

VERTICAL MACHINE CENTER

FANUC ELECTRICAL MANUAL (SVX-160 / SVX-300)



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1. Alarm & operation message

Alarm message detail list

Message	Define
1000	1000 HEAT EXCHANGE OVER LOAD : QF1
1004	1004 SPINDLE FAN OVER LOAD : QF7
1023	1023 HYDRAULIC MOTOR OVER LOAD : QM14
1024	1024 GREASE PUMP MOTOR OVER LOAD : QM15
1026	1026 CHIP FLUSH MOTOR OVER LOAD : QM6
1030	1030 CTS MOTOR OVER LOAD : QM9
1035	1035 CHIP CONVEYOR MOTOR OVER LOAD : QM3
1047	1047 COOLANT MOTOR OVER LOAD : QM1
1052	1052 OIL SKIMMER OVER LOAD : QM7
1060	1060 MAGAZINE POT EMPTY ALARM
1061	1061 SUB-OPERATION BOARD VALID
1062	1062 ATC DOOR OPEN ALARM
1063	1063 MAGAZINE RETURN ALARM
1064	1064 MAGAZINE MAINTENANCE MODE ON
1070	1070 SPINDLE EMPTY ALARM
1074	1074 SPINDLE ORIENT ALARM
1076	1076 SPINDLE ROTATE ALARM
1077	1077 SPINDLE CLAMP/UNCLAMP ALARM
1081	1081 SPINDLE DRIVER ALARM
1082	1082 SPINDLE OIL & AIR DATA ALARM
1090	1090 Y AXIS COVER OPEN ALARM
1091	1091 OPERATION DOOR OPEN ALARM
1166	1166 EXTERNAL COOLANT TANK LEVEL LOW
1175	1175 SPINDLE LUBE OIL LEVEL LOW
1176	1176 SPINDLE LUBE PRESSURE ERROR
1177	1177 AIR PRESSURE LOW ALARM
1183	1183 COOLANT TANK LEVEL LOW
1186	1186 SPINDLE COOLER ALARM
1197	1197 TOOL LIFE FULL
1245	1245 AIR PRESSURE SWITCH OFF ALARM

Alarm message and troubleshooting description

Message	1000 HEAT EXCHANGE OVER LOAD : QF1
Description	The EC cabinet heat exchange over load .
Troubleshooting	<ol style="list-style-type: none"> 1. Please check heat exchange coolant fan. 2. Please clen the filter of heat exchange.
Message	1004 SPINDLE FAN OVER LOAD : QF7
Description	The external spindle fan is overloaded.
Troubleshooting	<ol style="list-style-type: none"> 1. Check it if a trip of QM7 over current switch in the electrical box occurs. Make sure it functions well. 2. Check if the external spindle fan runs smoothly. Make sure it works well.
Message	1023 HYDRAULIC MOTOR OVER LOAD : QM14
Description	The hydraulic pump motor is overloaded.
Troubleshooting	<ol style="list-style-type: none"> 1. Please check hydraulic oil level is normal. 2. Please check hydraulic oil is clean , if it not , please change it.
Message	1024 GREASE PUMP MOTOR OVER LOAD : QM15
Description	Auto grease lubrication pump alarm.
Troubleshooting	<ol style="list-style-type: none"> 1. Please check grease level is normal. 2. Please made a regular change it.
Message	1026 CHIP FLUSH MOTOR OVER LOAD : QM6
Description	The flash motor is overloaded.
Troubleshooting	<ol style="list-style-type: none"> 1. Check if a trip of QM6 over current switch in the electrical box occurs. Make sure it works well. 2. Check the level of the coolant. Make sure the coolant reaches the required level. 3. Check if the machining motor runs smoothly. Make sure all functions work well.
Message	1030 CTS MOTOR OVER LOAD : QM9
Description	CTS motor is overloaded
Troubleshooting	<ol style="list-style-type: none"> 1. Check if a trip of QM9 over current switch in the electrical box occurs. Make sure it functions well. 2. Check the level of CTS fluid. Make sure the fluid reaches the required level. 3. Check if CTS motor runs smoothly. Make sure it functions well

Message	1035 CHIP CONVEYOR MOTOR OVER LOAD : QM3
Description	The motor for chip conveyor is overloaded.
Troubleshooting	<ol style="list-style-type: none"> 1. Check if a trip of QM3 over current switch in the electrical box occurs. Make sure it functions well. 2. Check if the chip conveyor runs smoothly. Make sure it works well.
Message	1047 COOLANT MOTOR OVER LOAD : QM1
Description	The motor for sending coolant is overloaded.
Troubleshooting	<ol style="list-style-type: none"> 1. Check all motor over-current switches in the electrical box and remove the overloading condition. 2. Press the "RESET" button to relieve the alarm.
Message	1052 OIL SKIMMER OVER LOAD : QM7
Description	The motor for oil skimming is overloaded.
Troubleshooting	<ol style="list-style-type: none"> 1. Check if a trip of QM7 over current switch in the electrical box occurs. Make sure it functions well. 2. Check if the motor for oil skimming run smoothly. Make sure it functions well.
Message	1060 MAGAZINE POT EMPTY ALARM
Description	Magazine pot dose not empty
Troubleshooting	<ol style="list-style-type: none"> 1. Use manual mode to open the ATC door , make sure magazine pot is empty, try auto ATC tool change again. 2. Take that tool out , try auto ATC tool change again. 3. Check that detect sensor , make sure it functions well.
Message	1061 SUB-OPERATION BOARD VALID
Description	The maganize side OP panel be turn on.
Troubleshooting	Please turn the OP panel from manual mode to auto mode.
Message	1062 ATC DOOR OPEN ALARM
Description	ATC door open does not finish
Troubleshooting	<ol style="list-style-type: none"> 1. Use manual mode or MDI mode (M code) to open ATC door. 2. Check ATC door detect switch has normal work.
Message	1063 MAGAZINE RETURN ALARM
Description	Magazine does not return finish.
Troubleshooting	<ol style="list-style-type: none"> 1. Use manual mode or MDI mode (M code) to backward magazine in normal position. 2. Check magazine backward in-position detect switch has normal work.

Message	1064 MAGAZINE MAINTENANCE MODE ON
Description	When keep relay #15.2 enable, magazine maintenance mode be turn on.
Troubleshooting	Disable keep relay #15.2 to turn off magazine maintenance mode.
Message	1070 SPINDLE EMPTY ALARM
Description	When execution auto tool change, spibdle side and tool side have tool at the same time.
Troubleshooting	<ol style="list-style-type: none"> 1. Use manual mode to open the ATC door , make sure magazine pot is empty, try auto ATC tool change again. 2. Take that tool out , try auto ATC tool change again, check that detect sensor , make sure it functions well.
Message	1074 SPINDLE ORIENT ALARM
Description	Spindle orientation fail
Troubleshooting	<ol style="list-style-type: none"> 1. Check spindle driver is ready. 2. Check spindle mechanism , make sure oes not have any interferenc.
Message	1076 SPINDLE ROTATE ALARM
Description	Spindle rotation alarm
Troubleshooting	<ol style="list-style-type: none"> 1. Check spindle driver is ready. 2. Check spindle mechanism , make sure oes not have any interferenc.
Message	1077 SPINDLE CLAMP/UNCLAMP ALARM
Description	An error of tool clamping controlled by the spindle occurs.
Troubleshooting	<ol style="list-style-type: none"> 1. Check the spindle unclamping mechanism for tool clamping and unclamping. Make sure it works well. 2. Check the detection switch for spindle tool clamping and unclamping. Make sure it works wells. 3. Activate spindle tool clamping with M75 command. Press "RESET" button once to relieve the alarm.
Message	1081 SPINDLE DRIVER ALARM
Description	Spindle amplifier alarm
Troubleshooting	Please check amplifier LED display, if it does not " - - " , please contact with SHARP.
Message	1082 SPINDLE OIL & AIR DATA ALARM
Description	Spindle lubrication time set error
Troubleshooting	Revise lubrication time, and try to test it again.

Message	1090 Y AXIS COVER OPEN ALARM
Description	Y axis telescopic cover does not be locked.
Troubleshooting	Please make sure Y axis telescopic cover is locked by lock pin.
Message	1091 OPERATION DOOR OPEN ALARM
Description	The safety door is not properly closed.
Troubleshooting	The safety door is not properly closed. Make sure the door is closed to cancel the message.
Message	1166 EXTERNAL COOLANT TANK LEVEL LOW
Description	The level of the external tank gets too low.
Troubleshooting	1. Check the level of the fluid in the external coolant tank. 2. Make sure the fluid reaches the required level.
Message	1175 SPINDLE LUBE OIL LEVEL LOW
Description	Alarm for spindle automatic lubricator level
Troubleshooting	1. Check the automatic lubricator. 2. Make sure the lubricant reaches the required level to automatically cancel the message.
Message	1176 SPINDLE LUBE PRESSURE ERROR
Description	Pneumatic pressure for sliding rail too low
Troubleshooting	1. Relieve the alarm by adding oil and pressing pressure feed button until reaching the required pneumatic pressure for sliding rail for 2 seconds.
Message	1177 AIR PRESSURE LOW ALARMSz
Description	The source of air pressure is too low.
Troubleshooting	Check the air pressure system. Make sure the air pressure reaches to the required level and the message is automatically cancelled.
Message	1183 COOLANT TANK LEVEL LOW
Description	The level of coolant gets too low.
Troubleshooting	Check the level of the coolant. Make sure coolant is sufficient.
Message	1186 SPINDLE COOLER ALARM
Description	alarm for spindle cooling mechanism
Troubleshooting	1. Check the spindle cooling mechanism. 2. Add oil to solve the problem if necessary.

Message	1197 TOOL LIFE FULL
Description	The tool life count reaches the limit.
Troubleshooting	1. Check and replace the tool with full life count. Make sure the tool is properly installed without damage. 2. Reset tool life count to zero.
Message	1245 AIR PRESSURE SWITCH OFF ALARM
Description	The source of air pressure is too low.
Troubleshooting	Check the air pressure system. Make sure the air pressure reaches to the required level and the message is automatically cancelled.

2. Electric Parts list

NO	Name	Specification	Quantity	Unit	ID
1	AC bus	GV2 G245	1	ps	
2	AC bus	GV2 G345	1	ps	
3	AC bus	GV2 G445	1	ps	
4	Safety relay	XPS-AF5130	1	ps	AS0
5	Terminal cover	BW9BTGA-L3	1	ps	QF0
6	Circuit Breaker	IK60N3P 32A	1	ps	QF1
7	Circuit Breaker	IK60N 3P 10A	1	ps	QF10
8	Circuit Breaker	IK60N 2P 6A	1	ps	QF12
9	Circuit Breaker	IK60N 3P 10A	1	ps	QF2
10	Circuit Breaker	IK60N 1P 10A	1	ps	QF3
11	Circuit Breaker	IK60N 1P 6A	1	ps	QF4
12	Circuit Breaker	IC60N/ 1P 4A	1	ps	QF6
13	Circuit Breaker	IK60N 2P 6A	1	ps	QF9
14	Ground plate	12P	2	ps	
15	Ground plate	3P	1	ps	
16	Auxiliary contacts	GVAE11 (1A/1B)	8	ps	
17	Handles	BW9N0GA	1	ps	QF0
18	Combination blocks	GV2AF3	8	ps	
19	Molded case circuit brea	BW250EAG 3P 200A	1	ps	QF0
20	Switch	2 position /2 NO contact /3A	1	ps	
21	Shunt trip device	BW9FKG	1	ps	QF0
22	Overload relay	GV2 ME 08 (2.5~4A)	1	ps	QM1
23	Overload relay	GV2 ME 06 (1~1.6A)	1	ps	QM2
24	Overload relay	GV2 ME 04 (0.4~0.63A)	1	ps	QM20
25	Overload relay	GV2 ME 14 (6~10A)	1	ps	QM5
26	Overload relay	GV2 ME 08 (2.5~4A)	1	ps	QM6
27	Overload relay	GV2 ME 16 (9~14A)	1	ps	QM6A
28	Overload relay	GV2 ME 22 (20~25A)	1	ps	QM7
29	Overload relay	GV2 ME 03 (0.25~0.4A)	1	ps	QM8
30	DC Power supply	AD1240-24S	1	ps	GS1
31	DC Power supply	AD1150-24F	1	ps	GS2
32	Contacto	LC1 D95 M7	1	ps	KM109
33	Contacto	LC1 D95 M7	1	ps	KM110

. Electric Parts list

NO	Name	Specification	Quantity	Unit	ID
34	Contactora	LC1 D12 M7	1	ps	KM6A
35	Contactora	LC1 D25 M7	1	ps	KM7
36	Contactora	LC1 D115 M7	1	ps	KMA
37	Contactora	LC1 D09 M7	7	ps	
38	Terminal block	WAGO 2016-1201	6	ps	TB1
39	Terminal block	WAGO 2002-1401	43	ps	TB2
40	Terminal block	WAGO 2002-1407	5	ps	TB2
41	End and intermediate pl	WAGO 2016-1291	1	ps	TB1
42	End and intermediate pl	WAGO 2002-1491	1	ps	TB2
43	Jumper bar	WAGO 2016-402	3	ps	TB1
44	Jumper bar	WAGO 2002-402	2	ps	TB2
45	Jumper bar	WAGO 2002-403	2	ps	TB2
46	Jumper bar	WAGO 2002-404	1	ps	TB2
47	Jumper bar	WAGO 2002-410	1	ps	TB2
48	Screwless end stop	WAGO 249-116	8	ps	TB2
49	Mechanical interlock	LAD 9R1	1	ps	KM2
50	Relay board	FMI001.3	1	ps	PCB1
51	Relay board	FMI001.3	8	ps	PCB2
52	Relay board	FMI002.3	1	ps	PCB3
53	Terminal board	CJ1 XV050M	1	ps	PCB4
54	Relay	LY2NJ- DC24V	1	ps	K1
55	Relay	MY2NJ- DC24V	1	ps	K37
56	Relay socket	PTF-08A	1	ps	K1
57	Relay socket	PYF-08A	1	ps	K37
58	Signal tower	LW024RGYB02	1	ps	
59	DC link bus	145mm	2	ps	
60	DC link bus	278mm	2	ps	
61	DC link bus	90mm	2	ps	
62	DC link bus	65mm	4	ps	
63			1	ps	
64			1	ps	
65			1	ps	
66			1	ps	

3. M code list

M Code	Define
M0	Program feed hold
M1	Program option stop
M2	Program finish
M3	Spindle CW
M4	Spindle CCW
M5	Spindle Stop
M6	Auto tool change
M7	Spindle air blow
M8	Spindle cutting coolant on
M9	COOLANT/AIR BLOW/C.T.S OFF
M10	C AXIS TABLE CLAMP
M11	C AXIS TABLE UNCLAMP
M12	A AXIS TABLE CLAMP
M13	A AXIS TABLE UNCLAMP
M15	COOLANT FLASH ON
M16	COOLANT FLASH OFF
M19	Spindle orientation
M20	ATC door close
M21	ATC door open
M26	OIL MIST COLLECT ON
M27	OIL MIST COLLECT OFF
M29	Rigid tapping
M30	PROGRAM END
M32	A.T.L.M SKIP SIGNAL CHECK
M36	OVC close
M37	OVC on
M45	CONVEYOR ON
M46	CONVEYOR OFF
M50	C.T.S ON
M51	C.T.S OFF
M63	C.T.S AIR BLOW ON
M67	A.T.L.M AIR BLOW ON
M68	A.T.L.M AIR BLOW OFF

3.1 M code list

M Code	Define
M79	SP TOOL NO. UPDATA
M82	Spindle tool clamp
M83	Spindle tool unclamp
M86	ALL AXIS INTERLOCK PASS
M87	ALL AXIS INTERLOCK PASS OFF
M98	SUB PROGRAM CALL
M99	RETURN MAIN PROGRAM
M100	Magazine forward
M101	Magazine backward
M104	SWING ARM BRD FIN DECEL MD ON
M105	SWING ARM BRD FIN DECE MD OFF
M106	ARM CHUCK OPEN FIN
M107	ARM CHUCK CLOSE FIN
M108	MG WAIT TOOL INDEX FIN
M109	MG RETURN TOOL INDEX FIN
M179	Tool Reorganization
M180	ATC step motion ON
M181	Tool holder release
M182	ATC arm rotates to 60°
M183	Spindle tool release
M184	ATC arm rotates to 180°
M185	Spindle tool clamp
M186	ATC arm rotates to original point
M187	Tool holder up
M111~M117	Spare M code (OPTION)
M200	PROBE ON (M-CODE CALL MACRO) (OPTION)
M201	START CHECK - ENABLE (OPTION)
M202	START CHECK - DISABLE (OPTION)
M300	PROBE OFF (M-CODE CALL MACRO) (OPTION)
M425	3D CHECK -ENABLE (OPTION)
M426	3D CHECK -DISABLE (OPTION)

4. PLC parameter

4.1 Keep relay

Item	Define = 0	Define = 1
K0.0	Spindle coolant alarm message disable	Spindle coolant alarm message valid
K0.7	Coolant motor over load alarm message disable	Coolant motor over load alarm message valid
K1.7	OIL MIST COLLECTOR AUTO FUN OFF	OIL MIST COLLECTOR AUTO FUN ON
K2.0	MIST COLLECTOR DETECT OFF	MIST COLLECTOR DETECT ON
K2.1	Oil skimmer disable	Oil skimmer valid
K3.0	4TH AXIS CLAMP RESET ENABLE	4TH AXIS CLAMP RESET DISABLE
K3.1	5TH AXIS CLAMP RESET ENABLE	5TH AXIS CLAMP RESET DISABLE
K3.4	HYDRAULIC PUMP ALWAYS OFF	HYDRAULIC PUMP ALWAYS ON
K3.5	C axis clamp device pneumatic	C axis clamp device hydraulically
K3.6		SP HIGH SKIP SPEC
K4.0		ALL AXIS INTERLOCK PASS
K4.1		ATC&APC INTERLOCK PASS
K4.2		ATC&APC JOG
K4.3		APC TEST MODE
K4.4		SP TEST MODE
K4.5		BRAKE TEST REQUIRE
K5.1	CTS function normally	CTS function shift to be coolant
K5.2	CTS function disable	CTS function valid
K5.3	OIL MIST FUNCTION OFF	OIL MIST FUNCTION ON
K5.4	CHIP FLUSH FUNCTION OFF	CHIP FLUSH FUNCTION ON
K11.5	AIR BLOW IN SP RUN (M63) DISALBE	AIR BLOW IN SP RUN (M63) ENALBE
K13.5	3D INTERFERENCE CHECK OFF	3D INTERFERENCE CHECK ON
K15.2	MAGAZINE SERVO MPG DISABLE	MAGAZINE SERVO MPG ENABLE
K30.0	SAFETY DOOREENABLE	SAFETY DOOR DISABLE
K30.1	AIR PRESSURE SW ENABLE	AIR PRESSURE SW DISABLE
K30.2	HEAT EXCHANGE AL ENABLE	HEAT EXCHANGE AL DISABLE
K30.3	O&A ALARM ENABLE	O&A ALARM DISABLE
K30.4	LUBE ALARM ENABLE	LUBE ALARM DISABLE
K30.5	3D HANDWHEEL FEED OFF (F1)	3D HANDWHEEL FEED ON (F1)
K30.7	REFERENCE MODE KEEP OFF	REFERENCE MODE KEEP ON
K32.7		Tool change mechanism Maintenance mode

4.2 Timer detail list

Timer no.		Define	Preset	Unit	
1	T0	AXIS LUBE HOLD TIMER	9984	sec	
2	T2				
3	T4	SIGNAL BLOCK, DELAY TIMER	0	sec	
4	T6	SPINDLE STOP DELAY TIMER	400	0.4 sec	
5	T8			sec	
6	T10				
7	T12	Chip conveyor on timer	30000	sec	
8	T14	Chip conveyor off interval timer	9984	sec	
9	T16	TAPPING DELAY TIMER	0	sec	
10	T18	A axis table clamp finish time	1000	1 sec	
11	T20	A axis table unclamp finish time	1000	1 sec	
12	T22	C axis table clamp delay time	1000	1 sec	
13	T24	C axis table unclamp delay time	1000	1 sec	
14	T26	MANUAL MODE, TOOL UNCLAMP AIR BLOW TIMER	3000	sec	
15	T28	BUZZER ON TIMER	5000	sec	
16	T30	PROGRAM STOP DELAY TIMER	5000	sec	
18	T34	MANUAL TOOL UNCLAMP DELAY TIMER		sec	
26	T50	SP OIL AIR PRESSURE HOLD TIMER	15000	15 sec	
40	T78	OIL MIST COLLECTOR OFF DELAY	60000	60sec	
58	T114	MAG FORWARD DELAY TIMER	496	0.5 sec	
59	T116	MAG BACKWARD DELAY TIMER	496	0.5 sec	

4.3 Counter

Counter detail list

Counter no.		Define	Preset	
5	C16	SP OIL AIR LUBE COUNT SETTING (SEC)	900	Sec
	C18	SP OIL AIR LUBE COUNT VALUE (SEC)	x	
16	C60	AXIS LUBE COUNT SETTING (10 SEC)	1440	10sec
	C62	AXIS LUBE COUNT VALUE (10 SEC)	x	
1	C0	MAG POCKET COUNT SETTING		
	C2	MAG POCKET CURRET POSITION SETTING		

4.4 Data table

Data table detail list

Data	Define	Preset
D4	SPINDLE TOOL	24
D600	Model category	1
D602	Tool change mechanism	5
	99: no tool change mechanism	
	5: ARM type 11: Servo tool magazine	
D840	Spindle Tool number	
D841~ D937	Tool magazine number	24

Special setting

Parameter :

P1242 : REF. POINT #3 : Upper stand-by position for ATC device
























P1243 : REF. POINT #4 : Lower stand-by position for ATC device

P4031 : Shift position of orientation / M19

#1132 : Current tool no. of spindle (Must same as tool no. of operation board)

5. ELECTRIC-SYMBOL DETAIL

Proximity switch break contact	Proximity switch make contact	limit switch break contact	limit switch make contact
Pushbutton make contact	Pushbutton break contact	Float switch break contact	Float switch make contact
GREEN LAMP	YELLOW LAMP	ILLuminated Pushbutton Momentary	Transformer
White Lamp	Orange Lamp	Red Lamp	Key Switch
ILLuminated Pushbutton Alternate	Pushlock Turn Reset Type Pushbutton	Solenoid Valvecoil	PNP Proximity Switch Make contact
AC MOTOR 1φ	NPN Proximity Switch Break contact	PNP Porximity switch Break contact	NPN Proximity Switch Make contact

NC INPUT	NC OUT	Ground	ILLuminated Pushbutton momentary(Yellow)
			
FUSE	DIODE	LED	ILLuminated Pushbutton momentary(White)
			
Not gate	ILLuminated Pushbutton Alternate(White)	ILLuminated Pushbutton Alternate(Yellow)	ILLuminated Pushbutton momentary(Red)
			
Buffer	ILLuminated Pushbutton Alternate(Orange)	ILLuminated Pushbutton Alternate(Green)	ILLuminated Pushbutton momentary(Green)
			
Spark killer	Resistance	AC MOTOR 3p	Relay ¹
			
Capacitor	Make contact	Break contact	
			

6. Malfunction Exclude**1. ATC NOT READY alarm occurs or the ATC arm is not at normal position.**

(1) The ATC arm is not at normal position.

A. If the ATC arm is not at normal position (0°), change the screen to alarm display page and execute the M code according to operation message.

1.1 Keep relay

K32.7	1	Tool change mechanism Maintenance mode
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1.2 MDI

EXECUTE M180 Please execute M180 (single block tool exchange effectiv)

EXECUTE M181 Please execute M181 (tool pot goes down)

EXECUTE M182 Please execute M182 (ATC arm rotates to 60°)

EXECUTE M183 Please execute M183 (Spindle tool release)

EXECUTE M184 Please execute M184 (ATC arm rotates to 180°)

EXECUTE M185 Please execute M185 (Spindle tool clamp)

EXECUTE M186 Please execute M186 (ATC back to 0°)

EXECUTE M187 Please execute M187 (tool pot goes up)

Switch the screen to alarm display page. If there is no operation message, please rotate the ATC arm motor to normal position by manual.



Sharp Industries, Inc.

3501 Challenger Street
 90503 Torrance, CA
 Phone. +310-370-5990

Customer	USER
Project desc.	SVX series
Drawing number	SK_SVX_F_R001
Manufacturer (company)	Sharp Industries, Inc.
Project name	SK_SVX_31iMB_R001
Checked by	FMI
Creator	FMI
Power supply	3PHASE 220V AC
Control voltage	AC220V + DC24V
Created on	23/12/2013
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Number of pages 63	

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+Chapter2/30	PSM diagram	11	10/05/2018	ASUS	
+Chapter2/31	Coolant diagram	12	10/05/2018	ASUS	
+Chapter2/32	Spindle fan diagram	13	10/05/2018	ASUS	
+Chapter2/33	Indicator diagram	14	10/05/2018	ASUS	

+Title/1

3

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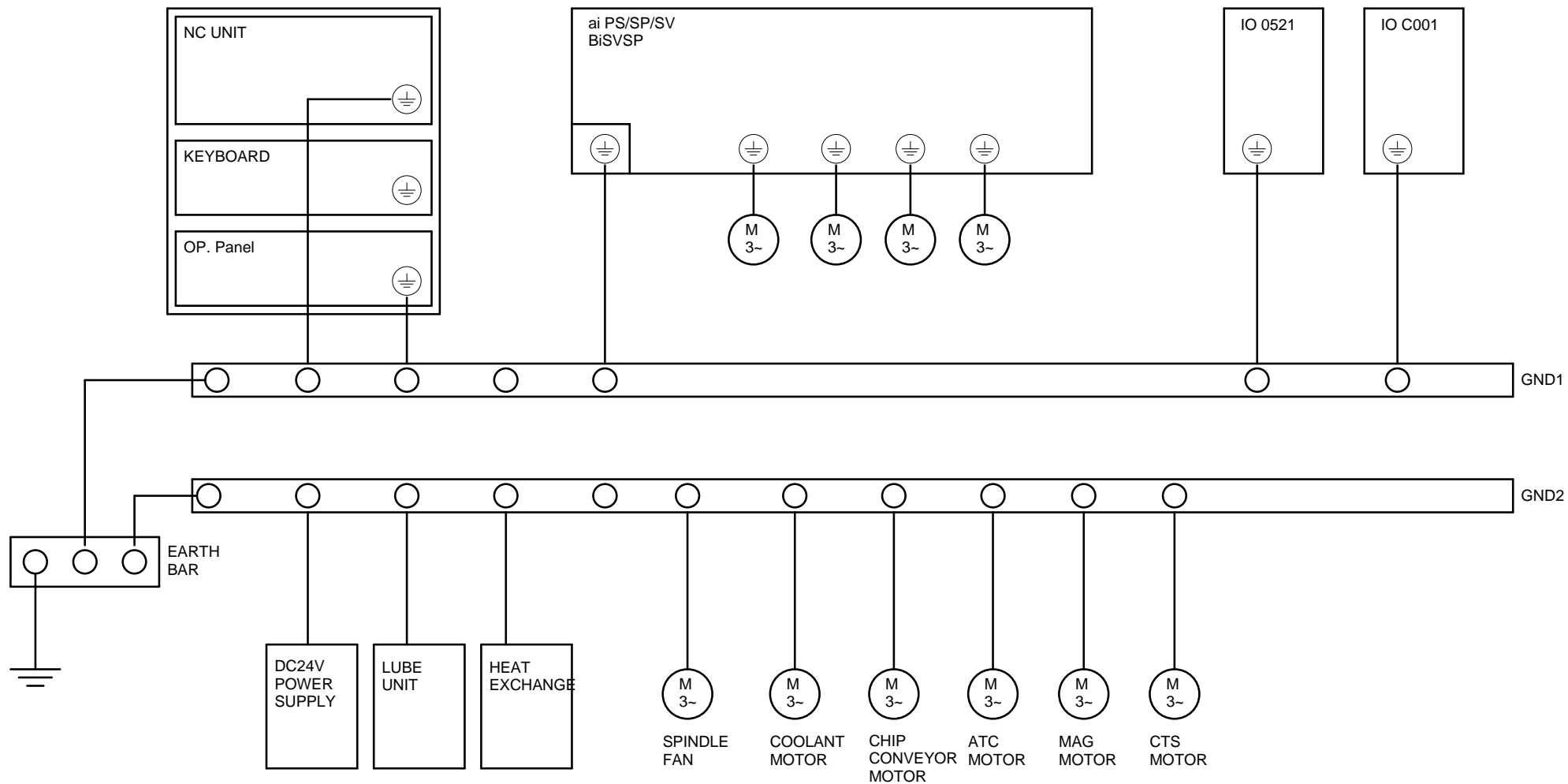
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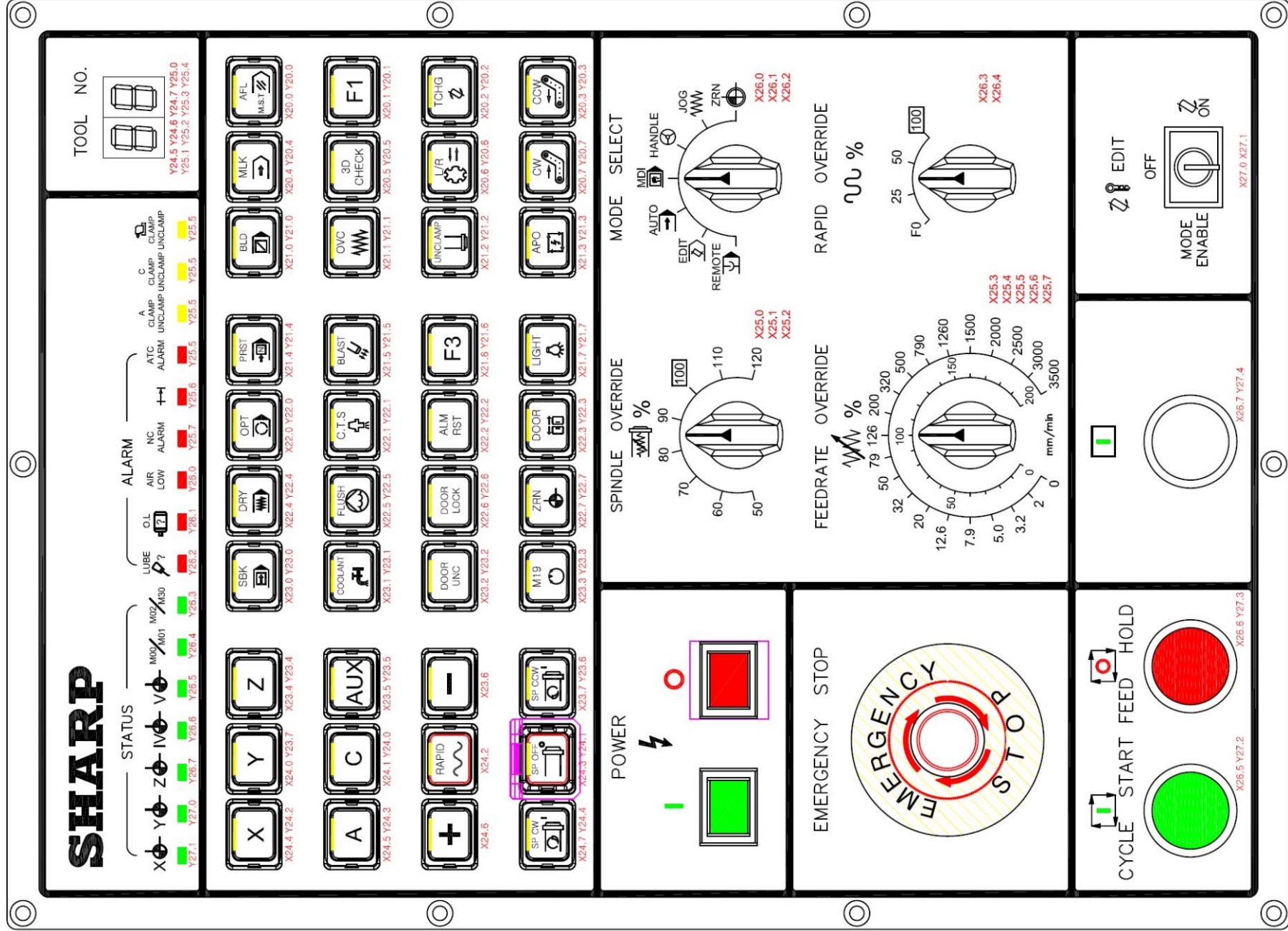
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Page	Page description	Supplementary page field	Date	Edited by	X
+Chapter2/34	Sub operation panel diagram	14	10/05/2018	ASUS	
+Chapter2/35	Safety door diagram	15	10/05/2018	ASUS	
+Chapter2/36	Chip conveyor diagram	15	10/05/2018	ASUS	
+Chapter2/37	Chip screw motor diagram	15	10/05/2018	ASUS	
+Chapter2/38	ARM diagram	15	10/05/2018	ASUS	
+Chapter2/39	Magazine (3 Phase) diagram	15	10/05/2018	ASUS	
+Chapter2/40	Magazine pocket diagram	15	10/05/2018	ASUS	
+Chapter2/41	Magazine in/out (Cylinder type) diagram	15	10/05/2018	ASUS	
+Chapter2/42	Magazine door diagram	15	10/05/2018	ASUS	
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+Chapter2/47	SP oil air unit diagram	16	10/05/2018	ASUS	
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+Chapter2/53	MPG diagram	16	10/05/2018	ASUS	
+Chapter2/54	Spindle oil cooler diagram	16	10/05/2018	ASUS	
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+Chapter2/60	M code input diagram	15	10/05/2018	ASUS	
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+Chapter2/62	Auxiliary coolant tank diagram	16	10/05/2018	ASUS	
+Chapter2/63	BLUM probe & Z-Nano diagram	15	10/05/2018	ASUS	

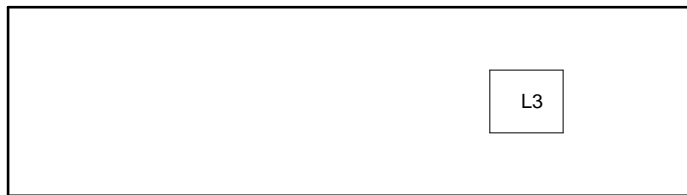
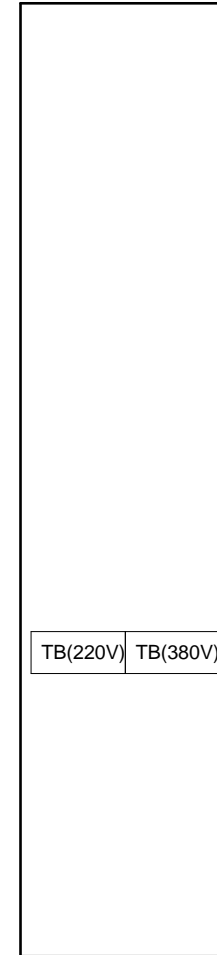
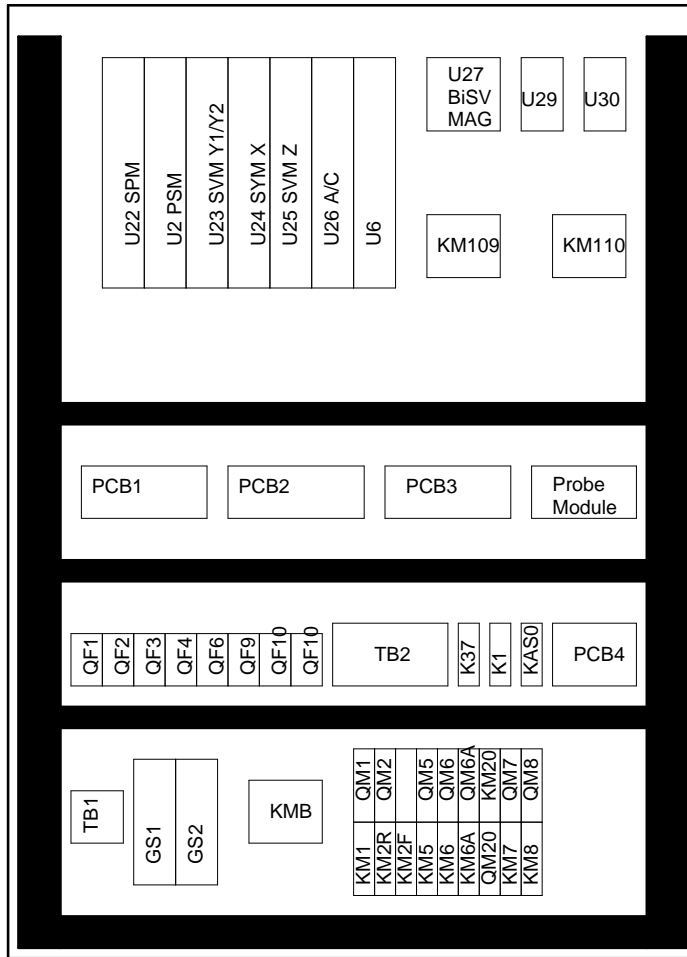
+Chapter1/4

2





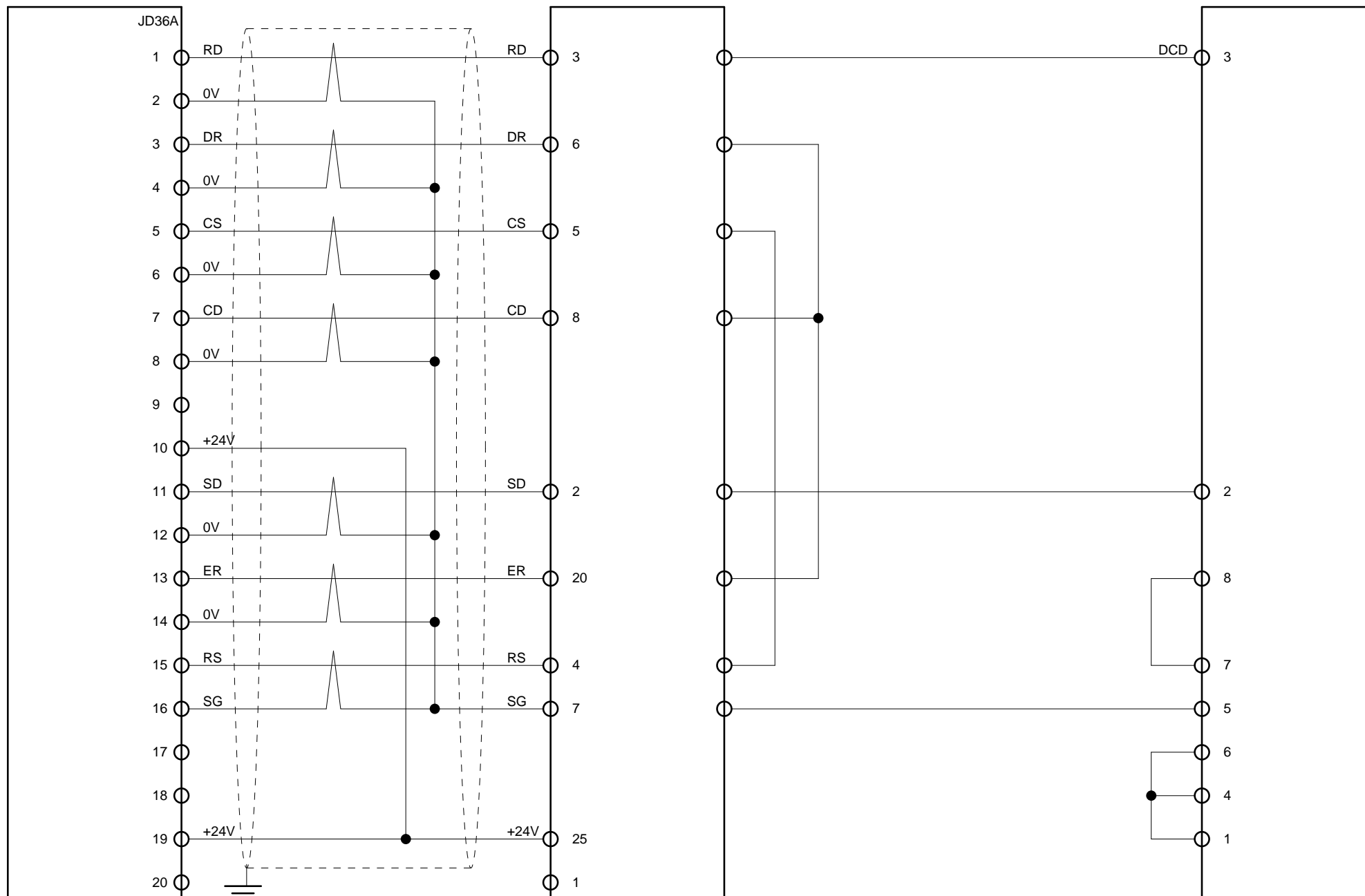
MACHINE TYPE:
SVX-500



NC unit

RS232-C

PC RS232



Connector: D-sub 9 pin

Cable:28AWG*10Pairs

Connector: D-sub 25P RS-232-E

Cable:28AWG*2Pairs

Connector: D-sub 9P

Axis power cable (1K21)

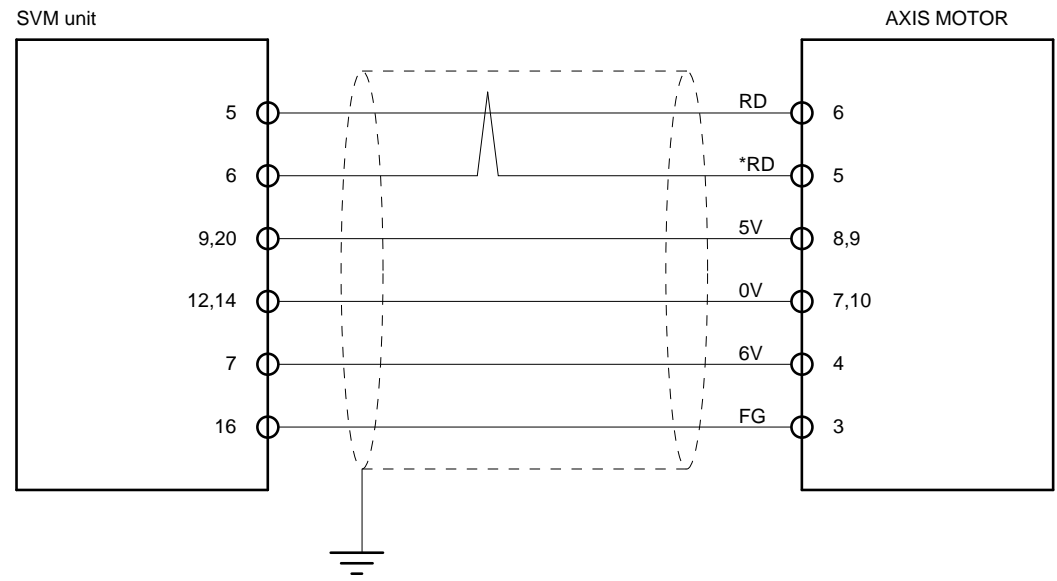


X 1K21X	SVM unit (CZ2L)	X AXIS MOTOR	Cable
	Connector: 1-917807-2 316040-6	Connector: MS3108A 22-22S MS3057-12A	2mm ² *4C

Y 1K21Y	SVM unit (CZ2M)	Y AXIS MOTOR	Cable
	Connector: 1-917807-2 316040-6	Connector: MS3108A 22-22S MS3057-12A	2mm ² *4C

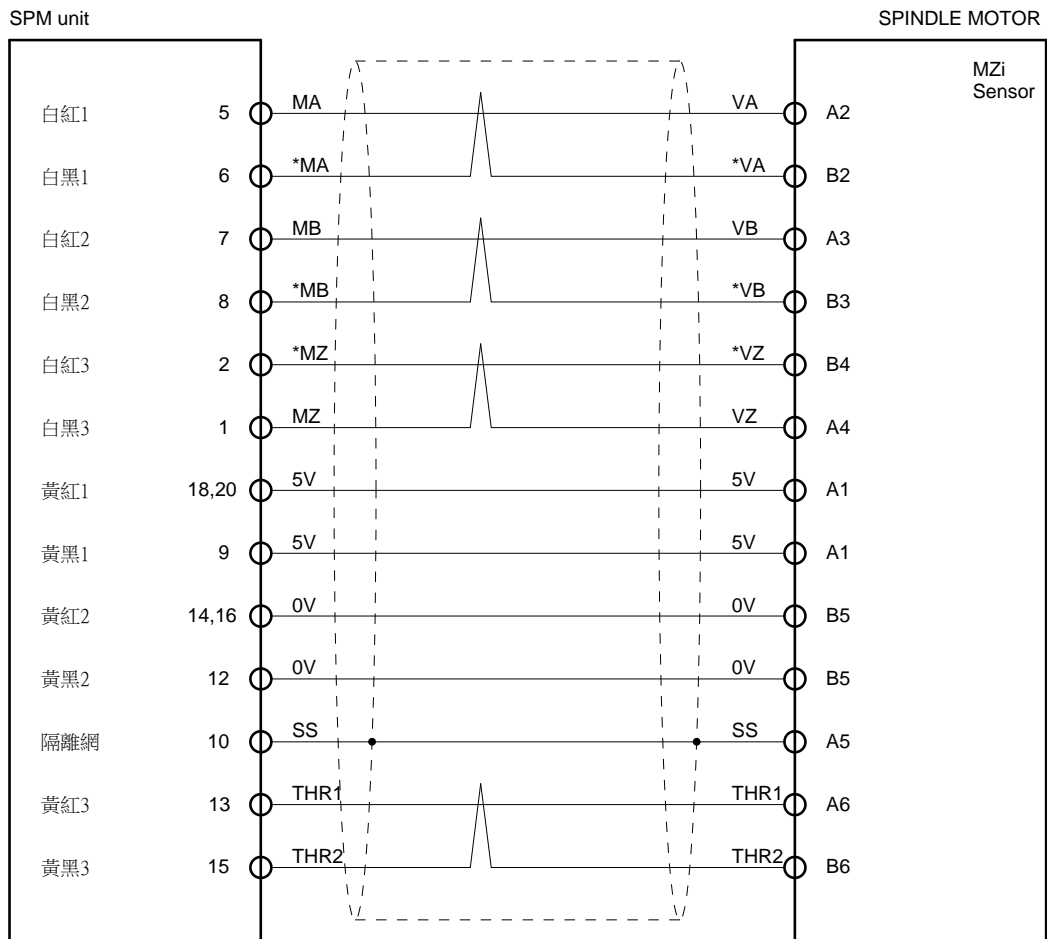
Z 1K21Z	SVM unit (CZ2N)	Z AXIS MOTOR	Cable
	Connector: 1-917807-2 316040-6	Connector: MS3108A 22-22S MS3057-12A	2mm ² *4C

Axis encoder cable (1K22)



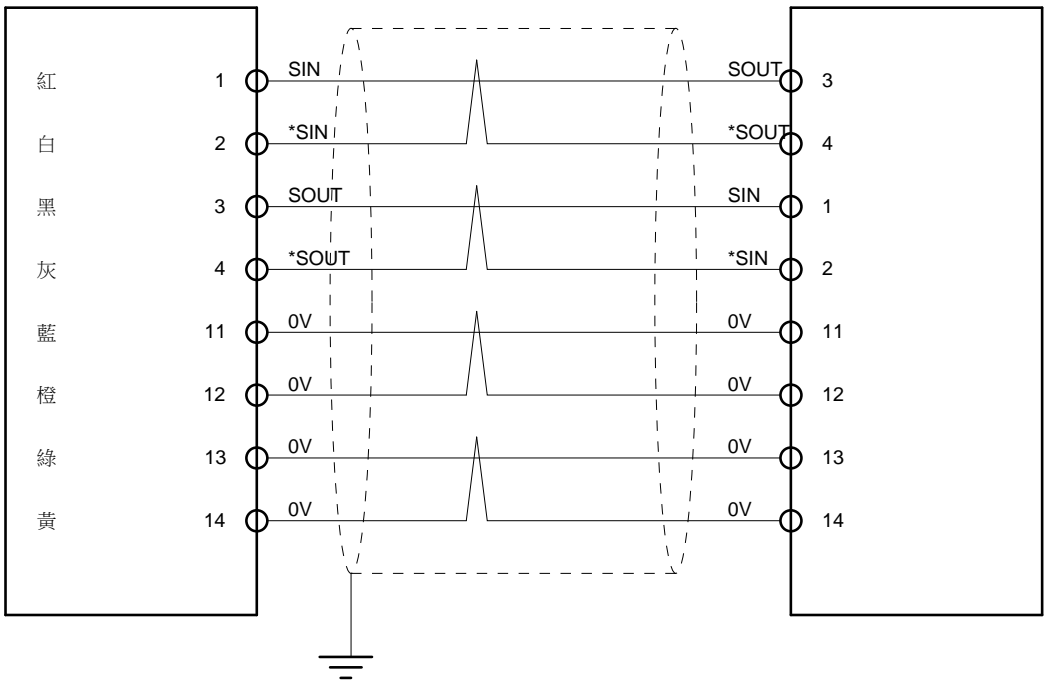
	SVM unit	AXIS MOTOR	Cable
X/Y/Z	Connector: PCR-S20FS PCR-S20LA	Connector: JN2DS10SL1 JN1-22-22S	UL2464 22AWG*4Pairs

Spindle encoder cable (1K17)



	SPM unit	SPINDLE MOTOR	Cable
Bil	Connector: PCR-S20FS PCR-S20LA	Connector: 178289-6 1-175196-5	22AWG*6Pairs

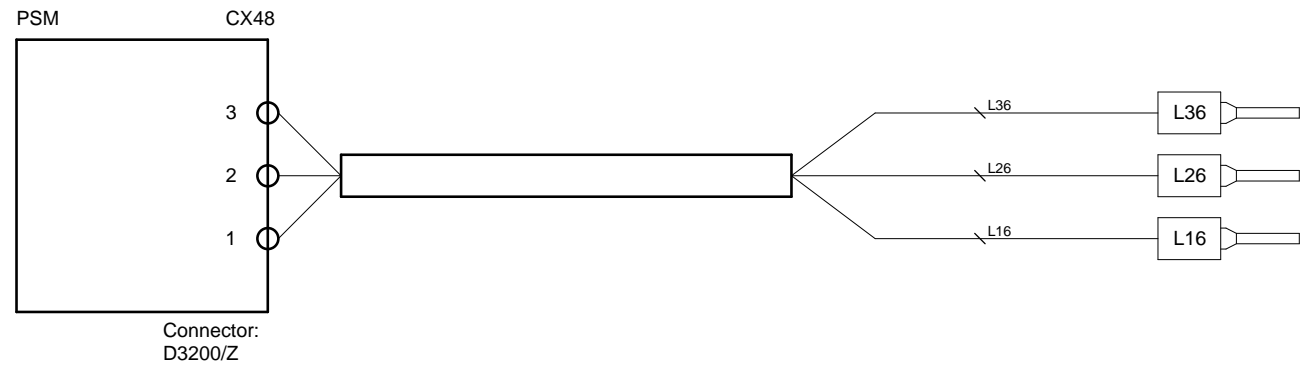
IO link cable



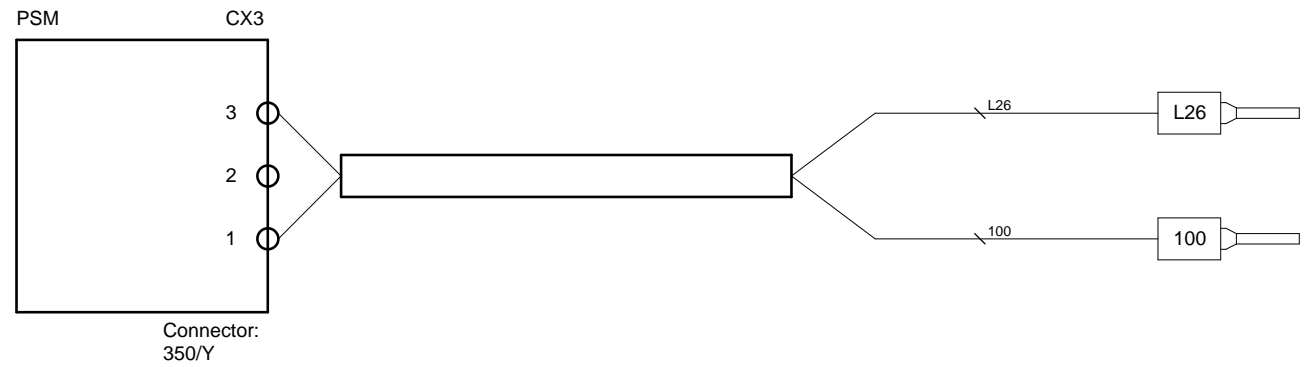
JD51A--JD1B CABLE	NC unit JD51A	IO Module JD1B	Cable
	Connector: PCR-S20FS PCR-S20LA	Connector: PCR-S20FS PCR-S20LA	22AWG*4Pairs

JD1A--JD1B CABLE	IO Module JD1A	IO Module JD1B	Cable
	Connector: PCR-S20FS PCR-S20LA	Connector: PCR-S20FS PCR-S20LA	22AWG*4Pairs

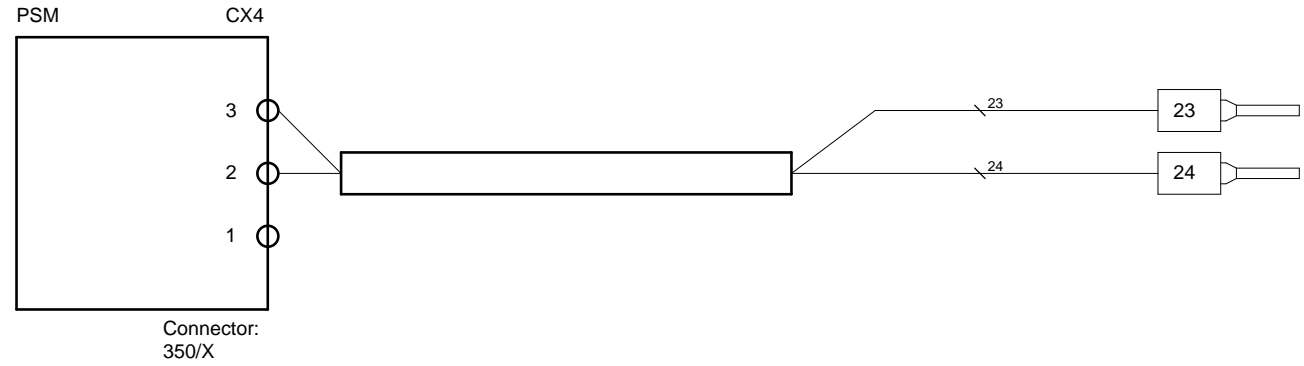
Input power supply voltage monitor cable (K124)



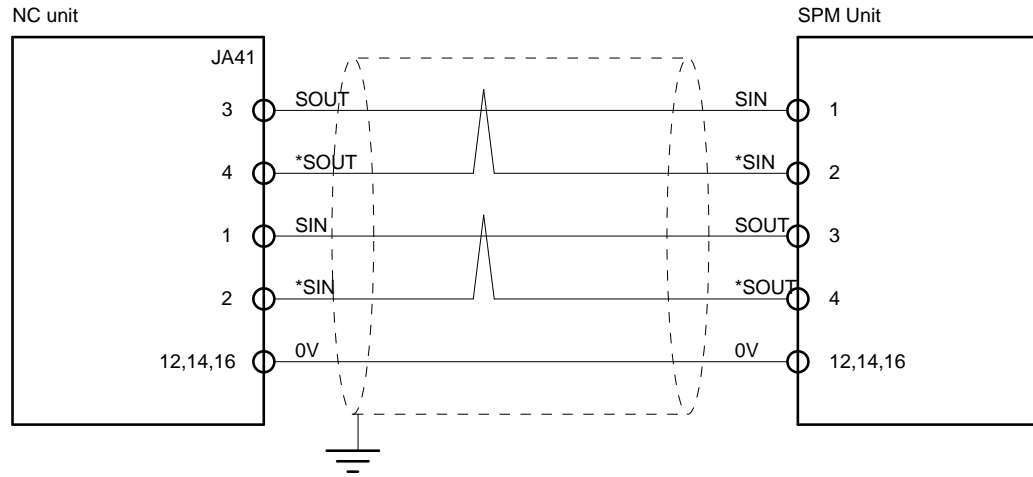
Main contact cable (1K6)



ESP cable (1K7)

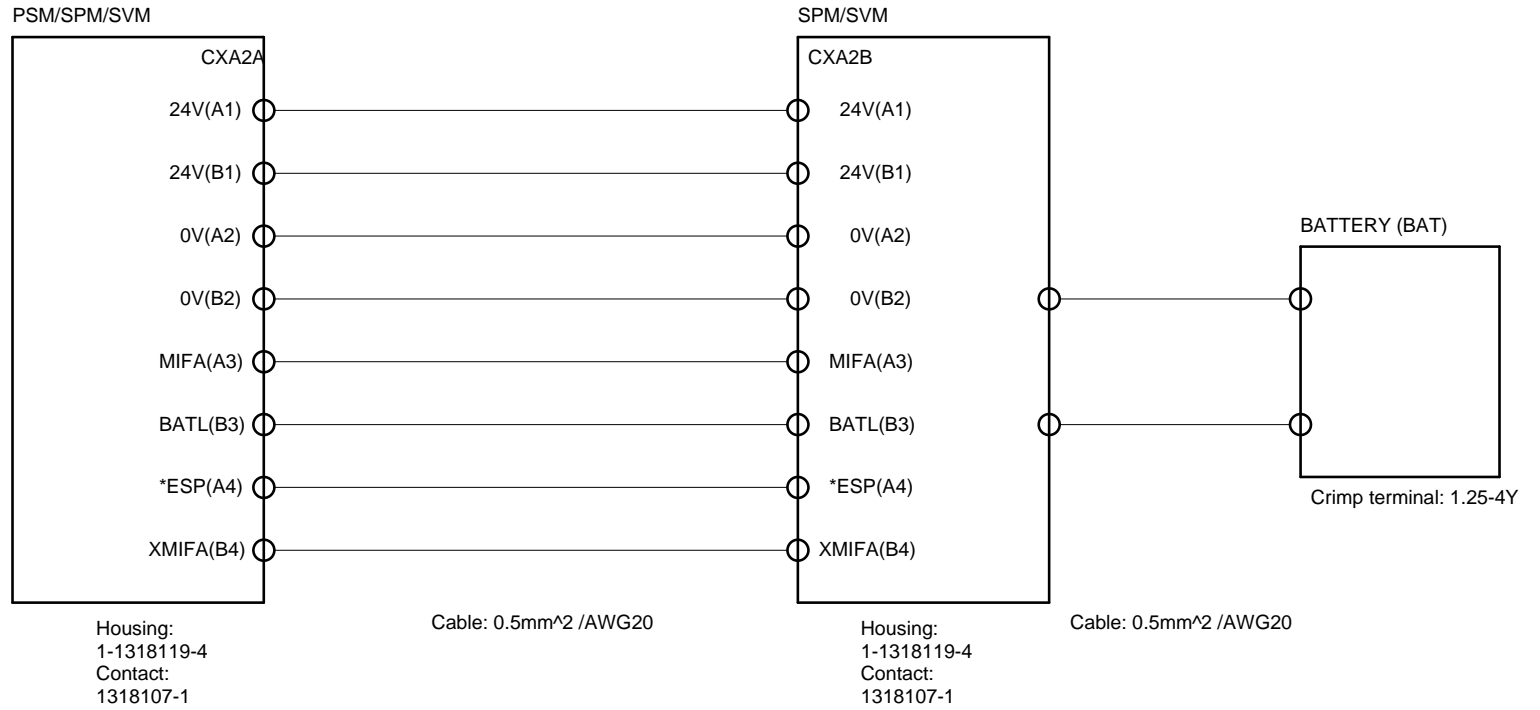


Series spindle cable (1K12)



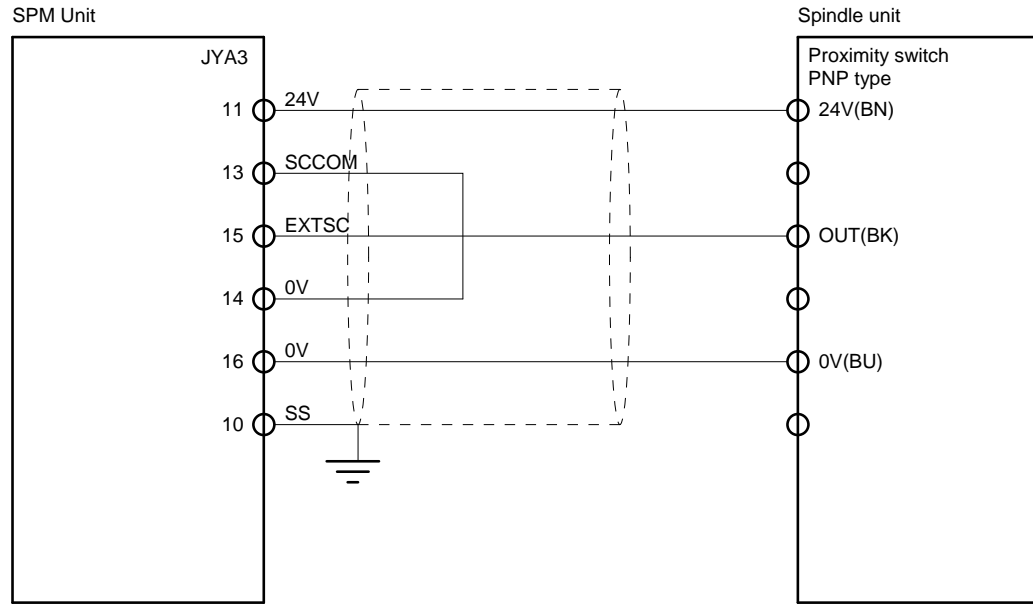
	NC unit	SPM Unit	Cable
JA41--JA7B	Connector: PCR-S20FS PCR-S20LA	Connector: PCR-S20FS PCR-S20LA	22AWG*6Pairs

PSM interface cable (1K12)



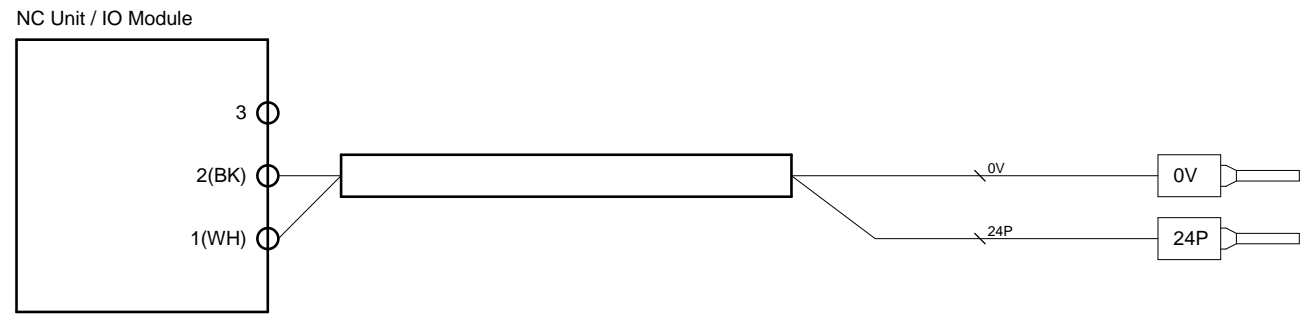
	Part no.	Lenght
1K69-1 1K69-2 1K69-3	FANUC A06B-6110-K801	200mm
1K69-5	0.5mm ² *2C	

Spindle orientation signal cable (JYA3)



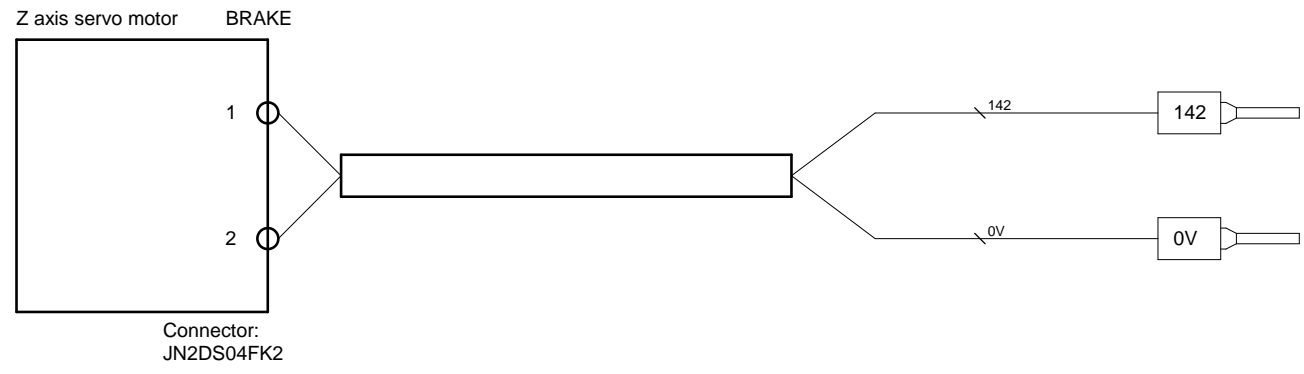
	SPM unit	Spindle Unit	Cable
JYA3	Connector: PCR-S20FS PCR-S20LA		22AWG*2Pairs

DC24V Power supply cable

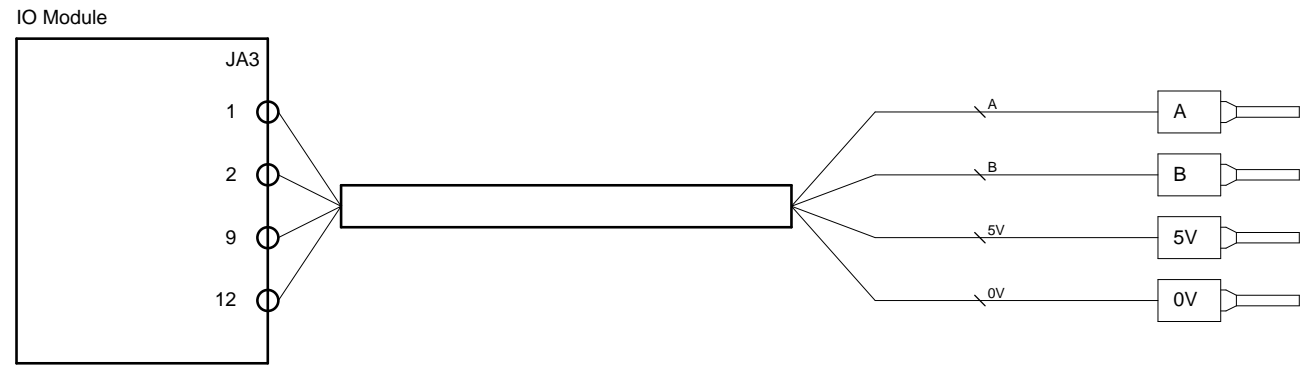


	NC Unit/IO Module	Power supply	Cable
CP1 <---> NC Unit CPD1 <---> IO Module 1 CPD1 <---> IO Module 2	Connector: 1-178288-3 Pin: 1-917484-5		0.75mm ² *2C

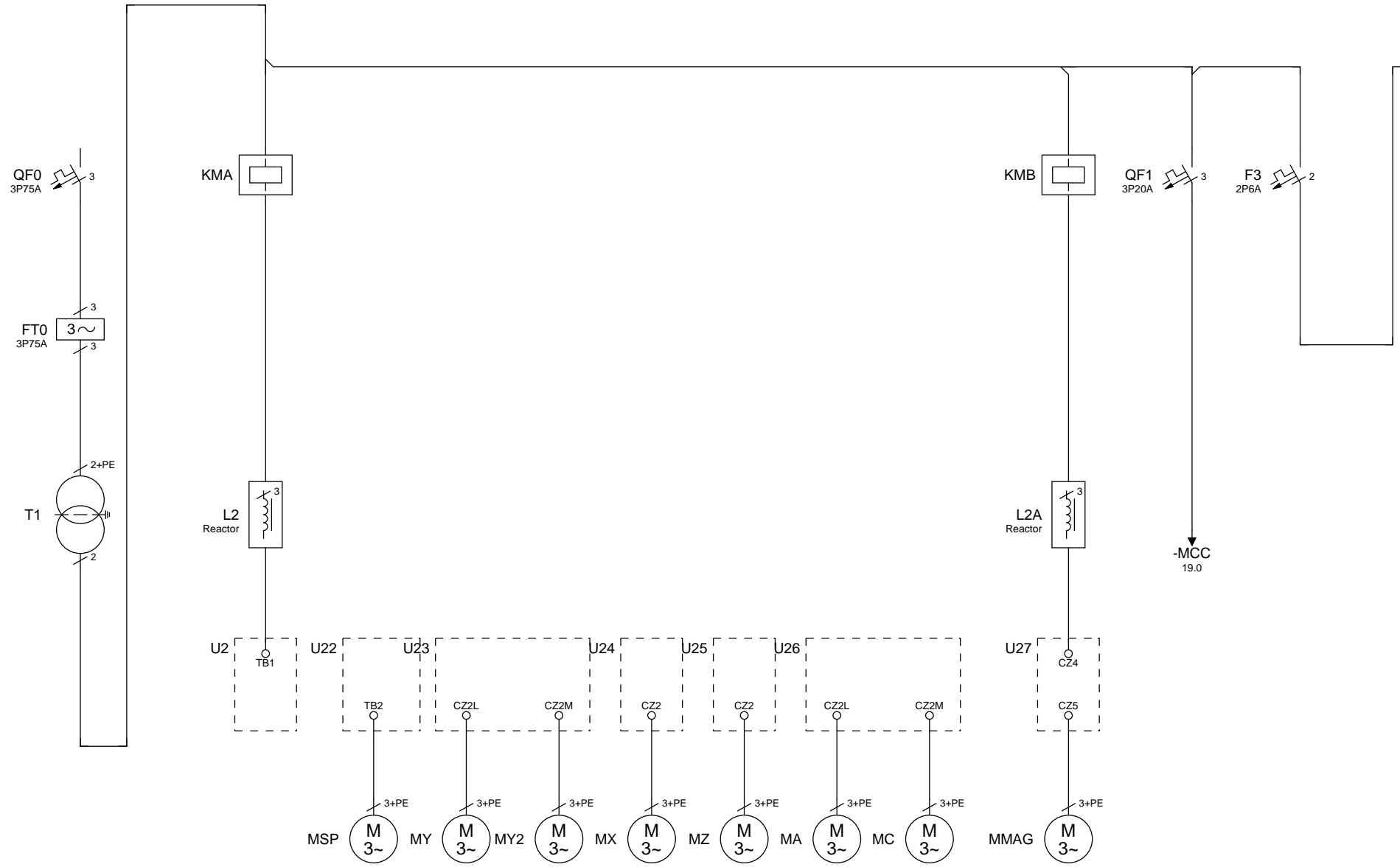
Axis brake cable

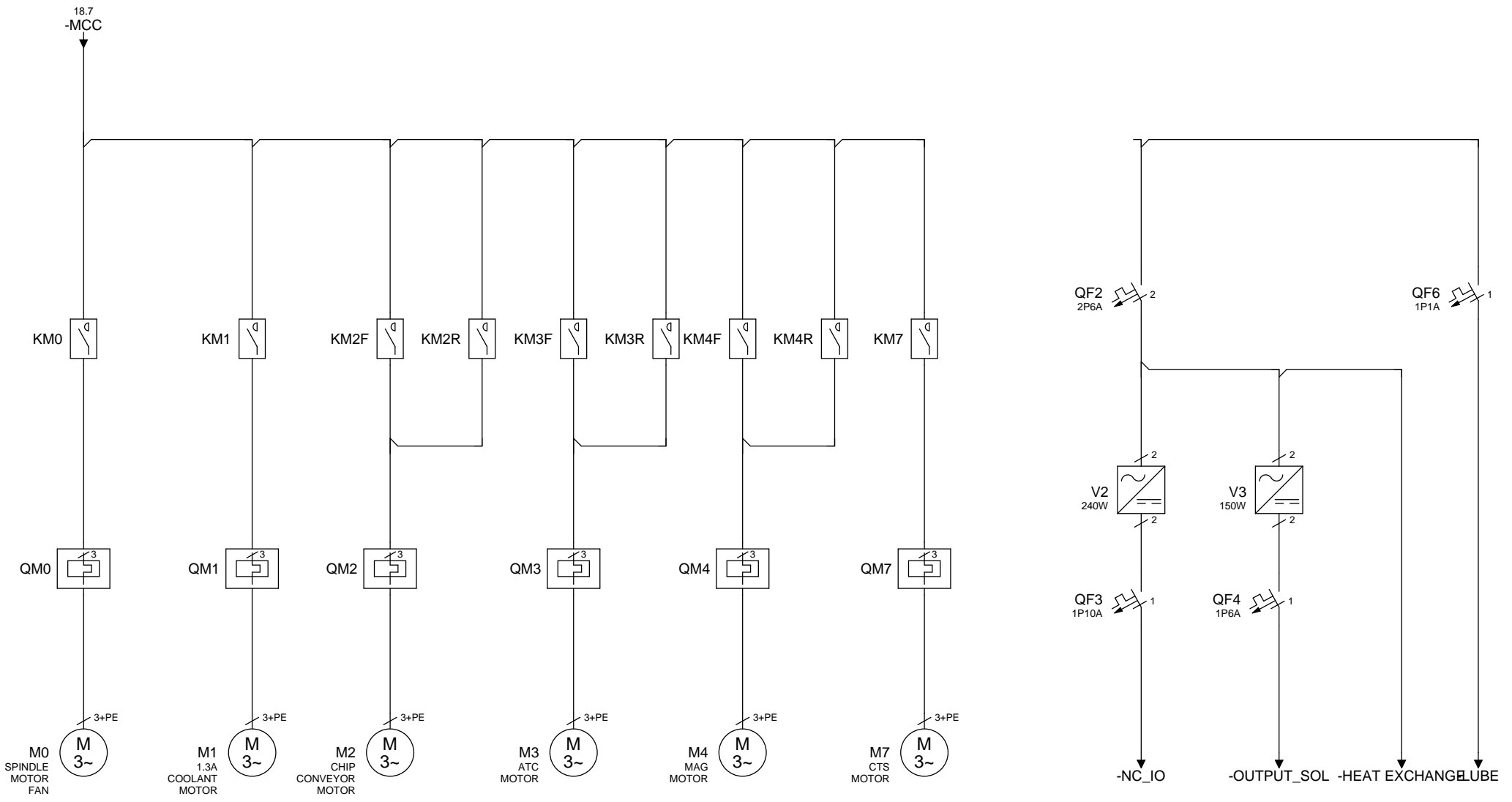


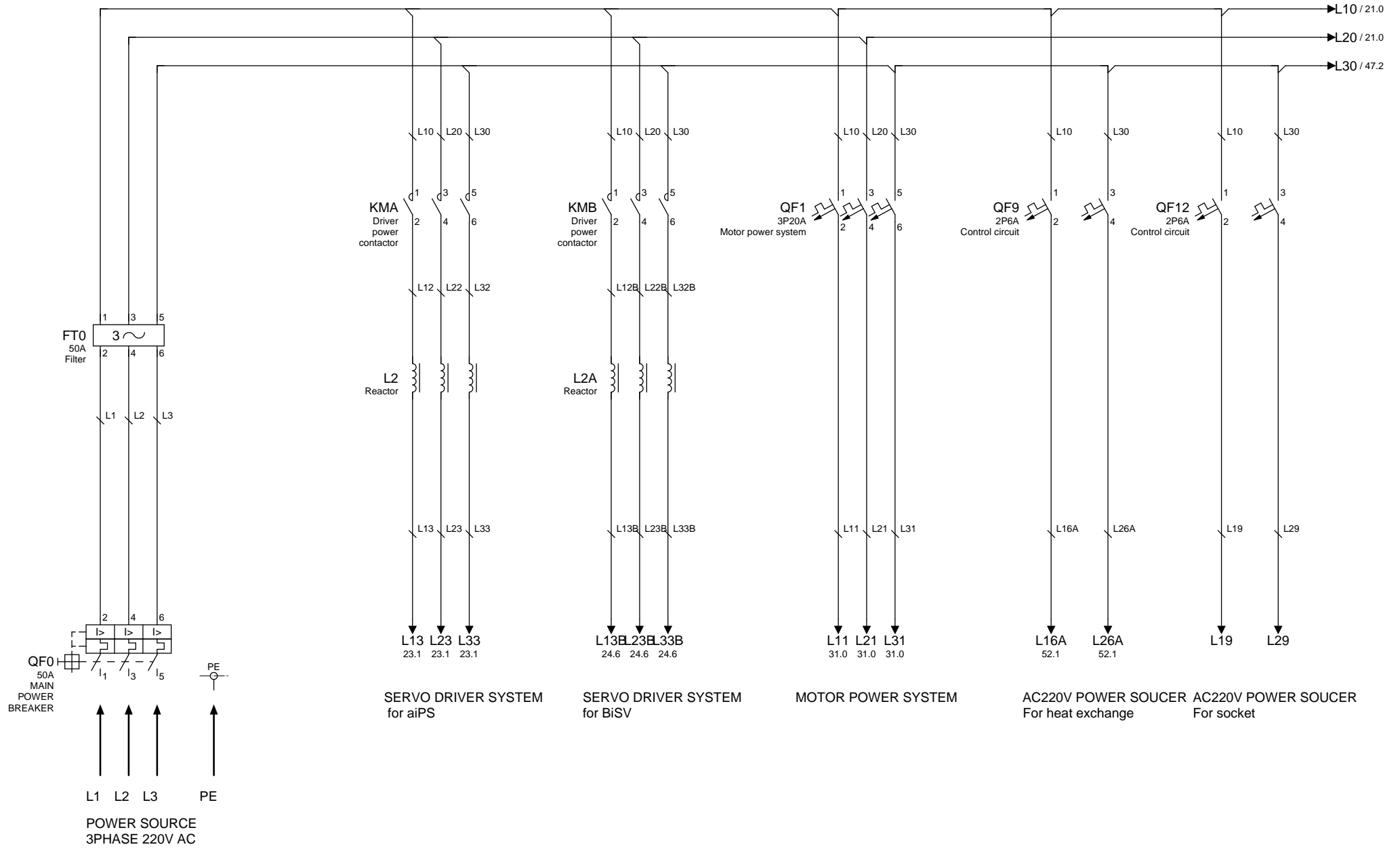
MPG signal cable

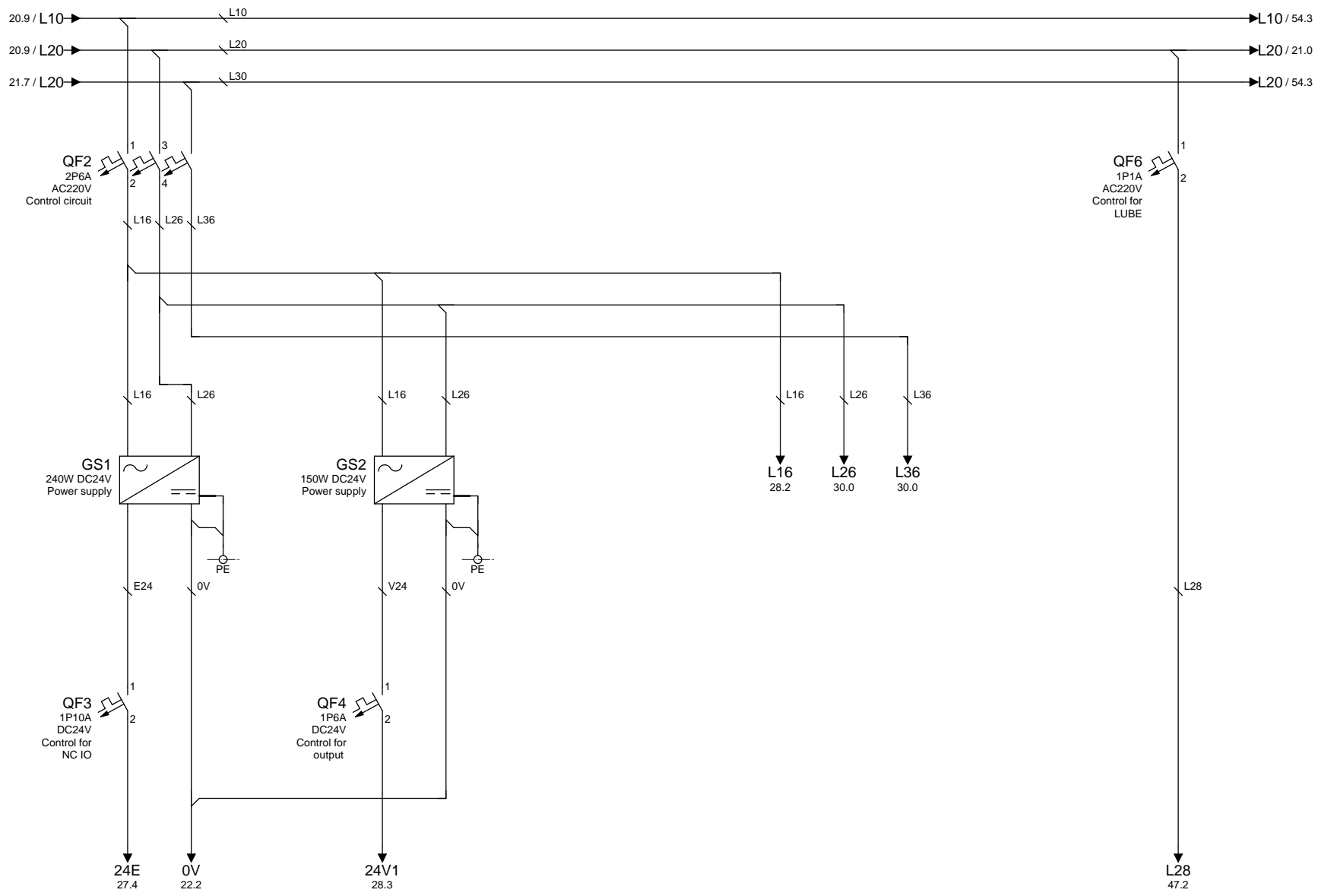


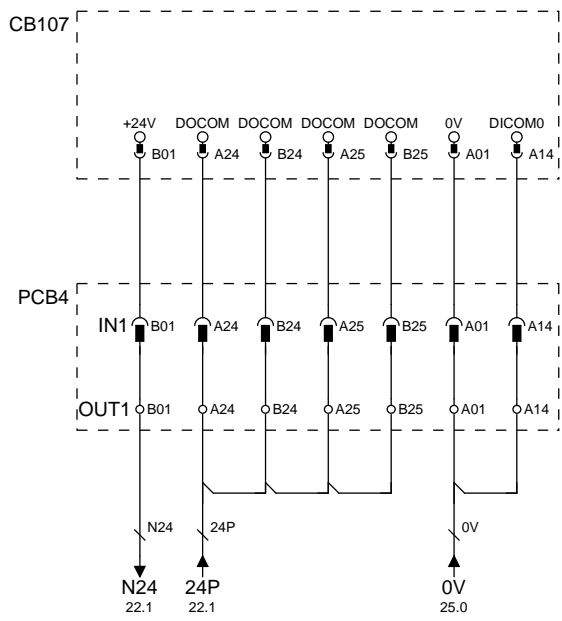
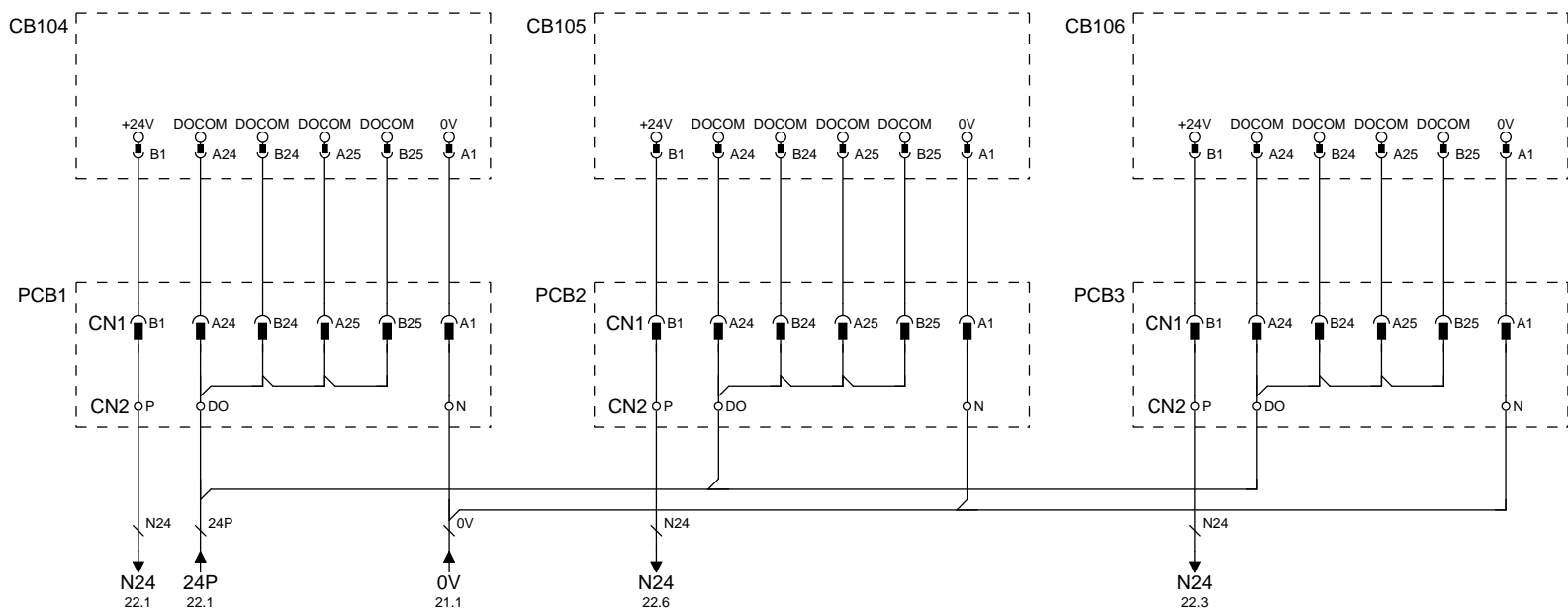
	IO Module	MPG Unit	Cable
JA3	Connector: PCR-S20FS PCR-S20LA		22AWG*2Pairs

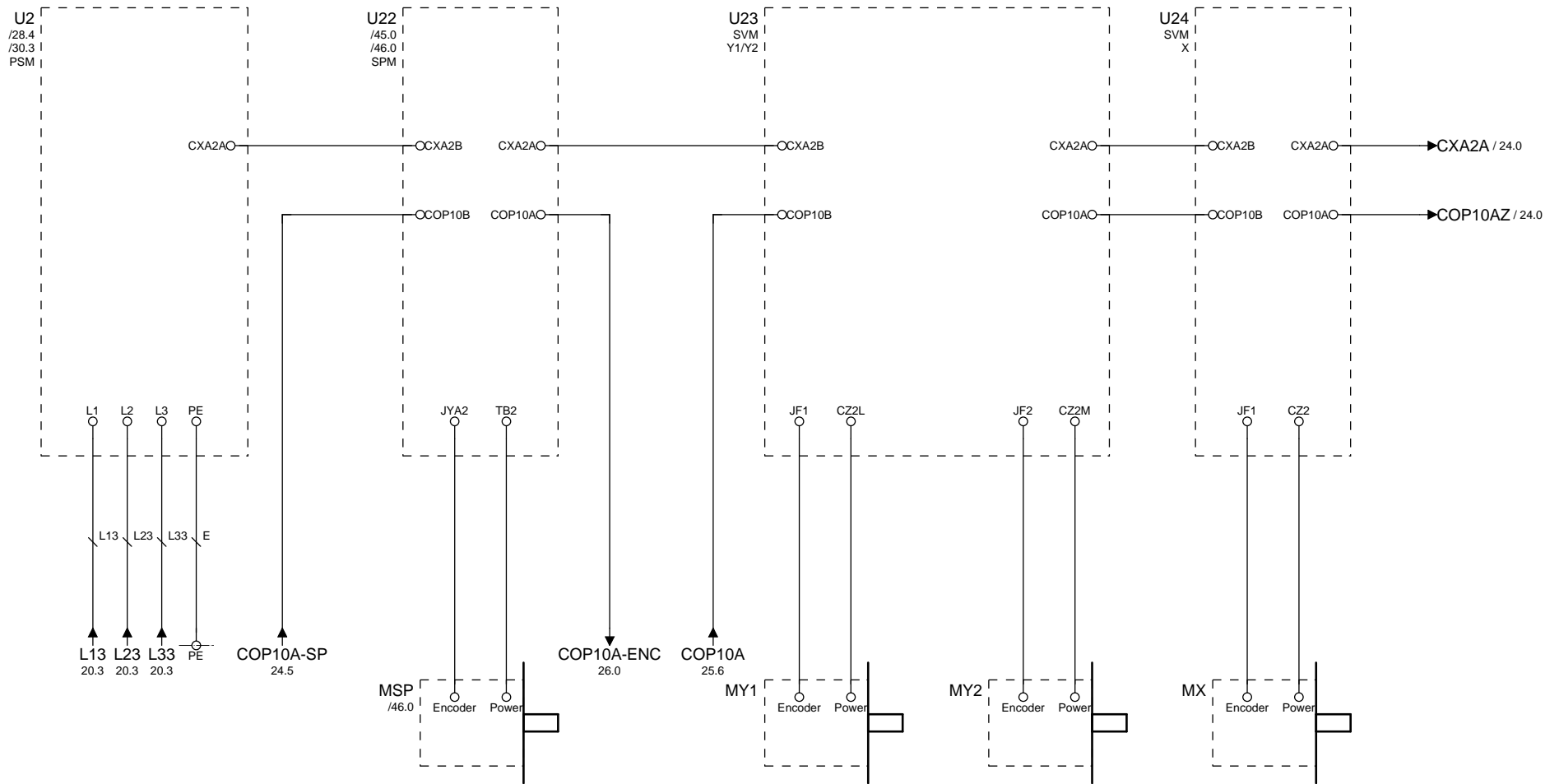


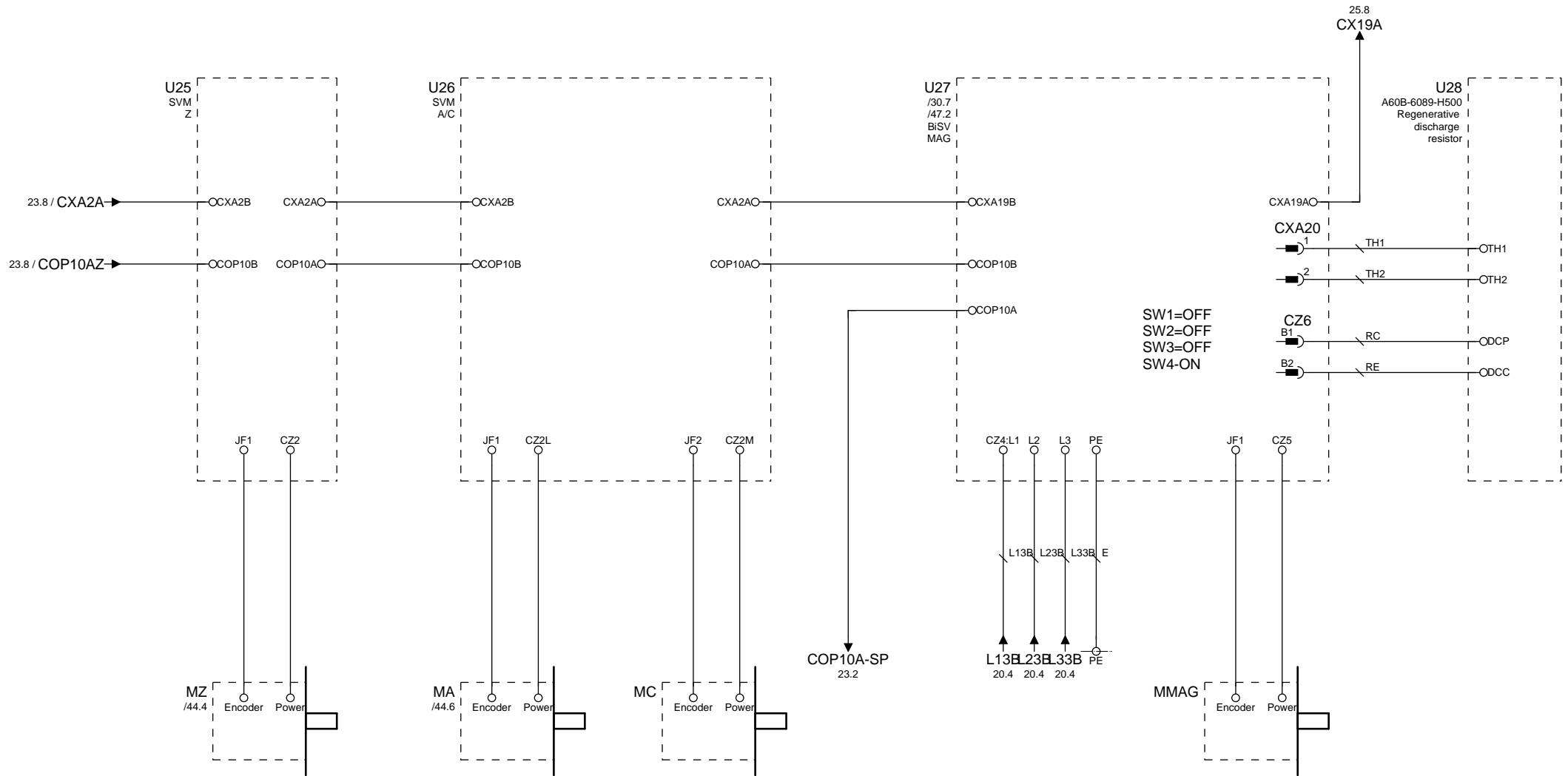


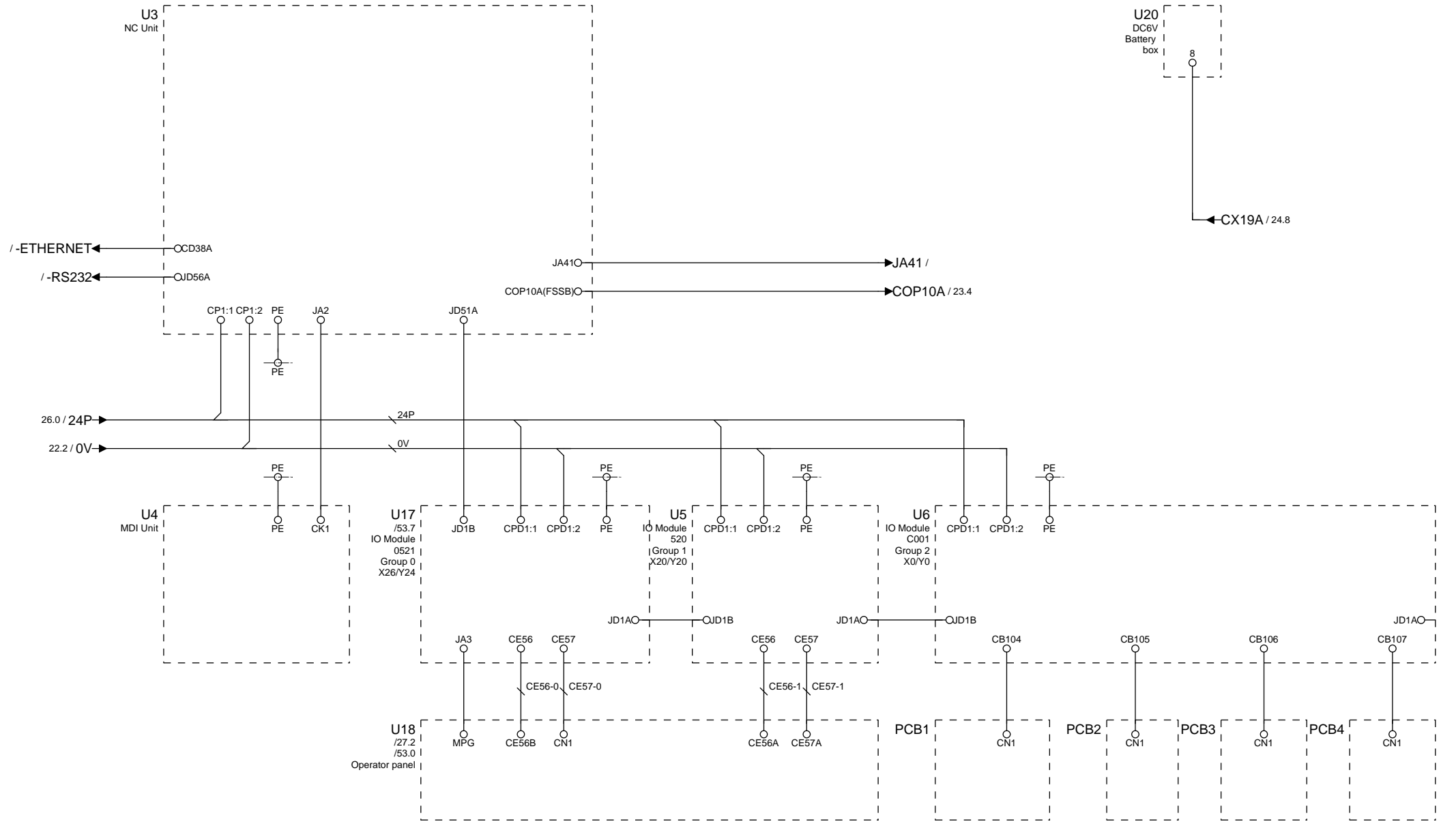


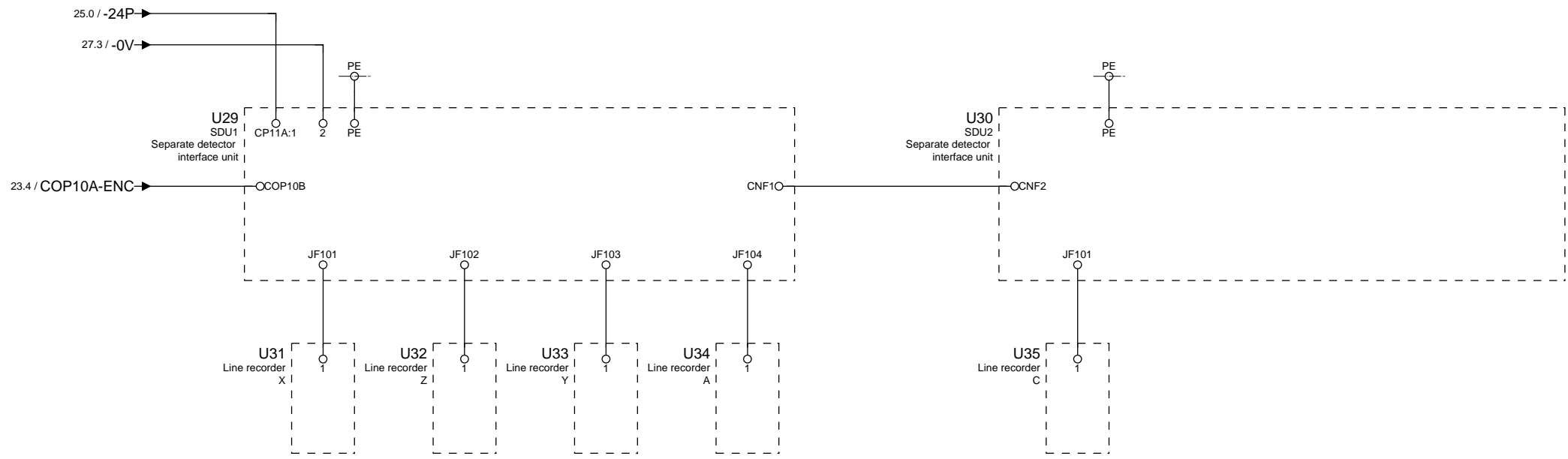


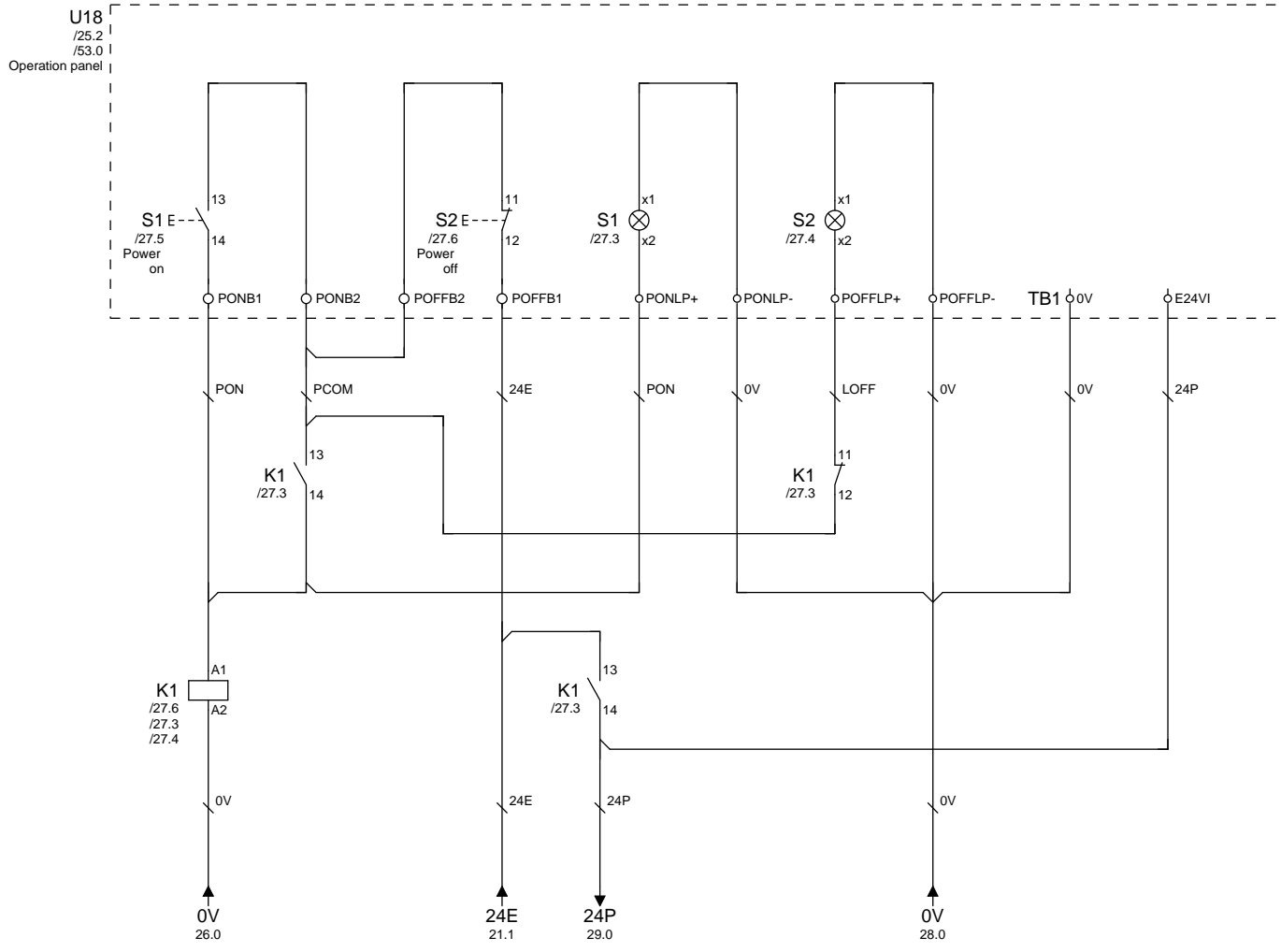


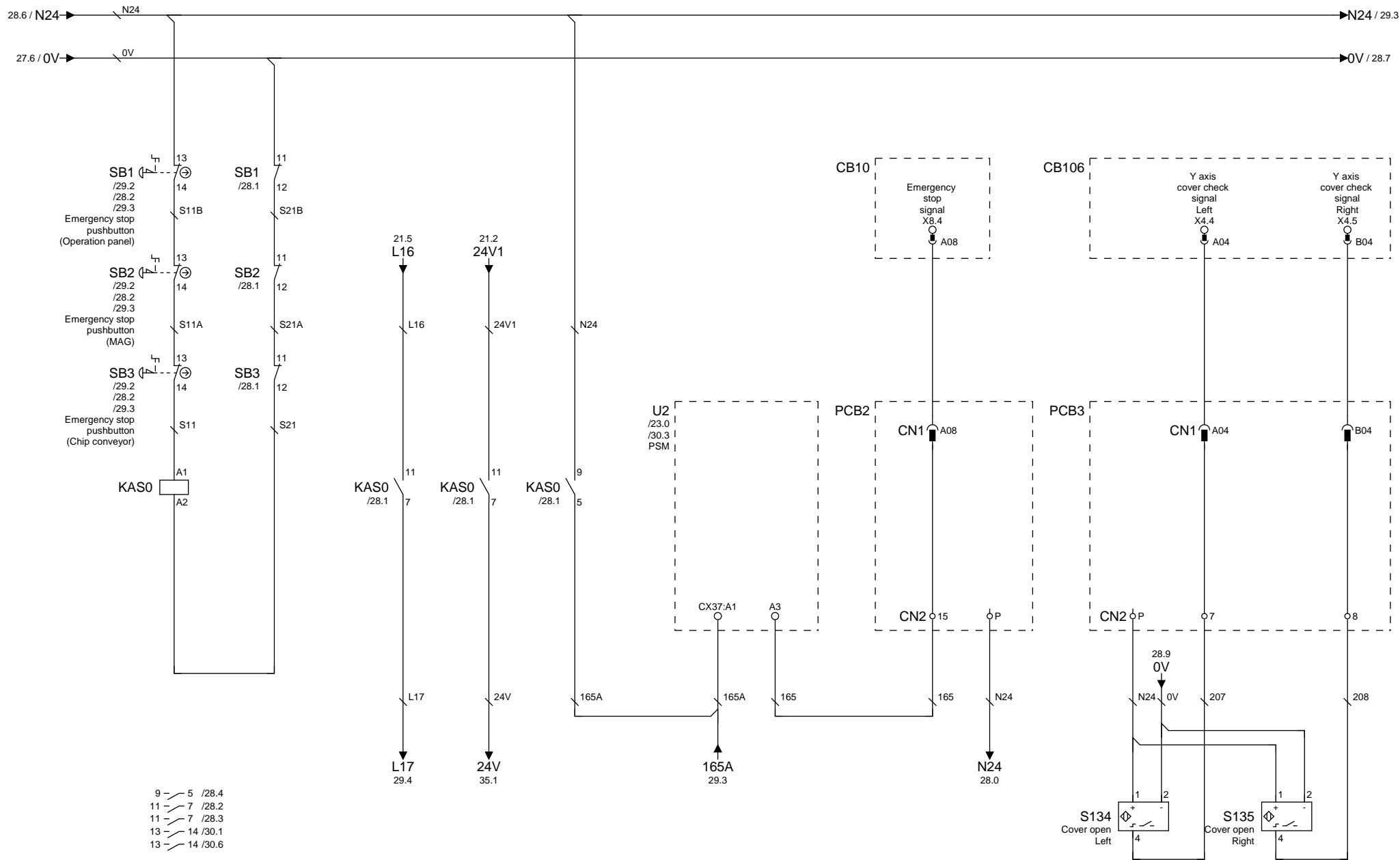


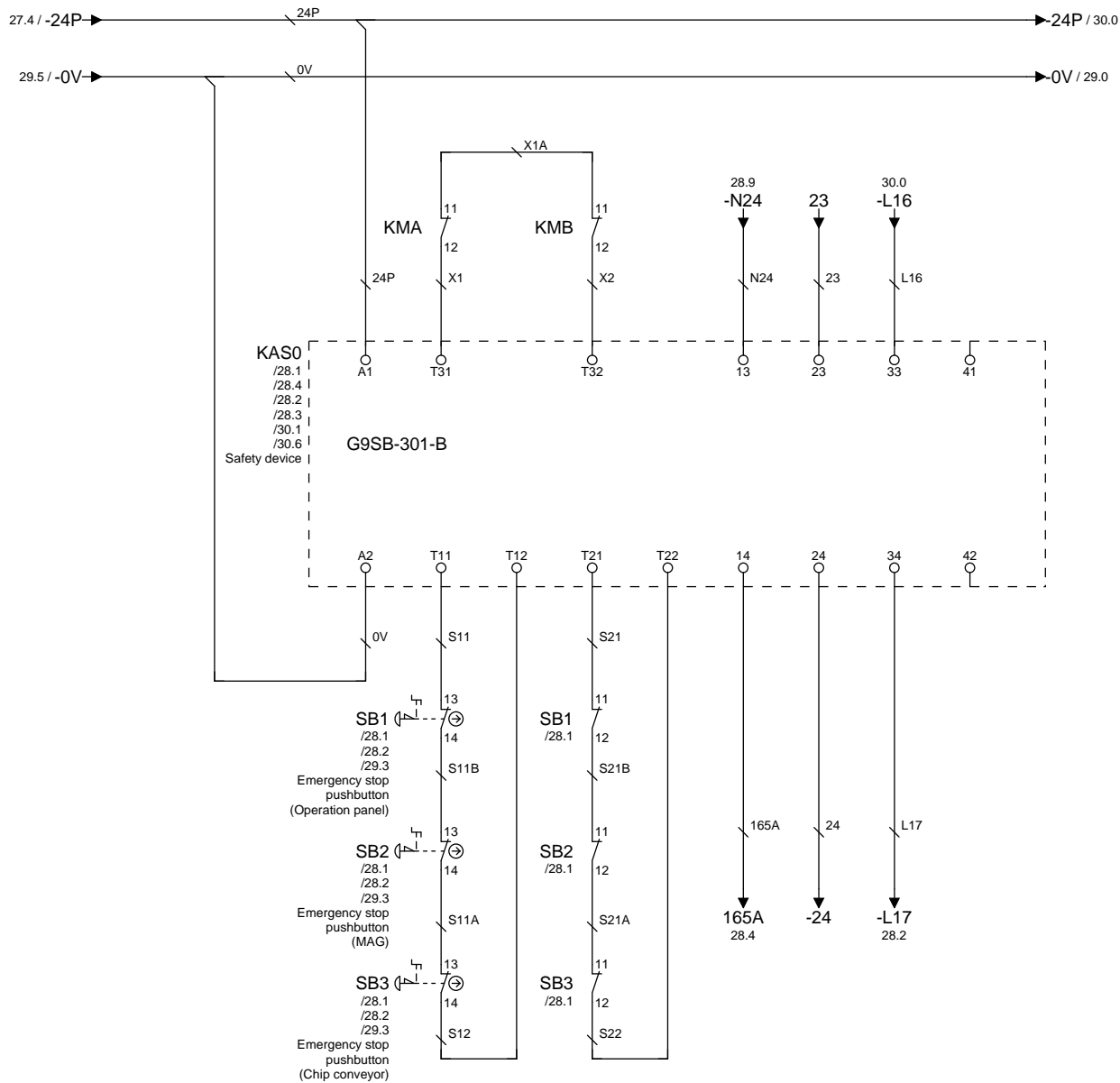


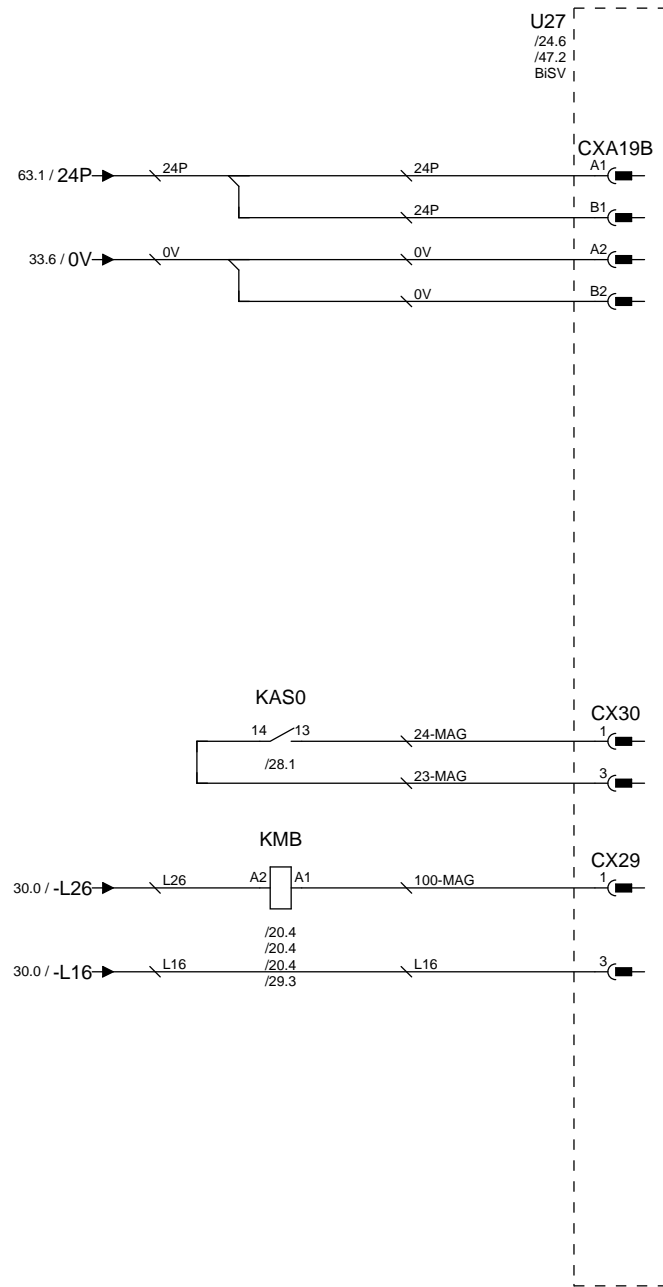
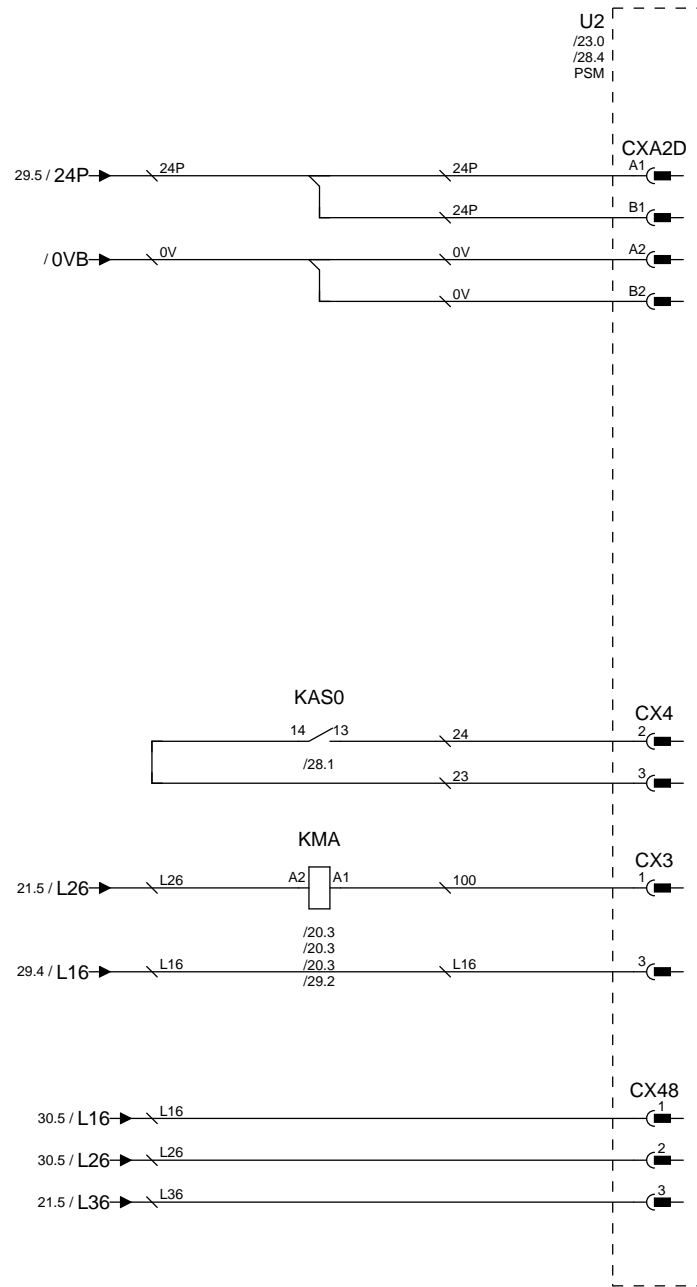


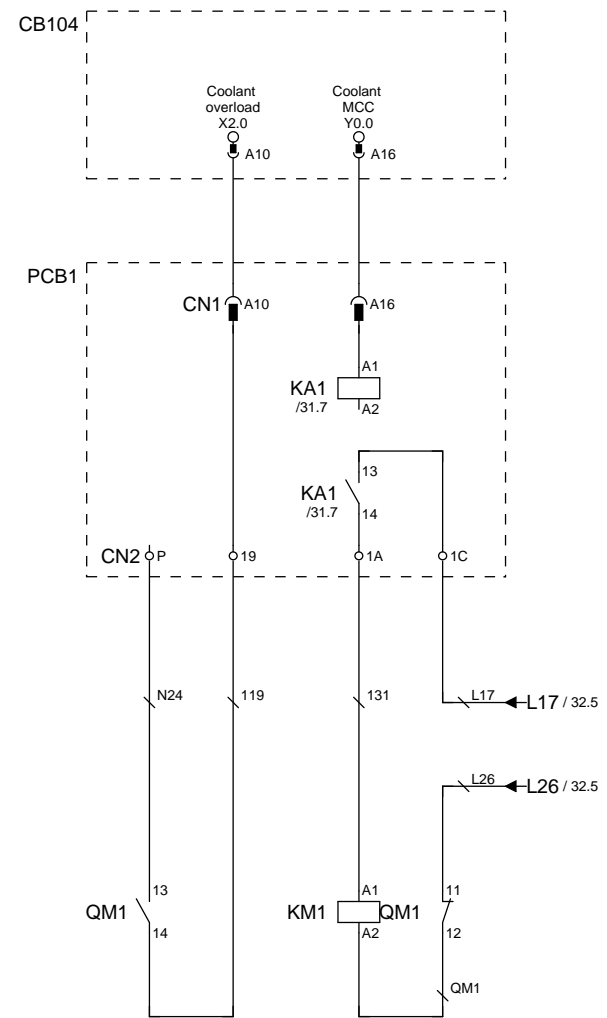
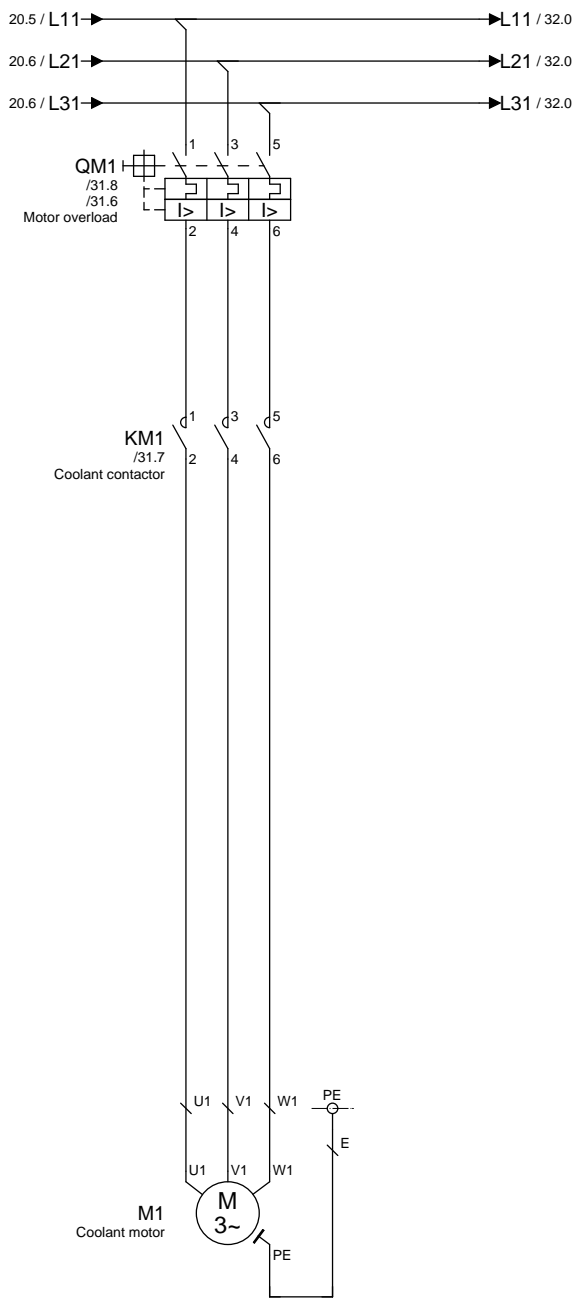




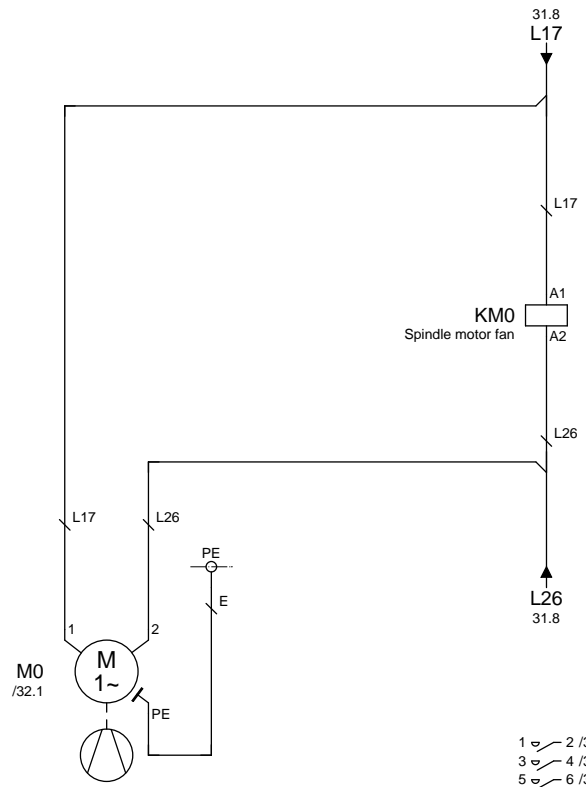
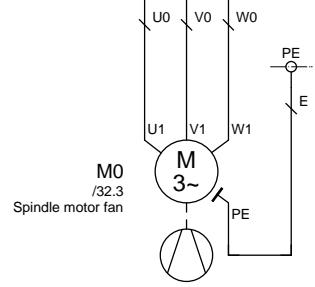
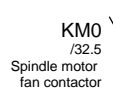
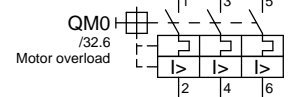
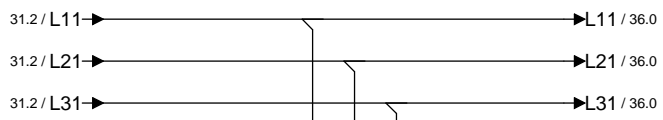




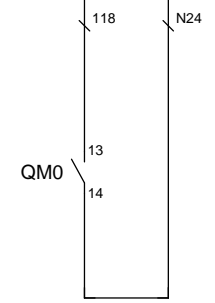
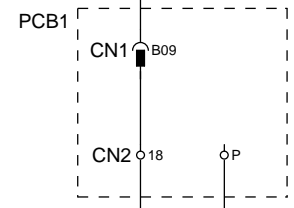
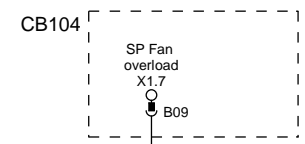
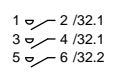


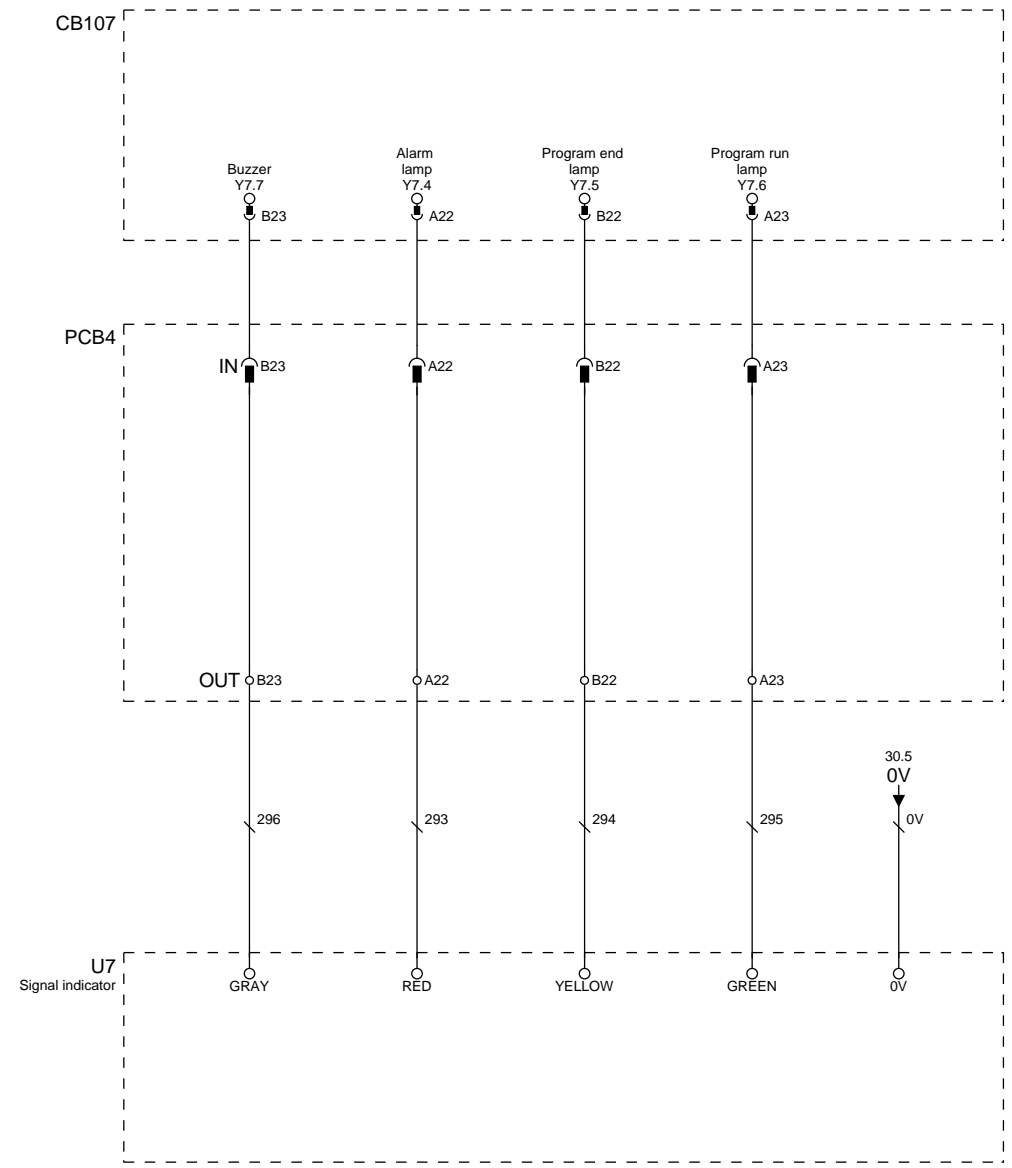


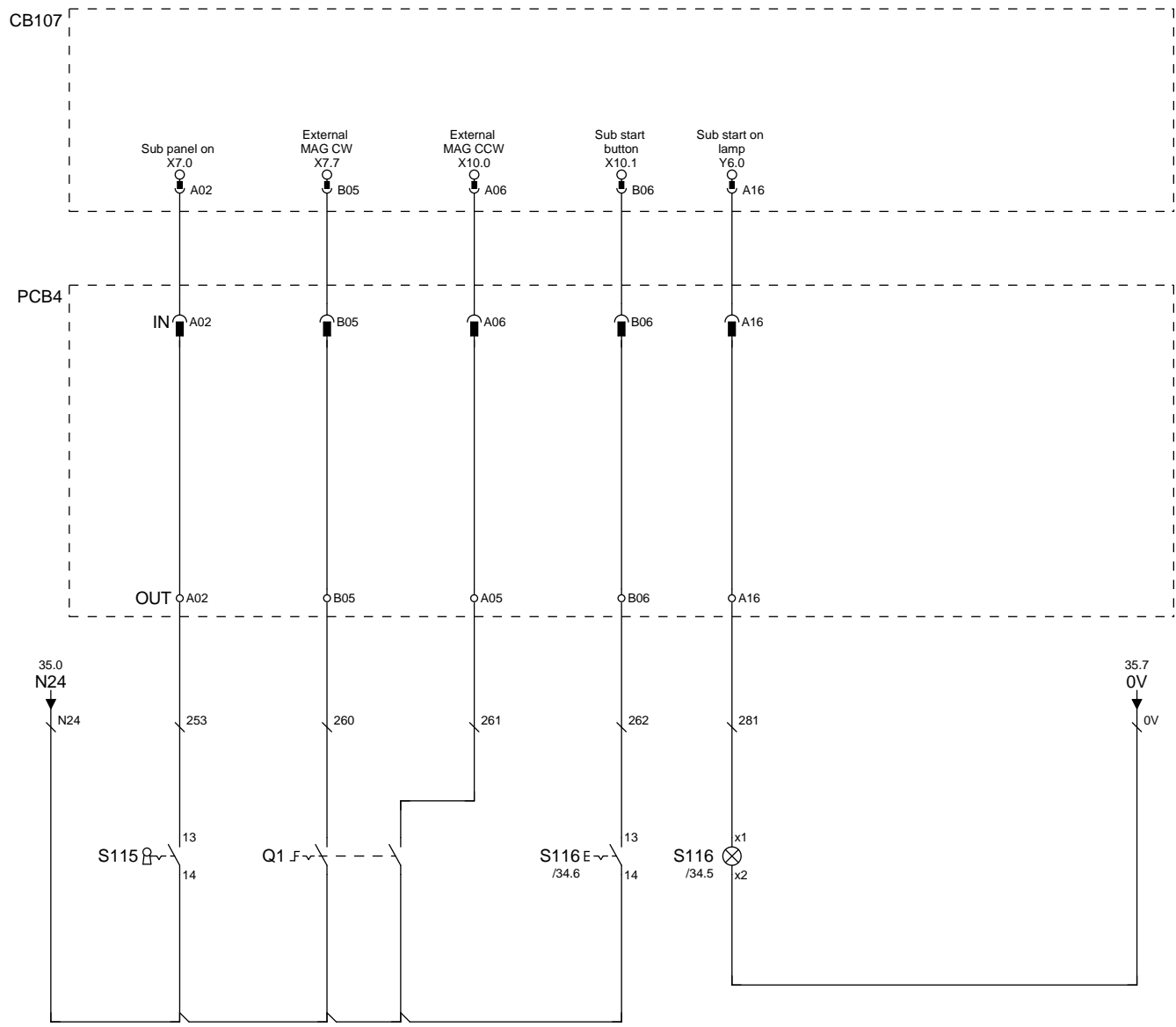
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- 3 ♂ 4 /31.1
- 5 ♂ 6 /31.1

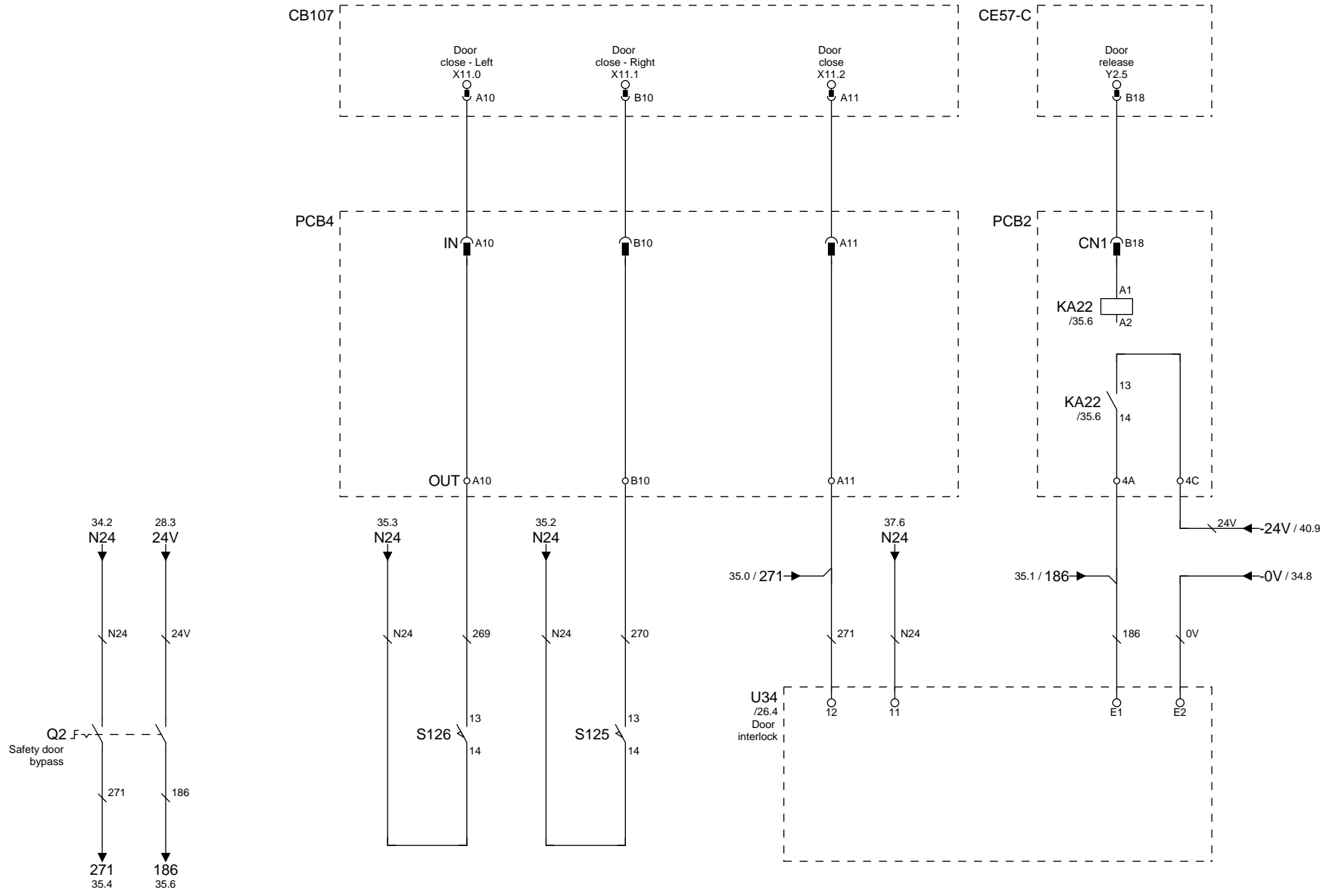


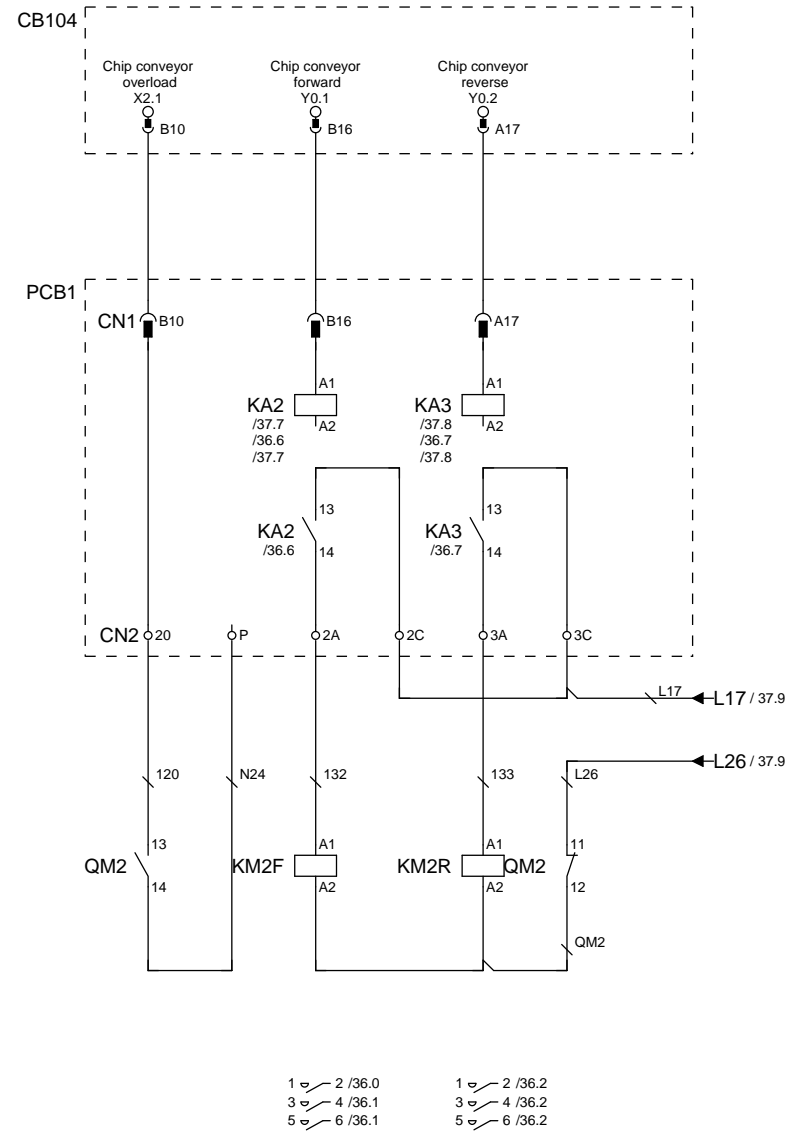
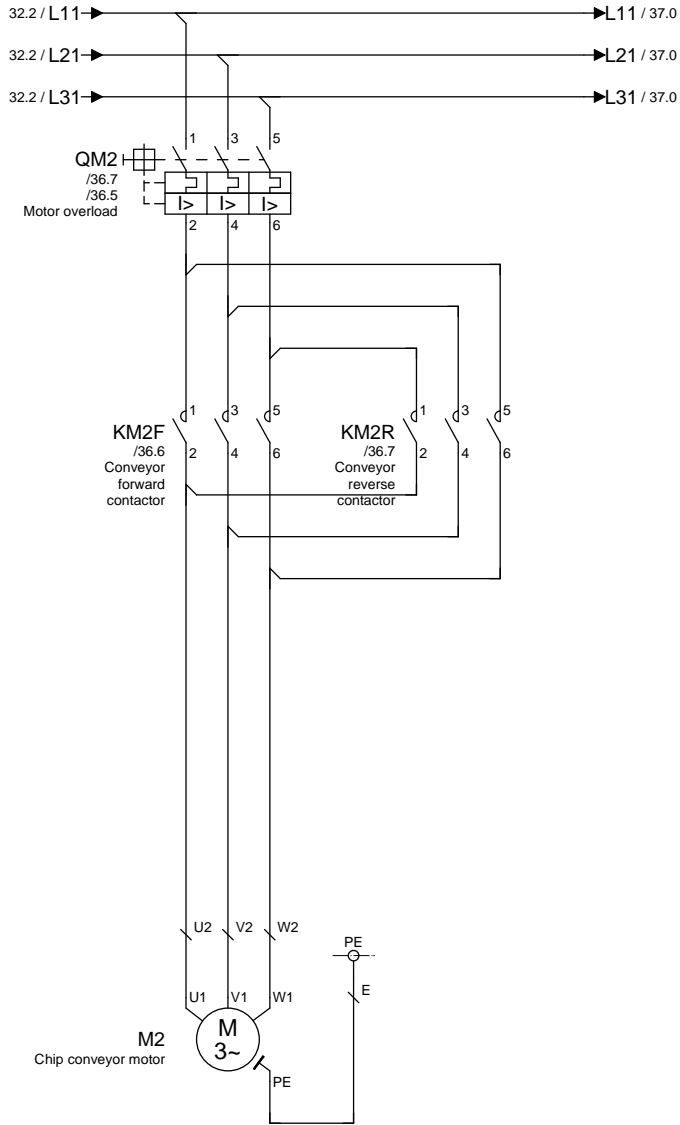
For spindle motor
1 Phase AC220V

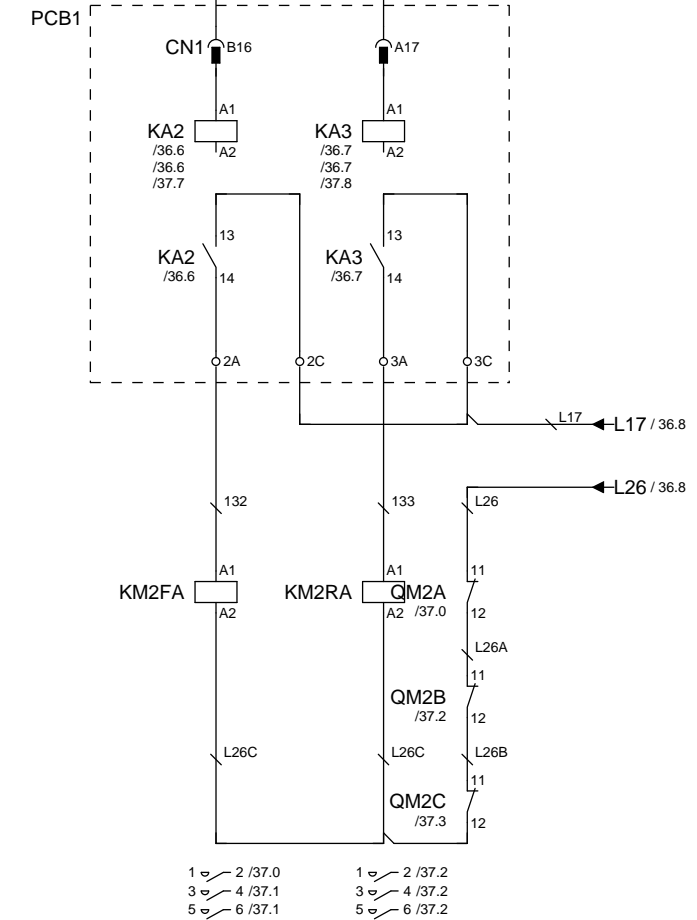
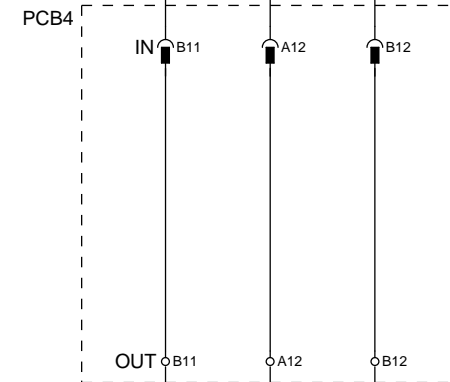
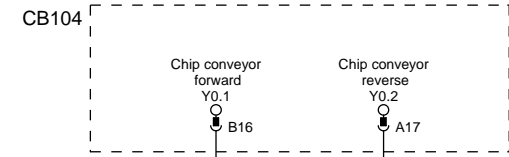
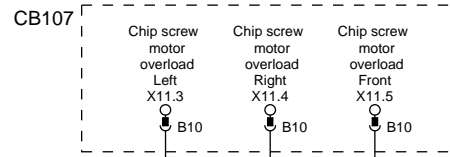
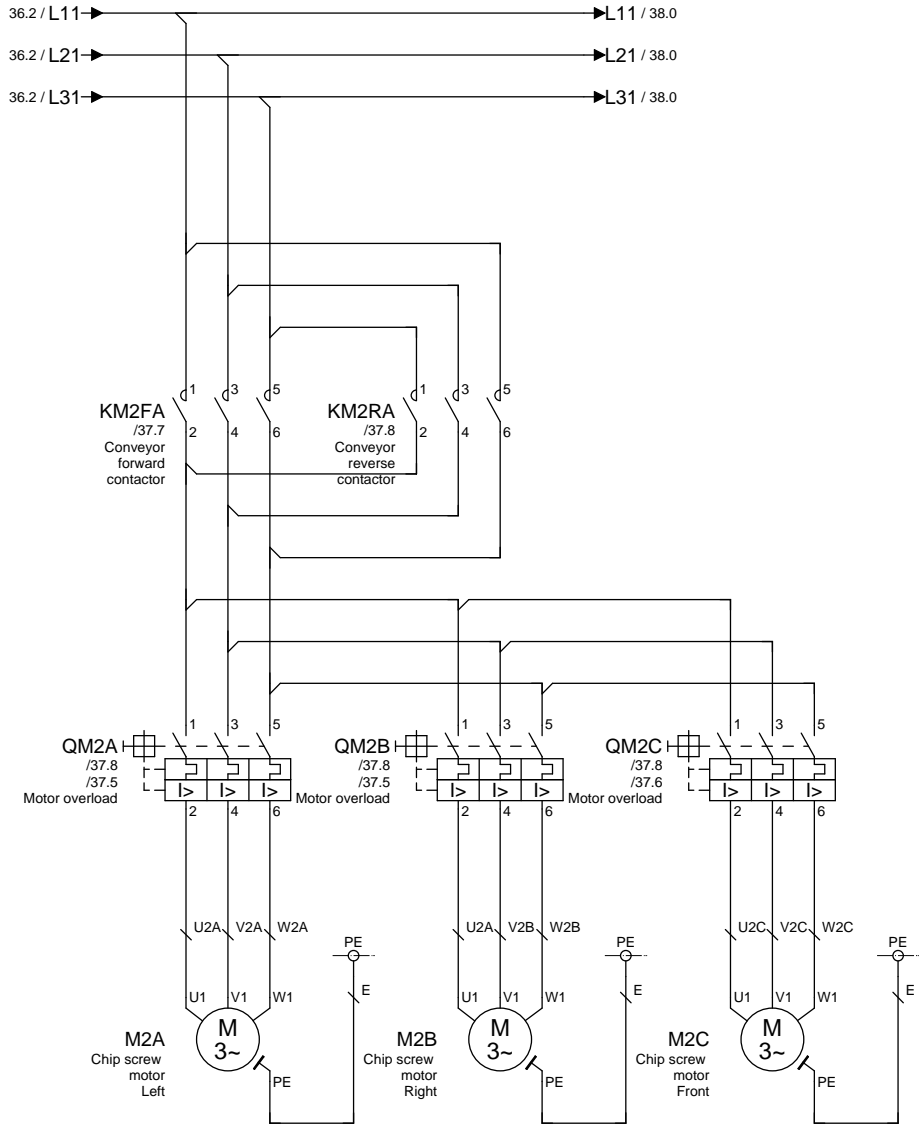




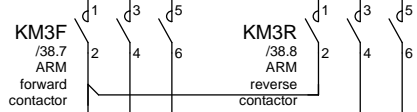
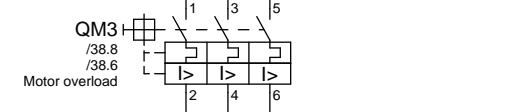
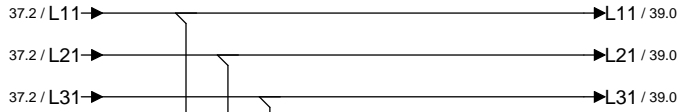




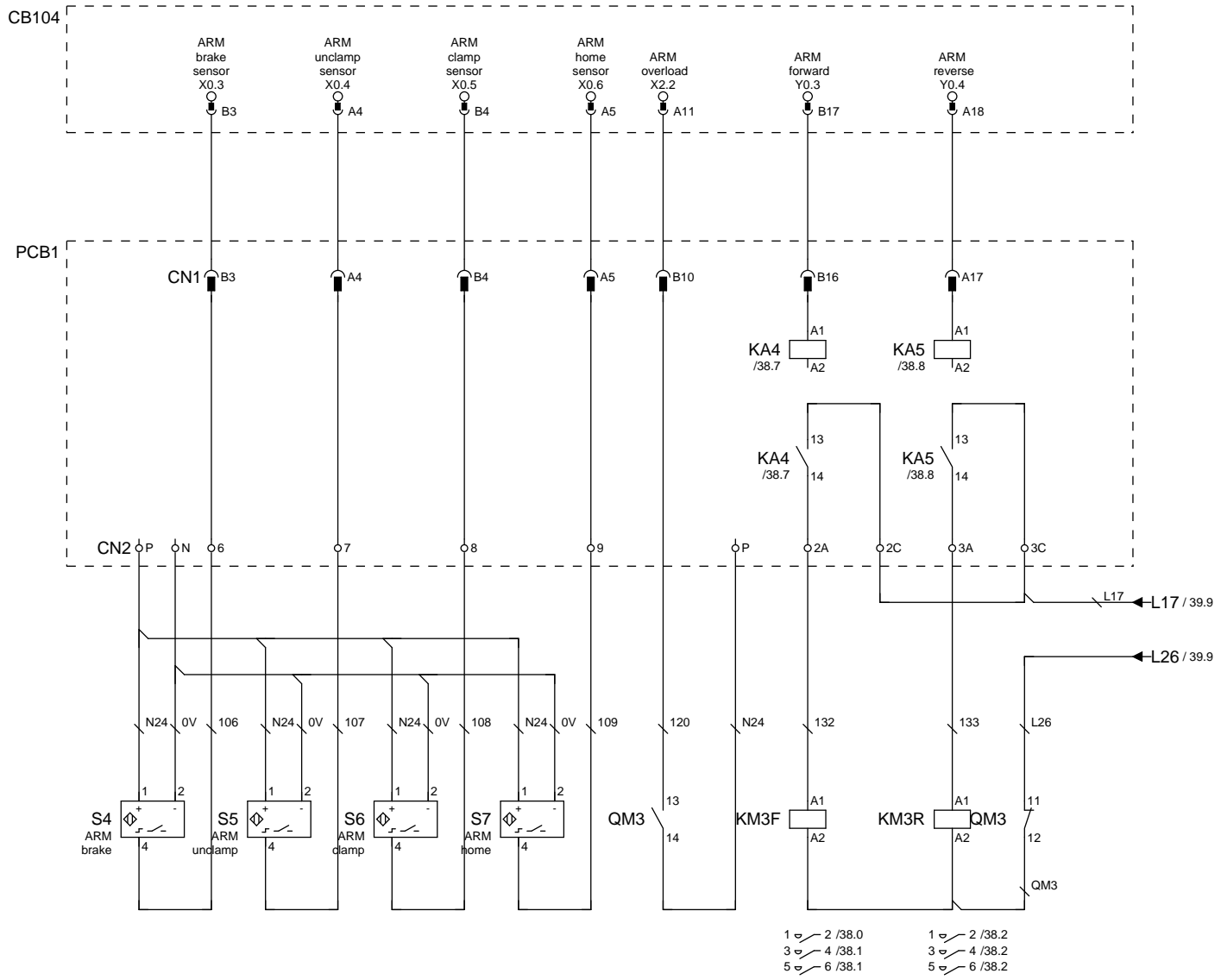
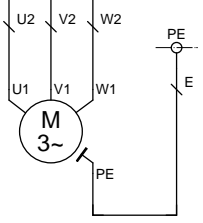




35.5
 N24

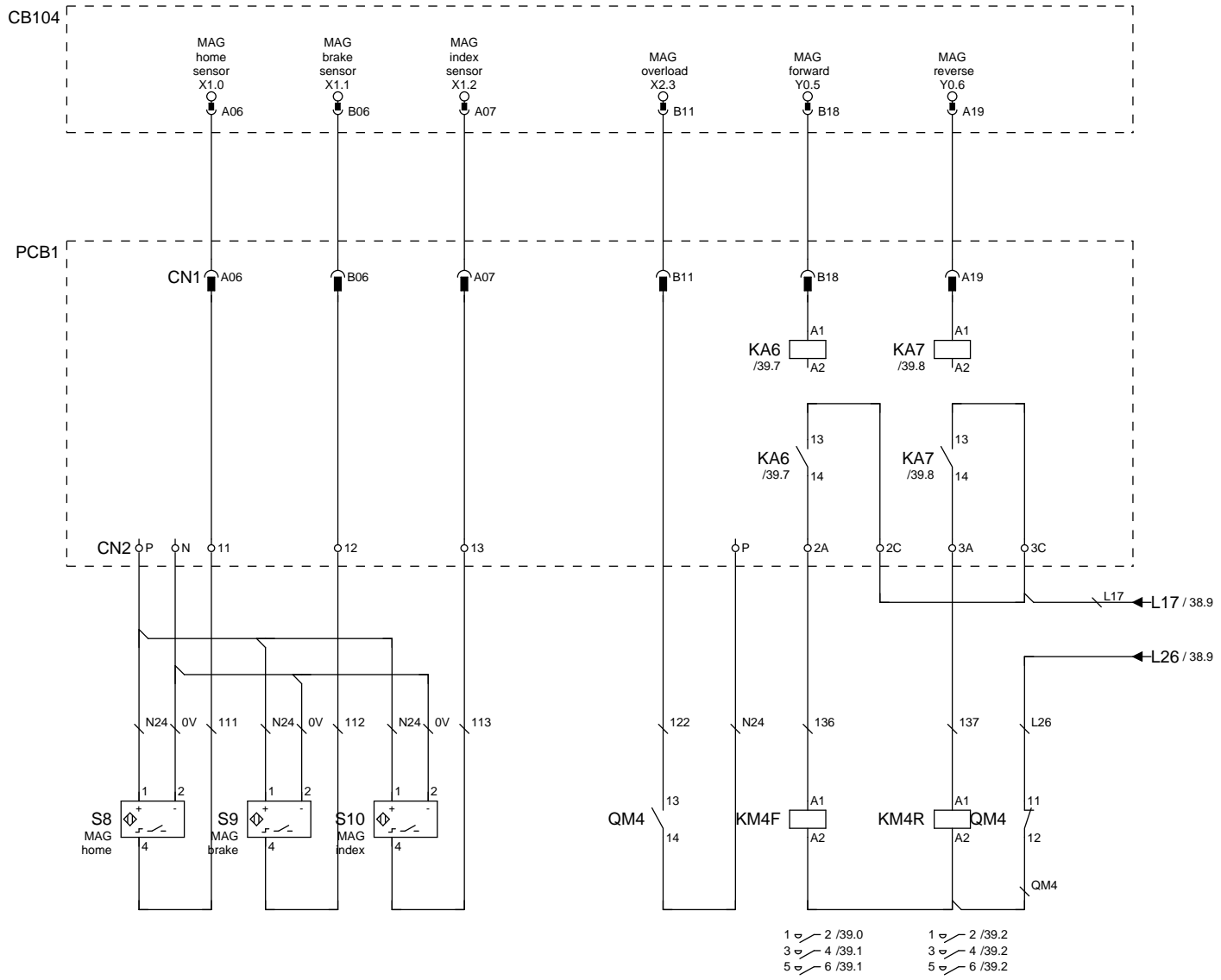
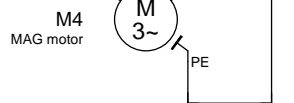
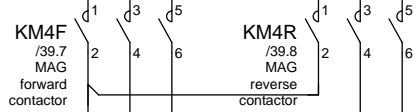
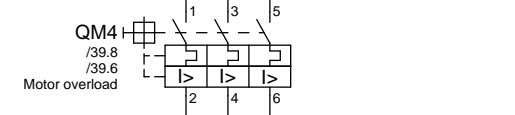


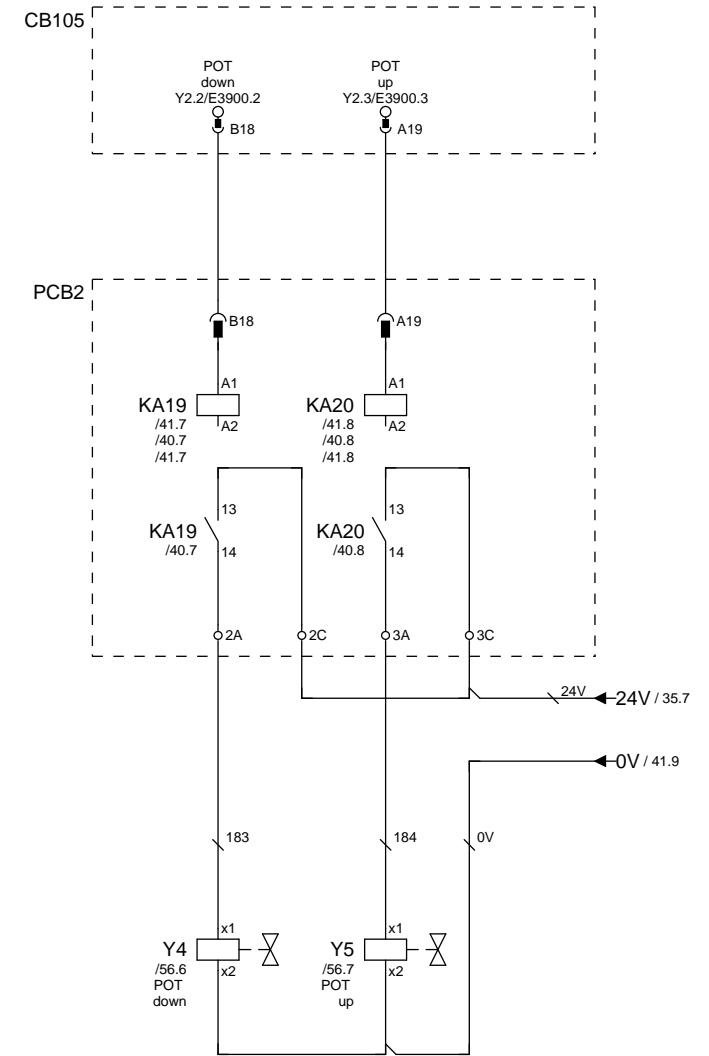
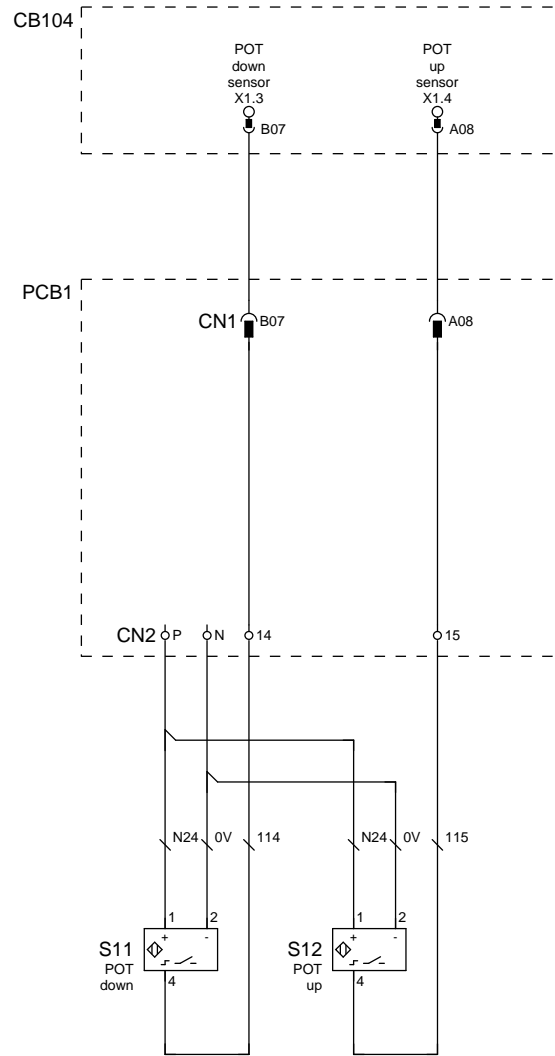
M3
ARM motor

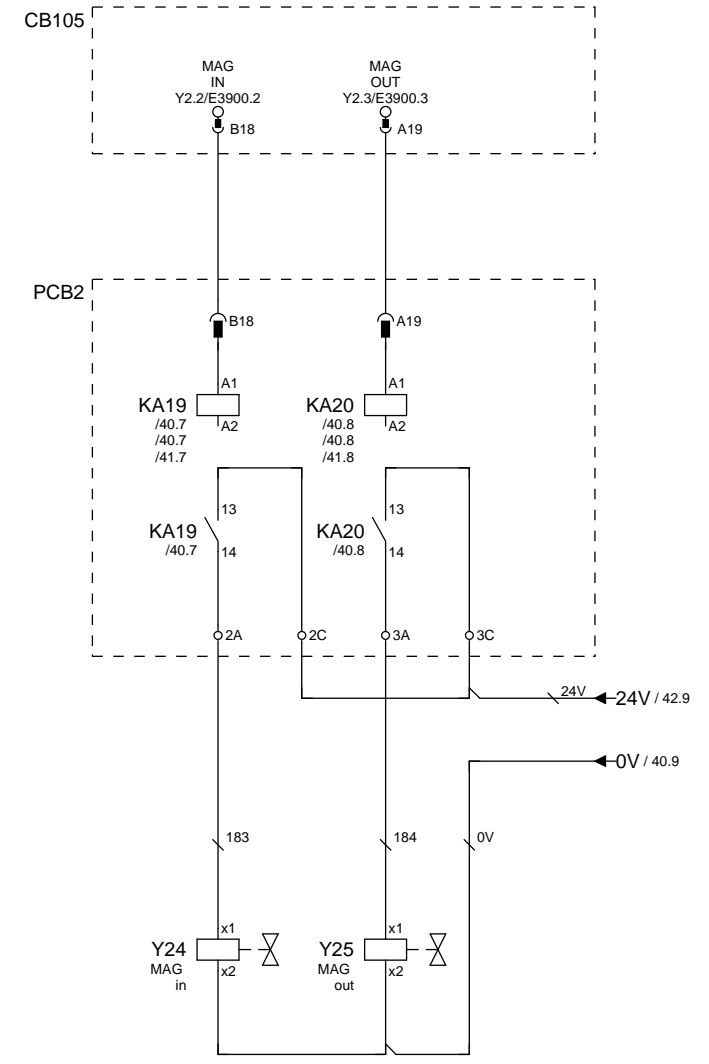
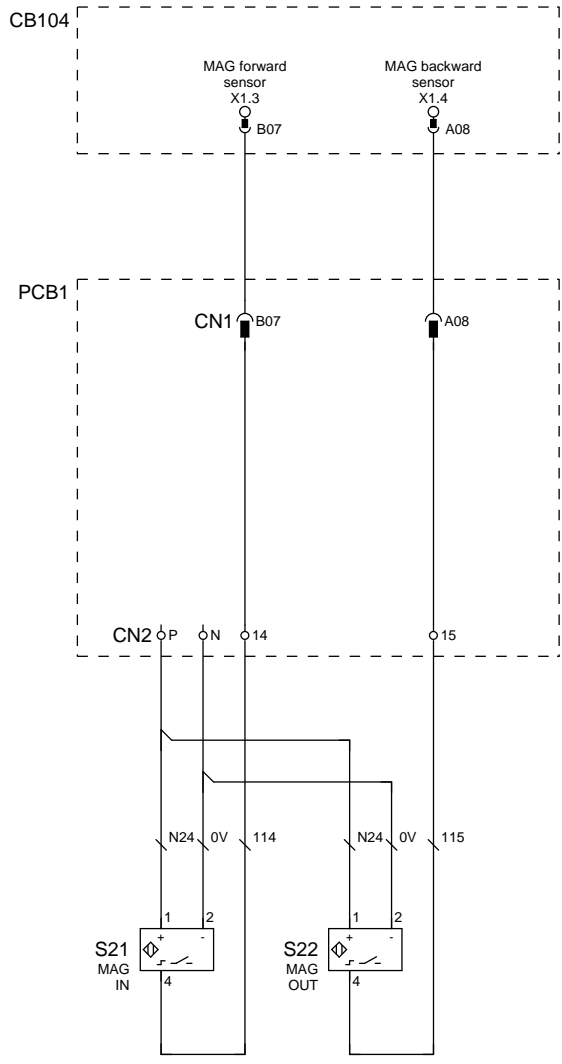


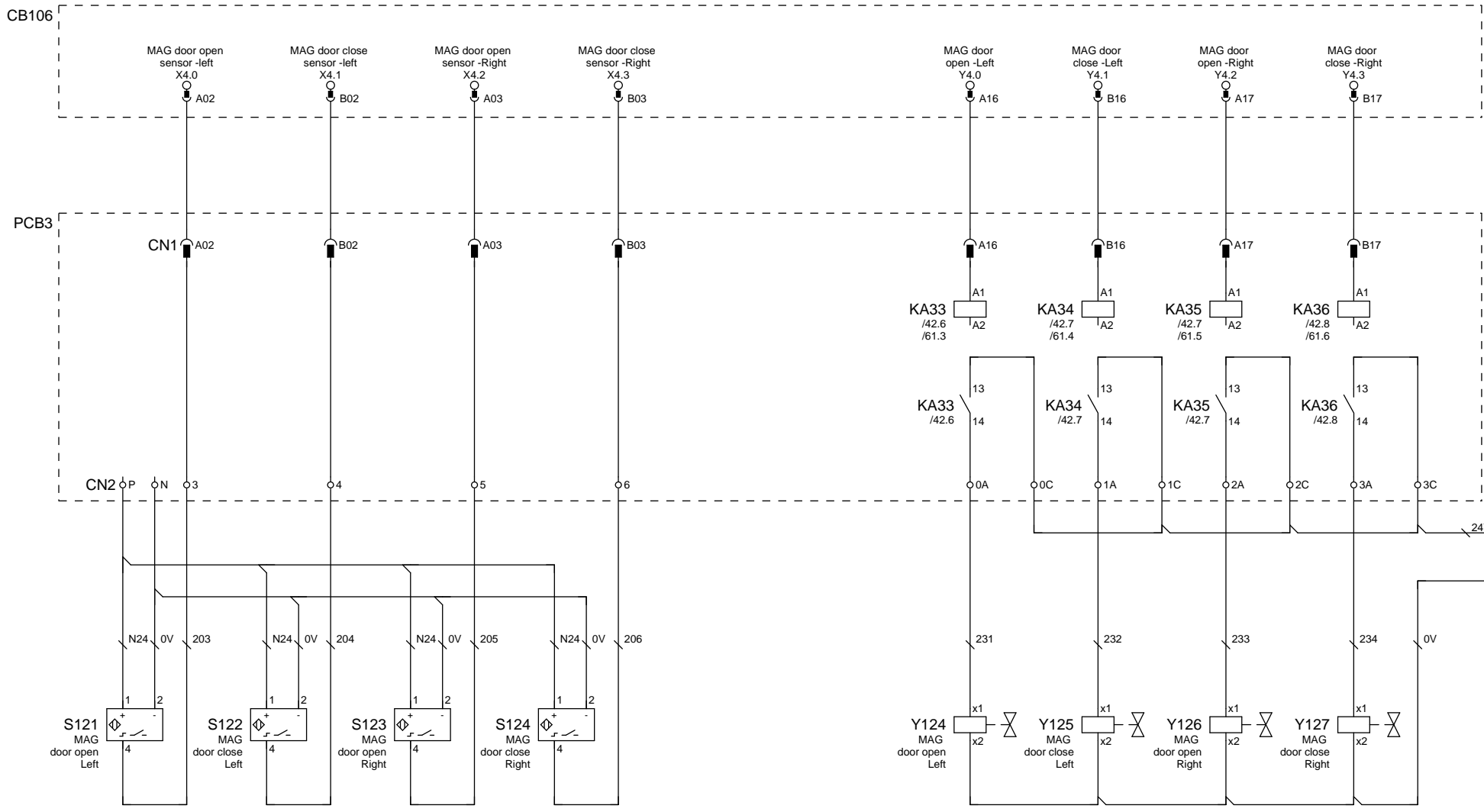
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- 1 2 /38.2
- 3 4 /38.2
- 5 6 /38.2

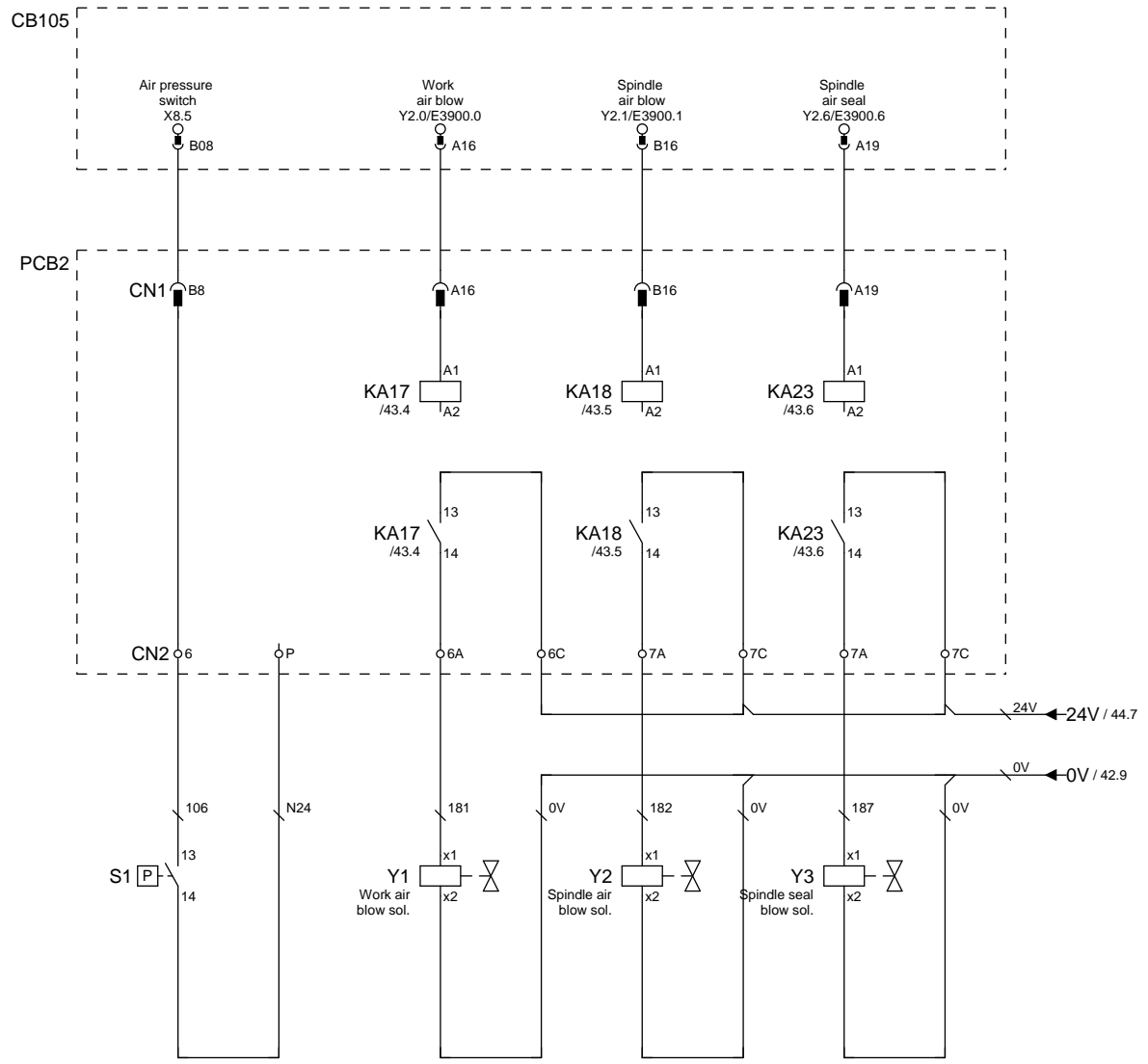
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 38.2 / L21 → L21 / 49.0
 38.2 / L31 → L31 / 49.0

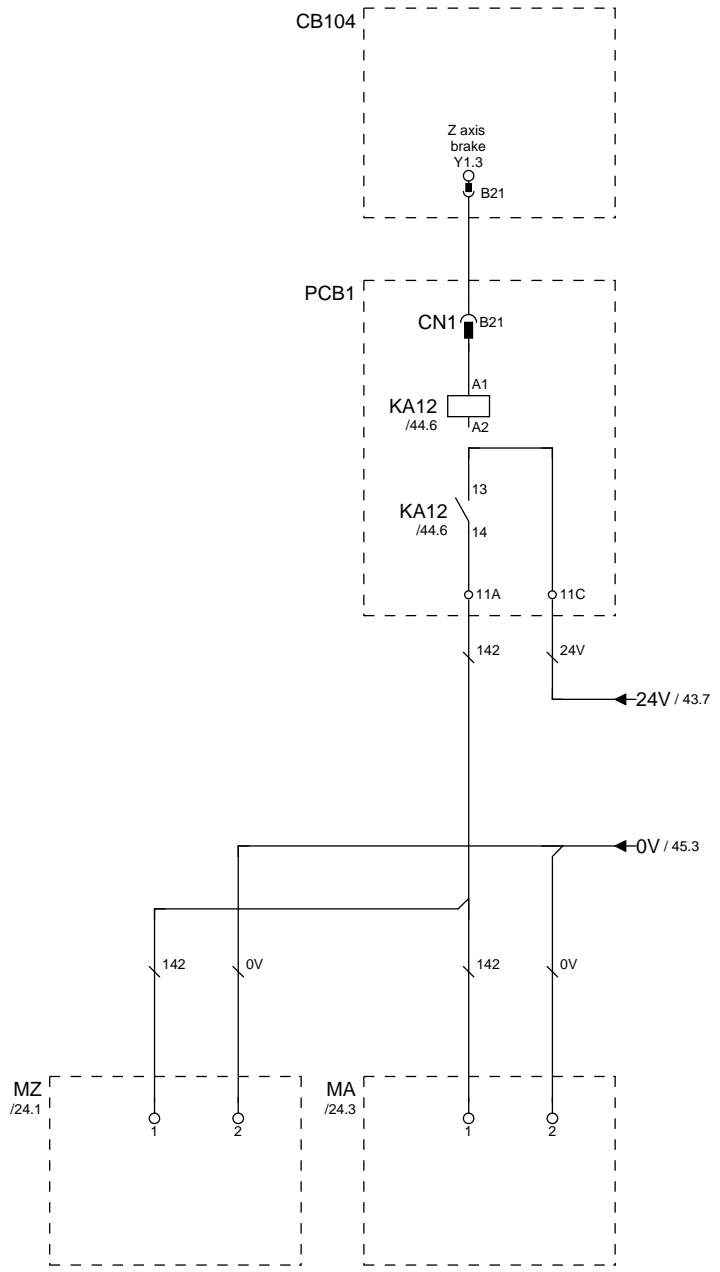


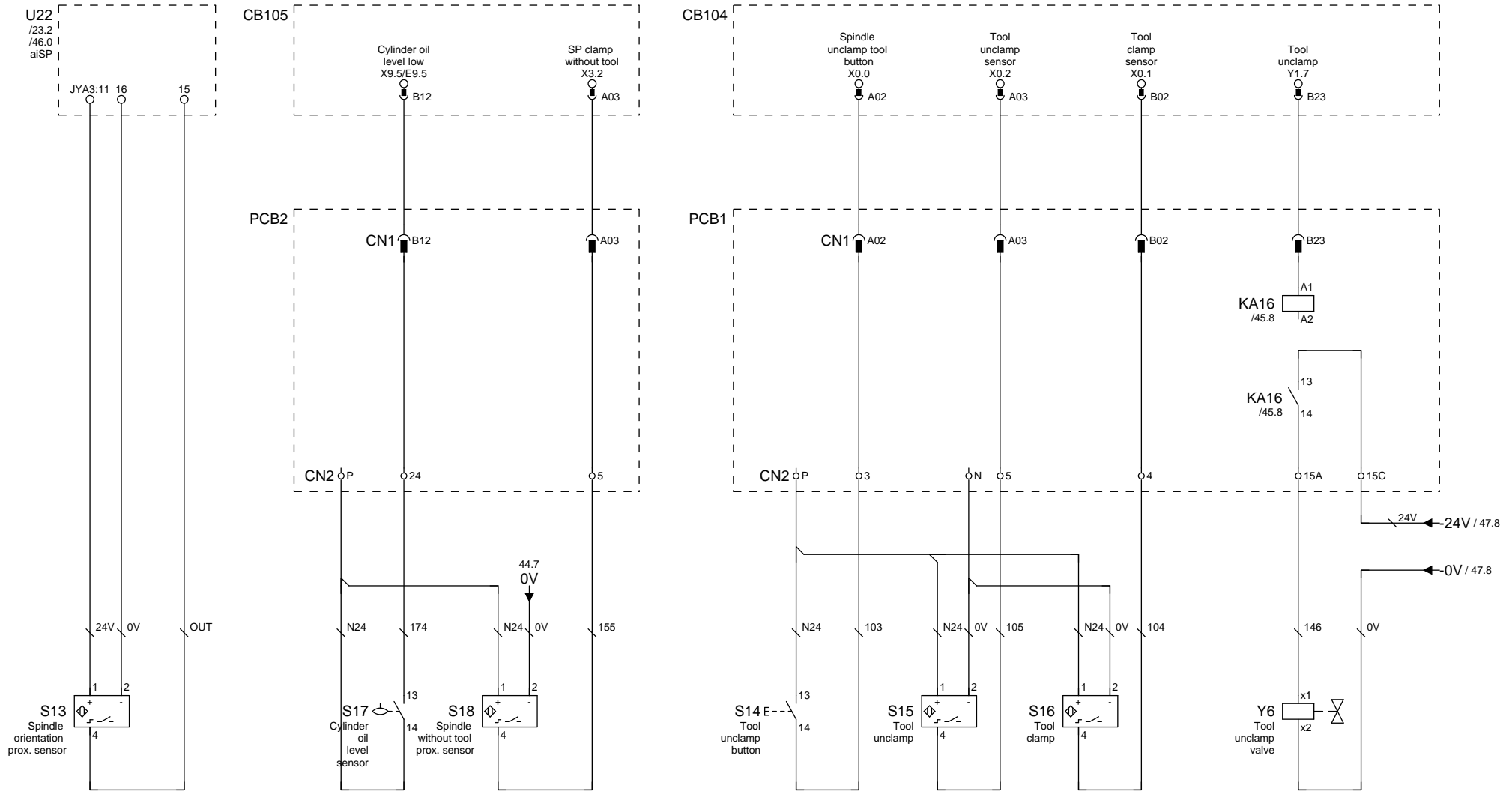


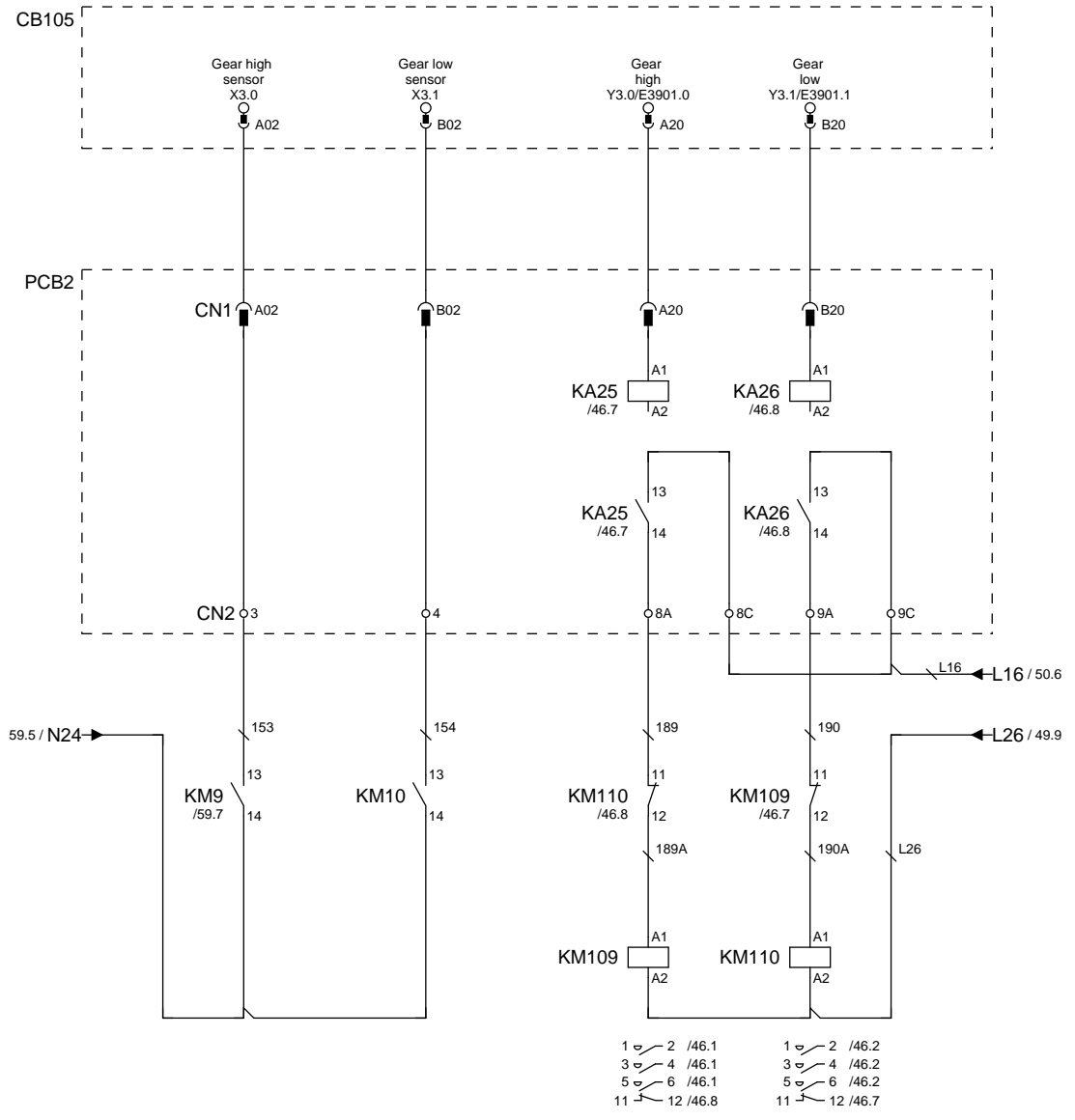
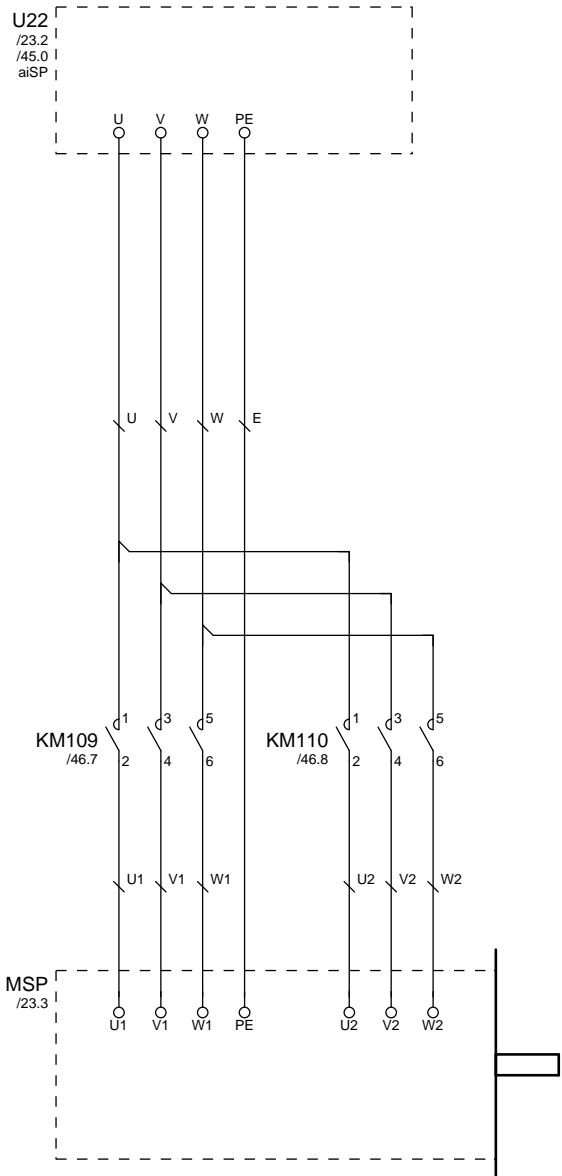


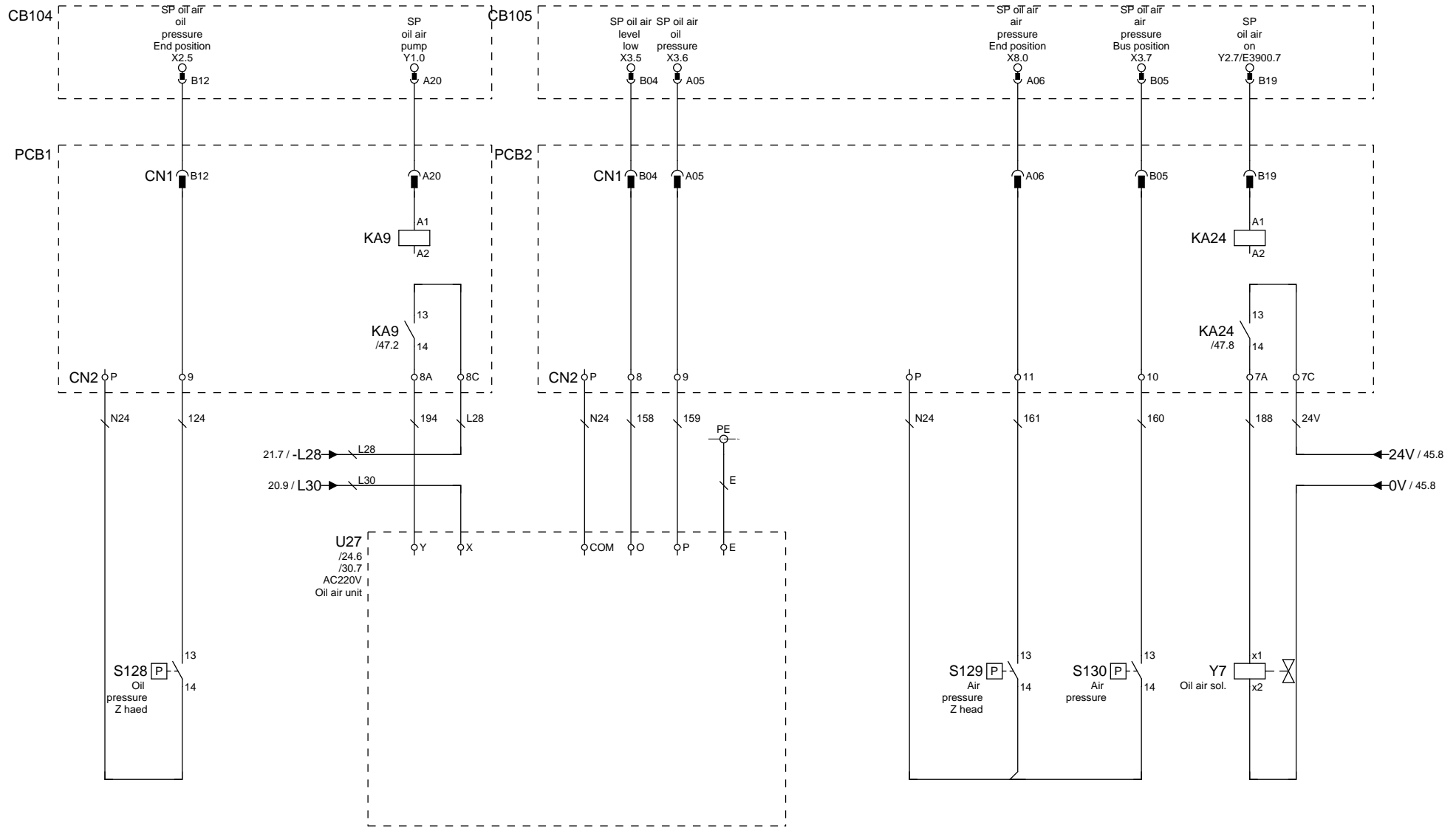




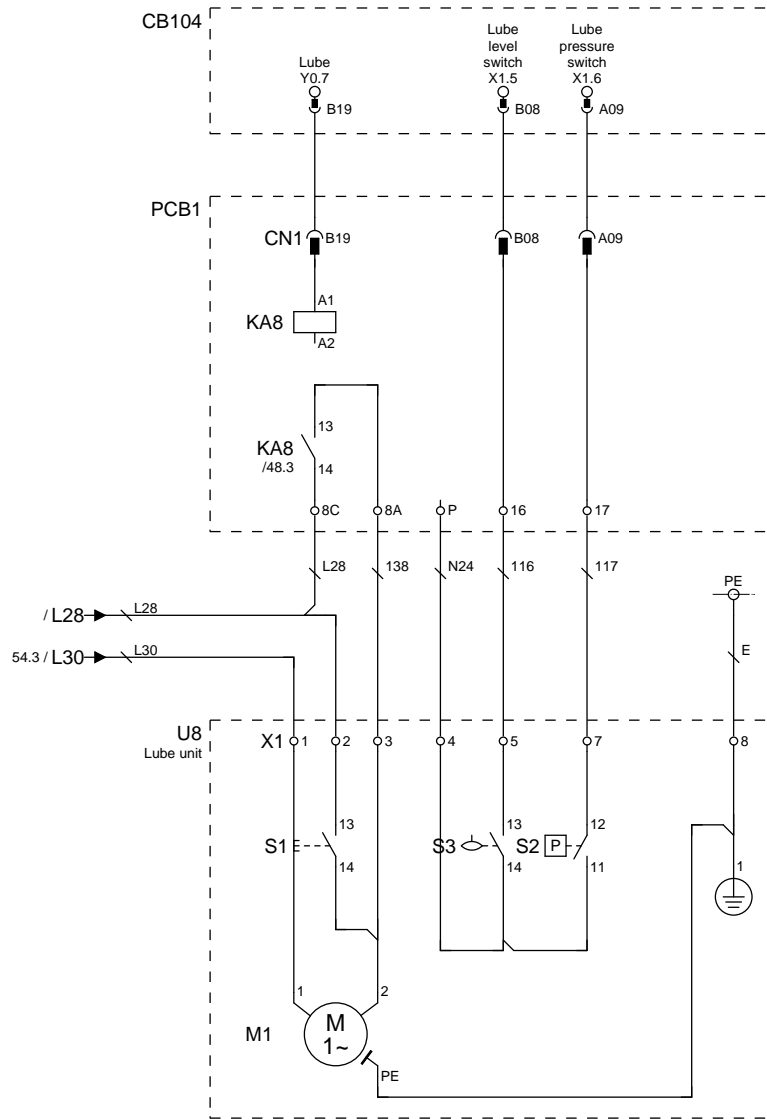


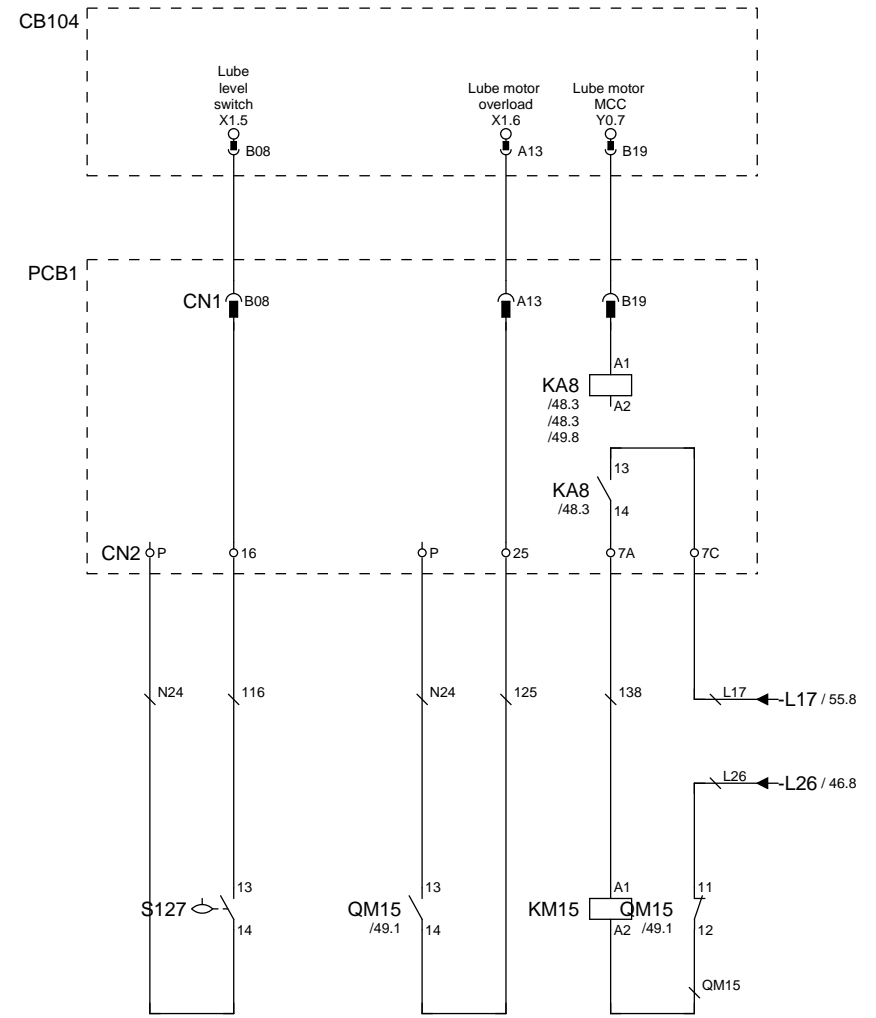
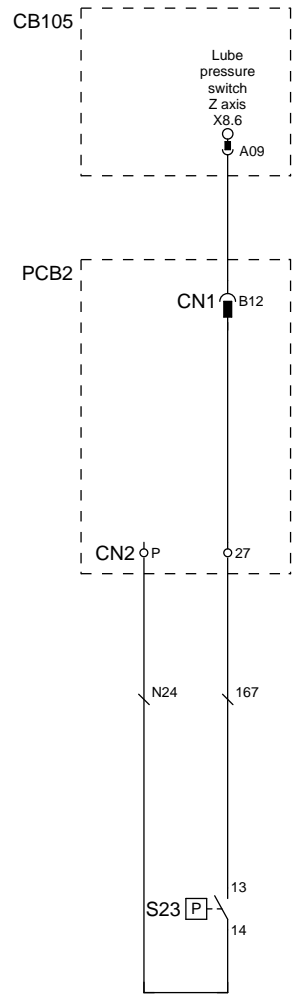
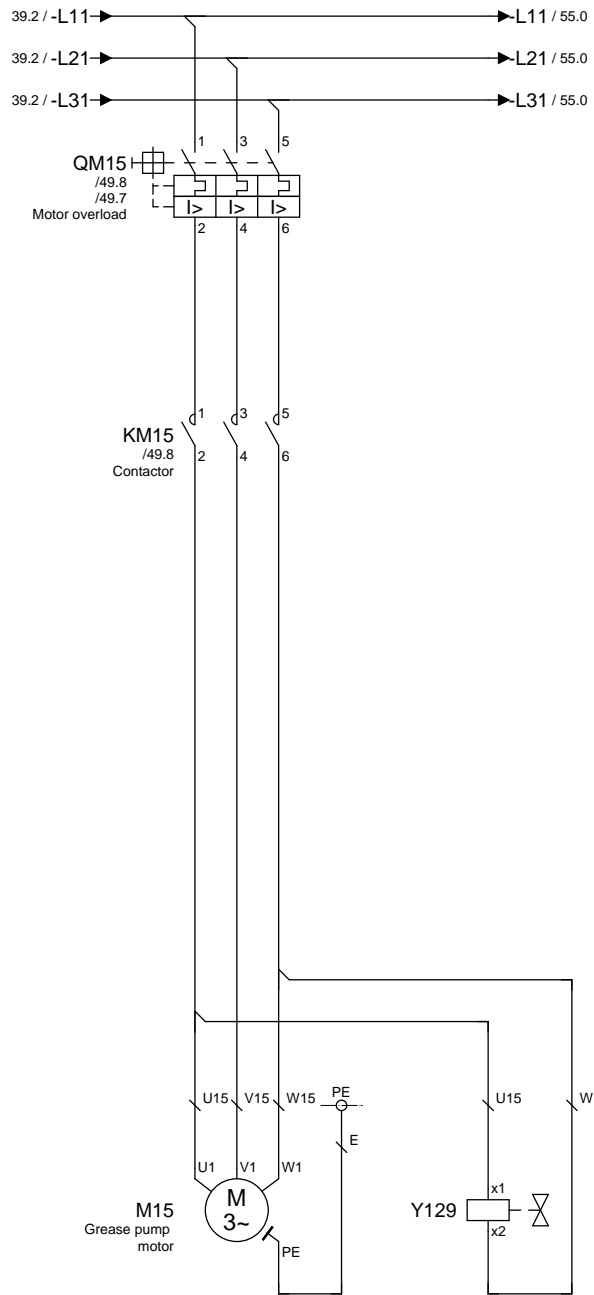




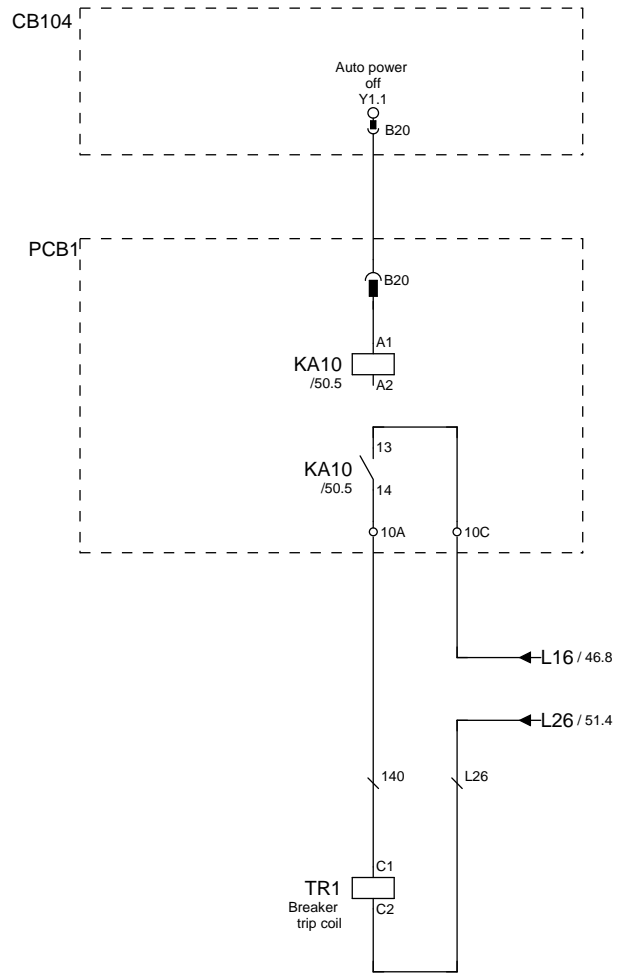


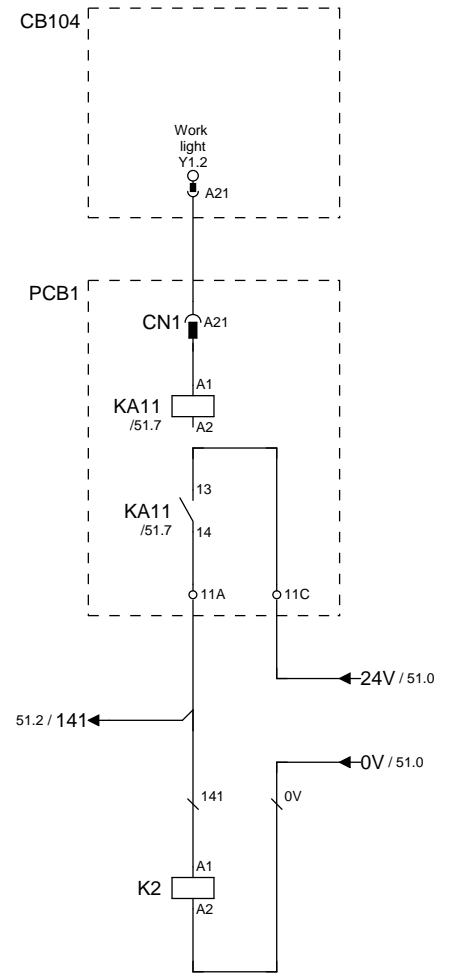
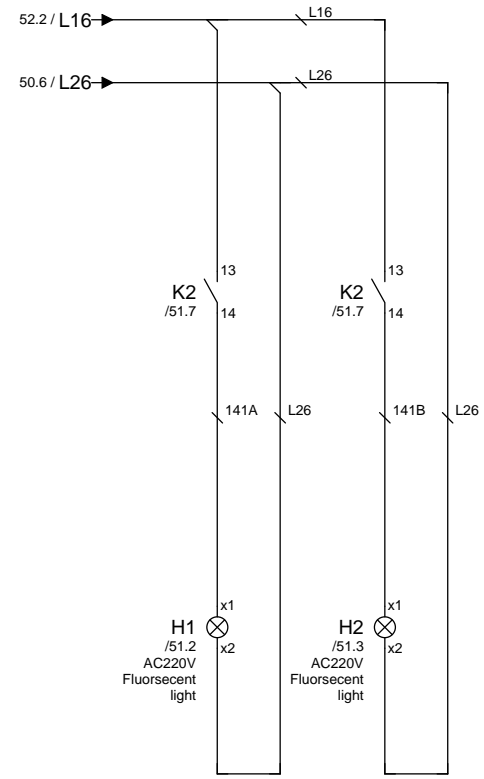
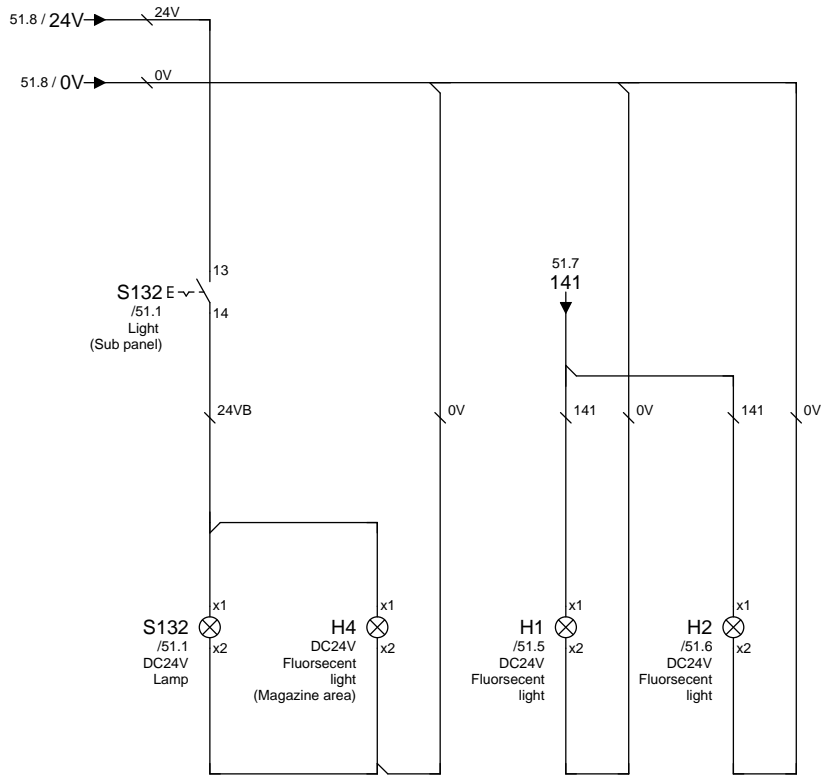
Counter16: Auto grease interval off time. Preset 10 sec
 Timer1: Lubrication on timer of slider way. Preset 10 sec



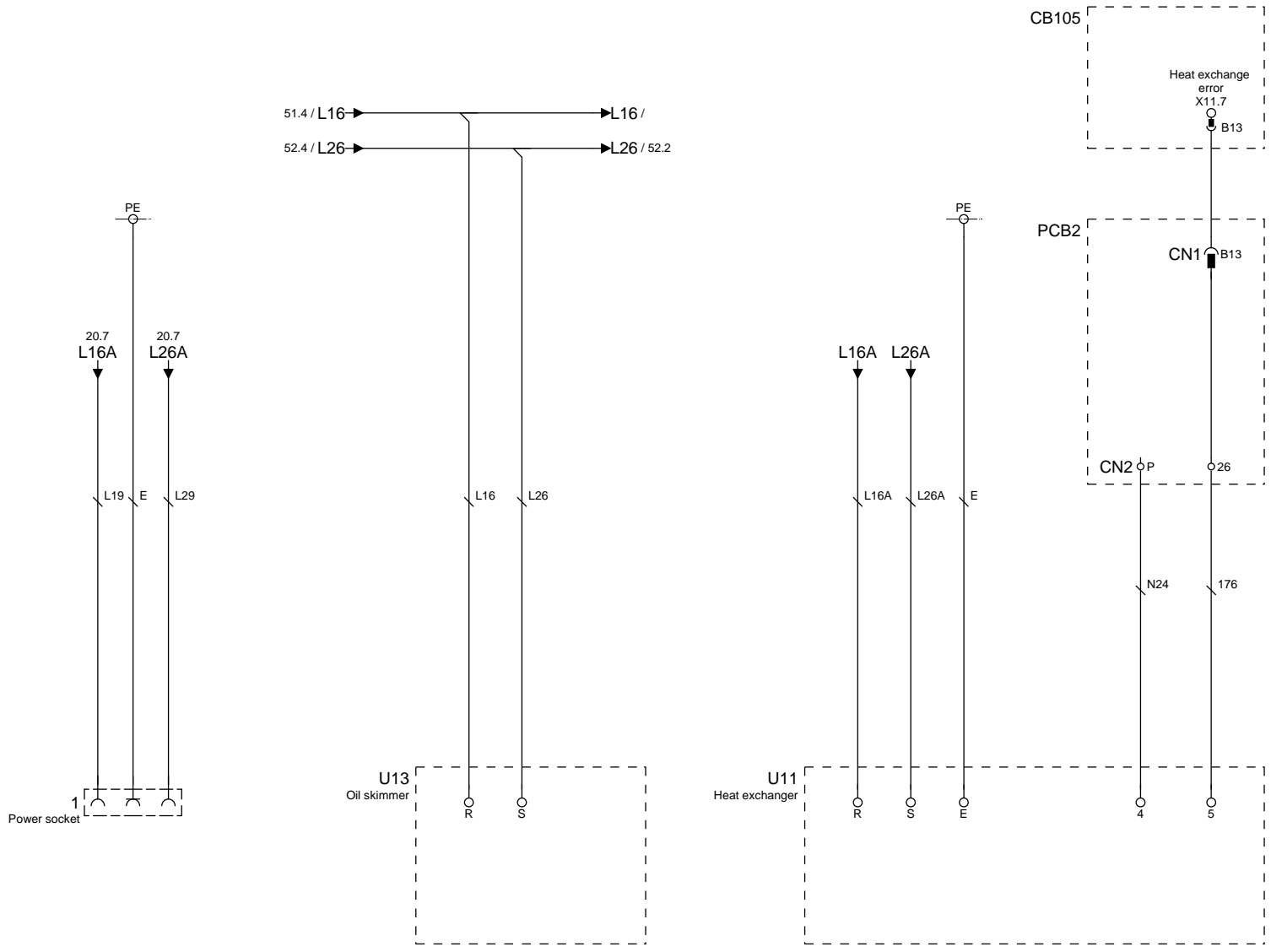


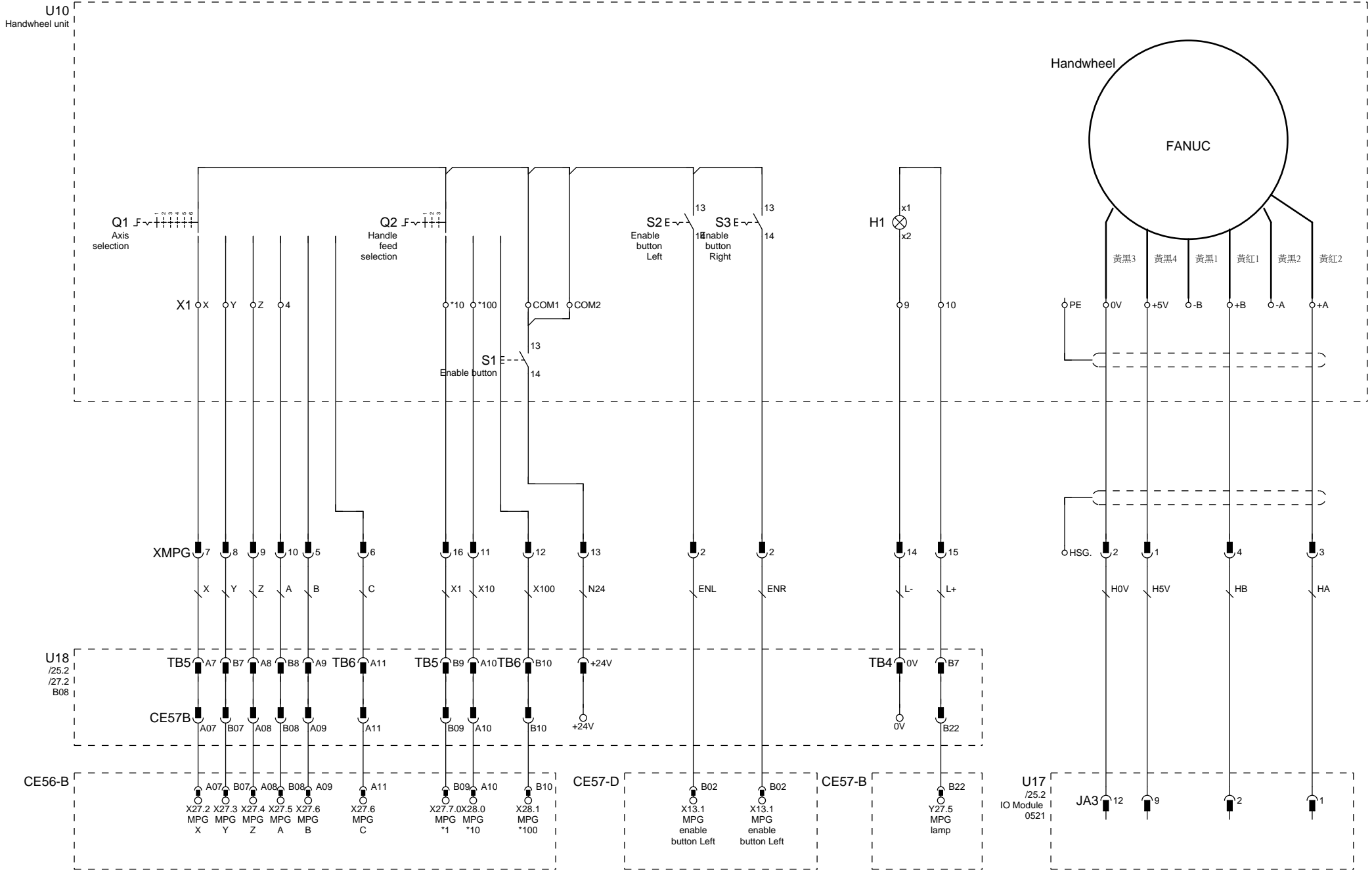
- 1 ♂ 2 /49.1
- 3 ♂ 4 /49.1
- 5 ♂ 6 /49.1

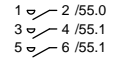
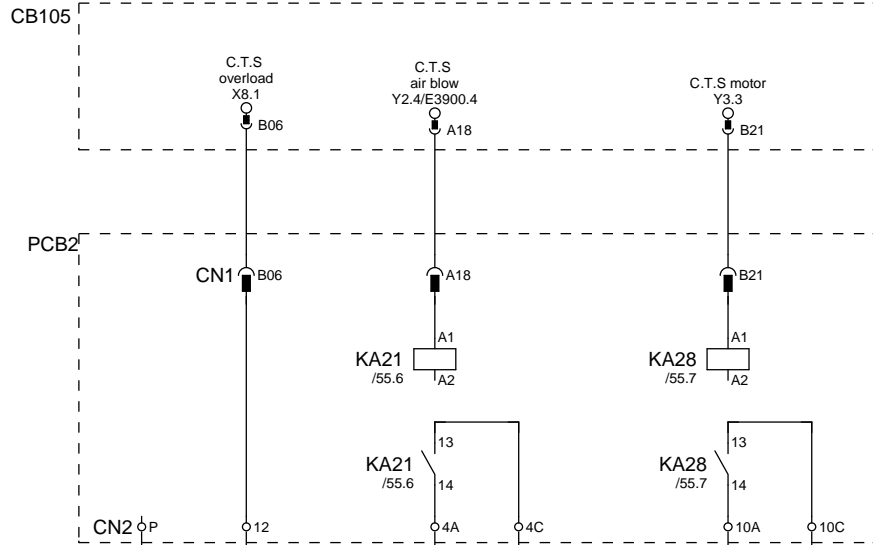
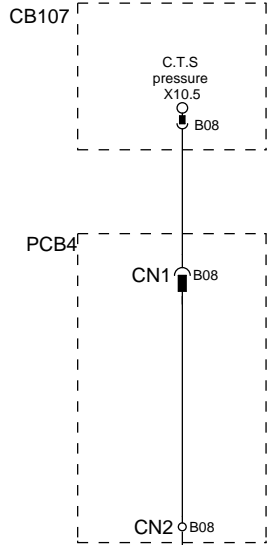
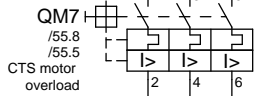
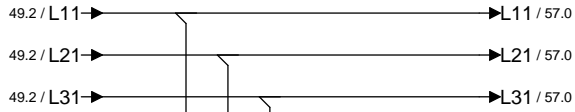


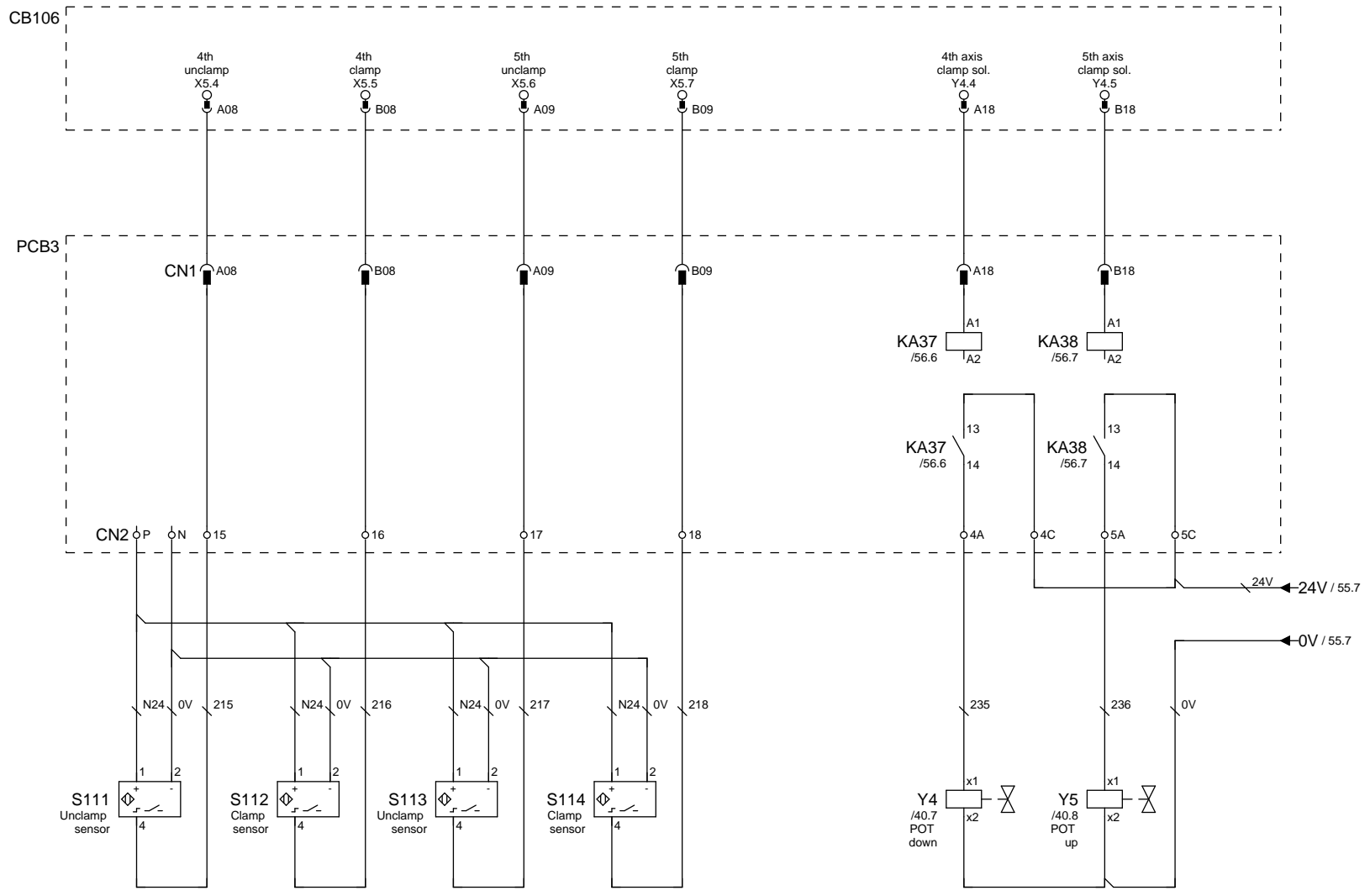


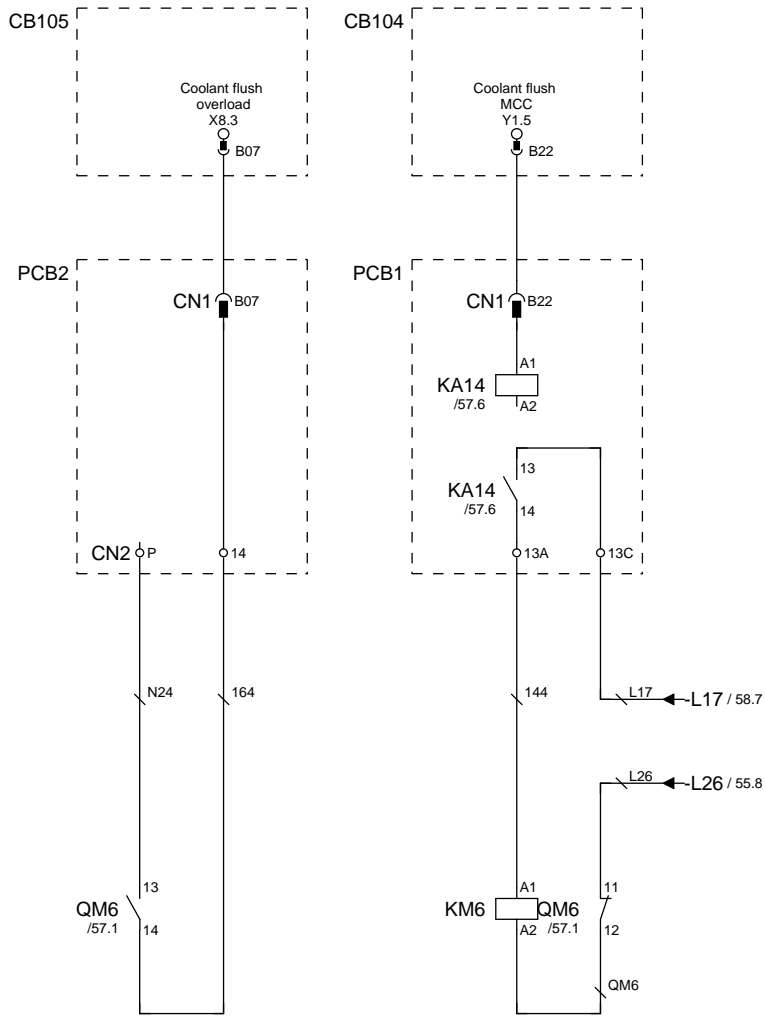
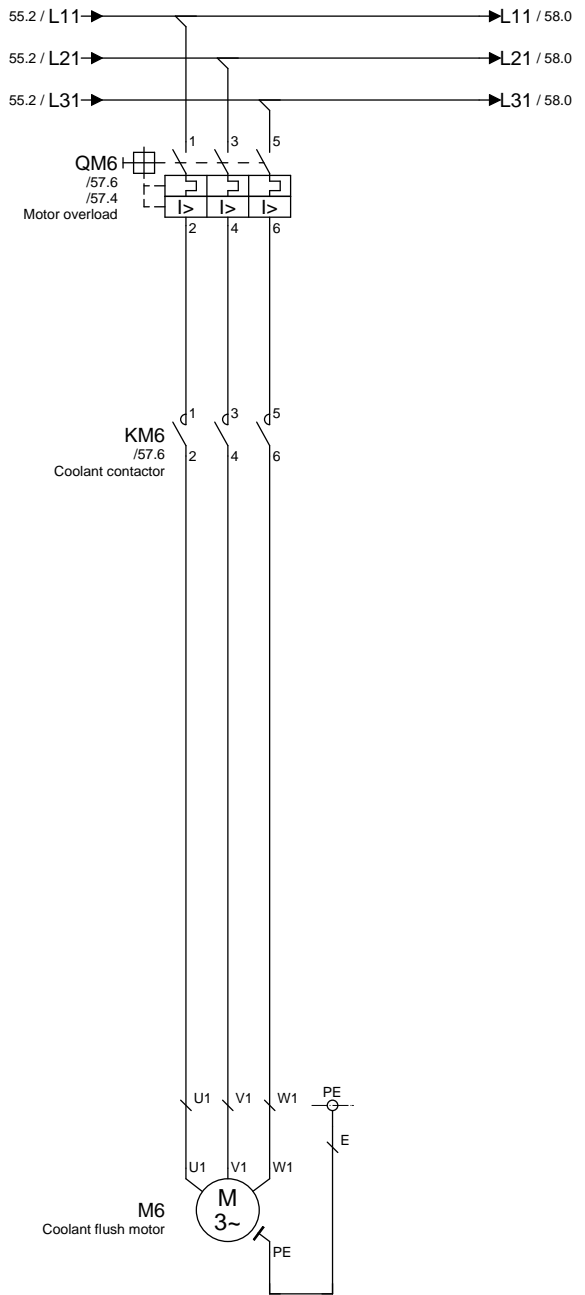
13 - 14 / 51.5
 13 - 14 / 51.6

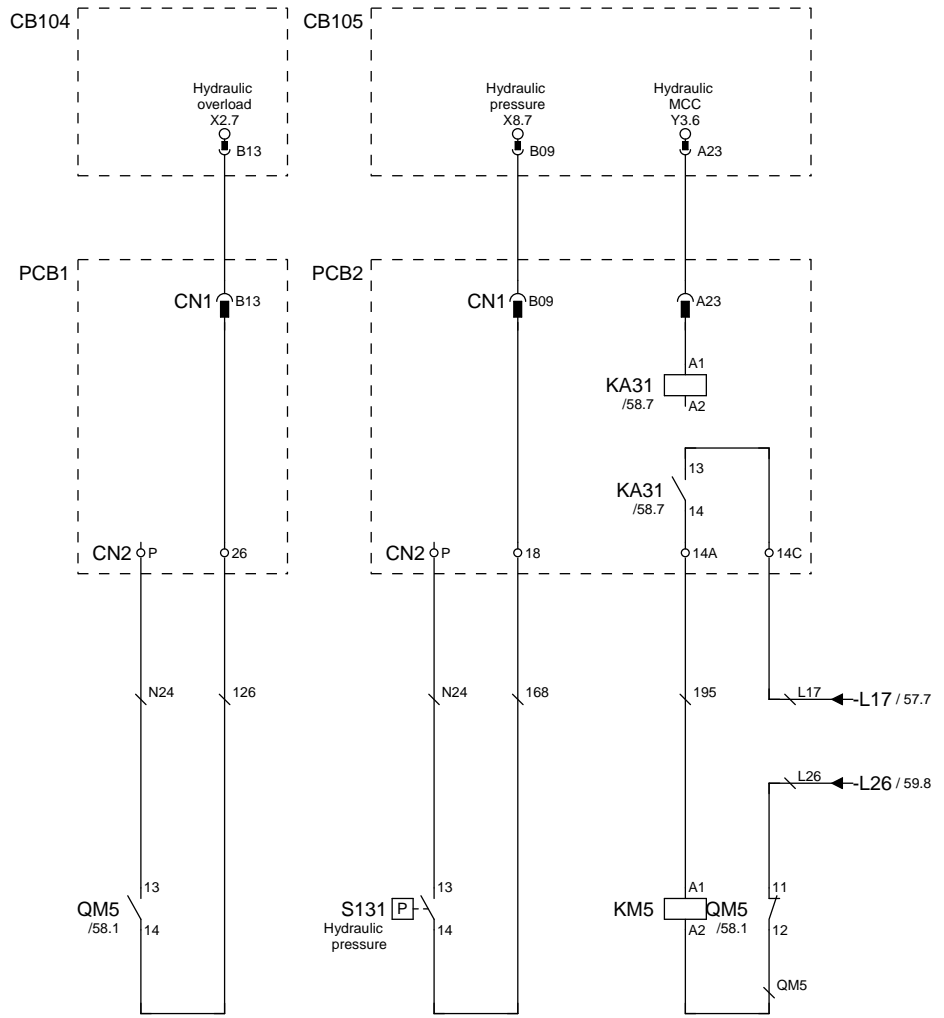
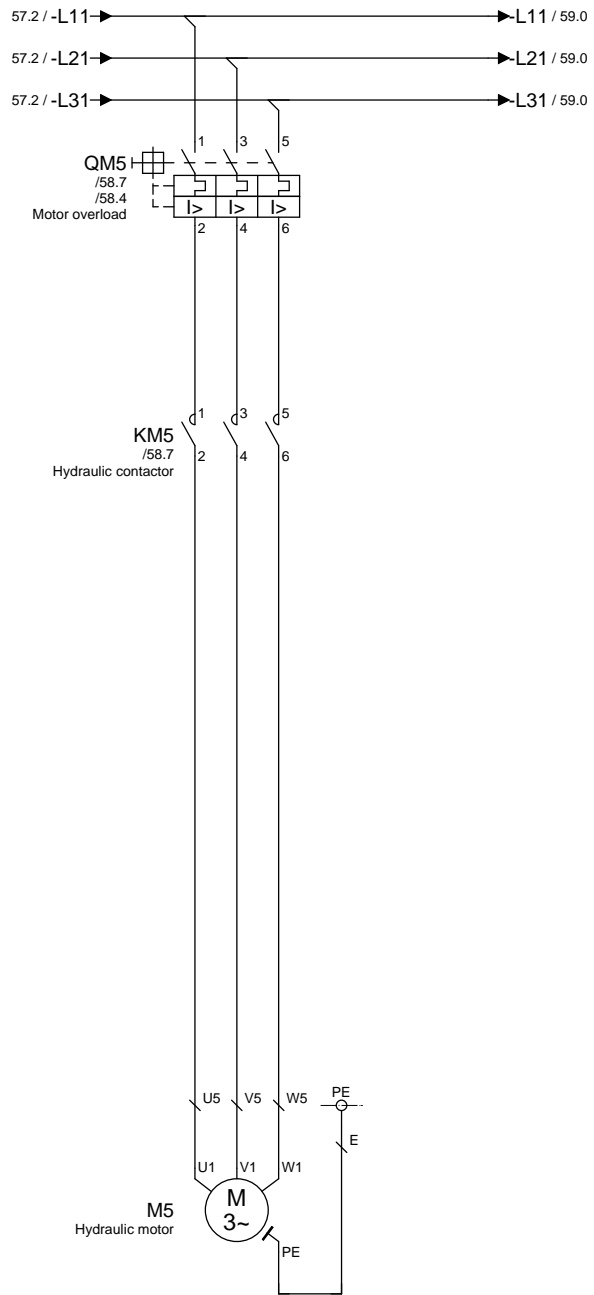




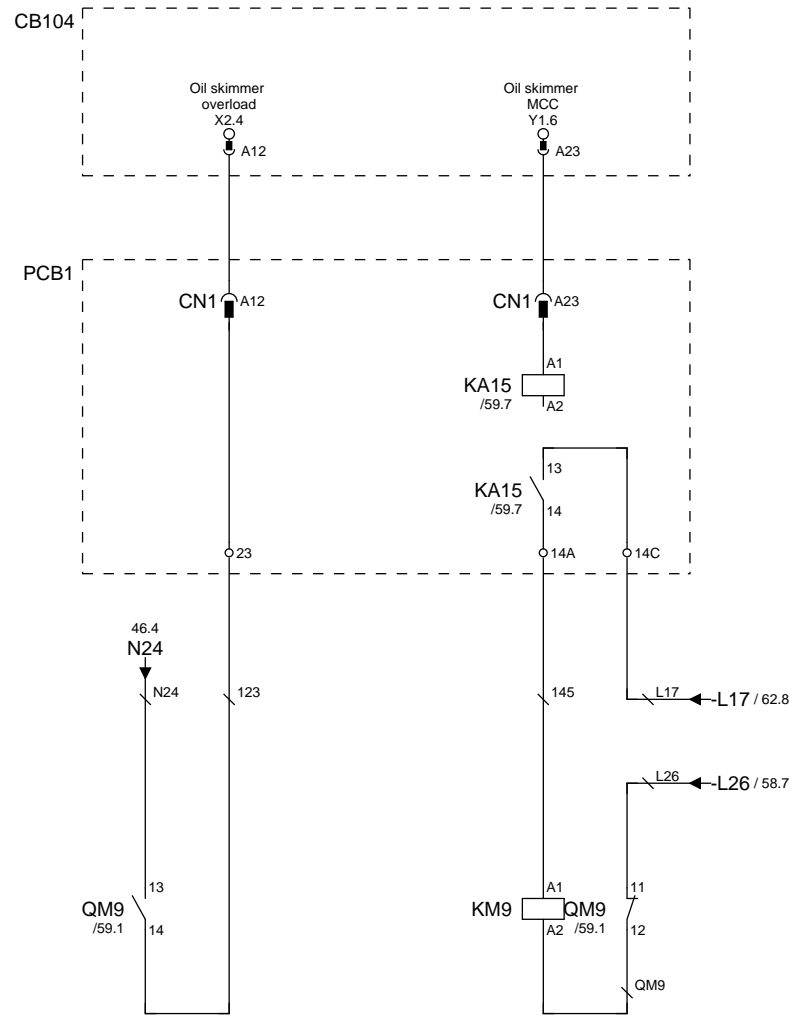
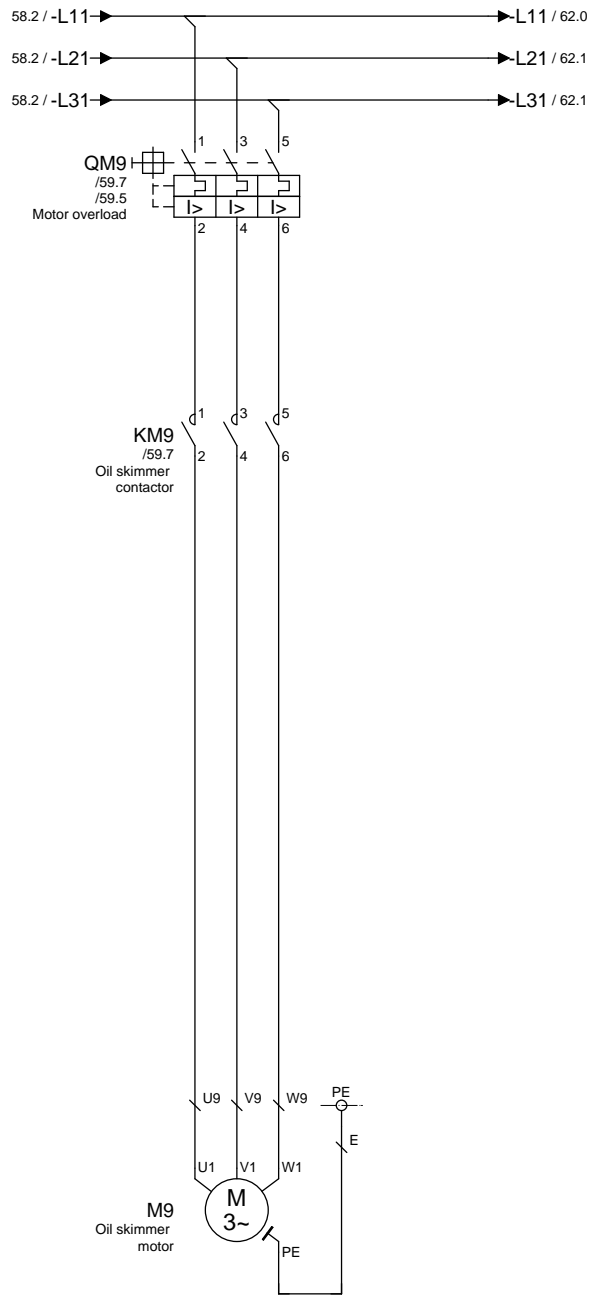




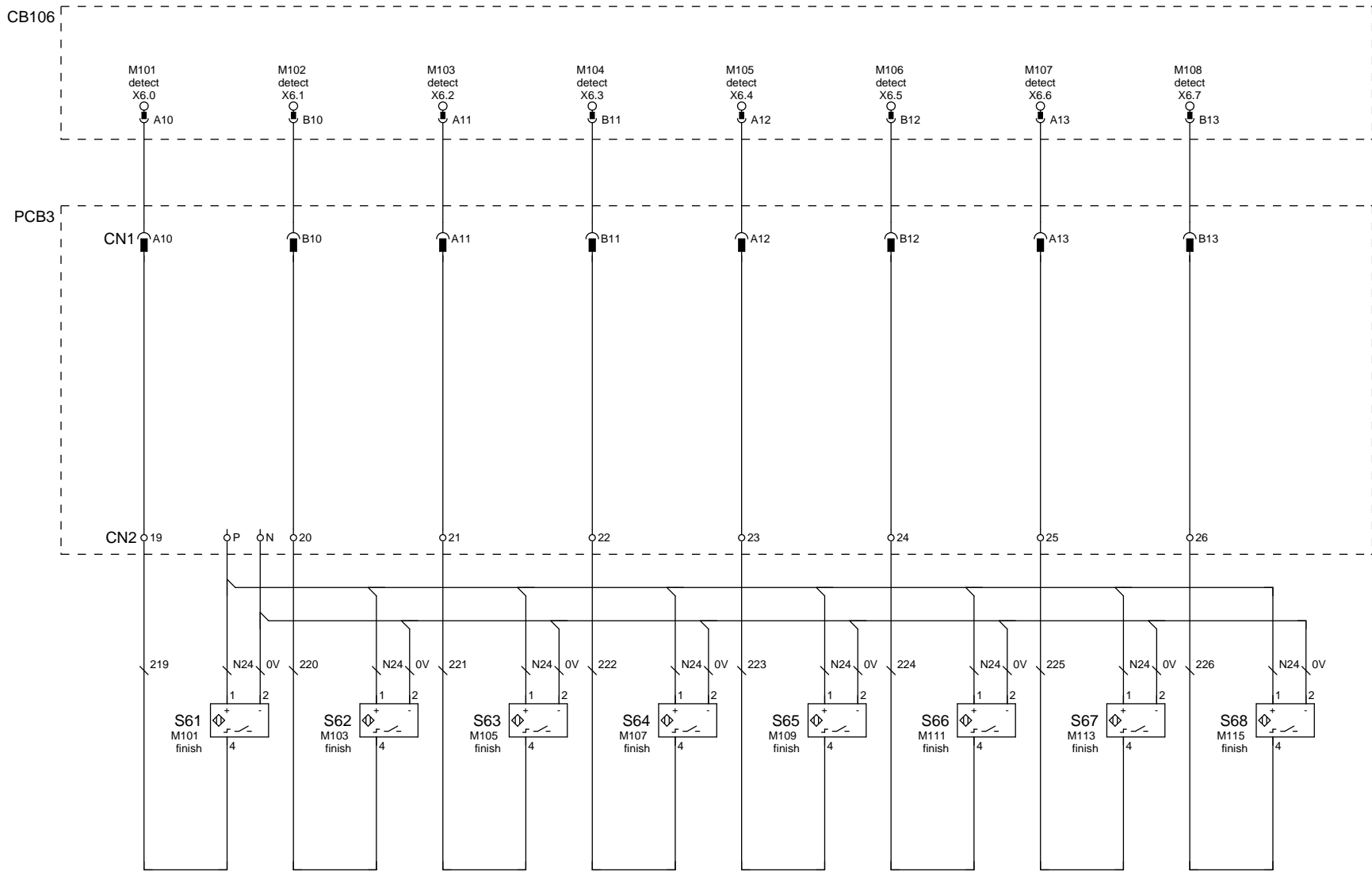


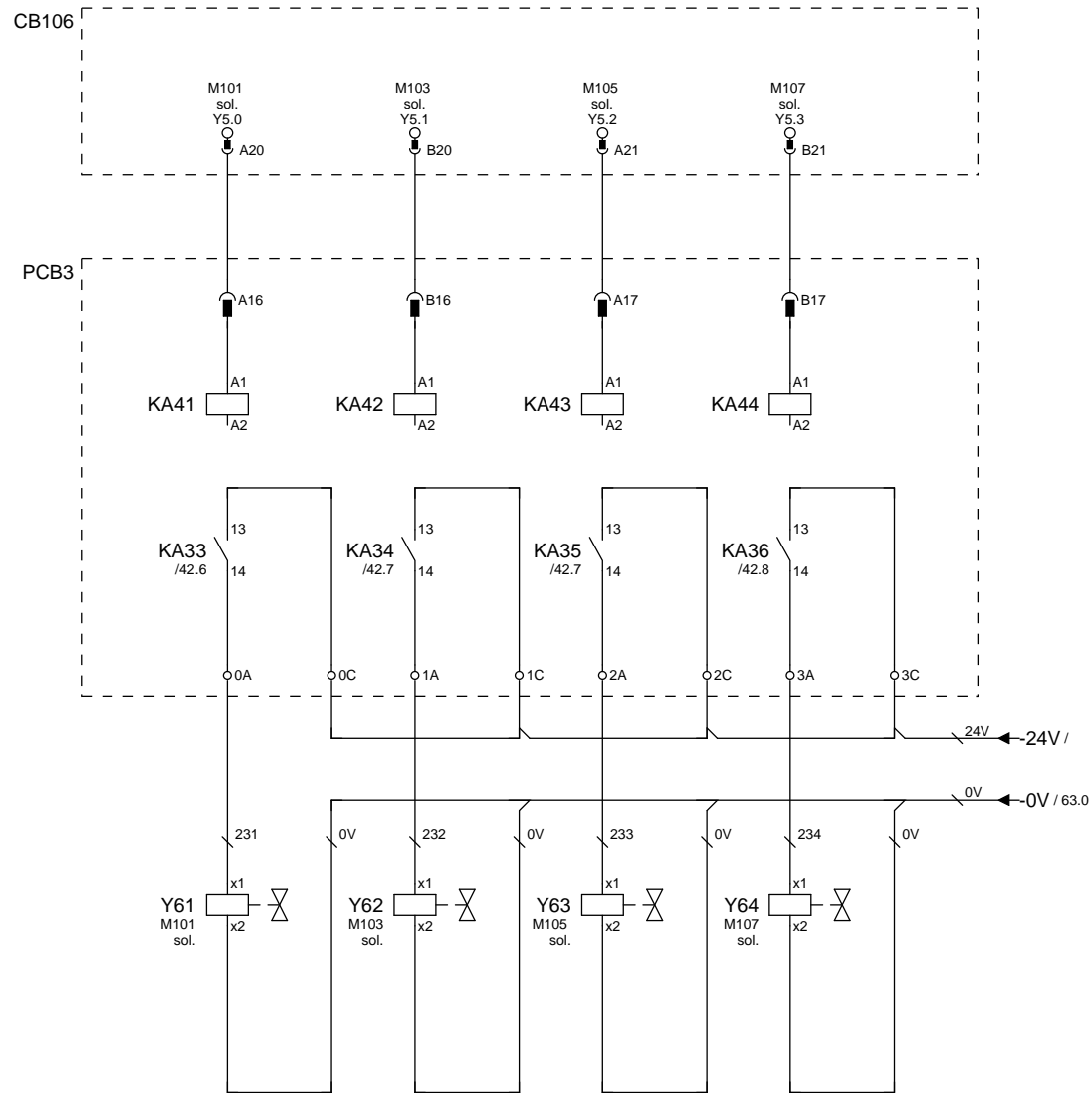


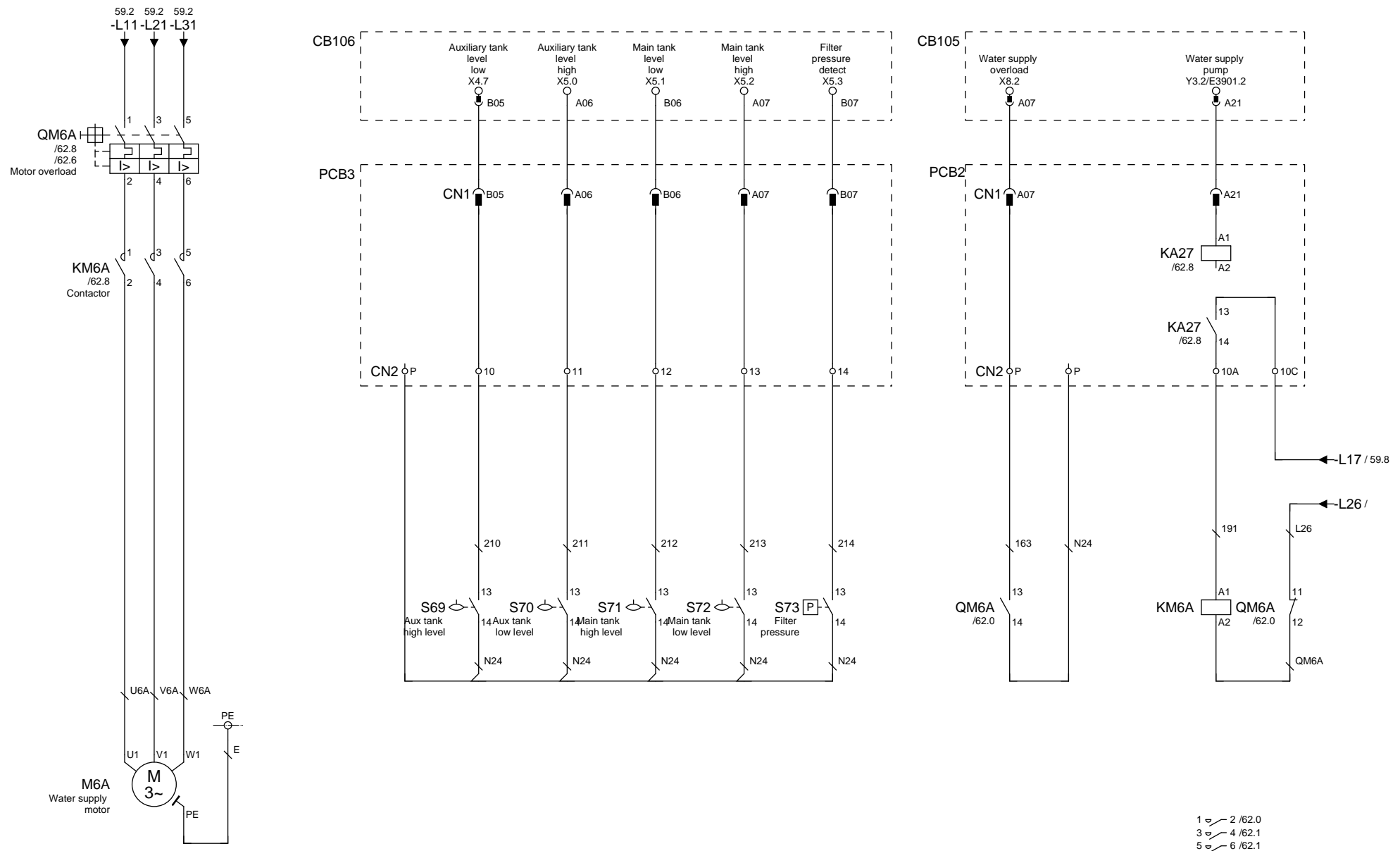
- 1 ⚡ 2 /58.1
- 3 ⚡ 4 /58.1
- 5 ⚡ 6 /58.1

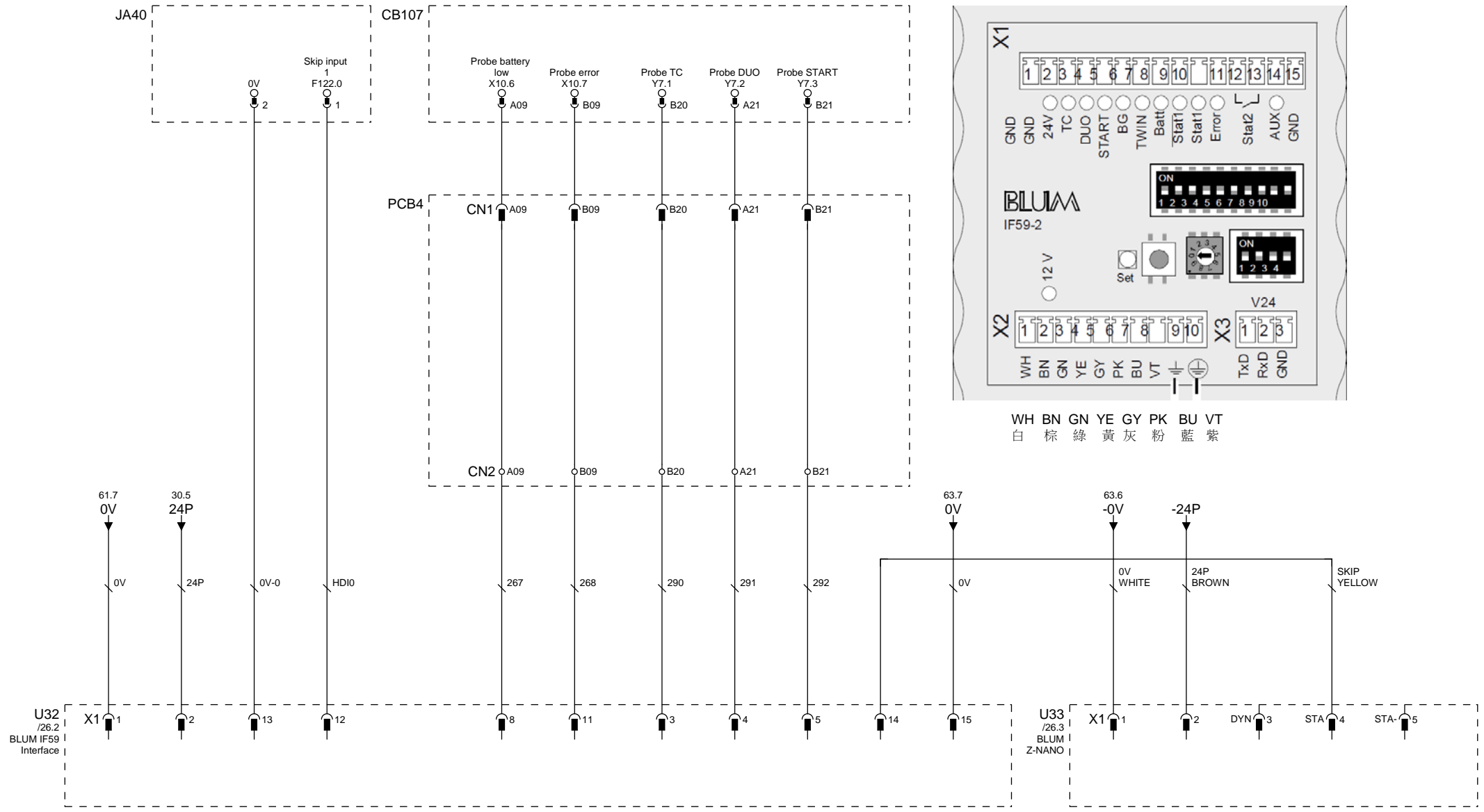


- 1 — 2 /59.1
- 3 — 4 /59.1
- 5 — 6 /59.1
- 13 — 14 /46.5

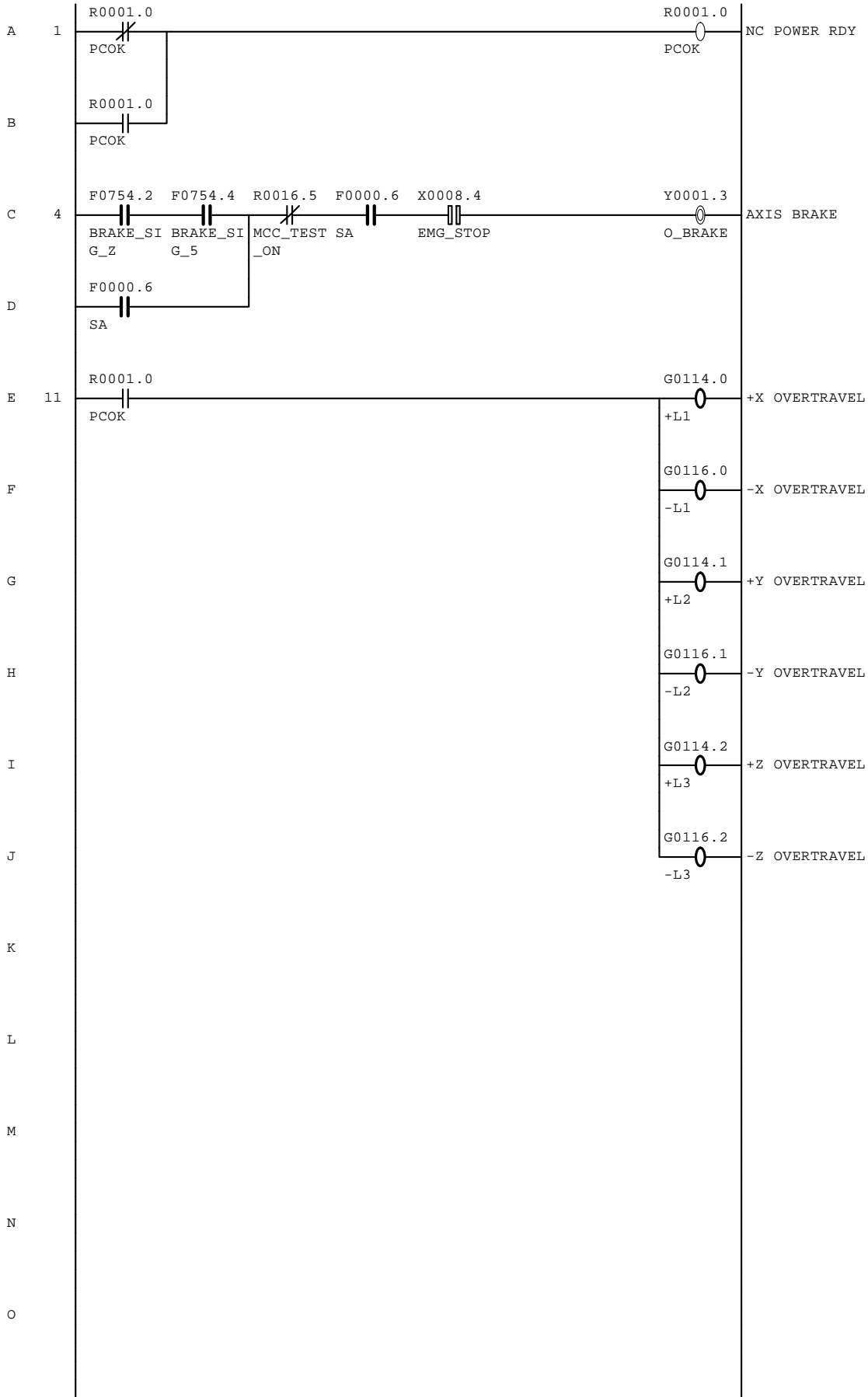


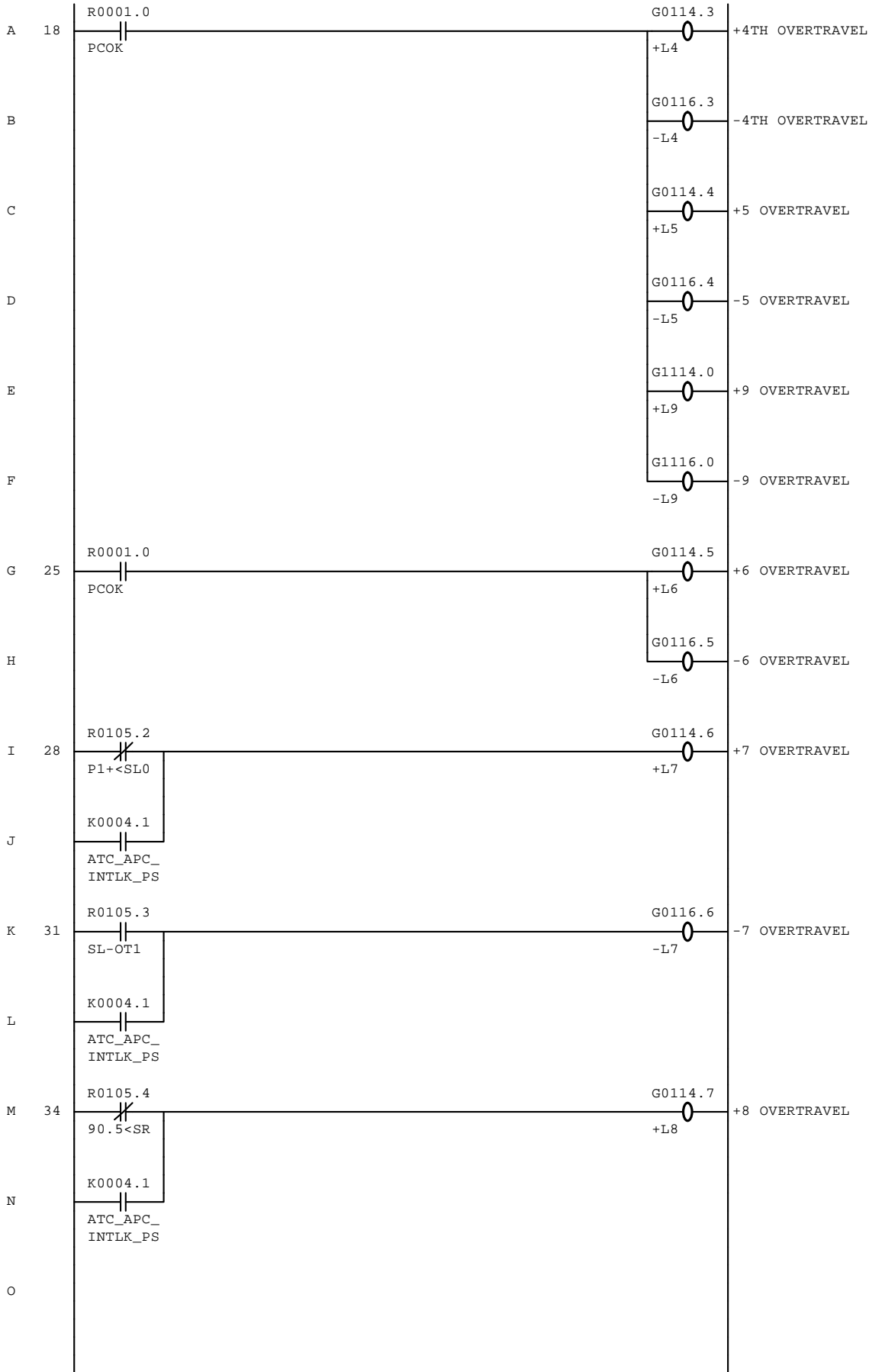


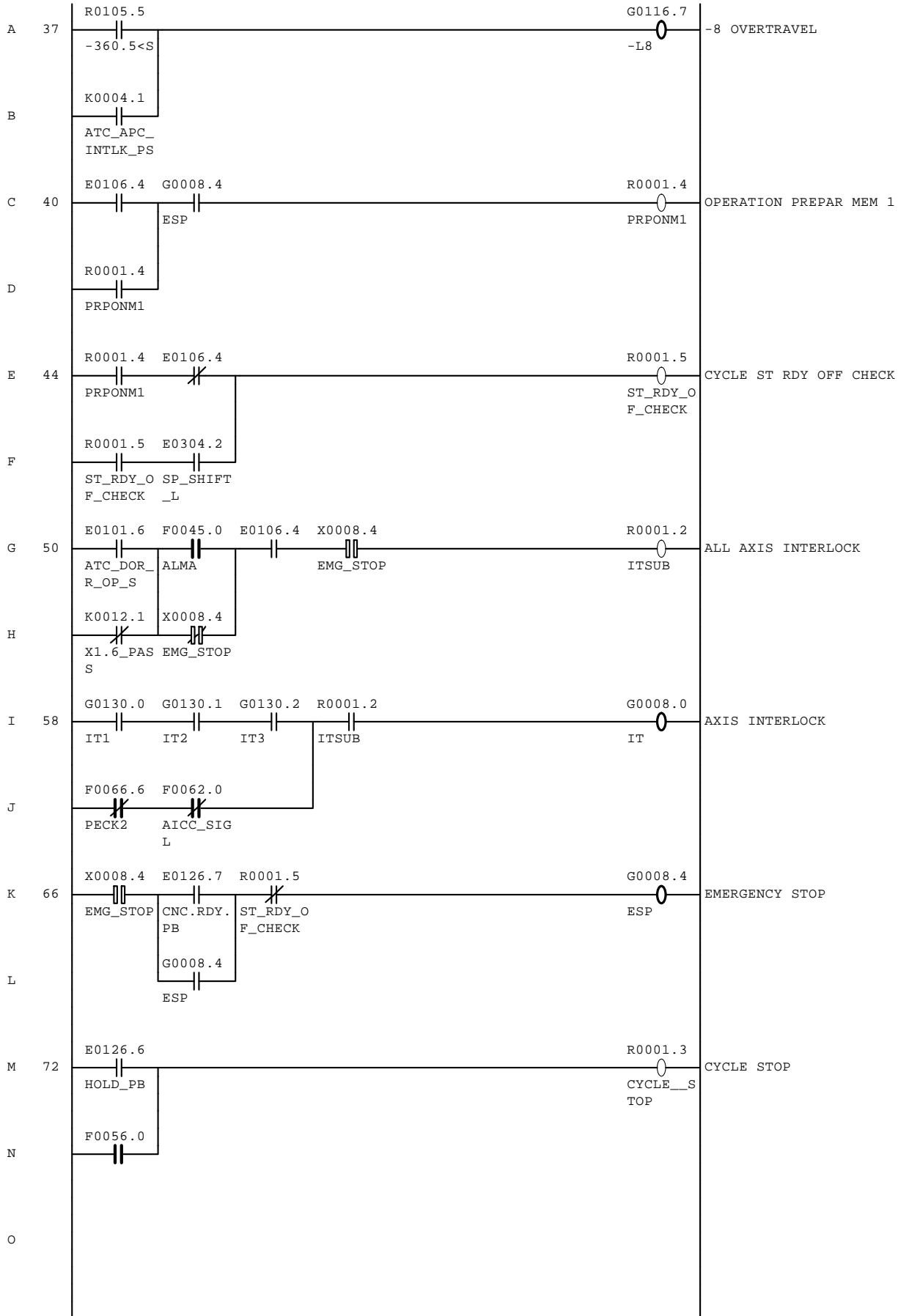


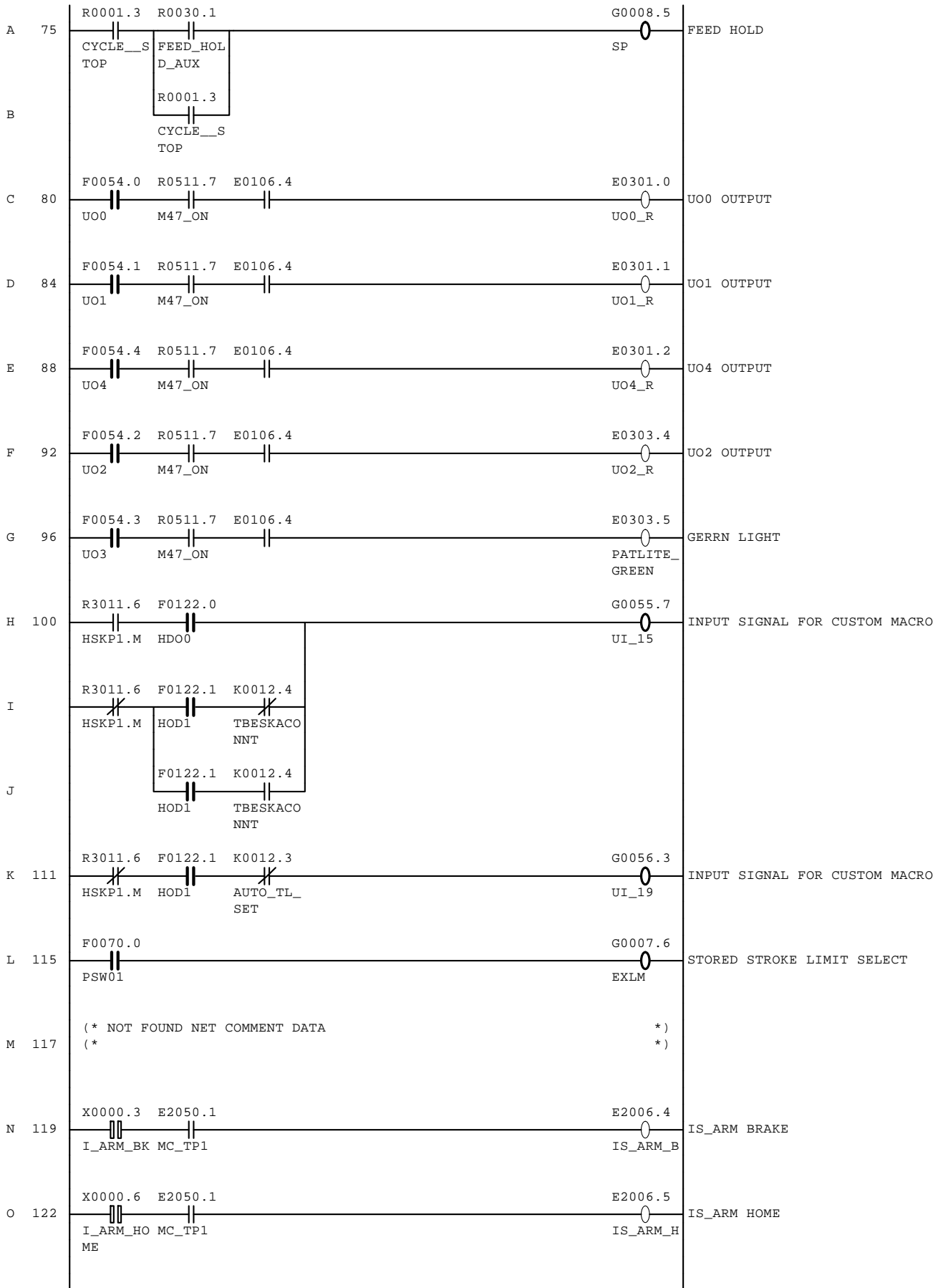


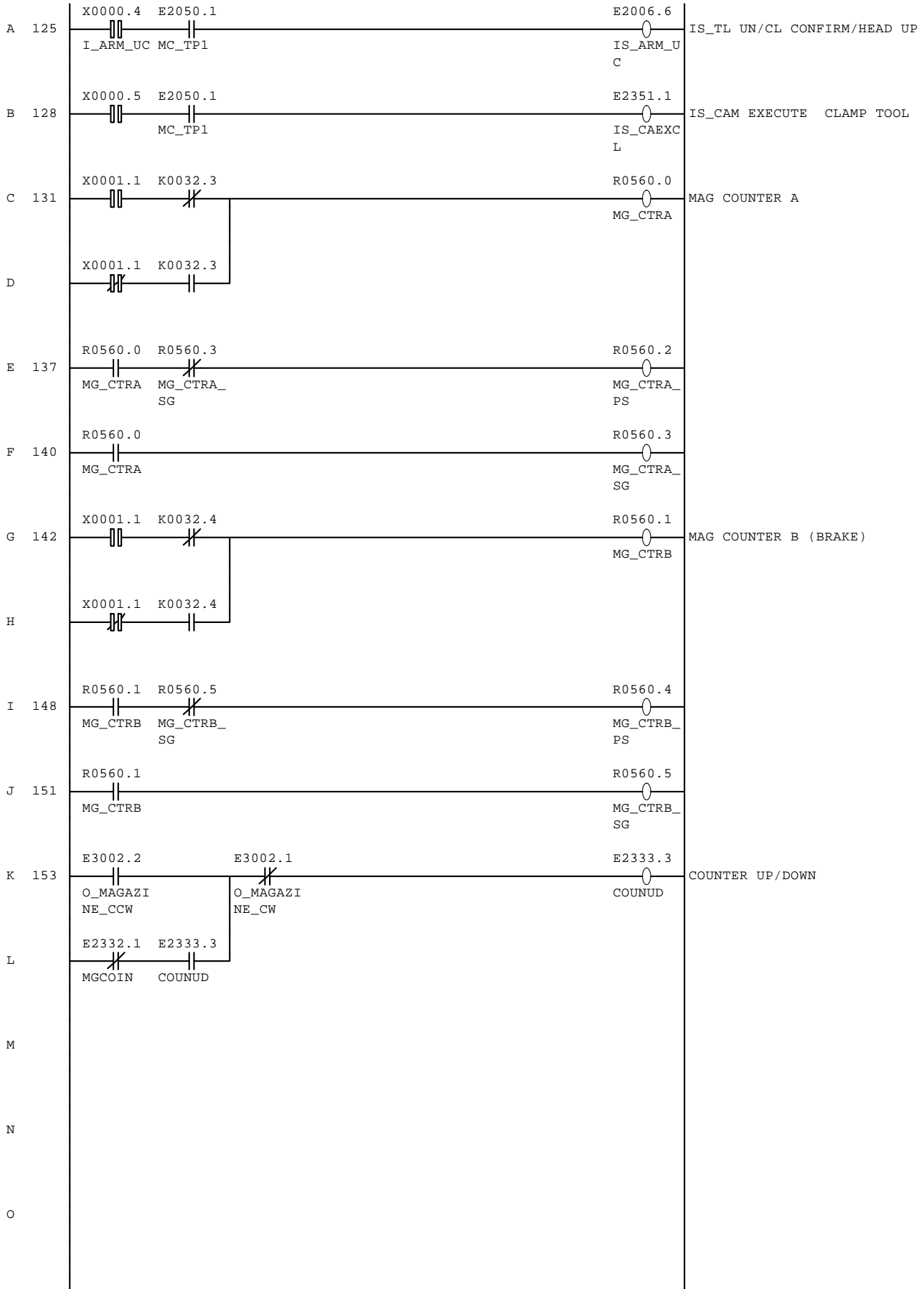
1)	MACHINE TOOL BUILDER NAME	SHARP MACHINE CO.,
2)	MACHINE TOOL NAME	SVX500
3)	PMC & NC NAME	31i-B
4)	PMC PROGRAM NO.	V500
5)	EDITION NO.	A1-1.00
6)	PROGRAM DRAWING NO.	SVX500-A1.1.00
7)	DATE OF PROGRAMMING	2018/07/19
8)	PROGRAM DESIGNED BY	FMI
9)	ROM WRITTEN BY	FMI
10)	REMARKS	SVX500-A1

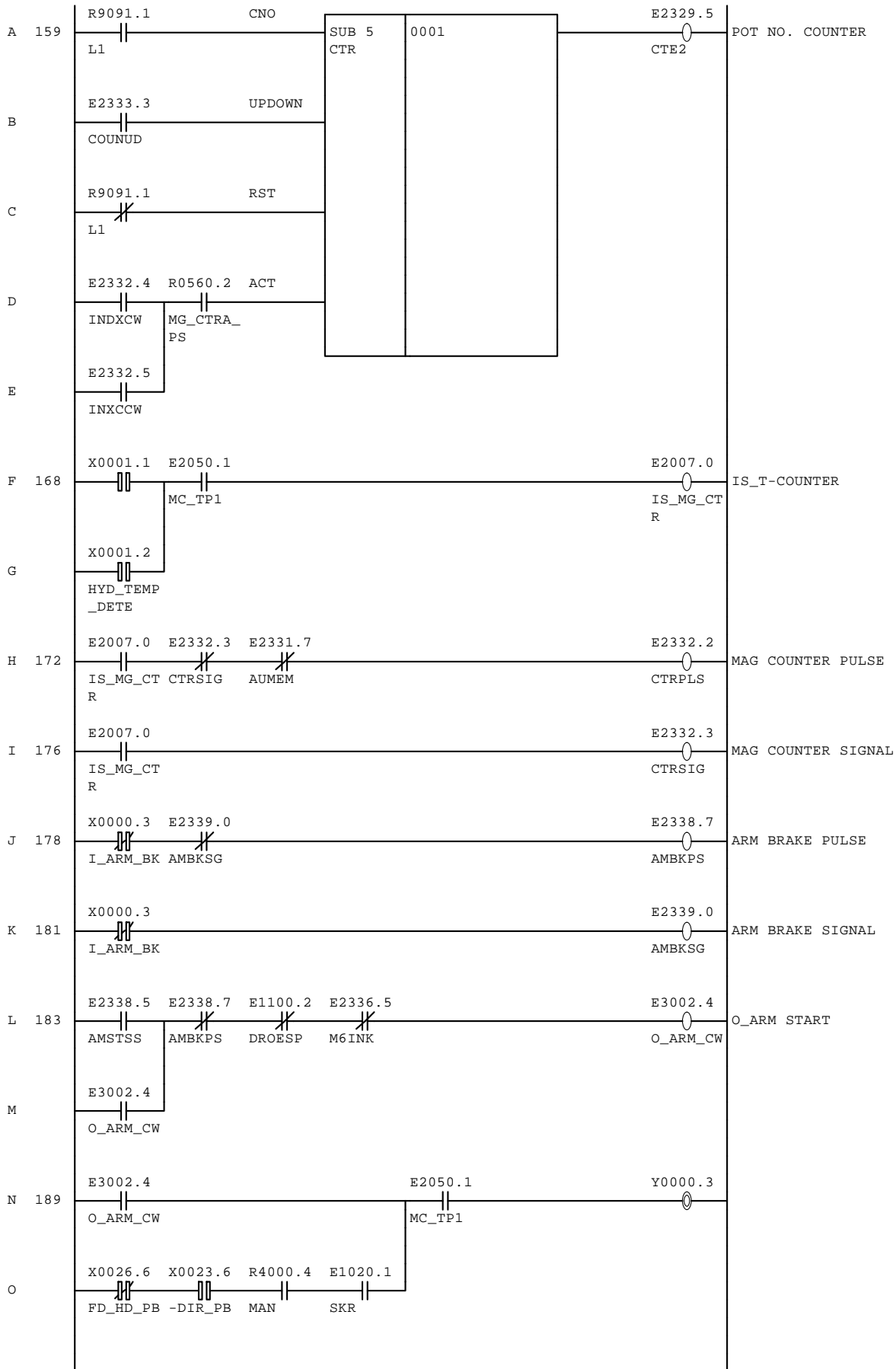


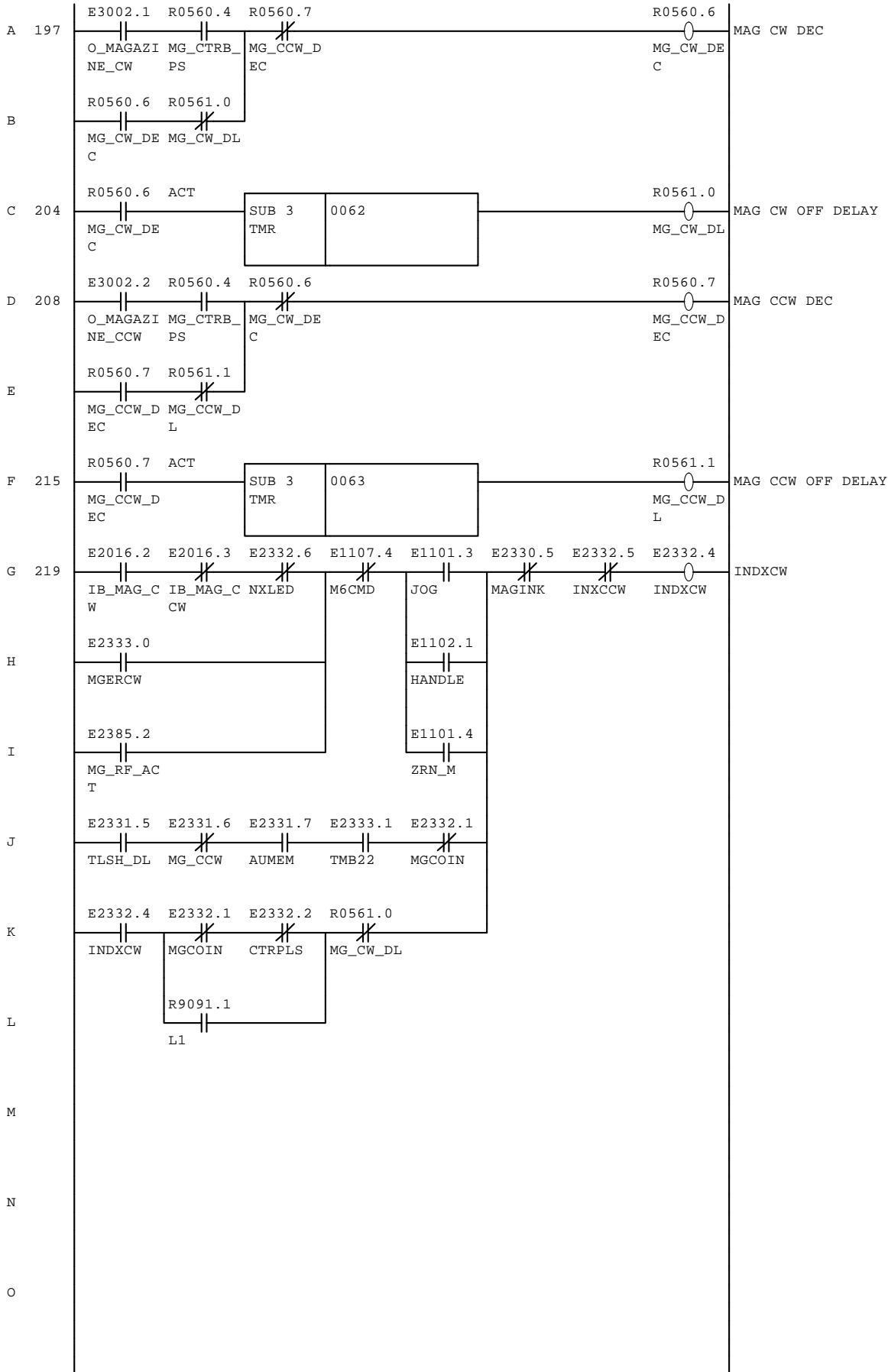


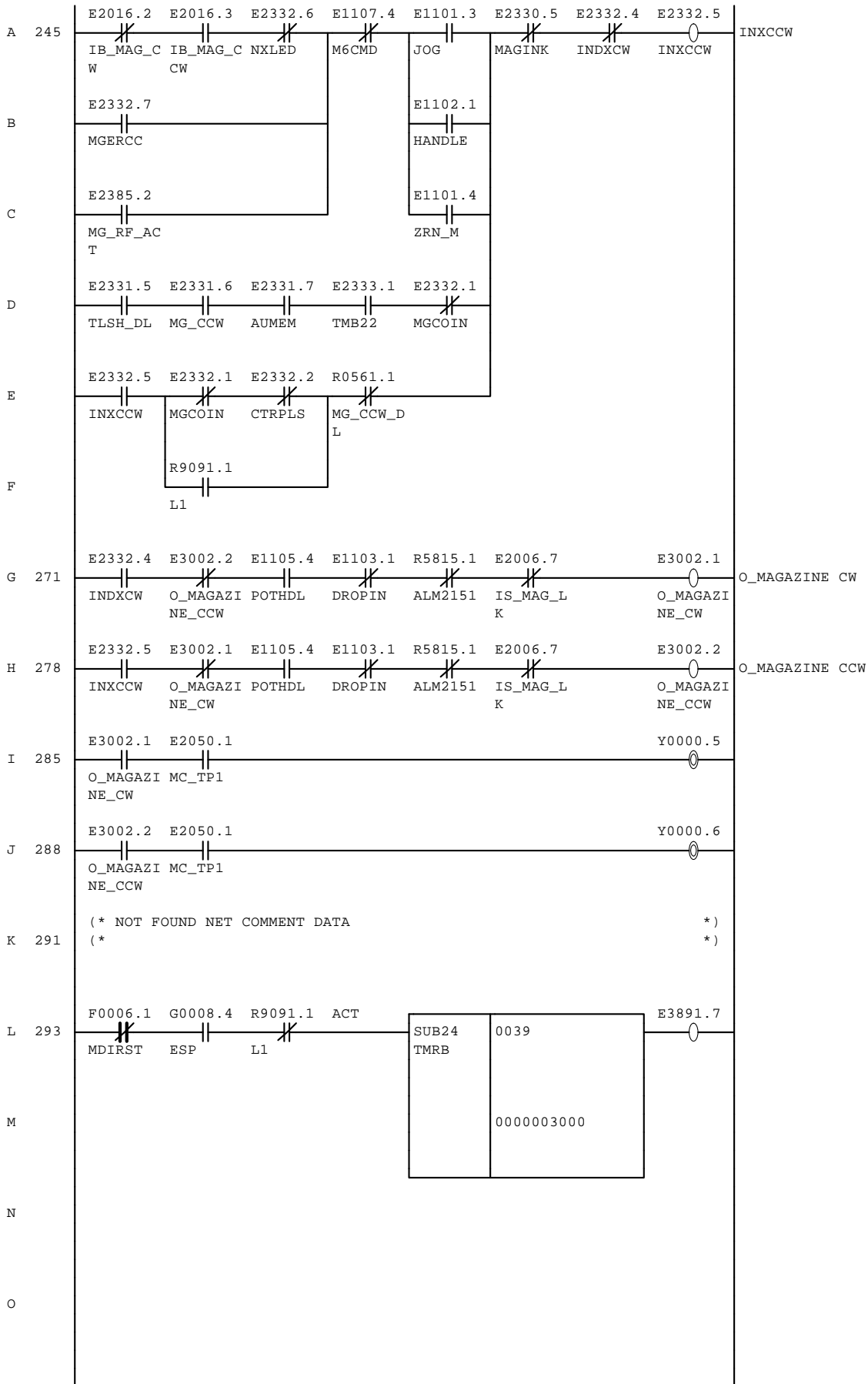


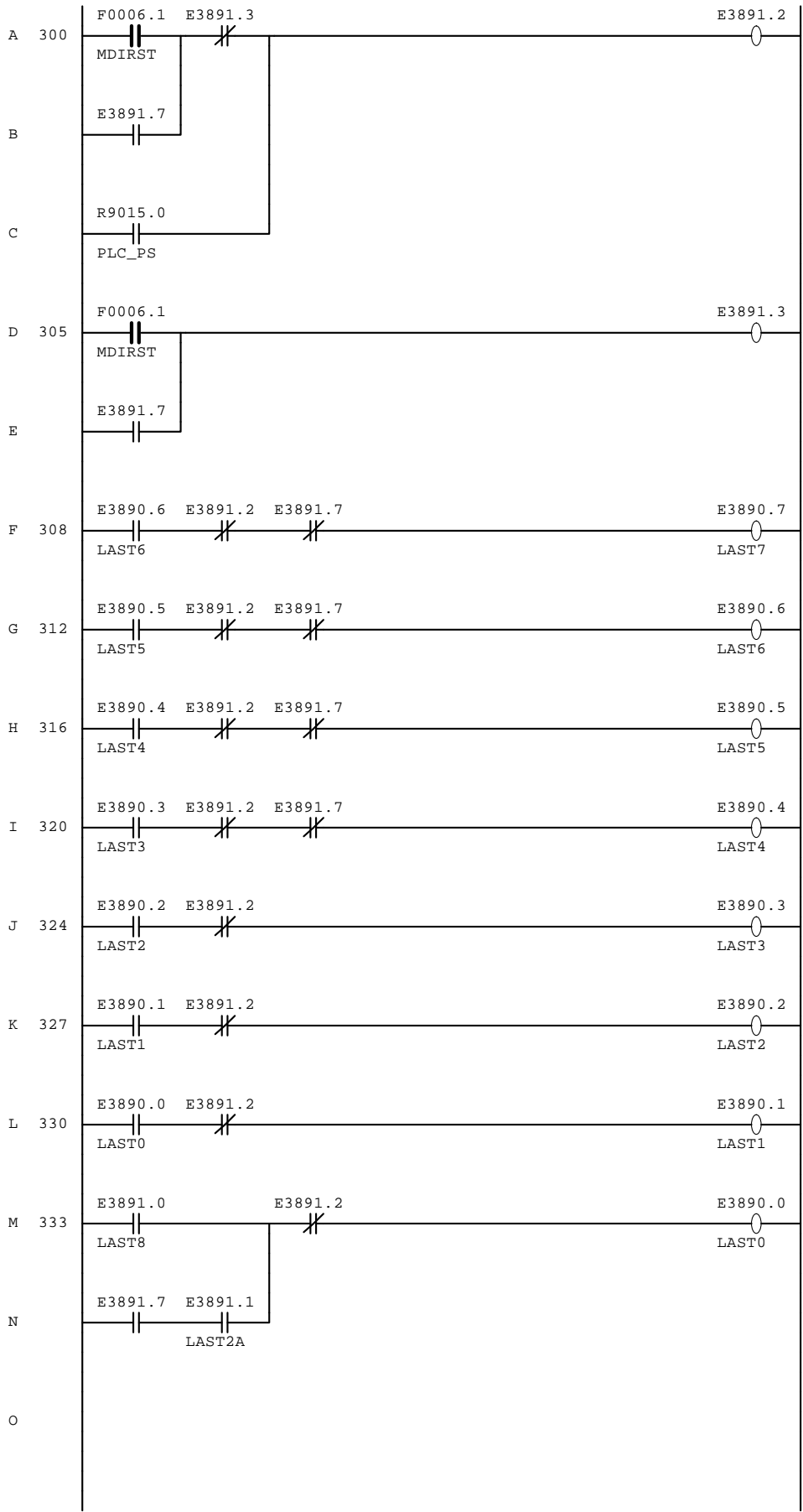


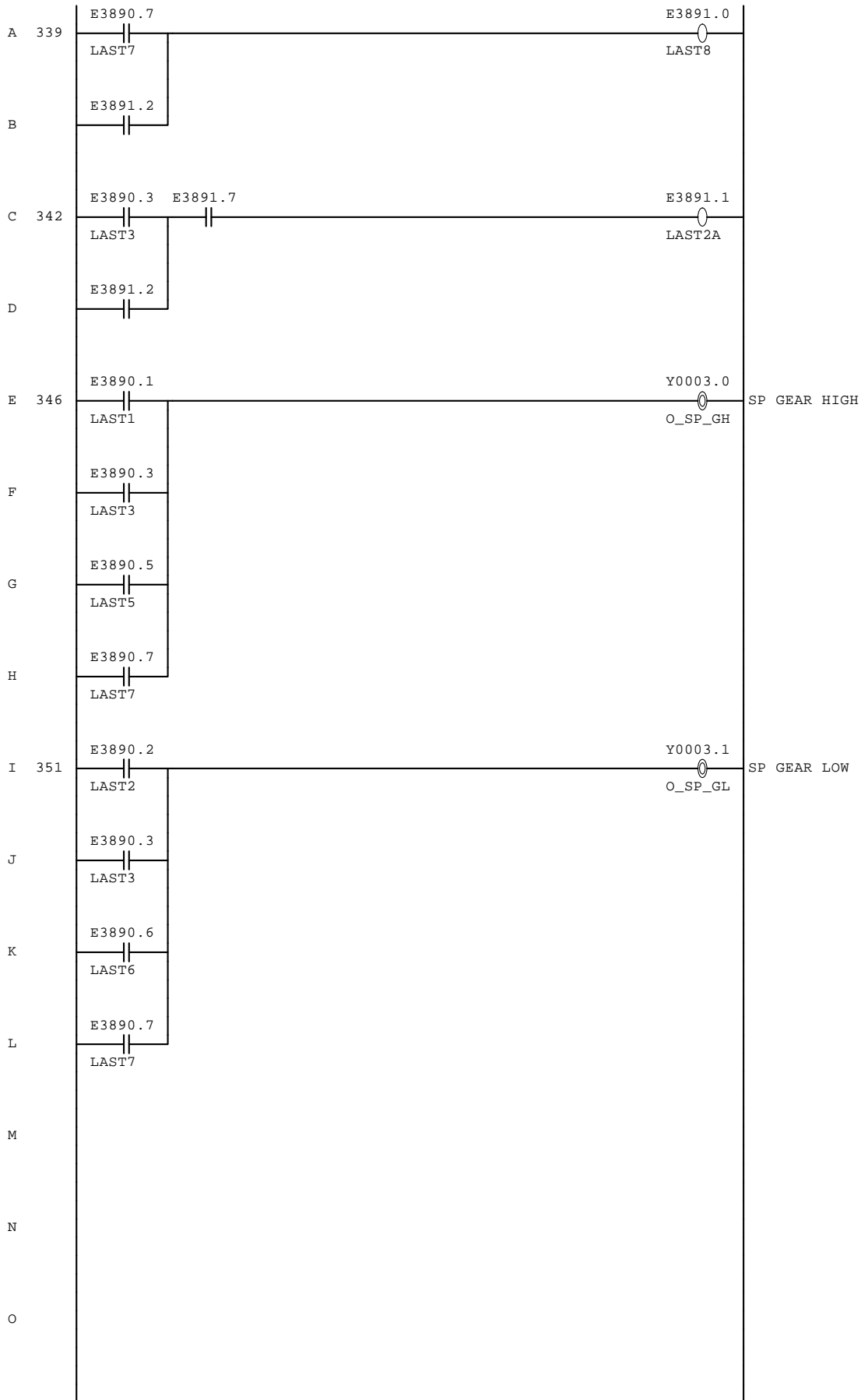


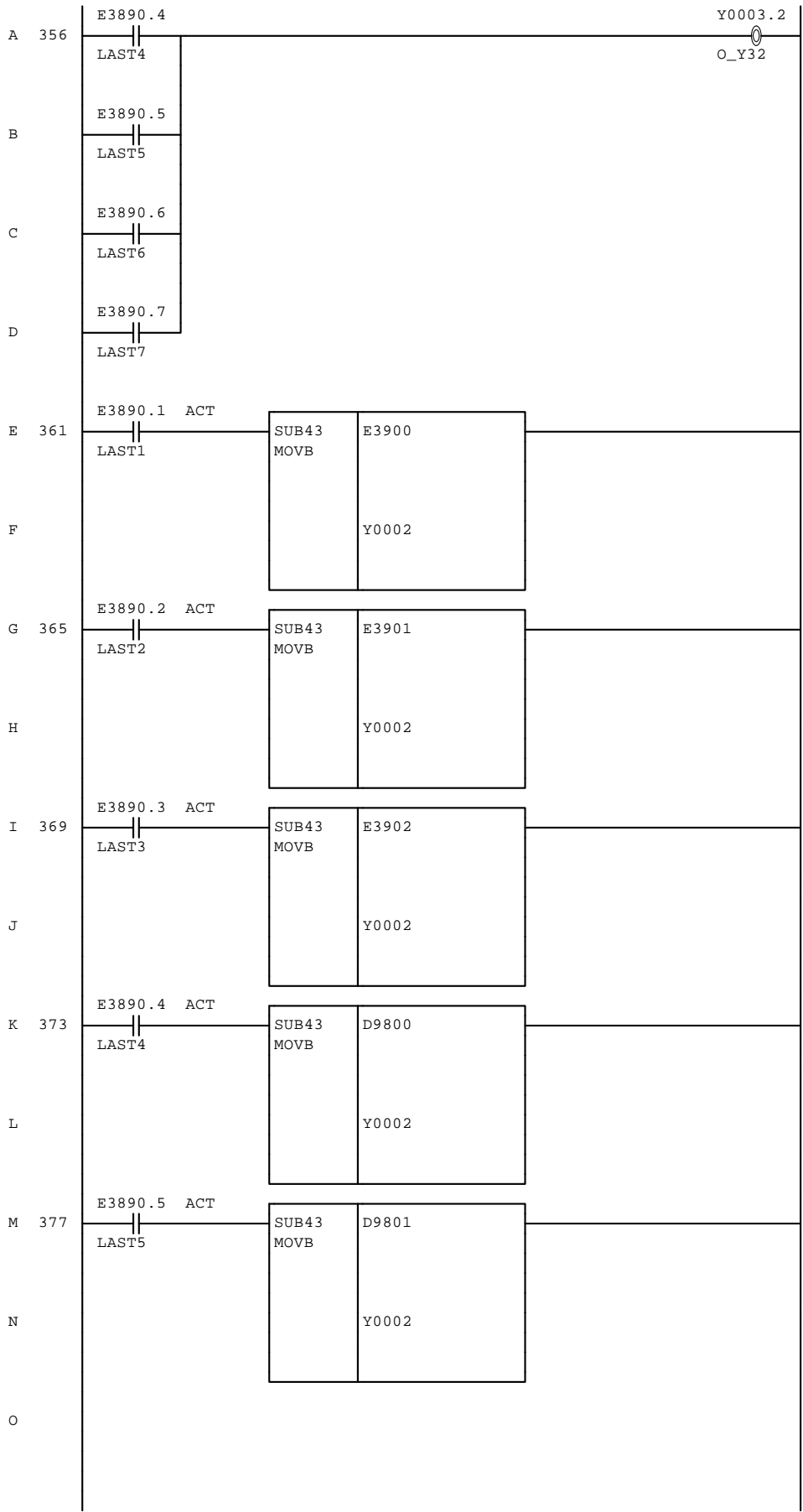


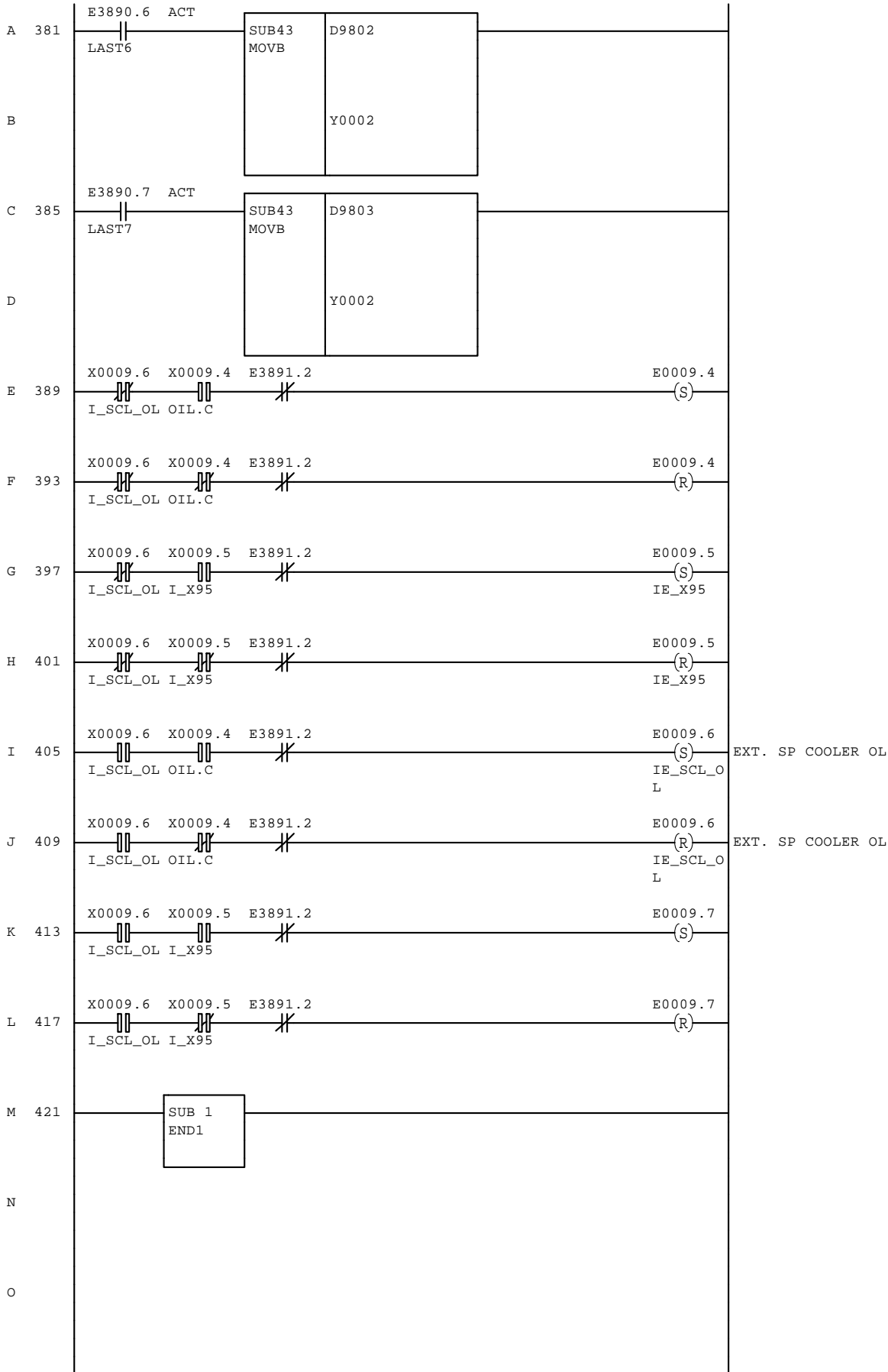


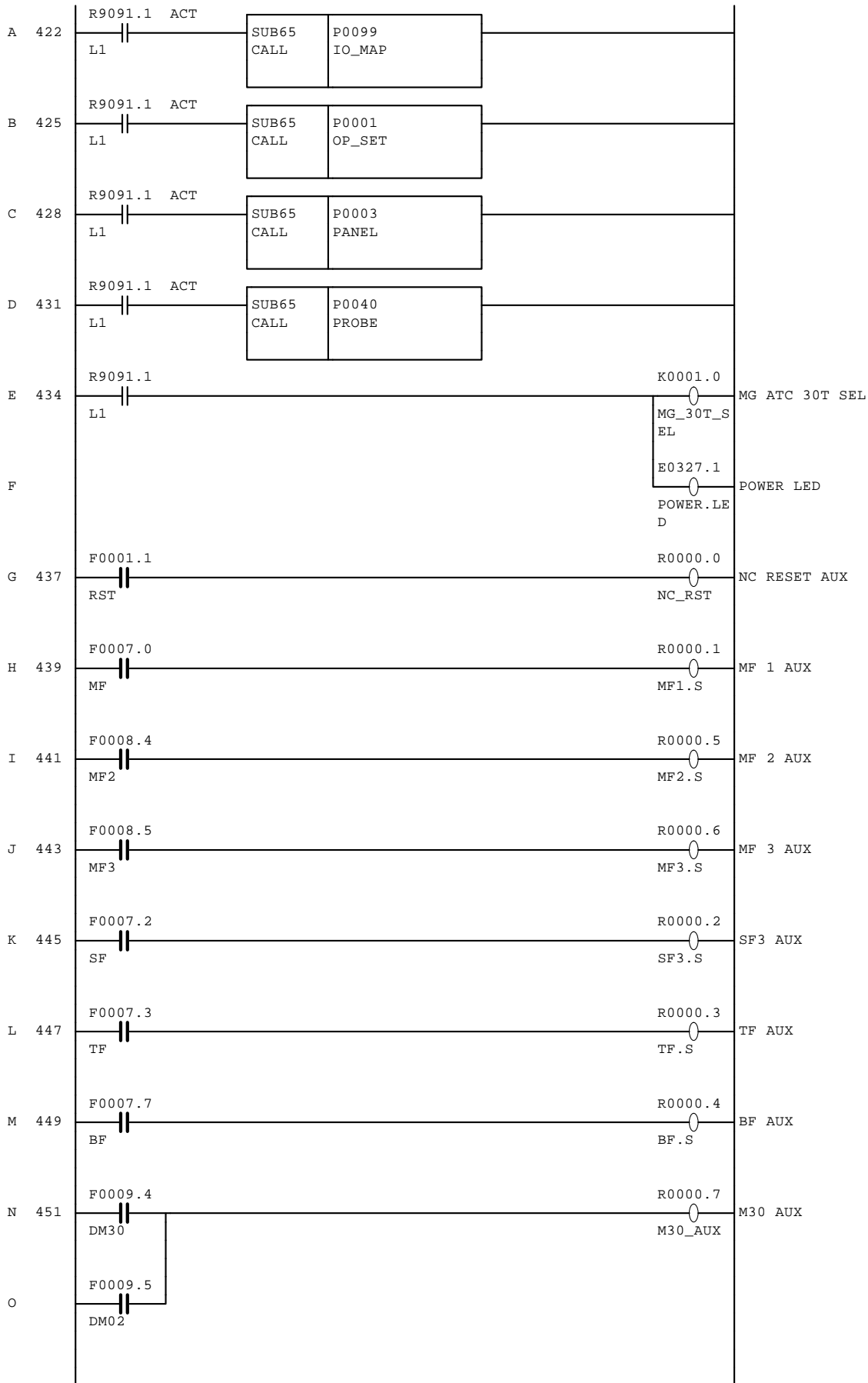


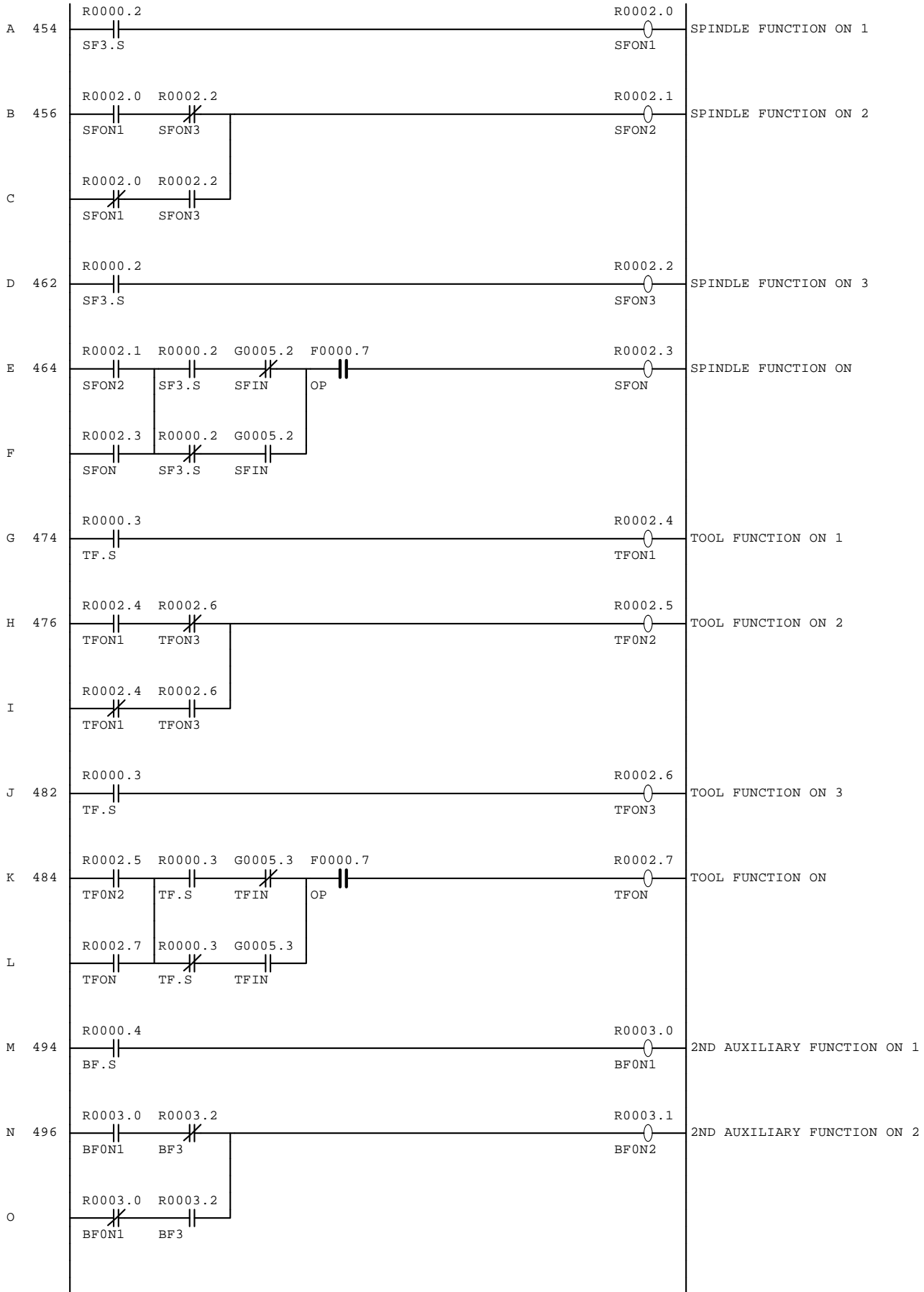


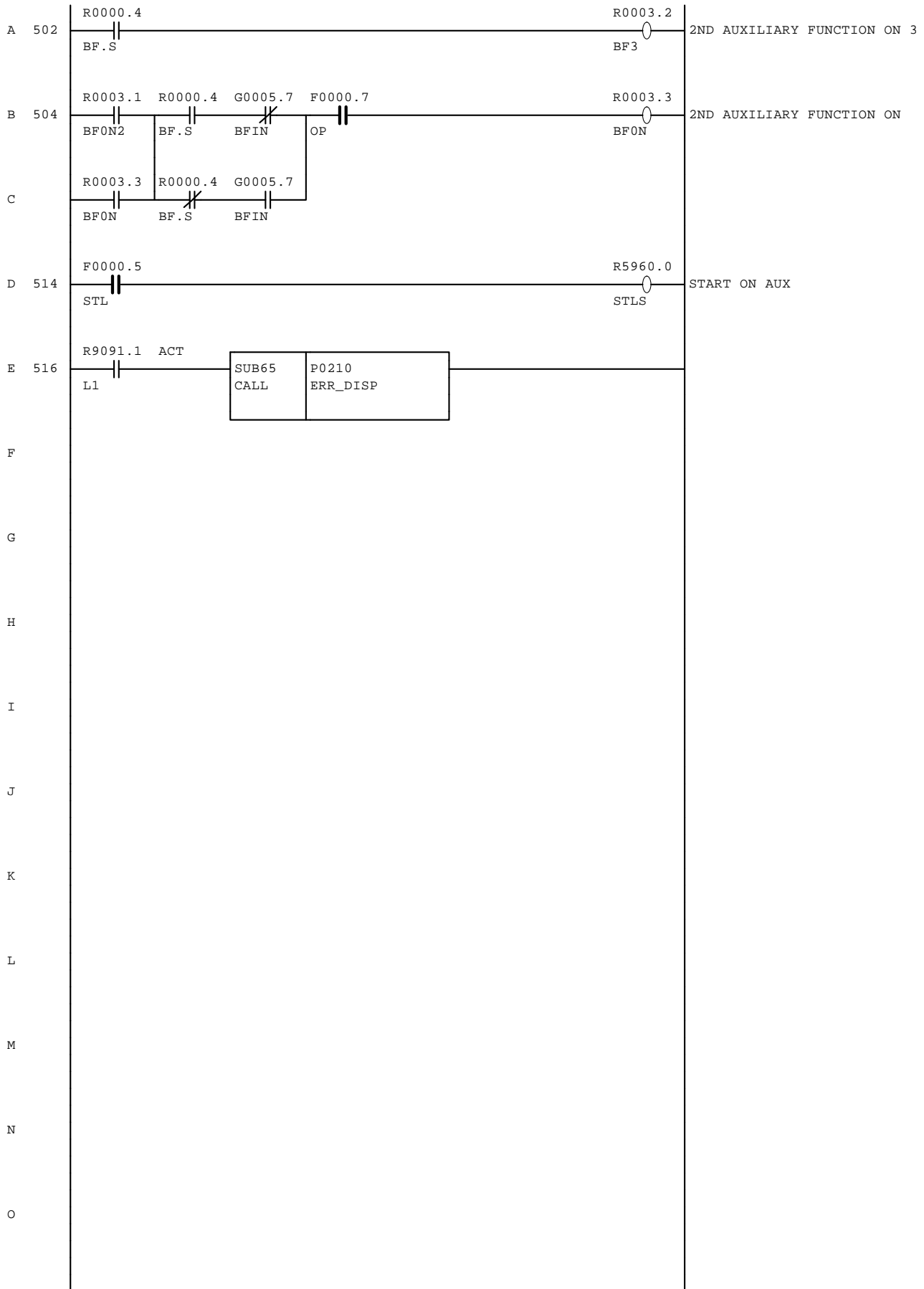


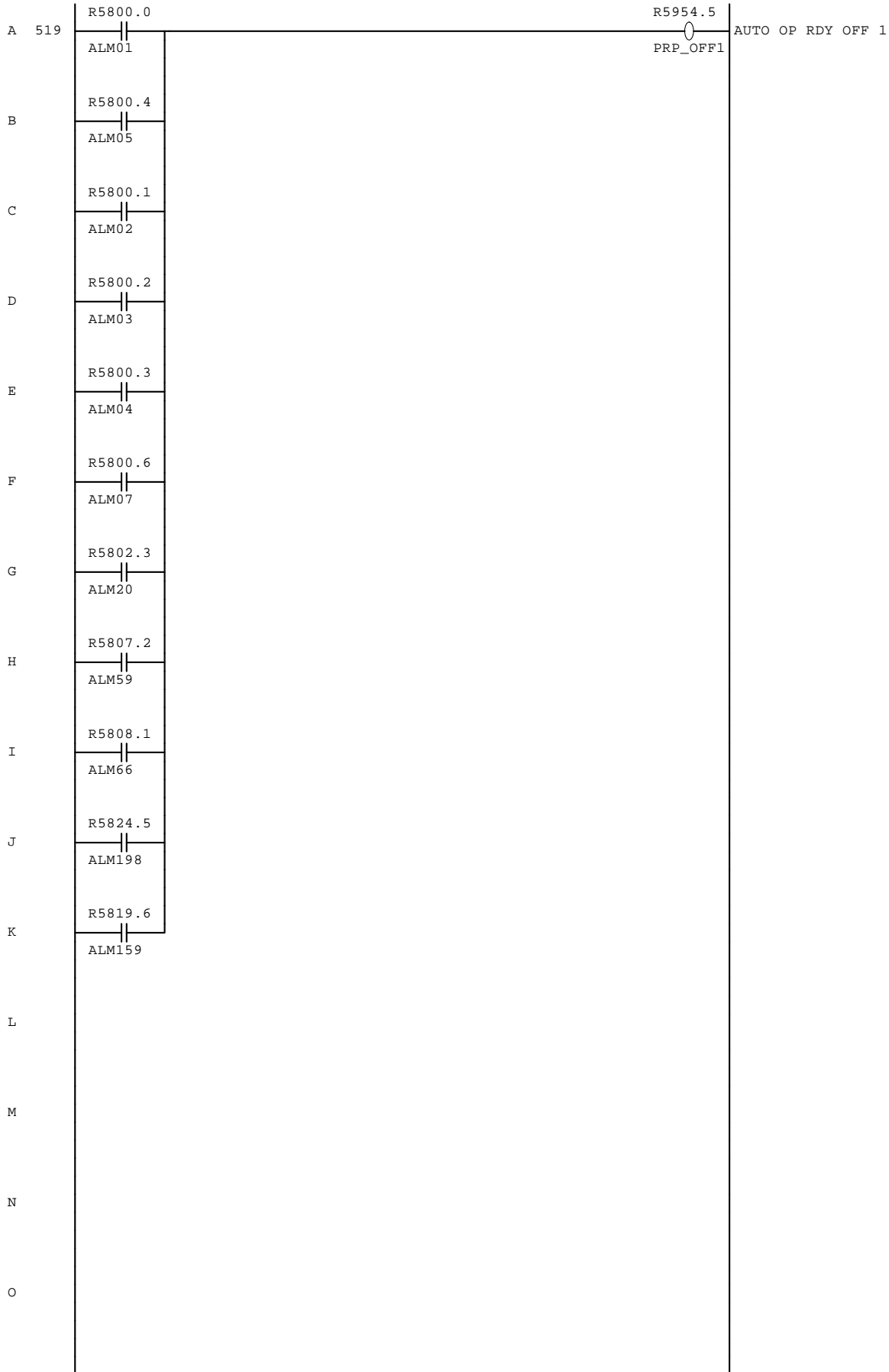


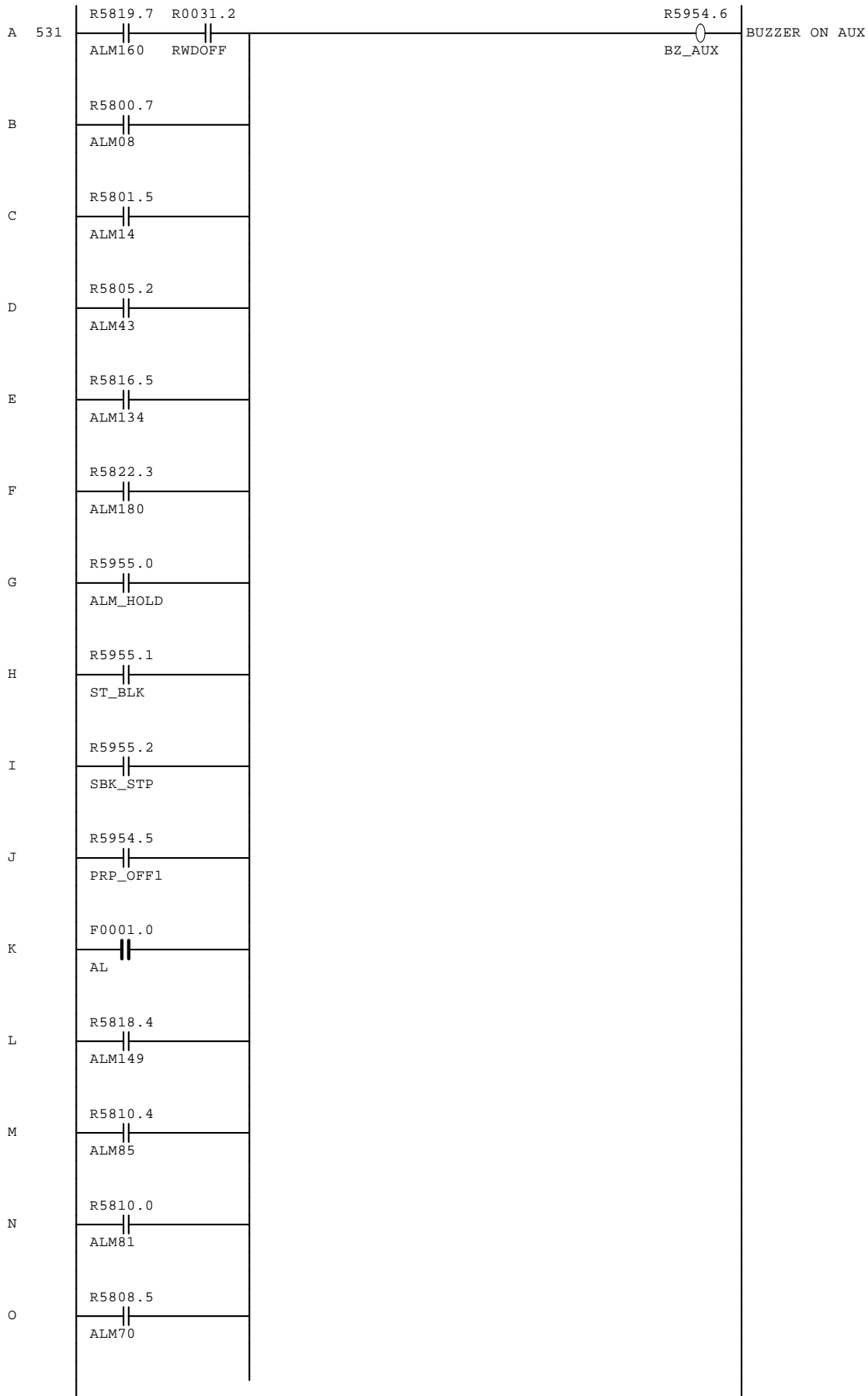


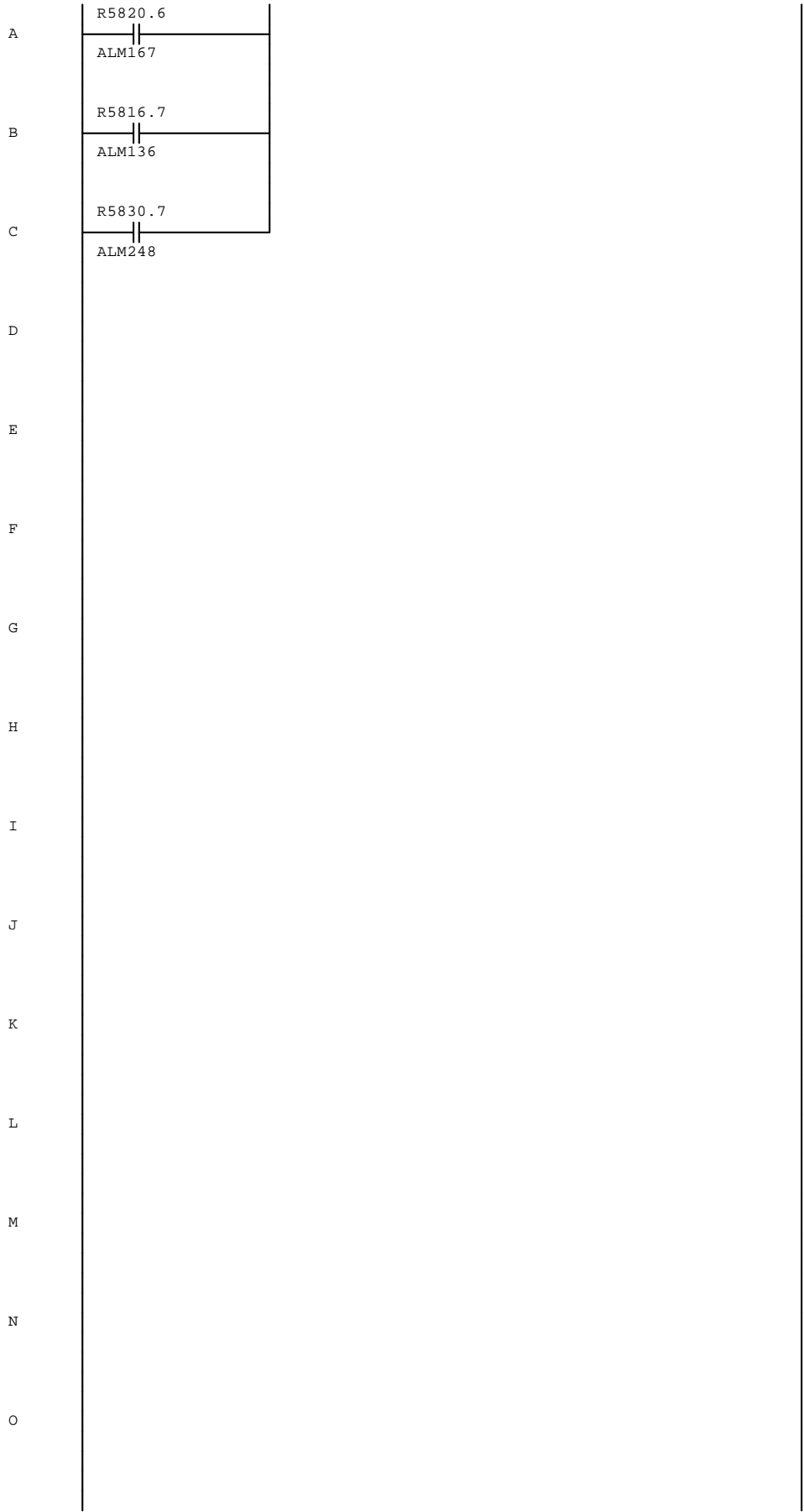


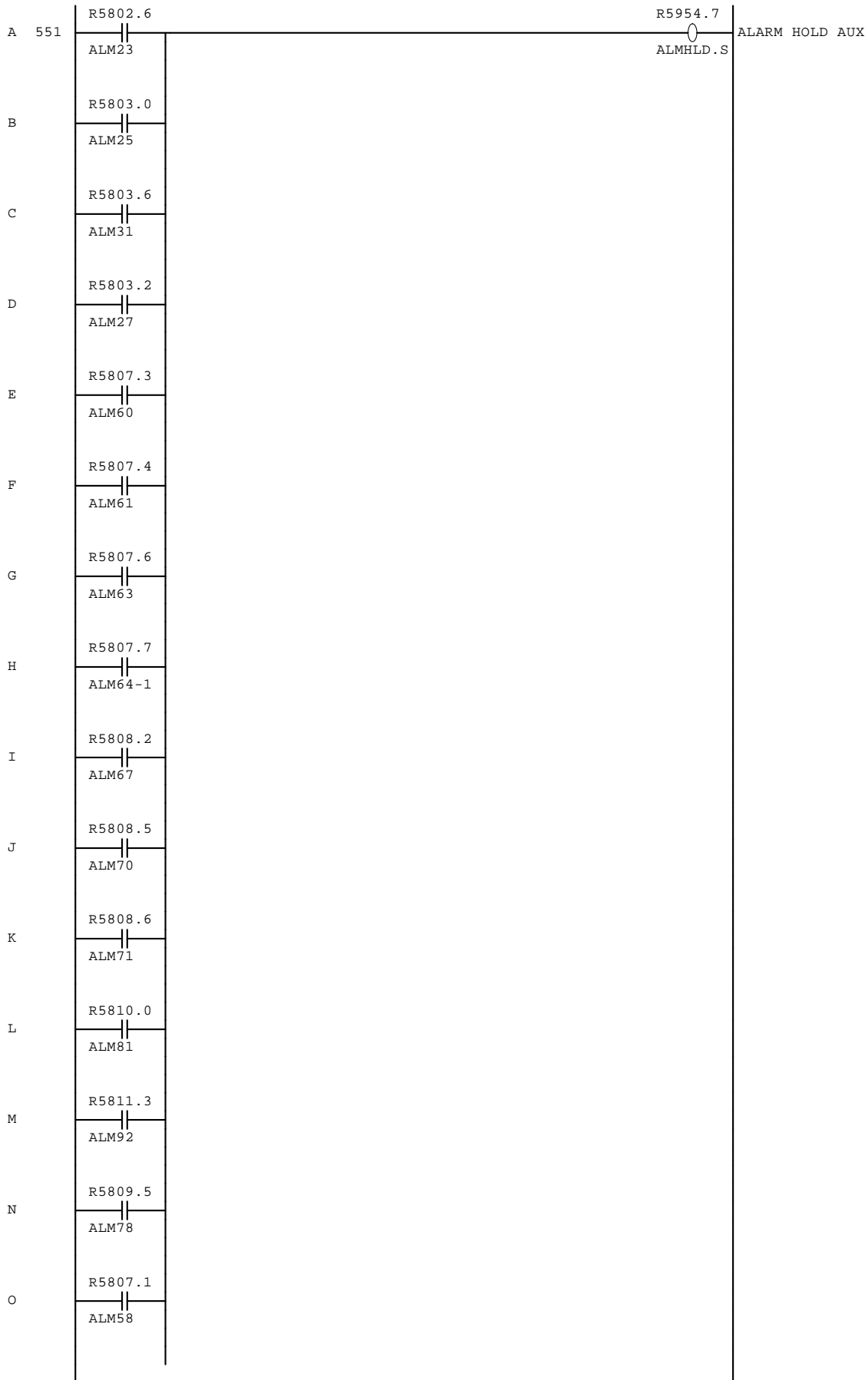




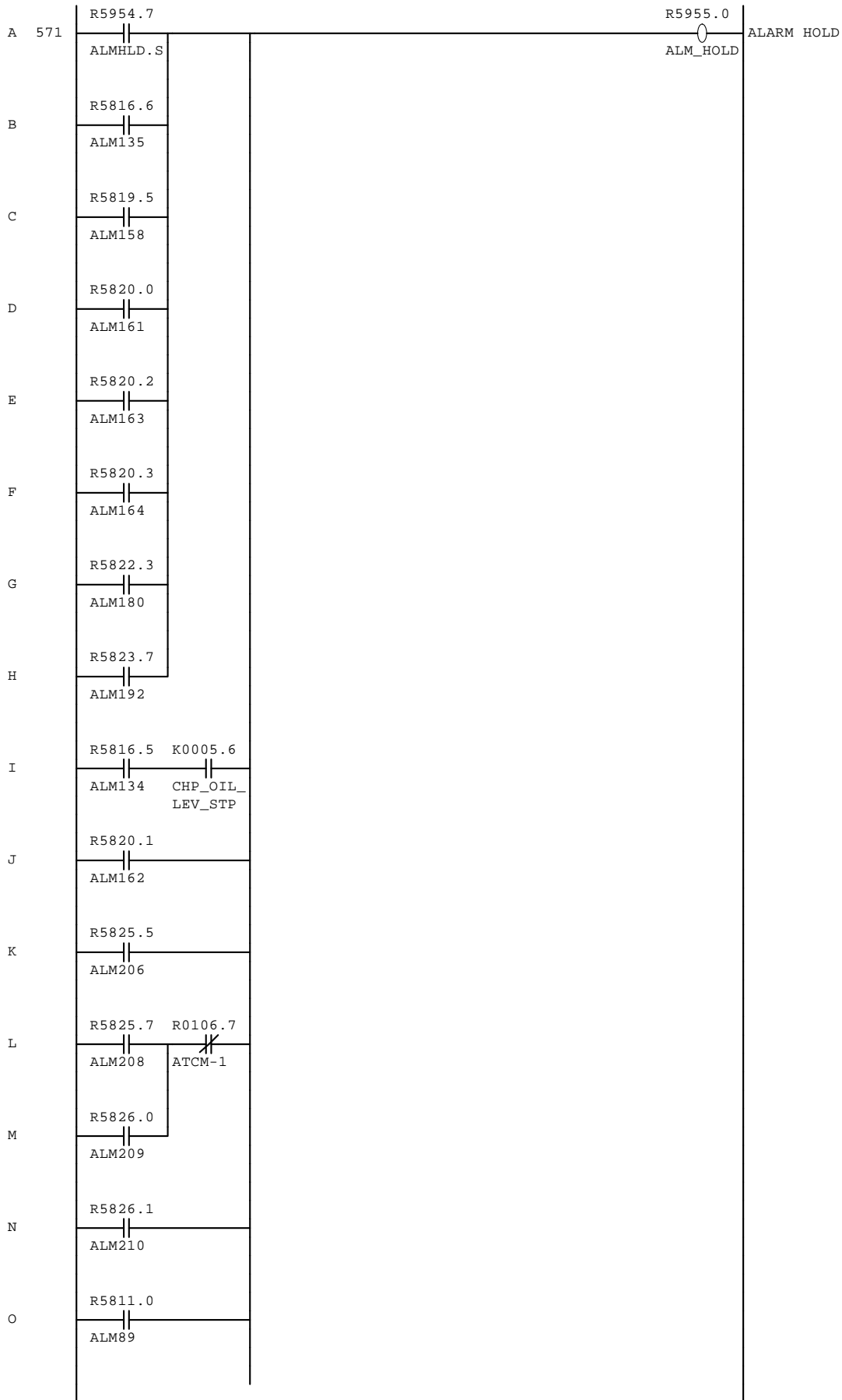


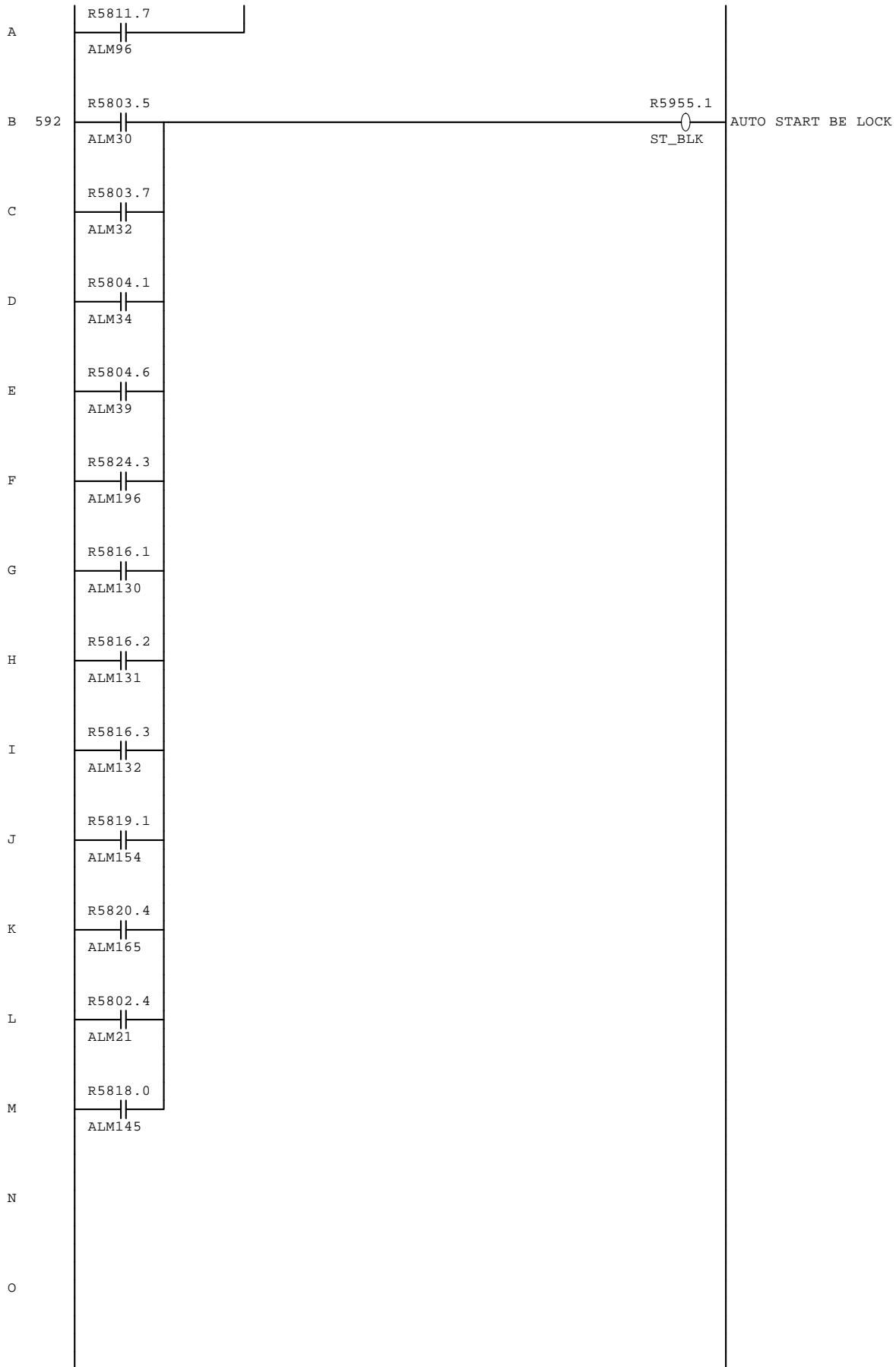


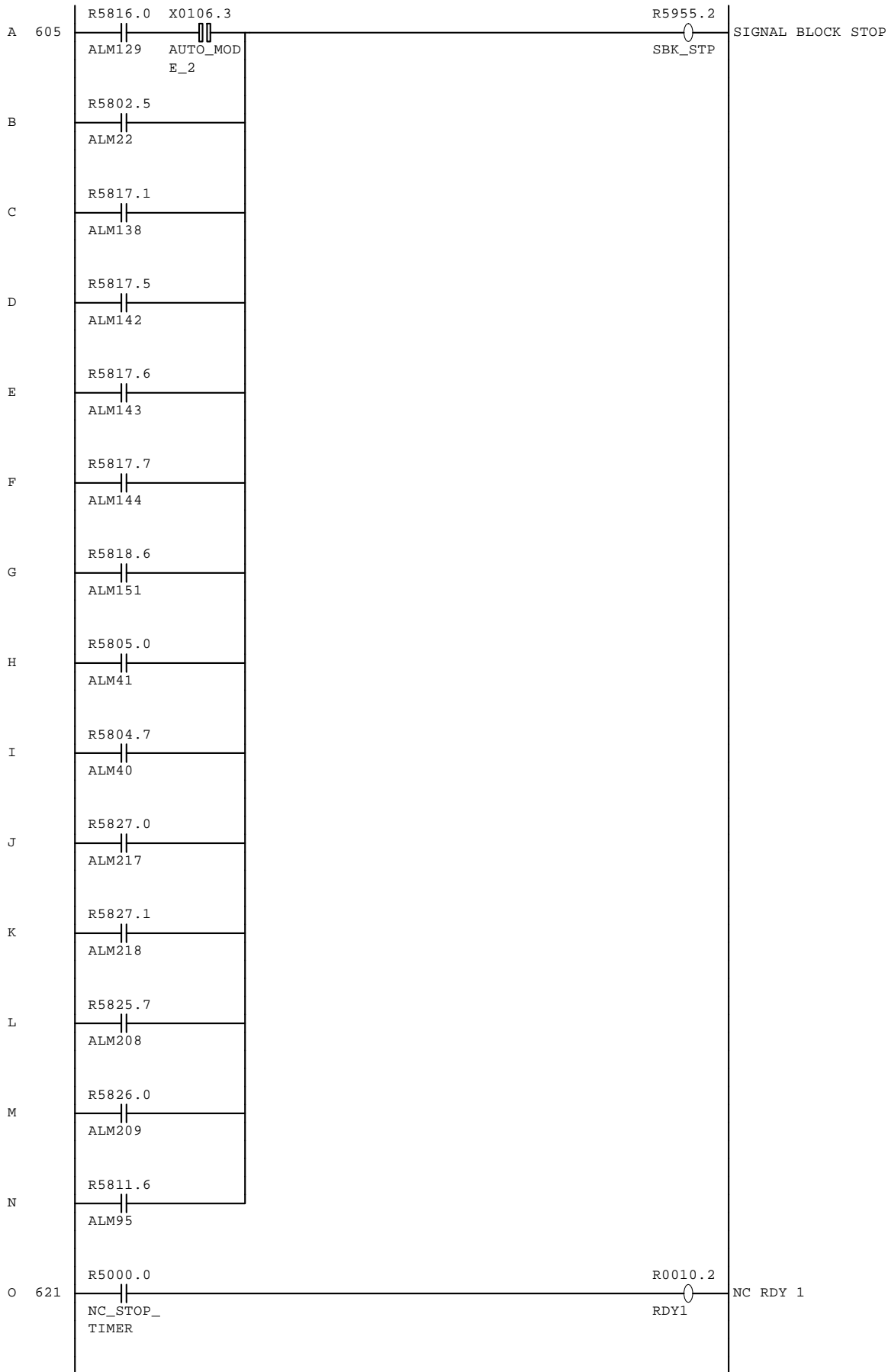


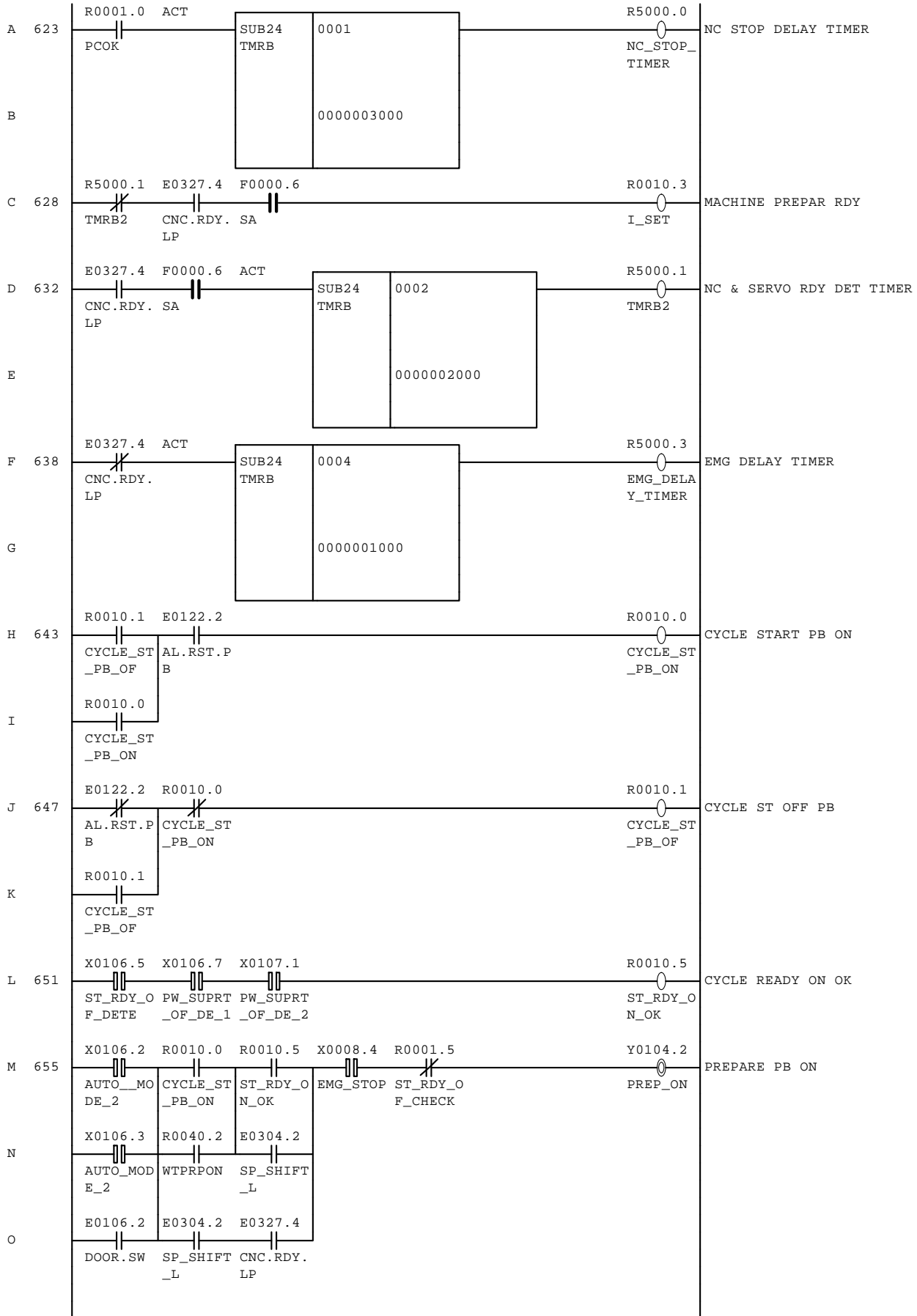


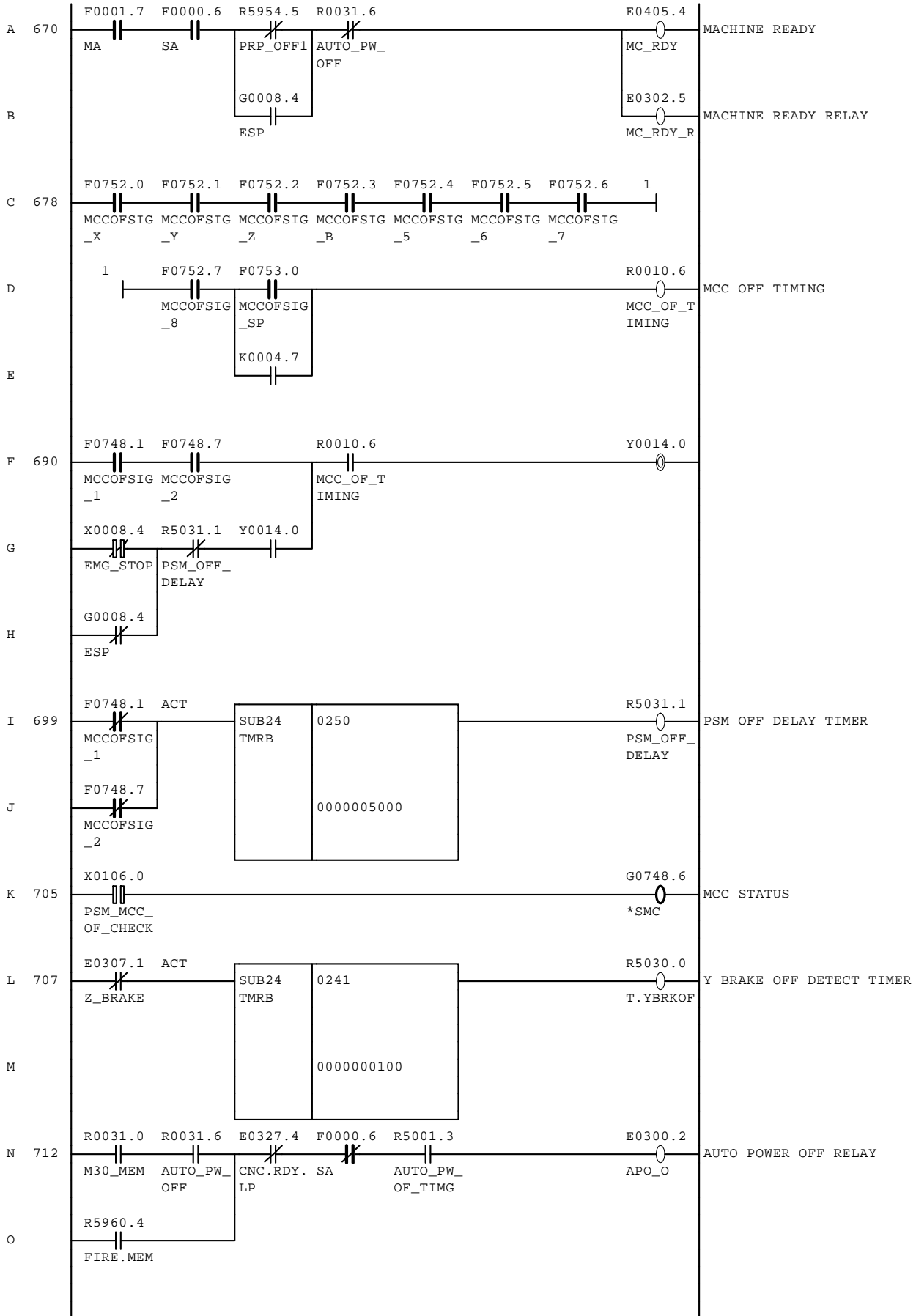


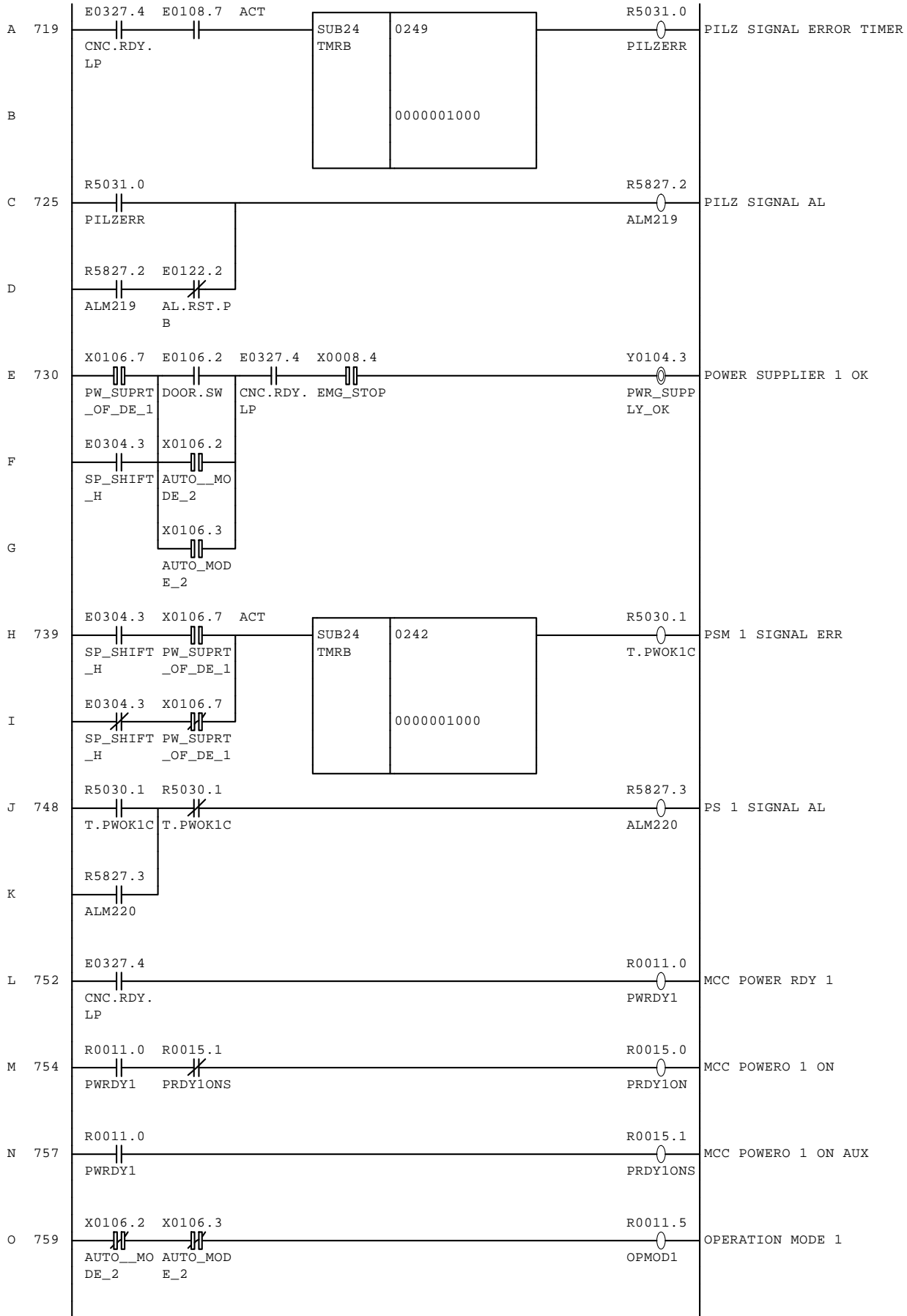


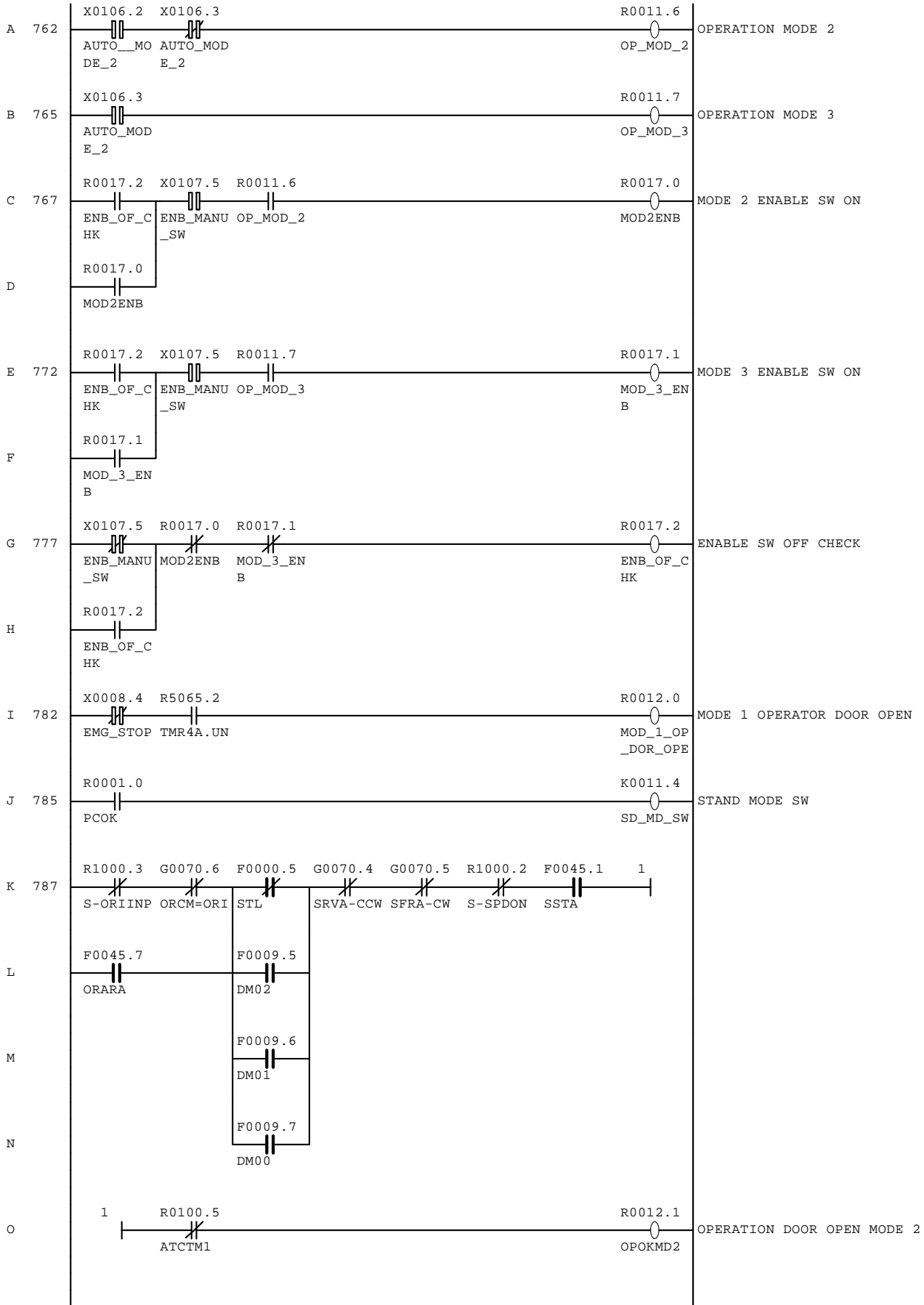


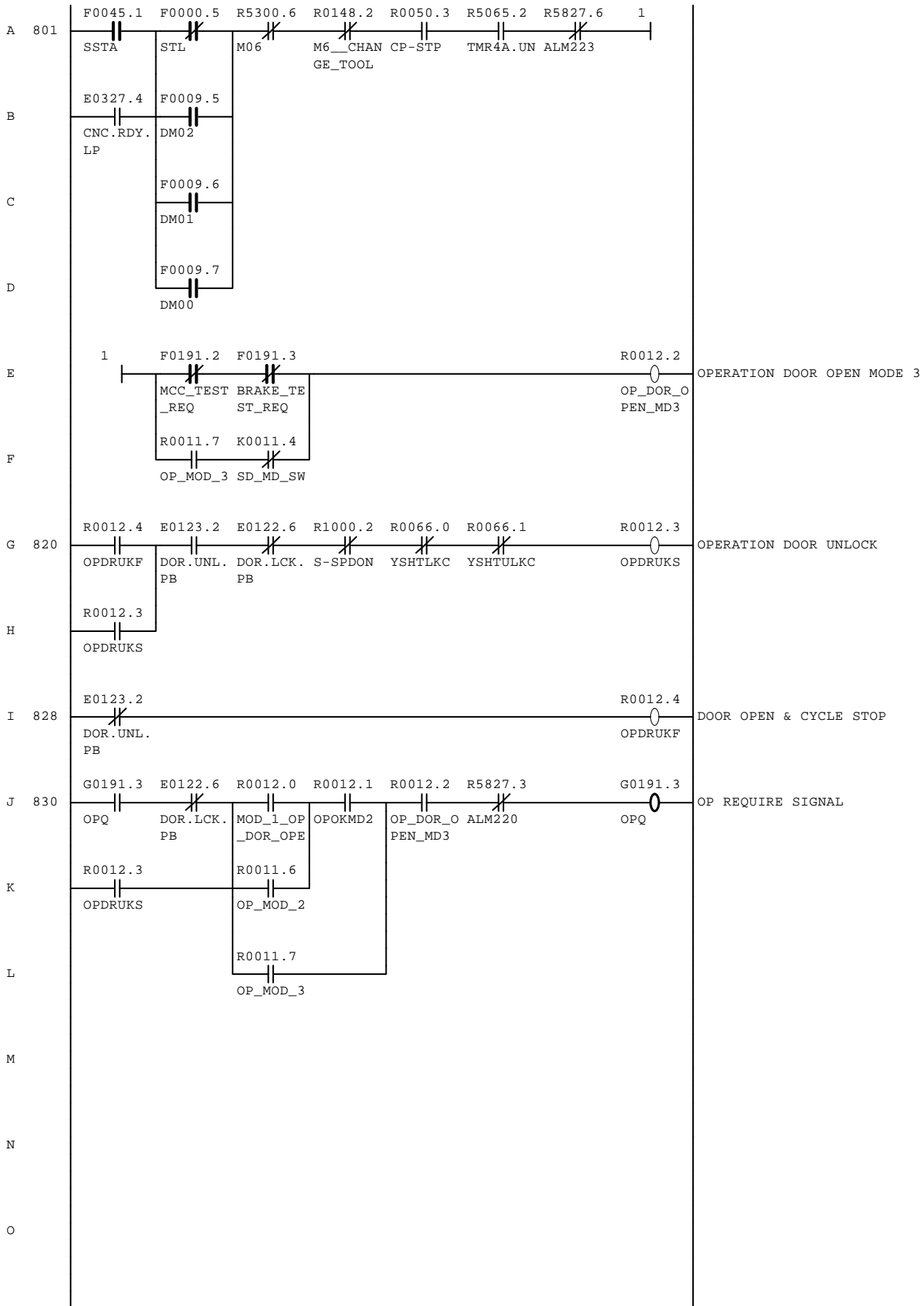


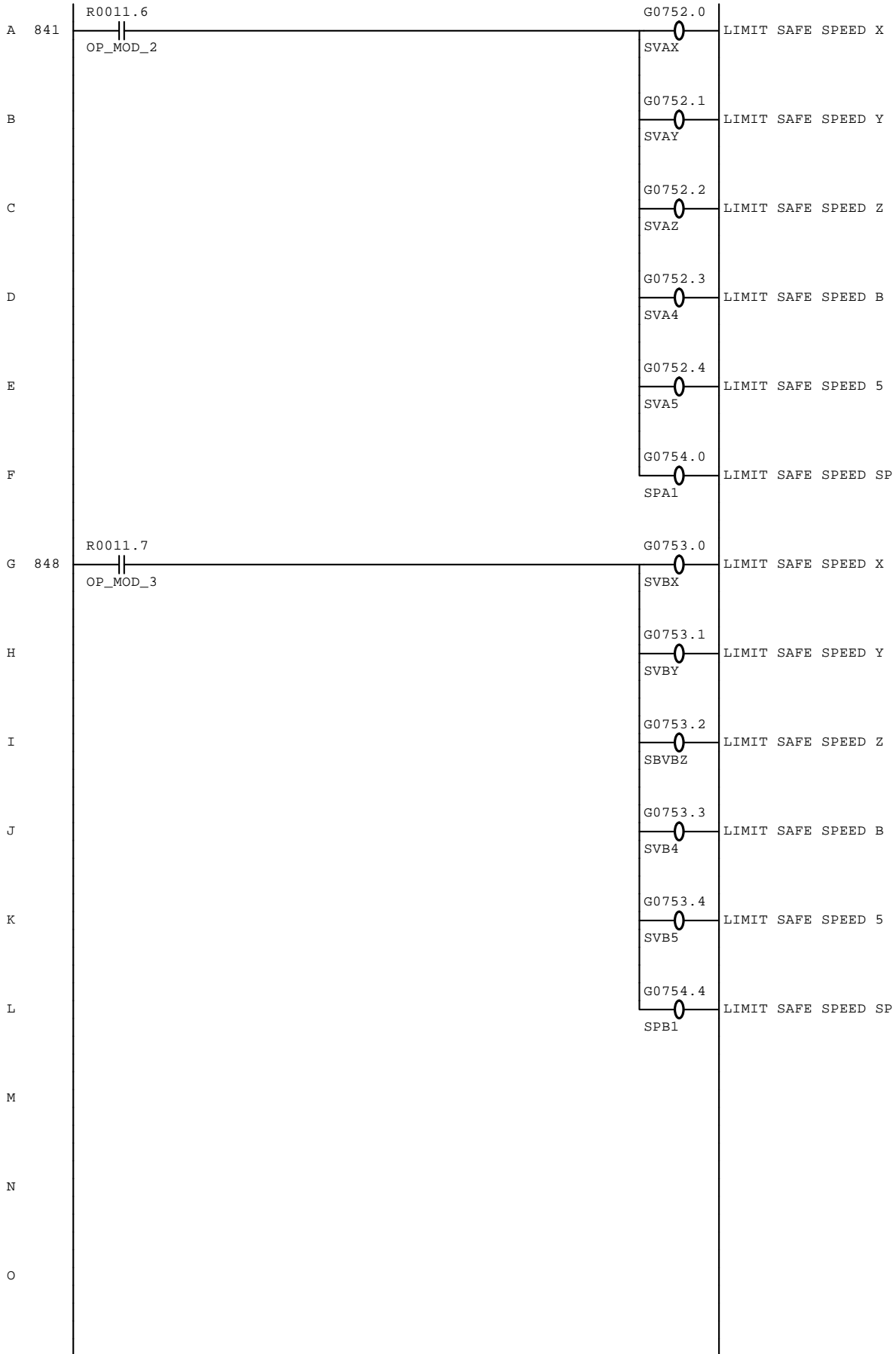


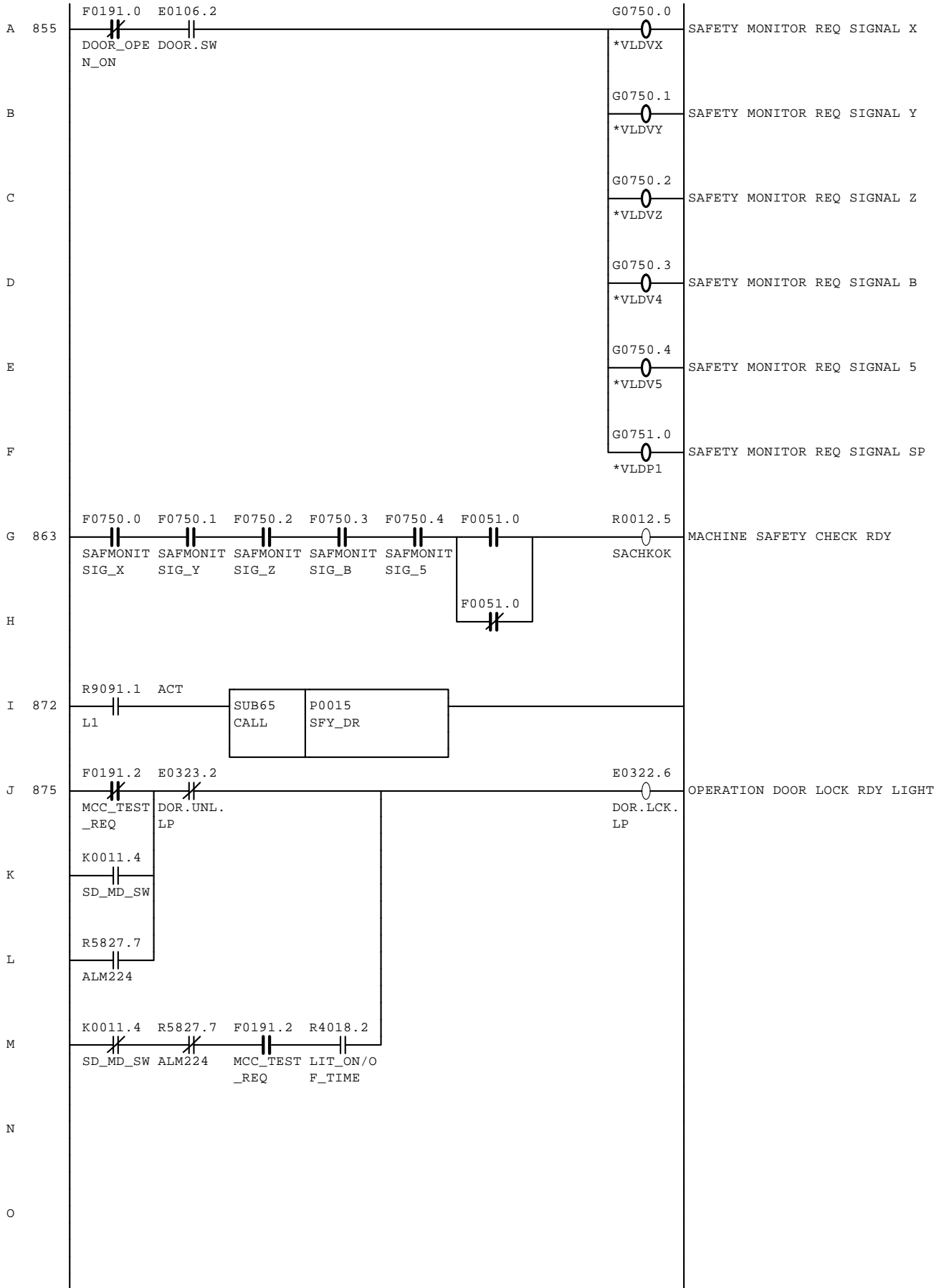


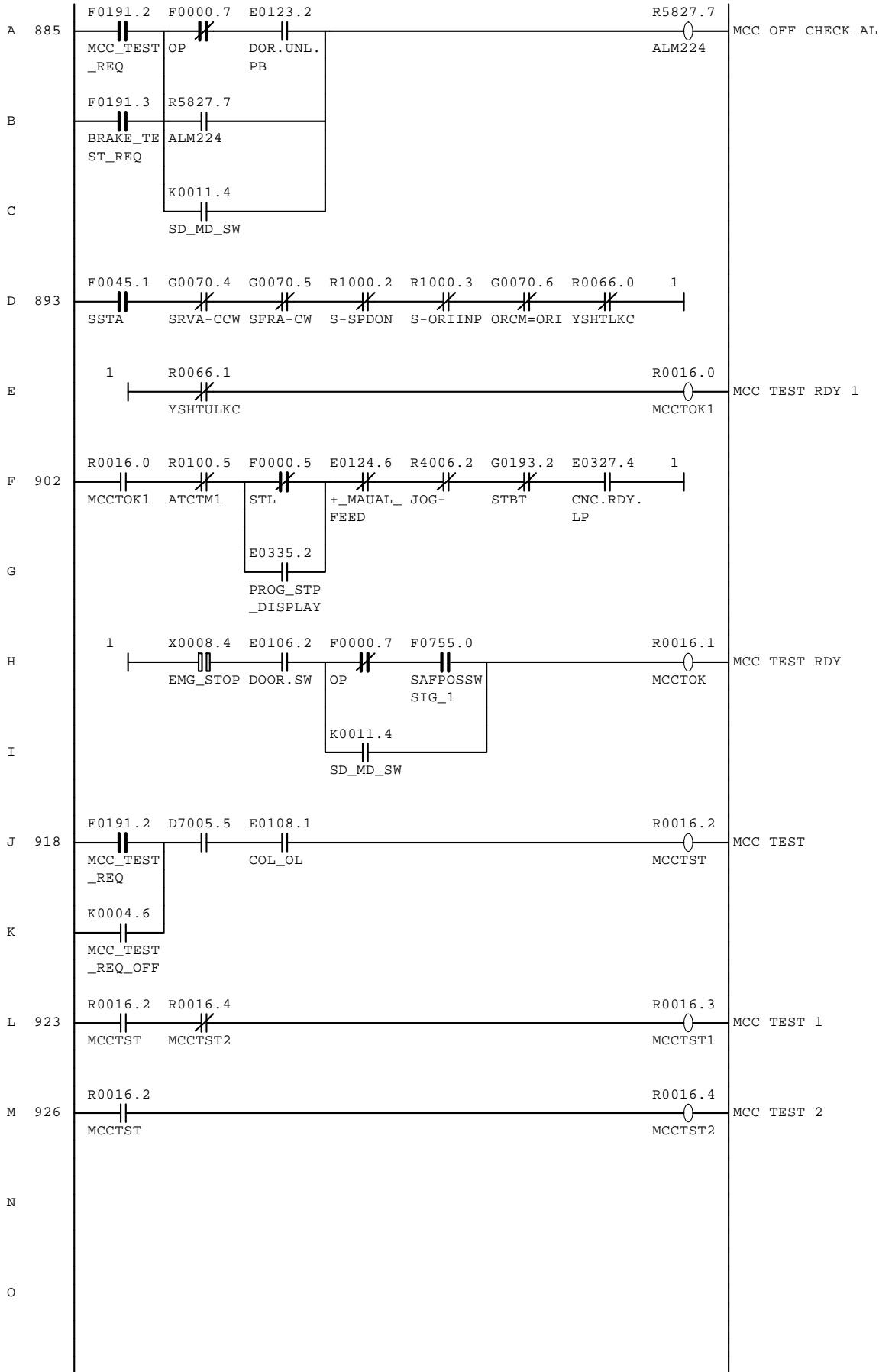


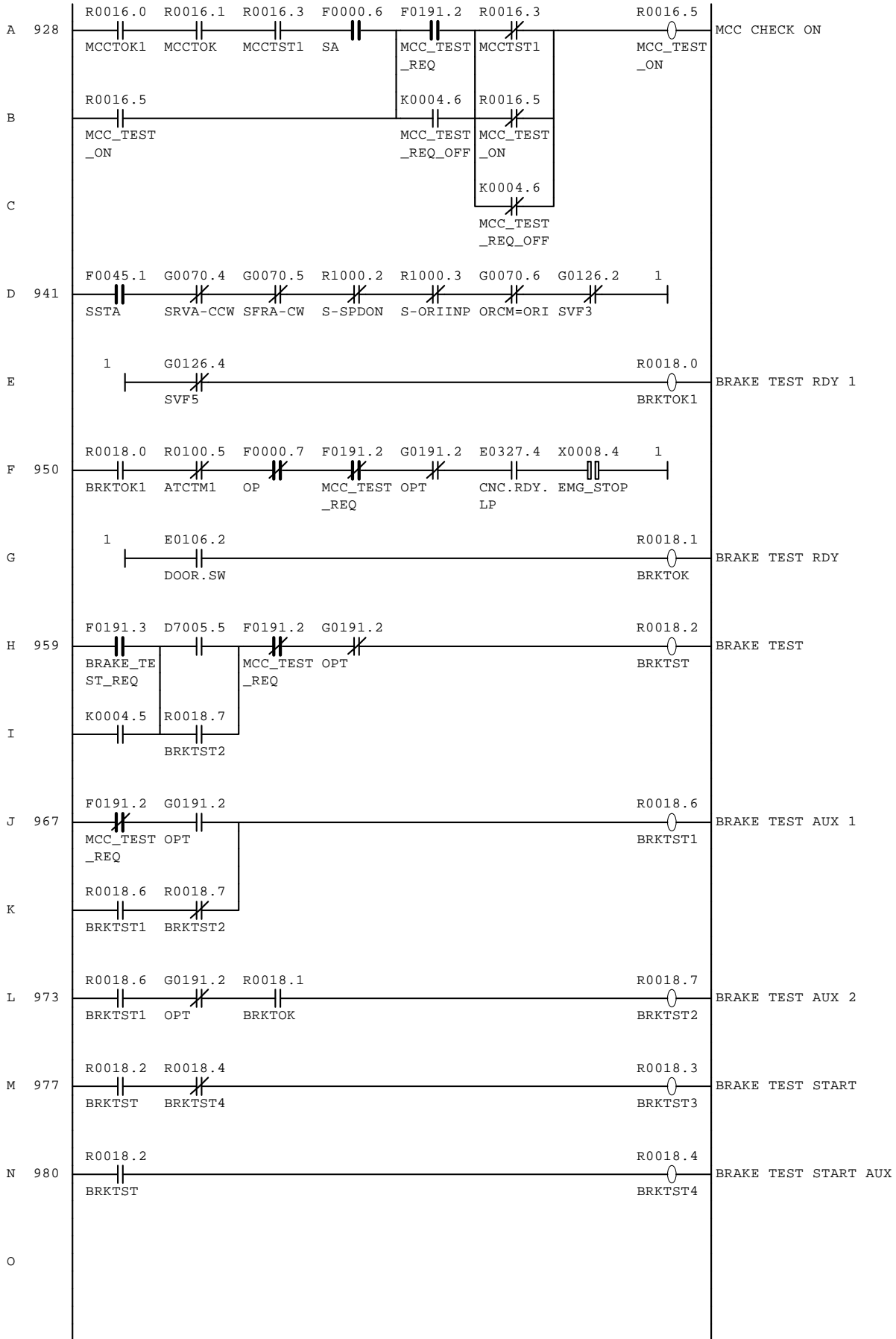


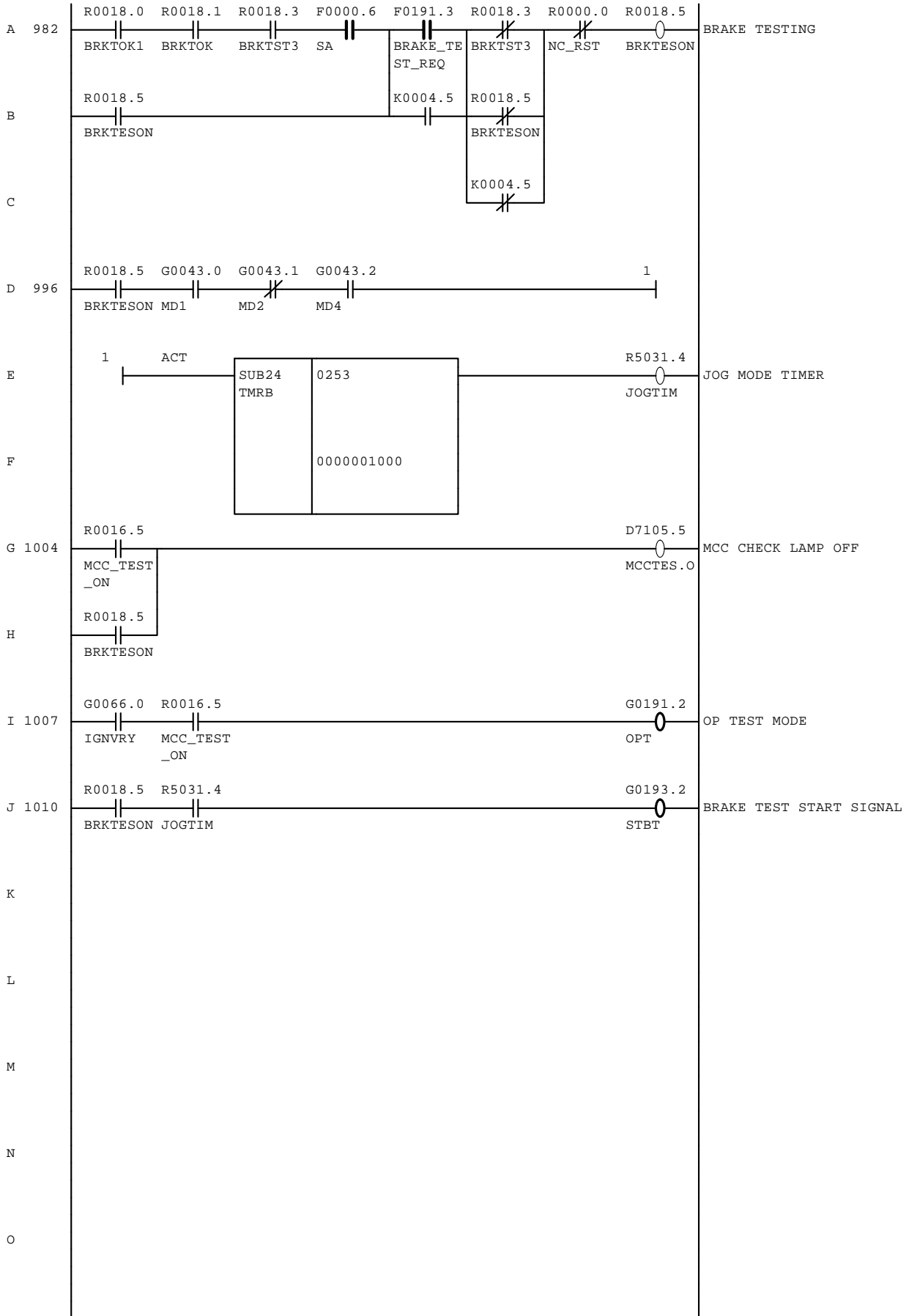


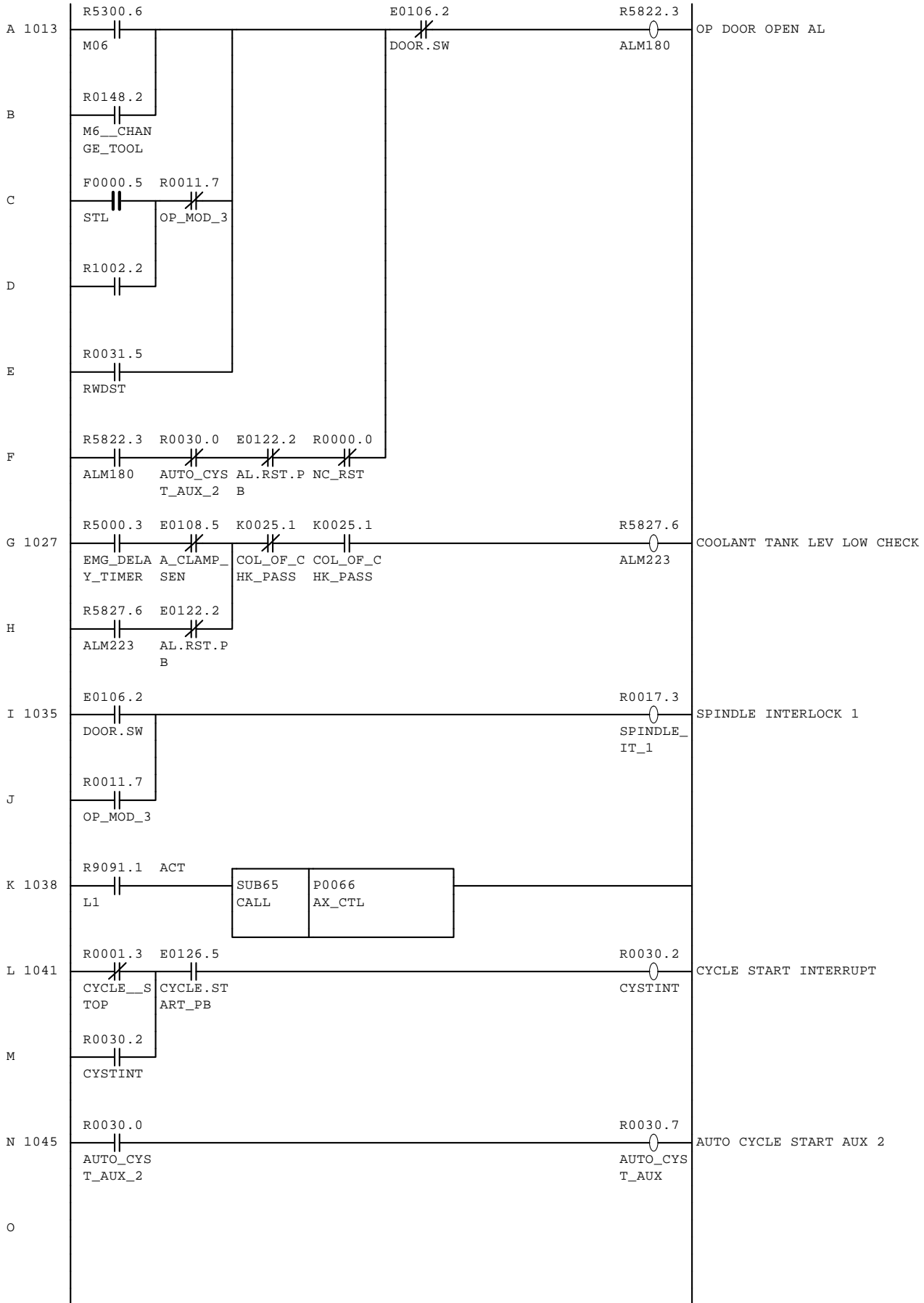


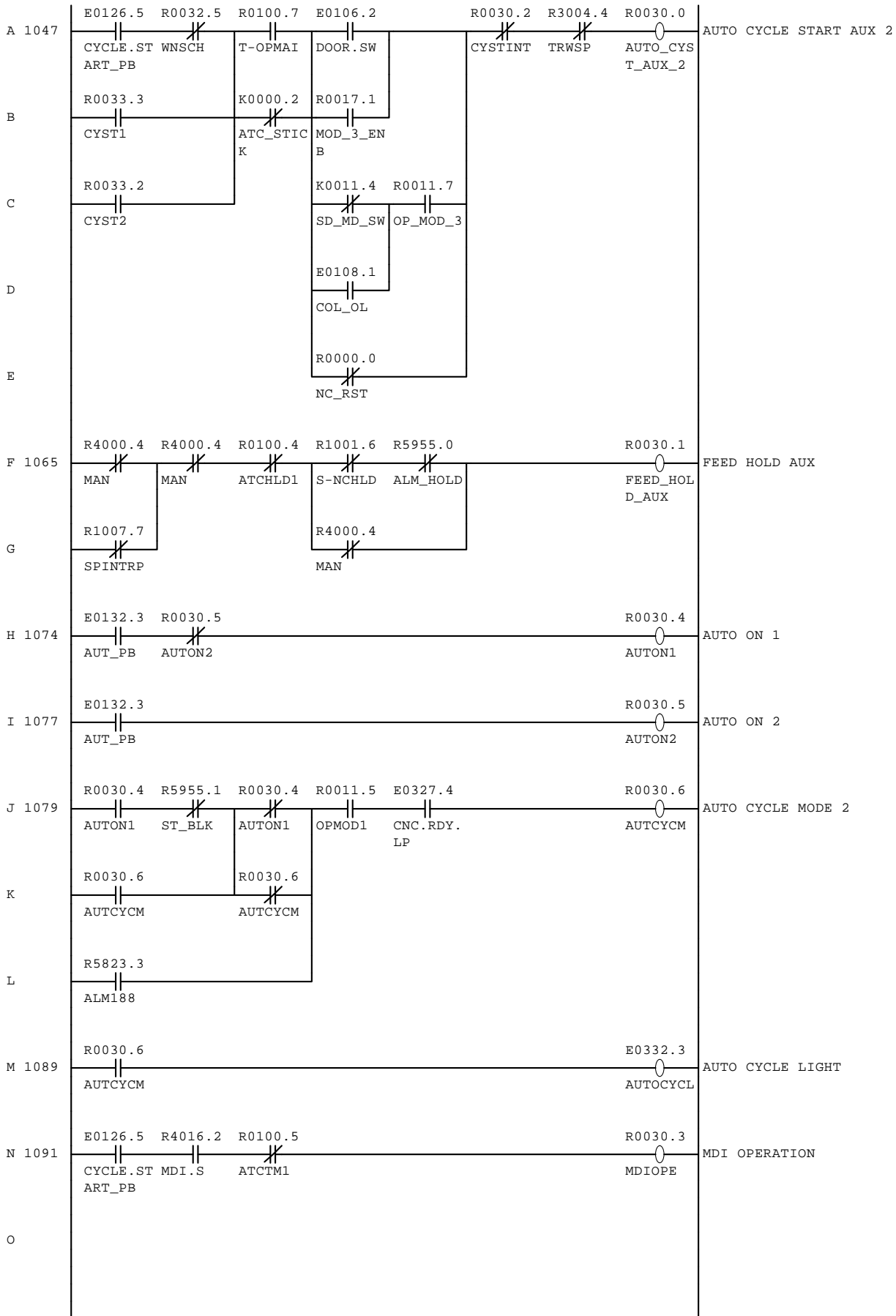


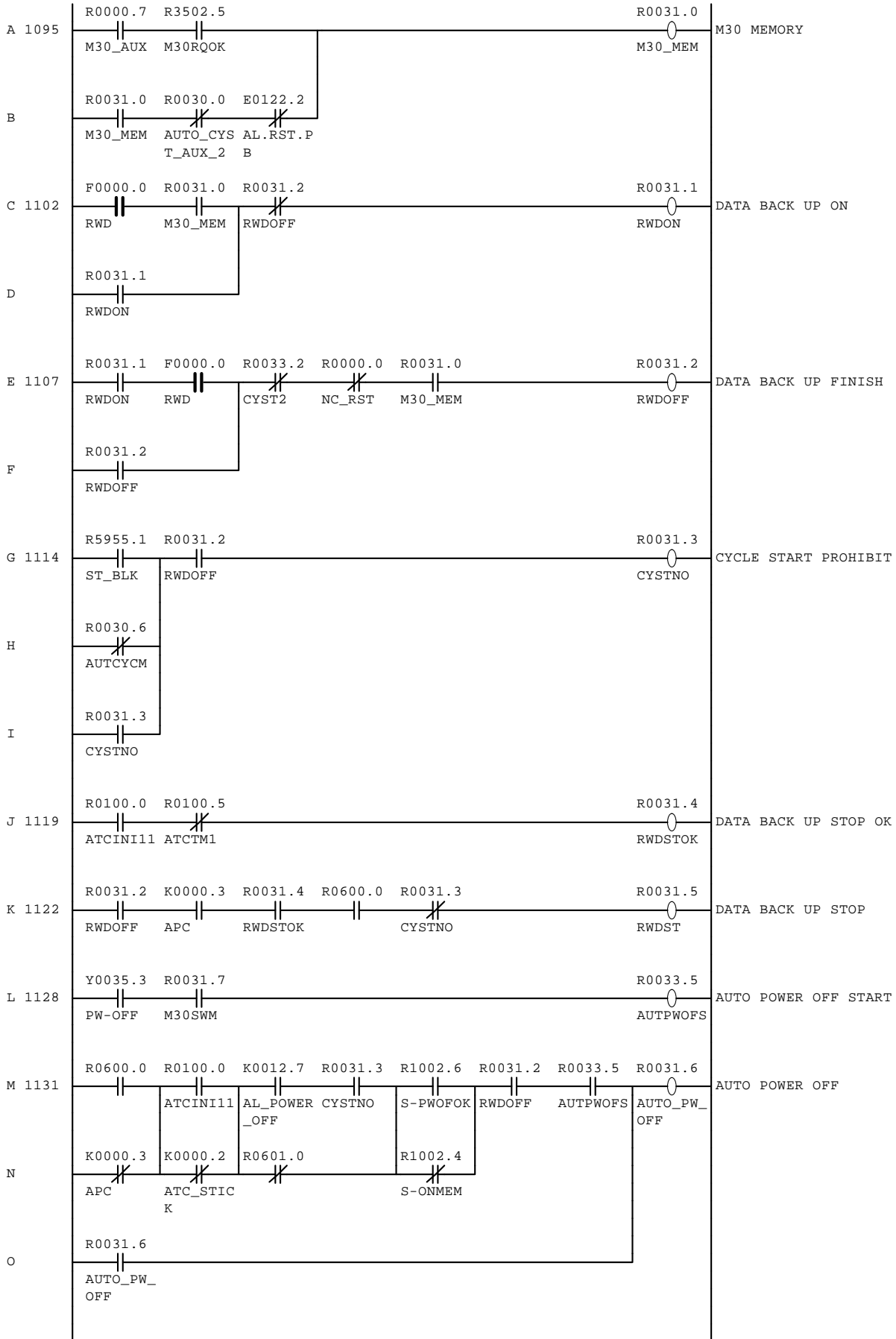


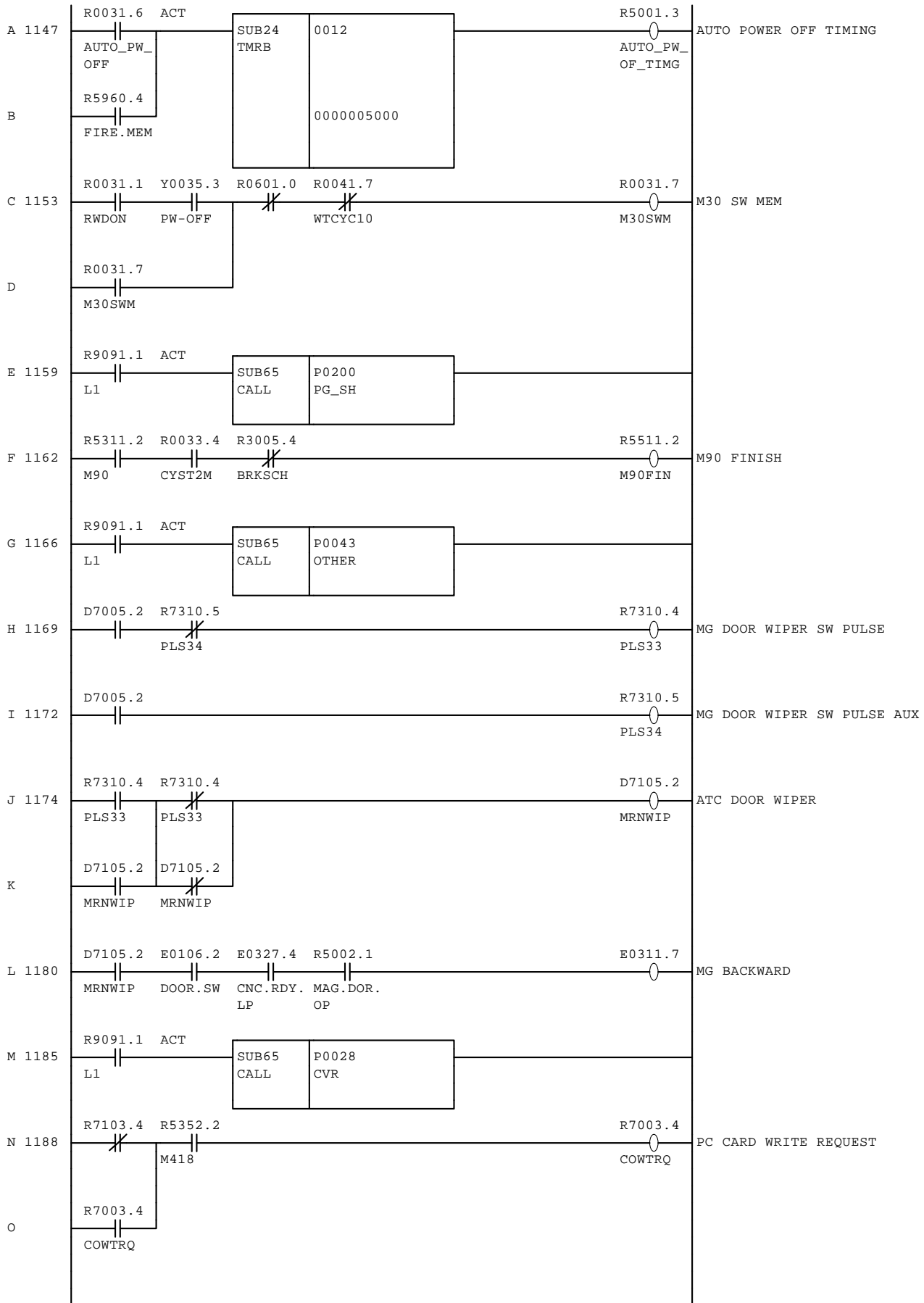


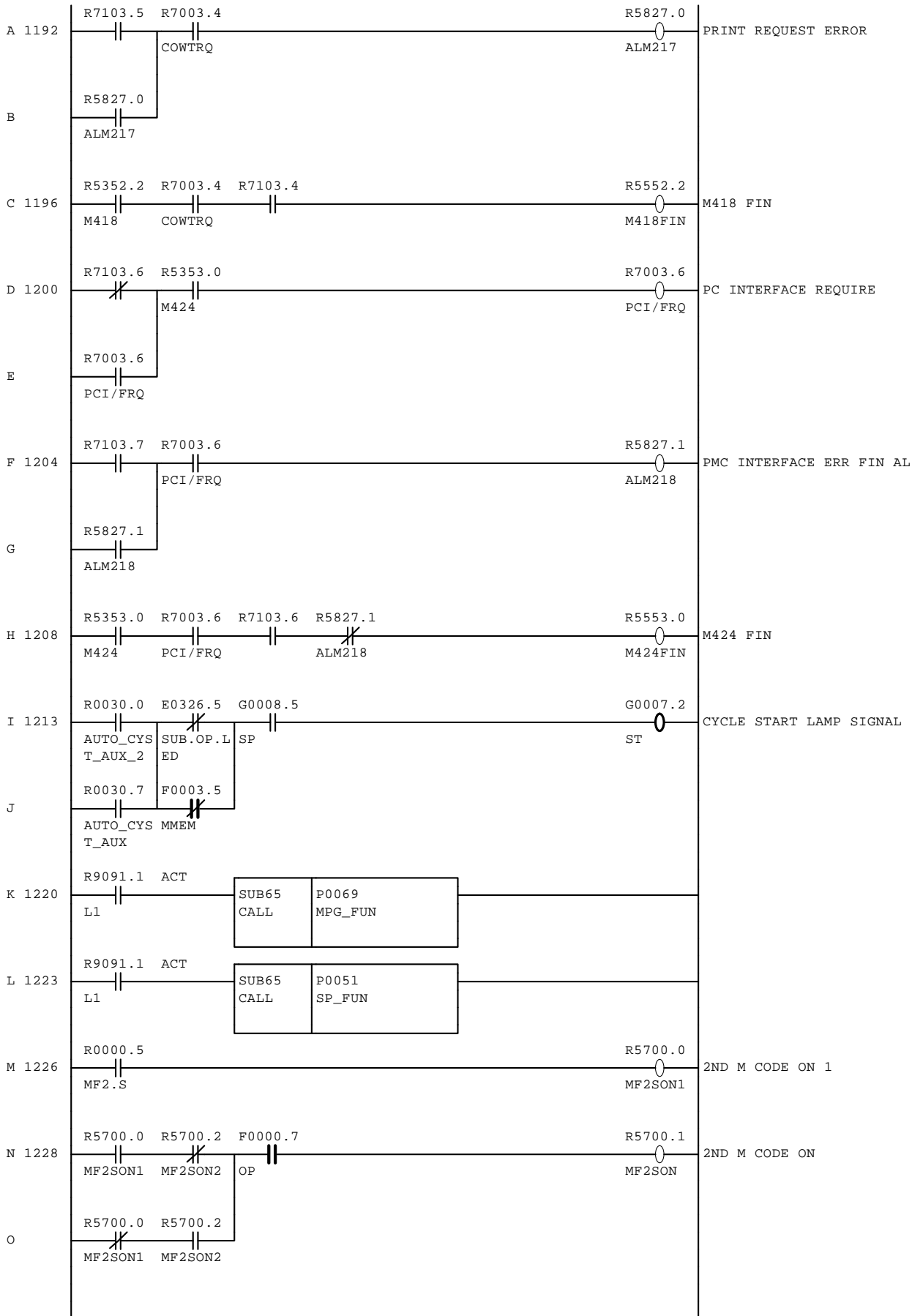


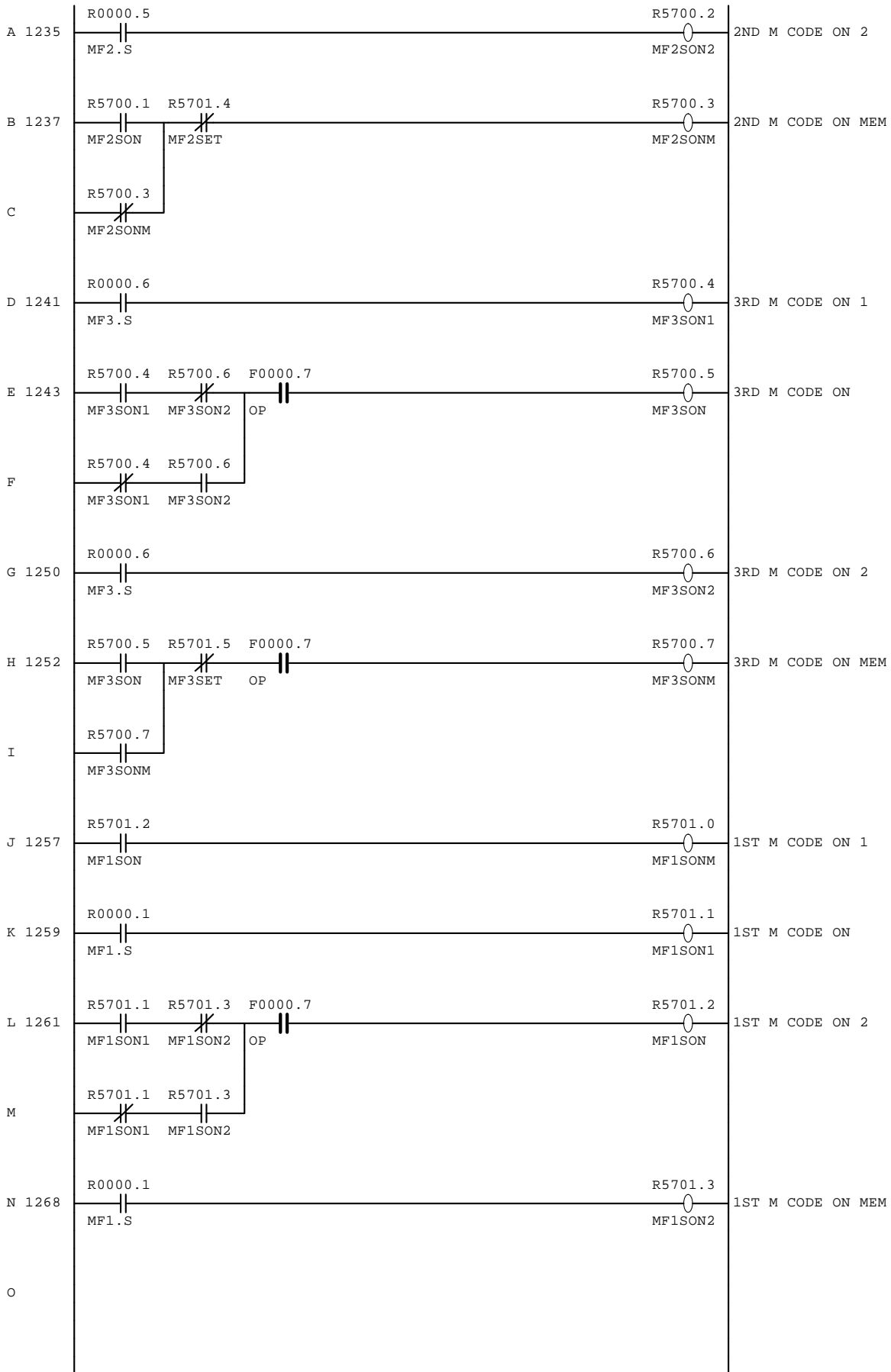


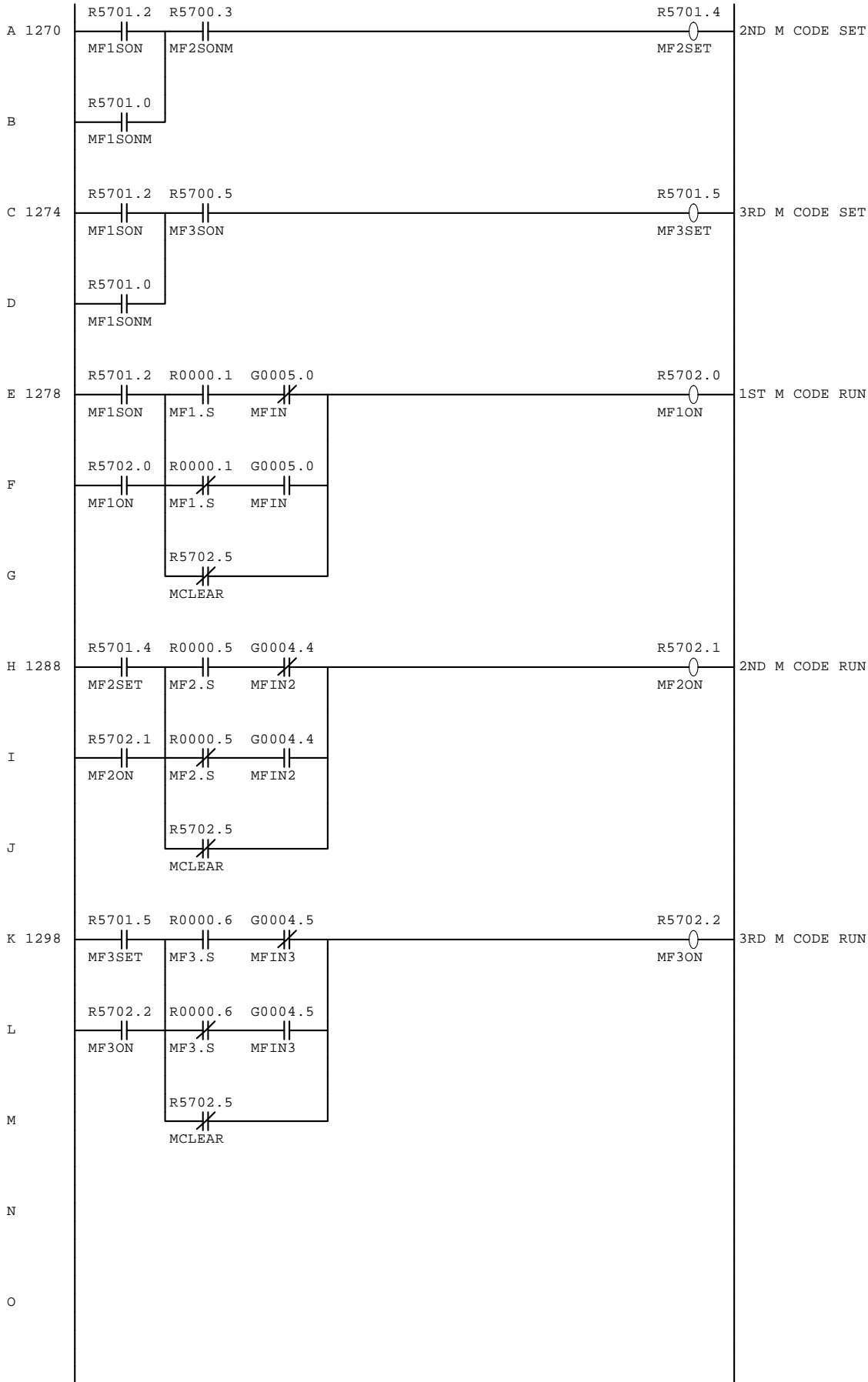


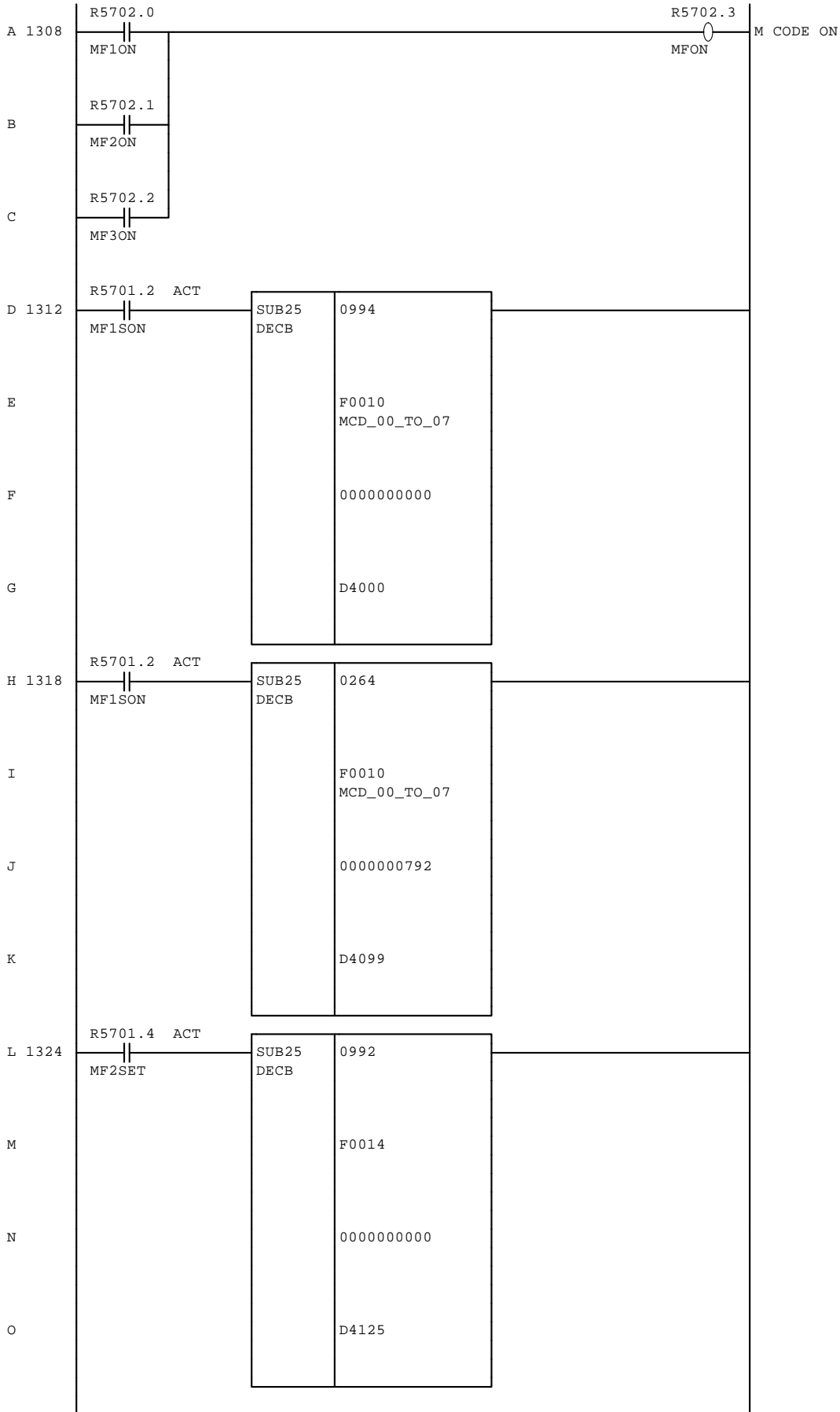


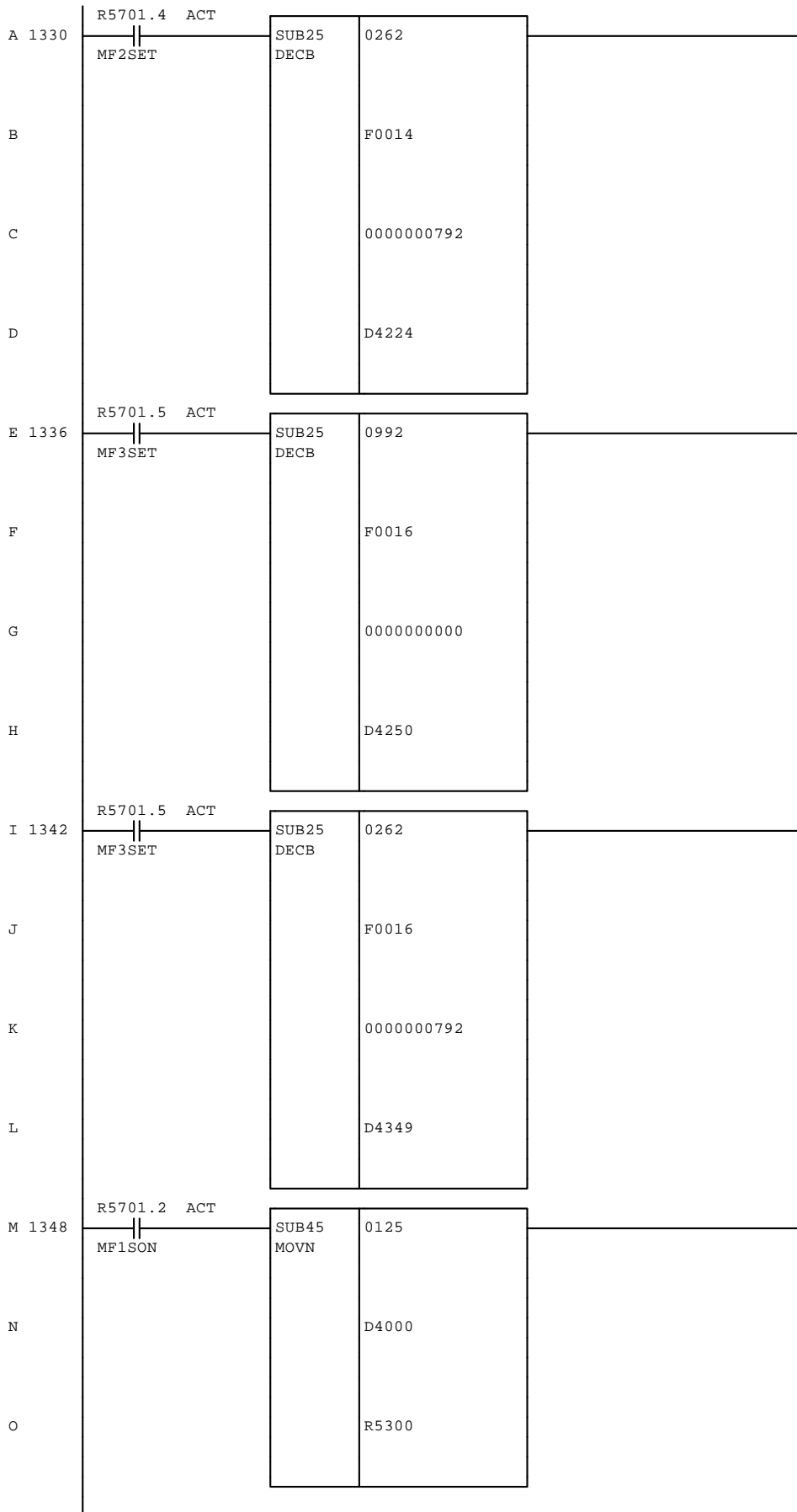


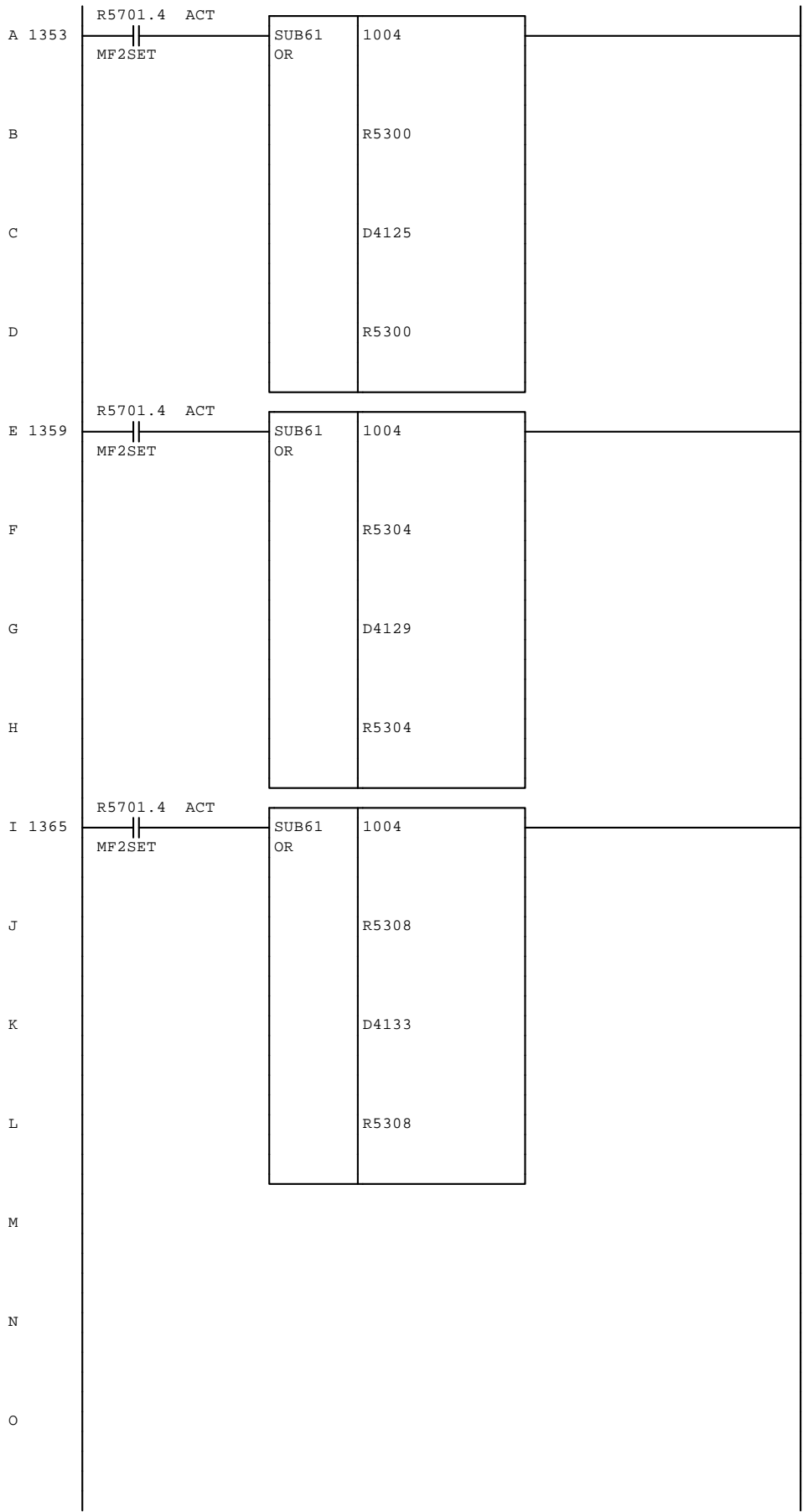


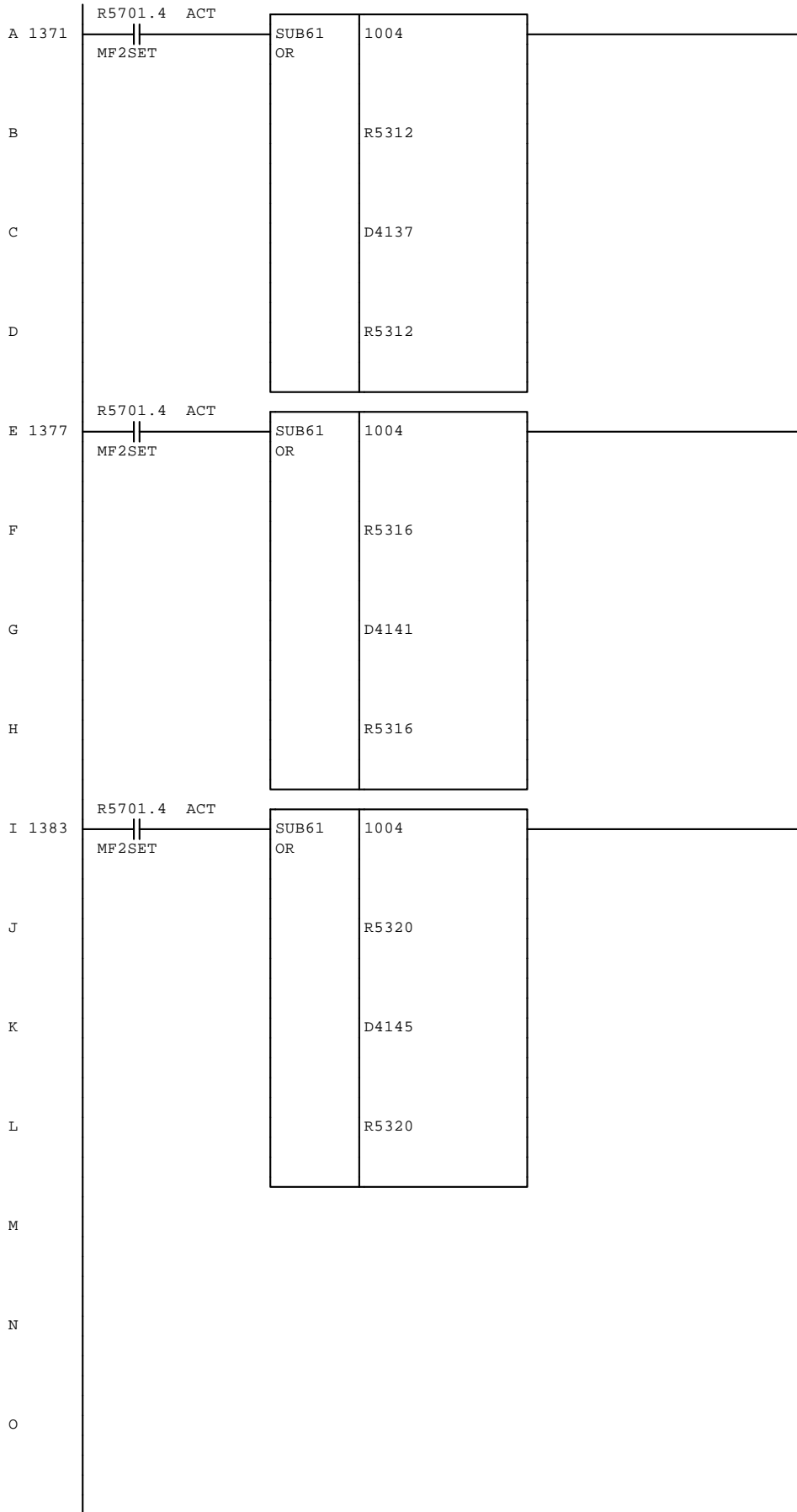


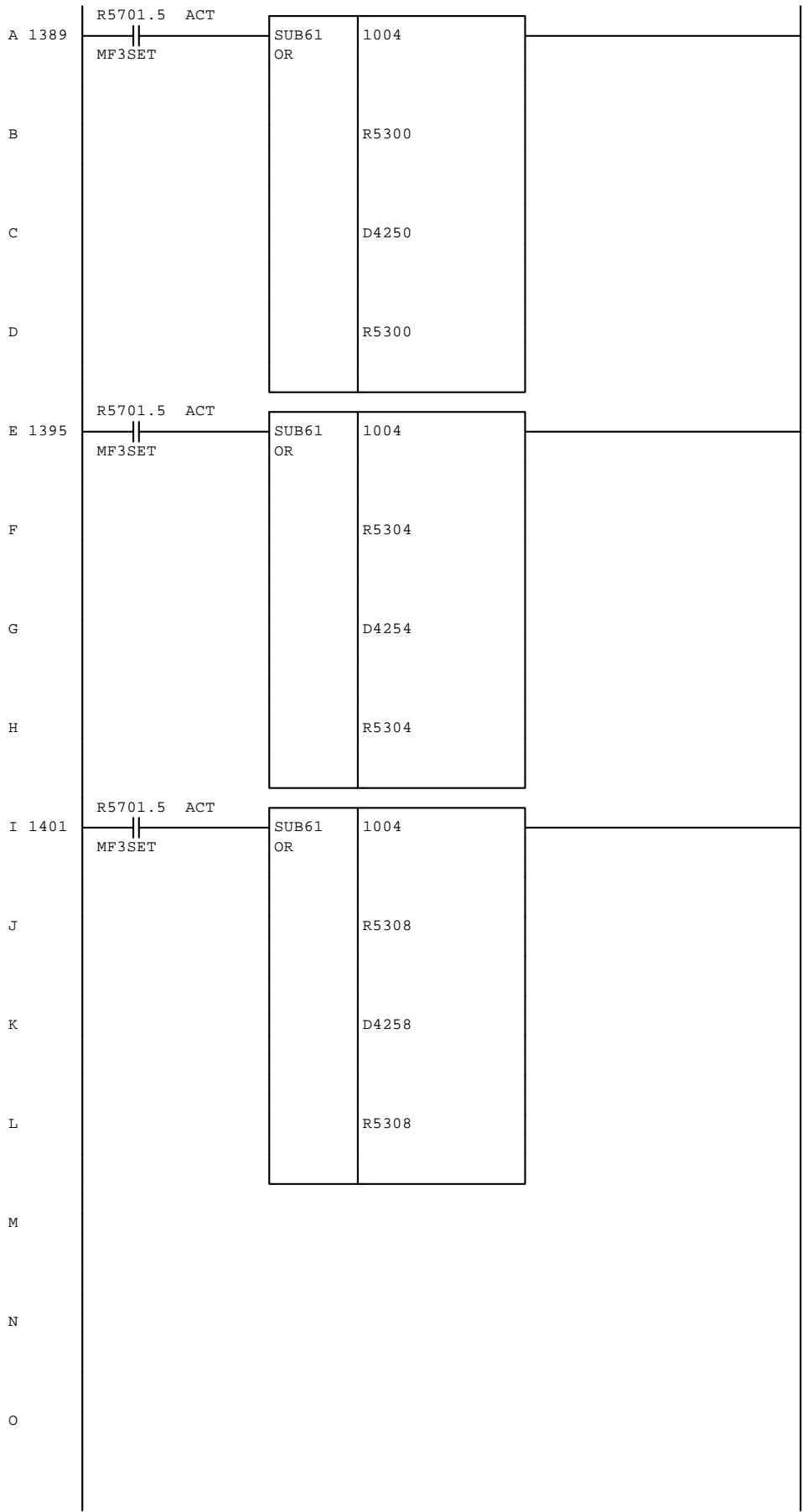


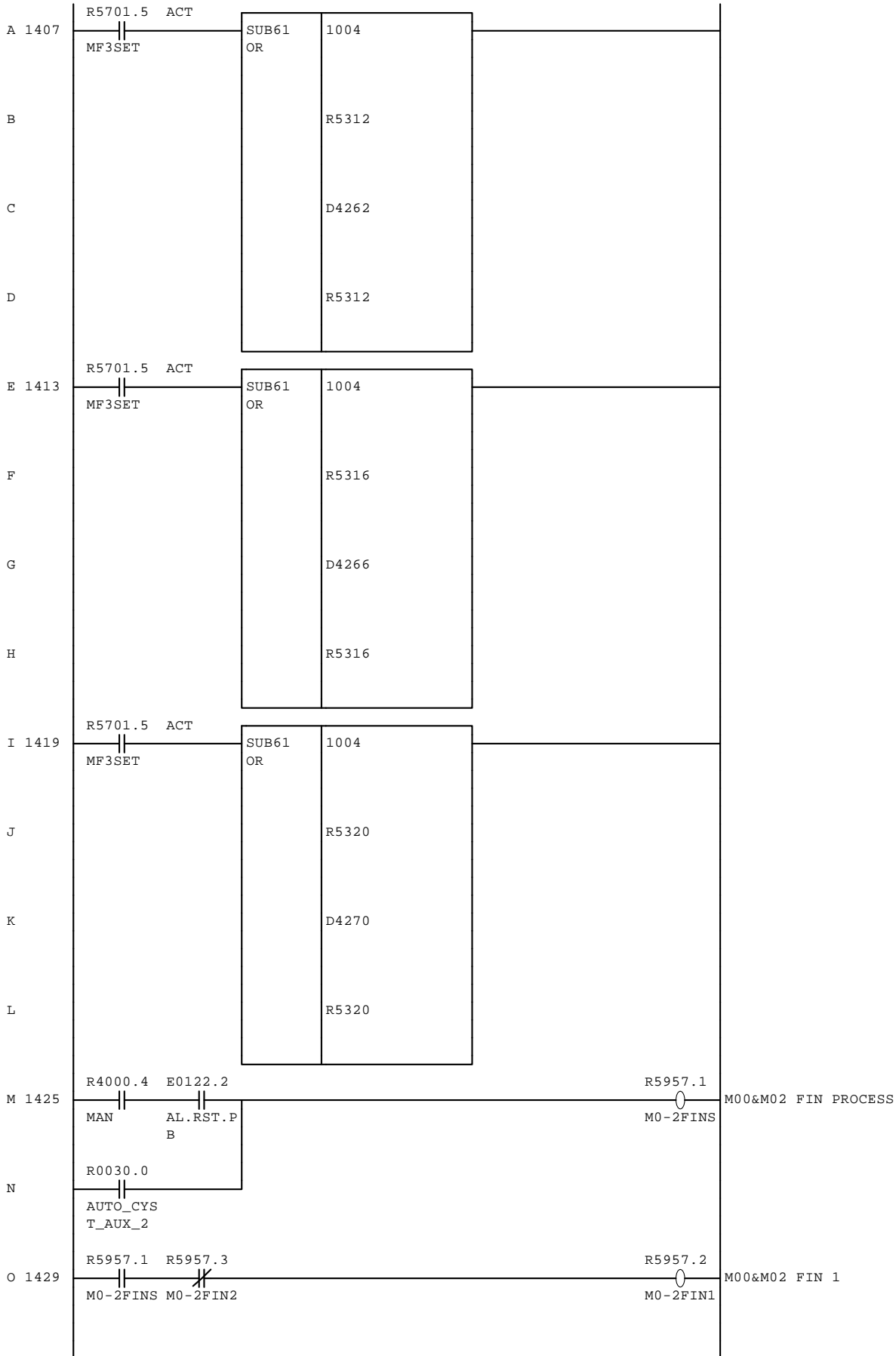


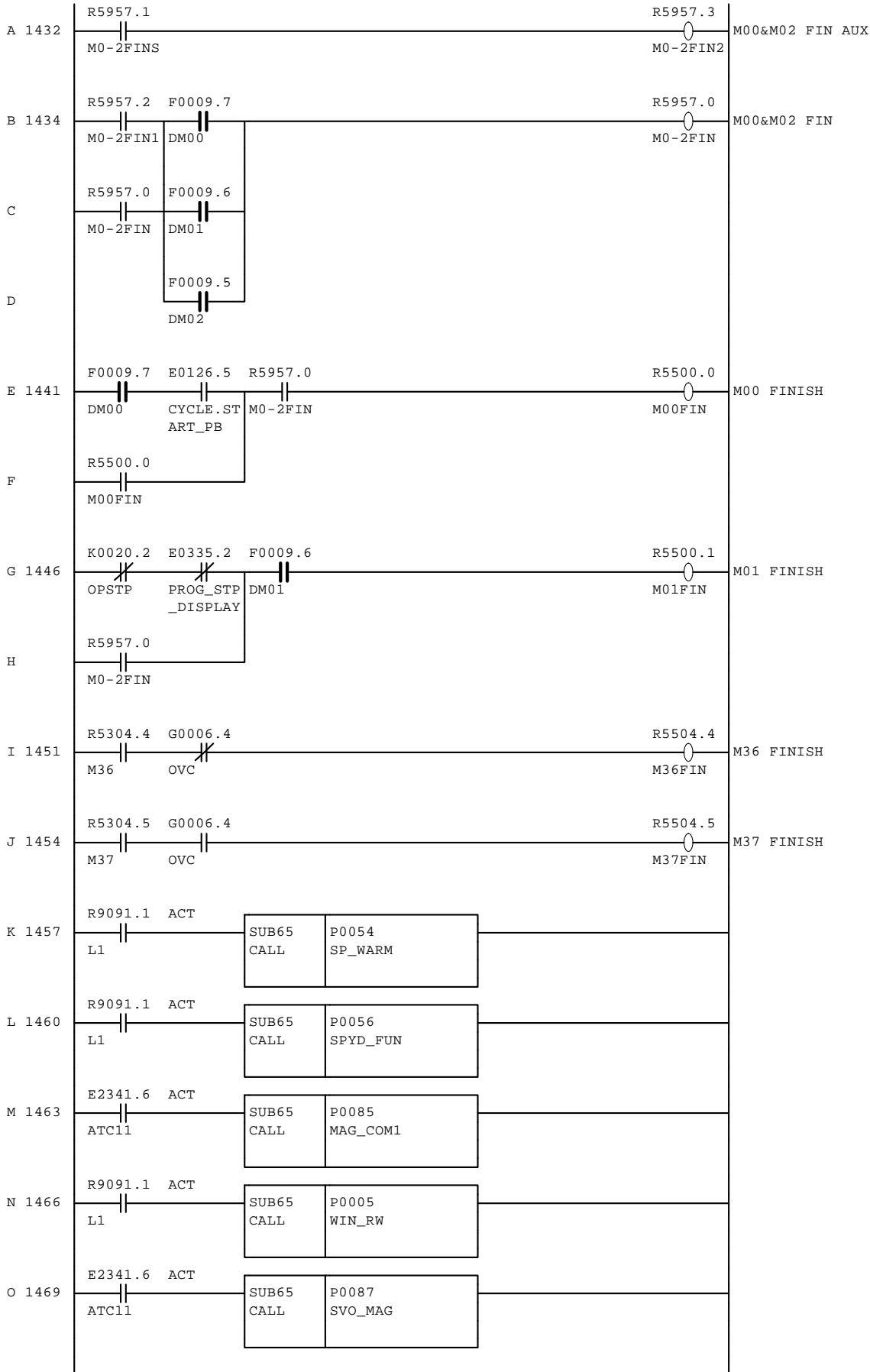


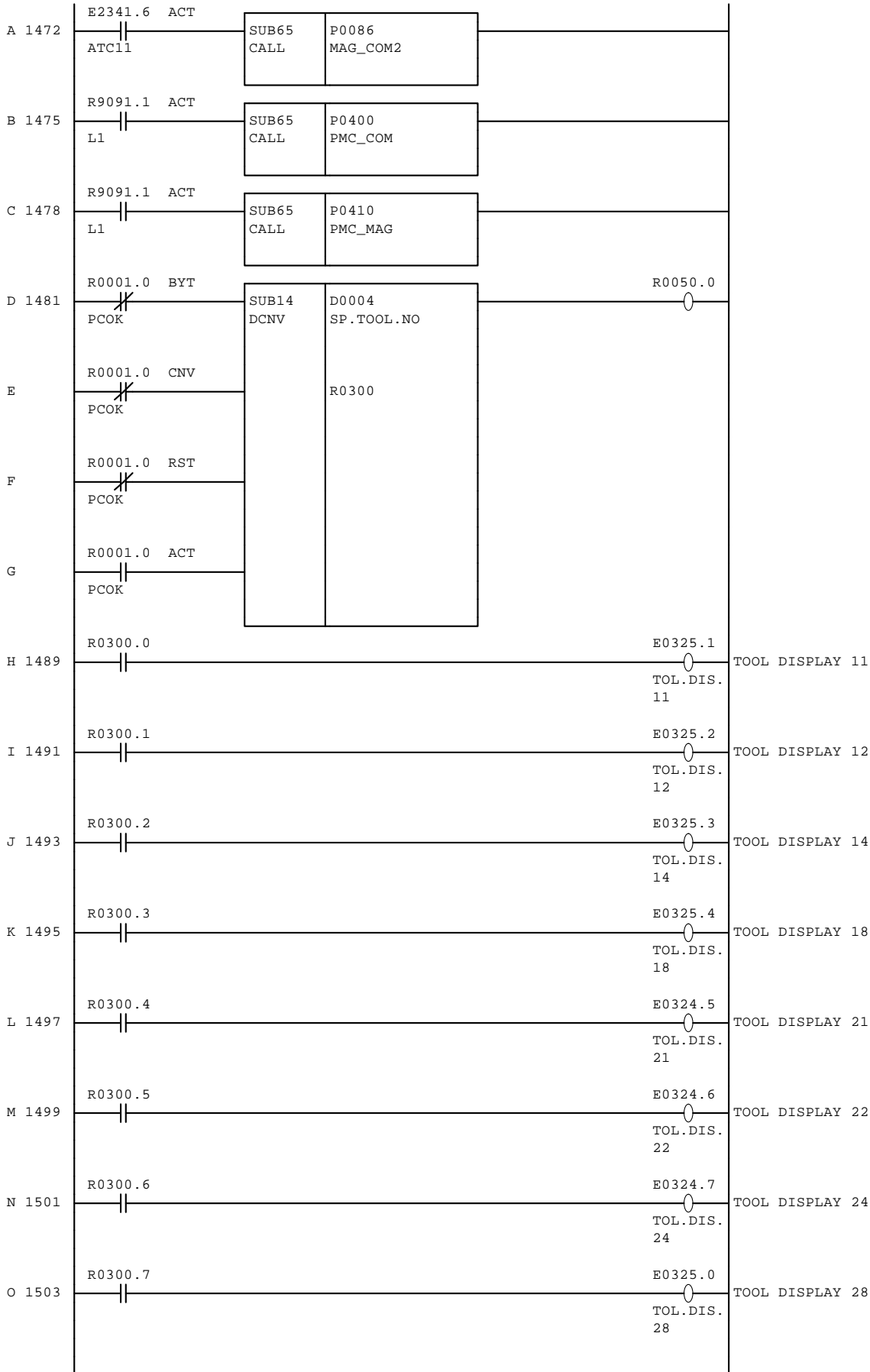


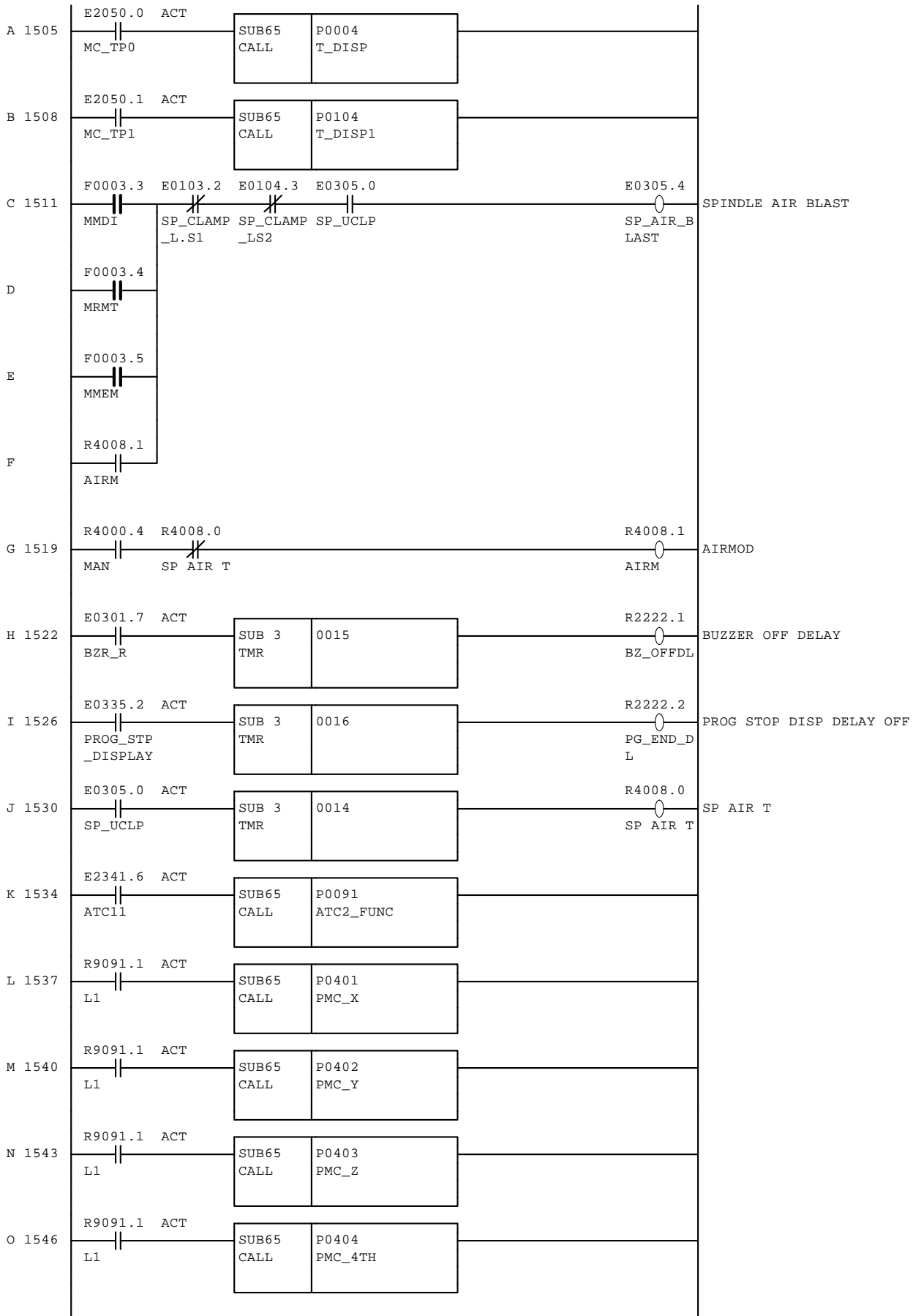


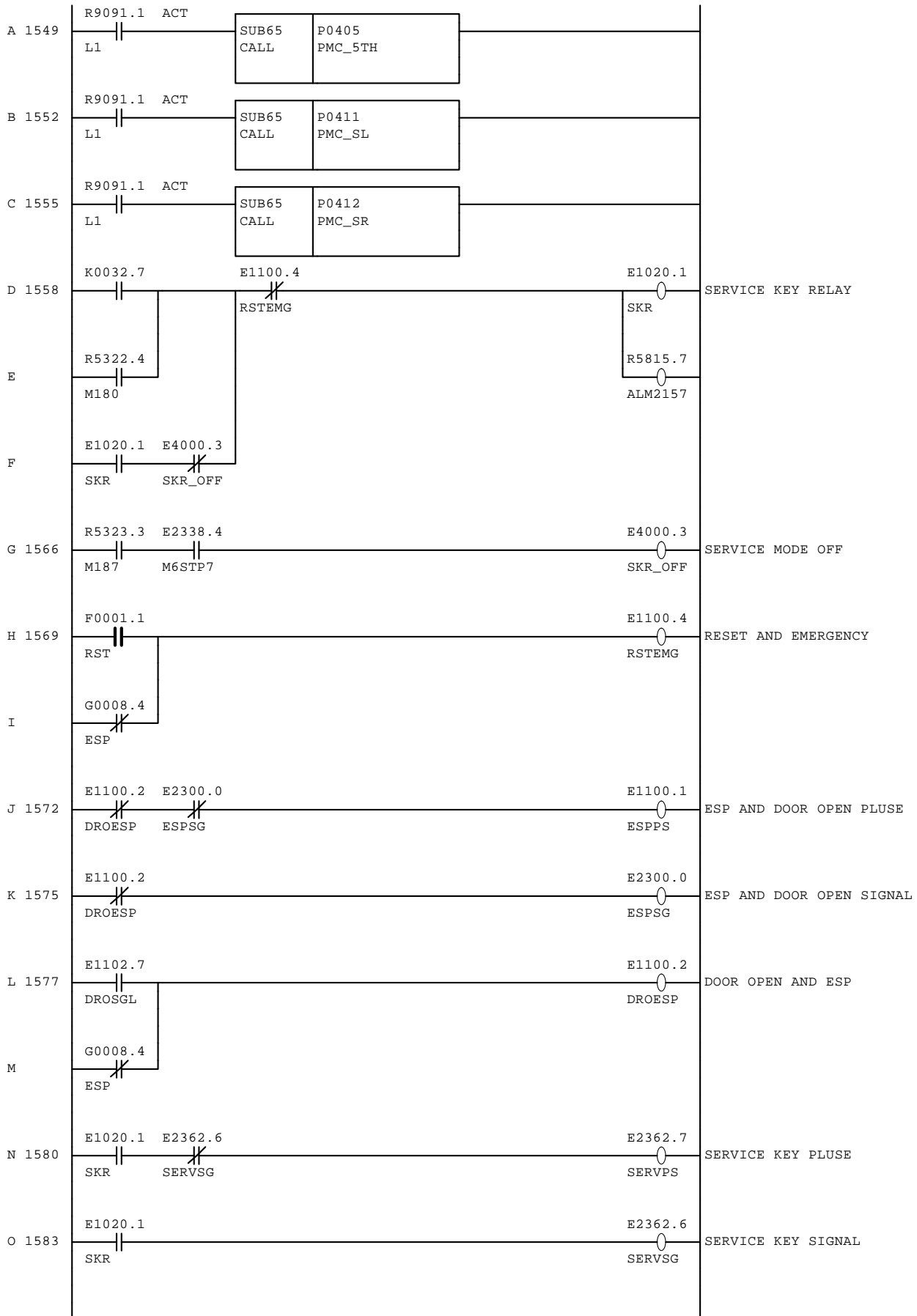


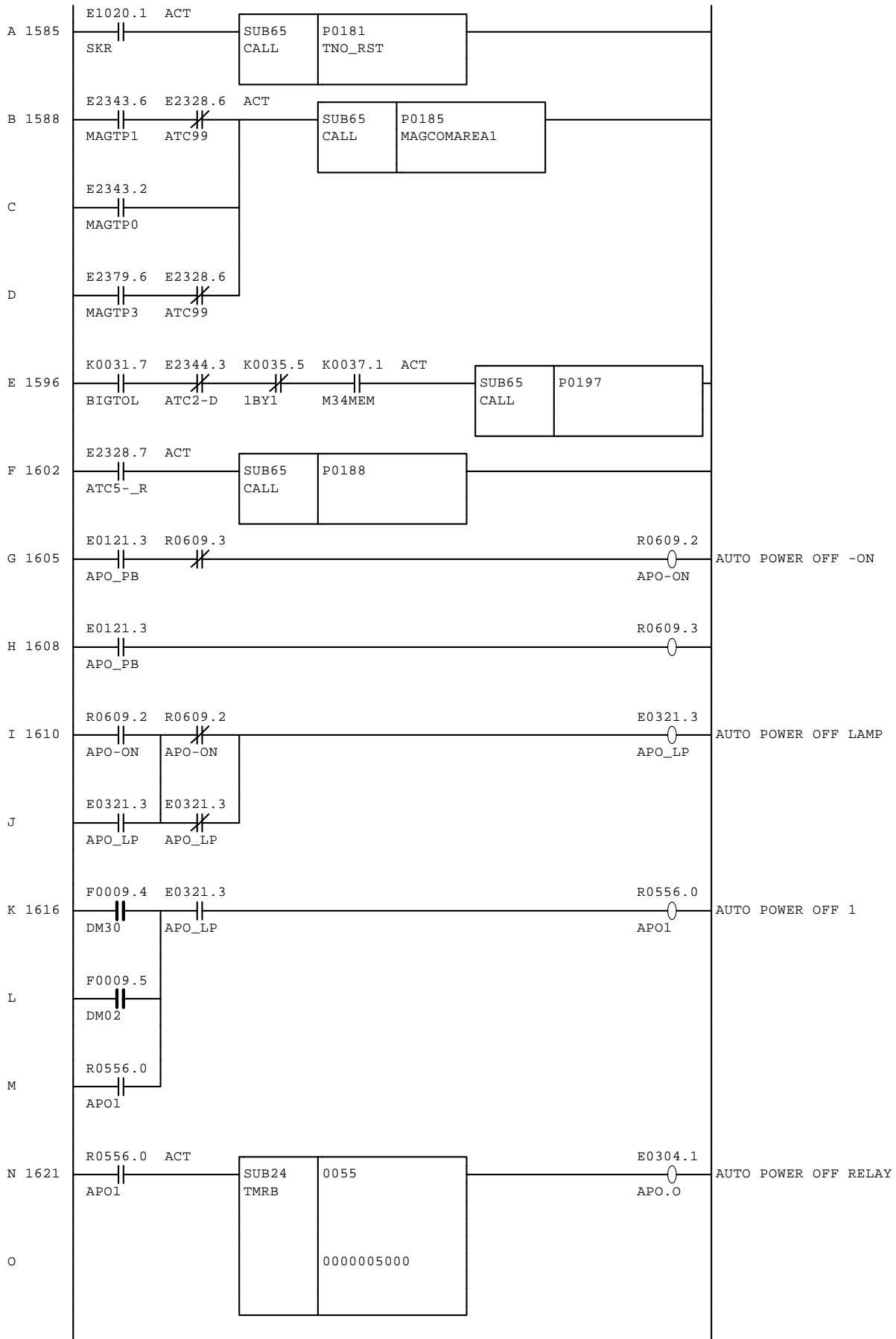


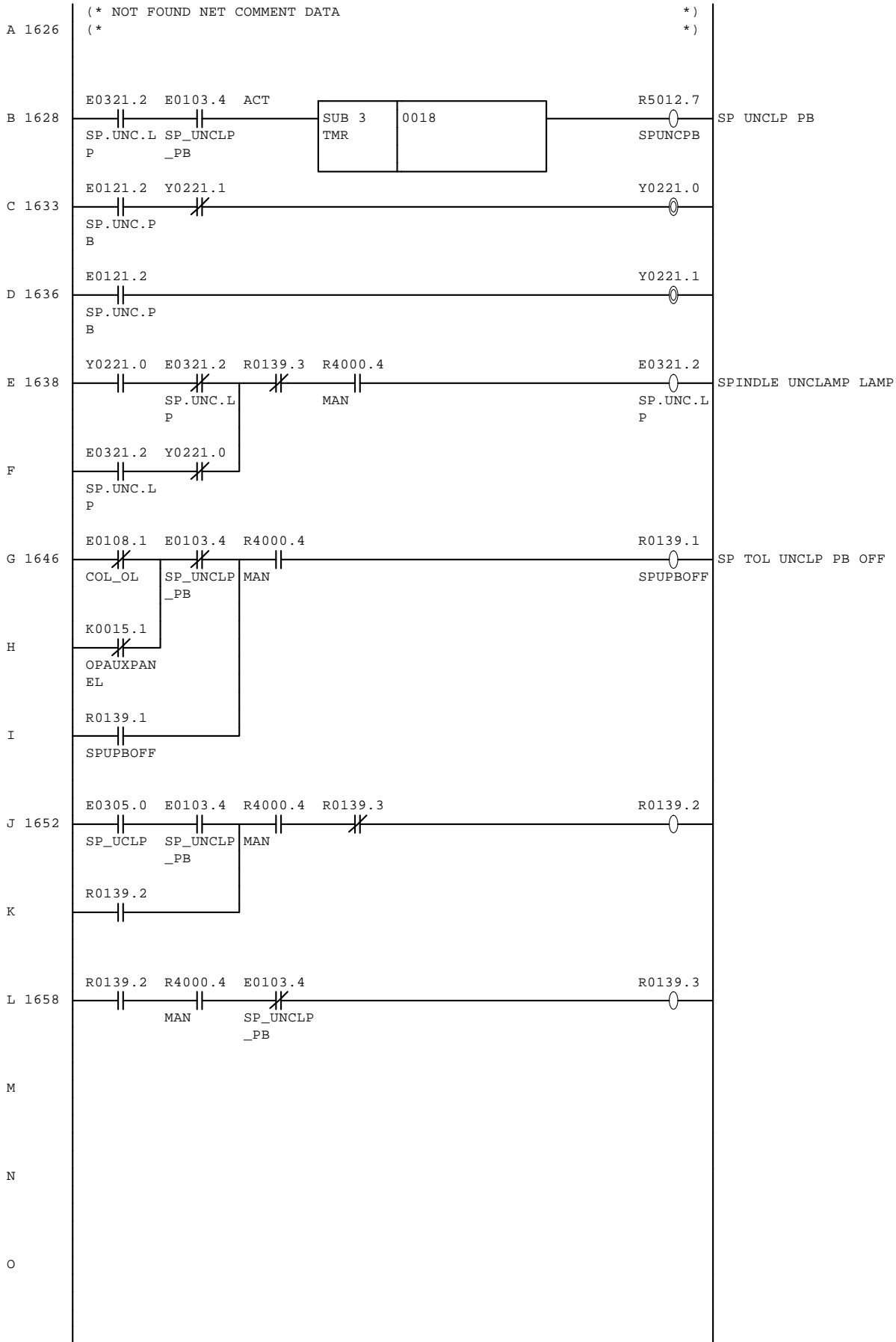


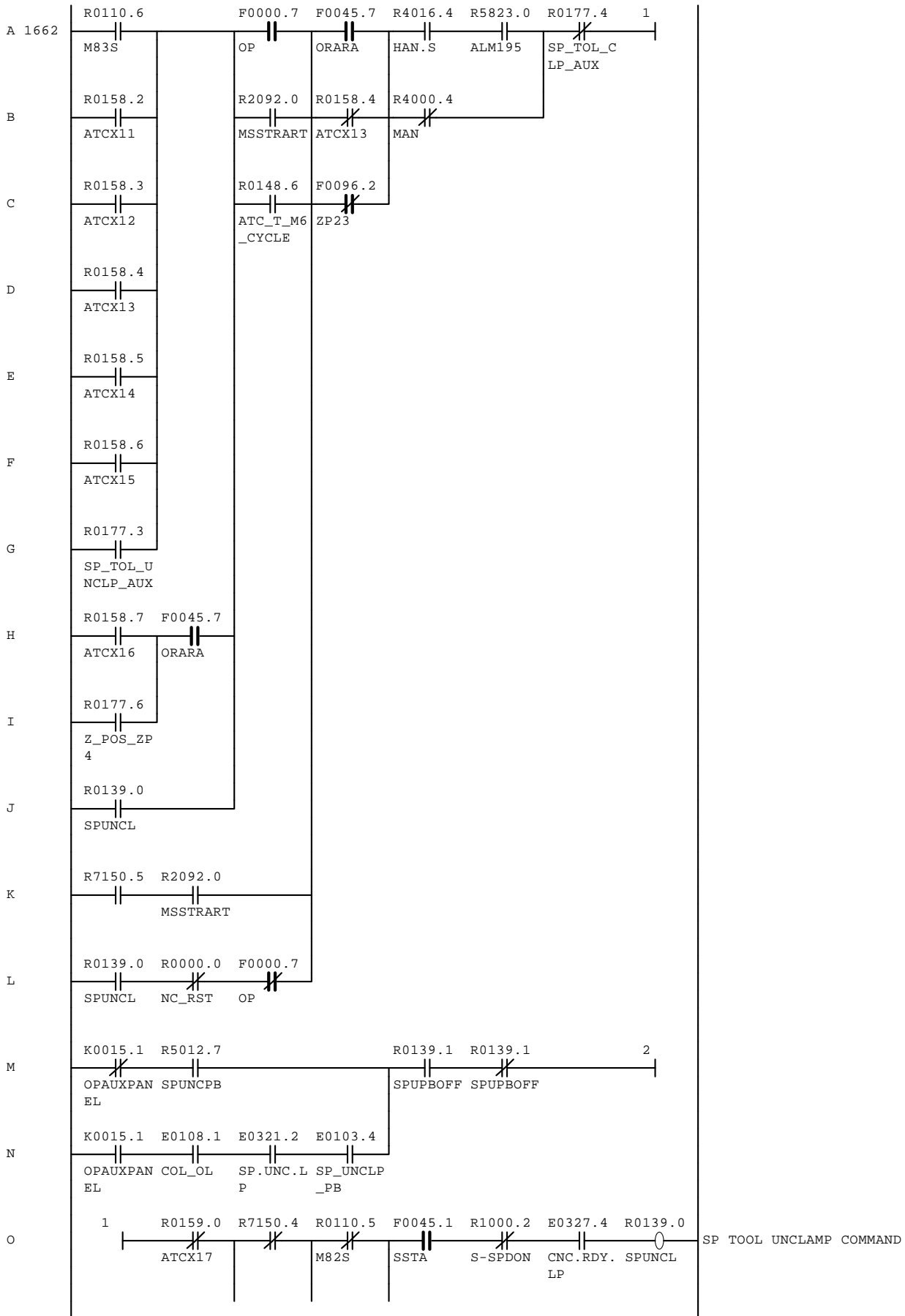


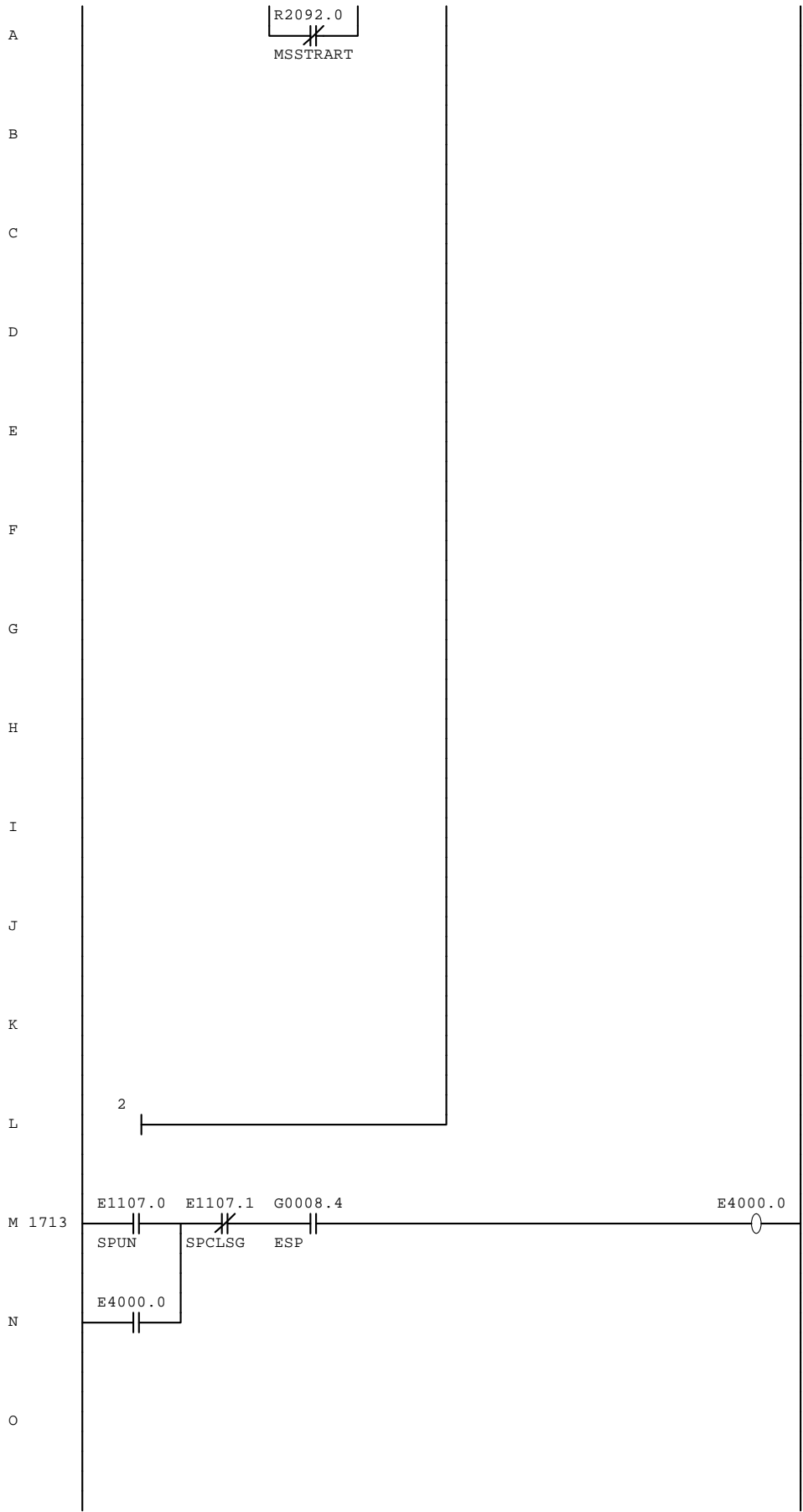


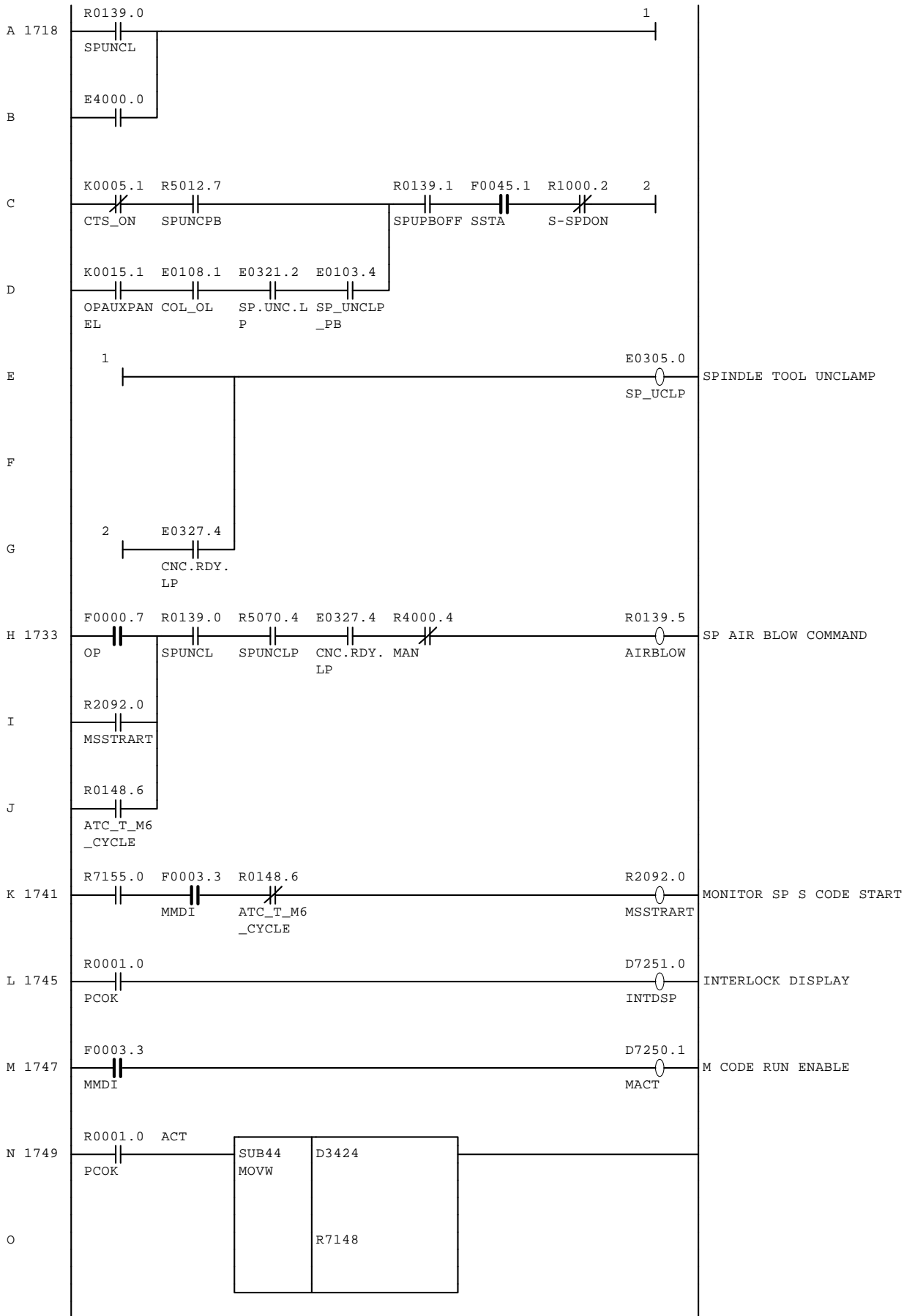


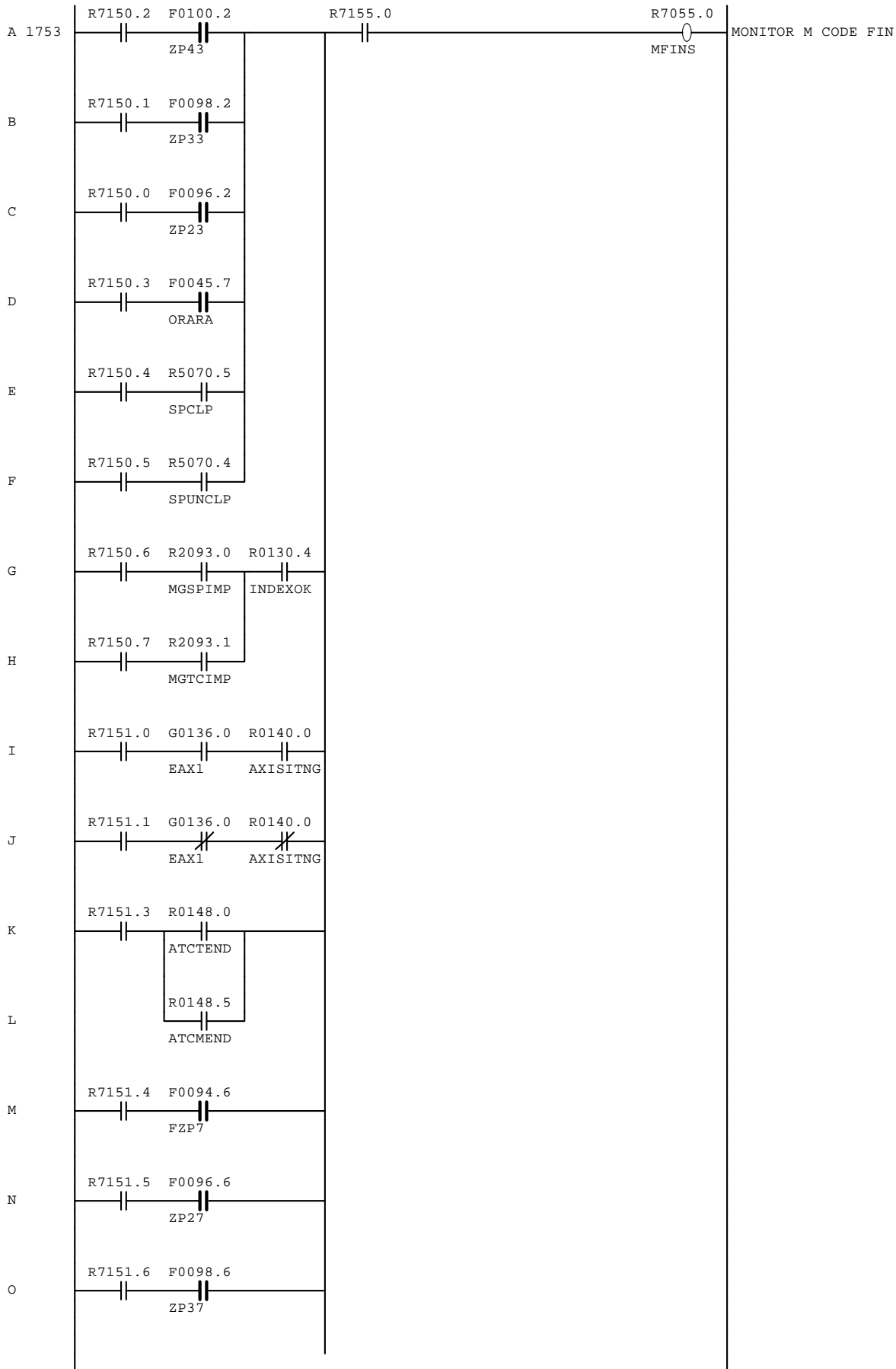


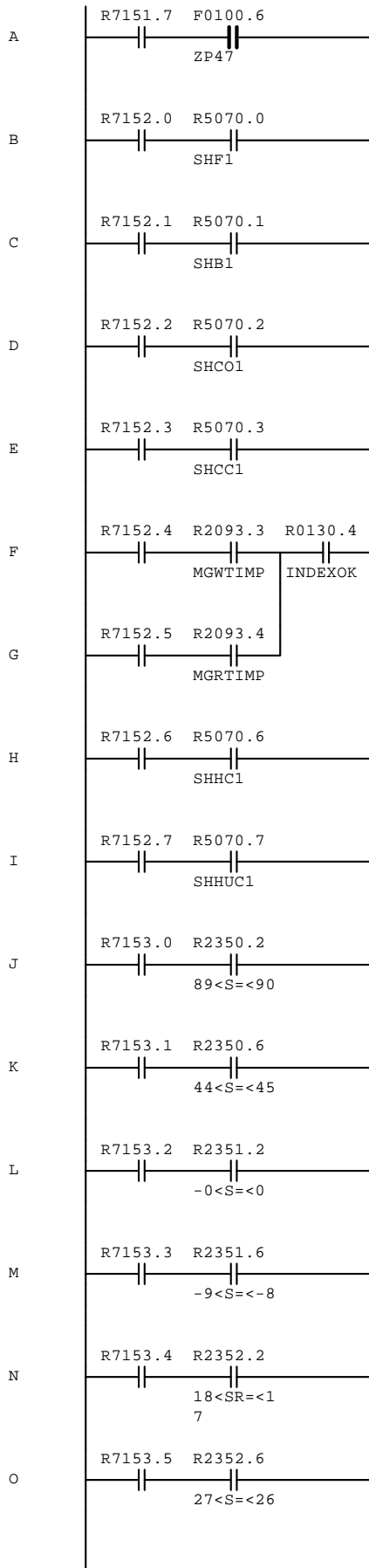


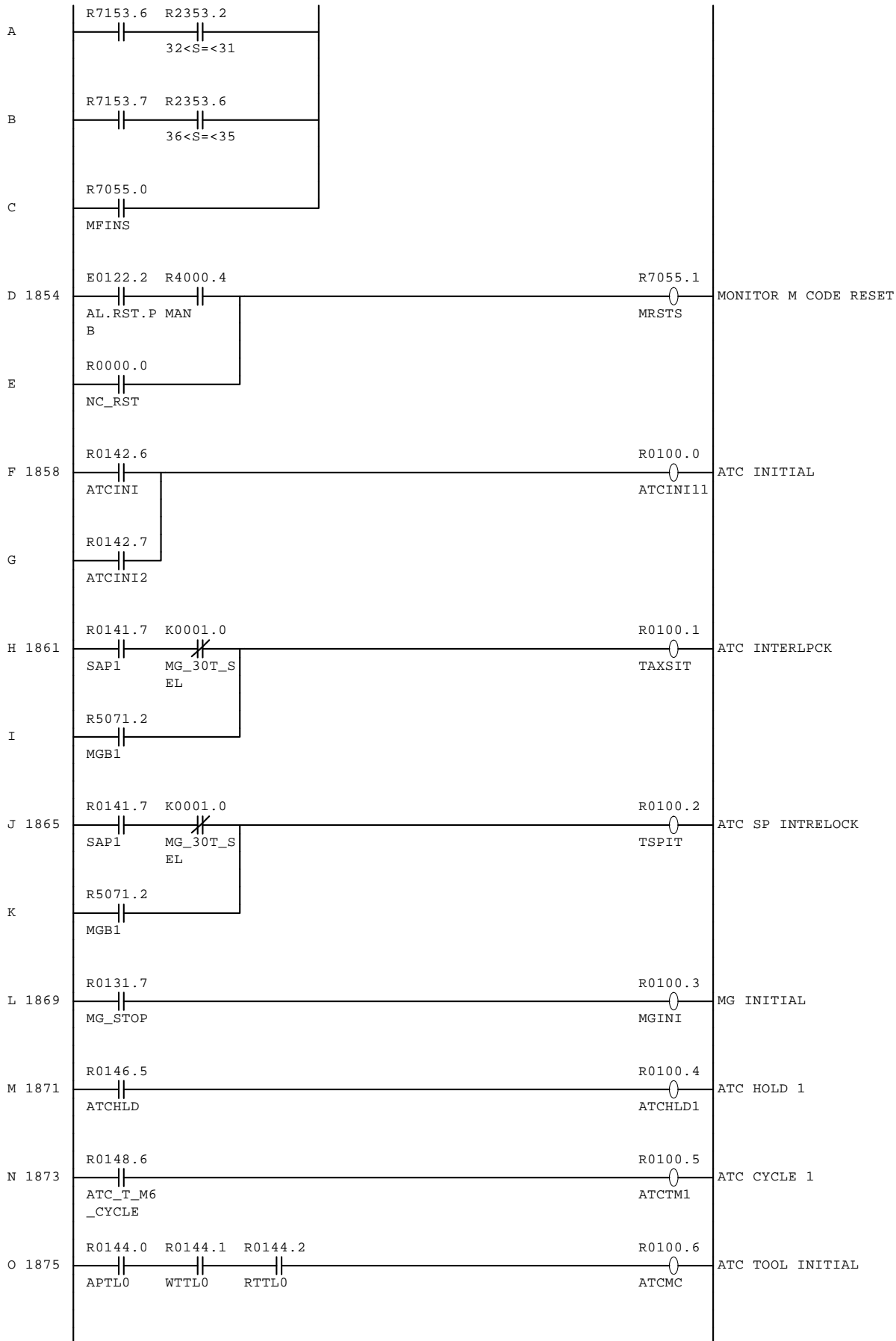


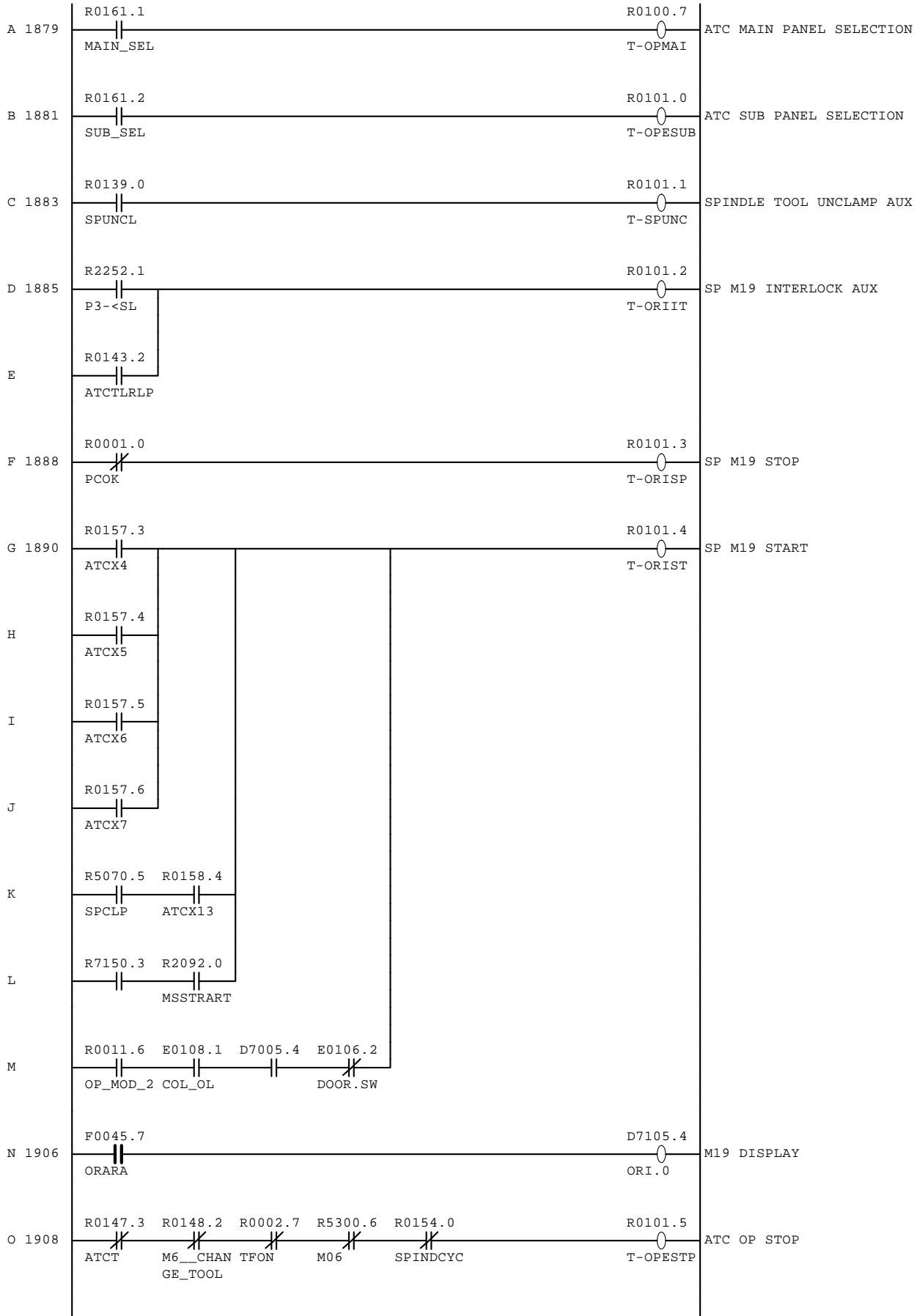


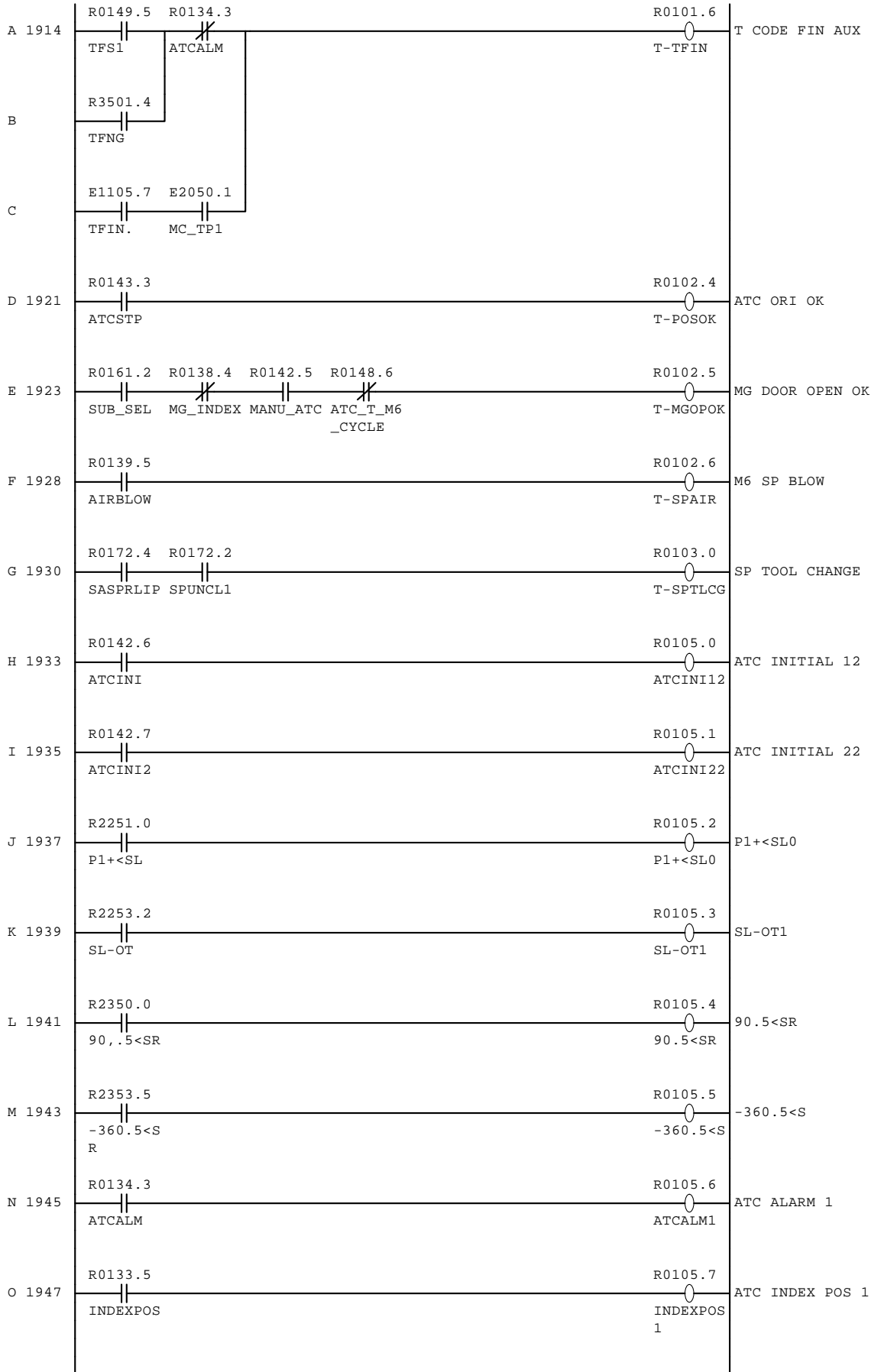


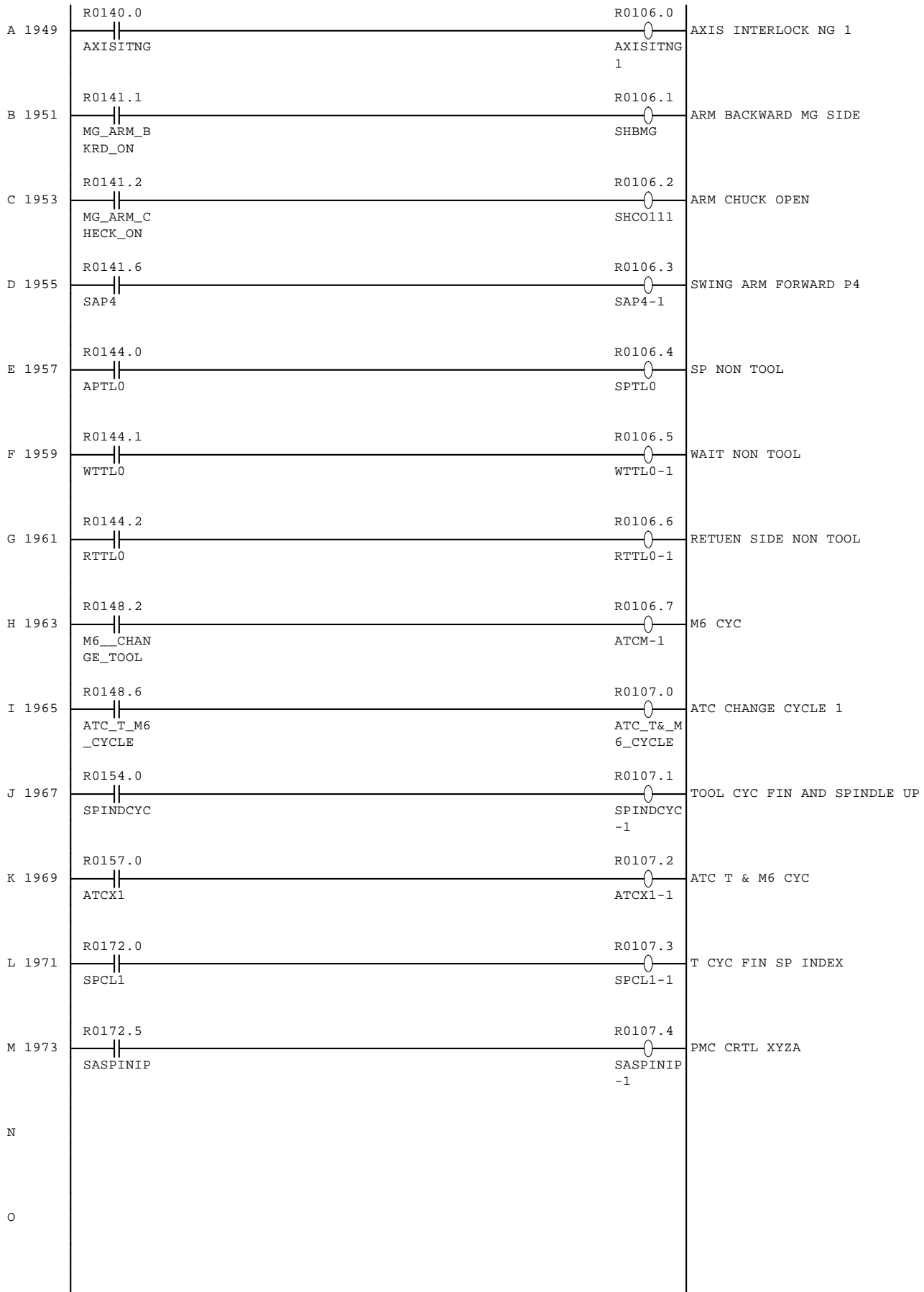


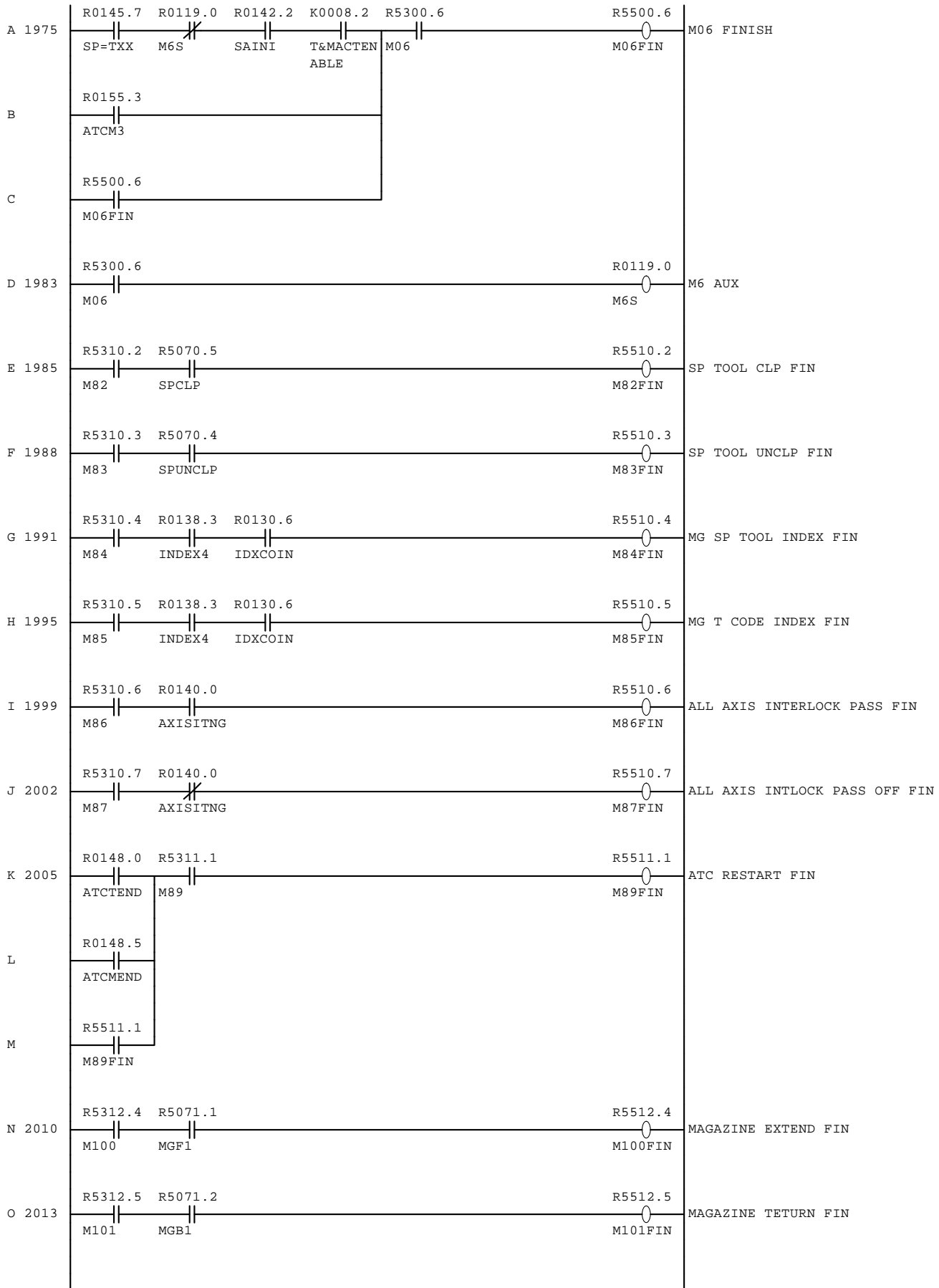


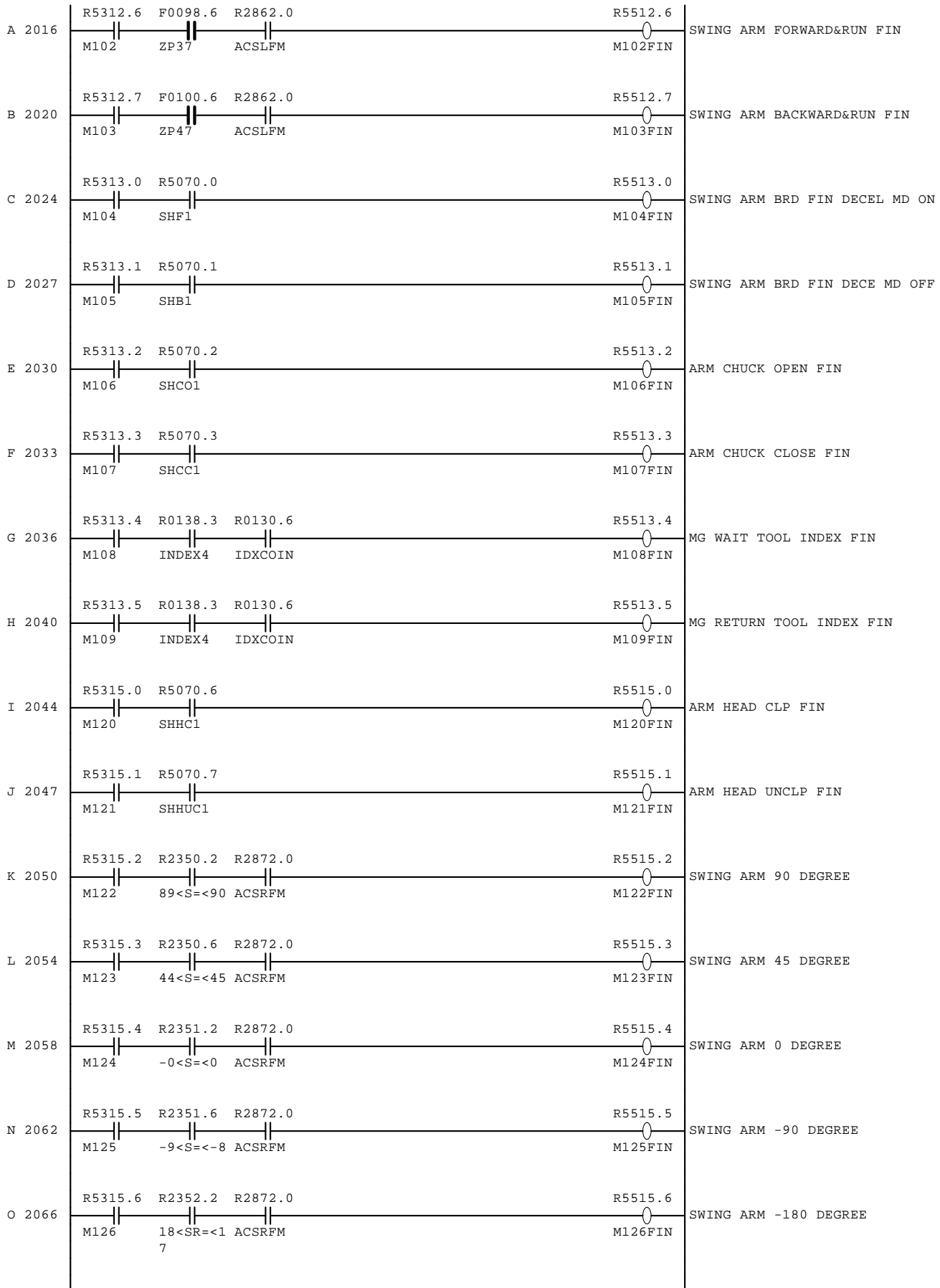


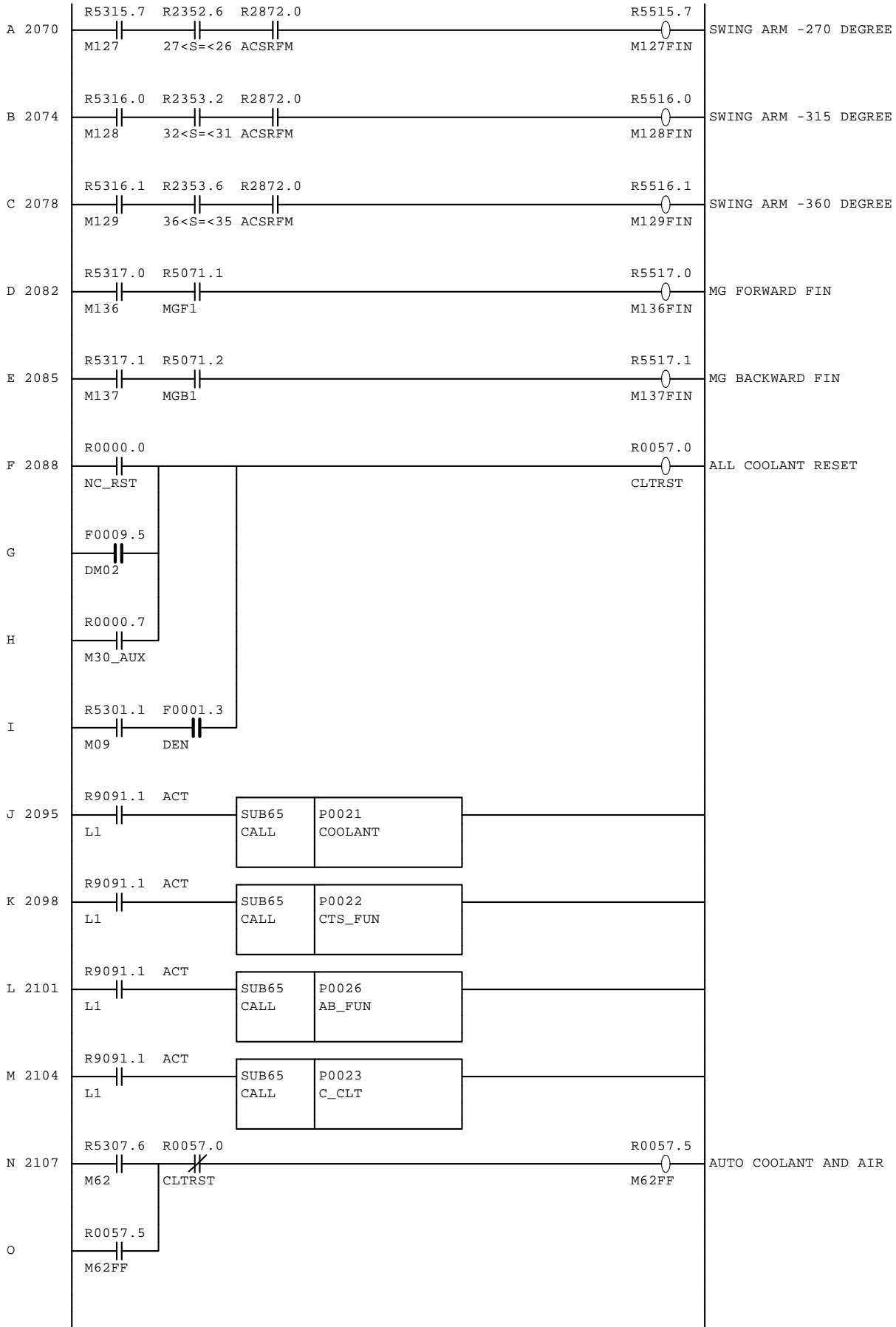


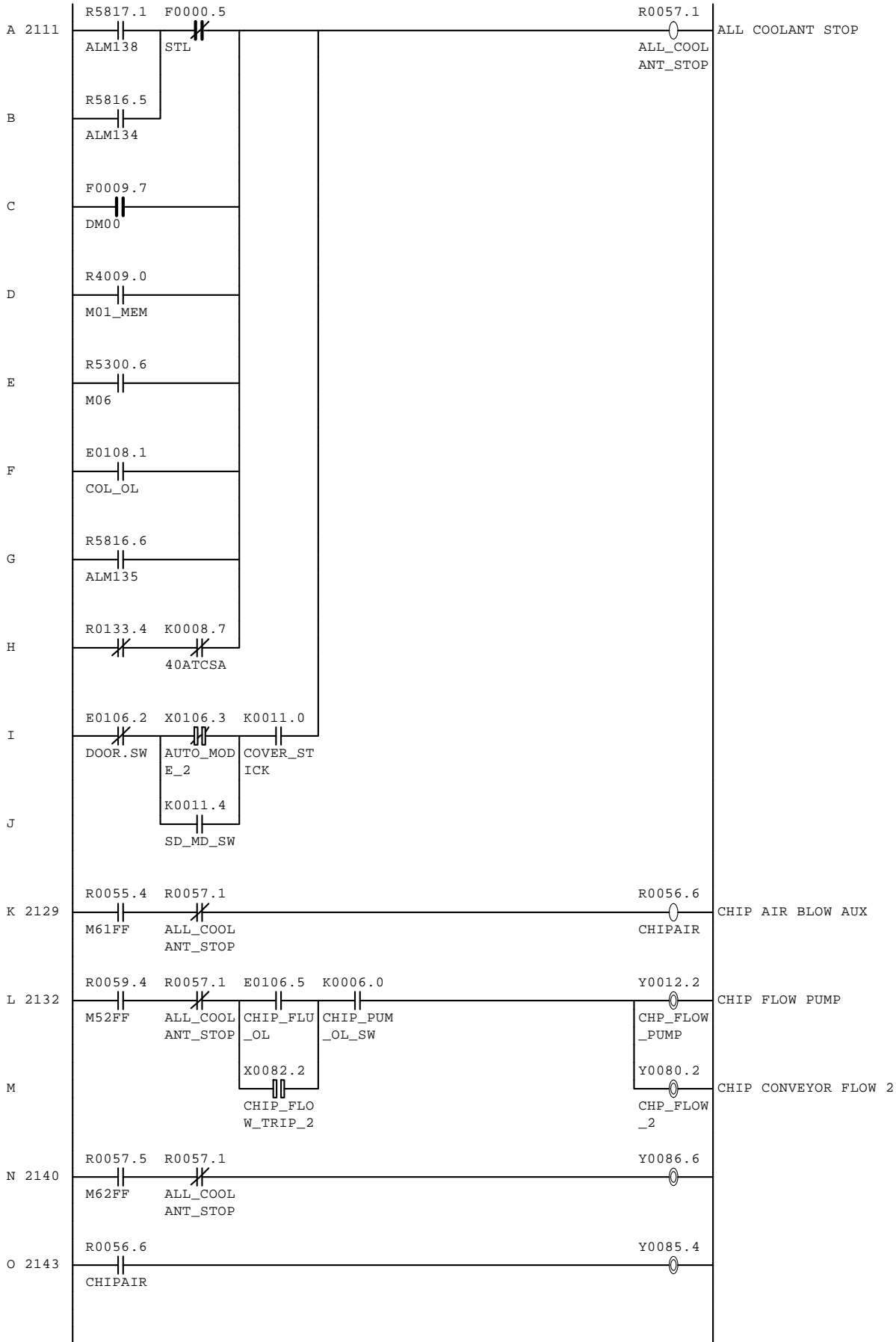


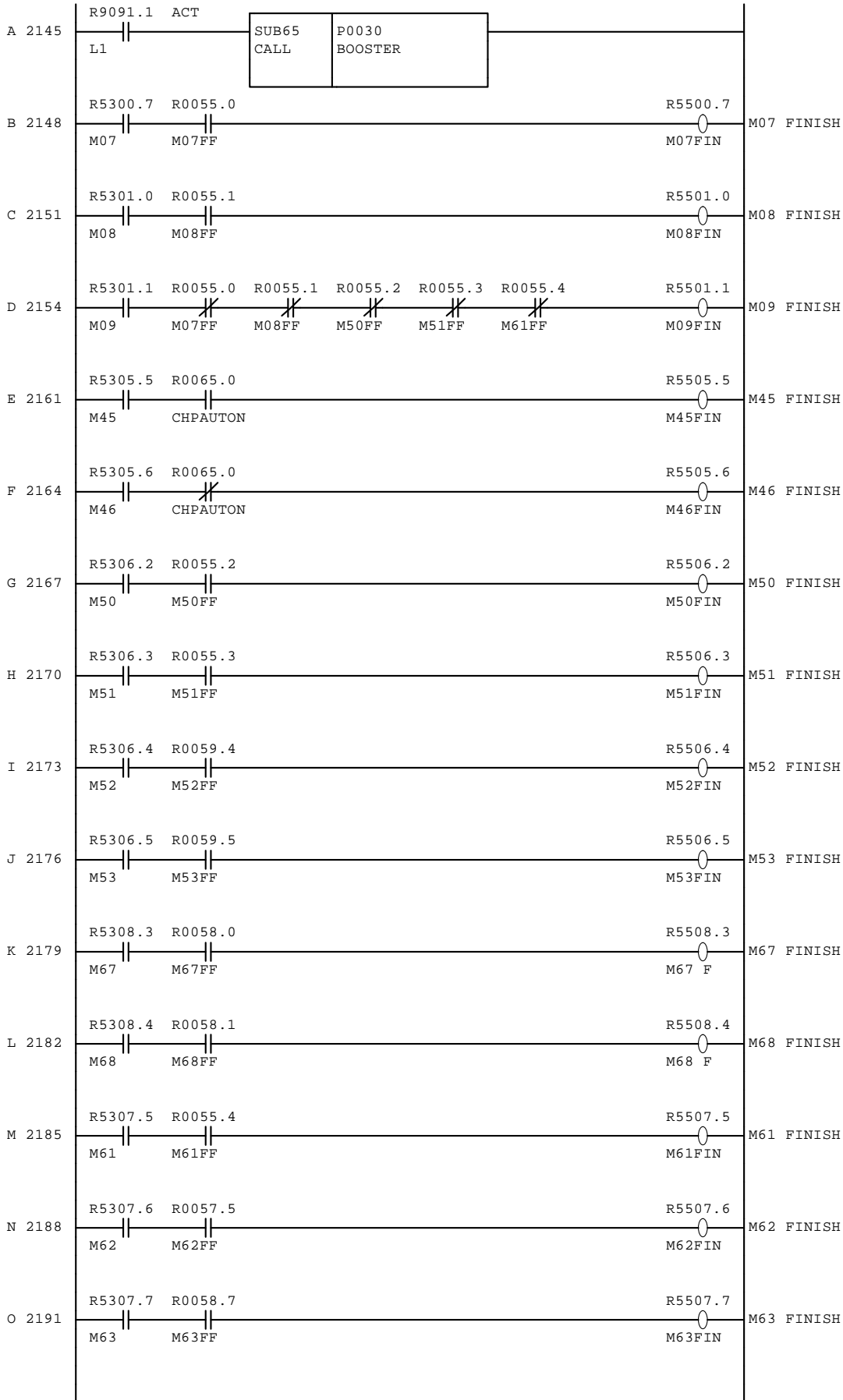


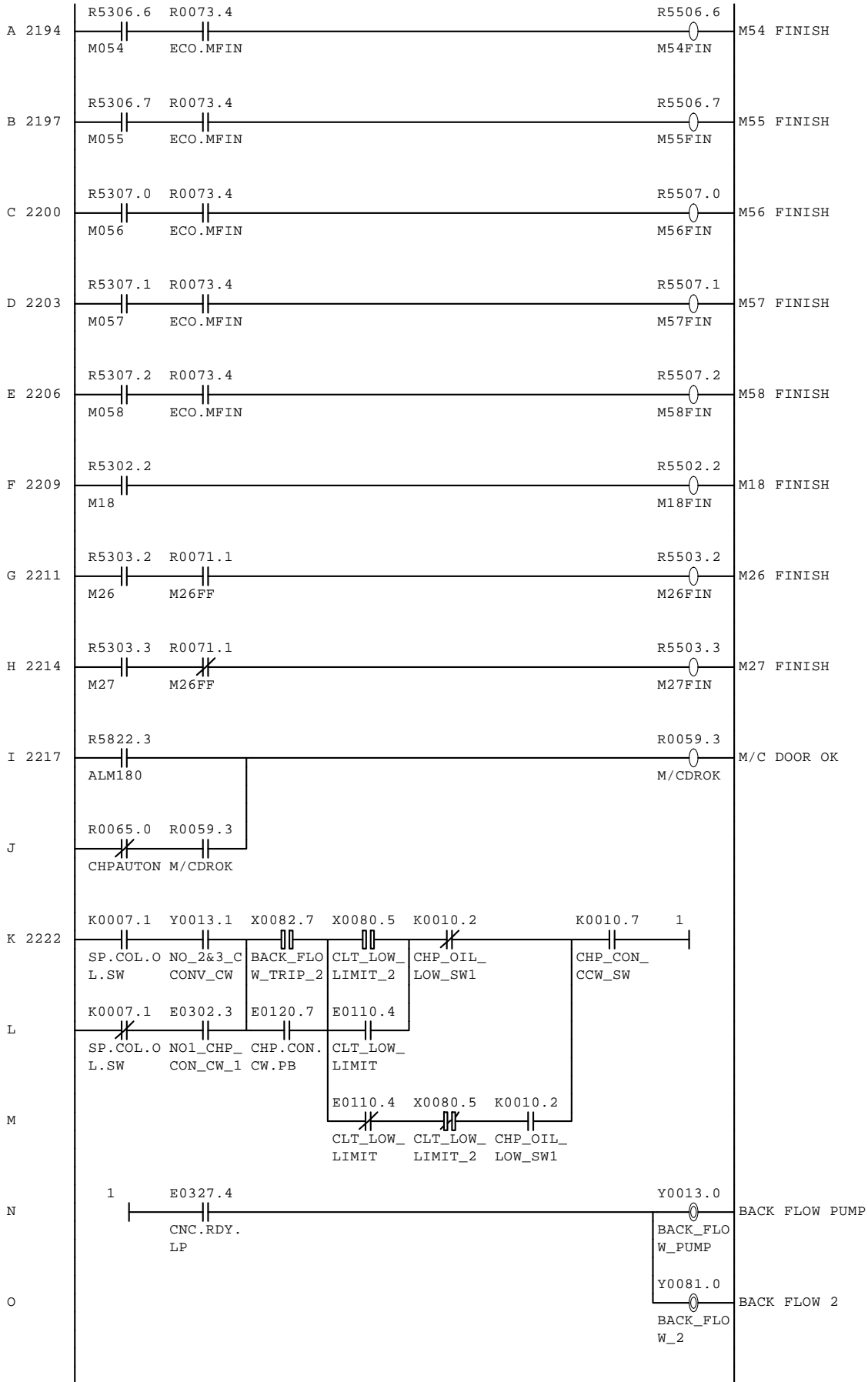


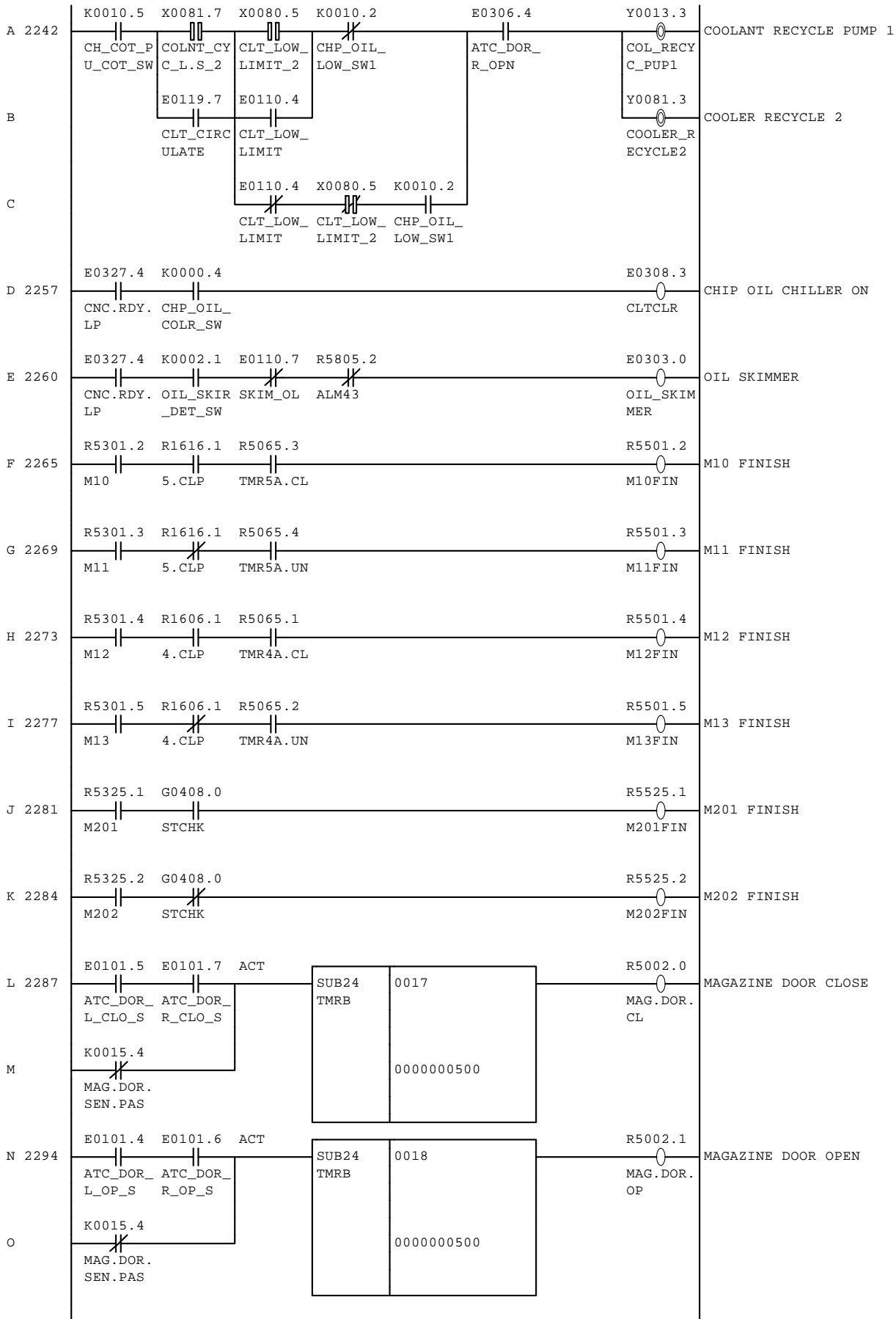


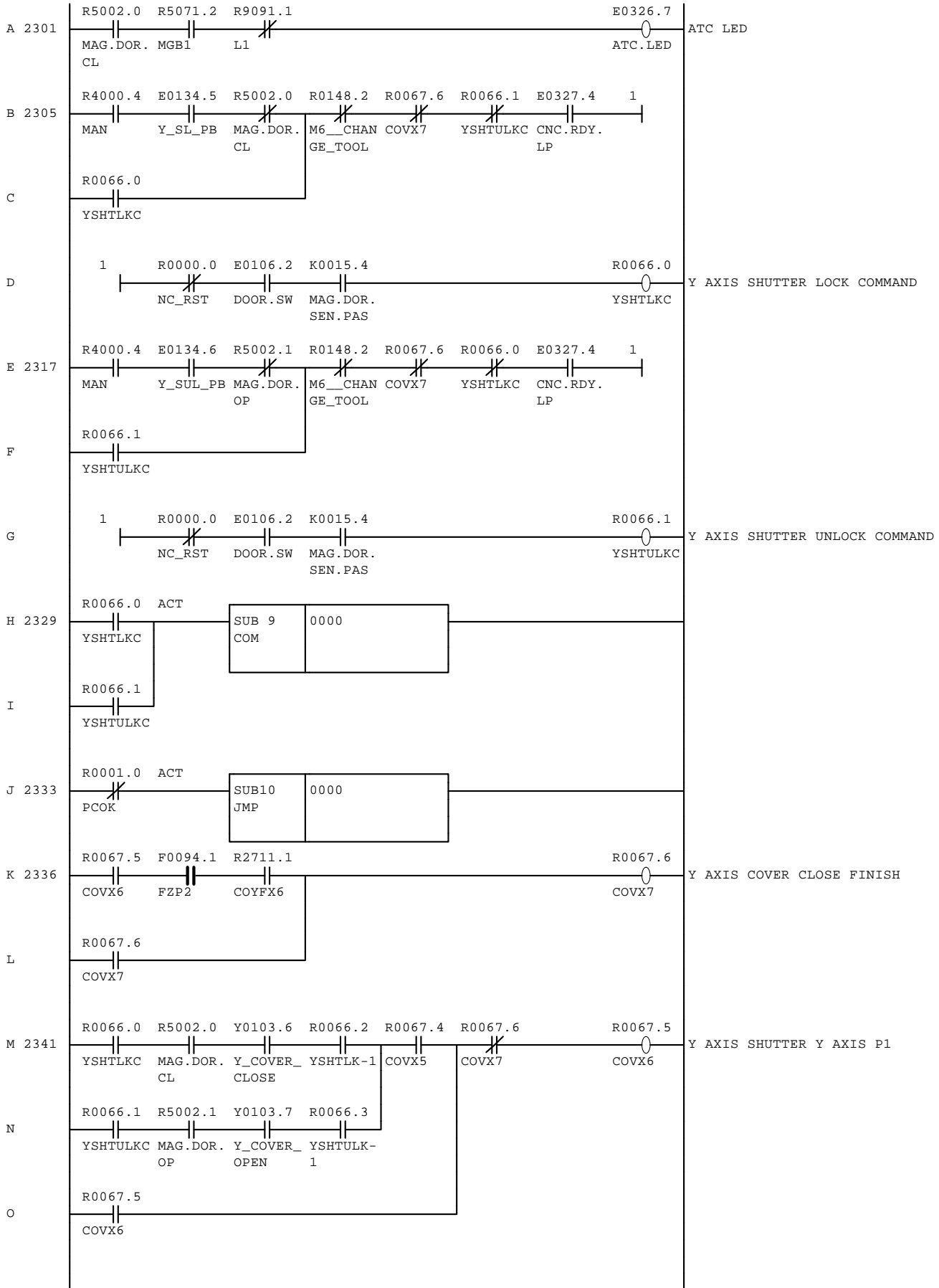


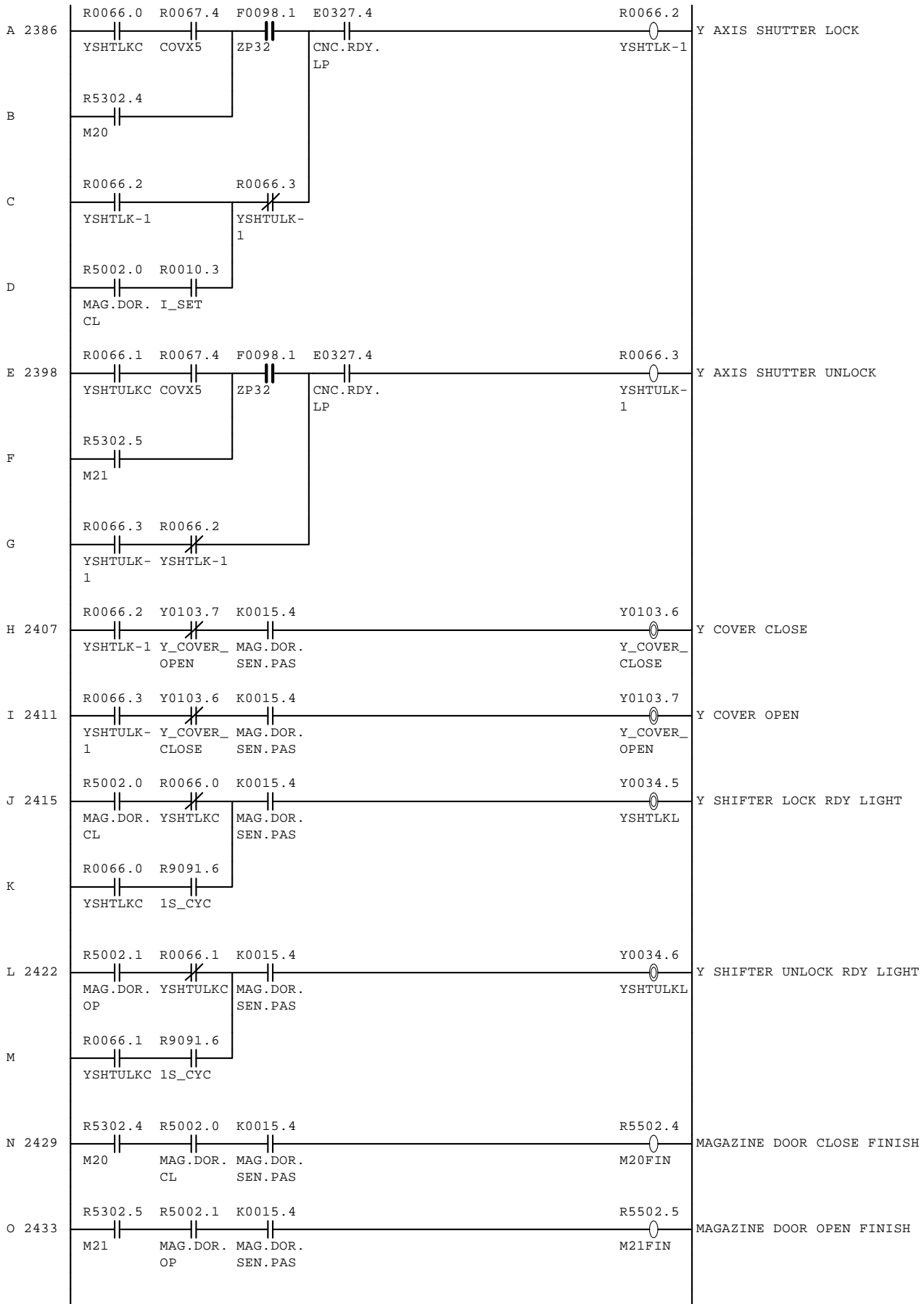


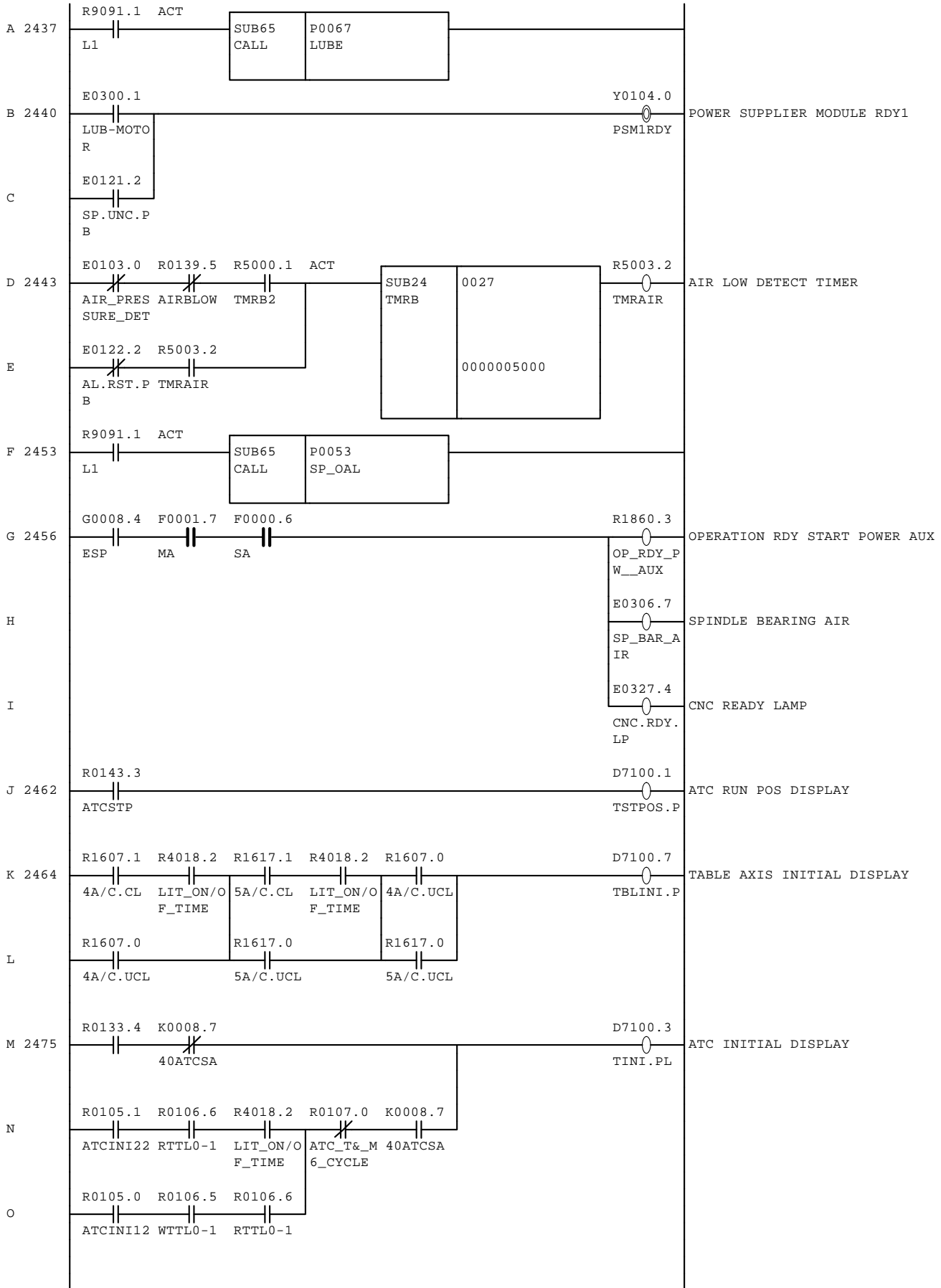


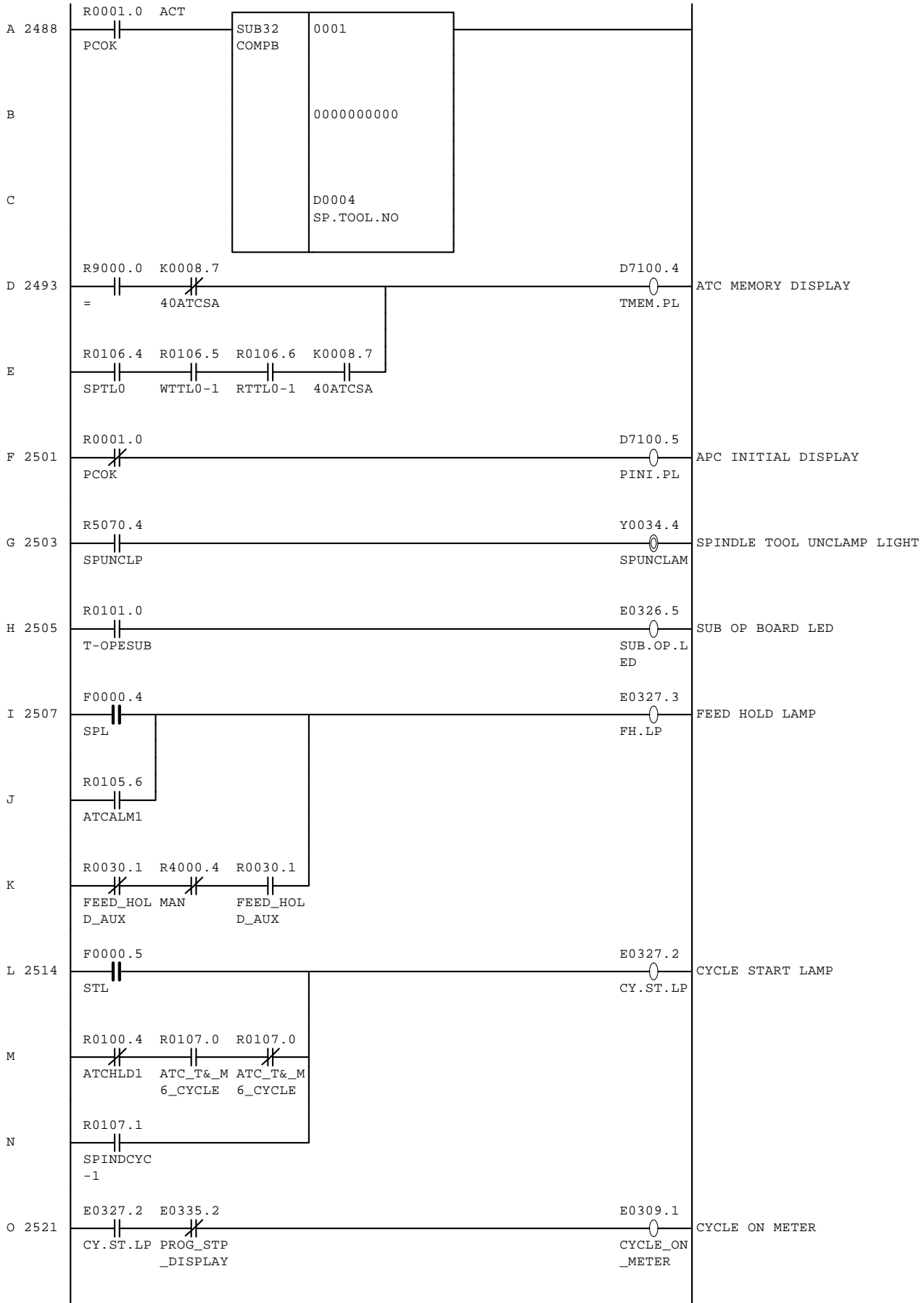


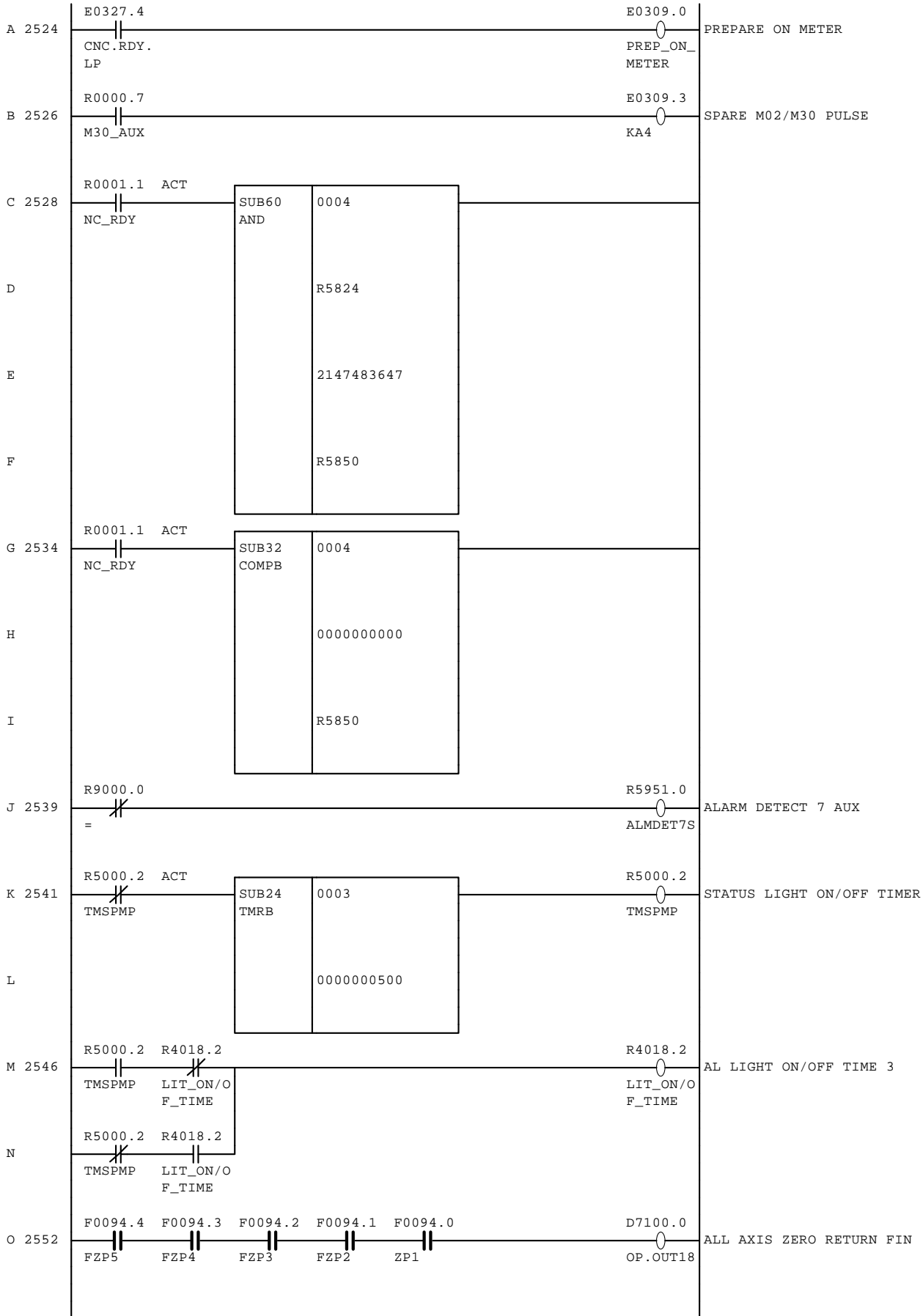


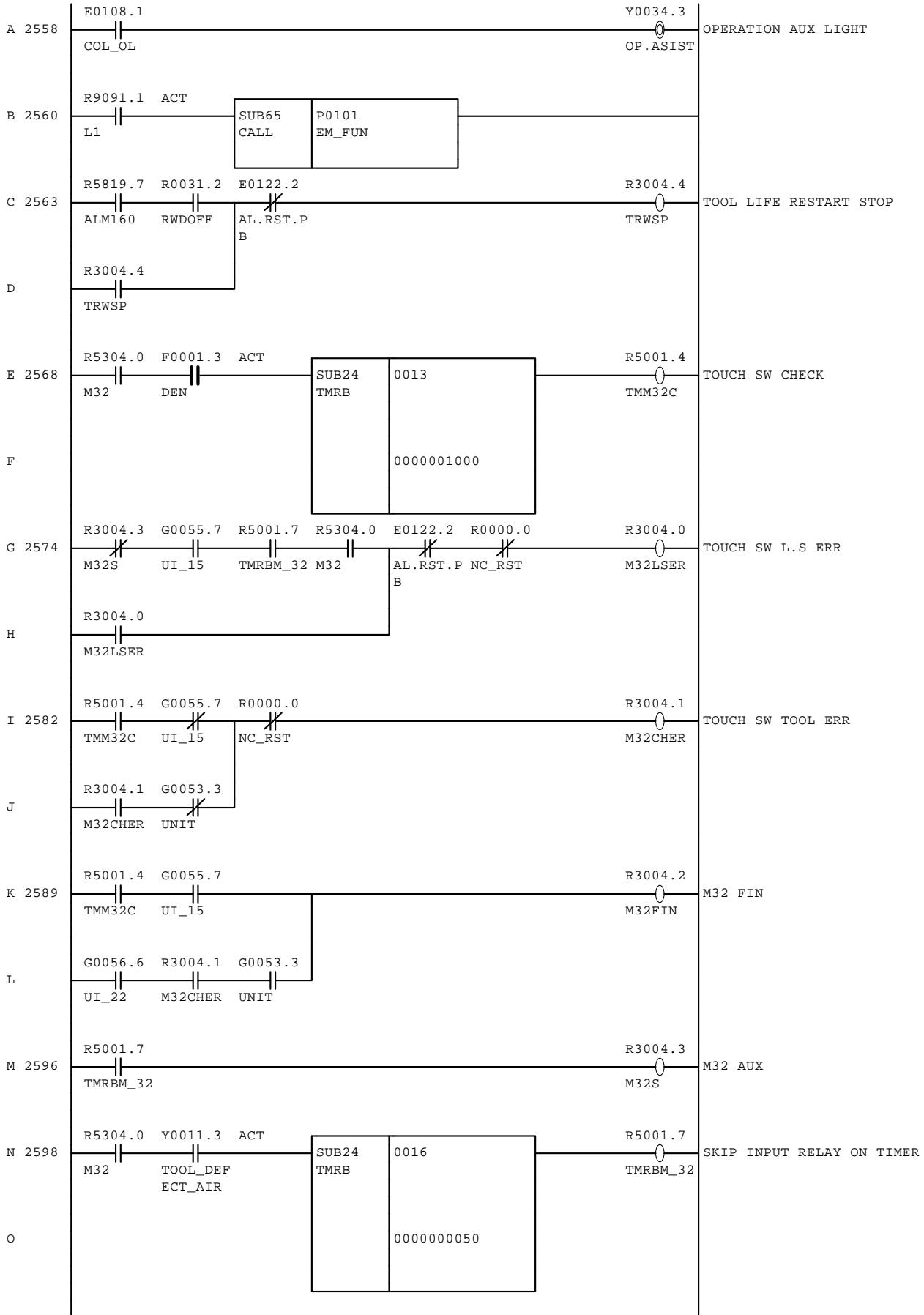


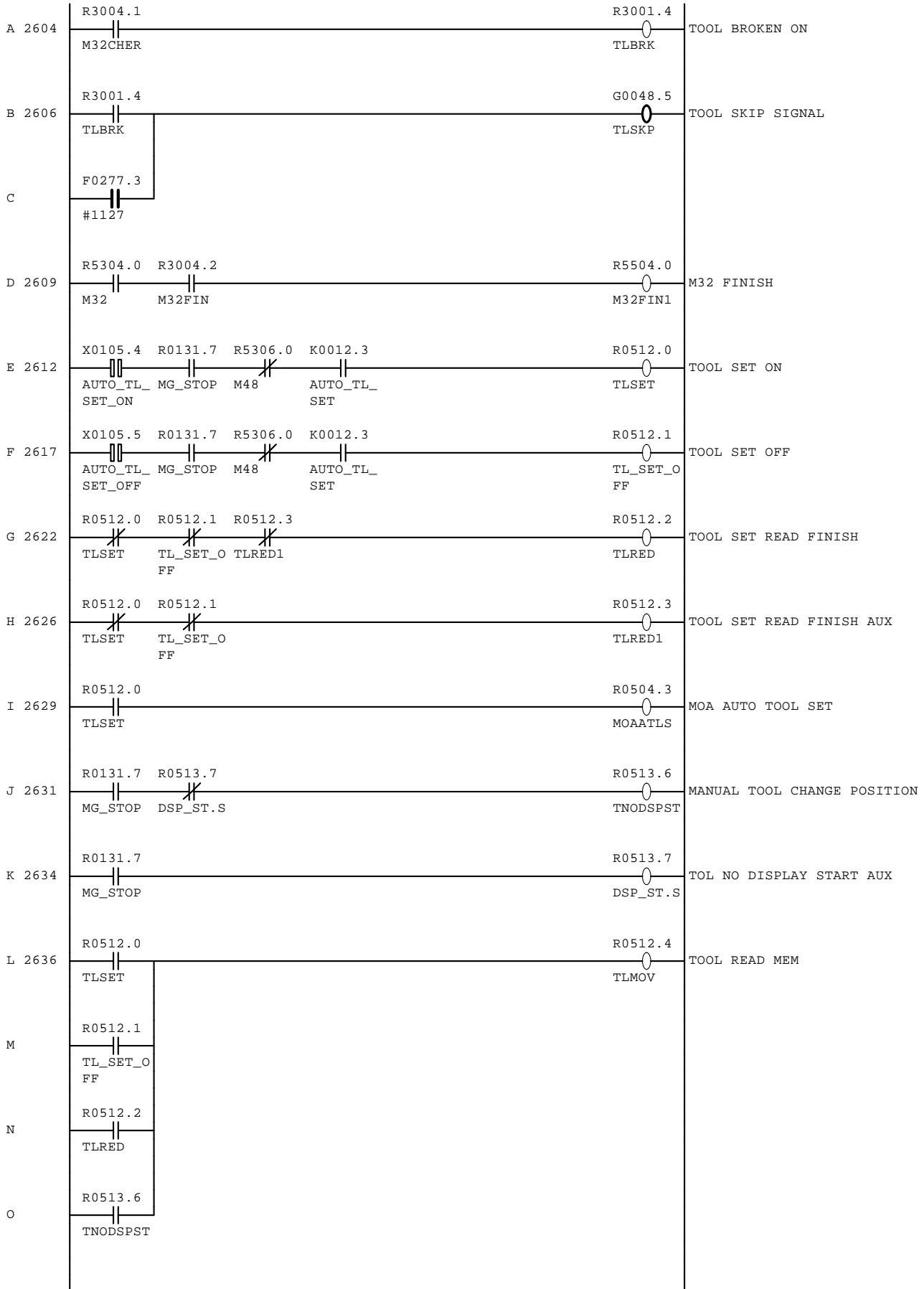


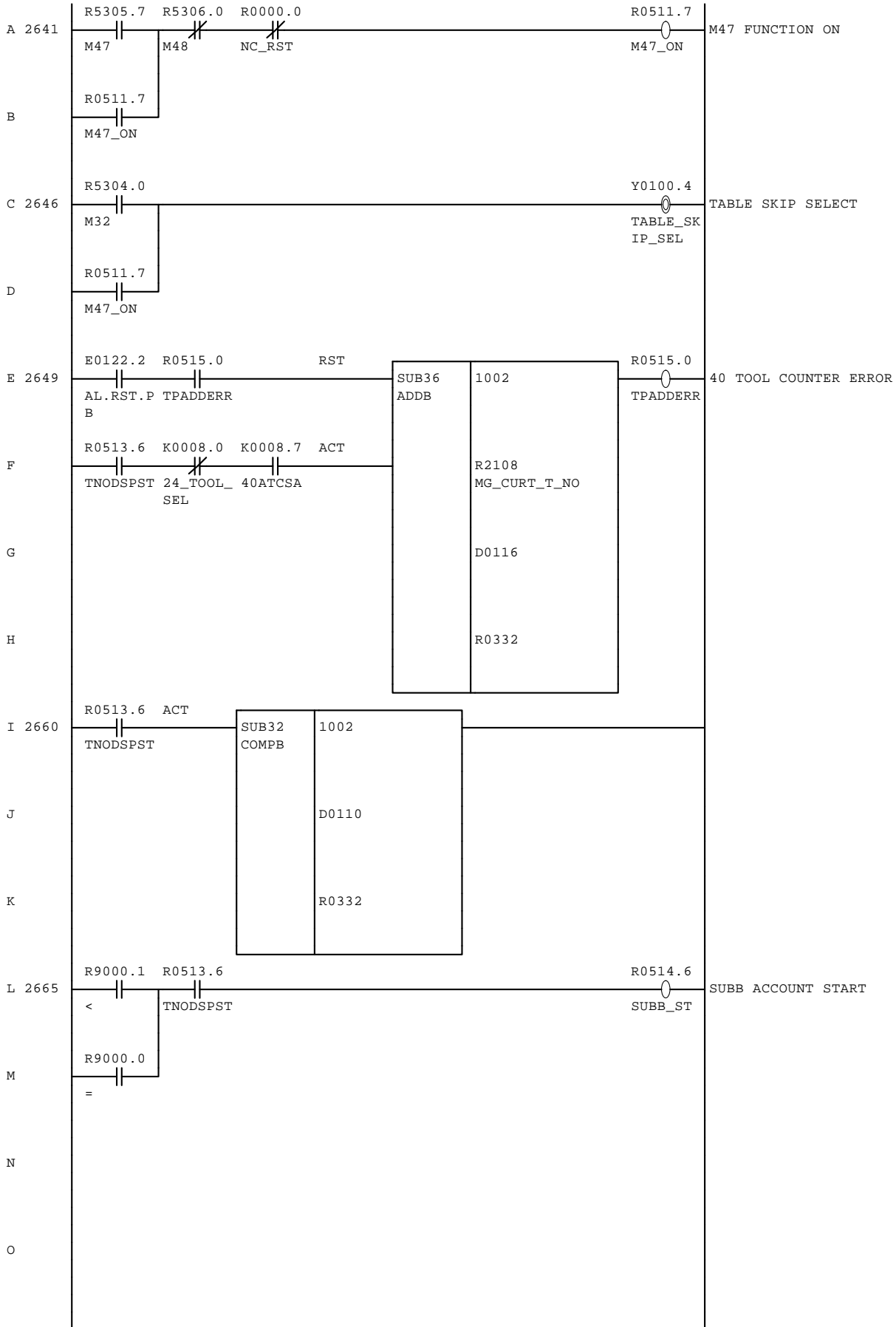


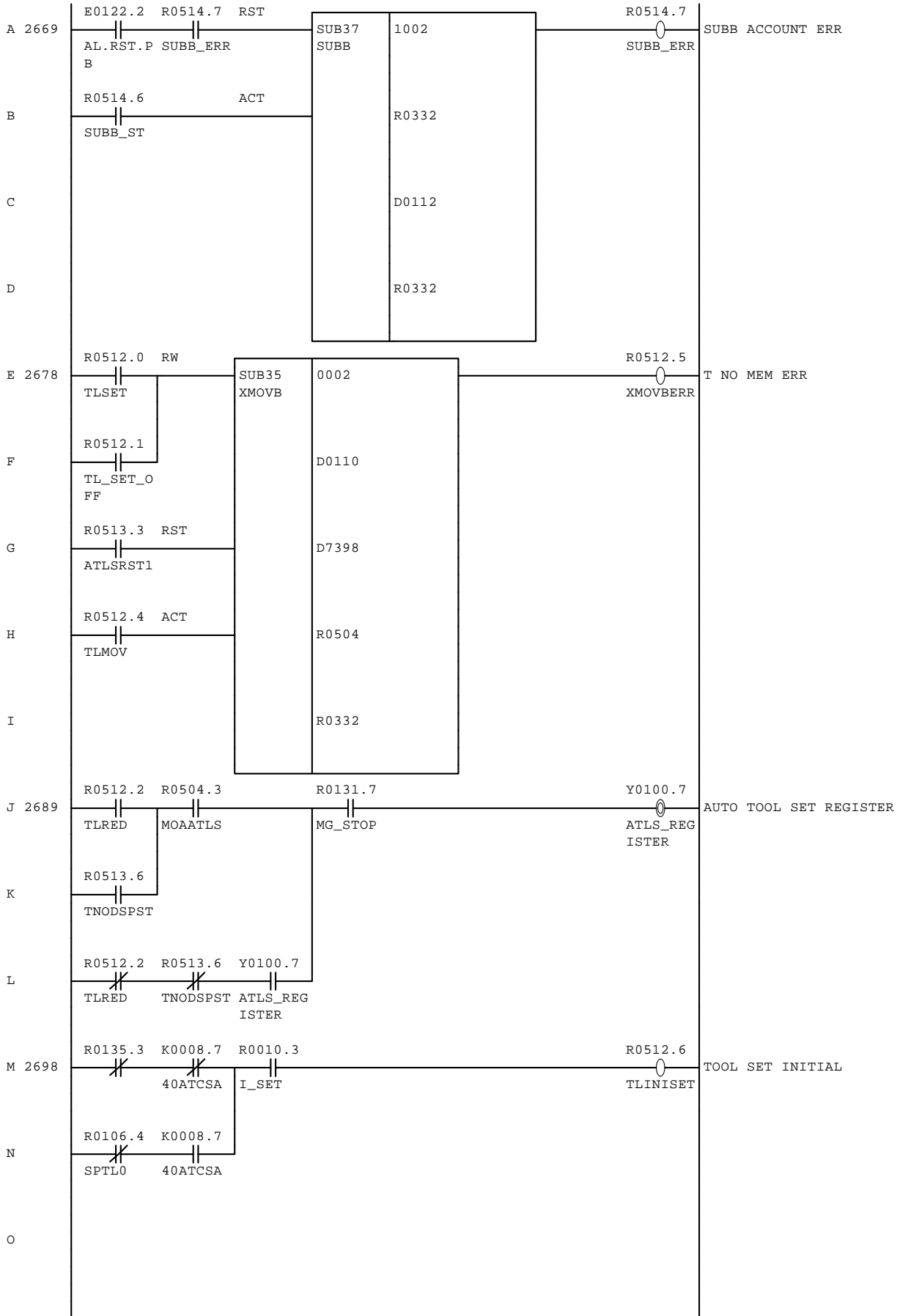


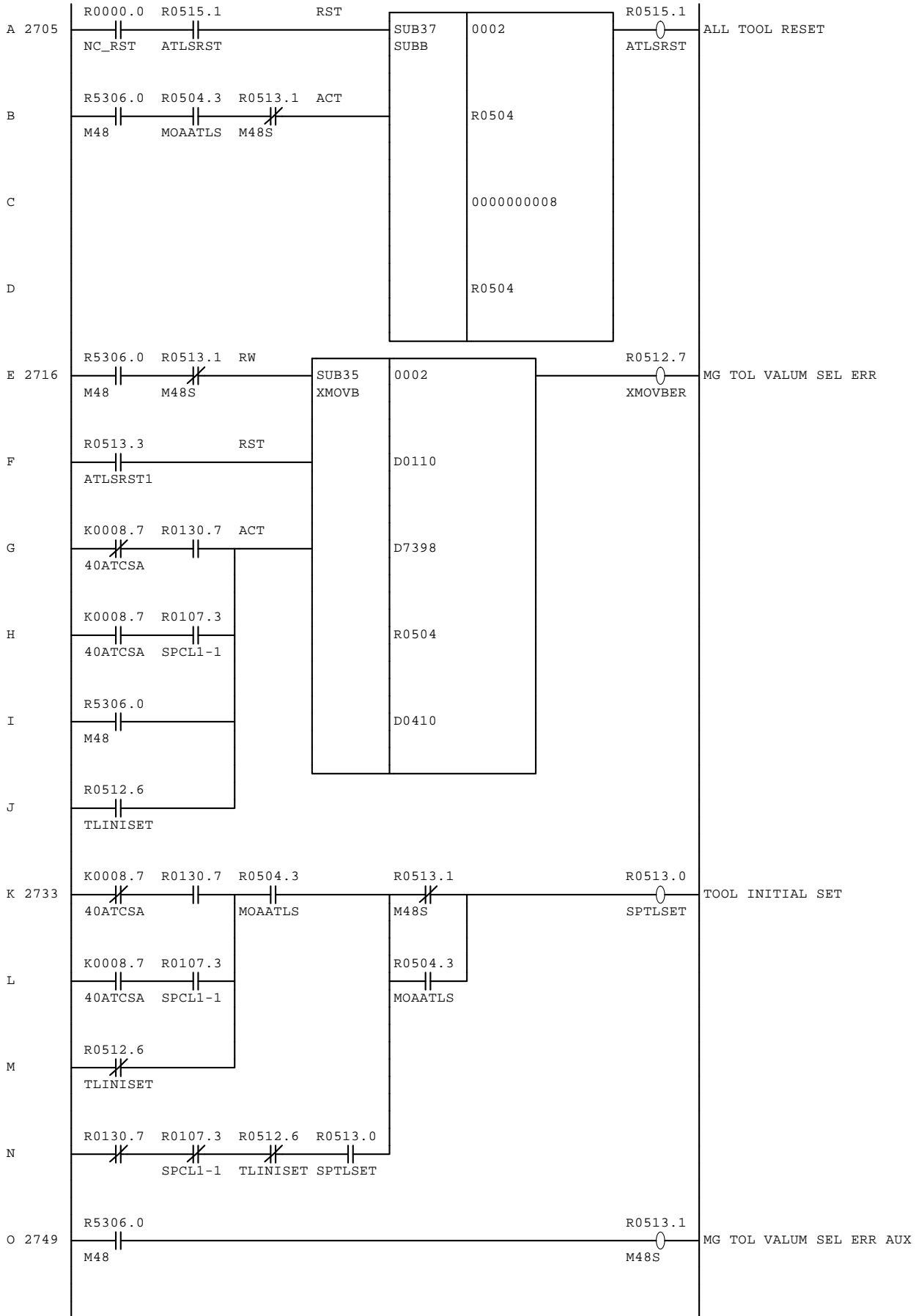


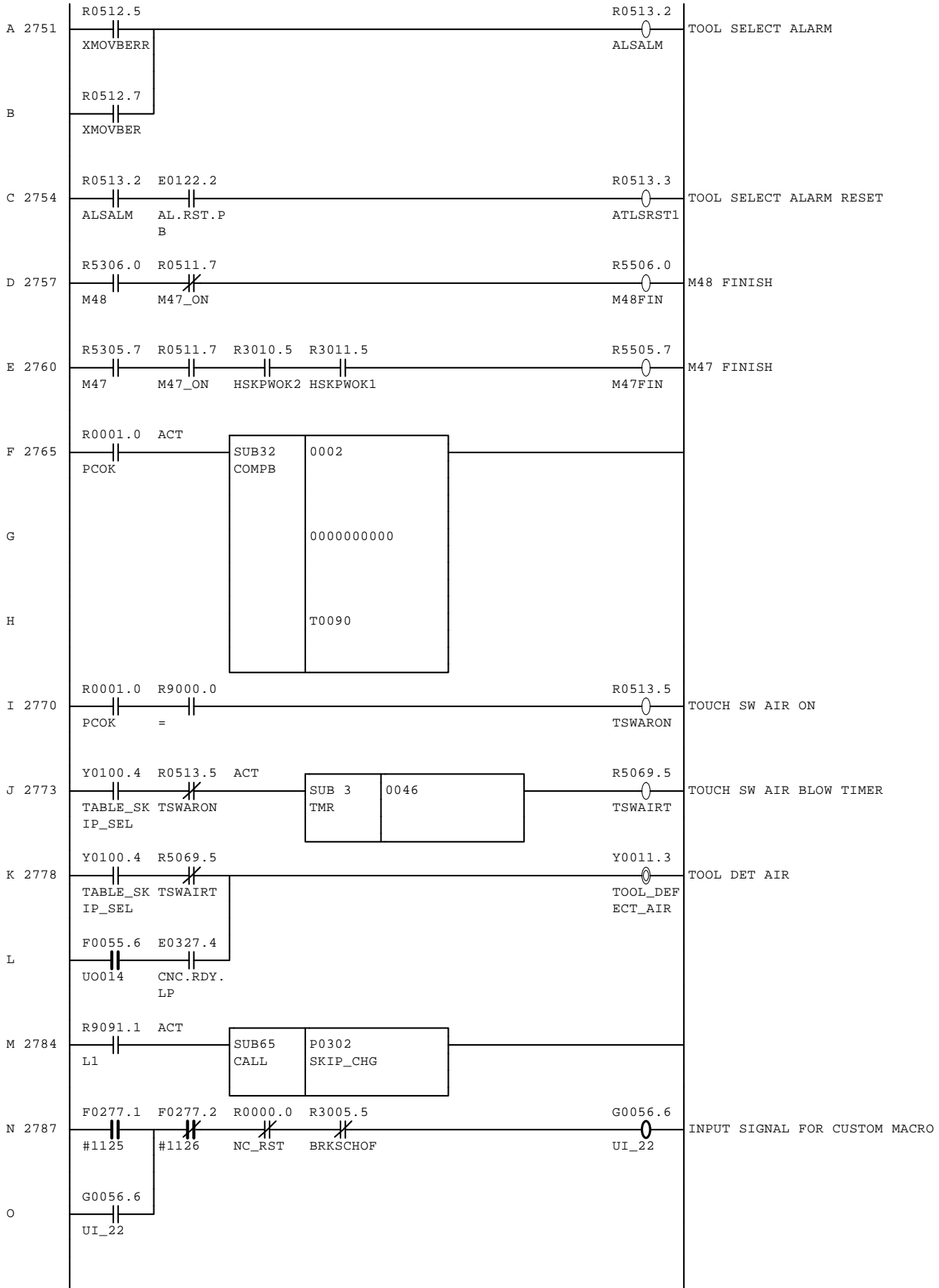


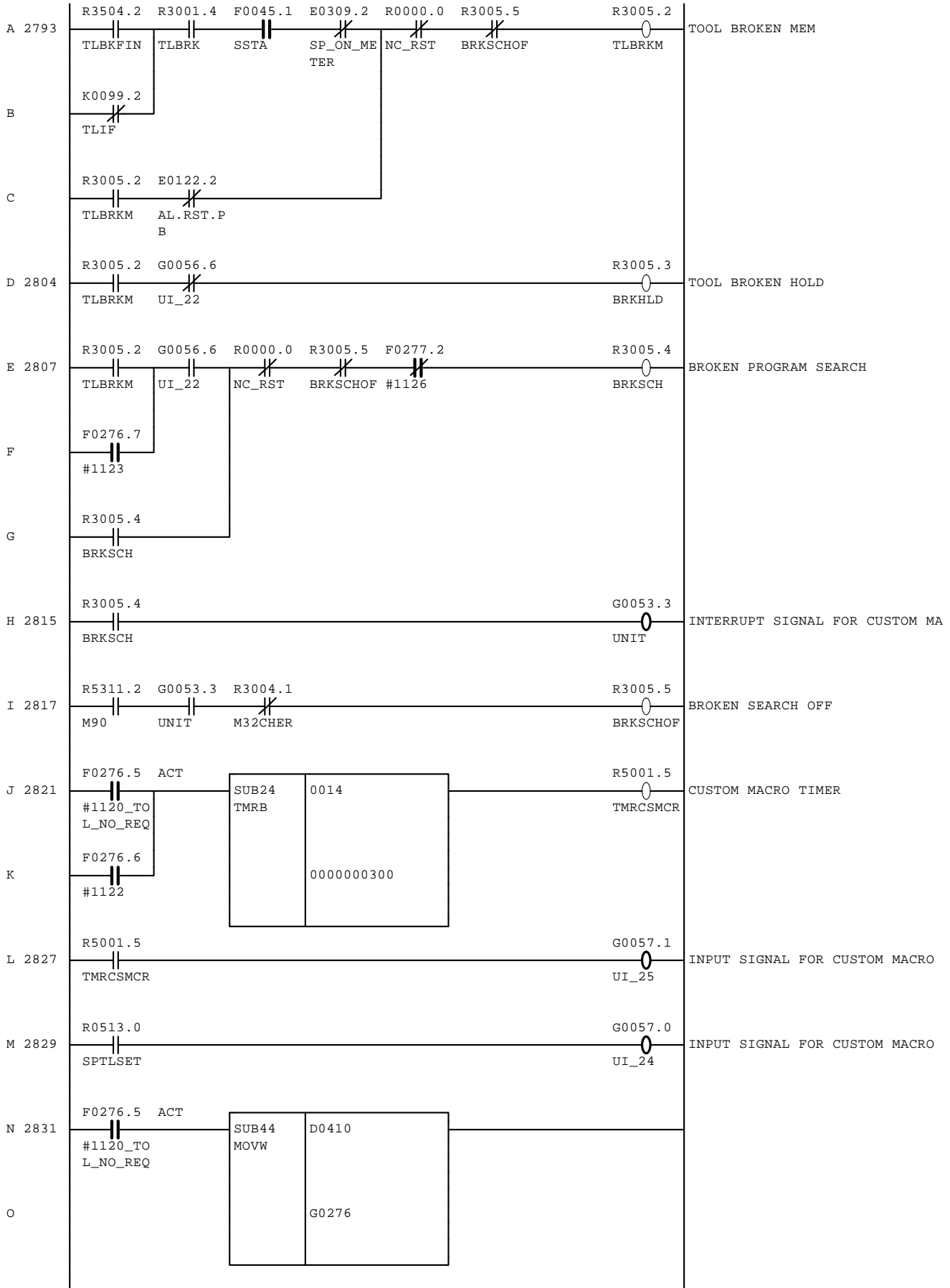


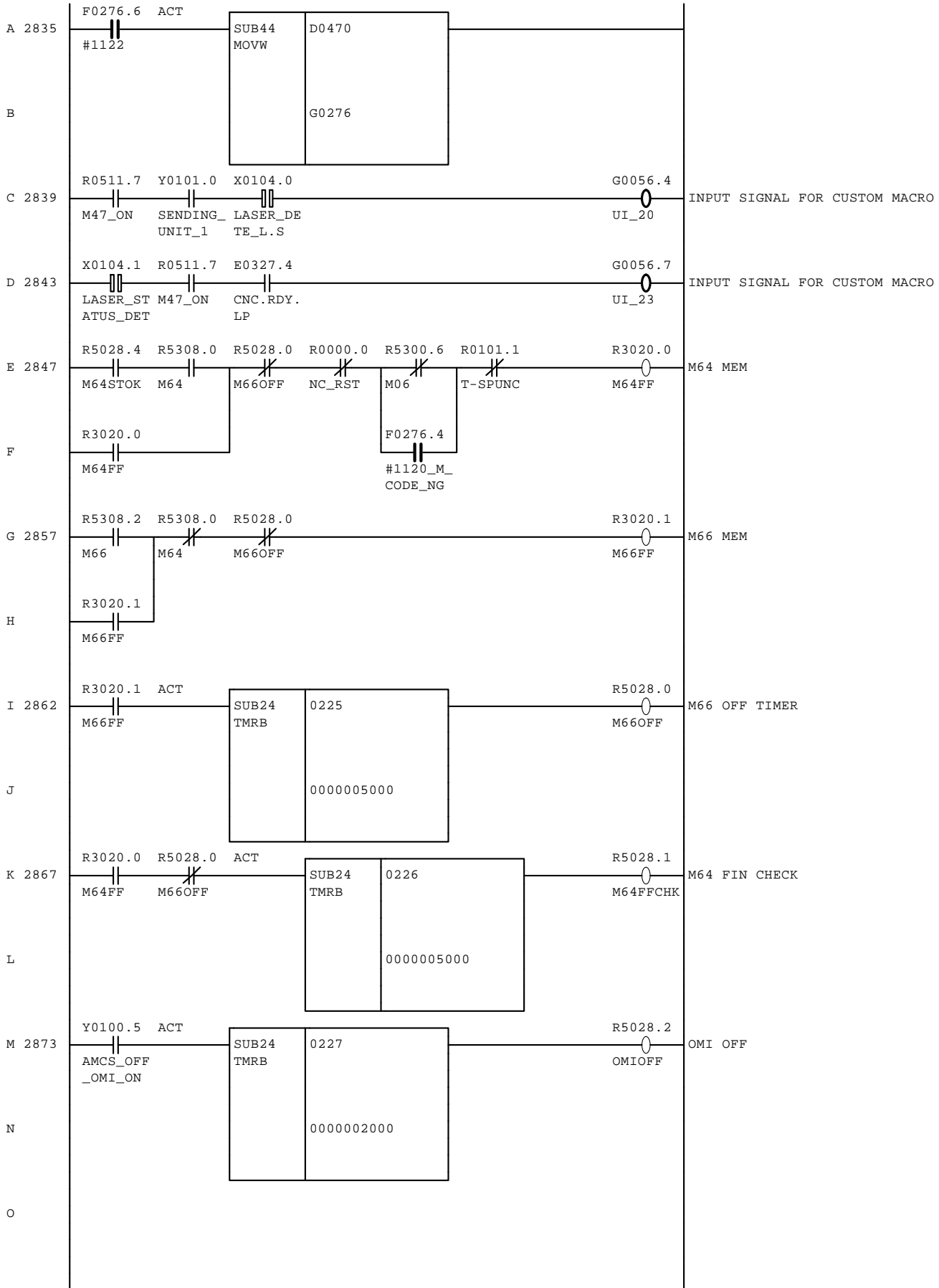


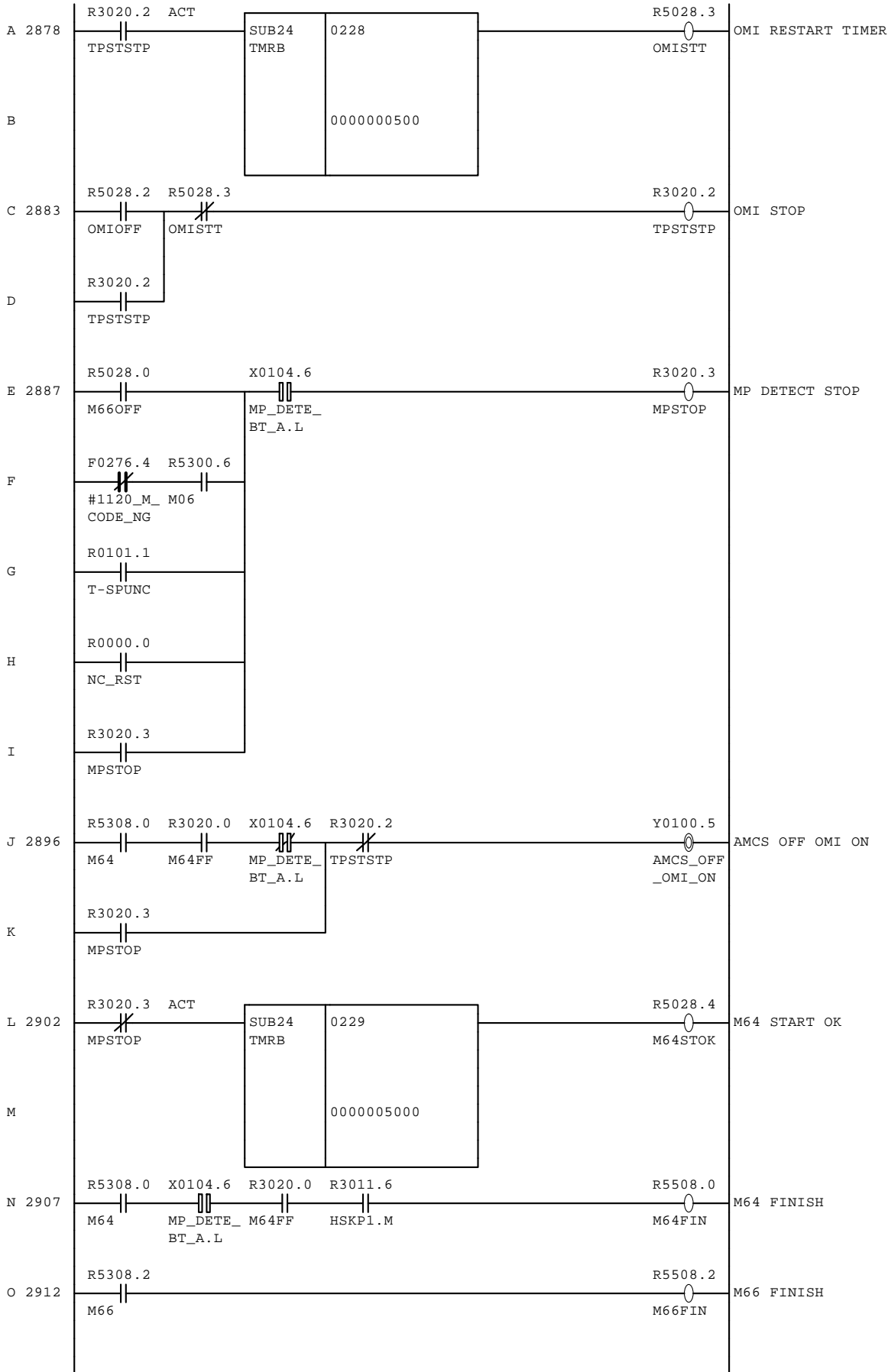


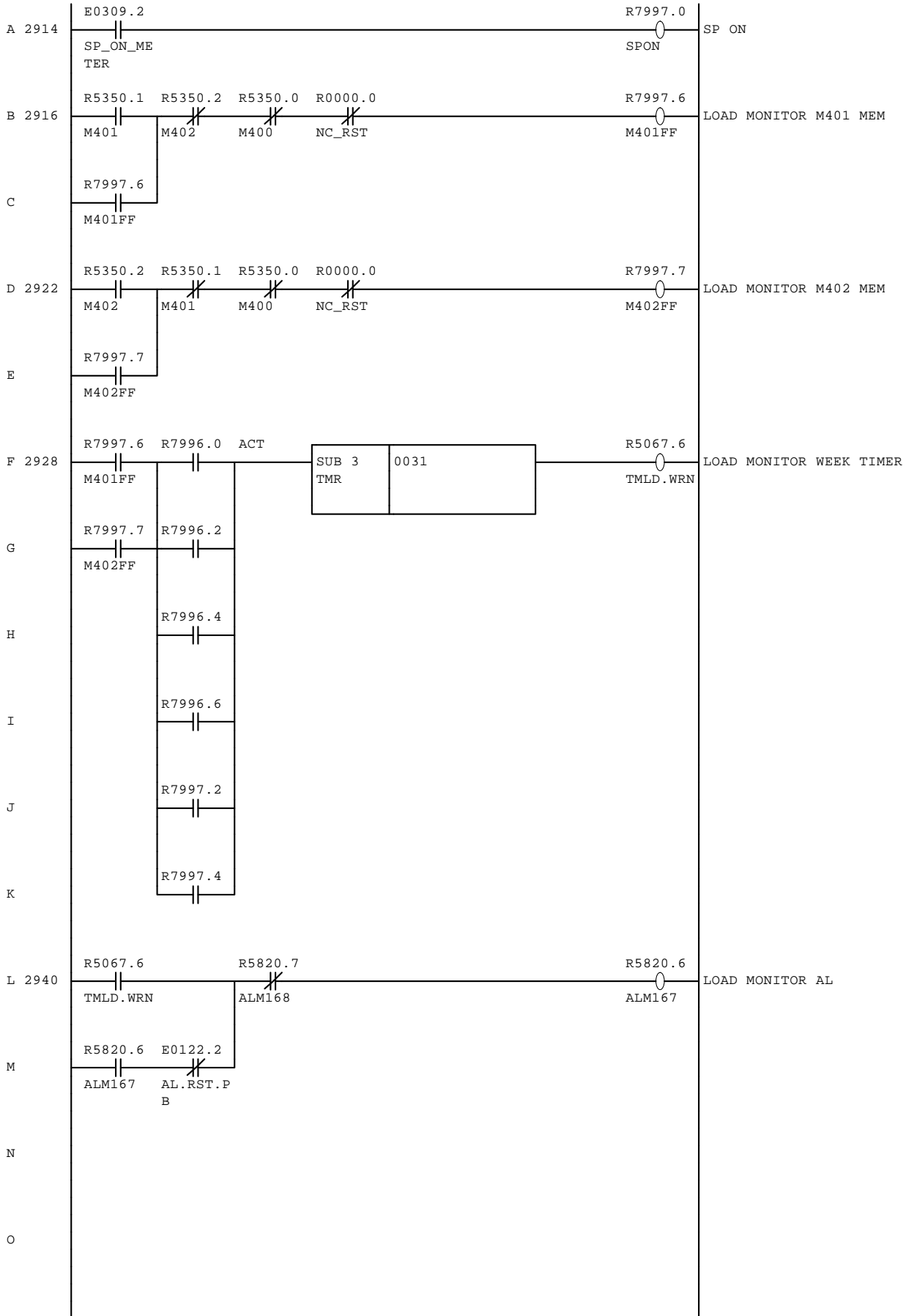


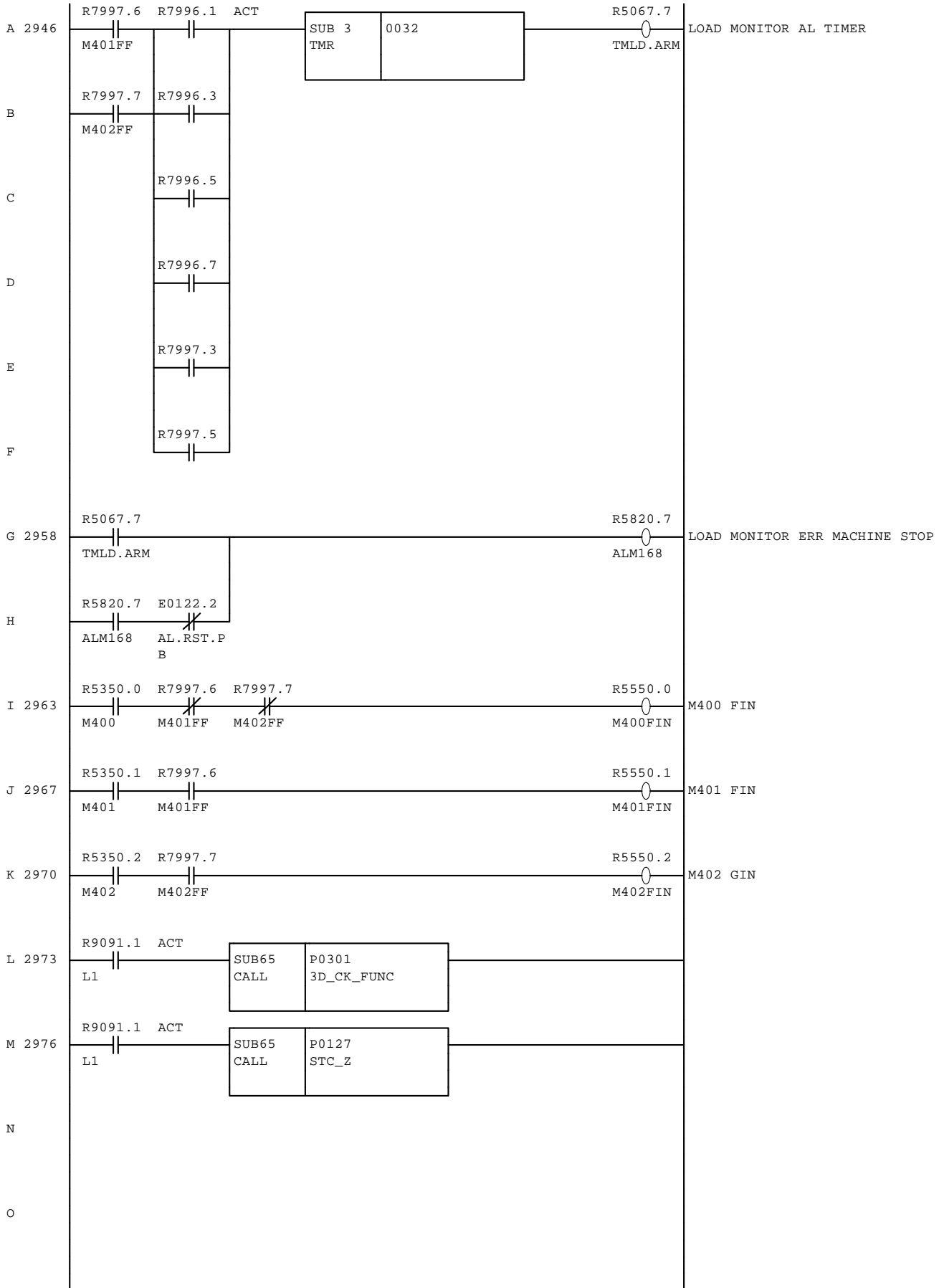


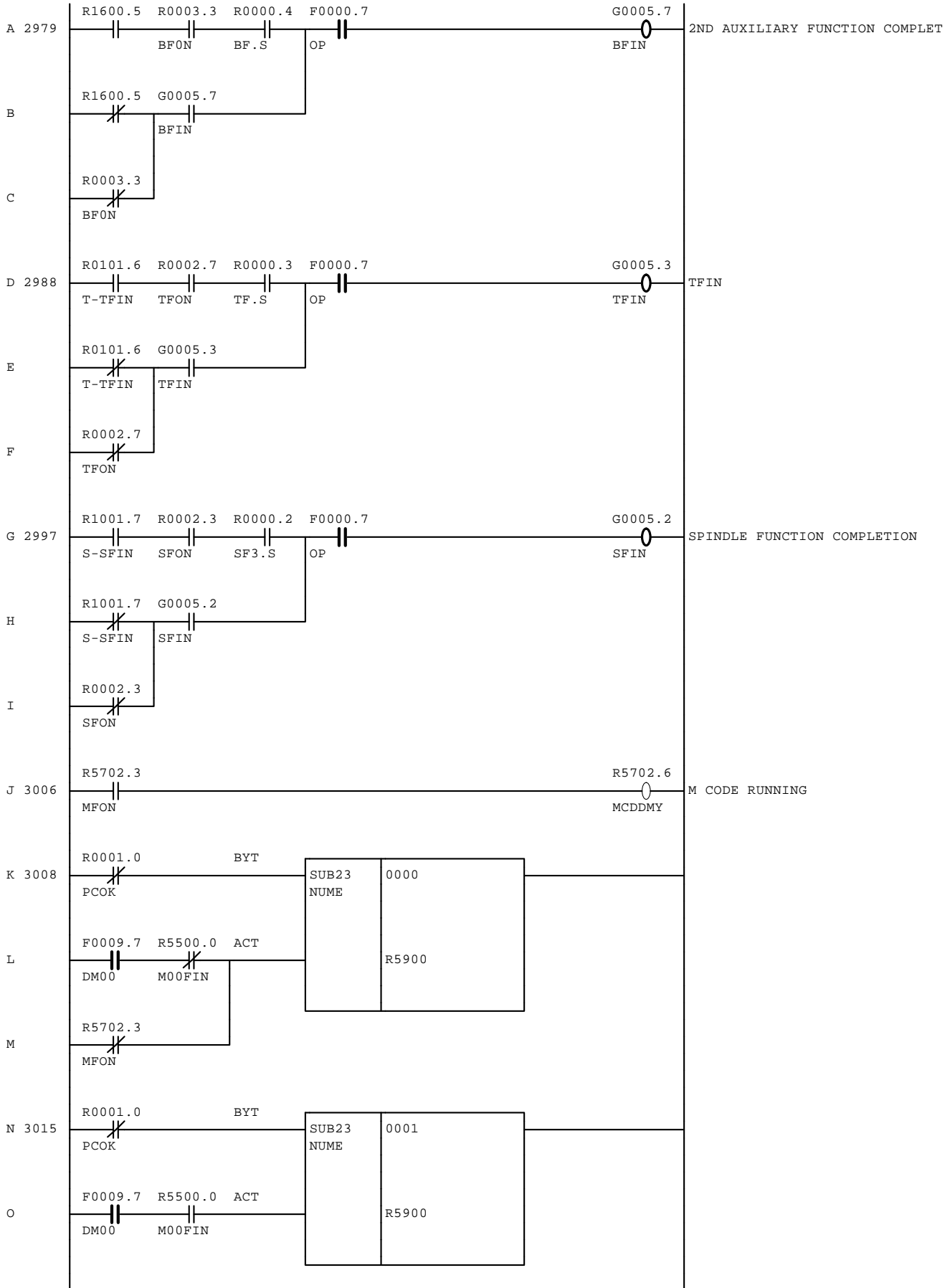


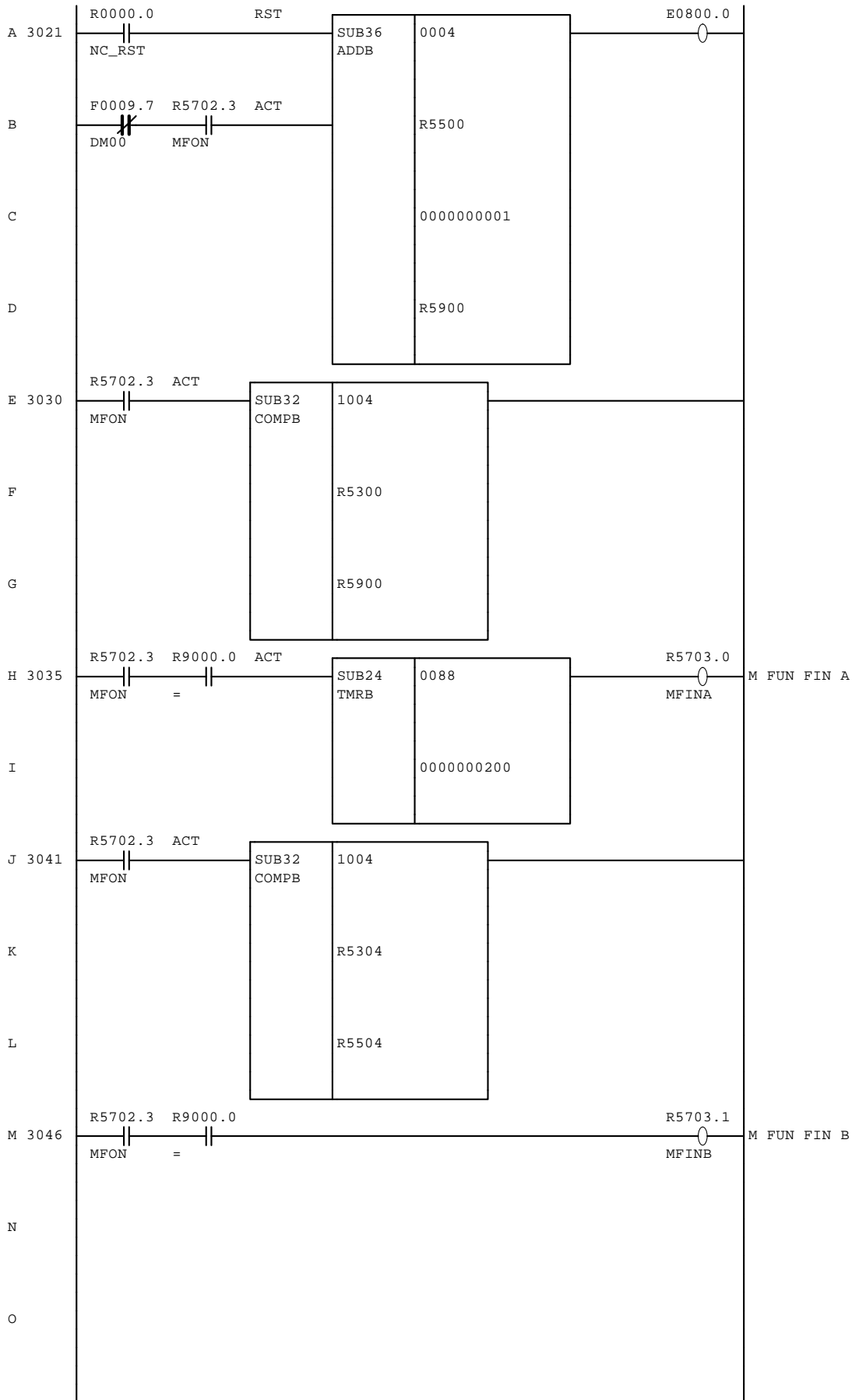


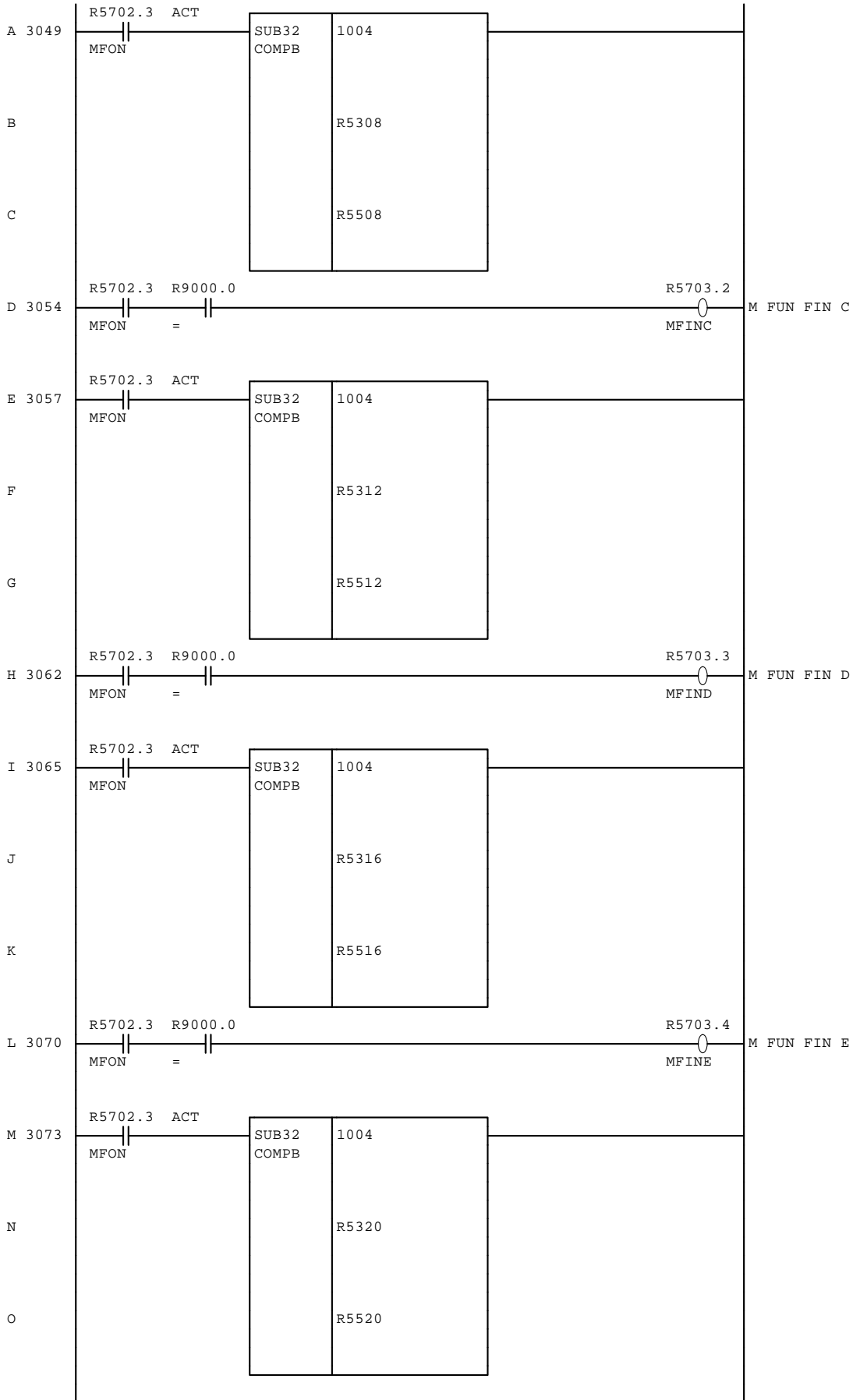


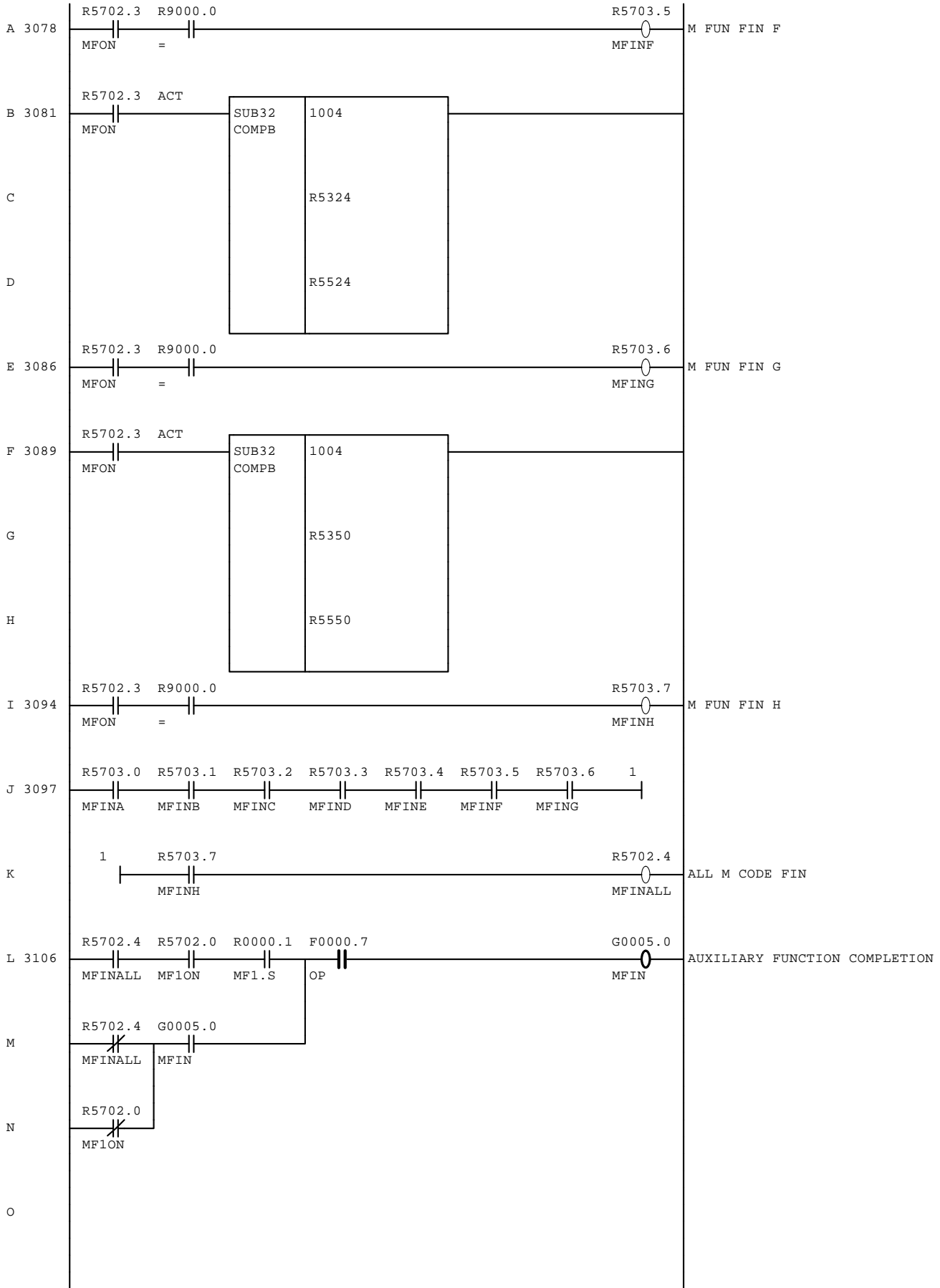


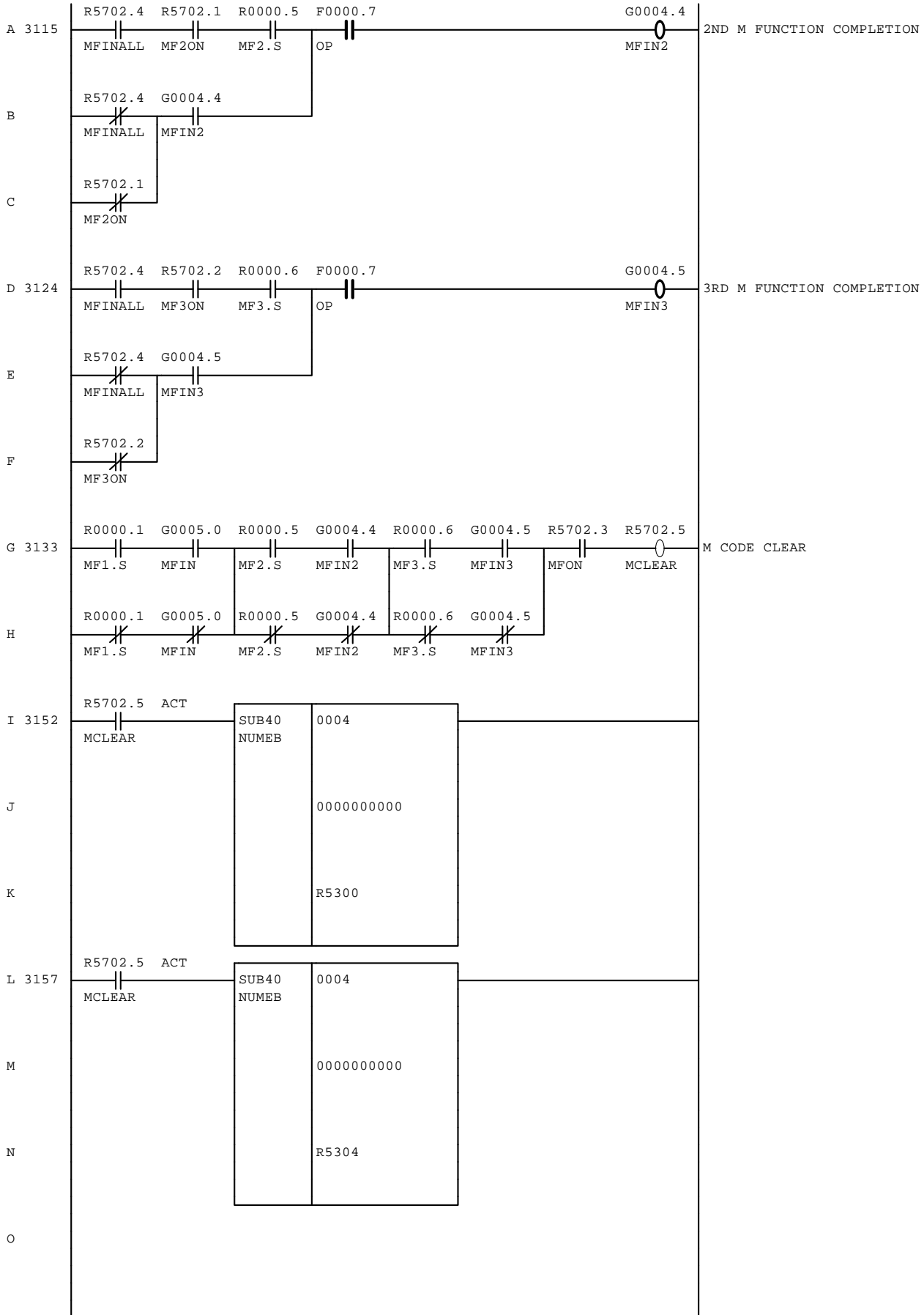


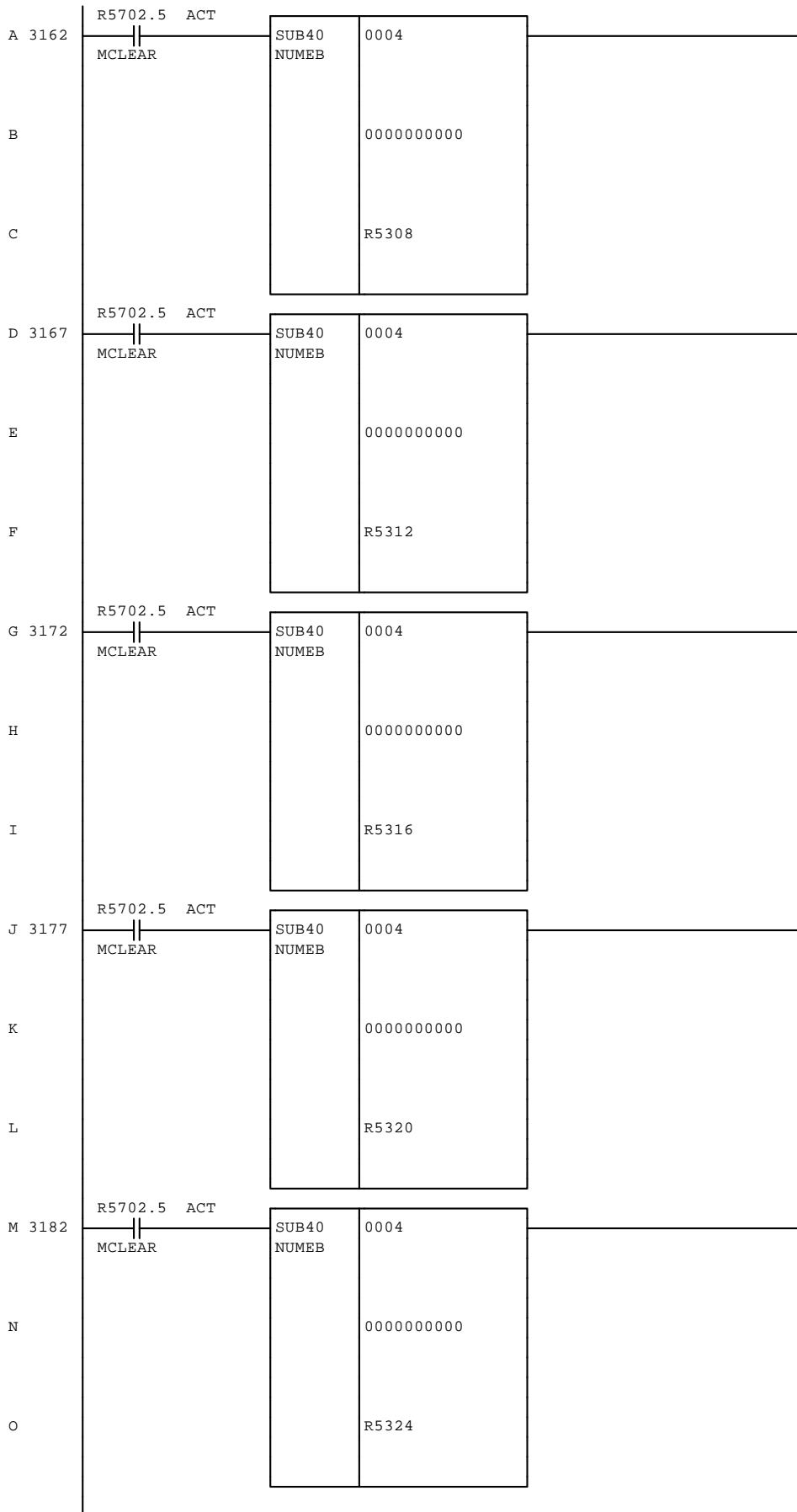


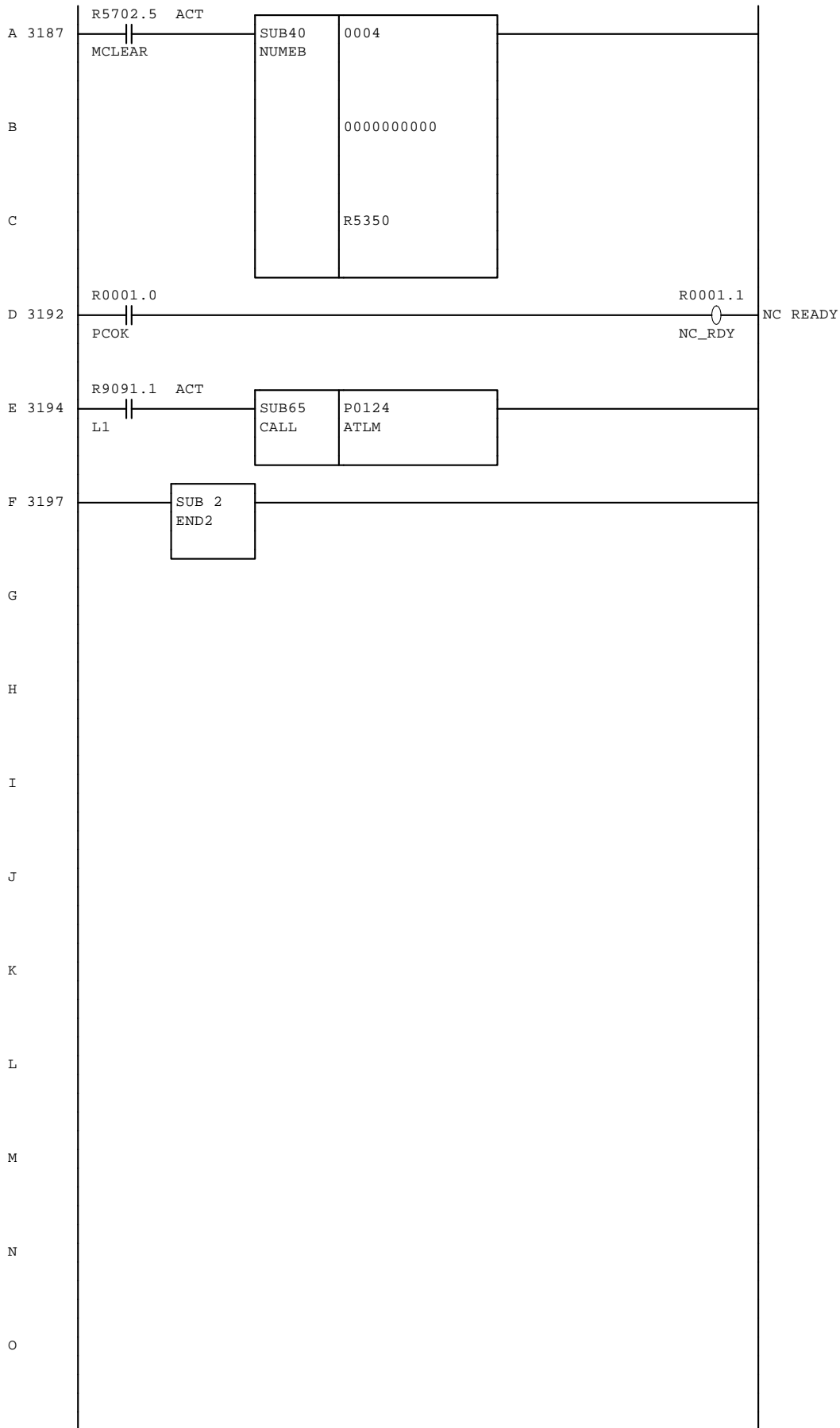


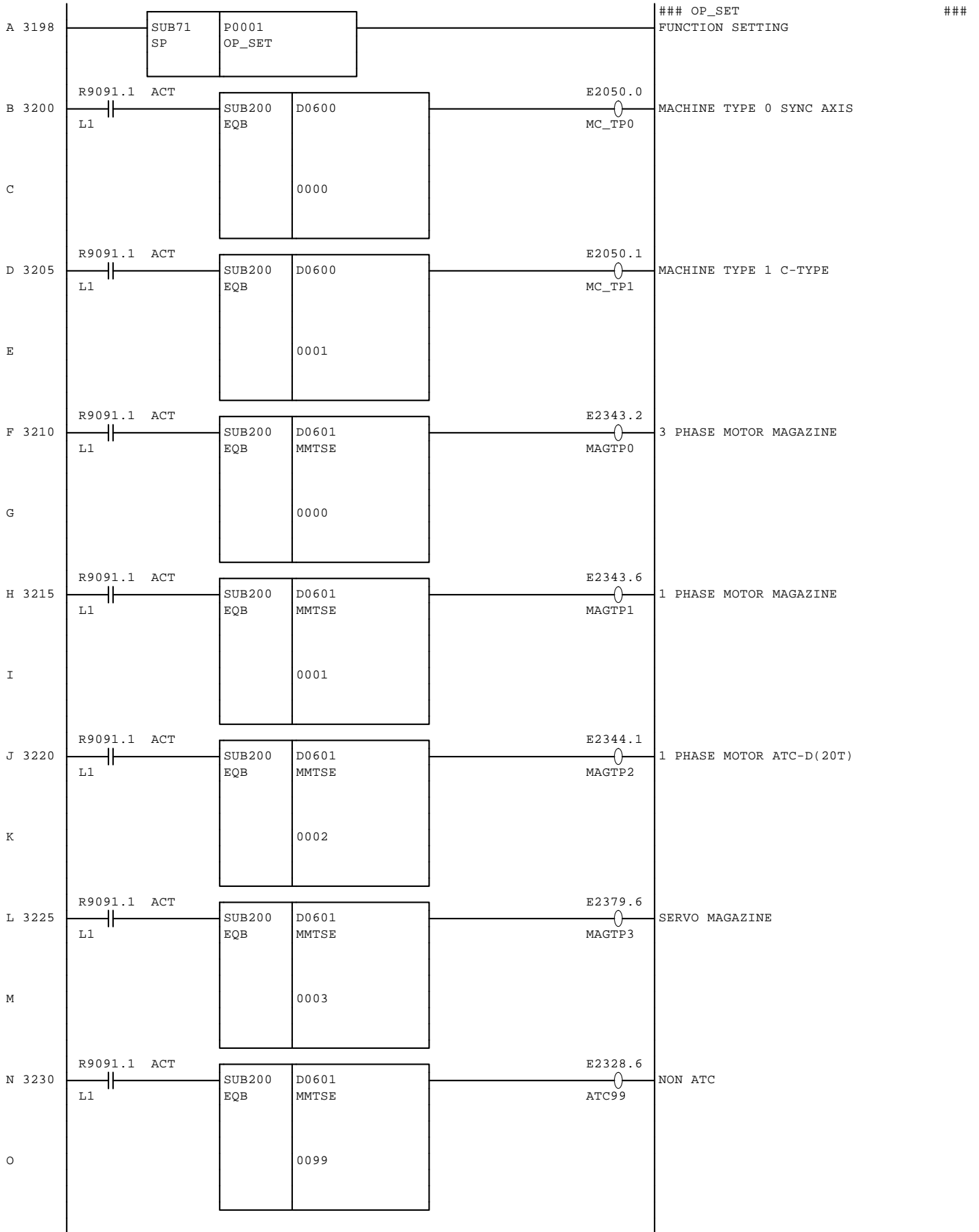


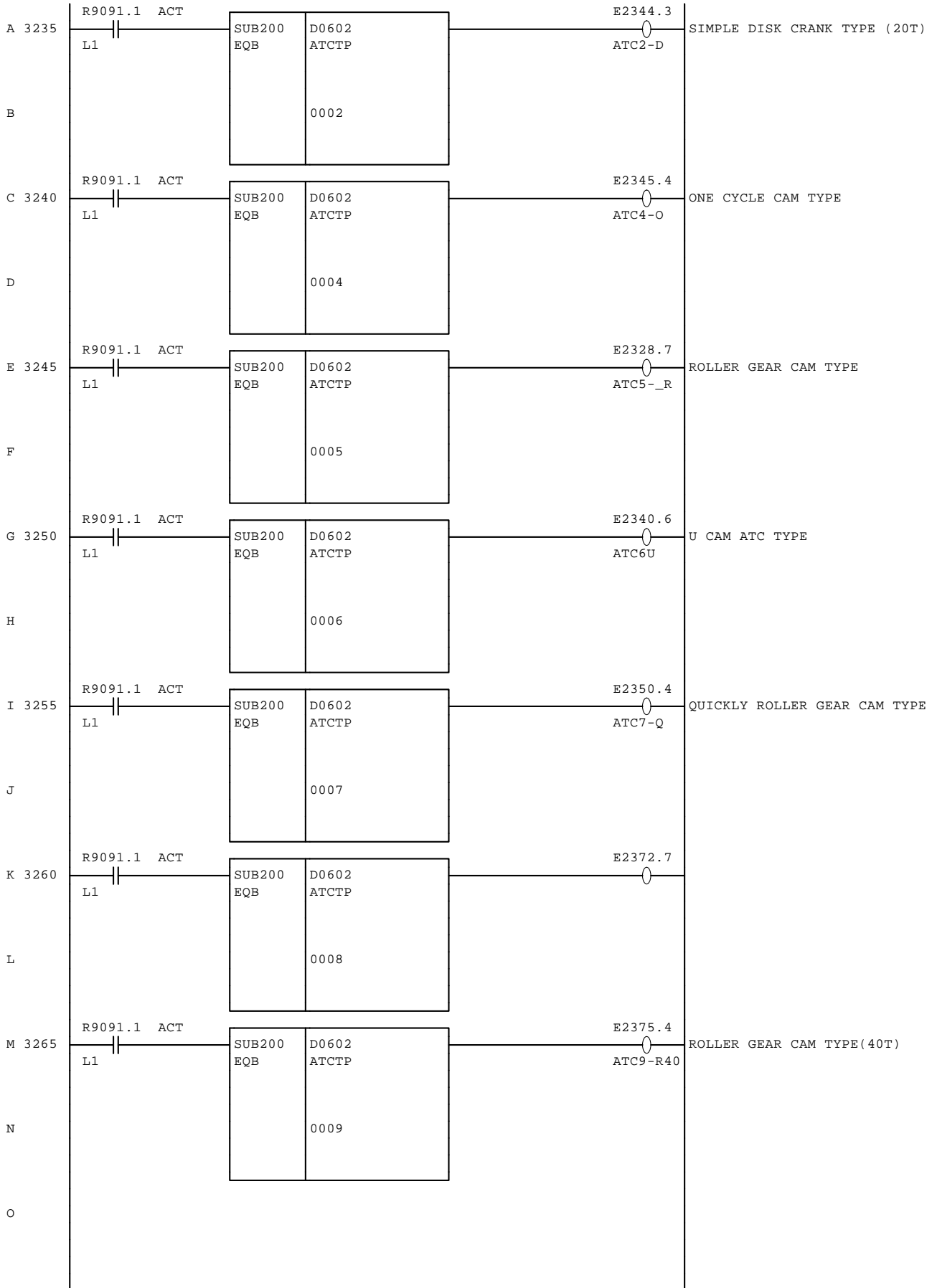


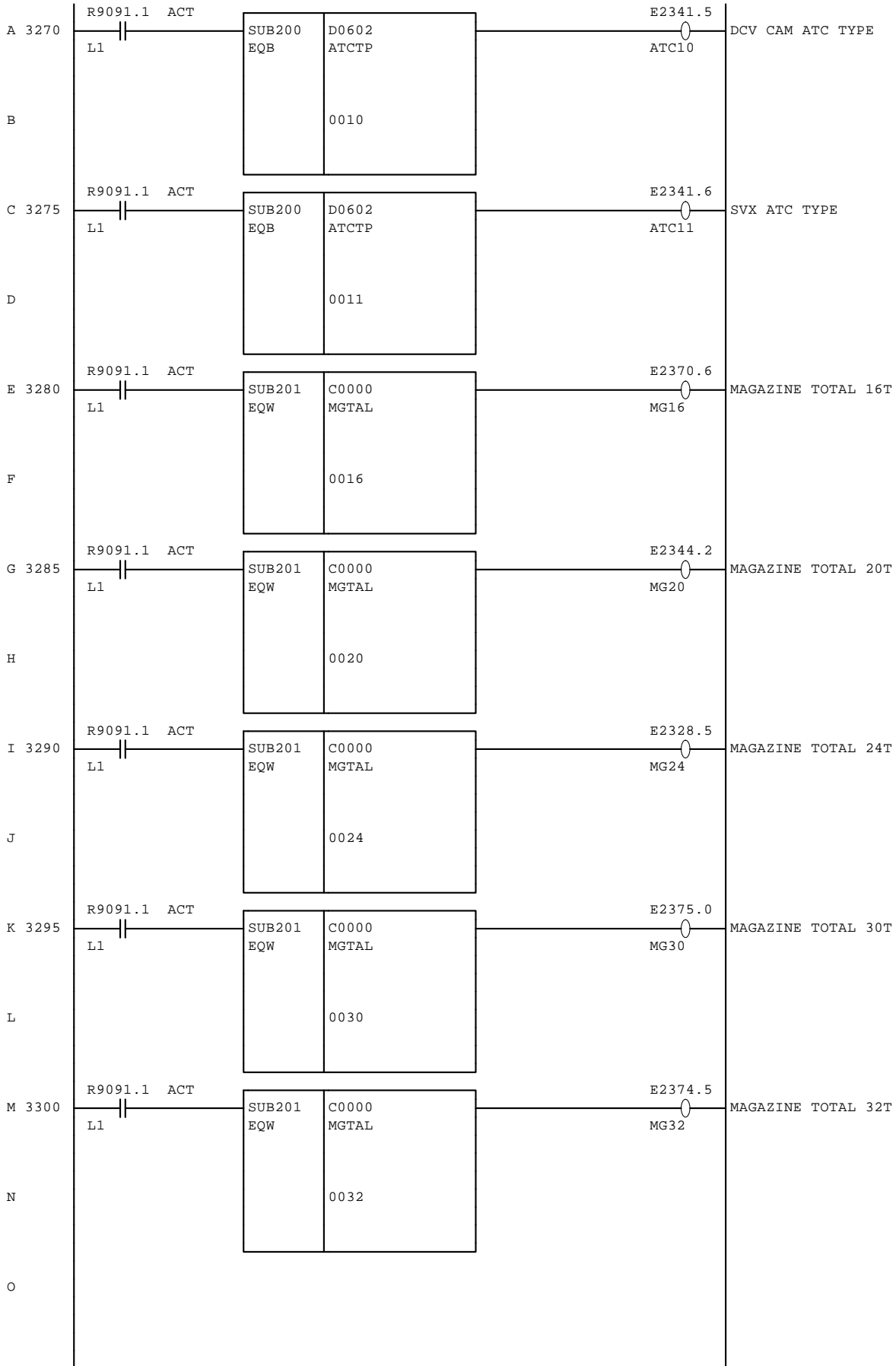


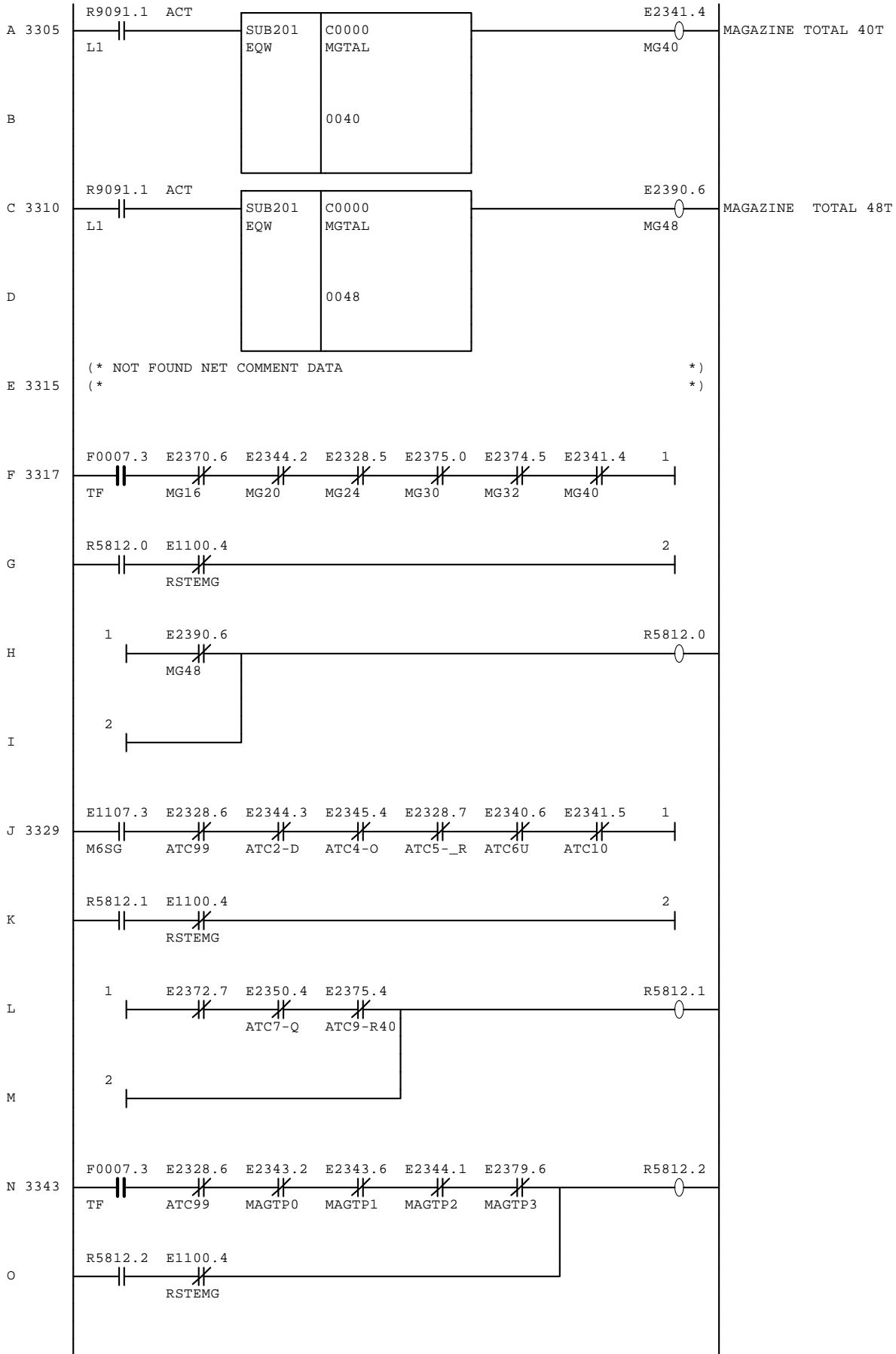




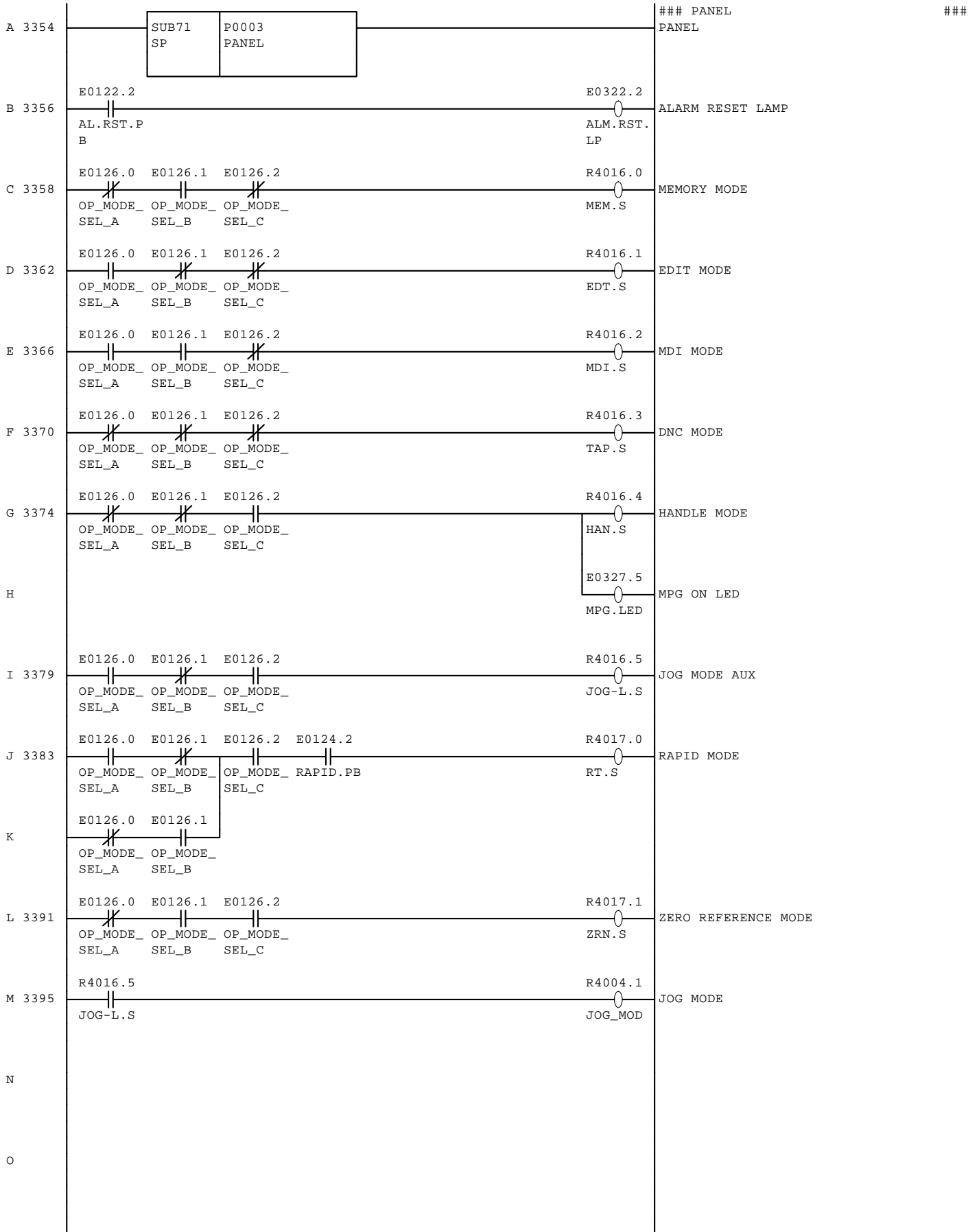


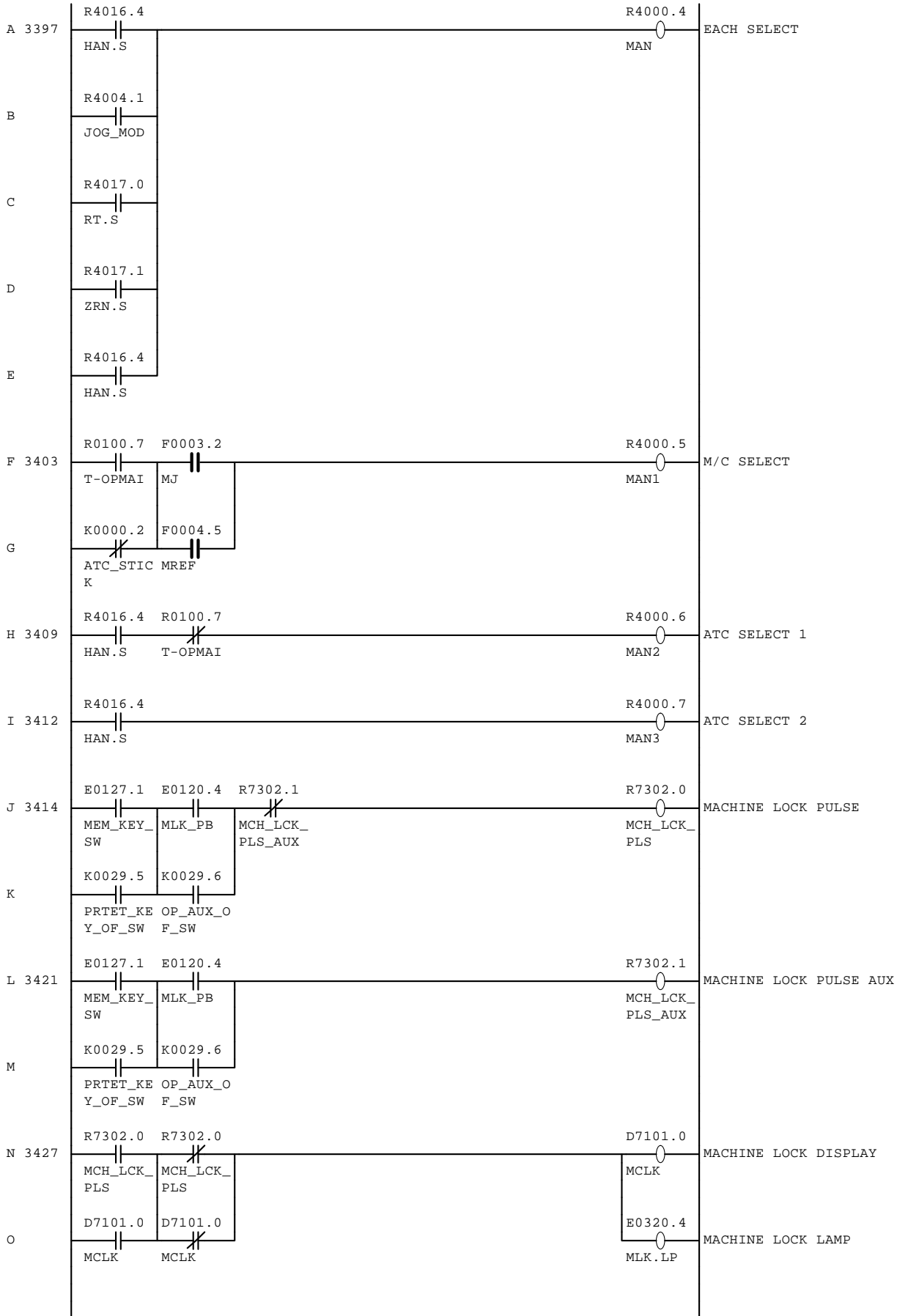


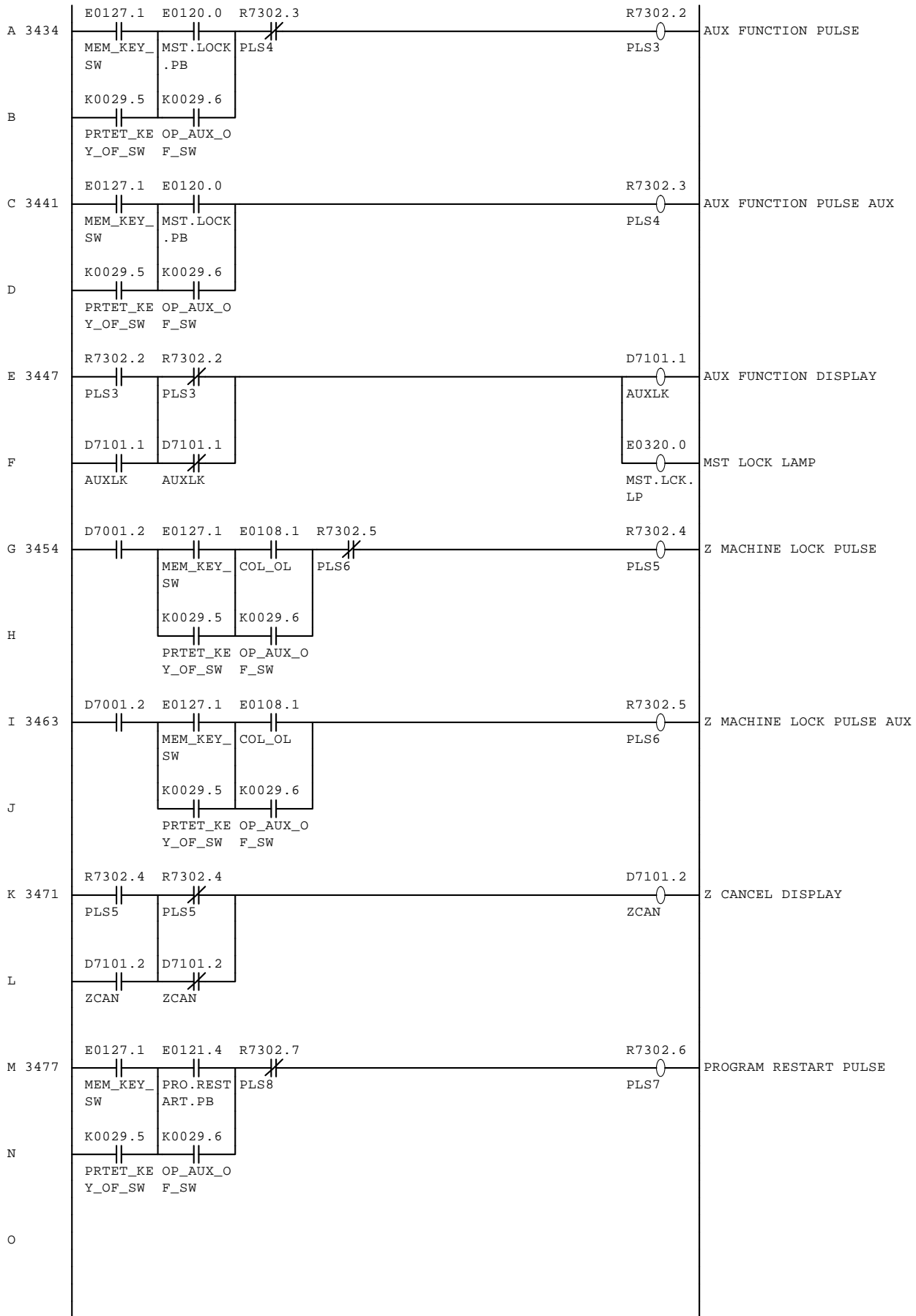


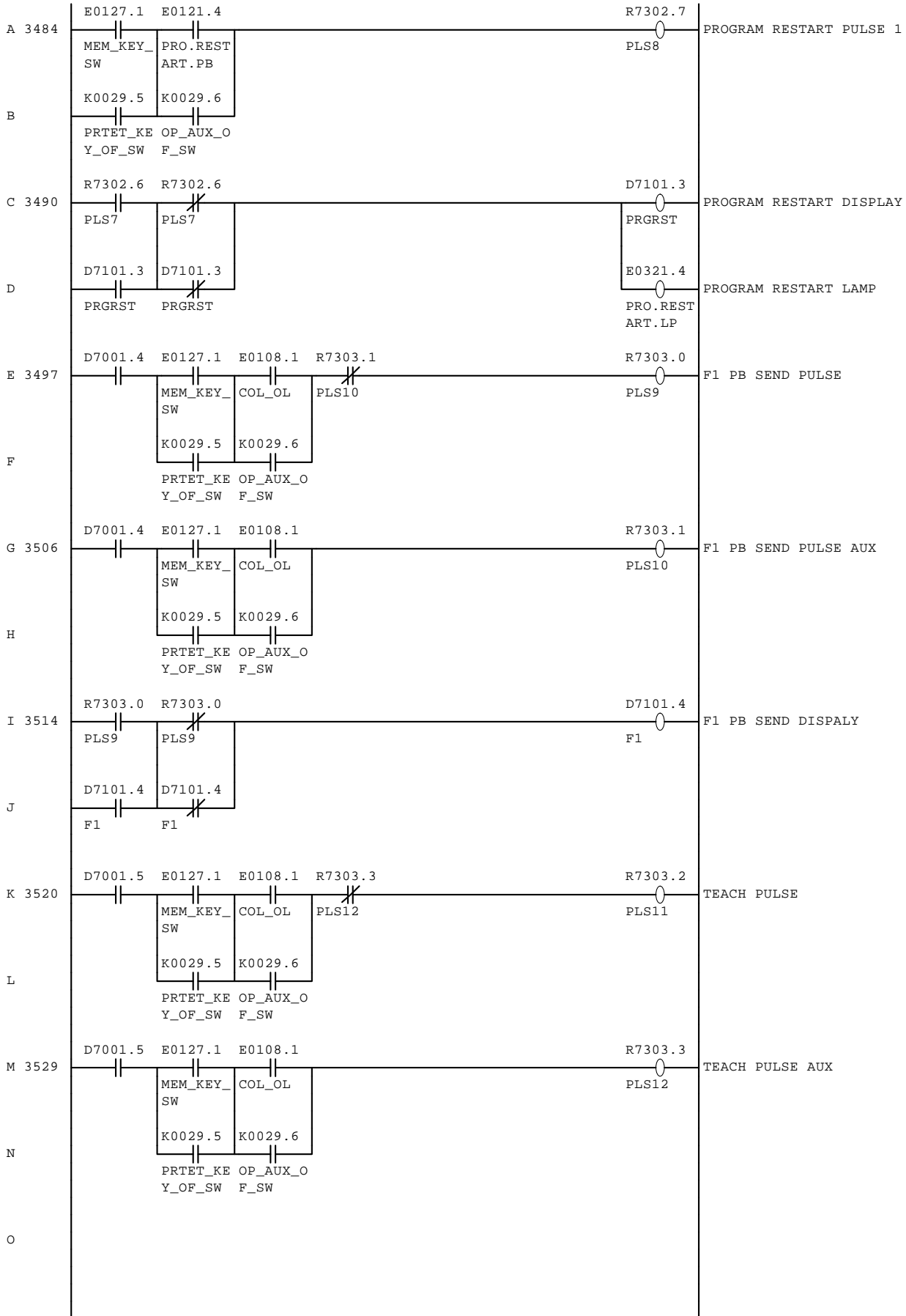


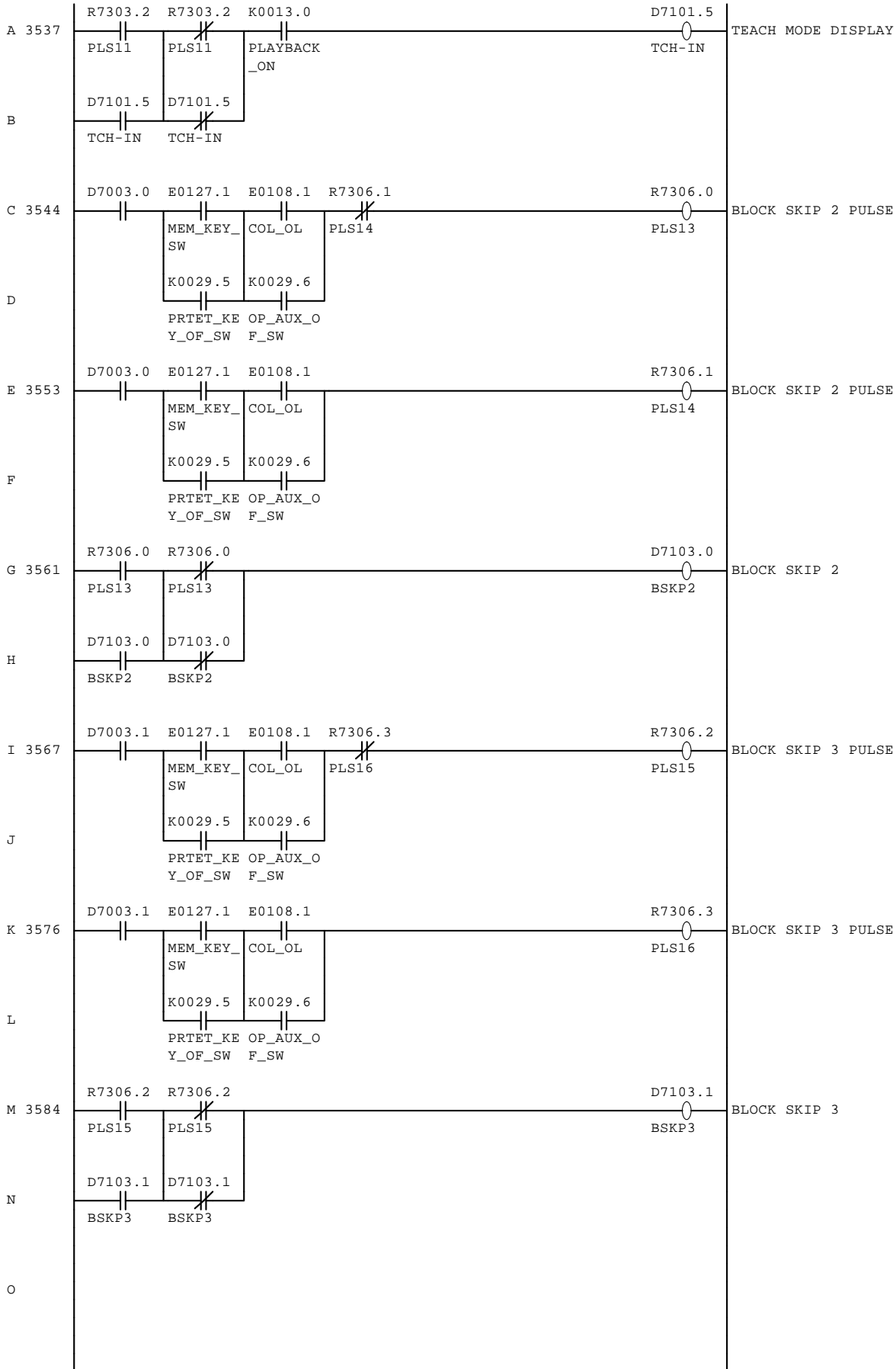


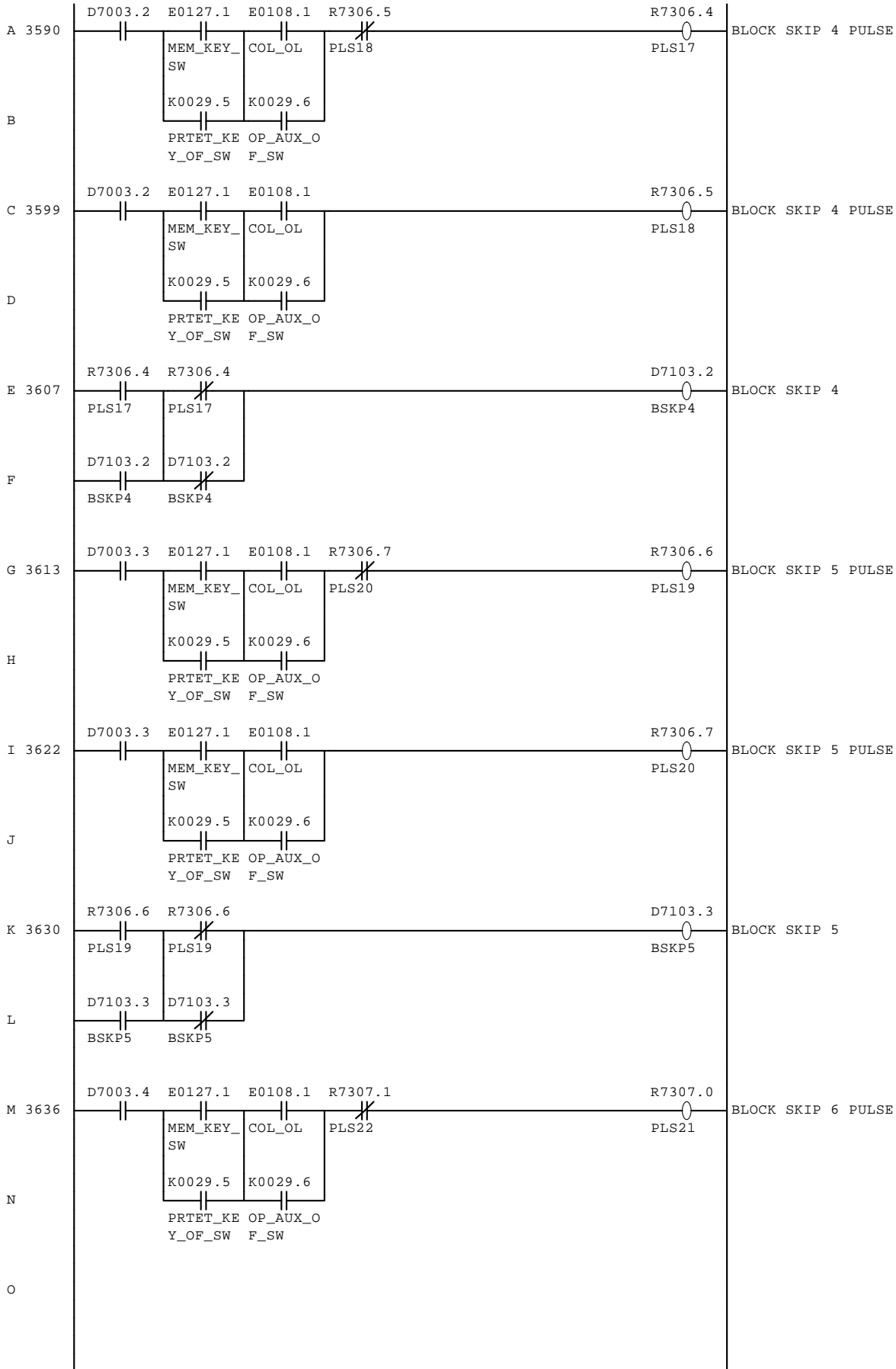


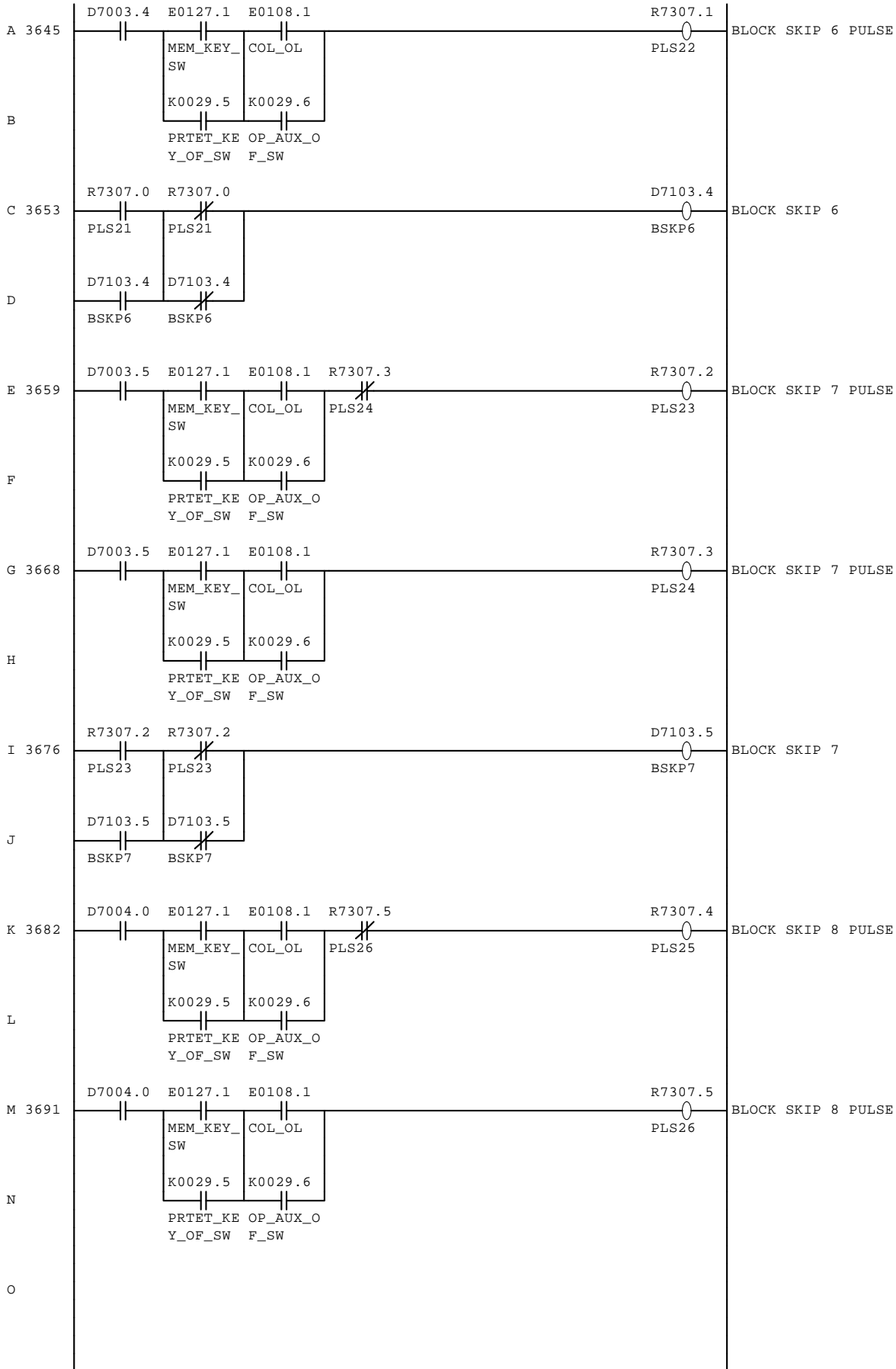


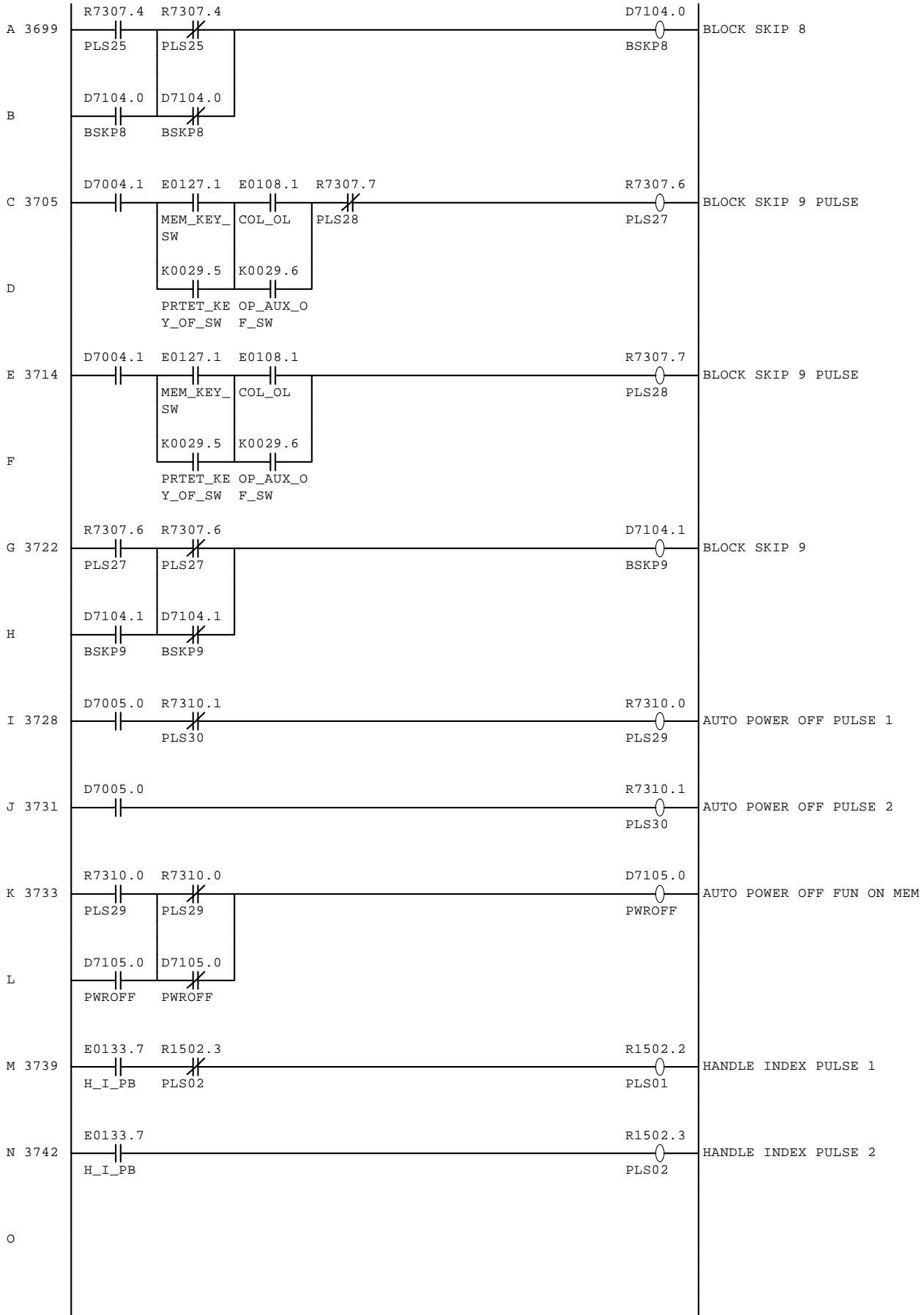


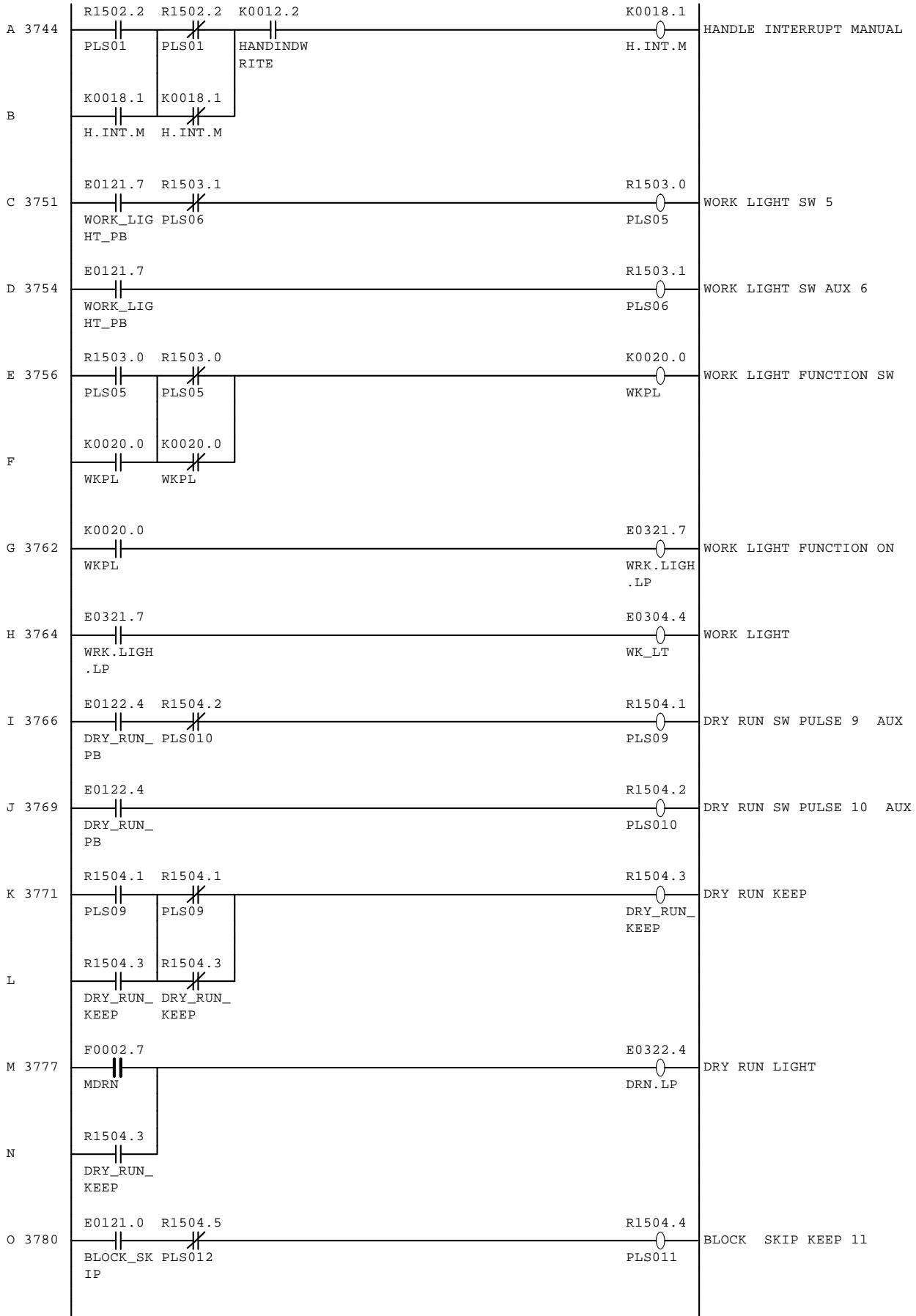


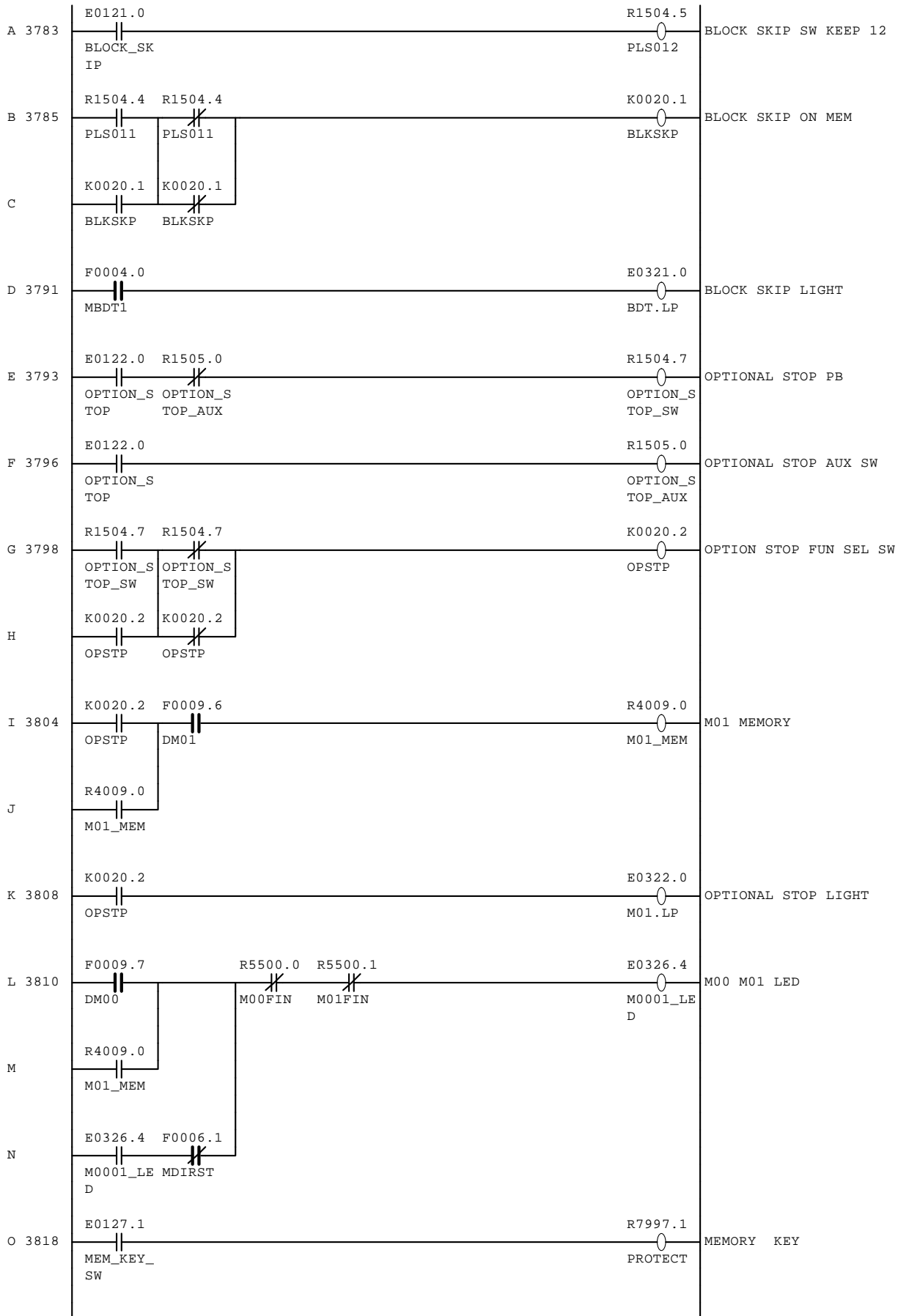


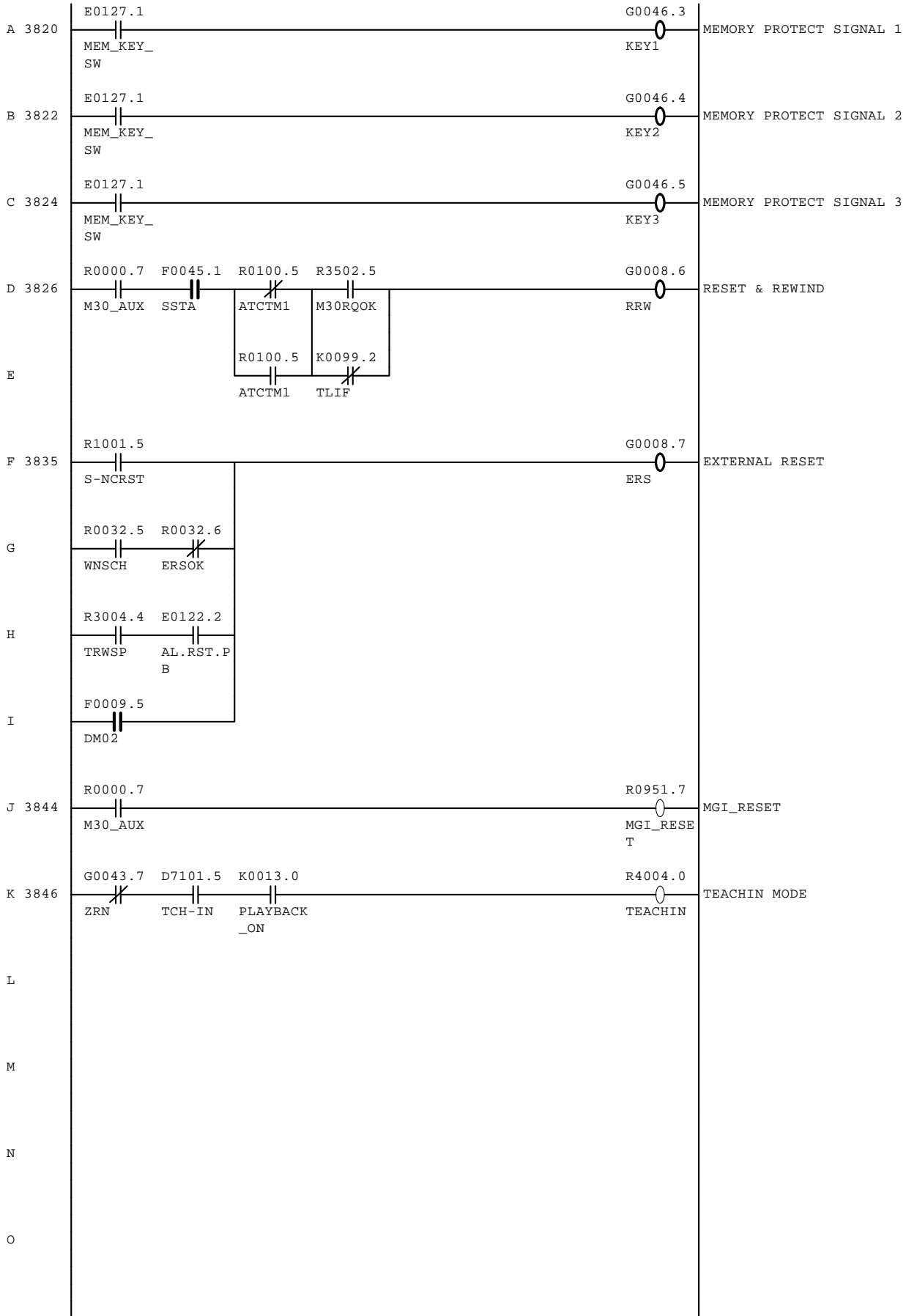


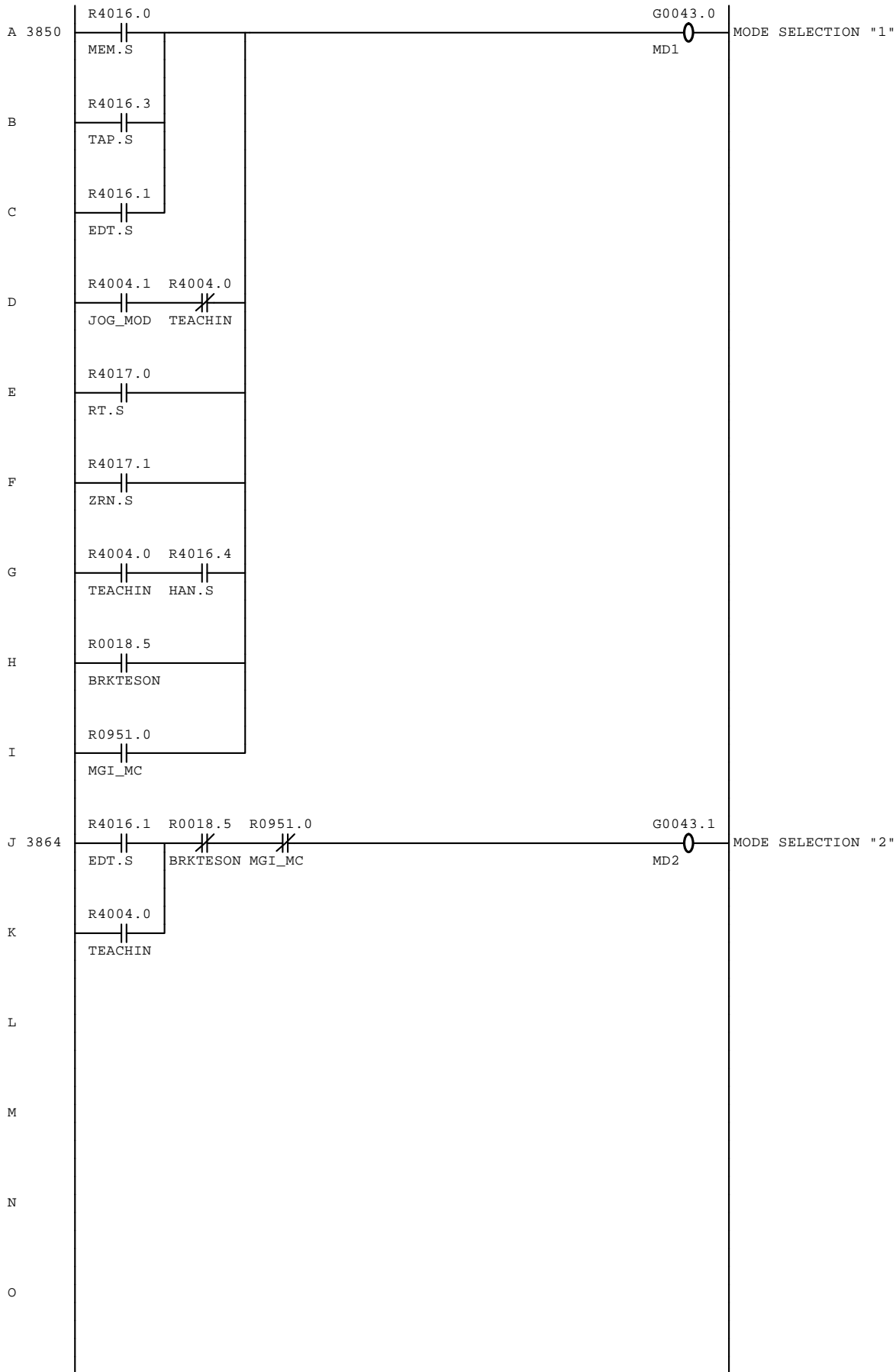


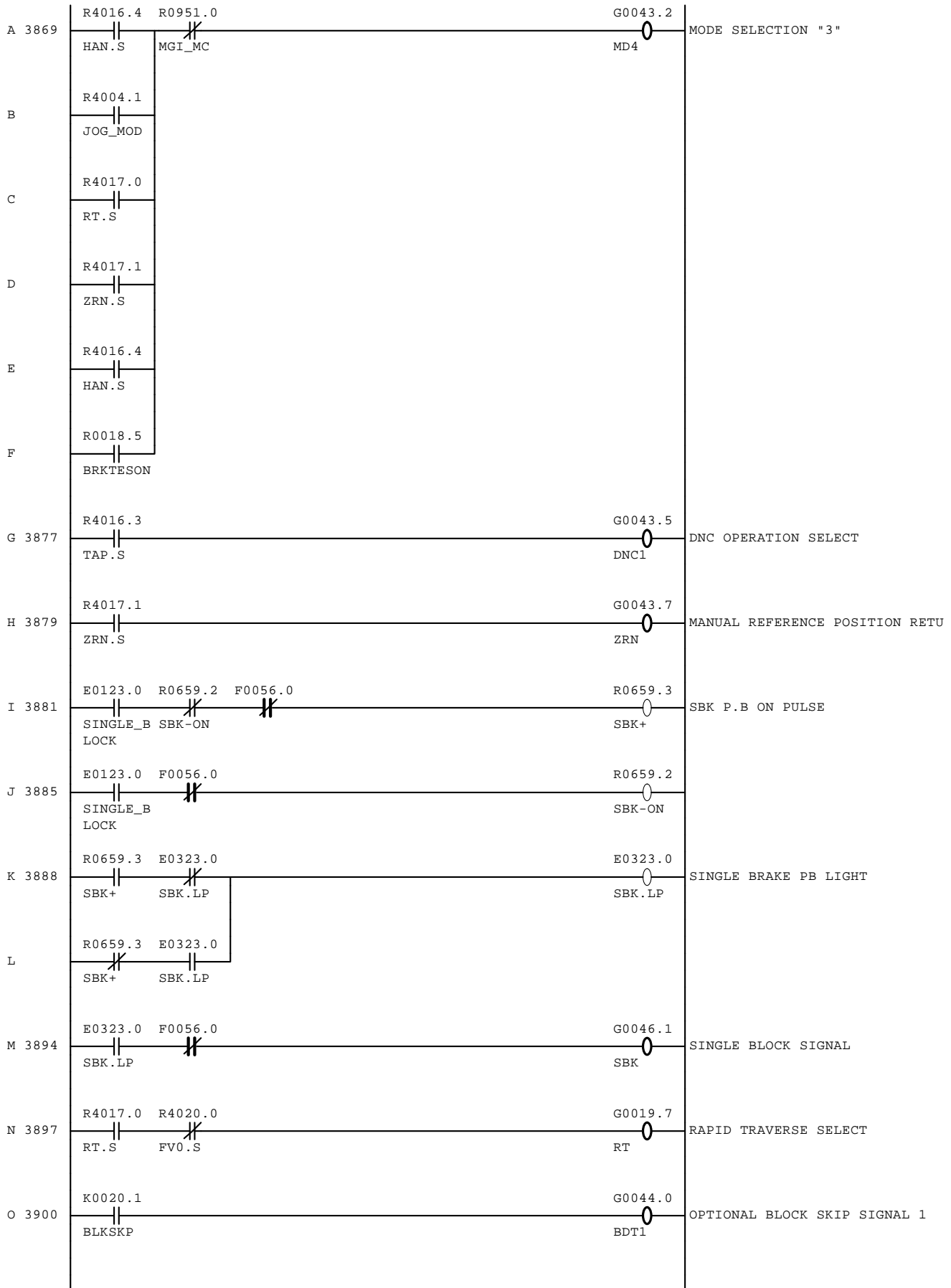


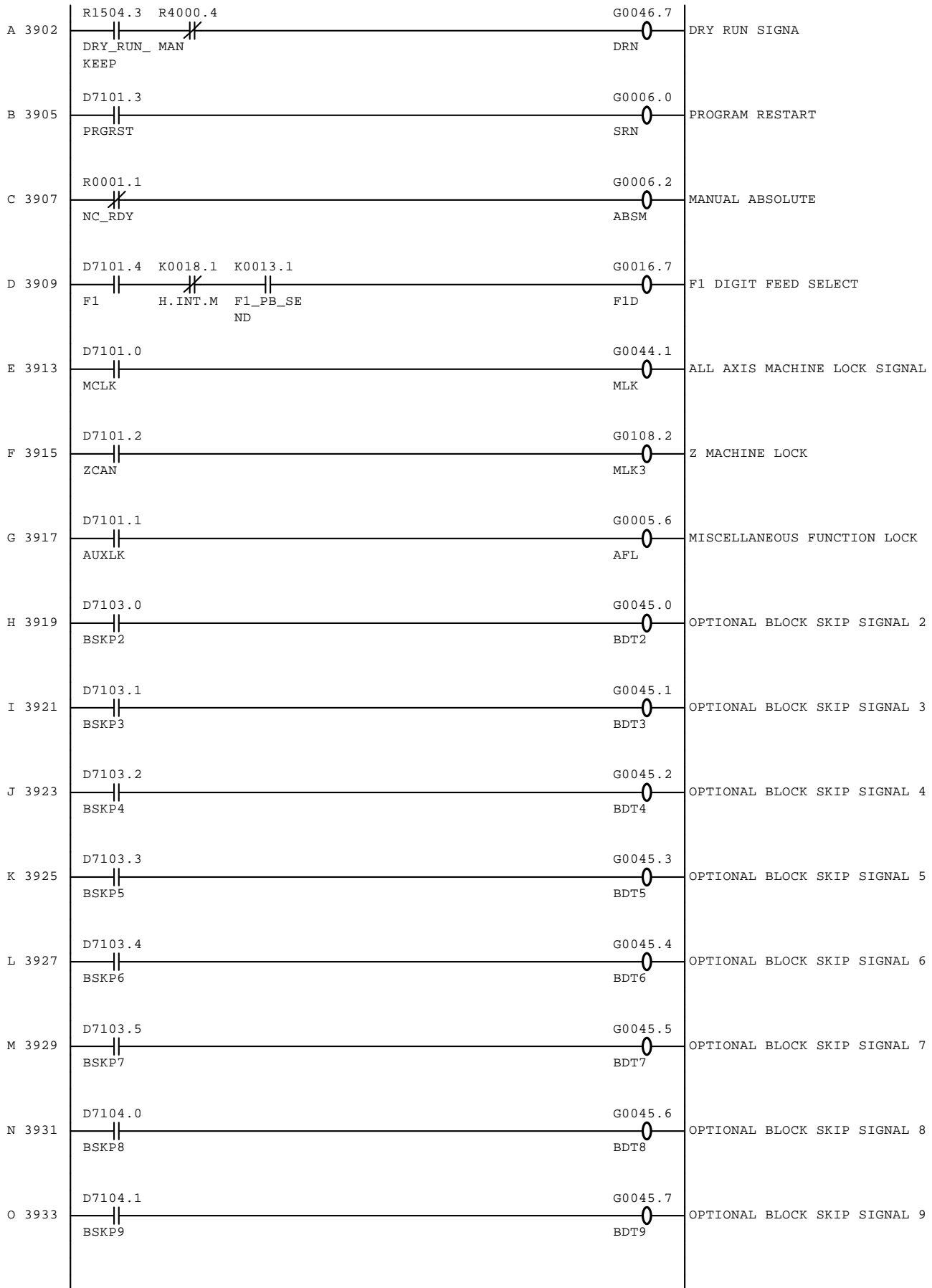


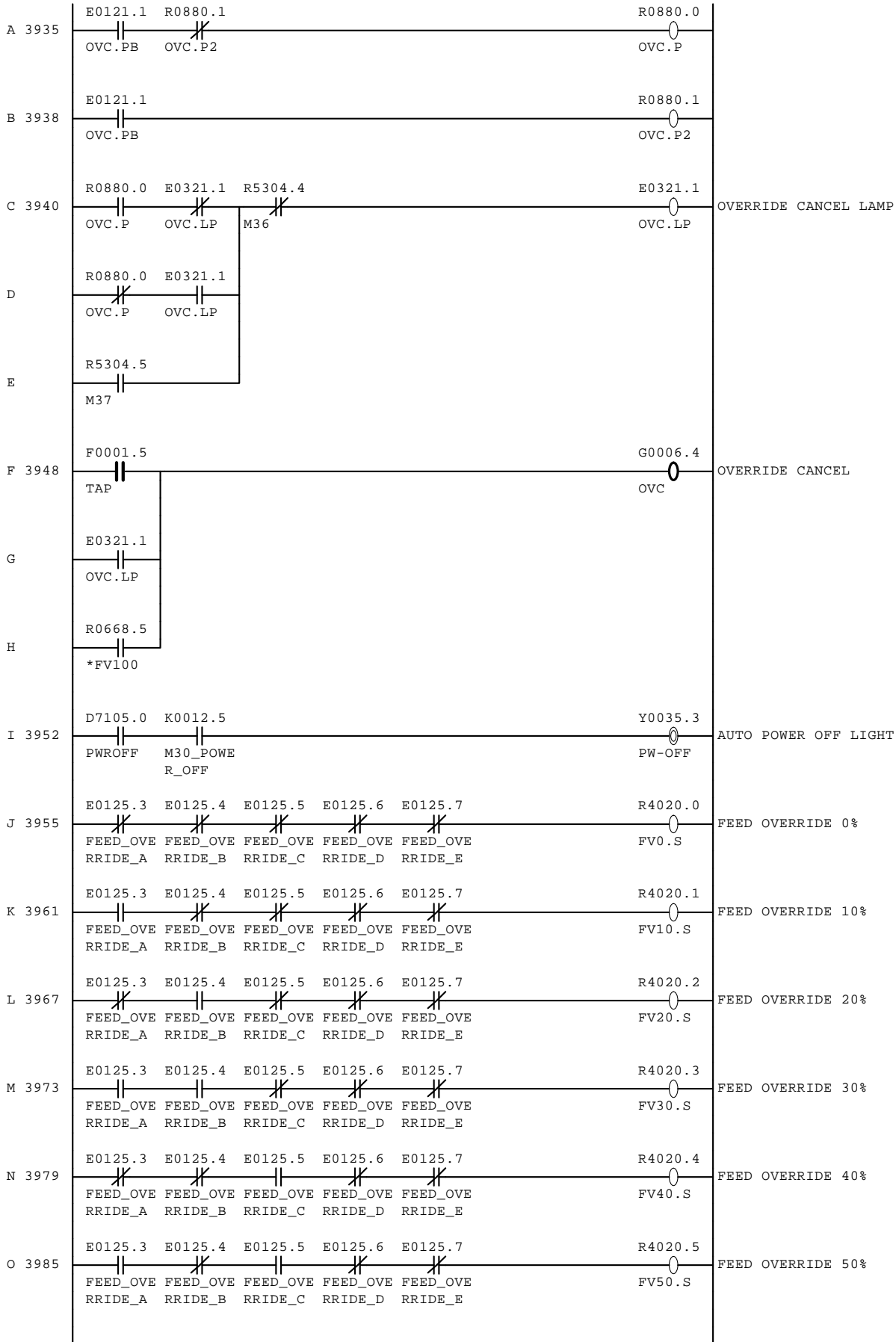


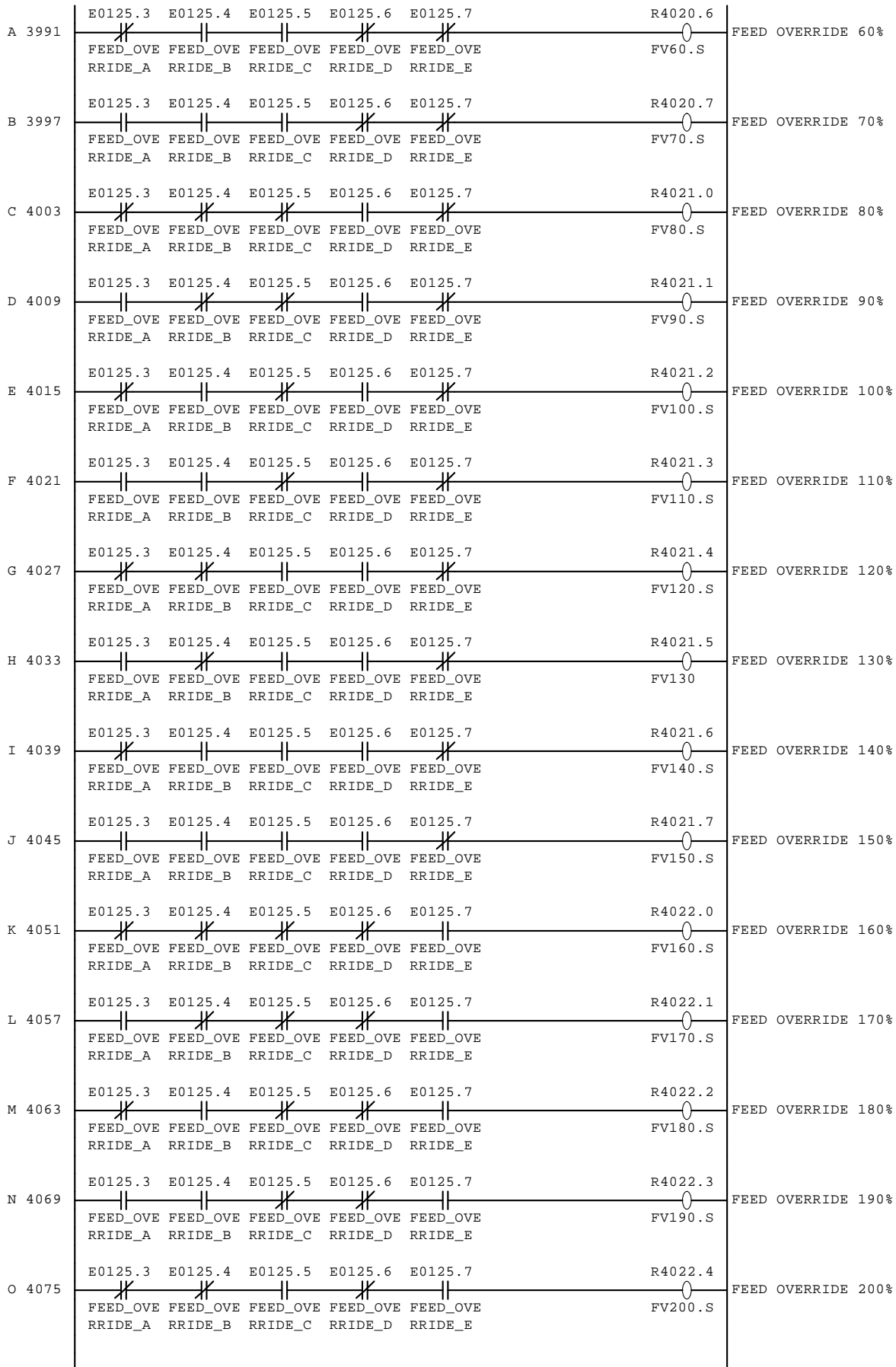


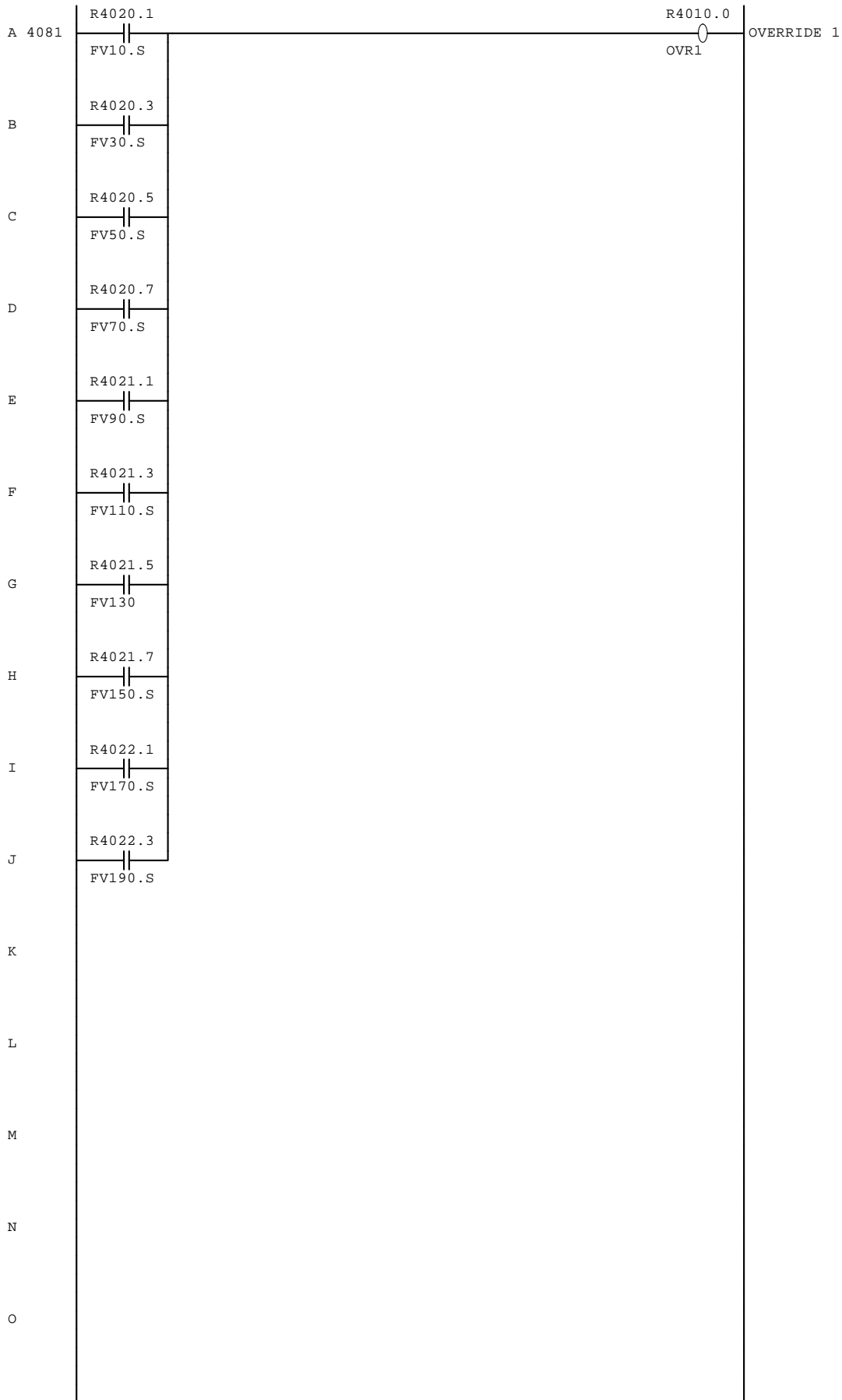


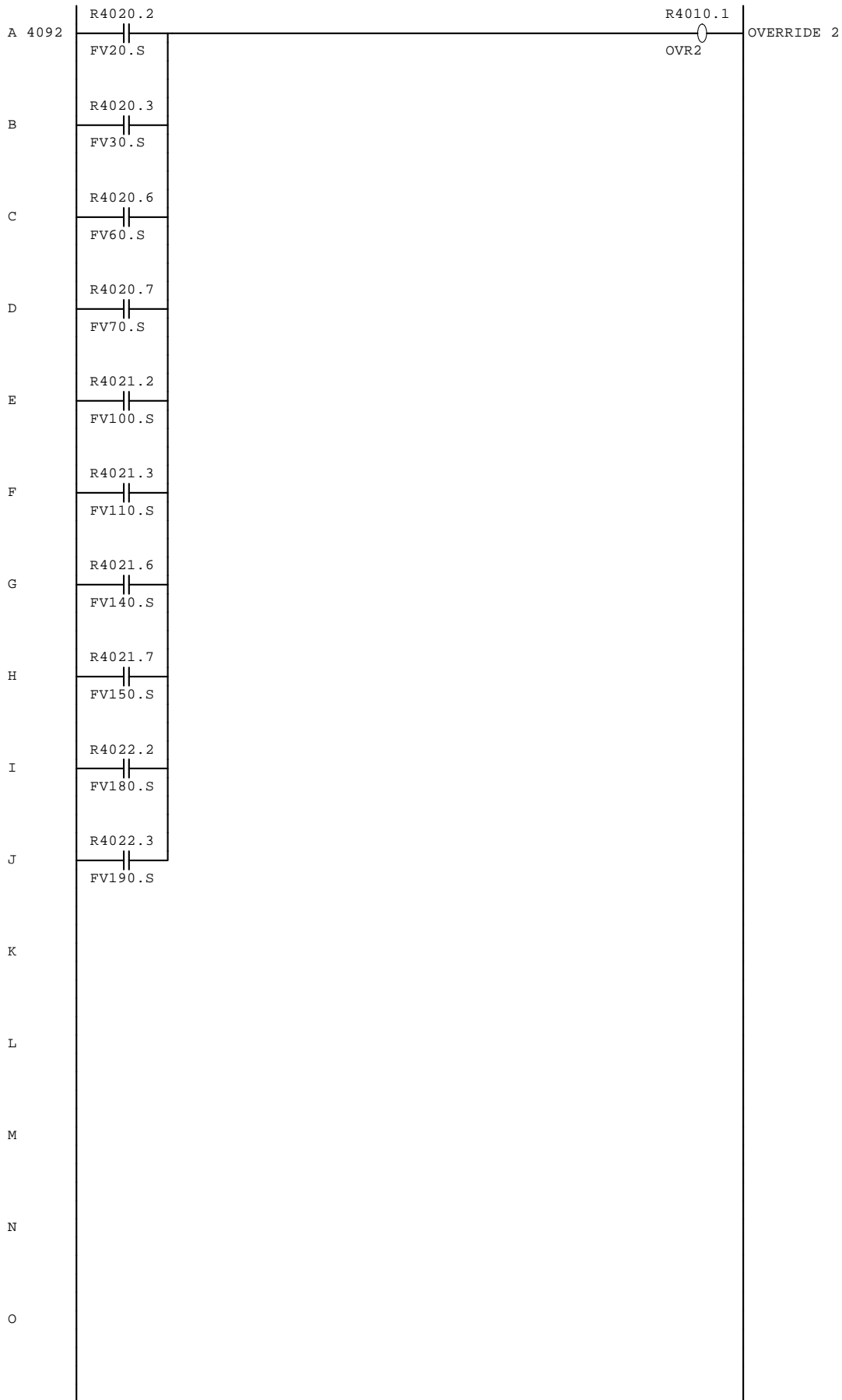


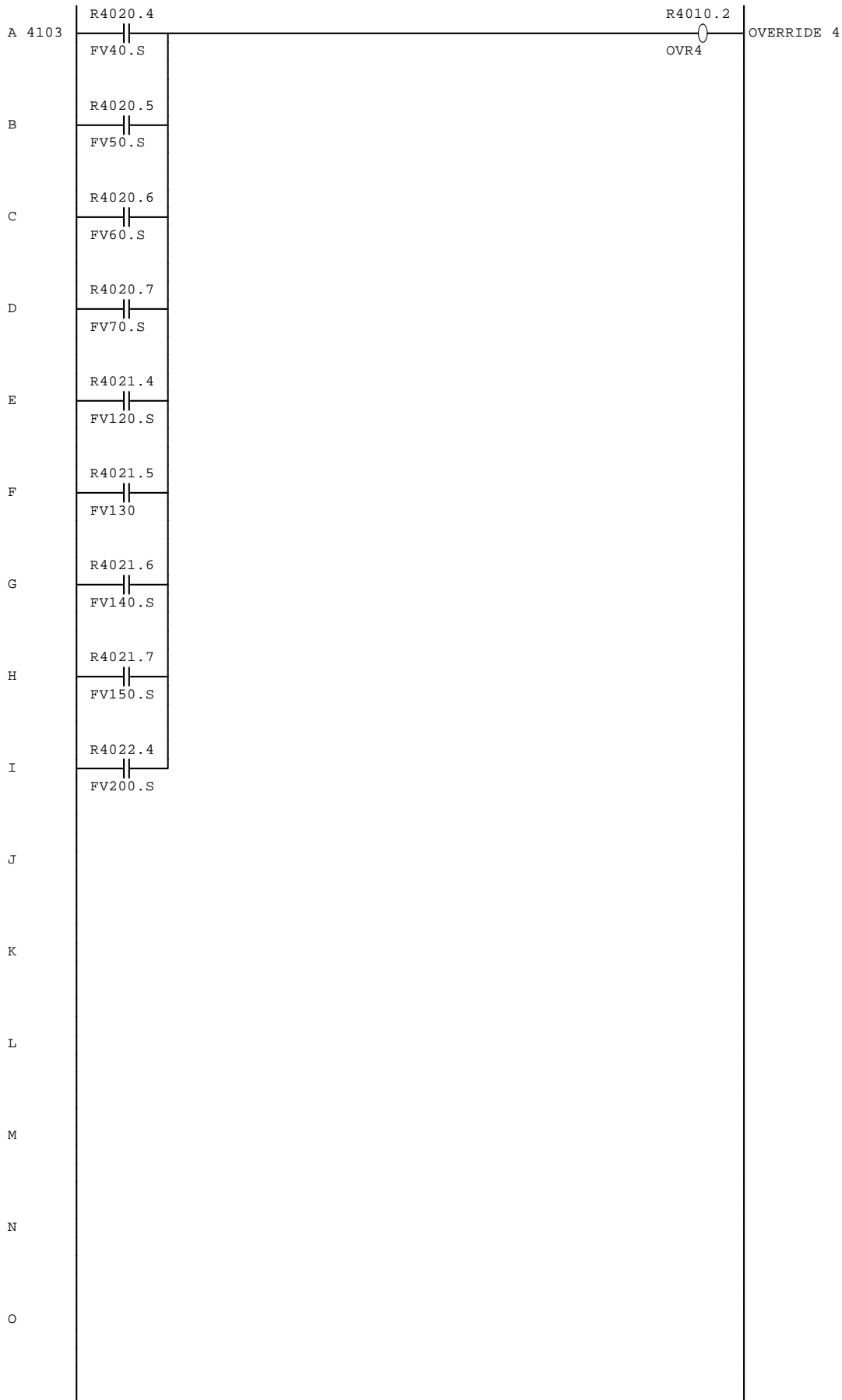


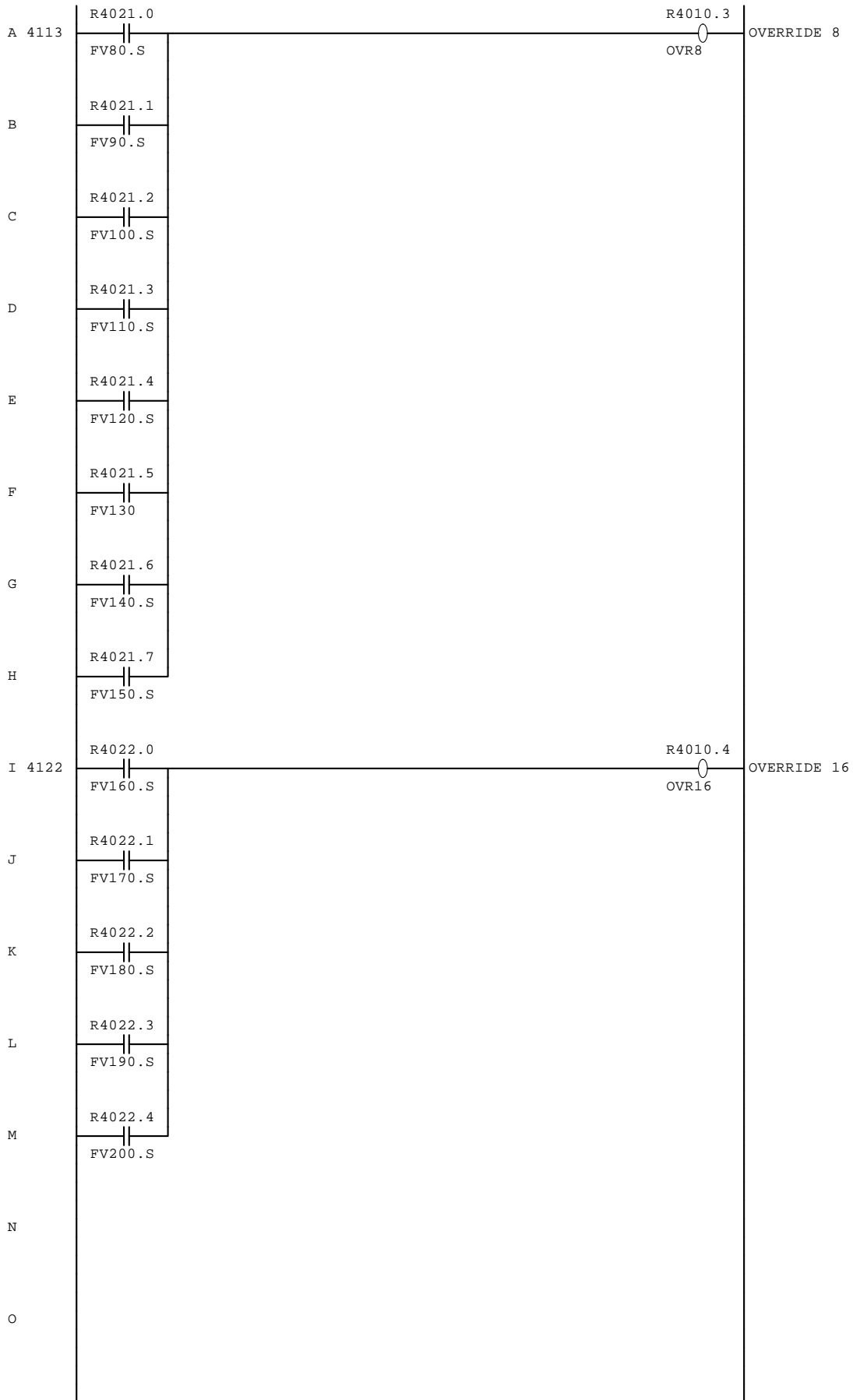


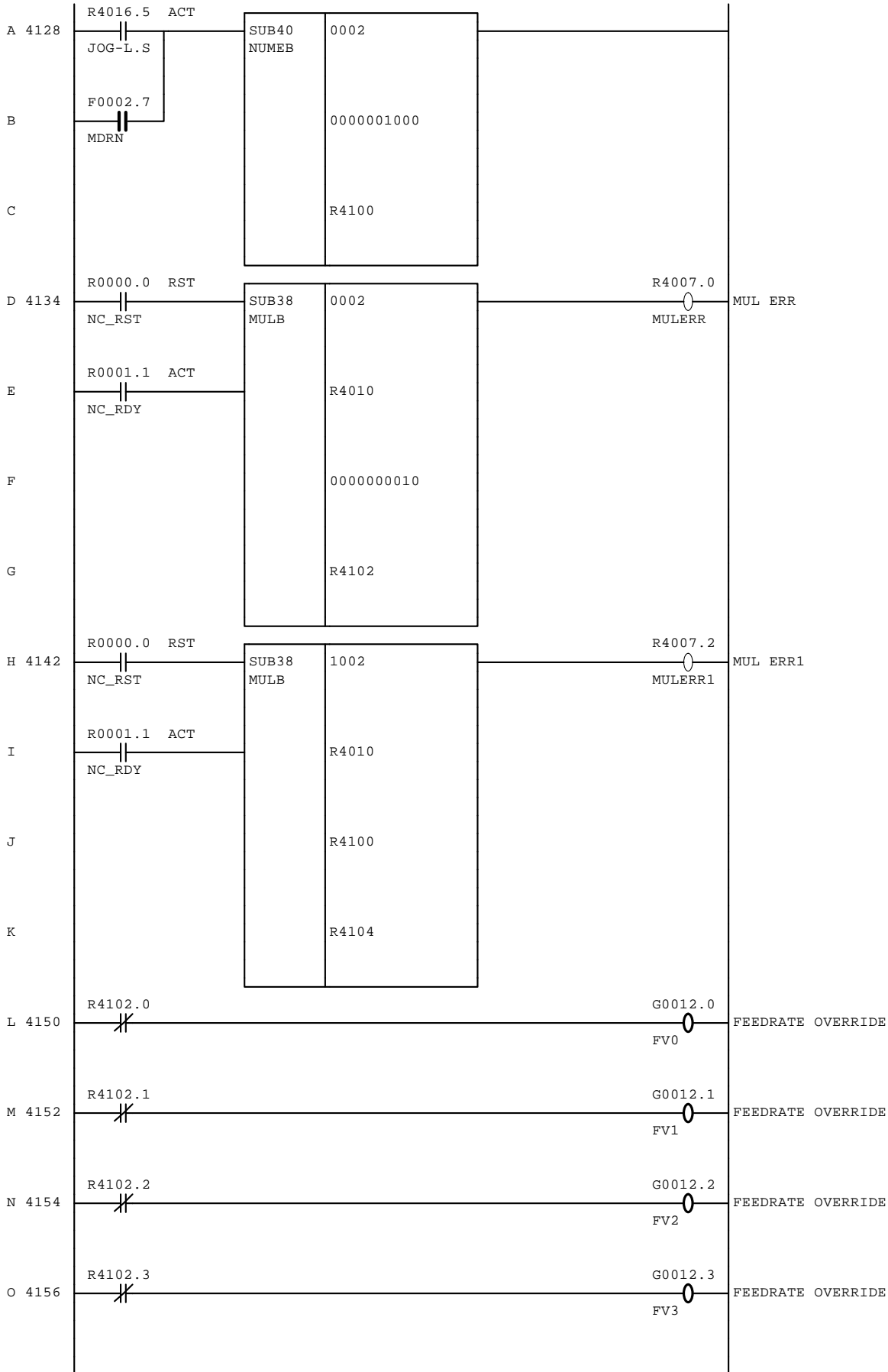


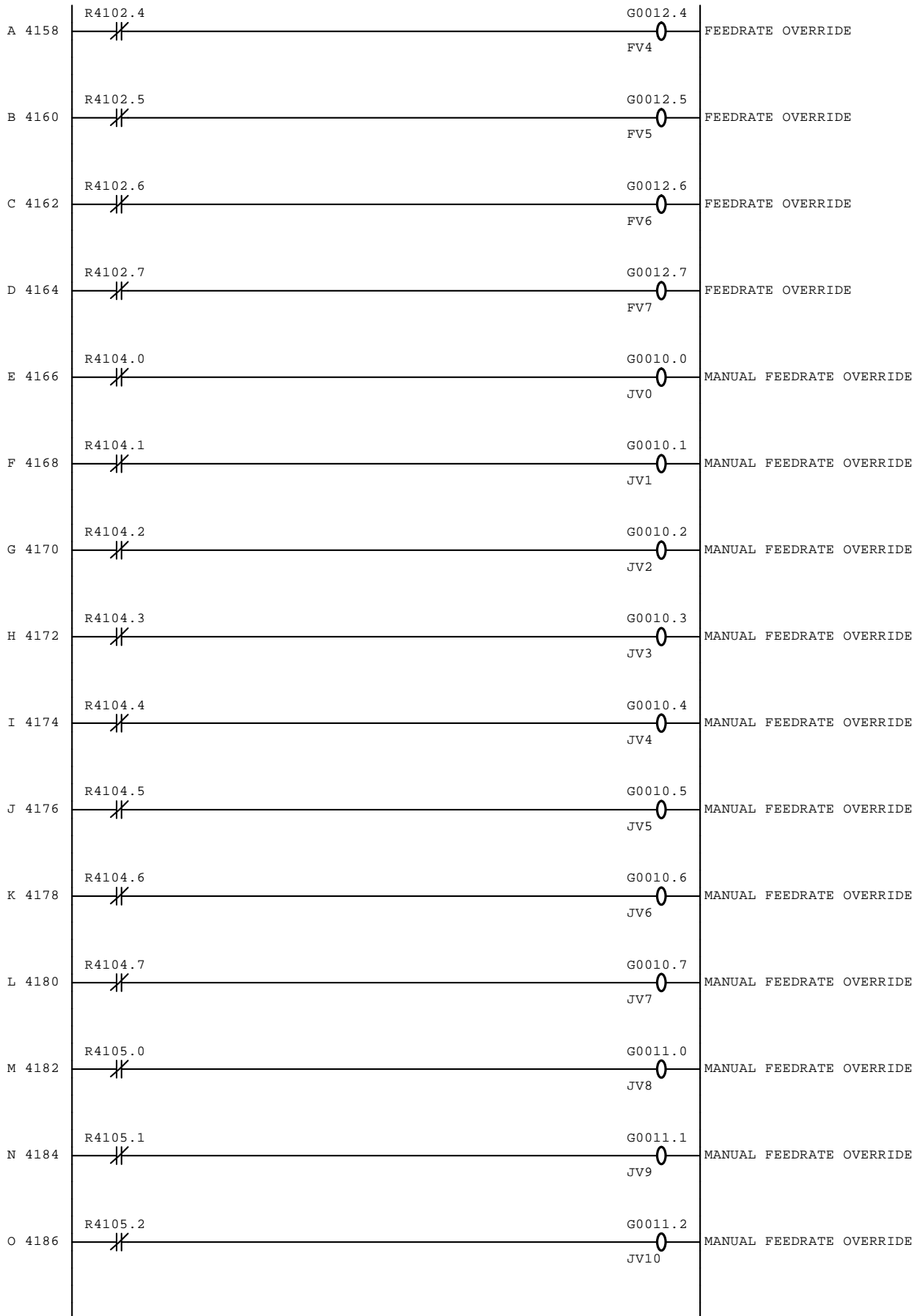


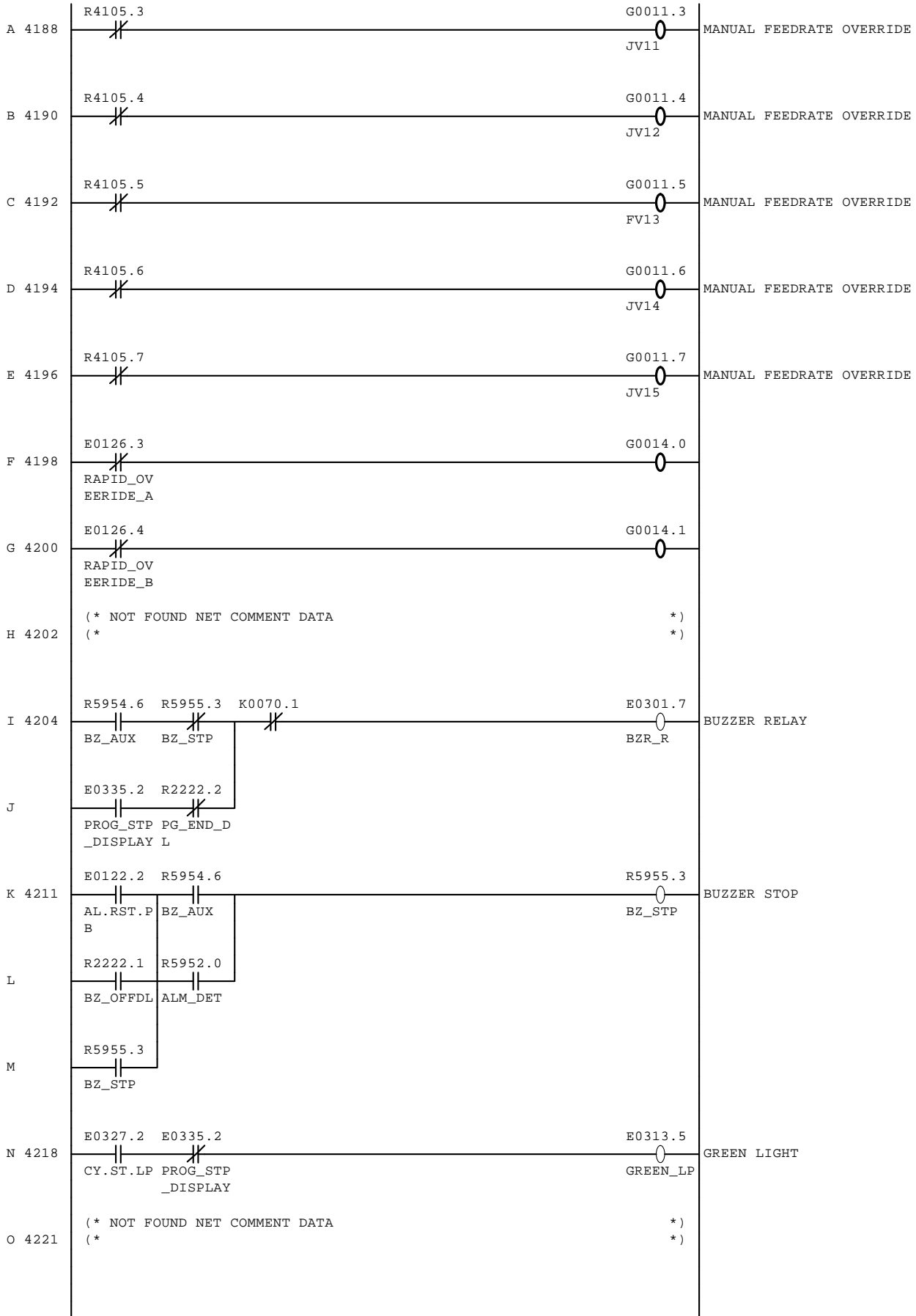


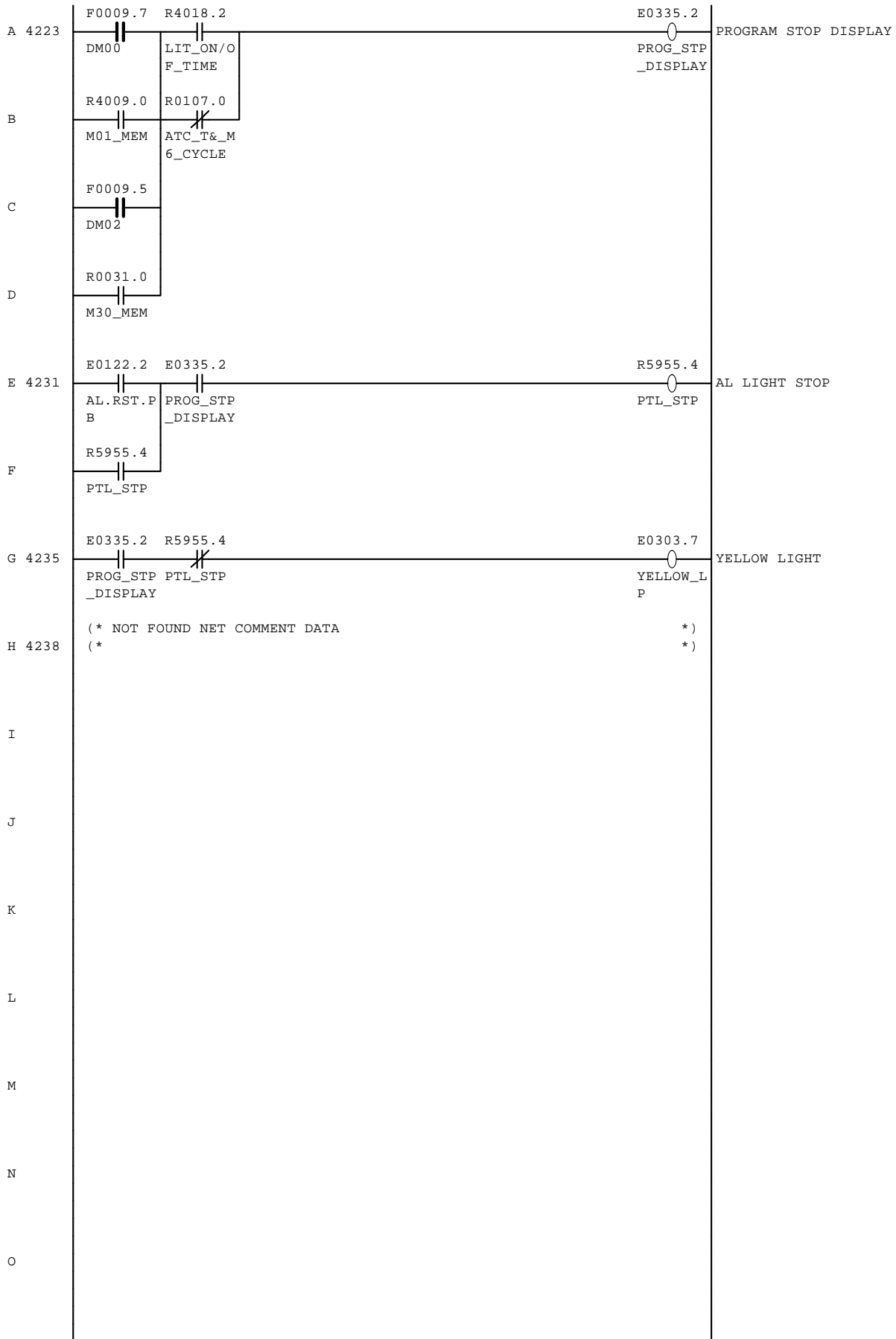


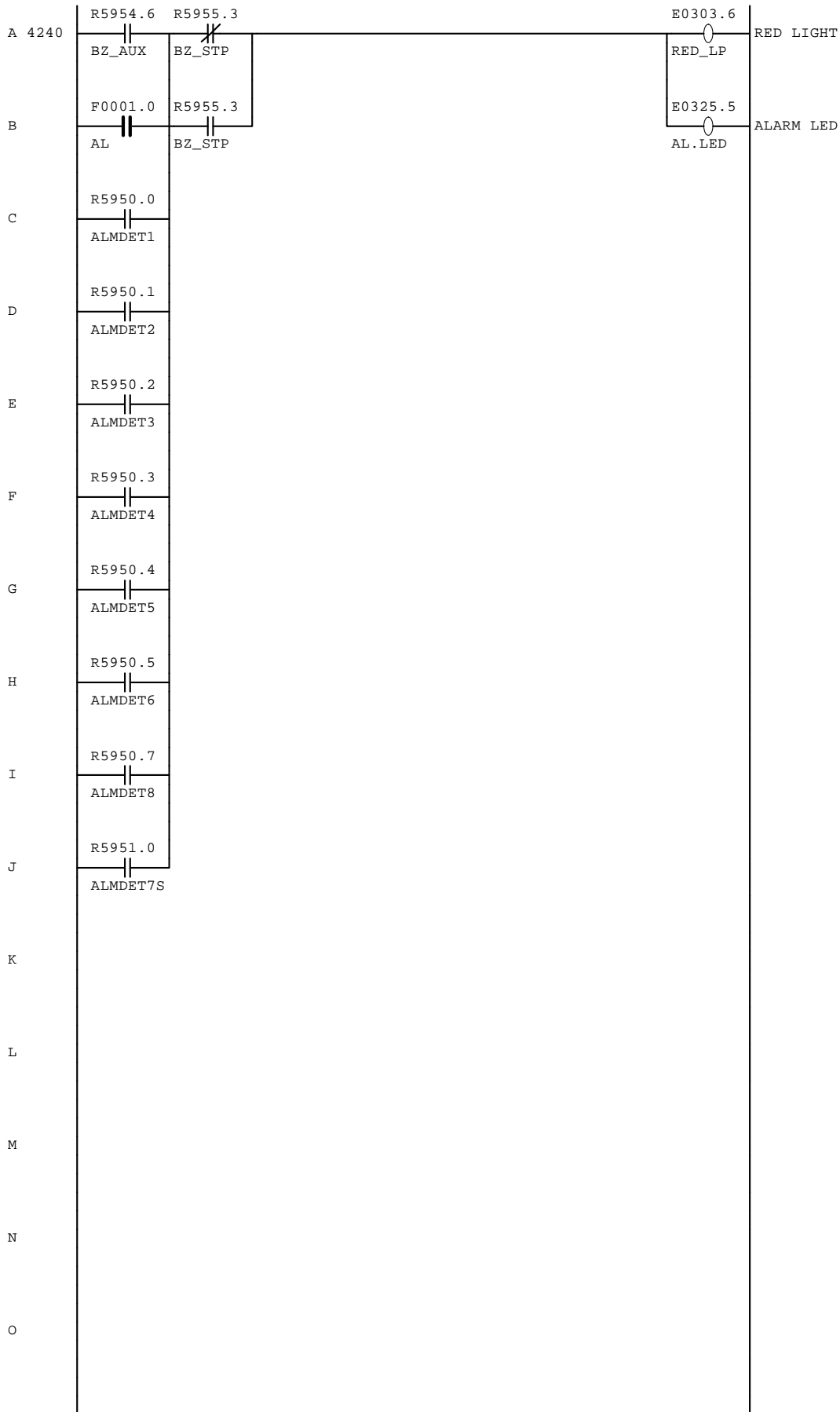


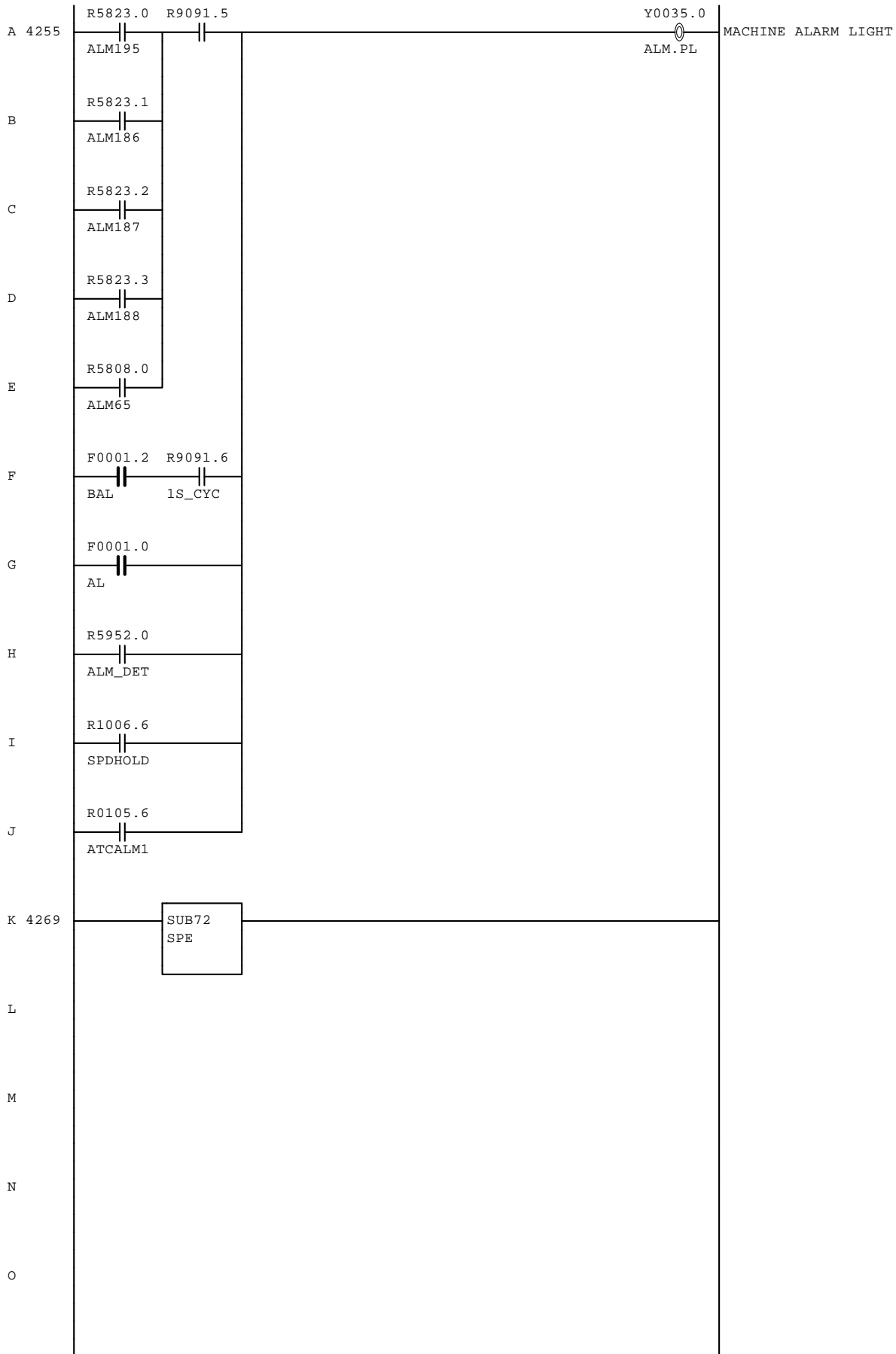


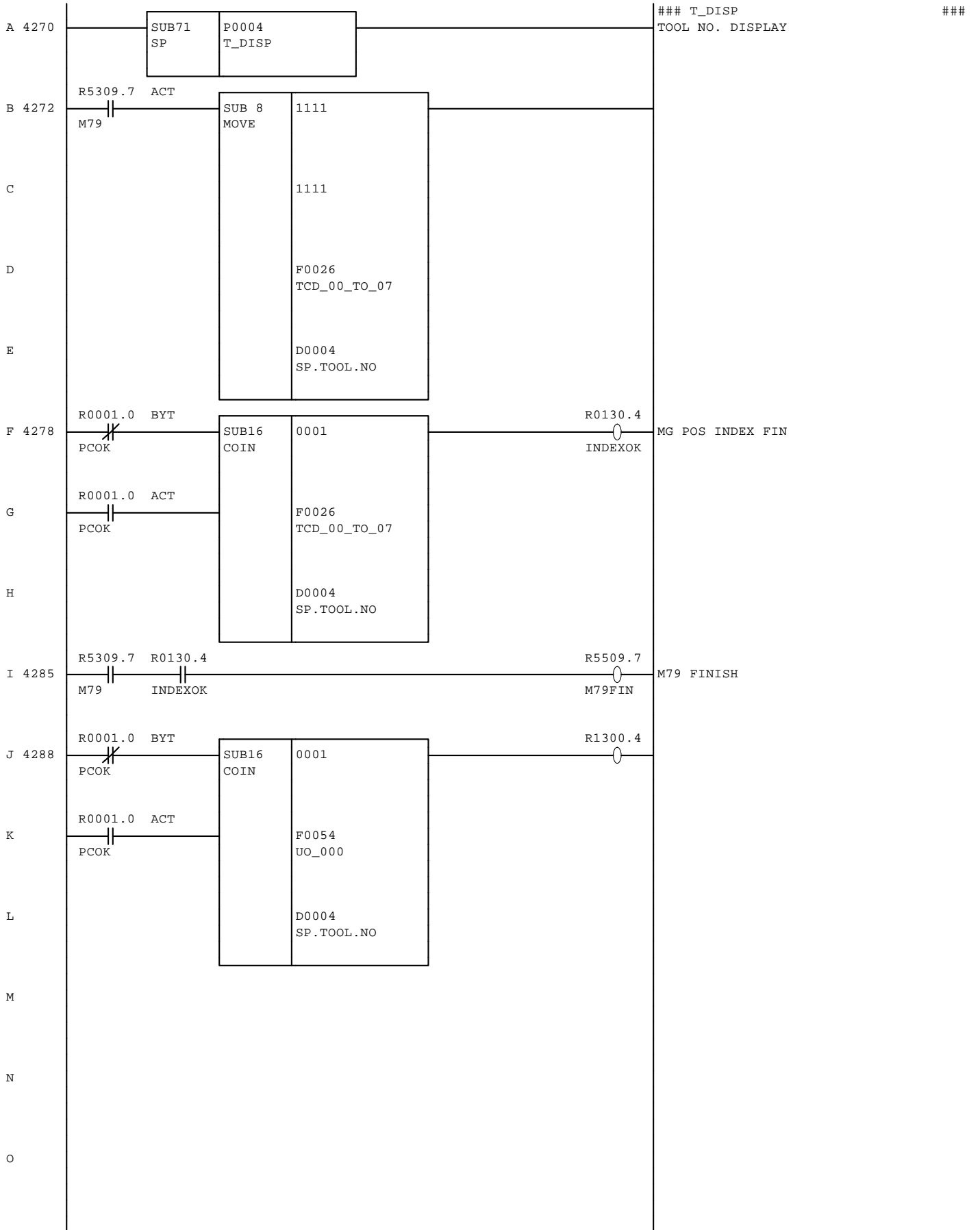


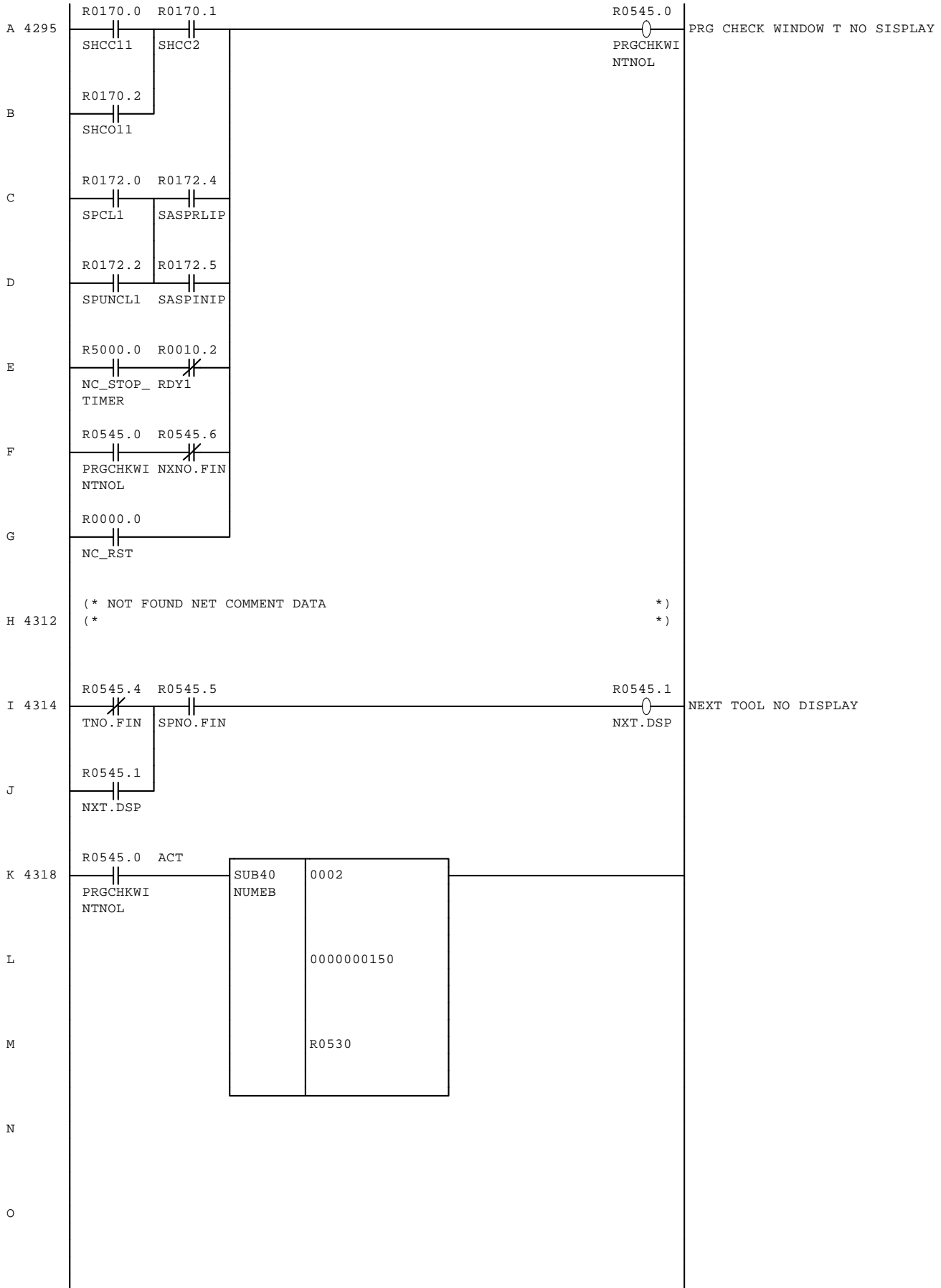


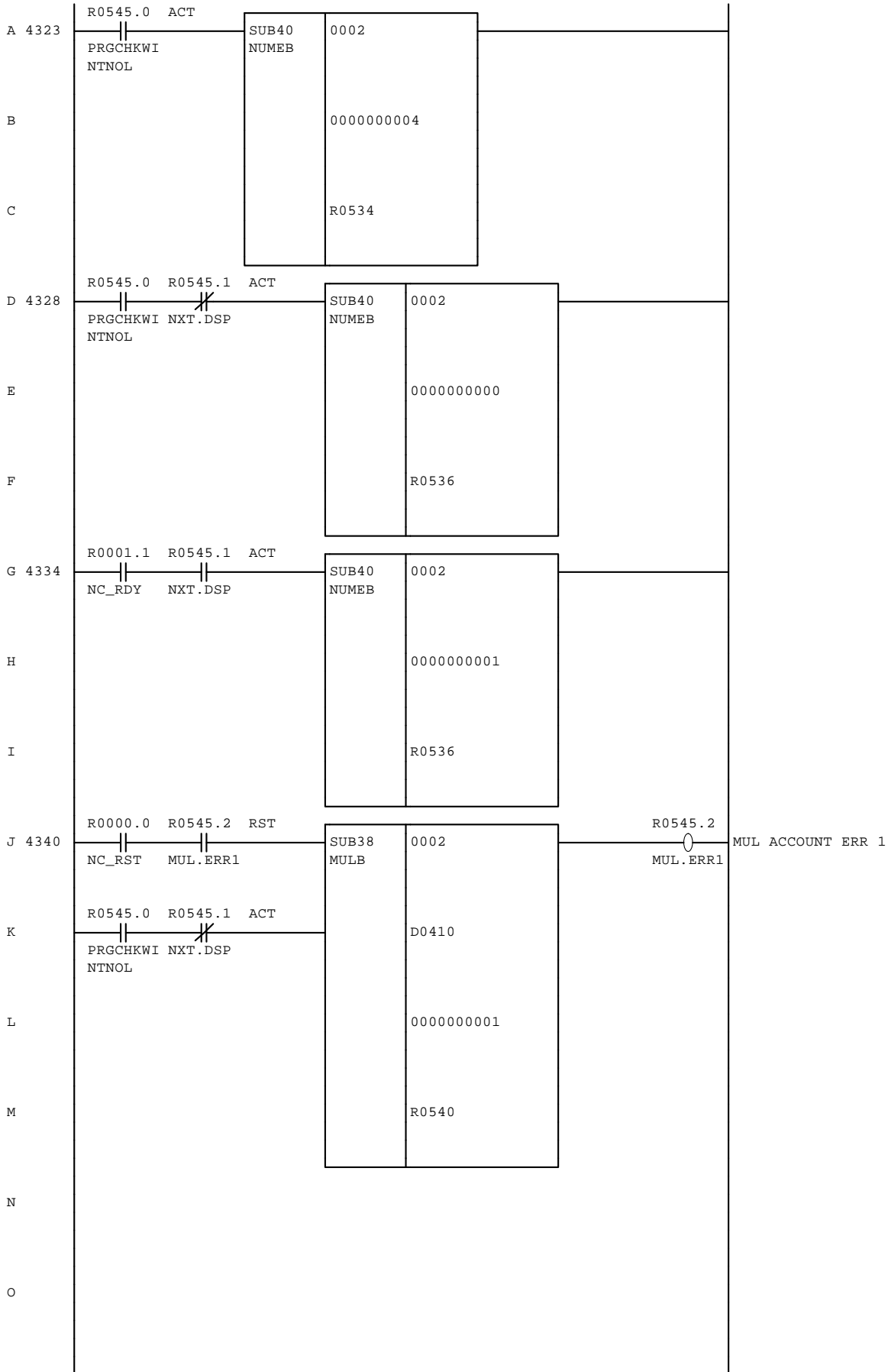


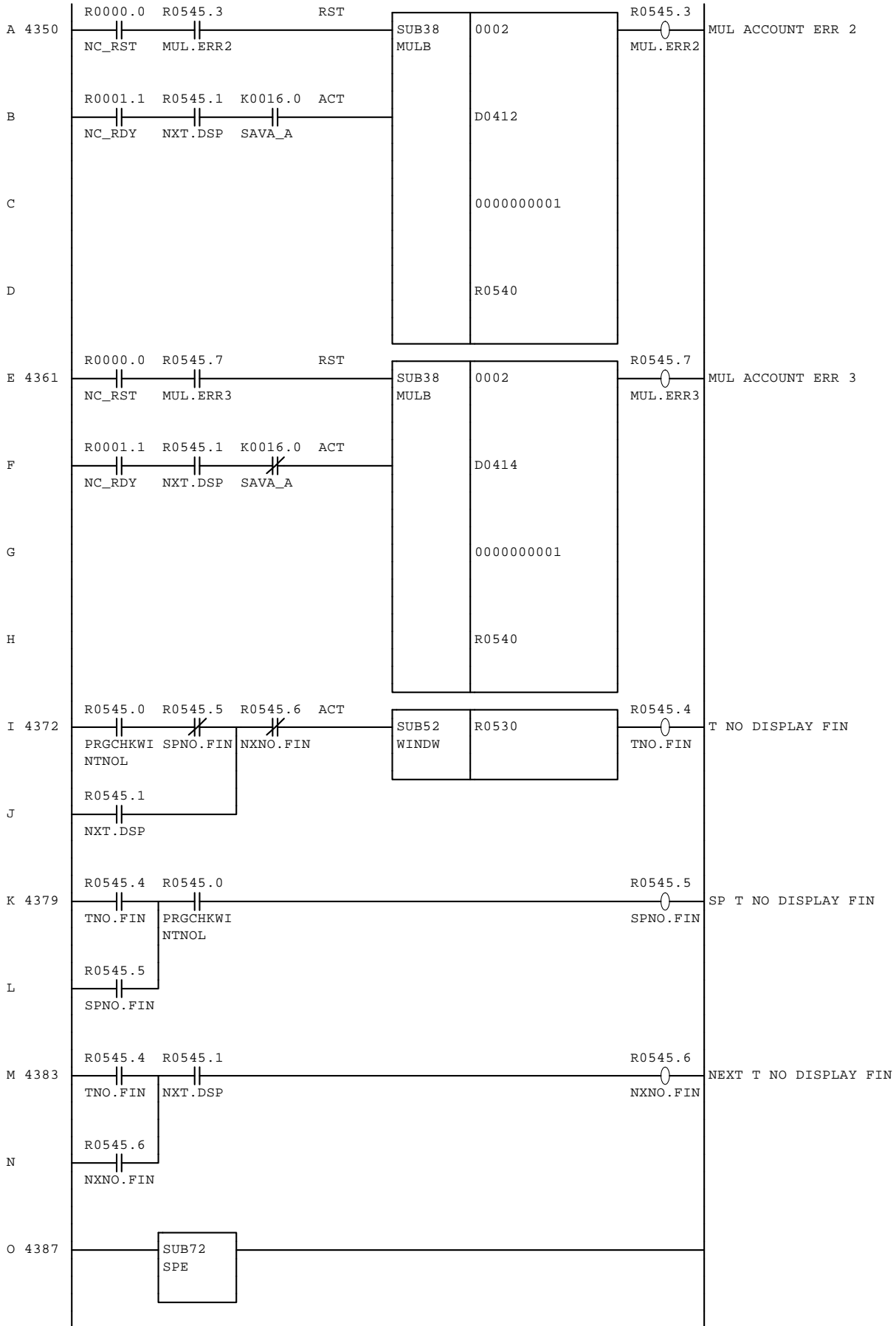


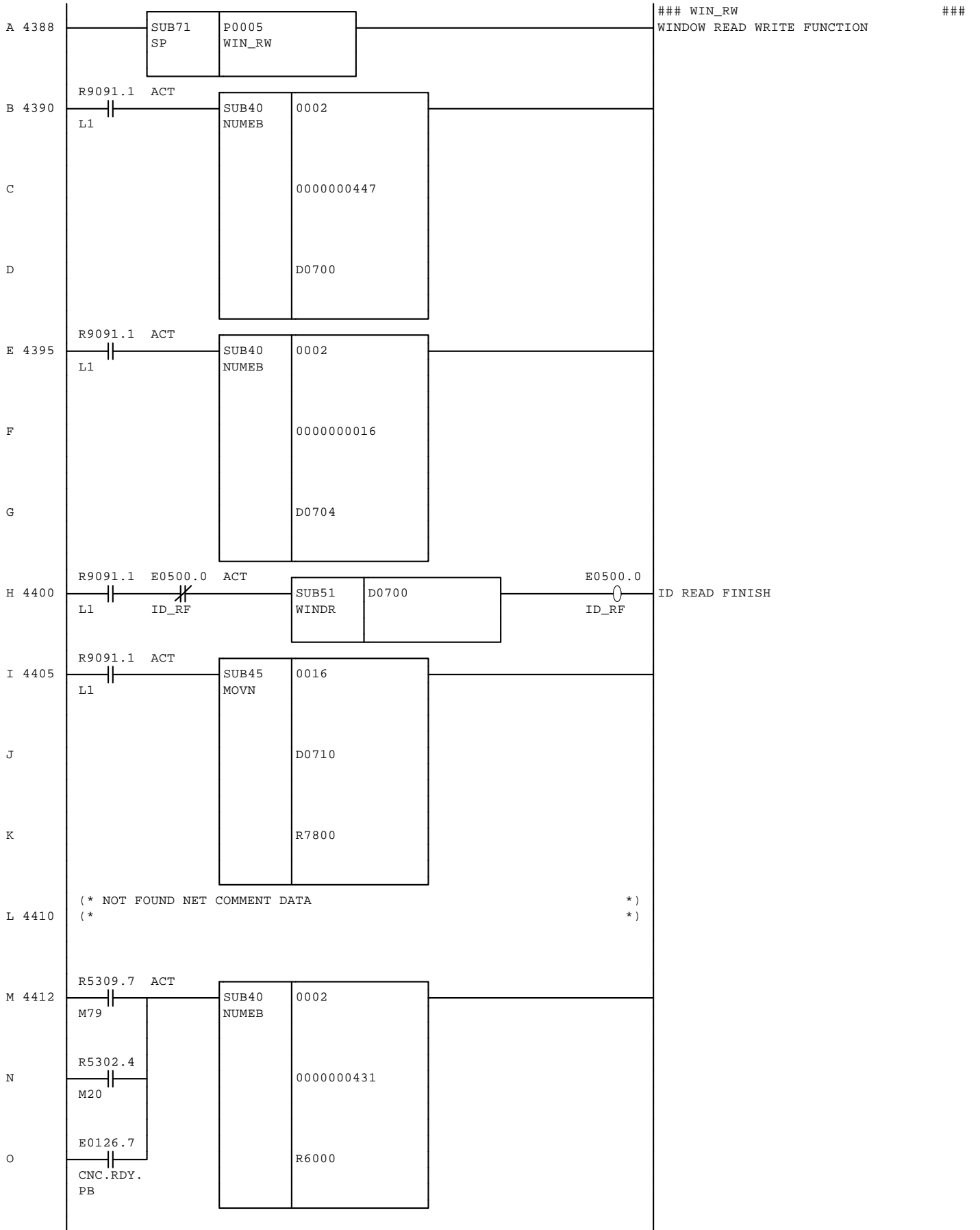


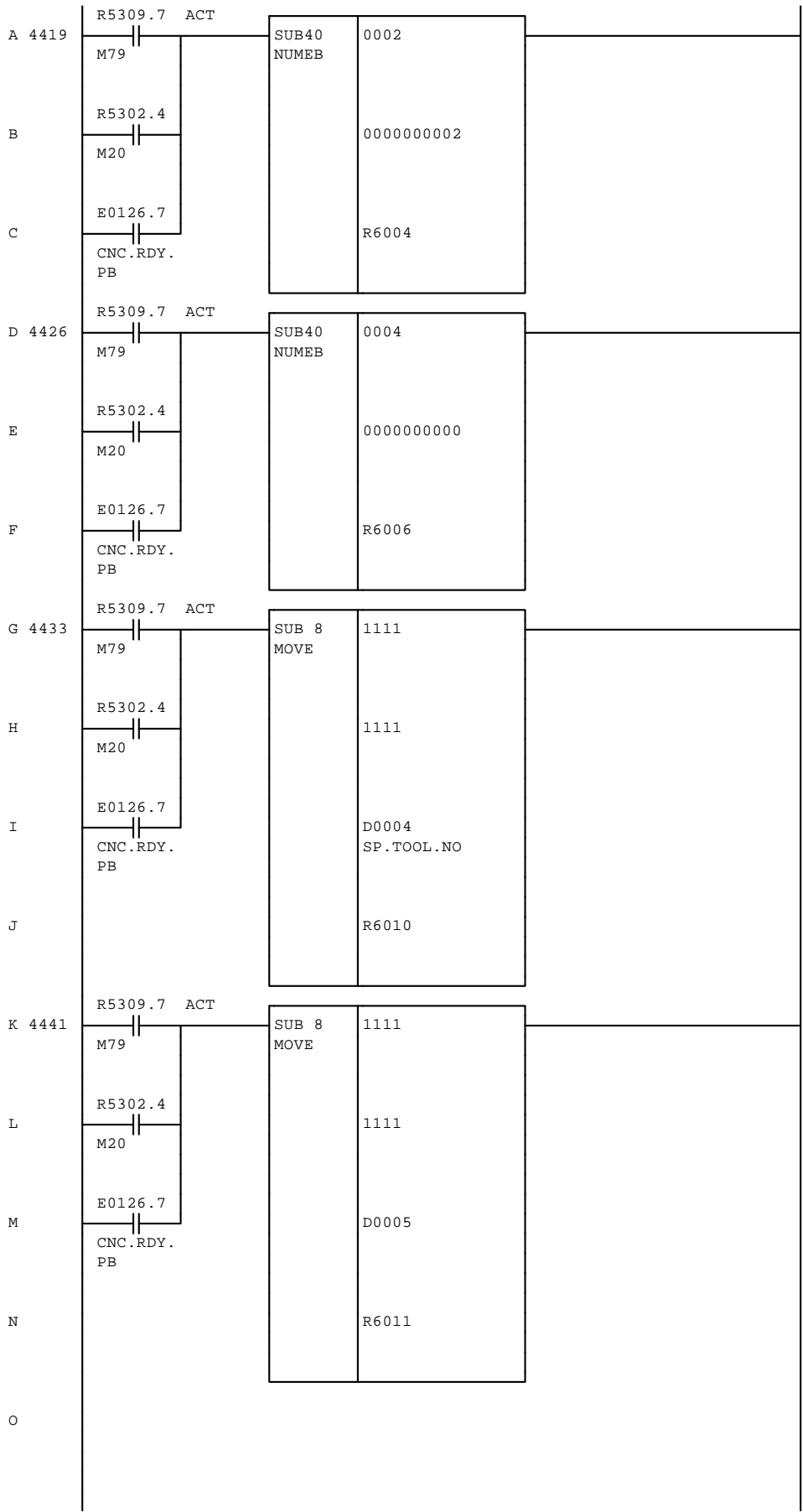


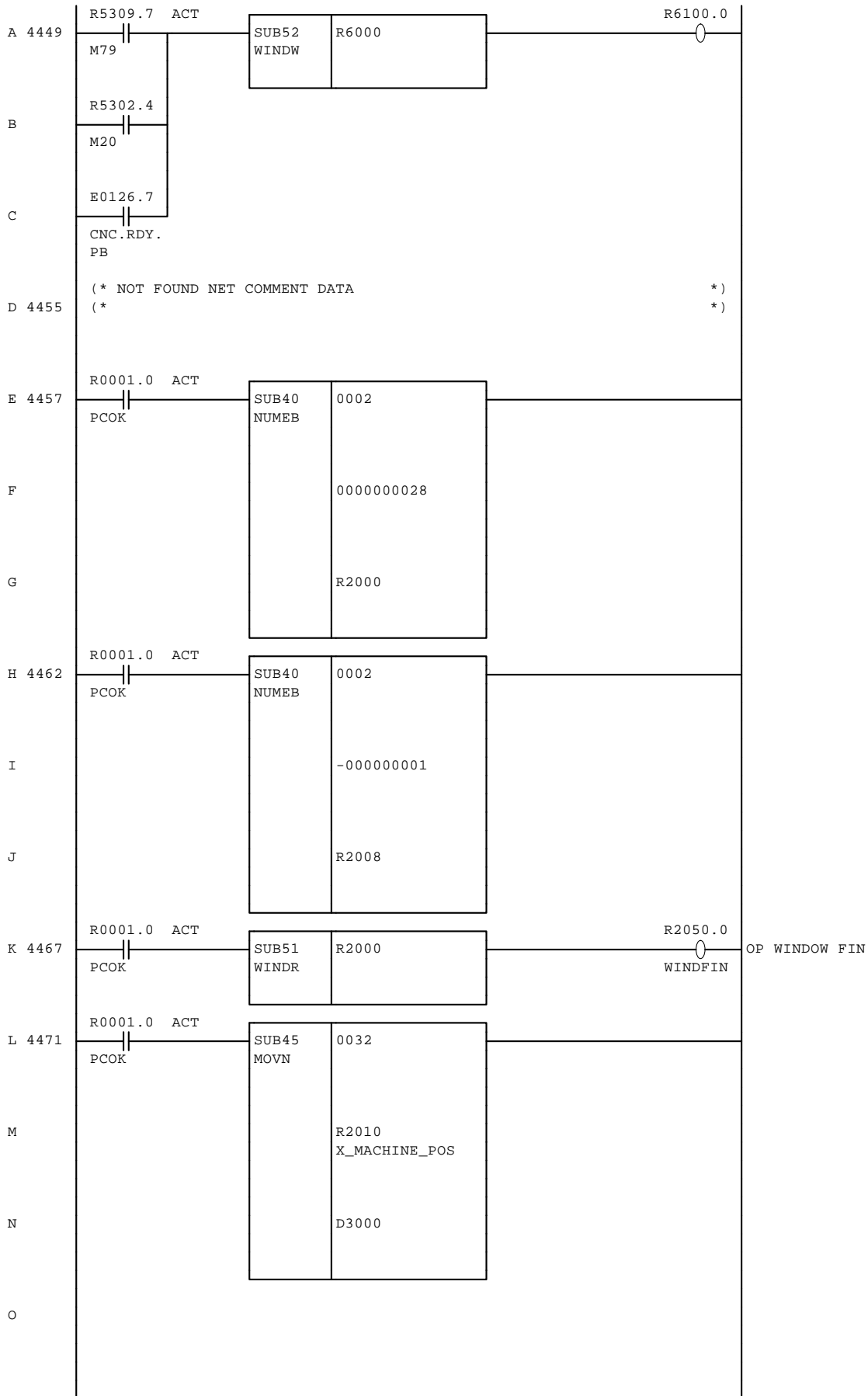


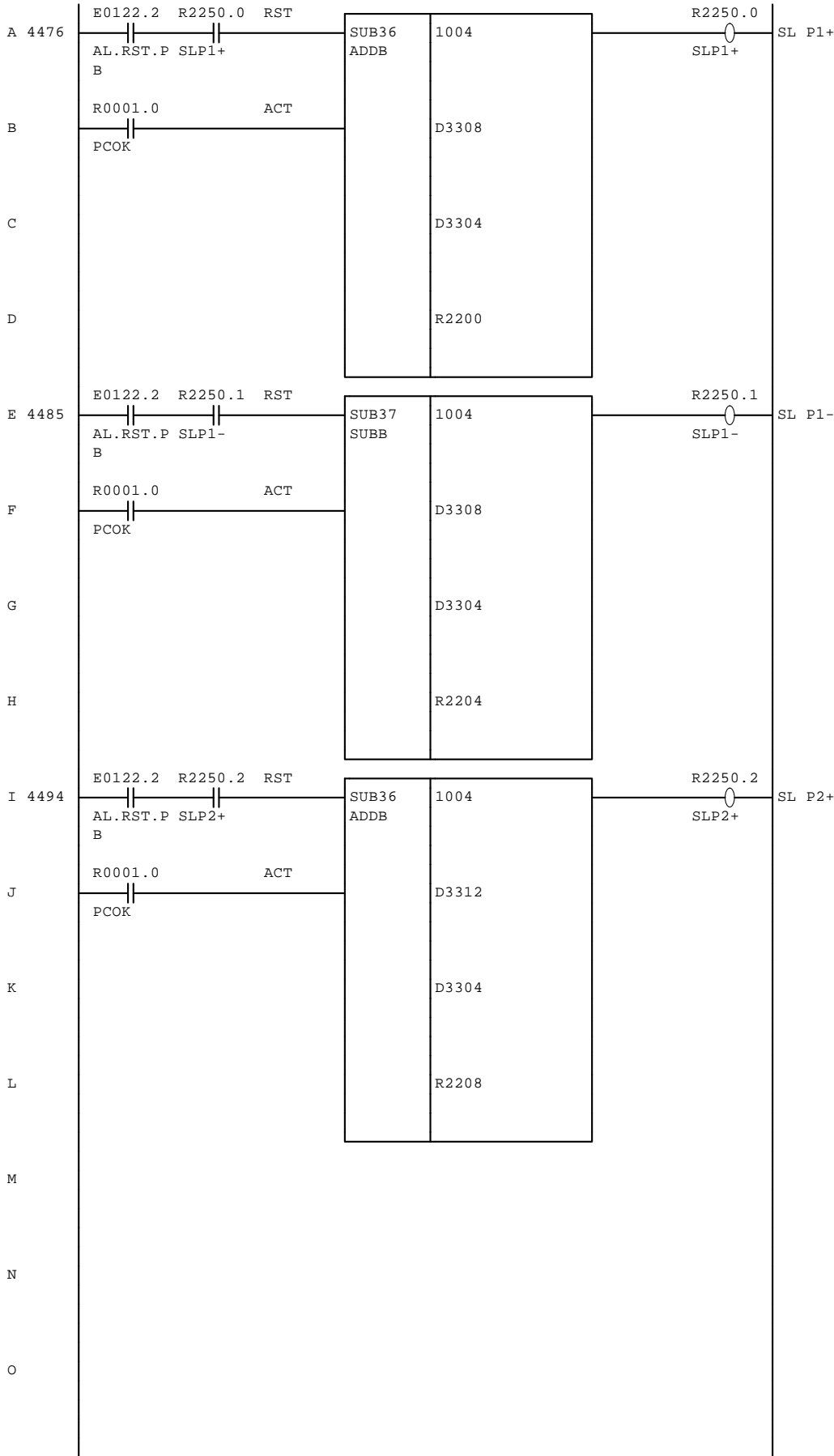


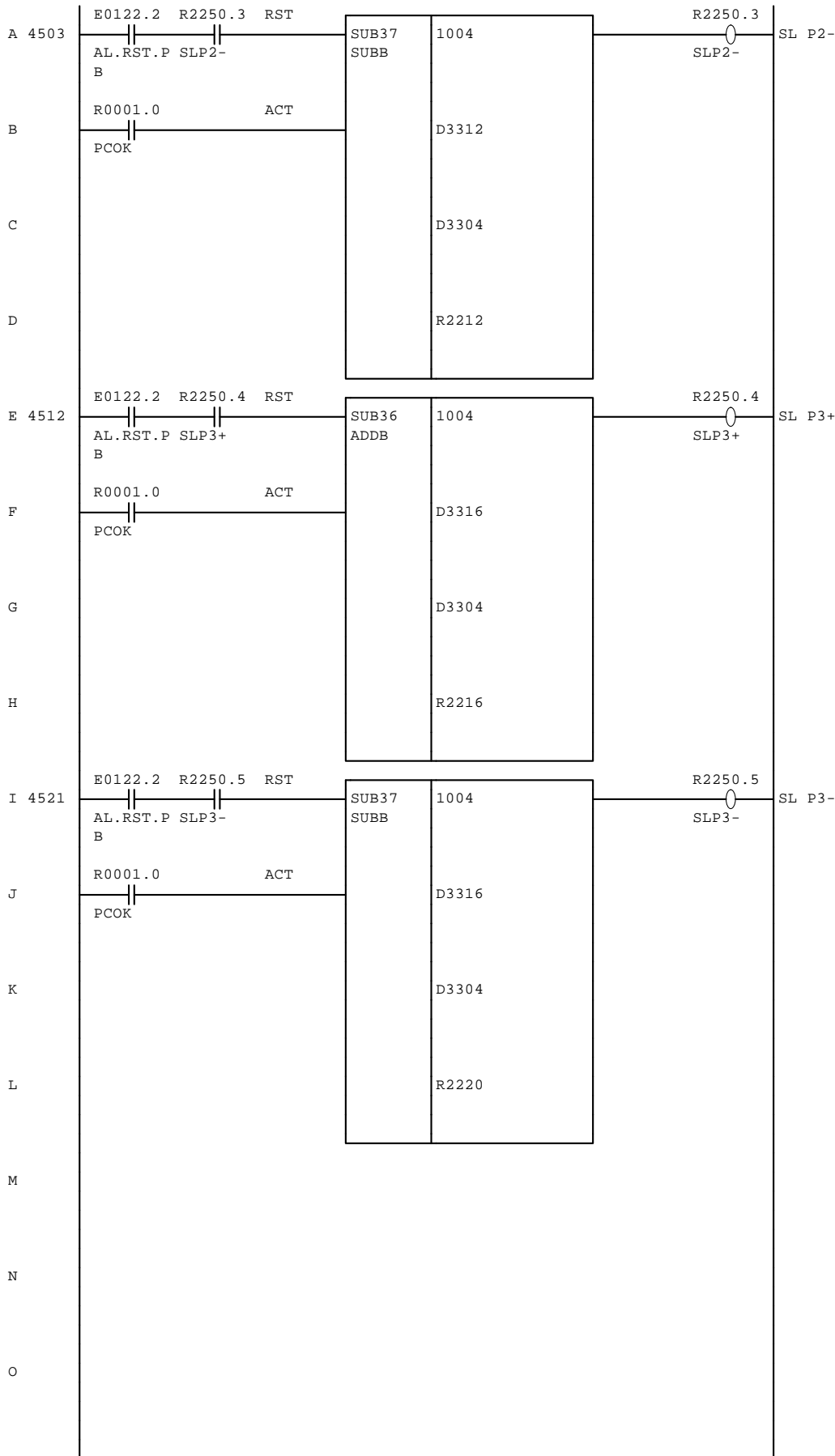


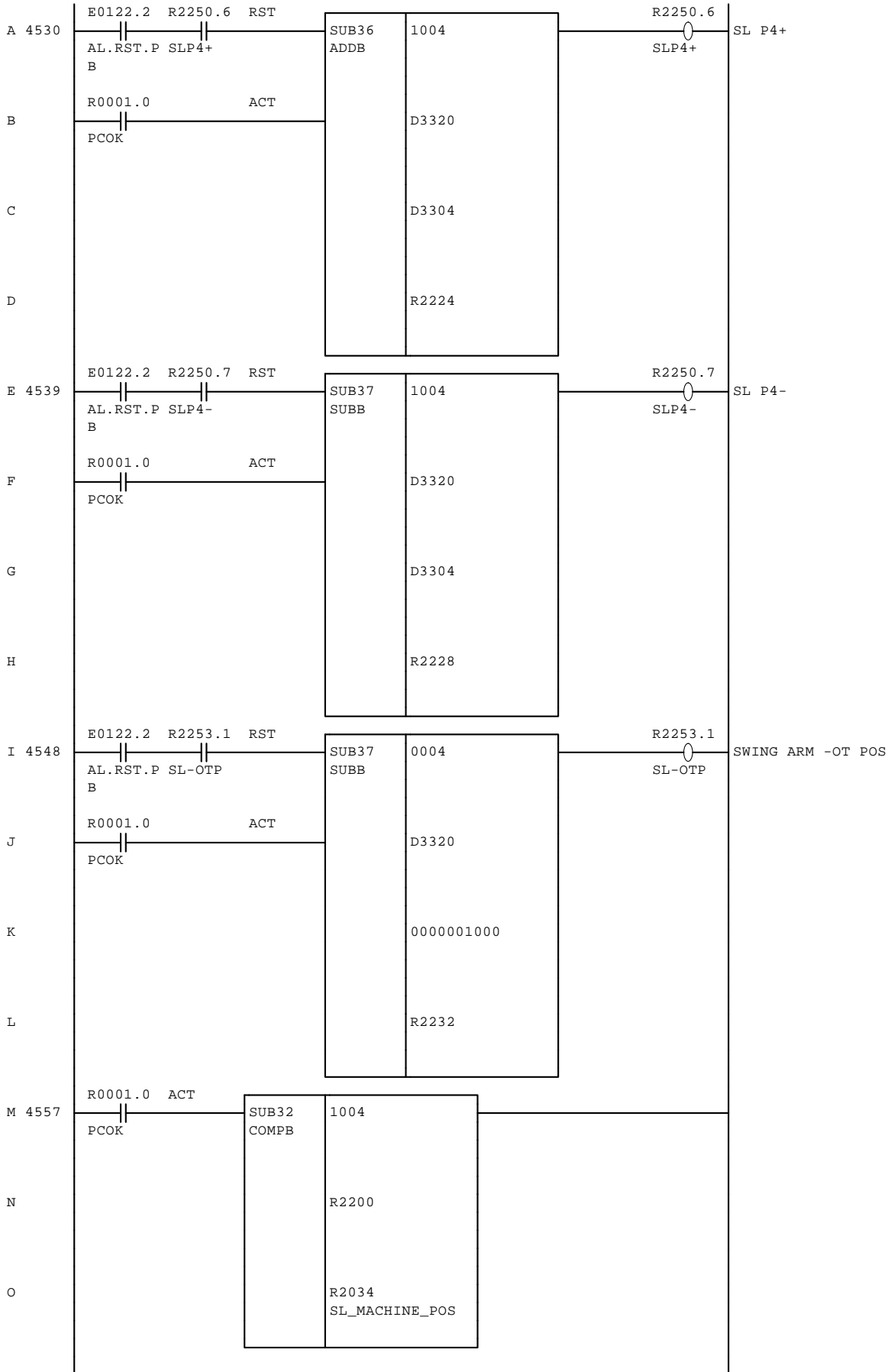


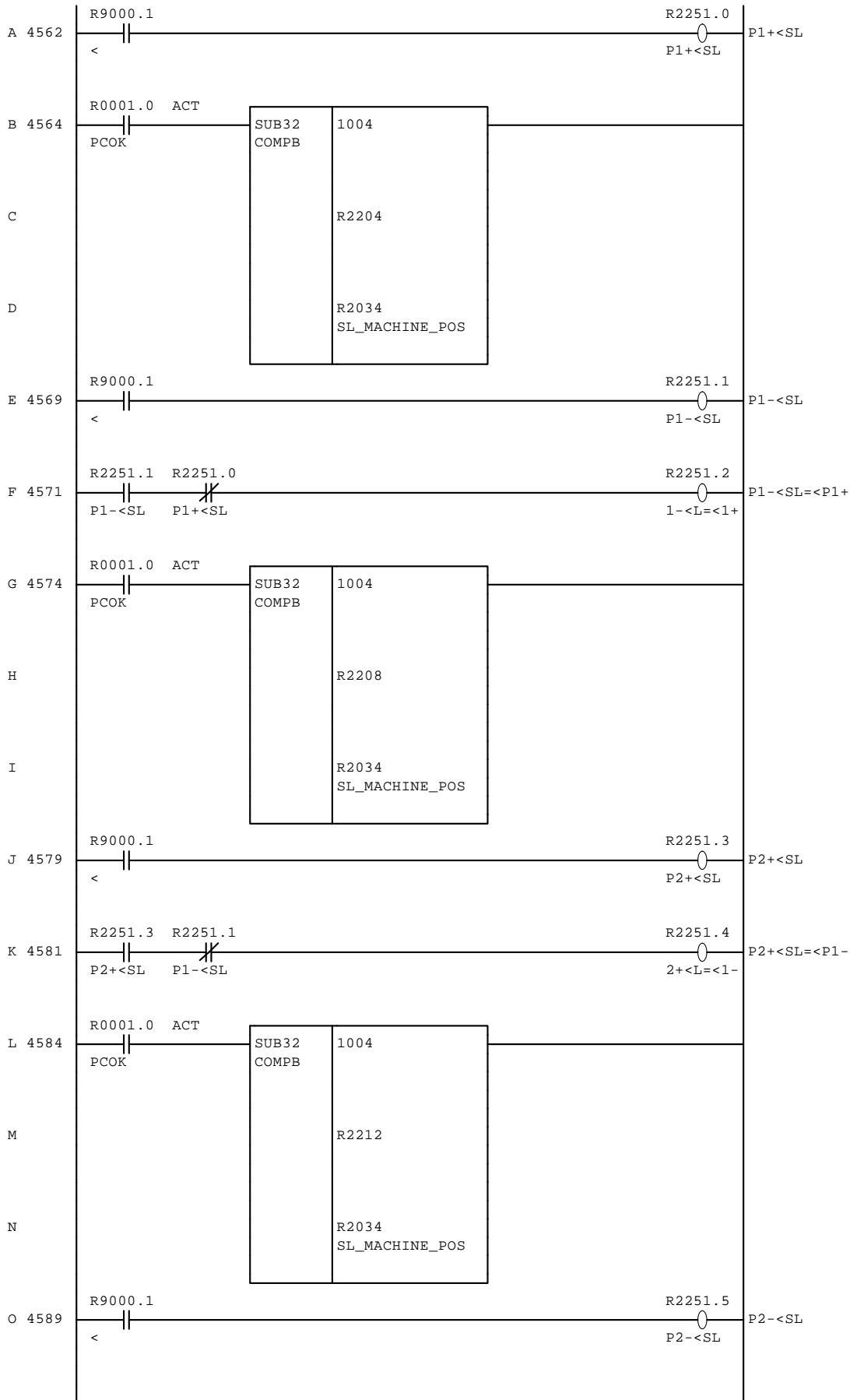


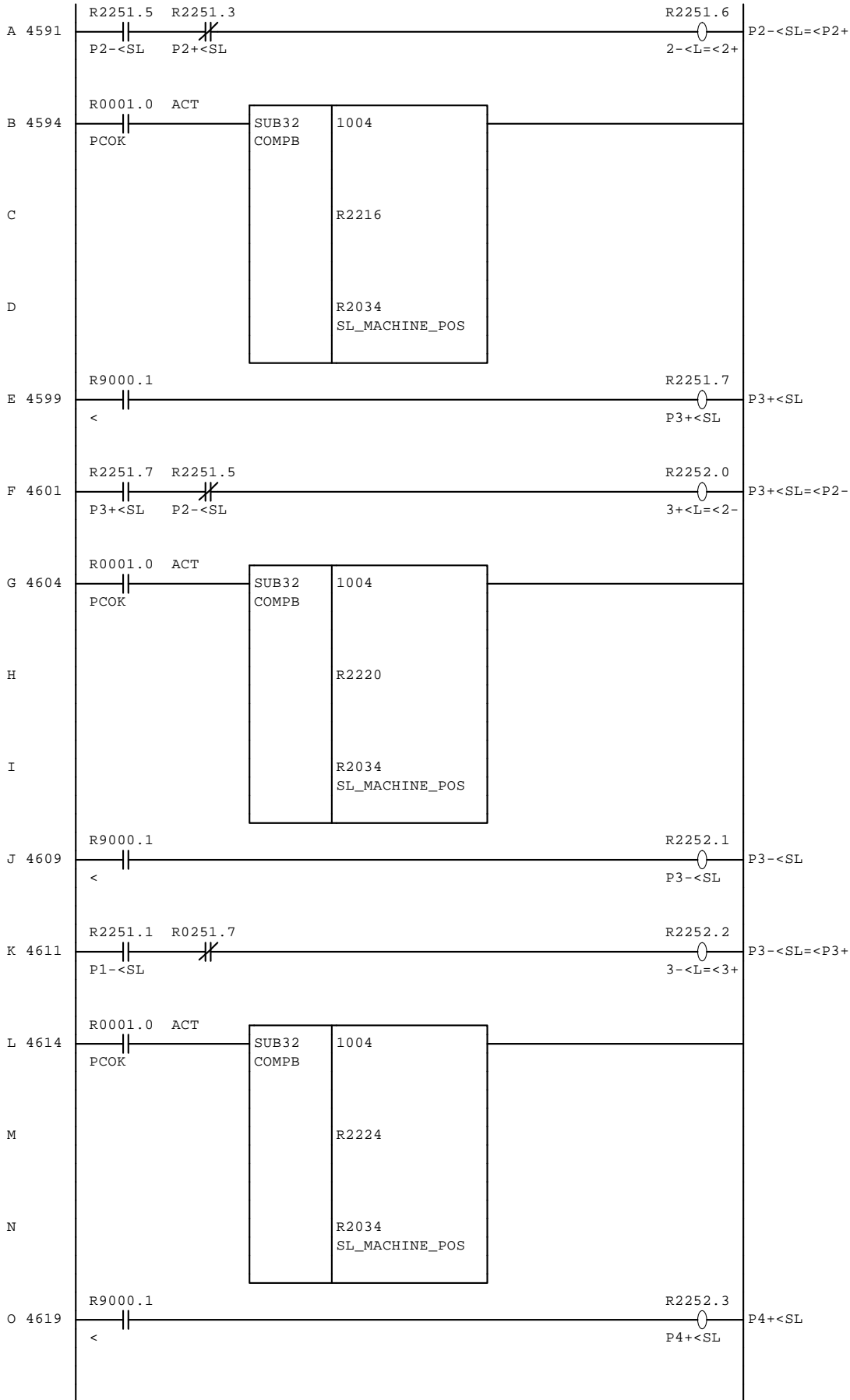


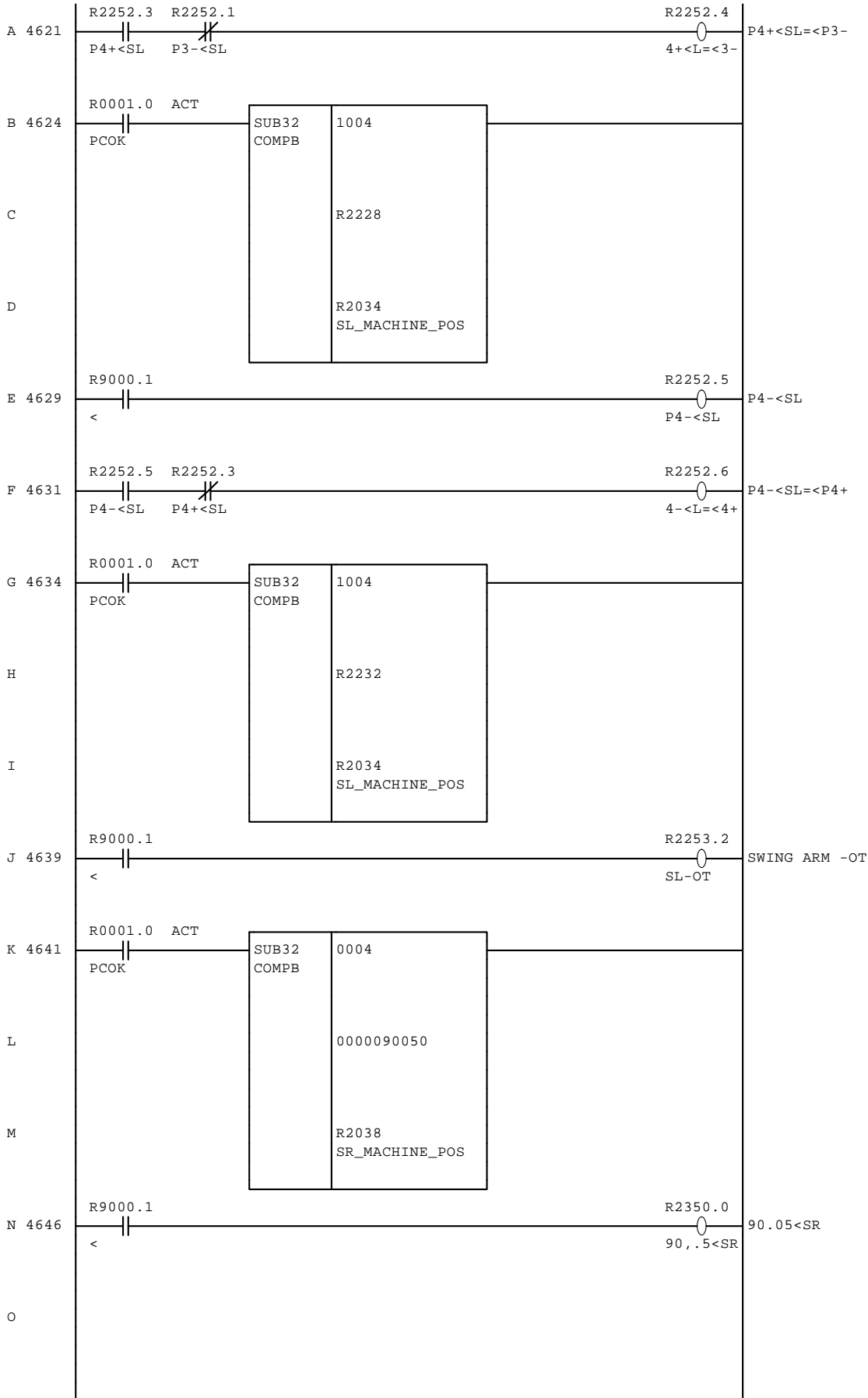


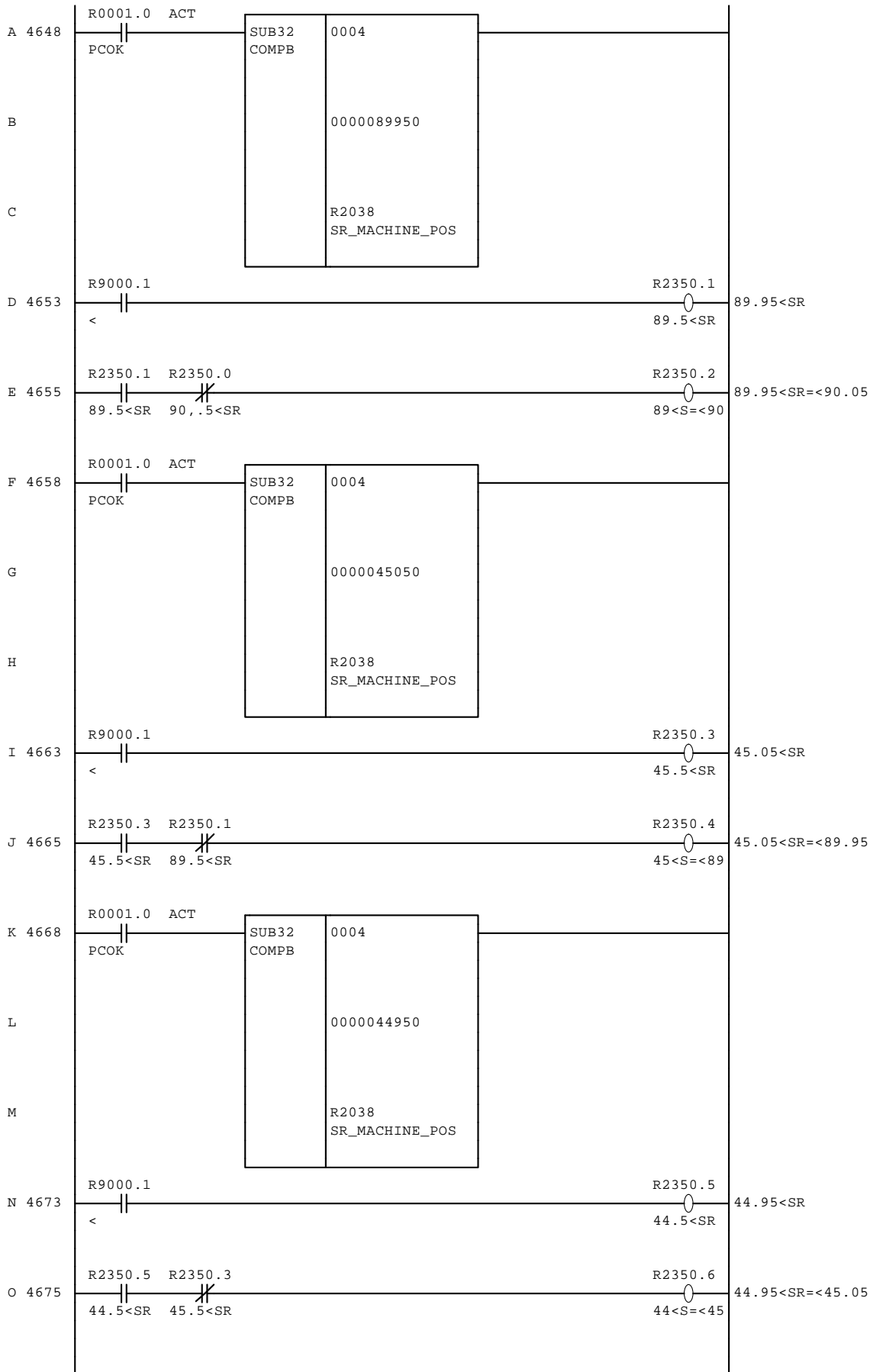


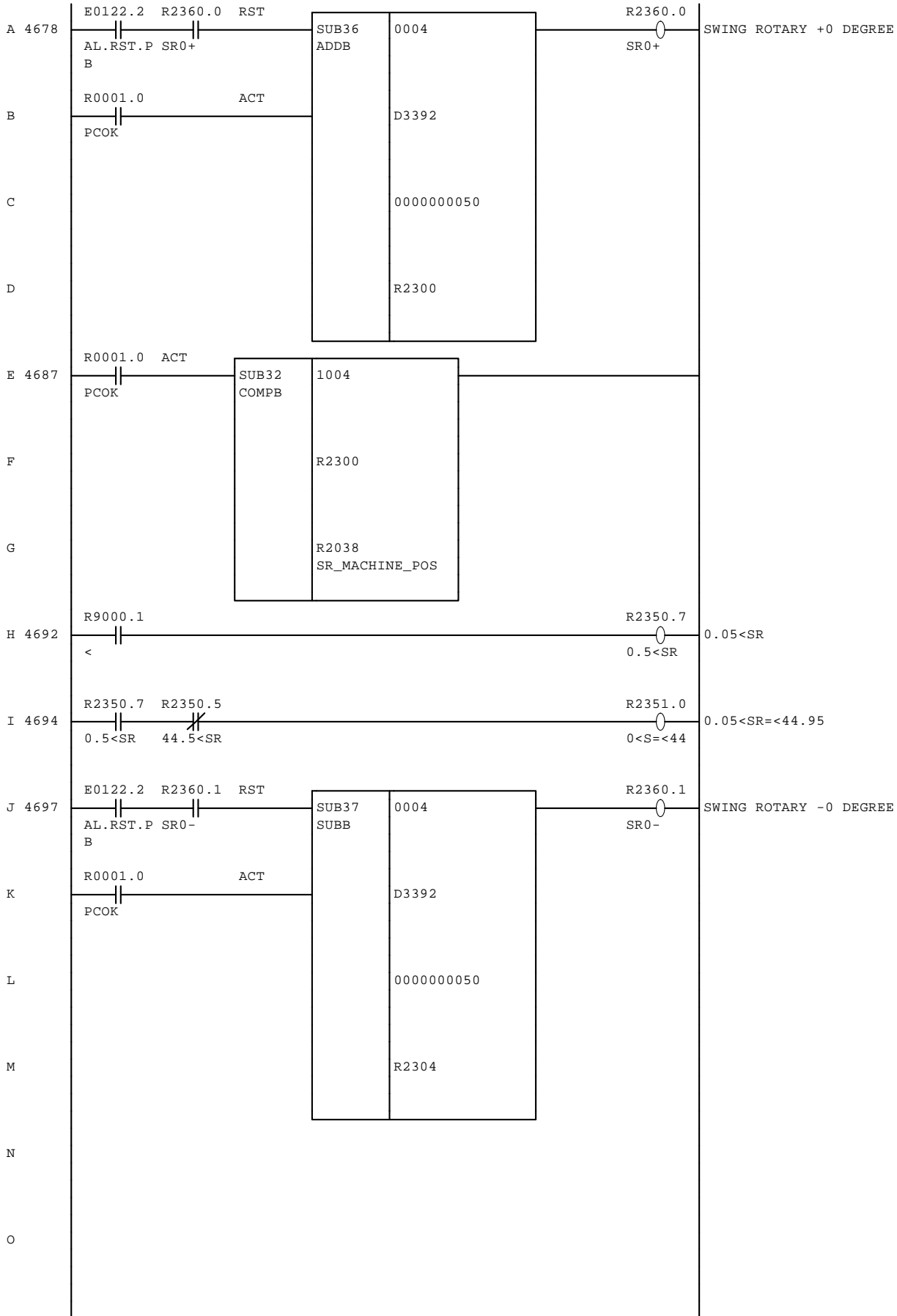


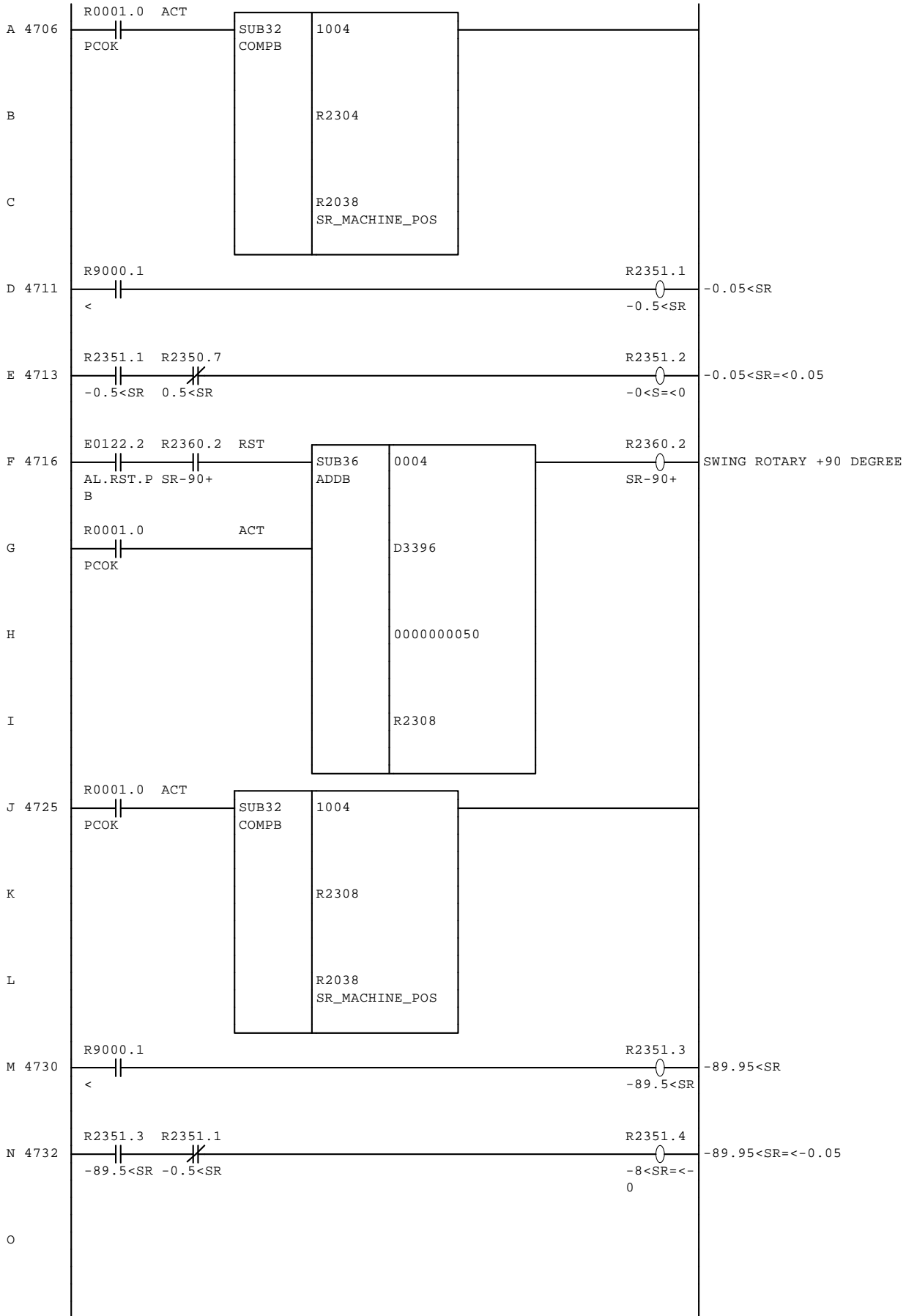


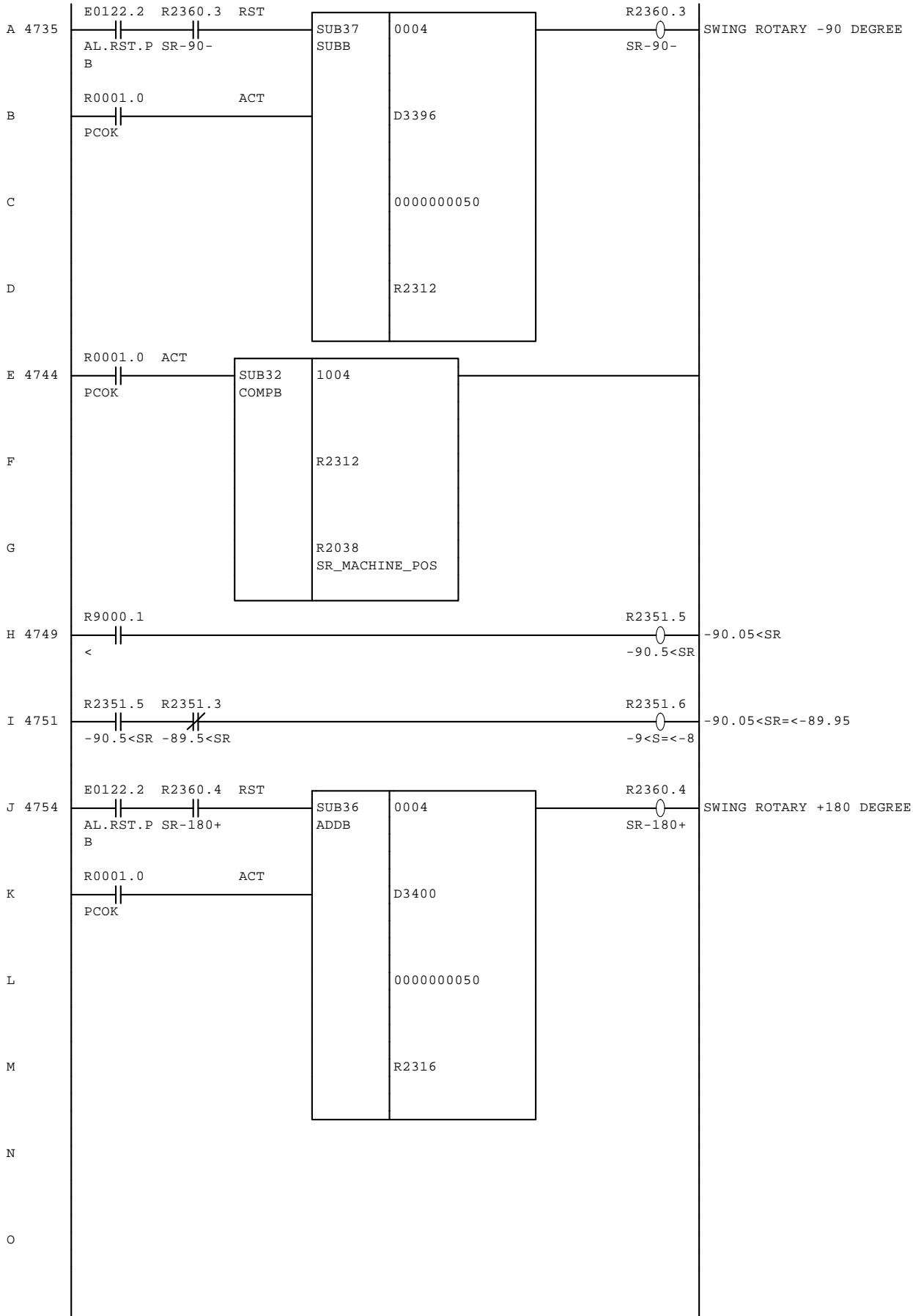


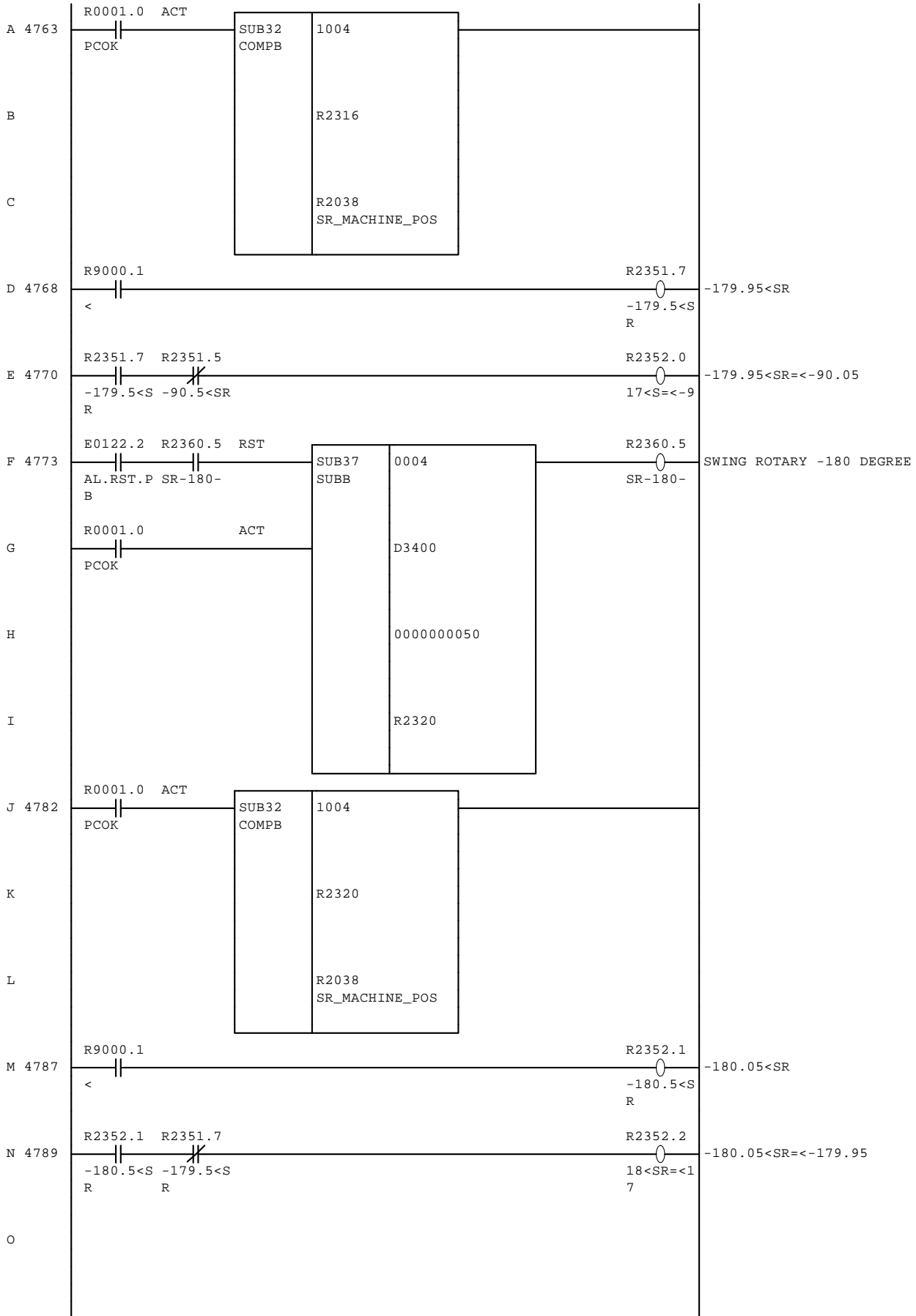


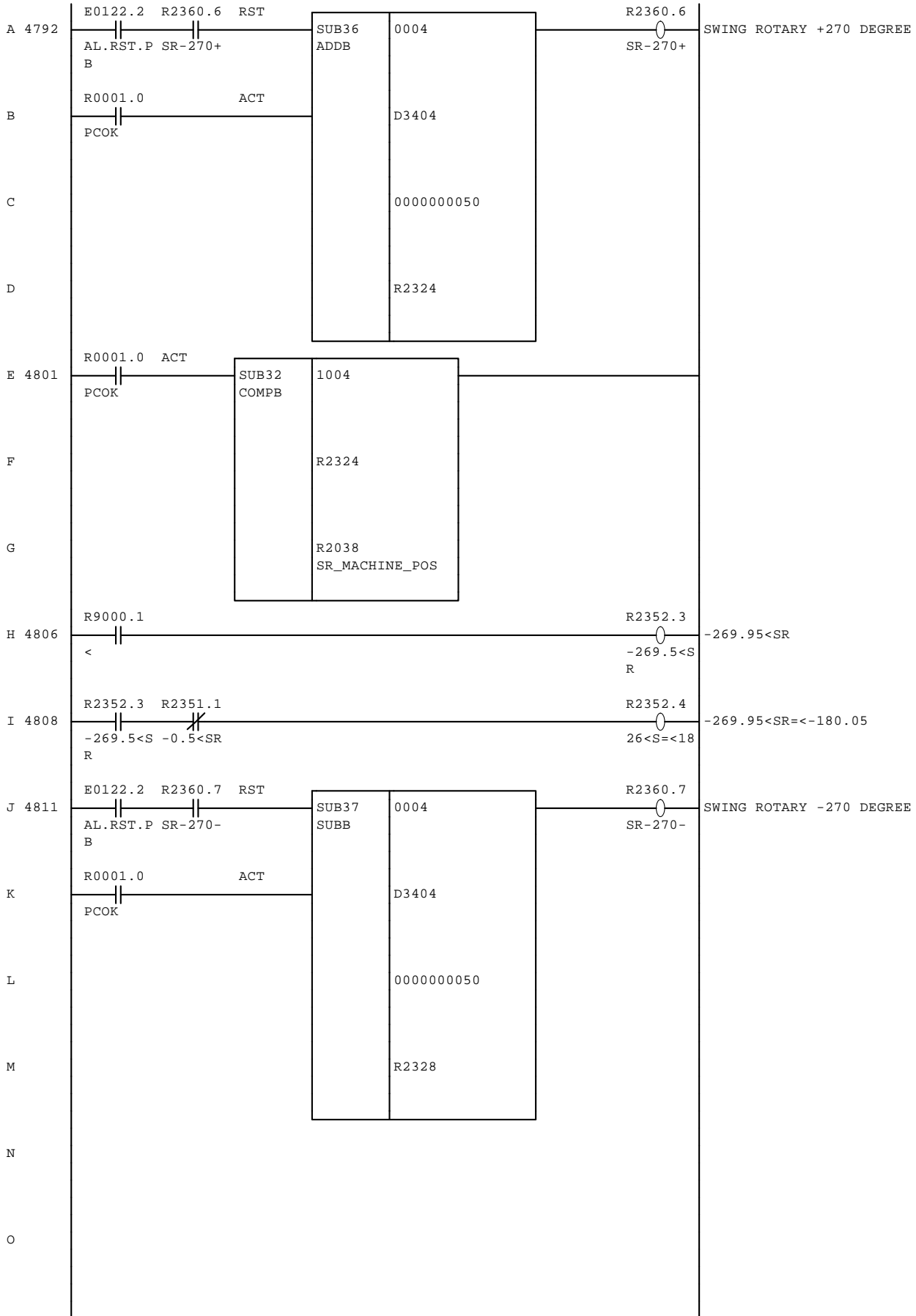


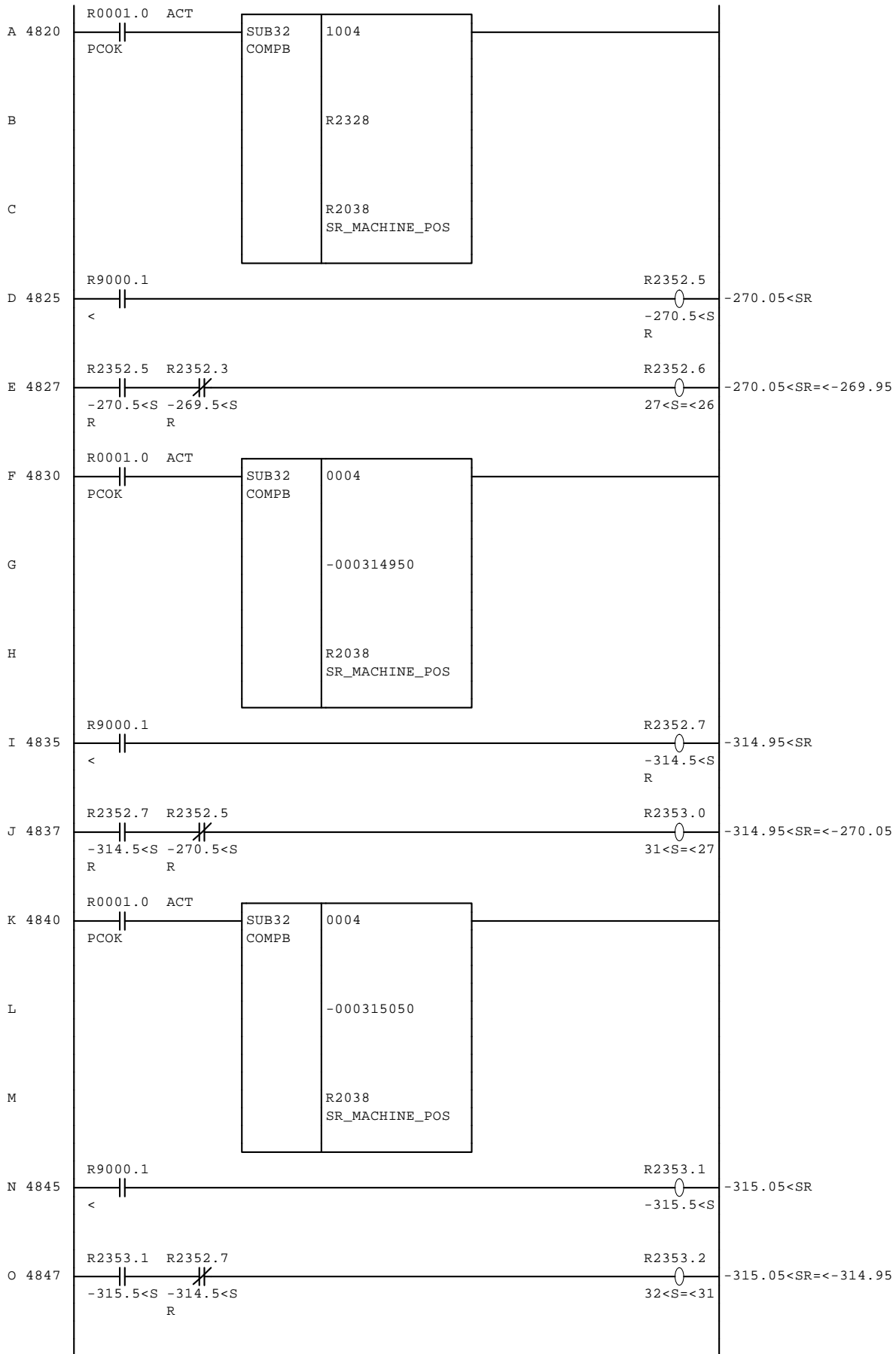


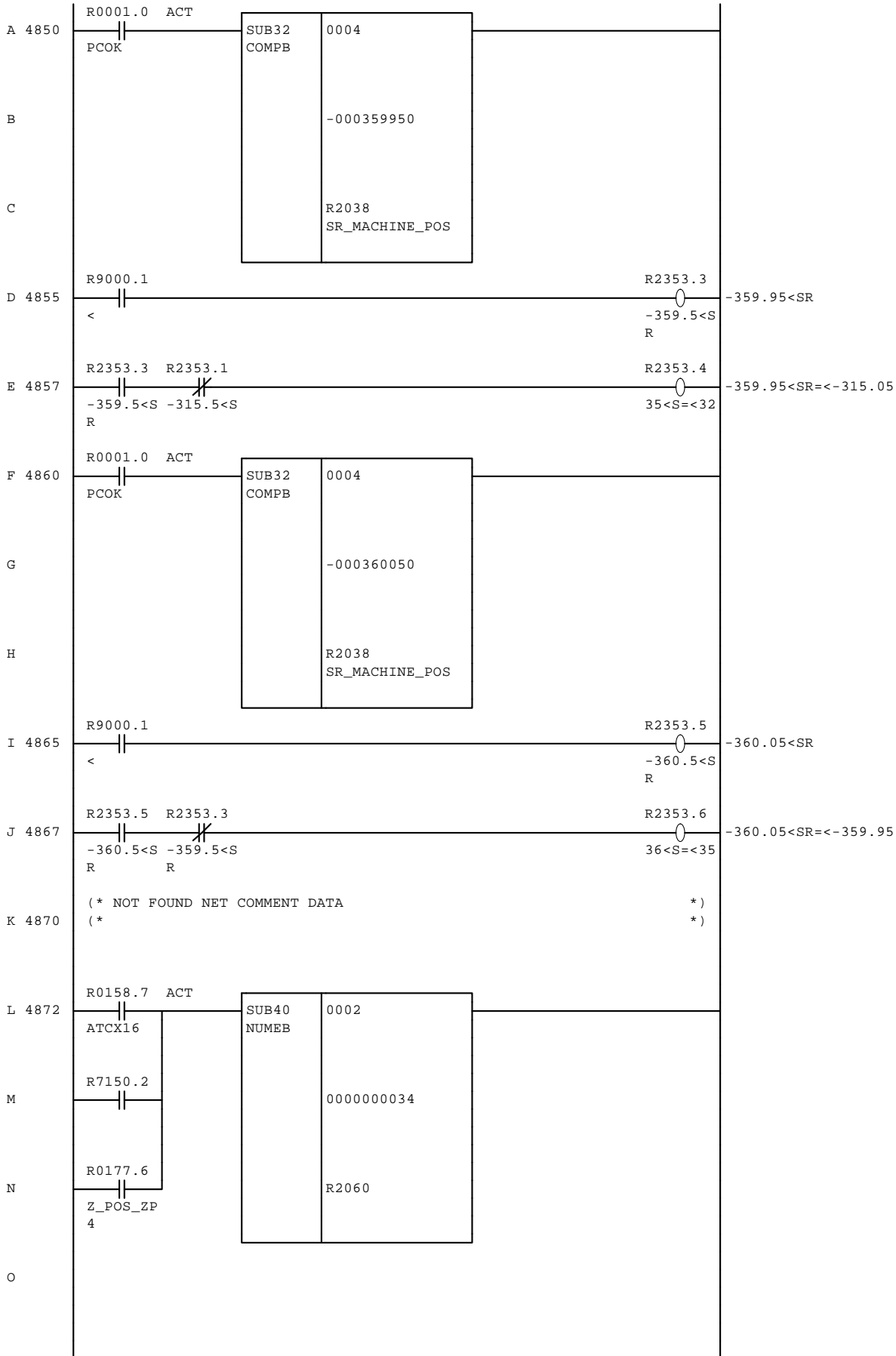


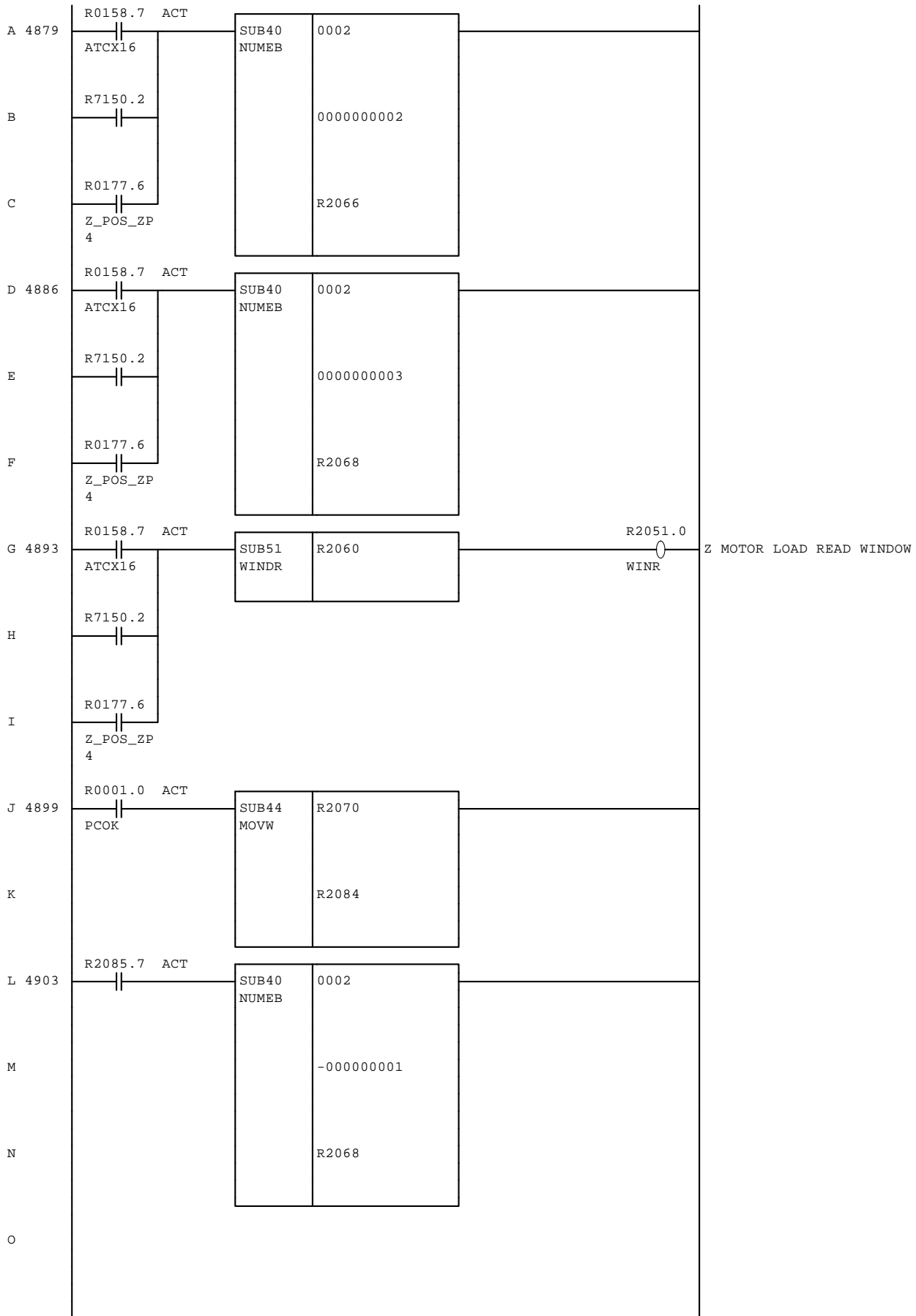


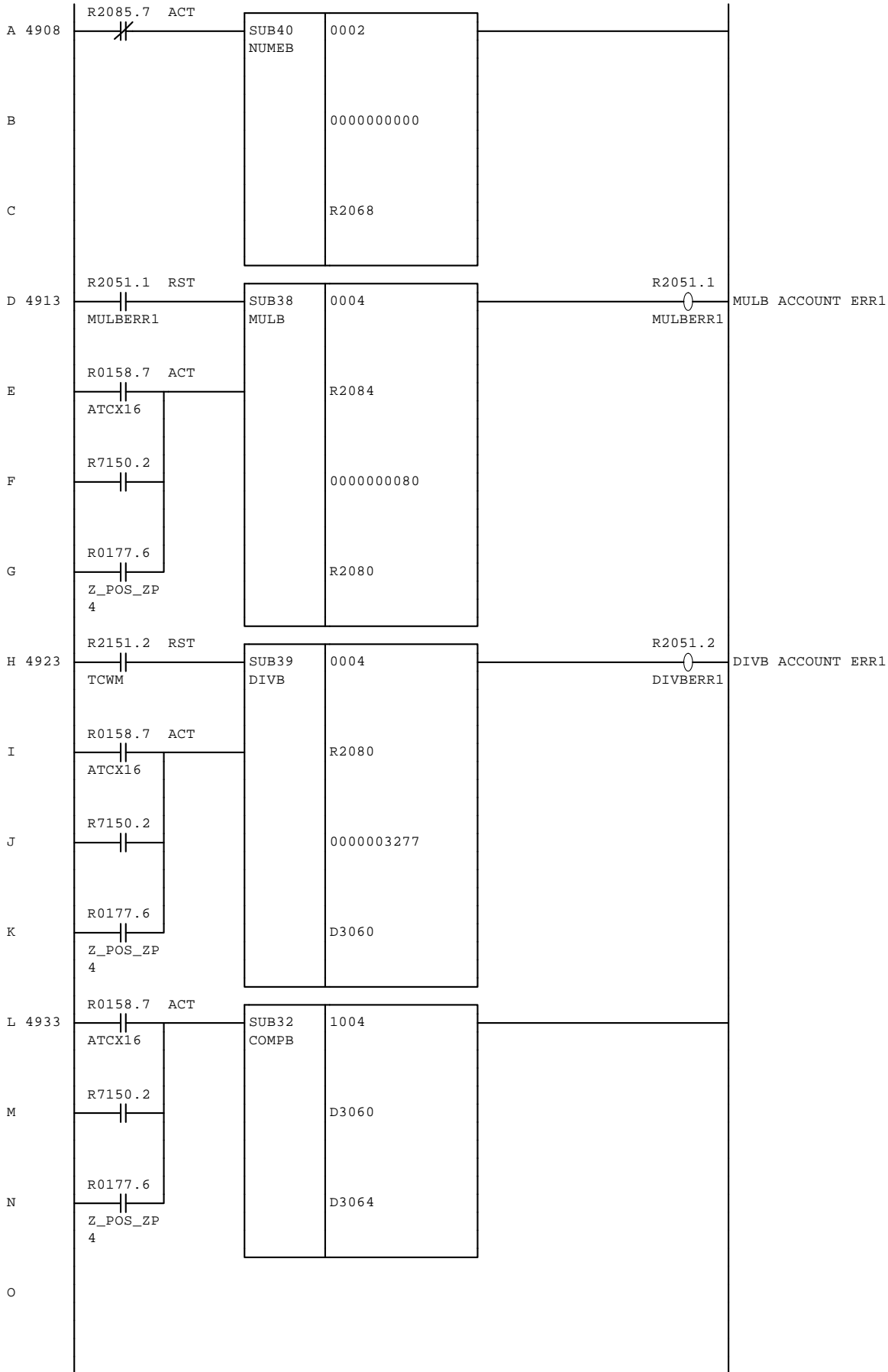


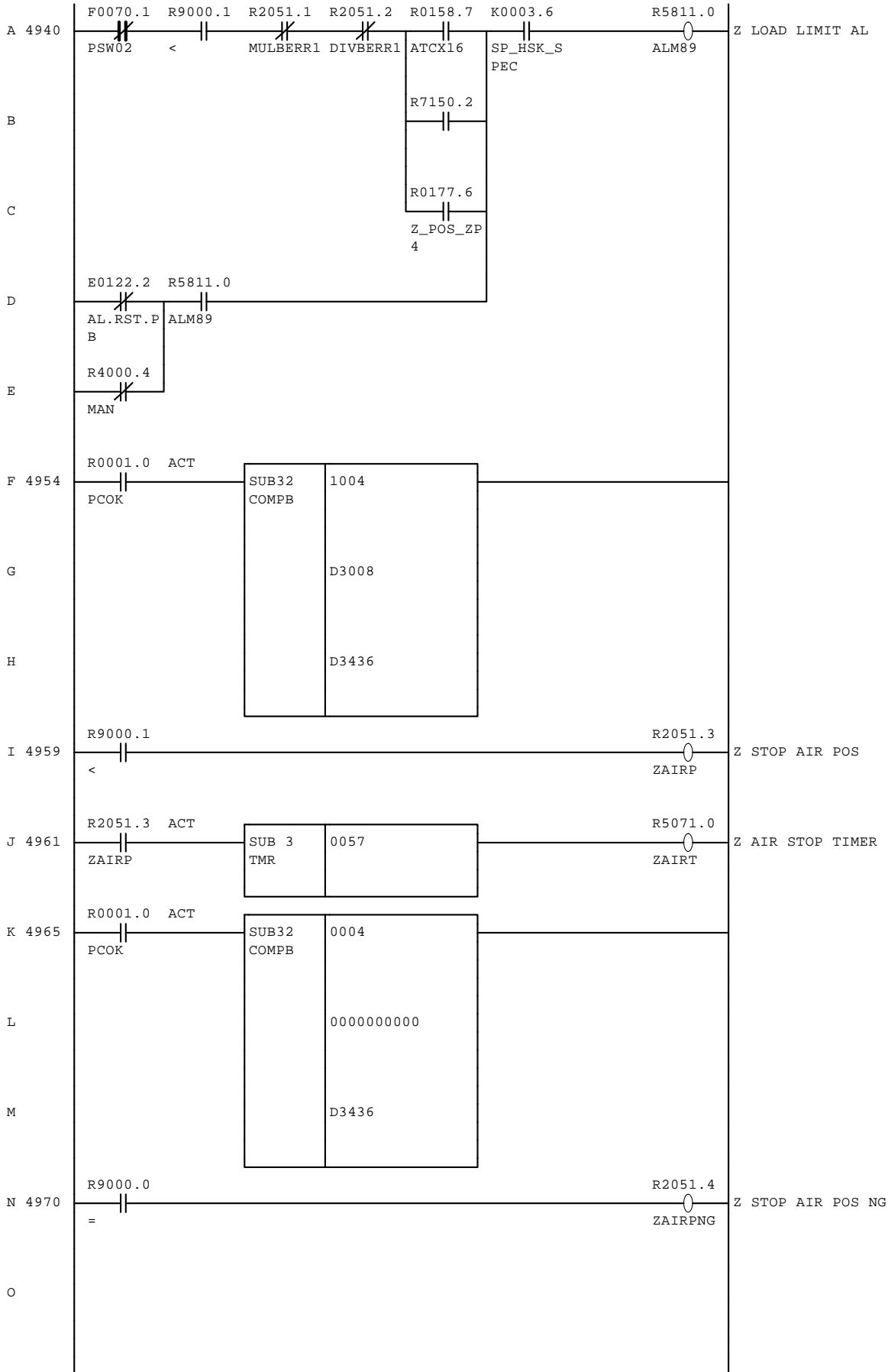


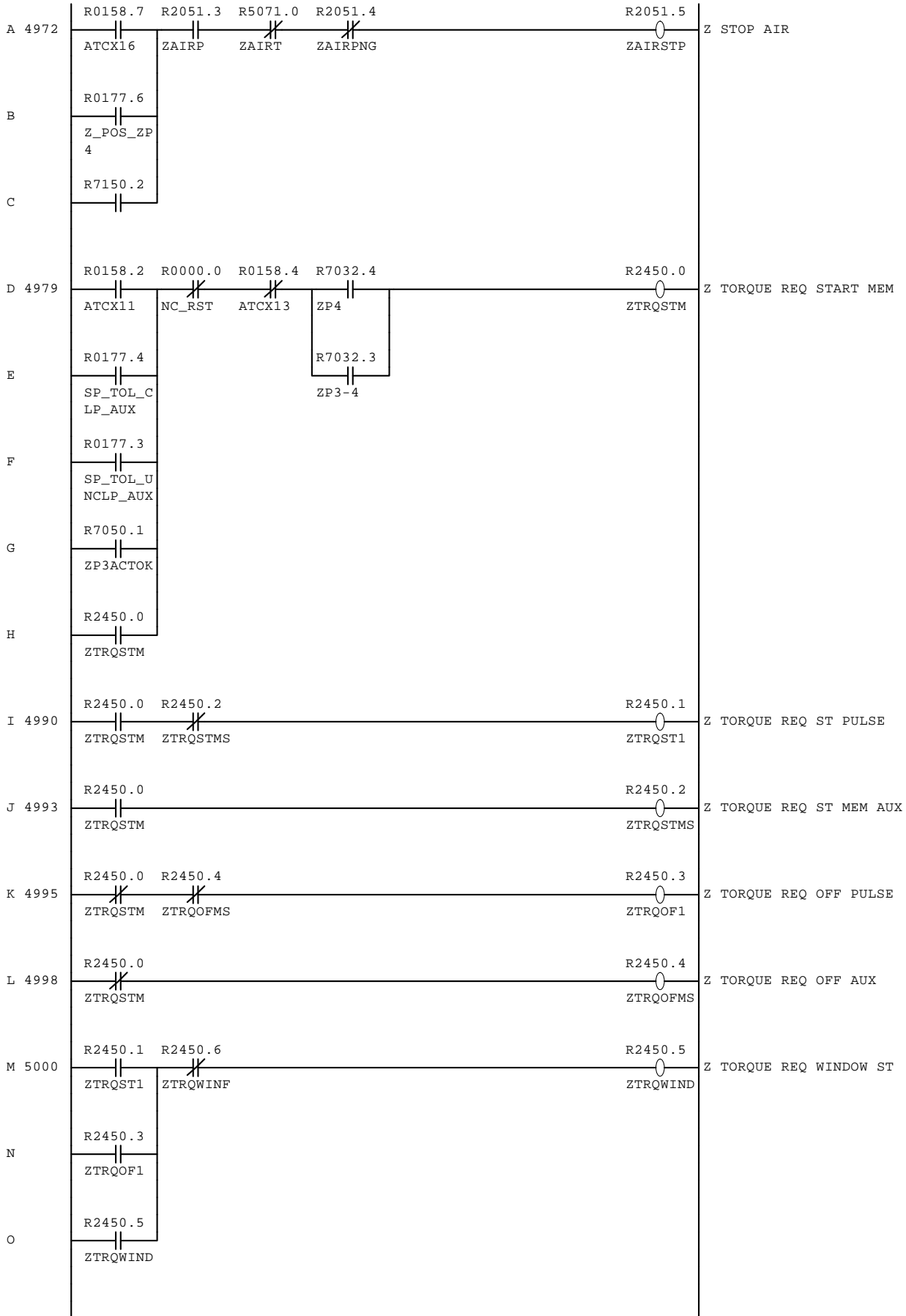


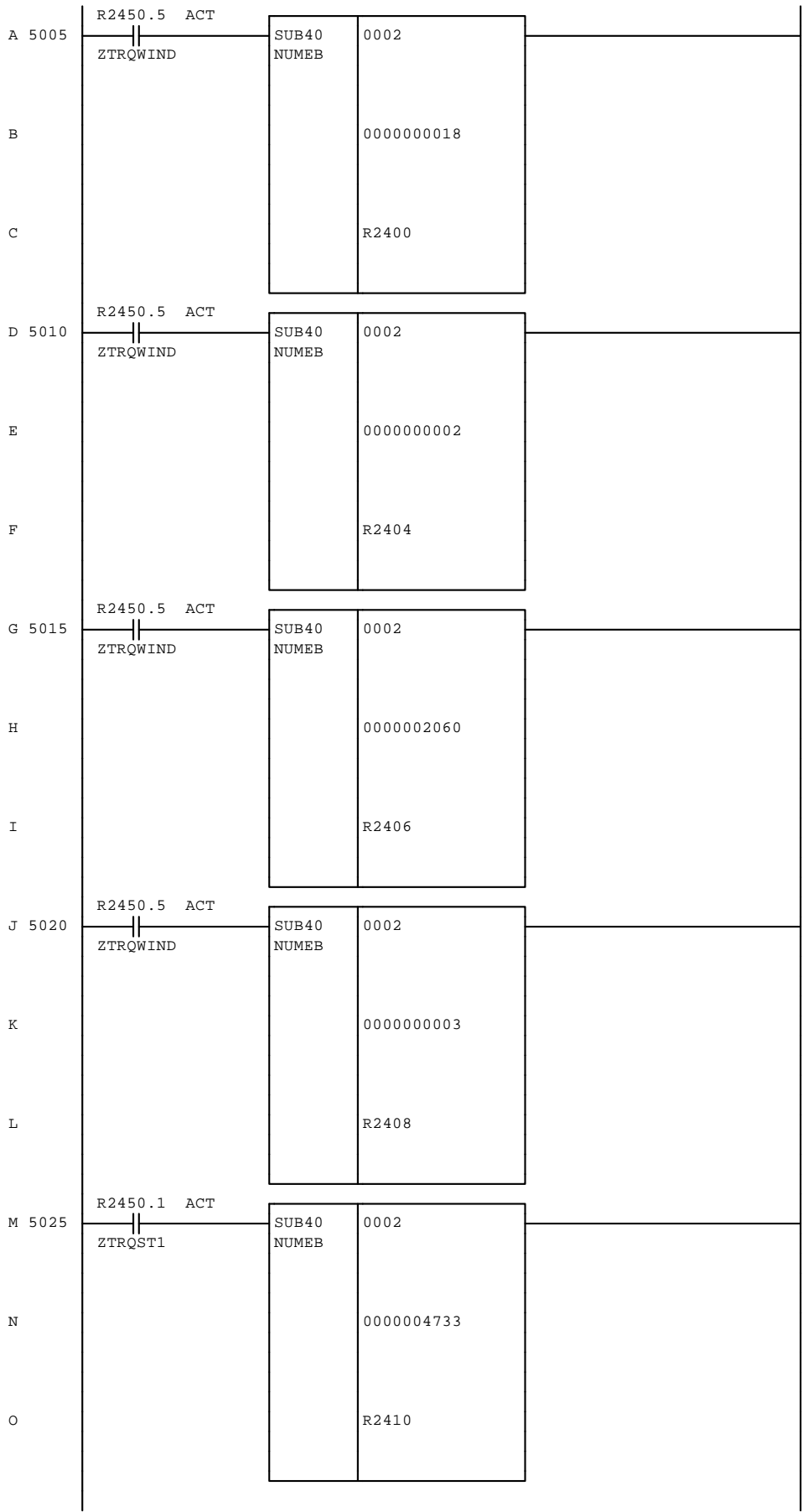


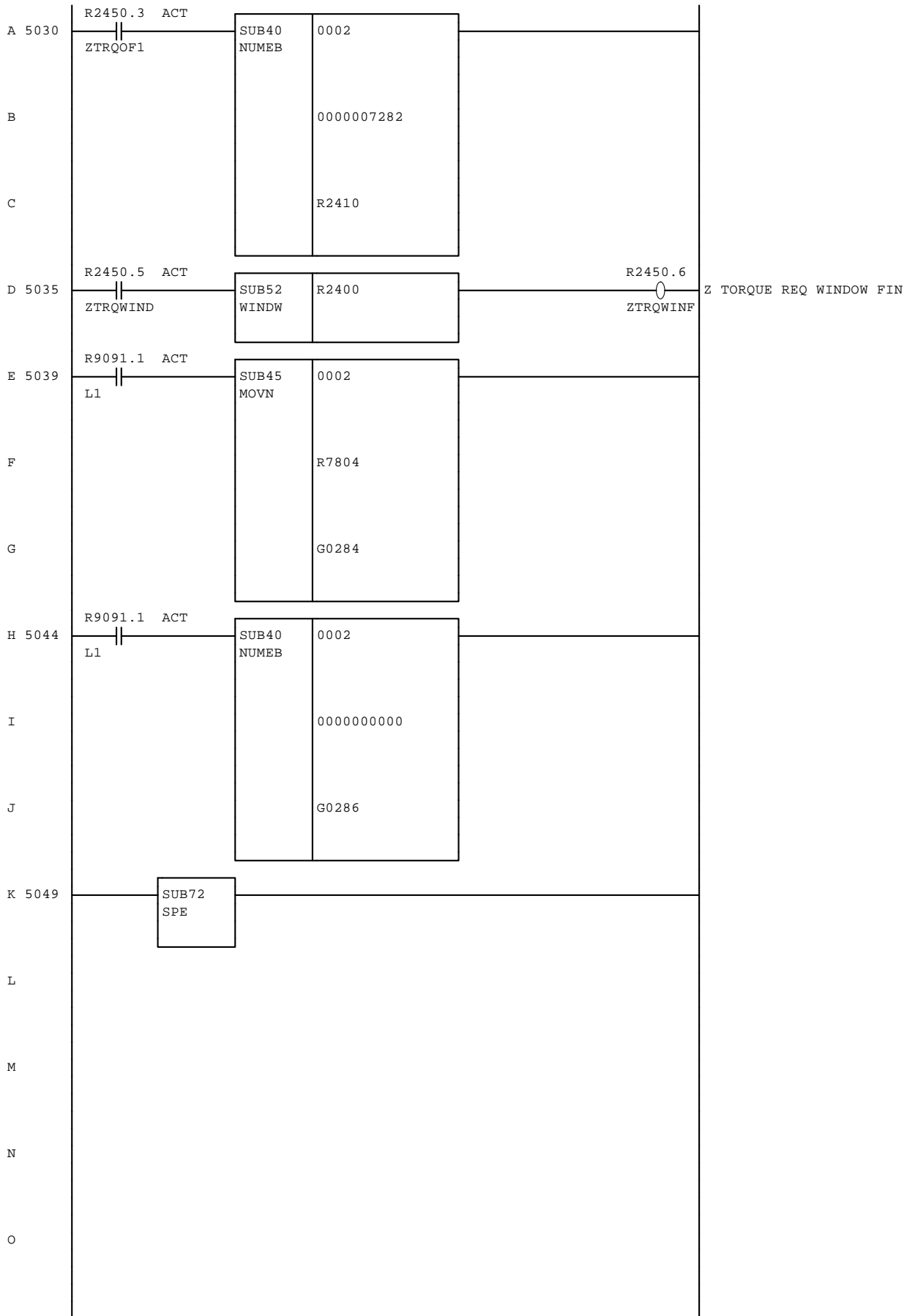


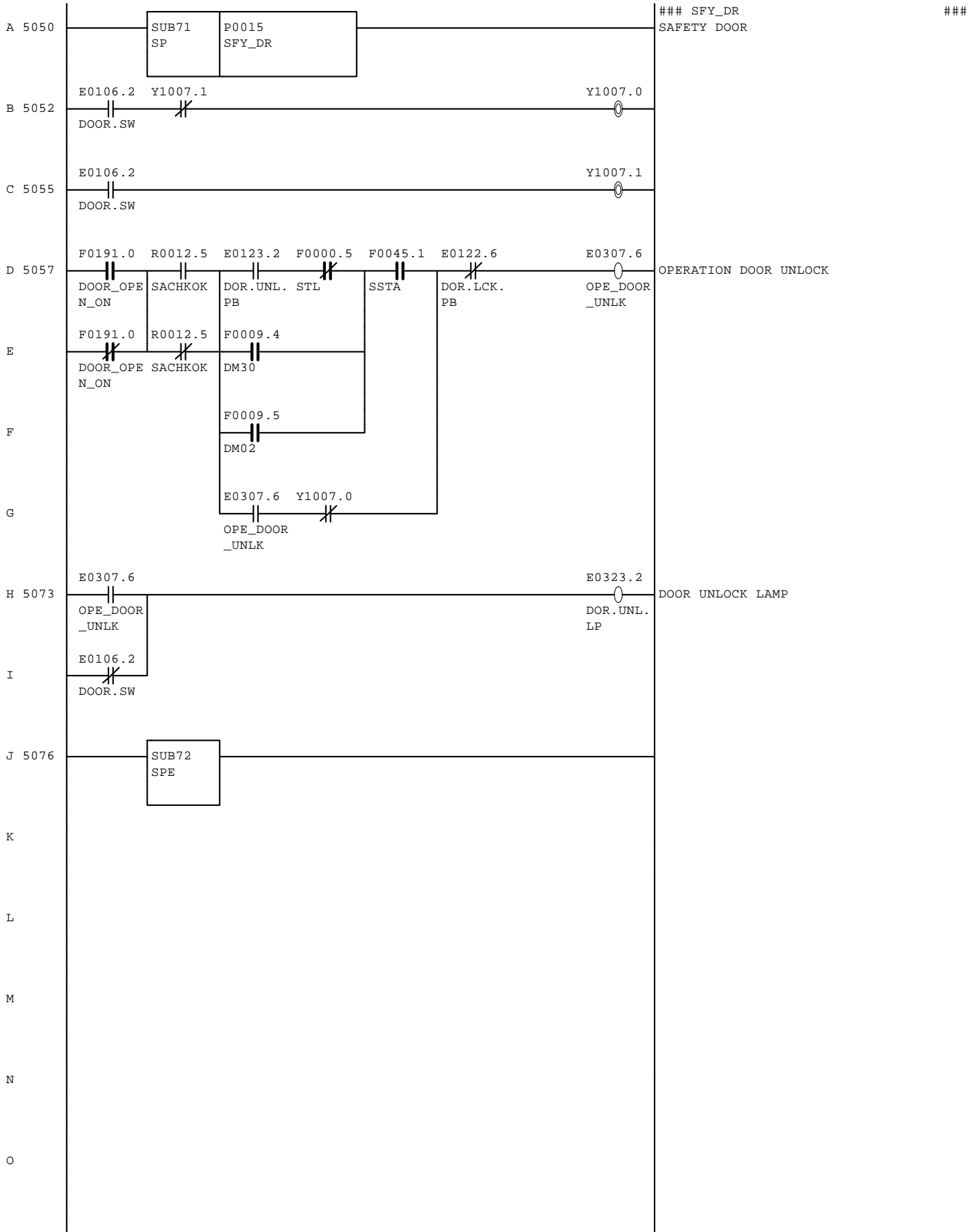


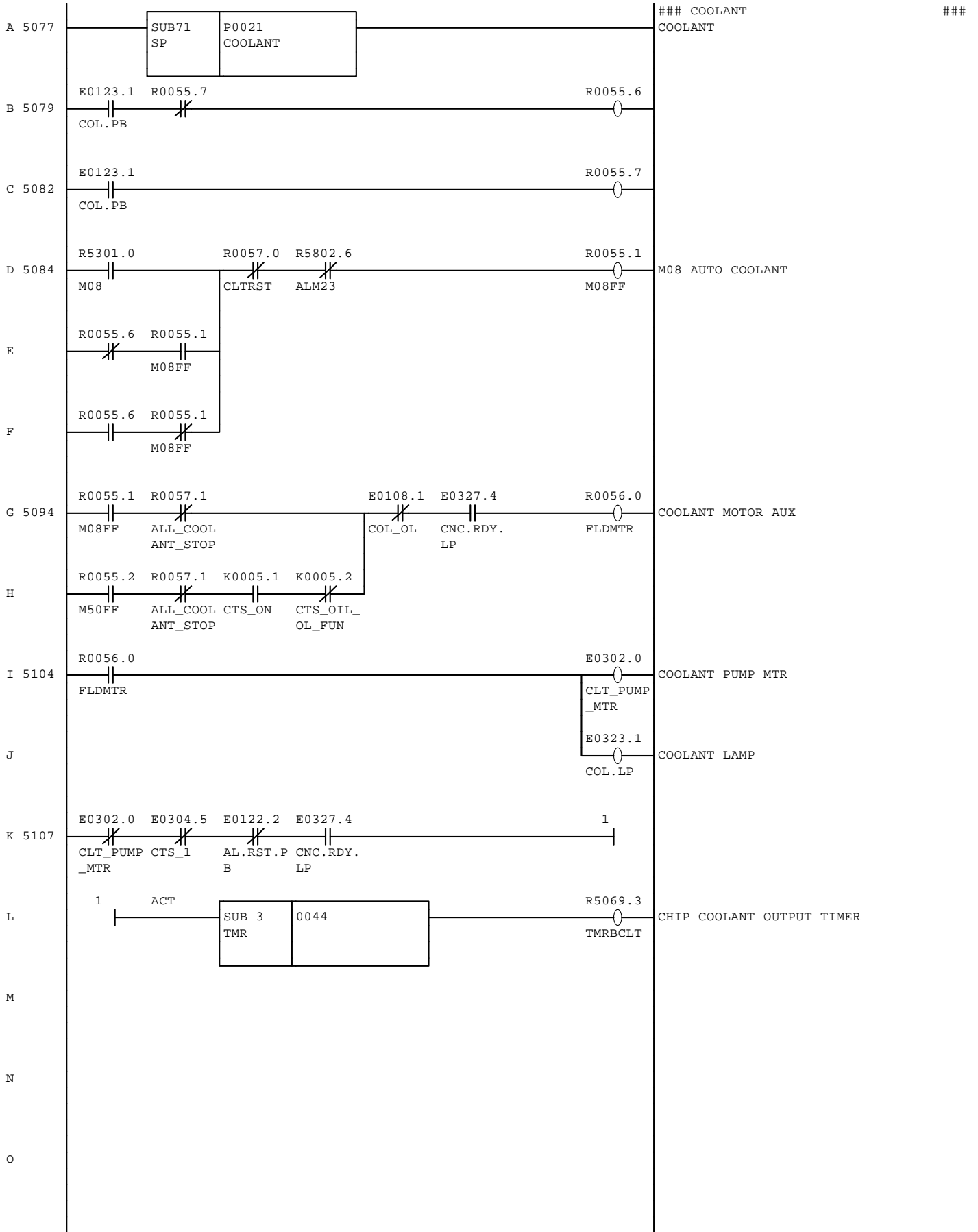


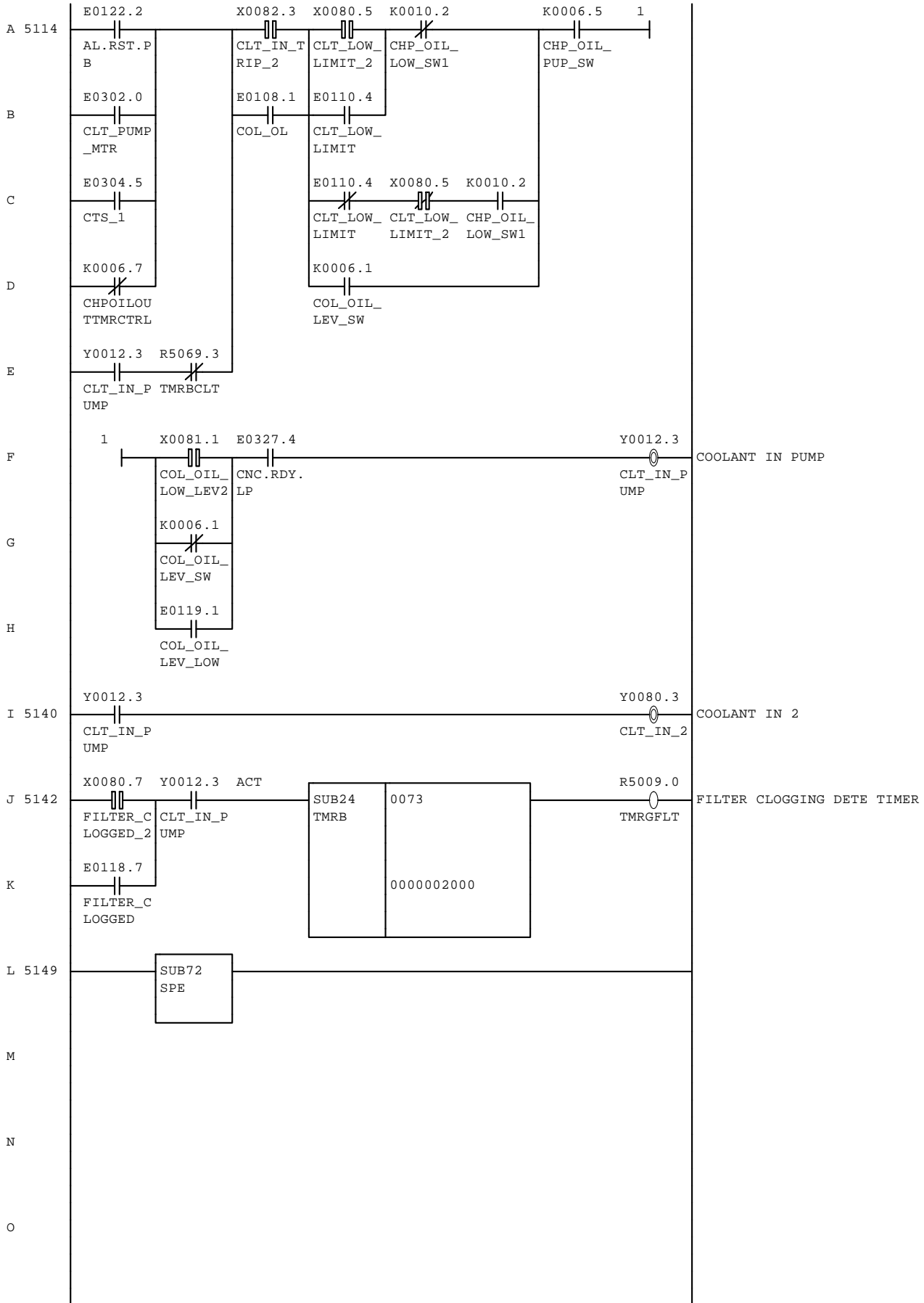


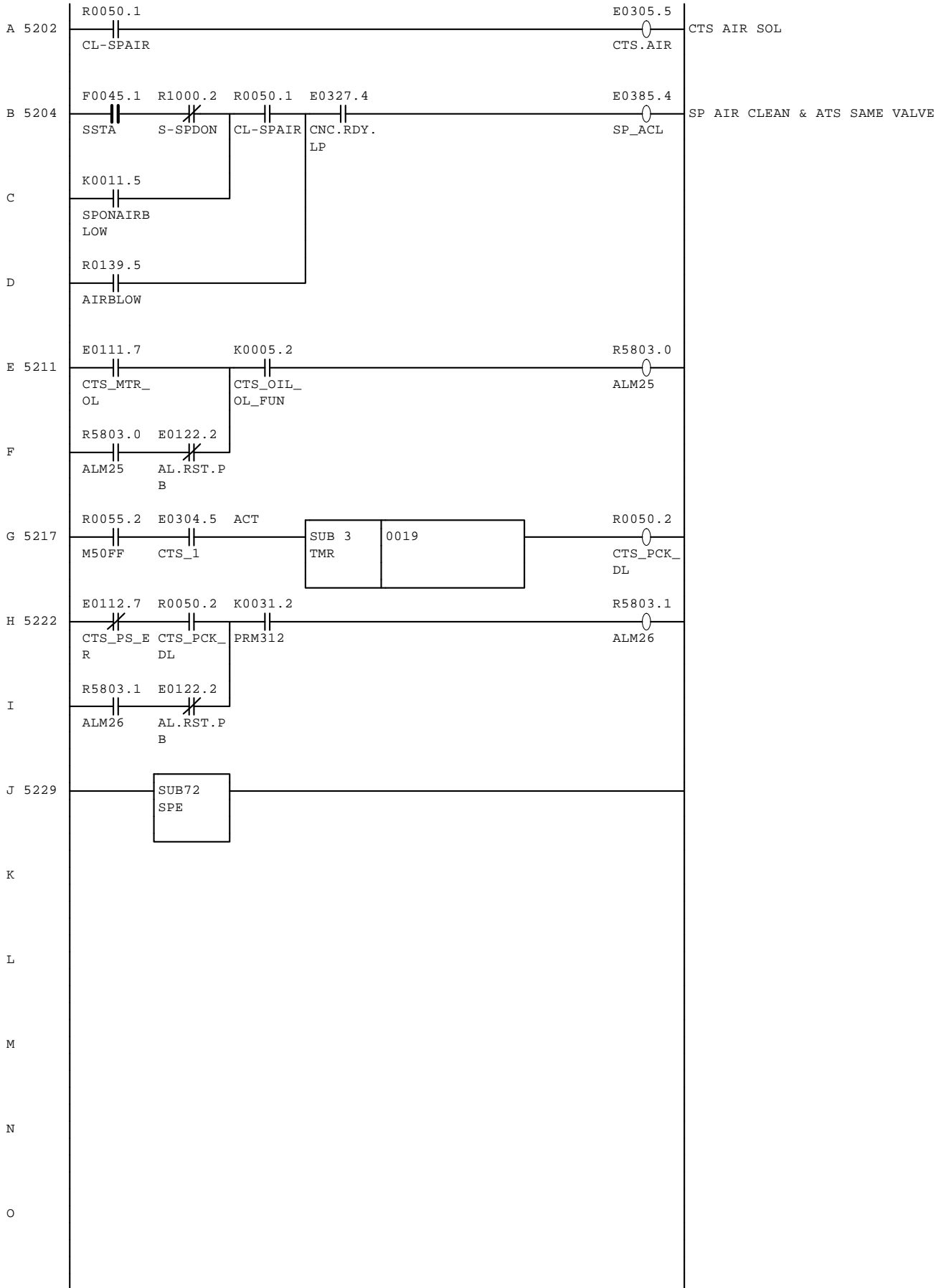


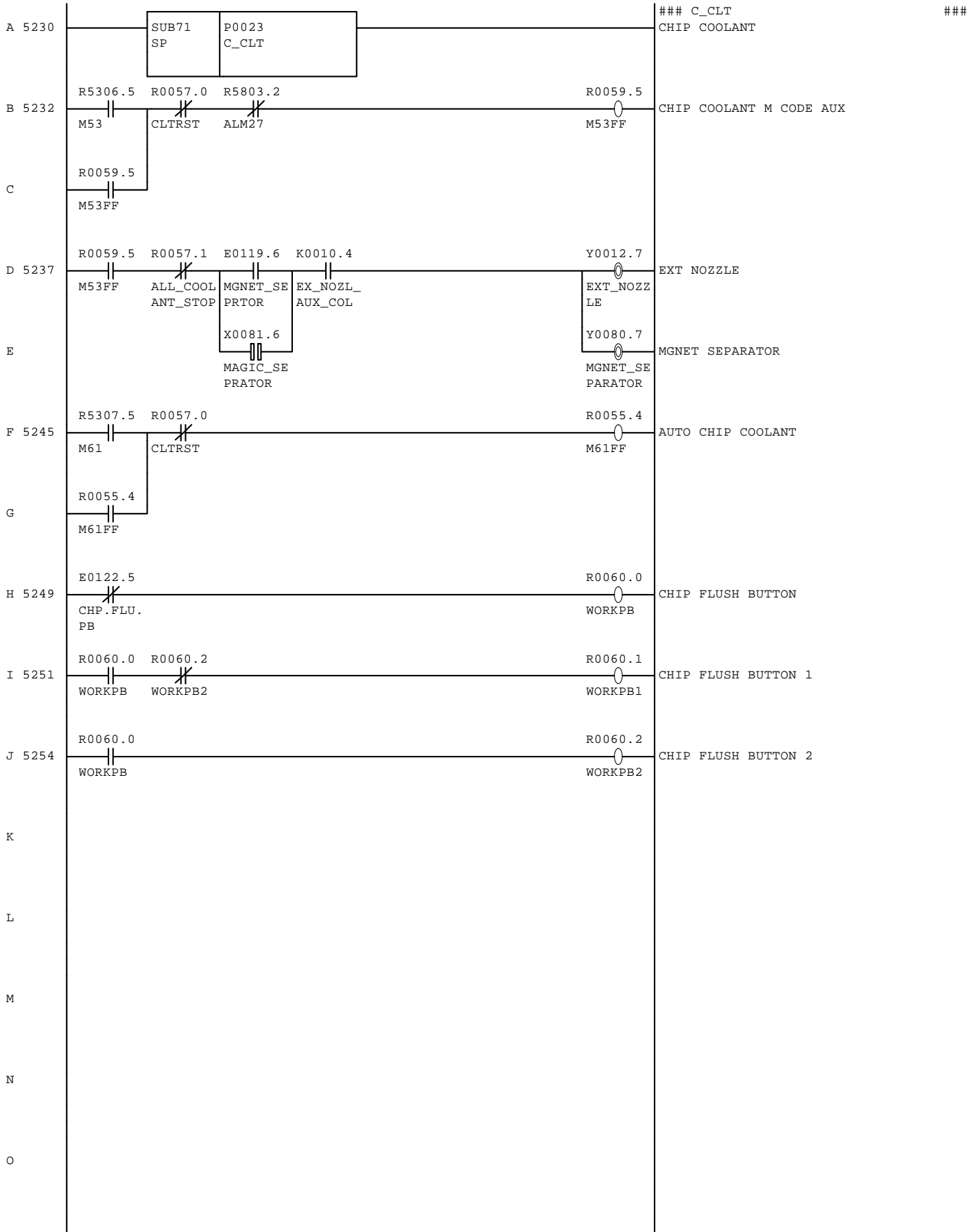


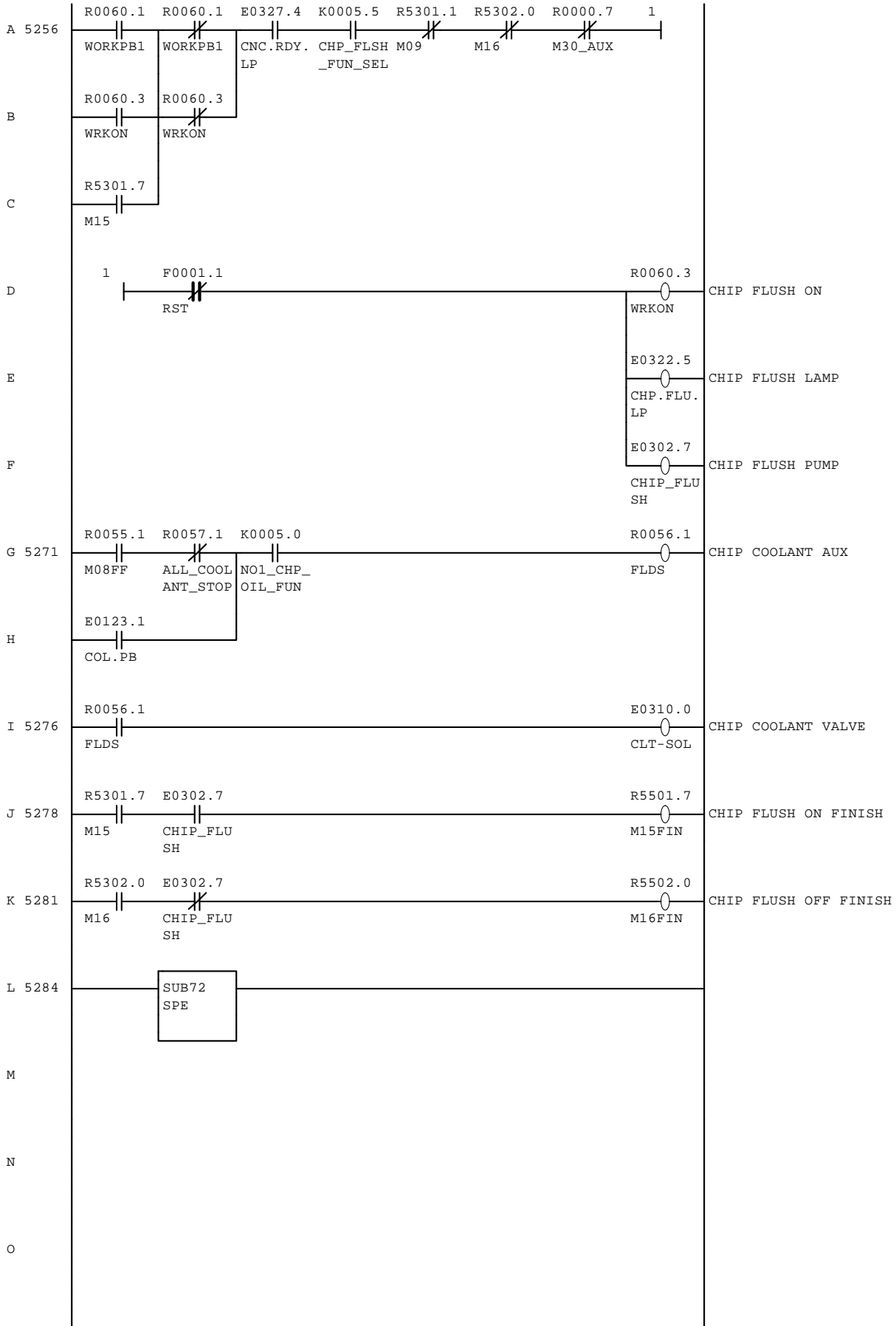


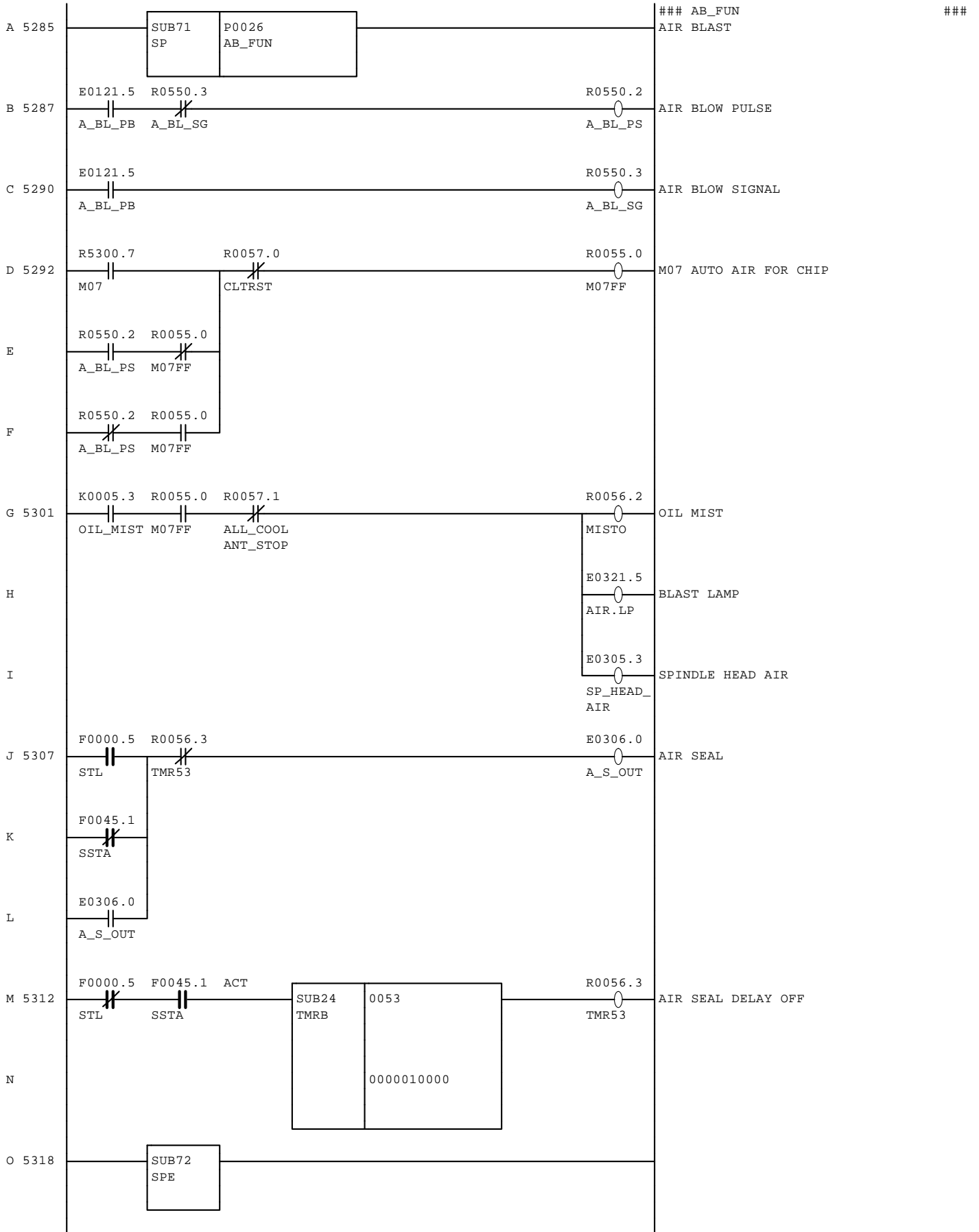


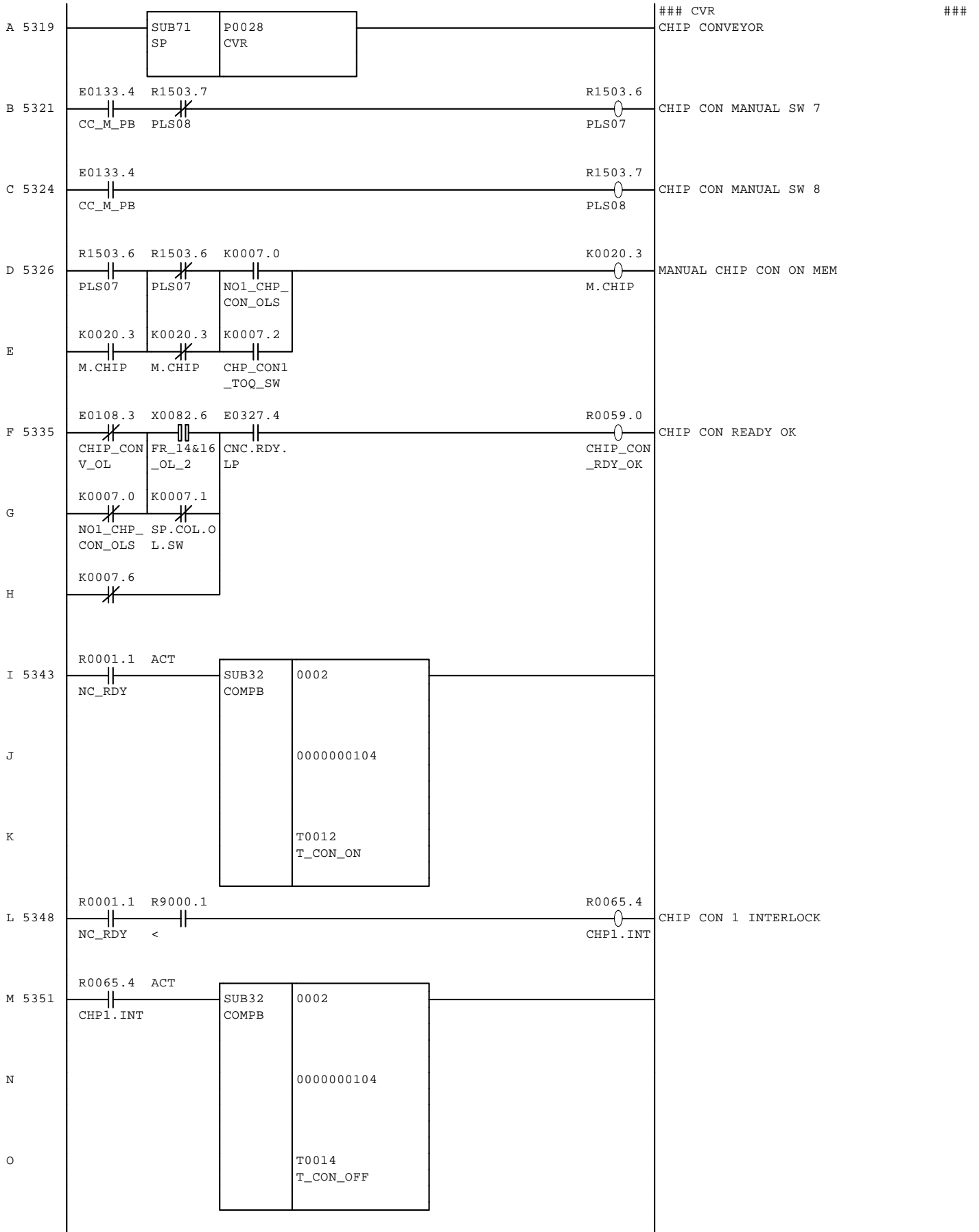


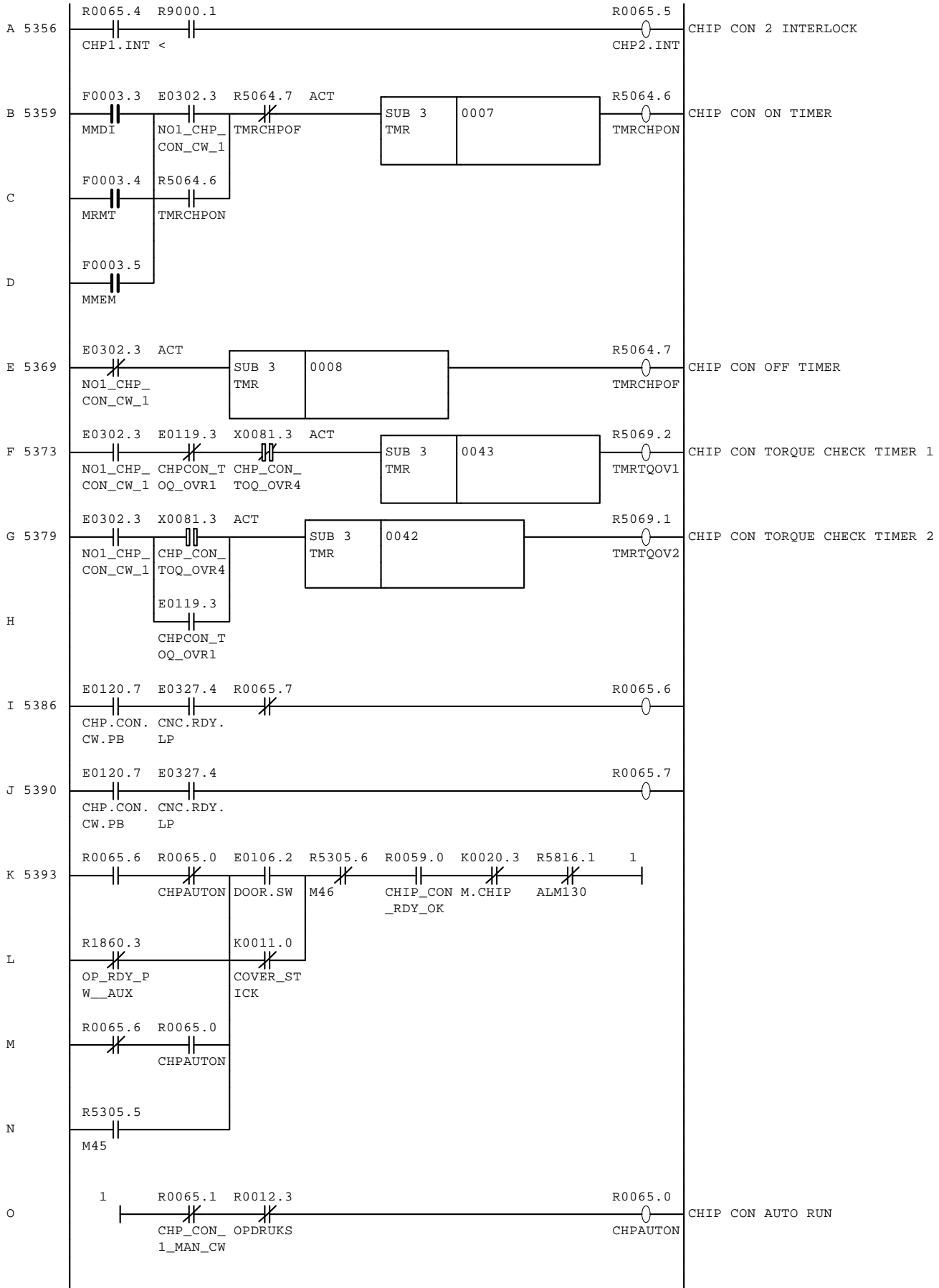


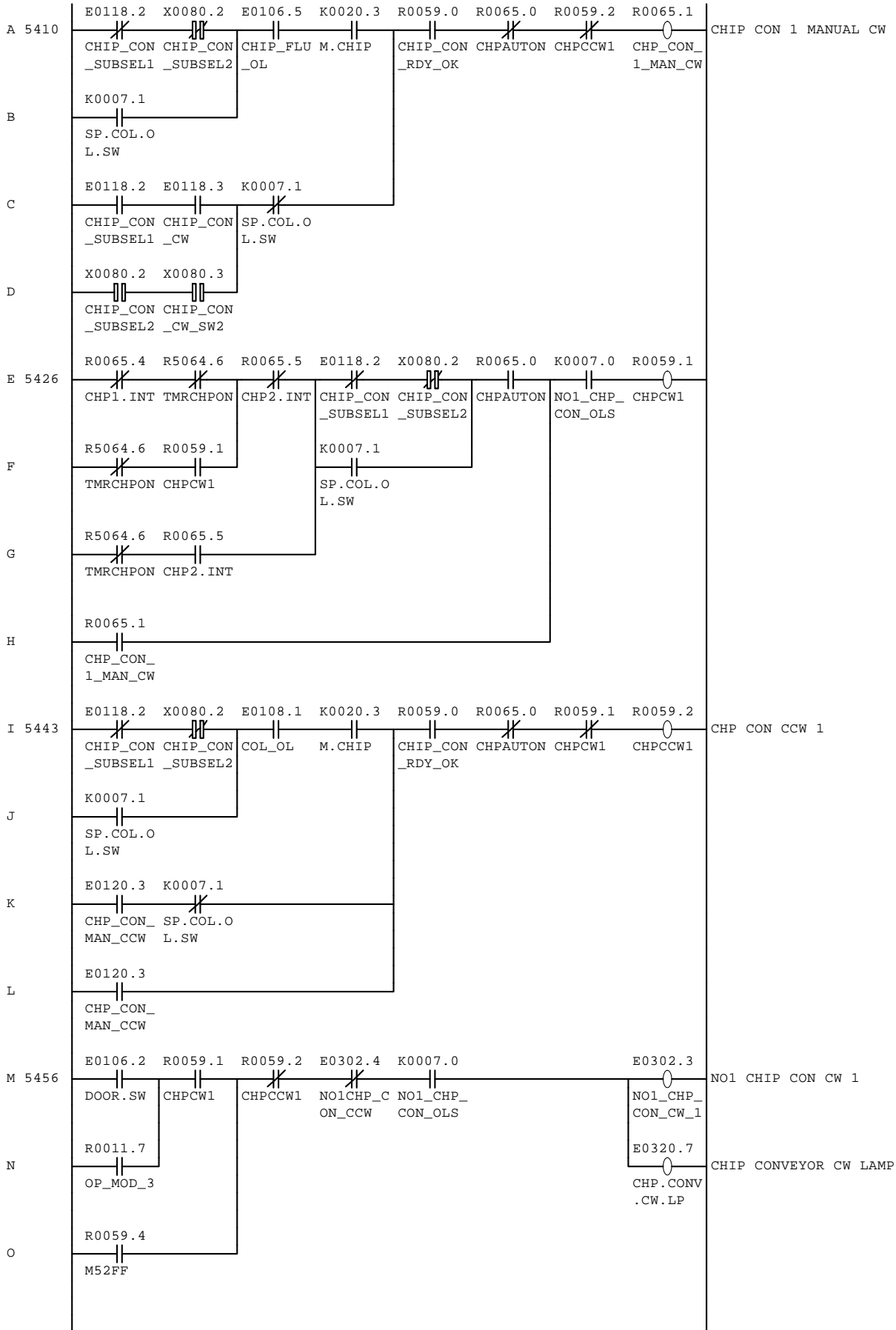


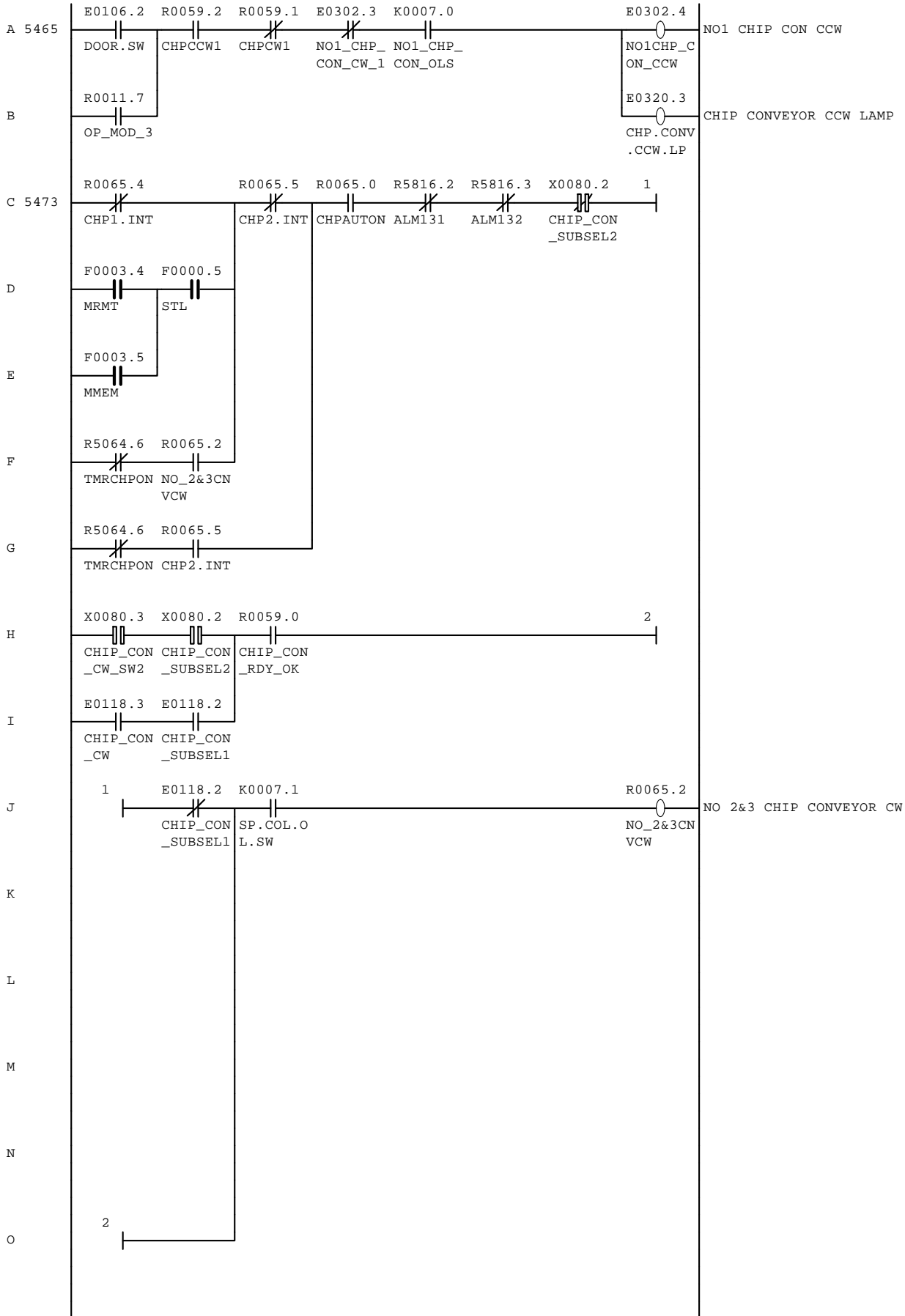


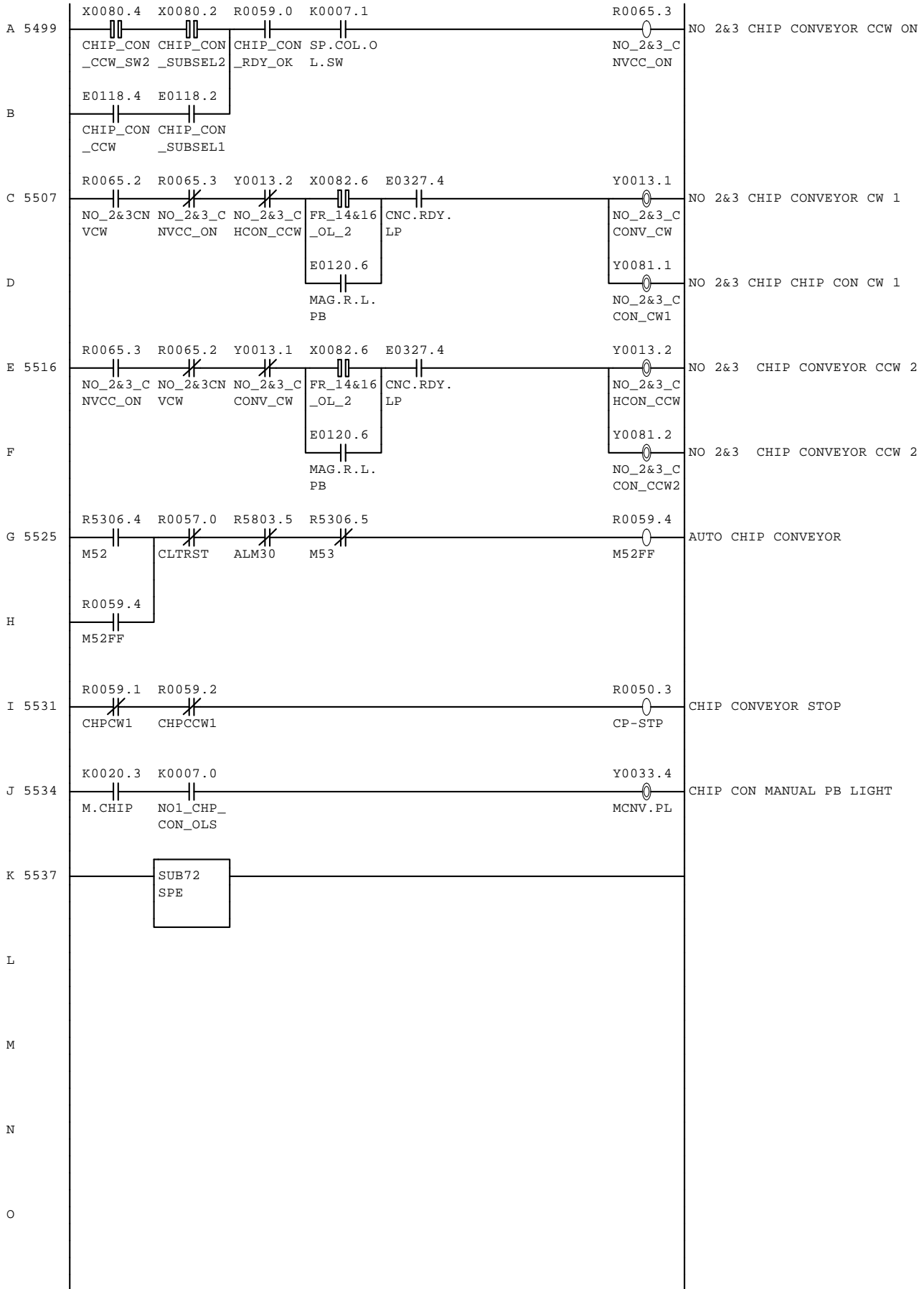


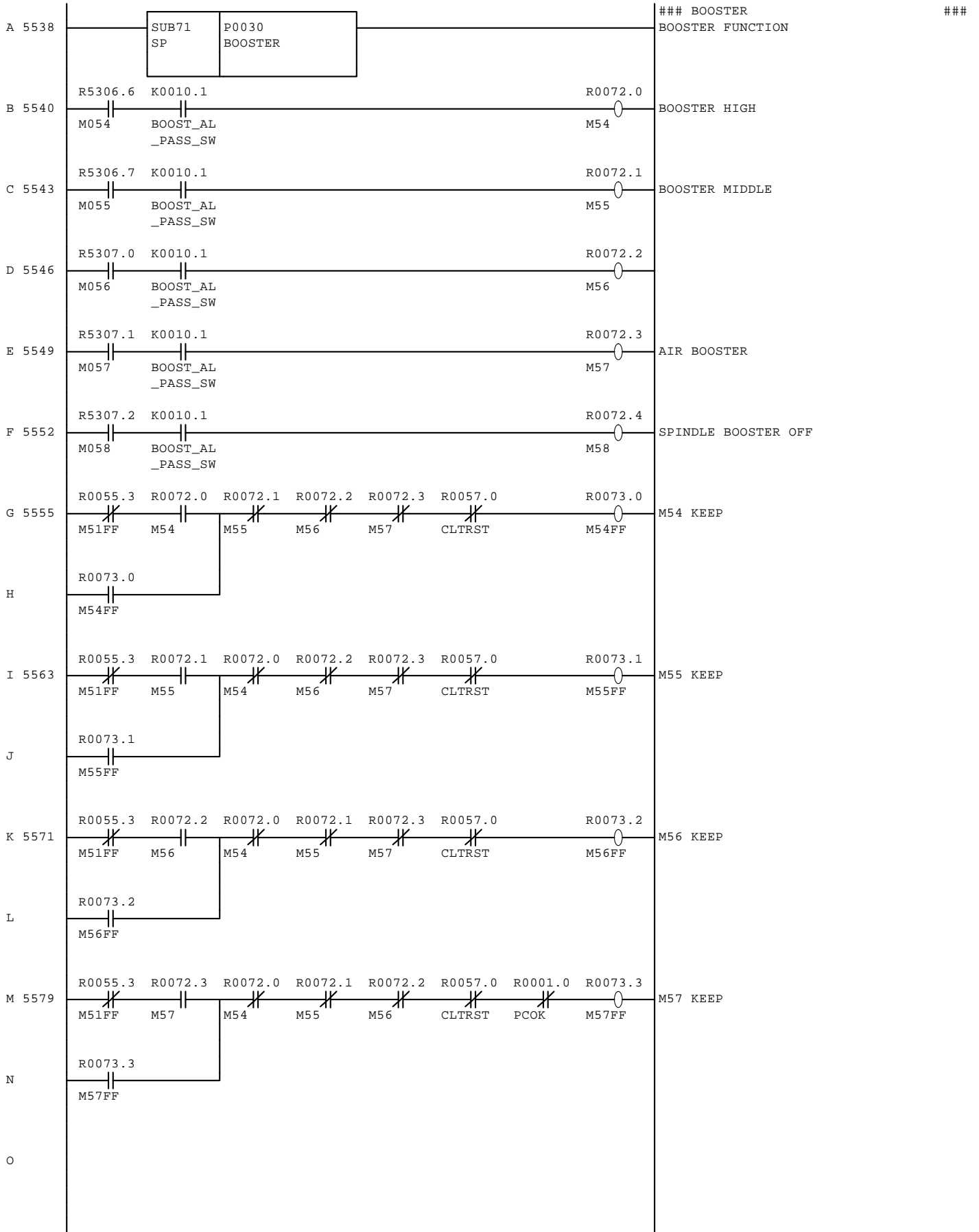


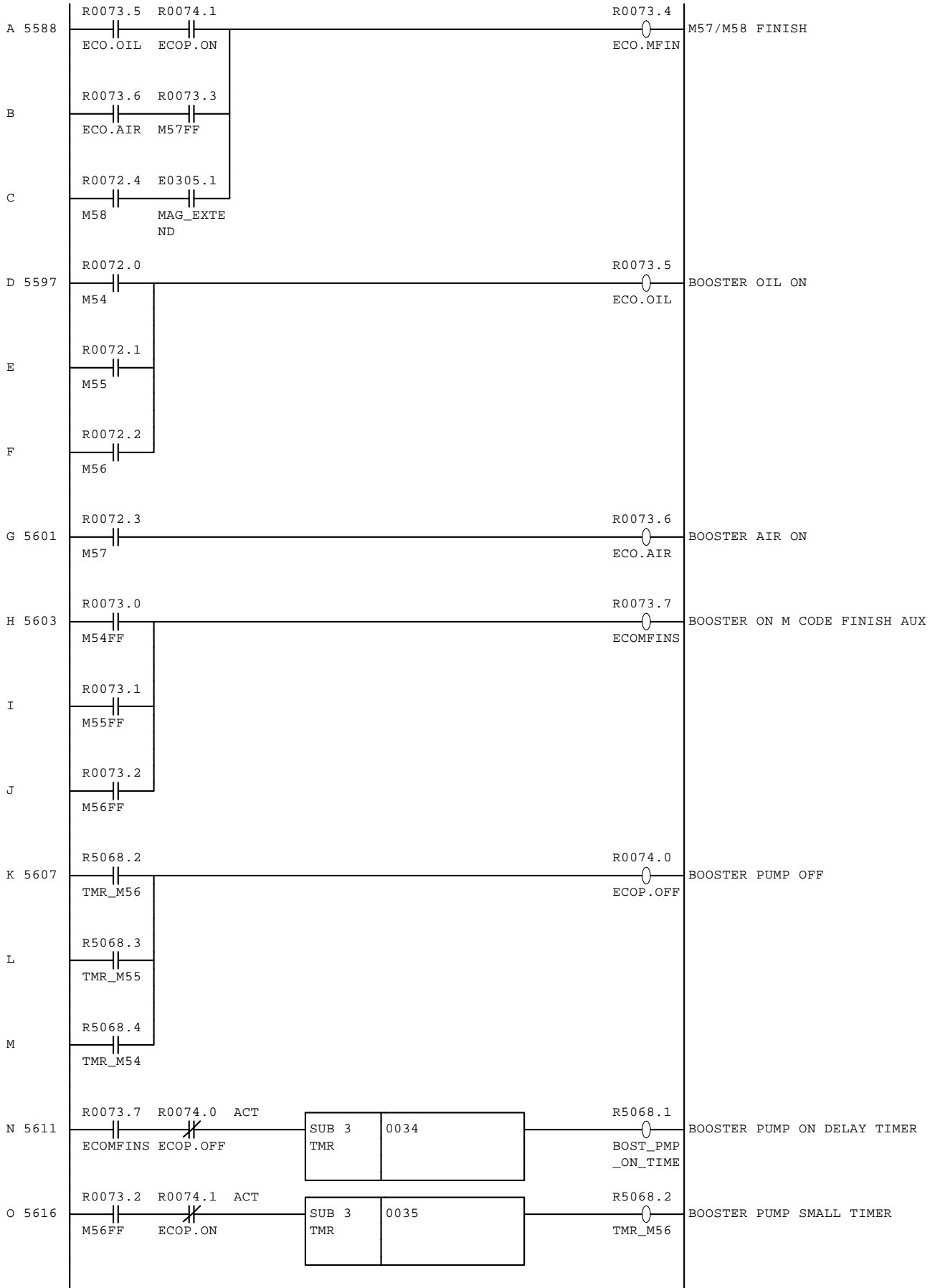


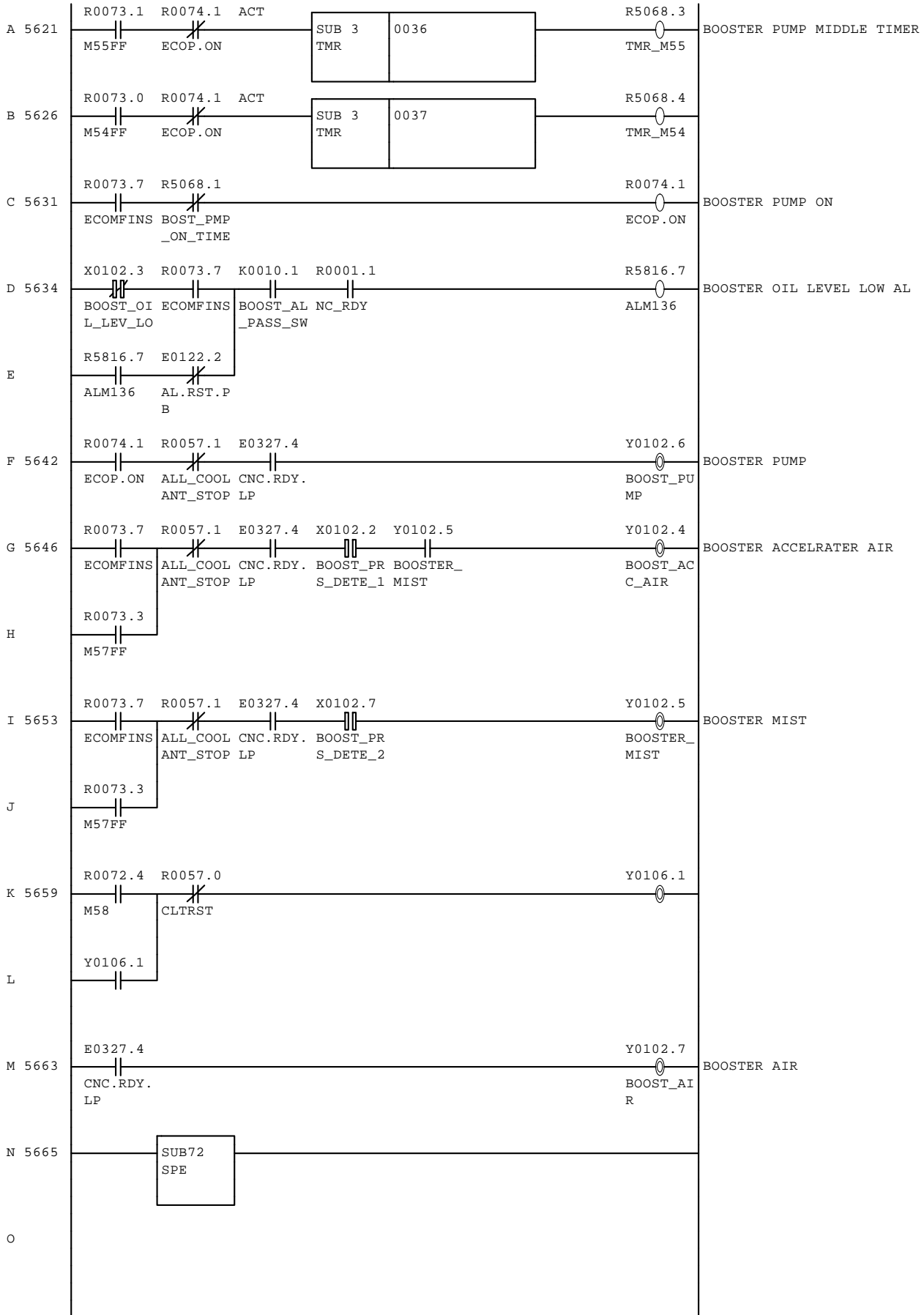


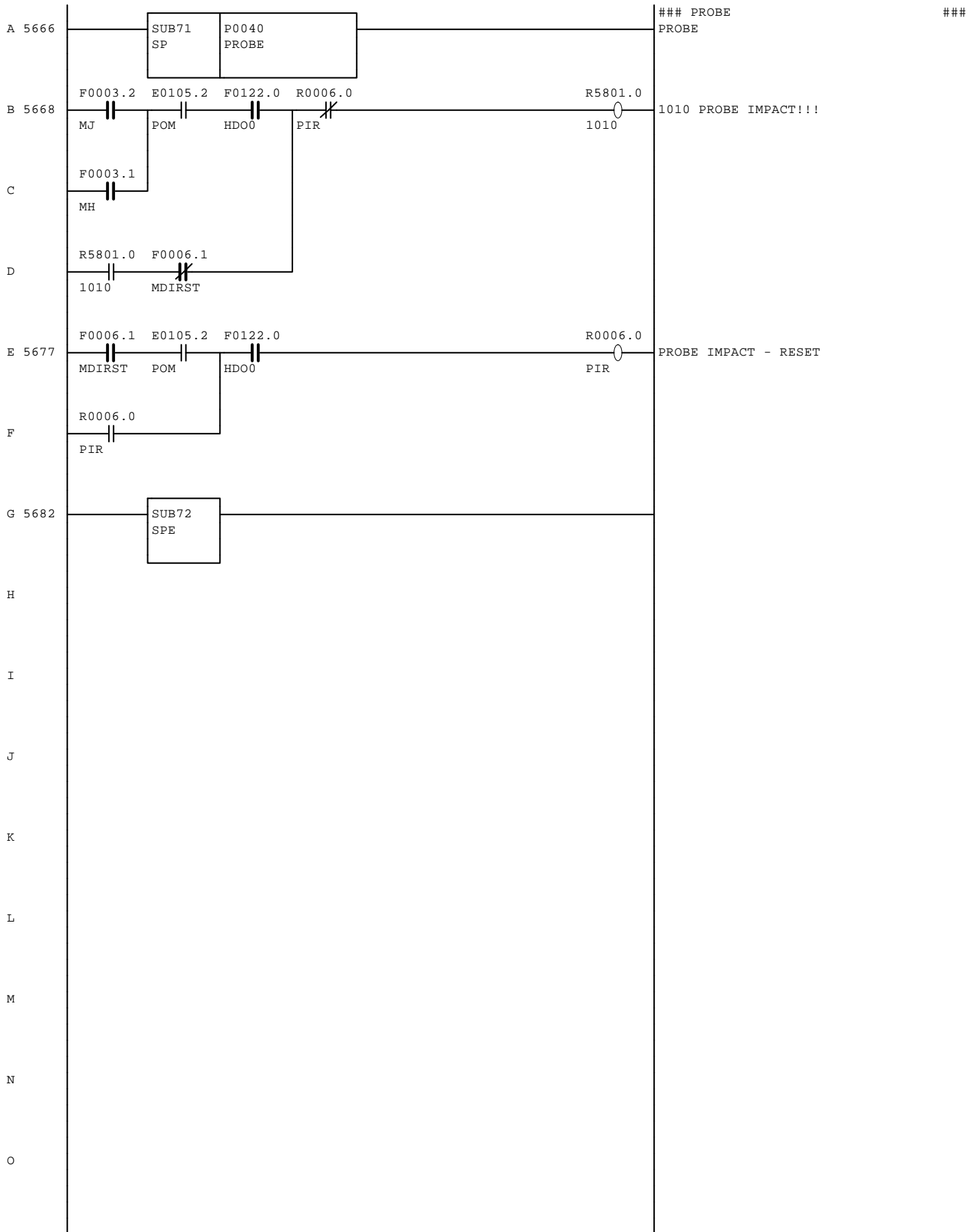


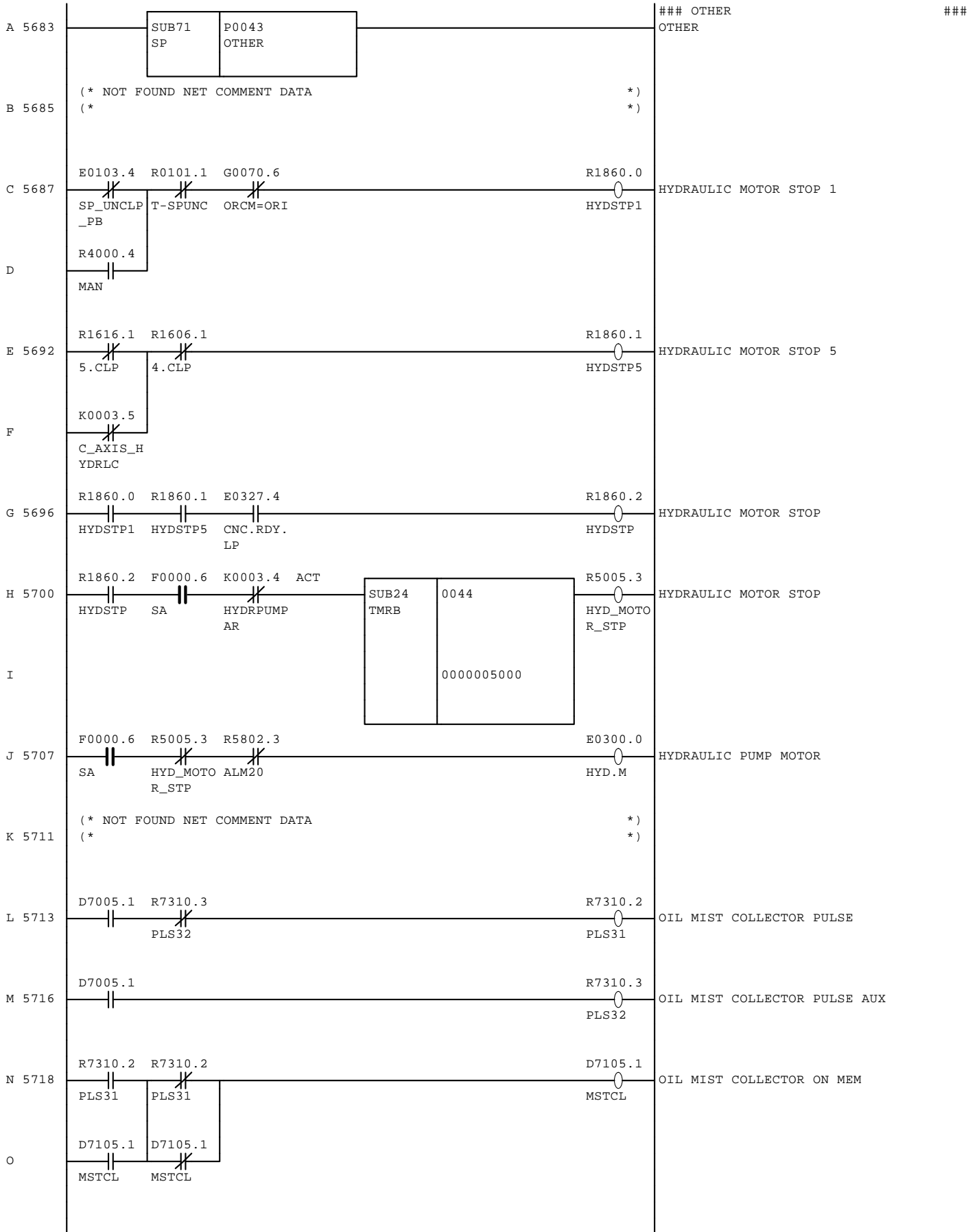


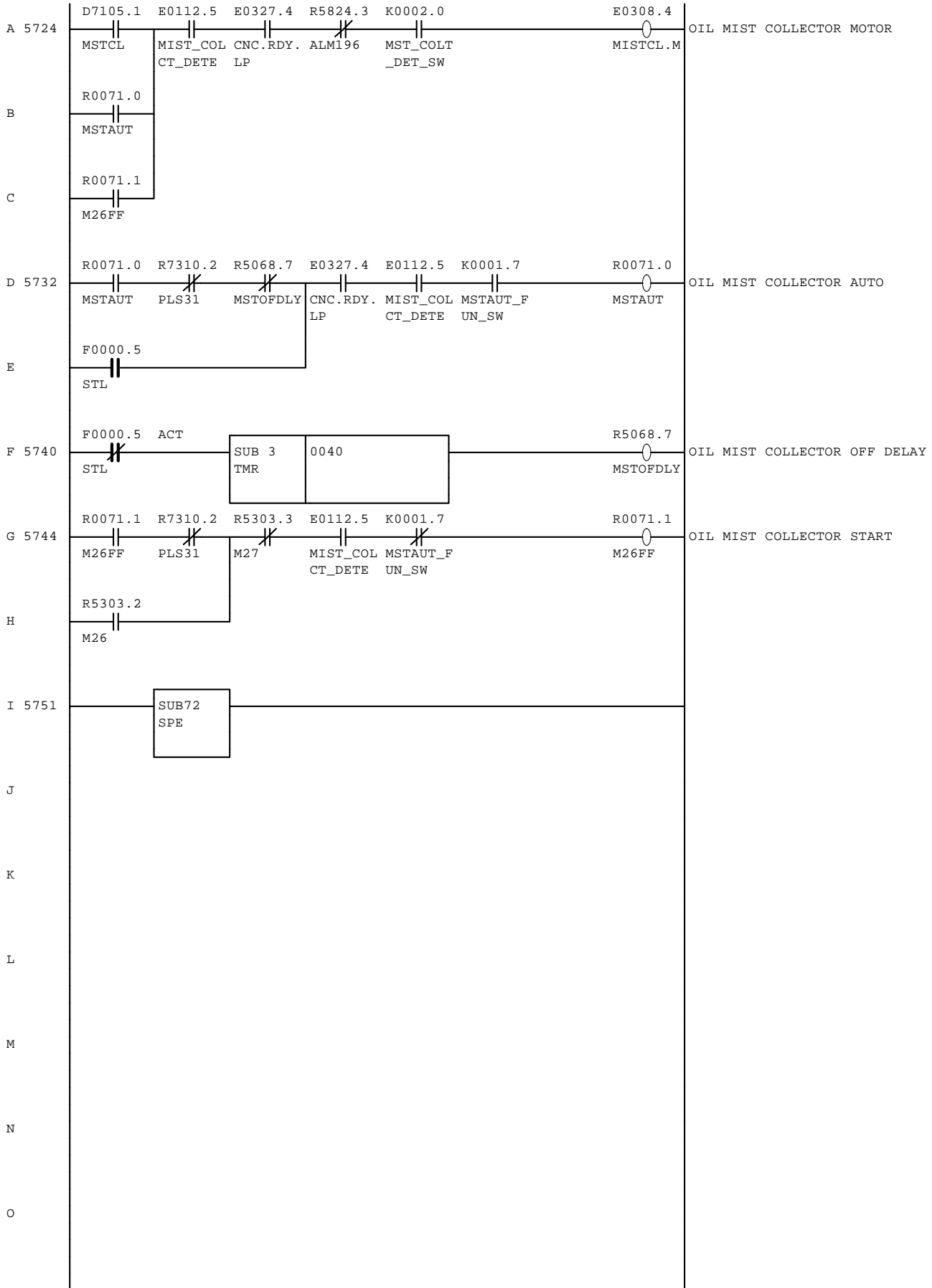


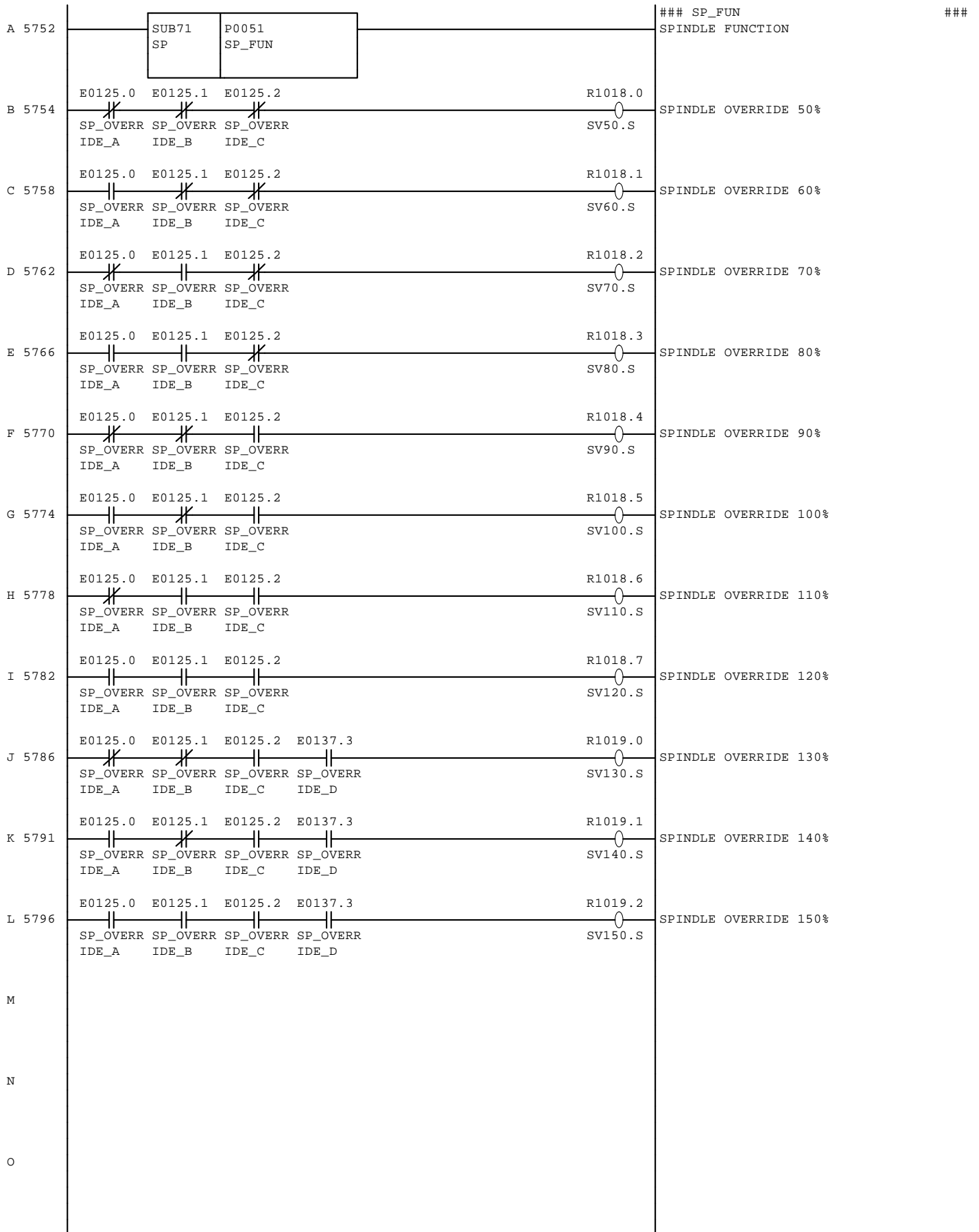


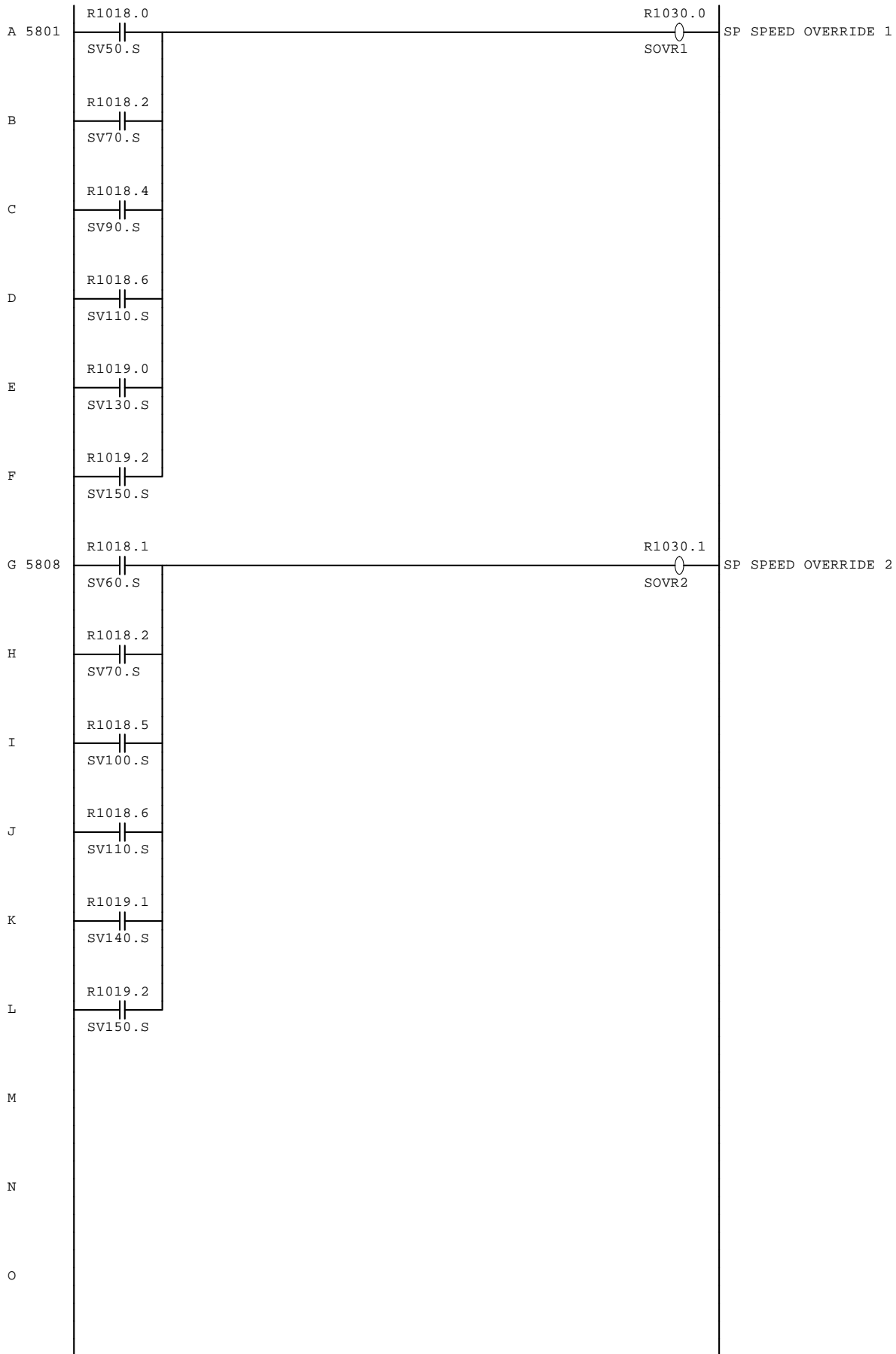


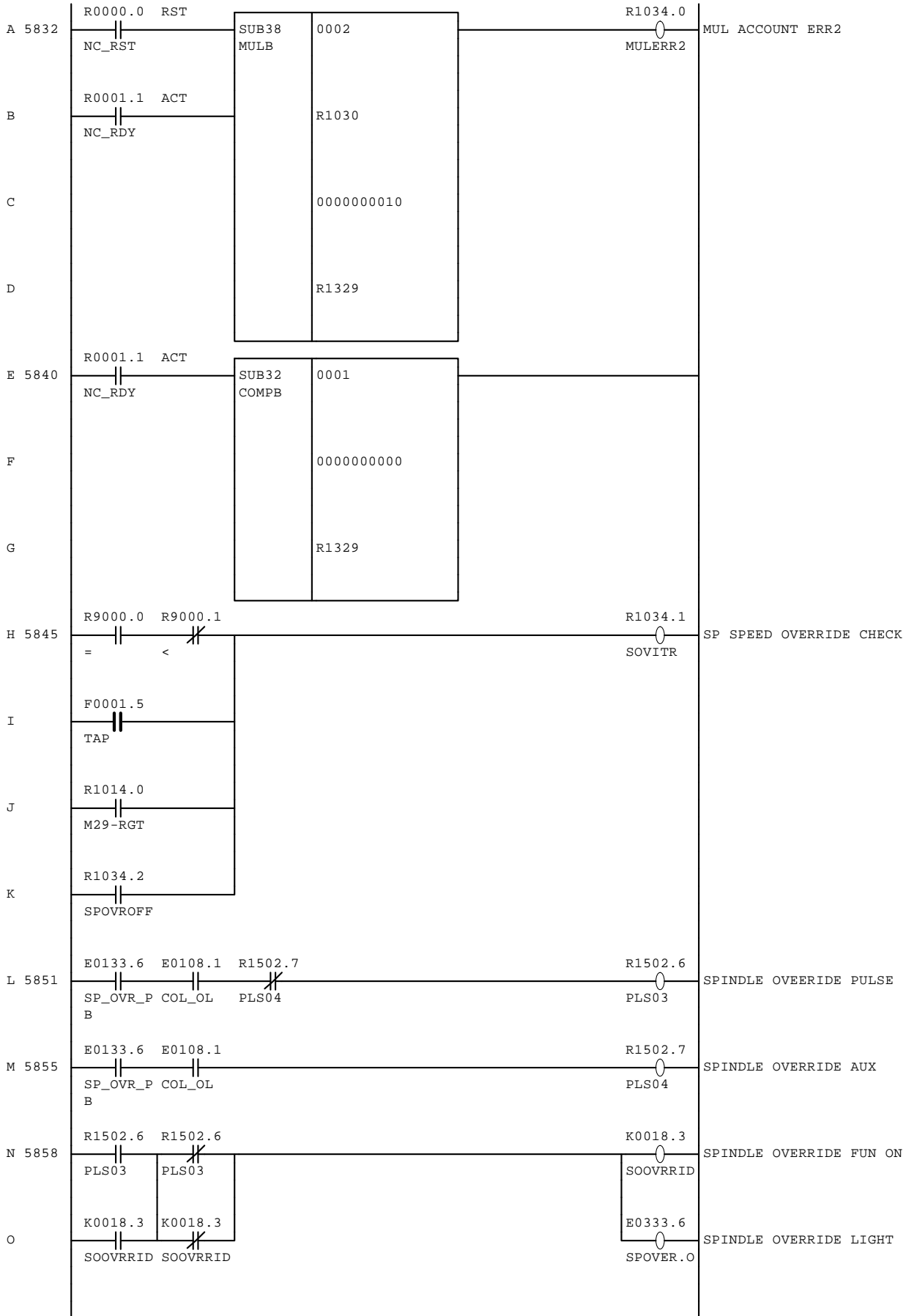


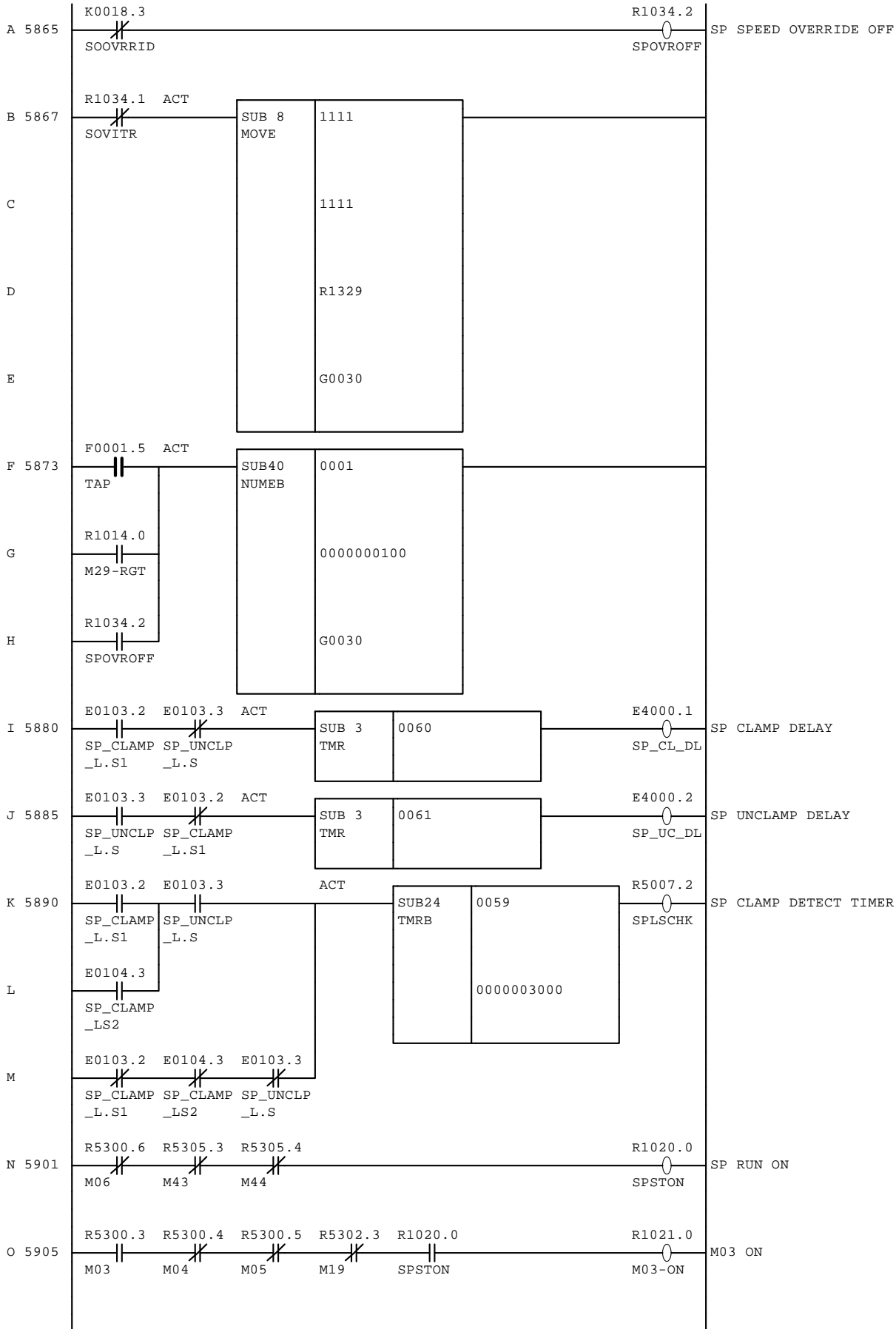


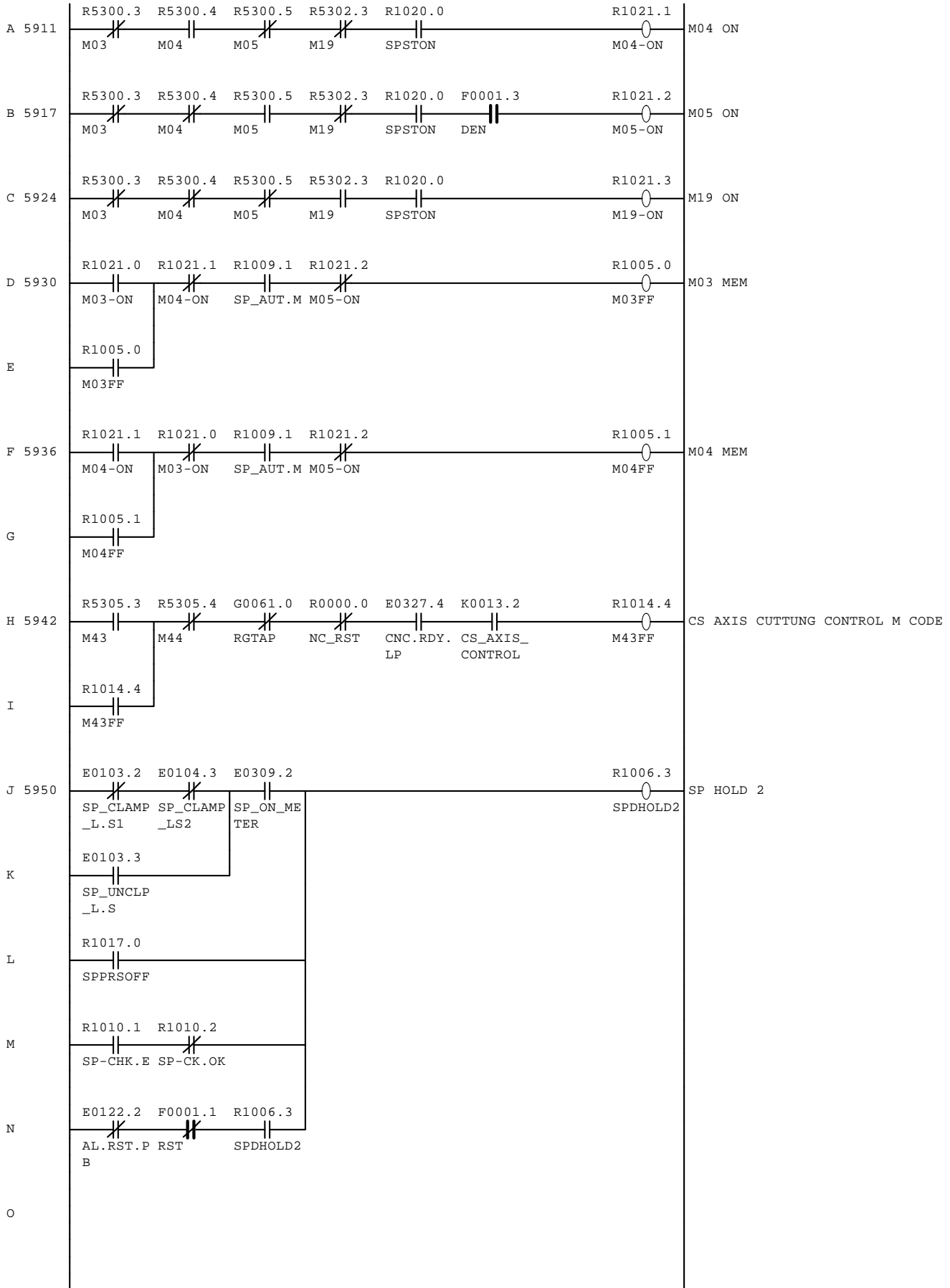


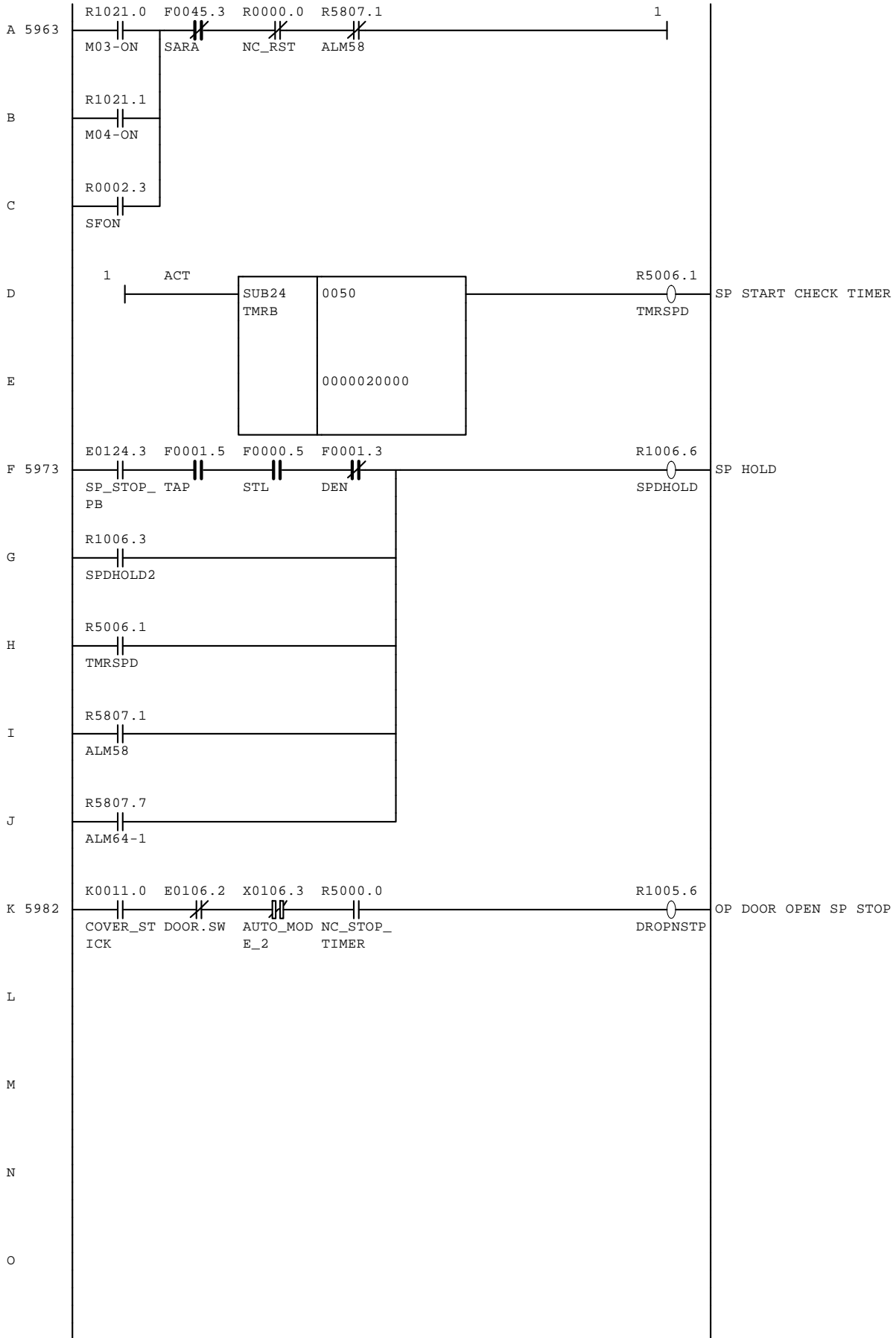


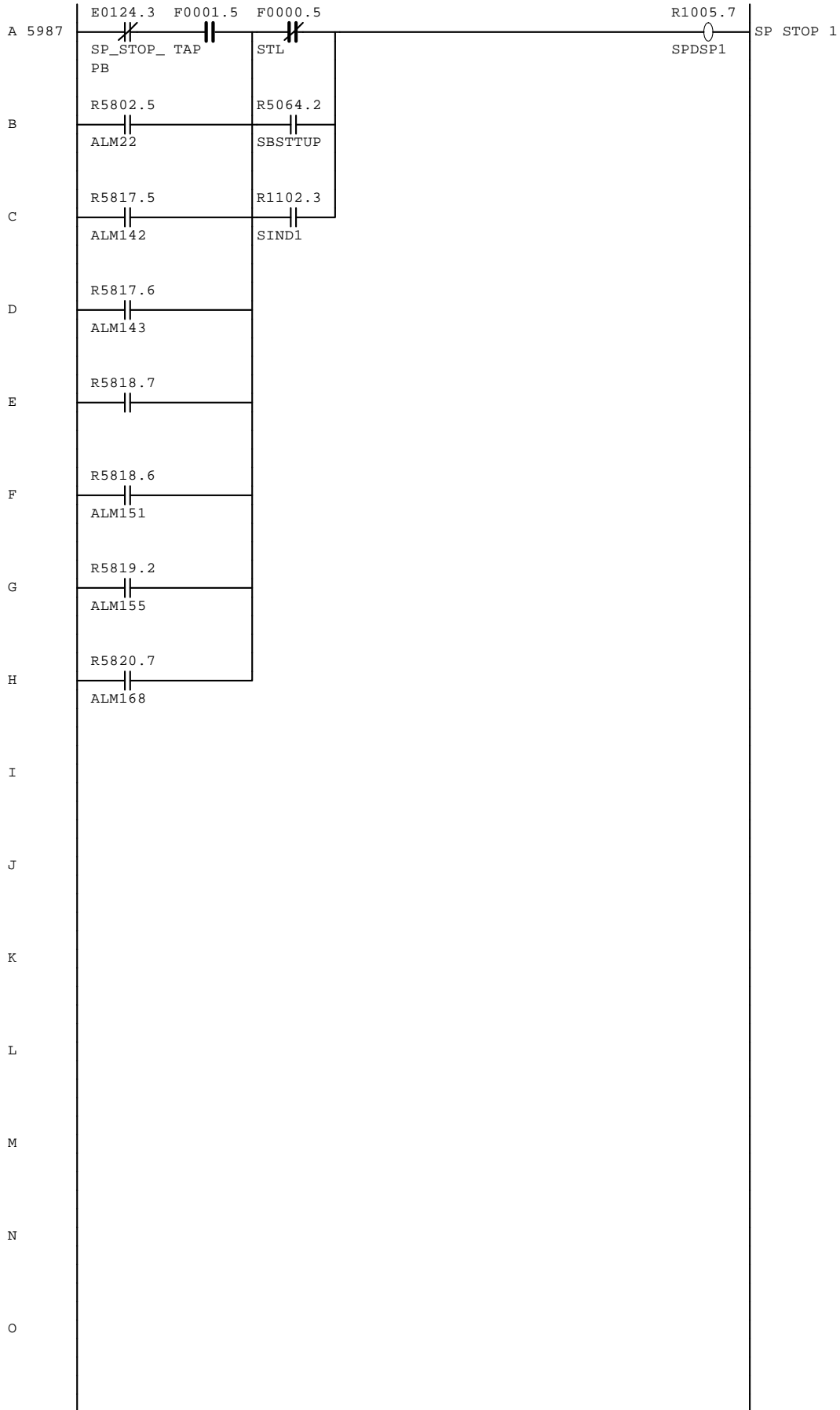


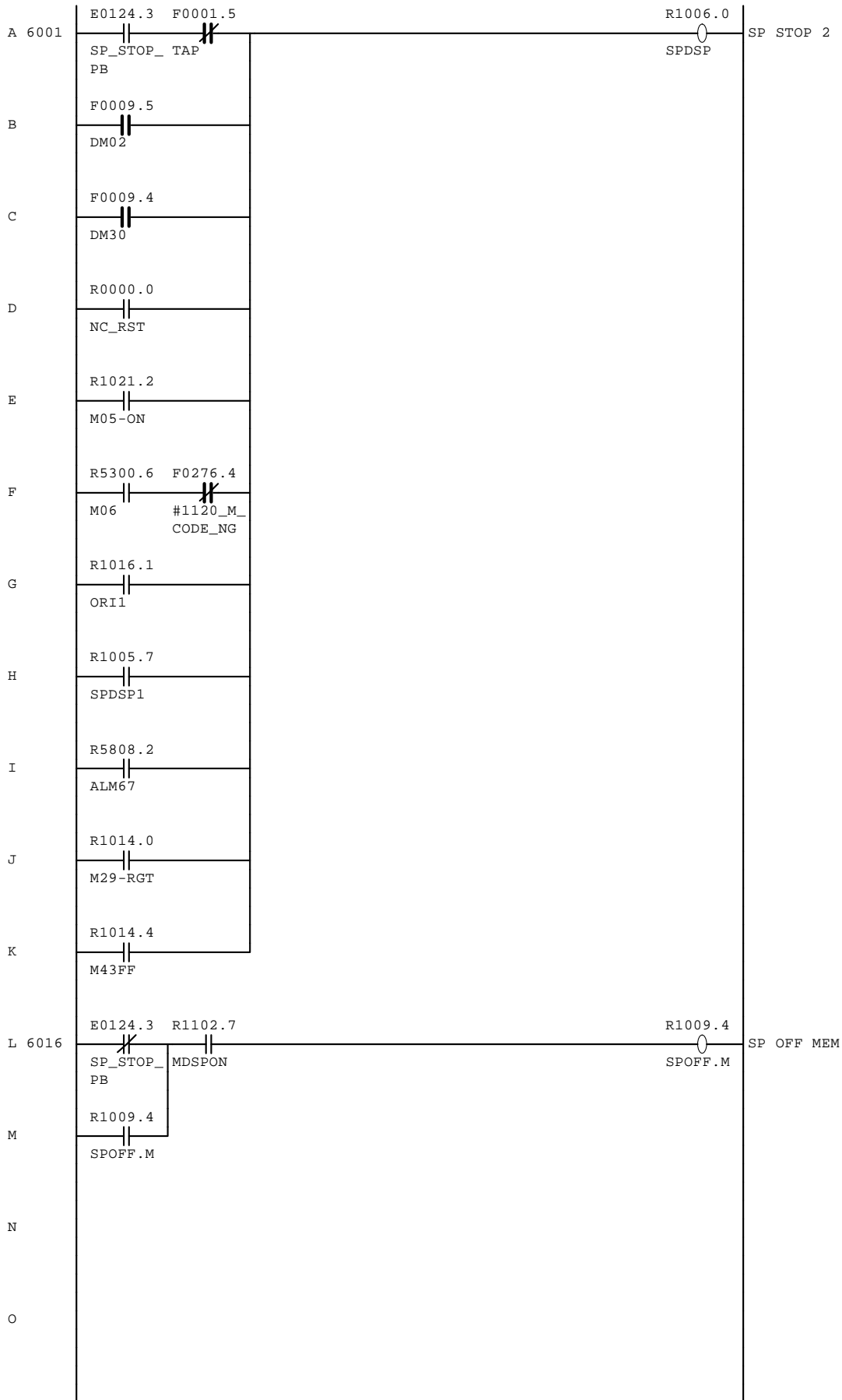


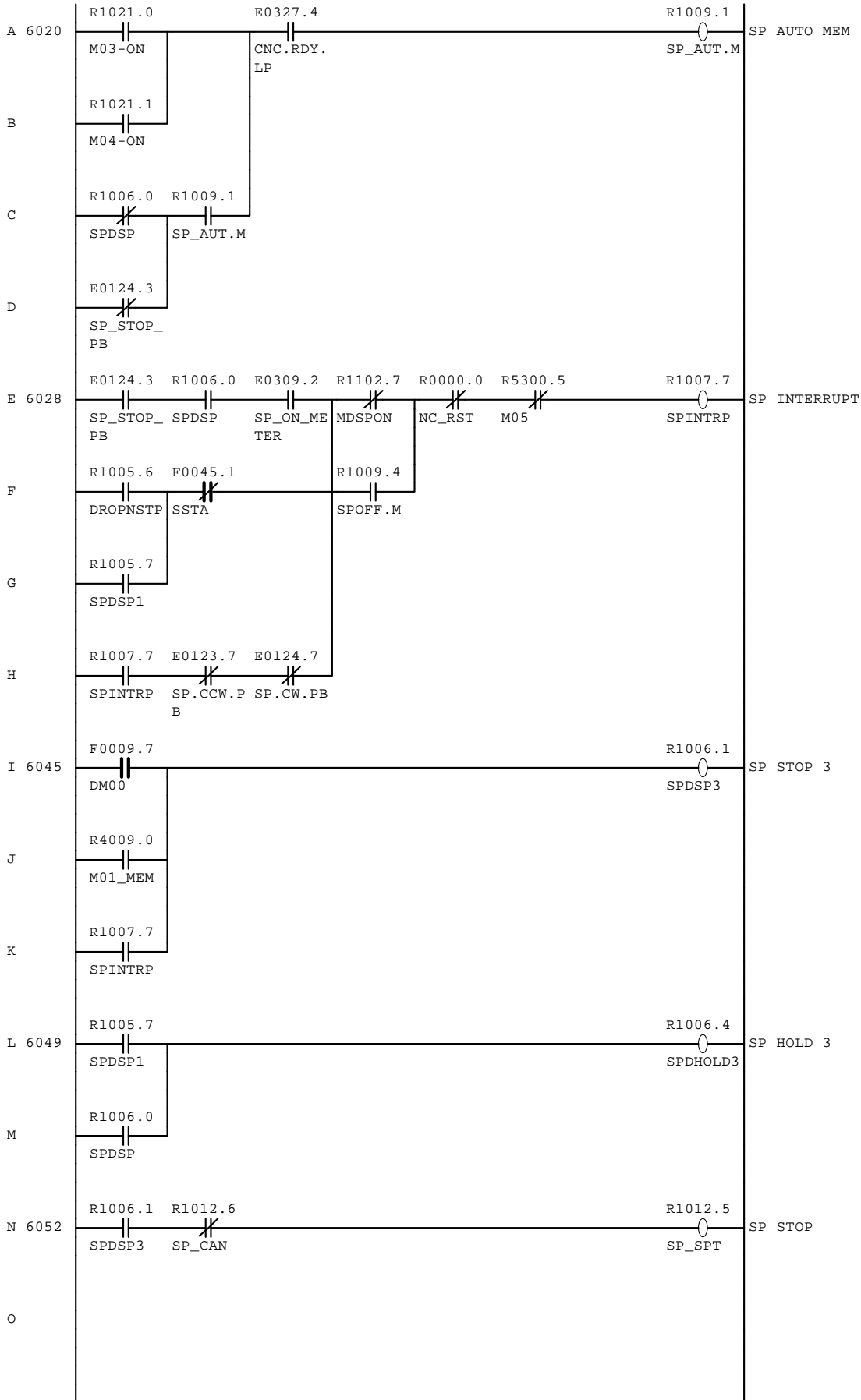


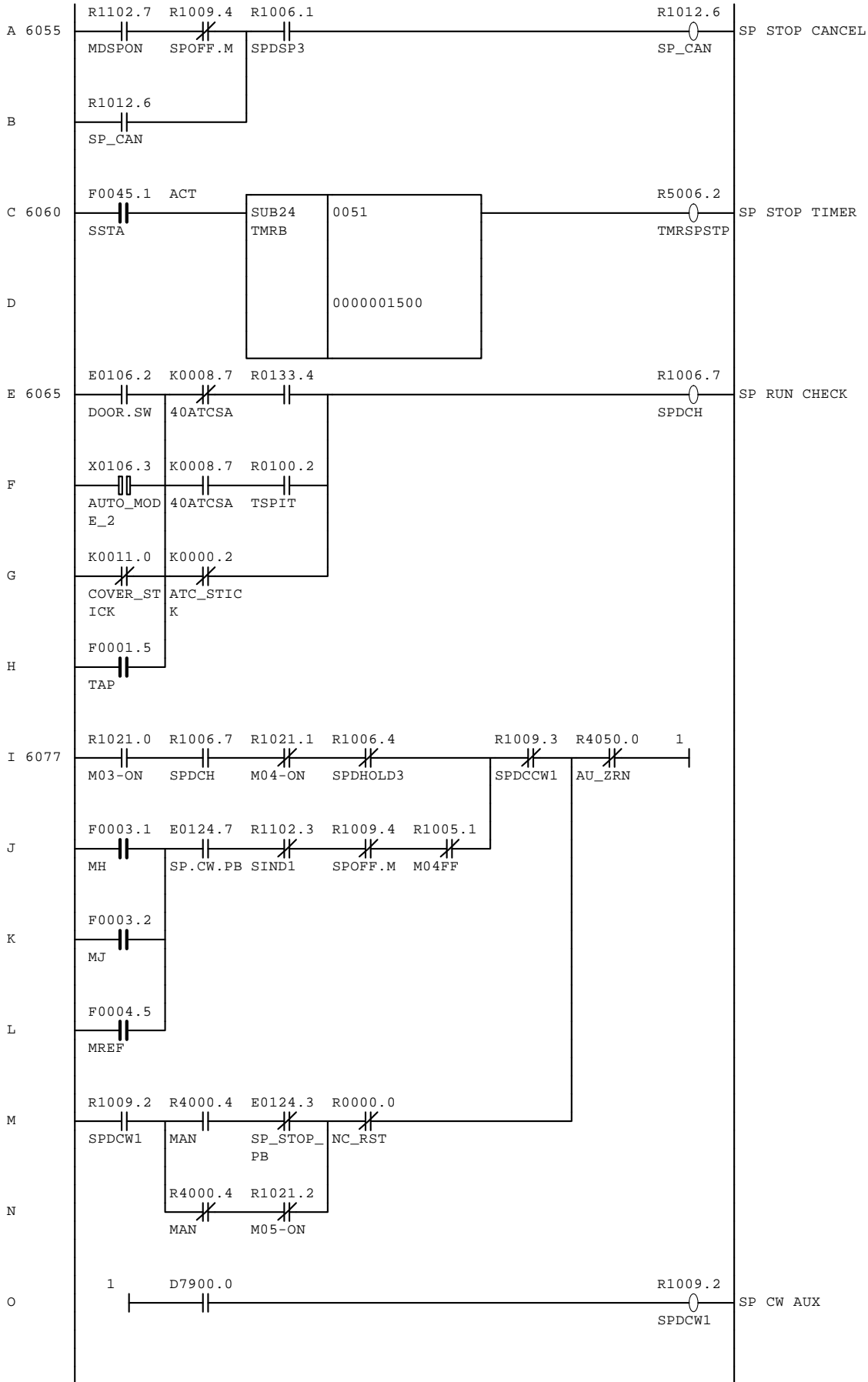


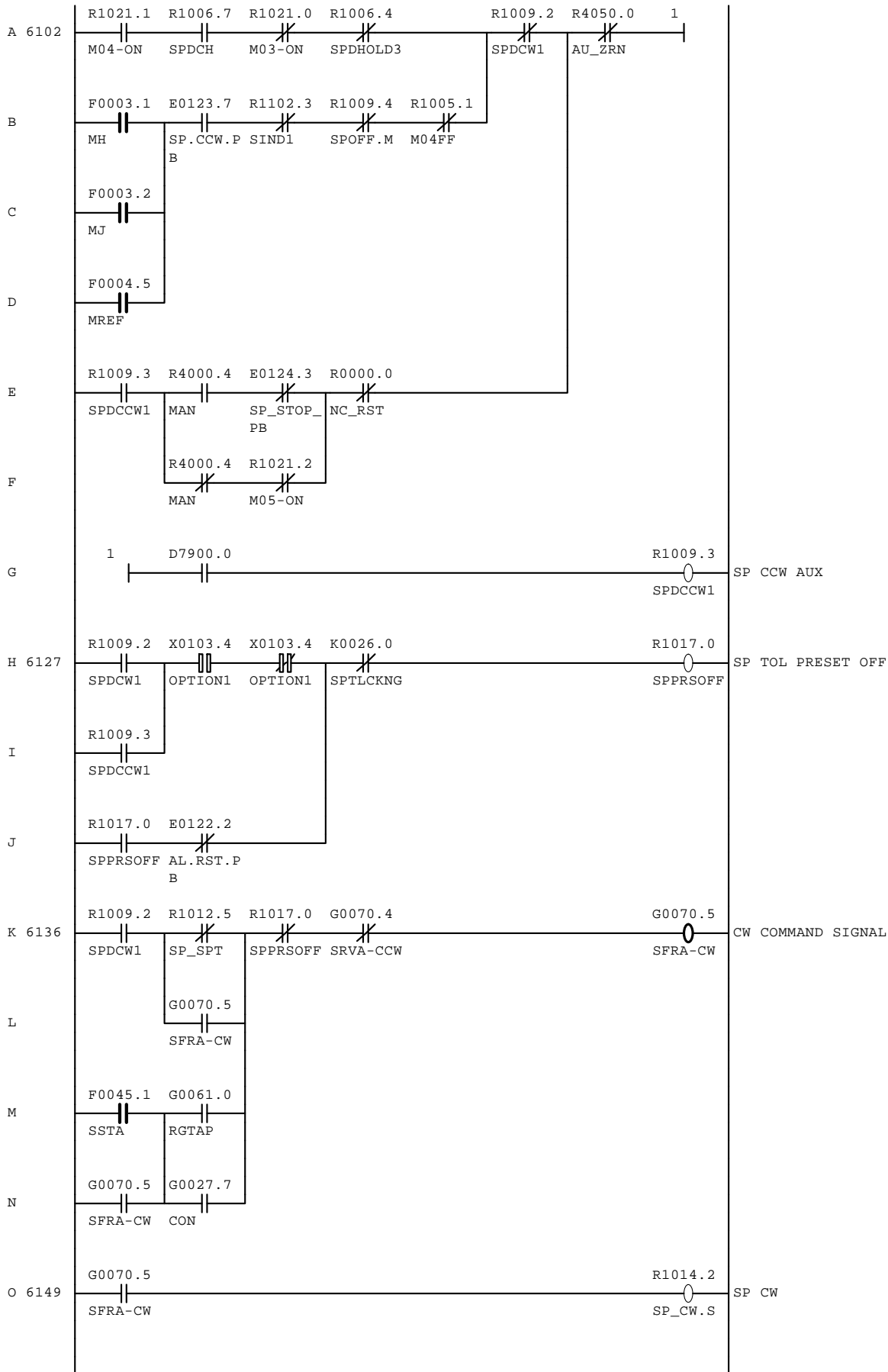


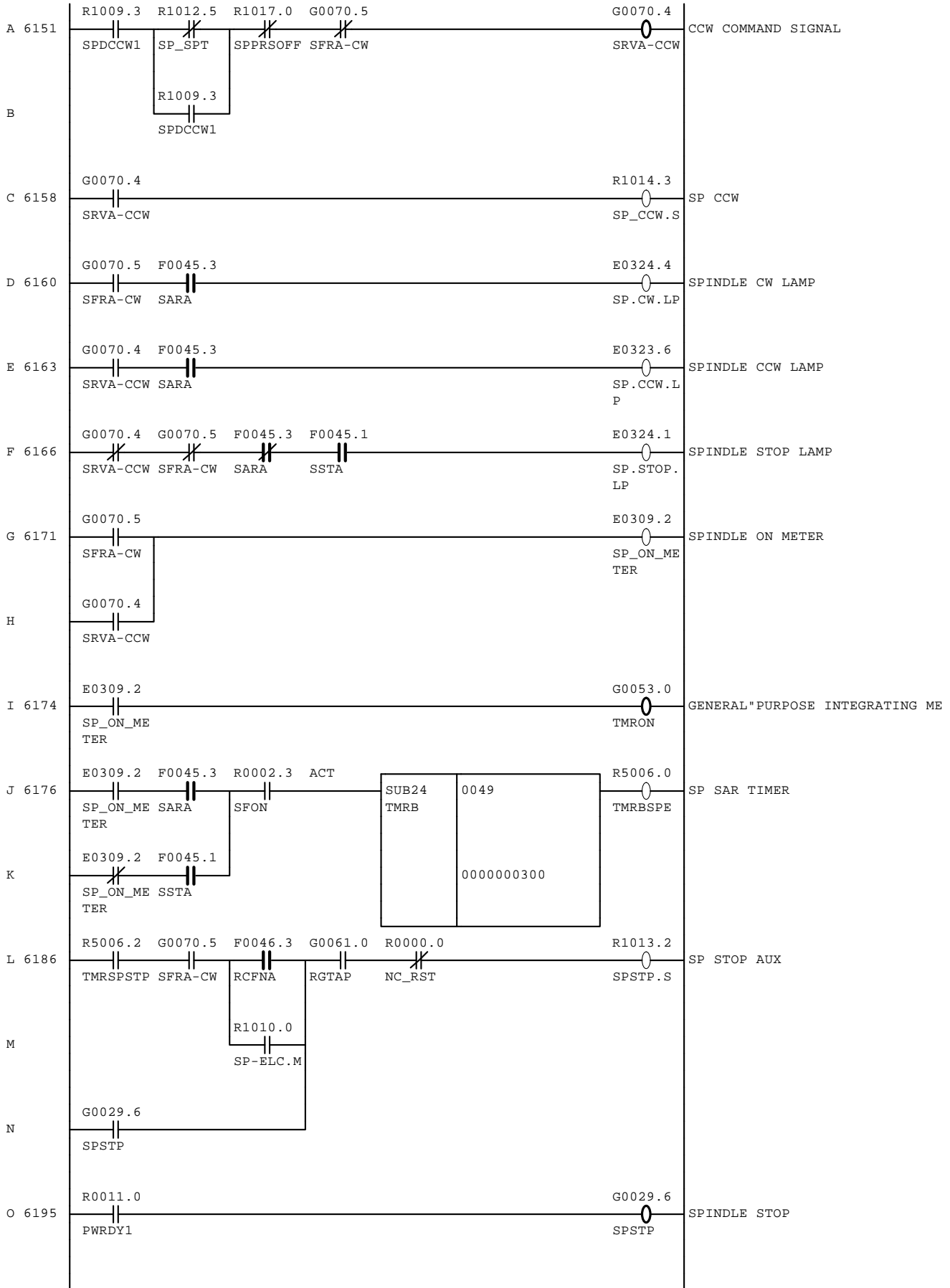


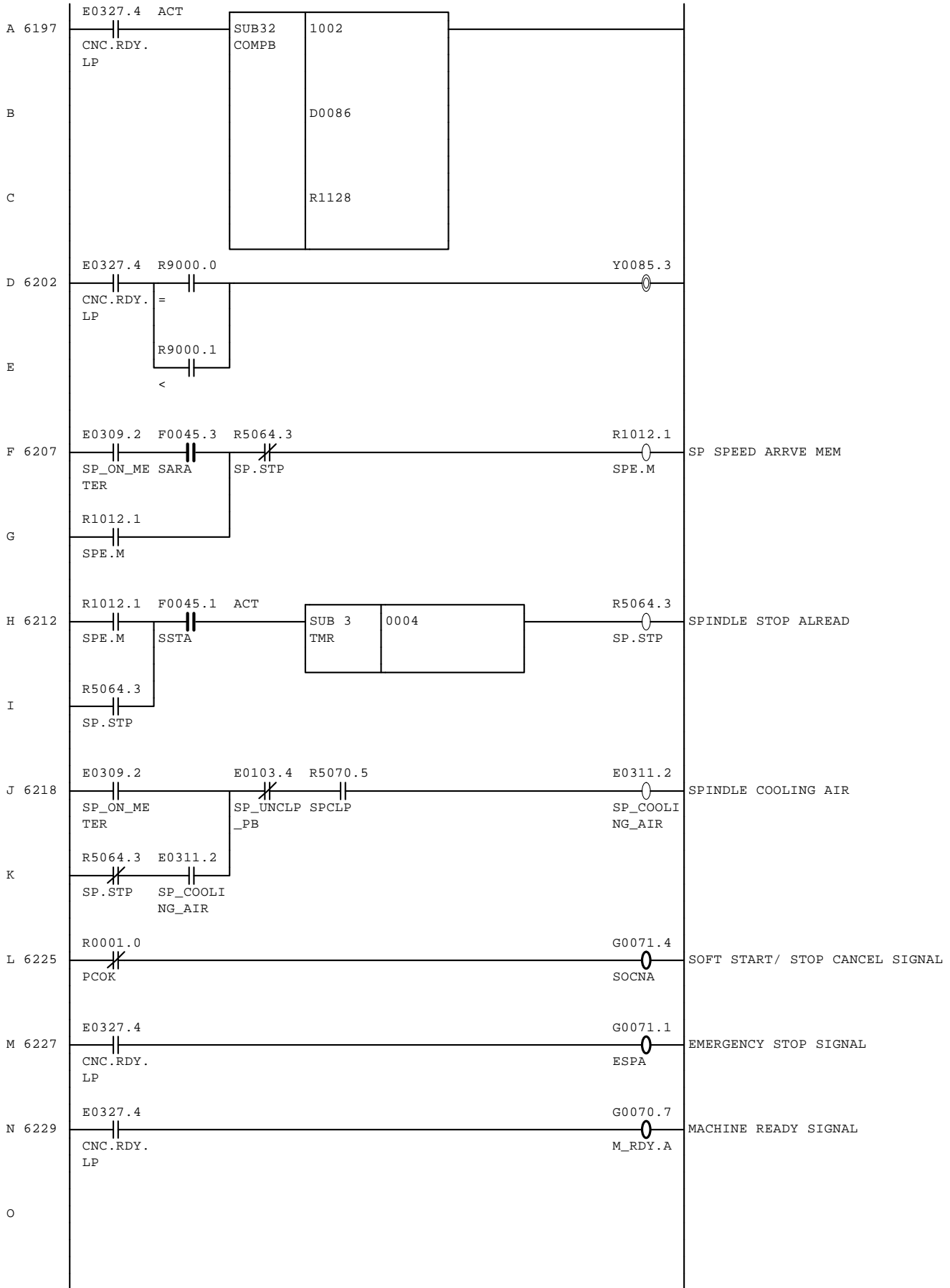


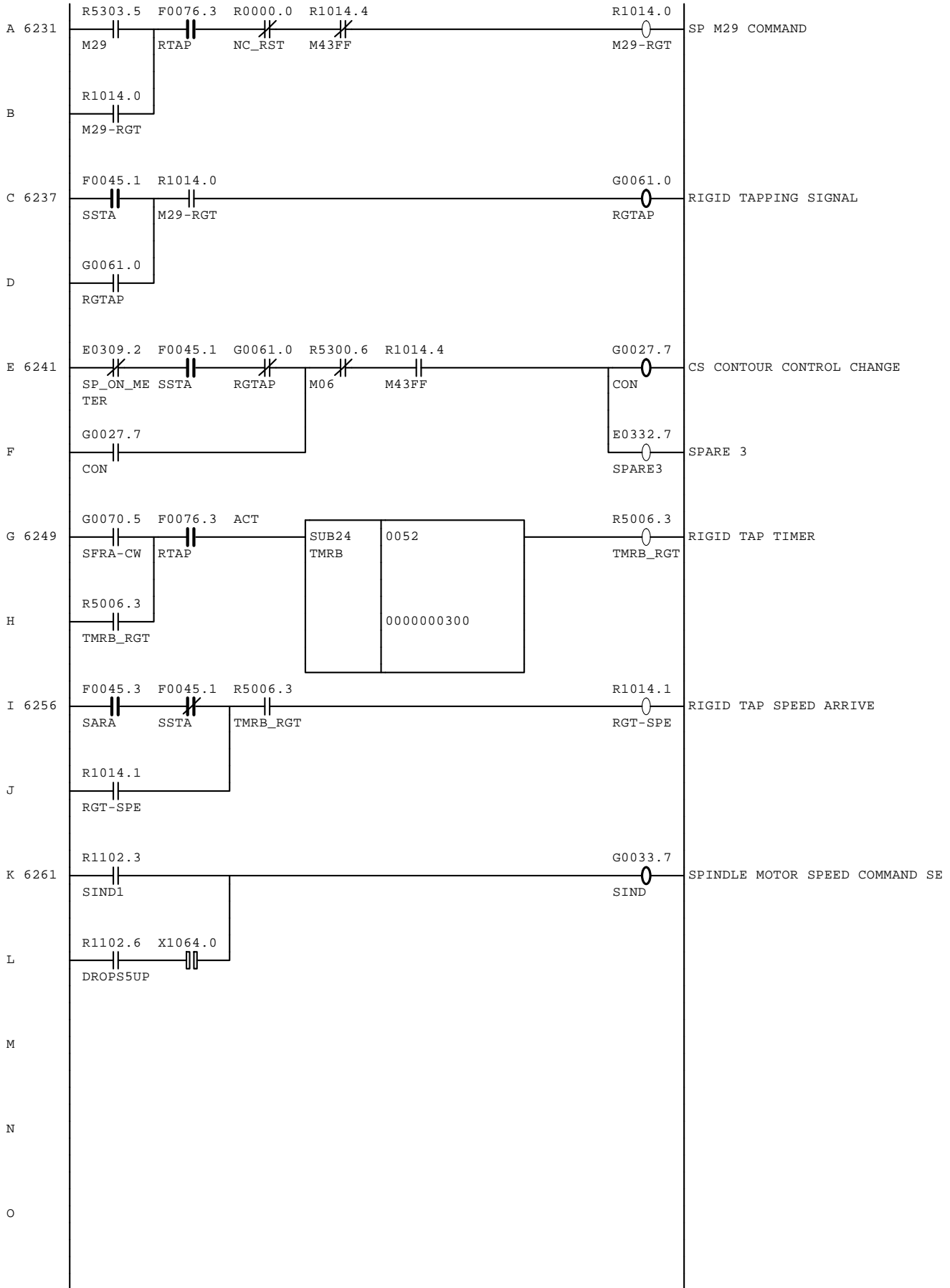


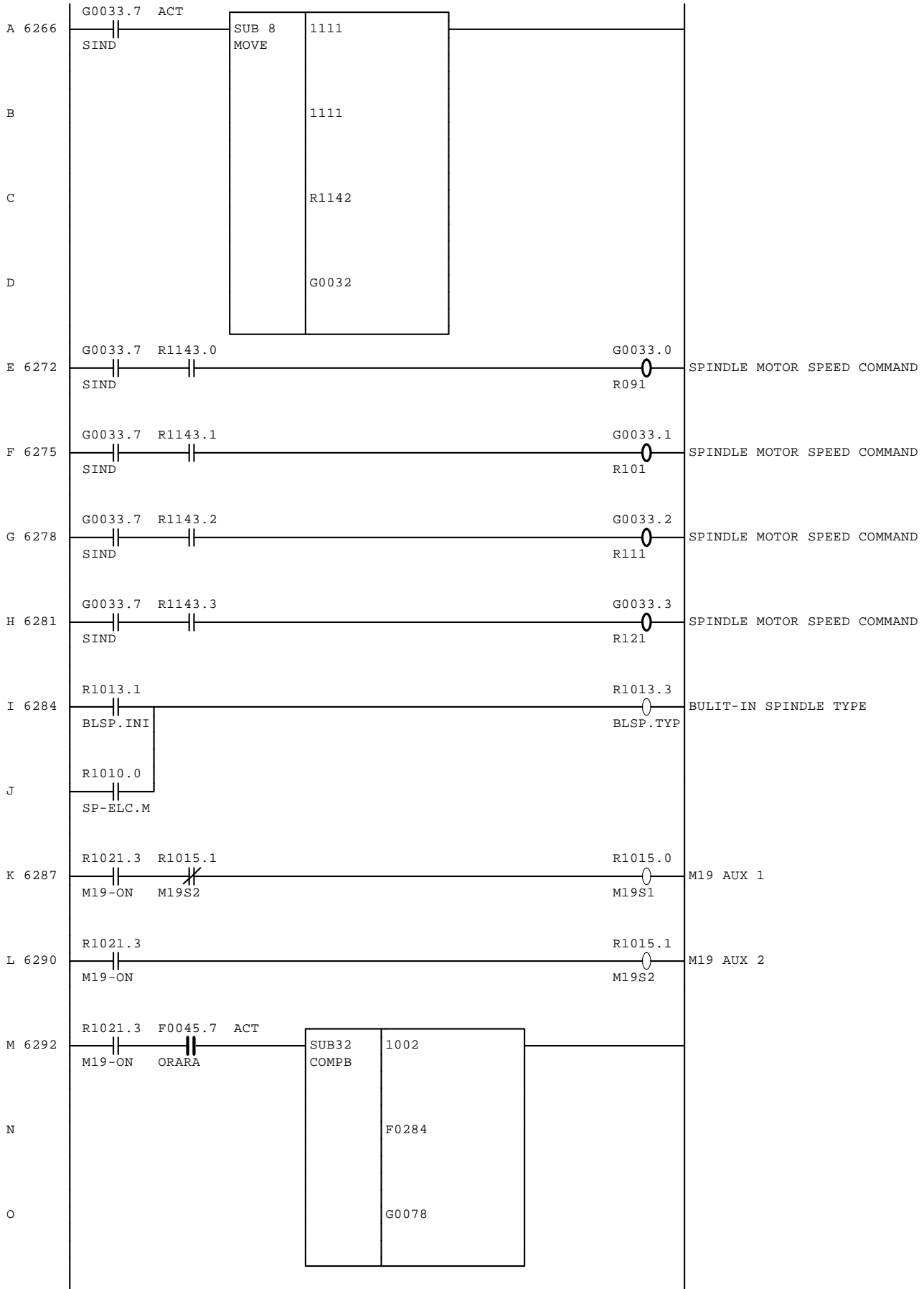


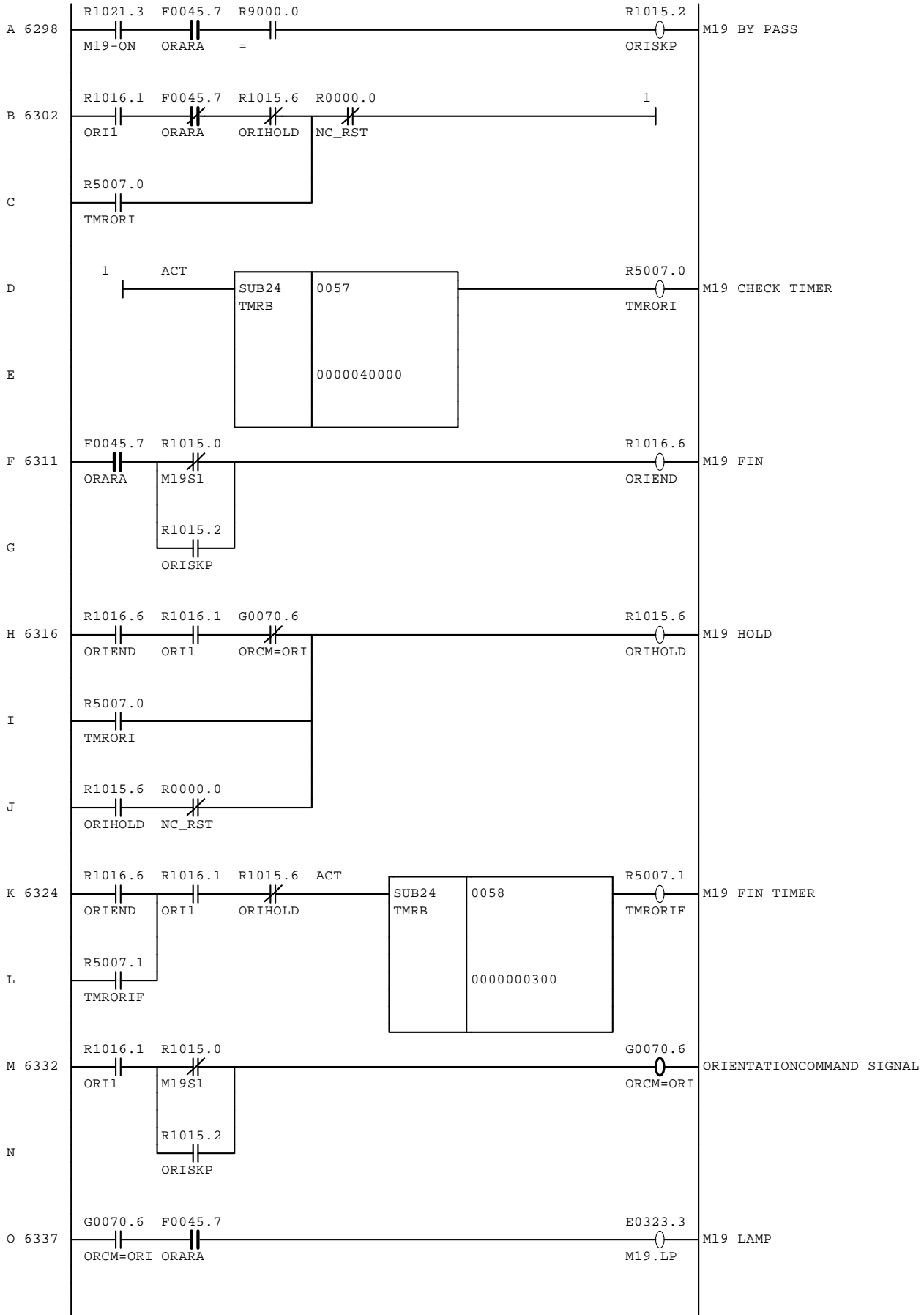


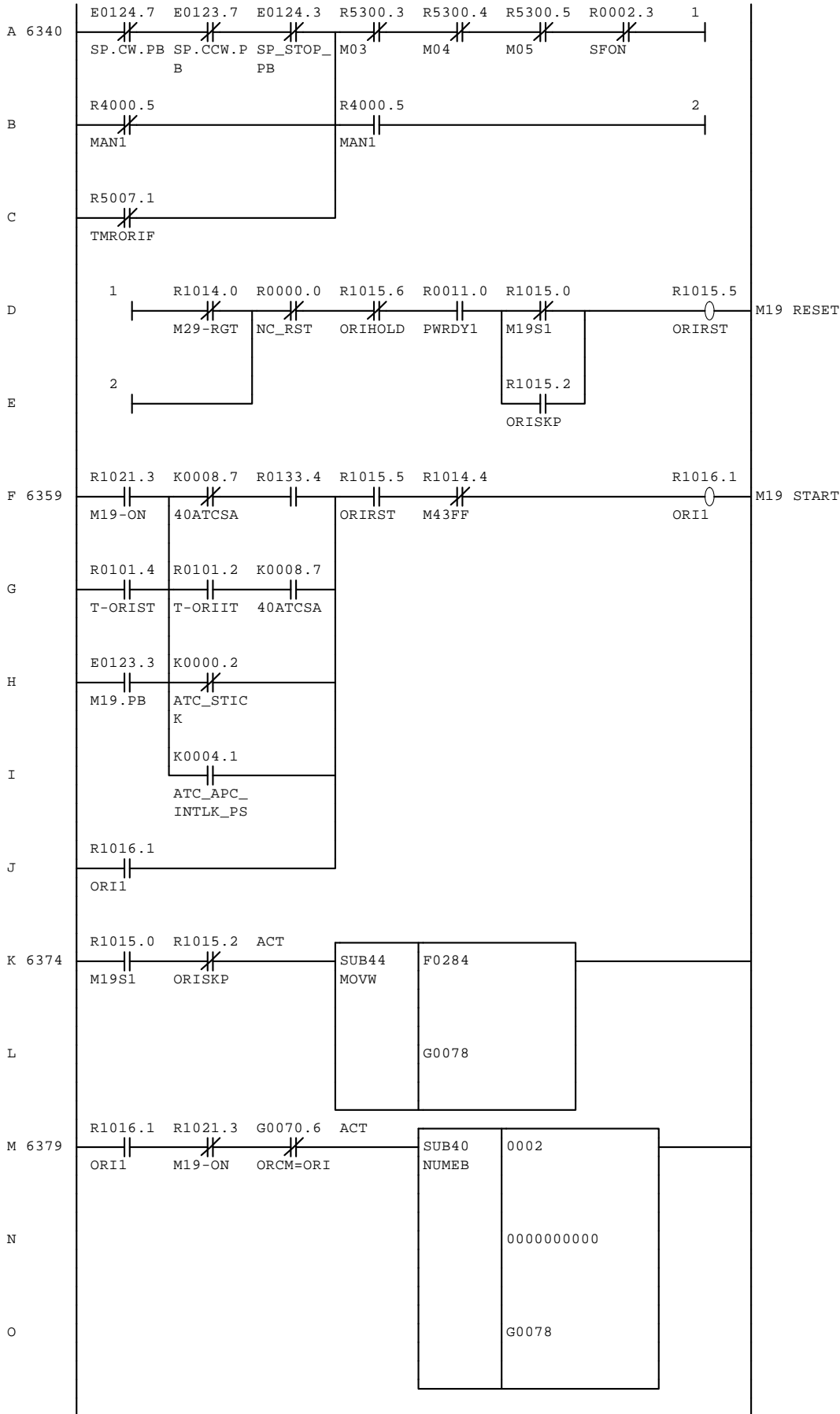


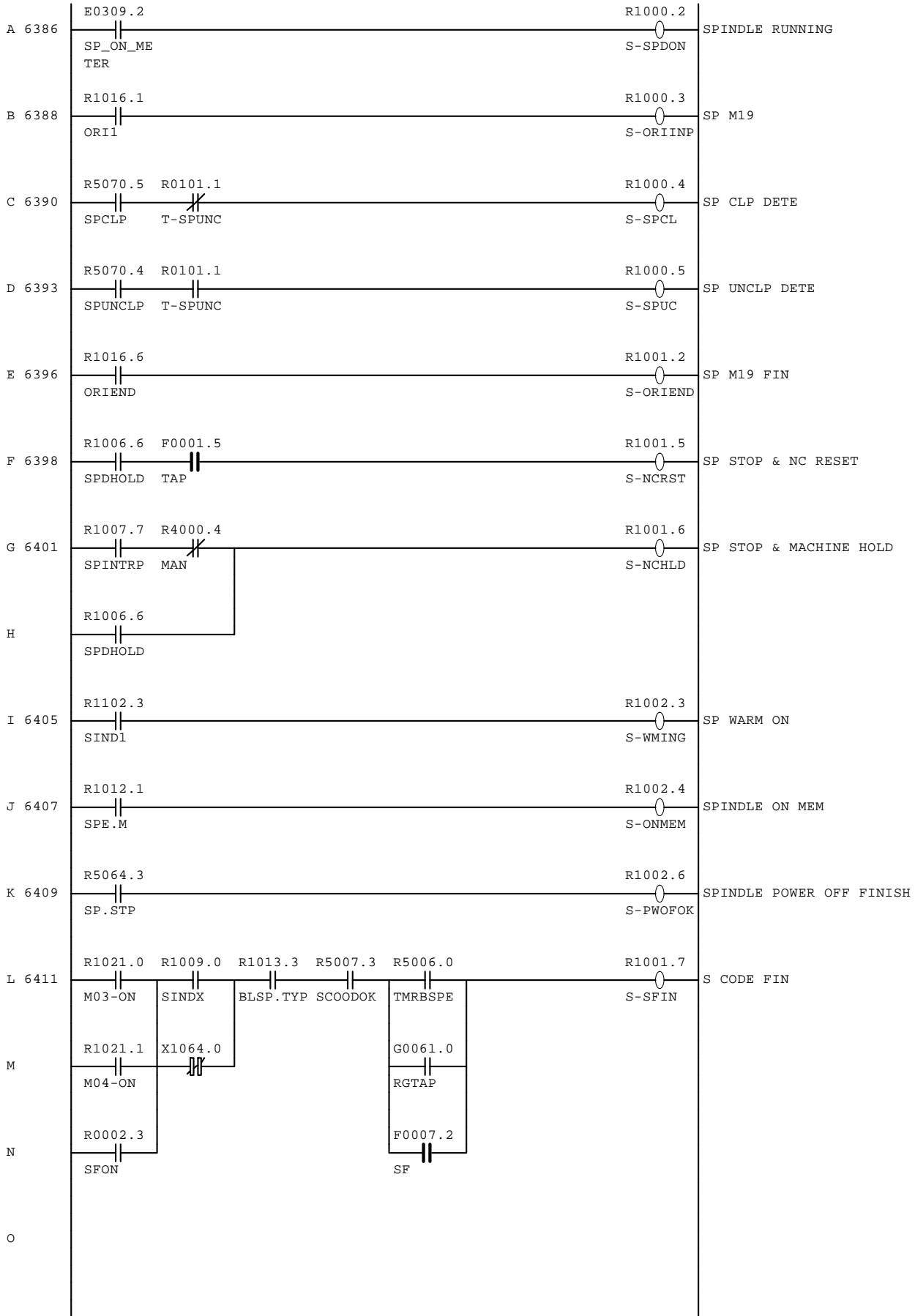


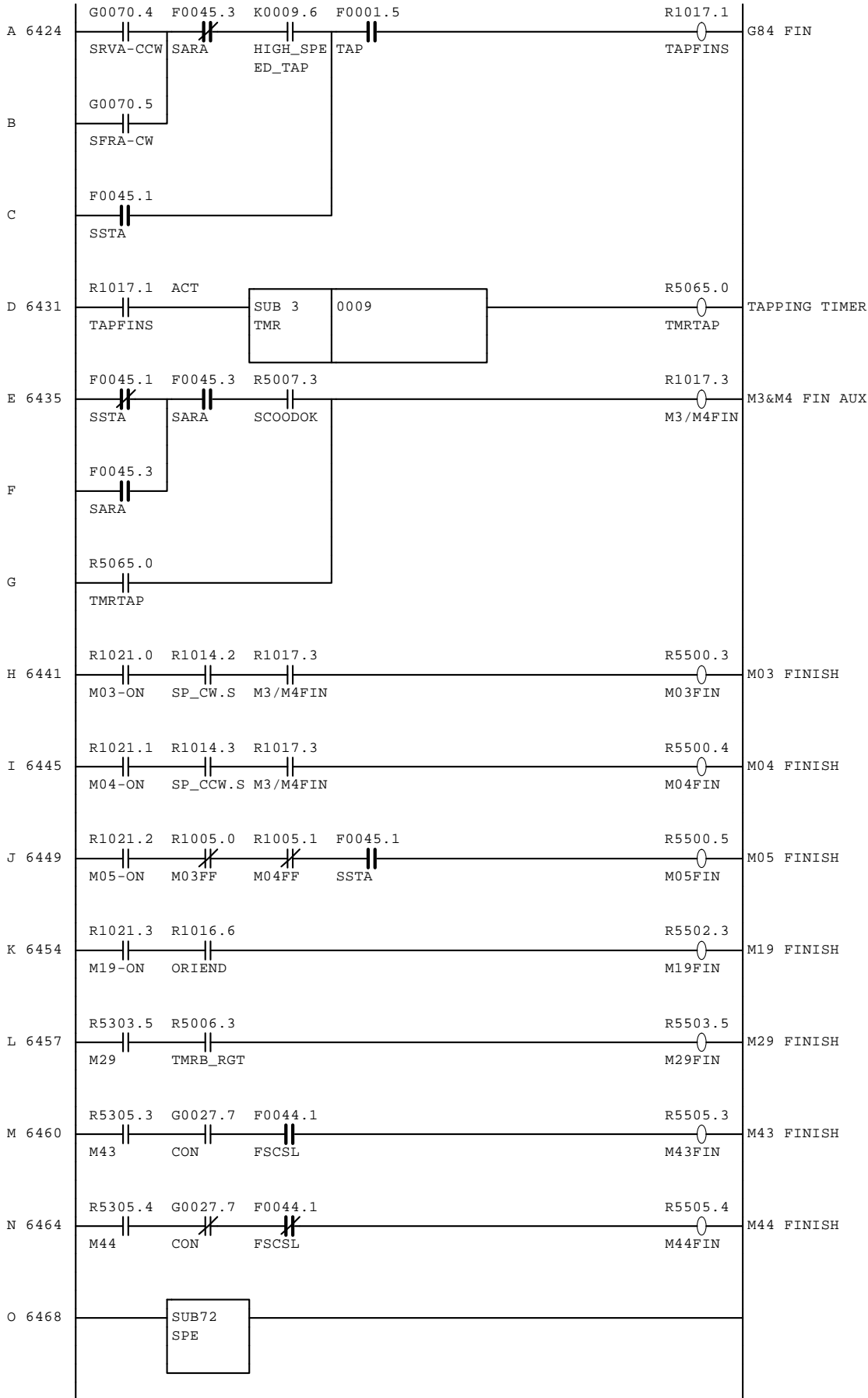


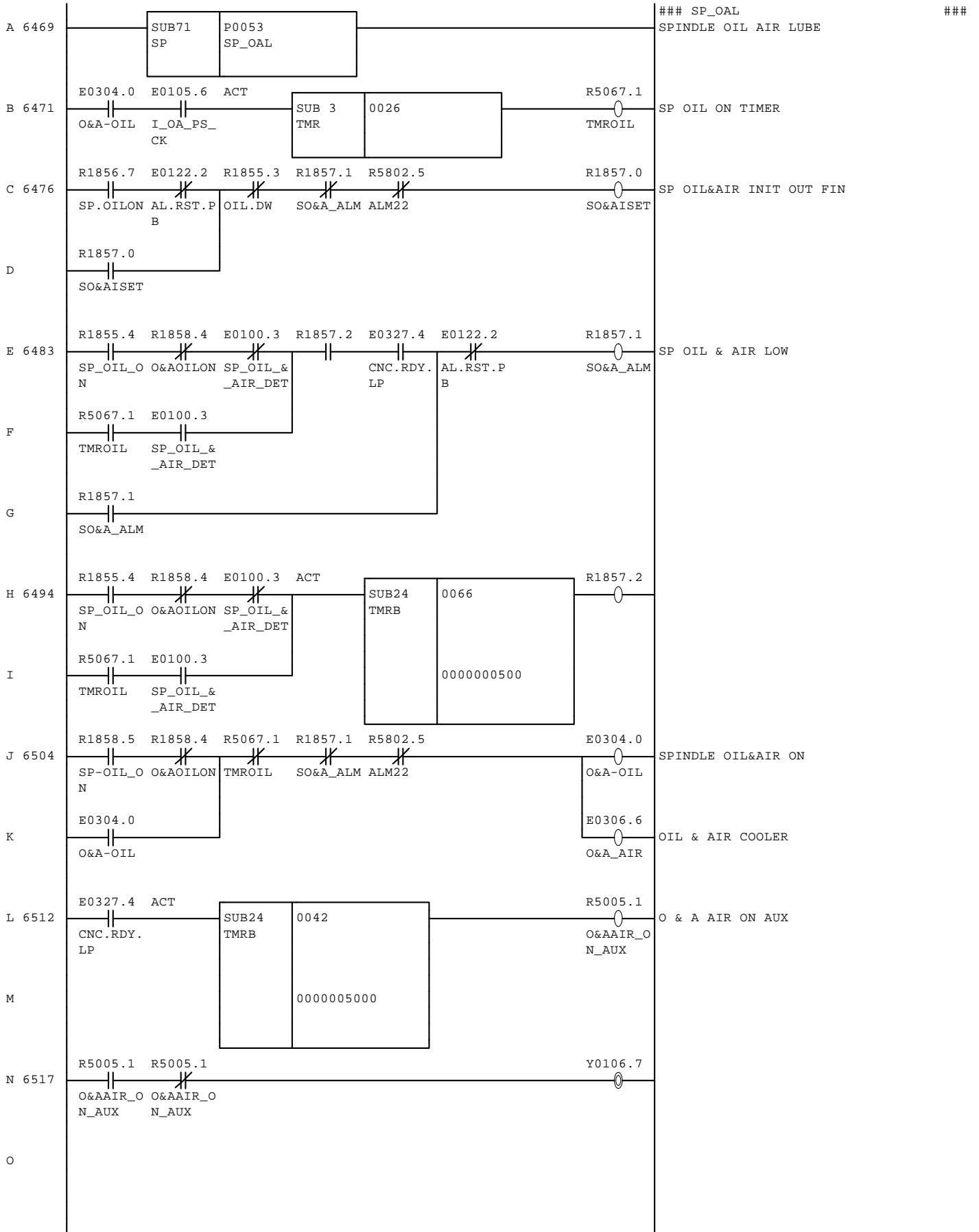


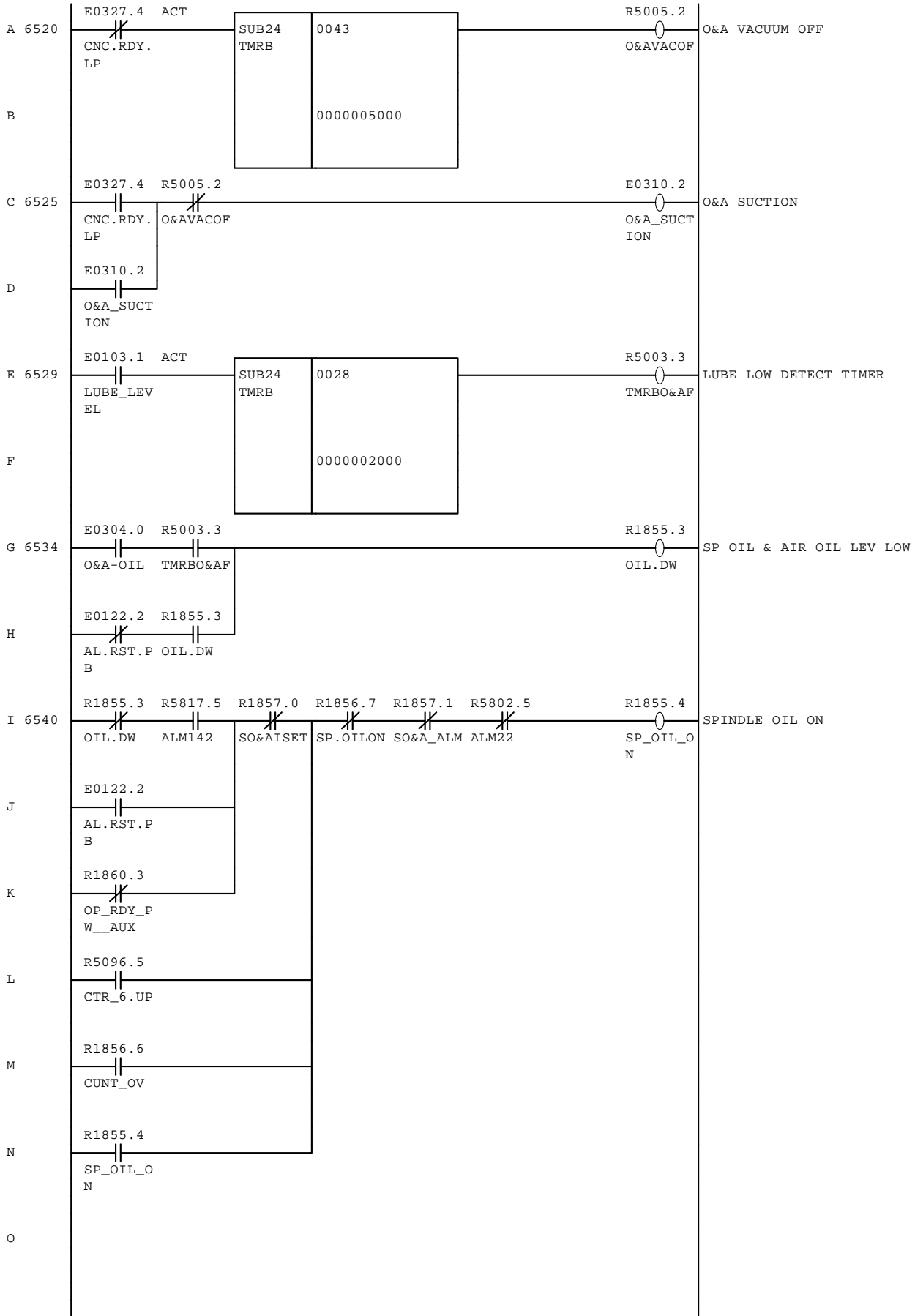


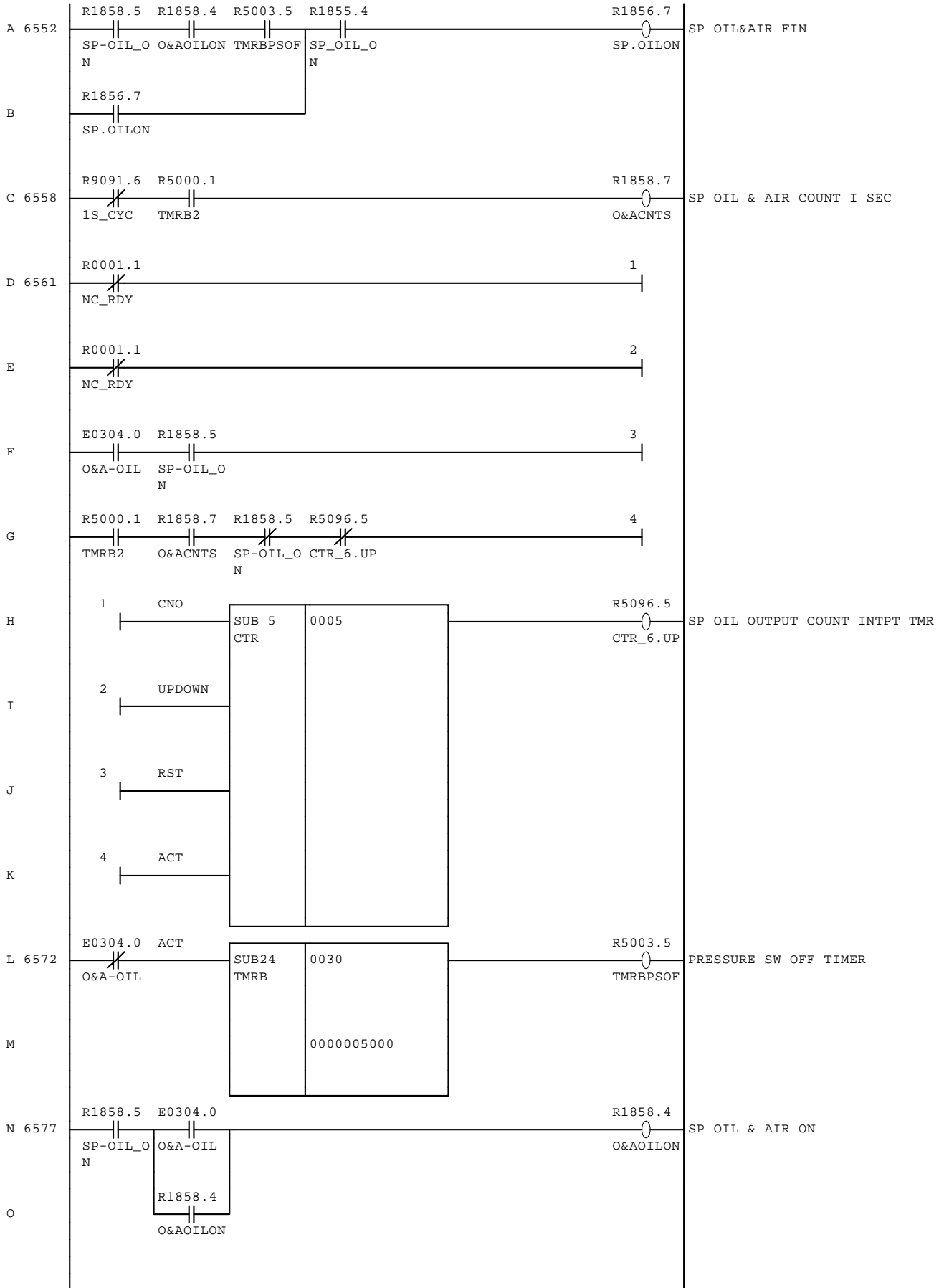


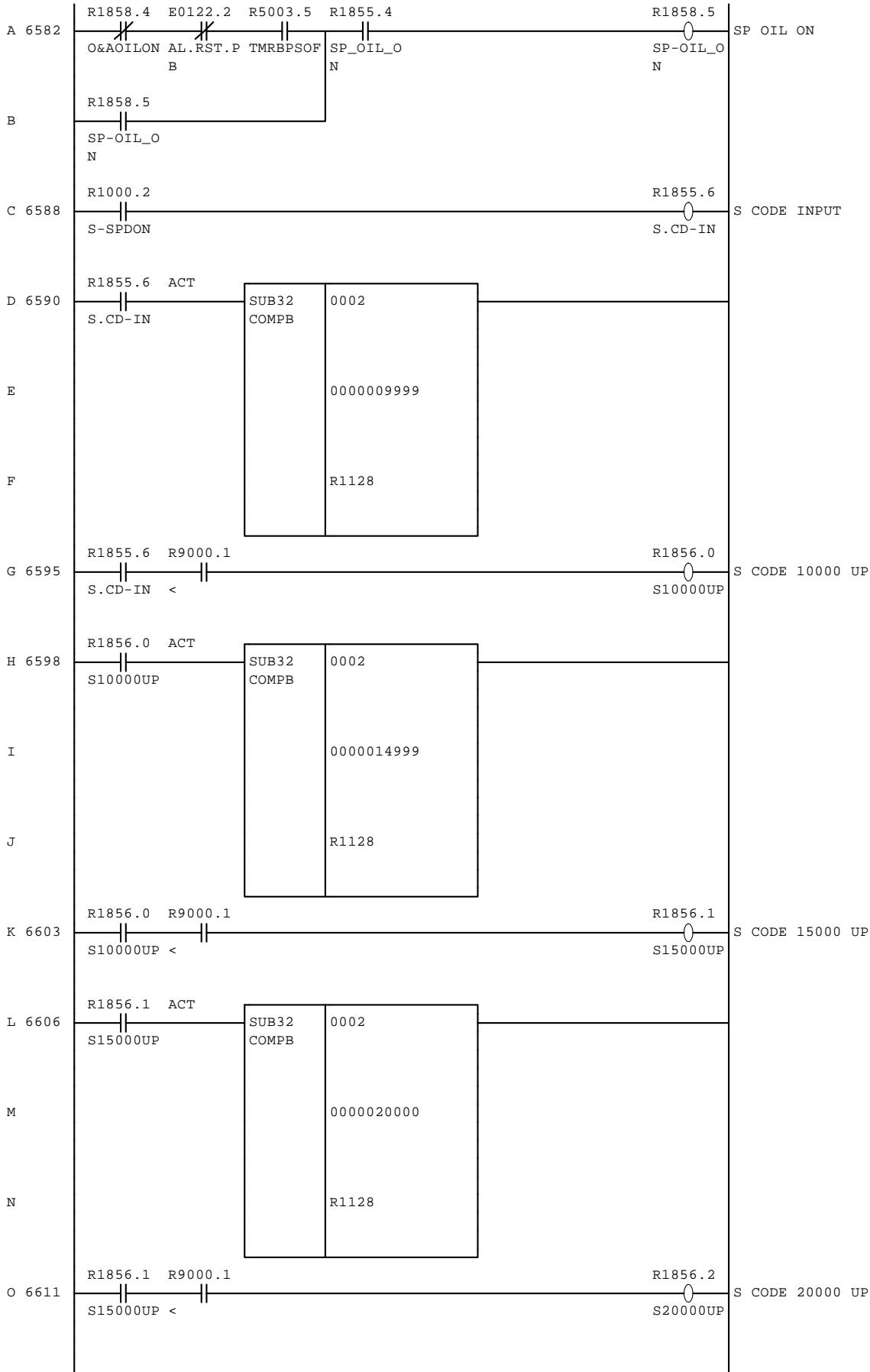


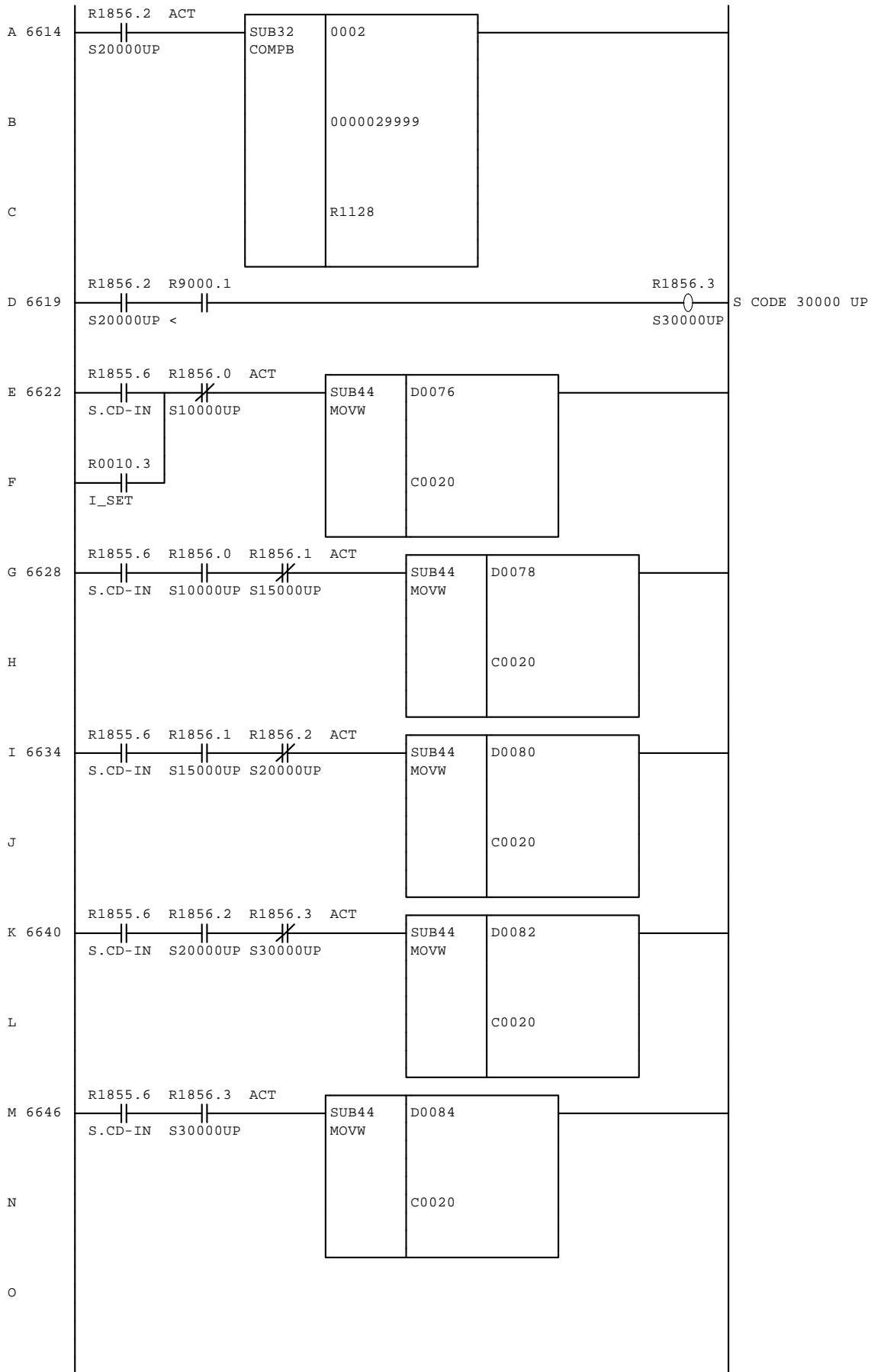


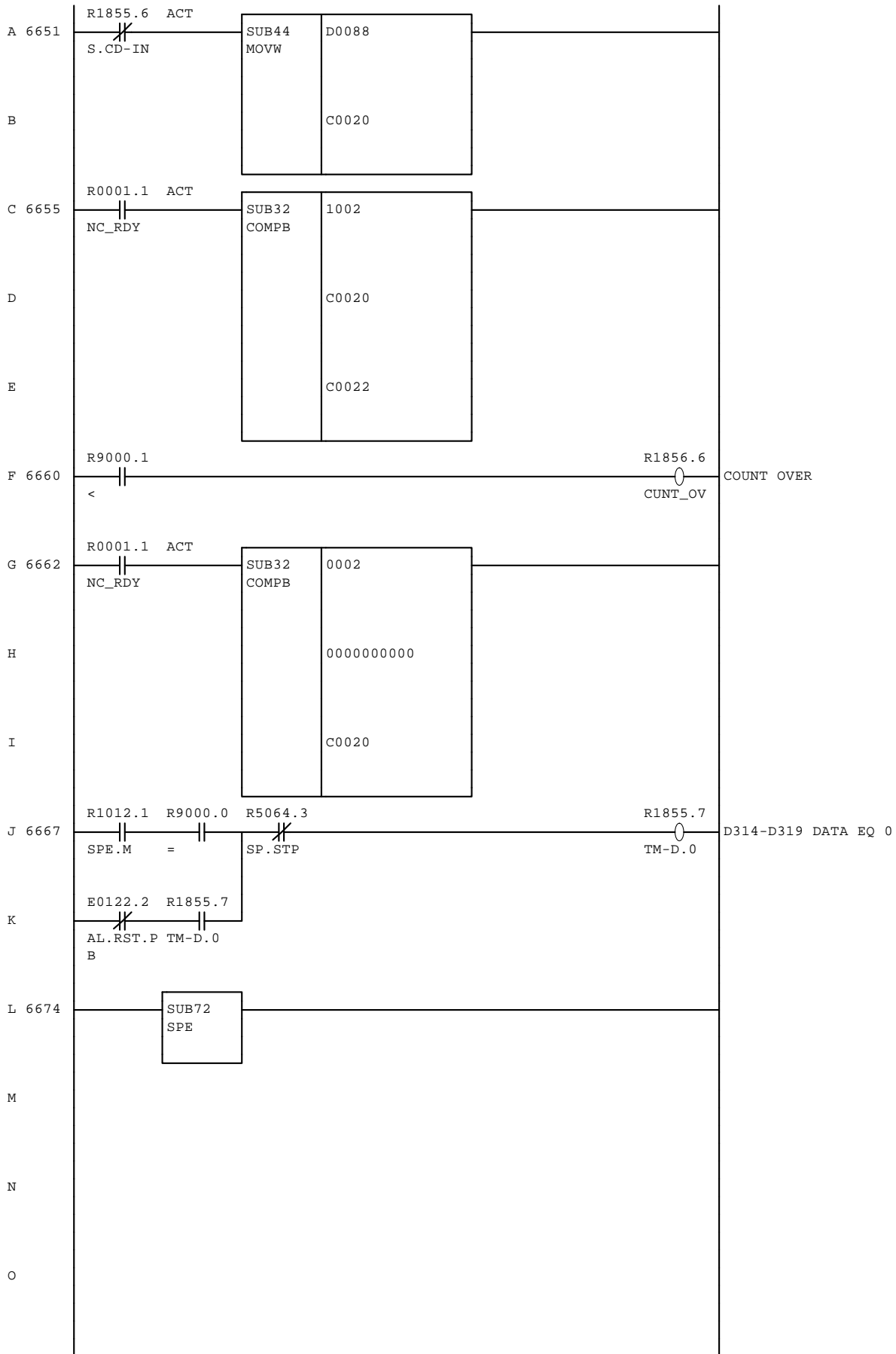


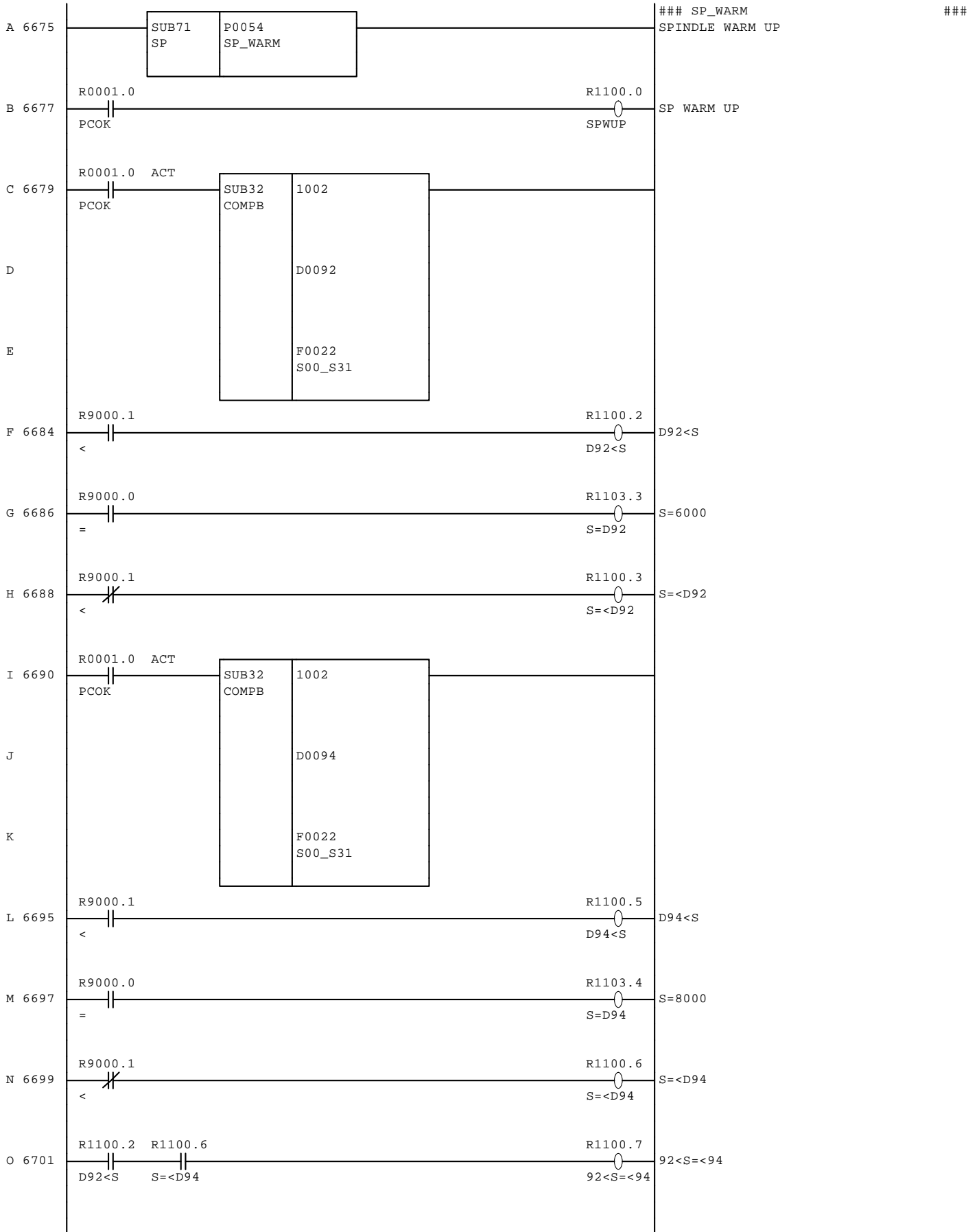


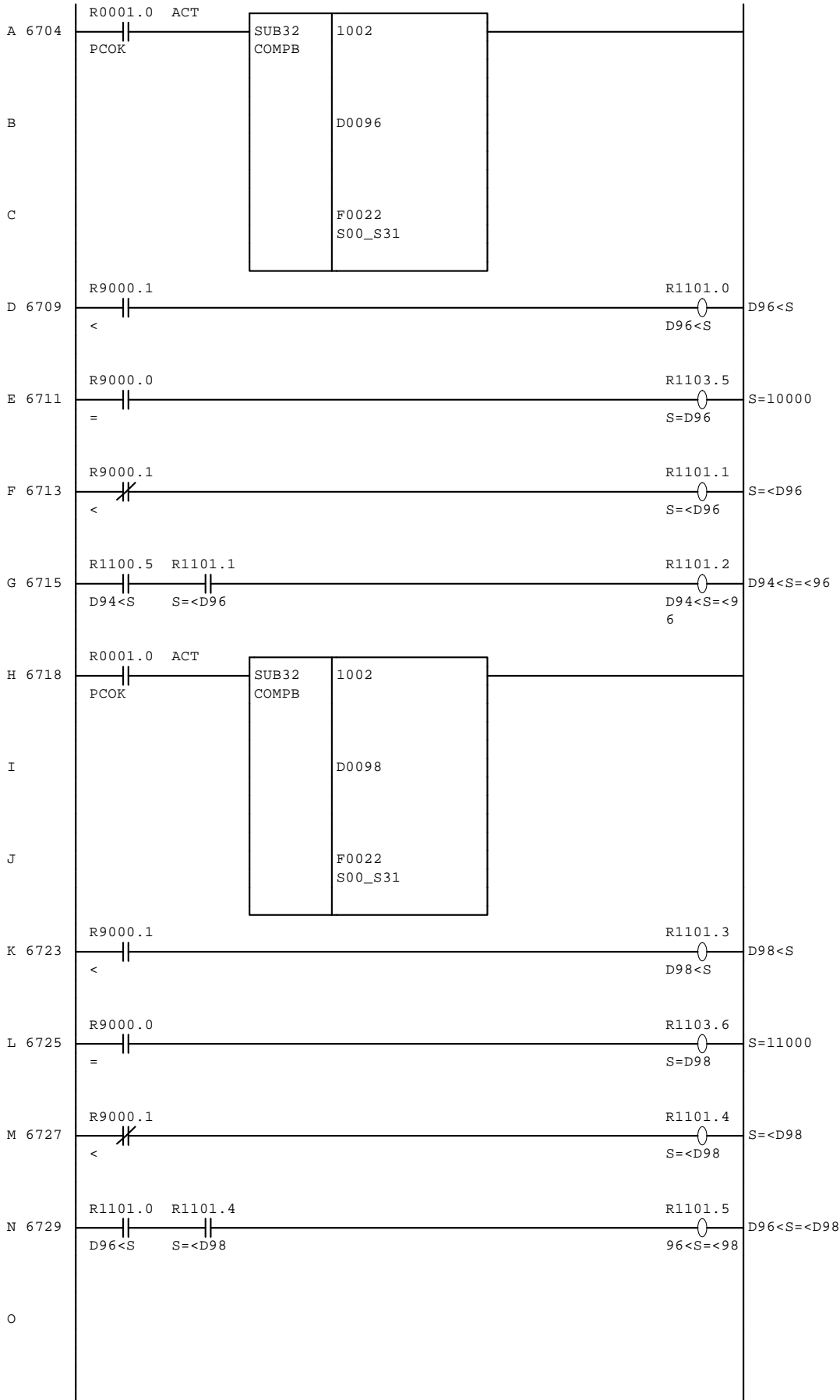


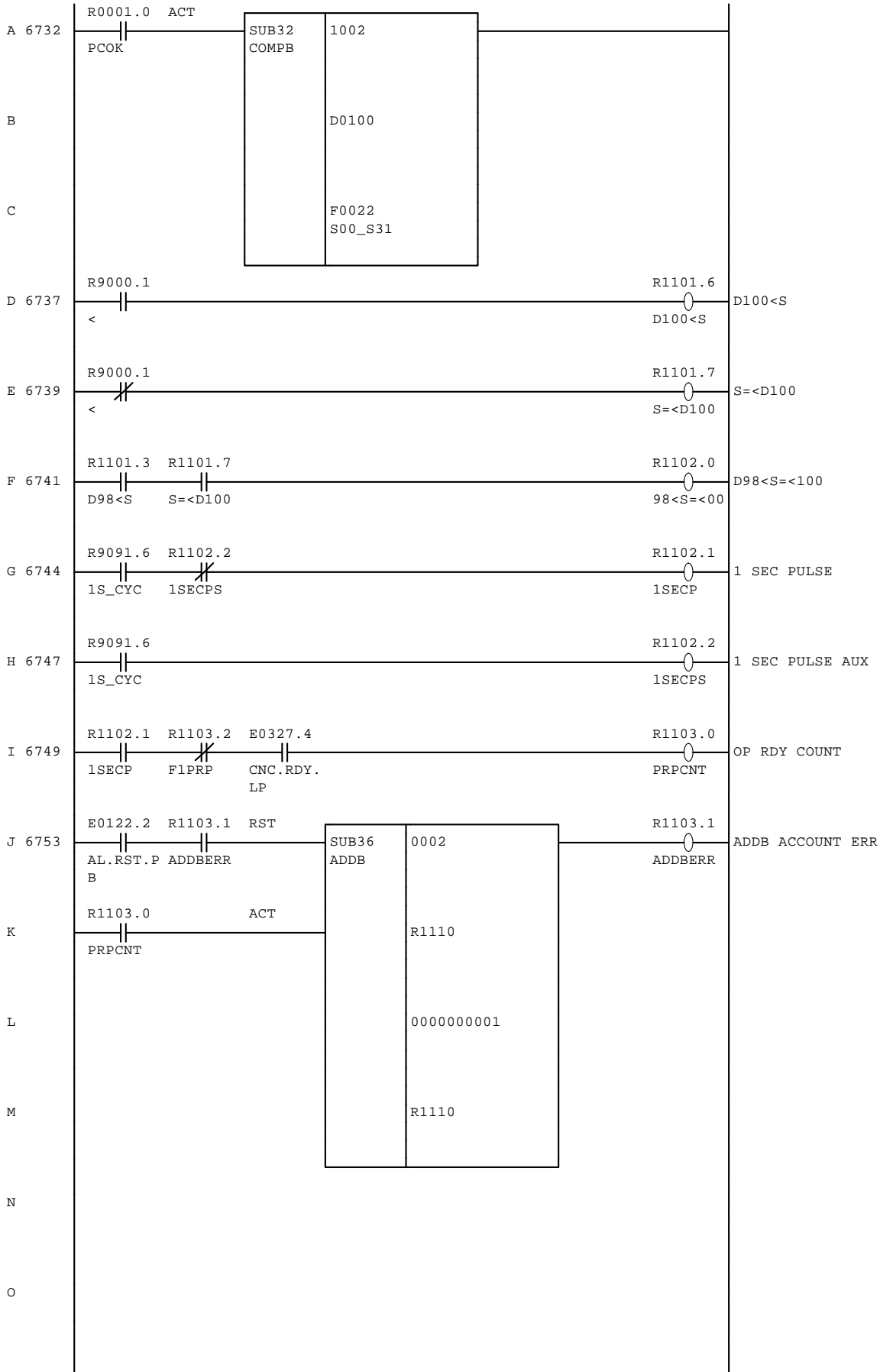


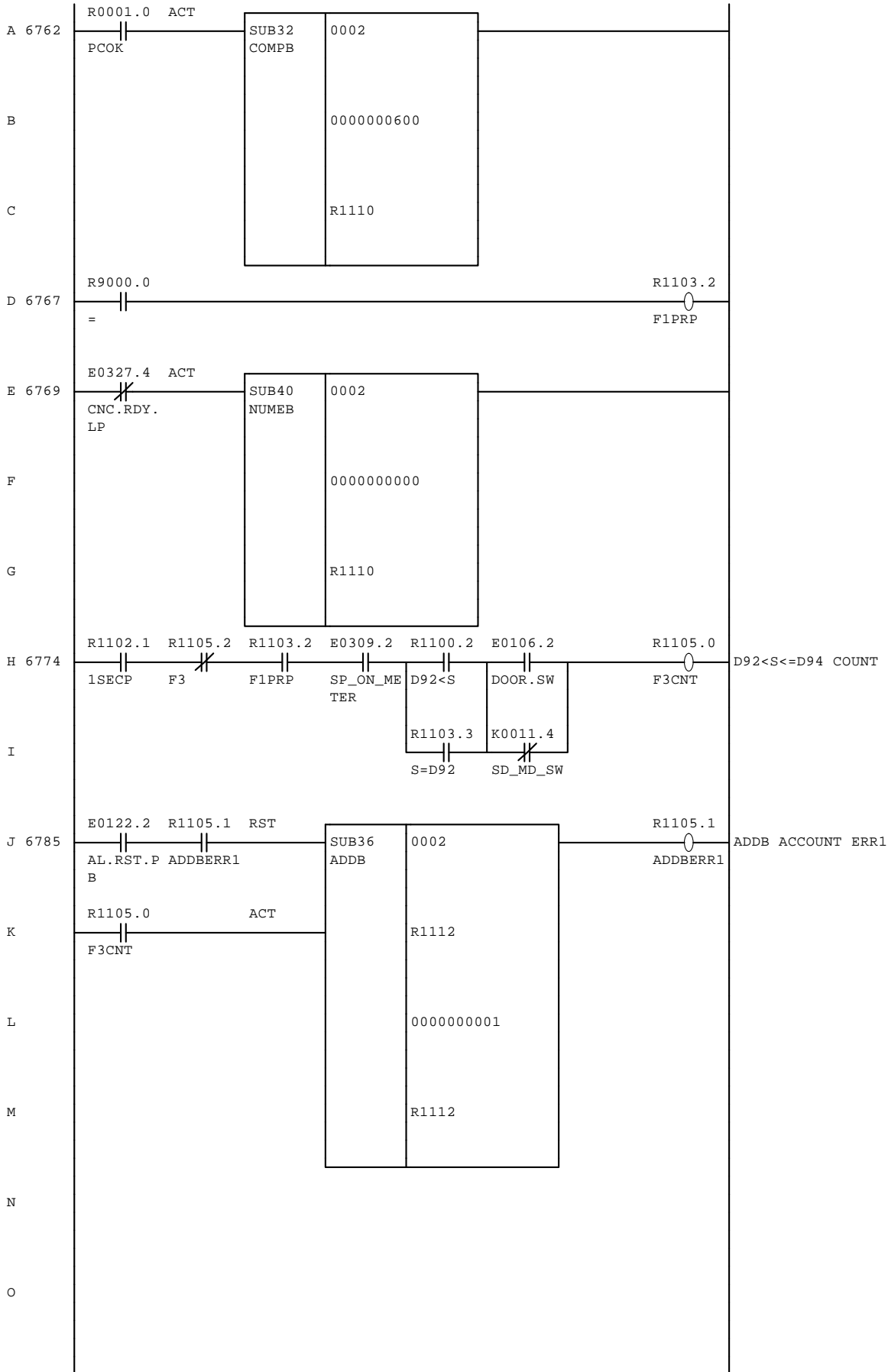


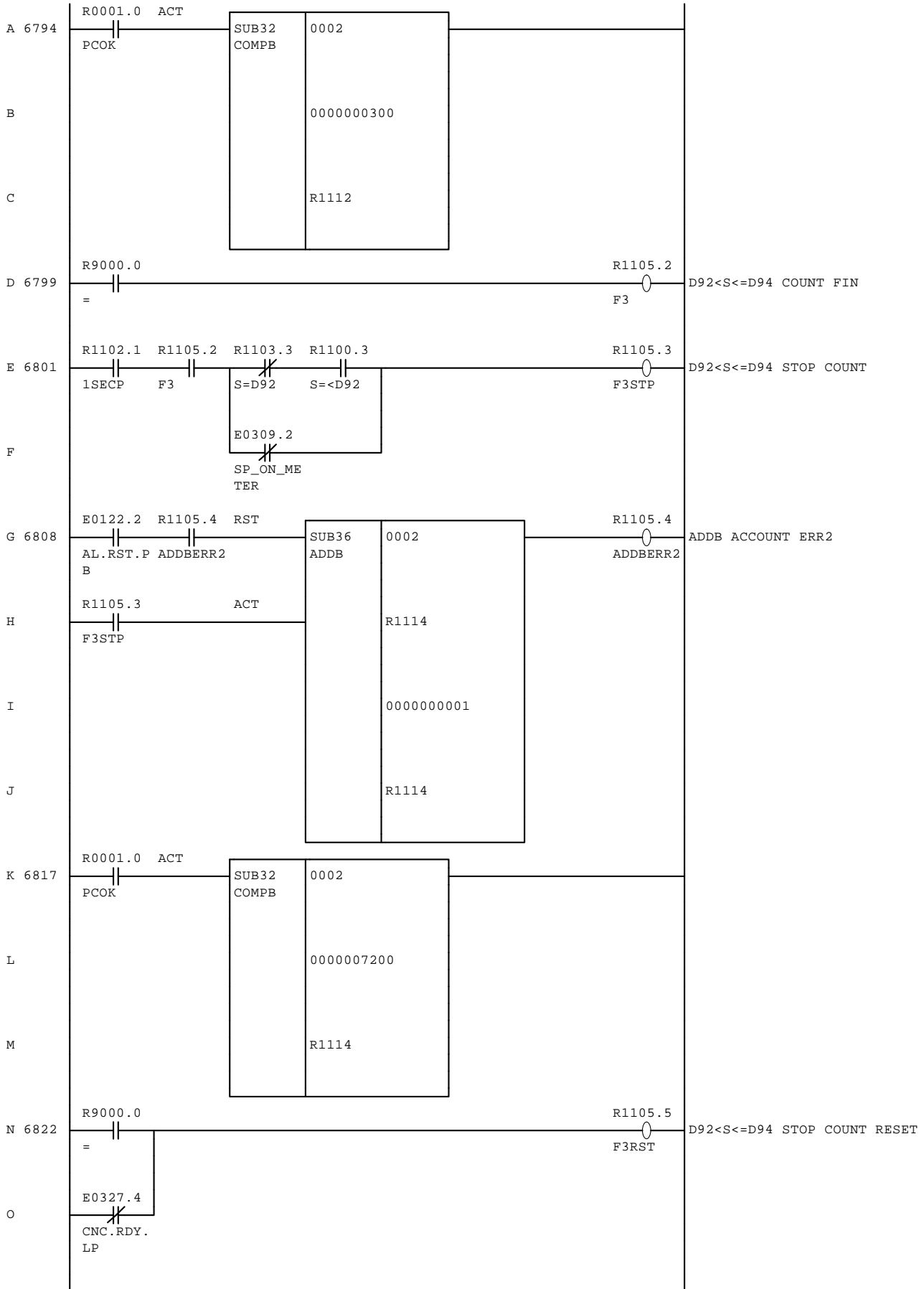


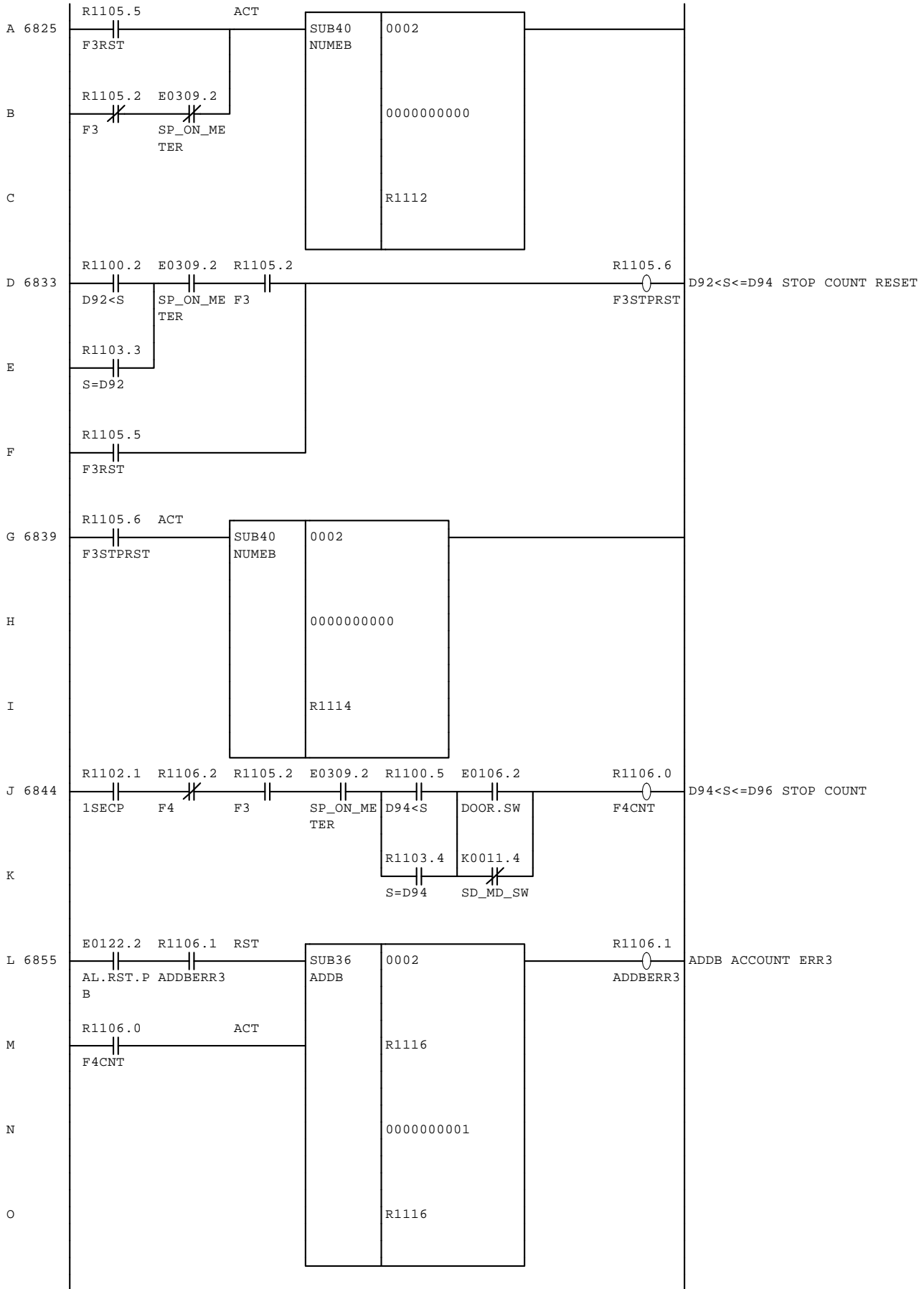


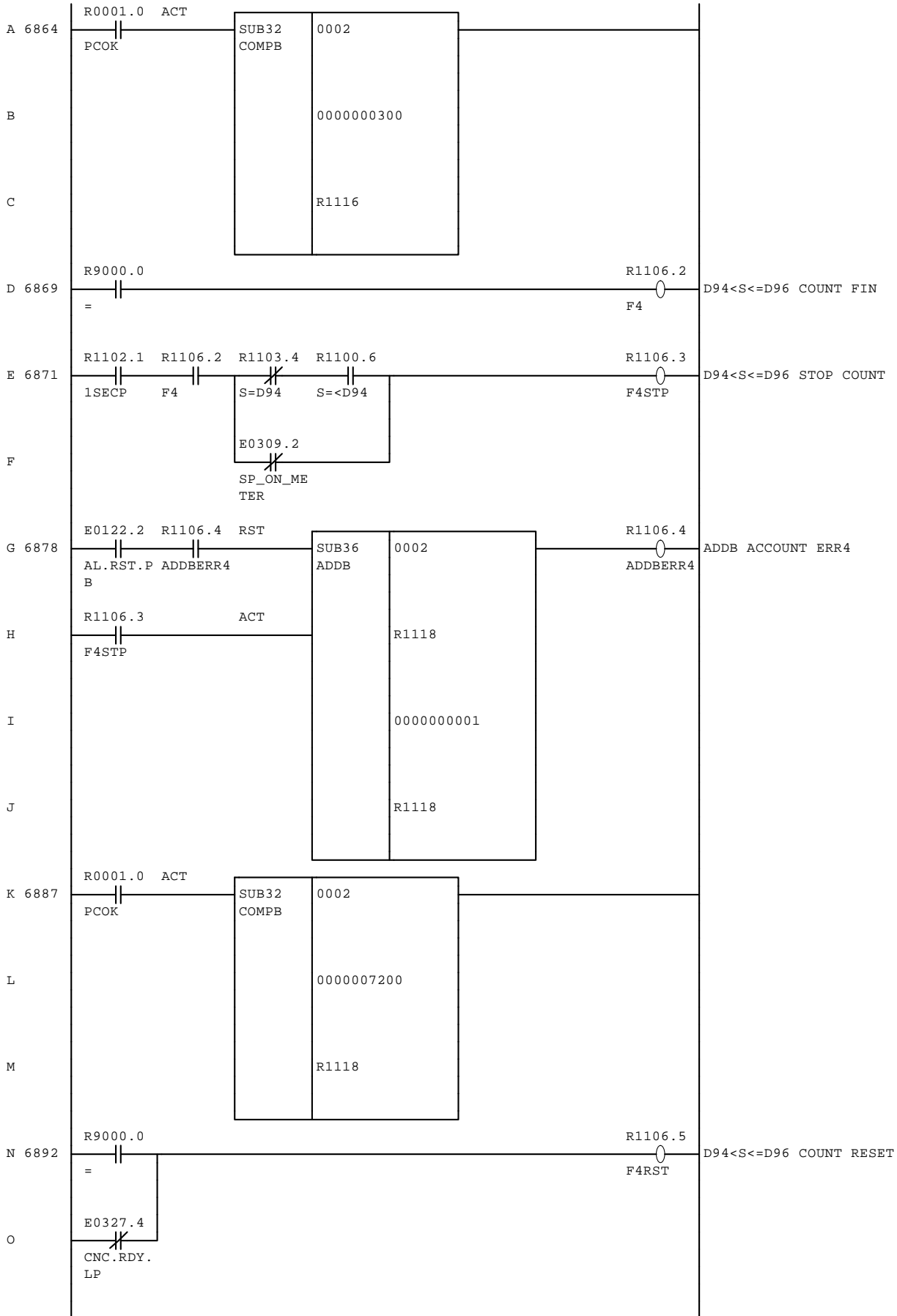


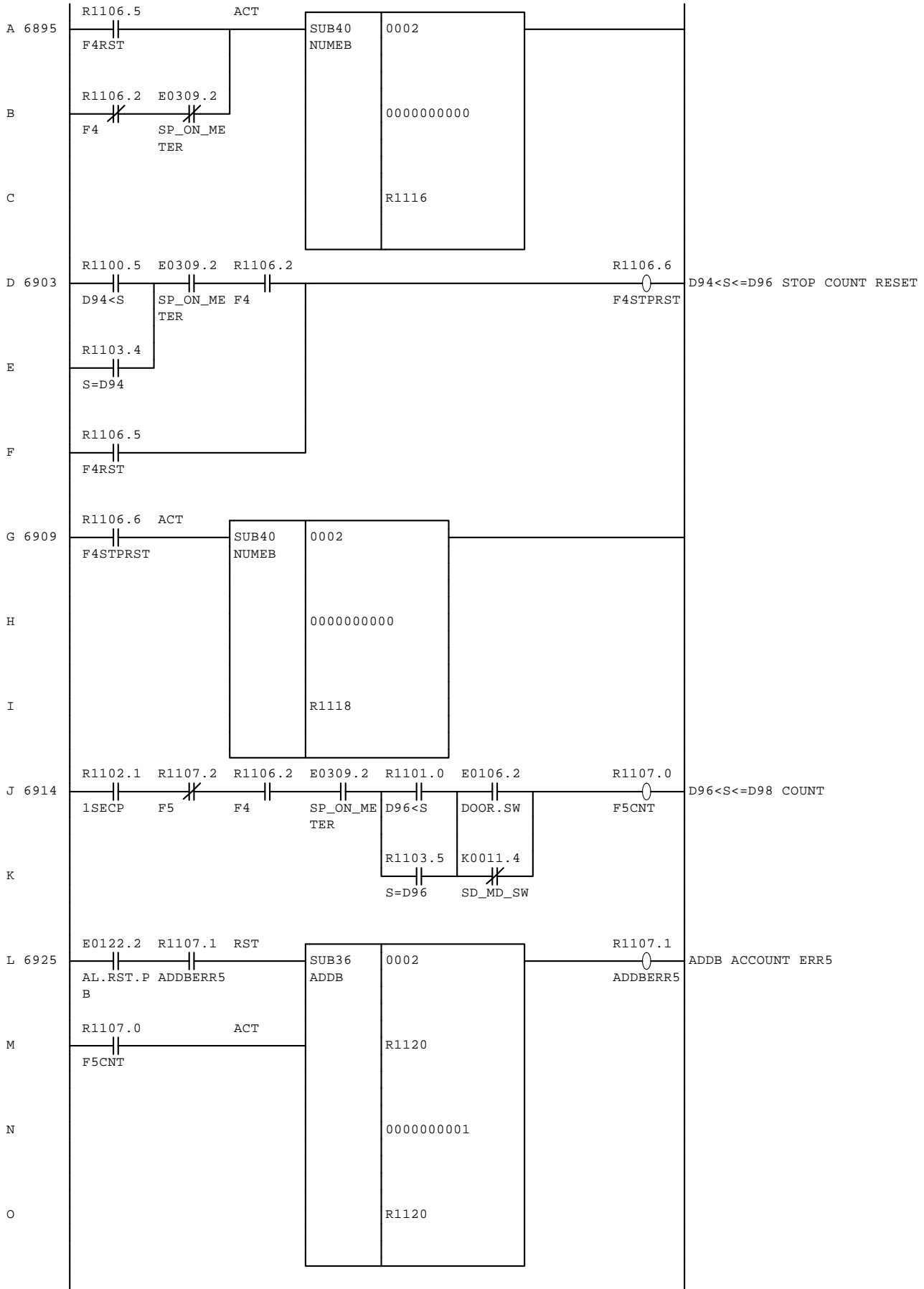


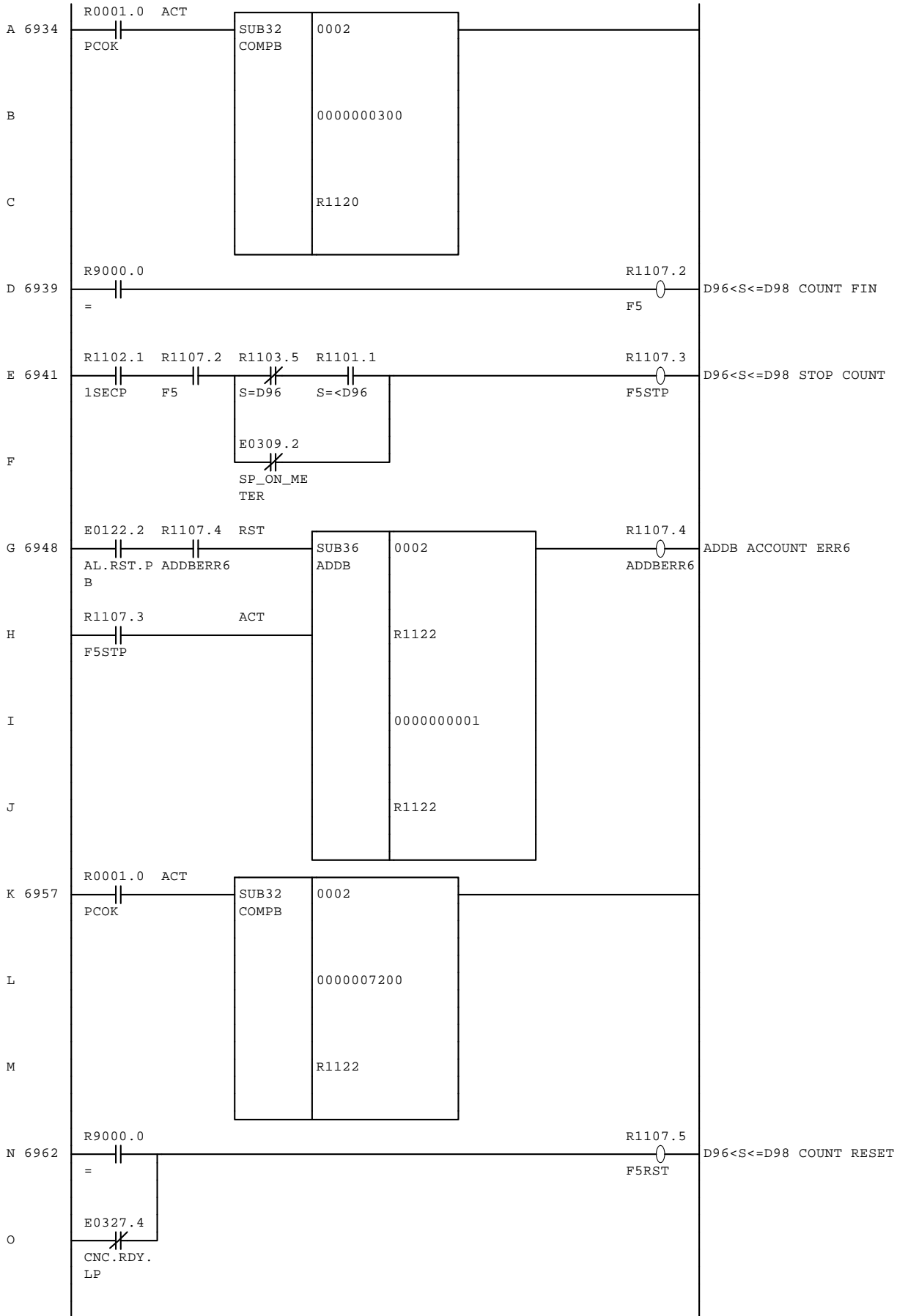


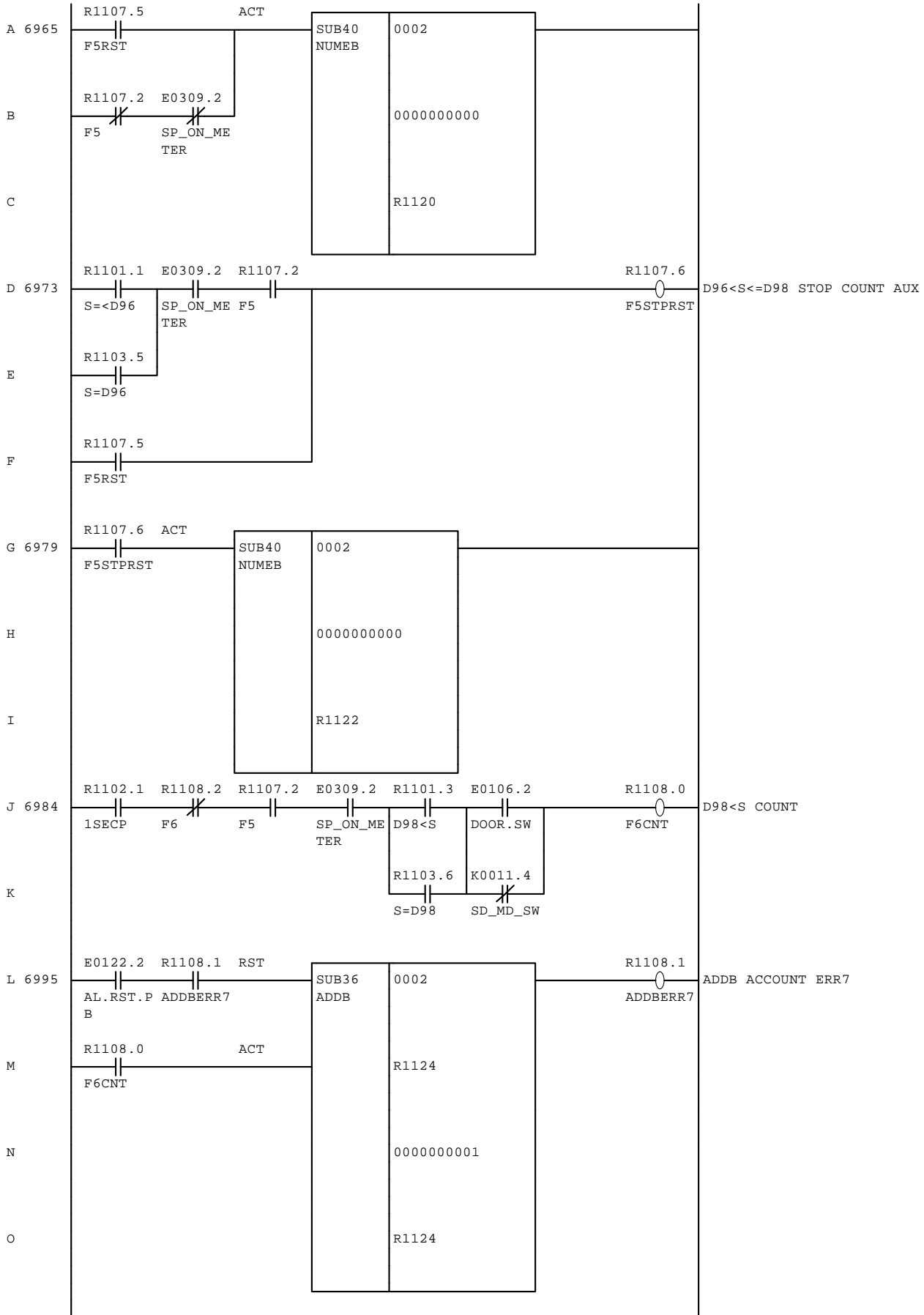


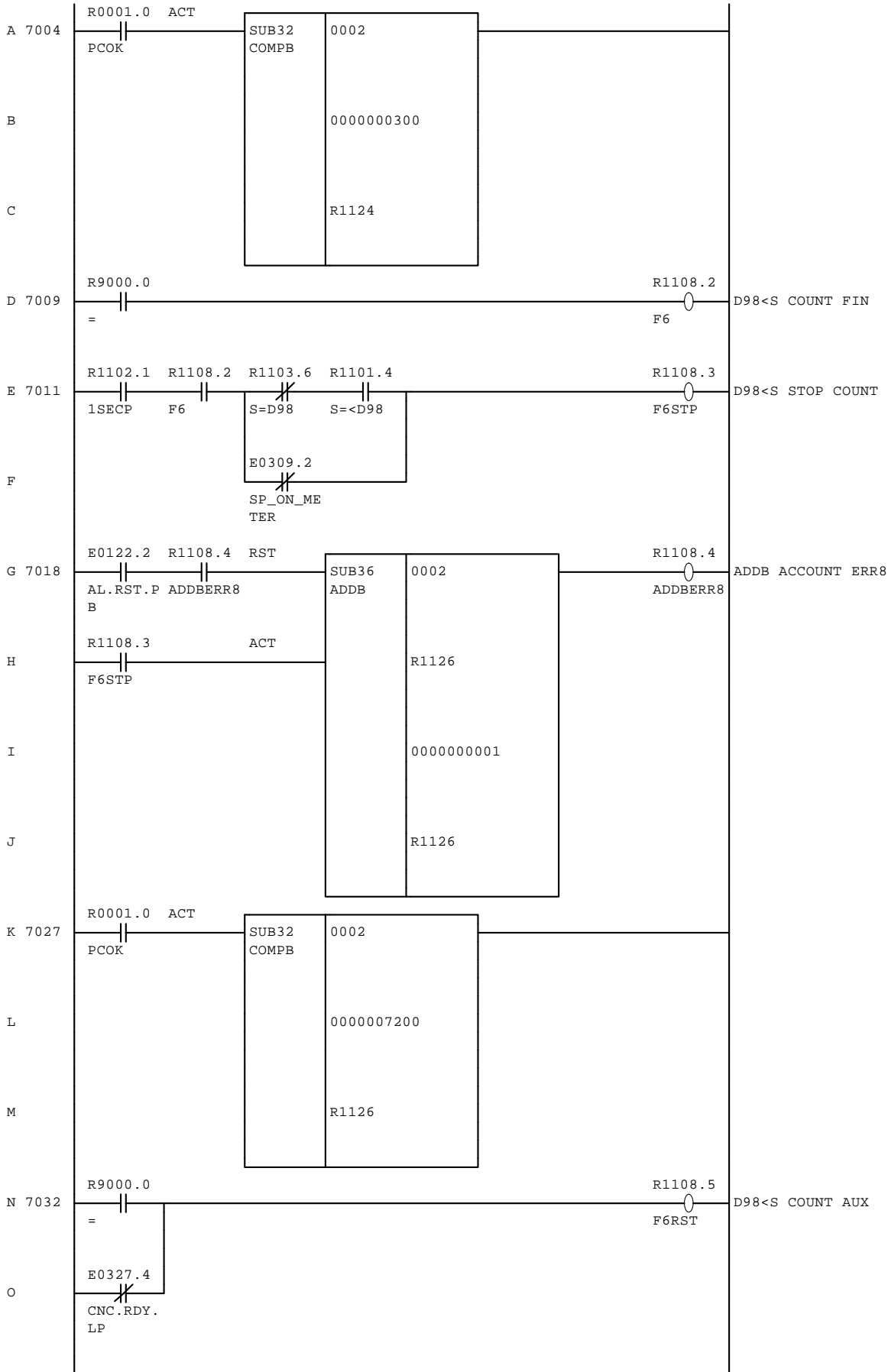


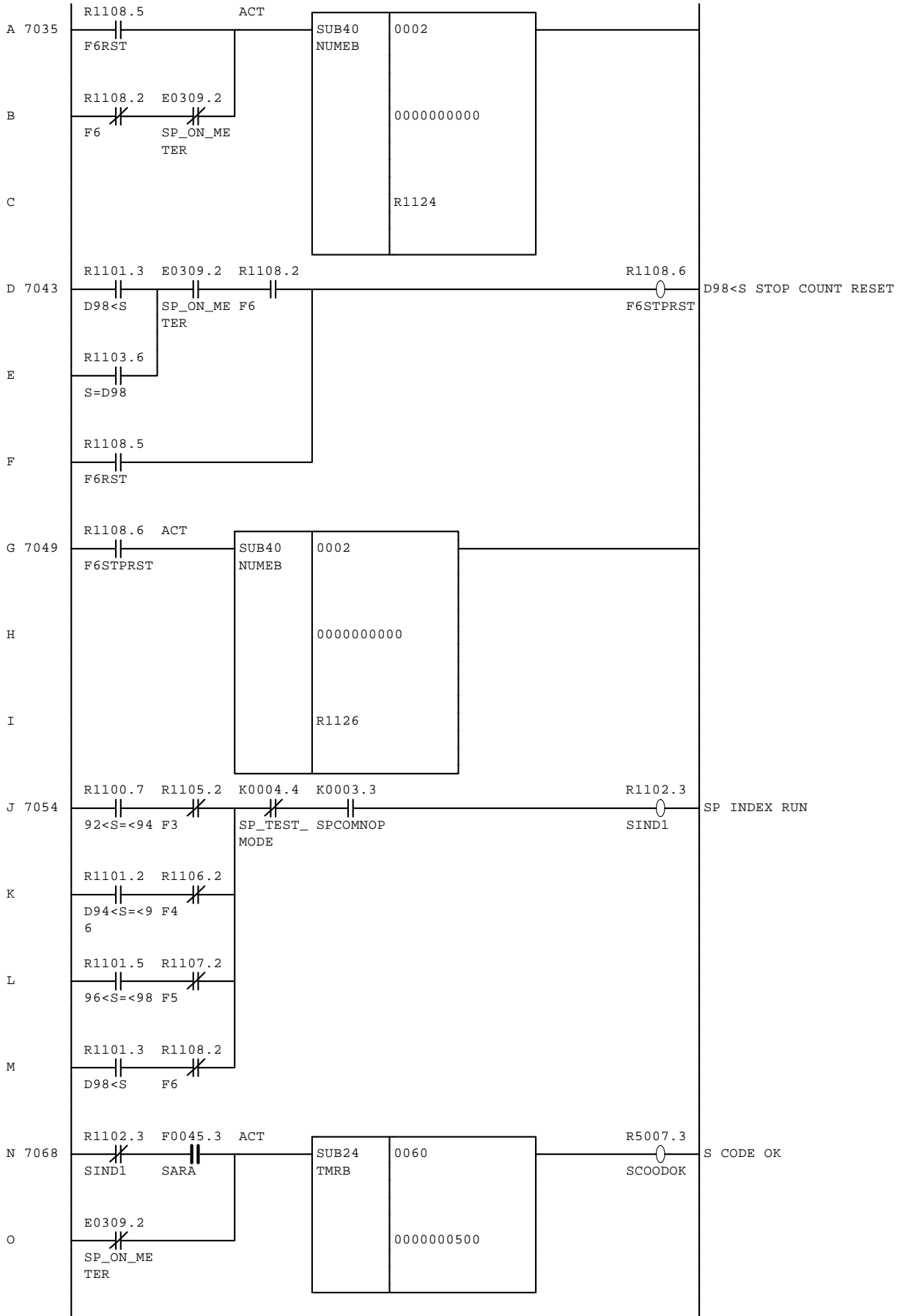


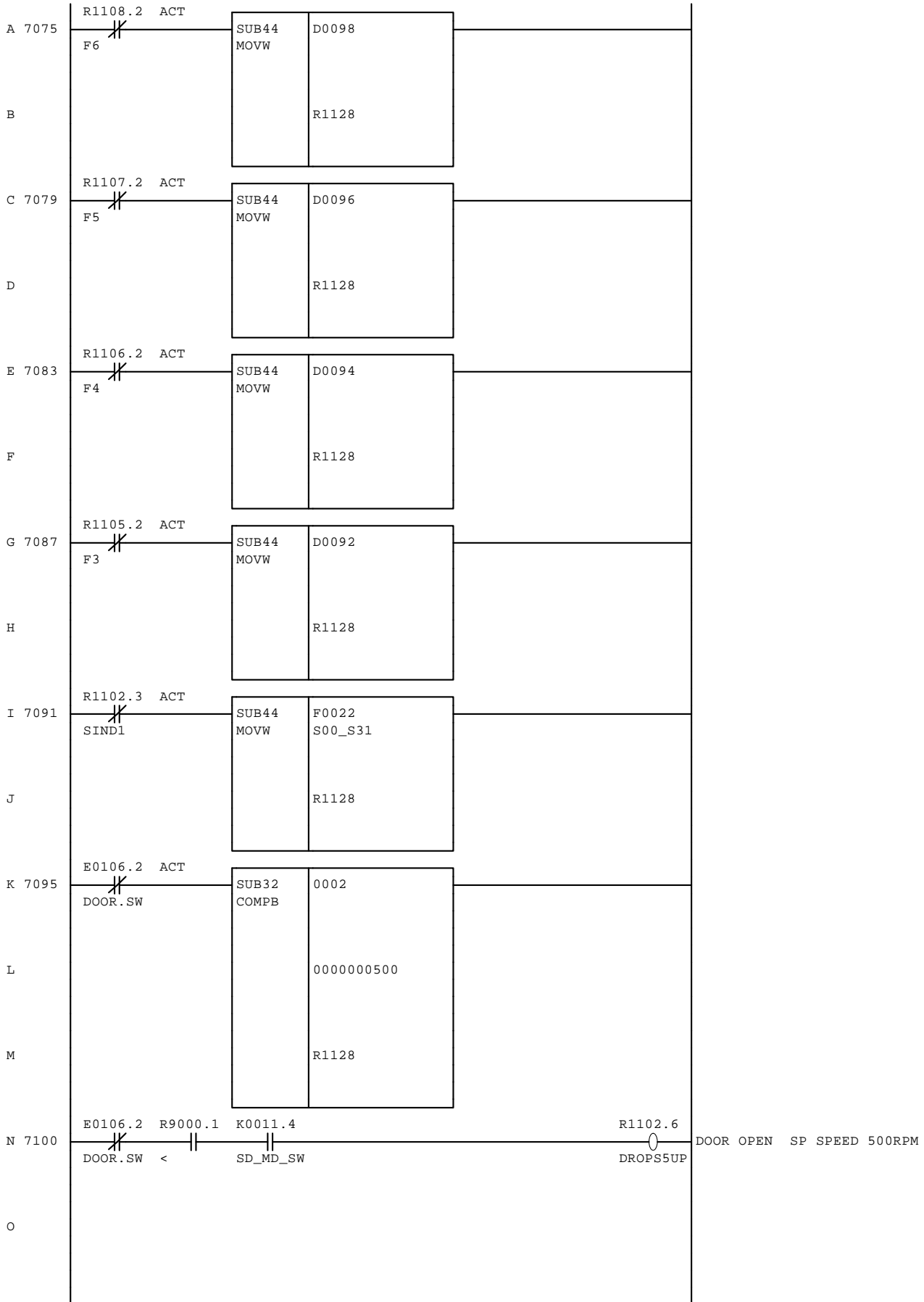


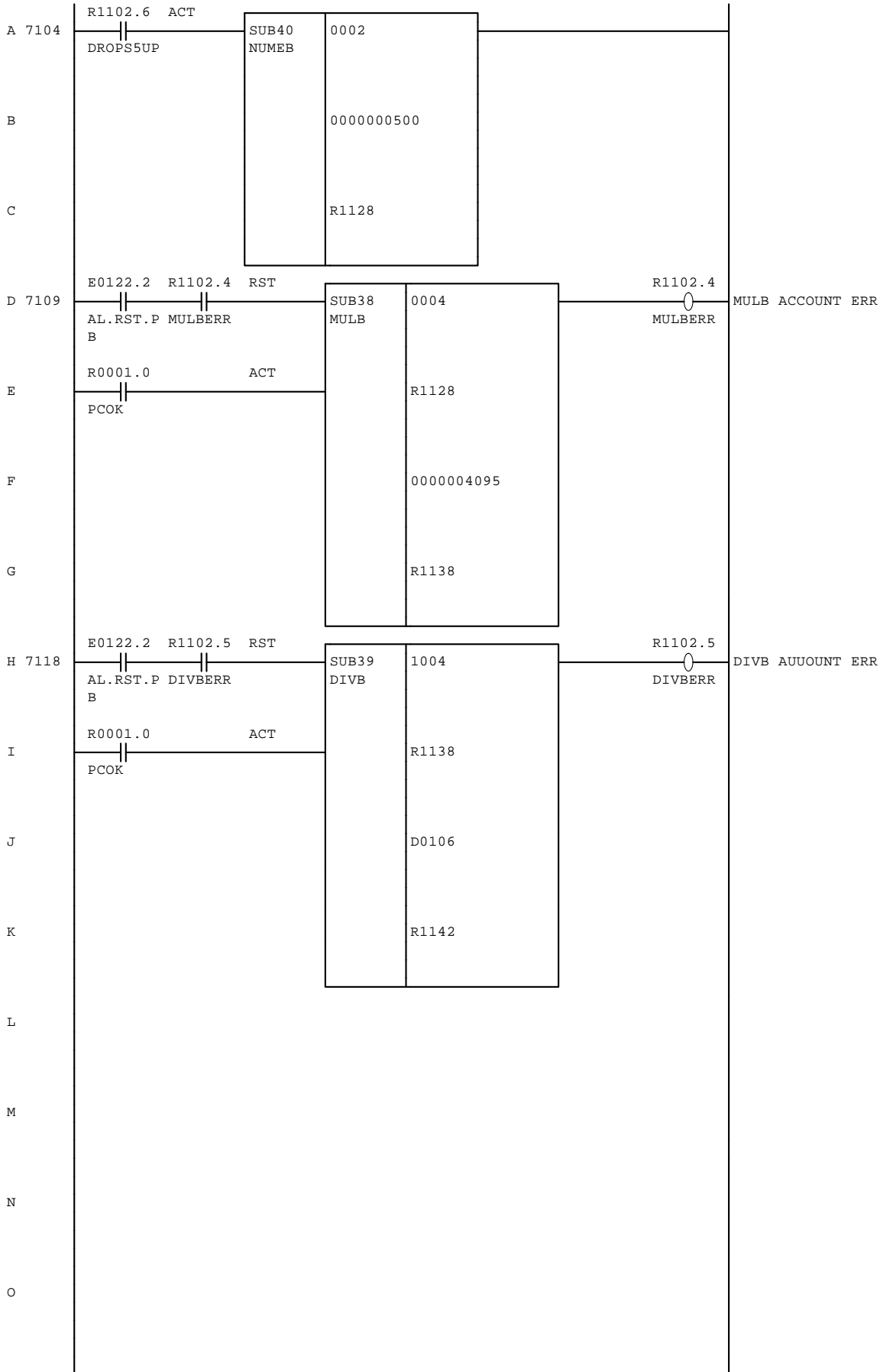


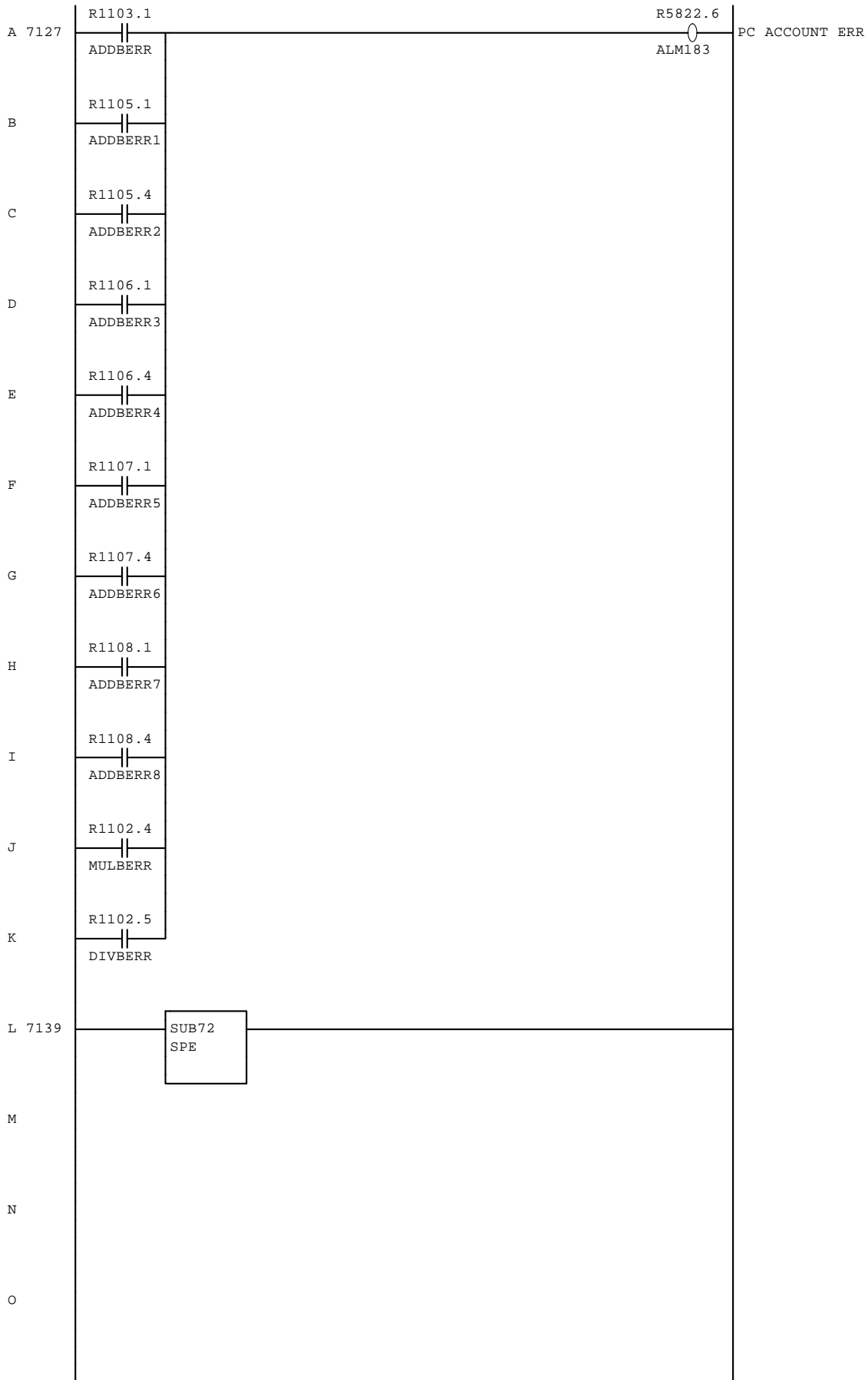


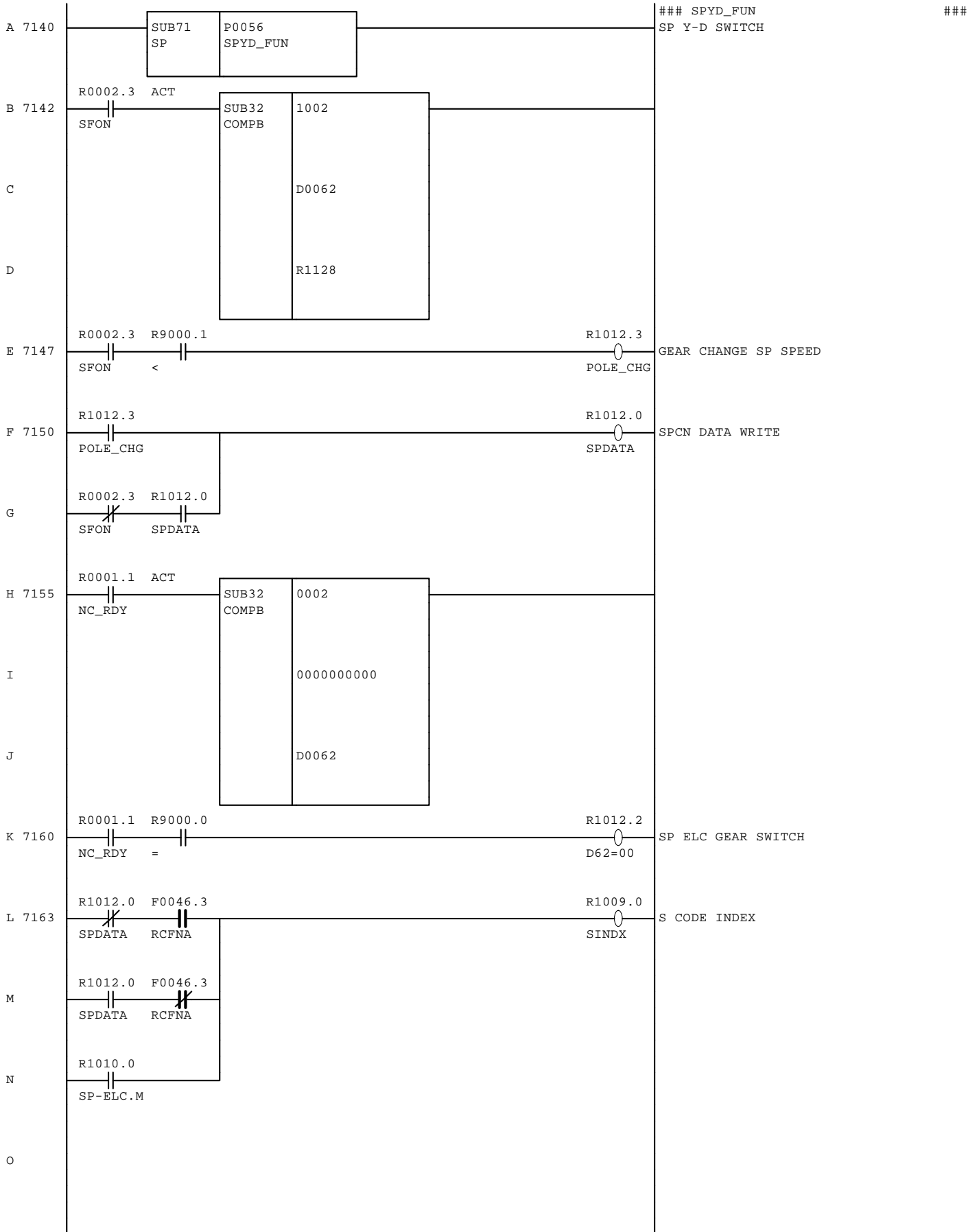


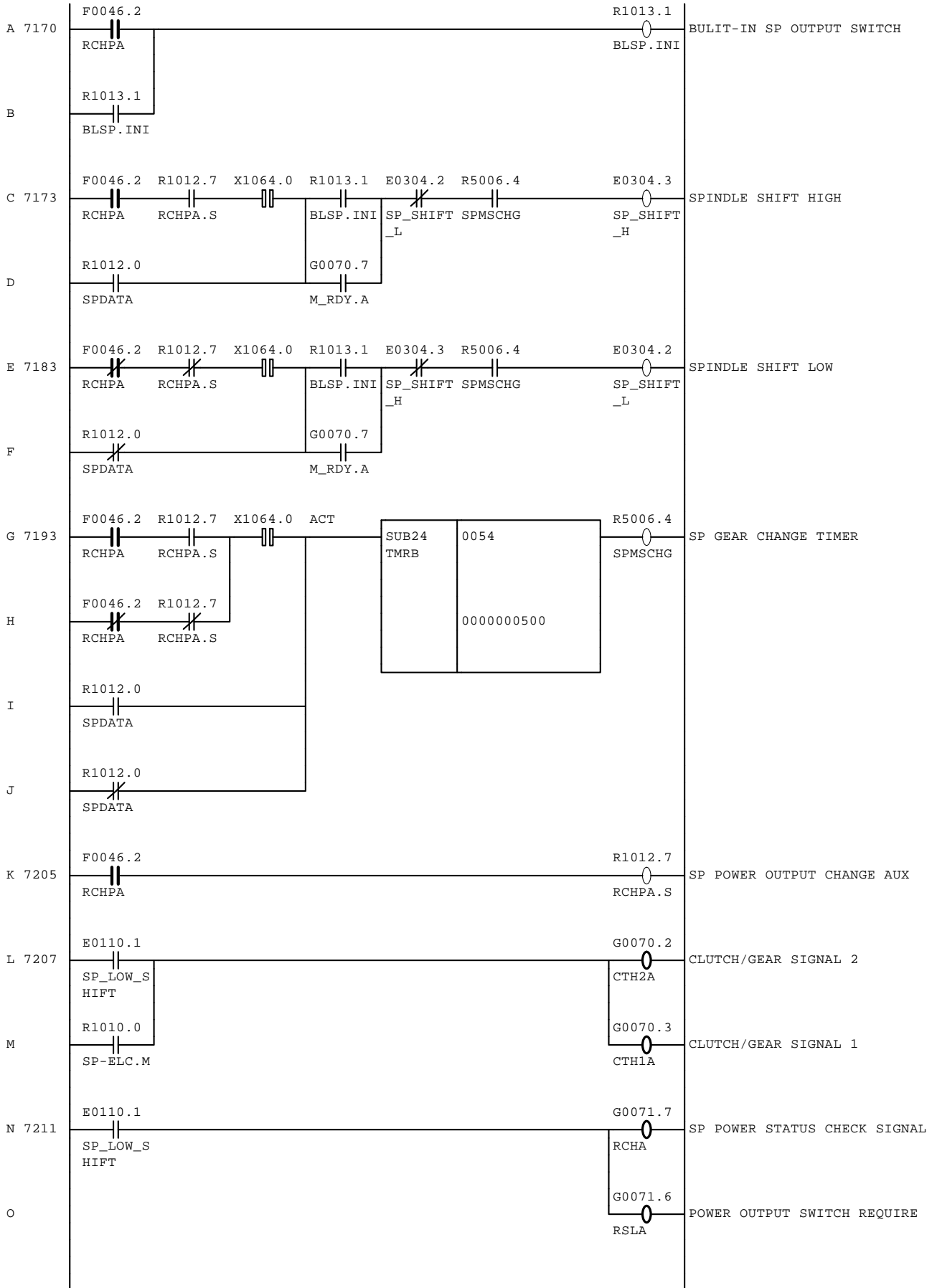


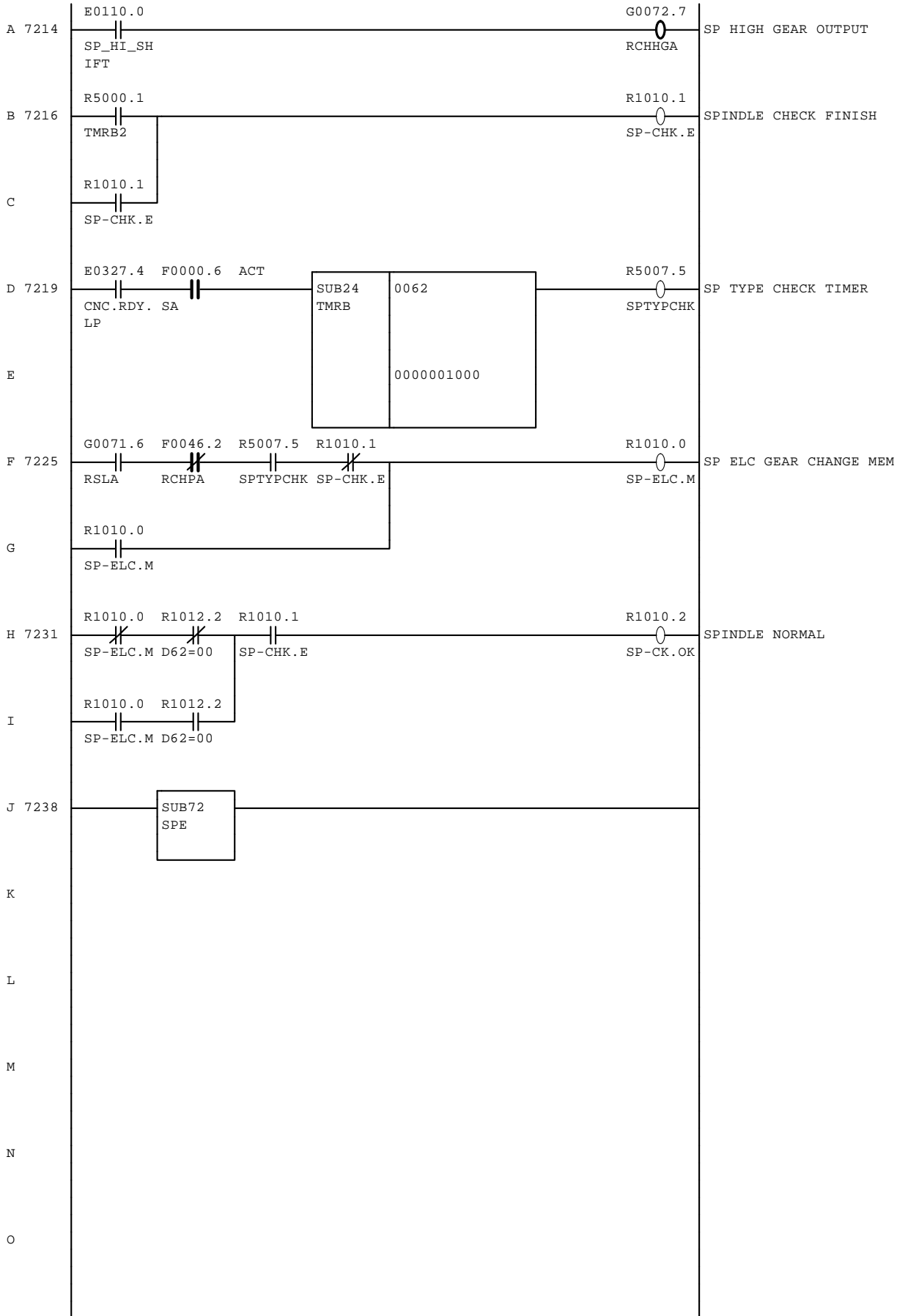


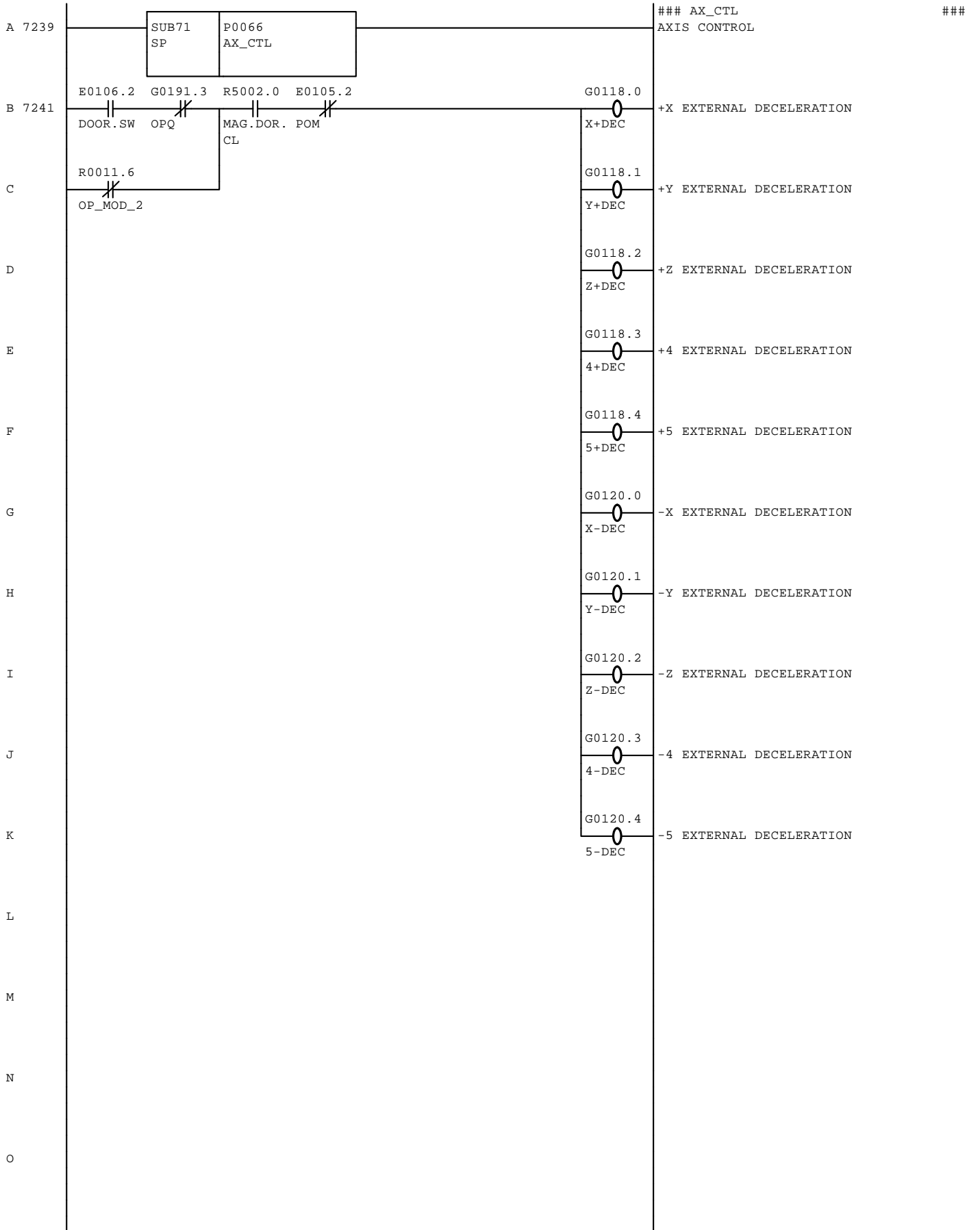


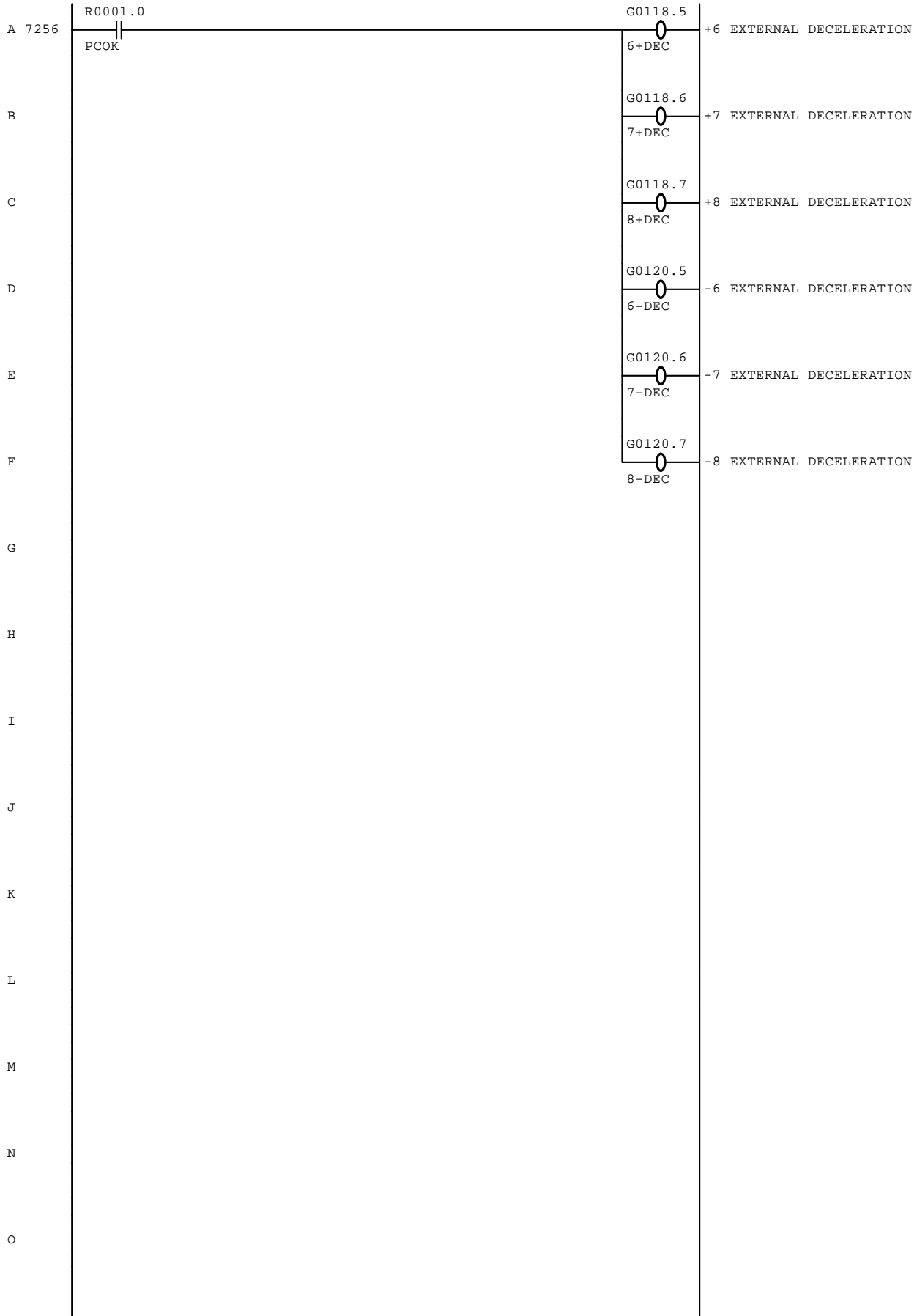


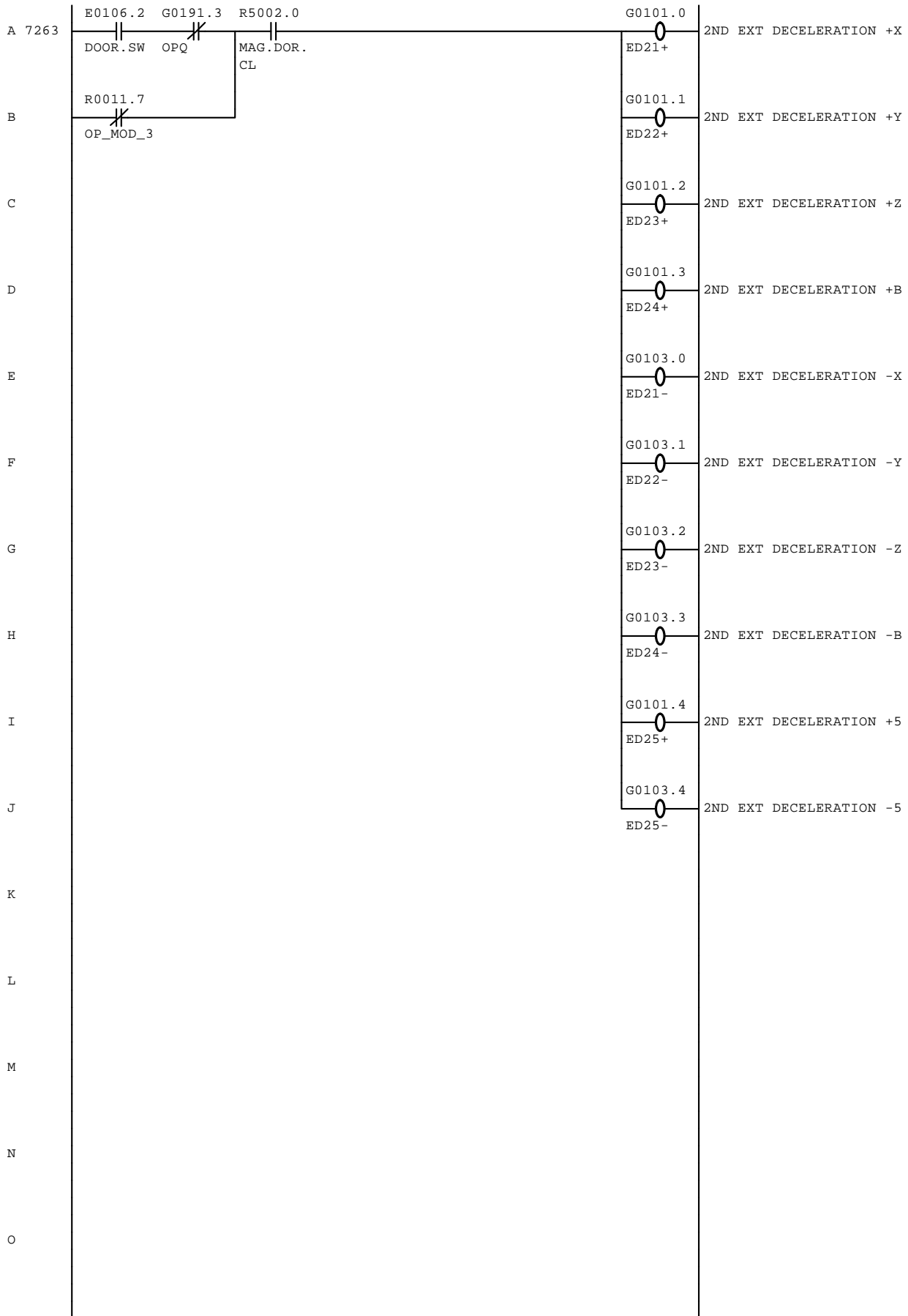


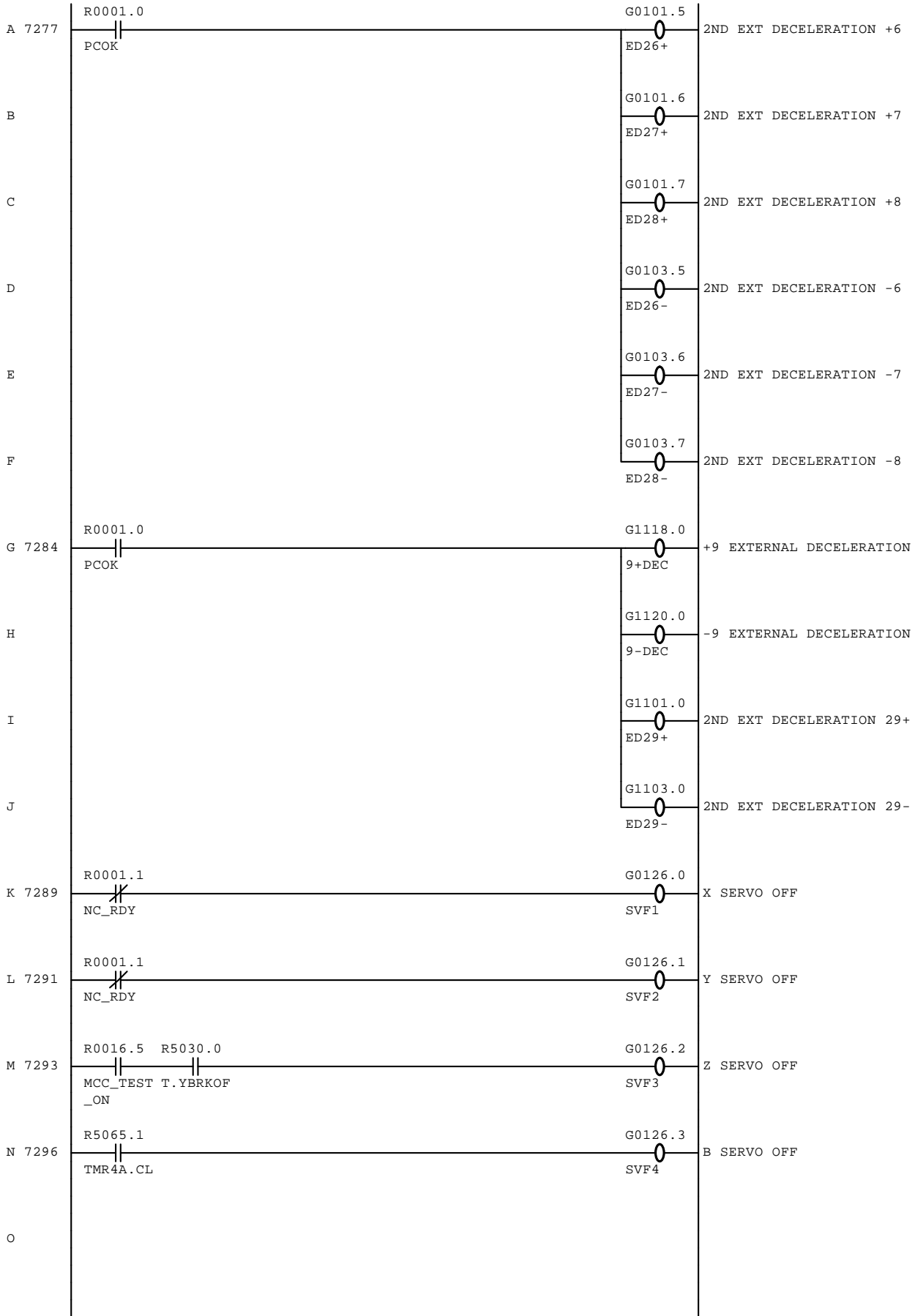


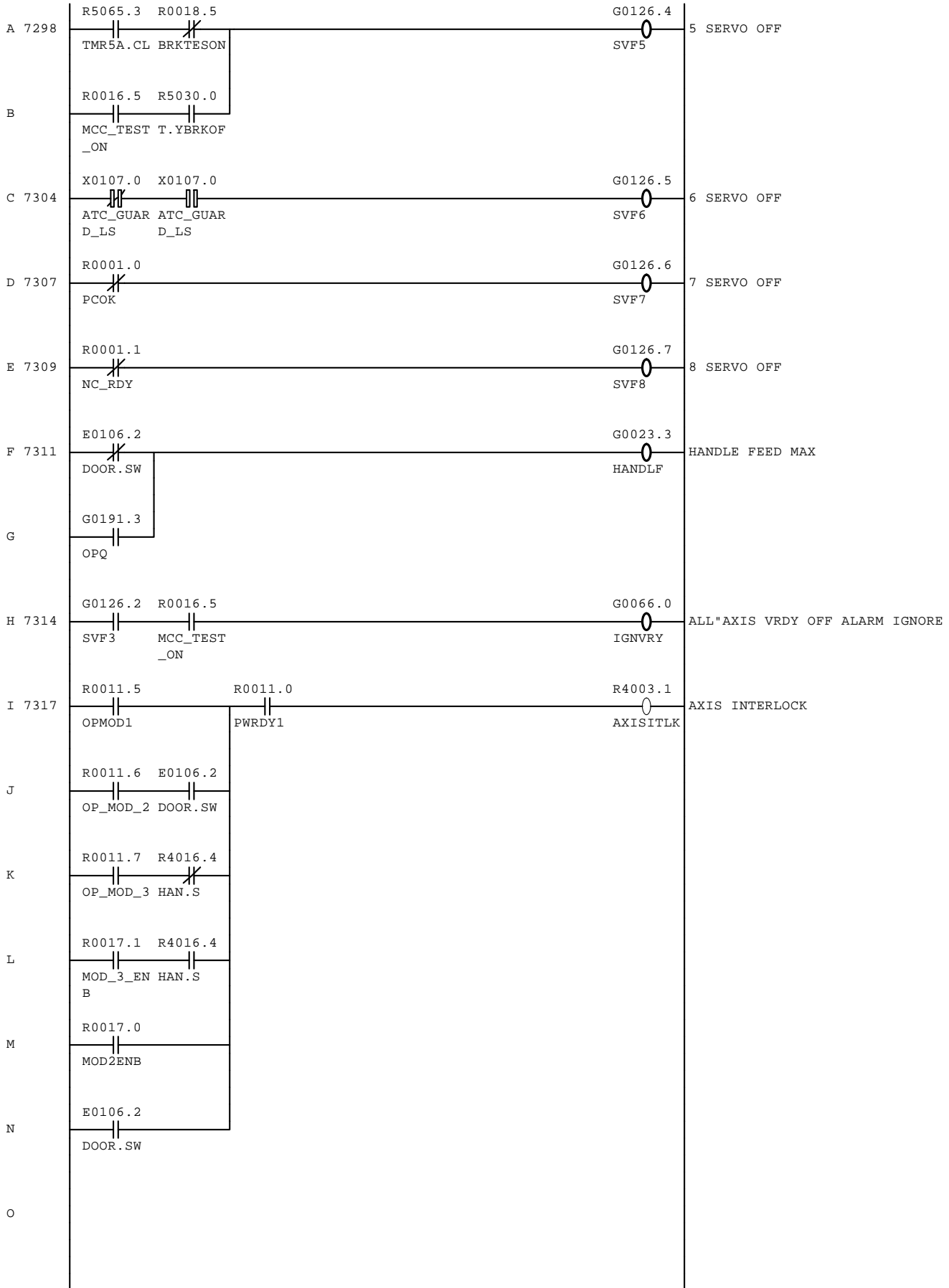


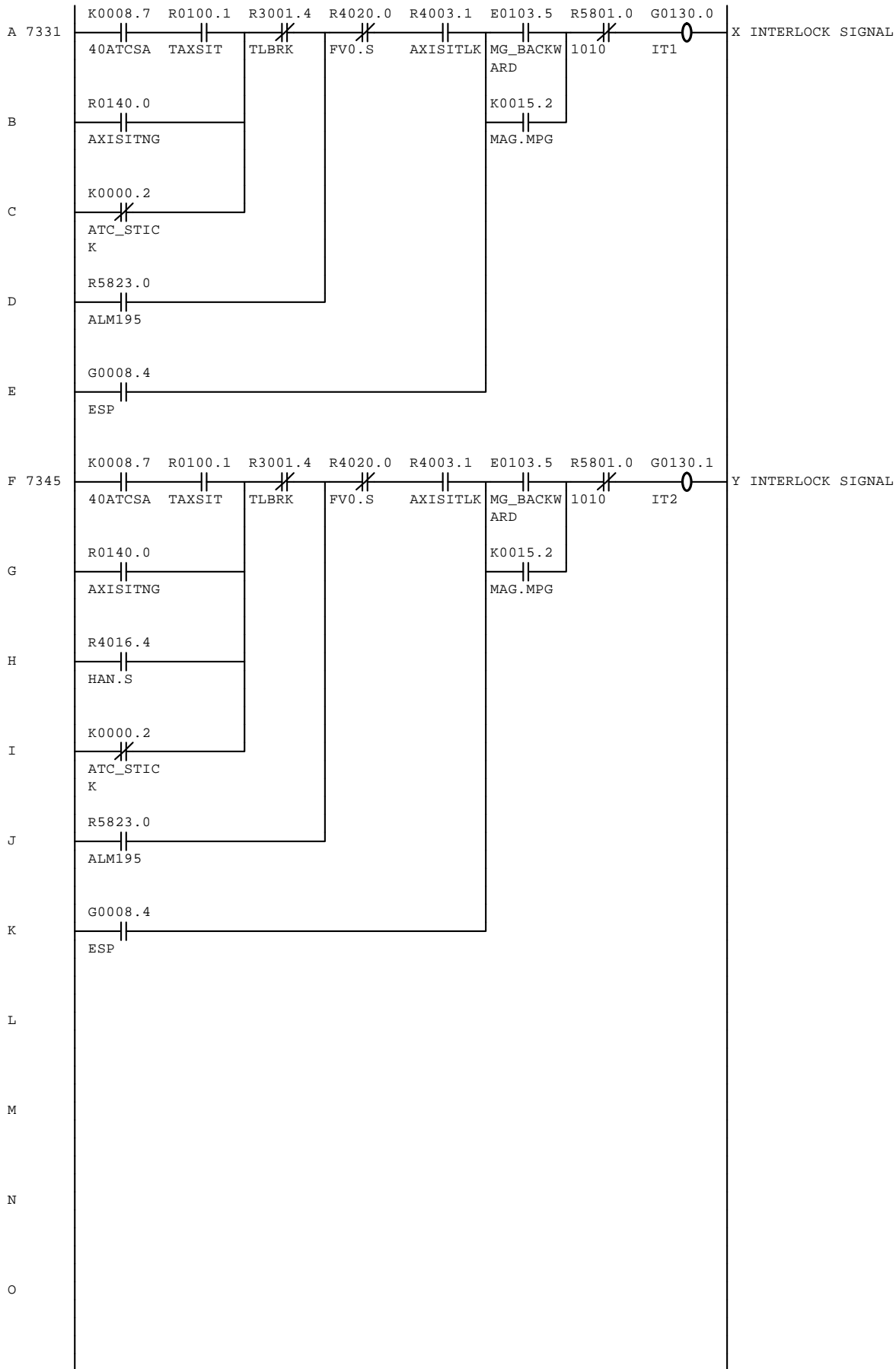


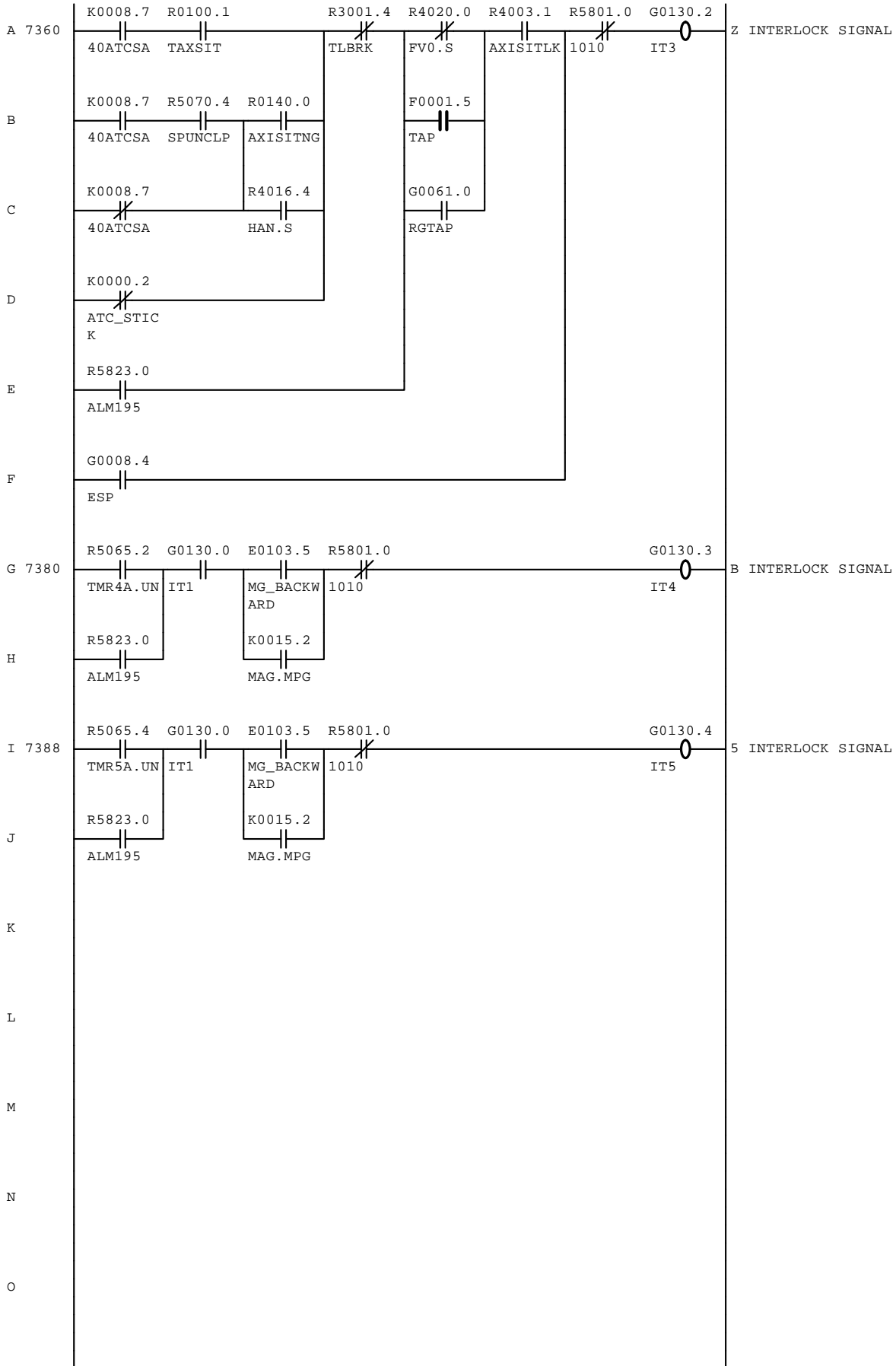


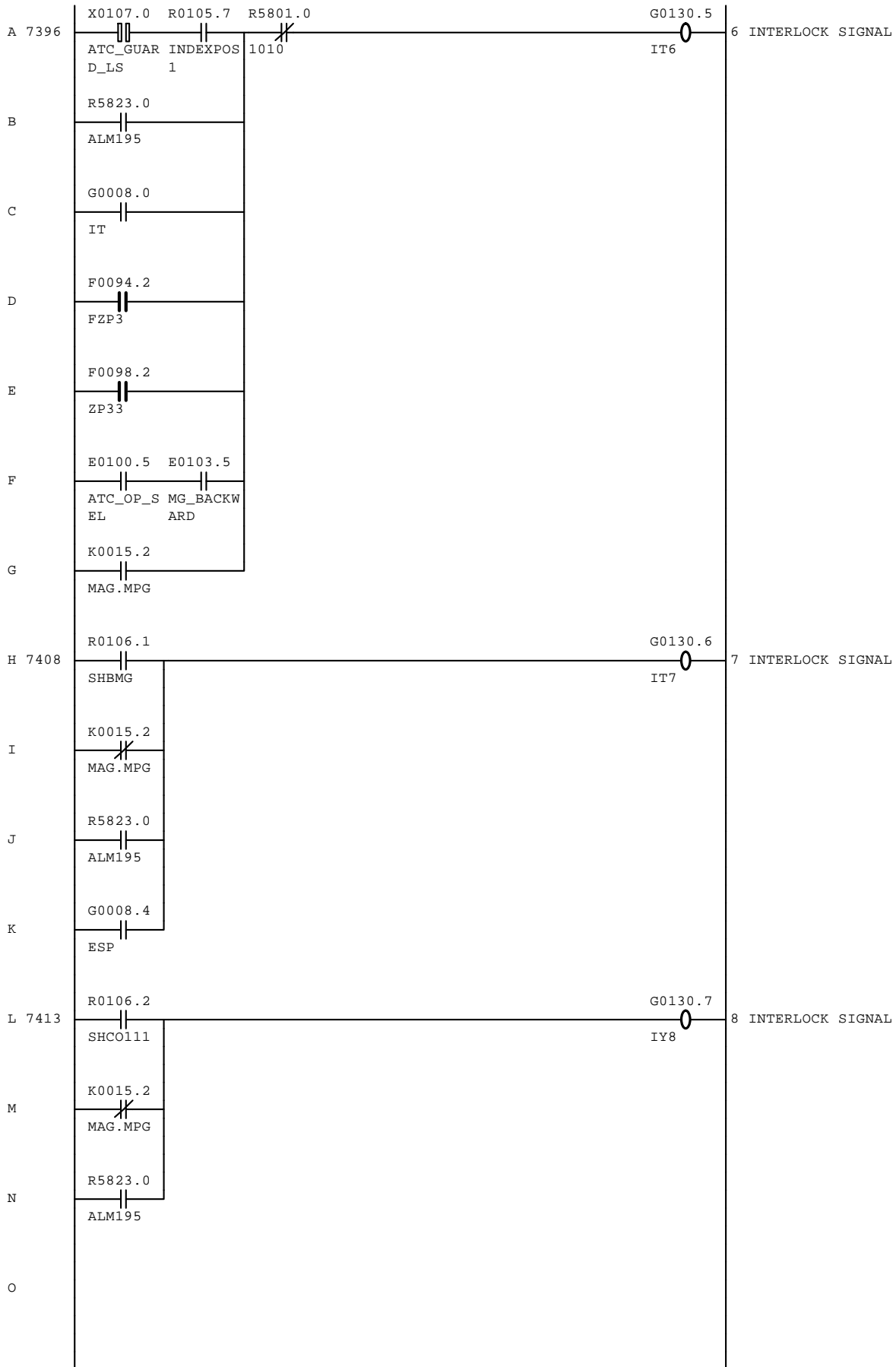


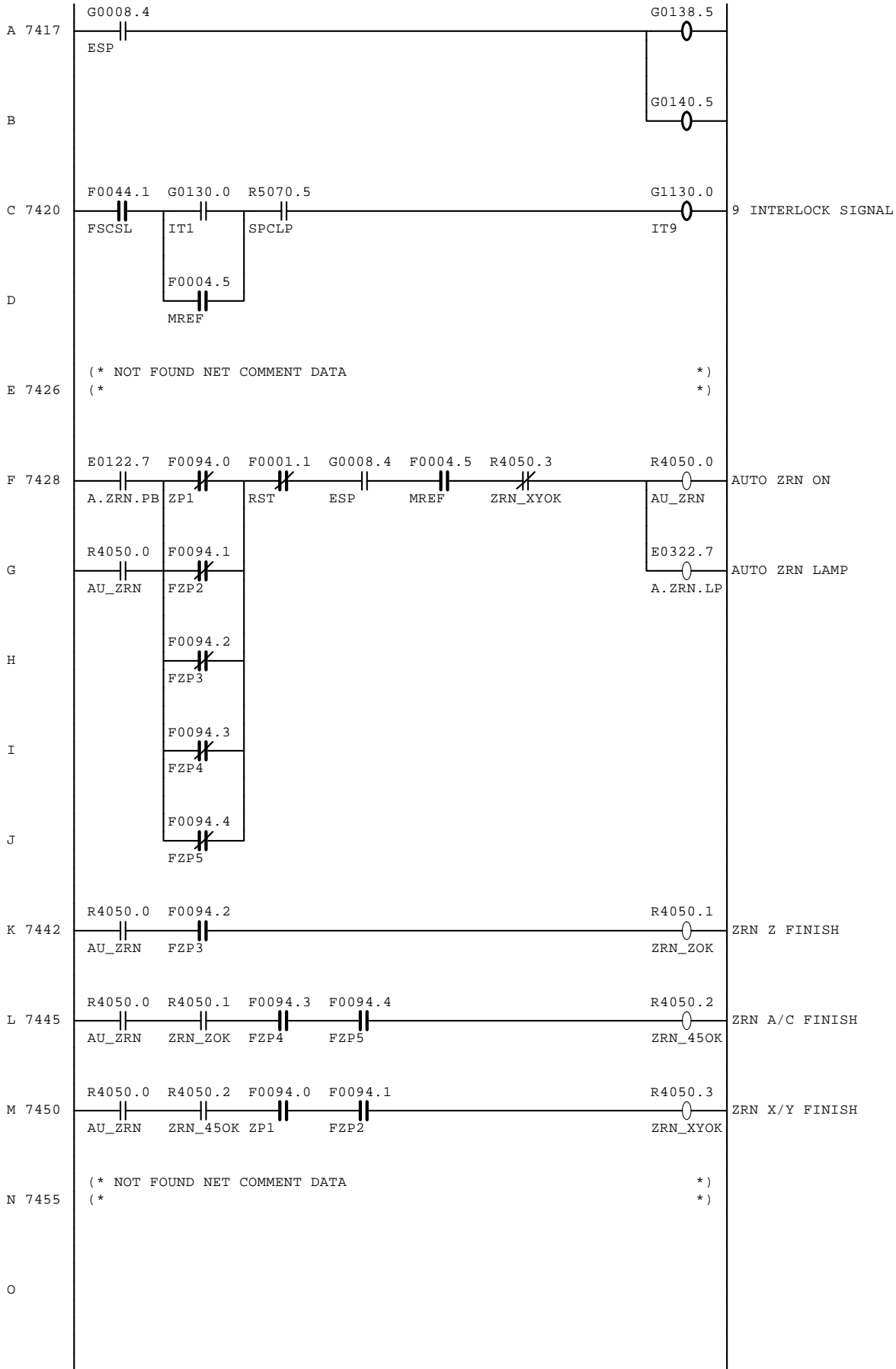


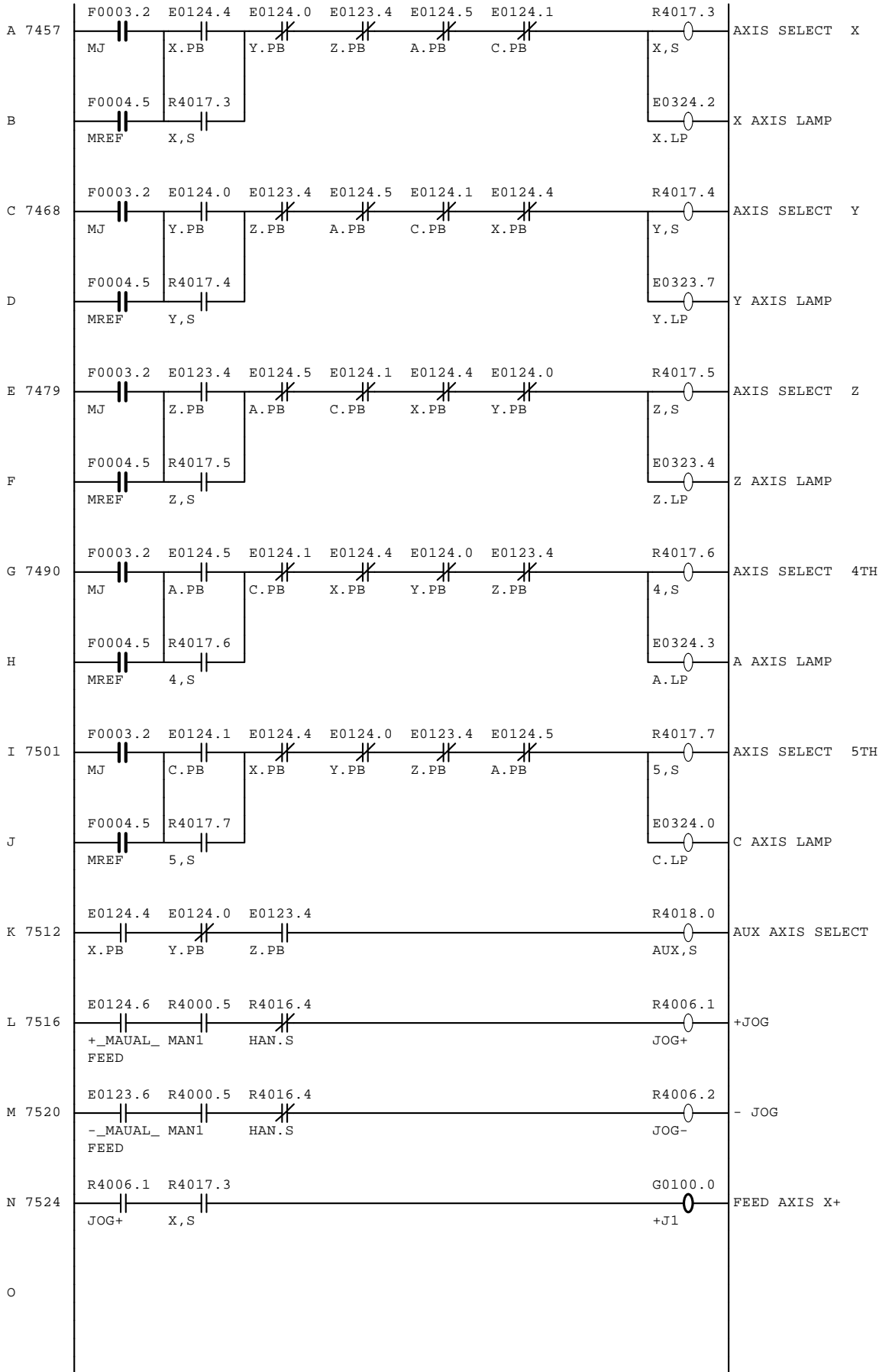


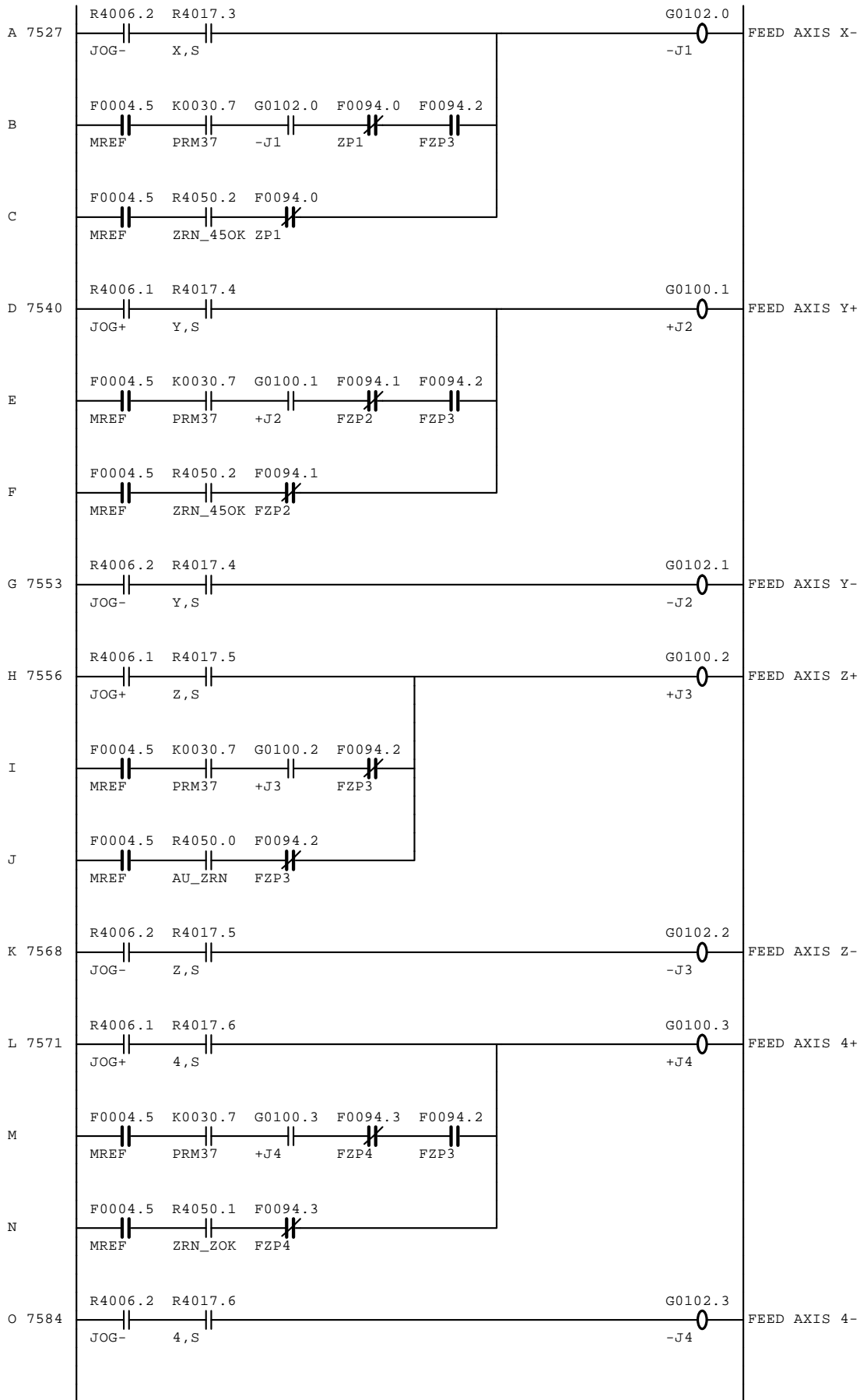


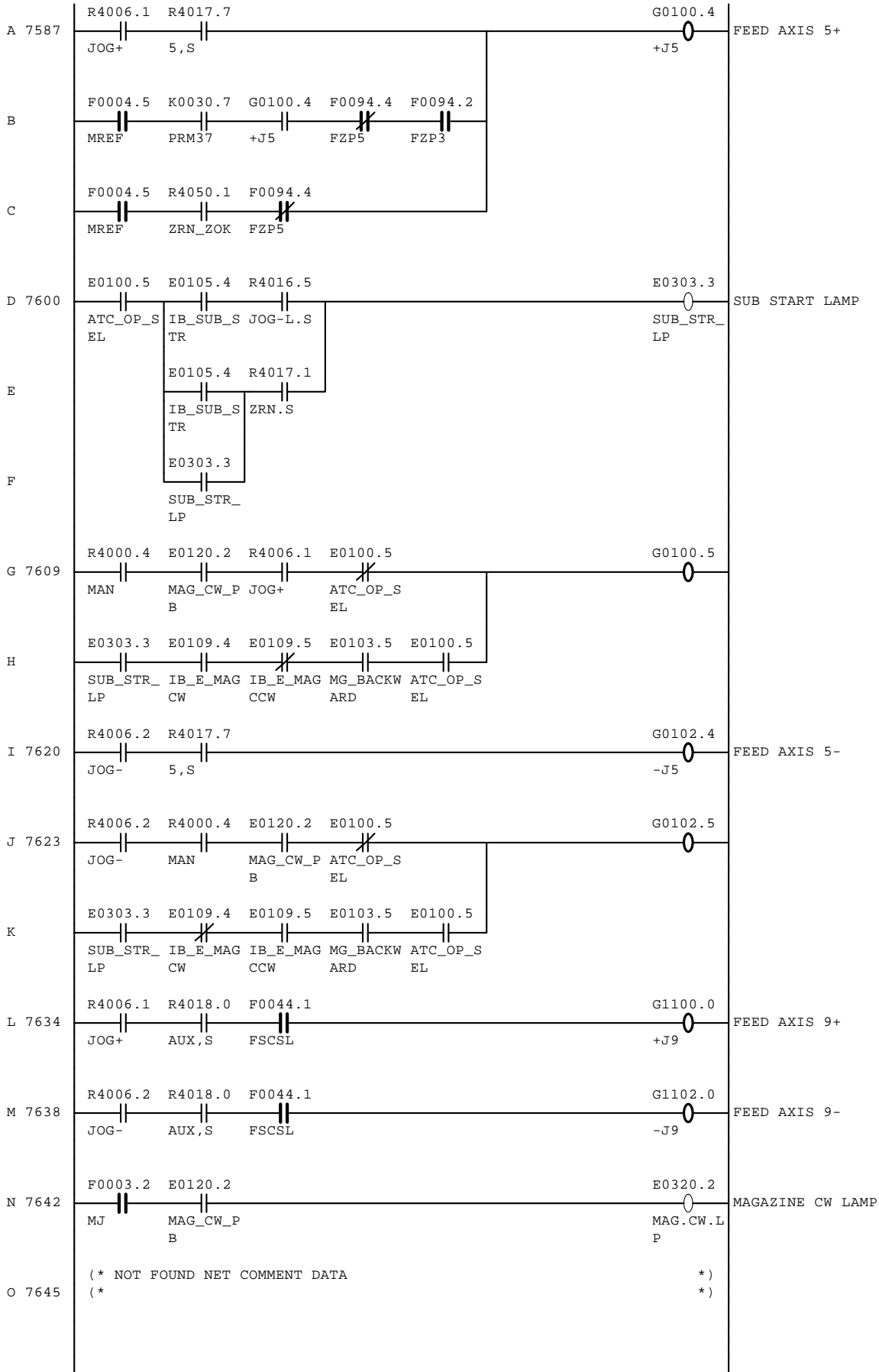


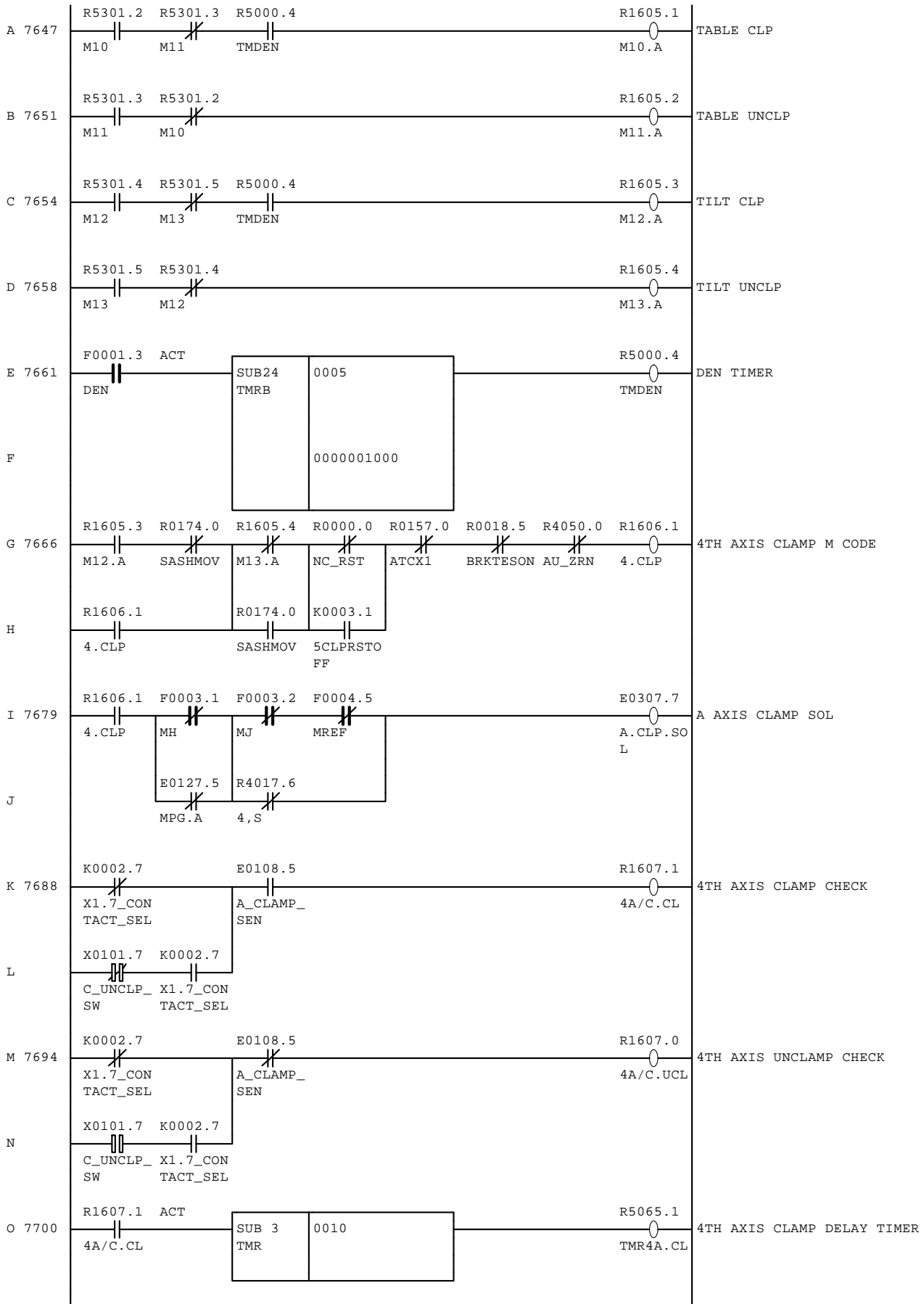


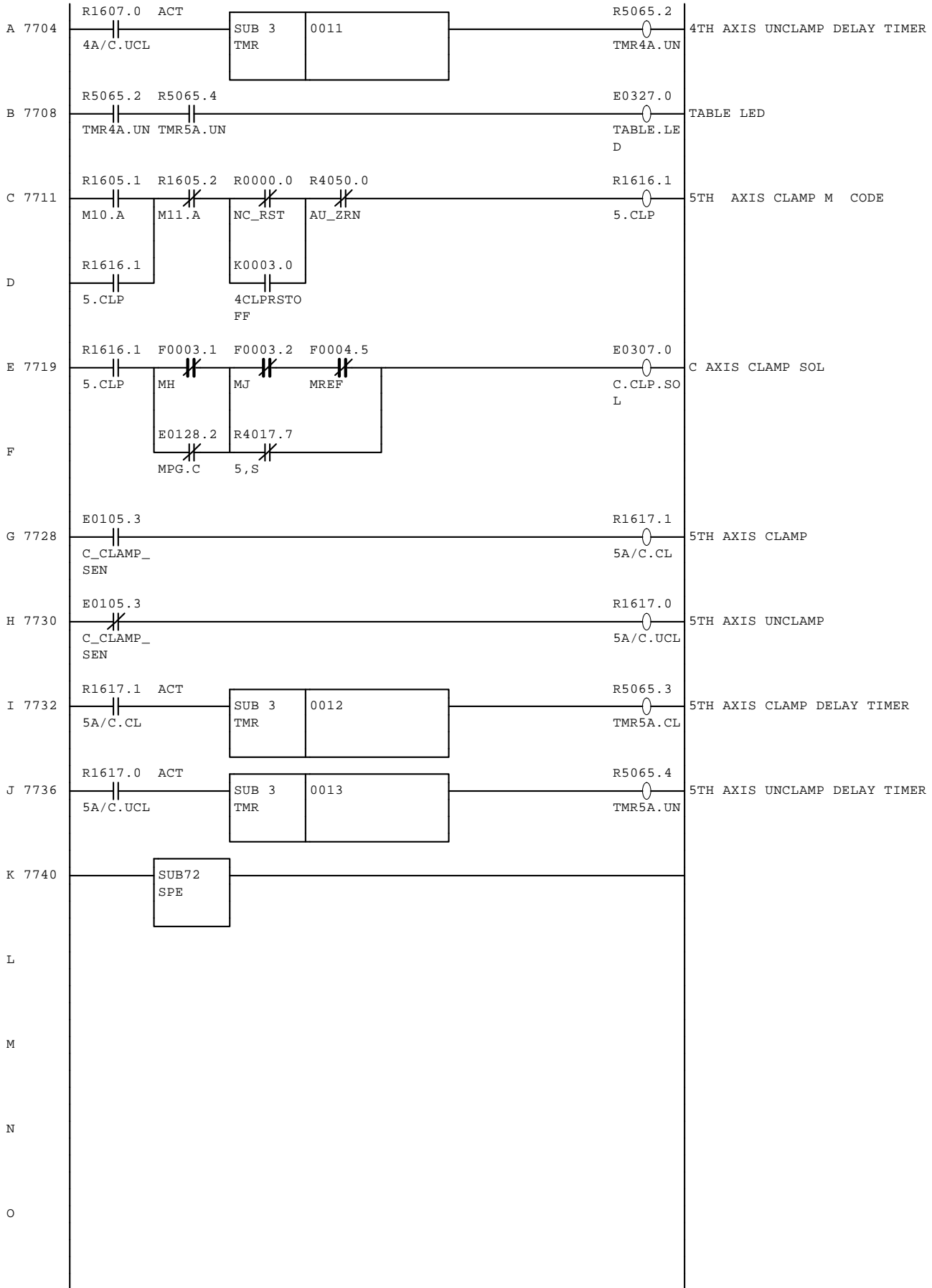


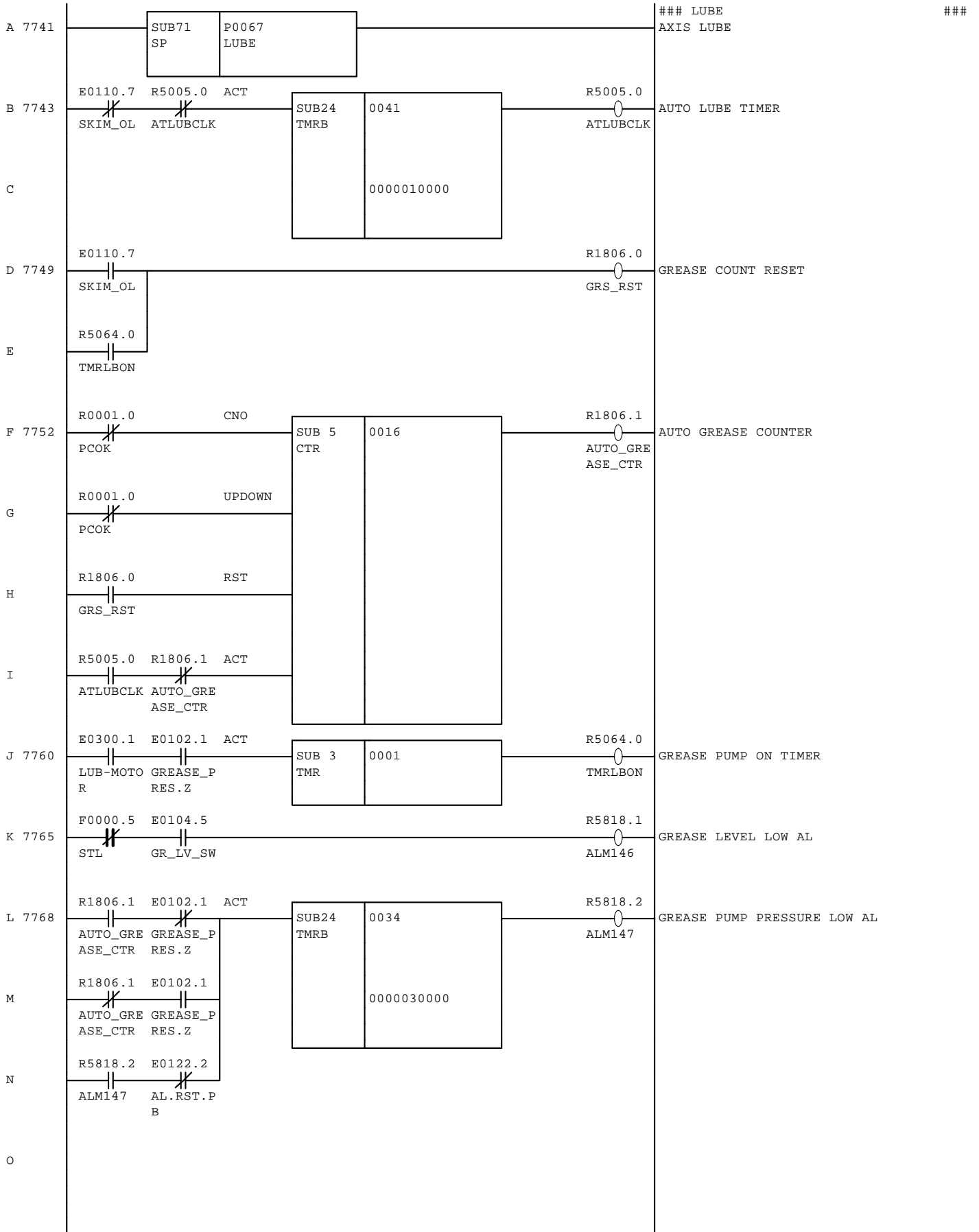


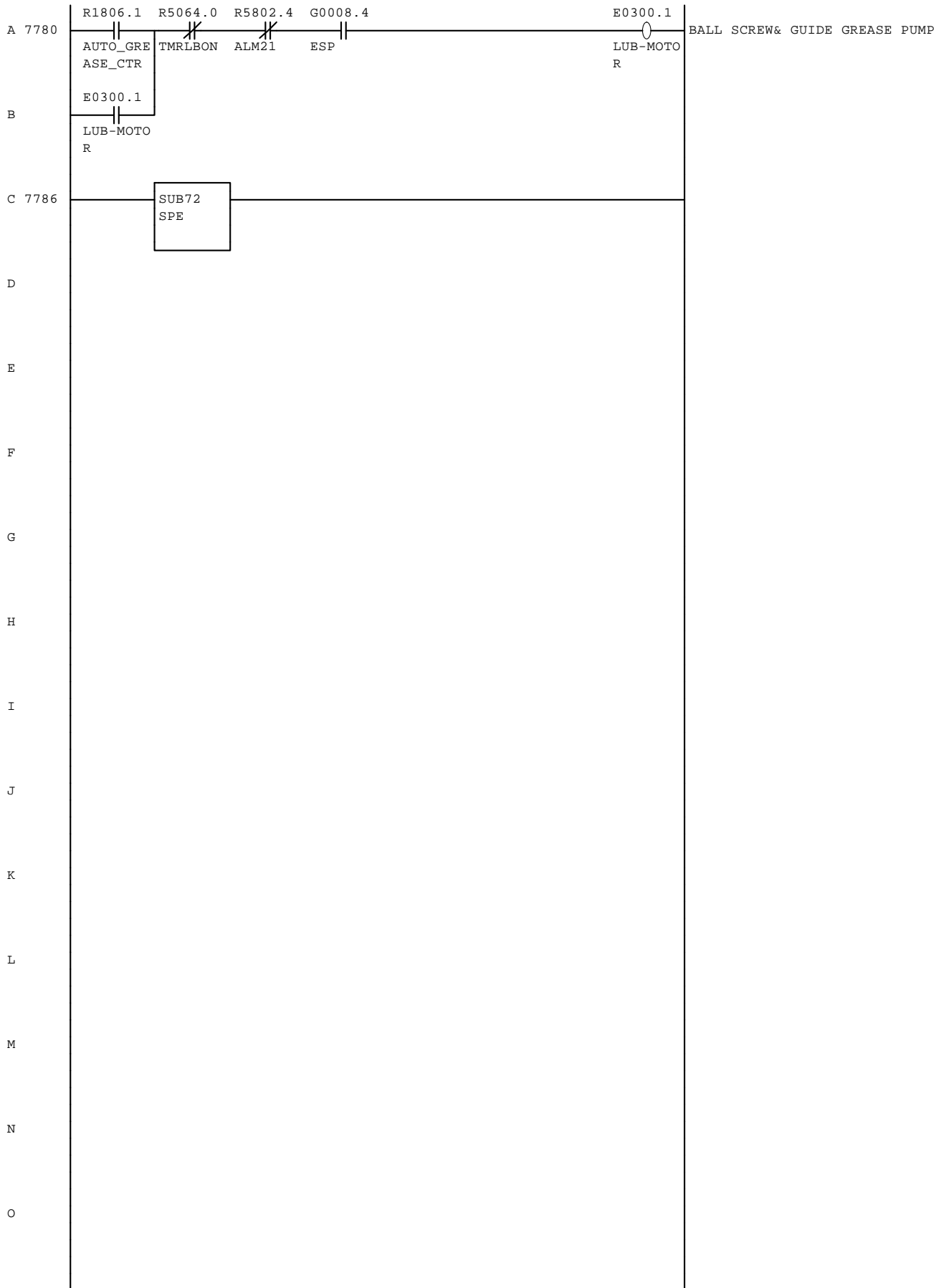


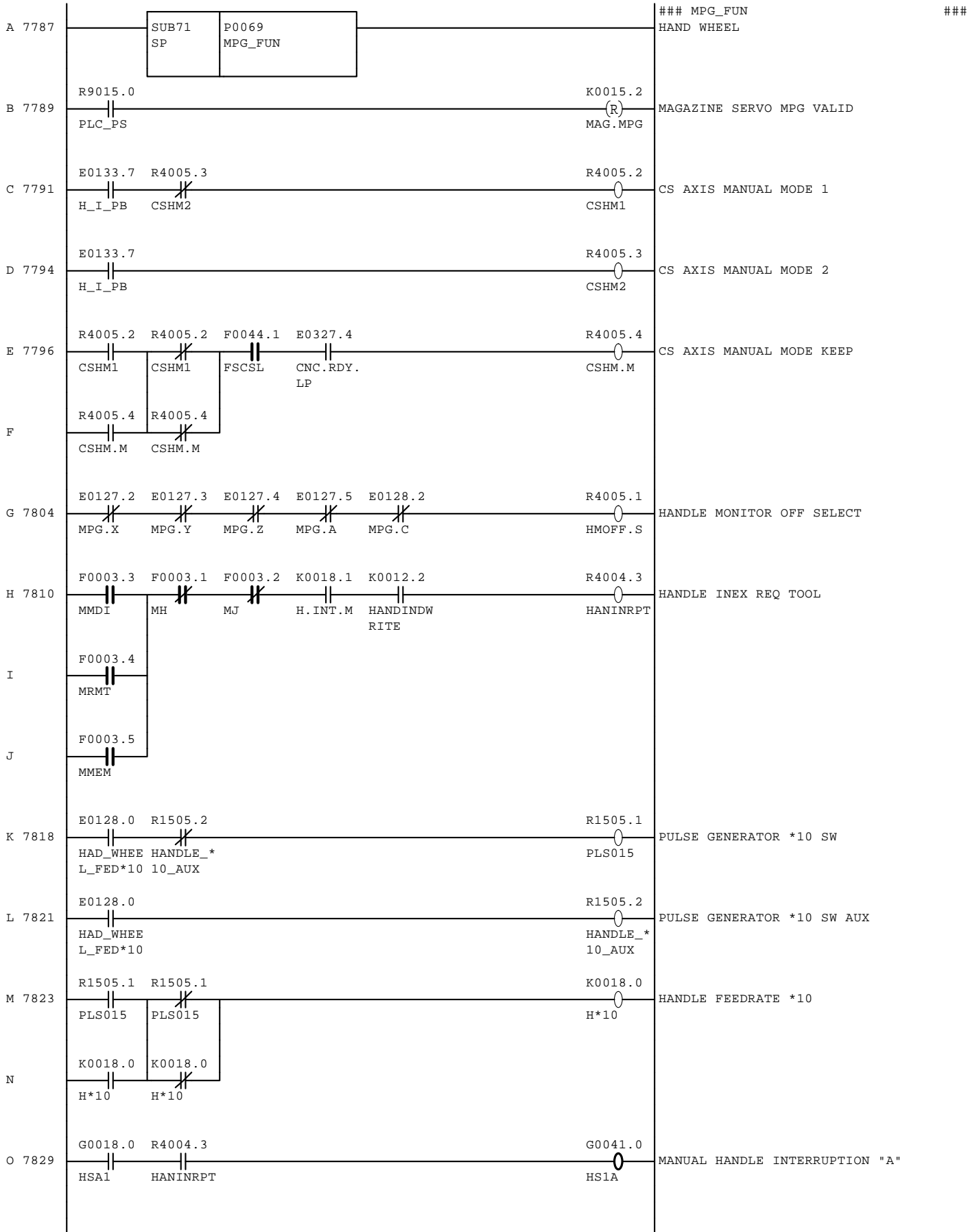


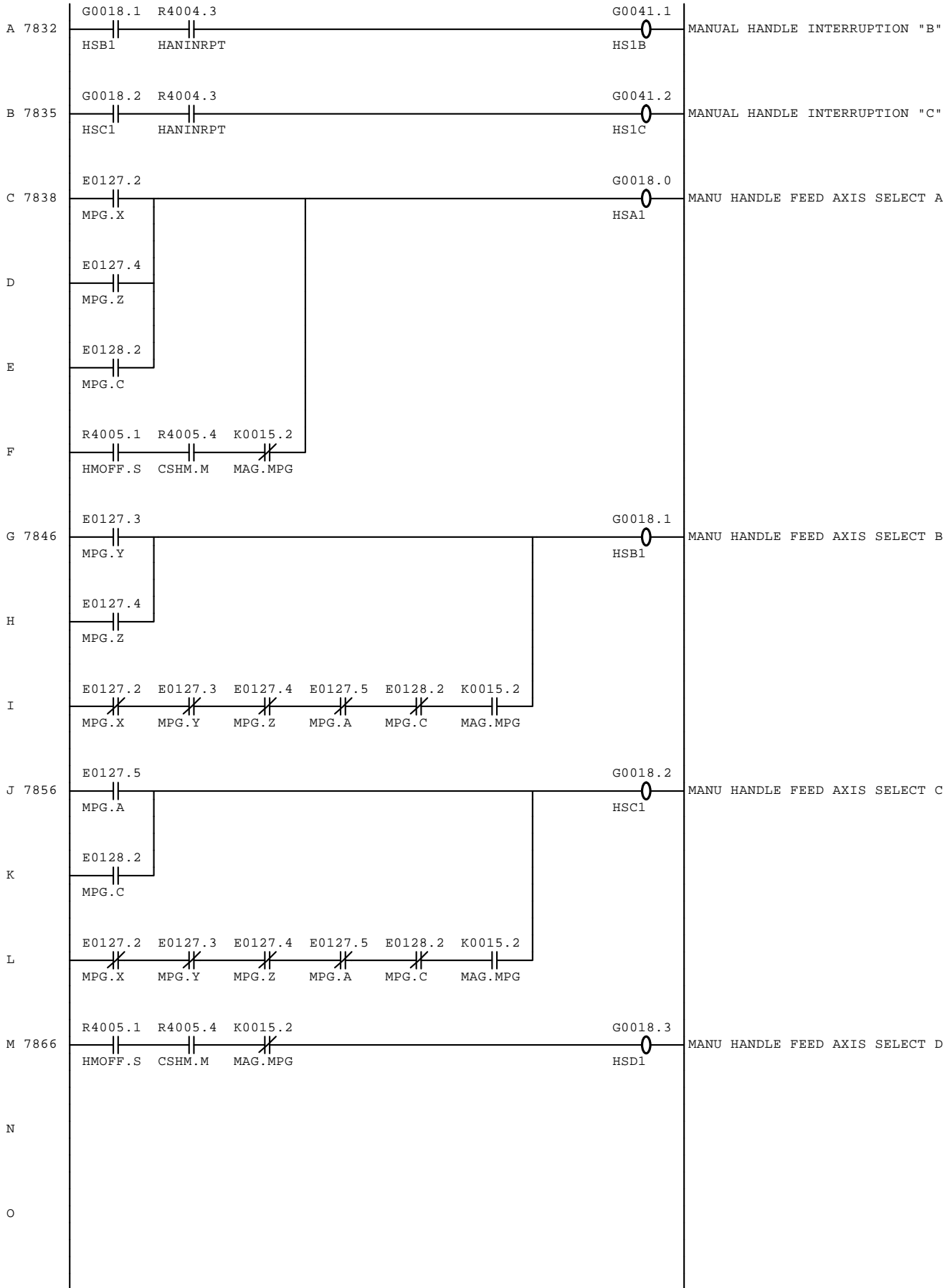


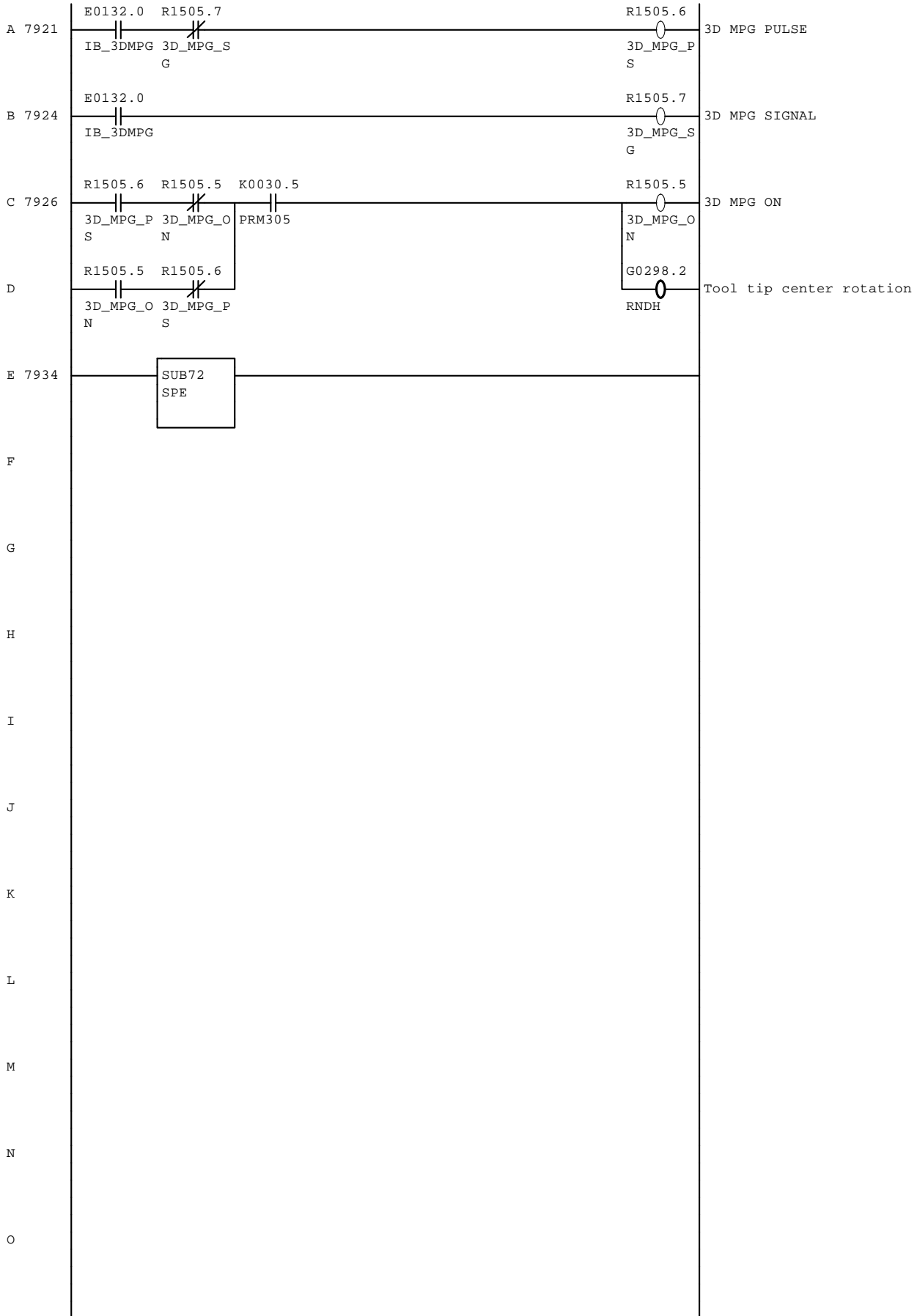


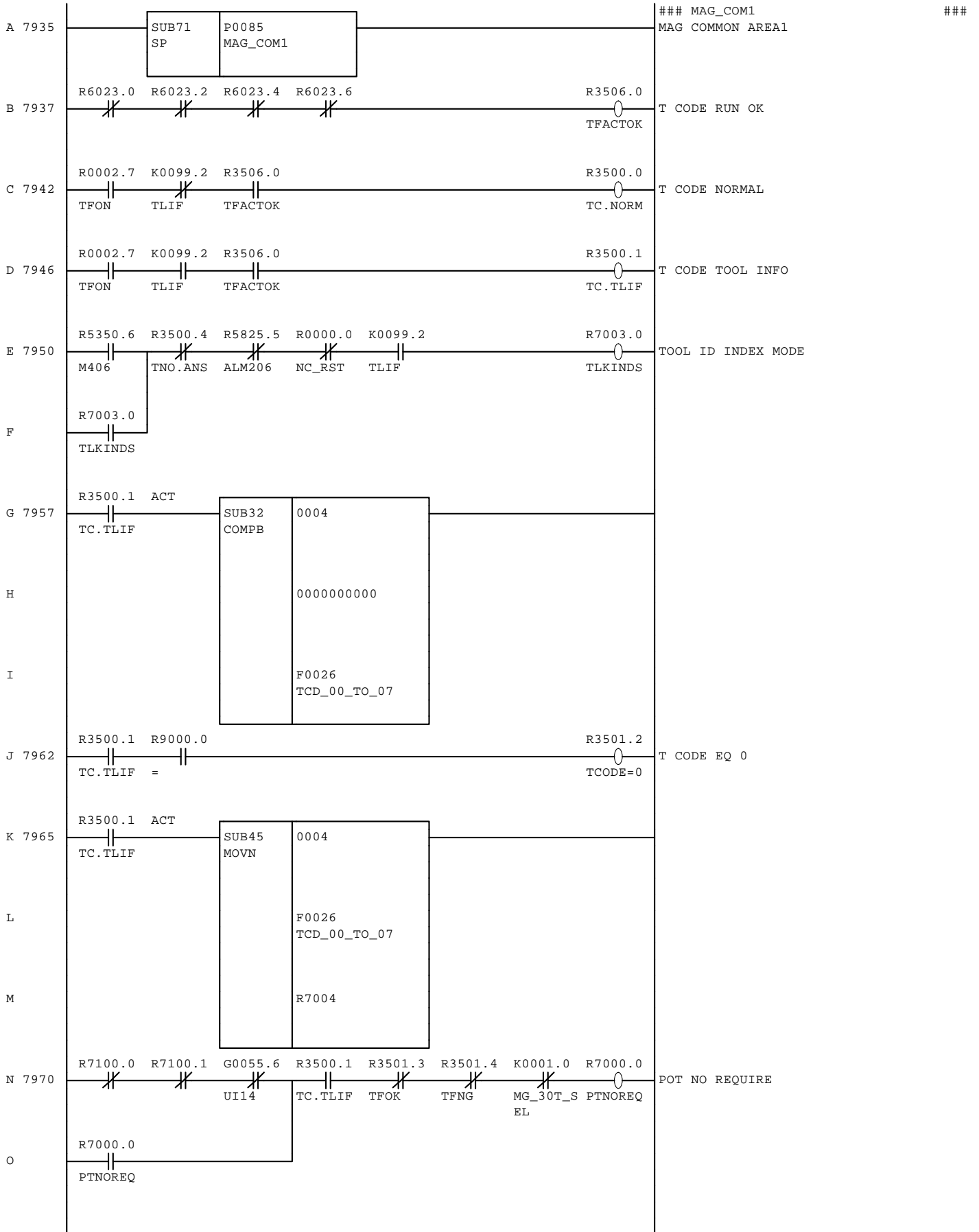


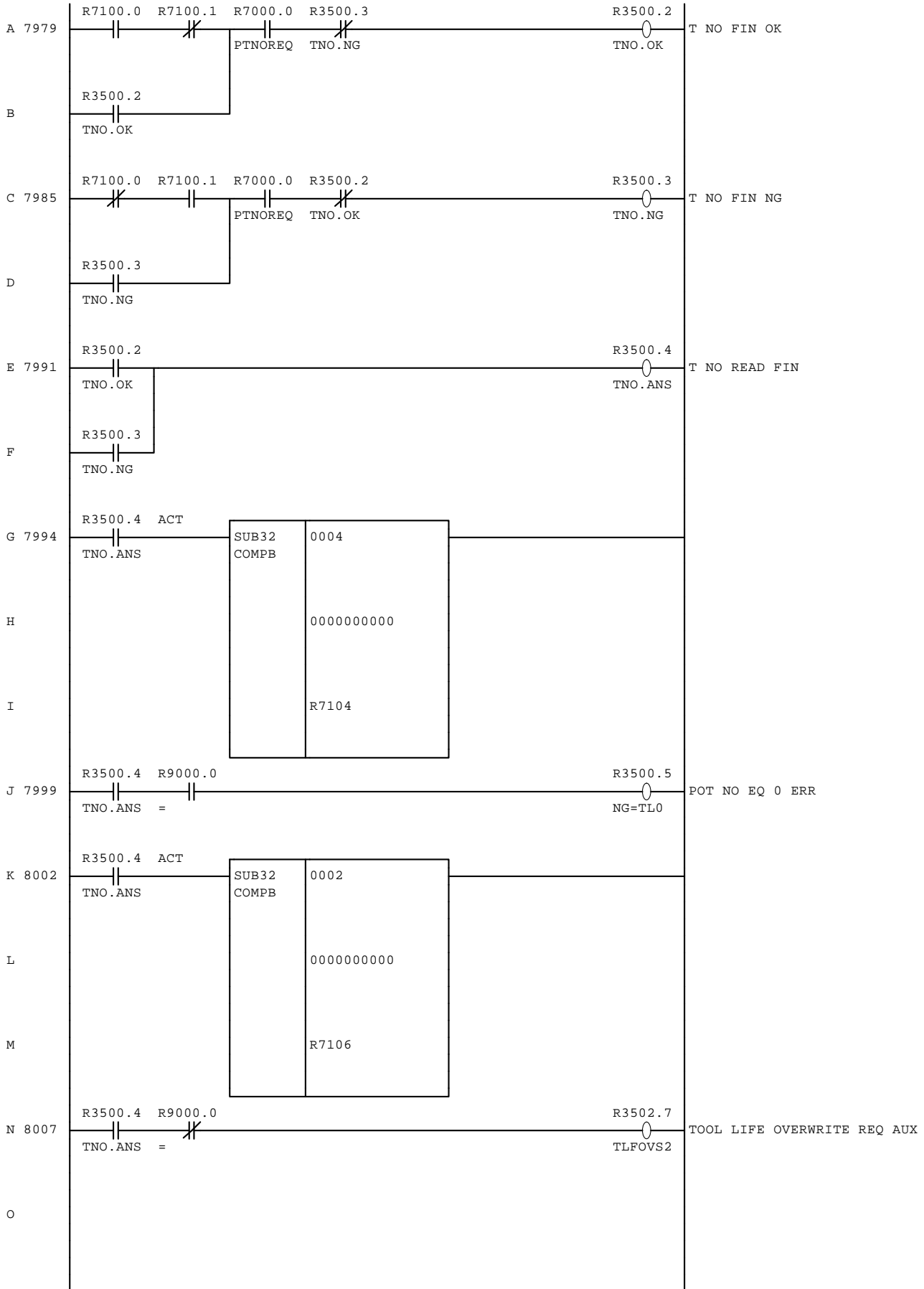


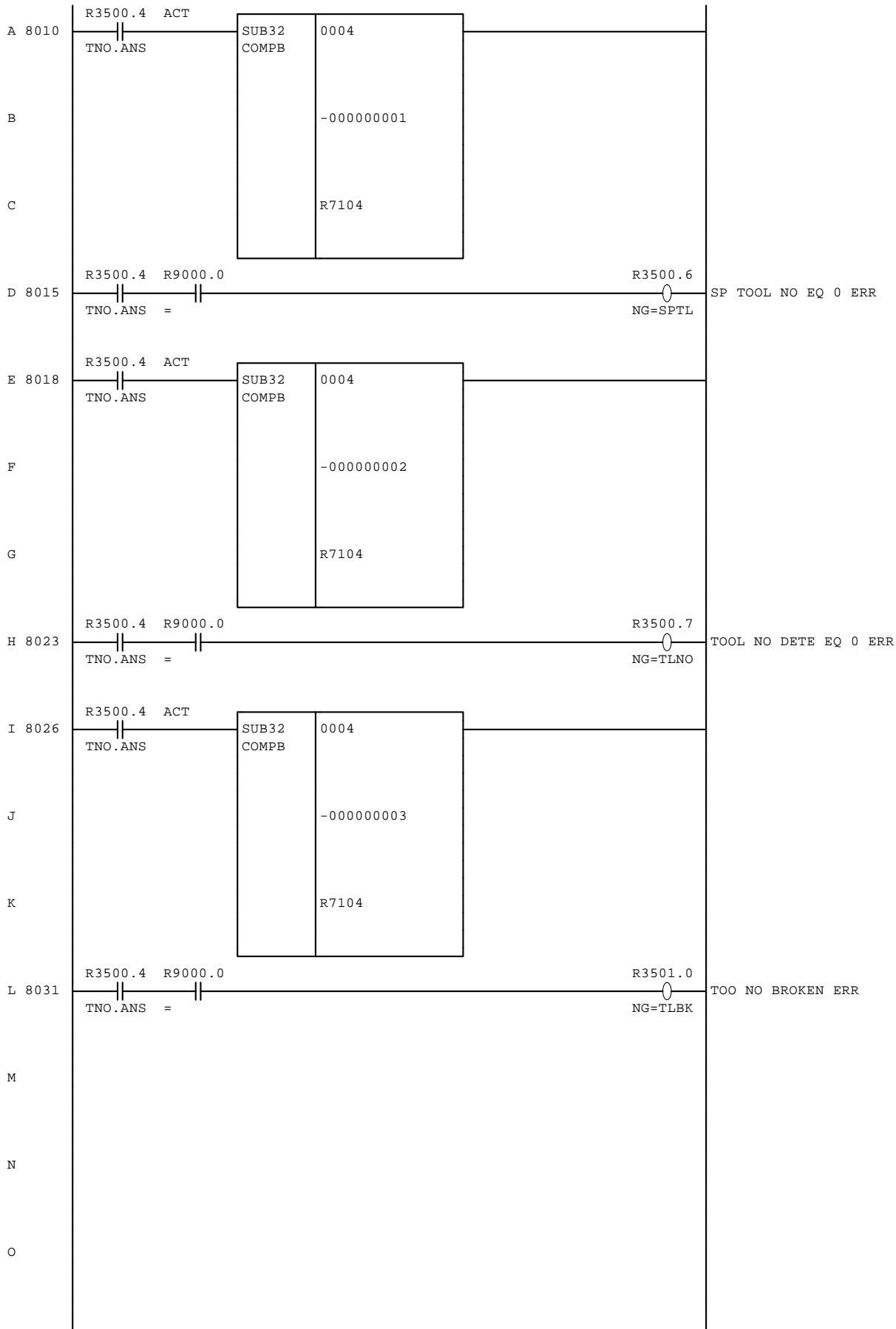


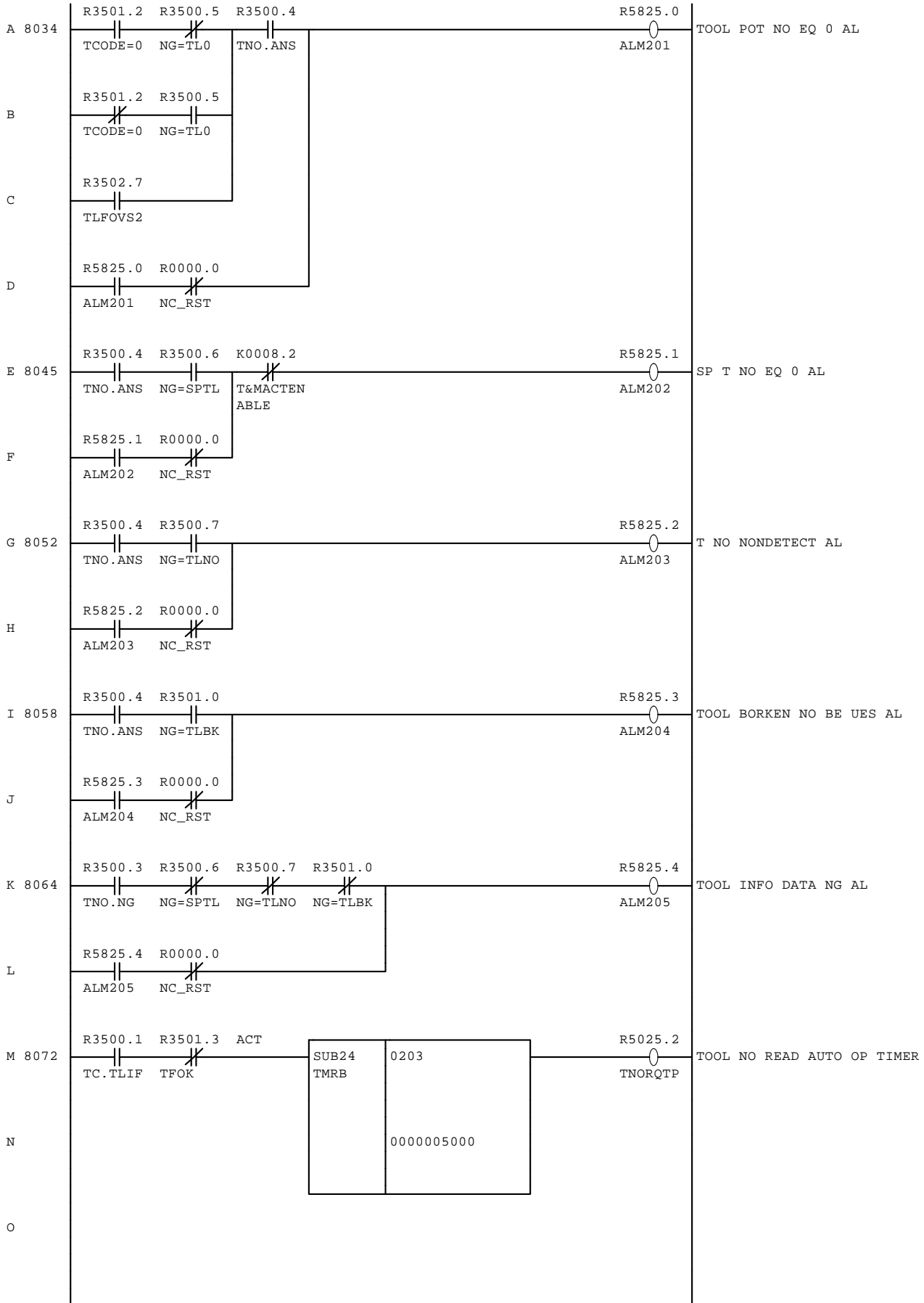


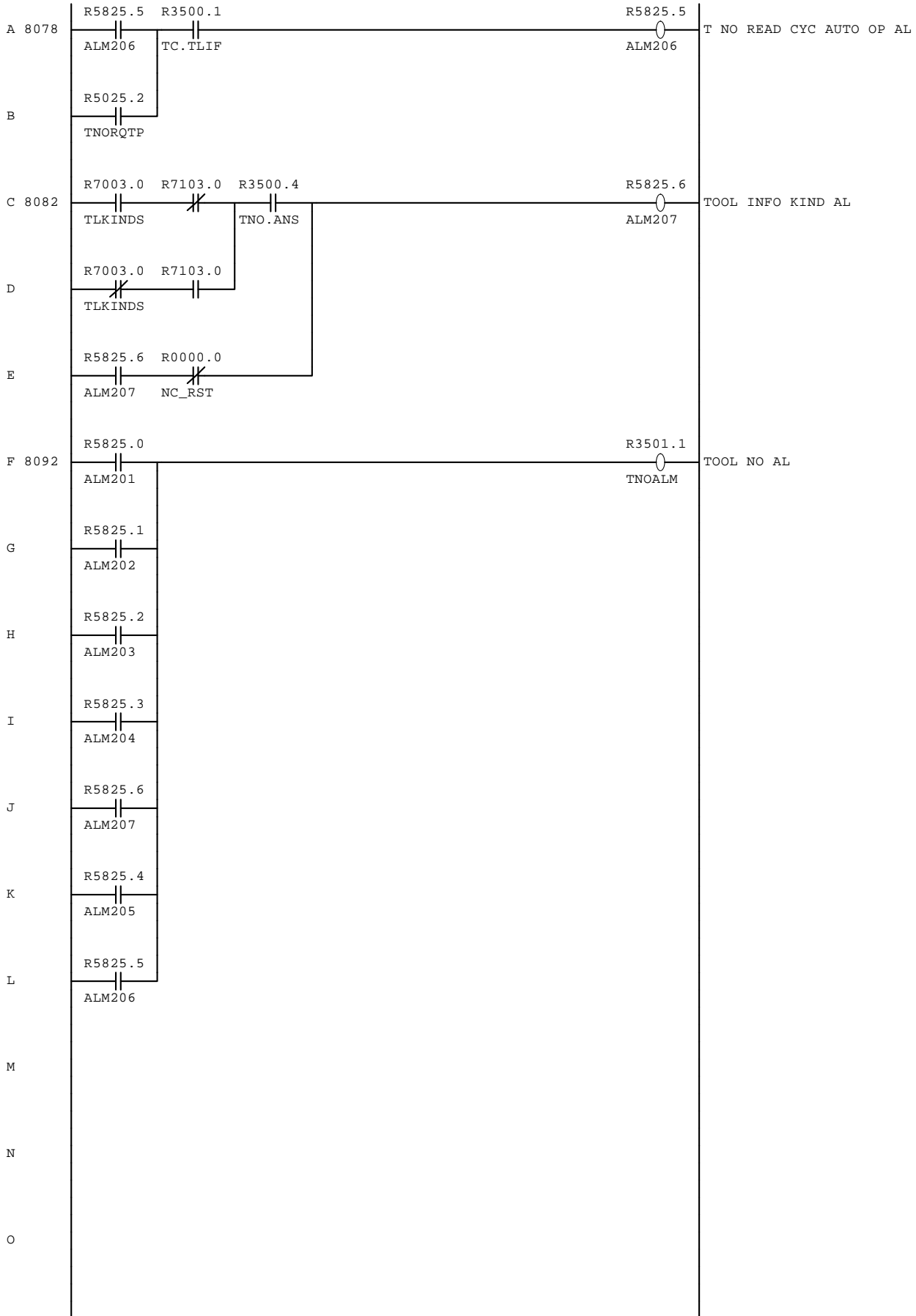


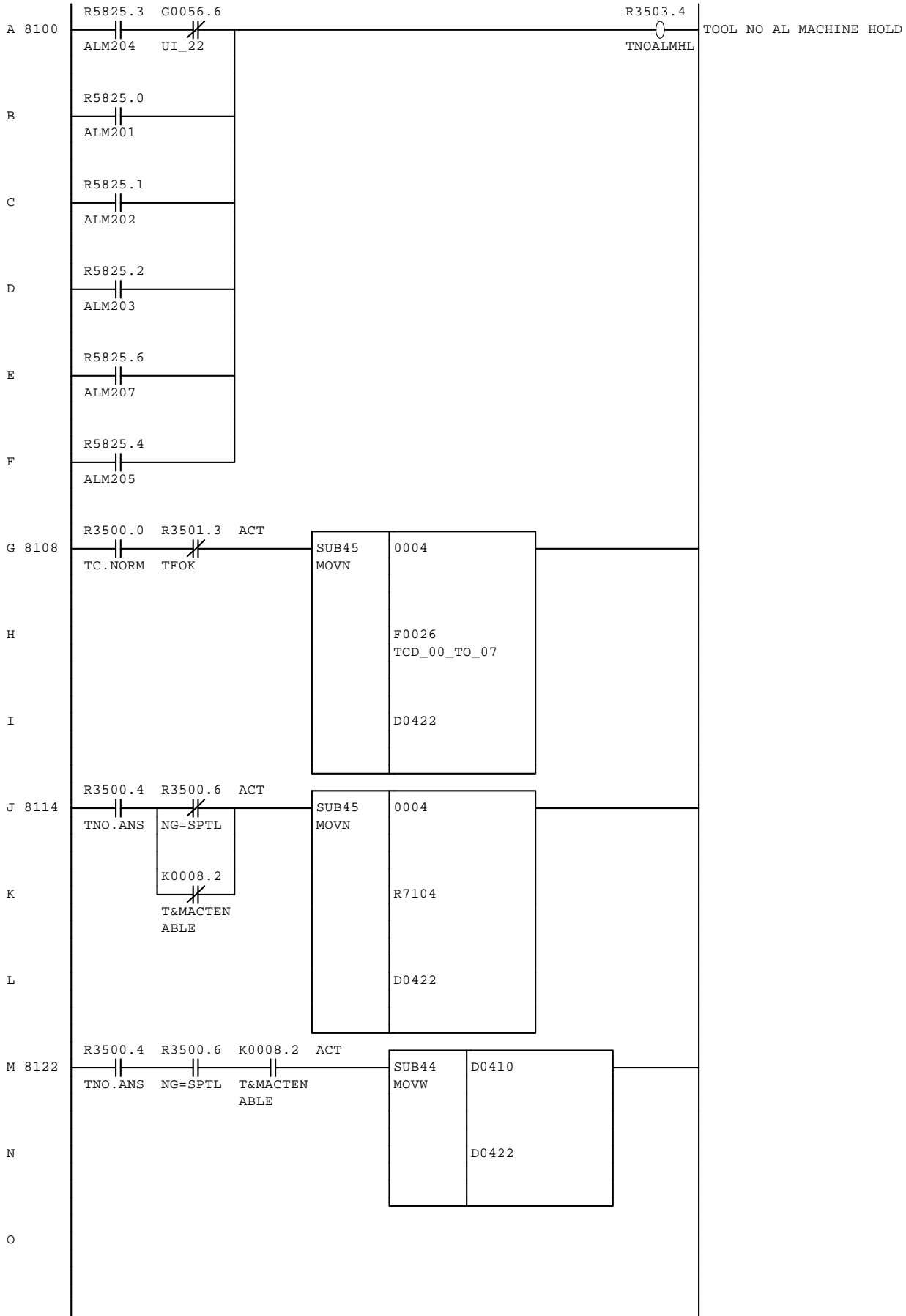


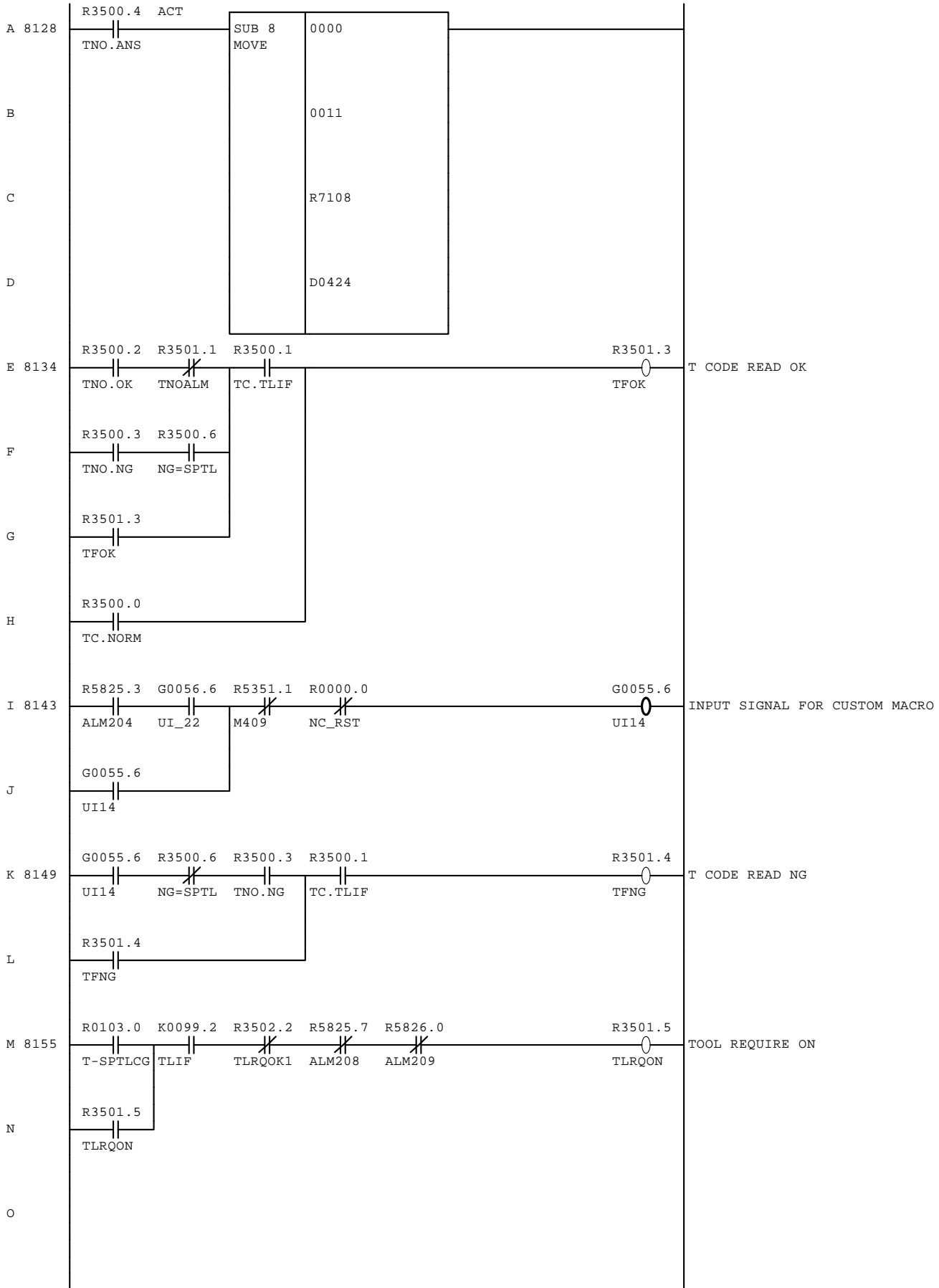


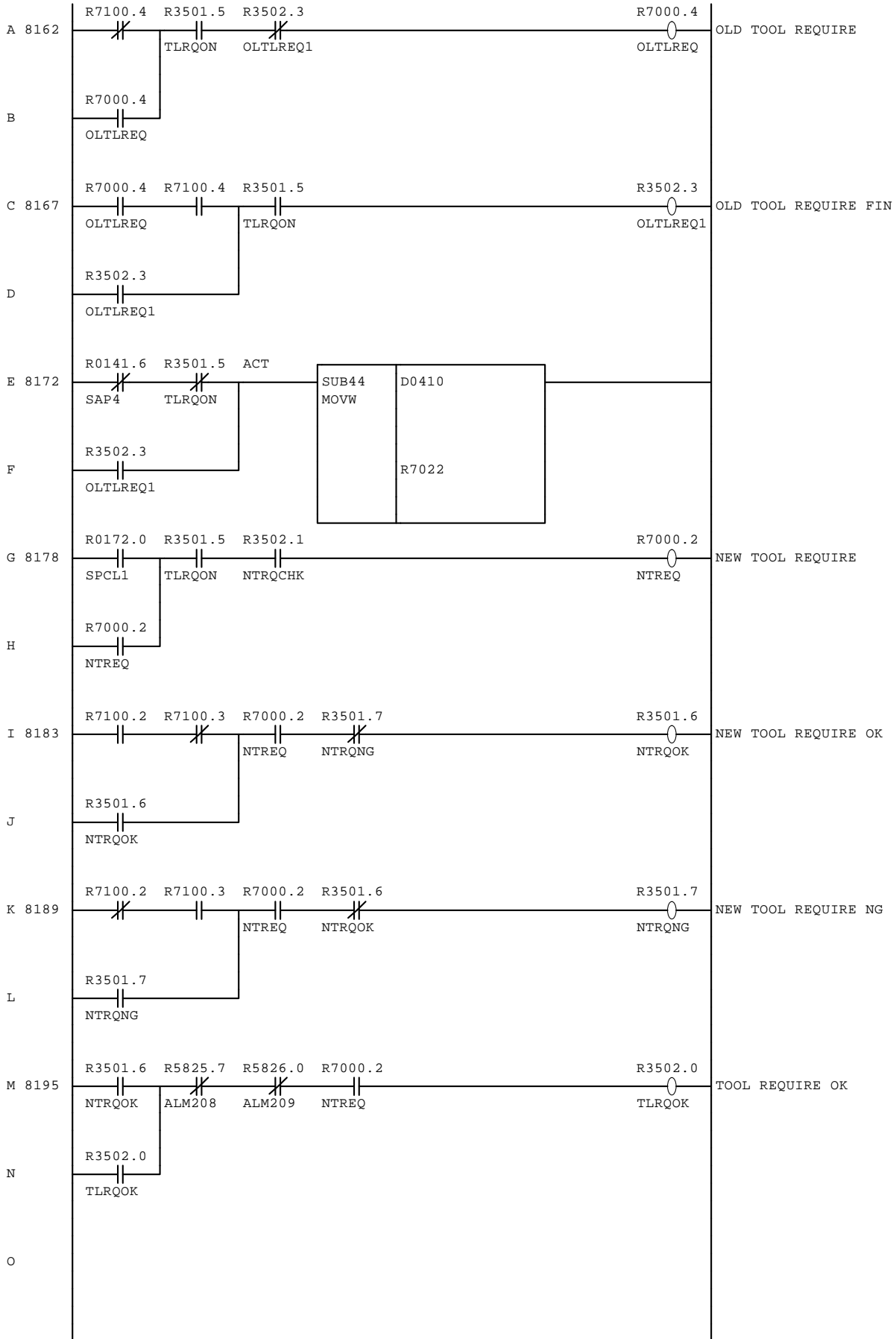


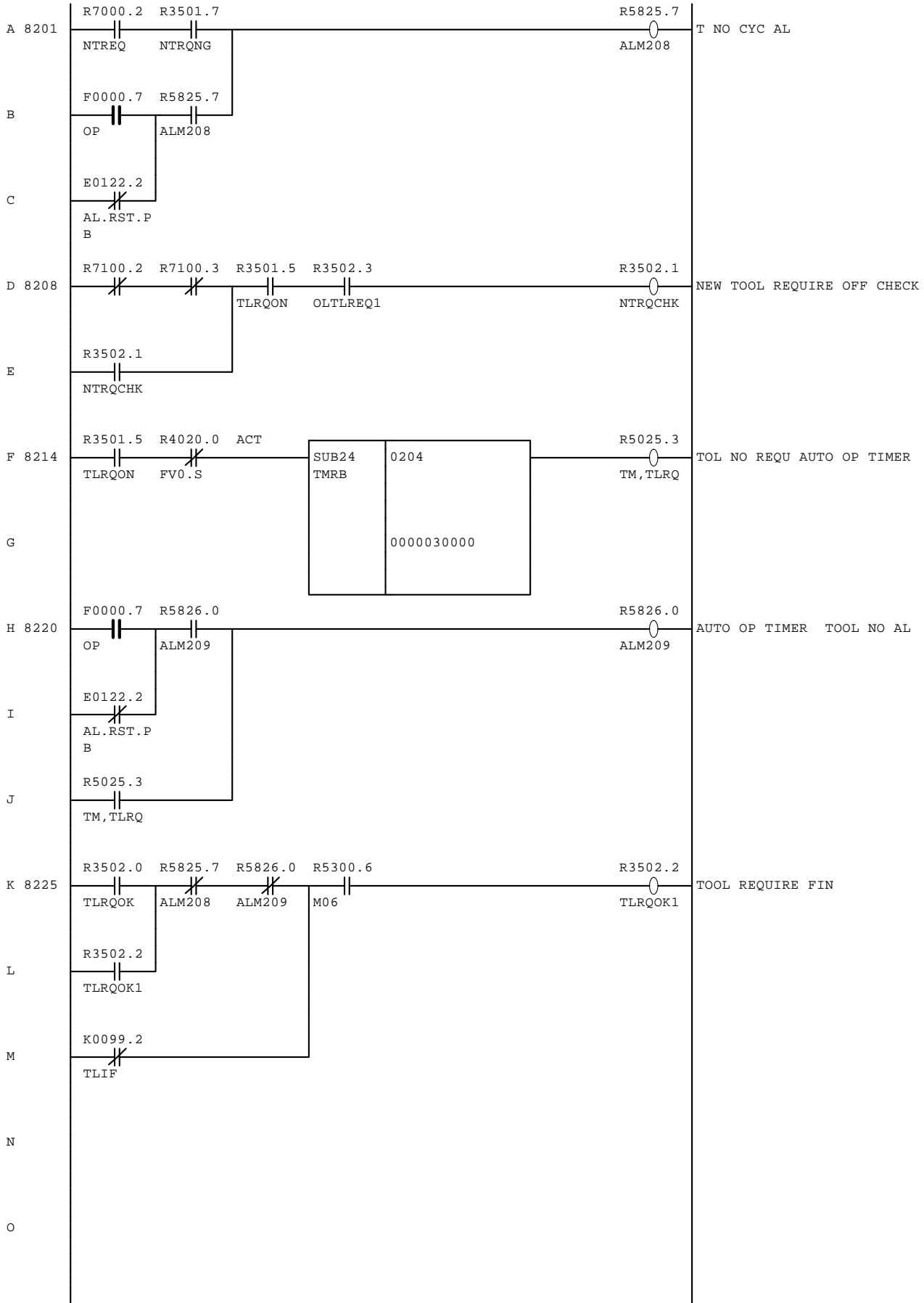


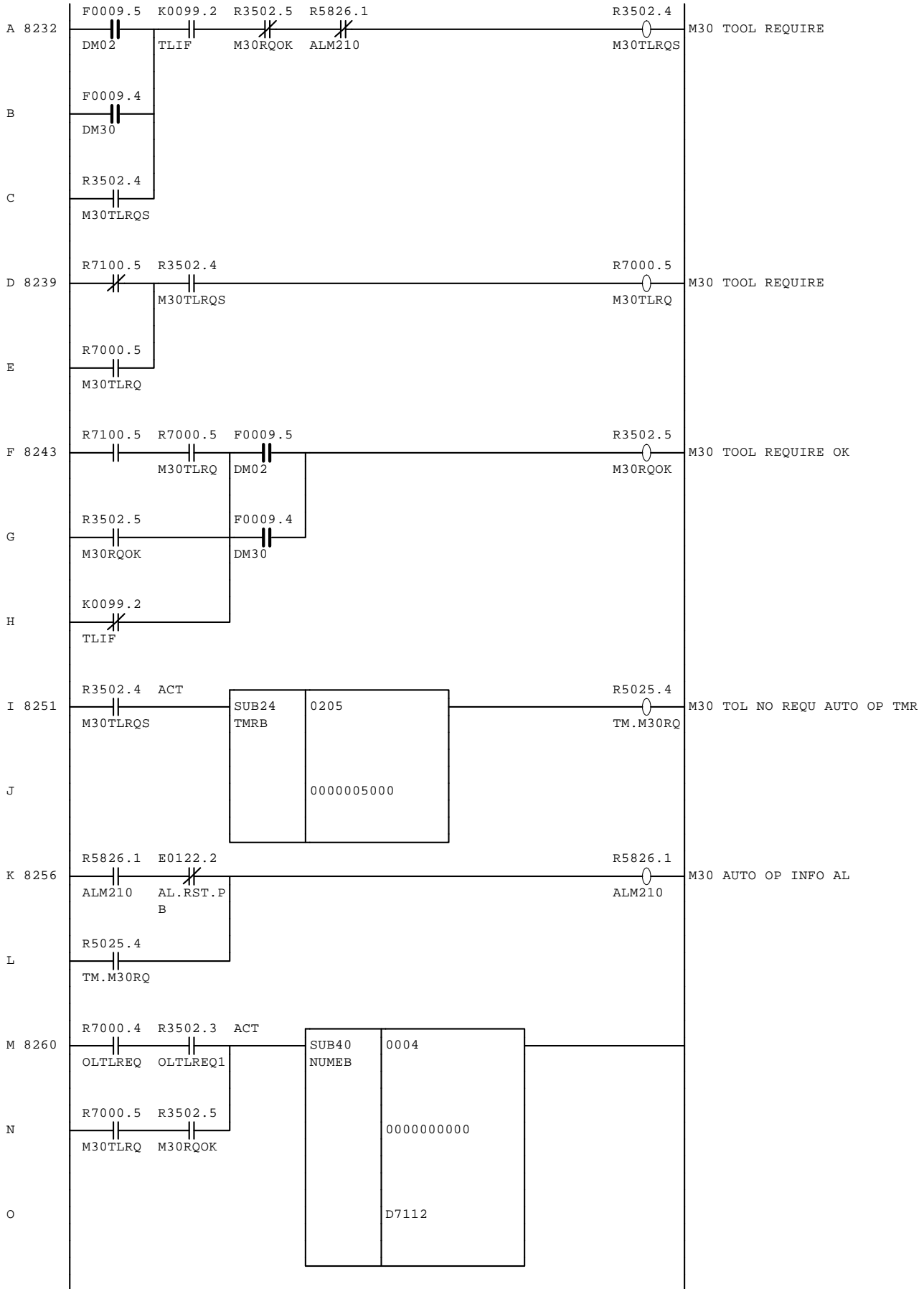


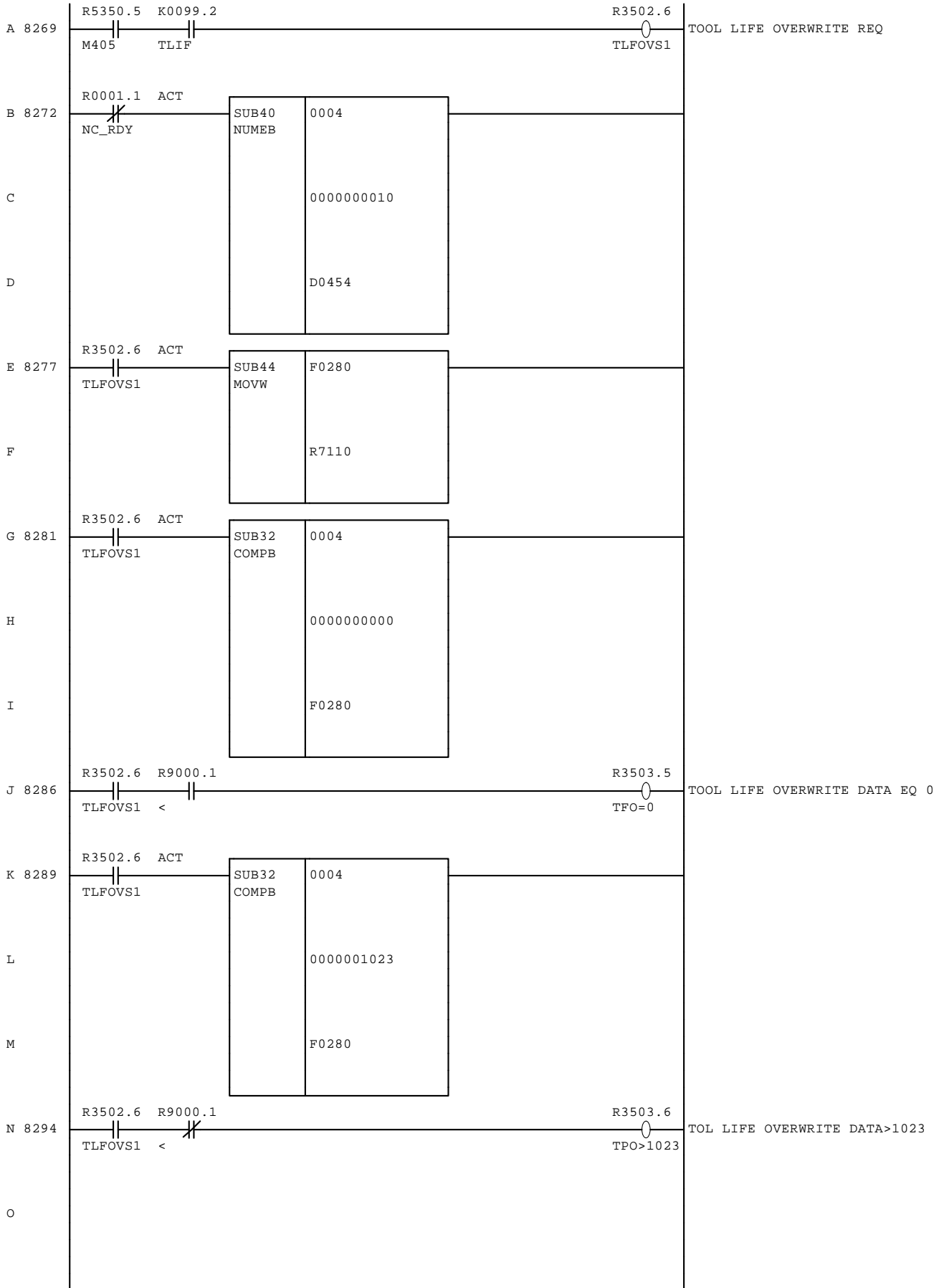


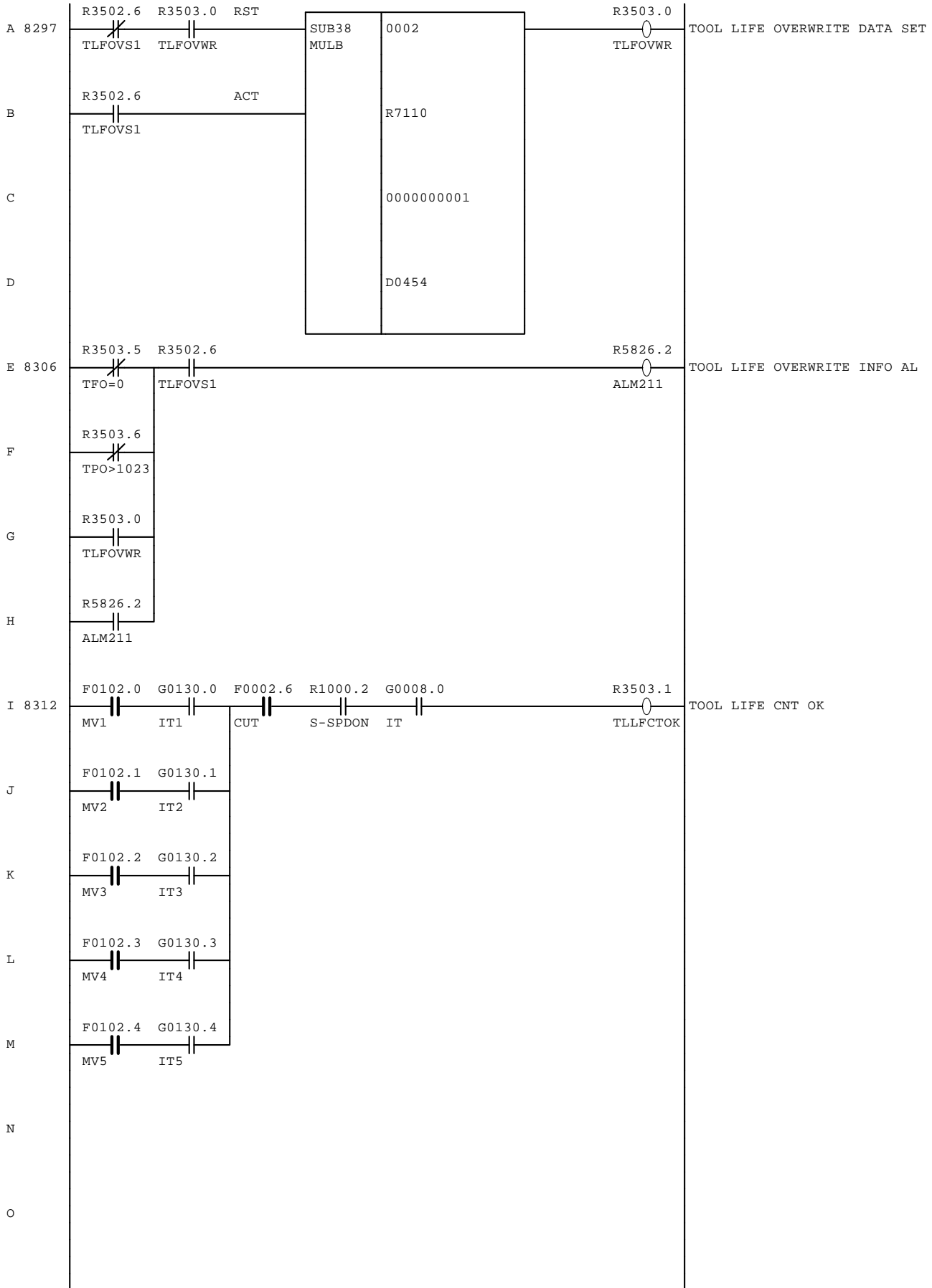


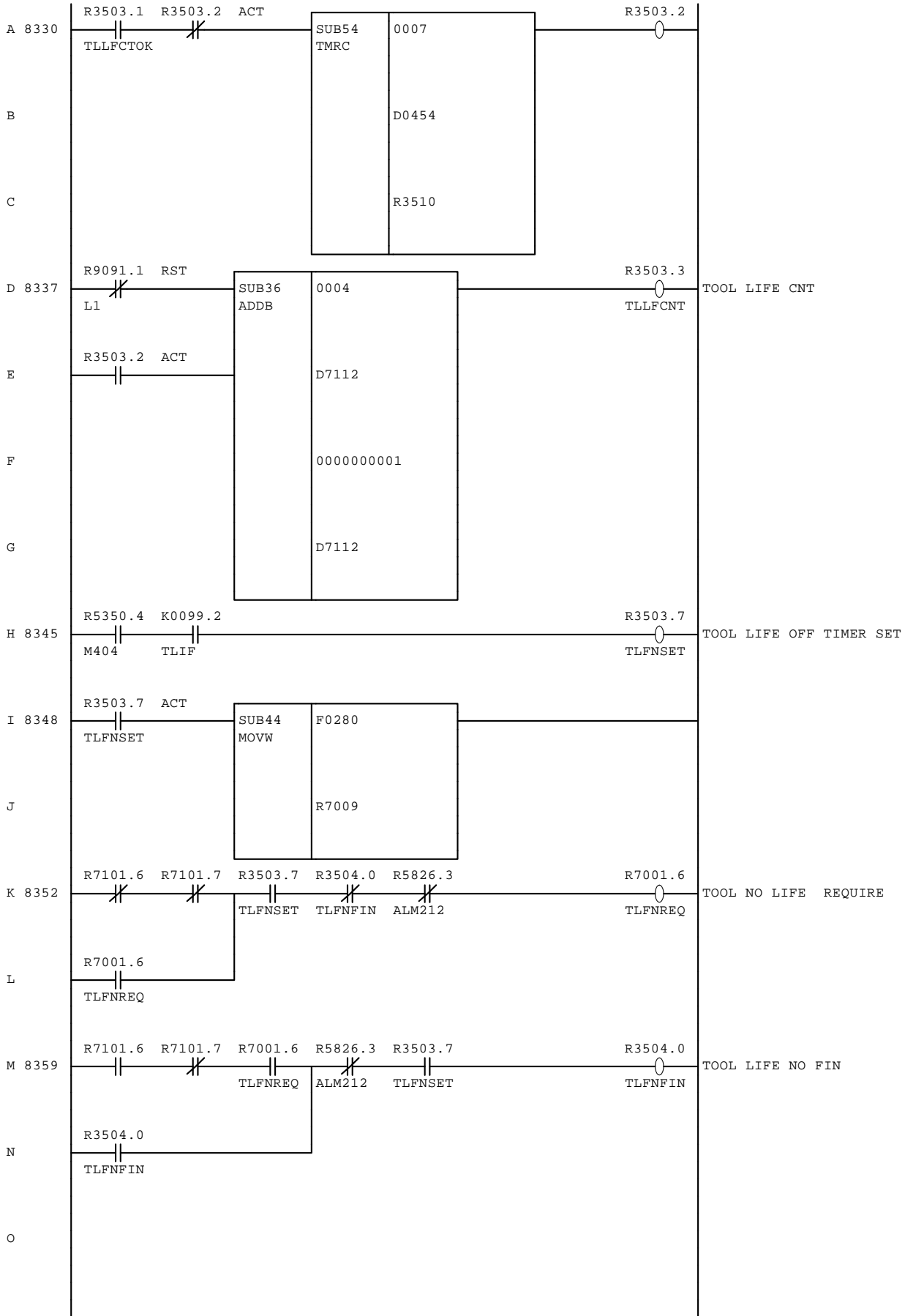


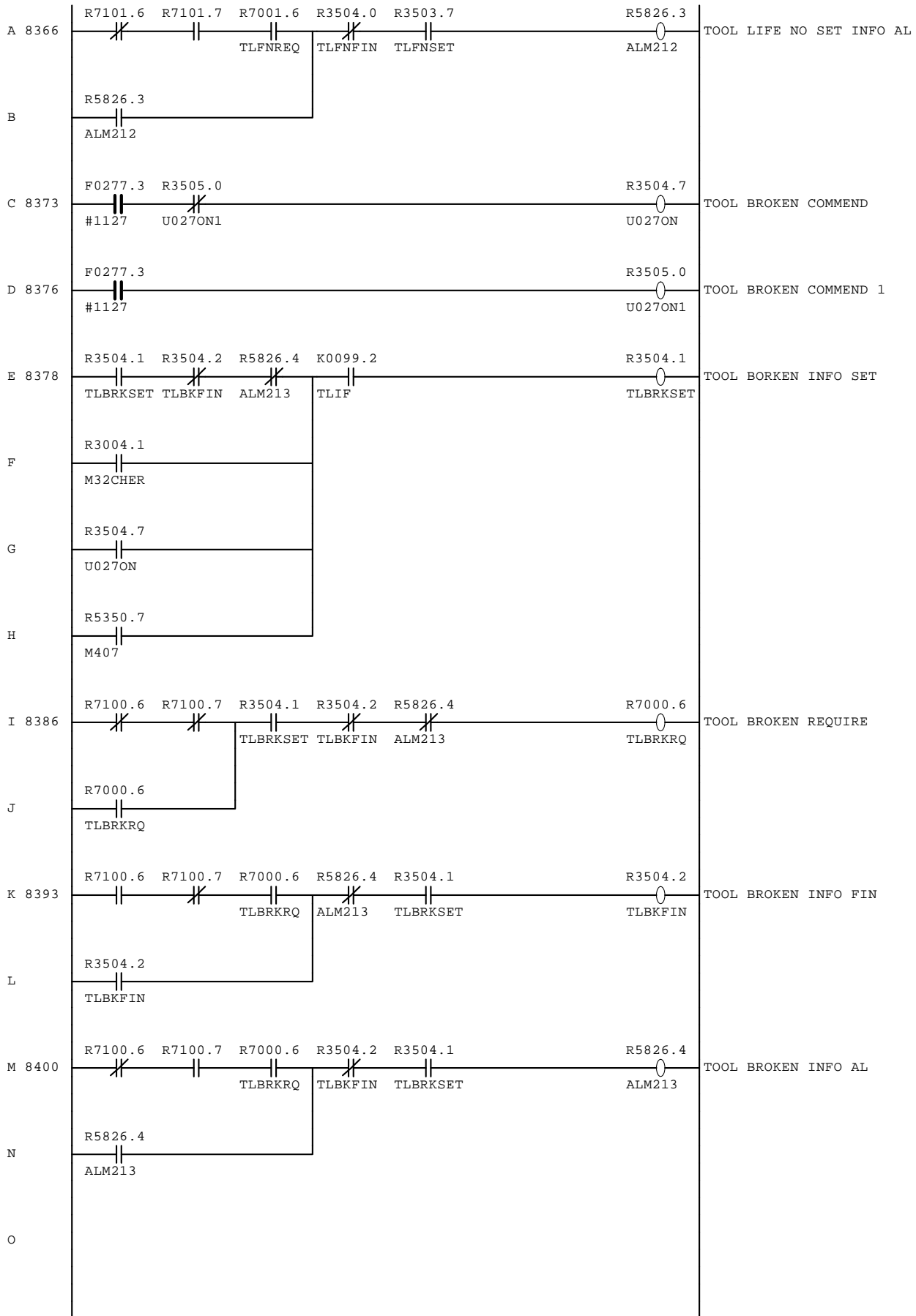


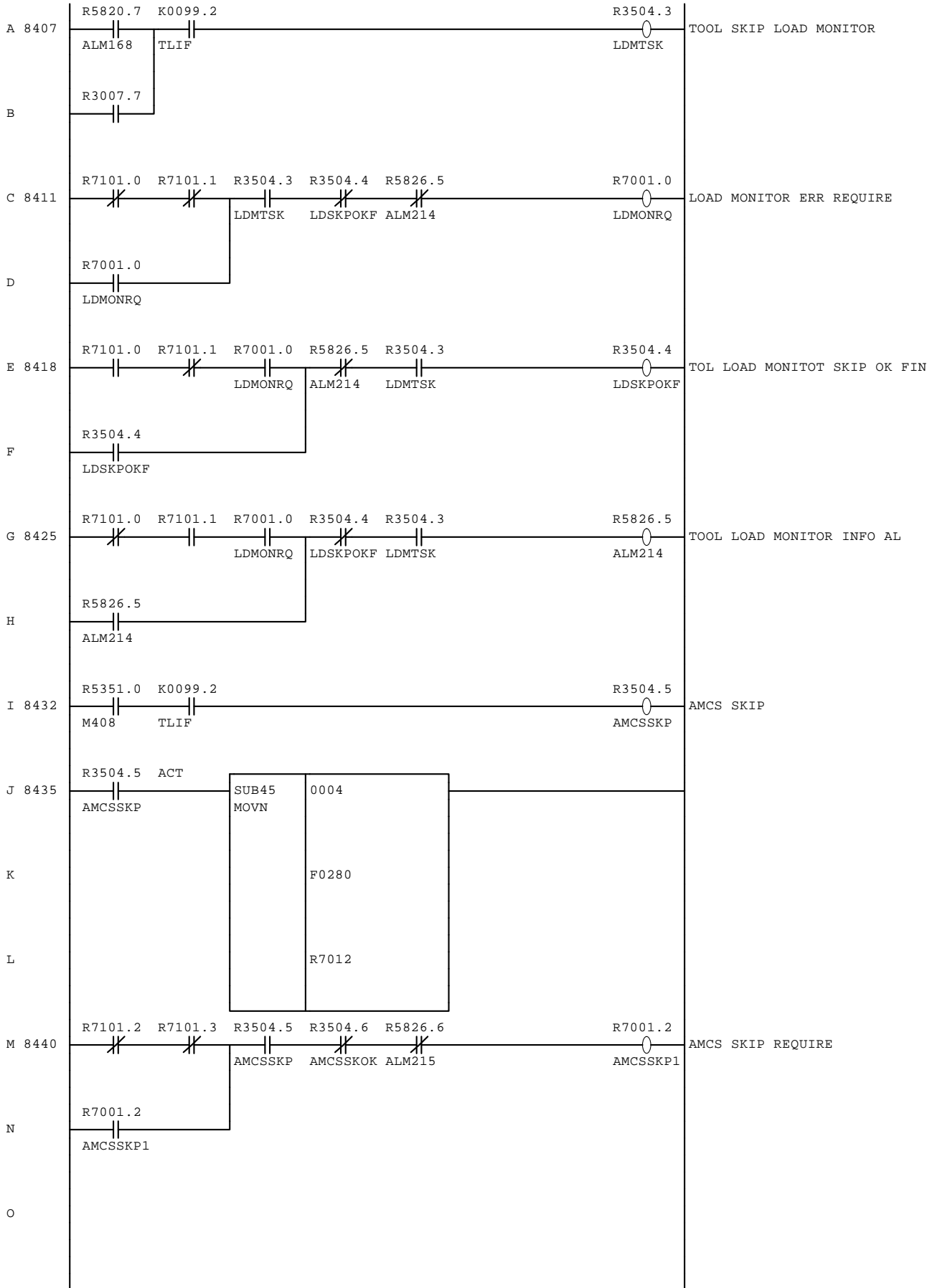


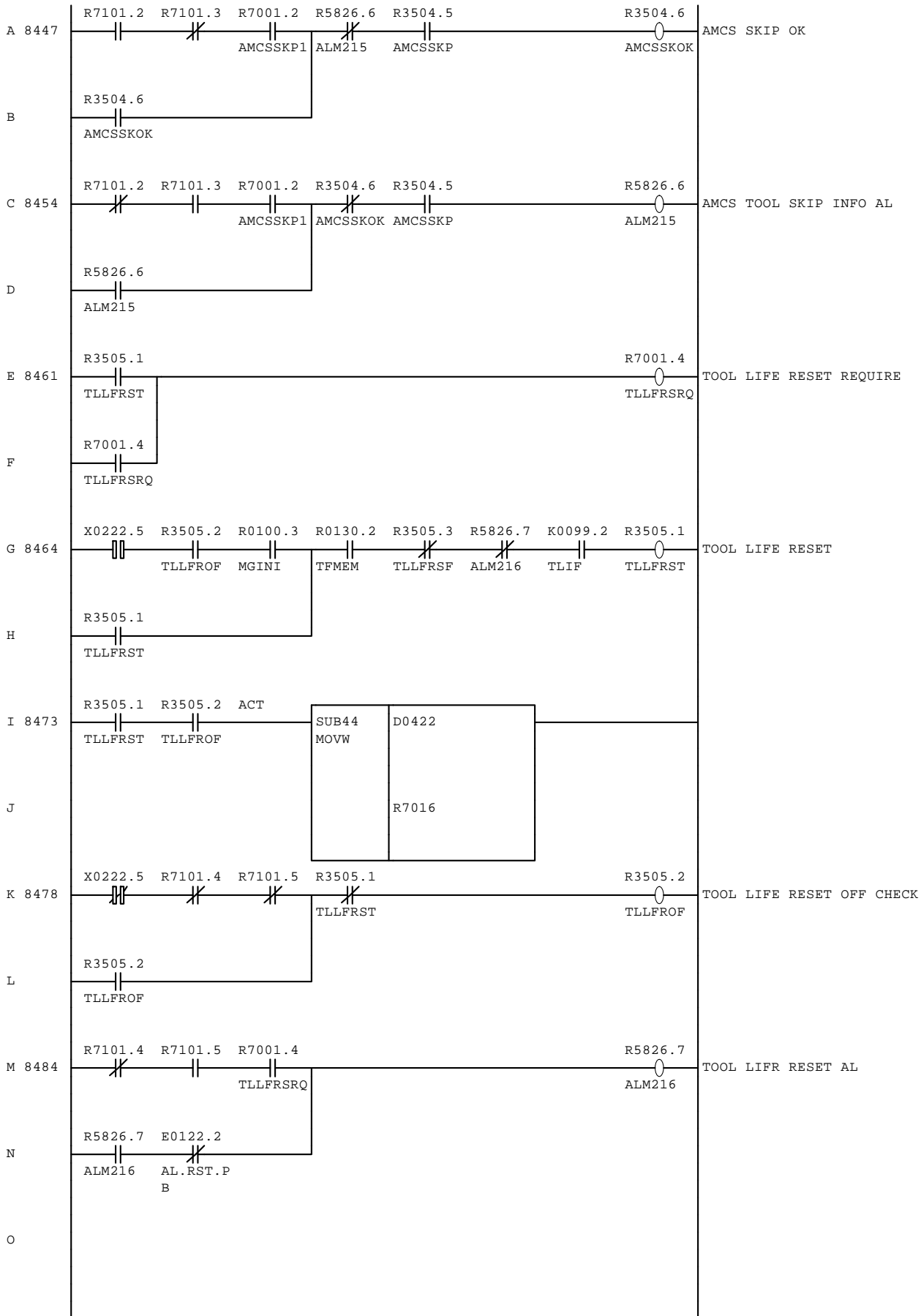


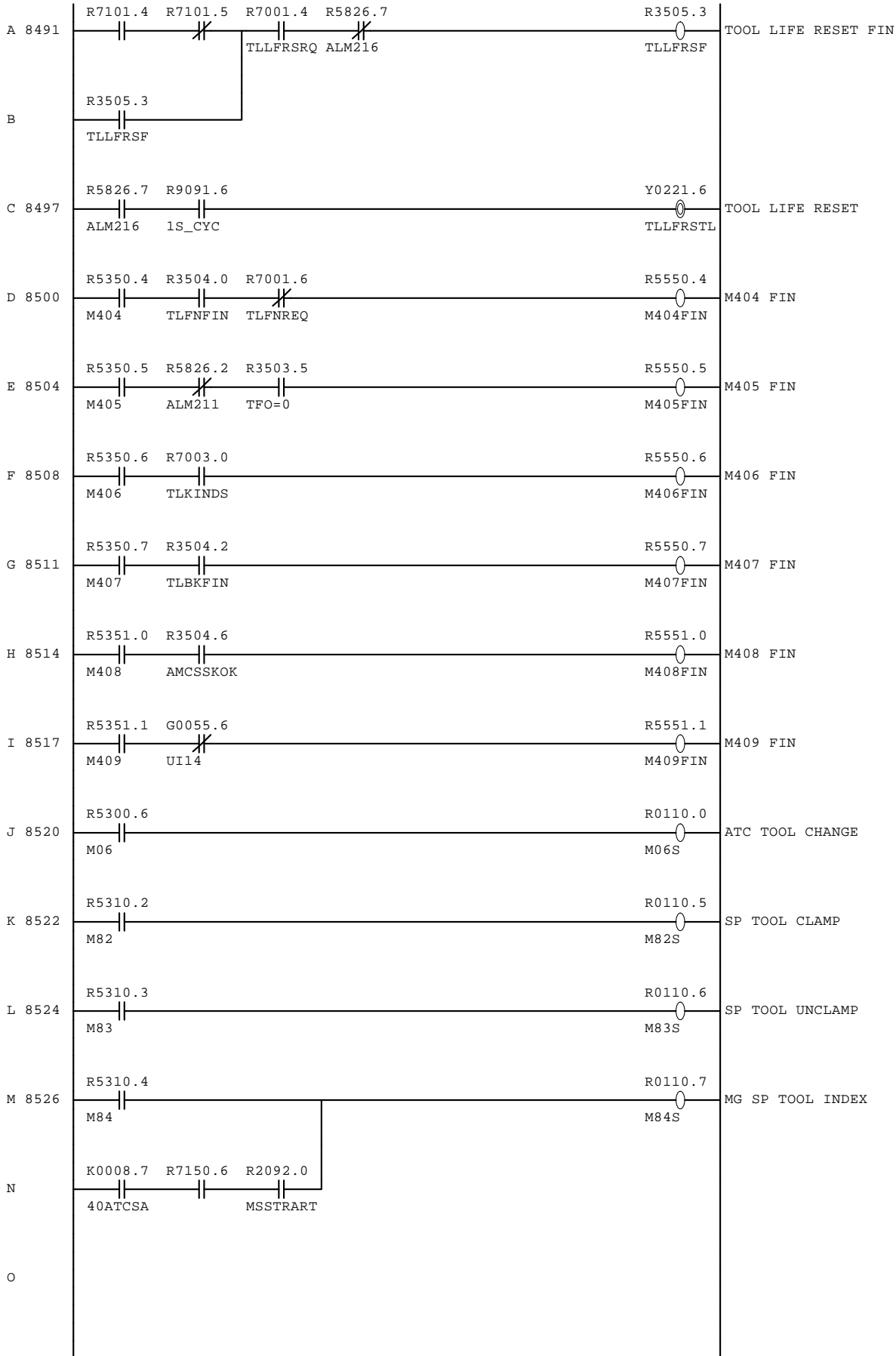


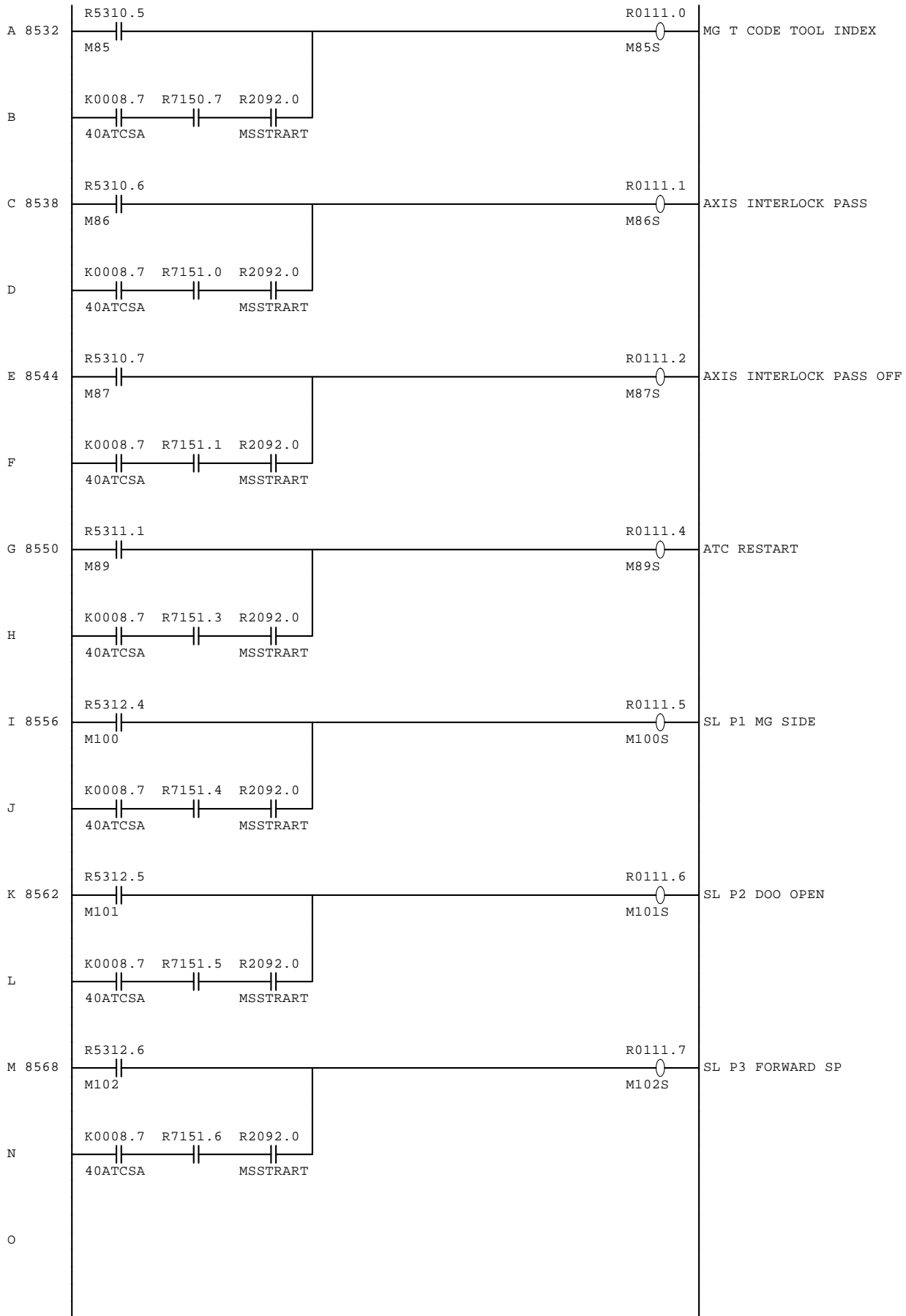


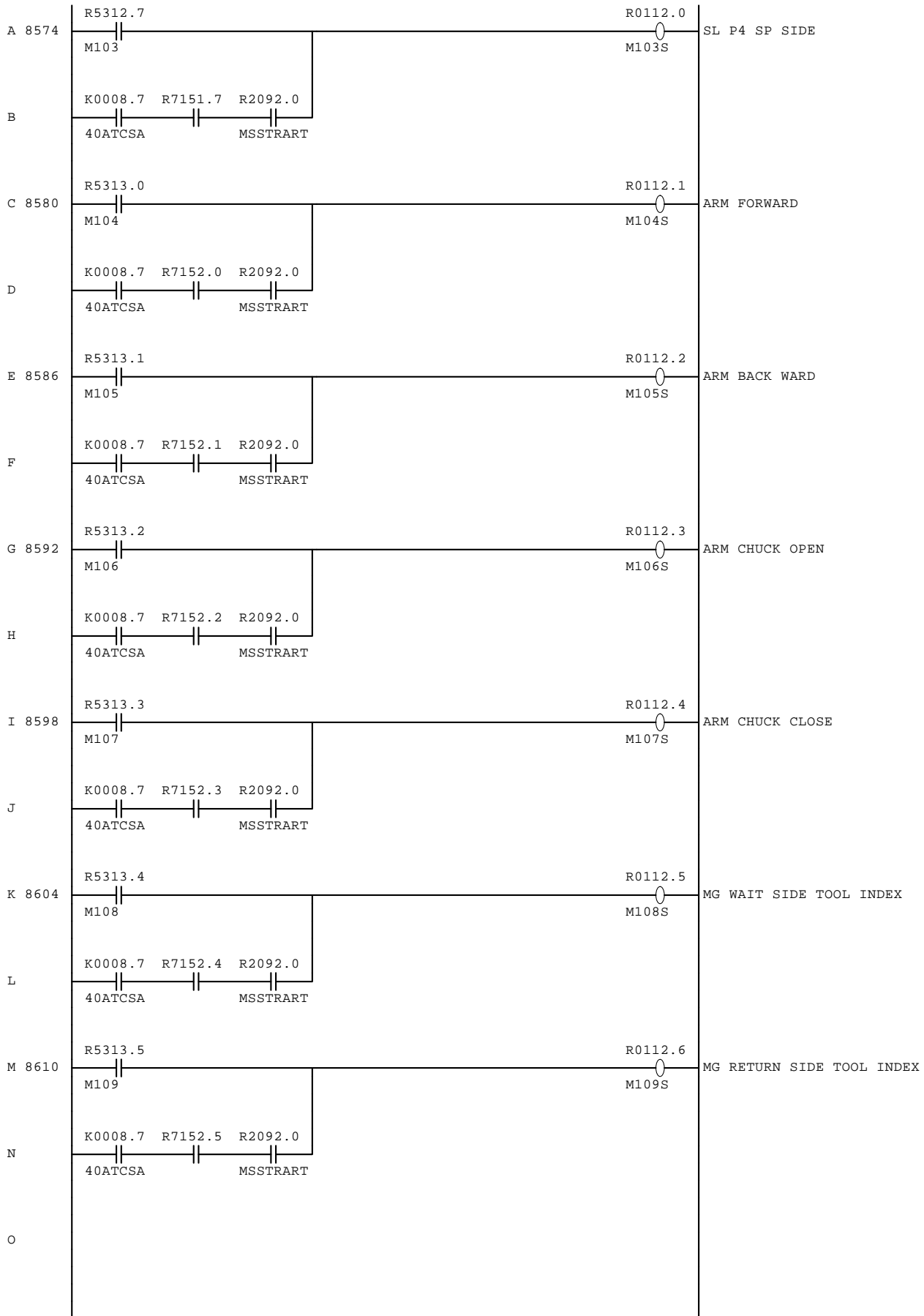


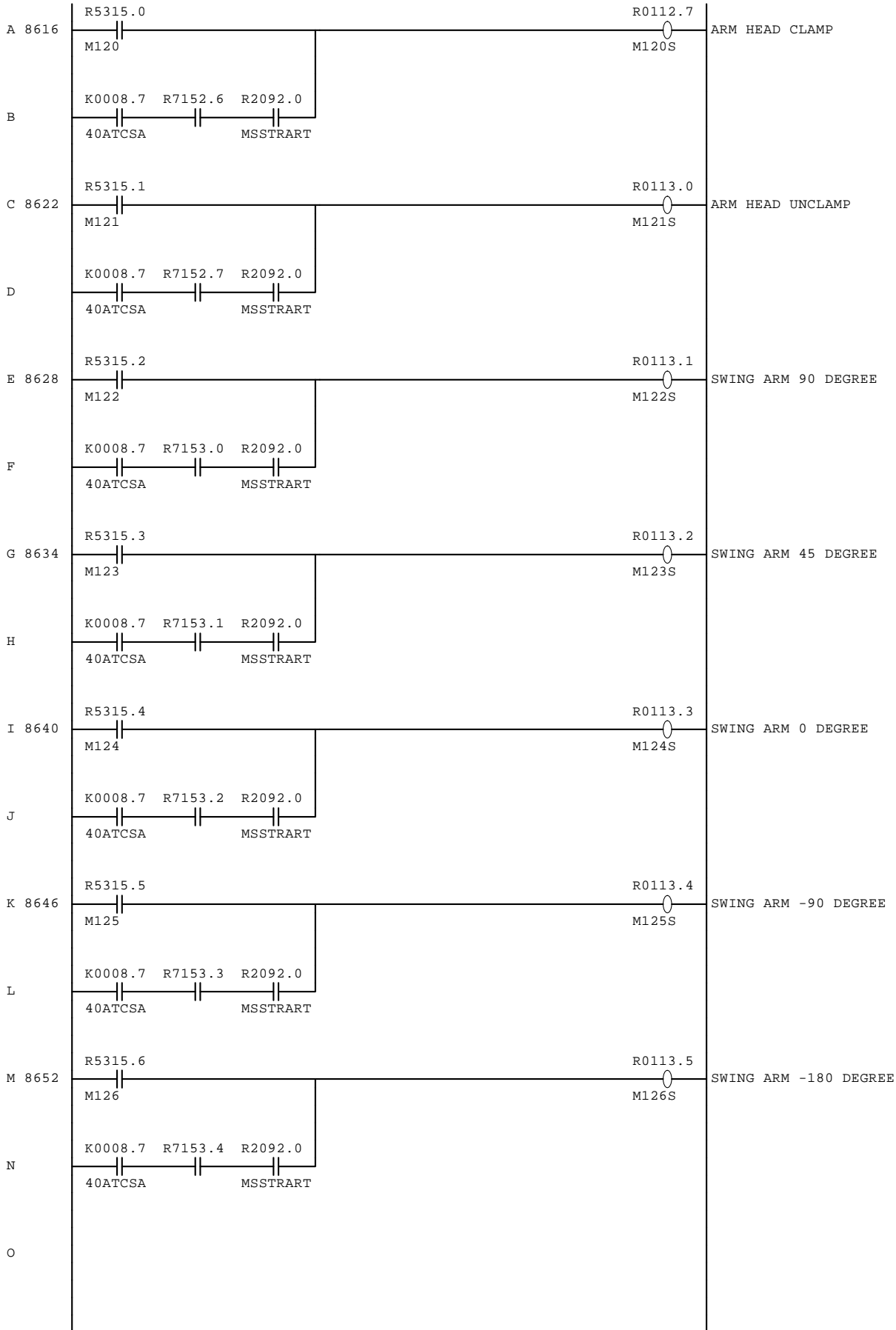


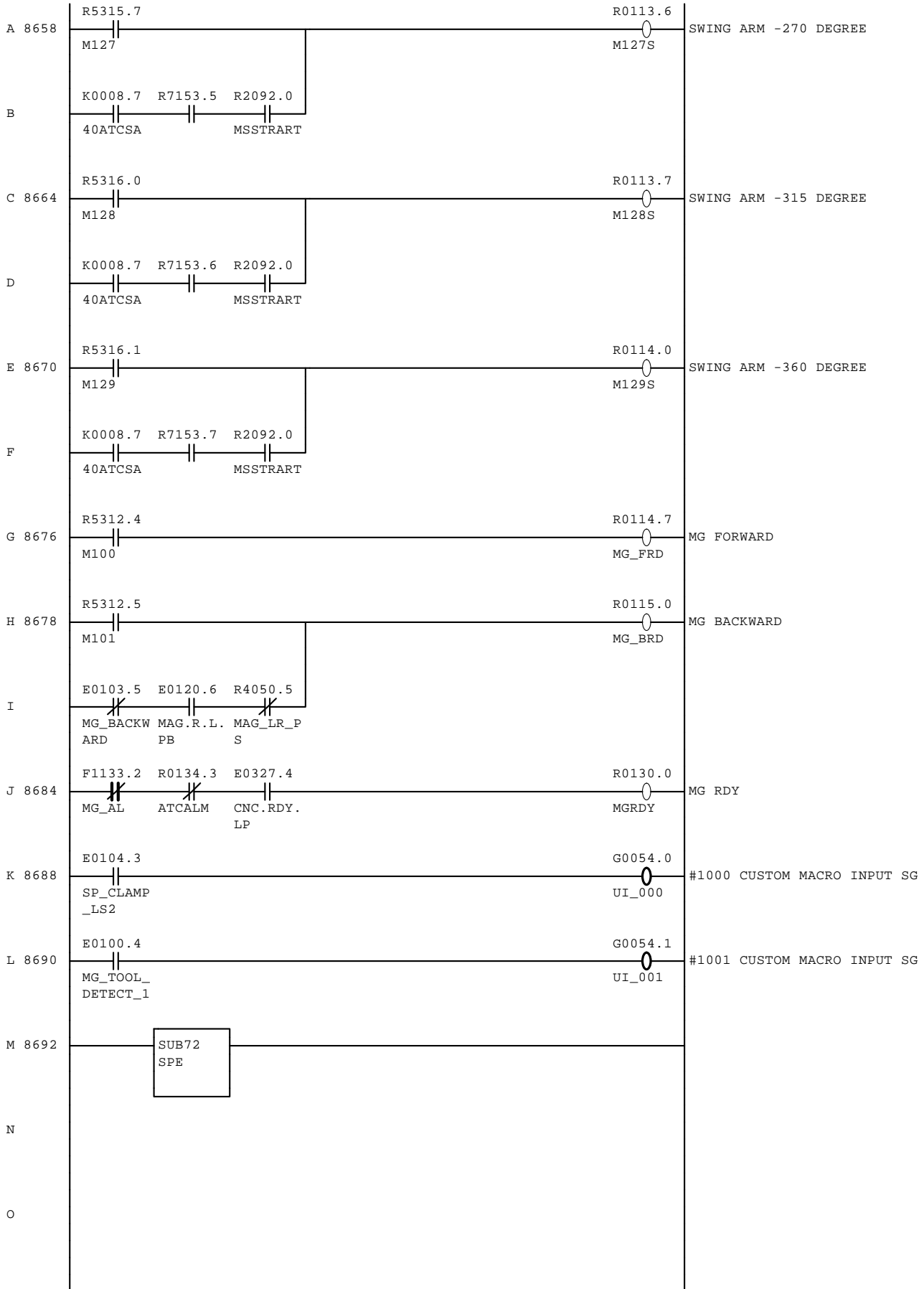


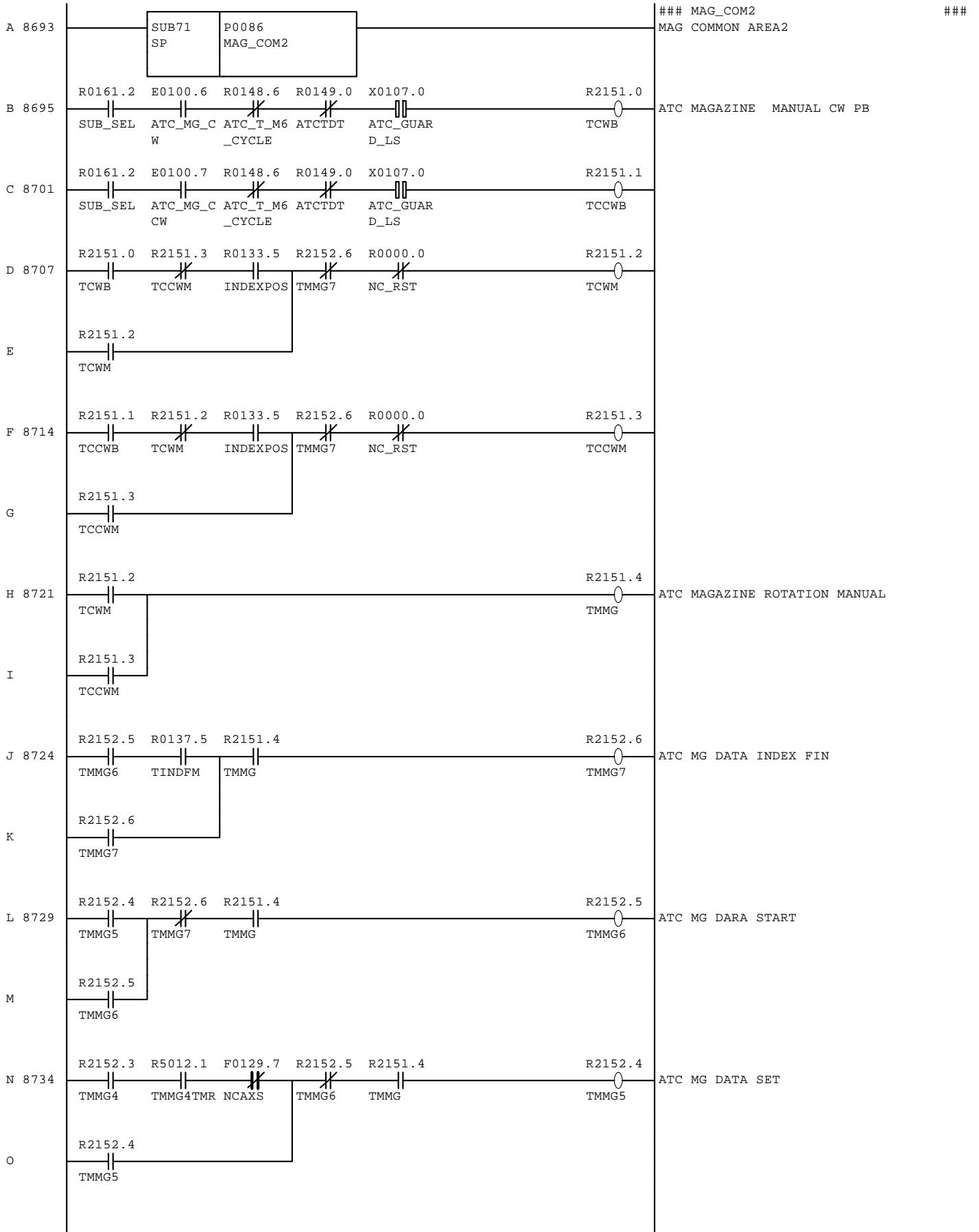


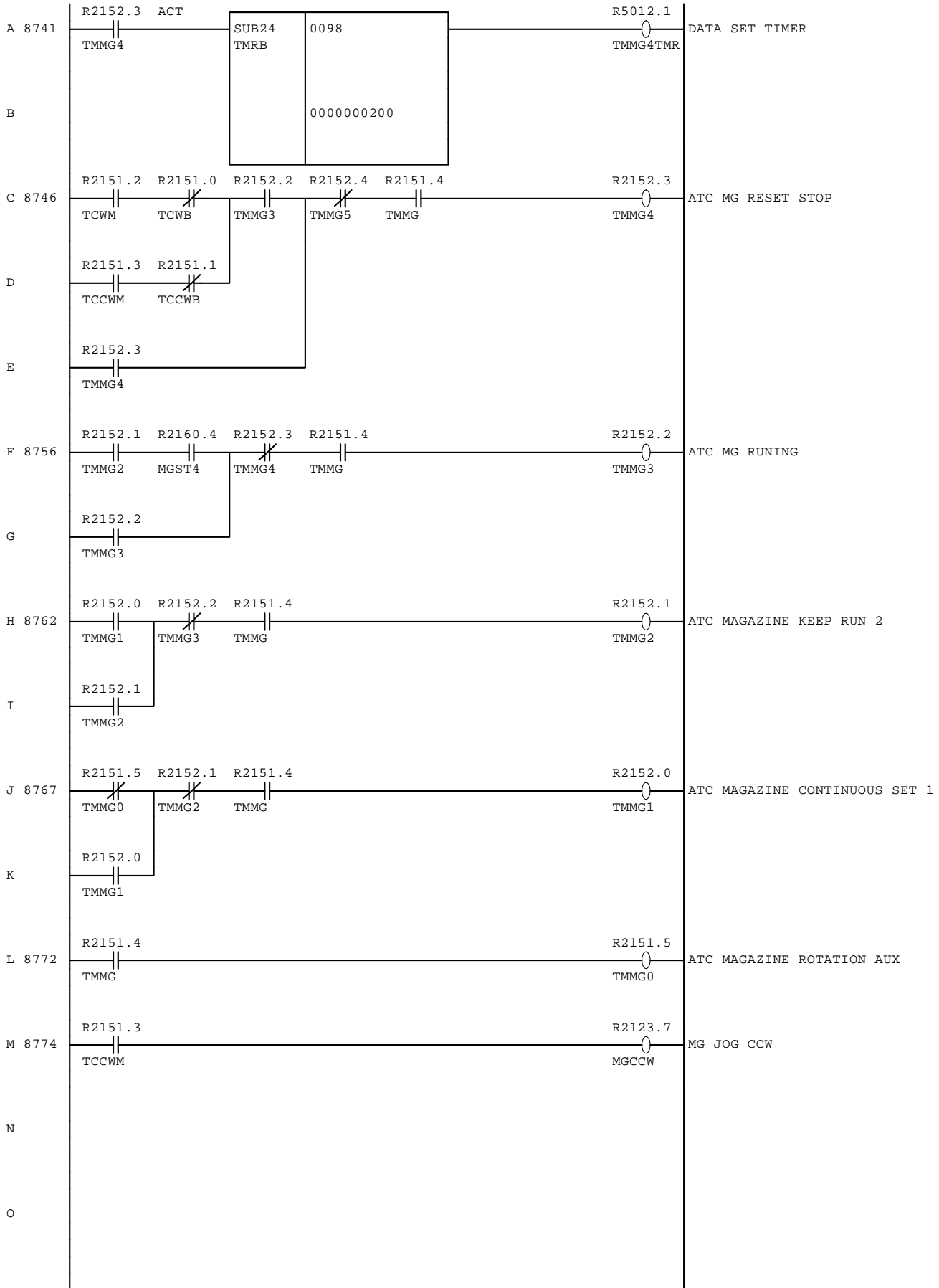


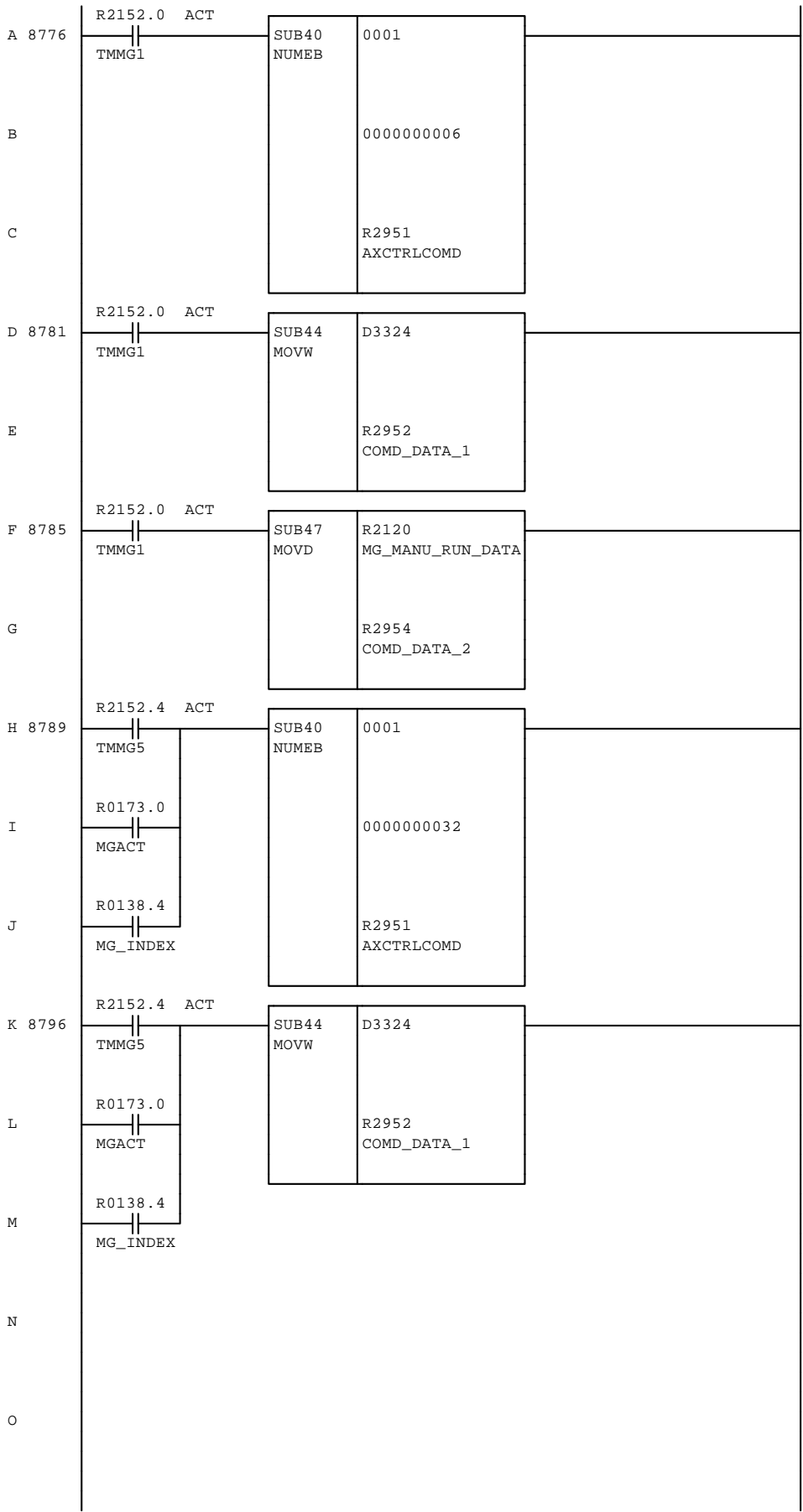


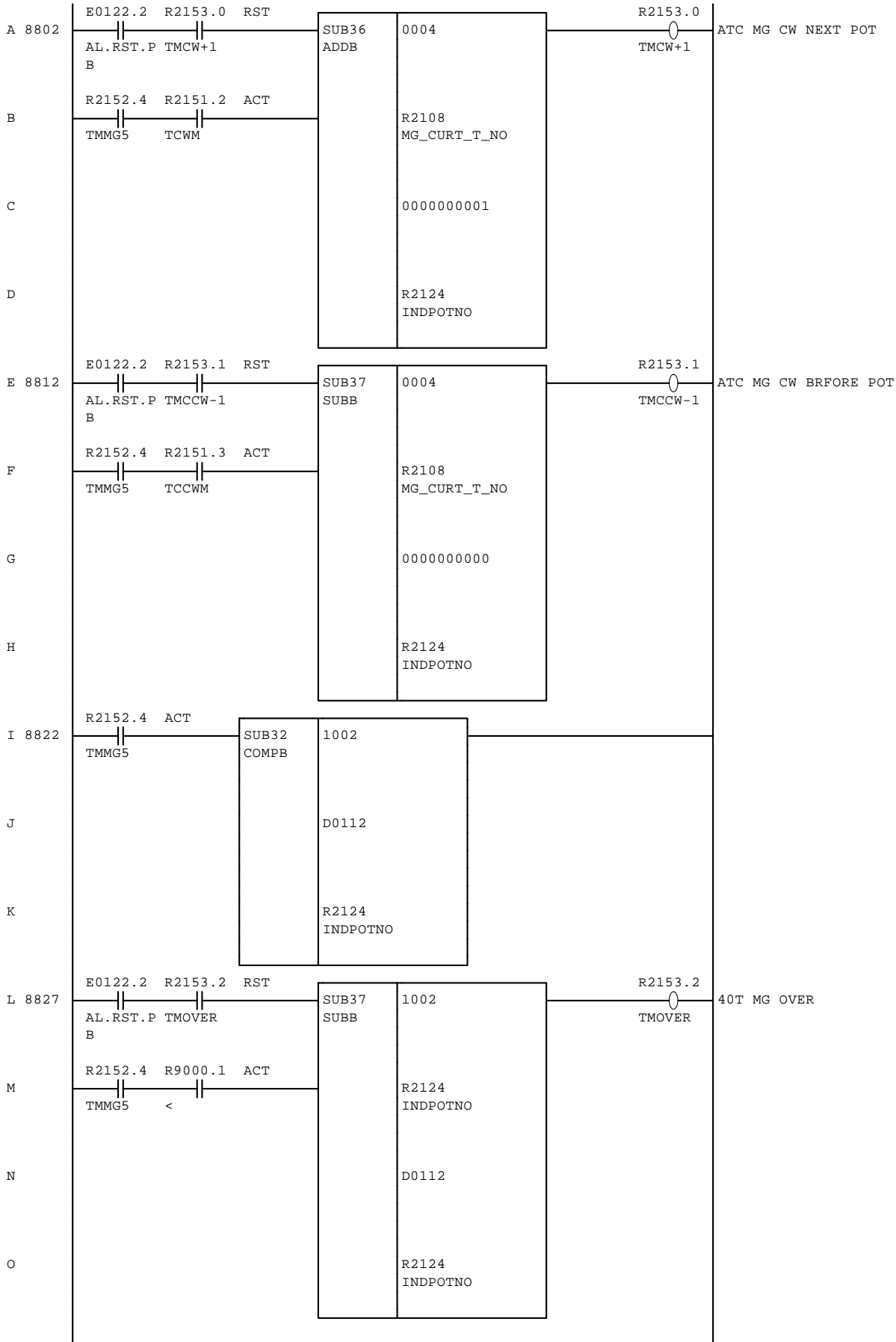


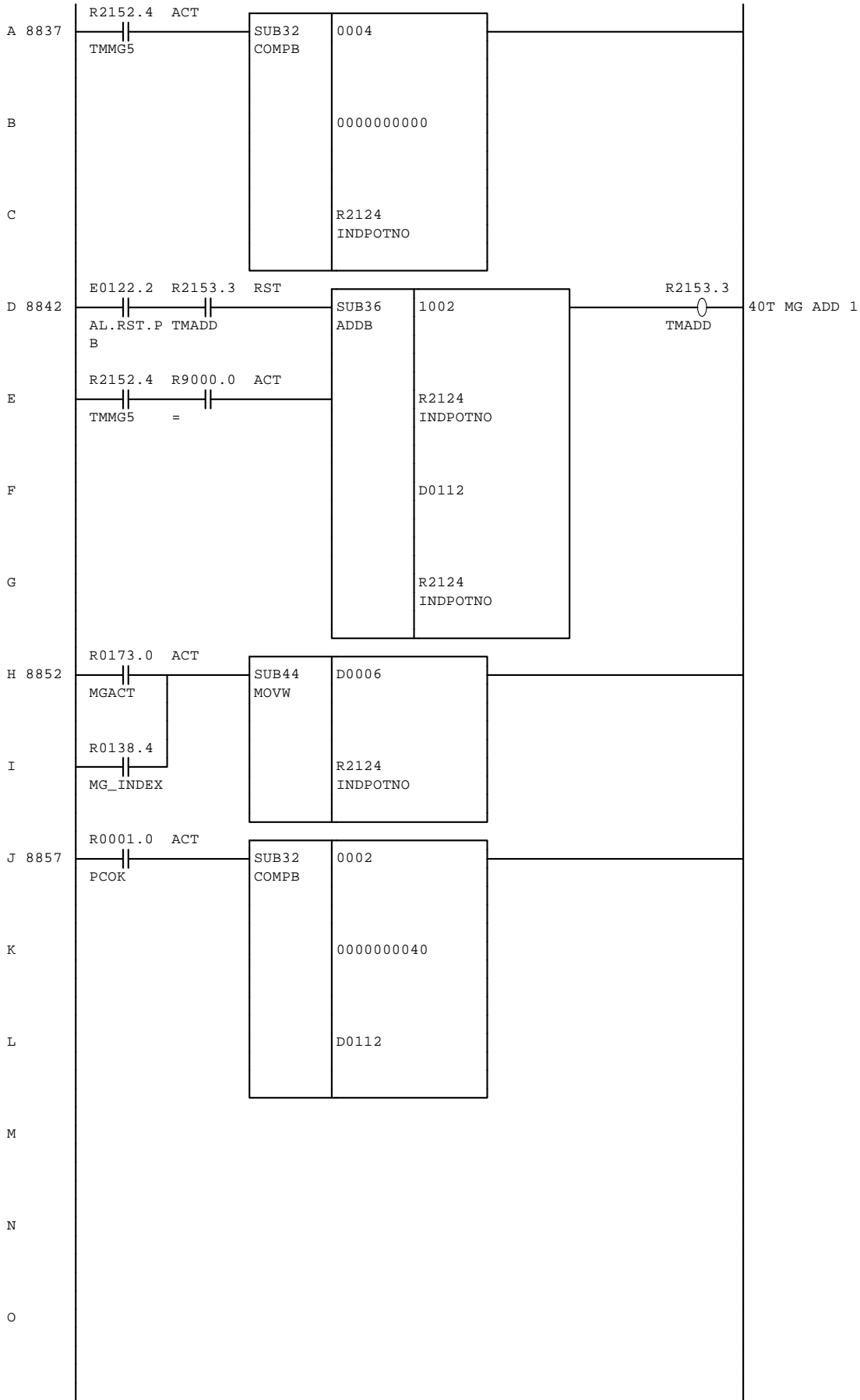


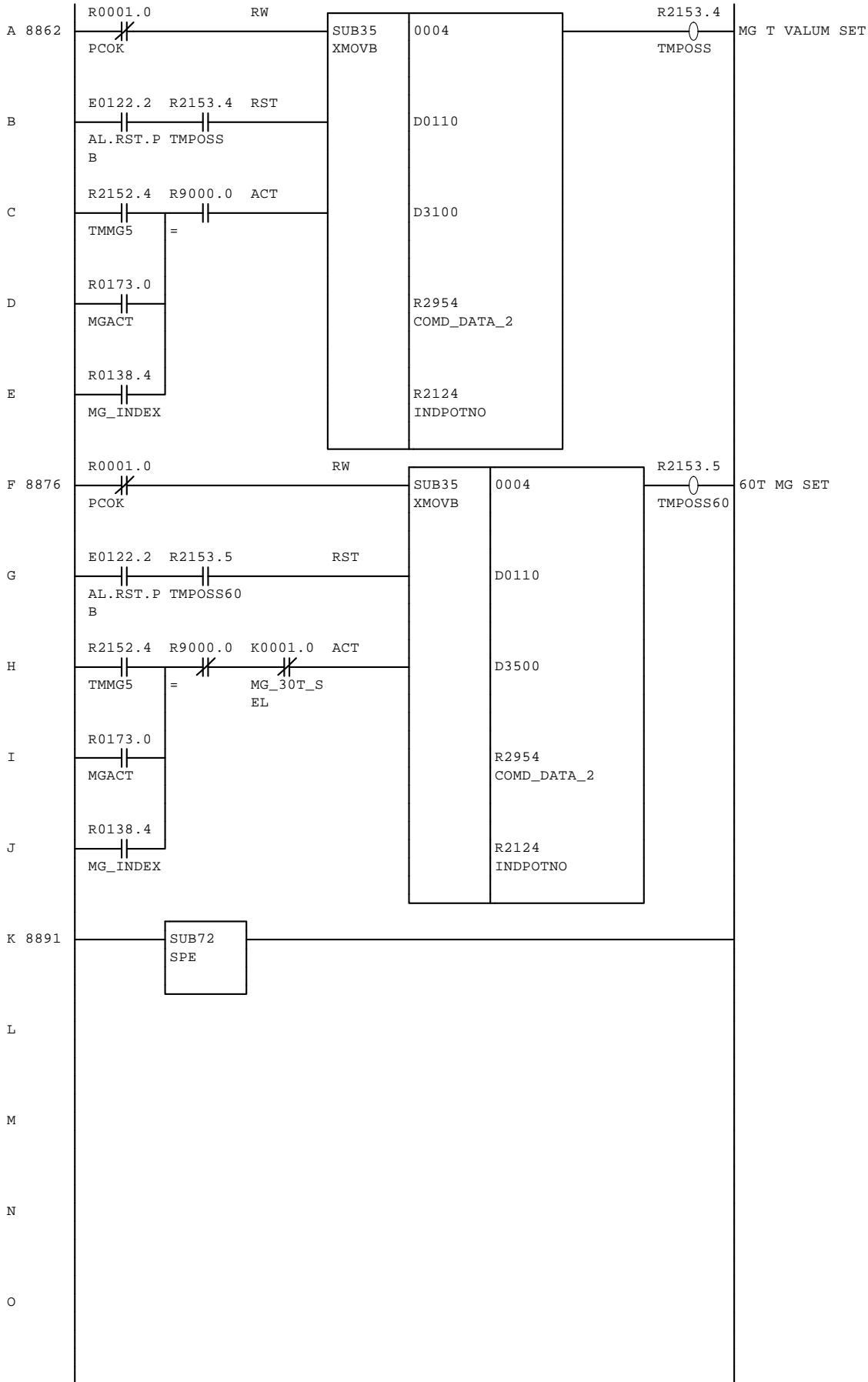


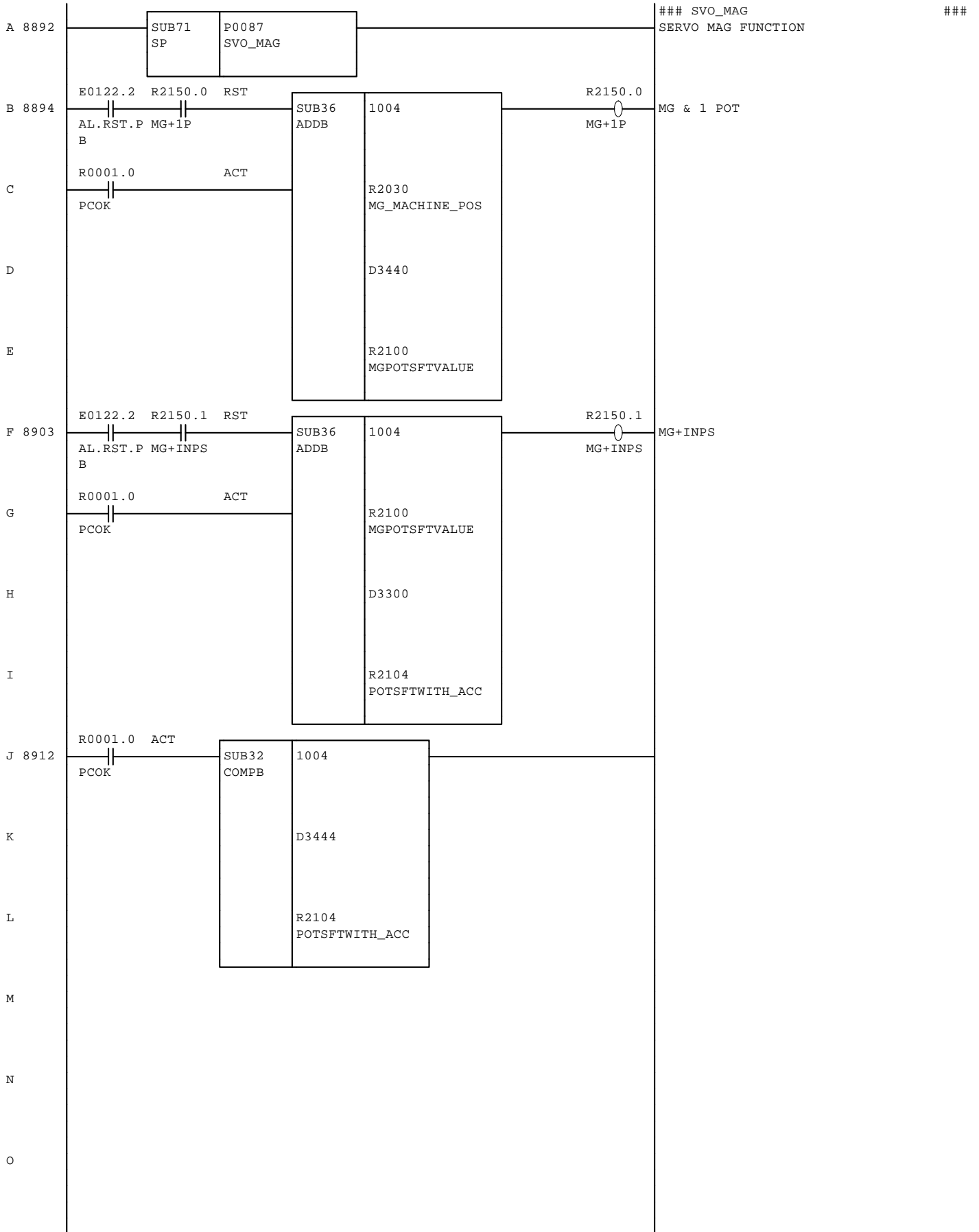


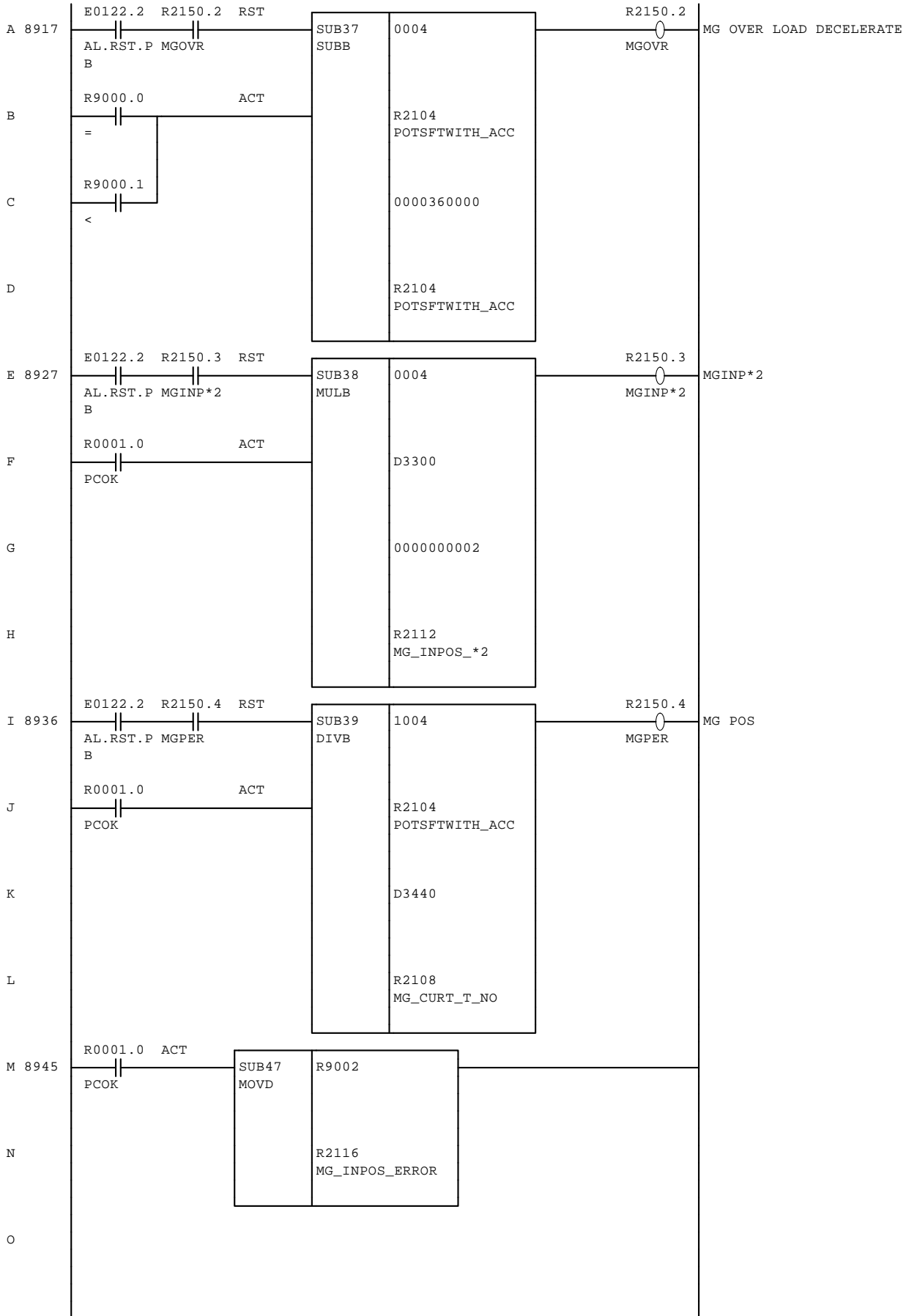


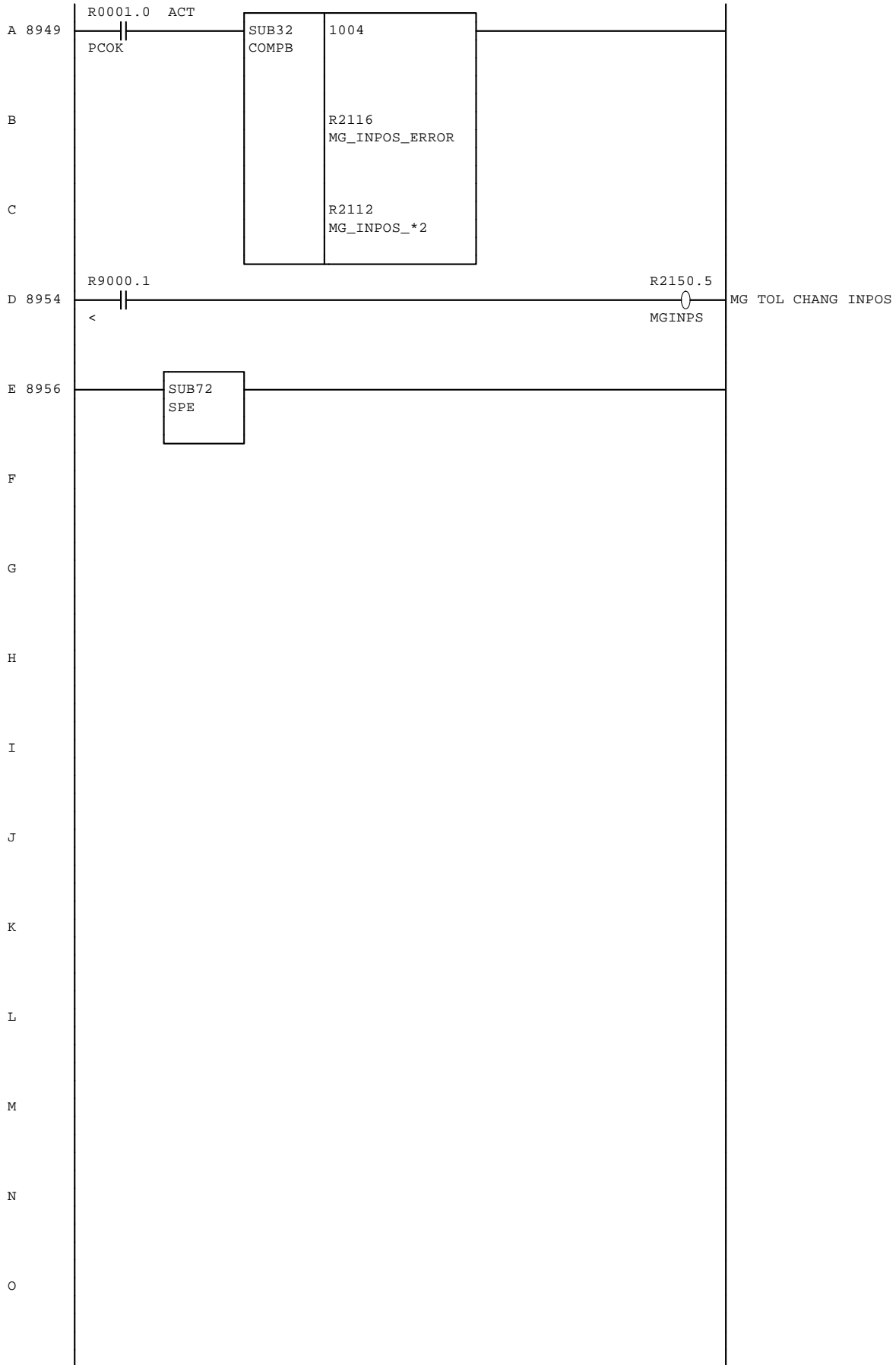


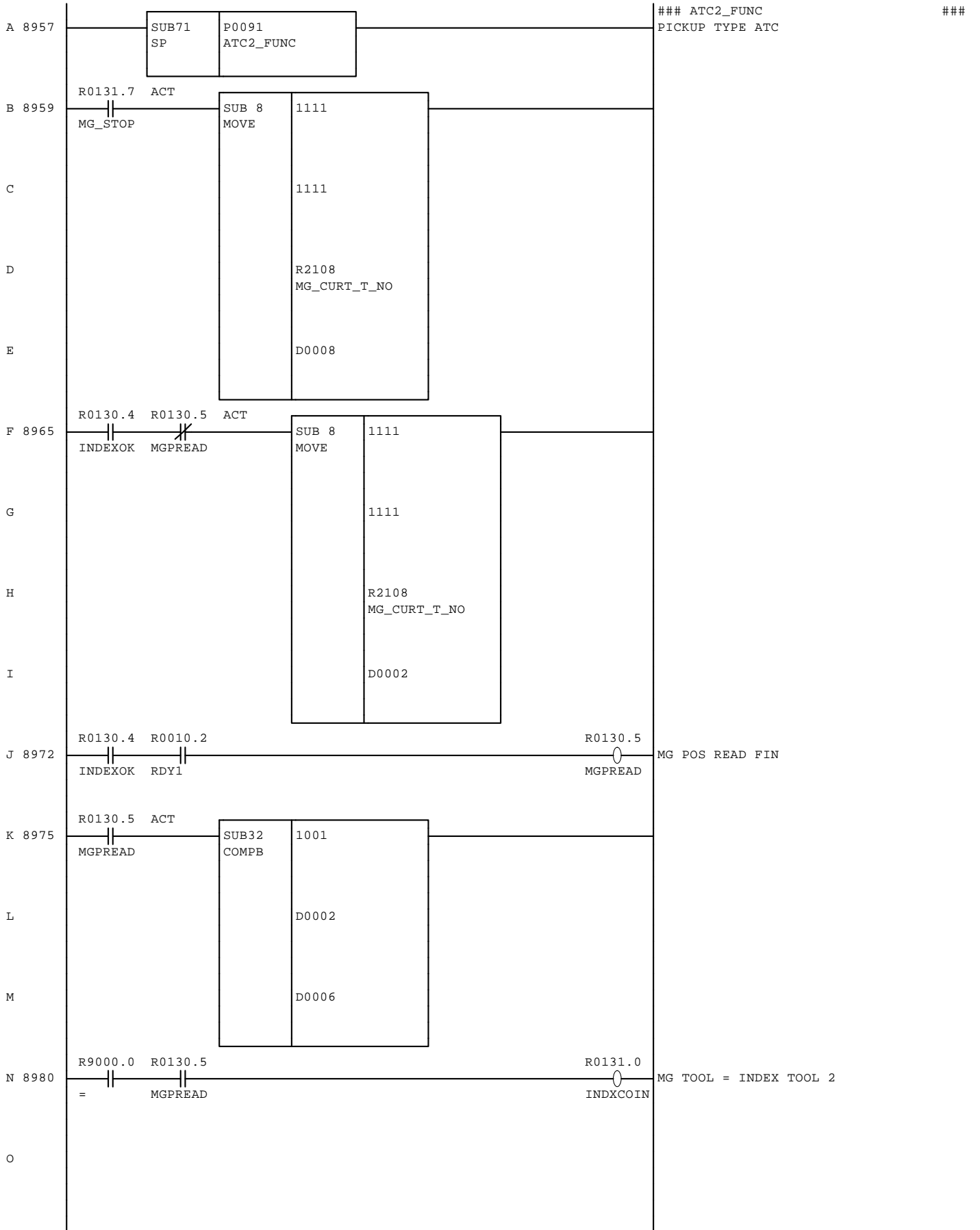


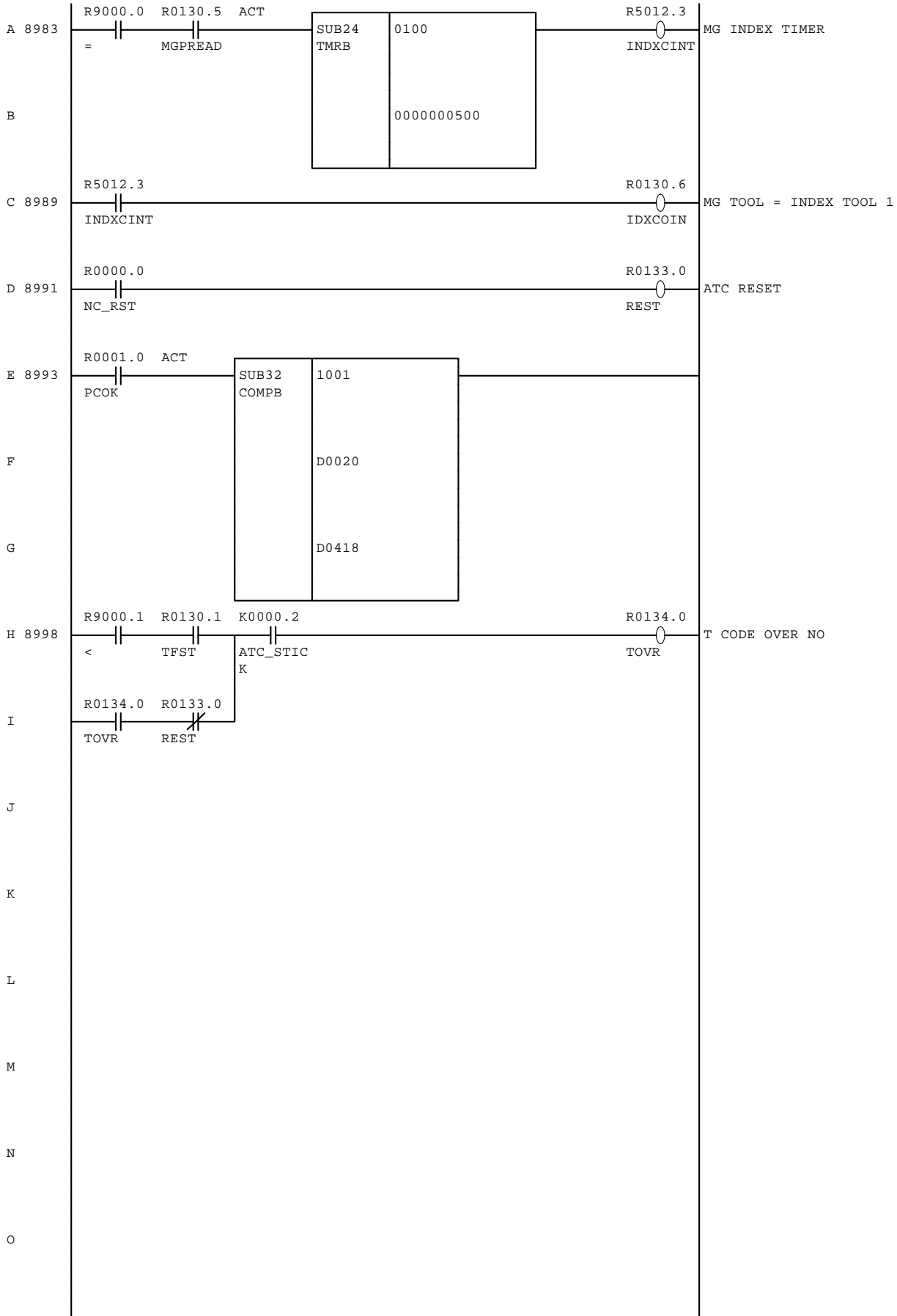


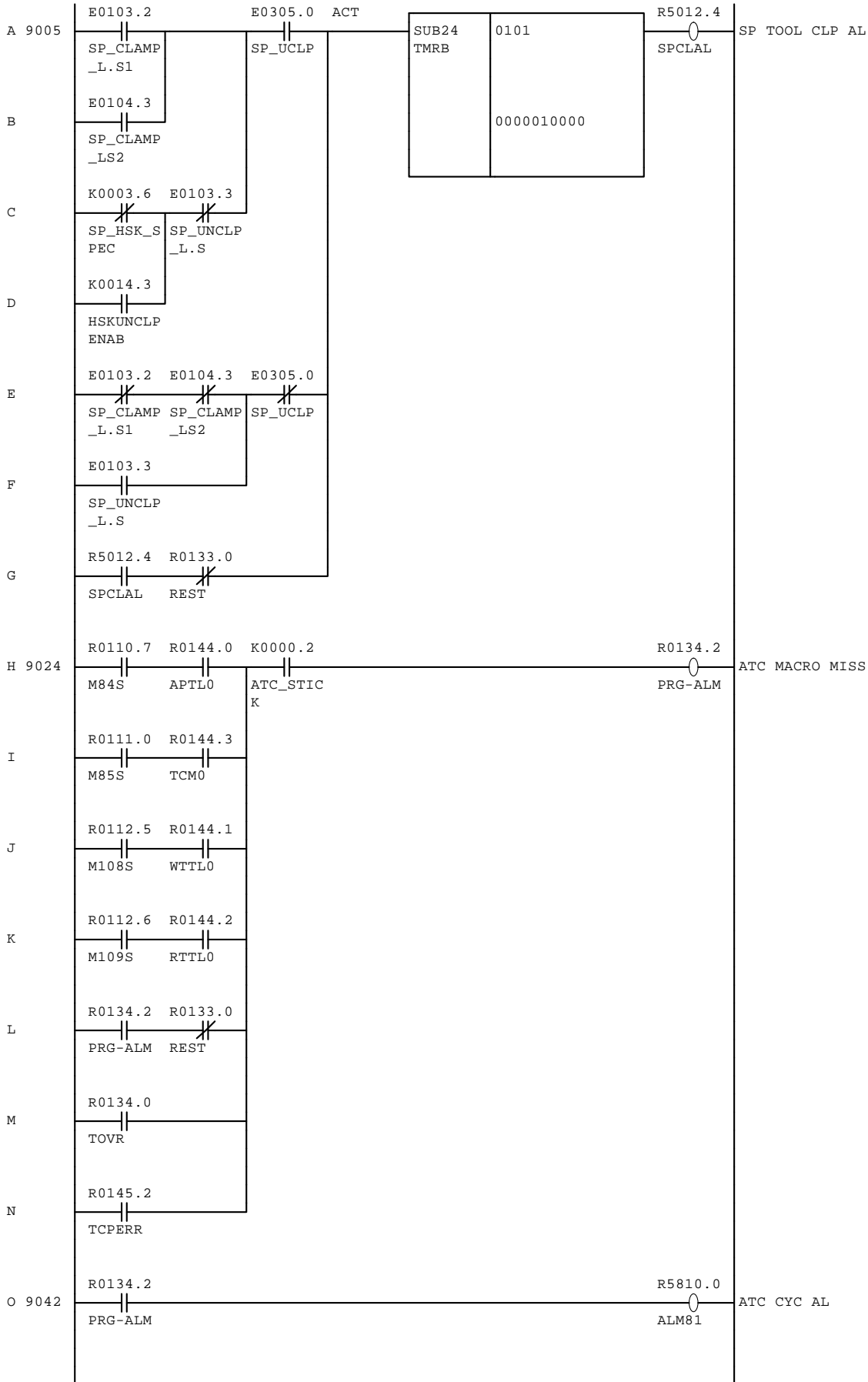


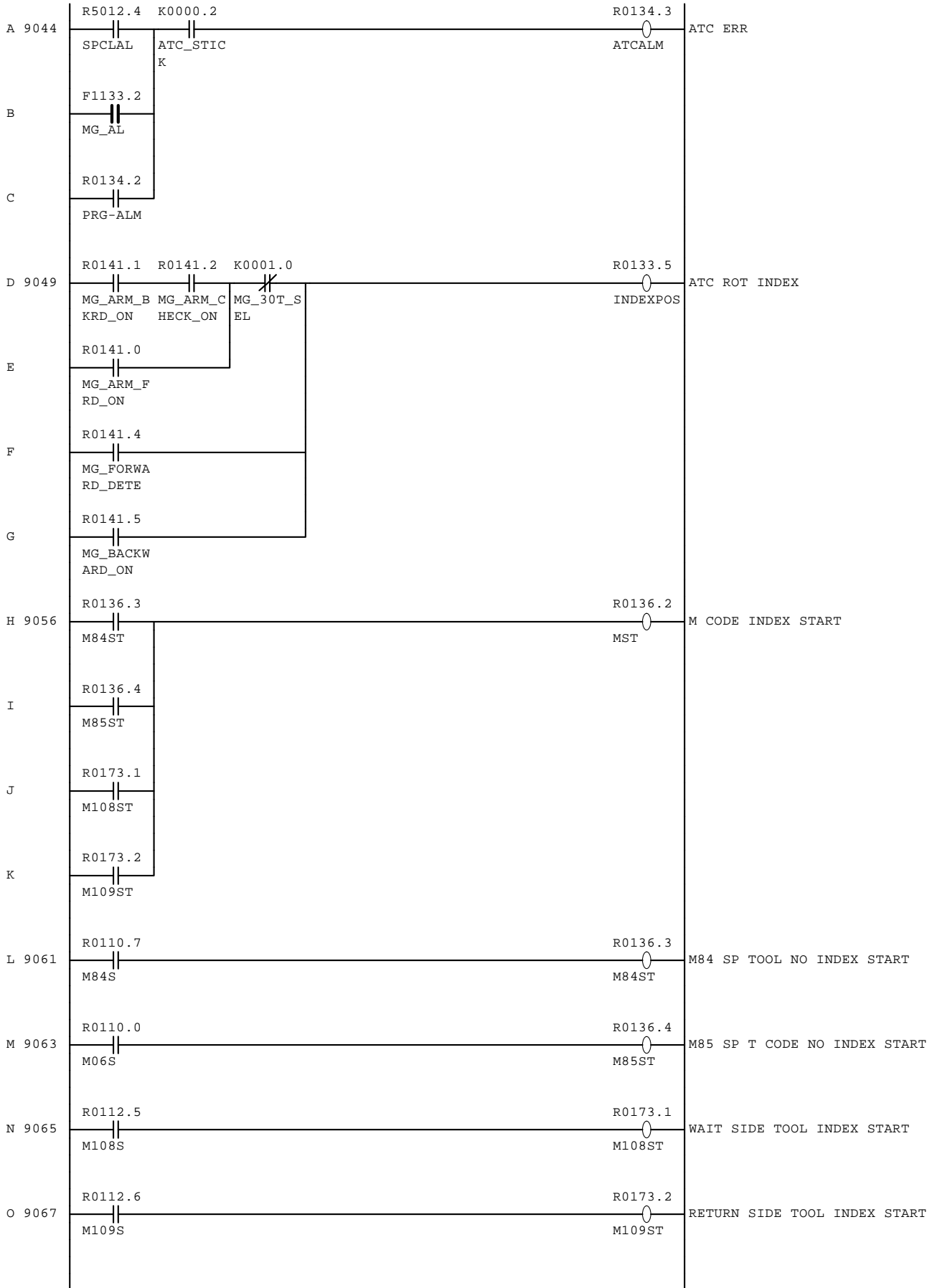




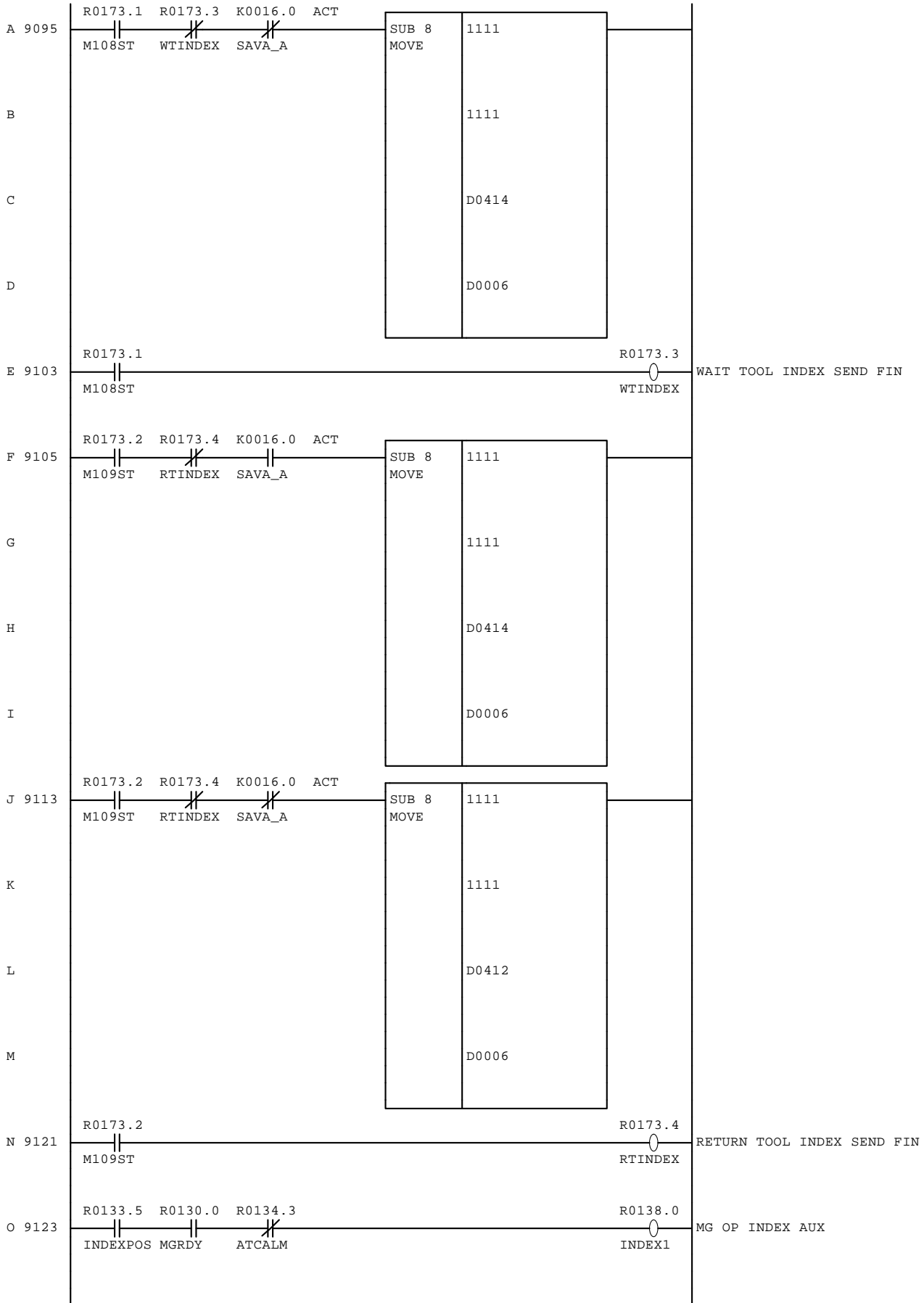


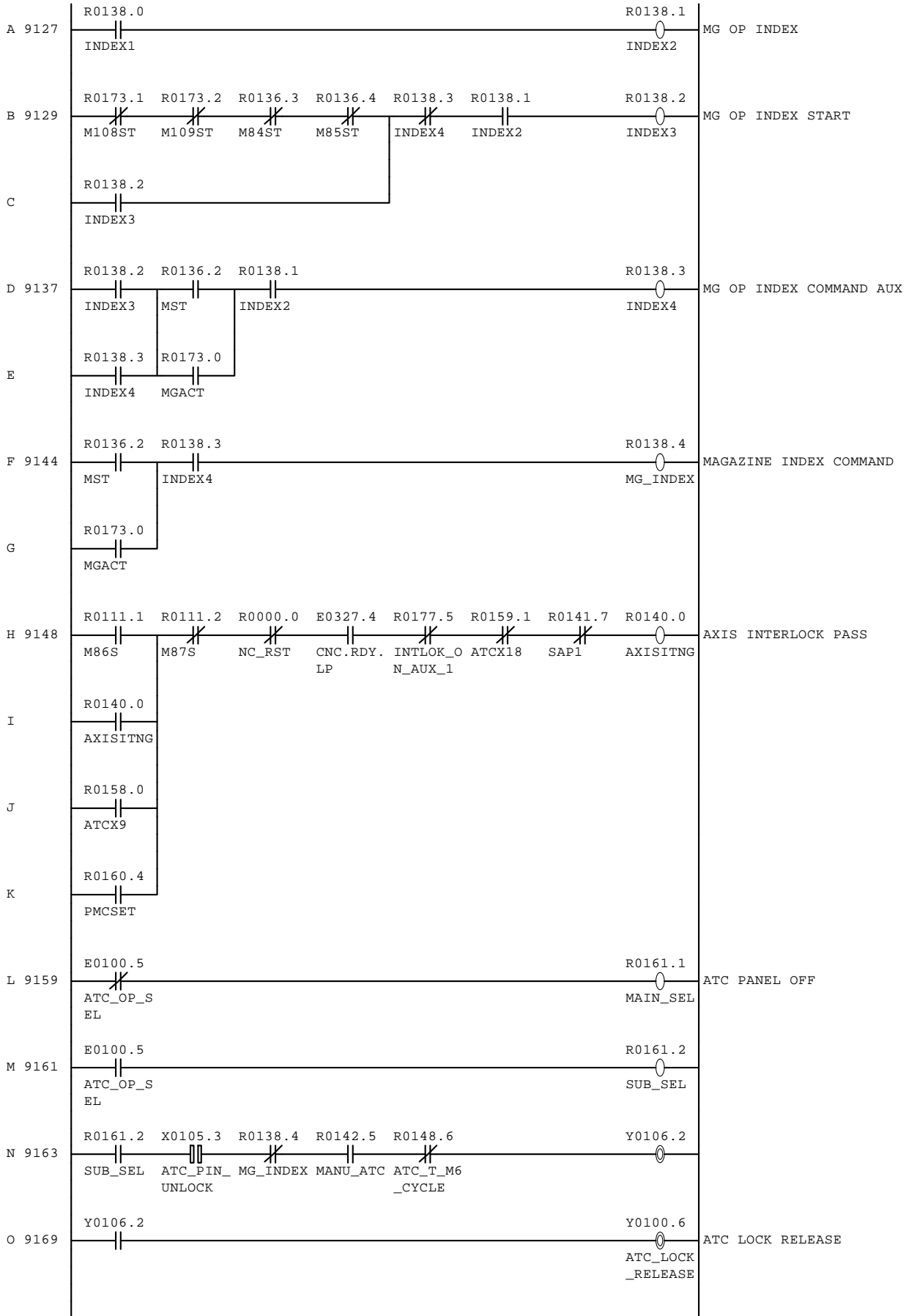


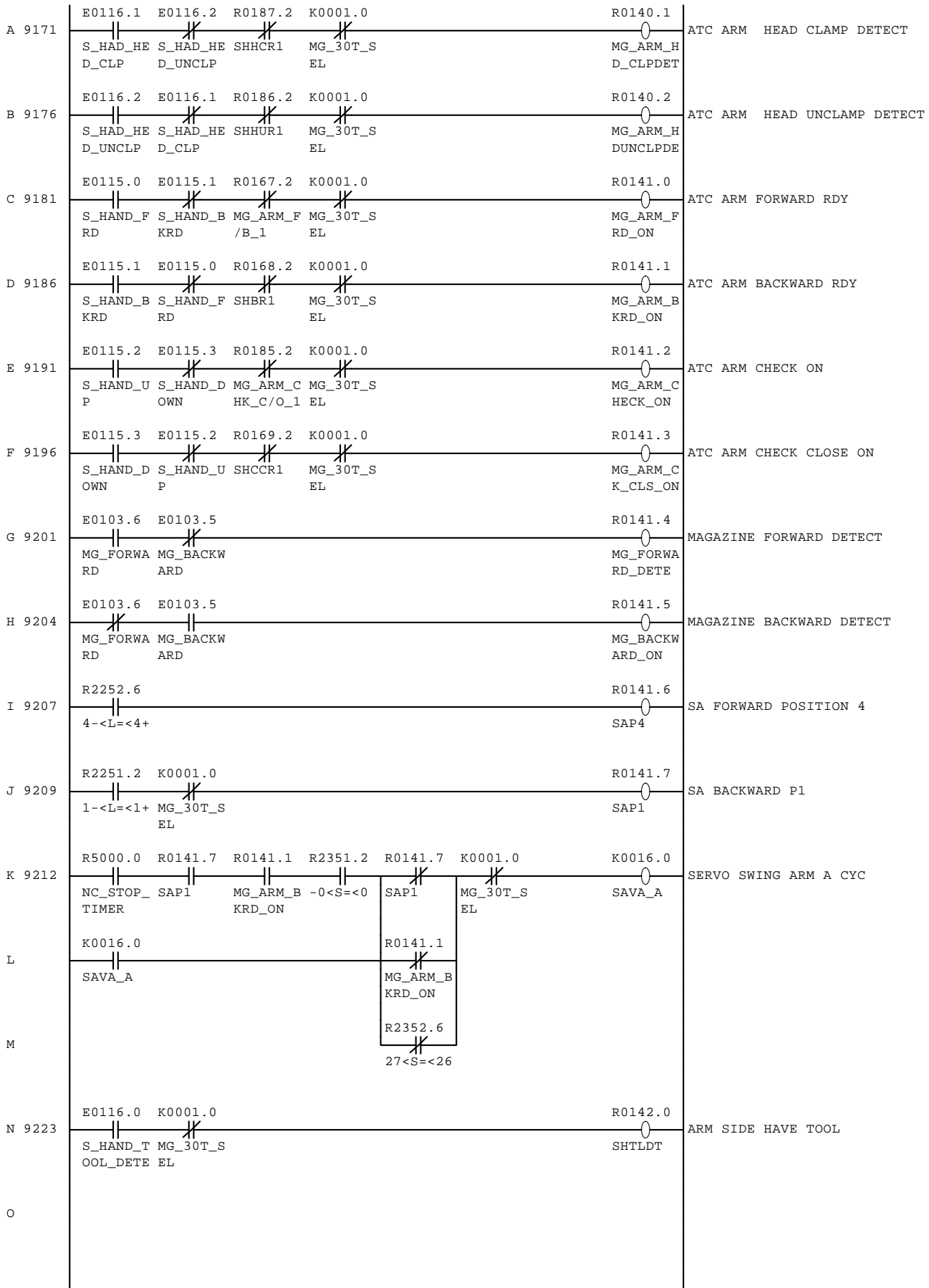


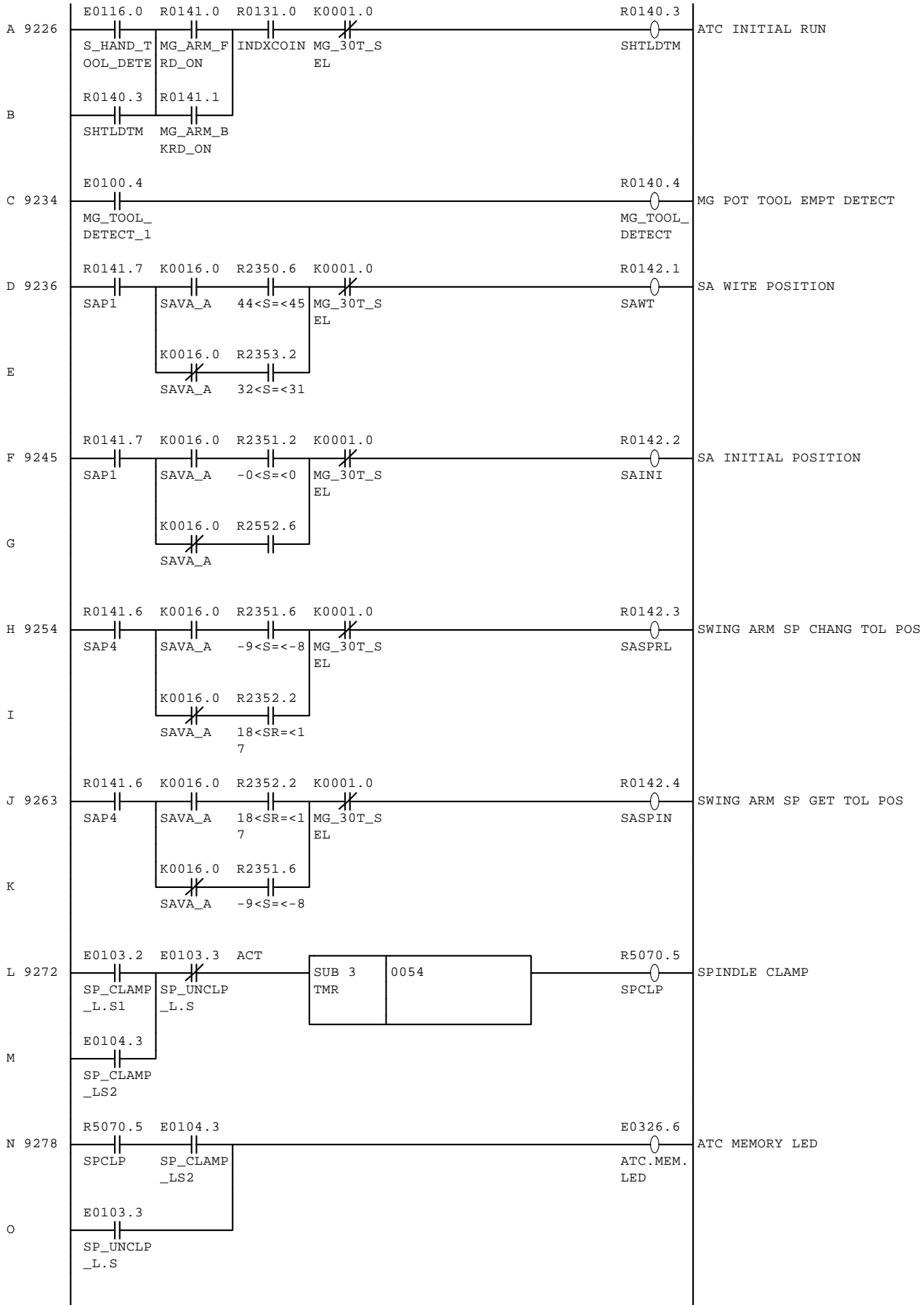


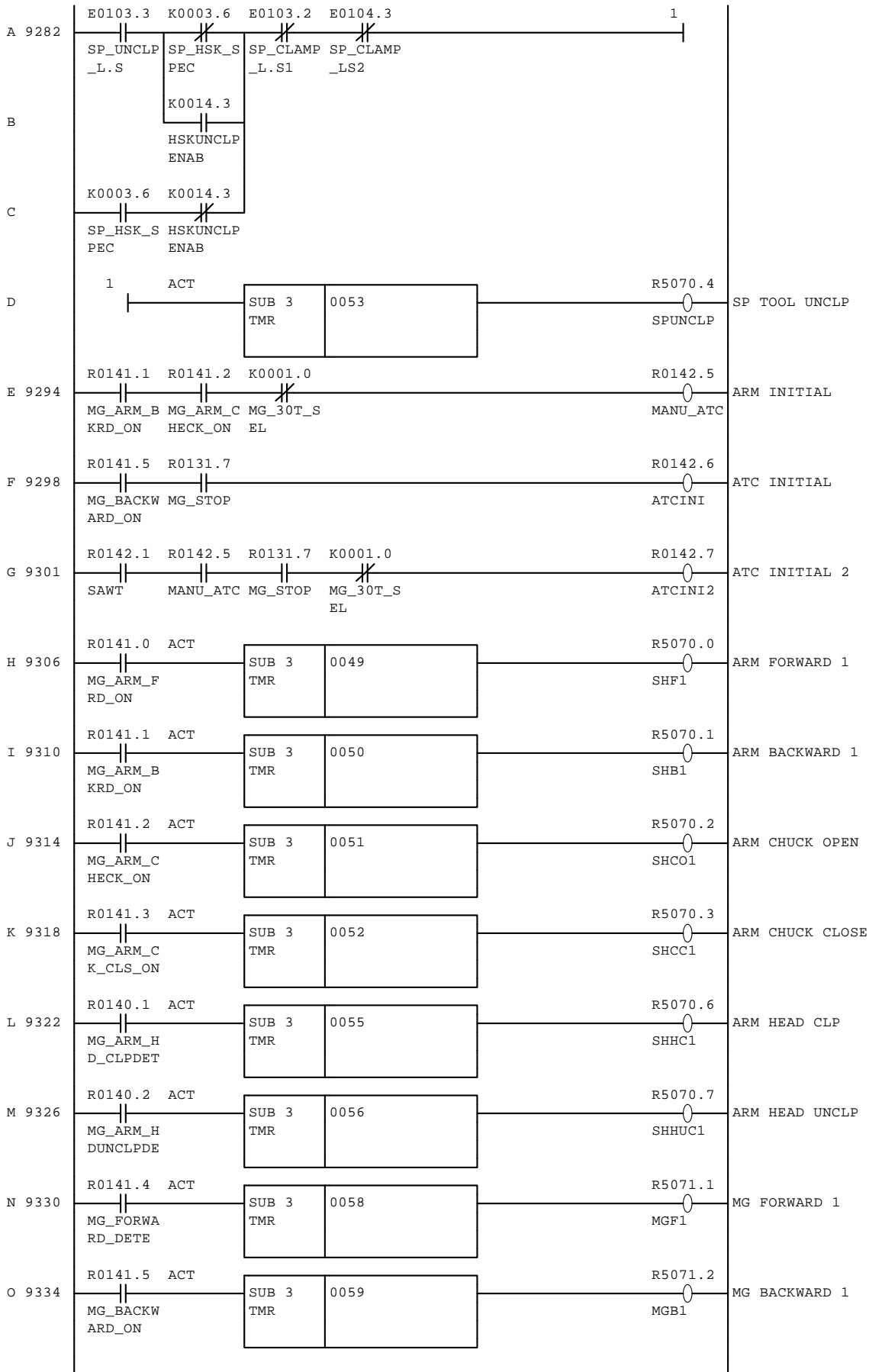


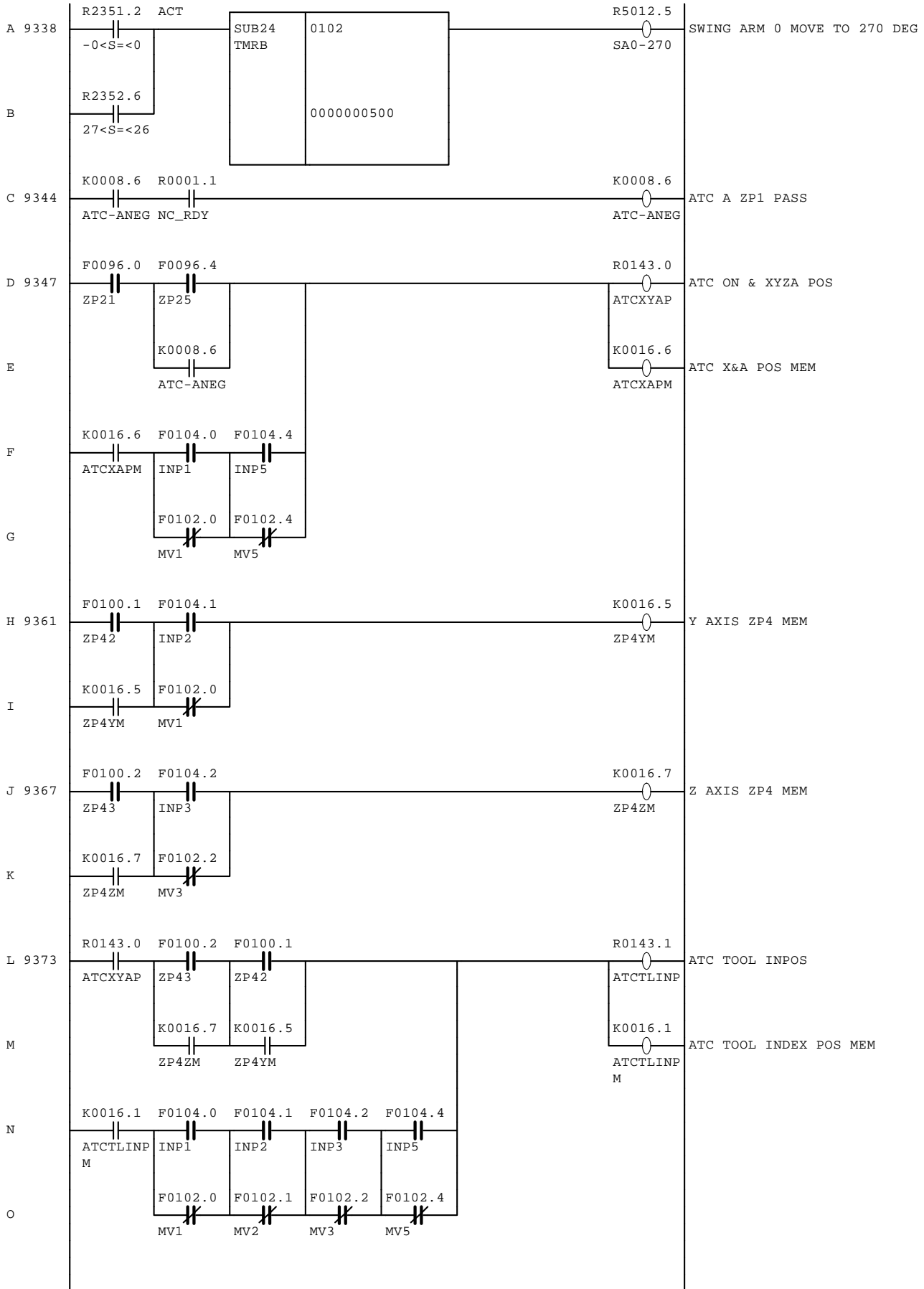


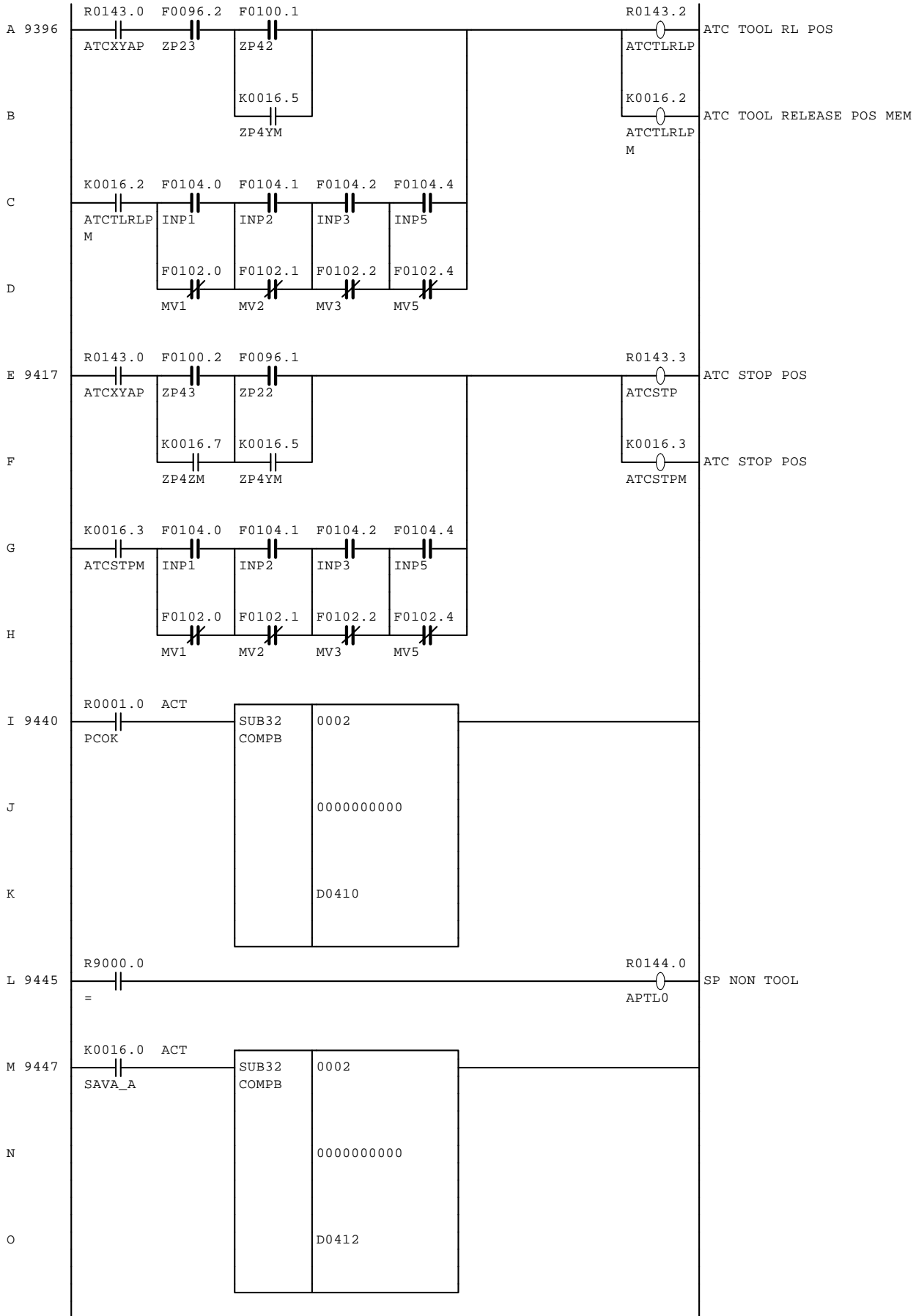


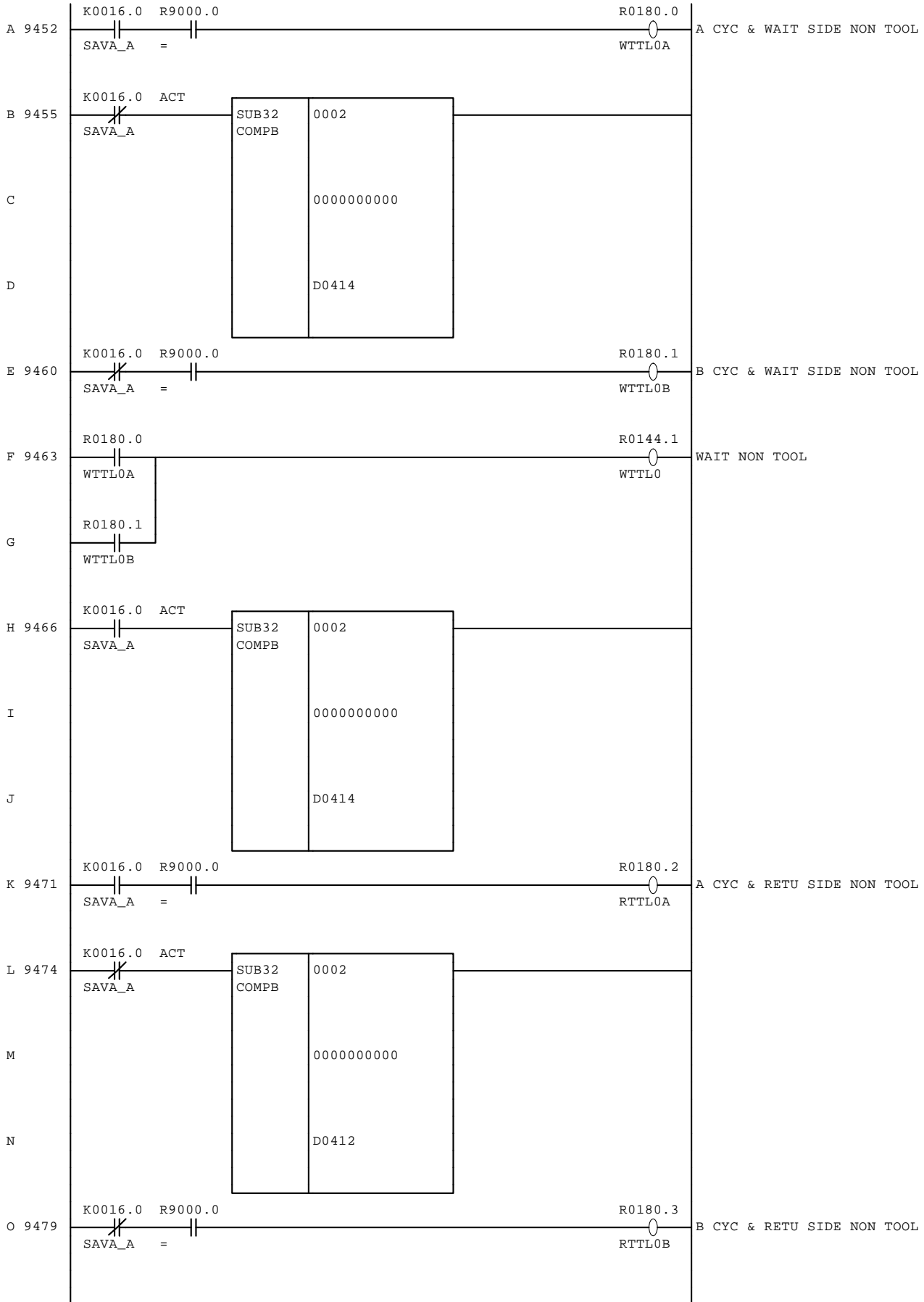


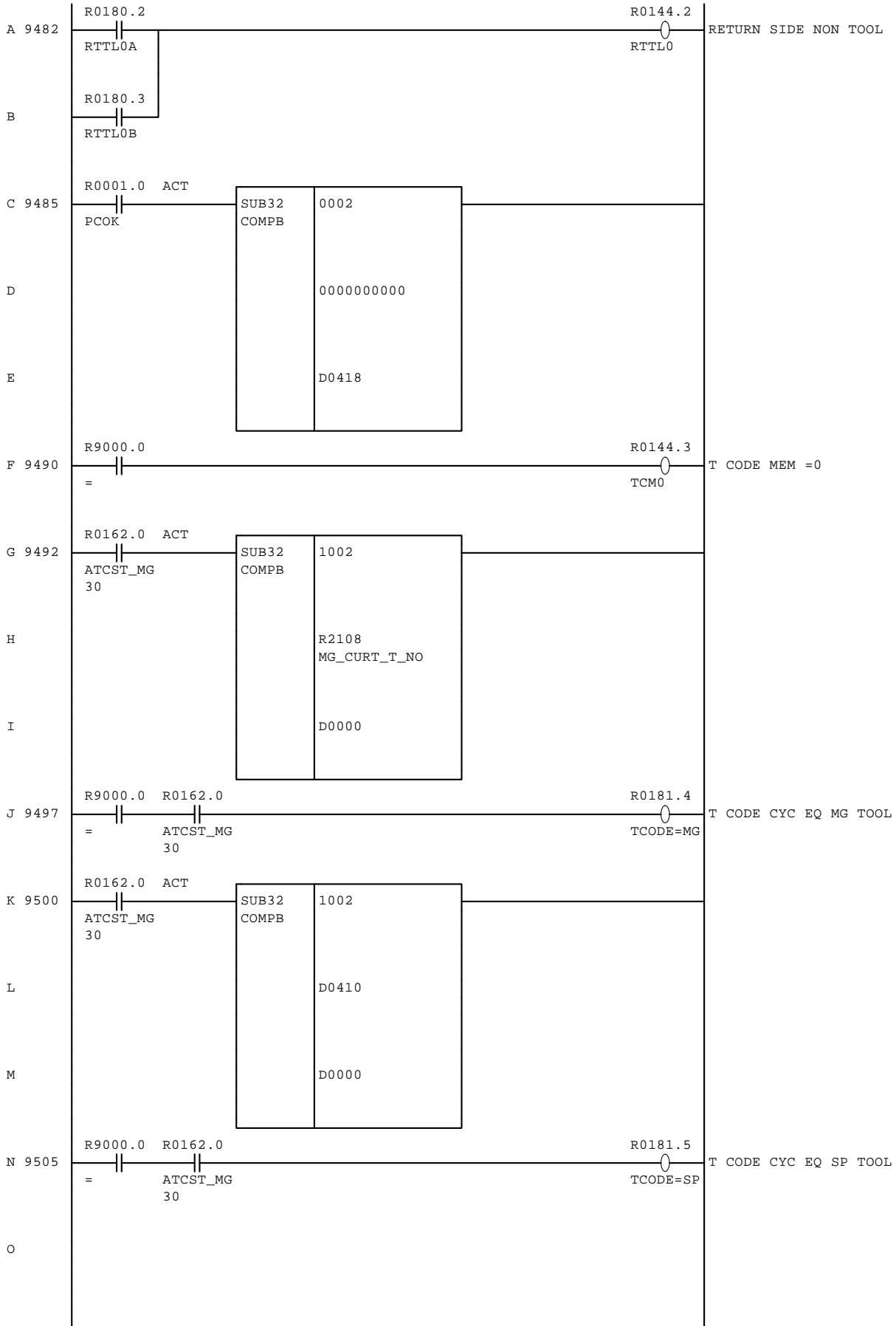


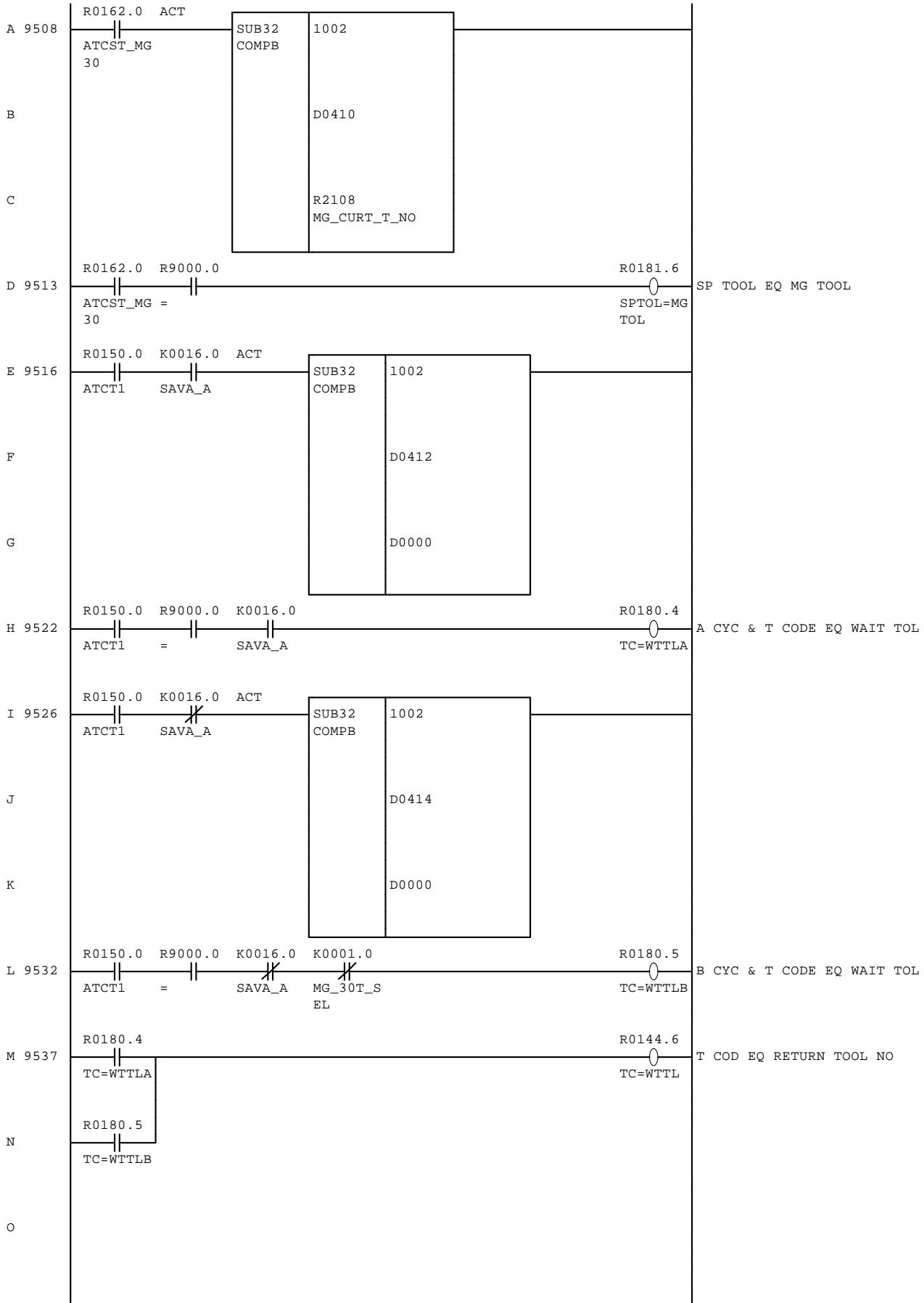


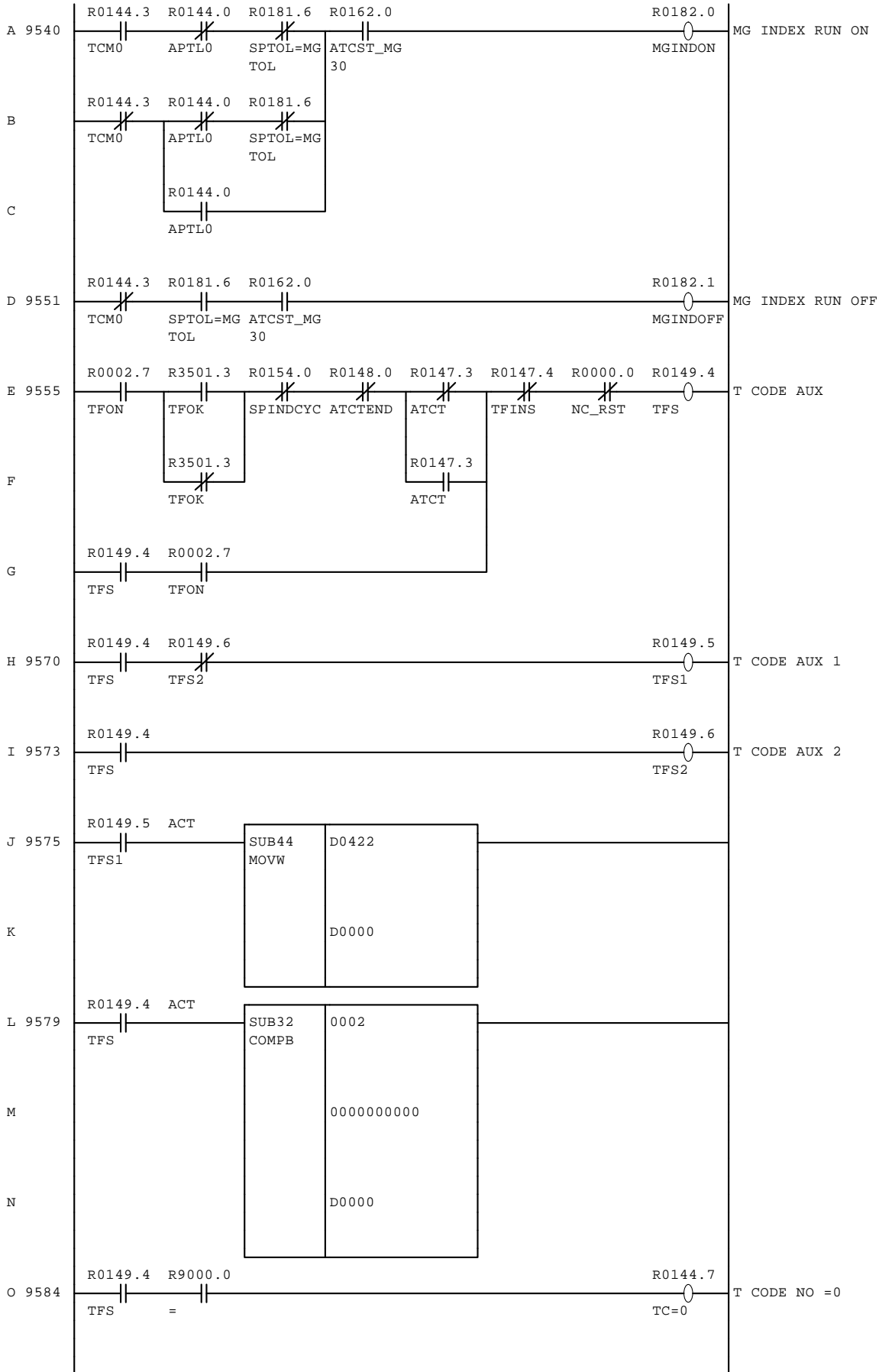


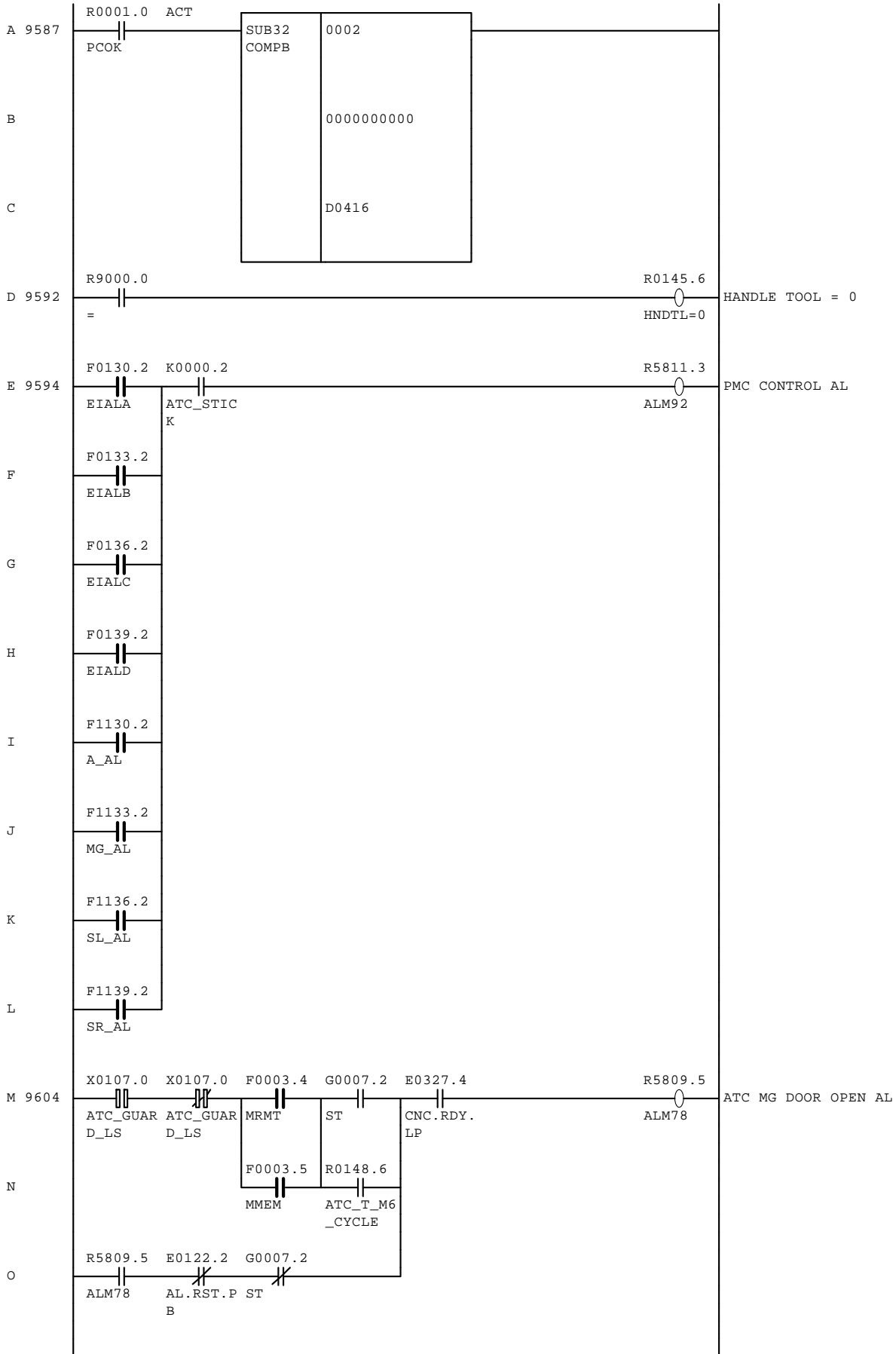


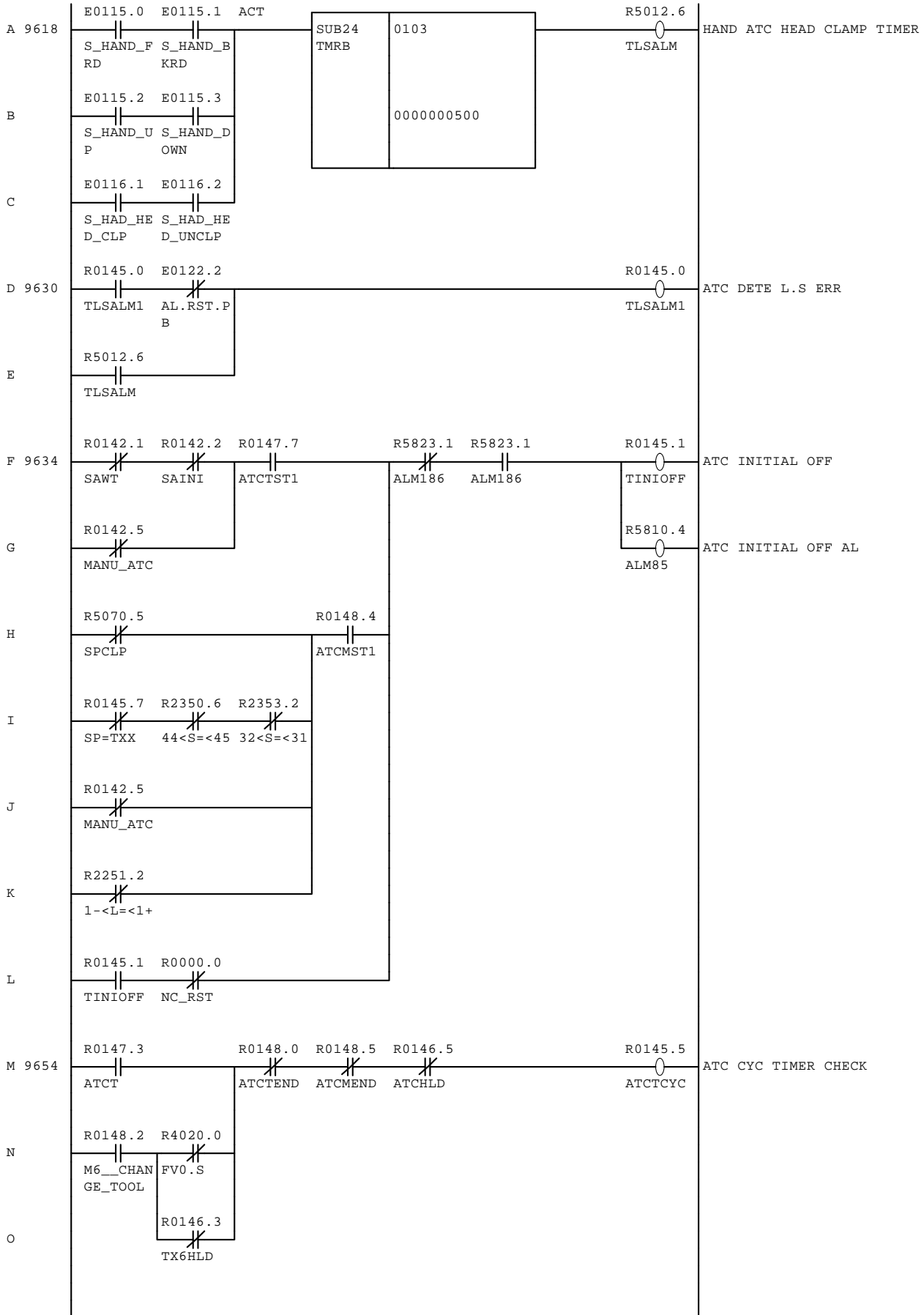


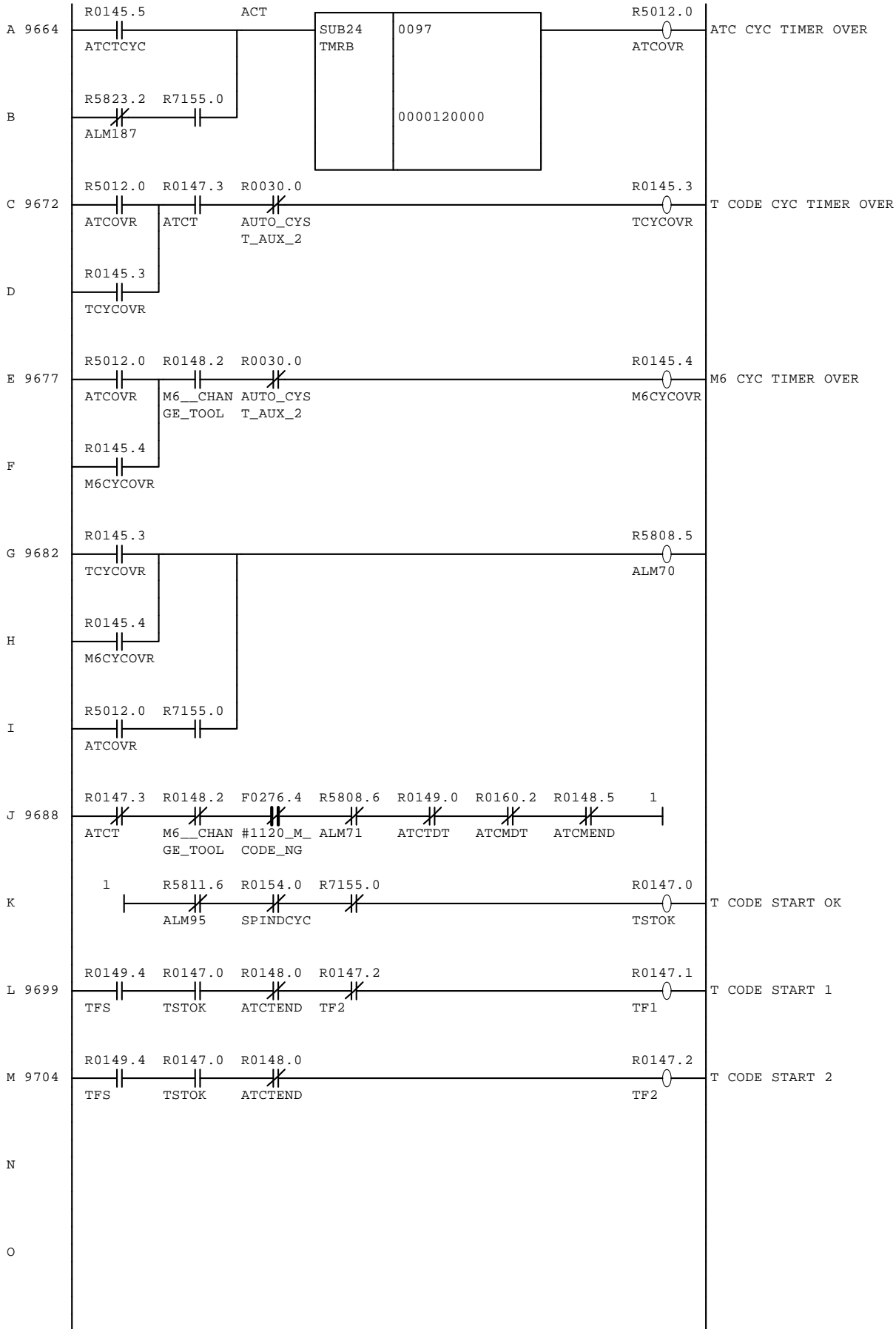


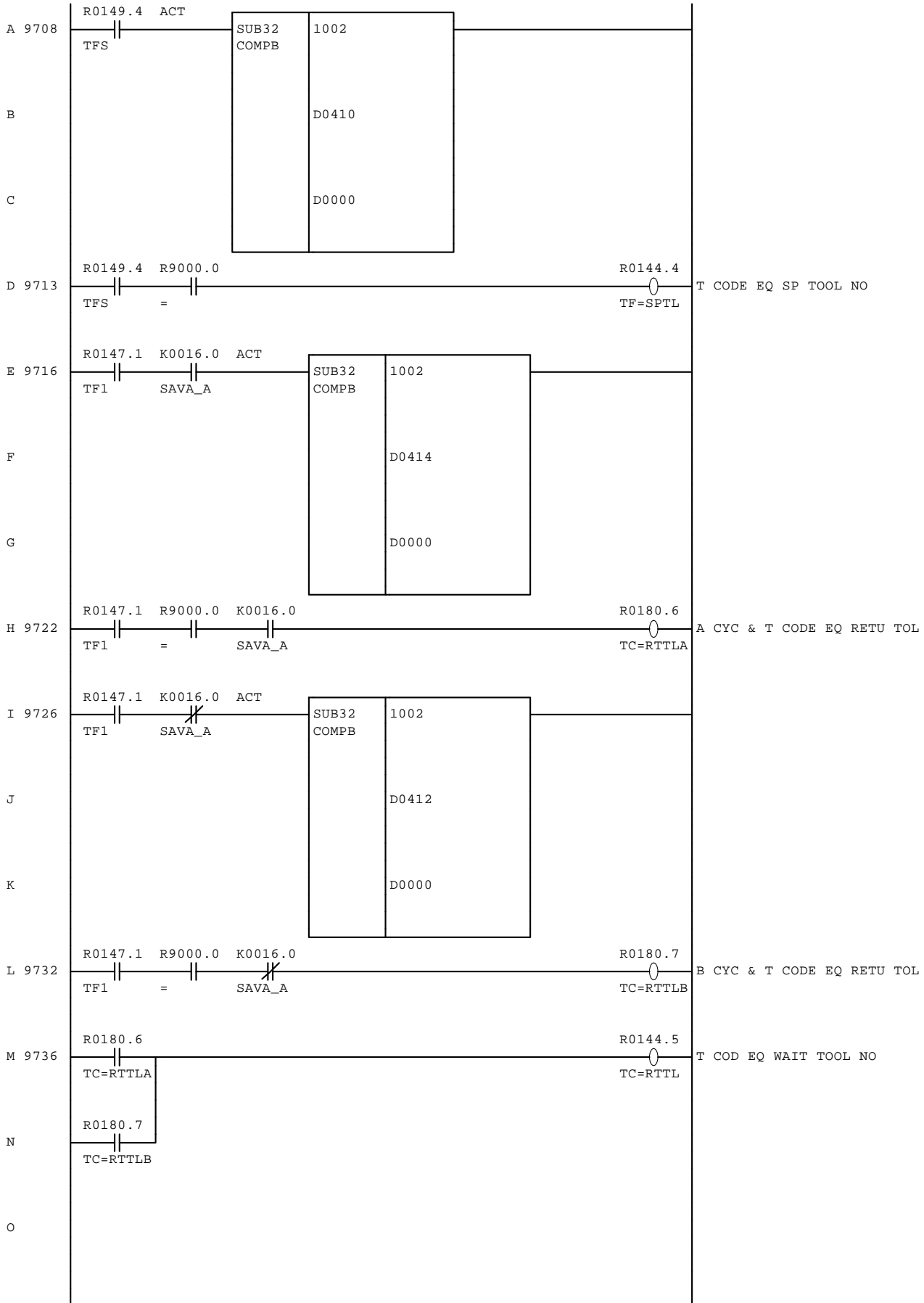


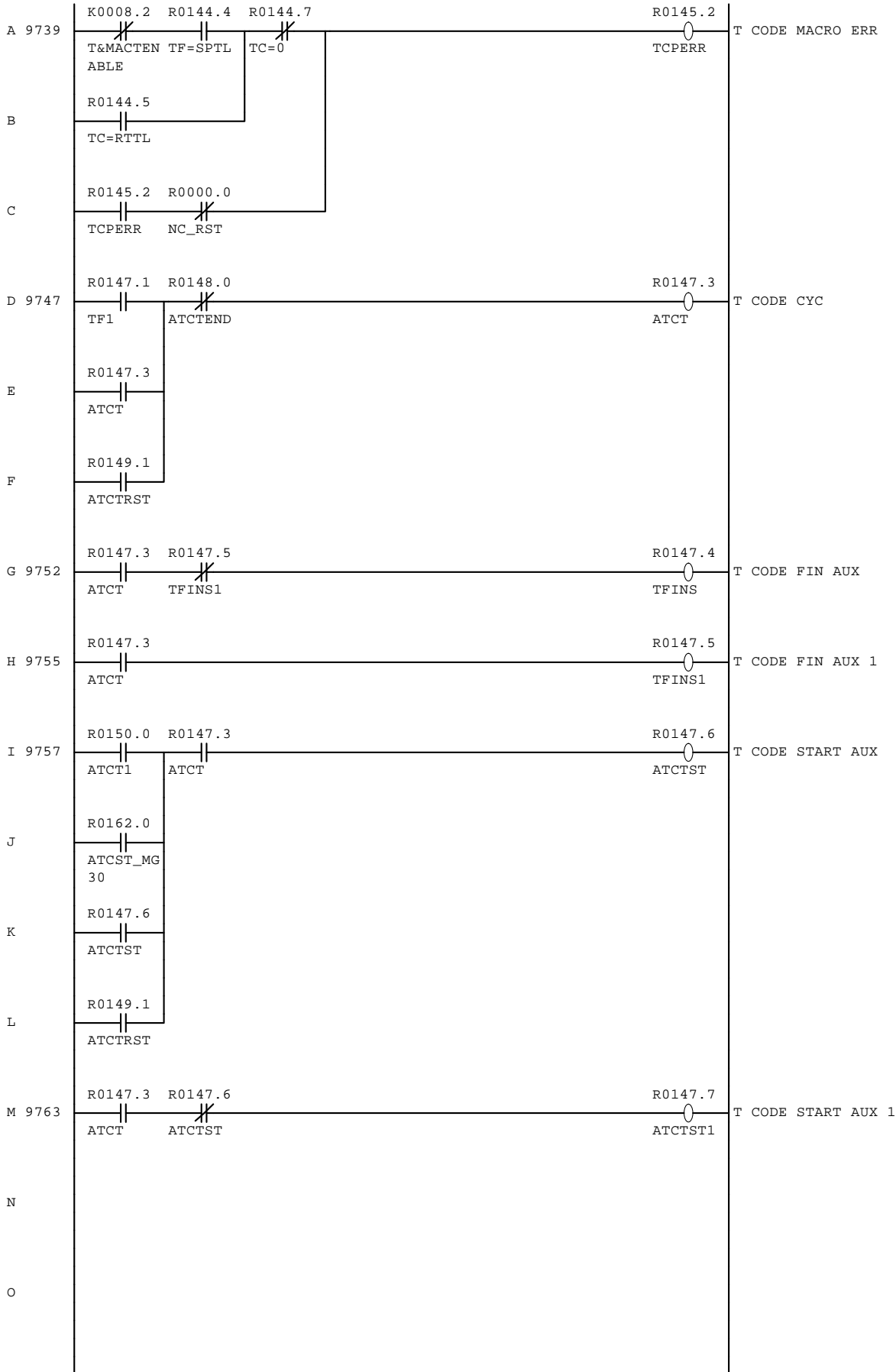


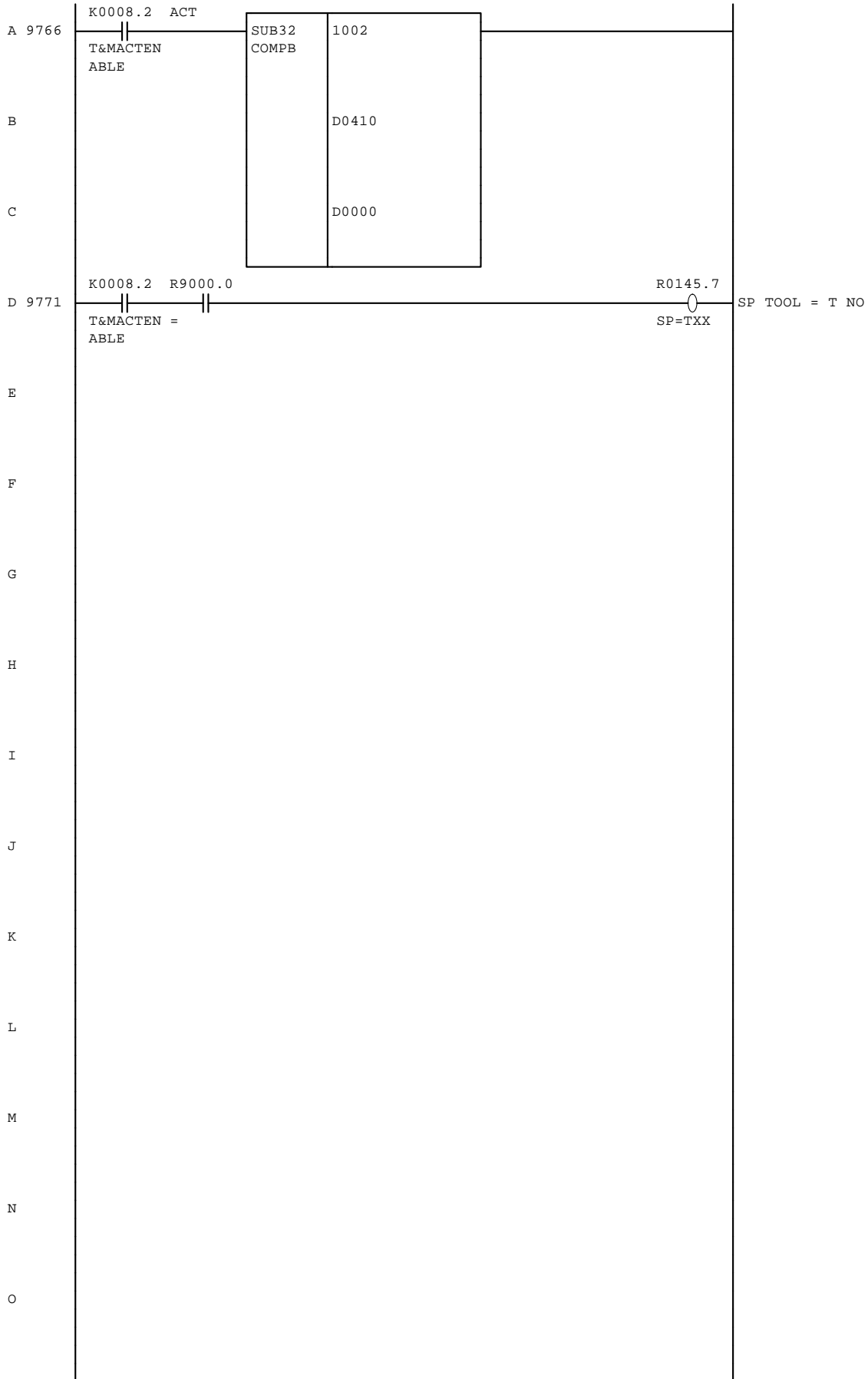


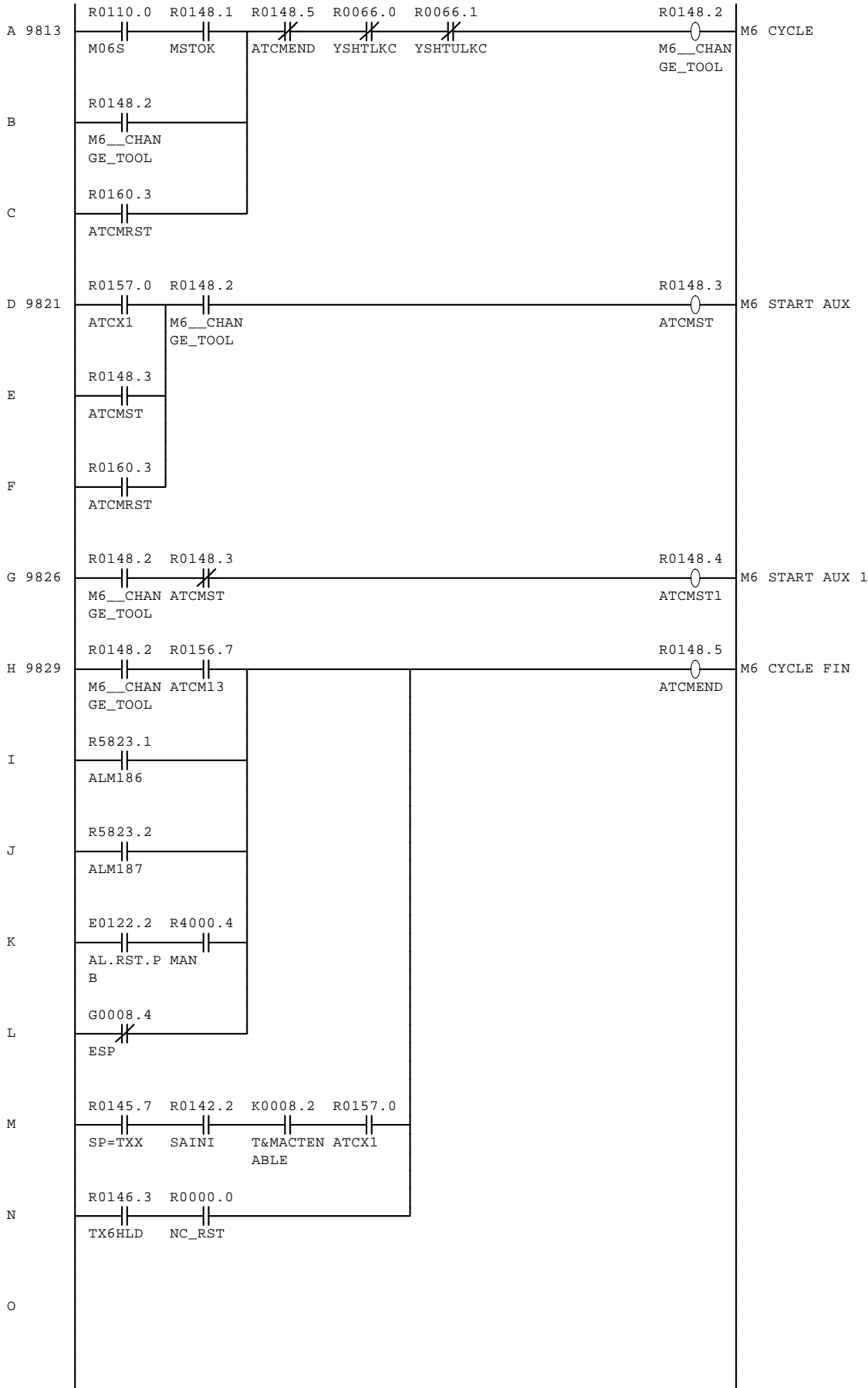


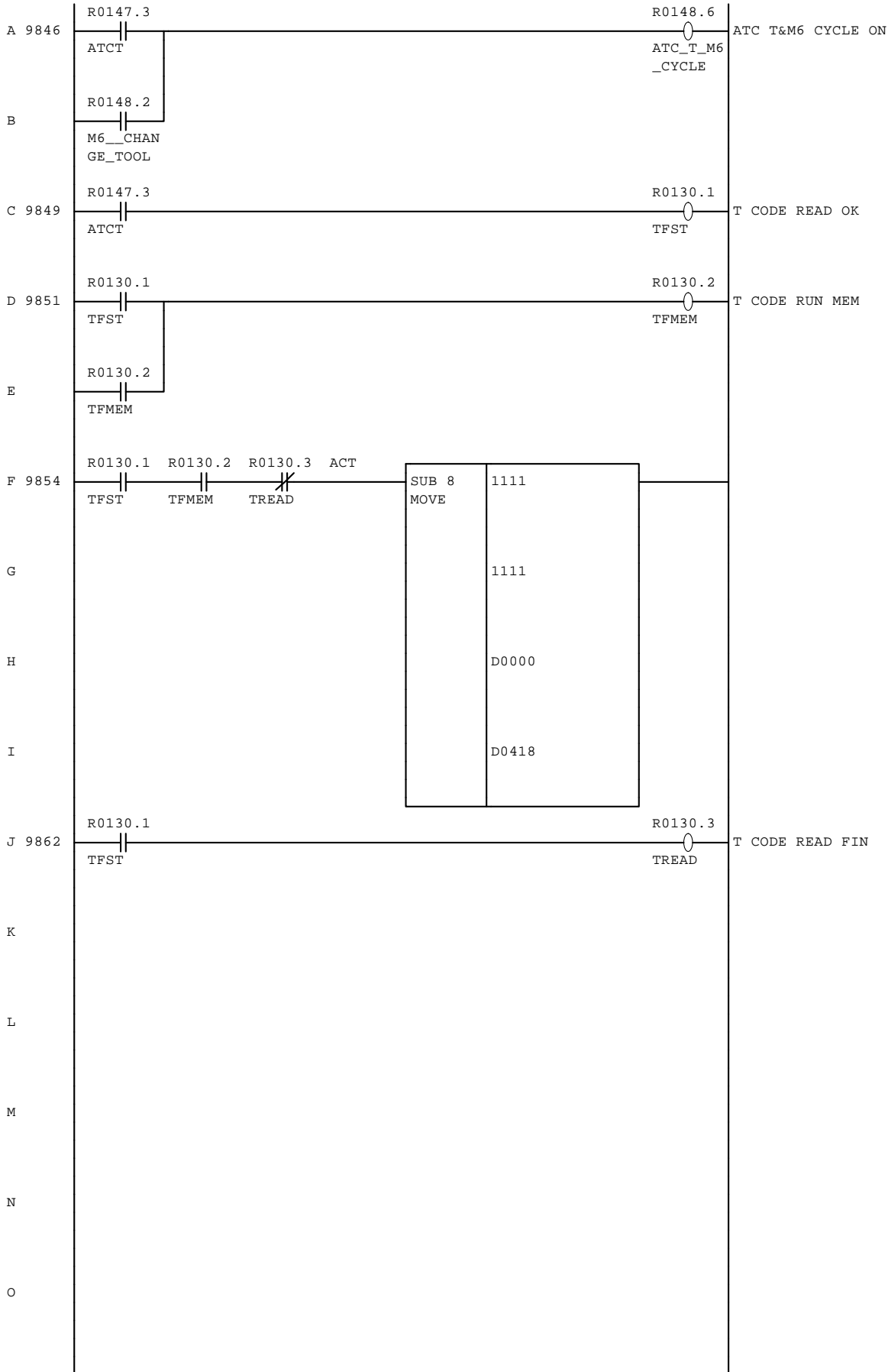


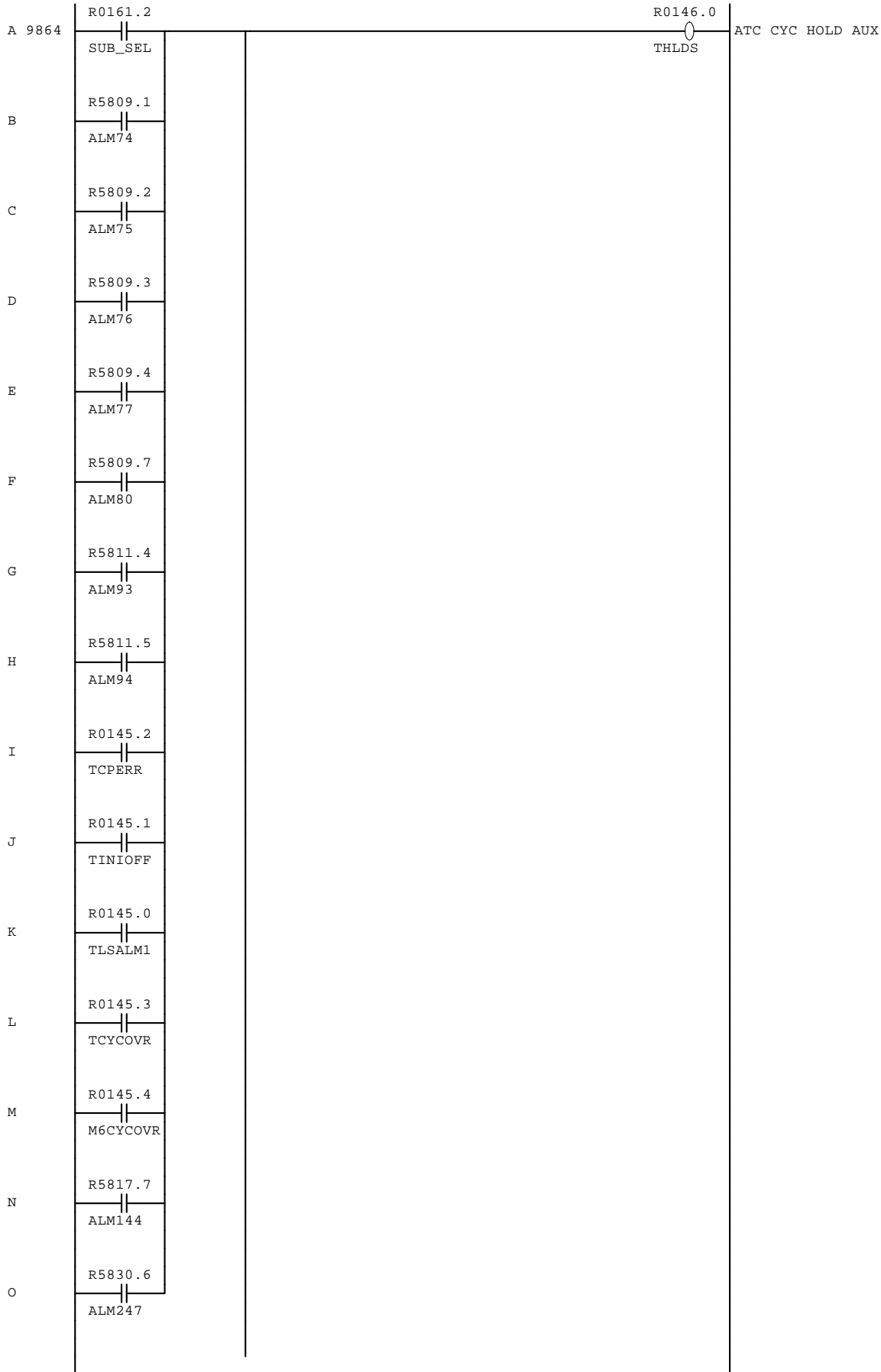


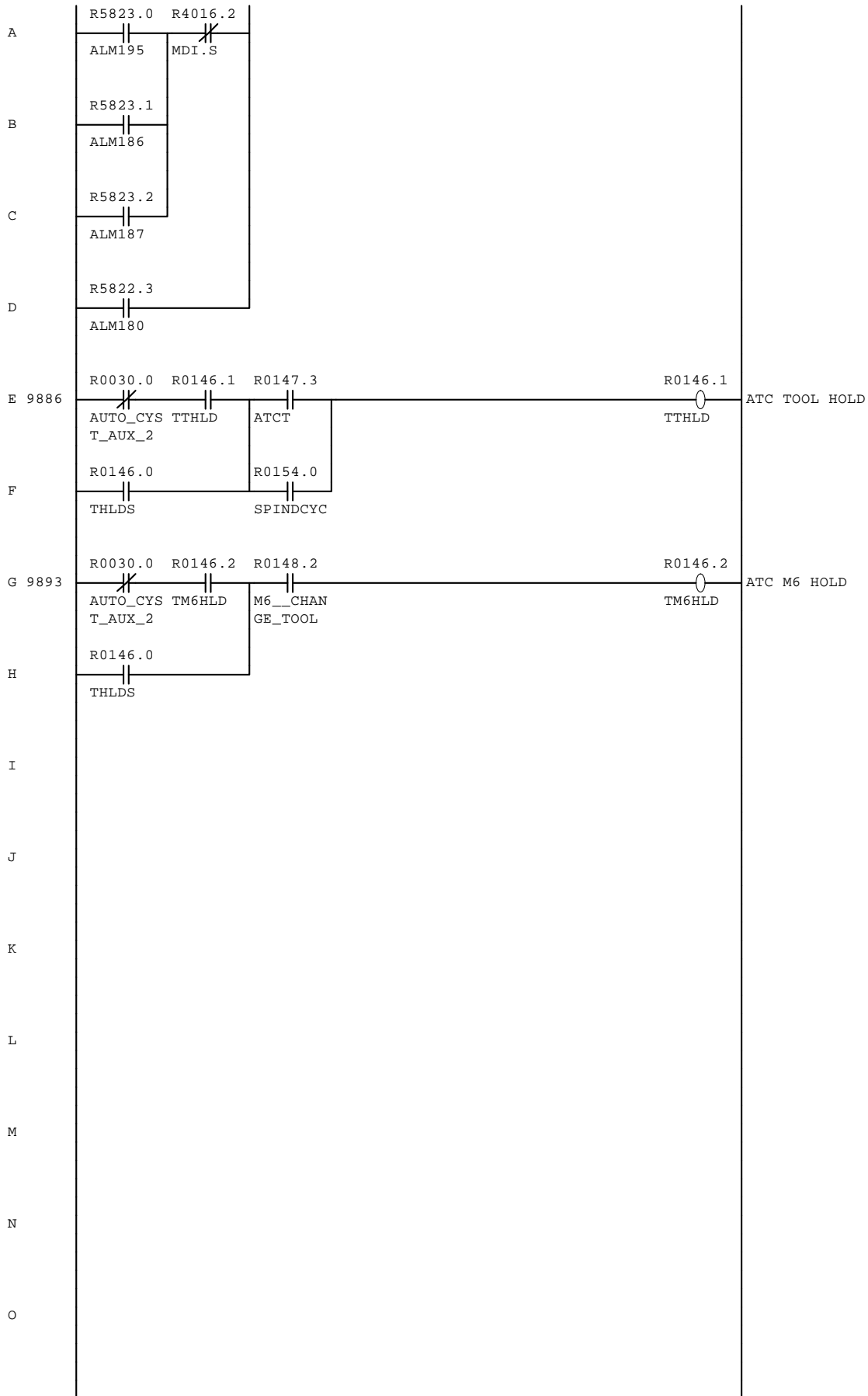


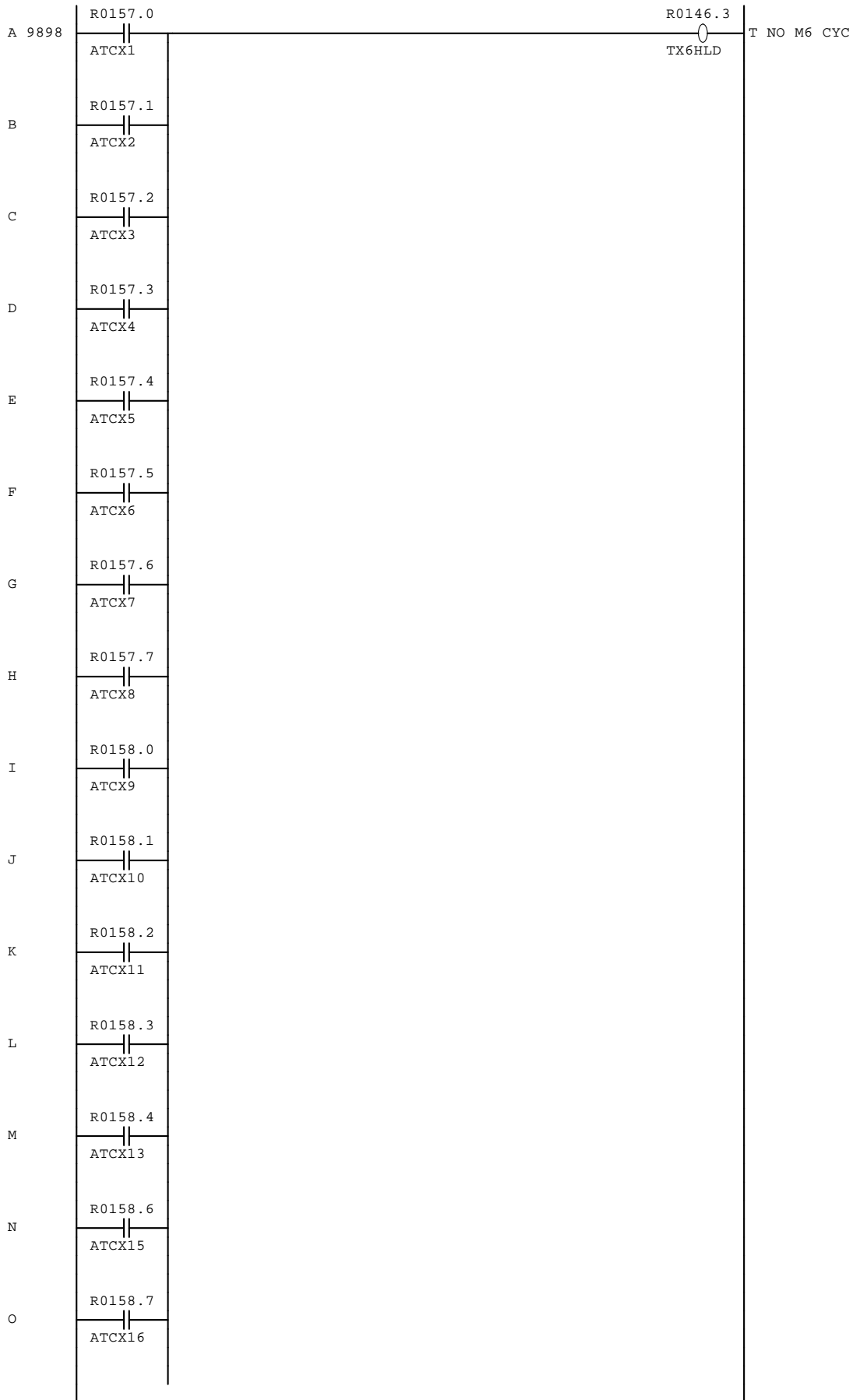


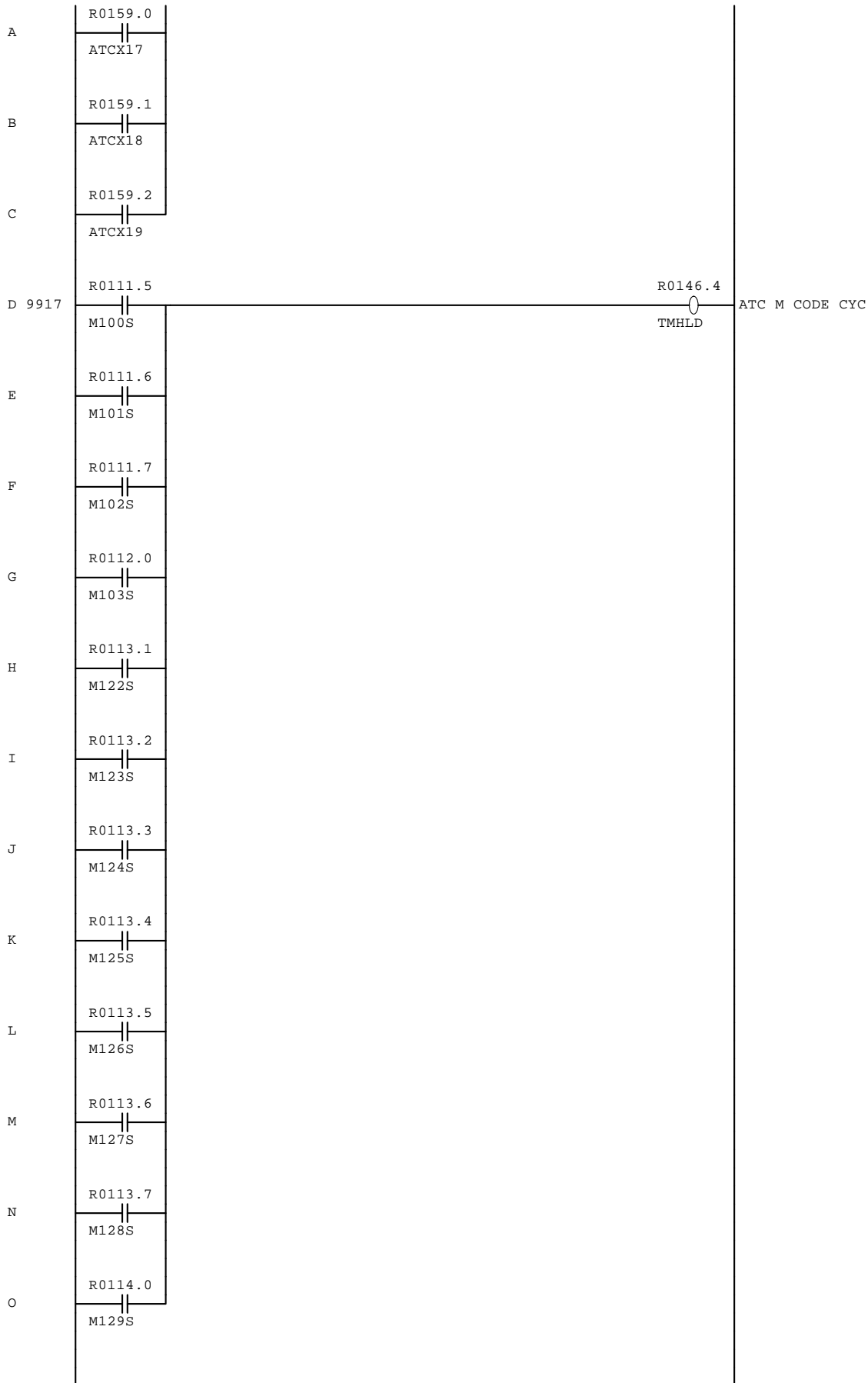


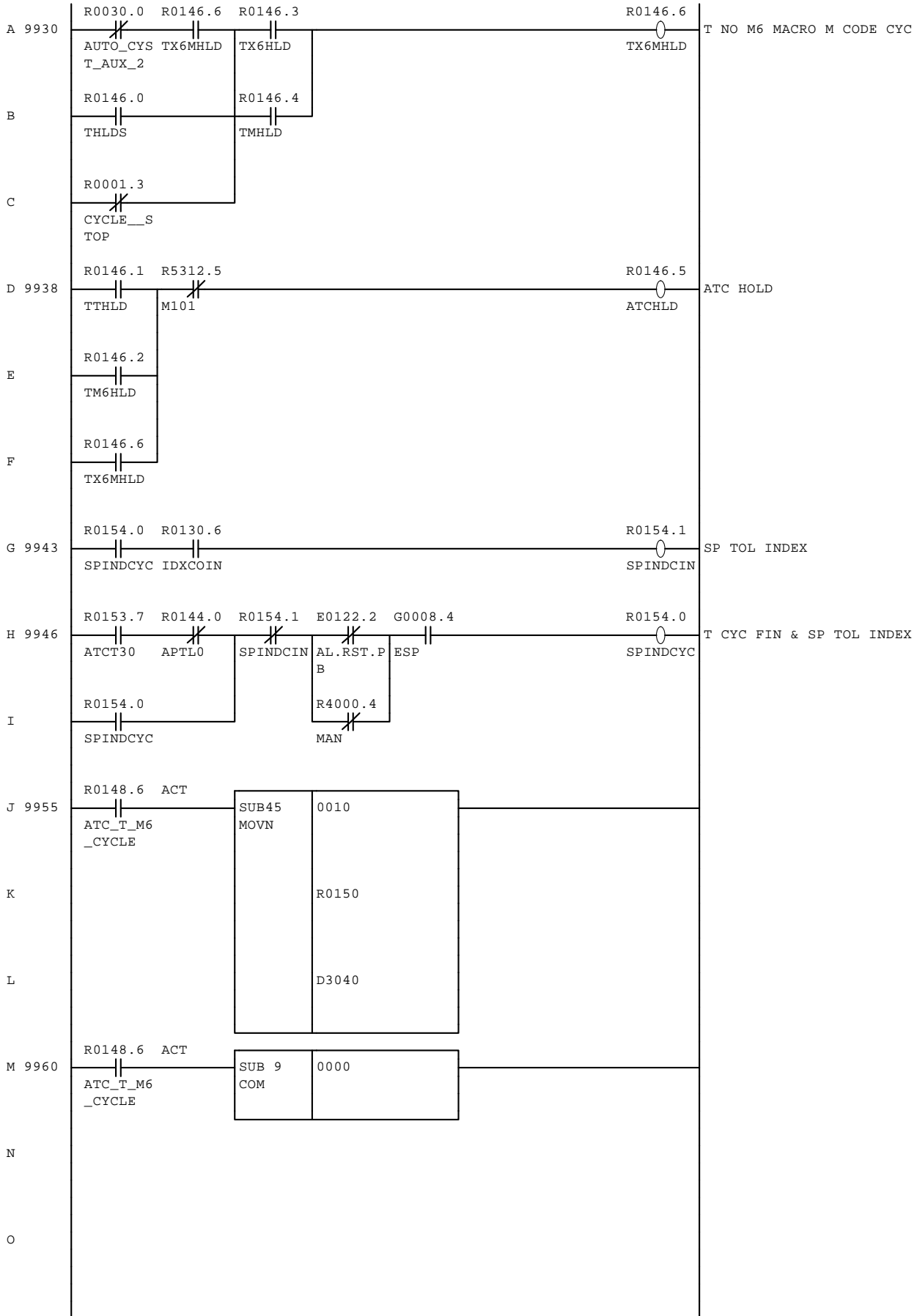


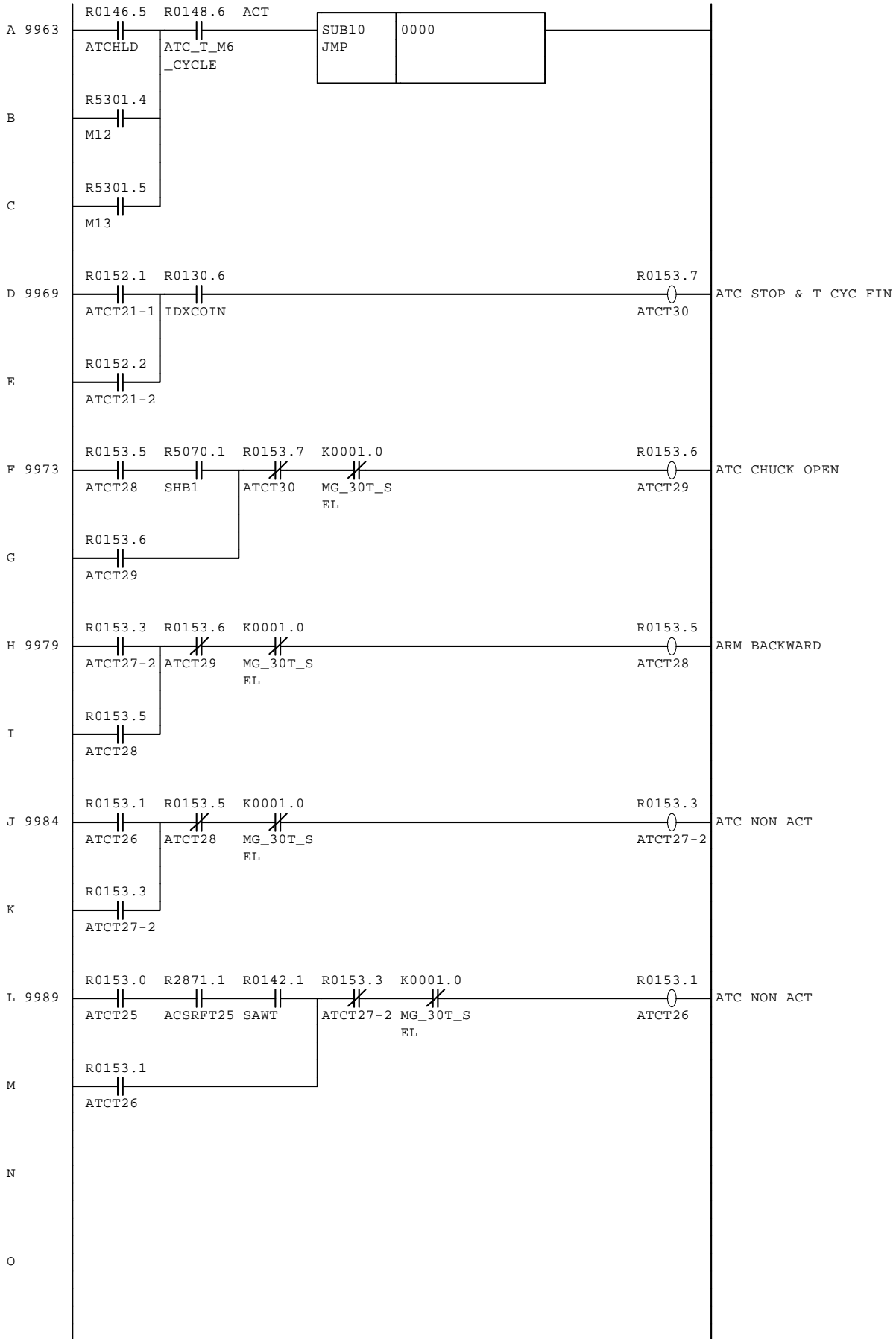


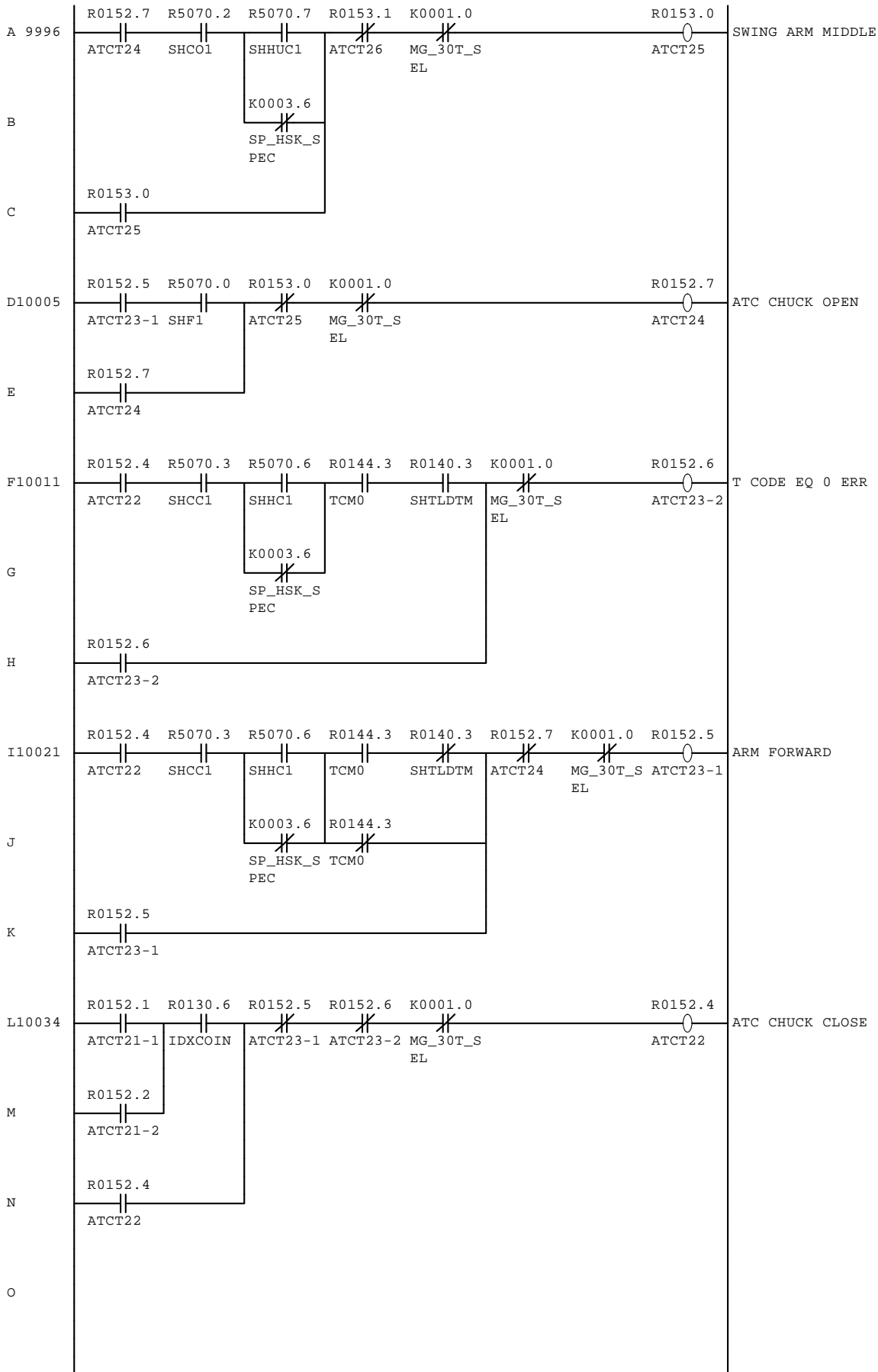


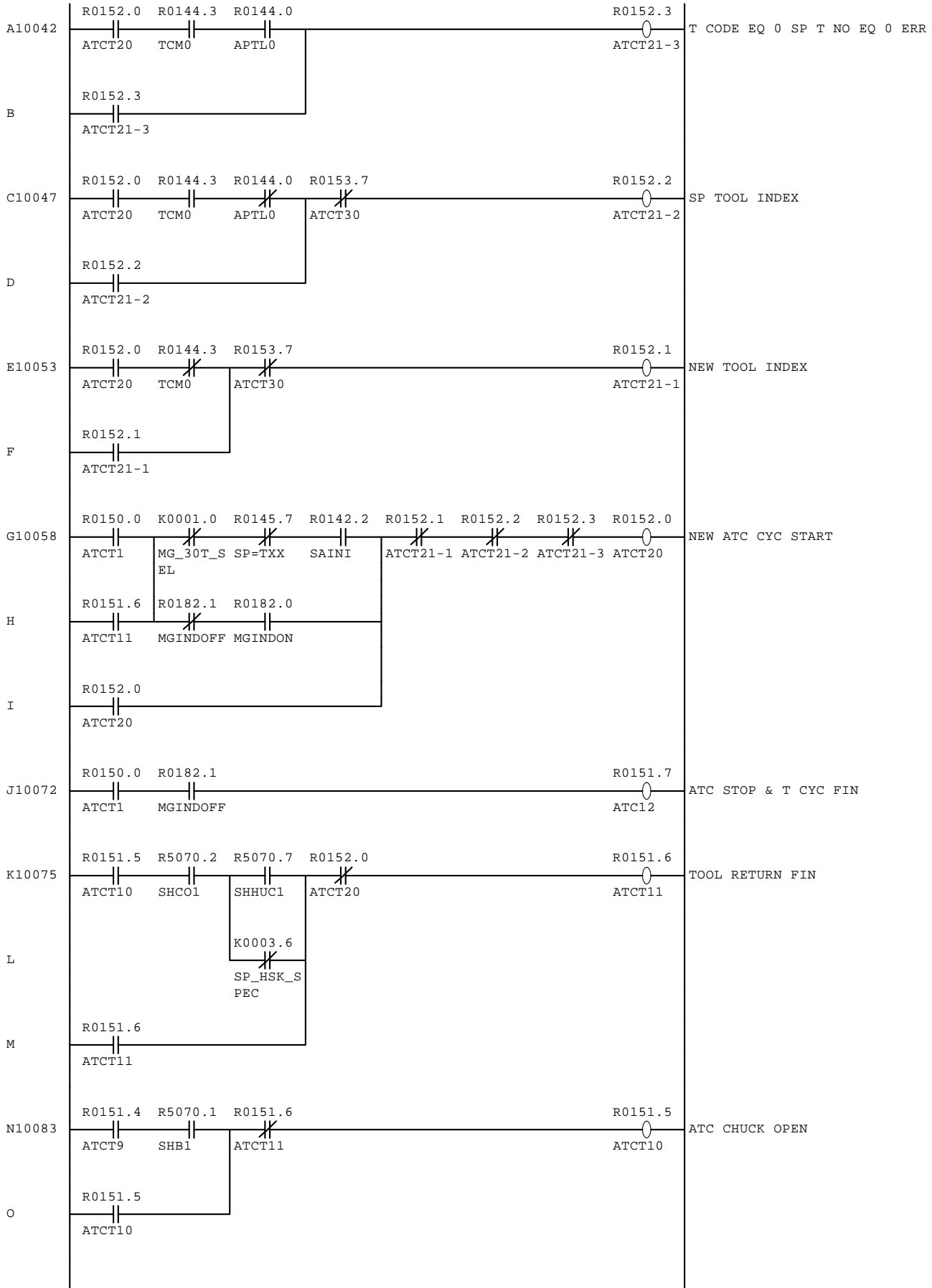


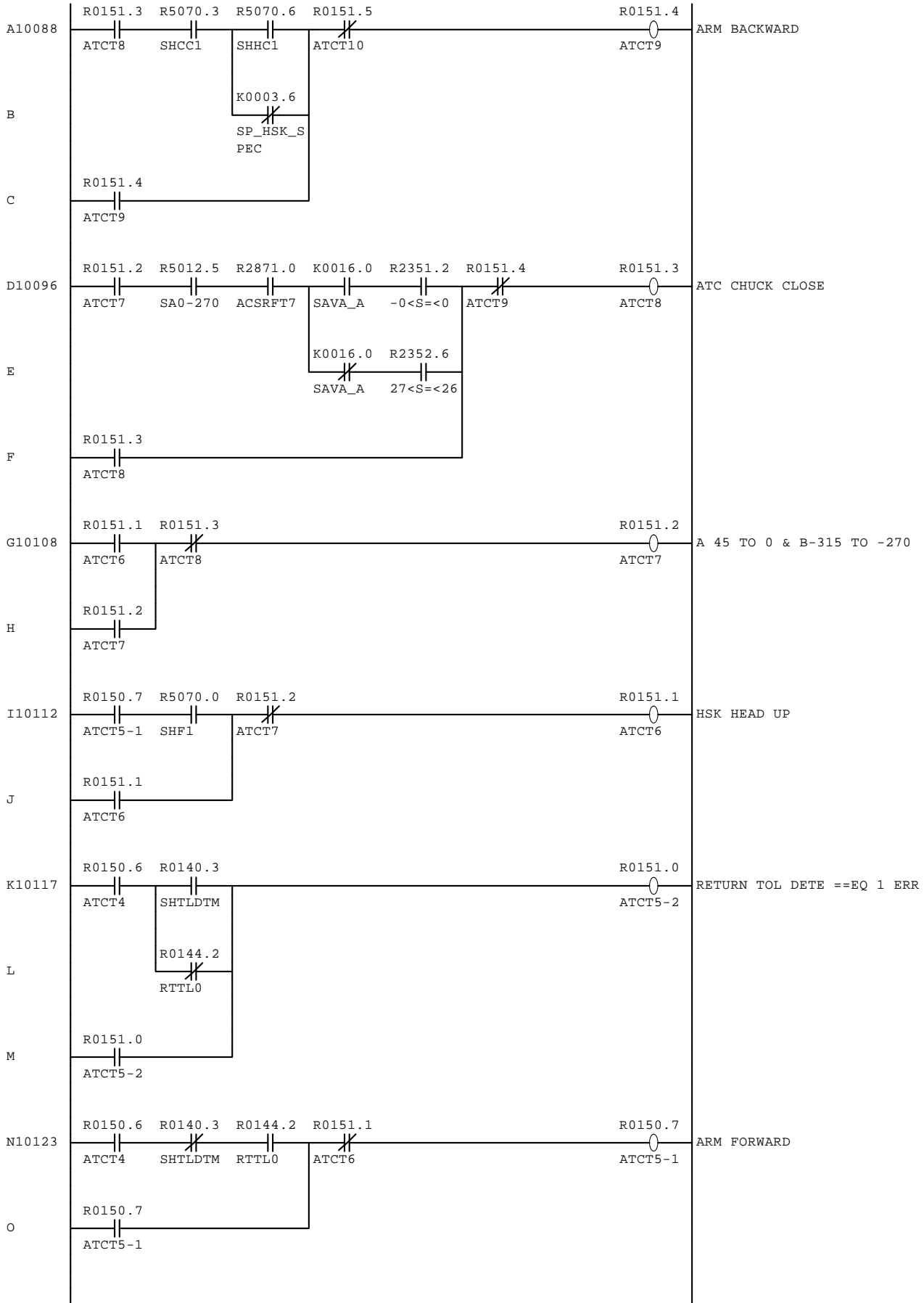


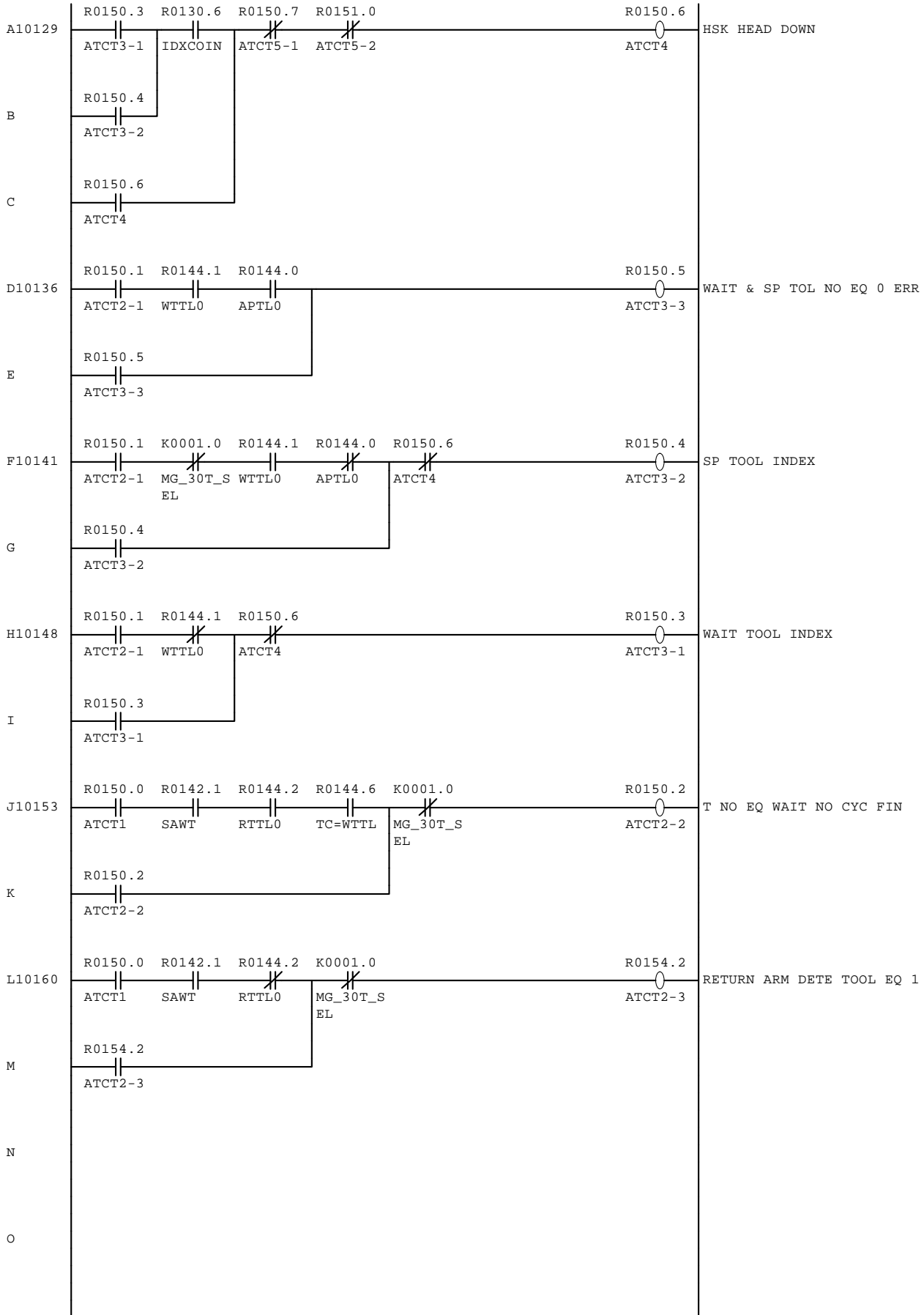


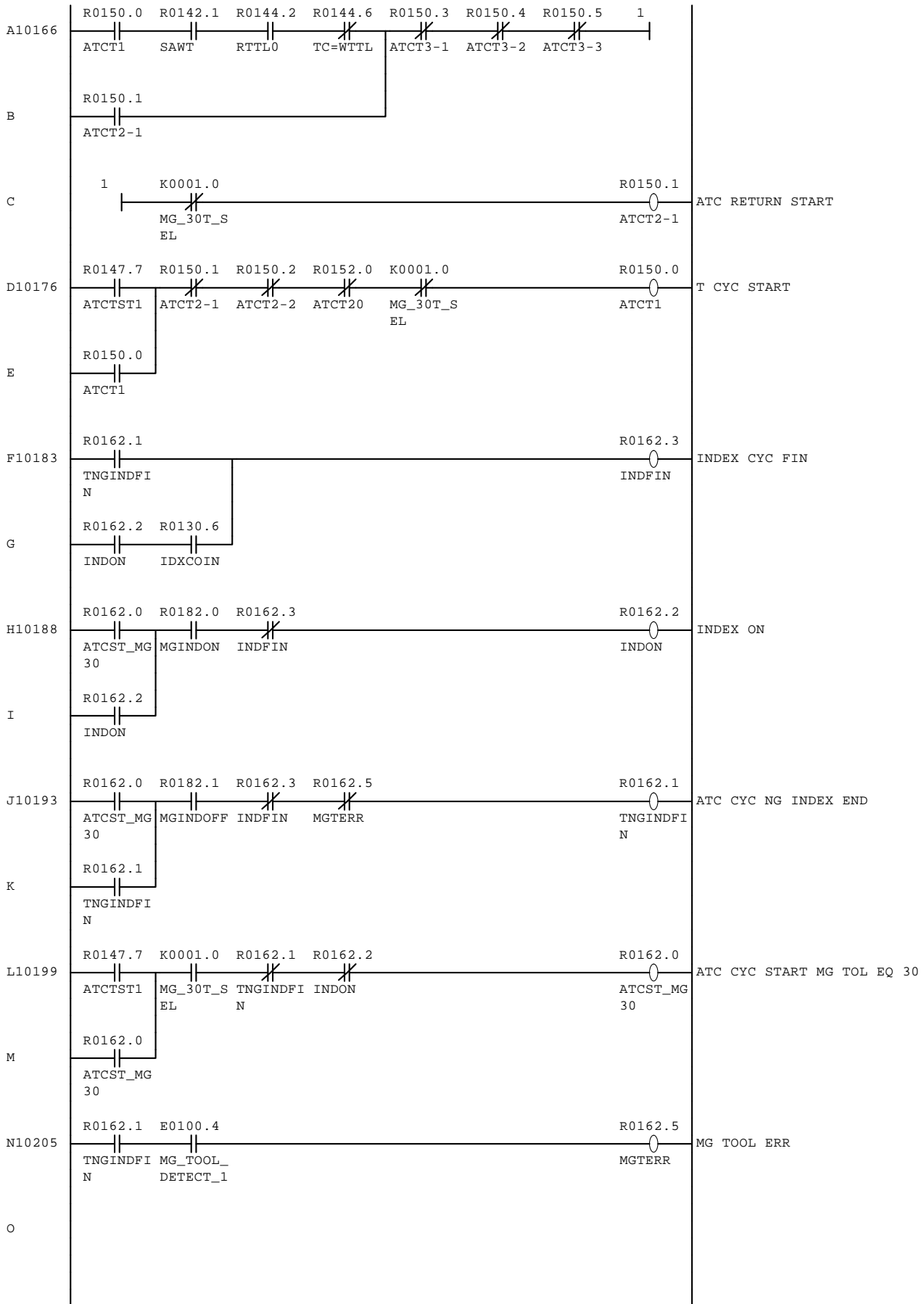


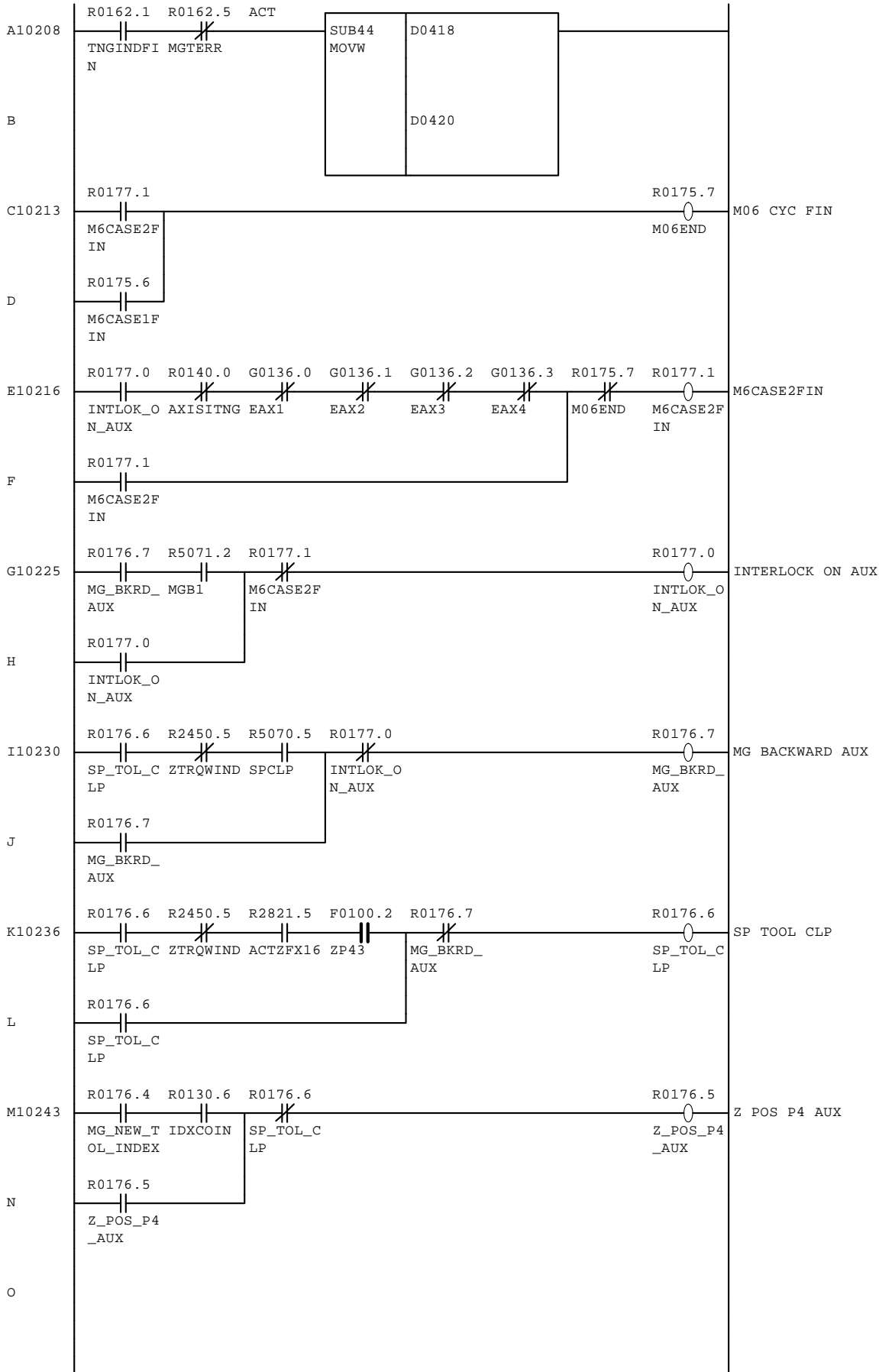


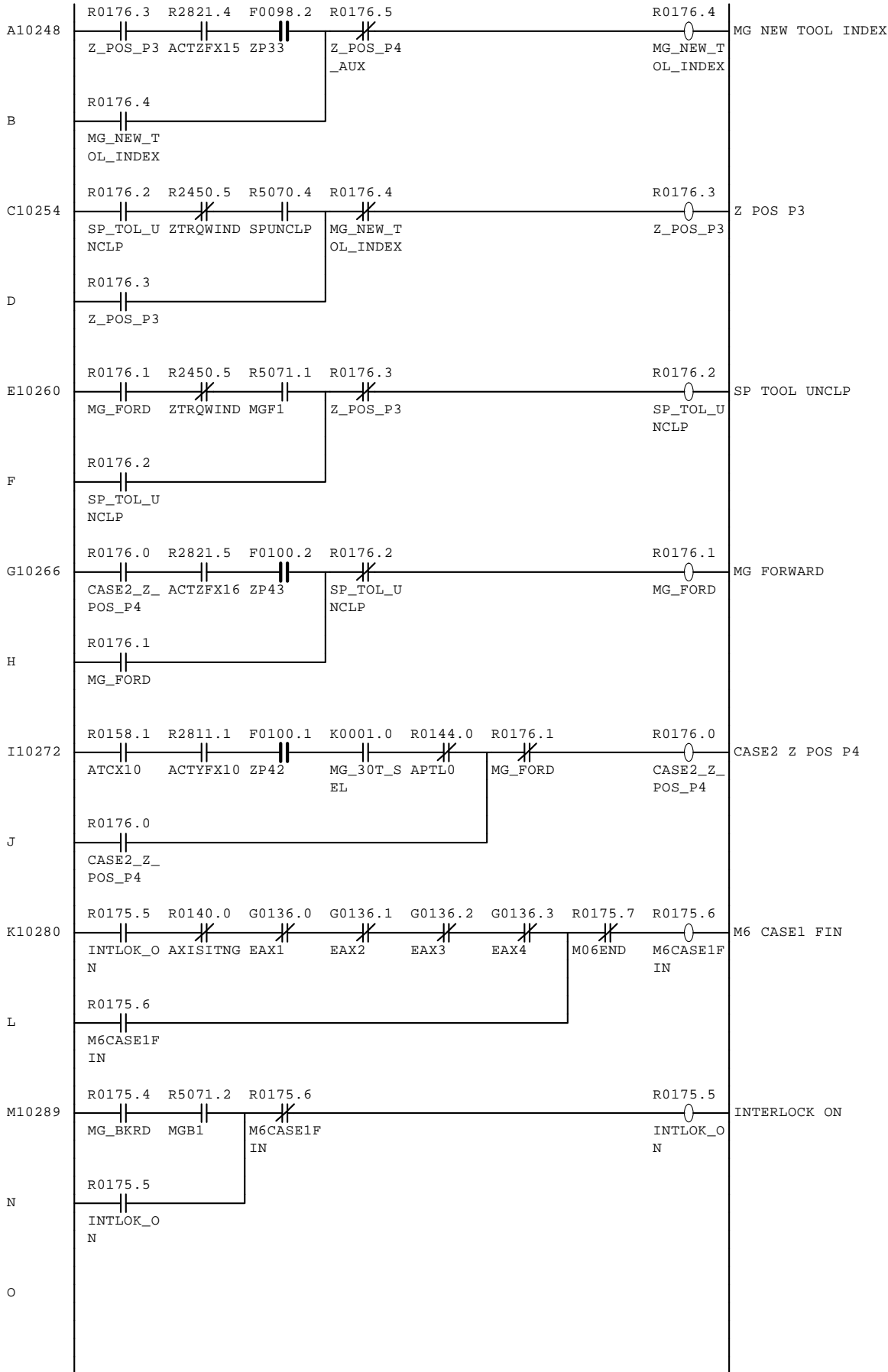


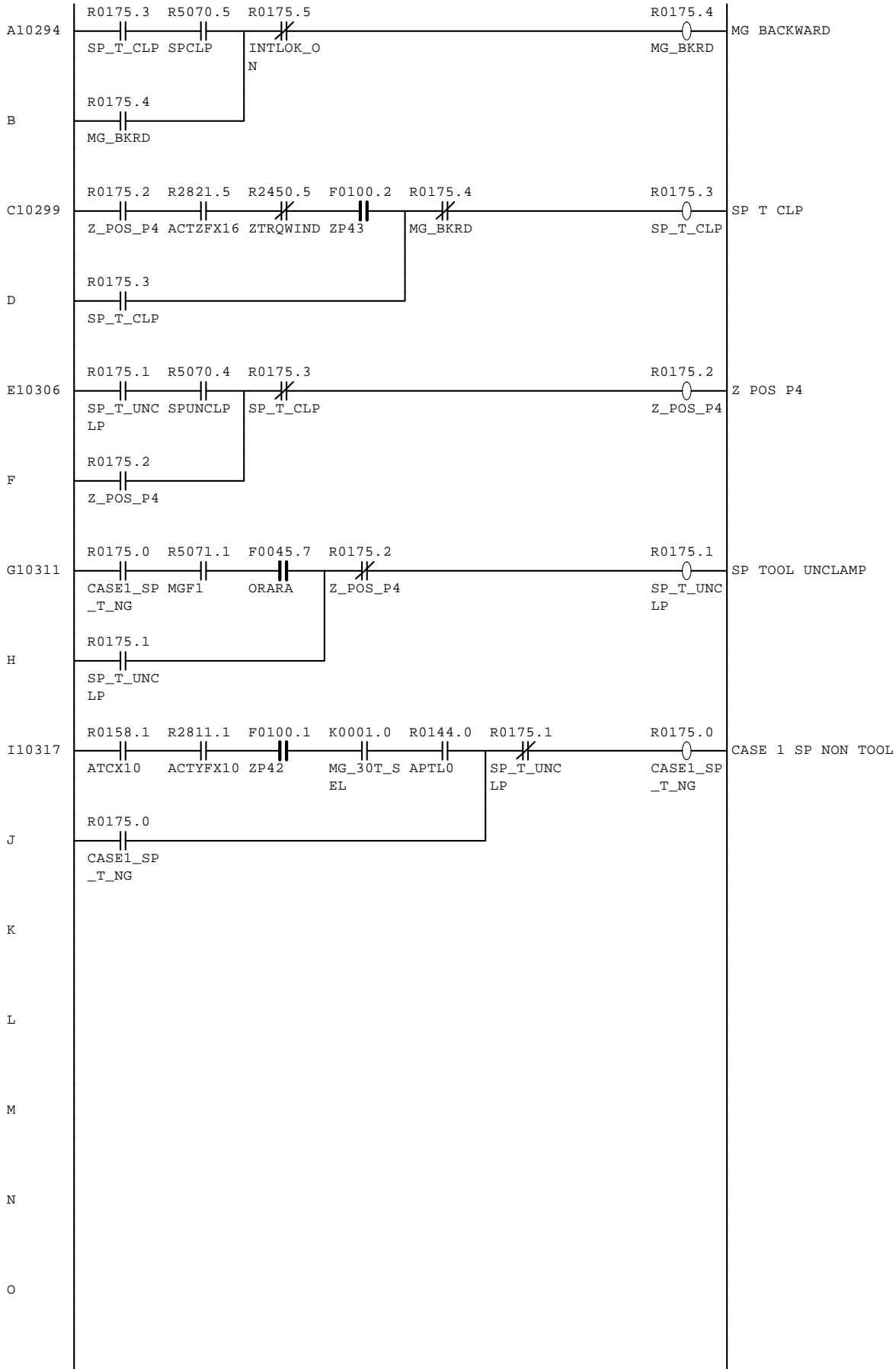


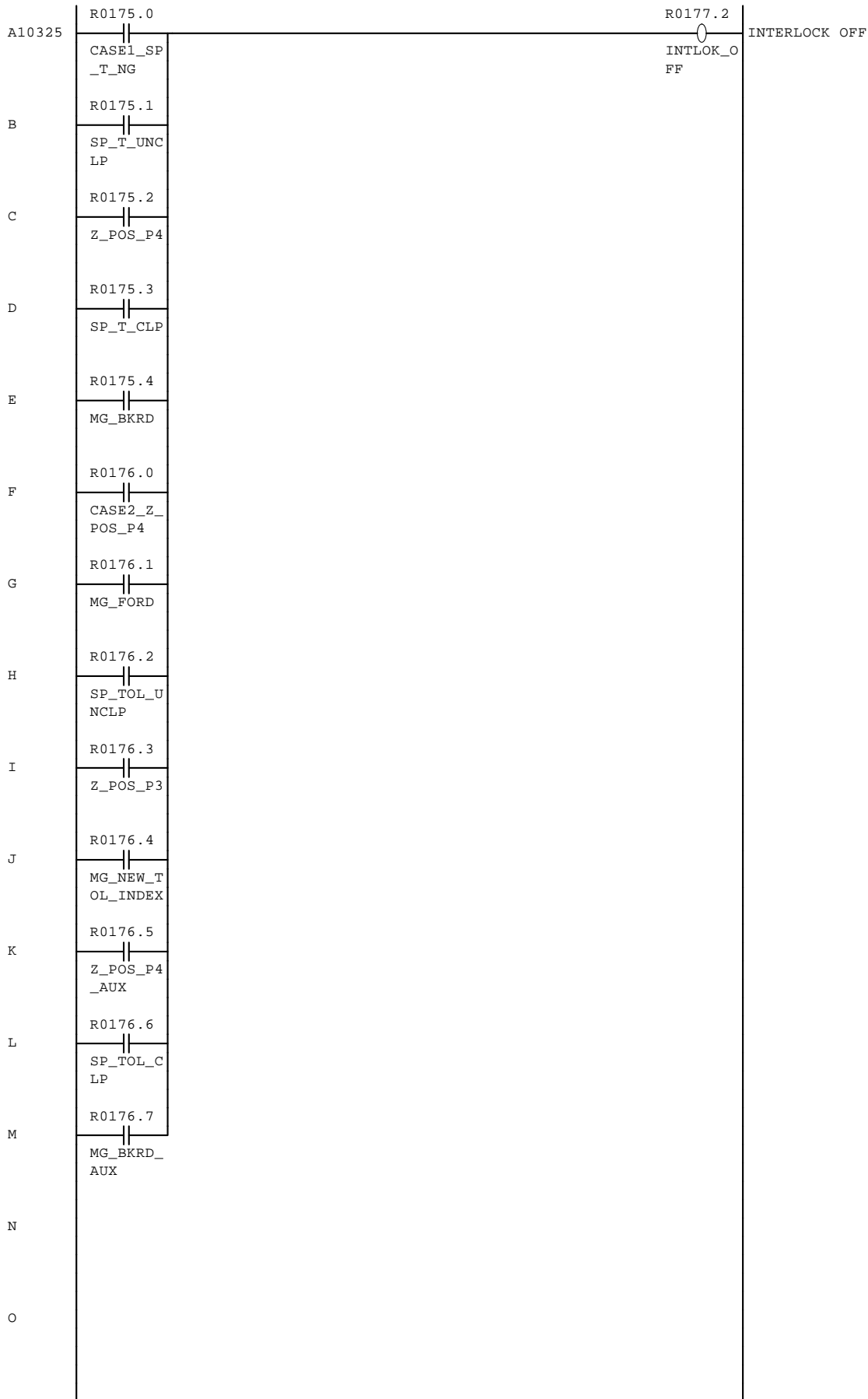


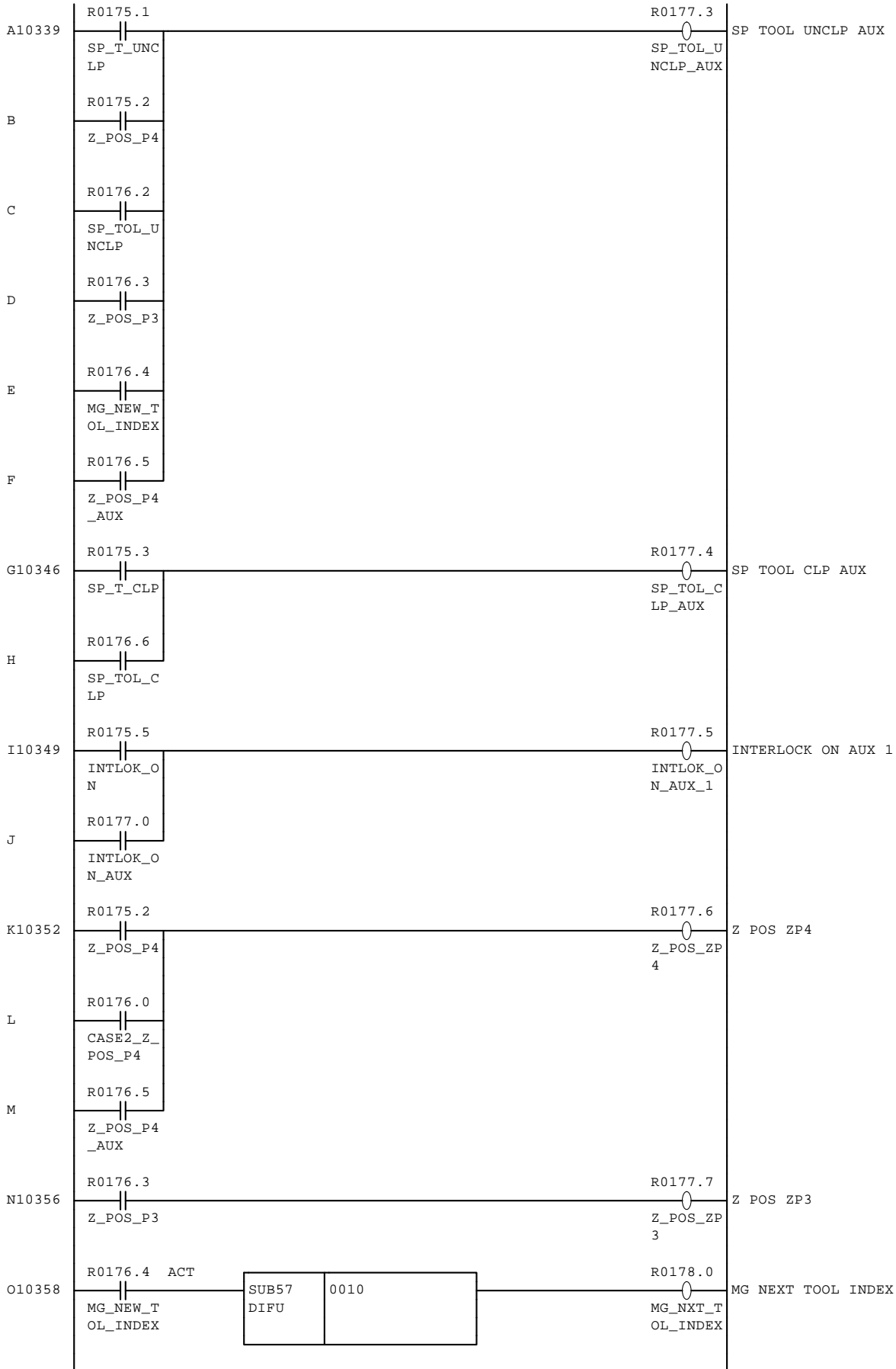


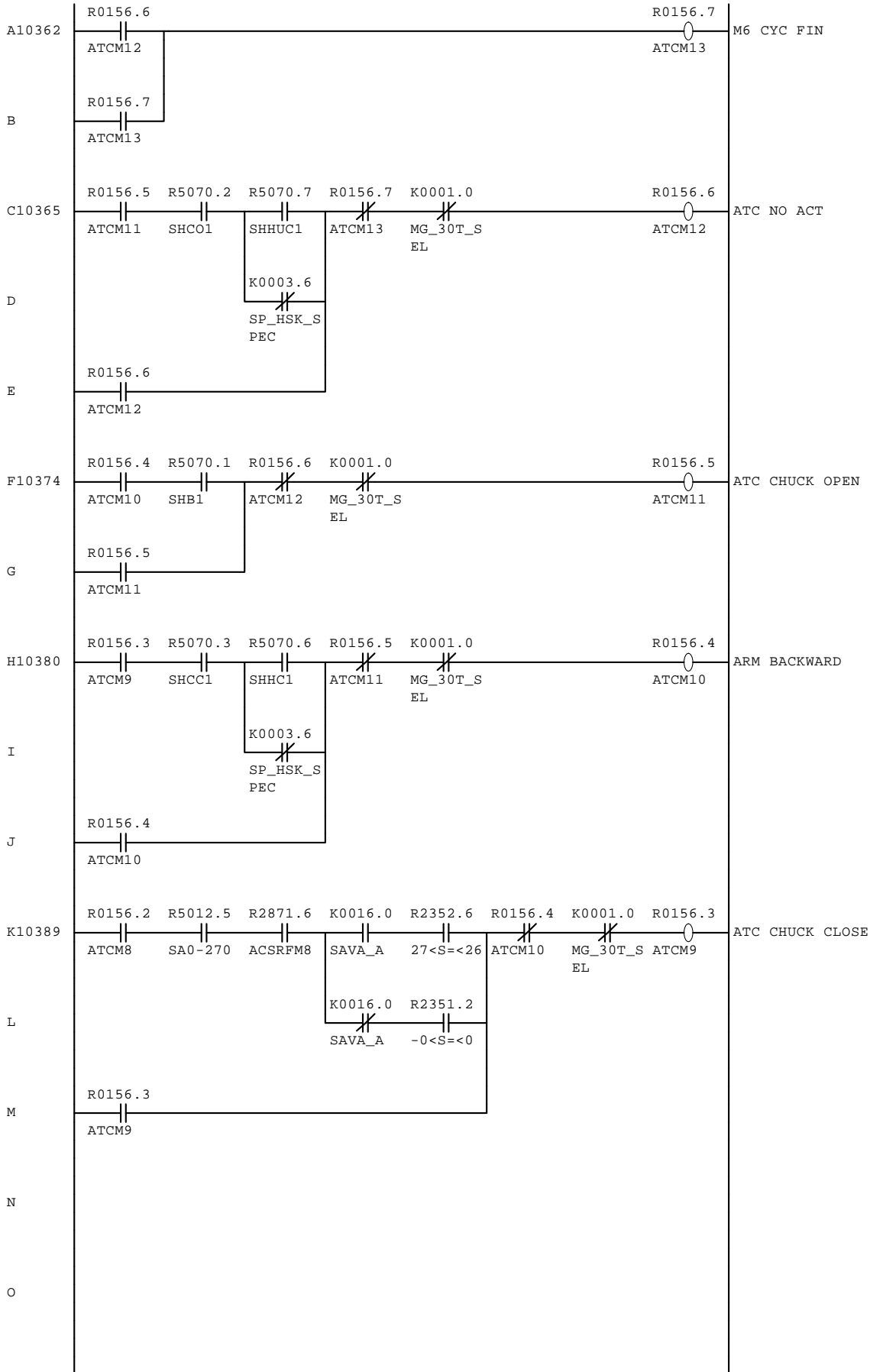


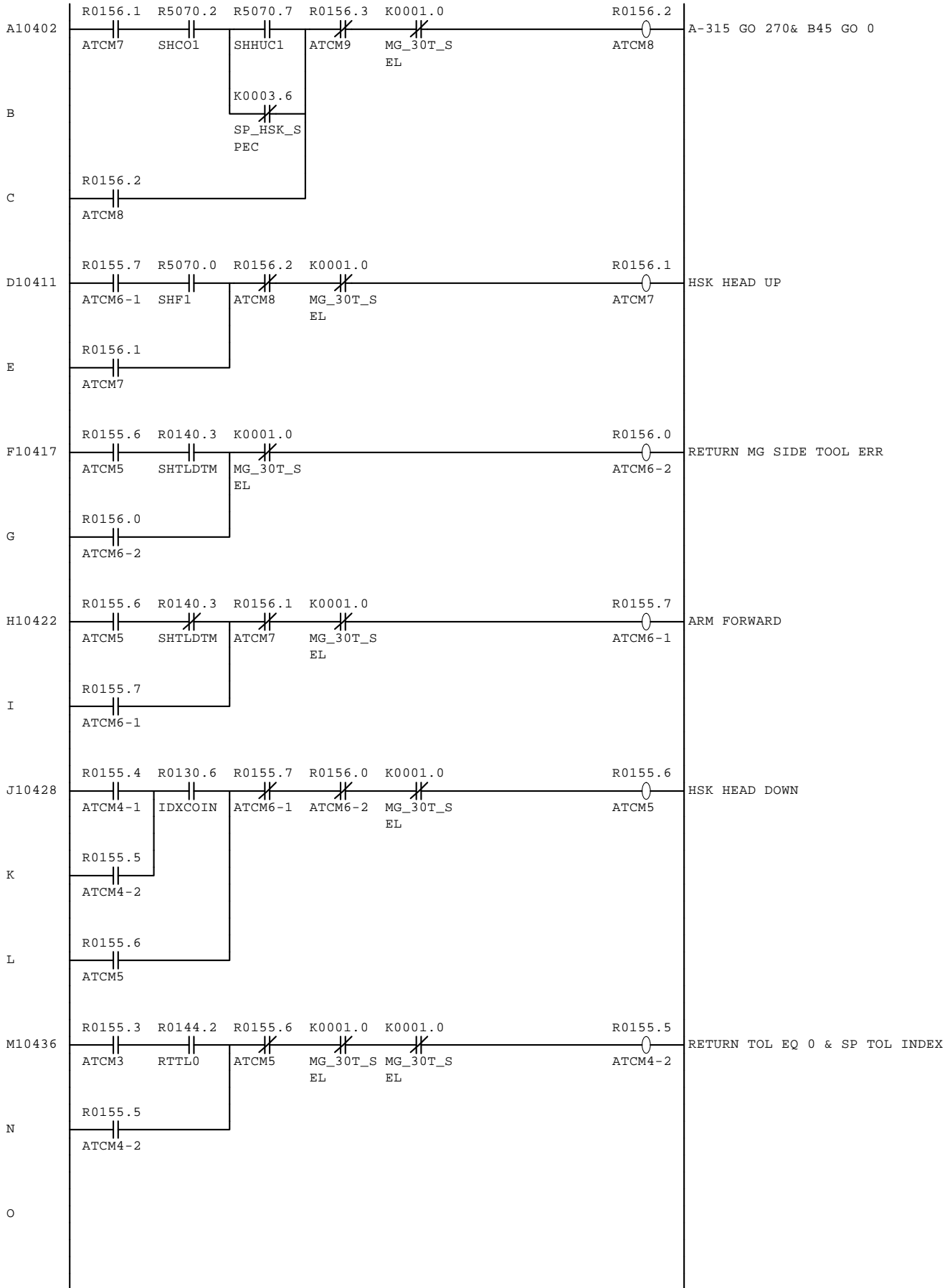


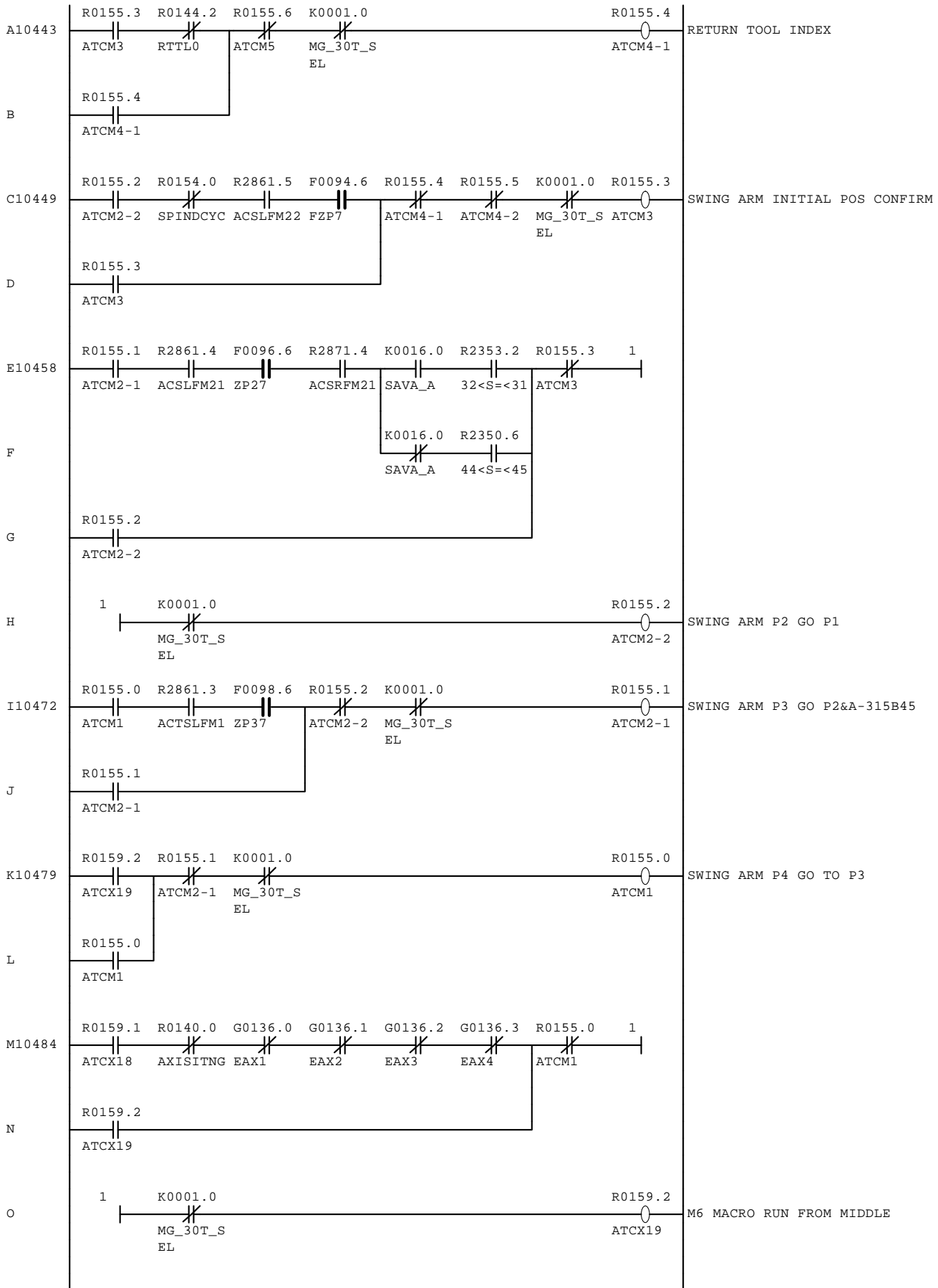


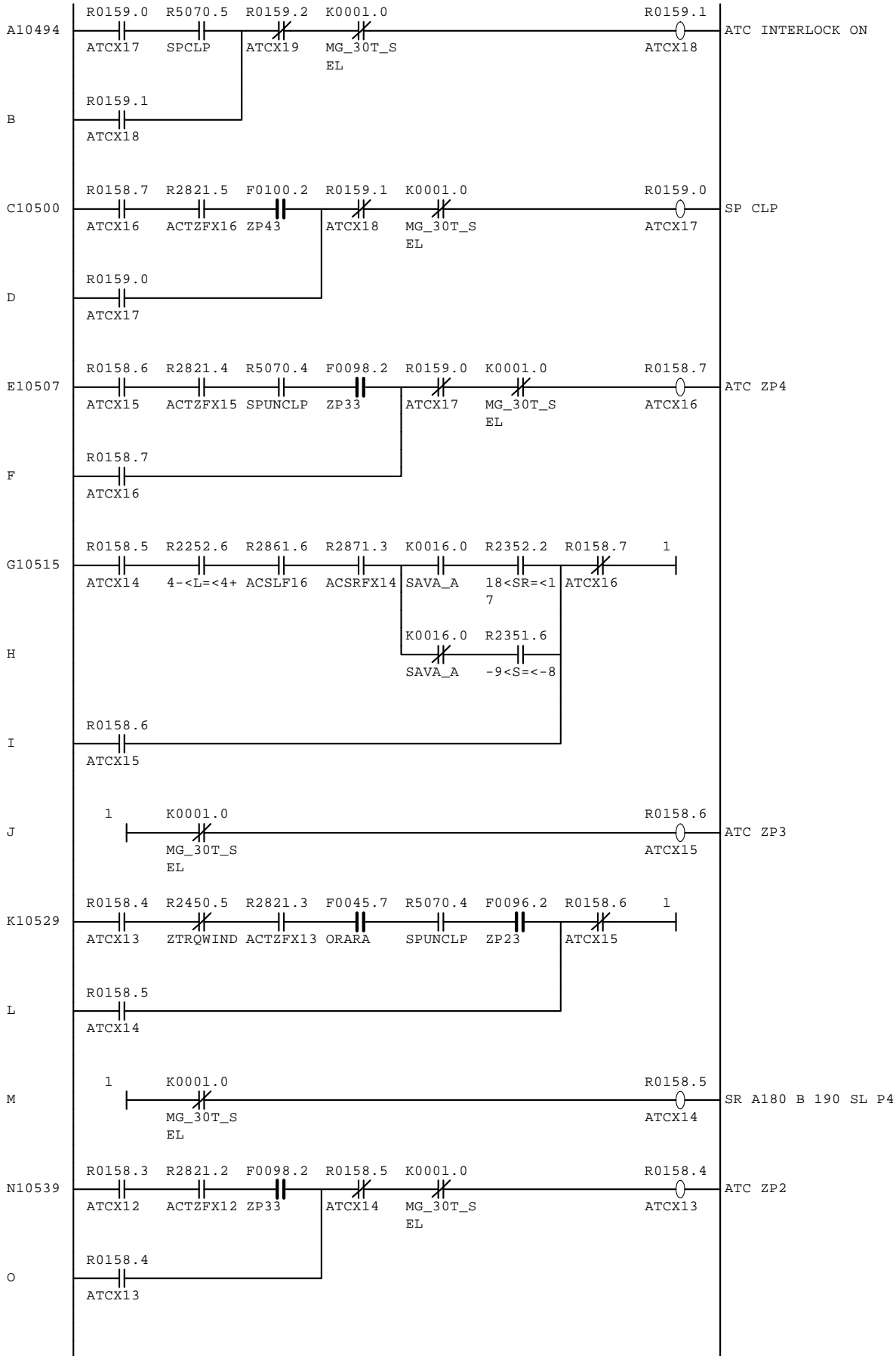


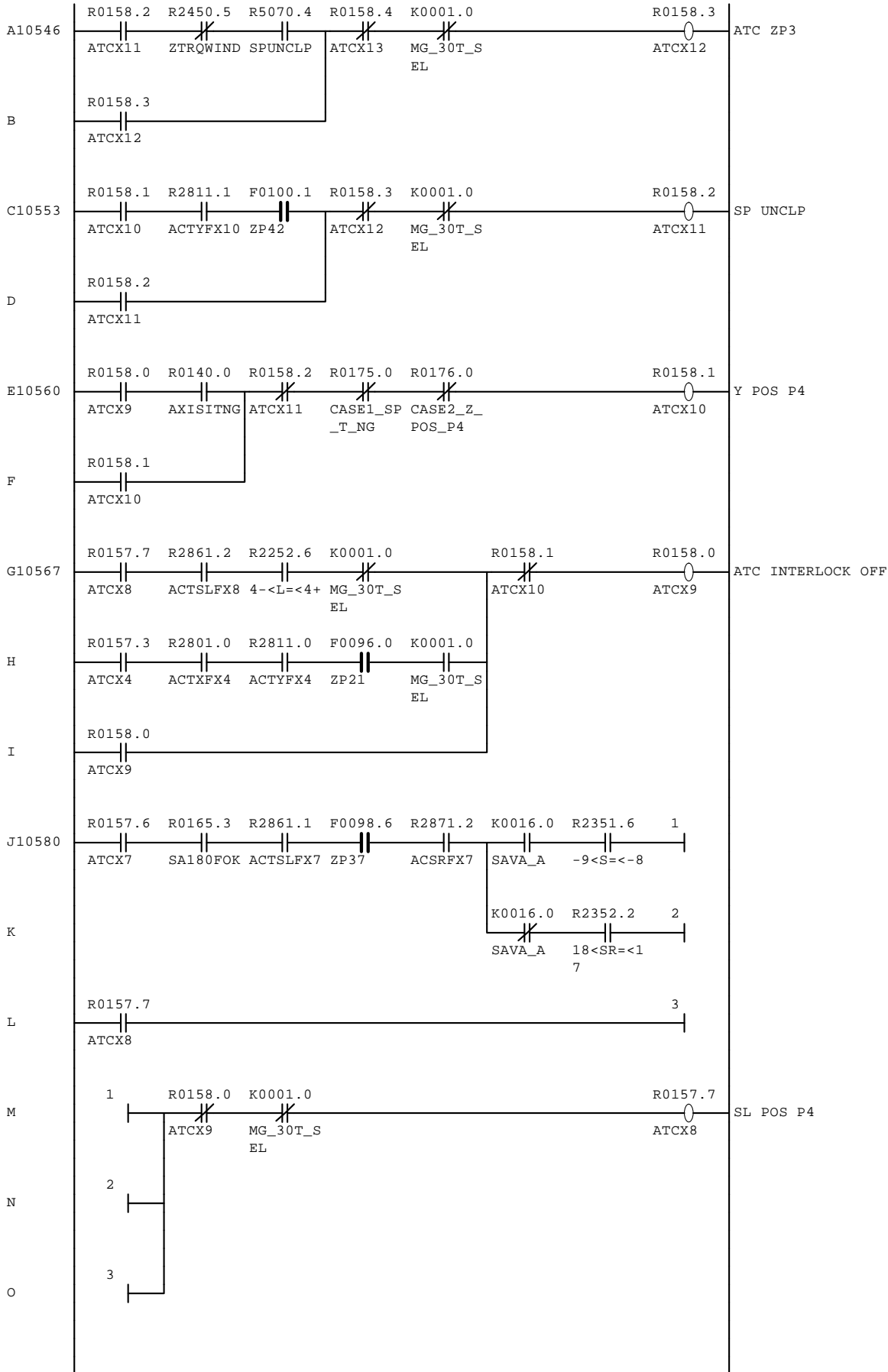


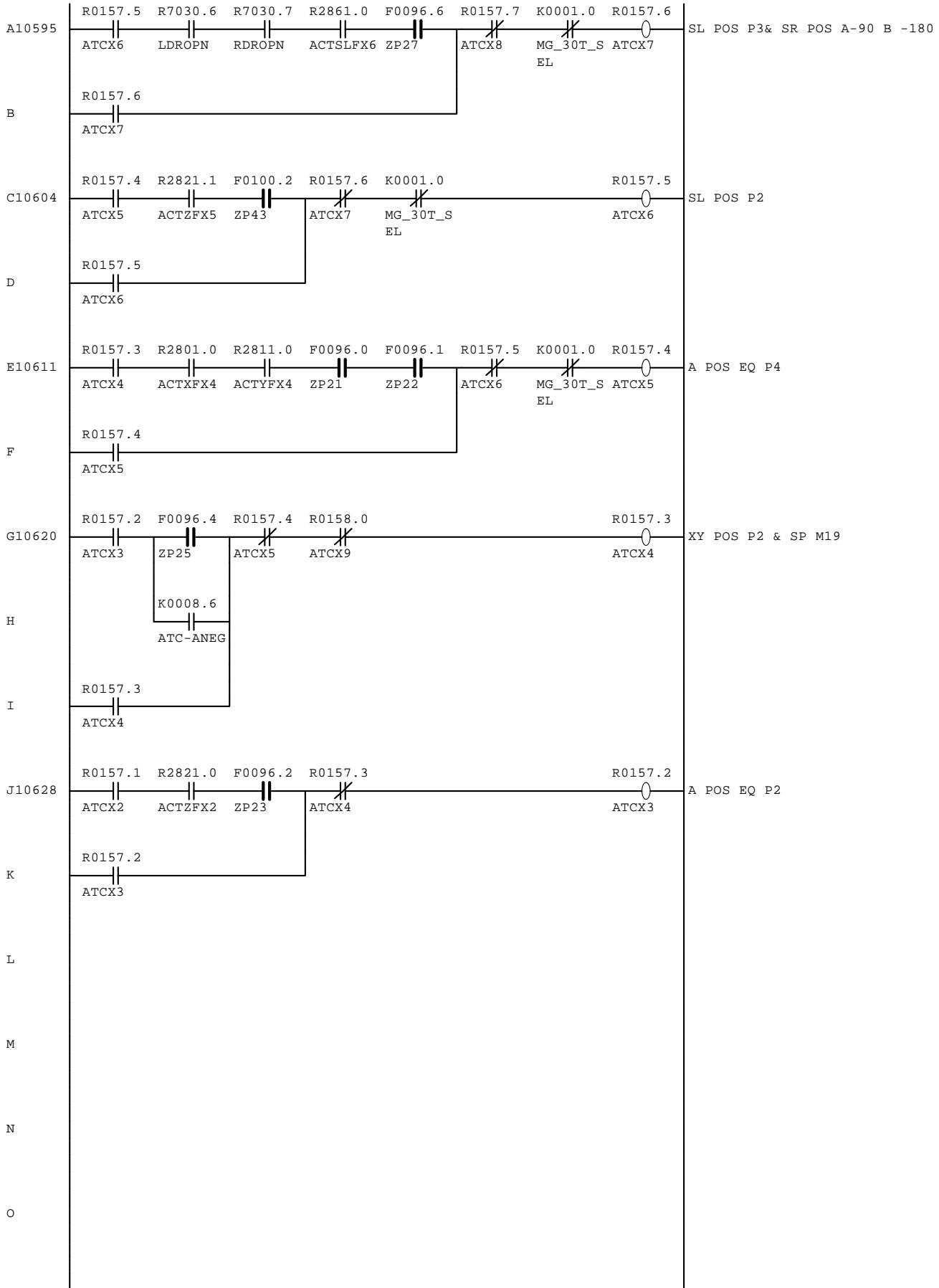


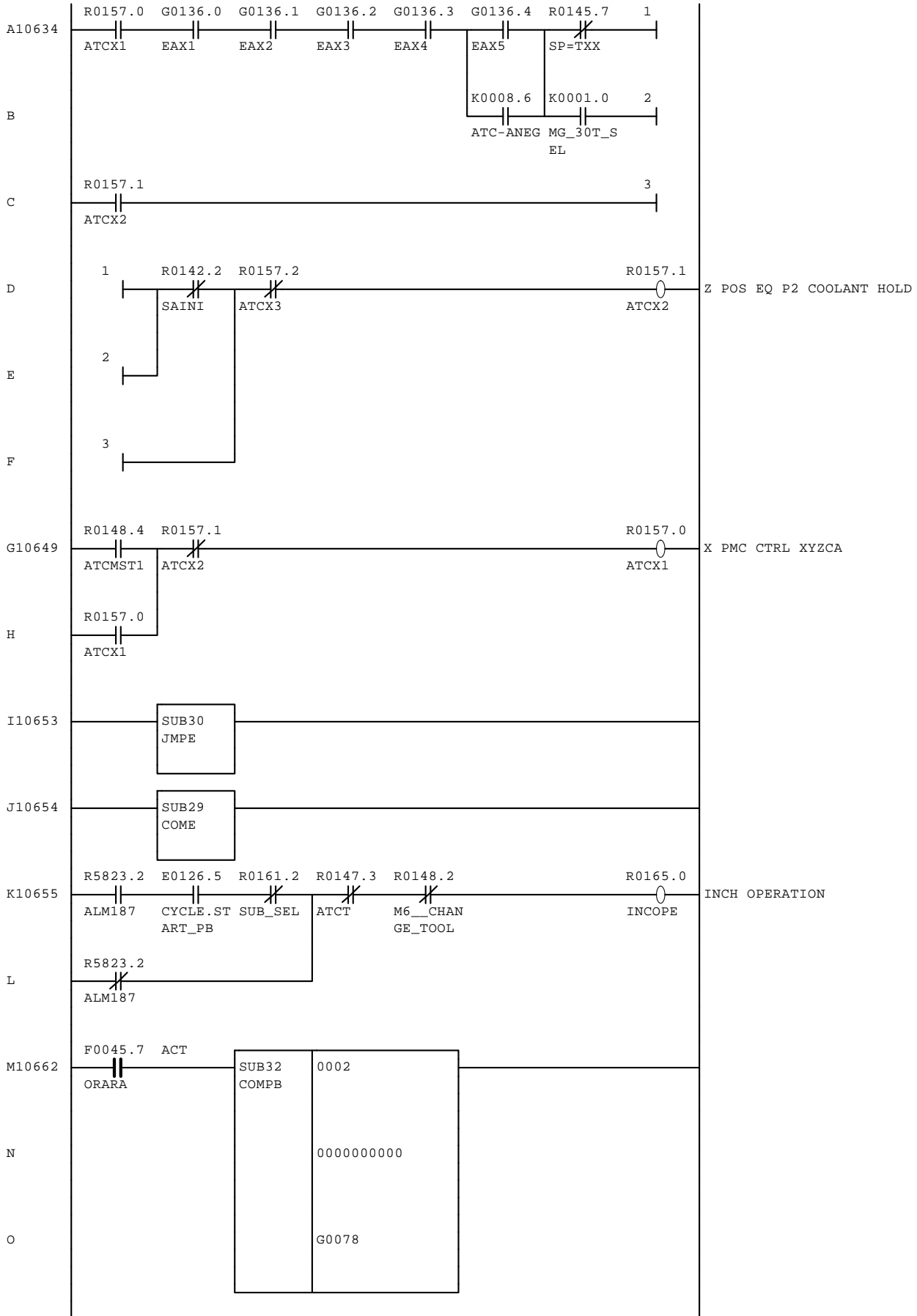


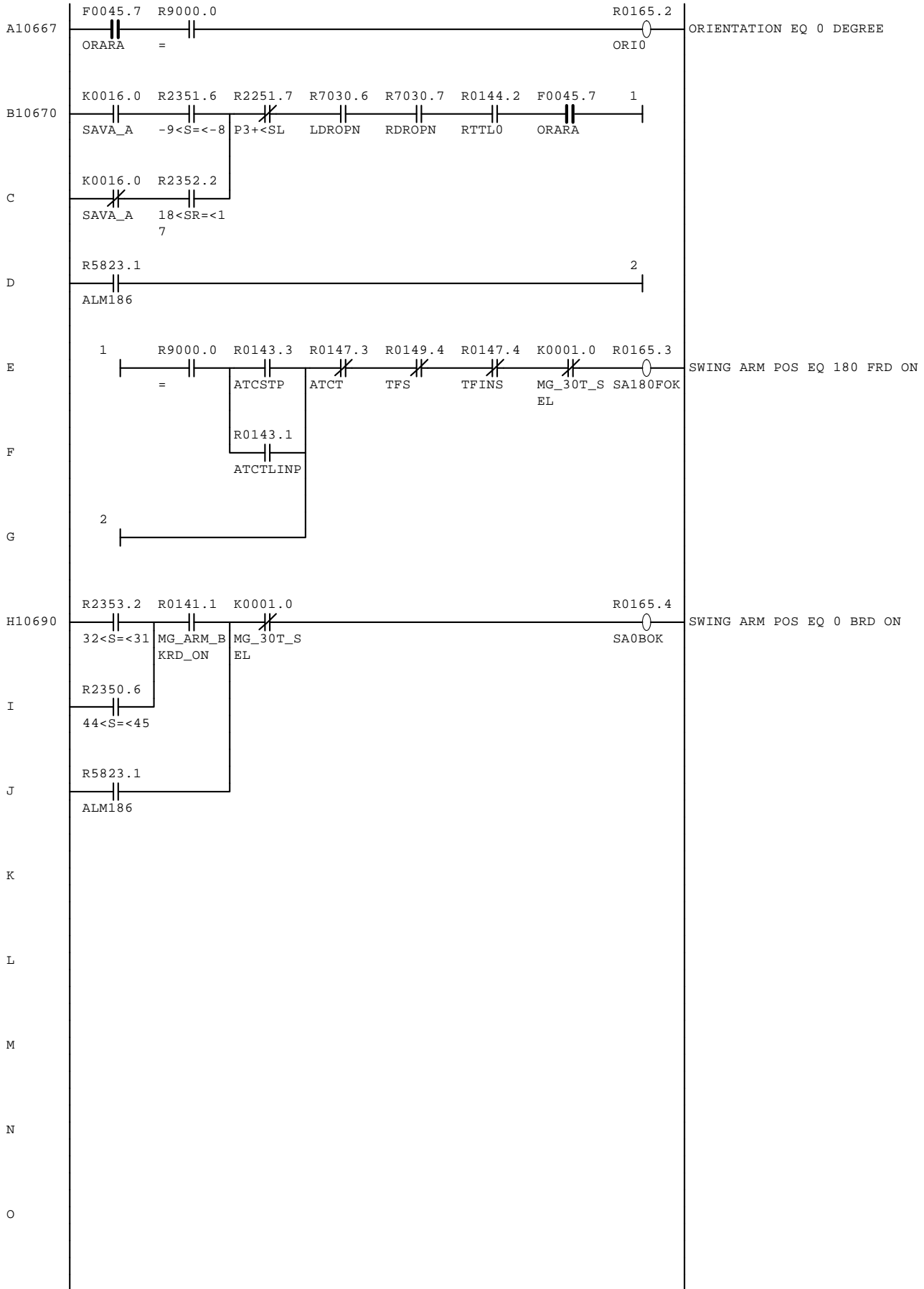


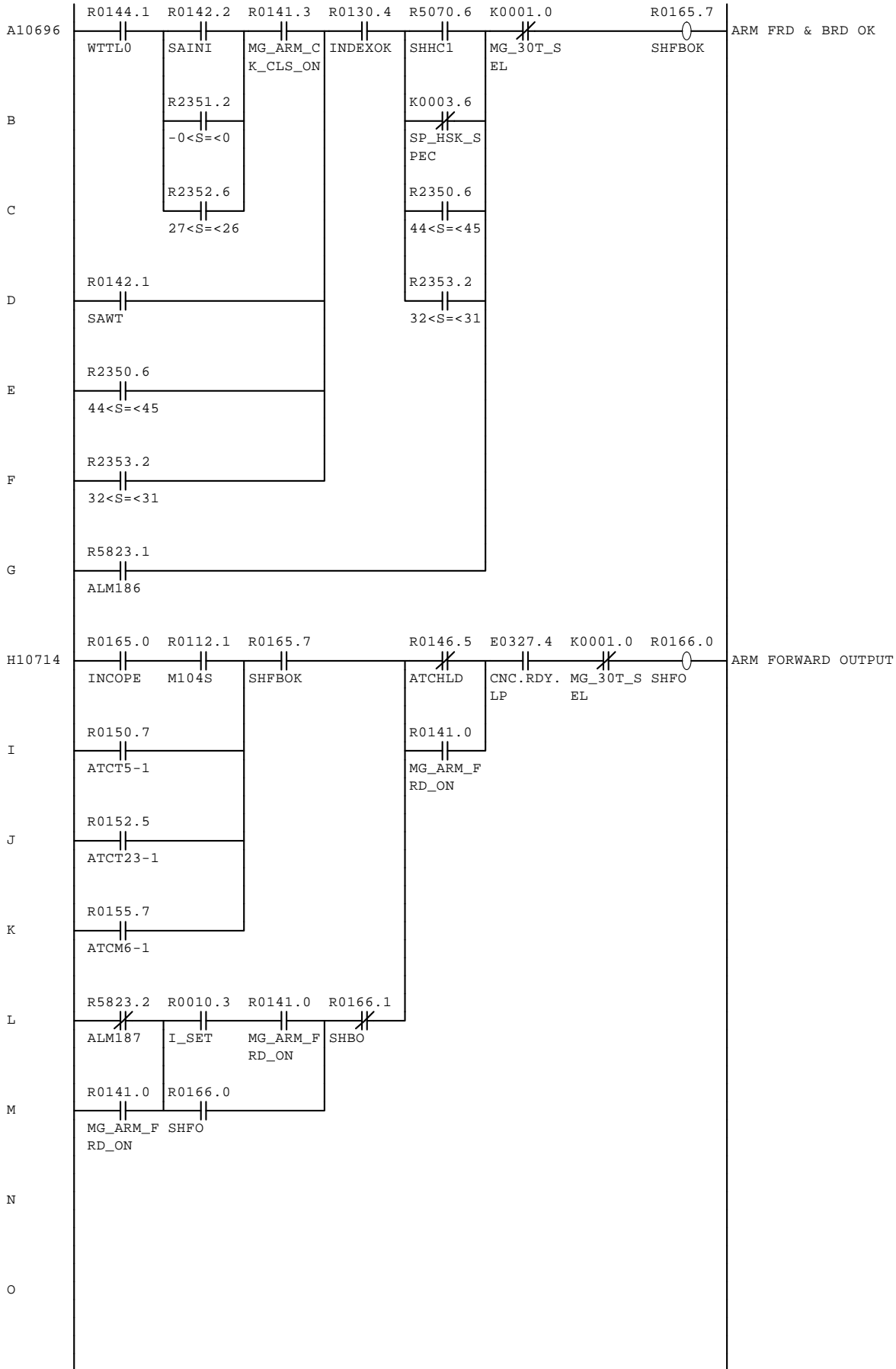


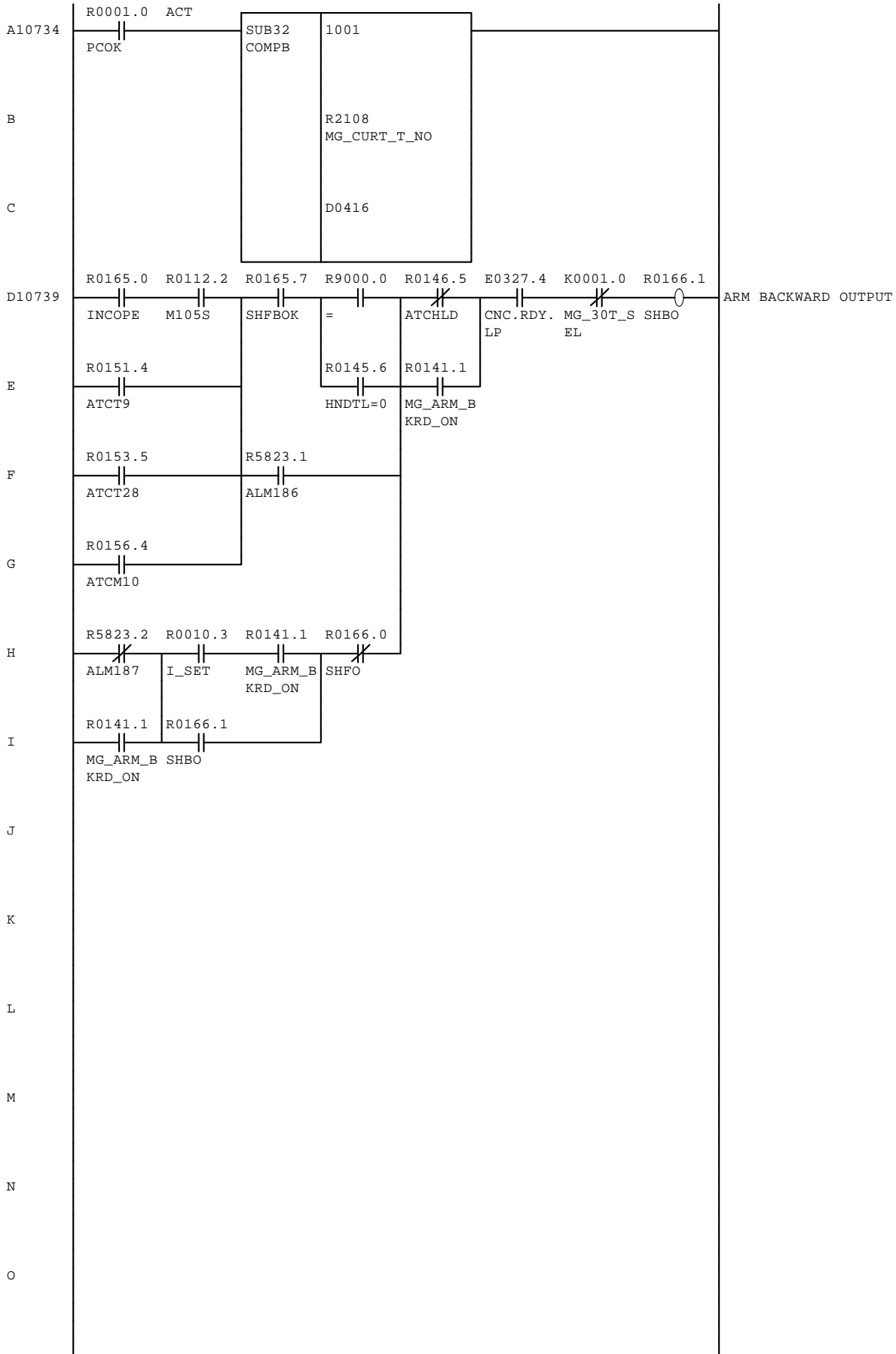


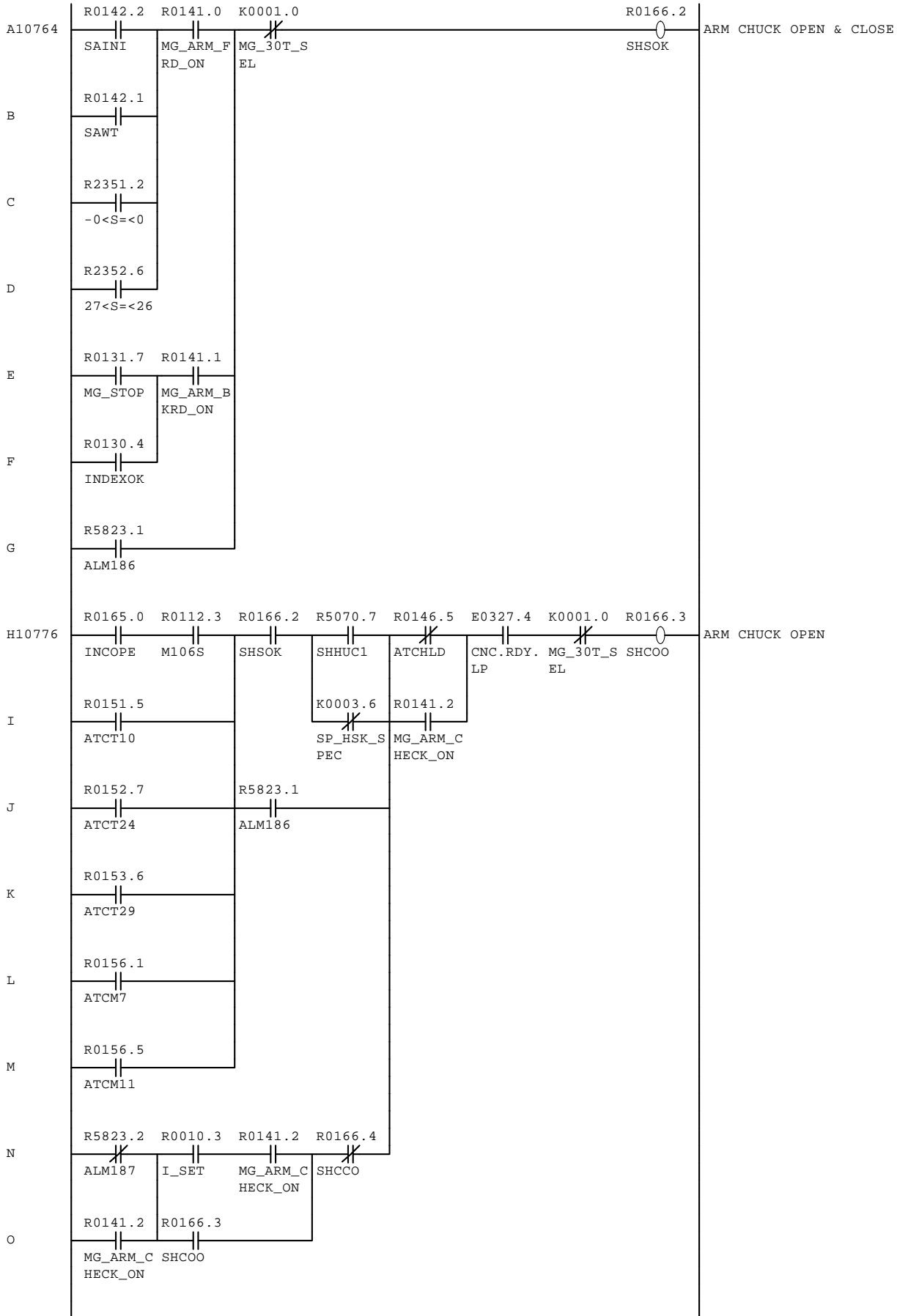


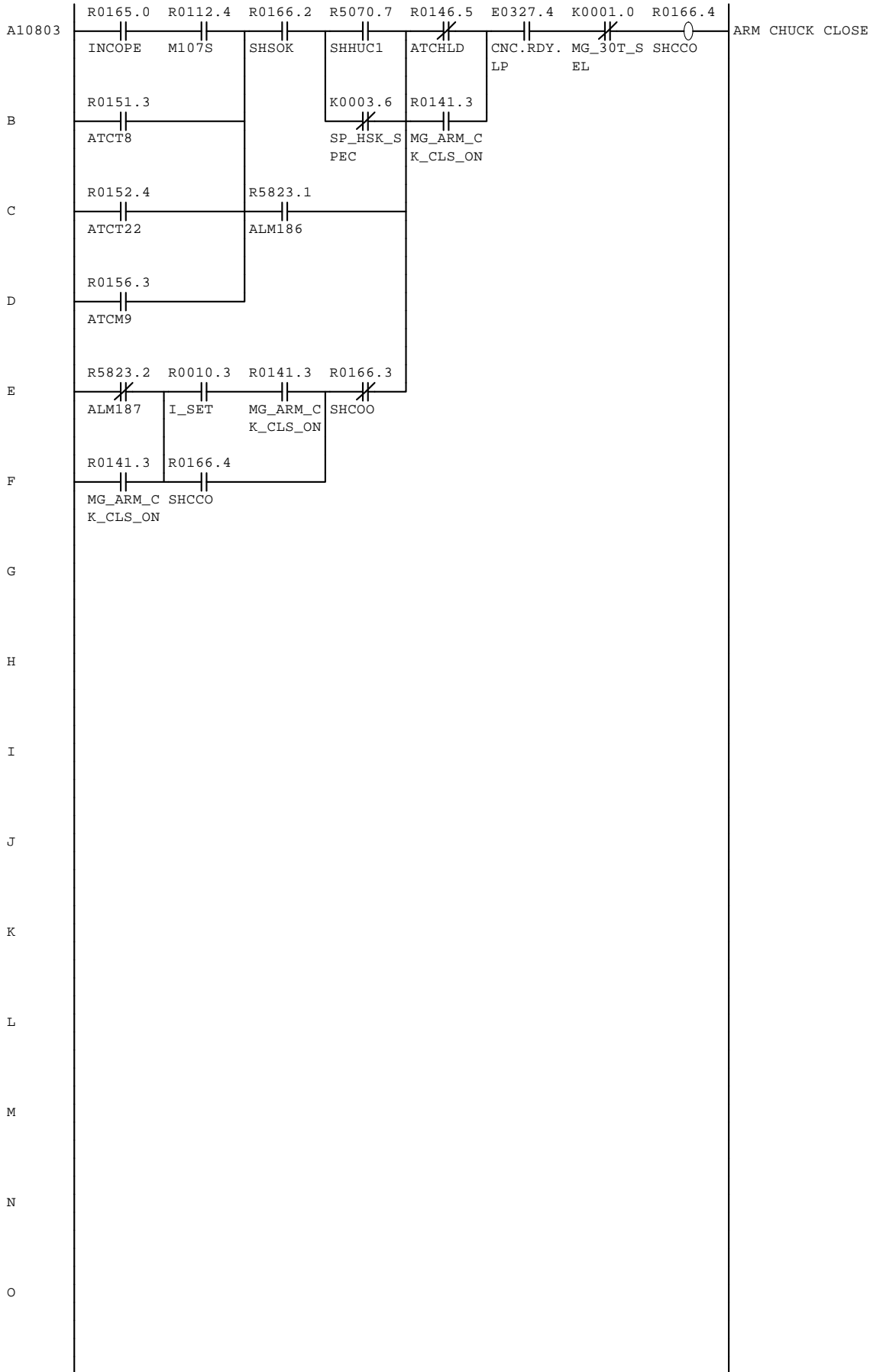


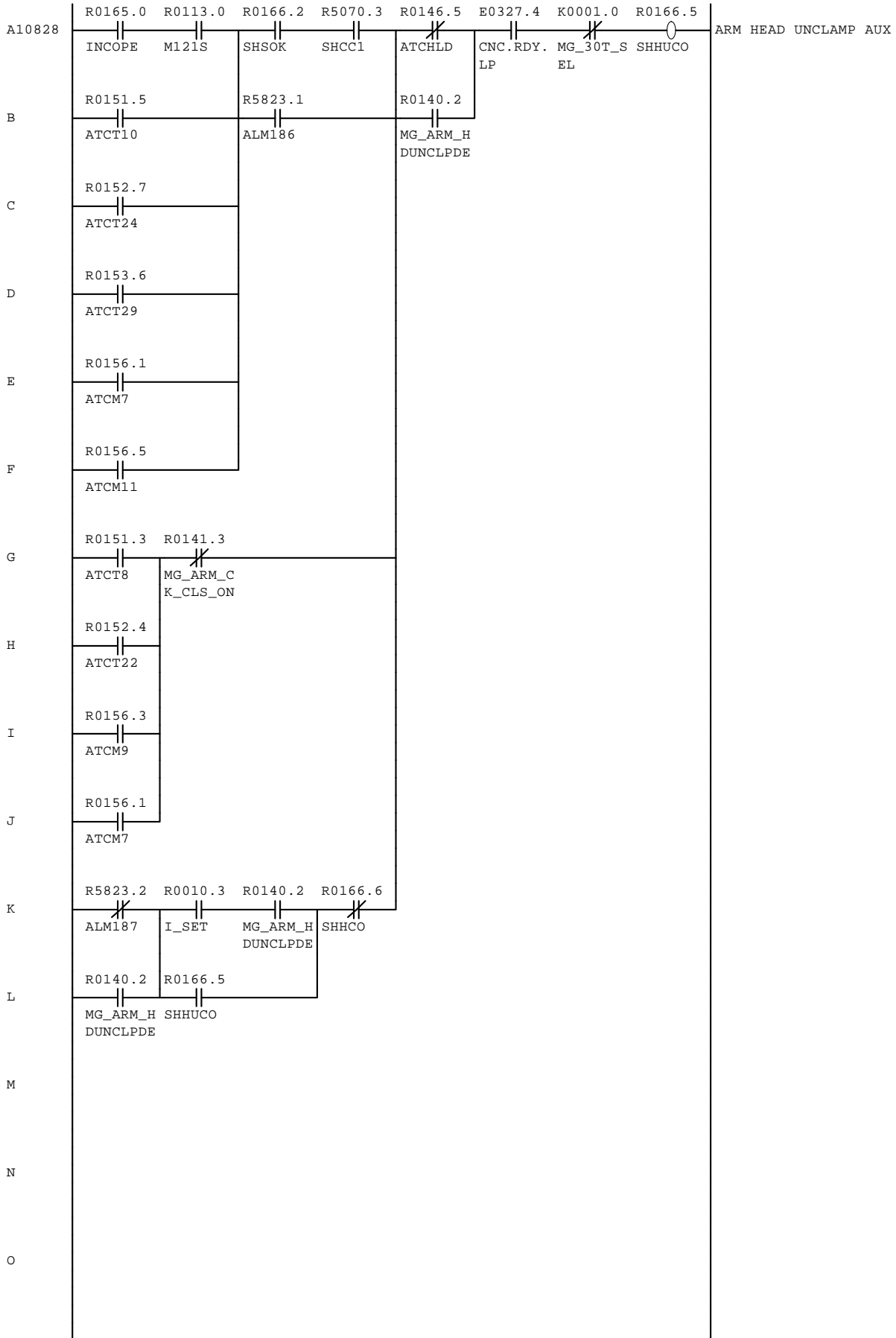


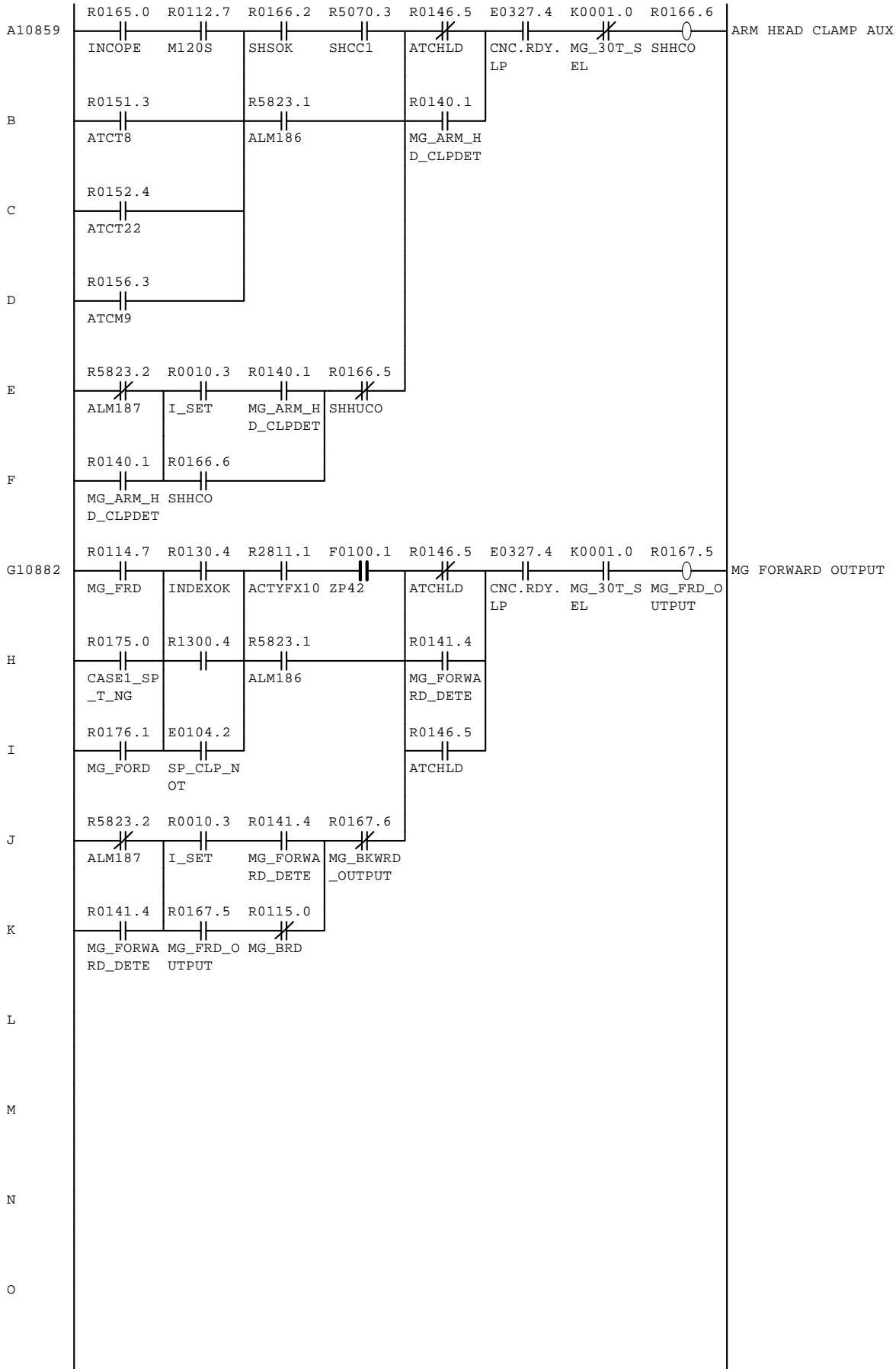


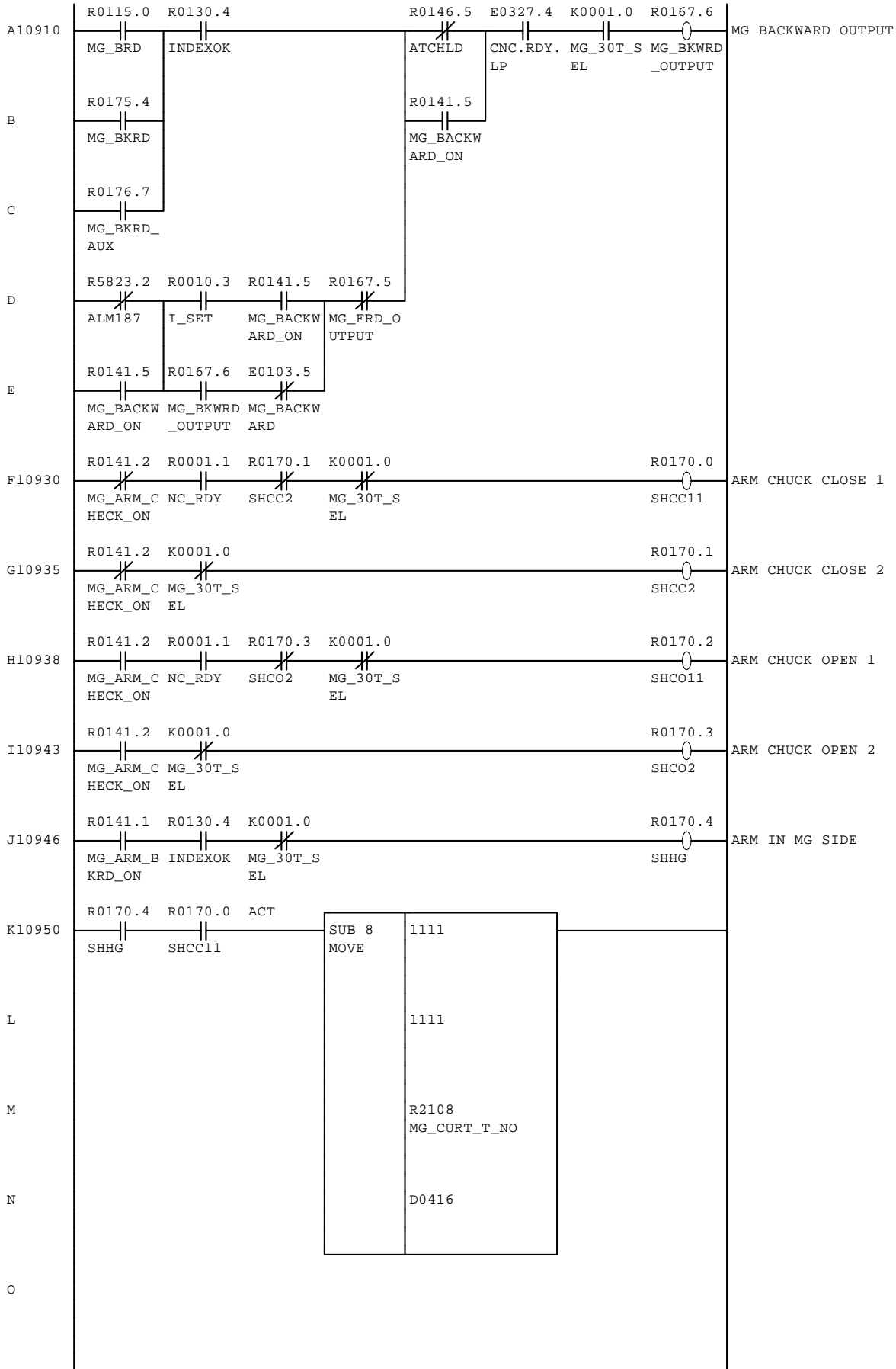


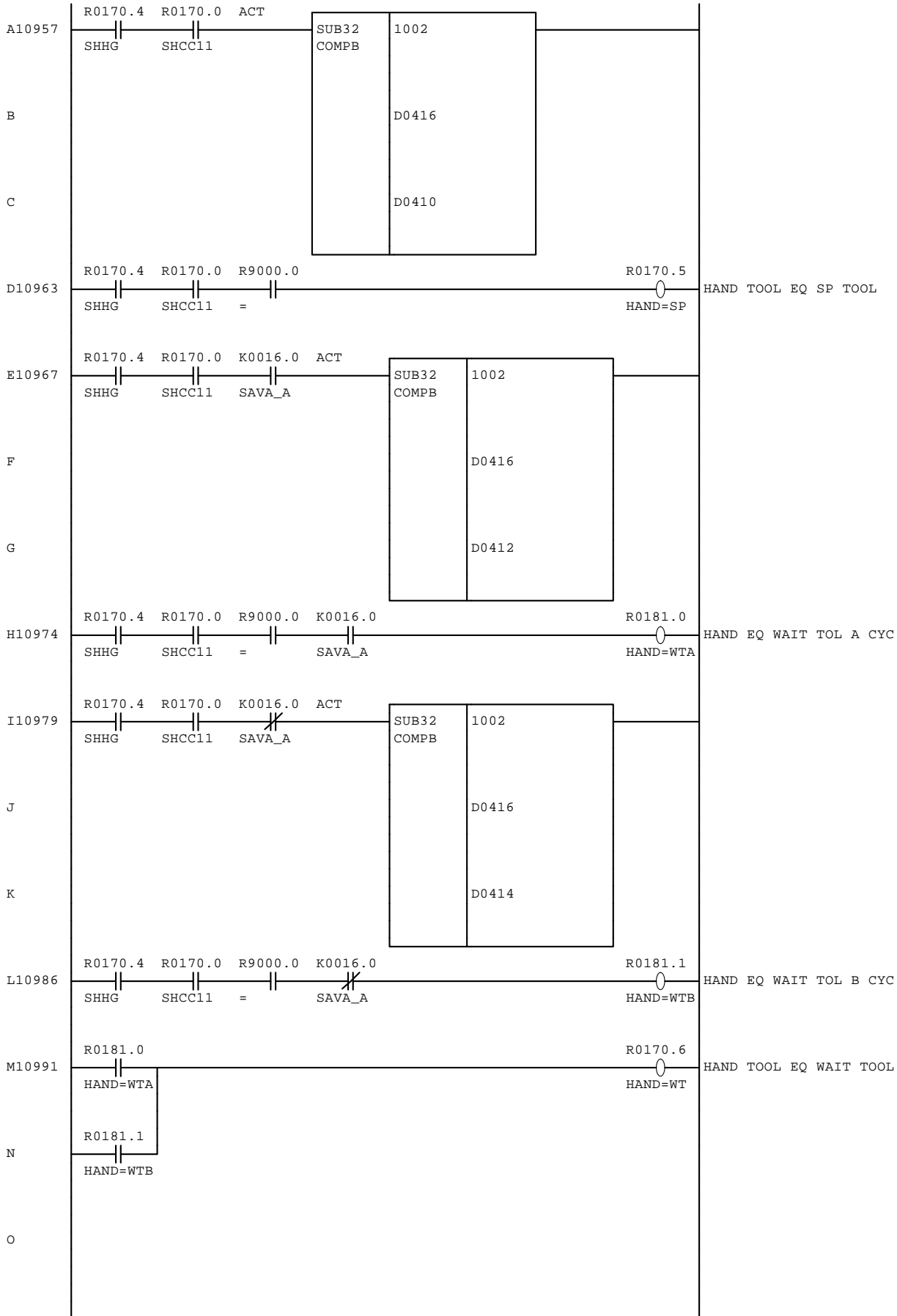


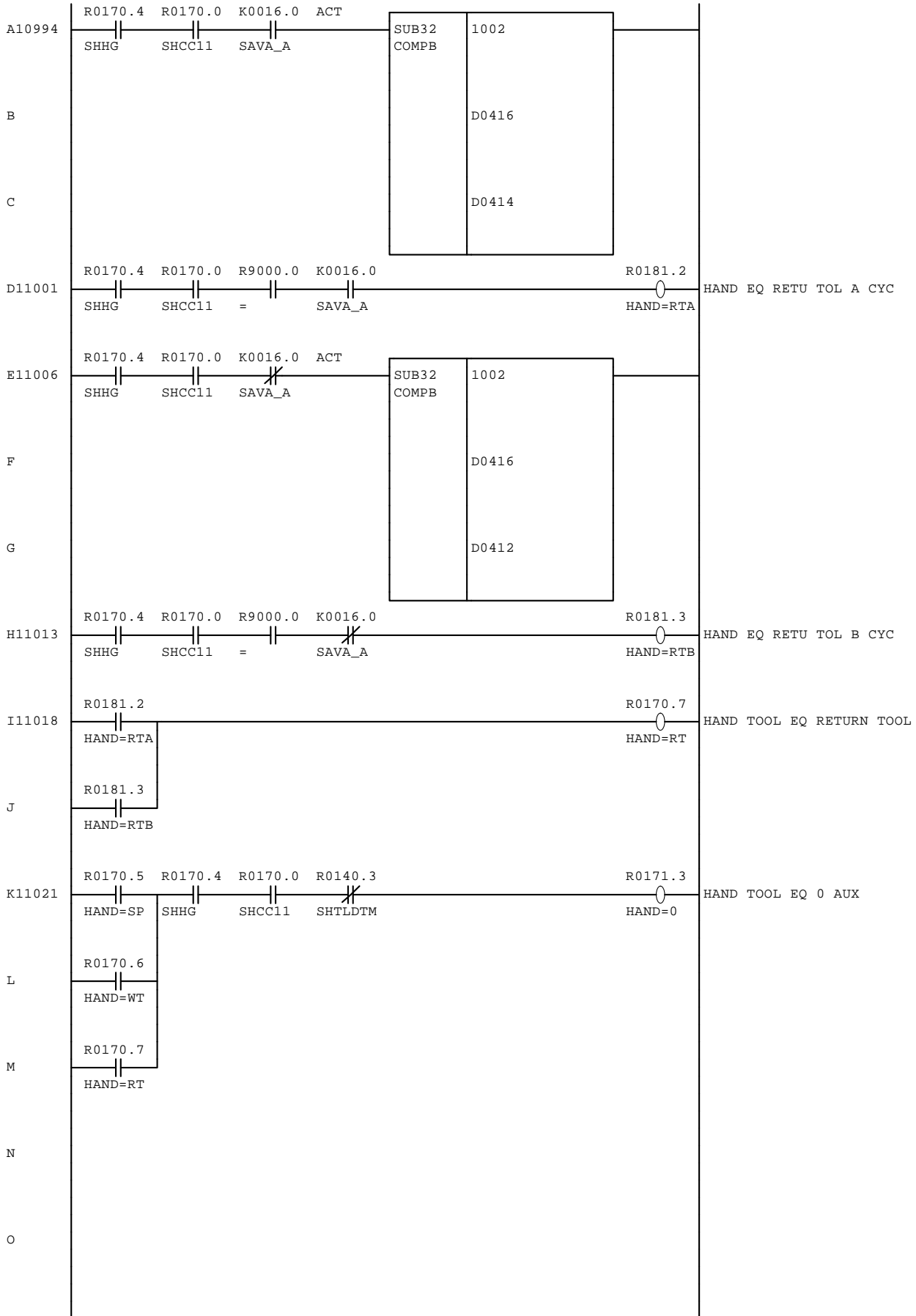


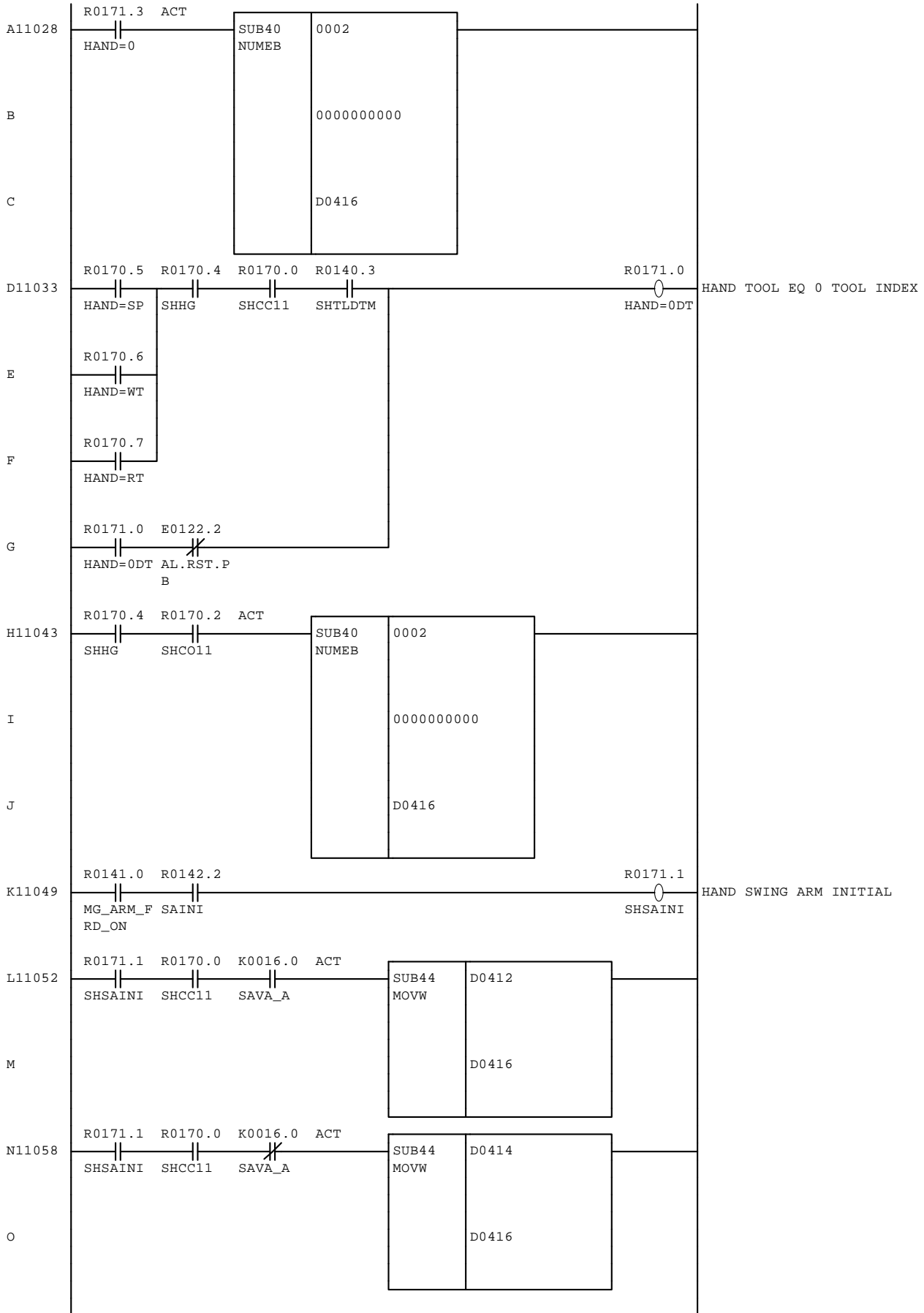


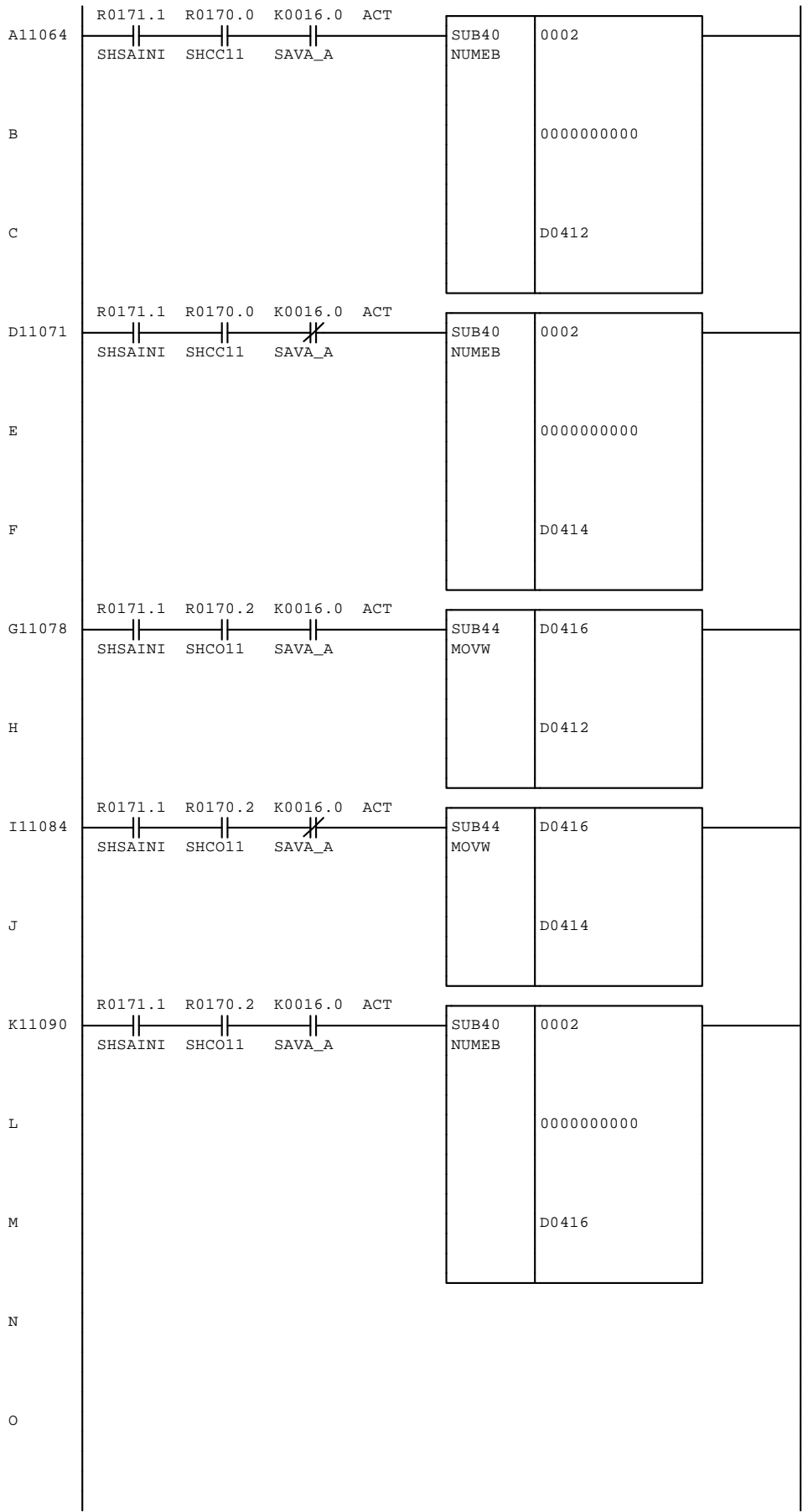


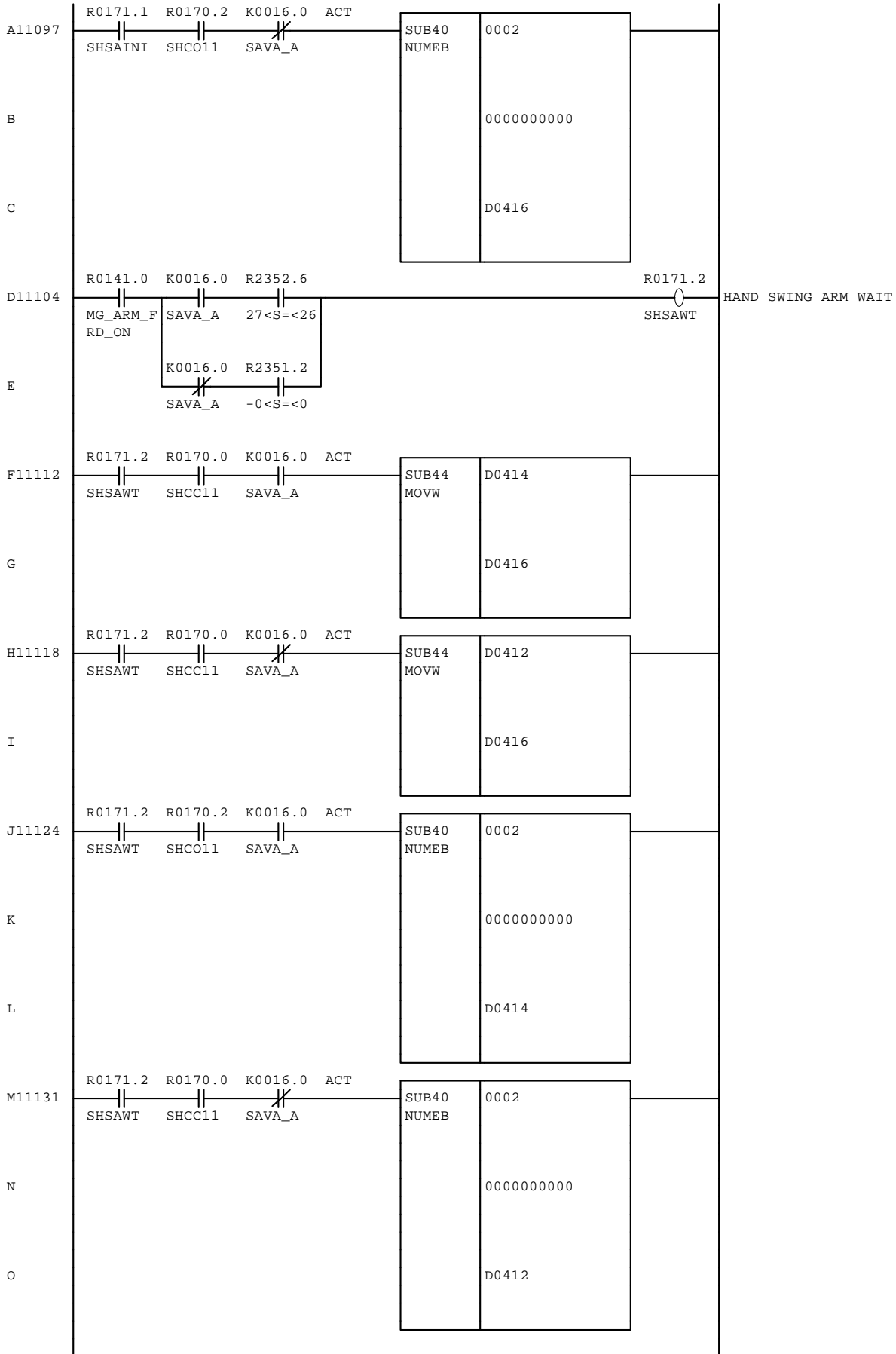


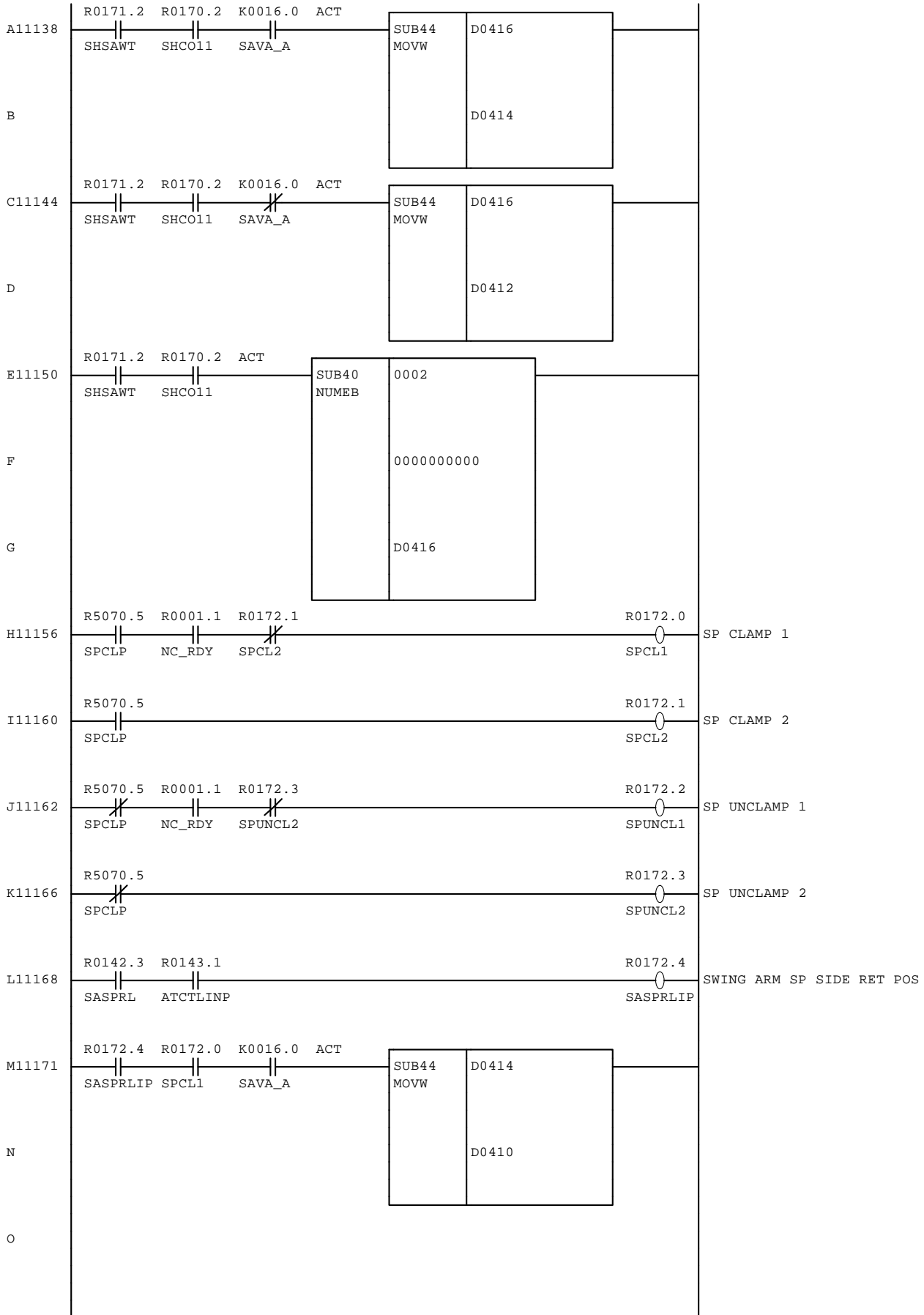


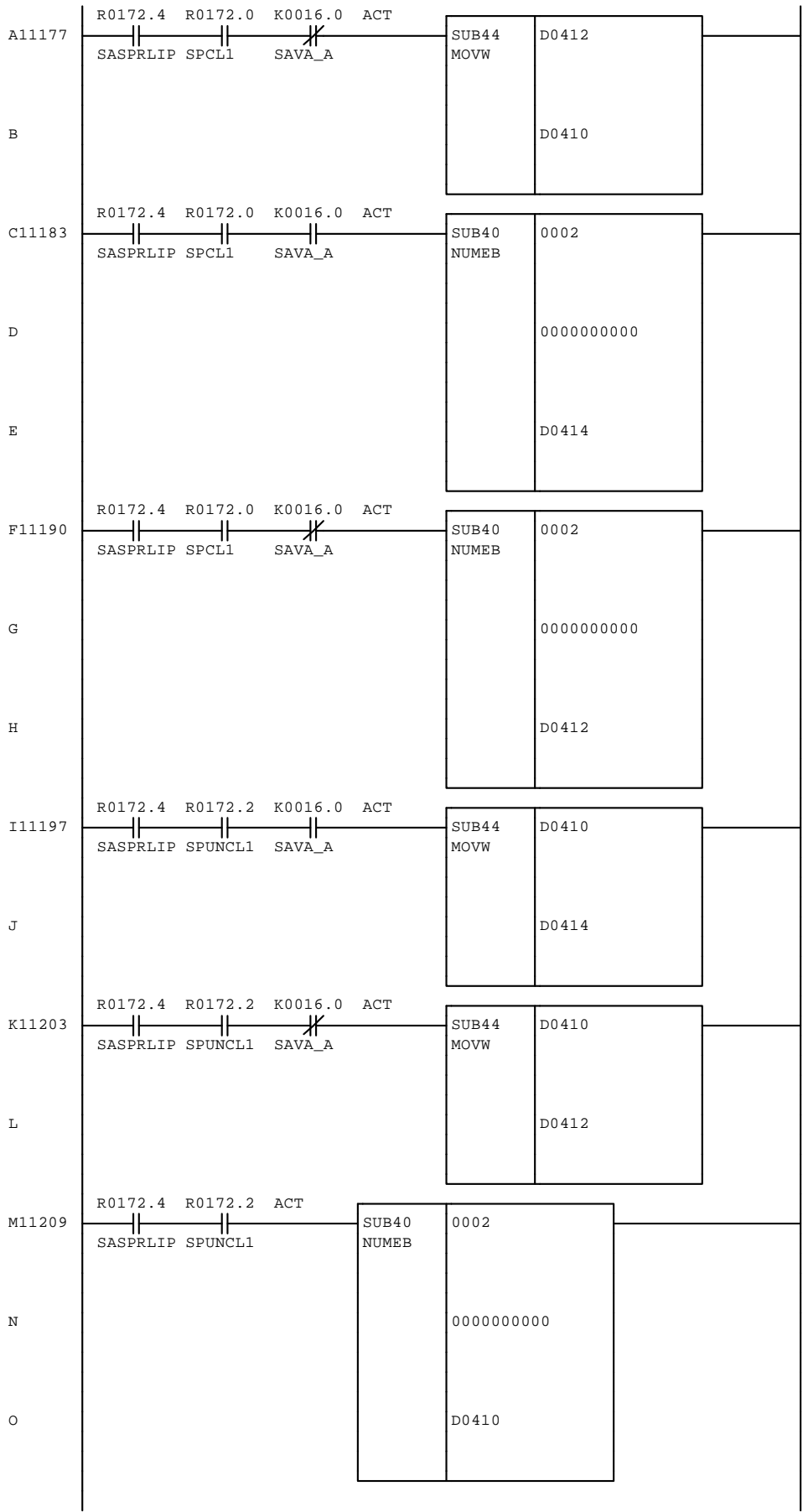


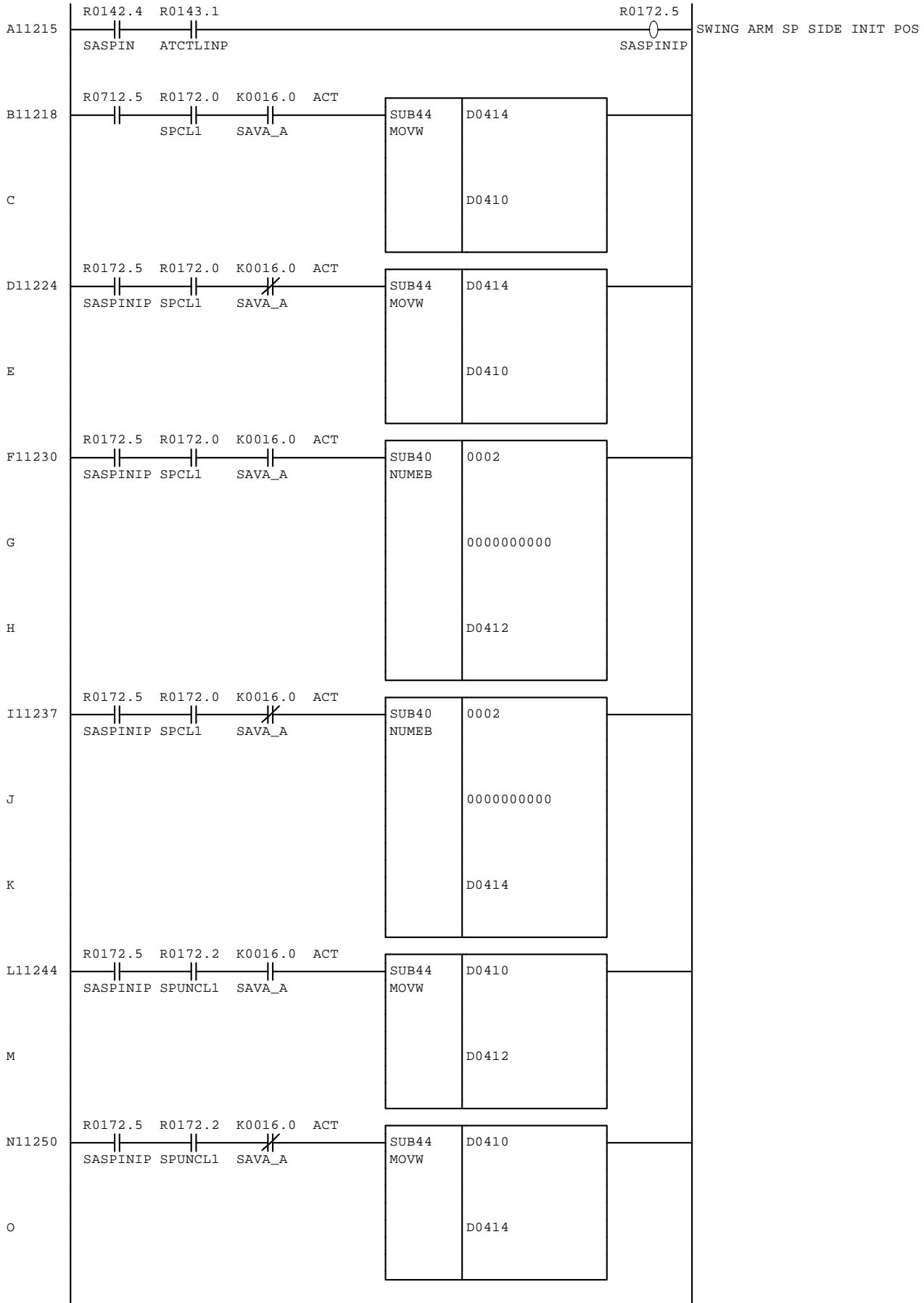


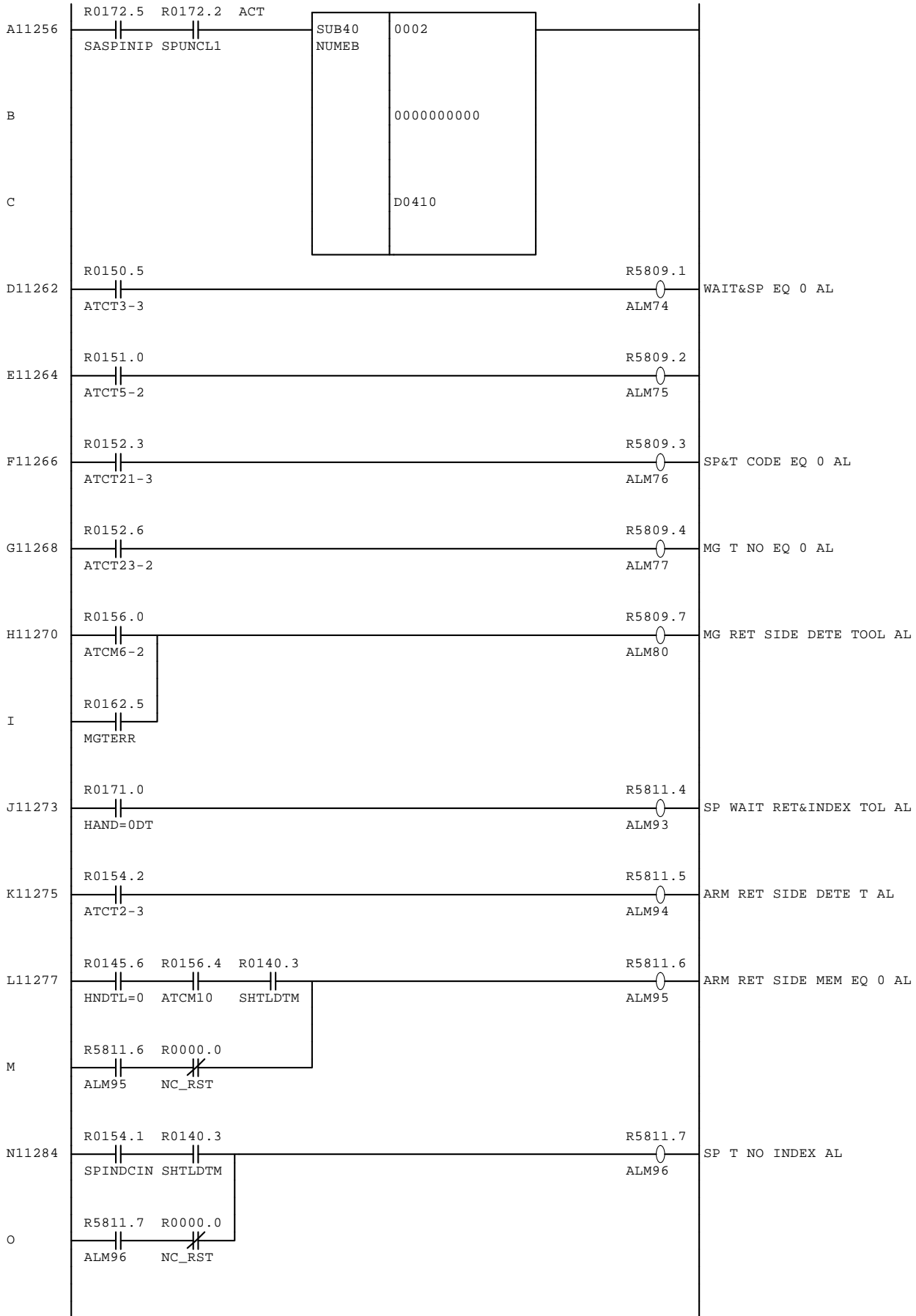


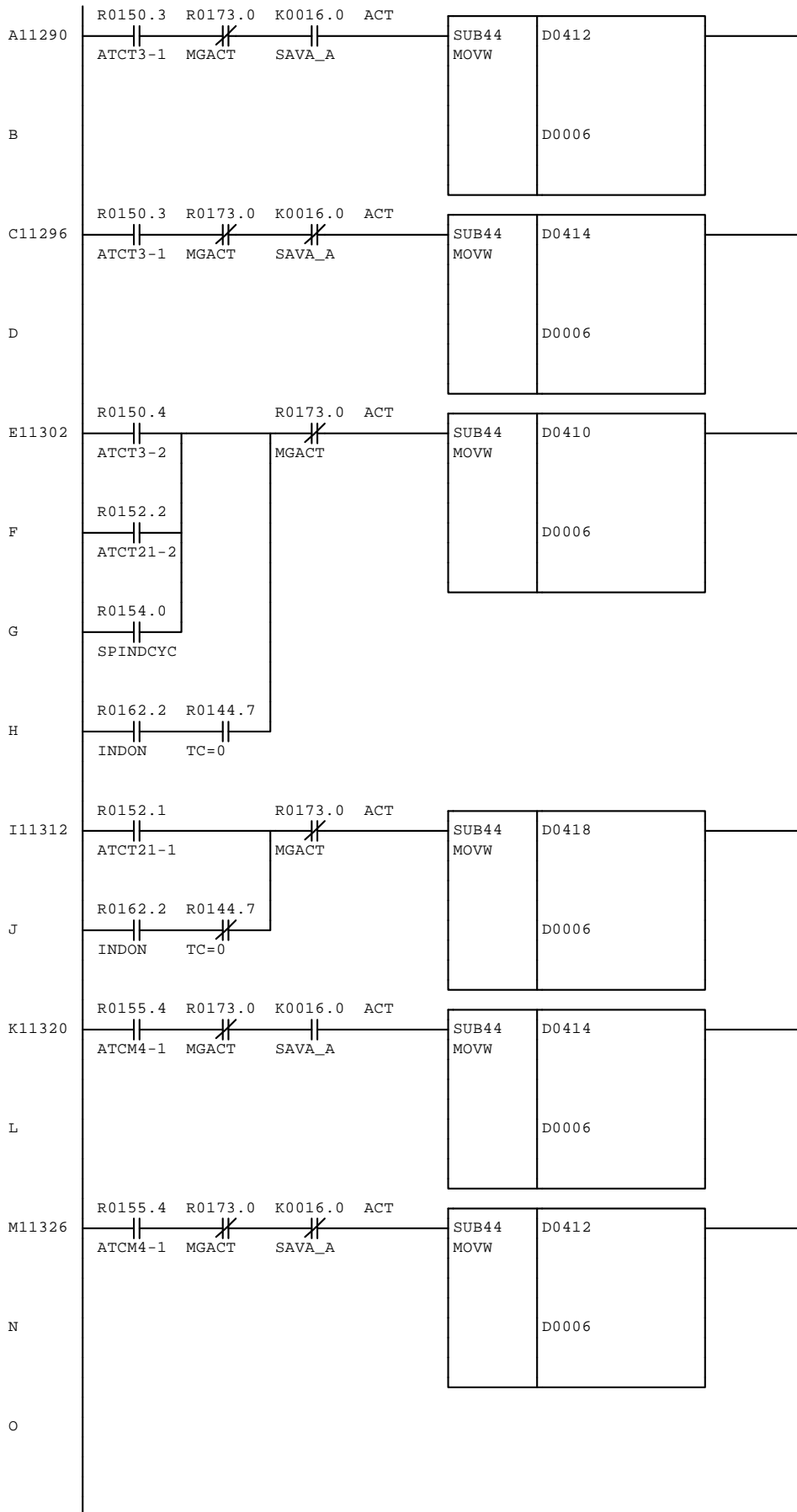


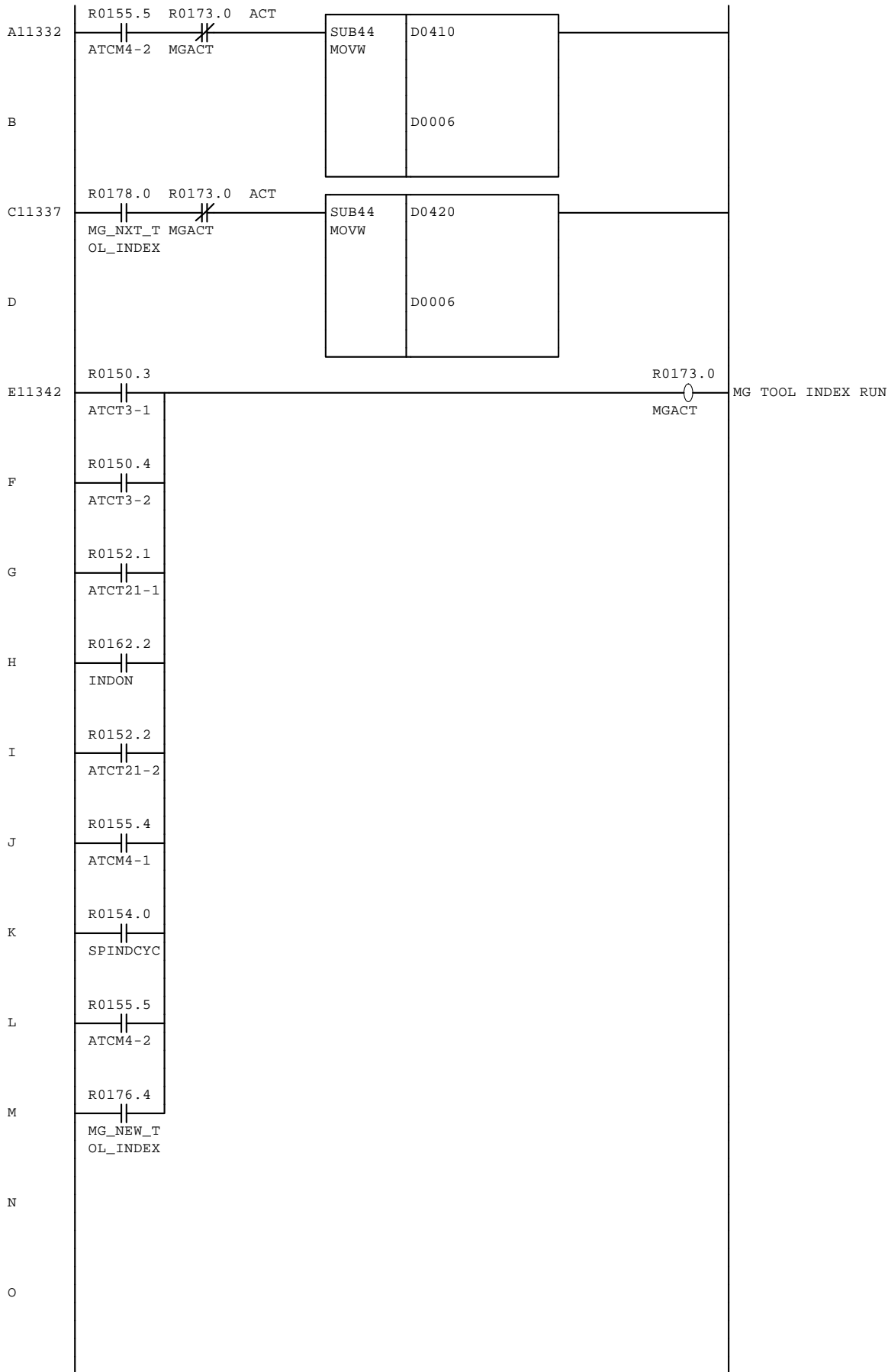


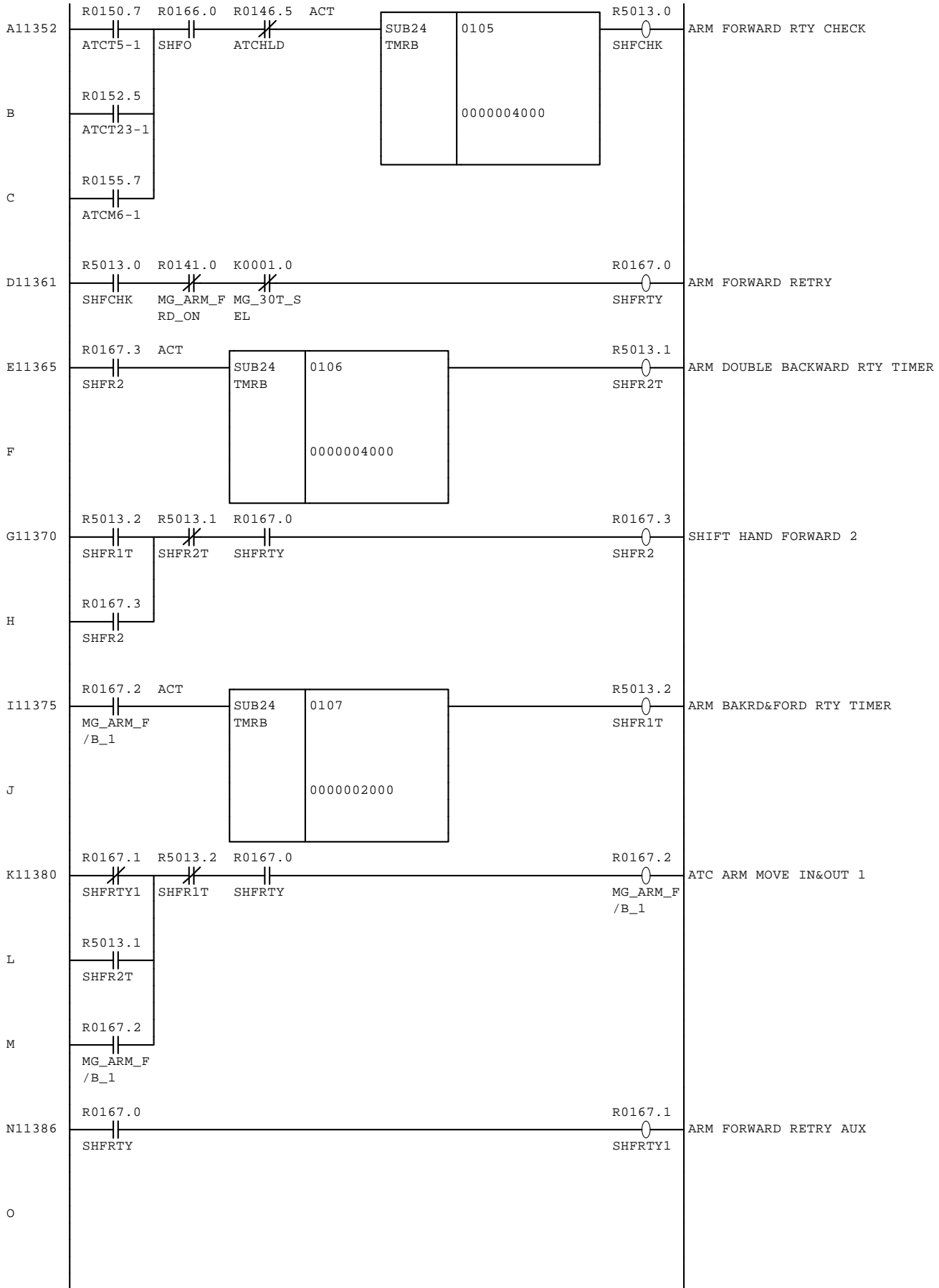


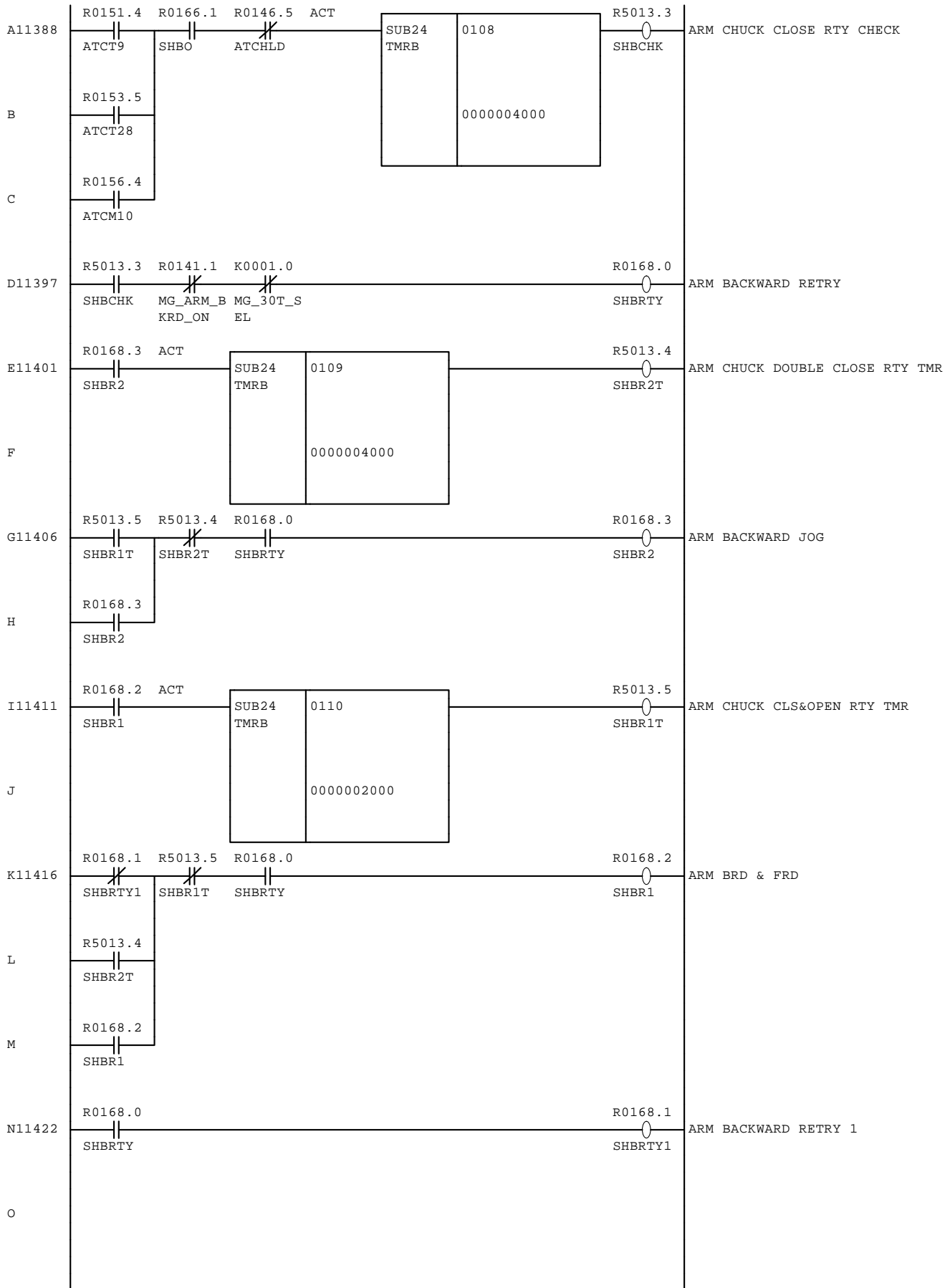


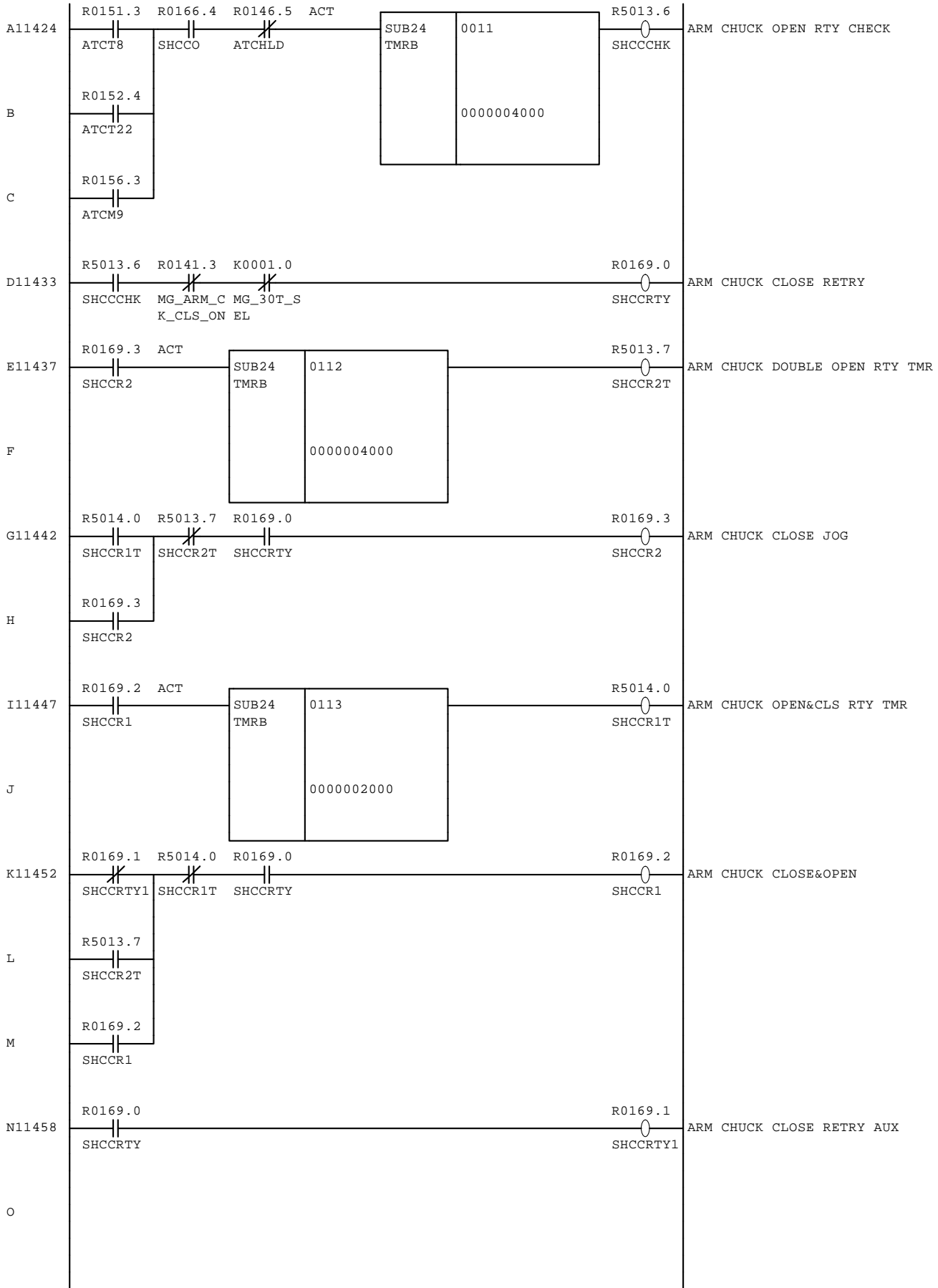


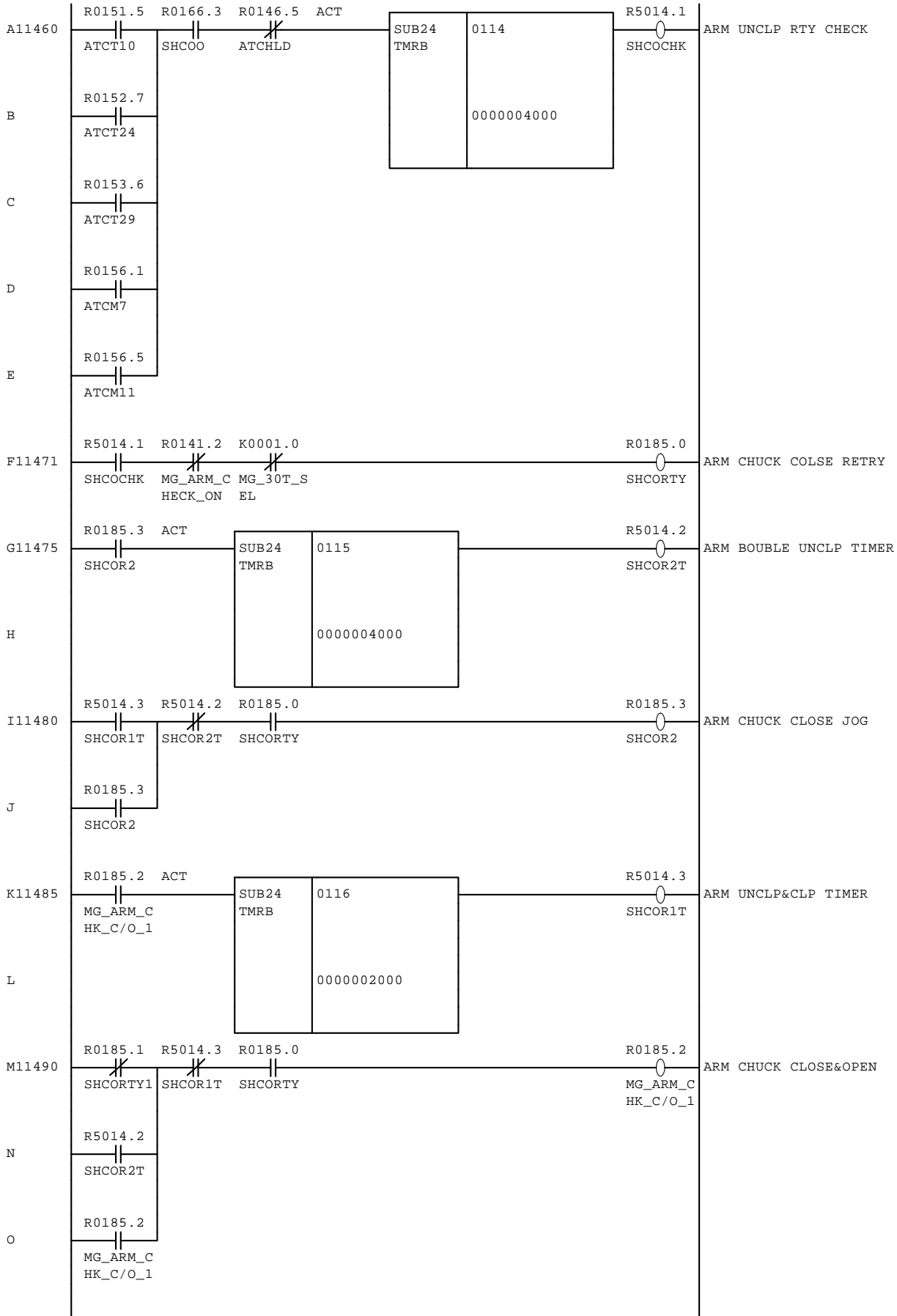


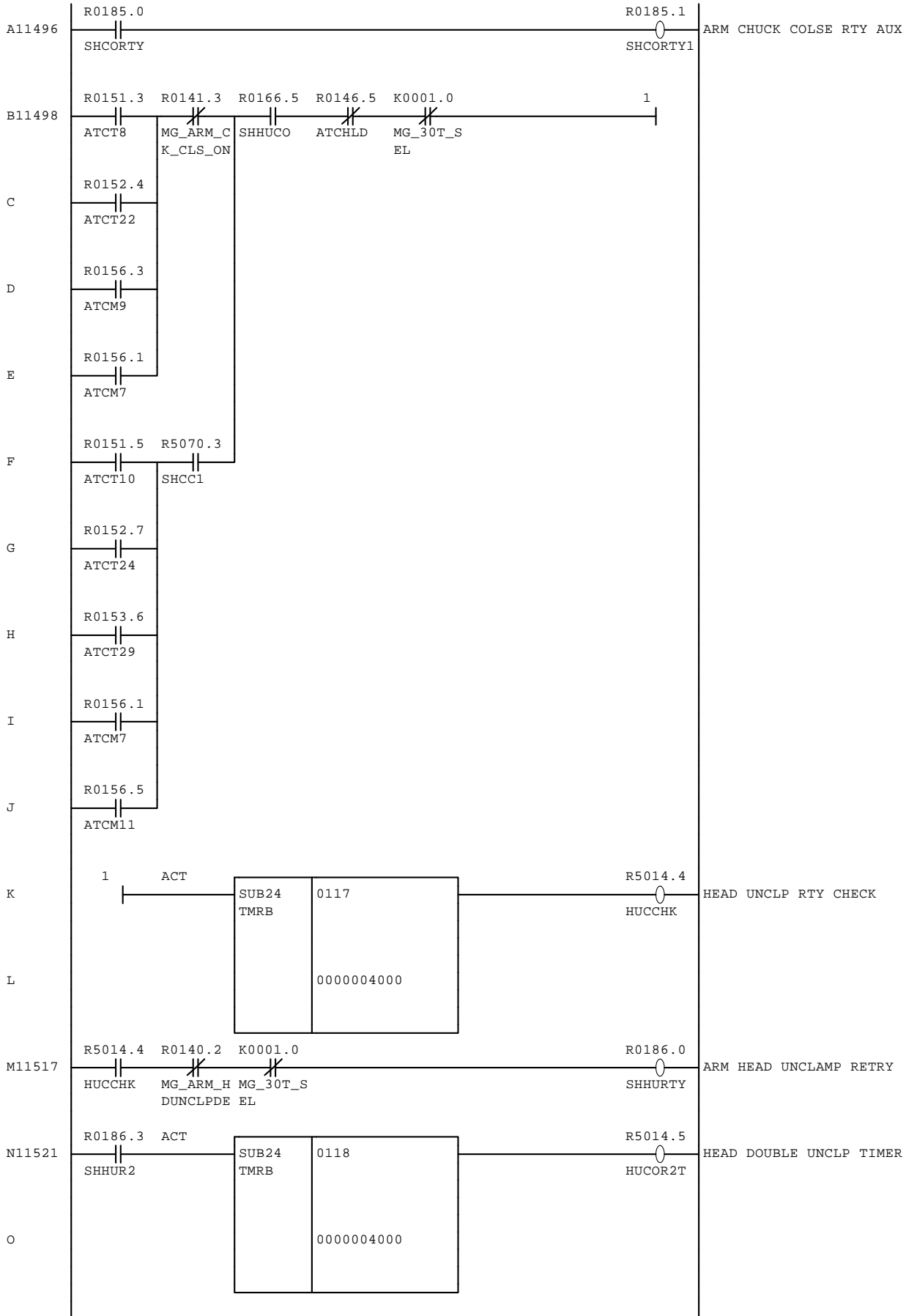


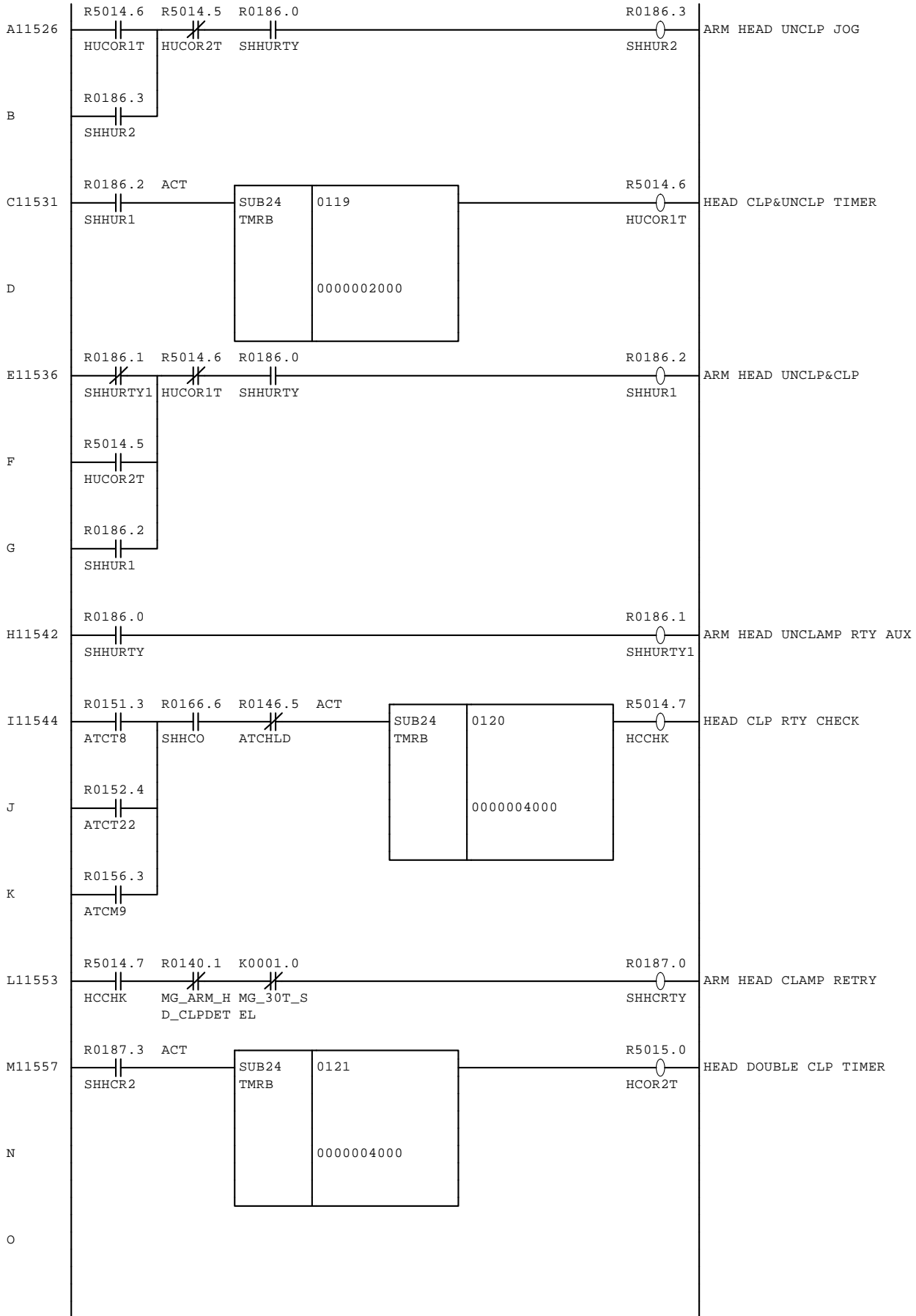


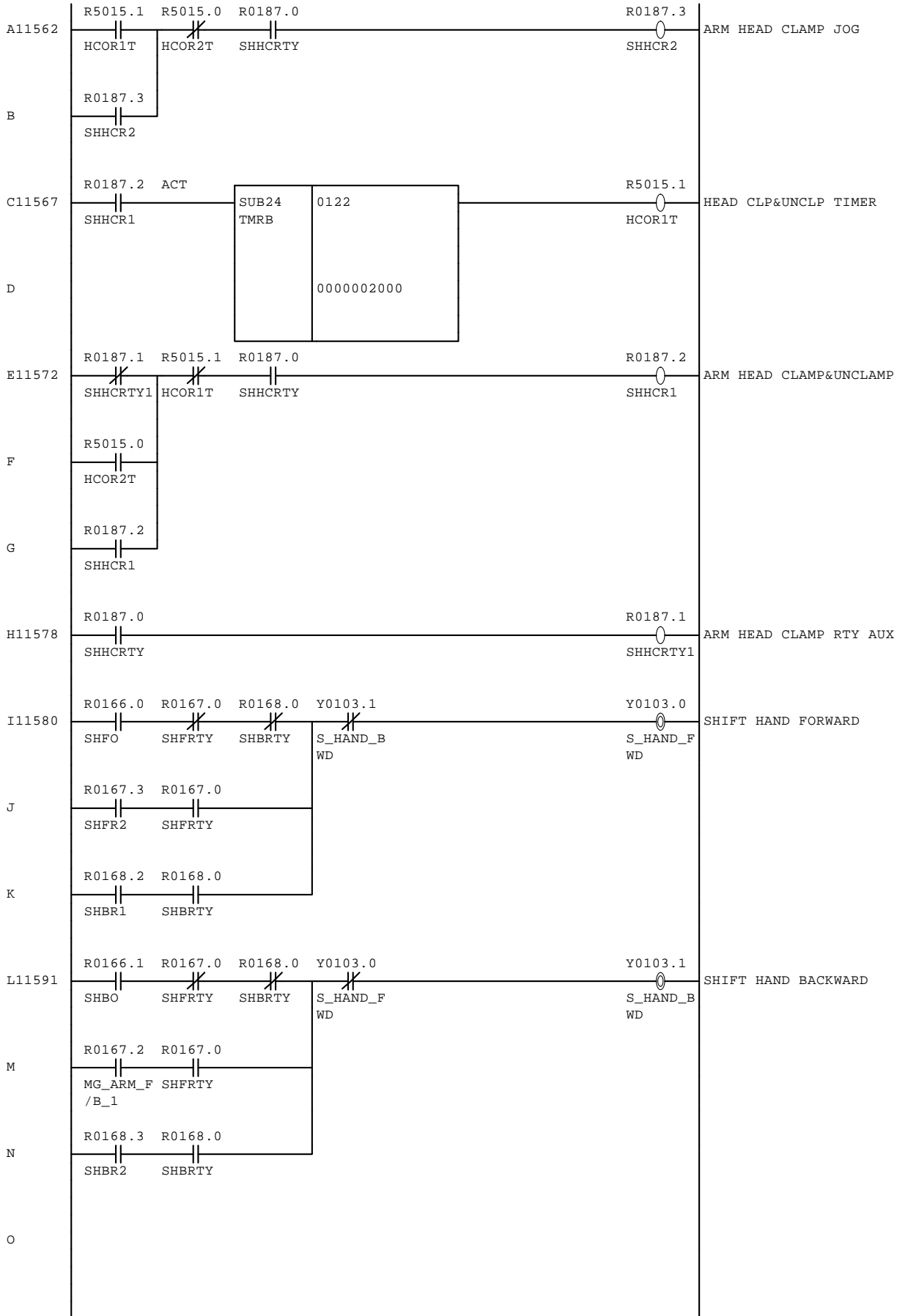


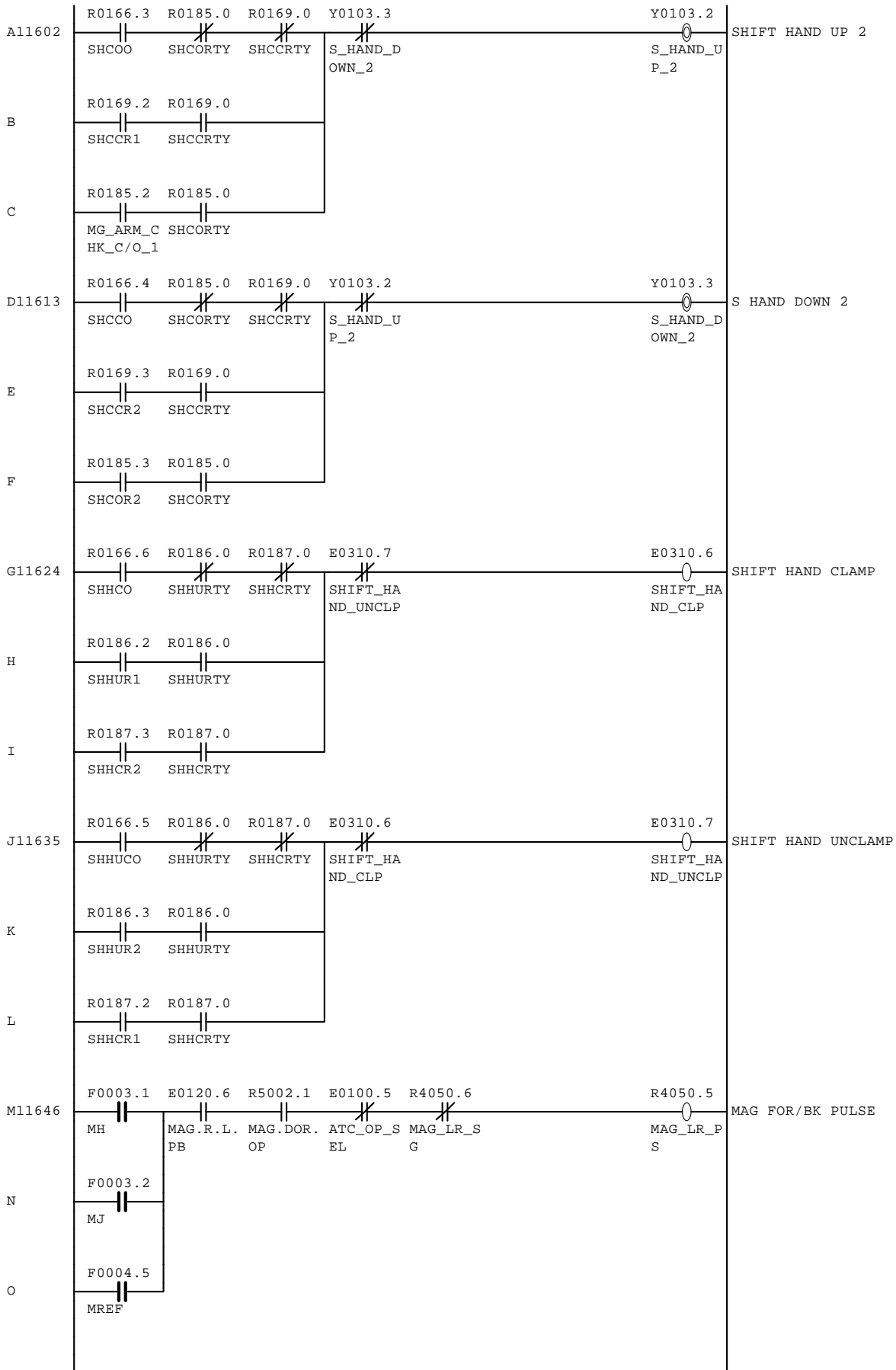


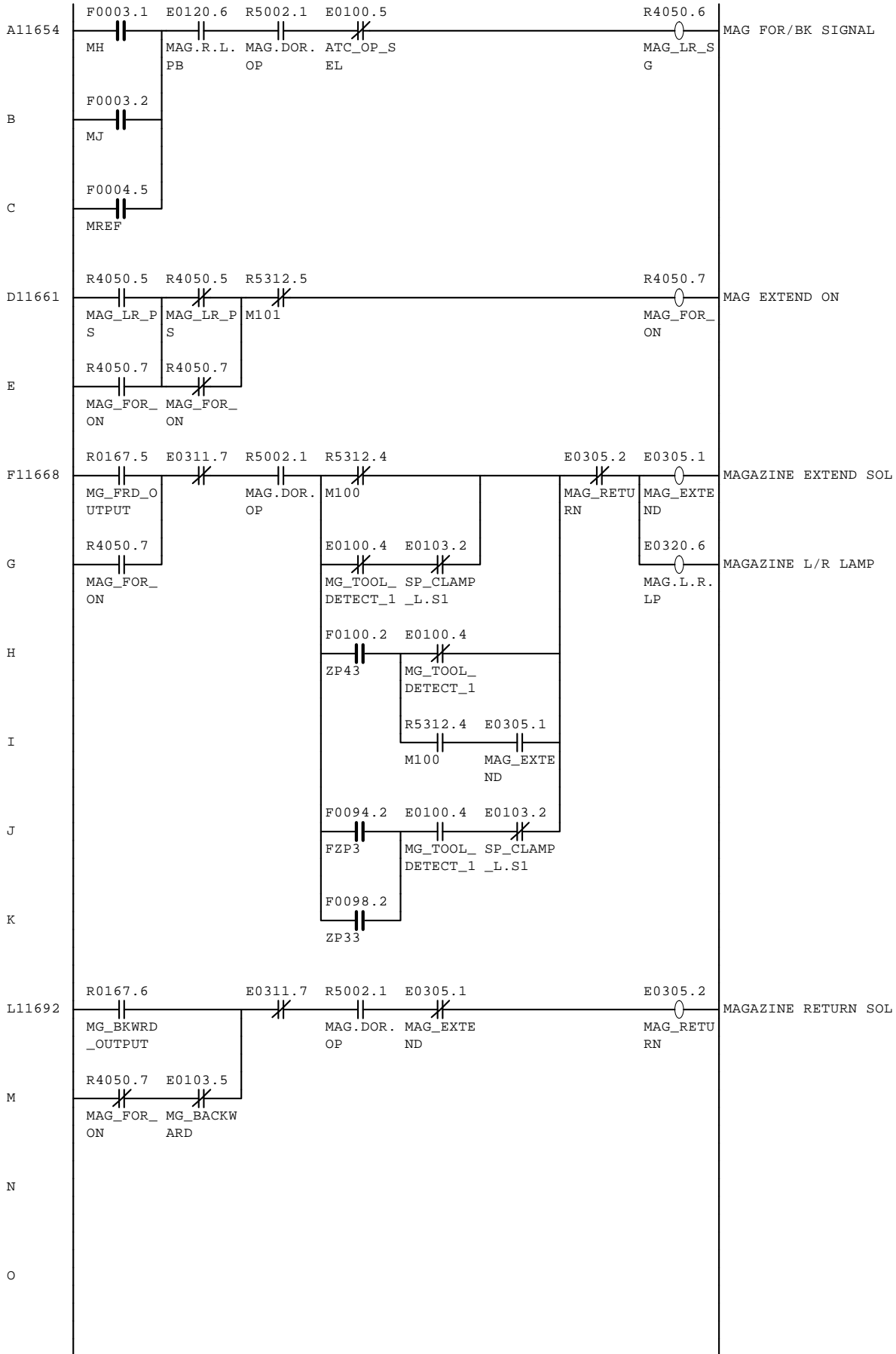


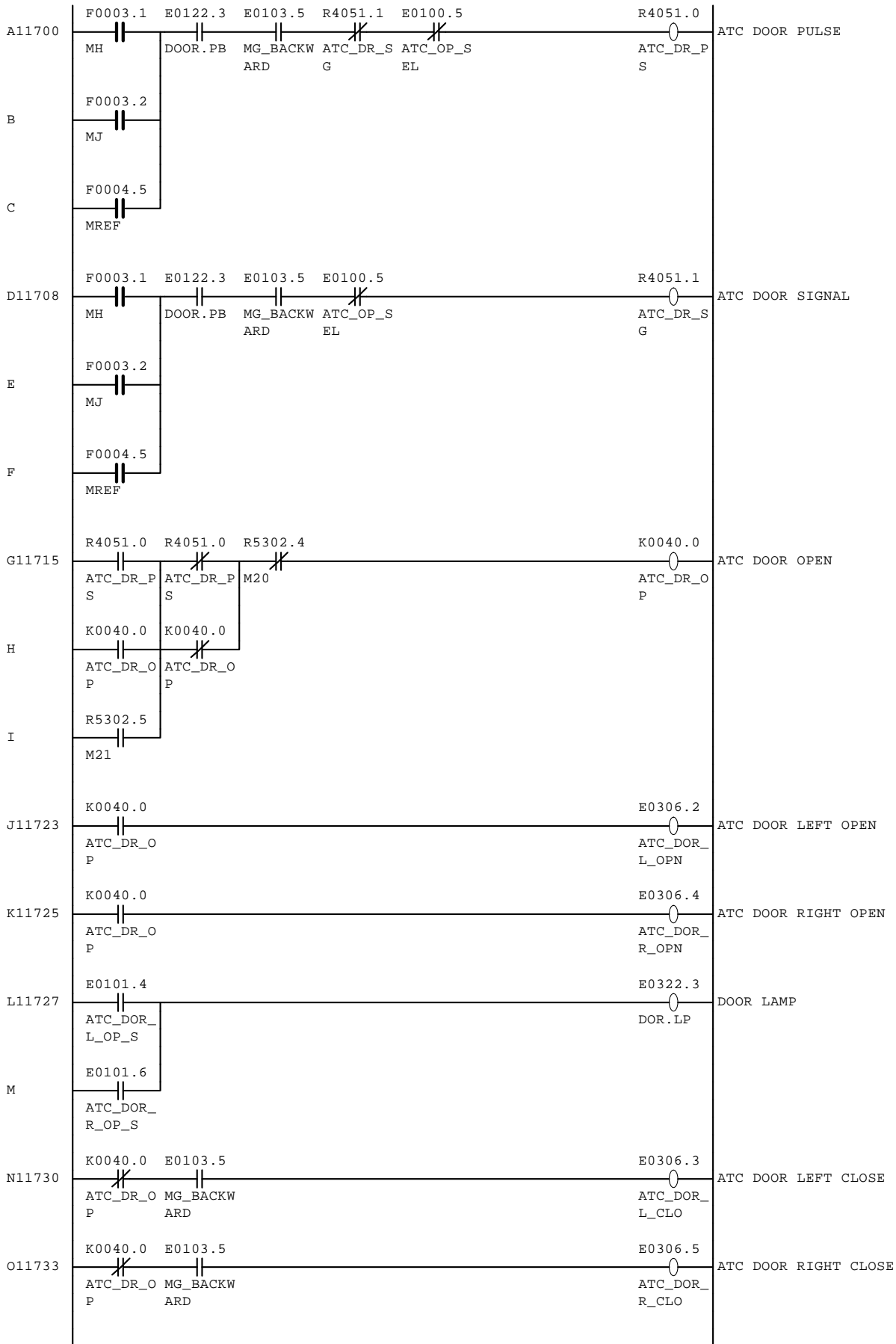


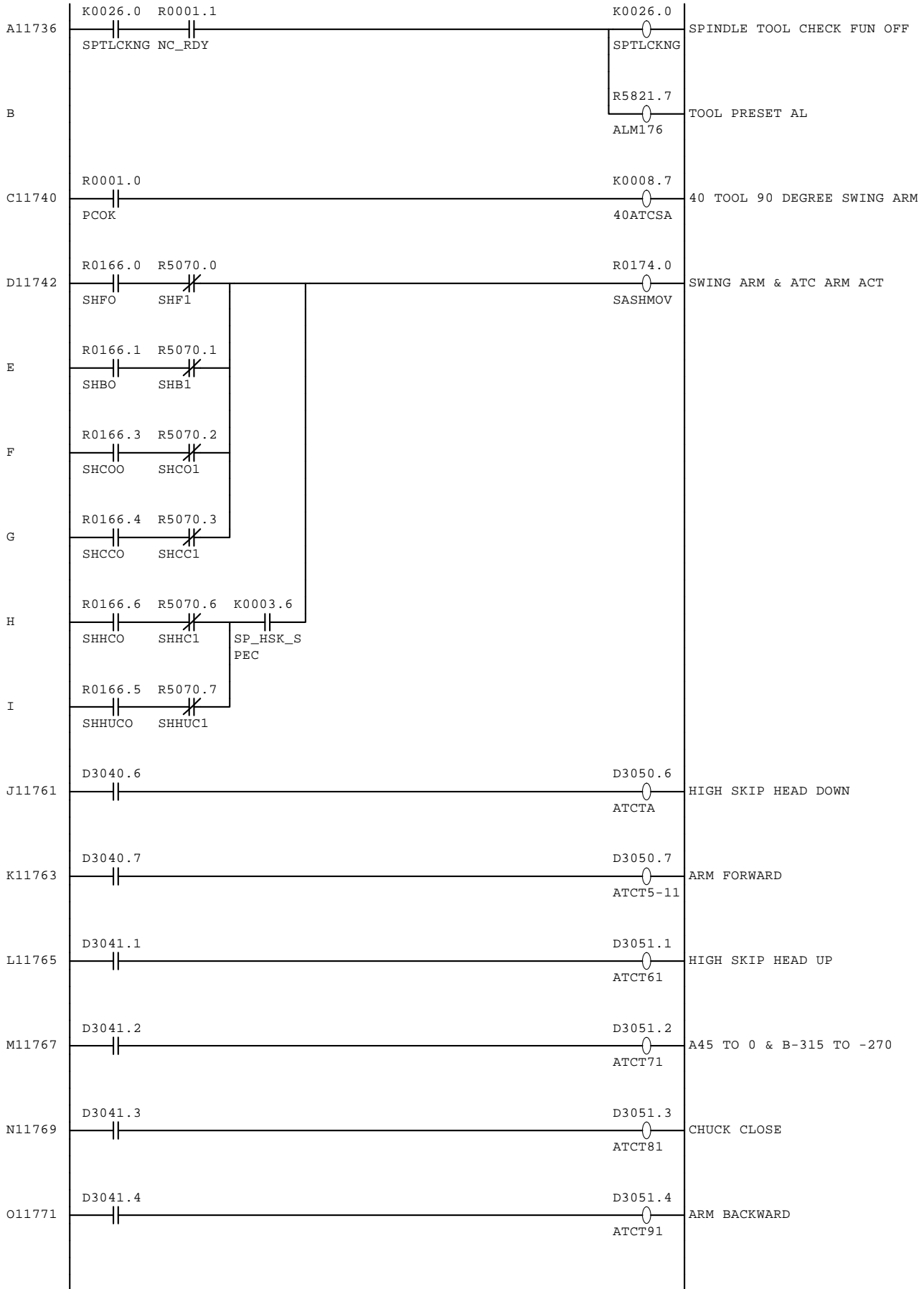


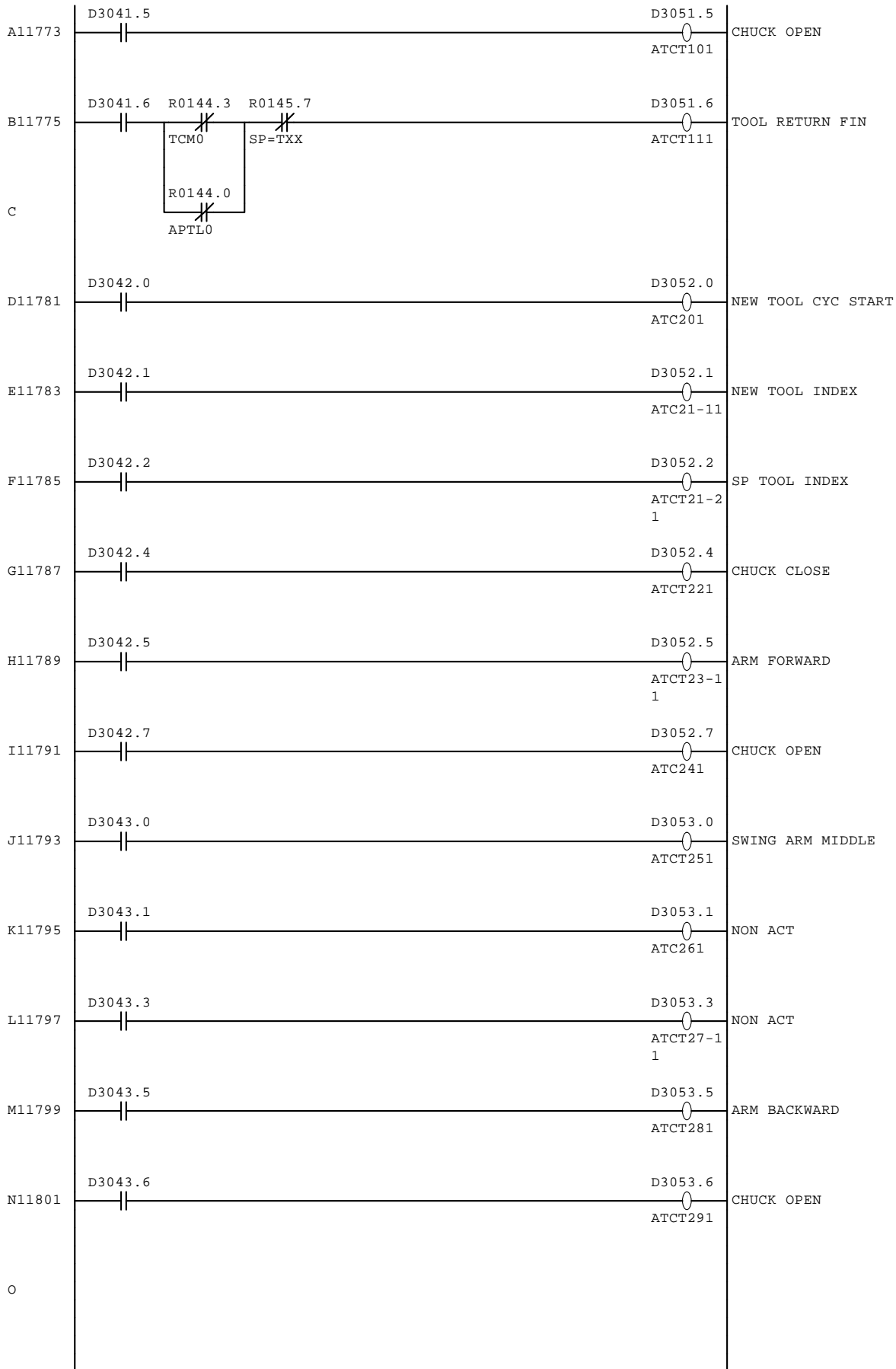


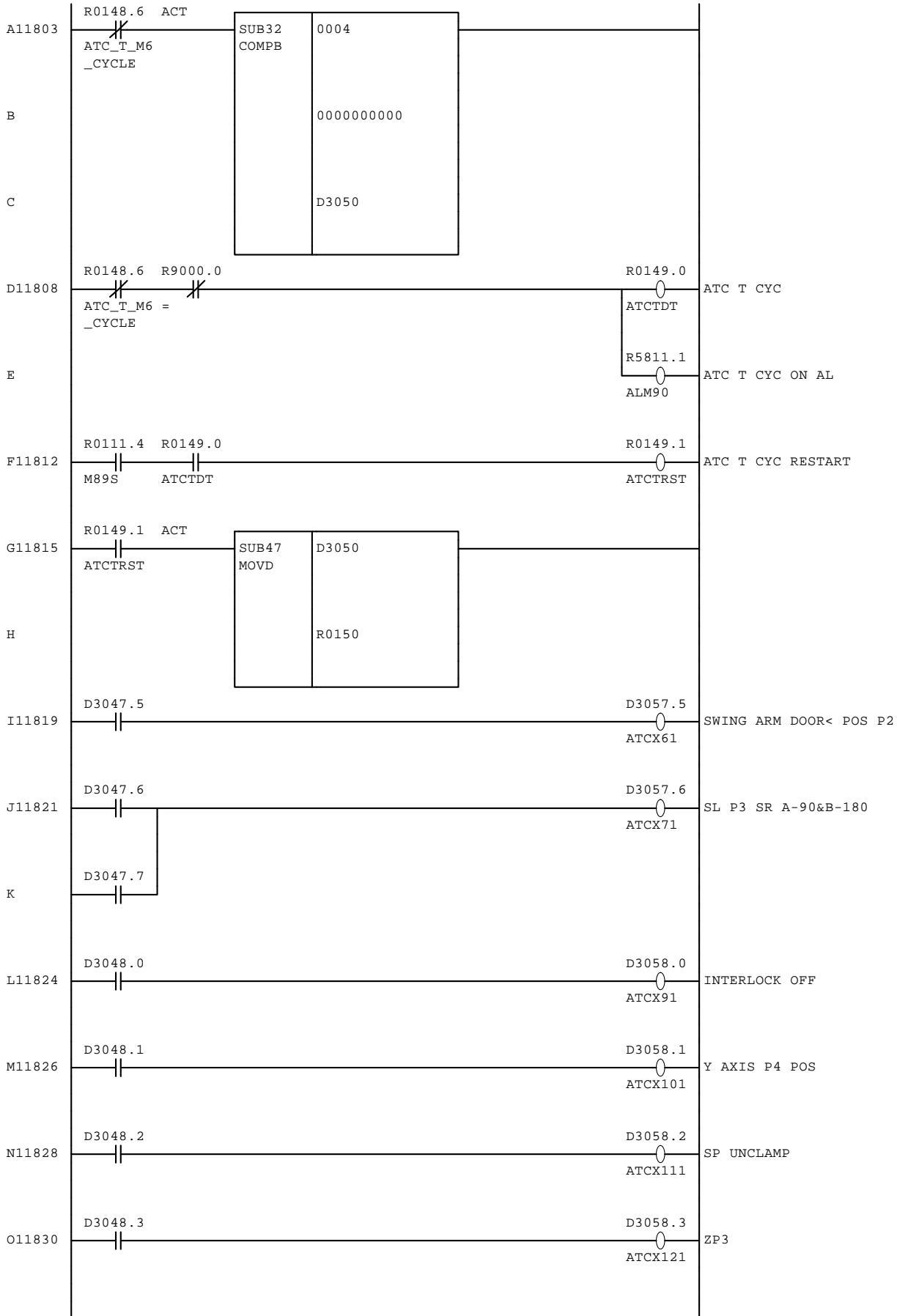


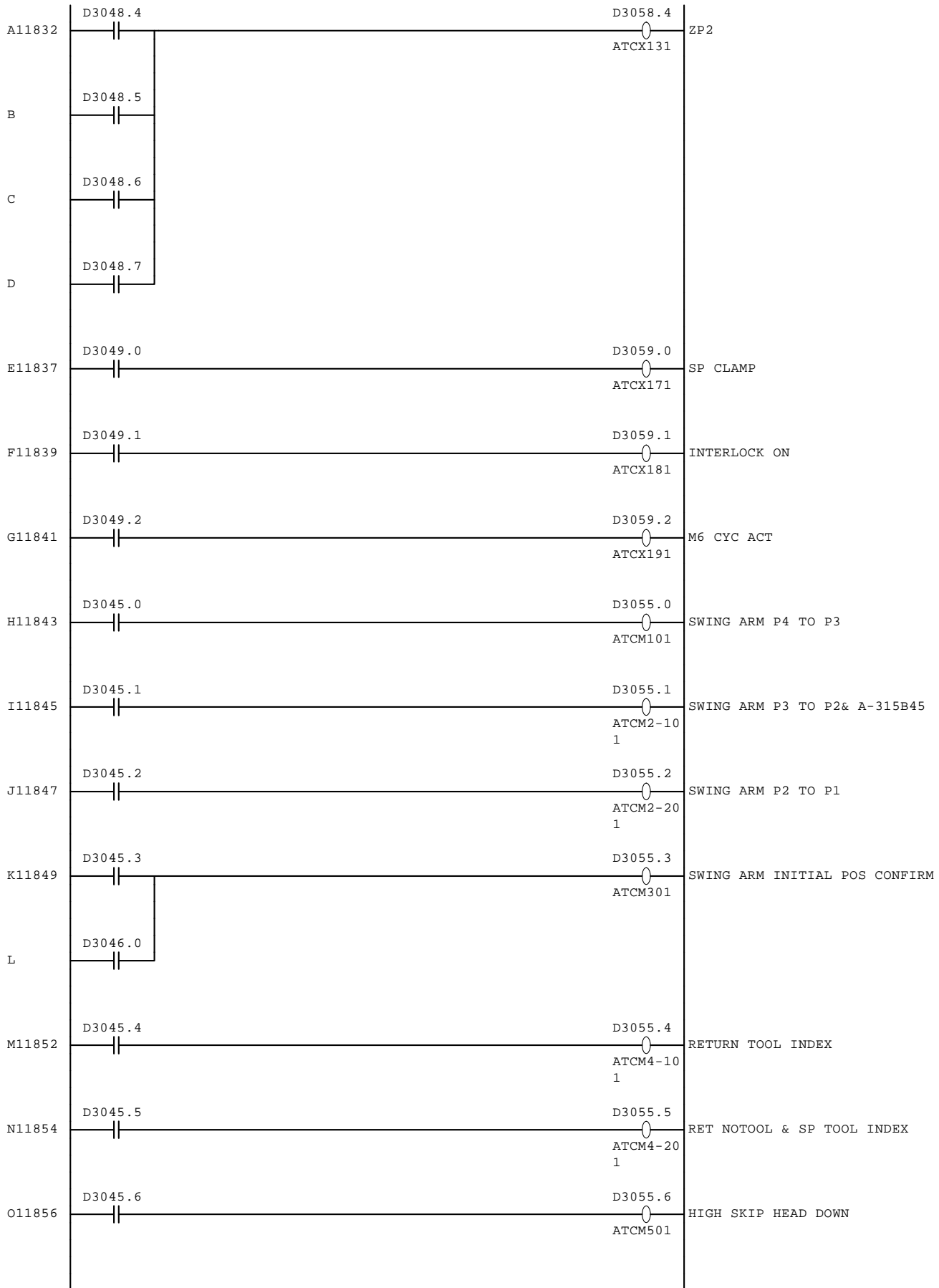


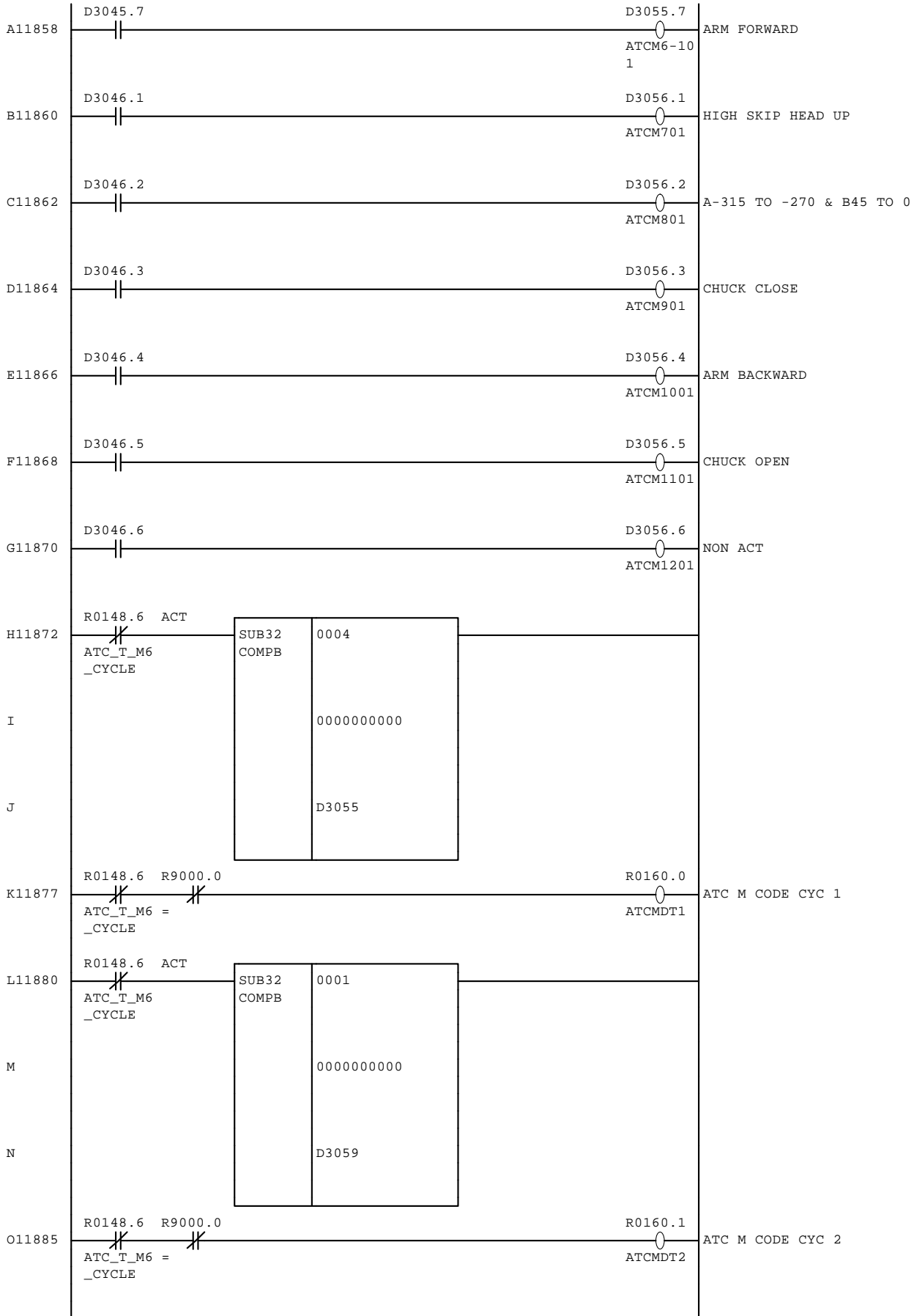


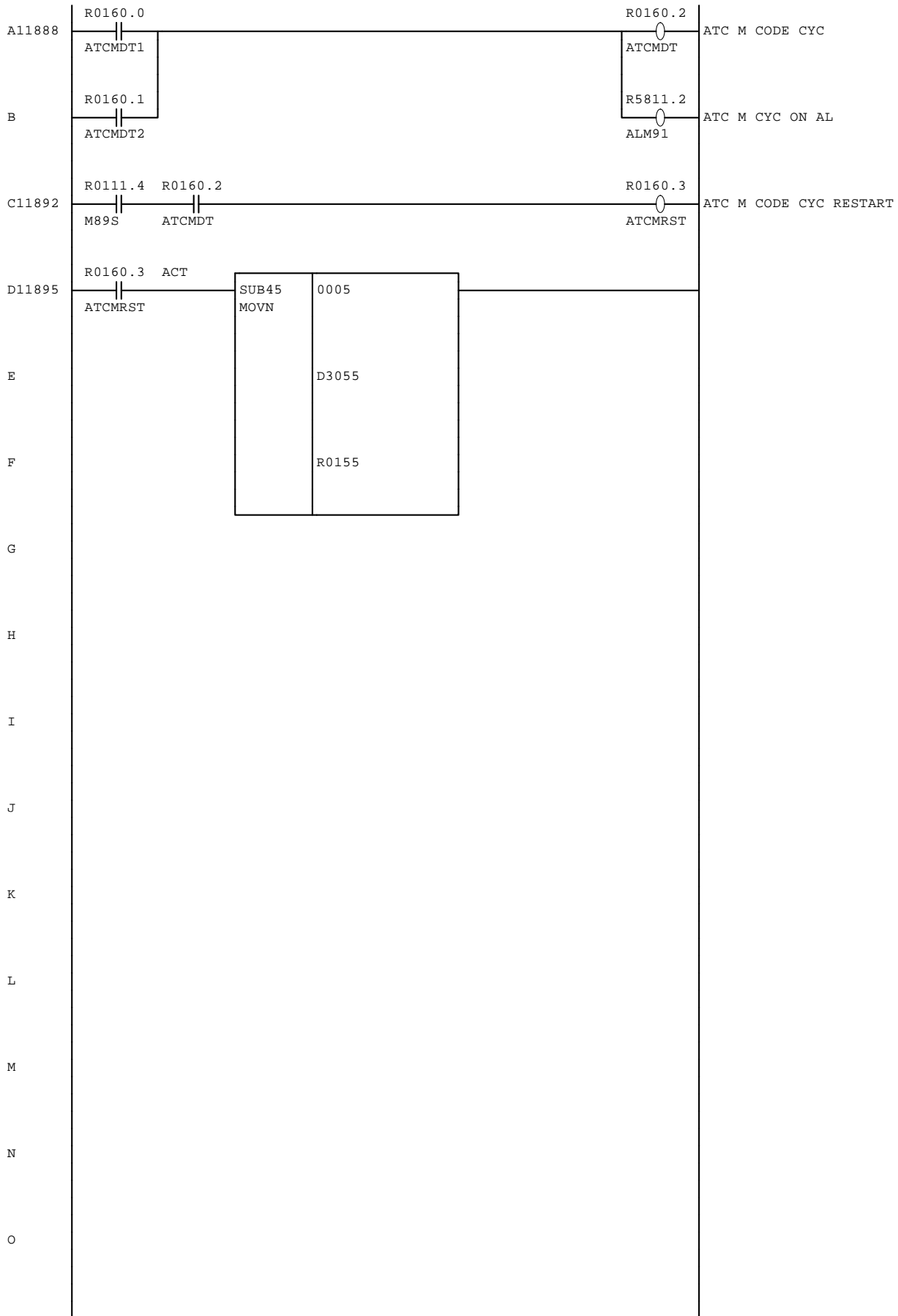


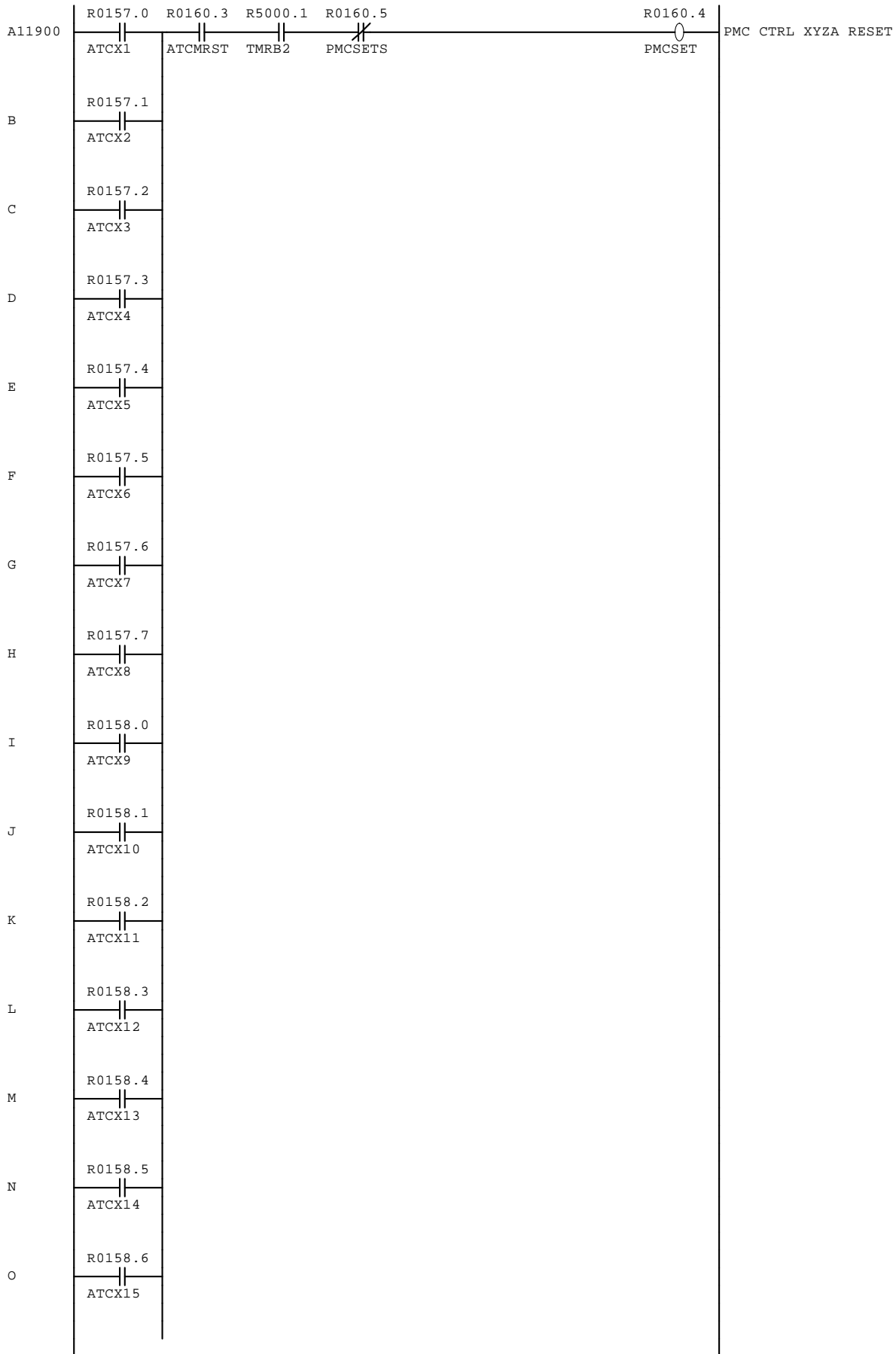


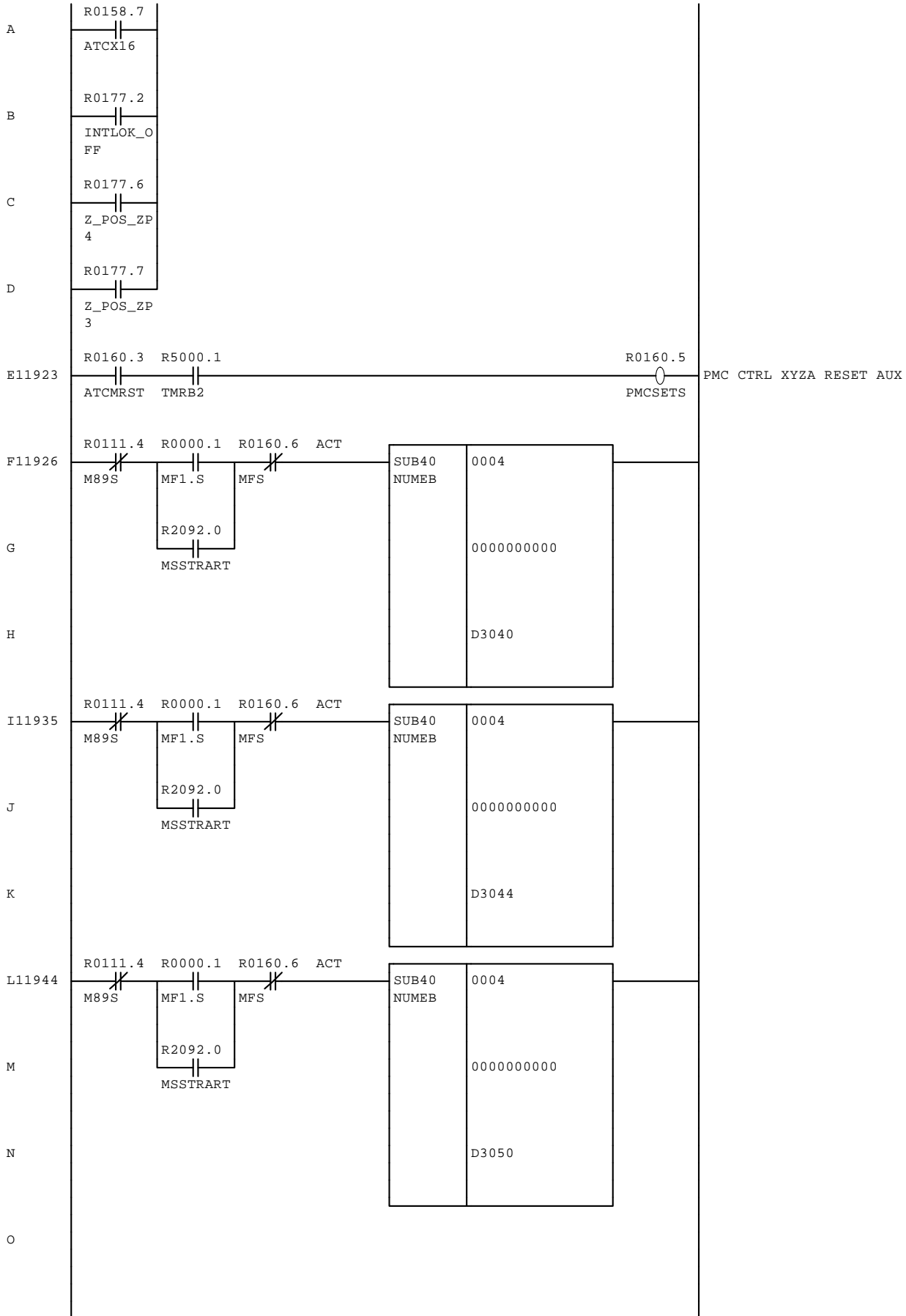


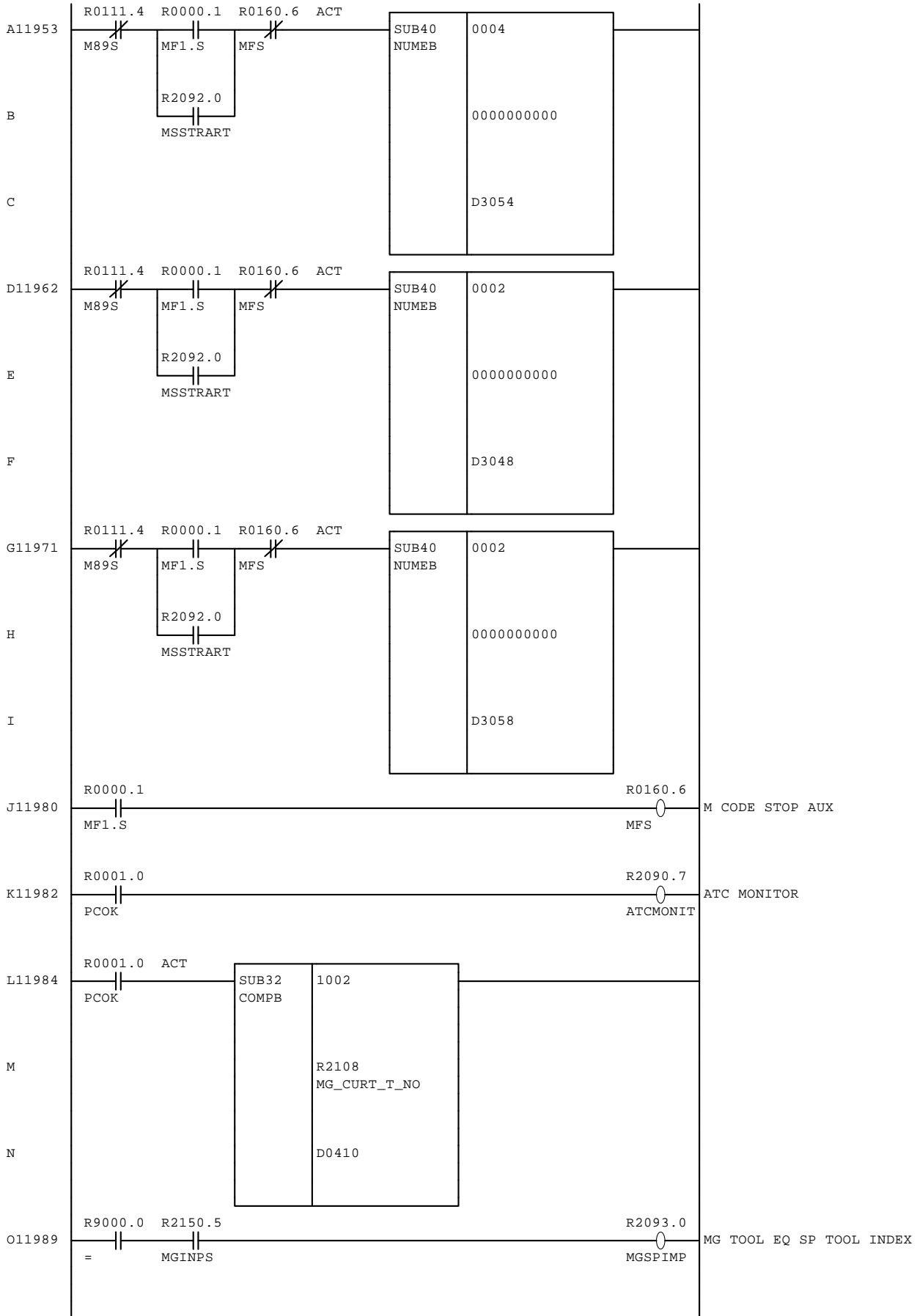


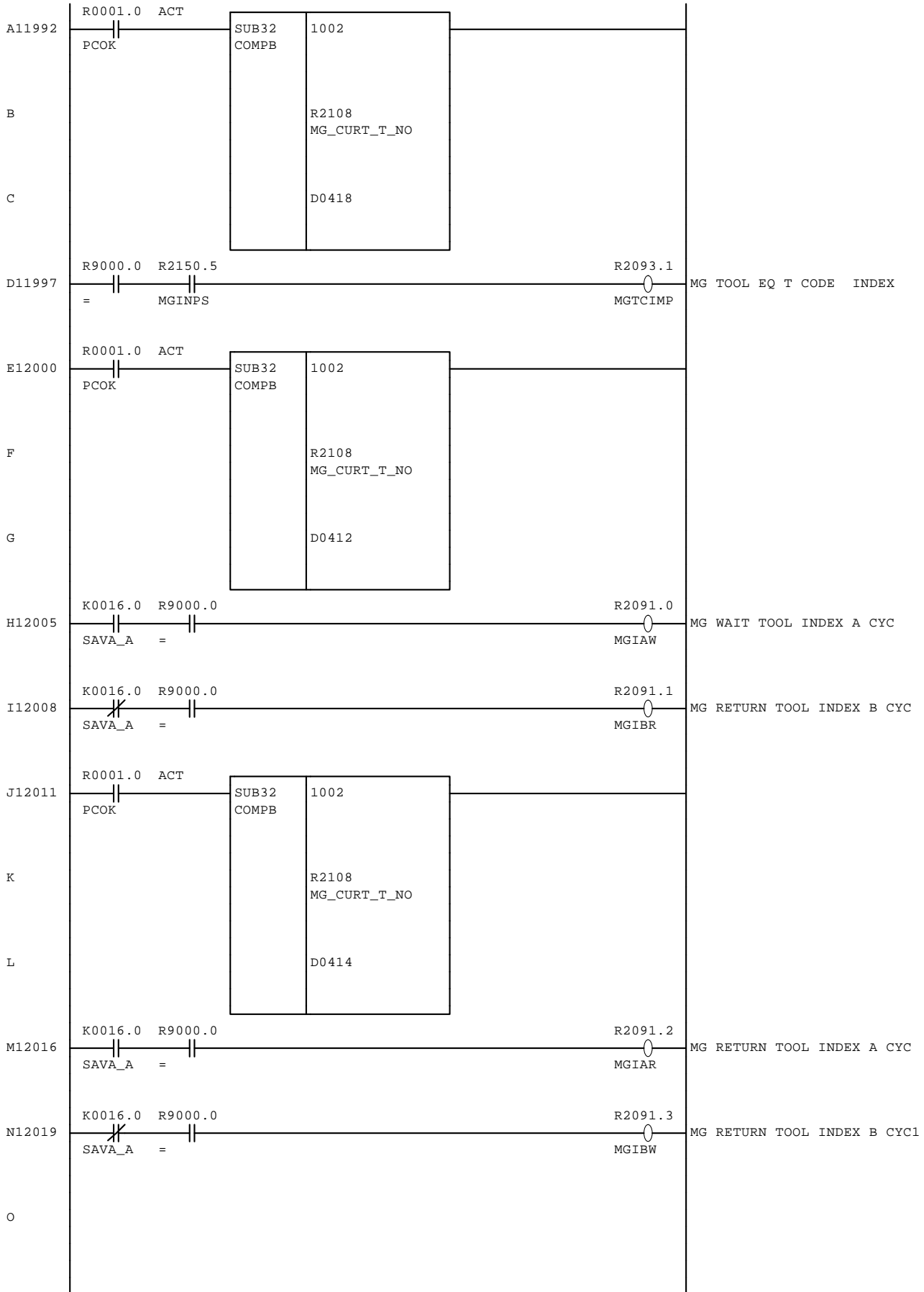


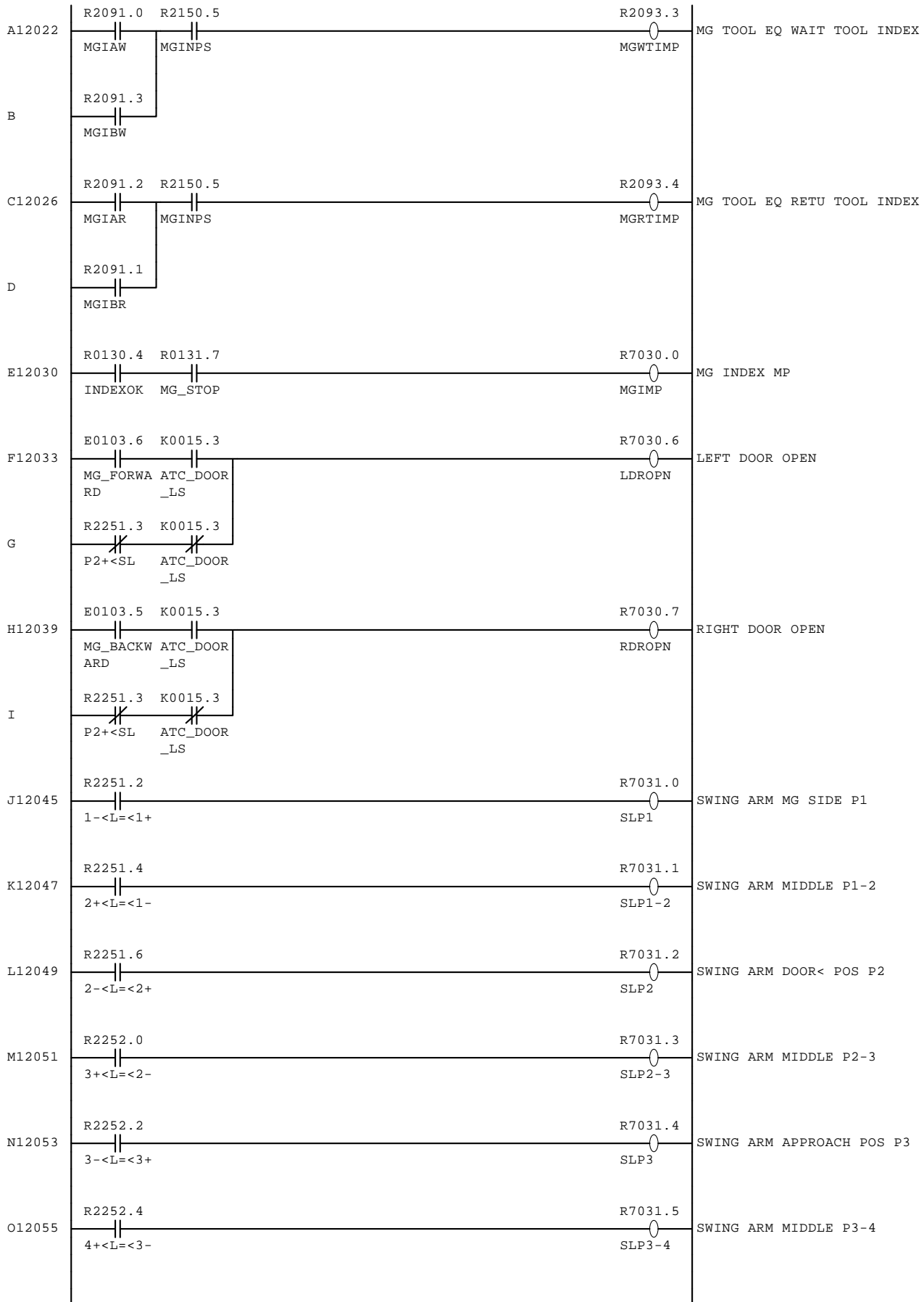


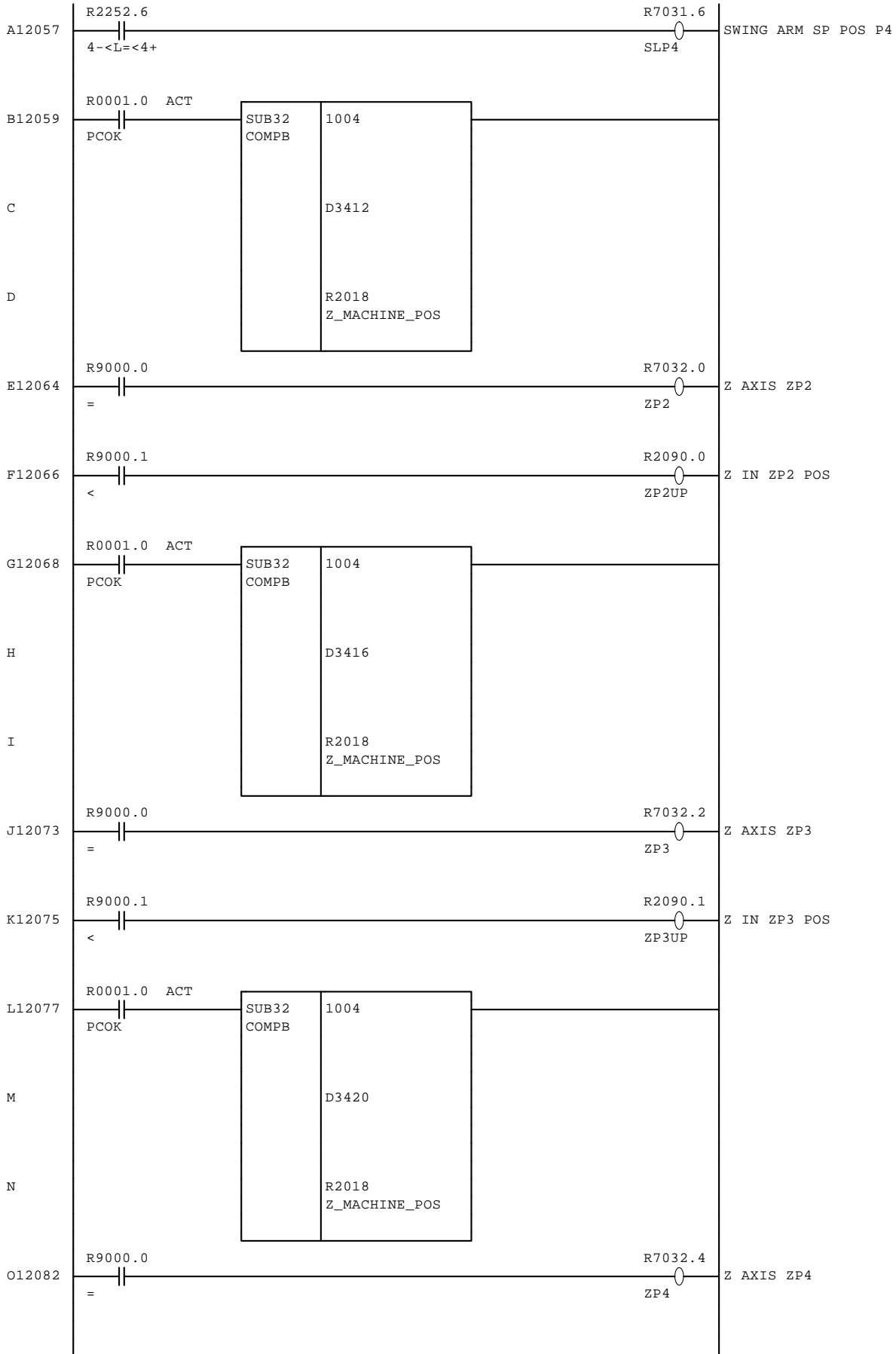


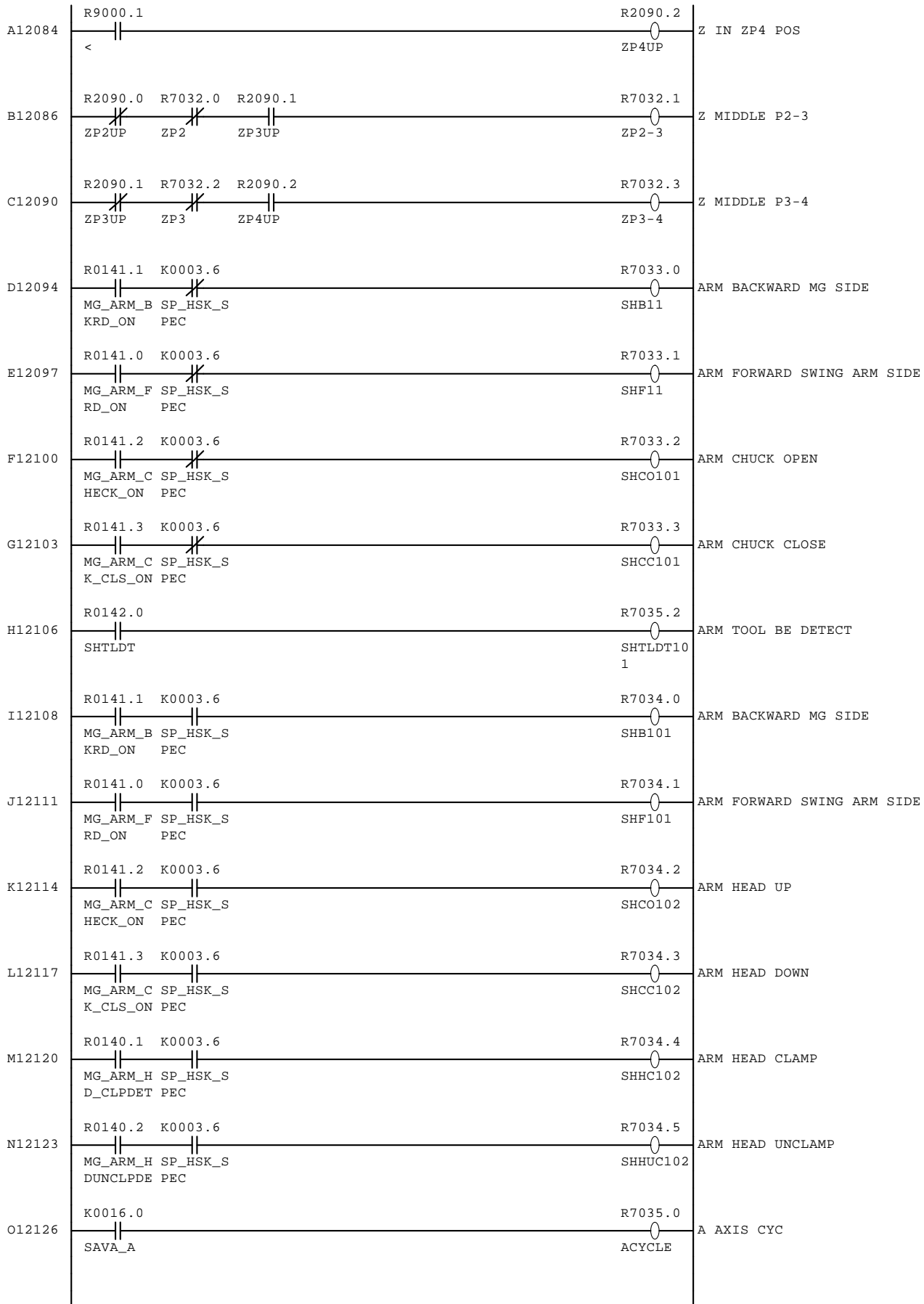


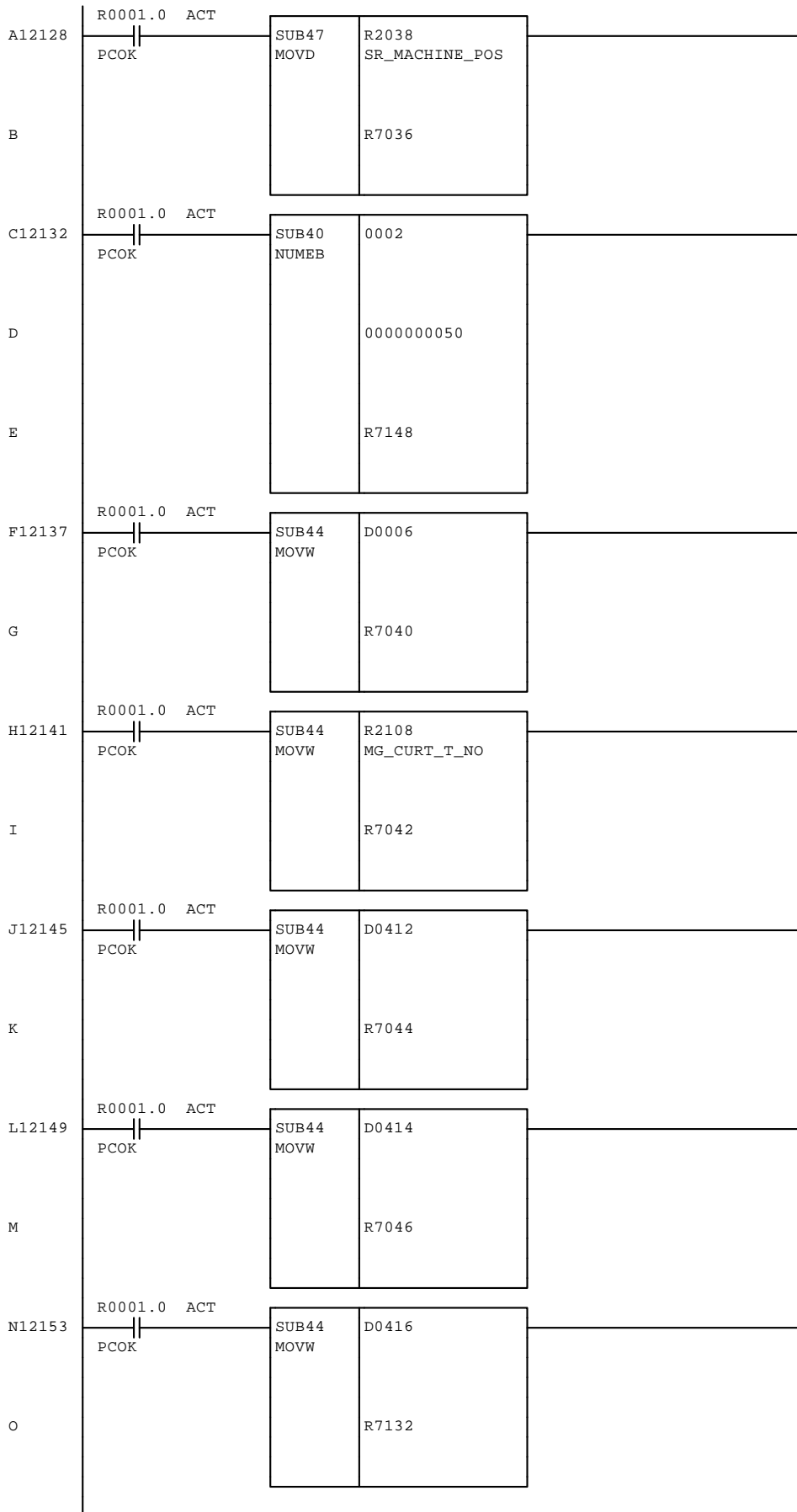


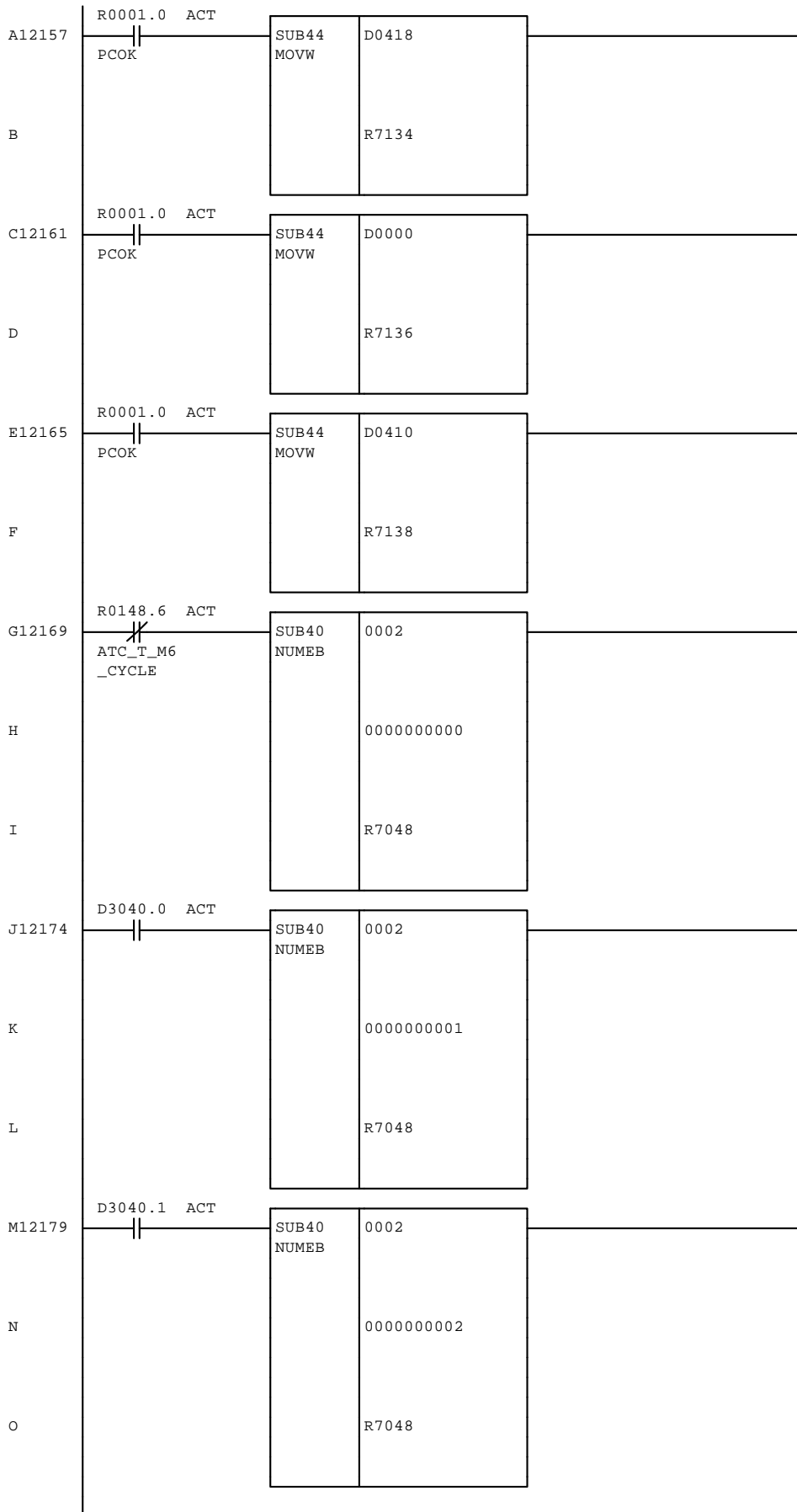


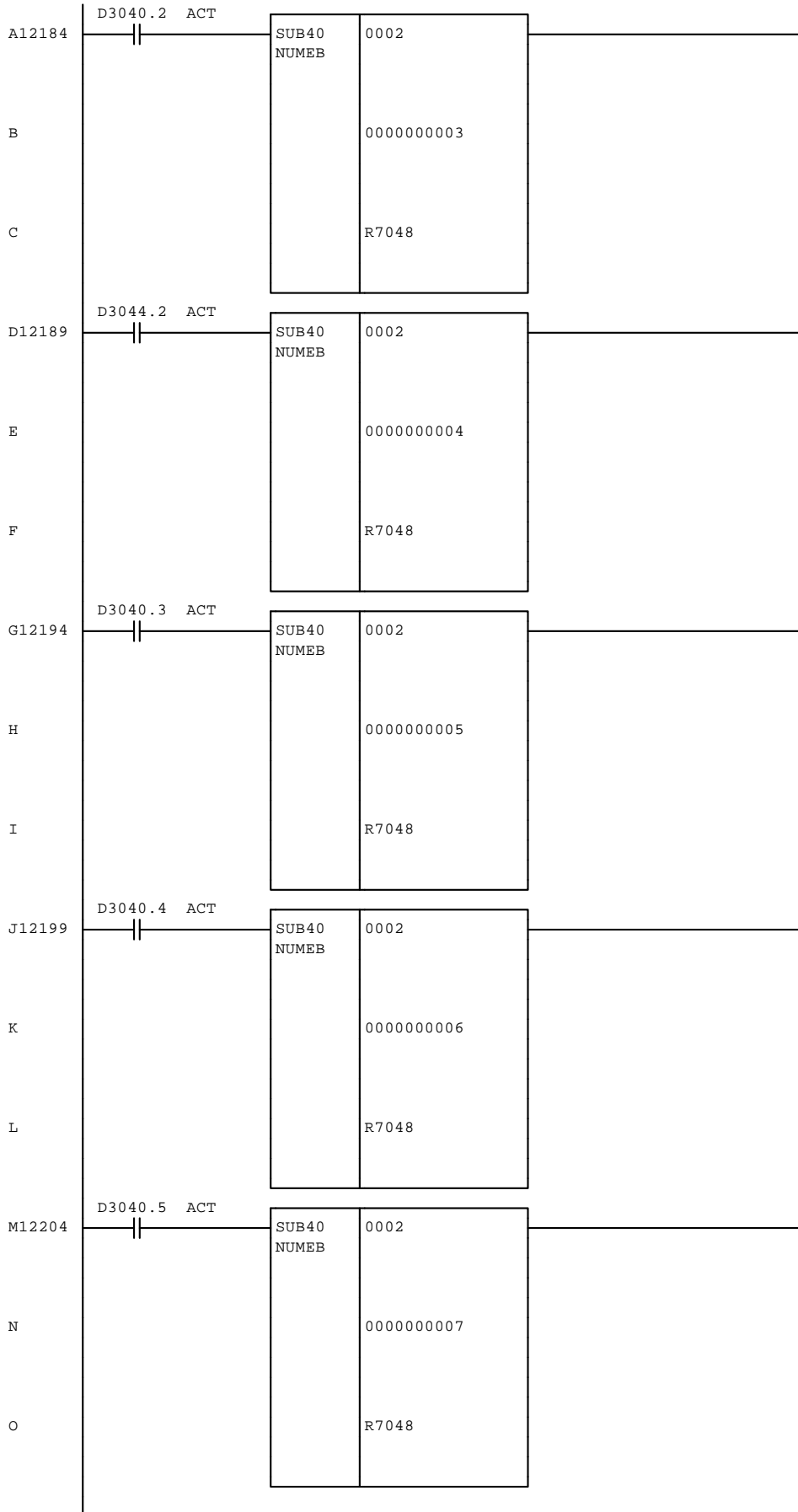


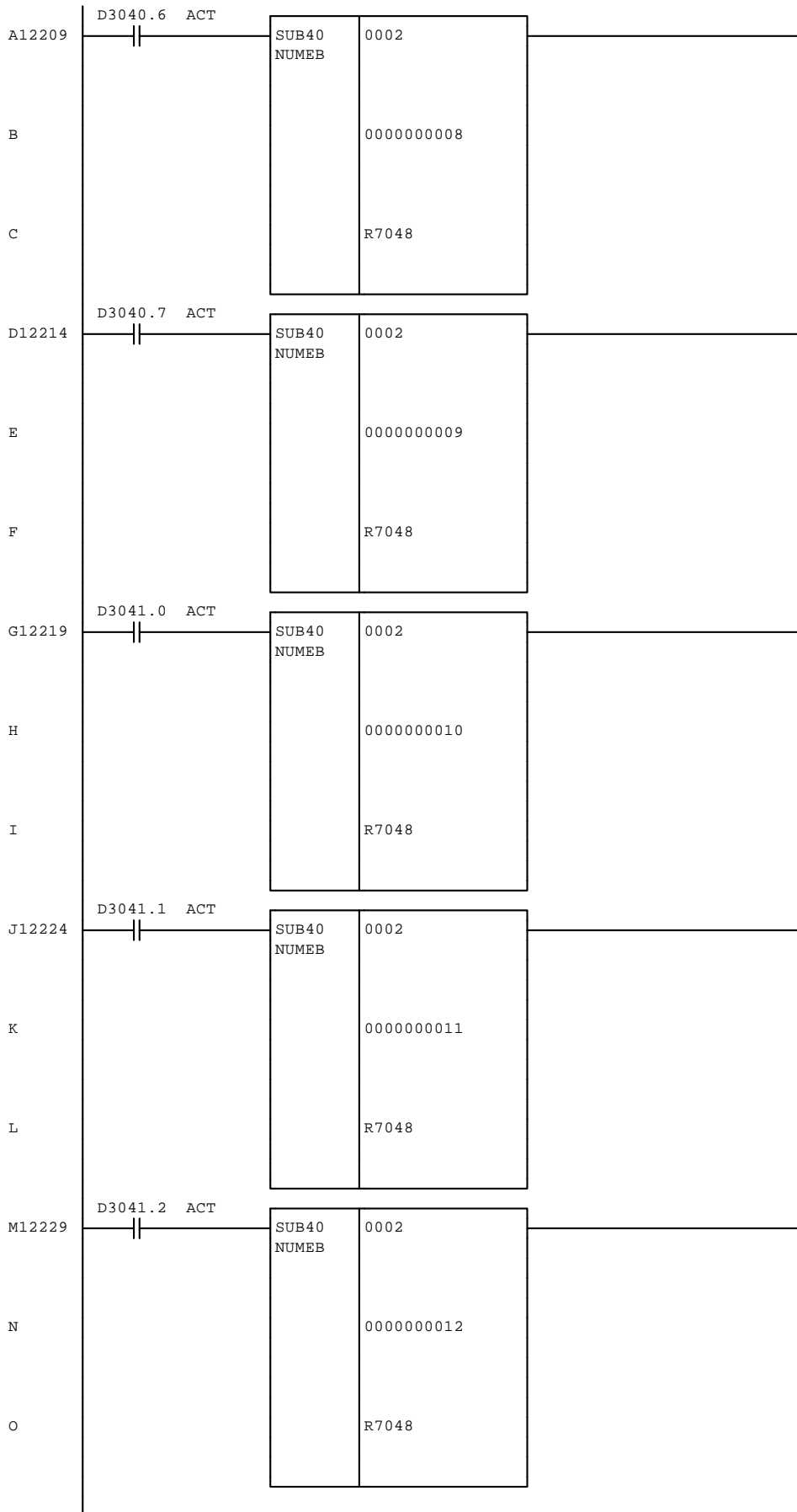


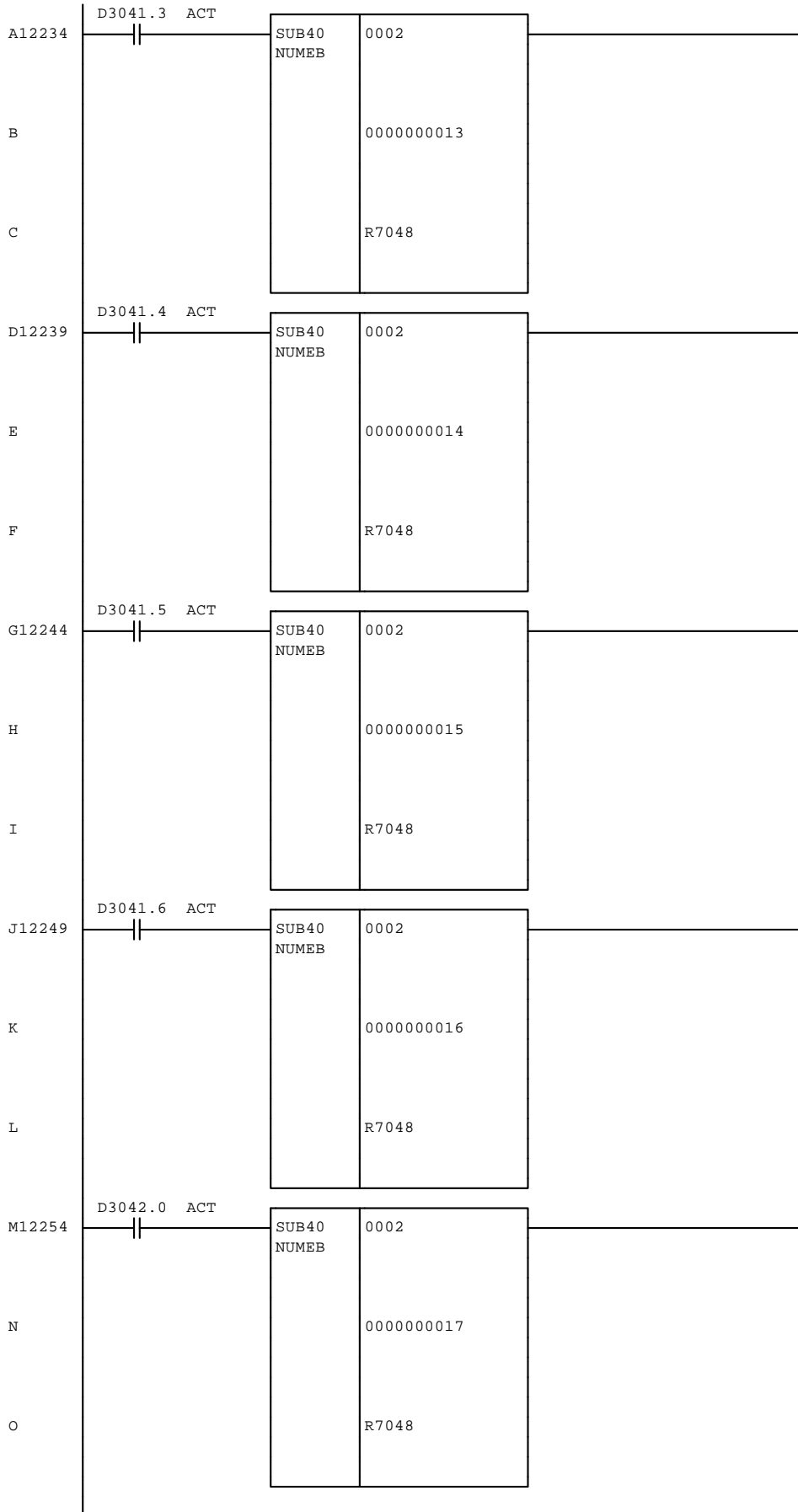


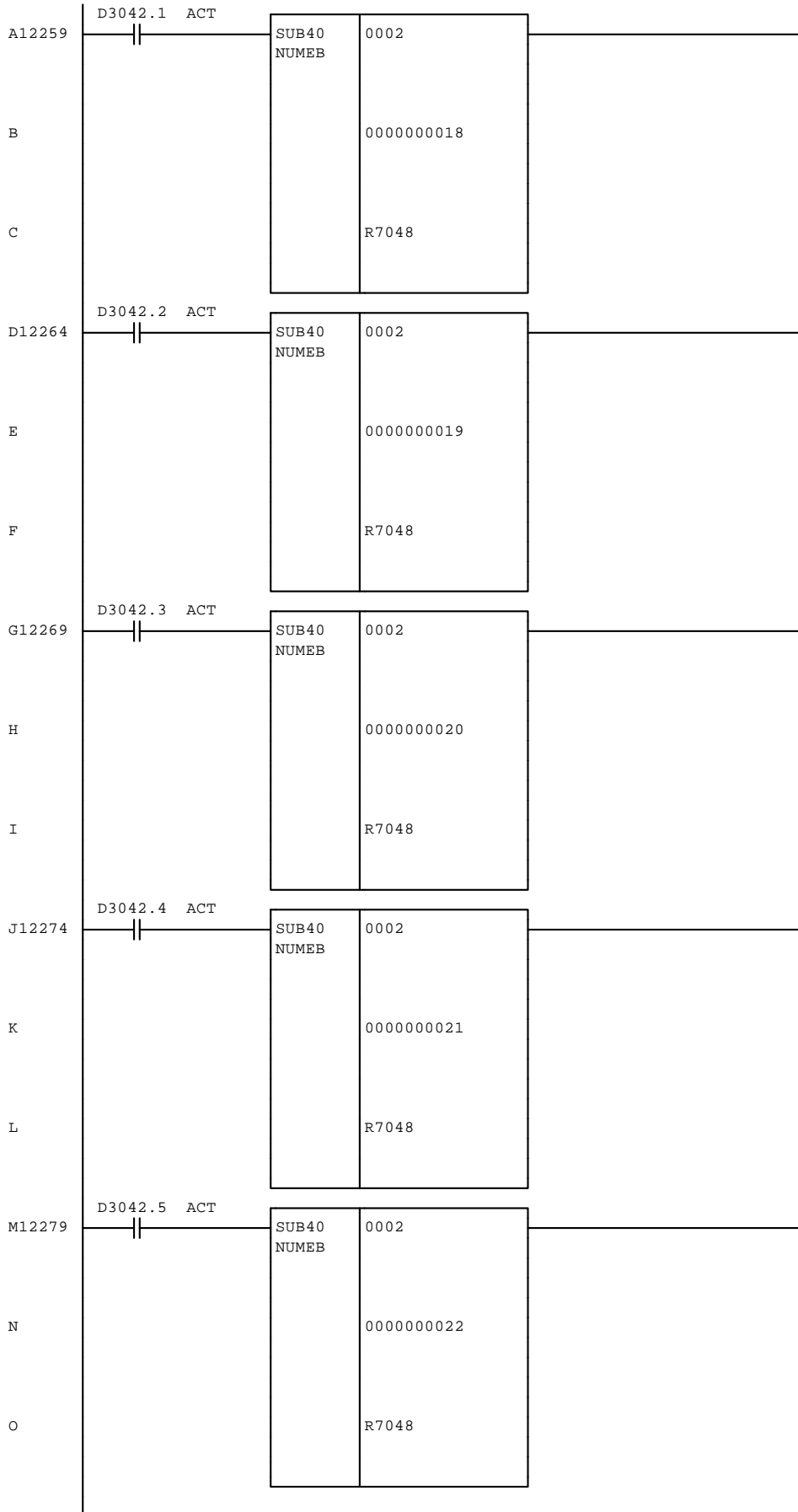


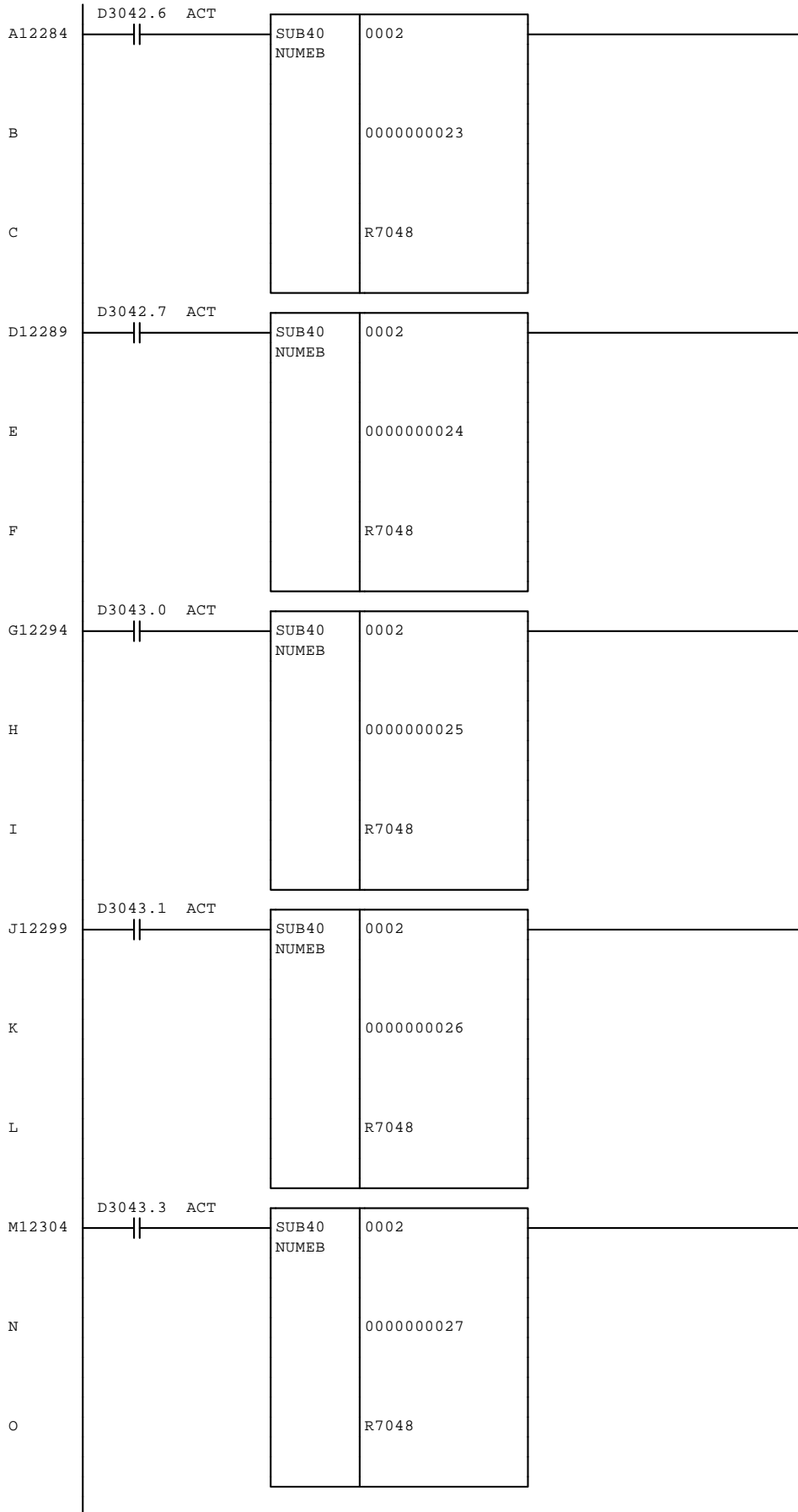


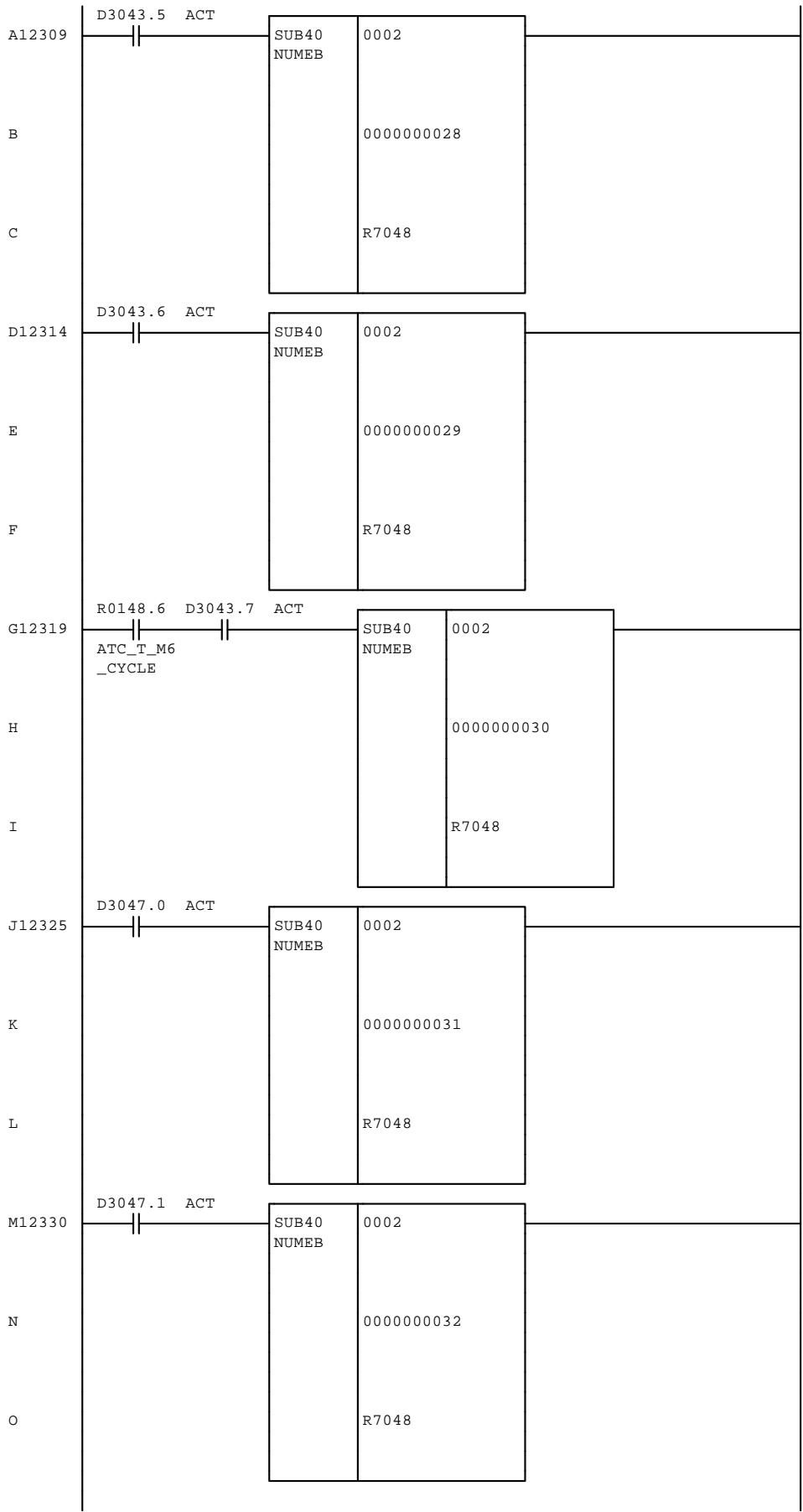


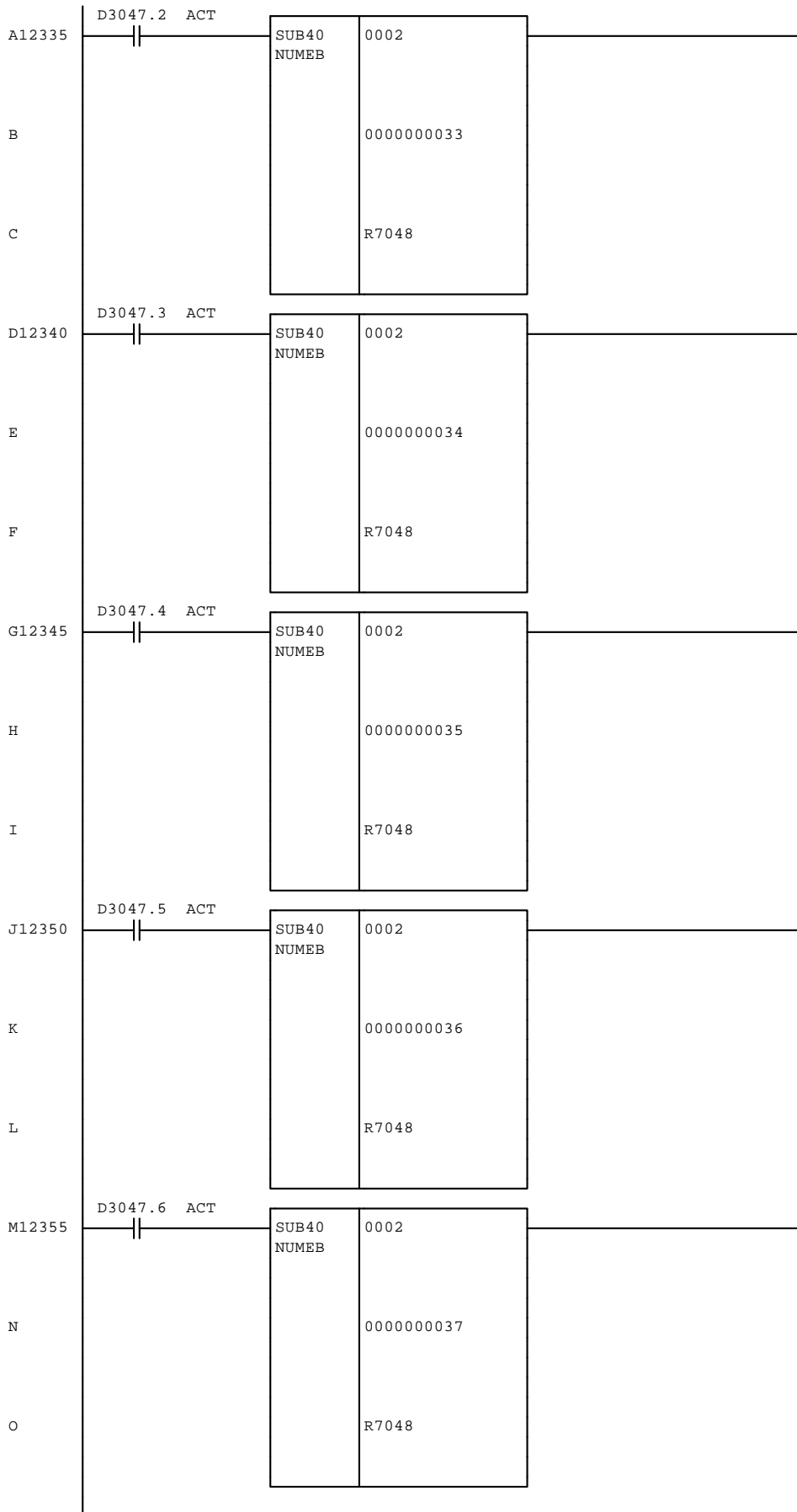


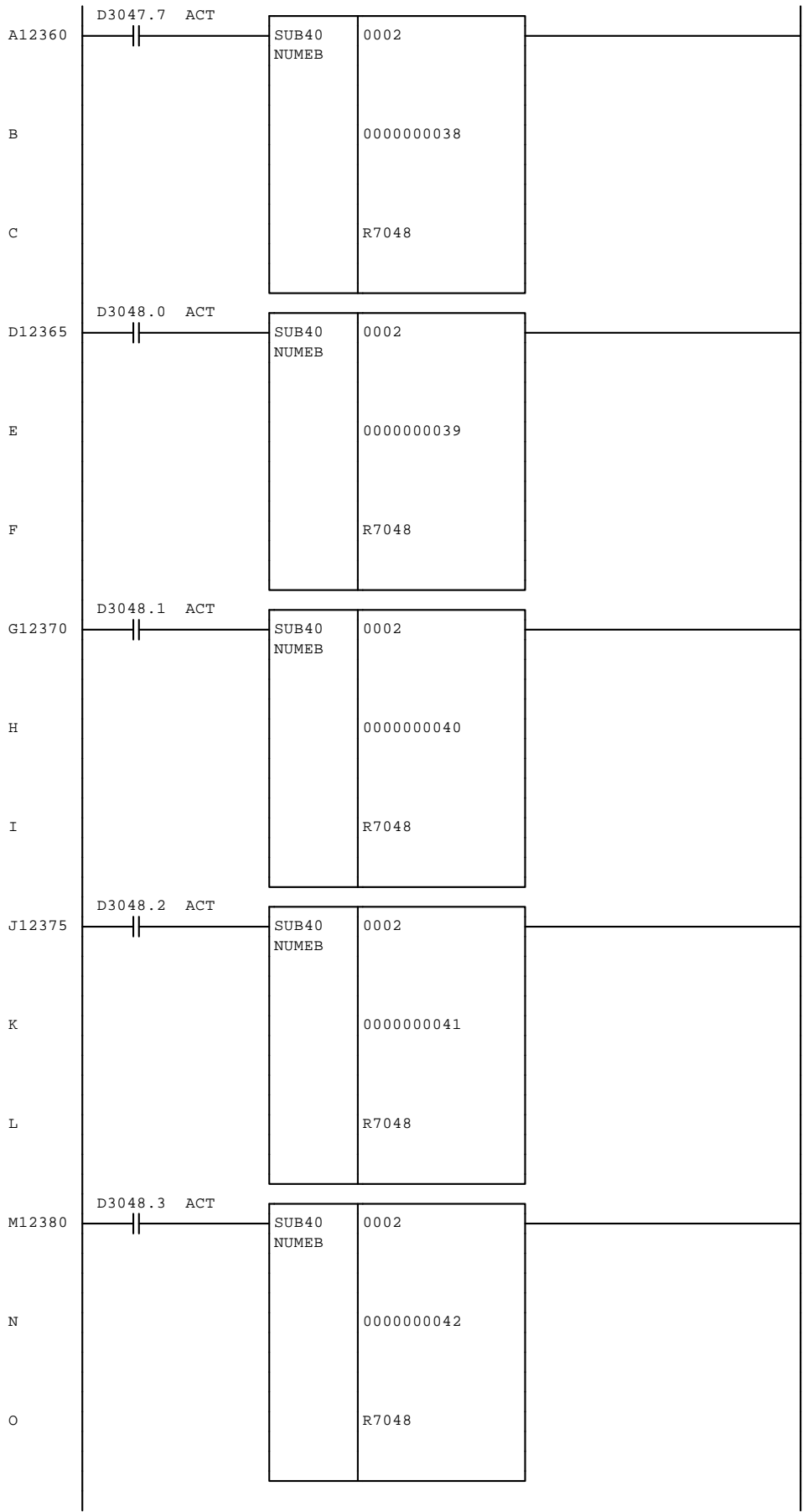


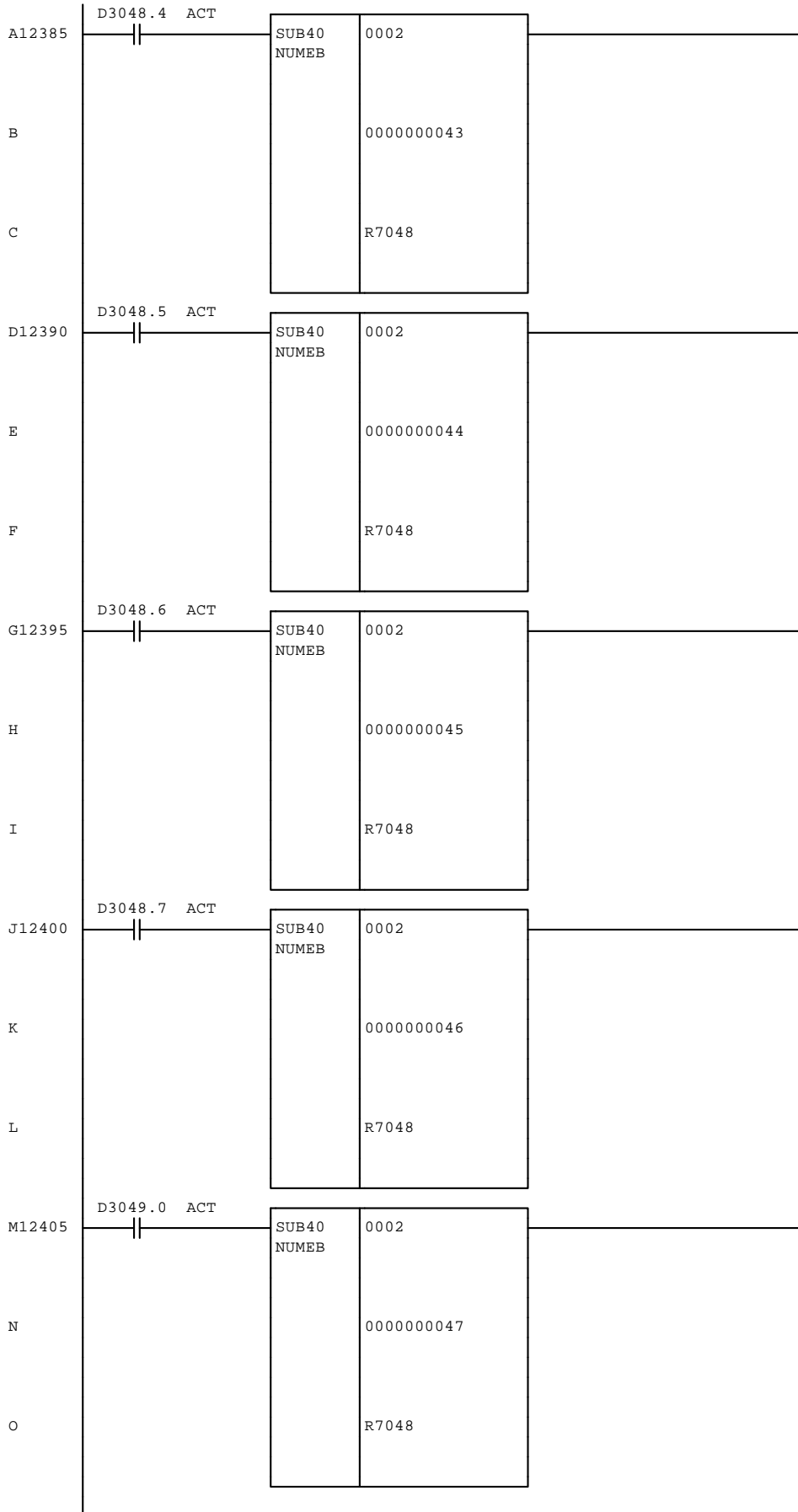


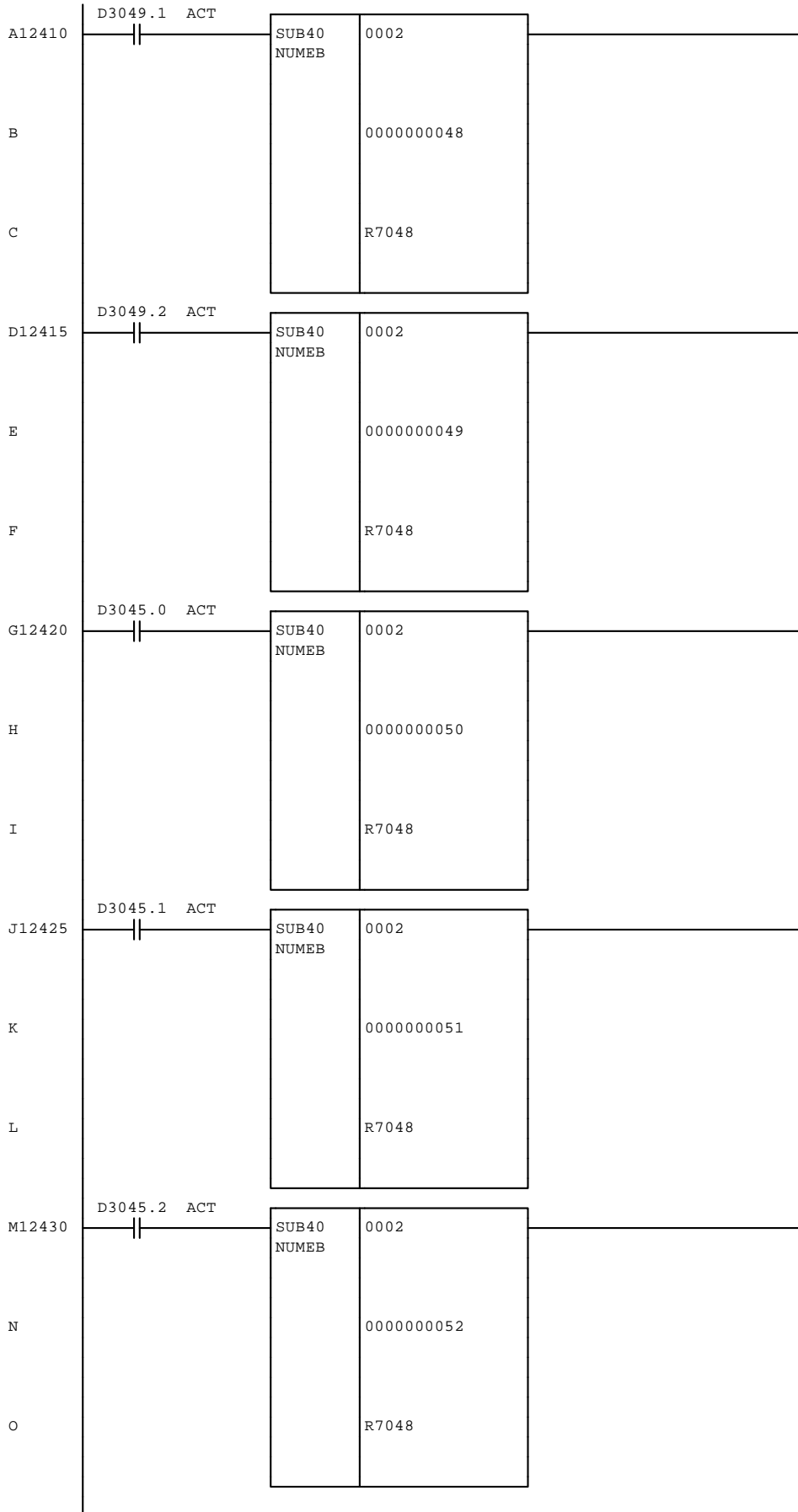


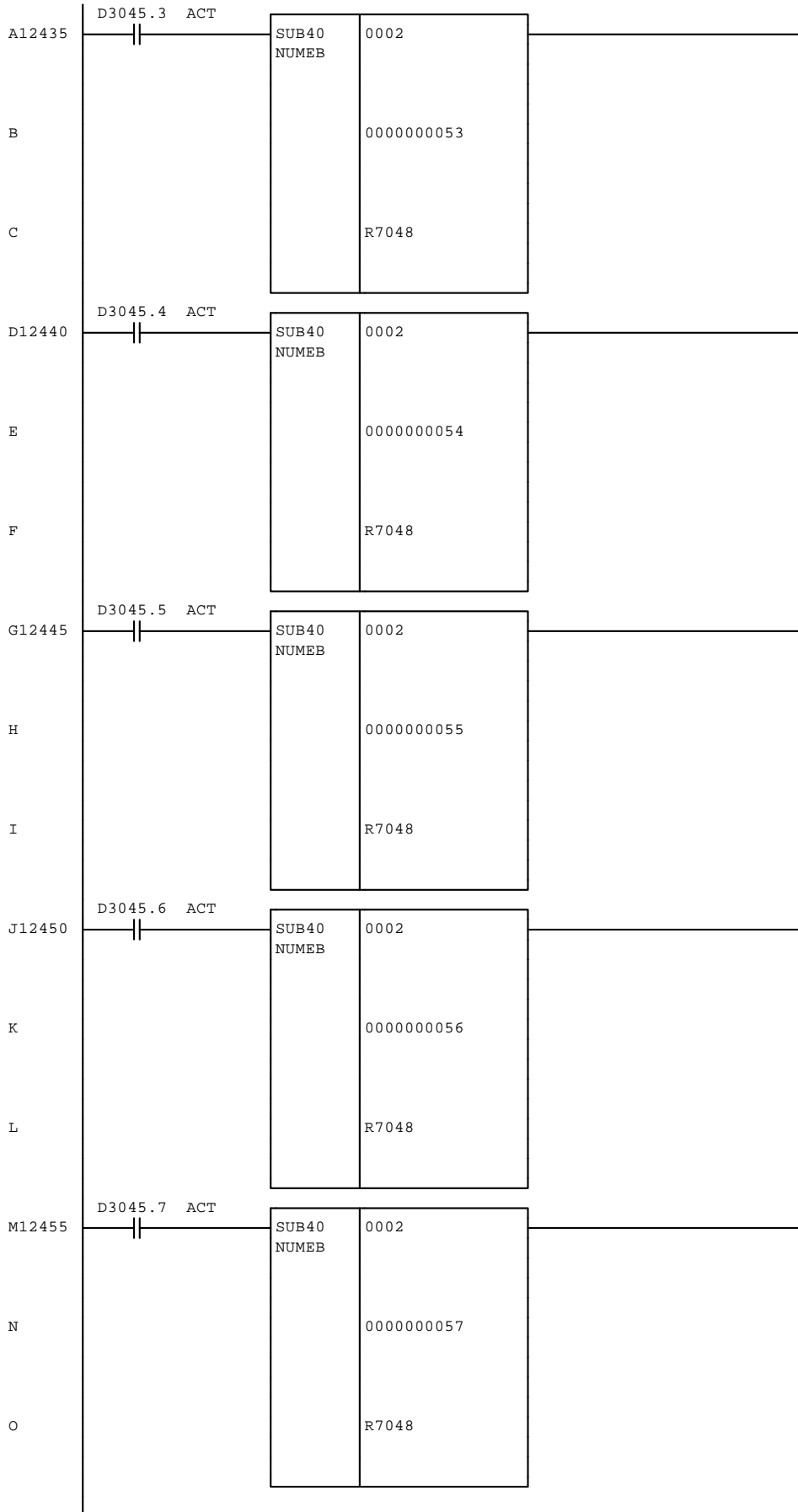


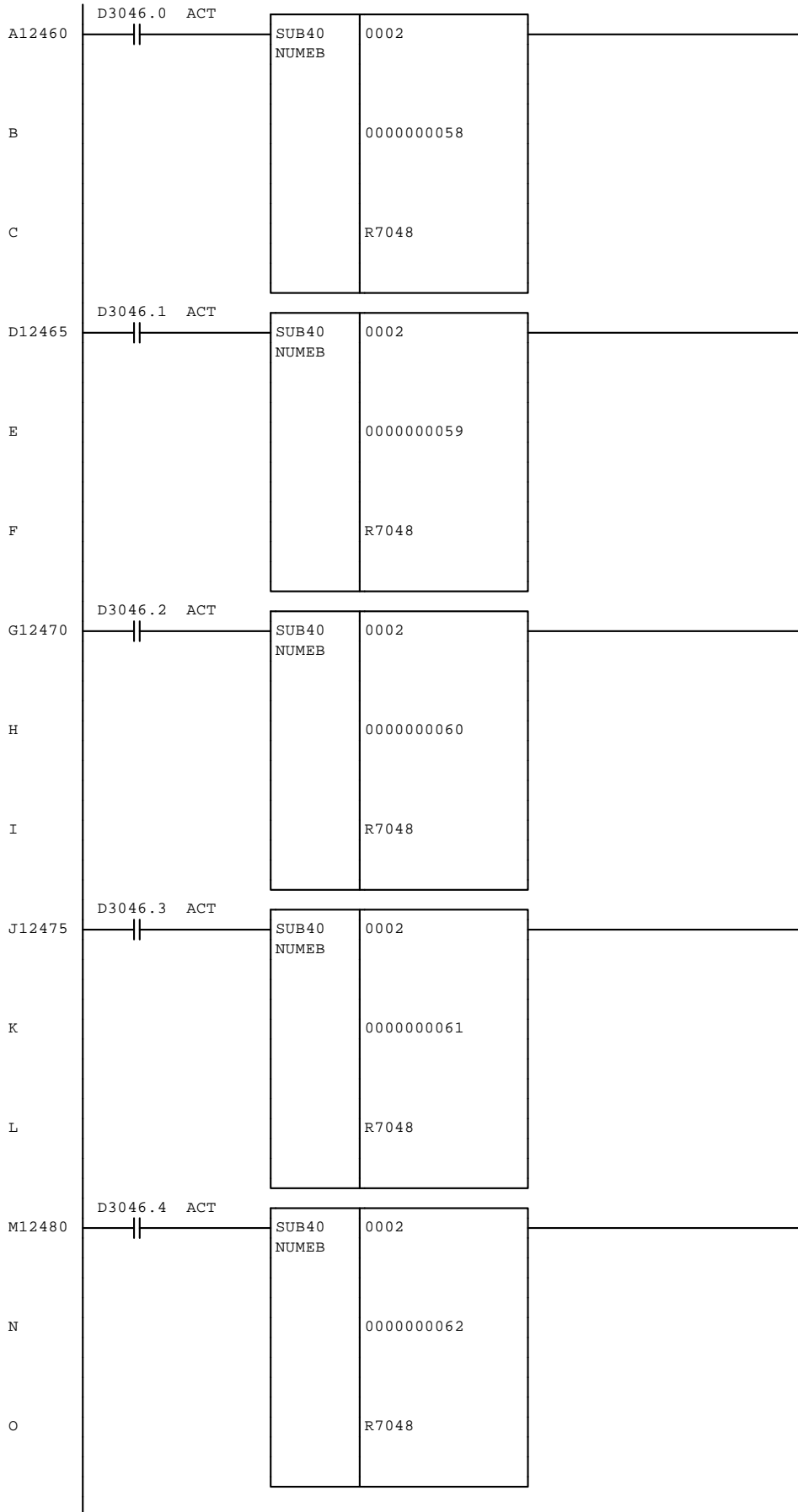


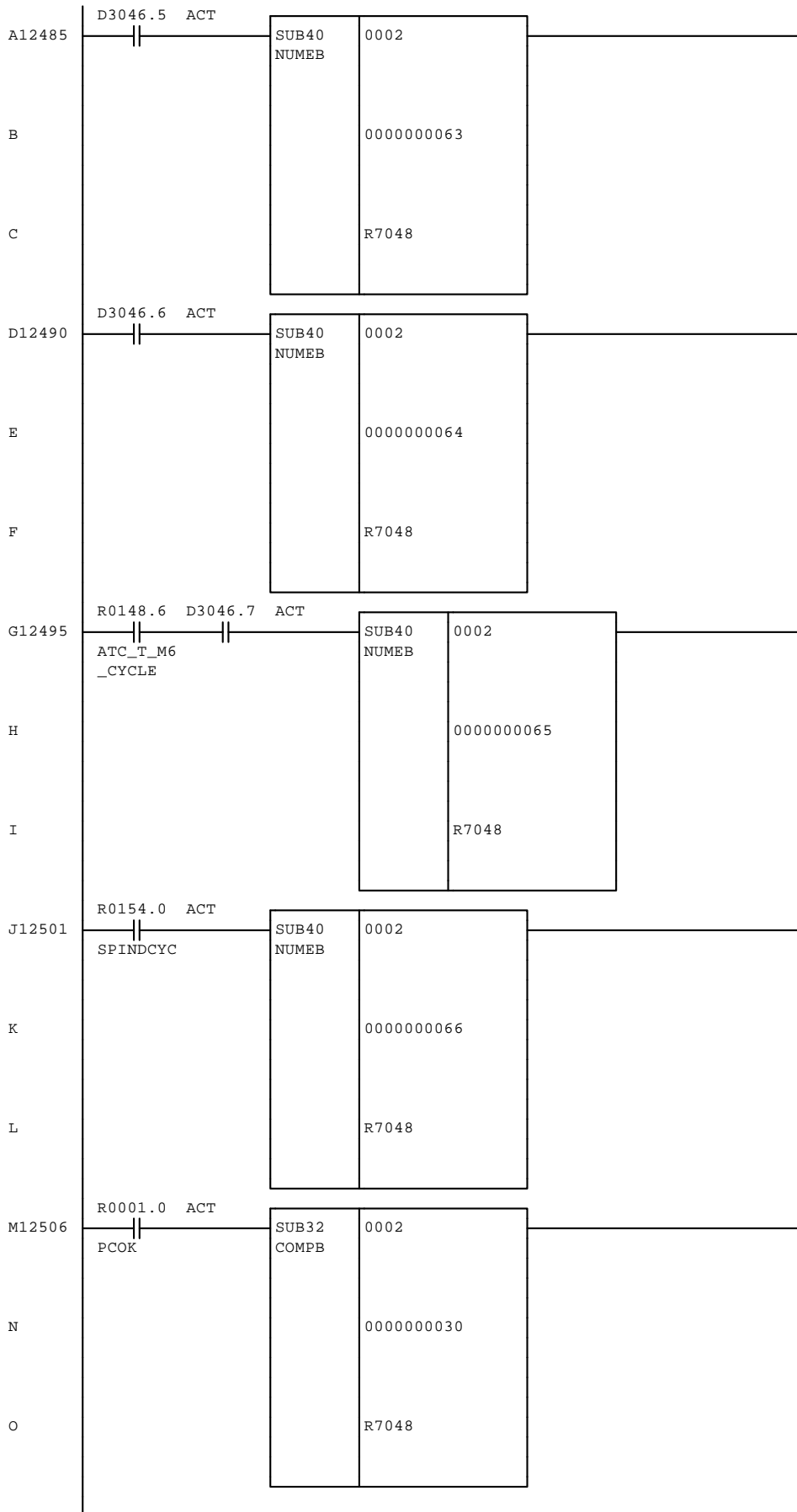


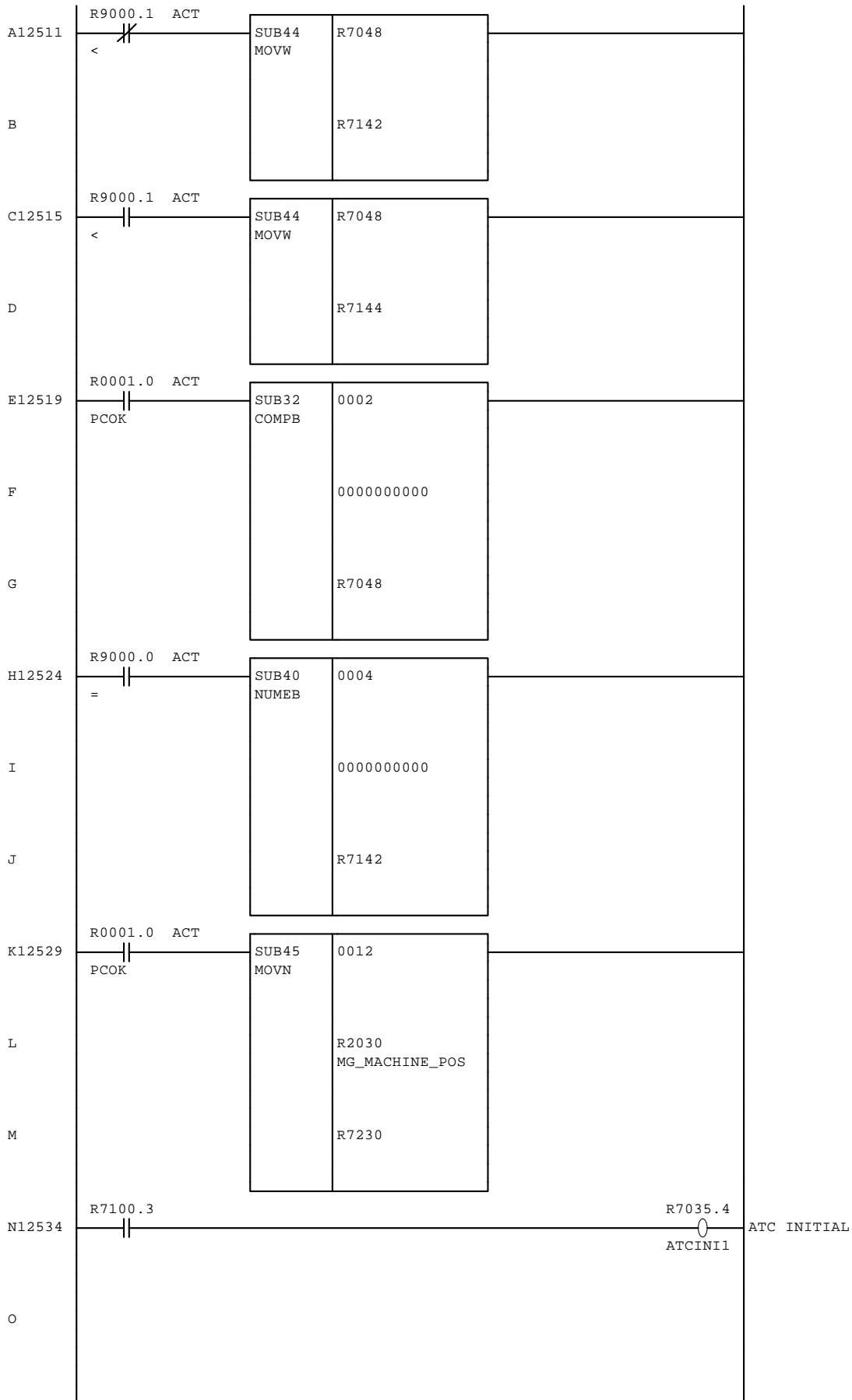


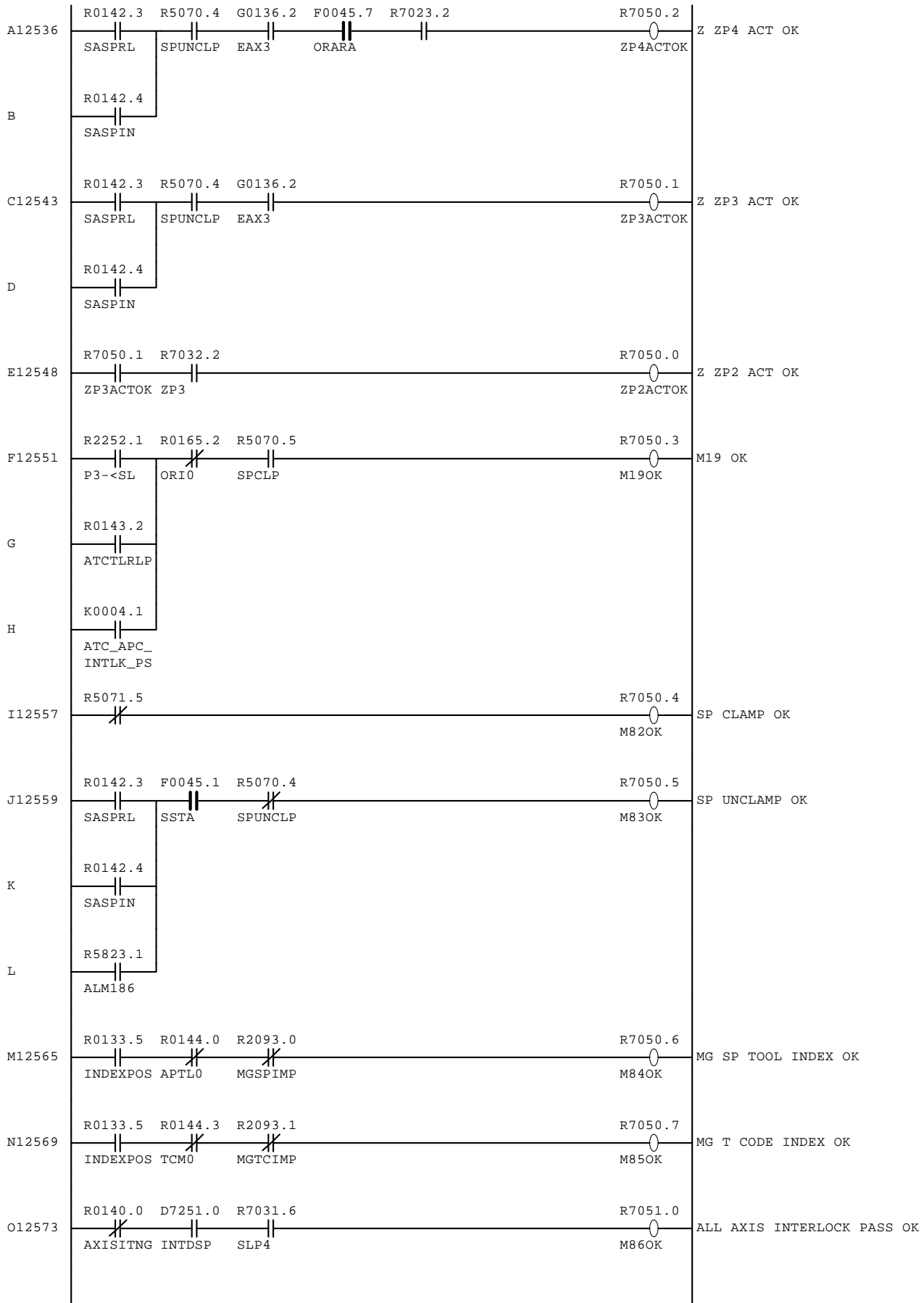


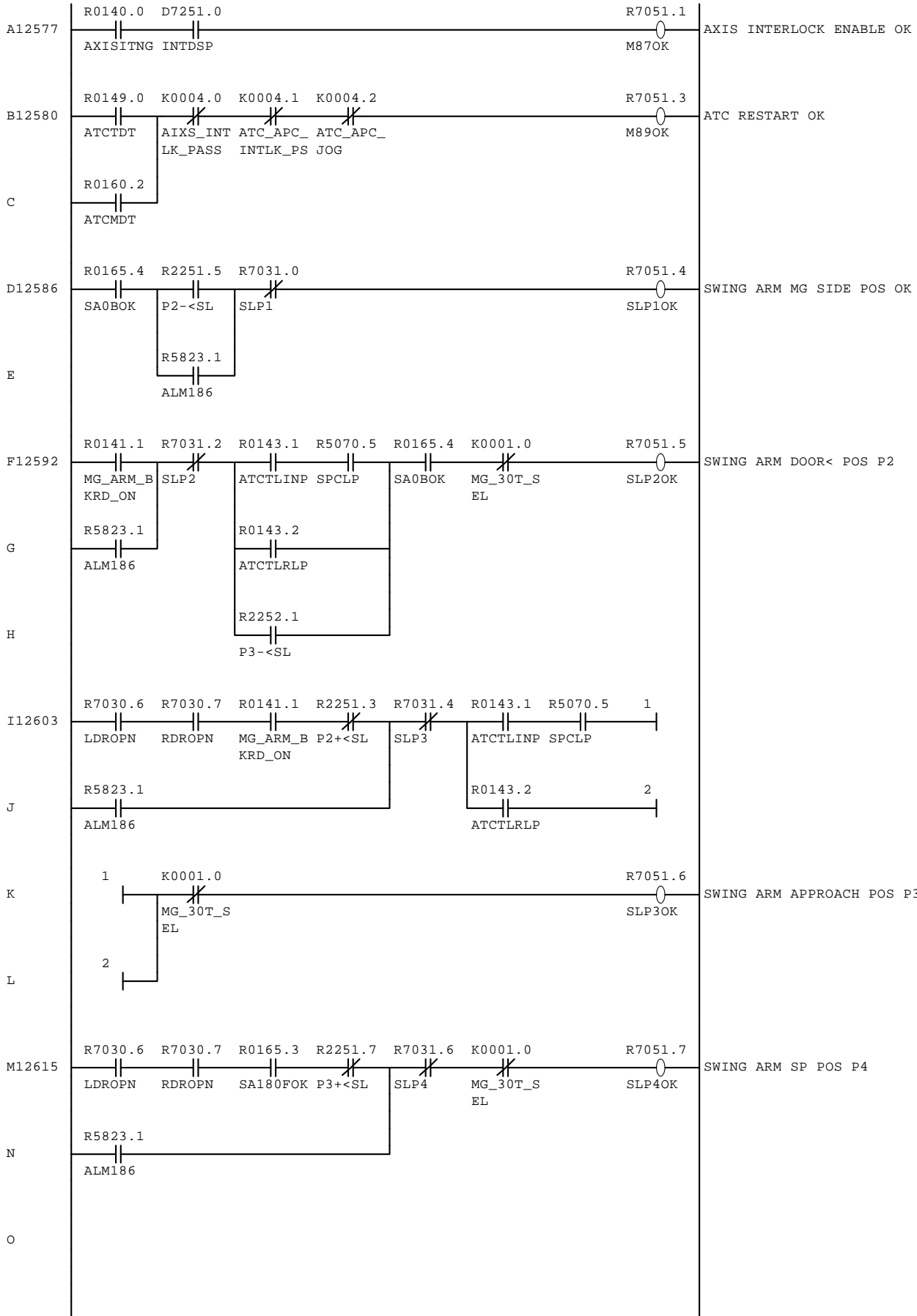


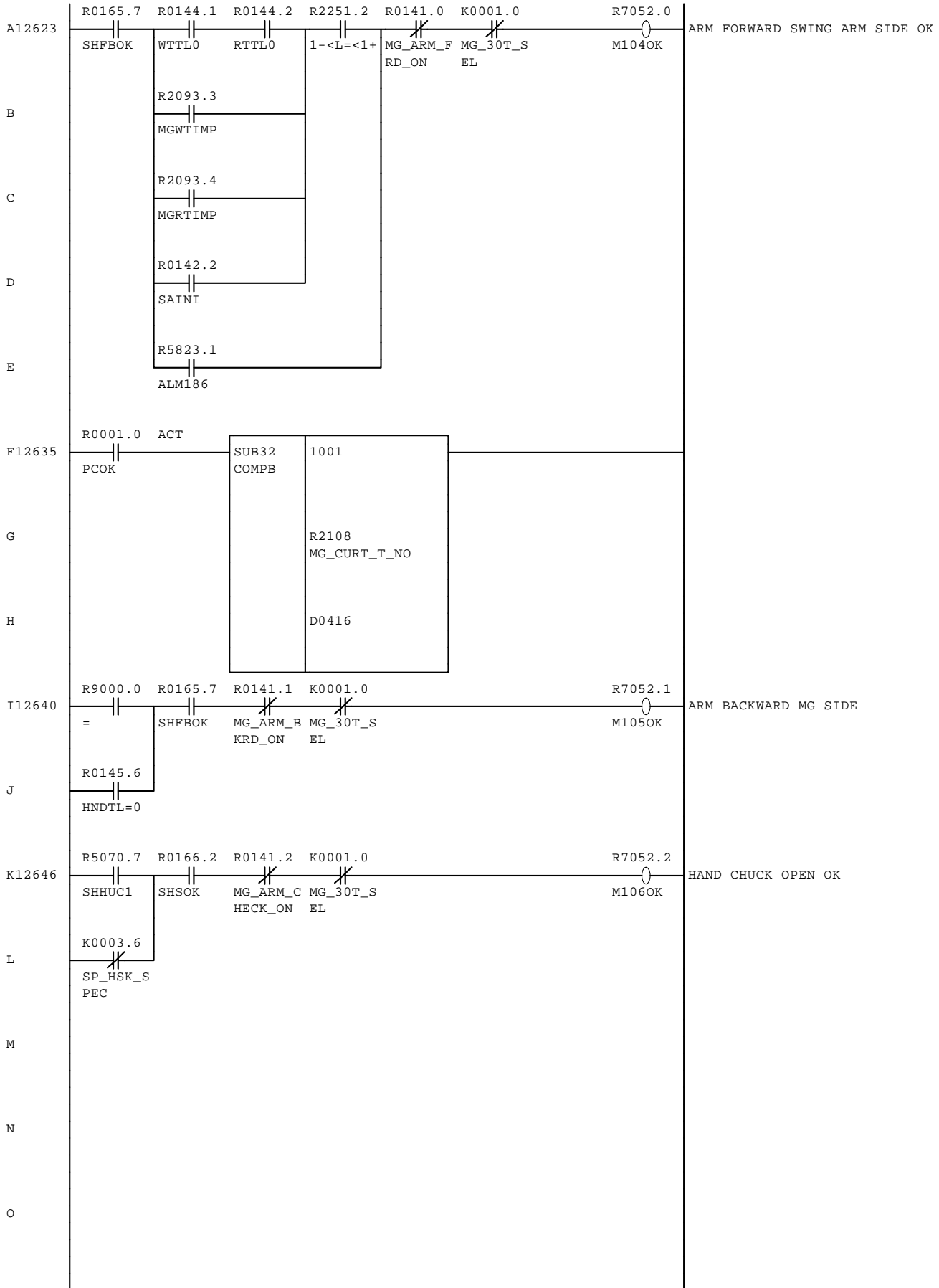


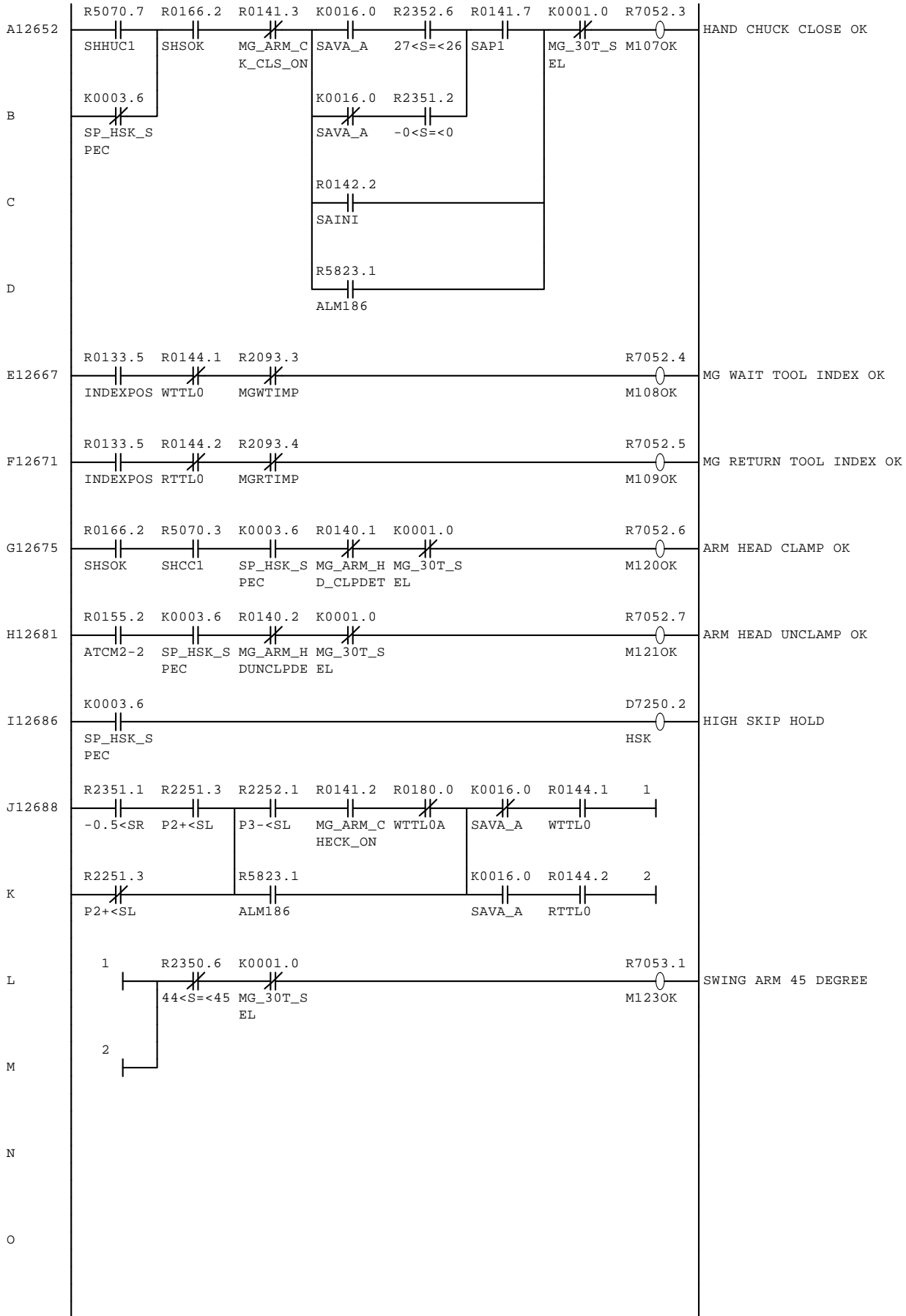


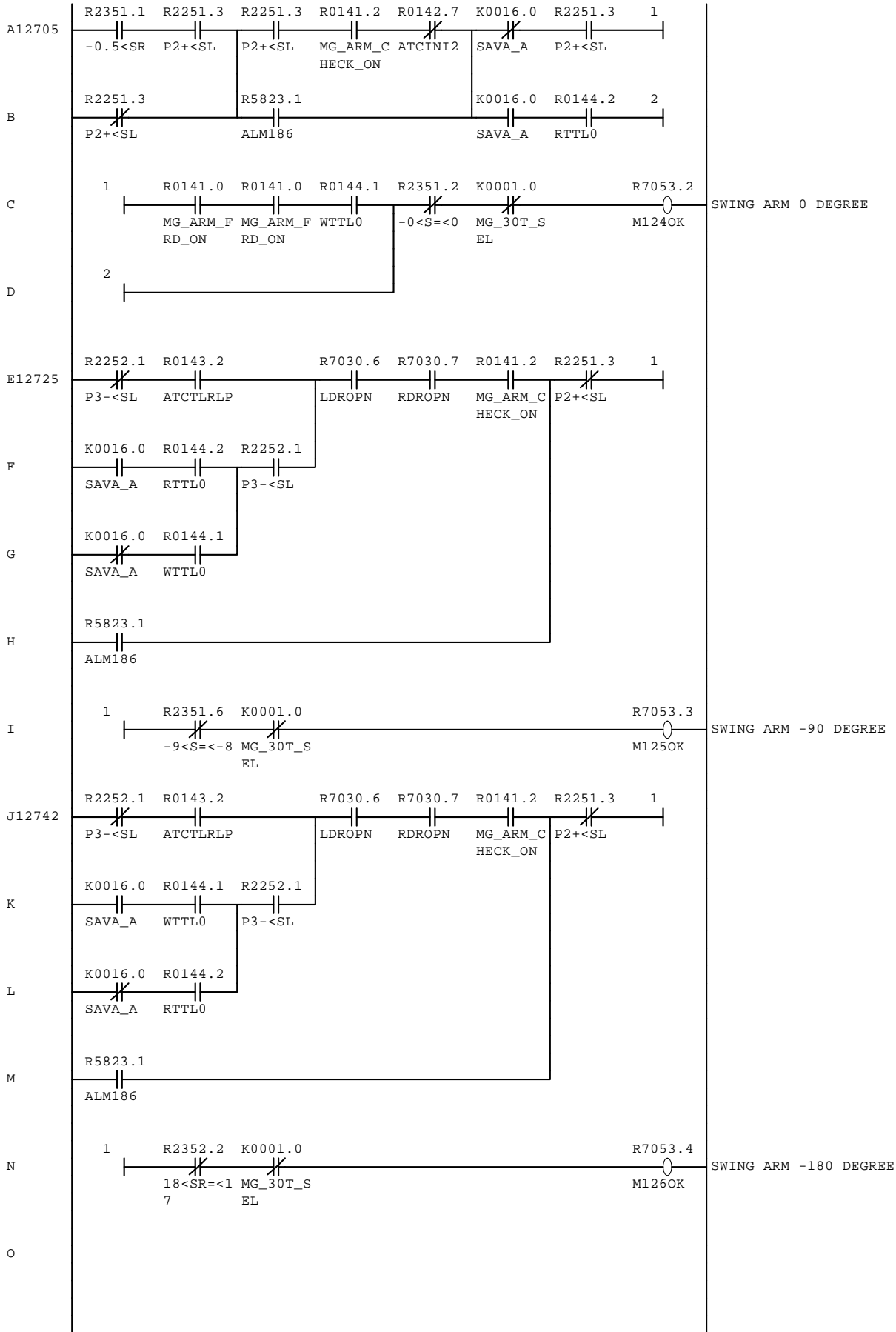


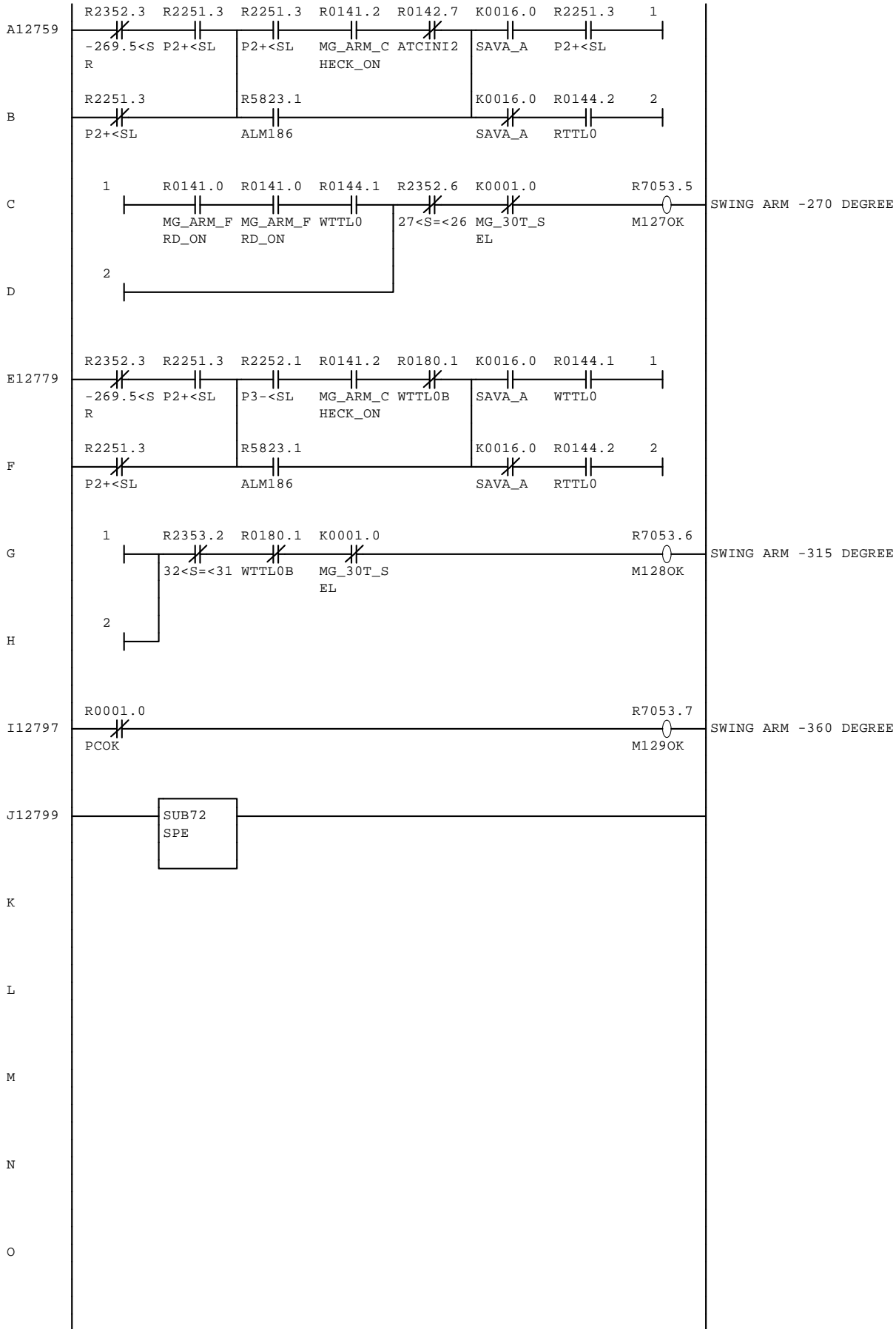


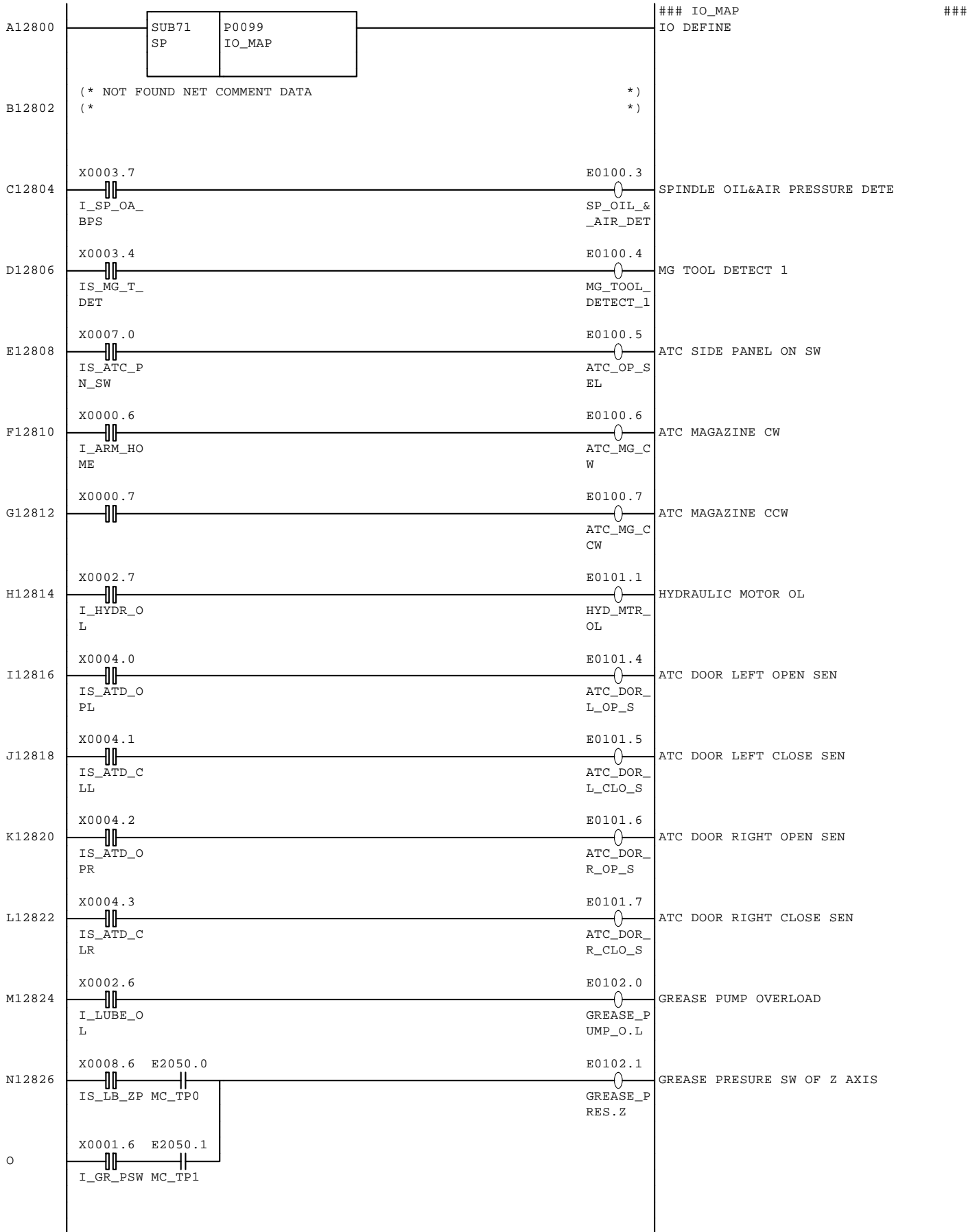


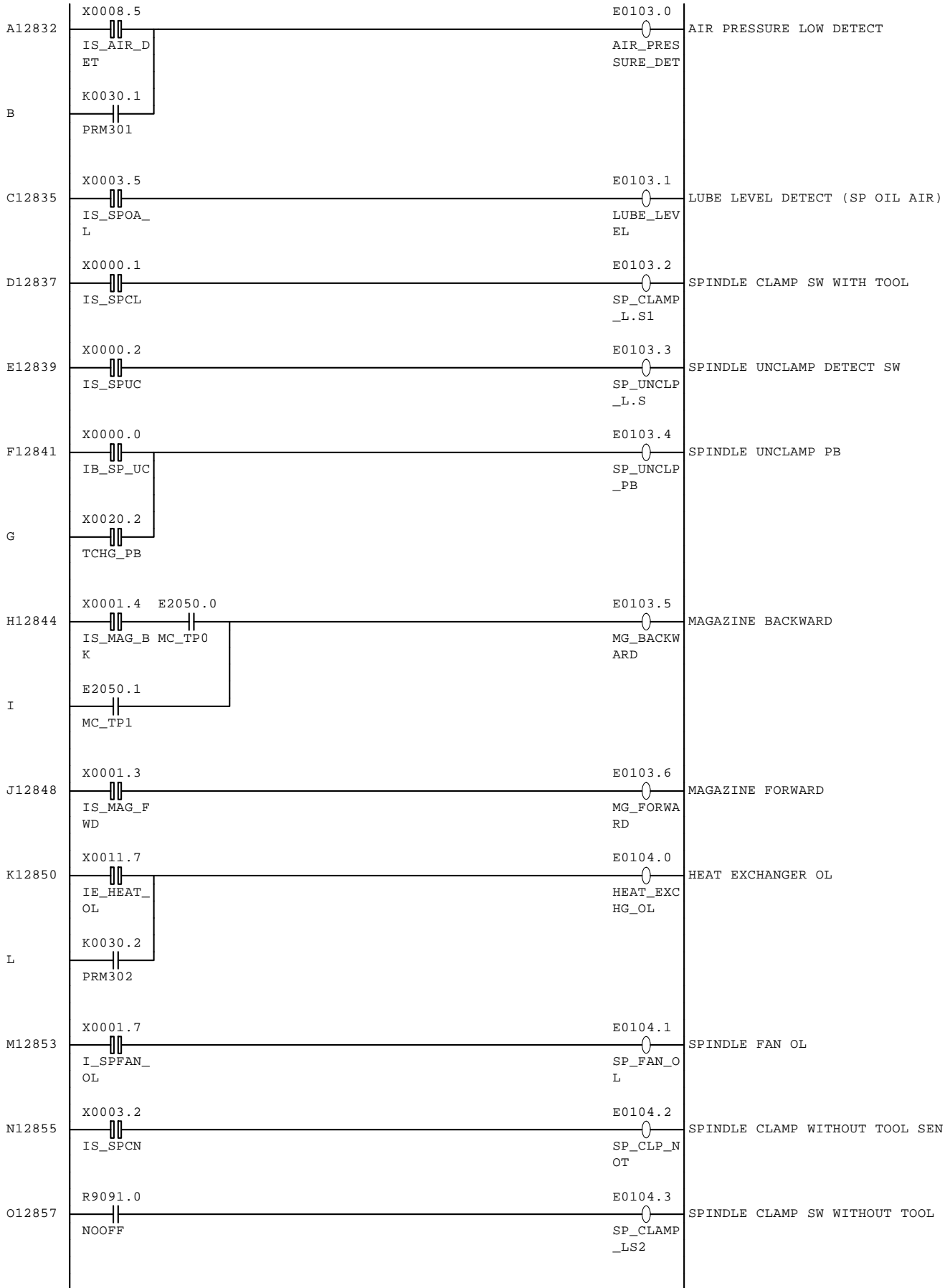


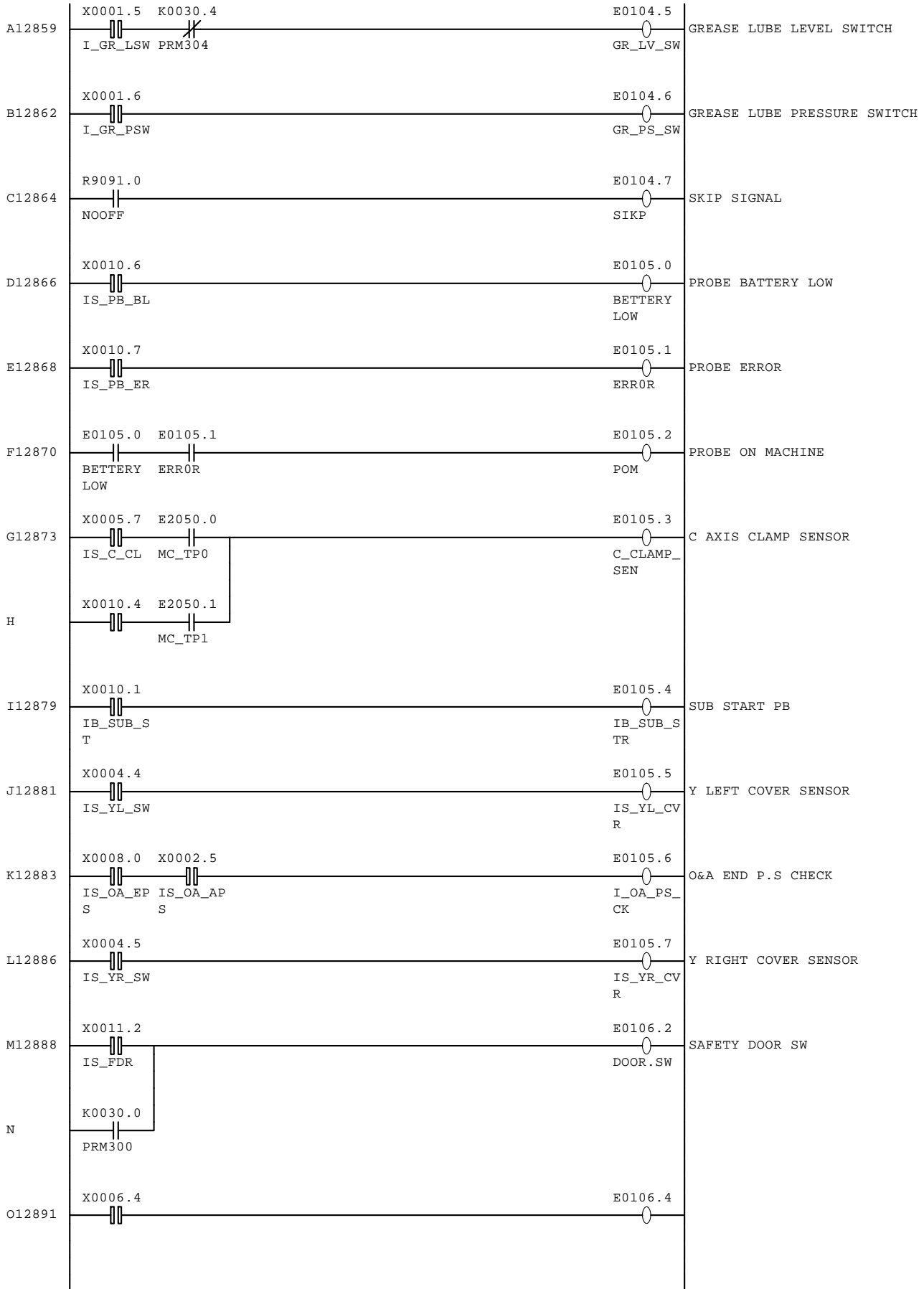


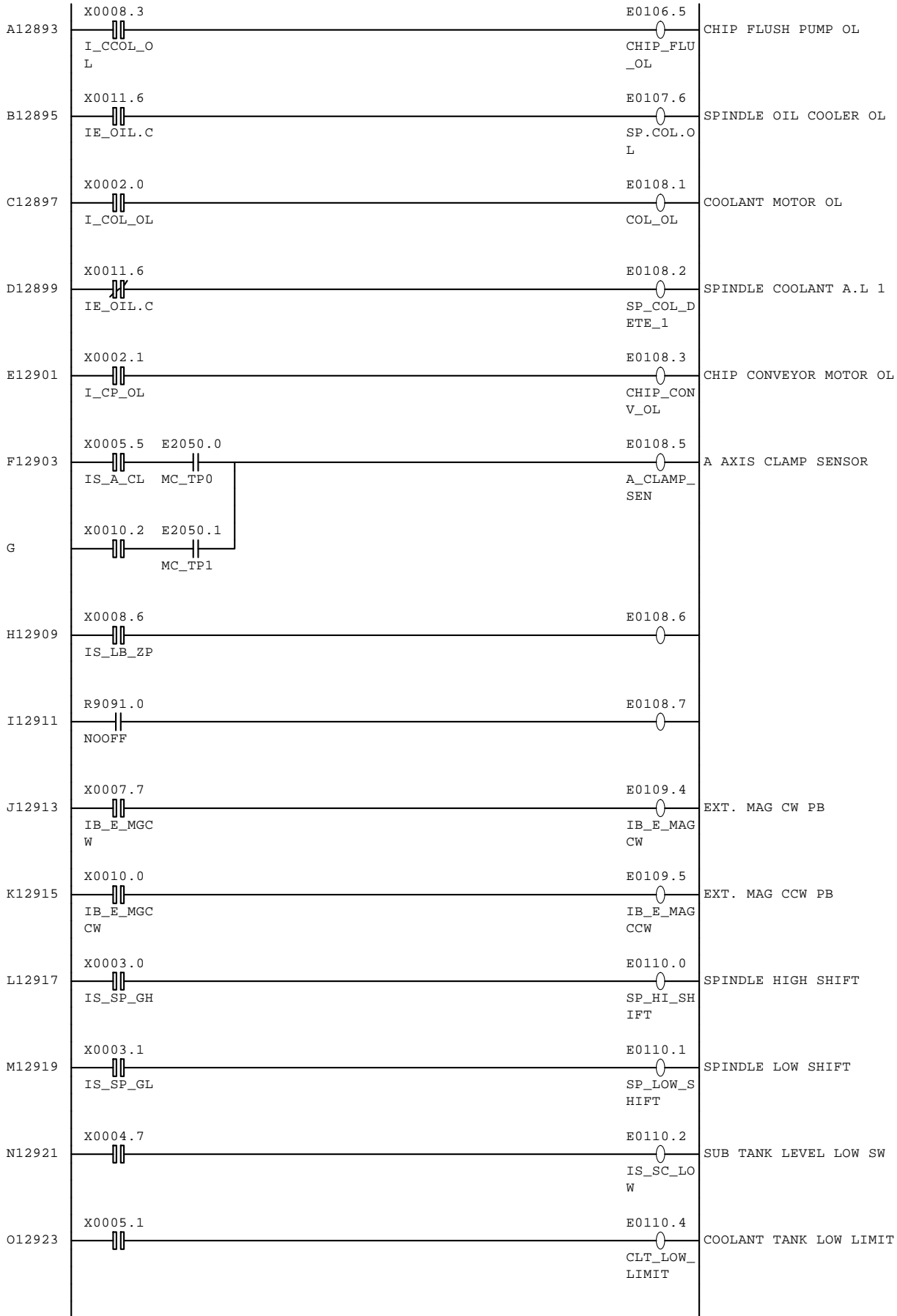


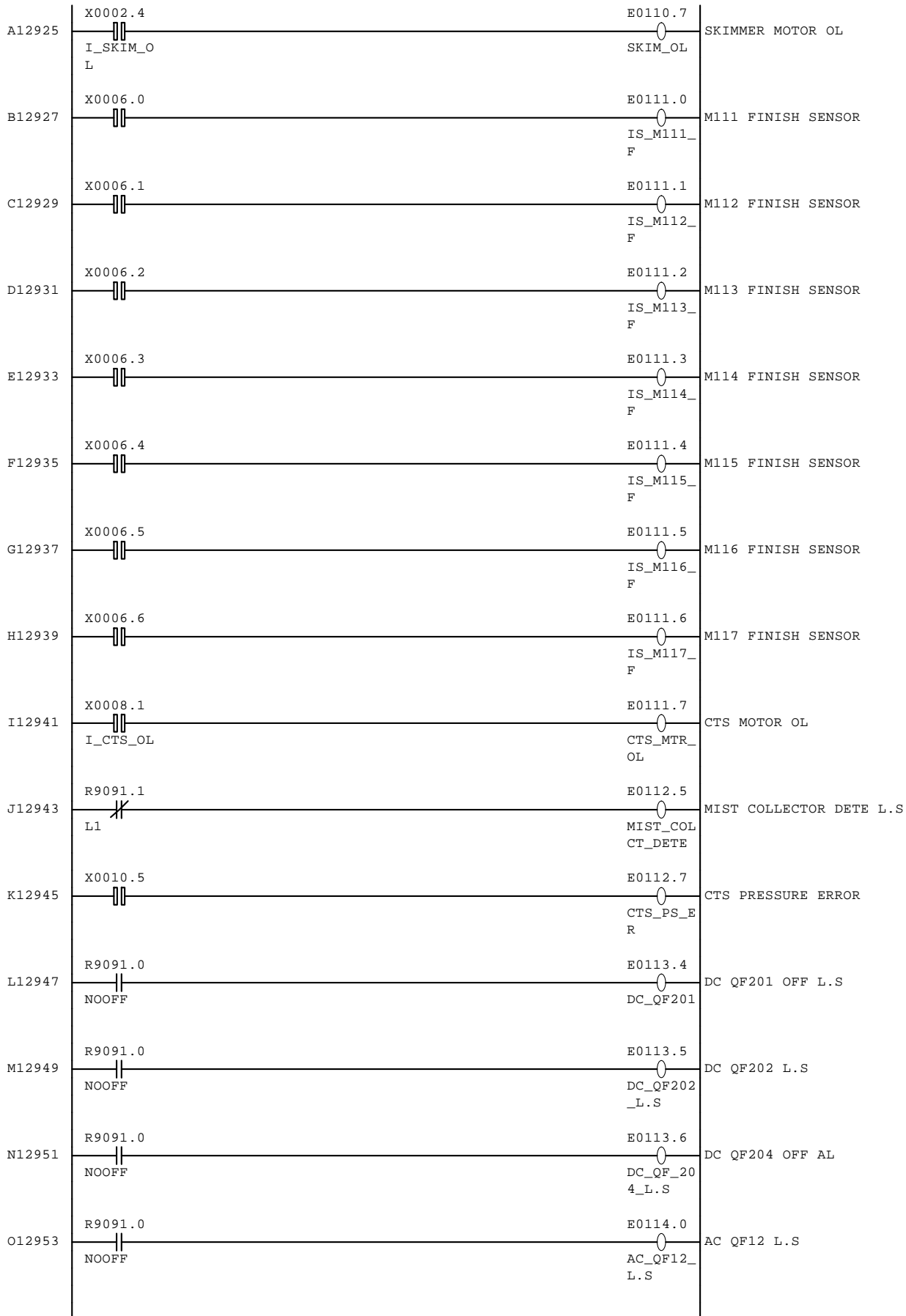


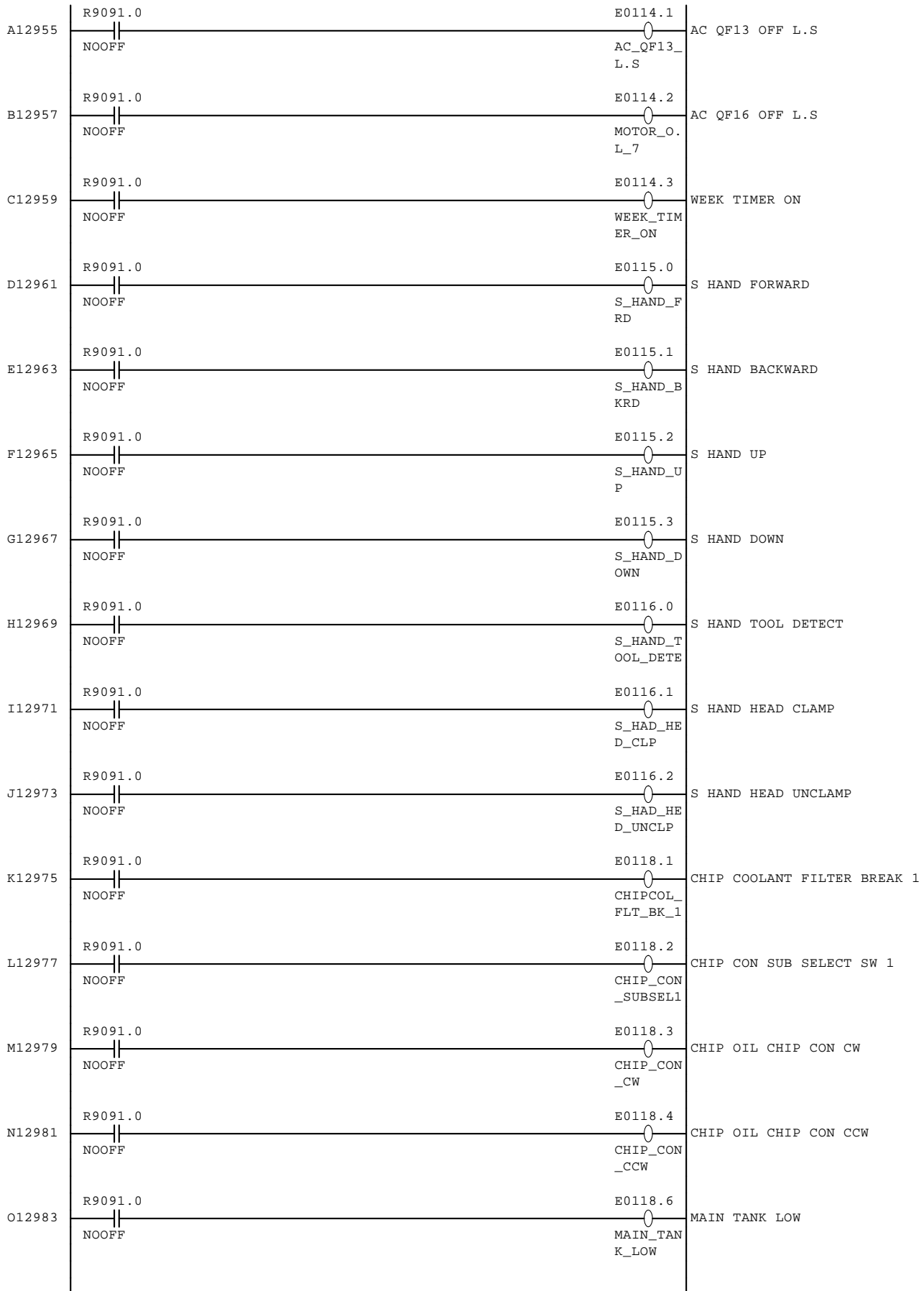


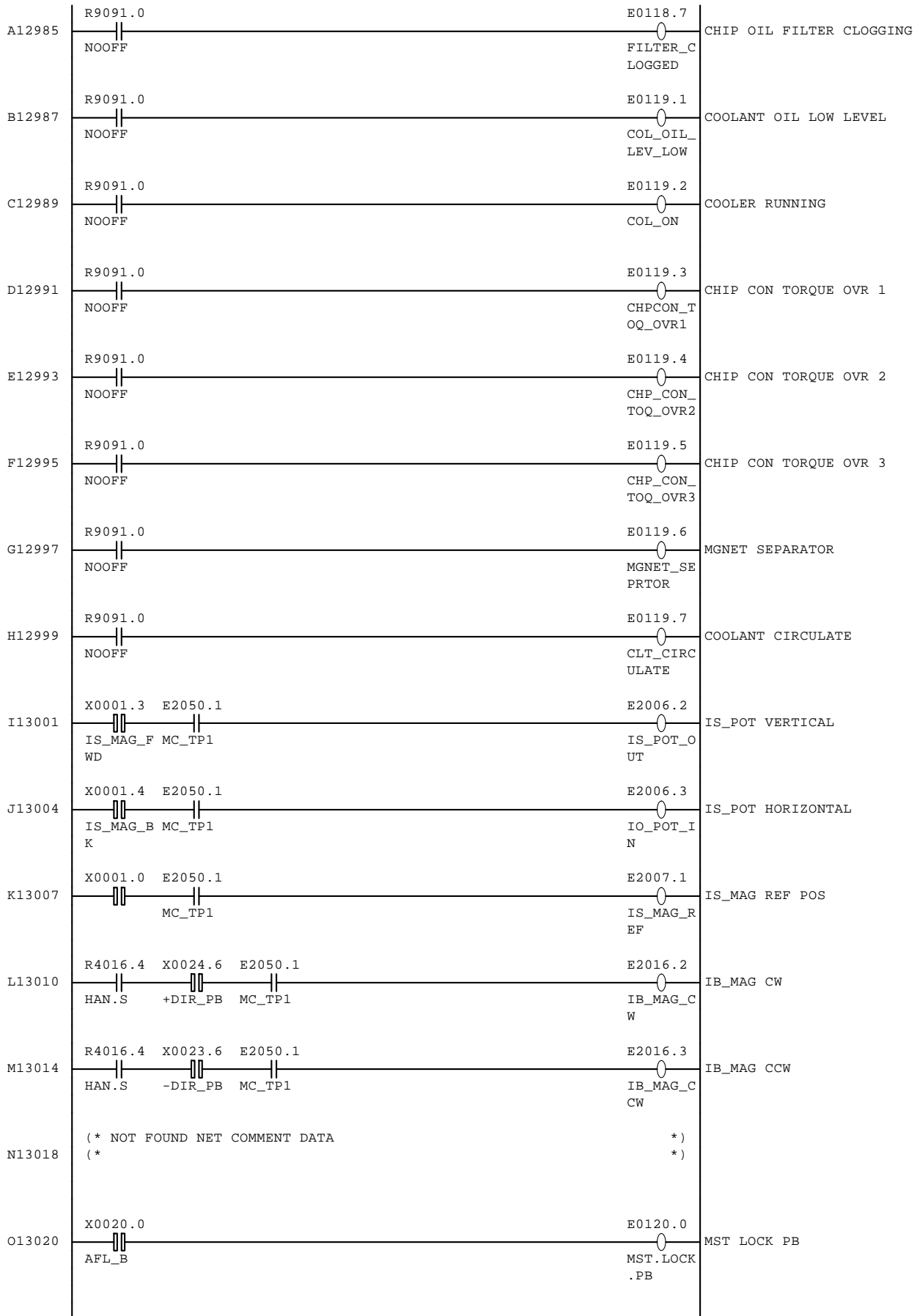


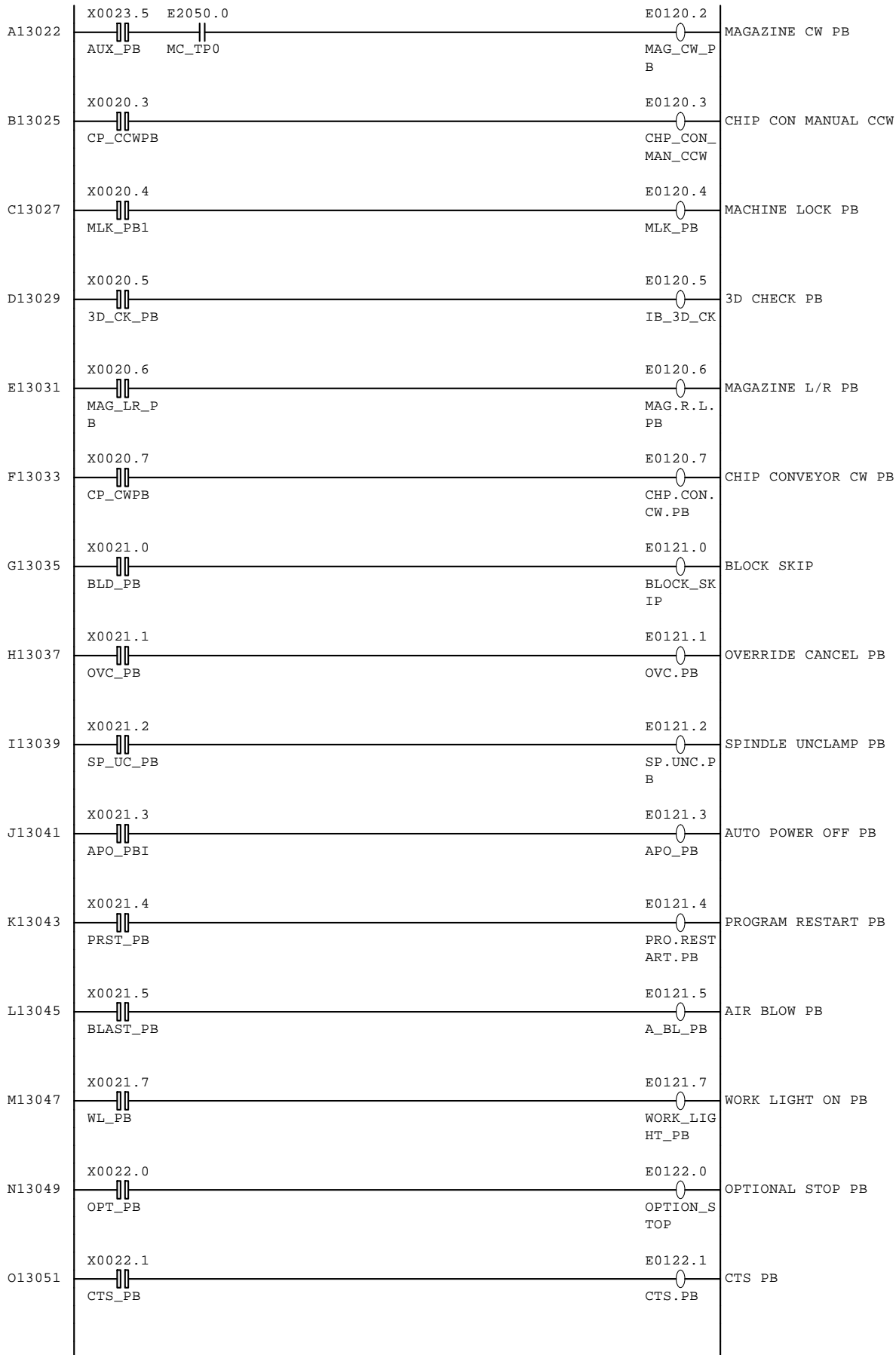


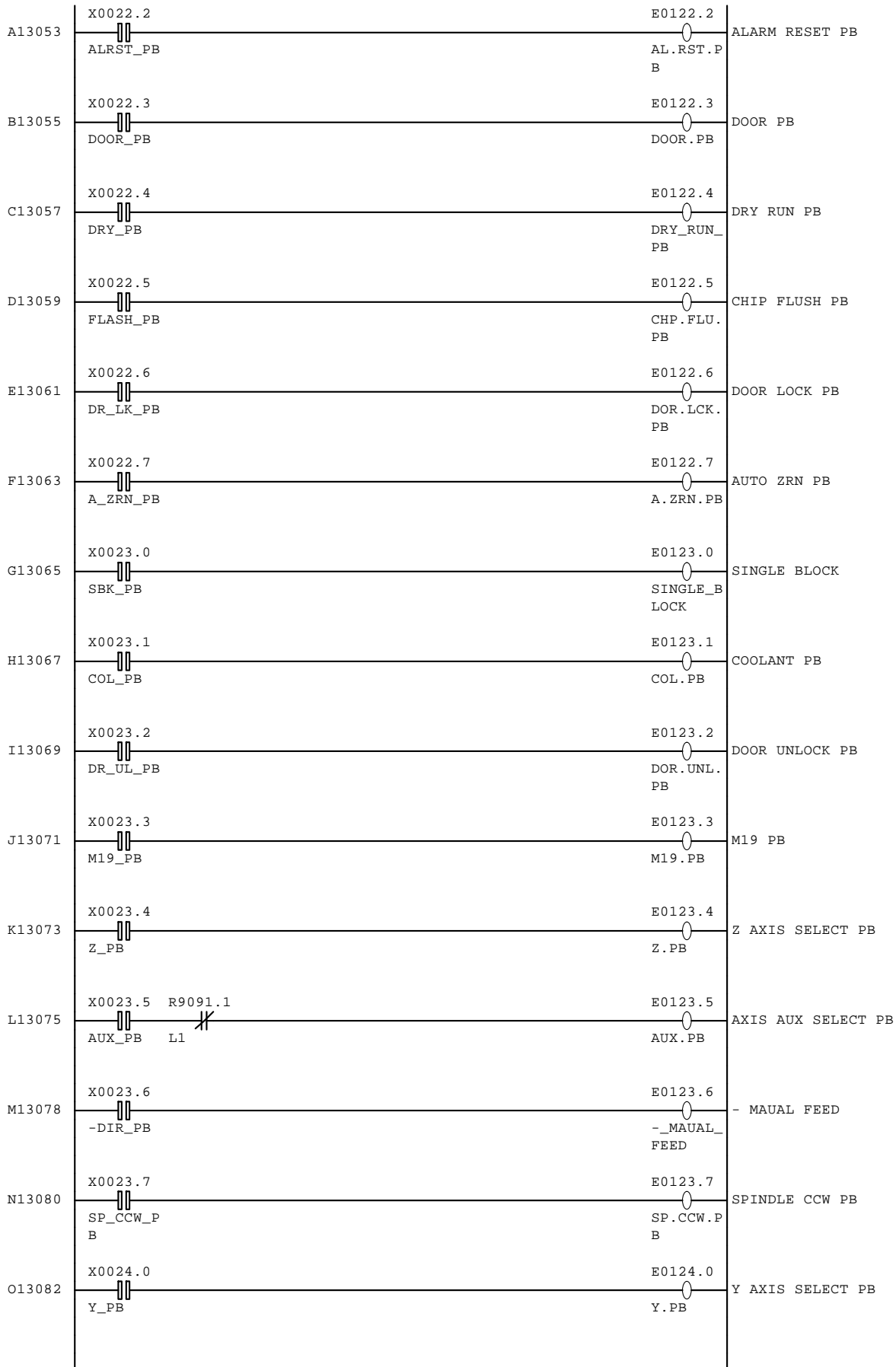


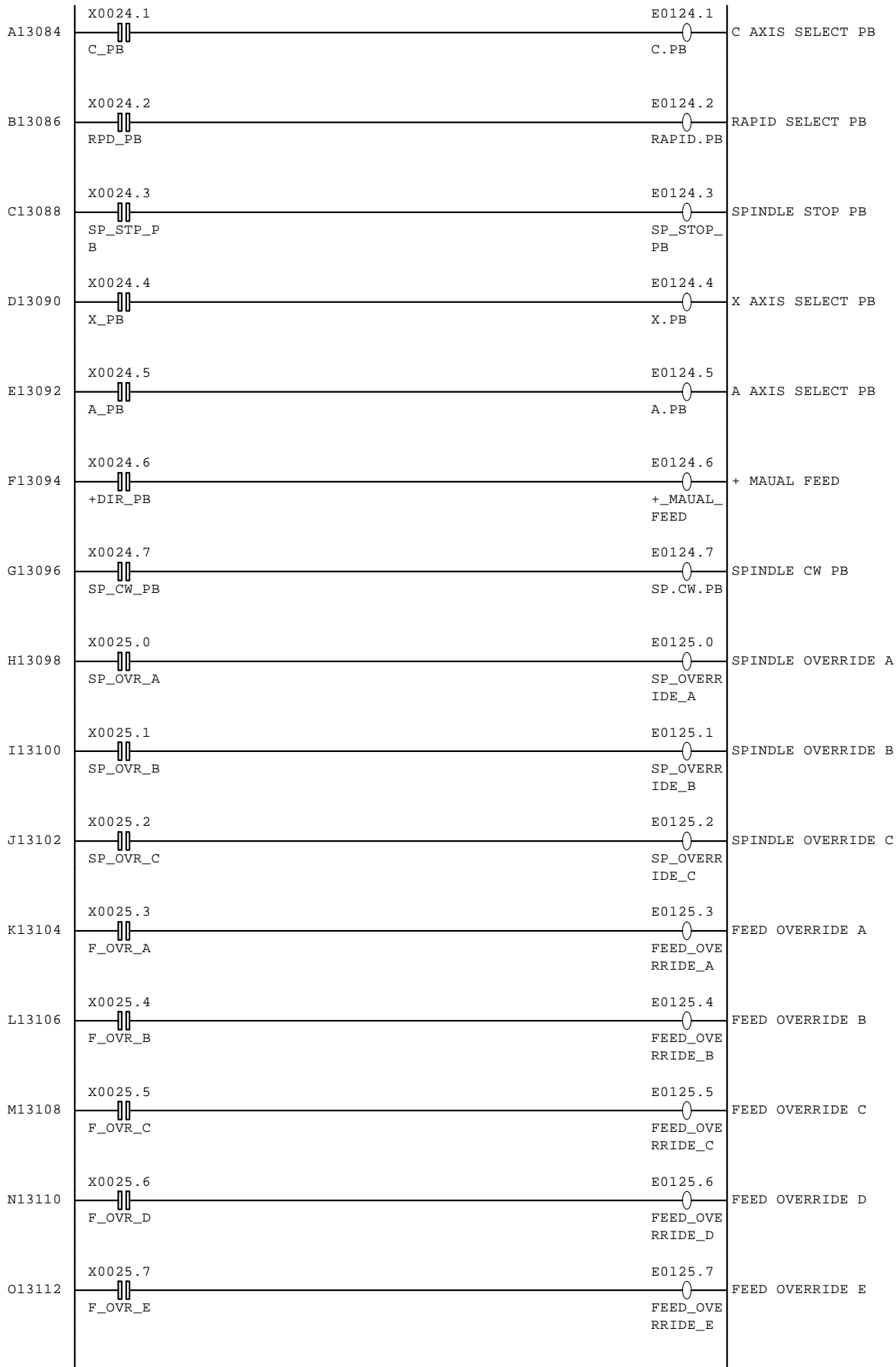


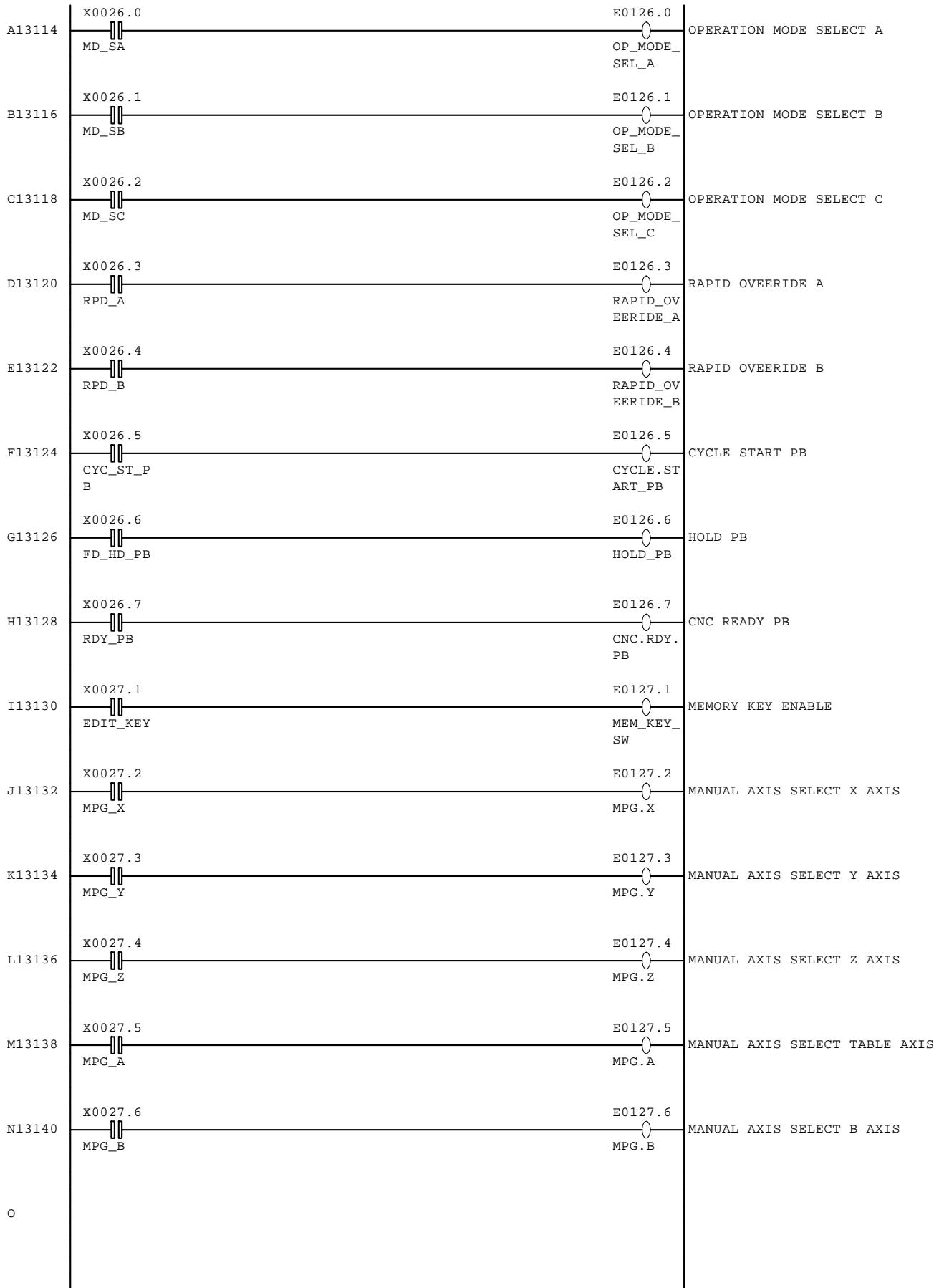


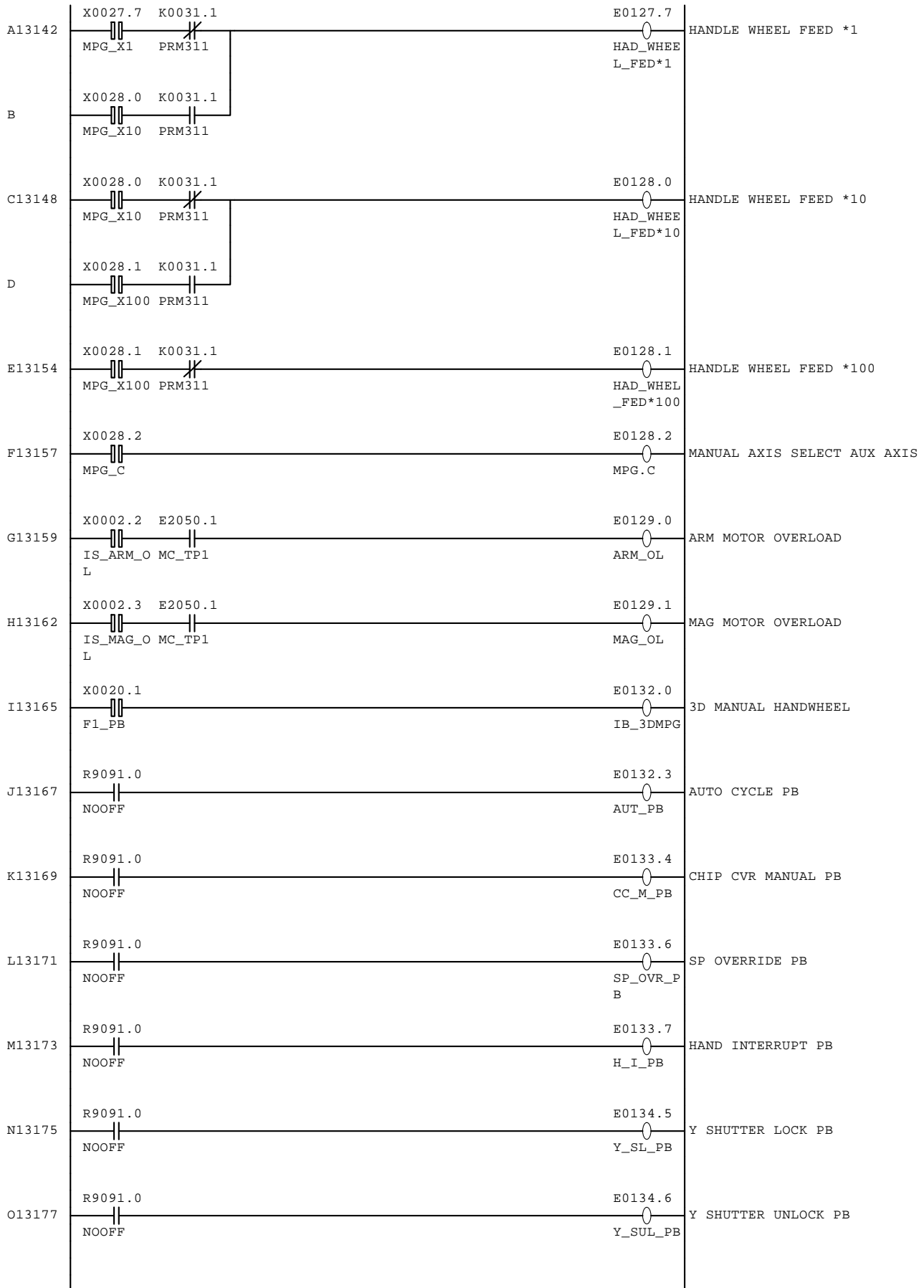


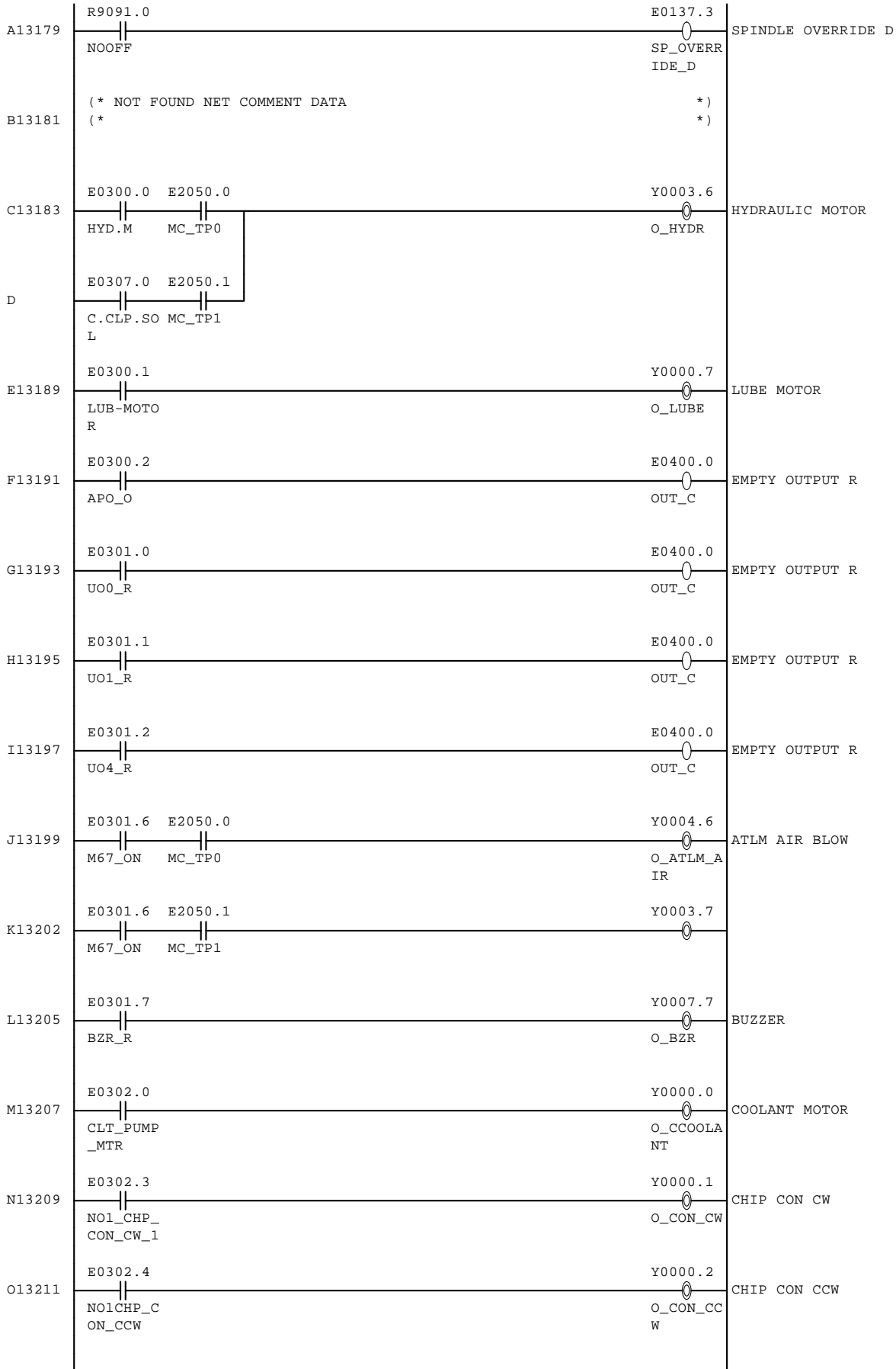


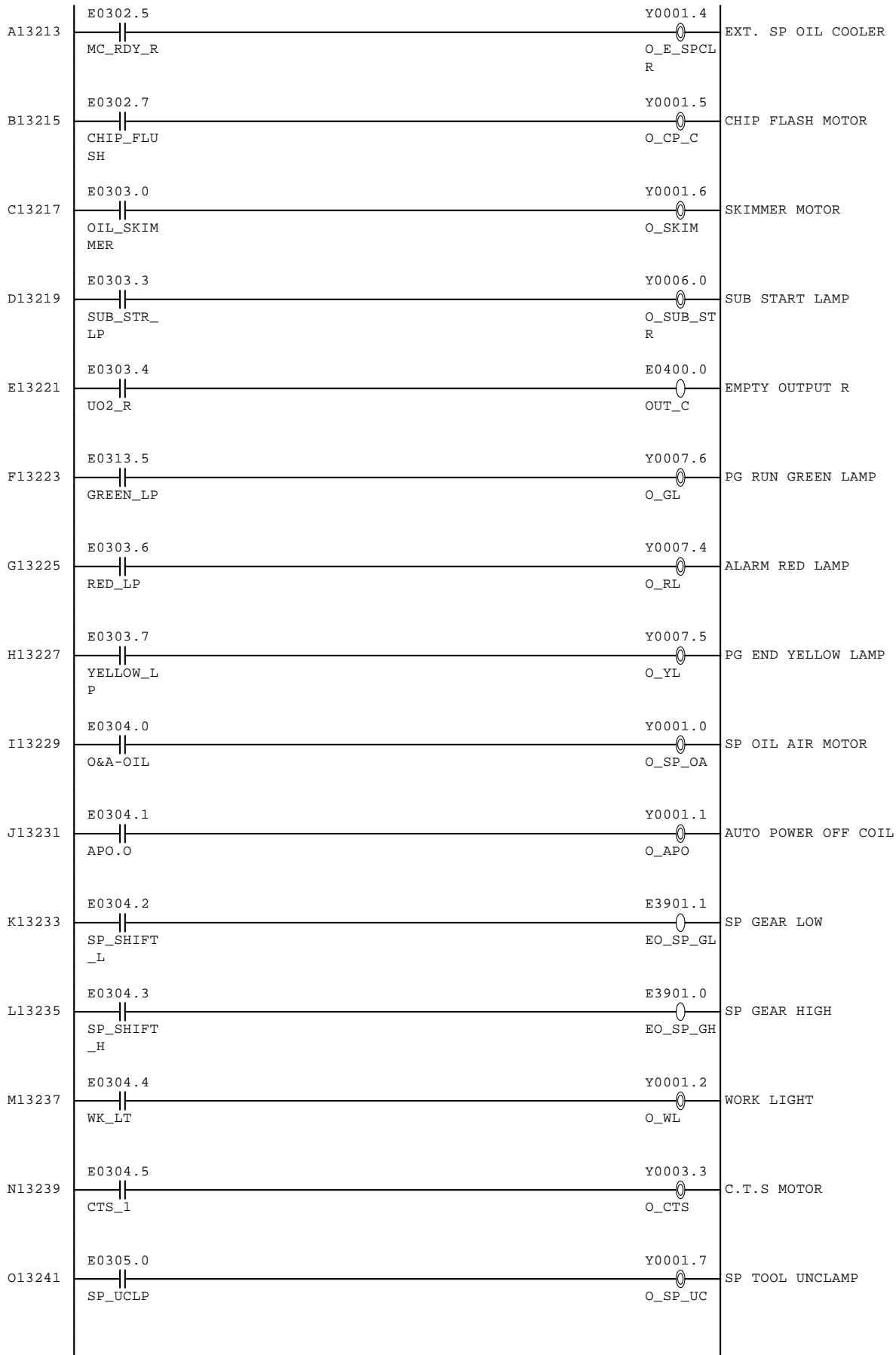


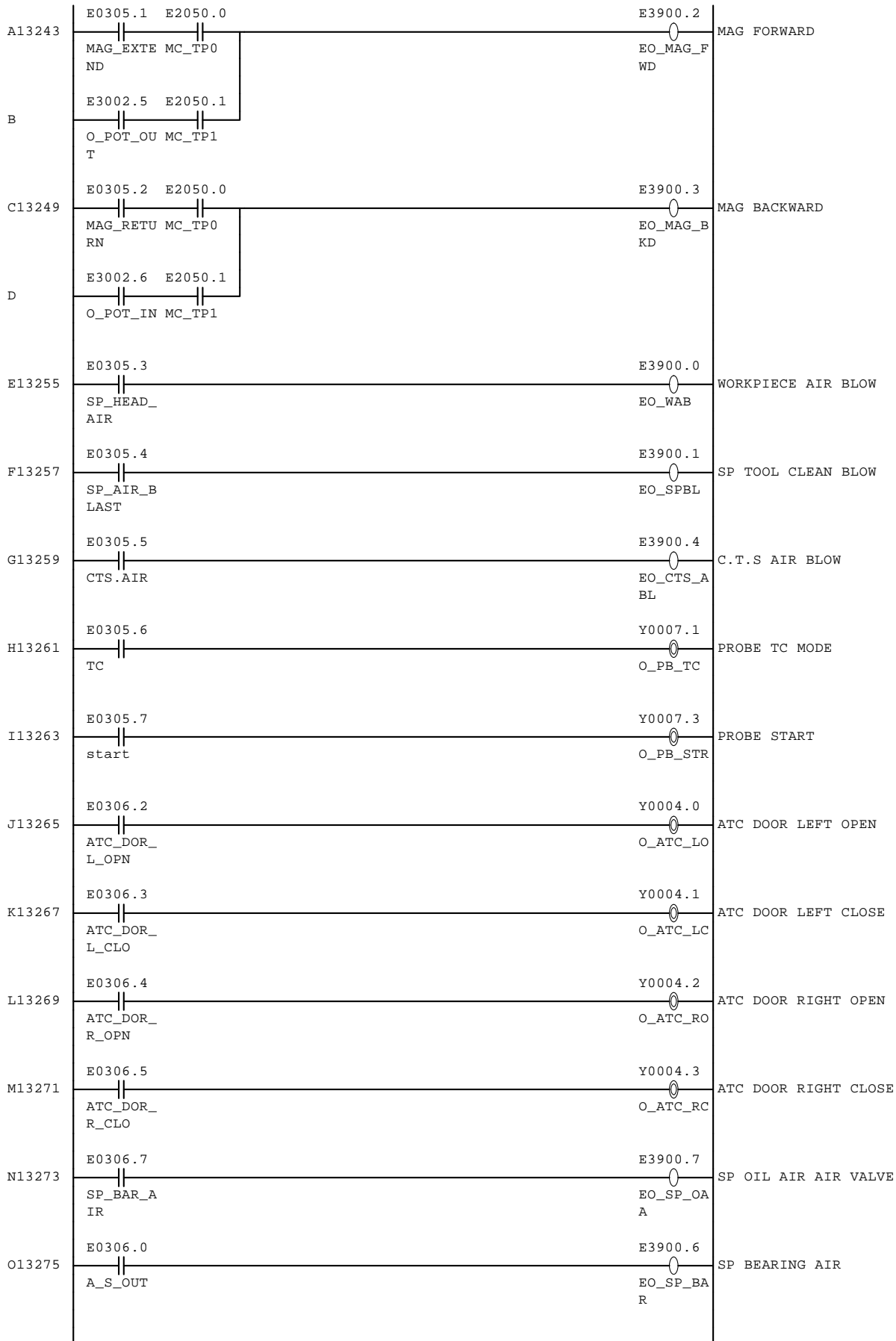


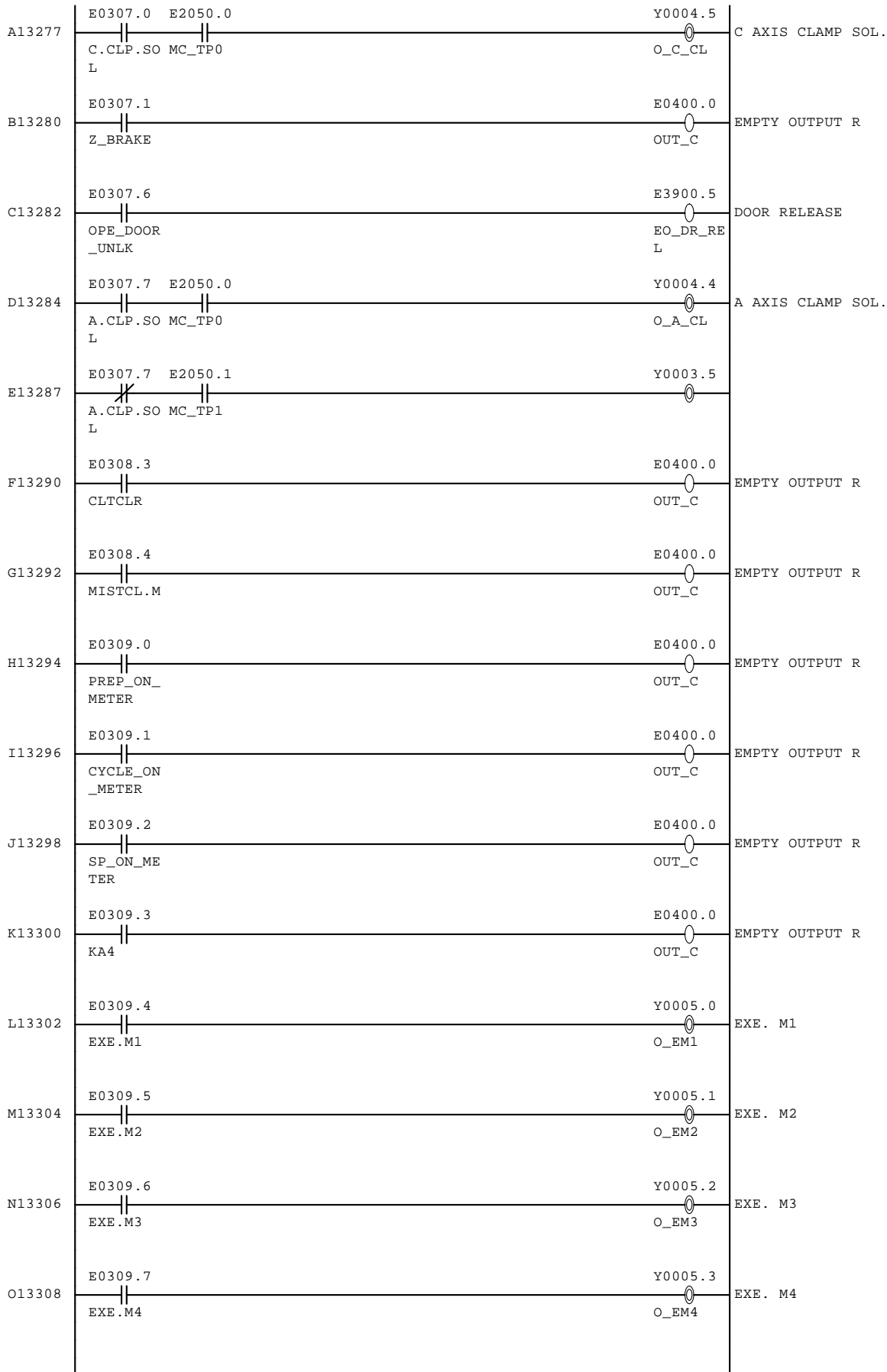


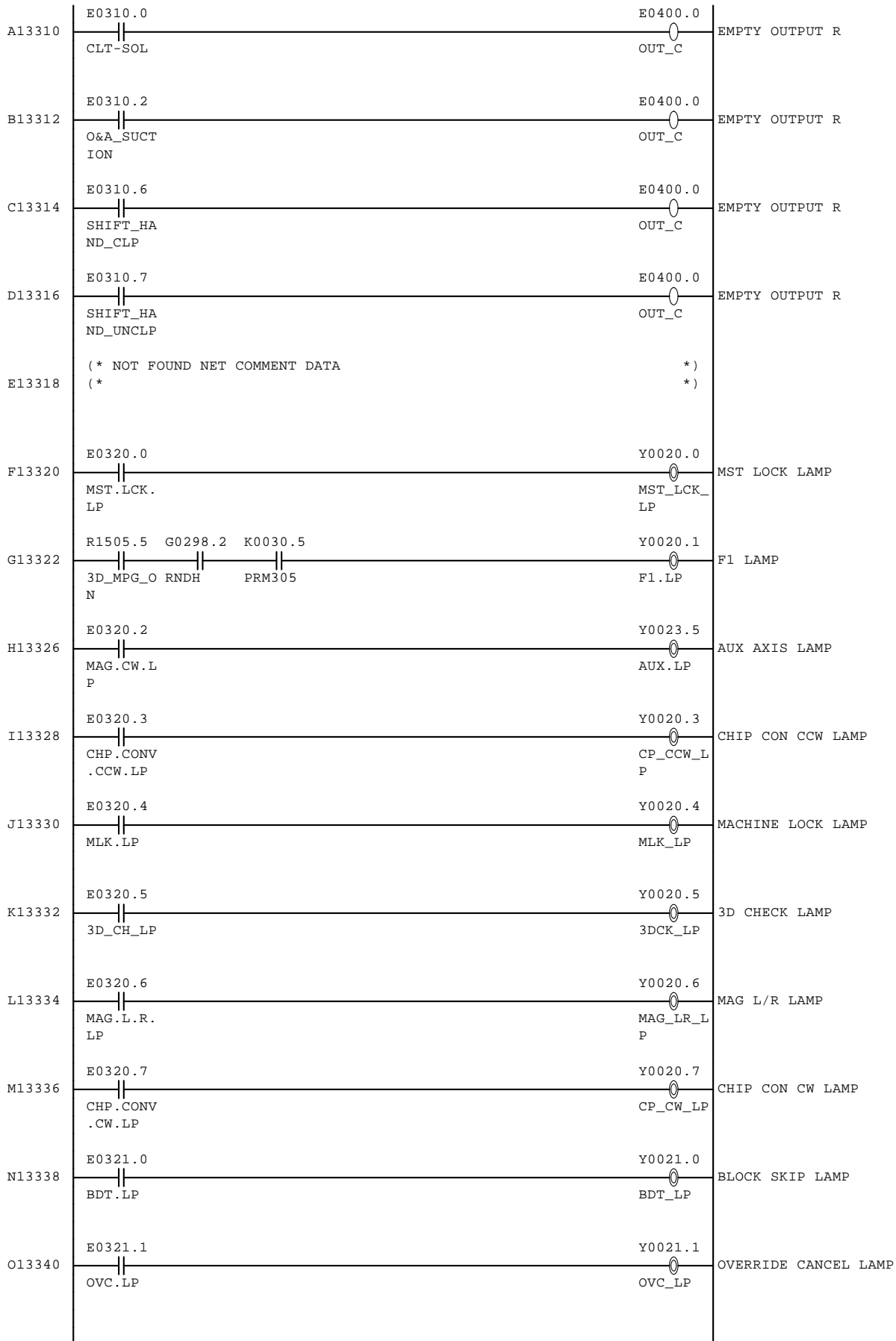


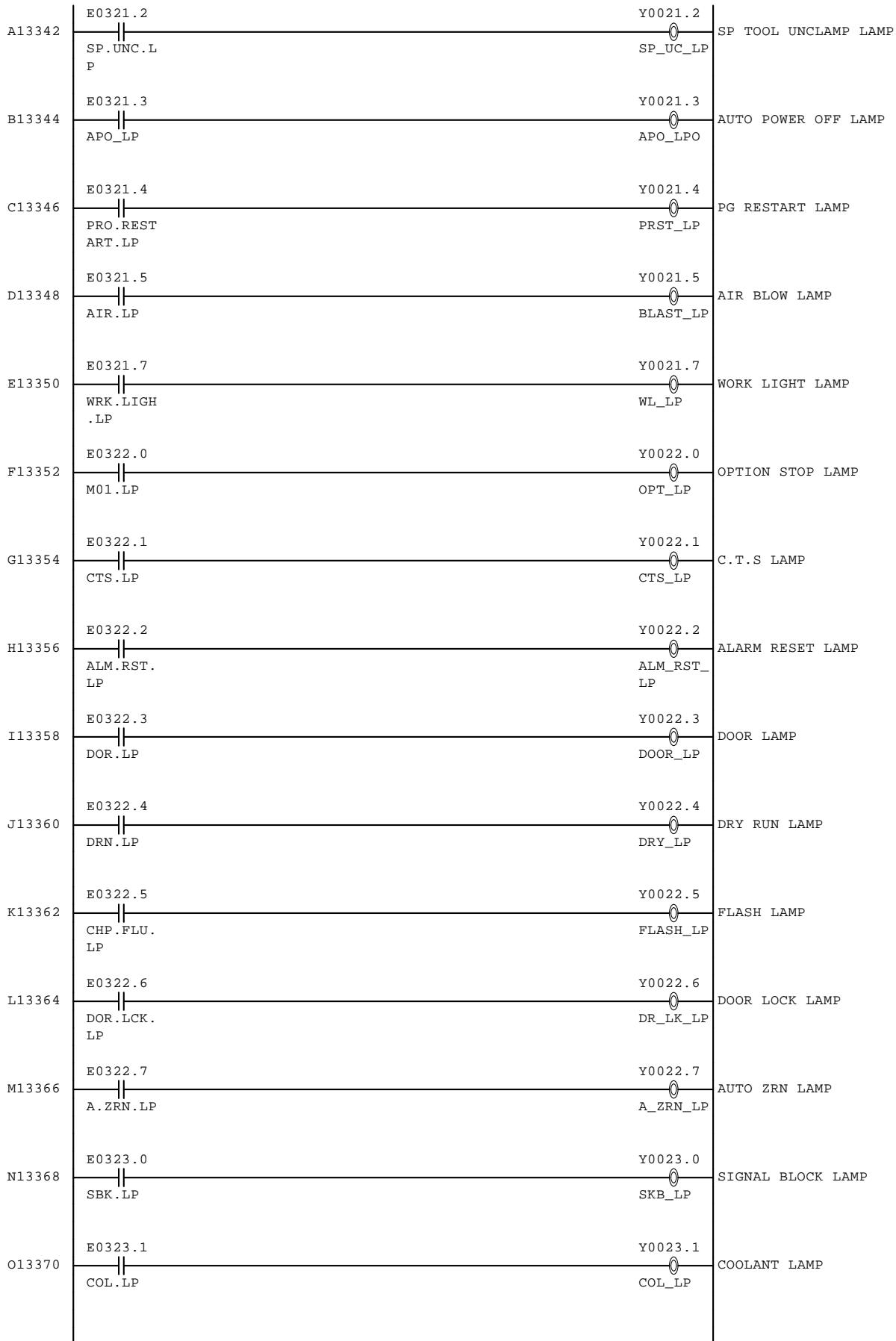


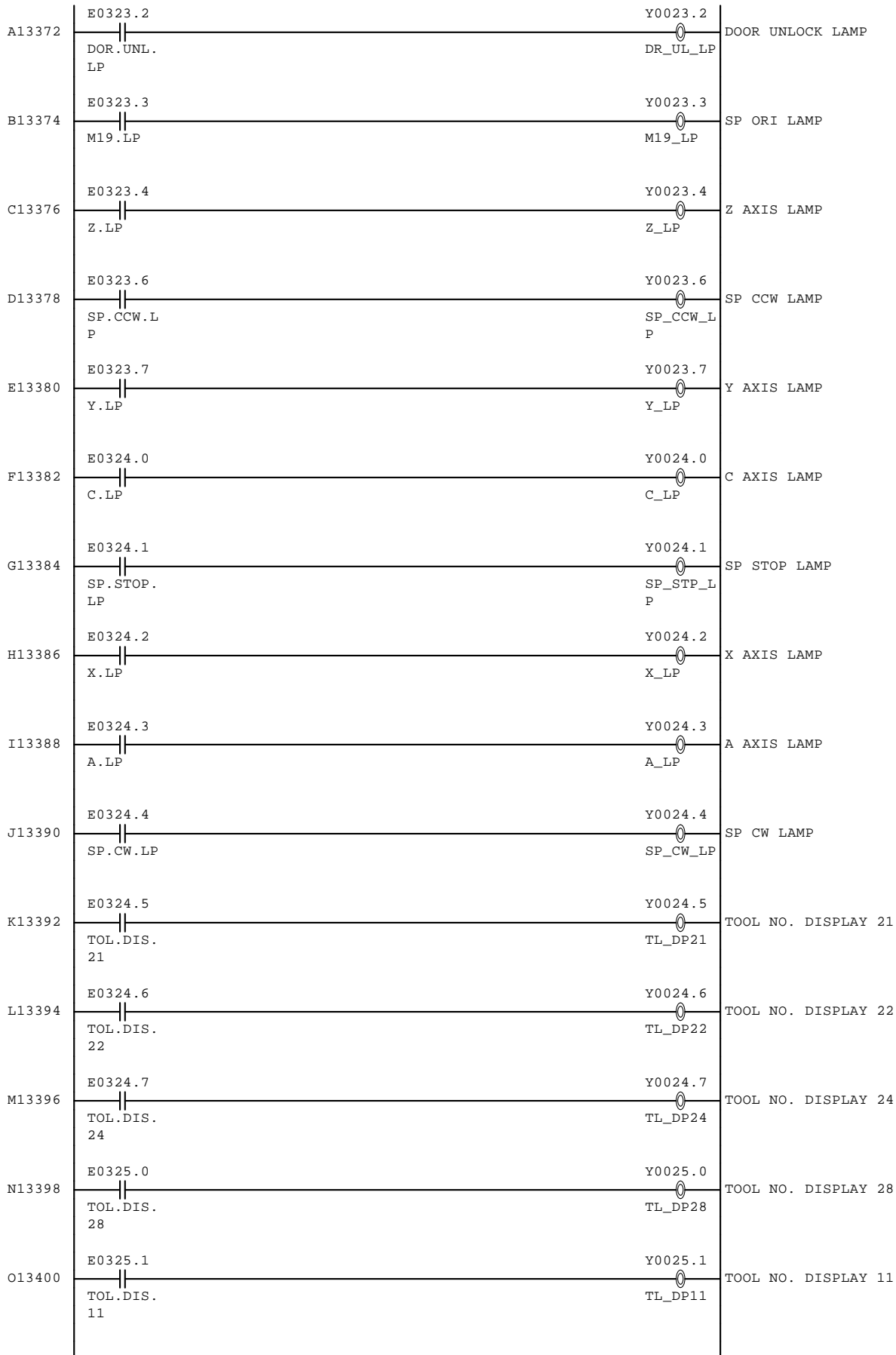


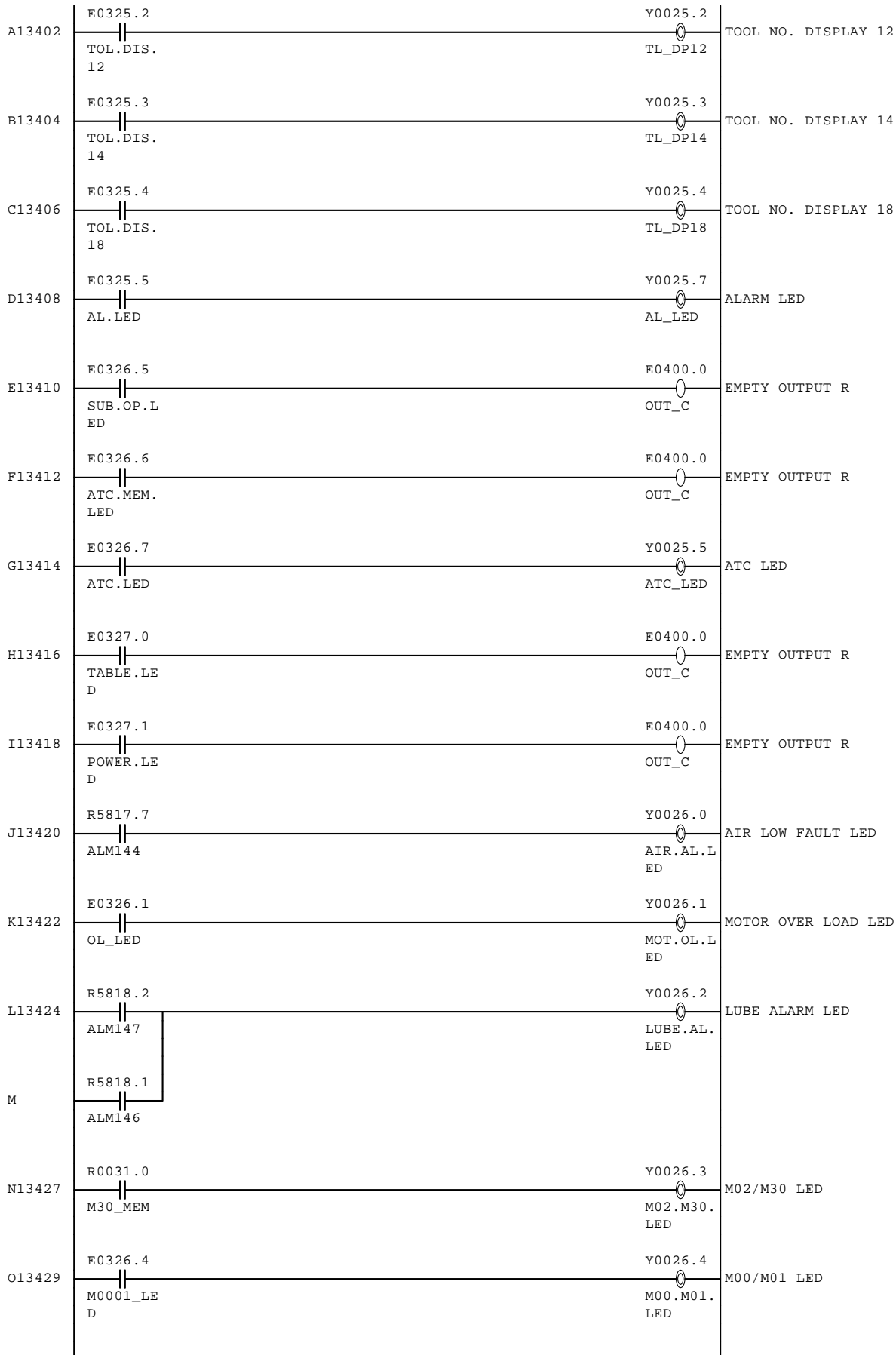


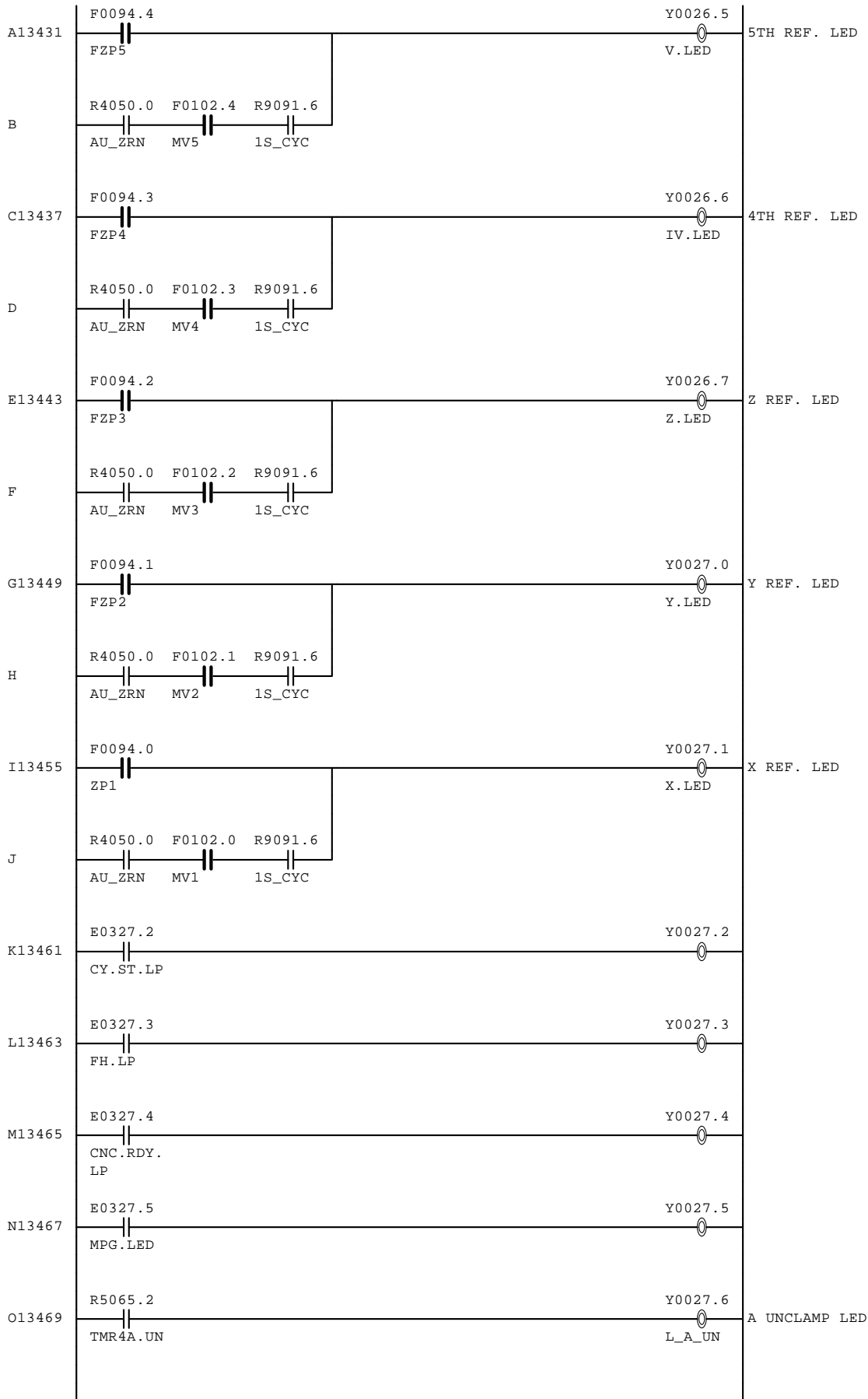


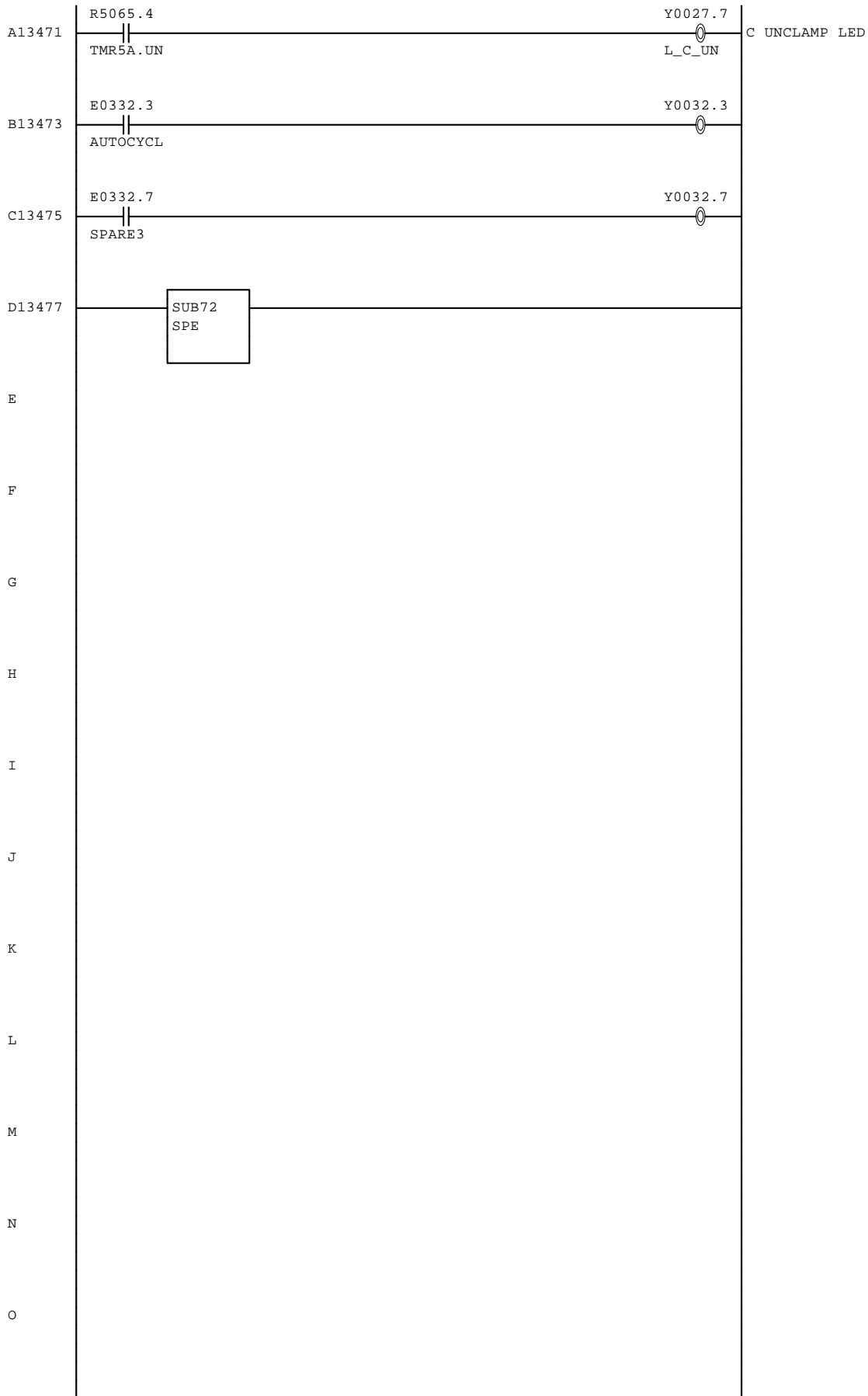


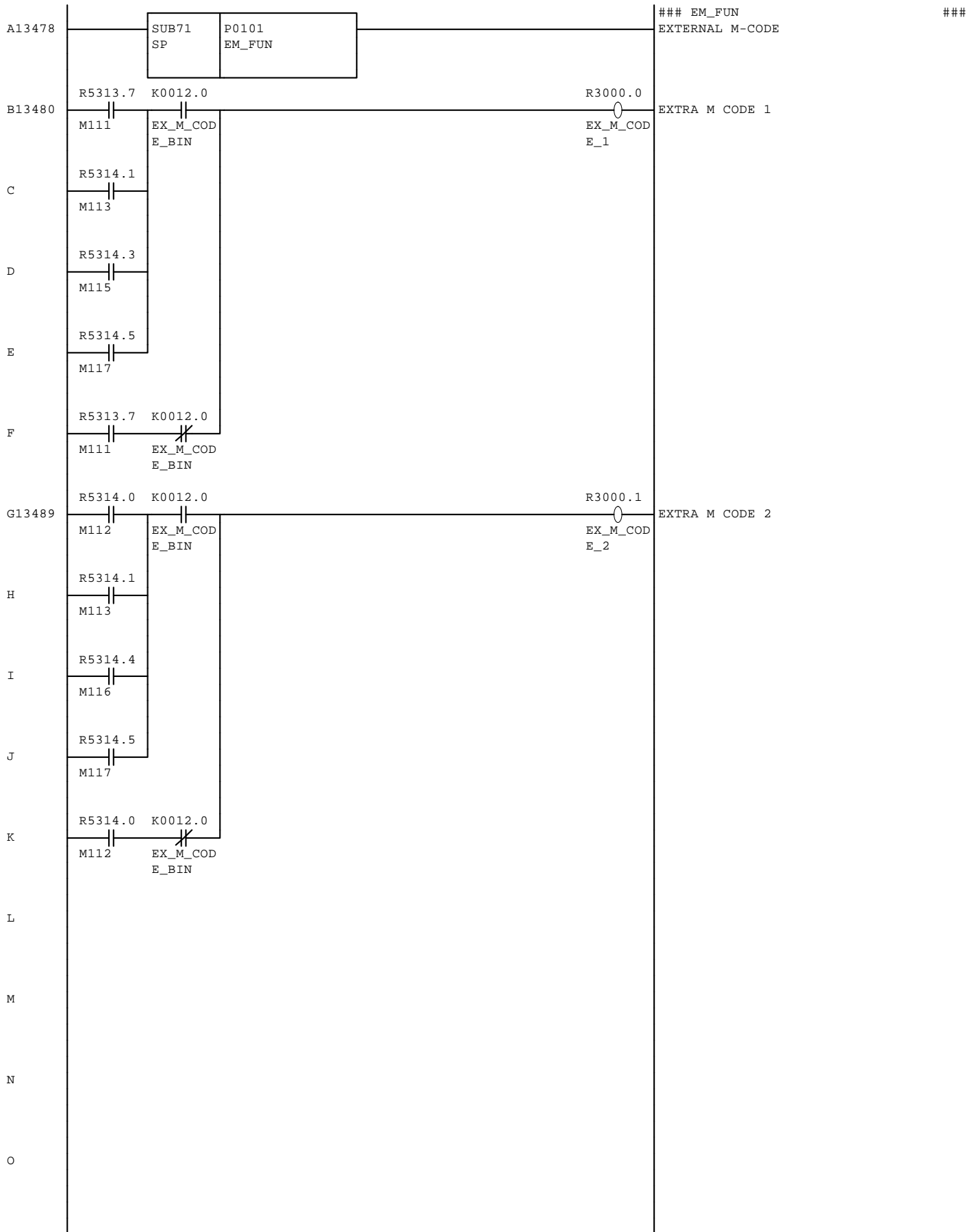


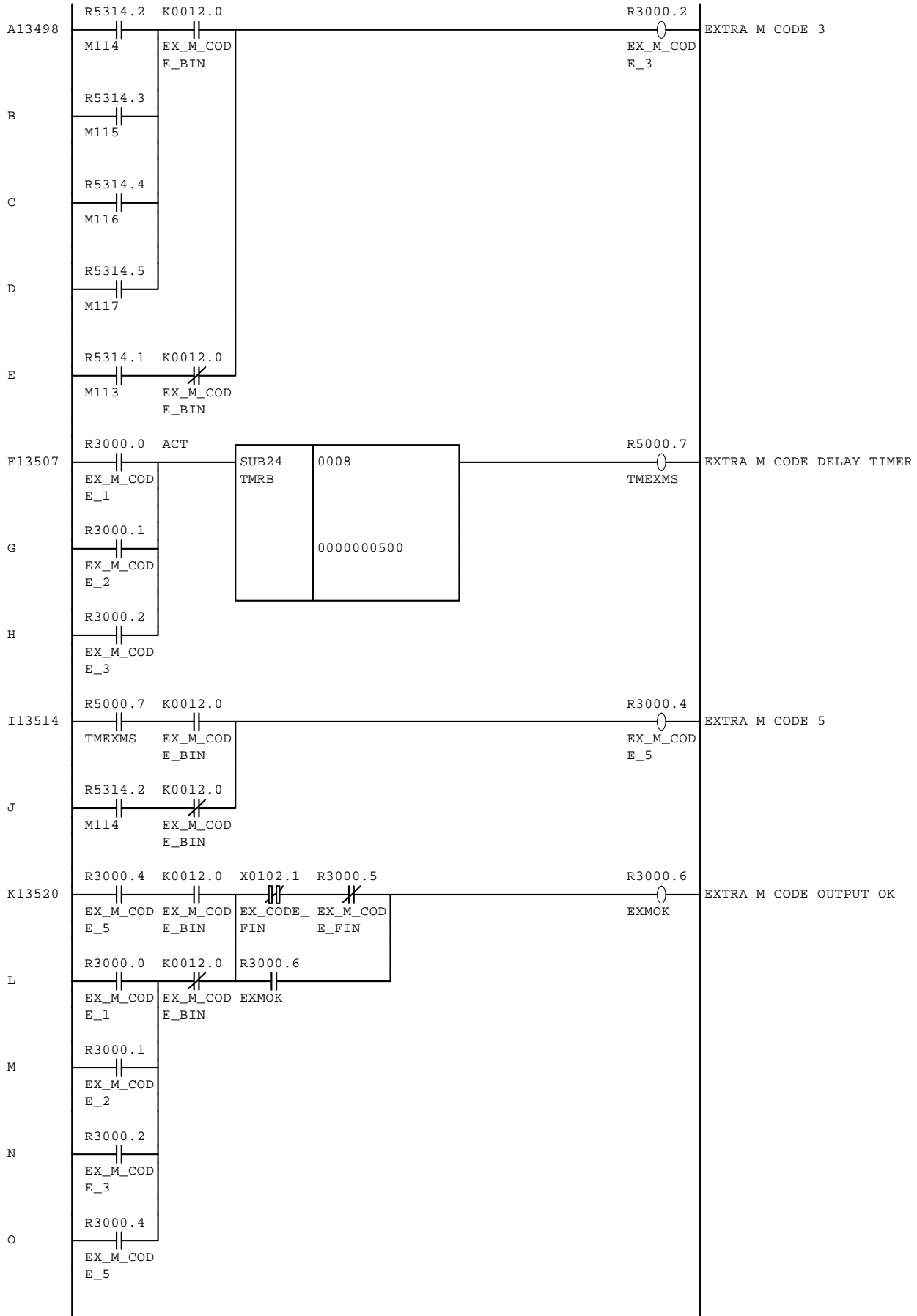


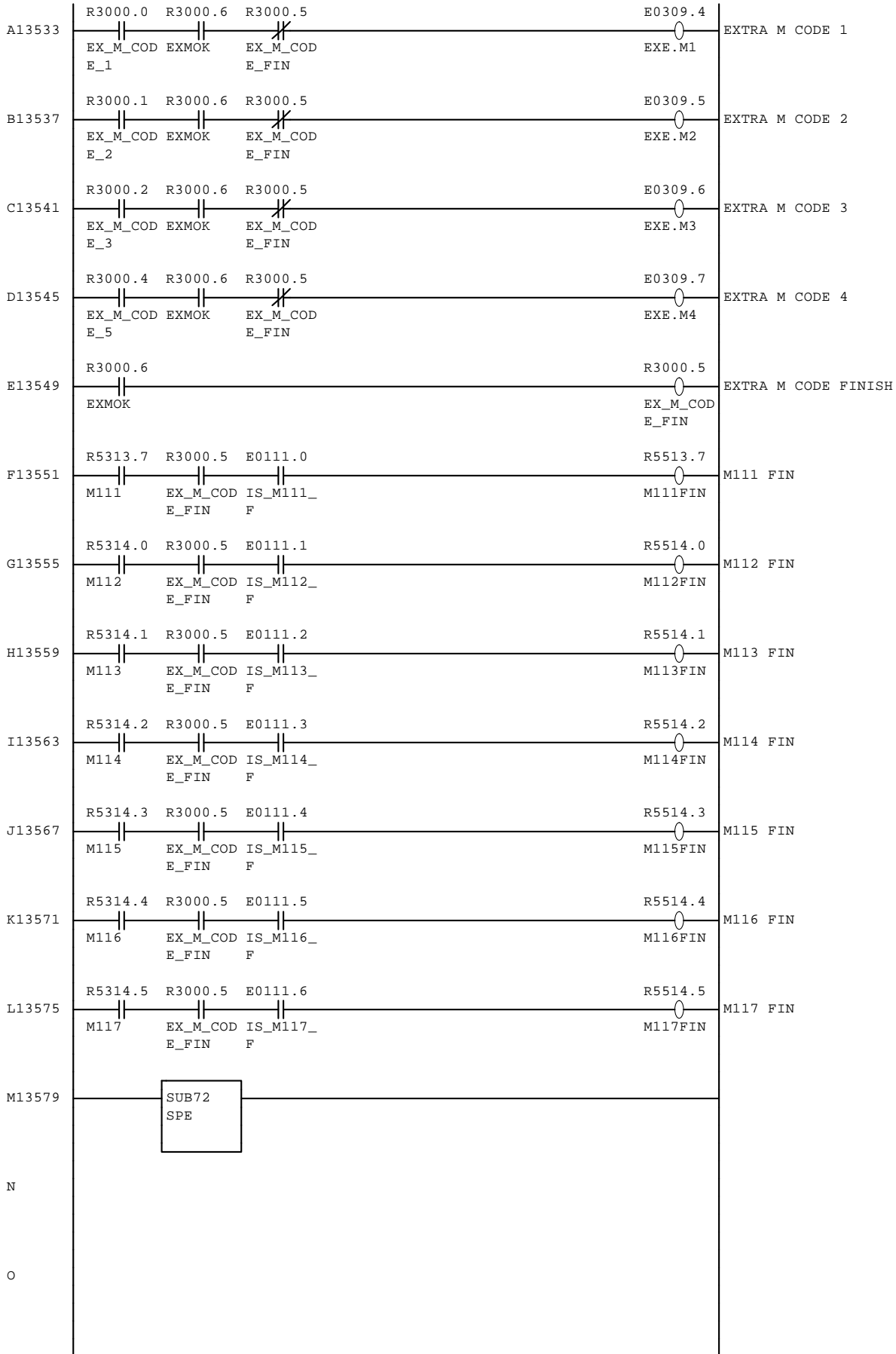






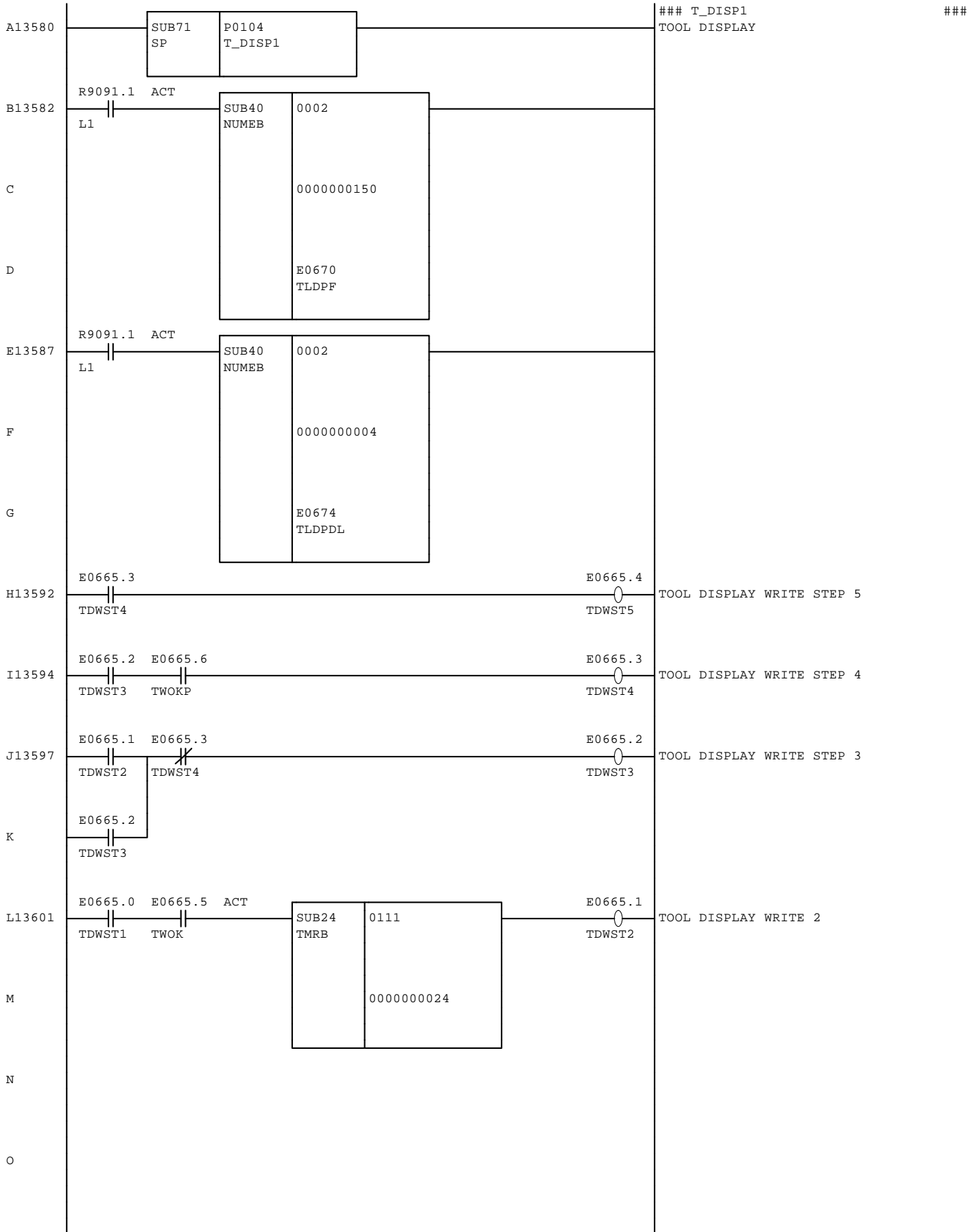


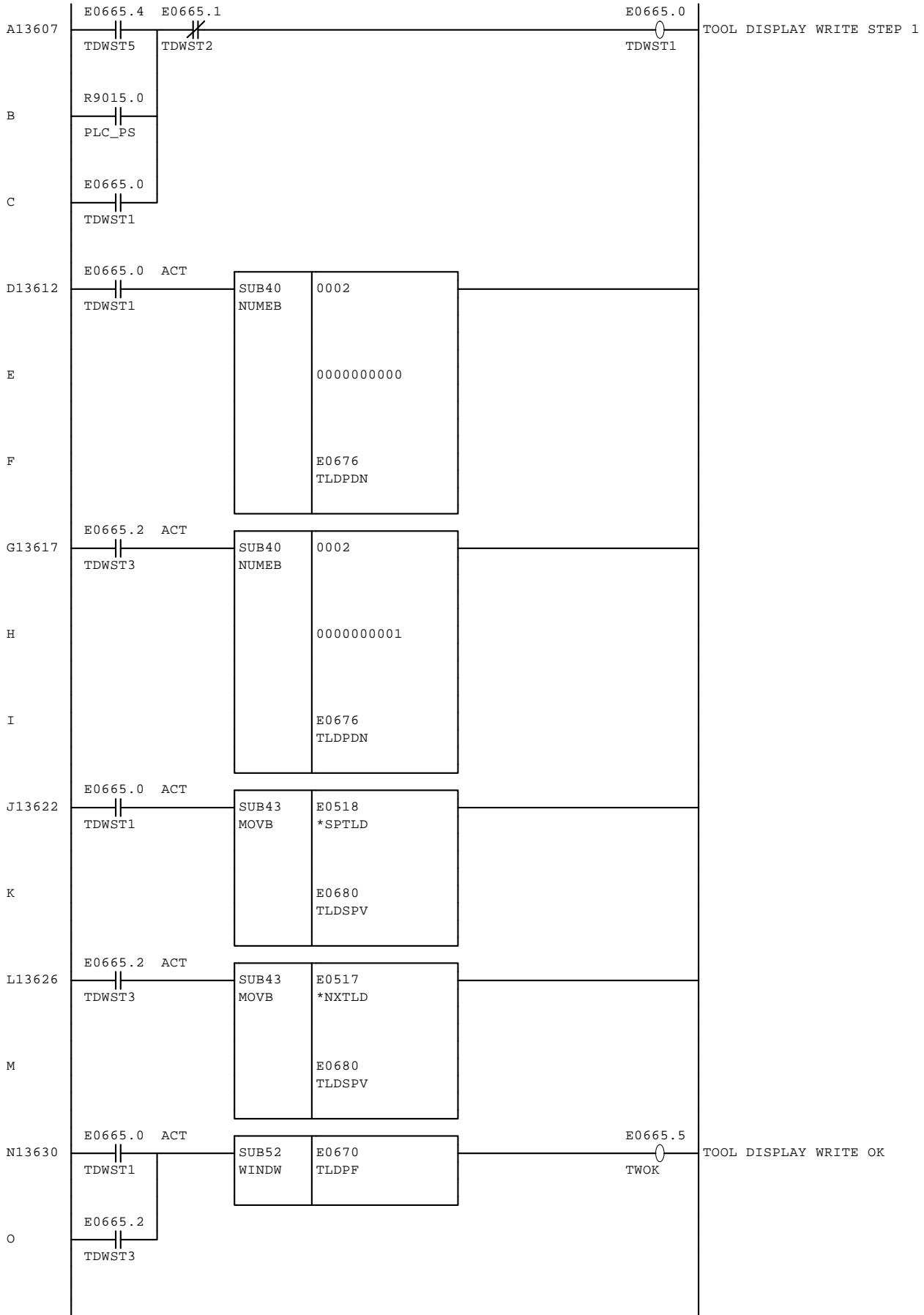


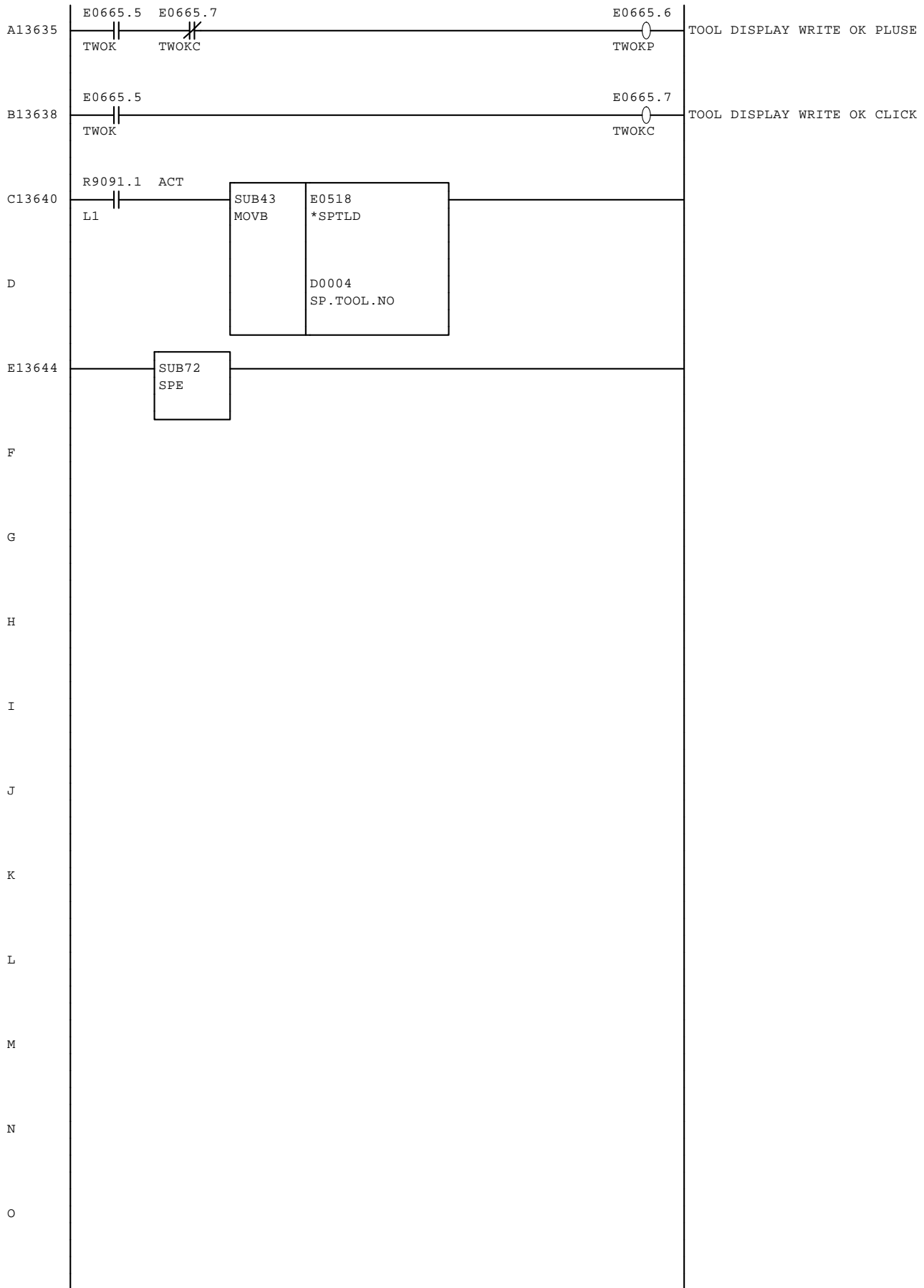


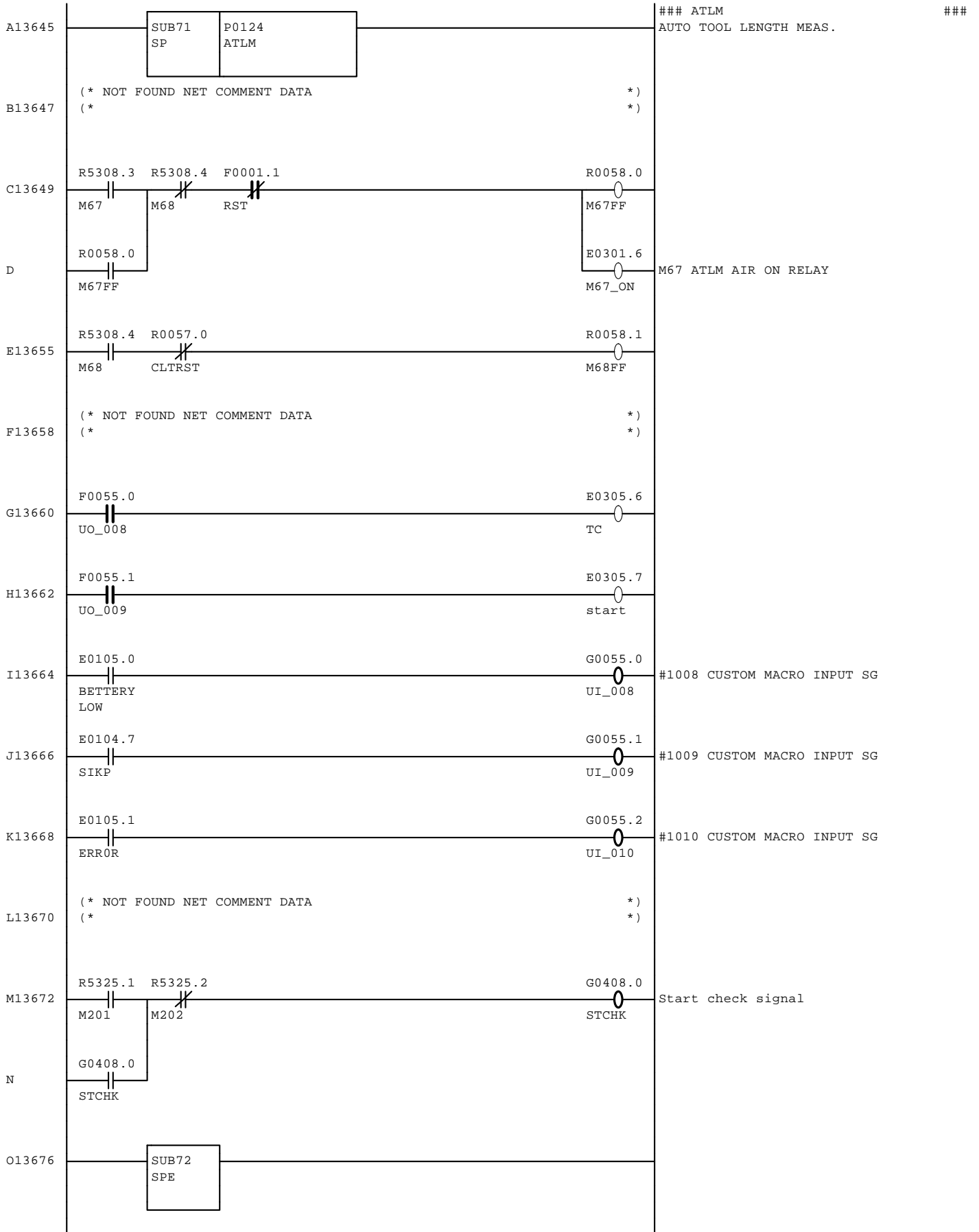
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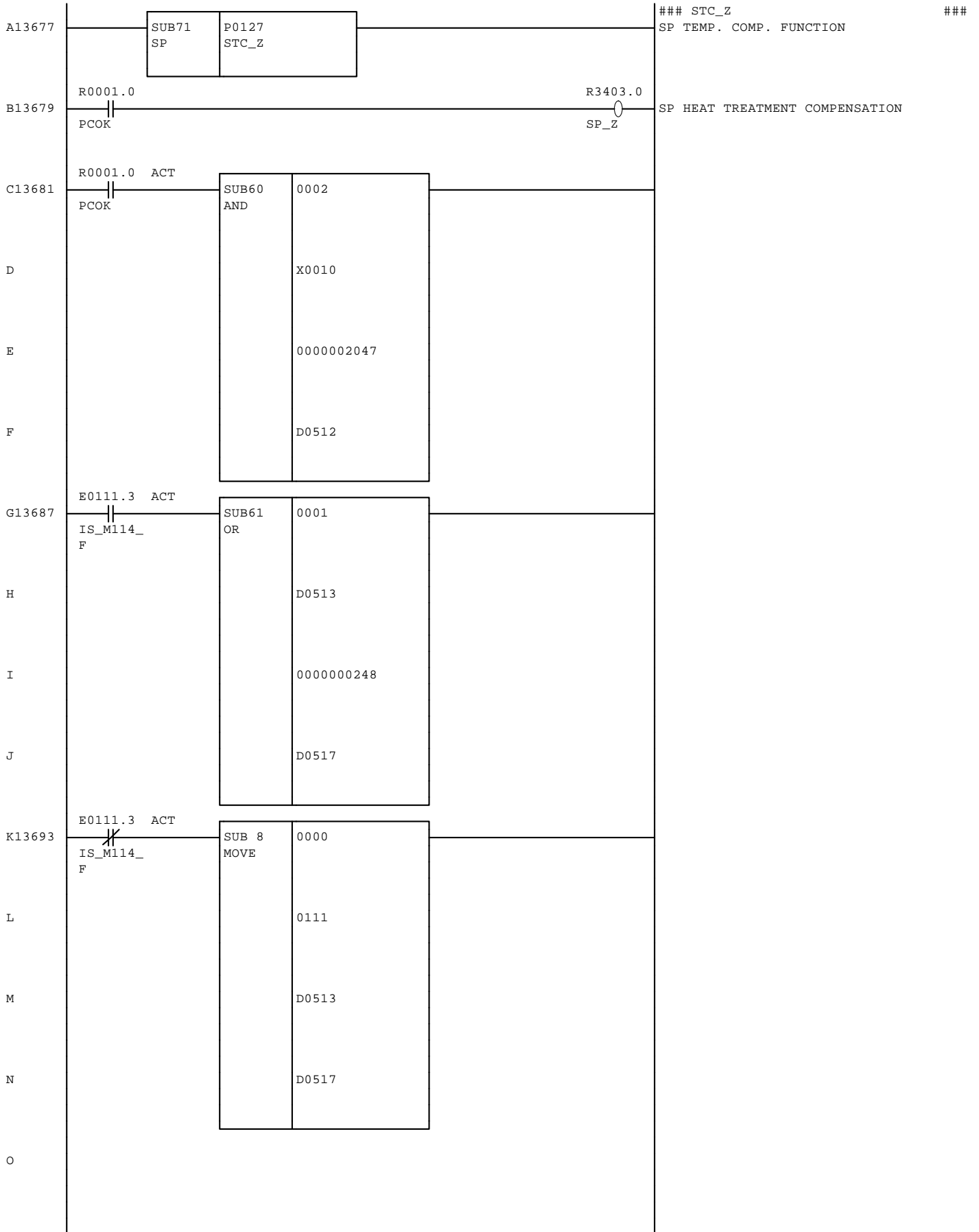
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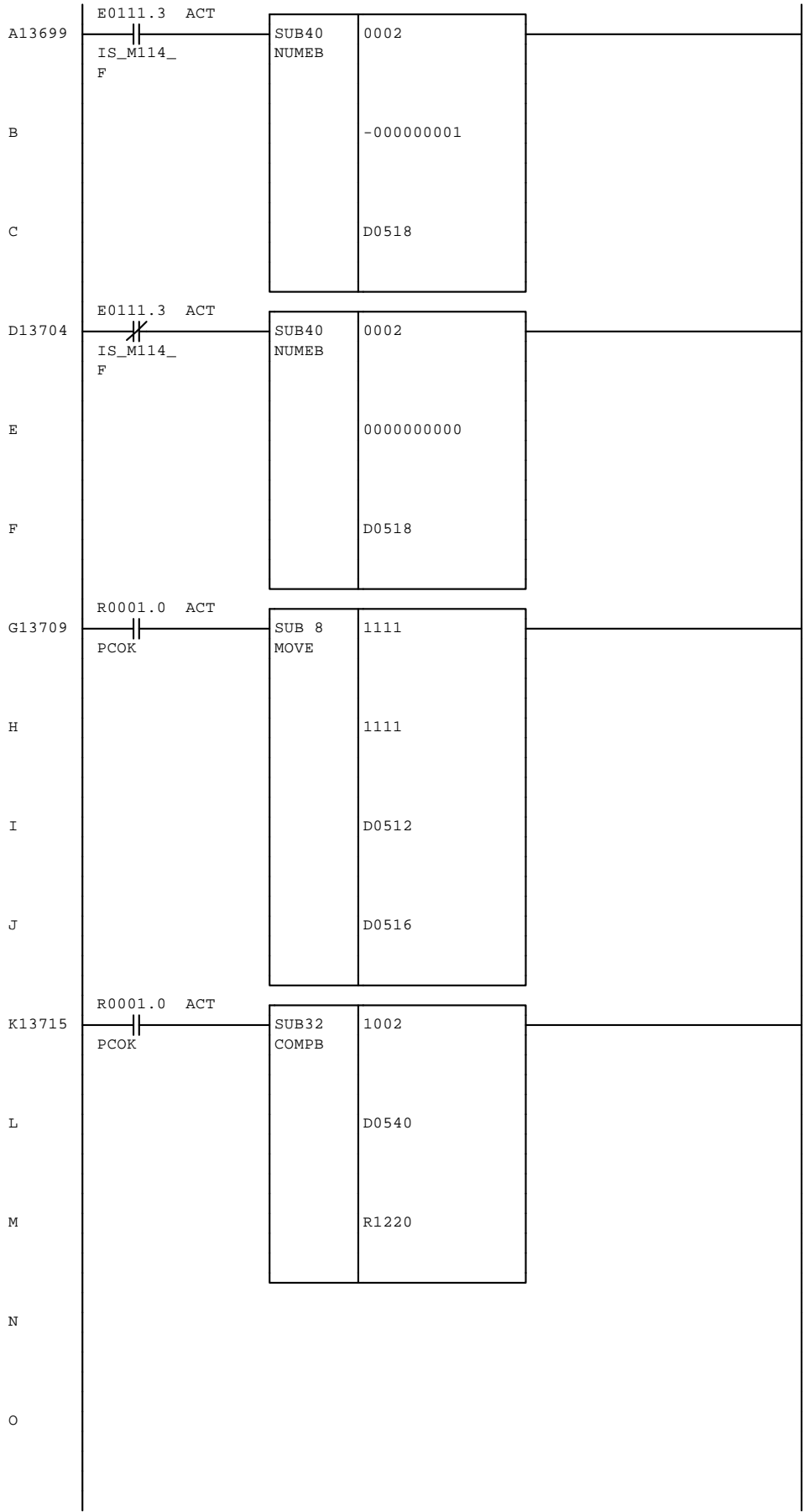


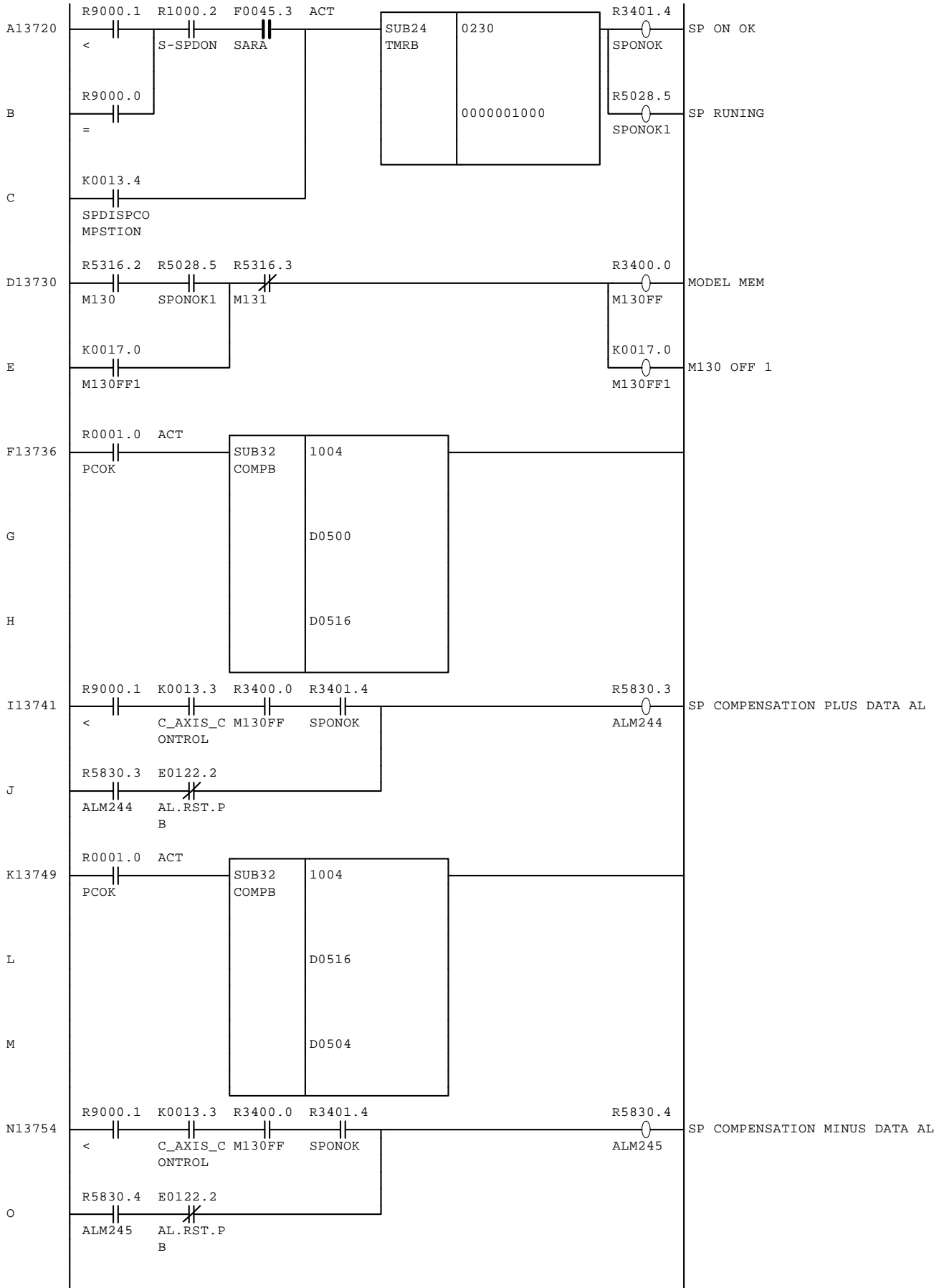


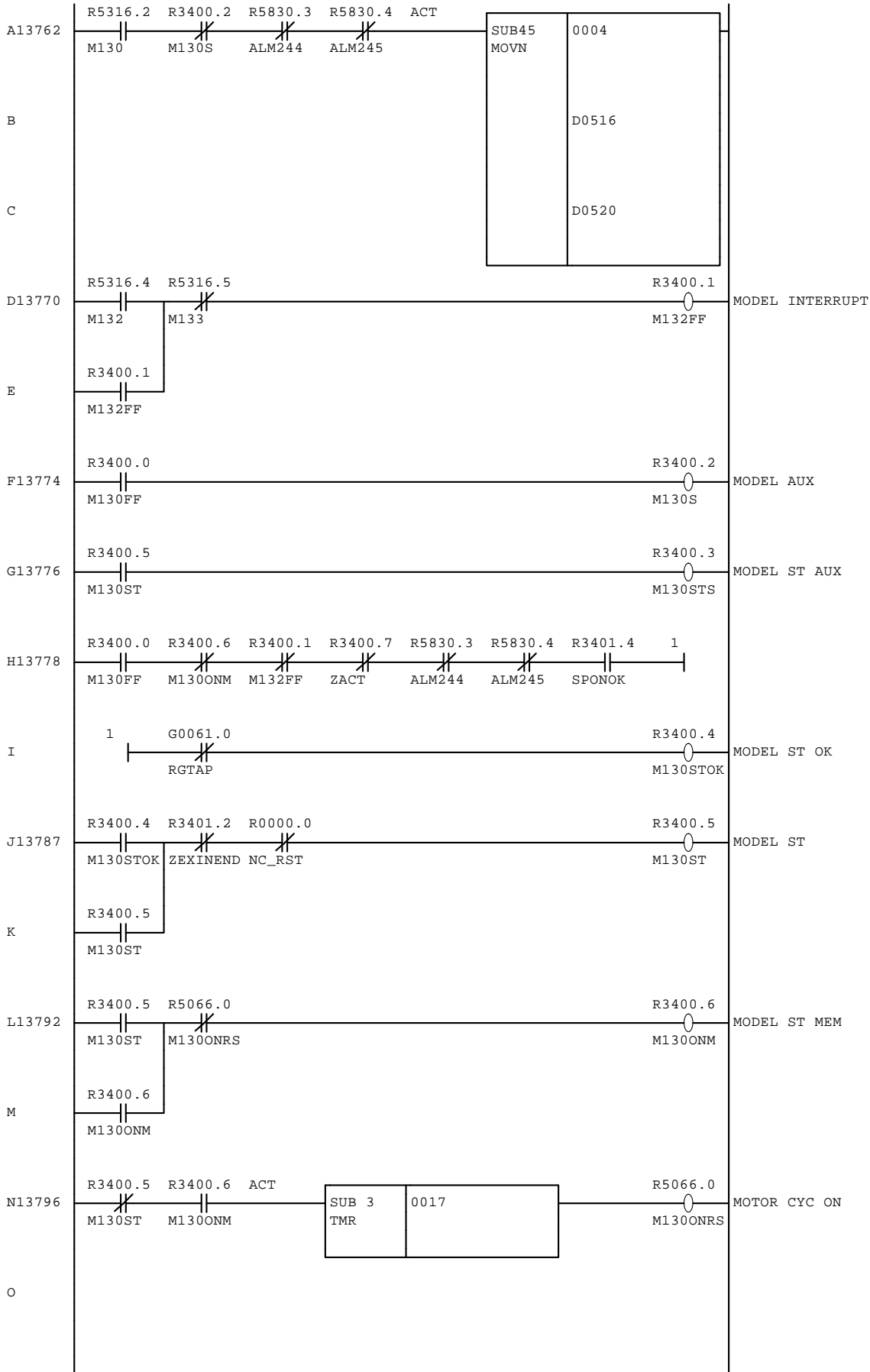


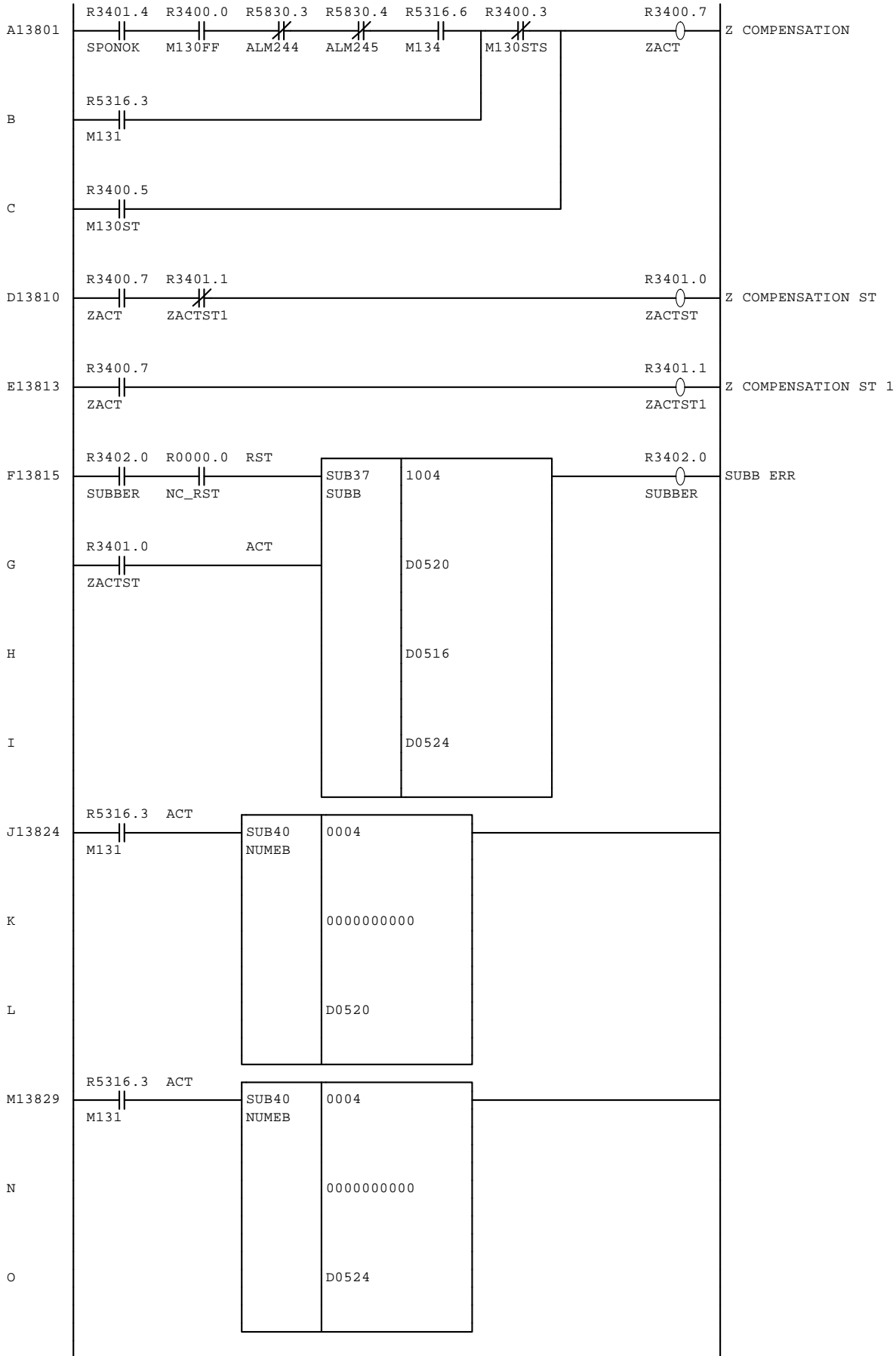


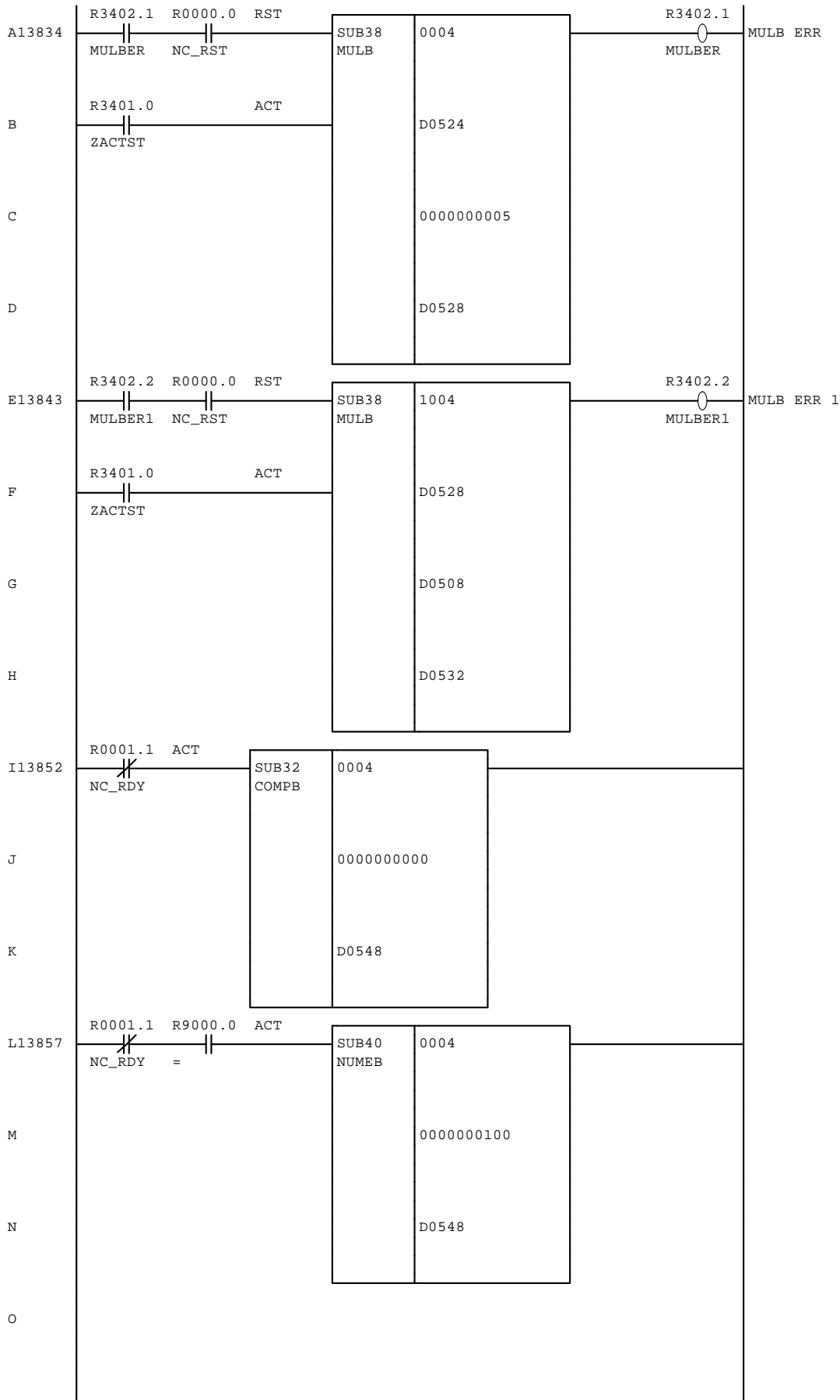


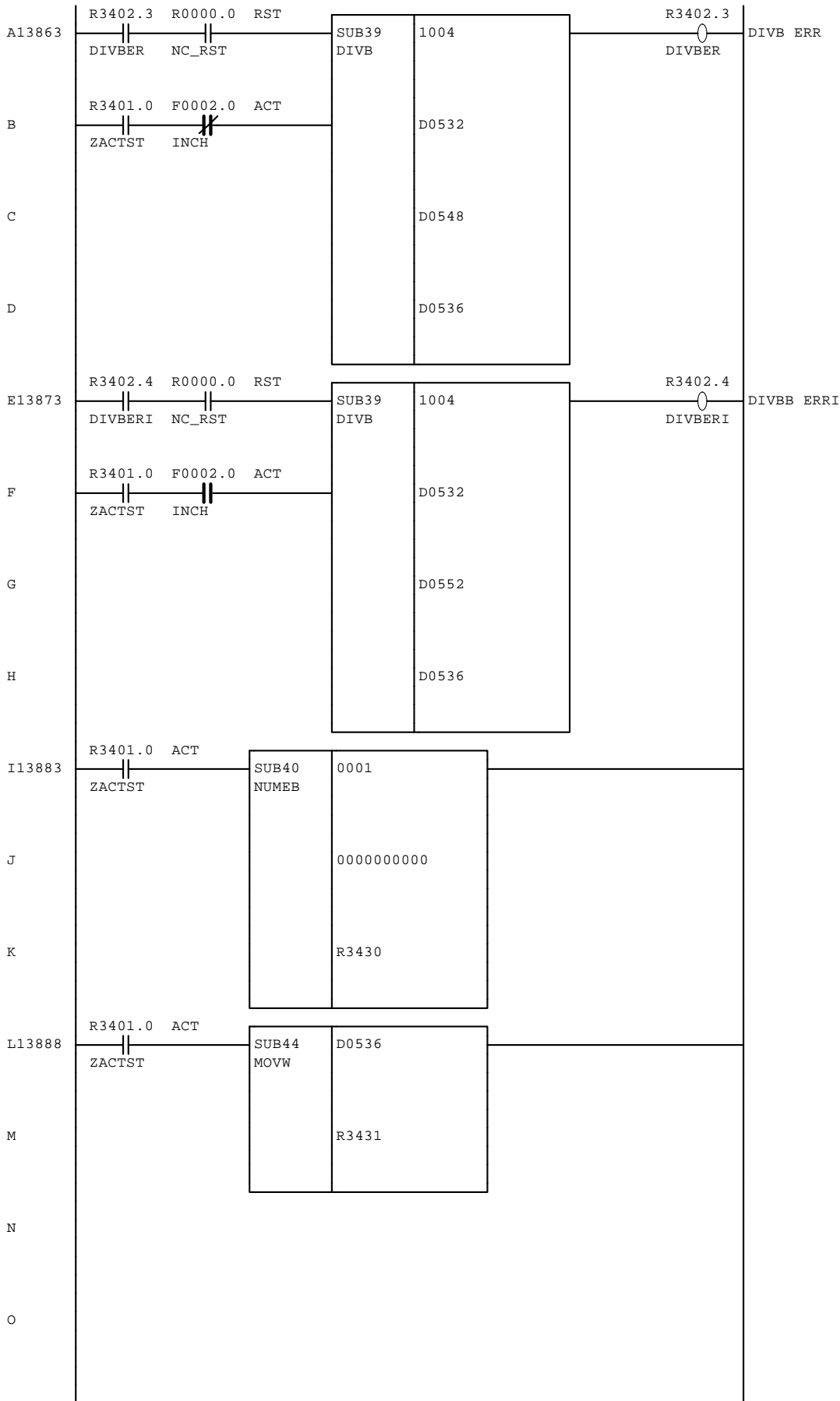


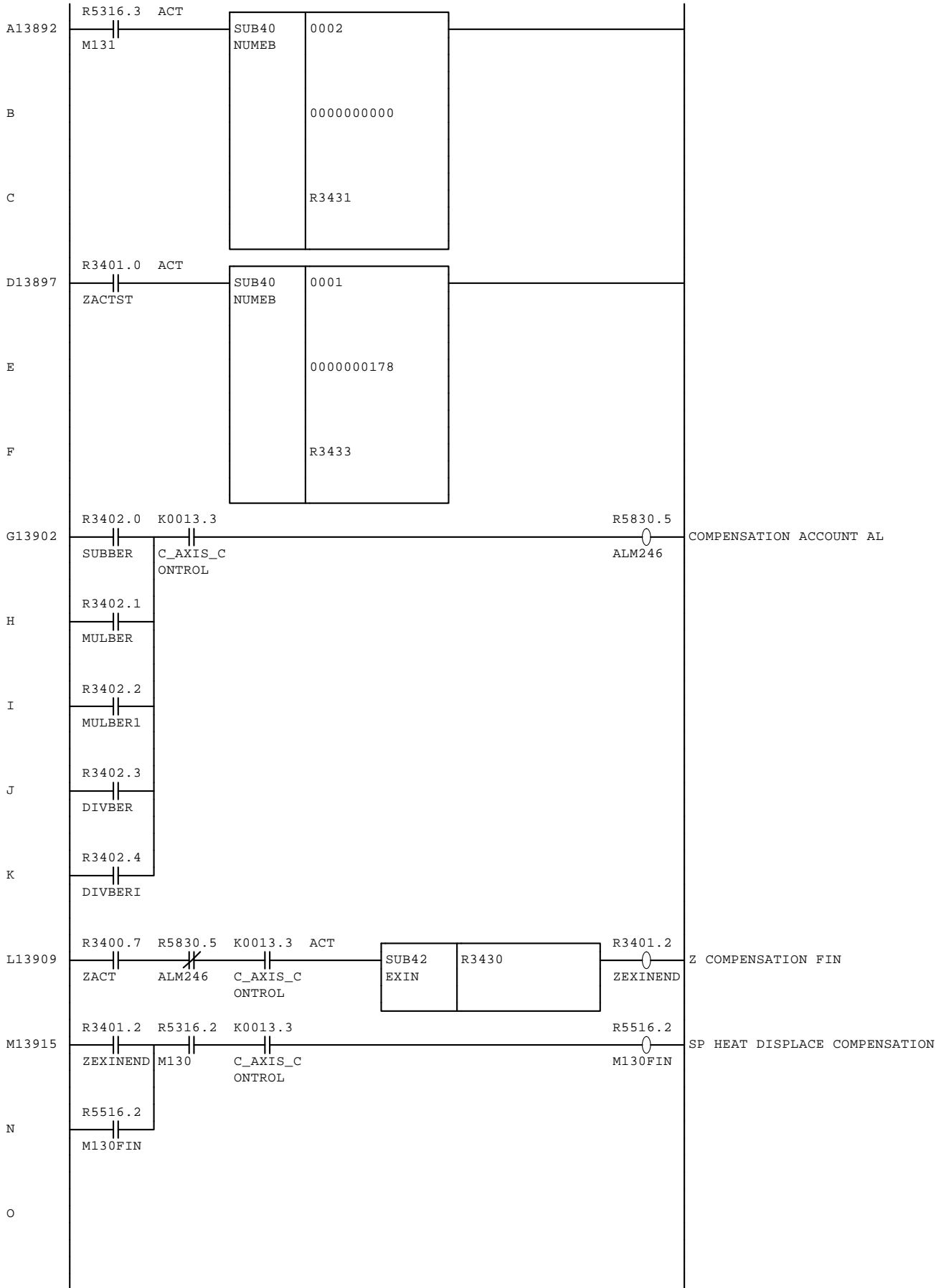


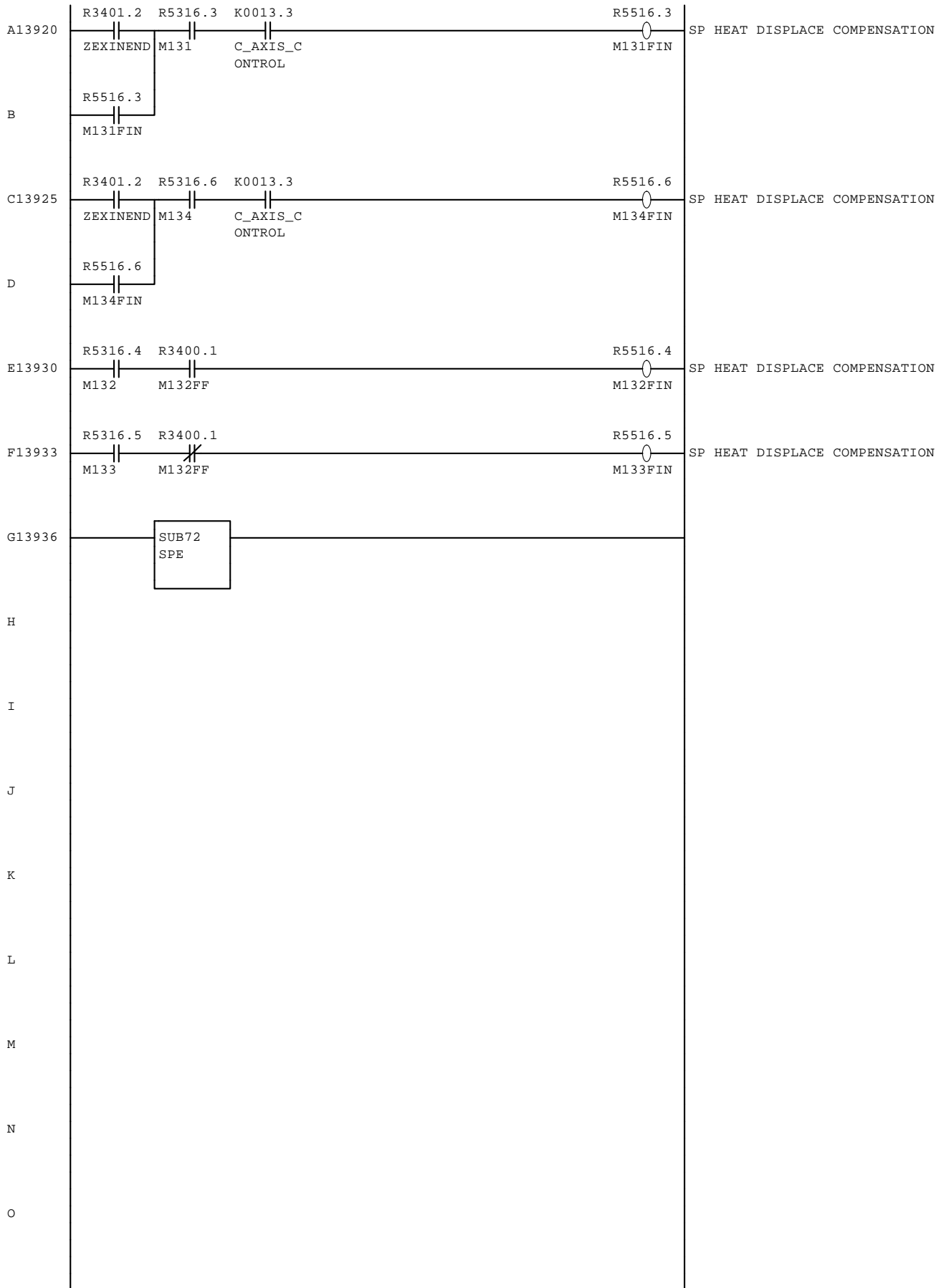


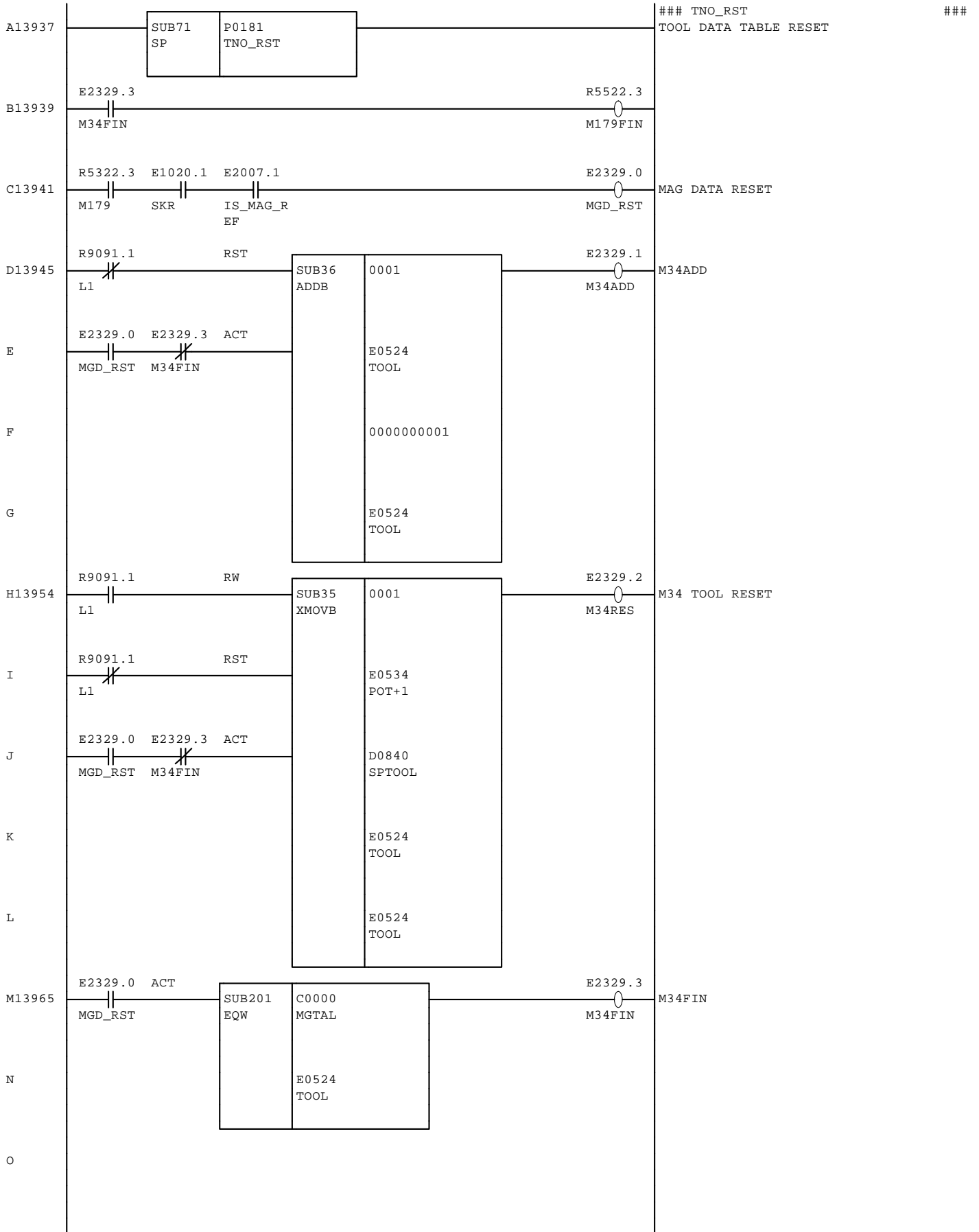


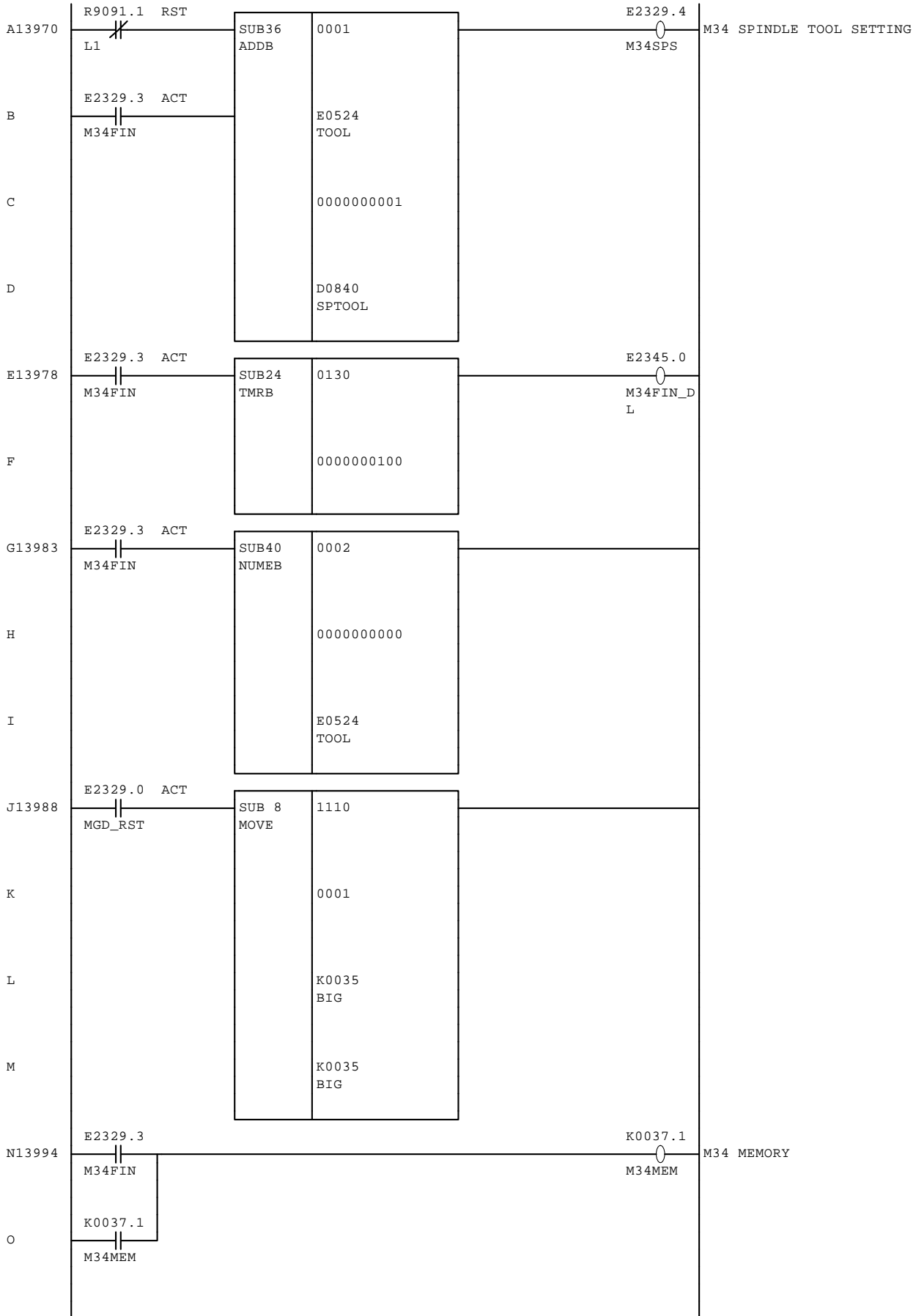


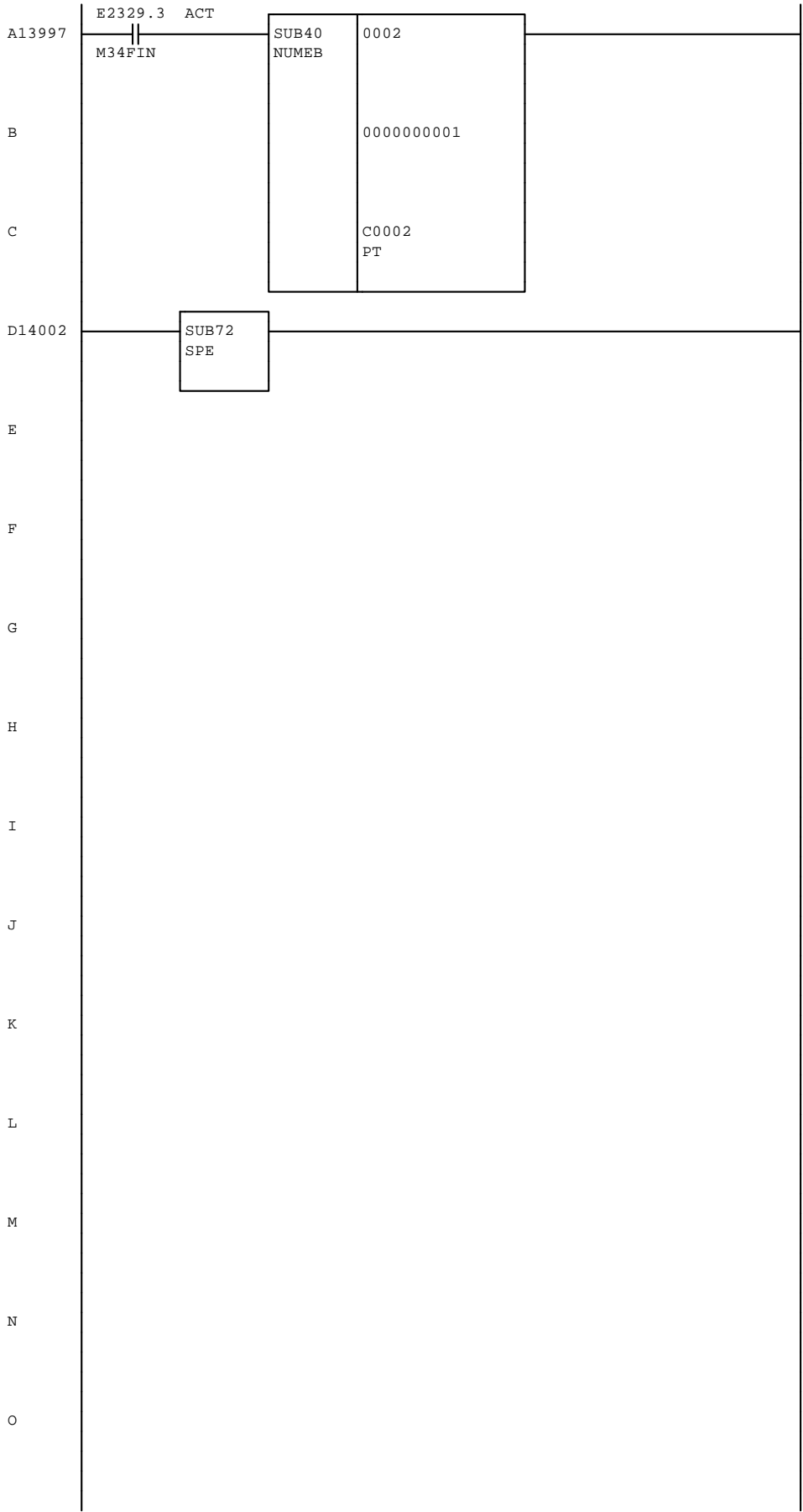


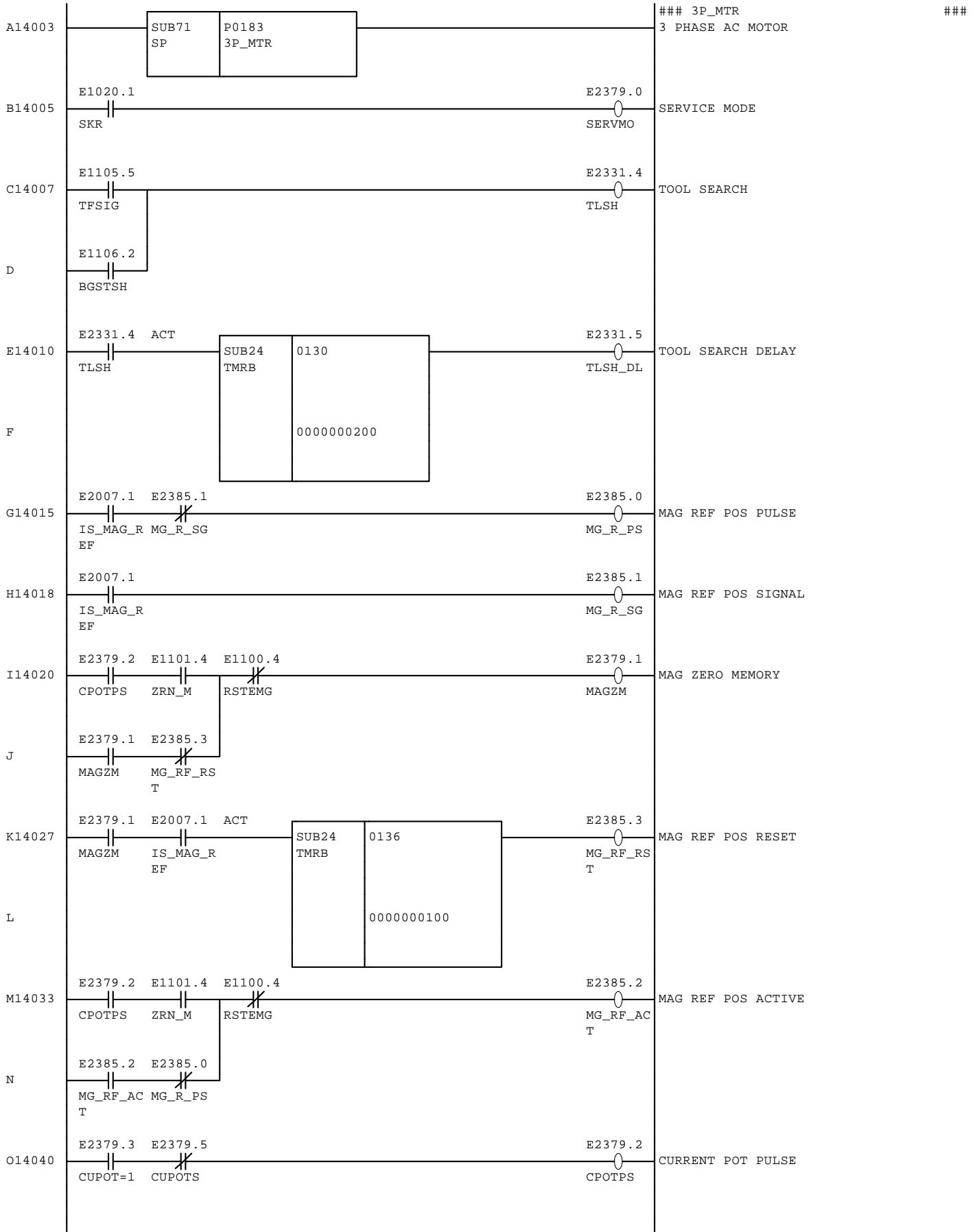


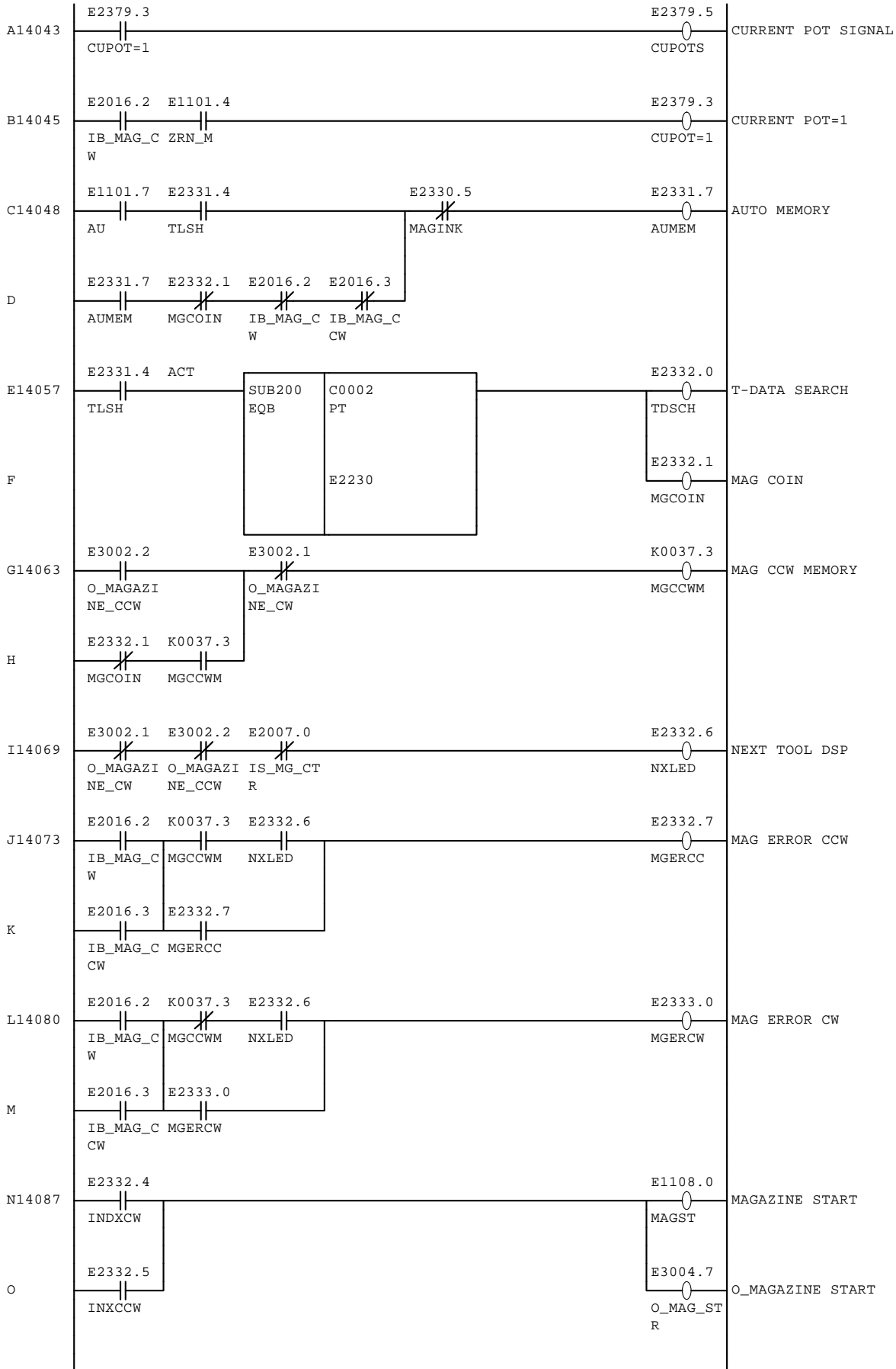


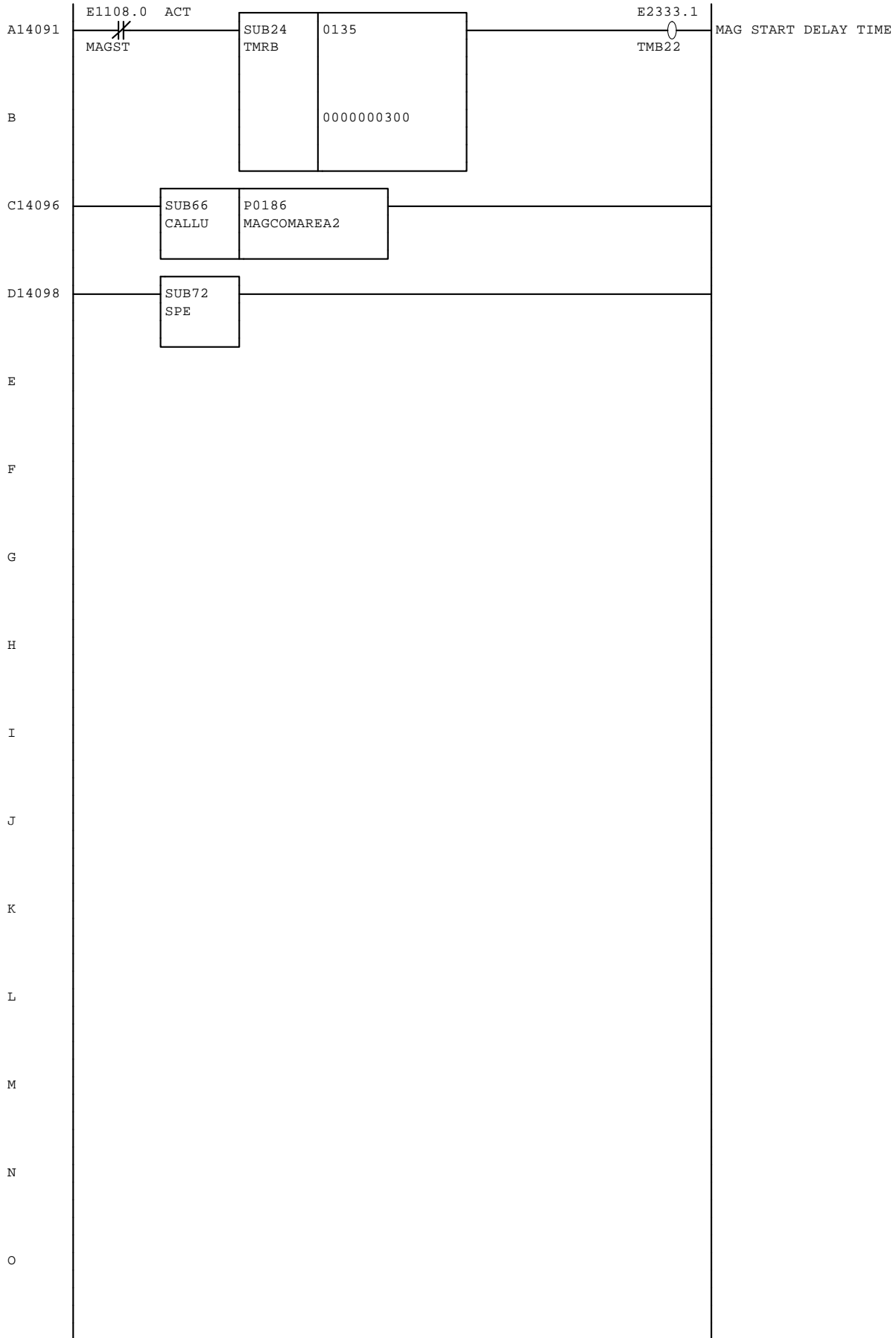


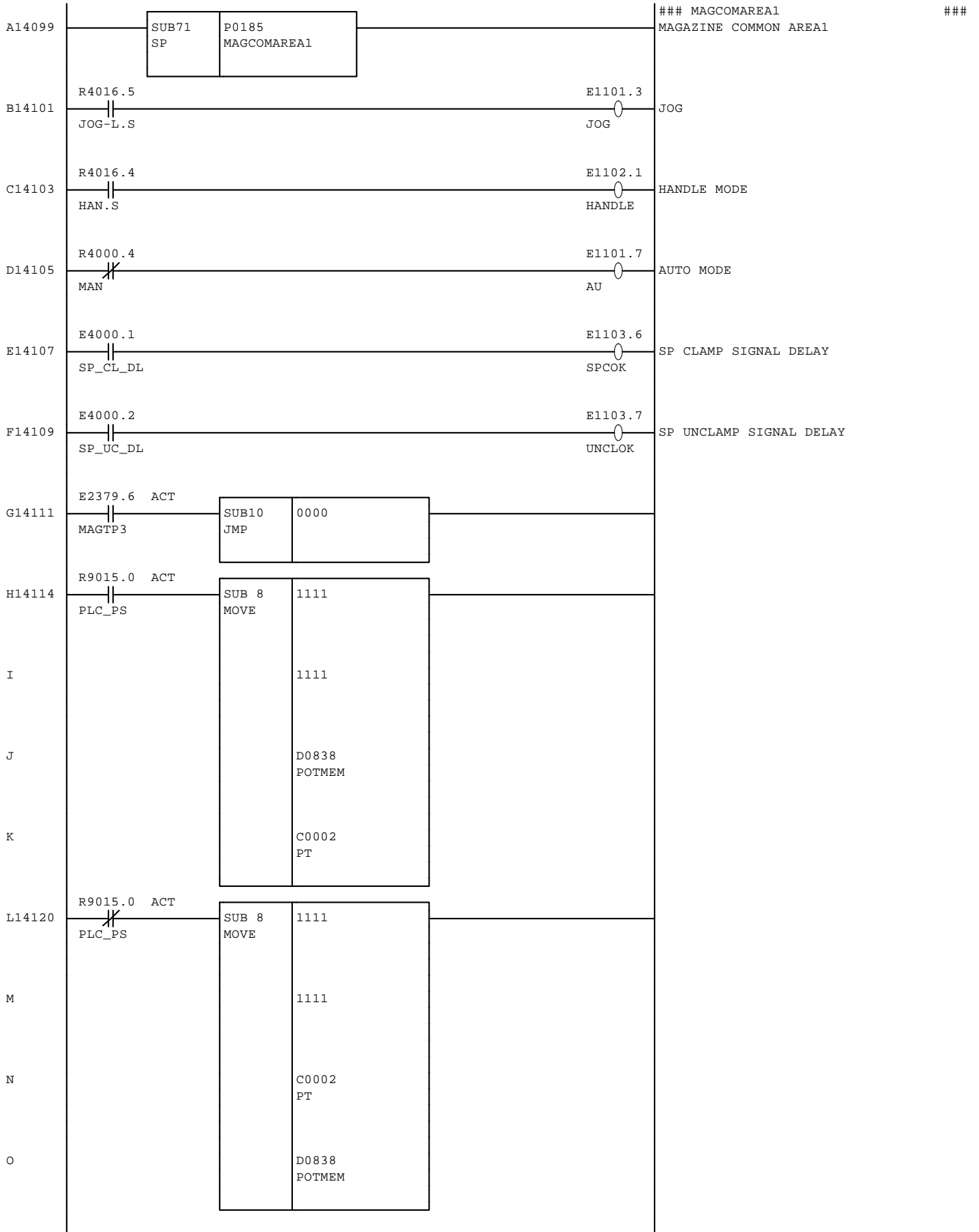


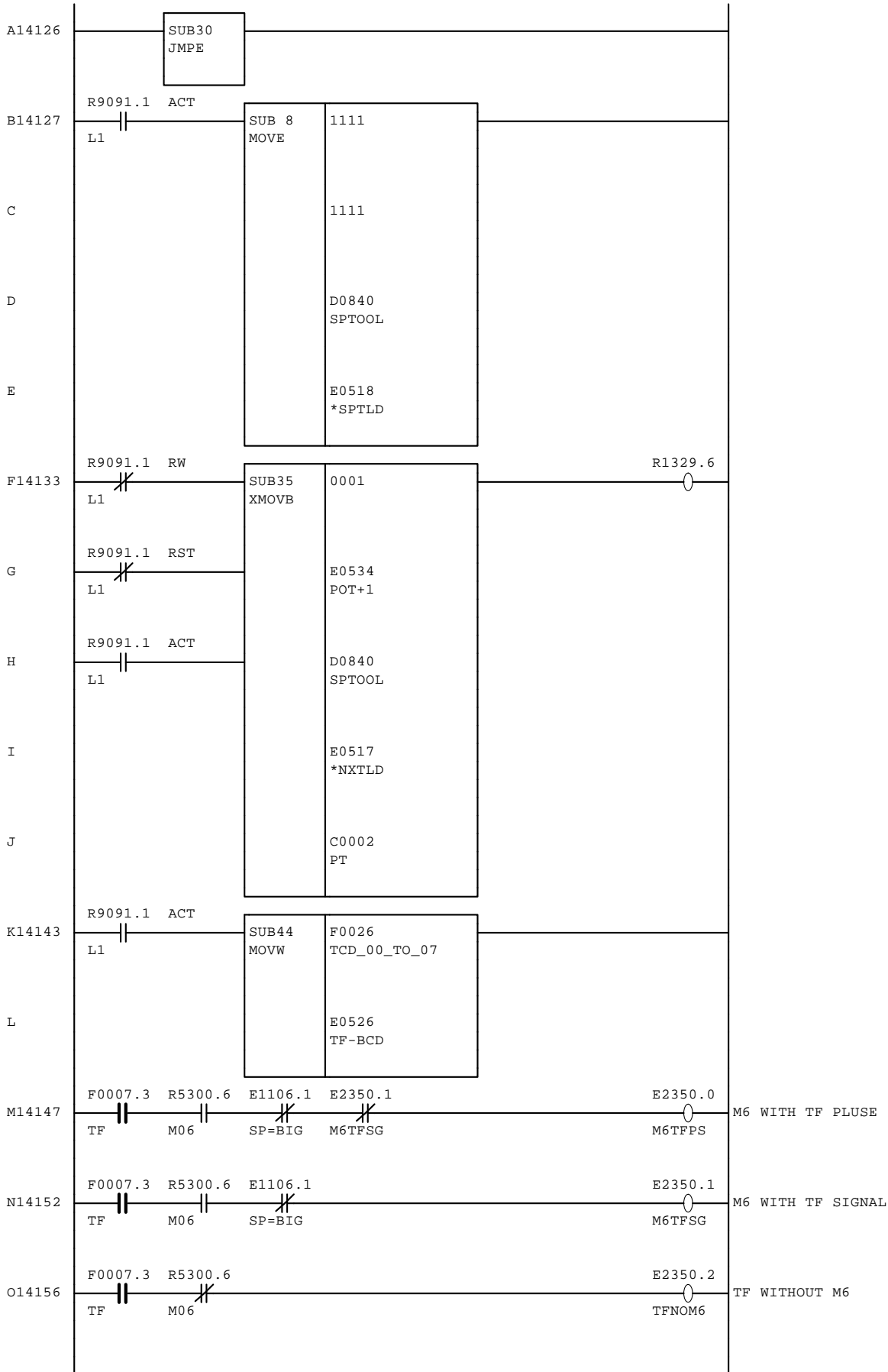


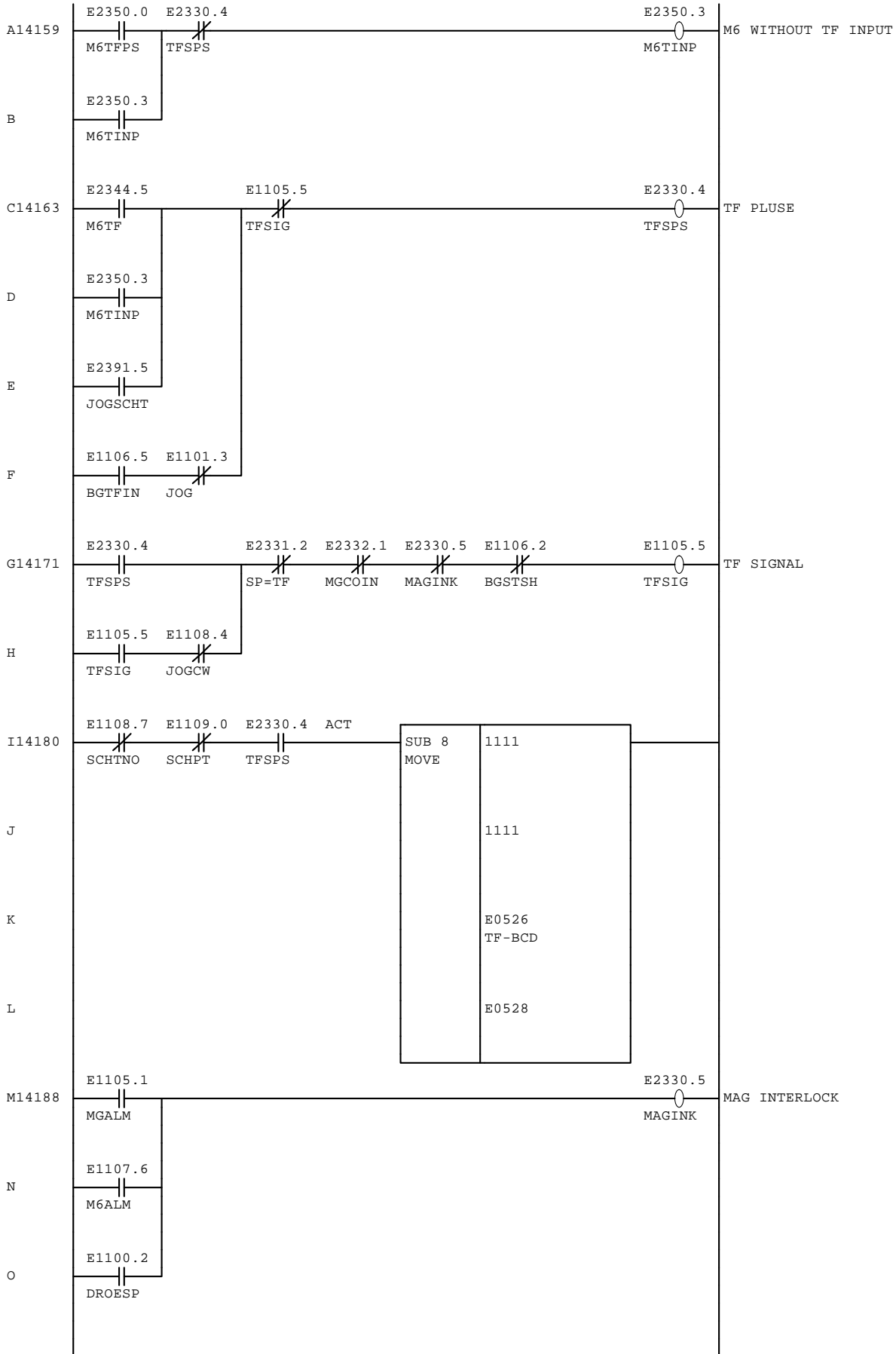


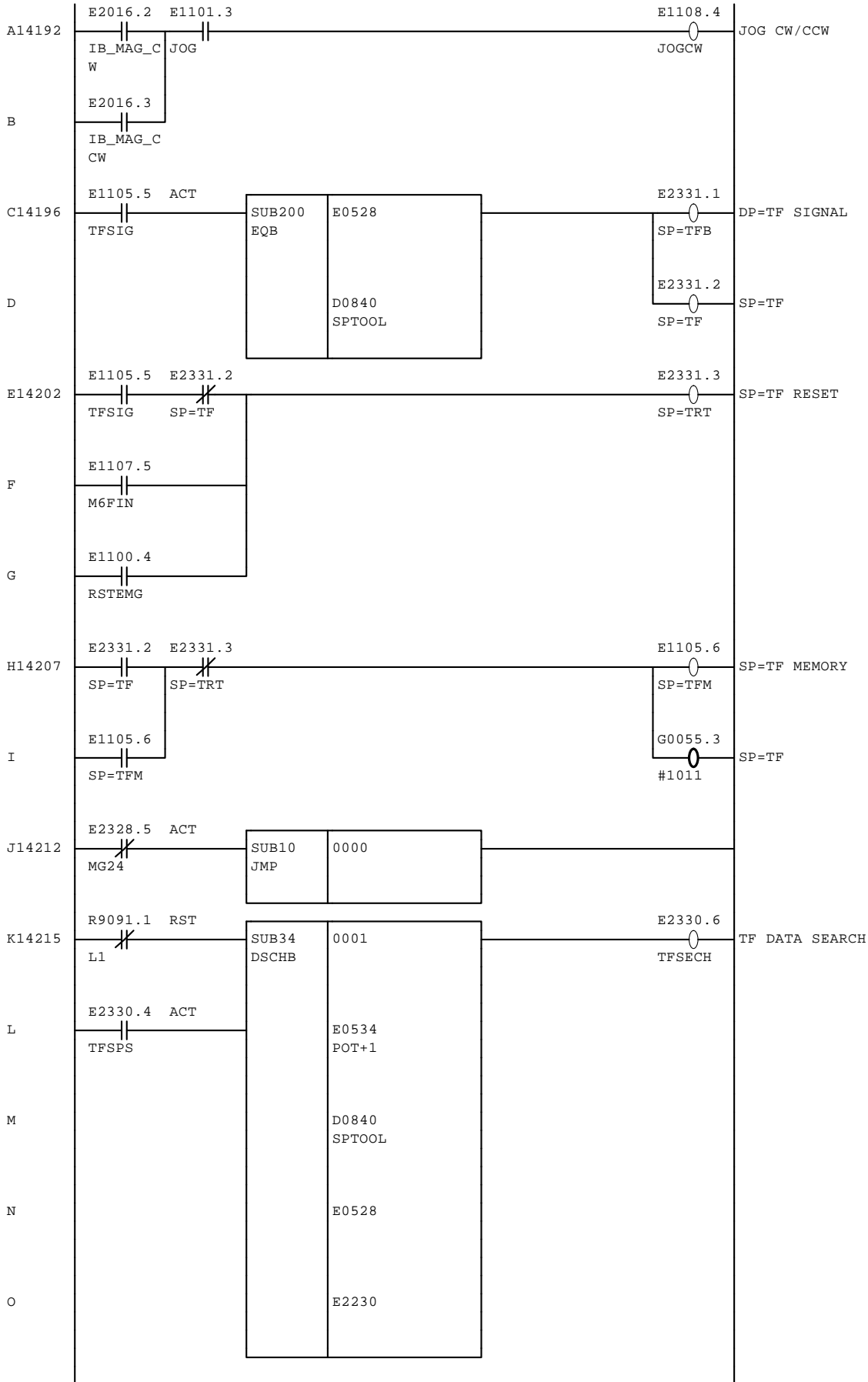


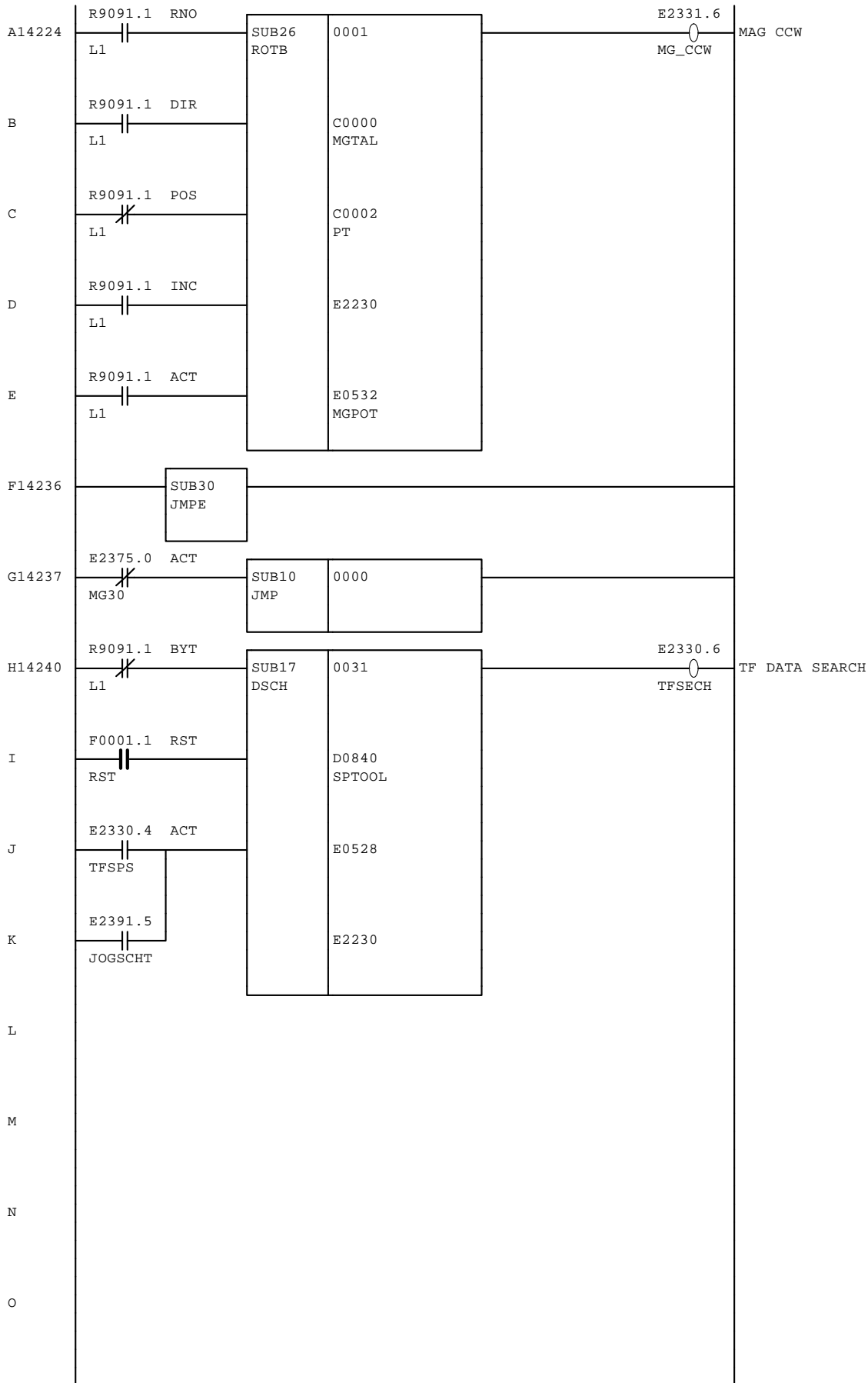


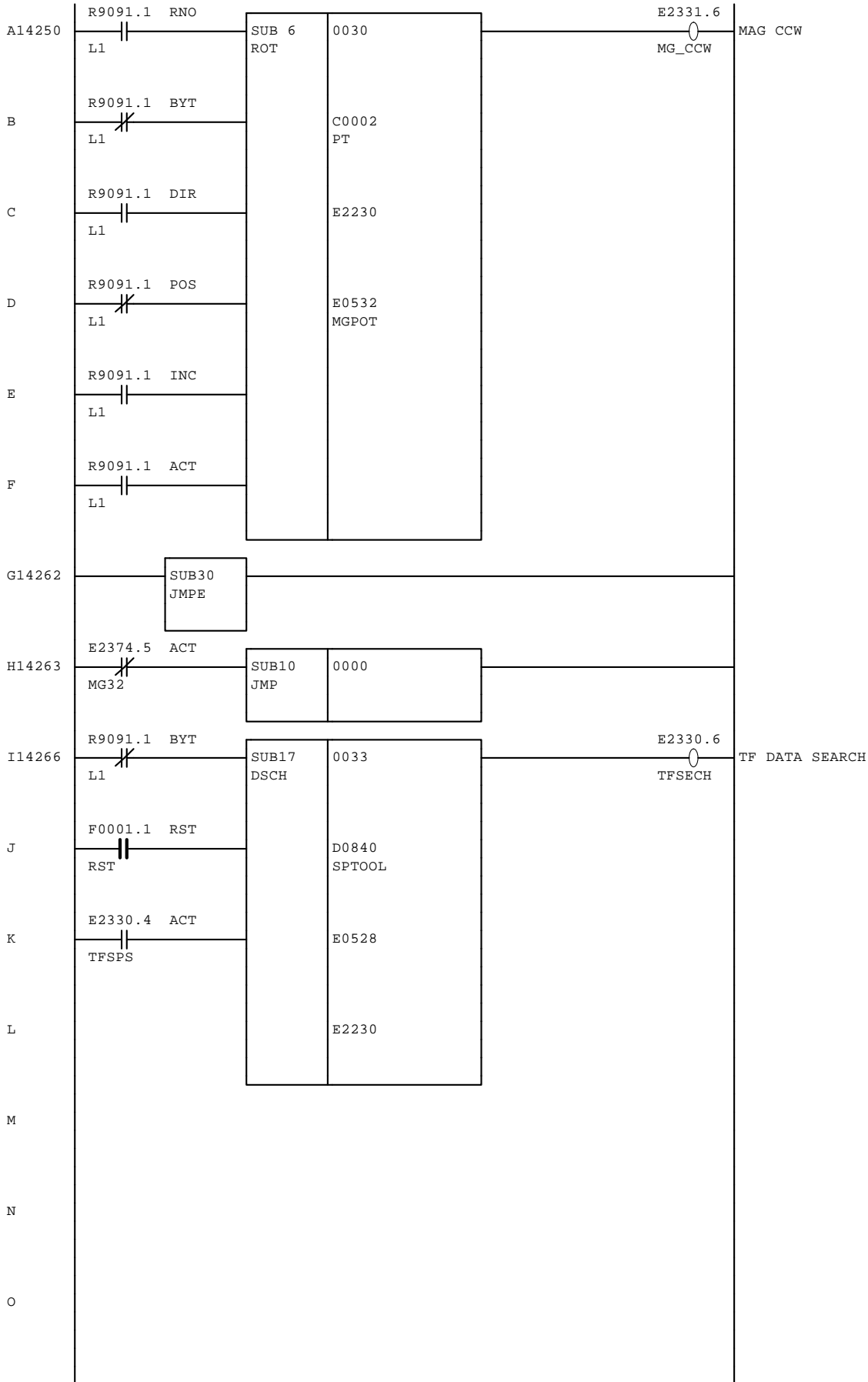


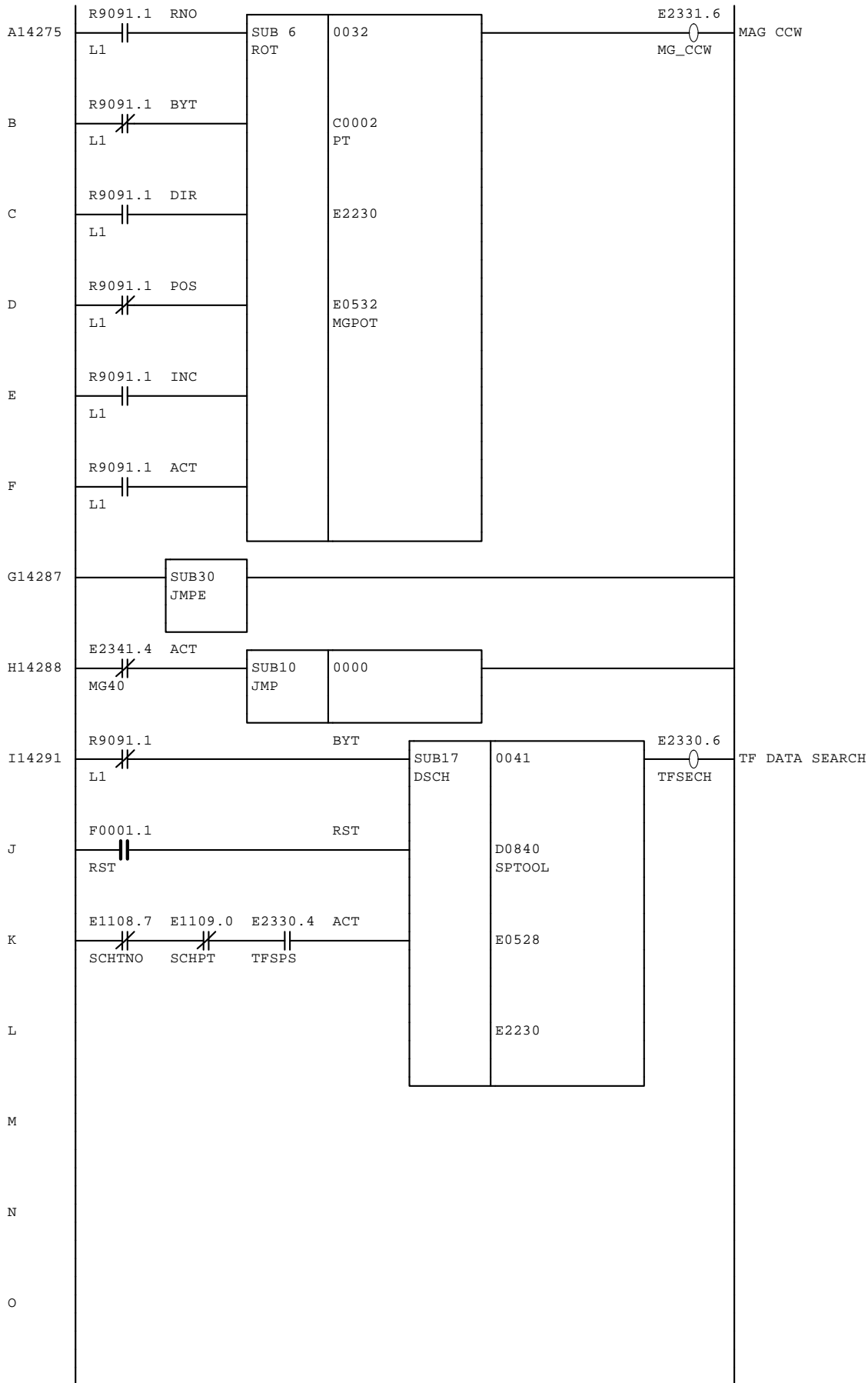


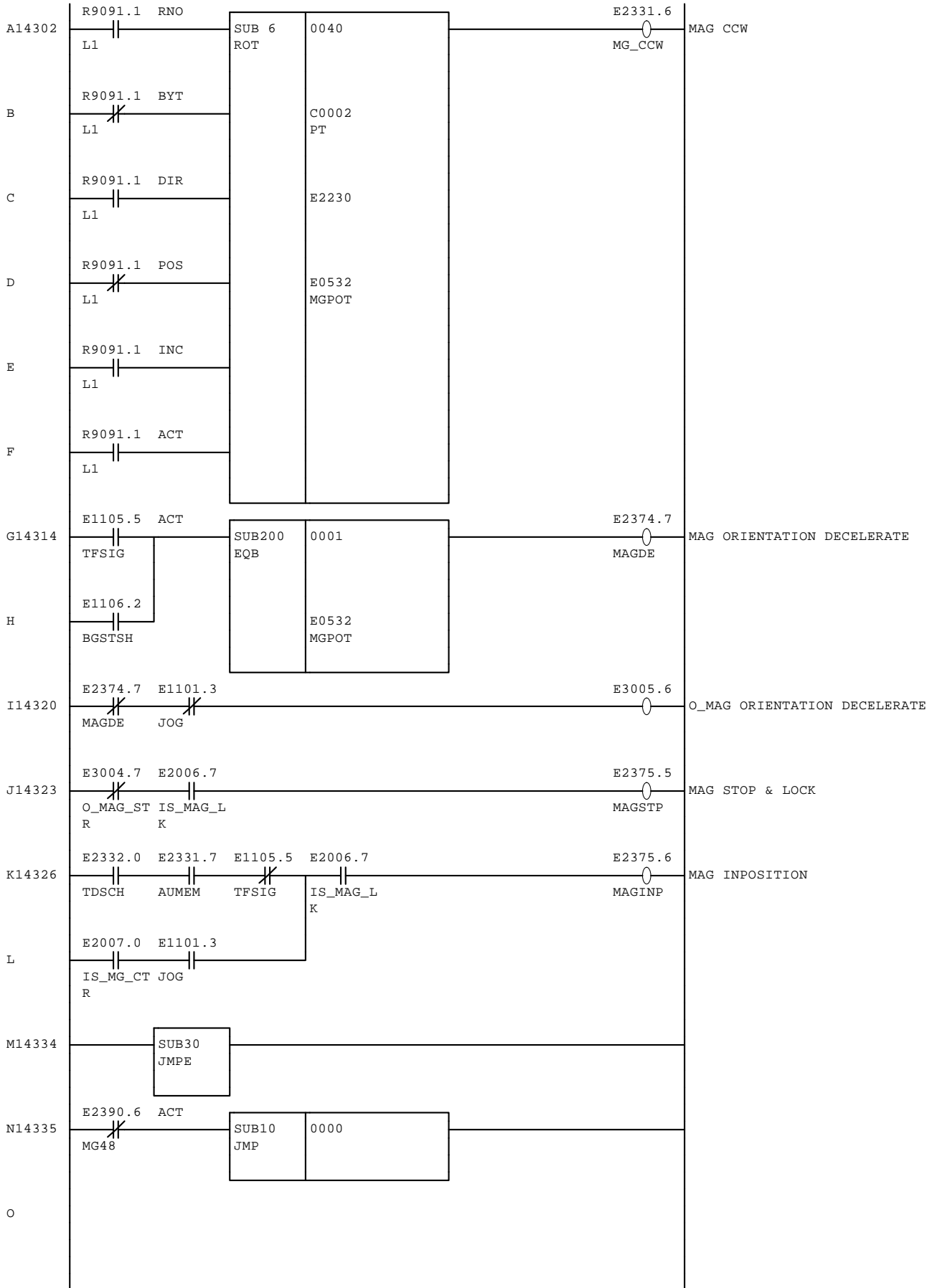


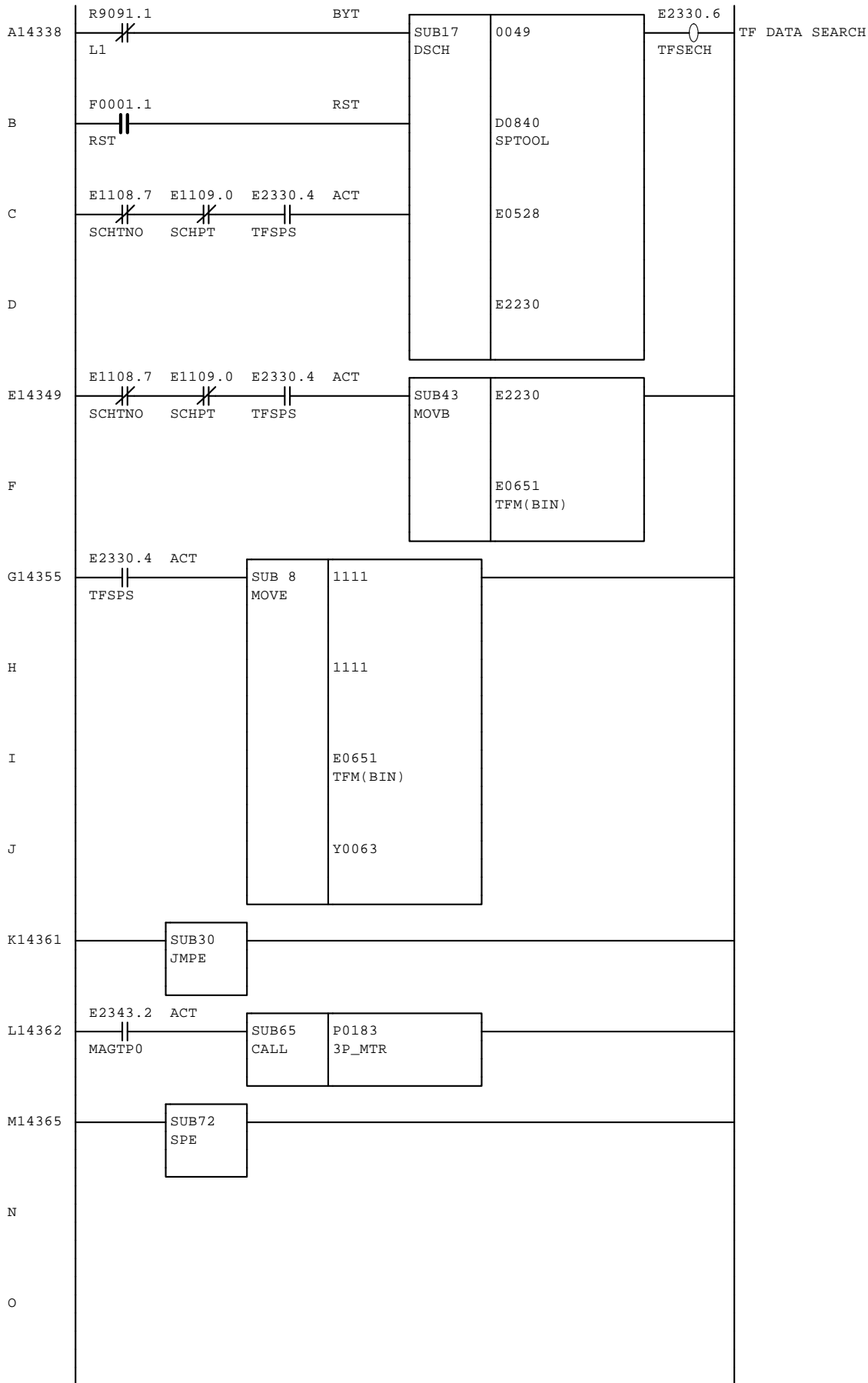


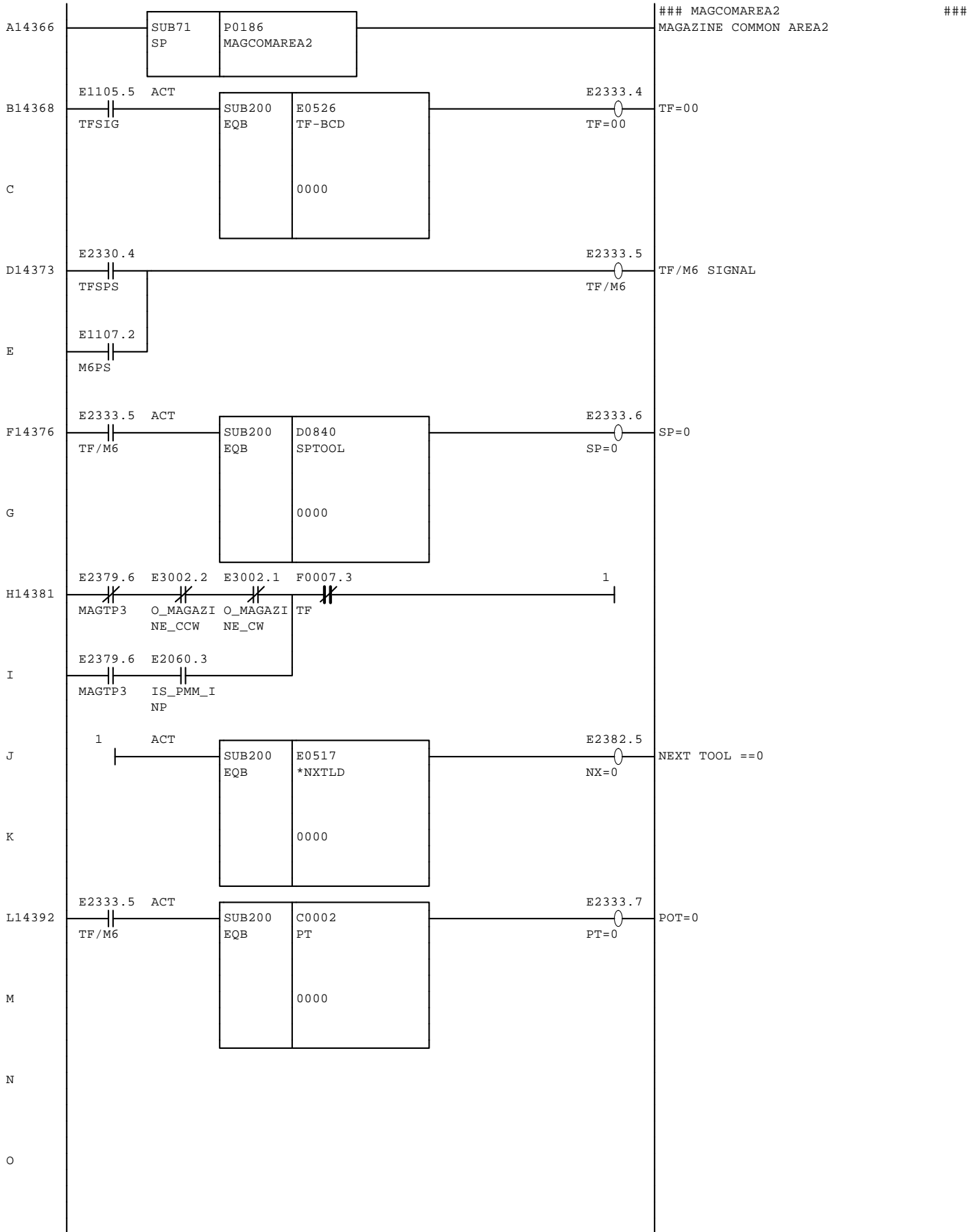


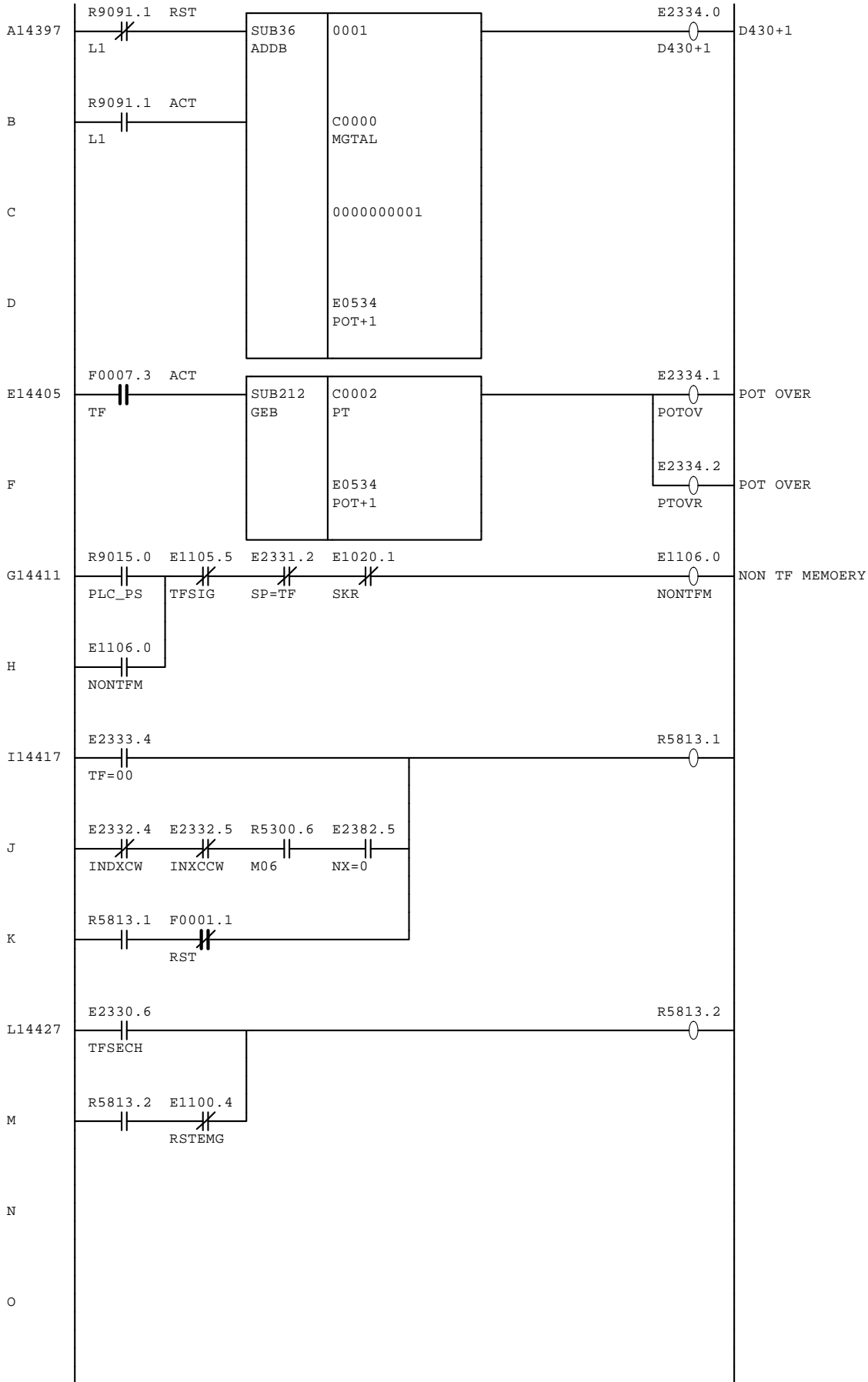


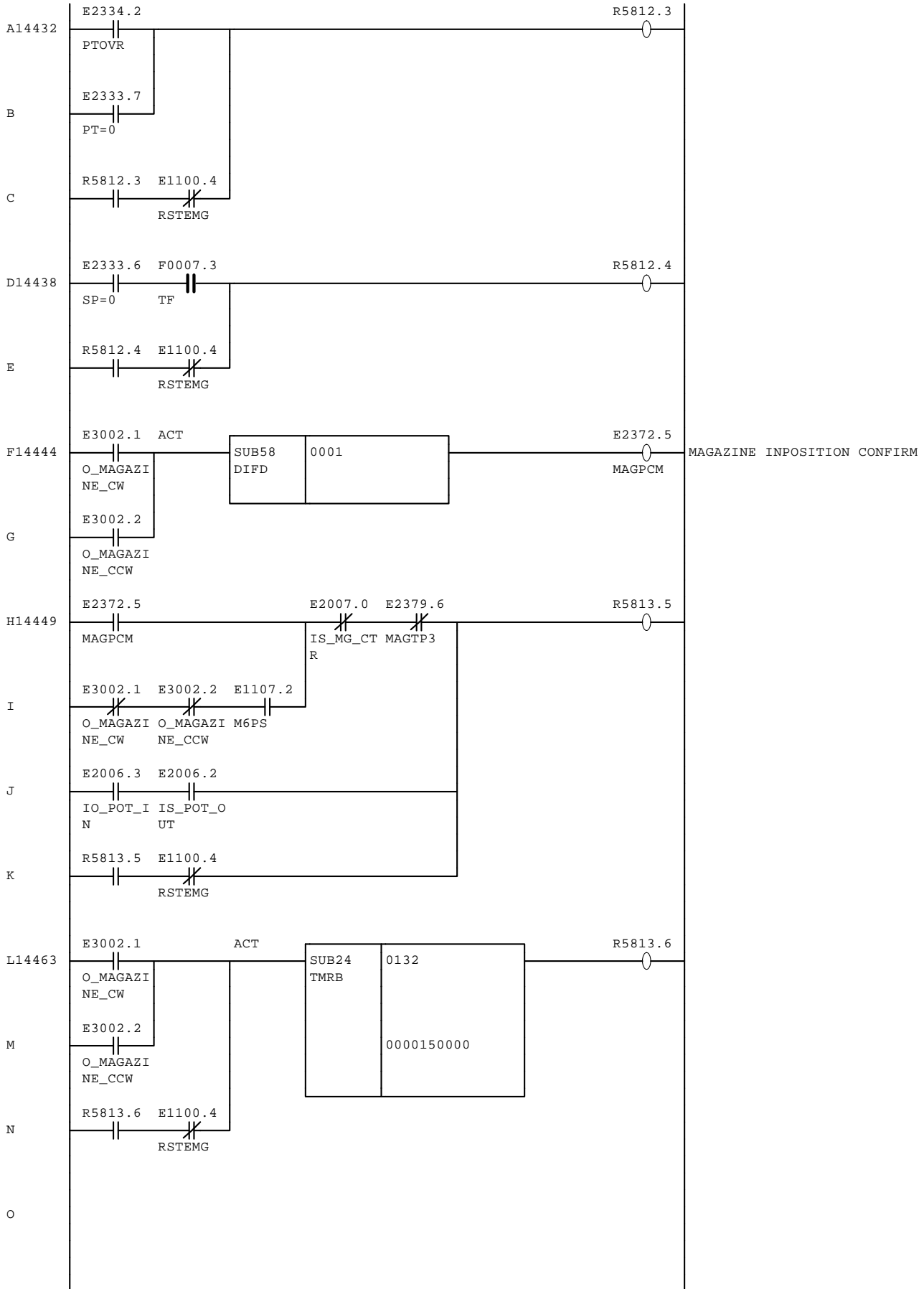


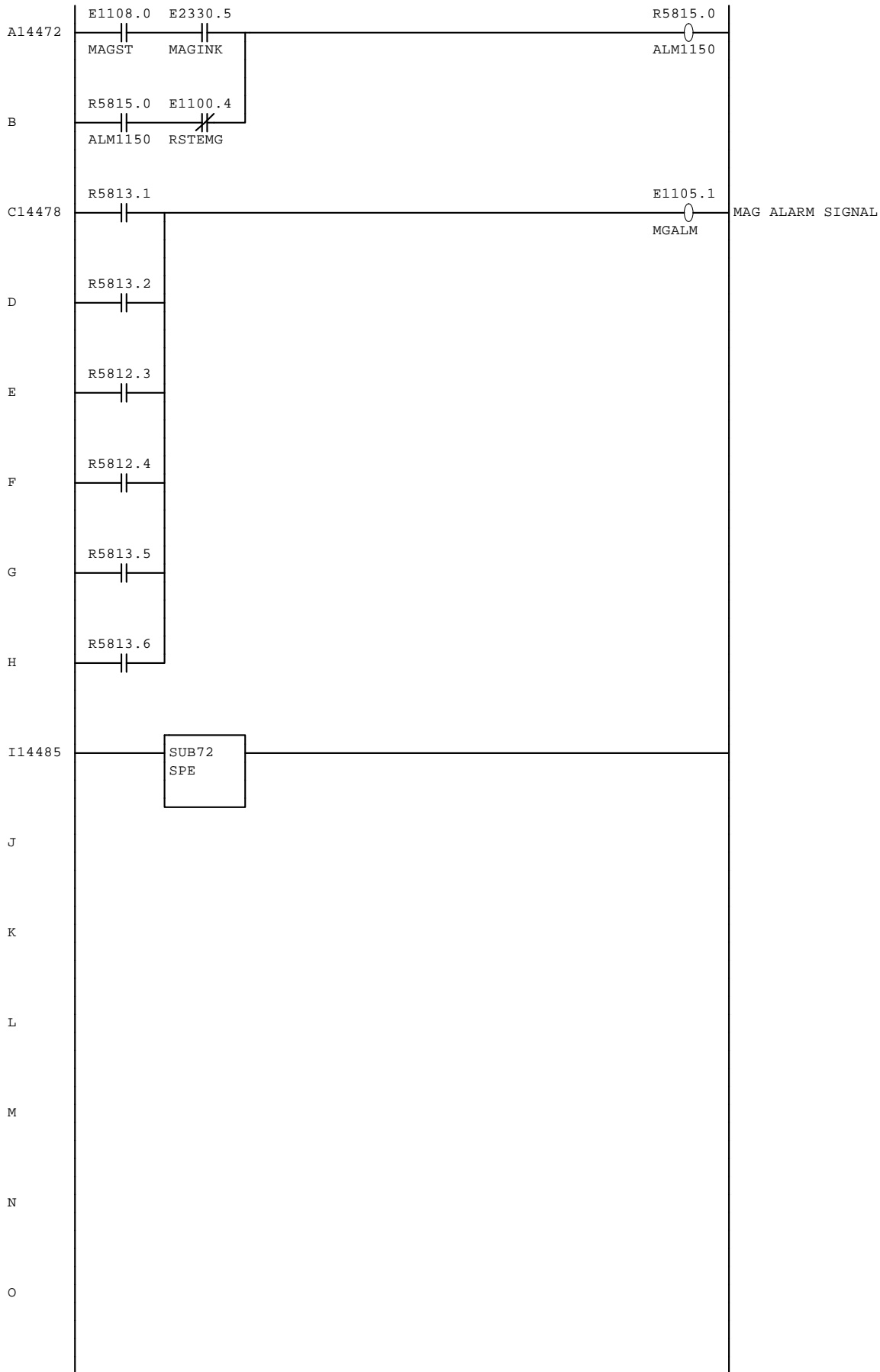


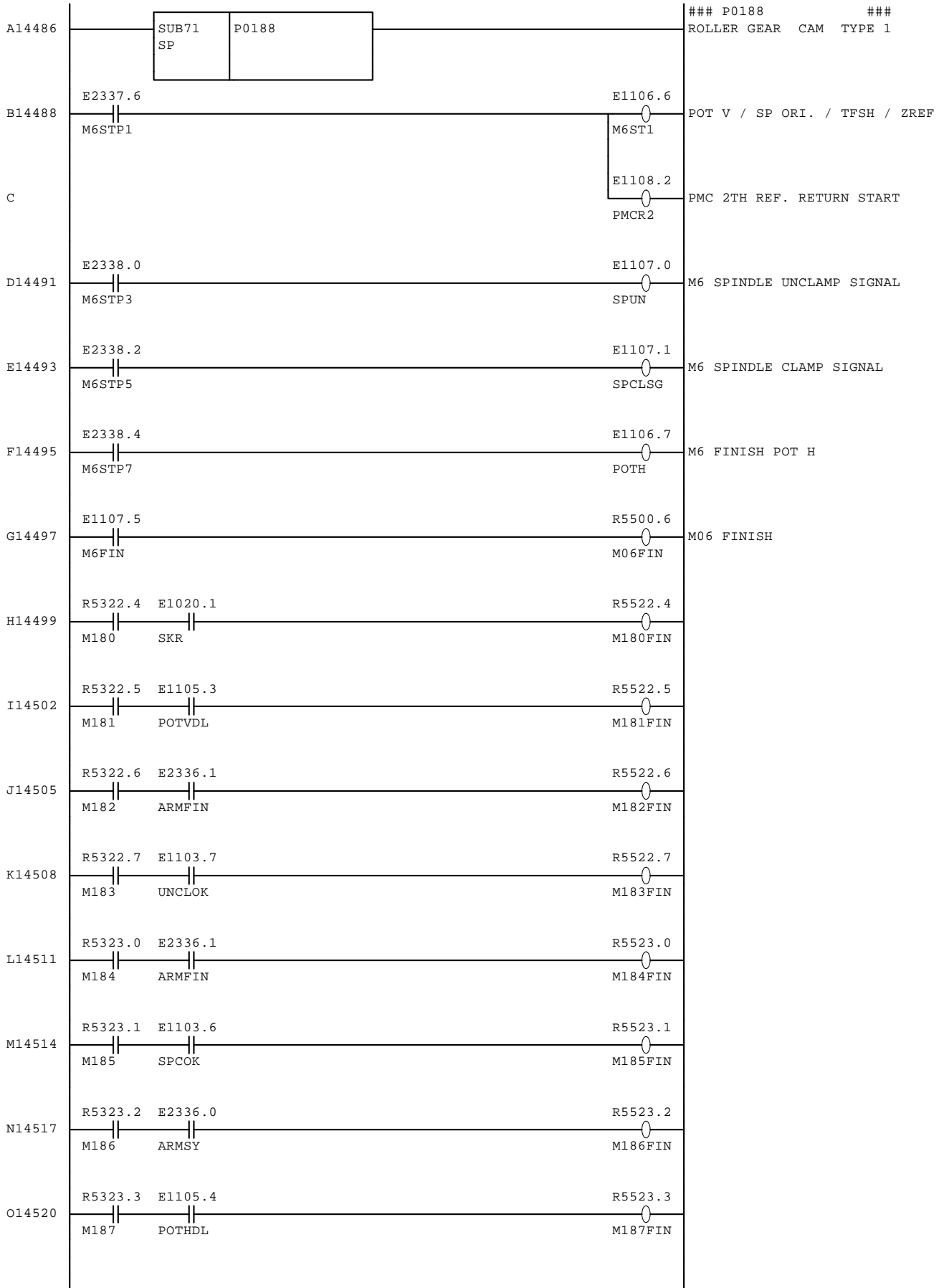


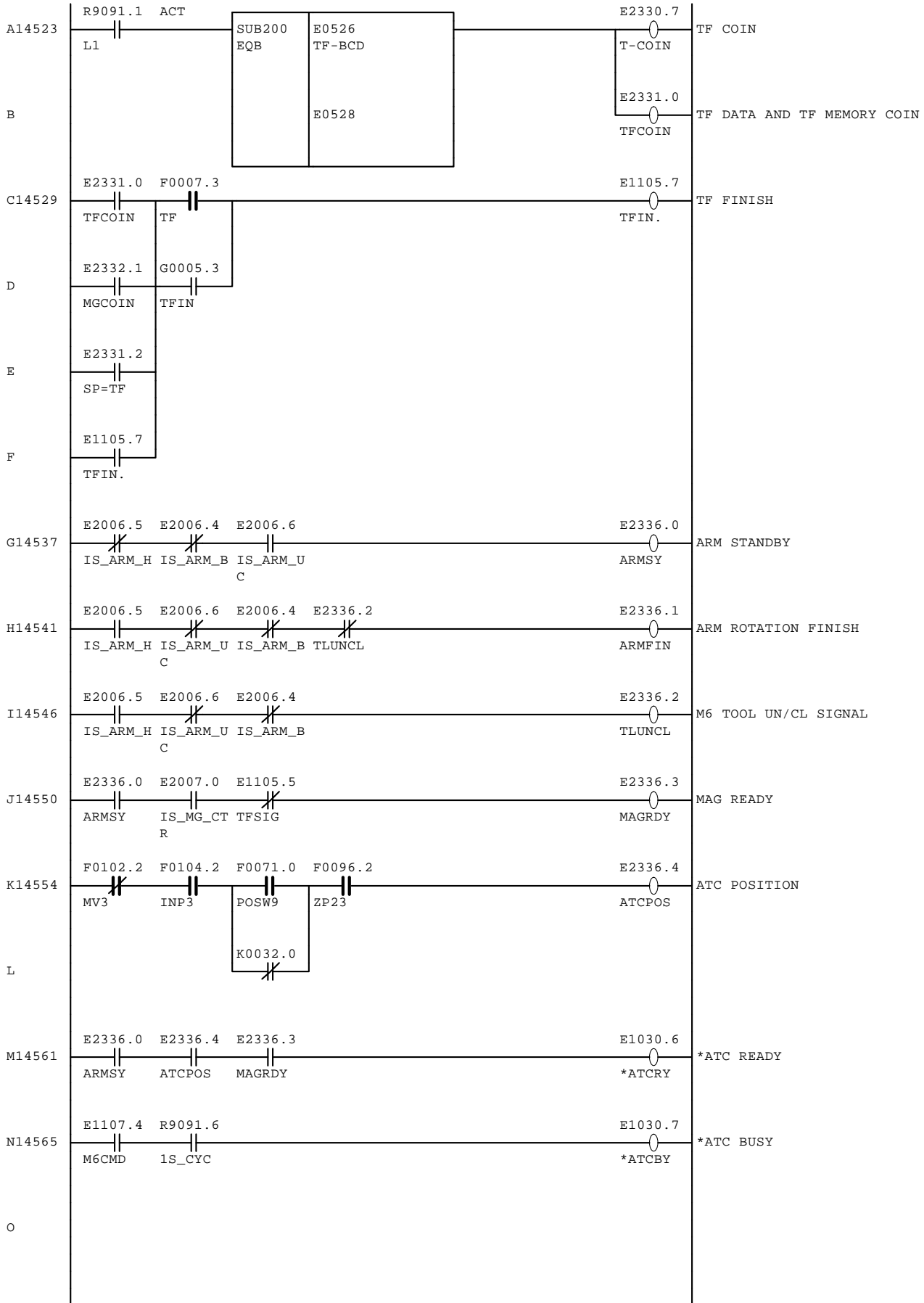


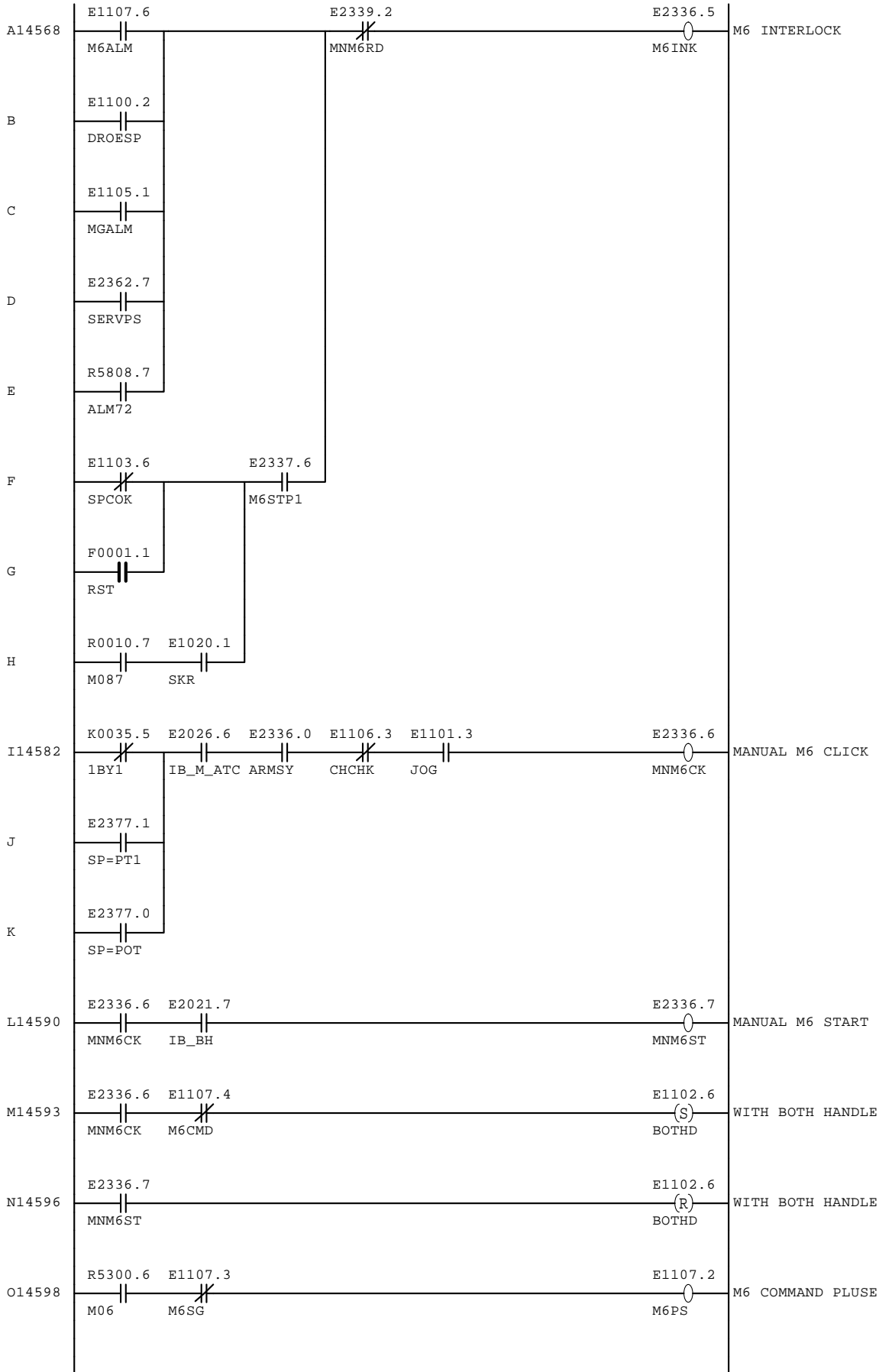


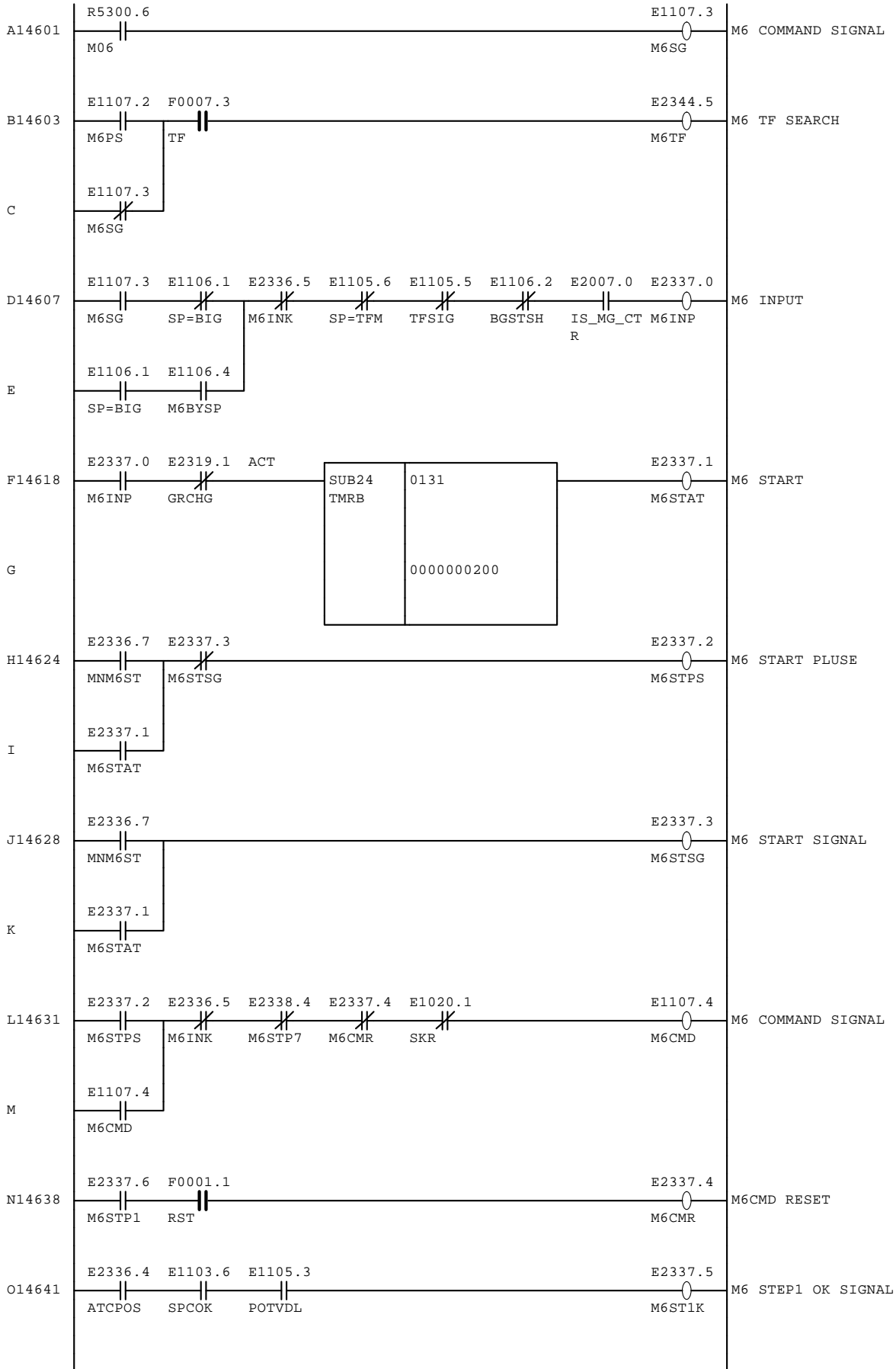


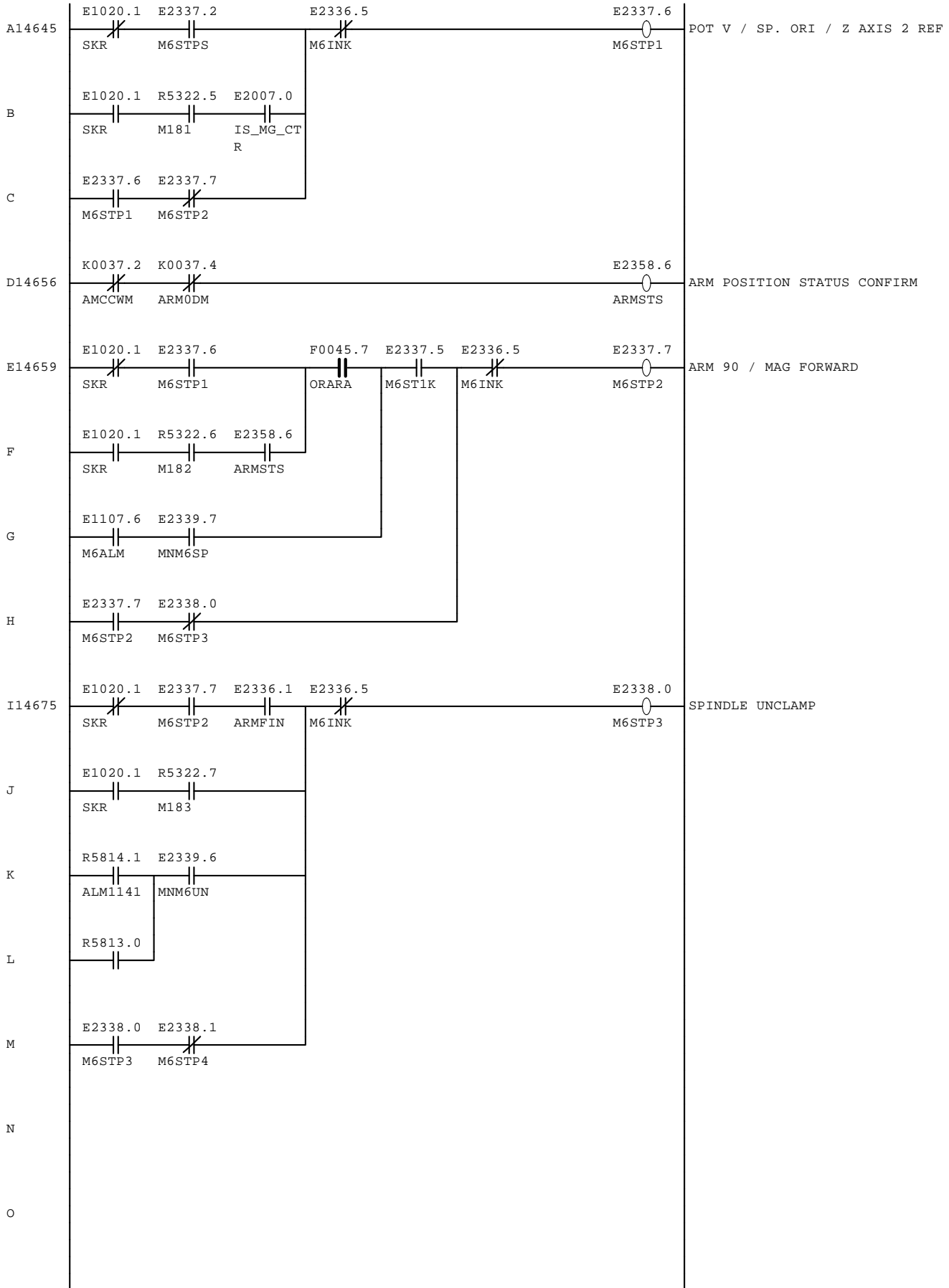


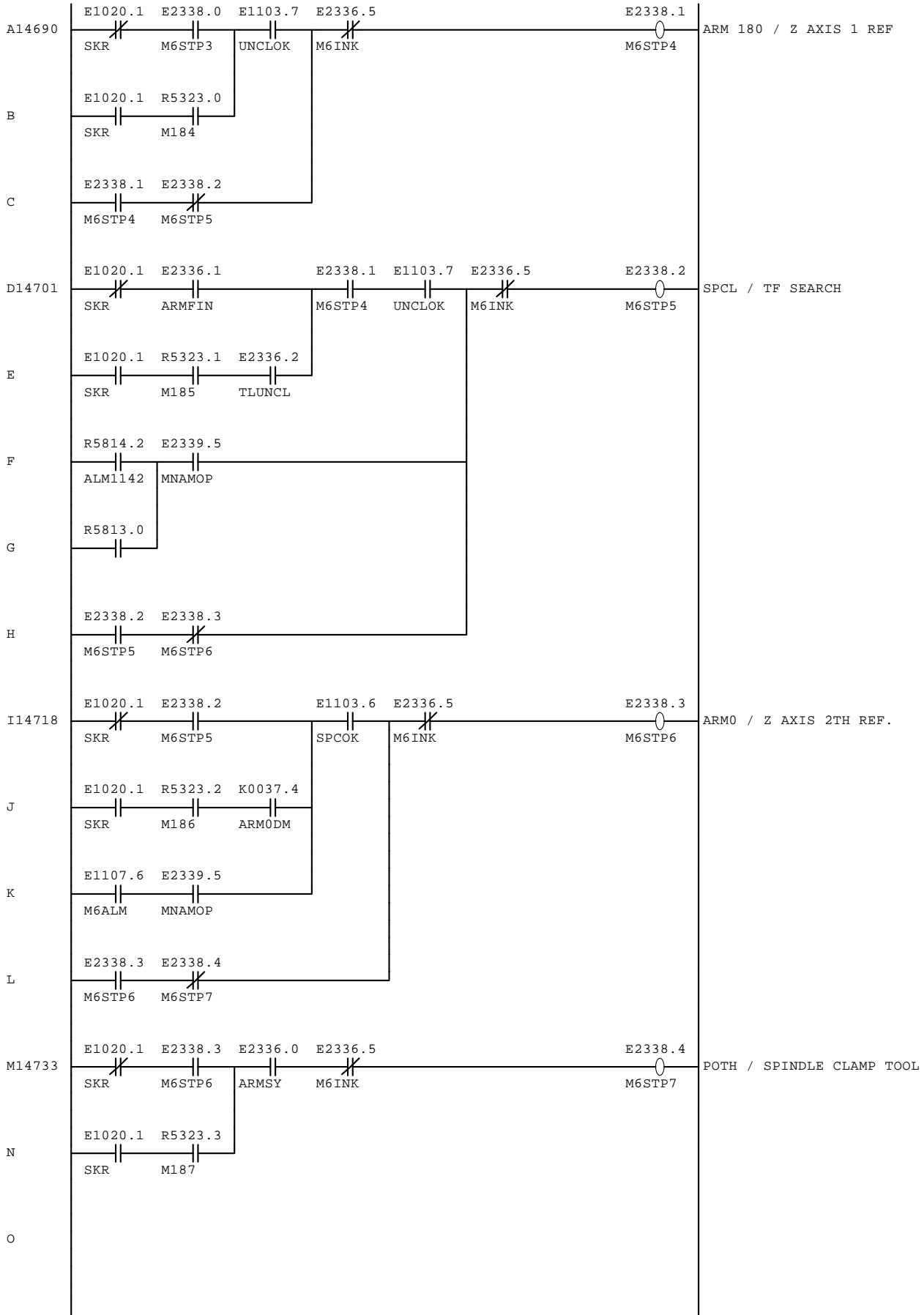


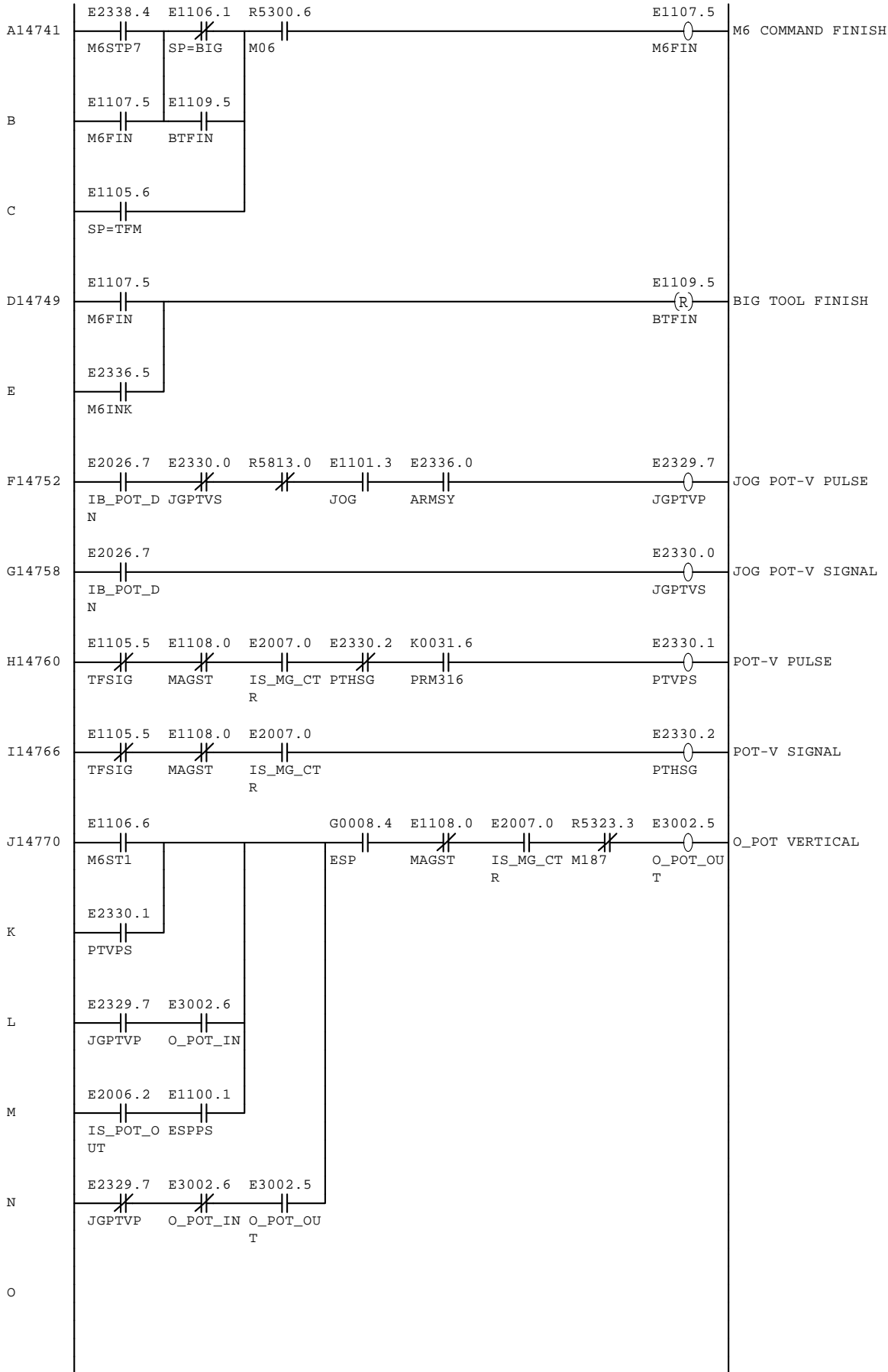


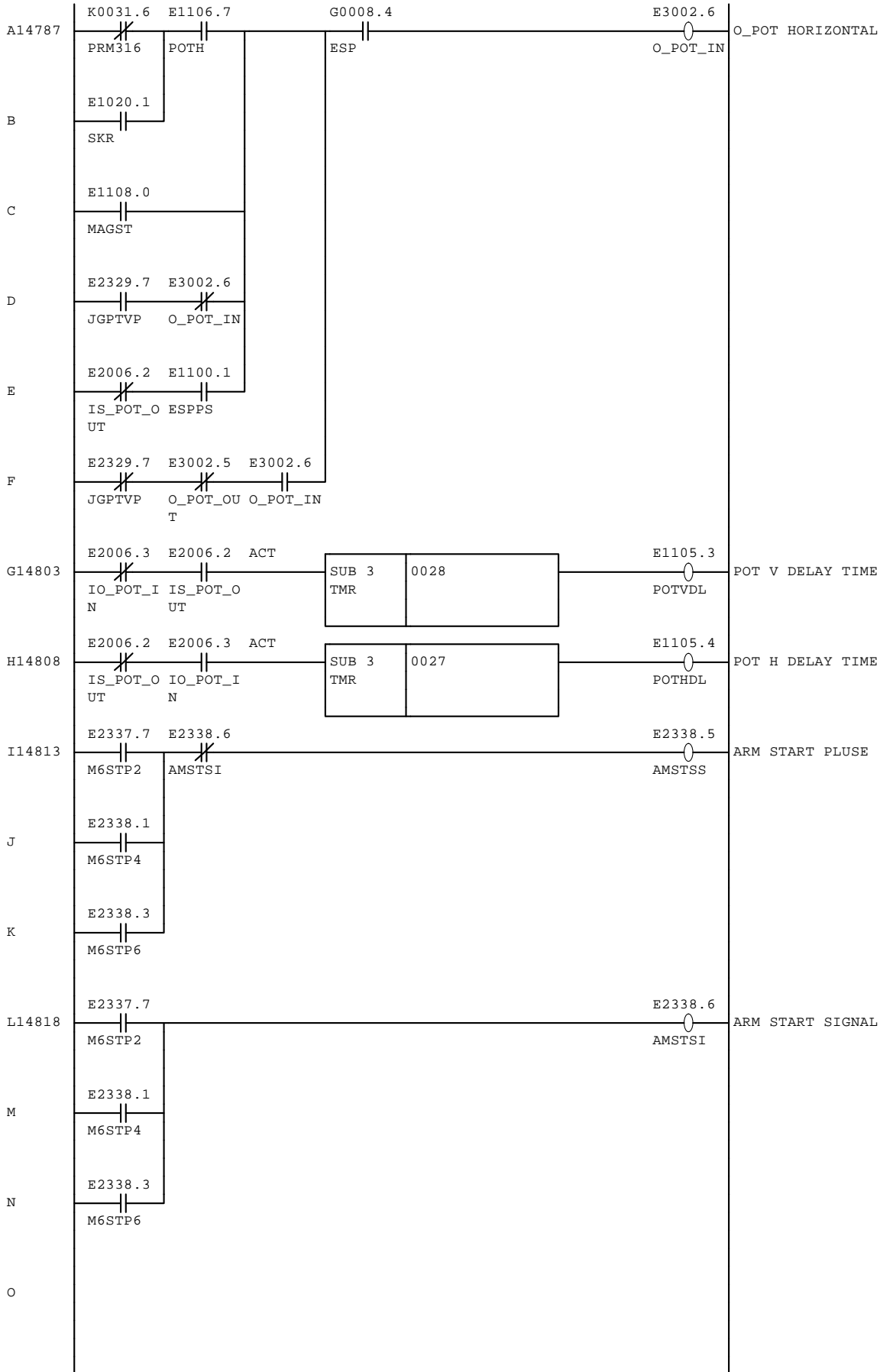


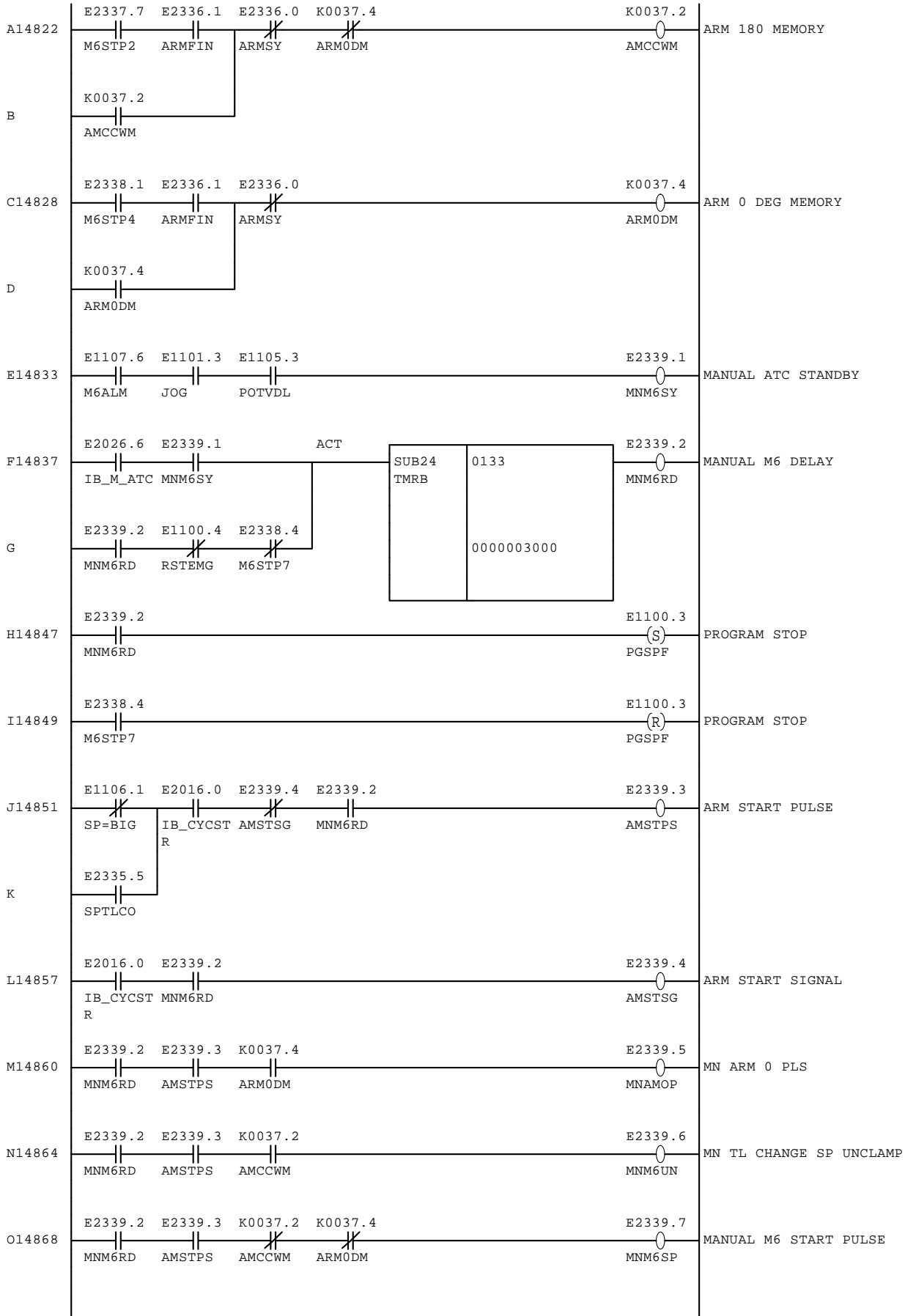


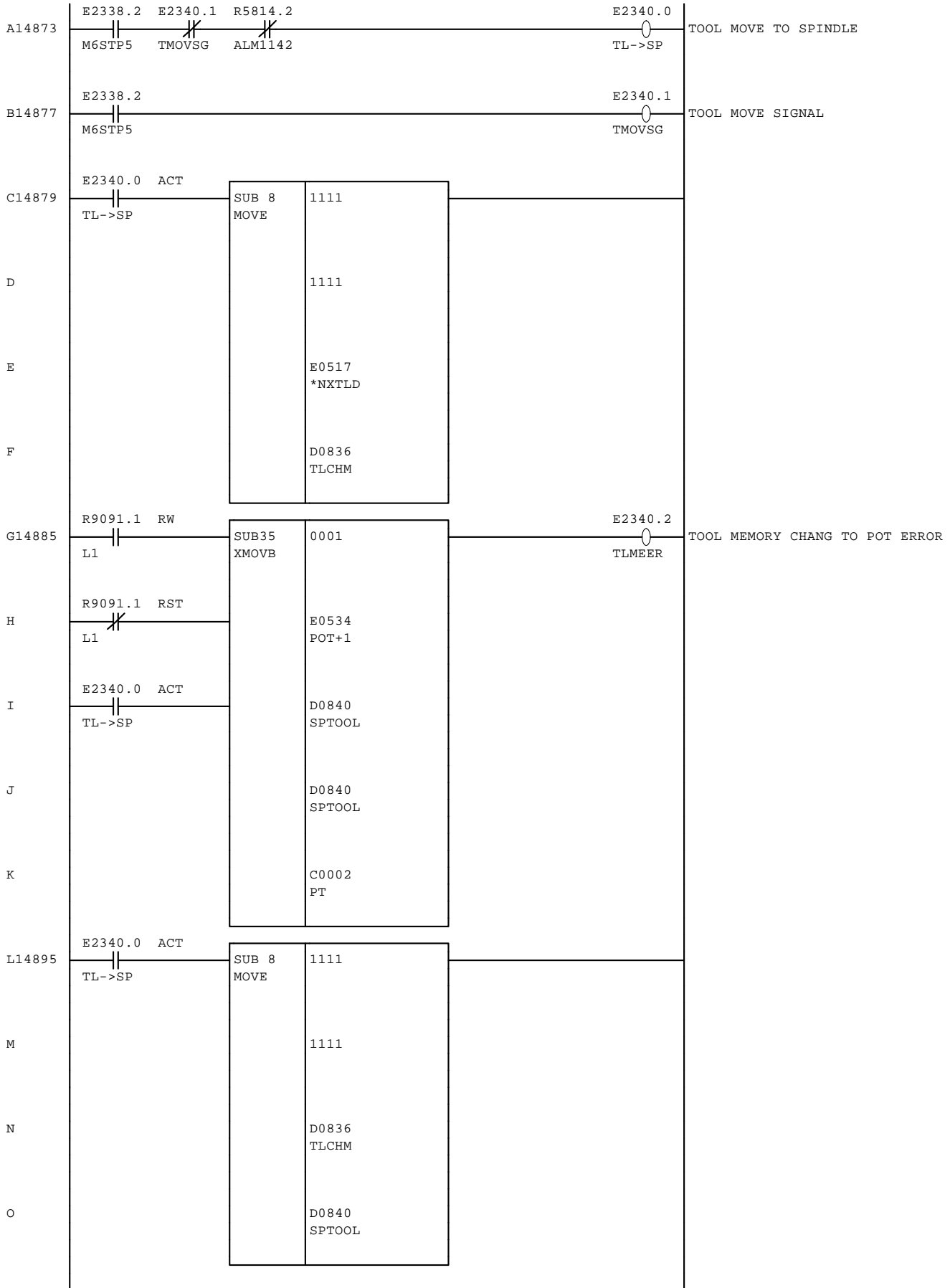


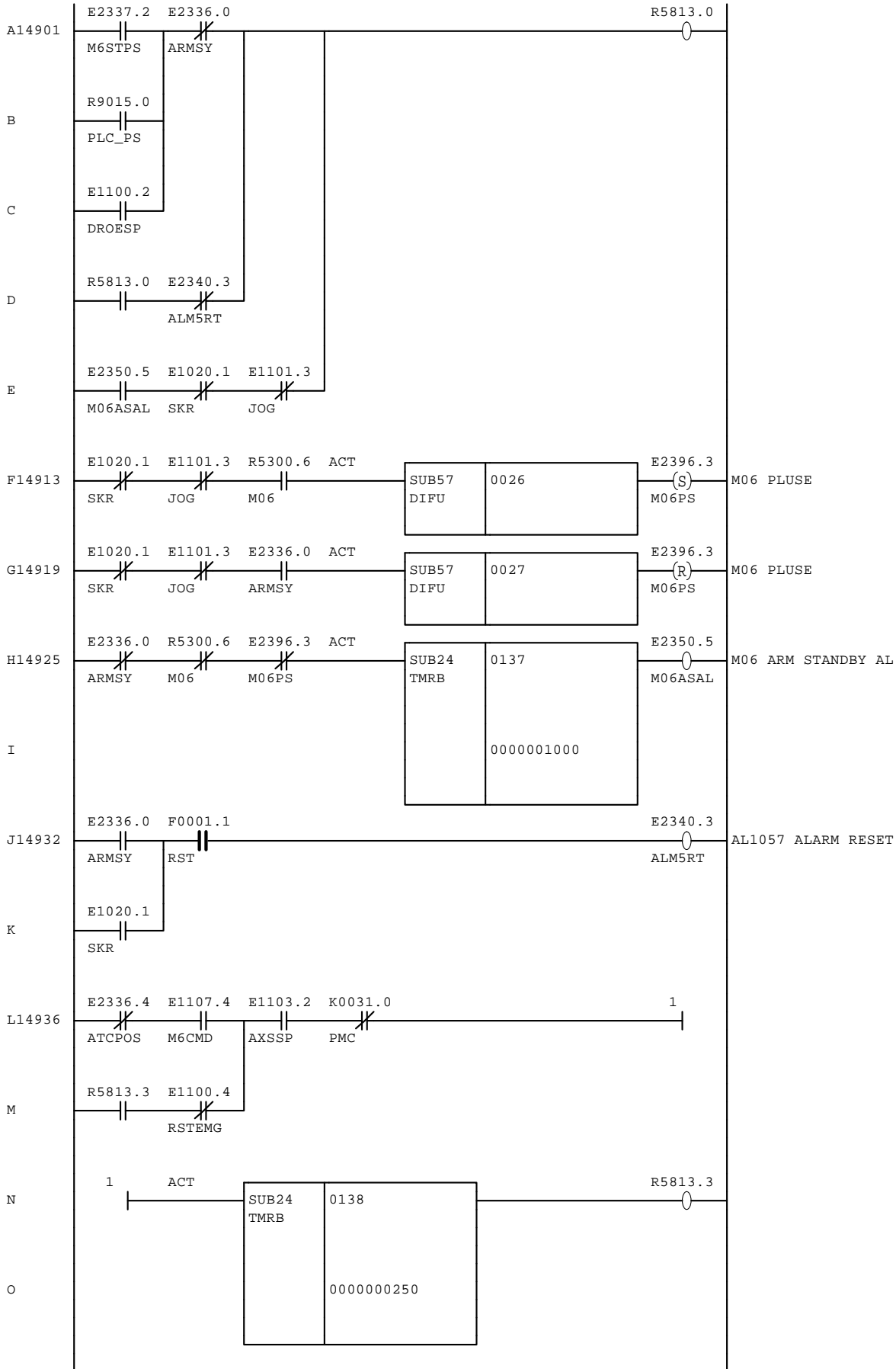


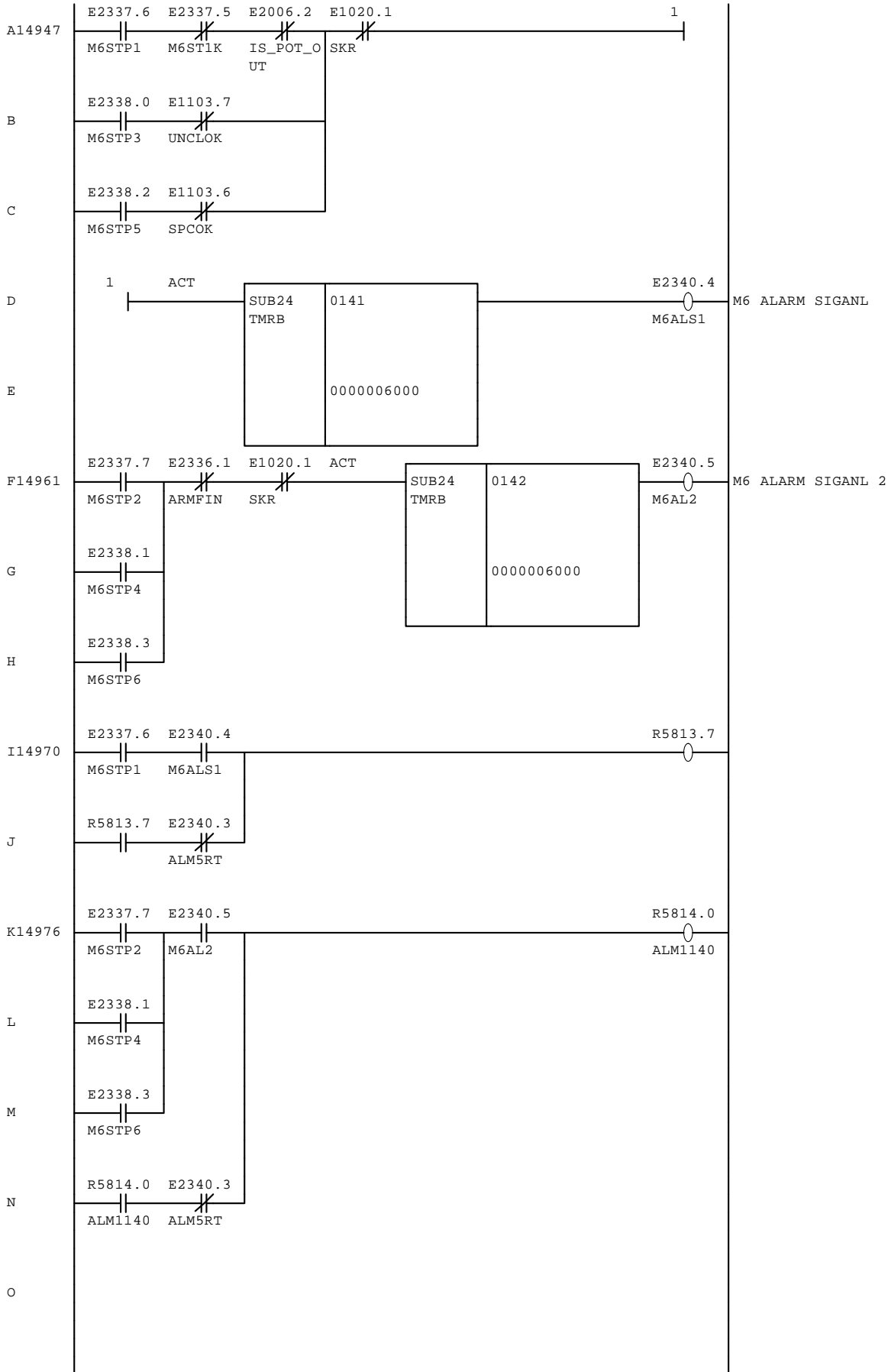


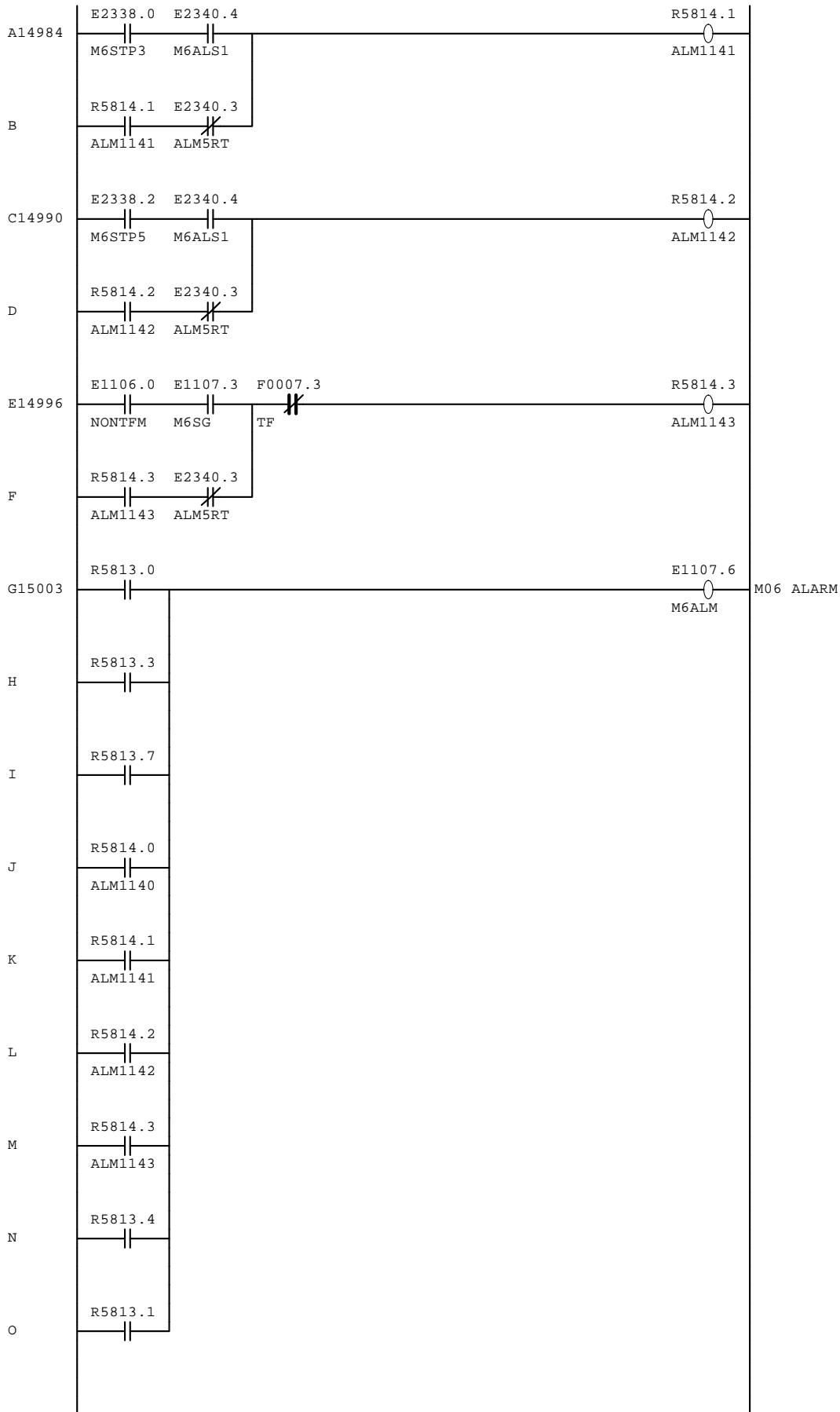




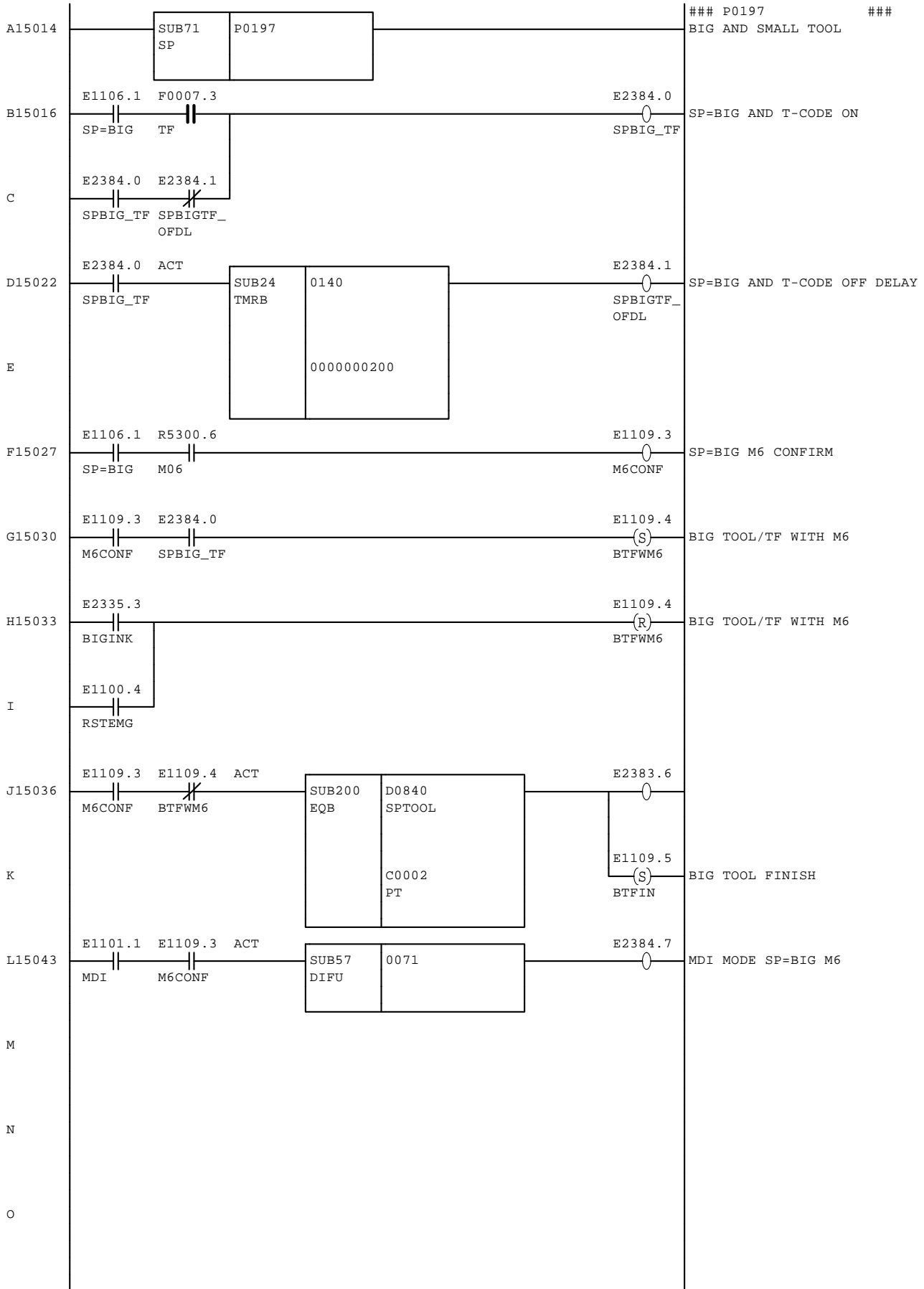


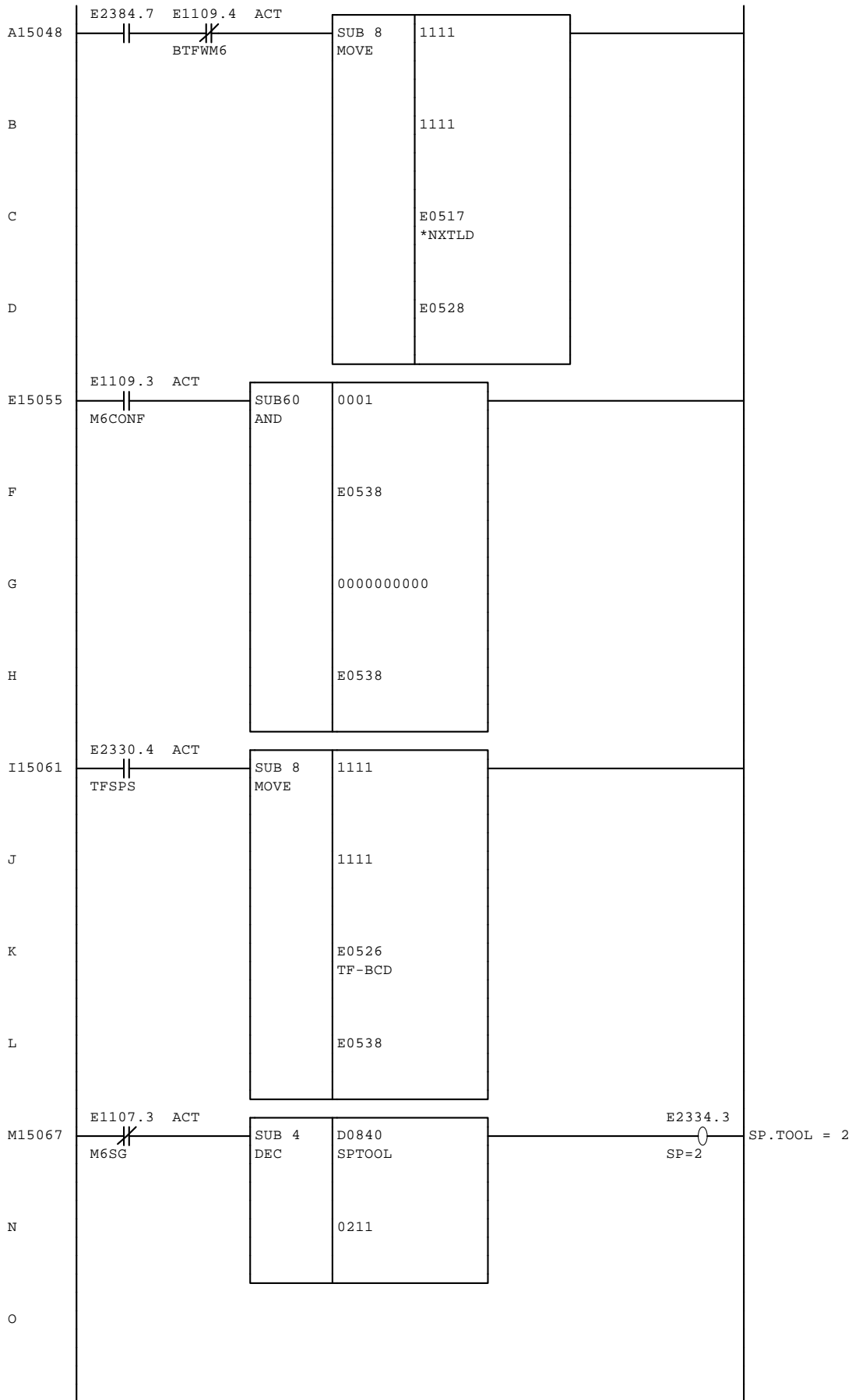


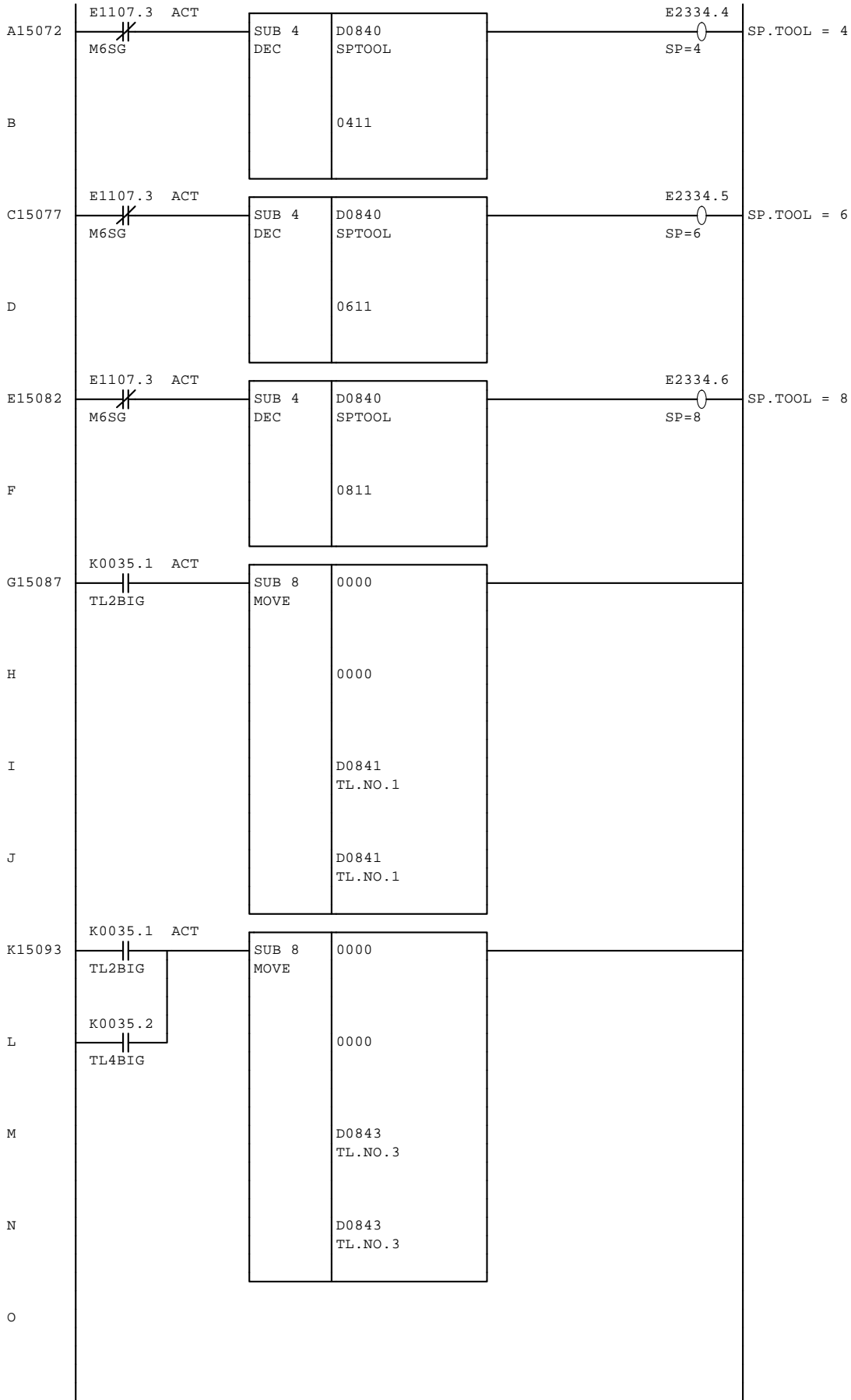


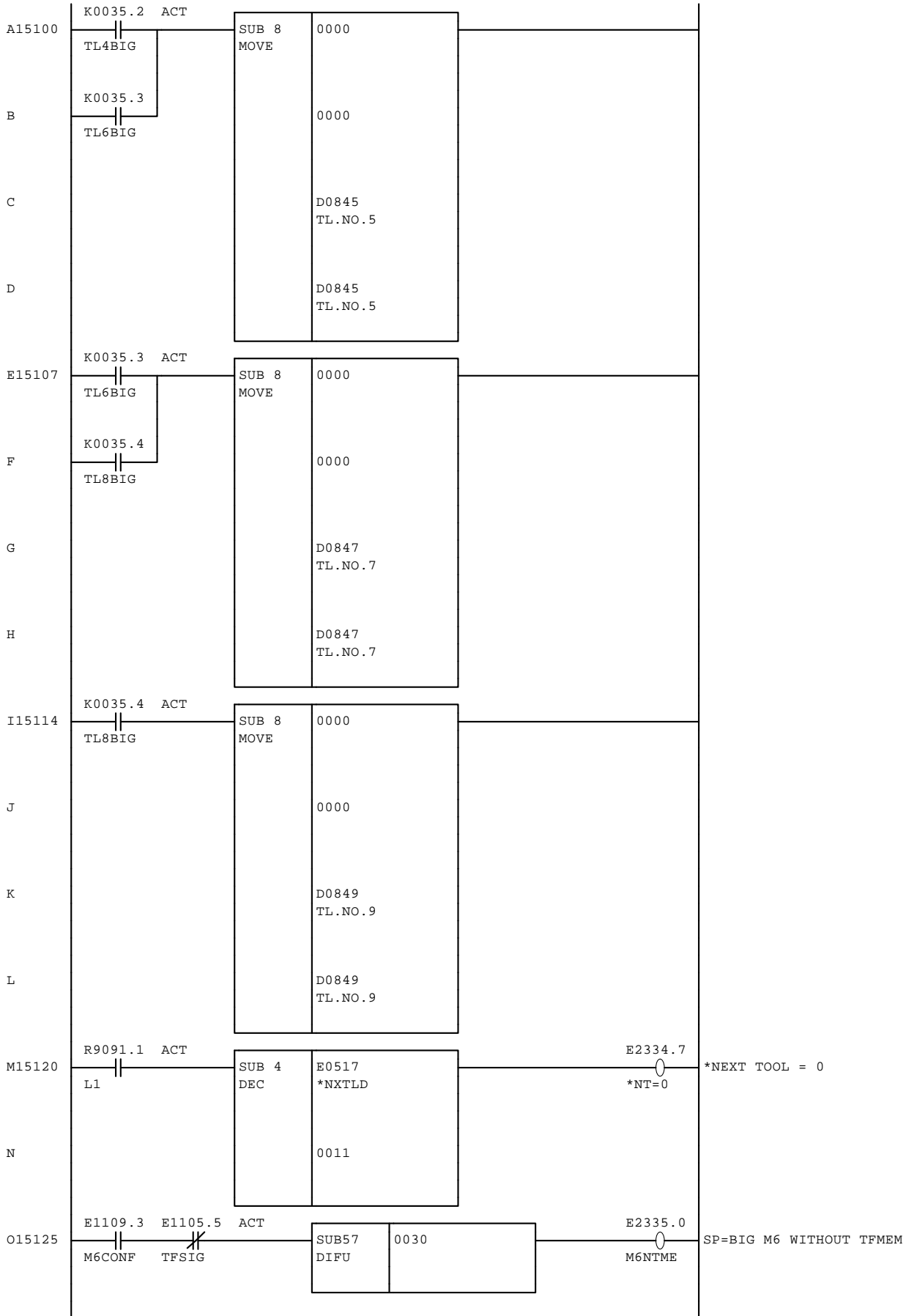


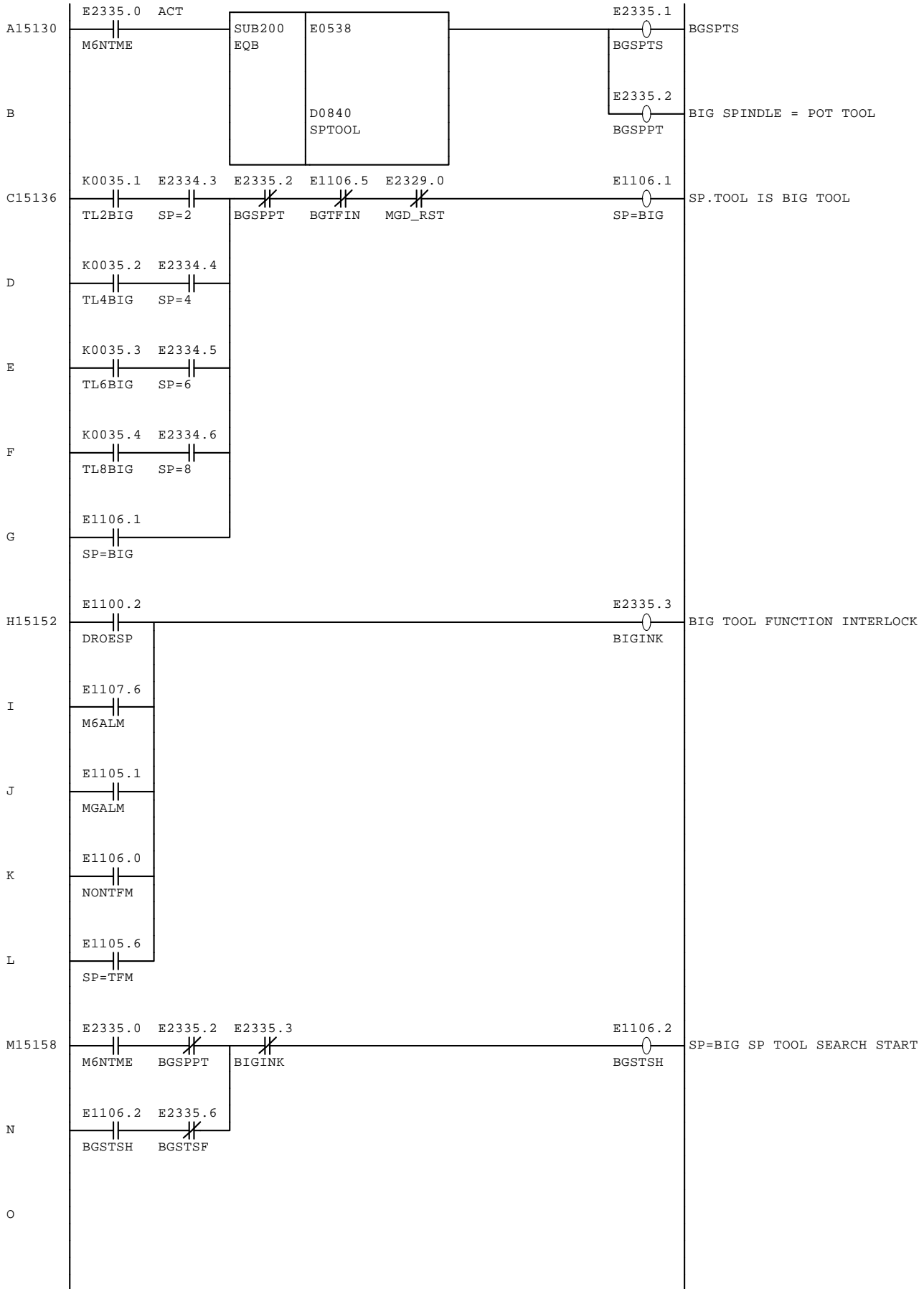


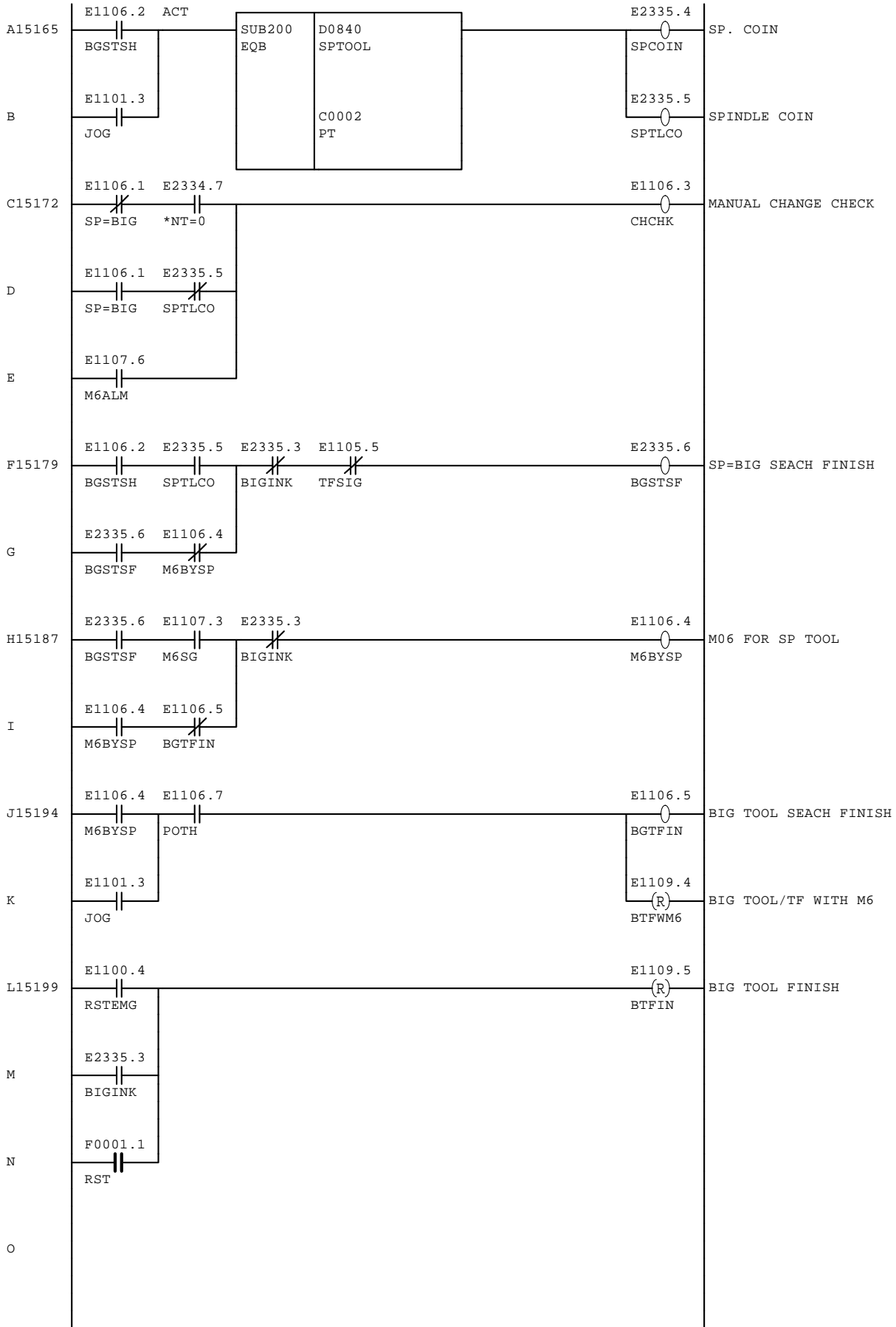


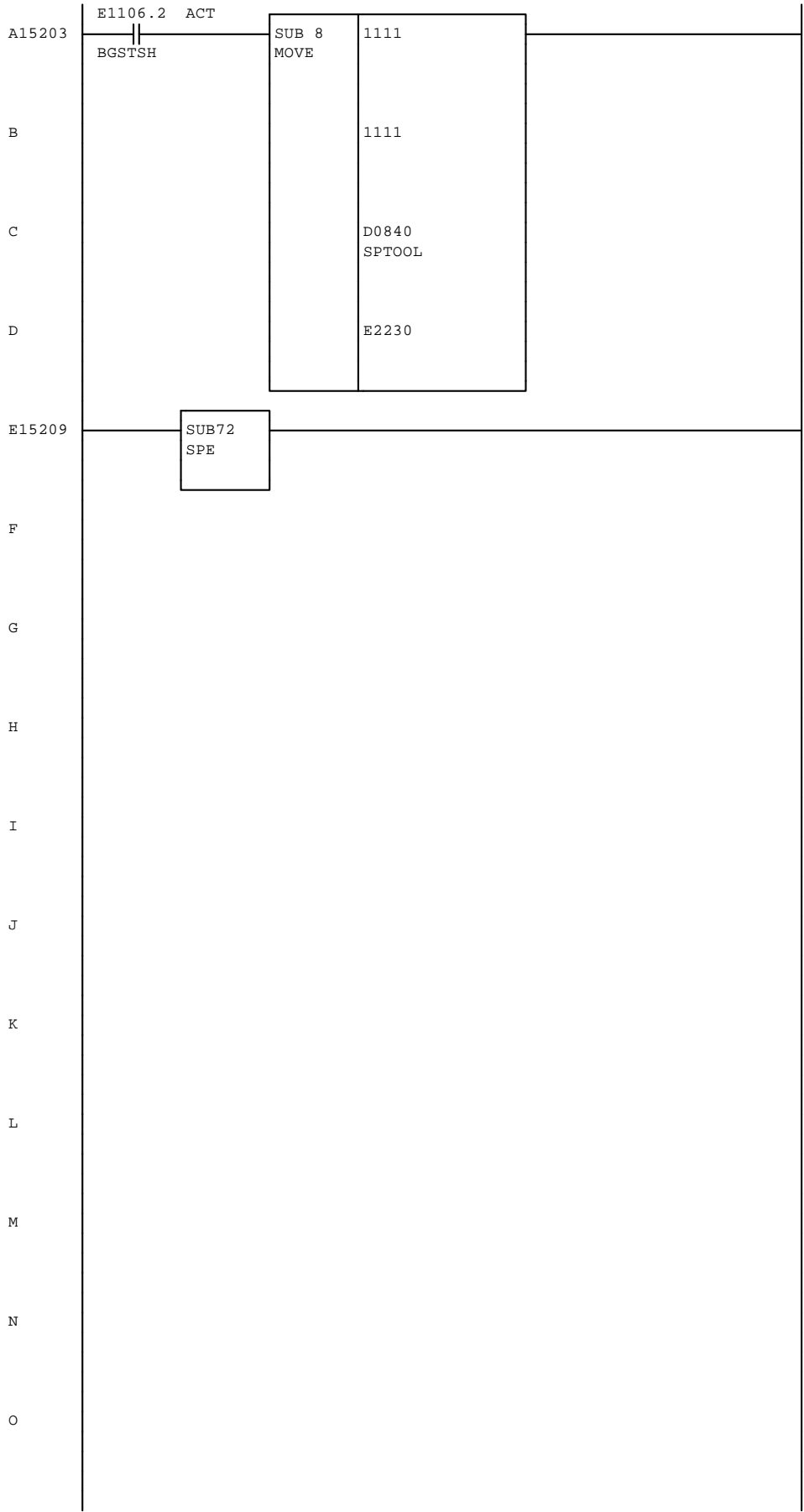


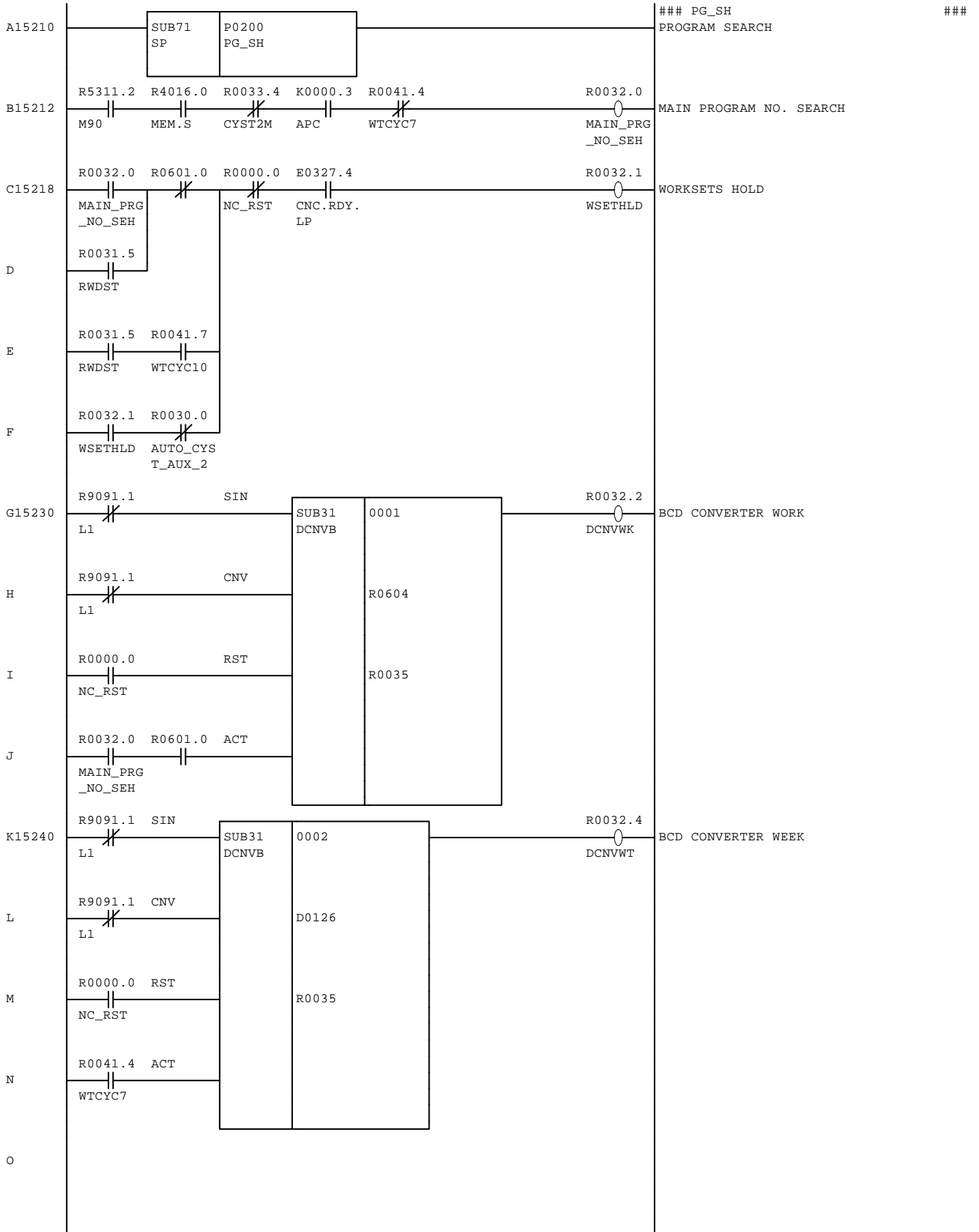


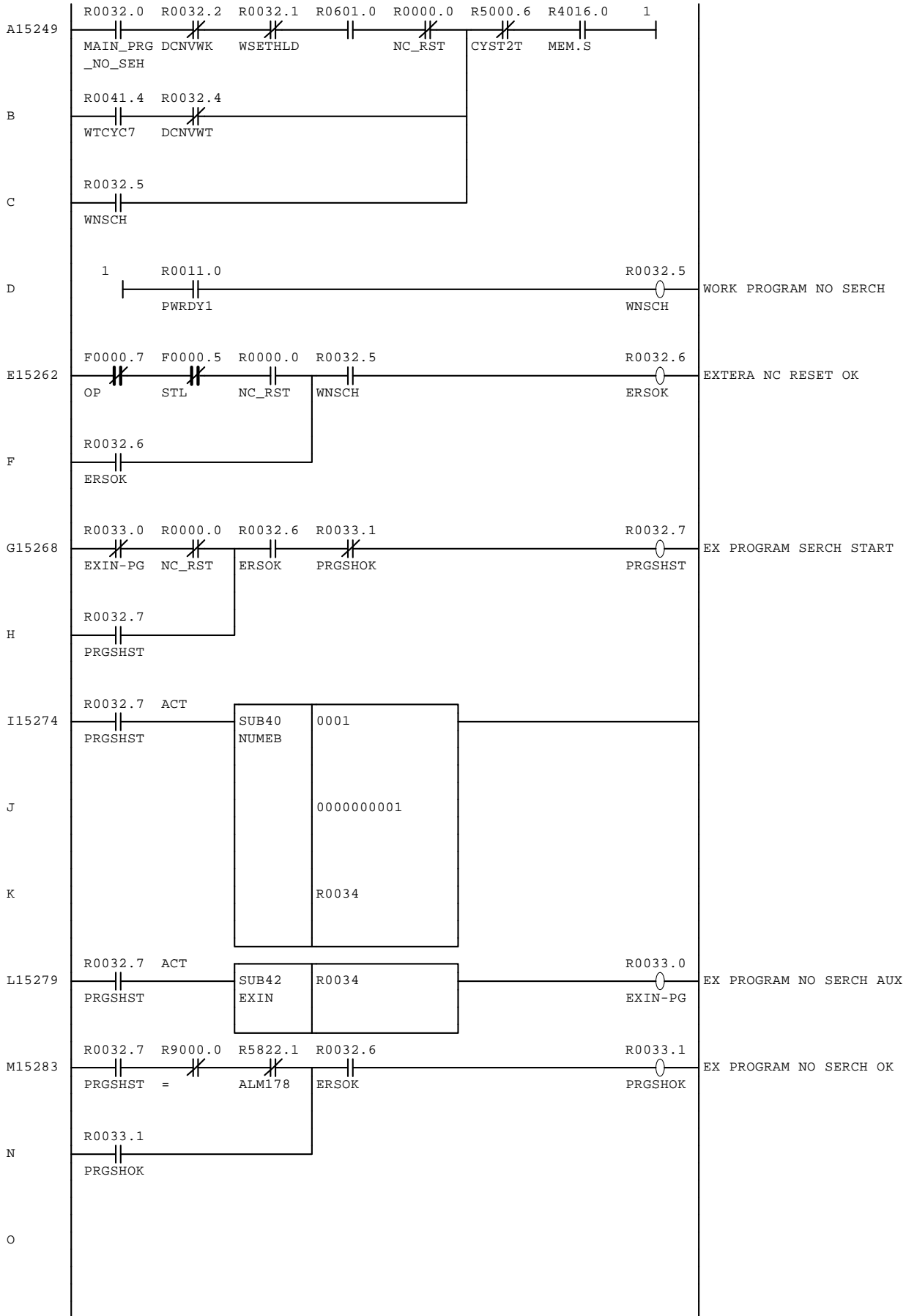


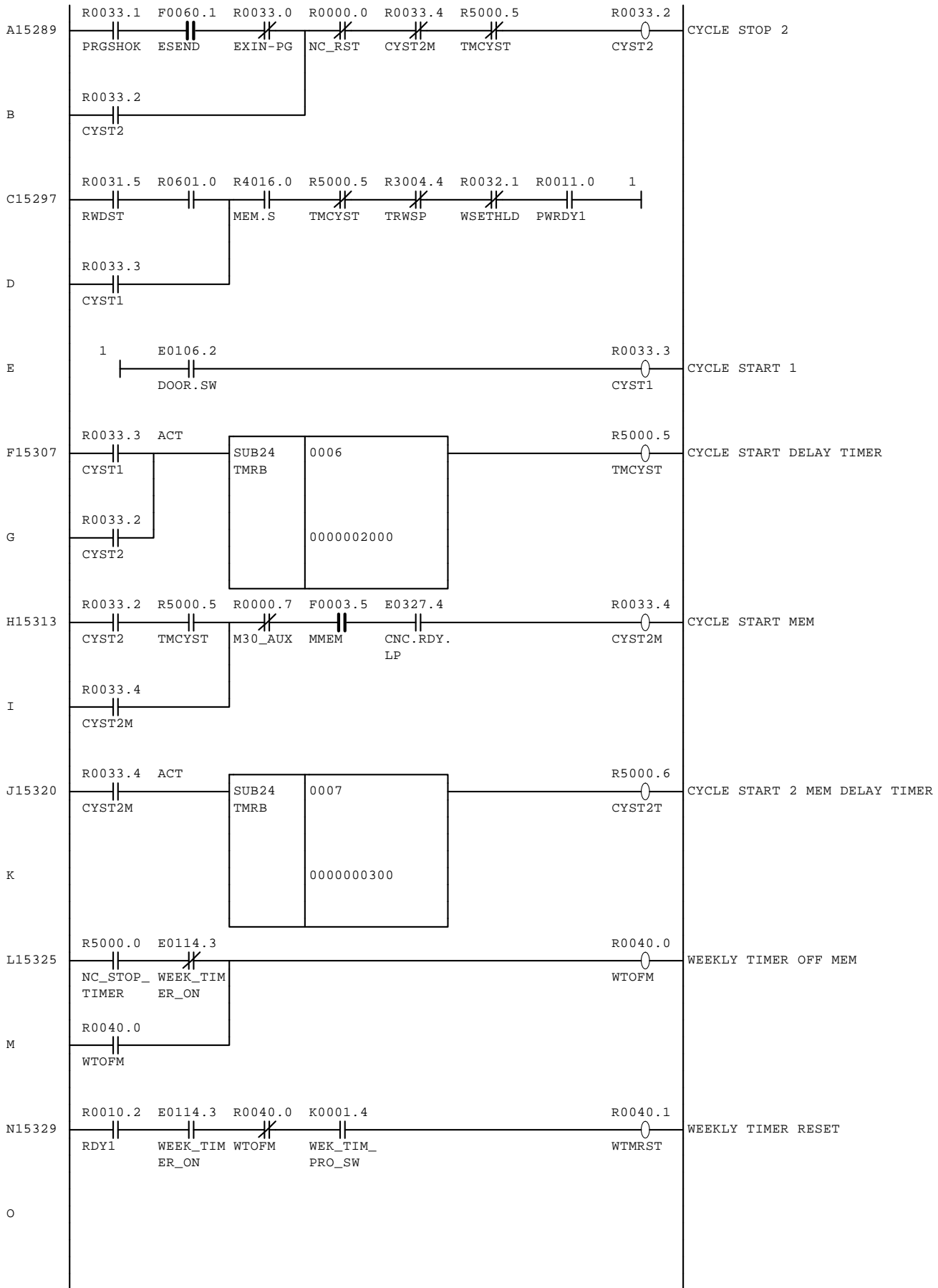


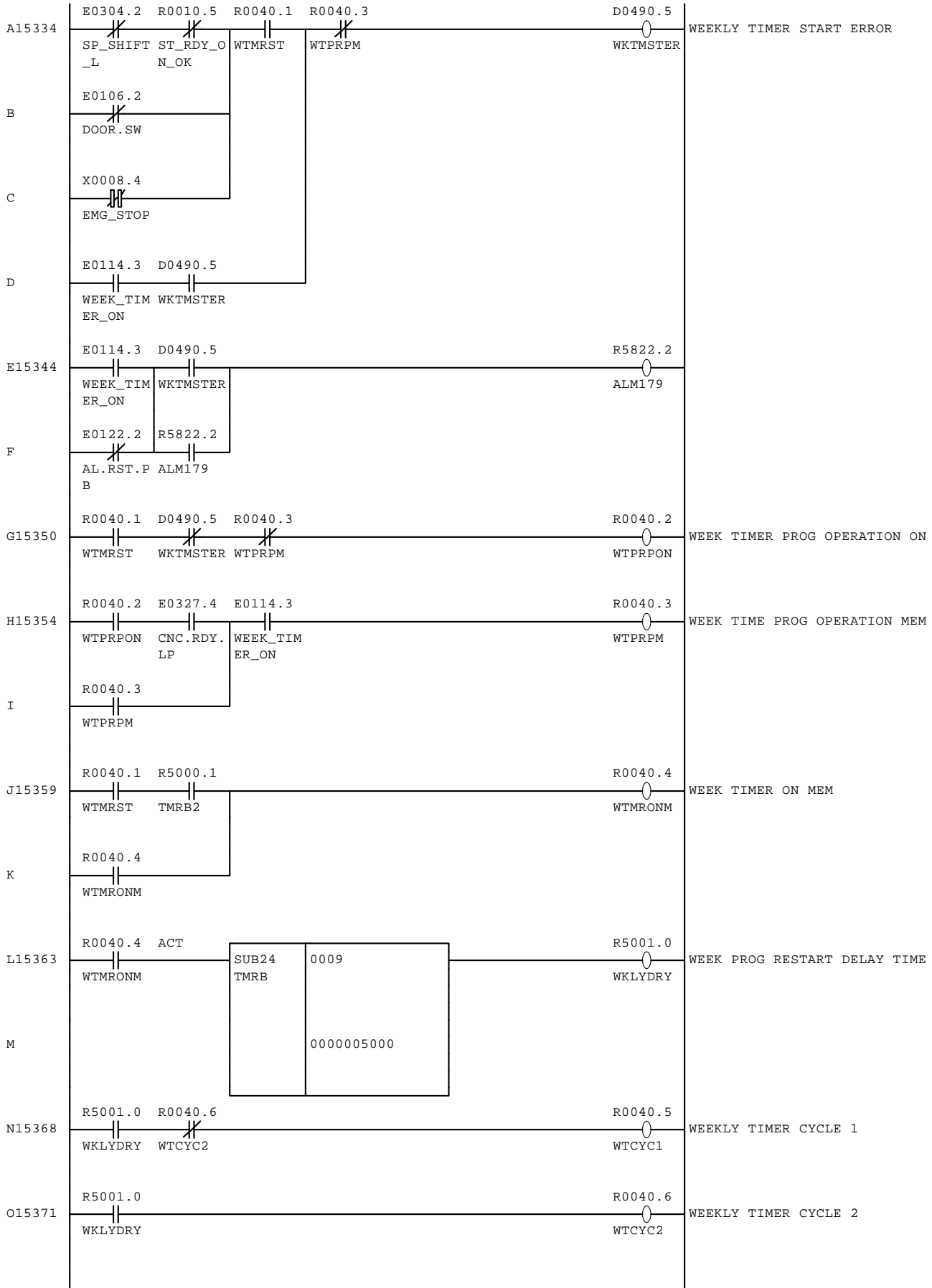


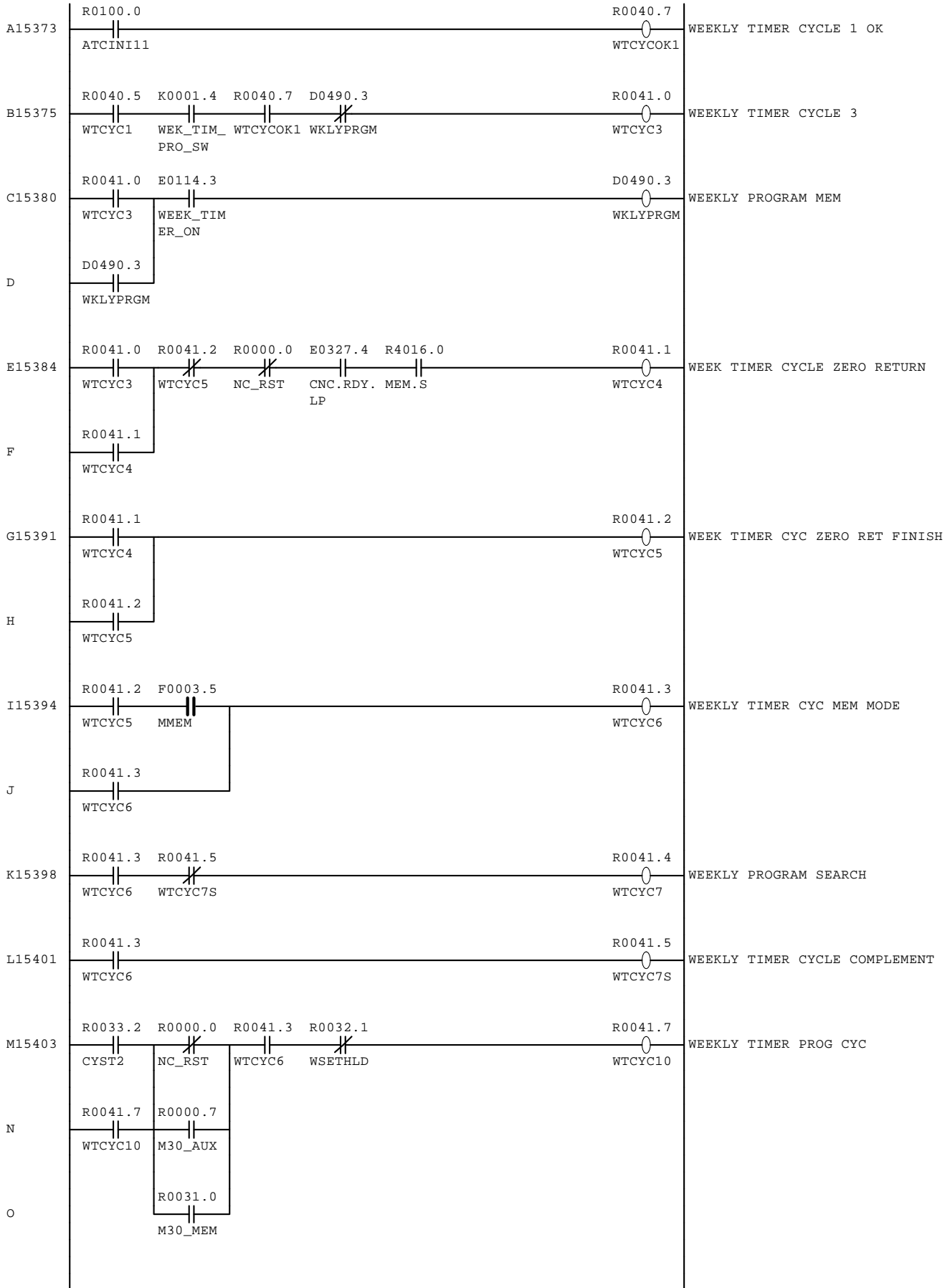




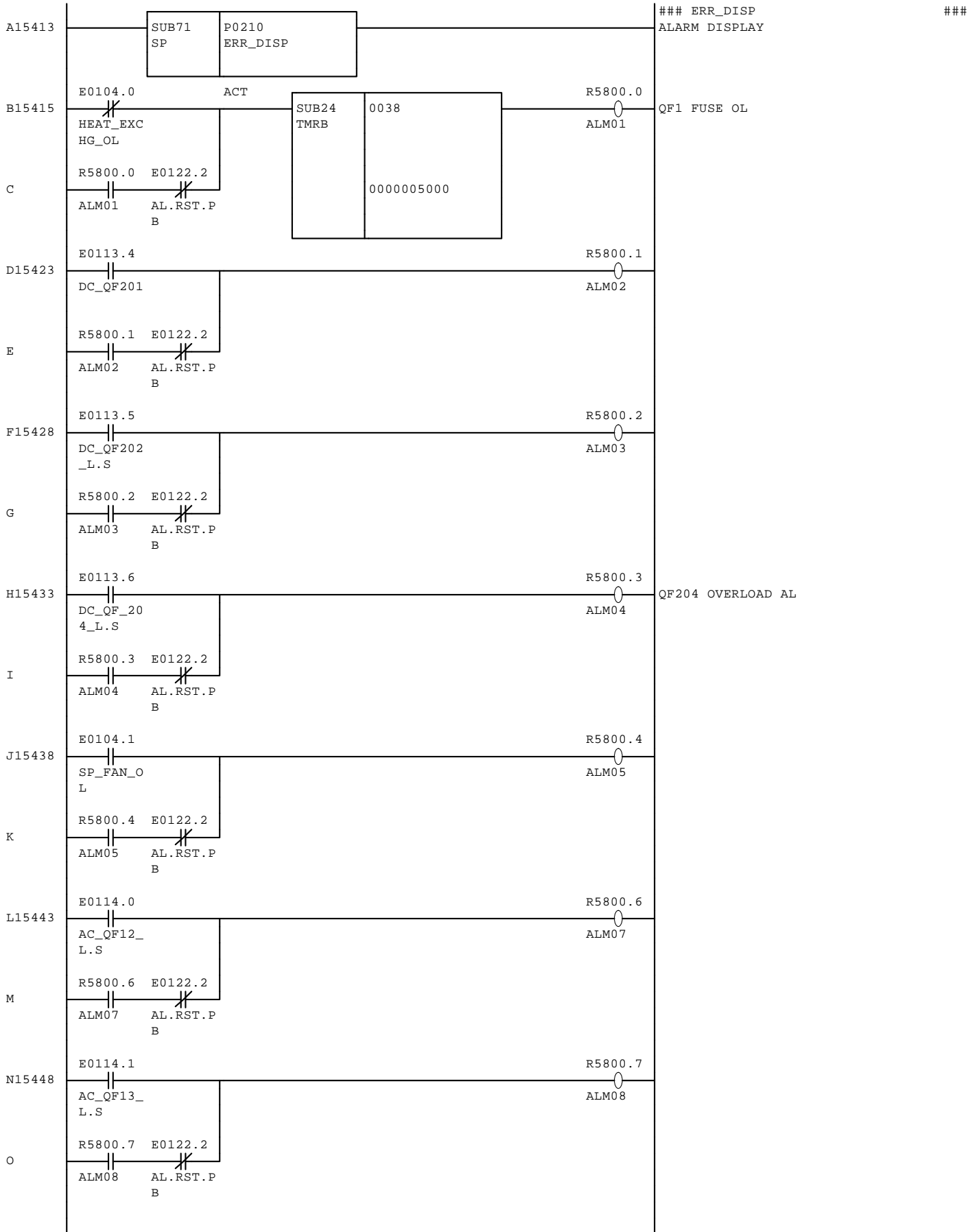


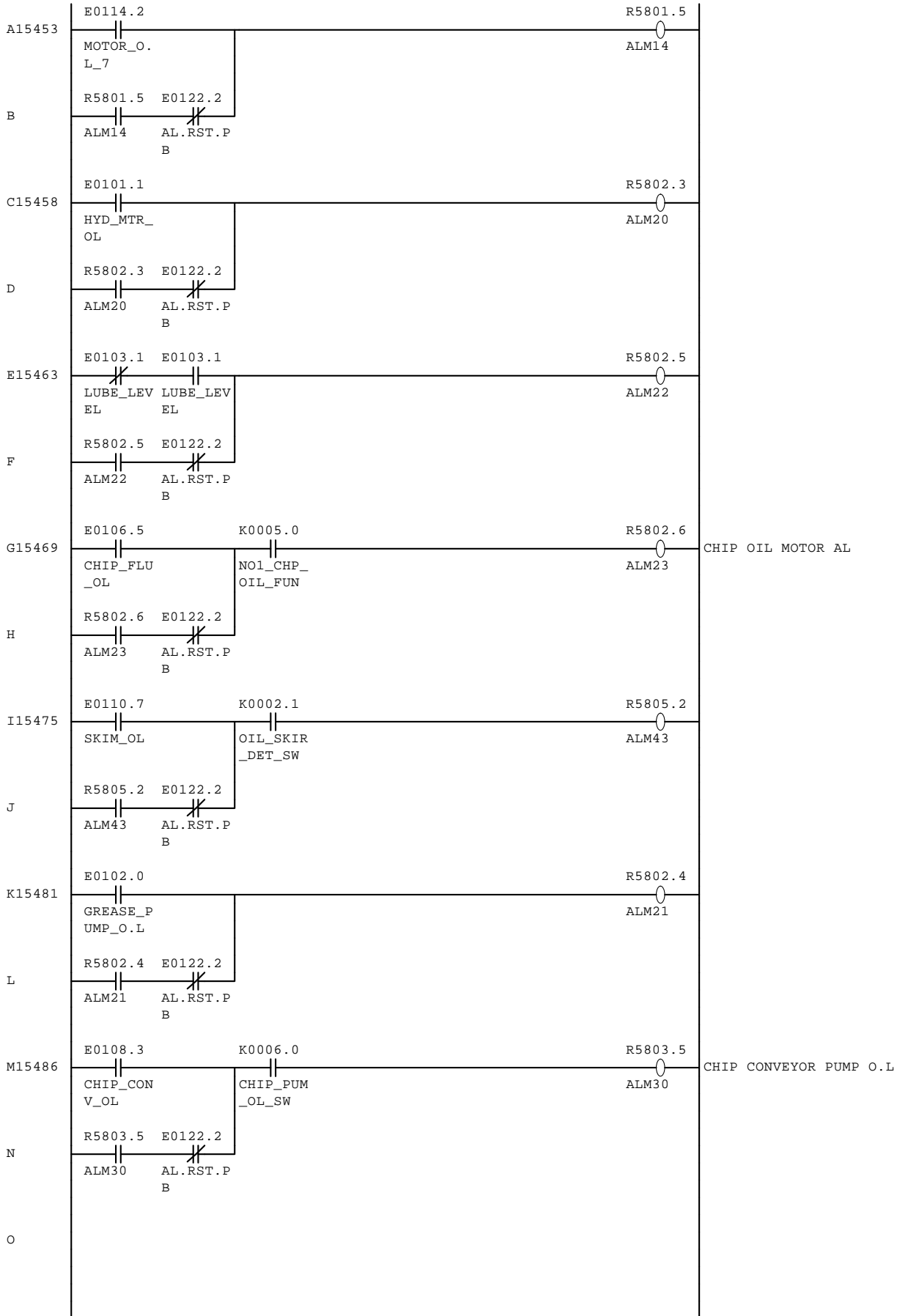


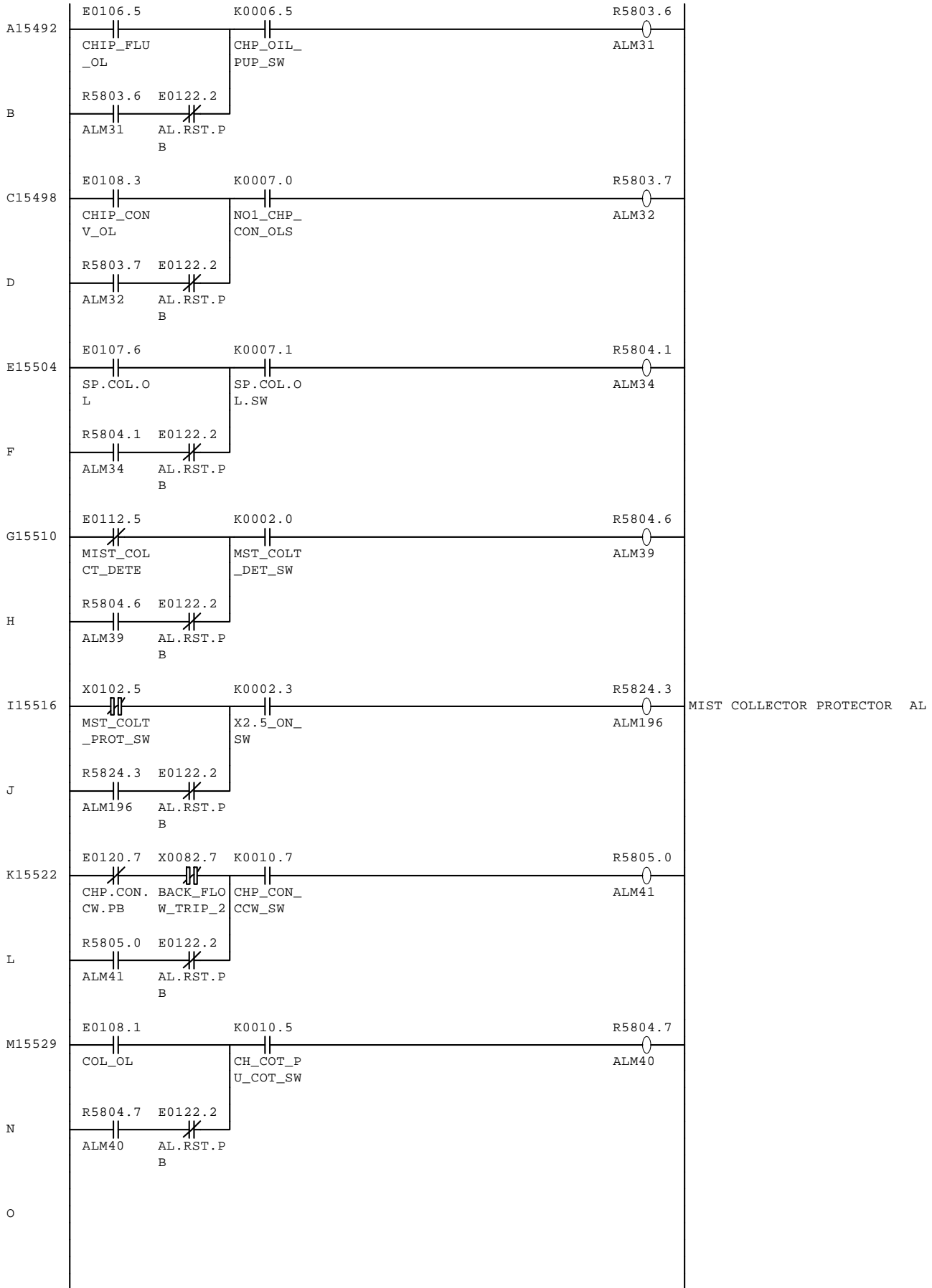


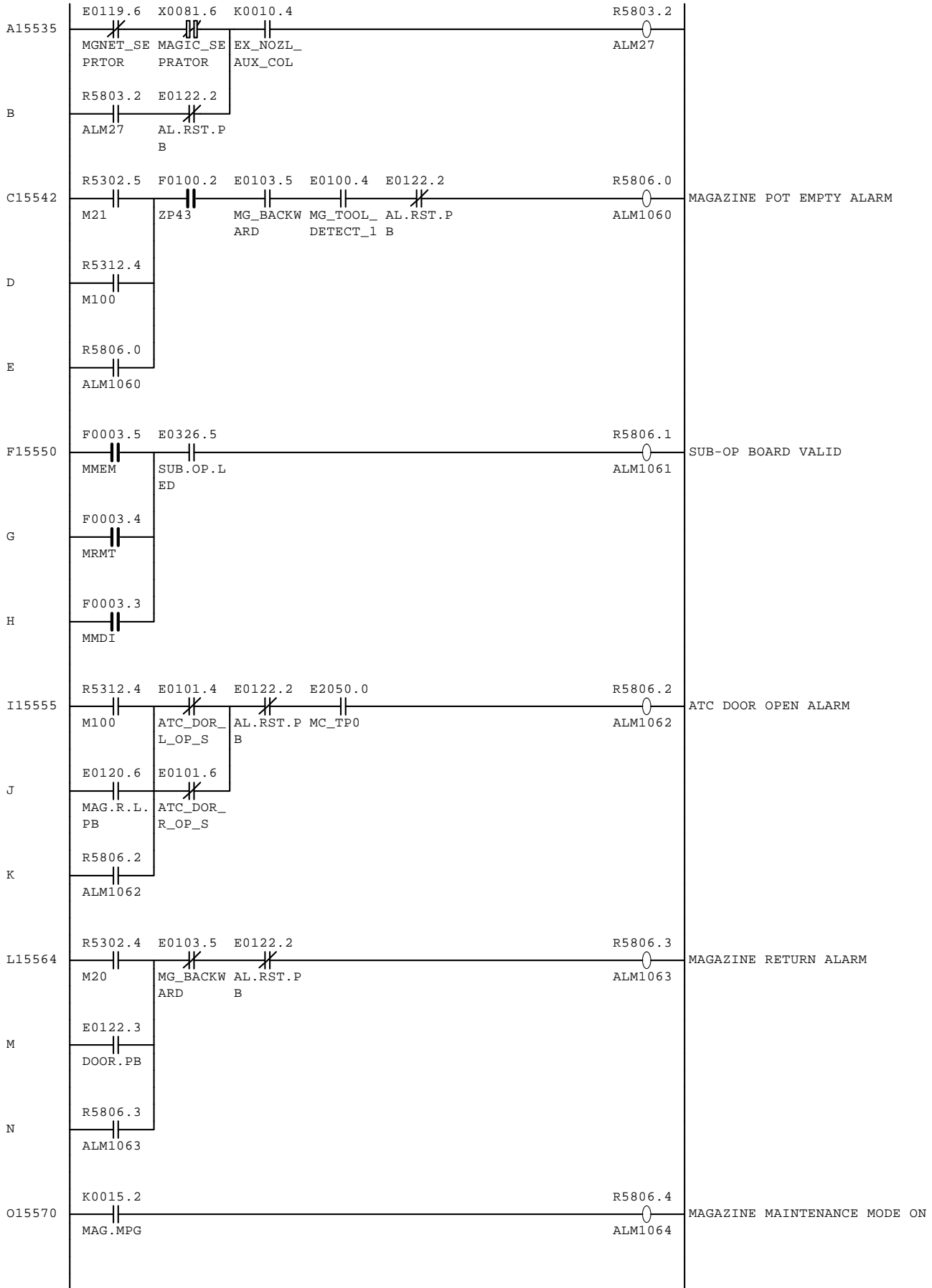


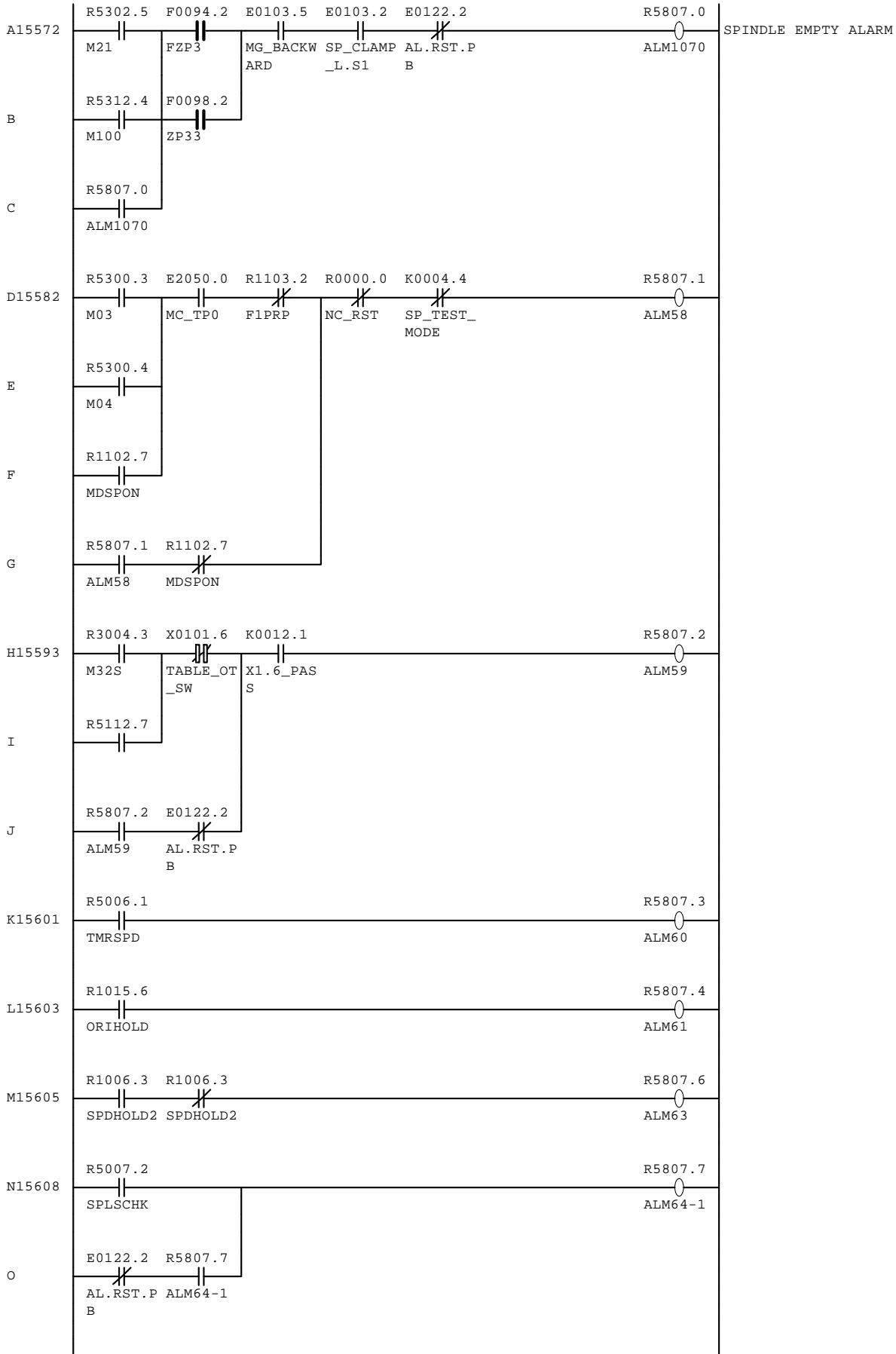


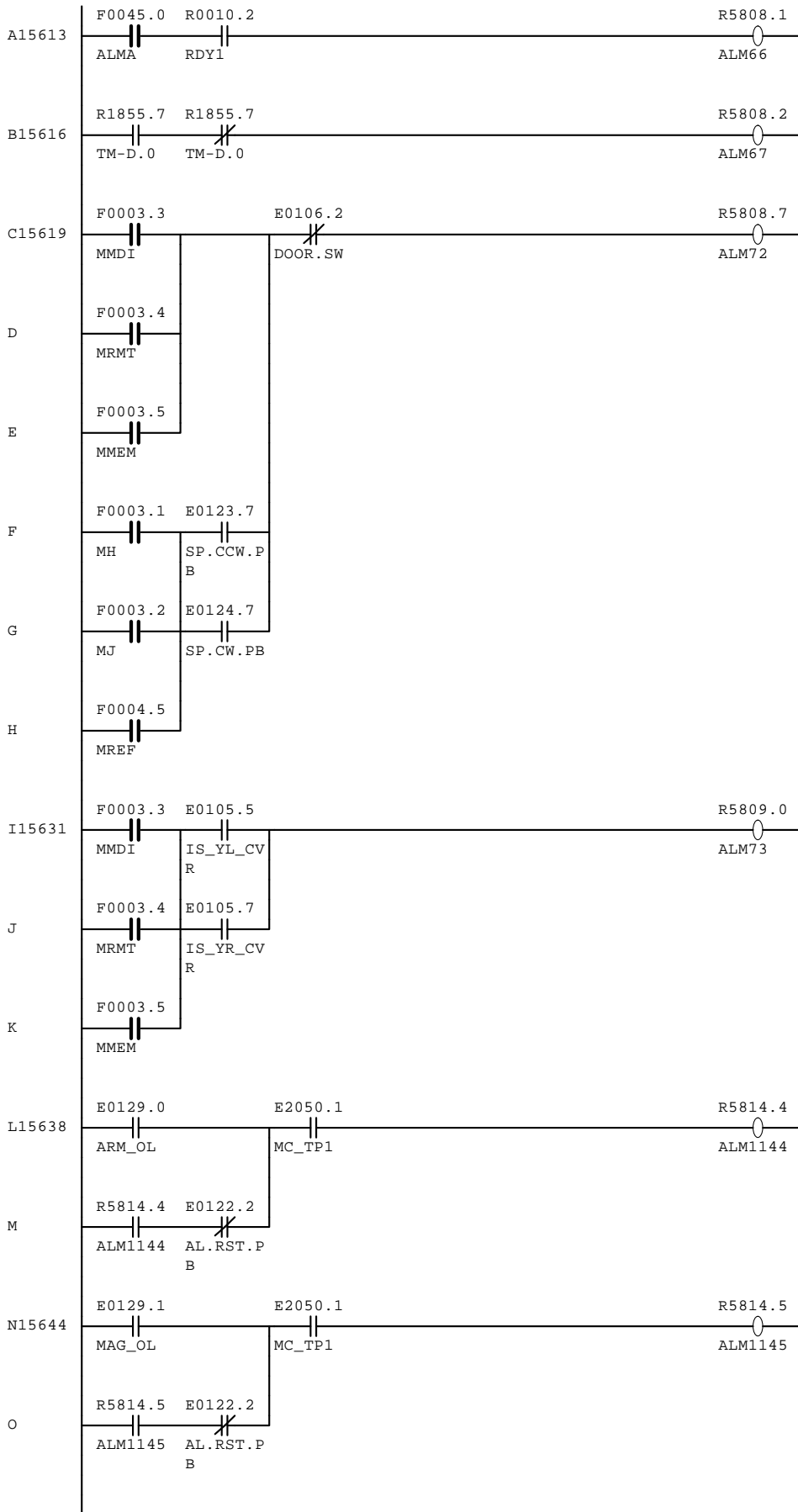


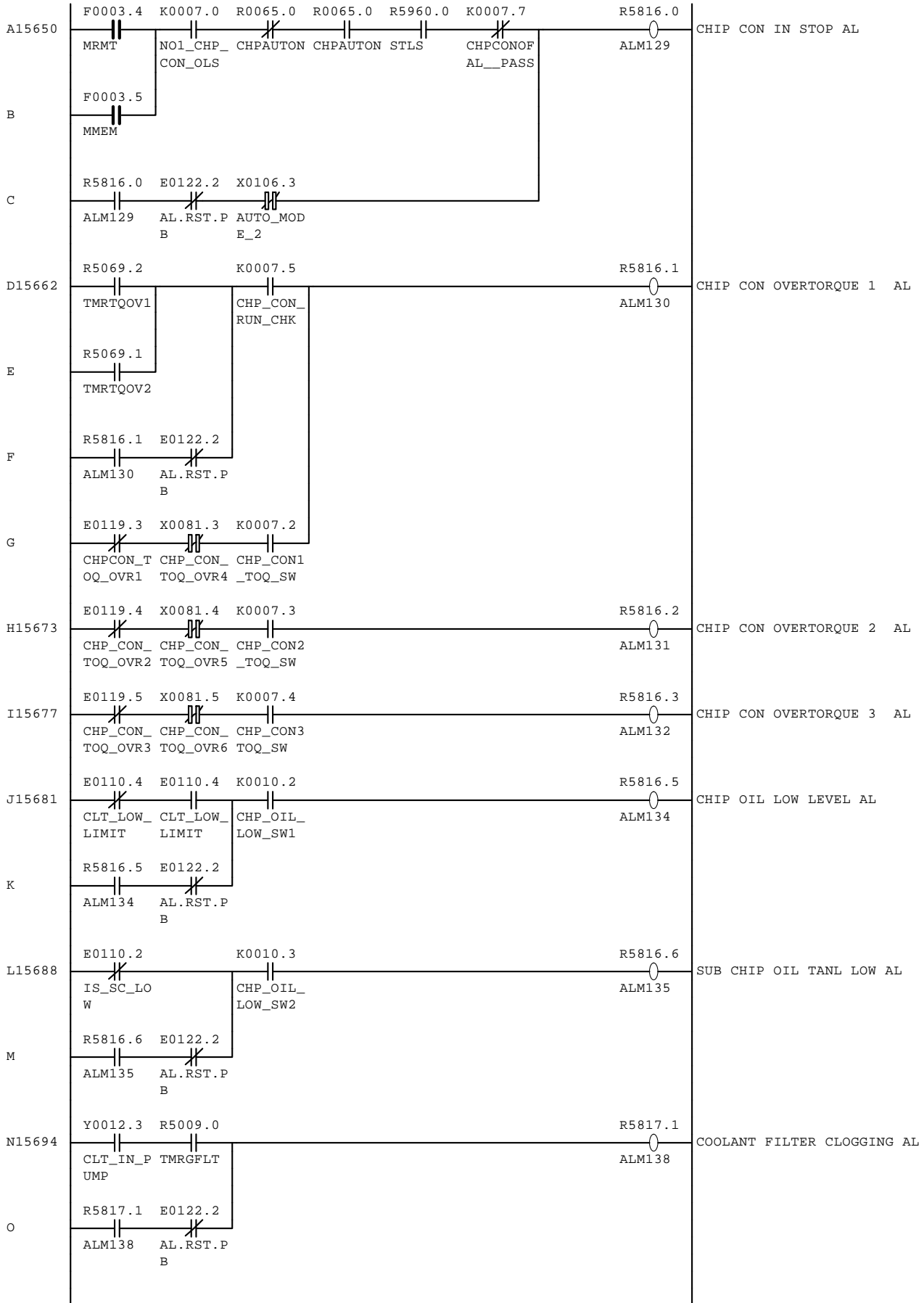


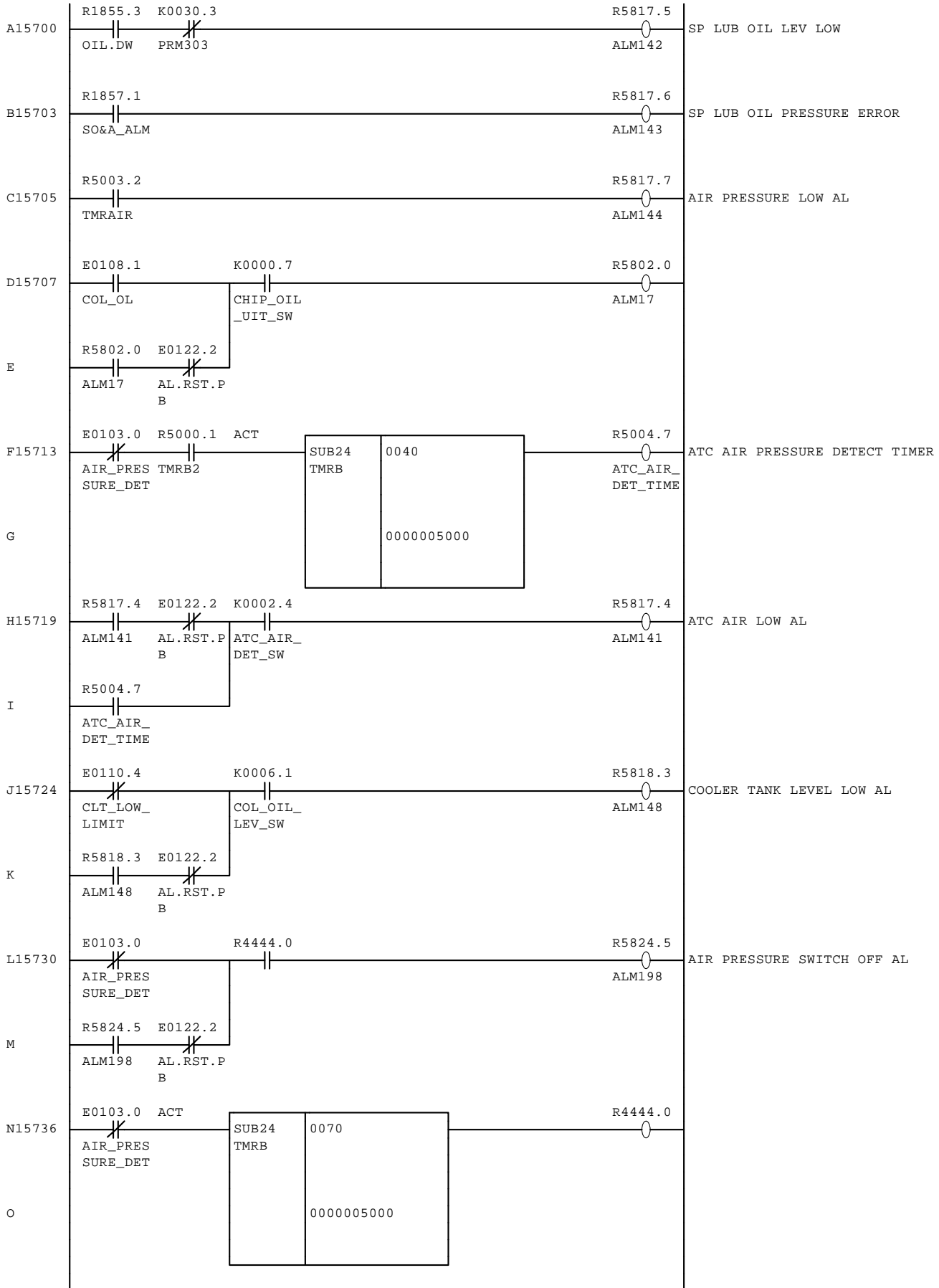


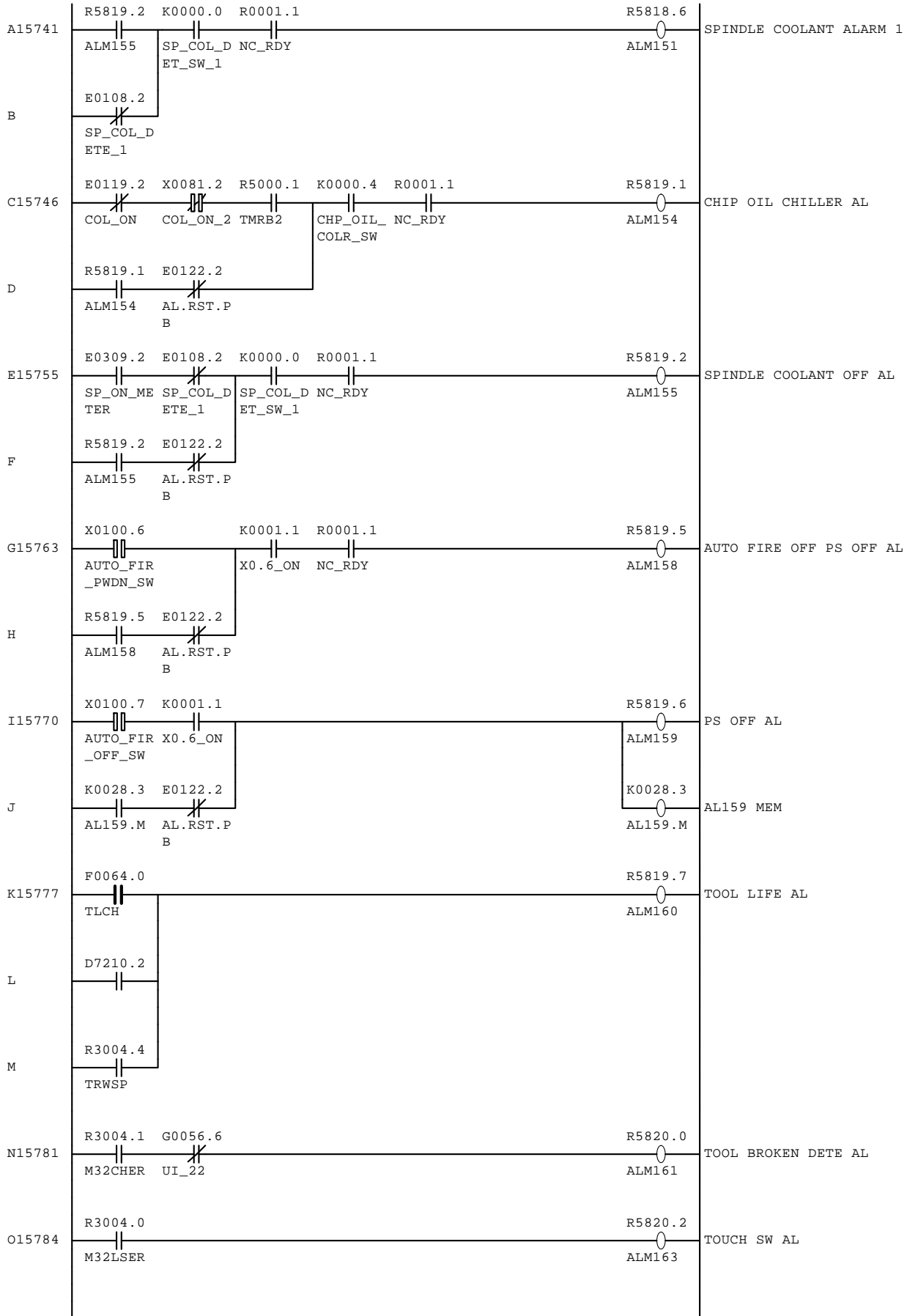


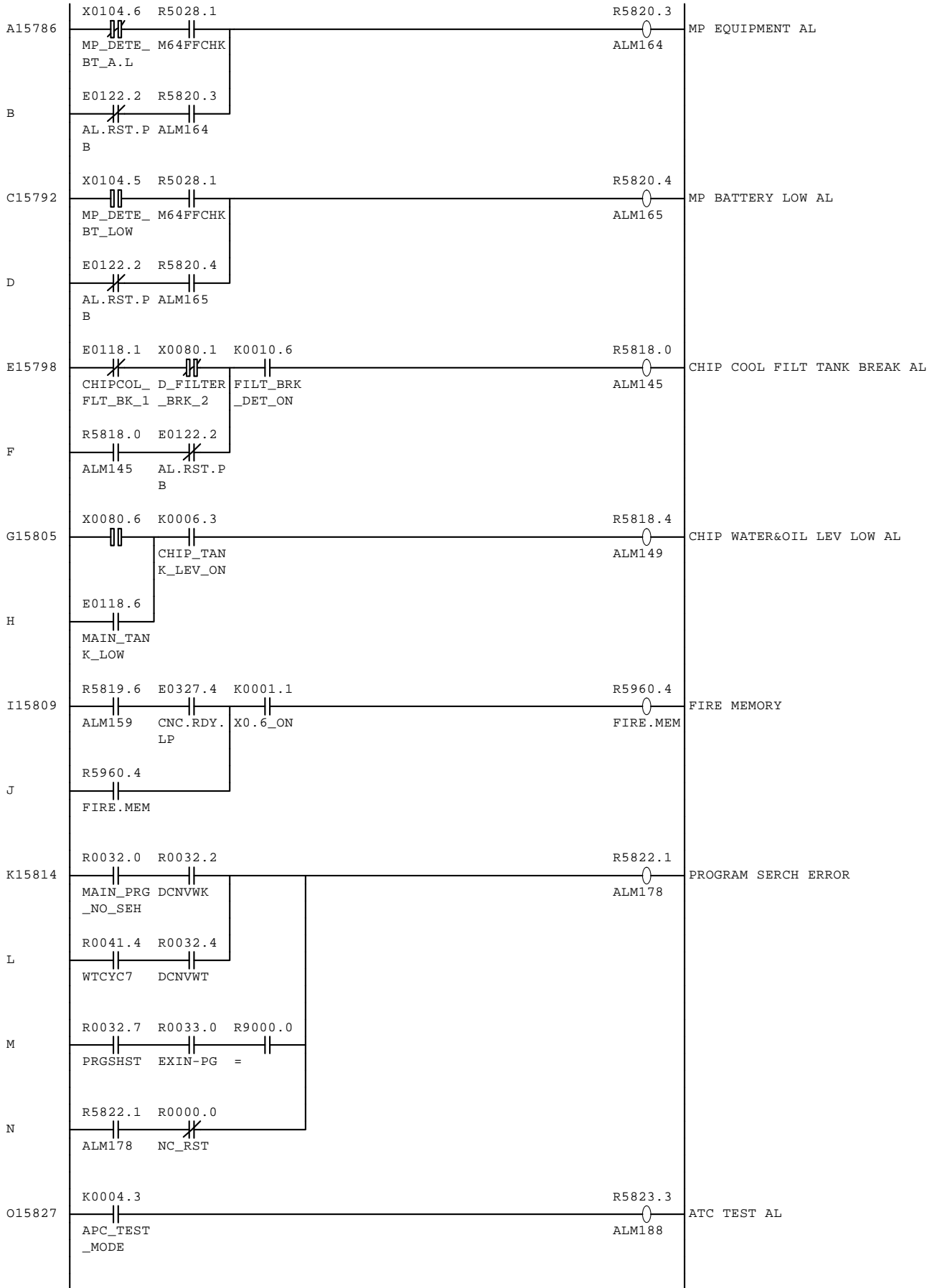


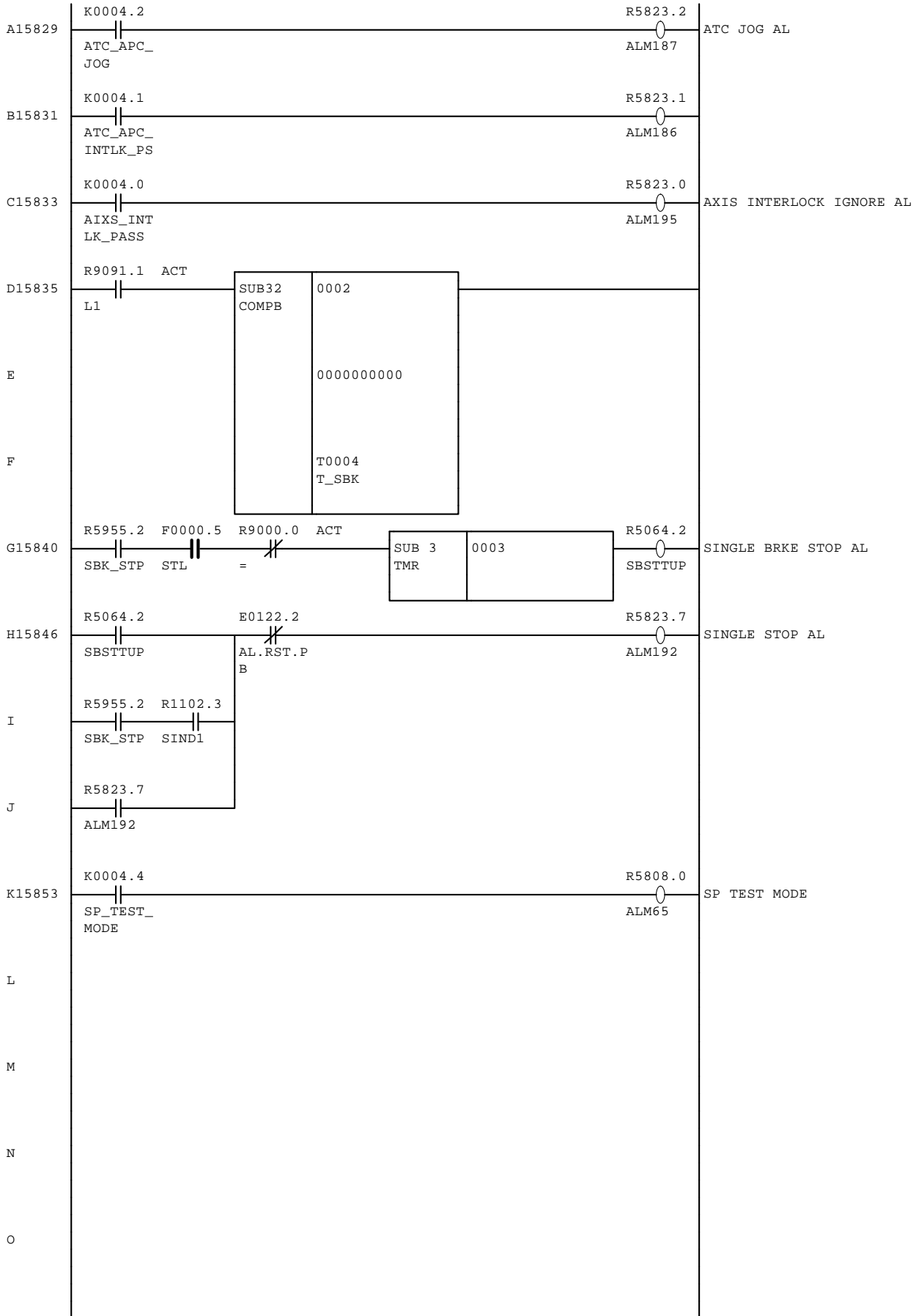


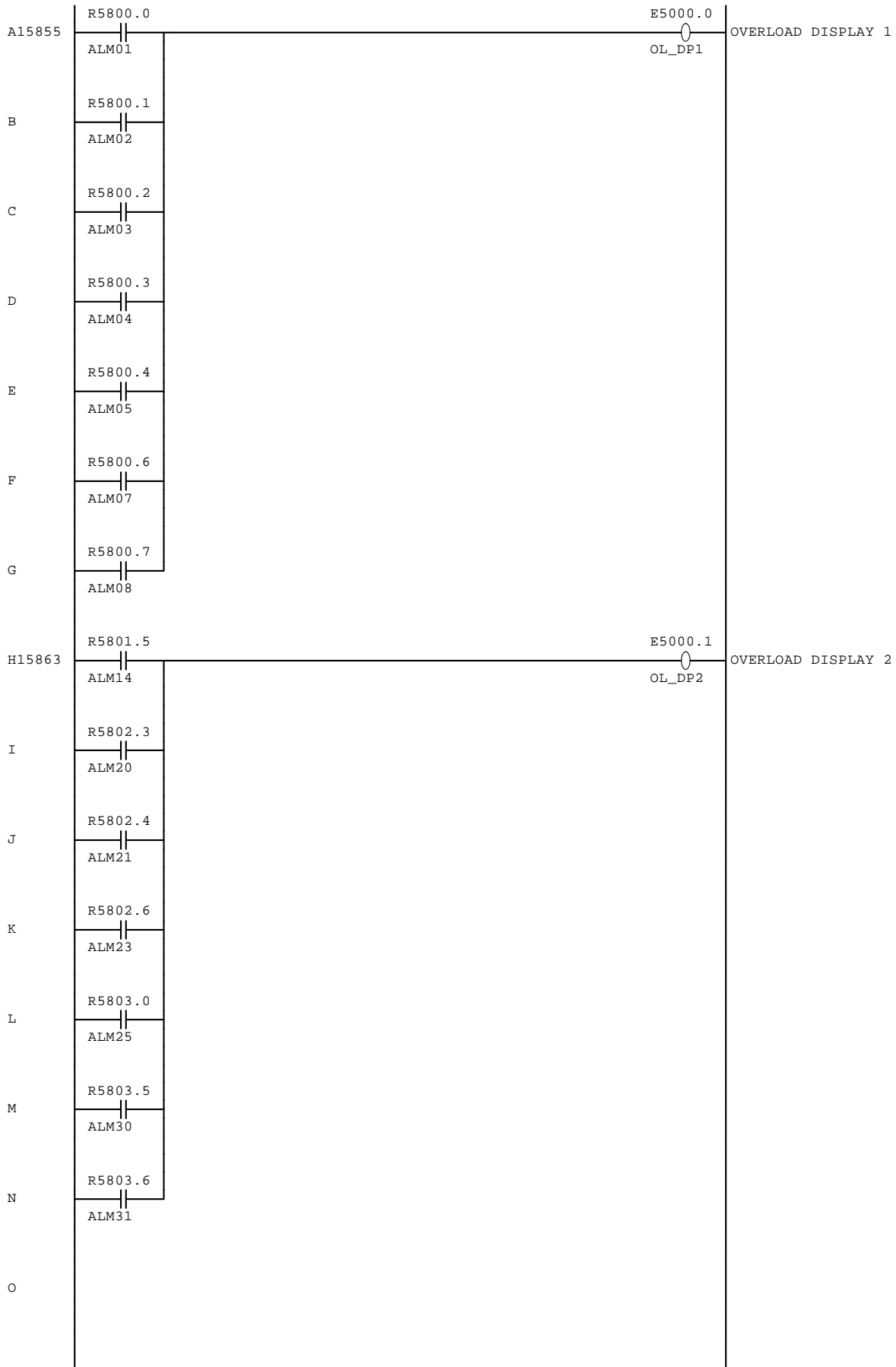


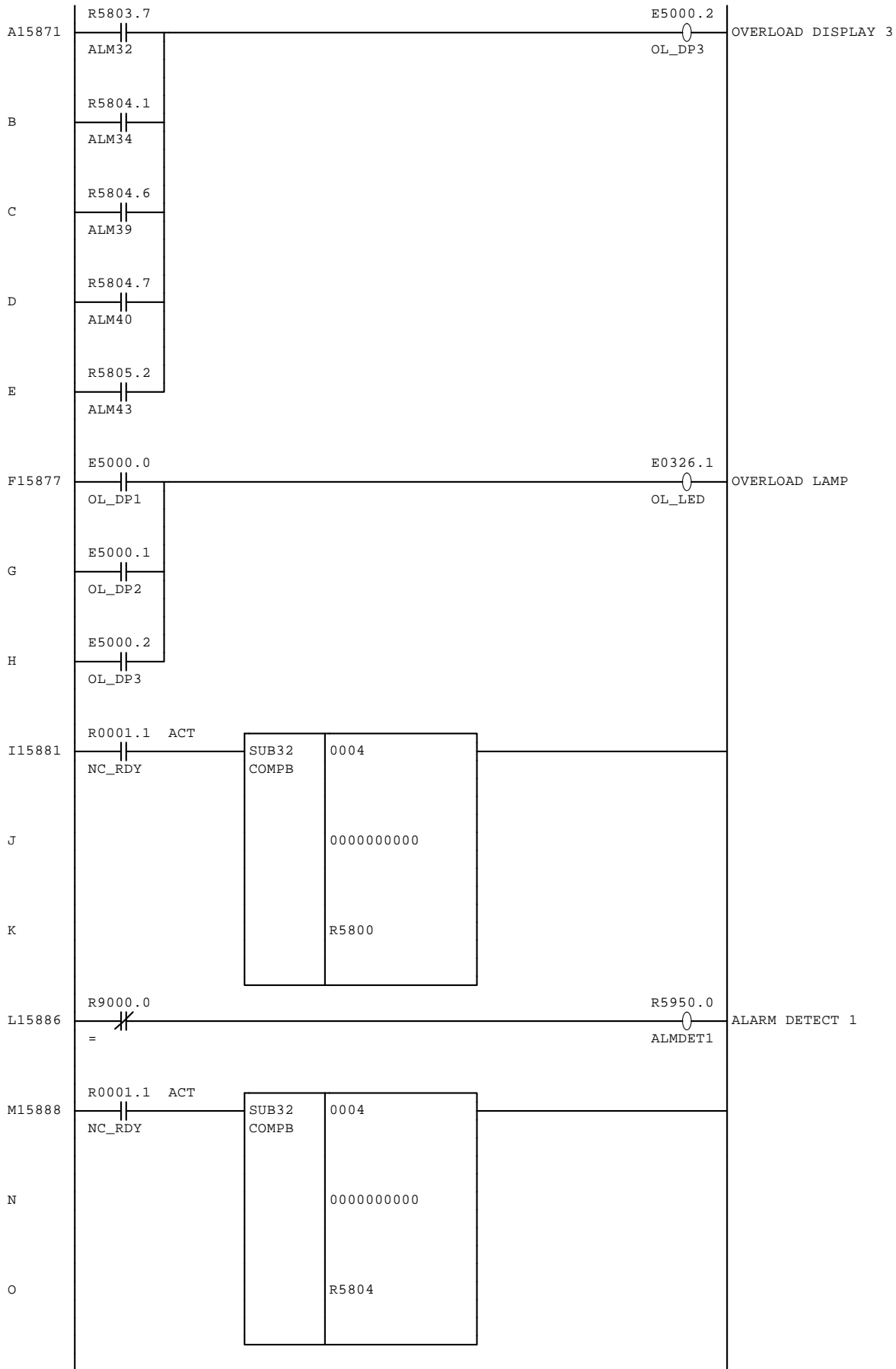


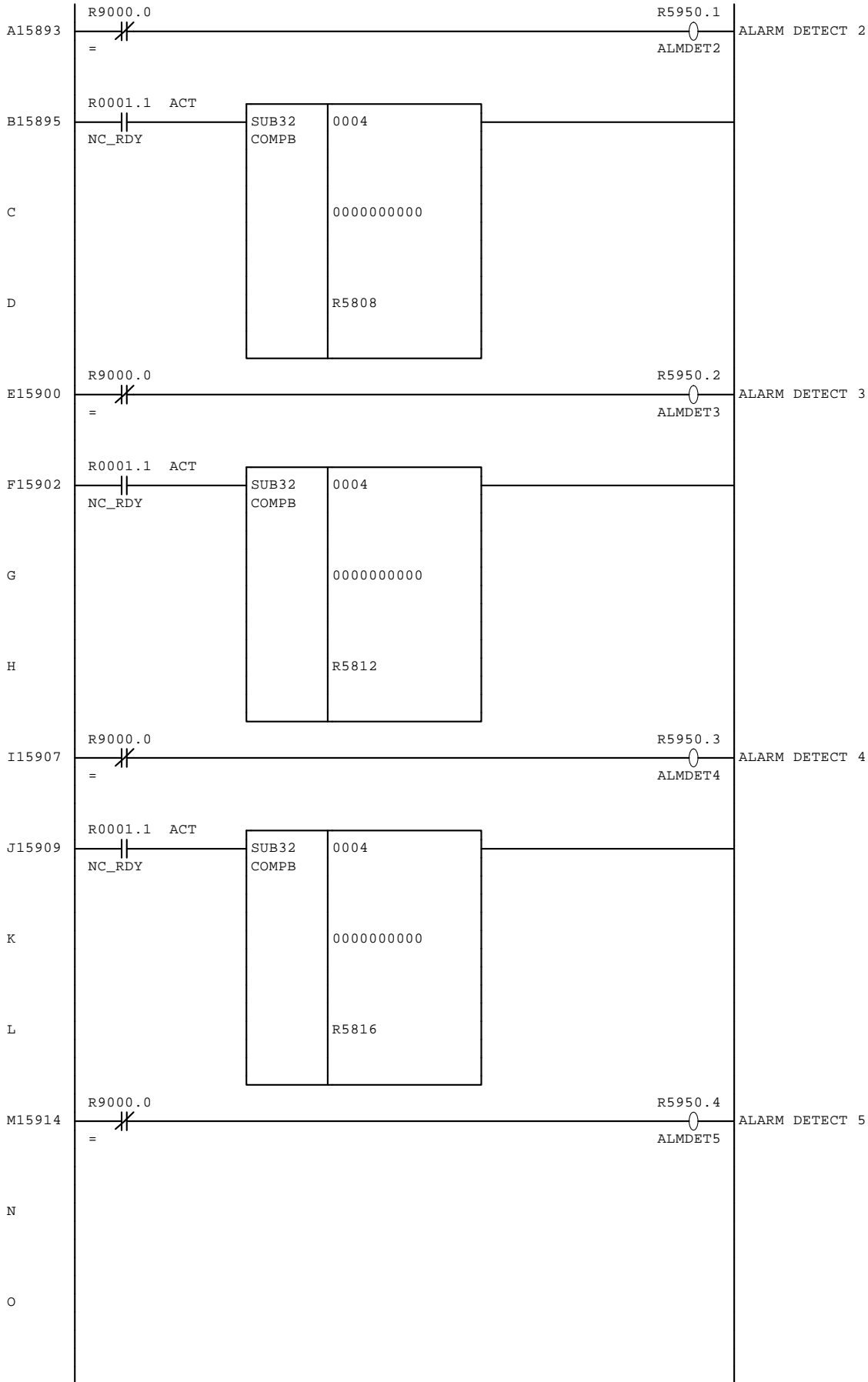


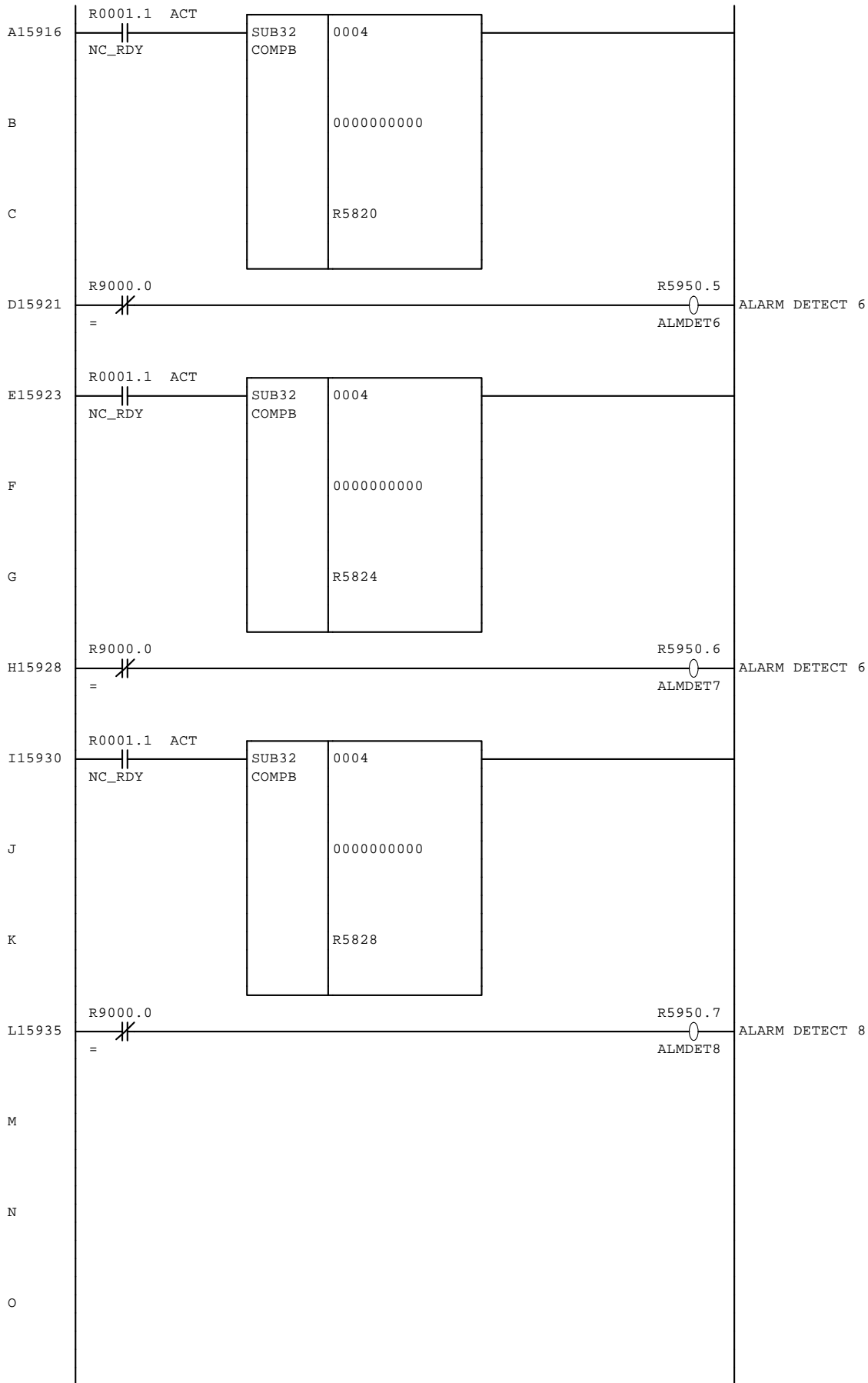


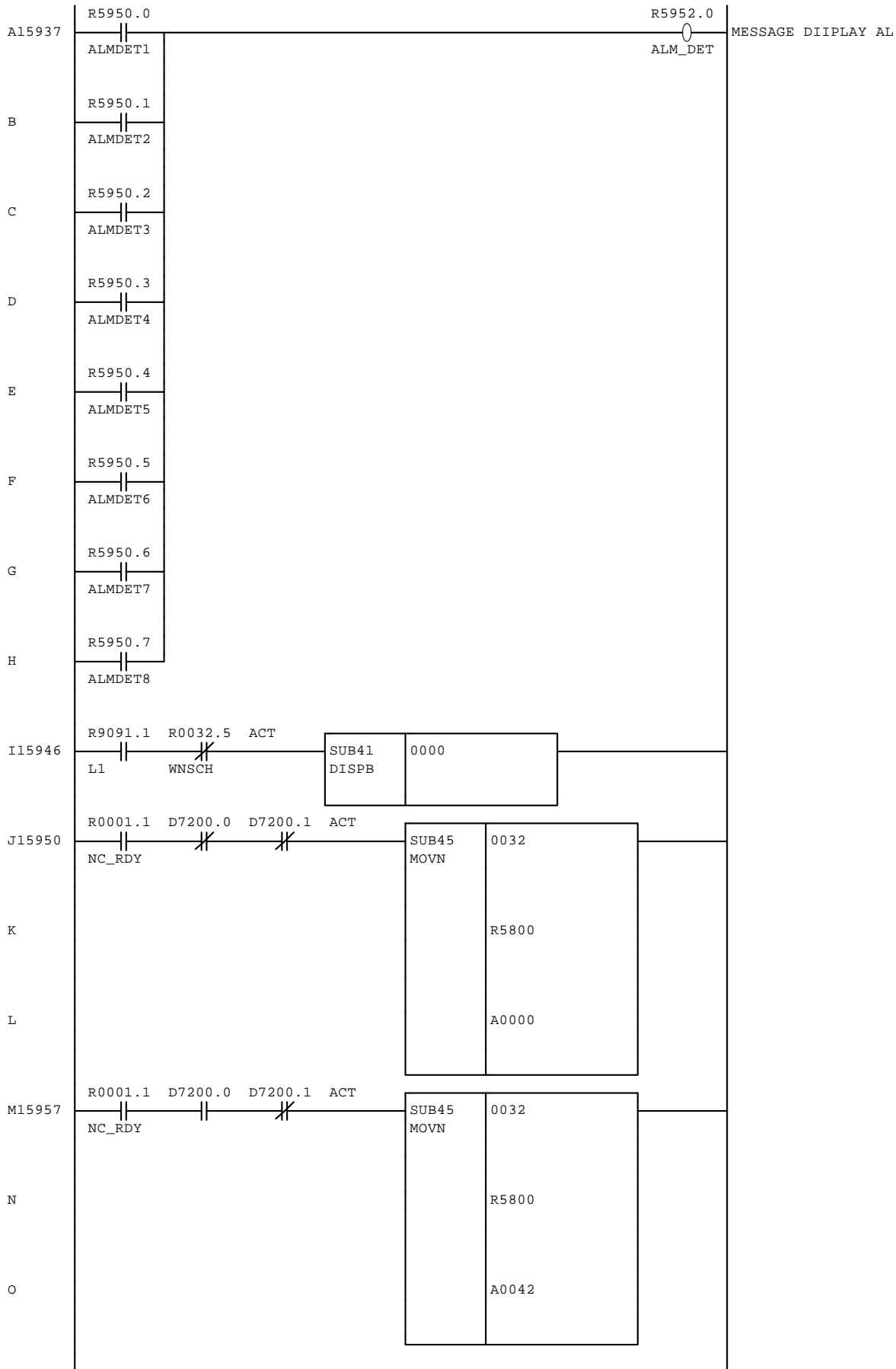


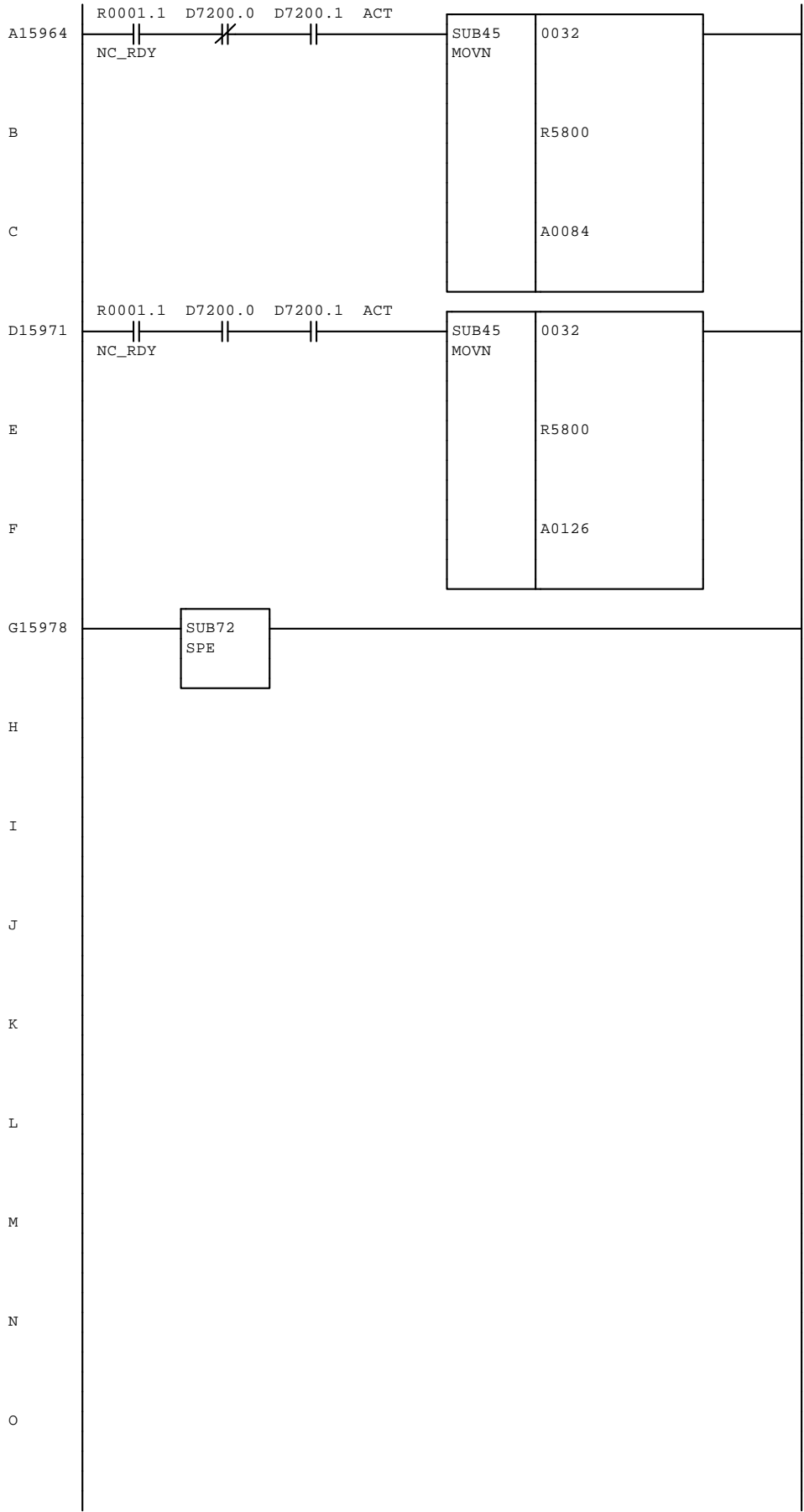


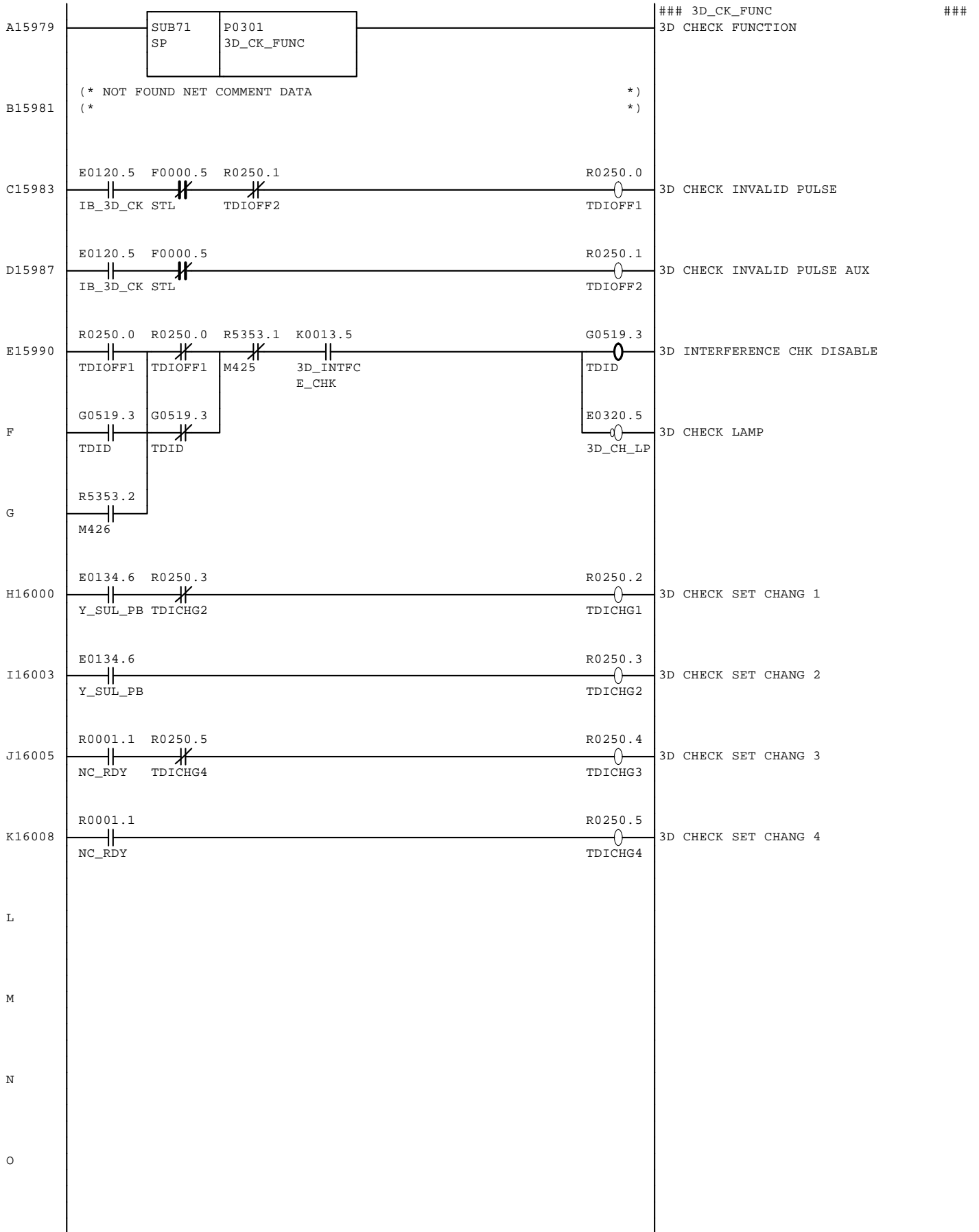


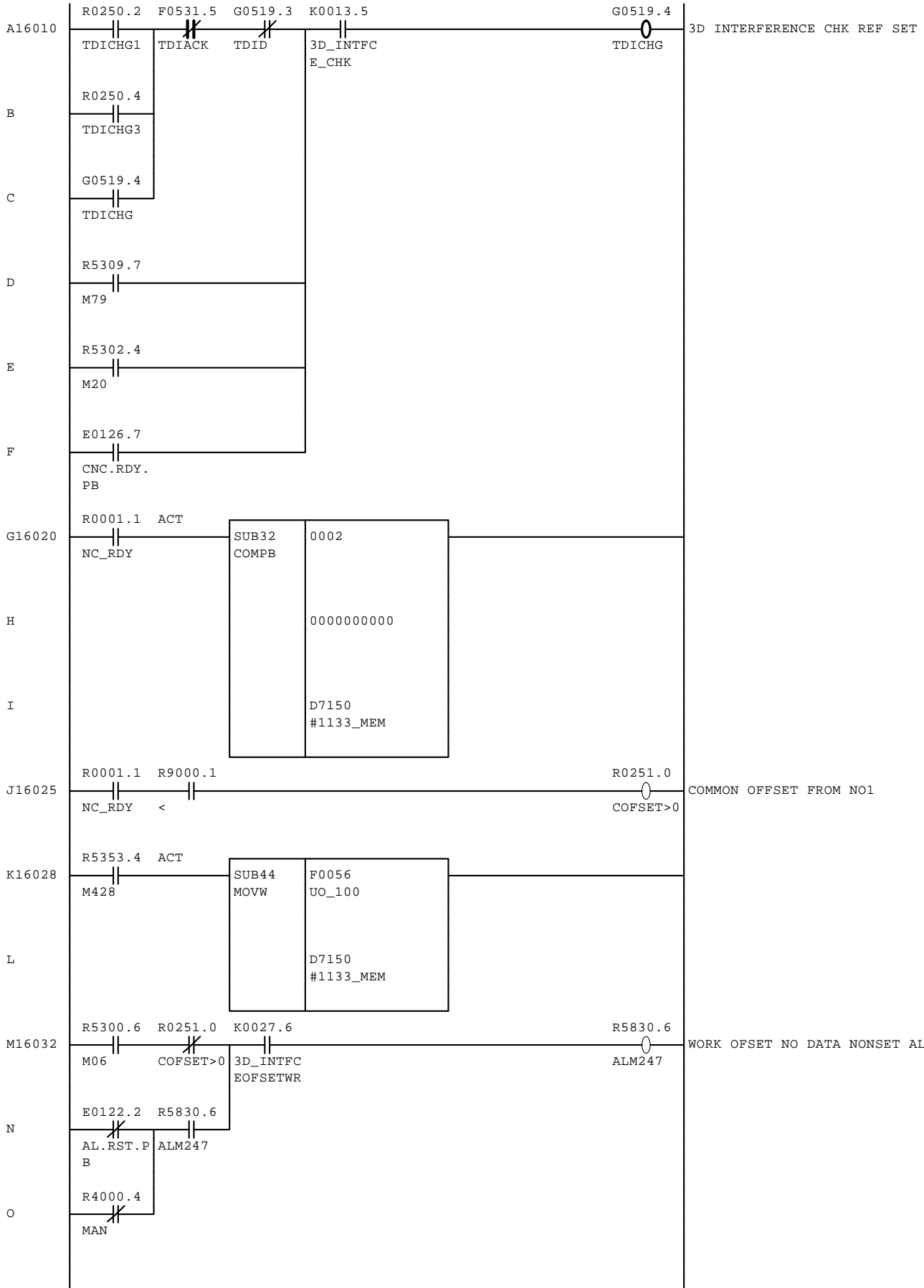


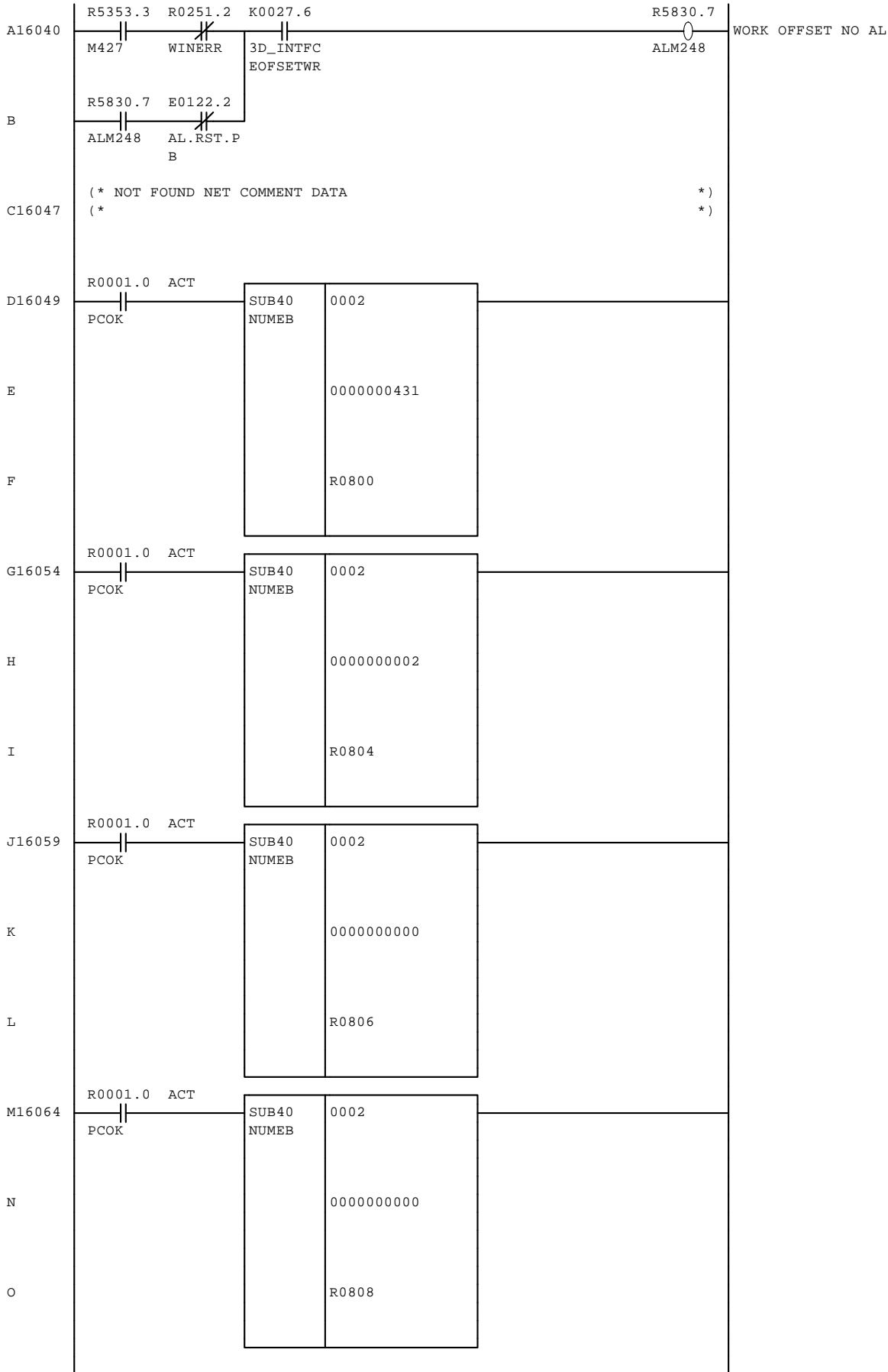


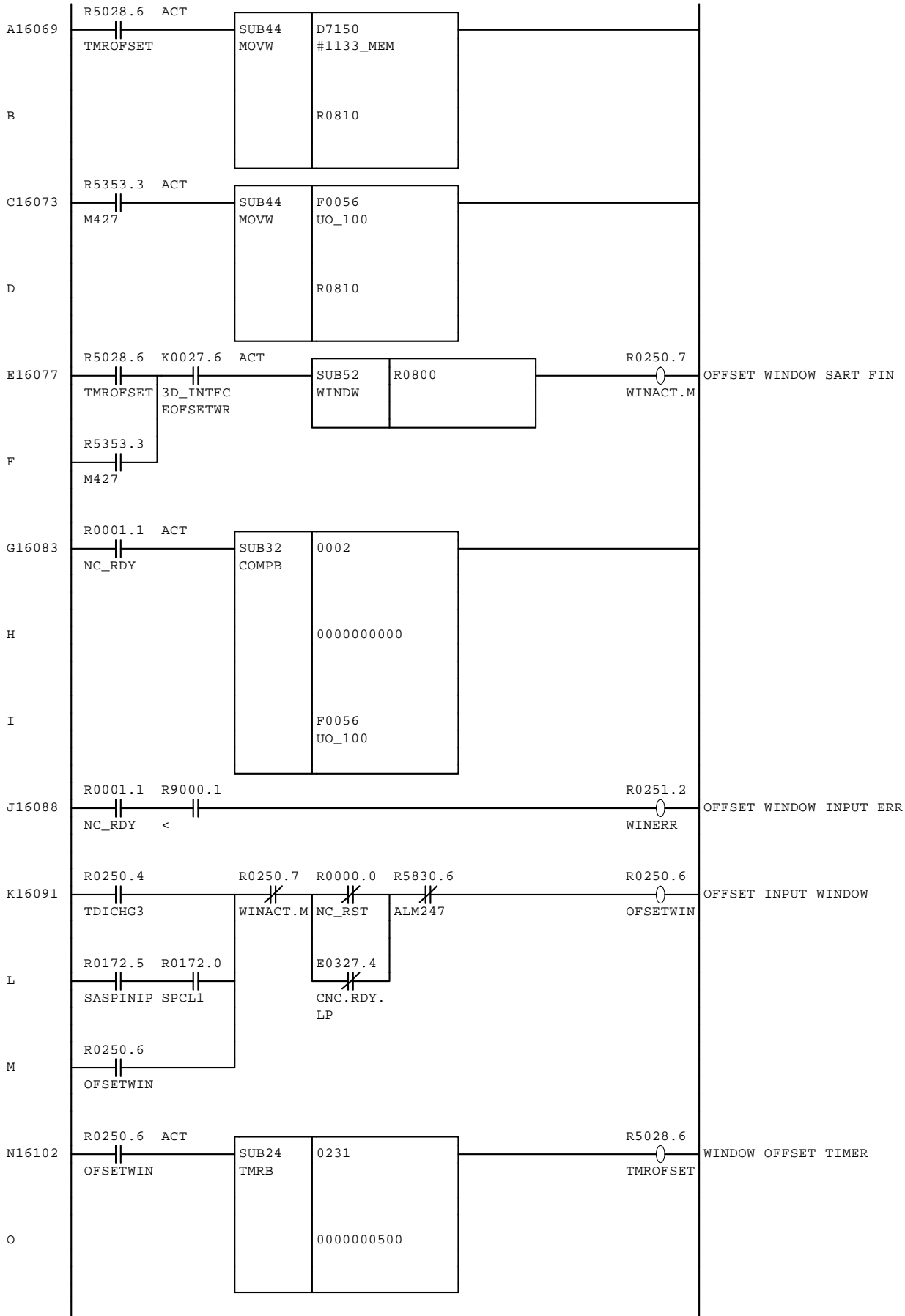


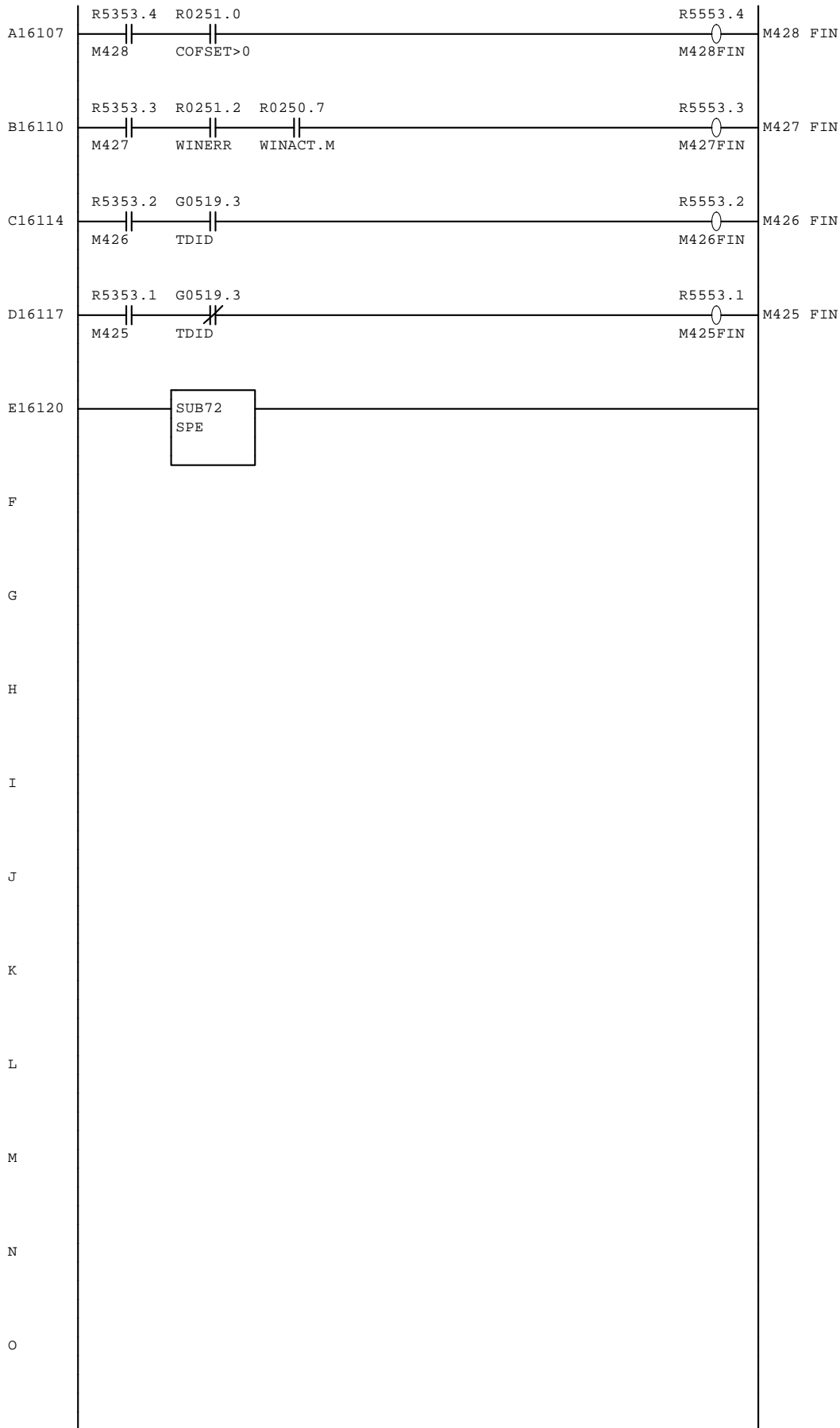


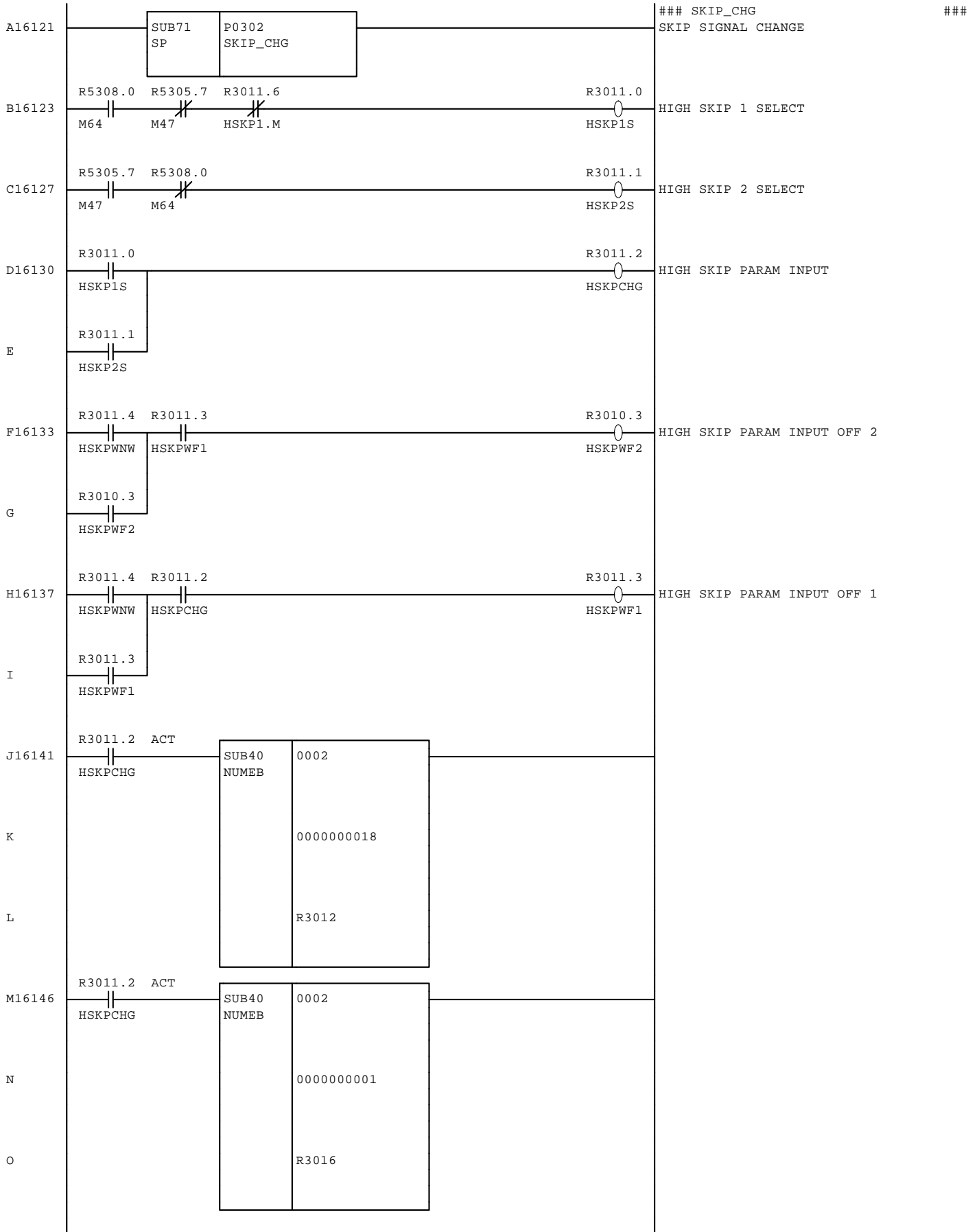


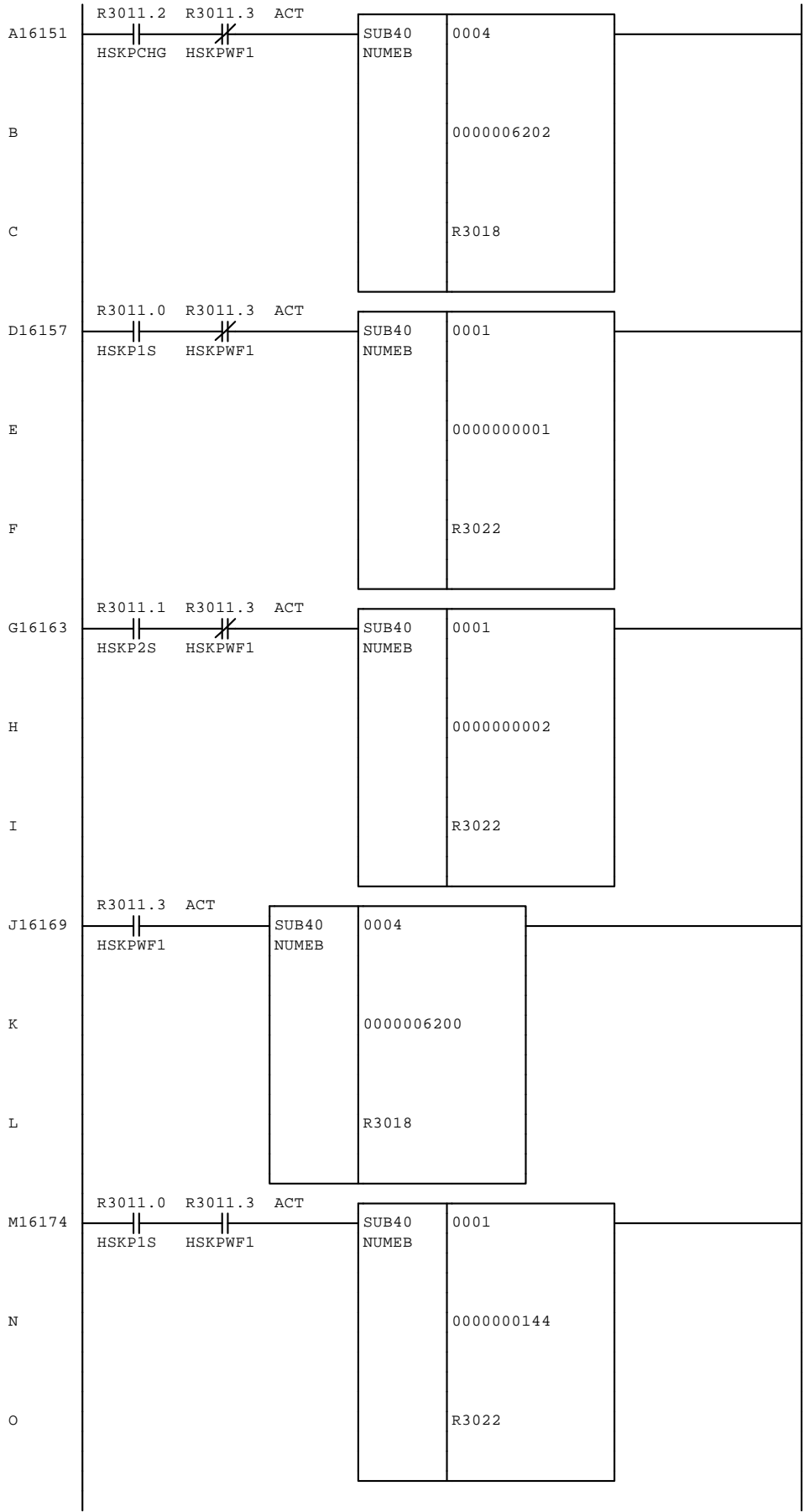


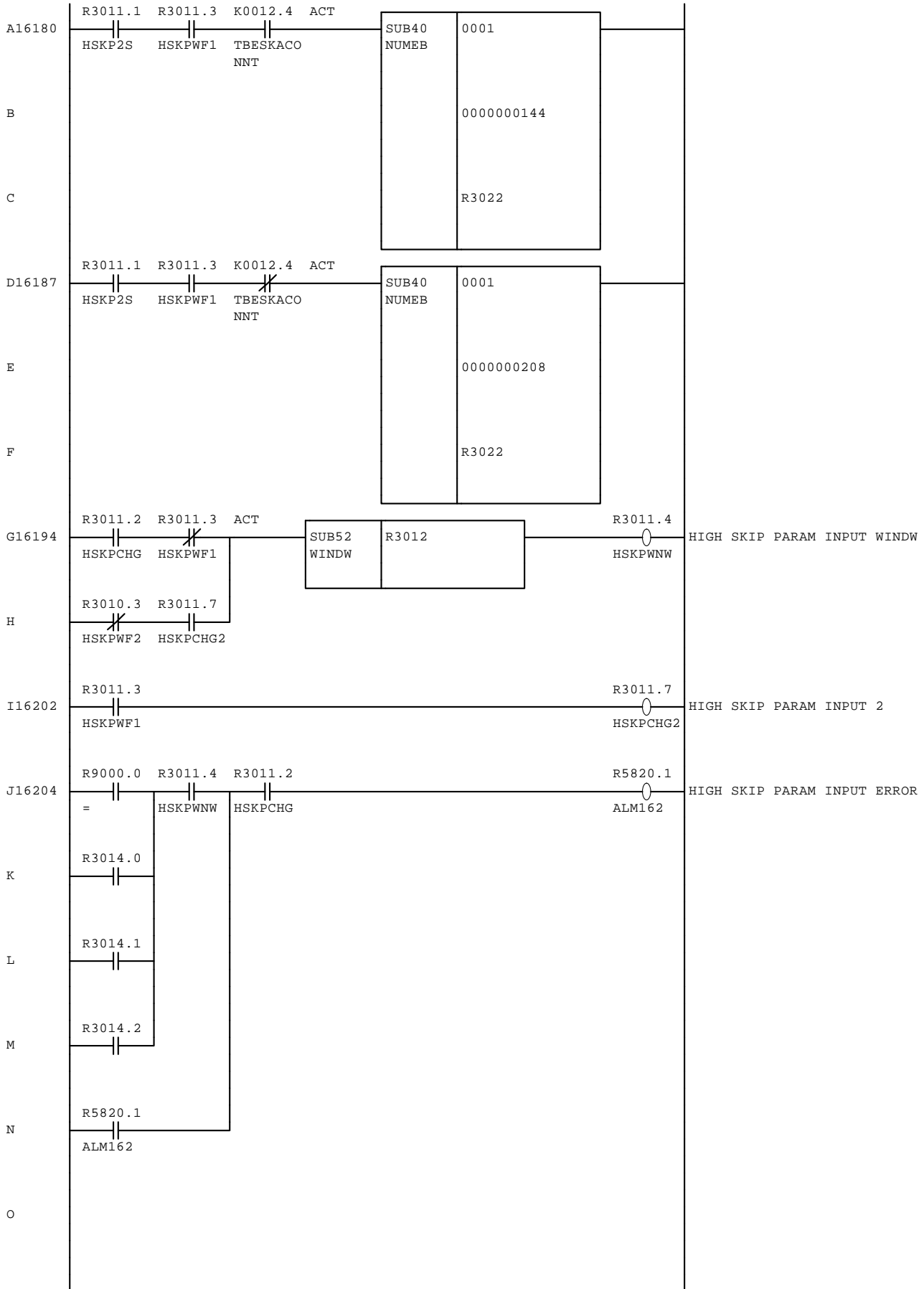


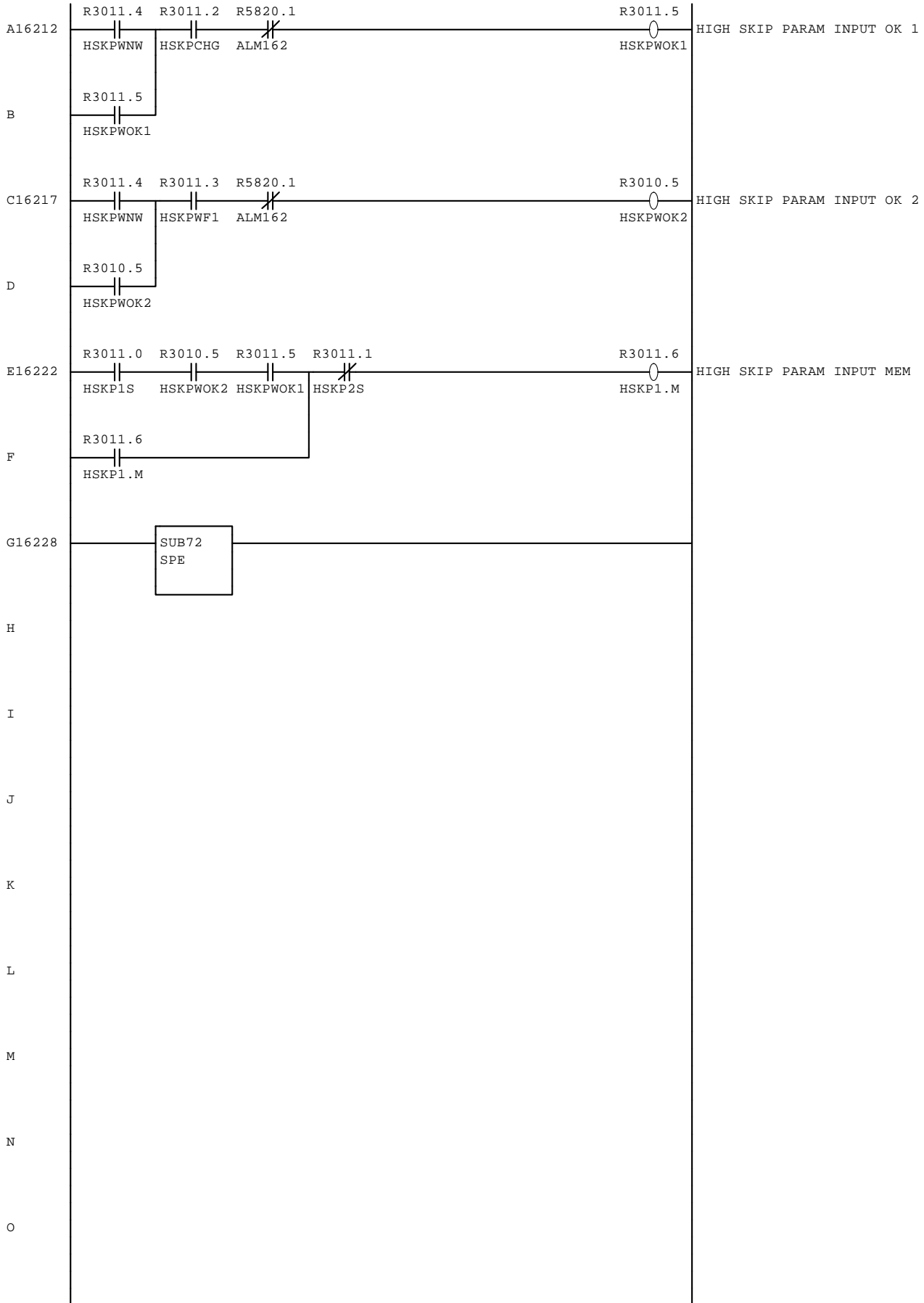


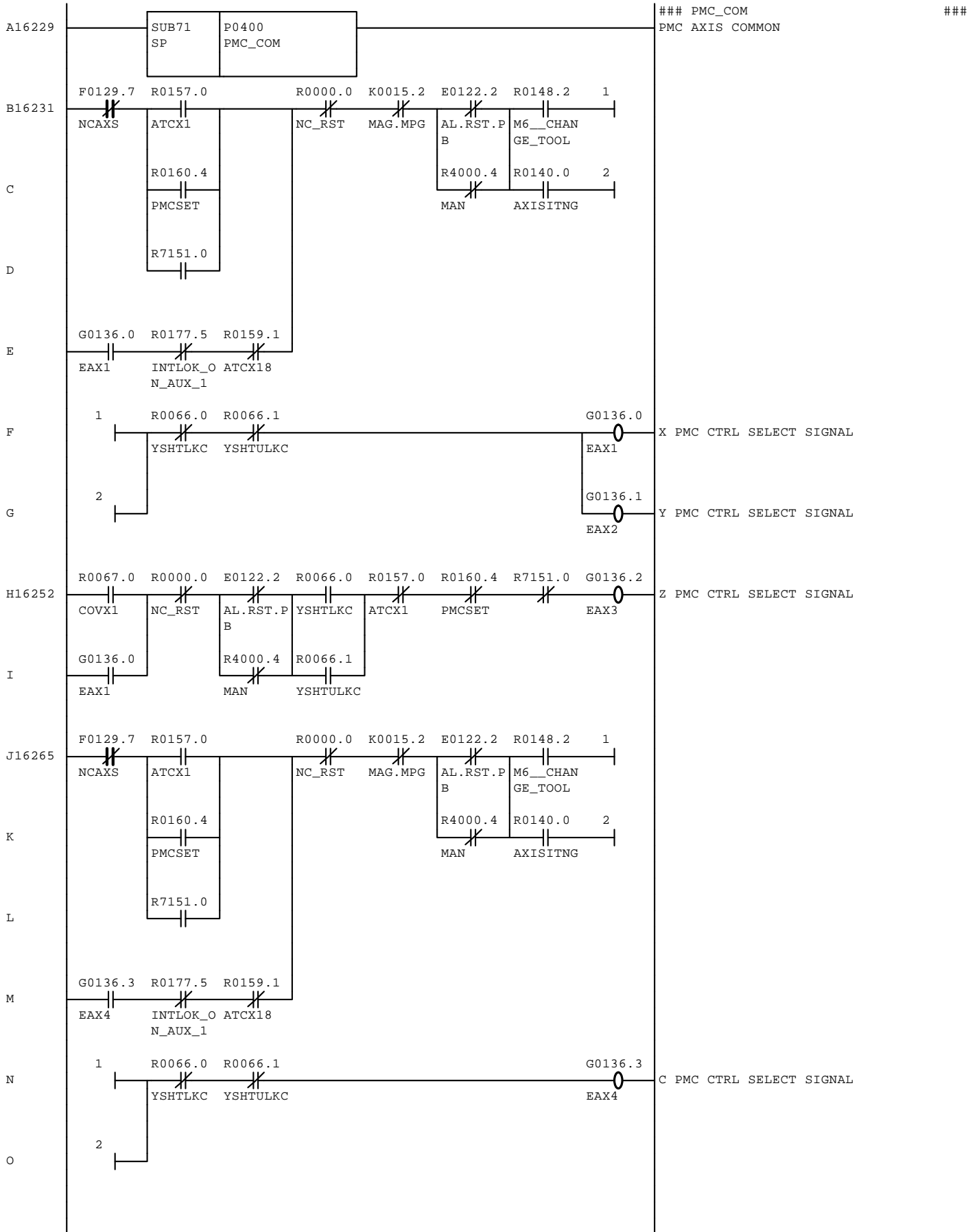


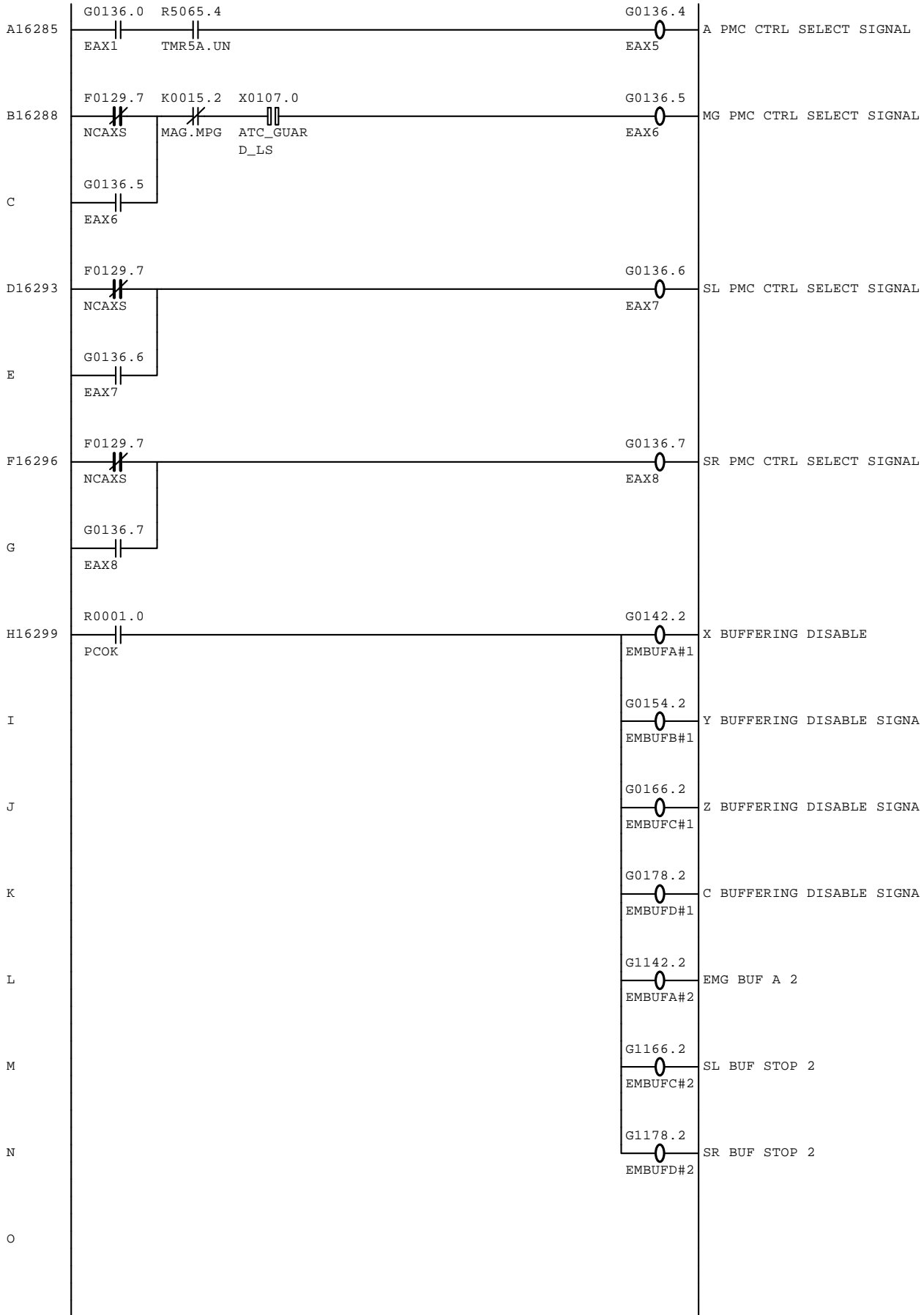


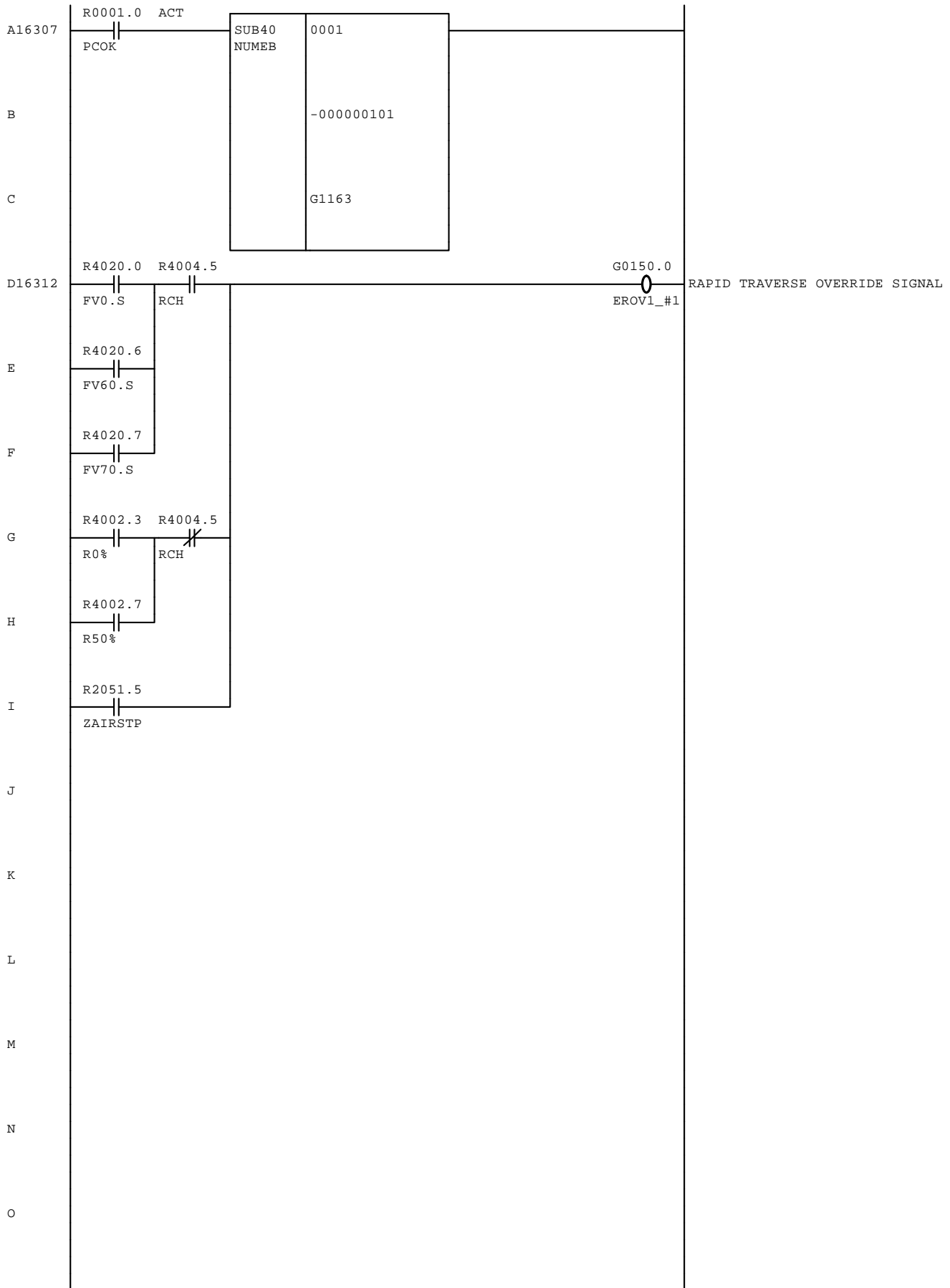


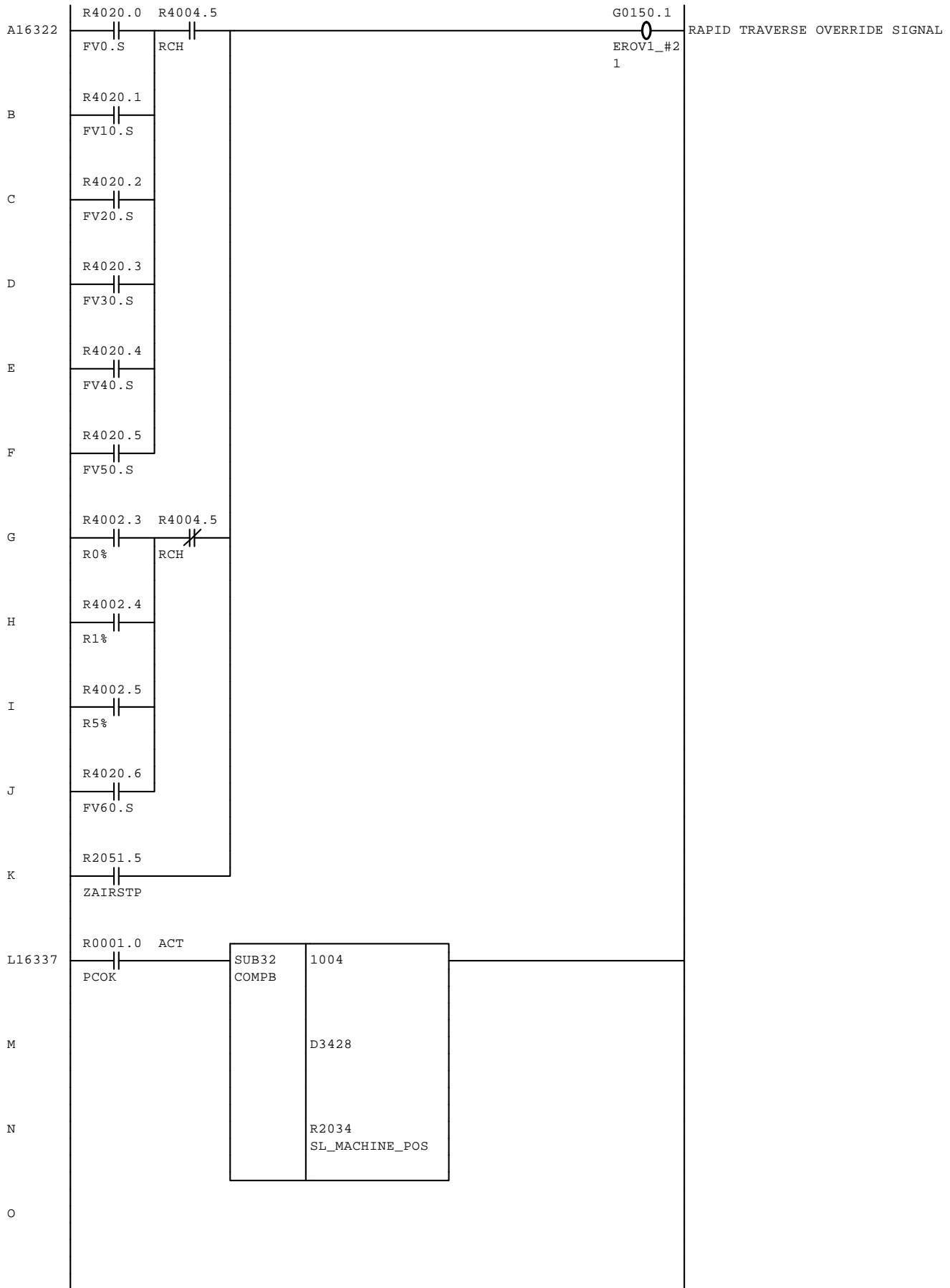


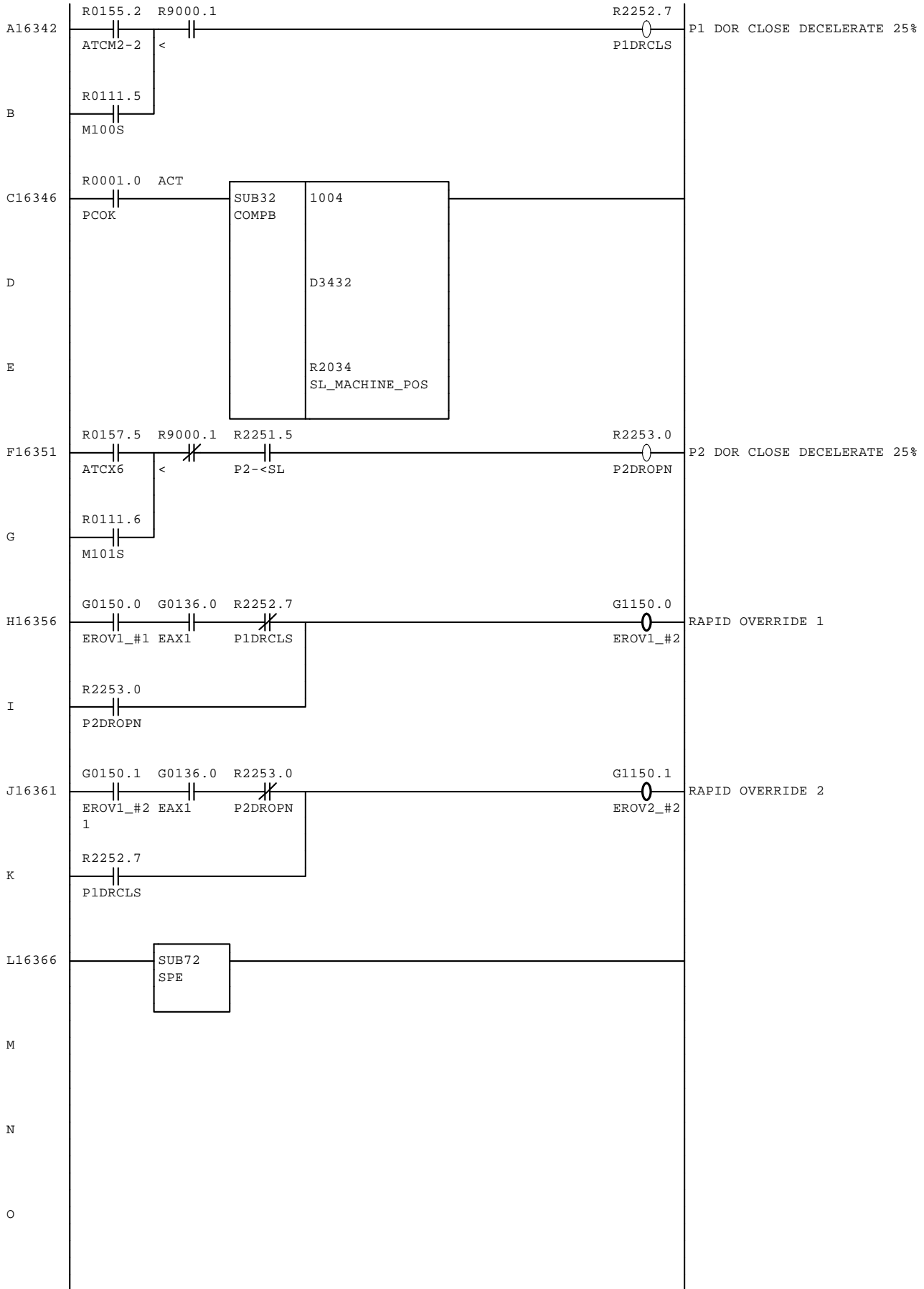


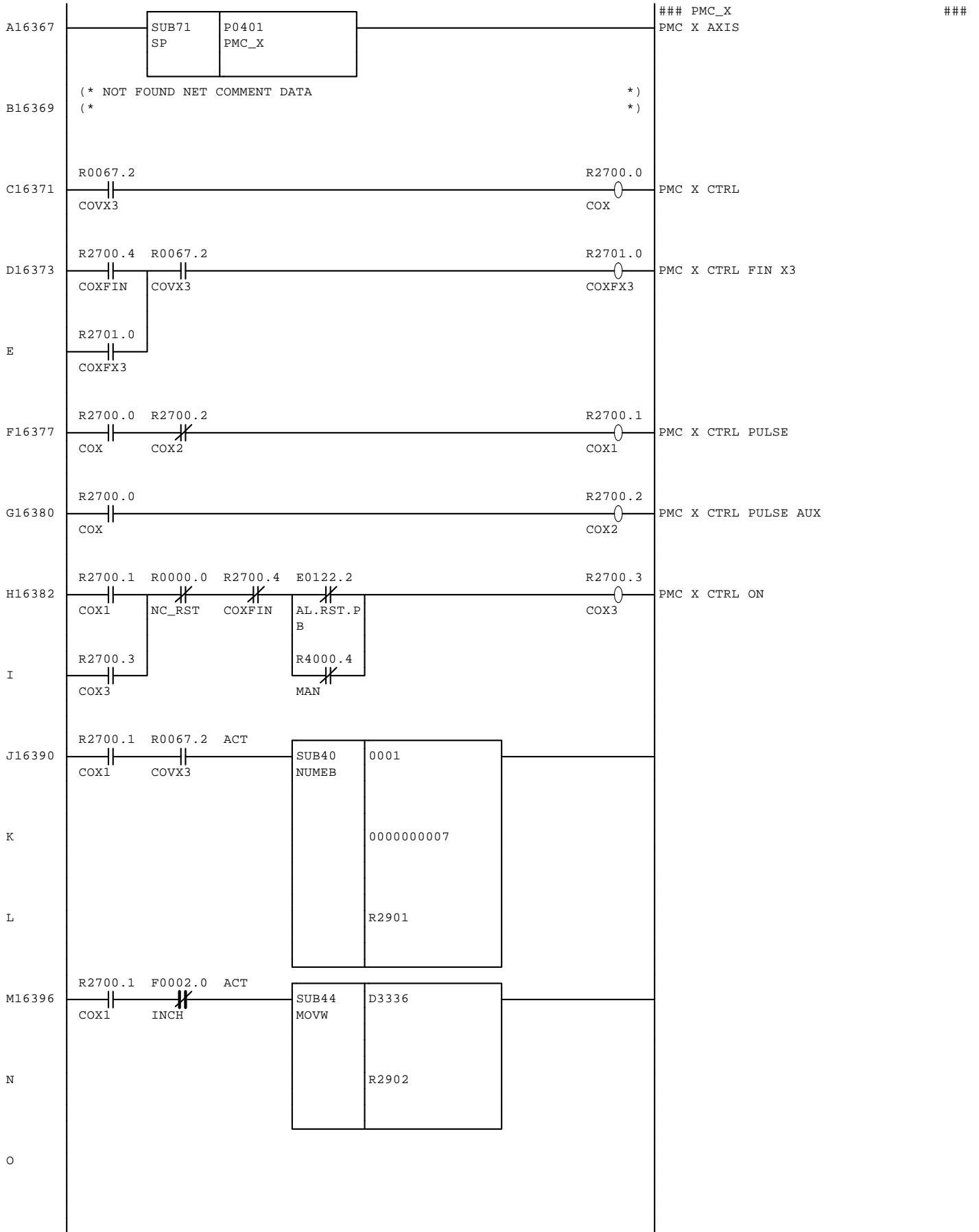


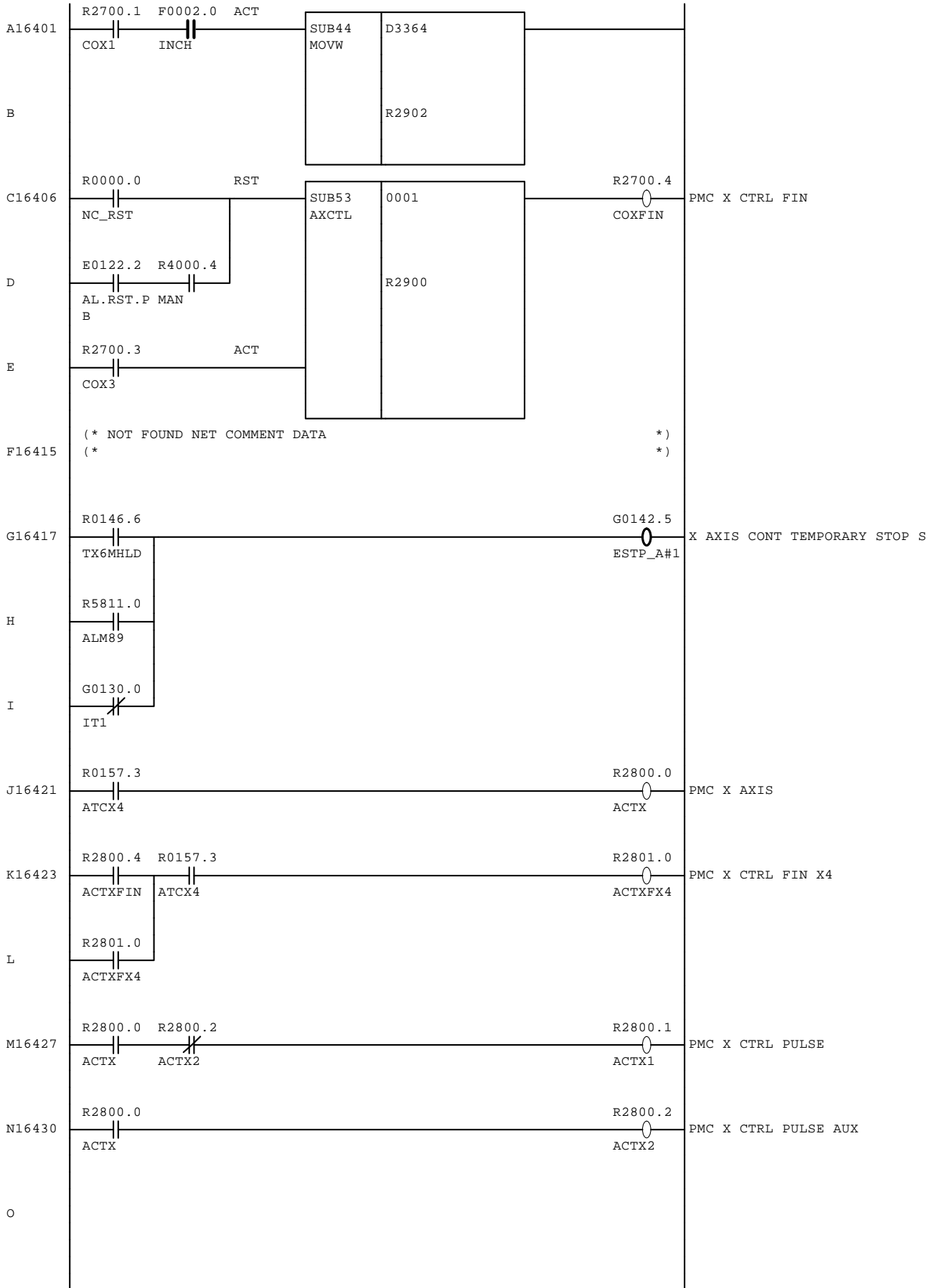


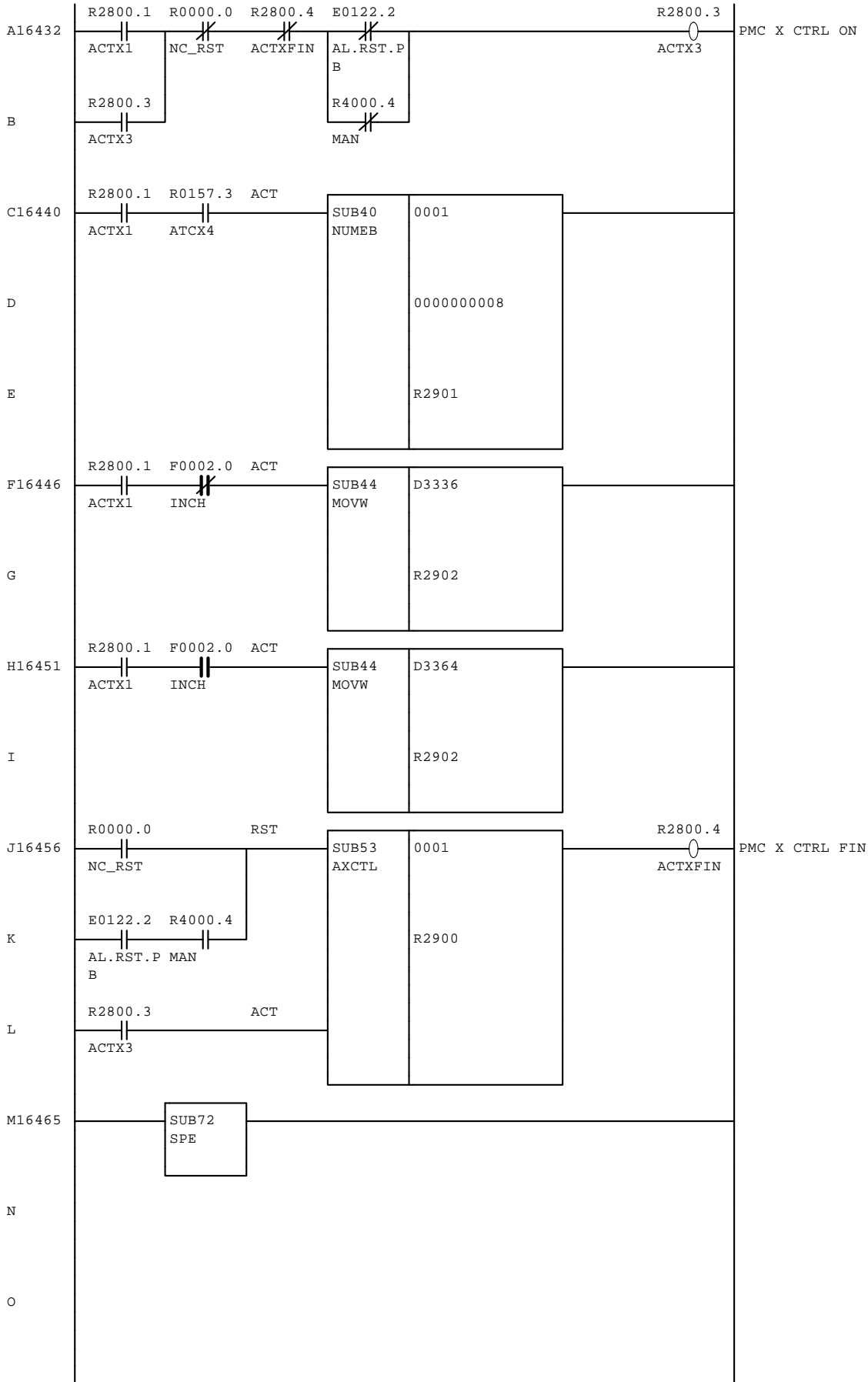


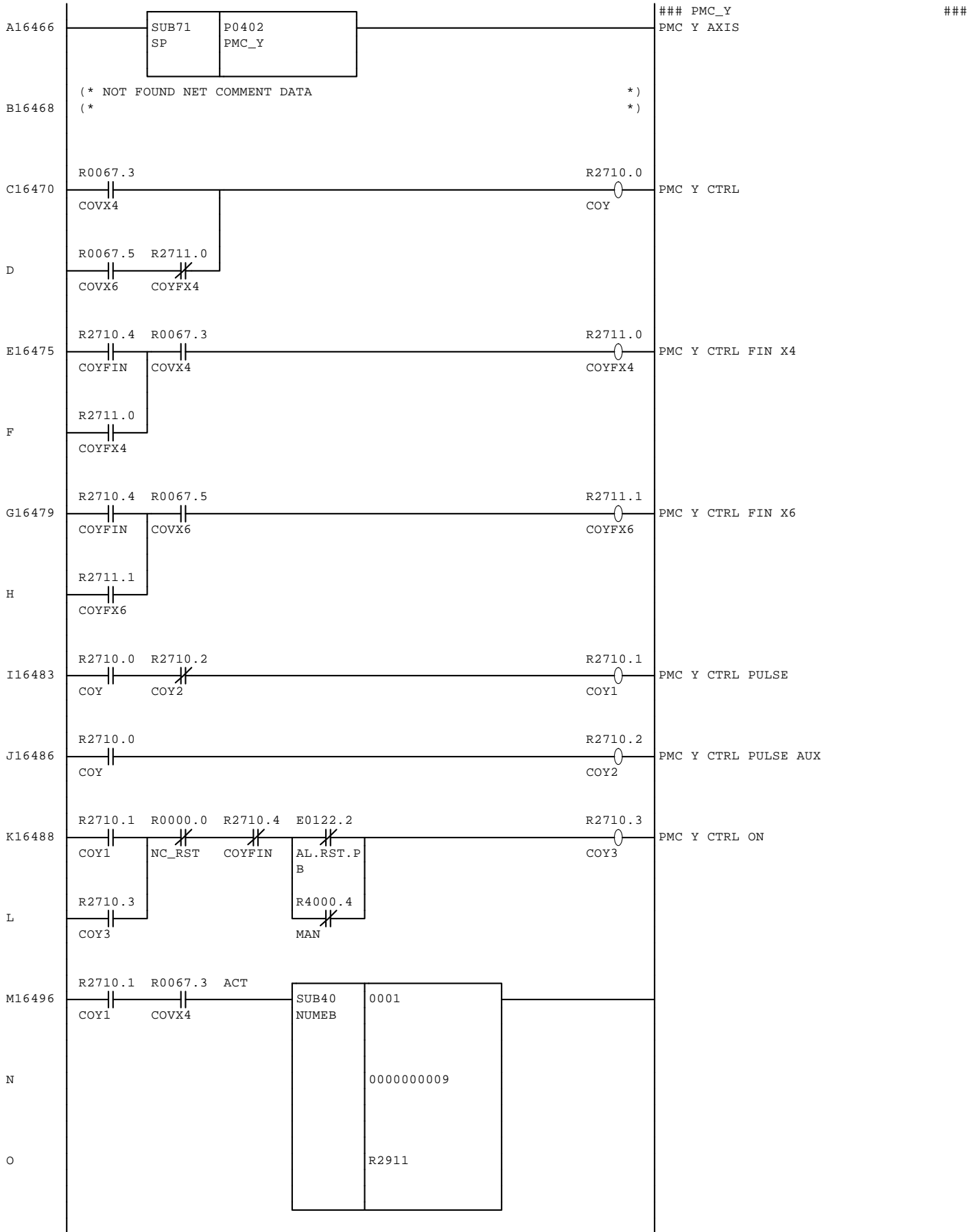


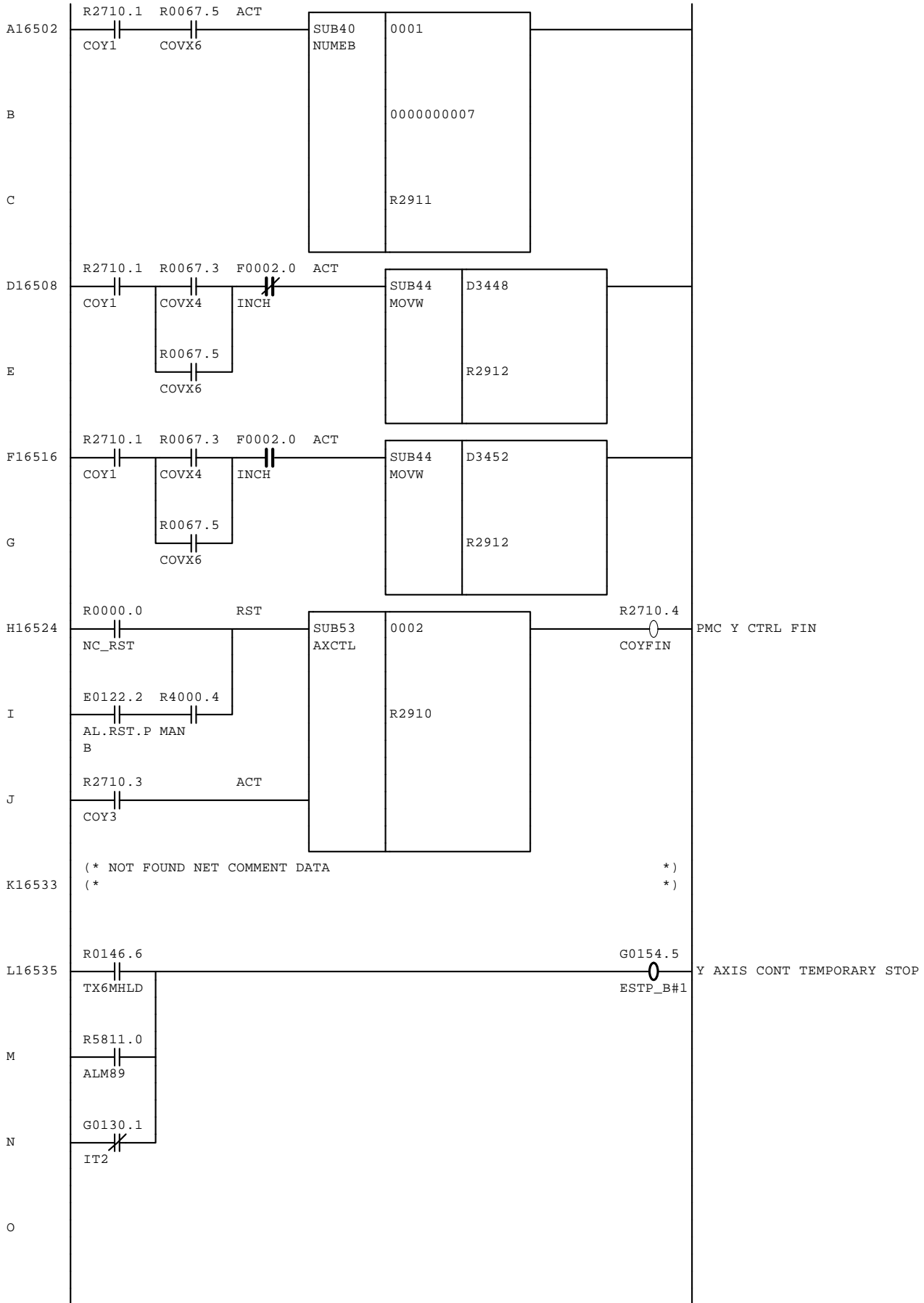


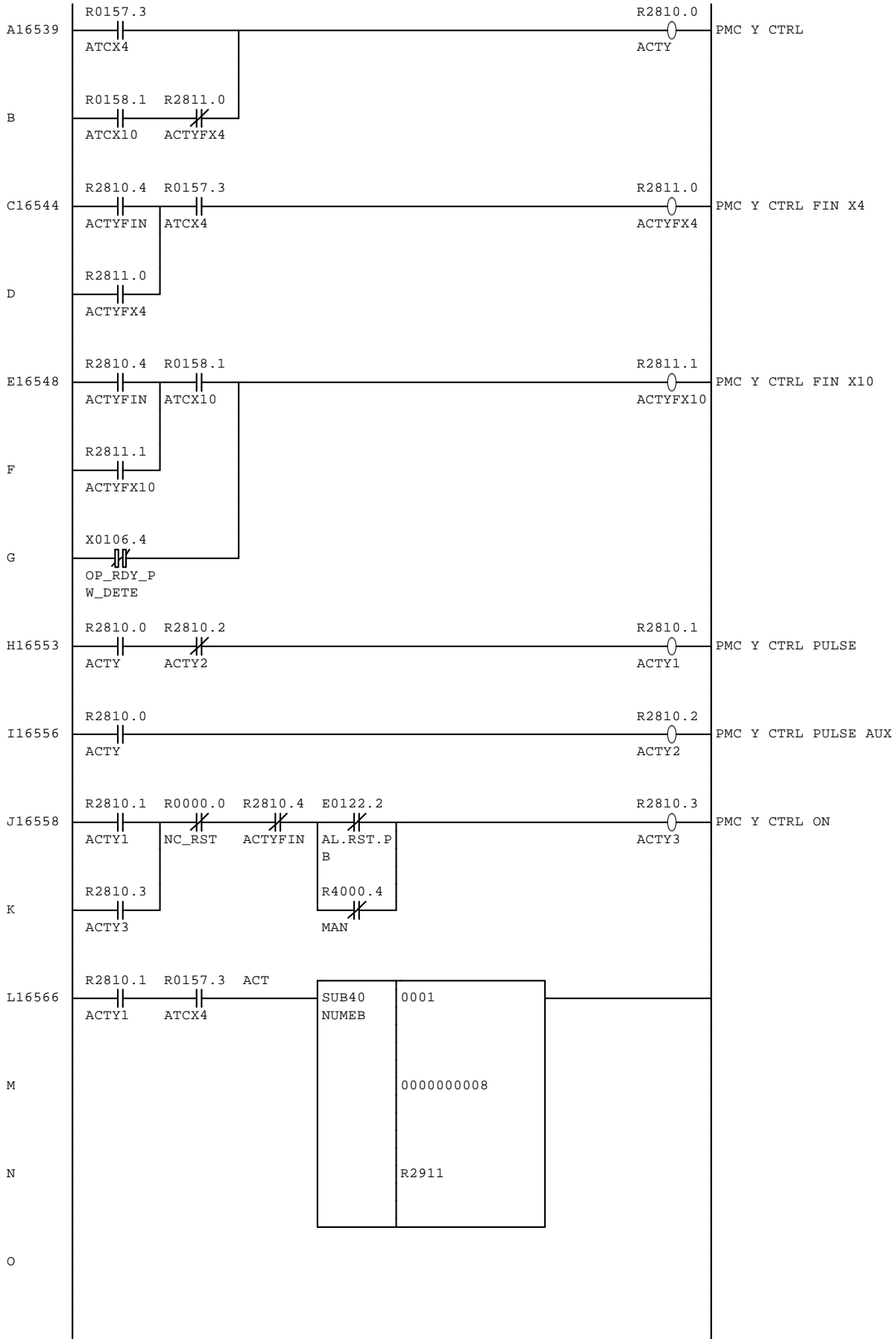


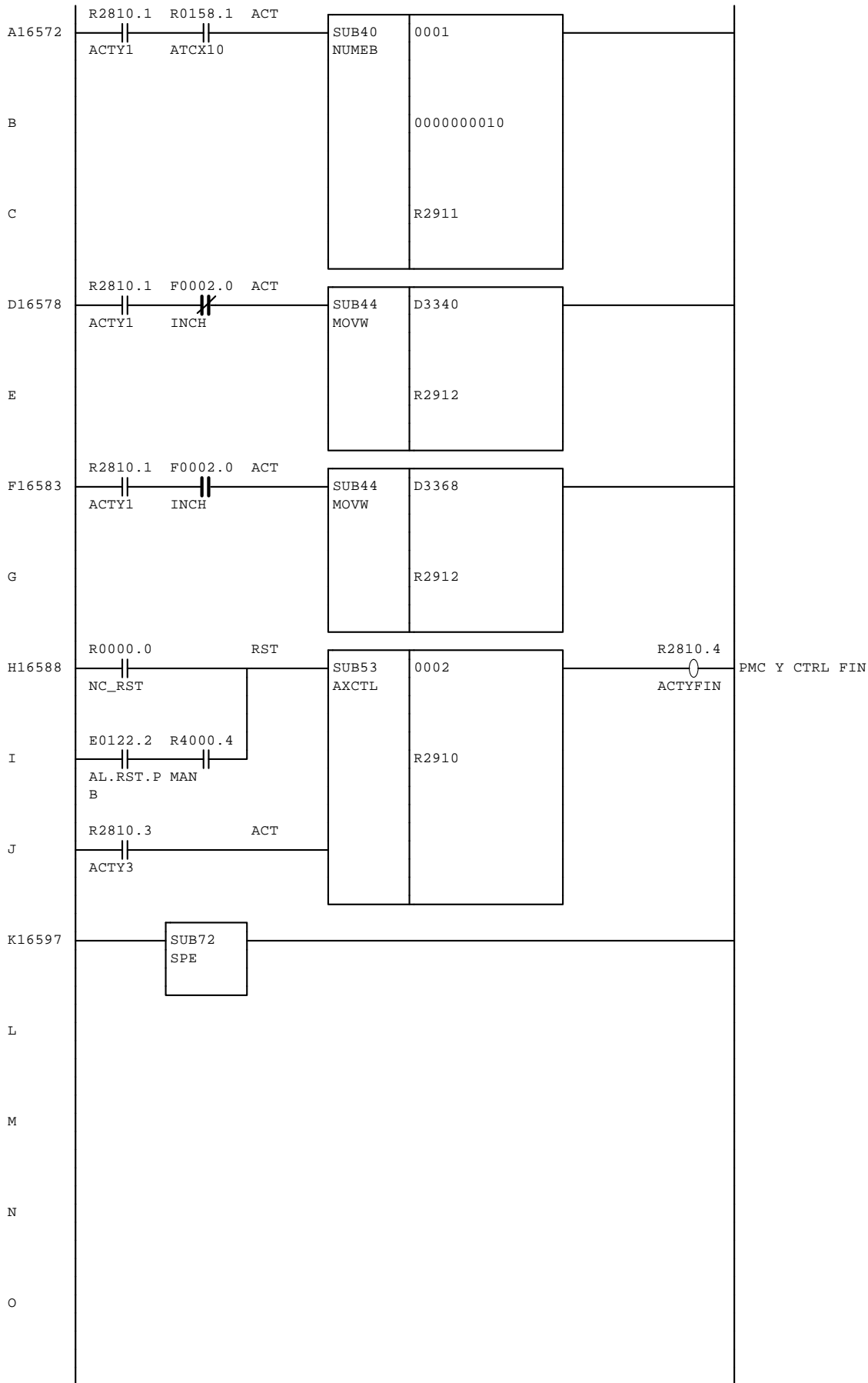


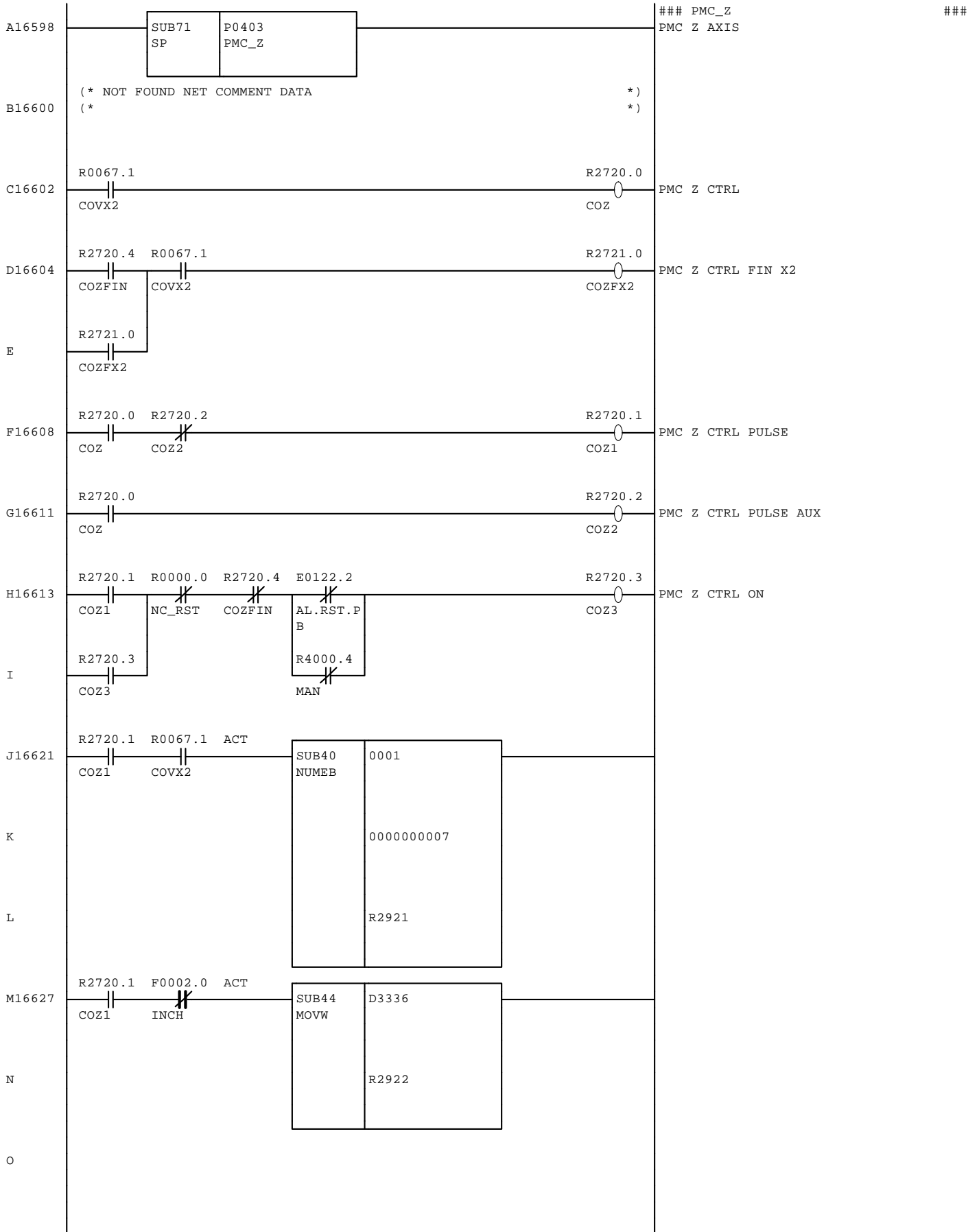


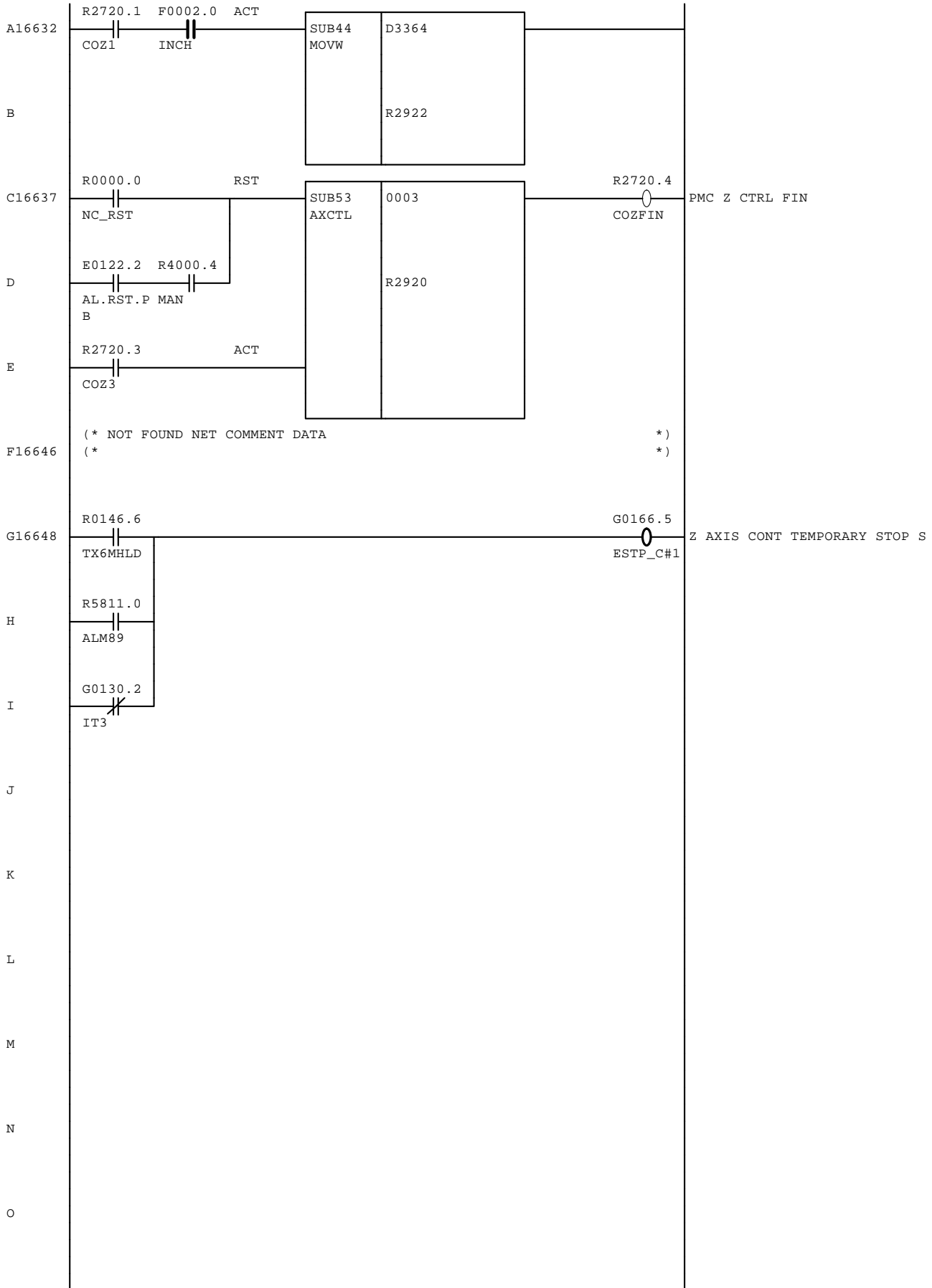


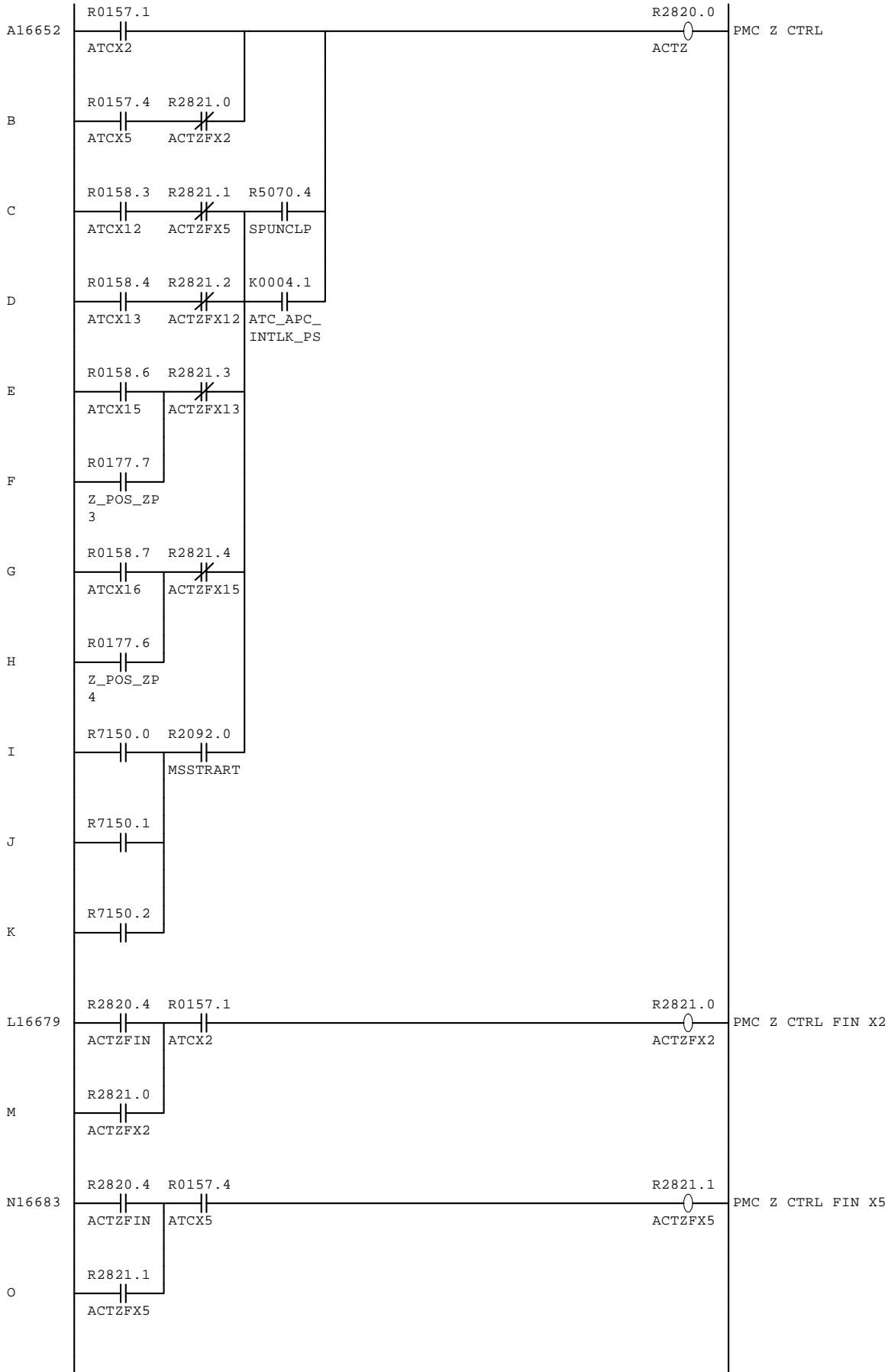


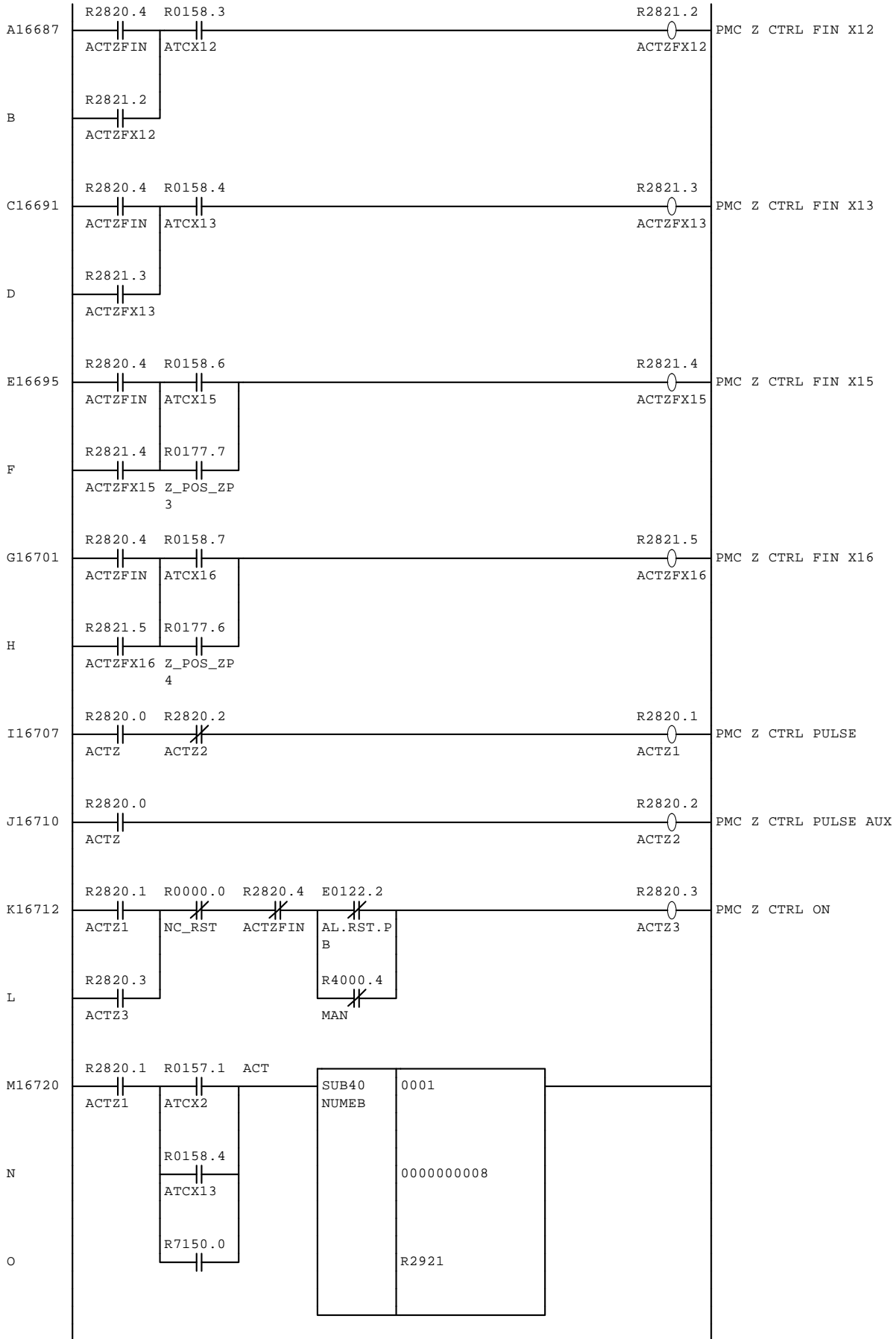


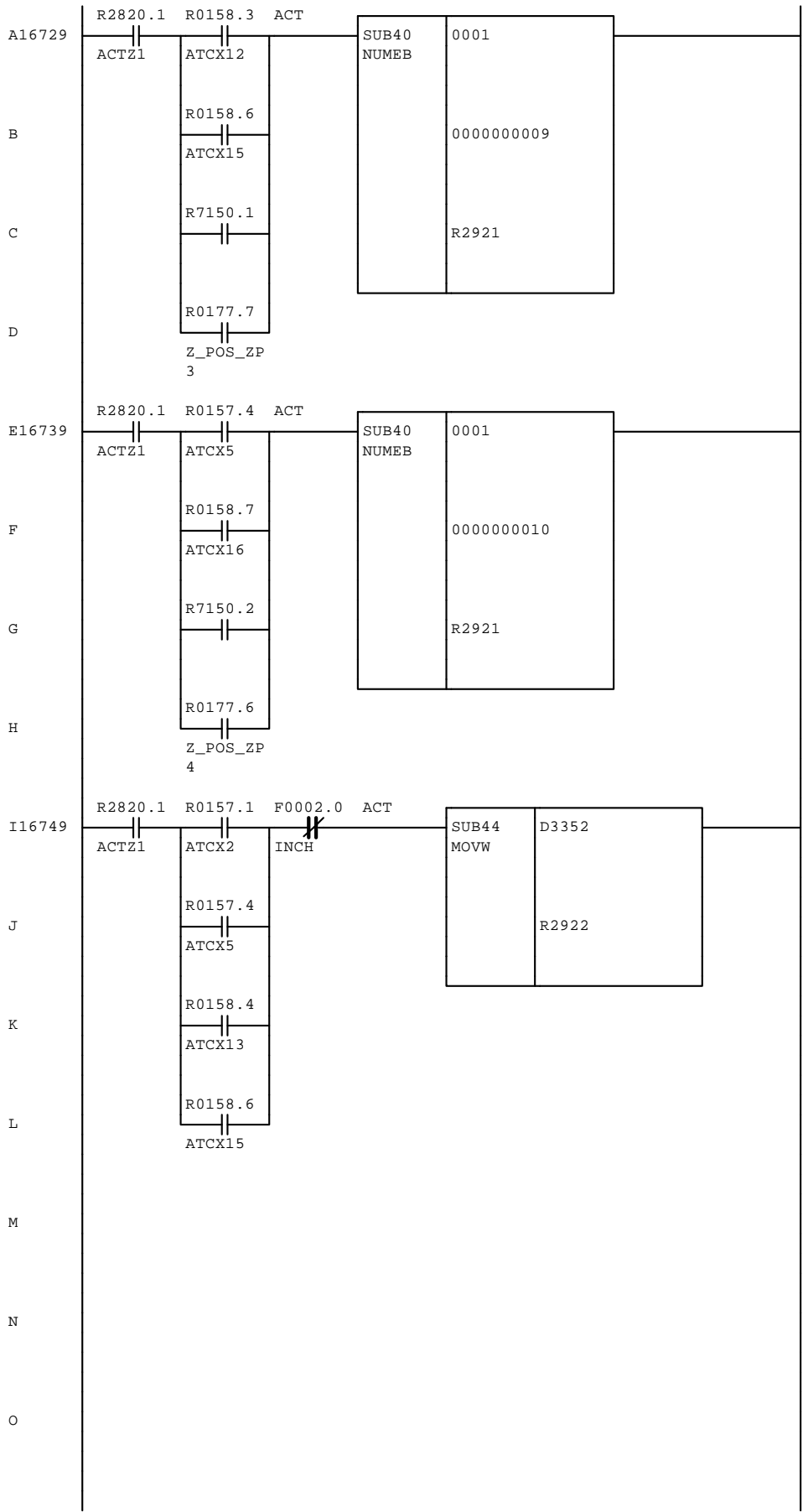


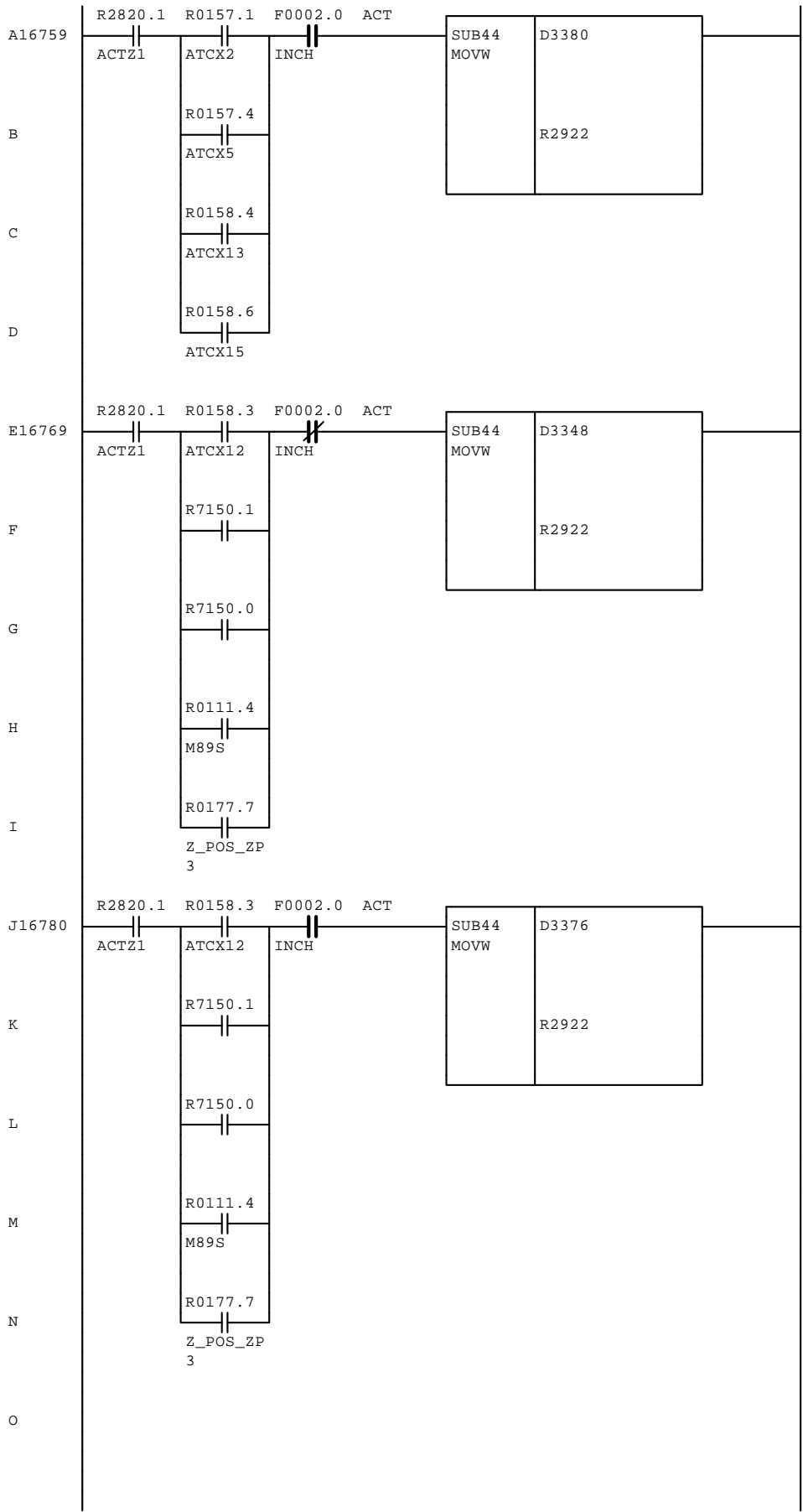


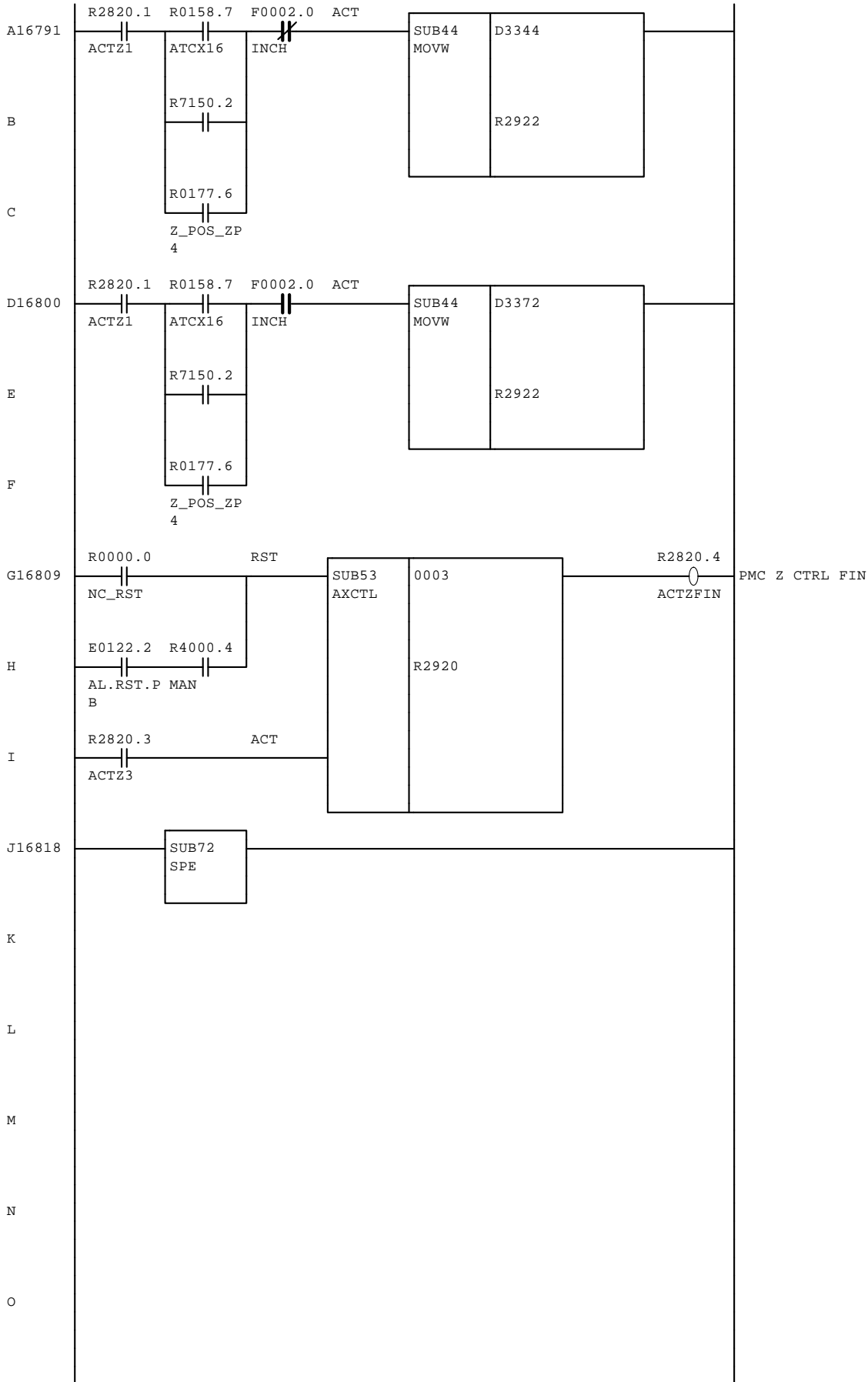


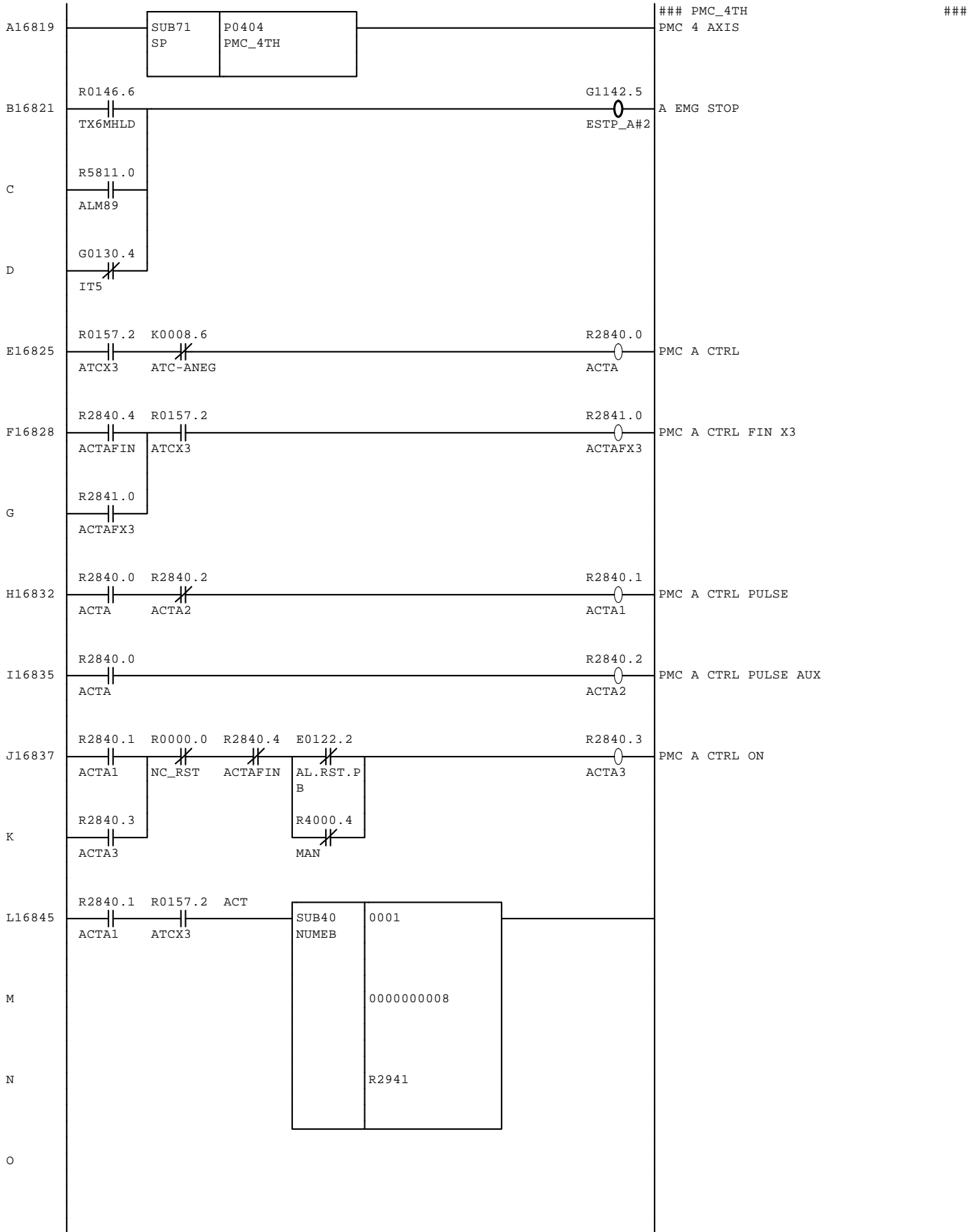


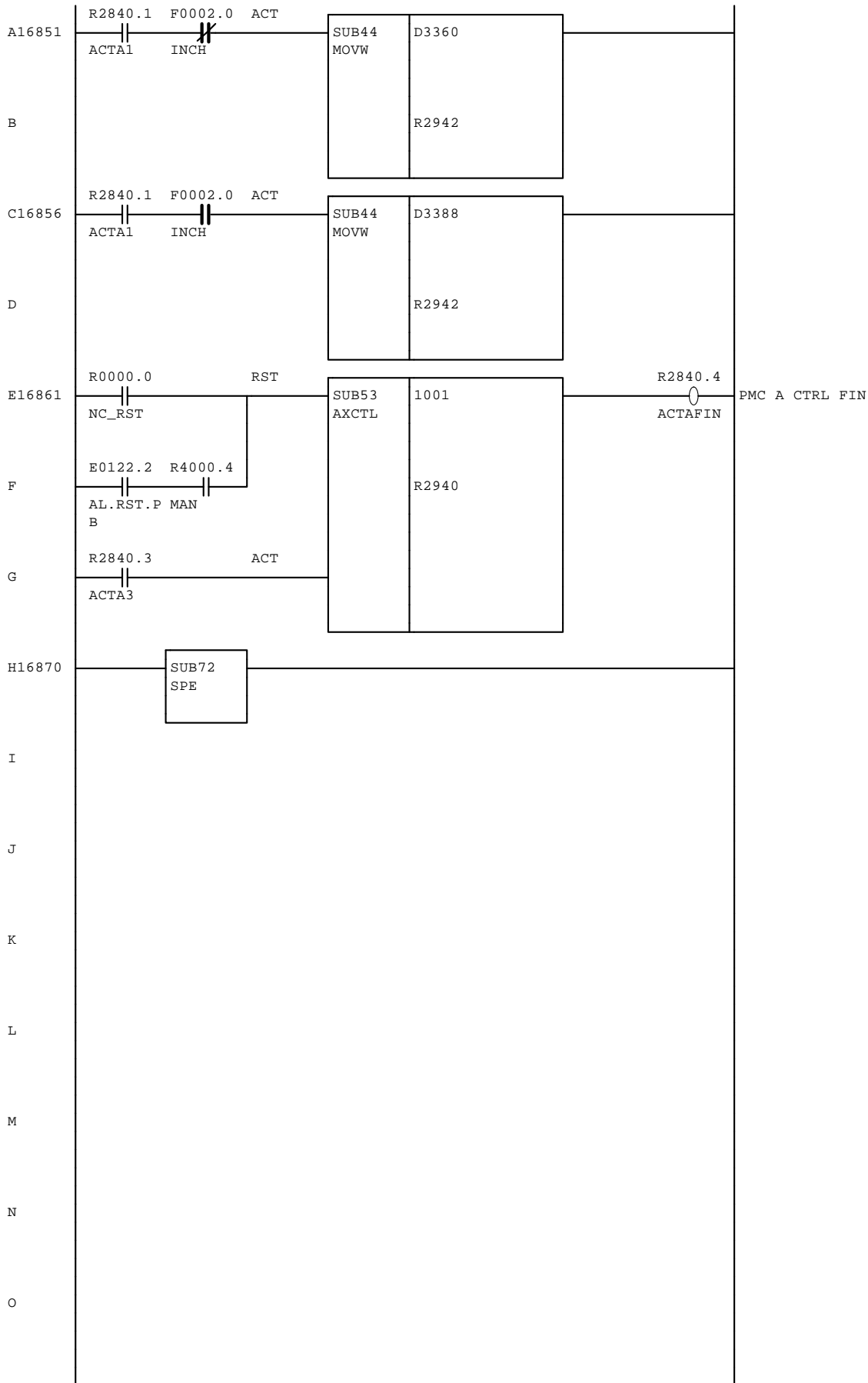


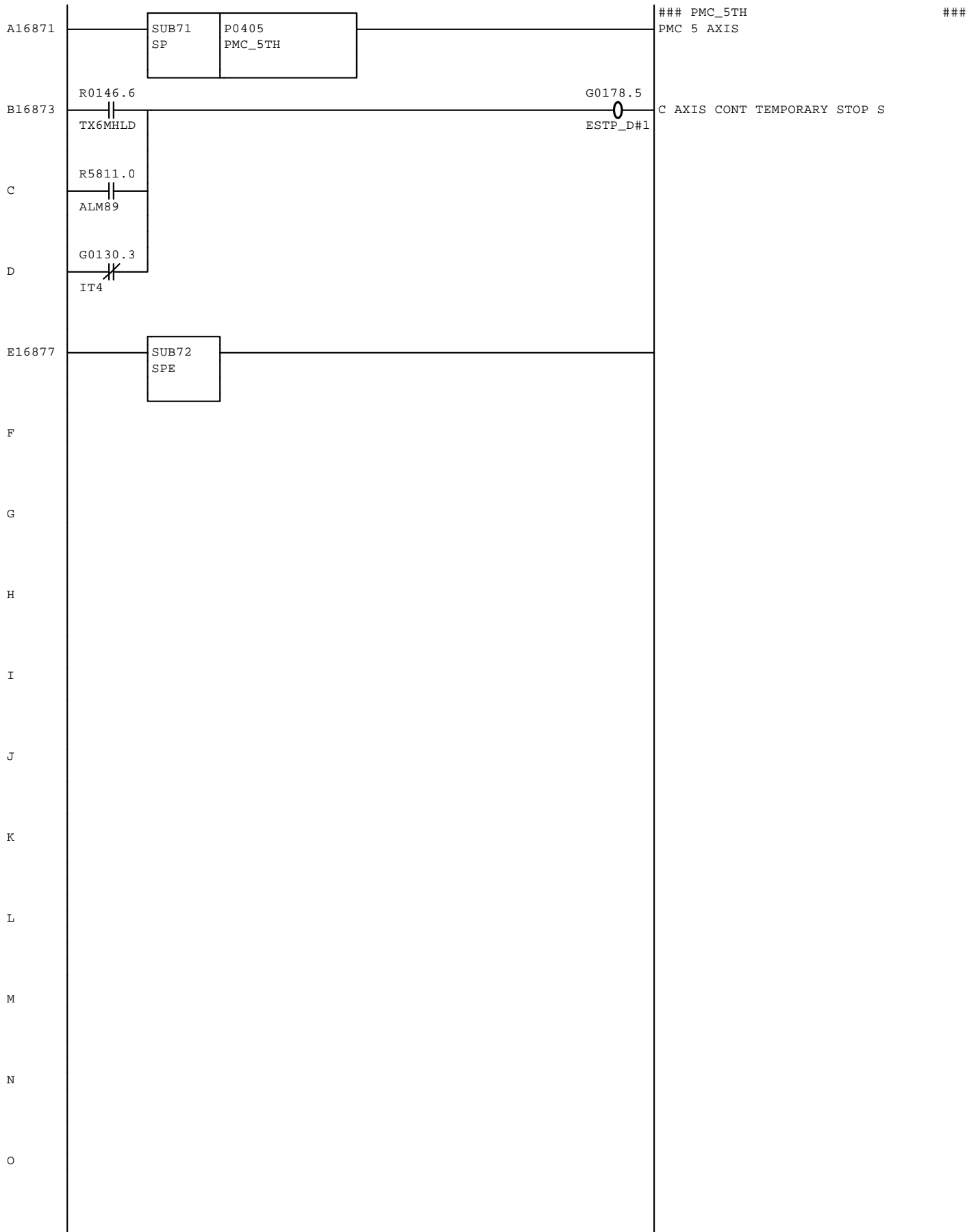


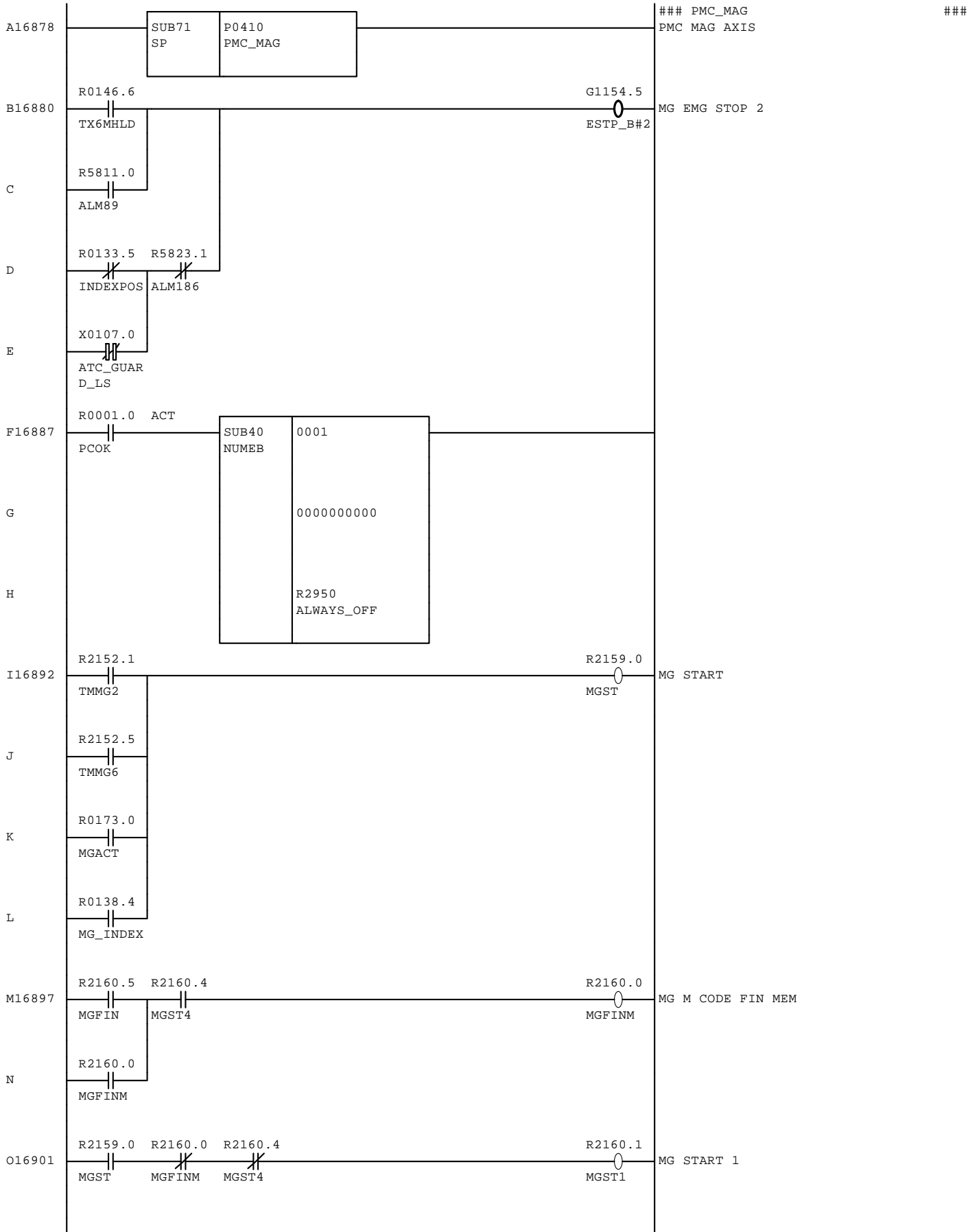


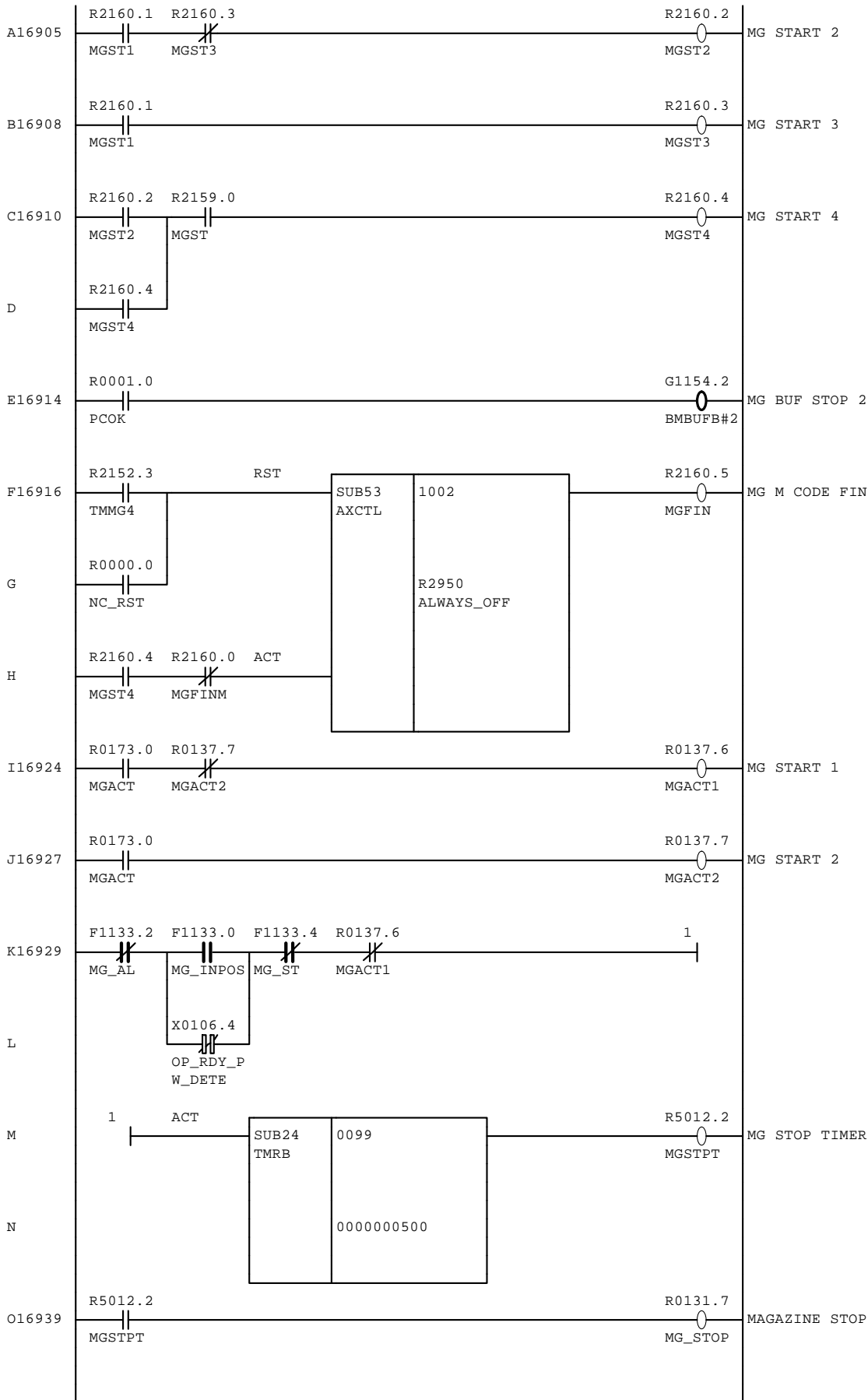


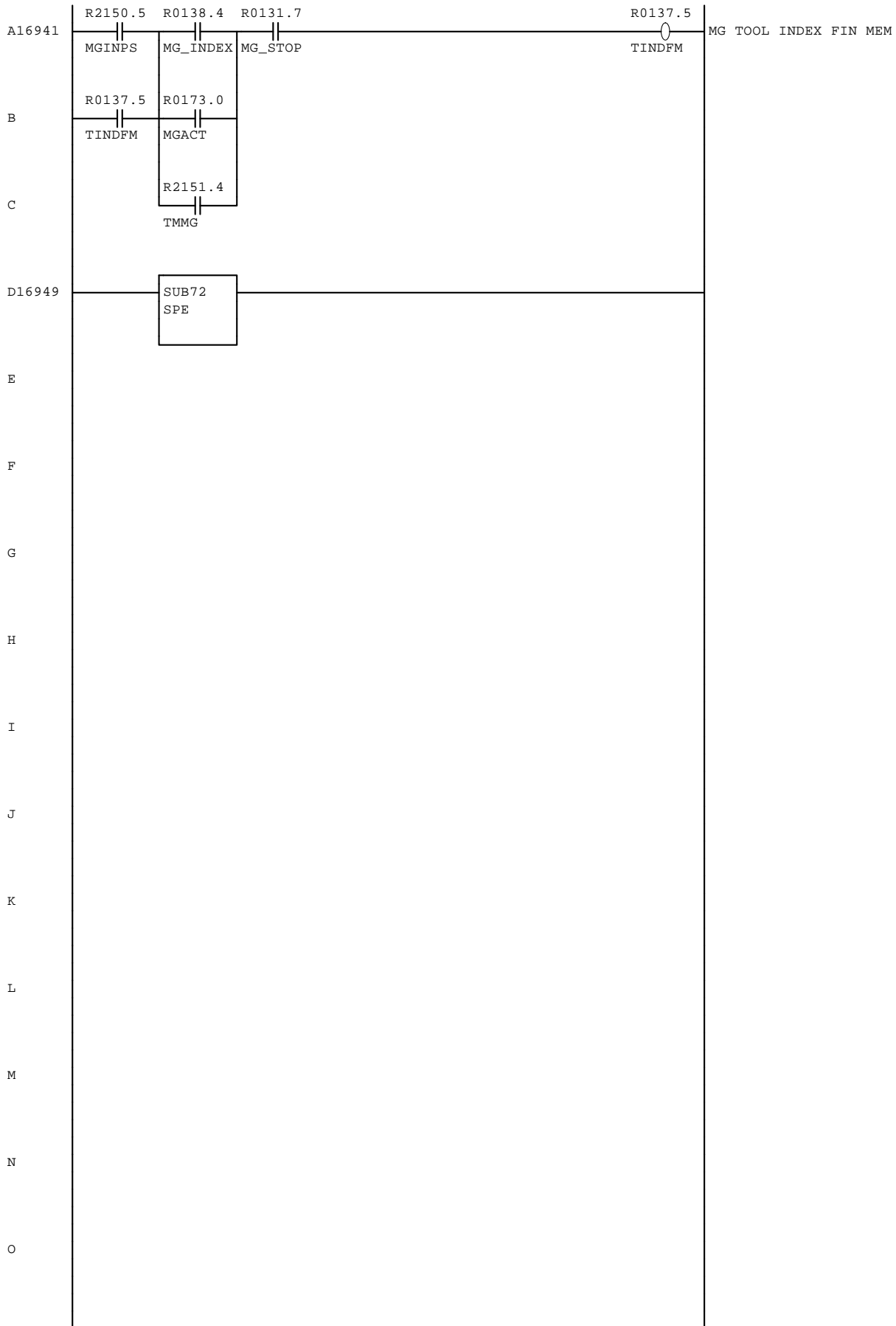


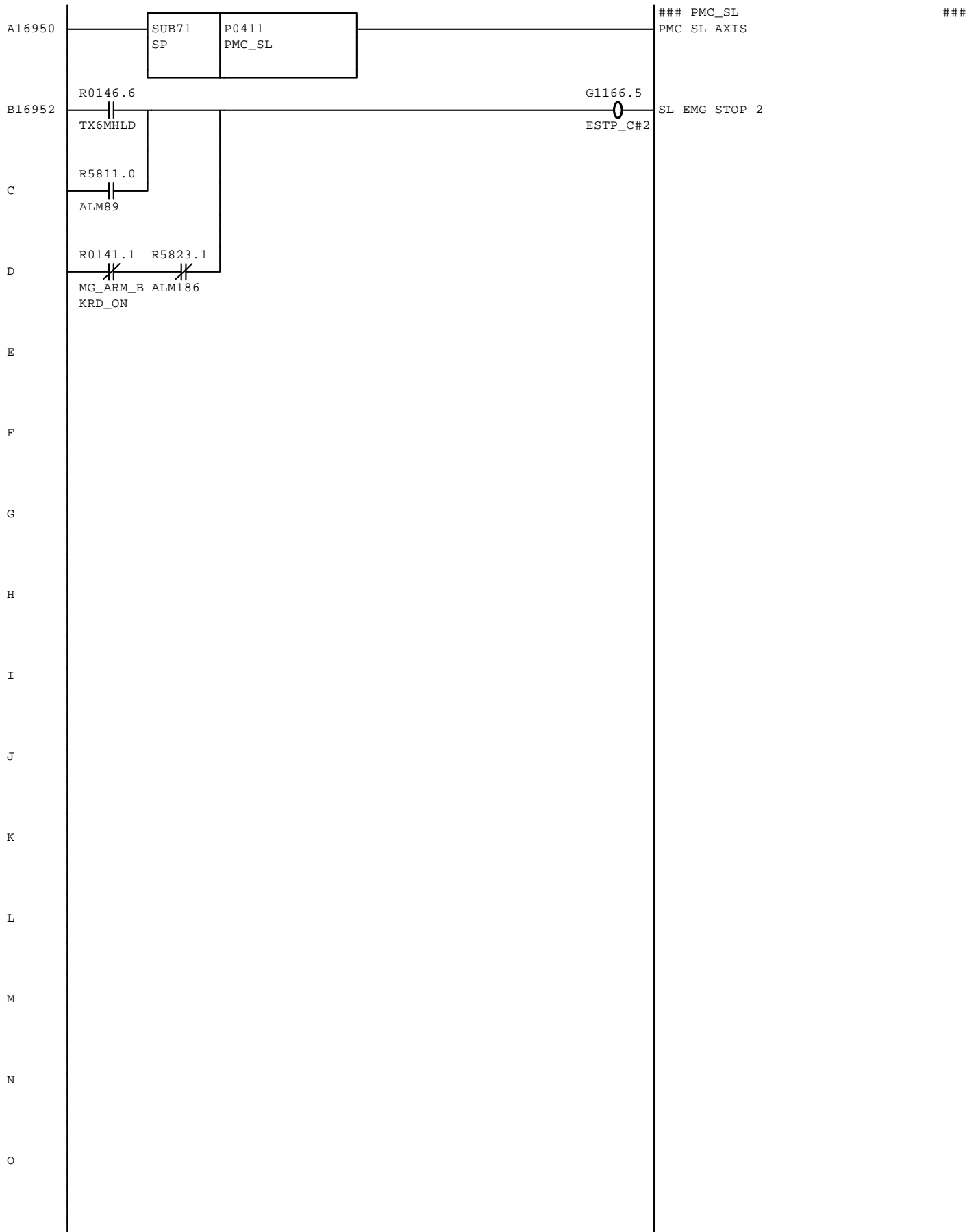


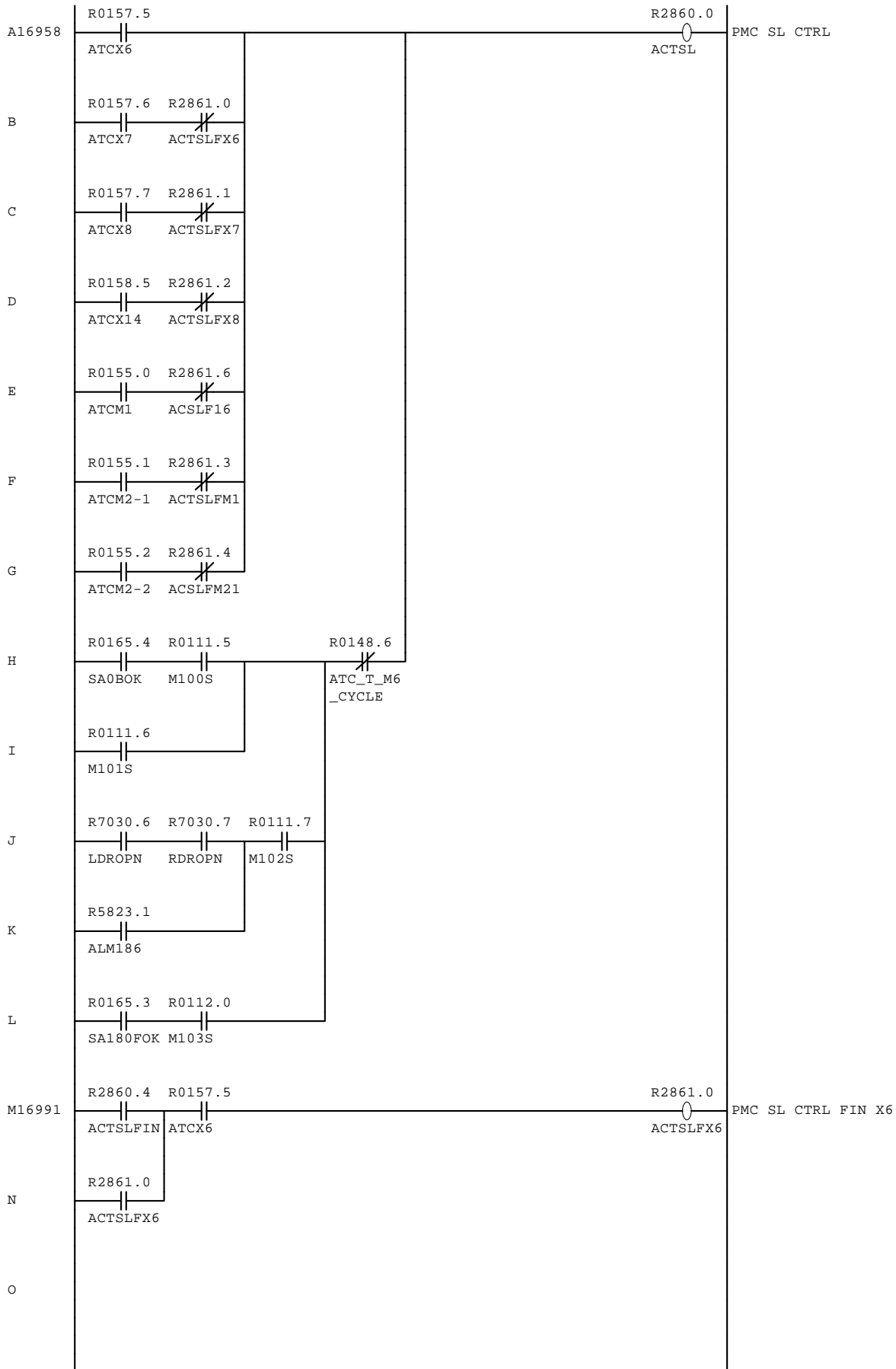


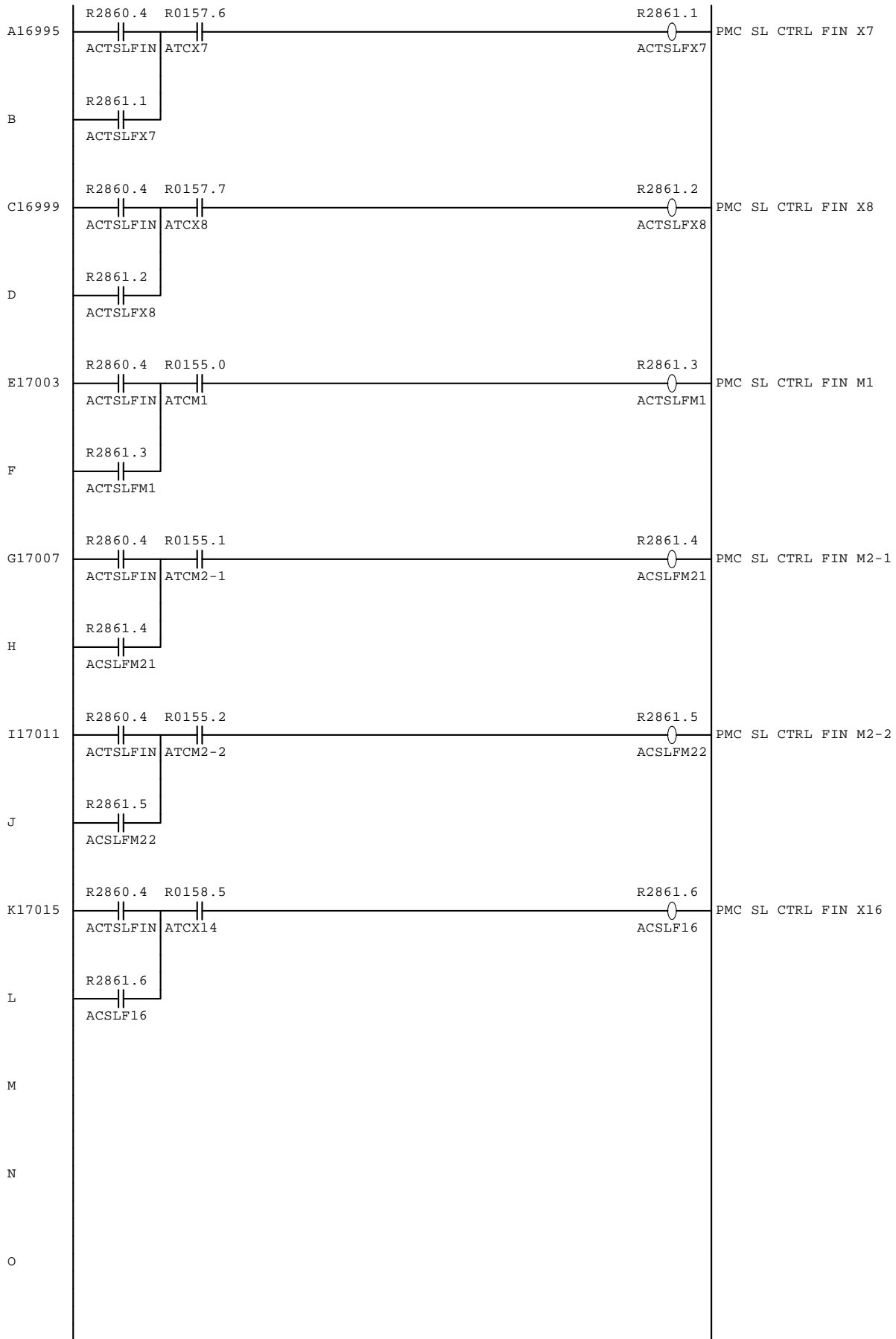


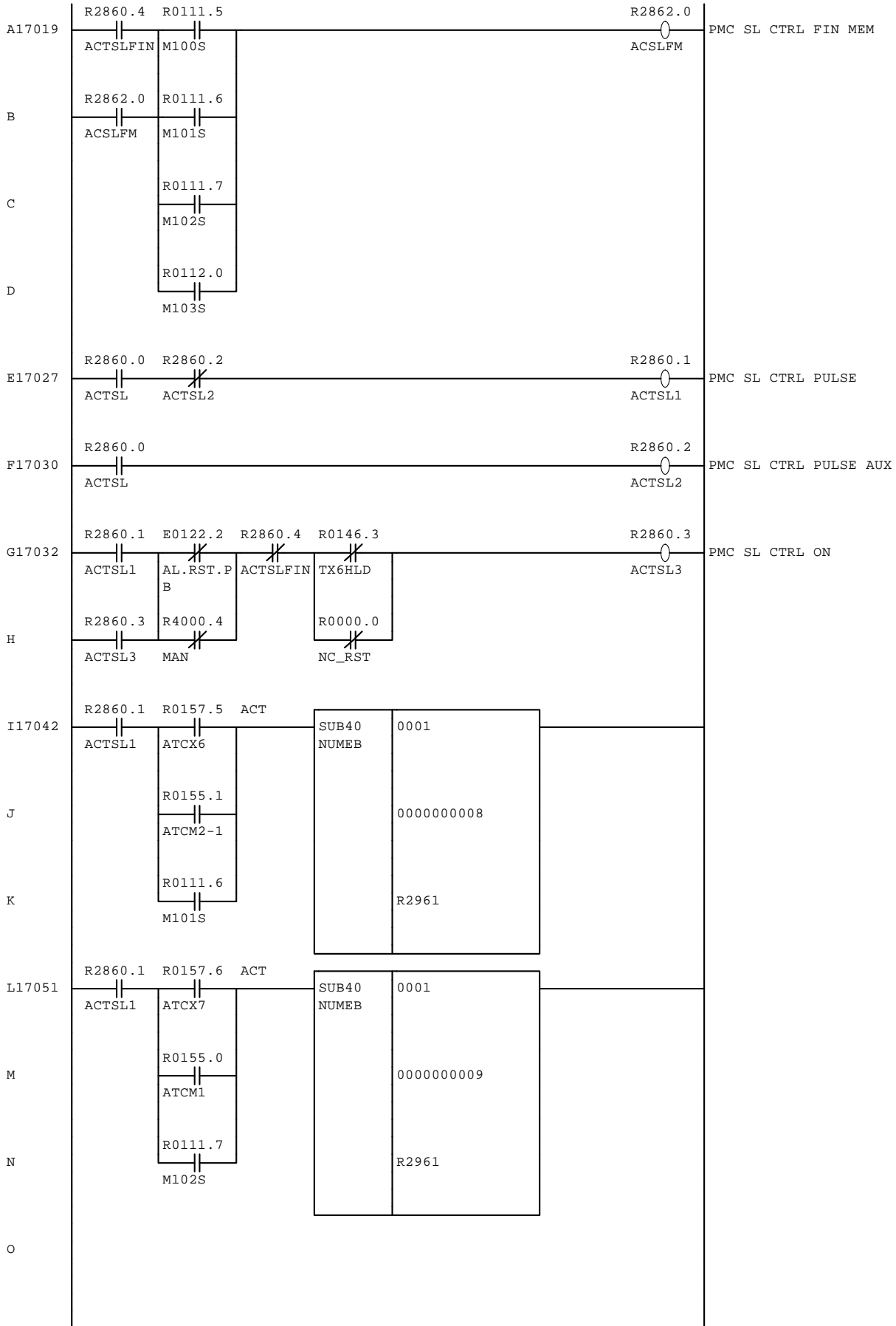


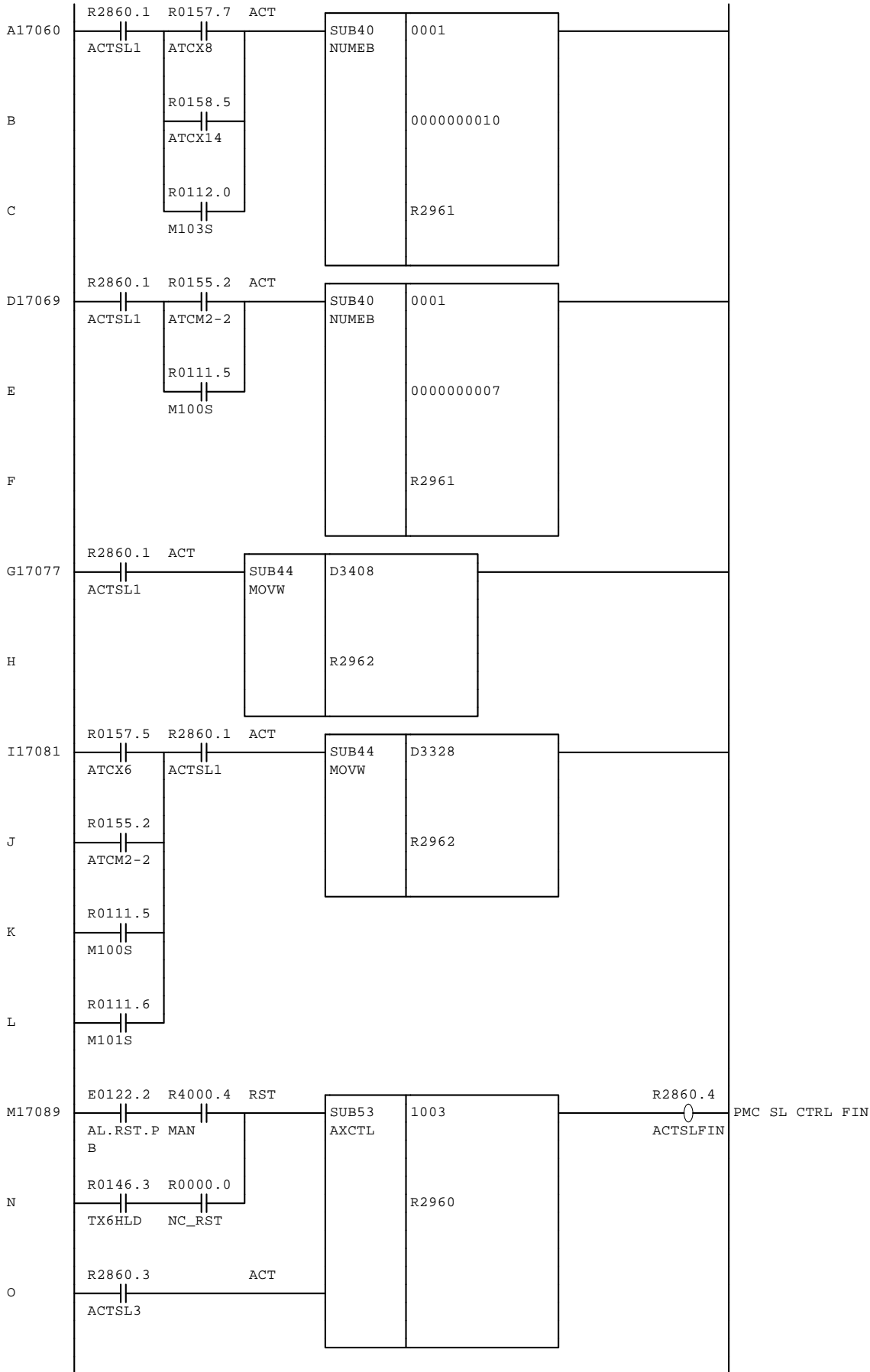


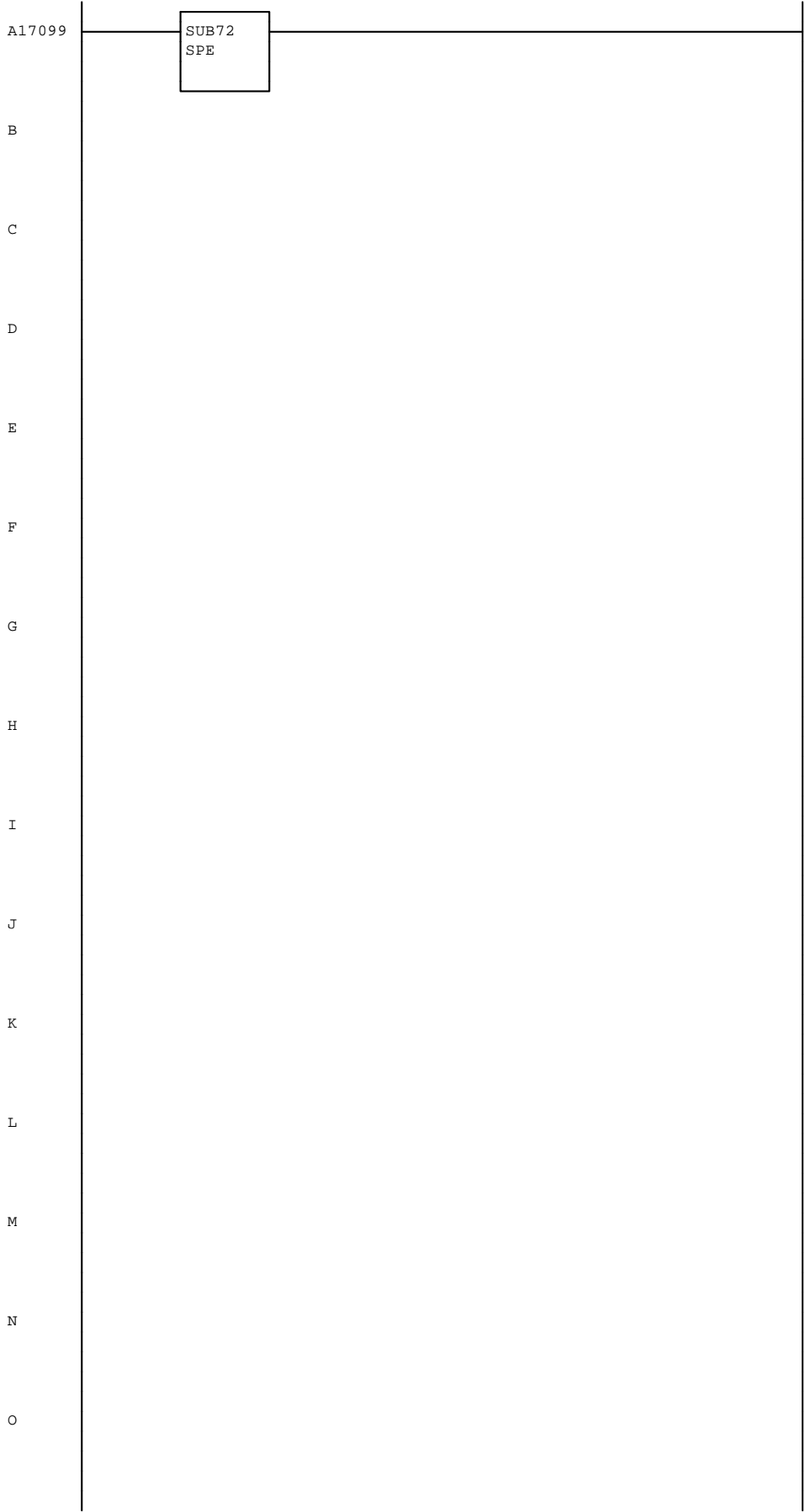


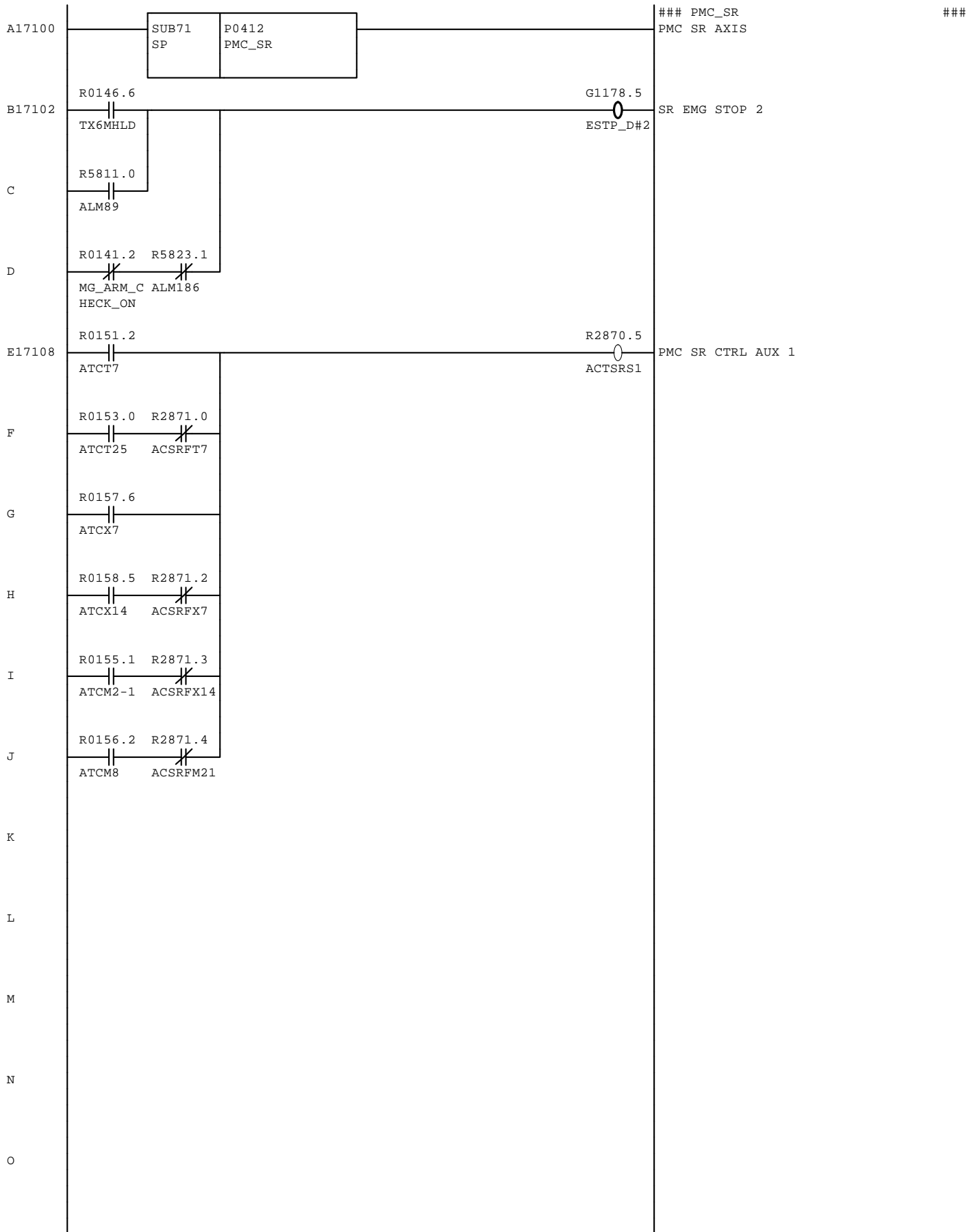


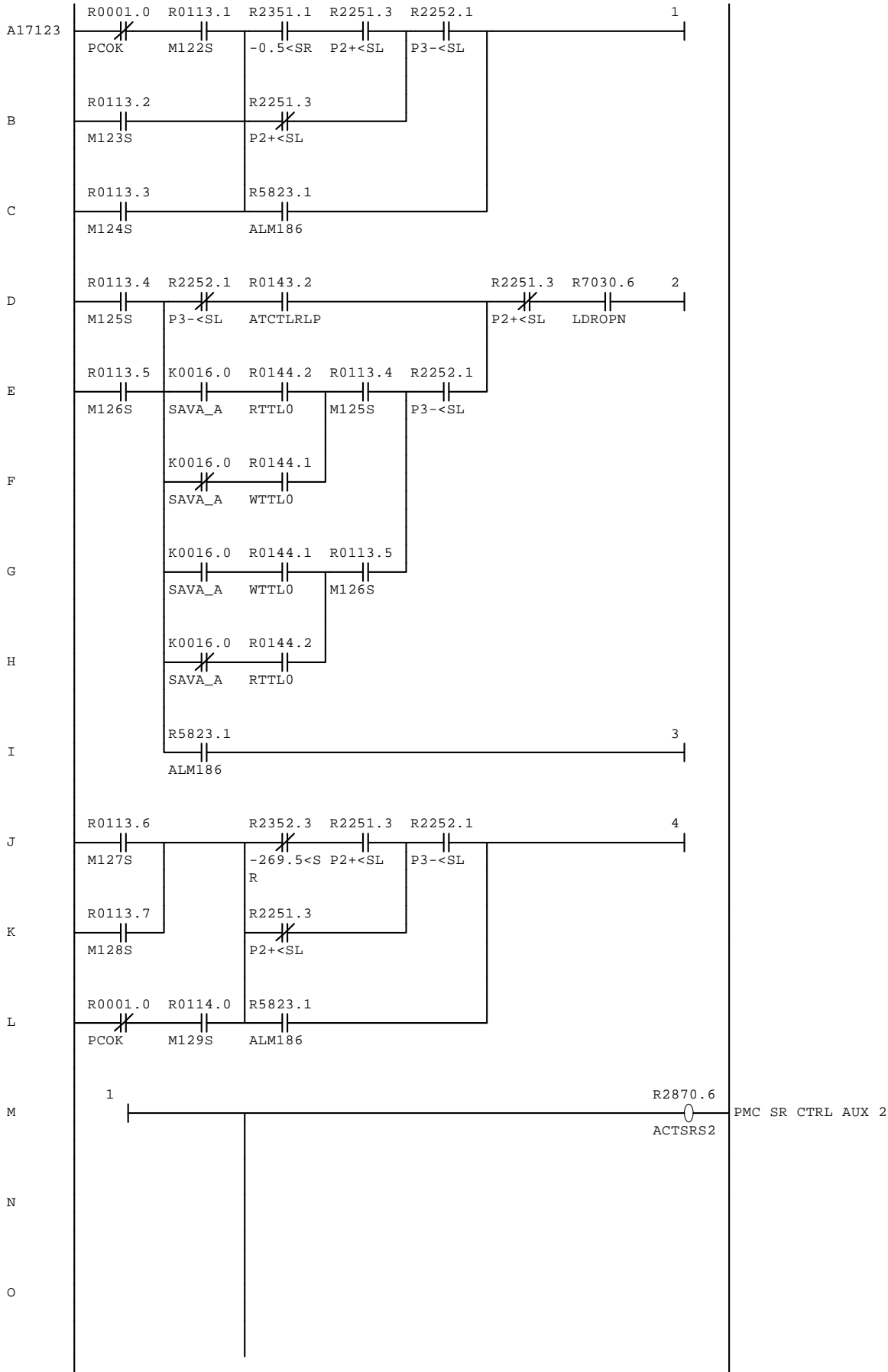


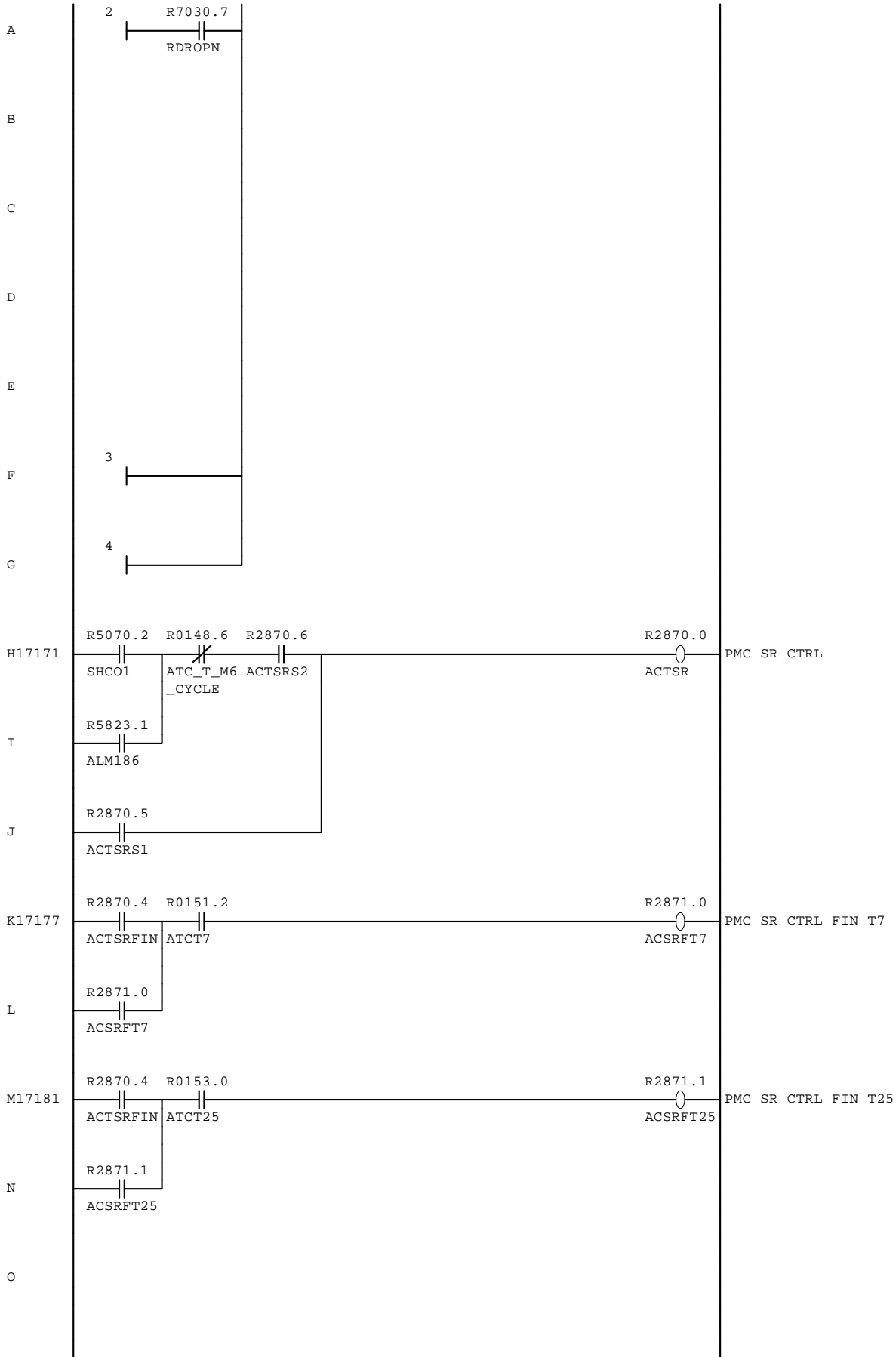


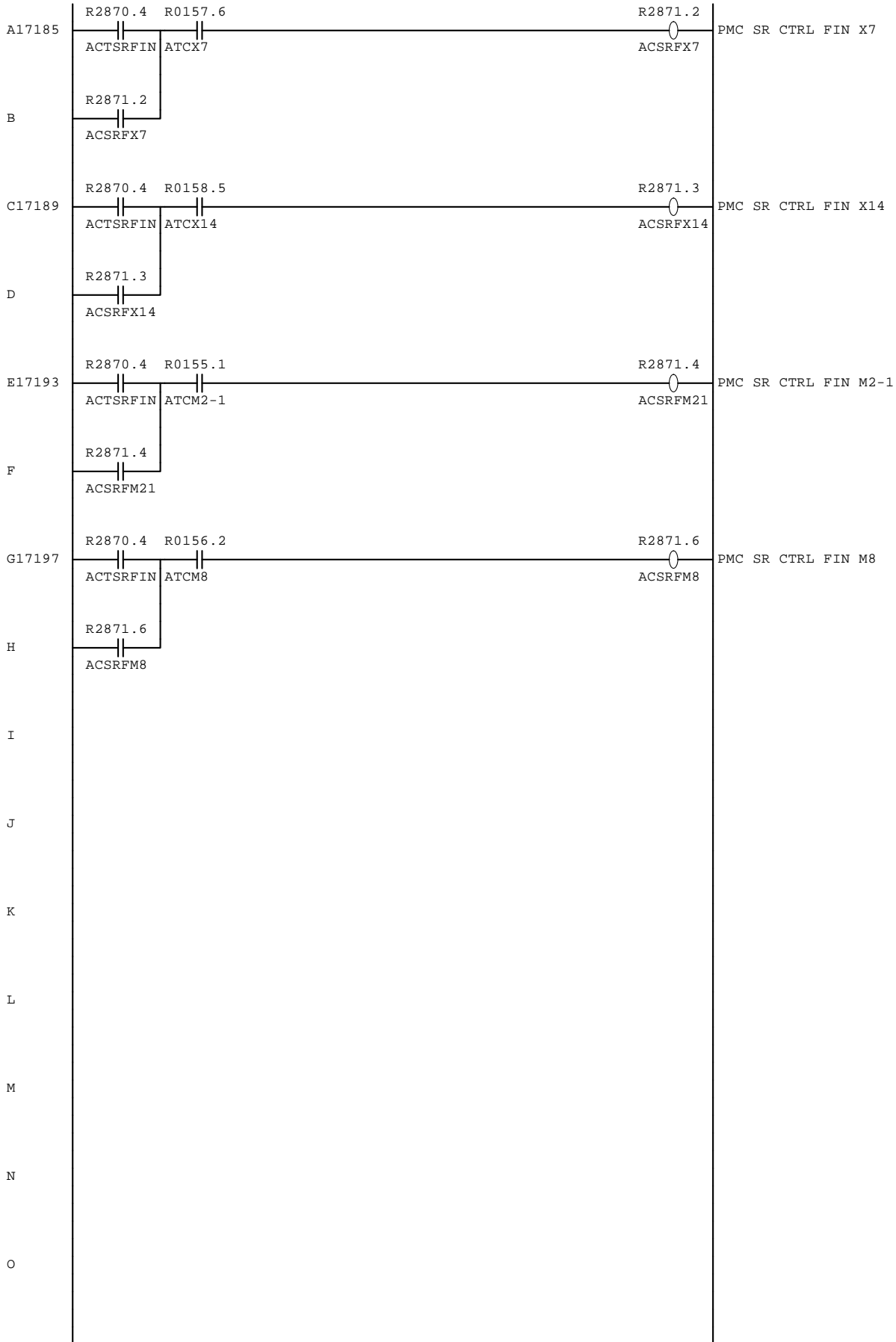


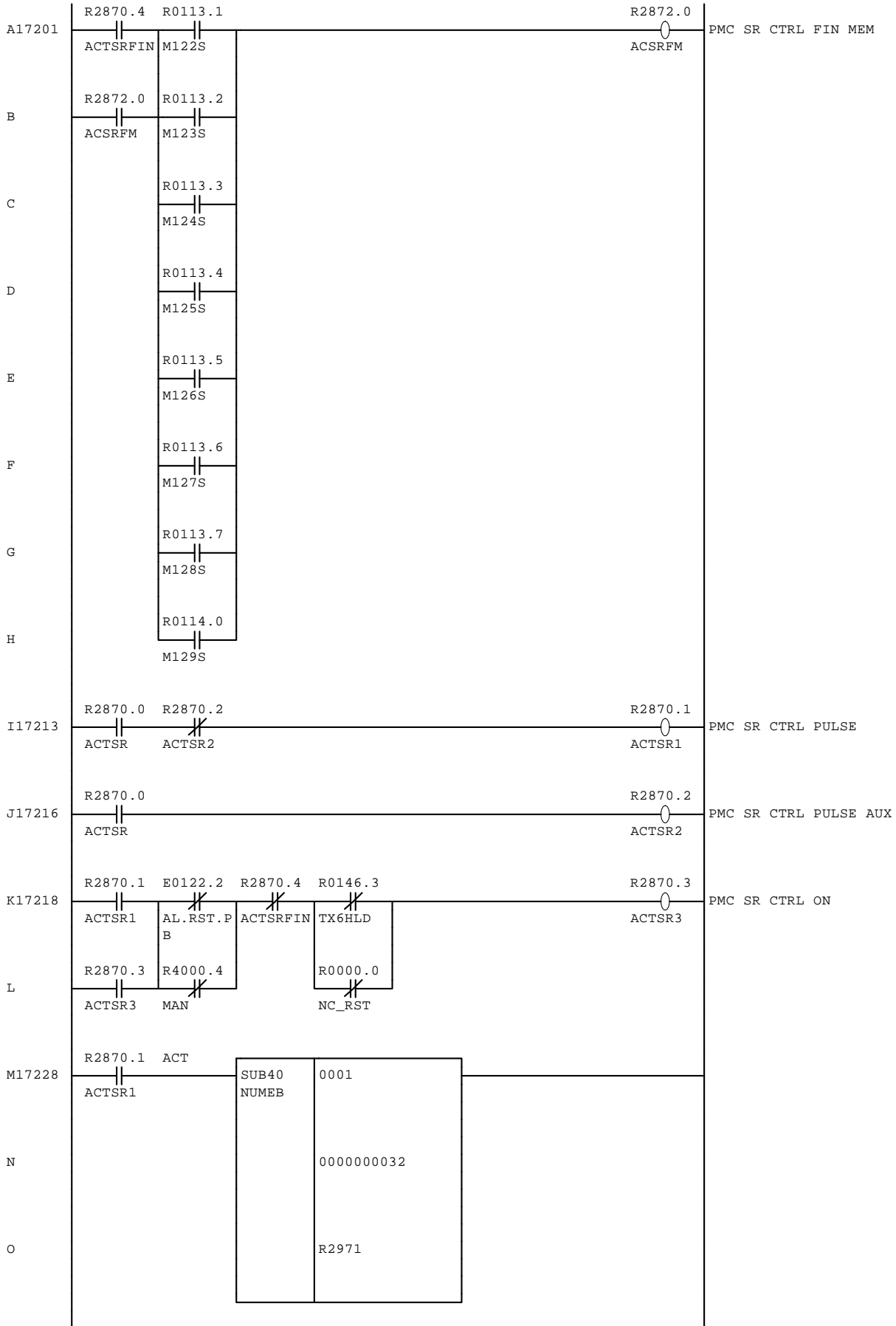


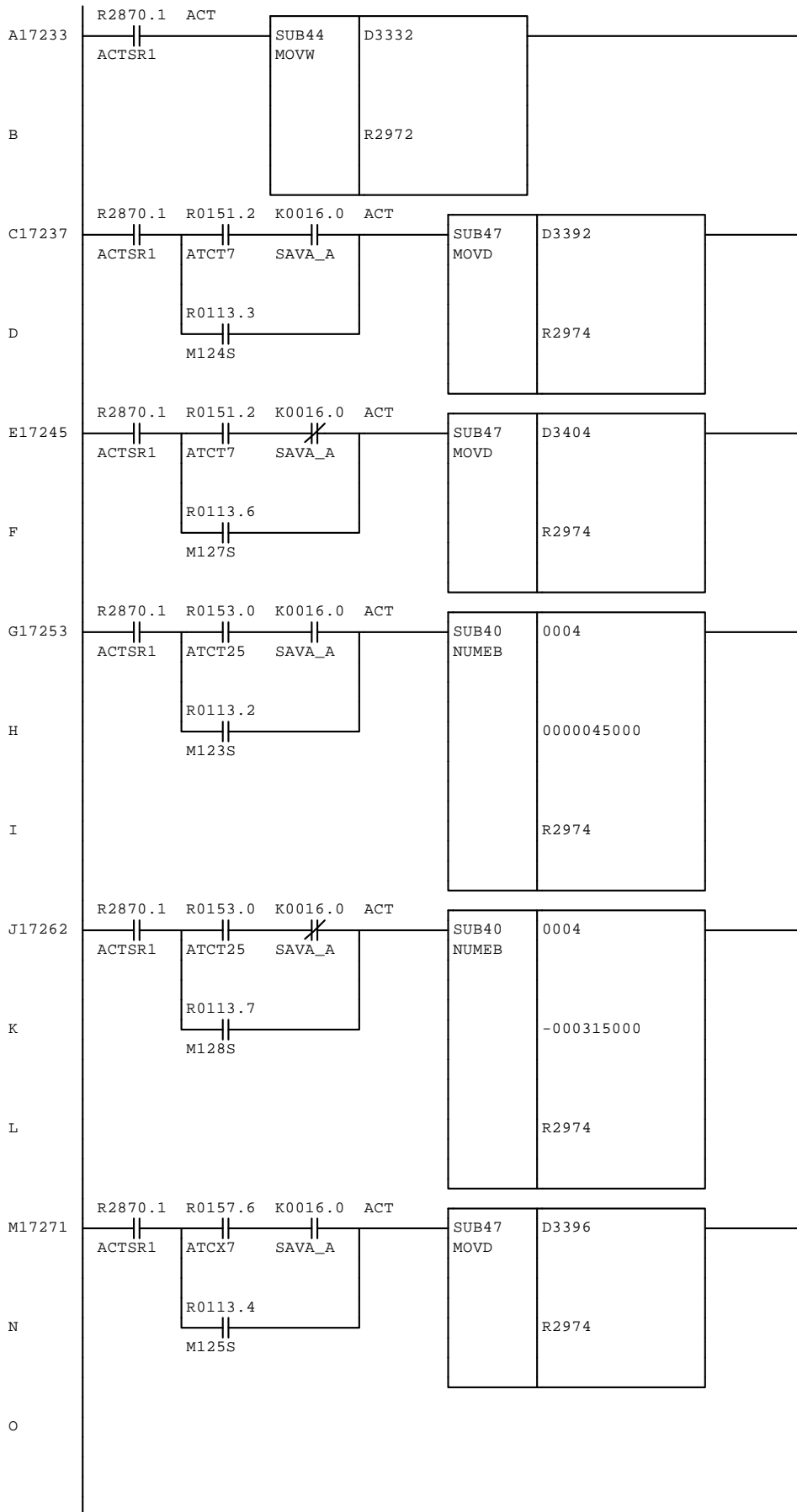


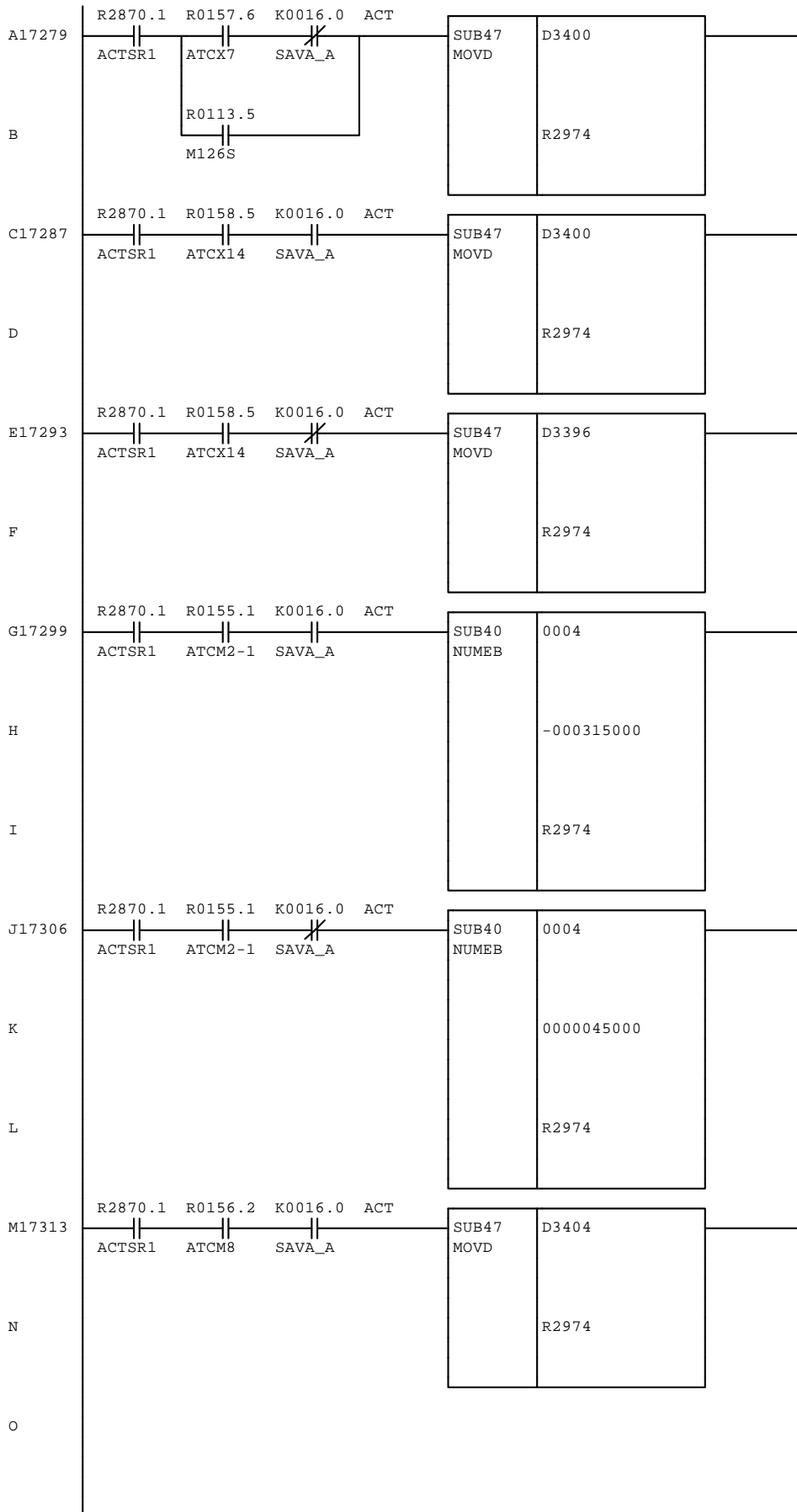


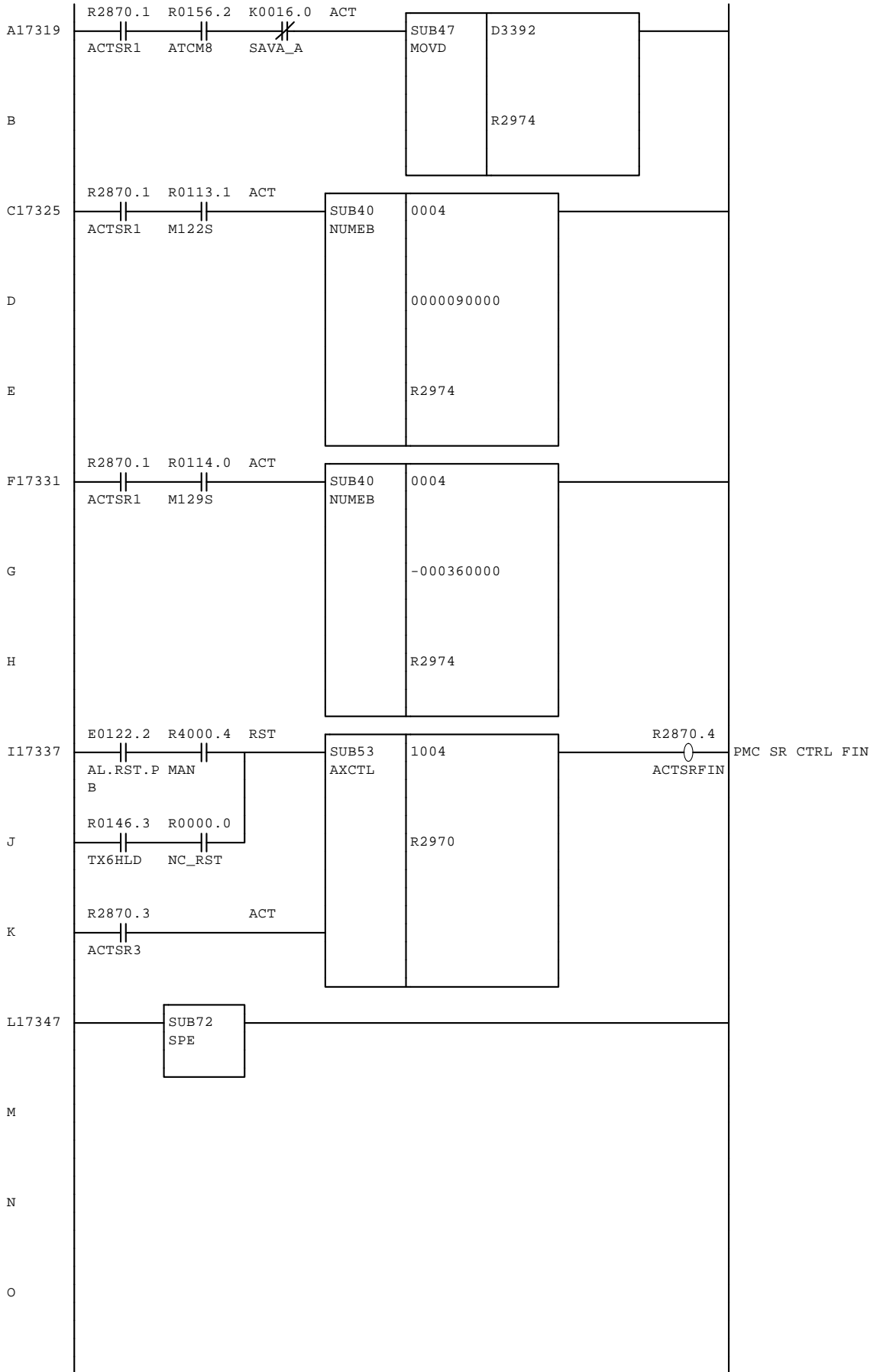












NO.	ADDRESS	MESSAGE
0001	A000.0	1000 HEAT EXCHANGER OVER LOAD : QF9
0002	A000.1	
0003	A000.2	
0004	A000.3	
0005	A000.4	1004 SPINDLE FAN OVER LOAD : QM0
0006	A000.5	
0007	A000.6	
0008	A000.7	
0009	A001.0	1010 PROBE IMPACT!!! (RESET TO RELEASE)
0010	A001.1	
0011	A001.2	
0012	A001.3	
0013	A001.4	
0014	A001.5	
0015	A001.6	
0016	A001.7	
0017	A002.0	1020 COOLANT MOTOR OVER LOAD : QM1
0018	A002.1	
0019	A002.2	
0020	A002.3	1023 HYDRAULIC MOTOR OVER LOAD : QM5
0021	A002.4	1024 GREASE PUMP MOTOR OVER LOAD : QM8
0022	A002.5	
0023	A002.6	1026 CHIP FLUSH MOTOR OVER LOAD : QM6
0024	A002.7	
0025	A003.0	1030 CTS MOTOR OVER LOAD : QM7
0026	A003.1	1031 CTS PRESSURE ERROR!
0027	A003.2	
0028	A003.3	
0029	A003.4	
0030	A003.5	1035 CHIP CONVEYOR MOTOR OVER LOAD : QM3
0031	A003.6	1036 CHIP FLASH MOTOR OVER LOAD : QM6
0032	A003.7	1037 CHIP CONVEYOR MOTOR OVER LOAD : QM2
0033	A004.0	
0034	A004.1	1041 SPINDLE OIL COOLER OVER LOAD : QF10
0035	A004.2	
0036	A004.3	
0037	A004.4	
0038	A004.5	
0039	A004.6	
0040	A004.7	1047 COOLANT MOTOR OVER LOAD : QM1
0041	A005.0	
0042	A005.1	
0043	A005.2	1052 OIL SKIMMER OVER LOAD : QM20
0044	A005.3	
0045	A005.4	
0046	A005.5	
0047	A005.6	
0048	A005.7	
0049	A006.0	1060 MAGAZINE POT EMPTY ALARM
0050	A006.1	1061 SUB-OPERATION BOARD VALID
0051	A006.2	1062 ATC DOOR OPEN ALARM
0052	A006.3	1063 MAGAZINE RETURN ALARM
0053	A006.4	1064 MAGAZINE MAINTENANCE MODE ON
0054	A006.5	
0055	A006.6	
0056	A006.7	
0057	A007.0	1070 SPINDLE EMPTY ALARM
0058	A007.1	2070 SPINDLE WARM-UP
0059	A007.2	
0060	A007.3	
0061	A007.4	1074 SPINDLE ORIENT ALARM
0062	A007.5	
0063	A007.6	1076 SPINDLE ROTATE ALARM
0064	A007.7	1077 SPINDLE CLAMP/UNCLAMP ALARM
0065	A008.0	1080 SPINDLE TEST MODE
0066	A008.1	1081 SPINDLE EQUIPMENT ALARM
0067	A008.2	1082 SPINDLE OIL & AIR DATA ALARM
0068	A008.3	
0069	A008.4	
0070	A008.5	
0071	A008.6	

NO.	ADDRESS	MESSAGE
0072	A008.7	1087 OPERATION DOOR OPEN ALARM
0073	A009.0	1090 Y AXIS COVER OPEN ALARM
0074	A009.1	
0075	A009.2	
0076	A009.3	
0077	A009.4	
0078	A009.5	
0079	A009.6	
0080	A009.7	
0081	A010.0	
0082	A010.1	
0083	A010.2	
0084	A010.3	
0085	A010.4	
0086	A010.5	
0087	A010.6	
0088	A010.7	
0089	A011.0	
0090	A011.1	
0091	A011.2	
0092	A011.3	
0093	A011.4	
0094	A011.5	
0095	A011.6	
0096	A011.7	
0097	A012.0	1120 MAG (C0) SETTING ERROR!
0098	A012.1	1121 ATC (D52)SETTING ERROR!
0099	A012.2	1122 MAG (D51) SETTING ERROR!
0100	A012.3	1123 POT (C2) SETTING ERROR!
0101	A012.4	1124 SP TOOL (D440) SETTING ERROR!
0102	A012.5	
0103	A012.6	
0104	A012.7	
0105	A013.0	1130 ATC NOT READY!
0106	A013.1	1131 TF<= 0 COMMAND ERROR!
0107	A013.2	1132 TF IS NOTHING IN TOOL BOX!
0108	A013.3	1133 M6 SWAP POSITION MISSED!
0109	A013.4	1134 TOOL LIFE EXHAUST!
0110	A013.5	1135 MAG NOT INPOSITION!
0111	A013.6	1136 TOOL SEARCH FAILED!
0112	A013.7	1137 M6 POT V ERROR!
0113	A014.0	1140 M6 ARM L.S ERROR!
0114	A014.1	1141 M6 SPINDLE UNCLAMP ERROR!
0115	A014.2	1142 M6 SPINDLE CLAMP ERROR!
0116	A014.3	1143 NONE TF COMMAND!
0117	A014.4	1144 ARM MOTOR OVER LOAD : QM3
0118	A014.5	1145 MAG MOTOR OVER LOAD : QM4@0A@
0119	A014.6	
0120	A014.7	
0121	A015.0	2150 TOOL SEARCHING INTERRUPTED!
0122	A015.1	2151 MAGAZINE SAFETY DOOR NOT CLOSE!
0123	A015.2	
0124	A015.3	
0125	A015.4	
0126	A015.5	
0127	A015.6	
0128	A015.7	2157 ATC SERVICE MODE
0129	A016.0	
0130	A016.1	
0131	A016.2	
0132	A016.3	
0133	A016.4	
0134	A016.5	
0135	A016.6	1166 EXTERNAL COOLANT TANK LEVEL LOW
0136	A016.7	
0137	A017.0	
0138	A017.1	
0139	A017.2	
0140	A017.3	
0141	A017.4	
0142	A017.5	1175 SPINDLE LUBE OIL LEVEL LOW

NO.	ADDRESS	MESSAGE
0143	A017.6	1176 SPINDLE LUBE OIL PRESSURE ERROR
0144	A017.7	1177 AIR PRESSURE LOW ALARM
0145	A018.0	
0146	A018.1	1181 GREASE PUMP LEVEL LOW
0147	A018.2	1182 GREASE PUMP PRESSURE LOW
0148	A018.3	1183 COOLANT TANK LEVEL LOW
0149	A018.4	
0150	A018.5	
0151	A018.6	1186 SPINDLE COOLER ALARM
0152	A018.7	
0153	A019.0	
0154	A019.1	
0155	A019.2	
0156	A019.3	
0157	A019.4	
0158	A019.5	
0159	A019.6	
0160	A019.7	1197 TOOL LIFE FULL
0161	A020.0	1200 TOOL BROKEN DETECT ALARM
0162	A020.1	
0163	A020.2	1202 TOUCH SENSOR ALARM
0164	A020.3	
0165	A020.4	
0166	A020.5	
0167	A020.6	
0168	A020.7	
0169	A021.0	
0170	A021.1	
0171	A021.2	
0172	A021.3	
0173	A021.4	
0174	A021.5	
0175	A021.6	
0176	A021.7	
0177	A022.0	
0178	A022.1	
0179	A022.2	
0180	A022.3	
0181	A022.4	
0182	A022.5	
0183	A022.6	
0184	A022.7	
0185	A023.0	
0186	A023.1	
0187	A023.2	
0188	A023.3	
0189	A023.4	
0190	A023.5	
0191	A023.6	
0192	A023.7	
0193	A024.0	
0194	A024.1	
0195	A024.2	
0196	A024.3	
0197	A024.4	
0198	A024.5	1245 AIR PRESSURE SWITCH OFF ALARM
0199	A024.6	
0200	A024.7	
0201	A025.0	
0202	A025.1	
0203	A025.2	
0204	A025.3	
0205	A025.4	
0206	A025.5	
0207	A025.6	
0208	A025.7	
0209	A026.0	
0210	A026.1	
0211	A026.2	
0212	A026.3	
0213	A026.4	

NO.	ADDRESS	MESSAGE
0214	A026.5	
0215	A026.6	
0216	A026.7	
0217	A027.0	
0218	A027.1	
0219	A027.2	
0220	A027.3	
0221	A027.4	
0222	A027.5	
0223	A027.6	
0224	A027.7	
0225	A028.0	
0226	A028.1	
0227	A028.2	
0228	A028.3	
0229	A028.4	
0230	A028.5	
0231	A028.6	
0232	A028.7	
0233	A029.0	
0234	A029.1	
0235	A029.2	
0236	A029.3	
0237	A029.4	
0238	A029.5	
0239	A029.6	
0240	A029.7	
0241	A030.0	1301 TC60 BETTERY LOW
0242	A030.1	1302 TC60 ERROR
0243	A030.2	
0244	A030.3	
0245	A030.4	
0246	A030.5	
0247	A030.6	
0248	A030.7	
0249	A031.0	
0250	A031.1	
0251	A031.2	
0252	A031.3	
0253	A031.4	
0254	A031.5	
0255	A031.6	
0256	A031.7	
0257	A032.0	
0258	A032.1	
0259	A032.2	
0260	A032.3	
0261	A032.4	
0262	A032.5	
0263	A032.6	
0264	A032.7	
0265	A033.0	
0266	A033.1	
0267	A033.2	
0268	A033.3	
0269	A033.4	
0270	A033.5	
0271	A033.6	
0272	A033.7	
0273	A034.0	
0274	A034.1	
0275	A034.2	
0276	A034.3	
0277	A034.4	
0278	A034.5	
0279	A034.6	
0280	A034.7	
0281	A035.0	
0282	A035.1	
0283	A035.2	
0284	A035.3	

NO.	ADDRESS	SYMBOL	FIRST COMMENT
00001	X0000.0	IB_SP_UC	SP UNCLAMP BUTON
00002	X0000.1	IS_SPCL	SP CLAMP WITH TOOL SENSOR
00003	X0000.2	IS_SPUC	SP UNCLAMP SENSOR
00004	X0000.3	I_ARM_BK	ARM BRAKE SIGNAL
00005	X0000.4	I_ARM_UC	ARM SP UN/CLAMP SIGNAL
00006	X0000.6	I_ARM_HOME	ARM HOME SIGNAL
00007	X0001.2	HYD_TEMP_DETE	HYDRAULIC THERMAL DETECT
00008	X0001.3	IS_MAG_FWD	MAG FORWARD SW
00009	X0001.4	IS_MAG_BK	MAG BACKWARD SW
00010	X0001.5	I_GR_LSW	GREASE LEVEL LOW
00011	X0001.6	I_GR_PSW	GREASE PRESSURE SWITCH
00012	X0001.7	I_SPFAN_OL	SP FAN OL
00013	X0002.0	I_COL_OL	COOLANT OL
00014	X0002.1	I_CP_OL	CHIP CON MOTOR OL
00015	X0002.2	IS_ARM_OL	ARM MOTOR O.L
00016	X0002.3	IS_MAG_OL	MAG MOTOR O.L
00017	X0002.4	I_SKIM_OL	SKIMMER MOTOR OL
00018	X0002.5	IS_OA_APS	O&A END AIR P.S SW
00019	X0002.6	I_LUBE_OL	LUBE MOTOR OL
00020	X0002.7	I_HYDR_OL	HYDRAULIC MOTOR OL
00021	X0003.0	IS_SP_GH	SP GEAR HIGH SW
00022	X0003.1	IS_SP_GL	SP GEAR LOW SW
00023	X0003.2	IS_SPCN	SP CLAMP WITHOUT TOOL
00024	X0003.4	IS_MG_T_DET	MAG TOOL DETECT SENSOR
00025	X0003.5	IS_SPOA_L	SP OIL AIR LUBE LEVEL
00026	X0003.6	IS_SPOA_PS	SP OOIL AIR PRESSURE SW
00027	X0003.7	I_SP_OA_BPS	SP OIL AIR BUS PRESSURE
00028	X0004.0	IS_ATD_OPL	ATC DOOR OPEN LEFT
00029	X0004.1	IS_ATD_CLL	ATC DOOR CLOSE LEFT
00030	X0004.2	IS_ATD_OPR	ATC DOOR OPEN RIGHT
00031	X0004.3	IS_ATD_CLR	ATC DOOR CLOSE RIGHT
00032	X0004.4	IS_YL_SW	Y LEFT COVER SENSOR
00033	X0004.5	IS_YR_SW	Y RIGHT COVER SENSOR
00034	X0005.5	IS_A_CL	A AXIS CLAMP SENSOR
00035	X0005.7	IS_C_CL	C CLAMP SENSOR
00036	X0007.0	IS_ATC_PN_SW	ATC PANEL SW
00037	X0007.7	IB_E_MGCW	EXT. MAG CW PB
00038	X0008.0	IS_OA_EPS	O&A END OIL PS SW
00039	X0008.1	I_CTS_OL	C.T.S OL
00040	X0008.3	I_CCOL_OL	CHIP COOLANT OL
00041	X0008.4	EMG_STOP	EMERGENCY STOP SW
00042	X0008.5	IS_AIR_DET	AIR PRESSURE SW
00043	X0008.6	IS_LB_ZP	LUBE Z PRESSURE SW
00044	X0009.4	OIL.C	OIL COOLER ALARM
00045	X0009.5	I_X95	
00046	X0009.6	I_SCL_OL	EXT. SP COOLER OL
00047	X0009.7	I_HEAT_OL	HEAT EXCHANGE OL
00048	X0010.0	IB_E_MGCCW	EXT. MAG CCW PB
00049	X0010.1	IB_SUB_ST	SUB START PB
00050	X0010.6	IS_PB_BL	PROBE BATTERY LOW
00051	X0010.7	IS_PB_ER	PROBE ERROR
00052	X0011.2	IS_FDR	FRONT DOOR SW
00053	X0011.6	IE_OIL.C	OIL COOLER ALARM
00054	X0011.7	IE_HEAT_OL	HEAT EXCHANGE OL
00055	X0012.2	SP_OIL&AIR_THEAL	SPINDLE OIL&AIR THERMAL
00056	X0012.3	OPTION20	SPARE
00057	X0012.4	OPTION21	SPARE
00058	X0019.0	CLE_TAK_LW_LEV	CLEAN TANK LOW LEV L.S
00059	X0020.0	AFL_B	M.S.T LOCK PB
00060	X0020.1	F1_PB	F1 PB
00061	X0020.2	TCHG_PB	SP UNCLAMP PB
00062	X0020.3	CP_CCWPB	CHIP CON CCW PB
00063	X0020.4	MLK_PB1	MACHINE LOCK PB
00064	X0020.5	3D_CHK_PB	3D CHECK PB
00065	X0020.6	MAG_LR_PB	MAG L/R PB
00066	X0020.7	CP_CWPB	CHIP CON CW PB
00067	X0021.0	BLD_PB	BLOCK SKIP PB
00068	X0021.1	OVC_PB	OVERRIDE CANCEL PB
00069	X0021.2	SP_UC_PB	SP TOOL UNCLAMP PB
00070	X0021.3	APO_PBI	AUTO POWER OFF PB
00071	X0021.4	PRST_PB	PG RESTART PB

NO.	ADDRESS	SYMBOL	FIRST COMMENT
00072	X0021.5	BLAST_PB	AIR BLOW PB
00073	X0021.7	WL_PB	WORK LIGHT PB
00074	X0022.0	OPT_PB	OPTION STOP PB
00075	X0022.1	CTS_PB	C.T.S PB
00076	X0022.2	ALRST_PB	ALARM RESET PB
00077	X0022.3	DOOR_PB	DOOR PB
00078	X0022.4	DRY_PB	DRYRUN PB
00079	X0022.5	FLASH_PB	CHIP FLASH PB
00080	X0022.6	DR_LK_PB	DOOR LOCK PB
00081	X0022.7	A_ZRN_PB	AUTO ZRN PB
00082	X0023.0	SBK_PB	SIGNAL BLOCK PB
00083	X0023.1	COL_PB	COOLANT PB
00084	X0023.2	DR_UL_PB	DOOR UNLOCK PB
00085	X0023.3	M19_PB	SP ORI PB
00086	X0023.4	Z_PB	Z AXIS PB
00087	X0023.5	AUX_PB	AUX FUNCTION PB
00088	X0023.6	-DIR_PB	- DIR MANUAL FEED PB
00089	X0023.7	SP_CCW_PB	SP CCW PB
00090	X0024.0	Y_PB	Y AXIS PB
00091	X0024.1	C_PB	C AXIS PB
00092	X0024.2	RPD_PB	RAPID PB
00093	X0024.3	SP_STP_PB	SP STOP PB
00094	X0024.4	X_PB	X AXIS PB
00095	X0024.5	A_PB	A AXIS PB
00096	X0024.6	+DIR_PB	+ DIR MANUAL FEED PB
00097	X0024.7	SP_CW_PB	SP CW PB
00098	X0025.0	SP_OVR_A	SP OVERRIDE A
00099	X0025.1	SP_OVR_B	SP OVERRIDE B
00100	X0025.2	SP_OVR_C	SP OVERRIDE C
00101	X0025.3	F_OVR_A	FEED OVERRIDE A
00102	X0025.4	F_OVR_B	FEED OVERRIDE B
00103	X0025.5	F_OVR_C	FEED OVERRIDE C
00104	X0025.6	F_OVR_D	FEED OVERRIDE D
00105	X0025.7	F_OVR_E	FEED OVERRIDE E
00106	X0026.0	MD_SA	MODE SELECT A
00107	X0026.1	MD_SB	MODE SELECT B
00108	X0026.2	MD_SC	MODE SELECT C
00109	X0026.3	RPD_A	RAPID OVERRIDE A
00110	X0026.4	RPD_B	RAPID OVERRIDE B
00111	X0026.5	CYC_ST_PB	CYCLE START PB
00112	X0026.6	FD_HD_PB	FEEDHOLD PB
00113	X0026.7	RDY_PB	CNC READY PB
00114	X0027.1	EDIT_KEY	EDIT PROTECT KEY
00115	X0027.2	MPG_X	MPG X
00116	X0027.3	MPG_Y	MPG Y
00117	X0027.4	MPG_Z	MPG Z
00118	X0027.5	MPG_A	MPG A
00119	X0027.6	MPG_B	MPG B
00120	X0027.7	MPG_X1	MPG X1
00121	X0028.0	MPG_X10	MPG X10
00122	X0028.1	MPG_X100	MPG X100
00123	X0028.2	MPG_C	MPG C
00124	X0040.1	CTS_TRIP	CTS TRIP
00125	X0040.2	CHIP_FLOW_TRIP	CHIP FLOW TRIP
00126	X0040.3	CLT_IN_TRIP	COOLANT IN TRIP
00127	X0040.4	NO1_CHP_CON_OL	NO1 CHIP CON OL
00128	X0040.5	OIL_SKIM_OL	OIL SKIMMER OL
00129	X0040.6	FR_14&16_OL	FR 14&16 OL DETECT
00130	X0040.7	BACK_FLOW_TRIP	BACK FLOW TRIP
00131	X0080.0	CLT_PWR_DEFECT_2	COOLANT POWER DEFECT 2
00132	X0080.1	D_FILTER_BRK_2	D FILTER BRRAK 2
00133	X0080.2	CHIP_CON_SUBSEL2	CHIP CON SUB SELECT SW 2
00134	X0080.3	CHIP_CON_CW_SW2	CHIP CON CW SW2
00135	X0080.4	CHIP_CON_CCW_SW2	CHIP CON CCW SW2
00136	X0080.5	CLT_LOW_LIMIT_2	COOLANT LOW LIMIT 2
00137	X0080.6		MAIN TANK LOW
00138	X0080.7	FILTER_CLOGGED_2	FILTER CLOGGED 2
00139	X0081.0	CLE_TAK_LW_LEV_2	CLEAN TANK LOW LEV L.S 2
00140	X0081.1	COL_OIL_LOW_LEV2	COOLANT OIL LOW LEV 2
00141	X0081.2	COL_ON_2	COOLER RUNNING 2
00142	X0081.3	CHP_CON_TOQ_OVR4	CHIP CON TORQUE OVER 4

NO.	ADDRESS	SYMBOL	FIRST COMMENT
00143	X0081.4	CHP_CON_TOQ_OVR5	CHIP CON TORQUE OVER 5
00144	X0081.5	CHP_CON_TOQ_OVR6	CHIP CON TORQUE OVER 6
00145	X0081.6	MAGIC_SEPRATOR	MAGNETIC SEPARATOR SW
00146	X0081.7	COLNT_CYC_L.S_2	COOLANT CYCLE L.S 2
00147	X0082.0	CLT_TRIP_2	COOLANT TRIP 2
00148	X0082.1	CTS_TRIP_2	CTS TRIP 2
00149	X0082.2	CHIP_FLOW_TRIP_2	CHIP FLOW TRIP 2
00150	X0082.3	CLT_IN_TRIP_2	COOLANT IN TRIP 2
00151	X0082.4	NO1_CHP_CON_OL_2	NO1 CHIP CON OL 2
00152	X0082.5	OIL_SKIM_OL_2	OIL SKIMMER OL 2
00153	X0082.6	FR_14&16_OL_2	FR14 &16 OVERLOAD
00154	X0082.7	BACK_FLOW_TRIP_2	BACK FLOW TRIP 2
00155	X0100.0	C_AXIS_UNLP_DET	C AXIS UNCLAMP DETECT
00156	X0100.2	OPTION_1	SPARE
00157	X0100.4	SP_COL_DETE_2	SPINDLE COOLANT A.L 2
00158	X0100.5	SP_COL_DET_SW	SPINDLE COOLANT DETECT SW
00159	X0100.6	AUTO_FIR_PWDN_SW	AUTO FIRE POWER DOWN SW
00160	X0100.7	AUTO_FIR_OFF_SW	AUTO FIRE OFF NOTIFY
00161	X0101.0	OPTION5	SPARE
00162	X0101.1	OPTION6	SPARE
00163	X0101.2	OPTION7	SPARE
00164	X0101.3	OPTION8	SPARE
00165	X0101.4	Y_COVR_LOK_SW_1	Y AXIS COVER LOCK SW 1
00166	X0101.5	Y_COVR_LOK_SW_2	Y AXIS COVER LOCK SW 2
00167	X0101.6	TABLE_OT_SW	TABLE OT LIMIT SW
00168	X0101.7	C_UNCLP_SW	C AXIS UNCLAMP DETECT SW
00169	X0102.0	A_AXIS_UNLP_DET	A AXIS UNCLAMP DETECT
00170	X0102.1	EX_CODE_FIN	EXTRA CODE FIN
00171	X0102.2	BOOST_PRS_DETE_1	BOOSTER PRESSURE DETECT 1
00172	X0102.3	BOOST_OIL_LEV_LO	BOOSTER OIL LEVEL LOW
00173	X0102.5	MST_COLT_PROT_SW	MIST COLLECTOR PROTECT DET SW
00174	X0102.7	BOOST_PRS_DETE_2	BOOSTER PRESSURE DETECT 2
00175	X0103.0	OIL_&AIR_DETE	OIL & AIR PRESSURE DETECT
00176	X0103.4	OPTION1	SPARE
00177	X0103.5	OPTION2	SPARE
00178	X0103.6	OPTION3	SPARE
00179	X0103.7	OPTION4	SPARE
00180	X0104.0	LASER_DETE_L.S	LASER DETECT OK L.S
00181	X0104.1	LASER_STATUS_DET	LASER STATUS DETE
00182	X0104.2	OPTION9	SPARE
00183	X0104.3	OPTION10	SPARE
00184	X0104.4	OPTION11	SPARE
00185	X0104.5	MP_DETE_BT_LOW	MP DETE SW BATTERY LOW
00186	X0104.6	MP_DETE_BT_A.L	MP DETE SW BATTERY LOW AL
00187	X0104.7	OPTION12	SPARE
00188	X0105.3	ATC_PIN_UNLOCK	ATC PIN UNLOCK DETECT L.S
00189	X0105.4	AUTO_TL_SET_ON	AUTO TOOL SET ON PB
00190	X0105.5	AUTO_TL_SET_OFF	AUTO TOOL SET OFF PB
00191	X0105.6	MG_TOOL_INDEX_ST	MAGAZINE TOOL INDEX ST
00192	X0105.7	OPTION_13	SPARE
00193	X0106.0	PSM_MCC_OF_CHECK	POWER MODUAL MCC OFF CHECK
00194	X0106.1	NC_RDY_PB	NC POWER RDY PUSH BUTTON
00195	X0106.2	AUTO__MODE_2	AUTO MODE 2
00196	X0106.3	AUTO_MODE_2	AUTO MODE 2
00197	X0106.4	OP_RDY_PW_DETE	NC READY POWER ON DETECT
00198	X0106.5	ST_RDY_OF_DETE	CYCLE RDY OFF DETECT
00199	X0106.6	AUTO_MODE_3	AUTO MODE 3
00200	X0106.7	PW_SUPRT_OF_DE_1	POWER SUPPORT OFF DETECT 1
00201	X0107.0	ATC_GUARD_LS	ATC MAGAZINE CLOSED GUARD
00202	X0107.1	PW_SUPRT_OF_DE_2	POWER SUPPORT OFF DETECT 2
00203	X0107.2	OPTION13	SPARE
00204	X0107.3	OPTION14	SPARE
00205	X0107.4	HYD_PUP_OFF_DETE	HYDRAULIC PUMP OFF CHECK
00206	X0107.5	ENB_MANU_SW	ENABLE ON MANUAL SW
00207	X0107.6	SERVO_EMG_STOP	SERVO EMERGENCY STOP
00208	X0107.7	OPTION15	SPARE
00209	X0108.0	Z_AXIS_BRK_CK_OF	Z MOTOR BRAKE CHECK OFF
00210	X0108.1	OPTION16	SPARE
00211	X0108.2	OPTION17	SPARE
00212	X0108.3	OPTION18	SPARE
00213	X0108.5	COOLANT_OF_CHK	COOLANT OFF CHECK

NO.	ADDRESS	SYMBOL	FIRST COMMENT
00214	X0108.6	CHIP_CON_OF_CHK	CHIP CONVEYOR OFF CHECK
00215	X0108.7	SAFE_RE_OF_CHECK	SAFETY RELAY OFF CHECK
00216	X0110.5	OPTION19	SPARE
00217	X0116.6	I_MC_OL	MIST COLLECTOR OL
00218	Y0000.0	O_CCOOLANT	COOLANT MOTOR
00219	Y0000.1	O_CON_CW	CHIP CON CW
00220	Y0000.2	O_CON_CCW	CHIP CON CCW
00221	Y0000.7	O_LUBE	LUBE MOTOR
00222	Y0001.0	O_SP_OA	SP OIL AIR MOTOR
00223	Y0001.1	O_APO	AUTO POWER OFF COIL
00224	Y0001.2	O_WL	WORK LIGHT
00225	Y0001.3	O_BRAKE	AXIS BRAKE
00226	Y0001.4	O_E_SPCLR	EXT. SP OIL COOLER
00227	Y0001.5	O_CP_C	CHIP FLASH MOTOR
00228	Y0001.6	O_SKIM	SKIMMER MOTOR
00229	Y0001.7	O_SP_UC	SP TOOL UNCLAMP
00230	Y0002.0	O_WAB	WORKPIECE AIR BLOW
00231	Y0002.1	O_SPBL	SP TOOL CLEAN BLOW
00232	Y0002.2	O_MAG_FWD	MAG FORWARD
00233	Y0002.3	O_MAG_BKD	MAG BACKWARD
00234	Y0002.4	O_CTS_ABL	C.T.S AIR BLOW
00235	Y0002.5	O_DR_REL	DOOR RELEASE
00236	Y0002.6	O_SP_BAR	SP BEARING AIR
00237	Y0002.7	O_SP_OAA	SP OIL AIR AIR VALVE
00238	Y0003.0	O_SP_GH	SP GEAR HIGH
00239	Y0003.1	O_SP_GL	SP GEAR LOW
00240	Y0003.2	O_Y32	
00241	Y0003.3	O_CTS	C.T.S MOTOR
00242	Y0003.6	O_HYDR	HYDRAULIC MOTOR
00243	Y0004.0	O_ATC_LO	ATC DOOR LEFT OPEN
00244	Y0004.1	O_ATC_LC	ATC DOOR LEFT CLOSE
00245	Y0004.2	O_ATC_RO	ATC DOOR RIGHT OPEN
00246	Y0004.3	O_ATC_RC	ATC DOOR RIGHT CLOSE
00247	Y0004.4	O_A_CL	A AXIS CLAMP SOL.
00248	Y0004.5	O_C_CL	C AXIS CLAMP SOL.
00249	Y0004.6	O_ATLM_AIR	ATLM AIR BLOW
00250	Y0005.0	O_EM1	EXE. M1
00251	Y0005.1	O_EM2	EXE. M2
00252	Y0005.2	O_EM3	EXE. M3
00253	Y0005.3	O_EM4	EXE. M4
00254	Y0006.0	O_SUB_STR	SUB START LAMP
00255	Y0006.1		MG FORWARD
00256	Y0007.1	O_PB_TC	PROBE TC MODE
00257	Y0007.3	O_PB_STR	PROBE START
00258	Y0007.4	O_RL	ALARM RED LAMP
00259	Y0007.5	O_YL	PG END YELLOW LAMP
00260	Y0007.6	O_GL	PG RUN GREEN LAMP
00261	Y0007.7	O_BZR	BUZZER
00262	Y0008.6	C_CLP	C AXIS CLAMP
00263	Y0009.4		
00264	Y0011.0	SP_AIR_BLOW	SPINDLE AIR BLOW
00265	Y0011.3	TOOL_DEFECT_AIR	TOOL DET AIR
00266	Y0011.4	A_AXIS_CLAMP	A AXIS CLAMP
00267	Y0012.1	CTS_PUMP	CTS PUMP
00268	Y0012.2	CHP_FLOW_PUMP	CHIP FLOW PUMP
00269	Y0012.3	CLT_IN_PUMP	COOLANT IN PUMP
00270	Y0012.7	EXT_NOZZLE	EXT NOZZLE
00271	Y0013.0	BACK_FLOW_PUMP	BACK FLOW PUMP
00272	Y0013.1	NO_2&3_CCONV_CW	NO 2&3 CHIP CONVEYOR CW 1
00273	Y0013.2	NO_2&3_CHCON_CCW	NO 2&3 CHIP CONVEYOR CCW 2
00274	Y0013.3	COL_RECYC_PUP1	COOLANT RECYCLE PUMP 1
00275	Y0020.0	MST_LCK_LP	MST LOCK LAMP
00276	Y0020.1	F1_LP	F1 LAMP
00277	Y0020.2	MAG_CW_LP	MAG CW LAMP
00278	Y0020.3	CP_CCW_LP	CHIP CON CCW LAMP
00279	Y0020.4	MLK_LP	MACHINE LOCK LAMP
00280	Y0020.5	3DCK_LP	3D CHECK LAMP
00281	Y0020.6	MAG_LR_LP	MAG L/R LAMP
00282	Y0020.7	CP_CW_LP	CHIP CON CW LAMP
00283	Y0021.0	BDT_LP	BLOCK SKIP LAMP
00284	Y0021.1	OVC_LP	OVERRIDE CANCEL LAMP

NO.	ADDRESS	SYMBOL	FIRST COMMENT
00285	Y0021.2	SP_UC_LP	SP TOOL UNCLAMP LAMP
00286	Y0021.3	AP0_LPO	AUTO POWER OFF LAMP
00287	Y0021.4	PRST_LP	PG RESTART LAMP
00288	Y0021.5	BLAST_LP	AIR BLOW LAMP
00289	Y0021.7	WL_LP	WORK LIGHT LAMP
00290	Y0022.0	OPT_LP	OPTION STOP LAMP
00291	Y0022.1	CTS_LP	C.T.S LAMP
00292	Y0022.2	ALM_RST_LP	ALARM RESET LAMP
00293	Y0022.3	DOOR_LP	DOOR LAMP
00294	Y0022.4	DRY_LP	DRY RUN LAMP
00295	Y0022.5	FLASH_LP	FLASH LAMP
00296	Y0022.6	DR_LK_LP	DOOR LOCK LAMP
00297	Y0022.7	A_ZRN_LP	AUTO ZRN LAMP
00298	Y0023.0	SKB_LP	SIGNAL BLOCK LAMP
00299	Y0023.1	COL_LP	COOLANT LAMP
00300	Y0023.2	DR_UL_LP	DOOR UNLOCK LAMP
00301	Y0023.3	M19_LP	SP ORI LAMP
00302	Y0023.4	Z_LP	Z AXIS LAMP
00303	Y0023.5	AUX_LP	AUX AXIS LAMP
00304	Y0023.6	SP_CCW_LP	SP CCW LAMP
00305	Y0023.7	Y_LP	Y AXIS LAMP
00306	Y0024.0	C_LP	C AXIS LAMP
00307	Y0024.1	SP_STP_LP	SP STOP LAMP
00308	Y0024.2	X_LP	X AXIS LAMP
00309	Y0024.3	A_LP	A AXIS LAMP
00310	Y0024.4	SP_CW_LP	SP CW LAMP
00311	Y0024.5	TL_DP21	TOOL NO. DISPLAY 21
00312	Y0024.6	TL_DP22	TOOL NO. DISPLAY 22
00313	Y0024.7	TL_DP24	TOOL NO. DISPLAY 24
00314	Y0025.0	TL_DP28	TOOL NO. DISPLAY 28
00315	Y0025.1	TL_DP11	TOOL NO. DISPLAY 11
00316	Y0025.2	TL_DP12	TOOL NO. DISPLAY 12
00317	Y0025.3	TL_DP14	TOOL NO. DISPLAY 14
00318	Y0025.4	TL_DP18	TOOL NO. DISPLAY 18
00319	Y0025.5	ATC_LED	ATC LED
00320	Y0025.6	OT_LED	O.T LED
00321	Y0025.7	AL_LED	ALARM LED
00322	Y0026.0	AIR.AL.LED	AIR LOW FAULT LED
00323	Y0026.1	MOT.OL.LED	MOTOR OVER LOAD LED
00324	Y0026.2	LUBE.AL.LED	LUBE ALARM LED
00325	Y0026.3	M02.M30.LED	M02/M30 LED
00326	Y0026.4	M00.M01.LED	M00/M01 LED
00327	Y0026.5	V.LED	5TH REF. LED
00328	Y0026.6	IV.LED	4TH REF. LED
00329	Y0026.7	Z.LED	Z REF. LED
00330	Y0027.0	Y.LED	Y REF. LED
00331	Y0027.1	X.LED	X REF. LED
00332	Y0027.6	L_A_UN	A UNCLAMP LED
00333	Y0027.7	L_C_UN	C UNCLAMP LED
00334	Y0032.5	BZ.OUT	BUZZER ON
00335	Y0033.4	MCNV.PL	CHIP CON MANUAL PB LIGHT
00336	Y0033.5	H-X10.0	HANDLE FEED *10 LIGHT
00337	Y0033.7	HANINTPL	HANDLE WHEEL FUN ON LIGHT
00338	Y0034.3	OP.ASIST	OPERATION AUX LIGHT
00339	Y0034.4	SPUNCLAM	SPINDLE TOOL UNCLAMP LIGHT
00340	Y0034.5	YSHTLKL	Y SHIFTER LOCK RDY LIGHT
00341	Y0034.6	YSHTULKL	Y SHIFTER UNLOCK RDY LIGHT
00342	Y0035.0	ALM.PL	MACHINE ALARM LIGHT
00343	Y0035.1	SET.PL	ATC SUB PANEL SELECT LIGHT
00344	Y0035.3	PW-OFF	AUTO POWER OFF LIGHT
00345	Y0036.0	ATC_SUB_PAL_MD_1	ATC SUB PANEL MD 1
00346	Y0036.1	ATC_SUB_PAL_MD_2	ATC SUB PANEL MD 2
00347	Y0036.2	ATC_SUB_PAL_MD_3	ATC SUB PANEL MD 3
00348	Y0036.3	ATC_SUB_PAL_MD_4	ATC SUB PANEL MD 4
00349	Y0036.4	ATC_SUB_PAL_MD_5	ATC SUB PANEL MD 5
00350	Y0036.5	ATC_SUB_PAL_MD_6	ATC SUB PANEL MD 6
00351	Y0036.6	ATC_SUB_PAL_MD_7	ATC SUB PANEL MD 7
00352	Y0036.7	ATC_SUB_PAL_MD_8	ATC SUB PANEL MD 8
00353	Y0040.0	PSM_RDY	PSM RDY
00354	Y0040.2	OP_RDY_ON	OPERATION RDY ON
00355	Y0040.3	PS_1_OK	POWER SUPPLY 1 OK

NO.	ADDRESS	SYMBOL	FIRST COMMENT
00356	Y0040.4	PS_2_OK	POWER SUPPLY 2 OK
00357	Y0040.5	OPTION_15	SPARE
00358	Y0040.6	OPTION_16	SPARE
00359	Y0041.3	Z_BRK_UNLOCK	Z BRAKE UNLOCK
00360	Y0080.0	CHIP_OIL_PUMP_2	CHIP OIL PUMP 2
00361	Y0080.1	CTS_PUMP_2	CTS PUMP 2
00362	Y0080.2	CHP_FLOW_2	CHIP CONVEYOR FLOW 2
00363	Y0080.3	CLT_IN_2	COOLANT IN 2
00364	Y0080.4	NO1_CHP_CON_CW_2	NO1 CHIP CON CW 2
00365	Y0080.5	NO1_CHP_CON_CCW2	NO1 CHIP CON CCW 2
00366	Y0080.6	OIL_SKIMMER_2	OIL SKIMMER 2
00367	Y0080.7	MGNET_SEPARATOR	MGNET SEPARATOR
00368	Y0081.0	BACK_FLOW_2	BACK FLOW 2
00369	Y0081.1	NO_2&3_CCON_CW1	NO 2&3 CHIP CHIP CON CW 1
00370	Y0081.2	NO_2&3_CCON_CCW2	NO 2&3 CHIP CONVEYOR CCW 2
00371	Y0081.3	COOLER_RECYCLE2	COOLER RECYCLE 2
00372	Y0100.2	NC&MAIN_PW_OF	NC & MAIN POWER OFF
00373	Y0100.4	TABLE_SKIP_SEL	TABLE SKIP SELECT
00374	Y0100.5	AMCS_OFF_OMI_ON	AMCS OFF OMI ON
00375	Y0100.6	ATC_LOCK_RELEASE	ATC LOCK RELEASE
00376	Y0100.7	ATLS_REGISTER	AUTO TOOL SET REGISTER
00377	Y0101.0	SENDING_UNIT_1	SENDING UNIT 1
00378	Y0101.1	RECEIVING_UNIT_1	RECEIVING UNIT 1
00379	Y0101.2	RECEIVING_UNIT_2	RECEIVING UNIT 2
00380	Y0102.4	BOOST_ACC_AIR	BOOSTER ACCELATER AIR
00381	Y0102.5	BOOSTER_MIST	BOOSTER MIST
00382	Y0102.6	BOOST_PUMP	BOOSTER PUMP
00383	Y0102.7	BOOST_AIR	BOOSTER AIR
00384	Y0103.0	S_HAND_FWD	SHIFT HAND FORWARD
00385	Y0103.1	S_HAND_BWD	SHIFT HAND BACKWARD
00386	Y0103.2	S_HAND_UP_2	SHIFT HAND UP 2
00387	Y0103.3	S_HAND_DOWN_2	S HAND DOWN 2
00388	Y0103.4	LASER_COVER_CLS	LASER COVER CLOSE
00389	Y0103.5	LASER_BRR_AIR	LASER SHUTTER AIR
00390	Y0103.6	Y_COVER_CLOSE	Y COVER CLOSE
00391	Y0103.7	Y_COVER_OPEN	Y COVER OPEN
00392	Y0104.0	PSM1RDY	POWER SUPPLIER MODULE RDY1
00393	Y0104.2	PREP_ON	PREPARE PB ON
00394	Y0104.3	PWR_SUPPLY_OK	POWER SUPPLIER 1 OK
00395	Y0105.2	A_BRAKE	A AXIS MOTOR BRAKE
00396	Y0107.4	NC.RDY.LP	CNC READY LAMP
00397	Y0221.6	TLLFRSTL	TOOL LIFE RESET
00398	F0000.0	RWD	REWINDING SIGNAL
00399	F0000.1		
00400	F0000.4	SPL	FEED HOLD LAMP SIGNAL
00401	F0000.5	STL	CYCLE START SIGNAL
00402	F0000.6	SA	SERVO READY
00403	F0000.7	OP	AUTOMATIC OPERATION
00404	F0001.0	AL	ALARM SIGNAL
00405	F0001.1	RST	RESET SIGNAL
00406	F0001.2	BAL	BATTERY ALARM
00407	F0001.3	DEN	DISTRIBUTION END
00408	F0001.5	TAP	TAPPING SIGNAL
00409	F0001.7	MA	CNC READY SIGNAL
00410	F0002.0	INCH	INCH INPUT SIGNAL
00411	F0002.6	CUT	CUTTING FEED SIGNAL
00412	F0002.7	MDRN	DRY RUN CHECK SIGNAL
00413	F0003.1	MH	MANUAL HANDLE FEED SELECT CHEC
00414	F0003.2	MJ	JOG FEED SELECT CHECK
00415	F0003.3	MMDI	MANUAL DATA INPUT SELECT CHECK
00416	F0003.4	MRMT	DNC OPERATION SELECT CHECK
00417	F0003.5	MMEM	AUTOMATIC OPERATION SELECT CHE
00418	F0004.0	MBDT1	OPTIONAL BLOCK SKIP CHECK
00419	F0004.2	MABSM	MANUAL ABSOLUTE CHECK
00420	F0004.3	MSBK	SINGLE BLOCK CHECK
00421	F0004.5	MREF	MANUAL REFERENCE POSITION RETU
00422	F0006.1	MDIRST	MDI RESET SIGNAL
00423	F0007.0	MF	AUXILIARY FUNCTION STROBE
00424	F0007.2	SF	SPINDLE SPEED STROBE
00425	F0007.3	TF	TOOL FUNCTION STROBE
00426	F0007.7	BF	2ND AUXILIARY FUNCTION STROBE

NO.	ADDRESS	SYMBOL	FIRST COMMENT
00427	F0008.4	MF2	AUXILIARY FUNCTION STROBE SIGN
00428	F0008.5	MF3	AUXILIARY FUNCTION STROBE SIGN
00429	F0009.4	DM30	DECODE M SIGNAL
00430	F0009.5	DM02	DECODE M SIGNAL
00431	F0009.6	DM01	DECODE M SIGNAL
00432	F0009.7	DM00	DECODE M SIGNAL
00433	F0010.3	FM03	MISCELLANEOUS FUNCTION CODE
00434	F0010.4	FM04	MISCELLANEOUS FUNCTION CODE
00435	F0010.5	FM05	MISCELLANEOUS FUNCTION CODE
00436	F0010.6	FM06	MISCELLANEOUS FUNCTION CODE
00437	F0010.7	FM07	MISCELLANEOUS FUNCTION CODE
00438	F0011.0	FM08	MISCELLANEOUS FUNCTION CODE
00439	F0011.1	FM09	MISCELLANEOUS FUNCTION CODE
00440	F0011.2	FM10	MISCELLANEOUS FUNCTION CODE
00441	F0011.3	FM11	MISCELLANEOUS FUNCTION CODE
00442	F0011.4	FM12	MISCELLANEOUS FUNCTION CODE
00443	F0011.5	FM13	MISCELLANEOUS FUNCTION CODE
00444	F0011.6	FM14	MISCELLANEOUS FUNCTION CODE
00445	F0011.7	FM15	MISCELLANEOUS FUNCTION CODE
00446	F0044.1	FSCSL	CS CONTOUR CONTROL CHANGE COMP
00447	F0045.0	ALMA	ALARM (SERIAL SPINDLE)
00448	F0045.1	SSTA	SPEED ZERO SIGNAL
00449	F0045.3	SARA	SPEED ARRIVAL SIGNAL
00450	F0045.7	ORARA	ORIENTATION COMPLETION SIGNAL
00451	F0046.2	RCHPA	OUTPUT SWITCH SIGNAL
00452	F0046.3	RCFNA	OUTPUT SWITCH COMPLETION SIGNA
00453	F0054.0	UO0	OUTPUT SIGNAL FOR CUSTOM MACRO
00454	F0054.1	UO1	OUTPUT SIGNAL FOR CUSTOM MACRO
00455	F0054.2	UO2	OUTPUT SIGNAL FOR CUSTOM MACRO
00456	F0054.3	UO3	OUTPUT SIGNAL FOR CUSTOM MACRO
00457	F0054.4	UO4	OUTPUT SIGNAL FOR CUSTOM MACRO
00458	F0055.0	UO_008	#1108 CUSTOM MACRO OUTPUT SG
00459	F0055.1	UO_009	#1109 CUSTOM MACRO OUTPUT SG
00460	F0055.6	UO014	OUTPUT SIGNAL FOR CUSTOM MACRO
00461	F0060.1	ESEND	READ COMPLETION SIGNAL FOR EXT
00462	F0062.0	AICC_SIGL	AI ADVANCED CONTROL MODE
00463	F0064.0	TLCH	TOOL CHANGE
00464	F0066.6	PECK2	SMALL"DIAMETER PECK DRILLING I
00465	F0070.0	PSW01	POSITION SWITCH
00466	F0070.1	PSW02	POSITION SWITCH
00467	F0071.0	POSW9	POSITION SWITCH 9
00468	F0076.3	RTAP	RIGID TAPPING IN PROGRESS
00469	F0094.0	ZP1	REFERENCE POSITION RETURN END
00470	F0094.1	FZP2	REFERENCE POSITION RETURN END
00471	F0094.2	FZP3	REFERENCE POSITION RETURN END
00472	F0094.3	FZP4	REFERENCE POSITION RETURN END
00473	F0094.4	FZP5	REFERENCE POSITION RETURN END
00474	F0094.6	FZP7	REFERENCE POSITION RETURN END
00475	F0096.0	ZP21	2ND REFERENCE POSITION RETURN
00476	F0096.1	ZP22	2ND REFERENCE POSITION RETURN
00477	F0096.2	ZP23	2ND REFERENCE POSITION RETURN
00478	F0096.4	ZP25	2ND REFERENCE POSITION RETURN
00479	F0096.6	ZP27	2ND REFERENCE POSITION RETURN
00480	F0098.1	ZP32	3RD REFERENCE POSITION RETURN
00481	F0098.2	ZP33	3RD REFERENCE POSITION RETURN
00482	F0098.6	ZP37	3RD REFERENCE POSITION RETURN
00483	F0100.1	ZP42	4TH REFERENCE POSITION RETURN
00484	F0100.2	ZP43	4TH REFERENCE POSITION RETURN
00485	F0100.6	ZP47	4TH REFERENCE POSITION RETURN
00486	F0102.0	MV1	X AXIS MOVING
00487	F0102.1	MV2	Y AXIS MOVING
00488	F0102.2	MV3	Z AXIS MOVING
00489	F0102.3	MV4	4 AXIS MOVING
00490	F0102.4	MV5	5 AXIS MOVING
00491	F0104.0	INP1	X IN POSITION SIGNAL
00492	F0104.1	INP2	Y IN POSITION SIGNAL
00493	F0104.2	INP3	Z IN POSITION SIGNAL
00494	F0104.3	INP4	4 IN POSITION SIGNAL
00495	F0104.4	INP5	5 IN POSITION SIGNAL
00496	F0122.0	HDO0	HIGH SPEED SKIP STATUS
00497	F0122.1	HOD1	HIGH SPEED SKIP STATUS SIGNAL

NO.	ADDRESS	SYMBOL	FIRST COMMENT
00498	F0129.7	NCAXS	NC AXIS SELECT
00499	F0130.2	EIALA	X ALARM (PMC AXIS CONTROL)
00500	F0133.2	EIALB	Y ALARM (PMC AXIS CONTR)
00501	F0136.2	EIALC	Z ALARM (PMC AXIS CONTROL)
00502	F0139.2	EIALD	C ALARM (PMC AXIS CONTR)
00503	F0191.0	DOOR_OPEN_ON	DOOR OPEN ON
00504	F0191.2	MCC_TEST_REQ	MCC TEST REQUIRE
00505	F0191.3	BRAKE_TEST_REQ	BRAKE TEST REQUIRE
00506	F0276.4	#1120_M_CODE_NG	#1120 M CODE NG
00507	F0276.5	#1120_TOL_NO_REQ	#1120 TOOL NO REQUIRE
00508	F0276.6	#1122	
00509	F0276.7	#1123	
00510	F0277.1	#1125	
00511	F0277.2	#1126	
00512	F0277.3	#1127	
00513	F0531.5	TDIACK	3D CHECK SETTING CHANG COMP.
00514	F0748.1	MCCOFSIG_1	MCC OFF SIGNAL
00515	F0748.7	MCCOFSIG_2	MCC OFF SIGNAL
00516	F0750.0	SAFMONITSIG_X	SAFETY MONITOR SIGNAL X
00517	F0750.1	SAFMONITSIG_Y	SAFETY MONITOR SIGNAL Y
00518	F0750.2	SAFMONITSIG_Z	SAFETY MONITOR SIGNAL Z
00519	F0750.3	SAFMONITSIG_B	SAFETY MONITOR SIGNAL B
00520	F0750.4	SAFMONITSIG_5	SAFETY MONITOR SIGNAL 5
00521	F0751.0	SAFMONITSIG_SP	SAFETY MONITOR SIGNAL SP
00522	F0752.0	MCCOFSIG_X	MCC OFF SIGNAL X
00523	F0752.1	MCCOFSIG_Y	MCC OFF SIGNAL Y
00524	F0752.2	MCCOFSIG_Z	MCC OFF SIGNAL Z
00525	F0752.3	MCCOFSIG_B	MCC OFF SIGNAL B
00526	F0752.4	MCCOFSIG_5	MCC OFF SIGNAL 5
00527	F0752.5	MCCOFSIG_6	MCC OFF SIGNAL 6
00528	F0752.6	MCCOFSIG_7	MCC OFF SIGNAL 7
00529	F0752.7	MCCOFSIG_8	MCC OFF SIGNAL 8
00530	F0753.0	MCCOFSIG_SP	MCC OFF SIGNAL SP
00531	F0754.2	BRAKE_SIG_Z	BRAKE Z SIGNAL
00532	F0754.4	BRAKE_SIG_5	BRAKE 5 SIGNAL
00533	F0755.0	SAFPOSSWSIG_1	SAFE POS SWITCH SIGNAL 1
00534	F1130.2	A_AL	A AXIS AL
00535	F1133.0	MG_INPOS	MG INPOSITION
00536	F1133.2	MG_AL	MG ALARM
00537	F1133.4	MG_ST	MG START
00538	F1136.2	SL_AL	SL AL
00539	F1139.2	SR_AL	SR AL
00540	G0004.4	MFIN2	2ND M FUNCTION COMPLETION
00541	G0004.5	MFIN3	3RD M FUNCTION COMPLETION
00542	G0005.0	MFIN	AUXILIARY FUNCTION COMPLETION
00543	G0005.2	SFIN	SPINDLE FUNCTION COMPLETION
00544	G0005.3	TFIN	TFIN
00545	G0005.6	AFL	MISCELLANEOUS FUNCTION LOCK
00546	G0005.7	BFIN	2ND AUXILIARY FUNCTION COMPLET
00547	G0006.0	SRN	PROGRAM RESTART
00548	G0006.2	ABSM	MANUAL ABSOLUTE
00549	G0006.4	OVC	OVERRIDE CANCEL
00550	G0007.2	ST	CYCLE START LAMP SIGNAL
00551	G0007.6	EXLM	STORED STROKE LIMIT SELECT
00552	G0008.0	IT	AXIS INTERLOCK
00553	G0008.4	ESP	EMERGENCY STOP
00554	G0008.5	SP	FEED HOLD
00555	G0008.6	RRW	RESET & REWIND
00556	G0008.7	ERS	EXTERNAL RESET
00557	G0010.0	JV0	MANUAL FEEDRATE OVERRIDE
00558	G0010.1	JV1	MANUAL FEEDRATE OVERRIDE
00559	G0010.2	JV2	MANUAL FEEDRATE OVERRIDE
00560	G0010.3	JV3	MANUAL FEEDRATE OVERRIDE
00561	G0010.4	JV4	MANUAL FEEDRATE OVERRIDE
00562	G0010.5	JV5	MANUAL FEEDRATE OVERRIDE
00563	G0010.6	JV6	MANUAL FEEDRATE OVERRIDE
00564	G0010.7	JV7	MANUAL FEEDRATE OVERRIDE
00565	G0011.0	JV8	MANUAL FEEDRATE OVERRIDE
00566	G0011.1	JV9	MANUAL FEEDRATE OVERRIDE
00567	G0011.2	JV10	MANUAL FEEDRATE OVERRIDE
00568	G0011.3	JV11	MANUAL FEEDRATE OVERRIDE

NO.	ADDRESS	SYMBOL	FIRST COMMENT
00569	G0011.4	JV12	MANUAL FEEDRATE OVERRIDE
00570	G0011.5	FV13	MANUAL FEEDRATE OVERRIDE
00571	G0011.6	JV14	MANUAL FEEDRATE OVERRIDE
00572	G0011.7	JV15	MANUAL FEEDRATE OVERRIDE
00573	G0012.0	FV0	FEEDRATE OVERRIDE
00574	G0012.1	FV1	FEEDRATE OVERRIDE
00575	G0012.2	FV2	FEEDRATE OVERRIDE
00576	G0012.3	FV3	FEEDRATE OVERRIDE
00577	G0012.4	FV4	FEEDRATE OVERRIDE
00578	G0012.5	FV5	FEEDRATE OVERRIDE
00579	G0012.6	FV6	FEEDRATE OVERRIDE
00580	G0012.7	FV7	FEEDRATE OVERRIDE
00581	G0015.1	EROV2_#1	RAPID OVERRIDE 2
00582	G0016.7	F1D	F1 DIGIT FEED SELECT
00583	G0018.0	HSA1	MANU HANDLE FEED AXIS SELECT A
00584	G0018.1	HSB1	MANU HANDLE FEED AXIS SELECT B
00585	G0018.2	HSC1	MANU HANDLE FEED AXIS SELECT C
00586	G0018.3	HSD1	MANU HANDLE FEED AXIS SELECT D
00587	G0019.4	MP1	HANDLE FEED 1 SELECT
00588	G0019.5	MP2	HANDLE FEED 2 SELECT
00589	G0019.7	RT	RAPID TRAVERSE SELECT
00590	G0023.3	HANDLF	HANDLE FEED MAX
00591	G0027.7	CON	CS CONTOUR CONTROL CHANGE
00592	G0029.6	SPSTP	SPINDLE STOP
00593	G0033.0	R091	SPINDLE MOTOR SPEED COMMAND
00594	G0033.1	R101	SPINDLE MOTOR SPEED COMMAND
00595	G0033.2	R111	SPINDLE MOTOR SPEED COMMAND
00596	G0033.3	R121	SPINDLE MOTOR SPEED COMMAND
00597	G0033.7	SIND	SPINDLE MOTOR SPEED COMMAND SE
00598	G0041.0	HS1A	MANUAL HANDLE INTERRUPTION "A"
00599	G0041.1	HS1B	MANUAL HANDLE INTERRUPTION "B"
00600	G0041.2	HS1C	MANUAL HANDLE INTERRUPTION "C"
00601	G0043.0	MD1	MODE SELECTION "1"
00602	G0043.1	MD2	MODE SELECTION "2"
00603	G0043.2	MD4	MODE SELECTION "3"
00604	G0043.5	DNC1	DNC OPERATION SELECT
00605	G0043.7	ZRN	MANUAL REFERENCE POSITION RETU
00606	G0044.0	BDT1	OPTIONAL BLOCK SKIP SIGNAL 1
00607	G0044.1	MLK	ALL AXIS MACHINE LOCK SIGNAL
00608	G0045.0	BDT2	OPTIONAL BLOCK SKIP SIGNAL 2
00609	G0045.1	BDT3	OPTIONAL BLOCK SKIP SIGNAL 3
00610	G0045.2	BDT4	OPTIONAL BLOCK SKIP SIGNAL 4
00611	G0045.3	BDT5	OPTIONAL BLOCK SKIP SIGNAL 5
00612	G0045.4	BDT6	OPTIONAL BLOCK SKIP SIGNAL 6
00613	G0045.5	BDT7	OPTIONAL BLOCK SKIP SIGNAL 7
00614	G0045.6	BDT8	OPTIONAL BLOCK SKIP SIGNAL 8
00615	G0045.7	BDT9	OPTIONAL BLOCK SKIP SIGNAL 9
00616	G0046.1	SBK	SINGLE BLOCK SIGNAL
00617	G0046.3	KEY1	MEMORY PROTECT SIGNAL 1
00618	G0046.4	KEY2	MEMORY PROTECT SIGNAL 2
00619	G0046.5	KEY3	MEMORY PROTECT SIGNAL 3
00620	G0046.7	DRN	DRY RUN SIGNA
00621	G0048.5	TLSKP	TOOL SKIP SIGNAL
00622	G0053.0	TMRON	GENERAL"PURPOSE INTEGRATING ME
00623	G0053.3	UNIT	INTERRUPT SIGNAL FOR CUSTOM MA
00624	G0054.0	UI_000	#1000 CUSTOM MACRO INPUT SG
00625	G0054.1	UI_001	#1001 CUSTOM MACRO INPUT SG
00626	G0055.0	UI_008	#1008 CUSTOM MACRO INPUT SG
00627	G0055.1	UI_009	#1009 CUSTOM MACRO INPUT SG
00628	G0055.2	UI_010	#1010 CUSTOM MACRO INPUT SG
00629	G0055.3	#1011	SP=TF
00630	G0055.6	UI14	INPUT SIGNAL FOR CUSTOM MACRO
00631	G0055.7	UI_15	INPUT SIGNAL FOR CUSTOM MACRO
00632	G0056.3	UI_19	INPUT SIGNAL FOR CUSTOM MACRO
00633	G0056.4	UI_20	INPUT SIGNAL FOR CUSTOM MACRO
00634	G0056.6	UI_22	INPUT SIGNAL FOR CUSTOM MACRO
00635	G0056.7	UI_23	INPUT SIGNAL FOR CUSTOM MACRO
00636	G0057.0	UI_24	INPUT SIGNAL FOR CUSTOM MACRO
00637	G0057.1	UI_25	INPUT SIGNAL FOR CUSTOM MACRO
00638	G0061.0	RGTAP	RIGID TAPPING SIGNAL
00639	G0066.0	IGNVRY	ALL"AXIS VRDY OFF ALARM IGNORE

NO.	ADDRESS	SYMBOL	FIRST COMMENT
00640	G0070.2	CTH2A	CLUTCH/GEAR SIGNAL 2
00641	G0070.3	CTH1A	CLUTCH/GEAR SIGNAL 1
00642	G0070.4	SRVA-CCW	CCW COMMAND SIGNAL
00643	G0070.5	SFRA-CW	CW COMMAND SIGNAL
00644	G0070.6	ORCM=ORI	ORIENTATIONCOMMAND SIGNAL
00645	G0070.7	M_RDY.A	MACHINE READY SIGNAL
00646	G0071.1	ESPA	EMERGENCY STOP SIGNAL
00647	G0071.4	SOCNA	SOFT START/ STOP CANCEL SIGNAL
00648	G0071.6	RSLA	POWER OUTPUT SWITCH REQUIRE
00649	G0071.7	RCHA	SP POWER STATUS CHECK SIGNAL
00650	G0072.7	RCHHGA	SP HIGH GEAR OUTPUT
00651	G0100.0	+J1	FEED AXIS X+
00652	G0100.1	+J2	FEED AXIS Y+
00653	G0100.2	+J3	FEED AXIS Z+
00654	G0100.3	+J4	FEED AXIS 4+
00655	G0100.4	+J5	FEED AXIS 5+
00656	G0101.0	ED21+	2ND EXT DECELERATION +X
00657	G0101.1	ED22+	2ND EXT DECELERATION +Y
00658	G0101.2	ED23+	2ND EXT DECELERATION +Z
00659	G0101.3	ED24+	2ND EXT DECELERATION +B
00660	G0101.4	ED25+	2ND EXT DECELERATION +5
00661	G0101.5	ED26+	2ND EXT DECELERATION +6
00662	G0101.6	ED27+	2ND EXT DECELERATION +7
00663	G0101.7	ED28+	2ND EXT DECELERATION +8
00664	G0102.0	-J1	FEED AXIS X-
00665	G0102.1	-J2	FEED AXIS Y-
00666	G0102.2	-J3	FEED AXIS Z-
00667	G0102.3	-J4	FEED AXIS 4-
00668	G0102.4	-J5	FEED AXIS 5-
00669	G0103.0	ED21-	2ND EXT DECELERATION -X
00670	G0103.1	ED22-	2ND EXT DECELERATION -Y
00671	G0103.2	ED23-	2ND EXT DECELERATION -Z
00672	G0103.3	ED24-	2ND EXT DECELERATION -B
00673	G0103.4	ED25-	2ND EXT DECELERATION -5
00674	G0103.5	ED26-	2ND EXT DECELERATION -6
00675	G0103.6	ED27-	2ND EXT DECELERATION -7
00676	G0103.7	ED28-	2ND EXT DECELERATION -8
00677	G0108.2	MLK3	Z MACHINE LOCK
00678	G0114.0	+L1	+X OVERTRAVEL
00679	G0114.1	+L2	+Y OVERTRAVEL
00680	G0114.2	+L3	+Z OVERTRAVEL
00681	G0114.3	+L4	+4TH OVERTRAVEL
00682	G0114.4	+L5	+5 OVERTRAVEL
00683	G0114.5	+L6	+6 OVERTRAVEL
00684	G0114.6	+L7	+7 OVERTRAVEL
00685	G0114.7	+L8	+8 OVERTRAVEL
00686	G0116.0	-L1	-X OVERTRAVEL
00687	G0116.1	-L2	-Y OVERTRAVEL
00688	G0116.2	-L3	-Z OVERTRAVEL
00689	G0116.3	-L4	-4TH OVERTRAVEL
00690	G0116.4	-L5	-5 OVERTRAVEL
00691	G0116.5	-L6	-6 OVERTRAVEL
00692	G0116.6	-L7	-7 OVERTRAVEL
00693	G0116.7	-L8	-8 OVERTRAVEL
00694	G0118.0	X+DEC	+X EXTERNAL DECELERATION
00695	G0118.1	Y+DEC	+Y EXTERNAL DECELERATION
00696	G0118.2	Z+DEC	+Z EXTERNAL DECELERATION
00697	G0118.3	4+DEC	+4 EXTERNAL DECELERATION
00698	G0118.4	5+DEC	+5 EXTERNAL DECELERATION
00699	G0118.5	6+DEC	+6 EXTERNAL DECELERATION
00700	G0118.6	7+DEC	+7 EXTERNAL DECELERATION
00701	G0118.7	8+DEC	+8 EXTERNAL DECELERATION
00702	G0120.0	X-DEC	-X EXTERNAL DECELERATION
00703	G0120.1	Y-DEC	-Y EXTERNAL DECELERATION
00704	G0120.2	Z-DEC	-Z EXTERNAL DECELERATION
00705	G0120.3	4-DEC	-4 EXTERNAL DECELERATION
00706	G0120.4	5-DEC	-5 EXTERNAL DECELERATION
00707	G0120.5	6-DEC	-6 EXTERNAL DECELERATION
00708	G0120.6	7-DEC	-7 EXTERNAL DECELERATION
00709	G0120.7	8-DEC	-8 EXTERNAL DECELERATION
00710	G0126.0	SVF1	X SERVO OFF

NO.	ADDRESS	SYMBOL	FIRST COMMENT
00711	G0126.1	SVF2	Y SERVO OFF
00712	G0126.2	SVF3	Z SERVO OFF
00713	G0126.3	SVF4	B SERVO OFF
00714	G0126.4	SVF5	5 SERVO OFF
00715	G0126.5	SVF6	6 SERVO OFF
00716	G0126.6	SVF7	7 SERVO OFF
00717	G0126.7	SVF8	8 SERVO OFF
00718	G0130.0	IT1	X INTERLOCK SIGNAL
00719	G0130.1	IT2	Y INTERLOCK SIGNAL
00720	G0130.2	IT3	Z INTERLOCK SIGNAL
00721	G0130.3	IT4	B INTERLOCK SIGNAL
00722	G0130.4	IT5	5 INTERLOCK SIGNAL
00723	G0130.5	IT6	6 INTERLOCK SIGNAL
00724	G0130.6	IT7	7 INTERLOCK SIGNAL
00725	G0130.7	IY8	8 INTERLOCK SIGNAL
00726	G0136.0	EAX1	X PMC CTRL SELECT SIGNAL
00727	G0136.1	EAX2	Y PMC CTRL SELECT SIGNAL
00728	G0136.2	EAX3	Z PMC CTRL SELECT SIGNAL
00729	G0136.3	EAX4	C PMC CTRL SELECT SIGNAL
00730	G0136.4	EAX5	A PMC CTRL SELECT SIGNAL
00731	G0136.5	EAX6	MG PMC CTRL SELECT SIGNAL
00732	G0136.6	EAX7	SL PMC CTRL SELECT SIGNAL
00733	G0136.7	EAX8	SR PMC CTRL SELECT SIGNAL
00734	G0142.2	EMBUFA#1	X BUFFERING DISABLE
00735	G0142.5	ESTP_A#1	X AXIS CONT TEMPORARY STOP S
00736	G0150.0	EROV1_#1	RAPID TRAVERSE OVERRIDE SIGNAL
00737	G0150.1	EROV1_#21	RAPID TRAVERSE OVERRIDE SIGNAL
00738	G0154.2	EMBUFB#1	Y BUFFERING DISABLE SIGNA
00739	G0154.5	ESTP_B#1	Y AXIS CONT TEMPORARY STOP
00740	G0166.2	EMBUFC#1	Z BUFFERING DISABLE SIGNA
00741	G0166.5	ESTP_C#1	Z AXIS CONT TEMPORARY STOP S
00742	G0178.2	EMBUFD#1	C BUFFERING DISABLE SIGNA
00743	G0178.5	ESTP_D#1	C AXIS CONT TEMPORARY STOP S
00744	G0191.2	OPT	OP TEST MODE
00745	G0191.3	OPQ	OP REQUIRE SIGNAL
00746	G0193.2	STBT	BRAKE TEST START SIGNAL
00747	G0298.2	RNDH	Tool tip center rotation
00748	G0408.0	STCHK	Start check signal
00749	G0519.3	TDID	3D INTERFERENCE CHK DISABLE
00750	G0519.4	TDICHG	3D INTERFERENCE CHK REF SET
00751	G0748.6	*SMC	MCC STATUS
00752	G0750.0	*VLDVX	SAFETY MONITOR REQ SIGNAL X
00753	G0750.1	*VLDVY	SAFETY MONITOR REQ SIGNAL Y
00754	G0750.2	*VLDVZ	SAFETY MONITOR REQ SIGNAL Z
00755	G0750.3	*VLDV4	SAFETY MONITOR REQ SIGNAL B
00756	G0750.4	*VLDV5	SAFETY MONITOR REQ SIGNAL 5
00757	G0751.0	*VLDP1	SAFETY MONITOR REQ SIGNAL SP
00758	G0752.0	SVAX	LIMIT SAFE SPEED X
00759	G0752.1	SVAY	LIMIT SAFE SPEED Y
00760	G0752.2	SVAZ	LIMIT SAFE SPEED Z
00761	G0752.3	SVA4	LIMIT SAFE SPEED B
00762	G0752.4	SVA5	LIMIT SAFE SPEED 5
00763	G0753.0	SVBX	LIMIT SAFE SPEED X
00764	G0753.1	SVBY	LIMIT SAFE SPEED Y
00765	G0753.2	SBVBZ	LIMIT SAFE SPEED Z
00766	G0753.3	SVB4	LIMIT SAFE SPEED B
00767	G0753.4	SVB5	LIMIT SAFE SPEED 5
00768	G0754.0	SPA1	LIMIT SAFE SPEED SP
00769	G0754.4	SPB1	LIMIT SAFE SPEED SP
00770	G1100.0	+J9	FEED AXIS 9+
00771	G1101.0	ED29+	2ND EXT DECELERATION 29+
00772	G1102.0	-J9	FEED AXIS 9-
00773	G1103.0	ED29-	2ND EXT DECELERATION 29-
00774	G1114.0	+L9	+9 OVERTRAVEL
00775	G1116.0	-L9	-9 OVERTRAVEL
00776	G1118.0	9+DEC	+9 EXTERNAL DECELERATION
00777	G1120.0	9-DEC	-9 EXTERNAL DECELERATION
00778	G1130.0	IT9	9 INTERLOCK SIGNAL
00779	G1142.2	EMBUFA#2	EMG BUF A 2
00780	G1142.5	ESTP_A#2	A EMG STOP
00781	G1150.0	EROV1_#2	RAPID OVERRIDE 1

NO.	ADDRESS	SYMBOL	FIRST COMMENT
00782	G1150.1	EROV2_#2	RAPID OVERRIDE 2
00783	G1154.2	BMBUFB#2	MG BUF STOP 2
00784	G1154.5	ESTP_B#2	MG EMG STOP 2
00785	G1166.2	EMBUFC#2	SL BUF STOP 2
00786	G1166.5	ESTP_C#2	SL EMG STOP 2
00787	G1178.2	EMBUFD#2	SR BUF STOP 2
00788	G1178.5	ESTP_D#2	SR EMG STOP 2
00789	R0000.0	NC_RST	NC RESET AUX
00790	R0000.1	MF1.S	MF 1 AUX
00791	R0000.2	SF3.S	SF3 AUX
00792	R0000.3	TF.S	TF AUX
00793	R0000.4	BF.S	BF AUX
00794	R0000.5	MF2.S	MF 2 AUX
00795	R0000.6	MF3.S	MF 3 AUX
00796	R0000.7	M30_AUX	M30 AUX
00797	R0001.0	PCOK	NC POWER RDY
00798	R0001.1	NC_RDY	NC READY
00799	R0001.2	ITSUB	ALL AXIS INTERLOCK
00800	R0001.3	CYCLE__STOP	CYCLE STOP
00801	R0001.4	PRPONM1	OPERATION PREPAR MEM 1
00802	R0001.5	ST_RDY_OF_CHECK	CYCLE ST RDY OFF CHECK
00803	R0002.0	SFON1	SPINDLE FUNCTION ON 1
00804	R0002.1	SFON2	SPINDLE FUNCTION ON 2
00805	R0002.2	SFON3	SPINDLE FUNCTION ON 3
00806	R0002.3	SFON	SPINDLE FUNCTION ON
00807	R0002.4	TFON1	TOOL FUNCTION ON 1
00808	R0002.5	TFON2	TOOL FUNCTION ON 2
00809	R0002.6	TFON3	TOOL FUNCTION ON 3
00810	R0002.7	TFON	TOOL FUNCTION ON
00811	R0003.0	BFON1	2ND AUXILIARY FUNCTION ON 1
00812	R0003.1	BFON2	2ND AUXILIARY FUNCTION ON 2
00813	R0003.2	BF3	2ND AUXILIARY FUNCTION ON 3
00814	R0003.3	BFON	2ND AUXILIARY FUNCTION ON
00815	R0006.0	PIR	PROBE IMPACT - RESET
00816	R0009.7	M079	M079
00817	R0010.0	CYCLE_ST_PB_ON	CYCLE START PB ON
00818	R0010.1	CYCLE_ST_PB_OF	CYCLE ST OFF PB
00819	R0010.2	RDY1	NC RDY 1
00820	R0010.3	I_SET	MACHINE PREPAR RDY
00821	R0010.4	M084	M084
00822	R0010.5	ST_RDY_ON_OK	CYCLE READY ON OK
00823	R0010.6	MCC_OF_TIMING	MCC OFF TIMING
00824	R0010.7	M087	M087
00825	R0011.0	PWRDY1	MCC POWER RDY 1
00826	R0011.5	OPMOD1	OPERATION MODE 1
00827	R0011.6	OP_MOD_2	OPERATION MODE 2
00828	R0011.7	OP_MOD_3	OPERATION MODE 3
00829	R0012.0	MOD_1_OP_DOR_OPE	MODE 1 OPERATOR DOOR OPEN
00830	R0012.1	OPKMD2	OPERATION DOOR OPEN MODE 2
00831	R0012.2	OP_DOR_OPEN_MD3	OPERATION DOOR OPEN MODE 3
00832	R0012.3	OPDRUKS	OPERATION DOOR UNLOCK
00833	R0012.4	OPDRUKF	DOOR OPEN & CYCLE STOP
00834	R0012.5	SACHKOK	MACHINE SAFETY CHECK RDY
00835	R0015.0	PRDY1ON	MCC POWERO 1 ON
00836	R0015.1	PRDY1ONS	MCC POWERO 1 ON AUX
00837	R0016.0	MCCTOK1	MCC TEST RDY 1
00838	R0016.1	MCCTOK	MCC TEST RDY
00839	R0016.2	MCCTST	MCC TEST
00840	R0016.3	MCCTST1	MCC TEST 1
00841	R0016.4	MCCTST2	MCC TEST 2
00842	R0016.5	MCC_TEST_ON	MCC CHECK ON
00843	R0017.0	MOD2ENB	MODE 2 ENABLE SW ON
00844	R0017.1	MOD_3_ENB	MODE 3 ENABLE SW ON
00845	R0017.2	ENB_OF_CHK	ENABLE SW OFF CHECK
00846	R0017.3	SPINDLE_IT_1	SPINDLE INTERLOCK 1
00847	R0018.0	BRKTOK1	BRAKE TEST RDY 1
00848	R0018.1	BRKTOK	BRAKE TEST RDY
00849	R0018.2	BRKTST	BRAKE TEST
00850	R0018.3	BRKTST3	BRAKE TEST START
00851	R0018.4	BRKTST4	BRAKE TEST START AUX
00852	R0018.5	BRKTESON	BRAKE TESTING

NO.	ADDRESS	SYMBOL	FIRST COMMENT
00853	R0018.6	BRKTST1	BRAKE TEST AUX 1
00854	R0018.7	BRKTST2	BRAKE TEST AUX 2
00855	R0030.0	AUTO_CYST_AUX_2	AUTO CYCLE START AUX 2
00856	R0030.1	FEED_HOLD_AUX	FEED HOLD AUX
00857	R0030.2	CYSTINT	CYCLE START INTERRUPT
00858	R0030.3	MDIOPE	MDI OPERATION
00859	R0030.4	AUTON1	AUTO ON 1
00860	R0030.5	AUTON2	AUTO ON 2
00861	R0030.6	AUTCYCM	AUTO CYCLE MODE 2
00862	R0030.7	AUTO_CYST_AUX	AUTO CYCLE START AUX 2
00863	R0031.0	M30_MEM	M30 MEMORY
00864	R0031.1	RWDON	DATA BACK UP ON
00865	R0031.2	RWDOFF	DATA BACK UP FINISH
00866	R0031.3	CYSTNO	CYCLE START PROHIBIT
00867	R0031.4	RWDSTOK	DATA BACK UP STOP OK
00868	R0031.5	RWDST	DATA BACK UP STOP
00869	R0031.6	AUTO_PW_OFF	AUTO POWER OFF
00870	R0031.7	M30SWM	M30 SW MEM
00871	R0032.0	MAIN_PRG_NO_SEH	MAIN PROGRAM NO. SEARCH
00872	R0032.1	WSETHLD	WORKSETS HOLD
00873	R0032.2	DCNVWK	BCD CONVERTER WORK
00874	R0032.4	DCNVWT	BCD CONVERTER WEEK
00875	R0032.5	WNSCH	WORK PROGRAM NO SERCH
00876	R0032.6	ERSOK	EXTERA NC RESET OK
00877	R0032.7	PRGSHST	EX PROGRAM SERCH START
00878	R0033.0	EXIN-PG	EX PROGRAM NO SERCH AUX
00879	R0033.1	PRGSHOK	EX PROGRAM NO SERCH OK
00880	R0033.2	CYST2	CYCLE STOP 2
00881	R0033.3	CYST1	CYCLE START 1
00882	R0033.4	CYST2M	CYCLE START MEM
00883	R0033.5	AUTPWOF5	AUTO POWER OFF START
00884	R0040.0	WTOFM	WEEKLY TIMER OFF MEM
00885	R0040.1	WTMRST	WEEKLY TIMER RESET
00886	R0040.2	WTPRPON	WEEK TIMER PROG OPERATION ON
00887	R0040.3	WTPRPM	WEEK TIME PROG OPERATION MEM
00888	R0040.4	WTMRONM	WEEK TIMER ON MEM
00889	R0040.5	WTCYC1	WEEKLY TIMER CYCLE 1
00890	R0040.6	WTCYC2	WEEKLY TIMER CYCLE 2
00891	R0040.7	WTCYCOK1	WEEKLY TIMER CYCLE 1 OK
00892	R0041.0	WTCYC3	WEEKLY TIMER CYCLE 3
00893	R0041.1	WTCYC4	WEEK TIMER CYCLE ZERO RETURN
00894	R0041.2	WTCYC5	WEEK TIMER CYC ZERO RET FINISH
00895	R0041.3	WTCYC6	WEEKLY TIMER CYC MEM MODE
00896	R0041.4	WTCYC7	WEEKLY PROGRAM SEARCH
00897	R0041.5	WTCYC7S	WEEKLY TIMER CYCLE COMPLEMENT
00898	R0041.7	WTCYC10	WEEKLY TIMER PROG CYC
00899	R0050.1	CL-SPAIR	SPINDLE COOLANT AIR
00900	R0050.2	CTS_PCK_DL	
00901	R0050.3	CP-STP	CHIP CONVEYOR STOP
00902	R0055.0	M07FF	M07 AUTO AIR FOR CHIP
00903	R0055.1	M08FF	M08 AUTO COOLANT
00904	R0055.2	M50FF	M50 ATUO SIDE COOLANT
00905	R0055.3	M51FF	M51 AUTO CTS
00906	R0055.4	M61FF	AUTO CHIP COOLANT
00907	R0056.0	FLDMTR	COOLANT MOTOR AUX
00908	R0056.1	FLDS	CHIP COOLANT AUX
00909	R0056.2	MISTO	OIL MIST
00910	R0056.3	TMR53	AIR SEAL DELAY OFF
00911	R0056.5	OILHLMTR	CTS MOTOR
00912	R0056.6	CHIPAIR	CHIP AIR BLOW AUX
00913	R0057.0	CLTRST	ALL COOLANT RESET
00914	R0057.1	ALL_COOLANT_STOP	ALL COOLANT STOP
00915	R0057.5	M62FF	AUTO COOLANT AND AIR
00916	R0058.0	M67FF	
00917	R0058.1	M68FF	
00918	R0058.7	M63FF	CTS AIR BLOW ON
00919	R0059.0	CHIP_CON_RDY_OK	CHIP CON READY OK
00920	R0059.1	CHPCW1	
00921	R0059.2	CHPCCW1	CHP CON CCW 1
00922	R0059.3	M/CDROK	M/C DOOR OK
00923	R0059.4	M52FF	AUTO CHIP CONVEYOR

NO.	ADDRESS	SYMBOL	FIRST COMMENT
00924	R0059.5	M53FF	CHIP COOLANT M CODE AUX
00925	R0060.0	WORKPB	CHIP FLUSH BUTTON
00926	R0060.1	WORKPB1	CHIP FLUSH BUTTON 1
00927	R0060.2	WORKPB2	CHIP FLUSH BUTTON 2
00928	R0060.3	WRKON	CHIP FLUSH ON
00929	R0065.0	CHPAUTON	CHIP CON AUTO RUN
00930	R0065.1	CHP_CON_1_MAN_CW	CHIP CON 1 MANUAL CW
00931	R0065.2	NO_2&3CNVCW	NO 2&3 CHIP CONVEYOR CW
00932	R0065.3	NO_2&3_CNVCC_ON	NO 2&3 CHIP CONVEYOR CCW ON
00933	R0065.4	CHP1.INT	CHIP CON 1 INTERLOCK
00934	R0065.5	CHP2.INT	CHIP CON 2 INTERLOCK
00935	R0066.0	YSHTLKC	Y AXIS SHUTTER LOCK COMMAND
00936	R0066.1	YSHTULK	Y AXIS SHUTTER UNLOCK COMMAND
00937	R0066.2	YSHTLK-1	Y AXIS SHUTTER LOCK
00938	R0066.3	YSHTULK-1	Y AXIS SHUTTER UNLOCK
00939	R0067.0	COVX1	Y AXIS SHUTTER SET
00940	R0067.1	COVX2	Y AXIS SHUTTER Z AXIS P1
00941	R0067.2	COVX3	Y AXIS SHUTTER X AXIS P1
00942	R0067.3	COVX4	Y AXIS SHUTTER Y AXIS P3
00943	R0067.4	COVX5	Y AXIS SHUTTER ON&OFF
00944	R0067.5	COVX6	Y AXIS SHUTTER Y AXIS P1
00945	R0067.6	COVX7	Y AXIS COVER CLOSE FINISH
00946	R0071.0	MSTAUT	OIL MIST COLLECTOR AUTO
00947	R0071.1	M26FF	OIL MIST COLLECTOR START
00948	R0072.0	M54	BOOSTER HIGH
00949	R0072.1	M55	BOOSTER MIDDLE
00950	R0072.2	M56	
00951	R0072.3	M57	AIR BOOSTER
00952	R0072.4	M58	SPINDLE BOOSTER OFF
00953	R0073.0	M54FF	M54 KEEP
00954	R0073.1	M55FF	M55 KEEP
00955	R0073.2	M56FF	M56 KEEP
00956	R0073.3	M57FF	M57 KEEP
00957	R0073.4	ECO.MFIN	M57/M58 FINISH
00958	R0073.5	ECO.OIL	BOOSTER OIL ON
00959	R0073.6	ECO.AIR	BOOSTER AIR ON
00960	R0073.7	ECOMFINS	BOOSTER ON M CODE FINISH AUX
00961	R0074.0	ECOP.OFF	BOOSTER PUMP OFF
00962	R0074.1	ECOP.ON	BOOSTER PUMP ON
00963	R0100.0	ATCINI11	ATC INITIAL
00964	R0100.1	TAXSIT	ATC INTERLPCK
00965	R0100.2	TSPIT	ATC SP INTRELOCK
00966	R0100.3	MGINI	MG INITIAL
00967	R0100.4	ATCHLD1	ATC HOLD 1
00968	R0100.5	ATCTM1	ATC CYCLE 1
00969	R0100.6	ATCMC	ATC TOOL INITIAL
00970	R0100.7	T-OPMAI	ATC MAIN PANEL SELECTION
00971	R0101.0	T-OPESUB	ATC SUB PANEL SELECTION
00972	R0101.1	T-SPUNC	SPINDLE TOOL UNCLAMP AUX
00973	R0101.2	T-ORIT	SP M19 INTERLOCK AUX
00974	R0101.3	T-ORISP	SP M19 STOP
00975	R0101.4	T-ORIST	SP M19 START
00976	R0101.5	T-OPESTP	ATC OP STOP
00977	R0101.6	T-TFIN	T CODE FIN AUX
00978	R0102.4	T-POSOK	ATC ORI OK
00979	R0102.5	T-MGOPOK	MG DOOR OPEN OK
00980	R0102.6	T-SPAIR	M6 SP BLOW
00981	R0103.0	T-SPTLCG	SP TOOL CHANGE
00982	R0105.0	ATCINI12	ATC INITIAL 12
00983	R0105.1	ATCINI22	ATC INITIAL 22
00984	R0105.2	P1+<SL0	P1+<SL0
00985	R0105.3	SL-OT1	SL-OT1
00986	R0105.4	90.5<SR	90.5<SR
00987	R0105.5	-360.5<S	-360.5<S
00988	R0105.6	ATCALM1	ATC ALARM 1
00989	R0105.7	INDEXPOS1	ATC INDEX POS 1
00990	R0106.0	AXISITNG1	AXIS INTERLOCK NG 1
00991	R0106.1	SHBMG	ARM BACKWARD MG SIDE
00992	R0106.2	SHCO111	ARM CHUCK OPEN
00993	R0106.3	SAP4-1	SWING ARM FORWARD P4
00994	R0106.4	SPTL0	SP NON TOOL

NO.	ADDRESS	SYMBOL	FIRST COMMENT
00995	R0106.5	WTTL0-1	WAIT NON TOOL
00996	R0106.6	RTTL0-1	RETUEN SIDE NON TOOL
00997	R0106.7	ATCM-1	M6 CYC
00998	R0107.0	ATC_T&_M6_CYCLE	ATC CHANGE CYCLE 1
00999	R0107.1	SPINDCYC-1	TOOL CYC FIN AND SPINDLE UP
01000	R0107.2	ATCX1-1	ATC T & M6 CYC
01001	R0107.3	SPCL1-1	T CYC FIN SP INDEX
01002	R0107.4	SASPINIP-1	PMC CRTL XYZA
01003	R0110.0	M06S	ATC TOOL CHANGE
01004	R0110.5	M82S	SP TOOL CLAMP
01005	R0110.6	M83S	SP TOOL UNCLAMP
01006	R0110.7	M84S	MG SP TOOL INDEX
01007	R0111.0	M85S	MG T CODE TOOL INDEX
01008	R0111.1	M86S	AXIS INTERLOCK PASS
01009	R0111.2	M87S	AXIS INTERLOCK PASS OFF
01010	R0111.4	M89S	ATC RESTART
01011	R0111.5	M100S	SL P1 MG SIDE
01012	R0111.6	M101S	SL P2 DOO OPEN
01013	R0111.7	M102S	SL P3 FORWARD SP
01014	R0112.0	M103S	SL P4 SP SIDE
01015	R0112.1	M104S	ARM FORWARD
01016	R0112.2	M105S	ARM BACK WARD
01017	R0112.3	M106S	ARM CHUCK OPEN
01018	R0112.4	M107S	ARM CHUCK CLOSE
01019	R0112.5	M108S	MG WAIT SIDE TOOL INDEX
01020	R0112.6	M109S	MG RETURN SIDE TOOL INDEX
01021	R0112.7	M120S	ARM HEAD CLAMP
01022	R0113.0	M121S	ARM HEAD UNCLAMP
01023	R0113.1	M122S	SWING ARM 90 DEGREE
01024	R0113.2	M123S	SWING ARM 45 DEGREE
01025	R0113.3	M124S	SWING ARM 0 DEGREE
01026	R0113.4	M125S	SWING ARM -90 DEGREE
01027	R0113.5	M126S	SWING ARM -180 DEGREE
01028	R0113.6	M127S	SWING ARM -270 DEGREE
01029	R0113.7	M128S	SWING ARM -315 DEGREE
01030	R0114.0	M129S	SWING ARM -360 DEGREE
01031	R0114.7	MG_FRD	MG FORWARD
01032	R0115.0	MG_BRD	MG BACKWARD
01033	R0119.0	M6S	M6 AUX
01034	R0130.0	MGRDY	MG RDY
01035	R0130.1	TFST	T CODE READ OK
01036	R0130.2	TFMEM	T CODE RUN MEM
01037	R0130.3	TREAD	T CODE READ FIN
01038	R0130.4	INDEXOK	MG POS INDEX FIN
01039	R0130.5	MGPREAD	MG POS READ FIN
01040	R0130.6	IDXCOIN	MG TOOL = INDEX TOOL 1
01041	R0131.0	INDXCOIN	MG TOOL = INDEX TOOL 2
01042	R0131.7	MG_STOP	MAGAZINE STOP
01043	R0133.0	REST	ATC RESET
01044	R0133.5	INDEXPOS	ATC ROT INDEX
01045	R0134.0	TOVR	T CODE OVER NO
01046	R0134.2	PRG-ALM	ATC MACRO MISS
01047	R0134.3	ATCALM	ATC ERR
01048	R0136.2	MST	M CODE INDEX START
01049	R0136.3	M84ST	M84 SP TOOL NO INDEX START
01050	R0136.4	M85ST	M85 SP T CODE NO INDEX START
01051	R0137.0	SPINDEX	SP TOL NO INDEX SEND COMD FIN
01052	R0137.2	TINDEX	T CODE NO INDEX SEND COMND FIN
01053	R0137.5	TINDFM	MG TOOL INDEX FIN MEM
01054	R0137.6	MGACT1	MG START 1
01055	R0137.7	MGACT2	MG START 2
01056	R0138.0	INDEX1	MG OP INDEX AUX
01057	R0138.1	INDEX2	MG OP INDEX
01058	R0138.2	INDEX3	MG OP INDEX START
01059	R0138.3	INDEX4	MG OP INDEX COMMAND AUX
01060	R0138.4	MG_INDEX	MAGAZINE INDEX COMMAND
01061	R0139.0	SPUNCL	SP TOOL UNCLAMP COMMAND
01062	R0139.1	SPUPBOFF	SP TOL UNCLP PB OFF
01063	R0139.5	AIRBLOW	SP AIR BLOW COMMAND
01064	R0140.0	AXISITNG	AXIS INTERLOCK PASS
01065	R0140.1	MG_ARM_HD_CLPDET	ATC ARM HEAD CLAMP DETECT

NO.	ADDRESS	SYMBOL	FIRST COMMENT
01066	R0140.2	MG_ARM_HDUNCLPDE	ATC ARM HEAD UNCLAMP DETECT
01067	R0140.3	SHTLDTM	ATC INITIAL RUN
01068	R0140.4	MG_TOOL_DETECT	MG POT TOOL EMPT DETECT
01069	R0141.0	MG_ARM_FRD_ON	ATC ARM FORWARD RDY
01070	R0141.1	MG_ARM_BKRD_ON	ATC ARM BACKWARD RDY
01071	R0141.2	MG_ARM_CHECK_ON	ATC ARM CHECK ON
01072	R0141.3	MG_ARM_CK_CLS_ON	ATC ARM CHECK CLOSE ON
01073	R0141.4	MG_FORWARD_DETE	MAGAZINE FORWARD DETECT
01074	R0141.5	MG_BACKWARD_ON	MAGAZINE BACKWARD DETECT
01075	R0141.6	SAP4	SA FORWARD POSITION 4
01076	R0141.7	SAP1	SA BACKWARD P1
01077	R0142.0	SHTLDT	ARM SIDE HAVE TOOL
01078	R0142.1	SAWT	SA WITE POSITION
01079	R0142.2	SAINI	SA INITIAL POSITION
01080	R0142.3	SASPRL	SWING ARM SP CHANG TOL POS
01081	R0142.4	SASPIN	SWING ARM SP GET TOL POS
01082	R0142.5	MANU_ATC	ARM INITIAL
01083	R0142.6	ATCINI	ATC INITIAL
01084	R0142.7	ATCINI2	ATC INITIAL 2
01085	R0143.0	ATCXYP	ATC ON & XYZA POS
01086	R0143.1	ATCTLINP	ATC TOOL INPOS
01087	R0143.2	ATCTLRPL	ATC TOOL RL POS
01088	R0143.3	ATCSTP	ATC STOP POS
01089	R0144.0	APTL0	SP NON TOOL
01090	R0144.1	WTL0	WAIT NON TOOL
01091	R0144.2	RTTL0	RETURN SIDE NON TOOL
01092	R0144.3	TCM0	T CODE MEM =0
01093	R0144.4	TF=SPTL	T CODE EQ SP TOOL NO
01094	R0144.5	TC=RTTL	T COD EQ WAIT TOOL NO
01095	R0144.6	TC=W TTL	T COD EQ RETURN TOOL NO
01096	R0144.7	TC=0	T CODE NO =0
01097	R0145.0	TLSALM1	ATC DETE L.S ERR
01098	R0145.1	TINIOFF	ATC INITIAL OFF
01099	R0145.2	TCPEER	T CODE MACRO ERR
01100	R0145.3	TCYCOVR	T CODE CYC TIMER OVER
01101	R0145.4	M6CYCOVR	M6 CYC TIMER OVER
01102	R0145.5	ATCTCYC	ATC CYC TIMER CHECK
01103	R0145.6	HNDTL=0	HANDLE TOOL = 0
01104	R0145.7	SP=TXX	SP TOOL = T NO
01105	R0146.0	THLDS	ATC CYC HOLD AUX
01106	R0146.1	TTHLD	ATC TOOL HOLD
01107	R0146.2	TM6HLD	ATC M6 HOLD
01108	R0146.3	TX6HLD	T NO M6 CYC
01109	R0146.4	TMHLD	ATC M CODE CYC
01110	R0146.5	ATCHLD	ATC HOLD
01111	R0146.6	TX6MHLD	T NO M6 MACRO M CODE CYC
01112	R0147.0	TSTOK	T CODE START OK
01113	R0147.1	TF1	T CODE START 1
01114	R0147.2	TF2	T CODE START 2
01115	R0147.3	ATCT	T CODE CYC
01116	R0147.4	TFINS	T CODE FIN AUX
01117	R0147.5	TFINS1	T CODE FIN AUX 1
01118	R0147.6	ATCTST	T CODE START AUX
01119	R0147.7	ATCTST1	T CODE START AUX 1
01120	R0148.0	ATCTEND	T CODE CYC FIN
01121	R0148.1	MSTOK	M6 START OK
01122	R0148.2	M6__CHANGE_TOOL	M6 CYCLE
01123	R0148.3	ATCMST	M6 START AUX
01124	R0148.4	ATCMST1	M6 START AUX 1
01125	R0148.5	ATCMEND	M6 CYCLE FIN
01126	R0148.6	ATC_T_M6_CYCLE	ATC T&M6 CYCLE ON
01127	R0149.0	ATCTDT	ATC T CYC
01128	R0149.1	ATCTRST	ATC T CYC RESTART
01129	R0149.4	TFS	T CODE AUX
01130	R0149.5	TFS1	T CODE AUX 1
01131	R0149.6	TFS2	T CODE AUX 2
01132	R0150.0	ATCT1	T CYC START
01133	R0150.1	ATCT2-1	ATC RETURN START
01134	R0150.2	ATCT2-2	T NO EQ WAIT NO CYC FIN
01135	R0150.3	ATCT3-1	WAIT TOOL INDEX
01136	R0150.4	ATCT3-2	SP TOOL INDEX

NO.	ADDRESS	SYMBOL	FIRST COMMENT
01137	R0150.5	ATCT3-3	WAIT & SP TOL NO EQ 0 ERR
01138	R0150.6	ATCT4	HSK HEAD DOWN
01139	R0150.7	ATCT5-1	ARM FORWARD
01140	R0151.0	ATCT5-2	RETURN TOL DETE ==EQ 1 ERR
01141	R0151.1	ATCT6	HSK HEAD UP
01142	R0151.2	ATCT7	A 45 TO 0 & B-315 TO -270
01143	R0151.3	ATCT8	ATC CHUCK CLOSE
01144	R0151.4	ATCT9	ARM BACKWARD
01145	R0151.5	ATCT10	ATC CHUCK OPEN
01146	R0151.6	ATCT11	TOOL RETURN FIN
01147	R0151.7	ATC12	ATC STOP & T CYC FIN
01148	R0152.0	ATCT20	NEW ATC CYC START
01149	R0152.1	ATCT21-1	NEW TOOL INDEX
01150	R0152.2	ATCT21-2	SP TOOL INDEX
01151	R0152.3	ATCT21-3	T CODE EQ 0 SP T NO EQ 0 ERR
01152	R0152.4	ATCT22	ATC CHUCK CLOSE
01153	R0152.5	ATCT23-1	ARM FORWARD
01154	R0152.6	ATCT23-2	T CODE EQ 0 ERR
01155	R0152.7	ATCT24	ATC CHUCK OPEN
01156	R0153.0	ATCT25	SWING ARM MIDDLE
01157	R0153.1	ATCT26	ATC NON ACT
01158	R0153.3	ATCT27-2	ATC NON ACT
01159	R0153.5	ATCT28	ARM BACKWARD
01160	R0153.6	ATCT29	ATC CHUCK OPEN
01161	R0153.7	ATCT30	ATC STOP & T CYC FIN
01162	R0154.0	SPINDCYC	T CYC FIN & SP TOL INDEX
01163	R0154.1	SPINDCIN	SP TOL INDEX
01164	R0154.2	ATCT2-3	RETURN ARM DETE TOOL EQ 1
01165	R0155.0	ATCM1	SWING ARM P4 GO TO P3
01166	R0155.1	ATCM2-1	SWING ARM P3 GO P2&A-315B45
01167	R0155.2	ATCM2-2	SWING ARM P2 GO P1
01168	R0155.3	ATCM3	SWING ARM INITIAL POS CONFIRM
01169	R0155.4	ATCM4-1	RETURN TOOL INDEX
01170	R0155.5	ATCM4-2	RETURN TOL EQ 0 & SP TOL INDEX
01171	R0155.6	ATCM5	HSK HEAD DOWN
01172	R0155.7	ATCM6-1	ARM FORWARD
01173	R0156.0	ATCM6-2	RETURN MG SIDE TOOL ERR
01174	R0156.1	ATCM7	HSK HEAD UP
01175	R0156.2	ATCM8	A-315 GO 270& B45 GO 0
01176	R0156.3	ATCM9	ATC CHUCK CLOSE
01177	R0156.4	ATCM10	ARM BACKWARD
01178	R0156.5	ATCM11	ATC CHUCK OPEN
01179	R0156.6	ATCM12	ATC NO ACT
01180	R0156.7	ATCM13	M6 CYC FIN
01181	R0157.0	ATCX1	X PMC CTRL XYZCA
01182	R0157.1	ATCX2	Z POS EQ P2 COOLANT HOLD
01183	R0157.2	ATCX3	A POS EQ P2
01184	R0157.3	ATCX4	XY POS P2 & SP M19
01185	R0157.4	ATCX5	A POS EQ P4
01186	R0157.5	ATCX6	SL POS P2
01187	R0157.6	ATCX7	SL POS P3& SR POS A-90 B -180
01188	R0157.7	ATCX8	SL POS P4
01189	R0158.0	ATCX9	ATC INTERLOCK OFF
01190	R0158.1	ATCX10	Y POS P4
01191	R0158.2	ATCX11	SP UNCLP
01192	R0158.3	ATCX12	ATC ZP3
01193	R0158.4	ATCX13	ATC ZP2
01194	R0158.5	ATCX14	SR A180 B 190 SL P4
01195	R0158.6	ATCX15	ATC ZP3
01196	R0158.7	ATCX16	ATC ZP4
01197	R0159.0	ATCX17	SP CLP
01198	R0159.1	ATCX18	ATC INTERLOCK ON
01199	R0159.2	ATCX19	M6 MACRO RUN FROM MIDDLE
01200	R0160.0	ATCMDT1	ATC M CODE CYC 1
01201	R0160.1	ATCMDT2	ATC M CODE CYC 2
01202	R0160.2	ATCMDT	ATC M CODE CYC
01203	R0160.3	ATCMRST	ATC M CODE CYC RESTART
01204	R0160.4	PMCSET	PMC CTRL XYZA RESET
01205	R0160.5	PMCSETS	PMC CTRL XYZA RESET AUX
01206	R0160.6	MFS	M CODE STOP AUX
01207	R0161.1	MAIN_SEL	ATC PANEL OFF

NO.	ADDRESS	SYMBOL	FIRST COMMENT
01208	R0161.2	SUB_SEL	
01209	R0162.0	ATCST_MG30	ATC CYC START MG TOL EQ 30
01210	R0162.1	TNGINDFIN	ATC CYC NG INDEX END
01211	R0162.2	INDON	INDEX ON
01212	R0162.3	INDFIN	INDEX CYC FIN
01213	R0162.5	MGERR	MG TOOL ERR
01214	R0165.0	INCOPE	INCH OPERATION
01215	R0165.2	ORIO	ORIENTATION EQ 0 DEGREE
01216	R0165.3	SA180FOK	SWING ARM POS EQ 180 FRD ON
01217	R0165.4	SAOBOK	SWING ARM POS EQ 0 BRD ON
01218	R0165.7	SHFBOK	ARM FRD & BRD OK
01219	R0166.0	SHFO	ARM FORWARD OUTPUT
01220	R0166.1	SHBO	ARM BACKWARD OUTPUT
01221	R0166.2	SHSOK	ARM CHUCK OPEN & CLOSE
01222	R0166.3	SHCOO	ARM CHUCK OPEN
01223	R0166.4	SHCCO	ARM CHUCK CLOSE
01224	R0166.5	SHHUCO	ARM HEAD UNCLAMP AUX
01225	R0166.6	SHHCO	ARM HEAD CLAMP AUX
01226	R0167.0	SHFRTY	ARM FORWARD RETRY
01227	R0167.1	SHFRTY1	ARM FORWARD RETRY AUX
01228	R0167.2	MG_ARM_F/B_1	ATC ARM MOVE IN&OUT 1
01229	R0167.3	SHFR2	SHIFT HAND FORWARD 2
01230	R0167.5	MG_FRD_OUTPUT	MG FORWARD OUTPUT
01231	R0167.6	MG_BKWRD_OUTPUT	MG BACKWARD OUTPUT
01232	R0168.0	SHBRTY	ARM BACKWARD RETRY
01233	R0168.1	SHBRTY1	ARM BACKWARD RETRY 1
01234	R0168.2	SHBR1	ARM BRD & FRD
01235	R0168.3	SHBR2	ARM BACKWARD JOG
01236	R0169.0	SHCCRTY	ARM CHUCK CLOSE RETRY
01237	R0169.1	SHCCRTY1	ARM CHUCK CLOSE RETRY AUX
01238	R0169.2	SHCCR1	ARM CHUCK CLOSE&OPEN
01239	R0169.3	SHCCR2	ARM CHUCK CLOSE JOG
01240	R0170.0	SHCC11	ARM CHUCK CLOSE 1
01241	R0170.1	SHCC2	ARM CHUCK CLOSE 2
01242	R0170.2	SHCO11	ARM CHUCK OPEN 1
01243	R0170.3	SHCO2	ARM CHUCK OPEN 2
01244	R0170.4	SHHG	ARM IN MG SIDE
01245	R0170.5	HAND=SP	HAND TOOL EQ SP TOOL
01246	R0170.6	HAND=WT	HAND TOOL EQ WAIT TOOL
01247	R0170.7	HAND=RT	HAND TOOL EQ RETURN TOOL
01248	R0171.0	HAND=0DT	HAND TOOL EQ 0 TOOL INDEX
01249	R0171.1	SHSAINI	HAND SWING ARM INITIAL
01250	R0171.2	SHSAWT	HAND SWING ARM WAIT
01251	R0171.3	HAND=0	HAND TOOL EQ 0 AUX
01252	R0172.0	SPCL1	SP CLAMP 1
01253	R0172.1	SPCL2	SP CLAMP 2
01254	R0172.2	SPUNCL1	SP UNCLAMP 1
01255	R0172.3	SPUNCL2	SP UNCLAMP 2
01256	R0172.4	SASPRILIP	SWING ARM SP SIDE RET POS
01257	R0172.5	SASPINIP	SWING ARM SP SIDE INIT POS
01258	R0173.0	MGACT	MG TOOL INDEX RUN
01259	R0173.1	M108ST	WAIT SIDE TOOL INDEX START
01260	R0173.2	M109ST	RETURN SIDE TOOL INDEX START
01261	R0173.3	WTINDEX	WAIT TOOL INDEX SEND FIN
01262	R0173.4	RTINDEX	RETURN TOOL INDEX SEND FIN
01263	R0174.0	SASHMOV	SWING ARM & ATC ARM ACT
01264	R0175.0	CASE1_SP_T_NG	CASE 1 SP NON TOOL
01265	R0175.1	SP_T_UNCLP	SP TOOL UNCLAMP
01266	R0175.2	Z_POS_P4	Z POS P4
01267	R0175.3	SP_T_CLP	SP T CLP
01268	R0175.4	MG_BKRD	MG BACKWARD
01269	R0175.5	INTLOK_ON	INTERLOCK ON
01270	R0175.6	M6CASE1FIN	M6 CASE1 FIN
01271	R0175.7	M06END	M06 CYC FIN
01272	R0176.0	CASE2_Z_POS_P4	CASE2 Z POS P4
01273	R0176.1	MG_FORD	MG FORWARD
01274	R0176.2	SP_TOL_UNCLP	SP TOOL UNCLP
01275	R0176.3	Z_POS_P3	Z POS P3
01276	R0176.4	MG_NEW_TOL_INDEX	MG NEW TOOL INDEX
01277	R0176.5	Z_POS_P4_AUX	Z POS P4 AUX
01278	R0176.6	SP_TOL_CLP	SP TOOL CLP

NO.	ADDRESS	SYMBOL	FIRST COMMENT
01279	R0176.7	MG_BKRD_AUX	MG BACKWARD AUX
01280	R0177.0	INTLOK_ON_AUX	INTERLOCK ON AUX
01281	R0177.1	M6CASE2FIN	M6CASE2FIN
01282	R0177.2	INTLOK_OFF	INTERLOCK OFF
01283	R0177.3	SP_TOL_UNCLP_AUX	SP TOOL UNCLP AUX
01284	R0177.4	SP_TOL_CLP_AUX	SP TOOL CLP AUX
01285	R0177.5	INTLOK_ON_AUX_1	INTERLOCK ON AUX 1
01286	R0177.6	Z_POS_ZP4	Z POS ZP4
01287	R0177.7	Z_POS_ZP3	Z POS ZP3
01288	R0178.0	MG_NXT_TOL_INDEX	MG NEXT TOOL INDEX
01289	R0180.0	WTTLOA	A CYC & WAIT SIDE NON TOOL
01290	R0180.1	WTTLOB	B CYC & WAIT SIDE NON TOOL
01291	R0180.2	RTTLOA	A CYC & RETU SIDE NON TOOL
01292	R0180.3	RTTLOB	B CYC & RETU SIDE NON TOOL
01293	R0180.4	TC=WTTLA	A CYC & T CODE EQ WAIT TOL
01294	R0180.5	TC=WTTLB	B CYC & T CODE EQ WAIT TOL
01295	R0180.6	TC=RTTLA	A CYC & T CODE EQ RETU TOL
01296	R0180.7	TC=RTTLB	B CYC & T CODE EQ RETU TOL
01297	R0181.0	HAND=WTA	HAND EQ WAIT TOL A CYC
01298	R0181.1	HAND=WTB	HAND EQ WAIT TOL B CYC
01299	R0181.2	HAND=RTA	HAND EQ RETU TOL A CYC
01300	R0181.3	HAND=RTB	HAND EQ RETU TOL B CYC
01301	R0181.4	TCODE=MG	T CODE CYC EQ MG TOOL
01302	R0181.5	TCODE=SP	T CODE CYC EQ SP TOOL
01303	R0181.6	SPTOL=MG TOL	SP TOOL EQ MG TOOL
01304	R0182.0	MGINDON	MG INDEX RUN ON
01305	R0182.1	MGINDOFF	MG INDEX RUN OFF
01306	R0185.0	SHCORTY	ARM CHUCK COLSE RETRY
01307	R0185.1	SHCORTY1	ARM CHUCK COLSE RTY AUX
01308	R0185.2	MG_ARM_CHK_C/O_1	ARM CHUCK CLOSE&OPEN
01309	R0185.3	SHCOR2	ARM CHUCK CLOSE JOG
01310	R0186.0	SHHURTY	ARM HEAD UNCLAMP RETRY
01311	R0186.1	SHHURTY1	ARM HEAD UNCLAMP RTY AUX
01312	R0186.2	SHHUR1	ARM HEAD UNCLP&CLP
01313	R0186.3	SHHUR2	ARM HEAD UNCLP JOG
01314	R0187.0	SHHCRTY	ARM HEAD CLAMP RETRY
01315	R0187.1	SHHCRTY1	ARM HEAD CLAMP RTY AUX
01316	R0187.2	SHHCR1	ARM HEAD CLAMP&UNCLAMP
01317	R0187.3	SHHCR2	ARM HEAD CLAMP JOG
01318	R0250.0	TDIOFF1	3D CHECK INVALID PULSE
01319	R0250.1	TDIOFF2	3D CHECK INVALID PULSE AUX
01320	R0250.2	TDICHG1	3D CHECK SET CHANG 1
01321	R0250.3	TDICHG2	3D CHECK SET CHANG 2
01322	R0250.4	TDICHG3	3D CHECK SET CHANG 3
01323	R0250.5	TDICHG4	3D CHECK SET CHANG 4
01324	R0250.6	OFSETWIN	OFFSET INPUT WINDOW
01325	R0250.7	WINACT.M	OFFSET WINDOW SART FIN
01326	R0251.0	COFSET>0	COMMON OFFSET FROM NO1
01327	R0251.2	WINERR	OFFSET WINDOW INPUT ERR
01328	R0504.3	MOAATLS	MOA AUTO TOOL SET
01329	R0511.7	M47_ON	M47 FUNCTION ON
01330	R0512.0	TLSET	TOOL SET ON
01331	R0512.1	TL_SET_OFF	TOOL SET OFF
01332	R0512.2	TLRED	TOOL SET READ FINISH
01333	R0512.3	TLRED1	TOOL SET READ FINISH AUX
01334	R0512.4	TLMOV	TOOL READ MEM
01335	R0512.5	XMOVBERR	T NO MEM ERR
01336	R0512.6	TLINISSET	TOOL SET INITIAL
01337	R0512.7	XMOVBER	MG TOL VALUM SEL ERR
01338	R0513.0	SPTLSET	TOOL INITIAL SET
01339	R0513.1	M48S	MG TOL VALUM SEL ERR AUX
01340	R0513.2	ALSALM	TOOL SELECT ALARM
01341	R0513.3	ATLSRST1	TOOL SELECT ALARM RESET
01342	R0513.5	TSWARON	TOUCH SW AIR ON
01343	R0513.6	TNODSPST	MANUAL TOOL CHANGE POSITION
01344	R0513.7	DSP_ST.S	TOL NO DISPLAY START AUX
01345	R0514.6	SUBB_ST	SUBB ACCOUNT START
01346	R0514.7	SUBB_ERR	SUBB ACCOUNT ERR
01347	R0515.0	TPADDERR	40 TOOL COUNTER ERROR
01348	R0515.1	ATLSRST	ALL TOOL RESET
01349	R0534.2	TSRHON	TOOL SEARCH ON

NO.	ADDRESS	SYMBOL	FIRST COMMENT
01350	R0545.0	PRGCHKWINTNOL	PRG CHECK WINDOW T NO SISPLAY
01351	R0545.1	NXT.DSP	NEXT TOOL NO DISPLAY
01352	R0545.2	MUL.ERR1	MUL ACCOUNT ERR 1
01353	R0545.3	MUL.ERR2	MUL ACCOUNT ERR 2
01354	R0545.4	TNO.FIN	T NO DISPLAY FIN
01355	R0545.5	SPNO.FIN	SP T NO DISPLAY FIN
01356	R0545.6	NXNO.FIN	NEXT T NO DISPLAY FIN
01357	R0545.7	MUL.ERR3	MUL ACCOUNT ERR 3
01358	R0550.0	CTS_PS	CTS PULSE
01359	R0550.1	CTS_SG	CTS SIGNAL
01360	R0550.2	A_BL_PS	AIR BLOW PULSE
01361	R0550.3	A_BL_SG	AIR BLOW SIGNAL
01362	R0556.0	AP01	AUTO POWER OFF 1
01363	R0560.0	MG_CTRA	MAG COUNTER A
01364	R0560.1	MG_CTRB	MAG COUNTER B (BRAKE)
01365	R0560.2	MG_CTRA_PS	
01366	R0560.3	MG_CTRA_SG	
01367	R0560.4	MG_CTRB_PS	
01368	R0560.5	MG_CTRB_SG	
01369	R0560.6	MG_CW_DEC	MAG CW DEC
01370	R0560.7	MG_CCW_DEC	MAG CCW DEC
01371	R0561.0	MG_CW_DL	MAG CW OFF DELAY
01372	R0561.1	MG_CCW_DL	MAG CCW OFF DELAY
01373	R0572.0	\$)SBK	SINGLE BLOCK PB. AUX
01374	R0581.0	\$"SBK	
01375	R0609.2	APO-ON	AUTO POWER OFF -ON
01376	R0659.2	SBK-ON	
01377	R0659.3	SBK+	SBK P.B ON PULSE
01378	R0668.5	*FV100	*FV 100% KEEP
01379	R0880.0	OVC.P	
01380	R0880.1	OVC.P2	
01381	R0951.0	MGI_MC	MGI- MODE CHANGE
01382	R0951.7	MGI_RESET	MGI_RESET
01383	R1000.2	S-SPDON	SPINDLE RUNNING
01384	R1000.3	S-ORIINP	SP M19
01385	R1000.4	S-SPCL	SP CLP DETE
01386	R1000.5	S-SPUC	SP UNCLP DETE
01387	R1001.2	S-ORIEND	SP M19 FIN
01388	R1001.5	S-NCRST	SP STOP & NC RESET
01389	R1001.6	S-NCHLD	SP STOP & MACHINE HOLD
01390	R1001.7	S-SFIN	S CODE FIN
01391	R1002.3	S-WMING	SP WARM ON
01392	R1002.4	S-ONMEM	SPINDLE ON MEM
01393	R1002.6	S-PWFOFK	SPINDLE POWER OFF FINISH
01394	R1005.0	M03FF	M03 MEM
01395	R1005.1	M04FF	M04 MEM
01396	R1005.6	DROPNSTP	OP DOOR OPEN SP STOP
01397	R1005.7	SPDSP1	SP STOP 1
01398	R1006.0	SPDSP	SP STOP 2
01399	R1006.1	SPDSP3	SP STOP 3
01400	R1006.3	SPDHOLD2	SP HOLD 2
01401	R1006.4	SPDHOLD3	SP HOLD 3
01402	R1006.6	SPDHOLD	SP HOLD
01403	R1006.7	SPDCH	SP RUN CHECK
01404	R1007.7	SPINTRP	SP INTERRUPT
01405	R1009.0	SINDX	S CODE INDEX
01406	R1009.1	SP_AUT.M	SP AUTO MEM
01407	R1009.2	SPDCW1	SP CW AUX
01408	R1009.3	SPDCCW1	SP CCW AUX
01409	R1009.4	SPOFF.M	SP OFF MEM
01410	R1010.0	SP-ELC.M	SP ELC GEAR CHANGE MEM
01411	R1010.1	SP-CHK.E	SPINDLE CHECK FINISH
01412	R1010.2	SP-CK.OK	SPINDLE NORMAL
01413	R1012.0	SPDATA	SPCN DATA WRITE
01414	R1012.1	SPE.M	SP SPEED ARRVE MEM
01415	R1012.2	D62=00	SP ELC GEAR SWITCH
01416	R1012.3	POLE_CHG	GEAR CHANGE SP SPEED
01417	R1012.5	SP_SPT	SP STOP
01418	R1012.6	SP_CAN	SP STOP CANCEL
01419	R1012.7	RCHPA.S	SP POWER OUTPUT CHANGE AUX
01420	R1013.1	BLSP.INI	BULIT-IN SP OUTPUT SWITCH

NO.	ADDRESS	SYMBOL	FIRST COMMENT
01421	R1013.2	SPSTP.S	SP STOP AUX
01422	R1013.3	BLSP.TYP	BULIT-IN SPINDLE TYPE
01423	R1014.0	M29-RGT	SP M29 COMMAND
01424	R1014.1	RGT-SPE	RIGID TAP SPEED ARRIVE
01425	R1014.2	SP_CW.S	SP CW
01426	R1014.3	SP_CCW.S	SP CCW
01427	R1014.4	M43FF	CS AXIS CUTTUNG CONTROL M CODE
01428	R1015.0	M19S1	M19 AUX 1
01429	R1015.1	M19S2	M19 AUX 2
01430	R1015.2	ORISKP	M19 BY PASS
01431	R1015.5	ORIRST	M19 RESET
01432	R1015.6	ORIHOLD	M19 HOLD
01433	R1016.1	OR11	M19 START
01434	R1016.6	ORIEND	M19 FIN
01435	R1017.0	SPRSOFF	SP TOL PRESET OFF
01436	R1017.1	TAPFINS	G84 FIN
01437	R1017.3	M3/M4FIN	M3&M4 FIN AUX
01438	R1018.0	SV50.S	SPINDLE OVERRIDE 50%
01439	R1018.1	SV60.S	SPINDLE OVERRIDE 60%
01440	R1018.2	SV70.S	SPINDLE OVERRIDE 70%
01441	R1018.3	SV80.S	SPINDLE OVERRIDE 80%
01442	R1018.4	SV90.S	SPINDLE OVERRIDE 90%
01443	R1018.5	SV100.S	SPINDLE OVERRIDE 100%
01444	R1018.6	SV110.S	SPINDLE OVERRIDE 110%
01445	R1018.7	SV120.S	SPINDLE OVERRIDE 120%
01446	R1019.0	SV130.S	SPINDLE OVERRIDE 130%
01447	R1019.1	SV140.S	SPINDLE OVERRIDE 140%
01448	R1019.2	SV150.S	SPINDLE OVERRIDE 150%
01449	R1020.0	SPSTON	SP RUN ON
01450	R1021.0	M03-ON	M03 ON
01451	R1021.1	M04-ON	M04 ON
01452	R1021.2	M05-ON	M05 ON
01453	R1021.3	M19-ON	M19 ON
01454	R1030.0	SOVR1	SP SPEED OVERRIDE 1
01455	R1030.1	SOVR2	SP SPEED OVERRIDE 2
01456	R1030.2	SOVR4	SP SPEED OVERRIDE 4
01457	R1030.3	SOVR8	SP SPEED OVERRIDE 8
01458	R1034.0	MULERR2	MUL ACCOUNT ERR2
01459	R1034.1	SOVITR	SP SPEED OVERRIDE CHECK
01460	R1034.2	SPOVROFF	SP SPEED OVERRIDE OFF
01461	R1100.0	SPWUP	SP WARM UP
01462	R1100.2	D92<S	D92<S
01463	R1100.3	S=<D92	S=<D92
01464	R1100.5	D94<S	D94<S
01465	R1100.6	S=<D94	S=<D94
01466	R1100.7	92<S=<94	92<S=<94
01467	R1101.0	D96<S	D96<S
01468	R1101.1	S=<D96	S=<D96
01469	R1101.2	D94<S=<96	D94<S=<96
01470	R1101.3	D98<S	D98<S
01471	R1101.4	S=<D98	S=<D98
01472	R1101.5	96<S=<98	D96<S=<D98
01473	R1101.6	D100<S	D100<S
01474	R1101.7	S=<D100	S=<D100
01475	R1102.0	98<S=<100	D98<S=<100
01476	R1102.1	1SECP	1 SEC PULSE
01477	R1102.2	1SECPS	1 SEC PULSE AUX
01478	R1102.3	SIND1	SP INDEX RUN
01479	R1102.4	MULBERR	MULB ACCOUNT ERR
01480	R1102.5	DIVBERR	DIVB AUUOUNT ERR
01481	R1102.6	DROPS5UP	DOOR OPEN SP SPEED 500RPM
01482	R1102.7	MDSPON	SPINDLE ON
01483	R1103.0	PRPCNT	OP RDY COUNT
01484	R1103.1	ADDBERR	ADDB ACCOUNT ERR
01485	R1103.2	F1PRP	
01486	R1103.3	S=D92	S=6000
01487	R1103.4	S=D94	S=8000
01488	R1103.5	S=D96	S=10000
01489	R1103.6	S=D98	S=11000
01490	R1105.0	F3CNT	D92<S=<D94 COUNT
01491	R1105.1	ADDBERR1	ADDB ACCOUNT ERR1

NO.	ADDRESS	SYMBOL	FIRST COMMENT
01492	R1105.2	F3	D92<S<=D94 COUNT FIN
01493	R1105.3	F3STP	D92<S<=D94 STOP COUNT
01494	R1105.4	ADDBERR2	ADDB ACCOUNT ERR2
01495	R1105.5	F3RST	D92<S<=D94 STOP COUNT RESET
01496	R1105.6	F3STPRST	D92<S<=D94 STOP COUNT RESET
01497	R1106.0	F4CNT	D94<S<=D96 STOP COUNT
01498	R1106.1	ADDBERR3	ADDB ACCOUNT ERR3
01499	R1106.2	F4	D94<S<=D96 COUNT FIN
01500	R1106.3	F4STP	D94<S<=D96 STOP COUNT
01501	R1106.4	ADDBERR4	ADDB ACCOUNT ERR4
01502	R1106.5	F4RST	D94<S<=D96 COUNT RESET
01503	R1106.6	F4STPRST	D94<S<=D96 STOP COUNT RESET
01504	R1107.0	F5CNT	D96<S<=D98 COUNT
01505	R1107.1	ADDBERR5	ADDB ACCOUNT ERR5
01506	R1107.2	F5	D96<S<=D98 COUNT FIN
01507	R1107.3	F5STP	D96<S<=D98 STOP COUNT
01508	R1107.4	ADDBERR6	ADDB ACCOUNT ERR6
01509	R1107.5	F5RST	D96<S<=D98 COUNT RESET
01510	R1107.6	F5STPRST	D96<S<=D98 STOP COUNT AUX
01511	R1108.0	F6CNT	D98<S COUNT
01512	R1108.1	ADDBERR7	ADDB ACCOUNT ERR7
01513	R1108.2	F6	D98<S COUNT FIN
01514	R1108.3	F6STP	D98<S STOP COUNT
01515	R1108.4	ADDBERR8	ADDB ACCOUNT ERR8
01516	R1108.5	F6RST	D98<S COUNT AUX
01517	R1108.6	F6STPRST	D98<S STOP COUNT RESET
01518	R1200.0	SPDOK1	SP RUN OK 1
01519	R1502.2	PLS01	HANDLE INDEX PULSE 1
01520	R1502.3	PLS02	HANDLE INDEX PULSE 2
01521	R1502.6	PLS03	SPINDLE OVEERIDE PULSE
01522	R1502.7	PLS04	SPINDLE OVERRIDE AUX
01523	R1503.0	PLS05	WORK LIGHT SW 5
01524	R1503.1	PLS06	WORK LIGHT SW AUX 6
01525	R1503.6	PLS07	CHIP CON MANUAL SW 7
01526	R1503.7	PLS08	CHIP CON MANUAL SW 8
01527	R1504.1	PLS09	DRY RUN SW PULSE 9 AUX
01528	R1504.2	PLS010	DRY RUN SW PULSE 10 AUX
01529	R1504.3	DRY_RUN_KEEP	DRY RUN KEEP
01530	R1504.4	PLS011	BLOCK SKIP KEEP 11
01531	R1504.5	PLS012	BLOCK SKIP SW KEEP 12
01532	R1504.7	OPTION_STOP_SW	OPTIONAL STOP PB
01533	R1505.0	OPTION_STOP_AUX	OPTIONAL STOP AUX SW
01534	R1505.1	PLS015	PULSE GENERATOR *10 SW
01535	R1505.2	HANDLE_*10_AUX	PULSE GENERATOR *10 SW AUX
01536	R1505.5	3D_MPG_ON	3D MPG ON
01537	R1505.6	3D_MPG_PS	3D MPG PULSE
01538	R1505.7	3D_MPG_SG	3D MPG SIGNAL
01539	R1605.1	M10.A	TABLE CLP
01540	R1605.2	M11.A	TABLE UNCLP
01541	R1605.3	M12.A	TILT CLP
01542	R1605.4	M13.A	TILT UNCLP
01543	R1606.0	4.UNC	4TH AXIS UNCLAMP CODE
01544	R1606.1	4.CLP	4TH AXIS CLAMP M CODE
01545	R1607.0	4A/C.UCL	4TH AXIS UNCLAMP CHECK
01546	R1607.1	4A/C.CL	4TH AXIS CLAMP CHECK
01547	R1616.0	5.UCLS	5TH AXIS UNCLAMP
01548	R1616.1	5.CLP	5TH AXIS CLAMP M CODE
01549	R1617.0	5A/C.UCL	5TH AXIS UNCLAMP
01550	R1617.1	5A/C.CL	5TH AXIS CLAMP
01551	R1806.0	GRS_RST	GREASE COUNT RESET
01552	R1806.1	AUTO_GREASE_CTR	AUTO GREASE COUNTER
01553	R1855.3	OIL.DW	SP OIL & AIR OIL LEV LOW
01554	R1855.4	SP_OIL_ON	SPINDLE OIL ON
01555	R1855.6	S.CD-IN	S CODE INPUT
01556	R1855.7	TM-D.0	D314-D319 DATA EQ 0
01557	R1856.0	S10000UP	S CODE 10000 UP
01558	R1856.1	S15000UP	S CODE 15000 UP
01559	R1856.2	S20000UP	S CODE 20000 UP
01560	R1856.3	S30000UP	S CODE 30000 UP
01561	R1856.6	CUNT_OV	COUNT OVER
01562	R1856.7	SP.OILON	SP OIL&AIR FIN

NO.	ADDRESS	SYMBOL	FIRST COMMENT
01563	R1857.0	SO&AISET	SP OIL&AIR INIT OUT FIN
01564	R1857.1	SO&A_ALM	SP OIL & AIR LOW
01565	R1858.4	O&AOILON	SP OIL & AIR ON
01566	R1858.5	SP-OIL_ON	SP OIL ON
01567	R1858.7	O&ACNTS	SP OIL & AIR COUNT I SEC
01568	R1860.0	HYDSTP1	HYDRAULIC MOTOR STOP 1
01569	R1860.1	HYDSTP5	HYDRAULIC MOTOR STOP 5
01570	R1860.2	HYDSTP	HYDRAULIC MOTOR STOP
01571	R1860.3	OP_RDY_PW__AUX	OPERATION RDY START POWER AUX
01572	R2050.0	WINDFIN	OP WINDOW FIN
01573	R2051.0	WINR	Z MOTOR LOAD READ WINDOW
01574	R2051.1	MULBERR1	MULB ACCOUNT ERR1
01575	R2051.2	DIVBERR1	DIVB ACCOUNT ERR1
01576	R2051.3	ZAIRP	Z STOP AIR POS
01577	R2051.4	ZAIRPNG	Z STOP AIR POS NG
01578	R2051.5	ZAIRSTP	Z STOP AIR
01579	R2090.0	ZP2UP	Z IN ZP2 POS
01580	R2090.1	ZP3UP	Z IN ZP3 POS
01581	R2090.2	ZP4UP	Z IN ZP4 POS
01582	R2090.7	ATCMONIT	ATC MONITOR
01583	R2091.0	MGIAW	MG WAIT TOOL INDEX A CYC
01584	R2091.1	MGIBR	MG RETURN TOOL INDEX B CYC
01585	R2091.2	MGJAR	MG RETURN TOOL INDEX A CYC
01586	R2091.3	MGIBW	MG RETURN TOOL INDEX B CYC1
01587	R2092.0	MSSTRART	MONITOR SP S CODE START
01588	R2093.0	MGSPIMP	MG TOOL EQ SP TOOL INDEX
01589	R2093.1	MGTCIMP	MG TOOL EQ T CODE INDEX
01590	R2093.3	MGWTIMP	MG TOOL EQ WAIT TOOL INDEX
01591	R2093.4	MGRTIMP	MG TOOL EQ RETU TOOL INDEX
01592	R2123.7	MGCCW	MG JOG CCW
01593	R2150.0	MG+1P	MG & 1 POT
01594	R2150.1	MG+INPS	MG+INPS
01595	R2150.2	MGOVR	MG OVER LOAD DECELERATE
01596	R2150.3	MGINP*2	MGINP*2
01597	R2150.4	MGPFR	MG POS
01598	R2150.5	MGINPS	MG TOL CHANG INPOS
01599	R2151.0	TCWB	ATC MAGAZINE MANUAL CW PB
01600	R2151.1	TCCWB	
01601	R2151.2	TCWM	
01602	R2151.3	TCCWM	
01603	R2151.4	TMMG	ATC MAGAZINE ROTATION MANUAL
01604	R2151.5	TMMG0	ATC MAGAZINE ROTATION AUX
01605	R2152.0	TMMG1	ATC MAGAZINE CONTINUOUS SET 1
01606	R2152.1	TMMG2	ATC MAGAZINE KEEP RUN 2
01607	R2152.2	TMMG3	ATC MG RUNING
01608	R2152.3	TMMG4	ATC MG RESET STOP
01609	R2152.4	TMMG5	ATC MG DATA SET
01610	R2152.5	TMMG6	ATC MG DARA START
01611	R2152.6	TMMG7	ATC MG DATA INDEX FIN
01612	R2153.0	TMCW+1	ATC MG CW NEXT POT
01613	R2153.1	TMCCW-1	ATC MG CW BRFORE POT
01614	R2153.2	TMOVER	40T MG OVER
01615	R2153.3	TMADD	40T MG ADD 1
01616	R2153.4	TMPOSS	MG T VALUM SET
01617	R2153.5	TMPOSS60	60T MG SET
01618	R2159.0	MGST	MG START
01619	R2160.0	MGFINM	MG M CODE FIN MEM
01620	R2160.1	MGST1	MG START 1
01621	R2160.2	MGST2	MG START 2
01622	R2160.3	MGST3	MG START 3
01623	R2160.4	MGST4	MG START 4
01624	R2160.5	MGFIN	MG M CODE FIN
01625	R2222.0		
01626	R2222.1	BZ_OFFDL	BUZZER OFF DELAY
01627	R2222.2	PG_END_DL	PROG STOP DISP DELAY OFF
01628	R2222.7		
01629	R2250.0	SLP1+	SL P1+
01630	R2250.1	SLP1-	SL P1-
01631	R2250.2	SLP2+	SL P2+
01632	R2250.3	SLP2-	SL P2-
01633	R2250.4	SLP3+	SL P3+

NO.	ADDRESS	SYMBOL	FIRST COMMENT
01634	R2250.5	SLP3-	SL P3-
01635	R2250.6	SLP4+	SL P4+
01636	R2250.7	SLP4-	SL P4-
01637	R2251.0	P1+<SL	P1+<SL
01638	R2251.1	P1-<SL	P1-<SL
01639	R2251.2	1-<L=<1+	P1-<SL=<P1+
01640	R2251.3	P2+<SL	P2+<SL
01641	R2251.4	2+<L=<1-	P2+<SL=<P1-
01642	R2251.5	P2-<SL	P2-<SL
01643	R2251.6	2-<L=<2+	P2-<SL=<P2+
01644	R2251.7	P3+<SL	P3+<SL
01645	R2252.0	3+<L=<2-	P3+<SL=<P2-
01646	R2252.1	P3-<SL	P3-<SL
01647	R2252.2	3-<L=<3+	P3-<SL=<P3+
01648	R2252.3	P4+<SL	P4+<SL
01649	R2252.4	4+<L=<3-	P4+<SL=<P3-
01650	R2252.5	P4-<SL	P4-<SL
01651	R2252.6	4-<L=<4+	P4-<SL=<P4+
01652	R2252.7	P1DRCLS	P1 DOR CLOSE DECELERATE 25%
01653	R2253.0	P2DROPN	P2 DOR CLOSE DECELERATE 25%
01654	R2253.1	SL-OTP	SWING ARM -OT POS
01655	R2253.2	SL-OT	SWING ARM -OT
01656	R2350.0	90, .5<SR	90.05<SR
01657	R2350.1	89.5<SR	89.95<SR
01658	R2350.2	89<S=<90	89.95<SR=<90.05
01659	R2350.3	45.5<SR	45.05<SR
01660	R2350.4	45<S=<89	45.05<SR=<89.95
01661	R2350.5	44.5<SR	44.95<SR
01662	R2350.6	44<S=<45	44.95<SR=<45.05
01663	R2350.7	0.5<SR	0.05<SR
01664	R2351.0	0<S=<44	0.05<SR=<44.95
01665	R2351.1	-0.5<SR	-0.05<SR
01666	R2351.2	-0<S=<0	-0.05<SR=<0.05
01667	R2351.3	-89.5<SR	-89.95<SR
01668	R2351.4	-8<SR=<-0	-89.95<SR=<-0.05
01669	R2351.5	-90.5<SR	-90.05<SR
01670	R2351.6	-9<S=<-8	-90.05<SR=<-89.95
01671	R2351.7	-179.5<SR	-179.95<SR
01672	R2352.0	17<S=<-9	-179.95<SR=<-90.05
01673	R2352.1	-180.5<SR	-180.05<SR
01674	R2352.2	18<SR=<17	-180.05<SR=<-179.95
01675	R2352.3	-269.5<SR	-269.95<SR
01676	R2352.4	26<S=<18	-269.95<SR=<-180.05
01677	R2352.5	-270.5<SR	-270.05<SR
01678	R2352.6	27<S=<26	-270.05<SR=<-269.95
01679	R2352.7	-314.5<SR	-314.95<SR
01680	R2353.0	31<S=<27	-314.95<SR=<-270.05
01681	R2353.1	-315.5<S	-315.05<SR
01682	R2353.2	32<S=<31	-315.05<SR=<-314.95
01683	R2353.3	-359.5<SR	-359.95<SR
01684	R2353.4	35<S=<32	-359.95<SR=<-315.05
01685	R2353.5	-360.5<SR	-360.05<SR
01686	R2353.6	36<S=<35	-360.05<SR=<-359.95
01687	R2360.0	SR0+	SWING ROTARY +0 DEGREE
01688	R2360.1	SR0-	SWING ROTARY -0 DEGREE
01689	R2360.2	SR-90+	SWING ROTARY +90 DEGREE
01690	R2360.3	SR-90-	SWING ROTARY -90 DEGREE
01691	R2360.4	SR-180+	SWING ROTARY +180 DEGREE
01692	R2360.5	SR-180-	SWING ROTARY -180 DEGREE
01693	R2360.6	SR-270+	SWING ROTARY +270 DEGREE
01694	R2360.7	SR-270-	SWING ROTARY -270 DEGREE
01695	R2450.0	ZTRQSTM	Z TORQUE REQ START MEM
01696	R2450.1	ZTRQST1	Z TORQUE REQ ST PULSE
01697	R2450.2	ZTRQSTMS	Z TORQUE REQ ST MEM AUX
01698	R2450.3	ZTRQOF1	Z TORQUE REQ OFF PULSE
01699	R2450.4	ZTRQOFMS	Z TORQUE REQ OFF AUX
01700	R2450.5	ZTRQWIND	Z TORQUE REQ WINDOW ST
01701	R2450.6	ZTRQWINF	Z TORQUE REQ WINDOW FIN
01702	R2700.0	COX	PMC X CTRL
01703	R2700.1	COX1	PMC X CTRL PULSE
01704	R2700.2	COX2	PMC X CTRL PULSE AUX

NO.	ADDRESS	SYMBOL	FIRST COMMENT
01705	R2700.3	COX3	PMC X CTRL ON
01706	R2700.4	COXFIN	PMC X CTRL FIN
01707	R2701.0	COXFX3	PMC X CTRL FIN X3
01708	R2710.0	COY	PMC Y CTRL
01709	R2710.1	COY1	PMC Y CTRL PULSE
01710	R2710.2	COY2	PMC Y CTRL PULSE AUX
01711	R2710.3	COY3	PMC Y CTRL ON
01712	R2710.4	COYFIN	PMC Y CTRL FIN
01713	R2711.0	COYFX4	PMC Y CTRL FIN X4
01714	R2711.1	COYFX6	PMC Y CTRL FIN X6
01715	R2720.0	COZ	PMC Z CTRL
01716	R2720.1	COZ1	PMC Z CTRL PULSE
01717	R2720.2	COZ2	PMC Z CTRL PULSE AUX
01718	R2720.3	COZ3	PMC Z CTRL ON
01719	R2720.4	COZFIN	PMC Z CTRL FIN
01720	R2721.0	COZFX2	PMC Z CTRL FIN X2
01721	R2800.0	ACTX	PMC X AXIS
01722	R2800.1	ACTX1	PMC X CTRL PULSE
01723	R2800.2	ACTX2	PMC X CTRL PULSE AUX
01724	R2800.3	ACTX3	PMC X CTRL ON
01725	R2800.4	ACTXFIN	PMC X CTRL FIN
01726	R2801.0	ACTXFX4	PMC X CTRL FIN X4
01727	R2810.0	ACTY	PMC Y CTRL
01728	R2810.1	ACTY1	PMC Y CTRL PULSE
01729	R2810.2	ACTY2	PMC Y CTRL PULSE AUX
01730	R2810.3	ACTY3	PMC Y CTRL ON
01731	R2810.4	ACTYFIN	PMC Y CTRL FIN
01732	R2811.0	ACTYFX4	PMC Y CTRL FIN X4
01733	R2811.1	ACTYFX10	PMC Y CTRL FIN X10
01734	R2820.0	ACTZ	PMC Z CTRL
01735	R2820.1	ACTZ1	PMC Z CTRL PULSE
01736	R2820.2	ACTZ2	PMC Z CTRL PULSE AUX
01737	R2820.3	ACTZ3	PMC Z CTRL ON
01738	R2820.4	ACTZFIN	PMC Z CTRL FIN
01739	R2821.0	ACTZFX2	PMC Z CTRL FIN X2
01740	R2821.1	ACTZFX5	PMC Z CTRL FIN X5
01741	R2821.2	ACTZFX12	PMC Z CTRL FIN X12
01742	R2821.3	ACTZFX13	PMC Z CTRL FIN X13
01743	R2821.4	ACTZFX15	PMC Z CTRL FIN X15
01744	R2821.5	ACTZFX16	PMC Z CTRL FIN X16
01745	R2840.0	ACTA	PMC A CTRL
01746	R2840.1	ACTA1	PMC A CTRL PULSE
01747	R2840.2	ACTA2	PMC A CTRL PULSE AUX
01748	R2840.3	ACTA3	PMC A CTRL ON
01749	R2840.4	ACTAFIN	PMC A CTRL FIN
01750	R2841.0	ACTAFX3	PMC A CTRL FIN X3
01751	R2860.0	ACTSL	PMC SL CTRL
01752	R2860.1	ACTSL1	PMC SL CTRL PULSE
01753	R2860.2	ACTSL2	PMC SL CTRL PULSE AUX
01754	R2860.3	ACTSL3	PMC SL CTRL ON
01755	R2860.4	ACTSLFIN	PMC SL CTRL FIN
01756	R2861.0	ACTSLFX6	PMC SL CTRL FIN X6
01757	R2861.1	ACTSLFX7	PMC SL CTRL FIN X7
01758	R2861.2	ACTSLFX8	PMC SL CTRL FIN X8
01759	R2861.3	ACTSLFM1	PMC SL CTRL FIN M1
01760	R2861.4	ACTSLFM21	PMC SL CTRL FIN M2-1
01761	R2861.5	ACTSLFM22	PMC SL CTRL FIN M2-2
01762	R2861.6	ACTSLF16	PMC SL CTRL FIN X16
01763	R2862.0	ACTSLFM	PMC SL CTRL FIN MEM
01764	R2870.0	ACTSR	PMC SR CTRL
01765	R2870.1	ACTSR1	PMC SR CTRL PULSE
01766	R2870.2	ACTSR2	PMC SR CTRL PULSE AUX
01767	R2870.3	ACTSR3	PMC SR CTRL ON
01768	R2870.4	ACTSRFIN	PMC SR CTRL FIN
01769	R2870.5	ACTSRS1	PMC SR CTRL AUX 1
01770	R2870.6	ACTSRS2	PMC SR CTRL AUX 2
01771	R2871.0	ACTSRFT7	PMC SR CTRL FIN T7
01772	R2871.1	ACTSRFT25	PMC SR CTRL FIN T25
01773	R2871.2	ACTSRFX7	PMC SR CTRL FIN X7
01774	R2871.3	ACTSRFX14	PMC SR CTRL FIN X14
01775	R2871.4	ACTSRFM21	PMC SR CTRL FIN M2-1

NO.	ADDRESS	SYMBOL	FIRST COMMENT
01776	R2871.6	ACSRFM8	PMC SR CTRL FIN M8
01777	R2872.0	ACSRFM	PMC SR CTRL FIN MEM
01778	R3000.0	EX_M_CODE_1	EXTRA M CODE 1
01779	R3000.1	EX_M_CODE_2	EXTRA M CODE 2
01780	R3000.2	EX_M_CODE_3	EXTRA M CODE 3
01781	R3000.4	EX_M_CODE_5	EXTRA M CODE 5
01782	R3000.5	EX_M_CODE_FIN	EXTRA M CODE FINISH
01783	R3000.6	EXMOK	EXTRA M CODE OUTPUT OK
01784	R3001.4	TLBRK	TOOL BROKEN ON
01785	R3004.0	M32LSER	TOUCH SW L.S ERR
01786	R3004.1	M32CHER	TOUCH SW TOOL ERR
01787	R3004.2	M32FIN	M32 FIN
01788	R3004.3	M32S	M32 AUX
01789	R3004.4	TRWSP	TOOL LIFE RESTART STOP
01790	R3005.2	TLBRKM	TOOL BROKEN MEM
01791	R3005.3	BRKHL	TOOL BROKEN HOLD
01792	R3005.4	BRKSCH	BROKEN PROGRAM SEARCH
01793	R3005.5	BRKSCHOF	BROKEN SEARCH OFF
01794	R3010.3	HSKPWF2	HIGH SKIP PARAM INPUT OFF 2
01795	R3010.5	HSKPWOK2	HIGH SKIP PARAM INPUT OK 2
01796	R3011.0	HSKP1S	HIGH SKIP 1 SELECT
01797	R3011.1	HSKP2S	HIGH SKIP 2 SELECT
01798	R3011.2	HSKPCHG	HIGH SKIP PARAM INPUT
01799	R3011.3	HSKPWF1	HIGH SKIP PARAM INPUT OFF 1
01800	R3011.4	HSKPWNW	HIGH SKIP PARAM INPUT WINDW
01801	R3011.5	HSKPWOK1	HIGH SKIP PARAM INPUT OK 1
01802	R3011.6	HSKP1.M	HIGH SKIP PARAM INPUT MEM
01803	R3011.7	HSKPCHG2	HIGH SKIP PARAM INPUT 2
01804	R3020.0	M64FF	M64 MEM
01805	R3020.1	M66FF	M66 MEM
01806	R3020.2	TPSTSTP	OMI STOP
01807	R3020.3	MPSTOP	MP DETECT STOP
01808	R3400.0	M130FF	MODEL MEM
01809	R3400.1	M132FF	MODEL INTERRUPT
01810	R3400.2	M130S	MODEL AUX
01811	R3400.3	M130STS	MODEL ST AUX
01812	R3400.4	M130STOK	MODEL ST OK
01813	R3400.5	M130ST	MODEL ST
01814	R3400.6	M130ONM	MODEL ST MEM
01815	R3400.7	ZACT	Z COMPENSATION
01816	R3401.0	ZACTST	Z COMPENSATION ST
01817	R3401.1	ZACTST1	Z COMPENSATION ST 1
01818	R3401.2	ZEXINEND	Z COMPENSATION FIN
01819	R3401.4	SPONOK	SP ON OK
01820	R3402.0	SUBBER	SUBB ERR
01821	R3402.1	MULBER	MULB ERR
01822	R3402.2	MULBER1	MULB ERR 1
01823	R3402.3	DIVBER	DIVB ERR
01824	R3402.4	DIVBERI	DIVBB ERRI
01825	R3403.0	SP_Z	SP HEAT TREATMENT COMPENSATION
01826	R3500.0	TC.NORM	T CODE NORMAL
01827	R3500.1	TC.TLIF	T CODE TOOL INFO
01828	R3500.2	TNO.OK	T NO FIN OK
01829	R3500.3	TNO.NG	T NO FIN NG
01830	R3500.4	TNO.ANS	T NO READ FIN
01831	R3500.5	NG=TL0	POT NO EQ 0 ERR
01832	R3500.6	NG=SPTL	SP TOOL NO EQ 0 ERR
01833	R3500.7	NG=TLNO	TOOL NO DETE EQ 0 ERR
01834	R3501.0	NG=TLBK	TOO NO BROKEN ERR
01835	R3501.1	TNOALM	TOOL NO AL
01836	R3501.2	TCODE=0	T CODE EQ 0
01837	R3501.3	TFOK	T CODE READ OK
01838	R3501.4	TFNG	T CODE READ NG
01839	R3501.5	TLRQON	TOOL REQUIRE ON
01840	R3501.6	NTRQOK	NEW TOOL REQUIRE OK
01841	R3501.7	NTRQNG	NEW TOOL REQUIRE NG
01842	R3502.0	TLRQOK	TOOL REQUIRE OK
01843	R3502.1	NTRQCHK	NEW TOOL REQUIRE OFF CHECK
01844	R3502.2	TLRQOK1	TOOL REQUIRE FIN
01845	R3502.3	OLTLREQ1	OLD TOOL REQUIRE FIN
01846	R3502.4	M30TLRQS	M30 TOOL REQUIRE

NO.	ADDRESS	SYMBOL	FIRST COMMENT
01847	R3502.5	M3ORQOK	M30 TOOL REQUIRE OK
01848	R3502.6	TLFOVS1	TOOL LIFE OVERWRITE REQ
01849	R3502.7	TLFOVS2	TOOL LIFE OVERWRITE REQ AUX
01850	R3503.0	TLFOVWR	TOOL LIFE OVERWRITE DATA SET
01851	R3503.1	TLLFCTOK	TOOL LIFE CNT OK
01852	R3503.3	TLLFCNT	TOOL LIFE CNT
01853	R3503.4	TNOALMHL	TOOL NO AL MACHINE HOLD
01854	R3503.5	TFO=0	TOOL LIFE OVERWRITE DATA EQ 0
01855	R3503.6	TPO>1023	TOL LIFE OVERWRITE DATA>1023
01856	R3503.7	TLFNSET	TOOL LIFE OFF TIMER SET
01857	R3504.0	TLFNFIN	TOOL LIFE NO FIN
01858	R3504.1	TLBRKSET	TOOL BORKEN INFO SET
01859	R3504.2	TLBKFIN	TOOL BROKEN INFO FIN
01860	R3504.3	LDMTSK	TOOL SKIP LOAD MONITOR
01861	R3504.4	LDSKPOKF	TOL LOAD MONITOT SKIP OK FIN
01862	R3504.5	AMCSSKP	AMCS SKIP
01863	R3504.6	AMCSSKOK	AMCS SKIP OK
01864	R3504.7	U027ON	TOOL BROKEN COMMEND
01865	R3505.0	U027ON1	TOOL BROKEN COMMEND 1
01866	R3505.1	TLLFRST	TOOL LIFE RESET
01867	R3505.2	TLLFROF	TOOL LIFE RESET OFF CHECK
01868	R3505.3	TLLFRSF	TOOL LIFE RESET FIN
01869	R3506.0	TFACTOK	T CODE RUN OK
01870	R3530.2	TM.TLLIF	TOOL LIFE TIMER
01871	R4000.4	MAN	EACH SELECT
01872	R4000.5	MAN1	M/C SELECT
01873	R4000.6	MAN2	ATC SELECT 1
01874	R4000.7	MAN3	ATC SELECT 2
01875	R4002.3	R0%	RAPID OVEERIDE 0%
01876	R4002.4	R1%	RAPID OVEERIDE 1%
01877	R4002.5	R5%	RAPID OVEERIDE 5%
01878	R4002.6	R10%	RAPID OVEERIDE 10%
01879	R4002.7	R50%	RAPID OVEERIDE 50%
01880	R4003.1	AXISITLK	AXIS INTERLOCK
01881	R4004.0	TEACHIN	TEACHIN MODE
01882	R4004.1	JOG_MOD	JOG MODE
01883	R4004.3	HANINRPT	HANDLE INEX REQ TOOL
01884	R4004.4	R100%	RAPID OVEERIDE 100%
01885	R4004.5	RCH	RAPID EXCHANGE
01886	R4005.0	HPSV-SA	HANDLE PROSESS SERVO SWING AR
01887	R4005.1	HMOFF.S	HANDLE MONITOR OFF SELECT
01888	R4005.2	CSHM1	CS AXIS MANUAL MODE 1
01889	R4005.3	CSHM2	CS AXIS MANUAL MODE 2
01890	R4005.4	CSHM.M	CS AXIS MANUAL MODE KEEP
01891	R4006.1	JOG+	+JOG
01892	R4006.2	JOG-	- JOG
01893	R4006.6	JG+OFCHK	+JOG OFFCHECK
01894	R4006.7	JG-OHCHK	-JOG OFFCHECK
01895	R4007.0	MULERR	MUL ERR
01896	R4007.2	MULERR1	MUL ERR1
01897	R4008.0	SP AIR T	SP AIR T
01898	R4008.1	AIRM	AIRMOD
01899	R4009.0	M01_MEM	M01 MEMORY
01900	R4010.0	OVR1	OVERRIDE 1
01901	R4010.1	OVR2	OVERRIDE 2
01902	R4010.2	OVR4	OVERRIDE 4
01903	R4010.3	OVR8	OVERRIDE 8
01904	R4010.4	OVR16	OVERRIDE 16
01905	R4016.0	MEM.S	MEMORY MODE
01906	R4016.1	EDT.S	EDIT MODE
01907	R4016.2	MDI.S	MDI MODE
01908	R4016.3	TAP.S	DNC MODE
01909	R4016.4	HAN.S	HANDLE MODE
01910	R4016.5	JOG-L.S	JOG MODE AUX
01911	R4017.0	RT.S	RAPID MODE
01912	R4017.1	ZRN.S	ZERO REFERENCE MODE
01913	R4017.2	MAN.S	MANUAL MODE
01914	R4017.3	X,S	AXIS SELECT X
01915	R4017.4	Y,S	AXIS SELECT Y
01916	R4017.5	Z,S	AXIS SELECT Z
01917	R4017.6	4,S	AXIS SELECT 4TH

NO.	ADDRESS	SYMBOL	FIRST COMMENT
01918	R4017.7	5,S	AXIS SELECT 5TH
01919	R4018.0	AUX,S	AUX AXIS SELECT
01920	R4018.2	LIT_ON/OFF_TIME	AL LIGHT ON/OFF TIME 3
01921	R4020.0	FV0.S	FEED OVERRIDE 0%
01922	R4020.1	FV10.S	FEED OVERRIDE 10%
01923	R4020.2	FV20.S	FEED OVERRIDE 20%
01924	R4020.3	FV30.S	FEED OVERRIDE 30%
01925	R4020.4	FV40.S	FEED OVERRIDE 40%
01926	R4020.5	FV50.S	FEED OVERRIDE 50%
01927	R4020.6	FV60.S	FEED OVERRIDE 60%
01928	R4020.7	FV70.S	FEED OVERRIDE 70%
01929	R4021.0	FV80.S	FEED OVERRIDE 80%
01930	R4021.1	FV90.S	FEED OVERRIDE 90%
01931	R4021.2	FV100.S	FEED OVERRIDE 100%
01932	R4021.3	FV110.S	FEED OVERRIDE 110%
01933	R4021.4	FV120.S	FEED OVERRIDE 120%
01934	R4021.5	FV130	FEED OVERRIDE 130%
01935	R4021.6	FV140.S	FEED OVERRIDE 140%
01936	R4021.7	FV150.S	FEED OVERRIDE 150%
01937	R4022.0	FV160.S	FEED OVERRIDE 160%
01938	R4022.1	FV170.S	FEED OVERRIDE 170%
01939	R4022.2	FV180.S	FEED OVERRIDE 180%
01940	R4022.3	FV190.S	FEED OVERRIDE 190%
01941	R4022.4	FV200.S	FEED OVERRIDE 200%
01942	R4050.0	AU_ZRN	AUTO ZRN ON
01943	R4050.1	ZRN_ZOK	ZRN Z FINISH
01944	R4050.2	ZRN_45OK	ZRN A/C FINISH
01945	R4050.3	ZRN_XYOK	ZRN X/Y FINISH
01946	R4050.5	MAG_LR_PS	MAG FOR/BK PULSE
01947	R4050.6	MAG_LR_SG	MAG FOR/BK SIGNAL
01948	R4050.7	MAG_FOR_ON	MAG EXTEND ON
01949	R4051.0	ATC_DR_PS	ATC DOOR PULSE
01950	R4051.1	ATC_DR_SG	ATC DOOR SIGNAL
01951	R5000.0	NC_STOP_TIMER	NC STOP DELAY TIMER
01952	R5000.1	TMRB2	NC & SERVO RDY DET TIMER
01953	R5000.2	TMSFMP	STATUS LIGHT ON/OFF TIMER
01954	R5000.3	EMG_DELAY_TIMER	EMG DELAY TIMER
01955	R5000.4	TMDEN	DEN TIMER
01956	R5000.5	TMCYST	CYCLE START DELAY TIMER
01957	R5000.6	CYST2T	CYCLE START 2 MEM DELAY TIMER
01958	R5000.7	TMEXMS	EXTRA M CODE DELAY TIMER
01959	R5001.0	WKLYDRY	WEEK PROG RESTART DELAY TIME
01960	R5001.3	AUTO_PW_OF_TIMG	AUTO POWER OFF TIMING
01961	R5001.4	TMM32C	TOUCH SW CHECK
01962	R5001.5	TMRCSMCR	CUSTOM MACRO TIMER
01963	R5001.7	TMRBM_32	SKIP INPUT RELAY ON TIMER
01964	R5002.0	MAG.DOR.CL	MAGAZINE DOOR CLOSE
01965	R5002.1	MAG.DOR.OP	MAGAZINE DOOR OPEN
01966	R5003.2	TMRAIR	AIR LOW DETECT TIMER
01967	R5003.3	TMRBO&AF	LUBE LOW DETECT TIMER
01968	R5003.5	TMRBPSOF	PRESSURE SW OFF TIMER
01969	R5004.7	ATC_AIR_DET_TIME	ATC AIR PRESSURE DETECT TIMER
01970	R5005.0	ATLUBCLK	AUTO LUBE TIMER
01971	R5005.1	O&AAIR_ON_AUX	O & A AIR ON AUX
01972	R5005.2	O&AVACOF	O&A VACUUM OFF
01973	R5005.3	HYD_MOTOR_STP	HYDRAULIC MOTOR STOP
01974	R5006.0	TMRBSPE	SP SAR TIMER
01975	R5006.1	TMRSPD	SP START CHECK TIMER
01976	R5006.2	TMRSPSTP	SP STOP TIMER
01977	R5006.3	TMRB_RGT	RIGID TAP TIMER
01978	R5006.4	SPMSCHG	SP GEAR CHANGE TIMER
01979	R5007.0	TMRORI	M19 CHECK TIMER
01980	R5007.1	TMRORIF	M19 FIN TIMER
01981	R5007.2	SPLSCHK	SP CLAMP DETECT TIMER
01982	R5007.3	SCOODOK	S CODE OK
01983	R5007.5	SPTYCHK	SP TYPE CHECK TIMER
01984	R5007.7	ALM64	SP CONFIRM AL
01985	R5009.0	TMRGFLT	FILTER CLOGGING DETE TIMER
01986	R5012.0	ATCOVR	ATC CYC TIMER OVER
01987	R5012.1	TMMG4TMR	DATA SET TIMER
01988	R5012.2	MGSTPT	MG STOP TIMER

NO.	ADDRESS	SYMBOL	FIRST COMMENT
01989	R5012.3	INDXCINT	MG INDEX TIMER
01990	R5012.4	SPCLAL	SP TOOL CLP AL
01991	R5012.5	SA0-270	SWING ARM 0 MOVE TO 270 DEG
01992	R5012.6	TLSALM	HAND ATC HEAD CLAMP TIMER
01993	R5012.7	SPUNCPB	SP UNCLP PB
01994	R5013.0	SHFCHK	ARM FORWARD RTY CHECK
01995	R5013.1	SHFR2T	ARM DOUBLE BACKWARD RTY TIMER
01996	R5013.2	SHFR1T	ARM BAKRD&FORD RTY TIMER
01997	R5013.3	SHBCHK	ARM CHUCK CLOSE RTY CHECK
01998	R5013.4	SHBR2T	ARM CHUCK DOUBLE CLOSE RTY TMR
01999	R5013.5	SHBR1T	ARM CHUCK CLS&OPEN RTY TMR
02000	R5013.6	SHCCCHK	ARM CHUCK OPEN RTY CHECK
02001	R5013.7	SHCCR2T	ARM CHUCK DOUBLE OPEN RTY TMR
02002	R5014.0	SHCCR1T	ARM CHUCK OPEN&CLS RTY TMR
02003	R5014.1	SHCOCHK	ARM UNCLP RTY CHECK
02004	R5014.2	SHCOR2T	ARM BOUBLE UNCLP TIMER
02005	R5014.3	SHCOR1T	ARM UNCLP&CLP TIMER
02006	R5014.4	HUCCHK	HEAD UNCLP RTY CHECK
02007	R5014.5	HUCOR2T	HEAD DOUBLE UNCLP TIMER
02008	R5014.6	HUCOR1T	HEAD CLP&UNCLP TIMER
02009	R5014.7	HCCHK	HEAD CLP RTY CHECK
02010	R5015.0	HCOR2T	HEAD DOUBLE CLP TIMER
02011	R5015.1	HCOR1T	HEAD CLP&UNCLP TIMER
02012	R5025.2	TNORQTP	TOOL NO READ AUTO OP TIMER
02013	R5025.3	TM,TLRQ	TOL NO REQU AUTO OP TIMER
02014	R5025.4	TM.M30RQ	M30 TOL NO REQU AUTO OP TMR
02015	R5028.0	M66OFF	M66 OFF TIMER
02016	R5028.1	M64FFCHK	M64 FIN CHECK
02017	R5028.2	OMIOFF	OMI OFF
02018	R5028.3	OMISTT	OMI RESTART TIMER
02019	R5028.4	M64STOK	M64 START OK
02020	R5028.5	SPONOK1	SP RUNING
02021	R5028.6	TMROFSET	WINDOW OFFSET TIMER
02022	R5030.0	T.YBRKOF	Y BRAKE OFF DETECT TIMER
02023	R5030.1	T.PWOK1C	PSM 1 SIGNAL ERR
02024	R5031.0	PILZERR	PILZ SIGNAL ERROR TIMER
02025	R5031.1	PSM_OFF_DELAY	PSM OFF DELAY TIMER
02026	R5031.4	JOGTIM	JOG MODE TIMER
02027	R5045.0	TNO.DSP	PRG CHECK WINDOW T NO DISP
02028	R5064.0	TMRLBON	GREASE PUMP ON TIMER
02029	R5064.2	SBSTTUP	SINGLE BRKE STOP AL
02030	R5064.3	SP.STP	SPINDLE STOP ALREAD
02031	R5064.6	TMRCHPON	CHIP CON ON TIMER
02032	R5064.7	TMRCHPOF	CHIP CON OFF TIMER
02033	R5065.0	TMRTAP	TAPPING TIMER
02034	R5065.1	TMR4A.CL	4TH AXIS CLAMP DELAY TIMER
02035	R5065.2	TMR4A.UN	4TH AXIS UNCLAMP DELAY TIMER
02036	R5065.3	TMR5A.CL	5TH AXIS CLAMP DELAY TIMER
02037	R5065.4	TMR5A.UN	5TH AXIS UNCLAMP DELAY TIMER
02038	R5066.0	M130ONRS	MOTOR CYC ON
02039	R5067.1	TMROIL	SP OIL ON TIMER
02040	R5067.3	TMRWKTIM	TABLE CLEAN ON TIMER
02041	R5067.6	TMLD.WRN	LOAD MONITOR WEEK TIMER
02042	R5067.7	TMLD.ARM	LOAD MONITOR AL TIMER
02043	R5068.1	BOST_PMP_ON_TIME	BOOSTER PUMP ON DELAY TIMER
02044	R5068.2	TMR_M56	BOOSTER PUMP SMALL TIMER
02045	R5068.3	TMR_M55	BOOSTER PUMP MIDDLE TIMER
02046	R5068.4	TMR_M54	
02047	R5068.7	MSTOFDLY	OIL MIST COLLECTOR OFF DELAY
02048	R5069.1	TMRTQOV2	CHIP CON TORQUE CHECK TIMER 2
02049	R5069.2	TMRTQOV1	CHIP CON TORQUE CHECK TIMER 1
02050	R5069.3	TMRBCLT	CHIP COOLANT OUTPUT TIMER
02051	R5069.5	TSWAIRT	TOUCH SW AIR BLOW TIMER
02052	R5070.0	SHF1	ARM FORWARD 1
02053	R5070.1	SHB1	ARM BACKWARD 1
02054	R5070.2	SHCO1	ARM CHUCK OPEN
02055	R5070.3	SHCC1	ARM CHUCK CLOSE
02056	R5070.4	SPUNCLP	SP TOOL UNCLP
02057	R5070.5	SPCLP	SPINDLE CLAMP
02058	R5070.6	SHHC1	ARM HEAD CLP
02059	R5070.7	SHHUC1	ARM HEAD UNCLP

NO.	ADDRESS	SYMBOL	FIRST COMMENT
02060	R5071.0	ZAIRT	Z AIR STOP TIMER
02061	R5071.1	MGF1	MG FORWARD 1
02062	R5071.2	MGB1	MG BACKWARD 1
02063	R5096.5	CTR_6.UP	SP OIL OUTPUT COUNT INTPT TMR
02064	R5300.3	M03	SPINDLE CW ROTARY
02065	R5300.4	M04	SPINDLE CCW ROTARY
02066	R5300.5	M05	SPINDLE STOP
02067	R5300.6	M06	AUTO TOOL CHANGE
02068	R5300.7	M07	CUTTING AIR BLAST
02069	R5301.0	M08	COOLANT ON
02070	R5301.1	M09	COOLANT OFF
02071	R5301.2	M10	C AXIS TABLE CLAMP
02072	R5301.3	M11	C AXIS TABLE UNCLAMP
02073	R5301.4	M12	A AXIS TABLE CLAMP
02074	R5301.5	M13	A AXIS TABLE UNCLAMP
02075	R5301.7	M15	CHIP FLUSH PUMP ON
02076	R5302.0	M16	CHIP FLUSH PUMP OFF
02077	R5302.2	M18	
02078	R5302.3	M19	SPINDLE ORIENTATION
02079	R5302.4	M20	ATC DOOR CLOSE
02080	R5302.5	M21	ATC DOOR OPEN
02081	R5303.2	M26	
02082	R5303.3	M27	
02083	R5303.5	M29	RAGIP TAPPING
02084	R5304.0	M32	
02085	R5304.1	M33	
02086	R5304.2	M34	
02087	R5304.3	M35	
02088	R5304.4	M36	OVC OFF
02089	R5304.5	M37	OVC ON
02090	R5305.3	M43	CS CONTROL ON
02091	R5305.4	M44	CS CONTROL OFF
02092	R5305.5	M45	CHIP CONVEYOR ON
02093	R5305.6	M46	CHIP CONVEYOR OFF
02094	R5305.7	M47	
02095	R5306.0	M48	
02096	R5306.1	M49	
02097	R5306.2	M50	CTS MOTOR ON
02098	R5306.3	M51	CTS MOTOR OFF
02099	R5306.4	M52	CHIP CONVEYOR ON
02100	R5306.5	M53	CHIP CONVEYOR OFF
02101	R5306.6	M054	
02102	R5306.7	M055	
02103	R5307.0	M056	
02104	R5307.1	M057	
02105	R5307.2	M058	
02106	R5307.3	M59	
02107	R5307.4	M60	
02108	R5307.5	M61	
02109	R5307.6	M62	
02110	R5307.7	M63	
02111	R5308.0	M64	
02112	R5308.2	M66	
02113	R5308.3	M67	
02114	R5308.4	M68	
02115	R5309.7	M79	DEFINE SPINDLE TOOL NO.
02116	R5310.2	M82	SPINDLE TOOL CLAMP
02117	R5310.3	M83	SPINDLE TOOL UNCLAMP
02118	R5310.4	M84	MAGAZINE SELECT SP TOOL
02119	R5310.5	M85	MAGAZINE SELECT T CODE
02120	R5310.6	M86	
02121	R5310.7	M87	
02122	R5311.0	M88	
02123	R5311.1	M89	
02124	R5311.2	M90	
02125	R5311.3	M91	
02126	R5312.4	M100	MAGAZINE FORWARD
02127	R5312.5	M101	MAGAZINE RETURN
02128	R5312.6	M102	
02129	R5312.7	M103	
02130	R5313.0	M104	

NO.	ADDRESS	SYMBOL	FIRST COMMENT
02131	R5313.1	M105	
02132	R5313.2	M106	
02133	R5313.3	M107	
02134	R5313.4	M108	
02135	R5313.5	M109	
02136	R5313.6	M110	
02137	R5313.7	M111	EXTERNAL M CODE 1
02138	R5314.0	M112	EXTERNAL M CODE 2
02139	R5314.1	M113	EXTERNAL M CODE 3
02140	R5314.2	M114	EXTERNAL M CODE 4
02141	R5314.3	M115	EXTERNAL M CODE 5
02142	R5314.4	M116	EXTERNAL M CODE 6
02143	R5314.5	M117	EXTERNAL M CODE 7
02144	R5315.0	M120	
02145	R5315.1	M121	
02146	R5315.2	M122	
02147	R5315.3	M123	
02148	R5315.4	M124	
02149	R5315.5	M125	
02150	R5315.6	M126	
02151	R5315.7	M127	
02152	R5316.0	M128	
02153	R5316.1	M129	
02154	R5316.2	M130	
02155	R5316.3	M131	
02156	R5316.4	M132	
02157	R5316.5	M133	
02158	R5316.6	M134	
02159	R5316.7	M135	
02160	R5317.0	M136	M136
02161	R5317.1	M137	M137
02162	R5322.0	M176	
02163	R5322.1	M177	
02164	R5322.2	M178	
02165	R5322.3	M179	
02166	R5322.4	M180	
02167	R5322.5	M181	
02168	R5322.6	M182	
02169	R5322.7	M183	
02170	R5323.0	M184	
02171	R5323.1	M185	
02172	R5323.2	M186	
02173	R5323.3	M187	
02174	R5323.4	M188	
02175	R5323.5	M189	
02176	R5325.1	M201	M201
02177	R5325.2	M202	M202
02178	R5350.0	M400	
02179	R5350.1	M401	
02180	R5350.2	M402	
02181	R5350.4	M404	
02182	R5350.5	M405	
02183	R5350.6	M406	
02184	R5350.7	M407	
02185	R5351.0	M408	
02186	R5351.1	M409	
02187	R5352.2	M418	
02188	R5353.0	M424	
02189	R5353.1	M425	
02190	R5353.2	M426	
02191	R5353.3	M427	
02192	R5353.4	M428	
02193	R5500.0	M00FIN	M00 FINISH
02194	R5500.1	M01FIN	M01 FINISH
02195	R5500.3	M03FIN	M03 FINISH
02196	R5500.4	M04FIN	M04 FINISH
02197	R5500.5	M05FIN	M05 FINISH
02198	R5500.6	M06FIN	M06 FINISH
02199	R5500.7	M07FIN	M07 FINISH
02200	R5501.0	M08FIN	M08 FINISH
02201	R5501.1	M09FIN	M09 FINISH

NO.	ADDRESS	SYMBOL	FIRST COMMENT
02202	R5501.2	M10FIN	M10 FINISH
02203	R5501.3	M11FIN	M11 FINISH
02204	R5501.4	M12FIN	M12 FINISH
02205	R5501.5	M13FIN	M13 FINISH
02206	R5501.7	M15FIN	CHIP FLUSH ON FINISH
02207	R5502.0	M16FIN	CHIP FLUSH OFF FINISH
02208	R5502.2	M18FIN	M18 FINISH
02209	R5502.3	M19FIN	M19 FINISH
02210	R5502.4	M20FIN	MAGAZINE DOOR CLOSE FINISH
02211	R5502.5	M21FIN	MAGAZINE DOOR OPEN FINISH
02212	R5503.2	M26FIN	M26 FINISH
02213	R5503.3	M27FIN	M27 FINISH
02214	R5503.5	M29FIN	M29 FINISH
02215	R5504.0	M32FIN1	M32 FINISH
02216	R5504.4	M36FIN	M36 FINISH
02217	R5504.5	M37FIN	M37 FINISH
02218	R5505.3	M43FIN	M43 FINISH
02219	R5505.4	M44FIN	M44 FINISH
02220	R5505.5	M45FIN	M45 FINISH
02221	R5505.6	M46FIN	M46 FINISH
02222	R5505.7	M47FIN	M47 FINISH
02223	R5506.0	M48FIN	M48 FINISH
02224	R5506.1	M49FIN	M49 FINISH
02225	R5506.2	M50FIN	M50 FINISH
02226	R5506.3	M51FIN	M51 FINISH
02227	R5506.4	M52FIN	M52 FINISH
02228	R5506.5	M53FIN	M53 FINISH
02229	R5506.6	M54FIN	M54 FINISH
02230	R5506.7	M55FIN	M55 FINISH
02231	R5507.0	M56FIN	M56 FINISH
02232	R5507.1	M57FIN	M57 FINISH
02233	R5507.2	M58FIN	M58 FINISH
02234	R5507.5	M61FIN	M61 FINISH
02235	R5507.6	M62FIN	M62 FINISH
02236	R5507.7	M63FIN	M63 FINISH
02237	R5508.0	M64FIN	M64 FINISH
02238	R5508.2	M66FIN	M66 FINISH
02239	R5508.3	M67 F	M67 FINISH
02240	R5508.4	M68 F	M68 FINISH
02241	R5509.7	M79FIN	M79 FINISH
02242	R5510.2	M82FIN	SP TOOL CLP FIN
02243	R5510.3	M83FIN	SP TOOL UNCLP FIN
02244	R5510.4	M84FIN	MG SP TOOL INDEX FIN
02245	R5510.5	M85FIN	MG T CODE INDEX FIN
02246	R5510.6	M86FIN	ALL AXIS INTERLOCK PASS FIN
02247	R5510.7	M87FIN	ALL AXIS INTLOCK PASS OFF FIN
02248	R5511.1	M89FIN	ATC RESTART FIN
02249	R5511.2	M90FIN	M90 FINISH
02250	R5512.4	M100FIN	MAGAZINE EXTEND FIN
02251	R5512.5	M101FIN	MAGAZINE TETURN FIN
02252	R5512.6	M102FIN	SWING ARM FORWARD&RUN FIN
02253	R5512.7	M103FIN	SWING ARM BACKWARD&RUN FIN
02254	R5513.0	M104FIN	SWING ARM BRD FIN DECEL MD ON
02255	R5513.1	M105FIN	SWING ARM BRD FIN DECE MD OFF
02256	R5513.2	M106FIN	ARM CHUCK OPEN FIN
02257	R5513.3	M107FIN	ARM CHUCK CLOSE FIN
02258	R5513.4	M108FIN	MG WAIT TOOL INDEX FIN
02259	R5513.5	M109FIN	MG RETURN TOOL INDEX FIN
02260	R5513.7	M111FIN	M111 FIN
02261	R5514.0	M112FIN	M112 FIN
02262	R5514.1	M113FIN	M113 FIN
02263	R5514.2	M114FIN	M114 FIN
02264	R5514.3	M115FIN	M115 FIN
02265	R5514.4	M116FIN	M116 FIN
02266	R5514.5	M117FIN	M117 FIN
02267	R5515.0	M120FIN	ARM HEAD CLP FIN
02268	R5515.1	M121FIN	ARM HEAD UNCLP FIN
02269	R5515.2	M122FIN	SWING ARM 90 DEGREE
02270	R5515.3	M123FIN	SWING ARM 45 DEGREE
02271	R5515.4	M124FIN	SWING ARM 0 DEGREE
02272	R5515.5	M125FIN	SWING ARM -90 DEGREE

NO.	ADDRESS	SYMBOL	FIRST COMMENT
02273	R5515.6	M126FIN	SWING ARM -180 DEGREE
02274	R5515.7	M127FIN	SWING ARM -270 DEGREE
02275	R5516.0	M128FIN	SWING ARM -315 DEGREE
02276	R5516.1	M129FIN	SWING ARM -360 DEGREE
02277	R5516.2	M130FIN	SP HEAT DISPLACE COMPENSATION
02278	R5516.3	M131FIN	SP HEAT DISPLACE COMPENSATION
02279	R5516.4	M132FIN	SP HEAT DISPLACE COMPENSATION
02280	R5516.5	M133FIN	SP HEAT DISPLACE COMPENSATION
02281	R5516.6	M134FIN	SP HEAT DISPLACE COMPENSATION
02282	R5517.0	M136FIN	MG FORWARD FIN
02283	R5517.1	M137FIN	MG BACKWARD FIN
02284	R5518.0	M144FIN	
02285	R5519.0	M152FIN	
02286	R5520.0	M160FIN	
02287	R5521.0	M168FIN	
02288	R5522.0	M176FIN	
02289	R5522.1	M177FIN	
02290	R5522.2	M178FIN	
02291	R5522.3	M179FIN	
02292	R5522.4	M180FIN	
02293	R5522.5	M181FIN	
02294	R5522.6	M182FIN	
02295	R5522.7	M183FIN	
02296	R5523.0	M184FIN	
02297	R5523.1	M185FIN	
02298	R5523.2	M186FIN	
02299	R5523.3	M187FIN	
02300	R5525.1	M201FIN	M201 FINISH
02301	R5525.2	M202FIN	M202 FINISH
02302	R5550.0	M400FIN	M400 FIN
02303	R5550.1	M401FIN	M401 FIN
02304	R5550.2	M402FIN	M402 FIN
02305	R5550.4	M404FIN	M404 FIN
02306	R5550.5	M405FIN	M405 FIN
02307	R5550.6	M406FIN	M406 FIN
02308	R5550.7	M407FIN	M407 FIN
02309	R5551.0	M408FIN	M408 FIN
02310	R5551.1	M409FIN	M409 FIN
02311	R5552.2	M418FIN	M418 FIN
02312	R5553.0	M424FIN	M424 FIN
02313	R5553.1	M425FIN	M425 FIN
02314	R5553.2	M426FIN	M426 FIN
02315	R5553.3	M427FIN	M427 FIN
02316	R5553.4	M428FIN	M428 FIN
02317	R5700.0	MF2SON1	2ND M CODE ON 1
02318	R5700.1	MF2SON	2ND M CODE ON
02319	R5700.2	MF2SON2	2ND M CODE ON 2
02320	R5700.3	MF2SONM	2ND M CODE ON MEM
02321	R5700.4	MF3SON1	3RD M CODE ON 1
02322	R5700.5	MF3SON	3RD M CODE ON
02323	R5700.6	MF3SON2	3RD M CODE ON 2
02324	R5700.7	MF3SONM	3RD M CODE ON MEM
02325	R5701.0	MF1SONM	1ST M CODE ON 1
02326	R5701.1	MF1SON1	1ST M CODE ON
02327	R5701.2	MF1SON	1ST M CODE ON 2
02328	R5701.3	MF1SON2	1ST M CODE ON MEM
02329	R5701.4	MF2SET	2ND M CODE SET
02330	R5701.5	MF3SET	3RD M CODE SET
02331	R5702.0	MF1ON	1ST M CODE RUN
02332	R5702.1	MF2ON	2ND M CODE RUN
02333	R5702.2	MF3ON	3RD M CODE RUN
02334	R5702.3	MFON	M CODE ON
02335	R5702.4	MFINALL	ALL M CODE FIN
02336	R5702.5	MCLEAR	M CODE CLEAR
02337	R5702.6	MCDDMY	M CODE RUNNING
02338	R5703.0	MFINA	M FUN FIN A
02339	R5703.1	MFINB	M FUN FIN B
02340	R5703.2	MFINC	M FUN FIN C
02341	R5703.3	MFIND	M FUN FIN D
02342	R5703.4	MFINE	M FUN FIN E
02343	R5703.5	MFINF	M FUN FIN F

NO.	ADDRESS	SYMBOL	FIRST COMMENT
02344	R5703.6	MFING	M FUN FIN G
02345	R5703.7	MFINH	M FUN FIN H
02346	R5800.0	ALM01	QF1 FUSE OL
02347	R5800.1	ALM02	
02348	R5800.2	ALM03	
02349	R5800.3	ALM04	QF204 OVERLOAD AL
02350	R5800.4	ALM05	
02351	R5800.6	ALM07	
02352	R5800.7	ALM08	
02353	R5801.0	1010	1010 PROBE IMPACT!!!
02354	R5801.5	ALM14	
02355	R5802.0	ALM17	
02356	R5802.3	ALM20	
02357	R5802.4	ALM21	
02358	R5802.5	ALM22	
02359	R5802.6	ALM23	CHIP OIL MOTOR AL
02360	R5803.0	ALM25	
02361	R5803.1	ALM26	
02362	R5803.2	ALM27	
02363	R5803.5	ALM30	CHIP CONVEYOR PUMP O.L
02364	R5803.6	ALM31	
02365	R5803.7	ALM32	
02366	R5804.1	ALM34	
02367	R5804.6	ALM39	
02368	R5804.7	ALM40	
02369	R5805.0	ALM41	
02370	R5805.2	ALM43	
02371	R5806.0	ALM1060	MAGAZINE POT EMPTY ALARM
02372	R5806.1	ALM1061	SUB-OP BOARD VALID
02373	R5806.2	ALM1062	ATC DOOR OPEN ALARM
02374	R5806.3	ALM1063	MAGAZINE RETURN ALARM
02375	R5806.4	ALM1064	MAGAZINE MAINTENANCE MODE ON
02376	R5807.0	ALM1070	SPINDLE EMPTY ALARM
02377	R5807.1	ALM58	
02378	R5807.2	ALM59	
02379	R5807.3	ALM60	
02380	R5807.4	ALM61	
02381	R5807.6	ALM63	
02382	R5807.7	ALM64-1	
02383	R5808.0	ALM65	SP TEST MODE
02384	R5808.1	ALM66	
02385	R5808.2	ALM67	
02386	R5808.3	ALM68	
02387	R5808.4	ALM69	
02388	R5808.5	ALM70	
02389	R5808.6	ALM71	
02390	R5808.7	ALM72	
02391	R5809.0	ALM73	
02392	R5809.1	ALM74	WAIT&SP EQ 0 AL
02393	R5809.2	ALM75	
02394	R5809.3	ALM76	SP&T CODE EQ 0 AL
02395	R5809.4	ALM77	MG T NO EQ 0 AL
02396	R5809.5	ALM78	ATC MG DOOR OPEN AL
02397	R5809.7	ALM80	MG RET SIDE DETE TOOL AL
02398	R5810.0	ALM81	ATC CYC AL
02399	R5810.4	ALM85	ATC INITIAL OFF AL
02400	R5811.0	ALM89	Z LOAD LIMIT AL
02401	R5811.1	ALM90	ATC T CYC ON AL
02402	R5811.2	ALM91	ATC M CYC ON AL
02403	R5811.3	ALM92	PMC CONTROL AL
02404	R5811.4	ALM93	SP WAIT RET&INDEX TOL AL
02405	R5811.5	ALM94	ARM RET SIDE DETE T AL
02406	R5811.6	ALM95	ARM RET SIDE MEM EQ 0 AL
02407	R5811.7	ALM96	SP T NO INDEX AL
02408	R5814.0	ALM1140	
02409	R5814.1	ALM1141	
02410	R5814.2	ALM1142	
02411	R5814.3	ALM1143	
02412	R5814.4	ALM1144	
02413	R5814.5	ALM1145	
02414	R5815.0	ALM1150	

NO.	ADDRESS	SYMBOL	FIRST COMMENT
02415	R5815.1	ALM2151	
02416	R5815.2	ALM2152	
02417	R5815.3	ALM2153	
02418	R5815.4	ALM2154	
02419	R5815.5	ALM2155	
02420	R5815.6	ALM2156	
02421	R5815.7	ALM2157	
02422	R5816.0	ALM129	CHIP CON IN STOP AL
02423	R5816.1	ALM130	CHIP CON OVERTORQUE 1 AL
02424	R5816.2	ALM131	CHIP CON OVERTORQUE 2 AL
02425	R5816.3	ALM132	CHIP CON OVERTORQUE 3 AL
02426	R5816.5	ALM134	CHIP OIL LOW LEVEL AL
02427	R5816.6	ALM135	SUB CHIP OIL TANL LOW AL
02428	R5816.7	ALM136	BOOSTER OIL LEVEL LOW AL
02429	R5817.1	ALM138	COOLANT FILTER CLOGGING AL
02430	R5817.4	ALM141	ATC AIR LOW AL
02431	R5817.5	ALM142	SP LUB OIL LEV LOW
02432	R5817.6	ALM143	SP LUB OIL PRESSURE ERROR
02433	R5817.7	ALM144	AIR PRESSURE LOW AL
02434	R5818.0	ALM145	CHIP COOL FILT TANK BREAK AL
02435	R5818.1	ALM146	GREASE LEVEL LOW AL
02436	R5818.2	ALM147	GREASE PUMP PRESSURE LOW AL
02437	R5818.3	ALM148	COOLER TANK LEVEL LOW AL
02438	R5818.4	ALM149	CHIP WATER&OIL LEV LOW AL
02439	R5818.6	ALM151	SPINDLE COOLANT ALARM 1
02440	R5819.1	ALM154	CHIP OIL CHILLER AL
02441	R5819.2	ALM155	SPINDLE COOLANT OFF AL
02442	R5819.5	ALM158	AUTO FIRE OFF PS OFF AL
02443	R5819.6	ALM159	PS OFF AL
02444	R5819.7	ALM160	TOOL LIFE AL
02445	R5820.0	ALM161	TOOL BROKEN DETE AL
02446	R5820.1	ALM162	HIGH SKIP PARAM INPUT ERROR
02447	R5820.2	ALM163	TOUCH SW AL
02448	R5820.3	ALM164	MP EQUIPMENT AL
02449	R5820.4	ALM165	MP BATTERY LOW AL
02450	R5820.6	ALM167	LOAD MONITOR AL
02451	R5820.7	ALM168	LOAD MONITOR ERR MACHINE STOP
02452	R5821.7	ALM176	TOOL PRESET AL
02453	R5822.1	ALM178	PROGRAM SERCH ERROR
02454	R5822.2	ALM179	
02455	R5822.3	ALM180	OP DOOR OPEN AL
02456	R5822.6	ALM183	PC ACCOUNT ERR
02457	R5823.0	ALM195	AXIS INTERLOCK IGNORE AL
02458	R5823.1	ALM186	
02459	R5823.2	ALM187	ATC JOG AL
02460	R5823.3	ALM188	ATC TEST AL
02461	R5823.7	ALM192	SINGLE STOP AL
02462	R5824.3	ALM196	MIST COLLECTOR PROTECTOR AL
02463	R5824.5	ALM198	AIR PRESSURE SWITCH OFF AL
02464	R5825.0	ALM201	TOOL POT NO EQ 0 AL
02465	R5825.1	ALM202	SP T NO EQ 0 AL
02466	R5825.2	ALM203	T NO NONDETECT AL
02467	R5825.3	ALM204	TOOL BORKEN NO BE UES AL
02468	R5825.4	ALM205	TOOL INFO DATA NG AL
02469	R5825.5	ALM206	T NO READ CYC AUTO OP AL
02470	R5825.6	ALM207	TOOL INFO KIND AL
02471	R5825.7	ALM208	T NO CYC AL
02472	R5826.0	ALM209	AUTO OP TIMER TOOL NO AL
02473	R5826.1	ALM210	M30 AUTO OP INFO AL
02474	R5826.2	ALM211	TOOL LIFE OVERWRITE INFO AL
02475	R5826.3	ALM212	TOOL LIFE NO SET INFO AL
02476	R5826.4	ALM213	TOOL BROKEN INFO AL
02477	R5826.5	ALM214	TOOL LOAD MONITOR INFO AL
02478	R5826.6	ALM215	AMCS TOOL SKIP INFO AL
02479	R5826.7	ALM216	TOOL LIFR RESET AL
02480	R5827.0	ALM217	PRINT REQUEST ERROR
02481	R5827.1	ALM218	PMC INTERFACE ERR FIN AL
02482	R5827.2	ALM219	PILZ SIGNAL AL
02483	R5827.3	ALM220	PS 1 SIGNAL AL
02484	R5827.6	ALM223	COOLANT TANK LEV LOW CHECK
02485	R5827.7	ALM224	MCC OFF CHECK AL

NO.	ADDRESS	SYMBOL	FIRST COMMENT
02486	R5830.3	ALM244	SP COMPENSATION PLUS DATA AL
02487	R5830.4	ALM245	SP COMPENSATION MINUS DATA AL
02488	R5830.5	ALM246	COMPENSATION ACCOUNT AL
02489	R5830.6	ALM247	WORK OFFSET NO DATA NONSET AL
02490	R5830.7	ALM248	WORK OFFSET NO AL
02491	R5950.0	ALMDET1	ALARM DETECT 1
02492	R5950.1	ALMDET2	ALARM DETECT 2
02493	R5950.2	ALMDET3	ALARM DETECT 3
02494	R5950.3	ALMDET4	ALARM DETECT 4
02495	R5950.4	ALMDET5	ALARM DETECT 5
02496	R5950.5	ALMDET6	ALARM DETECT 6
02497	R5950.6	ALMDET7	ALARM DETECT 6
02498	R5950.7	ALMDET8	ALARM DETECT 8
02499	R5951.0	ALMDET7S	ALARM DETECT 7 AUX
02500	R5952.0	ALM_DET	MESSAGE DISPLAY AL
02501	R5954.5	PRP_OFF1	AUTO OP RDY OFF 1
02502	R5954.6	BZ_AUX	BUZZER ON AUX
02503	R5954.7	ALMHLD.S	ALARM HOLD AUX
02504	R5955.0	ALM_HOLD	ALARM HOLD
02505	R5955.1	ST_BLK	AUTO START BE LOCK
02506	R5955.2	SBK_STP	SIGNAL BLOCK STOP
02507	R5955.3	BZ_STP	BUZZER STOP
02508	R5955.4	PTL_STP	AL LIGHT STOP
02509	R5957.0	M0-2FIN	M00&M02 FIN
02510	R5957.1	M0-2FINS	M00&M02 FIN PROCESS
02511	R5957.2	M0-2FIN1	M00&M02 FIN 1
02512	R5957.3	M0-2FIN2	M00&M02 FIN AUX
02513	R5960.0	STLS	START ON AUX
02514	R5960.4	FIRE.MEM	FIRE MEMORY
02515	R5960.5	AIR_SWOK	AIR PRESSURE SWITCH DETECT OK
02516	R7000.0	PTNOREQ	POT NO REQUIRE
02517	R7000.2	NTREQ	NEW TOOL REQUIRE
02518	R7000.4	OLTLREQ	OLD TOOL REQUIRE
02519	R7000.5	M30TLRQ	M30 TOOL REQUIRE
02520	R7000.6	TLBRKRQ	TOOL BROKEN REQUIRE
02521	R7001.0	LDMONRQ	LOAD MONITOR ERR REQUIRE
02522	R7001.2	AMCSSKP1	AMCS SKIP REQUIRE
02523	R7001.4	TLLFRSRQ	TOOL LIFE RESET REQUIRE
02524	R7001.6	TLFNREQ	TOOL NO LIFE REQUIRE
02525	R7003.0	TLKINDS	TOOL ID INDEX MODE
02526	R7003.4	COWTRQ	PC CARD WRITE REQUEST
02527	R7003.6	PCI/FRQ	PC INTERFACE REQUIRE
02528	R7030.0	MGIMP	MG INDEX MP
02529	R7030.6	LDROPN	LEFT DOOR OPEN
02530	R7030.7	RDROPN	RIGHT DOOR OPEN
02531	R7031.0	SLP1	SWING ARM MG SIDE P1
02532	R7031.1	SLP1-2	SWING ARM MIDDLE P1-2
02533	R7031.2	SLP2	SWING ARM DOOR< POS P2
02534	R7031.3	SLP2-3	SWING ARM MIDDLE P2-3
02535	R7031.4	SLP3	SWING ARM APPROACH POS P3
02536	R7031.5	SLP3-4	SWING ARM MIDDLE P3-4
02537	R7031.6	SLP4	SWING ARM SP POS P4
02538	R7032.0	ZP2	Z AXIS ZP2
02539	R7032.1	ZP2-3	Z MIDDLE P2-3
02540	R7032.2	ZP3	Z AXIS ZP3
02541	R7032.3	ZP3-4	Z MIDDLE P3-4
02542	R7032.4	ZP4	Z AXIS ZP4
02543	R7033.0	SHB11	ARM BACKWARD MG SIDE
02544	R7033.1	SHF11	ARM FORWARD SWING ARM SIDE
02545	R7033.2	SHC0101	ARM CHUCK OPEN
02546	R7033.3	SHCC101	ARM CHUCK CLOSE
02547	R7034.0	SHB101	ARM BACKWARD MG SIDE
02548	R7034.1	SHF101	ARM FORWARD SWING ARM SIDE
02549	R7034.2	SHC0102	ARM HEAD UP
02550	R7034.3	SHCC102	ARM HEAD DOWN
02551	R7034.4	SHHC102	ARM HEAD CLAMP
02552	R7034.5	SHHUC102	ARM HEAD UNCLAMP
02553	R7035.0	ACYCLE	A AXIS CYC
02554	R7035.2	SHTLDT101	ARM TOOL BE DETECT
02555	R7035.4	ATCINI1	ATC INITIAL
02556	R7050.0	ZP2ACTOK	Z ZP2 ACT OK

NO.	ADDRESS	SYMBOL	FIRST COMMENT
02557	R7050.1	ZP3ACTOK	Z ZP3 ACT OK
02558	R7050.2	ZP4ACTOK	Z ZP4 ACT OK
02559	R7050.3	M19OK	M19 OK
02560	R7050.4	M82OK	SP CLAMP OK
02561	R7050.5	M83OK	SP UNCLAMP OK
02562	R7050.6	M84OK	MG SP TOOL INDEX OK
02563	R7050.7	M85OK	MG T CODE INDEX OK
02564	R7051.0	M86OK	ALL AXIS INTERLOCK PASS OK
02565	R7051.1	M87OK	AXIS INTERLOCK ENABLE OK
02566	R7051.3	M89OK	ATC RESTART OK
02567	R7051.4	SLP1OK	SWING ARM MG SIDE POS OK
02568	R7051.5	SLP2OK	SWING ARM DOOR< POS P2
02569	R7051.6	SLP3OK	SWING ARM APPROACH POS P3
02570	R7051.7	SLP4OK	SWING ARM SP POS P4
02571	R7052.0	M104OK	ARM FORWARD SWING ARM SIDE OK
02572	R7052.1	M105OK	ARM BACKWARD MG SIDE
02573	R7052.2	M106OK	HAND CHUCK OPEN OK
02574	R7052.3	M107OK	HAND CHUCK CLOSE OK
02575	R7052.4	M108OK	MG WAIT TOOL INDEX OK
02576	R7052.5	M109OK	MG RETURN TOOL INDEX OK
02577	R7052.6	M120OK	ARM HEAD CLAMP OK
02578	R7052.7	M121OK	ARM HEAD UNCLAMP OK
02579	R7053.1	M123OK	SWING ARM 45 DEGREE
02580	R7053.2	M124OK	SWING ARM 0 DEGREE
02581	R7053.3	M125OK	SWING ARM -90 DEGREE
02582	R7053.4	M126OK	SWING ARM -180 DEGREE
02583	R7053.5	M127OK	SWING ARM -270 DEGREE
02584	R7053.6	M128OK	SWING ARM -315 DEGREE
02585	R7053.7	M129OK	SWING ARM -360 DEGREE
02586	R7055.0	MFINS	MONITOR M CODE FIN
02587	R7055.1	MRSTS	MONITOR M CODE RESET
02588	R7302.0	MCH_LCK_PLS	MACHINE LOCK PULSE
02589	R7302.1	MCH_LCK_PLS_AUX	MACHINE LOCK PULSE AUX
02590	R7302.2	PLS3	AUX FUNCTION PULSE
02591	R7302.3	PLS4	AUX FUNCTION PULSE AUX
02592	R7302.4	PLS5	Z MACHINE LOCK PULSE
02593	R7302.5	PLS6	Z MACHINE LOCK PULSE AUX
02594	R7302.6	PLS7	PROGRAM RESTART PULSE
02595	R7302.7	PLS8	PROGRAM RESTART PULSE 1
02596	R7303.0	PLS9	F1 PB SEND PULSE
02597	R7303.1	PLS10	F1 PB SEND PULSE AUX
02598	R7303.2	PLS11	TEACH PULSE
02599	R7303.3	PLS12	TEACH PULSE AUX
02600	R7306.0	PLS13	BLOCK SKIP 2 PULSE
02601	R7306.1	PLS14	BLOCK SKIP 2 PULSE
02602	R7306.2	PLS15	BLOCK SKIP 3 PULSE
02603	R7306.3	PLS16	BLOCK SKIP 3 PULSE
02604	R7306.4	PLS17	BLOCK SKIP 4 PULSE
02605	R7306.5	PLS18	BLOCK SKIP 4 PULSE
02606	R7306.6	PLS19	BLOCK SKIP 5 PULSE
02607	R7306.7	PLS20	BLOCK SKIP 5 PULSE
02608	R7307.0	PLS21	BLOCK SKIP 6 PULSE
02609	R7307.1	PLS22	BLOCK SKIP 6 PULSE
02610	R7307.2	PLS23	BLOCK SKIP 7 PULSE
02611	R7307.3	PLS24	BLOCK SKIP 7 PULSE
02612	R7307.4	PLS25	BLOCK SKIP 8 PULSE
02613	R7307.5	PLS26	BLOCK SKIP 8 PULSE
02614	R7307.6	PLS27	BLOCK SKIP 9 PULSE
02615	R7307.7	PLS28	BLOCK SKIP 9 PULSE
02616	R7310.0	PLS29	AUTO POWER OFF PULSE 1
02617	R7310.1	PLS30	AUTO POWER OFF PULSE 2
02618	R7310.2	PLS31	OIL MIST COLLECTOR PULSE
02619	R7310.3	PLS32	OIL MIST COLLECTOR PULSE AUX
02620	R7310.4	PLS33	MG DOOR WIPER SW PULSE
02621	R7310.5	PLS34	MG DOOR WIPER SW PULSE AUX
02622	R7997.0	SPON	SP ON
02623	R7997.1	PROTECT	MEMORY KEY
02624	R7997.6	M401FF	LOAD MONITOR M401 MEM
02625	R7997.7	M402FF	LOAD MONITOR M402 MEM
02626	R9000.0	=	=
02627	R9000.1	<	<

NO.	ADDRESS	SYMBOL	FIRST COMMENT
02628	R9015.0	PLC_PS	PLC START PULSE
02629	R9091.0	NOOFF	ALWAYS OFF
02630	R9091.1	L1	ALWAYS ON
02631	R9091.6	1S_CYC	1 SEC CYCLIC 500MS ON 500MS OF
02632	K0000.0	SP_COL_DET_SW_1	SPINDLE COOLANT DETECT SW 1
02633	K0000.2	ATC_STICK	ATC STICK
02634	K0000.3	APC	APC FUNCTION SW
02635	K0000.4	CHP_OIL_COLR_SW	CHIP OIL CHILLER SW
02636	K0000.6	C_UNCLP_DISABLE	C AXIS UNCLAMP DISABLE
02637	K0000.7	CHIP_OIL_UTI_SW	CHIP OIL UNIT DET SW
02638	K0001.0	MG_30T_SEL	MG ATC 30T SEL
02639	K0001.1	X0.6_ON	AUTO FIRE POWER DOWN SW
02640	K0001.3	SPTLDETEON	SP TOOL BE DETECT
02641	K0001.4	WEK_TIM_PRO_SW	WEEKLY PROG TIMER FUN SW
02642	K0001.7	MSTAUT_FUN_SW	OIL MIST COLLECTOR AUTO FUN SW
02643	K0002.0	MST_COLT_DET_SW	MIST COLLECTOR DETECT ON SW
02644	K0002.1	OIL_SKIR_DET_SW	OIL SKIMMER OL FUN SW
02645	K0002.3	X2.5_ON_SW	MIST COLECTOR PROTECTOR ON/OFF
02646	K0002.4	ATC_AIR_DET_SW	ATC AIR CHECK ON/OFF
02647	K0002.7	X1.7_CONTACT_SEL	X1.7 NORMAL OPEN SELECT
02648	K0003.0	4CLPRSTOFF	4TH AXIS CLAMP RESET DISABLE
02649	K0003.1	5CLPRSTOFF	5TH AXIS CLAMP RESET DISABLE
02650	K0003.3	SPCOMNOP	SP COMMON OP
02651	K0003.4	HYDRPUMPAR	HYDRAULIC PUMP ALWAYS ON
02652	K0003.5	C_AXIS_HYDRLC	C AXIS HYDRAULIC CLAMP
02653	K0003.6	SP_HSK_SPEC	SP HIGH SKIP SPEC
02654	K0004.0	AXIS_INTLK_PASS	ALL AXIS INTERLOCK PASS
02655	K0004.1	ATC_APC_INTLK_PS	ATC&APC INTERLOCK PASS
02656	K0004.2	ATC_APC_JOG	ATC&APC JOG
02657	K0004.3	APC_TEST_MODE	APC TEST MODE
02658	K0004.4	SP_TEST_MODE	SP TEST MODE
02659	K0004.5		BRAKE TEST REQUIRE
02660	K0004.6	MCC_TEST_REQ_OFF	MCC TEST REQ OFF
02661	K0005.0	NOI_CHP_OIL_FUN	NOI CHIP OIL FUN SW
02662	K0005.1	CTS_ON	CTS ON
02663	K0005.2	CTS_OIL_OL_FUN	CTS OIL OL DETE FUN SW
02664	K0005.3	OIL_MIST	OIL MIST
02665	K0005.4	OPTION_6	SPARE
02666	K0005.5	CHP_FLSH_FUN_SEL	CHIP FLUSH FUN SELECT SW
02667	K0005.6	CHP_OIL_LEV_STP	CHIP OIL LEVEL LOW STOP
02668	K0005.7	GHP_OILLV_DET_SW	CHIP OIL LEVEL DETE SW
02669	K0006.0	CHIP_PUM_OL_SW	CHIP COOLANT PUMP O.L AL SW
02670	K0006.1	COL_OIL_LEV_SW	CHP OIL LEV CHECK FUNCTION
02671	K0006.2	CHP_COL_RDY_SW	CHIP COOLANT RDY CHECK SW
02672	K0006.3	CHIP_TANK_LEV_ON	CHIP WATER&OIL LEV DETE ON
02673	K0006.5	CHP_OIL_PUP_SW	CHIP OIL PUMP OL FUNCTION SW
02674	K0006.7	CHPOILOUTTMRCtrl	CHIP OIL OUT TIMER CONTROL
02675	K0007.0	NOI_CHP_CON_OLS	NOI CHP CON OL FUN SW
02676	K0007.1	SP.COL.OL.SW	SPINDLE OIL COOLER AL SW
02677	K0007.2	CHP_CON1_TOQ_SW	CHIP CON 1 TORQUE SW
02678	K0007.3	CHP_CON2_TOQ_SW	CHIP CON 2 TORQUE SW
02679	K0007.4	CHP_CON3TOQ_SW	CHIP CON 3 TORQUE SW
02680	K0007.5	CHP_CON_RUN_CHK	CHIP CON RUN CHECK
02681	K0007.7	CHPCONOFAL__PASS	CHIP CON OFF AL PASS
02682	K0008.0	24_TOOL_SEL	24 TOOL SELECT
02683	K0008.2	T&MACTENABLE	T CODE & M CODE ACT ENABLE
02684	K0008.6	ATC-ANEG	ATC A ZP1 PASS
02685	K0008.7	40ATCSA	40 TOOL 90 DEGREE SWING ARM
02686	K0009.6	HIGH_SPEED_TAP	HIGH SPEED TAP
02687	K0010.1	BOOST_AL_PASS_SW	BOOSTER ALARM BY PASS
02688	K0010.2	CHP_OIL_LOW_SW1	CHIP OIL LOW L.S SW 1
02689	K0010.3	CHP_OIL_LOW_SW2	CHIP OIL LOW L.S SW 2
02690	K0010.4	EX_NOZL_AUX_COL	EX AUX COOLANT NOZZLE SW
02691	K0010.5	CH_COT_PU_COT_SW	CHIP COOLANT PUMP COOLANT SW
02692	K0010.6	FILT_BRK_DET_ON	DRUM FILTER DETECT ON
02693	K0010.7	CHP_CON_CCW_SW	CHIP CON CCW OL ON/OFF
02694	K0011.0	COVER_STICK	COVER ENTIRE STICK
02695	K0011.4	SD_MD_SW	STAND MODE SW
02696	K0011.5	SPONAIRBLOW	AIR BLOW IN SP RUN
02697	K0012.0	EX_M_CODE_BIN	EXTRA BINARY M CODE
02698	K0012.1	X1.6_PASS	TOUCH SW OVER TRAVIRE

NO.	ADDRESS	SYMBOL	FIRST COMMENT
02699	K0012.2	HANDINDWRITE	MANUAL INDEX WRITE
02700	K0012.3	AUTO_TL_SET	AUTO TOOL SET
02701	K0012.4	TBESKACONNT	TABLE SKIP A CONNECT
02702	K0012.5	M30_POWER_OFF	M30 POWER OFF FUN SW
02703	K0012.7	AL_POWER_OFF	ALARM POWER OFF
02704	K0013.0	PLAYBACK_ON	PLAYBACK ON
02705	K0013.1	F1_PB_SEND	F1 PB SEND
02706	K0013.2	CS_AXIS_CONTROL	CS AXIS CONTROL
02707	K0013.3	C_AXIS_CONTROL	C AXIS CONTROL
02708	K0013.4	SPDISPCOMPSTION	SP HEAT DISPLACE COMPENSATION
02709	K0013.5	3D_INTFCE_CHK	3D INTERFERENCE CHECK
02710	K0014.3	HSKUNCLPENAB	HIGH SKIP UNCLP ENABLE
02711	K0015.1	OPAUXPANEL	OPERATION AUX PANEL
02712	K0015.2	MAG.MPG	MAGAZINE SERVO MPG VALID
02713	K0015.3	ATC_DOOR_LS	ATC DOOR L.S
02714	K0015.4	MAG.DOR.SEN.PAS	MAGAZINE DOOR SENSOR PASS
02715	K0016.0	SAVA_A	SERVO SWING ARM A CYC
02716	K0016.1	ATCTLINPM	ATC TOOL INDEX POS MEM
02717	K0016.2	ATCTLRPLM	ATC TOOL RELEASE POS MEM
02718	K0016.3	ATCSTPM	ATC STOP POS
02719	K0016.4	INDEXOKM	MG INDEX POS OK MEM
02720	K0016.5	ZP4YM	Y AXIS ZP4 MEM
02721	K0016.6	ATCXAPM	ATC X&A POS MEM
02722	K0016.7	ZP4ZM	Z AXIS ZP4 MEM
02723	K0017.0	M130FF1	M130 OFF 1
02724	K0018.0	H*10	HANDLE FEEDRATE *10
02725	K0018.1	H.INT.M	HANDLE INTERRUPT MANUAL
02726	K0018.3	SOOVRRID	SPINDLE OVERRIDE FUN ON
02727	K0020.0	WKPL	WORK LIGHT FUNCTION SW
02728	K0020.1	BLKSKP	BLOCK SKIP ON MEM
02729	K0020.2	OPSTP	OPTION STOP FUN SEL SW
02730	K0020.3	M.CHIP	MANUAL CHIP CON ON MEM
02731	K0025.1	COL_OF_CHK_PASS	COOLANT OFF CHECK BY PASS
02732	K0026.0	SPTLCKNG	SPINDLE TOOL CHECK FUN OFF
02733	K0027.6	3D_INTFCEOFSETWR	3D INTERFERENCE OFFSET WRITE
02734	K0028.3	AL159.M	AL159 MEM
02735	K0029.5	PRTET_KEY_OF_SW	PROTECT KEY OFF SW
02736	K0029.6	OP_AUX_OF_SW	OPERATION AUX OFF SW
02737	K0030.0	PRM300	=1 SAFETY DOOR DISABLE
02738	K0030.1	PRM301	=1 AIR PRESSURE SW DISABLE
02739	K0030.2	PRM302	=1 HEAT EXCHANGE AL DISABLE
02740	K0030.3	PRM303	=1 O&A ALARM DISABLE
02741	K0030.4	PRM304	=1 LUBE ALARM DISABLE
02742	K0030.5	PRM305	=1 3D MPG ENABLE
02743	K0030.7	PRM37	=1 REF. AXIS KEEP
02744	K0031.0	PMC	PMC AXIS CONTROL FUNCTION
02745	K0031.1	PRM311	=1 MPG FEED 3STEP
02746	K0031.2	PRM312	=1 CTS PW ENABLE
02747	K0031.6	PRM316	=1 POT KEEP OUT
02748	K0031.7	BIGTOL	BIG TOOL FUNCTION
02749	K0035.1	TL2BIG	TOOL 2 BIG
02750	K0035.2	TL4BIG	TL4BIG
02751	K0035.3	TL6BIG	TL6BIG
02752	K0035.4	TL8BIG	TL8BIG
02753	K0035.5	1BY1	ONE BY ONE CHANGE TOOL
02754	K0035.6	ARNODQ	ARM NOT SPEED DRIVES QUICKLY
02755	K0037.1	M34MEM	M34 MEMORY
02756	K0037.2	AMCCWM	ARM 180 MEMORY
02757	K0037.3	MGCCWM	MAG CCW MEMORY
02758	K0037.4	ARM0DM	ARM 0 DEG MEMORY
02759	K0040.0	ATC_DR_OP	ATC DOOR OPEN
02760	K0099.2	TLIF	TOOL INFO
02761	D0000.6	INDCOMMON	INDEX COMMAND
02762	D0490.3	WKLYPRGM	WEEKLY PROGRAM MEM
02763	D0490.5	WKTMASTER	WEEKLY TIMER START ERROR
02764	D3050.6	ATCTA	HIGH SKIP HEAD DOWN
02765	D3050.7	ATCT5-11	ARM FORWARD
02766	D3051.1	ATCT61	HIGH SKIP HEAD UP
02767	D3051.2	ATCT71	A45 TO 0 & B-315 TO -270
02768	D3051.3	ATCT81	CHUCK CLOSE
02769	D3051.4	ATCT91	ARM BACKWARD

NO.	ADDRESS	SYMBOL	FIRST COMMENT
02770	D3051.5	ATCT101	CHUCK OPEN
02771	D3051.6	ATCT111	TOOL RETURN FIN
02772	D3052.0	ATC201	NEW TOOL CYC START
02773	D3052.1	ATC21-11	NEW TOOL INDEX
02774	D3052.2	ATCT21-21	SP TOOL INDEX
02775	D3052.4	ATCT221	CHUCK CLOSE
02776	D3052.5	ATCT23-11	ARM FORWARD
02777	D3052.7	ATC241	CHUCK OPEN
02778	D3053.0	ATCT251	SWING ARM MIDDLE
02779	D3053.1	ATC261	NON ACT
02780	D3053.3	ATCT27-11	NON ACT
02781	D3053.5	ATCT281	ARM BACKWARD
02782	D3053.6	ATCT291	CHUCK OPEN
02783	D3055.0	ATCM101	SWING ARM P4 TO P3
02784	D3055.1	ATCM2-101	SWING ARM P3 TO P2& A-315B45
02785	D3055.2	ATCM2-201	SWING ARM P2 TO P1
02786	D3055.3	ATCM301	SWING ARM INITIAL POS CONFIRM
02787	D3055.4	ATCM4-101	RETURN TOOL INDEX
02788	D3055.5	ATCM4-201	RET NOTOOL & SP TOOL INDEX
02789	D3055.6	ATCM501	HIGH SKIP HEAD DOWN
02790	D3055.7	ATCM6-101	ARM FORWARD
02791	D3056.1	ATCM701	HIGH SKIP HEAD UP
02792	D3056.2	ATCM801	A-315 TO -270 & B45 TO 0
02793	D3056.3	ATCM901	CHUCK CLOSE
02794	D3056.4	ATCM1001	ARM BACKWARD
02795	D3056.5	ATCM1101	CHUCK OPEN
02796	D3056.6	ATCM1201	NON ACT
02797	D3057.5	ATCX61	SWING ARM DOOR< POS P2
02798	D3057.6	ATCX71	SL P3 SR A-90&B-180
02799	D3058.0	ATCX91	INTERLOCK OFF
02800	D3058.1	ATCX101	Y AXIS P4 POS
02801	D3058.2	ATCX111	SP UNCLAMP
02802	D3058.3	ATCX121	ZP3
02803	D3058.4	ATCX131	ZP2
02804	D3059.0	ATCX171	SP CLAMP
02805	D3059.1	ATCX181	INTERLOCK ON
02806	D3059.2	ATCX191	M6 CYC ACT
02807	D7100.0	OP.OUT18	ALL AXIS ZERO RETURN FIN
02808	D7100.1	TSTPOS.P	ATC RUN POS DISPLAY
02809	D7100.3	TINI.PL	ATC INITIAL DISPLAY
02810	D7100.4	TMEM.PL	ATC MEMORY DISPLAY
02811	D7100.5	PINI.PL	APC INITIAL DISPLAY
02812	D7100.7	TBLINI.P	TABLE AXIS INITIAL DISPLAY
02813	D7101.0	MCLK	MACHINE LOCK DISPLAY
02814	D7101.1	AUXLK	AUX FUNCTION DISPLAY
02815	D7101.2	ZCAN	Z CANCEL DISPLAY
02816	D7101.3	PRGRST	PROGRAM RESTART DISPLAY
02817	D7101.4	F1	F1 PB SEND DISPALY
02818	D7101.5	TCH-IN	TEACH MODE DISPLAY
02819	D7103.0	BSKP2	BLOCK SKIP 2
02820	D7103.1	BSKP3	BLOCK SKIP 3
02821	D7103.2	BSKP4	BLOCK SKIP 4
02822	D7103.3	BSKP5	BLOCK SKIP 5
02823	D7103.4	BSKP6	BLOCK SKIP 6
02824	D7103.5	BSKP7	BLOCK SKIP 7
02825	D7104.0	BSKP8	BLOCK SKIP 8
02826	D7104.1	BSKP9	BLOCK SKIP 9
02827	D7105.0	PWROFF	AUTO POWER OFF FUN ON MEM
02828	D7105.1	MSTCL	OIL MIST COLLECTOR ON MEM
02829	D7105.2	MRNWIP	ATC DOOR WIPER
02830	D7105.4	ORI.0	M19 DISPLAY
02831	D7105.5	MCCTES.O	MCC CHECK LAMP OFF
02832	D7250.1	MACT	M CODE RUN ENABLE
02833	D7250.2	HSK	HIGH SKIP HOLD
02834	D7251.0	INTDSP	INTERLOCK DISPLAY
02835	T0035.2	PGSTP.PL	PRG STOP DISPLAY LAMP
02836	E0009.5	IE_X95	
02837	E0009.6	IE_SCL_OL	EXT. SP COOLER OL
02838	E0100.0	GREASE_PRES_DETE	GREASE PRESSURE DETECT
02839	E0100.3	SP_OIL_&_AIR_DET	SPINDLE OIL&AIR PRESSURE DETE
02840	E0100.4	MG_TOOL_DETECT_1	MG TOOL DETECT 1

NO.	ADDRESS	SYMBOL	FIRST COMMENT
02841	E0100.5	ATC_OP_SEL	ATC SIDE PANEL ON SW
02842	E0100.6	ATC_MG_CW	ATC MAGAZINE CW
02843	E0100.7	ATC_MG_CCW	ATC MAGAZINE CCW
02844	E0101.1	HYD_MTR_OL	HYDRAULIC MOTOR OL
02845	E0101.4	ATC_DOR_L_OP_S	ATC DOOR LEFT OPEN SEN
02846	E0101.5	ATC_DOR_L_CLO_S	ATC DOOR LEFT CLOSE SEN
02847	E0101.6	ATC_DOR_R_OP_S	ATC DOOR RIGHT OPEN SEN
02848	E0101.7	ATC_DOR_R_CLO_S	ATC DOOR RIGHT CLOSE SEN
02849	E0102.0	GREASE_PUMP_O.L	GREASE PUMP OVERLOAD
02850	E0102.1	GREASE_PRES.Z	GREASE PRESURE SW OF Z AXIS
02851	E0103.0	AIR_PRESSURE_DET	AIR PRESSURE LOW DETECT
02852	E0103.1	LUBE_LEVEL	LUBE LEVEL DETECT (SP OIL AIR)
02853	E0103.2	SP_CLAMP_L.S1	SPINDLE CLAMP SW WITH TOOL
02854	E0103.3	SP_UNCLP_L.S	SPINDLE UNCLAMP DETECT SW
02855	E0103.4	SP_UNCLP_PB	SPINDLE UNCLAMP PB
02856	E0103.5	MG_BACKWARD	MAGAZINE BACKWARD
02857	E0103.6	MG_FORWARD	MAGAZINE FORWARD
02858	E0104.0	HEAT_EXCHG_OL	HEAT EXCHANGER OL
02859	E0104.1	SP_FAN_OL	SPINDLE FAN OL
02860	E0104.2	SP_CLP_NOT	SPINDLE CLAMP WITHOUT TOOL SEN
02861	E0104.3	SP_CLAMP_LS2	SPINDLE CLAMP SW WITHOUT TOOL
02862	E0104.5	GR_LV_SW	GREASE LUBE LEVEL SWITCH
02863	E0104.6	GR_PS_SW	GREASE LUBE PRESSURE SWITCH
02864	E0104.7	SIKP	SKIP SIGNAL
02865	E0105.0	BATTERY LOW	PROBE BATTERY LOW
02866	E0105.1	ERROR	PROBE ERROR
02867	E0105.2	POM	PROBE ON MACHINE
02868	E0105.3	C_CLAMP_SEN	C AXIS CLAMP SENSOR
02869	E0105.4	IB_SUB_STR	SUB START PB
02870	E0105.5	IS_YL_CVR	Y LEFT COVER SENSOR
02871	E0105.6	I_OA_PS_CHK	O&A END P.S CHECK
02872	E0105.7	IS_YR_CVR	Y RIGHT COVER SENSOR
02873	E0106.2	DOOR.SW	SAFETY DOOR SW
02874	E0106.5	CHIP_FLU_OL	CHIP FLUSH PUMP OL
02875	E0107.6	SP.COL.OL	SPINDLE OIL COOLER OL
02876	E0108.1	COL_OL	COOLANT MOTOR OL
02877	E0108.2	SP_COL_DETE_1	SPINDLE COOLANT A.L 1
02878	E0108.3	CHIP_CONV_OL	CHIP CONVEYOR MOTOR OL
02879	E0108.5	A_CLAMP_SEN	A AXIS CLAMP SENSOR
02880	E0109.4	IB_E_MAGCW	EXT. MAG CW PB
02881	E0109.5	IB_E_MAGCCW	EXT. MAG CCW PB
02882	E0110.0	SP_HI_SHIFT	SPINDLE HIGH SHIFT
02883	E0110.1	SP_LOW_SHIFT	SPINDLE LOW SHIFT
02884	E0110.2	IS_SC_LOW	SUB TANK LEVEL LOW SW
02885	E0110.4	CLT_LOW_LIMIT	COOLANT TANK LOW LIMIT
02886	E0110.7	SKIM_OL	SKIMMER MOTOR OL
02887	E0111.0	IS_M111_F	M111 FINISH SENSOR
02888	E0111.1	IS_M112_F	M112 FINISH SENSOR
02889	E0111.2	IS_M113_F	M113 FINISH SENSOR
02890	E0111.3	IS_M114_F	M114 FINISH SENSOR
02891	E0111.4	IS_M115_F	M115 FINISH SENSOR
02892	E0111.5	IS_M116_F	M116 FINISH SENSOR
02893	E0111.6	IS_M117_F	M117 FINISH SENSOR
02894	E0111.7	CTS_MTR_OL	CTS MOTOR OL
02895	E0112.5	MIST_COLCT_DETE	MIST COLLECTOR DETE L.S
02896	E0112.7	CTS_PS_ER	CTS PRESSURE ERROR
02897	E0113.0	SOL_1_FUSE	SOL 1 FUSE
02898	E0113.1	OPTION22	SPARE
02899	E0113.2	MOTOR_O.L_1	MAIN POWER O.L DETECT
02900	E0113.3	OPTION23	SPARE
02901	E0113.4	DC_QF201	DC QF201 OFF L.S
02902	E0113.5	DC_QF202_L.S	DC QF202 L.S
02903	E0113.6	DC_QF_204_L.S	DC QF204 OFF AL
02904	E0113.7	OPTION24	SPARE
02905	E0114.0	AC_QF12_L.S	AC QF12 L.S
02906	E0114.1	AC_QF13_L.S	AC QF13 OFF L.S
02907	E0114.2	MOTOR_O.L_7	AC QF16 OFF L.S
02908	E0114.3	WEEK_TIMER_ON	WEEK TIMER ON
02909	E0114.4	OPTION25	SPARE
02910	E0114.5	OPTION26	SPARE
02911	E0114.6	OPTION27	SPARE

NO.	ADDRESS	SYMBOL	FIRST COMMENT
02912	E0114.7	OPTION28	SPARE
02913	E0115.0	S_HAND_FRD	S HAND FORWARD
02914	E0115.1	S_HAND_BKRD	S HAND BACKWARD
02915	E0115.2	S_HAND_UP	S HAND UP
02916	E0115.3	S_HAND_DOWN	S HAND DOWN
02917	E0115.6	MG_ZRO_REF	MAGAZINE ZERO
02918	E0116.0	S_HAND_TOOL_DETE	S HAND TOOL DETECT
02919	E0116.1	S_HAD_HED_CLP	S HAND HEAD CLAMP
02920	E0116.2	S_HAD_HED_UNCLP	S HAND HEAD UNCLAMP
02921	E0118.1	CHIPCOL_FLT_BK_1	CHIP COOLANT FILTER BREAK 1
02922	E0118.2	CHIP_CON_SUBSEL1	CHIP CON SUB SELECT SW 1
02923	E0118.3	CHIP_CON_CW	CHIP OIL CHIP CON CW
02924	E0118.4	CHIP_CON_CCW	CHIP OIL CHIP CON CCW
02925	E0118.6	MAIN_TANK_LOW	MAIN TANK LOW
02926	E0118.7	FILTER_CLOGGED	CHIP OIL FILTER CLOGGING
02927	E0119.1	COL_OIL_LEV_LOW	COOLANT OIL LOW LEVEL
02928	E0119.2	COL_ON	COOLER RUNNING
02929	E0119.3	CHPCON_TOQ_OVR1	CHIP CON TORQUE OVR 1
02930	E0119.4	CHP_CON_TOQ_OVR2	CHIP CON TORQUE OVR 2
02931	E0119.5	CHP_CON_TOQ_OVR3	CHIP CON TORQUE OVR 3
02932	E0119.6	MGNET_SEPRTOR	MGNET SEPARATOR
02933	E0119.7	CLT_CIRCULATE	COOLANT CIRCULATE
02934	E0120.0	MST.LOCK.PB	MST LOCK PB
02935	E0120.2	MAG_CW_PB	MAGAZINE CW PB
02936	E0120.3	CHP_CON_MAN_CCW	CHIP CON MANUAL CCW
02937	E0120.4	MLK_PB	MACHINE LOCK PB
02938	E0120.5	IB_3D_CK	3D CHECK PB
02939	E0120.6	MAG.R.L.PB	MAGAZINE L/R PB
02940	E0120.7	CHP.CON.CW.PB	CHIP CONVEYOR CW PB
02941	E0121.0	BLOCK_SKIP	BLOCK SKIP
02942	E0121.1	OVC.PB	OVERRIDE CANCEL PB
02943	E0121.2	SP.UNC.PB	SPINDLE UNCLAMP PB
02944	E0121.3	APO_PB	AUTO POWER OFF PB
02945	E0121.4	PRO.RESTART.PB	PROGRAM RESTART PB
02946	E0121.5	A.BL_PB	AIR BLOW PB
02947	E0121.7	WORK_LIGHT_PB	WORK LIGHT ON PB
02948	E0122.0	OPTION_STOP	OPTIONAL STOP PB
02949	E0122.1	CTS.PB	CTS PB
02950	E0122.2	AL.RST.PB	ALARM RESET PB
02951	E0122.3	DOOR.PB	DOOR PB
02952	E0122.4	DRY_RUN_PB	DRY RUN PB
02953	E0122.5	CHP.FLU.PB	CHIP FLUSH PB
02954	E0122.6	DOR.LCK.PB	DOOR LOCK PB
02955	E0122.7	A.ZRN.PB	AUTO ZRN PB
02956	E0123.0	SINGLE_BLOCK	SINGLE BLOCK
02957	E0123.1	COL.PB	COOLANT PB
02958	E0123.2	DOR.UNL.PB	DOOR UNLOCK PB
02959	E0123.3	M19.PB	M19 PB
02960	E0123.4	Z.PB	Z AXIS SELECT PB
02961	E0123.5	AUX.PB	AXIS AUX SELECT PB
02962	E0123.6	-_MAUAL_FEED	- MAUAL FEED
02963	E0123.7	SP.CCW.PB	SPINDLE CCW PB
02964	E0124.0	Y.PB	Y AXIS SELECT PB
02965	E0124.1	C.PB	C AXIS SELECT PB
02966	E0124.2	RAPID.PB	RAPID SELECT PB
02967	E0124.3	SP_STOP_PB	SPINDLE STOP PB
02968	E0124.4	X.PB	X AXIS SELECT PB
02969	E0124.5	A.PB	A AXIS SELECT PB
02970	E0124.6	+_MAUAL_FEED	+ MAUAL FEED
02971	E0124.7	SP.CW.PB	SPINDLE CW PB
02972	E0125.0	SP_OVERRIDE_A	SPINDLE OVERRIDE A
02973	E0125.1	SP_OVERRIDE_B	SPINDLE OVERRIDE B
02974	E0125.2	SP_OVERRIDE_C	SPINDLE OVERRIDE C
02975	E0125.3	FEED_OVERRIDE_A	FEED OVERRIDE A
02976	E0125.4	FEED_OVERRIDE_B	FEED OVERRIDE B
02977	E0125.5	FEED_OVERRIDE_C	FEED OVERRIDE C
02978	E0125.6	FEED_OVERRIDE_D	FEED OVERRIDE D
02979	E0125.7	FEED_OVERRIDE_E	FEED OVERRIDE E
02980	E0126.0	OP_MODE_SEL_A	OPERATION MODE SELECT A
02981	E0126.1	OP_MODE_SEL_B	OPERATION MODE SELECT B
02982	E0126.2	OP_MODE_SEL_C	OPERATION MODE SELECT C

NO.	ADDRESS	SYMBOL	FIRST COMMENT
02983	E0126.3	RAPID_OVEERIDE_A	RAPID OVEERIDE A
02984	E0126.4	RAPID_OVEERIDE_B	RAPID OVEERIDE B
02985	E0126.5	CYCLE.START_PB	CYCLE START PB
02986	E0126.6	HOLD_PB	HOLD PB
02987	E0126.7	CNC.RDY_PB	CNC READY PB
02988	E0127.1	MEM_KEY_SW	MEMORY KEY ENABLE
02989	E0127.2	MPG.X	MANUAL AXIS SELECT X AXIS
02990	E0127.3	MPG.Y	MANUAL AXIS SELECT Y AXIS
02991	E0127.4	MPG.Z	MANUAL AXIS SELECT Z AXIS
02992	E0127.5	MPG.A	MANUAL AXIS SELECT TABLE AXIS
02993	E0127.6	MPG.B	MANUAL AXIS SELECT B AXIS
02994	E0127.7	HAD_WHEEL_FED*1	HANDLE WHEEL FEED *1
02995	E0128.0	HAD_WHEEL_FED*10	HANDLE WHEEL FEED *10
02996	E0128.1	HAD_WHEL_FED*100	HANDLE WHEEL FEED *100
02997	E0128.2	MPG.C	MANUAL AXIS SELECT AUX AXIS
02998	E0129.0	ARM_OL	ARM MOTOR OVERLOAD
02999	E0129.1	MAG_OL	MAG MOTOR OVERLOAD
03000	E0132.0	IB_3DMPG	3D MANUAL HANDWHEEL
03001	E0132.3	AUT_PB	AUTO CYCLE PB
03002	E0133.4	CC_M_PB	CHIP CVR MANUAL PB
03003	E0133.6	SP_OVR_PB	SP OVERRIDE PB
03004	E0133.7	H_I_PB	HAND INTERRUPT PB
03005	E0134.5	Y_SL_PB	Y SHUTTER LOCK PB
03006	E0134.6	Y_SUL_PB	Y SHUTTER UNLOCK PB
03007	E0137.3	SP_OVERRIDE_D	SPINDLE OVERRIDE D
03008	E0300.0	HYD.M	HYDRAULIC PUMP MOTOR
03009	E0300.1	LUB-MOTOR	BALL SCREW& GUIDE GREASE PUMP
03010	E0300.2	APO_O	AUTO POWER OFF RELAY
03011	E0301.0	UO0_R	UO0 OUTPUT
03012	E0301.1	UO1_R	UO1 OUTPUT
03013	E0301.2	UO4_R	UO4 OUTPUT
03014	E0301.6	M67_ON	M67 ATLM AIR ON RELAY
03015	E0301.7	BZR_R	BUZZER RELAY
03016	E0302.0	CLT_PUMP_MTR	COOLANT PUMP MTR
03017	E0302.3	NO1_CHP_CON_CW_1	NO1 CHIP CON CW 1
03018	E0302.4	NO1CHP_CON_CCW	NO1 CHIP CON CCW
03019	E0302.5	MC_RDY_R	MACHINE READY RELAY
03020	E0302.7	CHIP_FLUSH	CHIP FLUSH PUMP
03021	E0303.0	OIL_SKIMMER	OIL SKIMMER
03022	E0303.3	SUB_STR_LP	SUB START LAMP
03023	E0303.4	UO2_R	UO2 OUTPUT
03024	E0303.5	PATLITE_GREEN	GERRN LIGHT
03025	E0303.6	RED_LP	RED LIGHT
03026	E0303.7	YELLOW_LP	YELLOW LIGHT
03027	E0304.0	O&A-OIL	SPINDLE OIL&AIR ON
03028	E0304.1	APO.O	AUTO POWER OFF RELAY
03029	E0304.2	SP_SHIFT_L	SPINDLE SHIFT LOW
03030	E0304.3	SP_SHIFT_H	SPINDLE SHIFT HIGH
03031	E0304.4	WK_LT	WORK LIGHT
03032	E0304.5	CTS_1	CTS VALVE 1
03033	E0305.0	SP_UCLP	SPINDLE TOOL UNCLAMP
03034	E0305.1	MAG_EXTEND	MAGAZINE EXTEND SOL
03035	E0305.2	MAG_RETURN	MAGAZINE RETURN SOL
03036	E0305.3	SP_HEAD_AIR	SPINDLE HEAD AIR
03037	E0305.4	SP_AIR_BLAST	SPINDLE AIR BLAST
03038	E0305.5	CTS.AIR	CTS AIR SOL
03039	E0305.6	TC	
03040	E0305.7	start	
03041	E0306.0	A_S_OUT	AIR SEAL
03042	E0306.2	ATC_DOR_L_OPN	ATC DOOR LEFT OPEN
03043	E0306.3	ATC_DOR_L_CLO	ATC DOOR LEFT CLOSE
03044	E0306.4	ATC_DOR_R_OPN	ATC DOOR RIGHT OPEN
03045	E0306.5	ATC_DOR_R_CLO	ATC DOOR RIGHT CLOSE
03046	E0306.6	O&A_AIR	OIL & AIR COOLER
03047	E0306.7	SP_BAR_AIR	SPINDLE BEARING AIR
03048	E0307.0	C.CLP.SOL	C AXIS CLAMP SOL
03049	E0307.1	Z_BRAKE	Z BRAKE
03050	E0307.6	OPE_DOOR_UNLK	OPERATION DOOR UNLOCK
03051	E0307.7	A.CLP.SOL	A AXIS CLAMP SOL
03052	E0308.3	CLTCLR	CHIP OIL CHILLER ON
03053	E0308.4	MISTCL.M	OIL MIST COLLECTOR MOTOR

NO.	ADDRESS	SYMBOL	FIRST COMMENT
03054	E0309.0	PREP_ON_METER	PREPARE ON METER
03055	E0309.1	CYCLE_ON_METER	CYCLE ON METER
03056	E0309.2	SP_ON_METER	SPINDLE ON METER
03057	E0309.3	KA4	SPARE M02/M30 PULSE
03058	E0309.4	EXE.M1	EXTRA M CODE 1
03059	E0309.5	EXE.M2	EXTRA M CODE 2
03060	E0309.6	EXE.M3	EXTRA M CODE 3
03061	E0309.7	EXE.M4	EXTRA M CODE 4
03062	E0310.0	CLT-SOL	CHIP COOLANT VALVE
03063	E0310.2	O&A_SUCTION	O&A SUCTION
03064	E0310.6	SHIFT_HAND_CLP	SHIFT HAND CLAMP
03065	E0310.7	SHIFT_HAND_UNCLP	SHIFT HAND UNCLAMP
03066	E0311.2	SP_COOLING_AIR	SPINDLE COOLING AIR
03067	E0311.7		MG BACKWARD
03068	E0313.5	GREEN_LP	GREEN LIGHT
03069	E0320.0	MST.LCK.LP	MST LOCK LAMP
03070	E0320.2	MAG.CW.LP	MAGAZINE CW LAMP
03071	E0320.3	CHP.CONV.CCW.LP	CHIP CONVEYOR CCW LAMP
03072	E0320.4	MLK.LP	MACHINE LOCK LAMP
03073	E0320.5	3D_CH_LP	3D CHECK LAMP
03074	E0320.6	MAG.L.R.LP	MAGAZINE L/R LAMP
03075	E0320.7	CHP.CONV.CW.LP	CHIP CONVEYOR CW LAMP
03076	E0321.0	BDT.LP	BLOCK SKIP LIGHT
03077	E0321.1	OVC.LP	OVERRIDE CANCEL LAMP
03078	E0321.2	SP.UNC.LP	SPINDLE UNCLAMP LAMP
03079	E0321.3	APO_LP	AUTO POWER OFF LAMP
03080	E0321.4	PRO.RESTART.LP	PROGRAM RESTART LAMP
03081	E0321.5	AIR.LP	BLAST LAMP
03082	E0321.6	F3.LP	F3 LAMP
03083	E0321.7	WRK.LIGH.LP	WORK LIGHT FUNCTION ON
03084	E0322.0	M01.LP	OPTIONAL STOP LIGHT
03085	E0322.1	CTS.LP	CTS LAMP
03086	E0322.2	ALM.RST.LP	ALARM RESET LAMP
03087	E0322.3	DOR.LP	DOOR LAMP
03088	E0322.4	DRN.LP	DRY RUN LIGHT
03089	E0322.5	CHP.FLU.LP	CHIP FLUSH LAMP
03090	E0322.6	DOR.LCK.LP	OPERATION DOOR LOCK RDY LIGHT
03091	E0322.7	A.ZRN.LP	AUTO ZRN LAMP
03092	E0323.0	SBK.LP	SINGLE BRAKE PB LIGHT
03093	E0323.1	COL.LP	COOLANT LAMP
03094	E0323.2	DOR.UNL.LP	DOOR UNLOCK LAMP
03095	E0323.3	M19.LP	M19 LAMP
03096	E0323.4	Z.LP	Z AXIS LAMP
03097	E0323.6	SP.CCW.LP	SPINDLE CCW LAMP
03098	E0323.7	Y.LP	Y AXIS LAMP
03099	E0324.0	C.LP	C AXIS LAMP
03100	E0324.1	SP.STOP.LP	SPINDLE STOP LAMP
03101	E0324.2	X.LP	X AXIS LAMP
03102	E0324.3	A.LP	A AXIS LAMP
03103	E0324.4	SP.CW.LP	SPINDLE CW LAMP
03104	E0324.5	TOL.DIS.21	TOOL DISPLAY 21
03105	E0324.6	TOL.DIS.22	TOOL DISPLAY 22
03106	E0324.7	TOL.DIS.24	TOOL DISPLAY 24
03107	E0325.0	TOL.DIS.28	TOOL DISPLAY 28
03108	E0325.1	TOL.DIS.11	TOOL DISPLAY 11
03109	E0325.2	TOL.DIS.12	TOOL DISPLAY 12
03110	E0325.3	TOL.DIS.14	TOOL DISPLAY 14
03111	E0325.4	TOL.DIS.18	TOOL DISPLAY 18
03112	E0325.5	AL.LED	ALARM LED
03113	E0326.1	OL.LED	OVERLOAD LAMP
03114	E0326.4	M0001.LED	M00 M01 LED
03115	E0326.5	SUB.OP.LED	SUB OP BOARD LED
03116	E0326.6	ATC.MEM.LED	ATC MEMORY LED
03117	E0326.7	ATC.LED	ATC LED
03118	E0327.0	TABLE.LED	TABLE LED
03119	E0327.1	POWER.LED	POWER LED
03120	E0327.2	CY.ST.LP	CYCLE START LAMP
03121	E0327.3	FH.LP	FEED HOLD LAMP
03122	E0327.4	CNC.RDY.LP	CNC READY LAMP
03123	E0327.5	MPG.LED	MPG ON LED
03124	E0332.3	AUTOCYCL	AUTO CYCLE LIGHT

NO.	ADDRESS	SYMBOL	FIRST COMMENT
03125	E0332.7	SPARE3	SPARE 3
03126	E0333.6	SPOVER.O	SPINDLE OVERRIDE LIGHT
03127	E0335.2	PROG_STP_DISPLAY	PROGRAM STOP DISPLAY
03128	E0385.4	SP_ACL	SP AIR CLEAN & ATS SAME VALVE
03129	E0400.0	OUT_C	EMPTY OUTPUT R
03130	E0405.4	MC_RDY	MACHINE READY
03131	E0500.0	ID_RF	ID READ FINISH
03132	E0665.0	TDWST1	TOOL DISPLAY WRITE STEP 1
03133	E0665.1	TDWST2	TOOL DISPLAY WRITE 2
03134	E0665.2	TDWST3	TOOL DISPLAY WRITE STEP 3
03135	E0665.3	TDWST4	TOOL DISPLAY WRITE STEP 4
03136	E0665.4	TDWST5	TOOL DISPLAY WRITE STEP 5
03137	E0665.5	TWOK	TOOL DISPLAY WRITE OK
03138	E0665.6	TWOKP	TOOL DISPLAY WRITE OK PLUSE
03139	E0665.7	TWOKC	TOOL DISPLAY WRITE OK CLICK
03140	E0666.0	TLDPE1	TOOL DISPLAY ERROR 1
03141	E0666.1	TLDPE3	TOOL DISPLAY ERROR 3
03142	E1020.1	SKR	SERVICE KEY RELAY
03143	E1030.6	*ATCRY	*ATC READY
03144	E1030.7	*ATCBY	*ATC BUSY
03145	E1100.1	ESPFS	ESP AND DOOR OPEN PLUSE
03146	E1100.2	DROESP	DOOR OPEN AND ESP
03147	E1100.3	PGSPF	PROGRAM STOP
03148	E1100.4	RSTEMG	RESET AND EMERGENCY
03149	E1101.1	MDI	MDI
03150	E1101.3	JOG	JOG
03151	E1101.4	ZRN_M	REF. MODE
03152	E1101.7	AU	AUTO MODE
03153	E1102.1	HANDLE	HANDLE MODE
03154	E1102.4	MCFIN	M CODE FINISH
03155	E1102.6	BOTHD	WITH BOTH HANDLE
03156	E1102.7	DROSGL	DOOR OPEN SIGNAL
03157	E1103.1	DROPIN	DOOR OPEN INTERLOCK
03158	E1103.2	AXSSP	ALL AXIS STOP SIGNAL
03159	E1103.6	SPCOK	SP CLAMP SIGNAL DELAY
03160	E1103.7	UNCLOK	SP UNCLAMP SIGNAL DELAY
03161	E1105.1	MGALM	MAG ALARM SIGNAL
03162	E1105.3	POTVDL	POT V DELAY TIME
03163	E1105.4	POTHDL	POT H DELAY TIME
03164	E1105.5	TFSIG	TF SIGNAL
03165	E1105.6	SP=TFM	SP=TF MEMORY
03166	E1105.7	TFIN.	TF FINISH
03167	E1106.0	NONTFM	NON TF MEMOERY
03168	E1106.1	SP=BIG	SP.TOOL IS BIG TOOL
03169	E1106.2	BGSTSH	SP=BIG SP TOOL SEARCH START
03170	E1106.3	CHCHK	MANUAL CHANGE CHECK
03171	E1106.4	M6BYSP	M06 FOR SP TOOL
03172	E1106.5	BGTFIN	BIG TOOL SEACH FINISH
03173	E1106.6	M6ST1	POT V / SP ORI. / TFSH / ZREF
03174	E1106.7	POTH	M6 FINISH POT H
03175	E1107.0	SPUN	M6 SPINDLE UNCLAMP SIGNAL
03176	E1107.1	SPCLSG	M6 SPINDLE CLAMP SIGNAL
03177	E1107.2	M6PS	M6 COMMAND PLUSE
03178	E1107.3	M6SG	M6 COMMAND SIGNAL
03179	E1107.4	M6CMD	M6 COMMAND SIGNAL
03180	E1107.5	M6FIN	M6 COMMAND FINISH
03181	E1107.6	M6ALM	M06 ALARM
03182	E1108.0	MAGST	MAGAZINE START
03183	E1108.2	PMCR2	PMC 2TH REF. RETURN START
03184	E1108.4	JOGCW	JOG CW/CCW
03185	E1108.7	SCHTNO	
03186	E1109.0	SCHPT	
03187	E1109.3	M6CONF	SP=BIG M6 CONFIRM
03188	E1109.4	BTFWM6	BIG TOOL/TF WITH M6
03189	E1109.5	BTFIN	BIG TOOL FINISH
03190	E2005.2	IS_SU	IS_SPINDLE UNCLAMP
03191	E2006.2	IS_POT_OUT	IS_POT VERTICAL
03192	E2006.3	IO_POT_IN	IS_POT HORIZONTAL
03193	E2006.4	IS_ARM_B	IS_ARM BRAKE
03194	E2006.5	IS_ARM_H	IS_ARM HOME
03195	E2006.6	IS_ARM_UC	IS_TL UN/CL CONFIRM/HEAD UP

NO.	ADDRESS	SYMBOL	FIRST COMMENT
03196	E2006.7	IS_MAG_LK	IS_MAG LOCK
03197	E2007.0	IS_MG_CTR	IS_T-COUNTER
03198	E2007.1	IS_MAG_REF	IS_MAG REF POS
03199	E2016.0	IB_CYCSTR	IB_CYCLE START
03200	E2016.2	IB_MAG_CW	IB_MAG CW
03201	E2016.3	IB_MAG_CCW	IB_MAG CCW
03202	E2021.7	IB_BH	IB_BOTH HAND
03203	E2026.6	IB_M_ATC	IB_MANUAL CHANGE TOOL
03204	E2026.7	IB_POT_DN	IB_POT UP/DOWN
03205	E2050.0	MC_TP0	MACHINE TYPE 0 SYNC AXIS
03206	E2050.1	MC_TP1	MACHINE TYPE 1 C-TYPE
03207	E2060.3	IS_PMM_INP	IS_PMM INPOSITION
03208	E2300.0	ESPSG	ESP AND DOOR OPEN SIGNAL
03209	E2319.1	GRCHG	GEAR CHANGE
03210	E2328.5	MG24	MAGAZINE TOTAL 24T
03211	E2328.6	ATC99	NON ATC
03212	E2328.7	ATC5-_R	ROLLER GEAR CAM TYPE
03213	E2329.0	MGD_RST	MAG DATA RESET
03214	E2329.1	M34ADD	M34ADD
03215	E2329.2	M34RES	M34 TOOL RESET
03216	E2329.3	M34FIN	M34FIN
03217	E2329.4	M34SPS	M34 SPINDLE TOOL SETTING
03218	E2329.5	CTE2	POT NO. COUNTER
03219	E2329.7	JGPTVP	JOG POT-V PULSE
03220	E2330.0	JGPTVS	JOG POT-V SIGNAL
03221	E2330.1	PTVPS	POT-V PULSE
03222	E2330.2	PTHSG	POT-V SIGNAL
03223	E2330.3	BCD/TF	TF CODE BIN TO BCD
03224	E2330.4	TFSPS	TF PLUSE
03225	E2330.5	MAGINK	MAG INTERLOCK
03226	E2330.6	TFSECH	TF DATA SEARCH
03227	E2330.7	T-COIN	TF COIN
03228	E2331.0	TFCOIN	TF DATA AND TF MEMORY COIN
03229	E2331.1	SP=TFB	DP=TF SIGNAL
03230	E2331.2	SP=TF	SP=TF
03231	E2331.3	SP=TRT	SP=TF RESET
03232	E2331.4	TLSH	TOOL SEARCH
03233	E2331.5	TLSH_DL	TOOL SEARCH DELAY
03234	E2331.6	MG_CCW	MAG CCW
03235	E2331.7	AUMEM	AUTO MEMORY
03236	E2332.0	TDSCH	T-DATA SEARCH
03237	E2332.1	MGCOIN	MAG COIN
03238	E2332.2	CTRPLS	MAG COUNTER PULSE
03239	E2332.3	CTRSIG	MAG COUNTER SIGNAL
03240	E2332.4	INDXCW	INDXCW
03241	E2332.5	INXCCW	INXCCW
03242	E2332.6	NXLED	NEXT TOOL DSP
03243	E2332.7	MGERCC	MAG ERROR CCW
03244	E2333.0	MGERCW	MAG ERROR CW
03245	E2333.1	TMB22	MAG START DELAY TIME
03246	E2333.3	COUNUD	COUNTER UP/DOWN
03247	E2333.4	TF=00	TF=00
03248	E2333.5	TF/M6	TF/M6 SIGNAL
03249	E2333.6	SP=0	SP=0
03250	E2333.7	PT=0	POT=0
03251	E2334.0	D430+1	D430+1
03252	E2334.1	POTOV	POT OVER
03253	E2334.2	PTOVR	POT OVER
03254	E2334.3	SP=2	SP.TOOL = 2
03255	E2334.4	SP=4	SP.TOOL = 4
03256	E2334.5	SP=6	SP.TOOL = 6
03257	E2334.6	SP=8	SP.TOOL = 8
03258	E2334.7	*NT=0	*NEXT TOOL = 0
03259	E2335.0	M6NTME	SP=BIG M6 WITHOUT TFMEM
03260	E2335.1	BGSPTS	BGSPTS
03261	E2335.2	BGSPTT	BIG SPINDLE = POT TOOL
03262	E2335.3	BIGINK	BIG TOOL FUNCTION INTERLOCK
03263	E2335.4	SPCOIN	SP. COIN
03264	E2335.5	SPTLCO	SPINDLE COIN
03265	E2335.6	BGSTSF	SP=BIG SEACH FINISH
03266	E2336.0	ARMSY	ARM STANDBY

NO.	ADDRESS	SYMBOL	FIRST COMMENT
03267	E2336.1	ARMFIN	ARM ROTATION FINISH
03268	E2336.2	TLUNCL	M6 TOOL UN/CL SIGNAL
03269	E2336.3	MAGRDY	MAG READY
03270	E2336.4	ATCPOS	ATC POSITION
03271	E2336.5	M6INK	M6 INTERLOCK
03272	E2336.6	MNM6CK	MANUAL M6 CLICK
03273	E2336.7	MNM6ST	MANUAL M6 START
03274	E2337.0	M6INP	M6 INPUT
03275	E2337.1	M6STAT	M6 START
03276	E2337.2	M6STPS	M6 START PLUSE
03277	E2337.3	M6STSG	M6 START SIGNAL
03278	E2337.4	M6CMR	M6CMD RESET
03279	E2337.5	M6ST1K	M6 STEP1 OK SIGNAL
03280	E2337.6	M6STP1	POT V / SP. ORI / Z AXIS 2 REF
03281	E2337.7	M6STP2	ARM 90 / MAG FORWARD
03282	E2338.0	M6STP3	SPINDLE UNCLAMP
03283	E2338.1	M6STP4	ARM 180 / Z AXIS 1 REF
03284	E2338.2	M6STP5	SPCL / TF SEARCH
03285	E2338.3	M6STP6	ARM0 / Z AXIS 2TH REF.
03286	E2338.4	M6STP7	POTH / SPINDLE CLAMP TOOL
03287	E2338.5	AMSTSS	ARM START PLUSE
03288	E2338.6	AMSTSI	ARM START SIGNAL
03289	E2338.7	AMBKPS	ARM BRAKE PULSE
03290	E2339.0	AMBKSG	ARM BRAKE SIGNAL
03291	E2339.1	MNM6SY	MANUAL ATC STANDBY
03292	E2339.2	MNM6RD	MANUAL M6 DELAY
03293	E2339.3	AMSTPS	ARM START PULSE
03294	E2339.4	AMSTSG	ARM START SIGNAL
03295	E2339.5	MNAMOP	MN ARM 0 PLS
03296	E2339.6	MNM6UN	MN TL CHANGE SP UNCLAMP
03297	E2339.7	MNM6SP	MANUAL M6 START PULSE
03298	E2340.0	TL->SP	TOOL MOVE TO SPINDLE
03299	E2340.1	TMOVSG	TOOL MOVE SIGNAL
03300	E2340.2	TLMEER	TOOL MEMORY CHANG TO POT ERROR
03301	E2340.3	ALM5RT	AL1057 ALARM RESET
03302	E2340.4	M6ALS1	M6 ALARM SIGANL
03303	E2340.5	M6AL2	M6 ALARM SIGANL 2
03304	E2340.6	ATC6U	U CAM ATC TYPE
03305	E2341.4	MG40	MAGAZINE TOTAL 40T
03306	E2341.5	ATC10	DCV CAM ATC TYPE
03307	E2341.6	ATC11	SVX ATC TYPE
03308	E2343.2	MAGTP0	3 PHASE MOTOR MAGAZINE
03309	E2343.6	MAGTP1	1 PHASE MOTOR MAGAZINE
03310	E2344.1	MAGTP2	1 PHASE MOTOR ATC-D(20T)
03311	E2344.2	MG20	MAGAZINE TOTAL 20T
03312	E2344.3	ATC2-D	SIMPLE DISK CRANK TYPE (20T)
03313	E2344.5	M6TF	M6 TF SEARCH
03314	E2345.0	M34FIN_DL	
03315	E2345.4	ATC4-O	ONE CYCLE CAM TYPE
03316	E2350.0	M6TFPS	M6 WITH TF PLUSE
03317	E2350.1	M6TFSG	M6 WITH TF SIGNAL
03318	E2350.2	TFNOM6	TF WITHOUT M6
03319	E2350.3	M6TINP	M6 WITHOUT TF INPUT
03320	E2350.4	ATC7-Q	QUICKLY ROLLER GEAR CAM TYPE
03321	E2350.5	M06ASAL	M06 ARM STANDBY AL
03322	E2351.0	IS_CAEUN	IS_CAM EXECUTE UNCLAMP TOOL
03323	E2351.1	IS_CAEEXCL	IS_CAM EXECUTE CLAMP TOOL
03324	E2358.6	ARMSTS	ARM POSITION STATUS CONFIRM
03325	E2362.6	SERVSG	SERVICE KEY SIGNAL
03326	E2362.7	SERVPS	SERVICE KEY PLUSE
03327	E2370.6	MG16	MAGAZINE TOTAL 16T
03328	E2372.5	MAGPCM	MAGAZINE INPOSITION CONFIRM
03329	E2374.5	MG32	MAGAZINE TOTAL 32T
03330	E2374.7	MAGDE	MAG ORIENTATION DECELERATE
03331	E2375.0	MG30	MAGAZINE TOTAL 30T
03332	E2375.4	ATC9-R40	ROLLER GEAR CAM TYPE(40T)
03333	E2375.5	MAGSTP	MAG STOP & LOCK
03334	E2375.6	MAGINP	MAG INPOSITION
03335	E2377.0	SP=POT	D440=POT NO
03336	E2377.1	SP=PT1	D440=POT+1
03337	E2377.4	BTSTP	BIG TOOL SEARCH PULSE

NO.	ADDRESS	SYMBOL	FIRST COMMENT
03338	E2377.5	UNCLPT	UNCLAMP POINT
03339	E2377.6	CLPT	CLAMP POINT
03340	E2377.7	AMSTSS1	ARM START PULSE 1
03341	E2378.0	M6STP4P	M6 STEP4 PULSE
03342	E2378.1	HEATL	HEAVY TOOL
03343	E2379.0	SERVMO	SERVICE MODE
03344	E2379.1	MAGZM	MAG ZERO MEMORY
03345	E2379.2	CPOTPS	CURRENT POT PULSE
03346	E2379.3	CUPOT=1	CURRENT POT=1
03347	E2379.5	CUPOTS	CURRENT POT SIGNAL
03348	E2379.6	MAGTP3	SERVO MAGAZINE
03349	E2382.3	@ARM=70	@ARM SPEED DRIVES (SP=70HZ)
03350	E2382.4	@BIG=40	@BIG TOOL SPEED DRIVES (SP=40HZ)
03351	E2382.5	NX=0	NEXT TOOL ==0
03352	E2384.0	SPBIG_TF	SP=BIG AND T-CODE ON
03353	E2384.1	SPBIGTF_OFDL	SP=BIG AND T-CODE OFF DELAY
03354	E2384.7		MDI MODE SP=BIG M6
03355	E2385.0	MG_R_PS	MAG REF POS PULSE
03356	E2385.1	MG_R_SG	MAG REF POS SIGNAL
03357	E2385.2	MG_RF_ACT	MAG REF POS ACTIVE
03358	E2385.3	MG_RF_RST	MAG REF POS RESET
03359	E2390.5	MGINP	MAGAZINE INPOSTION
03360	E2390.6	MG48	MAGAZINE TOTAL 48T
03361	E2391.5	JOGSCHT	
03362	E2392.4	PMMINP@	PMM INPOSITION DELAY
03363	E2396.3	M06PS	M06 PLUSE
03364	E3002.1	O_MAGAZINE_CW	O_MAGAZINE CW
03365	E3002.2	O_MAGAZINE_CCW	O_MAGAZINE CCW
03366	E3002.4	O_ARM_CW	O_ARM START
03367	E3002.5	O_POT_OUT	O_POT VERTICAL
03368	E3002.6	O_POT_IN	O_POT HORIZONTAL
03369	E3004.7	O_MAG_STR	O_MAGAZINE START
03370	E3005.6		O_MAG ORIENTATION DECELERATE
03371	E3890.0	LAST0	
03372	E3890.1	LAST1	
03373	E3890.2	LAST2	
03374	E3890.3	LAST3	
03375	E3890.4	LAST4	
03376	E3890.5	LAST5	
03377	E3890.6	LAST6	
03378	E3890.7	LAST7	
03379	E3891.0	LAST8	
03380	E3891.1	LAST2A	
03381	E3895.4	EI_OIL.C	OIL COOLER ALARM
03382	E3895.5	EIS_MEAL	MARPOSS E78 ALARM
03383	E3895.6	EISYO+	Y AXIS OVERTRAVEL +
03384	E3895.7	EISYO-	Y AXIS OVERTRAVEL -
03385	E3900.0	EO_WAB	WORKPIECE AIR BLOW
03386	E3900.1	EO_SPBL	SP TOOL CLEAN BLOW
03387	E3900.2	EO_MAG_FWD	MAG FORWARD
03388	E3900.3	EO_MAG_BKD	MAG BACKWARD
03389	E3900.4	EO_CTS_ABL	C.T.S AIR BLOW
03390	E3900.5	EO_DR_REL	DOOR RELEASE
03391	E3900.6	EO_SP_BAR	SP BEARING AIR
03392	E3900.7	EO_SP_OAA	SP OIL AIR AIR VALVE
03393	E3901.0	EO_SP_GH	SP GEAR HIGH
03394	E3901.1	EO_SP_GL	SP GEAR LOW
03395	E3901.2	EO_Y32	
03396	E4000.1	SP_CL_DL	SP CLAMP DELAY
03397	E4000.2	SP_UC_DL	SP UNCLAMP DELAY
03398	E4000.3	SKR_OFF	SERVICE MODE OFF
03399	E5000.0	OL_DP1	OVERLOAD DISPLAY 1
03400	E5000.1	OL_DP2	OVERLOAD DISPLAY 2
03401	E5000.2	OL_DP3	OVERLOAD DISPLAY 3
03402	F0010	MCD_00_TO_07	M CODE 00 TO 07
03403	F0022	S00_S31	SPINDLE SPEED CODE (BIN)
03404	F0026	TCD_00_TO_07	T CODE 00 TO 07
03405	F0054	UO_000	CUSTOM OUTPUT SIGNAL
03406	F0056	UO_100	CUSTOM OUTPUT SIGNAL #1133
03407	R2010	X_MACHINE_POS	X AXIS MACHINE POS
03408	R2014	Y_MACHINE_POS	Y AXIS MACHINE POS

NO.	ADDRESS	SYMBOL	FIRST COMMENT
03409	R2018	Z_MACHINE_POS	Z AXIS MACHINE POS
03410	R2022	C_MACHINE_POS	C AXIS MACHINE POS
03411	R2026	A_MACHINE_POS	A AXIS MACHINE POS
03412	R2030	MG_MACHINE_POS	MG AXIS MACHINE POS
03413	R2034	SL_MACHINE_POS	SL AXIS MACHINE POS
03414	R2038	SR_MACHINE_POS	SR AXIS MACHINE POS
03415	R2100	MGPOTSFTVALUE	MG POT SHIFT VALUE
03416	R2104	POTSFTWITH_ACC	POT SHIFT WITH ACCOUNT
03417	R2108	MG_CURT_T_NO	MG CURRENT T NO
03418	R2112	MG_INPOS_*2	MG INPOSITION *2 VALUE
03419	R2116	MG_INPOS_ERROR	MG INPOSITION ERROR
03420	R2120	MG_MANU_RUN_DATA	MG MANUAL RUN DATA
03421	R2124	INDPOTNO	TOOL POT INDEX NO
03422	R2950	ALWAYS_OFF	ALWAYS OFF
03423	R2951	AXCTRLCMD	AXIS CTRL COMMAND
03424	R2952	COMD_DATA_1	COMMAND DATA 1
03425	R2954	COMD_DATA_2	COMMAND DATA 2
03426	R9002		
03427	C0000	MGTAL	MAG TOTAL
03428	C0002	PT	CURRENT POT
03429	C0016	OALI	O&A LUBE INTERVAL(S)
03430	C0018	OALC	O&A LUBE COUNTER(S)
03431	C0060	ALI	AXIS LUBE INTERVAL(10S)
03432	C0062	ALC	AXIS LUBE COUNTERL(10S)
03433	K0035	BIG	BIG TOOL FUNCTION
03434	D0000		
03435	D0004	SP.TOOL.NO	SPINDLE TOOL NUMBER
03436	D0006		
03437	D0110		
03438	D0112		
03439	D0114		
03440	D0116		
03441	D0410		
03442	D0412		
03443	D0414		
03444	D0416		
03445	D0418		
03446	D0420		
03447	D0422		
03448	D0601	MMTSE	MAG MOTOR TYPE SELECT
03449	D0602	ATCTP	ATC TYPE SELECT
03450	D0834	TD_NO	TOTAL TOOL DATA NO.(MAG+1)
03451	D0836	TLCHM	TOOL CHANGE MEMORY
03452	D0838	POTMEM	C2 POWER OFF MEMORY
03453	D0840	SPTOOL	SPINDLE TOOL
03454	D0841	TL.NO.1	TOOL NUMBER 1
03455	D0843	TL.NO.3	TOOL NUMBER 3
03456	D0845	TL.NO.5	TOOL NUMBER 5
03457	D0847	TL.NO.7	TOOL NUMBER 7
03458	D0849	TL.NO.9	TOOL NUMBER 9
03459	D3000		
03460	D3003		
03461	D3004		
03462	D3008		
03463	D3012		
03464	D3016		
03465	D3020		
03466	D3024		
03467	D3028		
03468	D3100		
03469	D3300		
03470	D3324		
03471	D3440		
03472	D3444		
03473	D3500		
03474	D7150	#1133_MEM	#1133 VALUE MEMORY
03475	D7200	A_DISL_LG	ALARM MESSAGE LANG SEL
03476	T0000	T_ALOT	AXIS LUBE ON TIME AFTER PRESS
03477	T0004	T_SBK	SIGNAL BLOCK ALARM DELAY
03478	T0006	T_SP_STP	SPINDLE 0 RPM DELAY
03479	T0012	T_CON_ON	CHIP CON ON TIME

NO.	ADDRESS	SYMBOL	FIRST COMMENT
03480	T0014	T_CON_OFF	CHIP CON OFF TIME
03481	T0016	T_G84FIN	G84 FINISH DELAY
03482	T0018	T_4CL	4TH CLAMP DELAY
03483	T0020	T_4UCL	4TH UNCLAMP DELAY
03484	T0022	T_5CL	5TH CLAMP DELAY
03485	T0024	T_5UCL	5TH UNCLAMP DELAY
03486	T0026	T_SP_BL	SP UNCLAMP BLOW DELAY
03487	T0028	T_BZR	BUZZER OFF DELAY
03488	T0030	T_PG_STP	PG STOP DELAY
03489	T0034	T_MTU_DL	MANUAL TOOL UNCLAMP DELAY
03490	T0050	T_SP_OA	SP O&A PS DELAY
03491	T0066	T_BST_ON	
03492	T0078	T_MC_DL	MIST COLLECTOR OFF DELAY
03493	T0114	T_MAG_FR	MAG FR DELAY
03494	T0116	T_MAG_BK	MAG BK DELAY
03495	P0001	OP_SET	FUNCTION SETTING
03496	P0003	PANEL	PANEL
03497	P0004	T_DISP	TOOL NO. DISPLAY
03498	P0005	WIN_RW	WINDOW READ WRITE FUNCTION
03499	P0015	SFY_DR	SAFETY DOOR
03500	P0021	COOLANT	COOLANT
03501	P0022	CTS_FUN	CTS FUNCTION
03502	P0023	C_CLT	CHIP COOLANT
03503	P0026	AB_FUN	AIR BLAST
03504	P0028	CVR	CHIP CONVEYOR
03505	P0030	BOOSTER	BOOSTER FUNCTION
03506	P0040	PROBE	PROBE
03507	P0043	OTHER	OTHER
03508	P0051	SP_FUN	SPINDLE FUNCTION
03509	P0053	SP_OAL	SPINDLE OIL AIR LUBE
03510	P0054	SP_WARM	SPINDLE WARM UP
03511	P0056	SPYD_FUN	SP Y-D SWITCH
03512	P0066	AX_CTL	AXIS CONTROL
03513	P0067	LUBE	AXIS LUBE
03514	P0069	MPG_FUN	HAND WHEEL
03515	P0081		TOOL DATA TABLE RESET
03516	P0083	3PMOTO	3 PHASE AC MOTOR
03517	P0085	MAG_COM1	MAG COMMON AREA1
03518	P0086	MAG_COM2	MAG COMMON AREA2
03519	P0087	SVO_MAG	SERVO MAG FUNCTION
03520	P0088		ROLLER GEAR CAM TYPE 1
03521	P0090		ROLLER GEAR CAM TYPE 2
03522	P0091	ATC2_FUNC	PICKUP TYPE ATC
03523	P0097		BIG AND SMALL TOOL
03524	P0099	IO_MAP	IO DEFINE
03525	P0101	EM_FUN	EXTERNAL M-CODE
03526	P0104	T_DISP1	TOOL DISPLAY
03527	P0124	ATLM	AUTO TOOL LENGTH MEAS.
03528	P0127	STC_Z	SP TEMP. COMP. FUNCTION
03529	P0181	TNO_RST	TOOL DATA TABLE RESET
03530	P0183	3P_MTR	3 PHASE AC MOTOR
03531	P0185	MAGCOMAREA1	MAGAZINE COMMON AREA1
03532	P0186	MAGCOMAREA2	MAGAZINE COMMON AREA2
03533	P0188		ROLLER GEAR CAM TYPE 1
03534	P0190		ROLLER GEAR CAM TYPE 2
03535	P0197		BIG AND SMALL TOOL
03536	P0200	PG_SH	PROGRAM SEARCH
03537	P0210	ERR_DISP	ALARM DISPLAY
03538	P0301	3D_CHK_FUNC	3D CHECK FUNCTION
03539	P0302	SKIP_CHG	SKIP SIGNAL CHANGE
03540	P0400	PMC_COM	PMC AXIS COMMON
03541	P0401	PMC_X	PMC X AXIS
03542	P0402	PMC_Y	PMC Y AXIS
03543	P0403	PMC_Z	PMC Z AXIS
03544	P0404	PMC_4TH	PMC 4 AXIS
03545	P0405	PMC_5TH	PMC 5 AXIS
03546	P0406	PMC_6TH	PMC 6 AXIS
03547	P0410	PMC_MAG	PMC MAG AXIS
03548	P0411	PMC_SL	PMC SL AXIS
03549	P0412	PMC_SR	PMC SR AXIS
03550	E0517	*NXTLD	* NXIT TOOL DISPLAY

NO.	ADDRESS	SYMBOL	FIRST COMMENT
03551	E0518	*SPTLD	* SPINDLE TOOL DISPLAY
03552	E0524	TOOL	TOOL NUMBER RESET
03553	E0526	TF-BCD	TF-BCD
03554	E0532	MGPOT	
03555	E0534	POT+1	
03556	E0651	TFM(BIN)	TF MEMORY(BIN)
03557	E0670	TLDPF	TOOL DISPLAY FUNCTION
03558	E0674	TLDPDL	TOOL DISPLAY DATA LENGTH
03559	E0676	TLDPDN	TOOL DISPLAY DATA NUMBER
03560	E0680	TLDSPV	TOOL DISPLAY VALUE

SOP of 5 axis machine center measuring

FANUC's manual guide

SHARP INDUSTRIES, INC

2018年10月9日

SOP of 5 axis machine center measuring

FANUC' s manual guide

Introduction

This paper presented how to use FANUC's manual guide software measuring 5 axis center of SVL-300C of SVX-160F of SVX-500F. Follow the operation process that user can get the 5 axis machine center of quickly and easily. The process is refer to FANUC technique report of:

- NC-201402-02_Manual guide I rotation axis measuring of 5 axis machine
- NC-201410-02_Manual guide I introduction of measuring loop (use touch probe)



Operation process

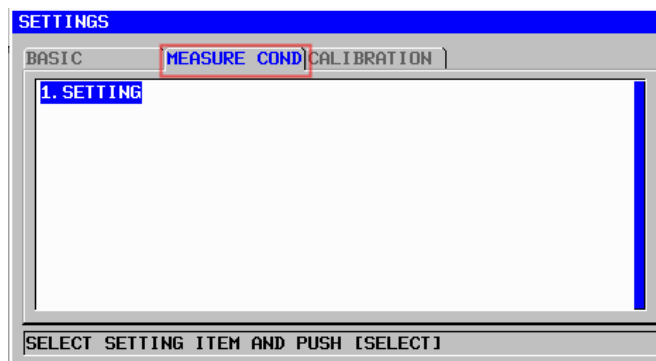
Step 1. Prepare 3 data file as below.


- 5 axis center point correction file (<5AXIS>)
- Measuring constrain file (MEASCOND.DAT)
- Determine condition file (MEASCOLB.DAT)

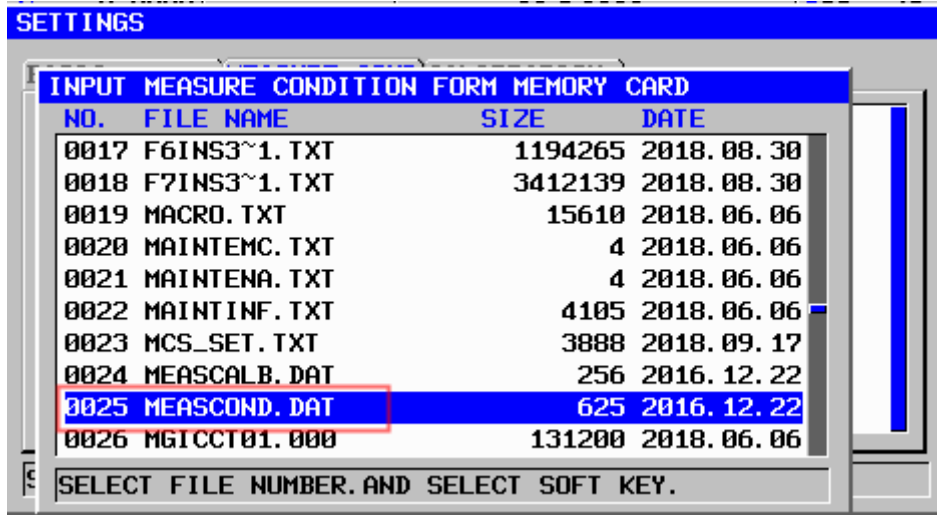
Put the 3 files in CF card or USB, and setting parameter NO.20 be 4 or 17.

Step 2. Import the measuring constrain file into MG_i

- Switch to EDIT mode.
- Go to the MG_i window, push the soft-key 
- Push , move window to measuring constrain, show as below.




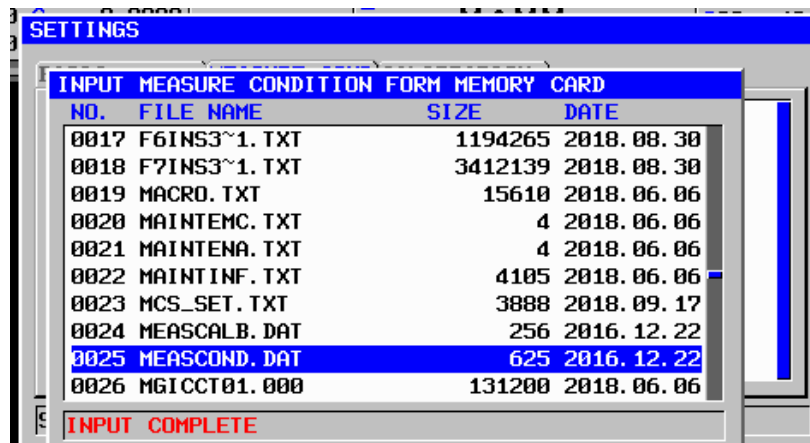
- Push soft-key to import. 
- Select file of MEASCOND.DAT, show as below.



SETTINGS			
INPUT MEASURE CONDITION FORM MEMORY CARD			
NO.	FILE NAME	SIZE	DATE
0017	F6INS3~1.TXT	1194265	2018.08.30
0018	F7INS3~1.TXT	3412139	2018.08.30
0019	MACRO.TXT	15610	2018.06.06
0020	MAINTEMC.TXT	4	2018.06.06
0021	MAINTENA.TXT	4	2018.06.06
0022	MAINTINF.TXT	4105	2018.06.06
0023	MCS_SET.TXT	3888	2018.09.17
0024	MEASCALB.DAT	256	2016.12.22
0025	MEASCOND.DAT	625	2016.12.22
0026	MGICCT01.000	131200	2018.06.06

SELECT FILE NUMBER. AND SELECT SOFT KEY.



- Push soft-key. 
- When import process finished, the window will show the message of COMPLETE, show as below.

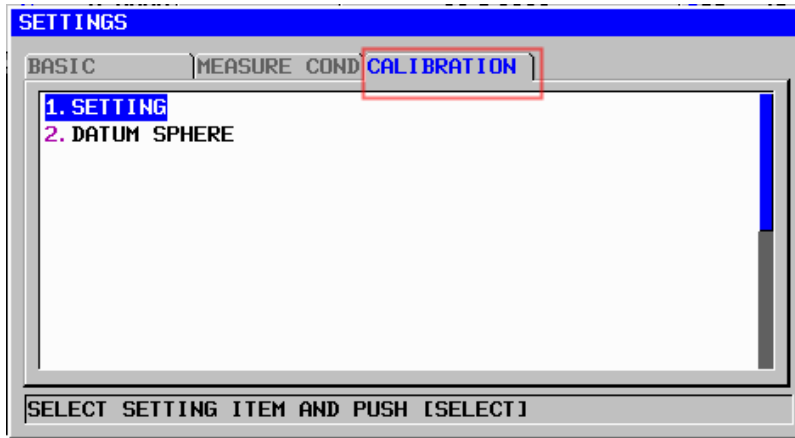


SETTINGS			
INPUT MEASURE CONDITION FORM MEMORY CARD			
NO.	FILE NAME	SIZE	DATE
0017	F6INS3~1.TXT	1194265	2018.08.30
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0022	MAINTINF.TXT	4105	2018.06.06
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0025	MEASCOND.DAT	625	2016.12.22
0026	MGICCT01.000	131200	2018.06.06

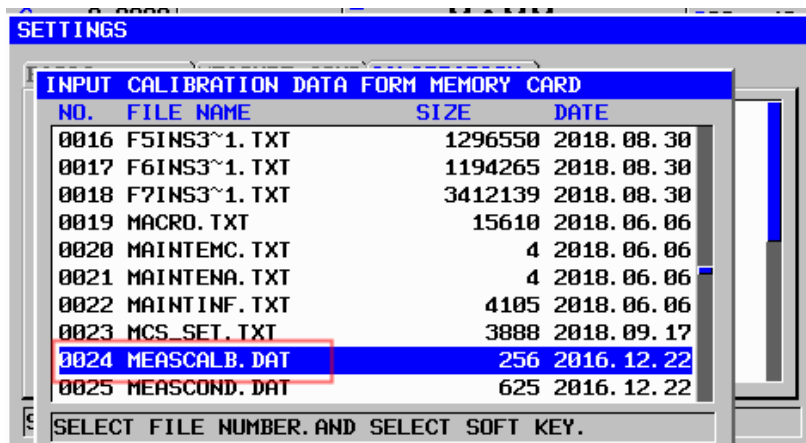
INPUT COMPLETE


Step 3. Import the Determine condition file into MGi.

- Switch to EDIT mode.
- Inter the MGi window, push the soft-key. 
- Push , move window to Determine condition, show as below.



- Push soft-key to import. 
- Select file of MEASCOND.DAT, show as below.



- Push soft-key. 
- When import process is finished, the window will show the message of COMPLETE, show as below.

SETTINGS			
INPUT CALIBRATION DATA FROM MEMORY CARD			
NO.	FILE NAME	SIZE	DATE
0016	F5INS3~1.TXT	1296550	2018.08.30
0017	F6INS3~1.TXT	1194265	2018.08.30
0018	F7INS3~1.TXT	3412139	2018.08.30
0019	MACRO.TXT	15610	2018.06.06
0020	MAINTENC.TXT	4	2018.06.06
0021	MAINTENA.TXT	4	2018.06.06
0022	MAINTINF.TXT	4105	2018.06.06
0023	MCS_SET.TXT	3888	2018.09.17
0024	MEASCALB.DAT	256	2016.12.22
0025	MEASCOND.DAT	625	2016.12.22

INPUT COMPLETE

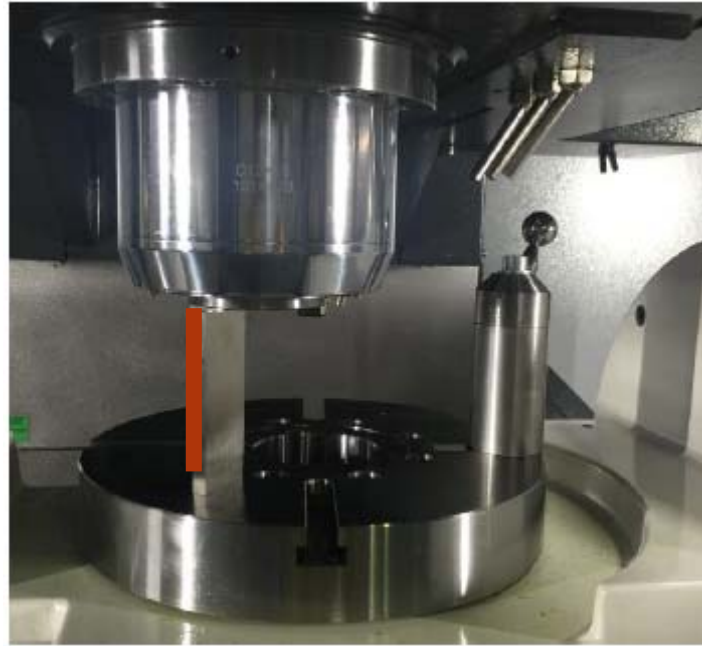
Step 4. Import the program file into machine, program description show as below.

```

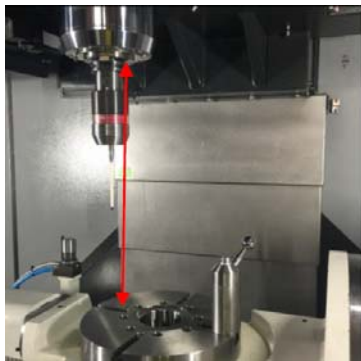
<5AXIS>
(PROBE)
G91G28Z0.
G2001Q1.D0.H168.4V0.C50.F200.S0.Y100.
G91G28G00Z0.
G2002Q1.D80.H126.8V41.6L-170.R50.F100.P4.S0.Y100.
G91G28G00Z0.
M30
(DATUM)
G2023Q1.D25.H0.V0.L-12.5R20.F100.P3.M2.U54.A0.B0.K0.E100.
G2022P2.Q1.H0.V0.L0.R20.F100.U54.J0.K0.E100.
M30
(ROTARY AXIS)
G91G28Z0.
G2890Q1.R30.F100.V0.H-20.C1.P1.M0.S0.A0.
G2890Q1.R30.F100.V0.H-20.C1.P2.M30.S0.A0.
G2890Q1.R30.F100.V0.H-20.C1.P3.M-30.S0.A180.
G2890Q1.R30.F100.V0.H-20.C2.P1.M0.S0.A0.
G2890Q1.R30.F100.V0.H-20.C2.P2.M0.S120.A0.
G2890Q1.R30.F100.V0.H-20.C2.P3.M0.S240.A0.
G2891E1.
M30

```

Step 5. Detect the length value from spindle nose to table plane and recorded.



Measure the length from spindle nose to table plane, and record the value.



Measure the length of probe that is from spindle nose to ruby ball end, and record the value.

Measure the ruby ball diameter, and record the value.





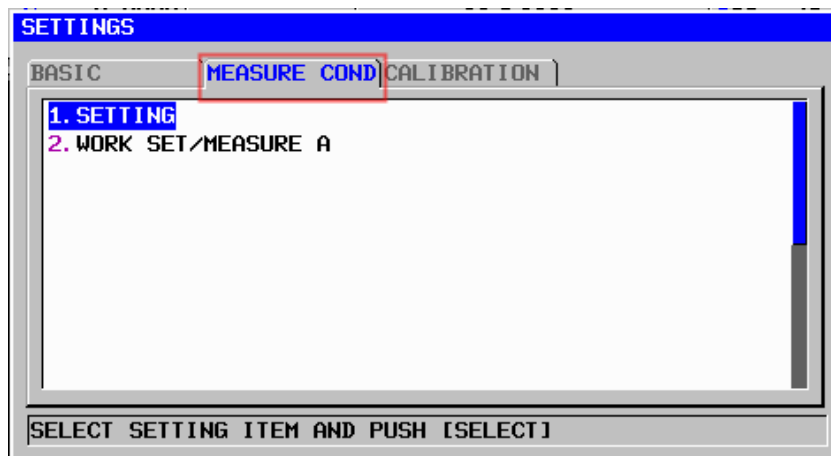
Measure the master ball diameter, and record the value.




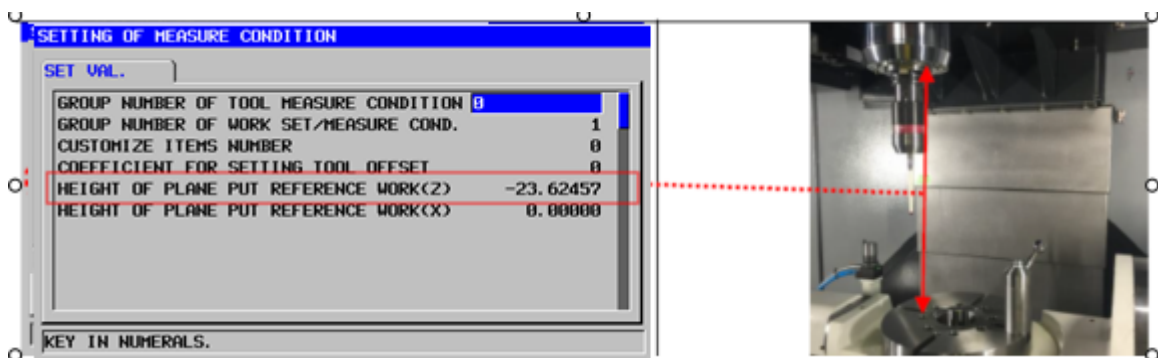
Step 6. Input those measured value into MG_i (included the length from spindle nose to table, and length from spindle nose to probe ball end, and ruby ball diameter, and master ball diameter.).

Operation method as below (input length from spindle nose to table plane).



- Go to window of MG_i and push soft-key. 
- Push , move window to measuring constrain, show as below.

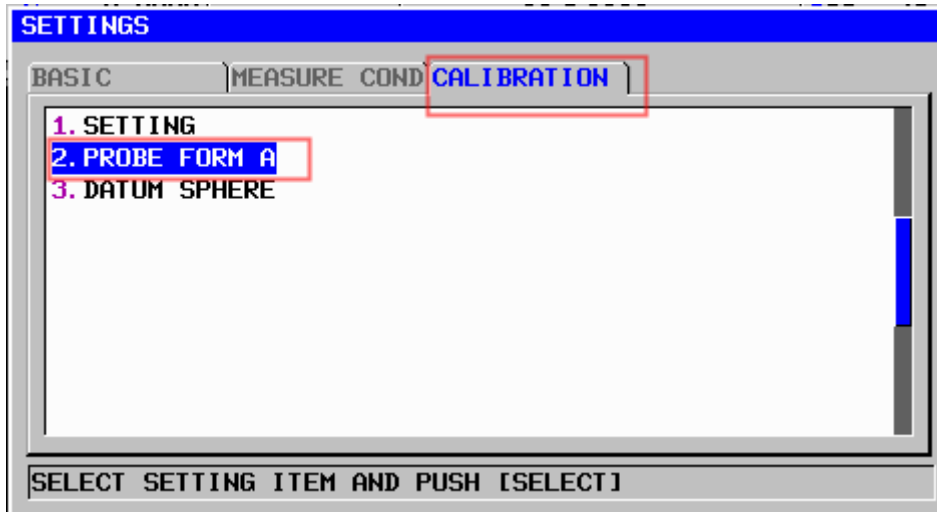



- Push INPUT button and the window will switch to setting window as below, input the value (from spindle nose to table plane.) into .

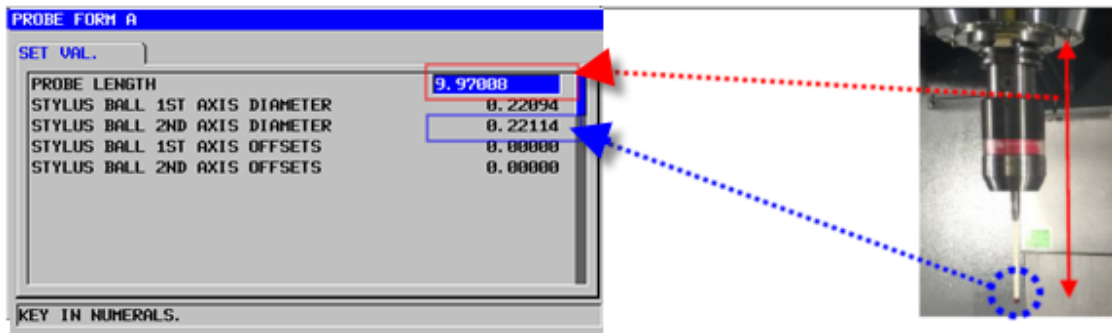


Operation method as below (input length from spindle nose to ruby ball end, and input ruby ball diameter).



- Go to window of MG_i and push soft-key. 
- Push , move window to Determine condition, show as below.

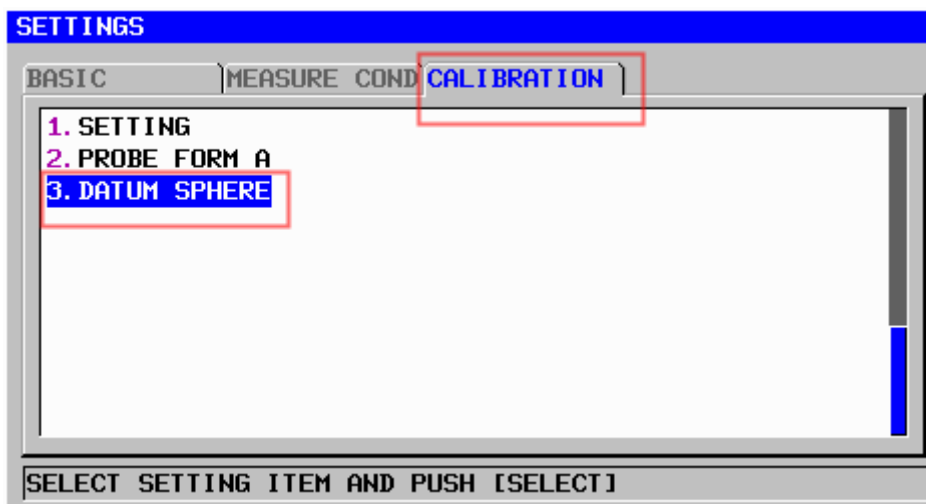



- Input the value into .

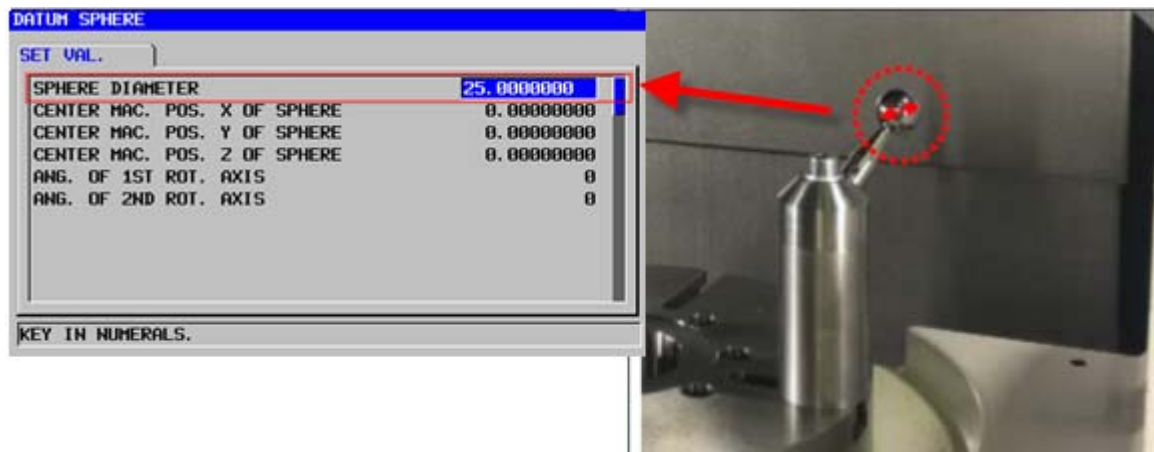


Operation method as below (master ball diameter).

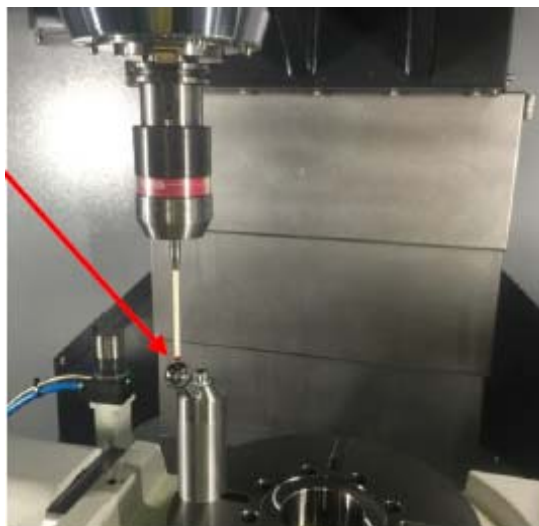
- Go to window of MG_i and push soft-key. 
- Push , move window to Determine condition, show as below.



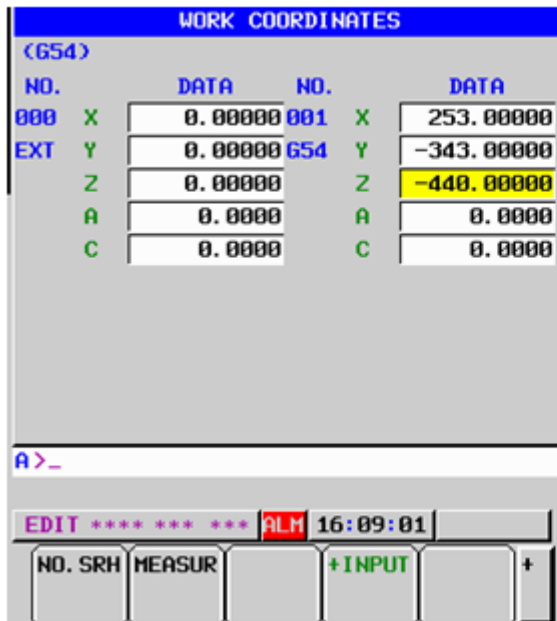
- Input master ball diameter into .



Step 7. On the probe, master ball and circular gauge into machine. Move the probe to top of master ball (a little touch), then set the position be zero point of G54 coordinate.



The setting window show as below.



X0→
Y0→
Z0→



Z axis setting

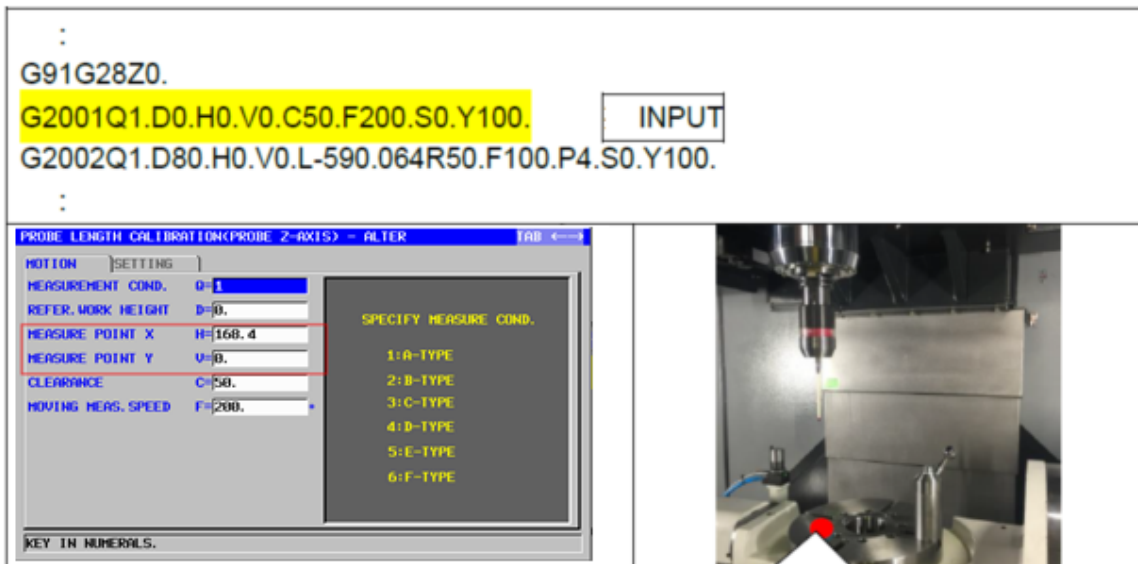
Note!!
Z value must to minus probe length.

Example

-200.017(Probe length) +INPUT

Step 8. Modify the part of program.

Move the index to G2001, and push INPUT button into edited window show as below.



Finish edited, push key of




Search a location on table randomly, and input the X value and Y value into .

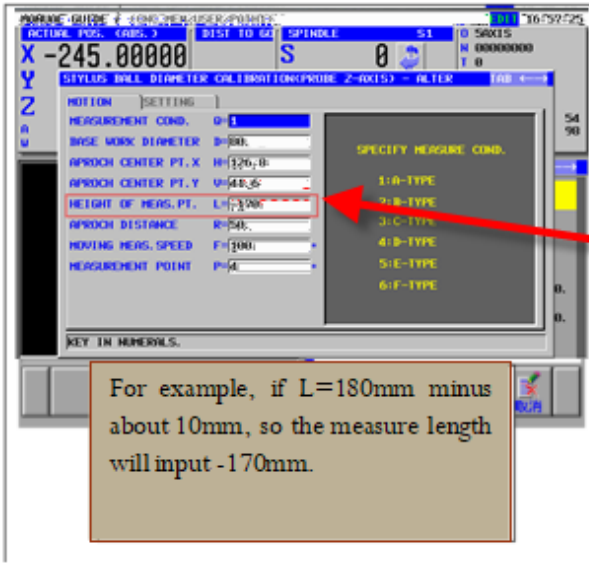
Move index to G2002 then push INPUT bottom and edited the

G2001Q1.D0.H0.V0.C50.F200.S0.Y100.
G2002Q1.D80.H0.V0.L-590.064R50.F100.P4.S0.Y100.

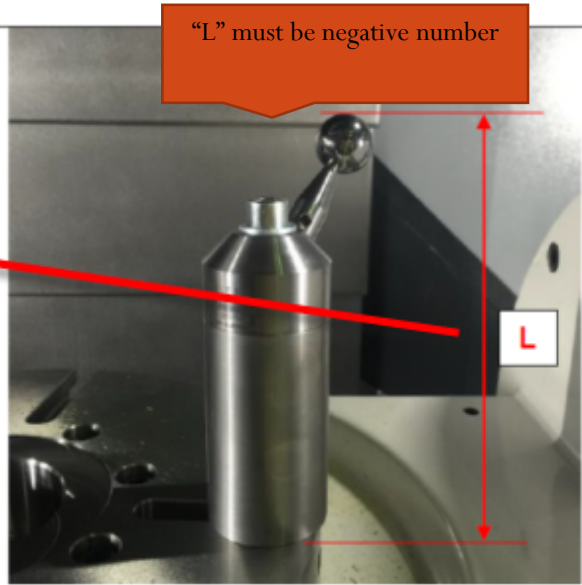
INPUT

Input the diameter value of circle gauge.

Move the ruby ball to center of circle gauge. Read out the X, Y location and input the value into .



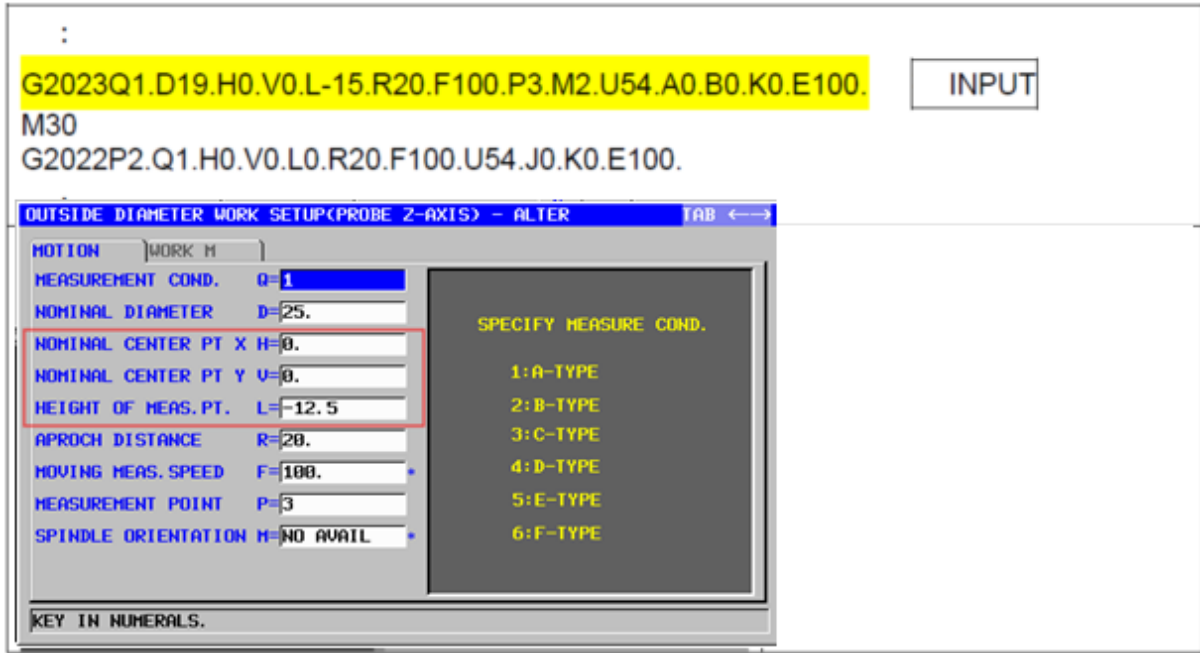
For example, if L=180mm minus about 10mm, so the measure length will input -170mm.



Finish edited, push key of



Move the index to G2023 then push INPUT bottom to modify program.

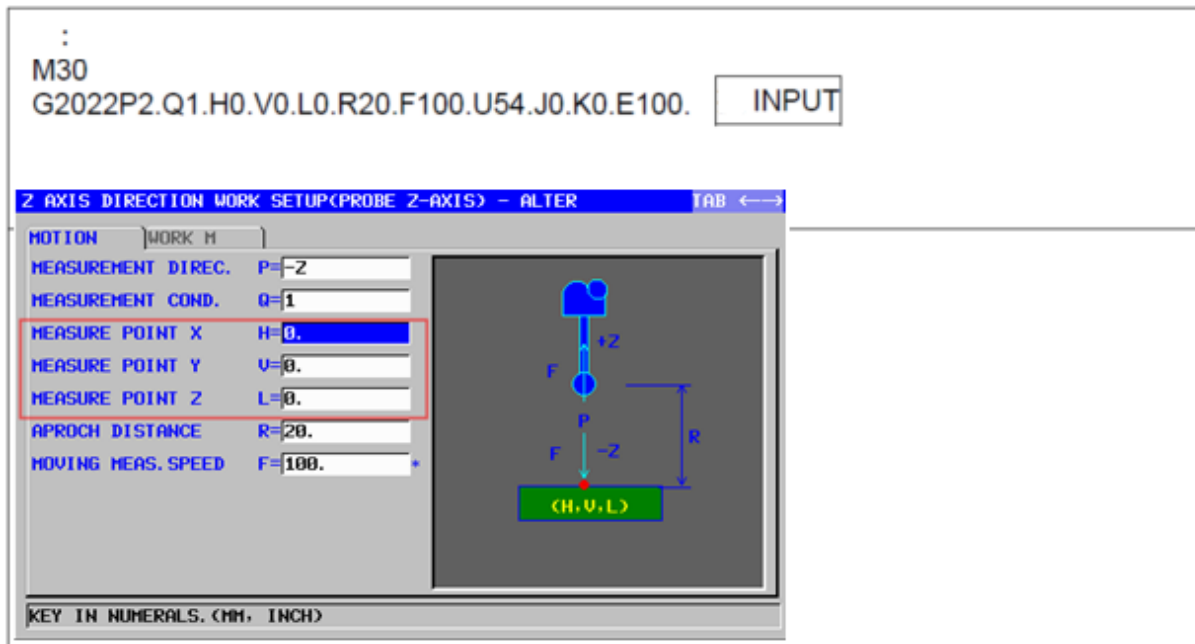


- NOMINAL CENTER PT X H=0 INPUT
- NOMINAL CENTER PT Y V=0 INPUT
- HEIGHT OF MEAS.PT L= Spherical radius

Please press after inputting




Move index to G2022 then push INPUT bottom to modify program.



MEASURE POINT X H=0 INPUT

MEASURE POINT Y H=0 INPUT

MEASURE POINT Z H=0 INPUT

Please press after inputting 

Step 9. After program modify, it is OK of remove code M30 from intermediate of program, basically. Using PLC setting of "G408#0=1" will more safe than remove code M30 from intermediate of program.