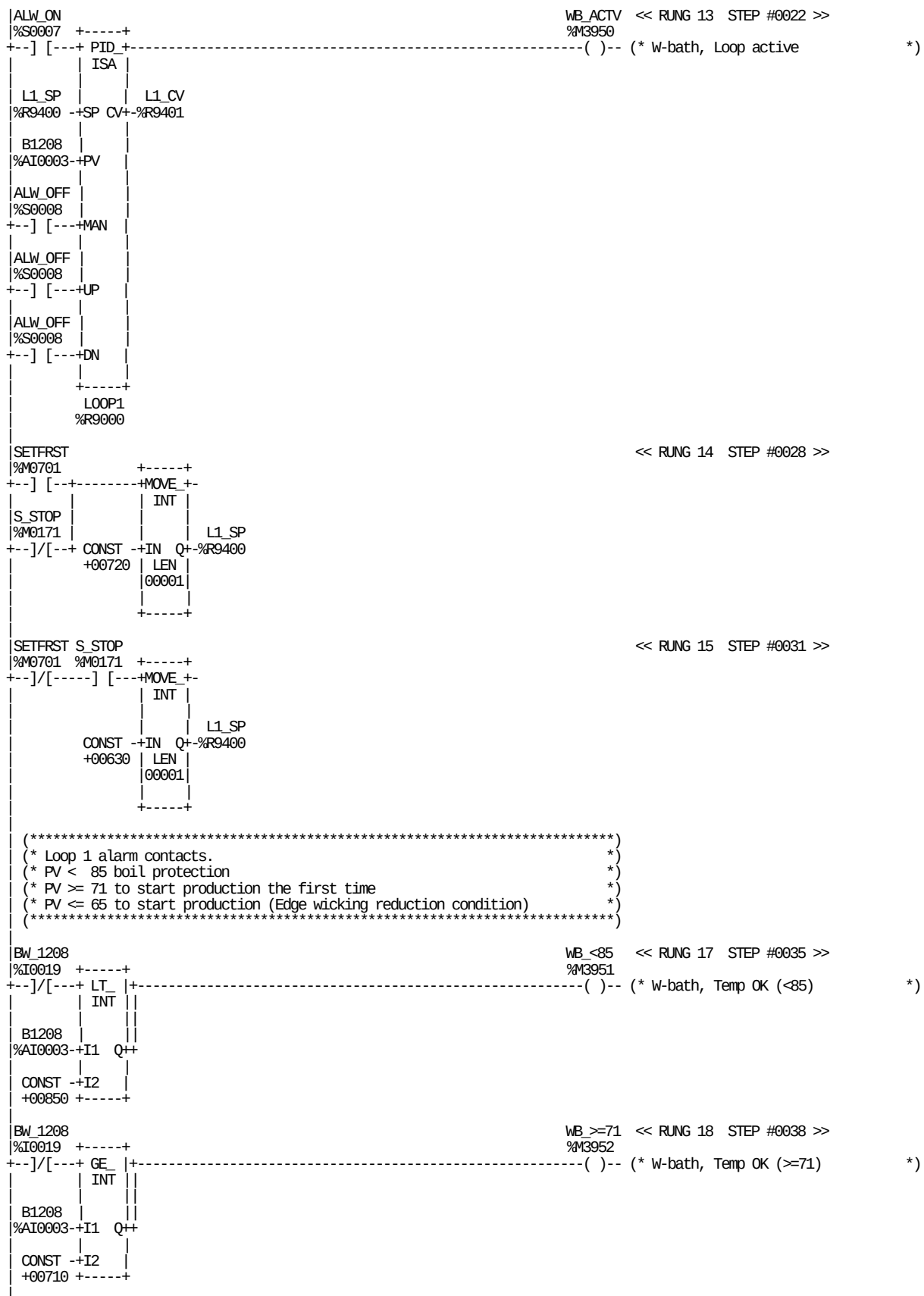
```

FST_SCN                                     << RUNG 12  STEP #0019 >>
|S0001  +---+                               +---+
+---] [---+MOVE+-----+MOVE+-----+
|      |INT|                               |INT|
|      |   |                               |   |
|CONST -IN Q+L1_LCLP  CONST -IN Q+L1_MSLW
+00000  +R010 +00000  +R011
|      |LEN|                               |LEN|
|      |00001|                           |00001|
|      |   |                               |   |
+---+   +---+                           +---+

```

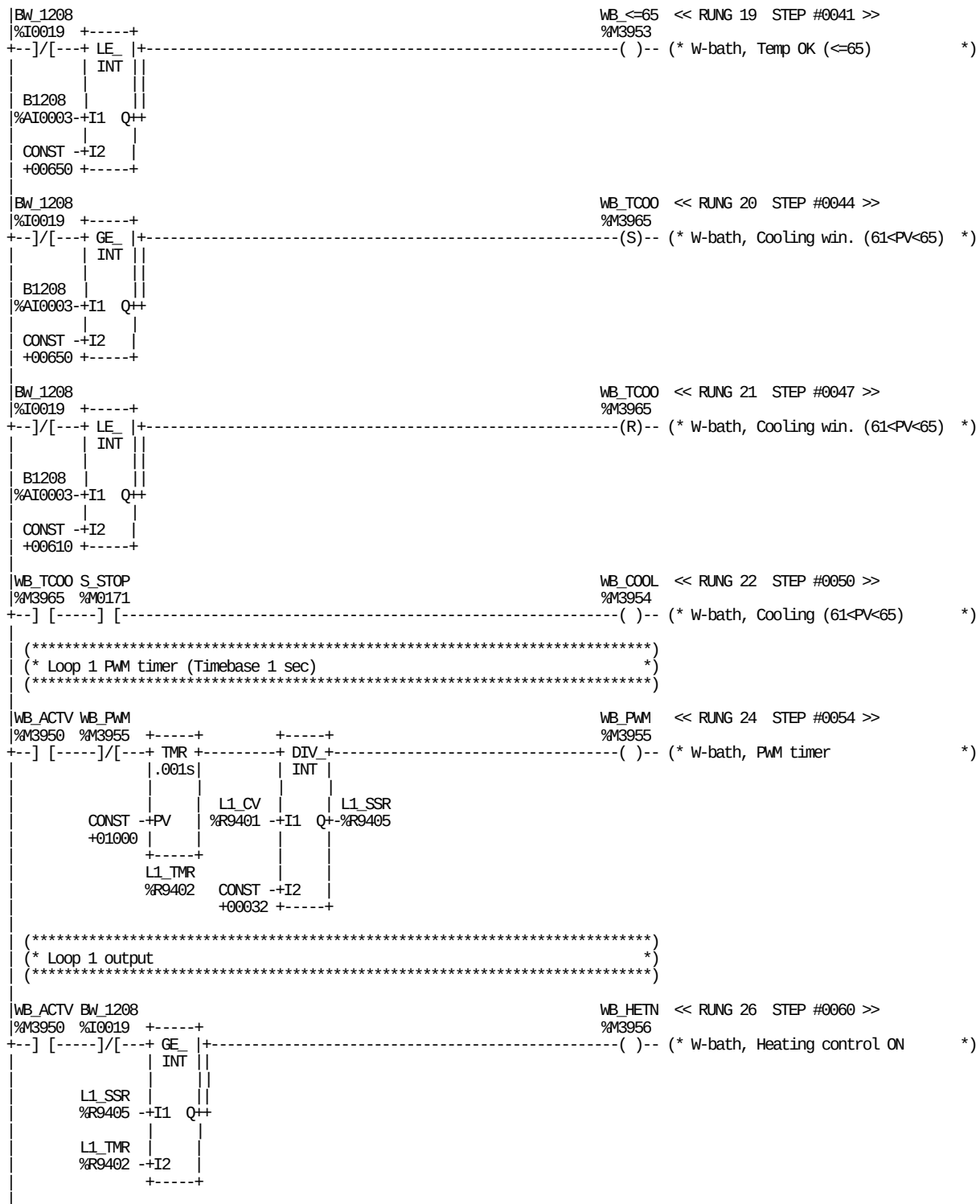
REFERENCE	NICKNAME	REFERENCE	DESCRIPTION	REFERENCE	NICKNAME	REFERENCE	DESCRIPTION
%S0001	FST_SCN			%R0010	L1_LCLP	Loop 1,	Lower clamp
%R0008	L1_BIAS	Loop 1,	Bias	%R0011	L1_MSLW	Loop 1,	Min. slew time
%R0003	L1_DB+	Loop 1,	Dead band +	%R0005	L1_PGN	Loop 1,	Prop. gain
%R0004	L1_DB-	Loop 1,	Dead band -	%R0002	L1_SPER	Loop 1,	Sample periode
%R0006	L1_DGN	Loop 1,	Der. gain	%R0009	L1_UCLP	Loop 1,	Upper clamp
%R0007	L1_IGN	Loop 1,	Integ. gain	%R0000	LOOP1		Water bath

TBA/21-0410/0500
BLOCK: TEMPERATURE REGULATORS/MONITORS



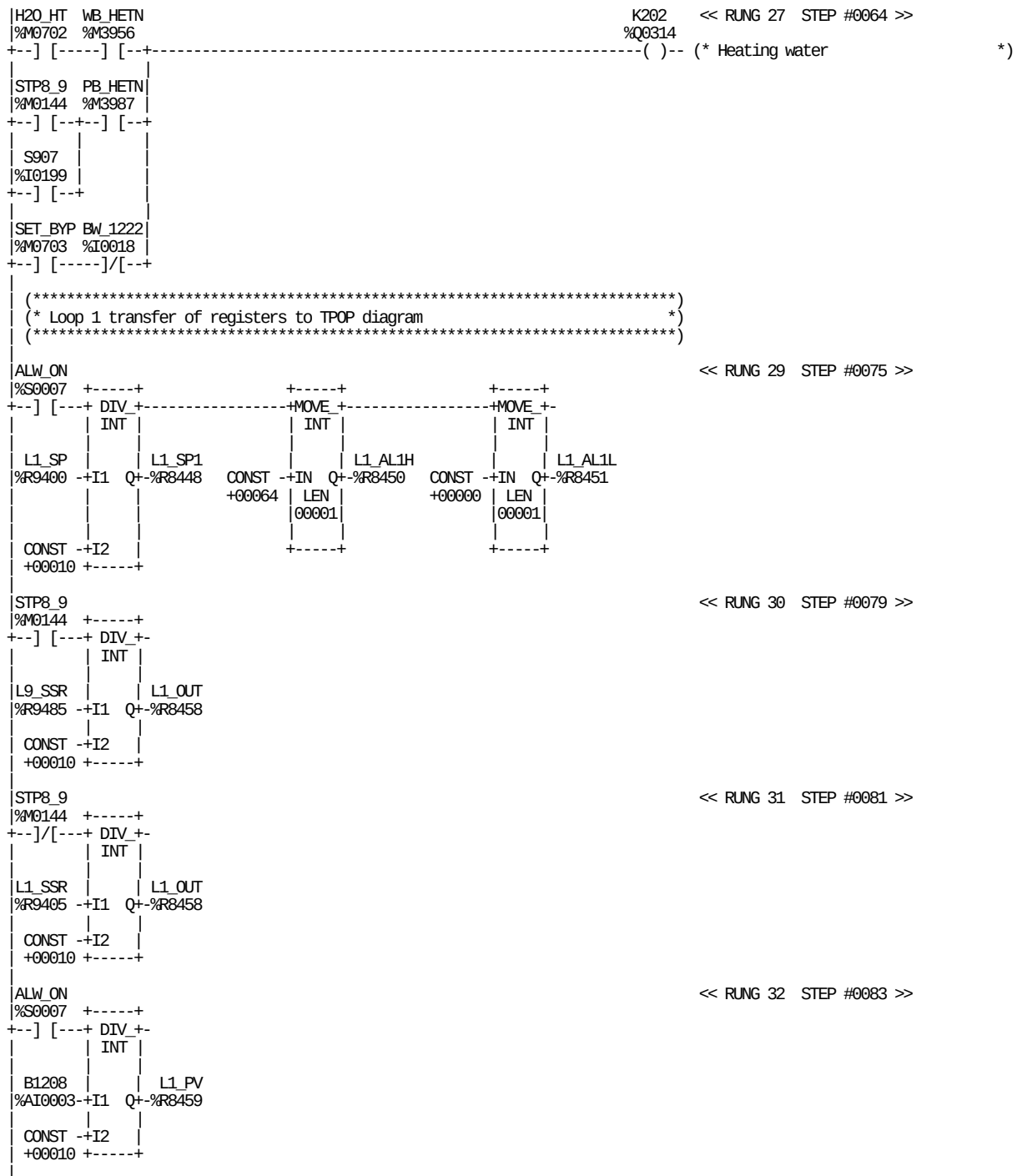
REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%S0008	ALW_OFF		%R9000	LOOP1	water bath
%S0007	ALW_ON		%M0701	SETFRST	PER, Setpoint at first start
%AI0003	B1208	Temp. mon/reg, Water bath	%M0171	S_STOP	Short stop on
%I0019	BW_1208	Broken wire Water bath	%M3951	WB_<85	W-bath, Temp OK (<85)
%R9401	L1_CV	Loop 1, Control value (H2O bath)	%M3952	WB_>=71	W-bath, Temp OK (>=71)
%R9400	L1_SP	Loop 1, Set point	%M3950	WB_ACTV	W-bath, Loop active

TBA/21-0410/0500
BLOCK: TEMPERATURE REGULATORS/MONITORS



REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%AI0003	B1208	Temp. mon/reg, Water bath	%M3953	WB_<=65	W-bath, Temp OK (<=65)
%I0019	BW_1208	Broken wire Water bath	%M3950	WB_ACTV	W-bath, Loop active
%R9401	L1_CV	Loop 1, Control value (H2O bath)	%M3954	WB_COOL	W-bath, Cooling (61<PV<65)
%R9405	L1_SSR	Loop 1, Solid state relay	%M3956	WB_HIETN	W-bath, Heating control ON
%R9402	L1_TMR	Loop 1, Timer 10 sec	%M3955	WB_PWM	W-bath, PWM timer
%M0171	S_STOP	Short stop on	%M3965	WB_TCOO	W-bath, Cooling win. (61<PV<65)

TBA/21-0410/0500
BLOCK: TEMPERATURE REGULATORS/MONITORS



REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%S0007	ALW_ON		%R9400	L1_SP	Loop 1, Set point
%AI0003	B1208	Temp. mon/reg, Water bath	%R8448	L1_SP1	Loop 1, Set point 1
%I0018	BW_1222	Broken wire Peroxide bath	%R9405	L1_SSR	Loop 1, Solid state relay
%M0702	H2O_HT	PER, H2O bath heating ON	%R9485	L9_SSR	Loop 9, SSR
%Q0314	K202	Heating water	%M3987	PB_HETN	P-bath, Heating control ON
%R8450	L1_AL1H	Loop 1, Alarm 1 high	%I0199	S907	Inching JUM and FFU
%R8451	L1_AL1L	Loop 1, Alarm 1 low	%M0703	SET_BYP	PER, Bypass temp regs. at stop
%R8458	L1_OUT	Loop 1, Output TPOP	%M0144	STP8_9	Step 8-9 Motorstart to prod.
%R8459	L1_PV	Loop 1, Process value	%M3956	WB_HETN	W-bath, Heating control ON

TBA/21-0410/0500
BLOCK: TEMPERATURE REGULATORS/MONITORS

```

*****
* Loop 2 Temp reg. Peroxide tank                                     *
* This Temp reg. controls the temperature in the peroxide tank      *
* with the heaters in the water bath.                                *
* After a stop the temp. reg. control the temp. of the water bath   *
* until the peroxide temperature is OK (to avoid edgewicking). Then  *
* loop 1 will control the heaters until the water temp is OK.        *
*****

*****
* Loop 2 default PID regulator settings                             *
*****

```

```

FST_SCN                                     << RUNG 35 STEP #0087 >>
%S0001 +-----+ +-----+ +-----+
+---] [---+MOVE+-----+MOVE+-----+MOVE+-----+
          |INT|          |INT|          |INT|
CONST  -IN Q+-----+CONST  -IN Q+-----+CONST  -IN Q+-----+
+00002  LEN  %R9040  L2_SPER  %R9042  L2_DB+  %R9043
          |00001|          |00001|          |00001|
          +-----+          +-----+          +-----+

FST_SCN                                     << RUNG 36 STEP #0091 >>
%S0001 +-----+ +-----+ +-----+
+---] [---+MOVE+-----+MOVE+-----+MOVE+-----+
          |INT|          |INT|          |INT|
CONST  -IN Q+-----+CONST  -IN Q+-----+CONST  -IN Q+-----+
+00000  LEN  %R9044  L2_PGN  %R9045  L2_DGN  %R9046
          |00001|          |00001|          |00001|
          +-----+          +-----+          +-----+

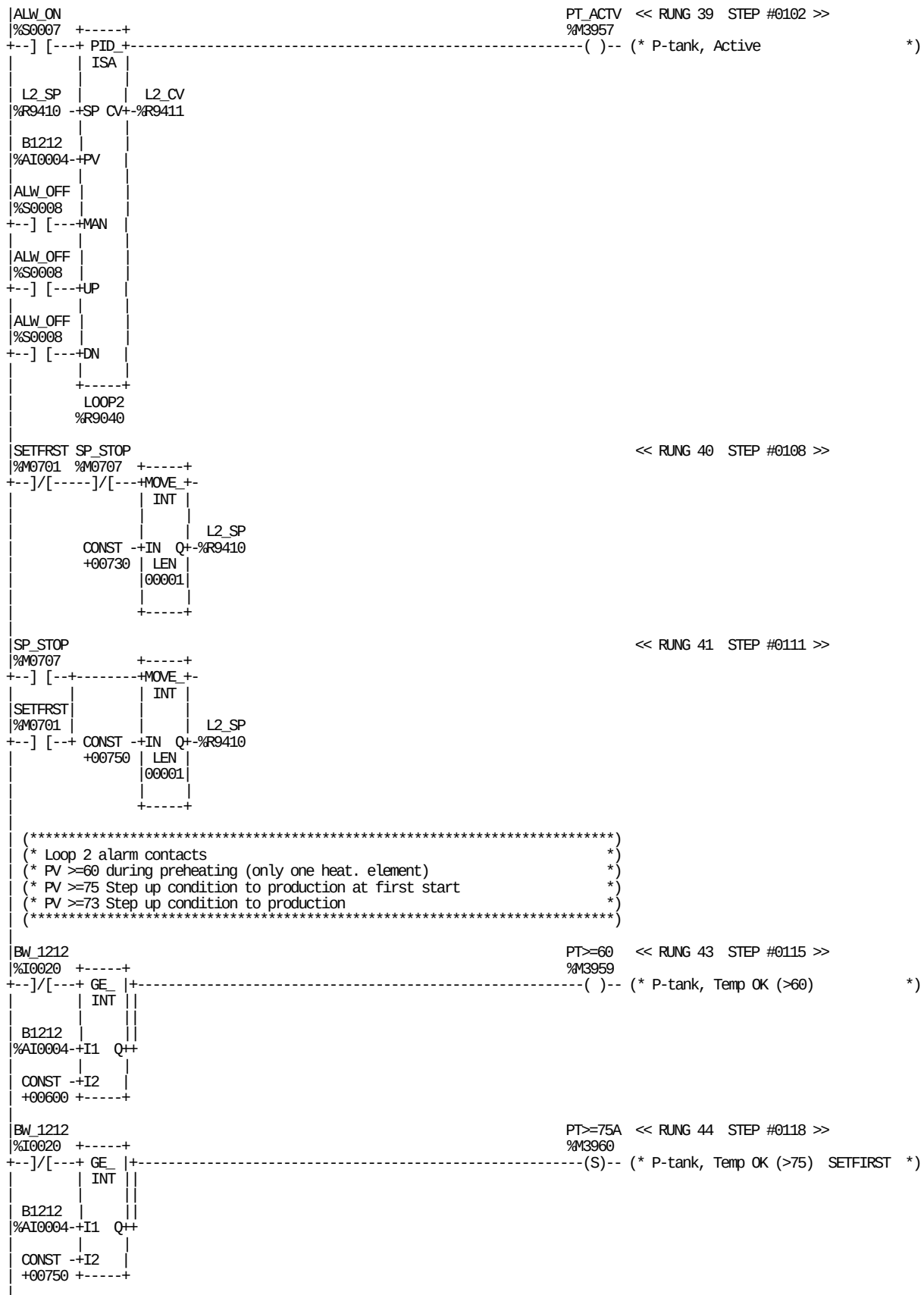
FST_SCN                                     << RUNG 37 STEP #0095 >>
%S0001 +-----+ +-----+ +-----+
+---] [---+MOVE+-----+MOVE+-----+MOVE+-----+
          |INT|          |INT|          |INT|
CONST  -IN Q+-----+CONST  -IN Q+-----+CONST  -IN Q+-----+
+02000  LEN  %R9047  L2_BIAS  %R9048  L2_UCLP  %R9049
          |00001|          |00001|          |00001|
          +-----+          +-----+          +-----+

FST_SCN                                     << RUNG 38 STEP #0099 >>
%S0001 +-----+ +-----+
+---] [---+MOVE+-----+MOVE+-----+
          |INT|          |INT|
CONST  -IN Q+-----+CONST  -IN Q+-----+
+00000  LEN  %R9050  L2_MSLW  %R9051
          |00001|          |00001|
          +-----+          +-----+

```

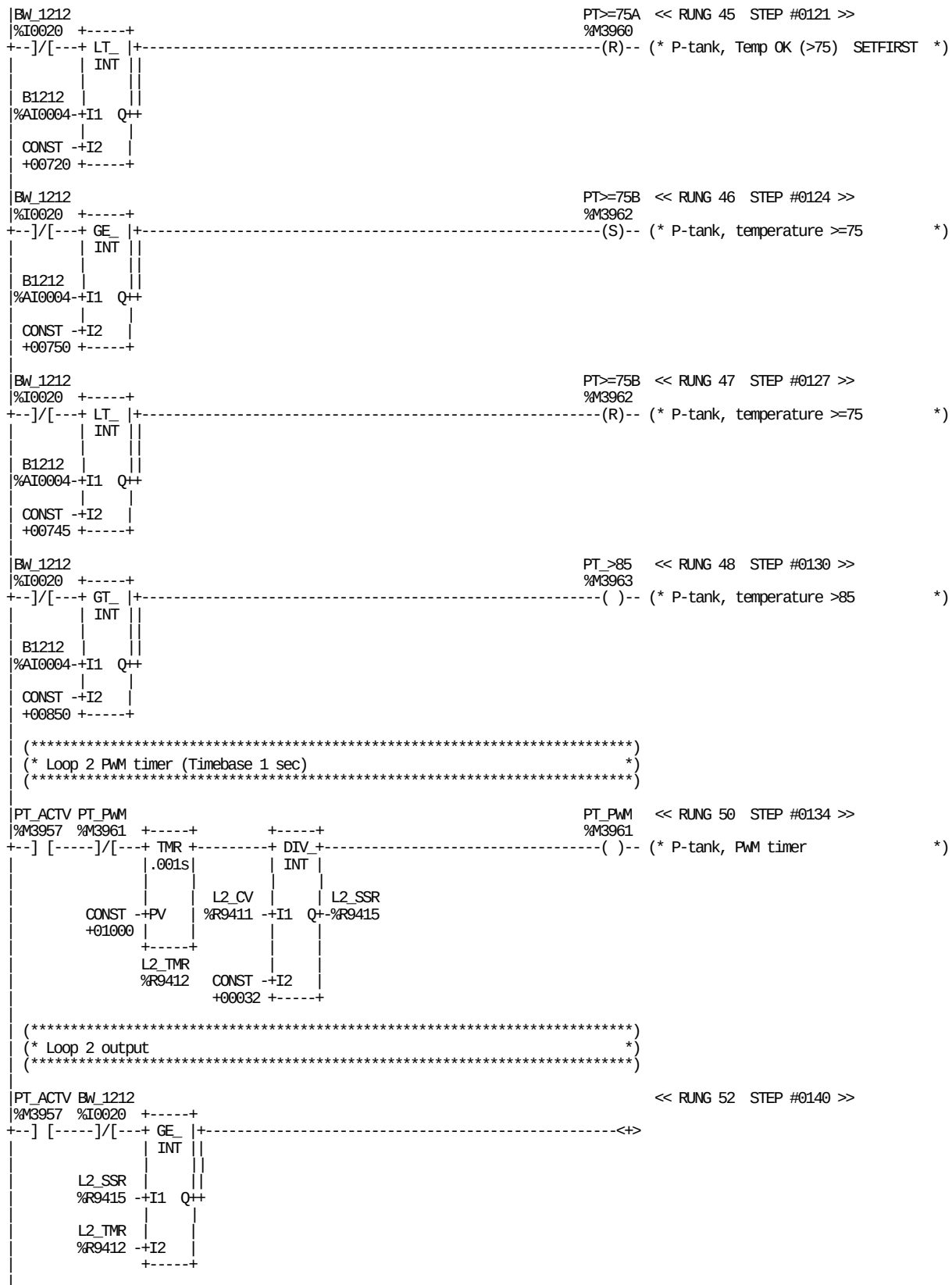
REFERENCE	NICKNAME	REFERENCE	DESCRIPTION	REFERENCE	NICKNAME	REFERENCE	DESCRIPTION
%S0001	FST_SCN			%R0050	L2_LCLP	Loop 2, Lower clamp	
%R0048	L2_BIAS	Loop 2, Bias		%R0051	L2_MSLW	Loop 2, Min. slew time	
%R0043	L2_DB+	Loop 2, Dead band +		%R0045	L2_PGN	Loop 2, P-gain	
%R0044	L2_DB-	Loop 2, Dead band -		%R0042	L2_SPER	Loop 2, Sample periode	
%R0046	L2_DGN	Loop 2, D-gain		%R0049	L2_UCLP	Loop 2, Upper clamp	
%R0047	L2_IGN	Loop 2, I-gain		%R0040	LOOP2	Peroxide tank	

TBA/21-0410/0500
BLOCK: TEMPERATURE REGULATORS/MONITORS



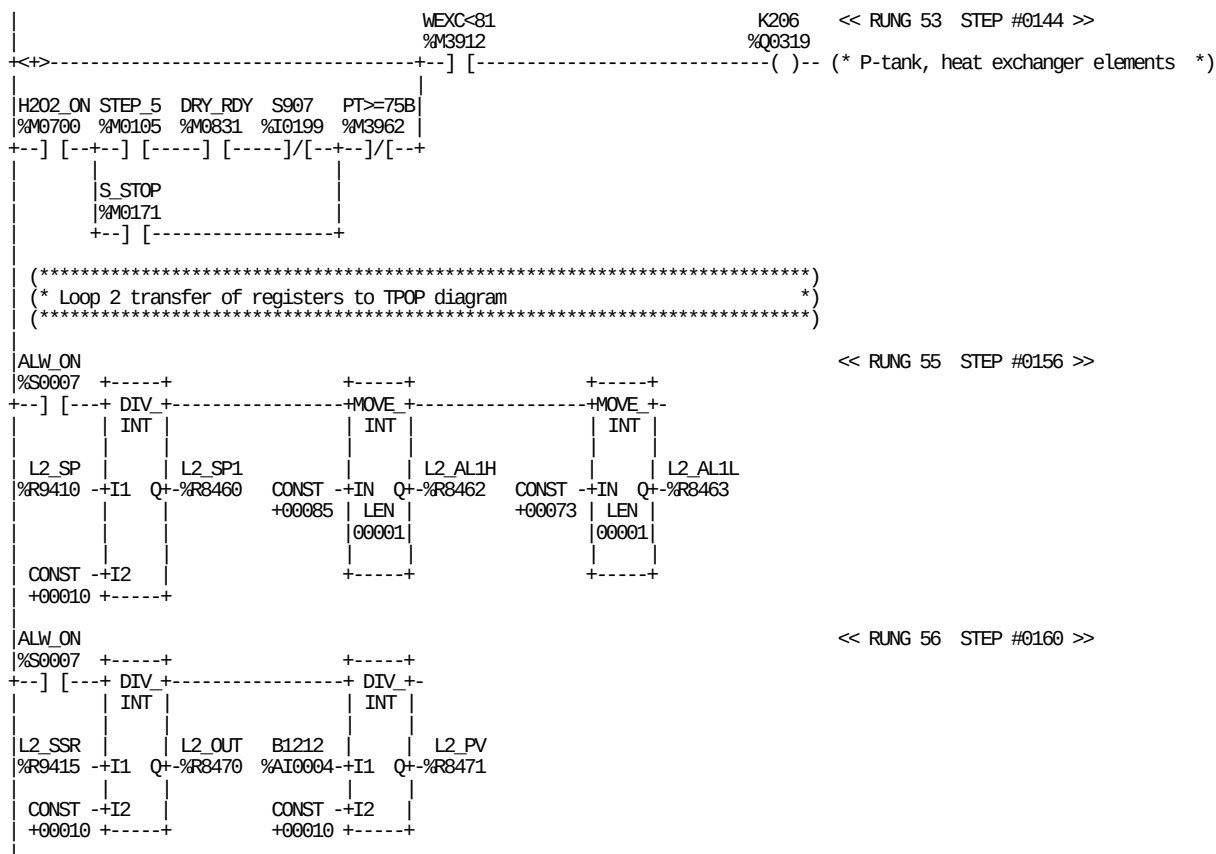
REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%S0008	ALW_OFF		%R9040	LOOP2	Peroxide tank
%S0007	ALW_ON		%M3959	PT>=60	P-tank, Temp OK (>60)
%AI0004	B1212	Temp. regulator, Peroxide tank	%M3960	PT>=75A	P-tank, Temp OK (>75) SETFIRST
%I0020	Bw_1212	Broken wire Peroxide tank	%M3957	PT_ACTV	P-tank, Active
%R9411	L2_CV	Loop 2, Control value (Per.tank)	%M0701	SETFRST	PER, Setpoint at first start
%R9410	L2_SP	Loop 2, Set point	%M0707	SP_STOP	PER, 2nd sp H202 tank at stop

TBA/21-0410/0500
BLOCK: TEMPERATURE REGULATORS/MONITORS



REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%AI0004	B1212	Temp. regulator, Peroxide tank	%M3960	PT>=75A	P-tank, Temp OK (>75) SETFIRST
%I0020	Bw_1212	Broken wire Peroxide tank	%M3962	PT>=75B	P-tank, temperature >=75
%R9411	L2_CV	Loop 2, Control value (Per.tank)	%M3963	PT >85	P-tank, temperature >85
%R9415	L2_SSR	Loop 2, Solide state relay	%M3957	PT_ACTV	P-tank, Active
%R9412	L2_TMR	Loop 2, Timer	%M3961	PT_PWM	P-tank, Pwm timer

TBA/21-0410/0500
BLOCK: TEMPERATURE REGULATORS/MONITORS



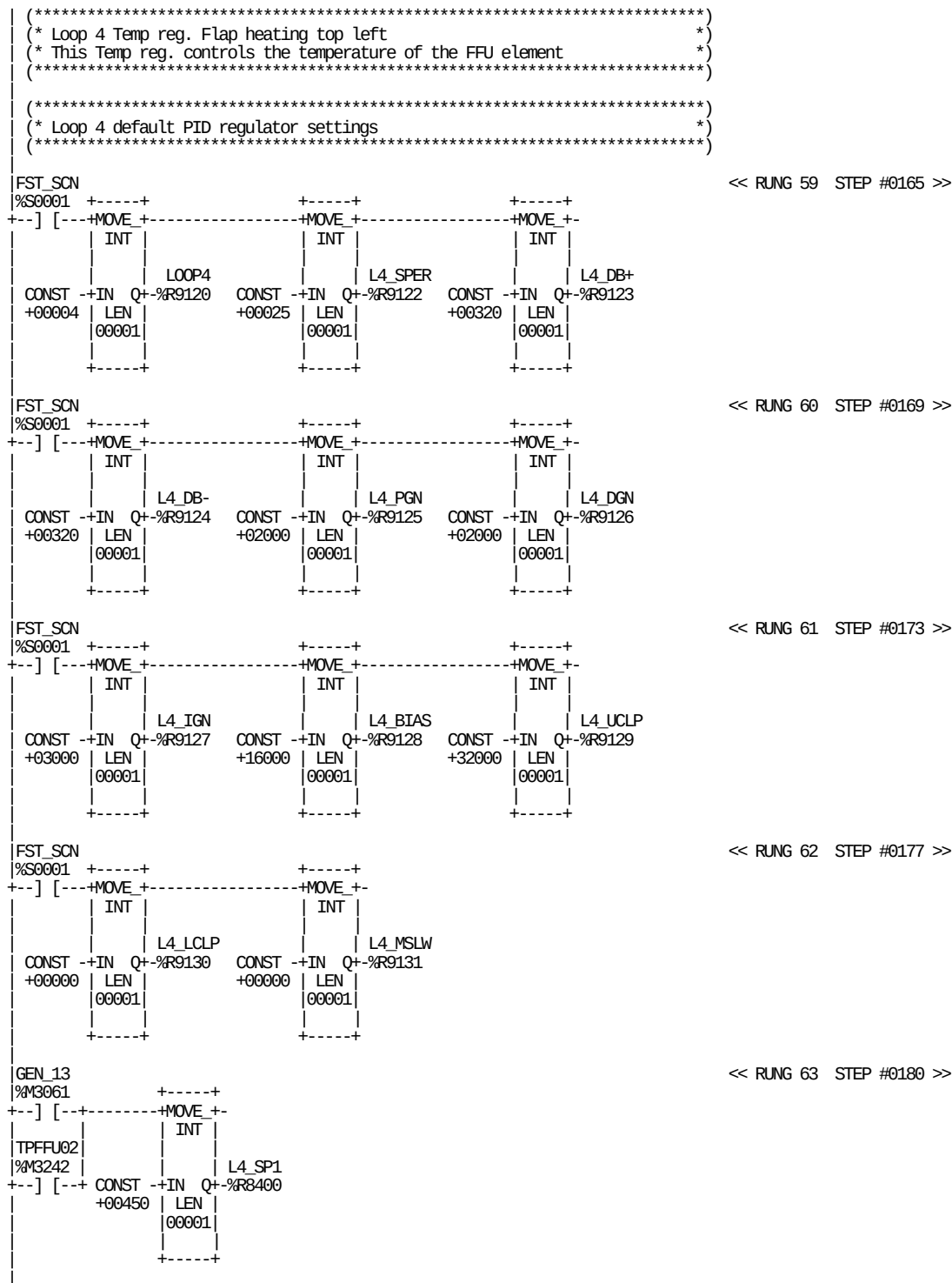
REFERENCE NICKNAME
%S0007 ALW_ON
%AI0004 B1212
%M0831 DRY_RDY
%M0700 H202_ON
%Q0319 K206
%R8462 L2_AL1H
%R8463 L2_AL1L
%R8470 L2_OUT
%R8471 L2_PV

REFERENCE DESCRIPTION
Temp. regulator, Peroxide tank
AIR, Drying ready aseptic chamb
PER, Peroxide system on
P-tank, heat exchanger elements
Loop 2, Alarm 1 high
Loop 2, Alarm 1 low
Loop 2, Output TPOP
Loop 2, Process value

REFERENCE NICKNAME
%R9410 L2_SP
%R8460 L2_SP1
%R9415 L2_SSR
%M3962 PT>=75B
%I0199 S907
%M0105 STEP_5
%M0171 S_STOP
%M3912 WEXC<81

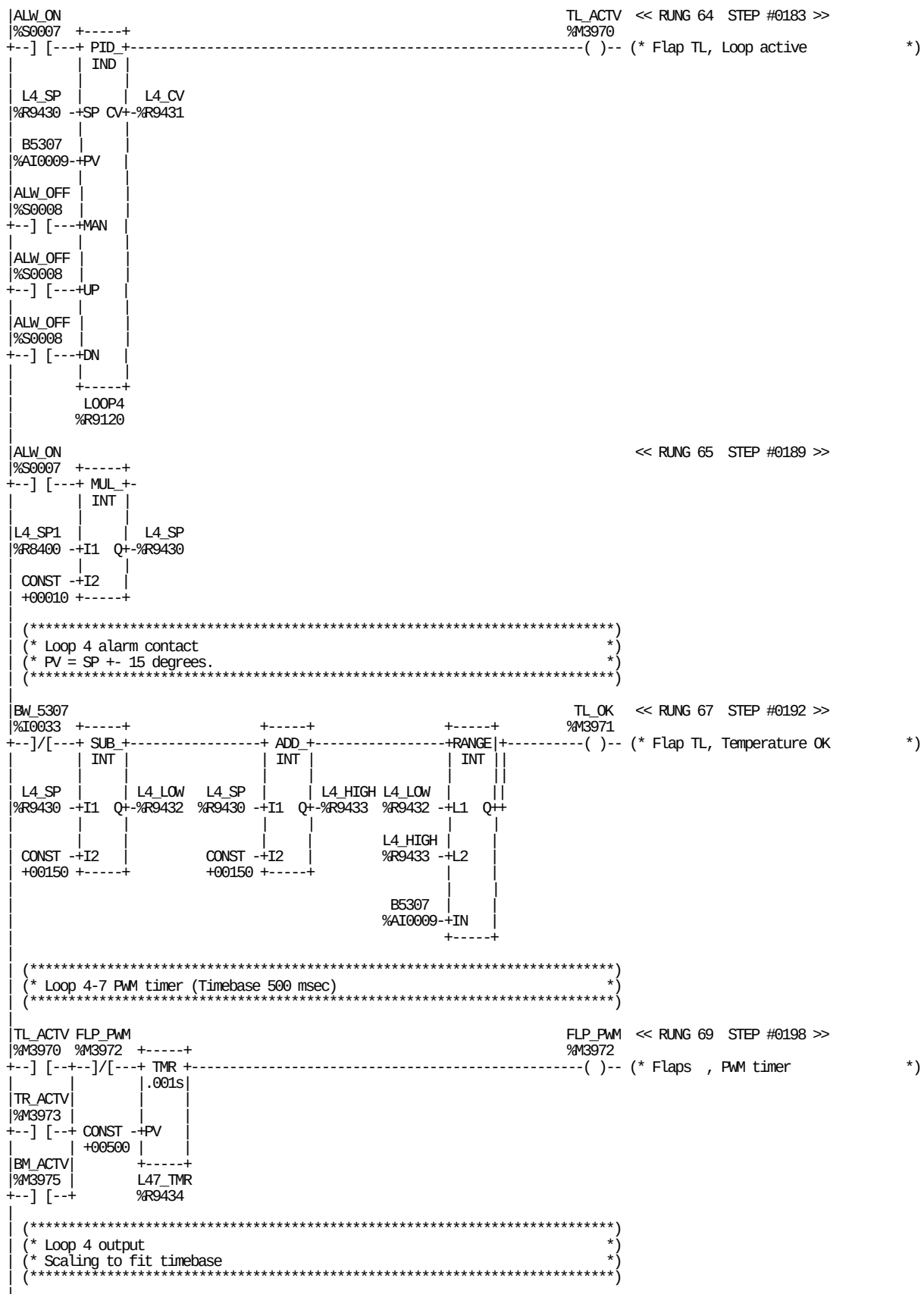
REFERENCE DESCRIPTION
Loop 2, Set point
Loop 2, Set point 1
Loop 2, Solide state relay
P-tank, temperature >=75
Inching JUM and FFU
Step 5 Drying
Short stop on
Water-H2O2 heat exchanger (<81)

TBA/21-0410/0500
BLOCK: TEMPERATURE REGULATORS/MONITORS



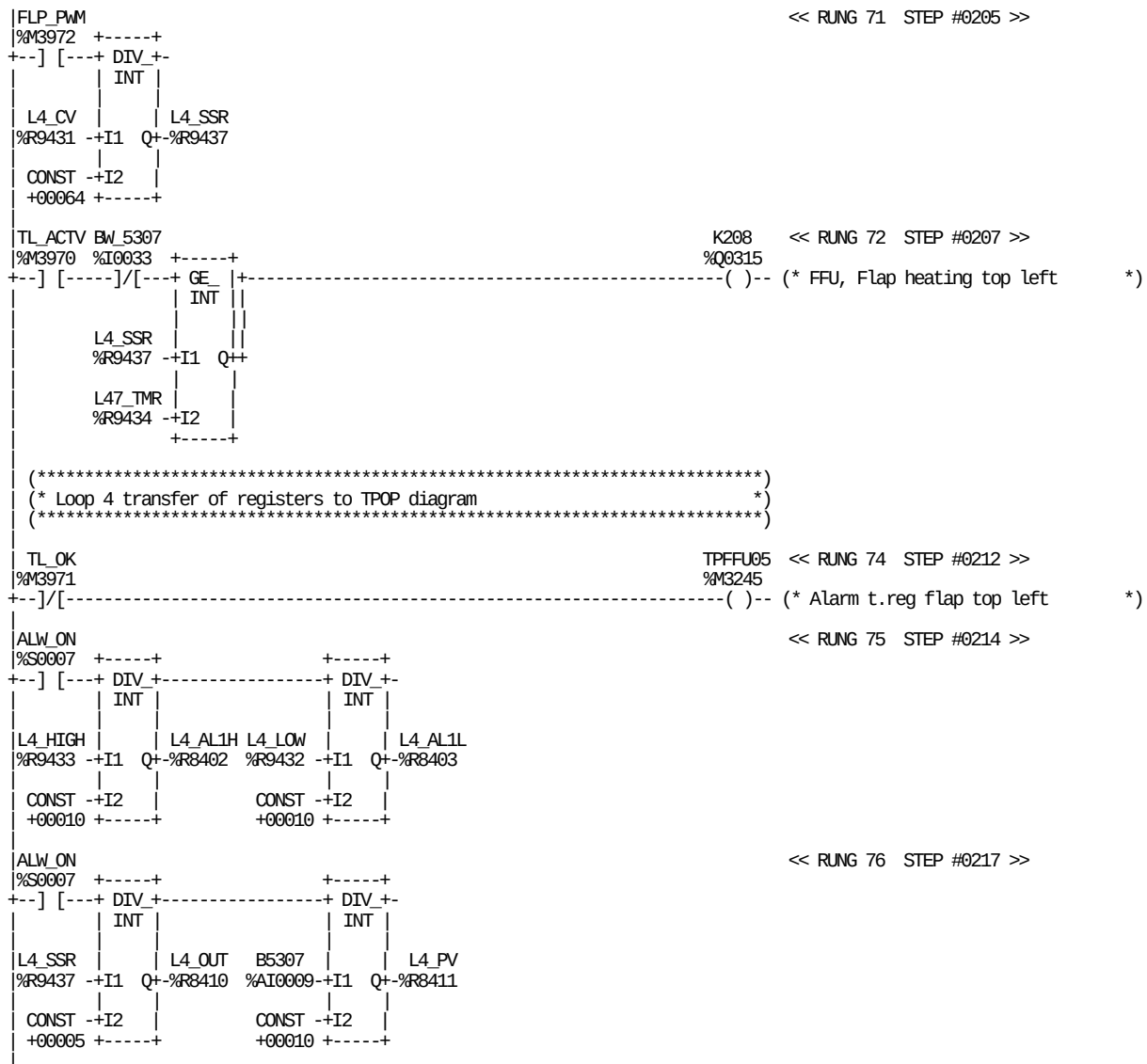
REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%S0001	FST_SCN		%R9131	L4_MSLW	Loop 4, Min. slew time
%M3061	GEN_13	General default push button	%R9125	L4_PGN	Loop 4, P-gain
%R9128	L4_BIAS	Loop 4, Bias	%R8400	L4_SP1	Loop 4, Set point 1
%R9123	L4_DB+	Loop 4, Dead band +	%R9122	L4_SPER	Loop 4, Sample periode
%R9124	L4_DB-	Loop 4, Dead band -	%R9129	L4_UCLP	Loop 4, Upper clamp
%R9126	L4_DGN	Loop 4, D-gain	%R9120	LOOP4	FFU element top left
%R9127	L4_IGN	Loop 4, I-gain	%M3242	TPFFU02	Default t.reg flap top left op.
%R9130	L4_LCLP	Loop 4, Lower clamp			

TBA/21-0410/0500
BLOCK: TEMPERATURE REGULATORS/MONITORS



REFERENCE	NICKNAME	REFERENCE	DESCRIPTION	REFERENCE	NICKNAME	REFERENCE	DESCRIPTION
%S0008	ALW_OFF			%R9433	L4_HIGH	Loop 4, High limit	
%S0007	ALW_ON			%R9432	L4_LOW	Loop 4, Low limit	
%AI0009	B5307	Temp. reg, Flap heat. top left		%R9430	L4_SP	Loop 4, Set point	
%M3975	BM_ACTV	Flap Bottom L/R, Loop active		%R8400	L4_SP1	Loop 4, Set point 1	
%I0033	BM_5307	Broken wire Flap heat top left		%R9120	LOOP4	FFU element top left	
%M3972	FLP_PWM	Flaps , PWM timer		%M3970	TL_ACTV	Flap TL, Loop active	
%R9434	L47_TMR	Loop 4-7, Timer		%M3971	TL_OK	Flap TL, Temperature OK	
%R9431	L4_CV	Loop 4, Control value (FFU TL)		%M3973	TR_ACTV	Flap TR, Loop active	

TBA/21-0410/0500
BLOCK: TEMPERATURE REGULATORS/MONITORS



REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%S0007	ALW_ON		%R9433	L4_HIGH	Loop 4, High limit
%AI0009	B5307	Temp. reg, Flap heat. top left	%R9432	L4_LOW	Loop 4, Low limit
%I0033	BW_5307	Broken wire Flap heat top left	%R8410	L4_OUT	Loop 4, Output TPOP
%M3972	FLP_PWM	Flaps , PWM timer	%R8411	L4_PV	Loop 4, Process value
%Q0315	K208	FFU, Flap heating top left	%R9437	L4_SSR	Loop 4, Solid state relay
%R9434	L47_TMR	Loop 4-7, Timer	%M3970	TL_ACTIV	Flap TL, Loop active
%R8402	L4_AL1H	Loop 4, Alarm 1 high	%M3971	TL_OK	Flap TL, Temperature OK
%R8403	L4_AL1L	Loop 4, Alarm 1 low	%M3245	TPFFU05	Alarm t.reg flap top left
%R9431	L4_CV	Loop 4, Control value (FFU TL)			

TBA/21-0410/0500
BLOCK: TEMPERATURE REGULATORS/MONITORS

```

(*****
* Loop 5 Temp reg. Flap heating top right
* This Temp reg. controls the temperature of the FFU element
*****
)

(*****
* Loop 5 default PID regulator settings
*****
)

```

```

FST_SCN                                     << RUNG 79 STEP #0222 >>
%S0001 +-----+
+---] [-+MOVE+-----+MOVE+-----+MOVE+
      | INT |         | INT |         | INT |
      +-----+         +-----+         +-----+
CONST  +IN Q+-%R9160  CONST  +IN Q+-%R9162  CONST  +IN Q+-%R9163
+00005  LEN 00001      +00025  LEN 00001      +00320  LEN 00001
      +-----+         +-----+         +-----+

```

```

FST_SCN                                     << RUNG 80 STEP #0226 >>
%S0001 +-----+
+---] [-+MOVE+-----+MOVE+-----+MOVE+
      | INT |         | INT |         | INT |
      +-----+         +-----+         +-----+
CONST  +IN Q+-%R9164  CONST  +IN Q+-%R9165  CONST  +IN Q+-%R9166
+00320  LEN 00001      +02000  LEN 00001      +02000  LEN 00001
      +-----+         +-----+         +-----+

```

```

FST_SCN                                     << RUNG 81 STEP #0230 >>
%S0001 +-----+
+---] [-+MOVE+-----+MOVE+-----+MOVE+
      | INT |         | INT |         | INT |
      +-----+         +-----+         +-----+
CONST  +IN Q+-%R9167  CONST  +IN Q+-%R9168  CONST  +IN Q+-%R9169
+03000  LEN 00001      +16000  LEN 00001      +32000  LEN 00001
      +-----+         +-----+         +-----+

```

```

FST_SCN                                     << RUNG 82 STEP #0234 >>
%S0001 +-----+
+---] [-+MOVE+-----+MOVE+
      | INT |         | INT |
      +-----+         +-----+
CONST  +IN Q+-%R9170  CONST  +IN Q+-%R9171
+00000  LEN 00001      +00000  LEN 00001
      +-----+         +-----+

```

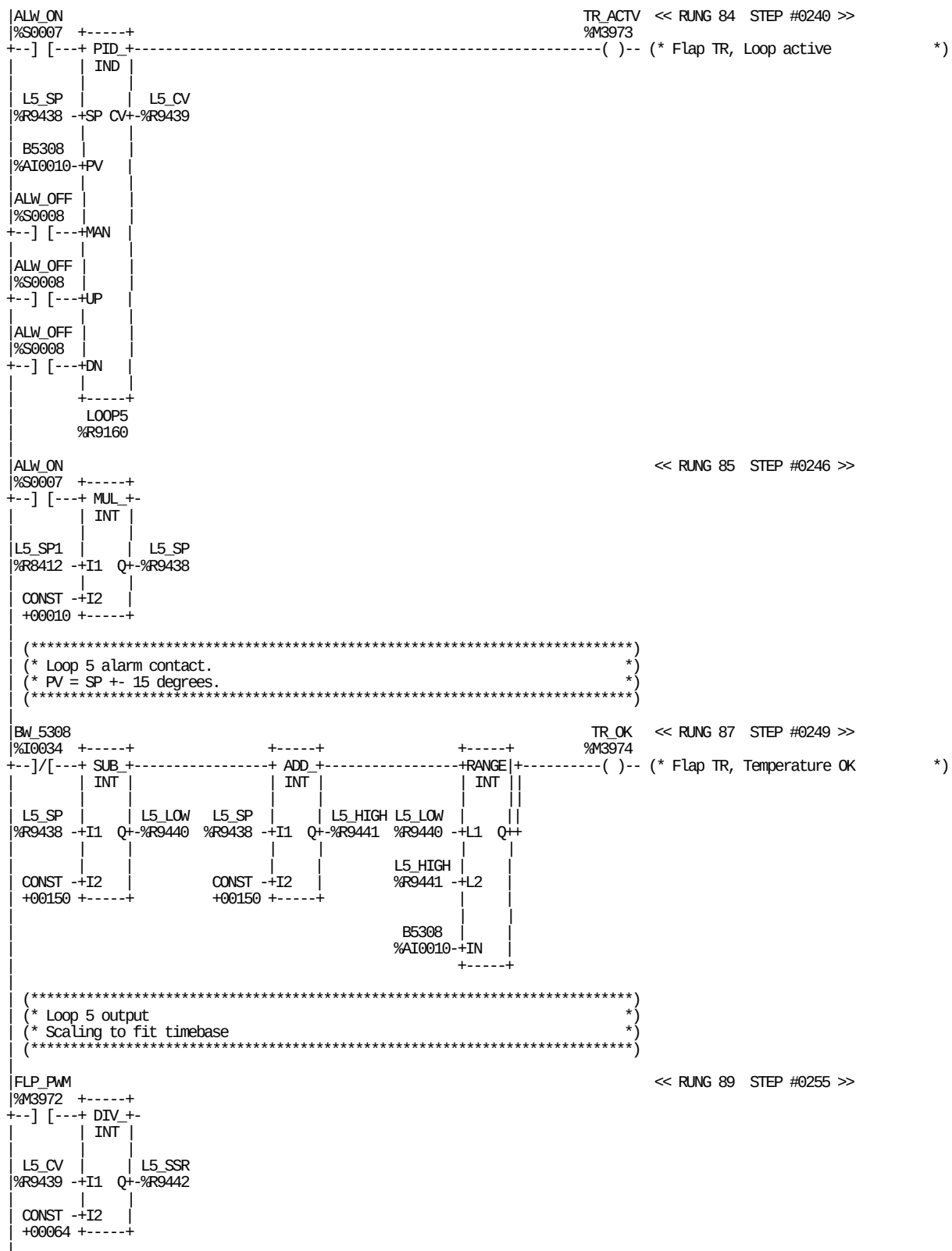
```

GEN_13                                     << RUNG 83 STEP #0237 >>
%M3061 +-----+
+---] [-+MOVE+-----+
      | INT |
      +-----+
TPFFU08
%M3248  CONST  +IN Q+-%R8412
+00450  LEN 00001
      +-----+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%S0001	FST_SCN		%R9171	L5_MSLW	Loop 5, Min. slew time
%M3061	GEN_13	General default push button	%R9165	L5_PGN	Loop 5, P-gain
%R9168	L5_BIAS	Loop 5, Bias	%R8412	L5_SP1	Loop 5, Set point 1
%R9163	L5_DB+	Loop 5, Dead band +	%R9162	L5_SPER	Loop 5, Sample periode
%R9164	L5_DB-	Loop 5, Dead band -	%R9169	L5_UCLP	Loop 5, Upper clamp
%R9166	L5_DGN	Loop 5, D-gain	%R9160	LOOP5	FFU element top right
%R9167	L5_IGN	Loop 5, I-gain	%M3248	TPFFU08	Default t.reg flap top right op.
%R9170	L5_LCLP	Loop 5, Lower clamp			

TBA/21-0410/0500
BLOCK: TEMPERATURE REGULATORS/MONITORS



REFERENCE NICKNAME
 %S0008 ALW_OFF
 %S0007 ALW_ON
 %AI0010 B5308
 %I0034 BW_5308
 %M3972 FLP_PWM
 %R9439 L5_CV
 %R9441 L5_HIGH

REFERENCE DESCRIPTION
 Temp. reg, Flap heat. top right
 Broken wire Flap heat top right
 Flaps , PWM timer
 Control value (FFU TR)
 Loop 5, High Limit

REFERENCE NICKNAME
 %R9440 L5_LOW
 %R9438 L5_SP
 %R8412 L5_SP1
 %R9442 L5_SSR
 %R9160 LOOP5
 %M3973 TR_ACTV
 %M3974 TR_OK

REFERENCE DESCRIPTION
 Loop 5, Low Limit
 Loop 5, Set point
 Loop 5, Set point 1
 Loop 5, Solid state relay
 FFU element top right
 Flap TR, Loop active
 Flap TR, Temperature OK

TBA/21-0410/0500
 BLOCK: TEMPERATURE REGULATORS/MONITORS


```

TR_ACTIV BW_5308                                K209 << RUNG 90 STEP #0257 >>
%M3973 %I0034 +-----+                          %Q0316
|--] [----]/[---+ GE_                            ( )-- (* FFU, Flap heating top right *)
      |          INT                               |
L5_SSR                                         |
%R9442 --+I1 Q+-                             |
|                                             |
L47_TMR                                         |
%R9434 --+I2                                   |
      |                                     +-----+

{*****}
{* Loop 5 transfer of registers to TPOp diagram *}
{*****}

TR_OK                                           TPFFU09 << RUNG 92 STEP #0262 >>
%M3974                                          %M3249
|--]/[----- ( )-- (* Alarm t.reg flap top right *)

ALW_ON                                           << RUNG 93 STEP #0264 >>
%S0007 +-----+                               +-----+
|--] [---+ DIV_+-----+ DIV_+
      |    INT   |                               |    INT   |
L5_HIGH L5_AL1H L5_LOW L5_AL1L
%R9441 --+I1 Q+- %R8414 %R9440 --+I1 Q+- %R8415
|         |         |         |         |
CONST --+I2        CONST --+I2
+00010 +-----+       +00010 +-----+

ALW_ON                                           << RUNG 94 STEP #0267 >>
%S0007 +-----+                               +-----+
|--] [---+ DIV_+-----+ DIV_+
      |    INT   |                               |    INT   |
L5_SSR L5_OUT B5308 L5_PV
%R9442 --+I1 Q+- %R8422 %AI0010 --+I1 Q+- %R8423
|         |         |         |         |
CONST --+I2        CONST --+I2
+00005 +-----+       +00010 +-----+

```

REFERENCE	NICKNAME	REFERENCE	DESCRIPTION	REFERENCE	NICKNAME	REFERENCE	DESCRIPTION
%S0007	ALW_ON			%R9440	L5_LOW		Loop 5, Low limit
%AI0010	B5308	Temp. reg, Flap heat. top right		%R8422	L5_OUT		Loop 5, Output TPOD
%I0034	BW_5308	Broken wire Flap heat top right		%R8423	L5_PV		Loop 5, Process value
%Q0316	K209	FFU, Flap heating top right		%R9442	L5_SSR		Loop 5, Solid state relay
%R9434	L47_TMR	Loop 4-7, Timer		%M3249	TPFFU09		Alarm t.reg flap top right
%R8414	L5_AL1H	Loop 5, Alarm 1 high		%M3973	TR_ACTV		Flap TR, Loop active
%R8415	L5_AL1L	Loop 5, Alarm 1 low		%M3974	TR_OK		Flap TR, Temperature OK
%R9441	L5_HIGH	Loop 5, High limit					

TBA/21-0410/0500
BLOCK: TEMPERATURE REGULATORS/MONITORS

```

(*****
* Loop 6 Temp reg. Flap heating bottom
* This Temp reg. controls the temperature of the FFU element
*****
)

(*****
* Loop 6 default PID regulator settings
*****
)

```

```

FST_SCN                                     << RUNG 97 STEP #0272 >>
%S0001 +-----+
+---] [-+MOVE+-----+-----+-----+
          |INT|
          +-----+
CONST  +---+IN Q+-%R9200
+00006 |LEN|
       |00001|
          +-----+
          |INT|
          +-----+
CONST  +---+IN Q+-%R9202
+00025 |LEN|
       |00001|
          +-----+
          |INT|
          +-----+
CONST  +---+IN Q+-%R9203
+00320 |LEN|
       |00001|
          +-----+

```

```

FST_SCN                                     << RUNG 98 STEP #0276 >>
%S0001 +-----+
+---] [-+MOVE+-----+-----+-----+
          |INT|
          +-----+
CONST  +---+IN Q+-%R9204
+00320 |LEN|
       |00001|
          +-----+
          |INT|
          +-----+
CONST  +---+IN Q+-%R9205
+02000 |LEN|
       |00001|
          +-----+
          |INT|
          +-----+
CONST  +---+IN Q+-%R9206
+02000 |LEN|
       |00001|
          +-----+

```

```

FST_SCN                                     << RUNG 99 STEP #0280 >>
%S0001 +-----+
+---] [-+MOVE+-----+-----+-----+
          |INT|
          +-----+
CONST  +---+IN Q+-%R9207
+03000 |LEN|
       |00001|
          +-----+
          |INT|
          +-----+
CONST  +---+IN Q+-%R9208
+16000 |LEN|
       |00001|
          +-----+
          |INT|
          +-----+
CONST  +---+IN Q+-%R9209
+32000 |LEN|
       |00001|
          +-----+

```

```

FST_SCN                                     << RUNG 100 STEP #0284 >>
%S0001 +-----+
+---] [-+MOVE+-----+-----+-----+
          |INT|
          +-----+
CONST  +---+IN Q+-%R9210
+00000 |LEN|
       |00001|
          +-----+
          |INT|
          +-----+
CONST  +---+IN Q+-%R9211
+00000 |LEN|
       |00001|
          +-----+

```

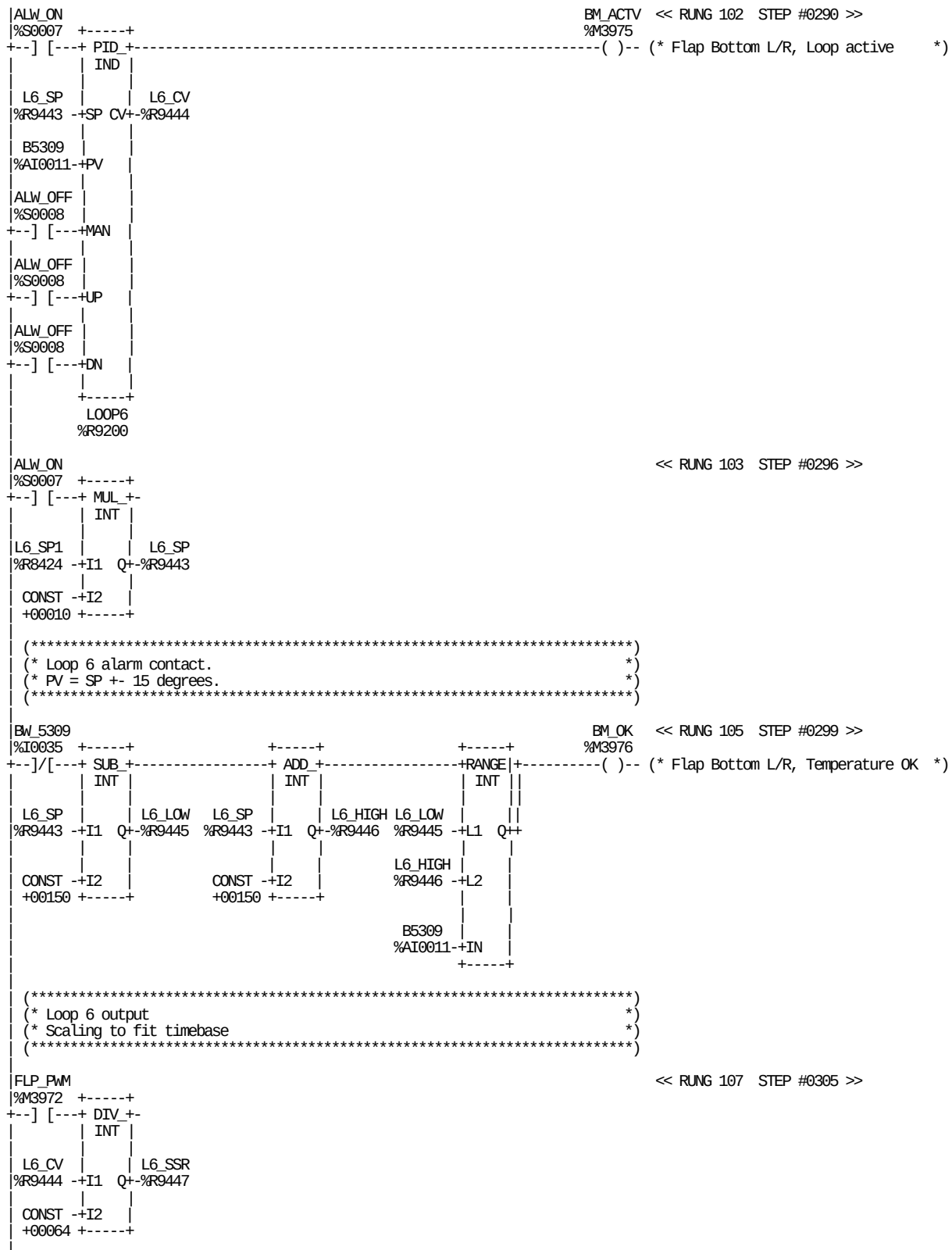
```

GEN_13                                     << RUNG 101 STEP #0287 >>
%M3061 +-----+
+---] [-+MOVE+-----+-----+-----+
          |INT|
          +-----+
TPFFU10 +---+IN Q+-%R8424
%M3250 |LEN|
+00530 |00001|
          +-----+

```

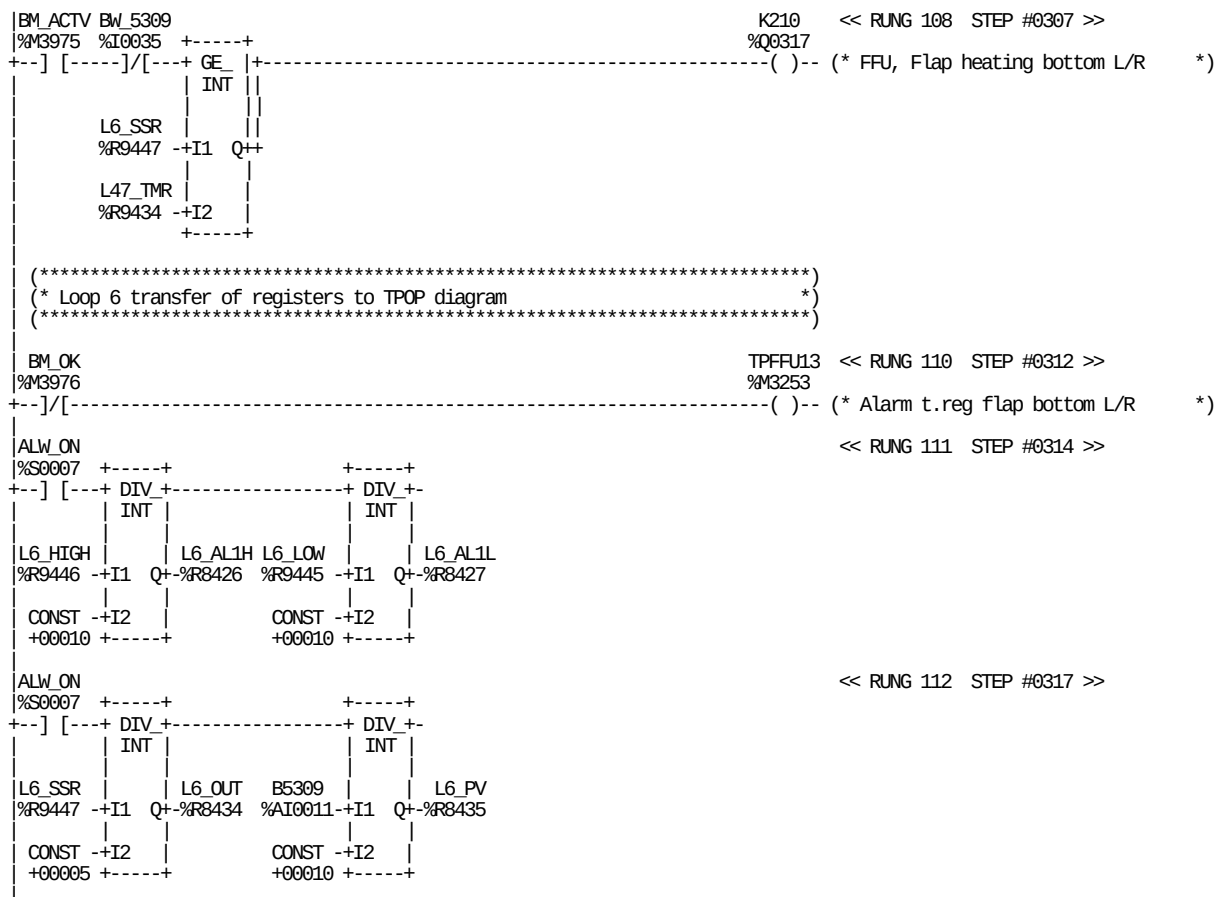
REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%S0001	FST_SCN		%R9211	L6_MSLW	Loop 6, Min. slew time
%M3061	GEN_13	General default push button	%R9205	L6_PGN	Loop 6, P-gain
%R9208	L6_BIAS	Loop 6, Bias	%R8424	L6_SP1	Loop 6, Set point 1
%R9203	L6_DB+	Loop 6, Dead band +	%R9202	L6_SPER	Loop 6, Sample periode
%R9204	L6_DB-	Loop 6, Dead band -	%R9209	L6_UCLP	Loop 6, Upper clamp
%R9206	L6_DGN	Loop 6, D-gain	%R9200	LOOP6	FFU element bottom L/R
%R9207	L6_IGN	Loop 6, I-gain	%M3250	TPFFU10	Default t.reg flap bot. op.
%R9210	L6_LCLP	Loop 6, Lower clamp			

TBA/21-0410/0500
BLOCK: TEMPERATURE REGULATORS/MONITORS



REFERENCE	NICKNAME	REFERENCE	DESCRIPTION	REFERENCE	NICKNAME	REFERENCE	DESCRIPTION
%S0008	ALW_OFF			%R9444	L6_CV	Loop 6,	Control value (FFU BL)
%S0007	ALW_ON			%R9446	L6_HIGH	Loop 6,	High limit
%AI0011	B5309	Temp. reg, Flap heat. bottom L/R		%R9445	L6_LOW	Loop 6,	Low limit
%M3975	BM_ACTV	Flap Bottom L/R, Loop active		%R9443	L6_SP	Loop 6,	Set point
%M3976	BM_OK	Flap Bottom L/R, Temperature OK		%R8424	L6_SP1	Loop 6,	Set point 1
%I0035	Bw_5309	Broken wire Flap heat bott.L/R		%R9447	L6_SSR	Loop 6,	Solide state relay
%M3972	FLP_PWM	Flaps , PWM timer		%R9200	LOOP6	FFU element bottom L/R	

TBA/21-0410/0500
BLOCK: TEMPERATURE REGULATORS/MONITORS



REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%S0007	ALW_ON		%R8427	L6_AL1L	Loop 6, Alarm 1 low
%AI0011	B5309	Temp. reg, Flap heat. bottom L/R	%R9446	L6_HIGH	Loop 6, High limit
%M3975	BM_ACTV	Flap Bottom L/R, Loop active	%R9445	L6_LOW	Loop 6, Low limit
%M3976	BM_OK	Flap Bottom L/R, Temperature OK	%R8434	L6_OUT	Loop 6, Output TP0P
%I0035	BM_5309	Broken wire Flap heat bott.L/R	%R8435	L6_PV	Loop 6, Process value
%Q0317	K210	FFU, Flap heating bottom L/R	%R9447	L6_SSR	Loop 6, Solide state relay
%R9434	L47_TMR	Loop 4-7, Timer	%M3253	TPFU13	Alarm t.reg Flap bottom L/R
%R8426	L6_AL1H	Loop 6, Alarm 1 high			

TBA/21-0410/0500
BLOCK: TEMPERATURE REGULATORS/MONITORS

```

{*****}
{ * Loop 8 Temp reg. Air super heater * }
{ * This Temp reg. controls the temperature in the air super heater * }
{*****}

{*****}
{ * Loop 8 default PID regulator settings * }
{*****}

FST_SCN                                     << RUNG 115 STEP #0322 >>
%S0001 +-----+                         +-----+                         +-----+
|--] [---+MOVE_+-----+MOVE_+-----+MOVE_+-----+
        |INT_|                         |INT_|                         |INT_|
        +-----+                         +-----+                         +-----+
CONST  -IN Q+-%R9280   LOOP8             CONST  -IN Q+-%R9282   L8_SPER             CONST  -IN Q+-%R9283   L8_DB+
+00008 |LEN|          |00001|            +00050 |LEN|          |00001|            +00320 |LEN|          |00001|
        +-----+                         +-----+                         +-----+

FST_SCN                                     << RUNG 116 STEP #0326 >>
%S0001 +-----+                         +-----+                         +-----+
|--] [---+MOVE_+-----+MOVE_+-----+MOVE_+-----+
        |INT_|                         |INT_|                         |INT_|
        +-----+                         +-----+                         +-----+
CONST  -IN Q+-%R9284   L8_DB-             CONST  -IN Q+-%R9285   L8_PGN             CONST  -IN Q+-%R9286   L8_DGN
+00320 |LEN|          |00001|            +05500 |LEN|          |00001|            +01500 |LEN|          |00001|
        +-----+                         +-----+                         +-----+

FST_SCN                                     << RUNG 117 STEP #0330 >>
%S0001 +-----+                         +-----+                         +-----+
|--] [---+MOVE_+-----+MOVE_+-----+MOVE_+-----+
        |INT_|                         |INT_|                         |INT_|
        +-----+                         +-----+                         +-----+
CONST  -IN Q+-%R9287   L8_IGN             CONST  -IN Q+-%R9288   L8_BIAS             CONST  -IN Q+-%R9289   L8_UCLP
+02300 |LEN|          |00001|            +16000 |LEN|          |00001|            +32000 |LEN|          |00001|
        +-----+                         +-----+                         +-----+

FST_SCN                                     << RUNG 118 STEP #0334 >>
%S0001 +-----+                         +-----+
|--] [---+MOVE_+-----+MOVE_+-----+
        |INT_|                         |INT_|
        +-----+                         +-----+
CONST  -IN Q+-%R9290   L8_LCLP             CONST  -IN Q+-%R9291   L8_MSLW
+00000 |LEN|          |00001|            +00000 |LEN|          |00001|
        +-----+                         +-----+

```

REFERENCE	NICKNAME	REFERENCE	DESCRIPTION	REFERENCE	NICKNAME	REFERENCE	DESCRIPTION
%S0001	FST_SCN			%R9290	L8_LCLP		Loop 8, Lower clamp
%R9288	L8_BIAS		Loop 8, Bias	%R9291	L8_MSLW		Loop 8, Min. slew time
%R9283	L8_DB+		Loop 8, Dead band +	%R9285	L8_PGN		Loop 8, P-gain
%R9284	L8_DB-		Loop 8, Dead band -	%R9282	L8_SPER		Loop 8, Sample period
%R9286	L8_DGN		Loop 8, D-gain	%R9289	L8_UCLP		Loop 8, Upper clamp
%R9287	L8_IGN		Loop 8, I-gain	%R9280	LOOP8		Air super heater

TBA/21-0410/0500
BLOCK: TEMPERATURE REGULATORS/MONITORS

```

ALW_ON          AS_ACTV  << RUNG 119  STEP #0337 >>
%S0007          %M3980
+---] [---+ PID_  -----( )-- (* Airsup, Loop active *)
      IND_
      L8_CV
CONST --SP CV+-%R9461
+03600
B1105
%AI0007--+PV
ALW_OFF
%S0008
+---] [---+MAN
ALW_OFF
%S0008
+---] [---+UP
ALW_OFF
%S0008
+---] [---+DN
      +-----+
      LOOP8
      %R9280
(*****
* Loop 8 alarm contacts. *)
* PV > 330 above heat sterilisation. *)
* PV > 360 to step up to spraying. *)
*****)

BW_1105          AS_OKLO << RUNG 121  STEP #0344 >>
%I0023          %M3982
+---]/[---+ GT_  -----( )-- (* Airsup, Temp > 330 degr. *)
      INT_
      B1105
      %AI0007--+I1 Q++
      CONST --I2
      +03300 +-----+

BW_1105          AS_OKHI << RUNG 122  STEP #0347 >>
%I0023          %M3983
+---]/[---+ GT_  -----( )-- (* Airsup, Temp > 360 degr. *)
      INT_
      B1105
      %AI0007--+I1 Q++
      CONST --I2
      +03550 +-----+

(*****
* Loop 8 PWM timer (Timebase 1 sec) *)
*****)

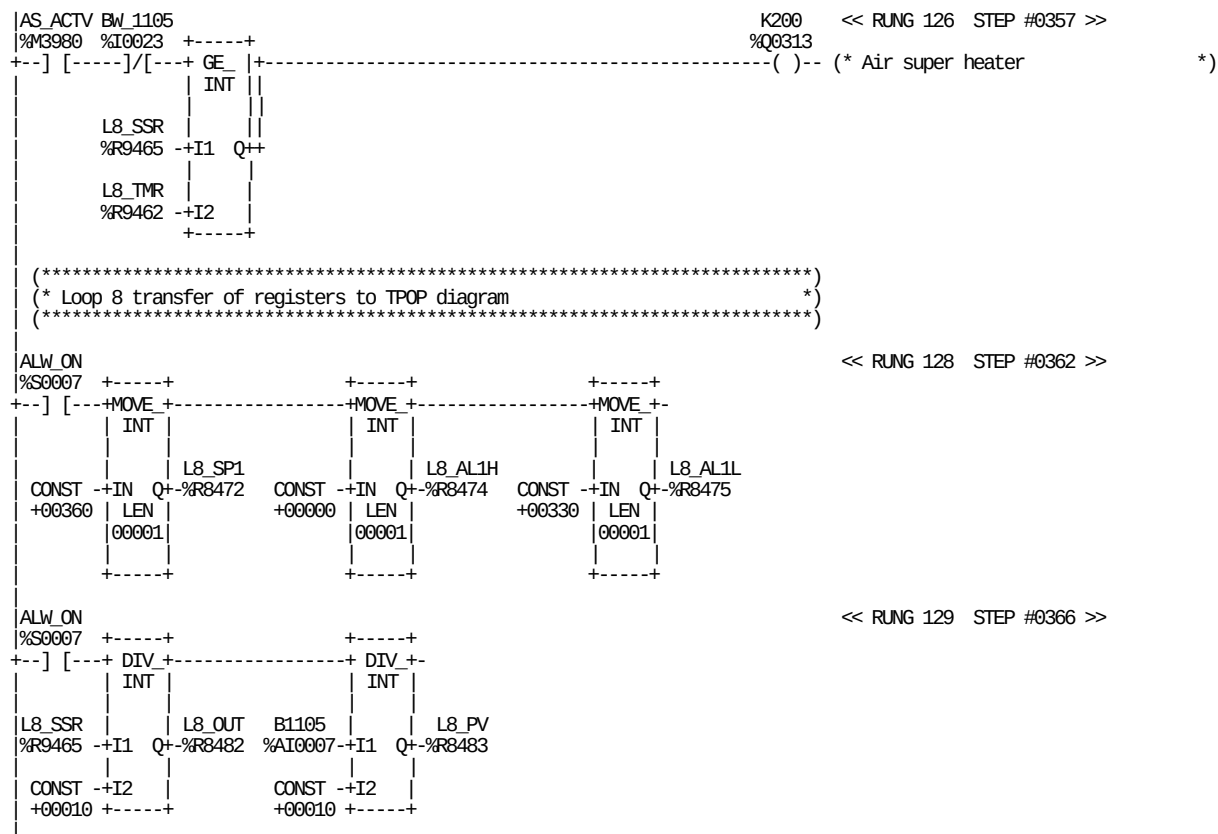
AS_ACTV AS_PWM          AS_PWM  << RUNG 124  STEP #0351 >>
%M3980  %M3984          %M3984
+---] [---]/[---+ TMR +-----+ DIV +-----+
      .001s          INT_
      CONST --PV      L8_CV      L8_SSR
      +01000          %R9461 --I1 Q+-%R9465
      +-----+
      L8_TMR          CONST --I2
      %R9462          +00032 +-----+

(*****
* Loop 8 output *)
*****)

```

REFERENCE	NICKNAME	REFERENCE	DESCRIPTION	REFERENCE	NICKNAME	REFERENCE	DESCRIPTION
%S0008	ALW_OFF			%AI0007	B1105		Temp. regulator,Air super heater
%S0007	ALW_ON			%I0023	BW_1105		Broken wire Air super heater
%M3980	AS_ACTV	Airsup,	Loop active	%R9461	L8_CV		Loop 8, Control value
%M3983	AS_OKHI	Airsup,	Temp > 360 degr.	%R9465	L8_SSR		Loop 8, SSR
%M3982	AS_OKLO	Airsup,	Temp > 330 degr.	%R9462	L8_TMR		Loop 8, Timer
%M3984	AS_PwM	Airsup,	PwM timer	%R9280	LOOP8		Air super heater

TBA/21-0410/0500
BLOCK: TEMPERATURE REGULATORS/MONITORS



REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%S0007	ALW_ON		%R8475	L8_AL1L	Loop 8, Alarm 1 low
%M3980	AS_ACTV	Airsup, Loop active	%R8482	L8_OUT	Loop 8, Output TPOD
%AI0007	B1105	Temp. regulator,Air super heater	%R8483	L8_PV	Loop 8, Process value
%I0023	BW_1105	Broken wire Air super heater	%R8472	L8_SP1	Loop 8, Set point 1
%Q0313	K200	Air super heater	%R9465	L8_SSR	Loop 8, SSR
%R8474	L8_AL1H	Loop 8, Alarm 1 high	%R9462	L8_TMR	Loop 8, Timer

TBA/21-0410/0500
BLOCK: TEMPERATURE REGULATORS/MONITORS

```

{*****}
{* Loop 9 Temp reg. Peroxide bath *}
{* This Temp reg. controls the temperature in the peroxide bath *}
{* with the heaters in the water bath. *}
{*****}

{*****}
{* Loop 9 default PID regulator settings *}
{*****}

FST_SCN                                << RUNG 132 STEP #0371 >>
%S0001                                +-----+
+---] [----+                         +-----+                         +-----+
      |MOVE|                         |MOVE|                         |MOVE|
      |INT|                         |INT|                         |INT|
      +-----+                     +-----+                     +-----+
CONST -IN Q+-%R9320    LOOP9          CONST -IN Q+-%R9322    L9_SPER          CONST -IN Q+-%R9323    L9_DB+
+00009   LEN           +00200   LEN           +00000   LEN           +00001
        [00001]         [00001]         [00001]
        +-----+         +-----+         +-----+

FST_SCN                                << RUNG 133 STEP #0375 >>
%S0001                                +-----+
+---] [----+                         +-----+                         +-----+
      |MOVE|                         |MOVE|                         |MOVE|
      |INT|                         |INT|                         |INT|
      +-----+                     +-----+                     +-----+
CONST -IN Q+-%R9324    L9_DB-          CONST -IN Q+-%R9325    L9_PGN          CONST -IN Q+-%R9326    L9_DGN
+00000   LEN           +25000   LEN           +00200   LEN           +00001
        [00001]         [00001]         [00001]
        +-----+         +-----+         +-----+

FST_SCN                                << RUNG 134 STEP #0379 >>
%S0001                                +-----+
+---] [----+                         +-----+                         +-----+
      |MOVE|                         |MOVE|                         |MOVE|
      |INT|                         |INT|                         |INT|
      +-----+                     +-----+                     +-----+
CONST -IN Q+-%R9327    L9_IGN          CONST -IN Q+-%R9328    L9_BIAS          CONST -IN Q+-%R9329    L9_UCLP
+02000   LEN           +00000   LEN           +32000   LEN           +00001
        [00001]         [00001]         [00001]
        +-----+         +-----+         +-----+

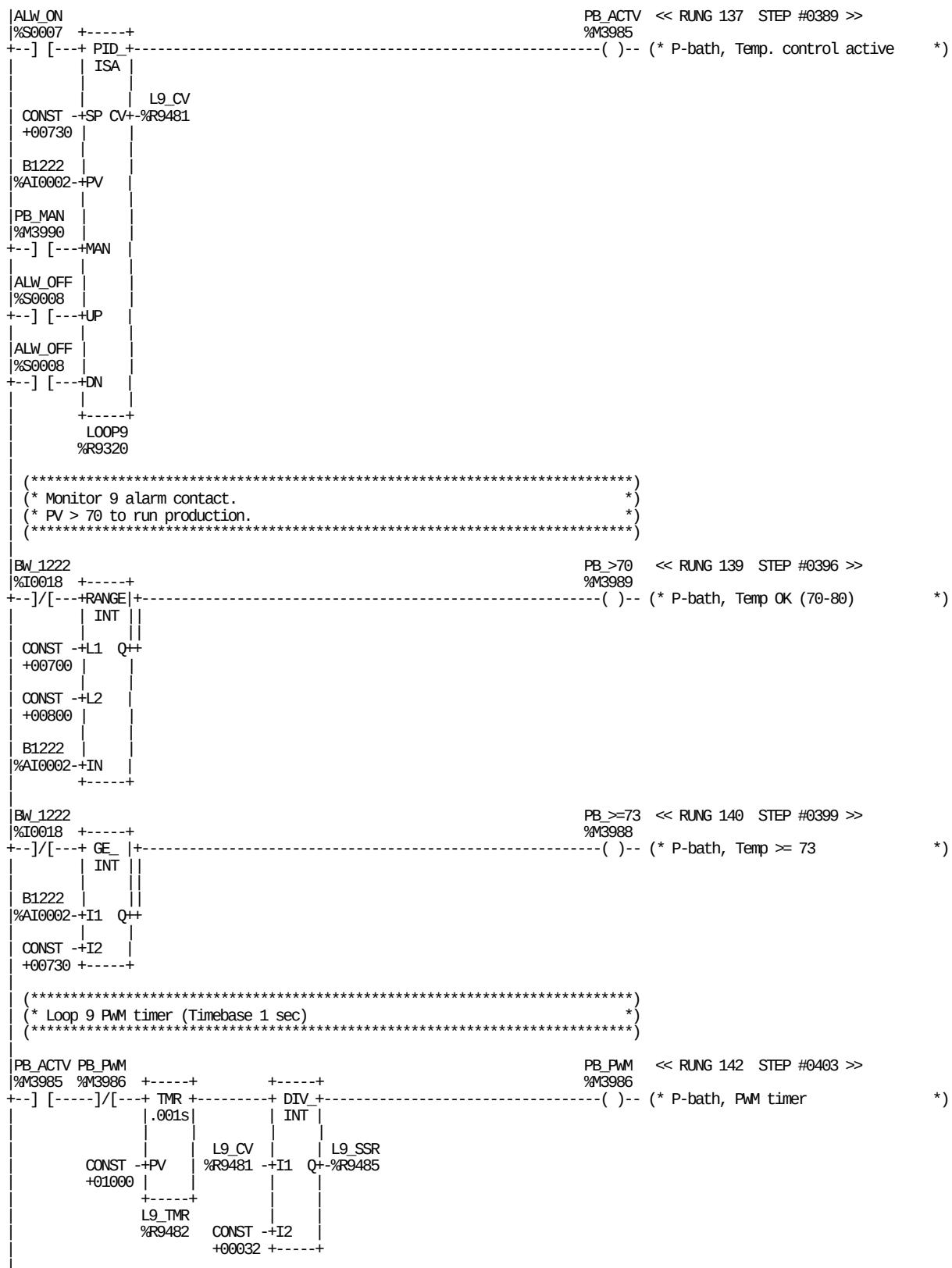
FST_SCN                                << RUNG 135 STEP #0383 >>
%S0001                                +-----+
+---] [----+                         +-----+                         +-----+
      |MOVE|                         |MOVE|                         |MOVE|
      |INT|                         |INT|                         |INT|
      +-----+                     +-----+                     +-----+
CONST -IN Q+-%R9330    L9_LCLP          CONST -IN Q+-%R9331    L9_MSLW
+00000   LEN           +00000   LEN           +00000   LEN           +00001
        [00001]         [00001]         [00001]
        +-----+         +-----+         +-----+

STP8_9 S907                               PB_MAN << RUNG 136 STEP #0386 >>
%M0144 %I0199                             %M3990
+---]/[-----]/[-----] ( )-- (* P-bath, PID manual mode ON *)

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%S0001	FST_SCN		%R9325	L9_PGN	Loop 9, P gain
%R9328	L9_BIAS	Loop 9, Bias	%R9322	L9_SPER	Loop 9, Sample periode
%R9323	L9_DB+	Loop 9, Dead band +	%R9329	L9_UCLP	Loop 9, Lower clamp
%R9324	L9_DB-	Loop 9, dead band -	%R9320	LOOP9	H202 bath
%R9326	L9_DGN	Loop 9, D gain	%M3990	PB_MAN	P-bath, PID manual mode ON
%R9327	L9_IGN	Loop 9, I gain	%I0199	S907	Inching JUM and FFU
%R9330	L9_LCLP	Loop 9, Upper clamp	%M0144	STP8_9	Step 8-9 Motorstart to prod.
%R9331	L9_MSLW	Loop 9, Min. slew time			

TBA/21-0410/0500
BLOCK: TEMPERATURE REGULATORS/MONITORS



REFERENCE NICKNAME
 %SW008 ALW_OFF
 %SW007 ALW_ON
 %AI0002 B1222
 %I0018 BW_1222
 %R9481 L9_CV
 %R9485 L9_SSR
 %R9482 L9_TMR

REFERENCE DESCRIPTION
 Temp. monitor, Peroxide bath
 Broken wire Peroxide bath
 Loop 9, Control value
 Loop 9, SSR
 Loop 9, Timer

REFERENCE NICKNAME
 %R9320 LOOP9
 %M3989 PB_>70
 %M3988 PB_>=73
 %M3985 PB_ACTV
 %M3990 PB_MAN
 %M3986 PB_PWM

REFERENCE DESCRIPTION
 H202 bath
 P-bath, Temp OK (70-80)
 P-bath, Temp >= 73
 P-bath, Temp. control active
 P-bath, PID manual mode ON
 P-bath, PWM timer

TBA/21-0410/0500
 BLOCK: TEMPERATURE REGULATORS/MONITORS

```

(*****
* Loop 9 output
*****
PB_ACTV BW_1222                                PB_HETN << RUNG 144 STEP #0409 >>
%M3985 %I0018 +-----+                      %M3987
+--] [-----]/[-----+-----+-----+-----+
                | GE |
                | INT|
                +-----+
                |
L9_SSR          |
%M9485          | -+I1 Q++
                |
L9_TMR          |
%M9482          | -+I2
                +-----+

(*****
* Loop 9 transfer of registers to TPOP diagram
*****
ALW_ON                                             << RUNG 146 STEP #0414 >>
%S0007 +-----+
+--] [---+MOVE+-----+MOVE+-----+MOVE+-----+
        | INT |          | INT |          | INT |
CONST  -+IN Q+-%R8508  CONST -+IN Q+-%R8510  CONST -+IN Q+-%R8511
+00073 | LEN |          | LEN |          | LEN |
        |00001|          |00001|          |00001|
        +-----+          +-----+          +-----+

ALW_ON                                             << RUNG 147 STEP #0418 >>
%S0007 +-----+
+--] [---+DIV+-----+DIV+-----+
        | INT |          | INT |
L9_SSR  -+I1 Q+-%R8518  B1222 -+I1 Q+-%R8519  L9_PV
%M9485  | |          | %AI0002 | |          |
CONST  -+I2          CONST -+I2
+00010 +-----+          +00010 +-----+

```

REFERENCE NICKNAME
 %S0007 ALW_ON
 %AI0002 B1222
 %I0018 BW_1222
 %R8510 L9_AL1H
 %R8511 L9_AL1L
 %R8518 L9_OUT

REFERENCE DESCRIPTION
 Temp. monitor, Peroxide bath
 Broken wire Peroxide bath
 Loop 9, Alarm 1 high
 Loop 9, Alarm 1 low
 Loop 9, Output TPOP

REFERENCE NICKNAME
 %R8519 L9_PV
 %R8508 L9_SP1
 %R9485 L9_SSR
 %R9482 L9_TMR
 %M3985 PB_ACTV
 %M3987 PB_HETN

REFERENCE DESCRIPTION
 Loop 9, Process value
 Loop 9, Set point 1
 Loop 9, SSR
 Loop 9, Timer
 P-bath, Temp. control active
 P-bath, Heating control ON

TBA/21-0410/0500
 BLOCK: TEMPERATURE REGULATORS/MONITORS

```

(*****
(* Temperature monitors:
(* Monitor 1 Heat sterilisation (A200)
(* Monitor 3 Top aseptic chamber (A204)
(* Monitor 4 Cooling circulating water (A206)
(* Monitor 5 Electrical cabinet (A207)
(* Monitor 6 Steam (A212)
(* Monitor 7 Headspace by injection, spraying (A205)
(* Monitor 8 Water circuit separate H2O2 heat exch. (A214)
(*****

(*****
(* Monitor 1 alarm contact.
(* PV > 280 to step up to spraying.
(*****

Bw_1106 HS_OK << RUNG 150 STEP #0423 >>
%I0017 +-----+ %M3900
+---]/[---+ GT_ +-----+ ( )-- (* Heat ster, Temp OK (>280) *)
| INT |
|
B1106
%AI0001--+I1 Q++
|
CONST -+I2 |
+02800 +-----+

Bw_1106 HS_>50 << RUNG 151 STEP #0426 >>
%I0017 +-----+ %M3913
+---]/[---+ GE_ +-----+ ( )-- (* Heat ster, Temp OK (>=50) *)
| INT |
|
B1106
%AI0001--+I1 Q++
|
CONST -+I2 |
+00500 +-----+

(*****
(* Monitor 1 transfer of registers to TPOP diagram.
(*****

ALW_ON << RUNG 153 STEP #0430 >>
%S0007 +-----+
+---] [---+ DIV_+
| INT |
|
B1106 M1_PV
%AI0001--+I1 Q+- %R8534
|
CONST -+I2 |
+00010 +-----+

ALW_ON << RUNG 154 STEP #0432 >>
%S0007 +-----+ +-----+
+---] [---+ MOVE_ +-----+ MOVE_ +-----+
| INT | | INT |
|
CONST -+IN Q+- %R8535 M1_AL1H CONST -+IN Q+- %R8536 M1_AL1L
+00380 +-----+ +-----+ +-----+
| LEN | | LEN |
| 00001 | | 00001 |
+-----+ +-----+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%S0007	ALW_ON		%M3900	HS_OK	Heat ster, Temp OK (>280)
%AI0001	B1106	Temp. monitor, Heat steril.	%R8535	M1_AL1H	Heat ster, Alarm 1 high
%I0017	Bw_1106	Broken wire Heat sterilization	%R8536	M1_AL1L	Heat ster, Alarm 1 low
%M3913	HS_>50	Heat ster, Temp OK (>=50)	%R8534	M1_PV	Heat ster, Process value

TBA/21-0410/0500
BLOCK: TEMPERATURE REGULATORS/MONITORS

```

(*****
* Monitor 3 control signal
* 90 < PV to guarantee sterile condition
*
*****)

ALW_ON                                     TA_OK << RUNG 156 STEP #0436 >>
%S0007 +-----+                         %M3901
|--] [---+RANGE|+-----+-----+-----+ (* Top AC, Temp.OK (>90,<110) *)
      | INT |
CONST -+L1 Q++
+00900 |
CONST -+L2
+01100 |
B1109 |
%AI0005 -+IN
+-----+

(*****
* Monitor 3 control signals.
* 39 < PV < 40 in heat sterilisation.
* 94 < PV < 95 in spraying and drying (hysteresis of 1,0 degr)
* 94 < PV < 95 after drying ready (hysteresis of 1,0 degr)
*****)

ALW_ON                                     TA_CTR1 << RUNG 158 STEP #0440 >>
%S0007 +-----+                         %M3902
|--] [---+GT_ |+-----+-----+-----+ (S)-- (* Top AC, Ctrl 1 (40deg heat ster) *)
      | INT |
B1109 |
%AI0005 -+I1 Q++
CONST -+I2
+00400 +-----+

ALW_ON                                     TA_CTR1 << RUNG 159 STEP #0443 >>
%S0007 +-----+                         %M3902
|--] [---+LT_ |+-----+-----+-----+ (R)-- (* Top AC, Ctrl 1 (40deg heat ster) *)
      | INT |
B1109 |
%AI0005 -+I1 Q++
CONST -+I2
+00390 +-----+

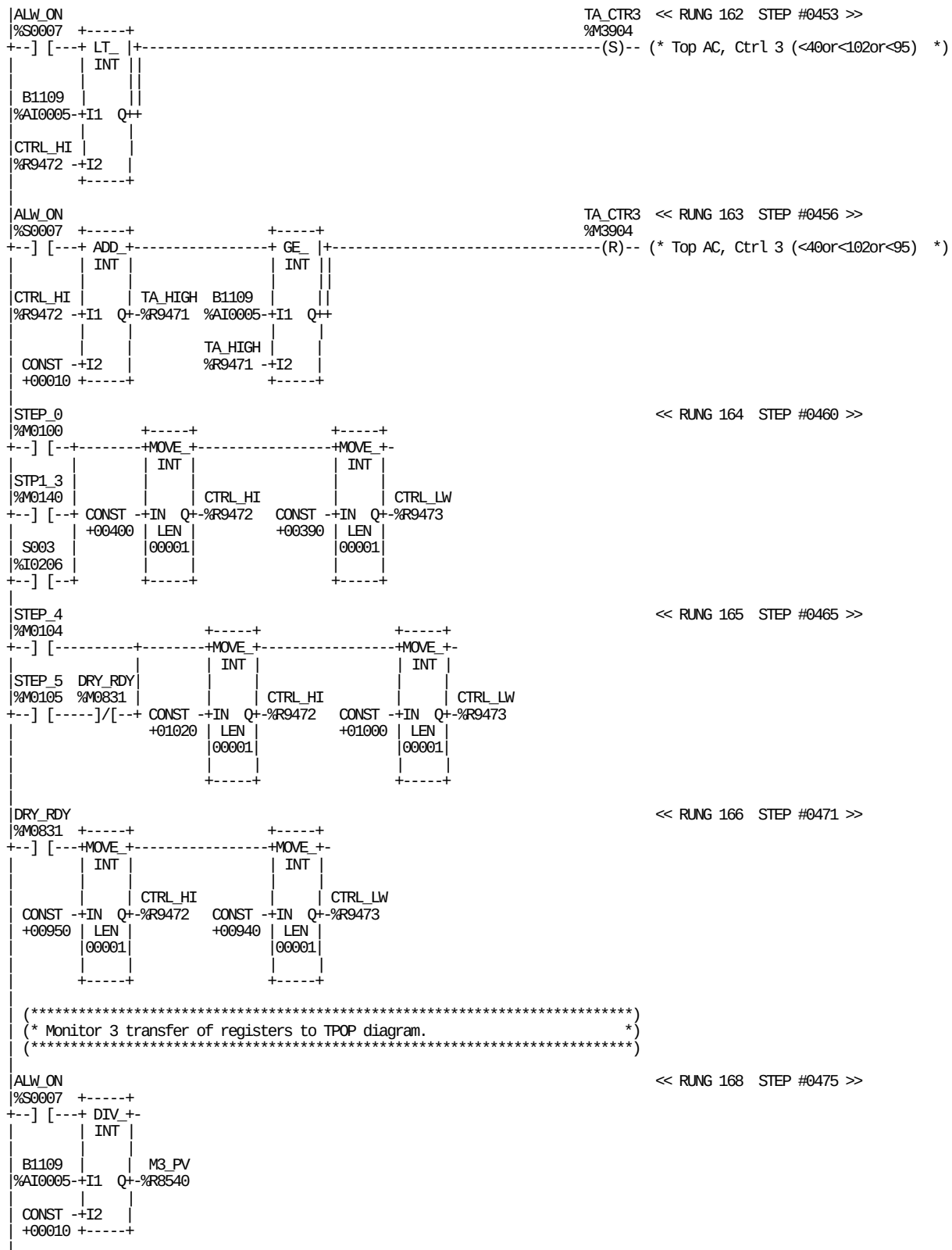
ALW_ON                                     TA_CTR2 << RUNG 160 STEP #0446 >>
%S0007 +-----+                         %M3903
|--] [---+LT_ |+-----+-----+-----+ (S)-- (* Top AC, Ctrl 2 (<39or<100or<94) *)
      | INT |
B1109 |
%AI0005 -+I1 Q++
CTRL_LW
%R9473 -+I2
+-----+

ALW_ON                                     TA_CTR2 << RUNG 161 STEP #0449 >>
%S0007 +-----+                         %M3903
|--] [---+ADD +-----+-----+-----+ (R)-- (* Top AC, Ctrl 2 (<39or<100or<94) *)
      | INT |
CTRL_LW | TA_LOW B1109 |
%R9473 -+I1 Q+-%R9470 %AI0005 -+I1 Q++
      | INT |
CONST -+I2 | TA_LOW
+00007 +-----+ %R9470 -+I2
+-----+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%S0007	ALW_ON		%M3903	TA_CTR2	Top AC, Ctrl 2 (<39or<100or<94)
%AI0005	B1109	Temp. monitor, Top asept.chamber	%R9470	TA_LOW	Top AC, Hysteresis low
%R9473	CTRL_LW	Top AC, Ctrl. low temp heat exch	%M3901	TA_OK	Top AC, Temp.OK (>90,<110)
%M3902	TA_CTR1	Top AC, Ctrl 1 (40deg heat ster)			

TBA/21-0410/0500
BLOCK: TEMPERATURE REGULATORS/MONITORS



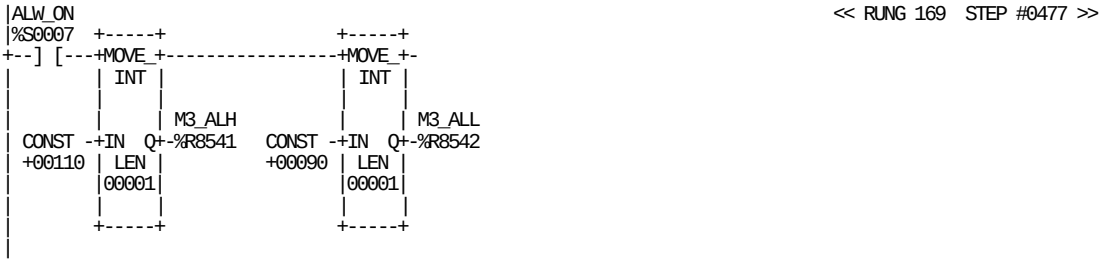
REFERENCE NICKNAME
%S0007 ALW_ON
%AI0005 B1109
%R9472 CTRL_HI
%R9473 CTRL_LW
%M0831 DRY_RDY
%R8540 M3_PV
%I0206 S003

REFERENCE DESCRIPTION
Temp. monitor, Top aseptic chamber
Top AC, Ctrl. high tmp heat exch
Top AC, Ctrl. low temp heat exch
AIR, Drying ready aseptic chamb
Top AC, Process value
Service switch

REFERENCE NICKNAME
%M0100 STEP_0
%M0104 STEP_4
%M0105 STEP_5
%M0140 STP1_3
%M3904 TA_CTR3
%R9471 TA_HIGH

REFERENCE DESCRIPTION
Step 0 Off
Step 4 Spraying
Step 5 Drying
Step 1-3 Prep.to heatster.
Top AC, Ctrl 3 (<40or<102or<95)
Top AC, Hysteresis high

TBA/21-0410/0500
BLOCK: TEMPERATURE REGULATORS/MONITORS



REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%S0007	ALW_ON		%R8542	M3_ALL	Top AC, Alarm low
%R8541	M3_ALH	Top AC, Alarm high			

TBA/21-0410/0500

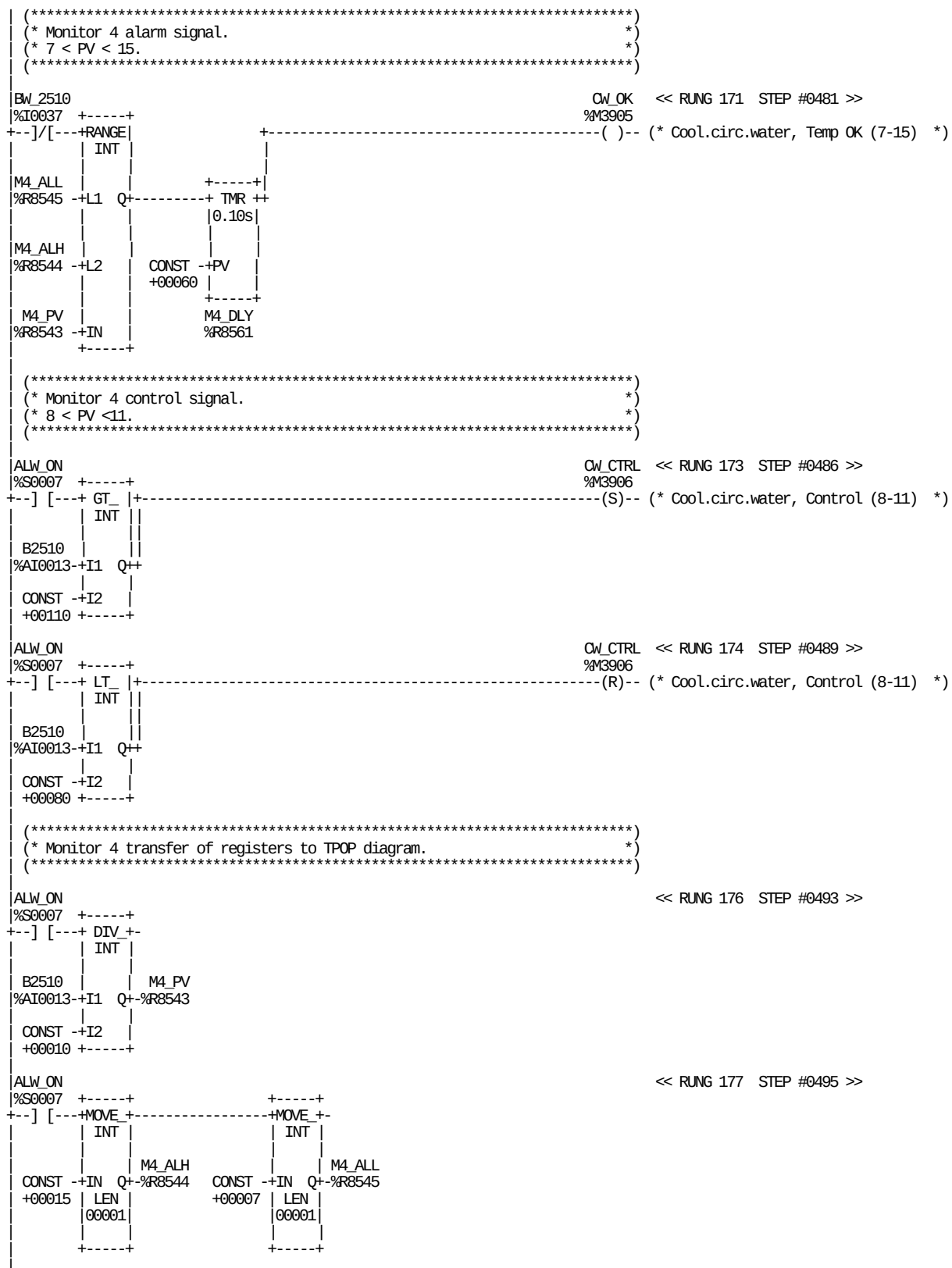
BLOCK: TEMPERATURE REGULATORS/MONITORS

ECM: 73362

DATE: 010205

SIGNATURE: EF-i

48246-10:02



REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%S0007	ALW_ON		%R8544	M4_ALH	Cool circ.water, Alarm high
%AI0013	B2510	Temp. monitor, Cool.circ water	%R8545	M4_ALL	Cool circ.water, Alarm low
%I0037	BW_2510	Broken wire Cool.circ water	%R8561	M4_DLY	Delay signal "Cool.water OK"
%M3906	CW_CTRL	Cool.circ.water, Control (8-11)	%R8543	M4_PV	Cool circ.water, Process value
%M3905	CW_OK	Cool.circ.water, Temp OK (7-15)			

TBA/21-0410/0500
BLOCK: TEMPERATURE REGULATORS/MONITORS

```

(*****
* Monitor 5 alarm signal.
* 18 < PV < 38
*****)

BW_001                                     CC_OK << RUNG 179 STEP #0499 >>
%I0038                                     %M3907
+--]/[+RANGE+------( )-- (* El-cab, Temp OK (18-38) *)
      |INT|
M5_ALL
%R8548 +L1 Q+
M5_ALH
%R8547 +L2
M5_PV
%R8546 +IN
      +-----+

(*****
* Monitor 5 control signal.
* 28 < PV < 33
*****)

ALW_ON                                     CC_CTRL << RUNG 181 STEP #0503 >>
%S0007                                     %M3908
+--]/[+GE+------(S)-- (* El-cab, Control (30-36) *)
      |INT|
B001
%AI0014 +I1 Q+
CONST +I2
+00330 +-----+

ALW_ON                                     CC_CTRL << RUNG 182 STEP #0506 >>
%S0007                                     %M3908
+--]/[+LT+------(R)-- (* El-cab, Control (30-36) *)
      |INT|
B001
%AI0014 +I1 Q+
CONST +I2
+00280 +-----+

(*****
* Monitor 5 transfer of registers to TPOP diagram.
*****)

ALW_ON                                     << RUNG 184 STEP #0510 >>
%S0007                                     +-----+
+--]/[+DIV+-----+
      |INT|
B001                                     M5_PV
%AI0014 +I1 Q+-%R8546
CONST +I2
+00010 +-----+

ALW_ON                                     << RUNG 185 STEP #0512 >>
%S0007                                     +-----+
+--]/[+MOVE+-----+MOVE+
      |INT|                                     |INT|
CONST +IN Q+-%R8547 CONST +IN Q+-%R8548
+00038 LEN 00001 +00018 LEN 00001
      +-----+                                     +-----+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%S0007	ALW_ON	
%AI0014	B001	Temp. monitor, Electrical cab.
%I0038	BW_001	Broken wire Cool electrical cab
%M3908	CC_CTRL	El-cab, Control (30-36)

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M3907	CC_OK	El-cab, Temp OK (18-38)
%R8547	M5_ALH	El cabinet, Alarm high
%R8548	M5_ALL	El cabinet, Alarm low
%R8546	M5_PV	El cabinet, Process value

TBA/21-0410/0500
BLOCK: TEMPERATURE REGULATORS/MONITORS


```

{*****}
{* Monitor 6 alarm signal. *}
{* PV > 125. *}
{*****}

BW_1310                                     ST_>125 << RUNG 187 STEP #0516 >>
|I0024 +-----+                          |M3909
+--]/[---+ GT_ +-----+ ( )-- (* Steam, Temp OK (>125) *)
|      |INT|
|      |
B1310                                     EXT_10
|AI0008--+I1 Q+-----+ (%Q0220) (* TBA/21, Steam C-valve OK *)
|      |
CONST -+I2 |
+01250 +-----+

{*****}
{* Monitor 6 transfer of registers to TPOP diagram. *}
{*****}

ALW_ON                                     << RUNG 189 STEP #0521 >>
|S0007 +-----+
+--] [---+ DIV +-----+
|      |INT|
|      |
B1310                                     M6_PV
|AI0008--+I1 Q+-%R8549
|      |
CONST -+I2 |
+00010 +-----+

ALW_ON                                     << RUNG 190 STEP #0523 >>
|S0007 +-----+
+--] [---+MOVE+-----+MOVE+
|      |INT|          |      |INT|
|      |          |      |
CONST -+IN Q+-%R8550  CONST -+IN Q+-%R8551
+00200 |LEN|          +00125 |LEN|
|00001|          |00001|
+-----+          +-----+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%S0007	ALW_ON		%R8550	M6_ALH	Steam, Alarm high
%AI0008	B1310	Temp. monitor, Steam C-valve	%R8551	M6_ALL	Steam, Alarm low
%I0024	BN_1310	Broken wire Steam C-valve	%R8549	M6_PV	Steam, Process value
%Q0220	EXT_10	TBA/21, Steam C-valve OK	%M3909	ST >125	Steam, Temp OK (>125)

TBA/21-0410/0500
BLOCK: TEMPERATURE REGULATORS/MONITORS

```

(*****
*) Monitor 7 alarm signal.
*)
*) 0 < PV < 60
*)
(*****)

STEP_0                                     HI_OK << RUNG 192 STEP #0527 >>
%M0100                                     %M3910
+--] [------(R)-- (* HI spraying, Temp OK *)

BW_9106                                     HI_OK << RUNG 193 STEP #0529 >>
%I0039 +-----+                         %M3910
+--]/[---+ GT_ |------(S)-- (* HI spraying, Temp OK *)
          | INT |
          |-----+
          |
          | B9106
          | %AI0015--+I1 Q--+
          |
          | CONST -+I2 |
          | +00600 +-----+

(*****
*) Monitor 7 transfer of registers to TPOP diagram.
*)
(*****)

OPT_HI                                     << RUNG 195 STEP #0533 >>
%I0120 +-----+
+--] [---+ DIV_+
          | INT |
          |-----+
          |
          | B9106
          | %AI0015--+I1 Q+-%R8555
          |
          | CONST -+I2 |
          | +00010 +-----+

FST_SCN                                     << RUNG 196 STEP #0535 >>
%S0001 +-----+
+--] [---+MOVE_+-----+MOVE_+
          | INT |
          |-----+
          |
          | M7_ALH
          | CONST -+IN Q+-%R8556
          | +00150 | LEN |
          | | 00001 |
          | +-----+
          |
          | M7_ALL
          | CONST -+IN Q+-%R8557
          | +00060 | LEN |
          | | 00001 |
          | +-----+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%AI0015	B9106	Temp. monitor, H. I. spray
%I0039	BW_9106	Broken wire H.I. spray
%S0001	FST_SCN	
%M3910	HI_OK	HI spraying, Temp OK
%R8556	M7_ALH	HI, Alarm high

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%R8557	M7_ALL	HI, Alarm low
%R8555	M7_PV	HI, Process value
%I0120	OPT_HI	Option, Headspace by injection
%M0100	STEP_0	Step 0 Off

TBA/21-0410/0500
BLOCK: TEMPERATURE REGULATORS/MONITORS

```

(*****
(* Monitor 8 alarm signal.
(* 0 < PV < 90
(*****
)

BW_1209                                WEXC>90 << RUNG 198 STEP #0539 >>
%I0022 +-----+                      %M3911
+--]/[---+ GT_ INT +-----+------(S)-- (* Water-H202 heat exchanger (>90) *)
|
B1209
%AI0006--+I1 Q+
|
CONST -+I2
+00900 +-----+

RESET                                WEXC>90 << RUNG 199 STEP #0542 >>
%M3050                                %M3911
+--] [-----+------(R)-- (* Water-H202 heat exchanger (>90) *)

(*****
(* Monitor 8 alarm signal.
(* 0 < PV < 81
(*****
)

BW_1209                                WEXC<81 << RUNG 201 STEP #0545 >>
%I0022 +-----+                      %M3912
+--]/[---+ LT_ INT +-----+------( )-- (* Water-H202 heat exchanger (<81) *)
|
B1209
%AI0006--+I1 Q+
|
CONST -+I2
+00810 +-----+

(*****
(* Monitor 8 transfer of registers to TPOP diagram.
(*****
)

ALW_ON                                << RUNG 203 STEP #0549 >>
%S0007 +-----+
+--] [---+ DIV +-----+
| INT
|
B1209
%AI0006--+I1 Q+-%R8558
|
CONST -+I2
+00010 +-----+

FST_SCN                                << RUNG 204 STEP #0551 >>
%S0001 +-----+ +-----+
+--] [---+MOVE +-----+MOVE +-----+
| INT INT
|
CONST -+IN Q+-%R8559 CONST -+IN Q+-%R8560
+00081 LEN +00000 LEN
| 00001 | 00001 |
+-----+ +-----+

(*****
(* Alarm broken wire temperature regulators and monitors
(*****
)

BW_1106 BW_1222 BW_1208 BW_1212 BW_1109 BW_1105 BW_1310 BW_5307 BW_1209 << RUNG 206 STEP #0555 >>
%I0017 %I0018 %I0019 %I0020 %I0021 %I0023 %I0024 %I0033 %I0022
+--]/[-----]/[-----]/[-----]/[-----]/[-----]/[-----]/[-----]/[-----]<+>

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%S0007	ALW_ON		%I0024	BW_1310	Broken wire Steam C-valve
%AI0006	B1209	Temp. monitor, W-H202 heat exch.	%I0033	BW_5307	Broken wire Flap heat top left
%I0023	BW_1105	Broken wire Air super heater	%S0001	FST_SCN	
%I0017	BW_1106	Broken wire Heat sterilization	%R8559	M8_ALH	W-H202 heat exch., Alarm high
%I0021	BW_1109	Broken wire Top aseptic chamber	%R8560	M8_ALL	W-H202 heat exch., Alarm low
%I0019	BW_1208	Broken wire Water bath	%R8558	M8_PV	W-H202 heat exch., Process value
%I0022	BW_1209	Broken wire W-H202 heat exc.	%M3050	RESET	Alarm reset
%I0020	BW_1212	Broken wire Peroxide tank	%M3912	WEXC<81	Water-H202 heat exchanger (<81)
%I0018	BW_1222	Broken wire Peroxide bath	%M3911	WEXC>90	Water-H202 heat exchanger (>90)

TBA/21-0410/0500
BLOCK: TEMPERATURE REGULATORS/MONITORS

```

|          BW_5308 BW_5309 BW_2510 BW_001 BW_9106 PT_BW          SRVL_04 << RUNG 207 STEP #0565 >>
|          %I0034 %I0035 %I0037 %I0038 %I0039 %G0905          %M3764
|<+>-----]/[-----]/[-----]/[-----]/[---]/[---]/[-----(/)-- (* Broken wire sum up          *)
|
|          |OPT_HI|
|          |%I0120|
|          +---]/[---+
|
|[  END OF SUBROUTINE LOGIC  ]

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0038	BW_001	Broken wire Cool electrical cab	%I0039	BW_9106	Broken wire H.I. spray
%I0037	BW_2510	Broken wire Cool.circ water	%I0120	OPT_HI	Option, Headspace by injection
%I0034	BW_5308	Broken wire Flap heat top right	%G0905	PT_BW	From PT21, Broken wire
%I0035	BW_5309	Broken wire Flap heat bott.L/R	%M3764	SRVL_04	Broken wire sum up

TBA/21-0410/0500
BLOCK: TEMPERATURE REGULATORS/MONITORS

ECM: 73362

DATE: 010205

SIGNATURE: EF-i

48246-10:02

```

[ START LD SUBROUTINE BLK_20 ]
[ VARIABLE DECLARATIONS ]
[ START OF SUBROUTINE LOGIC ]

(*****
(* Block 20 "Automatic Splicing Unit (ASU)" *)
*****)

A602_34 Y7425 << RUNG 5 STEP #0003 >>
%I0131 %Q0288
+--] [----- ( * ASU, Ventilating Valve *)

(*****
(* Stop reasons ASU *)
*****)

STEP_0 SA_BRK ASUSTOP << RUNG 7 STEP #0006 >>
%M0100 %M0322 %M0400
+--]/[----- ( * ASU, Stop reasons *)

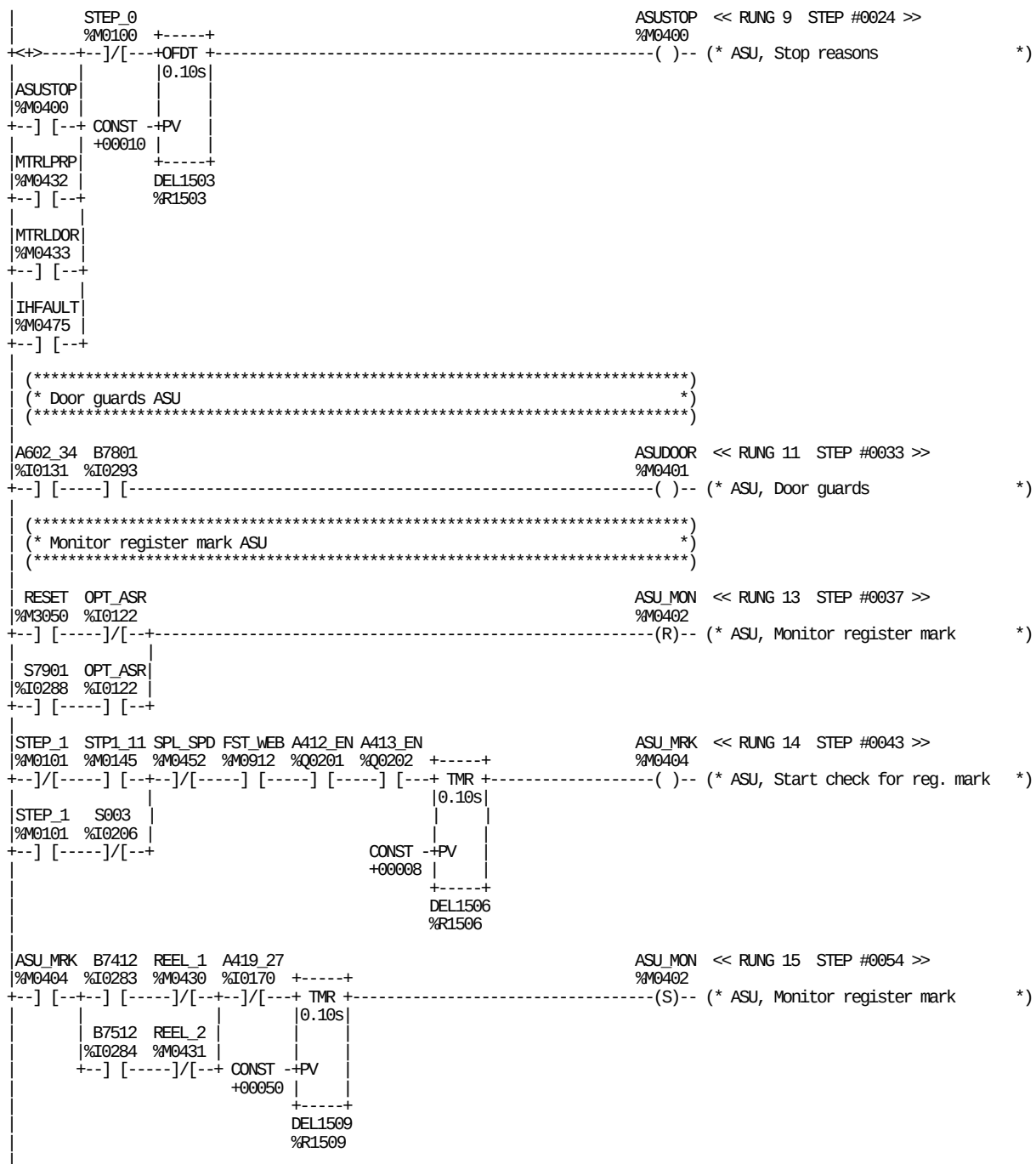
| SA_ENDP
| %M0323
| +--] [---+
|
| SA_ENDD
| %M0324
| +--] [---+
|
| SA_ROT
| %M0474
| +--] [---+
|
| ASU_MON
| %M0402
| +--] [---+
|
| LP_EMPTY
| %M0505
| +--] [---+
|
| SPL_INT
| %M0470
| +--] [---+
|
| B72234
| %I0280
| +--] [---+

A412_19 A412_EN << RUNG 8 STEP #0017 >>
%I0140 %Q0201 +-----+
+--]/[-----] [---+ +TMR+-----<-->
| 0.10s |
|
| A413_19 A413_EN
| %I0141 %Q0202
| +--]/[-----] [---+
|
| CONST +PV
| +00010
|
| DEL1500
| %R1500

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0140	A412_19	Drive roller loop, Overload	%M0505	LP_EMPTY	ASU, Loop empty
%Q0201	A412_EN	Drive roller loop ASU, Enable	%M0322	SA_BRK	SA, Strip break
%I0141	A413_19	Drive roller magazine, Overload	%M0324	SA_ENDD	SA, Strip end open door
%Q0202	A413_EN	Drive roller mag. ASU, Enable	%M0323	SA_ENDP	SA, Strip end bobbin not prep.
%I0131	A602_34	Safety monitor door guards ASU	%M0474	SA_ROT	SA ASU, Rotation monitor
%M0400	ASUSTOP	ASU, Stop reasons	%M0470	SPL_INT	ASU, Splice sequence interrupted
%M0402	ASU_MON	ASU, Monitor register mark	%M0100	STEP_0	Step 0 Off
%I0280	B72234	ASU, Magazine empty	%Q0288	Y7425	ASU, Ventilating Valve
%R1500	DEL1500	Delay, ASU			

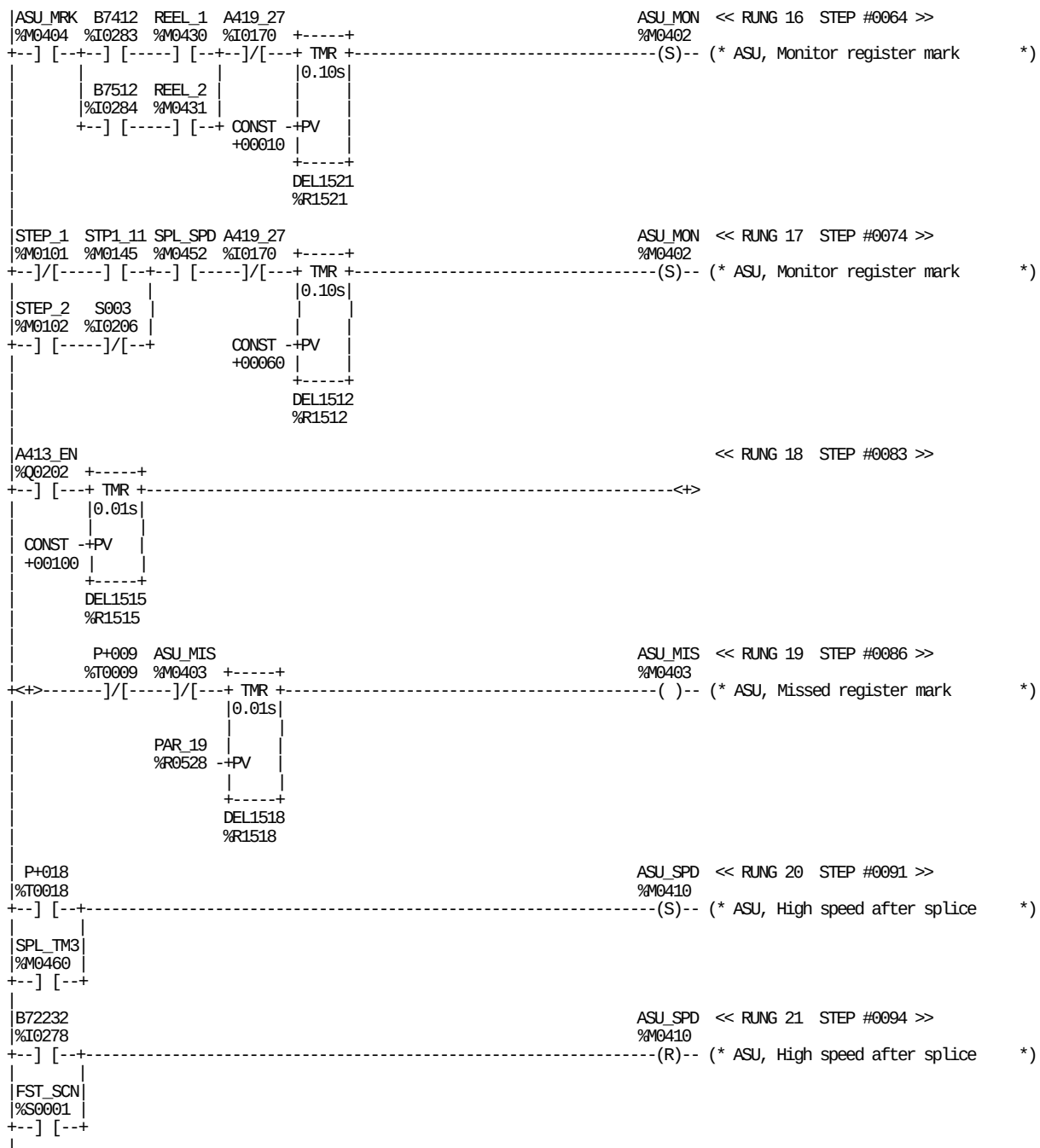
TBA/21-0410/0500
BLOCK: AUTOMATIC SPLICING UNIT (ASU)



REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%Q0201	A412_EN	Drive roller loop ASU, Enable
%Q0202	A413_EN	Drive roller mag. ASU, Enable
%I0170	A419_27	TMCC AF, ASU Registermark signal
%I0131	A602_34	Safety monitor door guards ASU
%M0401	ASUDOOR	ASU, Door guards
%M0400	ASUSTOP	ASU, Stop reasons
%M0402	ASU_MON	ASU, Monitor register mark
%M0404	ASU_MRK	ASU, Start check for reg. mark
%I0283	B7412	ASU, Side feeder position 1
%I0284	B7512	ASU, Side feeder position 2
%I0293	B7801	SA, Door guard, SA
%R1503	DEL1503	Delay, ASU
%R1506	DEL1506	Delay, ASU
%R1509	DEL1509	Delay, ASU

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M0912	FST_WEB	JUM, Paper web fast speed
%M0475	IHFAULT	SA ASU, TPIH fault
%M0433	MTRLDOR	ASU, Pkg. mtrl. end doors open
%M0432	MTRLPRP	ASU, Pkg. mtrl. end not prepared
%I0122	OPT_ASR	Option, ASU in separate room
%M0430	REEL_1	ASU, Reel 1 empty
%M0431	REEL_2	ASU, Reel 2 empty
%M3050	RESET	Alarm reset
%I0206	S003	Service switch
%I0288	S7901	ASU, alarm reset
%M0452	SPL_SPD	ASU, Low speed before splice
%M0100	STEP_0	Step 0 Off
%M0101	STEP_1	Step 1 Preparation
%M0145	STP1_11	Step 1-11 Prep. to venting

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REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%Q0202	A413_EN	Drive roller mag. ASU, Enable	%S0001	FST_SCN	
%I0170	A419_27	TMCC AF, ASU Registermark signal	%T0009	P+009	Pulse + ASU register mark
%M0403	ASU_MIS	ASU, Missed register mark	%T0018	P+018	Pulse + SA, Splice finished
%M0402	ASU_MON	ASU, Monitor register mark	%R0528	PAR_19	ASU, delay Missed reg.mark signl
%M0404	ASU_MRK	ASU, Start check for reg. mark	%M0430	REEL_1	ASU, Reel 1 empty
%M0410	ASU_SPD	ASU, High speed after splice	%M0431	REEL_2	ASU, Reel 2 empty
%I0278	B72232	ASU, Magazine down	%I0206	S003	Service switch
%I0283	B7412	ASU, Side feeder position 1	%M0452	SPL_SPD	ASU, Low speed before splice
%I0284	B7512	ASU, Side feeder position 2	%M0460	SPL_TM3	ASU, Splice sequence (1,60-1,90)
%R1512	DEL1512	Delay, ASU	%M0101	STEP_1	Step 1 Preparation
%R1515	DEL1515	Delay, ASU	%M0102	STEP_2	Step 2 Tube sealing
%R1518	DEL1518	Delay, ASU	%M0145	STP1_11	Step 1-11 Prep. to venting
%R1521	DEL1521	Delay, ASU			

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```

(*****
(* Preparing ASU for splice
*****
)

P+034                                Y7303 << RUNG 23 STEP #0098 >>
%T0034                                %Q0283
+--] [-----] [-----] [-----] (* ASU, UNlock paper on spl.table 1 *)

CUT_SEQ B7423 B7412
%M0454 %I0295 %I0283
+--] [-----] [-----] [-----]

STEP_0
%M0100
+--] [-----]

P+033 STEP_0                          Y7303 << RUNG 24 STEP #0105 >>
%T0033 %M0100                          %Q0283
+--] [-----]/[-----] (S)-- (* ASU, UNlock paper on spl.table 1 *)

SPL_TM2 B7412
%M0459 %I0283
+--] [-----] [-----]

SPL_RES B7512
%M0471 %I0284
+--] [-----]/[-----]

PT_SACT B7512
%G0910 %I0284
+--] [-----]/[-----]

P+037 B7412
%T0037 %I0283
+--] [-----] [-----]

P+036                                Y7315 << RUNG 25 STEP #0120 >>
%T0036                                %Q0284
+--] [-----] (R)-- (* ASU, UNlock paper on spl.table 2 *)

CUT_SEQ B7424 B7512
%M0454 %I0296 %I0284
+--] [-----] [-----] [-----]

STEP_0
%M0100
+--] [-----]

P+035 STEP_0                          Y7315 << RUNG 26 STEP #0127 >>
%T0035 %M0100                          %Q0284
+--] [-----]/[-----] (S)-- (* ASU, UNlock paper on spl.table 2 *)

SPL_TM2 B7512
%M0459 %I0284
+--] [-----] [-----]

SPL_RES B7412
%M0471 %I0283
+--] [-----]/[-----]

PT_SACT B7412
%G0910 %I0283
+--] [-----]/[-----]

P+037 B7512
%T0037 %I0284
+--] [-----] [-----]

A602_34 STEP_0 S7303 B7412 B750112    NOTPREP << RUNG 27 STEP #0142 >>
%I0131 %M0100 %I0289 %I0283 %I0292    %M0420
+--]/[-----]/[-----] [-----] [-----]/[-----] (R)-- (* ASU, Splice not prepared *)

B7512 B740112
%M0454 %I0291
+--] [-----]/[-----]

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0131	A602_34	Safety monitor door guards ASU	%T0035	P+035	Pulse + Unlock material reel 2
%I0291	B740112	ASU, Pkg. material reel 1 empty	%T0036	P+036	Pulse + Lock material reel 2
%I0283	B7412	ASU, Side feeder position 1	%T0037	P+037	Pulse + Step 1
%I0295	B7423	ASU, Material holder 1 up	%G0910	PT_SACT	From PT21, Srv func. active
%I0296	B7424	ASU, Material holder 2 up	%I0289	S7303	ASU, Material lock
%I0292	B750112	ASU, Pkg. material reel 2 empty	%M0471	SPL_RES	ASU, Splice sequence reset
%I0284	B7512	ASU, Side feeder position 2	%M0459	SPL_TM2	ASU, Splice sequence (0,40-0,70)
%M0454	CUT_SEQ	ASU, Cut sequence (0,01-0,80)	%M0100	STEP_0	Step 0 Off
%M0420	NOTPREP	ASU, Splice not prepared	%Q0283	Y7303	ASU, UNlock paper on spl.table 1
%T0033	P+033	Pulse + Unlock material reel 1	%Q0284	Y7315	ASU, UNlock paper on spl.table 2
%T0034	P+034	Pulse + Lock material reel 1			

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```

|SPL_SPD                                NOTPREP << RUNG 28 STEP #0152 >>
|M0452                                M0420
+--] [-----] (S)-- (* ASU, Splice not prepared *)

|REEL_1 B7512
|M0430 M0284
+--] [-----] [---+

|REEL_2 B7412
|M0431 M0283
+--] [-----] [---+

|FST_SCN
|S0001
+--] [-----]

(*****
(* Detecting packaging material end *)
(*****

|B740112                                REEL_1 << RUNG 30 STEP #0162 >>
|M0291                                M0430
+--] [-----] ( )-- (* ASU, Reel 1 empty *)

|B750112                                REEL_2 << RUNG 31 STEP #0164 >>
|M0292                                M0431
+--] [-----] ( )-- (* ASU, Reel 2 empty *)

|STEP_1 STP1_11 B7412 REEL_1 SLW_WEB A602_34 NOTPREP          SPL_ON << RUNG 32 STEP #0166 >>
|M0101 M0145 M0284 M0430 M0911 M0131 M0420          M0450
+--] [-----] [---+ [-----] [---+ [---+ [---+ [---+ (S)-- (* ASU, Splice sequence going on *)

|STEP_1 S003 B7512 REEL_2 FST_WEB          NOTPREP SPL_ON S7402 MTRLPRP
|M0101 M0206 M0284 M0431 M0912          M0420 M0450 M0285 M0432
+--] [-----] [---+ [-----] [---+ [---+ [---+ (S)-- (* ASU, Pkg. mtrl. end not prepared *)

|          S7402          A602_34          MTRLDOR
|          M0285          M0131          M0433
+--] [-----] [---+ [---+ (S)-- (* ASU, Pkg. mtrl. end doors open *)

|STEP_0                                MTRLPRP << RUNG 33 STEP #0194 >>
|M0100                                M0432
+--] [---+ (R)-- (* ASU, Pkg. mtrl. end not prepared *)

|SPL_TM3                                MTRLDOR
|M0460                                M0433
+--] [---+ (R)-- (* ASU, Pkg. mtrl. end doors open *)

|P+045                                SPL_ON << RUNG 34 STEP #0198 >>
|M0045                                M0450
+--] [---+ (R)-- (* ASU, Splice sequence going on *)

|SPL_RES
|M0471
+--] [---+

(*****
(* Splice sequence *)
(*****

|P+038                                SPL_2ND << RUNG 36 STEP #0202 >>
|M0038                                M0451
+--] [---+ (R)-- (* ASU, 2:nd last pkg before splice *)

|SPL_POS
|M0456
+--] [---+

|SPL_RES
|M0471
+--] [---+

|SPL_ON A419_27                                SPL_2ND << RUNG 37 STEP #0206 >>
|M0450 M0170                                M0451
+--] [-----] (S)-- (* ASU, 2:nd last pkg before splice *)

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M0170	A419_27	TMCC AF, ASU Registermark signal	%M0431	REEL_2	ASU, Reel 2 empty
%M0131	A602_34	Safety monitor door guards ASU	%M0206	S003	Service switch
%M0291	B740112	ASU, Pkg. material reel 1 empty	%M0285	S7402	ASU, Manual start
%M0283	B7412	ASU, Side feeder position 1	%M0911	SLW_WEB	JUM, Paper web slow speed
%M0292	B750112	ASU, Pkg. material reel 2 empty	%M0451	SPL_2ND	ASU, 2:nd last pkg before splice
%M0284	B7512	ASU, Side feeder position 2	%M0450	SPL_ON	ASU, Splice sequence going on
%S0001	FST_SCN		%M0456	SPL_POS	ASU, Side feeder in splice pos.
%M0912	FST_WEB	JUM, Paper web fast speed	%M0471	SPL_RES	ASU, Splice sequence reset
%M0433	MTRLDOR	ASU, Pkg. mtrl. end doors open	%M0452	SPL_SPD	ASU, Low speed before splice
%M0432	MTRLPRP	ASU, Pkg. mtrl. end not prepared	%M0460	SPL_TM3	ASU, Splice sequence (1,60-1,90)
%M0420	NOTPREP	ASU, Splice not prepared	%M0100	STEP_0	Step 0 Off
%M0038	P+038	Pulse + ASU splice going on	%M0101	STEP_1	Step 1 Preparation
%M0045	P+045	Pulse + ASU splice seq. ended	%M0145	STP1_11	Step 1-11 Prep. to venting
%M0430	REEL_1	ASU, Reel 1 empty			

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```

|SPL_2ND                                P+118 << RUNG 38 STEP #0209 >>
|M0451 +-----+                        %T0118
+--] [---+ TMR +-----+-----+-----+-----+-----+-----+
|.001s|                                     (^) ( * Pulse + Switch speed DR loop      *)
|
|PAR_17                                SPL_SPD << RUNG 39 STEP #0212 >>
|M0526 -+PV|                            %M0452
|                                     +-----+-----+-----+-----+-----+
|                                     (S) ( * ASU, Low speed before splice      *)
|
|                                     P+118
|                                     %T0118
|                                     +-----+-----+-----+-----+-----+
|
|A419_27                                SPL_SPD << RUNG 40 STEP #0220 >>
|I0170|                            %M0452
+--] [---+-----+-----+-----+-----+-----+-----+-----+
|                                     (R) ( * ASU, Low speed before splice      *)
|
|SPL_RES|
|M0471|
+--] [---+
|
| (***** )
| (* Web tension )
| (***** )
|
|SPL_SPD                                Y7407 << RUNG 42 STEP #0224 >>
|M0452|                            %Q0273
+--] [---+-----+-----+-----+-----+-----+-----+-----+
|                                     (S) ( * ASU, Web tension                    *)
|
|P+038|
|T0038|
+--] [---+
|
|SPL_TM2                                Y7407 << RUNG 43 STEP #0227 >>
|M0459|                            %Q0273
+--] [---+-----+-----+-----+-----+-----+-----+-----+
|                                     (R) ( * ASU, Web tension                    *)
|
|SPL_RES|
|M0471|
+--] [---+
|
| (***** )
| (* Material holders )
| (***** )
|
|SPL_SPD A602_34                        Y7411 << RUNG 45 STEP #0231 >>
|M0452 %I0131|                    %Q0276
+--] [---+-----+-----+-----+-----+-----+-----+-----+
|                                     (S) ( * ASU, Material holders                *)
|
|SPL_POS|
|M0456|
+--] [---+
|
|P+038|
|T0038|
+--] [---+
|
|SPL_PKG                                Y7411 << RUNG 46 STEP #0236 >>
|M0453 +-----+                    %Q0276
+--] [---+RANGE+-----+-----+-----+-----+-----+-----+-----+
|INT|                                     (R) ( * ASU, Material holders                *)
|
|CONST -+L1 Q+
|+00040|
|
|CONST -+L2
|+00110|
|
|TMR_11
|R0130 -+IN|
+-----+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0170	A419_27	TMCC AF, ASU Registermark signal	%M0453	SPL_PKG	ASU, Pkg. mtrl. in splice pos.
%I0148	A506_33	DMC Main motor, Running	%M0456	SPL_POS	ASU, Side feeder in splice pos.
%I0131	A602_34	Safety monitor door guards ASU	%M0471	SPL_RES	ASU, Splice sequence reset
%M0502	LP_STOP	ASU, DR loop stop at splice pos.	%M0452	SPL_SPD	ASU, Low speed before splice
%M0420	NOTPREP	ASU, Splice not prepared	%M0459	SPL_TM2	ASU, Splice sequence (0,40-0,70)
%T0038	P+038	Pulse + ASU splice going on	%M0145	STP1_11	Step 1-11 Prep. to venting
%T0041	P+041	Pulse + Manual start ASU splice	%R0127	TMR_10	Tmr 10, Spd at ASU spl. (0,001s)
%T0118	P+118	Pulse + Switch speed DR loop	%R0130	TMR_11	Tmr 11, ASU cut sequence (0,01s)
%R0526	PAR_17	Switch to low spd before splice	%Q0273	Y7407	ASU, Web tension
%M0451	SPL_2ND	ASU, 2:nd last pkg before splice	%Q0276	Y7411	ASU, Material holders

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```

|SPL_TM3      Y7411 << RUNG 47 STEP #0239 >>
|%M0460      %Q0276
+---] [---+------(R)-- (* ASU, Material holders *)

|SPL_RES
|%M0471
+---] [---+

(*****
(* ASU cut sequence timer *)
(*****)

P-040 SPL_RES          SPL_PKG << RUNG 49 STEP #0243 >>
%T0040 %M0471          %M0453
+---] [----]/[------(S)-- (* ASU, Pkg. mtrl. in splice pos. *)

SPL_PKG          SPL_PKG << RUNG 50 STEP #0246 >>
%M0453           %M0453
+---] [---+ TMR +------(R)-- (* ASU, Pkg. mtrl. in splice pos. *)
|0.01s|
CONST -+PV |
+00200 |
+-----+
TMR_11
%R0130

SPL_PKG          CUT_SEQ << RUNG 51 STEP #0249 >>
%M0453 +-----+ %M0454
+---] [---+RANGE|+------( )-- (* ASU, Cut sequence (0,01-0,80) *)
|INT|
CONST -+L1 Q++
+00001 |
CONST -+L2 |
+00080 |
TMR_11 |
%R0130 -+IN |
+-----+

(*****
(* Pressure rail *)
(*****)

SPL_PKG          Y7408 << RUNG 53 STEP #0253 >>
%M0453 +-----+ %Q0274
+---] [---+RANGE|+------(S)-- (* ASU, Pressure rail *)
|INT|
CONST -+L1 Q++
+00001 |
CONST -+L2 |
+00080 |
TMR_11 |
%R0130 -+IN |
+-----+

B7423 B7424 SPL_POS    Y7408 << RUNG 54 STEP #0256 >>
%i0295 %i0296 %M0456 %Q0274
+---] [-----] [-----] [------(S)-- (* ASU, Pressure rail *)

P-043          Y7408 << RUNG 55 STEP #0260 >>
%T0043         %Q0274
+---] [---+------(R)-- (* ASU, Pressure rail *)

SPL_RES
|M0471
+---] [---+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0295	B7423	ASU, Material holder 1 up	%M0456	SPL_POS	ASU, Side feeder in splice pos.
%I0296	B7424	ASU, Material holder 2 up	%M0471	SPL_RES	ASU, Splice sequence reset
%M0454	CUT_SEQ	ASU, Cut sequence (0,01-0,80)	%M0460	SPL_TM3	ASU, Splice sequence (1,60-1,90)
%T0040	P-040	Pulse - ASU in splice position	%R0130	TMR_11	Tmr 11, ASU cut sequence (0,01s)
%T0043	P-043	Pulse - Side feeder leave pos.	%Q0274	Y7408	ASU, Pressure rail
%M0453	SPL_PKG	ASU, Pkg. mtrl. in splice pos.	%Q0276	Y7411	ASU, Material holders

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```

|ALW_ON                                     Y7408 << RUNG 56 STEP #0263 >>
|S0007 +-----+                         %Q0274
+--] [---+RANGE|+-----+-----+ (R)-- (* ASU, Pressure rail *)
      | INT |
      |     |
CONST -+L1 Q++
+00130 |
      |
CONST -+L2
+00160 |
      |
TMR_12
|R0133 -+IN
      +-----+

(*****
(* Cutting *)
*****)

Y7408 B7411 B7414                         Y7410 << RUNG 58 STEP #0267 >>
|Q0274 %I0281 %I0282 +-----+          %Q0275
+--] [-----]/[-----]/[-----+-----+ ( )-- (* ASU, cutting *)
      | RANGE|
      | INT |
      |     |
CONST -+L1 Q++
+00015 |
      |
CONST -+L2
+00040 |
      |
TMR_11
|R0130 -+IN
      +-----+

(*****
(* Side movement *)
*****)

SPL_PKG                                     SPL_MOV << RUNG 60 STEP #0273 >>
|M0453 +-----+                         M0455
+--] [---+RANGE|+-----+-----+ (S)-- (* ASU, Side feeder allowed moving *)
      | INT |
      |     |
CONST -+L1 Q++
+00040 |
      |
CONST -+L2
+00050 |
      |
TMR_11
|R0130 -+IN
      +-----+

P+044 SPL_MOV A602_34 B7412              Y7412 << RUNG 61 STEP #0276 >>
|T0044 M0455 %I0131 %I0283              %Q0277
+--] [-----] [-----] [---+--] [-----+-----+ ( )-- (* ASU, Side feeder 1 - 2 *)
      | B7512
      | %I0284
      +--] [-----+-----+ ( )-- (* ASU, Side feeder 2 - 1 *)

P+042 LP_STOP                             SPL_POS << RUNG 62 STEP #0285 >>
|T0042 M0502                             M0456
+--] [-----] [-----+-----+ (S)-- (* ASU, Side feeder in splice pos. *)

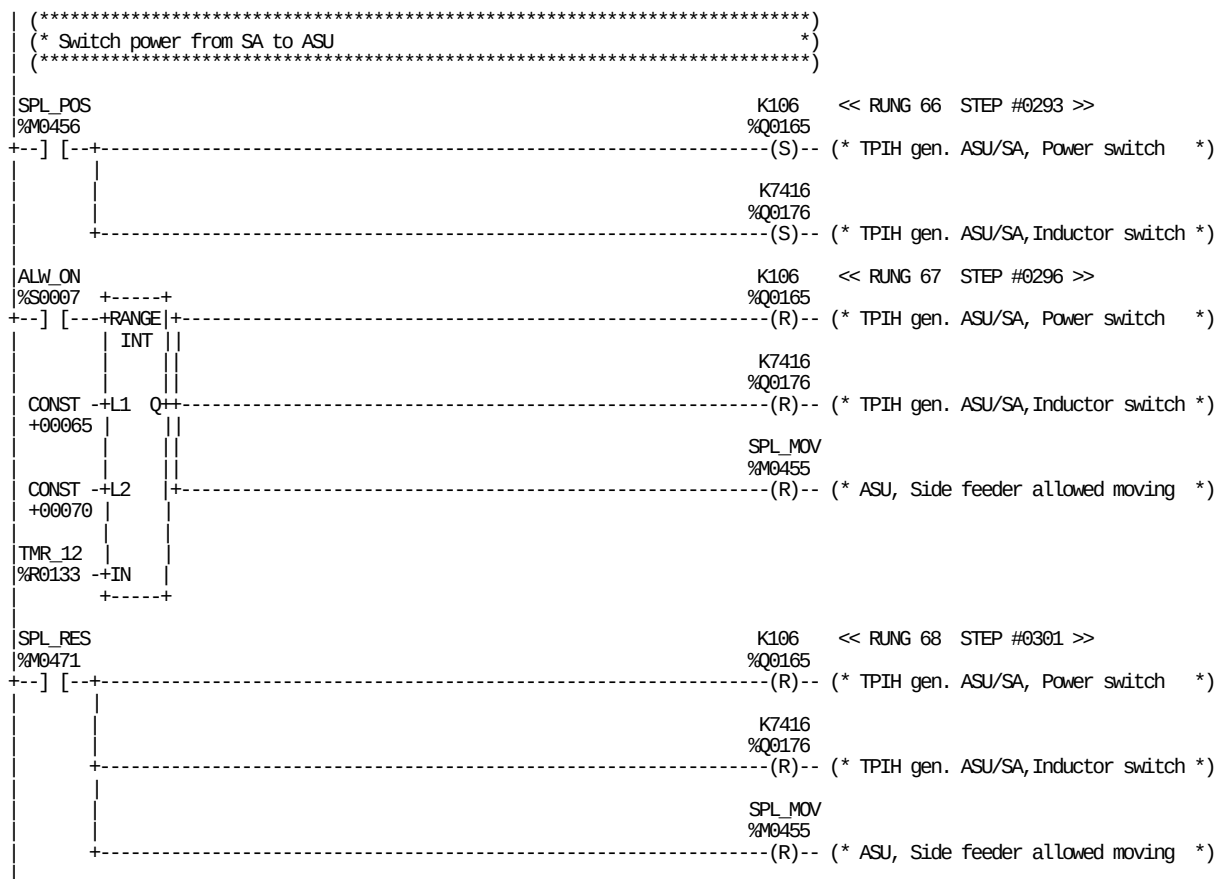
SPL_RES                                   SPL_POS << RUNG 63 STEP #0288 >>
|M0471                                   M0456
+--] [-----+-----+ (R)-- (* ASU, Side feeder in splice pos. *)

SPL_TM1                                   SPL_POS << RUNG 64 STEP #0290 >>
|M0458                                   M0456
+--] [-----+-----+ (R)-- (* ASU, Side feeder in splice pos. *)

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0131	A602_34	Safety monitor door guards ASU	M0453	SPL_PKG	ASU, Pkg. mtrl. in splice pos.
S0007	ALW_ON		M0456	SPL_POS	ASU, Side feeder in splice pos.
I0281	B7411	ASU, Material holder 1 down	M0471	SPL_RES	ASU, Splice sequence reset
I0283	B7412	ASU, Side feeder position 1	M0458	SPL_TM1	ASU, Splice sequence (0,10-0,55)
I0282	B7414	ASU, Material holder 2 down	R0130	TMR_11	Tmr 11, ASU cut sequence (0,01s)
I0284	B7512	ASU, Side feeder position 2	R0133	TMR_12	Tmr 12, ASU splice seq. (0,01s)
M0502	LP_STOP	ASU, DR loop stop at splice pos.	Q0274	Y7408	ASU, Pressure rail
T0042	P+042	Pulse + Side feeder in pos.	Q0275	Y7410	ASU, cutting
T0044	P+044	Pulse + Material holders down	Q0277	Y7412	ASU, Side feeder 1 - 2
M0455	SPL_MOV	ASU, Side feeder allowed moving	Q0278	Y7413	ASU, Side feeder 2 - 1

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REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%S0007	ALW_ON		%M0456	SPL_POS	ASU, Side feeder in splice pos.
%Q0165	K106	TPIH gen. ASU/SA, Power switch	%M0471	SPL_RES	ASU, Splice sequence reset
%Q0176	K7416	TPIH gen. ASU/SA, Inductor switch	%R0133	TMR_12	Tmr 12, ASU splice seq. (0,01s)
%M0455	SPL_MOV	ASU, Side feeder allowed moving			

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```

(*****
(* ASU splice sequence timer
*****
)

SPL_POS B7423 B7424
%M0456 %I0295 %I0296
SPL_SEQ << RUNG 70 STEP #0306 >>
%M0457
+--] [----] [----] [-----] (S) ( * ASU, Splice sequence *)

SPL_SEQ
%M0457 +-----+
+--] [---+ TMR +-----+
|0.01s|
CONST +PV
+00200
+-----+
TMR_12
%R0133

SPL_SEQ
%M0457 +-----+
+--] [---+RANGE+-----+
|INT|
CONST +L1 Q+
+00010
CONST +L2
+00055
TMR_12
%R0133 +IN
+-----+

SPL_SEQ
%M0457 +-----+
+--] [---+RANGE+-----+
|INT|
CONST +L1 Q+
+00040
CONST +L2
+00070
TMR_12
%R0133 +IN
+-----+

SPL_SEQ
%M0457 +-----+
+--] [---+RANGE+-----+
|INT|
CONST +L1 Q+
+00160
CONST +L2
+00190
TMR_12
%R0133 +IN
+-----+

SPL_TM1 << RUNG 72 STEP #0313 >>
%M0458
( ) ( * ASU, Splice sequence (0,10-0,55) *)

SPL_TM2 << RUNG 73 STEP #0316 >>
%M0459
( ) ( * ASU, Splice sequence (0,40-0,70) *)

SPL_TM3 << RUNG 74 STEP #0319 >>
%M0460
( ) ( * ASU, Splice sequence (1,60-1,90) *)

```

REFERENCE NICKNAME
 %I0295 B7423
 %I0296 B7424
 %M0456 SPL_POS
 %M0457 SPL_SEQ

REFERENCE DESCRIPTION
 ASU, Material holder 1 up
 ASU, Material holder 2 up
 ASU, Side feeder in splice pos.
 ASU, Splice sequence

REFERENCE NICKNAME
 %M0458 SPL_TM1
 %M0459 SPL_TM2
 %M0460 SPL_TM3
 %R0133 TMR_12

REFERENCE DESCRIPTION
 ASU, Splice sequence (0,10-0,55)
 ASU, Splice sequence (0,40-0,70)
 ASU, Splice sequence (1,60-1,90)
 Tmr 12, ASU splice seq. (0,01s)

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```

(*****
(* Monitor splice sequence
*****
)

RESET OPT_ASR                                SPL_INT << RUNG 76 STEP #0323 >>
%M3050 %I0122                                %M0470
+--] [-----] / [-----] (R)-- (* ASU, Splice sequence interrupted *)

S7901 OPT_ASR
%M0288 %I0122
+--] [-----] [-----]

A602_34 SPL_MON                                SPL_INT << RUNG 77 STEP #0329 >>
%M0131 %M0472                                %M0470
+--] / [-----] [-----] (S)-- (* ASU, Splice sequence interrupted *)

SPL_SPD ASU_MON
%M0452 %M0402
+--] [-----] [-----]

SPL_OUT
%M0473
+--] [-----]

A602_34                                SPL_RES << RUNG 78 STEP #0336 >>
%M0131                                %M0471
+--] / [-----] ( )-- (* ASU, Splice sequence reset *)

JUMP_0
%M0190
+--] / [-----]

IHFAULT
%M0475
+--] [-----]

SPL_INT
%M0470
+--] [-----]

FST_SCN
%S0001
+--] [-----]

P+038                                SPL_MON << RUNG 79 STEP #0342 >>
%M0038                                %M0472
+--] [-----] (S)-- (* ASU, Splice sequence monitor *)

P+039
%M0039
+--] [-----]

SPL_TM3                                SPL_MON << RUNG 80 STEP #0345 >>
%M0460                                %M0472
+--] [-----] (R)-- (* ASU, Splice sequence monitor *)

STEP_0
%M0100
+--] [-----]

SPL_RES
%M0471
+--] [-----]

SPL_MON                                SPL_OUT << RUNG 81 STEP #0349 >>
%M0472                                %M0473
+--] [-----] ( )-- (* ASU, Splice sequence timeout *)

TMR
|0.10s|

CONST --PV
+00090
+-----+
DEL1527
%M1527

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0131	A602_34	Safety monitor door guards ASU	%M3050	RESET	Alarm reset
%M0402	ASU_MON	ASU, Monitor register mark	%I0288	S7901	ASU, alarm reset
%R1527	DEL1527	Delay, ASU	%M0470	SPL_INT	ASU, Splice sequence interrupted
%S0001	FST_SCN		%M0472	SPL_MON	ASU, Splice sequence monitor
%M0475	IHFAULT	SA ASU, TPIH fault	%M0473	SPL_OUT	ASU, Splice sequence timeout
%M0190	JUMP_0	Jump to machine step 0	%M0471	SPL_RES	ASU, Splice sequence reset
%I0122	OPT_ASR	Option, ASU in separate room	%M0452	SPL_SPD	ASU, Low speed before splice
%T0038	P+038	Pulse + ASU splice going on	%M0460	SPL_TM3	ASU, Splice sequence (1,60-1,90)
%T0039	P+039	Pulse + ASU splice speed	%M0100	STEP_0	Step 0 Off

TBA/21-0410/0500
BLOCK: AUTOMATIC SPLICING UNIT (ASU)

```

(*****
(* Rotation monitor SA (drive roller 4)
*****
)

RESET OPT_ASR                                SA_ROT  << RUNG 83 STEP #0353 >>
%M3050 %I0122                                %M0474
+--] [-----]/[-----]------(R)-- (* SA ASU, Rotation monitor *)

S7901 OPT_ASR
%M0288 %I0122
+--] [-----] [-----]

STEP_1 STP1_11 FST_WEB A413_EN                << RUNG 84 STEP #0359 >>
%M0101 %M0145 %M0912 %Q0202 +-----+
+--]/[-----] [-----] [-----] [-----] TMR +-----+
|0.01s|
STEP_1 S003
%M0101 %I0206
+--] [-----] [-----]
CONST +PV
+00130
+-----+
DEL1533
%M1533

P+021
%T0021 +-----+
+--]/[-----] TMR +-----+
|0.01s|
CONST +PV
+00070
+-----+
DEL1536
%M1536

(*****
(* TPIH generator fault ASU/SA
*****
)

STP1_11 A741723 RESET                        IHFAULT << RUNG 87 STEP #0373 >>
%M0145 %I0190 %M3050 +-----+
+--] [-----]/[-----] TMR +-----+
|0.10s|
CONST +PV
+00002
+-----+
DEL1539
%M1539

IHFAULT RESET OPT_ASR                        IH_ACK  << RUNG 88 STEP #0378 >>
%M0475 %M3050 %I0122
+--] [-----] [-----]/[-----]------(S)-- (* SA ASU, TPIH fault acknowledge *)

S7901 OPT_ASR
%M0288 %I0122
+--] [-----] [-----]

A741723 IH_ACK
%M0190 %M0476
+--] [-----] [-----]
IH_FAULT << RUNG 89 STEP #0386 >>
%M0475
+-----] (R)-- (* SA ASU, TPIH fault *)

IH_ACK
%M0476
+-----] (R)-- (* SA ASU, TPIH fault acknowledge *)

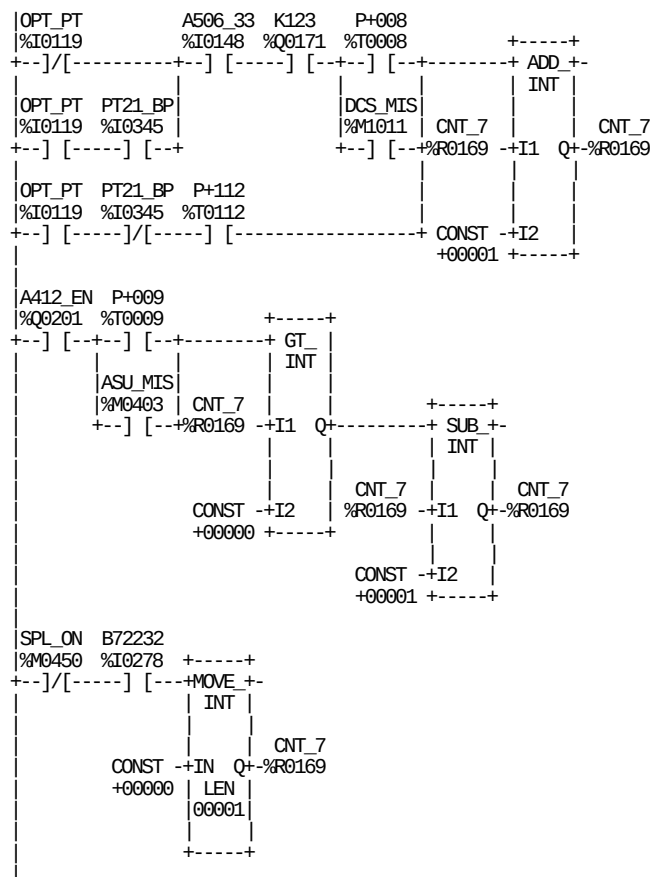
(*****
(* Count packages in ASU magazine to be able to dump correct packages
*****
)

PT_REGM
%M0908
+--] [-----]
P+112 << RUNG 91 STEP #0391 >>
%T0112
+-----] (^)-- (* Pulse + PT21 bar code *)

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%Q0202	A413_EN	Drive roller mag. ASU, Enable	%T0021	P+021	Pulse + SA, Rotation monitor
%I0190	A741723	TPIH Generator ASU/SA, Fault	%T0112	P+112	Pulse + PT21 bar code
%R1533	DEL1533	Delay, ASU	%G0908	PT_REGM	From PT21, Register mark
%R1536	DEL1536	Delay, ASU	%M3050	RESET	Alarm reset
%R1539	DEL1539	Delay, ASU	%I0206	S003	Service switch
%M0912	FST_WEB	JUM, Paper web fast speed	%I0288	S7901	ASU, alarm reset
%M0475	IHFAULT	SA ASU, TPIH fault	%M0474	SA_ROT	SA ASU, Rotation monitor
%M0476	IH_ACK	SA ASU, TPIH fault acknowledge	%M0101	STEP_1	Step 1 Preparation
%I0122	OPT_ASR	Option, ASU in separate room	%M0145	STP1_11	Step 1-11 Prep. to venting

TBA/21-0410/0500
BLOCK: AUTOMATIC SPLICING UNIT (ASU)



<< RUNG 92 STEP #0393 >>

<< RUNG 93 STEP #0407 >>

<< RUNG 94 STEP #0413 >>

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%Q0201	A412_EN	Drive roller loop ASU, Enable	%I0119	OPT_PT	Option, PT/21
%I0148	A506_33	DMC Main motor, Running	%T0008	P+008	Pulse + DCS register mark
%M0403	ASU_MIS	ASU, Missed register mark	%T0009	P+009	Pulse + ASU register mark
%I0278	B72232	ASU, Magazine down	%T0112	P+112	Pulse + PT21 bar code
%R0169	CNT_7	CNT7, Dumping ASU packages	%I0345	PT21_BP	From PT21, Bypass mode
%M1011	DCS_MIS	DCS, Missed register mark	%M0450	SPL_ON	ASU, Splice sequence going on
%Q0171	K123	Connection of jaw system			

TBA/21-0410/0500
BLOCK: AUTOMATIC SPLICING UNIT (ASU)

```

(*****
*) * Alarms ASU
*) *****
ASU_MON ASU_01 << RUNG 96 STEP #0417 >>
%M0402 %M3601
+--] [-----] ( )-- (* ASU, Malfunction photocells *)

STP1_11 NOTPREP ASU_04 << RUNG 97 STEP #0419 >>
%M0145 %M0420 %M3604
+--] [-----] ( )-- (* ASU, Pkg mtrl not prepared *)

STP1_11 STEP_1 B72234 ASU_05 << RUNG 98 STEP #0422 >>
%M0145 %M0101 %I0280 %M3605
+--] [-----] ( )-- (* ASU, Magazine empty *)

STEP_1 A506_33
%M0101 %I0148
+--] [-----] [---+

MG_TOUT
%M0554
+--] [-----]

STP1_11 SPL_INT ASU_06 << RUNG 99 STEP #0430 >>
%M0145 %M0470 %M3606
+--] [-----] ( )-- (* ASU, Splice seq. interrupted *)

STEP_0 K106 IHFAULT ASU_08 << RUNG 100 STEP #0433 >>
%M0100 %Q0165 %M0475 %M3608
+--] [-----] ( )-- (* ASU, Sealing packaging material *)

MTRLPRP ASU_09 << RUNG 101 STEP #0437 >>
%M0432 %M3609
+--] [-----] ( )-- (* ASU, Pkg mtrl end not prepared *)

A412_EN A412_19 ASU_10 << RUNG 102 STEP #0439 >>
%Q0201 %I0140 %M3610
+--] [-----] ( )-- (* ASU, Overload DR loop *)

A413_EN A413_19 ASU_11 << RUNG 103 STEP #0442 >>
%Q0202 %I0141 %M3611
+--] [-----] ( )-- (* ASU, Overload DR magazine *)

SA_ROT ASU_12 << RUNG 104 STEP #0445 >>
%M0474 %M3612
+--] [-----] ( )-- (* Rotation monitor SA *)

MTRLDOR ASU_13 << RUNG 105 STEP #0447 >>
%M0433 %M3613
+--] [-----] ( )-- (* ASU, Pkg mtrl end door open *)

LP_EMPTY ASU_14 << RUNG 106 STEP #0449 >>
%M0505 %M3614
+--] [-----] ( )-- (* ASU, Loop empty *)

[ END OF SUBROUTINE LOGIC ]

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0140	A412_19	Drive roller loop, Overload	%M3614	ASU_14	ASU, Loop empty
%Q0201	A412_EN	Drive roller loop ASU, Enable	%M0402	ASU_MON	ASU, Monitor register mark
%I0141	A413_19	Drive roller magazine, Overload	%I0280	B72234	ASU, Magazine empty
%Q0202	A413_EN	Drive roller mag. ASU, Enable	%M0475	IHFAULT	SA ASU, TPIH fault
%I0148	A506_33	DMC Main motor, Running	%Q0165	K106	TPIH gen. ASU/SA, Power switch
%M3601	ASU_01	ASU, Malfunction photocells	%M0505	LP_EMPTY	ASU, Loop empty
%M3604	ASU_04	ASU, Pkg mtrl not prepared	%M0554	MG_TOUT	ASU, DR mag. timeout while still
%M3605	ASU_05	ASU, Magazine empty	%M0433	MTRLDOR	ASU, Pkg. mtrl. end doors open
%M3606	ASU_06	ASU, Splice seq. interrupted	%M0432	MTRLPRP	ASU, Pkg. mtrl. end not prepared
%M3608	ASU_08	ASU, Sealing packaging material	%M0420	NOTPREP	ASU, Splice not prepared
%M3609	ASU_09	ASU, Pkg mtrl end not prepared	%M0474	SA_ROT	SA ASU, Rotation monitor
%M3610	ASU_10	ASU, Overload DR loop	%M0470	SPL_INT	ASU, Splice sequence interrupted
%M3611	ASU_11	ASU, Overload DR magazine	%M0100	STEP_0	Step 0 Off
%M3612	ASU_12	Rotation monitor SA	%M0101	STEP_1	Step 1 Preparation
%M3613	ASU_13	ASU, Pkg mtrl end door open	%M0145	STP1_11	Step 1-11 Prep. to venting

TBA/21-0410/0500
BLOCK: AUTOMATIC SPLICING UNIT (ASU)

```

[ START LD SUBROUTINE BLK_21 ]
[ VARIABLE DECLARATIONS ]
[ START OF SUBROUTINE LOGIC ]

(*****
* Block 21 "Drive roller loop ASU"
*****)

STP1_12 A602_34 K008 << RUNG 5 STEP #0003 >>
%M0146 %I0131 %Q0115
+--] [---] [---] -----( )-- (* Drive roller loop ASU *)

PT_SACT SLW_WEB
%G0910 %M0911
+--] [---] [---]
FST_WEB
%M0912
+--] [---]

(*****
* Delay restart of motor 100ms
*****)

P-029 LP_PROT << RUNG 7 STEP #0011 >>
%T0029 +-----+ %M0501
+--] [---+OFDT +-----+----- ( )-- (* ASU, DR loop brake card prot. *)
|0.01s|
CONST +PV
+00010 +-----+
DEL1600
%R1600

(*****
* Stop drive roller loop when splice position is found.
*****)

SPL_PKG LP_STOP << RUNG 9 STEP #0015 >>
%M0453 %M0502
+--] [---+-----+----- (S)-- (* ASU, DR loop stop at splice pos. *)

SPL_TM3 LP_STOP << RUNG 10 STEP #0017 >>
%M0460 %M0502
+--] [---+-----+----- (R)-- (* ASU, DR loop stop at splice pos. *)

SPL_RES
%M0471
+--] [---+

```

REFERENCE NICKNAME
 %I0131 A602_34
 %R1600 DEL1600
 %M0912 FST_WEB
 %Q0115 K008
 %M0501 LP_PROT
 %M0502 LP_STOP
 %T0029 P-029

REFERENCE DESCRIPTION
 Safety monitor door guards ASU
 Delay, LOOP ASU
 JUM, Paper web fast speed
 Drive roller loop ASU
 ASU, DR loop brake card prot.
 ASU, DR loop stop at splice pos.
 Pulse - Enable DR loop

REFERENCE NICKNAME
 %G0910 PT_SACT
 %M0911 SLW_WEB
 %M0453 SPL_PKG
 %M0471 SPL_RES
 %M0460 SPL_TM3
 %M0146 STP1_12

REFERENCE DESCRIPTION
 From PT21, Srv func. active
 JUM, Paper web slow speed
 ASU, Pkg. mtrl. in splice pos.
 ASU, Splice sequence reset
 ASU, Splice sequence (1,60-1,90)
 Step 1-12 Prep. to doors OK

TBA/21-0410/0500
 BLOCK: DRIVE ROLLER LOOP ASU

```

(*****
* No packaging material in loop. Stop drive roller after 10s.
*****
)

STEP_1 B721112 LP_NOMT << RUNG 12 STEP #0021 >>
%M0101 %I0290 %M0503
+--] [-----]/[-----]----- (S)-- (* ASU, DR loop no material in loop *)

S907
%I0199
+--] [-----]

S911
%I0201
+--] [-----]

RESET
%M3050
+--] [-----]

A506_33 A412_EN B721112 LP_NOMT << RUNG 13 STEP #0027 >>
%I0148 %Q0201 %I0290 +-----+ %M0503
+--]/[-----] [-----] [---+ TMR +----- (R)-- (* ASU, DR loop no material in loop *)
|0.10s|
CONST -+PV
+00100 |
+-----+
DEL1612
%R1612

(*****
* Loop full
*****
)

ALW_ON LP_FULL << RUNG 15 STEP #0033 >>
%S0007 %M0504
+--] [-----]----- (R)-- (* ASU, Loop full *)

B721112 A413_EN LP_FULL << RUNG 16 STEP #0035 >>
%I0290 %Q0202 %M0504
+--]/[-----] [-----]----- (S)-- (* ASU, Loop full *)

B721112 << RUNG 17 STEP #0038 >>
%I0290 +-----+
+--]/[---+ TMR +-----<+>
|0.10s|
CONST -+PV
+00020 |
+-----+
DEL1603
%R1603

A413_EN LP_FULL << RUNG 18 STEP #0041 >>
%Q0202 %M0504
+<+>-----] [-----]----- (S)-- (* ASU, Loop full *)

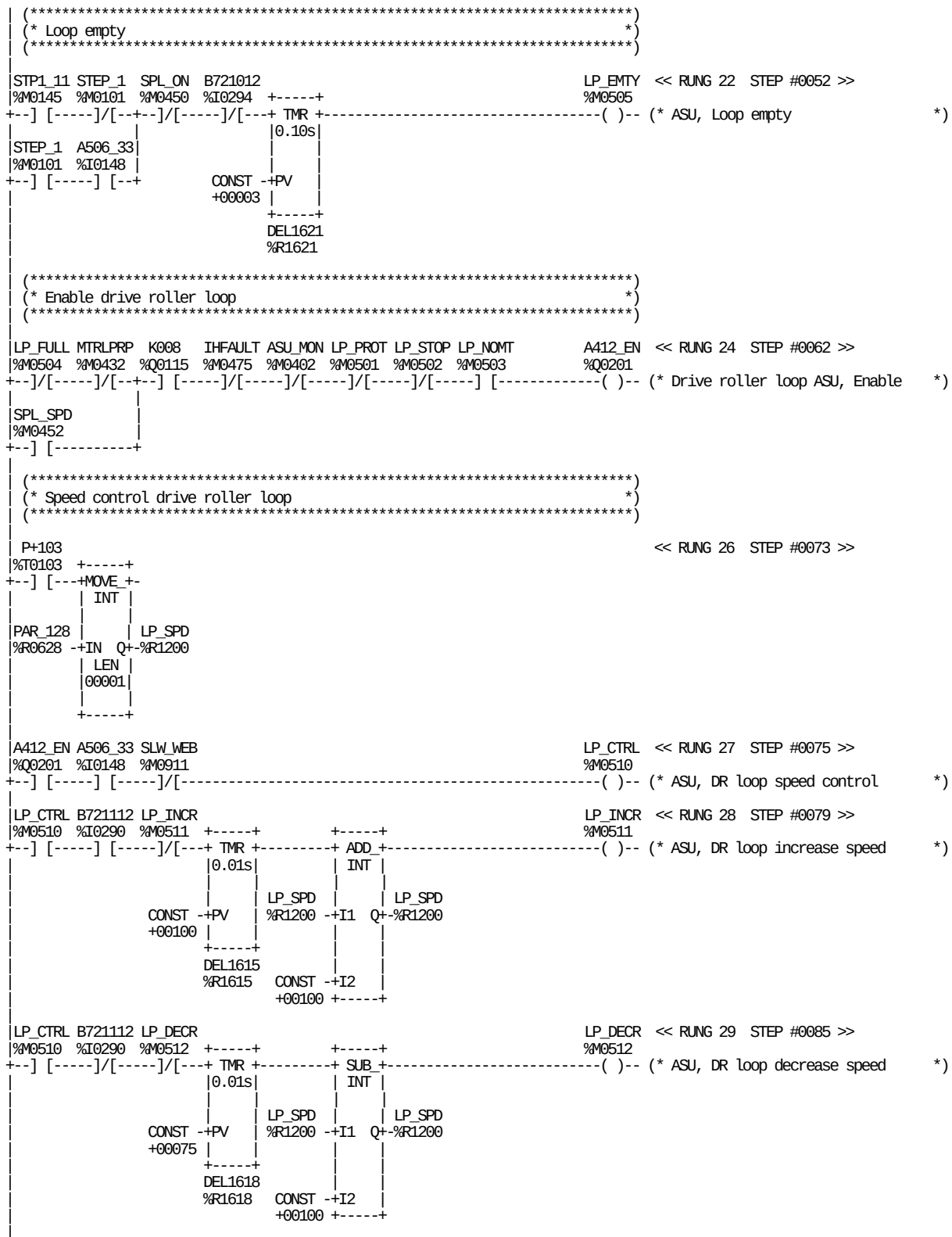
P+030 << RUNG 19 STEP #0044 >>
%T0030 +-----+
+--] [---+ OFDT +-----<+>
|0.01s|
CONST -+PV
+00400 |
+-----+
DEL1606
%R1606

B721112 LP_FULL << RUNG 20 STEP #0047 >>
%I0290 +-----+ %M0504
+<+>-----] [---+ TMR +----- (S)-- (* ASU, Loop full *)
|0.01s|
CONST -+PV
+00050 |
+-----+
DEL1609
%R1609

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%Q0201	A412_EN	Drive roller loop ASU, Enable	%R1612	DEL1612	Delay, LOOP ASU
%Q0202	A413_EN	Drive roller mag. ASU, Enable	%M0504	LP_FULL	ASU, Loop full
%I0148	A506_33	DMC Main motor, Running	%M0503	LP_NOMT	ASU, DR loop no material in loop
%S0007	ALW_ON		%T0030	P+030	Pulse + Enable DR magazine
%I0290	B721112	ASU, Adjustment loop	%M3050	RESET	Alarm reset
%R1603	DEL1603	Delay, LOOP ASU	%I0199	S907	Inching JUM and FFU
%R1606	DEL1606	Delay, LOOP ASU	%I0201	S911	Step up
%R1609	DEL1609	Delay, LOOP ASU	%M0101	STEP_1	Step 1 Preparation

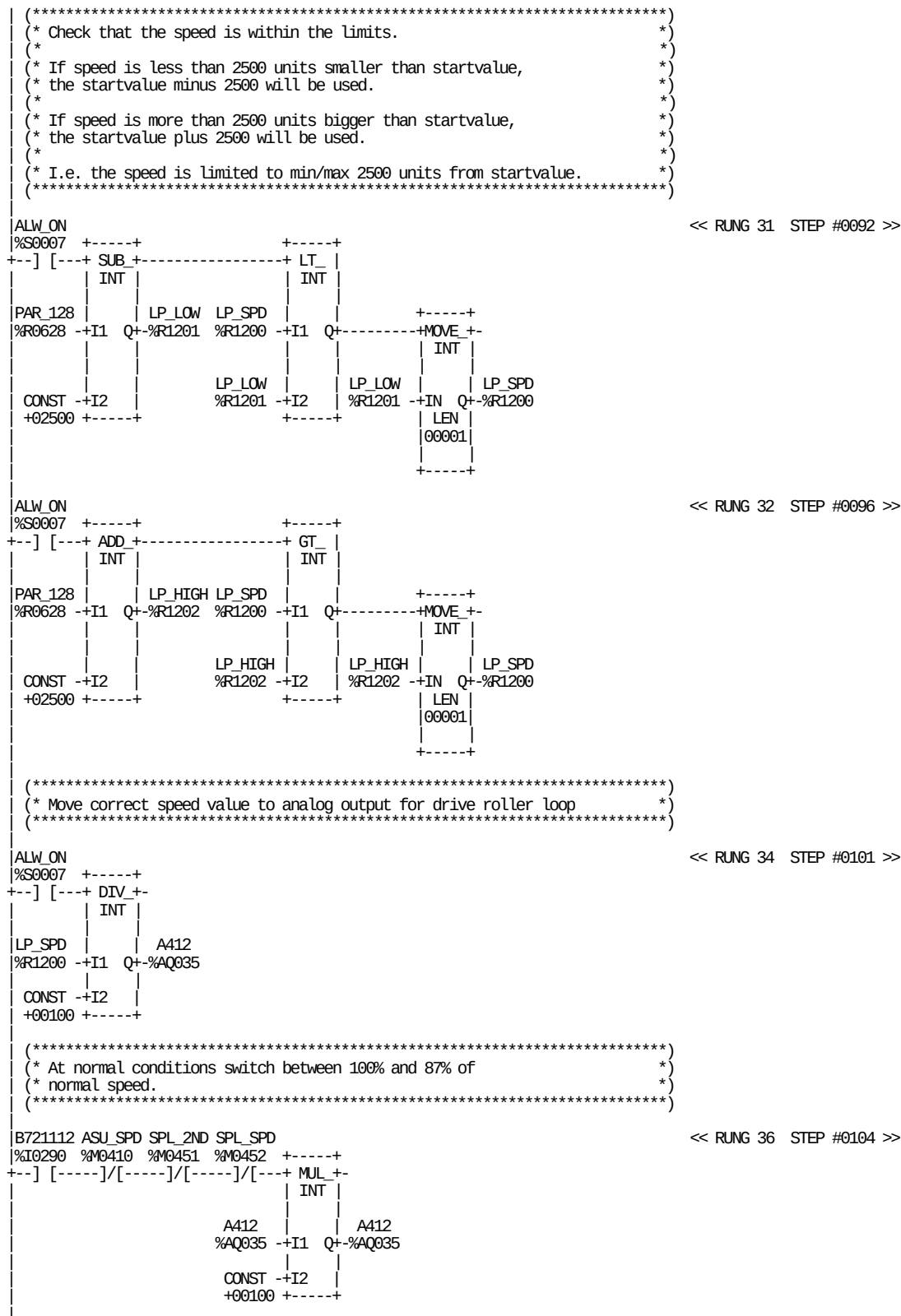
TBA/21-0410/0500
BLOCK: DRIVE ROLLER LOOP ASU



REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%Q0201	A412_EN	Drive roller loop ASU, Enable
%I0148	A506_33	DMC Main motor, Running
%M0402	ASU_MON	ASU, Monitor register mark
%I0294	B721012	ASU, Loop empty
%I0290	B721112	ASU, Adjustment loop
%R1615	DEL1615	Delay, LOOP ASU
%R1618	DEL1618	Delay, LOOP ASU
%R1621	DEL1621	Delay, LOOP ASU
%M0475	IHFAULT	SA ASU, TPIH fault
%Q0115	K008	Drive roller loop ASU
%M0510	LP_CTRL	ASU, DR loop speed control
%M0512	LP_DECR	ASU, DR loop decrease speed
%M0505	LP_EMPTY	ASU, Loop empty
%M0504	LP_FULL	ASU, Loop full

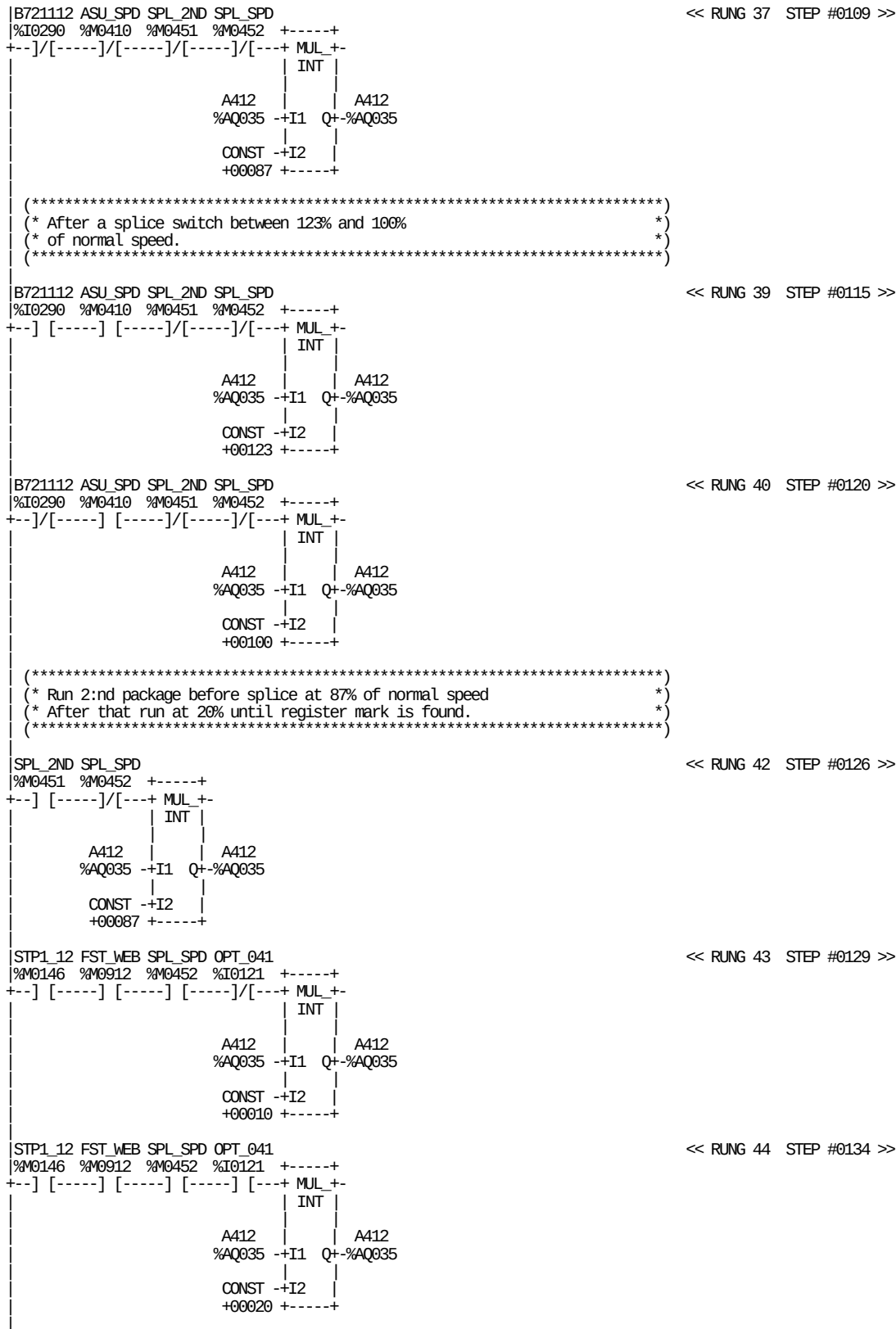
REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M0511	LP_INCR	ASU, DR loop increase speed
%M0503	LP_NOMT	ASU, DR loop no material in loop
%M0501	LP_PROT	ASU, DR loop brake card prot.
%R1200	LP_SPD	ASU, Speed drive roller loop
%M0502	LP_STOP	ASU, DR loop stop at splice pos.
%M0432	MTRLPRP	ASU, Pkg. mtrl. end not prepared
%T0103	P+103	Pulse + New volume value
%R0628	PAR_128	Start spd drive roller loop ASU
%M0911	SLW_WEB	JUM, Paper web slow speed
%M0450	SPL_ON	ASU, Splice sequence going on
%M0452	SPL_SPD	ASU, Low speed before splice
%M0101	STEP_1	Step 1 Preparation
%M0145	STP1_11	Step 1-11 Prep. to venting

TBA/21-0410/0500
BLOCK: DRIVE ROLLER LOOP ASU



REFERENCE	NICKNAME	REFERENCE	DESCRIPTION	REFERENCE	NICKNAME	REFERENCE	DESCRIPTION
%A0035	A412	%R1201	Drive roller loop ASU	%R1201	LP_LOW	ASU, Lower speed limit DR loop	
%S0007	ALW_ON	%R1200		%R1200	LP_SPD	ASU, Speed drive roller loop	
%M0410	ASU_SPD	%R0628	ASU, High speed after splice	%R0628	PAR_128	Start spd drive roller loop ASU	
%I0290	B721112	%M0451	ASU, Adjustment loop	%M0451	SPL_2ND	ASU, 2:nd last pkg before splice	
%R1202	LP_HIGH	%M0452	ASU, Higher speed limit DR loop	%M0452	SPL_SPD	ASU, Low speed before splice	

TBA/21-0410/0500
BLOCK: DRIVE ROLLER LOOP ASU



REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%AQ035	A412	Drive roller loop ASU	%I0121	OPT_041	Option, 041V functionality
%M0410	ASU_SPD	ASU, High speed after splice	%M0451	SPL_2ND	ASU, 2:nd last pkg before splice
%I0290	B721112	ASU, Adjustment loop	%M0452	SPL_SPD	ASU, Low speed before splice
%M0912	FST_WEB	JUM, Paper web fast speed	%M0146	STP1_12	Step 1-12 Prep. to doors OK

TBA/21-0410/0500
 BLOCK: DRIVE ROLLER LOOP ASU

```

STP1_12  FST_WEB  SPL_SPD
%M0146   %M0912   %M0452  +-----+
+---+   +-----+ / [-----] [-+  MUL  +---+
                        |
                        | INT |
                        |
A412
%AQ035  -+I1  Q+-%AQ035
                        |
CONST   -+I2
+00020  +-----+
[      END OF SUBROUTINE LOGIC      ]

```

```
<< RUNG 45  STEP #0139 >>
```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%A0035	A412	Drive roller loop ASU	%M0452	SPL_SPD	ASU, Low speed before splice
%M0912	FST_WEB	JUM, Paper web fast speed	%M0146	STP1_12	Step 1-12 Prep. to doors OK

TBA/21-0410/0500
BLOCK: DRIVE ROLLER LOOP ASU


```

[ START LD SUBROUTINE BLK_22 ]
[ VARIABLE DECLARATIONS ]
[ START OF SUBROUTINE LOGIC ]

(*****
* Block 22 "Drive roller magazine ASU"
*****)

STP1_12                                K036    << RUNG 5 STEP #0003 >>
%M0146                                %Q0119
+--] [---+----- ( )-- (* Drive roller magazine ASU *)

PT_SACT
%G0910
+--] [---+

(*****
* Start drive roller magazine only when doors are closed in ASU.
*****)

B7801 A602_34 STEP_1                    MG_DOOR << RUNG 7 STEP #0007 >>
%I0293 %I0131 %M0101                    %M0550
+--] [-----] [---+----- (R)-- (* ASU, DR mag. no start doors open *)

      S907
      %I0199
      +--] [---+
      S911
      %I0201
      +--] [---+

SLW_WEB FST_WEB A602_34                 MG_DOOR << RUNG 8 STEP #0014 >>
%M0911 %M0912 %I0131                    %M0550
+--]/[-----]/[---+----- (S)-- (* ASU, DR mag. no start doors open *)

      B7801
      %I0293
      +--]/[---+

(*****
* Delay restart of motor 100ms
*****)

P-031                                  MG_PROT << RUNG 10 STEP #0021 >>
%T0031 +-----+                        %M0551
+--] [---+OFDT +-----+ ( )-- (* ASU, DR mag. brake card prot. *)
      |0.01s|
CONST -+PV
+00010 |
      +-----+
      DEL1700
      %R1700

(*****
* Drive roller magazine allowed to move during splice
*****)

P+038                                  MG_SPLC << RUNG 12 STEP #0025 >>
%T0038                                  %M0552
+--] [-----+----- (S)-- (* ASU, DR mag. move during splice *)

B721012                                MG_SPLC << RUNG 13 STEP #0027 >>
%I0294                                %M0552
+--]/[---+----- (R)-- (* ASU, DR mag. move during splice *)

SPL_TM3
%M0460
+--] [---+

SPL_RES
%M0471
+--] [---+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0131	A602_34	Safety monitor door guards ASU	%T0031	P-031	Pulse - Enable DR magazine
%I0294	B721012	ASU, Loop empty	%G0910	PT_SACT	From PT21, Srv func. active
%I0293	B7801	SA, Door guard, SA	%I0199	S907	Inching JUM and FFU
%R1700	DEL1700	Delay, Magazine ASU	%I0201	S911	Step up
%M0912	FST_WEB	JUM, Paper web fast speed	%M0911	SLW_WEB	JUM, Paper web slow speed
%Q0119	K036	Drive roller magazine ASU	%M0471	SPL_RES	ASU, Splice sequence reset
%M0550	MG_DOOR	ASU, DR mag. no start doors open	%M0460	SPL_TM3	ASU, Splice sequence (1,60-1,90)
%M0551	MG_PROT	ASU, DR mag. brake card prot.	%M0101	STEP_1	Step 1 Preparation
%M0552	MG_SPLC	ASU, DR mag. move during splice	%M0146	STP1_12	Step 1-12 Prep. to doors OK
%T0038	P+038	Pulse + ASU splice going on			

TBA/21-0410/0500
BLOCK: DRIVE ROLLER MAGAZINE ASU

```

*****
* Start drive roller magazine                                     *
*                                                                *
* If magazine roller is pulled to upper position too fast by hand during *
* preparation M553 will not set and the magazine will not be filled.   *
*****

B72233                                MG_STRT << RUNG 15 STEP #0032 >>
%I0279                                %M0553
+---] [-----] (S)-- (* ASU, DR mag. start *)

|SLW_WEB K122 PT21_BP PT_PULL|
|%-M0911 %-Q0120 %-I0345 %-G0900|
+---]/[-----] [-+---]/[-----] [-+---]
|PT21_BP|
|%-I0345|
+---] [-----]
|OPT_PT|
|%-I0119|
+---]/[-----]

B72232 SLW_WEB                                MG_STRT << RUNG 16 STEP #0042 >>
%I0278 %M0911                                %M0553
+---] [+---] [-+---] (R)-- (* ASU, DR mag. start *)

|FST_WEB SLW_WEB PT_PULL|
|%-M0912 %-M0911 %-G0900|
+---]/[-----] /[-+---] /[-+---]
|OPT_PT|
|%-I0119|
+---]/[-----]

B72232                                MG_STRT << RUNG 17 STEP #0052 >>
%I0278 +-----+                                %M0553
+---] [-+---+ TMR +-----] (R)-- (* ASU, DR mag. start *)
|0.10s|
CONST -PV |
+00030 |
+-----+
DEL1703
%R1703

*****
* Enable drive roller magazine                                     *
*****

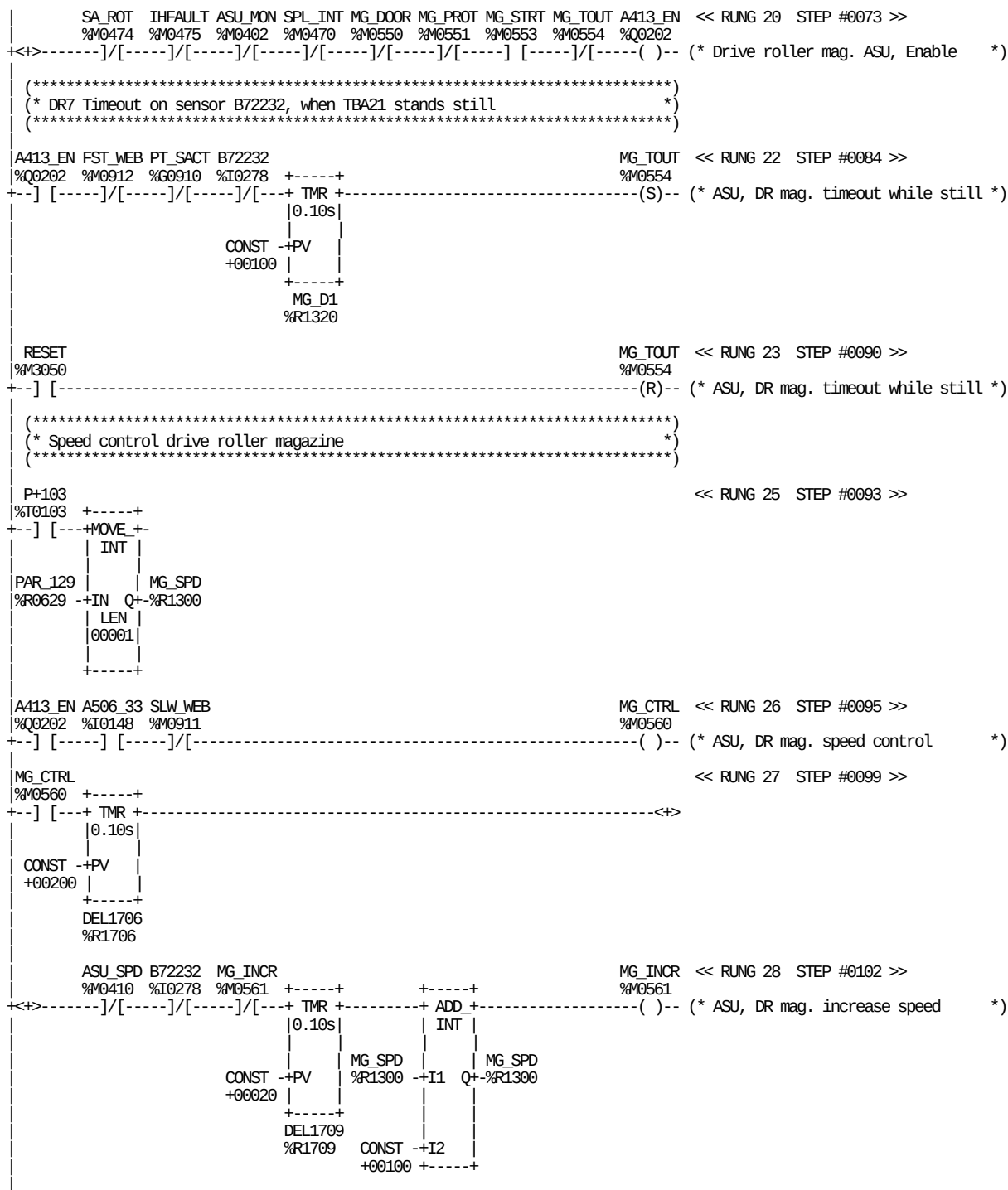
STEP_1 LP_NOMT A412_EN B721012 K036 K106 SA_SPL SA_BRK SA_ENDD << RUNG 19 STEP #0056 >>
%-M0101 %-M0503 %-Q0201 %-I0294 %-Q0119 %-Q0165 %-M0312 %-M0322 %-M0324
+---] [-----] [-+---] [-+---] [-----] [-----]/[-----]/[-----]/[-----]/[-----]<=>

|STEP_12| |STEP_12|
|%-M0147| |%-M0112|
+---] [-----] +---] [-----]
|PT_SACT| |LP_PROT|
|%-G0910| |%-M0501|
+---] [-----] +---] [-----]
|LP_FULL|
|%-M0504|
+---] [-----]
|MG_SPLC|
|%-M0552|
+---] [-----]

REFERENCE NICKNAME REFERENCE DESCRIPTION REFERENCE NICKNAME REFERENCE DESCRIPTION
%M0553 MG_STRT ASU, DR mag. start
%-I0119 OPT_PT Option, PT/21
%-I0345 PT21_BP From PT21, Bypass mode
%-G0900 PT_PULL From PT21, Pull paper
%-G0910 PT_SACT From PT21, Srv func. active
%-M0322 SA_BRK SA, Strip break
%-M0324 SA_ENDD SA, Strip end open door
%-M0312 SA_SPL SA, Splice going on
%-M0911 SLW_WEB JUM, Paper web slow speed
%-M0101 STEP_1 Step 1 Preparation
%-M0112 STEP_12 Step 12 Doors OK
%-M0147 STP2_12 Step 2-12 Tube seal. to doors OK

```

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BLOCK: DRIVE ROLLER MAGAZINE ASU

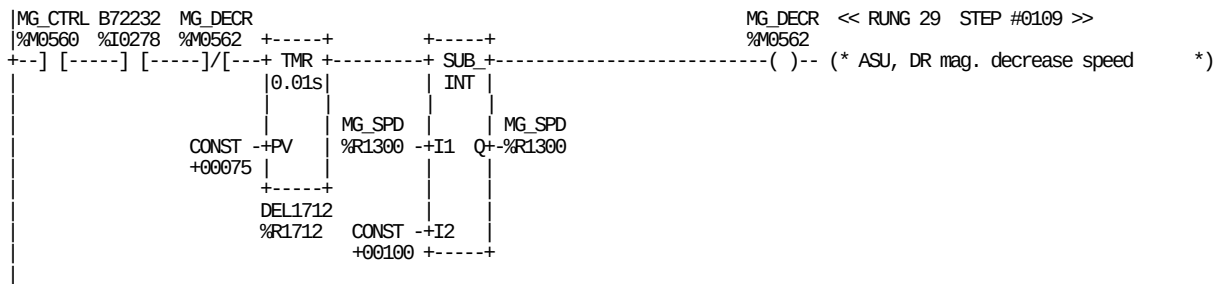


REFERENCE	NICKNAME
%Q0202	A413_EN
%I0148	A506_33
%M0402	ASU_MON
%M0410	ASU_SPD
%I0278	B72232
%R1706	DEL1706
%R1709	DEL1709
%M0912	FST_WEB
%M0475	IHFAULT
%M0560	MG_CTRL
%R1320	MG_D1
%M0550	MG_DOOR

REFERENCE	DESCRIPTION
%M0410	Drive roller mag. ASU, Enable
%M0551	DMC Main motor, Running
%M0553	ASU, Monitor register mark
%M0554	ASU, High speed after splice
%M0554	ASU, Magazine down
%M0554	Delay, Magazine ASU
%M0554	Delay, Magazine ASU
%M0554	JUM, Paper web fast speed
%M0554	SA ASU, TPIH fault
%M0554	ASU, DR mag. speed control
%M0554	ASU, Timeout DR mag. while still
%M0554	ASU, DR mag. no start doors open

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M0561	MG_INCR	ASU, DR mag. increase speed
%M0551	MG_PROT	ASU, DR mag. brake card prot.
%M0553	MG_SPD	ASU, Speed drive roller magazine
%M0553	MG_STRT	ASU, DR mag. start
%M0554	MG_TOUT	ASU, DR mag. timeout while still
%T0103	P+103	Pulse + New volume value
%R0629	PAR_129	Start spd drv roll. magazine ASU
%G0910	PT_SACT	From PT21, Srv func. active
%M3050	RESET	Alarm reset
%M0474	SA_ROT	SA ASU, Rotation monitor
%M0911	SLW_WEB	JUM, Paper web slow speed
%M0470	SPL_INT	ASU, Splice sequence interrupted

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BLOCK: DRIVE ROLLER MAGAZINE ASU



REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0278	B72232	ASU, Magazine down
%R1712	DEL1712	Delay, Magazine ASU
%M0560	MG_CTRL	ASU, DR mag. speed control

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M0562	MG_DECR	ASU, DR mag. decrease speed
%R1300	MG_SPD	ASU, Speed drive roller magazine

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 BLOCK: DRIVE ROLLER MAGAZINE ASU

```
(*****  
(* Check that the speed is within the limits.  
*)  
(* If speed is less than 2500 units smaller than startvalue,  
*)  
(* the startvalue minus 2500 will be used.  
*)  
(* If speed is more than 2500 units bigger than startvalue,  
*)  
(* the startvalue plus 2500 will be used.  
*)  
(* I.e. the speed is limited to min/max 2500 units from startvalue.  
*)  
(***)  
  
ALW_ON << RUNG 31 STEP #0116 >>  
%S0007 +-----+  
+-] [---+ SUB_+-----+ LT_+  
| | INT | | INT |  
PAR_129 MG_LOW MG_SPD  
%R0629 +-I1 Q+-%R1301 %R1300 -+I1 Q+-----+MOVE_+  
| | | | | INT |  
CONST -+I2 MG_LOW MG_LOW MG_SPD  
+02500 +-----+ +-----+ -IN Q+-%R1300  
| | | | LEN  
| | | | 00001  
| | | |  
+-----+  
  
ALW_ON << RUNG 32 STEP #0120 >>  
%S0007 +-----+  
+-] [---+ ADD_+-----+ GT_+  
| | INT | | INT |  
PAR_129 MG_HIGH MG_SPD  
%R0629 +-I1 Q+-%R1302 %R1300 -+I1 Q+-----+MOVE_+  
| | | | | INT |  
CONST -+I2 MG_HIGH MG_HIGH MG_SPD  
+02500 +-----+ +-----+ -IN Q+-%R1300  
| | | | LEN  
| | | | 00001  
| | | |  
+-----+  
  
(* Move correct speed value to analog output for drive roller magazine.  
*)  
(***)  
  
ALW_ON << RUNG 34 STEP #0125 >>  
%S0007 +-----+  
+-] [---+ DIV_+  
| | INT |  
MG_SPD A413  
%R1300 +-I1 Q+-%AQ036  
| |  
CONST -+I2  
+00100 +-----+  
  
(* Before design correction system starts to regulate,  
*)  
(* switch between 100% and 89% of normal speed.  
*)  
(***)  
  
B72232 A418_7 ASU_SPD << RUNG 36 STEP #0128 >>  
%I0278 %Q0200 %M0410 +-----+  
+-]/[----]/[----]/[----+ MUL_+  
| | INT |  
A413 A413  
%AQ036 +-I1 Q+-%AQ036  
| |  
CONST -+I2  
+00100 +-----+
```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%AQ036	A413	Drive roller magazine ASU	%R1302	MG_HIGH	ASU, Higher speed limit DR mag.
%Q0200	A418_7	TMCC DCS motors, Allowed to reg.	%R1301	MG_LOW	ASU, Lower speed limit DR mag.
%S0007	ALW_ON		%R1300	MG_SPD	ASU, Speed drive roller magazine
%M0410	ASU_SPD	ASU, High speed after splice	%R0629	PAR_129	Start spd drv roll. magazine ASU
%I0278	B72232	ASU. Magazine down			

TBA/21-0410/0500
BLOCK: DRIVE ROLLER MAGAZINE ASU

```

|B72232 A418_7 ASU_SPD                                     << RUNG 37 STEP #0132 >>
|I0278 %Q0200 %M0410 +-----+
+--] [-----]/[-----]/[-----+ MUL_+
|                                     |
|                                     | INT |
|                                     |
| A413                               A413
| %AQ036 -+I1 Q+-%AQ036
|
| CONST -+I2
| +00089 +-----+

(*****
(* When design correction system is regulating
(* switch between 102% and 91% of normal speed.
(*****

|B72232 A418_7 ASU_SPD                                     << RUNG 39 STEP #0137 >>
|I0278 %Q0200 %M0410 +-----+
+--]/[-----] [-----]/[-----+ MUL_+
|                                     |
|                                     | INT |
|                                     |
| A413                               A413
| %AQ036 -+I1 Q+-%AQ036
|
| CONST -+I2
| +00102 +-----+

|B72232 A418_7 ASU_SPD                                     << RUNG 40 STEP #0141 >>
|I0278 %Q0200 %M0410 +-----+
+--] [-----] [-----]/[-----+ MUL_+
|                                     |
|                                     | INT |
|                                     |
| A413                               A413
| %AQ036 -+I1 Q+-%AQ036
|
| CONST -+I2
| +00091 +-----+

(*****
(* After splice fill magazine by running at 123% of normal speed.
(*****

ASU_SPD                                                     << RUNG 42 STEP #0146 >>
%M0410 +-----+
+--] [-----+ MUL_+
|                                     |
|                                     | INT |
|                                     |
| A413                               A413
| %AQ036 -+I1 Q+-%AQ036
|
| CONST -+I2
| +00123 +-----+

[ END OF SUBROUTINE LOGIC ]

```

REFERENCE NICKNAME	REFERENCE DESCRIPTION	REFERENCE NICKNAME	REFERENCE DESCRIPTION
%AQ036 A413	Drive roller magazine ASU	%M0410 ASU_SPD	ASU, High speed after splice
%Q0200 A418_7	TMCC DCS motors, Allowed to reg.	%I0278 B72232	ASU, Magazine down

TBA/21-0410/0500
BLOCK: DRIVE ROLLER MAGAZINE ASU

ECM: 73362

DATE: 010205

SIGNATURE: EFi

48246-22:02

```

[ START LD SUBROUTINE BLK_23 ]
[ VARIABLE DECLARATIONS ]
[ START OF SUBROUTINE LOGIC ]

(*****
* Block 23 "Strip applicator (SA)"
*****)

STP1_12                                K032  << RUNG 5 STEP #0003 >>
%Q0146                                %Q0151
+---] [---] [---] [---] ( )-- (* TPIH generator ASU/SA *)

PT_SACT                                K130
%G00910                              %Q0174
+---] [---] [---] [---] ( )-- (* L52 contr. voltage TPIH generat. *)

SPD8000 D.C. 25%                      SA_PPWM << RUNG 6 STEP #0007 >>
%Q0055 %M0250                        %M0477
+---] [---] [---] [---] ( )-- (* SA, power modulation (D.C. 75%) *)

STP1_12 A413_EN SA_ROT SA_PPWM        A741720 << RUNG 7 STEP #0010 >>
%Q0146 %Q0202 %M0474 %M0477          %Q0206
+---] [---] [---] [---] [---] [---] ( )-- (* TPIH generator ASU/SA, Seal pulse *)

PT_SACT SPL_TM1
%G00910 %M0458
+---] [---] [---] [---]

(*****
* Move power values to analogue output for SA/ASU
*****)

A413_EN ASU_SPD                        << RUNG 9 STEP #0019 >>
%Q0202 %M0410 +-----+
+---] [---] [---] +MOVE_+
| INT |
PAR_124 | SA_OUT
%R0624 --+IN Q+-%R1000
| LEN |
| 00001 |
+-----+

A413_EN ASU_SPD                        << RUNG 10 STEP #0022 >>
%Q0202 %M0410 +-----+
+---] [---] [---] +MOVE_+
| INT |
PAR_125 | SA_OUT
%R0625 --+IN Q+-%R1000
| LEN |
| 00001 |
+-----+

A413_EN                                << RUNG 11 STEP #0025 >>
%Q0202 +-----+
+---] [---] [---] +MOVE_+
| INT |
CONST --+IN Q+-%R1000
+15000 | LEN |
| 00001 |
+-----+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%Q0202	A413_EN	Drive roller mag. ASU, Enable	%G0910	PT_SACT	From PT21, Srv func. active
%Q0206	A741720	TPIH generator ASU/SA, Seal pulse	%R1000	SA_OUT	SA, Output
%M0410	ASU_SPD	ASU, High speed after splice	%M0477	SA_PPWM	SA, power modulation (D.C. 75%)
%M0250	D_C_25%	UtilityBit, 1scan ON / 3scan OFF	%M0474	SA_ROT	SA ASU, Rotation monitor
%Q0151	K032	TPIH generator ASU/SA	%M0055	SPD8000	8000 packages per hour
%Q0174	K130	L52 contr. voltage TPIH generat.	%M0458	SPL_TM1	ASU, Splice sequence (0,10-0,55)
%R0624	PAR_124	TPIH SA, Power at nom ++	%M0146	STP1_12	Step 1-12 Prep. to doors OK
%R0625	PAR_125	TPIH SA, Power at nom +-			

TBA/21-0410/0500
BLOCK: STRIP APPLICATOR (SA)

```

{*****}
{* Power at start up (75% or 85% of prod) *}
{* Power at packaging material splice (130% of prod) *}
{*****}

A413_EN SA_STRT ASU_SPD                                     << RUNG 13 STEP #0028 >>
%Q0202 %M0300 %M0410 +-----+                               +-----+
|--] [----]/[----]/[--- DIV_+-----+ MUL_+
                        INT   |                               | INT   |
SA_OUT                  Q+ SA_OUT SA_OUT                   Q+ SA_OUT
%M0100 --I1 +- %R1000 %R1000 +-I1 +- %R1000
CONST -+I2          CONST -+I2
+00100 +-----+      +00085 +-----+

A413_EN SA_STRT ASU_SPD                                     << RUNG 14 STEP #0033 >>
%Q0202 %M0300 %M0410 +-----+                               +-----+
|--] [----]/[----] [--- DIV_+-----+ MUL_+
                        INT   |                               | INT   |
SA_OUT                  Q+ SA_OUT SA_OUT                   Q+ SA_OUT
%M0100 --I1 +- %R1000 %R1000 +-I1 +- %R1000
CONST -+I2          CONST -+I2
+00100 +-----+      +00075 +-----+

A413_EN SA_EPWR                                             << RUNG 15 STEP #0038 >>
%Q0202 %M0306 +-----+                               +-----+
|--] [----] [--- DIV_+-----+ MUL_+
                        INT   |                               | INT   |
SA_OUT                  Q+ SA_OUT SA_OUT                   Q+ SA_OUT
%M0100 --I1 +- %R1000 %R1000 +-I1 +- %R1000
CONST -+I2          CONST -+I2
+00100 +-----+      +00130 +-----+

{*****}
{* Power at packaging material splice *}
{*****}

K106                                                         << RUNG 17 STEP #0043 >>
%Q0165 +-----+
|--] [---+MOVE_+
        INT
PAR_126    SA_OUT
%M0626 --IN Q+- %R1000
        LEN
        00001
        +-----+

{*****}
{* In register R8590 the PLC program receive a value between *}
{* -2000 to +2000. This represents +-20%. Default is 0. *}
{* *}
{* The power values in the volume parameter can now *}
{* be adjusted +-20% and then moved to the analogue *}
{* output. *}
{*****}

TPSA02                                                     << RUNG 19 STEP #0046 >>
%M3130 +-----+
|--] [---+MOVE_+
        INT
GEN_13     SA_Pwr
%M3061 --IN Q+- %R8590
CONST -+IN Q+- %R8590
+00000 LEN
       00001
       +-----+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%Q0202	A413_EN	Drive roller mag. ASU, Enable	%M0306	SA_EPWR	SA, Extra SA power at splice
%M0410	ASU_SPD	ASU, High speed after splice	%R1000	SA_OUT	SA, Output
%M3061	GEN_13	General default push button	%R8590	SA_PWR	SA, Power TPIH
%Q0165	K106	TPIH gen. ASU/SA, Power switch	%M0300	SA_STRT	SA, Start up power
%R0626	PAR_126	TPIH ASU, Power at splice	%M3130	TPSA02	Default SA power TPIH

TBA/21-0410/0500
BLOCK: STRIP APPLICATOR (SA)


```

|ALW_ON                                     << RUNG 20 STEP #0049 >>
|S0007 +-----+                         +-----+
+---] [---+ DIV +-----+ ADD +-----+
          | INT |                         | INT |
SA_PWR    SA_OFFS SA_OFFS SA_OFFS
%R8590  -+I1 Q+-%R1001 %R1001 -+I1 Q+-%R1001
CONST -+I2          CONST -+I2
+00100 +-----+      +00100 +-----+

|ALW_ON                                     << RUNG 21 STEP #0052 >>
|S0007 +-----+                         +-----+
+---] [---+ DIV +-----+ MUL +-----+
          | INT |                         | INT |
SA_OUT    A7417 A7417 A7417
%R1000  -+I1 Q+-%AQ039 %AQ039 -+I1 Q+-%AQ039
CONST -+I2          SA_OFFS
+00100 +-----+      %R1001 -+I2
                          +-----+

(*****
(* SA power at startup
*****
)

A413_EN                                     SA_STRT << RUNG 23 STEP #0056 >>
|Q0202 +-----+                         %M0300
+---] [---+ TMR +-----+ ( )-- (* SA, Start up power *)
          |0.10s|
CONST -+PV
+00020 |
          +-----+
          TMR_14
          %R0139

(*****
(* Extra SA power at packaging material splice
(* See also block 02.
*****
)

SA_DTCT                                     SA_DTCT << RUNG 25 STEP #0060 >>
|M0305 +-----+                         %M0305
+---] [---+ TMR +-----+ (R)-- (* SA, Detect pkg mtrl splice in SA *)
          |0.01s|
CONST -+PV
+00200 |
          +-----+
          TMR_4
          %R0109

|ALW_ON                                     SA_EPWR << RUNG 26 STEP #0063 >>
|S0007 +-----+                         %M0306
+---] [---+ (R)-- (* SA, Extra SA power at splice *)

|ALW_ON                                     SA_EPWR << RUNG 27 STEP #0065 >>
|S0007 +-----+                         %M0306
+---] [---+ RANGE +-----+ (S)-- (* SA, Extra SA power at splice *)
          | INT |
PAR_135  -+L1 Q+
%R0635  -+L2
PAR_136  -+L2
%R0636  -+L2
TMR_4    -+IN
%R0109  -+IN
          +-----+

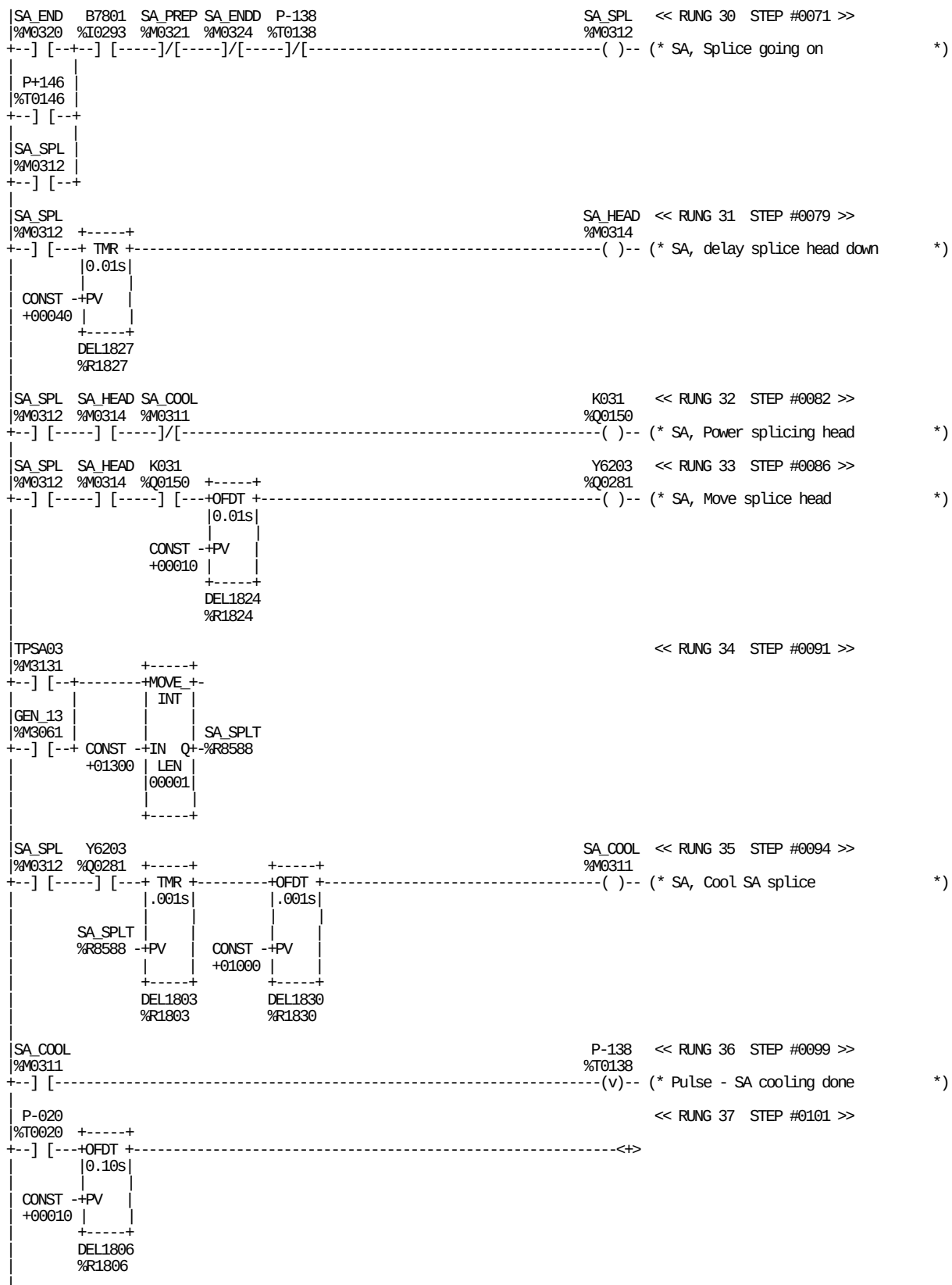
(*****
(* Strip applicator splice sequence
*****
)

S6206                                     P+146 << RUNG 29 STEP #0069 >>
|I0286 +-----+                         %T0146
+---] [---+ ( ^ )-- (* Pulse + Manual strip splice *)

```

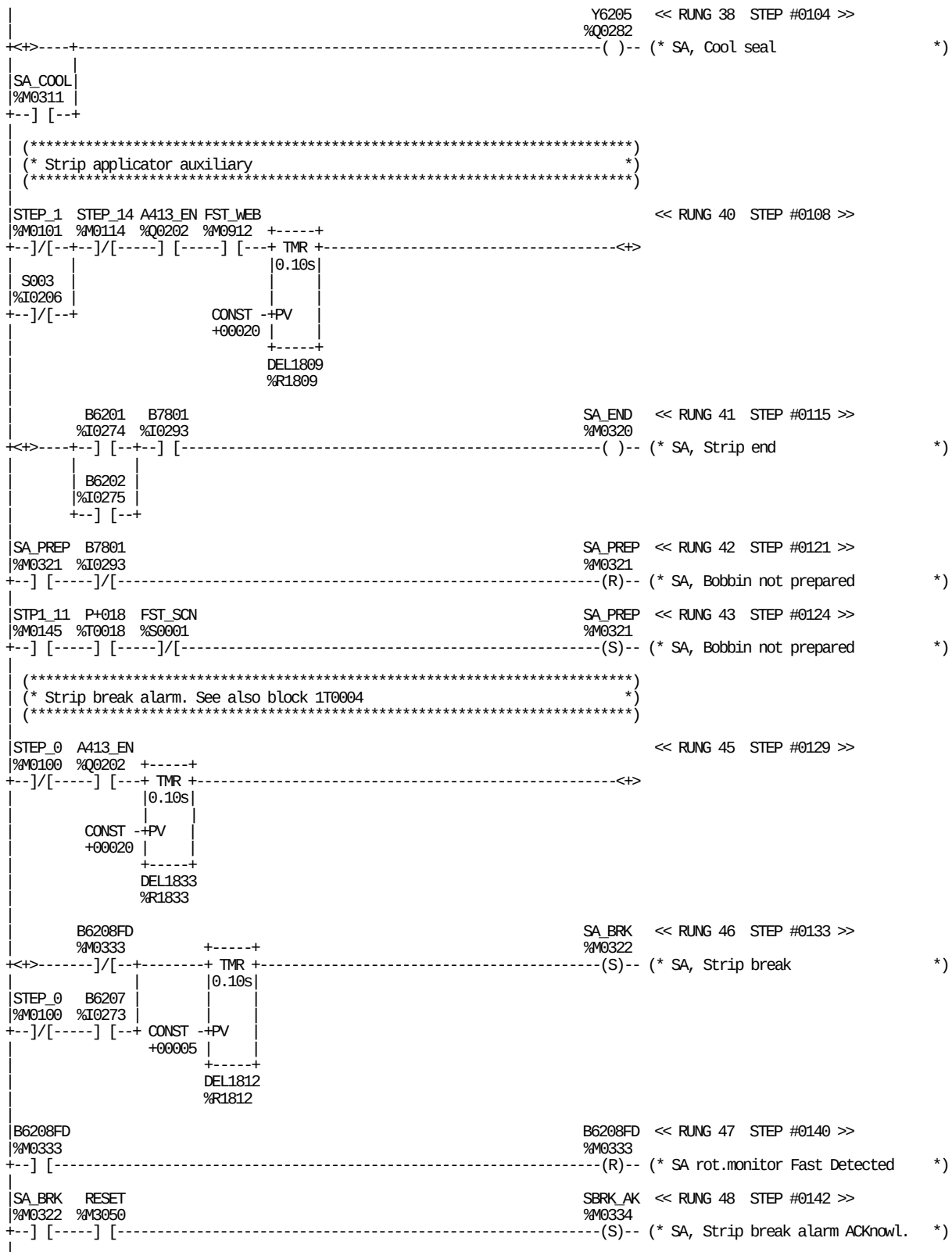
REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%Q0202	A413_EN	Drive roller mag. ASU, Enable	%M0306	SA_EPWR	SA, Extra SA power at splice
%AQ039	A7417	TPIH generator ASU/SA	%R1001	SA_OFFS	SA, Offset
%S0007	ALW_ON		%R1000	SA_OUT	SA, Output
%T0146	P+146	Pulse + Manual strip splice	%R8590	SA_PWR	SA, Power TPIH
%R0635	PAR_135	Del.start ext. pwr.SA paper spl.	%M0300	SA_STRT	SA, Start up power
%R0636	PAR_136	Del.stop ext. pwr.SA paper spl.	%R0139	TMR_14	TMR 14, SA power ramp at start
%I0286	S6206	SA, Manual start	%R0109	TMR_4	Tmr 4, Ext. Sapwr at spl.(0,01s)
%M0305	SA_DTCT	SA, Detect pkg mtrl splice in SA			

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BLOCK: STRIP APPLICATOR (SA)



REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0293	B7801	SA, Door guard, SA	%T0138	P-138	Pulse - SA cooling done
%R1803	DEL1803	Delay, SA	%M0311	SA_COOL	SA, Cool SA splice
%R1806	DEL1806	Delay, SA	%M0320	SA_END	SA, Strip end
%R1824	DEL1824	Delay, SA	%M0324	SA_ENDD	SA, Strip end open door
%R1827	DEL1827	SA splice head down	%M0314	SA_HEAD	SA, delay splice head down
%R1830	DEL1830	Delay SA	%M0321	SA_PREP	SA, Bobbin not prepared
%M3061	GEN_13	General default push button	%M0312	SA_SPL	SA, Splice going on
%Q0150	K031	SA, Power splicing head	%R8588	SA_SPLT	SA, Splice time
%T0146	P+146	Pulse + Manual strip splice	%M3131	TPSA03	Default SA splice time
%T0020	P-020	Pulse - SA, Cool strip at stop	%Q0281	Y6203	SA, Move splice head

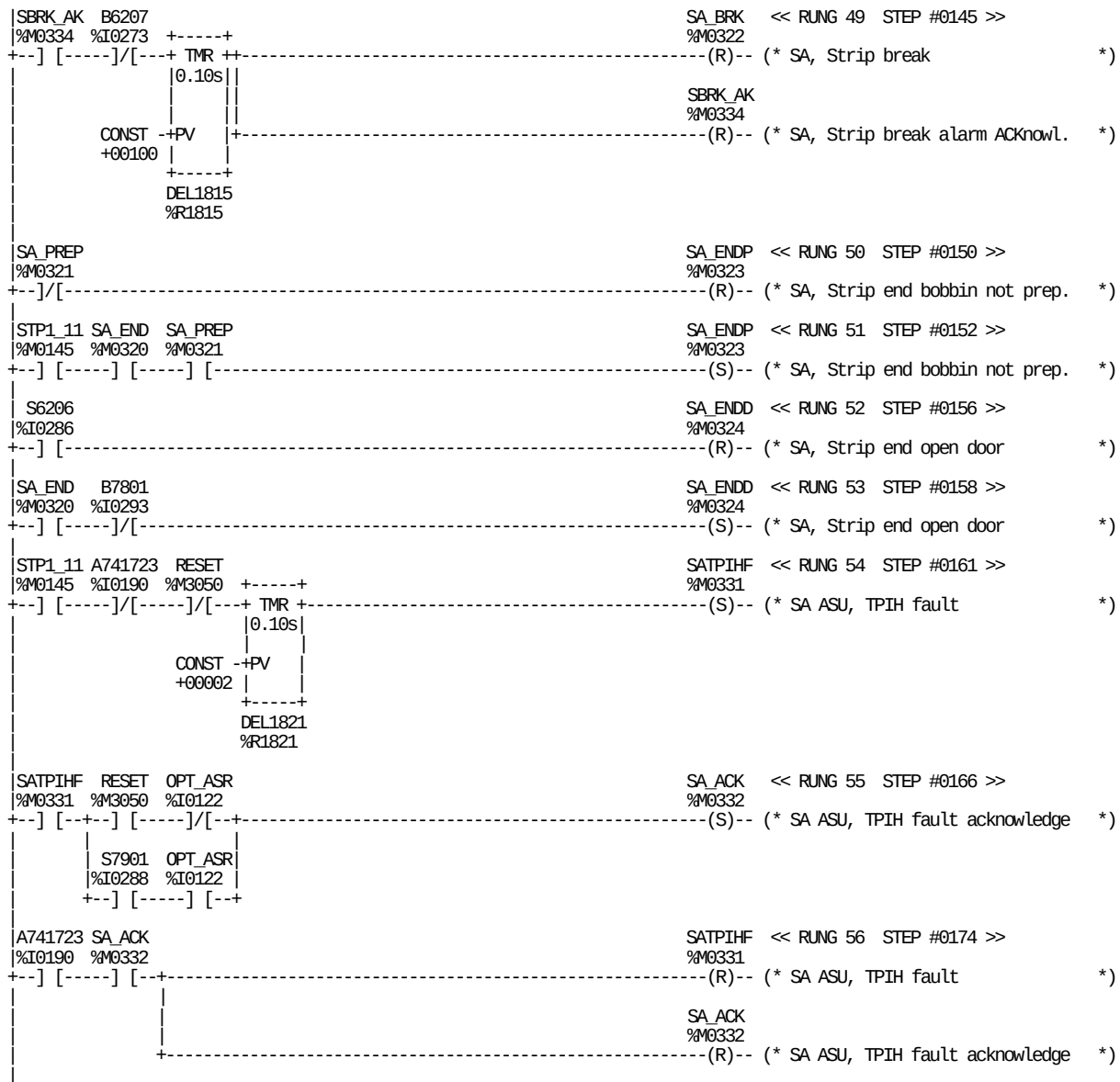
TBA/21-0410/0500
BLOCK: STRIP APPLICATOR (SA)



REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%Q0202	A413_EN	Drive roller mag. ASU, Enable
%I0274	B6201	SA, End bobbin 1
%I0275	B6202	SA, End bobbin 2
%I0273	B6207	SA, Strip break
%M0333	B6208FD	SA rot.monitor Fast Detected
%I0293	B7801	SA, Door guard, SA
%R1809	DEL1809	Delay, SA
%R1812	DEL1812	Delay, SA
%R1833	DEL1833	Delay, SA
%S0001	FST_SCN	JUM, Paper web fast speed
%M0912	FST_WEB	Pulse + SA, Splice finished
%T0018	P+018	

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M3050	RESET	Alarm reset
%I0206	S003	Service switch
%M0322	SA_BRK	SA, Strip break
%M0311	SA_COOL	SA, Cool SA splice
%M0320	SA_END	SA, Strip end
%M0321	SA_PREP	SA, Bobbin not prepared
%M0334	SBK_AK	SA, Strip break alarm ACKnowl.
%M0100	STEP_0	Step 0 Off
%M0101	STEP_1	Step 1 Preparation
%M0114	STEP_14	Step 14 Service window
%M0145	STP1_11	Step 1-11 Prep. to venting
%Q0282	Y6205	SA, Cool seal

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BLOCK: STRIP APPLICATOR (SA)



REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0190	A741723	TPIH Generator ASU/SA, Fault
%I0273	B6207	SA, Strip break
%I0293	B7801	SA, Door guard, SA
%R1815	DEL1815	Delay, SA
%R1821	DEL1821	Delay, SA
%I0122	OPT_ASR	Option, ASU in separate room
%M3050	RESET	Alarm reset
%I0286	S6206	SA, Manual start
%I0288	S7901	ASU, alarm reset

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M0331	SATPIHF	SA ASU, TPIH fault
%M0332	SA_ACK	SA ASU, TPIH fault acknowledge
%M0322	SA_BRK	SA, Strip break
%M0320	SA_END	SA, Strip end
%M0324	SA_ENDD	SA, Strip end open door
%M0323	SA_ENDP	SA, Strip end bobbin not prep.
%M0321	SA_PREP	SA, Bobbin not prepared
%M0334	SBRK_AK	SA, Strip break alarm ACKnowl.
%M0145	STP1_11	Step 1-11 Prep. to venting

TBA/21-0410/0500
BLOCK: STRIP APPLICATOR (SA)

```

(*****
(* Alarms "Strip applicator"
*****
STEP_0 K106 SATPIHF SA_01 << RUNG 58 STEP #0179 >>
%M0100 %Q0165 %M0331 %M3617
+--]/[-----]/[-----] [-----] ( )-- (* Strip applicator, Sealing *)
STP1_11 SA_PREP SA_02 << RUNG 59 STEP #0183 >>
%M0145 %M0321 %M3618
+--] [-----] [-----] ( )-- (* Strip applicator, Supply Empty *)
SA_BRK SA_03 << RUNG 60 STEP #0186 >>
%M0322 %M3619
+--] [-----] ( )-- (* Strip break *)
SA_ENDP SA_05 << RUNG 61 STEP #0188 >>
%M0323 %M3621
+--] [-----] ( )-- (* Strip end and bobbin not prep. *)
[ END OF SUBROUTINE LOGIC ]

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%Q0165	K106	TPIH gen. ASU/SA, Power switch	%M0322	SA_BRK	SA, Strip break
%M0331	SATPIHF	SA ASU, TPIH fault	%M0323	SA_ENDP	SA, Strip end bobbin not prep.
%M3617	SA_01	Strip applicator, Sealing	%M0321	SA_PREP	SA, Bobbin not prepared
%M3618	SA_02	Strip applicator, Supply Empty	%M0100	STEP_0	Step 0 Off
%M3619	SA_03	Strip break	%M0145	STP1_11	Step 1-11 Prep. to venting
%M3621	SA_05	Strip end and bobbin not prep.			

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BLOCK: STRIP APPLICATOR (SA)

```

[ START LD SUBROUTINE BLK_24 ]
[ VARIABLE DECLARATIONS ]
[ START OF SUBROUTINE LOGIC ]

(*****
* Block 24 "Peroxide system"
*****)

STP3_11 STEP_11 S003                                H202_ON << RUNG 5 STEP #0003 >>
%M0150 %M0111 %I0206                                %M0700
+--] [-----]/[-----]/[-----] ( )-- (* PER, Peroxide system on *)

(*****
* Temperature regulator peroxide tank:
* Set value 75 at first start.
*****)

STEP_3 SETFRST << RUNG 7 STEP #0008 >>
%M0103 %M0701
+--] [-----] (S)-- (* PER, Setpoint at first start *)

STEP_0 SETFRST << RUNG 8 STEP #0010 >>
%M0100 %M0701
+--] [-----] (R)-- (* PER, Setpoint at first start *)

STEP_2
%M0102
+--] [-----]

TMR1_4
%M0204
+--] [-----]

H202_ON S_STOP SP_STOP << RUNG 9 STEP #0014 >>
%M0700 %M0171 %M0707
+--] [-----] (S)-- (* PER, 2nd sp H202 tank at stop *)

N_STOP
%M0180
+--] [-----]

STP8_9 SP_STOP << RUNG 10 STEP #0019 >>
%M0144 %M0707
+--] [-----] (R)-- (* PER, 2nd sp H202 tank at stop *)

(*****
* Water pump and heating water bath
*****)

H202_ON PT>=60 WBDLHT << RUNG 12 STEP #0022 >>
%M0700 %M3959 %M0709
+--] [-----] (S)-- (* PER, delay water bath heating *)

H202_ON WBDLHT << RUNG 13 STEP #0025 >>
%M0700 %M0709
+--] [-----] (R)-- (* PER, delay water bath heating *)

WBDLHT Y1105 PT>=75B H2O_HT << RUNG 14 STEP #0027 >>
%M0709 %Q0260 %M3962 %M0702
+--] [-----] ( )-- (* PER, H2O bath heating ON *)

SETFRST
%M0701
+--] [-----]

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M0700	H202_ON	PER, Peroxide system on	%M0111	STEP_11	Step 11 Venting
%M0702	H2O_HT	PER, H2O bath heating ON	%M0102	STEP_2	Step 2 Tube sealing
%M0180	N_STOP	Normal stop	%M0103	STEP_3	Step 3 Heat sterilization
%M3959	PT>=60	P-tank, Temp OK (>60)	%M0150	STP3_11	Step 3-11 Heat ster. to venting
%M3962	PT>=75B	P-tank, temperature >=75	%M0144	STP8_9	Step 8-9 Motorstart to prod.
%I0206	S003	Service switch	%M0171	S_STOP	Short stop on
%M0701	SETFRST	PER, Setpoint at first start	%M0204	TMR1_4	Startseq, Ended (>10,00)
%M0707	SP_STOP	PER, 2nd sp H202 tank at stop	%M0709	WBDLHT	PER, delay water bath heating
%M0100	STEP_0	Step 0 Off	%Q0260	Y1105	Cooling Water Bath

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```

H202_ON A303_18                                K001    << RUNG 15 STEP #0033 >>
%M0700 %I0180                                %Q0137
+--] [-----] [---] [-----] [-----] ( )-- (* Water Pump *)

      |WB <85  SET_BYP                                K026
      |%M3951 %M0703                                %Q0145
      +--] [---] [-----] [-----] ( )-- (* Water bath heating element n.1 *)

      |
      |
      |K027
      |%Q0146
      +-----] ( )-- (* Water bath heating element n.2 *)

(*****
(* Cooling water bath *)
*****)

H202_ON SETFRST STP8_9 S907 WB_COOL S_STOP      Y1105 << RUNG 17 STEP #0045 >>
%M0700 %M0701 %M0144 %I0199 %M3954 %M0171      %Q0260
+--] [-----] [-----] [-----] [-----] [-----] ( )-- (* Cooling Water Bath *)

TMR1_0 SETFRST WB >=71                          H20TEMP << RUNG 18 STEP #0052 >>
%M0200 %M0701 %M3952                          %M0704
+--] [-----] [-----] [---] [-----] [-----] ( )-- (* PER, Temp. water bath OK *)

      |SETFRST WB <=65|
      |%M0701 %M3953|
      +--] [---] [-----] [-----] [-----] [-----]
      |S_STOP|
      |%M0171|
      +--] [---] [-----] [-----] [-----] [-----]
      |CONST +PV|
      |+00100|
      |
      |0.10s|
      |
      |DEL2503|
      |%R2503|

(*****
(* Peroxide pump *)
*****)

FST_WEB TMR1_10 A308_18                        PUMPSTP << RUNG 20 STEP #0064 >>
%M0912 %M0210 %I0183 +-----+                %M0705
+--] [-----] [-----] [---] [-----] [-----] ( )-- (* PER, Stop peroxide pump *)

      |TMR|
      |0.10s|
      |
      |CONST +PV|
      |+00030|
      |
      |DEL2506|
      |%R2506|

H202_ON PUMPSTP B1225                          K002    << RUNG 21 STEP #0069 >>
%M0700 %M0705 %I0136                          %Q0113
+--] [-----] [-----] [-----] [-----] ( )-- (* Peroxide pump *)

SETFRST PT>=75A TMR1_0                        TNKTEMP << RUNG 22 STEP #0073 >>
%M0701 %M3960 %M0200 +-----+                %M0706
+--] [-----] [---] [-----] [---] [-----] [-----] ( )-- (* PER, Temp. peroxide tank OK *)

      |GE|
      |INT|
      |
      |SETFRST PT>=75B|
      |%M0701 %M3962|
      +--] [-----] [---] [-----] [---] [-----] [-----]
      |TMR_8|
      |%R0121|
      |
      |CONST +I2|
      |+07800|

STP5_9 DRY_RDY S003 TMR1_0 H20TEMP            PERWAIT << RUNG 23 STEP #0081 >>
%M0143 %M0831 %I0206 %M0200 %M0704            %M0708
+--] [-----] [-----] [-----] [---] [-----] [-----] ( )-- (* PER, Waiting time H202,H20 temp. *)

      |TNKTEMP|
      |%M0706|
      +--] [---] [-----] [-----] [-----] [-----]

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0180	A303_18	Water bath, Level
%I0183	A308_18	Peroxide tank, Level at prod.
%I0136	B1225	Per. bath bottom cover, Closed
%R2503	DEL2503	Delay,
%R2506	DEL2506	Delay,
%M0831	DRY_RDY	AIR, Drying ready aseptic chamb
%M0912	FST_WEB	JUM, Paper web fast speed
%M0700	H202_ON	PER, Peroxide system on
%M0704	H20TEMP	PER, Temp. water bath OK
%Q0137	K001	Water Pump
%Q0113	K002	Peroxide pump
%Q0145	K026	Water bath heating element n.1
%Q0146	K027	Water bath heating element n.2
%M0708	PERWAIT	PER, Waiting time H202,H20 temp.
%M3960	PT>=75A	P-tank, Temp OK (>75) SETFIRST
%M3962	PT>=75B	P-tank, temperature >=75
%M0705	PUMPSTP	PER, Stop peroxide pump

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0206	S003	Service switch
%I0199	S907	Inching JUM and FFU
%M0701	SETFRST	PER, Setpoint at first start
%M0703	SET_BYP	PER, Bypass temp regs. at stop
%M0143	STP5_9	Step 5-9 Drying to prod.
%M0144	STP8_9	Step 8-9 Motorstart to prod.
%M0171	S_STOP	Short stop on
%M0200	TMR1_0	Startseq, (>0,01)
%M0210	TMR1_10	Startseq, Going on (0,01-9,99)
%R0121	TMR_8	Tmr 8, Drying time (0,10s)
%M0706	TNKTEMP	PER, Temp. peroxide tank OK
%M3951	WB <85	W-bath, Temp OK (<85)
%M3953	WB <=65	W-bath, Temp OK (<=65)
%M3952	WB >=71	W-bath, Temp OK (>=71)
%M3954	WB_COOL	W-bath, Cooling (61<PV<65)
%Q0260	Y1105	Cooling Water Bath

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(*****
* By pass temperature regulator H202 bath:
* At production start until 73 degree reached
*****)

H202_ON P+027                                SET_BYP << RUNG 25 STEP #0090 >>
%M0700 %T0027                                %M0703
+--] [-----] [-----] (S)-- (* PER, Bypass temp regs. at stop *)

TMR1_3                                        << RUNG 26 STEP #0093 >>
%M0203 +-----+
+--] [---+ TMR +-----+<+>
      |0.10s|
CONST --PV
+00200
+-----+
DEL2545
%R2545

PB_>=73                                SET_BYP << RUNG 27 STEP #0096 >>
%M3988                                %M0703
+<+> [---] [---] (R)-- (* PER, Bypass temp regs. at stop *)

TMR1_0
%M0200
+--]/[-----+

(*****
* Separate H202 heating circuit
*****)

K14 STP8_9 SET_BYP                                << RUNG 29 STEP #0101 >>
%M0156 %M0144 %M0703 +-----+
+--] [---] [---] [---] TMR +-----+<+>
      |0.10s|
STR_JUM S907
%M0902 %I0199
+--] [---] [---] CONST --PV
+00010
+-----+
DEL2536
%R2536

WEXC>90 BW_1209 BW_1212                                K12 << RUNG 30 STEP #0110 >>
%M3911 %I0022 %I0020 +-----+ %Q0154
+<+> [---]/[---]/[---] OFDT +-----] ( )-- (* PER, heat. el. 1-2 separate circ *)
      |0.10s|
CONST --PV
+00005
+-----+
DEL2542
%R2542

K14 STEP_3
%M0156 %M0103
+--] [---] [---]
      |STEP_4|
      |%M0104|
      +--] [---]
      |STP5_9 STP8_9 S907|
      |%M0143 %M0144 %I0199|
      +--] [---]/[---]/[---]

K14 STP8_9 S907 SETFRST PT>=75B WEXC>90 BW_1209 BW_1212 K13 << RUNG 31 STEP #0125 >>
%M0156 %M0144 %I0199 %M0701 %M3962 %M3911 %I0022 %I0020 %Q0155
+--] [---]/[---]/[---] [---]/[---]/[---] [---]/[---] ( )-- (* PER, heat. el. 2 separate circ. *)
      |SETFRST PT>=60|
      |%M0701 %M3959|
      +--] [---]/[---]

H202_ON A303_18                                K14 << RUNG 32 STEP #0138 >>
%M0700 %I0180                                %M0156
+--] [---] [---] ( )-- (* PER, water pump separate circuit *)

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0180	A303_18	Water bath, Level	%M3962	PT>=75B	P-tank, temperature >=75
%I0022	BW_1209	Broken wire W-H202 heat exc.	%I0199	S907	Inching JUM and FFU
%I0020	BW_1212	Broken wire Peroxide tank	%M0701	SETFRST	PER, Setpoint at first start
%R2536	DEL2536	Delay,	%M0703	SET_BYP	PER, Bypass temp regs. at stop
%R2542	DEL2542	Delay,	%M0103	STEP_3	Step 3 Heat sterilization
%R2545	DEL2545	Delay,	%M0104	STEP_4	Step 4 Spraying
%M0700	H202_ON	PER, Peroxide system on	%M0143	STP5_9	Step 5-9 Drying to prod.
%Q0154	K12	PER, heat. el. 1-2 separate circ	%M0144	STP8_9	Step 8-9 Motorstart to prod.
%Q0155	K13	PER, heat. el. 2 separate circ.	%M0902	STR_JUM	JUM, Condition ster. inching JUM
%Q0156	K14	PER, water pump separate circuit	%M0200	TMR1_0	Startseq, (>0,01)
%T0027	P+027	Pulse + Startsequence started	%M0203	TMR1_3	Startseq, (>9,80)
%M3988	PB_>=73	P-bath, Temp >= 73	%M3911	WEXC>90	Water-H202 heat exchanger (>90)
%M3959	PT>=60	P-tank, Temp OK (>60)			

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```

(*****
* Draining/Filling peroxide bath
*
* Y1221 off = open = draining peroxide bath
*   on = closed
*
* Y1220 off = open = filling peroxide bath
*   on = closed
*****)

P+027          STR_ON  << RUNG 34 STEP #0142 >>
%T0027 +-----+ %M0710
+--] [---+OFTD----- ( )-- (* PER, Startsequence going on *)
      |0.01s|
CONST -+PV
+01000 |
      +-----+
      DEL2509
      %R2509

FST_WEB        P+117  << RUNG 35 STEP #0145 >>
%M0912          %T0117
+--]/[----- ( ^ )-- (* Pulse + Peroxide bath drain *)

DRAIN          << RUNG 36 STEP #0147 >>
%M0712 +-----+
+--] [---+ TMR -----<+>
      |0.10s|
CONST -+PV
+00200 |
      +-----+
      DEL2515
      %R2515

DRAIN          << RUNG 37 STEP #0150 >>
%M0712          (R)-- (* PER, Drain peroxide bath *)

+<+>+-----+
TMR1_0
%M0200
+--] [---+

P+117          DRAIN  << RUNG 38 STEP #0153 >>
%M0117          %M0712
+--] [----- (S)-- (* PER, Drain peroxide bath *)

STR_ON  S907  S911
%M0710 %I0199 %I0201
+--] [-----]/[-----]/[---+

STP8_9        DRAIN  STEP_0        Y1221  << RUNG 39 STEP #0159 >>
%M0144        %M0712 %M0100        %Q0305
+--] [-----]/[-----]/[----- ( )-- (* Peroxide bath, Draining *)

S907  STR_JUM
%M0199 %M0902
+--] [-----] [---+

Y1221
%Q0305
+--] [-----+

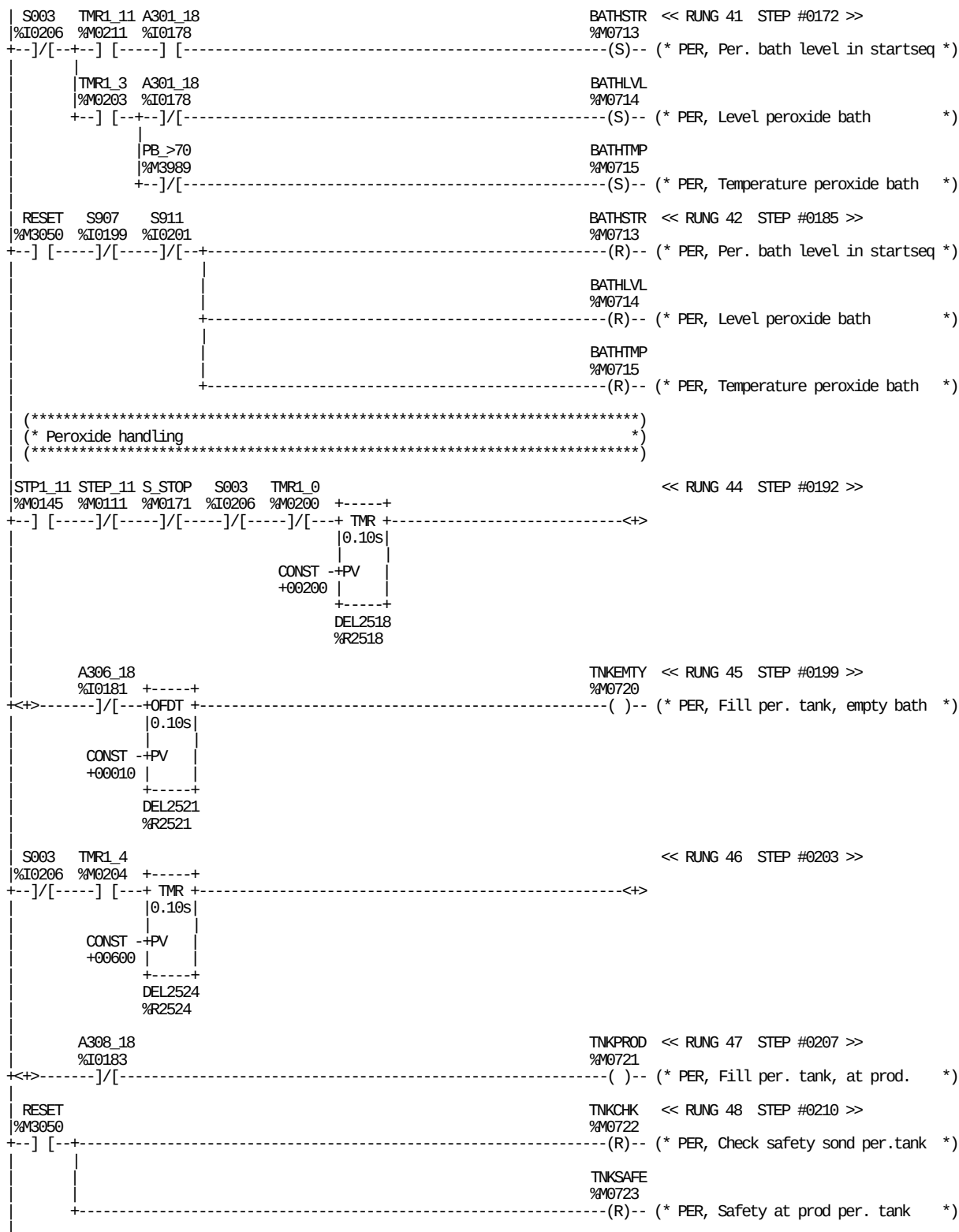
H202_ON TMR1_12        Y1220  << RUNG 40 STEP #0167 >>
%M0700 %M0212          %Q0301
+--] [---+]/[----- ( )-- (* Paroxidebath, filling *)

      |A301_18|
      %I0178
+--] [---+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0178	A301_18	Peroxide bath, Level	%I0201	S911	Step up
%R2509	DEL2509	Delay,	%M0100	STEP_0	Step 0 Off
%R2515	DEL2515	Delay,	%M0144	STP8_9	Step 8-9 Motorstart to prod.
%M0712	DRAIN	PER, Drain peroxide bath	%M0902	STR_JUM	JUM, Condition ster. inching JUM
%M0912	FST_WEB	JUM, Paper web fast speed	%M0710	STR_ON	PER, Startsequence going on
%M0700	H202_ON	PER, Peroxide system on	%M0200	TMR1_0	Startseq, (>0,01)
%T0027	P+027	Pulse + Startsequence started	%M0212	TMR1_12	Startseq, Fill H202 bath (2-9,9)
%T0117	P+117	Pulse + Peroxide bath drain	%Q0301	Y1220	Paroxidebath, filling
%I0199	S907	Inching JUM and FFU	%Q0305	Y1221	Peroxide bath, Draining

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REFERENCE NICKNAME
 %I0178 A301_18
 %I0181 A306_18
 %I0183 A308_18
 %M0714 BATHLVL
 %M0713 BATHSTR
 %M0715 BATHTMP
 %R2518 DEL2518
 %R2521 DEL2521
 %R2524 DEL2524
 %M3989 PB >70
 %M3050 RESET
 %I0206 S003
 %I0199 S907

REFERENCE DESCRIPTION
 Peroxide bath, Level
 Peroxide tank, Level at preheat.
 Peroxide tank, Level at prod.
 PER, Level peroxide bath
 PER, Per. bath level in startseq
 PER, Temperature peroxide bath
 Delay,
 Delay,
 Delay,
 P-bath, Temp OK (70-80)
 Alarm reset
 Service switch
 Inching JUM and FFU

REFERENCE NICKNAME
 %I0201 S911
 %M0111 STEP_11
 %M0145 STP1_11
 %M0171 S_STOP
 %M0200 TMR1_0
 %M0211 TMR1_11
 %M0203 TMR1_3
 %M0204 TMR1_4
 %M0722 TNKCHK
 %M0720 TNKEMTY
 %M0721 TNKPROD
 %M0723 TNKSAFE

REFERENCE DESCRIPTION
 Step up
 Step 11 Venting
 Step 1-11 Prep. to venting
 Short stop on
 Startseq, (>0,01)
 Startseq, (0,01-1,00)
 Startseq, (>9,80)
 Startseq, Ended (>10,00)
 PER, Check safety sond per.tank
 PER, Fill per. tank, empty bath
 PER, Fill per. tank, at prod.
 PER, Safety at prod per. tank

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```

|H202_ON TMR1_11 A307_18          TNKCHK  << RUNG 49 STEP #0213 >>
|M0700 %M0211 %I0182              %M0722
+--] [-----] [-----]/[-----]----- (S)-- (* PER, Check safety sond per.tank *)

|H202_ON TMR1_3 A307_18          TNKSAFE  << RUNG 50 STEP #0217 >>
|M0700 %M0203 %I0182 +-----+      %M0723
+--] [-----] [-----] [---+ TMR +----- (S)-- (* PER, Safety at prod per. tank *)
|                                |0.10s|
|                                +-----+
|                                |CONST -+PV|
|                                +00100|
|                                +-----+
|                                |DEL2527|
|                                |%R2527|
|                                +-----+

|TNKEMTY TNKCHK TNKSAFE          Y1210  << RUNG 51 STEP #0222 >>
|M0720 %M0722 %M0723              %Q0289
+--] [---+]/[-----]/[-----]----- ( )-- (* Peroxide tank, Filling *)

|TNKPROD|
|M0721|
+--] [---+

|TNKEMTY                          CHGCONT << RUNG 52 STEP #0227 >>
|M0720 +-----+                  %M0724
+--] [---+ TMR +----- (S)-- (* PER, Change peroxide container *)
|                                |0.10s|
|                                +-----+
|                                |CONST -+PV|
|                                +03600|
|                                +-----+
|                                |DEL2530|
|                                |%R2530|
|                                +-----+

|TNKPROD                          CHGCONT << RUNG 53 STEP #0230 >>
|M0721 +-----+                  %M0724
+--] [---+ TMR +----- (S)-- (* PER, Change peroxide container *)
|                                |0.10s|
|                                +-----+
|                                |CONST -+PV|
|                                +01200|
|                                +-----+
|                                |DEL2533|
|                                |%R2533|
|                                +-----+

|STEP_2 T_END A506_33 A308_18    CHGCONT << RUNG 54 STEP #0233 >>
|M0102 %M0603 %I0148 %I0183      %M0724
+--] [-----] [-----]/[-----]/[-----]----- (S)-- (* PER, Change peroxide container *)

|TNKEMTY TNKPROD                  CHGCONT << RUNG 55 STEP #0238 >>
|M0720 %M0721                      %M0724
+--]/[-----]/[-----]----- (R)-- (* PER, Change peroxide container *)

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0182	A307_18	Peroxide tank, Level safety	%M0211	TMR1_11	Startseq, (0,01-1,00)
%I0183	A308_18	Peroxide tank, Level at prod.	%M0203	TMR1_3	Startseq, (>9,80)
%I0148	A506_33	DMC Main motor, Running	%M0722	TNKCHK	PER, Check safety sond per.tank
%M0724	CHGCONT	PER, Change peroxide container	%M0720	TNKEMTY	PER, Fill per. tank, empty bath
%R2527	DEL2527	Delay,	%M0721	TNKPROD	PER, Fill per. tank, at prod.
%R2530	DEL2530	Delay,	%M0723	TNKSAFE	PER, Safety at prod per. tank
%R2533	DEL2533	Delay,	%M0603	T_END	SUP, Tube sealing ended
%M0700	H202_ON	PER, Peroxide system on	%Q0289	Y1210	Peroxide tank, Filling
%M0102	STEP_2	Step 2 Tube sealing			

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```

*****
* Spray sequence for 100ml spray container (timer 5)
*
* M730 Spray sequence ready 50 sec
* M731 Spray sequence between 0,01 - 3,00 sec
* M732 Spray sequence between 0,01 - 11,00 sec
* M733 Spray sequence between 10,00 - 12,00 sec
* M734 Spray sequence between 12,00 - 30,00 sec
* M735 Spray sequence between 45,00 - 50,00 sec
* M736 Spray sequence between 12,00 - 45,00 sec
* M737 Spray sequence Between 12,00 - 50,00 sec
* M738 Spray sequence between 51,00 - 52,00 sec
* M739 Spray sequence between 51,00 - 52,00 sec
*****

H202_ON STEP_4 SPR_RDY                                << RUNG 57 STEP #0242 >>
%M0700 %M0104 %M0730 +-----+
+---] [-----] [-----]/[---+ TMR +-----+<+>
|0.01s|
CONST +PV
+05000 |
+-----+
TMR_5
%M0112

SPR_RDY << RUNG 58 STEP #0247 >>
%M0730
+---] [-----] (S)--- (* PER, Spray sequence ready *)

SPR_EMT
%M0742
+---] [---+

HISPEMP
%M1908
+---] [---+

HITMPLW Y9112
%M1909 %Q0309
+---] [-----]/[---+

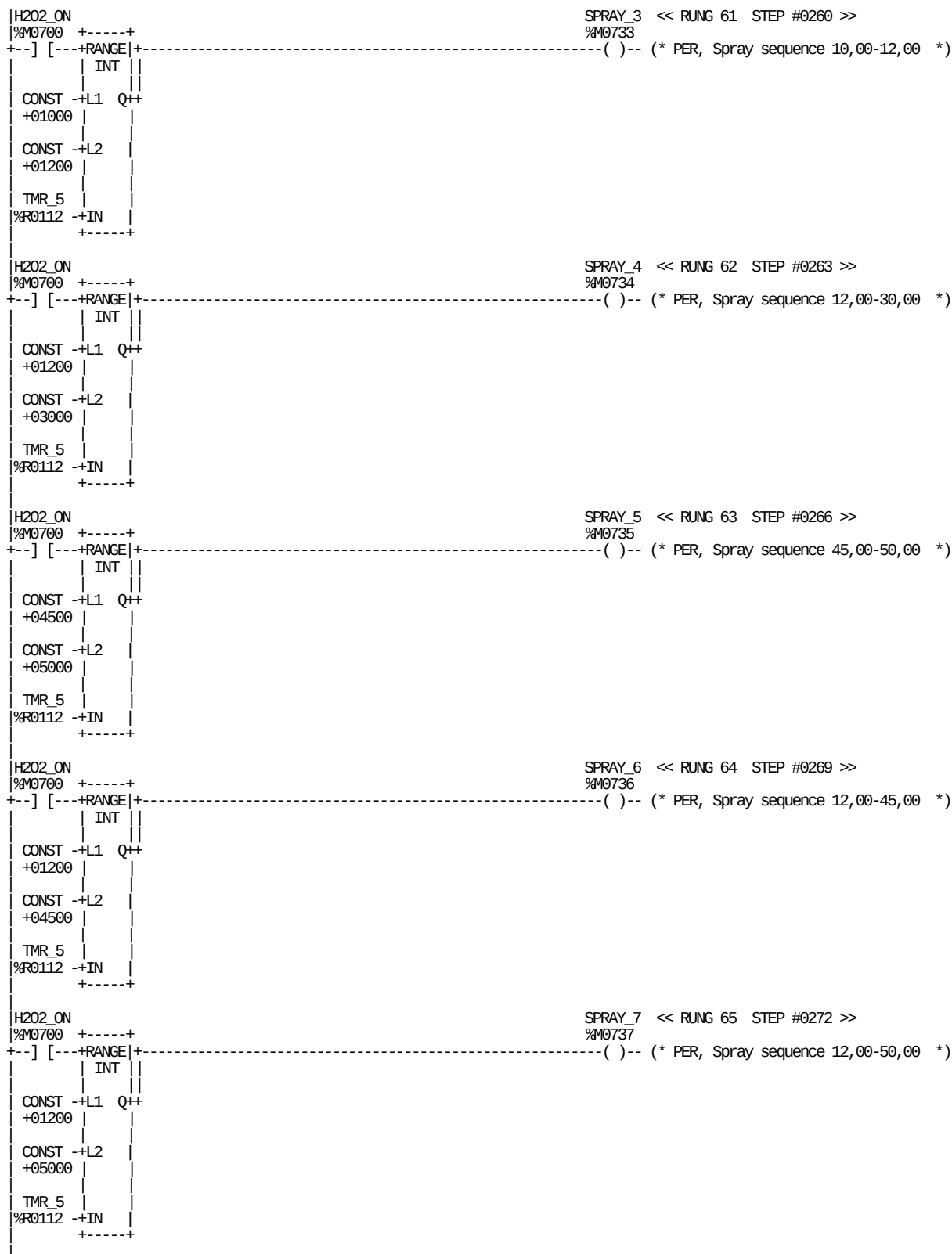
H202_ON SPRAY_1 << RUNG 59 STEP #0254 >>
%M0700 %M0731
+---] [---+RANGE+-----+
|INT|
CONST +L1 Q+
+00001 |
CONST +L2
+00300 |
TMR_5
%M0112 +IN
+-----+

H202_ON SPRAY_2 << RUNG 60 STEP #0257 >>
%M0700 %M0732
+---] [---+RANGE+-----+
|INT|
CONST +L1 Q+
+00001 |
CONST +L2
+01100 |
TMR_5
%M0112 +IN
+-----+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M0700	H2O2_ON	PER, Peroxide system on	%M0742	SPR_EMT	PER, Spray tank, fast/slow empt.
%M1908	HISPEMP	HI, HI spr.tank slow/fast empty	%M0730	SPR_RDY	PER, Spray sequence ready
%M1909	HITMPLW	HI, Low temp. during spraying	%M0104	STEP_4	Step 4 Spraying
%M0731	SPRAY_1	PER, Spray sequence 0,01-3,00	%R0112	TMR_5	Tmr 5, Spray sequence (0,01s)
%M0732	SPRAY_2	PER, Spray sequence 0,01-11,00	%R0309	Y9112	HI, Soray peroxide

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REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M0700	H2O2_ON	PER, Peroxide system on	%M0736	SPRAY_6	PER, Spray sequence 12,00-45,00
%M0733	SPRAY_3	PER, Spray sequence 10,00-12,00	%M0737	SPRAY_7	PER, Spray sequence 12,00-50,00
%M0734	SPRAY_4	PER, Spray sequence 12,00-30,00	%R0112	TMR_5	Tmr 5, Spray sequence (0,01s)
%M0735	SPRAY_5	PER, Spray sequence 45,00-50,00			

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```

H2O2_ON                                SPRAY_8 << RUNG 66 STEP #0275 >>
%M0700 +-----+                        %M0738
+--] [---+RANGE|+-----+-----+ ( )-- (* PER, Spray sequence 51,00-52,00 *)
      | INT |
      |-----|
CONST --L1 Q+
+05100 |
      |
CONST --L2
+05200 |
      |
TMR_5  |
%R0112 --IN
      +-----+

H2O2_ON                                SPRAY_9 << RUNG 67 STEP #0278 >>
%M0700 +-----+                        %M0739
+--] [---+RANGE|+-----+-----+ ( )-- (* PER, Spray sequence 51,00-52,00 *)
      | INT |
      |-----|
CONST --L1 Q+
+05100 |
      |
CONST --L2
+05200 |
      |
TMR_5  |
%R0112 --IN
      +-----+

(*****
(* Fill spray tank between 0 and 12 sec. *)
(* Keep valve Y1230 open in step 2 in order to drain spray tank *)
(*****)

SPRAY_2                                Y1230 << RUNG 69 STEP #0282 >>
%M0732                                %Q0261
+--] [---+-----+-----+ ( )-- (* Filling Spray Tank *)

STEP_2
%M0102
+--] [---+

(*****
(* Make sure that spray tank is full after 10 sec. *)
(*****)

A300_18 SPRAY_3 HISPFUL                SPR_FUL << RUNG 71 STEP #0286 >>
%I0177 %M0733 %M1904                  %M0740
+--] [-----] [---+-----+-----+ (S)-- (* PER, Spray tank filled *)
      | HI_ON |
      | %M1900 |
      +--]/[---+

(*****
(* Empty spray tank between 12 sec. and 1 min 8 sec. *)
(* Keep valve Y1231 open in step 3 in order to blow spray nozzles clean. *)
(*****)

SPR_FUL SPRAY_6                        Y1231 << RUNG 73 STEP #0293 >>
%M0740 %M0736                          %Q0262
+--] [-----] [---+-----+-----+ ( )-- (* Spraying *)

STEP_3
%M0103
+--] [-----+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0177	A300_18	Peroxide spray tank, Level	%M0739	SPRAY_9	PER, Spray sequence 51,00-52,00
%M0700	H2O2_ON	PER, Peroxide system on	%M0740	SPR_FUL	PER, Spray tank filled
%M1904	HISPFUL	HI, HI spray tank filled	%M0102	STEP_2	Step 2 Tube sealing
%M1900	HI_ON	HI, system ready for HI	%M0103	STEP_3	Step 3 Heat sterilization
%M0732	SPRAY_2	PER, Spray sequence 0,01-11,00	%R0112	TMR_5	Tmr 5, Spray sequence (0,01s)
%M0733	SPRAY_3	PER, Spray sequence 10,00-12,00	%Q0261	Y1230	Filling Spray Tank
%M0736	SPRAY_6	PER, Spray sequence 12,00-45,00	%Q0262	Y1231	Spraying
%M0738	SPRAY_8	PER, Spray sequence 51,00-52,00			

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```

(*****
* Problems with filling the spray tank.
* (No peroxide in aseptic chamber yet)
*
* If level in spray tank is on the first 0,3 sec,
* or level in spray tank not on after 10 sec
* the machine will jump to step 3.
*****)

A300_18 SPRAY_1                                SPR_FIL << RUNG 75 STEP #0298 >>
%I0177 %M0731                                %M0741
+--] [-----] [---+-----] (S)-- (* PER, Spray tank, fast/slow fill. *)

A300_18 SPRAY_3
%I0177 %M0733
+--]/[-----] [---+

(*****
* Problems with emptying the spray tank.
* (Peroxide in aseptic chamber)
*
* If spray tank is emptied in less than 0,06 sec,
* or it is not empty after 25 sec the machine will
* jump to "Drying" and then to 0.
*****)

STEP_4 A300_18 SPRAY_4                        SPR_EMT << RUNG 77 STEP #0305 >>
%M0104 %I0177 %M0734                        %M0742
+--] [---+]/[-----] [---+-----] (S)-- (* PER, Spray tank, fast/slow empt. *)

A300_18 SPRAY_5
%I0177 %M0735
+--] [-----] [---+

STEP_0                                         SPR_RDY << RUNG 78 STEP #0313 >>
%M0100                                         %M0730
+--] [-----] +-----] (R)-- (* PER, Spray sequence ready *)

STEP_2 SPR_FIL                                SPR_FUL
%M0102 %M0741                                %M0740
+--] [---+]/[-----] +-----] (R)-- (* PER, Spray tank filled *)

SPR_FIL RESET                                SPR_FIL
%M0741 %M3050                                %M0741
+--] [-----] [---+-----] (R)-- (* PER, Spray tank, fast/slow fill. *)

STEP_11                                       SPR_EMT
%M0111                                       %M0742
+--] [-----] +-----] (R)-- (* PER, Spray tank, fast/slow empt. *)

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0177	A300_18	Peroxide spray tank, Level	%M0741	SPR_FIL	PER, Spray tank, fast/slow fill.
%M3050	RESET	Alarm reset	%M0740	SPR_FUL	PER, Spray tank filled
%M0731	SPRAY_1	PER, Spray sequence 0,01-3,00	%M0730	SPR_RDY	PER, Spray sequence ready
%M0733	SPRAY_3	PER, Spray sequence 10,00-12,00	%M0100	STEP_0	Step 0 Off
%M0734	SPRAY_4	PER, Spray sequence 12,00-30,00	%M0111	STEP_11	Step 11 Venting
%M0735	SPRAY_5	PER, Spray sequence 45,00-50,00	%M0102	STEP_2	Step 2 Tube sealing
%M0742	SPR_EMT	PER, Spray tank, fast/slow empt.	%M0104	STEP_4	Step 4 Spraying

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```

(*****
(* Alarms "Peroxide system"
*****
)

BATHTMP                                H202_01 << RUNG 80 STEP #0327 >>
%M0715                                %M3633
+--] [-----] ( )-- (* Peroxide bath, Low temperature *)

BATHLVL                                H202_02 << RUNG 81 STEP #0329 >>
%M0714                                %M3634
+--] [-----] ( )-- (* Peroxide bath, Level *)

STEP_0 A303_18                        H202_03 << RUNG 82 STEP #0331 >>
%M0100 %I0180                        %M3635
+--]/[-----]/[-----] ( )-- (* Water bath, Level *)

SPR_FIL                                H202_04 << RUNG 83 STEP #0334 >>
%M0741                                %M3636
+--] [-----] ( )-- (* Spray container, Low level *)

SPR_EMT                                H202_05 << RUNG 84 STEP #0336 >>
%M0742                                %M3637
+--] [-----] ( )-- (* Spray container, Emptying *)

CHGCONT                                H202_06 << RUNG 85 STEP #0338 >>
%M0724                                %M3638
+--] [-----] ( )-- (* Peroxide container, Level *)

PERWAIT TKNTEMP                        H202_07 << RUNG 86 STEP #0340 >>
%M0708 %M0706 +-----+              %M3639
+--] [-----]/[-----] TMR +-----] ( )-- (* Peroxide tank, Low temperature *)
|0.10s|
|CONST -+PV|
|+00900|
|-----+
|DEL2548|
|%R2548|

PERWAIT H20TEMP                        H202_08 << RUNG 87 STEP #0344 >>
%M0708 %M0704 +-----+              %M3640
+--] [-----]/[-----] TMR +-----] ( )-- (* Water bath, High temperature *)
|0.10s|
|CONST -+PV|
|+00600|
|-----+
|DEL2551|
|%R2551|

TKNSAFE                                H202_09 << RUNG 88 STEP #0348 >>
%M0723                                %M3641
+--] [-----] ( )-- (* Peroxide tank, High lvl in prod. *)

HISPFIL                                H202_10 << RUNG 89 STEP #0350 >>
%M1907                                %M3642
+--] [-----] ( )-- (* HI, container low level *)

HISPEMP                                H202_11 << RUNG 90 STEP #0352 >>
%M1908                                %M3643
+--] [-----] ( )-- (* HI, Spray emptying *)

HITMPLW                                H202_12 << RUNG 91 STEP #0354 >>
%M1909                                %M3644
+--] [-----] ( )-- (* HI, Spray temperature *)

BATHSTR                                H202_13 << RUNG 92 STEP #0356 >>
%M0713                                %M3645
+--] [-----] ( )-- (* Peroxide bath, Level in str. seq *)

TKNCHK                                H202_14 << RUNG 93 STEP #0358 >>
%M0722                                %M3646
+--] [-----] ( )-- (* Peroxide tank, Safety sensor *)

REFERENCE NICKNAME      REFERENCE DESCRIPTION      REFERENCE NICKNAME      REFERENCE DESCRIPTION
%M0180 A303_18          Water bath, Level      %M3642 H202_10          HI, container low level
%M0714 BATHLVL          PER, Level peroxide bath      %M3643 H202_11          HI, Spray emptying
%M0713 BATHSTR          PER, Per. bath level in startseq      %M3644 H202_12          HI, Spray temperature
%M0715 BATHTMP          PER, Temperature peroxide bath      %M3645 H202_13          Peroxide bath, Level in str. seq
%M0724 CHGCONT          PER, Change peroxide container      %M3646 H202_14          Peroxide tank, Safety sensor
%R2548 DEL2548          Delay,                      %M0704 H20TEMP          PER, Temp. water bath OK
%R2551 DEL2551          Delay,                      %M1908 HISPEMP          HI, HI spr.tank slow/fast empty
%M3633 H202_01          Peroxide bath, Low temperature      %M1907 HISPFIL          HI, HI spr.tank slow/fast fill.
%M3634 H202_02          Peroxide bath, Level          %M1909 HITMPLW          HI, Low temp. during spraying
%M3635 H202_03          Water bath, Level            %M0708 PERWAIT          PER, Waiting time H202,H20 temp.
%M3636 H202_04          Spray container, Low level        %M0742 SPR_EMT          PER, Spray tank, fast/slow empt.
%M3637 H202_05          Spray container, Emptying        %M0741 SPR_FIL          PER, Spray tank, fast/slow fill.
%M3638 H202_06          Peroxide container, Level        %M0100 STEP_0          Step 0 Off
%M3639 H202_07          Peroxide tank, Low temperature      %M0722 TKNCHK          PER, Check safety sond per.tank
%M3640 H202_08          Water bath, High temperature      %M0723 TKNSAFE          PER, Safety at prod per. tank
%M3641 H202_09          Peroxide tank, High lvl in prod.    %M0706 TKNTEMP          PER, Temp. peroxide tank OK

```

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```

|A306_18 A307_18          H202_15 << RUNG 94 STEP #0360 >>
|%I0181  %I0182          %M3647
+--] [---]/[---+------( )-- (* H202 tank sensors supervision  *)
|
|  |A308_18|
|  |%I0183|
|  +--]/[---+
|
|A308_18 A306_18
| %I0183  %I0181
+--]/[---+ [---+
|
|  |A307_18|
|  |%I0182|
|  +--] [---+
|
|WEXC>90          H202_16 << RUNG 95 STEP #0370 >>
| %M3911          %M3648
+--] [------( )-- (* H202 heat.exch. water guard  *)
|
|PT >85          H202_17 << RUNG 96 STEP #0372 >>
| %M3963          %M3569
+--] [------( )-- (* PER, Peroxide tank high temp.  *)
|
|[  END OF SUBROUTINE LOGIC  ]

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0181	A306_18	Peroxide tank, Level at preheat.	%M3648	H202_16	H202 heat.exch. water guard
%I0182	A307_18	Peroxide tank, Level safety	%M3569	H202_17	PER, Peroxide tank high temp.
%I0183	A308_18	Peroxide tank, Level at prod.	%M3963	PT_>85	P-tank, temperature >85
%M3647	H202_15	H202 tank sensors supervision	%M3911	WEXC>90	Water-H202 heat exchanger (>90)

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```

[ START LD SUBROUTINE BLK_25 ]
[ VARIABLE DECLARATIONS ]
[ START OF SUBROUTINE LOGIC ]

(*****
(* Block 25 "Sterile air system"
*****)

STP3_11 S003                                AIR_ON << RUNG 5 STEP #0003 >>
%M0150 %I0206                                %M0800
+--] [-----]/[-----] ( )-- (* AIR, Sterile air system on *)

CIP_DRY
%M1232

+--] [-----]

RESET                                AIRSTOP << RUNG 6 STEP #0007 >>
%M3050                                %M0801
+--] [-----] (R)-- (* AIR, Sterile air system stop *)

B1102 AIR_TM1 S003                                AIRSTOP << RUNG 7 STEP #0009 >>
%I0248 %M0805 %I0206                                %M0801
+--]/[-----] [-----] (S)-- (* AIR, Sterile air system stop *)

STP5_10 B1103
%M0148 %I0247
+--] [-----]/[-----]

(*****
(* Start sterile air system
*****)

AIR_ON                                AIR_TM1 << RUNG 9 STEP #0017 >>
%M0800 +-----+                                %M0805
+--] [-----] TMR +-----] ( )-- (* AIR, Start ster.air (>30,00) *)
|0.01s|
CONST +PV
+03000
+-----+
TMR_6
%M0115

AIR_ON                                AIR_TM2 << RUNG 10 STEP #0020 >>
%M0800 +-----+                                %M0806
+--] [-----] GT INT +-----] ( )-- (* AIR, Start ster.air (>7,00) *)
|INT|
TMR_6
%M0115 +I1 Q+
CONST +I2
+00700 +-----+

AIR_ON AIR_TM1                                Y1104 << RUNG 11 STEP #0023 >>
%M0800 %M0805                                %Q0259
+--] [-----]/[-----] ( )-- (* Seal Water *)
|B1102|
| %I0248 |
+--] [-----]

AIR_ON AIR_TM2 AIR_TM1                                K020 << RUNG 12 STEP #0028 >>
%M0800 %M0806 %M0805                                %Q0140
+--] [-----] [-----] ( )-- (* Compressor *)
|B1102|
| %I0248 |
+--] [-----]

AIR_ON K020 B1102 STEP_11 WARMSEQ                                K028 << RUNG 13 STEP #0034 >>
%M0800 %Q0140 %I0248 %M0111 %M1234                                %Q0147
+--] [-----] [-----] [-----]/[-----] ( )-- (* Air Super Heater *)

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M0801	AIRSTOP	AIR, Sterile air system stop	%M3050	RESET	Alarm reset
%M0800	AIR_ON	AIR, Sterile air system on	%I0206	S003	Service switch
%M0805	AIR_TM1	AIR, Start ster.air (>30,00)	%M0111	STEP_11	Step 11 Venting
%M0806	AIR_TM2	AIR, Start ster.air (>7,00)	%M0150	STP3_11	Step 3-11 Heat ster. to venting
%I0248	B1102	Separator, Air pressure	%M0148	STP5_10	Step 5-10 Drying to prod.end
%I0247	B1103	Aseptic chamber, Air pressure	%M0115	TMR_6	Tmr 6, Start ster. air (0,01s)
%M1232	CIP_DRY	CIP, Cip drying going on	%M1234	WARMSEQ	CIP, Cip drying warm seq. ended
%Q0140	K020	Compressor	%Q0259	Y1104	Seal Water
%Q0147	K028	Air Super Heater			

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```

| K028                                     << RUNG 14 STEP #0040 >>
| %Q0147 +-----+
| +---] [---+ TMR +-----+ <+>
|          |0.10s|
|          +-----+
|          CONST -+PV
|          +01800
|          +-----+
|          DEL2615
|          %R2615
|
|          HS_>50
|          %M3913
| +-----] [-----] / [-----] (S)-- (* AIR, Air superheater timeout *)
|
| RESET                                     SUP_TO << RUNG 15 STEP #0043 >>
| %M3050                                     %M0807
| +-----] [-----] (R)-- (* AIR, Air superheater timeout *)
|
| (*****
| (* Preheating valve (on = bypass) *)
| (*****
|
| STEP_0                                     PRE_DEL << RUNG 18 STEP #0049 >>
| %M0100                                     %M0808
| +-----] [-----] (R)-- (* AIR, Delay preheating valve *)
|
| STEP_2
| %M0102
| +-----] [-----]
|
| STEP_11
| %M0111
| +-----] [-----]
|
| STEP_8                                     HT_DONE << RUNG 19 STEP #0053 >>
| %M0108                                     %M0809
| +-----] [-----] (R)-- (* AIR, Machine already preheated *)
|
| STEP_3 B1102                             P+142 << RUNG 20 STEP #0055 >>
| %M0103 %I0248 +-----+                 %T0142
| +---] [---+ ] [---+ TMR +-----+ (R)-- (* Pulse + Preheating valve *)
|          |0.10s|
|          +-----+
|          CIP_DRY
|          %M1232
|          +---] [---+ CONST -+PV
|          +00300
|          +-----+
|          DEL2600
|          %R2600
|
| HT_DONE P+142                             PIPEVEN << RUNG 21 STEP #0060 >>
| %M0809 %T0142 +-----+                 %M0810
| +---] [---+ ] [---+ OFDT +-----+ ( )-- (* AIR, Filling pipe & AC ventil. *)
|          |0.10s|
|          +-----+
|          CONST -+PV
|          +00600
|          +-----+
|          DEL2618
|          %R2618
|
| P+142                                     PRE_DEL << RUNG 22 STEP #0064 >>
| %T0142                                     %M0808
| +-----] [-----] (S)-- (* AIR, Delay preheating valve *)
|
|          CIP_DRY
|          %M1232
|          +---] [---+
|          +-----] [-----] (S)-- (* AIR, Machine already preheated *)

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0248	B1102	Separator, Air pressure	%M0810	PIPEVEN	AIR, Filling pipe & AC ventil.
%M1232	CIP_DRY	CIP, Cip drying going on	%M0808	PRE_DEL	AIR, Delay preheating valve
%R2600	DEL2600	Delay,	%M3050	RESET	Alarm reset
%R2615	DEL2615	Delay,	%M0100	STEP_0	Step 0 Off
%R2618	DEL2618	Delay,	%M0111	STEP_11	Step 11 Venting
%M3913	HS_>50	Heat ster, Temp OK (>=50)	%M0102	STEP_2	Step 2 Tube sealing
%M0809	HT_DONE	AIR, Machine already preheated	%M0103	STEP_3	Step 3 Heat sterilization
%Q0147	K028	Air Super Heater	%M0108	STEP_8	Step 8 Motorstart
%T0142	P+142	Pulse + Preheating valve	%M0807	SUP_TO	AIR, Air superheater timeout

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```

|AIR_ON STEP_3 PRE_DEL Y1111 << RUNG 23 STEP #0070 >>
|M0800 M0103 M0808 %Q0230
+--] [---] [---] / [---] ( )-- (* Preheating valve *)

|PIPEVEN TA_CTR1
|M0810 M3902
+--] / [---] [---]

|AIRTEMP AC_400K
|M0812 M0813
+--] [---] [---]

|STEP_4 SPRAY_7
|M0104 M0737
+--] [---] / [---]

|SPRAY_8
|M0738
+--] [---]

|CIP_DRY PRE_DEL
|M1232 M0808
+--] [---] / [---]

|Y1111 B1111 PRE_POS << RUNG 24 STEP #0090 >>
|Q0230 I0246 %M0811
+--] [---] / [---] +OFDT ( )-- (* AIR, Preheating valve in pos. *)
|0.10s

|Y1111 B1111
|Q0230 I0246 +CONST +PV
+--] / [---] [---] +00015
|DEL2603
|R2603

(*****
(* 280 deg reached *)
*****)

|STEP_2 AIRTEMP << RUNG 26 STEP #0098 >>
|M0102 %M0812
+--] [---] (R)-- (* AIR, Heat ster. temp. reached *)

|AIR_ON
|M0800

|AIR_ON HS_OK AIRTEMP << RUNG 27 STEP #0101 >>
|M0800 M3900 %M0812
+--] [---] (S)-- (* AIR, Heat ster. temp. reached *)

(*****
(* Automatic step up to spraying *)
*****)

|STEP_3 TA_CTR1 AC_400K << RUNG 29 STEP #0105 >>
|M0103 M3902 %M0813
+--] [---] (S)-- (* AIR, Asept. cham 40 deg. reached *)

|STEP_2 STEP_3 STEP_4 AC_400K << RUNG 30 STEP #0108 >>
|M0102 M0103 M0104 %M0813
+--] / [---] / [---] (R)-- (* AIR, Asept. cham 40 deg. reached *)

|COND_3 UP_TO_4 << RUNG 31 STEP #0112 >>
|M0123 +-----+ %M0814
+--] [---] TMR +-----+ ( )-- (* AIR, Stepping up to step 4 *)
|0.10s

|CONST +PV
+00300
|DEL2606
|R2606

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M0813	AC_400K	AIR, Asept. cham 40 deg. reached	%M0808	PRE_DEL	AIR, Delay preheating valve
%M0812	AIRTEMP	AIR, Heat ster. temp. reached	%M0811	PRE_POS	AIR, Preheating valve in pos.
%M0800	AIR_ON	AIR, Sterile air system on	%M0737	SPRAY_7	PER, Spray sequence 12,00-50,00
%I0246	B1111	Preheating valve	%M0738	SPRAY_8	PER, Spray sequence 51,00-52,00
%M1232	CIP_DRY	CIP, Cip drying going on	%M0102	STEP_2	Step 2 Tube sealing
%M0123	COND_3	Step 3 Step up condition	%M0103	STEP_3	Step 3 Heat sterilization
%R2603	DEL2603	Delay,	%M0104	STEP_4	Step 4 Spraying
%R2606	DEL2606	Delay,	%M3902	TA_CTR1	Top AC, Ctrl 1 (40deg heat ster)
%M3900	HS_OK	Heat ster, Temp OK (>280)	%M0814	UP_TO_4	AIR, Stepping up to step 4
%M0810	PIPEVEN	AIR, Filling pipe & AC ventil.	Y1111		Preheating valve

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```

(*****
(* Reference point
*)
*****)

AIR_ON SPR_FUL SPR_RDY                                Y1112 << RUNG 33 STEP #0116 >>
%M0800 %M0740 %M0730                                %Q0229
+--] [-----] [-----]/[-----] ( )-- (* Reference point valve *)

STEP_12
%M0112
+--] [-----]

(*****
(* Heat exchanger valve
(* Y1107 is the short cylinder.
(* Y1108 is the long cylinder.
(* Heating (T<94) Y1107=off Y1108=off
(* Medium (94<T<96) Y1107=off Y1108=on
(* Cooling (T>96) Y1107=on Y1108=on
(*
(* To go from cooling to medium both valves first have to close
(* and then Y1108 open again.
*****)

AIRTEMP HS_OK AC_TEMP << RUNG 35 STEP #0122 >>
%M0812 %M3900 %M0820
+--] [-----] [-----] ( )-- (* AIR, AC ctrl heat ster temp. *)

STP5_10 MAXCOOL << RUNG 36 STEP #0125 >>
%M0148 %M0854 +-----+
+--] [-----]/[-----] TMR +-
|0.01s|
CONST -+PV
+00050
+-----+
TMR_7
%R0118

ALW_ON EXC_FLP << RUNG 37 STEP #0128 >>
%S0007 +-----+ %M0821
+--] [---+RANGE|+-----] ( )-- (* AIR, Flip heat exchanger valve *)
| INT |
CONST -+L1 Q++
+00001
CONST -+L2
+00045
TMR_7
%R0118 -+IN
+-----+

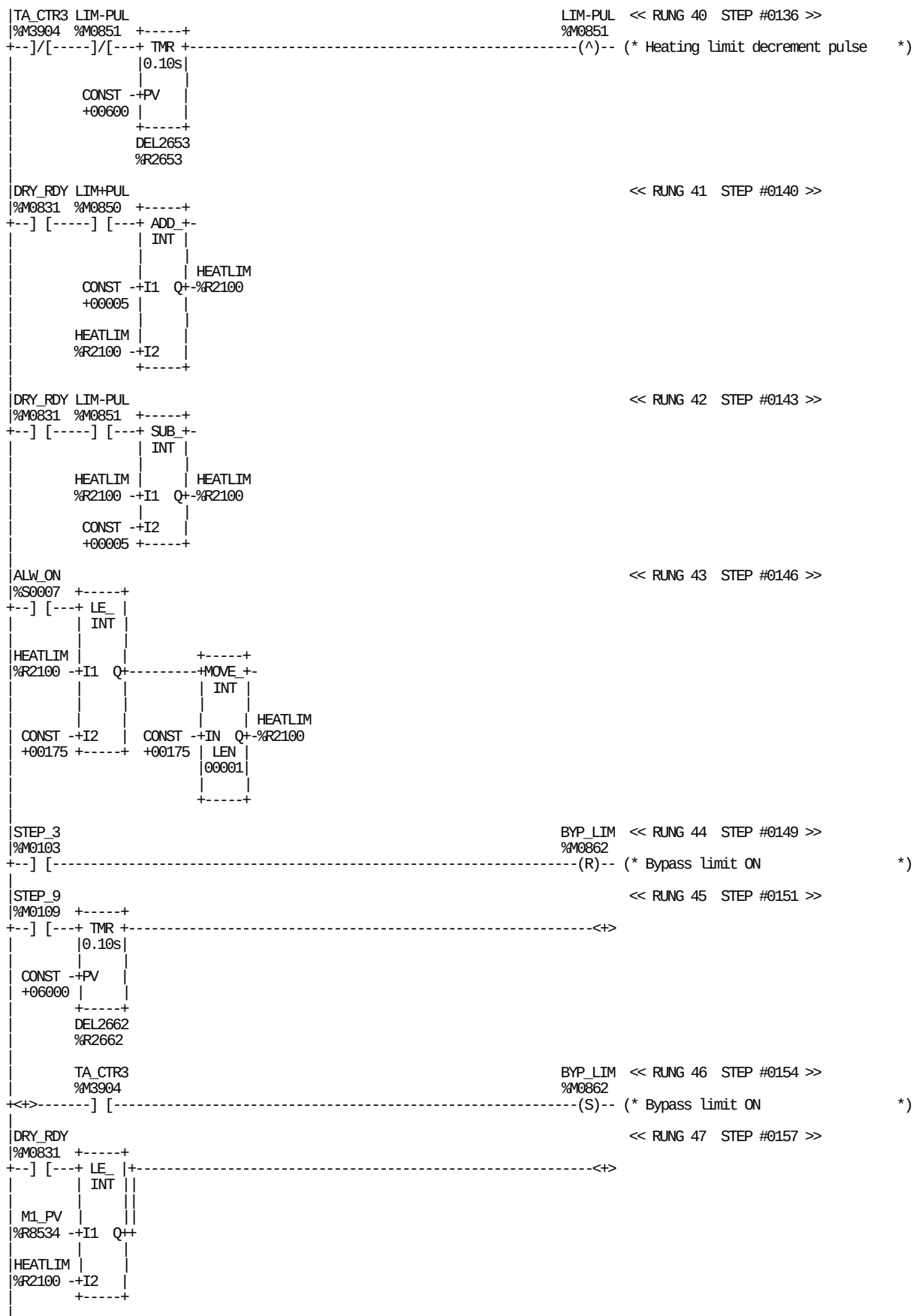
(*****
(* Heating limit automatic tuning.
(* This variable threshold will limitate the heating of the aseptic
(* chamber by stopping the bypass position of the heat-exchanger valve
(* when the sterile air temperature (B1105) is exceeding this limit.
(* Tuning method:
(* Bypass for more than 60 sec. +5 degrees.
(* Max cooling for more than 60 sec. -5 degrees.
(* Minimum heating limit = 175 degrees.
*****)

TA_CTR2 LIM+PUL LIM+PUL << RUNG 39 STEP #0132 >>
%M3903 %M0850 +-----+ %M0850
+--] [-----]/[-----] TMR +-----] (^)-- (* Heating limit increment pulse *)
|0.10s|
CONST -+PV
+00600
+-----+
DEL2650
%R2650

```

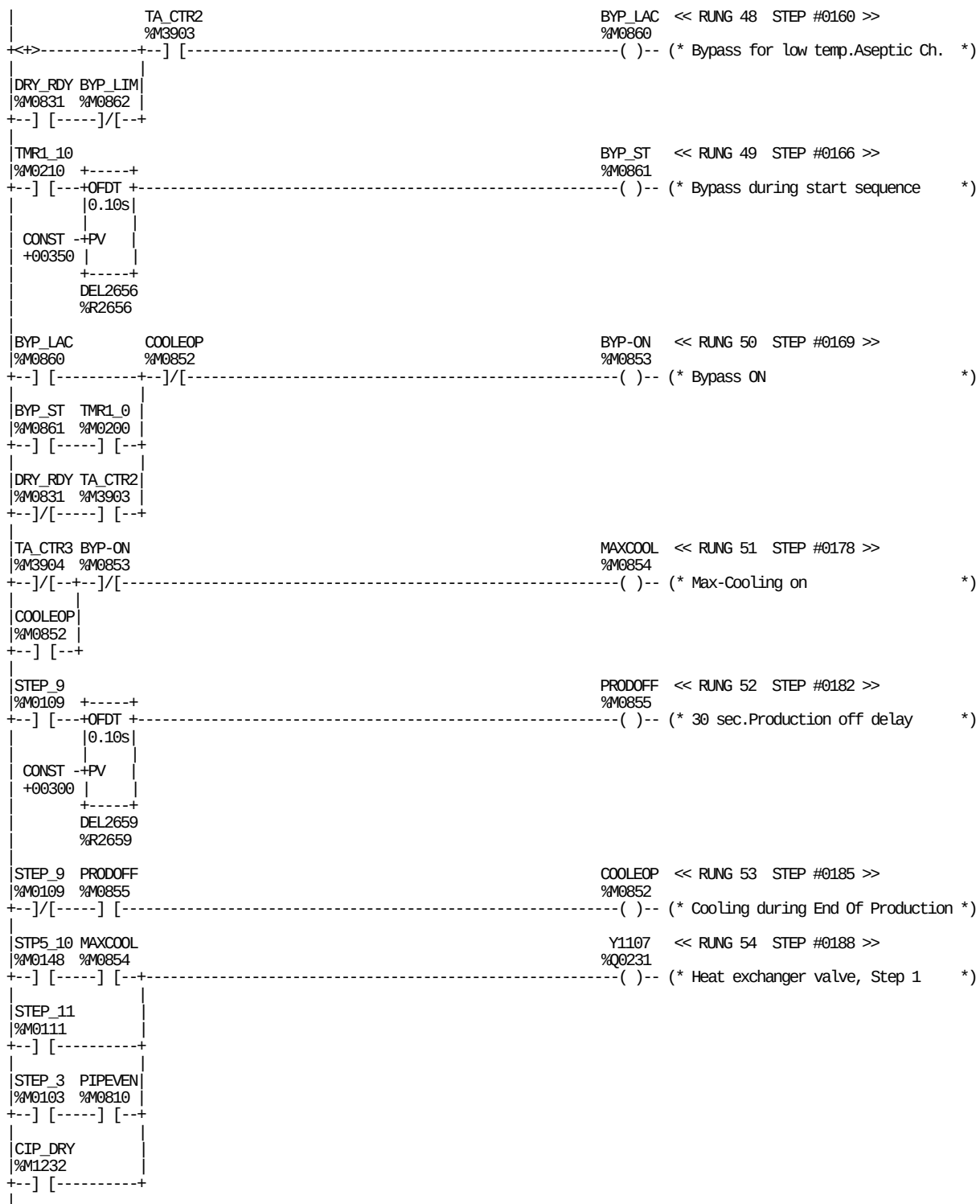
REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M0820	AC_TEMP	AIR, AC ctrl heat ster temp.	%M0854	MAXCOOL	Max-Cooling on
%M0812	AIRTEMP	AIR, Heat ster. temp. reached	%M0740	SPR_FUL	PER, Spray tank filled
%M0800	AIR_ON	AIR, Sterile air system on	%M0730	SPR_RDY	PER, Spray sequence ready
%S0007	ALW_ON		%M0112	STEP_12	Step 12 Doors OK
%R2650	DEL2650	Delay,	%M0148	STP5_10	Step 5-10 Drying to prod.end
%M0821	EXC_FLP	AIR, Flip heat exchanger valve	%M3903	TA_CTR2	Top AC, Ctrl 2 (<39or<100or<94)
%M3900	HS_OK	Heat ster, Temp OK (>280)	%R0118	TMR_7	Tmr 7, Heat exch. valve (0,01s)
%M0850	LIM+PUL	Heating limit increment pulse	%Q0229	Y1112	Reference point valve

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BLOCK: STERILE AIR SYSTEM



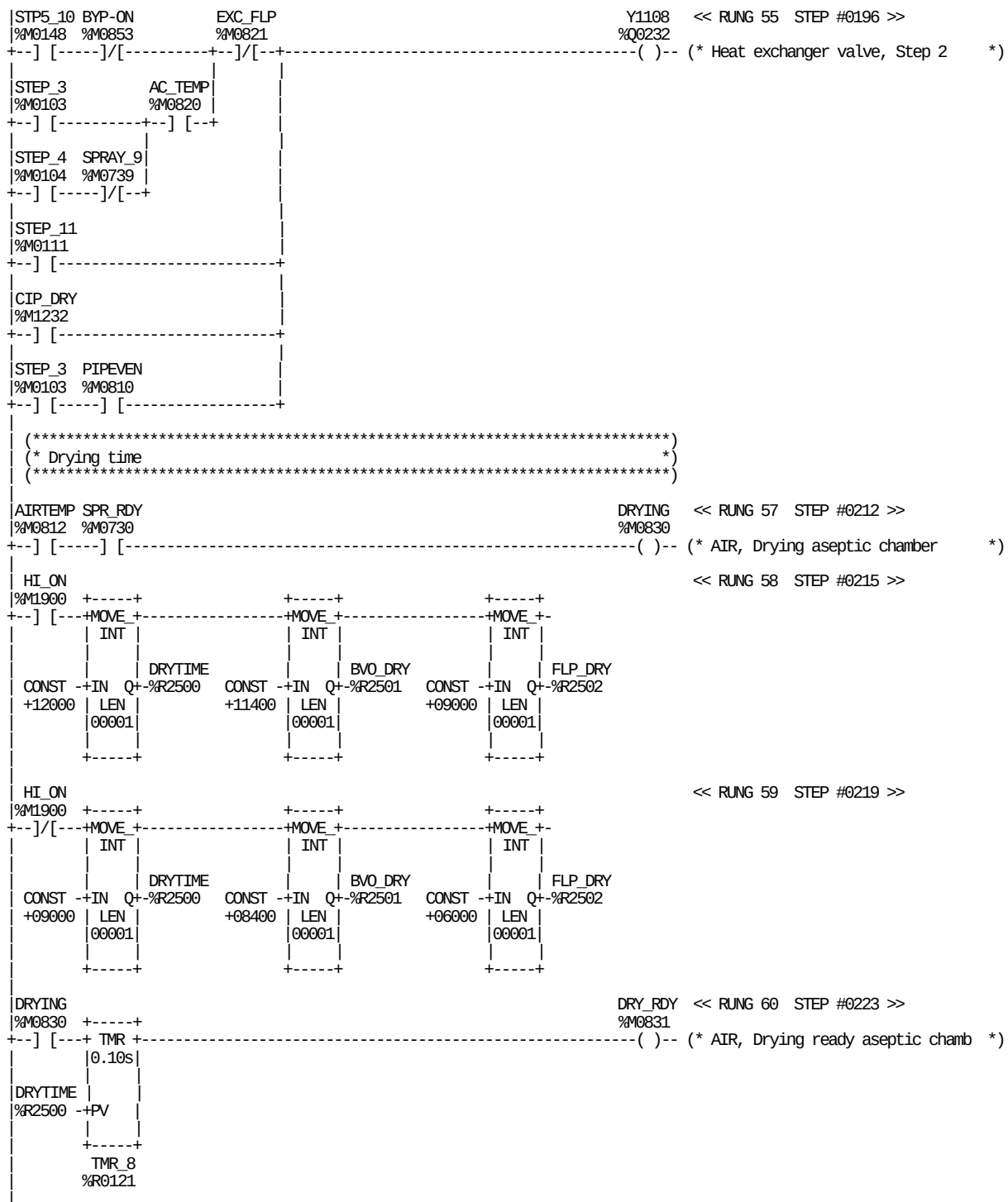
REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%S0007	ALW_ON		%M0850	LIM+PUL	Heating limit increment pulse
%M0862	BYP_LIM	Bypass limit ON	%M0851	LIM-PUL	Heating limit decrement pulse
%R2653	DEL2653	Delay,	%R8534	M1_PV	Heat ster, Process value
%R2662	DEL2662	Delay,	%M0103	STEP_3	Step 3 Heat sterilization
%M0831	DRY_RDY	AIR, Drying ready aseptic chamb	%M0109	STEP_9	Step 9 Production
%R2100	HEATLIM	Heat sterilization heating limit	%M3904	TA_CTR3	Top AC, Ctrl 3 (<40or<102or<95)

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BLOCK: STERILE AIR SYSTEM



REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M0853	BYP_ON	Bypass ON	%M0855	PRODOFF	30 sec.Production off delay
%M0860	BYP_LAC	Bypass for low temp.Aseptic Ch.	%M0111	STEP_11	Step 11 Venting
%M0862	BYP_LIM	Bypass limit ON	%M0103	STEP_3	Step 3 Heat sterilization
%M0861	BYP_ST	Bypass during start sequence	%M0109	STEP_9	Step 9 Production
%M1232	CIP_DRY	CIP, Cip drying going on	%M0148	STP5_10	Step 5-10 Drying to prod.end
%M0852	COOLEOP	Cooling during End Of Production	%M3903	TA_CTR2	Top AC, Ctrl 2 (<39or<100or<94)
%R2656	DEL2656	Delay,	%M3904	TA_CTR3	Top AC, Ctrl 3 (<40or<102or<95)
%R2659	DEL2659	Delay,	%M0200	TMR1_0	Startseq, (>0,01)
%M0831	DRY_RDY	AIR, Drying ready aseptic chamb	%M0210	TMR1_10	Startseq, Going on (0,01-9,99)
%M0854	MAXCOOL	Max-Cooling on	%Q0231	Y1107	Heat exchanger valve, Step 1
%M0810	PIPEVEN	AIR, Filling pipe & AC ventil.			

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REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M0820	AC_TEMP	AIR, AC ctrl heat ster temp.	%M1900	HI_ON	HI, system ready for HI
%M0812	AIRTEMP	AIR, Heat ster. temp. reached	%M0810	PIPEVEN	AIR, Filling pipe & AC ventill.
%R2501	BVO_DRY	AIR, B valve open in drying	%M0739	SPRAY_9	PER, Spray sequence 51,00-52,00
%M0853	BYP-ON	Bypass ON	%M0730	SPR_RDY	PER, Spray sequence ready
%M1232	CIP_DRY	CIP, Cip drying going on	%M0111	STEP_11	Step 11 Venting
%M0830	DRYING	AIR, Drying aseptic chamber	%M0103	STEP_3	Step 3 Heat sterilization
%R2500	DRYTIME	AIR, Drying time	%M0104	STEP_4	Step 4 Spraying
%M0831	DRY_RDY	AIR, Drying ready aseptic chamb	%M0148	STP5_10	Step 5-10 Drying to prod.end
%M0821	EXC_FLP	AIR, Flip heat exchanger valve	%R0121	TMR_8	Tmr 8, Drying time (0,10s)
%R2502	FLP_DRY	AIR, Flap heating on in drying	%Q0232	Y1108	Heat exchanger valve, Step 2

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BLOCK: STERILE AIR SYSTEM


```

(*****
(* B-valve
*****
)

AIR_ON STEP_11 STEP_5 DRY_RDY DRY_BVO << RUNG 62 STEP #0227 >>
%M0800 %M0111 %M0105 %M0831 %M0832
+--] [-----]/[-----]/[-----]/[-----] ( )-- (* AIR, B-valve open in drying *)

      |
      |AUX_BVO|
      |%M0833|
      +--] [---+

ALW_ON AUX_BVO << RUNG 63 STEP #0234 >>
%S0007 +-----+ %M0833
+--] [---+RANGE|+-----] ( )-- (* AIR, B-valve open (aux.contact) *)
      |
      |INT|
      |
CONST --L1 Q+
+00600

BVO_DRY
%R2501 --L2

TMR_8
%R0121 --IN
+-----+

DRY_BVO Y1323 << RUNG 64 STEP #0237 >>
%M0832 %Q0238
+--] [---+-----] ( )-- (* B - valve *)

CIP_BVO
%M1209
+--] [---+

Y1323 B1302 B_POS << RUNG 65 STEP #0240 >>
%Q0238 %I0250 %M0835
+--] [-----] [---+-----] ( )-- (* AIR, B-valve in position *)
      |
      |OFTD|
      |0.10s|
Y1323 B1302
%Q0238 %I0250
+--]/[-----]/[---+CONST --PV
+00015
      |
      |DEL2609
      |%R2609

(*****
(* Regulating valve position
*****
)

STP1_3 RV_WRG REG_BEFF << RUNG 67 STEP #0248 >>
%M0140 %M0643 %M0837
+--] [---+-----] (S)-- (* AIR, Reg.valve pos.before spray *)

STEP_4 SPRAY_2
%M0104 %M0732
+--] [-----] [---+

STEP_1
%M0101
+--] [-----+

RESET REG_BEFF << RUNG 68 STEP #0255 >>
%M3050 %M0837
+--] [---+-----] (R)-- (* AIR, Reg.valve pos.before spray *)

STEP_4 Y1231 RV_WRG REG_AFT << RUNG 69 STEP #0257 >>
%M0104 %Q0262 %M0643 %M0838
+--] [-----] [---+-----] (S)-- (* AIR, Reg.valve pos. after spray *)

STEP_5 DRY_RDY
%M0105 %M0831
+--] [-----]/[---+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M0800	AIR_ON	AIR, Sterile air system on	%M3050	RESET	Alarm reset
%S0007	ALW_ON		%M0643	RV_WRG	FIL, Reg. valve in wrong pos.
%M0833	AUX_BVO	AIR, B-valve open (aux.contact)	%M0732	SPRAY_2	PER, Spray sequence 0,01-11,00
%I0250	B1302	B - Valve, Position	%M0101	STEP_1	Step 1 Preparation
%R2501	BVO_DRY	AIR, B valve open in drying	%M0111	STEP_11	Step 11 Venting
%M0835	B_POS	AIR, B-valve in position	%M0104	STEP_4	Step 4 Spraying
%M1209	CIP_BVO	CIP, B valve open in cip	%M0105	STEP_5	Step 5 Drying
%R2609	DEL2609	Delay,	%M0140	STP1_3	Step 1-3 Prep.to heatster.
%M0832	DRY_BVO	AIR, B-valve open in drying	%R0121	TMR_8	Tmr 8, Drying time (0,10s)
%M0831	DRY_RDY	AIR, Drying ready aseptic chamb	%Q0262	Y1231	Spraying
%M0838	REG_AFT	AIR, Reg.valve pos. after spray	%Q0238	Y1323	B - valve
%M0837	REG_BEFF	AIR, Reg.valve pos.before spray			

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BLOCK: STERILE AIR SYSTEM

RESET	REG_AFT << RUNG 70 STEP #0264 >>
%M3050	%M0838
+--] [-----	(R)-- (* AIR, Reg.valve pos. after spray *)

```

(*****
* High level water separator
*****
)

A302_18                                H2O_SEP << RUNG 72 STEP #0267 >>
%I0179                                %M0836
+--]/[-----]----- (R) ( * AIR, High level water separator *)

A302_18                                H2O_SEP << RUNG 73 STEP #0269 >>
%I0179                                %M0836
+--] [---+ TMR +-----]----- (S) ( * AIR, High level water separator *)
      |0.10s|
      +-----+
CONST -+PV |
+00010 |
      +-----+
      DEL2612
      %R2612

(*****
* Low temperature aseptic chamber
*****
)

S003 STEP_7 TA_OK RESET                AC_W RTP << RUNG 75 STEP #0273 >>
%I0206 %M0107 %M3901 %M3050           %M0815
+--]/[---+ ] [---+]/[---+]/[---+ ]----- (S) ( * AIR, AC wrong temperature *)
      |STP8_9|
      |%M0144|
      +--] [---+

AC_W RTP RESET                        AC_ACK << RUNG 76 STEP #0280 >>
%M0815 %M3050                        %M0816
+--] [---+ ] [---+ ]----- (S) ( * AIR, AC wrong temp acknowledge *)

AC_ACK TA_OK                          AC_W RTP << RUNG 77 STEP #0283 >>
%M0816 %M3901                        %M0815
+--] [---+ ] [---+ ]----- (R) ( * AIR, AC wrong temperature *)

STEP_0                                AC_ACK
%M0100                                %M0816
+--] [---+ ]----- (R) ( * AIR, AC wrong temp acknowledge *)

RESET                                AC_HSTO << RUNG 78 STEP #0288 >>
%M3050                                %M0818
+--] [---+ ]----- (R) ( * AIR, AC temp.TimeOut in heat.ste *)

STEP_3 Y1111 AIRTEMP TA_CTL1          AC_HSTO << RUNG 79 STEP #0290 >>
%M0103 %Q0230 %M0812 %M3902 +-----+ %M0818
+--] [---+]/[---+ ] [---+]/[---+ ]----- (S) ( * AIR, AC temp.TimeOut in heat.ste *)
      |0.10s|
      +-----+
CONST -+PV |
+00600 |
      +-----+
      DEL2633
      %R2633

(*****
* Butterfly valve
*****
)

STEP_5 DRY_RDY                        P+144 << RUNG 81 STEP #0297 >>
%M0105 %M0831                        %T0144
+--] [---+]/[---+ ]----- (^) ( * Pulse + Butterfly valve in dry *)

P+144                                BUT_DRY << RUNG 82 STEP #0300 >>
%T0144                                %M0839
+--] [---+ OFDT +-----]----- ( ) ( * AIR, Butterfly ON in drying *)
      |0.10s|

PAR_133                                +-----+
%M0633 -+PV |
      +-----+
      DEL2621
      %R2621

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0179	A302_18	Water separator, Level	%R0633	PAR_133	Delay butterfly ON during drying
%M0816	AC_ACK	AIR, AC wrong temp acknowledge	%M3050	RESET	Alarm reset
%M0818	AC_HSTO	AIR, AC temp.TimeOut in heat.ste	%I0206	S003	Service switch
%M0815	AC_W RTP	AIR, AC wrong temperature	%M0100	STEP_0	Step 0 Off
%M0812	AIRTEMP	AIR, Heat ster. temp. reached	%M0103	STEP_3	Step 3 Heat sterilization
%M0839	BUT_DRY	AIR, Butterfly ON in drying	%M0105	STEP_5	Step 5 Drying
%R2612	DEL2612	Delay,	%M0107	STEP_7	Step 7 Signal from sterilizer
%R2621	DEL2621	Delay,	%M0144	STP8_9	Step 8-9 Motorstart to prod.
%R2633	DEL2633	Delay,	%M3902	TA_CTL1	Top AC, Ctrl 1 (40deg heat ster)
%M0831	DRY_RDY	AIR, Drying ready aseptic chamb	%M3901	TA_OK	Top AC, Temp.OK (>90,<110)
%M0836	H2O_SEP	AIR, High level water separator	%Q0230	Y1111	Preheating valve
%T0144	P+144	Pulse + Butterfly valve in dry			

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BLOCK: STERILE AIR SYSTEM

```

STEP_4                                Y1241 << RUNG 83 STEP #0303 >>
%M0104                                %Q0228
+---] [-----) (* Butterfly valve *)

|
| BUT_DRY                               |
| %M0839                               |
+---] [-----+

|
| CIP_DRY                              |
| %M1232                              |
+---] [-----+

|
| RESET                               BUT_POS << RUNG 84 STEP #0307 >>
| %M3050                               %M0841
+---] [-----) (R)-- (* AIR, Butterfly valve wrong pos. *)

|
| Y1241 B1241 RESET                   BUT_POS << RUNG 85 STEP #0309 >>
| %Q0228 %I0259 %M3050                %M0841
+---] [----]/[----]/[----+ TMR +-----) (S)-- (* AIR, Butterfly valve wrong pos. *)
|                                     |
|      B1242                          | 0.10s
|      %I0264                         |
|      +---] [----+                  +PV
|      CONST                        +00015
|      +---] [----+                  +-----+
| Y1241 B1241                       DEL2627
| %Q0228 %I0259                     %R2627
+---]/[----+
|
|      B1242
|      %I0264
|      +---] [----+

|
| STEP_0                               BUTPOS2 << RUNG 86 STEP #0321 >>
| %M0100                               %M0842
+---] [-----) (R)-- (* AIR, Butt.wrong pos.after spray *)

|
| BUT_POS SPR_FUL DRY_RDY             BUTPOS2 << RUNG 87 STEP #0323 >>
| %M0841 %M0740 %M0831               %M0842
+---] [----]/[-----) (S)-- (* AIR, Butt.wrong pos.after spray *)

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0259	B1241	Butterfly valve restriction ON	%M0831	DRY_RDY	AIR, Drying ready aseptic chamb
%I0264	B1242	Butterfly valve restriction OFF	%M30050	RESET	Alarm reset
%M0842	BUTPOS2	AIR, Butt.wrong pos.after spray	%M0740	SPR_FUL	PER, Spray tank filled
%M0839	BUT_DRY	AIR, Butterfly valve in drying	%M0100	STEP_0	Step 0 Off
%M0841	BUT_POS	AIR, Butterfly valve wrong pos.	%M0104	STEP_4	Step 4 Spraying
%M1232	CIP_DRY	CIP, Cip drying going on	%Q0228	Y1241	Butterfly valve
%R2627	DEL2627	Delay,			

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BLOCK: STERILE AIR SYSTEM

```

{*****}
{* Alarms "Sterlie air system" *}
{*****}

RESET                                STER_01 << RUNG 89 STEP #0328 >>
%M3050                                %M3649
+---] [-----] (R)--- (* Aseptic chamber, Pressure *)

S003 STP5_10                          << RUNG 90 STEP #0330 >>
%M0206 %M0148 +-----+
+---]/[-----] [---+ TMR +-----<+>
                        |0.10s|
                        +-----+
CONST -+PV
+00030 |
+-----+
DEL2630
%M2630

B1103                                STER_01 << RUNG 91 STEP #0334 >>
%M0247                                %M3649
+---] [-----] (S)--- (* Aseptic chamber, Pressure *)

AC_W RTP                               STER_02 << RUNG 92 STEP #0337 >>
%M0815                                %M3650
+---] [---+-----] ( )--- (* Aseptic chamber, low temperature *)

AC_HST0
%M0818
+---] [---+

B_POS                                STER_03 << RUNG 93 STEP #0340 >>
%M0835                                %M3651
+---]/[-----] ( )--- (* B-valve, Position *)

H2O_SEP                               STER_04 << RUNG 94 STEP #0342 >>
%M0836                                %M3652
+---] [-----] ( )--- (* Separator, Level *)

STP3_11 STEP_11 AIRTEMP AS_OKLO       STER_05 << RUNG 95 STEP #0344 >>
%M0150 %M0111 %M0812 %M3982          %M3653
+---] [-----]/[-----] [-----]/[---+-----] ( )--- (* Air super heater, Temperature *)

SUP_TO
%M0807
+---] [-----+

PRE_POS                               STER_06 << RUNG 96 STEP #0350 >>
%M0811                                %M3654
+---]/[-----] ( )--- (* Preheating valve, Position *)

AIRSTOP B1102                         STER_07 << RUNG 97 STEP #0352 >>
%M0801 %I0248                         %M3655
+---] [-----]/[-----] ( )--- (* Separator air, Pressure *)

REG_BE F                               STER_08 << RUNG 98 STEP #0355 >>
%M0837                                %M3656
+---] [---+-----] ( )--- (* Regulating valve, Position *)

REG_AFT
%M0838
+---] [---+

BUT_POS                               STER_09 << RUNG 99 STEP #0358 >>
%M0841                                %M3657
+---] [-----] ( )--- (* Butterfly valve, position *)

[ END OF SUBROUTINE LOGIC ]

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M0818	AC_HSTO	AIR, AC temp.Timeout in heat.ste	%I0206	S003	Service switch
%M0815	AC_W RTP	AIR, AC wrong temperature	%M0111	STEP_11	Step 11 Venting
%M0801	AIRSTOP	AIR, Sterile air system stop	%M3649	STER_01	Aseptic chamber, Pressure
%M0812	AIRTEMP	AIR, Heat ster. temp. reached	%M3650	STER_02	Aseptic chamber, low temperature
%M3982	AS_OKLO	Airsup, Temp > 330 degr.	%M3651	STER_03	B-valve, Position
%I0248	B1102	Separator, Air pressure	%M3652	STER_04	Separator, Level
%I0247	B1103	Aseptic chamber, Air pressure	%M3653	STER_05	Air super heater, Temperature
%M0841	BUT_POS	AIR, Butterfly valve wrong pos.	%M3654	STER_06	Preheating valve, Position
%M0835	B_POS	AIR, B-valve in position	%M3655	STER_07	Separator air, Pressure
%R2630	DEL2630	Delay,	%M3656	STER_08	Regulating valve, Position
%M0836	H2O_SEP	AIR, High level water separator	%M3657	STER_09	Butterfly valve, position
%M0811	PRE_POS	AIR, Preheating valve in pos.	%M0150	STP3_11	Step 3-11 Heat ster. to venting
%M0838	REG_AFT	AIR, Reg.valve pos. after spray	%M0148	STP5_10	Step 5-10 Drying to prod.end
%M0837	REG_BEF	AIR, Reg.valve pos.before spray	%M0807	SUP_TO	AIR, Air superheater timeout
%M3050	RESET	Alarm reset			

TBA/21-0410/0500
BLOCK: STERILE AIR SYSTEM

```

[ START LD SUBROUTINE BLK_26 ]
[ VARIABLE DECLARATIONS ]
[ START OF SUBROUTINE LOGIC ]

(*****
* Block 26 "Drive roller aseptic chamber"
*****)

(*****
* Paper feeding at manual pulling
*****)

STP1_12 B1504 K007 << RUNG 6 STEP #0004 >>
%M0146 %I0133 %Q0114
+---] [---] [---] ( )-- (* Drive roller aseptic chamber *)

STEP_4 STEP_5 Y1501
%M0104 %M0105 %Q0235
+---]/[---]/[---] ( )-- (* Feed pkg. mtrl. aseptic chamber *)

      DRY_RDY
      %M0831
      +---] [---+

Y1501 K123 MANFEED << RUNG 7 STEP #0014 >>
%Q0235 %Q0171 %M0670
+---] [---]/[---] +-----+ +-----+ ( )-- (* DRAC, Manual feed packaging mtrl *)
      | TMR | | LT_ |
      | 0.10s | | INT |
      +-----+ +-----+
      | PV | | I1 |
      | +-----+ +-----+
      | CONST +00020 | | Q+ |
      | | |
      | DEL2700 | |
      | %R2700 | |
      | | |
      | CONST +I2 |
      | +22400 +-----+

(*****
* Paper feeding at high or low web speed
*****)

SLW_WEB HIGHLOW << RUNG 9 STEP #0020 >>
%M0911 %M0671
+---] [---] (S)-- (* DRAC, High or low spd main motor *)

FST_WEB
%M0912
+---] [---+

ALW_ON << RUNG 10 STEP #0023 >>
%S0007 +-----+
+---] [---+ GT_ |
      | INT |
      | |
      | B1501 |
      | %AI0033--+I1 | Q+
      | |
      | CONST -+I2 |
      | +22400 +-----+

HIGHLOW << RUNG 11 STEP #0026 >>
%M0671
+---] [---+ (R)-- (* DRAC, High or low spd main motor *)

      K123
      %Q0171
      +---]/[---+

```

REFERENCE	NICKNAME	REFERENCE	DESCRIPTION	REFERENCE	NICKNAME	REFERENCE	DESCRIPTION
%S0007	ALW_ON			%Q0171	K123		Connection of jaw system
%AI0033	B1501		Dr.roll.asept.chamb, Linear pot.	%M0670	MANFEED		DRAC, Manual feed packaging mtrl
%I0133	B1504		A. chamber top door, Closed	%M0911	SLW_WEB		JUM, Paper web slow speed
%R2700	DEL2700		Delay,	%M0104	STEP_4		Step 4 Spraying
%M0831	DRY_RDY		AIR, Drying ready aseptic chamb	%M0105	STEP_5		Step 5 Drying
%M0912	FST_WEB		JUM, Paper web fast speed	%M0146	STP1_12		Step 1-12 Prep. to doors OK
%M0671	HIGHLOW		DRAC, High or low spd main motor	%Q0235	Y1501		Feed pkg. mtrl. aseptic chamber
%Q0114	K007		Drive roller aseptic chamber				

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BLOCK: DRIVE ROLLER ASEPTIC CHAMBER

```

(*****
* Enable and overload drive roller Aseptic chamber
* Activate squeegee roller
*****)

STEP_13 STEP_14 MANFEED                                A410_EN << RUNG 13 STEP #0030 >>
%M0113 %M0114 %M0670                                %Q0203
+--]/[-----]/[---+ ] [---+----- ( )-- (* Drive roll.asept.chamber, Enable *)

      |HIGHLOW|
      |%M0671|
      +--] [---+

A410_EN A410_19                                DRACOV1 << RUNG 14 STEP #0036 >>
%Q0203 %I0189                                %M0672
+--] [-----]/[---+----- ( )-- (* DRAC, Drive roller overload *)

STEP_13 MANFEED                                Y1502 << RUNG 15 STEP #0039 >>
%M0113 %M0670                                %Q0236
+--]/[---+ ] [---+-----+OFDT+----- ( )-- (* Movable squeegee roller *)
      |HIGHLOW|                                |0.10s|
      |%M0671|                                +-----+
      +--] [---+                                |PV|
      |CONST +00020|                                +-----+
      |DEL2706|                                %R2706
      |%R2706|

(*****
* Every jawhit and jawout save position of pendulum roller
*
* 10 volt will be equal to +16383 (Bottom decrease speed)
* 5 volt will be equal to 0
* 0 volt will be equal to -16383 (Top increase speed)
*
* The pendulum roller should variate around 5 volt which means
* that, in this way, it is possible to see the size and sign of
* the error directly.
*****)

P+093                                << RUNG 17 STEP #0046 >>
%T0093 +-----+
+--] [---+ SUB +---+
      |INT|
      |B1501| |ACT_HIT|
      |%AI0033+I1 Q+-%R2010|
      |CONST +I2|
      |+16383 +-----+

P+094                                << RUNG 18 STEP #0048 >>
%T0094 +-----+
+--] [---+ SUB +---+
      |INT|
      |B1501| |ACT_OUT|
      |%AI0033+I1 Q+-%R2011|
      |CONST +I2|
      |+16383 +-----+

(*****
* Add values from jawhit and jawout and divide by 2.
* This is the "Control error" which is saved
* in register R2013
*****)

P+093                                << RUNG 20 STEP #0051 >>
%T0093 +-----+ +-----+
+--] [---+ ADD +-----+ DIV +-----+
      |INT| |INT|
      |P+094| |ACT_HIT| |ACT_VAL| |ACT_VAL|
      |%T0094| |%R2010 -I1 Q+-%R2012 %R2012 -I1 Q+-%R2013|
      |ACT_OUT| |%R2011 -I2| |CONST -I2|
      |%R2011| |%R2011| |+00002 +-----+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0189	A410_19	Drive roller A.C., overload	%R2013	ERROR	DRAC, Control error
%Q0203	A410_EN	Drive roll.asept.chamber, Enable	%M0671	HIGHLOW	DRAC, High or low spd main motor
%R2010	ACT_HIT	DRAC, Actual value at jawhit	%M0670	MANFEED	DRAC, Manual feed packaging mtrl
%R2011	ACT_OUT	DRAC, Actual value at jawout	%T0093	P+093	Pulse + Jawhit
%R2012	ACT_VAL	DRAC, Actual value	%T0094	P+094	Pulse + Jawout
%AI0033	B1501	Dr.roll.asept.chamb, Linear pot.	%M0113	STEP_13	Step 13 Cleaning
%R2706	DEL2706	Delay,	%M0114	STEP_14	Step 14 Service window
%M0672	DRACOV1	DRAC, Drive roller overload	%Q0236	Y1502	Movable squeegee roller

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```

*****
(* If the machine is running in high speed the "Control error" *)
(* will be divided by the volume parameter 59 and multiplied *)
(* with volume parameter 58. The result will be put in R2014 and called *)
(* "Speed adjustment". *)
(* These volume parameters are the proportional part of the regulator *)
(* for the drive roller. If the result of the division of the 2 *)
(* parameters get bigger, this will make the regulator faster. *)
(* *)
(* Then the Speed output will be calculated by subtracting the normal *)
(* High speed and the Speed adjustment. *)
*****

P+093 FST_WEB                                     << RUNG 22 STEP #0056 >>
%T0093 %M0912 +-----+                               +-----+
+-] [---] [---] DIV INT +-----+ MUL INT +-----+ SUB INT +-
P+094                                     ERROR   ERROR   SPD_ADJ HIGHSPD
%T0094 [%R2013 -I1 Q+%R2013 %R2013 -I1 Q+%R2014 %R2017 -I1 Q+%R2015
CONST -I2                                CONST -I2          SPD_ADJ
+00015 +-----+                        +00010 +-----+    %R2014 -I2
                                      +-----+

(*****)
(* If the machine is running in slow speed the "Control error" *)
(* will be divided with volume parameter 60 and saved in R2014. *)
(* Then the Speed output will be calculated by subtracting the *)
(* normal Slow speed with the Speed adjustment. *)
(*****)

P+093 SLW_WEB                                     << RUNG 24 STEP #0063 >>
%T0093 %M0911 +-----+                               +-----+
+-] [---] [---] DIV INT +-----+ SUB INT +-
P+094                                     SPD_ADJ SLOWSPD
%T0094 [%R2013 -I1 Q+%R2014 %R2016 -I1 Q+%R2015
CONST -I2                                SPD_ADJ
+00007 +-----+                        %R2014 -I2
                                      +-----+

(*****)
(* Move the corresponding speed values to the analogue output. *)
(*****)

MANFEED                                           << RUNG 26 STEP #0069 >>
%M0670 +-----+
+-] [---+MOVE_+-
      | INT |
CONST -IN Q+%A10
+07680 LEN Q+%AQ037
      | LEN |
      | 00001|
      +-----+

HIGHLOW                                           << RUNG 27 STEP #0071 >>
%M0671 +-----+
+-] [---+MOVE_+-
      | INT |
SPD_OUT -IN Q+%A10
%R2015  Q+%AQ037
      | LEN |
      | 00001|
      +-----+

(*****)
(* Every time slow speed stops save current value for *)
(* next start. *)
(*****)

SLW_WEB HIGHLOW                                  P+115 << RUNG 29 STEP #0074 >>
%M0911 %M0671                                  %T0115
+-] [-----] [-----] (v)-- (* Pulse + Save slow speed *)

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%AQ037	A410	Drive roller aseptic chamber	%T0094	P-094	Pulse + Jawout
%R2013	ERROR	DRAC, Control error	%T0115	P-115	Pulse + Save slow speed
%M0912	FST_WEB	JUM, Paper web fast speed	%R2016	SLOWSPD	DRAC, Slow speed
%M0671	HIGHLOW	DRAC, High or low spd main motor	%M0911	SLW_WEB	JUM, Paper web slow speed
%R2017	HIGHSPD	DRAC, High speed	%R2014	SPD_ADJ	DRAC, Speed adjustment
%M0670	MANFEED	DRAC, Manual feed packaging mtrl	%R2015	SPD_OUT	DRAC, Speed output
%T0093	P-093	Pulse + Jawhit			

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```

P+115                                     << RUNG 30 STEP #0077 >>
%T0115 +-----+
+---] [---+MOVE+---
          | INT |
SPD_OUT |      | SLOWSPD
%R2015  -+IN  Q+-%R2016
          | LEN |
          |00001|
          +-----+

(*****
* If slow speed is too small or at first scan
* load slow speed with default value.
*)

ALW_ON                                     << RUNG 32 STEP #0080 >>
%S0007 +-----+
+---] [---+ LT_ +-----+<+>
          | INT |
SLOWSPD |      |
%R2016  -+I1  Q+
CONST   -+I2  |
+00001  +-----+

+-----+                                     << RUNG 33 STEP #0083 >>
+<+>---+---+---+MOVE+---
          | INT |
FST_SCN |      | SLOWSPD
%S0001  -+CONST -+IN  Q+-%R2016
          | LEN |
          |00001|
          +-----+

(*****
* Every time high speed stops save current value for
* next start.
*)

STEP_9  FST_WEB HIGHLOW                  P+116 << RUNG 35 STEP #0087 >>
%M0109  %M0912  %M0671                  %T0116
+---] [-----] [-----] [-----] (v)-- (* Pulse + Save high speed *)

P+116                                     << RUNG 36 STEP #0091 >>
%T0116 +-----+
+---] [---+MOVE+---
          | INT |
SPD_OUT |      | HIGHSPD
%R2015  -+IN  Q+-%R2017
          | LEN |
          |00001|
          +-----+

(*****
* If high speed is NOT within the limits or
* a new volume is installed, the default values
* for high speed is loaded.
*)

ALW_ON                                     SPD_OK << RUNG 38 STEP #0094 >>
%S0007 +-----+                  %M0673
+---] [---+RANGE+-----+<+> ( )-- (* DRAC, High speed within limits *)
          | INT |
CONST   -+L1  Q+
+11000  |
CONST   -+L2  |
+26000  |
HIGHSPD |      |
%R2017  -+IN  |
          +-----+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%S0007	ALW_ON		%T0116	P+116	Pulse + Save high speed
%S0001	FST_SCN		%R2016	SLOWSPD	DRAC, Slow speed
%M0912	FST_WEB	JUM, Paper web fast speed	%M0673	SPD_OK	DRAC, High speed within limits
%M0671	HIGHLOW	DRAC, High or low spd main motor	%R2015	SPD_OUT	DRAC, Speed output
%R2017	HIGHSPD	DRAC, High speed	%M0109	STEP_9	Step 9 Production
%T0115	P+115	Pulse + Save slow speed			

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```
|SPD_OK
|M0673
+--]/[-----+MOVE+
|          |          |INT|
|P+103    |PAR_130    |   |HIGHSPD
|T0103    |%R0630    |IN Q+-%R2017
+--] [-----+
|          |          |LEN|
|          |          |00001|
|          |          +-----+
|
|[  END OF SUBROUTINE LOGIC  ]
```

<< RUNG 39 STEP #0097 >>

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%R2017	HIGHSPD	DRAC, High speed
%T0103	P+103	Pulse + New volume value

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%R0630	PAR_130	Start spd drive roller column
M0673	SPD_OK	DRAC, High speed within limits

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```

[ START LD SUBROUTINE BLK_27 ]
[ VARIABLE DECLARATIONS ]
[ START OF SUBROUTINE LOGIC ]

(*****
(* Block 27 "Superstructure" *)
*****)

(*****
(* Tube sealing *)
*****)

COND_1 P+001                                T_SEAL << RUNG 6 STEP #0004 >>
%M0121 %T0001                                %M0600
+--] [----] [-----]----- ( )-- (* SUP, Tube sealing going on *)

STEP_2 S911 T_END T_END
%M0102 %I0201 %M0603 %M0603
+--] [---] [----]/[---]/[---]
      TMR3_1 P+098
      %M0601 %T0098
+--] [-----+]/[---]

T_SEAL                                TMR3_1 << RUNG 7 STEP #0016 >>
%M0600 +-----+                                %M0601
+--] [---+ TMR +-----]----- ( )-- (* SUP, Tube sealing (>3s) *)
      |0.10s|
CONST +PV
+00030
+-----+
      TMR_3
      %R0106

ALW_ON                                TMR3_2 << RUNG 8 STEP #0019 >>
%S0007 +-----+                                %M0602
+--] [---+RANGE+-----]----- ( )-- (* SUP, Tube sealing (0-3s) *)
      |INT|
CONST +L1 Q+
+00001
CONST +L2
+00029
TMR_3
%R0106 +IN
+-----+

T_SEAL P+008                                T_END << RUNG 9 STEP #0022 >>
%M0600 %T0008                                %M0603
+--] [---+-----+-----]----- ( )-- (* SUP, Tube sealing ended *)
      |DCS_MIS|
      |%M1011|
      +-----+R
STEP_1 PAR_132
%M0101 %R0632 +PV
+--] [---+-----+
STEP_5 CNT_8
%M0105 %R0172
+--] [---+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%S0007	ALW_ON		%M0101	STEP_1	Step 1 Preparation
%R0172	CNT_8	CNT8, Tube sealing	%M0102	STEP_2	Step 2 Tube sealing
%M0121	COND_1	Step 1 Step up condition	%M0105	STEP_5	Step 5 Drying
%M1011	DCS_MIS	DCS, Missed register mark	%M0601	TMR3_1	SUP, Tube sealing (>3s)
%T0001	P+001	Pulse + Step up	%M0602	TMR3_2	SUP, Tube sealing (0-3s)
%T0008	P+008	Pulse + DCS register mark	%R0106	TMR_3	Tmr 3, Tight tube (0,10s)
%T0098	P+098	Pulse + Stop JUM after tube seal	%M0603	T_END	SUP, Tube sealing ended
%R0632	PAR_132	Dump pkg at tube sealing	%M0600	T_SEAL	SUP, Tube sealing going on
%I0201	S911	Step up			

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```

(*****
(* Longitudinal sealing
*****
STEP_1 S003 K029 << RUNG 11 STEP #0031 >>
%M0101 %I0206 %Q0148
+--] [-----] [---+-----] ( )-- (* TPIH generator LS *)

STEP_1 STP1_11
%M0101 %M0145
+--]/[-----] [---+

FST_WEB LS_SPD << RUNG 13 STEP #0038 >>
%M0912 +-----+ %M0610
+--] [---+ TMR +-----] (S)-- (* SUP, LS at production speed *)
|0.01s|
CONST -+PV
+00030
+-----+
DEL2800
%M2800

FST_WEB SLW_WEB LS_SPD << RUNG 14 STEP #0041 >>
%M0912 %M0911 +-----+ %M0610
+--]/[-----]/[---+ TMR +-----] (R)-- (* SUP, LS at production speed *)
|0.01s|
CONST -+PV
+00030
+-----+
DEL2803
%M2803

(*****
(* Movement of lower forming ring
*****
TMR1_13 Y1401 << RUNG 16 STEP #0046 >>
%M0213 %Q0227
+--] [-----] ( )-- (* Movable lower forming ring *)

STEP_0 B2201
%M0100 %I0242
+--] [-----] [---+

ST12_13
%M0151
+--] [-----]

STEP_0 Y1401 B1240 RESET LWFRRPOS << RUNG 17 STEP #0052 >>
%M0100 %Q0227 %I0260 %M3050 +-----+ %M0620
+--]/[---+ [-----] [---+]/[---+ TMR +-----] (S)-- (* SUP, Lower form. ring wrong pos. *)
|0.01s|
Y1401 B1240
%M0227 %I0260
+--]/[-----]/[---+ CONST -+PV
+00045
+-----+
DEL2827
%M2827

LWFRRPOS RESET LWFRRACK << RUNG 18 STEP #0062 >>
%M0620 %M3050 %M0622
+--] [-----] [-----] (S)-- (* SUP, Lower form. ring ackn. al. *)

Y1401 B1240 LWFRRACK LWFRRPOS << RUNG 19 STEP #0065 >>
%M0227 %I0260 %M0622 %M0620
+--] [-----]/[---+ [-----] (R)-- (* SUP, Lower form. ring wrong pos. *)

Y1401 B1240 LWFRRACK
%M0227 %I0260
+--]/[-----] [---+ (R)-- (* SUP, Lower form. ring ackn. al. *)

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0260	B1240	SUP, lower forming ring up	%M3050	RESET	Alarm reset
%I0242	B2201	Main air, Pressure	%I0206	S003	Service switch
%R2800	DEL2800	Delay,	%M0911	SLW_WEB	JUM, Paper web slow speed
%R2803	DEL2803	Delay,	%M0151	ST12_13	Step 12-13 Doors OK to cleaning
%R2827	DEL2827	Delay	%M0100	STEP_0	Step 0 Off
%M0912	FST_WEB	JUM, Paper web fast speed	%M0101	STEP_1	Step 1 Preparation
%Q0148	K029	TPIH generator LS	%M0145	STP1_11	Step 1-11 Prep. to venting
%M0610	LS_SPD	SUP, LS at production speed	%M0213	TMR1_13	Startseq, Lower forming (7-9,5)
%M0622	LWFRACK	SUP, Lower form. ring ackn. al.	%Q0227	Y1401	Movable lower forming ring
%M0620	LWFRPOS	SUP, Lower form. ring wrong pos.			

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```

(*****
(* Pulse enable signal for small volumes
*)
*****)

SPD8000 S003 STEP_2 LS_PULS LS_PULS << RUNG 21 STEP #0074 >>
%M0055 %I0206 %M0102 %M0611 %M0611
+---] [-----]/[-----]/[-----]/[-----] ( * SUP, Pulse LS pwr at small vols. *)

(*****
(* Enable signal to TPIH generator
*)
*****)

STEP_2 LS_SPD << RUNG 23 STEP #0080 >>
%M0102 %M0610 +-----+
+---] [-----] [-----] TMR +-----+
|0.10s|
CONST -+PV
+00030
+-----+
DEL2830
%M2830

COL_ROT AUX_LS << RUNG 24 STEP #0084 >>
%M0631 %M0616
+<+>-----] [-----] ( )-- ( * SUP, AUX enable TPIH gener.LS *)

STEP_2 LS_SPD
%M0102 %M0610
+---]/[-----] [-----]

TMR1_14
%M0214
+---] [-----]

AUX_LS LS_PULS A501_20 << RUNG 25 STEP #0091 >>
%M0616 %M0611 %Q0205
+---] [-----]/[-----] ( )-- ( * TPIH generator LS, Enable *)

(*****
(* Faults on TPIH generator
*)
*****)

K029 << RUNG 27 STEP #0095 >>
%Q0148 +-----+ +-----+
+---] [-----] +-----] TMR +-----+
|0.01s| |0.01s|
CONST -+PV CONST -+PV
+00100 +00050
+-----+ +-----+
DEL2806 DEL2809
%M2806 %M2809

A501_23 LSFault << RUNG 28 STEP #0099 >>
%I0187 %M0612
+<+>-----] [-----] ( )-- ( * SUP, Fault LS TPIH generator *)

(*****
(* Set default power values LS.
*)
*****)

TPSUP02 << RUNG 30 STEP #0103 >>
%M3178 +-----+ +-----+ +-----+
+---] [-----] +-----] +-----]
|MOVE| |MOVE| |MOVE|
|INT| |INT| |INT|
GEN_13 PAR_138 LST_PWR PAR_139 LSP_PWR PAR_140 LSS_PWR
%M3061 %R0638 -+IN Q+ %R8598 %R0639 -+IN Q+ %R8599 %R0640 -+IN Q+ %R8600
+---] [-----] +-----] +-----]
|LEN| |LEN| |LEN|
|00001| |00001| |00001|
P+103
%T0103
+---] [-----] +-----] +-----]

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%Q0205	A501_20	TPIH generator LS, Enable	%R8598	LST_PWR	Power TPIH LS tight tube
%I0187	A501_23	TPIH Generator LS, Fault	%M0611	LS_PULS	SUP, Pulse LS pwr at small vols.
%M0616	AUX_LS	SUP, AUX enable TPIH gener.LS	%M0610	LS_SPD	SUP, LS at production speed
%M0631	COL_ROT	SUP, Rotation monitor column	%T0103	P+103	Pulse + New volume value
%R2806	DEL2806	Delay,	%R0638	PAR_138	Default val.LS pwr at tube seal
%R2809	DEL2809	Delay,	%R0639	PAR_139	Default val. LS pwr Production
%R2830	DEL2830	Delay,	%R0640	PAR_140	Default val. LS pwr in Service
%M3061	GEN_13	General default push button	%I0206	S003	Service switch
%Q0148	K029	TPIH generator LS	%M0055	SPD8000	8000 packages per hour
%M0612	LSFAULT	SUP, Fault LS TPIH generator	%M0102	STEP_2	Step 2 Tube sealing
%R8599	LSP_PWR	Power TPIH LS production	%M0214	TMR1_14	Startseq, Preheat. LS (8,4-9,5)
%R8600	LSS_PWR	Power TPIH LS service	%M3178	TPSUP02	Default LS power TPIH

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```

(*****
* Power at tight tube
*****
STEP_2 AUX_LS                                     << RUNG 32 STEP #0110 >>
%M0102 %M0616 +-----+
+---] [-----] [---+MOVE_+
                |INT|
LST_PWR | LS_WATT
%M8598  -+IN Q+-%R2005
                |LEN|
                |00001|
                +-----+

(*****
* Power at production
*****
STEP_2 S003                                     << RUNG 34 STEP #0114 >>
%M0102 %I0206 +-----+
+---]/[-----]/[---+MOVE_+
                |INT|
AUX_LS | LSP_PWR | LS_WATT
%M0616 | %R8599 -+IN Q+-%R2005
+---]/[-----+
                |LEN|
                |00001|
                +-----+

(*****
* Power at service
*****
S003                                     << RUNG 36 STEP #0119 >>
%I0206 +-----+
+---] [---+MOVE_+
                |INT|
LSS_PWR | LS_WATT
%M8600  -+IN Q+-%R2005
                |LEN|
                |00001|
                +-----+

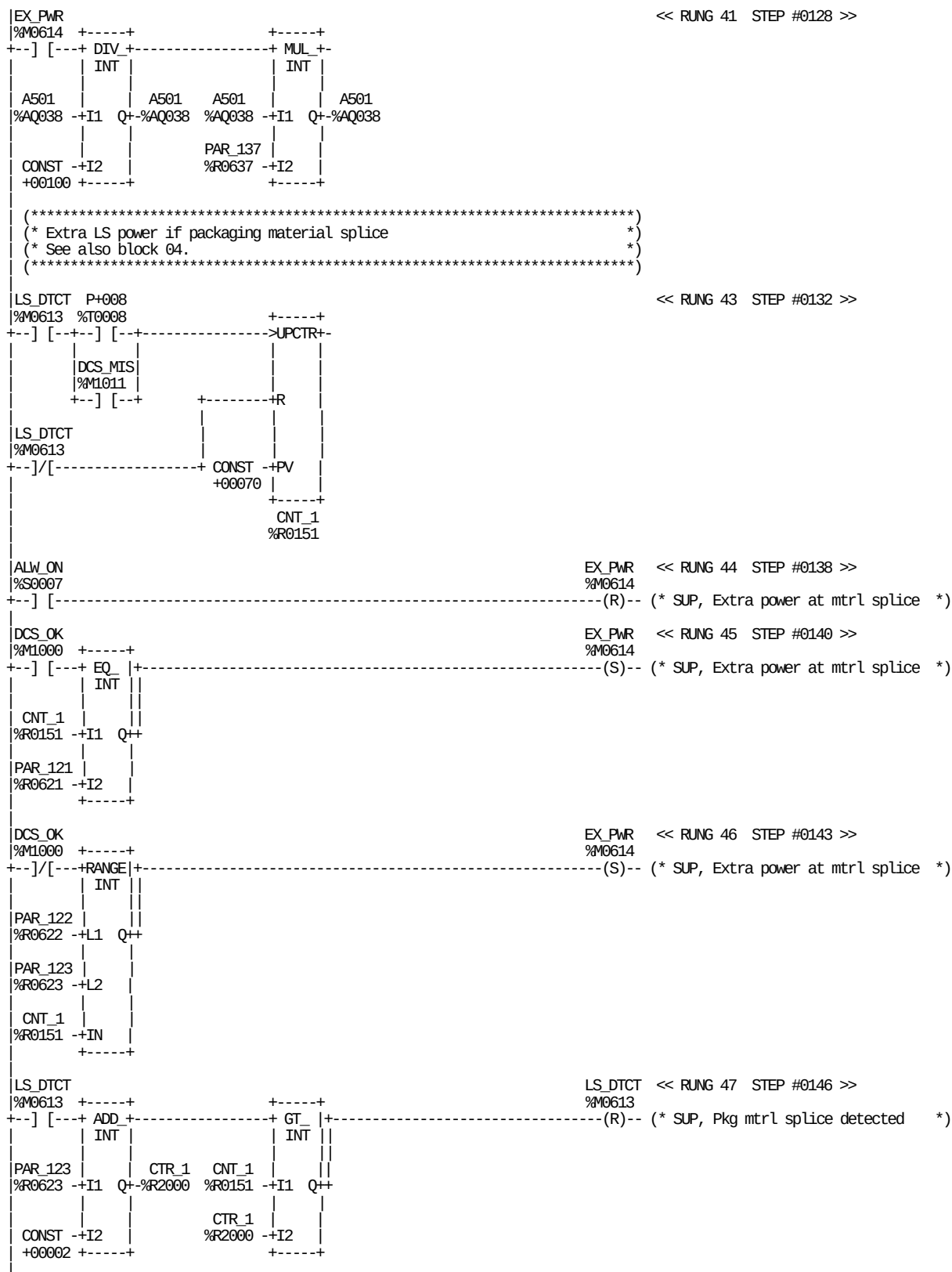
(*****
* Multiply the scaleunits with 32.
* Analogue output is 0-32000.
*****
ALW_ON                                     << RUNG 38 STEP #0122 >>
%S0007 +-----+
+---] [---+MUL_+
                |INT|
LS_WATT | A501
%M2005  -+I1 Q+-%AQ038
                |
CONST -+I2 |
+00032 +-----+

(*****
* Power in start sequence (80% of prod)
* Power at packaging material splice (130% of prod)
*****
TMR1_14                                     << RUNG 40 STEP #0125 >>
%M0214 +-----+
+---] [---+DIV_+
                |INT|
A501 | A501 | A501 | A501
%M0214 -+I1 Q+-%AQ038 %AQ038 -+I1 Q+-%AQ038
                |
CONST -+I2 |
+00100 +-----+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%AQ038	A501	TPIH generator LS	%R8598	LST_PWR	Power TPIH LS tight tube
%S0007	ALW_ON		%R2005	LS_WATT	SUP, LS power in watt
%M0616	AUX_LS	SUP, AUX enable TPIH gener.LS	%I0206	S003	Service switch
%R8599	LSP_PWR	Power TPIH LS production	%M0102	STEP_2	Step 2 Tube sealing
%R8600	LSS_PWR	Power TPIH LS service	%M0214	TMR1_14	Startseq, Preheat. LS (8,4-9,5)

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REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%Q038	A501	TPIH generator LS
%S0007	ALW_ON	
%R0151	CNT_1	CNT1, Extra pwr at mtrl splice
%R2000	CTR_1	SUP, Counter 1 reset
%M1011	DCS_MIS	DCS, Missed register mark
%M1000	DCS_OK	DCS, Machine in design
%M0614	EX_PWR	SUP, Extra power at mtrl splice

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M0613	LS_DTCT	SUP, Pkg mtrl splice detected
%T0008	P+008	Pulse + DCS register mark
%R0621	PAR_121	Pkg LS ext. pwr. ASU spl (design)
%R0622	PAR_122	Start pkg LS ext. pwr. ASU spl.
%R0623	PAR_123	Stop pkg LS ext. pwr. ASU spl.
%R0637	PAR_137	LS extra pwr. (% of LS pwr.)

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```

(*****
* Detection of packaging material splice inside peroxide bath.
* In case of Short stop and packaging material splice is inside bath,
* program will jump to step 5.
*****)

LS_DTCT                                     << RUNG 49 STEP #0151 >>
%MO613 +-----+                         +-----+
+---] [---+ ADD +-----+ SUB +-----+
          INT |                         INT |
PAR_162 | INBATH | PAR_168 | INBATH |
%R0662 -+I1 | Q+-%R2050 | %R0668 -+I1 | Q+-%R2050 |
PAR_163 | | INBATH | | |
%R0663 -+I2 | | %R2050 | -+I2 | |
          +-----+                         +-----+

LS_DTCT                                     << RUNG 50 STEP #0154 >>
%MO613 +-----+                         +-----+
+---] [---+ SUB +-----+ ADD +-----+
          INT |                         INT |
PAR_168 | OUTBATH | OUTBATH | OUTBATH |
%R0668 -+I1 | Q+-%R2051 | %R2051 -+I1 | Q+-%R2051 |
PAR_162 | | | PAR_169 | |
%R0662 -+I2 | | %R0669 -+I2 | |
          +-----+                         +-----+

LS_DTCT                                     ASUBATH << RUNG 51 STEP #0157 >>
%MO613 +-----+                         %MO633
+---] [---+ RANGE +-----+ ( )-- (* SUP, pkg. matrl. splice inside bath *)
          INT | |
INBATH | | |
%R2050 -+L1 | Q+-+
OUTBATH | |
%R2051 -+L2 |
CNT_1 |
%R0151 -+IN |
          +-----+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%MO633	ASUBATH	SUP, pkg. matrl. splice inside bath	%R0662	PAR_162	Dump Pox bath, offset
%R0151	CNT_1	CNT1, Extra pwr at mtrl splice	%R0663	PAR_163	Dump Pox bath, packs
%R2050	INBATH	SUP, pkg mat. splice inside bath	%R0668	PAR_168	Dump paper splice, offset
%MO613	LS_DTCT	SUP, Pkg mtrl splice detected	%R0669	PAR_169	Dump paper splice, packs
%R2051	OUTBATH	SUP, pkg mat. splice outside bath			

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```

(*****
(* Superstructure auxiliary
*****
)

RESET                                     SQUEEGEE << RUNG 53 STEP #0161 >>
%M3050                                     %M0630
+--] [-----] (R)-- (* SUP, Squee-gee roller position *)

STEP_0 Y1502                             << RUNG 54 STEP #0163 >>
%M0100 %Q0236 +-----+
+--]/[-----] [---+ TMR +-----+<+>
|0.10s|
CONST -+PV
+00040
+-----+
DEL2812
%R2812

B1502                                     SQUEEGEE << RUNG 55 STEP #0167 >>
%I0245                                     %M0630
+-----] [-----] (S)-- (* SUP, Squee-gee roller position *)

RESET                                     COL_ROT << RUNG 56 STEP #0170 >>
%M3050                                     %M0631
+--] [-----] (R)-- (* SUP, Rotation monitor column *)

STEP_1 STP1_11 FST_WEB                   << RUNG 57 STEP #0172 >>
%M0101 %M0145 %M0912 +-----+
+--]/[-----] [---+ TMR +-----+<+>
|0.10s|
STEP_1 S003
%M0101 %I0206
+--] [-----] [---+ CONST -+PV
+00013
+-----+
DEL2818
%R2818

P+012                                     COL_ROT << RUNG 58 STEP #0180 >>
%T0012 +-----+                                     %M0631
+-----] [-----] (S)-- (* SUP, Rotation monitor column *)
+--]/[-----] [---+ TMR +-----+
|0.10s|
CONST -+PV
+00005
+-----+
DEL2821
%R2821

RESET                                     DU_REG << RUNG 59 STEP #0184 >>
%M3050                                     %M0632
+--] [-----] (R)-- (* SUP, Register mark date unit *)

STP2_9 OPTRK_3 OPT_041 OPT_EDU P+010 FST_WEB DU_REG << RUNG 60 STEP #0186 >>
%M0142 %M4000 %I0121 %I0117 %T0010 %M0912 +-----+                                     %M0632
+--] [-----] [-----] [-----] [-----] [---+ TMR +-----] (S)-- (* SUP, Register mark date unit *)
|0.10s|
CONST -+PV
+00030
+-----+
DEL2824
%R2824

PT_TBFO OPT_041                         Y1601 << RUNG 61 STEP #0194 >>
%G0906 %I0121                         %Q0240
+--] [-----] [-----] ( )-- (* SUP, Tab folder *)

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0245	B1502	Movable squeegee roller	%T0012	P+012	Pulse + Column, Rotation monitor
%M0631	COL_ROT	SUP, Rotation monitor column	%G0906	PT_TBFO	From PT21, Tab folder ON
%R2812	DEL2812	Delay,	%M3050	RESET	Alarm reset
%R2818	DEL2818	Delay,	%I0206	S003	Service switch
%R2821	DEL2821	Delay,	%M0630	SQUEEGEE	SUP, Squee-gee roller position
%R2824	DEL2824	Delay,	%M0100	STEP_0	Step 0 Off
%M0632	DU_REG	SUP, Register mark date unit	%M0101	STEP_1	Step 1 Preparation
%M0912	FST_WEB	JUM, Paper web fast speed	%M0145	STP1_11	Step 1-11 Prep. to venting
%M4000	OPTRK_3	TBA21 050V field test	%M0142	STP2_9	Step 2-9 Tube sealing to prod.
%I0121	OPT_041	Option, 041V functionality	%Q0236	Y1502	Movable squeegee roller
%I0117	OPT_EDU	Option, External date unit	%Q0240	Y1601	SUP, Tab folder
%T0010	P+010	Pulse + Date unit register mark			

TBA/21-0410/0500
BLOCK: SUPERSTRUCTURE

```

(*****
(* Alarms superstructure *)
*****)

|SQUEGEE                                SUPER_1 << RUNG 63 STEP #0198 >>
|%M0630                                %M3665
+--] [-----] [-----] ( )-- (* Squee-gee rollers, Position *)

|LWFRPOS                                SUPER_2 << RUNG 64 STEP #0200 >>
|%M0620                                %M3666
+--] [-----] [-----] ( )-- (* SUP, lower forming ring position *)

|STEP_0 LSFALT                          SUPER_3 << RUNG 65 STEP #0202 >>
|%M0100 %M0612                          %M3667
+--] [-----] [-----] ( )-- (* Longitudinal sealing *)

|DU_REG                                SUPER_4 << RUNG 66 STEP #0205 >>
|%M0632                                %M3668
+--] [-----] [-----] ( )-- (* Date unit, Register mark *)

|DRACOVL                                SUPER_5 << RUNG 67 STEP #0207 >>
|%M0672                                %M3669
+--] [-----] [-----] ( )-- (* Drive roller A.C. overload *)

|COL_ROT                                SUPER16 << RUNG 68 STEP #0209 >>
|%M0631                                %M3680
+--] [-----] [-----] ( )-- (* Column, Rotation monitor *)

| [ END OF SUBROUTINE LOGIC ]

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M0631	COL_ROT	SUP, Rotation monitor column	%M3680	SUPER16	Column, Rotation monitor
%M0672	DRACOVL	DRAC, Drive roller overload	%M3665	SUPER_1	Squee-gee rollers, Position
%M0632	DU_REG	SUP, Register mark date unit	%M3666	SUPER_2	SUP, lower forming ring position
%M0612	LSFAULT	SUP, Fault LS TPIH generator	%M3667	SUPER_3	Longitudinal sealing
%M0620	LWFRPOS	SUP, Lower form. ring wrong pos.	%M3668	SUPER_4	Date unit, Register mark
%M0630	SQUEGEE	SUP, Squee-gee roller position	%M3669	SUPER_5	Drive roller A.C. overload
%M0100	STEP_0	Step 0 Off			

TBA/21-0410/0500
BLOCK: SUPERSTRUCTURE

```

[ START LD SUBROUTINE BLK_28 ]
[ VARIABLE DECLARATIONS ]
[ START OF SUBROUTINE LOGIC ]

(*****
* Block 28 "Filling"
*****
)

(*****
* Setting conditions for regulating valve fully open:
* - Sterilization
* - When C valve moves
* - CIP ON
* - CIP interrupted
*****
)

Y1303 P+130 << RUNG 6 STEP #0004 >>
%Q0225 %T0130
+--] [------(^)-- (* Pulse + C valve moves upwards *)

Y1303 P-131 << RUNG 7 STEP #0006 >>
%Q0225 %T0131
+--] [------(v)-- (* Pulse - C valve moves downwards *)

N_STOP P+132 << RUNG 8 STEP #0008 >>
%M0180 %T0132
+--] [------(^)-- (* Pulse + Open reg.valve at nor.st *)

P+130 << RUNG 9 STEP #0010 >>
%T0130 +-----+
+--] [---+OFDT +-----<+>
      |0.10s|
      +-----+
CONST -+PV |
+00050 |
      +-----+
      DEL2921
      %R2921

Y1312 RVOPN_1 << RUNG 10 STEP #0013 >>
%Q0237 %M0640
+<+>---]/[------( )-- (* FIL, reg.v. open when C upwards *)

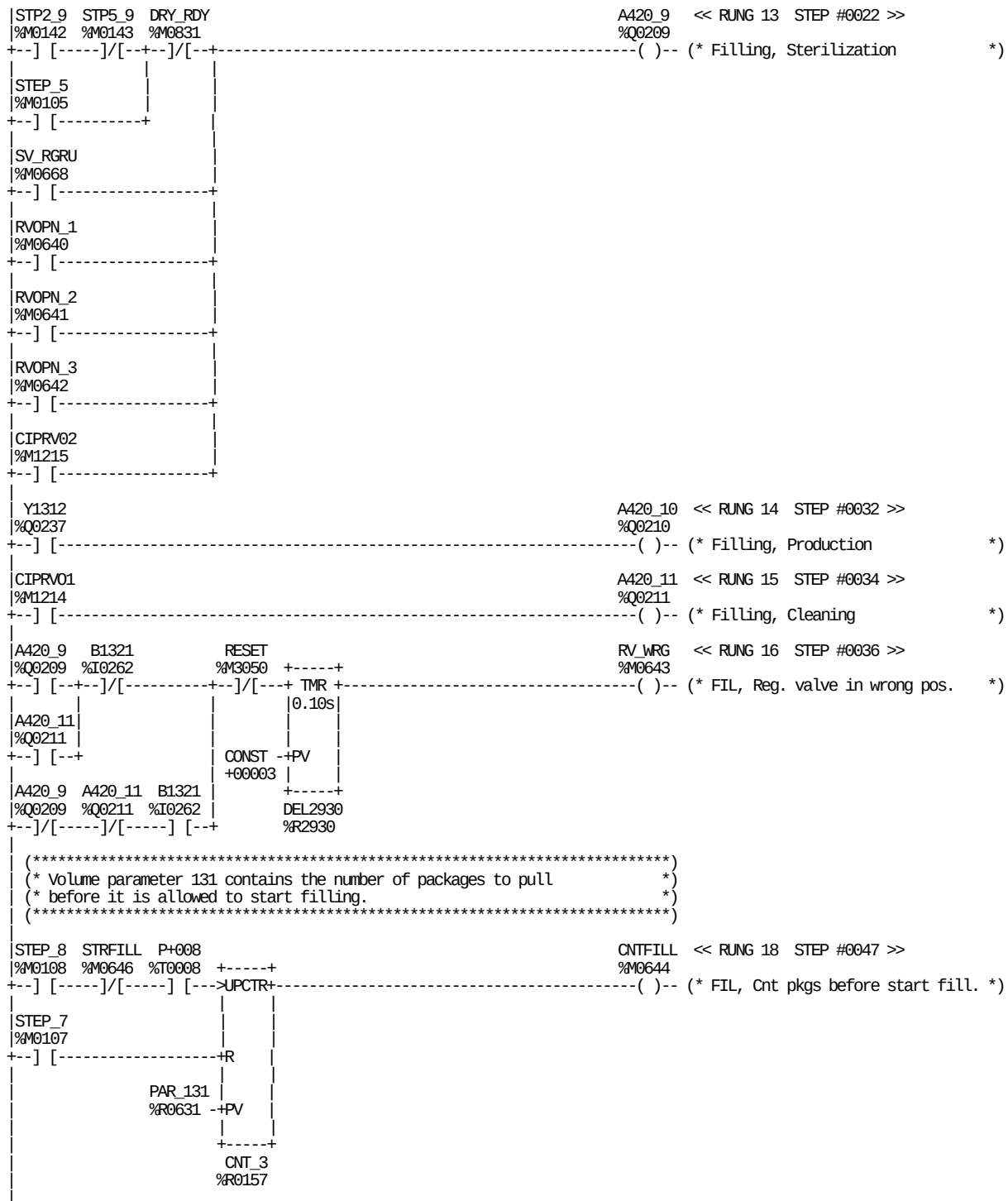
P-131 RVOPN_2 << RUNG 11 STEP #0016 >>
%T0131 +-----+ %M0641
+--] [---+OFDT +------( )-- (* FIL, reg.v. open when C downwards *)
      |0.10s|
      +-----+
CONST -+PV |
+00150 |
      +-----+
      DEL2924
      %R2924

P+132 RVOPN_3 << RUNG 12 STEP #0019 >>
%T0132 +-----+ %M0642
+--] [---+OFDT +------( )-- (* FIL, reg.v. open when N.Stop ON *)
      |0.10s|
      +-----+
CONST -+PV |
+00100 |
      +-----+
      DEL2927
      %R2927

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%R2921	DEL2921	Delay,	%T0131	P-131	Pulse - C valve moves downwards
%R2924	DEL2924	Delay,	%M0640	RVOPN_1	FIL, reg.v. open when C upwards
%R2927	DEL2927	Delay,	%M0641	RVOPN_2	FIL, reg.v. open when C downwards
%M0180	N_STOP	Normal stop	%M0642	RVOPN_3	FIL, reg.v. open when N.Stop ON
%T0130	P+130	Pulse + C valve moves upwards	%Q0225	Y1303	C - Valve
%T0132	P+132	Pulse + Open reg.valve at nor.st	%Q0237	Y1312	A - Valve

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BLOCK: FILLING



REFERENCE	NICKNAME
%Q0210	A420_10
%Q0211	A420_11
%Q0209	A420_9
%I0262	B1321
%M1215	CIPRV02
%M1214	CIPRV01
%M0644	CNTFILL
%R0157	CNT_3
%R2930	DEL2930
%M0831	DRY_RDY
%T0008	P+008
%R0631	PAR_131
%M3050	RESET

REFERENCE DESCRIPTION
Filling, Production
Filling, Cleaning
Filling, Sterilization
Regulating valve, Position
CIP, Reg.v.open cip int/dry 2bar
CIP, Reg.v.open at cip on (4bar)
FIL, Cnt pkgs before start fill.
CNT3, Start filling
Delay,
AIR, Drying ready aseptic chamb
Pulse + DCS register mark
Dump pkg before filling allowed
Alarm reset

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M0640	RVOPN_1	FIL, reg.v. open when C upwards
%M0641	RVOPN_2	FIL, reg.v. open when C downwards
%M0642	RVOPN_3	FIL, reg.v. open when N.Stop ON
%M0643	RV_WRG	FIL, Reg. valve in wrong pos.
%M0105	STEP_5	Step 5 Drying
%M0107	STEP_7	Step 7 Signal from sterilizer
%M0108	STEP_8	Step 8 Motorstart
%M0142	STP2_9	Step 2-9 Tube sealing to prod.
%M0143	STP5_9	Step 5-9 Drying to prod.
%M0646	STRFILL	FIL, Filling allowed to start
%M0668	SV_RGRU	FIL, Reg. valve running
%Q0237	Y1312	A - Valve

TBA/21-0410/0500
BLOCK: FILLING

```

{*****}
{* Sector definition for filling allowed to start *}
{*****}

GEN_13                                     << RUNG 20 STEP #0054 >>
%M3061                                     +-----+
+-] [---+-----+MOVE+
      |          |INT|
TPFIL09|          |
%M3200 |PAR_114   |FIL_ON
+-] [---+%R0614 -+IN Q+-%R8597
      |          |LEN|
P+103  |          |00001|
%T0103 |          |
+-] [---+-----+

ALW_ON                                     << RUNG 21 STEP #0058 >>
%S0007                                     +-----+
+-] [---+ADD+
      |          |INT|
FIL_ON |          |FIL_OFF
%R8597 -+I1 Q+-%R2045
      |          |
CONST -+I2 |
+00016 +-----+

FST_WEB A418_31                           IN_SECT << RUNG 22 STEP #0060 >>
%M0912 %I0166                             %M0645
+-] [-----] [---+RANGE+-----+-----+ (* FIL, Filling sector OK *)
      |          |INT|
      |          ||
FIL_ON |          ||
%R8597 -+L1 Q++
      |          ||
FIL_OFF|          ||
%R2045 -+L2
      |          ||
SEC_127|          ||
%R0002 -+IN
      |          ||
      +-----+

FST_WEB A418_31                           IN_SECT << RUNG 23 STEP #0064 >>
%M0912 %I0166                             %M0645
+-] [-----]/[---+RANGE+-----+-----+ (* FIL, Filling sector OK *)
      |          |INT|
      |          ||
FIL_ON |          ||
%R8597 -+L1 Q++
      |          ||
FIL_OFF|          ||
%R2045 -+L2
      |          ||
SEC_127|          ||
%R0002 -+IN
      |          ||
      +-----+

STEP_8 CNTFILL IN_SECT                   STRFILL << RUNG 24 STEP #0068 >>
%M0108 %M0644 %M0645                     %M0646
+-] [-----] [-----] [-----+-----+ (* FIL, Filling allowed to start *)

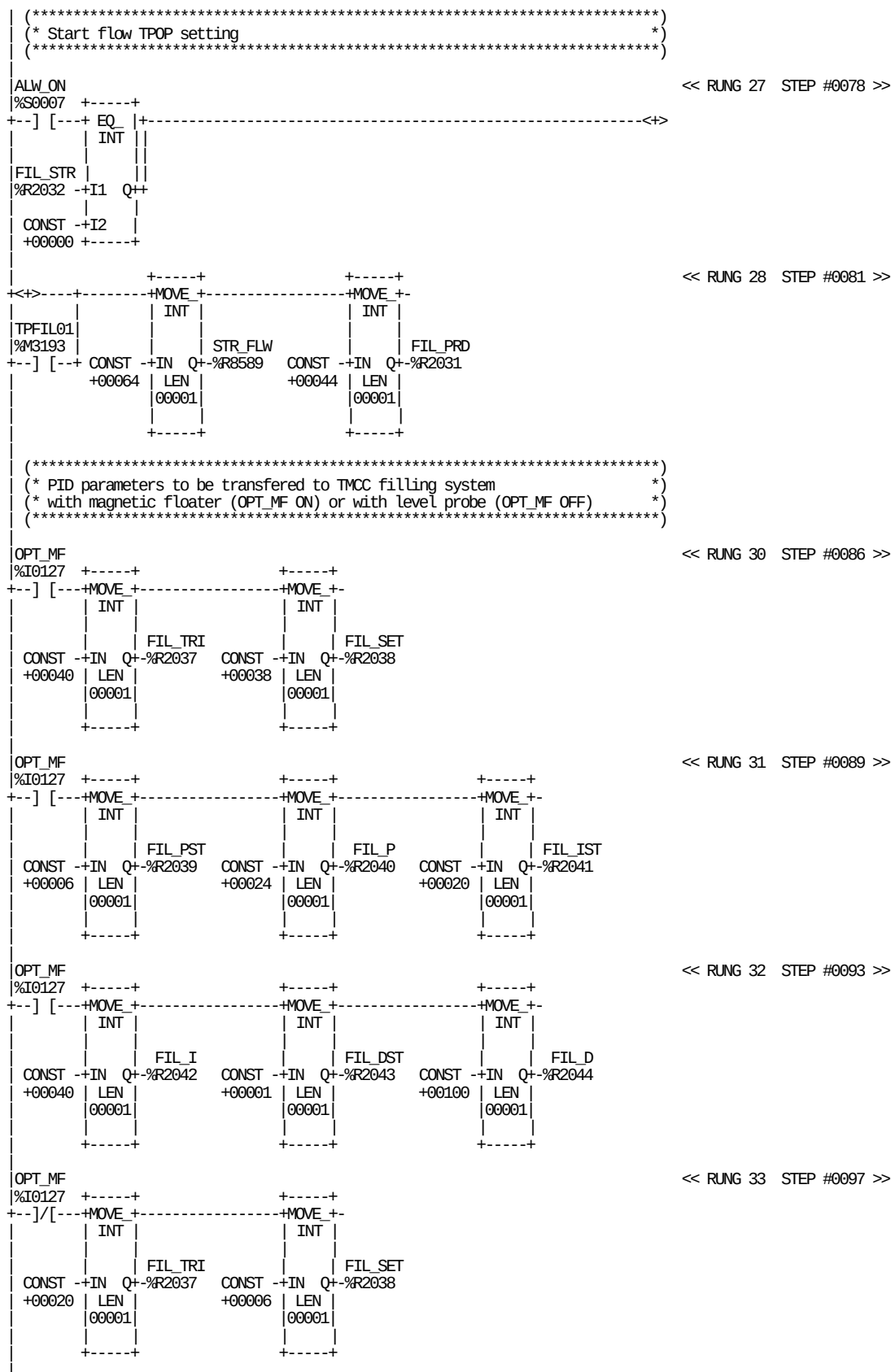
STEP_8 STEP_9 S_STOP                     STRFILL << RUNG 25 STEP #0072 >>
%M0108 %M0109 %M0171                     %M0646
+-]/[-----]/[-----]/[-----+-----+ (* FIL, Filling allowed to start *)

M_FILOF
%M0669
+-] [-----+

```

REFERENCE	NICKNAME	REFERENCE	DESCRIPTION	REFERENCE	NICKNAME	REFERENCE	DESCRIPTION
%T0166	A418_31		TMCC DCS, Register mark signal	%T0103	P+103		Pulse + New volume value
%S0007	ALW_ON			%R0614	PAR_114		Sector, start filling
%M0644	CNTFILL		FIL, Cnt pkgs before start fill.	%R0002	SEC_127		Angle sector (0-127 decimal deg)
%R2045	FIL_OFF		FIL, Filling sector stop	%M0108	STEP_8		Step 8 Motorstart
%R8597	FIL_ON		Filling sector (start)	%M0109	STEP_9		Step 9 Production
%M0912	FST_WEB		JUM, Paper web fast speed	%M0646	STRFILL		FIL, Filling allowed to start
%M3061	GEN_13		General default push button	%M0171	S_STOP		Short stop on
%M0645	IN_SECT		FIL, Filling sector OK	%M3200	TPFIL09		Default start filling sector
%M0669	M_FILOF		FIL, Manual filling off				

TBA/21-0410/0500
BLOCK: FILLING

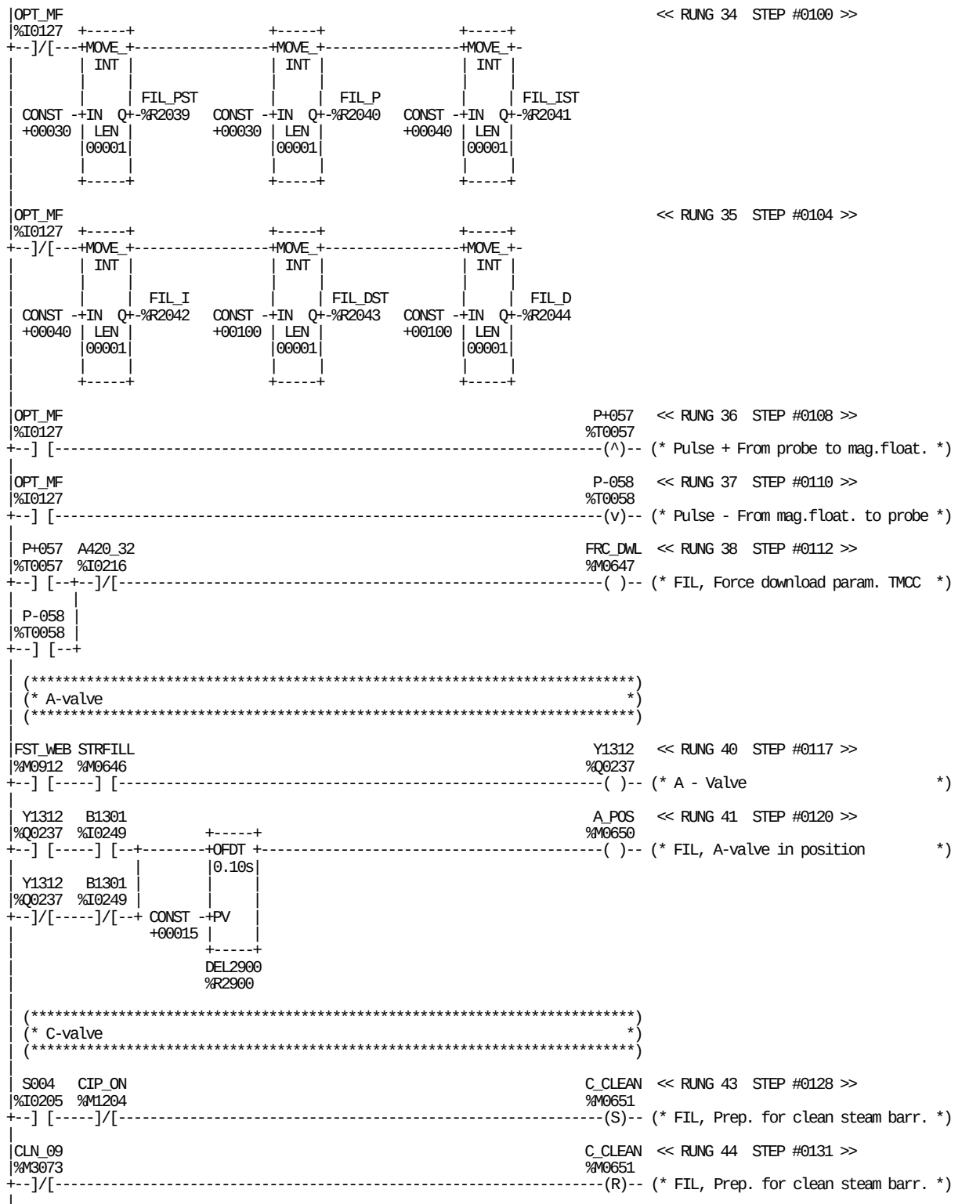


REFERENCE NICKNAME
 %SQ007 ALW_ON
 %R2044 FIL_D
 %R2043 FIL_DST
 %R2042 FIL_I
 %R2041 FIL_IST
 %R2040 FIL_P
 %R2031 FIL_PRD

REFERENCE DESCRIPTION
 FIL, D constant
 FIL, Steady D constant
 FIL, I constant
 FIL, Steady I constant
 FIL, P constant
 FIL, Production flow

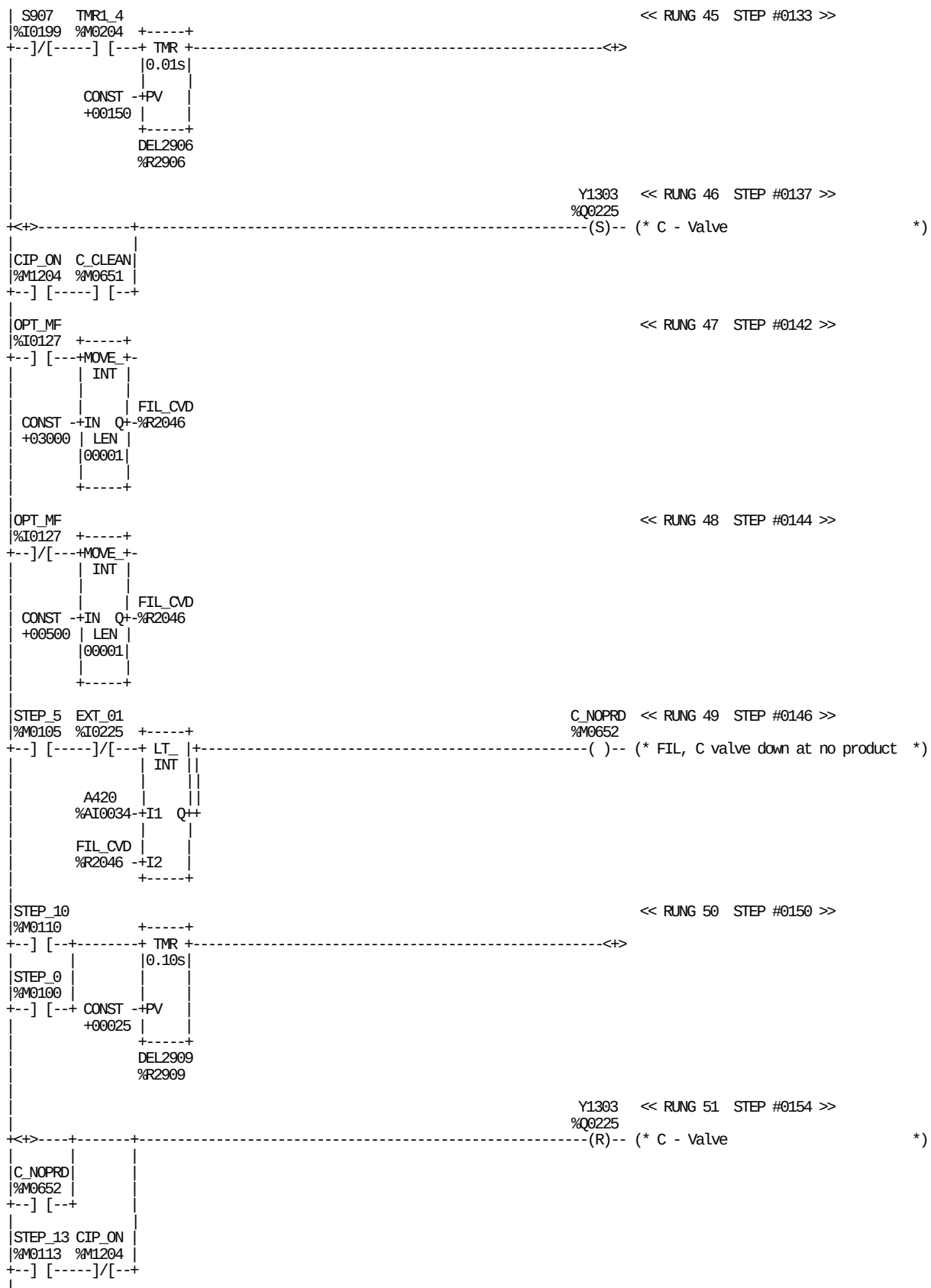
REFERENCE NICKNAME
 %R2039 FIL_PST
 %R2038 FIL_SET
 %R2032 FIL_STR
 %R2037 FIL_TRI
 %IO127 OPT_MF
 %R8589 STR_FLW
 %M3193 TPFIL01

REFERENCE DESCRIPTION
 FIL, Steady P constant
 FIL, Miscellaneous settings
 FIL, Start flow
 FIL, PID trigger level
 Option, Magnetic floater
 FIL, Filling start flow
 Default filling start flow



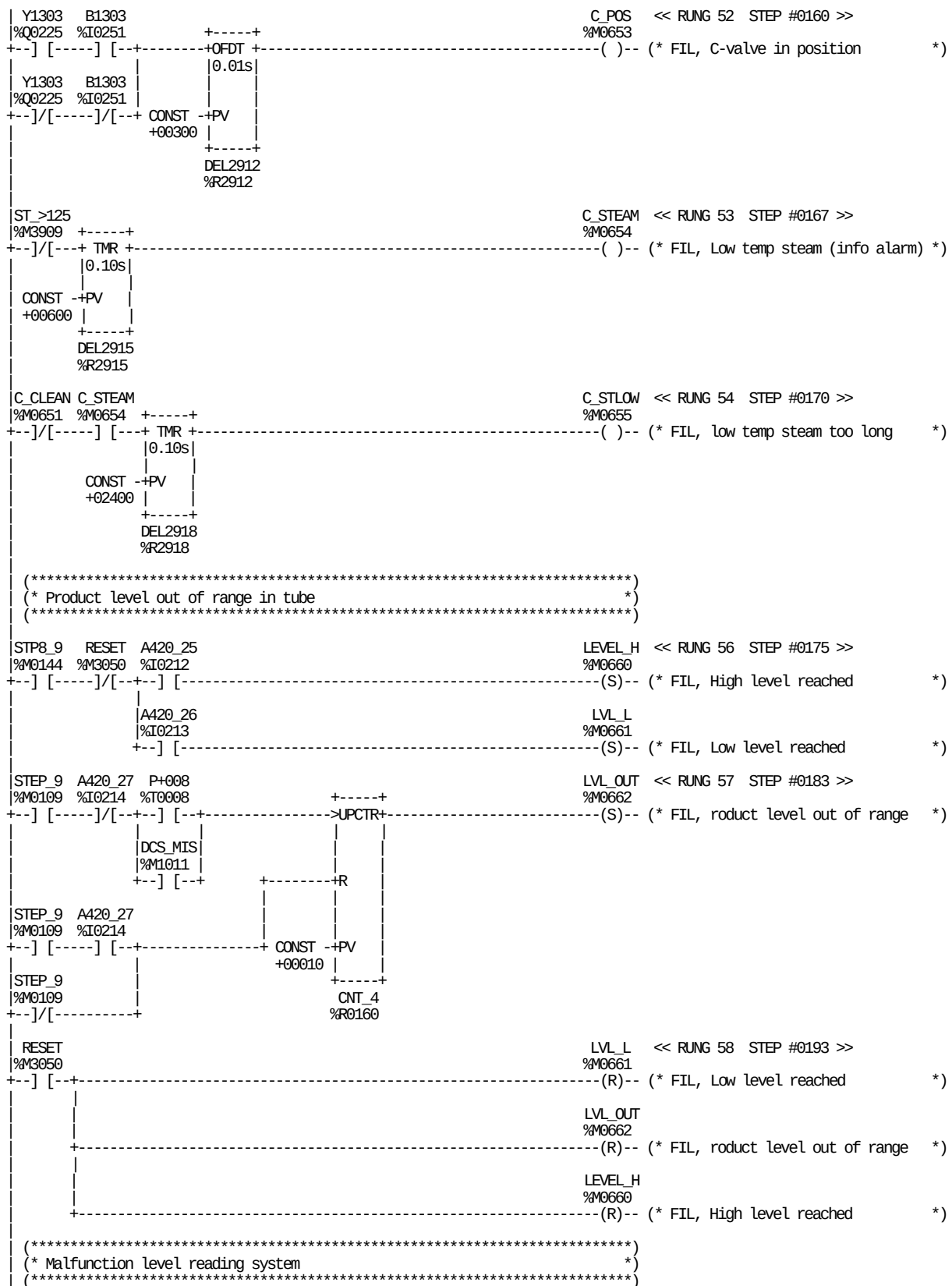
REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0216	A420_32	TMCC Filling, Data request	%R2040	FIL_P	FIL, P constant
%M0650	A_POS	FIL, A-valve in position	%R2039	FIL_PST	FIL, Steady P constant
%I0249	B1301	A - Valve, Position	%M0647	FRC_DWL	FIL, Force download param. TMCC
%M1204	CIP_ON	CIP, TBA21 ready for CIP	%M0912	FST_WEB	JUM, Paper web fast speed
%M3073	CLN_09	Clean, CIP select	%I0127	OPT_MF	Option, Magnetic floater
%M0651	C_CLEAN	FIL, Prep. for clean steam barr.	%T0057	P+057	Pulse + From probe to mag.float.
%R2900	DEL2900	Delay,	%T0058	P-058	Pulse - From mag.float. to probe
%R2044	FIL_D	FIL, D constant	%I0205	S004	Cleaning steam barrier space
%R2043	FIL_DST	FIL, Steady D constant	%M0646	STRFILL	FIL, Filling allowed to start
%R2042	FIL_I	FIL, I constant	%Q0237	Y1312	A - Valve
%R2041	FIL IST	FIL, Steady I constant			

TBA/21-0410/0500
BLOCK: FILLING



REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%AI0034	A420	Filling, Level in tube	%I0127	OPT_MF	Option, Magnetic floater
%M1204	CIP_ON	CIP, TBA21 ready for CIP	%I0199	S907	Inching JUM and FFU
%M0651	C_CLEAN	FIL, Prep. for clean steam barr.	%M0100	STEP_0	Step 0 Off
%M0652	C_NOPRD	FIL, C valve down at no product	%M0110	STEP_10	Step 10 Production ended
%R2906	DEL2906	Delay,	%M0113	STEP_13	Step 13 Cleaning
%R2909	DEL2909	Delay,	%M0105	STEP_5	Step 5 Drying
%I0225	EXT_01	Dairy, Ready for production	%M0204	TMR1_4	Startseq, Ended (>10,00)
%R2046	FIL_CVD	FIL, C-valve down at no product	%Q0225	Y1303	C - Valve

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BLOCK: FILLING



REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0212	A420_25	TMCC Filling, High level	%R2915	DEL2915	Delay,
%I0213	A420_26	TMCC Filling, Low level	%R2918	DEL2918	Delay,
%I0214	A420_27	TMCC Filling, Filling OK	%M0660	LEVEL_H	FIL, High level reached
%I0251	B1303	C - Valve, Position	%M0661	LVL_L	FIL, Low level reached
%R0160	CNT_4	CNT4, Wrong prod. level in tube	%M0662	LVL_OUT	FIL, rduct level out of range
%M0651	C_CLEAN	FIL, Prep. for clean steam barr.	%T0008	P+008	Pulse + DCS register mark
%M0653	C_POS	FIL, C-valve in position	%M3050	RESET	Alarm reset
%M0654	C_STEAM	FIL, Low temp steam (info alarm)	%M0109	STEP_9	Step 9 Production
%M0655	C_STLOW	FIL, low temp steam too long	%M0144	STP_8_9	Step 8-9 Motorstart to prod.
%M1011	DCS_MIS	DCS, Missed register mark	%M3909	ST_>125	Steam, Temp OK (>125)
%R2912	DEL2912	Delay.	%Q0225	Y1303	C - Valve

TBA/21-0410/0500
BLOCK: FILLING

```

ALW_ON          MALREAD << RUNG 60 STEP #0198 >>
%S0007          %M0663
[---] [-----] (R)-- (* FIL, Malf. level reading system *)

OPT_MF STP1_11  MALREAD << RUNG 61 STEP #0200 >>
%i0127 %M0145   %M0663
[---] [-----] [---] LT_+----- (S)-- (* FIL, Malf. level reading system *)
          INT_+
          |
          A420
          %AI0034--+I1 Q++
          |
          CONST -+I2 |
          +01000 +-----+

OPT_MF STP1_3   S003  MALREAD << RUNG 62 STEP #0204 >>
%i0127 %M0140 %I0206 %M0663
[---]/[---] [---]/[---] +----- (S)-- (* FIL, Malf. level reading system *)
          |          |          |
          STEP_5 FST_WEB A420
          %M0105 %M0912 %AI0034--+I1 Q++
          +---] [-----]/[---]
          |
          CONST -+I2 |
          +30000 +-----+

(*****
* Open regulating valve for service
*****)

TPFIL04 B2201    SV_RGAL << RUNG 64 STEP #0214 >>
%M3196 %I0242    %M0667
[---] [-----] [---] ( )-- (* FIL, Reg. valve allowed to start *)

SV_RGAL S911     SV_RGRU << RUNG 65 STEP #0217 >>
%M0667 %I0201    %M0668
[---] [-----] [---] (S)-- (* FIL, Reg. valve running *)

STEP_0          SV_RGRU << RUNG 66 STEP #0220 >>
%M0100          %M0668
[---] [-----] (R)-- (* FIL, Reg. valve running *)

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%AI0034	A420	Filling, Level in tube	%M0100	STEP_0	Step 0 Off
%S0007	ALW_ON		%M0105	STEP_5	Step 5 Drying
%I0242	B2201	Main air, Pressure	%M0145	STP1_11	Step 1-11 Prep. to venting
%M0912	FST_WEB	JUM, Paper web fast speed	%M0140	STP1_3	Step 1-3 Prep. to heatster.
%M0663	MALREAD	FIL, Malf. level reading system	%M0667	SV_RGL	FIL, Reg. valve allowed to start
%I0127	OPT_MF	Option, Magnetic floater	%M0668	SV_RGRU	FIL, Reg. valve running
%I0206	S003	Service switch	%M3196	TPFIL04	Opening of regulating valve
%I0201	S911	Step up			

TBA/21-0410/0500
BLOCK: FILLING

```

(*****
* Display level in tube on TPOP
*****
)

ALW_ON                                     << RUNG 68 STEP #0223 >>
%S0007 +-----+
+--] [---+ DIV_+
      |   | INT |
      |   |     |
A420  |   | FIL_LEV
%AI0034+I1 Q+-%R8595
      |   |
CONST -+I2 |
+00032 +-----+

P+001                                     M_FILOF << RUNG 69 STEP #0225 >>
%T0001                                     %M0669
+--] [-----] [-----] (R)-- (* FIL, Manual filling off *)

STEP_9 P+003                             M_FILOF << RUNG 70 STEP #0227 >>
%M0109 %T0003                             %M0669
+--] [-----] [-----] (S)-- (* FIL, Manual filling off *)

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%AI0034	A420	Filling, Level in tube
%S0007	ALW_ON	
%R8595	FIL_LEV	Filling level
%M0669	M_FILOF	FIL, Manual filling off

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%T0001	P+001	Pulse + Step up
%T0003	P+003	Pulse + Step down
%M0109	STEP_9	Step 9 Production

TBA/21-0410/0500
BLOCK: FILLING

```

(*****
{ * Alarms Filling * }
*****
DT_FLT                                FILL_01 << RUNG 72 STEP #0231 >>
%M0085                                %M3681
+-- ] [----- ( ) (* Spare *)

A_POS                                FILL_03 << RUNG 73 STEP #0233 >>
%M0650                                %M3683
+-- ]/[----- ( ) (* A valve, Position *)

C_STLOW                                FILL_04 << RUNG 74 STEP #0235 >>
%M0655                                %M3684
+-- ] [----- ( ) (* C valve, Steam temperature *)

A305_18                              FILL_05 << RUNG 75 STEP #0237 >>
%I0263                                %M3685
+-- ] [----- ( ) (* Regulating valve, Leakage *)

C_STEAM C_STLOW                      FILL_06 << RUNG 76 STEP #0239 >>
%M0654 %M0655                        %M3686
+-- ] [-----]/[----- ( )-- (* C valve steam temp. low (info) *)

MALREAD                              FILL_08 << RUNG 77 STEP #0242 >>
%M0663                                %M3688
+-- ] [----- ( )-- (* Malfunction level reading system *)

LEVEL_H                              FILL_09 << RUNG 78 STEP #0244 >>
%M0660                                %M3689
+-- ] [----- ( )-- (* product level out of range *)

LVL_OUT                              FILL_10 << RUNG 79 STEP #0248 >>
%M0662                                %M3690
+-- ] [----- ( )-- (* C valve, Position *)

LVL_L                                FILL_12 << RUNG 80 STEP #0251 >>
%M0661                                %M3692
+-- ] [-----]/[----- ( )-- (* No product *)

STEP_6 S003 EXT_01                   FILL_13 << RUNG 81 STEP #0257 >>
%M0106 %I0206 %I0225                 %M3693
+-- ] [-----]/[----- ( )-- (* HI disabled *)

STEP_7                               FILL_14 << RUNG 82 STEP #0259 >>
%M0107                               %M3694
+-- ] [----- ( )-- (* HI spray nozzle pipe position *)

STP8_9                               FILL_16 << RUNG 83 STEP #0261 >>
%M0144                               %M3696
+-- ] [----- ( )-- (* HI pipe production position *)

[ END OF SUBROUTINE LOGIC ]

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0263	A305_18	Regulating valve, Leakage	%M3692	FILL_12	No product
%M0650	A_POS	FIL, A-valve in position	%M3693	FILL_13	HI disabled
%M0651	C_CLEAN	FIL, Prep. for clean steam barr.	%M3694	FILL_14	HI spray nozzle pipe position
%M0653	C_POS	FIL, C-valve in position	%M3696	FILL_16	HI pipe production position
%M0654	C_STEAM	FIL, Low temp steam (info alarm)	%M1916	HI_FIL1	HI, Alarm HI disabled
%M0655	C_STLOW	FIL, low temp steam too long	%M1917	HI_FIL2	HI, Alarm spray nozz. pipe pos.
%M0085	DT_FLT	Data trans., Str.flow data fault	%M1918	HI_FIL3	HI, Alarm HI produc. pipe posit.
%I0225	EXT_01	Dairy, Ready for production	%M0660	LEVEL_H	FIL, High level reached
%M3681	FILL_01	Spare	%M0661	LVL_L	FIL, Low level reached
%M3683	FILL_03	A valve, Position	%M0662	LVL_OUT	FIL, roduct level out of range
%M3684	FILL_04	C valve, Steam temperature	%M0663	MALREAD	FIL, Malf. level reading system
%M3685	FILL_05	Regulating valve, Leakage	%I0206	S003	Service switch
%M3686	FILL_06	C valve steam temp. low (info)	%M0106	STEP_6	Step 6 Signal to sterilizer
%M3688	FILL_08	Malfunction level reading system	%M0107	STEP_7	Step 7 Signal from sterilizer
%M3689	FILL_09	product level out of range	%M0144	STP8_9	Step 8-9 Motorstart to prod.
%M3690	FILL_10	C valve, Position			

TBA/21-0410/0500
BLOCK: FILLING

```

[ START LD SUBROUTINE BLK_29 ]
[ VARIABLE DECLARATIONS ]
[ START OF SUBROUTINE LOGIC ]

(*****
* Block 29 "Design Correction System (DCS)"
*****)

(*****
* Power and signals to DCS servo system
*****)

K025                                     << RUNG 6 STEP #0004 >>
%Q0144 +-----+
+--] [---+ TMR +-----+<+>
      |0.10s|
      +-----+
CONST +PV
+00010 +-----+
      DEL3500
      %R3500

RI_HOME                                     A507_06 << RUNG 7 STEP #0007 >>
%M1014 +-----+                                     %Q0185
+--] [---+ OFDT +-----+<+>                                     ( )-- (* DMC Right DCS, Hardware enable *)
      |0.10s|
      +-----+
CONST +PV
+00010 +-----+
      DEL3503
      %R3503

LE_HOME                                     A508_06 << RUNG 8 STEP #0011 >>
%M1015 +-----+                                     %Q0190
+--] [---+ OFDT +-----+<+>                                     ( )-- (* DMC Left DCS, Hardware enable *)
      |0.10s|
      +-----+
CONST +PV
+00010 +-----+
      DEL3506
      %R3506

A507_06 A507_29 RI_HOME                                     A507_07 << RUNG 9 STEP #0015 >>
%M0185 %I0152 %M1014                                     %Q0186
+--] [-----] [-----]/[-----+<+>                                     ( )-- (* DMC Right DCS, Software enable *)

A508_06 A508_29 LE_HOME                                     A508_07 << RUNG 10 STEP #0019 >>
%M0190 %I0158 %M1015                                     %Q0191
+--] [-----] [-----]/[-----+<+>                                     ( )-- (* DMC Left DCS, Software enable *)

(*****
* TMCC allowed to control position of DMC for design correction
*****)

A420_27                                     A418_7 << RUNG 12 STEP #0024 >>
%M0214                                     %Q0200
+--] [-----+<+>                                     ( )-- (* TMCC DCS motors, Allowed to reg. *)

STEP_5 STEP_7 STEP_10 A506_13 A418_7 M_FILOF
%M0105 %M0107 %M0110 %Q0180 %Q0200 %M0669
+--]/[-----]/[-----]/[-----] [-----] [-----]/[-----]

STEP_8 S_STOP TMR1_2
%M0108 %M0171 %M0202
+--] [-----] [-----] [-----]

```

REFERENCE NICKNAME

%Q0200	A418_7	TMCC DCS motors, Allowed to reg.
%I0214	A420_27	TMCC Filling, Filling OK
%Q0180	A506_13	DMC Main motor, Production speed
%Q0185	A507_06	DMC Right DCS, Hardware enable
%Q0186	A507_07	DMC Right DCS, Software enable
%I0152	A507_29	DMC Right DCS, Fault
%Q0190	A508_06	DMC Left DCS, Hardware enable
%Q0191	A508_07	DMC Left DCS, Software enable
%I0158	A508_29	DMC Left DCS, Fault
%R3500	DEL3500	Delay,
%R3503	DEL3503	Delay,

REFERENCE NICKNAME

%R3506	DEL3506	Delay,
K025		Delayed DC-bus servo motors
%M1015	LE_HOME	DCS, Left home position fault
%M0669	M_FILOF	FIL, Manual filling off
%M1014	RI_HOME	DCS, Right home position fault
%M0110	STEP_10	Step 10 Production ended
%M0105	STEP_5	Step 5 Drying
%M0107	STEP_7	Step 7 Signal from sterilizer
%M0108	STEP_8	Step 8 Motorstart
%M0171	S_STOP	Short stop on
%M0202	TMR1_2	Startseq, Synch.ready (>8,00)

TBA/21-0410/0500
BLOCK: DESIGN CORRECTION SYSTEM (DCS)

```

(*****
(* Machine in design
*****
STEP_7 STEP_8 STEP_9                                DCS_OK << RUNG 14 STEP #0038 >>
%M0107 %M0108 %M0109                                %M1000
+--]/[-----]/[-----]/[-----]------(R)-- (* DCS, Machine in design *)

STEP_7 S_STOP
%M0107 %M0171
+--] [-----]/[-----]

M_FILOF
%M0669
+--] [-----]

A418_32 A420_27                                DCS_OK << RUNG 15 STEP #0046 >>
%I0167 %I0214                                %M1000
+--] [-----] [-----]------(S)-- (* DCS, Machine in design *)

(*****
(* Out of design counter
*****
RESET                                            CNT2_1 << RUNG 17 STEP #0050 >>
%M3050                                            %M1001
+--] [-----]------(R)-- (* DCS, >10 pkgs out of design *)

STEP_9 A418_32 P+008 DCS_OK                                CNT2_1 << RUNG 18 STEP #0052 >>
%M0109 %I0167 %T0008 %M1000 +-----+                                %M1001
+--] [-----]/[-----] [-----] [-----]>UPCTR+------(S)-- (* DCS, >10 pkgs out of design *)

STEP_9 A418_32
%M0109 %I0167
+--] [-----] [-----] +R

STEP_9
%M0109
+--]/[-----]

CONST +PV
+00010
+-----+
CNT_2
%R0154

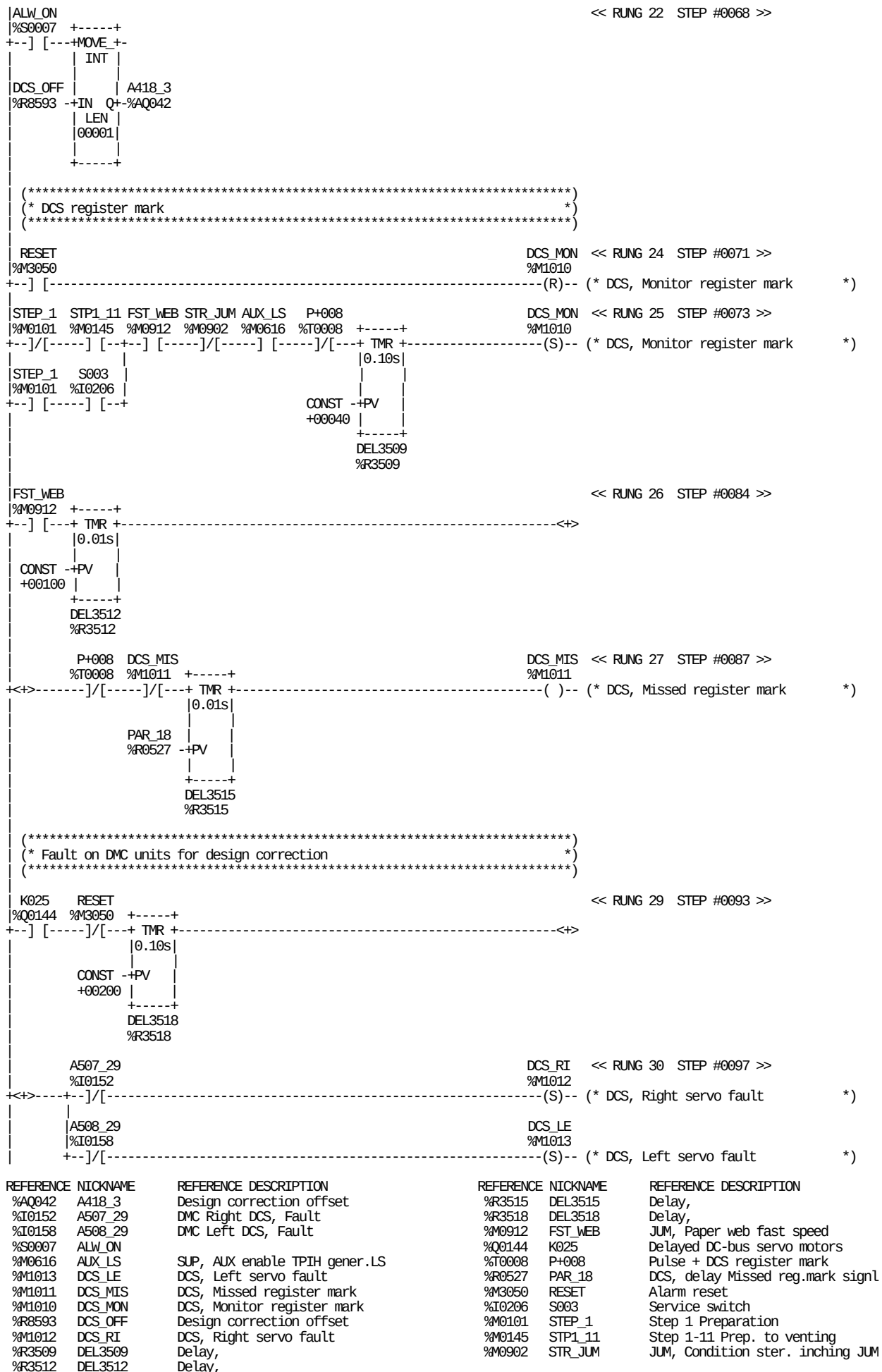
ALW_ON                                            CNT2_2 << RUNG 19 STEP #0061 >>
%S0007 +-----+                                %M1002
+--] [-----] GE | +-----]------( )-- (* DCS, 2-10 pkgs. out of design *)
          | INT |
          | |
CNT_2
%R0154 -+I1 Q++
          |
CONST -+I2 |
+00002 +-----+

(*****
(* Design correction offset
*****
TPDCS02                                            << RUNG 21 STEP #0065 >>
%M3210
+--] [-----] +-----+
          | MOVE |
          | INT |
GEN_13 | | DCS_OFF
%M3061 | | %R8593
+--] [-+ CONST -+IN Q+
          +16000 | LEN
          | 00001 |
          +-----+

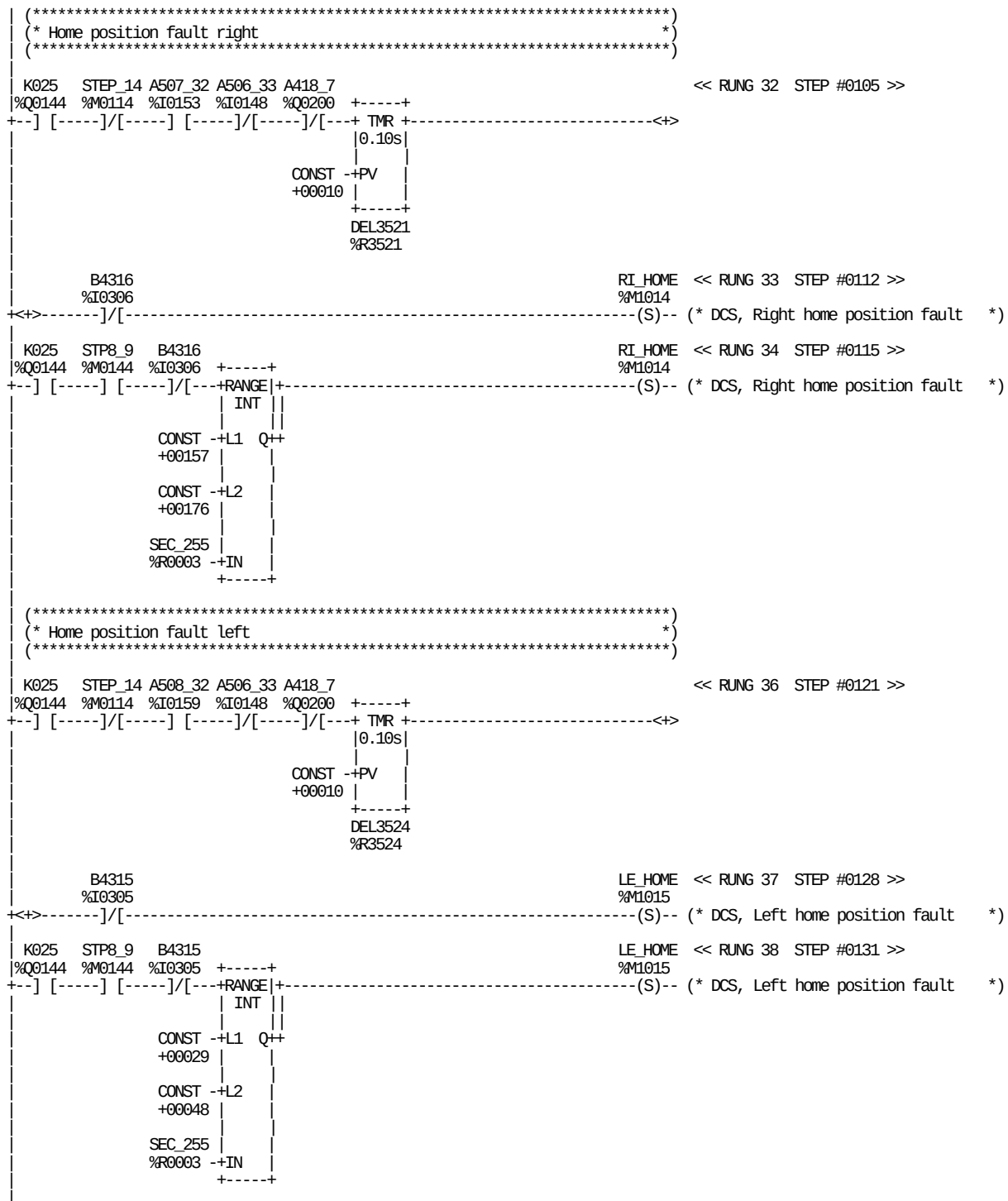
```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0167	A418_32	TMCC DCS, Design OK	%M0669	M_FILOF	FIL, Manual filling off
%I0214	A420_27	TMCC Filling, Filling OK	%T0008	P+008	Pulse + DCS register mark
%S0007	ALW_ON		%M3050	RESET	Alarm reset
%M1001	CNT2_1	DCS, >10 pkgs out of design	%M0107	STEP_7	Step 7 Signal from sterilizer
%M1002	CNT2_2	DCS, 2-10 pkgs. out of design	%M0108	STEP_8	Step 8 Motorstart
%R0154	CNT_2	CNT2, Pkgs out of design	%M0109	STEP_9	Step 9 Production
%R8593	DCS_OFF	Design correction offset	%M0171	S_STOP	Short stop on
%M1000	DCS_OK	DCS, Machine in design	%M3210	TPDCS02	Default design correction offset
%M3061	GEN_13	General default push button			

TBA/21-0410/0500
BLOCK: DESIGN CORRECTION SYSTEM (DCS)



TBA/21-0410/0500
BLOCK: DESIGN CORRECTION SYSTEM (DCS)



REFERENCE NICKNAME
 %Q0200 A418_7
 %I0148 A506_33
 %I0153 A507_32
 %I0159 A508_32
 %I0305 B4315
 %I0306 B4316
 %R3521 DEL3521

REFERENCE DESCRIPTION
 TMCC DCS motors, Allowed to reg.
 DMC Main motor, Running
 DMC Right DCS, Home pos. found
 DMC Left DCS, Home pos. found
 DCS left, Home position
 DCS right, Home position
 Delay,

REFERENCE NICKNAME
 %R3524 DEL3524
 %Q0144 K025
 %M1015 LE_HOME
 %M1014 RI_HOME
 %R0003 SEC_255
 %M0114 STEP_14
 %M0144 STP8_9

REFERENCE DESCRIPTION
 Delay,
 Delayed DC-bus servo motors
 DCS, Left home position fault
 DCS, Right home position fault
 Angle sector (0-255 decimal deg)
 Step 14 Service window
 Step 8-9 Motorstart to prod.

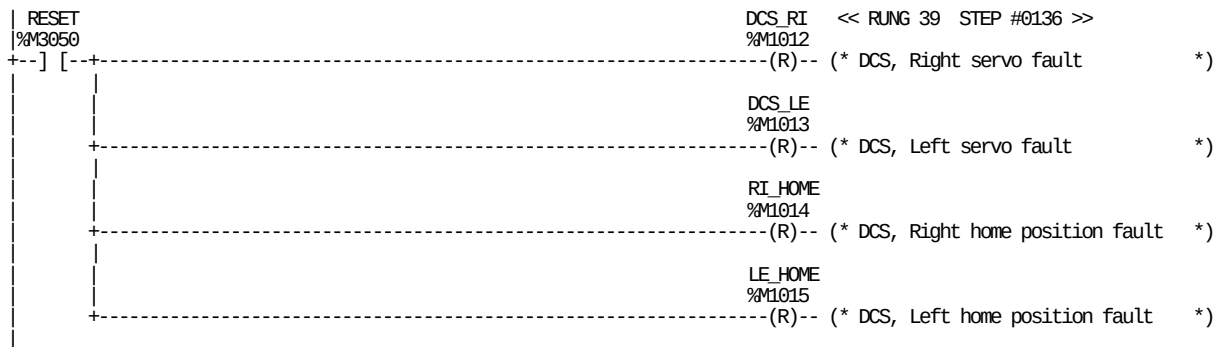
TBA/21-0410/0500
 BLOCK: DESIGN CORRECTION SYSTEM (DCS)

ECM: 73362

DATE: 010205

SIGNATURE: EF-i

48246-29:02



REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M1013	DCS_LE	DCS, Left servo fault	%M3050	RESET	Alarm reset
%M1012	DCS_RI	DCS, Right servo fault	%M1014	RI_HOME	DCS, Right home position fault
%M1015	LE_HOME	DCS, Left home position fault			

TBA/21-0410/0500
BLOCK: DESIGN CORRECTION SYSTEM (DCS)

ECM: 73362

DATE: 010205

SIGNATURE: EF-i

48246-29:02

```

(*****
* Service function "Set 0,7/0,9 measurement left flap"
*****
)

TPDCS03 A600_14 B2201 A506_29 A506_32 A508_29 A508_32 P_STOP SV_LFAL << RUNG 41 STEP #0142 >>
%M3211 %I0129 %I0242 %I0145 %I0147 %I0158 %I0159 %M0162 %M1020
+--] [----] [----] [----] [----] [----] [----] [----] ( )-- (* DCS, Left flap allowed to start *)

SV_LFAL S911 SV_LFRU << RUNG 42 STEP #0151 >>
%M1020 %I0201 %M1021
+--] [----] [----] (S)-- (* DCS, Left flap running *)

STEP_0 SV_LFRU << RUNG 43 STEP #0154 >>
%M0100 %M1021
+--] [----] (R)-- (* DCS, Left flap running *)

STEP_14 INC_JUM S907 A506_33 S911
%M0114 %M0901 %I0199 %I0148 %I0201
+--] [----] [----] [----] [----] [----]

(*****
* Service function "Set 0,7/0,9 measurement right flap"
*****
)

TPDCS05 A600_14 B2201 A506_29 A506_32 A507_29 A507_32 P_STOP SV_RFAL << RUNG 45 STEP #0163 >>
%M3213 %I0129 %I0242 %I0145 %I0147 %I0152 %I0153 %M0162 %M1022
+--] [----] [----] [----] [----] [----] [----] [----] ( )-- (* DCS, Right flap allowed t.start *)

SV_RFAL S911 SV_RFRU << RUNG 46 STEP #0172 >>
%M1022 %I0201 %M1023
+--] [----] [----] (S)-- (* DCS, Right flap running *)

STEP_0 SV_RFRU << RUNG 47 STEP #0175 >>
%M0100 %M1023
+--] [----] (R)-- (* DCS, Right flap running *)

STEP_14 INC_JUM S907 A506_33 S911
%M0114 %M0901 %I0199 %I0148 %I0201
+--] [----] [----] [----] [----] [----]

(*****
* Inch jaw system to position for 0,7/0,9 setting
*****
)

SV_LFRU P+121 << RUNG 49 STEP #0184 >>
%M1021 %T0121
+--] [----] ( ^ )-- (* Pulse + Inch flap to position *)

SV_RFRU
%M1023
+--] [----]

P+121 SV_FLAP << RUNG 50 STEP #0187 >>
%M1021 %M1024
+--] [----] (S)-- (* DCS, Inch flaps to position *)

SV_LFRU SV_FLAP << RUNG 51 STEP #0189 >>
%M1021 %M1024
+--] [----] (R)-- (* DCS, Inch flaps to position *)

CONST +L1 Q++
+00080 |
CONST +L2
+00081 |
SEC_255
%M0003 +IN
+-----+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0145	A506_29	DMC Main motor, Fault	%I0199	S907	Inching JUM and FFU
%I0147	A506_32	DMC Main motor, Volume trans. OK	%I0201	S911	Step up
%I0148	A506_33	DMC Main motor, Running	%R0003	SEC_255	Angle sector (0-255 decimal deg)
%I0152	A507_29	DMC Right DCS, Fault	%M0100	STEP_0	Step 0 Off
%I0153	A507_32	DMC Right DCS, Home pos. found	%M0114	STEP_14	Step 14 Service window
%I0158	A508_29	DMC Left DCS, Fault	%M1024	SV_FLAP	DCS, Inch flaps to position
%I0159	A508_32	DMC Left DCS, Home pos. found	%M1020	SV_LFAL	DCS, Left flap allowed to start
%I0129	A600_14	Emergency Stop	%M1021	SV_LFRU	DCS, Left flap running
%I0242	B2201	Main air, Pressure	%M1022	SV_RFAL	DCS, Right flap allowed t.start
%M0901	INC_JUM	JUM, Condition inching JUM	%M1023	SV_RFRU	DCS, Right flap running
%T0121	P+121	Pulse + Inch flap to position	%M3211	TPDCS03	Left fold. flap 0,7/0,9 set
%M0162	P_STOP	Protection stop	%M3213	TPDCS05	Right fold. flap 0,7/0,9 set

TBA/21-0410/0500
BLOCK: DESIGN CORRECTION SYSTEM (DCS)

```

|SV_RFRU                                     SV_FLAP << RUNG 52 STEP #0192 >>
|M1023 +-----+                             M1024
+--] [---+RANGE|+-----+-----+-----+ (R)-- (* DCS, Inch flaps to position *)
|      | INT |
|CONST --L1 Q+
|+00208 |
|CONST --L2
|+00209 |
|SEC_255 |
|R0003 --IN
|+-----+

STEP_0                                     SV_FLAP << RUNG 53 STEP #0195 >>
|M100                                     M1024
+--] [---+-----+-----+-----+ (R)-- (* DCS, Inch flaps to position *)

STEP_14 SV_FLAP SV_LFRU                    A508_14 << RUNG 54 STEP #0197 >>
|M114 M1024 M1021                          Q0192
+--] [-----]/[---+--] [-----+-----+ ( )-- (* DMC Left DCS, 0,9/0,7 measure. *)

|SV_RFRU                                     A507_14
|M1023                                     Q0187
+--] [-----+-----+-----+ ( )-- (* DMC Right DCS, 0,9/0,7 measure. *)

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%Q0187	A507_14	DMC Right DCS, 0,9/0,7 measure.	%M0114	STEP_14	Step 14 Service window
%Q0192	A508_14	DMC Left DCS, 0,9/0,7 measure.	%M1024	SV_FLAP	DCS, Inch flaps to position
%R0003	SEC_255	Angle sector (0-255 decimal deg)	%M1021	SV_LFRU	DCS, Left flap running
%M0100	STEP_0	Step 0 Off	%M1023	SV_RFRU	DCS, Right flap running

TBA/21-0410/0500
BLOCK: DESIGN CORRECTION SYSTEM (DCS)

```

(*****
(* Alarms Design Correction System *)
(*****
DCS_MON          DCS_01 << RUNG 56 STEP #0206 >>
%M1010          %M3697
+--] [----- ( )-- (* Malfunction photocells *)
CNT2_1          DCS_02 << RUNG 57 STEP #0208 >>
%M1001          %M3698
+--] [----- ( )-- (* Out of design *)
DCS_RI          DCS_03 << RUNG 58 STEP #0210 >>
%M1012          %M3699
+--] [----- ( )-- (* DCS right, Servo fault *)
DCS_LE          DCS_04 << RUNG 59 STEP #0212 >>
%M1013          %M3700
+--] [----- ( )-- (* DCS left, Servo fault *)
LE_HOME         DCS_05 << RUNG 60 STEP #0214 >>
%M1015          %M3701
+--] [----- ( )-- (* DCS left, Homposition fault *)
RI_HOME         DCS_06 << RUNG 61 STEP #0216 >>
%M1014          %M3702
+--] [----- ( )-- (* DCS right, Homeposition fault *)
[ END OF SUBROUTINE LOGIC ]

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M1001	CNT2_1	DCS, >10 pkgs out of design	%M3702	DCS_06	DCS right, Homeposition fault
%M3697	DCS_01	Malfunction photocells	%M1013	DCS_LE	DCS, Left servo fault
%M3698	DCS_02	Out of design	%M1010	DCS_MON	DCS, Monitor register mark
%M3699	DCS_03	DCS right, Servo fault	%M1012	DCS_RI	DCS, Right servo fault
%M3700	DCS_04	DCS left, Servo fault	%M1015	LE_HOME	DCS, Left home position fault
%M3701	DCS_05	DCS left, Homposition fault	%M1014	RI_HOME	DCS, Right home position fault

TBA/21-0410/0500
BLOCK: DESIGN CORRECTION SYSTEM (DCS)

```

[ START LD SUBROUTINE BLK_30 ]
[ VARIABLE DECLARATIONS ]
[ START OF SUBROUTINE LOGIC ]

(*****
* Block 30 "Jaw Unit Module (JUM) and Transversal sealing (TS)"
*****)

(*****
* Condition inching FFU
*****)

S907 STEP_0 STEP_2 STEP_4 STP8_9 STEP_11 STEP_13 << RUNG 6 STEP #0004 >>
%I0199 %M0100 %M0102 %M0104 %M0144 %M0111 %M0113
+--]/[-----]/[-----]/[-----]/[-----]/[-----]/[-----]<+>

A603_34 A506_29 A506_32 P_STOP INC_FFU << RUNG 7 STEP #0012 >>
%I0132 %I0145 %I0147 %M0162 %M0900
+<+>-----] [-----] [-----] [-----] [-----] ( * JUM, Condition inching FFU *)

(*****
* Condition inching JUM
*****)

STEP_1 S_STOP4 PT_RDY B1504 B1505 B1506 ASUD00R ASUSTOP << RUNG 9 STEP #0019 >>
%M0101 %M0168 %M1800 %I0133 %I0134 %I0135 %M0401 %M0400
+--] [-+--] [-+--] [-+--] [-----] [-----] [-+--] [-----] +]/[-----]<+>

S003 INC_JUM STEP_1
%I0206 %M0901 %M0101
+--] [-+--] [-+--]

STEP_12
%M0112
+--] [-----]

A603_34 A506_29 A506_32 P_STOP LWFRRPOS SUPPROL S905 Cw_OK INC_JUM << RUNG 10 STEP #0035 >>
%I0132 %I0145 %I0147 %M0162 %M0620 %M0950 %I0197 %M3905 %M0901
+<+>-----] [-----] [-----] [-----] [-----]/[-----]/[-----]/[-----] [-+--] [-+--] ( * JUM, Condition inching JUM *)

S003
%I0206
+--] [-+--]

(*****
* Condition sterile inching
*****)

STEP_5 DRY_RDY H20TEMP TNKTEMP ASUD00R ASUSTOP S905 SUPPROL << RUNG 12 STEP #0048 >>
%M0105 %M0831 %M0704 %M0706 %M0401 %M0400 %I0197 %M0950
+--] [-----] [-+--] [-----] [-+--] [-+--]/[-----]/[-----]/[-----]<+>

STEP_6 S907 STR_JUM STR_JUM
%M0106 %I0199 %M0902 %M0902
+--] [-----] [-+--] [-----] [-+--] [-+--]

STEP_7 S_STOP S003
%M0107 %M0171 %I0206
+--] [-----]/[-+--] [-----]

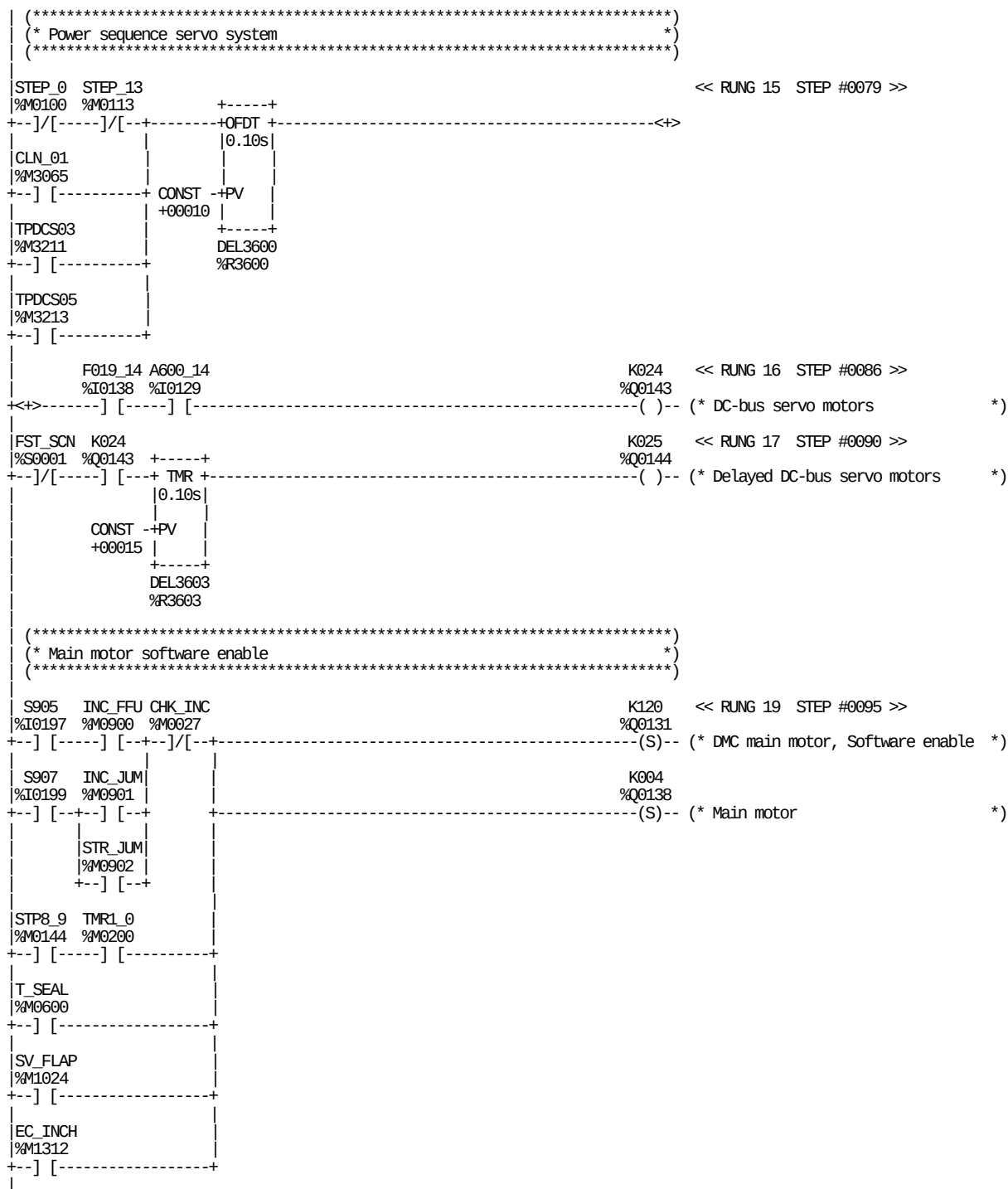
A603_34 A506_29 A506_32 P_STOP S_STOP4 N_STOP HOMEPOS LWFRRPOS STR_JUM << RUNG 13 STEP #0068 >>
%I0132 %I0145 %I0147 %M0162 %M0168 %M0180 %M1091 %M0620 %M0902
+<+>-----] [-----] [-----] [-----] [-----] [-----]/[-----]/[-----]/[-----] ( * JUM, Condition ster. inching JUM *)

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0145	A506_29	DMC Main motor, Fault	%I0197	S905	Inching final folder
%I0147	A506_32	DMC Main motor, Volume trans. OK	%I0199	S907	Inching JUM and FFU
%I0132	A603_34	Safety time relay main motor	%M0100	STEP_0	Step 0 Off
%M0401	ASUD00R	ASU, Door guards	%M0101	STEP_1	Step 1 Preparation
%M0400	ASUSTOP	ASU, Stop reasons	%M0111	STEP_11	Step 11 Venting
%I0133	B1504	A. chamber top door, Closed	%M0112	STEP_12	Step 12 Doors OK
%I0134	B1505	A. chamber top front door, Closed	%M0113	STEP_13	Step 13 Cleaning
%I0135	B1506	A. chamber front doors, Closed	%M0102	STEP_2	Step 2 Tube sealing
%M3905	Cw_OK	Cool.circ.water, Temp OK (7-15)	%M0104	STEP_4	Step 4 Spraying
%M0831	DRY_RDY	AIR, Drying ready aseptic chamb	%M0105	STEP_5	Step 5 Drying
%M0704	H20TEMP	PER, Temp. water bath OK	%M0106	STEP_6	Step 6 Signal to sterilizer
%M1091	HOMEPOS	FFU, Machine not in home pos.	%M0107	STEP_7	Step 7 Signal from sterilizer
%M0900	INC_FFU	JUM, Condition inching FFU	%M0144	STP8_9	Step 8-9 Motorstart to prod.
%M0901	INC_JUM	JUM, Condition inching JUM	%M0902	STR_JUM	JUM, Condition ster. inching JUM
%M0620	LWFRRPOS	SUP, Lower form. ring wrong pos.	%M0950	SUPPROL	JUM, Tube supp.roll. wrong pos.
%M0180	N_STOP	Normal stop	%M0171	S_STOP	Short stop on
%M1800	PT_RDY	PT21, Ready for production	%M0168	S_STOP4	Demand 4 for short stop
%M0162	P_STOP	Protection stop	%M0706	TNKTEMP	PER, Temp. peroxide tank OK
%I0206	S003	Service switch			

TBA/21-0410/0500

BLOCK: JAW UNIT MODULE (JUM) AND TRANSVERSAL SEALING (TS)



REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0129	A600_14	Emergency Stop
%M0902	CHK_INC	Check inching pushbuttons
%M3065	CLN_01	Clean, External cleaning select
%R3600	DEL3600	Delay,
%R3603	DEL3603	Delay,
%M1312	EC_INCH	EC, Slow inching
%I0138	F019_14	Main power servo system, Monitor
%S0001	FST_SCN	
%M0900	INC_FFU	JUM, Condition inching FFU
%M0901	INC_JUM	JUM, Condition inching JUM
%Q0138	K004	Main motor
%Q0143	K024	DC-bus servo motors
%Q0144	K025	Delayed DC-bus servo motors

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%Q0131	K120	DMC main motor, Software enable
%I0197	S905	Inching final folder
%I0199	S907	Inching JUM and FFU
%M0100	STEP_0	Step 0 Off
%M0113	STEP_13	Step 13 Cleaning
%M0144	STP8_9	Step 8-9 Motorstart to prod.
%M0902	STR_JUM	JUM, Condition ster. inching JUM
%M1024	SV_FLAP	DCS, Inch flaps to position
%M0200	TMR1_0	Startseq, (>0,01)
%M3211	TPDCS03	Left fold. Flap 0,7/0,9 set
%M3213	TPDCS05	Right fold. Flap 0,7/0,9 set
%M0600	T_SEAL	SUP, Tube sealing going on

TBA/21-0410/0500
BLOCK: JAW UNIT MODULE (JUM)AND TRANSVERSAL SEALING (TS)

```

|F019_14                                     K120    << RUNG 20 STEP #0111 >>
|I0138                                     %Q0131
+---]/[-----+-----+-----+-----+-----+-----+-----+-----+-----+
|JUMP_0                                     (R)-- (* DMC main motor, Software enable *)
|I0190
+---]/[-----+
|P_STOP
|I0162
+---]/[-----+
|P+049
|T0049
+---] [-----+
|P-004 A506_33
|T0004 %I0148
+---] [-----]/[-----+
|P-005
|T0005
+---] [-----+
|P-047
|T0047
+---] [-----+
|STP_13D A506_33 EC_INCH
|M0909 %I0148 %M1312
+---] [-----]/[-----+

(*****
(* M909 must follow Q131 in the same program scan to reset Main Motor          *)
(* Software Enable signal with correct timing.                                *)
(*****

STEP_13                                     STP_13D << RUNG 22 STEP #0126 >>
|M0113                                     %M0909
+---] [-----+-----+-----+-----+-----+-----+-----+-----+-----+
|K120                                     K004    << RUNG 23 STEP #0128 >>
|I0131                                     %Q0138
+---]/[-----+ TMR +-----+-----+-----+-----+-----+-----+-----+
|0.10s                                     (R)-- (* Main motor *)
|CONST +PV
|+00010
|DEL3606
|R3606

(*****
(* Main motor ready to start                                                  *)
(*****

K004 A506_29 A506_32 A506_33               MM_RDY << RUNG 25 STEP #0132 >>
|I0138 %I0145 %I0147 %I0148               %M0910
+---]/[-----] [-----] [-----]/[-----+-----+-----+-----+-----+
(*****
(* Condition for fixed JUM position at stop inching                          *)
(* (Not valid in Preparation step)                                           *)
(*****

S907                                     INC_ON << RUNG 27 STEP #0138 >>
|I0199                                     %M0903
+---] [-----+-----+-----+-----+-----+-----+-----+-----+-----+
|STEP_1 S907 P+096 A506_12
|M0101 %I0199 %T0096 %Q0181
+---]/[-----]/[-----+-----+-----+-----+-----+-----+-----+
|P+099 A506_11
|T0099 %Q0182
+---]/[-----] [-----+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%Q0182	A506_11	DMC Main motor, Fast inch	%M0910	MM_RDY	JUM, DMC main motor ready start
%Q0181	A506_12	DMC Main motor, Slow inch	%T0049	P+049	Pulse + Main motor disable
%I0145	A506_29	DMC Main motor, Fault	%T0096	P+096	Pulse + Brake JUM after HC
%I0147	A506_32	DMC Main motor, Volume trans. OK	%T0099	P+099	Pulse + Brake JUM fast inching
%I0148	A506_33	DMC Main motor, Running	%T0004	P-004	Pulse - Inching FFU
%R3606	DEL3606	Delay,	%T0005	P-005	Pulse - Inching JUM and FFU
%M1312	EC_INCH	EC, Slow inching	%T0047	P-047	Pulse - Tube sealing ended
%I0138	F019_14	Main power servo system, Monitor	%M0162	P_STOP	Protection stop
%M0903	INC_ON	JUM, Condition inching going on	%I0199	S907	Inching JUM and FFU
%M0190	JUMP_0	Jump to machine step 0	%M0101	STEP_1	Step 1 Preparation
%Q0138	K004	Main motor	%M0113	STEP_13	Step 13 Cleaning
%Q0131	K120	DMC main motor, Software enable	%M0909	STP_13D	JUM, Step 13 - delay 1 scan

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BLOCK: JAW UNIT MODULE (JUM)AND TRANSVERSAL SEALING (TS)

```

(*****
(* Main motor fast inching
*****
S903 S905 INC_FFU K120 << RUNG 29 STEP #0150 >>
%I0195 %I0197 %M0900 %Q0131 +-----+
+--] [-----] [-----] [---] [---] TMR +-----+<+>
| | | | | 0.10s
S903 INC_ON INC_JUM
%I0195 %M0903 %M0901
+--] [-----] [-----] [---] CONST +PV
| | | | | +00030
T_SEAL
%M0600 | | | | | DEL3609
+--] [-----] | | | | | %R3609

A506_11 << RUNG 30 STEP #0161 >>
%Q0182
+<+>-----+
STR_JUM S907 TMR1_4
%M0902 %I0199 %M0204
+--] [-----] [-----] [---]

(*****
(* Main motor slow inching
*****
S903 S905 INC_FFU K120 A506_12 << RUNG 32 STEP #0168 >>
%I0195 %I0197 %M0900 %Q0131 +-----+
+--]/[-----] [-----] [---] [---] TMR +-----+<+>
| | | | | 0.10s
S903 INC_ON INC_JUM
%I0195 %M0903 %M0901
+--]/[-----] [-----] [---] CONST +PV
| | | | | +00030
SV_FLAP
%M1024 | | | | | DEL3612
+--] [-----] | | | | | %R3612

EC_INCH
%M1312
+--] [-----]

(*****
(* Main motor production speed
*****
STP8_9 K120 A506_13 << RUNG 34 STEP #0181 >>
%M0144 %Q0131 %Q0180
+--] [-----] [-----] [---] [---] ( )-- (* DMC Main motor, Production speed *)

STEP_5 A506_13 MM_STOP
%M0105 %Q0180 %M0182
+--] [---+--] [-----]/[---+

STEP_10
%M0110
+--] [---+

STEP_7 A506_13 S_STOP SS_FFU
%M0107 %Q0180 %M0171 %M0174
+--] [-----] [---+--] [-----]/[-----]

| S003 N_STOP MM_STOP
| %I0206 %M0180 %M0182
+--] [-----] [-----]/[---+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%Q0182	A506_11	DMC Main motor, Fast inch	%I0195	S903	Mode selector
%Q0181	A506_12	DMC Main motor, Slow inch	%I0197	S905	Inching final folder
%Q0180	A506_13	DMC Main motor, Production speed	%I0199	S907	Inching JUM and FFU
%R3609	DEL3609	Delay,	%M0174	SS_FFU	Empty FFU at short stop
%R3612	DEL3612	Delay,	%M0110	STEP_10	Step 10 Production ended
%M1312	EC_INCH	EC, Slow inching	%M0105	STEP_5	Step 5 Drying
%M0903	INC_ON	JUM, Condition inching going on	%M0107	STEP_7	Step 7 Signal from sterilizer
%M0900	INC_FFU	JUM, Condition inching FFU	%M0144	STP8_9	Step 8-9 Motorstart to prod.
%M0901	INC_JUM	JUM, Condition inching JUM	%M0902	STR_JUM	JUM, Condition ster. inching JUM
%Q0131	K120	DMC main motor, Software enable	%M1024	SV_FLAP	DCS, Inch flaps to position
%M0182	MM_STOP	Stop of main motor	%M0171	S_STOP	Short stop on
%M0180	N_STOP	Normal stop	%M0204	TMR1_4	Startseq, Ended (>10,00)
%I0206	S003	Service switch	%M0600	T_SEAL	SUP, Tube sealing going on

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BLOCK: JAW UNIT MODULE (JUM)AND TRANSVERSAL SEALING (TS)

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```

(*****
*) Main motor connection of jaw system.
*) Q_stop will keep clutch on for 1 second if problems in JUM occurs.
*)
(*****)

Q_STOP                                     K123  << RUNG 36 STEP #0200 >>
%Q0171                                     %Q0171
+--] [-----]----- ( )-- (* Connection of jaw system *)

N_STOP  JAWSTOP  K120
%Q0180  %Q0181  %Q0131
+--] [-----]/[-----] [-----]

TMR1_2  A506_34
%Q0202  %I0149
+--] [-----] [-----]

INC_ON  INC_JUM
%Q0903  %Q0901
+--] [-----] [-----]

STR_JUM
%Q0902
+--] [-----]

T_SEAL
%Q0600
+--] [-----]

SV_FLAP
%Q1024
+--] [-----]

EC_INCH
%Q1312
+--] [-----]

(*****
*) When clutch is off machine is braked, except at Q_stop.
*) (K122 on = brake released)
*)
(*****)

K123  Q_STOP                                     K122  << RUNG 38 STEP #0218 >>
%Q0171 %Q0164 +-----+                         %Q0120
+--] [-----]/[-----] TMR +-----+ ( )-- (* Stop of jaw system *)
|0.10s|
CONST -+PV
+00015
+-----+
DEL3615
%R3615

(*****
*) Signals for slow/fast paper web
*)
(*****)

A506_33  K123  A506_12                         SLW_WEB << RUNG 40 STEP #0223 >>
%Q0148  %Q0171 %Q0181                         %Q0911
+--] [-----] [-----] [-----] ( )-- (* JUM, Paper web slow speed *)

A506_11
%Q0182
+--] [-----] FST_WEB
%Q0912
+-----] ( )-- (* JUM, Paper web fast speed *)

A506_13
%Q0180
+--] [-----]

FST_WEB                                     FSTCTCH << RUNG 41 STEP #0233 >>
%Q0912                                     %Q0913
+--] [-----] (S)-- (* JUM, fast speed catches *)

A506_33                                     FSTCTCH << RUNG 42 STEP #0235 >>
%Q0148                                     %Q0913
+--] [-----] (R)-- (* JUM, fast speed catches *)

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%Q0182	A506_11	DMC Main motor, Fast inch	%Q0181	JAWSTOP	Disconnection of jaw system
%Q0181	A506_12	DMC Main motor, Slow inch	%Q0131	K120	DMC main motor, Software enable
%Q0180	A506_13	DMC Main motor, Production speed	%Q0120	K122	Stop of jaw system
%Q0148	A506_33	DMC Main motor, Running	%Q0171	K123	Connection of jaw system
%Q0149	A506_34	DMC Main motor, Synch. ready	%Q0180	N_STOP	Normal stop
%R3615	DEL3615	Delay,	%Q0164	Q_STOP	Quick stop JUM
%Q1312	EC_INCH	EC, Slow inching	%Q0911	SLW_WEB	JUM, Paper web slow speed
%Q0913	FSTCTCH	JUM, fast speed catches	%Q0902	STR_JUM	JUM, Condition ster. inching JUM
%Q0912	FST_WEB	JUM, Paper web fast speed	%Q1024	SV_FLAP	DCS, Inch flaps to position
%Q0903	INC_ON	JUM, Condition inching going on	%Q0202	TMR1_2	Startseq, Synch.ready (>8,00)
%Q0901	INC_JUM	JUM, Condition inching JUM	%Q0600	T_SEAL	SUP, Tube sealing going on

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BLOCK: JAW UNIT MODULE (JUM) AND TRANSVERSAL SEALING (TS)

```

(*****
(* Main motor fault
*****
STEP_8 TMR1_2 A506_34 MMFAULT << RUNG 44 STEP #0238 >>
%M0108 %M0202 %I0149 %M0915
+--] [----] [----]/[-----] (S)-- (* JUM, Servo fault main motor *)

K120 A506_29 MMFAULT << RUNG 45 STEP #0242 >>
%M0131 %I0145 %M0915
+--] [----]/[-----] (S)-- (* JUM, Servo fault main motor *)

K025 K120 RESET A601_34 << RUNG 46 STEP #0245 >>
%M0144 %Q0131 %M3050 %I0130 +-----+
+--] [----]/[----]/[----] [---+ TMR +-----<+>
| 0.10s |
CONST -+PV |
+00150 |
+-----+
DEL3618
%R3618

MM_RDY MMFAULT << RUNG 47 STEP #0251 >>
%M0910 %M0915
+<+>-----] [-----] (S)-- (* JUM, Servo fault main motor *)

RESET MMFAULT << RUNG 48 STEP #0254 >>
%M3050 %M0915
+--] [---+-----] (R)-- (* JUM, Servo fault main motor *)

STEP_0
%M0100
+--] [---+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0145	A506_29	DMC Main motor, Fault	%M0915	MMFAULT	JUM, Servo fault main motor
%I0149	A506_34	DMC Main motor, Synch. ready	%M0910	MM_RDY	JUM, DMC main motor ready start
%I0130	A601_34	Safety monitor door guards	%M3050	RESET	Alarm reset
%R3618	DEL3618	Delay,	%M0100	STEP_0	Step 0 Off
%Q0144	K025	Delayed DC-bus servo motors	%M0108	STEP_8	Step 8 Motorstart
%Q0131	K120	DMC main motor, Software enable	%M0202	TMR1_2	Startseq, Synch.ready (>8,00)

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BLOCK: JAW UNIT MODULE (JUM)AND TRANSVERSAL SEALING (TS)

```

{*****}
{ * JUM cutting. *}
{*****}

K021                                     << RUNG 50 STEP #0258 >>
%Q0117 +-----+
+---] [---+RANGE+-----<+>
      | INT |
PAR_11 |
%R0520 --+L1 Q++
PAR_12 |
%R0521 --+L2 |
SEC_127 |
%R0002 --+IN |
      +-----+

L_SIDE                                     K213 << RUNG 51 STEP #0261 >>
%M0925 %Q0195
+---] [----- ( )-- (* JUM, Cutting left *)

L_SIDE                                     K214
%M0925 %Q0196
+---]/[----- ( )-- (* JUM, Cutting right *)

{*****}
{ * JUM jaw pressure *}
{ * Related items can also be found in block 1T0002. *}
{*****}

STOPJUM                                     K124 << RUNG 53 STEP #0269 >>
%M0160 %Q0172
+---] [----- ( )-- (* Jaw Pressure Left and Right *)

{*****}
{ * Start sector for left jaw *}
{*****}

P+013                                     L_START << RUNG 55 STEP #0272 >>
%T0013 %M0920
+---] [---+RANGE+----- (S)-- (* JUM, Press.left jaw start sector *)
      | INT |
CONST --+L1 Q++
+00000 |
CONST --+L2 |
+00079 |
SEC_255 |
%R0003 --+IN |
      +-----+

K120                                     L_START << RUNG 56 STEP #0275 >>
%Q0131 %M0920
+---]/[----- (R)-- (* JUM, Press.left jaw start sector *)

P-014
%T0014
+---] [---+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%Q0117	K021	Hydraulic pump	%T0013	P+013	Pulse + Enable main motor
%Q0131	K120	DMC main motor, Software enable	%T0014	P-014	Pulse - Left jaw pressure
%Q0172	K124	Jaw Pressure Left and Right	%R0520	PAR_11	Sector, Cutting ON
%Q0195	K213	JUM, Cutting left	%R0521	PAR_12	Sector, Cutting OFF
%Q0196	K214	JUM, Cutting right	%R0002	SEC_127	Angle sector (0-127 decimal deg)
%M0925	L_SIDE	JUM, Left side	%R0003	SEC_255	Angle sector (0-255 decimal deg)
%M0920	L_START	JUM, Press.left jaw start sector	%M0160	STOPJUM	Protection stop JUM

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```

{*****}
{ * Start sector for right jaw * }
{*****}

P+013                                R_START << RUNG 58 STEP #0279 >>
%T0013                                %M0921
+---] [---+RANGE+-----+-----+
      |INT|
CONST --+L1 Q++
+00128 |
CONST --+L2
+00207 |
SEC_255 |
%R0003 --+IN
      +-----+

K120                                R_START << RUNG 59 STEP #0282 >>
%Q0131                                %M0921
+---]/[---+-----+-----+
      |
P-015
%T0015
+---] [---+

{*****}
{ * Check that signals to catches is going through relay and solid states. * }
{*****}

K124                                CHK_JAW << RUNG 61 STEP #0286 >>
%Q0172                                %M0943
+---] [---+TMR+-----+-----+
      |0.10s|
CONST --+PV
+00005 |
      +-----+
      DEL3630
      %R3630

Y4306 K124_3 CHK_JAW                LE_FLT << RUNG 62 STEP #0289 >>
%Q0001 %I0217 %M0943 +-----+
+---] [---]/[---+TMR+-----+-----+
      |0.01s|
Y4306 K124_3
%Q0001 %I0217
+---]/[---+CONST --+PV
      +00007 |
Y4308 K134_3
%Q0003 %I0221
+---] [---]/[---+DEL3624
      %R3624

Y4308 K134_3 CHK_JAW                << RUNG 63 STEP #0300 >>
%Q0003 %I0221 %M0943 +-----+
+---]/[---+TMR+-----+-----+
      |0.01s|
      CONST --+PV
      +00007 |
      DEL3633
      %R3633

LE_JAW << RUNG 64 STEP #0305 >>
%M0922
<+>+-----+-----+
(S)--- (* JUM, Press.left jaw el. error *)

LE_FLT
%M0938
+---] [---+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M0943	CHK_JAW	JUM, Start check of jaw control	%M0938	LE_FLT	JUM, Pr. L jaw el. err.(partial)
%R3624	DEL3624	Delay,	%M0922	LE_JAW	JUM, Press.left jaw el. error
%R3630	DEL3630	Delay,	%T0013	P+013	Pulse + Enable main motor
%R3633	DEL3633	Delay,	%T0015	P-015	Pulse - Right jaw pressure
%Q0131	K120	DMC main motor, Software enable	%M0921	R_START	JUM, Press.right jaw start sec.
%Q0172	K124	Jaw Pressure Left and Right	%R0003	SEC_255	Angle sector (0-255 decimal deg)
%I0217	K124_3	Ctrl.of press. LE jaw catch ON	%Q0001	Y4306	JUM left catch closed
%Q0221	K134_3	Ctrl.of press. LE jaw catch OFF	%Q0003	Y4308	JUM left catch open

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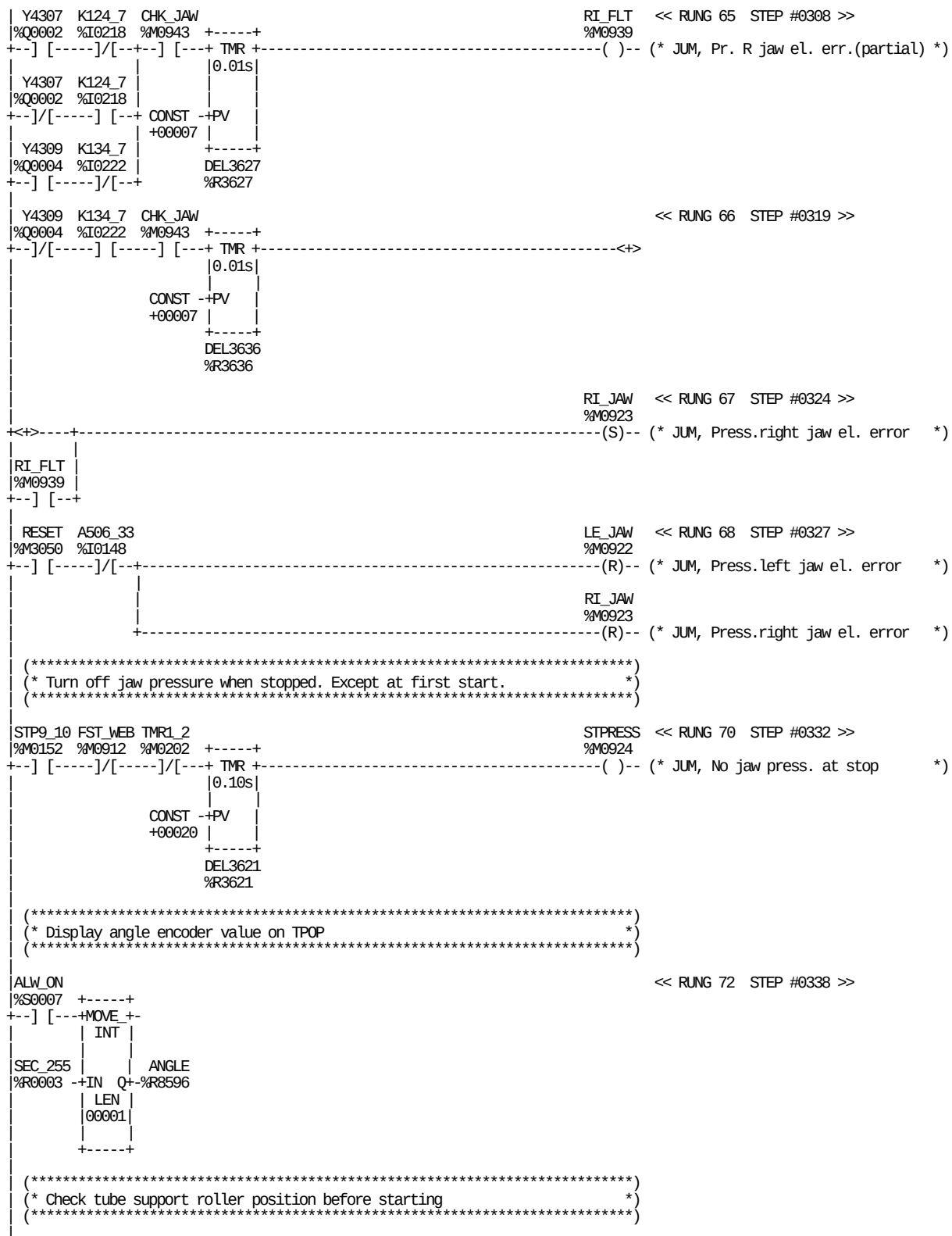
BLOCK: JAW UNIT MODULE (JUM)AND TRANSVERSAL SEALING (TS)

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REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0148	A506_33	DMC Main motor, Running	%M0922	LE_JAW	JUM, Press.left jaw el. error
%S0007	ALW_ON		%M3050	RESET	Alarm reset
%R8596	ANGLE	Machine angle	%M0939	RI_FLT	JUM, Pr. R jaw el. err.(partial)
%M0943	CHK_JAW	JUM, Start check of jaw control	%M0923	RI_JAW	JUM, Press.right jaw el. error
%R3621	DEL3621	Delay,	%R0003	SEC_255	Angle sector (0-255 decimal deg)
%R3627	DEL3627	delay,	%M0152	STP9_10	Step First prod. to prod. end
%R3636	DEL3636	Delay,	%M0924	STPRESS	JUM, No jaw press. at stop
%M0912	FST_WEB	JUM, Paper web fast speed	%M0202	TMR1_2	Startseq, Synch.ready (>8,00)
%I0218	K124_7	Ctrl.of press. RI jaw catch ON	%Q0002	Y4307	JUM right catch closed
%I0222	K134_7	Ctrl.of press. RI jaw catch OFF	%Q0004	Y4309	JUM right catch open

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BLOCK: JAW UNIT MODULE (JUM)AND TRANSVERSAL SEALING (TS)

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```
|STEP_1  B4317  OPTRK_3          SUPPROL  << RUNG 74  STEP #0341 >>
| %M0101  %I0307  %M4080          %M0950
+--] [--+--]/[-----] [-----] ( )-- (* JUM, Tube supp.roll. wrong pos. *)
|
|STP5_9  |
| %M0143  |
+--] [--+
|
```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0307	B4317	Tube support, Position	%M0143	STP5_9	Step 5-9 Drying to prod.
%M4080	OPTRK_3	TBA21 050V field test	%M0950	SUPPROL	JUM, Tube supp.roll. wrong pos.
%M0101	STEP_1	Step 1 Preparation			

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BLOCK: JAW UNIT MODULE (JUM)AND TRANSVERSAL SEALING (TS)

```

(*****
* "Transversal Sealing (TS)"
* Related items can also be found in block 1T0004
*****)

STP8_9 TMR1_1                                K030 << RUNG 76 STEP #0347 >>
%M0144 %M0201                                %Q0149
+---] [---] [---] +---+ +---+ +---+ +---+ +---+ +---+ +---+ +---+ +---+ +---+
|STR_JUM| |0.10s| |-----| |-----| |-----| |-----| |-----| |-----|
|M0902| |-----| |-----| |-----| |-----| |-----| |-----| |-----|
+---] [---] +---+ +---+ +---+ +---+ +---+ +---+ +---+ +---+ +---+ +---+
|CONST -PV| |-----| |-----| |-----| |-----| |-----| |-----| |-----|
|+00100| |-----| |-----| |-----| |-----| |-----| |-----| |-----|
|DEL3700| |-----| |-----| |-----| |-----| |-----| |-----| |-----|
| %R3700| |-----| |-----| |-----| |-----| |-----| |-----| |-----|

STP8_9 TS_ON << RUNG 77 STEP #0352 >>
%M0144 %M1100
+---] [---+ +---+ +---+ +---+ +---+ +---+ +---+ +---+ +---+ +---+ +---+
|STR_JUM S907| |-----| |-----| |-----| |-----| |-----| |-----| |-----|
|M0902 %I0199| |-----| |-----| |-----| |-----| |-----| |-----| |-----|
+---] [---] [---+ +---+ +---+ +---+ +---+ +---+ +---+ +---+ +---+ +---+
|K122 A506_33| |-----+ |-----+ |-----+ |-----+ |-----+ |-----+ |-----+
| %Q0120 %I0148| |-----+ |-----+ |-----+ |-----+ |-----+ |-----+ |-----+
+---] [---] [---] [---] [---] [---] [---] [---] [---] [---] [---] [---] [---]
|EQ| |-----+ |-----+ |-----+ |-----+ |-----+ |-----+ |-----+
|INT| |-----+ |-----+ |-----+ |-----+ |-----+ |-----+ |-----+
|TS_TIME| |-----+ |-----+ |-----+ |-----+ |-----+ |-----+ |-----+
| %R3000 -I1 Q++| |-----+ |-----+ |-----+ |-----+ |-----+ |-----+ |-----+
|CONST -I2| |-----+ |-----+ |-----+ |-----+ |-----+ |-----+ |-----+
|+00262| |-----+ |-----+ |-----+ |-----+ |-----+ |-----+ |-----+

(*****
* Left side should be active between 72 and 200 degrees.
* Right side should be active between 200 and 72 degrees.
* When output Q207 is set right side is chosen on the TPIH switch.
* Q207 is true between 200 and 72 degrees
*****)

ALW_ON A504_8 << RUNG 80 STEP #0362 >>
%S0007 %Q0207
+---] [---+ +---+ +---+ +---+ +---+ +---+ +---+ +---+ +---+ +---+ +---+
|+RANGE| |-----+ |-----+ |-----+ |-----+ |-----+ |-----+ |-----+
|INT| |-----+ |-----+ |-----+ |-----+ |-----+ |-----+ |-----+
|CONST -L1 Q++| |-----+ |-----+ |-----+ |-----+ |-----+ |-----+ |-----+
|+00072| |-----+ |-----+ |-----+ |-----+ |-----+ |-----+ |-----+
|CONST -L2| |-----+ |-----+ |-----+ |-----+ |-----+ |-----+ |-----+
|+00200| |-----+ |-----+ |-----+ |-----+ |-----+ |-----+ |-----+
|SEC 255| |-----+ |-----+ |-----+ |-----+ |-----+ |-----+ |-----+
| %R0003 -IN| |-----+ |-----+ |-----+ |-----+ |-----+ |-----+ |-----+
+---+ +---+ +---+ +---+ +---+ +---+ +---+ +---+ +---+ +---+ +---+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%Q0207	A504_8	TPIH generator TS, Side select.	%R0003	SEC_255	Angle sector (0-255 decimal deg)
%I0148	A506_33	DMC Main motor, Running	%M0144	STP8_9	Step 8-9 Motorstart to prod.
%S0007	ALW_ON		%M0902	STR_JUM	JUM, Condition ster. inching JUM
%R3700	DEL3700	Delay,	%M0201	TMR1_1	Startseq, (>3,00)
%Q0149	K030	TPIH generator TS	%M1100	TS_ON	TS, Transversal sealing on
%Q0120	K122	Stop of jaw system	%R3000	TS_TIME	FSTSCN, Pulse time
%I0199	S907	Inching JUM and FFU			

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BLOCK: JAW UNIT MODULE (JUM) AND TRANSVERSAL SEALING (TS)

```

{*****}
{* Set the alarm for TS on the side it belongs to.*}
{*****}

ALW_ON                                     TSSIDE << RUNG 82 STEP #0366 >>
%S0007 +-----+                          %M1104
+--] [---+RANGE+-----+ (* TS, Side select at alarm *)
      | INT |
CONST --+L1 Q++
+00100 |
CONST --+L2
+00228 |
SEC_255 |
%R0003 -+IN
      +-----+

A502_23 TMR1_1 STEP_9                     TSSIDE RIFAULT LEFAULT << RUNG 83 STEP #0369 >>
%i0188 %M0201 %M0109                      %M1104 %M1102 %M1101
+--]/[-----] [---] [----]/[------(S)-- (* TS, Fault left hand jaw *)
      | VOL_08 VOL_06 VOL_11 | TSSIDE LEFAULT RIFAULT
      | %M0064 %M0062 %M0067 | %M1104 %M1101 %M1102
      +--]/[-----]/[-----]/[---+]/[-----]/[------(S)-- (* TS, Fault right hand jaw *)

{*****}
{* Stop with the faulty side out.*}
{*****}

LEFAULT                                     TSFAULT << RUNG 85 STEP #0386 >>
%M1101 +-----+                          %M1103
+--] [---+RANGE+-----+ (* TS, Stop main motor at fault *)
      | INT |
CONST --+L1 Q++
+00200 |
CONST --+L2
+00255 |
SEC_255 |
%R0003 -+IN
      +-----+

RIFAULT                                     TSFAULT << RUNG 86 STEP #0389 >>
%M1102 +-----+                          %M1103
+--] [---+RANGE+-----+ (* TS, Stop main motor at fault *)
      | INT |
CONST --+L1 Q++
+00072 |
CONST --+L2
+00127 |
SEC_255 |
%R0003 -+IN
      +-----+

A506_33 RESET                             LEFAULT << RUNG 87 STEP #0392 >>
%i0148 %M3050                            %M1101
+--]/[-----] [---(R)-- (* TS, Fault left hand jaw *)

                                      RIFAULT
                                      %M1102
                                      +------(R)-- (* TS, Fault right hand jaw *)

                                      TSFAULT
                                      %M1103
                                      +------(R)-- (* TS, Stop main motor at fault *)

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0188	A502_23	TP1H Generator TS, Fault	%M0109	STEP_9	Step 9 Production
%I0148	A506_33	DMC Main motor, Running	%M0201	TMR1_1	Startseq (>3,00)
%S0907	ALW_ON		%M1103	TSFAULT	TS, Stop main motor at fault
%M1101	LEFAULT	TS, Fault left hand jaw	%M1104	TSSIDE	TS, Side select at alarm
%M3050	RESET	Alarm reset	%M0062	VOL_06	Volume 06, 1000cc slimline P48
%M1102	RIFAUULT	TS, Fault right hand jaw	%M0064	VOL_08	Volume 08, 1000cc square
%R0003	SEC 255	Angle sector (0-255 decimal deg)	%M0067	VOL_11	Volume 11. 3390cc prism square

TRA/21-0410/0500

BLOCK: JAW UNIT MODULE (JUM)AND TRANSVERSAL SEALING (TS)

ECM: 73362

DATE: 010205

SIGNATURE: EFi

48246-30:02


```

(*****
* Switch to longer TS pulse when level is greater than 10%.
*)
(*****)

STEP_9                                TSLNGTH << RUNG 89 STEP #0398 >>
%M0109                                %M1105
+--] [-----+-----+-----+-----+-----+-----+-----+-----+
|STEP_9 A420_27|
|M0109 %I0214 |
+--]/[-----] [---+

(*****
* Load default values for TS
*)
*
* R8591 and 8592 contains values between 0-1000.
*)
(*****)

TPDRV02                                << RUNG 91 STEP #0404 >>
%M3226                                +-----+
+--] [-----+-----+-----+-----+-----+-----+-----+-----+
|GEN_13|PAR_113|INT|TSL_PwR|
|M3061 |R0613 |IN Q+ %R8591|
+--] [---+R0613 -+IN Q+ %R8591|
|P+103 |LEN|00001|
|T0103 |
+--] [---+ +-----+

TPDRV03                                << RUNG 92 STEP #0408 >>
%M3227                                +-----+
+--] [-----+-----+-----+-----+-----+-----+-----+-----+
|GEN_13|PAR_113|INT|TSR_PwR|
|M3061 |R0613 |IN Q+ %R8592|
+--] [---+R0613 -+IN Q+ %R8592|
|P+103 |LEN|00001|
|T0103 |
+--] [---+ +-----+

ALW_ON                                << RUNG 93 STEP #0412 >>
%S0007                                +-----+
+--] [-----+-----+-----+-----+-----+-----+-----+-----+
|TSL_PwR|A504_23|TSR_PwR|A504_24|
|R8591 -+I1 Q+ %AQ040 %R8592 -+I1 Q+ %AQ041|
+--] [---+I1 Q+ %AQ040 %R8592 -+I1 Q+ %AQ041|
|CONST -+I2 |CONST -+I2 |
|00032 +-----+ |00032 +-----+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0214	A420_27	TMCC Filling, Filling OK
%AQ040	A504_23	TPIH generator TS left
%AQ041	A504_24	TPIH generator TS right
%S0007	ALW_ON	
%M3061	GEN_13	General default push button
%T0103	P+103	Pulse + New volume value
%R0613	PAR_113	TPIH TS, Default Power (L/R)

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M0109	STEP_9	Step 9 Production
%M3226	TPDRV02	Default left TS power TPIH
%M3227	TPDRV03	Default right TS power TPIH
%M1105	TSLNGTH	TS, Control pulse length
%R8591	TSL_PwR	TS left, Power TPIH
%R8592	TSR_PwR	TS right, Power TPIH

TBA/21-0410/0500
BLOCK: JAW UNIT MODULE (JUM)AND TRANSVERSAL SEALING (TS)

```

(*****
(* Alarms Jaw Unit Module and transversal sealing *)
(*****
B4200 JUM_02 << RUNG 95 STEP #0416 >>
%I0297 %M3714
+--]/[------( )-- (* Jaw system, Hold down device *)

B4201 JUM_03 << RUNG 96 STEP #0418 >>
%I0301 %M3715
+--]/[------( )-- (* Jaw system, Overload left *)

LEFAULT JUM_04 << RUNG 97 STEP #0420 >>
%M1101 %M3716
+--] [------( )-- (* Transversal sealing left *)

RIFAUULT JUM_05 << RUNG 98 STEP #0422 >>
%M1102 %M3717
+--] [------( )-- (* Transversal sealing right *)

MMFAULT JUM_06 << RUNG 99 STEP #0424 >>
%M0915 %M3718
+--] [------( )-- (* Main motor, Servo fault *)

B4202 JUM_07 << RUNG 100 STEP #0426 >>
%I0302 %M3719
+--]/[------( )-- (* Jaw system, Overload right *)

ENC_OK JUM_08 << RUNG 101 STEP #0428 >>
%M0017 %M3720
+--]/[------( )-- (* Jaw system, Angle encoder *)

LE_JAW JUM_09 << RUNG 102 STEP #0430 >>
%M0922 %M3721
+--] [------( )-- (* Jaw pressure, Hydr. valve left *)

RI_JAW JUM_10 << RUNG 103 STEP #0432 >>
%M0923 %M3722
+--] [------( )-- (* Jaw pressure, Hydr. valve right *)

NO_VOL JUM_11 << RUNG 104 STEP #0434 >>
%M0053 %M3723
+--] [------( )-- (* No volume value *)

SUPPROL JUM_12 << RUNG 105 STEP #0436 >>
%M0950 %M3724
+--] [------( )-- (* Tube support roller *)

HIGH_SP JUM_13 << RUNG 106 STEP #0438 >>
%M0012 %M3725
+--] [------( )-- (* Machine speed too high *)

[ END OF SUBROUTINE LOGIC ]

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0297	B4200	JUM, Hold down device	%M3721	JUM_09	Jaw pressure, Hydr. valve left
%I0301	B4201	Left jaw, Overload	%M3722	JUM_10	Jaw pressure, Hydr. valve right
%I0302	B4202	Right jaw, Overload	%M3723	JUM_11	No volume value
%M0017	ENC_OK	Angle encoder OK	%M3724	JUM_12	Tube support roller
%M0012	HIGH_SP	High machine speed alarm	%M3725	JUM_13	Machine speed too high
%M3714	JUM_02	Jaw system, Hold down device	%M1101	LEFAULT	TS, Fault left hand jaw
%M3715	JUM_03	Jaw system, Overload left	%M0922	LE_JAW	JUM, Press.left jaw el. error
%M3716	JUM_04	Transversal sealing left	%M0915	MMFAULT	JUM, Servo fault main motor
%M3717	JUM_05	Transversal sealing right	%M0053	NO_VOL	No volume value
%M3718	JUM_06	Main motor, Servo fault	%M1102	RIFAUULT	TS, Fault right hand jaw
%M3719	JUM_07	Jaw system, Overload right	%M0923	RI_JAW	JUM, Press.right jaw el. error
%M3720	JUM_08	Jaw system, Angle encoder	%M0950	SUPPROL	JUM, Tube supp.roll. wrong pos.

TBA/21-0410/0500

BLOCK: JAW UNIT MODULE (JUM)AND TRANSVERSAL SEALING (TS)

ECM: 73362

DATE: 010205

SIGNATURE: EF-i

48246-30:02

```

[ START LD SUBROUTINE BLK_32 ]
[ VARIABLE DECLARATIONS ]
[ START OF SUBROUTINE LOGIC ]

(*****
(* Block 32 "Package dumping"
*****
)

(*****
(* Load dump values for LS
*****
)

STP8_9                                P+060 << RUNG 6 STEP #0004 >>
%M0144                                %T0060
+--] [------(^)-- (* Pulse + Dump LS and pox. bath *)

P+060                                << RUNG 7 STEP #0006 >>
%T0060 +-----+
+--] [---+ ADD +-----+ ROR +---+
      | INT |          | WORD |
PAR_160 | DMP_LS SHIFT01 | SHIFT01
%R0660 -+I1 Q+-%R0050 %R0030 -+IN Q+-%R0030
      |      |          | LEN |
PAR_161 | DMP_LS |      | 00015 |
%R0661 -+I2 %R0050 -+N
      +-----+          +-----+

P+060                                << RUNG 8 STEP #0009 >>
%T0060 +-----+
+--] [---+ SHL +-----+
      | WORD |
SHIFT01 |
%R0030 -+IN B2+
      | LEN |
PAR_161 | SHIFT01 |
%R0661 -+N Q+-%R0030
      |      |
ALW_OFF |
%S0008
+--] [---+ B1
      +-----+

P+060                                << RUNG 9 STEP #0012 >>
%T0060 +-----+
+--] [---+ ROL +-----+
      | WORD |
SHIFT01 | SHIFT01
%R0030 -+IN Q+-%R0030
      | LEN |
PAR_160 | 00015 |
%R0660 -+N
      +-----+

(*****
(* Load dump values for top aseptic chamber forming ring
*****
)

P+060                                << RUNG 11 STEP #0015 >>
%T0060 +-----+
+--] [---+ ADD +-----+ ROR +---+
      | INT |          | WORD |
PAR_170 | DMP_TOP SHIFT01 | SHIFT01
%R0670 -+I1 Q+-%R0061 %R0030 -+IN Q+-%R0030
      |      |          | LEN |
PAR_171 | DMP_TOP |      | 00015 |
%R0671 -+I2 %R0061 -+N
      +-----+          +-----+

```

REFERENCE NICKNAME
 %S0008 ALW_OFF
 %R0050 DMP_LS
 %R0061 DMP_TOP
 %T0060 P+060
 %R0660 PAR_160

REFERENCE DESCRIPTION
 Dump LS, packs to rotate
 Dump top form.ring, packs to rot
 Pulse + Dump LS and pox. bath
 Dump LS, offset

REFERENCE NICKNAME
 %R0661 PAR_161
 %R0670 PAR_170
 %R0671 PAR_171
 %R0030 SHIFT01
 %M0144 STP8_9

REFERENCE DESCRIPTION
 Dump LS, packs
 Dump top A.C. form. ring, offset
 Dump top A.C. forming ring, packs
 Shiftregister 01 for pkg dumping
 Step 8-9 Motorstart to prod.

TBA/21-0410
 BLOCK: PACKAGE DUMPING

```

P+060
%T0060 +-----+
+---] [---+ SHL_+
          |WORD|
SHIFT01
%R0030 --IN B2--
          |LEN|
          |00015|
PAR_171  SHIFT01
%R0671 --N  Q+-%R0030
ALW_OFF
%S0008
+---] [---+B1
          +-----+

```

<< RUNG 12 STEP #0018 >>

```

P+060
%T0060 +-----+
+---] [---+ ROL_+
          |WORD|
SHIFT01
%R0030 --IN Q+-%R0030
          |LEN|
          |00015|
PAR_170  SHIFT01
%R0670 --N  Q+-%R0030
          +-----+

```

<< RUNG 13 STEP #0021 >>

```

(*****
(* Load dump values for peroxide bath
*****
)
```

```

P+060
%T0060 +-----+
+---] [---+ ADD +-----+
          |INT|
PAR_162  DMPBATH SHIFT01
%R0662 --I1  Q+-%R0051 %R0030 --IN Q+-%R0030
          |LEN|
          |00015|
PAR_163  DMPBATH
%R0663 --I2  %R0051 --N
          +-----+

```

<< RUNG 15 STEP #0024 >>

```

P+060
%T0060 +-----+
+---] [---+ SHL_+
          |WORD|
SHIFT01
%R0030 --IN B2--
          |LEN|
          |00015|
PAR_163  SHIFT01
%R0663 --N  Q+-%R0030
ALW_OFF
%S0008
+---] [---+B1
          +-----+

```

<< RUNG 16 STEP #0027 >>

```

P+060
%T0060 +-----+
+---] [---+ ROL_+
          |WORD|
SHIFT01
%R0030 --IN Q+-%R0030
          |LEN|
          |00015|
PAR_162  SHIFT01
%R0662 --N  Q+-%R0030
          +-----+

```

<< RUNG 17 STEP #0030 >>

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%S0008	ALW_OFF		%R0663	PAR_163	Dump Pox bath, packs
%R0051	DMPBATH	Dump bath, packs to rotate	%R0670	PAR_170	Dump top A.C. form. ring, offset
%T0060	P+060	Pulse + Dump LS and pox. bath	%R0671	PAR_171	Dump top A.C. forming ring, packs
%R0662	PAR_162	Dump Pox bath, offset	%R0030	SHIFT01	Shiftregister 01 for pkg dumping

TBA/21-0410
BLOCK: PACKAGE DUMPING

```

(*****
(* Load dump values for protection stop and wrong product level in tube. *)
*****)

P_STOP          P+008          << RUNG 19 STEP #0033 >>
%M0162          %T0008          +-----+
+---] / [-----+---] [---+-----+ AND +---+
|                               | WORD |
S_STOP A420_27 | DCS_MIS |      |      |
%M0171 %I0214 | %M1011 | SHIFT01 |      | SHIFT01
+---] / [-----] / [---+---] [---+R0030 -+I1 Q+-%R0030
|                               |      |
|                               | CONST -+I2 |
|                               | FFFE +-----+

(*****
(* Load dump values in JUM for Short stop *)
*****)

P+060          << RUNG 21 STEP #0042 >>
%T0060 +-----+
+---] [---+ AND +---+
|       | WORD |
SHIFT01 |      |
%R0030 -+I1 Q+-%R0030
PAR_172 |      |
%R0672 -+I2 |
+-----+

(*****
(* Load dump values for normal stop *)
*****)

N_STOP          P+061          << RUNG 23 STEP #0045 >>
%M0180          %T0061          (* Pulse + Dump at normal stop *)
+---] [-----+-----+-----+-----+-----+-----+-----+-----+

P+061          << RUNG 24 STEP #0047 >>
%T0061 +-----+          +-----+
+---] [---+ ADD +-----+ ROR +---+
|       | INT |          | WORD |
PAR_164 |      | DMPNORM SHIFT01 |      | SHIFT01
%R0664 -+I1 Q+-%R0052 %R0030 -+IN Q+-%R0030
|       |      |          | LEN |
PAR_165 |      | DMPNORM | 00015 |
%R0665 -+I2 %R0052 -+N +-----+
+-----+

P+061          << RUNG 25 STEP #0050 >>
%T0061 +-----+
+---] [---+ SHL +-----+
|       | WORD |
SHIFT01 |      |
%R0030 -+IN B2+---+
|       | LEN |
PAR_165 |      | SHIFT01 | 00015 |
%R0665 -+N Q+-%R0030
ALW_OFF |      |
%S0008  +-----+
+---] [---+ B1 +-----+

P+061          << RUNG 26 STEP #0053 >>
%T0061 +-----+
+---] [---+ ROL +-----+
|       | WORD |
SHIFT01 |      | SHIFT01
%R0030 -+IN Q+-%R0030
|       | LEN |
PAR_164 |      | 00015 |
%R0664 -+N +-----+
+-----+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0214	A420_27	TMCC Filling, Filling OK	%T0061	P+061	Pulse + Dump at normal stop
%S0008	ALW_OFF		%R0664	PAR_164	Dump norm stop, offset
%M1011	DCS_MIS	DCS, Missed register mark	%R0665	PAR_165	Dump norm stop, packs
%R0052	DMPNORM	Dump normal stop, packs to rot.	%R0672	PAR_172	Dump pkgs in JUM, absolute (HEX)
%M0180	N_STOP	Normal stop	%M0162	P_STOP	Protection stop
%T0008	P+008	Pulse + DCS register mark	%R0030	SHIFT01	Shiftregister 01 for pkg dumping
%T0060	P+060	Pulse + Dump LS and pox. bath	%M0171	S_STOP	Short stop on

TBA/21-0410
BLOCK: PACKAGE DUMPING

```

{*****}
{* Load dump values for packages out of design *}
{*****}

STEP_9 CNT2_2 P+008 P+062 << RUNG 28 STEP #0056 >>
%M0109 %M1002 %T0008 %T0062
+---] [---] [---] +---] [---] ( ^ ) (* Pulse + Dump out of design *)

STEP_8 S_STOP DCS_OK DCS_MIS
%M0108 %M0171 %M1000 %M1011
+---] [---] / [---] / [---] +---] [---]

P+062 << RUNG 29 STEP #0066 >>
%T0062 +---+ +---+
+---] [---+ ADD +---+ +---+
| | | |
| INT | | ROR |
| | | |
| | | |
PAR_166 | DMPDESN SHIFT01 | SHIFT01
|R0666 -+I1 Q+-%R0053 %R0030 -+IN Q+-%R0030
| | | |
| | | |
PAR_167 | DMPDESN |
|R0667 -+I2 %R0053 -+N
| | |
+---+ +---+

P+062 << RUNG 30 STEP #0069 >>
%T0062 +---+
+---] [---+ SHL_
| |
| WORD |
| |
SHIFT01 |
|R0030 -+IN B2+
| |
| LEN |
| 00015 |
PAR_167 | SHIFT01
|R0667 -+N Q+-%R0030
| |
ALW_OFF |
%S0008
+---] [---+ B1
| |
+---+

P+062 << RUNG 31 STEP #0072 >>
%T0062 +---+
+---] [---+ ROL_
| |
| WORD |
| |
SHIFT01 | SHIFT01
|R0030 -+IN Q+-%R0030
| |
| LEN |
| 00015 |
PAR_166 |
|R0666 -+N
| |
+---+

{*****}
{* Load dump values for packaging material splice *}
{*****}

P+011 << RUNG 33 STEP #0075 >>
%T0011 +---+ +---+
+---] [---+ ADD +---+ +---+
| | | |
| INT | | ROR |
| | | |
| | | |
PAR_168 | DMPSPLI SHIFT01 | SHIFT01
|R0668 -+I1 Q+-%R0054 %R0030 -+IN Q+-%R0030
| | | |
| | | |
PAR_169 | DMPSPLI |
|R0669 -+I2 %R0054 -+N
| | |
+---+ +---+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%S0008	ALW_OFF		%R0666	PAR_166	Dump design error, offset
%M1002	CNT2_2	DCS, 2-10 pkgs. out of design	%R0667	PAR_167	Dump design error, packs
%M1011	DCS_MIS	DCS, Missed register mark	%R0668	PAR_168	Dump paper splice, offset
%M1000	DCS_OK	DCS, Machine in design	%R0669	PAR_169	Dump paper splice, packs
%R0053	DMPDESIN	Dump design, packs to rotate	%R0030	SHIFT01	Shiftregister 01 for pkg dumping
%R0054	DMPSPLI	Dump paper splice, pack to rot.	%M0108	STEP_8	Step 8 Motorstart
%T0008	P+008	Pulse + DCS register mark	%M0109	STEP_9	Step 9 Production
%T0011	P+011	Pulse + Pkg.spl. detect. column	%M0171	S_STOP	Short stop on
%T0062	P+062	Pulse + Dump out of design			

TBA/21-0410
BLOCK: PACKAGE DUMPING

```

P+011
|T0011 +-----+
+---] [---+ SHL_
|      |WORD|
SHIFT01
|R0030 -+IN B2+
|      |LEN|
|      |00015|
PAR_169 |SHIFT01
|R0669 -+N Q+-%R0030
ALW_OFF
|S0008
+---] [---+B1
|      +-----+

P+011
|T0011 +-----+
+---] [---+ ROL_ +
|      |WORD|
SHIFT01
|R0030 -+IN Q+-%R0030
|      |LEN|
|      |00015|
PAR_168 |
|R0668 -+N
|      +-----+

```

<< RUNG 34 STEP #0078 >>

<< RUNG 35 STEP #0081 >>

REFERENCE NICKNAME
 %S0008 ALW_OFF
 %T0011 P+011
 %R0668 PAR_168

REFERENCE DESCRIPTION
 Pulse + Pkg.spl. detect. column
 Dump paper splice, offset

REFERENCE NICKNAME
 %R0669 PAR_169
 %R0030 SHIFT01

REFERENCE DESCRIPTION
 Dump paper splice, packs
 Shiftregister 01 for pkg dumping

TBA/21-0410
 BLOCK: PACKAGE DUMPING

```

{*****}
{* Load dump values for PT/21. The dump signal is set from the PT21 and *}
{* the next package coming to the drop chute will be wasted. *}
{*****}

OPT_PT PT21_BP PT_DUMP A418_31                                P+111    << RUNG 37 STEP #0084 >>
%I0119 %I0345 %G0899 %I0166                                %T0111
+--] [----]/[----]/[---+--+ ] [-----+-----+ (^) -- (* Pulse + Dump PT21 packages *)

|
| DCS_MIS |
| %M1011 |
+--] [---+

P+111                                                         << RUNG 38 STEP #0091 >>
%T0111 +-----+
+--] [---+ AND_+-
      | WORD |
SHIFT01 | SHIFT01
%R0030 -+I1 Q+-%R0030
      |
CONST -+I2 |
FFFF +-----+

{*****}
{* In the ASU magazine the number of packages less than full is *}
{* monitored and put into Counter 7. Therefore the start value for *}
{* dumping is subtracted with this counter value. *}
{*****}

{*****}
{* Load dump values for strip splice *}
{*****}

ALW_ON
%S0007 +-----+
+--] [---+MOVE_+-
      | INT |
PAR_174 | DMPSPOF
%R0674 -+IN Q+-%R0057
      | LEN |
      | 00001 |
      +-----+

OPT_041 OPT_ASR
%I0121 %I0122 +-----+
+--]/[----] [---+ ADD +-
          | INT |
          PAR_174 | DMPSPOF
          %R0674 -+I1 Q+-%R0057
          |
          PAR_134 |
          %R0634 -+I2
          +-----+

P+018
%T0018 +-----+                +-----+                +-----+
+--] [---+ SUB +-----+ ADD +-----+ ROR +-----+
      | INT |                | INT |                | WORD |
DMPSPOF | DMP_SPL DMP_SPL | DMPSTR SHIFT01 | SHIFT01
%R0057 -+I1 Q+-%R0058 %R0058 -+I1 Q+-%R0055 %R0030 -+IN Q+-%R0030
      |           |           |           |           |
      |           |           |           |           |
CNT_7   |           |           |           |           |
%R0169 -+I2         |           |           |           |
      +-----+     +-----+     +-----+
                  PAR_175
                  %R0675 -+I2
                  +-----+

DMPSTR
%R0055 -+N
+-----+

<< RUNG 43 STEP #0100 >>

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0166	A418_31	TMCC DCS, Register mark signal	%I0119	OPT_PT	Option, PT/21
%S0007	ALW_ON		%T0018	P+018	Pulse + SA, Splice finished
%R0169	CNT_7	CNT7, Dumping ASU packages	%T0111	P+111	Pulse + Dump PT21 packages
%M1011	DCS_MIS	DCS, Missed register mark	%R0634	PAR_134	Extra pkgs.offset ASR -050V ONLY
%R0057	DMPSPOF	Dump strip splice, pack. offset	%R0674	PAR_174	Dump strip splice, offset
%R0055	DMPSTR	Dump strip stop, pack to rotate	%R0675	PAR_175	Dump strip splice, packs
%R0058	DMP_SPL	Dump strip splice, start dump	%I0345	PT21_BP	From PT21, Bypass mode
%I0121	OPT_041	Option, 041V functionality	%G0899	PT_DUMP	From PT21, Dump packages
%I0122	OPT_ASR	Option, ASU in separate room	%R0030	SHIFT01	Shiftregister 01 for pkg dumping

TBA/21-0410
BLOCK: PACKAGE DUMPING


```

| P+018
| %T0018 +-----+
+---] [---+ SHL_
|         | WORD |
| SHIFT01
| %R0030  -+IN B2+
|         | LEN  |
|         | 00015|
| PAR_175 | SHIFT01
| %R0675  -+N   Q+-%R0030
| ALW_OFF
| %S0008
+---] [---+ B1
|         +-----+

| P+018
| %T0018 +-----+
+---] [---+ ROL_ +
|         | WORD |
| SHIFT01
| %R0030  -+IN Q+-%R0030
|         | LEN  |
|         | 00015|
| DMP_SPL
| %R0058  -+N   |
|         +-----+

```

<< RUNG 44 STEP #0104 >>

<< RUNG 45 STEP #0107 >>

REFERENCE NICKNAME
 %S0008 ALW_OFF
 %R0058 DMP_SPL
 %T0018 P+018

REFERENCE DESCRIPTION
 Dump strip splice, start dump
 Pulse + SA, Splice finished

REFERENCE NICKNAME
 %R0675 PAR_175
 %R0030 SHIFT01

REFERENCE DESCRIPTION
 Dump strip splice, packs
 Shiftregister 01 for pkg dumping

TBA/21-0410
 BLOCK: PACKAGE DUMPING

```

(*****
* Load dump values for stop of strip applicator
*****)

ALW_ON
%S0007 +-----+
+---] [---+MOVE_+
      |INT|
PAR_176 |DMP_SAOF|
%R0676 -+IN Q+-%R0059
      |LEN|
      |00001|
      +-----+

OPT_041 OPT_ASR
%I0121 %I0122 +-----+
+---]/[-----] [---+ADD_+
      |INT|
      |PAR_176 |DMP_SAOF|
      |%R0676 -+I1 Q+-%R0059
      |PAR_134 |
      |%R0634 -+I2
      +-----+

P+019
%T0019 +-----+
+---] [---+SUB_+
      |INT|
DMP_SAOF |DMP_SA| DMP_SA |DMPSTST SHIFT01|
%R0059 -+I1 Q+-%R0060 %R0060 -+I1 Q+-%R0056 %R0030 -+IN Q+-%R0030
      |LEN|
      |00015|
CNT_7 |PAR_177 |DMPSTST|
%R0169 -+I2 %R0677 -+I2 %R0056 -+N
      +-----+

P+019
%T0019 +-----+
+---] [---+SHL_+
      |WORD|
SHIFT01
%R0030 -+IN B2+
      |LEN|
      |00015|
PAR_177 |SHIFT01|
%R0677 -+N Q+-%R0030
ALW_OFF
%S0008
+---] [---+B1
      +-----+

P+019
%T0019 +-----+
+---] [---+ROL_+
      |WORD|
SHIFT01 |SHIFT01|
%R0030 -+IN Q+-%R0030
      |LEN|
      |00015|
DMP_SA
%R0060 -+N
      +-----+

```

<< RUNG 47 STEP #0110 >>

<< RUNG 48 STEP #0112 >>

<< RUNG 49 STEP #0115 >>

<< RUNG 50 STEP #0119 >>

<< RUNG 51 STEP #0122 >>

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%S0008	ALW_OFF		%I0122	OPT_ASR	Option, ASU in separate room
%S0007	ALW_ON		%T0019	P+019	Pulse + SA, Dump stop pkgs
%R0169	CNT_7	CNT7, Dumping ASU packages	%R0634	PAR_134	Extra pkgs.offset ASR -050V ONLY
%R0059	DMP_SAOF	Dump SA stop, package offset	%R0676	PAR_176	Dump strip stop, offset
%R0056	DMPSTST	Dump SA stop, pack to rotate	%R0677	PAR_177	Dump strip stop, packs
%R0060	DMP_SA	Dump SA stop, start dumping	%R0030	SHIFT01	Shiftregister 01 for pkg dumping
%I0121	OPT_041	Option, 041V functionality			

TBA/21-0410
BLOCK: PACKAGE DUMPING

```

(*****
(* This shift instruction shifts the bits in the 15 registers      *)
(* for package dumping to the right.                             *)
(* One register is 16 packages (bits).                           *)
(* "1" in the shiftregisters is a good package.                 *)
(* "0" in the shiftregisters will be dumped.                    *)
(* The array start at the ASU and ends at the drop chute, like this: *)
(* R0044,R0038,R0037 ----- R0032,R0031,R0030                 *)
(* and the last bit in R0030 will set or reset M0040.           *)
(*****

P+008                                PACKDMP << RUNG 53 STEP #0125 >>
%T0008                                %M0040
+--] [---+-----+-----+-----+-----+-----+-----+-----+-----+-----+
DCS_MIS                               (R)-- (* Package dumping *)
%M1011

P+008                                PACKDMP << RUNG 54 STEP #0128 >>
%T0008                                %M0040
+--] [---+-----+-----+-----+-----+-----+-----+-----+-----+-----+
DCS_MIS                               (S)-- (* Package dumping *)
%M1011                               SHR
+--] [---+-----+-----+-----+-----+-----+-----+-----+-----+-----+
                                WORD
                                IN B2
                                LEN
                                00015
                                SHIFT01
                                Q+-%R0030
                                CONST -+N
                                +00001
ALW_ON
%S0007                               +B1
+--] [---+-----+-----+-----+-----+-----+-----+-----+-----+-----+

(*****
(* Sectors for close/open drop chute                             *)
(*****

ALW_ON                                CLOSE << RUNG 56 STEP #0134 >>
%S0007                                %M0041
+--] [---+-----+-----+-----+-----+-----+-----+-----+-----+-----+
                                RANGE
                                INT
                                CONST -+L1 Q+
                                +00008
                                CONST -+L2
                                +00024
SEC 127
%R0002 -+IN
+-----+

ALW_ON                                OPEN << RUNG 57 STEP #0137 >>
%S0007                                %M0042
+--] [---+-----+-----+-----+-----+-----+-----+-----+-----+-----+
                                RANGE
                                INT
                                CONST -+L1 Q+
                                +00064
                                CONST -+L2
                                +00072
SEC 127
%R0002 -+IN
+-----+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%S0007	ALW_ON		%T0008	P+008	Pulse + DCS register mark
%M0041	CLOSE	Close drop chute	%M0040	PACKDMP	Package dumping
%M1011	DCS_MIS	DCS, Missed register mark	%R0002	SEC_127	Angle sector (0-127 decimal deg)
%M0042	OPEN	Open drop chute	%R0030	SHIFT01	Shiftregister 01 for pkg dumping

TBA/21-0410
BLOCK: PACKAGE DUMPING

```

{*****
{ * If the drop chute is energized the packages will go
{ * into the final folder.
{*****}

PACKDMP S906 Y5501 STEP_2 INC_JUM STR_JUM A506_33 << RUNG 59 STEP #0141 >>
%M0040 %I0198 %Q0302 %M0102 %M0901 %M0902 %I0148
+---] [-----]/[---+ ] [-----]/[-----]/[-----] [-----]<+>

Y5501 OPEN CLOSE K123
%Q0302 %M0042 %M0041 %Q0171
+---] [-----]/[---+ ] [-----] [---+

<+>-----Y5501 << RUNG 60 STEP #0156 >>
%Q0302
( )-- (* FFU, Drop chute into FFU *)

TMR1_10 TMR1_3 SPD8000
%M0210 %M0203 %M0055
+---] [-----]/[-----] [---+

A506_33 Y5501 K009 << RUNG 61 STEP #0162 >>
%M0148 %Q0302 %Q0130
+---] [-----]/[---+OFDT +----- ( )-- (* FFU, Transport of waste *)
|0.10s|
CONST --PV
+000800
+-----+
DEL3800
%R3800

K009 EC_ON Y5504 << RUNG 62 STEP #0166 >>
%Q0130 %M1313 %Q0299
+---] [-----]/[----- ( )-- (* FFU, Outfeed waste front *)

[ END OF SUBROUTINE LOGIC ]

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0148	A506_33	DMC Main motor, Running	%I0198	S906	Drop chute off
%M0041	CLOSE	Close drop chute	%M0055	SPD8000	8000 packages per hour
%R3800	DEL3800	Delay,	%M0102	STEP_2	Step 2 Tube sealing
%M1313	EC_ON	EC, Going on	%M0902	STR_JUM	JUM, Condition ster. inching JUM
%M0901	INC_JUM	JUM, Condition inching JUM	%M0210	TMRL_10	Startseq, Going on (0,01-9,99)
%Q0130	K009	FFU, Transport of waste	%M0203	TMRL_3	Startseq, (>9,80)
%Q0171	K123	Connection of jaw system	%Q0302	Y5501	FFU, Drop chute into FFU
%M0042	OPEN	Open drop chute	%Q0299	Y5504	FFU, Outfeed waste front
%M0040	PACKDMP	Package dumping			

TBA/21-0410
BLOCK: PACKAGE DUMPING

```

[ START LD SUBROUTINE BLK_33 ]
[ VARIABLE DECLARATIONS ]
[ START OF SUBROUTINE LOGIC ]

(*****
* Block 33 "Final Folder Unit"
*****)

(*****
* Flap sealing
*****)

SPR_EMT HI_ON                                FLAP_ON << RUNG 6 STEP #0004 >>
%M0742 %M1900                                %M1050
+---]/[---]/[-----+-----+ GE_ +-----+ ( )-- (* FFU, Flap heaters ON in drying *)
| HI_ON HISPEMP HITMPLW | INT |
| %M1900 %M1908 %M1909 | TMR_8 |
| +---]/[---]/[---]/[---+ %R0121 +I1 Q++
|                               |
| FLP_DRY                       |
| %R2502 +I2                   |
|                               |
+-----+

FLAP_ON                                K033 << RUNG 7 STEP #0013 >>
%M1050                                %Q0152
+---]/[-----+-----+ ( )-- (* FFU, Flap heating *)
| S003 STP5_10 |
| %I0206 %M0148 |
| +---]/[---]/[---+
| K033 EC_ON +-----+ Y5306 << RUNG 8 STEP #0018 >>
| %Q0152 %M1313 +-----+ %Q0298
| +---]/[---]/[---+ TMR +-----+ ( )-- (* FFU, Flap heating air *)
| | 0.10s |
| CONST +PV |
| +05400 |
| +-----+
| DEL3900
| %R3900

Y5501 Y5315 << RUNG 9 STEP #0022 >>
%Q0302 +-----+ %Q0300
+---]/[---+OFDT +-----+ ( )-- (* FFU, Preblowing *)
| | 0.10s |
| CONST +PV |
| +00030 |
| +-----+
| DEL3903
| %R3903

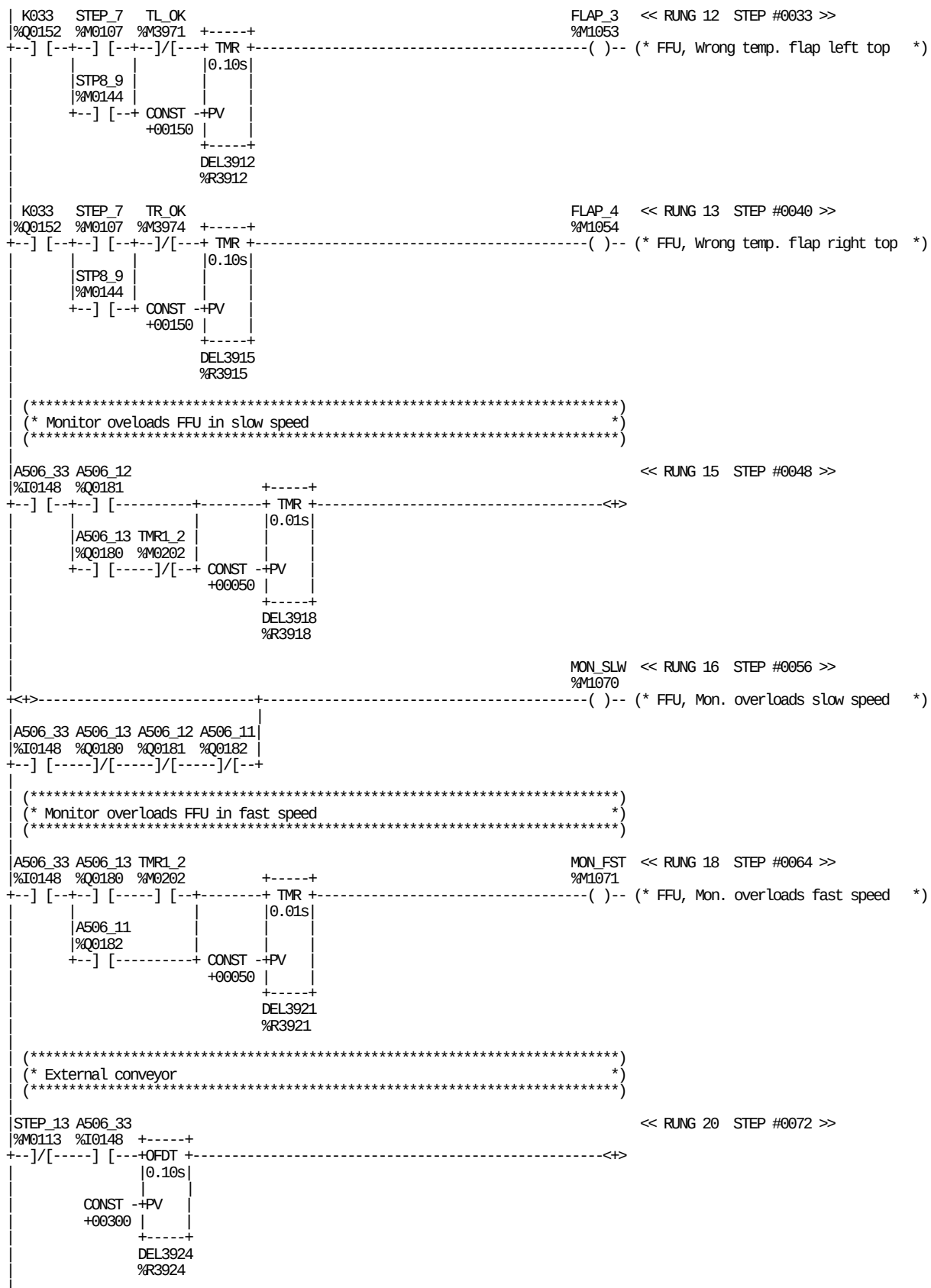
(*****
* Flap heating
*****)

K033 STEP_7 BM_OK                                FLAP_1 << RUNG 11 STEP #0026 >>
%Q0152 %M0107 %M3976 +-----+ %M1051
+---]/[---]/[---+ TMR +-----+ ( )-- (* FFU, Wrong temp. flap L/R bottom *)
| | 0.10s |
| STP8_9 |
| %M0144 |
| +---]/[---+ CONST +PV |
| +00150 |
| +-----+
| DEL3906
| %R3906

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M3976	BM_OK	Flap Bottom L/R, Temperature OK	%Q0152	K033	FFU, Flap heating
%R3900	DEL3900	Delay,	%I0206	S003	Service switch
%R3903	DEL3903	Delay,	%M0742	SPR_EMT	PER, Spray tank, fast/slow empt.
%R3906	DEL3906	Delay,	%M0107	STEP_7	Step 7 Signal from sterilizer
%M1313	EC_ON	EC, Going on	%M0148	STP5_10	Step 5-10 Drying to prod.end
%M1051	FLAP_1	FFU, Wrong temp. flap L/R bottom	%M0144	STP8_9	Step 8-9 Motorstart to prod.
%M1050	FLAP_ON	FFU, Flap heaters ON in drying	%R0121	TMR_8	Tmr 8, Drying time (0,10s)
%R2502	FLP_DRY	AIR, Flap heating on in drying	%Q0298	Y5306	FFU, Flap heating air
%M1908	HISPEMP	HI, HI spr.tank slow/fast empty	%Q0300	Y5315	FFU, Preblowing
%M1909	HITMPLW	HI, Low temp. during spraying	%Q0302	Y5501	FFU, Drop chute into FFU
%M1900	HI_ON	HI, system ready for HI			

TBA/21-0410/0500
BLOCK: FINAL FOLDER UNIT (FFU)



REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%Q0182	A506_11	DMC Main motor, Fast inch	%M1054	FLAP_4	FFU, Wrong temp. flap right top
%Q0181	A506_12	DMC Main motor, Slow inch	%Q0152	K033	FFU, Flap heating
%Q0180	A506_13	DMC Main motor, Production speed	%M1071	MON_FST	FFU, Mon. overloads fast speed
%I0148	A506_33	DMC Main motor, Running	%M1070	MON_SLW	FFU, Mon. overloads slow speed
%R3912	DEL3912	Delay,	%M0113	STEP_13	Step 13 Cleaning
%R3915	DEL3915	Delay,	%M0107	STEP_7	Step 7 Signal from sterilizer
%R3918	DEL3918	Delay,	%M0144	STEP8_9	Step 8-9 Motorstart to prod.
%R3921	DEL3921	Delay,	%M3971	TL_OK	Flap TL, Temperature OK
%R3924	DEL3924	Delay,	%M0202	TMR1_2	Startseq, Synch.ready (>8,00)
%M1053	FLAP 3	FFU, Wrong temp. flap left top	%M3974	TR_OK	Flap TR, Temperature OK

TBA/21-0410/0500
BLOCK: FINAL FOLDER UNIT (FFU)

```

      EC_ON    K015
      %M1313  %Q0122
      <+>-----]/[-----]/[----->----->----->----->----->----->
      STEP_13 A506_33
      %M0113  %I0148  +-----+
      +---]/[-----] [---+OFDT +----->----->----->----->----->----->
      |0.10s|
      CONST -+PV
      +00300 |
      +-----+
      DEL3939
      %R3939

      EC_ON    K010
      %M1313  %Q0116
      <+>-----]/[-----]/[----->----->----->----->----->----->
      Y5501 EXT_09 K010
      %Q0302 %I0314 %Q0116
      +---]/[-----] [---+-----+
      |0.10s|
      |EXT_15 K015
      |%I0315 %Q0122
      +---]/[-----] [---+CONST -+PV
      +00020 |
      +-----+
      DEL3927
      %R3927

      EXTCONG K010 K015 XTCONG1
      %M1090 %Q0116 %Q0122 %M1094
      +---]/[-----] [---+-----]/[----->----->----->----->----->----->
      XTCONG1 << RUNG 25 STEP #0097 >>
      %M1094
      +---]/[-----] [---+-----]/[----->----->----->----->----->----->
      (S)-- (* FFU, Ext.congestn. is in conv.1 *)

      EXTCONG RESET
      %M1090 %M3050
      +---]/[-----] [---+----->----->----->----->----->----->
      EXTCAK << RUNG 26 STEP #0102 >>
      %M1093
      +---]/[-----] [---+----->----->----->----->----->----->
      (S)-- (* FFU, Ext. conv. cong. ackn. *)

      EXT_09 XTCONG1 EXTCAK
      %I0314 %M1094 %M1093
      +---]/[-----] [---+----->----->----->----->----->----->
      EXTCONG << RUNG 27 STEP #0105 >>
      %M1090
      +---]/[-----] [---+----->----->----->----->----->----->
      (R)-- (* FFU, Ext.conveyor cong. guard *)

      EXT_15 XTCONG1
      %I0315 %M1094
      +---]/[-----] [---+----->----->----->----->----->----->
      EXTCAK
      %M1093
      +---]/[-----] [---+----->----->----->----->----->----->
      (R)-- (* FFU, Ext. conv. cong. ackn. *)

      XTCONG1
      %M1094
      +---]/[-----] [---+----->----->----->----->----->----->
      (R)-- (* FFU, Ext.congestn. is in conv.1 *)

      (*****
      (* Final folder in wrong position *)
      (*****

      STP5_9 A506_33
      %M0143 %I0148  +-----+
      +---]/[-----]/[---+ TMR +----->----->----->----->----->----->
      |0.01s|
      CONST -+PV
      +00050 |
      +-----+
      DEL3930
      %R3930

      B5103 TMR1_0
      %I0310 %M0200
      <+>-----]/[-----]/[----->----->----->----->----->----->
      HOMEPOS << RUNG 30 STEP #0119 >>
      %M1091
      +---]/[-----] [---+----->----->----->----->----->----->
      ( )-- (* FFU, Machine not in home pos. *)

      (*****
      (* Check function of counter out from FFU *)
      (*****

      RESET
      %M3050
      +---]/[-----] [---+----->----->----->----->----->----->
      PKGMALF << RUNG 32 STEP #0124 >>
      %M1092
      +---]/[-----] [---+----->----->----->----->----->----->
      (R)-- (* FFU, Pkg cnt malf. photocells *)

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0148	A506_33	DMC Main motor, Running	%M1091	HOMEPOS	FFU, Machine not in home pos.
%I0310	B5103	FFU, Home position	%Q0116	K010	External conveyor 1
%R3927	DEL3927	Delay,	%Q0122	K015	External conveyor 2
%R3930	DEL3930	Delay,	%M1092	PKGMALF	FFU, Pkg cnt malf. photocells
%R3939	DEL3939	Delay,	%M3050	RESET	Alarm reset
%M1313	EC_ON	EC, Going on	%M0113	STEP_13	Step 13 Cleaning
%M1093	EXTCAK	FFU, Ext. conv. cong. ackn.	%M0143	STP5_9	Step 5-9 Drying to prod.
%M1090	EXTCONG	FFU, Ext.conveyor cong. guard	%M0200	TMR1_0	Startseq, (>0,01)
%I0314	EXT_09	External conveyor cong. guard 1	%M1094	XTCONG1	FFU, Ext.congestn. is in conv.1
%I0315	EXT_15	External conveyor cong. guard 2	%Q0302	Y5501	FFU, Drop chute into FFU

TBA/21-0410/0500
BLOCK: FINAL FOLDER UNIT (FFU)

```

B5402                                     P+136      << RUNG 33 STEP #0126 >>
%I0312                                     %T0136
+---] [-----] [-----] (^)--- (* Pulse + pack. counter after FFU *)

STEP_9   Y5501                                << RUNG 34 STEP #0128 >>
%M0109   %Q0302                                << RUNG 34 STEP #0128 >>
+---] [-----] [-----] TMR +-----<->
|
| 0.10s |
CONST -PV
+00100 |
+-----+
DEL3933
%R3933

P+136                                         PKGMALF    << RUNG 35 STEP #0132 >>
%T0136 +-----+                             %M1092
+---] [/] [-----] TMR +------(S)-- (* FFU, Pkg cnt malf. photocells *)
|
| 0.10s |
CONST -PV
+00010 |
+-----+
DEL3936
%R3936

{*****}
{* Flushing FFU *}
{*****}

A601_34 S904                                 Y2108     << RUNG 37 STEP #0137 >>
%I0130   %I0196                             %Q0294
+---] [-----] [-----] -----( )-- (* FFU, Flushing *)

{*****}
{* External date unit *}
{*****}

OPT_041 OPT_EDU STP5_10 DRY_RDY EDU_00       EXT_DU    << RUNG 39 STEP #0141 >>
%I0121   %I0117   %M0148 %M0831 %I0317       %M1080
+---] [-+---] [-+---] [-----] [-----]/[-----] ( )-- (* FFU, External date unit not rdy *)

|
| OPTRK_3 |
|M4080 |
+---] [---+

|
| OPT_041 OPTRK_3 |
| %I0121 %M4080 |
+---]/[-----]/[---+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0130	A601_34	Safety monitor door guards	%I0117	OPT_EDU	Option, External date unit
%I0312	B5402	Package counter after FFU	%T0136	P+136	Pulse + pack. counter after FFU
%R3933	DEL3933	DeLay,	%M1092	PKGMAF	FFU, Pkg cnt malif. photocells
%R3936	DEL3936	DeLay,	%I0196	S904	Station chain sprinkler
%M0831	DRY_RDY	AIR, Drying ready aseptic chamb	%M0109	STEP_9	Step 9 Production
%I0317	EDU_00	External date unit, Ready	%M0148	STP5_10	Step 5-10 Drying to prod.end
%M1080	EXT_DU	FFU, External date unit not rdy	%Q0294	Y2108	FFU, Flushing
%M4080	OPTRK_3	TBA21 050V field test	%Q0302	Y5501	FFU, Drop chute into FFU
%I0121	OPT_041	Option. 041V functionality			

TBA/21-0410/0500
BLOCK: FINAL FOLDER UNIT (FFU)


```

{*****
* Alarms "Final Folder Unit"
*****}

HOMEPOS                                FFU_01  << RUNG 41 STEP #0152 >>
%M1091                                %M3729
+--] [-----] ( )-- (* Final folder in wrong position *)

OVR_PRS                                FFU_02  << RUNG 42 STEP #0154 >>
%M1062                                %M3730
+--] [-----] ( )-- (* Pressure device, Rotation mon. *)

OVR_INF                                FFU_03  << RUNG 43 STEP #0156 >>
%M1061                                %M3731
+--] [-----] ( )-- (* Infeed station, Rotation mon. *)

OVR_STN                                FFU_04  << RUNG 44 STEP #0158 >>
%M1063                                %M3732
+--] [-----] ( )-- (* Station wheel, Rotation mon. *)

B5401                                FFU_06  << RUNG 45 STEP #0160 >>
%I0311                                %M3734
+--]/[-----] ( )-- (* Outfeed station, Overload *)

EXTCONG                                FFU_07  << RUNG 46 STEP #0162 >>
%M1090                                %M3735
+--] [-----] ( )-- (* Conveyor congestion *)

FLAP_1                                FFU_08  << RUNG 47 STEP #0164 >>
%M1051                                %M3736
+--] [-----] ( )-- (* Flap heat bottom L/R, Temp. *)

FLAP_3                                FFU_10  << RUNG 48 STEP #0166 >>
%M1053                                %M3738
+--] [-----] ( )-- (* Flap heat top left, Temp. *)

FLAP_4                                FFU_11  << RUNG 49 STEP #0168 >>
%M1054                                %M3739
+--] [-----] ( )-- (* Flap heat top right, Temp. *)

NOT_SNC                                FFU_12  << RUNG 50 STEP #0170 >>
%M1060                                %M3740
+--] [-----] ( )-- (* Final folder out of synch. *)

PKGMA LF                                FFU_13  << RUNG 51 STEP #0172 >>
%M1092                                %M3741
+--] [-----] ( )-- (* Pkg cnt, Malfunction photocell *)

STP5_9 EXT_02                        FFU_14  << RUNG 52 STEP #0174 >>
%M0143 %I0226                        %M3742
+--] [-----]/[-----] ( )-- (* DE not ready *)

DUMMY                                FFU_15  << RUNG 53 STEP #0177 >>
%M4050                                %M3743
+--] [-----] ( )-- (* External date unit, supply *)

EXT_DU                                FFU_16  << RUNG 54 STEP #0179 >>
%M1080                                %M3744
+--] [-----] ( )-- (* External date unit *)

[      END OF SUBROUTINE LOGIC      ]

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0311	B5401	FFU, Outfeed fr.station overload	%M3741	FFU_13	Pkg cnt, Malfunction photocell
%M4050	DUMMY	Dummy	%M3742	FFU_14	DE not ready
%M1090	EXTCONG	FFU, Ext.conveyor cong. guard	%M3743	FFU_15	External date unit, supply
%I0226	EXT_02	DE, Equipment Ready	%M3744	FFU_16	External date unit
%M1080	EXT_DU	FFU, External date unit not rdy	%M1051	FLAP_1	FFU, wrong temp. flap L/R bottom
%M3729	FFU_01	Final folder in wrong position	%M1053	FLAP_3	FFU, wrong temp. flap left top
%M3730	FFU_02	Pressure device, Rotation mon.	%M1054	FLAP_4	FFU, wrong temp. flap right top
%M3731	FFU_03	Infeed station, Rotation mon.	%M1091	HOMEPOS	FFU, Machine not in home pos.
%M3732	FFU_04	Station wheel, Rotation mon.	%M1060	NOT_SNC	FFU, Not synchronized
%M3734	FFU_06	Outfeed station, Overload	%M1061	OVR_INF	FFU, Overload infeed station
%M3735	FFU_07	Conveyor congestion	%M1062	OVR_PRS	FFU, Overload pressure device
%M3736	FFU_08	Flap heat bottom L/R, Temp.	%M1063	OVR_STN	FFU, Overload station wheel
%M3738	FFU_10	Flap heat top left, Temp.	%M1092	PKGMLF	FFU, Pkg cnt malf. photocells
%M3739	FFU_11	Flap heat top right, Temp.	%M0143	STP5_9	Step 5-9 Drying to prod.
%M3740	FFU_12	Final folder out of synch.			

TBA/21-0410/0500
BLOCK: FINAL FOLDER UNIT (FFU)

```

[ START LD SUBROUTINE BLK_50 ]
[ VARIABLE DECLARATIONS ]
[ START OF SUBROUTINE LOGIC ]

(*****
*)
*****
*)
*) Block 50 "Cleaning CIP/EC"
*)
*****)

OPT_041                                AUT_CIP << RUNG 5 STEP #0003 >>
%I0121                                %M1220
+--] [---+-----] [---+-----] [---+-----] (* CIP, Automatic CIP (DEF valve) *)

|
| OPTRK_3 |
| %M4080 |
+--] [---+-----]

|
| OPTRK14 |
| %M4078 |
+--] [---+-----]

CLN_09 CIP_ON C.STEAM C.CLEAN          CIPLOWT << RUNG 6 STEP #0007 >>
%M3073 %M1204 %M0654 %M0651          %M1206
+--] [---+-----] [---+-----] [---+-----] [---+-----] (* CIP, not allow low temp steam *)

(*****
*)
*) CIP with standard equipment
*)
*****)

CLN_09 AUT_CIP A601_34 A305_18 B1306 B1308 B1317 B1305 CIPLOWT << RUNG 8 STEP #0013 >>
%M3073 %M1220 %I0130 %I0263 %I0252 %I0254 %I0272 %I0303 %M1206
+--] [---+-----] [---+-----] [---+-----] [---+-----] [---+-----] [---+-----] [---+-----] [---+-----]

A600_14 RV_POS HINOCIP B1506          STD_RDY << RUNG 9 STEP #0023 >>
%I0129 %M1210 %M1912 %I0135          %M1200
+<+>-----] [---+-----] [---+-----] [---+-----] [---+-----] [---+-----] (* CIP, Ready to start standard *)

(*****
*)
*) CIP with optional D,E,F valves
*)
*****)

CLN_09 AUT_CIP A601_34 A305_18 B1317 B1305 CIPLOWT A600_14 RV_POS << RUNG 11 STEP #0030 >>
%M3073 %M1220 %I0130 %I0263 %I0272 %I0303 %M1206 %I0129 %M1210
+--] [---+-----] [---+-----] [---+-----] [---+-----] [---+-----] [---+-----] [---+-----] [---+-----]

HINOCIP B1506          AUT_RDY << RUNG 12 STEP #0040 >>
%M1912 %I0135          %M1201
+<+>-----] [---+-----] [---+-----] [---+-----] [---+-----] [---+-----] (* CIP, Ready to start with DEF val *)

|
| OPT_041 |
| %I0121 |
+--] [---+-----]

(*****
*)
*) CIP status
*)
*****)

EXT_03                                P+140 << RUNG 14 STEP #0047 >>
%I0227                                %T0140
+--] [---+-----] [---+-----] [---+-----] [---+-----] [---+-----] (* Pulse + CIP ended (from extrnl) *)

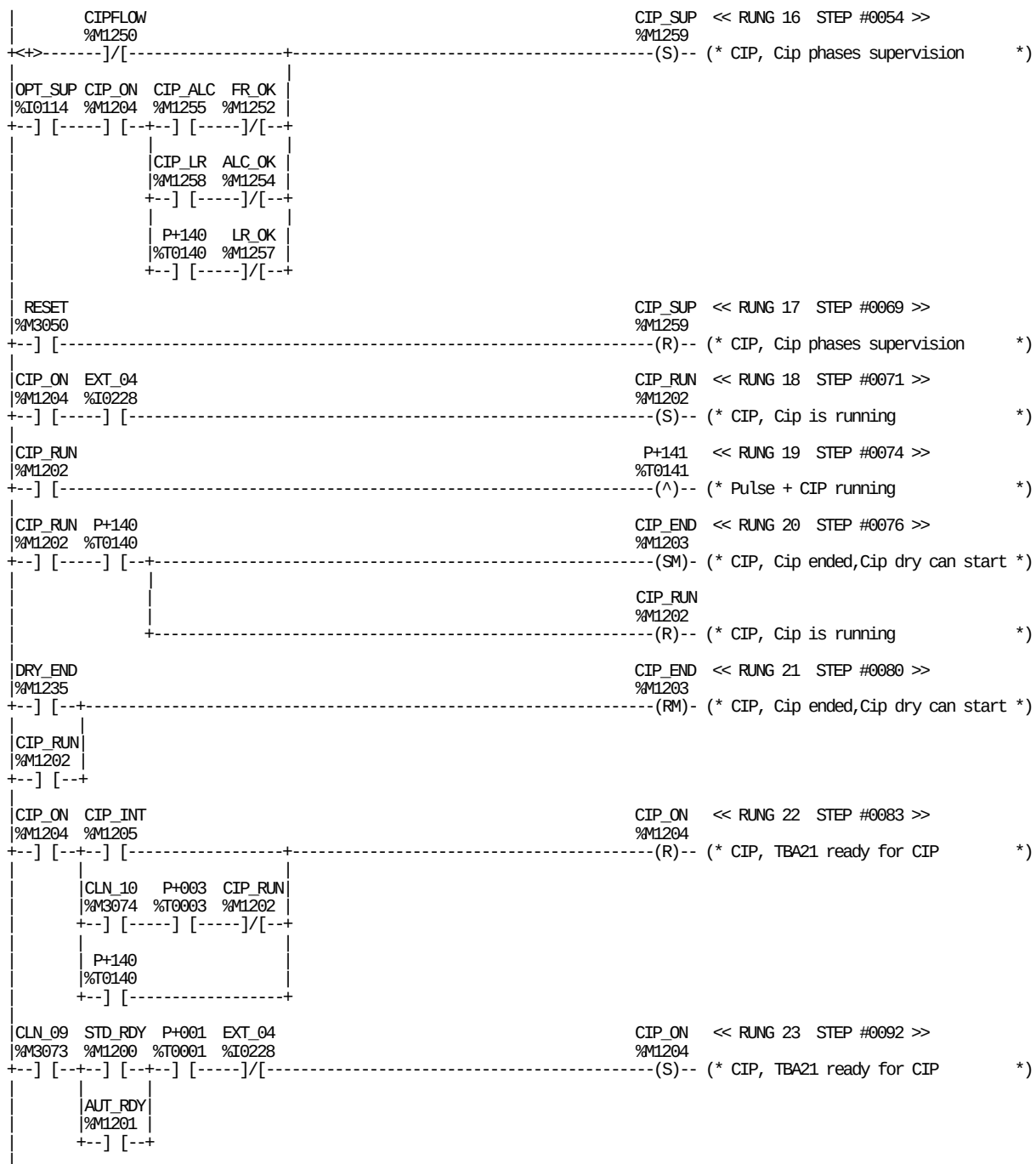
OPT_SUP CIP_ON EXT_04                << RUNG 15 STEP #0049 >>
%I0114 %M1204 %I0228 +-----+
+--] [---+-----] [---+-----] [---+-----] [---+-----] [---+-----]

|
| 0.10s |
| TMR |
+-----+
|
| CONST +PV |
| +00400 |
+-----+
|
| DEL4500 |
| %R4500 |
+-----+

```

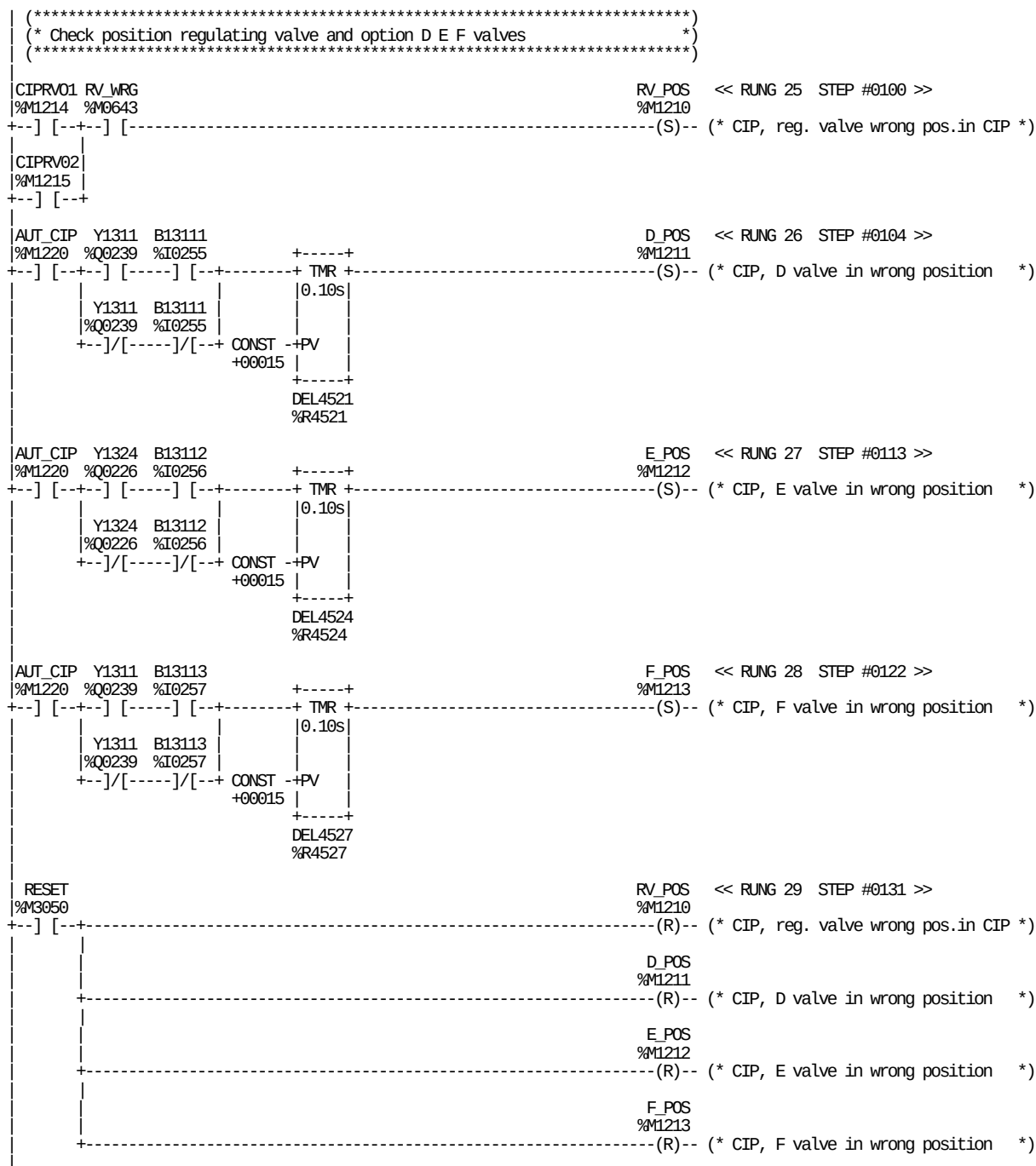
REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0263	A305_18	Regulating valve, Leakage	%M0651	C.CLEAN	FIL, Prep. for clean steam barr.
%I0129	A600_14	Emergency Stop	%M0654	C.STEAM	FIL, Low temp steam (info alarm)
%I0130	A601_34	Safety monitor door guards	%R4500	DEL4500	Delay,
%M1220	AUT_CIP	CIP, Automatic CIP (DEF valve)	%I0227	EXT_03	CIP Done
%M1201	AUT_RDY	CIP, Ready to start with DEF val	%I0228	EXT_04	CIP running
%I0303	B1305	Cleaning sleeve, Position	%M1912	HINOCIP	HI, HI sys. not ready for CIP
%I0252	B1306	Cleaning pipe infeed, Position	%M4078	OPTRK14	Internal option D-E-F Valves
%I0254	B1308	B - Valve pipe, Position	%M4080	OPTRK_3	TBA21 050V field test
%I0272	B1317	Cleaning pipe outfeed, Position	%I0121	OPT_041	Option, 041V functionality
%I0135	B1506	A. chamber front doors, Closed	%I0114	OPT_SUP	Option, CIP supervision
%M1206	CIPLOWT	CIP, not allow low temp steam	%T0140	P+140	Pulse + CIP ended (from extrnl)
%M1204	CIP_ON	CIP, TBA21 ready for CIP	%M1210	RV_POS	CIP, reg. valve wrong pos.in CIP
%M3073	CLN_09	Clean, CIP select	%M1200	STD_RDY	CIP, Ready to start standard

TBA/21-0410/0500
BLOCK: CLEANING CIP/EC



REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M1254	ALC_OK	CIP, Alcali phase done	%M1235	DRY_END	CIP, Cip drying ended
%M1201	AUT_RDY	CIP, Ready to start with DEF val	%I0228	EXT_04	CIP running
%M1250	CIPFLOW	CIP, Flow>8m3/h;0-16000=0-10m3/h	%M1252	FR_OK	CIP, First rinsing phase done
%M1255	CIP_ALC	CIP, Alcali phase going on	%M1257	LR_OK	CIP, Last rinsing phase done
%M1203	CIP_END	CIP, Cip ended,Cip dry can start	%I0114	OPT_SUP	Option, CIP supervision
%M1205	CIP_INT	CIP, interrupted	%T0001	P+001	Pulse + Step up
%M1258	CIP_LR	CIP, Last rinsing phase going on	%T0003	P+003	Pulse + Step down
%M1204	CIP_ON	CIP, TBA21 ready for CIP	%T0140	P+140	Pulse + CIP ended (from extrnl)
%M1202	CIP_RUN	CIP, CIP is running	%T0141	P+141	Pulse + CIP running
%M1259	CIP_SUP	CIP, Cip phases supervision	%M3050	RESET	Alarm reset
%M3073	CLN_09	Clean, CIP select	%M1200	STD_RDY	CIP, Ready to start standard
%M3074	CLN_10	Clean, CIP stop			

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BLOCK: CLEANING CIP/EC



REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M1220	AUT_CIP	CIP, Automatic CIP (DEF valve)	%M1211	D_POS	CIP, D valve in wrong position
%I0255	B13111	CIP Valve D, Position	%M1212	E_POS	CIP, E valve in wrong position
%I0256	B13112	CIP Valve E, Position	%M1213	F_POS	CIP, F valve in wrong position
%I0257	B13113	CIP Valve F, Position	%M3050	RESET	Alarm reset
%M1215	CIPRV02	CIP, Reg.v.open cip int/dry 2bar	%M1210	RV_POS	CIP, reg. valve wrong pos.in CIP
%M1214	CIPRV01	CIP, Reg.v.open at cip on (4bar)	%M0643	RV_WRG	FIL, Reg. valve in wrong pos.
%R4521	DEL4521	Delay,	%Q0239	Y1311	D/F - valves
%R4524	DEL4524	Delay,	%Q0226	Y1324	E - valve
%R4527	DEL4527	Delay,			

TBA/21-0410/0500
BLOCK: CLEANING CIP/EC

```

(*****
* CIP interrupted
*****
)

CIP_ON          CIP_INT << RUNG 31 STEP #0137 >>
%M1204          %M1205
+--] [-----] (R)-- (* CIP, interrupted *)

CIP_ON  B_POS          CIP_INT << RUNG 32 STEP #0139 >>
%M1204 %M0835          %M1205
+--] [---]/[-----] (S)-- (* CIP, interrupted *)

  D_POS
  %M1211
  +--] [---+

  E_POS
  %M1212
  +--] [---+

  F_POS
  %M1213
  +--] [---+

  RV_POS
  %M1210
  +--] [---+

  C_POS
  %M0653
  +--]/[---+

  AUT_CIP AUT_RDY
  %M1220 %M1201
  +--] [-----]/[---+

  AUT_CIP STD_RDY
  %M1220 %M1200
  +--]/[-----]/[---+

CIP_ON  CIP_RUN CLN_10  P+003          CIP_INT << RUNG 33 STEP #0154 >>
%M1204 %M1202 %M3074 %T0003          %M1205
+--] [---] [-----] [-----] (S)-- (* CIP, interrupted *)

  COMFLT3
  %M1219
  +--] [-----+

(*****
* Sequence of the valves movement at CIP start and stop
*****
)

AUT_CIP CIP_END B1305          << RUNG 35 STEP #0162 >>
%M1220 %M1203 %I0303 +-----+
+--] [-----] [-----] [---+OFDT +-----<+>
      |0.10s|
      +-----+
      CONST +PV
      +00600 |
      +-----+
      DEL4542
      %R4542

  CIP_DRY          Y1311 << RUNG 36 STEP #0167 >>
  %M1232          %Q0239
+<+>-----]/[-----] ( )-- (* D/F - valves *)

  AUT_CIP CIP_ON
  %M1220 %M1204
  +--] [---+--] [---+

  CIP_INT
  %M1205
  +--] [---+

```

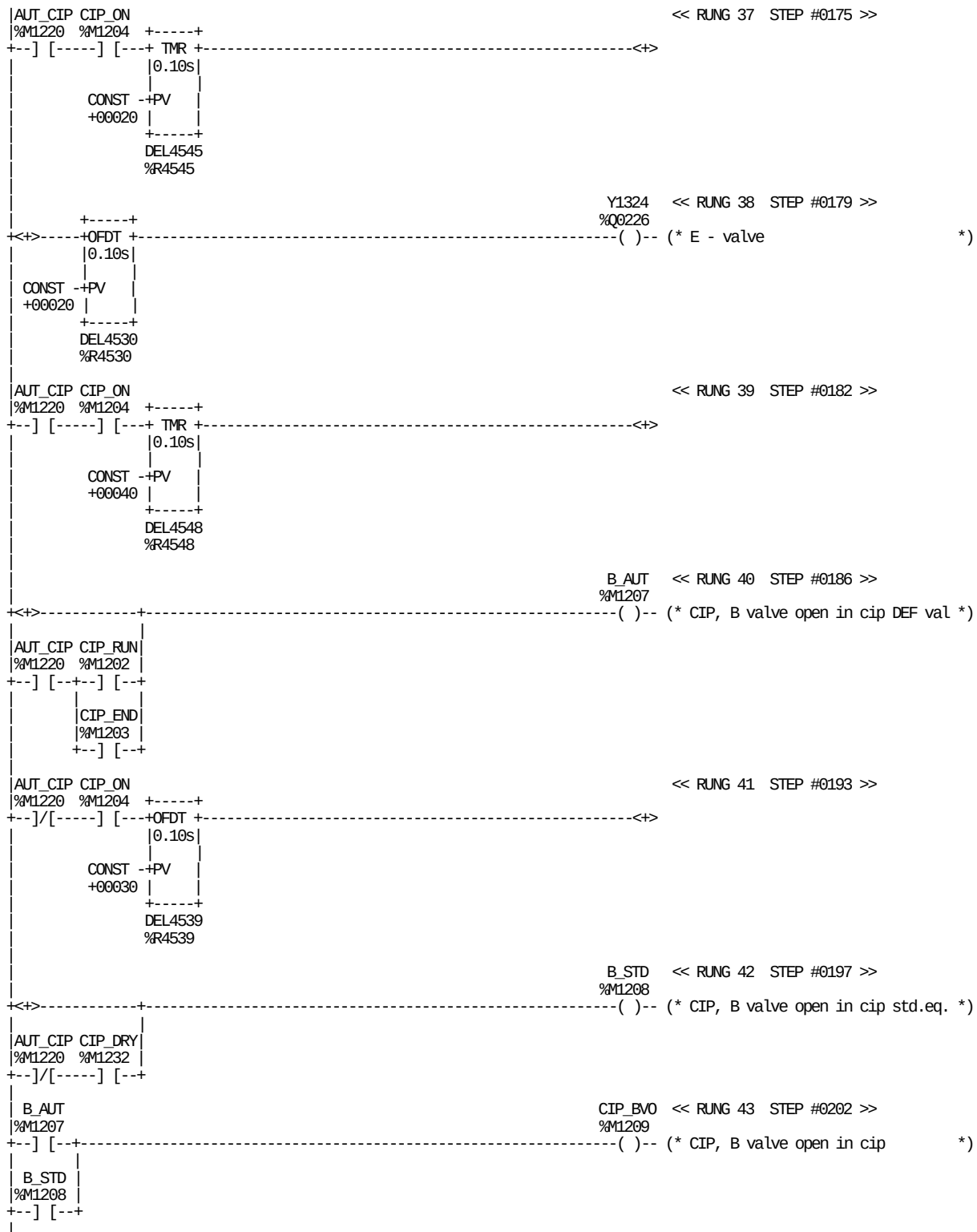
REFERENCE NICKNAME
 %M1220 AUT_CIP
 %M1201 AUT_RDY
 %I0303 B1305
 %M0835 B_POS
 %M1232 CIP_DRY
 %M1203 CIP_END
 %M1205 CIP_INT
 %M1204 CIP_ON
 %M1202 CIP_RUN
 %M3074 CLN_10

REFERENCE DESCRIPTION
 CIP, Automatic CIP (DEF valve)
 CIP, Ready to start with DEF val
 Cleaning sleeve, Position
 AIR, B-valve in position
 CIP, Cip drying going on
 CIP, Cip ended, Cip dry can start
 CIP, interrupted
 CIP, TBA21 ready for CIP
 CIP, Cip is running
 Clean, CIP stop

REFERENCE NICKNAME
 %M1219 COMFLT3
 %M0653 C_POS
 %R4542 DEL4542
 %M1211 D_POS
 %M1212 E_POS
 %M1213 F_POS
 %T0003 P+003
 %M1210 RV_POS
 %M1200 STD_RDY
 %Q0239 Y1311

REFERENCE DESCRIPTION
 CIP, comm.fault3 Wrong sig.exch.
 FIL, C-valve in position
 Delay,
 CIP, D valve in wrong position
 CIP, E valve in wrong position
 CIP, F valve in wrong position
 Pulse + Step down
 CIP, reg. valve wrong pos.in CIP
 CIP, Ready to start standard
 D/F - valves

TBA/21-0410/0500
 BLOCK: CLEANING CIP/EC



REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M1220	AUT_CIP	CIP, Automatic CIP (DEF valve)	%M1202	CIP_RUN	CIP, Cip is running
%M1207	B_AUT	CIP, B valve open in cip DEF val	%R4530	DEL4530	Delay,
%M1208	B_STD	CIP, B valve open in cip std.eq.	%R4539	DEL4539	Delay,
%M1209	CIP_BVO	CIP, B valve open in cip	%R4545	DEL4545	Delay,
%M1232	CIP_DRY	CIP, Cip drying going on	%R4548	DEL4548	Delay,
%M1203	CIP_END	CIP, Cip ended,Cip dry can start	%Q0226	Y1324	E - valve
%M1204	CIP_ON	CIP, TBA21 ready for CIP			

TBA/21-0410/0500
BLOCK: CLEANING CIP/EC

```

|AUT_CIP CIP_BVO CIP_INT CIP_END                                CIPRV01 << RUNG 44 STEP #0205 >>
|%M1220 %M1209 %M1205 %M1203 +-----+                         %M1214
+--] [-----] [-----]/[-----]/[-----] +-----+         ( )-- (* CIP, Reg.v.open at cip on (4bar) *)
|                                     |
|AUT_CIP CIP_ON                                     |
|%M1220 %M1204                                     |
+--]/[-----] [-----] +-----+ +-----+
|                                     |CONST +PV|
|                                     | +00030 |
|                                     | +-----+
|                                     |DEL4533
|                                     |%R4533
|                                     |
|CIP_END CIPRV01                                CIPRV02 << RUNG 45 STEP #0214 >>
|%M1203 %M1214                                %M1215
+--] [-----]/[-----] +-----+         ( )-- (* CIP, Reg.v.open cip int/dry 2bar *)
|
|CIP_INT|
|%M1205|
+--] [-----]
|
|CIP_INT B1305                                CUP_POS << RUNG 46 STEP #0218 >>
|%M1205 %I0303                                %M1216
+--] [-----]/[-----] +-----+         (S)-- (* CIP, cleaning cup out of posit. *)
|
|RESET                                CUP_POS << RUNG 47 STEP #0221 >>
|%M3050                                %M1216
+--] [-----] +-----+         (R)-- (* CIP, cleaning cup out of posit. *)
|
|*****
|(* Communication to CIP equipment:
|*
|*****
|
|CIP_ON                                EXT_11 << RUNG 49 STEP #0224 >>
|%M1204 +-----+                                %Q0221
+--] [-----] TMR +-----+         ( )-- (* TBA/21, Ready for CIP *)
|                                     |
|                                     |0.10s|
|
|CONST +PV|
| +00060 |
| +-----+
|                                     |DEL4506
|                                     |%R4506
|
|EXT_04                                COMFLT1 << RUNG 50 STEP #0227 >>
|%I0228                                %M1217
+--]/[-----] +-----+         (R)-- (* CIP,comm.fault1 Wrong sig.exch. *)
|
|CLN_09 P+001 EXT_04 CIP_ON                                COMFLT1 << RUNG 51 STEP #0229 >>
|%M3073 %T0001 %I0228 %M1204                                %M1217
+--] [-----] [-----] [-----]/[-----] +-----+         (S)-- (* CIP,comm.fault1 Wrong sig.exch. *)
|
|CIP_ON                                COMFLT2 << RUNG 52 STEP #0234 >>
|%M1204                                %M1218
+--] [-----] +-----+         (R)-- (* CIP,comm.fault2 Wrong sig.exch. *)
|
|CIP_RUN CLN_10 P+003 CIP_END                                COMFLT2 << RUNG 53 STEP #0236 >>
|%M1202 %M3074 %T0003 %M1203                                %M1218
+--]/[-----] [-----] [-----]/[-----] +-----+         (S)-- (* CIP,comm.fault2 Wrong sig.exch. *)
|
|CIPFLOW                                P+145 << RUNG 54 STEP #0241 >>
|%M1250                                %T0145
+--] [-----] +-----+         (^)-- (* Pulse + CIP flow start *)
|
|RESET                                COMFLT3 << RUNG 55 STEP #0243 >>
|%M3050                                %M1219
+--] [-----] +-----+         (R)-- (* CIP,comm.fault3 Wrong sig.exch. *)
|

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M1220	AUT_CIP	CIP, Automatic CIP (DEF valve)	%M1217	COMFLT1	CIP,comm.fault1 Wrong sig.exch.
%I0303	B1305	Cleaning sleeve, Position	%M1218	COMFLT2	CIP,comm.fault2 Wrong sig.exch.
%M1250	CIPFLOW	CIP, Flow>8m3/h;0-16000=0-10m3/h	%M1219	COMFLT3	CIP,comm.fault3 Wrong sig.exch.
%M1215	CIPRV02	CIP, Reg.v.open cip int/dry 2bar	%M1216	CUP_POS	CIP, cleaning cup out of posit.
%M1214	CIPRV01	CIP, Reg.v.open at cip on (4bar)	%R4506	DEL4506	Delay,
%M1209	CIP_BVO	CIP, B valve open in cip	%R4533	DEL4533	Delay,
%M1203	CIP_END	CIP, Cip ended,Cip dry can start	%I0228	EXT_04	CIP running
%M1205	CIP_INT	CIP, interrupted	%Q0221	EXT_11	TBA/21, Ready for CIP
%M1204	CIP_ON	CIP, TBA21 ready for CIP	%T0001	P+001	Pulse + Step up
%M1202	CIP_RUN	CIP, Cip is running	%T0003	P+003	Pulse + Step down
%M3073	CLN_09	Clean, CIP select	%T0145	P+145	Pulse + CIP flow start
%M3074	CLN_10	Clean, CIP stop	%M3050	RESET	Alarm reset

TBA/21-0410/0500
BLOCK: CLEANING CIP/EC

```

|CIP_ON EXT_04
|M1204 %I0228 +-----+
+--] [-----] [---+ TMR -----<+>
|0.10s|
|
|CONST -+PV
|+00020|
|-----+
|DEL4563
| %R4563
|
|EXT_03
| %I0227
+<+>-----] [---+-----COMFLT3 << RUNG 57 STEP #0249 >>
| %M1219
|-----] (S)-- (* CIP,comm.fault3 Wrong sig.exch. *)
|
|P+145 EXT_04
| %T0145 %I0228
+--] [-----]/[---+
|
| (*****
| (* "Yokogawa" CIP recorder *)
| (*****
|
|CIP_ON K100 << RUNG 59 STEP #0256 >>
|M1204 %Q0161
+--] [---+-----+OFDT -----( )-- (* CIP Recorder *)
|0.10s|
|CIP_INT
|M1205
+--] [---+CONST -+PV
|+03000|
|-----+
|DEL4509
| %R4509
|
| (*****
| (* CIP drying *)
| (*****
|
|AUT_CIP A601_34 A600_14 B1317 B1305 B1308 B1307 B1306 B1504 << RUNG 61 STEP #0261 >>
|M1220 %I0130 %I0129 %I0272 %I0303 %I0254 %I0253 %I0252 %I0133
+--]/[-----] [-----] [-----]/[-----]/[-----] [-----] [-----]/[-----] [-----<+>
|
| B1505 B1506 CIP_END HICIPDR CIPDRY1 << RUNG 62 STEP #0271 >>
| %I0134 %I0135 %M1203 %M1913 %M1230
+<+>-----] [-----] [-----] [-----]/[-----] ( )-- (* CIP, Ready for cip dry std. eq. *)
|
|AUT_CIP A601_34 A600_14 B1317 B1305 B1504 B1505 B1506 CIP_END << RUNG 63 STEP #0277 >>
|M1220 %I0130 %I0129 %I0272 %I0303 %I0133 %I0134 %I0135 %M1203
+--] [-----] [-----] [-----]/[-----]/[-----] [-----] [-----] [-----] [-----<+>
|
| HICIPDR CIPDRY2 << RUNG 64 STEP #0287 >>
| %M1913 %M1231
+<+>-----]/[-----] ( )-- (* CIP, Ready for aut.CIP dry (DEF) *)
|
| DRY_END CIP_DRY << RUNG 65 STEP #0290 >>
|M1235 %M1232
+--] [---+-----] (R)-- (* CIP, CIP drying going on *)
|
| DRY_INT
|M1233
+--] [---+
|
|CIP_END CLN_09 CIPDRY1 P+001 CIP_DRY << RUNG 66 STEP #0293 >>
|M1203 %M3073 %M1230 %T0001 %M1232
+--] [-----]/[---+--] [---+--] [-----] (S)-- (* CIP, CIP drying going on *)
|
| CIPDRY2
| %M1231
+--] [---+

```

REFERENCE	NICKNAME
%I0129	A600_14
%I0130	A601_34
%M1220	AUT_CIP
%I0303	B1305
%I0252	B1306
%I0253	B1307
%I0254	B1308
%I0272	B1317
%I0133	B1504
%I0134	B1505
%I0135	B1506
%M1230	CIPDRY1
%M1231	CIPDRY2
%M1232	CIP_DRY
%M1203	CIP_END

REFERENCE	DESCRIPTION
%I0129	Emergency Stop
%I0130	Safety monitor door guards
%M1220	CIP, Automatic CIP (DEF valve)
%I0303	Cleaning sleeve, Position
%I0252	Cleaning pipe infeed, Position
%I0253	Sterile air pipe, Position
%I0254	B - Valve pipe, Position
%I0272	Cleaning pipe outfeed, Position
%I0133	A. chamber top door, Closed
%I0134	A. chamber top front door, Closed
%I0135	A. chamber front doors, Closed
%M1230	CIP, Ready for cip dry std. eq.
%M1231	CIP, Ready for aut.CIP dry (DEF)
%M1232	CIP, CIP drying going on
%M1203	CIP, CIP ended, CIP dry can start

REFERENCE	NICKNAME	REFERENCE	DESCRIPTION
%M1205	CIP_INT	%M1205	CIP, interrupted
%M1204	CIP_ON	%M1204	CIP, TBA21 ready for CIP
%M3073	CLN_09	%M3073	Clean, CIP select
%M1219	COMFLT3	%M1219	CIP,comm.fault3 Wrong sig.exch.
%R4509	DEL4509	%R4509	Delay,
%R4563	DEL4563	%R4563	Delay,
%M1235	DRY_END	%M1235	CIP, CIP drying ended
%M1233	DRY_INT	%M1233	CIP, CIP drying interrupted
%I0227	EXT_03	%I0227	CIP Done
%I0228	EXT_04	%I0228	CIP running
%M1913	HICIPDR	%M1913	HI, HI syst.NOTready for CIP dry
%Q0161	K100	%Q0161	CIP Recorder
%T0001	P+001	%T0001	Pulse + Step up
%T0145	P+145	%T0145	Pulse + CIP flow start

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BLOCK: CLEANING CIP/EC


```

|CIP_DRY                                     DRY_END << RUNG 67 STEP #0300 >>
|M1232 +-----+                           M1235
+--] [---+ TMR +-----+ ( )-- (* CIP, Cip drying ended *)
      |0.10s|
      +-----+
      |CONST --PV|
      |+05400|
      +-----+
      |DEL4551|
      |%R4551|
      +-----+

|CIP_DRY                                     DRY_INT << RUNG 68 STEP #0303 >>
|M1232                                     M1233
+--] [-----+ (R)-- (* CIP, Cip drying interrupted *)

|CIP_DRY B_POS                             DRY_INT << RUNG 69 STEP #0305 >>
|M1232 %M0835                             M1233
+--] [---+]/[---+ (S)-- (* CIP, Cip drying interrupted *)
      |RV_POS|
      |M1210|
      |---] [---+|
      |D_POS|
      |M1211|
      |---] [---+|
      |E_POS|
      |M1212|
      |---] [---+|
      |F_POS|
      |M1213|
      |---] [---+|
      |C_POS|
      |M0653|
      |---]/[---+|
      |AUT_CIP CIPDRY2|
      |M1220 M1231|
      |---] [-----]/[---+|
      |AUT_CIP CIPDRY1|
      |M1220 M1230|
      |---]/[-----]/[---+|

|CIP_DRY BUT_POS                         DRY_INT << RUNG 70 STEP #0320 >>
|M1232 %M0841                             M1233
+--] [---+]/[---+ (S)-- (* CIP, Cip drying interrupted *)
      |AIRSTOP|
      |M0801|
      |---] [---+|
      |SUP_TO|
      |M0807|
      |---] [---+|

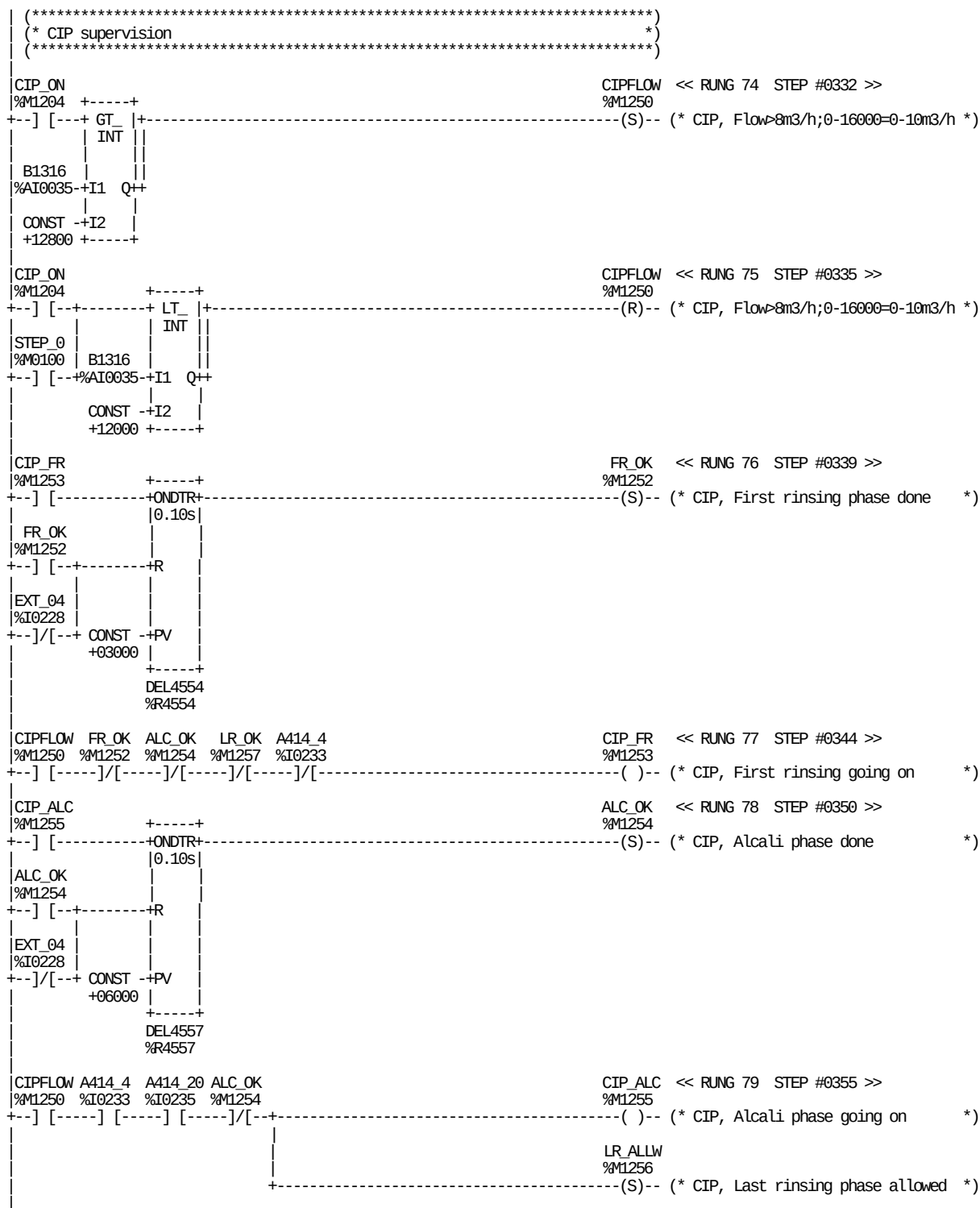
|CIP_DRY HS >50                           WARMSEQ << RUNG 71 STEP #0326 >>
|M1232 %M3913                             M1234
+--] [-----] [-----+ (S)-- (* CIP, Cip drying warm seq. ended *)

|DRY_END                                   WARMSEQ << RUNG 72 STEP #0329 >>
|M1235                                   M1234
+--] [-----+ (R)-- (* CIP, Cip drying warm seq. ended *)

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M0801	AIRSTOP	AIR, Sterile air system stop	%M1235	DRY_END	CIP, Cip drying ended
%M1220	AUT_CIP	CIP, Automatic CIP (DEF valve)	%M1233	DRY_INT	CIP, Cip drying interrupted
%M0841	BUT_POS	AIR, Butterfly valve wrong pos.	%M1211	D_POS	CIP, D valve in wrong position
%M0835	B_POS	AIR, B-valve in position	%M1212	E_POS	CIP, E valve in wrong position
%M1230	CIPDRY1	CIP, Ready for cip dry std. eq.	%M1213	F_POS	CIP, F valve in wrong position
%M1231	CIPDRY2	CIP, Ready for aut.CIP dry (DEF)	%M3913	HS >50	Heat ster, Temp OK (>=50)
%M1232	CIP_DRY	CIP, Cip drying going on	%M1210	RV_POS	CIP, reg. valve wrong pos.in CIP
%M0653	C_POS	FIL, C-valve in position	%M0807	SUP_TO	AIR, Air superheater timeout
%R4551	DEL4551	Delay,	%M1234	WARMSEQ	CIP, Cip drying warm seq. ended

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BLOCK: CLEANING CIP/EC

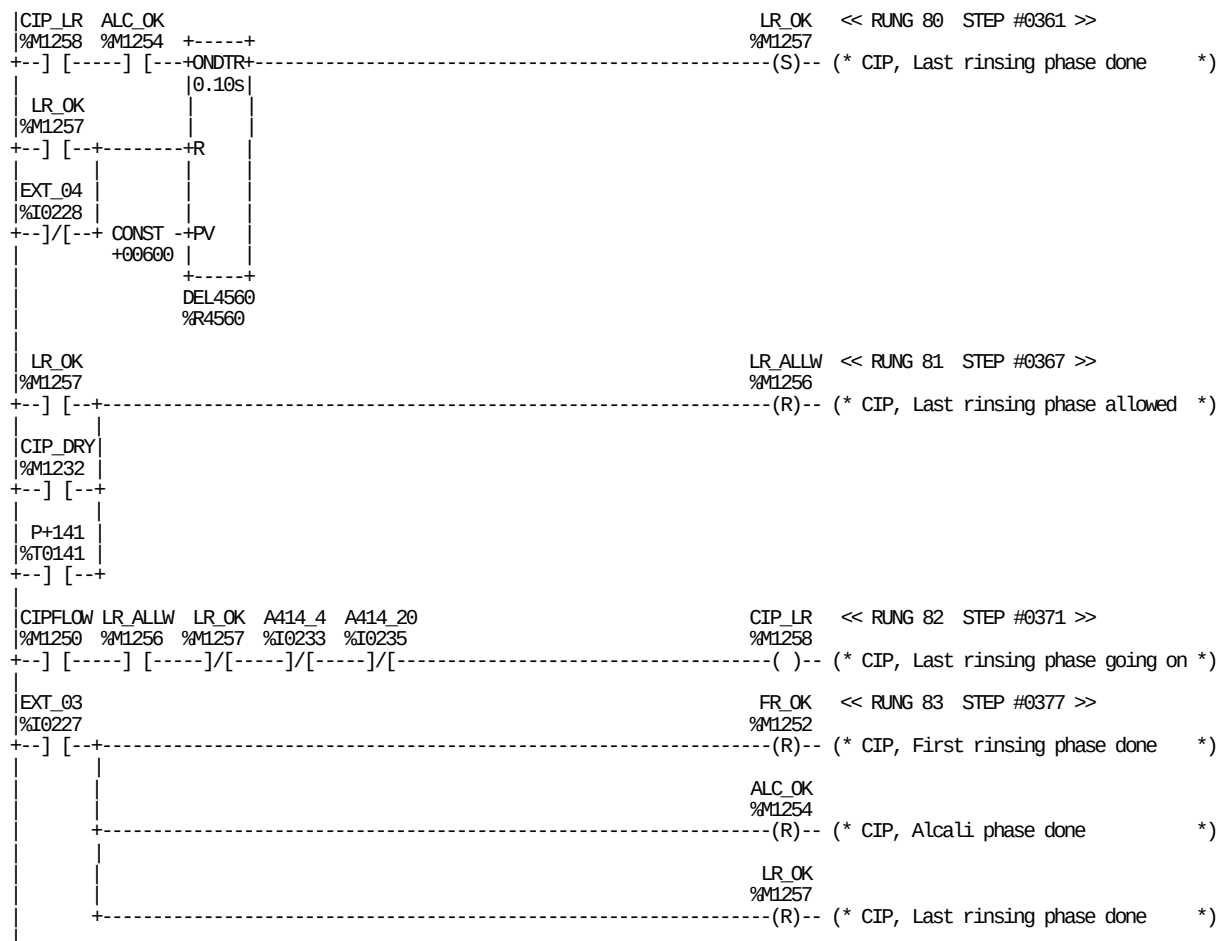


REFERENCE NICKNAME
 %I0235 A414_20
 %I0233 A414_4
 %M1254 ALC_OK
 %AI0035 B1316
 %M1250 CIPFLOW
 %M1255 CIP_ALC
 %M1253 CIP_FR
 %M1204 CIP_ON

REFERENCE DESCRIPTION
 Temperature OK CIP
 PH alkali OK CIP
 CIP, Alkali phase done
 CIP flow
 CIP, Flow>8m3/h;0-16000=0-10m3/h
 CIP, Alkali phase going on
 CIP, First rinsing going on
 CIP, TBA21 ready for CIP

REFERENCE NICKNAME
 %R4554 DEL4554
 %R4557 DEL4557
 %I0228 EXT_04
 %M1252 FR_OK
 %M1256 LR_ALLW
 %M1257 LR_OK
 %M0100 STEP_0

REFERENCE DESCRIPTION
 Delay,
 Delay,
 CIP running
 CIP, First rinsing phase done
 CIP, Last rinsing phase allowed
 CIP, Last rinsing phase done
 Step 0 Off



REFERENCE NICKNAME
 %I0235 A414_20
 %I0233 A414_4
 %M1254 ALC_OK
 %M1250 CIPFLOW
 %M1232 CIP_DRY
 %M1258 CIP_LR
 %R4560 DEL4560

REFERENCE DESCRIPTION
 Temperature OK CIP
 PH alkali OK CIP
 CIP, Alkali phase done
 CIP, Flow>8m3/h;0-16000=0-10m3/h
 CIP, CIP drying going on
 CIP, Last rinsing phase going on
 Delay,

REFERENCE NICKNAME
 %I0227 EXT_03
 %I0228 EXT_04
 %M1252 FR_OK
 %M1256 LR_ALLW
 %M1257 LR_OK
 %T0141 P+141

REFERENCE DESCRIPTION
 CIP Done
 CIP running
 CIP, First rinsing phase done
 CIP, Last rinsing phase allowed
 CIP, Last rinsing phase done
 Pulse + CIP running

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 BLOCK: CLEANING CIP/EC

```

(*****
(* External cleaning (EC) *)
*)
(* The following memorycells are used for external cleaning: *)
(* M3065: CLN_01 External cleaning selected *)
(* M3066: CLN_02 External cleaning stop *)
(* M3067: CLN_03 Only upper and lower systems chosen for cleaning *)
(* M3068: CLN_04 Upper, lower and column chosen for cleaning *)
(* M3069: CLN_05 Only alkali cleaning detergent *)
(* M3070: CLN_06 Alkali and acid cleaning detergent *)
(* M3071: CLN_07 Desinfectant *)
*)
(* The following combinations are allowed: *)
(* (if option upgraded cleaning not installed only the first) *)
*)
(* Upper/lower Column Alkali Acid Desinfectant Option Time(m,s) *)
(* 1 = yes no yes no no no 21,55 *)
(* 2 = yes no yes no no yes 22,35 *)
(* 3 = yes no yes yes no yes 34,20 *)
(* 4 = yes no yes no yes yes 34,20 *)
(* 5 = yes no yes yes yes yes 46,15 *)
(* 6 = yes no no no yes yes 13,10 *)
(* 7 = yes yes yes no no yes 23,40 *)
(* 8 = yes yes yes yes no yes 36,10 *)
(* 9 = yes yes yes no yes yes 35,35 *)
(* 10 = yes yes yes yes yes yes 48,05 *)
(* 11 = yes yes no no yes yes 13,20 *)
(*****

(* Check if selection from TPOP is valid *)
(*****

STEP_0 OPTRK_3 CLN_03 CLN_05 EC_SEL << RUNG 86 STEP #0383 >>
%M0100 %M4080 %M3067 %M3069 %M1310
+--] [---] / [---] [---] [---] ( )-- (* EC, TPOP selection OK *)

STEP_12 OPTRK_3 CLN_03 CLN_05
%M0112 %M4080 %M3067 %M3069
+--] [---] [---] [---] [---] [---]

STEP_13 CLN_04 CLN_06
%M0113 %M3068 %M3070
+--] [---] [---] [---] [---]

CLN_07
%M3071
+--] [---]

(*****
(* Check if it is allowed to run external cleaning *)
(*****

CLN_01 A600_14 A603_34 A506_29 A506_32 A507_32 A508_32 B2201 << RUNG 88 STEP #0401 >>
%M3065 %I0129 %I0132 %I0145 %I0147 %I0153 %I0159 %I0242
+--] [---] [---] [---] [---] [---] [---] [---] [---]

B1505 B1506 P_STOP EC_SUPL EC_COVR EC_ALWD << RUNG 89 STEP #0410 >>
%M0134 %I0135 %M0162 %M1320 %M1321 %M1311
+<+>+--] [---] [---] [---] [---] / [---] / [---] ( )-- (* EC, Allowed *)

CLN_04
%M3068
+--] / [---] +

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0145	A506_29	DMC Main motor, Fault	%M3069	CLN_05	Clean, Alkali select
%I0147	A506_32	DMC Main motor, Volume trans. OK	%M3070	CLN_06	Clean, Acid select
%I0153	A507_32	DMC Right DCS, Home pos. found	%M3071	CLN_07	Clean, Desinfectant select
%I0159	A508_32	DMC Left DCS, Home pos. found	%M1311	EC_ALWD	EC, Allowed
%I0129	A600_14	Emergency Stop	%M1321	EC_COVR	EC, Column cover not closed
%I0132	A603_34	Safety time relay main motor	%M1310	EC_SEL	EC, TPOP selection OK
%I0134	B1505	A. chamber top front door, Closed	%M1320	EC_SUPL	EC, Hot water supply missing
%I0135	B1506	A. chamber front doors, Closed	%M4080	OPTRK_3	TBA21 050V field test
%I0242	B2201	Main air, Pressure	%M0162	P_STOP	Protection stop
%M3065	CLN_01	Clean, External cleaning select	%M0100	STEP_0	Step 0 Off
%M3067	CLN_03	Clean, Jaw system + FFU select	%M0112	STEP_12	Step 12 Doors OK
%M3068	CLN_04	Clean, JUM + FFU + column select	%M0113	STEP_13	Step 13 Cleaning

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```

(*****
(* External cleaning slow inching
*****
STEP_13 CLN_01 EC_ALWD                      EC_INCH << RUNG 91 STEP #0420 >>
%M0113 %M3065 %M1311                      %M1312
+--] [-----] [-----] [-----] (S) ( * EC, Slow inching *)

STEP_0                      EC_INCH << RUNG 92 STEP #0424 >>
%M0100                      %M1312
+--] [-----] (R) ( * EC, Slow inching *)

STEP_13 S911 A506_33
%M0113 %I0201 %I0148
+--] [-----]/[-----]/[-----]
      EC_INTR
      %M1316
      +--] [-----]
      P+096 EC_RDY
      %T0096 %M1314
      +--] [-----] [-----]

(*****
(* External cleaning start
*****
EC_SEL EC_ALWD S911 A506_12          EC_ON << RUNG 94 STEP #0437 >>
%M1310 %M1311 %I0201 %Q0181        %M1313
+--] [-----] [-----] [-----] (S) ( * EC, Going on *)

EC_RDY                      EC_ON << RUNG 95 STEP #0442 >>
%M1314                      %M1313
+--] [-----] (R) ( * EC, Going on *)

STEP_0
%M0100
+--] [-----]

(*****
(* External cleaning ready
*****
STEP_0                      EC_RDY << RUNG 97 STEP #0446 >>
%M0100                      %M1314
+--] [-----] (R) ( * EC, Ready *)

EC_RDY CIP_ON
%M1314 %M1204
+--] [-----] [-----]

EC_ON EC_INTR T_SEC          EC_RDY << RUNG 98 STEP #0451 >>
%M1313 %M1316 %S0005 +-----+    %M1314
+--] [-----]/[-----] [-----] >UPCTR+ (S) ( * EC, Ready *)

EC_ON
%M1313
+--]/[-----] +R
      CONST +PV
      +02885
      CNT_5
      %R0163

CLN_02 P+003                      EC_RDY << RUNG 99 STEP #0457 >>
%M3066 %T0003                    %M1314
+--] [-----] [-----] (S) ( * EC, Ready *)

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%Q0181	A506_12	DMC Main motor, Slow inch	%M1313	EC_ON	EC, Going on
%I0148	A506_33	DMC Main motor, Running	%M1314	EC_RDY	EC, Ready
%M1204	CIP_ON	CIP, TBA21 ready for CIP	%M1310	EC_SEL	EC, TPOP selection OK
%M3065	CLN_01	Clean, External cleaning select	%T0003	P+003	Pulse + Step down
%M3066	CLN_02	Clean, External cleaning stop	%T0096	P+096	Pulse + Brake JUM after HC
%R0163	CNT_5	CNT5, External cleaning	%I0201	S911	Step up
%M1311	EC_ALWD	EC, Allowed	%M0100	STEP_0	Step 0 Off
%M1312	EC_INCH	EC, Slow inching	%M0113	STEP_13	Step 13 Cleaning
%M1316	EC_INTR	EC, Interrupted	%S0005	T_SEC	

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BLOCK: CLEANING CIP/EC

```

(*****
* Start long lubrication at end of external cleaning
*)
(*****

EC_ON          EC_LUB  << RUNG 101 STEP #0461 >>
%M1313 +-----+ %M1315
+--] [---+ GE INT +-----+ ( )-- (* EC, Start long lubrication *)
      |      |
      |      |
CNT_5      |
%M163 -+I1 Q++
      |
CONST -+I2 |
+02800 +-----+

(*****
* External cleaning interrupt
*)
(*****

EC_ON CLN_02 S908          EC_INTR << RUNG 103 STEP #0465 >>
%M1313 %M3066 %I0200 %M1316
+--] [---] [---]/[---+-----+ (S)-- (* EC, Interrupted *)
      |      |
      | EC_ALWD |
      | %M1311 |
      +--]/[---+

STEP_13 EC_RSTR S911 A506_12 EC_INTR << RUNG 104 STEP #0471 >>
%M0113 %M1317 %I0201 %Q0181 %M1316
+--] [---] [---] [---] [---+-----+ (R)-- (* EC, Interrupted *)
      |
      |
EC_ON
%M1313
+--]/[---+

(*****
* External cleaning ready for restart
*)
(*****

EC_INTR CLN_02 EC_ALWD          EC_RSTR << RUNG 106 STEP #0478 >>
%M1316 %M3066 %M1311 %M1317
+--] [---]/[---] [---+-----+ ( )-- (* EC, Ready for restart *)

(*****
* Check that flow switch for hot water supply works properly.
*)
(*****
* Except in draining (the air flow will activate the flow sensor).
*)
(*****

RESET          EC_SUPL << RUNG 108 STEP #0483 >>
%M3050 %M1320
+--] [---+-----+ (R)-- (* EC, Hot water supply missing *)

K003 B3102          << RUNG 109 STEP #0485 >>
%M0129 %I0243 +-----+
+--] [---]/[---+ TMR +-----+ <+>
      |      |
      | 0.10s |
      |      |
K003 B3102
%M0129 %I0243
+--]/[---] [---+ CONST +PV
      |      |
      | +00040 |
      |      |
      | DEL4512 |
      | %R4512 |

EC_SUPL << RUNG 110 STEP #0492 >>
%M1320
+-----+ (S)-- (* EC, Hot water supply missing *)
+<+>+ LT INT +-----+
      |      |
      |      |
CNT_5      |
%M163 -+I1 Q++
      |
CONST -+I2 |
+02800 +-----+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%Q0181	A506_12	DMC Main motor, Slow inch	%M1313	EC_ON	EC, Going on
%I0243	B3102	Pumping water	%M1317	EC_RSTR	EC, Ready for restart
%M3066	CLN_02	Clean, External cleaning stop	%M1320	EC_SUPL	EC, Hot water supply missing
%R0163	CNT_5	CNT5, External cleaning	%Q0129	K003	Cleaning Pump External Cleaning
%R4512	DEL4512	Delay,	%M3050	RESET	Alarm reset
%M1311	EC_ALWD	EC, Allowed	%I0200	S908	Short stop
%M1316	EC_INTR	EC, Interrupted	%I0201	S911	Step up
%M1315	EC_LUB	EC, Start long lubrication	%M0113	STEP_13	Step 13 Cleaning

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BLOCK: CLEANING CIP/EC

```

(*****
* If upgraded cleaning is installed activate cleaning ball,
* close lid and check if lid is closed.
*****)

OPTRK_3 EC_ON CLN_04 Y3116 << RUNG 112 STEP #0496 >>
%M4080 %M1313 %M3068 %Q0242
+--] [----] [----] [-----] ( )-- (* Colum, Cleaning Ball/Lid *)

Y3116 << RUNG 113 STEP #0500 >>
%M0242 +-----+
+--] [----] TMR +-----+<+>
      |0.10s|
CONST --PV |
+00020 |
      +-----+
      DEL4515
      %R4515

      B3116 EC_COVR << RUNG 114 STEP #0503 >>
      %I0261 %M1321
+<+>-----]/[-----] (S)-- (* EC, Column cover not closed *)

EC_COVR RESET COVRACK << RUNG 115 STEP #0506 >>
%M1321 %M3050 %M1322
+--] [----] [-----] (S)-- (* EC, Column cover ackn *)

Y3116 B3116 COVRACK EC_COVR << RUNG 116 STEP #0509 >>
%M0242 %I0261 %M1322 %M1321
+--] [----] [----] [-----] (R)-- (* EC, Column cover not closed *)

Y3116 B3116 COVRACK
%M0242 %I0261 %M1322
+--]/[----]/[----] +-----] (R)-- (* EC, Column cover ackn *)

```

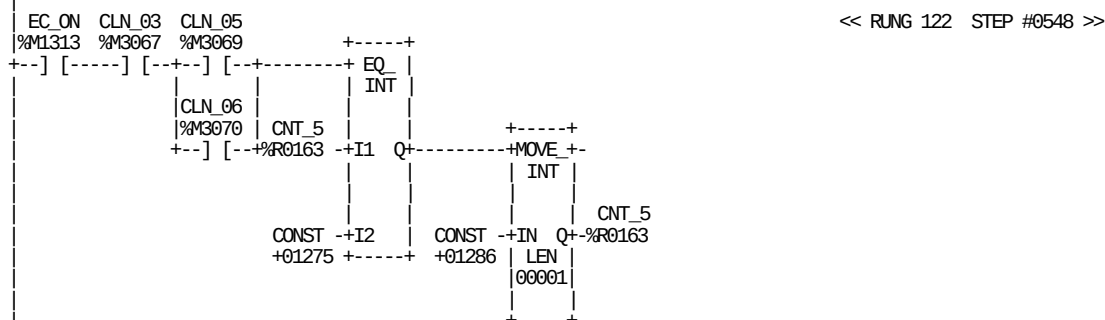
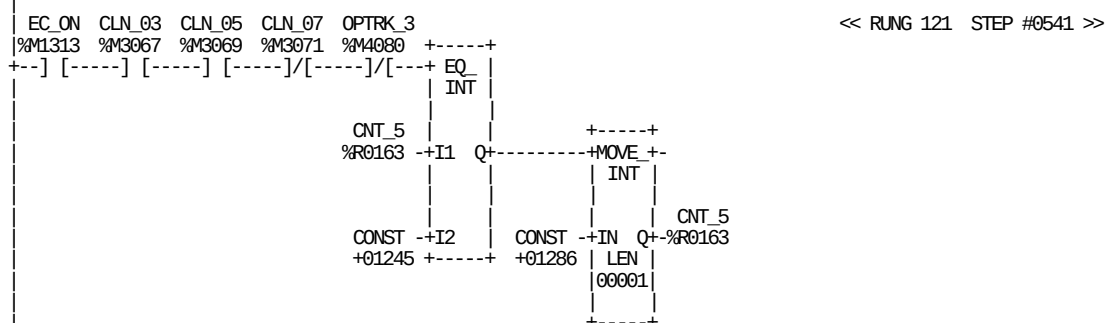
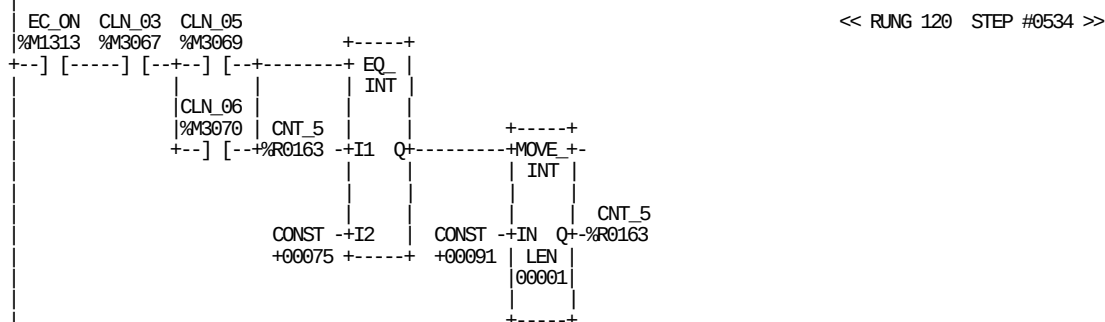
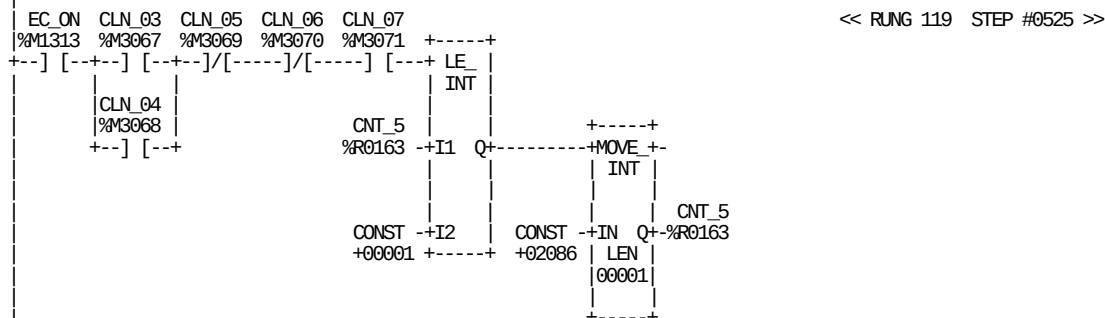
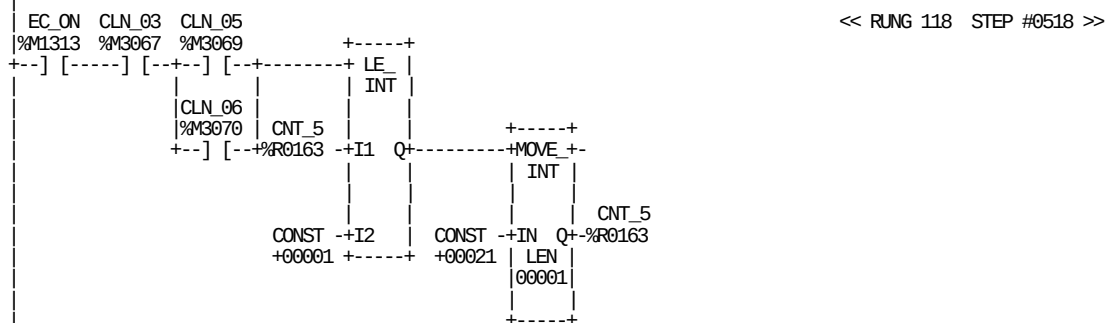
REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0261	B3116	Column, Cleaning Ball/Lid	%M1313	EC_ON	EC, Going on
%M3068	CLN_04	Clean, JUM + FFU + column select	%M4080	OPTRK_3	TBA21 050V field test
%M1322	COVRACK	EC, Column cover ackn	%M3050	RESET	Alarm reset
%R4515	DEL4515	Delay,	%Q0242	Y3116	Column, Cleaning Ball/Lid
%M1321	EC_COVR	EC, Column cover not closed			

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```

(*****
* Depending on choice different parts of the cleaning
* will be skipped.
*****)

```



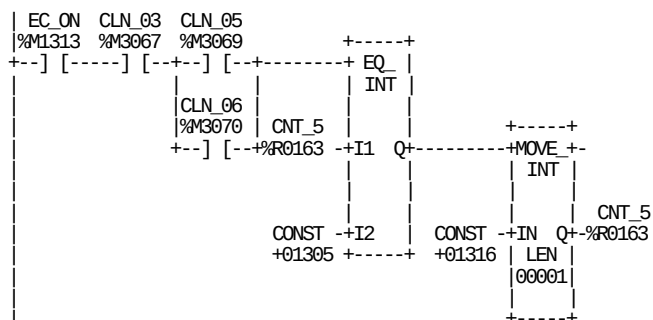
REFERENCE NICKNAME
 %M3067 CLN_03
 %M3068 CLN_04
 %M3069 CLN_05
 %M3070 CLN_06

REFERENCE DESCRIPTION
 Clean, Jaw system + FFU select
 Clean, JUM + FFU + column select
 Clean, Alkali select
 Clean, Acid select

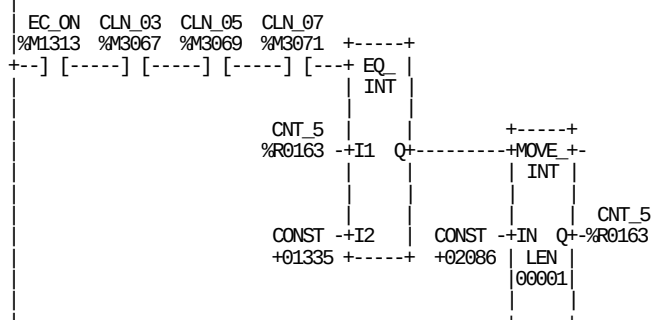
REFERENCE NICKNAME
 %M3071 CLN_07
 %R0163 CNT_5
 %M1313 EC_ON
 %M4080 OPTRK_3

REFERENCE DESCRIPTION
 Clean, Desinfectant select
 CNT5, External cleaning
 EC, Going on
 TBA21 050V field test

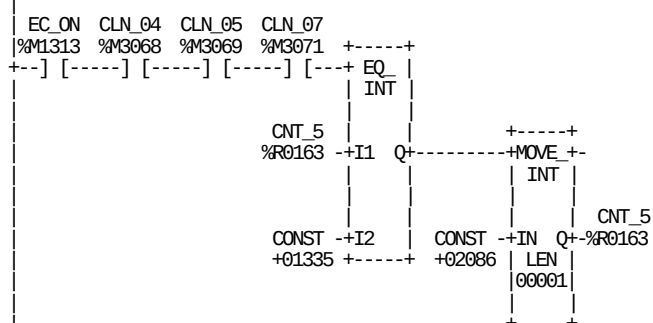
TBA/21-0410/0500
 BLOCK: CLEANING CIP/EC



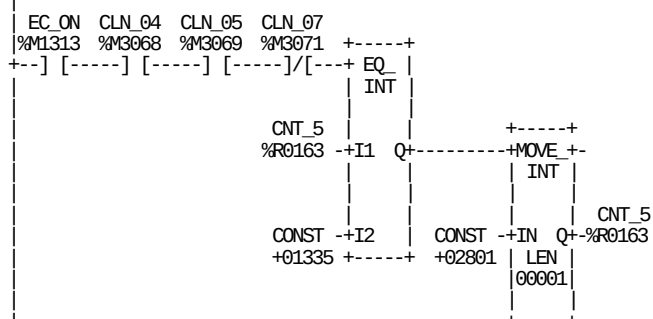
<< RUNG 123 STEP #0555 >>



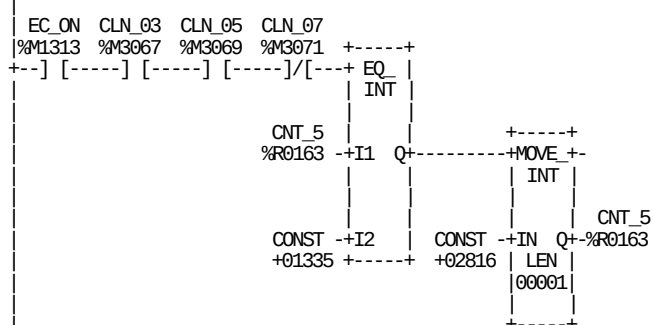
<< RUNG 124 STEP #0562 >>



<< RUNG 125 STEP #0568 >>



<< RUNG 126 STEP #0574 >>



<< RUNG 127 STEP #0580 >>

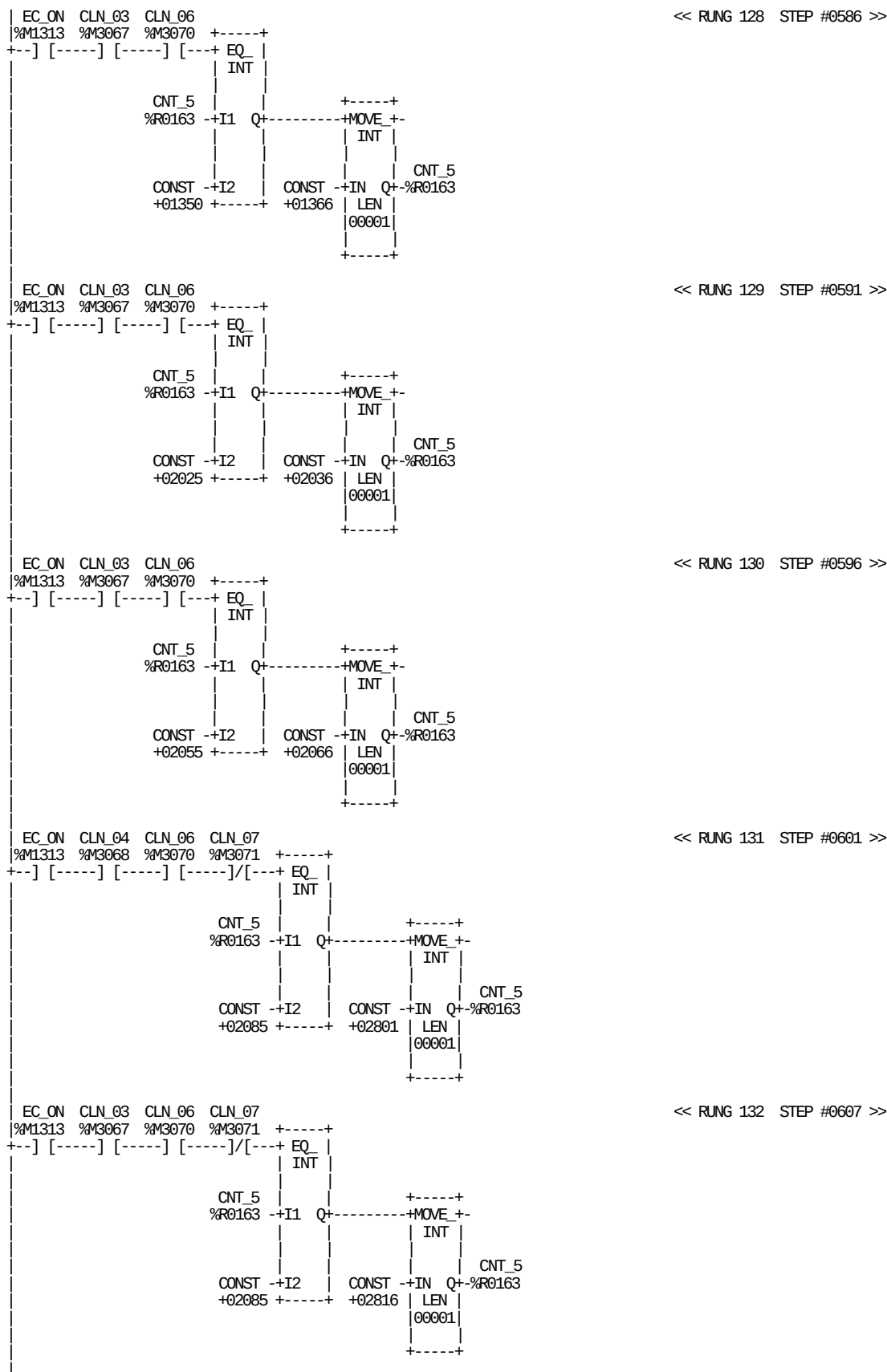
REFERENCE NICKNAME
 %M3067 CLN_03
 %M3068 CLN_04
 %M3069 CLN_05
 %M3070 CLN_06

REFERENCE DESCRIPTION
 Clean, Jaw system + FFU select
 Clean, JUM + FFU + column select
 Clean, Alkali select
 Clean, Acid select

REFERENCE NICKNAME
 %M3071 CLN_07
 %R0163 CNT_5
 %M1313 EC_ON

REFERENCE DESCRIPTION
 Clean, Desinfectant select
 CNT5, External cleaning
 EC, Going on

TBA/21-0410/0500
 BLOCK: CLEANING CIP/EC



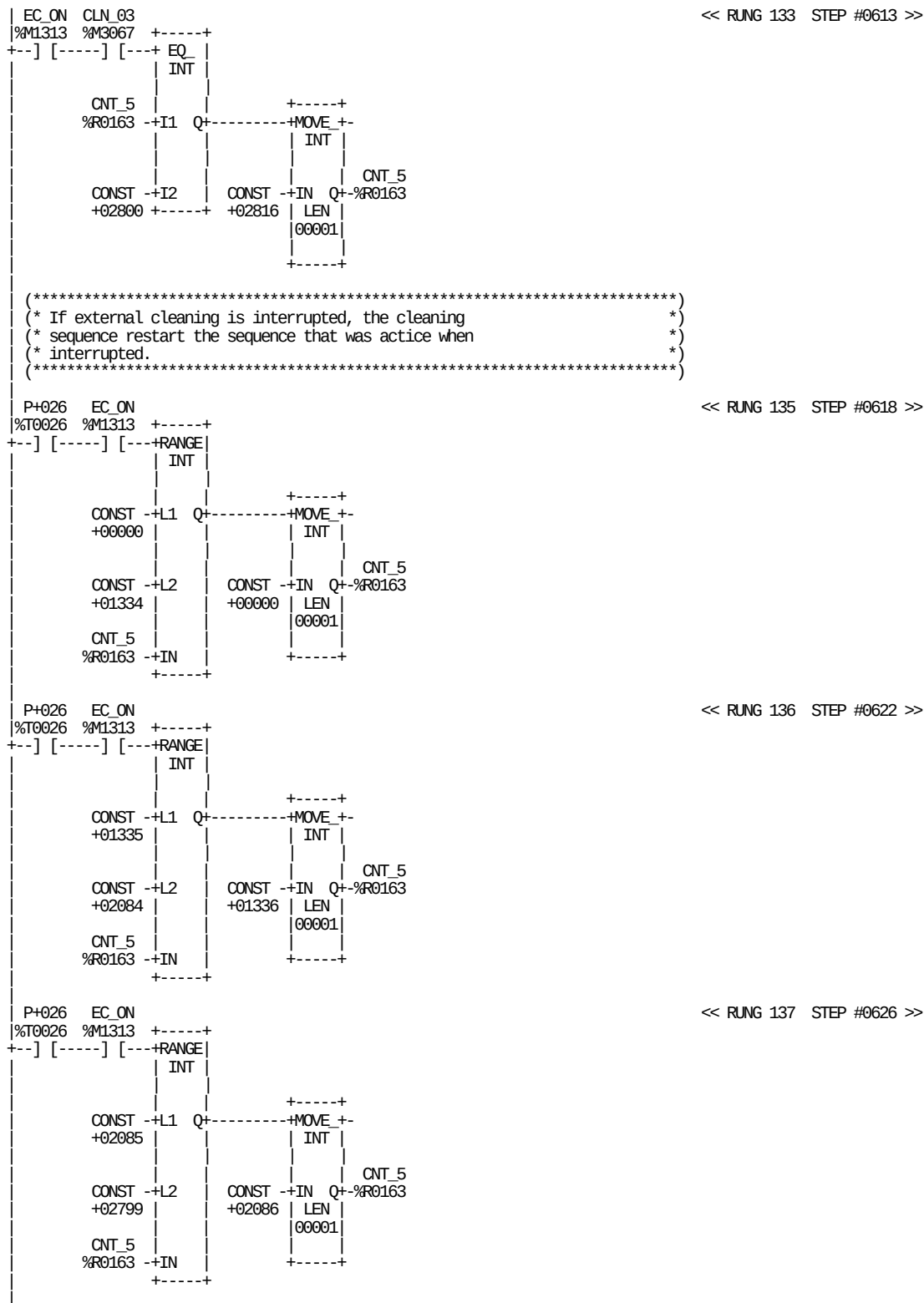
REFERENCE NICKNAME
 %M3067 CLN_03
 %M3068 CLN_04
 %M3070 CLN_06

REFERENCE DESCRIPTION
 Clean, Jaw system + FFU select
 Clean, JUM + FFU + column select
 Clean, Acid select

REFERENCE NICKNAME
 %M3071 CLN_07
 %R0163 CNT_5
 %M1313 EC_ON

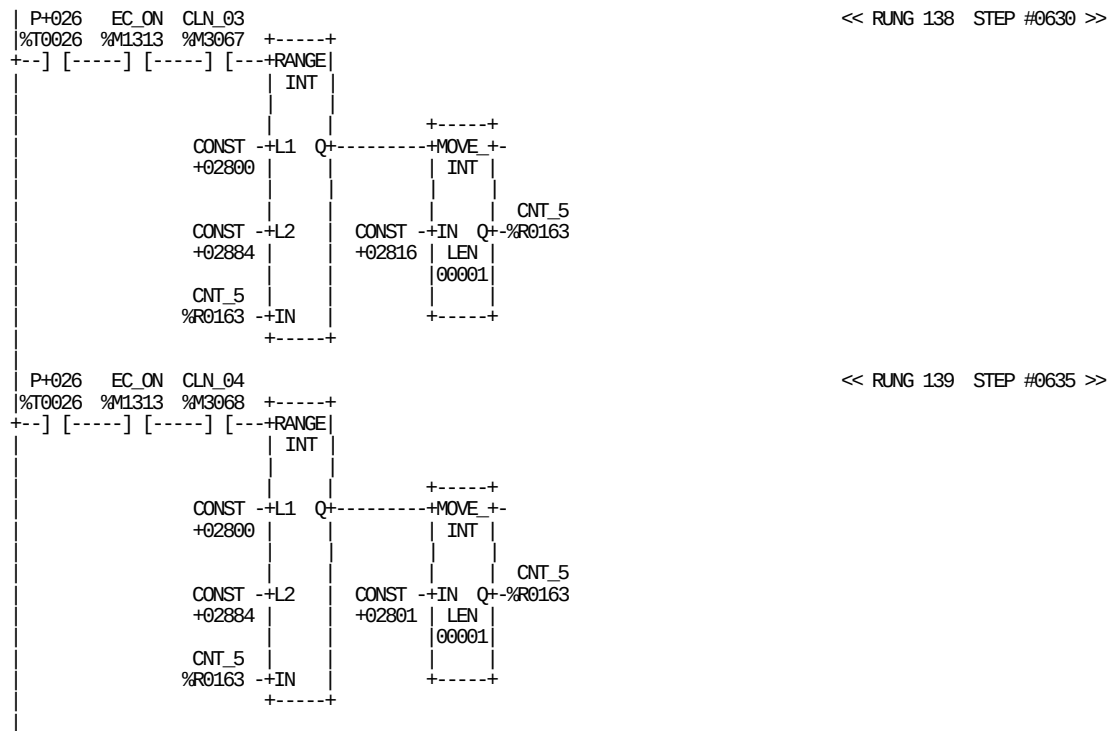
REFERENCE DESCRIPTION
 Clean, Disinfectant select
 CNT5, External cleaning
 EC, Going on

TBA/21-0410/0500
 BLOCK: CLEANING CIP/EC



REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M3067	CLN_03	Clean, Jaw system + FFU select	%M1313	EC_ON	EC, Going on
%R0163	CNT_5	CNT5, External cleaning	%T0026	P+026	Pulse + Ext.clean. interrupted

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BLOCK: CLEANING CIP/EC



REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M3067	CLN_03	Clean, Jaw system + FFU select	%M1313	EC_ON	EC, Going on
%M3068	CLN_04	Clean, JUM + FFU + column select	%T0026	P+026	Pulse + Ext.clean. interrupted
%R0163	CNT 5	CNT5, External cleaning			

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BLOCK: CLEANING CIP/EC

```

{*****}
{* Hot water supply: *}
{* Start cleaning pump and open valve if within ranges.*}
{*****}

ALW_ON                                     Y3101 << RUNG 141 STEP #0641 >>
%S0007                                   %Q0132
+--] [-----]------(R)-- (* Hot Water Supply *)

EC_ON EC_INTR                             Y3101 << RUNG 142 STEP #0643 >>
%M1313 %M1316 +-----+                 %Q0132
+--] [-----]/[-----]+------(S)-- (* Hot Water Supply *)
      |          |
      |          | RANGE|
      |          | INT  ||
CONST -+L1 Q++
+00001
CONST -+L2
+00120
CNT_5
%R0163 -+IN
+-----+

EC_ON EC_INTR CLN_03                     Y3101 << RUNG 143 STEP #0647 >>
%M1313 %M1316 %M3067 +-----+         %Q0132
+--] [-----]/[-----] [-----]+------(S)-- (* Hot Water Supply *)
      |          |          |
      |          |          | RANGE|
      |          |          | INT  ||
CONST -+L1 Q++
+00476
CONST -+L2
+00495
CNT_5
%R0163 -+IN
+-----+

EC_ON EC_INTR CLN_04                     Y3101 << RUNG 144 STEP #0652 >>
%M1313 %M1316 %M3068 +-----+         %Q0132
+--] [-----]/[-----] [-----]+------(S)-- (* Hot Water Supply *)
      |          |          |
      |          |          | RANGE|
      |          |          | INT  ||
CONST -+L1 Q++
+00466
CONST -+L2
+00495
CNT_5
%R0163 -+IN
+-----+

EC_ON EC_INTR CLN_03                     Y3101 << RUNG 145 STEP #0657 >>
%M1313 %M1316 %M3067 +-----+         %Q0132
+--] [-----]/[-----] [-----]+------(S)-- (* Hot Water Supply *)
      |          |          |
      |          |          | RANGE|
      |          |          | INT  ||
CONST -+L1 Q++
+00866
CONST -+L2
+00885
CNT_5
%R0163 -+IN
+-----+

EC_ON EC_INTR CLN_04                     Y3101 << RUNG 146 STEP #0662 >>
%M1313 %M1316 %M3068 +-----+         %Q0132
+--] [-----]/[-----] [-----]+------(S)-- (* Hot Water Supply *)
      |          |          |
      |          |          | RANGE|
      |          |          | INT  ||
CONST -+L1 Q++
+00856
CONST -+L2
+00885
CNT_5
%R0163 -+IN
+-----+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%S0007	ALLW_ON		%M1316	EC_INTR	EC, Interrupted
%M3067	CLN_03	Clean, Jaw system + FFU select	%M1313	EC_ON	EC, Going on
%M3068	CLN_04	Clean, JUM + FFU + column select	%Q0132	Y3101	Hot Water Supply
%R0163	CNT_5	CNT5, External cleaning			

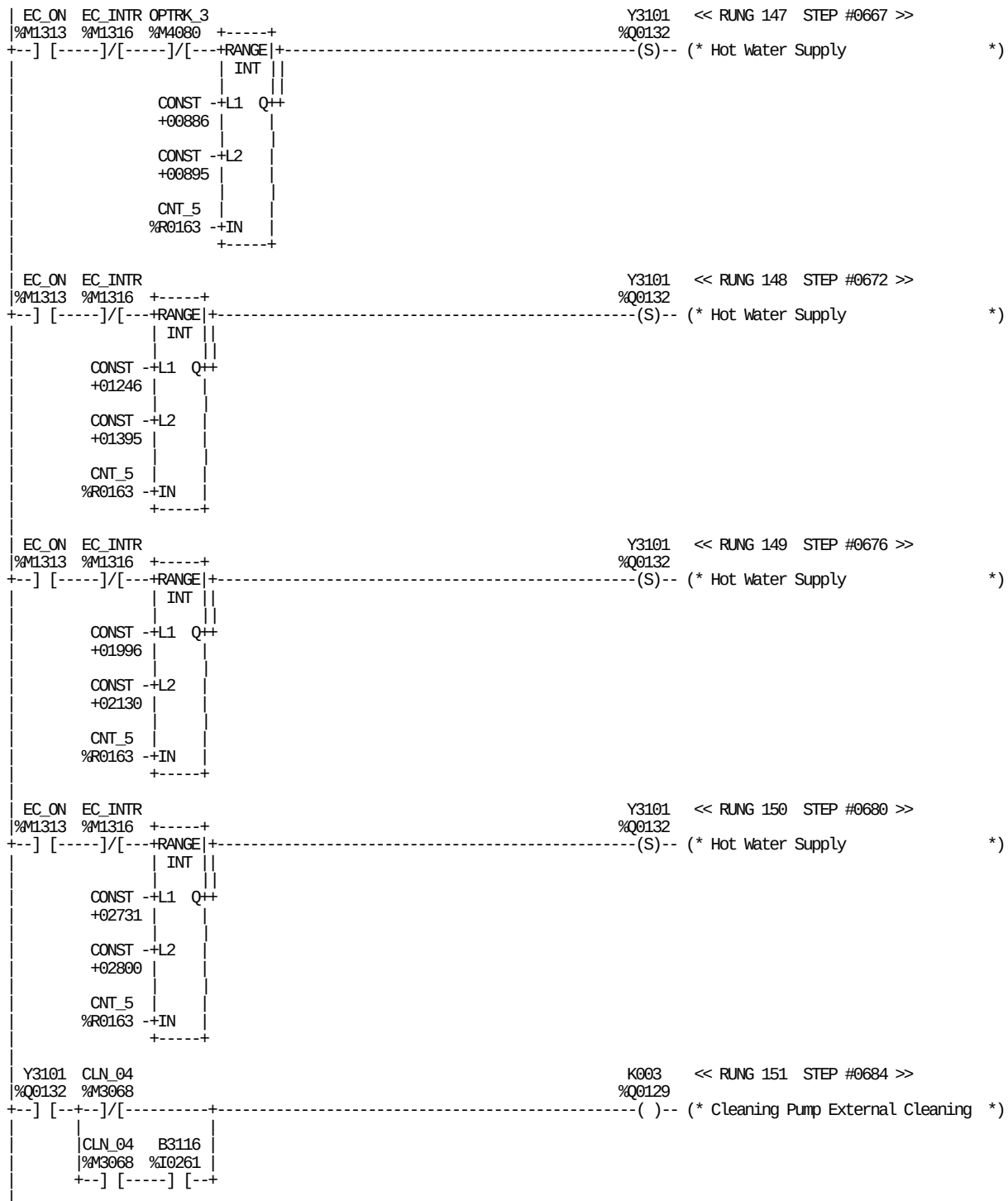
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REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0261	B3116	Column, Cleaning Ball/Lid	%M1313	EC_ON	EC, Going on
%M3068	CLN_04	Clean, JUM + FFU + column select	%Q0129	K003	Cleaning Pump External Cleaning
%R0163	CNT_5	CNT5, External cleaning	%M4080	OPTRK_3	TBA21 050V field test
%M1316	EC_INTR	EC, Interrupted	%Q0132	Y3101	Hot Water Supply

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```

(*****
* Filling chemical pipes
*****
)

ALW_ON                                     EC_FILL << RUNG 153 STEP #0692 >>
%S0007                                     %M1330
+--] [-----] [-----] [-----] (R) ( * EC, Filling chemical pipes *)

EC_ON  EC_INTR  T_SEC                     EC_FILL << RUNG 154 STEP #0694 >>
%M1313 %M1316 %S0005 +-----+           %M1330
+--] [-----]/[-----] [-----] +---+RANGE|-----] (S) ( * EC, Filling chemical pipes *)
      |
      | INT
      |
CONST -+L1 Q++
+00060 |
      |
CONST -+L2
+00075 |
      |
CNT_5
%R0163 -+IN
      +-----+

EC_ON  EC_INTR  T_SEC                     EC_FILL << RUNG 155 STEP #0699 >>
%M1313 %M1316 %S0005 +-----+           %M1330
+--] [-----]/[-----] [-----] +---+RANGE|-----] (S) ( * EC, Filling chemical pipes *)
      |
      | INT
      |
CONST -+L1 Q++
+01245 |
      |
CONST -+L2
+01275 |
      |
CNT_5
%R0163 -+IN
      +-----+

EC_ON  EC_INTR  T_SEC                     EC_FILL << RUNG 156 STEP #0704 >>
%M1313 %M1316 %S0005 +-----+           %M1330
+--] [-----]/[-----] [-----] +---+RANGE|-----] (S) ( * EC, Filling chemical pipes *)
      |
      | INT
      |
CONST -+L1 Q++
+01335 |
      |
CONST -+L2
+01350 |
      |
CNT_5
%R0163 -+IN
      +-----+

EC_ON  EC_INTR  T_SEC                     EC_FILL << RUNG 157 STEP #0709 >>
%M1313 %M1316 %S0005 +-----+           %M1330
+--] [-----]/[-----] [-----] +---+RANGE|-----] (S) ( * EC, Filling chemical pipes *)
      |
      | INT
      |
CONST -+L1 Q++
+01995 |
      |
CONST -+L2
+02025 |
      |
CNT_5
%R0163 -+IN
      +-----+

EC_ON  EC_INTR  T_SEC                     EC_FILL << RUNG 158 STEP #0714 >>
%M1313 %M1316 %S0005 +-----+           %M1330
+--] [-----]/[-----] [-----] +---+RANGE|-----] (S) ( * EC, Filling chemical pipes *)
      |
      | INT
      |
CONST -+L1 Q++
+02085 |
      |
CONST -+L2
+02100 |
      |
CNT_5
%R0163 -+IN
      +-----+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%S0007	ALW_ON	
%R0163	CNT_5	CNT5, External cleaning
%M1330	EC_FILL	EC, Filling chemical pipes

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M1316	EC_INTR	EC, Interrupted
%M1313	EC_ON	EC, Going on
%S0005	T_SEC	

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```

| EC_ON  EC_INTR  T_SEC                                EC_FILL  << RUNG 159  STEP #0719 >>
| %M1313  %M1316  %S0005  +-----+                                %M1330
+--] [-----]/[-----] [---+RANGE|+------(S)-- (* EC, Filling chemical pipes *)
|                                     |
|                                     | INT |
| CONST -+L1 Q++
| +02730 |
|
| CONST -+L2
| +02760 |
|
| CNT_5
| %R0163 -+IN
|                                     +-----+
|

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%R0163	CNT_5	CNT5, External cleaning
%M1330	EC_FILL	EC, Filling chemical pipes
%M1316	EC_INTR	EC, Interrupted

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M1313	EC_ON	EC, Going on
%S0005	T_SEC	

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```

(*****
(* Dosing chemicals *)
*****)

B3105 P+120 << RUNG 161 STEP #0725 >>
%I0244 %T0120
+--] [-----] (^) ( * Pulse + Dosing chemicals *)

ALW_ON EC_DOSN << RUNG 162 STEP #0727 >>
%S0007 %M1331
+--] [-----] (R) ( * EC, Dosing chemicals *)

EC_ON EC_INTR P+120 EC_DOSN << RUNG 163 STEP #0729 >>
%M1313 %M1316 %T0120 +-----+ %M1331
+--] [-----] [-----] [-----] (S) ( * EC, Dosing chemicals *)
      |
      | RANGE |
      | INT |
      | |
      | +L1 Q++
      | +00075
      |
      | +L2
      | +00120
      |
      | CNT_5
      | %R0163 -+IN
      | +-----+

EC_ON EC_INTR CLN_03 P+120 EC_DOSN << RUNG 164 STEP #0734 >>
%M1313 %M1316 %M3067 %T0120 +-----+ %M1331
+--] [-----] [-----] [-----] (S) ( * EC, Dosing chemicals *)
      |
      | RANGE |
      | INT |
      | |
      | +L1 Q++
      | +00475
      |
      | +L2
      | +00495
      |
      | CNT_5
      | %R0163 -+IN
      | +-----+

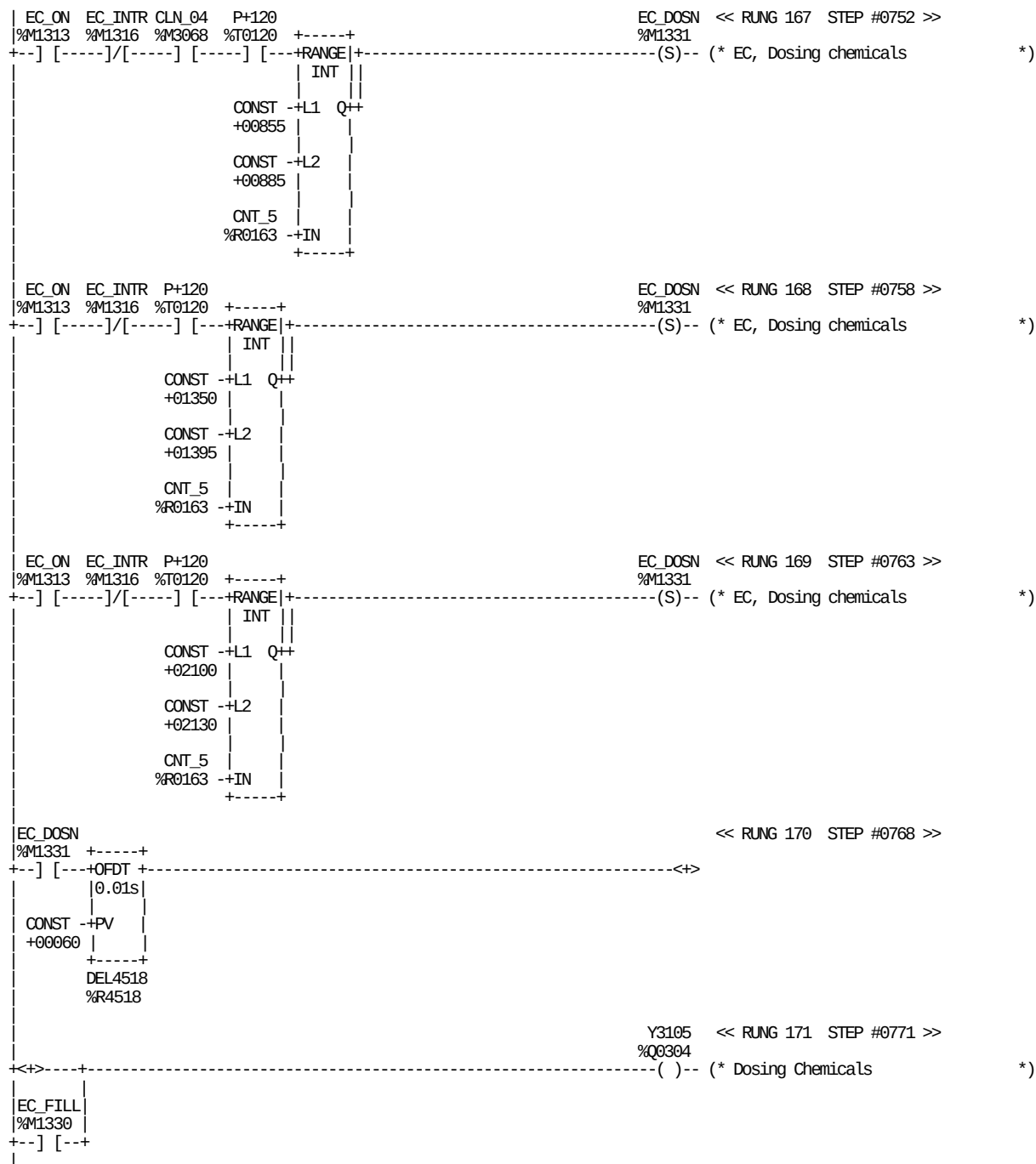
EC_ON EC_INTR CLN_04 P+120 EC_DOSN << RUNG 165 STEP #0740 >>
%M1313 %M1316 %M3068 %T0120 +-----+ %M1331
+--] [-----] [-----] [-----] (S) ( * EC, Dosing chemicals *)
      |
      | RANGE |
      | INT |
      | |
      | +L1 Q++
      | +00465
      |
      | +L2
      | +00495
      |
      | CNT_5
      | %R0163 -+IN
      | +-----+

EC_ON EC_INTR CLN_03 P+120 EC_DOSN << RUNG 166 STEP #0746 >>
%M1313 %M1316 %M3067 %T0120 +-----+ %M1331
+--] [-----] [-----] [-----] (S) ( * EC, Dosing chemicals *)
      |
      | RANGE |
      | INT |
      | |
      | +L1 Q++
      | +00865
      |
      | +L2
      | +00885
      |
      | CNT_5
      | %R0163 -+IN
      | +-----+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%S0007	ALW_ON	Dosing chemicals	%M1331	EC_DOSN	EC, Dosing chemicals
%I0244	B3105		%M1316	EC_INTR	EC, Interrupted
%M3067	CLN_03	Clean, Jaw system + FFU select	%M1313	EC_ON	EC, Going on
%M3068	CLN_04	Clean, JUM + FFU + column select	%T0120	P+120	Pulse + Dosing chemicals
%R0163	CNT_5	CNT5, External cleaning			

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REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M3068	CLN_04	Clean, JUM + FFU + column select	%M1316	EC_INTR	EC, Interrupted
%R0163	CNT_5	CNT5, External cleaning	%M1313	EC_ON	EC, Going on
%R4518	DEL4518	Delay,	%T0120	P+120	Pulse + Dosing chemicals
%M1331	EC_DOSN	EC, Dosing chemicals	%Q0304	Y3105	Dosing Chemicals
%M1330	EC_FILL	EC, Filling chemical pipes			

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```

{*****}
{* Warm rinsing *}
{*****}

ALW_ON                                     Y3103 << RUNG 173 STEP #0775 >>
%S0007                                     %Q0246
+---] [-----] [-----] (R)--- (* Flushing *)

EC_ON  EC_INTR                             Y3103 << RUNG 174 STEP #0777 >>
%M1313 %M1316 +-----+                   %Q0246
+---] [-----]/[-----] (S)--- (* Flushing *)
      |
      | RANGE
      | INT
      |
CONST -+L1 Q++
+00001 |
      |
CONST -+L2
+00060 |
      |
CNT_5
%R0163 -+IN
+-----+

EC_ON  EC_INTR                             Y3103 << RUNG 175 STEP #0781 >>
%M1313 %M1316 +-----+                   %Q0246
+---] [-----]/[-----] (S)--- (* Flushing *)
      |
      | RANGE
      | INT
      |
CONST -+L1 Q++
+01276 |
      |
CONST -+L2
+01335 |
      |
CNT_5
%R0163 -+IN
+-----+

EC_ON  EC_INTR                             Y3103 << RUNG 176 STEP #0785 >>
%M1313 %M1316 +-----+                   %Q0246
+---] [-----]/[-----] (S)--- (* Flushing *)
      |
      | RANGE
      | INT
      |
CONST -+L1 Q++
+02026 |
      |
CONST -+L2
+02085 |
      |
CNT_5
%R0163 -+IN
+-----+

EC_ON  EC_INTR                             Y3103 << RUNG 177 STEP #0789 >>
%M1313 %M1316 +-----+                   %Q0246
+---] [-----]/[-----] (S)--- (* Flushing *)
      |
      | RANGE
      | INT
      |
CONST -+L1 Q++
+02761 |
      |
CONST -+L2
+02800 |
      |
CNT_5
%R0163 -+IN
+-----+

```

REFERENCE	NICKNAME	REFERENCE	DESCRIPTION	REFERENCE	NICKNAME	REFERENCE	DESCRIPTION
%S0007	ALW_ON			%M1313	EC_ON		EC, Going on
%R0163	CNT_5		CNT5, External cleaning	%Q0246	Y3103		Flushing
%M1316	EC_INTR		EC, Interrupted				

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```

(*****
(* Alkali detergent supply
*****
)

ALW_ON                                     Y3106 << RUNG 179 STEP #0794 >>
%S0007                                     %Q0290
--] [-----] (R) ( * Alkali Detergent Supply *)

EC_ON EC_INTR                             Y3106 << RUNG 180 STEP #0796 >>
%M1313 %M1316                             %Q0290
--] [-----]/[-----] (S) ( * Alkali Detergent Supply *)

CONST -+L1 Q++
+00061

CONST -+L2
+00120

CNT_5
%R0163 -+IN
+-----+

EC_ON EC_INTR CLN_03                     Y3106 << RUNG 181 STEP #0800 >>
%M1313 %M1316 %M3067                     %Q0290
--] [-----]/[-----] (S) ( * Alkali Detergent Supply *)

CONST -+L1 Q++
+00476

CONST -+L2
+00495

CNT_5
%R0163 -+IN
+-----+

EC_ON EC_INTR CLN_04                     Y3106 << RUNG 182 STEP #0805 >>
%M1313 %M1316 %M3068                     %Q0290
--] [-----]/[-----] (S) ( * Alkali Detergent Supply *)

CONST -+L1 Q++
+00466

CONST -+L2
+00495

CNT_5
%R0163 -+IN
+-----+

EC_ON EC_INTR CLN_03                     Y3106 << RUNG 183 STEP #0810 >>
%M1313 %M1316 %M3067                     %Q0290
--] [-----]/[-----] (S) ( * Alkali Detergent Supply *)

CONST -+L1 Q++
+00866

CONST -+L2
+00885

CNT_5
%R0163 -+IN
+-----+

EC_ON EC_INTR CLN_04                     Y3106 << RUNG 184 STEP #0815 >>
%M1313 %M1316 %M3068                     %Q0290
--] [-----]/[-----] (S) ( * Alkali Detergent Supply *)

CONST -+L1 Q++
+00855

CONST -+L2
+00885

CNT_5
%R0163 -+IN
+-----+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%S0007	ALW_ON		%M1316	EC_INTR	EC, Interrupted
%M3067	CLN_03	Clean, Jaw system + FFU select	%M1313	EC_ON	EC, Going on
%M3068	CLN_04	Clean, JUM + FFU + column select	%Q0290	Y3106	Alkali Detergent Supply
%R0163	CNT_5	CNT5, External cleaning			

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```
(*****  
(* Acid detergent supply *)  
*****)  
  
EC_ON EC_INTR Y3107 << RUNG 186 STEP #0821 >>  
%M1313 %M1316 %Q0291  
+---] [-----]/[----+]RANGE|+-----) (* Acid Detergent Supply *)  
          INT ||  
  
CONST --L1 Q++  
+01336 |  
  
CONST --L2  
+01395 |  
  
CNT_5  
%R0163 -+IN  
       +-----+  
  
(*****  
(* Valve Y3109 is used both for foaming and draining the first *)  
(* six rungs are for foaming and the last is for draining. *)  
*****)  
  
ALW_ON Y3109 << RUNG 188 STEP #0826 >>  
%S0007 %Q0245  
+---] [-----](R)-- (*) Foaming/Draining *)  
  
EC_ON EC_INTR Y3109 << RUNG 189 STEP #0828 >>  
%M1313 %M1316 %Q0245  
+---] [-----]/[----+]RANGE|+(S)-- (*) Foaming/Draining *)  
          INT ||  
  
CONST --L1 Q++  
+00080 |  
  
CONST --L2  
+00120 |  
  
CNT_5  
%R0163 -+IN  
       +-----+  
  
EC_ON EC_INTR CLN_03 Y3109 << RUNG 190 STEP #0832 >>  
%M1313 %M1316 %M3067 %Q0245  
+---] [-----]/[----+]RANGE|+(S)-- (*) Foaming/Draining *)  
          INT ||  
  
CONST --L1 Q++  
+00480 |  
  
CONST --L2  
+00495 |  
  
CNT_5  
%R0163 -+IN  
       +-----+  
  
EC_ON EC_INTR CLN_04 Y3109 << RUNG 191 STEP #0837 >>  
%M1313 %M1316 %M3068 %Q0245  
+---] [-----]/[----+]RANGE|+(S)-- (*) Foaming/Draining *)  
          INT ||  
  
CONST --L1 Q++  
+00470 |  
  
CONST --L2  
+00495 |  
  
CNT_5  
%R0163 -+IN  
       +-----+
```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%S0007	ALW_ON		%M1316	EC_INTR	EC, Interrupted
%M3067	CLN_03	Clean, Jaw system + FFU select	%M1313	EC_ON	EC, Going on
%M3068	CLN_04	Clean, JUM + FFU + column select	%Q0291	Y3107	Acid Detergent Supply
%R0163	CNT_5	CNT5, External cleaning	%Q0245	Y3109	Foaming/Draining

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```

| EC_ON EC_INTR CLN_03                                Y3109 << RUNG 192 STEP #0842 >>
|M1313 M1316 M3067 +-----+                          %Q0245
+--] [-----]/[-----] [---+RANGE|+-----+          (S)-- (* Foaming/Draining          *)
|                               |
|                               | INT |
|                               |
|CONST -+L1 Q++
|+00870 |
|
|CONST -+L2
|+00885 |
|
|CNT_5
|R0163 -+IN
|+-----+

| EC_ON EC_INTR CLN_04                                Y3109 << RUNG 193 STEP #0847 >>
|M1313 M1316 M3068 +-----+                          %Q0245
+--] [-----]/[-----] [---+RANGE|+-----+          (S)-- (* Foaming/Draining          *)
|                               |
|                               | INT |
|                               |
|CONST -+L1 Q++
|+00860 |
|
|CONST -+L2
|+00885 |
|
|CNT_5
|R0163 -+IN
|+-----+

| EC_ON EC_INTR                                Y3109 << RUNG 194 STEP #0852 >>
|M1313 M1316 +-----+                          %Q0245
+--] [-----]/[-----] [---+RANGE|+-----+          (S)-- (* Foaming/Draining          *)
|                               |
|                               | INT |
|                               |
|CONST -+L1 Q++
|+01355 |
|
|CONST -+L2
|+01395 |
|
|CNT_5
|R0163 -+IN
|+-----+

(*****
(* Draining *)
*****)

| EC_ON EC_INTR                                Y3109 << RUNG 196 STEP #0857 >>
|M1313 M1316 +-----+                          %Q0245
+--] [-----]/[-----] [---+RANGE|+-----+          (S)-- (* Foaming/Draining          *)
|                               |
|                               | INT |
|                               |
|CONST -+L1 Q++
|+02801 |
|
|CONST -+L2
|+02885 |
|
|CNT_5
|R0163 -+IN
|+-----+

```

REFERENCE NICKNAME
 %M3067 CLN_03
 %M3068 CLN_04
 %R0163 CNT_5

REFERENCE DESCRIPTION
 Clean, Jaw system + FFU select
 Clean, JUM + FFU + column select
 CNT5, External cleaning

REFERENCE NICKNAME
 %M1316 EC_INTR
 %M1313 EC_ON
 %Q0245 Y3109

REFERENCE DESCRIPTION
 EC, Interrupted
 EC, Going on
 Foaming/Draining

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```

(*****
(* Column cleaning
*****
)

ALW_ON          Y3110 << RUNG 198 STEP #0862 >>
%S0007          %Q0247
+--] [-----] (R) ( * Column cleaning *)

EC_ON EC_INTR CLN_04          Y3110 << RUNG 199 STEP #0864 >>
%M1313 %M1316 %M3068          %Q0247
+--] [-----]/[-----] [+RANGE] (S) ( * Column cleaning *)
      |
      | INT
      |
CONST -+L1 Q++
+00001 |
      |
CONST -+L2
+00020 |
      |
CNT_5
%R0163 -+IN
      |
      +-----+

EC_ON EC_INTR CLN_04          Y3110 << RUNG 200 STEP #0869 >>
%M1313 %M1316 %M3068          %Q0247
+--] [-----]/[-----] [+RANGE] (S) ( * Column cleaning *)
      |
      | INT
      |
CONST -+L1 Q++
+00076 |
      |
CONST -+L2
+00090 |
      |
CNT_5
%R0163 -+IN
      |
      +-----+

EC_ON EC_INTR CLN_04          Y3110 << RUNG 201 STEP #0874 >>
%M1313 %M1316 %M3068          %Q0247
+--] [-----]/[-----] [+RANGE] (S) ( * Column cleaning *)
      |
      | INT
      |
CONST -+L1 Q++
+00466 |
      |
CONST -+L2
+00475 |
      |
CNT_5
%R0163 -+IN
      |
      +-----+

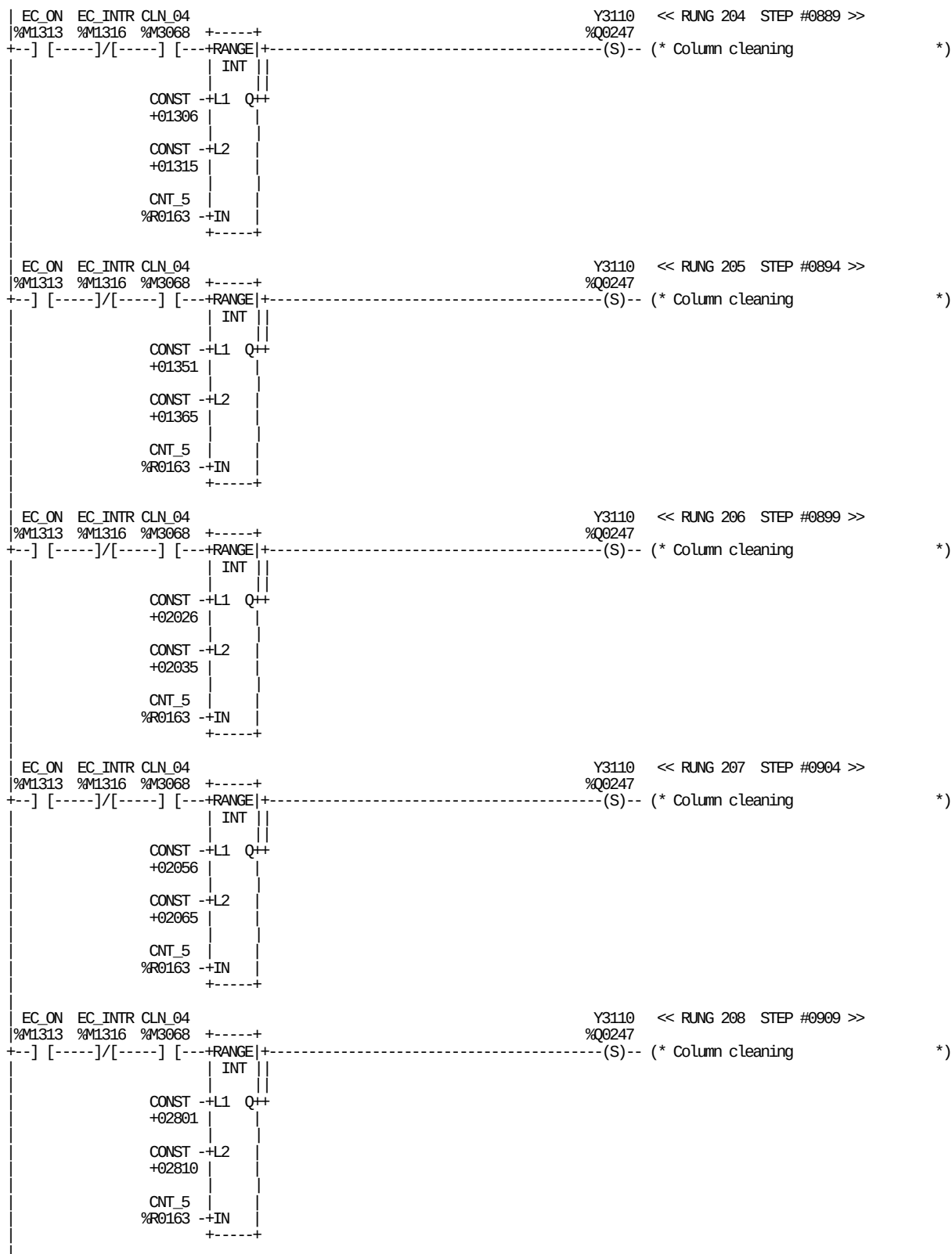
EC_ON EC_INTR CLN_04          Y3110 << RUNG 202 STEP #0879 >>
%M1313 %M1316 %M3068          %Q0247
+--] [-----]/[-----] [+RANGE] (S) ( * Column cleaning *)
      |
      | INT
      |
CONST -+L1 Q++
+00856 |
      |
CONST -+L2
+00865 |
      |
CNT_5
%R0163 -+IN
      |
      +-----+

EC_ON EC_INTR CLN_04          Y3110 << RUNG 203 STEP #0884 >>
%M1313 %M1316 %M3068          %Q0247
+--] [-----]/[-----] [+RANGE] (S) ( * Column cleaning *)
      |
      | INT
      |
CONST -+L1 Q++
+01276 |
      |
CONST -+L2
+01285 |
      |
CNT_5
%R0163 -+IN
      |
      +-----+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%S0007	ALW_ON		%M1316	EC_INTR	EC, Interrupted
%M3068	CLN_04	Clean, JUM + FFU + column select	%M1313	EC_ON	EC, Going on
%R0163	CNT_5	CNT5, External cleaning	%Q0247	Y3110	Column cleaning

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REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M3068	CLN_04	Clean, JUM + FFU + column select
%R0163	CNT_5	CNT5, External cleaning
%M1316	EC_INTR	EC, Interrupted

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M1313	EC_ON	EC, Going on
%Q0247	Y3110	Column cleaning

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EC_ON	EC_INTR	CLN_04	Y3110	<< RUNG 209 STEP #0914 >>
%M1313	%M1316	%M3068	%Q0247	
+-] [-----]/[-----]	[-----] [-----]		RANGE	(S) (* Column cleaning *)
		INT		
	CONST -+L1	Q++		
	+02846			
	CONST -+L2			
	+02855			
	CNT_5			
	%R0163	-+IN		
		+-] [-----]		

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M3068	CLN_04	Clean, JUM + FFU + column select	%M1313	EC_ON	EC, Going on
%R0163	CNT_5	CNT5, External cleaning	%Q0247	Y3110	Column cleaning
%M1316	EC_INTR	EC, Interrupted			

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```

(*****
(* Upper system cleaning
*****
)

ALW_ON          Y3111  << RUNG 211 STEP #0920 >>
%S0007          %Q0248
--] [-----] (R)  (* Upper system cleaning      *)

EC_ON  EC_INTR  Y3111  << RUNG 212 STEP #0922 >>
%M1313 %M1316  %Q0248
--] [-----] (S)  (* Upper system cleaning      *)
+-----+
|         |
|+-----+|
|  RANGE  |
|  INT    |
|         |
|+-----+|
|         |
|CONST -+L1 Q++|
|+00021 |
|         |
|CONST -+L2 |
|+00040 |
|         |
|CNT_5  |
|%R0163 -+IN|
|+-----+|

EC_ON  EC_INTR  Y3111  << RUNG 213 STEP #0926 >>
%M1313 %M1316  %Q0248
--] [-----] (S)  (* Upper system cleaning      *)
+-----+
|         |
|+-----+|
|  RANGE  |
|  INT    |
|         |
|+-----+|
|         |
|CONST -+L1 Q++|
|+00061 |
|         |
|CONST -+L2 |
|+00075 |
|         |
|CNT_5  |
|%R0163 -+IN|
|+-----+|

EC_ON  EC_INTR  Y3111  << RUNG 214 STEP #0930 >>
%M1313 %M1316  %Q0248
--] [-----] (S)  (* Upper system cleaning      *)
+-----+
|         |
|+-----+|
|  RANGE  |
|  INT    |
|         |
|+-----+|
|         |
|CONST -+L1 Q++|
|+00091 |
|         |
|CONST -+L2 |
|+00105 |
|         |
|CNT_5  |
|%R0163 -+IN|
|+-----+|

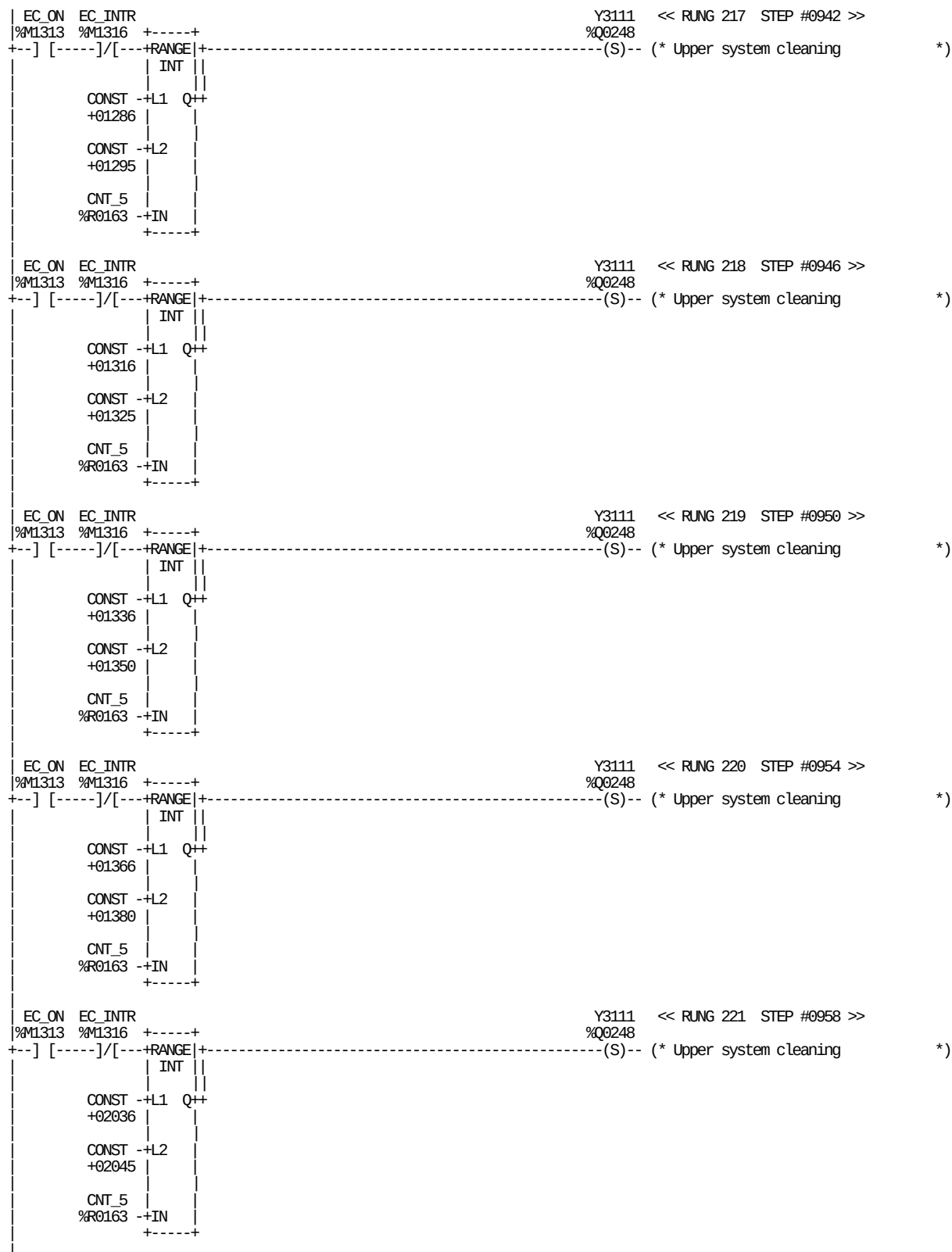
EC_ON  EC_INTR  Y3111  << RUNG 215 STEP #0934 >>
%M1313 %M1316  %Q0248
--] [-----] (S)  (* Upper system cleaning      *)
+-----+
|         |
|+-----+|
|  RANGE  |
|  INT    |
|         |
|+-----+|
|         |
|CONST -+L1 Q++|
|+00476 |
|         |
|CONST -+L2 |
|+00485 |
|         |
|CNT_5  |
|%R0163 -+IN|
|+-----+|

EC_ON  EC_INTR  Y3111  << RUNG 216 STEP #0938 >>
%M1313 %M1316  %Q0248
--] [-----] (S)  (* Upper system cleaning      *)
+-----+
|         |
|+-----+|
|  RANGE  |
|  INT    |
|         |
|+-----+|
|         |
|CONST -+L1 Q++|
|+00866 |
|         |
|CONST -+L2 |
|+00875 |
|         |
|CNT_5  |
|%R0163 -+IN|
|+-----+|

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%S0007	ALW_ON		%M1313	EC_ON	EC, Going on
%R0163	CNT_5	CNT5, External cleaning	%Q0248	Y3111	Upper system cleaning
%M1316	EC_INTR	EC, Interrupted			

TBA/21-0410/0500
BLOCK: CLEANING CIP/EC



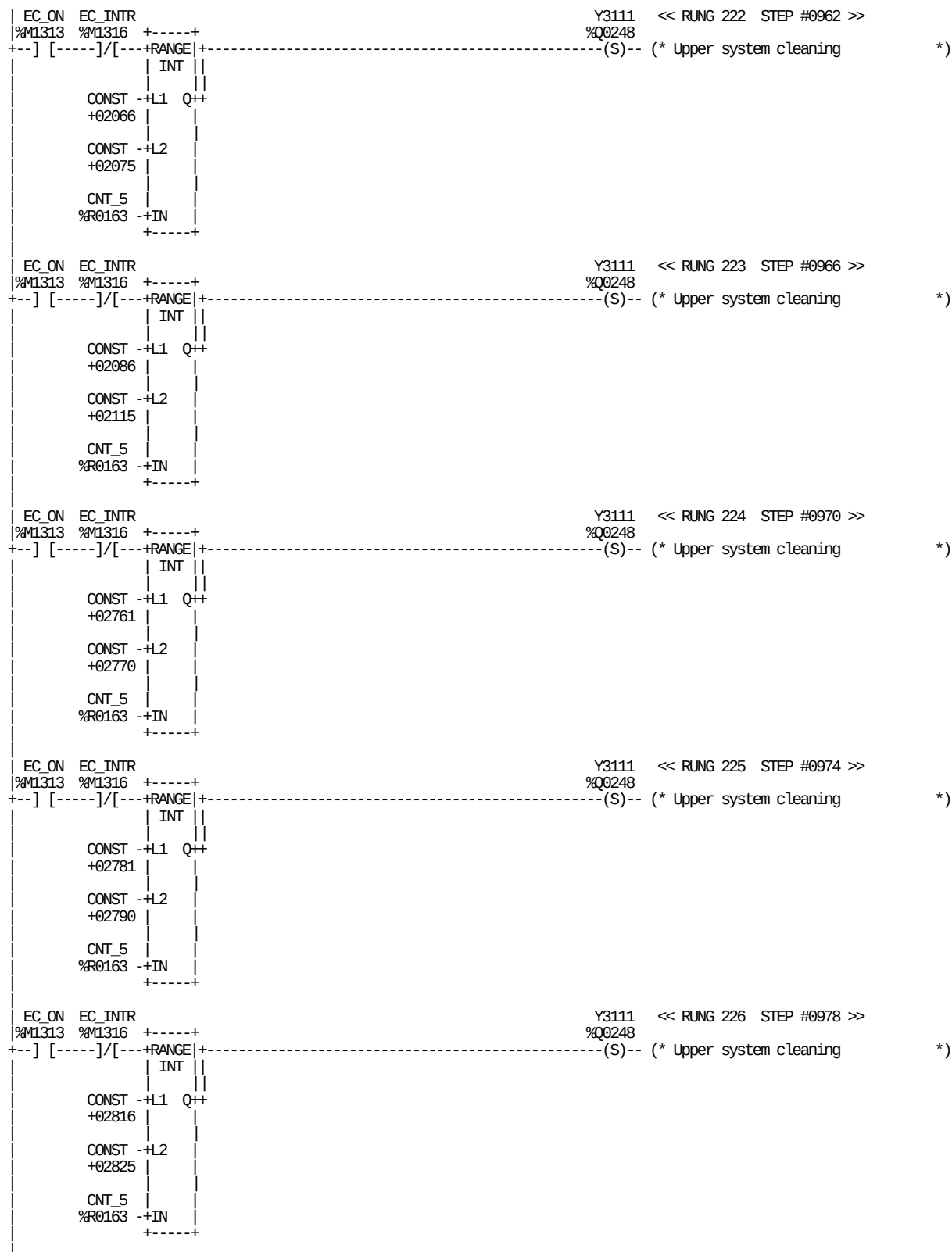
REFERENCE NICKNAME
%R0163 CNT_5
%M1316 EC_INTR

REFERENCE DESCRIPTION
CNT5, External cleaning
EC, Interrupted

REFERENCE NICKNAME
%M1313 EC_ON
%Q0248 Y3111

REFERENCE DESCRIPTION
EC, Going on
Upper system cleaning

TBA/21-0410/0500
BLOCK: CLEANING CIP/EC



REFERENCE NICKNAME
%R0163 CNT_5
%M1316 EC_INTR

REFERENCE DESCRIPTION
CNT5, External cleaning
EC, Interrupted

REFERENCE NICKNAME
%M1313 EC_ON
%Q0248 Y3111

REFERENCE DESCRIPTION
EC, Going on
Upper system cleaning

TBA/21-0410/0500
BLOCK: CLEANING CIP/EC

```

EC_ON   EC_INTR      Y3111    << RUNG 227 STEP #0982 >>
%M1313  %M1316      %Q0248
+---] [----]/[-----+(S)--- (* Upper system cleaning *)
|                                     |
|         +RANGE|               |
|         INT  |               |
|             |               |
|CONST -+L1 Q++|               |
|+02861|                 |
|       |                 |
|CONST -+L2     |               |
|+02870|                 |
|       |                 |
|CNT_5  |                 |
|%R0163 -+IN      |               |
|         +-----+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%R0163	CNT_5	CNT5, External cleaning	%M1313	EC_ON	EC, Going on
%M1316	EC_INTR	EC, Interrupted	%00248	Y3111	Upper system cleaning

TBA/21-0410/0500
BLOCK: CLEANING CIP/EC

ECM: 73362

DATE: 010205

SIGNATURE: EFi

48246-50:02

```

(*****
(* Lower system cleaning
*****
)

ALW_ON          Y3112  << RUNG 229 STEP #0987 >>
%S0007          %Q0249
+--] [-----] (R)  (* Lower system cleaning      *)

EC_ON  EC_INTR  Y3112  << RUNG 230 STEP #0989 >>
%M1313 %M1316  %Q0249
+--] [-----] (S)  (* Lower system cleaning      *)
+-----+
|         |
|+-----+|
|  RANGE  ||
|  INT    ||
|         ||
|CONST -+L1 Q++|
|+00041 |
|         |
|CONST -+L2 |
|+00060 |
|         |
|CNT_5  |
|%R0163 -+IN |
|+-----+|

EC_ON  EC_INTR  Y3112  << RUNG 231 STEP #0993 >>
%M1313 %M1316  %Q0249
+--] [-----] (S)  (* Lower system cleaning      *)
+-----+
|         |
|+-----+|
|  RANGE  ||
|  INT    ||
|         ||
|CONST -+L1 Q++|
|+00106 |
|         |
|CONST -+L2 |
|+00120 |
|         |
|CNT_5  |
|%R0163 -+IN |
|+-----+|

EC_ON  EC_INTR  Y3112  << RUNG 232 STEP #0997 >>
%M1313 %M1316  %Q0249
+--] [-----] (S)  (* Lower system cleaning      *)
+-----+
|         |
|+-----+|
|  RANGE  ||
|  INT    ||
|         ||
|CONST -+L1 Q++|
|+00486 |
|         |
|CONST -+L2 |
|+00495 |
|         |
|CNT_5  |
|%R0163 -+IN |
|+-----+|

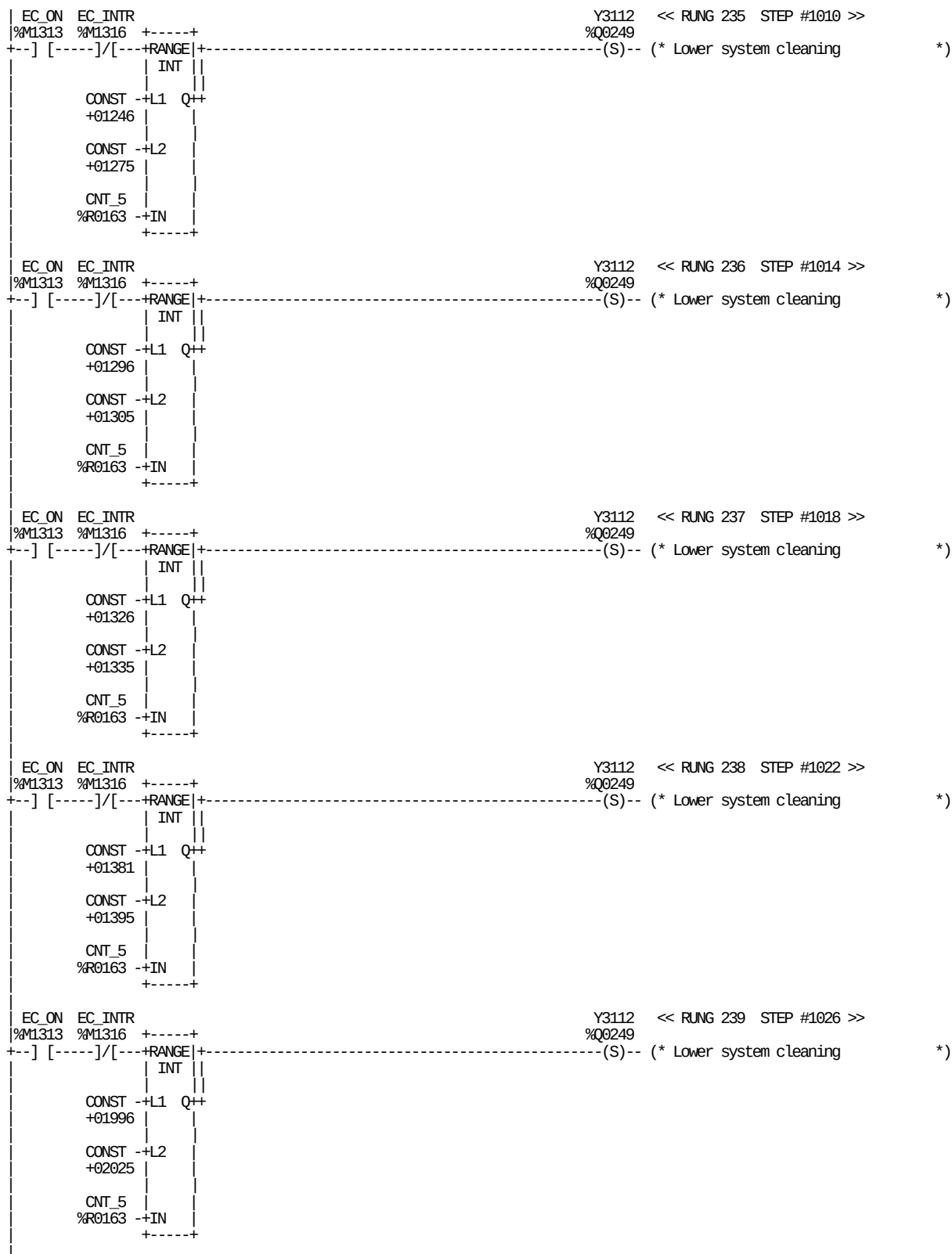
EC_ON  EC_INTR  Y3112  << RUNG 233 STEP #1001 >>
%M1313 %M1316  %Q0249
+--] [-----] (S)  (* Lower system cleaning      *)
+-----+
|         |
|+-----+|
|  RANGE  ||
|  INT    ||
|         ||
|CONST -+L1 Q++|
|+00876 |
|         |
|CONST -+L2 |
|+00885 |
|         |
|CNT_5  |
|%R0163 -+IN |
|+-----+|

EC_ON  EC_INTR  OPTRK_3  Y3112  << RUNG 234 STEP #1005 >>
%M1313 %M1316 %M4080  %Q0249
+--] [-----] (S)  (* Lower system cleaning      *)
+-----+
|         |
|+-----+|
|  RANGE  ||
|  INT    ||
|         ||
|CONST -+L1 Q++|
|+00886 |
|         |
|CONST -+L2 |
|+00895 |
|         |
|CNT_5  |
|%R0163 -+IN |
|+-----+|

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%S0007	ALW_ON		%M1313	EC_ON	EC, Going on
%R0163	CNT_5	CNT5, External cleaning	%M4080	OPTRK_3	TBA21 050V field test
%M1316	EC_INTR	EC, Interrupted	%Q0249	Y3112	Lower system cleaning

TBA/21-0410/0500
BLOCK: CLEANING CIP/EC



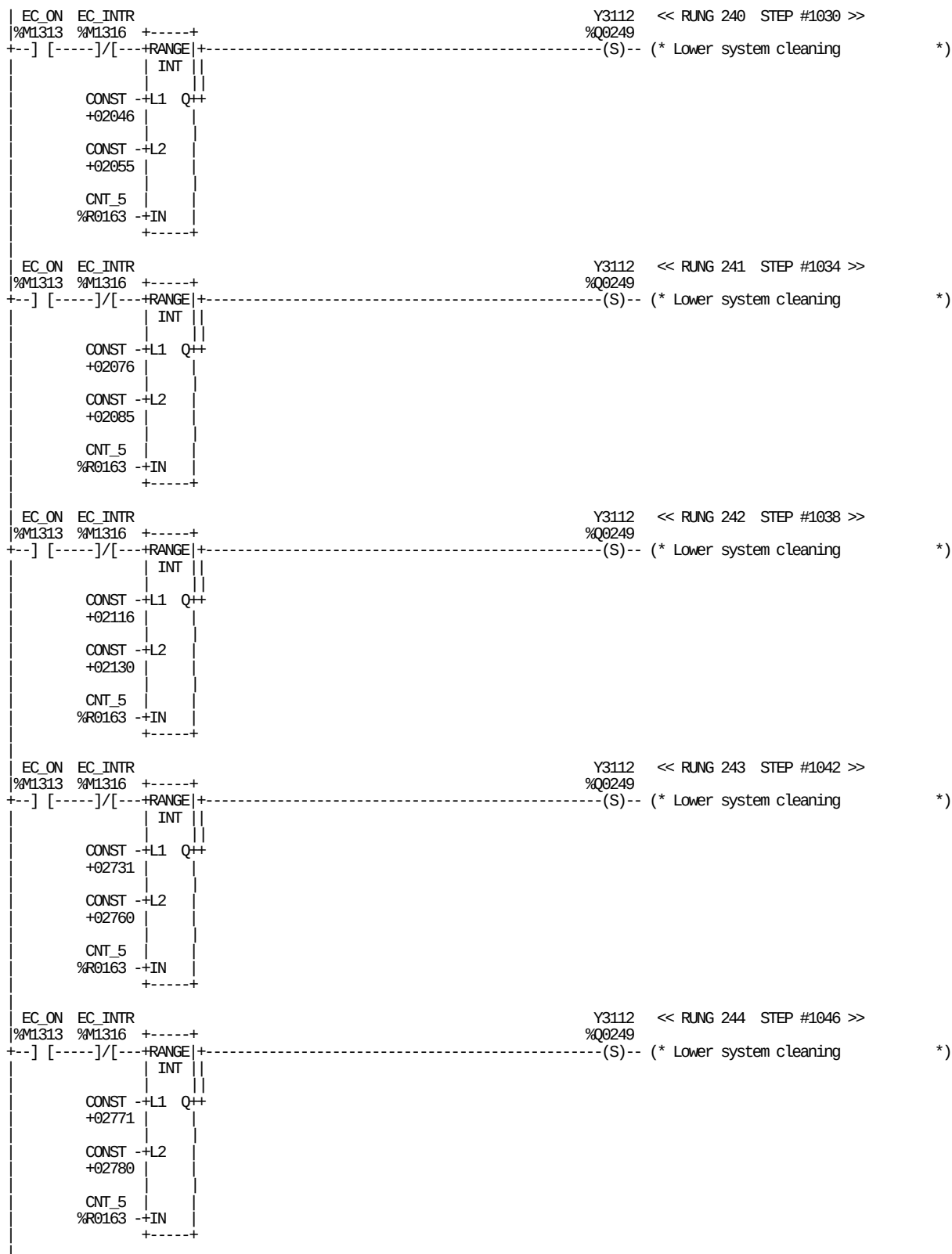
REFERENCE NICKNAME
 %R0163 CNT_5
 %M1316 EC_INTR

REFERENCE DESCRIPTION
 CNT5, External cleaning
 EC, Interrupted

REFERENCE NICKNAME
 %M1313 EC_ON
 %Q0249 Y3112

REFERENCE DESCRIPTION
 EC, Going on
 Lower system cleaning

TBA/21-0410/0500
 BLOCK: CLEANING CIP/EC



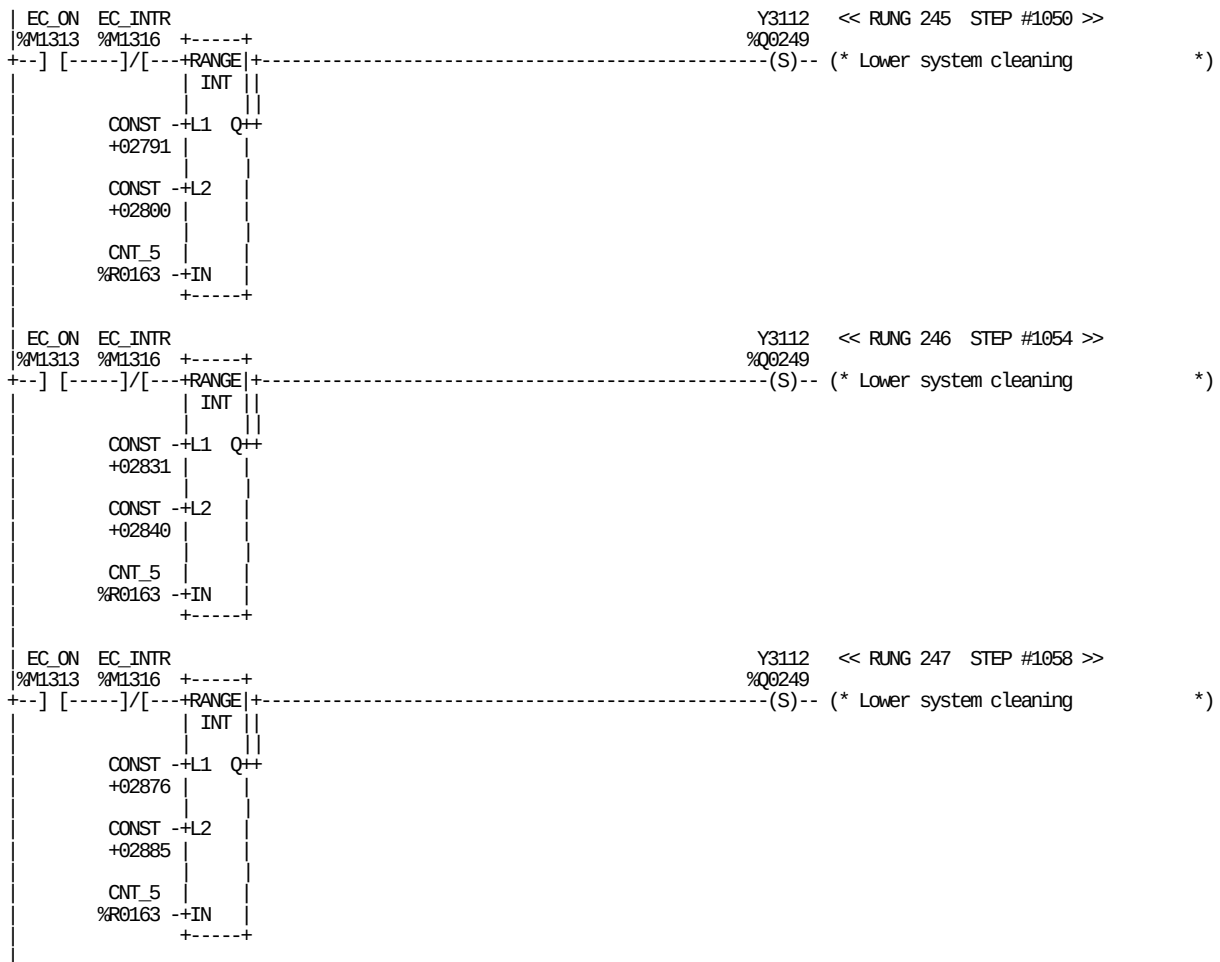
REFERENCE NICKNAME
 %R0163 CNT_5
 %M1316 EC_INTR

REFERENCE DESCRIPTION
 CNT5, External cleaning
 EC, Interrupted

REFERENCE NICKNAME
 %M1313 EC_ON
 %Q0249 Y3112

REFERENCE DESCRIPTION
 EC, Going on
 Lower system cleaning

TBA/21-0410/0500
 BLOCK: CLEANING CIP/EC



REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%R0163	CNT_5	CNT5, External cleaning
%M1316	EC_INTR	EC, Interrupted

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M1313	EC_ON	EC, Going on
%Q0249	Y3112	Lower system cleaning

TBA/21-0410/0500
BLOCK: CLEANING CIP/EC

```

(*****
(* Rinsing chemical parts
*****
)

ALW_ON                                     Y3113 << RUNG 249 STEP #1063 >>
%S0007                                     %Q0257
+--] [-----] [-----] (R) ( * Rinsing Chemical Parts *)

EC_ON EC_INTR OPTRK_3                     Y3113 << RUNG 250 STEP #1065 >>
%M1313 %M1316 %M4080 +-----+           %Q0257
+--] [-----]/[-----] [---+RANGE|+-----] (S) ( * Rinsing Chemical Parts *)
      |
      | INT
      |
CONST -+L1 Q++
+01246 |
      |
CONST -+L2
+01275 |
      |
CNT_5
%R0163 -+IN
+-----+

EC_ON EC_INTR OPTRK_3                     Y3113 << RUNG 251 STEP #1070 >>
%M1313 %M1316 %M4080 +-----+           %Q0257
+--] [-----]/[-----] [---+RANGE|+-----] (S) ( * Rinsing Chemical Parts *)
      |
      | INT
      |
CONST -+L1 Q++
+01996 |
      |
CONST -+L2
+02025 |
      |
CNT_5
%R0163 -+IN
+-----+

EC_ON EC_INTR OPTRK_3                     Y3113 << RUNG 252 STEP #1075 >>
%M1313 %M1316 %M4080 +-----+           %Q0257
+--] [-----]/[-----] [---+RANGE|+-----] (S) ( * Rinsing Chemical Parts *)
      |
      | INT
      |
CONST -+L1 Q++
+02731 |
      |
CONST -+L2
+02760 |
      |
CNT_5
%R0163 -+IN
+-----+

(*****
(* Desinfectant supply
*****
)

EC_ON EC_INTR                             Y3114 << RUNG 254 STEP #1081 >>
%M1313 %M1316 +-----+                 %Q0292
+--] [-----]/[-----] [---+RANGE|+-----] ( ) ( * Desinfectant Supply *)
      |
      | INT
      |
CONST -+L1 Q++
+02086 |
      |
CONST -+L2
+02130 |
      |
CNT_5
%R0163 -+IN
+-----+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%S0007	ALW_ON		%M4080	OPTRK_3	TBA21 050V field test
%R0163	CNT_5	CNT5, External cleaning	%Q0257	Y3113	Rinsing Chemical Parts
%M1316	EC_INTR	EC, Interrupted	%Q0292	Y3114	Desinfectant Supply
%M1313	EC_ON	EC, Going on			

TBA/21-0410/0500
BLOCK: CLEANING CIP/EC

```

(*****
* Display external cleaning time on TPOP
*)
(*****

(*****
* Cleaning combination 1
* Total time 21,55 (1315 sec)
*)
(*****

CLN_03  OPTRK_3  CLN_05  CLN_07
%M3067  %M4080  %M3069  %M3071  +-----+
+---] [-----]/[-----] [-----]/[-----]+MOVE+
                                     | INT |
                                     |-----|
                                     | EC_TOT |
CONST  -+IN  Q+-%R4000
+01315  | LEN |
        | 00001 |
        |-----|

(*****
* Cleaning combination 2
* Total time 22,35 (1355 sec)
*)
(*****

CLN_03  OPTRK_3  CLN_05  CLN_07
%M3067  %M4080  %M3069  %M3071  +-----+
+---] [-----] [-----] [-----]/[-----]+MOVE+
                                     | INT |
                                     |-----|
                                     | EC_TOT |
CONST  -+IN  Q+-%R4000
+01355  | LEN |
        | 00001 |
        |-----|

(*****
* Cleaning combination 3 and 4
* Total time 34,20 (2060 sec)
*)
(*****

CLN_03  CLN_05  CLN_07
%M3067  %M3069  %M3071  +-----+
+---] [-----] [-----] [-----]+MOVE+
                                     | INT |
                                     |-----|
                                     | EC_TOT |
CLN_06  CLN_07
%M3070  %M3071
+---] [-----]/[-----]+CONST  -+IN  Q+-%R4000
+02060  | LEN |
        | 00001 |
        |-----|

(*****
* Cleaning combination 5
* Total time 46,15 (2775 sec)
*)
(*****

CLN_03  CLN_06  CLN_07
%M3067  %M3070  %M3071  +-----+
+---] [-----] [-----] [-----]+MOVE+
                                     | INT |
                                     |-----|
                                     | EC_TOT |
CONST  -+IN  Q+-%R4000
+02775  | LEN |
        | 00001 |
        |-----|

```

<< RUNG 257 STEP #1087 >>

<< RUNG 259 STEP #1093 >>

<< RUNG 261 STEP #1099 >>

<< RUNG 263 STEP #1108 >>

REFERENCE NICKNAME	REFERENCE DESCRIPTION	REFERENCE NICKNAME	REFERENCE DESCRIPTION
%M3067 CLN_03	Clean, Jaw system + FFU select	%M3071 CLN_07	Clean, Desinfectant select
%M3069 CLN_05	Clean, Alkali select	%R4000 EC_TOT	EC, Total time chosen
%M3070 CLN_06	Clean, Acid select	%M4080 OPTRK_3	TBA21 050V field test

TBA/21-0410/0500
BLOCK: CLEANING CIP/EC

```

{
  *****
  * Cleaning combination 6
  * Total time 13,10 (790 sec)
  *****
}

CLN_03 CLN_05 CLN_06 CLN_07
%M3067 %M3069 %M3070 %M3071 +-----+
+---] [-----]/[-----]/[-----] [---+MOVE_+---
|
| INT
|
| EC_TOT
CONST -+IN Q+-%R4000
+00790 | LEN
| 00001
|
+-----+

{
  *****
  * Cleaning combination 7
  * Total time 23,40 (1420 sec)
  *****
}

CLN_04 CLN_05 CLN_07
%M3068 %M3069 %M3071 +-----+
+---] [-----] [-----]/[---+MOVE_+---
|
| INT
|
| EC_TOT
CONST -+IN Q+-%R4000
+01420 | LEN
| 00001
|
+-----+

{
  *****
  * Cleaning combination 8
  * Total time 36,10 (2170 sec)
  *****
}

CLN_04 CLN_06 CLN_07
%M3068 %M3070 %M3071 +-----+
+---] [-----] [-----]/[---+MOVE_+---
|
| INT
|
| EC_TOT
CONST -+IN Q+-%R4000
+02170 | LEN
| 00001
|
+-----+

{
  *****
  * Cleaning combination 9
  * Total time 35,35 (2135 sec)
  *****
}

CLN_04 CLN_05 CLN_07
%M3068 %M3069 %M3071 +-----+
+---] [-----] [-----] [---+MOVE_+---
|
| INT
|
| EC_TOT
CONST -+IN Q+-%R4000
+02135 | LEN
| 00001
|
+-----+

{
  *****
  * Cleaning combination 10
  * Total time 48,05 (2885 sec)
  *****
}

CLN_04 CLN_06 CLN_07
%M3068 %M3070 %M3071 +-----+
+---] [-----] [-----] [---+MOVE_+---
|
| INT
|
| EC_TOT
CONST -+IN Q+-%R4000
+02885 | LEN
| 00001
|
+-----+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M3067	CLN_03	Clean, Jaw system + FFU select	%M3070	CLN_06	Clean, Acid select
%M3068	CLN_04	Clean, JUM + FFU + column select	%M3071	CLN_07	Clean, Desinfectant select
%M3069	CLN_05	Clean, AUMi select	%R4000	EC TOT	EC, Total time chosen

TBA/21-0410/0500
BLOCK: CLEANING CIP/EC

```

(*****
* Cleaning combination 11
* Total time 13,20 (800 sec)
*****)

CLN_04 CLN_05 CLN_06 CLN_07
%M3068 %M3069 %M3070 %M3071 +-----+
+--] [-----]/[-----]/[-----] [---+MOVE_+---
      |
      | INT
      |
      | EC_TOT
CONST  -+IN Q+-%R4000
+00800 | LEN
      | 00001
      |
      +-----+

(*****
* The display on the TPOP will show the remaining time.
*
*****)

EC_ON EC_INTR T_SEC
%M1313 %M1316 %S0005 +-----+
+--] [-----]/[-----] [--->DNCTR+---
      |
      | P+025
      | %T0025
      |
      | +R
      |
      | EC_TOT
      | %R4000 -+PV
      |
      | CNT_6
      | %R0166
      |
      +-----+

```

<< RUNG 275 STEP #1139 >>

<< RUNG 277 STEP #1145 >>

REFERENCE NICKNAME	REFERENCE DESCRIPTION	REFERENCE NICKNAME	REFERENCE DESCRIPTION
%M3068 CLN_04	Clean, JUM + FFU + column select	%M1316 EC_INTR	EC, Interrupted
%M3069 CLN_05	Clean, Alkali select	%M1313 EC_ON	EC, Going on
%M3070 CLN_06	Clean, Acid select	%R4000 EC_TOT	EC, Total time chosen
%M3071 CLN_07	Clean, Desinfectant select	%T0025 P+025	Pulse + External cleaning on
%R0166 CNT_6	CNT6, EC time on TPOP	%S0005 T_SEC	

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BLOCK: CLEANING CIP/EC

[illegible]

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%R0163	CNT_5	CNT5, External cleaning	%M1313	EC_ON	EC, Going on
%R0166	CNT_6	CNT6, EC time on TPOP	%R4001	EC_TIME	EC, Interrupted time
%M1316	EC_INTR	EC, Interrupted	%T0025	P-H025	Pulse + External cleaning on

TBA/21-0410/0500
BLOCK: CLEANING CIP/EC

ECM: 73362

DATE: 010205

SIGNATURE: EFi

48246-50:02

```

(*****
* If external cleaning is interrupted the first 1334 seconds
* the total cleaning will be redone.
* After that the last limit passed will be used.
*****)

P+026  EC_ON                                     << RUNG 285 STEP #1170 >>
%T0026 %M1313 +-----+
+--] [-----] [---+RANGE|
|          |INT|
|          |
|CONST  +L1 Q+-----+MOVE+
|+00000 | |INT|
|          |
|CONST  +L2 EC_TOT |IN Q+---+
|+01335 |%R4000 |---+ %R0166
|          |LEN|
|CNT_5    |00001|
|%R0163  -+IN|
|          +-----+

P+026  EC_ON                                     << RUNG 286 STEP #1174 >>
%T0026 %M1313 +-----+
+--] [-----] [---+RANGE|
|          |INT|
|          |
|CONST  +L1 Q+-----+MOVE+
|+01336 | |INT|
|          |
|CONST  +L2 EC_TIME |IN Q+---+
|+02885 |%R4001 |---+ %R0166
|          |LEN|
|CNT_5    |00001|
|%R0163  -+IN|
|          +-----+

(*****
* Communication TBA21 in External Cleaning
*****)

EC_ON                                     EXT_12 << RUNG 288 STEP #1179 >>
%M1313                                     %Q0222
+--] [-----]------( )-- (* TBA/21, CIP Communication *)

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%R0163	CNT_5	CNT5, External cleaning	%R4000	EC_TOT	EC, Total time chosen
%R0166	CNT_6	CNT6, EC time on TPOP	%Q0222	EXT_12	TBA/21, CIP Communication
%M1313	EC_ON	EC, Going on	%T0026	P+026	Pulse + Ext.clean. interrupted
%R4001	EC_TIME	EC, Interrupted time			

TBA/21-0410/0500
BLOCK: CLEANING CIP/EC

```

(*****
(* Alarms CIP/EC
*****
)

D_POS                                CLEAN01 << RUNG 290 STEP #1182 >>
%M1211                                %M3745
+--] [-----] ( )-- (* CIP valve D *)

E_POS                                CLEAN02 << RUNG 291 STEP #1184 >>
%M1212                                %M3746
+--] [-----] ( )-- (* CIP valve E *)

F_POS                                CLEAN03 << RUNG 292 STEP #1186 >>
%M1213                                %M3747
+--] [-----] ( )-- (* CIP valve F *)

CLN_09 B1305                          CLEAN04 << RUNG 293 STEP #1188 >>
%M3073 %I0303                          %M3748
+--] [-----] ( )-- (* Cleaning sleeve *)

STEP_1                                B1305
%M0101                                %I0303
+--] [-----] [-----]

CLN_09 CIP_END
%M3073 %M1203
+--]/[-----] [-----]

CUP_POS
%M1216
+--] [-----]

CLN_09 B1317                          CLEAN05 << RUNG 294 STEP #1198 >>
%M3073 %I0272                          %M3749
+--] [-----] ( )-- (* Cleaning pipe, Out position *)

CLN_09 CIP_END B1317
%M3073 %M1203 %I0272
+--]/[-----] [-----]

AUT_CIP CLN_09 B1306                  CLEAN06 << RUNG 295 STEP #1205 >>
%M1220 %M3073 %I0252                  %M3750
+--]/[-----] ( )-- (* Cleaning pipe, In position *)

CLN_09 CIP_END B1306
%M3073 %M1203 %I0252
+--]/[-----] [-----]

AUT_CIP STP1_11                      B1307
%M1220 %M0145 %I0253                  %M3751
+--]/[-----] ( )-- (* Sterile air pipe, Position *)

CLN_09 CIP_END
%M3073 %M1203
+--]/[-----] [-----]

AUT_CIP STP1_11 B1308                CLEAN08 << RUNG 297 STEP #1222 >>
%M1220 %M0145 %I0254                  %M3752
+--]/[-----] ( )-- (* B valve pipe, Position *)

CLN_09
%M3073
+--] [-----]

CIP_END
%M1203
+--] [-----]

CIP_INT RV_POS                      CLEAN09 << RUNG 298 STEP #1229 >>
%M1205 %M1210                          %M3753
+--] [-----] ( )-- (* Regulating valve, Position *)

DRY_INT
%M1233
+--] [-----]

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M1220	AUT_CIP	CIP, Automatic CIP (DEF valve)	%M3750	CLEAN06	Cleaning pipe, In position
%I0303	B1305	Cleaning sleeve, Position	%M3751	CLEAN07	Sterile air pipe, Position
%I0252	B1306	Cleaning pipe infeed, Position	%M3752	CLEAN08	B valve pipe, Position
%I0253	B1307	Sterile air pipe, Position	%M3753	CLEAN09	Regulating valve, Position
%I0254	B1308	B - Valve pipe, Position	%M3073	CLN_09	Clean, CIP select
%I0272	B1317	Cleaning pipe outfeed, Position	%M1216	CUP_POS	CIP, cleaning cup out of posit.
%M1203	CIP_END	CIP, Cip ended, Cip dry can start	%M1233	DRY_INT	CIP, Cip drying interrupted
%M1205	CIP_INT	CIP, interrupted	%M1211	D_POS	CIP, D valve in wrong position
%M3745	CLEAN01	CIP valve D	%M1212	E_POS	CIP, E valve in wrong position
%M3746	CLEAN02	CIP valve E	%M1213	F_POS	CIP, F valve in wrong position
%M3747	CLEAN03	CIP valve F	%M1210	RV_POS	CIP, reg. valve wrong pos.in CIP
%M3748	CLEAN04	Cleaning sleeve	%M0101	STEP_1	Step 1 Preparation
%M3749	CLEAN05	Cleaning pipe, Out position	%M0145	STP1_11	Step 1-11 Prep. to venting

TBA/21-0410/0500
BLOCK: CLEANING CIP/EC


```

CIP_INT          CLEAN10 << RUNG 299 STEP #1233 >>
%M1205           %M3754
+--] [-----] ( )-- (* CIP interrupted *)

EC_SUPL          CLEAN11 << RUNG 300 STEP #1235 >>
%M1320           %M3755
+--] [-----] ( )-- (* No water external cleaning *)

EC_COVR          CLEAN12 << RUNG 301 STEP #1237 >>
%M1321           %M3756
+--] [-----] ( )-- (* Column cover cleaning, Position *)

C_POS CIP_INT    CLEAN13 << RUNG 302 STEP #1239 >>
%M0653 %M1205    %M3757
+--]/[-----] ( )-- (* C valve, Position *)

HI_CLN1          CLEAN14 << RUNG 303 STEP #1242 >>
%M1922           %M3758
+--] [-----] ( )-- (* HI nozzle *)

HI_CLN2          CLEAN15 << RUNG 304 STEP #1244 >>
%M1923           %M3759
+--] [-----] ( )-- (* HI pipe cleaning *)

HI_CLN3          CLEAN16 << RUNG 305 STEP #1246 >>
%M1924           %M3760
+--] [-----] ( )-- (* HI cleaning disabled *)

CIP_SUP          CLEAN17 << RUNG 306 STEP #1248 >>
%M1259           %M3585
+--] [-----] ( )-- (* CIP phase not correct *)

DRY_INT          CLEAN18 << RUNG 307 STEP #1250 >>
%M1233           %M3586
+--] [-----] ( )-- (* CIP drying interrupted *)

COMFLT1          CLEAN19 << RUNG 308 STEP #1252 >>
%M1217           %M3587
+--] [---+-----] ( )-- (* CIP unit communication fault *)

COMFLT2
%M1218
+--] [---+-----]

COMFLT3
%M1219
+--] [---+-----]

[ END OF SUBROUTINE LOGIC ]

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M1205	CIP_INT	CIP, interrupted	%M3587	CLEAN19	CIP unit communication fault
%M1259	CIP_SUP	CIP, CIP phases supervision	%M1217	COMFLT1	CIP,comm.fault1 Wrong sig.exch.
%M3754	CLEAN10	CIP interrupted	%M1218	COMFLT2	CIP,comm.fault2 Wrong sig.exch.
%M3755	CLEAN11	No water external cleaning	%M1219	COMFLT3	CIP,comm.fault3 Wrong sig.exch.
%M3756	CLEAN12	Column cover cleaning, Position	%M0653	C_POS	FIL, C-valve in position
%M3757	CLEAN13	C valve, Position	%M1233	DRY_INT	CIP, Cip drying interrupted
%M3758	CLEAN14	HI nozzle	%M1321	EC_COVR	EC, Column cover not closed
%M3759	CLEAN15	HI pipe cleaning	%M1320	EC_SUPL	EC, Hot water supply missing
%M3760	CLEAN16	HI cleaning disabled	%M1922	HI_CLN1	HI, Alarm HI nozzle wrong pos.
%M3585	CLEAN17	CIP phase not correct	%M1923	HI_CLN2	HI, Alarm HI cleaning pipe pos.
%M3586	CLEAN18	CIP drying interrupted	%M1924	HI_CLN3	HI, Alarm HI cln.dis.(Plug pipe)

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BLOCK: CLEANING CIP/EC

```

[ START LD SUBROUTINE BLK_51 ]
[ VARIABLE DECLARATIONS ]
[ START OF SUBROUTINE LOGIC ]

(*****
* Block 51 "Service systems"
*****)

(*****
* Light in machine
*****)

TPSRL09                                K107    << RUNG 6 STEP #0004 >>
%M3281                                %Q0166
+--] [-----] [-----] ( )-- (* Light in machine *)

(*****
* Hour and packages counter
*****)

A506_33                                P801    << RUNG 8 STEP #0007 >>
%I0148                                %Q0217
+--] [-----] [-----] ( )-- (* Hour Meter *)

STP2_12 A506_33 B5402                    P802    << RUNG 9 STEP #0009 >>
%M0147 %I0148 %I0312                    %Q0218
+--] [-----] [-----] [-----] ( )-- (* Total package counter *)

(*****
* Production recorder "Honeywell"
*****)

STP1_11 STEP_11 S003                    K126    << RUNG 11 STEP #0014 >>
%M0145 %M0111 %I0206                    %Q0173
+--] [-----] [-----] [-----] ( )-- (* Production Recorder *)

DRY_RDY                                P+135   << RUNG 12 STEP #0018 >>
%M0831                                %T0135
+--] [-----] [-----] ( ^ )-- (* Pulse + Sterilization ready *)

P+135                                STERRDY  << RUNG 13 STEP #0020 >>
%T0135 +-----+                        %M1503
+--] [---+OFDT+-----] ( )-- (* SRV, Sign. ster. rdy honeywell *)

CONST -+PV |
+00300 |
+-----+
DEL5539
%R5539

S003 P+024                                << RUNG 14 STEP #0023 >>
%I0206 %T0024 +-----+
+--] [-----] [---+OFDT+-----] <+>

CONST -+PV |
+03000 |
+-----+
DEL5500
%R5500

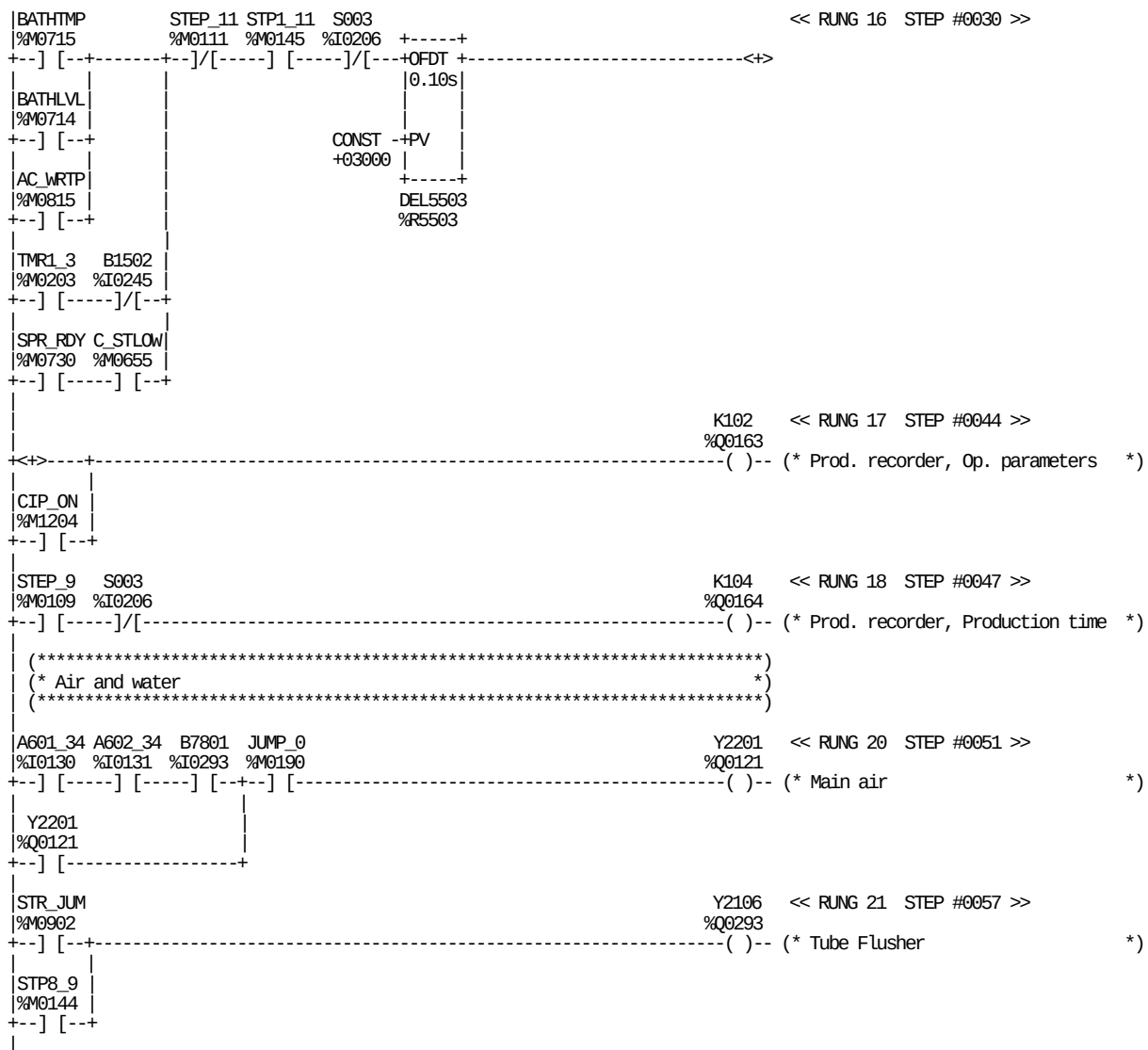
K101                                << RUNG 15 STEP #0027 >>
%Q0162
+<+>+-----] ( )-- (* Prod. recorder, Ster. parameters *)

STERRDY
%M1503
+--] [---+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0148	A506_33	DMC Main motor, Running	%T0135	P+135	Pulse + Sterilization ready
%I0312	B5402	Package counter after FFU	%Q0217	P801	Hour Meter
%R5500	DEL5500	Delay,	%Q0218	P802	Total package counter
%R5539	DEL5539	Delay,	%I0206	S003	Service switch
%M0831	DRY_RDY	AIR, Drying ready aseptic chamb	%M0111	STEP_11	Step 11 Venting
%Q0162	K101	Prod. recorder, Ster. parameters	%M1503	STERRDY	SRV, Sign. ster. rdy honeywell
%Q0166	K107	Light in machine	%M0145	STP1_11	Step 1-11 Prep. to venting
%Q0173	K126	Production Recorder	%M0147	STP2_12	Step 2-12 Tube seal. to doors OK
%T0024	P+024	Pulse + Jump to position 0	%M3281	TPSRL09	Light TBA21 and PT21 on

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REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0130	A601_34	Safety monitor door guards	%Q0164	K104	Prod. recorder, Production time
%I0131	A602_34	Safety monitor door guards ASU	%I0206	S003	Service switch
%M0815	AC_WRTPT	AIR, AC wrong temperature	%M0730	SPR_RDY	PER, Spray sequence ready
%I0245	B1502	Movable squeegee roller	%M0111	STEP_11	Step 11 Venting
%I0293	B7801	SA, Door guard, SA	%M0109	STEP_9	Step 9 Production
%M0714	BATHLVL	PER, Level peroxide bath	%M0145	STP1_11	Step 1-11 Prep. to venting
%M0715	BATHTMP	PER, Temperature peroxide bath	%M0144	STP8_9	Step 8-9 Motorstart to prod.
%M1204	CIP_ON	CIP, TBA21 ready for CIP	%M0902	STR_JUM	JUM, Condition ster. inching JUM
%M0655	C_STLOW	FIL, low temp steam too long	%M0203	TMFR1_3	Startseq, (>9,80)
%R5503	DEL5503	Delay,	%Q0293	Y2106	Tube Flusher
%M0190	JUMP_0	Jump to machine step 0	%Q0121	Y2201	Main air
%Q0163	K102	Prod. recorder. Op. parameters			

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```

(*****
* Cooling system machine (TS,LS Hydraulic unit)
*****)

B2501  RESET                      LP_COOL << RUNG 23 STEP #0061 >>
%I0266 %M3050 +-----+          %M1500
+--]/[-----]/[-----+-----+ (S)-- (* SRV, Low pressure cooling water *)
          |0.10s|
          +-----+
          CONST -+PV
          +00010 |
          +-----+
          DEL5542
          %R5542

LP_COOL RESET                      COOLACK << RUNG 24 STEP #0065 >>
%M1500 %M3050                    %M1502
+--] [-----] [-----+-----+ (S)-- (* SRV, Low pressure cooling ack. *)

B2501  COOLACK                    LP_COOL << RUNG 25 STEP #0068 >>
%I0266 %M1502                    %M1500
+--] [-----] [-----+-----+ (R)-- (* SRV, Low pressure cooling water *)

          COOLACK
          %M1502
          +-----+
          +-----+ (R)-- (* SRV, Low pressure cooling ack. *)

LP_COOL                          HYDRSTP << RUNG 26 STEP #0072 >>
%M1500 +-----+                  %M1504
+--] [-----+ TMR +-----+ (S)-- (* SRV, Hydr. oil, stop low pr.cool *)
          |0.10s|
          +-----+
          CONST -+PV
          +00020 |
          +-----+
          DEL5548
          %R5548

LP_COOL                          HYDRSTP << RUNG 27 STEP #0075 >>
%M1500                          %M1504
+--]/[-----+-----+ (R)-- (* SRV, Hydr. oil, stop low pr.cool *)

Cw_OK                          HYDCOOL << RUNG 28 STEP #0077 >>
%M3905                          %M1513
+--] [-----+-----+ (S)-- (* SRV, Hydr.oil allowed by cool.w. *)

Cw_OK                          HYDCOOL << RUNG 29 STEP #0079 >>
%M3905                          %M1513
+--]/[-----+ TMR +-----+ (R)-- (* SRV, Hydr.oil allowed by cool.w. *)
          |0.10s|
          +-----+
          CONST -+PV
          +00020 |
          +-----+
          DEL5551
          %R5551

STP1_12 HYDRSTP A600_14          K022 << RUNG 30 STEP #0082 >>
%M0146 %M1504 %I0129            %Q0141
+--] [-----]/[-----] [-----+ ( )-- (* Circulation Cooling Water *)

TPSRL11
%M3283
+--] [-----+

K022 B2541 Cw_CTRL              K023 << RUNG 31 STEP #0087 >>
%M0141 %I0267 %M3906            %Q0142
+--] [-----] [-----] [-----+ ( )-- (* Circulation Cooling Media *)

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0129	A600_14	Emergency Stop	%M1513	HYDCOOL	SRV, Hydr.oil allowed by cool.w.
%I0266	B2501	Cooling water, Circulation	%M1504	HYDRSTP	SRV, Hydr. oil, stop low pr.cool
%I0267	B2541	Cooling media, Low/high press.	%Q0141	K022	Circulation Cooling Water
%M1502	COOLACK	SRV, Low pressure cooling ack.	%Q0142	K023	Circulation Cooling Media
%M3906	Cw_CTRL	Cool.circ.water, Control (8-11)	%M1500	LP_COOL	SRV, Low pressure cooling water
%M3905	Cw_OK	Cool.circ.water, Temp OK (7-15)	%M3050	RESET	Alarm reset
%R5542	DEL5542	Delay,	%M0146	STP1_12	Step 1-12 Prep. to doors OK
%R5548	DEL5548	Delay,	%M3283	TPSRL11	Hydraulic pump start
%R5551	DEL5551	Delay,			

```

|STP1_12 A304_18                                CONDUCT << RUNG 32 STEP #0091 >>
|M0146 %I0184 +-----+                        %M1501
+--] [-----] [---+ TMR +-----+            ( )-- (* SRV, Wrong cond. circ water *)
|          |0.10s|
|          +-----+
|          |PV|
|CONST +00200|
|          +-----+
|          DEL5506
|          %R5506

STEP_1                                           << RUNG 33 STEP #0095 >>
|M0101 +-----+
+--] [---+ TMR +-----+<-->
|          |0.10s|
|          +-----+
|CONST +02000|
|          +-----+
|          DEL5554
|          %R5554

                                           WAIT_CW << RUNG 34 STEP #0098 >>
                                           %M1604
+<-->+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
|CW_OK|
|M3905|
+--] [---+

STEP_0                                           WAIT_CW << RUNG 35 STEP #0101 >>
|M0100                                           %M1604
+--] [-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
|(* Cooling electrical cabinet *)|
|(* Cooling electrical cabinet *)|

STEP_0                                           K108 << RUNG 37 STEP #0104 >>
|M0100                                           %Q0167
+--]/[-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
|STEP_0 B006 B005 CC_CTRL                        K011 << RUNG 38 STEP #0106 >>
|M0100 %I0265 %I0137 %M3908                      %Q0139
+--]/[-----] [-----] [-----] [-----+-----+-----+-----+-----+-----+-----+-----+-----+
|(* Fan Circulation Air *)|
|(* Cooling electrical cabinet *)|

```

REFERENCE NICKNAME
 %I0184 A304_18
 %I0137 B005
 %I0265 B006
 %M3908 CC_CTRL
 %M1501 CONDUCT
 %M3905 CW_OK
 %R5506 DEL5506

REFERENCE DESCRIPTION
 Cooling water, Conductivity
 Electrical cabinet doors, Closed
 Cooling media el cab., Circ&temp
 EL-cab, Control (30-36)
 SRV, Wrong cond. circ water
 Cool.circ.water, Temp OK (7-15)
 Delay,

REFERENCE NICKNAME
 %R5554 DEL5554
 %Q0139 K011
 %Q0167 K108
 %M0100 STEP_0
 %M0101 STEP_1
 %M0146 STP1_12
 %M1604 WAIT_CW

REFERENCE DESCRIPTION
 Delay,
 Cooling electrical cabinet
 Fan Circulation Air
 Step 0 Off
 Step 1 Preparation
 Step 1-12 Prep. to doors OK
 SRV, wait cooling water in stp1

```

(*****
(* Hydraulic unit
*****
STP1_12 STEP_11 A600_14 B2320_2 HYDRSTP HOILPRE HYDCOOL          K021  << RUNG 40 STEP #0112 >>
%M0146 %M0111 %I0129 %I0269 %M1504 %M1509 %M1513          %Q0117
+--] [-----] [-----] [-----] [-----] [-----] [-----] ( )-- (* Hydraulic pump *)

SV_HYRU
%M1512
+--] [-----]

B2320_3 B2320_4          TPSRL08 << RUNG 41 STEP #0121 >>
%M0270 %I0271          %M3280
+--] [-----] [-----] ( )-- (* Hydraulic oil level high, green *)

B2320_3 B2320_4          TPSRL07 << RUNG 42 STEP #0124 >>
%M0270 %I0271          %M3279
+--] [-----] [-----] ( )-- (* Hydraulic oil level medium, blue *)

B2320_4          TPSRL06 << RUNG 43 STEP #0127 >>
%M0271          %M3278
+--] [-----] ( )-- (* Hydraulic oil level low, yellow *)

RESET          HOILPRE << RUNG 44 STEP #0129 >>
%M3050          %M1509
+--] [-----] (R)-- (* SRV, Hydraulic oil, low pressure *)

K021          << RUNG 45 STEP #0131 >>
%M0117 +-----+
+--] [---+ TMR +-----+<+>
      |0.10s|
      +-----+
CONST +PV
+00030
      +-----+
      DEL5536
      %R5536

      B2330          HOILPRE << RUNG 46 STEP #0134 >>
      %I0304          %M1509
+<+>-----] [-----] (S)-- (* SRV, Hydraulic oil, low pressure *)

K021          << RUNG 47 STEP #0137 >>
%M0117 +-----+
+--] [---+ TMR +-----+<+>
      |0.10s|
      +-----+
CONST +PV
+00030
      +-----+
      DEL5509
      %R5509

      B2310          FILTER << RUNG 48 STEP #0140 >>
      %I0268          %M1510
+<+>-----] [-----] (S)-- (* SRV, Hydraulic unit filter *)

B2310          FILTER << RUNG 49 STEP #0143 >>
%M0268          %M1510
+--] [-----] (R)-- (* SRV, Hydraulic unit filter *)

(*****
(* Service function "Run hydraulic pump"
*****
TPSRL11 A600_14 B2320_2 CW_OK          SV_HYAL << RUNG 51 STEP #0146 >>
%M3283 %I0129 %I0269 %M3905          %M1511
+--] [-----] [-----] [-----] [-----] ( )-- (* SRV, Hydr. pump allowed start *)

SV_HYAL S911          SV_HYRU << RUNG 52 STEP #0151 >>
%M1511 %I0201          %M1512
+--] [-----] [-----] (S)-- (* SRV, Hydr. pump running *)

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0129	A600_14	Emergency Stop	%M1504	HYDRSTP	SRV, Hydr. oil, stop low pr.cool
%I0268	B2310	Hydraulic oil, Filter	%Q0117	K021	Hydraulic pump
%I0269	B2320_2	Hydraulic oil, Temperature	%M3050	RESET	Alarm reset
%I0270	B2320_3	Hydraulic oil, High level	%I0201	S911	Step up
%I0271	B2320_4	Hydraulic oil, Low level	%M0111	STEP_11	Step 11 Venting
%I0304	B2330	Hydraulic oil, low pressure	%M0146	STP1_12	Step 1-12 Prep. to doors OK
%M3905	CW_OK	Cool.circ.water, Temp OK (7-15)	%M1511	SV_HYAL	SRV, Hydr. pump allowed start
%R5509	DEL5509	Delay,	%M1512	SV_HYRU	SRV, Hydr. pump running
%R5536	DEL5536	Delay,	%M3278	TPSRL06	Hydraulic oil level low, yellow
%M1510	FILTER	SRV, Hydraulic unit filter	%M3279	TPSRL07	Hydraulic oil level medium, blue
%M1509	HOILPRE	SRV, Hydraulic oil, low pressure	%M3280	TPSRL08	Hydraulic oil level high, green
%M1513	HYDCOOL	SRV, Hydr.oil allowed by cool.w.	%M3283	TPSRL11	Hydraulic pump start

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```
|STEP_0                                SV_HYRU << RUNG 53 STEP #0154 >>
|%M0100                                %M1512
+--] [------(R)-- (* SRV, Hydr. pump running *)
|
```

REFERENCE NICKNAME
%M0100 STEP_0

REFERENCE DESCRIPTION
Step 0 Off

REFERENCE NICKNAME
%M1512 SV_HYRU

REFERENCE DESCRIPTION
SRV, Hydr. pump running

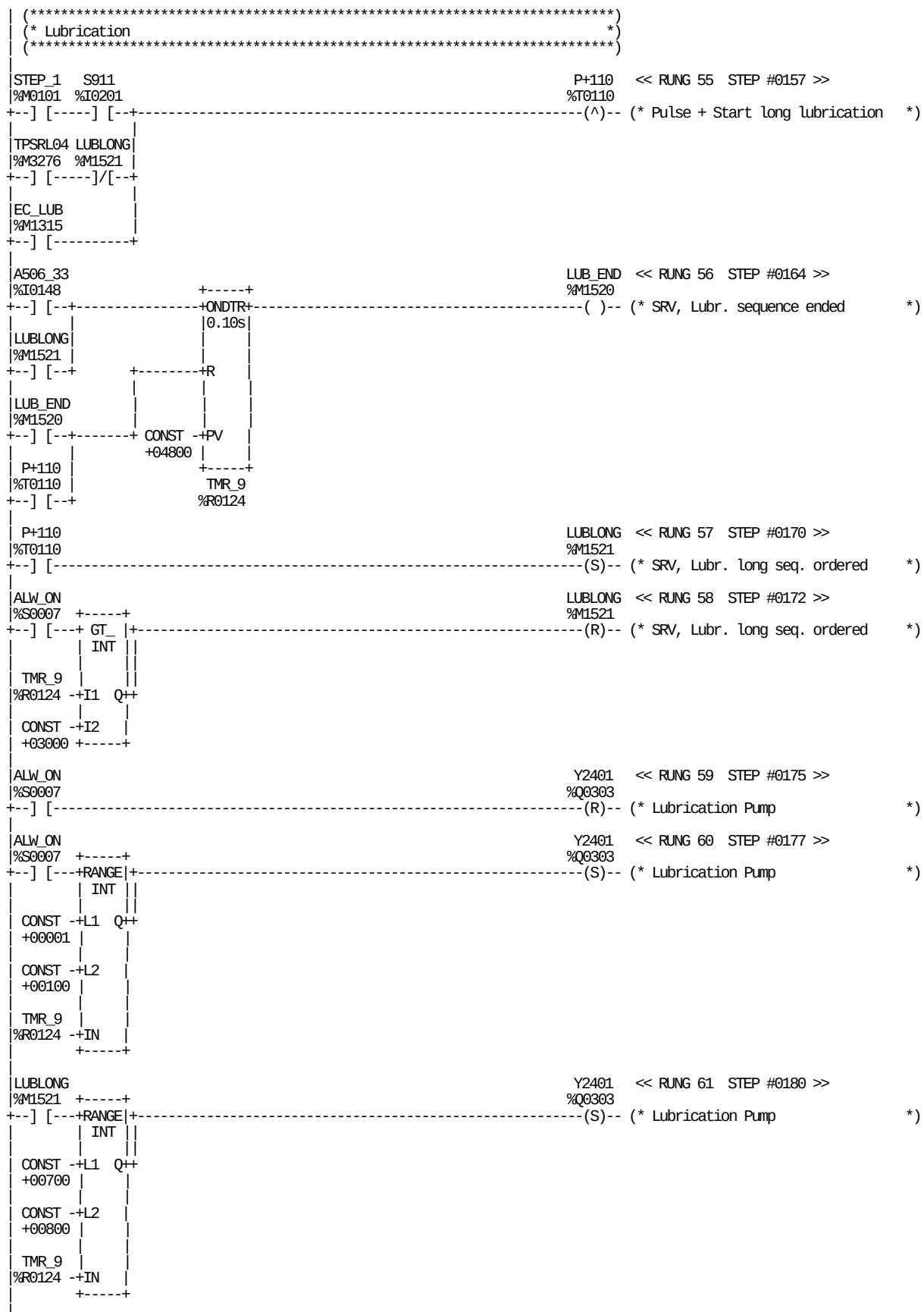
TBA/21-0410/0500
BLOCK: SERVICE SYSTEMS

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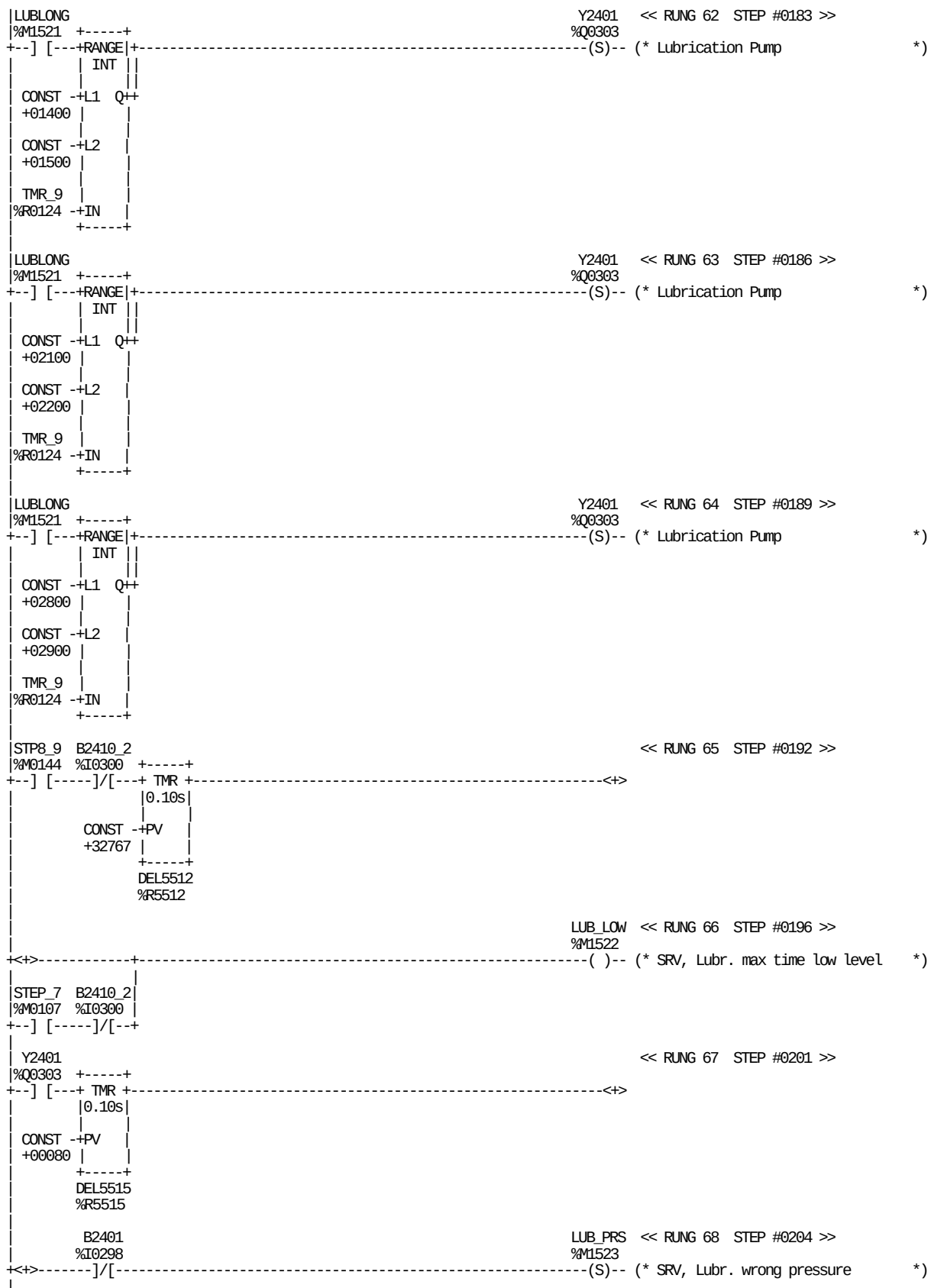
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REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0148	A506_33	DMC Main motor, Running	%I0201	S911	Step up
%S0007	ALW_ON		%M0101	STEP_1	Step 1 Preparation
%M1315	EC_LUB	EC, Start long lubrication	%R0124	TMR_9	Tmr 9, Lubrication seq. (0,10s)
%M1521	LUBLONG	SRV, Lubr. long seq. ordered	%M3276	TPSRL04	Manual lubrication start
%M1520	LUB_END	SRV, Lubr. sequence ended	%Q0303	Y2401	Lubrication Pump
%T0110	P+110	Pulse + Start long lubrication			

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REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0298	B2401	Lubrication, Pressure	%M1523	LUB_PRS	SRV, Lubr. wrong pressure
%I0300	B2410_2	Lubrication oil tank, Low level	%M0107	STEP_7	Step 7 Signal from sterilizer
%R5512	DEL5512	Delay,	%M0144	STPB_9	Step 8-9 Motorstart to prod.
%R5515	DEL5515	Delay,	%R0124	TMR_9	Tmr 9, Lubrication seq. (0,10s)
%M1521	LUBLONG	SRV, Lubr. long seq. ordered	%Q0303	Y2401	Lubrication Pump
%M1522	LUB LOW	SRV, Lubr. max time low level			

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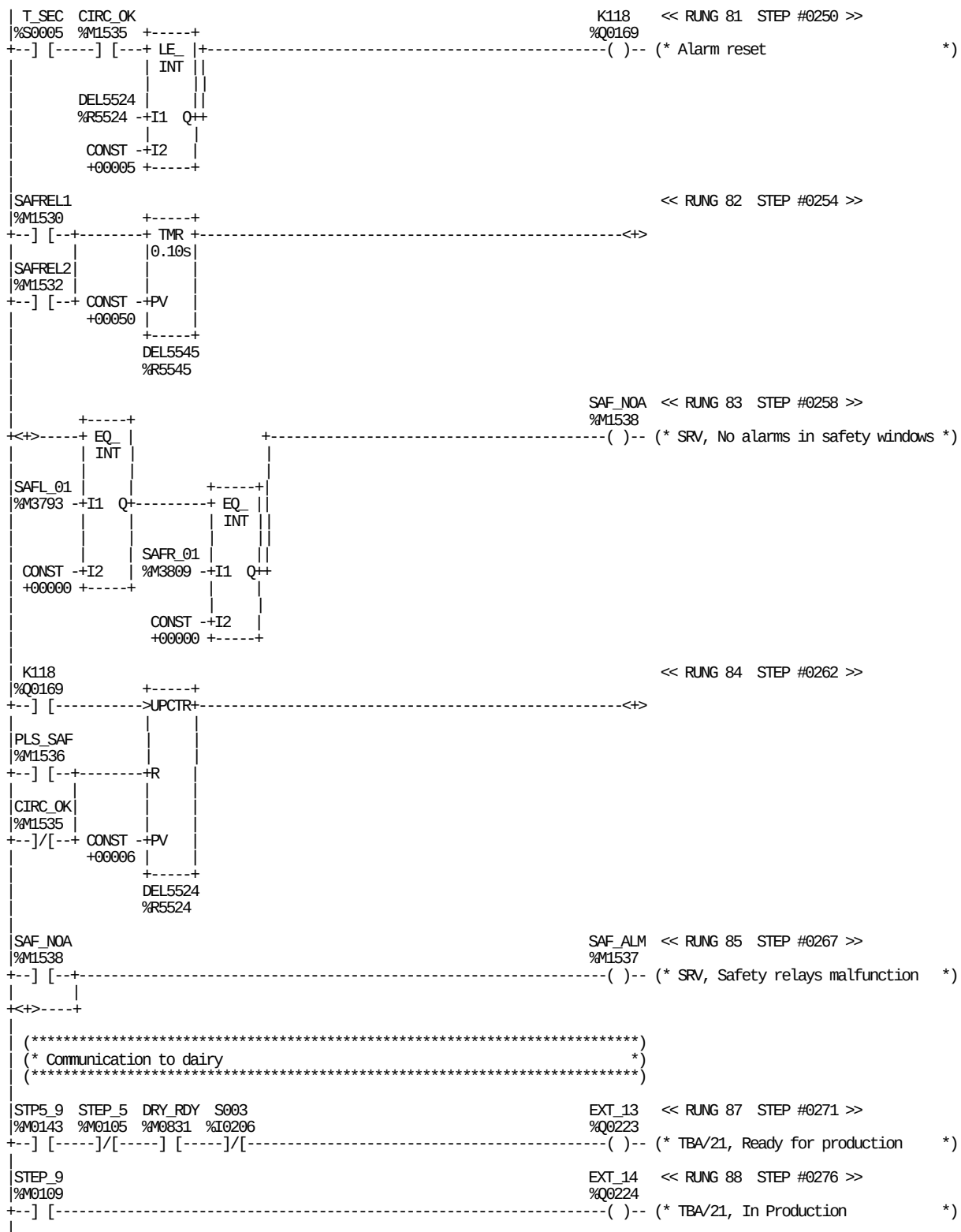
| Y2401                                     << RUNG 69 STEP #0207 >>
| %Q0303 +-----+
| +---]/[---+ TMR +-----+<+>
|          |0.10s|
|          +---+
|          |PV|
|          +---+
|          |DEL5518|
|          |%R5518|
|
|          B2401                                LUB_PRS << RUNG 70 STEP #0210 >>
|          |%I0298|                                %M1523
| +---+<+>---] [-----] (S)-- (* SRV, Lubr. wrong pressure *)
|
| Y2401 B2401                                LUB_PRS << RUNG 71 STEP #0213 >>
| %Q0303 %I0298                                %M1523
| +---] [-----] (R)-- (* SRV, Lubr. wrong pressure *)
|
| (*****
| (* Safety relays *)
| (*****
|
| A600_14                                SAFREL1 << RUNG 73 STEP #0217 >>
| %I0129                                %M1530
| +---]/[---+ (S)-- (* SRV, Saf. relay A600,601 tripped *)
|
| A601_34
| %I0130
| +---]/[---+
|
| SAFREL1 RESET                                SAF1ACK << RUNG 74 STEP #0220 >>
| %M1530 %M3050                                %M1531
| +---] [-----] (S)-- (* SRV, Saf. relay A600,601 acknow. *)
|
| A600_14 A601_34 SAF1ACK                                SAFREL1 << RUNG 75 STEP #0223 >>
| %I0129 %I0130 %M1531                                %M1530
| +---] [-----] (R)-- (* SRV, Saf. relay A600,601 tripped *)
|
|                                     SAF1ACK
|                                     %M1531
|                                     (R)-- (* SRV, Saf. relay A600,601 acknow. *)
|
| A600_14 A601_34 A603_34                                SAFREL2 << RUNG 76 STEP #0228 >>
| %I0129 %I0130 %I0132 +-----+                                %M1532
| +---] [-----] [-----]/[---+ TMR +-----+ (S)-- (* SRV, Saf. relay A603 tripped *)
|          |0.10s|
|          +---+
|          |PV|
|          +---+
|          |CONST +00010|
|          |DEL5521|
|          |%R5521|
|
| SAFREL2 RESET                                SAF2ACK << RUNG 77 STEP #0233 >>
| %M1532 %M3050                                %M1533
| +---] [-----] (S)-- (* SRV, Saf. relay A603 acknow. *)
|
| A603_34 SAF2ACK                                SAFREL2 << RUNG 78 STEP #0236 >>
| %I0132 %M1533                                %M1532
| +---] [-----] (R)-- (* SRV, Saf. relay A603 tripped *)
|
|                                     SAF2ACK
|                                     %M1533
|                                     (R)-- (* SRV, Saf. relay A603 acknow. *)
|
| SAF1ACK B2833 S900                                CIRC_OK << RUNG 79 STEP #0240 >>
| %M1531 %I0338 %I0329                                %M1535
| +---] [-----] ( )-- (* SRV, Circ.OK,relays not reset *)
|
| SAF2ACK B4102 B5104
| %M1533 %I0219 %I0220
| +---] [-----] [-----] [---+
|
| CIRC_OK                                PLS_SAF << RUNG 80 STEP #0248 >>
| %M1535                                %M1536
| +---] [-----] (^)-- (* SRV, Circuits OK pulse *)

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0129	A600_14	Emergency Stop
%I0130	A601_34	Safety monitor door guards
%I0132	A603_34	Safety time relay main motor
%I0298	B2401	Lubrication, Pressure
%I0338	B2833	Door guard, Drive left
%I0219	B4102	JUM, Crank position
%I0220	B5104	FFU, Crank position
%M1535	CIRC_OK	SRV, Circ.OK,relays not reset
%R5518	DEL5518	Delay,
%R5521	DEL5521	Delay,

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M1523	LUB_PRS	SRV, Lubr. wrong pressure
%M1536	PLS_SAF	SRV, Circuits OK pulse
%M3050	RESET	Alarm reset
%I0329	S900	Emergency Stop Control Panel
%M1531	SAF1ACK	SRV, Saf. relay A600,601 acknow.
%M1533	SAF2ACK	SRV, Saf. relay A603 acknow.
%M1530	SAFREL1	SRV, Saf. relay A600,601 tripped
%M1532	SAFREL2	SRV, Saf. relay A603 tripped
%Q0303	Y2401	Lubrication Pump

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REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M1535	CIRC_OK	SRV, Circ.OK,relays not reset	%M1530	SAFREL1	SRV, Saf. relay A600,601 tripped
%R5524	DEL5524	Delay,	%M1532	SAFREL2	SRV, Saf. relay A603 tripped
%R5545	DEL5545	Delay,	%M3809	SAFR_01	Door guard, Front right
%M0831	DRY_RDY	AIR, Drying ready aseptic chamb	%M1537	SAF_ALM	SRV, Safety relays malfunction
%Q0223	EXT_13	TBA/21, Ready for production	%M1538	SAF_NOA	SRV, No alarms in safety windows
%Q0224	EXT_14	TBA/21, In Production	%M0105	STEP_5	Step 5 Drying
%Q0169	K118	Alarm reset	%M0109	STEP_9	Step 9 Production
%M1536	PLS_SAF	SRV, Circuits OK pulse	%M0143	STP5_9	Step 5-9 Drying to prod.
%I0206	S003	Service switch	%S0005	T_SEC	
%M3793	SAFL_01	Door guard, Front left			

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```

(*****
* Service functions
*****)

FST_SCN                                TPFIL04 << RUNG 90 STEP #0279 >>
%M30001                                %M3196
+--] [---+----- (R)--- (* Opening of regulating valve *)

                                TPDCS03
                                %M3211
+----- (R)--- (* Left fold. flap 0,7/0,9 set *)

                                TPDCS05
                                %M3213
+----- (R)--- (* Right fold. flap 0,7/0,9 set *)

                                TPSRL11
                                %M3283
+----- (R)--- (* Hydraulic pump start *)

                                TPPTL05
                                %M3309
+----- (R)--- (* Punch and patch start *)

                                TPPTL07
                                %M3311
+----- (R)--- (* Punch and reseal start *)

                                TPPTL09
                                %M3313
+----- (R)--- (* Punch and tab start *)

TPFIL04                                SRV_SEL << RUNG 91 STEP #0287 >>
%M3196                                %M1600
+--] [---+----- ( )--- (* SRV, Serv.func.selected to start *)

TPDCS03
%M3211
+--] [---+

TPDCS05
%M3213
+--] [---+

TPSRL11
%M3283
+--] [---+

TPPTL05
%M3309
+--] [---+

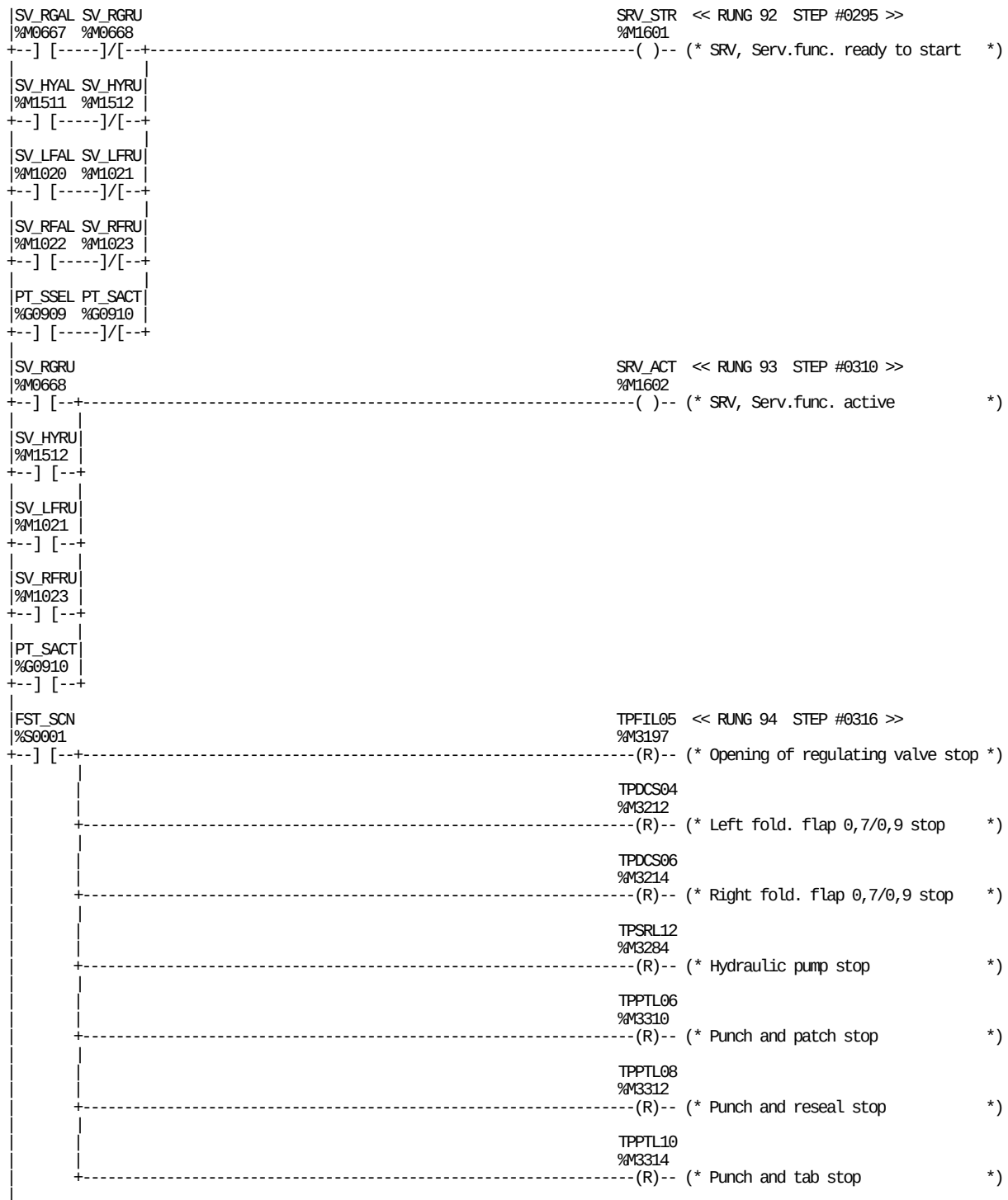
TPPTL07
%M3311
+--] [---+

TPPTL09
%M3313
+--] [---+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%S0001	FST_SCN		%M3309	TPPTL05	Punch and patch start
%M1600	SRV_SEL	SRV, Serv.func.selected to start	%M3311	TPPTL07	Punch and reseal start
%M3211	TPDCS03	Left fold. flap 0,7/0,9 set	%M3313	TPPTL09	Punch and tab start
%M3213	TPDCS05	Right fold. flap 0,7/0,9 set	%M3283	TPSRL11	Hydraulic pump start
%M3196	TPFIL04	Opening of regulating valve			

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REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%S0001	FST_SCN		%M1023	SV_RFRU	DCS, Right flap running
%G0910	PT_SACT	From PT21, Srv func. active	%M0667	SV_RGAL	FIL, Reg. valve allowed to start
%G0909	PT_SSEL	From PT21, Srv func. rdy start	%M0668	SV_RGRU	FIL, Reg. valve running
%M1602	SRV_ACT	SRV, Serv.func. active	%M3212	TPDCS04	Left fold. flap 0,7/0,9 stop
%M1601	SRV_STR	SRV, Serv.func. ready to start	%M3214	TPDCS06	Right fold. flap 0,7/0,9 stop
%M1511	SV_HYAL	SRV, Hydr. pump allowed start	%M3197	TPFIL05	Opening of regulating valve stop
%M1512	SV_HYRU	SRV, Hydr. pump running	%M3310	TPPTL06	Punch and patch stop
%M1020	SV_LFAL	DCS, Left flap allowed to start	%M3312	TPPTL08	Punch and reseal stop
%M1021	SV_LFRU	DCS, Left flap running	%M3314	TPPTL10	Punch and tab stop
%M1022	SV_RFAL	DCS, Right flap allowed t.start	%M3284	TPSRL12	Hydraulic pump stop

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```

|TPFIL05|
| %M3197|
+---] [---+-----SRV_STP << RUNG 95 STEP #0324 >>
|
|TPDCS04|
| %M3212|
+---] [---+-----%M1603
|
|TPDCS06|
| %M3214|
+---] [---+----- ( )-- (* SRV, Serv.func. selected to stop *)
|
|TPSRL12|
| %M3284|
+---] [---+
|
|TPPTL06|
| %M3310|
+---] [---+
|
|TPPTL08|
| %M3312|
+---] [---+
|
|TPPTL10|
| %M3314|
+---] [---+
|

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M1603	SRV_STP	SRV, Serv.func. selected to stop	%M3310	TPPTL06	Punch and patch stop
%M3212	TPDCS04	Left fold. flap 0,7/0,9 stop	%M3312	TPPTL08	Punch and reseal stop
%M3214	TPDCS06	Right fold. flap 0,7/0,9 stop	%M3314	TPPTL10	Punch and tab stop
%M3197	TPFIL05	Opening of regulating valve stop	%M3284	TPSRL12	Hydraulic pump stop

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```

(*****
(* Alarms "Service unit left"
*****
)

Z002                                SRVL_01 << RUNG 97 STEP #0333 >>
%I0144                              %M3761
+--]/[-----] ( )-- (* Transient mains failure *)

DCS_EN                              SRVL_02 << RUNG 98 STEP #0335 >>
%M0086                              %M3762
+--] [-----] ( )-- (* TMCC DCS not enabled *)

AF_EN                               SRVL_03 << RUNG 99 STEP #0337 >>
%M0087                              %M3763
+--] [-----] ( )-- (* TMCC Auxiliary Func. not enabled *)

FCS_EN                              SRVL_05 << RUNG 100 STEP #0339 >>
%M0088                              %M3765
+--] [-----] ( )-- (* TMCC Filling system not enabled *)

TPSRL07                             SRVL_06 << RUNG 101 STEP #0341 >>
%M3279                              %M3766
+--] [-----] ( )-- (* Hydraulic oil, Medium level *)

STEP_0 LUB_PRS                      SRVL_07 << RUNG 102 STEP #0343 >>
%M0100 %M1523                      %M3767
+--]/[-----] ( )-- (* Central lubrication, Pressure *)

B2410_2 LUB_LOW                     SRVL_08 << RUNG 103 STEP #0346 >>
%I0300 %M1522                      %M3768
+--]/[-----] ( )-- (* Central lubrication, low level *)

LUB_LOW                             SRVL_09 << RUNG 104 STEP #0349 >>
%M1522                              %M3769
+--] [-----] ( )-- (* Central lubr. Low level max time *)

PLC_BAT                             SRVL_10 << RUNG 105 STEP #0351 >>
%S0014                              %M3770
+--] [-----] ( )-- (* PLC battery low *)

STEP_0 B2320_4                     SRVL_11 << RUNG 106 STEP #0353 >>
%M0100 %I0271                      %M3771
+--]/[-----] ( )-- (* Hydraulic oil, Low level *)

B2320_2                             SRVL_12 << RUNG 107 STEP #0356 >>
%I0269                              %M3772
+--]/[-----] ( )-- (* Hydraulic oil, Temperature *)

FILTER                              SRVL_13 << RUNG 108 STEP #0358 >>
%M1510                              %M3773
+--] [-----] ( )-- (* Hydraulic oil, Filter *)

HOILPRE                             SRVL_14 << RUNG 109 STEP #0360 >>
%M1509                              %M3774
+--] [-----] ( )-- (* Hydraulic oil, Low pressure *)

STEP_0 CC_OK                        SRVL_15 << RUNG 110 STEP #0362 >>
%M0100 %M3907                      %M3775
+--]/[-----] ( )-- (* Temperature electrical cabinet *)

STEP_0 B006                         SRVL_16 << RUNG 111 STEP #0365 >>
%M0100 %I0265                      %M3776
+--]/[-----] ( )-- (* Cooling media, El cab press/temp *)

(*****
(* Alarms "Service unit right"
*****
)

HI_SRV1                             SRVR_01 << RUNG 113 STEP #0369 >>
%M1920                              %M3777
+--] [-----] ( )--

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M0087	AF_EN	Data trans., TMCC AF enabled	%M3765	SRVL_05	TMCC Filling system not enabled
%I0265	B006	Cooling media el cab., Circ&temp	%M3766	SRVL_06	Hydraulic oil, Medium level
%I0269	B2320_2	Hydraulic oil, Temperature	%M3767	SRVL_07	Central lubrication, Pressure
%I0271	B2320_4	Hydraulic oil, Low level	%M3768	SRVL_08	Central lubrication, low level
%I0300	B2410_2	Lubrication oil tank, Low level	%M3769	SRVL_09	Central lubr. Low level max time
%M3907	CC_OK	El-cab, Temp OK (18-38)	%M3770	SRVL_10	PLC battery low
%M0086	DCS_EN	Data trans., TMCC DCS enabled	%M3771	SRVL_11	Hydraulic oil, Low level
%M0088	FCS_EN	Data trans., TMCC FCS enabled	%M3772	SRVL_12	Hydraulic oil, Temperature
%M1510	FILTER	SRV, Hydraulic unit filter	%M3773	SRVL_13	Hydraulic oil, Filter
%M1920	HI_SRV1	HI, Alarm low air pressure	%M3774	SRVL_14	Hydraulic oil, Low pressure
%M1509	HOILPRE	SRV, Hydraulic oil, low pressure	%M3775	SRVL_15	Temperature electrical cabinet
%M1522	LUB_LOW	SRV, Lubr. max time low level	%M3776	SRVL_16	Cooling media, El cab press/temp
%M1523	LUB_PRS	SRV, Lubr. wrong pressure	%M3777	SRVR_01	
%S0014	PLC_BAT		%M0100	STEP_0	Step 0 Off
%M3761	SRVL_01	Transient mains failure	%M3279	TPSRL07	Hydraulic oil level medium, blue
%M3762	SRVL_02	TMCC DCS not enabled	%I0144	Z002	Transient Main Failure
%M3763	SRVL_03	TMCC Auxiliary Func. not enabled			

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```

|HI_SRV2                                SRVR_02 << RUNG 114 STEP #0371 >>
|MI1921                                MI3778
+--]/[------( )-- (* HI pressure guard *)

|B2102                                SRVR_03 << RUNG 115 STEP #0373 >>
|MI0241 +-----+ MI3779
+--]/[------( )-- (* Water supply *)
|          |TMR|
|          |0.10s|
|CONST -+PV|
|+00200 |
|          |-----+
|          |DEL5533
|          |R5533

|B2201                                SRVR_04 << RUNG 116 STEP #0376 >>
|MI0242                                MI3780
+--]/[------( )-- (* Air supply *)

|F026_14                               SRVR_05 << RUNG 117 STEP #0378 >>
|MI0139                               MI3781
+--]/[------( )-- (* Tripped motor overload *)

|LP_COOL                               SRVR_06 << RUNG 118 STEP #0380 >>
|MI1500                               MI3782
+--]/[------( )-- (* Water, Circulating pressure *)

|K022  CW_OK  WAIT_CW                SRVR_07 << RUNG 119 STEP #0382 >>
|MI0141 MI3905 MI1604                MI3783
+--]/[------( )-- (* Water, Circulating temperature *)
|          |STEP_1|
|          |MI0101|
|          +--]/[---+

|STP1_12 CONDUCT                     SRVR_08 << RUNG 120 STEP #0388 >>
|MI0146 MI1501                     MI3784
+--]/[------( )-- (* Water, Circulating conductivity *)

|L12                                  SRVR_09 << RUNG 121 STEP #0391 >>
|MI0142                                  MI3785
+--]/[------( )-- (* Supervision, Control voltage *)

|L14                                  SRVR_10 << RUNG 122 STEP #0394 >>
|MI0143                                  MI3786
+--]/[------( )-- (* Cooling media pressure *)

|OPT_ICE B2541                        SRVR_11 << RUNG 123 STEP #0397 >>
|MI0116 MI0267                        MI3787
+--]/[------( )-- (* DMC power supply *)

|F019_14                               SRVR_16 << RUNG 124 STEP #0399 >>
|MI0138                               MI3792
+--]/[------( )-- (* Waiting for temperature stabiliz *)

|PERWAIT
|MI0708
+--]/[------( )--

{*****}
{* Alarms "Safety left" *}
{*****}

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0241	B2102	Cold water regulator	%M3778	SRVR_02	HI pressure guard
%I0242	B2201	Main air, Pressure	%M3779	SRVR_03	Water supply
%I0267	B2541	Cooling media, Low/high press.	%M3780	SRVR_04	Air supply
%M1501	CONDUCT	SRV, Wrong cond. circ water	%M3781	SRVR_05	Tripped motor overload
%M3905	CW_OK	Cool.circ.water, Temp OK (7-15)	%M3782	SRVR_06	Water, Circulating pressure
%R5533	DEL5533	Delay,	%M3783	SRVR_07	Water, Circulating temperature
%I0138	F019_14	Main power servo system, Monitor	%M3784	SRVR_08	Water, Circulating conductivity
%I0139	F026_14	Summary, Overload	%M3785	SRVR_09	Supervision, Control voltage
%MI1921	HI_SRV2	HI, Alarm low N2 pressure	%M3786	SRVR_10	Cooling media pressure
%Q0141	K022	Circulation Cooling Water	%M3787	SRVR_11	DMC power supply
%I0142	L12	24V DC monitor L12	%M3792	SRVR_16	Waiting for temperature stabiliz
%I0143	L14	24V DC monitor L14	%M0101	STEP_1	Step 1 Preparation
%M1500	LP_COOL	SRV, Low pressure cooling water	%M0146	STP1_12	Step 1-12 Prep. to doors OK
%I0116	OPT_ICE	Option, Cooling system ice water	%M1604	WAIT_CW	SRV, wait cooling water in stp1
%M0708	PERWAIT	PER, Waiting time H202,H20 temp.			

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```

| B2805 B2810 B2811 B2812 B2813 B2830 B2831 B2832 B2833 SAFL_01 << RUNG 126 STEP #0402 >>
| %I0330 %I0331 %I0332 %I0333 %I0334 %I0335 %I0336 %I0337 %I0338 %M3793
+--] [---] [---] [---] [---] [---] [---] [---] [---] ( * Door guard, Front left *)
|
| OPTRK_3
| %M4080
+--]/[---+
|
| B2805 B2810 B2811 B2812 B2813 B2830 B2831 B2832 B2833 SAFL_02 << RUNG 127 STEP #0413 >>
| %I0330 %I0331 %I0332 %I0333 %I0334 %I0335 %I0336 %I0337 %I0338 %M3794
+--] [---] [---] [---] [---] [---] [---] [---] [---] ( * Door guard, FFU left *)
|
| OPTRK_3
| %M4080
+--]/[---+
|
| B2805 B2810 B2811 B2812 B2813 B2830 B2831 B2832 B2833 SAFL_03 << RUNG 128 STEP #0424 >>
| %I0330 %I0331 %I0332 %I0333 %I0334 %I0335 %I0336 %I0337 %I0338 %M3795
+--] [---] [---] [---] [---] [---] [---] [---] [---] ( * Door guard, JUM left *)
|
| OPTRK_3
| %M4080
+--]/[---+
|
| B2805 B2810 B2811 B2812 B2813 B2830 B2831 B2832 B2833 SAFL_04 << RUNG 129 STEP #0435 >>
| %I0330 %I0331 %I0332 %I0333 %I0334 %I0335 %I0336 %I0337 %I0338 %M3796
+--] [---] [---] [---] [---] [---] [---] [---] [---] ( * Door guard, Drive unit left *)
|
| OPTRK_3
| %M4080
+--]/[---+
|
| OPT_ASR B7805 B7806 A602_34 SAFL_05 << RUNG 130 STEP #0446 >>
| %I0122 %I0339 %I0340 %I0131 %M3797
+--]/[---] [---] [---] [---] ( * Door guard, ASU left *)
|
| OPT_ASR A506_33
| %I0122 %I0148
+--] [---]/[---+
|
| B1504 B1505 B1506 SAFL_06 << RUNG 131 STEP #0454 >>
| %I0133 %I0134 %I0135 %M3798
+--] [---] [---]/[---] ( * Door guard, A.cham. bottom front *)
|
| B7805 SAFL_07 << RUNG 132 STEP #0458 >>
| %I0339 %M3799
+--]/[---] ( * Door guard, ASU top *)
|
| OPTRK_3 B2805 B2810 B2811 B2812 B2813 B2830 B2831 B2832 << RUNG 133 STEP #0460 >>
| %M4080 %I0330 %I0331 %I0332 %I0333 %I0334 %I0335 %I0336 %I0337
+--] [---]/[---]/[---]/[---]/[---]/[---]/[---]/[---]
|
| B2833 SAFL_08 << RUNG 134 STEP #0470 >>
| %I0338 %M3800
+--]/[---] ( * Door guard, Front *)
|
| S001 S1801 S1802 S2803 S2804 S7813 S900 SAFL_09 << RUNG 135 STEP #0473 >>
| %I0321 %I0323 %I0324 %I0325 %I0326 %I0328 %I0329 %M3801
+--] [---] [---] [---] [---]/[---]/[---]/[---] ( * Emergency stop, Bottom left *)
|
| S001 S1801 S1802 S2803 S2804 S7813 S900 SAFL_10 << RUNG 136 STEP #0481 >>
| %I0321 %I0323 %I0324 %I0325 %I0326 %I0328 %I0329 %M3802
+--] [---] [---]/[---]/[---]/[---]/[---]/[---] ( * Emergency stop, Sterile system *)
|
| PT_D_L SAFL_11 << RUNG 137 STEP #0489 >>
| %G0903 %M3803
+--] [---] ( * Door guard, PT21 left *)
|

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0148	A506_33	DMC Main motor, Running	%I0321	S001	Emergency Stop EL Cabinet
%I0131	A602_34	Safety monitor door guards ASU	%I0323	S1801	Emergency Stop Front Platform
%I0133	B1504	A. chamber top door, Closed	%I0324	S1802	Emergency Stop Top Platform
%I0134	B1505	A. chamber top front door, Closed	%I0325	S2803	Emergency Stop Right Side Panel
%I0135	B1506	A. chamber front doors, Closed	%I0326	S2804	Emergency Stop Left Side Panel
%I0330	B2805	Door guard, Front	%I0328	S7813	Emergency Stop ASU Back
%I0331	B2810	Door guard, FFU front right	%I0329	S900	Emergency Stop Control Panel
%I0332	B2811	Door guard, FFU right	%M3793	SAFL_01	Door guard, Front left
%I0333	B2812	Door guard, JUM right	%M3794	SAFL_02	Door guard, FFU left
%I0334	B2813	Door guard, Drive right	%M3795	SAFL_03	Door guard, JUM left
%I0335	B2830	Door guard, FFU front left	%M3796	SAFL_04	Door guard, Drive unit left
%I0336	B2831	Door guard, FFU left	%M3797	SAFL_05	Door guard, ASU left
%I0337	B2832	Door guard, JUM left	%M3798	SAFL_06	Door guard, A.cham. bottom front
%I0338	B2833	Door guard, Drive left	%M3799	SAFL_07	Door guard, ASU top
%I0339	B7805	Door guard, ASU Top	%M3800	SAFL_08	Door guard, Front
%I0340	B7806	Door guard, ASU right	%M3801	SAFL_09	Emergency stop, Bottom left
%M4080	OPTRK_3	TBA21 050V field test	%M3802	SAFL_10	Emergency stop, Sterile system
%I0122	OPT_ASR	Option, ASU in separate room	%M3803	SAFL_11	Door guard, PT21 left
%G0903	PT_D_L	From PT21, Door left			

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```

|SAF_ALM                                     SAFL_12 << RUNG 138 STEP #0491 >>
|M1537                                     %M3804
+--] [-----] ( )-- (* Safety relay tripped *)

|B1225                                     SAFL_13 << RUNG 139 STEP #0493 >>
|I0136                                     %M3805
+--]/[-----] ( )-- (* Hatch under peroxide bath *)

|CHK_SRV                                     SAFL_14 << RUNG 140 STEP #0495 >>
|M0026                                     %M3806
+--] [-----] ( )-- (* Service switch activated *)

|B4102 SV_HYAL                             SAFL_15 << RUNG 141 STEP #0497 >>
|I0219 %M1511                             %M3807
+--] [-----]/[-----] ( )-- (* Crank guard, Jaw system *)

|B5104                                     SAFL_16 << RUNG 142 STEP #0500 >>
|I0220                                     %M3808
+--] [-----] ( )-- (* Crank guard, Final folder *)

|*****
|(* Alarms "Safety right" *)
|*****

|B2805 B2810 B2811 B2812 B2813 B2830 B2831 B2832 B2833 SAFR_01 << RUNG 144 STEP #0503 >>
|I0330 %I0331 %I0332 %I0333 %I0334 %I0335 %I0336 %I0337 %I0338 %M3809
+--] [-----]/[-----]/[-----]/[-----]/[-----]/[-----]/[-----]/[-----] ( )-- (* Door guard, Front right *)

|OPTRK_3
|M4080
+--]/[-----]

|B2805 B2810 B2811 B2812 B2813 B2830 B2831 B2832 B2833 SAFR_02 << RUNG 145 STEP #0514 >>
|I0330 %I0331 %I0332 %I0333 %I0334 %I0335 %I0336 %I0337 %I0338 %M3810
+--] [-----]/[-----]/[-----]/[-----]/[-----]/[-----]/[-----]/[-----] ( )-- (* Door guard, FFU right *)

|OPTRK_3
|M4080
+--]/[-----]

|B2805 B2810 B2811 B2812 B2813 B2830 B2831 B2832 B2833 SAFR_03 << RUNG 146 STEP #0525 >>
|I0330 %I0331 %I0332 %I0333 %I0334 %I0335 %I0336 %I0337 %I0338 %M3811
+--] [-----]/[-----]/[-----]/[-----]/[-----]/[-----]/[-----]/[-----] ( )-- (* Door guard, JUM right *)

|OPTRK_3
|M4080
+--]/[-----]

|B2805 B2810 B2811 B2812 B2813 B2830 B2831 B2832 B2833 SAFR_04 << RUNG 147 STEP #0536 >>
|I0330 %I0331 %I0332 %I0333 %I0334 %I0335 %I0336 %I0337 %I0338 %M3812
+--] [-----]/[-----]/[-----]/[-----]/[-----]/[-----]/[-----]/[-----] ( )-- (* Door guard, Drive unit right *)

|OPTRK_3
|M4080
+--]/[-----]

|OPT_ASR B7801                             SAFR_05 << RUNG 148 STEP #0547 >>
|I0122 %I0293                             %M3813
+--]/[-----] ( )-- (* Door guard, SA right *)

|OPT_ASR A506_33
|I0122 %I0148
+--] [-----]/[-----]

|OPT_ASR B7805 B7806                       SAFR_06 << RUNG 149 STEP #0553 >>
|I0122 %I0339 %I0340                       %M3814
+--]/[-----] ( )-- (* Door guard, ASU right *)

|OPT_ASR A506_33
|I0122 %I0148
+--] [-----]/[-----]

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0148	A506_33	DMC Main motor, Running	%M0026	CHK_SRV	Check service switch
%I0136	B1225	Per. bath bottom cover, Closed	%M4080	OPTRK_3	TBA21 050V field test
%I0330	B2805	Door guard, Front	%I0122	OPT_ASR	Option, ASU in separate room
%I0331	B2810	Door guard, FFU front right	%M3804	SAFL_12	Safety relay tripped
%I0332	B2811	Door guard, FFU right	%M3805	SAFL_13	Hatch under peroxide bath
%I0333	B2812	Door guard, JUM right	%M3806	SAFL_14	Service switch activated
%I0334	B2813	Door guard, Drive right	%M3807	SAFL_15	Crank guard, Jaw system
%I0335	B2830	Door guard, FFU front left	%M3808	SAFL_16	Crank guard, Final folder
%I0336	B2831	Door guard, FFU left	%M3809	SAFR_01	Door guard, Front right
%I0337	B2832	Door guard, JUM left	%M3810	SAFR_02	Door guard, FFU right
%I0338	B2833	Door guard, Drive left	%M3811	SAFR_03	Door guard, JUM right
%I0219	B4102	JUM, Crank position	%M3812	SAFR_04	Door guard, Drive unit right
%I0220	B5104	FFU, Crank position	%M3813	SAFR_05	Door guard, SA right
%I0293	B7801	SA, Door guard, SA	%M3814	SAFR_06	Door guard, ASU right
%I0339	B7805	Door guard, ASU Top	%M1537	SAF_ALM	SRV, Safety relays malfunction
%I0340	B7806	Door guard, ASU right	%M1511	SV_HYAL	SRV, Hydr. pump allowed start

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BLOCK: SERVICE SYSTEMS

```

| B1504 B1505 B1506 SAFR_07 << RUNG 150 STEP #0560 >>
| %I0133 %I0134 %I0135 %M3815
+--] [-----]/[-----]/[-----]----- ( )-- (* Door guard, A.cham. top front *)
|
| B1504 SAFR_08 << RUNG 151 STEP #0564 >>
| %I0133 %M3816
+--] [-----] [-----] [-----] [-----] [-----] [-----] [-----] [-----] ( )-- (* Door guard, A.chamber top *)
|
| S001 S005 S1801 S1802 S2803 S2804 S7813 S900 SAFR_09 << RUNG 152 STEP #0566 >>
| %I0321 %I0322 %I0323 %I0324 %I0325 %I0326 %I0328 %I0329 %M3817
+--] [-----] [-----] [-----] [-----] [-----] [-----] [-----] [-----] ( )-- (* Emergency stop, Control panel *)
|
| S001 S005 S1801 S1802 S2803 S2804 S7813 S900 SAFR_10 << RUNG 153 STEP #0575 >>
| %I0321 %I0322 %I0323 %I0324 %I0325 %I0326 %I0328 %I0329 %M3818
+--] [-----] [-----] [-----] [-----] [-----] [-----] [-----] [-----] ( )-- (* Emergency stop, ASU *)
|
| S001 S005 S1801 S1802 S2803 S2804 S7813 S900 SAFR_11 << RUNG 154 STEP #0584 >>
| %I0321 %I0322 %I0323 %I0324 %I0325 %I0326 %I0328 %I0329 %M3819
+--] [-----] [-----] [-----] [-----] [-----] [-----] [-----] [-----] ( )-- (* Emergency stop, Bottom right *)
|
| S001 S005 S1801 S1802 S2803 S2804 S7813 S900 SAFR_12 << RUNG 155 STEP #0593 >>
| %I0321 %I0322 %I0323 %I0324 %I0325 %I0326 %I0328 %I0329 %M3820
+--] [-----] [-----] [-----] [-----] [-----] [-----] [-----] [-----] ( )-- (* Emergency stop, Aseptic chamber *)
|
| S001 S005 S1801 S1802 S2803 S2804 S7813 S900 SAFR_13 << RUNG 156 STEP #0602 >>
| %I0321 %I0322 %I0323 %I0324 %I0325 %I0326 %I0328 %I0329 %M3821
+--] [-----] [-----] [-----] [-----] [-----] [-----] [-----] [-----] ( )-- (* Emergency stop, El cab outside *)
|
| PT_D_RF SAFR_14 << RUNG 157 STEP #0611 >>
| %G0901 %M3822
+--] [-----] [-----] [-----] [-----] [-----] [-----] [-----] [-----] ( )-- (* Door guard, PT21 right front *)
|
| PT_D_RR SAFR_15 << RUNG 158 STEP #0613 >>
| %G0902 %M3823
+--] [-----] [-----] [-----] [-----] [-----] [-----] [-----] [-----] ( )-- (* Door guard, PT21 right rear *)
|
| S001 S005 S1801 S1802 S2803 S2804 S7813 S900 SAFR_16 << RUNG 159 STEP #0615 >>
| %I0321 %I0322 %I0323 %I0324 %I0325 %I0326 %I0328 %I0329 %M3824
+--] [-----] [-----] [-----] [-----] [-----] [-----] [-----] [-----] ( )-- (* Emergency stop, El cab inside *)
|
| [ END OF SUBROUTINE LOGIC ]

```

REFERENCE NICKNAME
 %I0133 B1504
 %I0134 B1505
 %I0135 B1506
 %G0901 PT_D_RF
 %G0902 PT_D_RR
 %I0321 S001
 %I0322 S005
 %I0323 S1801
 %I0324 S1802
 %I0325 S2803
 %I0326 S2804
 %I0328 S7813

REFERENCE DESCRIPTION
 A. chamber top door, Closed
 A. chamber top front door, Closed
 A. chamber front doors, Closed
 From PT21, Door right front
 From PT21, Door right rear
 Emergency Stop El. Cabinet
 Emergency Stop El. Cabinet
 Emergency Stop Front Platform
 Emergency Stop Top Platform
 Emergency Stop Right Side Panel
 Emergency Stop Left Side Panel
 Emergency Stop ASU Back

REFERENCE NICKNAME
 %I0329 S900
 %M3815 SAFR_07
 %M3816 SAFR_08
 %M3817 SAFR_09
 %M3818 SAFR_10
 %M3819 SAFR_11
 %M3820 SAFR_12
 %M3821 SAFR_13
 %M3822 SAFR_14
 %M3823 SAFR_15
 %M3824 SAFR_16

REFERENCE DESCRIPTION
 Emergency Stop Control Panel
 Door guard, A.cham. top front
 Door guard, A.chamber top
 Emergency stop, Control panel
 Emergency stop, ASU
 Emergency stop, Bottom right
 Emergency stop, Aseptic chamber
 Emergency stop, El cab outside
 Door guard, PT21 right front
 Door guard, PT21 right rear
 Emergency stop, El cab inside

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 BLOCK: SERVICE SYSTEMS

```

[ START LD SUBROUTINE BLK_53 ]
[ VARIABLE DECLARATIONS ]
[ START OF SUBROUTINE LOGIC ]

(*****
* Block 53 "Option PT21"
*****)

(*****
* Data transfer to PT/21
*****)

ALW_ON                                     << RUNG 6 STEP #0004 >>
%S0007 +-----+
+---] [---+MOVE+-----+MOVE+
      | INT |
VOLUME |-----| PT_VOL TPPTL01 |-----| PT_LWAC
%R0500 -+IN Q+-%G0001 %M3305 -+IN Q+-%G0273
      | LEN |
      |00001|
      +-----+

(*****
* Pull tab correction
*****)

ALW_ON                                     << RUNG 8 STEP #0008 >>
%S0007 +-----+
+---] [---+MOVE+
      | INT |
PTC_OFS |-----| PT_TCOR
%R8610 -+IN Q+-%G0017
      | LEN |
      |00001|
      +-----+

TPPTL04                                     << RUNG 9 STEP #0010 >>
%M3308 +-----+
+---] [---+MOVE+
      | INT |
GEN_13 |-----| PTC_OFS
%M3061 |PT_OFST | -+IN Q+-%R8610
+---] [---+%G0577
      | LEN |
      |00001|
      +-----+

(*****
* Patch power setting
*****)

ALW_ON                                     << RUNG 11 STEP #0014 >>
%S0007 +-----+
+---] [---+MOVE+
      | INT |
PAT_PWR |-----| PT_PPWR
%R8609 -+IN Q+-%G0033
      | LEN |
      |00001|
      +-----+

TPPTR06                                     << RUNG 12 STEP #0016 >>
%M3326 +-----+
+---] [---+MOVE+
      | INT |
GEN_13 |-----| PAT_PWR
%M3061 |PT_PDEF | -+IN Q+-%R8609
+---] [---+%G0593
      | LEN |
      |00001|
      +-----+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%S0007	ALW_ON		%G0033	PT_PPWR	To PT21, Patch power
%M3061	GEN_13	General default push button	%G0017	PT_TCOR	To PT21, Pull tab correction
%R8609	PAT_PWR	Patch power	%G0001	PT_VOL	To PT21, Volume parameter
%R8610	PTC_OFS	Pull tab correction offset	%M3305	TPPTL01	Pulltab left window active
%G0273	PT_LWAC	To PT21, Left window active	%M3308	TPPTL04	Default pulltab correction
%G0577	PT_OFST	From PT21, Default pull tab corr	%M3326	TPPTR06	Default patch power
%G0593	PT_PDEF	From PT21, Default patch power	%R0500	VOLUME	Volume running

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BLOCK: OPTION PT21

```

{
  *****
  * Reseal power setting
  *****
}

ALW_ON
%S0007 +-----+
+--] [---+MOVE_+
      |INT|
RES_PWR | PT_RPWR
%R8608 --IN Q+-%G0049
      |LEN|
      |00001|
      +-----+

TPPTR07
%M3327 +-----+
+--] [---+MOVE_+
      |INT|
GEN_13 | PT_RDEF | RES_PWR
%M3061 --%G0609 --IN Q+-%R8608
      |LEN|
      |00001|
      +-----+

{
  *****
  * Temperature monitor electrical cabinet PT/21
  *****
}

ALW_ON
%S0007 +-----+ +-----+ +-----+
+--] [---+DIV_+-----+DIV_+-----+DIV_+
      |INT| |INT| |INT|
PT_AHEL | MPT_ALH PT_ALEL | MPT_ALL PT_PEL | MPT_PV
%G0657 --I1 Q+-%R8553 %G0673 --I1 Q+-%R8554 %G0641 --I1 Q+-%R8552
CONST --I2 | CONST --I2 | CONST --I2
+00010 +-----+ +00010 +-----+ +00010 +-----+

{
  *****
  * Default settings for Sealing pad, transfer registers to TPOP
  *****
}

TPPTR02
%M3322 +-----+
+--] [---+DIV_+
      |INT|
GEN_13 | PT_SET1 | L11_SP1
%M3061 --%G0689 --I1 Q+-%R8496
      |CONST --I2|
      |+00010 +-----+

ALW_ON
%S0007 +-----+ +-----+
+--] [---+DIV_+-----+DIV_+
      |INT| |INT|
PT_AL1H | L11_A1H PT_AL1L | L11_A1L
%G0721 --I1 Q+-%R8498 %G0737 --I1 Q+-%R8499
CONST --I2 | CONST --I2
+00010 +-----+ +00010 +-----+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%S0007	ALW_ON		%G0737	PT_AL1L	From PT21, Pad alarm1 low
%M3061	GEN_13	General default push button	%G0673	PT_ALEL	From PT21, Alarm high el. cab.
%R8498	L11_A1H	Loop 11, Alarm 1 high	%G0641	PT_PEL	From PT21, Process value el. cab
%R8499	L11_A1L	Loop 11, Alarm 1 low	%G0609	PT_RDEF	From PT21, Default reseal power
%R8496	L11_SP1	Loop 11, Set point 1	%G0049	PT_RPMR	To PT21, Reseal power
%R8553	MPT_ALH	PT21 el cab, Alarm high	%G0689	PT_SET1	From PT21, Pad set point 1
%R8554	MPT_ALL	PT21 el cab, Alarm low	%R8608	RES_PWR	Reseal power
%R8552	MPT_PV	PT21 el cab, Process value	%M3322	TPPTR02	Default t.reg pad operator
%G0657	PT_AHEL	From PT21, Alarm low el. cab.	%M3327	TPPTR07	Default reseal power
%G0721	PT_AL1H	From PT21, Pad alarm1 high			

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BLOCK: OPTION PT21

```

|ALW_ON                                     << RUNG 21 STEP #0037 >>
|S0007 +-----+                         +-----+
|--] [---+ DIV +-----+                 +-----+
|      | INT |                         | INT |
|PT_OUT| L11_OUT PT_PPAD | L11_PV
|G0849 -+I1 Q+-%R8506 %G0865 -+I1 Q+-%R8507
|CONST -+I2 |                         |CONST -+I2 |
|+00010 +-----+                 +00010 +-----+

(*****
(* Temperature register transfer to PT/21 from TPOP
*)
*****)

|ALW_ON                                     << RUNG 23 STEP #0041 >>
|S0007 +-----+                         +-----+
|--] [---+ MUL +-----+                 +-----+
|      | INT |                         | INT |
|L11_SP1 PT_PST1 L11_A1L | PT_PS1L L11_A1H | PT_PS1H
|R8496 -+I1 Q+-%G0081 %R8499 -+I1 Q+-%G0129 %R8498 -+I1 Q+-%G0113
|CONST -+I2 |                         |CONST -+I2 |
|+00010 +-----+                 +00010 +-----+

(*****
(* Watch dog logic for the communication between TBA/21 and PT/21
*)
*****)

|PT_WDOG                                     PT_WTDG << RUNG 25 STEP #0046 >>
|G0904                                     %G0307
|--] [---(RM)- (* To PT21, Watchdog *)

|PT_WDOG                                     PT_WTDG << RUNG 26 STEP #0048 >>
|G0904                                     %G0307
|--]/[---(SM)- (* To PT21, Watchdog *)

|PT_WDOG                                     PT_STP1 << RUNG 27 STEP #0050 >>
|G0904                                     %M4006
|--] [---( )-- (* PT/21 processor stopped *)
|      |TMR +-----+
|      |0.10s|
|CONST -+PV |
|+00020 +-----+
|      |DEL9521
|      |%R9521

|PT_WDOG                                     PT_STP2 << RUNG 28 STEP #0053 >>
|G0904                                     %M4007
|--]/[---( )-- (* PT/21 processor stopped *)
|      |TMR +-----+
|      |0.10s|
|CONST -+PV |
|+00020 +-----+
|      |DEL9524
|      |%R9524

|STEP_1 PT21_BP                             PTL_BYP << RUNG 29 STEP #0056 >>
|M0101 %I0345                             %G0524
|--] [---(M)-- (* From PT21, Bypass mode *)

|STEP_2
|M0102
|--] [---

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%S0007	ALW_ON		%G0865	PT_PPAD	From PT21, Pad process value
%R9521	DEL9521	Delay,	%G0113	PT_PS1H	To PT21, Alarm level S1 high pad
%R9524	DEL9524	Delay,	%G0129	PT_PS1L	To PT21, Alarm level S1 low pad
%R8498	L11_A1H	Loop 11, Alarm 1 high	%G0081	PT_PST1	To PT21, Set point 1 pad
%R8499	L11_A1L	Loop 11, Alarm 1 low	%M4006	PT_STP1	PT/21 processor stopped
%R8506	L11_OUT	Loop 11, Output TPOP	%M4007	PT_STP2	PT/21 processor stopped
%R8507	L11_PV	Loop 11, Process value	%G0904	PT_WDOG	From PT21, Watchdog
%R8496	L11_SP1	Loop 11, Set point 1	%G0307	PT_WTDG	To PT21, Watchdog
%I0345	PT21_BP	From PT21, Bypass mode	%M0101	STEP_1	Step 1 Preparation
%G0524	PTL_BYP	From PT21, Bypass mode	%M0102	STEP_2	Step 2 Tube sealing
%G0849	PT_OUT	From PT21, Pad output value			

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BLOCK: OPTION PT21

```

COM_OK                                     PT_WADG << RUNG 30 STEP #0060 >>
%I0995                                     %G0528
+--]/[----- (M)-- (* From PT21, Watchdog fault *)

PT_STP1
%M4006

+--] [---+

PT_STP2
%M4007

+--] [---+

(*****
(* Generic signals to PT/21 *)
*****)

RESET                                     PT_RES << RUNG 32 STEP #0065 >>
%M3050                                     %G0305
+--] [----- (M)-- (* To PT21, Alarm reset *)

STP1_12                                   PT_STEP << RUNG 33 STEP #0067 >>
%M0146                                   %G0306
+--] [----- (M)-- (* To PT21, TBA21 in step 1-14 *)

STEP_14 TPPTL05
%M0114 %M3309
+--] [---+

TPPTL07
%M3311
+--] [---+

TPPTL09
%M3313
+--] [---+

A413_EN B72232 OPT_041                   PT_MAGF << RUNG 34 STEP #0075 >>
%Q0202 %I0278 %I0121                   %G0308
+--]/[----- (M)-- (* To PT21, Magazine full ASU *)

OPTRK_3
%M4080
+--] [---+

STEP_1 STP1_11 FST_WEB                   PT_HWEB << RUNG 35 STEP #0081 >>
%M0101 %M0145 %M0912                   %G0309
+--]/[----- (M)-- (* To PT21, Paper web high speed *)

STEP_1 S003
%M0101 %I0206
+--] [---+

P+008                                     PT_DCS << RUNG 36 STEP #0088 >>
%T0008                                     %G0310
+--] [----- (M)-- (* To PT21, Register mark DCS *)

DCS_MIS
%M1011
+--] [---+

TPSRL09                                  PT_LGHT << RUNG 37 STEP #0091 >>
%M3281                                  %G0311
+--] [----- (M)-- (* To PT21, Machine light *)

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%Q0202	A413_EN	Drive roller mag. ASU, Enable
%I0278	B72232	ASU, Magazine down
%I0995	COM_OK	Communication PT21 OK
%M1011	DCS_MIS	DCS, Missed register mark
%M0912	FST_WEB	JUM, Paper web fast speed
%M4080	OPTRK_3	TBA21 050V field test
%I0121	OPT_041	Option, 041V functionality
%T0008	P+008	Pulse + DCS register mark
%G0310	PT_DCS	To PT21, Register mark DCS
%G0309	PT_HWEB	To PT21, Paper web high speed
%G0311	PT_LGHT	To PT21, Machine light
%G0308	PT_MAGF	To PT21, Magazine full ASU
%G0305	PT_RES	To PT21, Alarm reset
%G0306	PT_STEP	To PT21, TBA21 in step 1-14

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M4006	PT_STP1	PT/21 processor stopped
%M4007	PT_STP2	PT/21 processor stopped
%G0528	PT_WADG	From PT21, Watchdog fault
%M3050	RESET	Alarm reset
%I0206	S003	Service switch
%M0101	STEP_1	Step 1 Preparation
%M0114	STEP_14	Step 14 Service window
%M0145	STP1_11	Step 1-11 Prep. to venting
%M0146	STP1_12	Step 1-12 Prep. to doors OK
%M3309	TPPTL05	Punch and patch start
%M3311	TPPTL07	Punch and reseal start
%M3313	TPPTL09	Punch and tab start
%M3281	TPSRL09	Light TBA21 and PT21 on

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BLOCK: OPTION PT21

```

|STP1_11 STEP_1 B72234 PT_MAGE << RUNG 38 STEP #0093 >>
|%M0145 %M0101 %I0280 %G0312
+--] [---] [---] [---] (M)-- (* To PT21, Magazine empty ASU *)
|
|STEP_14|
| %M0114 |
+--] [---+
|
|STEP_1 A506_33|
| %M0101 %I0148 |
+--] [---] [---+
|
| S907 PT_STUP << RUNG 39 STEP #0101 >>
| %I0199 %G0313
+--] [---] (M)-- (* To PT21, Step up *)
|
| S911
| %I0201 |
+--] [---+
|
|OPT_041 PT_041V << RUNG 40 STEP #0104 >>
| %I0121 %G0314
+--] [---] (M)-- (* To PT21, 041V functionality *)
|
|STEP_1 PT_PREP << RUNG 41 STEP #0106 >>
| %M0101 %G0315
+--] [---] (M)-- (* To PT21, TBA21 in step 1 *)
|
| [ END OF SUBROUTINE LOGIC ]

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0148	A506_33	DMC Main motor, Running	%G0313	PT_STUP	To PT21, Step up
%I0280	B72234	ASU, Magazine empty	%I0199	S907	Inching JUM and FFU
%I0121	OPT_041	Option, 041V functionality	%I0201	S911	Step up
%G0314	PT_041V	To PT21, 041V functionality	%M0101	STEP_1	Step 1 Preparation
%G0312	PT_MAGE	To PT21, Magazine empty ASU	%M0114	STEP_14	Step 14 Service window
%G0315	PT_PREP	To PT21, TBA21 in step 1	%M0145	STP1_11	Step 1-11 Prep. to venting

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BLOCK: OPTION PT21


```

[ START LD SUBROUTINE BLK_54 ]
[ VARIABLE DECLARATIONS ]
[ START OF SUBROUTINE LOGIC ]

(*****
(* Block 54 "Option HI"
*****)

B9107 HI_ON << RUNG 5 STEP #0003 >>
%I0355 %M1900
+--]/[----- ( )-- (* HI, system ready for HI *)

STP1_3 HI_ON HI_DIS << RUNG 6 STEP #0005 >>
%M0140 %M1900 %M1901
+--] [-----]/[----- (S)-- (* HI, Filler with HI disabled *)

STEP_0 HI_DIS << RUNG 7 STEP #0008 >>
%M0100 %M1901
+--] [----- (R)-- (* HI, Filler with HI disabled *)

HI_ON STP1_11 STEP_1 B9108 HINOSTE << RUNG 8 STEP #0010 >>
%M1900 %M0145 %M0101 %I0356 %M1902
+--] [-----]/[----- ( )-- (* HI, HI sys.not ready for steril. *)

      B9110
      |%I0357
      +--]/[-----

NOZ_OFF
%M1914
+--] [-----

HI_ON B9104 HINOSTR << RUNG 9 STEP #0018 >>
%M1900 %I0354 %M1903
+--] [-----]/[----- ( )-- (* HI, HI sys. not rdy. motor start *)

(*****
(* HI spray sequence
*****)

STEP_0 HISPFUL << RUNG 11 STEP #0022 >>
%M0100 %M1904
+--] [----- (R)-- (* HI, HI spray tank filled *)

STEP_2 HISPFIL HISPFIL
%M0102 %M1907 %M1907
+--] [-----]/[----- (R)-- (* HI, HI spr.tank slow/fast fill. *)

      HISPFIL RESET HISPEMP
      |%M1907 %M3050 %M1908
      +--] [-----]/[----- (R)-- (* HI, HI spr.tank slow/fast empty *)

STEP_11 HITMPLW
%M0111 %M1909
+--] [----- (R)-- (* HI, Low temp. during spraying *)

HI_ON SPRAY_3 A309_18 HISPFUL << RUNG 12 STEP #0035 >>
%M1900 %M0733 %I0353 %M1904
+--] [-----]/[----- (S)-- (* HI, HI spray tank filled *)

H202_ON HISPR_1 << RUNG 13 STEP #0039 >>
%M0700 +-----+ %M1905
+--] [-----+RANGE|+----- ( )-- (* HI, HI Spray sequence 12s-12s05 *)

      INT
      ||
CONST +L1 Q++
+01200

CONST +L2
+01205

TMR_5
%M0112 +IN
+-----+

REFERENCE NICKNAME REFERENCE DESCRIPTION REFERENCE NICKNAME REFERENCE DESCRIPTION
%I0353 A309_18 H.I. Level peroxide tank %M1901 HI_DIS HI, Filler with HI disabled
%I0354 B9104 H.I. Pressure guard %M1900 HI_ON HI, system ready for HI
%I0355 B9107 No H.I. %M1914 NOZ_OFF HI, HI nozzle off after CIP dry
%I0356 B9108 H.I. Spray nozzle pipe %M3050 RESET Alarm reset
%I0357 B9110 H.I. Production %M0733 SPRAY_3 PER, Spray sequence 10,00-12,00
%M0700 H202_ON PER, Peroxide system on %M0100 STEP_0 Step 0 Off
%M1902 HINOSTE HI, HI sys.not ready for steril. %M0101 STEP_1 Step 1 Preparation
%M1903 HINOSTR HI, HI sys. not rdy. motor start %M0111 STEP_11 Step 11 Venting
%M1908 HISPEMP HI, HI spr.tank slow/fast empty %M0102 STEP_2 Step 2 Tube sealing
%M1907 HISPFIL HI, HI spr.tank slow/fast fill. %M0145 STP1_11 Step 1-11 Prep. to venting
%M1904 HISPFUL HI, HI spray tank filled %M0140 STP1_3 Step 1-3 Prep.to heatster.
%M1905 HISPR_1 HI, HI Spray sequence 12s-12s05 %R0112 TMR_5 Tmr 5, Spray sequence (0,01s)
%M1909 HITMPLW HI, Low temp. during spraying

```

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BLOCK: OPTION HI

```

H2O2_ON                                     HISPR_2 << RUNG 14 STEP #0042 >>
%M0700 +-----+                           %M1906
+--] [---+RANGE+-----] ( )-- (* HI, HI Spray sequence 25s-50s  *)
      |  INT  |
      |  |    |
CONST  --L1  Q+
+02500 |
      |
CONST  --L2
+05000 |
      |
TMR_5   |
%R0112  --IN
+-----+

HI_ON SPRAY_1 A309_18                       HISPFI1 << RUNG 15 STEP #0045 >>
%M1900 %M0731 %I0353                       %M1907
+--] [---+---] [---] [---] (S)-- (* HI, HI spr.tank slow/fast fill.  *)
      |
      | SPRAY_3 A309_18
      | %M0733 %I0353
      | +--] [---] [---]
      |
HI_ON HISPR_1 A309_18                       HISPEMP << RUNG 16 STEP #0053 >>
%M1900 %M1905 %I0353                       %M1908
+--] [---+---] [---] [---] (S)-- (* HI, HI spr.tank slow/fast empty  *)
      |
      | HISPR_2 A309_18
      | %M1906 %I0353
      | +--] [---] [---]
      |
HI_ON SPR_RDY HI_OK                       HITMPLW << RUNG 17 STEP #0061 >>
%M1900 %M0730 %M3910                       %M1909
+--] [---] [---] [---] (S)-- (* HI, Low temp. during spraying  *)

STEP_0                                     HITMPLW << RUNG 18 STEP #0065 >>
%M0100                                     %M1909
+--] [---] (R)-- (* HI, Low temp. during spraying  *)

HI_ON SPRAY_6                             Y9112 << RUNG 19 STEP #0067 >>
%M1900 %M0736                             %Q0309
+--] [---] [---] ( )-- (* HI, Spray peroxide  *)

HI_ON Y1230
%M1900 %Q0261
+--] [---] [---]

(*****
(* HI valves control *)
*****)

HI_ON STP1_11 STEP_4                       Y9103 << RUNG 21 STEP #0074 >>
%M1900 %M0145 %M0104                       %Q0312
+--] [---] [---] [---] ( )-- (* HI, On/off  *)

      |
      | CIP_DRY
      | %M1232
      | +--] [---]
      |
HI_ON STEP_0 S003 DRY_RDY                 Y9102 << RUNG 22 STEP #0080 >>
%M1900 %M0100 %I0206 %M0831                 %Q0310
+--] [---] [---] [---] ( )-- (* HI, Bypass  *)

HI_ON STP1_11 STEP_1 STP8_9 S_STOP         Y9101 << RUNG 23 STEP #0085 >>
%M1900 %M0145 %M0101 %M0144 %M0171         %Q0311
+--] [---] [---] [---] [---] ( )-- (* HI, Air/N2 supply  *)

      |
      | S003
      | %I0206
      | +--] [---]

```

REFERENCE	NICKNAME	REFERENCE	NICKNAME	REFERENCE	DESCRIPTION
%I0353	A309_18	%M0736	SPRAY_6	%M0736	PER, Spray sequence 12,00-45,00
%M1232	CIP_DRY	%M0730	SPR_RDY	%M0730	PER, Spray sequence ready
%M0831	DRY_RDY	%M0100	STEP_0	%M0100	Step 0 Off
%M0700	H2O2_ON	%M0101	STEP_1	%M0101	Step 1 Preparation
%M1908	HISPEMP	%M0104	STEP_4	%M0104	Step 4 Spraying
%M1907	HISPFI1	%M0145	STP1_11	%M0145	Step 1-11 Prep. to venting
%M1905	HISPR_1	%M0144	STP8_9	%M0144	Step 8-9 Motorstart to prod.
%M1906	HISPR_2	%M0171	S_STOP	%M0171	Short stop on
%M1909	HITMPLW	%R0112	TMR_5	%R0112	Tmr 5, Spray sequence (0,01s)
%M3910	HI_OK	%Q0261	Y1230	%Q0261	Filling Spray Tank
%M1900	HI_ON	%Q0311	Y9101	%Q0311	HI, Air/N2 supply
%I0206	S003	%Q0310	Y9102	%Q0310	HI, Bypass
%M0731	SPRAY_1	%Q0312	Y9103	%Q0312	HI, On/off
%M0733	SPRAY_3	%Q0309	Y9112	%Q0309	HI, Spray peroxide

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BLOCK: OPTION HI

```

    OPT_MF
    %I0127 +-----+
    +---] [---+MOVE_+
            |INT|
            |HI_LEV|
    CONST -+IN Q+-%R6550
    +03000 |LEN|
            |00001|
            +-----+

    OPT_MF
    %I0127 +-----+
    +---]/[---+MOVE_+
            |INT|
            |HI_LEV|
    CONST -+IN Q+-%R6550
    +01000 |LEN|
            |00001|
            +-----+

    FST_WEB STP5_9
    %M0912 %M0143 +-----+
    +---]/[---] [---+GT_+
            |INT|
            |A420|
            %AI0034-+I1 Q++
            |HI_LEV|
            %R6550 -+I2
            +-----+

    HIOFFSS << RUNG 27 STEP #0101 >>
    %M1910
    +-----+
    +---] [---+TMR+
            |0.10s|
    S_STOP |
    %M0171 |
    +---] [---+CONST -+PV+
            +00015|
            +-----+
            DEL6500
            %R6500

    FST_WEB
    %M0912 +-----+
    +---] [---+
    STEP_0 |
    %M0100 |
    +---] [---+
    STEP_11|
    %M0111 |
    +---] [---+

    HI_ON STEP_0 B9108 HIOFFSS STP1_11 STEP_10 STEP_11 Y9105 << RUNG 29 STEP #0109 >>
    %M1900 %M0100 %I0356 %M1910 %M0145 %M0110 %M0111 %Q0241
    +---] [---]/[---] [---]/[---] [---]/[---]/[---] [---] ( )-- (* H. I. Injection *)
    +-----+
    |CIP_ON B9109 B9110|
    |%M1204 %I0358 %I0357|
    +---] [---] [---]/[---+
    |HICPDY|
    |%M1925|
    +---] [-----+

    {
    *****
    (* HI in CIP and CIP drying *)
    *****
    }

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%AI0034	A420	Filling, Level in tube	%M1900	HI_ON	HI, system ready for HI
%I0356	B9108	H.I. Spray nozzle pipe	%I0127	OPT_MF	Option, Magnetic floater
%I0358	B9109	H.I. Cleaning	%M0100	STEP_0	Step 0 Off
%I0357	B9110	H.I. Production	%M0110	STEP_10	Step 10 Production ended
%M1204	CIP_ON	CIP, TBA21 ready for CIP	%M0111	STEP_11	Step 11 Venting
%R6500	DEL6500	Delay,	%M0145	STP1_11	Step 1-11 Prep. to venting
%M0912	FST_WEB	JUM, Paper web fast speed	%M0143	STP5_9	Step 5-9 Drying to prod.
%M1925	HICPDYR	HI, HI system ready for CIP dry	%M0171	S_STOP	Short stop on
%M1910	HIOFFSS	HI, HI off short stp(tube fill.)	%Q0241	Y9105	H. I. Injection
%R6550	HI_LEV	HI, fill lev. to stoo HI			

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BLOCK: OPTION HI

```

| HI_ON Y1312 HI_PROD << RUNG 31 STEP #0124 >>
|M1900 %Q0237 %M1911
+--] [-----] [-----] (S)-- (* HI, Production with HI *)

| B9108 HI_PROD << RUNG 32 STEP #0127 >>
| %I0356 %M1911
+--]/[-----] (R)-- (* HI, Production with HI *)

| CLN_09 HI_ON B9108 HINOCIP << RUNG 33 STEP #0129 >>
|M3073 %M1900 %I0356 %M1912
+--] [-----] [-----] ( )-- (* HI, HI sys. not ready for CIP *)

| HI_PROD
| %M1911
+--] [-----]
| B9109
| %I0358
+--]/[-----]

| HI_ON CIP_END B9110 HICIPDR << RUNG 34 STEP #0136 >>
|M1900 %M1203 %I0357 %M1913
+--] [-----] [-----] ( )-- (* HI, HI syst.NOTready for CIP dry *)

| B9109
| %I0358
+--] [-----]
| B9110 B9109 HICPDYR << RUNG 35 STEP #0147 >>
| %I0357 %I0358 %M1925
+--] [-----] ( )-- (* HI, HI system ready for CIP dry *)

| HI_ON DRY_END NOZ_OFF << RUNG 36 STEP #0150 >>
|M1900 %M1235 %M1914
+--] [-----] (S)-- (* HI, HI nozzle off after CIP dry *)

| B9108 NOZ_OFF << RUNG 37 STEP #0151 >>
| %I0356 %M1914
+--]/[-----] (R)-- (* HI, HI nozzle off after CIP dry *)

(*****
* HI alarms handling
*****
)

| HI_DIS B9107 RESET MALFSEN << RUNG 38 STEP #0153 >>
|M1901 %I0355 %M3050 %M1915
+--] [-----]/[-----] (S)-- (* HI, Malf. B9107 when HI disabled *)

| RESET MALFSEN << RUNG 39 STEP #0157 >>
|M3050 %M1915
+--] [-----] (R)-- (* HI, Malf. B9107 when HI disabled *)

| STEP_1 HI_ON HI_FIL1 << RUNG 40 STEP #0159 >>
|M0101 %M1900 %M1916
+--] [-----]/[-----] ( )-- (* HI, Alarm HI disabled *)

| STEP_2
| %M0102
+--] [-----]

| STEP_1 STEP_2 MALFSEN
|M0101 %M0102 %M1915
+--]/[-----]/[-----] [-----]

| STP1_11 HI_ON B9108 HI_FIL2 << RUNG 41 STEP #0167 >>
|M0145 %M1900 %I0356 %M1917
+--] [-----] [-----] (S)-- (* HI, Alarm spray nozz. pipe pos. *)

| STP1_11 HI_ON B9110 HI_FIL3 << RUNG 42 STEP #0171 >>
|M0145 %M1900 %I0357 %M1918
+--] [-----] [-----] (S)-- (* HI, Alarm HI produc. pipe posit. *)

| CLN_09 CIP_END
|M3073 %M1203
+--]/[-----] [-----]

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0355	B9107	No H.I.	%M1917	HI_FIL2	HI, Alarm spray nozz. pipe pos.
%I0356	B9108	H.I. Spray nozzle pipe	%M1918	HI_FIL3	HI, Alarm HI produc. pipe posit.
%I0358	B9109	H.I. Cleaning	%M1900	HI_ON	HI, system ready for HI
%I0357	B9110	H.I. Production	%M1911	HI_PROD	HI, Production with HI
%M1203	CIP_END	CIP, Cip ended,Cip dry can start	%M1915	MALFSEN	HI, Malf. B9107 when HI disabled
%M3073	CLN_09	Clean, CIP select	%M1914	NOZ_OFF	HI, HI nozzle off after CIP dry
%M1235	DRY_END	CIP, Cip drying ended	%M3050	RESET	Alarm reset
%M1913	HICIPDR	HI, HI syst.NOTready for CIP dry	%M0101	STEP_1	Step 1 Preparation
%M1925	HICPDYR	HI, HI system ready for CIP dry	%M0102	STEP_2	Step 2 Tube sealing
%M1912	HINOCIP	HI, HI sys. not ready for CIP	%M0145	STP1_11	Step 1-11 Prep. to venting
%M1901	HI_DIS	HI, Filler with HI disabled	%Q0237	Y1312	A - Valve
%M1916	HI_FIL1	HI, Alarm HI disabled			

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BLOCK: OPTION HI

```

| B9108                                HI_FIL2 << RUNG 43 STEP #0178 >>
| %I0356                                %M1917
+--] [---+------(R)-- (* HI, Alarm spray nozz. pipe pos. *)

| HI_ON
| %M1900
+--]/[---+

| B9110                                HI_FIL3 << RUNG 44 STEP #0181 >>
| %I0357                                %M1918
+--] [---+------(R)-- (* HI, Alarm HI produc. pipe posit. *)

| STP1_11 STEP_1 HINOSTR Y9101          HI_SRV1 << RUNG 45 STEP #0183 >>
| %M0145 %M0101 %M1903 %Q0311          %M1920
+--] [-----]/[-----] [---+------( )-- (* HI, Alarm low air pressure *)

|                                     | Y9101
|                                     | %Q0311
|                                     +--]/[------( )-- (* HI, Alarm low N2 pressure *)

| CLN_09 HI_ON B9108                    HI_CLN1 << RUNG 46 STEP #0192 >>
| %M3073 %M1900 %I0356                    %M1922
+--] [-----] [---+------( )-- (* HI, Alarm HI nozzle wrong pos. *)

|                                     | HI_PROD
|                                     | %M1911
|                                     +--]/[---+

| STEP_1 NOZ_OFF
| %M0101 %M1914
+--] [-----] [-----+

| CLN_09 HI_ON B9109                    HI_CLN2 << RUNG 47 STEP #0201 >>
| %M3073 %M1900 %I0358                    %M1923
+--] [-----] [---+------( )-- (* HI, Alarm HI cleaning pipe pos. *)

| CLN_09 CIP_ON HI_ON                    HI_CLN3 << RUNG 48 STEP #0205 >>
| %M3073 %M1204 %M1900                    %M1924
+--] [-----]/[-----]/[------( )-- (* HI, Alarm HI cln.dis.(Plug pipe) *)

| [ END OF SUBROUTINE LOGIC ]

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0356	B9108	H.I. Spray nozzle pipe	%M1918	HI_FIL3	HI, Alarm HI produc. pipe posit.
%I0358	B9109	H.I. Cleaning	%M1900	HI_ON	HI, system ready for HI
%I0357	B9110	H.I. Production	%M1911	HI_PROD	HI, Production with HI
%M1204	CIP_ON	CIP, TBA21 ready for CIP	%M1920	HI_SRV1	HI, Alarm low air pressure
%M3073	CLN_09	Clean, CIP select	%M1921	HI_SRV2	HI, Alarm low N2 pressure
%M1903	HINOSTR	HI, HI sys. not rdy. motor start	%M1914	NOZ_OFF	HI, HI nozzle off after CIP dry
%M1922	HI_CLN1	HI, Alarm HI nozzle wrong pos.	%M0101	STEP_1	Step 1 Preparation
%M1923	HI_CLN2	HI, Alarm HI cleaning pipe pos.	%M0145	STP1_11	Step 1-11 Prep. to venting
%M1924	HI_CLN3	HI, Alarm HI cln.dis.(Plug pipe)	%Q0311	Y9101	HI, Air/N2 supply
%M1917	HI_FIL2	HI, Alarm spray nozz. pipe pos.			

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BLOCK: OPTION HI

```

[ START LD SUBROUTINE BLK_56 ]
[ VARIABLE DECLARATIONS ]
[ START OF SUBROUTINE LOGIC ]

(*****
* Block 56 "Mimic Panel ASU"
*****)

S7901 P+119 << RUNG 6 STEP #0004 >>
%I0288 %T0119
+---] [-----] [-----] (^) ( * ASU alarm reset pulse *)

S7901 LAMP_TE << RUNG 7 STEP #0006 >>
%I0288 %M2301
+---] [-----] [-----] ( ) ( * Lamp test ASU *)

CONST +PV
+00030
+-----+
DEL6400
%R6400

ASR_MXV ASR_FLS ASR_FLS << RUNG 8 STEP #0009 >>
%M2427 %M2450 %M2450
+---] [-----] [-----] [-----] ( ) ( * ASR, Leds flasher *)

CONST +PV +PV
+00060 +00050
+-----+ +-----+
FLASH1 FLASH2
%R6420 %R6423

(*****
* ASU alarms copy from Main program
*****)

B6207 AKN_1 ALLED1 << RUNG 10 STEP #0015 >>
%I0273 %M2326 %M2302
+---] [-----] [-----] (R) ( * ASR panel, stripbreak *)

SA_03 ALLED1 << RUNG 11 STEP #0018 >>
%M3619 %M2302
+---] [-----] [-----] (S) ( * ASR panel, stripbreak *)

SA_PREP ALLED2 << RUNG 12 STEP #0020 >>
%M0321 %M2303
+---] [-----] [-----] (R) ( * ASR panel, supply empty *)

ALLED4
%M2305
+-----] [-----] (R) ( * ASR panel, supply empty *)

SA_PREP ALLED2 << RUNG 13 STEP #0023 >>
%M0321 %M2303
+---] [-----] [-----] (S) ( * ASR panel, supply empty *)

ALLED4
%M2305
+-----] [-----] (S) ( * ASR panel, supply empty *)

SA_01 AKN_3 ALLED3 << RUNG 14 STEP #0026 >>
%M3617 %M2328 %M2304
+---] [-----] [-----] (R) ( * ASR panel, sealing SA *)

SA_01 ALLED3 << RUNG 15 STEP #0029 >>
%M3617 %M2304
+---] [-----] [-----] (S) ( * ASR panel, sealing SA *)

SA_PREP AKN_5 ALLED5 << RUNG 16 STEP #0031 >>
%M0321 %M2330 %M2306
+---] [-----] [-----] (R) ( * ASR panel, strip end no prep *)

```

REFERENCE	NICKNAME	REFERENCE	DESCRIPTION	REFERENCE	NICKNAME	REFERENCE	DESCRIPTION
%M2326	AKN_1	ASR panel,	ACK stripbreak	%I0273	B6207	SA,	Strip break
%M2328	AKN_3	ASR panel,	ACK sealing sa	%R6400	DEL6400	Delay,	ASU separate room
%M2330	AKN_5	ASR panel,	ACK strip end no prep	%R6420	FLASH1	Timer1	flasher Leds
%M2302	ALLED1	ASR panel,	stripbreak	%R6423	FLASH2	Timer2	flasher Leds
%M2303	ALLED2	ASR panel,	supply empty	%M2301	LAMP_TE	Lamp test	ASU
%M2304	ALLED3	ASR panel,	sealing SA	%T0119	P+119	ASU alarm	reset pulse
%M2305	ALLED4	ASR panel,	supply empty	%I0288	S7901	ASU,	alarm reset
%M2306	ALLED5	ASR panel,	strip end no prep	%M3617	SA_01	Strip applicator,	Sealing
%M2450	ASR_FLS	ASR,	Leds flasher	%M3619	SA_03	Strip	break
%M2427	ASR_MXV	ASR,	New value multip card	%M0321	SA_PREP	SA,	Bobbin not prepared

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BLOCK: MIMIC PANEL ASU IN SEPARATE ROOM

ECM: 73362

DATE: 010205

SIGNATURE: EFi

48246-56:02

```

| SA_05                                ALLED5  << RUNG 17 STEP #0034 >>
|M3621                                %M2306
+--] [-----] (S)-- (* ASR panel, strip end no prep *)

|NOTPREP AKN_10                        ALLED10  << RUNG 18 STEP #0036 >>
|M0420 %M2331                        %M2307
+--]/[-----] (R)-- (* ASR panel, mtrl not prep *)

|STP1_11 NOTPREP                      ALLED10  << RUNG 19 STEP #0039 >>
|M0145 %M0420                        %M2307
+--] [-----] (S)-- (* ASR panel, mtrl not prep *)

|ASU_09 AKN_11                        ALLED11  << RUNG 20 STEP #0042 >>
|M3609 %M2332                        %M2308
+--]/[-----] (R)-- (* ASR panel, mtrl end not prep *)

|ASU_09                                ALLED11  << RUNG 21 STEP #0045 >>
|M3609                                %M2308
+--] [-----] (S)-- (* ASR panel, mtrl end not prep *)

| S7901                                ALLED12  << RUNG 22 STEP #0047 >>
| %I0288                              %M2309
+--] [-----] (R)-- (* ASR panel, mtrl end door open *)

|ASU_13                                ALLED12  << RUNG 23 STEP #0049 >>
|M3613                                %M2309
+--] [-----] (S)-- (* ASR panel, mtrl end door open *)

|AKN_13                                ALLED13  << RUNG 24 STEP #0051 >>
|M2334                                %M2310
+--] [-----] (R)-- (* ASR panel, overload roller 3 *)

|ASU_10                                ALLED13  << RUNG 25 STEP #0053 >>
|M3610                                %M2310
+--] [-----] (S)-- (* ASR panel, overload roller 3 *)

|AKN_14                                ALLED14  << RUNG 26 STEP #0055 >>
|M2335                                %M2311
+--] [-----] (R)-- (* ASR panel, asu loop empty *)

|ASU_14                                ALLED14  << RUNG 27 STEP #0057 >>
|M3614                                %M2311
+--] [-----] (S)-- (* ASR panel, asu loop empty *)

| S7901                                ALLED15  << RUNG 28 STEP #0059 >>
| %I0288                              %M2312
+--] [-----] (R)-- (* ASR panel, sa rotation monitor *)

|ASU_12                                ALLED15  << RUNG 29 STEP #0061 >>
|M3612                                %M2312
+--] [-----] (S)-- (* ASR panel, sa rotation monitor *)

|AKN_16                                ALLED16  << RUNG 30 STEP #0063 >>
|M2337                                %M2313
+--] [-----] (R)-- (* ASR panel, overload roller 7 *)

|ASU_11                                ALLED16  << RUNG 31 STEP #0065 >>
|M3611                                %M2313
+--] [-----] (S)-- (* ASR panel, overload roller 7 *)

|AKN_17                                ALLED17  << RUNG 32 STEP #0067 >>
|M2338                                %M2314
+--] [-----] (R)-- (* ASR panel, asu magaz. empty *)

|ASU_05                                ALLED17  << RUNG 33 STEP #0069 >>
|M3605                                %M2314
+--] [-----] (S)-- (* ASR panel, asu magaz. empty *)

| S7901                                ALLED20  << RUNG 34 STEP #0071 >>
| %I0288                              %M2315
+--] [-----] (R)-- (* ASR panel, asu splice interrupt *)

```

REFERENCE	NICKNAME	REFERENCE	DESCRIPTION	REFERENCE	NICKNAME	REFERENCE	DESCRIPTION
%M2331	AKN_10	ASR panel,	ACK asu spl not prep	%M2315	ALLED20	ASR panel,	asu splice interrupt
%M2332	AKN_11	ASR panel,	ACK mtrl end no spli	%M2306	ALLED5	ASR panel,	strip end no prep
%M2334	AKN_13	ASR panel,	ACK overload roller 3	%M3605	ASU_05	ASU,	Magazine empty
%M2335	AKN_14	ASR panel,	ACK asu loop empty	%M3609	ASU_09	ASU,	Pkg mtrl end not prepared
%M2337	AKN_16	ASR panel,	ACK overload roller 7	%M3610	ASU_10	ASU,	Overload DR loop
%M2338	AKN_17	ASR panel,	ACK mag empty	%M3611	ASU_11	ASU,	Overload DR magazine
%M2307	ALLED10	ASR panel,	mtrl not prep	%M3612	ASU_12	Rotation	monitor SA
%M2308	ALLED11	ASR panel,	mtrl end not prep	%M3613	ASU_13	ASU,	Pkg mtrl end door open
%M2309	ALLED12	ASR panel,	mtrl end door open	%M3614	ASU_14	ASU,	Loop empty
%M2310	ALLED13	ASR panel,	overload roller 3	%M0420	NOTPREP	ASU,	Splice not prepared
%M2311	ALLED14	ASR panel,	asu loop empty	%I0288	S7901	ASU,	alarm reset
%M2312	ALLED15	ASR panel,	sa rotation monitor	%M3621	SA_05	Strip	end and bobbin not prep.
%M2313	ALLED16	ASR panel,	overload roller 7	%M0145	STP1_11	Step	1-11 Prep. to venting
%M2314	ALLED17	ASR panel,	asu magaz. empty				

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BLOCK: MIMIC PANEL ASU IN SEPARATE ROOM

```

|ASU_06                                     ALLED20 << RUNG 35 STEP #0073 >>
|M3606                                     %M2315
+--] [-----] (S)-- (* ASR panel, asu splice interrupt *)

|S7901                                     ALLED21 << RUNG 36 STEP #0075 >>
|I0288                                     %M2316
+--] [-----] (R)-- (* ASR panel, asu malf photocells *)

|ASU_01                                     ALLED21 << RUNG 37 STEP #0077 >>
|M3601                                     %M2316
+--] [-----] (S)-- (* ASR panel, asu malf photocells *)

|AKN_22                                     ALLED22 << RUNG 38 STEP #0079 >>
|M2341                                     %M2317
+--] [-----] (R)-- (* ASR panel, asu sealing *)

|ASU_08                                     ALLED22 << RUNG 39 STEP #0081 >>
|M3608                                     %M2317
+--] [-----] (S)-- (* ASR panel, asu sealing *)

|AKN_30                                     ALLED30 << RUNG 40 STEP #0083 >>
|M2342                                     %M2318
+--] [-----] (R)-- (* ASR panel, door asu right *)

|B7805 B7806                             ALLED30 << RUNG 41 STEP #0085 >>
|I0339 %I0340                             %M2318
+--] [-----] (S)-- (* ASR panel, door asu right *)

|AKN_31                                     ALLED31 << RUNG 42 STEP #0088 >>
|M2343                                     %M2319
+--] [-----] (R)-- (* ASR panel, door asu left *)

|B7805 B7806 A602_34                     ALLED31 << RUNG 43 STEP #0090 >>
|I0339 %I0340 %I0131                     %M2319
+--] [-----] (S)-- (* ASR panel, door asu left *)

|AKN_32                                     ALLED32 << RUNG 44 STEP #0094 >>
|M2344                                     %M2320
+--] [-----] (R)-- (* ASR panel, door SA right *)

|B7801                                     ALLED32 << RUNG 45 STEP #0096 >>
|I0293                                     %M2320
+--] [-----] (S)-- (* ASR panel, door SA right *)

|AKN_33                                     ALLED33 << RUNG 46 STEP #0098 >>
|M2345                                     %M2321
+--] [-----] (R)-- (* ASR panel, door asu top *)

|SAFL_07                                  ALLED33 << RUNG 47 STEP #0100 >>
|M3799                                  %M2321
+--] [-----] (S)-- (* ASR panel, door asu top *)

|AKN_34                                  ALLED34 << RUNG 48 STEP #0102 >>
|M2346                                  %M2322
+--] [-----] (R)-- (* ASR panel, emergency stop top *)

|SAFR_10                                  ALLED34 << RUNG 49 STEP #0104 >>
|M3818                                  %M2322
+--] [-----] (S)-- (* ASR panel, emergency stop top *)

(*****
(* ASU ALARMS ACKNOWLEDGE *)
(*****

|ALLED1 P+119                             AKN_1 << RUNG 51 STEP #0107 >>
|M2302 %T0119                             %M2326
+--] [-----] (S)-- (* ASR panel, ACK stripbreak *)

|ALLED1                                   AKN_1 << RUNG 52 STEP #0110 >>
|M2302                                   %M2326
+--] [-----] (R)-- (* ASR panel, ACK stripbreak *)

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0131	A602_34	Safety monitor door guards ASU	%M2320	ALLED32	ASR panel, door SA right
%M2326	AKN_1	ASR panel, ACK stripbreak	%M2321	ALLED33	ASR panel, door asu top
%M2341	AKN_22	ASR panel, ACK asu sealing	%M2322	ALLED34	ASR panel, emergency stop top
%M2342	AKN_30	ASR panel, ACK door asu right	%M3601	ASU_01	ASU, Malfunction photocells
%M2343	AKN_31	ASR panel, ACK door asu left	%M3606	ASU_06	ASU, Splice seq. interrupted
%M2344	AKN_32	ASR panel, ACK door sa right	%M3608	ASU_08	ASU, Sealing packaging material
%M2345	AKN_33	ASR panel, ACK door asu top	%I0293	B7801	SA, Door guard, SA
%M2346	AKN_34	ASR panel, ACK emerg stop asu	%I0339	B7805	Door guard, ASU Top
%M2302	ALLED1	ASR panel, stripbreak	%I0340	B7806	Door guard, ASU right
%M2315	ALLED20	ASR panel, asu splice interrupt	%T0119	P+119	ASU alarm reset pulse
%M2316	ALLED21	ASR panel, asu malf photocells	%I0288	S7901	ASU, alarm reset
%M2317	ALLED22	ASR panel, asu sealing	%M3799	SAFL_07	Door guard, ASU top
%M2318	ALLED30	ASR panel, door asu right	%M3818	SAFR_10	Emergency stop, ASU
%M2319	ALLED31	ASR panel, door asu left			

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BLOCK: MIMIC PANEL ASU IN SEPARATE ROOM


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|ALLED3  P+119          AKN_3  << RUNG 53 STEP #0112 >>
|M2304  %T0119          %M2328
+--] [-----] [-----]------(S)-- (* ASR panel, ACK sealing sa      *)

|ALLED3          AKN_3  << RUNG 54 STEP #0115 >>
|M2304          %M2328
+--]/[-----]------(R)-- (* ASR panel, ACK sealing sa      *)

|ALLED5  P+119          AKN_5  << RUNG 55 STEP #0117 >>
|M2306  %T0119          %M2330
+--] [-----] [-----]------(S)-- (* ASR panel, ACK strip end no prep *)

|ALLED5          AKN_5  << RUNG 56 STEP #0120 >>
|M2306          %M2330
+--]/[-----]------(R)-- (* ASR panel, ACK strip end no prep *)

|ALLED10 S7901          AKN_10 << RUNG 57 STEP #0122 >>
|M2307  %I0288          %M2331
+--] [-----] [-----]------(S)-- (* ASR panel, ACK asu spl not prep *)

|ALLED10          AKN_10 << RUNG 58 STEP #0125 >>
|M2307          %M2331
+--]/[-----]------(R)-- (* ASR panel, ACK asu spl not prep *)

|ALLED11 P+119          AKN_11 << RUNG 59 STEP #0127 >>
|M2308  %T0119          %M2332
+--] [-----] [-----]------(S)-- (* ASR panel, ACK mtrl end no spli *)

|ALLED11          AKN_11 << RUNG 60 STEP #0130 >>
|M2308          %M2332
+--]/[-----]------(R)-- (* ASR panel, ACK mtrl end no spli *)

|ALLED13 P+119          AKN_13 << RUNG 61 STEP #0132 >>
|M2310  %T0119          %M2334
+--] [-----] [-----]------(S)-- (* ASR panel, ACK overload roller 3 *)

|ALLED13          AKN_13 << RUNG 62 STEP #0135 >>
|M2310          %M2334
+--]/[-----]------(R)-- (* ASR panel, ACK overload roller 3 *)

|ALLED14 P+119          AKN_14 << RUNG 63 STEP #0137 >>
|M2311  %T0119          %M2335
+--] [-----] [-----]------(S)-- (* ASR panel, ACK asu loop empty  *)

|ALLED14          AKN_14 << RUNG 64 STEP #0140 >>
|M2311          %M2335
+--]/[-----]------(R)-- (* ASR panel, ACK asu loop empty  *)

|ALLED16 P+119          AKN_16 << RUNG 65 STEP #0142 >>
|M2313  %T0119          %M2337
+--] [-----] [-----]------(S)-- (* ASR panel, ACK overload roller 7 *)

|ALLED16          AKN_16 << RUNG 66 STEP #0145 >>
|M2313          %M2337
+--]/[-----]------(R)-- (* ASR panel, ACK overload roller 7 *)

|ALLED17 P+119          AKN_17 << RUNG 67 STEP #0147 >>
|M2314  %T0119          %M2338
+--] [-----] [-----]------(S)-- (* ASR panel, ACK mag empty      *)

|ALLED17          AKN_17 << RUNG 68 STEP #0150 >>
|M2314          %M2338
+--]/[-----]------(R)-- (* ASR panel, ACK mag empty      *)

|ALLED22 P+119          AKN_22 << RUNG 69 STEP #0152 >>
|M2317  %T0119          %M2341
+--] [-----] [-----]------(S)-- (* ASR panel, ACK asu sealing  *)

|ALLED22          AKN_22 << RUNG 70 STEP #0155 >>
|M2317          %M2341
+--]/[-----]------(R)-- (* ASR panel, ACK asu sealing  *)

|ALLED30 P+119          AKN_30 << RUNG 71 STEP #0157 >>
|M2318  %T0119          %M2342
+--] [-----] [-----]------(S)-- (* ASR panel, ACK door asu right  *)

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REFERENCE	NICKNAME	REFERENCE	DESCRIPTION	REFERENCE	NICKNAME	REFERENCE	DESCRIPTION
%M2331	AKN_10	ASR panel,	ACK asu spl not prep	%M2308	ALLED11	ASR panel,	mtrl end not prep
%M2332	AKN_11	ASR panel,	ACK mtrl end no spli	%M2310	ALLED13	ASR panel,	overload roller 3
%M2334	AKN_13	ASR panel,	ACK overload roller 3	%M2311	ALLED14	ASR panel,	asu loop empty
%M2335	AKN_14	ASR panel,	ACK asu loop empty	%M2313	ALLED16	ASR panel,	overload roller 7
%M2337	AKN_16	ASR panel,	ACK overload roller 7	%M2314	ALLED17	ASR panel,	asu magaz. empty
%M2338	AKN_17	ASR panel,	ACK mag empty	%M2317	ALLED22	ASR panel,	asu sealing
%M2341	AKN_22	ASR panel,	ACK asu sealing	%M2304	ALLED3	ASR panel,	sealing SA
%M2328	AKN_3	ASR panel,	ACK sealing sa	%M2318	ALLED30	ASR panel,	door asu right
%M2342	AKN_30	ASR panel,	ACK door asu right	%M2306	ALLED5	ASR panel,	strip end no prep
%M2330	AKN_5	ASR panel,	ACK strip end no prep	%T0119	P+119	ASU alarm	reset pulse
%M2307	ALLED10	ASR panel,	mtrl not prep	%I0288	S7901	ASU, alarm	reset

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BLOCK: MIMIC PANEL ASU IN SEPARATE ROOM

ECM: 73362

DATE: 010205

SIGNATURE: EF-i

48246-56:02

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|ALLED30                                AKN_30 << RUNG 72 STEP #0160 >>
|M2318                                %M2342
+--]/[------(R)-- (* ASR panel, ACK door asu right *)

|ALLED31 P+119                          AKN_31 << RUNG 73 STEP #0162 >>
|M2319 %T0119                          %M2343
+--] [-----] [------(S)-- (* ASR panel, ACK door asu left *)

|ALLED31                                AKN_31 << RUNG 74 STEP #0165 >>
|M2319                                %M2343
+--]/[------(R)-- (* ASR panel, ACK door asu left *)

|ALLED32 P+119                          AKN_32 << RUNG 75 STEP #0167 >>
|M2320 %T0119                          %M2344
+--] [-----] [------(S)-- (* ASR panel, ACK door sa right *)

|ALLED32                                AKN_32 << RUNG 76 STEP #0170 >>
|M2320                                %M2344
+--]/[------(R)-- (* ASR panel, ACK door sa right *)

|ALLED33 P+119                          AKN_33 << RUNG 77 STEP #0172 >>
|M2321 %T0119                          %M2345
+--] [-----] [------(S)-- (* ASR panel, ACK door asu top *)

|ALLED33                                AKN_33 << RUNG 78 STEP #0175 >>
|M2321                                %M2345
+--]/[------(R)-- (* ASR panel, ACK door asu top *)

|ALLED34 P+119                          AKN_34 << RUNG 79 STEP #0177 >>
|M2322 %T0119                          %M2346
+--] [-----] [------(S)-- (* ASR panel, ACK emerg stop asu *)

|ALLED34                                AKN_34 << RUNG 80 STEP #0180 >>
|M2322                                %M2346
+--]/[------(R)-- (* ASR panel, ACK emerg stop asu *)

(*****
(* Beacon lamp on ASU *)
*****)

|ALLED2 ALLED4 ALLED10                  ASR_BLU << RUNG 82 STEP #0183 >>
|M2303 %M2305 %M2307                  %M2460
+--]/[-----]/[-----]/[------(/)-- (* ASR, blue alarms present *)

|ALLED2                                ASRBLAK << RUNG 83 STEP #0187 >>
|M2303                                %M2461
+--] [-+------( )-- (* ASR, all blue alarms ack. *)

|ALLED4
|M2305
+--] [-+-----

|ALLED10 AKN_10
|M2307 %M2331
+--] [-----] [---+

|ALLED1 ALLED3 ALLED5 ALLED11 ALLED12 ALLED13 ALLED14 ALLED15 ALLED16 << RUNG 84 STEP #0193 >>
|M2302 %M2304 %M2306 %M2308 %M2309 %M2310 %M2311 %M2312 %M2313
+--]/[-----]/[-----]/[-----]/[-----]/[-----]/[-----]/[-----]/[-----]<+>

|ALLED17 ALLED20 ALLED21 ALLED22 ALLED30 ALLED31 ALLED32 ALLED33 ASR_YEL << RUNG 85 STEP #0203 >>
%M2314 %M2315 %M2316 %M2317 %M2318 %M2319 %M2320 %M2321 %M2462
+<+>-----]/[-----]/[-----]/[-----]/[-----]/[-----]/[-----]/[-----]/[------(/)-- (* ASR, yellow alarms present *)

```

REFERENCE NICKNAME

%M2331	AKN_10	ASR panel, ACK asu spl not prep
%M2342	AKN_30	ASR panel, ACK door asu right
%M2343	AKN_31	ASR panel, ACK door asu left
%M2344	AKN_32	ASR panel, ACK door sa right
%M2345	AKN_33	ASR panel, ACK door asu top
%M2346	AKN_34	ASR panel, ACK emerg stop asu
%M2302	ALLED1	ASR panel, stripbreak
%M2307	ALLED10	ASR panel, mtrl not prep
%M2308	ALLED11	ASR panel, mtrl end not prep
%M2309	ALLED12	ASR panel, mtrl end door open
%M2310	ALLED13	ASR panel, overload roller 3
%M2311	ALLED14	ASR panel, asu loop empty
%M2312	ALLED15	ASR panel, sa rotation monitor
%M2313	ALLED16	ASR panel, overload roller 7
%M2314	ALLED17	ASR panel, asu magaz. empty
%M2303	ALLED2	ASR panel, supply empty

REFERENCE NICKNAME

%M2315	ALLED20	ASR panel, asu splice interrupt
%M2316	ALLED21	ASR panel, asu malf photocells
%M2317	ALLED22	ASR panel, asu sealing
%M2304	ALLED3	ASR panel, sealing SA
%M2318	ALLED30	ASR panel, door asu right
%M2319	ALLED31	ASR panel, door asu left
%M2320	ALLED32	ASR panel, door SA right
%M2321	ALLED33	ASR panel, door asu top
%M2322	ALLED34	ASR panel, emergency stop top
%M2305	ALLED4	ASR panel, supply empty
%M2306	ALLED5	ASR panel, strip end no prep
%M2461	ASRBLAK	ASR, all blue alarms ack.
%M2460	ASR_BLU	ASR, blue alarms present
%M2462	ASR_YEL	ASR, yellow alarms present
%T0119	P+119	ASU alarm reset pulse

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BLOCK: MIMIC PANEL ASU IN SEPARATE ROOM

```

|ALLED1  AKN_1                                     << RUNG 86 STEP #0213 >>
|M2302  %M2326
+--] [-----] [---+-----<+>

|ALLED3  AKN_3
|M2304  %M2328
+--] [-----] [---+

|ALLED5  AKN_5
|M2306  %M2330
+--] [-----] [---+

|ALLED11 AKN_11
|M2308  %M2332
+--] [-----] [---+

|ALLED13 AKN_13
|M2310  %M2334
+--] [-----] [---+

+<+>-----<+> << RUNG 87 STEP #0228 >>

|ALLED14 AKN_14
|M2311  %M2335
+--] [-----] [---+

|ALLED16 AKN_16
|M2313  %M2337
+--] [-----] [---+

|ALLED17 AKN_17
|M2314  %M2338
+--] [-----] [---+

ASRYEAK << RUNG 88 STEP #0239 >>
%M2463
+<+>-----<+> ( )-- (* ASR, all yellow alarms ack. *)

|ALLED22 AKN_22
|M2317  %M2341
+--] [-----] [---+

|ALLED30 AKN_30
|M2318  %M2342
+--] [-----] [---+

|ALLED31 AKN_31
|M2319  %M2343
+--] [-----] [---+

|ALLED32 AKN_32
|M2320  %M2344
+--] [-----] [---+

|ALLED33 AKN_33
|M2321  %M2345
+--] [-----] [---+

|ALLED34
%M2322
+--]/[-----<+> ASR_RED << RUNG 89 STEP #0256 >>
%M2464
+--]/[-----<+> ( / )-- (* ASR, red alarms present *)

|ALLED34 AKN_34
%M2322  %M2346
+--] [-----] [---+ ASRREAK << RUNG 90 STEP #0258 >>
%M2465
+--] [-----] [---+ ( )-- (* ASR, all red alarms ack. *)

```

REFERENCE NICKNAME
%M2326 AKN_1
%M2332 AKN_11
%M2334 AKN_13
%M2335 AKN_14
%M2337 AKN_16
%M2338 AKN_17
%M2341 AKN_22
%M2328 AKN_3
%M2342 AKN_30
%M2343 AKN_31
%M2344 AKN_32
%M2345 AKN_33
%M2346 AKN_34
%M2330 AKN_5
%M2302 ALLED1
%M2308 ALLED11

REFERENCE DESCRIPTION
ASR panel, ACK stripbreak
ASR panel, ACK mtrl end no spli
ASR panel, ACK overload roller 3
ASR panel, ACK asu loop empty
ASR panel, ACK overload roller 7
ASR panel, ACK mag empty
ASR panel, ACK door asu left
ASR panel, ACK door sa right
ASR panel, ACK door asu left
ASR panel, ACK door sa right
ASR panel, ACK door asu top
ASR panel, ACK emerg stop asu
ASR panel, ACK strip end no prep
ASR panel, stripbreak
ASR panel, mtrl end not prep

REFERENCE NICKNAME
%M2310 ALLED13
%M2311 ALLED14
%M2313 ALLED16
%M2314 ALLED17
%M2317 ALLED22
%M2304 ALLED3
%M2318 ALLED30
%M2319 ALLED31
%M2320 ALLED32
%M2321 ALLED33
%M2322 ALLED34
%M2306 ALLED5
%M2465 ASRREAK
%M2463 ASRYEAK
%M2464 ASR_RED

REFERENCE DESCRIPTION
ASR panel, overload roller 3
ASR panel, asu loop empty
ASR panel, overload roller 7
ASR panel, asu magaz. empty
ASR panel, asu sealing
ASR panel, sealing SA
ASR panel, door asu right
ASR panel, door asu left
ASR panel, door SA right
ASR panel, door asu top
ASR panel, emergency stop top
ASR panel, strip end no prep
ASR, all red alarms ack.
ASR, all yellow alarms ack.
ASR, red alarms present

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BLOCK: MIMIC PANEL ASU IN SEPARATE ROOM

```

|ASRREAK                                     ASU_RED << RUNG 91 STEP #0261 >>
|M2465                                     %M2350
+---] [-----] [-----] [-----] ( )-- (* ASR, Alarm beacon rear red *)

|ASR_RED T_SEC
|M2464 %S0005
+---] [-----] [-----] [-----]

|LAMP_TE LMPTSTR
|M2301 %M2993
+---] [-----] [-----] [-----]

|ASRYEAK ASR_RED ASRREAK ASU_YEL << RUNG 92 STEP #0269 >>
|M2463 %M2464 %M2465 %M2351
+---] [-----] [-----] [-----] ( )-- (* ASR, Alarm beacon rear yellow *)

|ASR_YEL T_SEC
|M2462 %S0005
+---] [-----] [-----] [-----]

|LAMP_TE LMPTSTY
|M2301 %M2994
+---] [-----] [-----] [-----]

|ASRBLAK ASR_YEL ASRYEAK ASR_RED ASRREAK ASU_BLU << RUNG 93 STEP #0279 >>
|M2461 %M2462 %M2463 %M2464 %M2465 %M2352
+---] [-----] [-----] [-----] [-----] ( )-- (* ASR, Alarm beacon rear blu *)

|ASR_BLU T_SEC
|M2460 %S0005
+---] [-----] [-----] [-----]

|LAMP_TE LMPTSTB
|M2301 %M2995
+---] [-----] [-----] [-----]

|ASU_RED ASUPACK << RUNG 94 STEP #0291 >>
|M2350 %Q0269
+---] [-----] [-----] [-----] ( )-- (* ASU panel, ack/lamp test *)

|ASU_YEL
|M2351
+---] [-----] [-----] [-----]

|ASU_BLU
|M2352
+---] [-----] [-----] [-----]

|*****
|(* LEDS ACTIVATION *)
|*****

|ALLED1 ASR_FLS ASR_LD1 << RUNG 96 STEP #0296 >>
|M2302 %M2450 %M2380
+---] [-----] [-----] [-----] ( )-- (* ASU separate room, Led 1 *)

|AKN_1
|M2326
+---] [-----] [-----] [-----]

|ALLED2 ASR_FLS ASR_LD2 << RUNG 97 STEP #0300 >>
|M2303 %M2450 %M2379
+---] [-----] [-----] [-----] ( )-- (* ASU separate room, Led 2 *)

|ALLED3 ASR_FLS ASR_LD3 << RUNG 98 STEP #0303 >>
|M2304 %M2450 %M2378
+---] [-----] [-----] [-----] ( )-- (* ASU separate room, Led 3 *)

|AKN_3
|M2328
+---] [-----] [-----] [-----]

|ALLED4 ASR_FLS ASR_LD4 << RUNG 99 STEP #0307 >>
|M2305 %M2450 %M2377
+---] [-----] [-----] [-----] ( )-- (* ASU separate room, Led 4 *)

```

REFERENCE NICKNAME
%M2326 AKN_1
%M2328 AKN_3
%M2302 ALLED1
%M2303 ALLED2
%M2304 ALLED3
%M2305 ALLED4
%M2461 ASRBLAK
%M2465 ASRREAK
%M2463 ASRYEAK
%M2460 ASR_BLU
%M2450 ASR_FLS
%M2380 ASR_LD1
%M2379 ASR_LD2

REFERENCE DESCRIPTION
ASR panel, ACK stripbreak
ASR panel, ACK sealing sa
ASR panel, stripbreak
ASR panel, supply empty
ASR panel, sealing SA
ASR panel, supply empty
ASR, all blue alarms ack.
ASR, all red alarms ack.
ASR, all yellow alarms ack.
ASR, blue alarms present
ASR, Leds flasher
ASU separate room, Led 1
ASU separate room, Led 2

REFERENCE NICKNAME
%M2378 ASR_LD3
%M2377 ASR_LD4
%M2464 ASR_RED
%M2462 ASR_YEL
%Q0269 ASUPACK
%M2352 ASU_BLU
%M2350 ASU_RED
%M2351 ASU_YEL
%M2301 LAMP_TE
%M2995 LMPTSTB
%M2993 LMPTSTR
%M2994 LMPTSTY
%S0005 T_SEC

REFERENCE DESCRIPTION
ASU separate room, Led 3
ASU separate room, Led 4
ASR, red alarms present
ASR, yellow alarms present
ASU panel, ack/lamp test
ASR, Alarm beacon rear blu
ASR, Alarm beacon rear red
ASR, Alarm beacon rear yellow
Lamp test ASU
Beacon lamp test (Blu)
Beacon lamp test (Red)
Beacon lamp test (Yellow)

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BLOCK: MIMIC PANEL ASU IN SEPARATE ROOM

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|ALLED5 ASR_FLS                                ASR_LD5 << RUNG 100 STEP #0310 >>
|M2306 %M2450                                %M2376
+--] [-----] [-----]------( )-- (* ASU separate room, Led 5      *)

|AKN_5
|M2330
+--] [-----] [-----]-----+

|ALLED10 ASR_FLS                               ASRLD10 << RUNG 101 STEP #0314 >>
|M2307 %M2450                               %M2375
+--] [-----] [-----]------( )-- (* ASU separate room, Led 10    *)

|AKN_10
|M2331
+--] [-----] [-----]-----+

|ALLED11 ASR_FLS                               ASRLD11 << RUNG 102 STEP #0318 >>
|M2308 %M2450                               %M2374
+--] [-----] [-----]------( )-- (* ASU separate room, Led 11    *)

|AKN_11
|M2332
+--] [-----] [-----]-----+

|ALLED12 ASR_FLS                               ASRLD12 << RUNG 103 STEP #0322 >>
|M2309 %M2450                               %M2373
+--] [-----] [-----]------( )-- (* ASU separate room, Led 12    *)

|ALLED13 ASR_FLS                               ASRLD13 << RUNG 104 STEP #0325 >>
|M2310 %M2450                               %M2372
+--] [-----] [-----]------( )-- (* ASU separate room, Led 13    *)

|AKN_13
|M2334
+--] [-----] [-----]-----+

|ALLED14 ASR_FLS                               ASRLD14 << RUNG 105 STEP #0329 >>
|M2311 %M2450                               %M2371
+--] [-----] [-----]------( )-- (* ASU separate room, Led 14    *)

|AKN_14
|M2335
+--] [-----] [-----]-----+

|ALLED15 ASR_FLS                               ASRLD15 << RUNG 106 STEP #0333 >>
|M2312 %M2450                               %M2370
+--] [-----] [-----]------( )-- (* ASU separate room, Led 15    *)

|ALLED16 ASR_FLS                               ASRLD16 << RUNG 107 STEP #0336 >>
|M2313 %M2450                               %M2412
+--] [-----] [-----]------( )-- (* ASU separate room, Led 16    *)

|AKN_16
|M2337
+--] [-----] [-----]-----+

|ALLED17 ASR_FLS                               ASRLD17 << RUNG 108 STEP #0340 >>
|M2314 %M2450                               %M2411
+--] [-----] [-----]------( )-- (* ASU separate room, Led 17    *)

|AKN_17
|M2338
+--] [-----] [-----]-----+

|ALLED20 ASR_FLS                               ASRLD20 << RUNG 109 STEP #0344 >>
|M2315 %M2450                               %M2410
+--] [-----] [-----]------( )-- (* ASU separate room, Led 20    *)

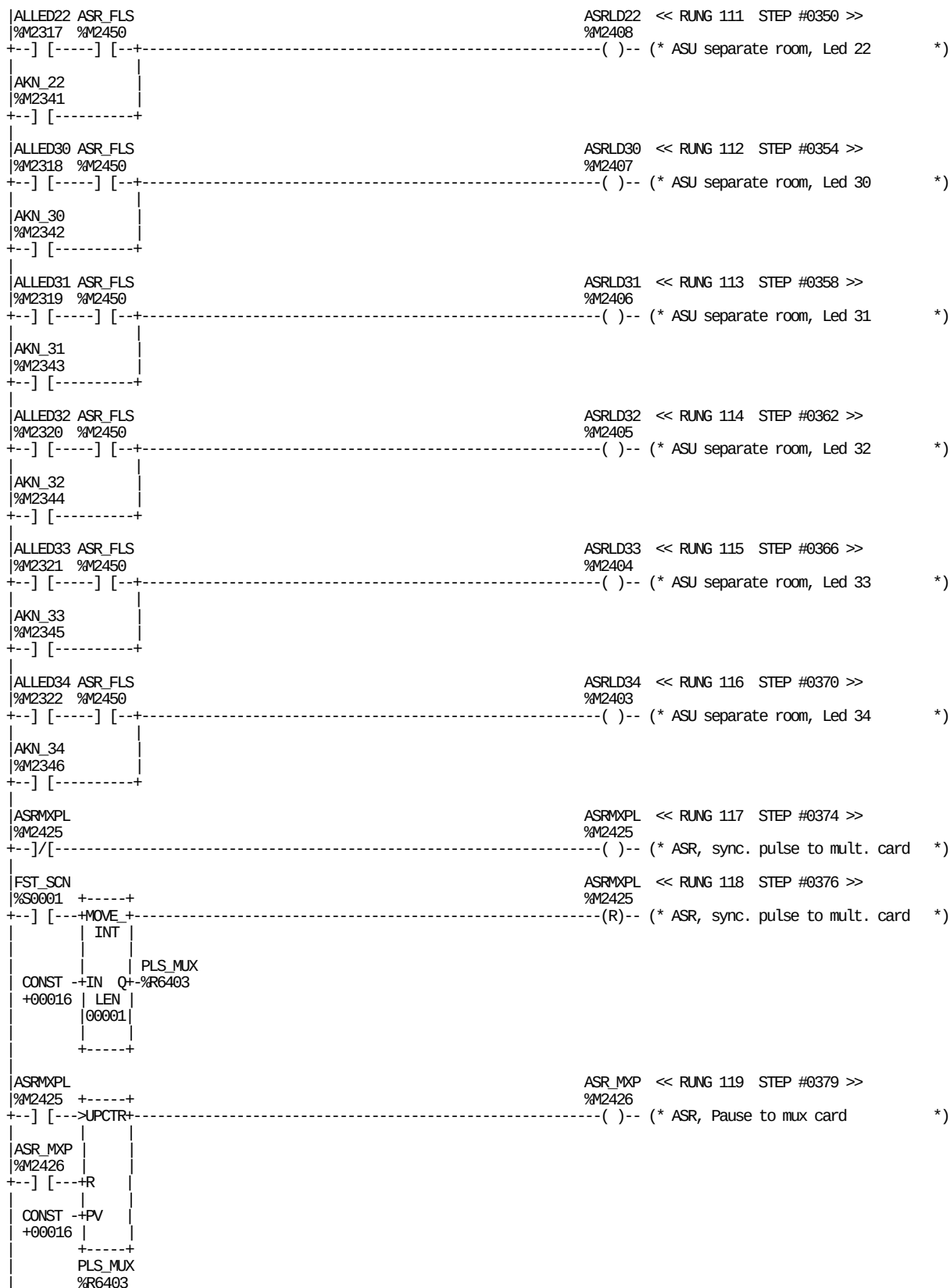
|ALLED21 ASR_FLS                               ASRLD21 << RUNG 110 STEP #0347 >>
|M2316 %M2450                               %M2409
+--] [-----] [-----]------( )-- (* ASU separate room, Led 21    *)

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REFERENCE	NICKNAME	REFERENCE	DESCRIPTION	REFERENCE	NICKNAME	REFERENCE	DESCRIPTION
%M2331	AKN_10	ASR panel,	ACK asu spl not prep	%M2315	ALLED20	ASR panel,	asu splice interrupt
%M2332	AKN_11	ASR panel,	ACK mtrl end no spli	%M2316	ALLED21	ASR panel,	asu malf photocells
%M2334	AKN_13	ASR panel,	ACK overload roller 3	%M2306	ALLED5	ASR panel,	strip end no prep
%M2335	AKN_14	ASR panel,	ACK asu loop empty	%M2375	ASRLD10	ASU separate room,	Led 10
%M2337	AKN_16	ASR panel,	ACK overload roller 7	%M2374	ASRLD11	ASU separate room,	Led 11
%M2338	AKN_17	ASR panel,	ACK mag empty	%M2373	ASRLD12	ASU separate room,	Led 12
%M2330	AKN_5	ASR panel,	ACK strip end no prep	%M2372	ASRLD13	ASU separate room,	Led 13
%M2307	ALLED10	ASR panel,	mtrl not prep	%M2371	ASRLD14	ASU separate room,	Led 14
%M2308	ALLED11	ASR panel,	mtrl end not prep	%M2370	ASRLD15	ASU separate room,	Led 15
%M2309	ALLED12	ASR panel,	mtrl end door open	%M2412	ASRLD16	ASU separate room,	Led 16
%M2310	ALLED13	ASR panel,	overload roller 3	%M2411	ASRLD17	ASU separate room,	Led 17
%M2311	ALLED14	ASR panel,	asu loop empty	%M2410	ASRLD20	ASU separate room,	Led 20
%M2312	ALLED15	ASR panel,	sa rotation monitor	%M2409	ASRLD21	ASU separate room,	Led 21
%M2313	ALLED16	ASR panel,	overload roller 7	%M2450	ASR_FLS	ASR, Leds flasher	
%M2314	ALLED17	ASR panel,	asu magaz. empty	%M2376	ASR_LD5	ASU separate room,	Led 5

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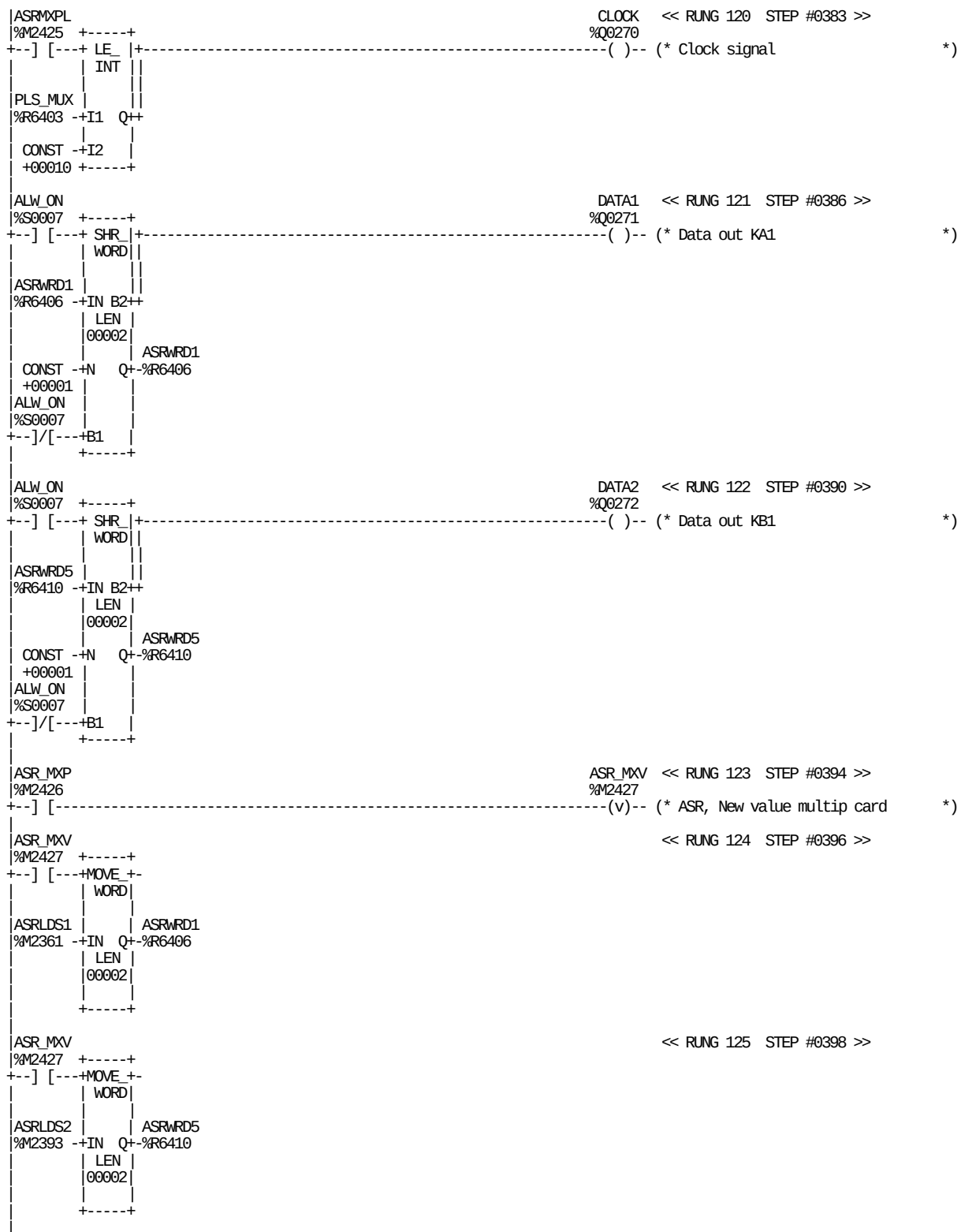
BLOCK: MIMIC PANEL ASU IN SEPARATE ROOM



REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M2341	AKN_22	ASR panel, ACK asu sealing	%M2408	ASRLD22	ASU separate room, Led 22
%M2342	AKN_30	ASR panel, ACK door asu right	%M2407	ASRLD30	ASU separate room, Led 30
%M2343	AKN_31	ASR panel, ACK door asu left	%M2406	ASRLD31	ASU separate room, Led 31
%M2344	AKN_32	ASR panel, ACK door sa right	%M2405	ASRLD32	ASU separate room, Led 32
%M2345	AKN_33	ASR panel, ACK door asu top	%M2404	ASRLD33	ASU separate room, Led 33
%M2346	AKN_34	ASR panel, ACK emerg stop asu	%M2403	ASRLD34	ASU separate room, Led 34
%M2317	ALLED22	ASR panel, asu sealing	%M2425	ASRMXPL	ASR, sync. pulse to mult. card
%M2318	ALLED30	ASR panel, door asu right	%M2450	ASR_FLS	ASR, Leds flasher
%M2319	ALLED31	ASR panel, door asu left	%M2426	ASR_MXP	ASR, Pause to mux card
%M2320	ALLED32	ASR panel, door SA right	%S0001	FST_SCN	
%M2321	ALLED33	ASR panel, door asu top	%R6403	PLS_MUX	Sync.pulse count to mux
%M2322	ALLED34	ASR panel, emergency stop top			

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BLOCK: MIMIC PANEL ASU IN SEPARATE ROOM



REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%S0007	ALW_ON		%M2426	ASR_MXV	ASR, Pause to mux card
%M2361	ASRLDS1	ASU separate room, al.LEDs word1	%M2427	ASR_MXV	ASR, New value multip card
%M2393	ASRLDS2	ASU separate room, al.LEDs word2	%Q0270	CLOCK	Clock signal
%M2425	ASR_MXPL	ASR, sync. pulse to mult. card	%Q0271	DATA1	Data out KA1
%R6406	ASRWRD1	Alarm bits to MUX, card 100	%Q0272	DATA2	Data out KB1
%R6410	ASRWRD5	Alarm bits to MUX.	%R6403	PLS_MUX	Sync.pulse count to mux

TBA/21-0410/0500
BLOCK: MIMIC PANEL ASU IN SEPARATE ROOM

LAMP_TE<< RUNG 126 STEP #0400 >>
%M2301 +-----+
+---] [---+MOVE+
|WORD|
|ASRWRD1|
CONST -+IN Q+-%R6406
FFFF |LEN|
|00006|
+-----+
[END OF SUBROUTINE LOGIC]


```

[ START LD SUBROUTINE BLK_69 ]
[ VARIABLE DECLARATIONS ]
[ START OF SUBROUTINE LOGIC ]
(*****
* Block 69 "Customer Changes reserved"
*****
)
(*****
* Assigned memory areas:
*
* - Dig.Inputs: %I0236, %I0237, %I0238, %I0239
* from %I2033 to %I2048 (additional Input
* module required)
*
* - Dig.Outputs: %Q0253, %Q0254, %Q0255, %Q0256
* from %Q2033 to %Q2048 (additional Output
* module required)
*
* - Internal coils: from %M2200 to %M2299
* - Registers: from %R7100 to %R7199
* - Temporary coils: from %T0246 to %T0255
*****
)
[ END OF SUBROUTINE LOGIC ]

```

```

[ START LD SUBROUTINE BLK_70 ]
[ VARIABLE DECLARATIONS ]
[ START OF SUBROUTINE LOGIC ]

(*****
(* Block 70 "Stop reasons" *)
*****)

(*****
(* Protection stop *)
*****)

FST_SCN                                STOPJUM << RUNG 6 STEP #0004 >>
%M0001                                %M0160
+--] [-----] [-----] [-----] (S)-- (* Protection stop JUM *)

JUM_02 JUM_03 JUM_07 JUM_08 JUM_09 JUM_10
%M3714 %M3715 %M3719 %M3720 %M3721 %M3722
+--]/[-----]/[-----]/[-----]/[-----]/[-----]

JUM_02                                STOPJUM << RUNG 7 STEP #0013 >>
%M3714                                %M0160
+--] [-----] [-----] (R)-- (* Protection stop JUM *)

JUM_03
%M3715
+--] [-----]

JUM_07
%M3719
+--] [-----]

JUM_08
%M3720
+--] [-----]

JUM_09
%M3721
+--] [-----]

JUM_10
%M3722
+--] [-----]

RESET                                STOPFFU << RUNG 8 STEP #0020 >>
%M3050                                %M0161
+--] [-----] [-----] (S)-- (* Protection stop FFU *)

FFU_12 FFU_03 FFU_02 FFU_04          STOPFFU << RUNG 9 STEP #0022 >>
%M3740 %M3731 %M3730 %M3732          %M0161
+--]/[-----]/[-----]/[-----] (S)-- (* Protection stop FFU *)

```

REFERENCE NICKNAME
%M3730 FFU_02
%M3731 FFU_03
%M3732 FFU_04
%M3740 FFU_12
%S0001 FST_SCN
%M3714 JUM_02
%M3715 JUM_03

REFERENCE DESCRIPTION
Pressure device, Rotation mon.
Infeed station, Rotation mon.
Station wheel, Rotation mon.
Final folder out of synch.
Jaw system, Hold down device
Jaw system, Overload left

REFERENCE NICKNAME
%M3719 JUM_07
%M3720 JUM_08
%M3721 JUM_09
%M3722 JUM_10
%M3050 RESET
%M0161 STOPFFU
%M0160 STOPJUM

REFERENCE DESCRIPTION
Jaw system, Overload right
Jaw system, Angle encoder
Jaw pressure, Hydr. valve left
Jaw pressure, Hydr. valve right
Alarm reset
Protection stop FFU
Protection stop JUM

TBA/21-0410/0500
BLOCK: STOP REASONS

```

|SAFL_16                                STOPFFU << RUNG 10 STEP #0027 >>
|M3808                                %M0161
+--] [-----] (R)-- (* Protection stop FFU *)

|FFU_06
|M3734
+--] [-----]

|FFU_12
|M3740
+--] [-----]

|FFU_03
|M3731
+--] [-----]

|FFU_02
|M3730
+--] [-----]

|FFU_04
|M3732
+--] [-----]

|JUM_06
|M3718
+--] [-----]

|A601_34 SRVR_05 SUPER_3 STOPJUM STOPFFU SRVR_11 SUPER_5      P_STOP << RUNG 11 STEP #0035 >>
|I0130 %M3781 %M3667 %M0160 %M0161 %M3787 %M3669            %M0162
+--] [-----]/[-----]/[-----] [-----] [-----]/[-----]/[-----] ( )-- (* Protection stop *)

(*****
(* Quick stop JUM with clutch delayed if any problems *)
(* occur in Jaw system. *)
*****)

|STOPJUM                                P+128 << RUNG 13 STEP #0044 >>
|M0160                                %T0128
+--]/[-----] ( ^ )-- (* Pulse + P_stop in JUM *)

|P+128                                Q_STOP << RUNG 14 STEP #0046 >>
|T0128                                %M0164
+--] [-----] ( )-- (* Quick stop JUM *)

|OFTD +-----+
|0.10s|
|
|CONST +PV |
|+00010 |
|
|DELO342
|R0342

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0130	A601_34	Safety monitor door guards	%M0162	P_STOP	Protection stop
%R0342	DELO342	Delay,	%M0164	Q_STOP	Quick stop JUM
%M3730	FFU_02	Pressure device, Rotation mon.	%M3808	SAFL_16	Crank guard, Final folder
%M3731	FFU_03	Infeed station, Rotation mon.	%M3781	SRVR_05	Tripped motor overload
%M3732	FFU_04	Station wheel, Rotation mon.	%M3787	SRVR_11	DMC power supply
%M3734	FFU_06	Outfeed station, Overload	%M0161	STOPFFU	Protection stop FFU
%M3740	FFU_12	Final folder out of synch.	%M0160	STOPJUM	Protection stop JUM
%M3718	JUM_06	Main motor, Servo fault	%M3667	SUPER_3	Longitudinal sealing
%T0128	P+128	Pulse + P_stop in JUM	%M3669	SUPER_5	Drive roller A.C. overload

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BLOCK: STOP REASONS

```

(*****
*) Short stop
*)
*****
)

S_STOP SS_LIM H908 << RUNG 16 STEP #0050 >>
%M0171 %M0172 %Q0324
+--] [---]/[-----] ( )-- (* Short Stop *)

      SS_LIM T_SEC
      %M0172 %S0005
+--] [-----] [---]

STEP_13 CLN_02 EC_INTR T_SEC
%M0113 %M3066 %M1316 %S0005
+--] [---]/[-----]/[-----] [---]

      EC_INTR
      %M1316
+--] [-----]

S902
%I0194
+--] [-----]

H202_13 H202_02 H202_01 H202_14 H202_09 STER_02 STER_09 H202_17 S_STOP1 << RUNG 17 STEP #0065 >>
%M3645 %M3634 %M3633 %M3646 %M3641 %M3650 %M3657 %M3569 %M0165
+--]/[---]/[---]/[---]/[---]/[---]/[---]/[---]/[---] ( )-- (* Demand 1 for short stop *)

S_STOP1 DCS_03 DCS_04 SRVL_14 SUPER_2 S_STOP2 << RUNG 18 STEP #0074 >>
%M0165 %M3699 %M3700 %M3774 %M3666 %M0166
+--] [---]/[---]/[---]/[---]/[---] ( )-- (* Demand 2 for short stop *)

S003
%I0206
+--] [---]

S_STOP2 SRVL_12 SRVL_11 ASU_12 SUPER16 SUPER_4 DCS_01 SRVR_06 SRVL_09 S_STOP3 << RUNG 19 STEP #0081 >>
%M0166 %M3772 %M3771 %M3612 %M3680 %M3668 %M3697 %M3782 %M3769 %M0167
+--] [---]/[---]/[---]/[---]/[---]/[---]/[---]/[---]/[---] ( )-- (* Demand 3 for short stop *)

S_STOP3 ASUSTOP ASU_08 SUPER_1 FFU_07 PT_RDY SRVL_05 SRVR_07 S_STOP4 << RUNG 20 STEP #0091 >>
%M0167 %M0400 %M3608 %M3665 %M3735 %M1800 %M3765 %M3783 %M0168
+--] [---]/[---]/[---]/[---]/[---]/[---]/[---]/[---] ( )-- (* Demand 4 for short stop *)

S_STOP4 SRVR_10 FFU_16 FFU_08 FFU_10 FFU_11 JUM_04 JUM_05 << RUNG 21 STEP #0100 >>
%M0168 %M3786 %M3744 %M3736 %M3738 %M3739 %M3716 %M3717
+--] [---]/[---]/[---]/[---]/[---]/[---]/[---]/[---] <+>

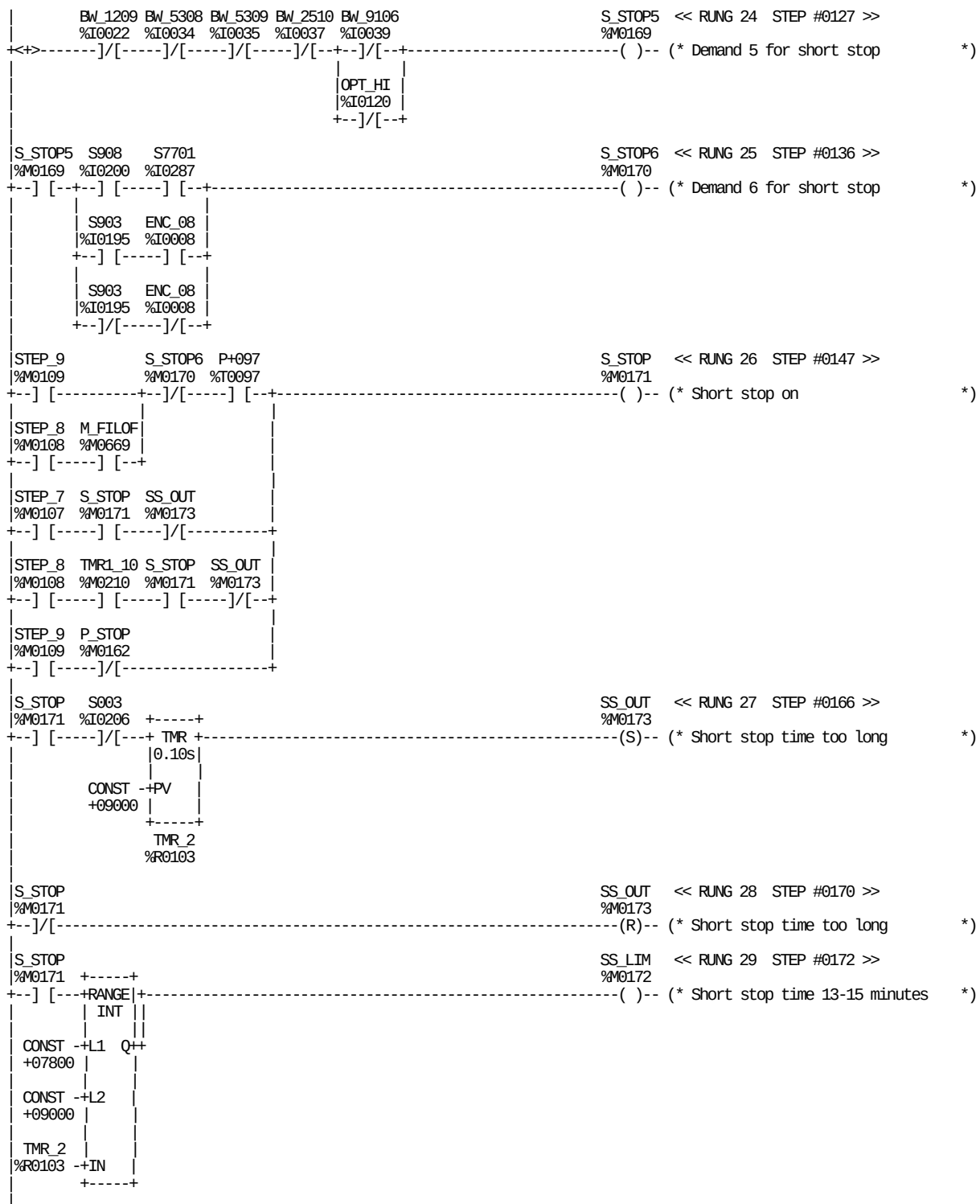
      SRVR_03 LVL_OUT SRVR_02 SRVL_07 FFU_14 H202_03 << RUNG 22 STEP #0109 >>
      %M3779 %M0662 %M3778 %M3767 %M3742 %M3635
+<+>---]/[---]/[---]/[---]/[---]/[---] <+>

      BW_1106 BW_1222 BW_1208 BW_1212 BW_1109 BW_1105 BW_1310 BW_5307 << RUNG 23 STEP #0117 >>
      %I0017 %I0018 %I0019 %I0020 %I0021 %I0023 %I0024 %I0033
+<+>---]/[---]/[---]/[---]/[---]/[---]/[---]/[---] <+>

```

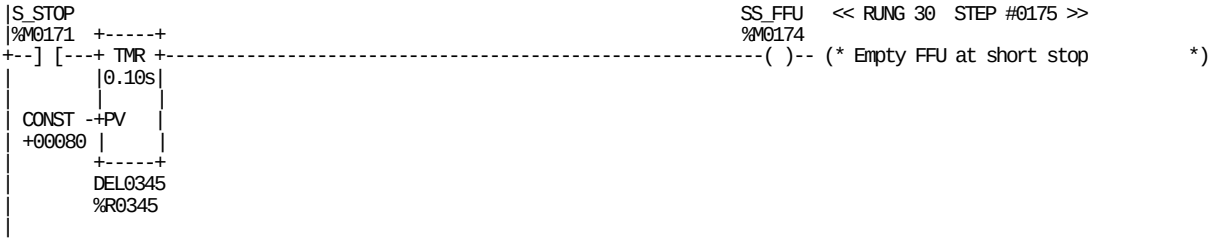
REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M0400	ASUSTOP	ASU, Stop reasons	%M3717	JUM_05	Transversal sealing right
%M3608	ASU_08	ASU, Sealing packaging material	%M0662	LVL_OUT	FIL, roduct level out of range
%M3612	ASU_12	Rotation monitor SA	%M1800	PT_RDY	PT21, Ready for production
%I0023	BW_1105	Broken wire Air super heater	%I0206	S003	Service switch
%I0017	BW_1106	Broken wire Heat sterilization	%I0194	S902	Lamp test
%I0021	BW_1109	Broken wire Top aseptic chamber	%M3765	SRVL_05	TMCC Filling system not enabled
%I0019	BW_1208	Broken wire Water bath	%M3767	SRVL_07	Central lubrication, Pressure
%I0020	BW_1212	Broken wire Peroxide tank	%M3769	SRVL_09	Central lubr. Low level max time
%I0018	BW_1222	Broken wire Peroxide bath	%M3771	SRVL_11	Hydraulic oil, Low level
%I0024	BW_1310	Broken wire Steam C-valve	%M3772	SRVL_12	Hydraulic oil, Temperature
%I0033	BW_5307	Broken wire Flap heat top left	%M3774	SRVL_14	Hydraulic oil, Low pressure
%M3066	CLN_02	Clean, External cleaning stop	%M3778	SRVR_02	HI pressure guard
%M3697	DCS_01	Malfunction photocells	%M3779	SRVR_03	Water supply
%M3699	DCS_03	DCS right, Servo fault	%M3782	SRVR_06	Water, Circulating pressure
%M3700	DCS_04	DCS left, Servo fault	%M3783	SRVR_07	Water, Circulating temperature
%M1316	EC_INTR	EC, Interrupted	%M3786	SRVR_10	Cooling media pressure
%M3735	FFU_07	Conveyor congestion	%M0172	SS_LIM	Short stop time 13-15 minutes
%M3736	FFU_08	Flap heat bottom L/R, Temp.	%M0113	STEP_13	Step 13 Cleaning
%M3738	FFU_10	Flap heat top left, Temp.	%M3650	STER_02	Aseptic chamber, low temperature
%M3739	FFU_11	Flap heat top right, Temp.	%M3657	STER_09	Butterfly valve, position
%M3742	FFU_14	DE not ready	%M3680	SUPER16	Column, Rotation monitor
%M3744	FFU_16	External date unit	%M3665	SUPER_1	Squee-gee rollers, Position
%M3633	H202_01	Peroxide bath, Low temperature	%M3666	SUPER_2	SUP, lower forming ring position
%M3634	H202_02	Peroxide bath, Level	%M3668	SUPER_4	Date unit, Register mark
%M3635	H202_03	Water bath, Level	%M0171	S_STOP	Short stop on
%M3641	H202_09	Peroxide tank, High lvl in prod.	%M0165	S_STOP1	Demand 1 for short stop
%M3645	H202_13	Peroxide bath, Level in str. seq	%M0166	S_STOP2	Demand 2 for short stop
%M3646	H202_14	Peroxide tank, Safety sensor	%M0167	S_STOP3	Demand 3 for short stop
%M3569	H202_17	PER, Peroxide tank high temp.	%M0168	S_STOP4	Demand 4 for short stop
%Q0324	H908	Short Stop	%S0005	T_SEC	
%M3716	JUM_04	Transversal sealing left			

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BLOCK: STOP REASONS



REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0022	BW_1209	Broken wire W-H2O2 heat exc.	%I0195	S903	Mode selector
%I0037	BW_2510	Broken wire Cool.circ water	%I0200	S908	Short stop
%I0034	BW_5308	Broken wire Flap heat top right	%M0172	SS_LIM	Short stop time 13-15 minutes
%I0035	BW_5309	Broken wire Flap heat bott.L/R	%M0173	SS_OUT	Short stop time too long
%I0039	BW_9106	Broken wire H.I. spray	%M0107	STEP_7	Step 7 Signal from sterilizer
%I0008	ENC_08	Encoder bit 8 (MSB)	%M0108	STEP_8	Step 8 Motorstart
%M0669	M_FILOF	FIL, Manual filling off	%M0109	STEP_9	Step 9 Production
%I0120	OPT_HI	Option, Headspace by injection	%M0171	S_STOP	Short stop on
%T0097	P+097	Pulse + Brake JUM at short stop	%M0169	S_STOP5	Demand 5 for short stop
%M0162	P_STOP	Protection stop	%M0170	S_STOP6	Demand 6 for short stop
%I0206	S003	Service switch	%M0210	TMR1_10	Startseq, Going on (0,01-9,99)
%I0287	S7701	Short Stop	%R0103	TMR 2	Tmr 2, Short stop (0.10s)

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BLOCK: STOP REASONS



REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%R0345	DEL0345	Delay,	%M0171	S_STOP	Short stop on
%M0174	SS_FFU	Empty FFU at short stop			

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BLOCK: STOP REASONS

ECM: 73362

DATE: 010205

SIGNATURE: EF1

48246-70:02

```

(*****
(* Normal stop.
*****
P+001 STEP_9                                N_STOP << RUNG 32 STEP #0179 >>
%T0001 %M0109                                %M0180
+--] [-----] [---+-----] (S)-- (* Normal stop *)

P+003 STEP_8
%T0003 %M0108
+--] [-----] [---+

FILL_12 STP8_9
%M3692 %M0144
+--] [---+--] [---+

FILL_10
%M3690
+--] [---+

FILL_03
%M3683
+--] [---+

DCS_02
%M3698
+--] [---+

FILL_04
%M3684
+--] [---+

FILL_10
%M3690
+--] [---+

LEVEL_H                                N_STOP << RUNG 33 STEP #0193 >>
%M0660                                %M0180
+--] [---+-----] (S)-- (* Normal stop *)

LVL_L
%M0661
+--] [---+

JUM_13
%M3725
+--] [---+

(*****
(* Disconnect jaw system after 7 seconds
*****
P+095                                JAWSTOP << RUNG 35 STEP #0198 >>
%T0095                                %M0181
+--] [---+ GE +-----] (S)-- (* Disconnection of jaw system *)
      | INT |
      | |
DEL0348 |
%R0348 -+I1 Q++
      | |
CONST -+I2 |
+00070 +-----+

(*****
(* Stop main motor after 10 seconds
*****
N_STOP                                MM_STOP << RUNG 37 STEP #0202 >>
%M0180 +-----+                                %M0182
+--] [---+ TMR +-----] ( )-- (* Stop of main motor *)
      | 0.10s |
CONST -+PV |
+00100 |
      +-----+
      DEL0348
      %R0348

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M3698	DCS_02	Out of design	%M0661	LVL_L	FIL, Low level reached
%R0348	DEL0348	Delay,	%M0182	MM_STOP	Stop of main motor
%M3683	FILL_03	A valve, Position	%M0180	N_STOP	Normal stop
%M3684	FILL_04	C valve, Steam temperature	%T0001	P+001	Pulse + Step up
%M3690	FILL_10	C valve, Position	%T0003	P+003	Pulse + Step down
%M3692	FILL_12	No product	%T0095	P+095	Pulse + Brake JUM
%M0181	JAWSTOP	Disconnection of jaw system	%M0108	STEP_8	Step 8 Motorstart
%M3725	JUM_13	Machine speed too high	%M0109	STEP_9	Step 9 Production
%M0660	LEVEL_H	FIL, High level reached	%M0144	STP8_9	Step 8-9 Motorstart to prod.

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BLOCK: STOP REASONS

```

|N_STOP MM_STOP A506_33          N_STOP << RUNG 38 STEP #0205 >>
|%M0180 %M0182 %I0148          %M0180
+--] [-----] [-----]/[-----] (R)-- (* Normal stop *)
|
|                                JAWSTOP
|                                %M0181
|                                ----- (R)-- (* Disconnection of jaw system *)
|
|STEP_5                          JUMP_5 << RUNG 39 STEP #0210 >>
| %M0105                          %M0183
+--] [-----] [-----] (R)-- (* Jump to machine step 5 *)
|
|STEP_7
| %M0107
+--] [-----]
|
|STEP_8 P_STOP                  JUMP_5 << RUNG 40 STEP #0213 >>
| %M0108 %M0162                  %M0183
+--] [-----]/[-----] (S)-- (* Jump to machine step 5 *)
|
|STP8_9 N_STOP
| %M0144 %M0180
+--] [-----] [-----]
|
|ASUBATH S_STOP SS_FFU A506_13
| %M0633 %M0171 %M0174 %Q0180
+--] [-----] [-----] [-----]/[-----]
|

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%Q0180	A506_13	DMC Main motor, Production speed	%M0162	P_STOP	Protection stop
%I0148	A506_33	DMC Main motor, Running	%M0174	SS_FFU	Empty FFU at short stop
%M0633	ASUBATH	SUP, pkg. matrl. splice inside bath	%M0105	STEP_5	Step 5 Drying
%M0181	JAWSTOP	Disconnection of jaw system	%M0107	STEP_7	Step 7 Signal from sterilizer
%M0183	JUMP_5	Jump to machine step 5	%M0108	STEP_8	Step 8 Motorstart
%M0182	MM_STOP	Stop of main motor	%M0144	STP8_9	Step 8-9 Motorstart to prod.
%M0180	N_STOP	Normal stop	%M0171	S_STOP	Short stop on

TBA/21-0410/0500
BLOCK: STOP REASONS


```

(*****
(* Jump to machine step 0
*****
ALW_ON                                JUMP_0  << RUNG 42 STEP #0225 >>
%S0007                                %M0190
+--] [-----] (S) ( * Jump to machine step 0 *)

A600_14                               JUMP_0  << RUNG 43 STEP #0227 >>
%I0129                                %M0190
+--]/[-----] (R) ( * Jump to machine step 0 *)

SRVR_09
%M3785
+--] [---+

SAFL_15
%M3807
+--] [---+

SRVR_04 STEP_0
%M3780 %M0100
+--] [-----]/[---+

SAFL_14
%M3806
+--] [-----+

STP3_11 SAFR_08 S003                 JUMP_0  << RUNG 44 STEP #0235 >>
%M0150 %M3816 %I0206                 %M0190
+--] [---+]/[-----] (R) ( * Jump to machine step 0 *)

STER_04
%M3652
+--] [---+

FILL_05
%M3685
+--] [---+

SAFL_13
%M3805
+--] [---+

STP3_11 CLEAN07                     JUMP_0  << RUNG 45 STEP #0243 >>
%M0150 %M3751                         %M0190
+--] [---+]/[-----] (R) ( * Jump to machine step 0 *)

CLEAN08
%M3752
+--] [---+

CLEAN01
%M3745
+--] [---+

CLEAN02
%M3746
+--] [---+

CLEAN03
%M3747
+--] [---+

```

REFERENCE	NICKNAME	REFERENCE	DESCRIPTION	REFERENCE	NICKNAME	REFERENCE	DESCRIPTION
%I0129	A600_14	%M3805	Emergency Stop	%M3805	SAFL_13	Hatch under peroxide bath	
%S0007	ALW_ON	%M3806		%M3806	SAFL_14	Service switch activated	
%M3745	CLEAN01	%M3807	CIP valve D	%M3807	SAFL_15	Crank guard, Jaw system	
%M3746	CLEAN02	%M3816	CIP valve E	%M3816	SAFR_08	Door guard, A.chamber top	
%M3747	CLEAN03	%M3780	CIP valve F	%M3780	SRVR_04	Air supply	
%M3751	CLEAN07	%M3785	Sterile air pipe, Position	%M3785	SRVR_09	Supervision, Control voltage	
%M3752	CLEAN08	%M0100	B valve pipe, Position	%M0100	STEP_0	Step 0 Off	
%M3685	FILL_05	%M3652	Regulating valve, Leakage	%M3652	STER_04	Separator, Level	
%M0190	JUMP_0	%M0150	Jump to machine step 0	%M0150	STP3_11	Step 3-11 Heat ster. to venting	
%I0206	S003		Service switch				

TBA/21-0410/0500
BLOCK: STOP REASONS

```

|STP4_11 S003 SAFL_06                                JUMP_0 << RUNG 46 STEP #0251 >>
|M0149 %I0206 %M3798                                %M0190
+--] [-+--]/[+--] [-+--] -----(R)-- (* Jump to machine step 0 *)

|SAFR_07|
|M3815|
+--] [-+--]
|STER_01|
|M3649|
+--] [-+--]
|STER_07|
|M3655|
+--] [-+--]
|STEP_11 STER_05|
|M0111 %M3653|
+--]/[+--] [-+--]
|SPRAY_2 STER_03|
|M0732 %M3651|
+--]/[+--] [-+--]
|STER_06|
|M3654|
+--] [-+--]
|HINOSTE|
|M1902|
+--] [-+--]

|DRY_RDY H202_05                                JUMP_0 << RUNG 47 STEP #0269 >>
|M0831 %M3637                                %M0190
+--] [-+--] [-+--] -----(R)-- (* Jump to machine step 0 *)

|H202_11|
|M3643|
+--] [-+--]
|H202_12|
|M3644|
+--] [-+--]
|SV_HYRU SRVL_12|
|M1512 %M3772|
+--] [-+--] [-+--]
|SRVL_14|
|M3774|
+--] [-+--]
|SRVR_07|
|M3783|
+--] [-+--]
|STEP_1 STEP_2 HI_FIL1|
|M0101 %M0102 %M1916|
+--]/[+--]/[+--] [-+--]
|DRY_RDY BUTPOS2                                JUMP_0 << RUNG 48 STEP #0285 >>
|M0831 %M0842                                %M0190
+--] [-+--] [-+--] -----(R)-- (* Jump to machine step 0 *)

|REG_AFT|
|M0838|
+--] [-+--]

[ END OF SUBROUTINE LOGIC ]

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M0842	BUTPOS2	AIR, Butt.wrong pos.after spray	%M3772	SRVL_12	Hydraulic oil, Temperature
%M0831	DRY_RDY	AIR, Drying ready aseptic chamb	%M3774	SRVL_14	Hydraulic oil, Low pressure
%M3637	H202_05	Spray container, Emptying	%M3783	SRVR_07	Water, Circulating temperature
%M3643	H202_11	HI, Spray emptying	%M0101	STEP_1	Step 1 Preparation
%M3644	H202_12	HI, Spray temperature	%M0111	STEP_11	Step 11 Venting
%M1902	HINOSTE	HI, HI sys.not ready for steril.	%M0102	STEP_2	Step 2 Tube sealing
%M1916	HI_FIL1	HI, Alarm HI disabled	%M3649	STER_01	Aseptic chamber, Pressure
%M0190	JUMP_0	Jump to machine step 0	%M3651	STER_03	B-valve, Position
%M0838	REG_AFT	AIR, Reg.valve pos. after spray	%M3653	STER_05	Air super heater, Temperature
%I0206	S003	Service switch	%M3654	STER_06	Preheating valve, Position
%M3798	SAFL_06	Door guard, A.cham. bottom front	%M3655	STER_07	Separator air, Pressure
%M3815	SAFR_07	Door guard, A.cham. top front	%M0149	STP4_11	Step 4-11 Spraying to venting
%M0732	SPRAY_2	PER, Spray sequence 0,01-11,00	%M1512	SV_HYRU	SRV, Hydr. pump running

TBA/21-0410/0500
BLOCK: STOP REASONS

```
[ START LD SUBROUTINE BLK_75 ]
```

```
[ VARIABLE DECLARATIONS ]
```

```
[ START OF SUBROUTINE LOGIC ]
```

```
{*****}
```

```
{ * Block 75 TPOP communication" }
```

```
{*****}
```

```
{*****}
```

```
{ * Options }
```

```
{*****}
```

```
STEP_0
```

```
%M0100 +-----+
```

```
+---] [---+MOVE+---
```

```
| INT |
```

```
OPT_001 | OPTIONS
```

```
%I0113 -+IN Q+-%R8367
```

```
| LEN |
```

```
| 00001 |
```

```
+-----+
```

```
<< RUNG 6 STEP #0004 >>
```

```
{*****}
```

```
{ * Count number of packages in and out of the machine }
```

```
{*****}
```

```
A412_EN P+009
```

```
%Q0201 %T0009 +-----+
```

```
+---] [-+---] [-+----+ ADD +----->+>
```

```
| ASU_MIS | DINT |
```

```
| %M0403 |
```

```
+---] [-++ PKG_IN I1 Q+-%R8382
```

```
| %R8382 |
```

```
CONST -+I2 |
```

```
+0000000001 +-----+
```

```
<< RUNG 8 STEP #0007 >>
```

```
+<+>-----+ ADD +-----+
```

```
| DINT |
```

```
PLMS_IN -+I1 Q+-%R8388
```

```
| %R8388 |
```

```
CONST -+I2 |
```

```
+0000000001 +-----+
```

```
<< RUNG 9 STEP #0013 >>
```

```
STP2_12 A506_33 B5402
```

```
%M0147 %I0148 %I0312 P+124 << RUNG 10 STEP #0015 >>
```

```
+---] [-----] [-----] [----- (^) (* Pulse + Pkg. cnt. after FFU *)
```

```
P+124
```

```
%T0124 << RUNG 11 STEP #0019 >>
```

```
+---] [-----+ ADD +-----+ ADD +-----+
```

```
| DINT | DINT |
```

```
PKG_OUT -+I1 Q+-%R8384 PLMSOUT -+I1 Q+-%R8390
```

```
| %R8384 | | %R8390 |
```

```
CONST -+I2 |
```

```
+0000000001 +-----+ +0000000001 +-----+
```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%Q0201	A412_EN	Drive roller loop ASU, Enable	%T0124	P+124	Pulse + Pkg. cnt. after FFU
%I0148	A506_33	DMC Main motor, Running	%R8382	PKG_IN	Packages in, resettable
%M0403	ASU_MIS	ASU, Missed register mark	%R8384	PKG_OUT	Packages out, resettable
%I0312	B5402	Package counter after FFU	%R8390	PLMSOUT	PLMS, Packages out
%R8367	OPTIONS	Options installed	%R8388	PLMS_IN	PLMS, Packages in
%I0113	OPT_001	Option, Spare	%M0100	STEP_0	Step 0 Off
%T0009	P+009	Pulse + ASU register mark	%M0147	STP2_12	Step 2-12 Tube seal. to doors OK

TBA/21-0410/0500
BLOCK: TPOP COMMUNICATION

```

(*****
* Count packages out to cold store when the machine is in production
* and 1 hour after.
*
* The constant should be equal to the number of packages in one tray.
*****)

FST_SCN                                     << RUNG 13 STEP #0023 >>
%S0001 +-----+
+---] [---+ LT_ |
          INT |

PKGTRAY                                     +-----+
%R8594 +I1 Q+-----+MOVE_+
          |          INT |
          |          |   |
CONST  +I2 |          |   | PKGTRAY
+00001 +-----+ +00012 |IN Q+-%R8594
          |          |   | LEN
          |          |   | 00001
          +-----+

ALW_ON                                     << RUNG 14 STEP #0026 >>
%S0007 +-----+
+---] [---+ BLK +-----+MOVE_+
          CLR_ |          INT |
          WORD |          |   |
PLMS_TR +IN |          |   | PLMS_TR
%R8394 +---+ LEN |          |   |
          | 00002 |          |   |
          +-----+ +-----+
          |          |   |
          |          |   | 00001
          +-----+

STEP_9                                     PKG_TCS << RUNG 15 STEP #0029 >>
%M0109 +-----+                                     %M4008
+---] [---+ OFDT +-----+-----+ ( )-- (* Packages to cold store *)
          |0.10s|          |0.10s|
CONST  +PV |          |   |
+18000 +-----+ +18000 +-----+
          |          |   |
          |DEL9500 |          |   |
          |%R9500  |          |   |
          +-----+ +-----+
          |          |   |
          |          |   | DEL9503
          +-----+ +-----+
          |          |   |
          |          |   | %R9503
          +-----+

PKG_TCS K010 K015                                     EC_1 << RUNG 16 STEP #0033 >>
%M4008 %Q0116 %Q0122                                     %M4009
+---] [---+-----+-----+ ( )-- (* External conveyor 1 *)
          |          |   |
          |EC_1 |          |   |
          |%M4009|          |   |
          +-----+

PKG_TCS EXT_08 EC_1                                     P+125 << RUNG 17 STEP #0039 >>
%M4008 %I0313 %M4009                                     %T0125
+---] [---+-----+-----+ ( ^ )-- (* Pulse + Pkg. cnt. last point DE *)
          |          |   |
          |EXT_16 |          |   |
          |%I0316 |          |   |
          +-----+

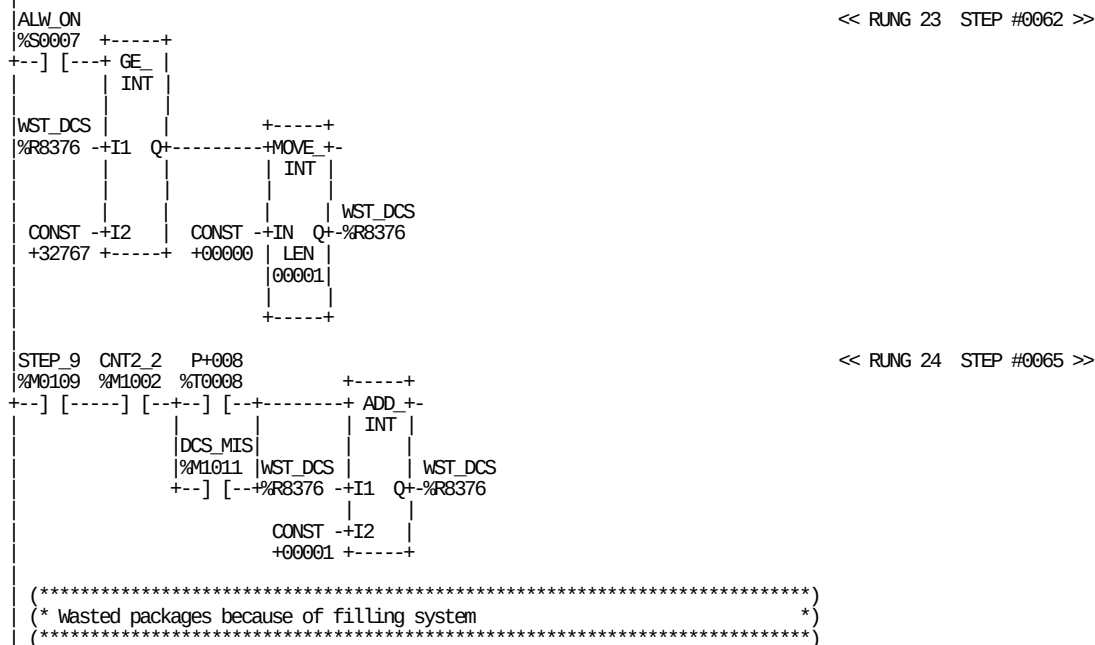
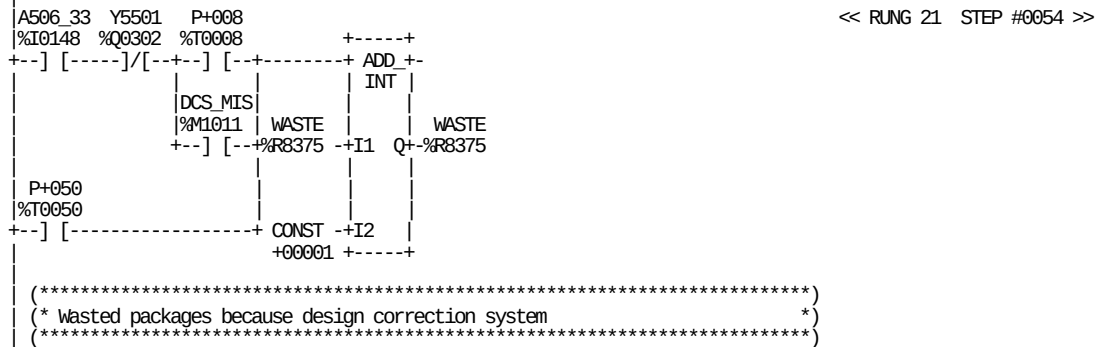
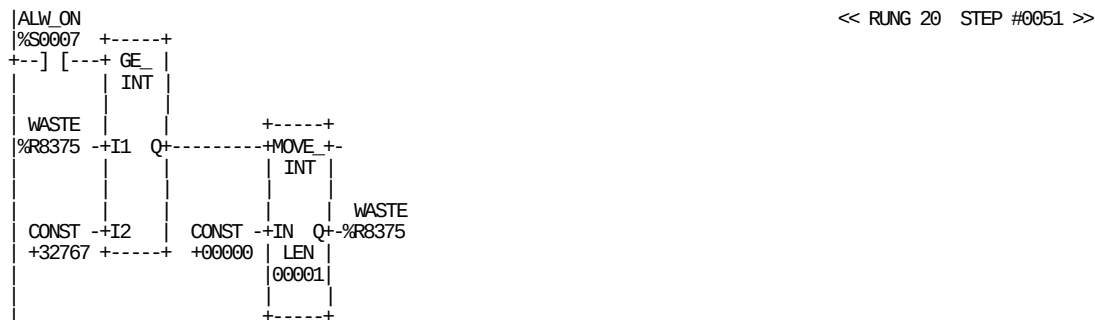
P+125                                     << RUNG 18 STEP #0047 >>
%T0125 +-----+
+---] [---+ ADD +-----+
          |DINT|          |DINT|
          |          |   |
PKG_LP +I1 Q+-----+ PLMS_LP +I1 Q+-----+
%R8386 +---+ %R8386 %R8392 +---+ %R8392
          |          |   |          |   |
PLMS_TR +I2 |          |   | PLMS_TR +I2 |
%R8394 +-----+          |   | %R8394 +-----+
          |          |   |
          +-----+

(*****
* Total wasted packages
*****)

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%S0007	ALW_ON		%Q0122	K015	External conveyor 2
%R9500	DEL9500	Delay, 1 pkg. to cold store	%T0125	P+125	Pulse + Pkg. cnt. last point DE
%R9503	DEL9503	Delay, 2 pkg. to cold store	%R8594	PKGTRAY	Packages per tray
%M4009	EC_1	External conveyor 1	%R8386	PKG_LP	Packages last point, resettable
%I0313	EXT_08	Package counter last point DE 1	%M4008	PKG_TCS	Packages to cold store
%I0316	EXT_16	Package counter last point DE 2	%R8392	PLMS_LP	PLMS, Packages last point
%S0001	FST_SCN		%R8394	PLMS_TR	PLMS, Packages in tray
%Q0116	K010	External conveyor 1	%M0109	STEP_9	Step 9 Production

TBA/21-0410/0500
BLOCK: TPOP COMMUNICATION



REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0148	A506_33	DMC Main motor, Running	%M0109	STEP_9	Step 9 Production
%S0007	ALW_ON		%R8375	WASTE	Waste, Total TBA/21
%M1002	CNT2_2	DCS, 2-10 pkgs. out of design	%R8376	WST_DCS	Waste, Design correction system
%M1011	DCS_MIS	DCS, Missed register mark	%R8377	WST_FIL	Waste, Filling system
%T0008	P+008	Pulse + DCS register mark	%Q0302	Y5501	FFU, Drop chute into FFU
%T0050	P+050	Pulse + Drop chute open			

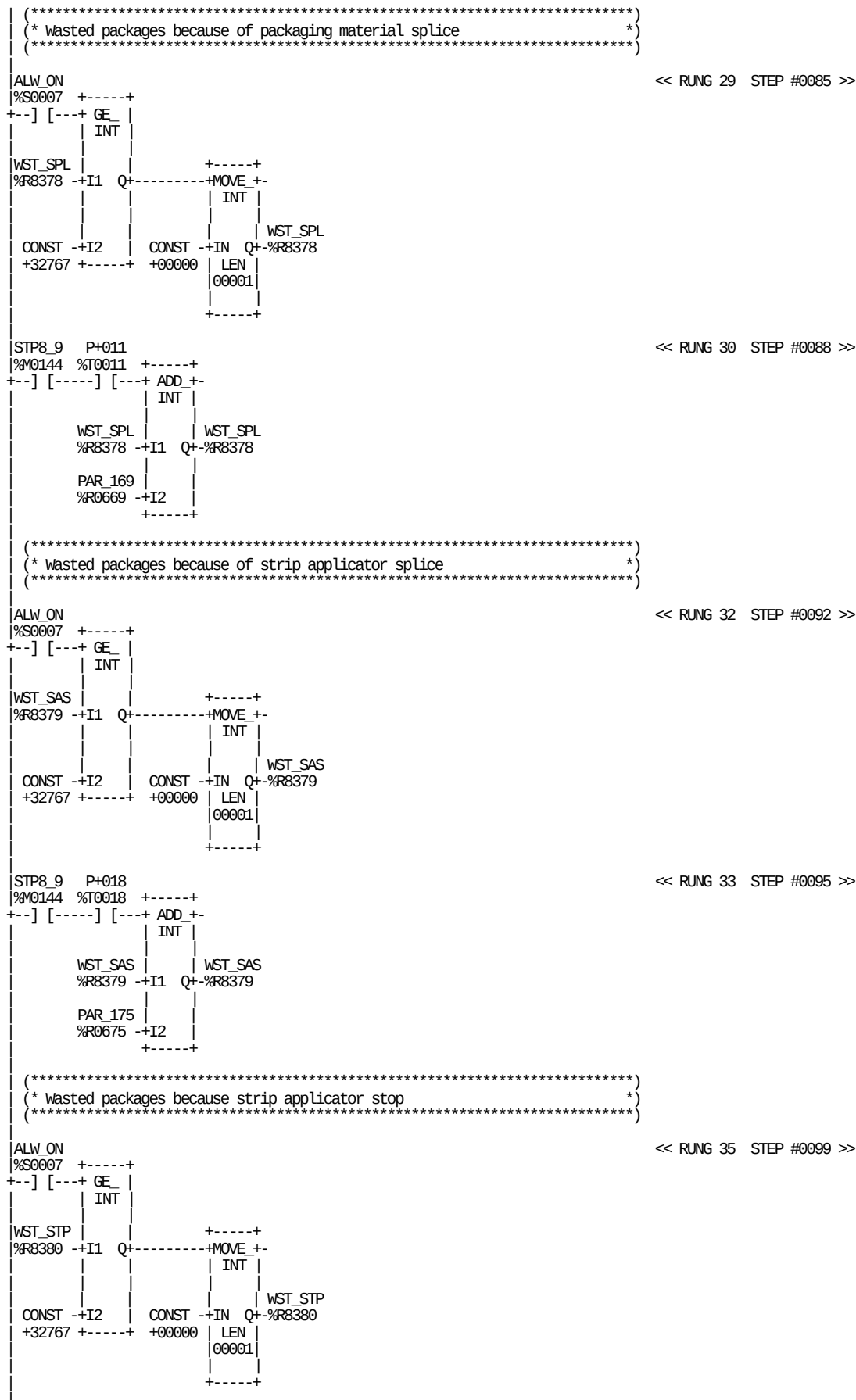
TBA/21-0410/0500
BLOCK: TPOP COMMUNICATION

[illegible]

<< RUNG 27 STEP #0075 >>

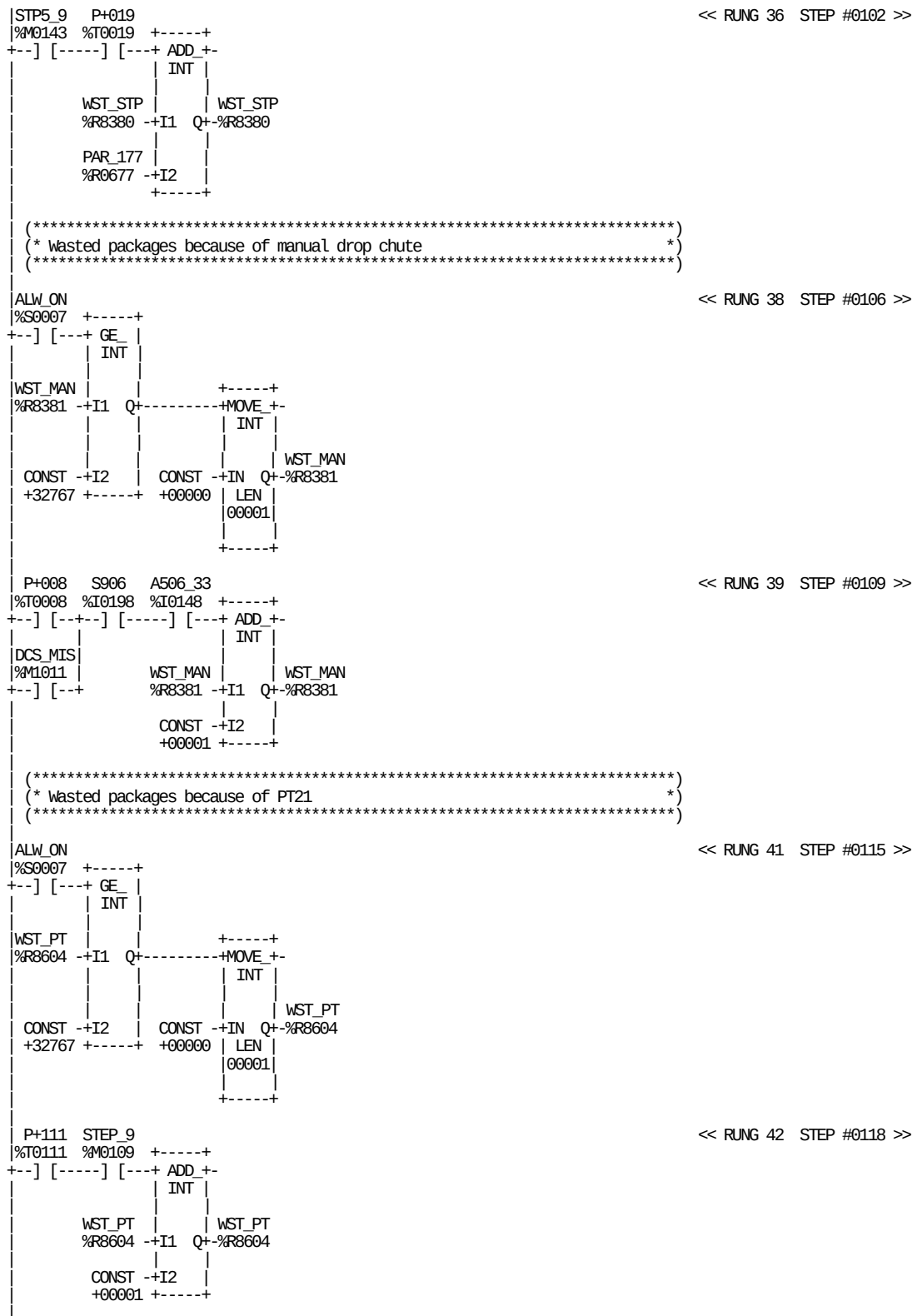
REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0212	A420_25	TMCC Filling, High level	%T0008	P+008	Pulse + DCS register mark
%I0213	A420_26	TMCC Filling, Low level	%M0109	STEP_9	Step 9 Production
%I0214	A420_27	TMCC Filling, Filling OK	%R8377	WST_FIL	Waste, Filling system
%M1011	DCS MIS	DCS, Missed register mark			

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BLOCK: TPOP COMMUNICATION



REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%S0007	ALW_ON		%M0144	STP8_9	Step 8-9 Motorstart to prod.
%T0011	P+011	Pulse + Pkg.spl. detect. column	%R8379	WST_SAS	Waste, Strip applicator splice
%T0018	P+018	Pulse + SA, Splice finished	%R8378	WST_SPL	Waste, Pacakging material splice
%R0669	PAR_169	Dump paper splice, packs	%R8380	WST_STP	Waste, strip applicator stop
%R0675	PAR_175	Dump strip splice, packs			

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BLOCK: TPOP COMMUNICATION



REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0148	A506_33	DMC Main motor, Running	%I0198	S906	Drop chute off
%S0007	ALW_ON		%M0109	STEP_9	Step 9 Production
%M1011	DCS_MIS	DCS, Missed register mark	%M0143	STP5_9	Step 5-9 Drying to prod.
%T0008	P+008	Pulse + DCS register mark	%R8381	WST_MAN	Waste, manual drop chute
%T0019	P+019	Pulse + SA, Dump stop pkgs	%R8604	WST_PT	Waste, PT21
%T0111	P+111	Pulse + Dump PT21 packages	%R8380	WST_STP	Waste, strip applicator stop
%R0677	PAR 177	Dump strip stop. packs			

TBA/21-0410/0500
BLOCK: TPOP COMMUNICATION


```

(*****
(* 1:st motor start interrupted (PM9614.20)
*)
*****)

STEP_9 PLMS_33 STRTDN << RUNG 44 STEP #0122 >>
%M0109 %M3049 %M4024
+--] [---] [-----] ( )-- (* PLMS, First start done *)

STRTDN
%M4024
+--] [---+

TMR1_10 P-127 << RUNG 45 STEP #0126 >>
%M0210 %T0127
+--] [---] (v)-- (* Pulse - Start sequence interrupt *)

STRTDN P-127 S911 PLMS_00 << RUNG 46 STEP #0128 >>
%M4024 %T0127 %I0201 %M3016
+--]/[---] [-----]/[---+ +-----+
+-----+ OFDT +-----+
+-----+ 0.10s +-----+
STEP_8 S912 +-----+
%M0108 %I0202 +-----+
+--] [---] [---+ CONST -+PV
+-----+
S908 +-----+
%I0200 +-----+
+--]/[---+ DEL9551
+-----+
S7701
%I0287
+--]/[---+

(*****
(* Manual short stop signal to TPOP
*)
*****)

S908 S_STOP PLMS_01 << RUNG 48 STEP #0141 >>
%I0200 %M0171 %M3017
+--]/[---] [-----] (S)-- (* PLMS, Manual short stop *)

S7701
%I0287
+--]/[---+

S_STOP PLMS_01 << RUNG 49 STEP #0145 >>
%M0171 %M3017
+--]/[---] (R)-- (* PLMS, Manual short stop *)

(*****
(* Manual step down from production signal to TPOP
*)
*****)

STEP_9 P-126 << RUNG 51 STEP #0148 >>
%M0109 %T0126
+--] [---] (v)-- (* Pulse - Step down from prod. *)

P-126 S912 PLMS_02 << RUNG 52 STEP #0150 >>
%M0126 %I0202 %M3018
+--] [---] [---+ +-----+
+-----+ (S)-- (* PLMS, Step down from production *)

S911
%I0201
+--] [---+

PLMS_02 PLMS_02 << RUNG 53 STEP #0155 >>
%M3018 %M3018
+--] [---+ +-----+ (R)-- (* PLMS, Step down from production *)
+-----+
TMR +-----+
+-----+ 0.10s +-----+
CONST -+PV
+-----+
+00200 +-----+
+-----+
DEL9509
%R9509

(*****
(* Emergency stop activated, signal to TPOP
*)
*****)

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%R9509	DEL9509	Delay, Manual step down	%I0200	S908	Short stop
%R9551	DEL9551	Delay,	%I0201	S911	Step up
%T0126	P-126	Pulse - Step down from prod.	%I0202	S912	Step down
%T0127	P-127	Pulse - Start sequence interrupt	%M0108	STEP_8	Step 8 Motorstart
%M3016	PLMS_00	PLMS, First start sequence int.	%M0109	STEP_9	Step 9 Production
%M3017	PLMS_01	PLMS, Manual short stop	%M4024	STRTDN	PLMS, First start done
%M3018	PLMS_02	PLMS, Step down from production	%M0171	S_STOP	Short stop on
%M3049	PLMS_33	PLMS, Attendance time ON	%M0210	TMR1_10	Startseq, Going on (0,01-9,99)
%I0287	S7701	Short Stop			

TBA/21-0410/0500
BLOCK: TPOP COMMUNICATION

|A600_14
|I0129
+--]/[-----

PLMS_03 << RUNG 55 STEP #0159 >>
%M3019
()-- (* PLMS, Emergency stop

*)

```

(*****
(* Door guard activated (all doors closed), signal to TPOP
*)
(*****
A601_34                                PLMS_04 << RUNG 57 STEP #0162 >>
%I0130                                %M3020
+--]/[-----]----- ( )-- (* PLMS, Door guards *)

B1504
%I0133
+--]/[-----]-----

B1505
%I0134
+--]/[-----]-----

B1506
%I0135
+--]/[-----]-----

(*****
(* CIP cleaning signals to TPOP
*)
(*****
CIP_RUN C_CLEAN                                PLMS_05 << RUNG 59 STEP #0168 >>
%M1202 %M0651                                %M3021
+--] [-----]----- ( )-- (* PLMS, Intermediate CIP *)

CIP_RUN C_CLEAN                                PLMS_06 << RUNG 60 STEP #0171 >>
%M1202 %M0651                                %M3022
+--] [-----]----- ( )-- (* PLMS, Final CIP *)

(*****
(* External cleaning going on and no CIP
*)
(*****
EC_ON EXT_11                                PLMS_07 << RUNG 62 STEP #0175 >>
%M1313 %Q0221                                %M3023
+--] [-----]----- ( )-- (* PLMS, External cleaning *)

(*****
(* Short stop on (Timebar)
*)
(*****
S_STOP                                PLMS_08 << RUNG 64 STEP #0179 >>
%M0171                                %M3024
+--] [-----]----- ( )-- (* PLMS, Short stop on *)

(*****
(* Paper splice detected
*)
(*****
P+011                                PLMS_09 << RUNG 66 STEP #0182 >>
%T0011                                %M3025
+--] [-----]----- ( )-- (* PLMS, Paper splice detect. *)

|0.10s|
CONST -+PV|
+00050|
+-----+
DEL9563
%R9563

(*****
(* Preparation phase and production phase (PM9614.20)
*)
(*****

STEP_1                                << RUNG 68 STEP #0186 >>
%M0101 +-----+
+--] [-----]-----+>
|0.10s|
CONST -+PV|
+02400|
+-----+
DEL9560
%R9560

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%I0130	A601_34	Safety monitor door guards	%T0011	P+011	Pulse + Pkg.splice detect. column
%I0133	B1504	A. chamber top door, Closed	%M3020	PLMS_04	PLMS, Door guards
%I0134	B1505	A. chamber top front door, Closed	%M3021	PLMS_05	PLMS, Intermediate CIP
%I0135	B1506	A. chamber front doors, Closed	%M3022	PLMS_06	PLMS, Final CIP
%M1202	CIP_RUN	CIP, CIP is running	%M3023	PLMS_07	PLMS, External cleaning
%M0651	C_CLEAN	FIL, Prep. for clean steam barr.	%M3024	PLMS_08	PLMS, Short stop on
%R9560	DEL9560	Delay	%M3025	PLMS_09	PLMS, Paper splice detect.
%R9563	DEL9563	Delay	%M0101	STEP_1	Step 1 Preparation
%M1313	EC_ON	EC, Going on	%M0171	S_STOP	Short stop on
%Q0221	EXT_11	TBA/21, Ready for CIP			

TBA/21-0410/0500
BLOCK: TPOP COMMUNICATION

```

|                                     PLMS_10 << RUNG 69 STEP #0189 >>
|                                     %M3026
|<+>-----+-----+-----+-----+-----+-----+-----+-----+-----+
| STP2_9 |                                     (* PLMS, Auto start of attendance *)
| %M0142 |
|+--] [---+
|
| STEP_11 |                                     PRP_FIL << RUNG 70 STEP #0192 >>
| %M0111 |                                     %M4000
|+--] [---+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| STEP_13 |                                     (* PLMS, preparation Phase filter *)
| %M0113 |
|+--] [---+
|
| PRP_FIL PLMS_33 |
| %M4000 %M3049 |
|+--] [-----] [---+
|
| PLMS_33 PLMS_12 STEP_11 STEP_13 PRP_FIL |                                     PLMS_11 << RUNG 71 STEP #0198 >>
| %M3049 %M3028 %M0111 %M0113 %M4000 |                                     %M3027
|+--] [-----]/[-----]/[-----]/[-----]/[-----]-----+-----+-----+-----+
|                                     (* PLMS, Preparation phase *)
|
| PLMS_11 STP8_9 |                                     PLMS_12 << RUNG 72 STEP #0204 >>
| %M3027 %M0144 |                                     %M3028
|+--] [-----] [---+-----+-----+-----+-----+-----+-----+-----+-----+
|                                     (* PLMS, Production phase *)
|
| PLMS_12 PLMS_33 |
| %M3028 %M3049 |
|+--] [-----] [---+
|
| PLMS_12 STEP_0 |                                     PLMS_13 << RUNG 73 STEP #0210 >>
| %M3028 %M0100 |                                     %M3029
|+--] [-----] [-----+-----+-----+-----+-----+-----+-----+-----+
|                                     (* PLMS, Production end? Zero *)
|
| PLMS_12 STEP_11 |                                     PLMS_14 << RUNG 74 STEP #0213 >>
| %M3028 %M0111 |                                     %M3030
|+--] [-----] [-----+-----+-----+-----+-----+-----+-----+-----+
|                                     (* PLMS, Production end? Venting *)
|
| (*****
| (* Strip splice signal to TPOP *)
| (*****
|
| SA_SPL |                                     PLMS_15 << RUNG 76 STEP #0217 >>
| %M0312 |                                     %M3031
|+--] [-----+-----+-----+-----+-----+-----+-----+-----+-----+
|                                     (* PLMS, Strip splice *)
|
| (*****
| (* Paper splice signal to TPOP *)
| (*****
|
| SPL_ON |                                     PLMS_16 << RUNG 78 STEP #0220 >>
| %M0450 |                                     %M3032
|+--] [-----+-----+-----+-----+-----+-----+-----+-----+-----+
|                                     (* PLMS, Packaging material splice *)
|
| (*****
| (* Test signals that are logged by PLMS *)
| (*****
|
| ALW_OFF |                                     PLMS_25 << RUNG 80 STEP #0223 >>
| %S0008 |                                     %M3041
|+--] [-----+-----+-----+-----+-----+-----+-----+-----+-----+
|                                     (* PLMS, Test 1 *)
|
| ALW_OFF |                                     PLMS_26 << RUNG 81 STEP #0225 >>
| %S0008 |                                     %M3042
|+--] [-----+-----+-----+-----+-----+-----+-----+-----+-----+
|                                     (* PLMS, Test 2 *)
|
| ALW_OFF |                                     PLMS_27 << RUNG 82 STEP #0227 >>
| %S0008 |                                     %M3043
|+--] [-----+-----+-----+-----+-----+-----+-----+-----+-----+
|                                     (* PLMS, Test 3 *)
|
| (*****
| (* Volume parameter to TPOP *)
| (*****

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%S0008	ALW_OFF		%M3043	PLMS_27	PLMS, Test 3
%M3026	PLMS_10	PLMS, Auto start of attendance	%M3049	PLMS_33	PLMS, Attendance time ON
%M3027	PLMS_11	PLMS, Preparation phase	%M4000	PRP_FIL	PLMS, preparation Phase filter
%M3028	PLMS_12	PLMS, Production phase	%M0312	SA_SPL	SA, Splice going on
%M3029	PLMS_13	PLMS, Production end? Zero	%M0450	SPL_ON	ASU, Splice sequence going on
%M3030	PLMS_14	PLMS, Production end? Venting	%M0100	STEP_0	Step 0 Off
%M3031	PLMS_15	PLMS, Strip splice	%M0111	STEP_11	Step 11 Venting
%M3032	PLMS_16	PLMS, Packaging material splice	%M0113	STEP_13	Step 13 Cleaning
%M3041	PLMS_25	PLMS, Test 1	%M0142	STP2_9	Step 2-9 Tube sealing to prod.
%M3042	PLMS_26	PLMS, Test 2	%M0144	STP8_9	Step 8-9 Motorstart to prod.

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```

|ALW_ON                                     << RUNG 84 STEP #0230 >>
|S0007 +-----+
+--] [---+MOVE_+
|      |BIT|
VOL_01 |    | VOL_PAR
|M0057 -+IN Q+-%R8363
|      |LEN|
|      |00016|
|      +-----+

(*****
(* Sending RK bits to TPOP
*****
)

|ALW_OFF                                     OPTRK_1 << RUNG 86 STEP #0233 >>
|S0008                                     %M4065
+--] [------( )--

|ALW_OFF                                     OPTRK_2 << RUNG 87 STEP #0235 >>
|S0008                                     %M4066
+--] [------( )--

|ALW_OFF                                     OPTRK14 << RUNG 88 STEP #0237 >>
|S0008                                     %M4078
+--] [------( )-- (* Internal option D-E-F Valves *)

|ALW_OFF                                     OPTRK_3 << RUNG 89 STEP #0239 >>
|S0008                                     %M4080
+--] [------( )-- (* TBA21 050V field test *)

|ALW_ON                                     << RUNG 90 STEP #0241 >>
|S0007 +-----+
+--] [---+MOVE_+
|      |INT|
OPTRK_1 |    | REB_KIT
|M4065 -+IN Q+-%R8365
|      |LEN|
|      |00001|
|      +-----+

(*****
(* This signal is set by InTouch and reseted after 3 sec by the PLC
*****
)

|S901                                     RESET << RUNG 92 STEP #0244 >>
|I0193                                     %M3050
+--] [------(S)-- (* Alarm reset *)

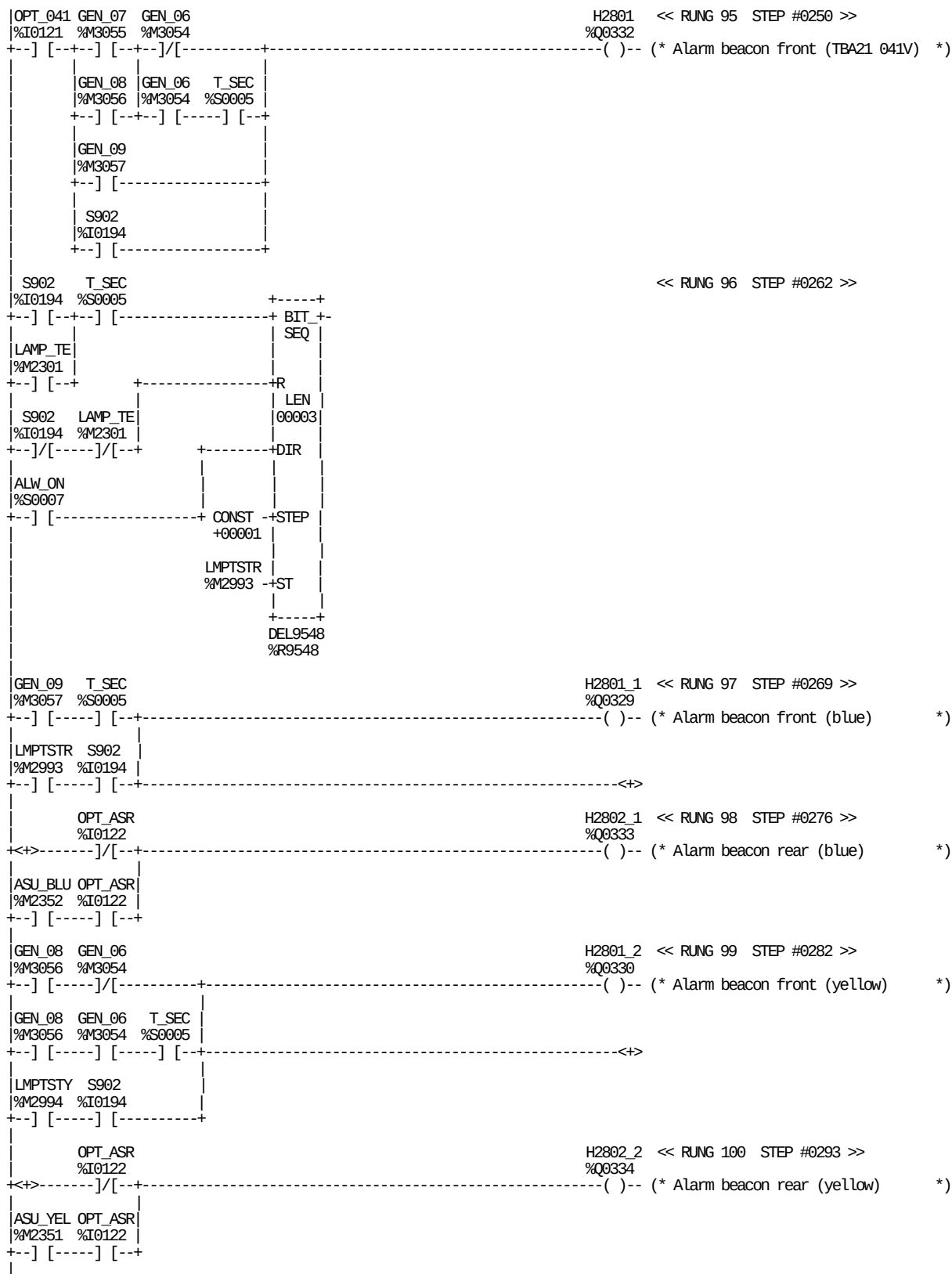
|RESET                                     RESET << RUNG 93 STEP #0246 >>
|M3050                                     %M3050
+--] [---+TMR +------(R)-- (* Alarm reset *)
|      |0.10s|
CONST -+PV |
+00030 |
|      +-----+
|      DEL9527
|      %R9527

(*****
(* Alarm beacon control
*****
)

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%S0008	ALW_OFF		%M4080	OPTRK_3	TBA21 050V field test
%S0007	ALW_ON		%R8365	REB_KIT	Rebuilding kits activated
%R9527	DEL9527	Delay,	%M3050	RESET	Alarm reset
%M4078	OPTRK14	Internal option D-E-F Valves	%I0193	S901	TPOP Reset
%M4065	OPTRK_1		%M0057	VOL_01	Volume 01, 1000cc baseline
%M4066	OPTRK_2		%R8363	VOL_PAR	Volume parameter

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REFERENCE NICKNAME
 %S0007 ALW_ON
 %M2352 ASU_BLU
 %M2351 ASU_YEL
 %R9548 DEL9548
 %M3054 GEN_06
 %M3055 GEN_07
 %M3056 GEN_08
 %M3057 GEN_09
 %Q0332 H2801
 %Q0329 H2801_1

REFERENCE DESCRIPTION
 ASR, Alarm beacon rear blu
 ASR, Alarm beacon rear yellow
 Delay,
 Beacon flash
 Beacon red
 Beacon yellow
 Beacon blue
 Alarm beacon front (TBA21 041V)
 Alarm beacon front (blue)

REFERENCE NICKNAME
 %Q0330 H2801_2
 %Q0333 H2802_1
 %Q0334 H2802_2
 %M2301 LAMP_TE
 %M2993 LMPTSTR
 %M2994 LMPTSTY
 %I0121 OPT_041
 %I0122 OPT_ASR
 %I0194 S902
 %S0005 T_SEC

REFERENCE DESCRIPTION
 Alarm beacon front (yellow)
 Alarm beacon rear (blue)
 Alarm beacon rear (yellow)
 Lamp test ASU
 Beacon lamp test (Red)
 Beacon lamp test (Yellow)
 Option, 041V functionality
 Option, ASU in separate room
 Lamptest

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```

|GEN_07 GEN_06 H2801_3 << RUNG 101 STEP #0299 >>
|M3055 M3054 %Q0331
+--] [-----]/[-----]-----(*)-- (* Alarm beacon front (red) *)

|GEN_07 GEN_06 T_SEC
|M3055 M3054 %S0005
+--] [-----] [-----] [-----]<+>

|LMPTSTB S902
|M2995 %I0194
+--] [-----] [-----]

|OPT_ASR H2802_3 << RUNG 102 STEP #0310 >>
%I0122 %Q0335
+<+>-----]/[-----]-----(*)-- (* Alarm beacon rear (red) *)

|ASU_RED OPT_ASR
|M2350 %I0122
+--] [-----] [---+

(*****
(* Jump to 0 after drying ready, signal to TPOP *)
(*****

|STEP_5 SPR_EMT GEN_11 << RUNG 104 STEP #0317 >>
|M0105 M0742 %M3059
+--] [---+-----]-----(*)-- (S)-- (* Jump 0 after drying *)

|REG_AFT
|M0838
+--] [---+

|BUTPOS2
|M0842
+--] [---+

|HISPEMP
|M1908
+--] [---+

|HITMPLW
|M1909
+--] [---+

|STEP_5 GEN_11 << RUNG 105 STEP #0325 >>
|M0105 %M3059
+--]/[-----]-----(*)-- (R)-- (* Jump 0 after drying *)

(*****
(* Service switch position to TPOP *)
(*****

|S003 GEN_12 << RUNG 107 STEP #0328 >>
%I0206 %M3060
+--] [-----]-----(*)-- ( )-- (* Service switch *)

(*****
(* Open set all default window signal to TPOP *)
(*****

|FST_SCN PLCINIT GEN_14 << RUNG 109 STEP #0331 >>
%S0001 %M4010 %M3062
+--] [---+-----]-----(*)-- (S)-- (* Open gen. def. parameters window *)

|ALW_ON PLCINIT << RUNG 110 STEP #0334 >>
%S0007 %M4010
+--] [-----]-----(*)-- (SM)-- (* PLC initialized *)

(*****
(* Line supervision, TBA/21 to DE, Enable *)
(*****

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%S0007	ALW_ON		%M1908	HISPEMP	HI, HI spr.tank slow/fast empty
%M2350	ASU_RED	ASR, Alarm beacon rear red	%M1909	HITMPLW	HI, Low temp. during spraying
%M0842	BUTPOS2	AIR, Butt.wrong pos.after spray	%M2995	LMPTSTB	Beacon lamp test (Blu)
%S0001	FST_SCN		%I0122	OPT_ASR	Option, ASU in separate room
%M3054	GEN_06	Beacon flash	%M4010	PLCINIT	PLC initialized
%M3055	GEN_07	Beacon red	%M0838	REG_AFT	AIR, Reg.valve pos. after spray
%M3059	GEN_11	Jump 0 after drying	%I0206	S003	Service switch
%M3060	GEN_12	Service switch	%I0194	S902	Lamp test
%M3062	GEN_14	Open gen. def. parameters window	%M0742	SPR_EMT	PER, Spray tank, fast/slow empt.
%Q0331	H2801_3	Alarm beacon front (red)	%M0105	STEP_5	Step 5 Drying
%Q0335	H2802_3	Alarm beacon rear (red)	%S0005	T_SEC	

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```

PLMS_33          GEN_15  << RUNG 112 STEP #0337 >>
%M3049 +-----+ +-----+
+--]/[-----] TMR +-----+
|0.10s| |0.10s|
CONST -+PV| CONST -+PV|
+18000| +18000|
+-----+ +-----+
DEL9536 DEL9542
%R9536 %R9542

GEN_16 STEP_1          GEN_15  << RUNG 113 STEP #0341 >>
%M3064 %M0101          %M3063
+--] [-+--+ ] [-+-----] TMR +-----+
|STP2_9| |0.10s|
|M0142| +-----+
+--] [-+--+ ] CONST -+PV|
+1200| +-----+
DEL9557
%R9557

(*****
(* DE communication *)
(*****

PLMS_33 GEN_15          GEN_16  << RUNG 115 STEP #0348 >>
%M3049 %M3063 +-----+
+--]/[-----] TMR +-----+
|0.10s|
CONST -+PV|
+00600| +-----+
DEL9530
%R9530

STEP_1          GEN_16  << RUNG 116 STEP #0352 >>
%M0101          %M3064
+--] [-+-----] TMR +-----+
|0.10s|
STP2_9| +-----+
|M0142| CONST -+PV|
+1200| +-----+
DEL9533
%R9533

(*****
(* CIP drying signal to TPOP *)
(*****

CIP_DRY          CLN_08  << RUNG 118 STEP #0357 >>
%M1232          %M3072
+--] [------] ( )-- (* Clean, CIP drying *)

(*****
(* Cleaning steam barrier space signal to TPOP *)
(*****

C_CLEAN          CLN_11  << RUNG 120 STEP #0360 >>
%M0651          %M3075
+--] [------] ( )-- (* Clean, Steam barrier space *)

(*****
(* Time bar on TPOP for drying, venting, cleaning and short stop *)
(*****

ALW_ON          << RUNG 122 STEP #0363 >>
%S0007 +-----+
+--] [-+-----] MOVE +-----+
|INT|
|TIMEBAR|
CONST -+IN Q+-%R8362
+00000| LEN|
|00001|
+-----+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%S0007	ALW_ON		%R9542	DEL9542	Delay
%M1232	CIP_DRY	CIP, Cip drying going on	%R9557	DEL9557	Delay
%M3072	CLN_08	Clean, CIP drying	%M3063	GEN_15	TBA/21 to DE enable
%M3075	CLN_11	Clean, Steam barrier space	%M3064	GEN_16	DE communication signal
%M0651	C_CLEAN	FIL, Prep. for clean steam barr.	%M3049	PLMS_33	PLMS, Attendance time ON
%R9530	DEL9530	Delay,	%M0101	STEP_1	Step 1 Preparation
%R9533	DEL9533	Delay,	%M0142	STP2_9	Step 2-9 Tube sealing to prod.
%R9536	DEL9536	Delay,	%R8362	TIMEBAR	Time bar on TPOP

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```

EC_ON                                     << RUNG 123 STEP #0365 >>
%M1313 +-----+
+-] [---+MOVE_+-
      |INT|
CNT_6   |TIMEBAR|
%R0166 -+IN Q+-%R8362
      |LEN|
      |00001|
      +-----+

DRYING DRY_RDY                             << RUNG 124 STEP #0367 >>
%M0830 %M0831 +-----+
+-] [----]/[---+ SUB +-----+ DIV +-
      |INT|          |INT|
      DRYTIME        DRY_TIM DRY_TIM TIMEBAR
      %R2500 -+I1 Q+-%R8999 %R8999 -+I1 Q+-%R8362
      TMR_8          CONST
      %R0121 -+I2          +00010 -+I2
      +-----+          +-----+

STEP_11                                    << RUNG 125 STEP #0371 >>
%M0111 +-----+
+-] [---+ SUB +-----+ DIV +-
      |INT|          |INT|
CONST -+I1 Q+ VNT_TIM VNT_TIM TIMEBAR
+06000 |%R8998 %R8998 -+I1 Q+-%R8362
TMR_13 -+I2          CONST
%R0136 -+I2          +00010 -+I2
      +-----+          +-----+

S_STOP                                    << RUNG 126 STEP #0374 >>
%M0171 +-----+
+-] [---+ SUB +-----+ DIV +-
      |INT|          |INT|
CONST -+I1 Q+ STP_TIM STP_TIM TIMEBAR
+09000 |%R8997 %R8997 -+I1 Q+-%R8362
TMR_2  -+I2          CONST
%R0103 -+I2          +00010 -+I2
      +-----+          +-----+

CIP_DRY                                   << RUNG 127 STEP #0377 >>
%M1232 +-----+
+-] [---+ SUB +-----+ DIV +-
      |INT|          |INT|
CONST -+I1 Q+ CIPDRTM CIPDRTM TIMEBAR
+05400 |%R8996 %R8996 -+I1 Q+-%R8362
DEL4551 -+I2          CONST
%R4551 -+I2          +00010 -+I2
      +-----+          +-----+

(*****
(* Watchdog for TPOP communication supervision *)
(*****)

GEN_05                                GEN_04 << RUNG 129 STEP #0381 >>
%M3053                                %M3052
+-]/[----- ( )-- (* Watchdog to TPOP *)

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%R8996	CIPDRTM	Remaining time cip drying	%M3053	GEN_05	Watchdog to PLC
%M1232	CIP_DRY	CIP, Cip drying going on	%M0111	STEP_11	Step 11 Venting
%R0166	CNT_6	CNT6, EC time on TPOF	%R8997	STP_T1M	Remaining time short stop
%R4551	DEL4551	Delay,	%M0171	S_STOP	Short stop on
%M0830	DRYING	AIR, Drying aseptic chamber	%R8362	TIMEBAR	Time bar on TPOF
%R2500	DRYTIME	AIR, Drying time	%R0136	TMR_13	Tmr 13, Venting (0,10s)
%M0831	DRY_RDY	AIR, Drying ready aseptic chamb	%R0103	TMR_2	Tmr 2, Short stop (0,10s)
%R8999	DRY_TIM	Remaining time drying	%R0121	TMR_8	Tmr 8, Drying time (0,10s)
%M1313	EC_ON	EC, Going on	%R8998	VNT_T1M	Remaining time venting
%M3052	GEN_04	Watchdog to TPOF			

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```

|GEN_05                                     WD_0  << RUNG 130 STEP #0383 >>
|M3053 +-----+                          %M4004
+--]/[---+ TMR +-----+-----+ ( )-- (* Watchdog = 0) *)
|0.10s|
CONST -+PV
+00200 |
+-----+
DEL9506
%M9506

|GEN_05                                     WD_1  << RUNG 131 STEP #0386 >>
|M3053 +-----+                          %M4005
+--]/[---+ TMR +-----+-----+ ( )-- (* Watchdog = 1) *)
|0.10s|
CONST -+PV
+00200 |
+-----+
DEL9512
%M9512

PLMS_24                                     WD_PLMS << RUNG 132 STEP #0389 >>
|M3040 +-----+                          %M4003
+--]/[---+ TMR +-----+-----+ ( )-- (* Watchdog PLMS DDE) *)
|0.10s|
CONST -+PV
+00050 |
+-----+
DEL9518
%M9518

WD_0                                     COM_FLT << RUNG 133 STEP #0392 >>
%M4004 +-----+                          %M4002
+--]/[---+ TMR +-----+-----+ ( )-- (* Communication fault) *)
|0.10s|
WD_1
%M4005
+--]/[---+
WD_PLMS
%M4003
+--]/[---+

(*****
(* Signal lamp for TPOP reset *)
*****

T_SEC COM_FLT                               H001  << RUNG 135 STEP #0397 >>
%S0005 %M4002                               %Q0321
+--]/[---+ TMR +-----+-----+ ( )-- (* TPOP Reset) *)
|0.10s|
S902
%I0194

(*****
(* Power for flexbox and panel, K121 not active = power *)
(* K121 active = power off, restart *)
*****

COM_FLT S901                               K121  << RUNG 137 STEP #0402 >>
%M4002 %I0193 +-----+                  %Q0170
+--]/[---+ TMR +-----+-----+ ( )-- (* Restart TPOP) *)
|0.10s|
CONST -+PV
+00030 |
+-----+
DEL9539
%M9539

(*****
(* "TPOP machine step" *)
*****

STEP_0                                     FIX_0  << RUNG 139 STEP #0407 >>
%M0100 +-----+                          %M3465
+--]/[---+ TMR +-----+-----+ ( )-- (* TPOP Machine step 0 Fixed) *)
|0.10s|
CONST -+PV
+00030 |
+-----+
DEL9539
%M9539

(*****
(* "TPOP machine step" *)
*****

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M4002	COM_FLT	Communication fault	%M3040	PLMS_24	PLMS, PLMSDDE OK
%R9506	DEL9506	Delay	%I0193	S901	TPOP Reset
%R9512	DEL9512	Delay	%I0194	S902	Lamp test
%R9518	DEL9518	Delay,	%M0100	STEP_0	Step 0 Off
%R9539	DEL9539	Delay,	%S0005	T_SEC	
%M3465	FIX_0	TPOP Machine step 0 Fixed	%M4004	WD_0	Watchdog = 0
%M3053	GEN_05	Watchdog to PLC	%M4005	WD_1	Watchdog = 1
%Q0321	H001	TPOP Reset	%M4003	WD_PLMS	Watchdog PLMS DDE
%Q0170	K121	Restart TPOP			

```

|COND_0                                     FLSH_1 << RUNG 140 STEP #0409 >>
|%M0120                                     %M3482
+--] [-----] ( )-- (* TPOP Machine step 1 Flashing *)

|STEP_1                                     FIX_1 << RUNG 141 STEP #0411 >>
|%M0101                                     %M3466
+--] [-----] ( )-- (* TPOP Machine step 1 Fixed *)

|COND_1 S003                               FLSH_2 << RUNG 142 STEP #0413 >>
|%M0121 %I0206                             %M3483
+--] [-----]/[-----] ( )-- (* TPOP Machine step 2 Flashing *)

|STEP_2 S003                               FIX_2 << RUNG 143 STEP #0416 >>
|%M0102 %I0206                             %M3467
+--] [-----]/[-----] ( )-- (* TPOP Machine step 2 Fixed *)

|COND_2                                     FLSH_3 << RUNG 144 STEP #0419 >>
|%M0122                                     %M3484
+--] [-----] ( )-- (* TPOP Machine step 3 Flashing *)

|STEP_3                                     FIX_3 << RUNG 145 STEP #0421 >>
|%M0103                                     %M3468
+--] [-----] ( )-- (* TPOP Machine step 3 Fixed *)

|STEP_4                                     FIX_4 << RUNG 146 STEP #0423 >>
|%M0104                                     %M3469
+--] [-----] ( )-- (* TPOP Machine step 4 Fixed *)

|STEP_5                                     FIX_5 << RUNG 147 STEP #0425 >>
|%M0105                                     %M3470
+--] [-----] ( )-- (* TPOP Machine step 5 Fixed *)

|COND_5                                     FLSH_6 << RUNG 148 STEP #0427 >>
|%M0125                                     %M3487
+--] [-----] ( )-- (* TPOP Machine step 6 Flashing *)

|STEP_6                                     FIX_6 << RUNG 149 STEP #0429 >>
|%M0106                                     %M3471
+--] [-----] ( )-- (* TPOP Machine step 6 Fixed *)

|COND_6                                     FLSH_7 << RUNG 150 STEP #0431 >>
|%M0126                                     %M3488
+--] [-----] ( )-- (* TPOP Machine step 7 Flashing *)

|COND_1 S003                               |
|%M0121 %I0206                             |
+--] [-----] [---+

|STEP_7                                     FIX_7 << RUNG 151 STEP #0436 >>
|%M0107                                     %M3472
+--] [-----] ( )-- (* TPOP Machine step 7 Fixed *)

|COND_7                                     FLSH_8 << RUNG 152 STEP #0438 >>
|%M0127                                     %M3489
+--] [-----] ( )-- (* TPOP Machine step 8 Flashing *)

|STEP_8                                     FIX_8 << RUNG 153 STEP #0440 >>
|%M0108                                     %M3473
+--] [-----] ( )-- (* TPOP Machine step 8 Fixed *)

|STEP_9                                     FIX_9 << RUNG 154 STEP #0442 >>
|%M0109                                     %M3474
+--] [-----] ( )-- (* TPOP Machine step 9 Fixed *)

|STEP_10                                    FIX_10 << RUNG 155 STEP #0444 >>
|%M0110                                    %M3475
+--] [-----] ( )-- (* TPOP Machine step 10 Fixed *)

|COND_10                                    FLSH_11 << RUNG 156 STEP #0446 >>
|%M0130                                    %M3492
+--] [-----] ( )-- (* TPOP Machine step 11 Flashing *)

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION	REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M0120	COND_0	Step 0 Step up condition	%M3492	FLSH_11	TPOP Machine step 11 Flashing
%M0121	COND_1	Step 1 Step up condition	%M3483	FLSH_2	TPOP Machine step 2 Flashing
%M0130	COND_10	Step 10 Step up condition	%M3484	FLSH_3	TPOP Machine step 3 Flashing
%M0122	COND_2	Step 2 Step up condition	%M3487	FLSH_6	TPOP Machine step 6 Flashing
%M0125	COND_5	Step 5 Step up condition	%M3488	FLSH_7	TPOP Machine step 7 Flashing
%M0126	COND_6	Step 6 Step up condition	%M3489	FLSH_8	TPOP Machine step 8 Flashing
%M0127	COND_7	Step 7 Step up condition	%I0206	S003	Service switch
%M3466	FIX_1	TPOP Machine step 1 Fixed	%M0101	STEP_1	Step 1 Preparation
%M3475	FIX_10	TPOP Machine step 10 Fixed	%M0110	STEP_10	Step 10 Production ended
%M3467	FIX_2	TPOP Machine step 2 Fixed	%M0102	STEP_2	Step 2 Tube sealing
%M3468	FIX_3	TPOP Machine step 3 Fixed	%M0103	STEP_3	Step 3 Heat sterilization
%M3469	FIX_4	TPOP Machine step 4 Fixed	%M0104	STEP_4	Step 4 Spraying
%M3470	FIX_5	TPOP Machine step 5 Fixed	%M0105	STEP_5	Step 5 Drying
%M3471	FIX_6	TPOP Machine step 6 Fixed	%M0106	STEP_6	Step 6 Signal to sterilizer
%M3472	FIX_7	TPOP Machine step 7 Fixed	%M0107	STEP_7	Step 7 Signal from sterilizer
%M3473	FIX_8	TPOP Machine step 8 Fixed	%M0108	STEP_8	Step 8 Motorstart
%M3474	FIX_9	TPOP Machine step 9 Fixed	%M0109	STEP_9	Step 9 Production
%M3482	FLSH_1	TPOP Machine step 1 Flashing			

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```

|STEP_11                                FIX_11  << RUNG 157  STEP #0448 >>
|M0111                                %M3476
+--] [-----] ( )-- (* TPOP Machine step 11 Fixed *)

|STEP_12                                FIX_12  << RUNG 158  STEP #0450 >>
|M0112                                %M3477
+--] [-----] ( )-- (* TPOP Machine step 12 Fixed *)

|CLN_01  EC_ON                          FLSH13E << RUNG 159  STEP #0452 >>
|M3065  %M1313                          %M3494
+--] [-----]/[-----] ( )-- (* TPOP Machine step 13 EC Flash. *)

|  EC_ON                                FIX_13E << RUNG 160  STEP #0455 >>
|M1313                                    %M3478
+--] [-----] ( )-- (* TPOP Machine step 13 EC Fixed *)

|CLN_09  CIP_ON                          FLSH13C << RUNG 161  STEP #0457 >>
|M3073  %M1204                          %M3495
+--] [-----]/[-----] ( )-- (* TPOP Machine step 13 CIP Flash. *)

|CIP_END                                |
|M1203                                  |
+--] [-----] +

|CIP_ON                                FIX_13C << RUNG 162  STEP #0461 >>
|M1204                                %M3479
+--] [-----] ( )-- (* TPOP Machine step 13 CIP Fixed *)

|CIP_DRY|
|M1232|
+--] [-----] +

|STEP_0  SRV_STR                          FLSH_14 << RUNG 163  STEP #0464 >>
|M0100  %M1601                          %M3496
+--] [-----] ( )-- (* TPOP Machine step 14 Flashing *)

|STEP_14                                FIX_14  << RUNG 164  STEP #0467 >>
|M0114                                %M3480
+--] [-----] ( )-- (* TPOP Machine step 14 Fixed *)

|ALW_ON                                  << RUNG 165  STEP #0469 >>
|S0007  +-----+
+--] [-----] +MOVE +
|      |      |
|      |      |
|FIX_0  |      |FIX_STP
|M3465  +IN Q+ %R8358
|      |      |
|      |LEN|
|      |00016|
|      +-----+

|ALW_ON                                  << RUNG 166  STEP #0471 >>
|S0007  +-----+
+--] [-----] +MOVE +
|      |      |
|      |      |
|M3481  +IN Q+ %R8359
|      |      |
|      |LEN|
|      |00016|
|      +-----+

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M3481		
%S0007	ALW_ON	
%M1232	CIP_DRY	CIP, Cip drying going on
%M1203	CIP_END	CIP, Cip ended,Cip dry can start
%M1204	CIP_ON	CIP, TBA21 ready for CIP
%M3065	CLN_01	Clean, External cleaning select
%M3073	CLN_09	Clean, CIP select
%M1313	EC_ON	EC, Going on
%M3465	FIX_0	TPOP Machine step 0 Fixed
%M3476	FIX_11	TPOP Machine step 11 Fixed
%M3477	FIX_12	TPOP Machine step 12 Fixed
%M3479	FIX_13C	TPOP Machine step 13 CIP Fixed

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M3478	FIX_13E	TPOP Machine step 13 EC Fixed
%M3480	FIX_14	TPOP Machine step 14 Fixed
%R8358	FIX_STP	TPOP Reg. for fixed machine step
%M3495	FLSH13C	TPOP Machine step 13 CIP Flash.
%M3494	FLSH13E	TPOP Machine step 13 EC Flash.
%R8359	FLSHSTP	TPOP Reg. for flashing mach.step
%M3496	FLSH_14	TPOP Machine step 14 Flashing
%M1601	SRV_STR	SRV, Serv.func. ready to start
%M0100	STEP_0	Step 0 Off
%M0111	STEP_11	Step 11 Venting
%M0112	STEP_12	Step 12 Doors OK
%M0114	STEP_14	Step 14 Service window

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```

{
  *****
  * "TPOP alarm transfer"
  *
  *****
}

{
  *****
  * A-alarm mask and A-alarm present
  *
  *****
}

N_STOP                                     P+134  << RUNG 169  STEP #0475 >>
%M0180                                     %T0134
+---] [-----] [-----] (^)--- (* Pulse + Normal stop *)

P_STOP                                     PRE_AA  << RUNG 170  STEP #0477 >>
%M0162                                     %M4021
+---]/[-----] [-----] (^)--- (* A-alarm present *)

S_STOP5
%M0169

+---]/[-----]

P+134  P+001  P+003
%M0134 %T0001 %T0003
+---] [-----]/[-----]/[-----]

JUMP_0
%M0190
+---]/[-----]

A600_14
%I0129
+---]/[-----]

CIP_INT
%M1205
+---] [-----]

{
  *****
  * Move alarms from GEF to registers that are in communication with InTouch *
  *****
}

LOCK_AA                                     << RUNG 172  STEP #0488 >>
%M4022 +-----+                         +-----+
+---]/[-----] MOVE_+-----] MOVE_+
          | WORD |                         | WORD |
ASU_01   |         | ASU_ALM SA_01   |         | SA_ALM
%M3601   +---IN Q+-%R8350 %M3617 +---IN Q+-%R8344
          | LEN |                         | LEN |
          | 00001 |                       | 00001 |
          +-----+                       +-----+

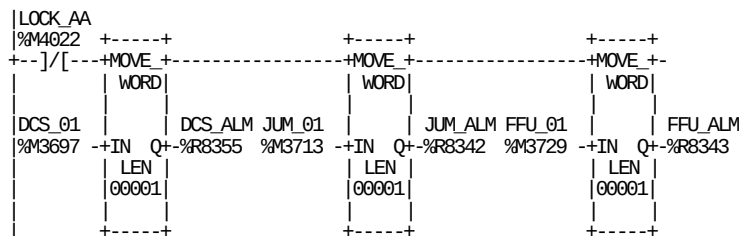
LOCK_AA                                     << RUNG 173  STEP #0491 >>
%M4022 +-----+                         +-----+
+---]/[-----] MOVE_+-----] MOVE_+
          | INT |                         | INT |
H202_01  |         | PERALM1 H202_17 |         | PERALM2
%M3633   +---IN Q+-%R8349 %M3569 +---IN Q+-%R8334
          | LEN |                         | LEN |
          | 00001 |                       | 00001 |
          +-----+                       +-----+

LOCK_AA                                     << RUNG 174  STEP #0494 >>
%M4022 +-----+                         +-----+ +-----+
+---]/[-----] MOVE_+-----] MOVE_+-----] MOVE_+
          | WORD |                         | WORD | | WORD |
STER_01  |         | STR_ALM SUPER_1 |         | SUP_ALM FILL_01 |         | FIL_ALM
%M3649   +---IN Q+-%R8348 %M3665 +---IN Q+-%R8351 %M3681 +---IN Q+-%R8345
          | LEN |                         | LEN | | LEN |
          | 00001 |                       | 00001 | | 00001 |
          +-----+                       +-----+ +-----+

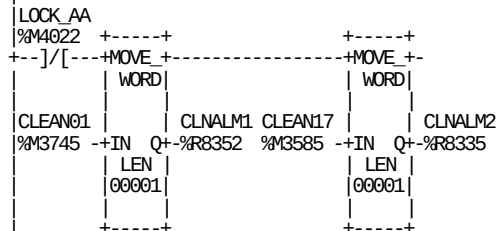
REFERENCE NICKNAME      REFERENCE DESCRIPTION      REFERENCE NICKNAME      REFERENCE DESCRIPTION
%I0129    A600_14      Emergency Stop
%M3601    ASU_01       ASU, Malfunction photocells
%R8350    ASU_ALM      Alarm ASU
%M1205    CIP_INT      CIP, interrupted
%M3681    FILL_01      Spare
%R8345    FIL_ALM      Alarm filling
%M3633    H202_01      Peroxide bath, Low temperature
%M3569    H202_17      PER, Peroxide tank high temp.
%M0190    JUMP_0       Jump to machine step 0
%M4022    LOCK_AA      A.alarm lock to TPOP
%M0180    N_STOP       Normal stop
%T0001    P+001        Pulse + Step up
%T0003    P+003        Pulse + Step down
%T0134    P+134        Pulse + Normal stop
%R8349    PERALM1      Alarm peroxide (1)
%R8334    PERALM2      Alarm peroxide (2)
%M4021    PRE_AA       A-alarm present
%M0162    P_STOP       Protection stop
%M3617    SA_01        Strip applicator, Sealing
%R8344    SA_ALM       Alarm strip applicator
%M3649    STER_01      Aseptic chamber, Pressure
%R8348    STR_ALM      Alarm sterile
%M3665    SUPER_1      Squee-gee rollers, Position
%R8351    SUP_ALM      Alarm super structure
%M0169    S_STOP5      Demand 5 for short stop

```

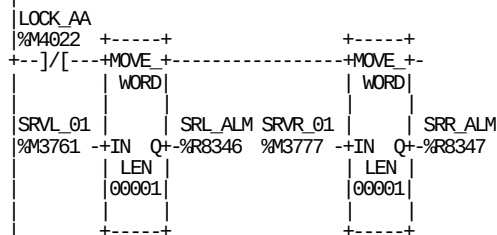
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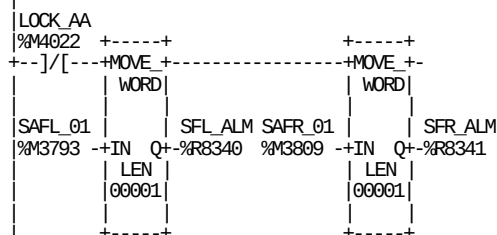
<< RUNG 175 STEP #0498 >>



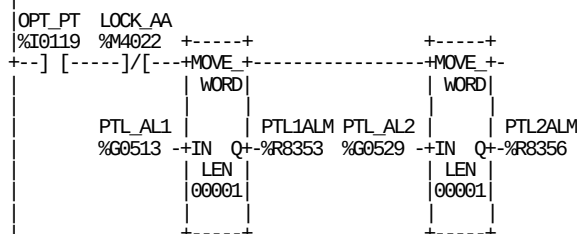
<< RUNG 176 STEP #0502 >>



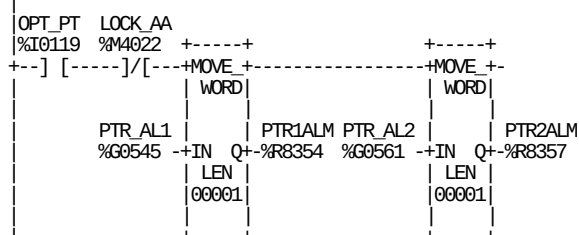
<< RUNG 177 STEP #0505 >>



<< RUNG 178 STEP #0508 >>



<< RUNG 179 STEP #0511 >>



<< RUNG 180 STEP #0515 >>

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M3745	CLEAN01	CIP valve D
%M3585	CLEAN17	CIP phase not correct
%R8352	CLNALM1	Alarm cleaning (1)
%R8335	CLNALM2	Alarm cleaning (2)
%M3697	DCS_01	Malfunction photocells
%R8355	DCS_ALM	Alarm design correction
%M3729	FFU_01	Final folder in wrong position
%R8343	FFU_ALM	Alarm final folder
%M3713	JUM_01	Machine out of synchronization
%R8342	JUM_ALM	Alarm drive unit
%M4022	LOCK_AA	A_alarm lock to TPOP
%I0119	OPT_PT	Option, PT/21
%R8353	PTL1ALM	Alarm PT/21 left 1
%R8356	PTL2ALM	Alarm PT/21 left 2

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%G0513	PTL_AL1	From PT21, Alarm left 1
%G0529	PTL_AL2	From PT21, Alarm left 2
%R8354	PTR1ALM	Alarm PT/21 right 1
%R8357	PTR2ALM	Alarm PT/21 right 2
%G0545	PTR_AL1	From PT21, Alarm right 1
%G0561	PTR_AL2	From PT21, Alarm right 2
%M3793	SAFL_01	Door guard, Front left
%M3809	SAFR_01	Door guard, Front right
%R8340	SFL_ALM	Alarm safety left
%R8341	SFR_ALM	Alarm safety right
%R8346	SRL_ALM	Alarm service unit left
%R8347	SRR_ALM	Alarm service unit right
%M3761	SRVL_01	Transient mains failure
%M3777	SRVR_01	

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```

|OPT_PT                                     << RUNG 181 STEP #0519 >>
| %I0119 +-----+
+---] / [-----+-----+-----+
|          | MOVE |          | MOVE |
|          | INT  |          | INT  |
|          |      |          |      |
|CONST  +---+IN Q+-%R8353  CONST  +---+IN Q+-%R8356  PTL1ALM  PTL2ALM
+000000 |LEN |          |LEN |          |
|00002  |      |          |00002 |          |
|          |      |          |      |
+-----+-----+-----+-----+

(*****
* A-Alarm lock function
*****
)

|PRE_AA                                     LOCK_AA << RUNG 183 STEP #0523 >>
| %M4021                                     %M4022
+---] [-----] (S)-- (* A_alarm lock to TPOP *)

(*****
* Release A-alarm lock if no unacknowledged alarms exists
* or if any acknowledge button is pressed in the TPOP
*****
)

|GEN_06 LOCK_AA                                     << RUNG 185 STEP #0526 >>
| %M3054 %M4022 +-----+
+---] / [-----] [---+ TMR +-----+<+>
|          |      |
|          |0.10s|
|          |      |
|CONST  +---+PV |
+00050  |      |
|          |      |
|          |DEL9545|
|          |%R9545|
|          |      |
+-----+-----+

|RESET                                     P+129 << RUNG 186 STEP #0530 >>
| %M3050                                     %T0129
+---] [-----] ( ^ )-- (* Pulse + Reset A-alarm lock *)
|          |
+<+>-----+

|P+129                                     LOCK_AA << RUNG 187 STEP #0533 >>
| %T0129                                     %M4022
+---] [-----] (R)-- (* A_alarm lock to TPOP *)

| [ END OF SUBROUTINE LOGIC ]

```

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%R9545	DEL9545	Delay,
%M3054	GEN_06	Beacon flash
%M4022	LOCK_AA	A_alarm lock to TPOP
%I0119	OPT_PT	Option, PT/21
%T0129	P+129	Pulse + Reset A-alarm lock

REFERENCE	NICKNAME	REFERENCE DESCRIPTION
%M4021	PRE_AA	A-alarm present
%R8353	PTL1ALM	Alarm PT/21 left 1
%R8356	PTL2ALM	Alarm PT/21 left 2
%M3050	RESET	Alarm reset

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10 Bills of material

EM3.0TB105002en.fm

Table of contents

Electrical equipment (ECM 72992) 649418-0500

Electrical document (ECM 85501) 42350-0500

Standard equipment (ECM 85501) 42945-0500

EM3.0TB105002en.fm

ECM 71072 72992
Release date 1999.04.02 1999.11.02

ChgPosition	S	S	Description	A	Si	Identity	DTp	Prt	Vs	Un	Column quantity	ECM
	p	H		s	ze					it	All	
0010			ELECTRICAL DOCUMENT	X	A4	42350-0500				PC	1	71072
I 0020			STANDARD EQUIPMENT	X	A4	42945-0500				PC	1	72992

ECM 71072 72689 72992 P85501(L85498)
 Release date 1999.04.02 1999.07.28 1999.11.02 2000.12.23

ChgPosition	S p	S H	Description	A Si s ze	Identity	DTp	Prt	Vs	Un it	Column quantity All	ECM
			ELECTRICAL EQUIPMENT	A4-	649418-0500	BOM	000	AB		x	72992
I 0020			ELECTRICAL DOCUMENT	A4-	42350-0500	BOM	000	AD		x	85501
I 0030			STANDARD EQUIPMENT	A4-	42945-0500	BOM	000	AC		x	85501
I 0090			ENGINEERING CHANGE DESCRIPTION	A4-	595013-0000	ELD	004	AA		x	85501
I 0102			COMPONENT SUMMARY CIRCUIT DESIGN	A4-	44711-0002	ELD	004	AA		x	85501
I 0103			CIRCUIT DIAGRAM LINE SUMMARY	A4-	44711-0003	ELD	004	AA		x	85501
I 0104			CIRCUIT DIAGRAM TERMINAL SUMMARY	A4-	44711-0004	ELD	004	AA		x	85501
			0105 CIRCUIT DIAGRAM	A4-	44711-0005	ELD	001	AA		x	71072
I 0106			CIRCUIT DIAGRAM	A4-	44711-0006	ELD	004	AA		x	85501
			0107 CIRCUIT DIAGRAM	A4-	44711-0007	ELD	001	AA		x	71072
			0110 CIRCUIT DIAGRAM	A4-	44711-0010	ELD	001	AA		x	71072
			0111 CIRCUIT DIAGRAM	A4-	44711-0011	ELD	001	AA		x	71072
			0112 CIRCUIT DIAGRAM	A4-	44711-0012	ELD	001	AA		x	71072
			0114 CIRCUIT DIAGRAM	A4-	44711-0014	ELD	003	AA		x	72992
I 0116			CIRCUIT DIAGRAM	A4-	44711-0016	ELD	004	AA		x	85501
I 0117			CIRCUIT DIAGRAM	A4-	44711-0017	ELD	004	AA		x	85501
I 0118			CIRCUIT DIAGRAM	A4-	44711-0018	ELD	004	AA		x	85501
			0119 CIRCUIT DIAGRAM	A4-	44711-0019	ELD	002	AA		x	72689
I 0120			CIRCUIT DIAGRAM	A4-	44711-0020	ELD	004	AA		x	85501
I 0121			CIRCUIT DIAGRAM	A4-	44711-0021	ELD	004	AA		x	85501
I 0122			CIRCUIT DIAGRAM	A4-	44711-0022	ELD	004	AA		x	85501

ChgPosition	S p	S H	Description	A Si s ze	Identity	DTp	Prt	Vs	Un it	Column quantity All	ECM
I 0123			CIRCUIT DIAGRAM	A4-	44711-0023	ELD	004	AA		x	85501
I 0125			CIRCUIT DIAGRAM	A4-	44711-0025	ELD	004	AA		x	85501
I 0132			CIRCUIT DIAGRAM	A4-	44711-0032	ELD	004	AA		x	85501
I 0134			CIRCUIT DIAGRAM	A4-	44711-0034	ELD	004	AA		x	85501
0135			CIRCUIT DIAGRAM	A4-	44711-0035	ELD	001	AA		x	71072
0136			CIRCUIT DIAGRAM	A4-	44711-0036	ELD	003	AA		x	72992
0146			CIRCUIT DIAGRAM	A4-	44711-0046	ELD	002	AA		x	72689
0147			CIRCUIT DIAGRAM	A4-	44711-0047	ELD	002	AA		x	72689
0148			CIRCUIT DIAGRAM	A4-	44711-0048	ELD	001	AA		x	71072
0149			CIRCUIT DIAGRAM	A4-	44711-0049	ELD	003	AA		x	72992
0150			CIRCUIT DIAGRAM	A4-	44711-0050	ELD	003	AA		x	72992
0152			CIRCUIT DIAGRAM	A4-	44711-0052	ELD	003	AA		x	72992
0153			CIRCUIT DIAGRAM	A4-	44711-0053	ELD	003	AA		x	72992
0154			CIRCUIT DIAGRAM	A4-	44711-0054	ELD	003	AA		x	72992
0155			CIRCUIT DIAGRAM	A4-	44711-0055	ELD	001	AA		x	71072
0156			CIRCUIT DIAGRAM	A4-	44711-0056	ELD	003	AA		x	72992
I 0158			CIRCUIT DIAGRAM	A4-	44711-0058	ELD	004	AA		x	85501
I 0159			CIRCUIT DIAGRAM	A4-	44711-0059	ELD	004	AA		x	85501
I 0160			CIRCUIT DIAGRAM	A4-	44711-0060	ELD	004	AA		x	85501
0161			CIRCUIT DIAGRAM	A4-	44711-0061	ELD	001	AA		x	71072
I 0162			CIRCUIT DIAGRAM	A4-	44711-0062	ELD	004	AA		x	85501
0163			CIRCUIT DIAGRAM	A4-	44711-0063	ELD	001	AA		x	71072
0164			CIRCUIT DIAGRAM	A4-	44711-0064	ELD	001	AA		x	71072
0165			CIRCUIT DIAGRAM	A4-	44711-0065	ELD	001	AA		x	71072
I 0179			CIRCUIT DIAGRAM	A4-	44711-0079	ELD	004	AA		x	85501
0180			CIRCUIT DIAGRAM	A4-	44711-0080	ELD	001	AA		x	71072

ChgPosition	S p	S H	Description	A Si s ze	Identity	DTp	Prt	Vs	Un it	Column quantity All	ECM
I 0181			CIRCUIT DIAGRAM	A4-	44711-0081	ELD	001	AA		x	71072
I 0182			CIRCUIT DIAGRAM	A4-	44711-0082	ELD	004	AA		x	85501
I 0183			CIRCUIT DIAGRAM	A4-	44711-0083	ELD	001	AA		x	71072
I 0184			CIRCUIT DIAGRAM	A4-	44711-0084	ELD	001	AA		x	71072
I 0187			CIRCUIT DIAGRAM	A4-	44711-0087	ELD	004	AA		x	85501
I 0188			CIRCUIT DIAGRAM	A4-	44711-0088	ELD	002	AA		x	85501
I 0195			CIRCUIT DIAGRAM	A4-	44711-0095	ELD	002	AA		x	72689
I 0196			CIRCUIT DIAGRAM	A4-	44711-0096	ELD	002	AA		x	72689
I 0197			CIRCUIT DIAGRAM	A4-	44711-0097	ELD	002	AA		x	72689
I 0198			CIRCUIT DIAGRAM	A4-	44711-0098	ELD	002	AA		x	72689
I 0203			CIRCUIT DIAGRAM	A4-	44711-0103	ELD	003	AA		x	72992
I 0204			CIRCUIT DIAGRAM	A4-	44711-0104	ELD	004	AA		x	85501
I 0205			CIRCUIT DIAGRAM	A4-	44711-0105	ELD	001	AA		x	71072
I 0206			CIRCUIT DIAGRAM	A4-	44711-0106	ELD	004	AA		x	85501
I 0207			CIRCUIT DIAGRAM	A4-	44711-0107	ELD	001	AA		x	71072
I 0208			CIRCUIT DIAGRAM	A4-	44711-0108	ELD	004	AA		x	85501
I 0209			CIRCUIT DIAGRAM	A4-	44711-0109	ELD	004	AA		x	85501
I 0210			CIRCUIT DIAGRAM	A4-	44711-0110	ELD	002	AA		x	72689
I 0211			CIRCUIT DIAGRAM	A4-	44711-0111	ELD	001	AA		x	71072
I 0212			CIRCUIT DIAGRAM	A4-	44711-0112	ELD	001	AA		x	71072
I 0213			CIRCUIT DIAGRAM	A4-	44711-0113	ELD	004	AA		x	85501
I 0214			CIRCUIT DIAGRAM	A4-	44711-0114	ELD	001	AA		x	71072
I 0215			CIRCUIT DIAGRAM	A4-	44711-0115	ELD	003	AA		x	72992
I 0216			CIRCUIT DIAGRAM	A4-	44711-0116	ELD	004	AA		x	85501
I 0217			CIRCUIT DIAGRAM	A4-	44711-0117	ELD	004	AA		x	85501
I 0218			CIRCUIT DIAGRAM	A4-	44711-0118	ELD	004	AA		x	85501

ChgPosition	S p	S H	Description	A Si s ze	Identity	DTp	Prt	Vs	Un it	Column All	quantity	ECM
0219			CIRCUIT DIAGRAM	A4-	44711-0119	ELD	002	AA		x		72689
0220			CIRCUIT DIAGRAM	A4-	44711-0120	ELD	003	AA		x		72992
0221			CIRCUIT DIAGRAM	A4-	44711-0121	ELD	003	AA		x		72992
I 0222			CIRCUIT DIAGRAM	A4-	44711-0122	ELD	004	AA		x		85501
I 0223			CIRCUIT DIAGRAM	A4-	44711-0123	ELD	004	AA		x		85501
0224			CIRCUIT DIAGRAM	A4-	44711-0124	ELD	003	AA		x		72992
0225			CIRCUIT DIAGRAM	A4-	44711-0125	ELD	001	AA		x		71072
0226			CIRCUIT DIAGRAM	A4-	44711-0126	ELD	003	AA		x		72992
I 0227			CIRCUIT DIAGRAM	A4-	44711-0127	ELD	004	AA		x		85501
I 0228			CIRCUIT DIAGRAM	A4-	44711-0128	ELD	004	AA		x		85501
0229			CIRCUIT DIAGRAM	A4-	44711-0129	ELD	001	AA		x		71072
0230			CIRCUIT DIAGRAM	A4-	44711-0130	ELD	001	AA		x		71072
0231			CIRCUIT DIAGRAM	A4-	44711-0131	ELD	001	AA		x		71072
0232			CIRCUIT DIAGRAM	A4-	44711-0132	ELD	001	AA		x		71072
0233			CIRCUIT DIAGRAM	A4-	44711-0133	ELD	001	AA		x		71072
0234			CIRCUIT DIAGRAM	A4-	44711-0134	ELD	001	AA		x		71072
I 0243			CIRCUIT DIAGRAM	A4-	44711-0143	ELD	004	AA		x		85501
I 0244			CIRCUIT DIAGRAM	A4-	44711-0144	ELD	004	AA		x		85501
0245			CIRCUIT DIAGRAM	A4-	44711-0145	ELD	001	AA		x		71072
0246			CIRCUIT DIAGRAM	A4-	44711-0146	ELD	001	AA		x		71072
I 0247			CIRCUIT DIAGRAM	A4-	44711-0147	ELD	004	AA		x		85501
I 0248			CIRCUIT DIAGRAM	A4-	44711-0148	ELD	004	AA		x		85501
0249			CIRCUIT DIAGRAM	A4-	44711-0149	ELD	001	AA		x		71072
0250			CIRCUIT DIAGRAM	A4-	44711-0150	ELD	003	AA		x		72992
0251			CIRCUIT DIAGRAM	A4-	44711-0151	ELD	002	AA		x		72689
0252			CIRCUIT DIAGRAM	A4-	44711-0152	ELD	003	AA		x		72992

ChgPosition	S p	S H	Description	A s	Si ze	Identity	DTp	Prt	Vs	Un it	Column All	quantity	ECM
0253			CIRCUIT DIAGRAM	A4-		44711-0153	ELD	002	AA		x		72689
0254			CIRCUIT DIAGRAM	A4-		44711-0154	ELD	001	AA		x		71072
0255			CIRCUIT DIAGRAM	A4-		44711-0155	ELD	003	AA		x		72992
I 0256			CIRCUIT DIAGRAM	A4-		44711-0156	ELD	004	AA		x		85501
0257			CIRCUIT DIAGRAM	A4-		44711-0157	ELD	003	AA		x		72992
I 0258			CIRCUIT DIAGRAM	A4-		44711-0158	ELD	004	AA		x		85501
0259			CIRCUIT DIAGRAM	A4-		44711-0159	ELD	001	AA		x		71072
I 0260			CIRCUIT DIAGRAM	A4-		44711-0160	ELD	004	AA		x		85501
0261			CIRCUIT DIAGRAM	A4-		44711-0161	ELD	001	AA		x		71072
0262			CIRCUIT DIAGRAM	A4-		44711-0162	ELD	003	AA		x		72992
0263			CIRCUIT DIAGRAM	A4-		44711-0163	ELD	001	AA		x		71072
0264			CIRCUIT DIAGRAM	A4-		44711-0164	ELD	002	AA		x		72689
0265			CIRCUIT DIAGRAM	A4-		44711-0165	ELD	001	AA		x		71072
0266			CIRCUIT DIAGRAM	A4-		44711-0166	ELD	001	AA		x		71072
0267			CIRCUIT DIAGRAM	A4-		44711-0167	ELD	001	AA		x		71072
0268			CIRCUIT DIAGRAM	A4-		44711-0168	ELD	001	AA		x		71072
0269			CIRCUIT DIAGRAM	A4-		44711-0169	ELD	001	AA		x		71072
0270			CIRCUIT DIAGRAM	A4-		44711-0170	ELD	003	AA		x		72992
I 0287			CIRCUIT DIAGRAM- PROTECTIVE BONDING	A4-		44711-0900	ELD	004	AA		x		85501
0288			CIRCUIT DIAGRAM- PROTECTIVE BONDING	A4-		44711-0901	ELD	002	AA		x		72689
0289			CIRCUIT DIAGRAM- PROTECTIVE BONDING	A4-		44711-0902	ELD	001	AA		x		85501
1005			CONNECTION DIAGRAM	A4-		61815-0005	ELD	003	AA		x		72992
I 1101			CONNECTION DIAGRAM	A4-		61815-0101	ELD	004	AA		x		85501
1102			CONNECTION DIAGRAM	A4-		61815-0102	ELD	001	AA		x		71072

ChgPosition	S p	S H	Description	A Si s ze	Identity	DTp	Prt	Vs	Un it	Column quantity All	ECM
1103			CONNECTION DIAGRAM	A4-	61815-0103	ELD	003	AA		x	72992
1104			CONNECTION DIAGRAM	A4-	61815-0104	ELD	003	AA		x	72992
1105			CONNECTION DIAGRAM	A4-	61815-0105	ELD	002	AA		x	72689
1106			CONNECTION DIAGRAM	A4-	61815-0106	ELD	002	AA		x	72689
1107			CONNECTION DIAGRAM	A4-	61815-0107	ELD	001	AA		x	71072
I 1108			CONNECTION DIAGRAM	A4-	61815-0108	ELD	004	AA		x	85501
1109			CONNECTION DIAGRAM	A4-	61815-0109	ELD	002	AA		x	72689
1110			CONNECTION DIAGRAM	A4-	61815-0110	ELD	003	AA		x	72992
1111			CONNECTION DIAGRAM	A4-	61815-0111	ELD	002	AA		x	72689
1112			CONNECTION DIAGRAM	A4-	61815-0112	ELD	003	AA		x	72992
1113			CONNECTION DIAGRAM	A4-	61815-0113	ELD	003	AA		x	72992
1114			CONNECTION DIAGRAM	A4-	61815-0114	ELD	003	AA		x	72992
1115			CONNECTION DIAGRAM	A4-	61815-0115	ELD	001	AA		x	71072
I 1201			CONNECTION DIAGRAM	A4-	61815-0201	ELD	001	AA		x	71072
1202			CONNECTION DIAGRAM	A4-	61815-0202	ELD	004	AA		x	85501
1203			CONNECTION DIAGRAM	A4-	61815-0203	ELD	003	AA		x	72992
1204			CONNECTION DIAGRAM	A4-	61815-0204	ELD	001	AA		x	71072
1205			CONNECTION DIAGRAM	A4-	61815-0205	ELD	001	AA		x	71072
I 1206			CONNECTION DIAGRAM	A4-	61815-0206	ELD	004	AA		x	85501
1207			CONNECTION DIAGRAM	A4-	61815-0207	ELD	003	AA		x	72992
1208			CONNECTION DIAGRAM	A4-	61815-0208	ELD	001	AA		x	71072
1209			CONNECTION DIAGRAM	A4-	61815-0209	ELD	001	AA		x	71072
1210			CONNECTION DIAGRAM	A4-	61815-0210	ELD	002	AA		x	72689
1401			CONNECTION DIAGRAM	A4-	61815-0401	ELD	003	AA		x	72992
1402			CONNECTION DIAGRAM	A4-	61815-0402	ELD	001	AA		x	71072
1403			CONNECTION DIAGRAM	A4-	61815-0403	ELD	001	AA		x	71072

ChgPosition	S p	S H	Description	A Si s ze	Identity	DTp	Prt	Vs	Un it	Column All	quantity	ECM
1404			CONNECTION DIAGRAM	A4-	61815-0404	ELD	001	AA		x		71072
1405			CONNECTION DIAGRAM	A4-	61815-0405	ELD	001	AA		x		71072
1406			CONNECTION DIAGRAM	A4-	61815-0406	ELD	001	AA		x		71072
I 1407			CONNECTION DIAGRAM	A4-	61815-0407	ELD	004	AA		x		85501
1408			CONNECTION DIAGRAM	A4-	61815-0408	ELD	001	AA		x		71072
1409			CONNECTION DIAGRAM	A4-	61815-0409	ELD	001	AA		x		71072
I 1501			CONNECTION DIAGRAM	A4-	61815-0501	ELD	004	AA		x		85501
1502			CONNECTION DIAGRAM	A4-	61815-0502	ELD	001	AA		x		71072
1503			CONNECTION DIAGRAM	A4-	61815-0503	ELD	002	AA		x		72689
I 1504			CONNECTION DIAGRAM	A4-	61815-0504	ELD	004	AA		x		85501
I 1505			CONNECTION DIAGRAM	A4-	61815-0505	ELD	004	AA		x		85501
1506			CONNECTION DIAGRAM	A4-	61815-0506	ELD	001	AA		x		71072
1701			CONNECTION DIAGRAM	A4-	61815-0701	ELD	003	AA		x		72992
1702			CONNECTION DIAGRAM	A4-	61815-0702	ELD	001	AA		x		71072
1703			CONNECTION DIAGRAM	A4-	61815-0703	ELD	003	AA		x		72992
1704			CONNECTION DIAGRAM	A4-	61815-0704	ELD	001	AA		x		71072
1705			CONNECTION DIAGRAM	A4-	61815-0705	ELD	002	AA		x		72689
1706			CONNECTION DIAGRAM	A4-	61815-0706	ELD	003	AA		x		72992
1707			CONNECTION DIAGRAM	A4-	61815-0707	ELD	003	AA		x		72992
1708			CONNECTION DIAGRAM	A4-	61815-0708	ELD	001	AA		x		71072
1801			CONNECTION DIAGRAM	A4-	61815-0801	ELD	001	AA		x		71072
I 1901			CONNECTION DIAGRAM	A4-	61815-0901	ELD	004	AA		x		85501
1902			CONNECTION DIAGRAM	A4-	61815-0902	ELD	001	AA		x		71072
1903			CONNECTION DIAGRAM	A4-	61815-0903	ELD	001	AA		x		71072
I 1904			CONNECTION DIAGRAM	A4-	61815-0904	ELD	004	AA		x		85501
1905			CONNECTION DIAGRAM	A4-	61815-0905	ELD	001	AA		x		71072

ChgPosition	S p	S H	Description	A Si s ze	Identity	DTp	Prt	Vs	Un it	Column quantity All	ECM
I 1906			CONNECTION DIAGRAM	A4-	61815-0906	ELD	004	AA		x	85501
1950			MAINS CONNECTION	A4-	61816-0005	ELD	001	AA		x	72992
1960			MAINS CONNECTION	A4-	61816-0006	ELD	001	AA		x	72992
I 2001			MAIN + CROSS REFERENCE	A4-	48246-0001	ELD	002	AA		x	85501
I 2004			1T0004 FAST SCAN	A4-	48246-0004	ELD	002	AA		x	85501
I 2005			PLC PROGRAM LIST	A4-	48246-0005	ELD	002	AA		x	85501
I 2006			PLC PROGRAM LIST	A4-	48246-0006	ELD	002	AA		x	85501
I 2007			PLC PROGRAM LIST	A4-	48246-0007	ELD	002	AA		x	85501
I 2008			PLC PROGRAM LIST	A4-	48246-0008	ELD	002	AA		x	85501
I 2010			PLC PROGRAM LIST	A4-	48246-0010	ELD	002	AA		x	85501
I 2020			PLC PROGRAM LIST	A4-	48246-0020	ELD	002	AA		x	85501
I 2021			PLC PROGRAM LIST	A4-	48246-0021	ELD	002	AA		x	85501
I 2022			PLC PROGRAM LIST	A4-	48246-0022	ELD	002	AA		x	85501
I 2023			PLC PROGRAM LIST	A4-	48246-0023	ELD	002	AA		x	85501
I 2024			PLC PROGRAM LIST	A4-	48246-0024	ELD	002	AA		x	85501
I 2025			PLC PROGRAM LIST	A4-	48246-0025	ELD	002	AA		x	85501
I 2026			PLC PROGRAM LIST	A4-	48246-0026	ELD	002	AA		x	85501
I 2027			PLC PROGRAM LIST	A4-	48246-0027	ELD	002	AA		x	85501
I 2028			PLC PROGRAM LIST	A4-	48246-0028	ELD	002	AA		x	85501
I 2029			PLC PROGRAM LIST	A4-	48246-0029	ELD	002	AA		x	85501
I 2030			PLC PROGRAM LIST	A4-	48246-0030	ELD	002	AA		x	85501
I 2032			PLC PROGRAM LIST	A4-	48246-0032	ELD	002	AA		x	85501
I 2033			PLC PROGRAM LIST	A4-	48246-0033	ELD	002	AA		x	85501
I 2050			PLC PROGRAM LIST	A4-	48246-0050	ELD	002	AA		x	85501
I 2051			PLC PROGRAM LIST	A4-	48246-0051	ELD	002	AA		x	85501
I 2053			PLC PROGRAM LIST	A4-	48246-0053	ELD	002	AA		x	85501

ChgPosition	S p	S H	Description	A Si s ze	Identity	DTp	Prt	Vs	Un it	Column quantity All	ECM
I 2054			PLC PROGRAM LIST	A4-	48246-0054	ELD	002	AA		x	85501
I 2056			PLC PROGRAM LIST	A4-	48246-0056	ELD	002	AA		x	85501
I 2069			PLC PROGRAM LIST	A4-	48246-0069	ELD	002	AA		x	85501
I 2070			PLC PROGRAM LIST	A4-	48246-0070	ELD	002	AA		x	85501
I 2075			PLC PROGRAM LIST	A4-	48246-0075	ELD	002	AA		x	85501
I 2501			PLC PROGRAM LIST	A4-	48246-0501	ELD	002	AA		x	85501
I 2502			PLC PROGRAM LIST	A4-	48246-0502	ELD	002	AA		x	85501
I 2503			PLC PROGRAM LIST	A4-	48246-0503	ELD	002	AA		x	85501

Information 'valid to' 2000.12.23

ChgPosition	S p	S H	Description	A s	Si ze	Identity	DTp	Prt	Vs	Un it	Column quantity All	ECM
D 0020			ELECTRICAL DOCUMENT	A4-		42350-0500	BOM	000	AC		x	72992
D 0030			STANDARD EQUIPMENT	A4-		42945-0500	BOM	000	AA		x	72992
D 0090			ENGINEERING CHANGE DESCRIPTION	A4-		595013-0000	ELD	003	AA		x	72992
D 0102			COMPONENT SUMMARY CIRCUIT DESIGN	A4-		44711-0002	ELD	003	AA		x	72992
D 0103			CIRCUIT DIAGRAM LINE SUMMARY	A4-		44711-0003	ELD	003	AA		x	72992
D 0104			CIRCUIT DIAGRAM TERMINAL SUMMARY	A4-		44711-0004	ELD	003	AA		x	72992
D 0106			CIRCUIT DIAGRAM	A4-		44711-0006	ELD	003	AA		x	72992
D 0116			CIRCUIT DIAGRAM	A4-		44711-0016	ELD	003	AA		x	72992
D 0117			CIRCUIT DIAGRAM	A4-		44711-0017	ELD	003	AA		x	72992
D 0118			CIRCUIT DIAGRAM	A4-		44711-0018	ELD	001	AA		x	71072
D 0120			CIRCUIT DIAGRAM	A4-		44711-0020	ELD	001	AA		x	71072
D 0121			CIRCUIT DIAGRAM	A4-		44711-0021	ELD	001	AA		x	71072
D 0122			CIRCUIT DIAGRAM	A4-		44711-0022	ELD	001	AA		x	71072
D 0123			CIRCUIT DIAGRAM	A4-		44711-0023	ELD	001	AA		x	71072
D 0125			CIRCUIT DIAGRAM	A4-		44711-0025	ELD	002	AA		x	72689
D 0132			CIRCUIT DIAGRAM	A4-		44711-0032	ELD	001	AA		x	71072
D 0134			CIRCUIT DIAGRAM	A4-		44711-0034	ELD	001	AA		x	71072
D 0158			CIRCUIT DIAGRAM	A4-		44711-0058	ELD	001	AA		x	71072

Information 'valid to' 2000.12.23

ChgPosition	S p	S H	Description	A Si s ze	Identity	DTp	Prt	Vs	Un it	Column quantity All	ECM
D 0159			CIRCUIT DIAGRAM	A4-	44711-0059	ELD	003	AA		x	72992
D 0160			CIRCUIT DIAGRAM	A4-	44711-0060	ELD	001	AA		x	71072
D 0162			CIRCUIT DIAGRAM	A4-	44711-0062	ELD	003	AA		x	72992
D 0179			CIRCUIT DIAGRAM	A4-	44711-0079	ELD	003	AA		x	72992
D 0182			CIRCUIT DIAGRAM	A4-	44711-0082	ELD	001	AA		x	71072
D 0187			CIRCUIT DIAGRAM	A4-	44711-0087	ELD	002	AA		x	72689
D 0204			CIRCUIT DIAGRAM	A4-	44711-0104	ELD	003	AA		x	72992
D 0206			CIRCUIT DIAGRAM	A4-	44711-0106	ELD	001	AA		x	71072
D 0208			CIRCUIT DIAGRAM	A4-	44711-0108	ELD	003	AA		x	72992
D 0209			CIRCUIT DIAGRAM	A4-	44711-0109	ELD	003	AA		x	72992
D 0213			CIRCUIT DIAGRAM	A4-	44711-0113	ELD	001	AA		x	71072
D 0216			CIRCUIT DIAGRAM	A4-	44711-0116	ELD	001	AA		x	71072
D 0217			CIRCUIT DIAGRAM	A4-	44711-0117	ELD	001	AA		x	71072
D 0218			CIRCUIT DIAGRAM	A4-	44711-0118	ELD	001	AA		x	71072
D 0222			CIRCUIT DIAGRAM	A4-	44711-0122	ELD	001	AA		x	71072
D 0223			CIRCUIT DIAGRAM	A4-	44711-0123	ELD	001	AA		x	71072
D 0227			CIRCUIT DIAGRAM	A4-	44711-0127	ELD	001	AA		x	71072
D 0228			CIRCUIT DIAGRAM	A4-	44711-0128	ELD	003	AA		x	72992
D 0243			CIRCUIT DIAGRAM	A4-	44711-0143	ELD	003	AA		x	72992
D 0244			CIRCUIT DIAGRAM	A4-	44711-0144	ELD	003	AA		x	72992
D 0247			CIRCUIT DIAGRAM	A4-	44711-0147	ELD	001	AA		x	71072

Information 'valid to' 2000.12.23

ChgPosition	S p	S H	Description	A s	Si ze	Identity	DTp	Prt	Vs	Un it	Column quantity All	ECM
D 0248			CIRCUIT DIAGRAM	A4-		44711-0148	ELD	003	AA		x	72992
D 0256			CIRCUIT DIAGRAM	A4-		44711-0156	ELD	003	AA		x	72992
D 0258			CIRCUIT DIAGRAM	A4-		44711-0158	ELD	003	AA		x	72992
D 0260			CIRCUIT DIAGRAM	A4-		44711-0160	ELD	001	AA		x	71072
D 0287			CIRCUIT DIAGRAM- PROTECTIVE BONDING	A4-		44711-0900	ELD	002	AA		x	72689
D 1101			CONNECTION DIAGRAM	A4-		61815-0101	ELD	003	AA		x	72992
D 1108			CONNECTION DIAGRAM	A4-		61815-0108	ELD	003	AA		x	72992
D 1202			CONNECTION DIAGRAM	A4-		61815-0202	ELD	001	AA		x	71072
D 1206			CONNECTION DIAGRAM	A4-		61815-0206	ELD	001	AA		x	71072
D 1407			CONNECTION DIAGRAM	A4-		61815-0407	ELD	003	AA		x	72992
D 1501			CONNECTION DIAGRAM	A4-		61815-0501	ELD	001	AA		x	71072
D 1504			CONNECTION DIAGRAM	A4-		61815-0504	ELD	003	AA		x	72992
D 1505			CONNECTION DIAGRAM	A4-		61815-0505	ELD	001	AA		x	71072
D 1901			CONNECTION DIAGRAM	A4-		61815-0901	ELD	001	AA		x	71072
D 1904			CONNECTION DIAGRAM	A4-		61815-0904	ELD	003	AA		x	72992
D 1906			CONNECTION DIAGRAM	A4-		61815-0906	ELD	003	AA		x	72992
D 2001			MAIN + CROSS REFERENCE	A4-		48246-0001	ELD	001	AA		x	72992
D 2004			1T0004 FAST SCAN	A4-		48246-0004	ELD	001	AA		x	72992
D 2005			PLC PROGRAM LIST	A4-		48246-0005	ELD	001	AA		x	72992
D 2006			PLC PROGRAM LIST	A4-		48246-0006	ELD	001	AA		x	72992
D 2007			PLC PROGRAM LIST	A4-		48246-0007	ELD	001	AA		x	72992

Information 'valid to' 2000.12.23

ChgPosition	S p	S H	Description	A Si s ze	Identity	DTp	Prt	Vs	Un it	Column quantity All	ECM
D 2008			PLC PROGRAM LIST	A4-	48246-0008	ELD	001	AA		x	72992
D 2010			PLC PROGRAM LIST	A4-	48246-0010	ELD	001	AA		x	72992
D 2020			PLC PROGRAM LIST	A4-	48246-0020	ELD	001	AA		x	72992
D 2021			PLC PROGRAM LIST	A4-	48246-0021	ELD	001	AA		x	72992
D 2022			PLC PROGRAM LIST	A4-	48246-0022	ELD	001	AA		x	72992
D 2023			PLC PROGRAM LIST	A4-	48246-0023	ELD	001	AA		x	72992
D 2024			PLC PROGRAM LIST	A4-	48246-0024	ELD	001	AA		x	72992
D 2025			PLC PROGRAM LIST	A4-	48246-0025	ELD	001	AA		x	72992
D 2026			PLC PROGRAM LIST	A4-	48246-0026	ELD	001	AA		x	72992
D 2027			PLC PROGRAM LIST	A4-	48246-0027	ELD	001	AA		x	72992
D 2028			PLC PROGRAM LIST	A4-	48246-0028	ELD	001	AA		x	72992
D 2029			PLC PROGRAM LIST	A4-	48246-0029	ELD	001	AA		x	72992
D 2030			PLC PROGRAM LIST	A4-	48246-0030	ELD	001	AA		x	72992
D 2032			PLC PROGRAM LIST	A4-	48246-0032	ELD	001	AA		x	72992
D 2033			PLC PROGRAM LIST	A4-	48246-0033	ELD	001	AA		x	72992
D 2050			PLC PROGRAM LIST	A4-	48246-0050	ELD	001	AA		x	72992
D 2051			PLC PROGRAM LIST	A4-	48246-0051	ELD	001	AA		x	72992
D 2053			PLC PROGRAM LIST	A4-	48246-0053	ELD	001	AA		x	72992
D 2054			PLC PROGRAM LIST	A4-	48246-0054	ELD	001	AA		x	72992
D 2056			PLC PROGRAM LIST	A4-	48246-0056	ELD	001	AA		x	72992
D 2070			PLC PROGRAM LIST	A4-	48246-0070	ELD	001	AA		x	72992

Information 'valid to' 2000.12.23

ChgPosition	S p	S H	Description	A s	Si ze	Identity	DTp	Prt	Vs	Un it	Column quantity All	ECM
D 2075			PLC PROGRAM LIST	A4-		48246-0075	ELD	001	AA		x	72992
D 2501			PLC PROGRAM LIST	A4-		48246-0501	ELD	001	AA		x	72992
D 2502			PLC PROGRAM LIST	A4-		48246-0502	ELD	001	AA		x	72992
D 2503			PLC PROGRAM LIST	A4-		48246-0503	ELD	001	AA		x	72992

ECM 72992 P85500(L85498)
Release date 1999.11.02 2000.12.23

ChgPosition	S	S	Description	A	Si	Identity	DTp	Prt	Vs	Un	Column quantity	ECM
	p	H		s	ze					it	All	
I 0010			PLC-DISKETTE	A4-		48246-0000	ELD	002	AA		x	85500

Information 'valid to' 2000.12.23

ChgPosition	S p	S H	Description	A s	Si ze	Identity	DTp	Prt	Vs	Un it	Column quantity All	ECM
D			PLC-DISKETTE	A4-		48246-0000	ELD	001	AA		x	72992

11 Fuse panel label

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Technical drawing of a Fuse Board (FUSE BOARD) showing components, dimensions, and assembly details.

Dimensions (mm):

- Overall width: 1000 mm
- Overall height: 1000 mm
- Component dimensions: 100 mm, 150 mm, 200 mm, 250 mm, 300 mm, 350 mm, 400 mm, 450 mm, 500 mm, 550 mm, 600 mm, 650 mm, 700 mm, 750 mm, 800 mm, 850 mm, 900 mm, 950 mm.

Components and Labels:

- PEROXITE HEATING:** Q001, Q002, Q003, Q009, Q010, Q011, Q020, Q021, Q022, Q023.
- COMPRESSOR:** K001, K002, K003, K009, K010, K011, K020, K021.
- COOLING WATER:** F006, F007, F008, F009, F010, F011, F012, F013, F014, F015, F016, F017, F018, F019, F020, F021, F022, F023, F024, F025, F026, F027, F028, F029, F030, F031, F032, F033, F034, F035, F036, F037, F038, F039, F040, F041, F042, F043, F044, F045, F046, F047, F048, F049, F050, F051, F052, F053, F054, F055, F056, F057, F058, F059, F060, F061, F062, F063, F064, F065, F066, F067, F068, F069, F070, F071, F072, F073, F074, F075, F076, F077, F078, F079, F080, F081, F082, F083, F084, F085, F086, F087, F088, F089, F090, F091, F092, F093, F094, F095, F096, F097, F098, F099, F100, F101, F102, F103, F104, F105, F106, F107, F108, F109, F110, F111, F112, F113, F114, F115, F116, F117, F118, F119, F120, F121, F122, F123, F124, F125, F126, F127, F128, F129, F130, F131, F132, F133, F134, F135, F136, F137, F138, F139, F140, F141, F142, F143, F144, F145, F146, F147, F148, F149, F150, F151, F152, F153, F154, F155, F156, F157, F158, F159, F160, F161, F162, F163, F164, F165, F166, F167, F168, F169, F170, F171, F172, F173, F174, F175, F176, F177, F178, F179, F180, F181, F182, F183, F184, F185, F186, F187, F188, F189, F190, F191, F192, F193, F194, F195, F196, F197, F198, F199, F200, F201, F202, F203, F204, F205, F206, F207, F208, F209, F210, F211, F212, F213, F214, F215, F216, F217, F218, F219, F220, F221, F222, F223, F224, F225, F226, F227, F228, F229, F230, F231, F232, F233, F234, F235, F236, F237, F238, F239, F240, F241, F242, F243, F244, F245, F246, F247, F248, F249, F250, F251, F252, F253, F254, F255, F256, F257, F258, F259, F260, F261, F262, F263, F264, F265, F266, F267, F268, F269, F270, F271, F272, F273, F274, F275, F276, F277, F278, F279, F280, F281, F282, F283, F284, F285, F286, F287, F288, F289, F290, F291, F292, F293, F294, F295, F296, F297, F298, F299, F300, F301, F302, F303, F304, F305, F306, F307, F308, F309, F310, F311, F312, F313, F314, F315, F316, F317, F318, F319, F320, F321, F322, F323, F324, F325, F326, F327, F328, F329, F330, F331, F332, F333, F334, F335, F336, F337, F338, F339, F340, F341, F342, F343, F344, F345, F346, F347, F348, F349, F350, F351, F352, F353, F354, F355, F356, F357, F358, F359, F360, F361, F362, F363, F364, F365, F366, F367, F368, F369, F370, F371, F372, F373, F374, F375, F376, F377, F378, F379, F380, F381, F382, F383, F384, F385, F386, F387, F388, F389, F390, F391, F392, F393, F394, F395, F396, F397, F398, F399, F400, F401, F402, F403, F404, F405, F406, F407, F408, F409, F410, F411, F412, F413, F414, F415, F416, F417, F418, F419, F420, F421, F422, F423, F424, F425, F426, F427, F428, F429, F430, F431, F432, F433, F434, F435, F436, F437, F438, F439, F440, F441, F442, F443, F444, F445, F446, F447, F448, F449, F450, F451, F452, F453, F454, F455, F456, F457, F458, F459, F460, F461, F462, F463, F464, F465, F466, F467, F468, F469, F470, F471, F472, F473, F474, F475, F476, F477, F478, F479, F480, F481, F482, F483, F484, F485, F486, F487, F488, F489, F490, F491, F492, F493, F494, F495, F496, F497, F498, F499, F500, F501, F502, F503, F504, F505, F506, F507, F508, F509, F510, F511, F512, F513, F514, F515, F516, F517, F518, F519, F520, F521, F522, F523, F524, F525, F526, F527, F528, F529, F530, F531, F532, F533, F534, F535, F536, F537, F538, F539, F540, F541, F542, F543, F544, F545, F546, F547, F548, F549, F550, F551, F552, F553, F554, F555, F556, F557, F558, F559, F560, F561, F562, F563, F564, F565, F566, F567, F568, F569, F570, F571, F572, F573, F574, F575, F576, F577, F578, F579, F580, F581, F582, F583, F584, F585, F586, F587, F588, F589, F590, F591, F592, F593, F594, F595, F596, F597, F598, F599, F600, F601, F602, F603, F604, F605, F606, F607, F608, F609, F610, F611, F612, F613, F614, F615, F616, F617, F618, F619, F620, F621, F622, F623, F624, F625, F626, F627, F628, F629, F630, F631, F632, F633, F634, F635, F636, F637, F638, F639, F640, F641, F642, F643, F644, F645, F646, F647, F648, F649, F650, F651, F652, F653, F654, F655, F656, F657, F658, F659, F660, F661, F662, F663, F664, F665, F666, F667, F668, F669, F670, F671, F672, F673, F674, F675, F676, F677, F678, F679, F680, F681, F682, F683, F684, F685, F686, F687, F688, F689, F690, F691, F692, F693, F694, F695, F696, F697, F698, F699, F700, F701, F702, F703, F704, F705, F706, F707, F708, F709, F710, F711, F712, F713, F714, F715, F716, F717, F718, F719, F720, F721, F722, F723, F724, F725, F726, F727, F728, F729, F730, F731, F732, F733, F734, F735, F736, F737, F738, F739, F740, F741, F742, F743, F744, F745, F746, F747, F748, F749, F750, F751, F752, F753, F754, F7

12 Other information

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