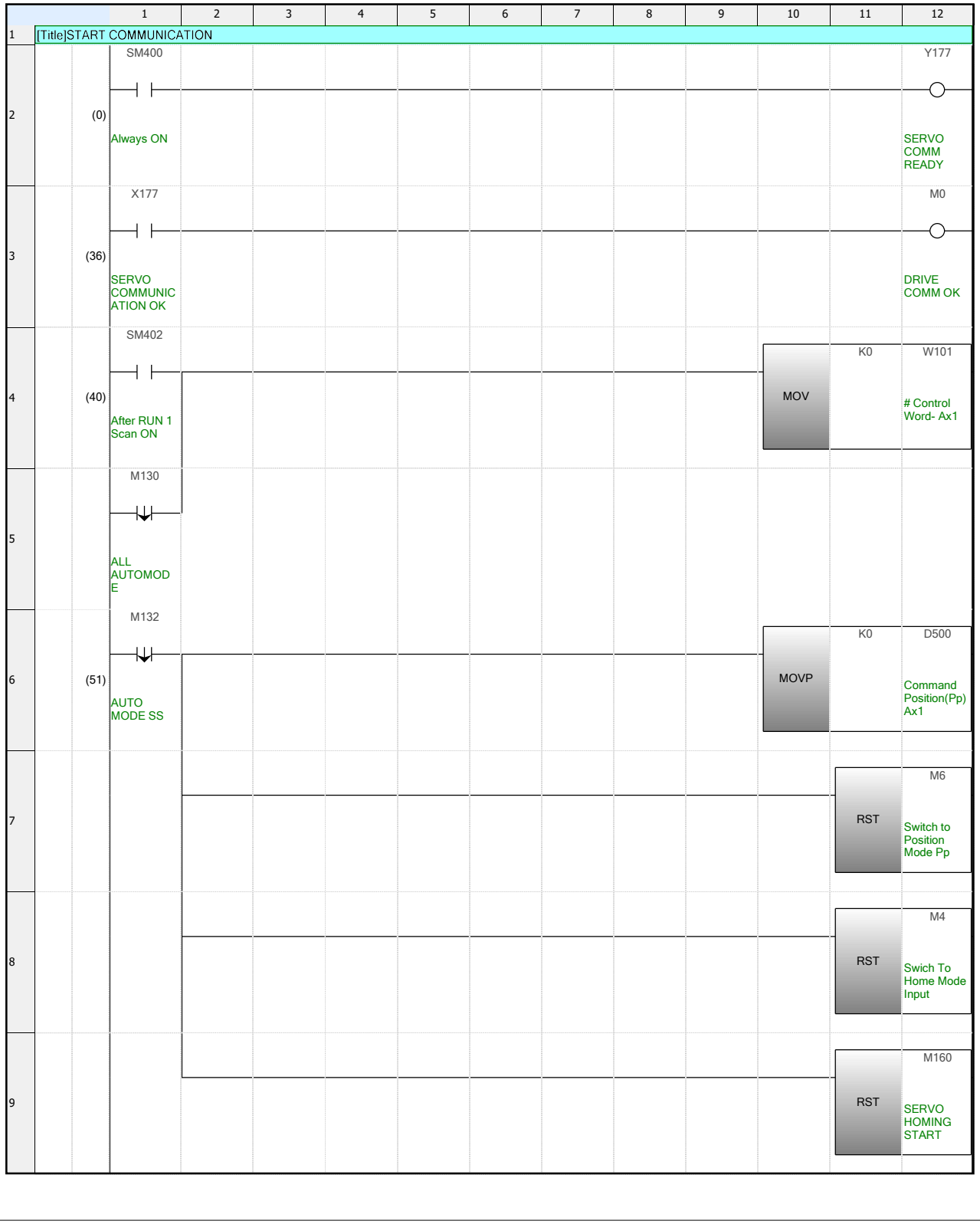
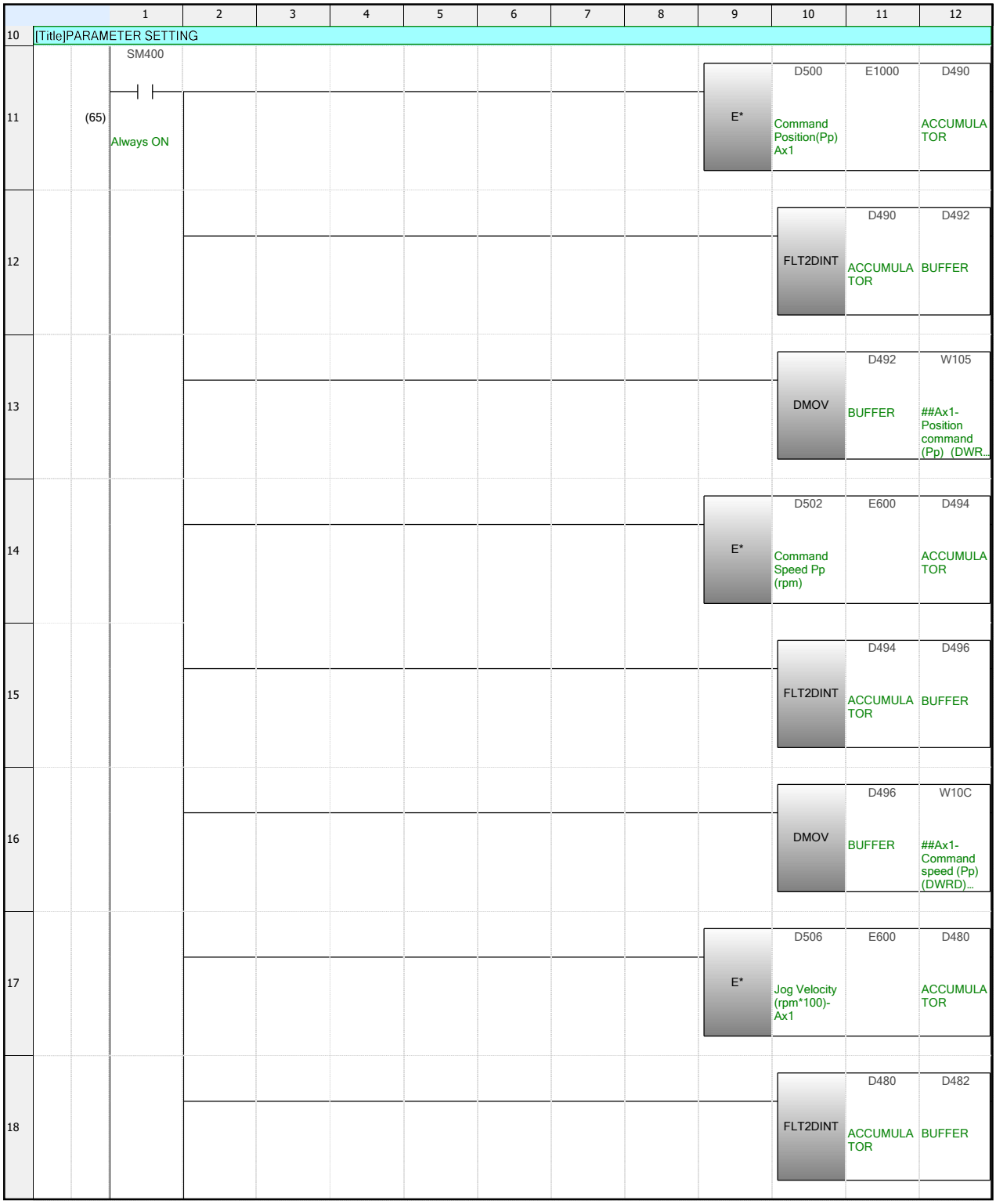
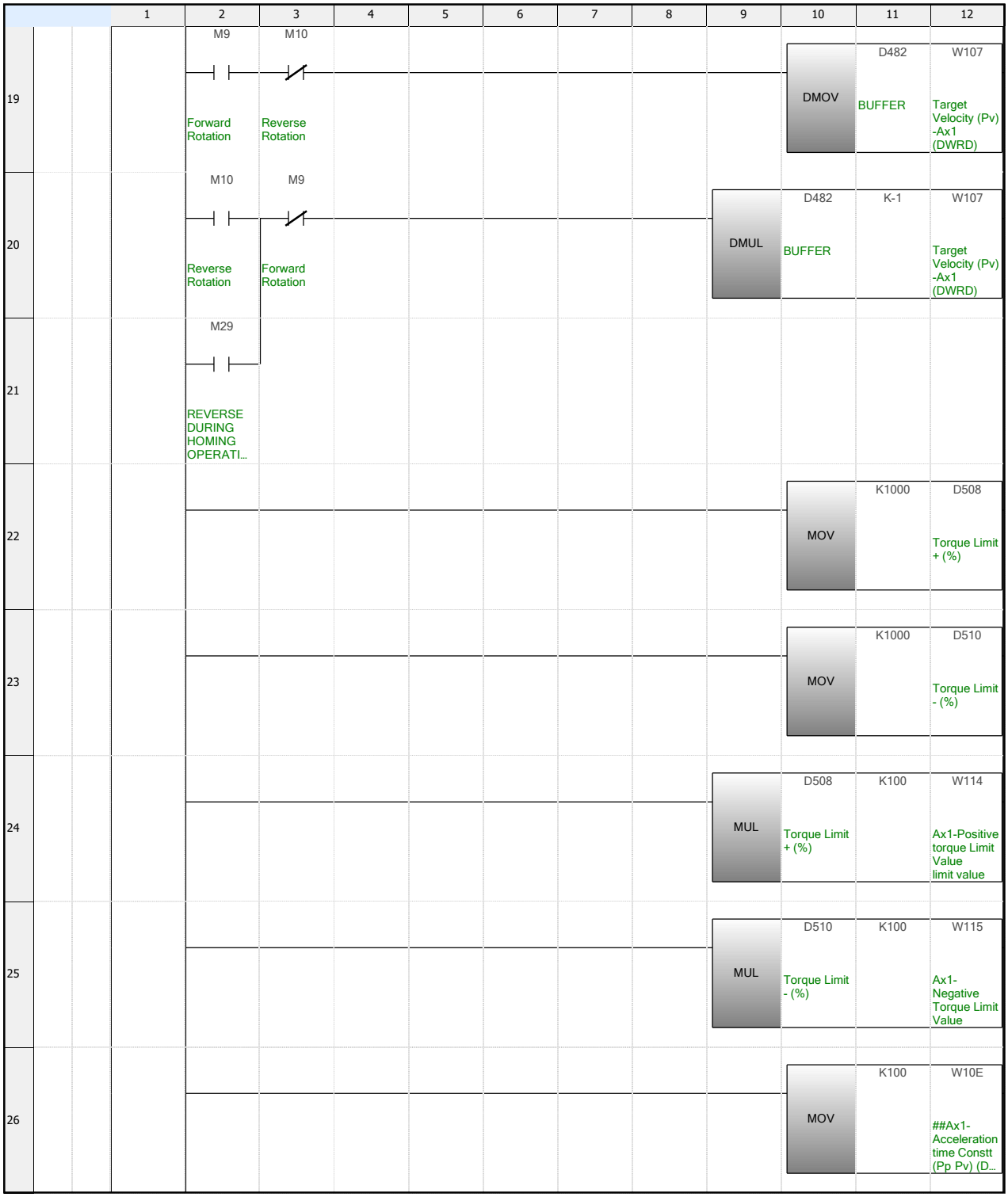
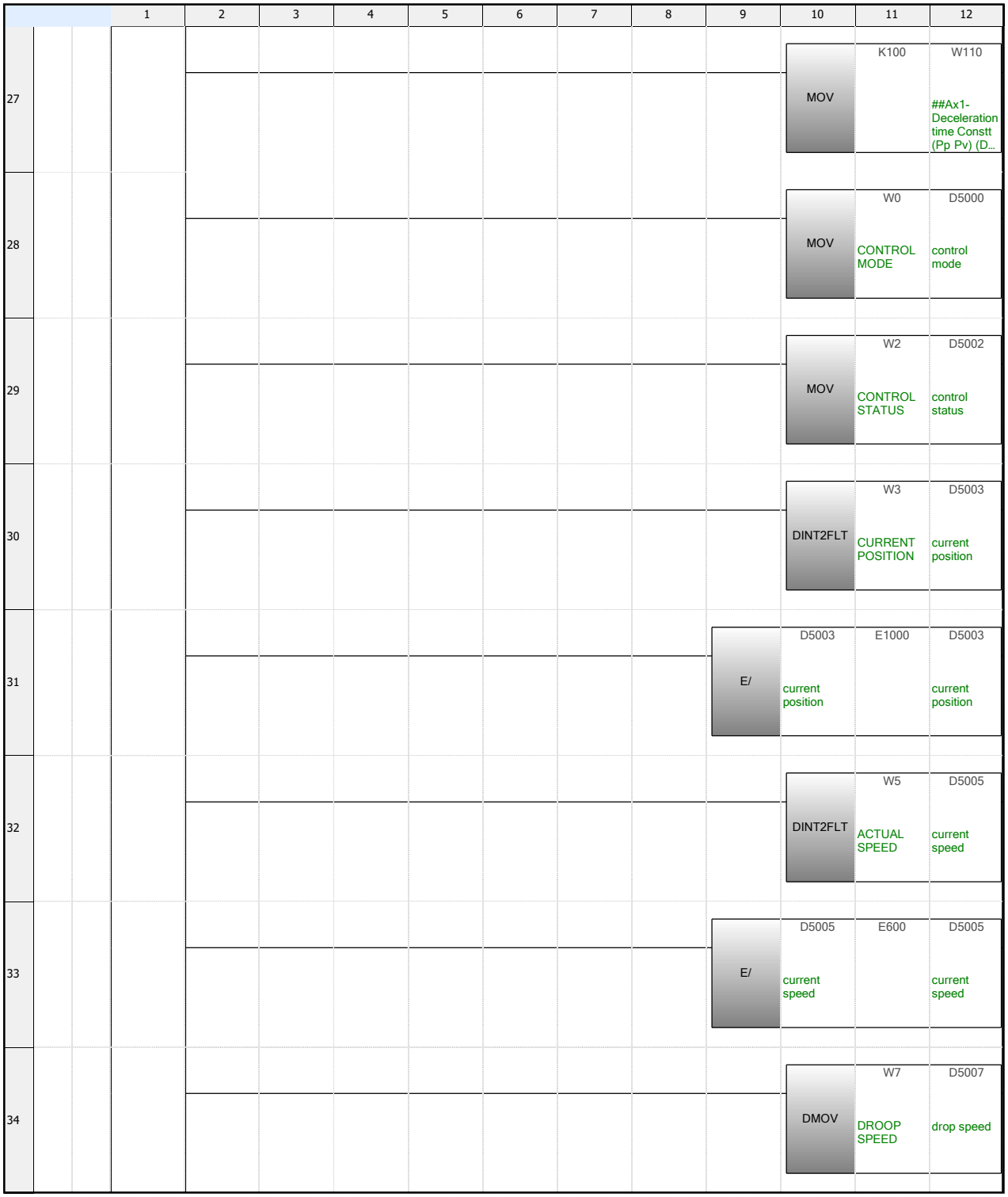
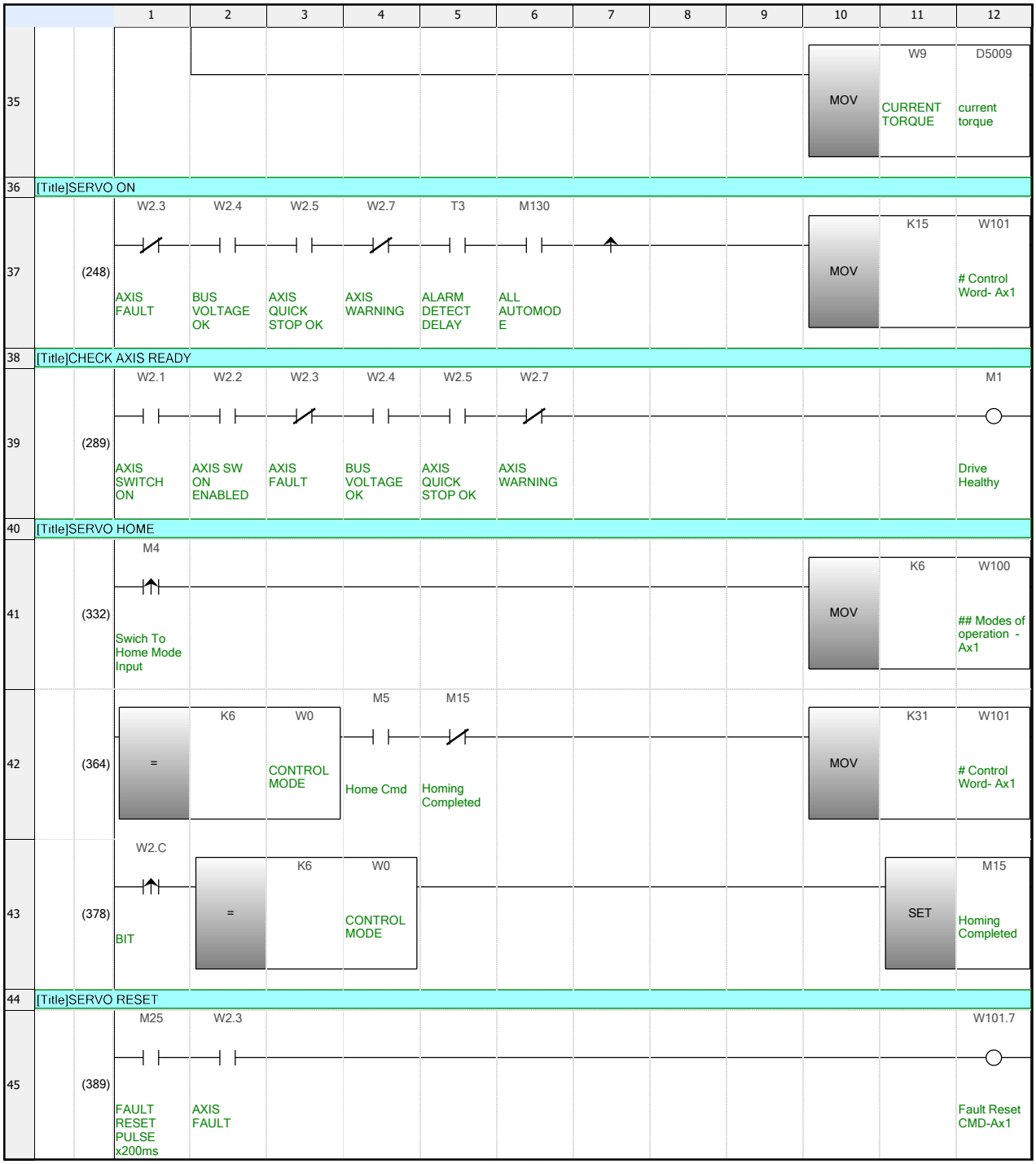
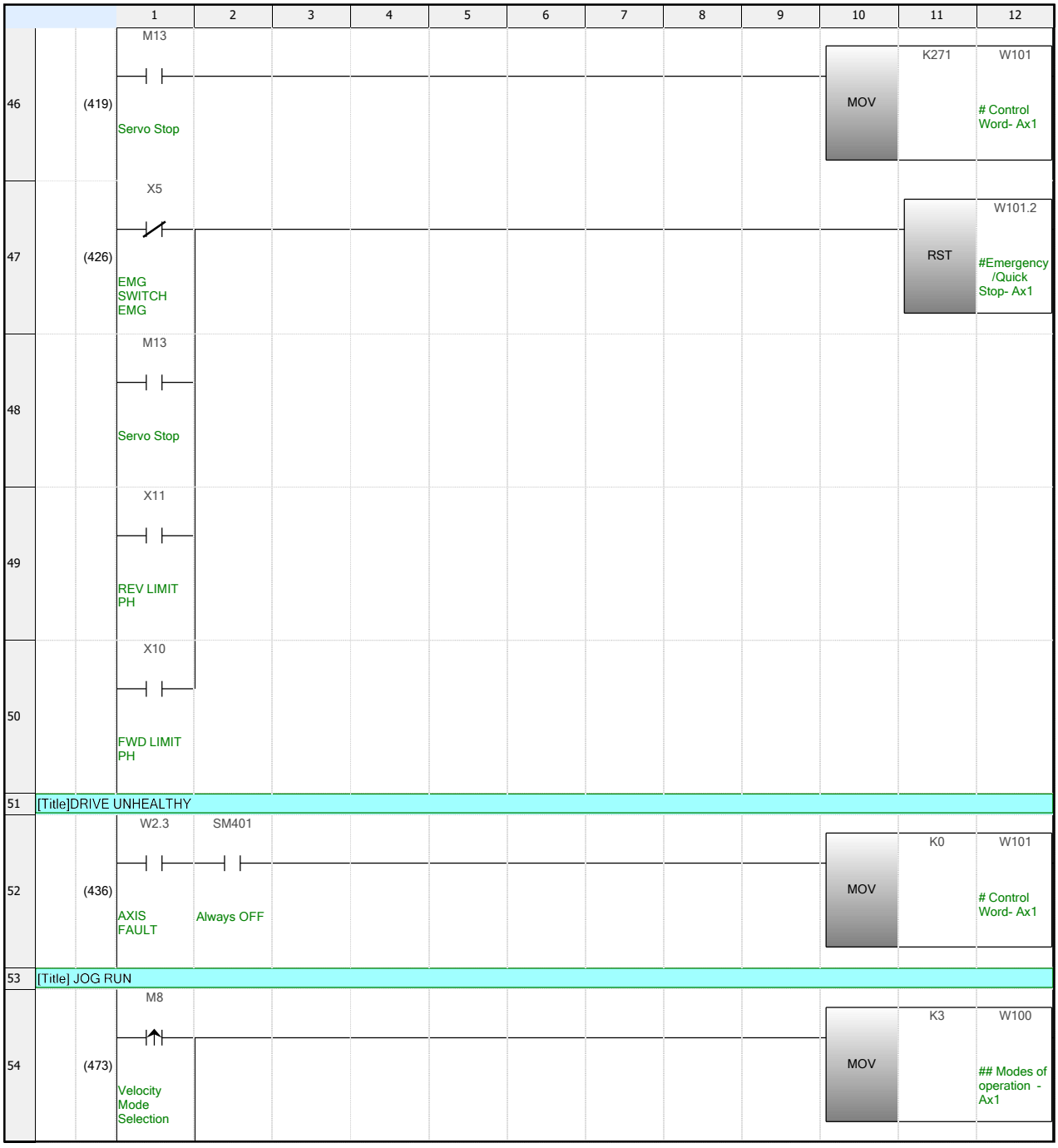

1
2
3
4
5
6
7
8
9
10
11
12
[Title]START COMMUNICATION
SM400
(0)
Always ON
Y177
SERVO COMM READY
X177
(36)
SERVO COMMUNICATION OK
M0
DRIVE COMM OK
SM402
(40)
After RUN 1 Scan ON
MOV
K0
W101
Control Word- Ax1
M130
ALL AUTOMODE
M132
(51)
AUTO MODE SS
MOVP
K0
D500
Command Position(Pp) Ax1
RST
M6
Switch to Position Mode Pp
RST
M4
Swich To Home Mode Input
RST
M160
SERVO HOMING START

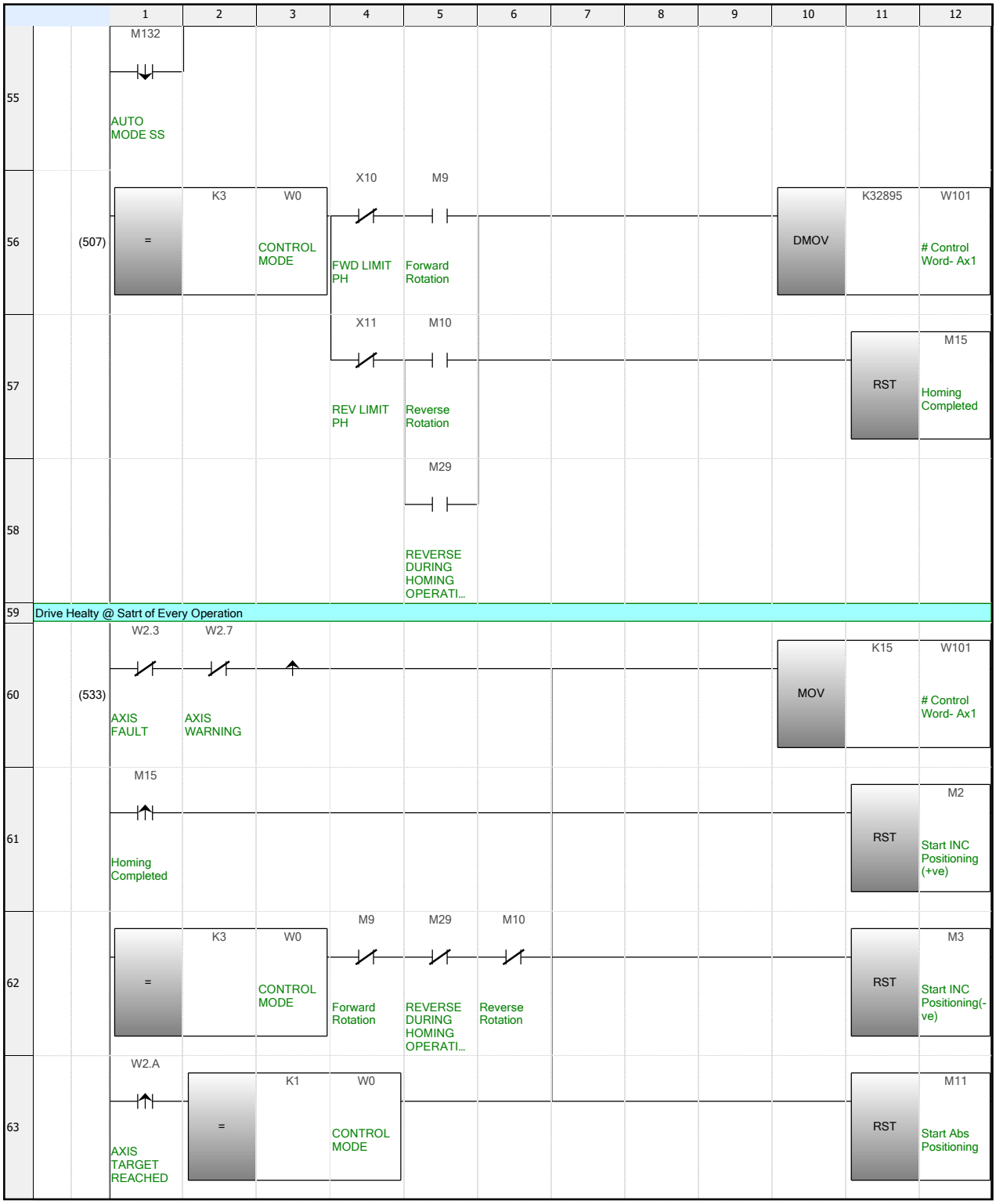

1 2 3 4 5 6 7 8 9 10 11 12
10 [Title]PARAMETER SETTING
11 (65) SM400 Always ON
E* D500 Command Position(Pp) Ax1 E1000 D490 ACCUMULATOR
12 FLT2DINT D490 ACCUMULATOR D492 BUFFER
13 DMOV D492 BUFFER W105 ##Ax1-Position command (Pp) (DWR...
14 E* D502 Command Speed Pp (rpm) E600 D494 ACCUMULATOR
15 FLT2DINT D494 ACCUMULATOR D496 BUFFER
16 DMOV D496 BUFFER W10C ##Ax1-Command speed (Pp) (DWRD)...
17 E* D506 Jog Velocity (rpm*100)-Ax1 E600 D480 ACCUMULATOR
18 FLT2DINT D480 ACCUMULATOR D482 BUFFER

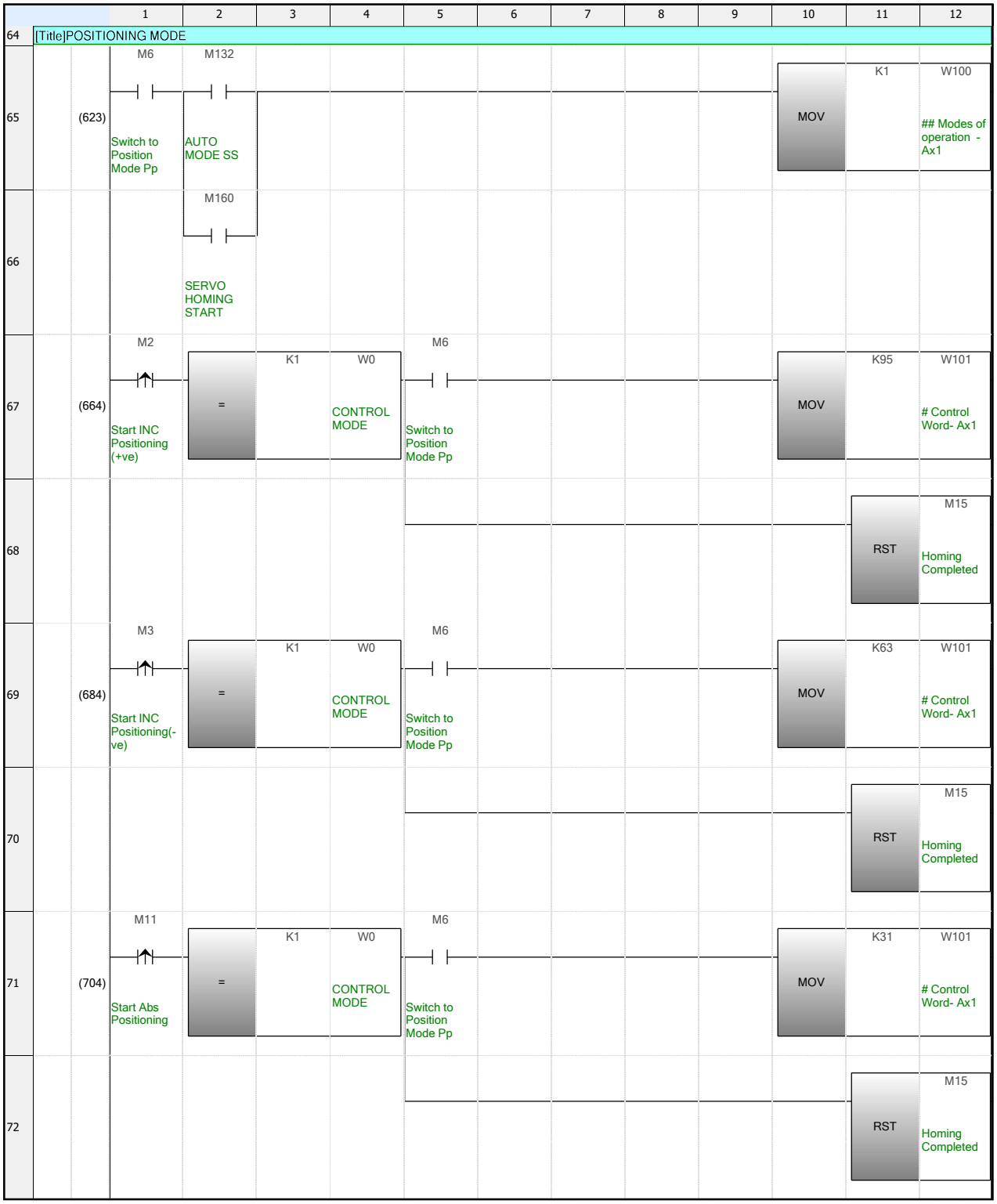

1
2
3
4
5
6
7
8
9
10
11
12
19
M9
M10
Forward Rotation
Reverse Rotation
DMOV
D482
BUFFER
W107
Target Velocity (Pv) -Ax1 (DWRD)
20
M10
M9
Reverse Rotation
Forward Rotation
DMUL
D482
BUFFER
K-1
W107
Target Velocity (Pv) -Ax1 (DWRD)
21
M29
REVERSE DURING HOMING OPERATI...
22
MOV
K1000
D508
Torque Limit + (%)
23
MOV
K1000
D510
Torque Limit - (%)
24
MUL
D508
Torque Limit + (%)
K100
W114
Ax1-Positive torque Limit Value limit value
25
MUL
D510
Torque Limit - (%)
K100
W115
Ax1-Negative Torque Limit Value
26
MOV
K100
W10E
##Ax1-Acceleration time Constt (Pp Pv) (D...


1
2
3
4
5
6
7
8
9
10
11
12
27
MOV
K100
W110
##Ax1-Deceleration time Constt (Pp Pv) (D...
28
MOV
W0
CONTROL MODE
D5000
control mode
29
MOV
W2
CONTROL STATUS
D5002
control status
30
DINT2FLT
W3
CURRENT POSITION
D5003
current position
31
E/
D5003
current position
E1000
D5003
current position
32
DINT2FLT
W5
ACTUAL SPEED
D5005
current speed
33
E/
D5005
current speed
E600
D5005
current speed
34
DMOV
W7
DROOP SPEED
D5007
drop speed

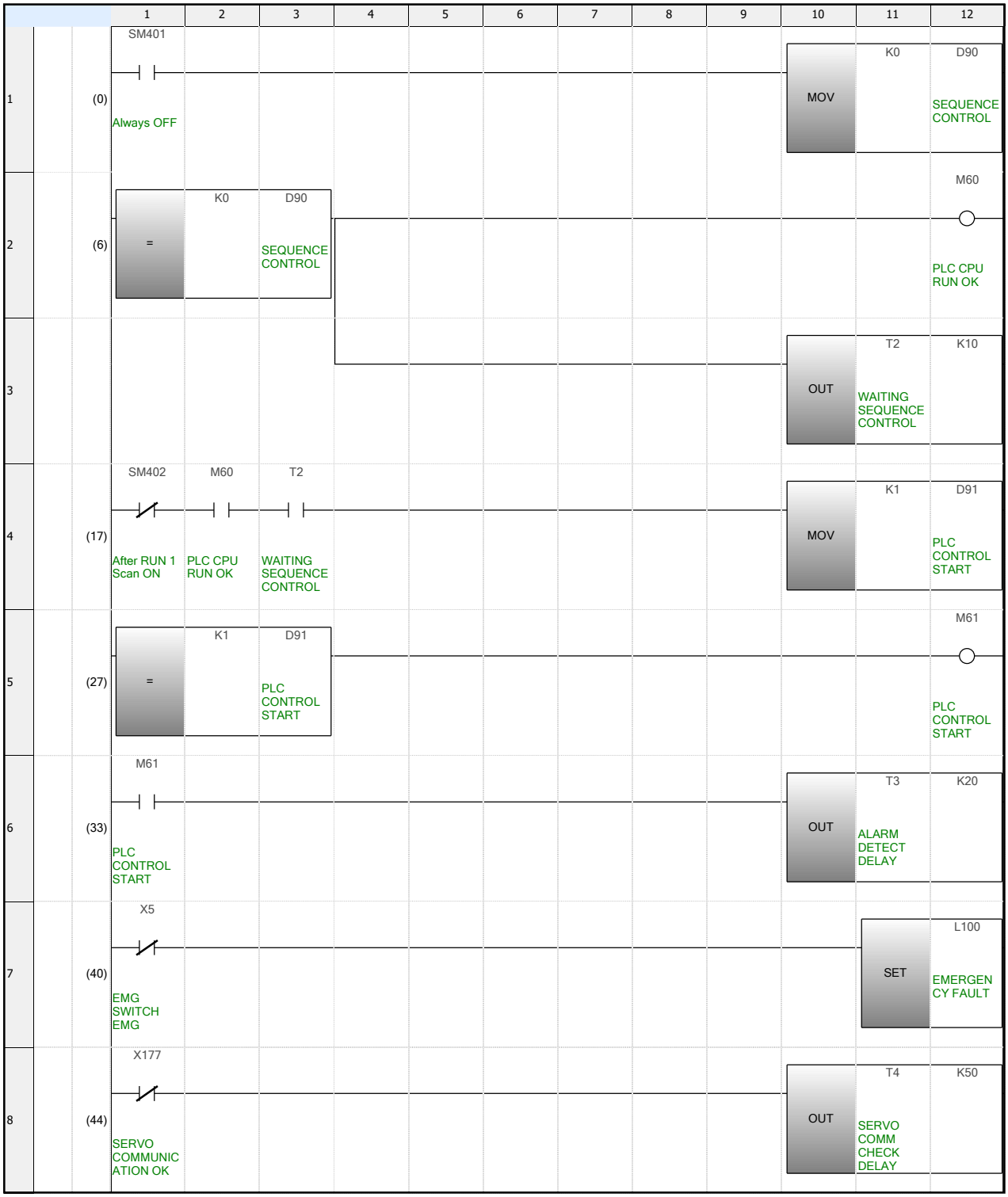

1 2 3 4 5 6 7 8 9 10 11 12
35
MOV
W9
CURRENT TORQUE
D5009
current torque
36 [Title]SERVO ON
37 (248)
W2.3 AXIS FAULT
W2.4 BUS VOLTAGE OK
W2.5 AXIS QUICK STOP OK
W2.7 AXIS WARNING
T3 ALARM DETECT DELAY
M130 ALL AUTOMODE
MOV
K15
W101
Control Word- Ax1
38 [Title]CHECK AXIS READY
39 (289)
W2.1 AXIS SWITCH ON
W2.2 AXIS SW ON ENABLED
W2.3 AXIS FAULT
W2.4 BUS VOLTAGE OK
W2.5 AXIS QUICK STOP OK
W2.7 AXIS WARNING
M1
Drive Healthy
40 [Title]SERVO HOME
41 (332)
M4
Swich To Home Mode Input
MOV
K6
W100
Modes of operation - Ax1
42 (364)
=
K6
W0
CONTROL MODE
M5 Home Cmd
M15 Homing Completed
MOV
K31
W101
Control Word- Ax1
43 (378)
W2.C
BIT
=
K6
W0
CONTROL MODE
SET
M15
Homing Completed
44 [Title]SERVO RESET
45 (389)
M25 FAULT RESET PULSE x200ms
W2.3 AXIS FAULT
W101.7
Fault Reset CMD-Ax1

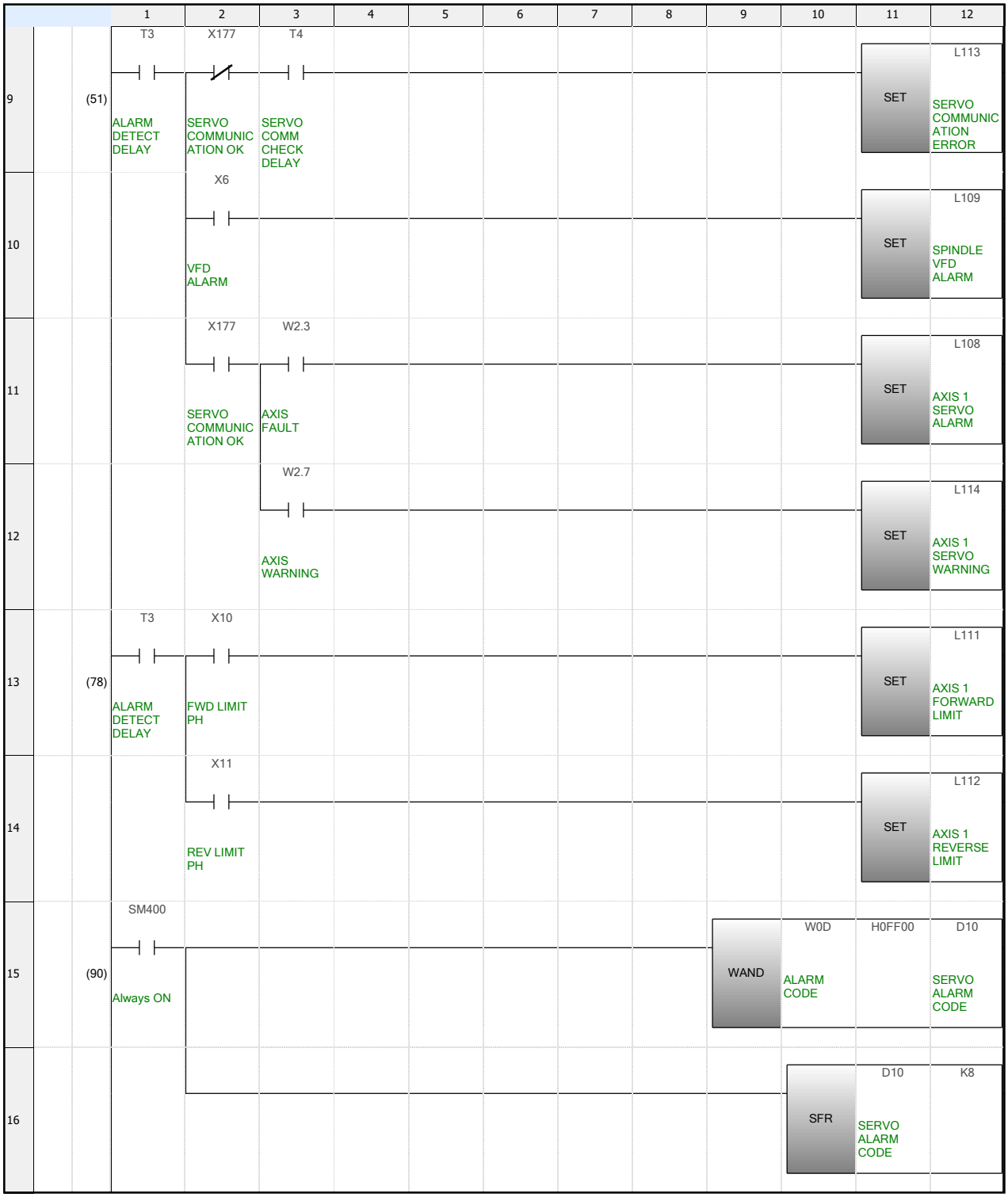

1 2 3 4 5 6 7 8 9 10 11 12
46 (419) M13 Servo Stop MOV K271 W101 # Control Word- Ax1
47 (426) X5 EMG SWITCH EMG RST W101.2 #Emergency /Quick Stop- Ax1
48 M13 Servo Stop
49 X11 REV LIMIT PH
50 X10 FWD LIMIT PH
51 [Title]DRIVE UNHEALTHY
52 (436) W2.3 AXIS FAULT SM401 Always OFF MOV K0 W101 # Control Word- Ax1
53 [Title] JOG RUN
54 (473) M8 Velocity Mode Selection MOV K3 W100 ## Modes of operation - Ax1

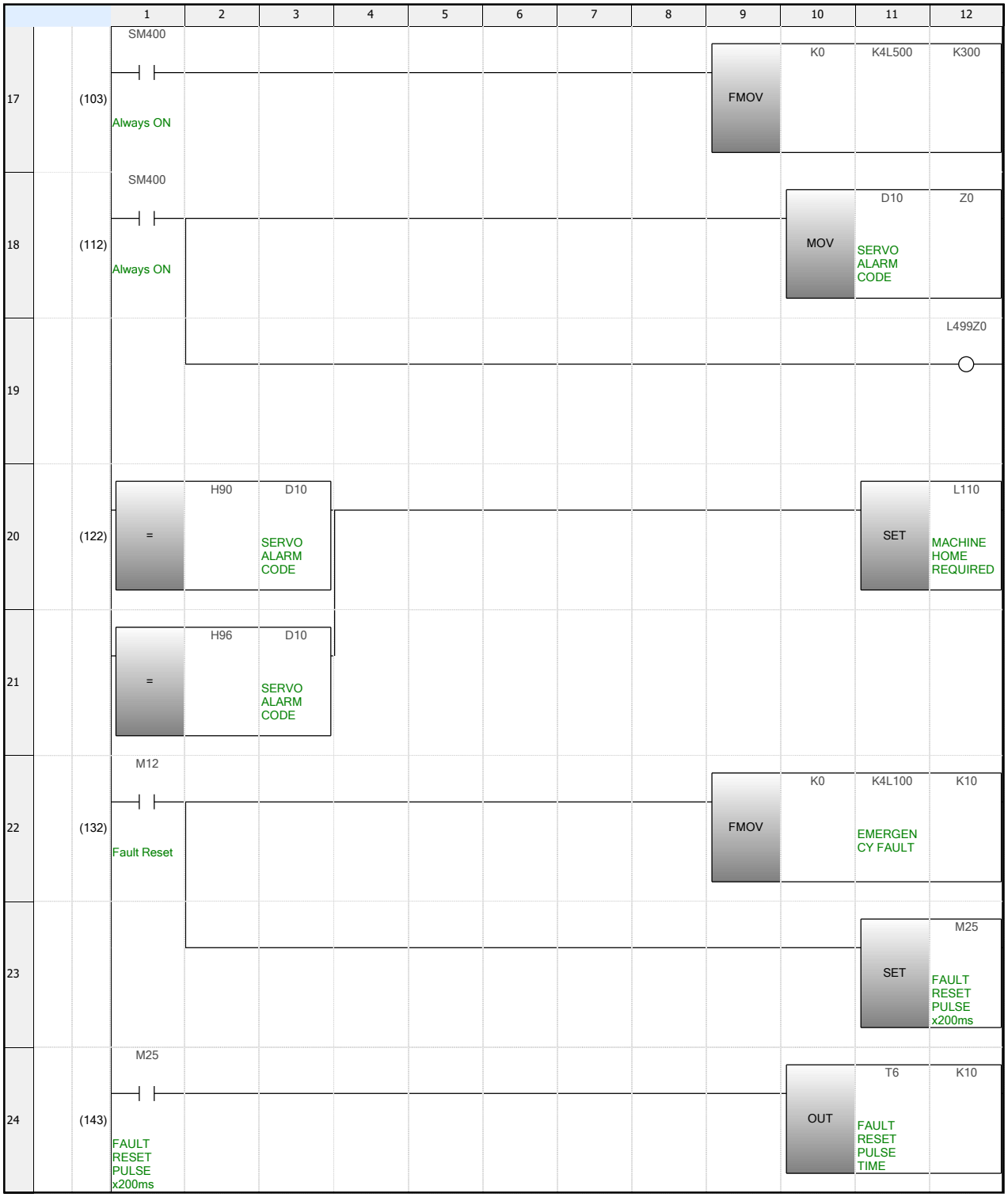

1 2 3 4 5 6 7 8 9 10 11 12
55
M132
AUTO MODE SS
56
(507)
=
K3
W0
CONTROL MODE
X10
FWD LIMIT PH
M9
Forward Rotation
DMOV
K32895
W101
Control Word- Ax1
57
X11
REV LIMIT PH
M10
Reverse Rotation
RST
M15
Homing Completed
58
M29
REVERSE DURING HOMING OPERATI...
59
Drive Healty @ Satrt of Every Operation
60
(533)
W2.3
AXIS FAULT
W2.7
AXIS WARNING
MOV
K15
W101
Control Word- Ax1
61
M15
Homing Completed
RST
M2
Start INC Positioning (+ve)
62
=
K3
W0
CONTROL MODE
M9
Forward Rotation
M29
REVERSE DURING HOMING OPERATI...
M10
Reverse Rotation
RST
M3
Start INC Positioning(-ve)
63
W2.A
AXIS TARGET REACHED
=
K1
W0
CONTROL MODE
RST
M11
Start Abs Positioning

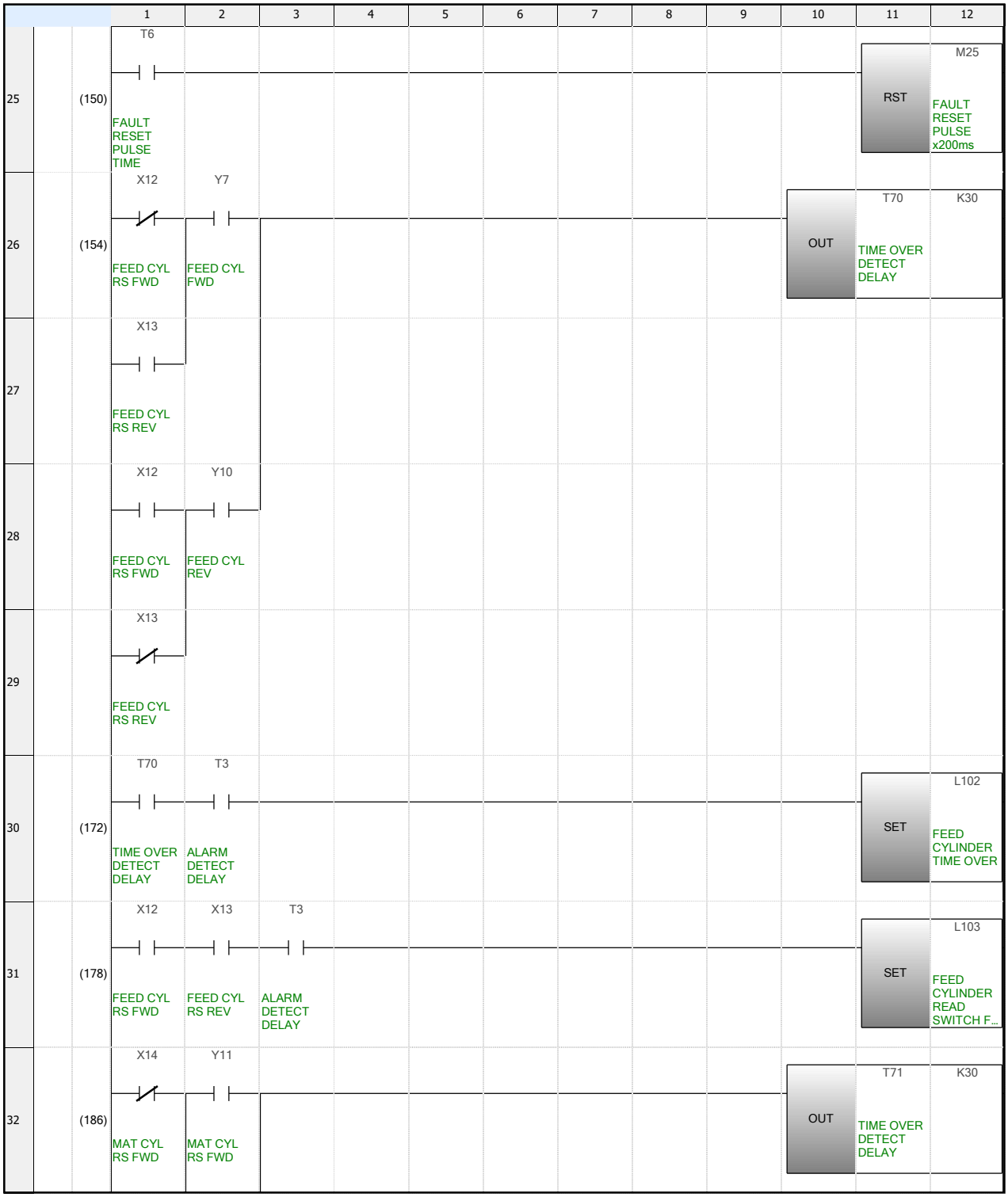

1 2 3 4 5 6 7 8 9 10 11 12
64 [Title]POSITIONING MODE
65 (623) M6 Switch to Position Mode Pp
M132 AUTO MODE SS
MOV K1 W100 ## Modes of operation - Ax1
66 M160 SERVO HOMING START
67 (664) M2 Start INC Positioning (+ve)
= K1 W0 CONTROL MODE
M6 Switch to Position Mode Pp
MOV K95 W101 # Control Word- Ax1
68 RST M15 Homing Completed
69 (684) M3 Start INC Positioning(-ve)
= K1 W0 CONTROL MODE
M6 Switch to Position Mode Pp
MOV K63 W101 # Control Word- Ax1
70 RST M15 Homing Completed
71 (704) M11 Start Abs Positioning
= K1 W0 CONTROL MODE
M6 Switch to Position Mode Pp
MOV K31 W101 # Control Word- Ax1
72 RST M15 Homing Completed

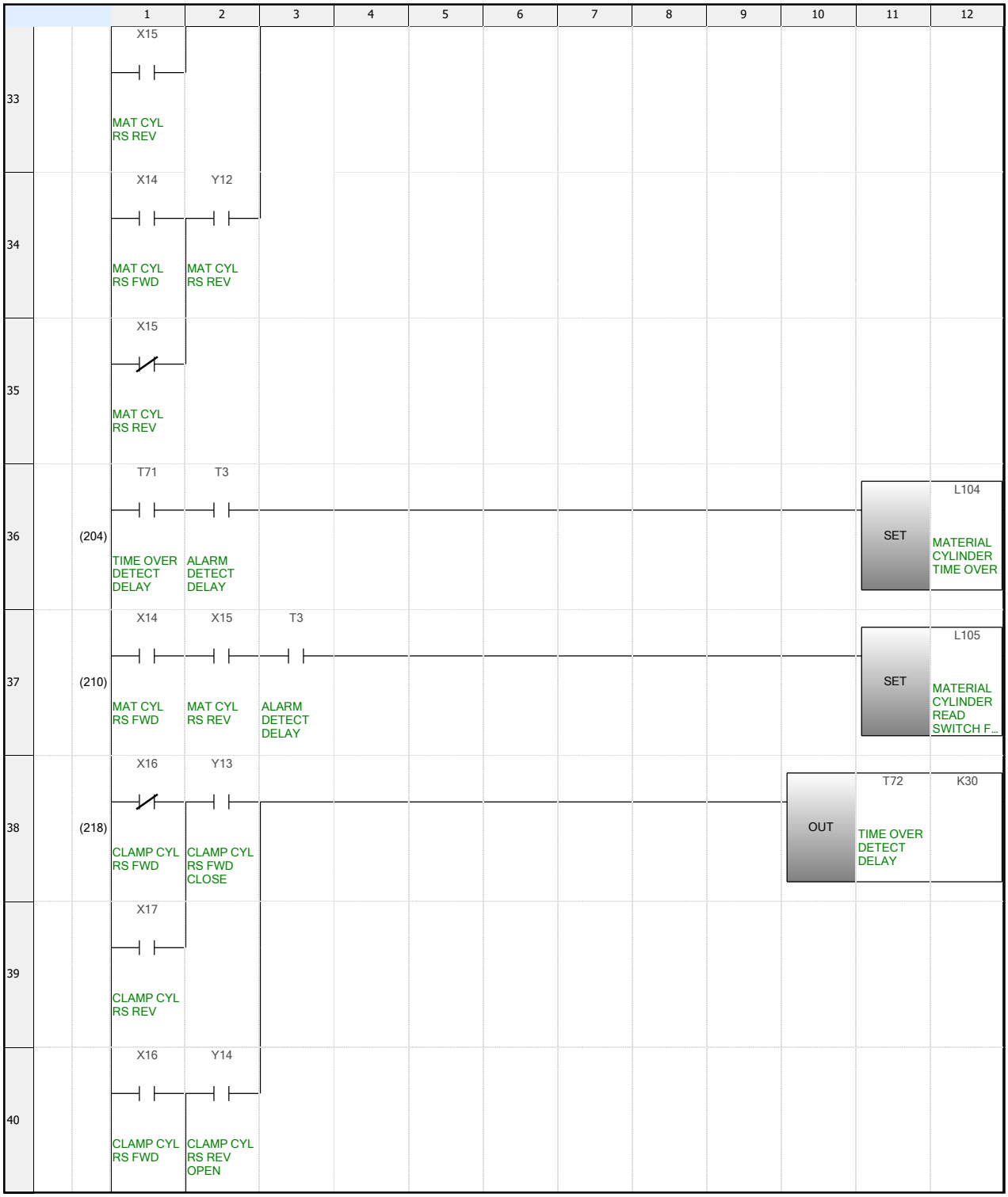
		1	2	3	4	5	6	7	8	9	10	11	12
73	(724)												[END]

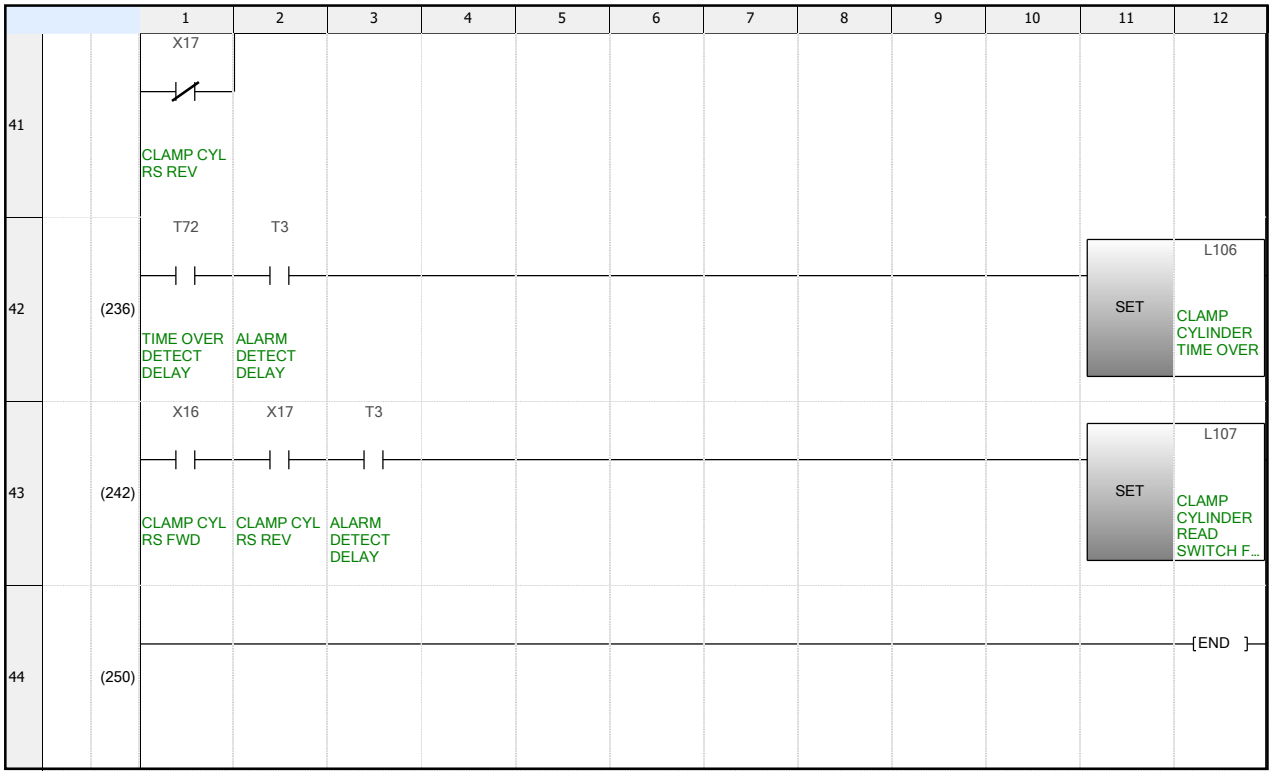

1 2 3 4 5 6 7 8 9 10 11 12
1 (0) SM401 Always OFF
MOV K0 D90 SEQUENCE CONTROL
2 (6) = K0 D90 SEQUENCE CONTROL
M60 PLC CPU RUN OK
3
OUT T2 K10 WAITING SEQUENCE CONTROL
4 (17) SM402 After RUN 1 Scan ON
M60 PLC CPU RUN OK
T2 WAITING SEQUENCE CONTROL
MOV K1 D91 PLC CONTROL START
5 (27) = K1 D91 PLC CONTROL START
M61 PLC CONTROL START
6 (33) M61 PLC CONTROL START
OUT T3 K20 ALARM DETECT DELAY
7 (40) X5 EMG SWITCH EMG
SET L100 EMERGEN CY FAULT
8 (44) X177 SERVO COMMUNIC ATION OK
OUT T4 K50 SERVO COMM CHECK DELAY

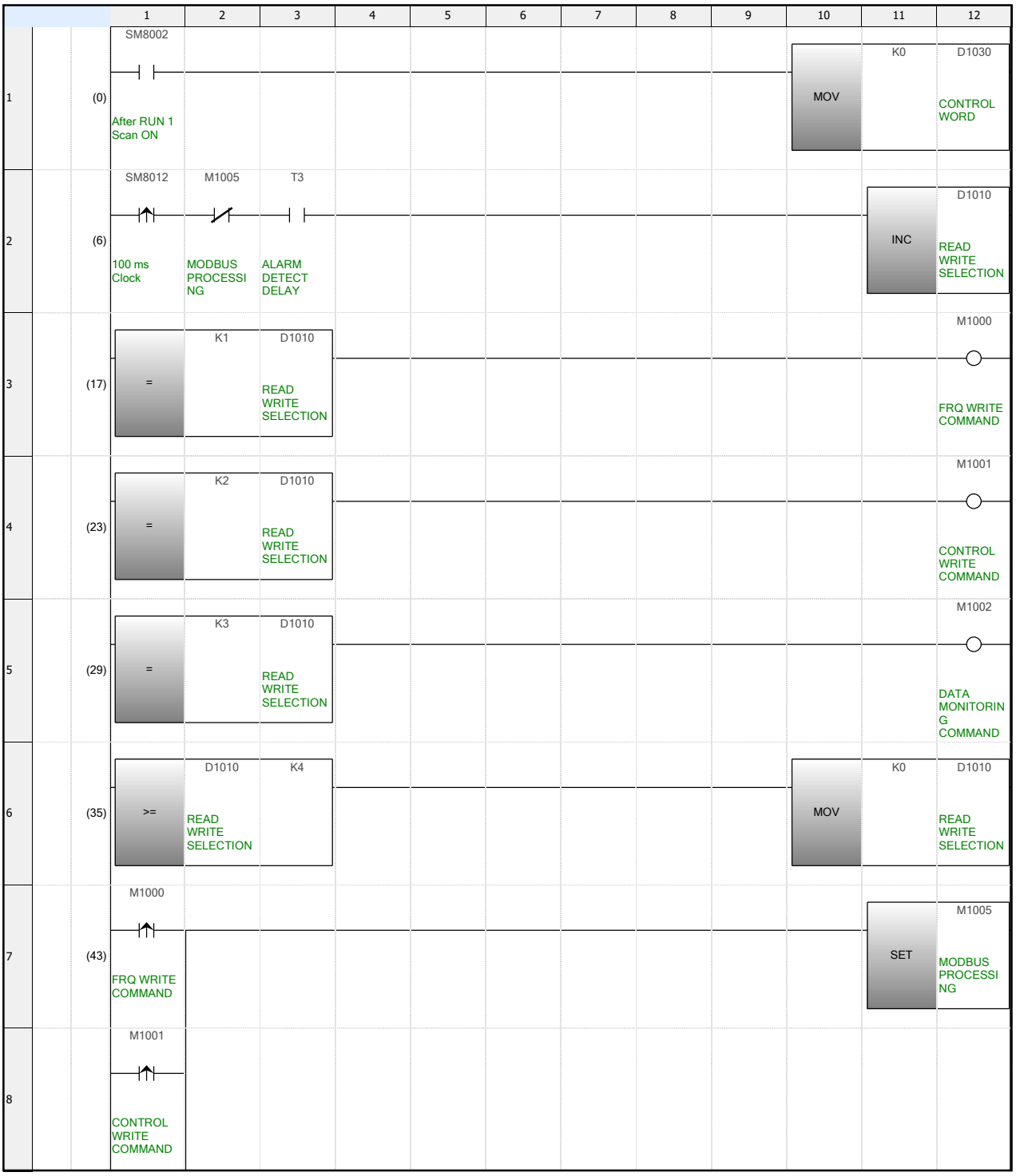

1
2
3
4
5
6
7
8
9
10
11
12
9
(51)
T3
ALARM DETECT DELAY
X177
SERVO COMMUNICATION OK
T4
SERVO COMM CHECK DELAY
SET
L113
SERVO COMMUNICATION ERROR
10
X6
VFD ALARM
SET
L109
SPINDLE VFD ALARM
11
X177
SERVO COMMUNICATION OK
W2.3
AXIS FAULT
SET
L108
AXIS 1 SERVO ALARM
12
W2.7
AXIS WARNING
SET
L114
AXIS 1 SERVO WARNING
13
(78)
T3
ALARM DETECT DELAY
X10
FWD LIMIT PH
SET
L111
AXIS 1 FORWARD LIMIT
14
X11
REV LIMIT PH
SET
L112
AXIS 1 REVERSE LIMIT
15
(90)
SM400
Always ON
WAND
W0D
ALARM CODE
H0FF00
D10
SERVO ALARM CODE
16
SFR
D10
SERVO ALARM CODE
K8

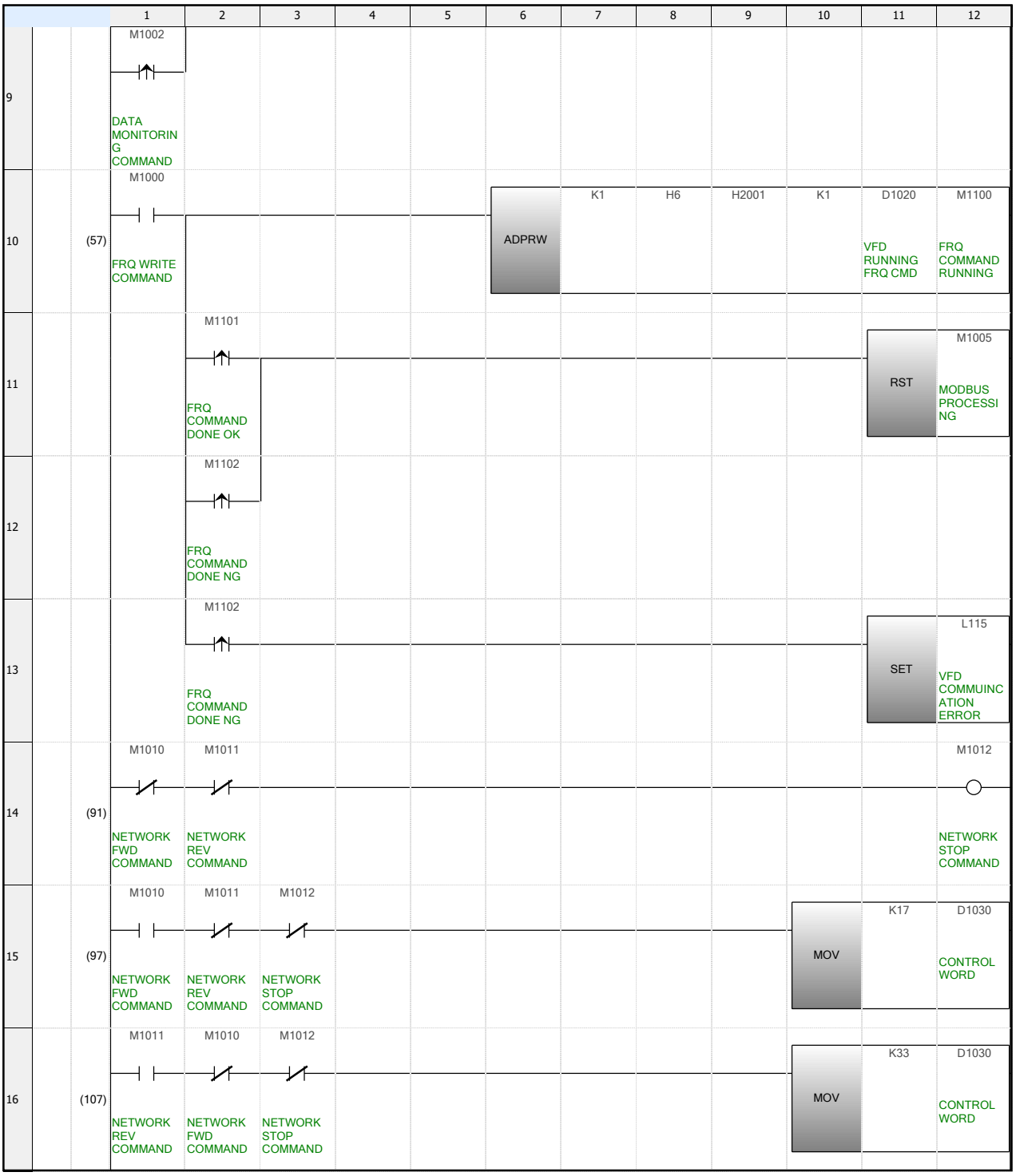

1
2
3
4
5
6
7
8
9
10
11
12
17
(103)
SM400
Always ON
FMOV
K0
K4L500
K300
18
(112)
SM400
Always ON
MOV
D10
SERVO ALARM CODE
Z0
19
L499Z0
20
(122)
=
H90
D10
SERVO ALARM CODE
SET
L110
MACHINE HOME REQUIRED
21
=
H96
D10
SERVO ALARM CODE
22
(132)
M12
Fault Reset
FMOV
K0
K4L100
K10
EMERGEN CY FAULT
23
SET
M25
FAULT RESET PULSE x200ms
24
(143)
M25
FAULT RESET PULSE x200ms
OUT
T6
K10
FAULT RESET PULSE TIME

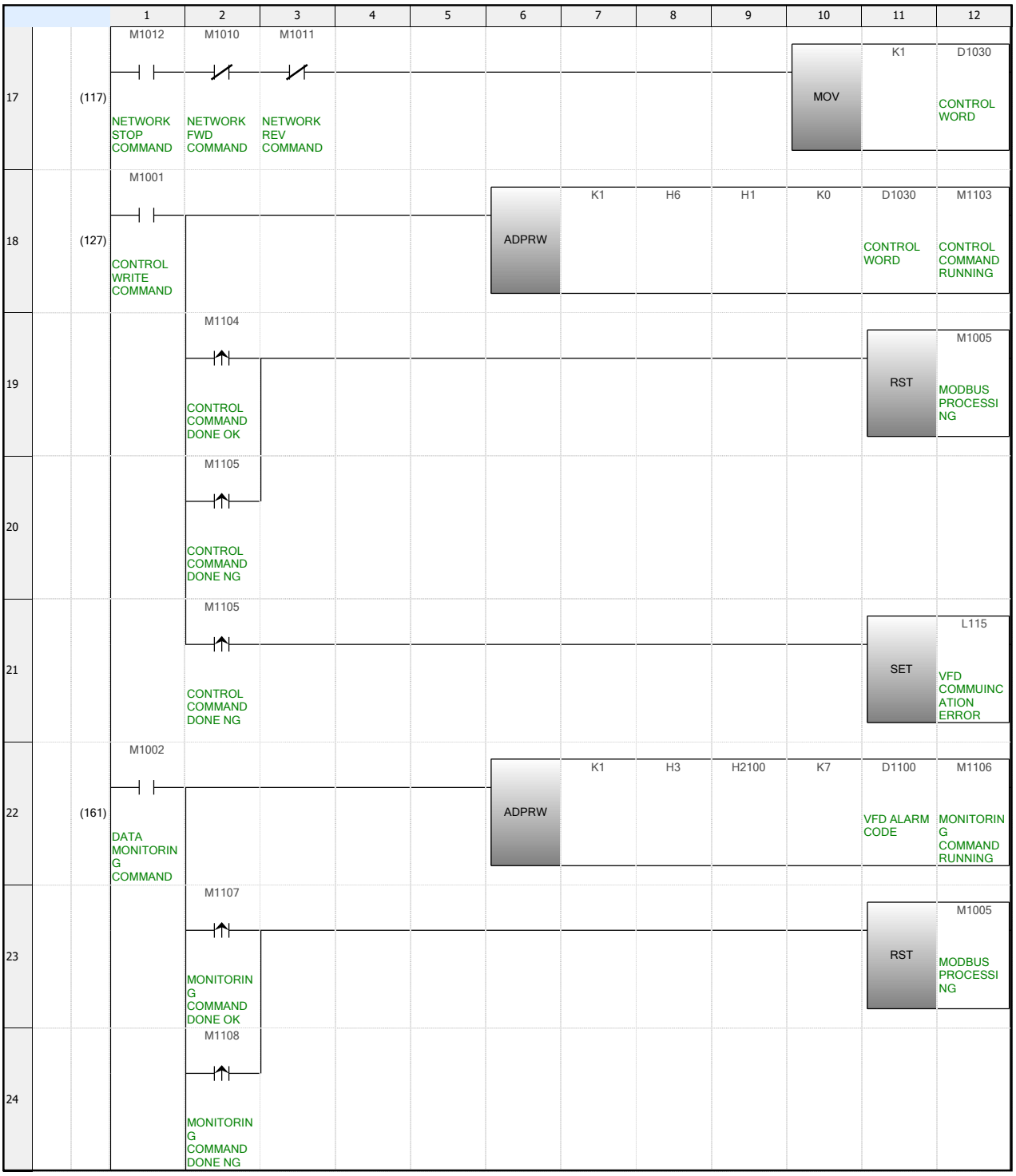

1
2
3
4
5
6
7
8
9
10
11
12
25
(150)
T6
FAULT RESET PULSE TIME
RST
M25
FAULT RESET PULSE x200ms
26
(154)
X12
FEED CYL RS FWD
Y7
FEED CYL FWD
OUT
T70
TIME OVER DETECT DELAY
K30
27
X13
FEED CYL RS REV
28
X12
FEED CYL RS FWD
Y10
FEED CYL REV
29
X13
FEED CYL RS REV
30
(172)
T70
TIME OVER DETECT DELAY
T3
ALARM DETECT DELAY
SET
L102
FEED CYLINDER TIME OVER
31
(178)
X12
FEED CYL RS FWD
X13
FEED CYL RS REV
T3
ALARM DETECT DELAY
SET
L103
FEED CYLINDER READ SWITCH F...
32
(186)
X14
MAT CYL RS FWD
Y11
MAT CYL RS FWD
OUT
T71
TIME OVER DETECT DELAY
K30

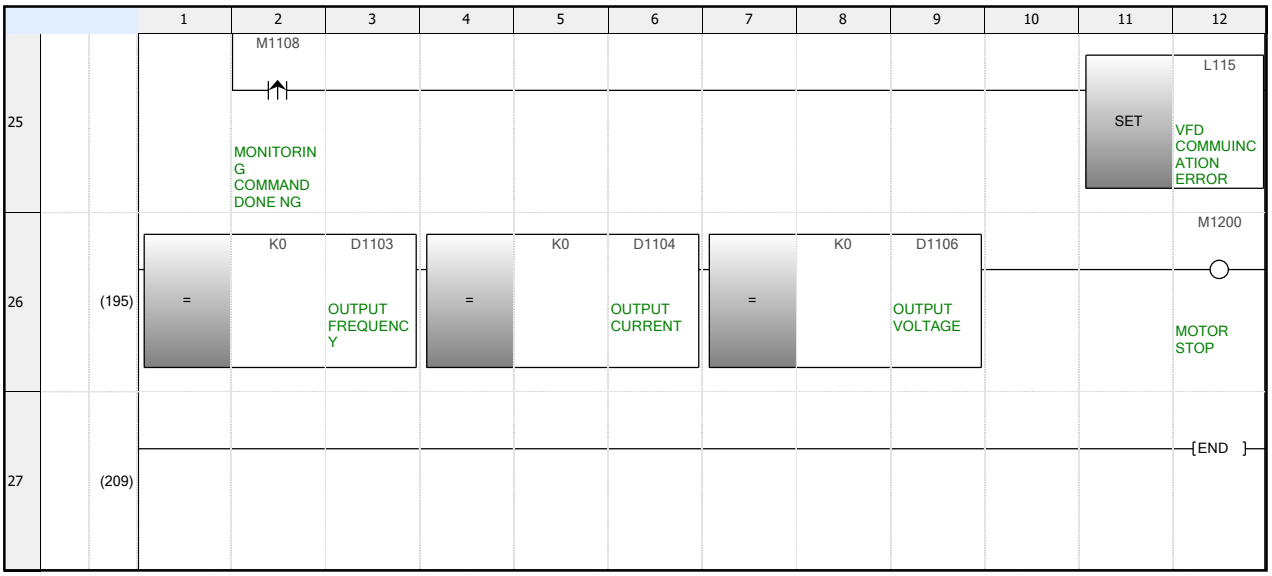

1
2
3
4
5
6
7
8
9
10
11
12
33
X15
MAT CYL RS REV
34
X14
MAT CYL RS FWD
Y12
MAT CYL RS REV
35
X15
MAT CYL RS REV
36
(204)
T71
TIME OVER DETECT DELAY
T3
ALARM DETECT DELAY
SET
L104
MATERIAL CYLINDER TIME OVER
37
(210)
X14
MAT CYL RS FWD
X15
MAT CYL RS REV
T3
ALARM DETECT DELAY
SET
L105
MATERIAL CYLINDER READ SWITCH F...
38
(218)
X16
CLAMP CYL RS FWD
Y13
CLAMP CYL RS FWD CLOSE
OUT
T72
TIME OVER DETECT DELAY
K30
39
X17
CLAMP CYL RS REV
40
X16
CLAMP CYL RS FWD
Y14
CLAMP CYL RS REV OPEN

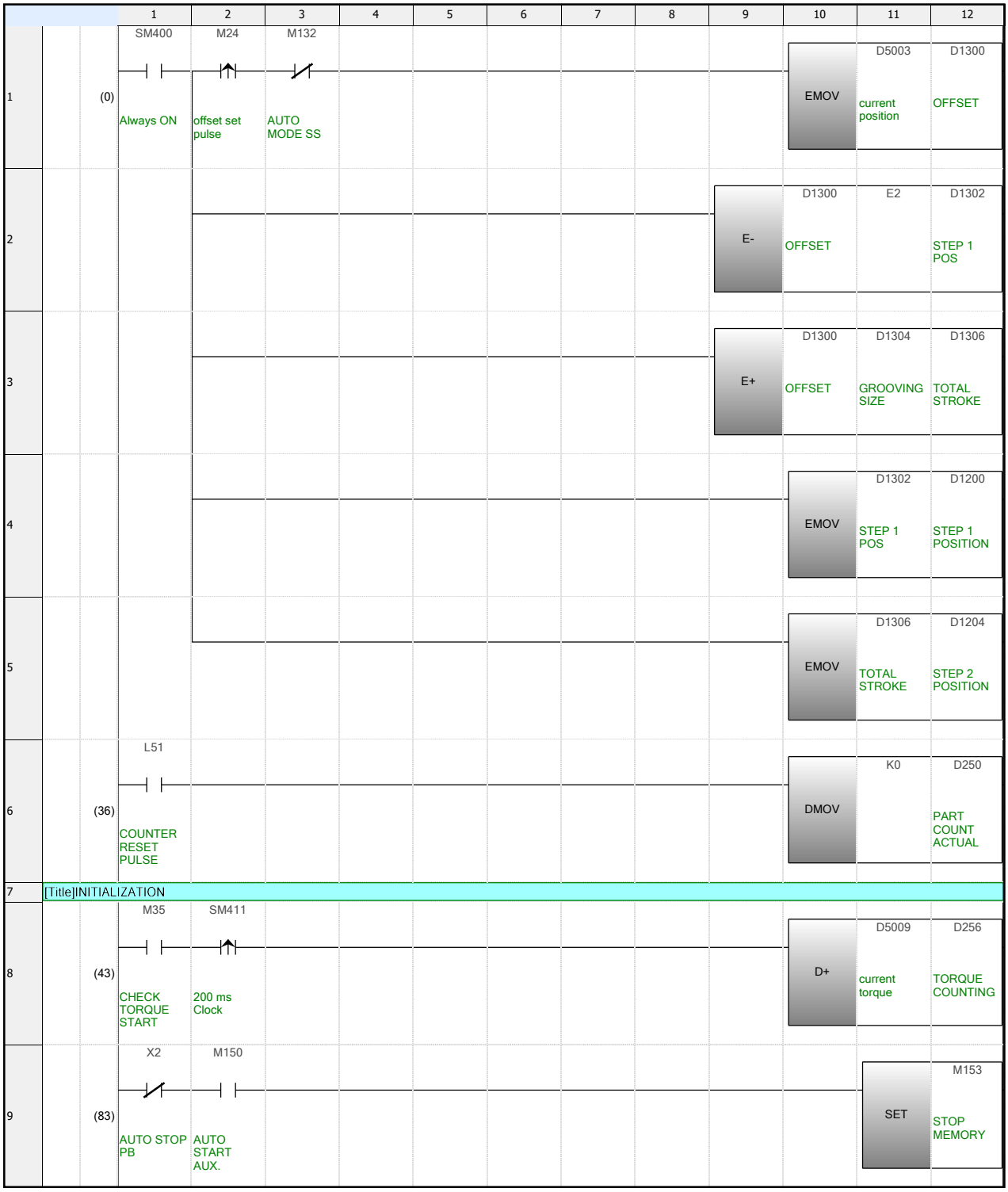

1
2
3
4
5
6
7
8
9
10
11
12
41
X17
CLAMP CYL RS REV
42
(236)
T72
T3
TIME OVER DETECT DELAY
ALARM DETECT DELAY
SET
L106
CLAMP CYLINDER TIME OVER
43
(242)
X16
X17
T3
CLAMP CYL RS FWD
CLAMP CYL RS REV
ALARM DETECT DELAY
SET
L107
CLAMP CYLINDER READ SWITCH F...
44
(250)
[END]

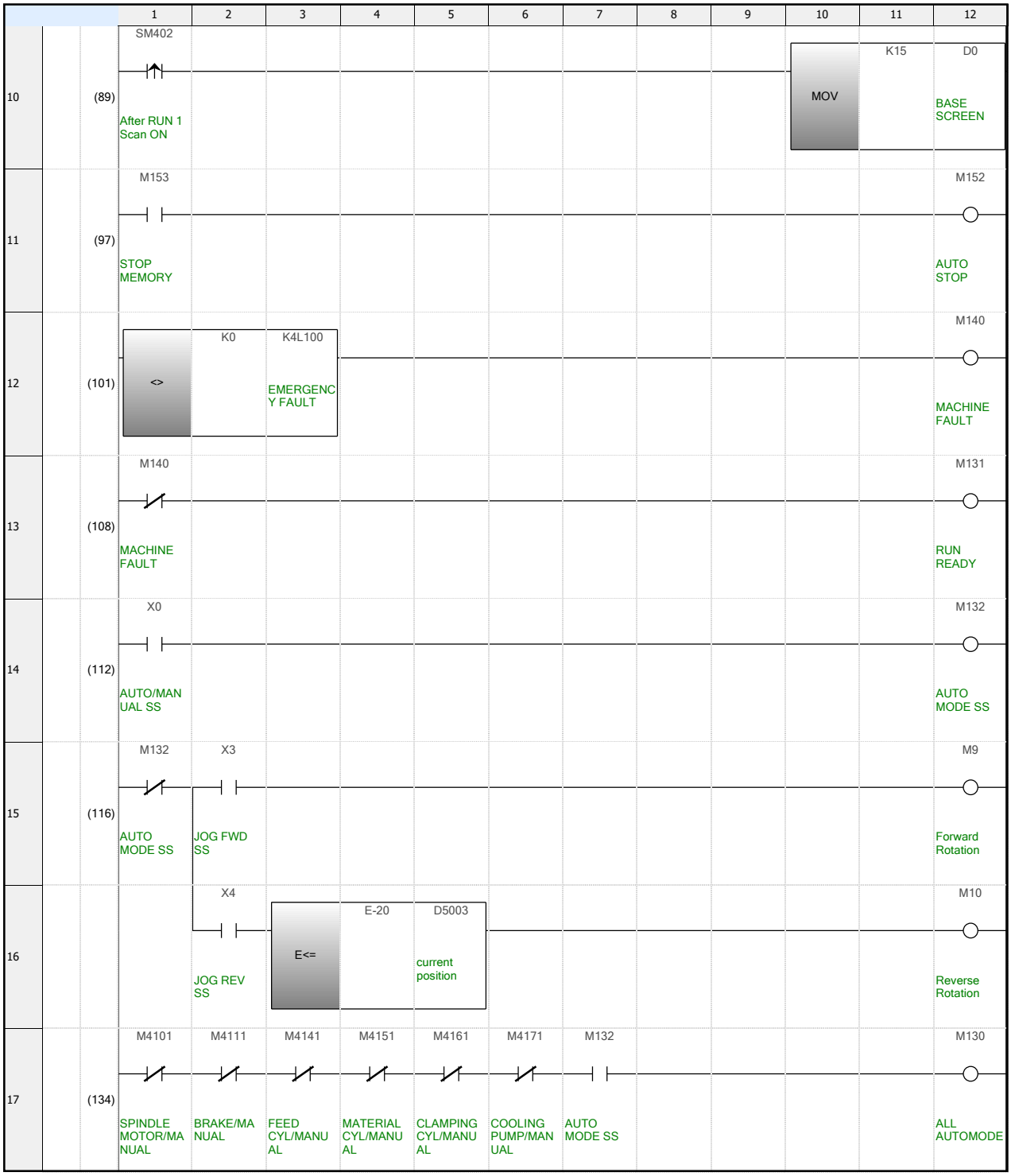

1
2
3
4
5
6
7
8
9
10
11
12
1
(0)
SM8002
After RUN 1 Scan ON
MOV
K0
D1030
CONTROL WORD
2
(6)
SM8012
100 ms Clock
M1005
MODBUS PROCESSING
T3
ALARM DETECT DELAY
INC
D1010
READ WRITE SELECTION
3
(17)
=
K1
D1010
READ WRITE SELECTION
M1000
FRQ WRITE COMMAND
4
(23)
=
K2
D1010
READ WRITE SELECTION
M1001
CONTROL WRITE COMMAND
5
(29)
=
K3
D1010
READ WRITE SELECTION
M1002
DATA MONITORING COMMAND
6
(35)
>=
D1010
READ WRITE SELECTION
K4
MOV
K0
D1010
READ WRITE SELECTION
7
(43)
M1000
FRQ WRITE COMMAND
SET
M1005
MODBUS PROCESSING
8
M1001
CONTROL WRITE COMMAND


1
2
3
4
5
6
7
8
9
10
11
12
9
M1002
DATA MONITORING COMMAND
10
(57)
M1000
FRQ WRITE COMMAND
ADPRW
K1
H6
H2001
K1
D1020
VFD RUNNING FRQ CMD
M1100
FRQ COMMAND RUNNING
11
M1101
FRQ COMMAND DONE OK
RST
M1005
MODBUS PROCESSING
12
M1102
FRQ COMMAND DONE NG
13
M1102
FRQ COMMAND DONE NG
SET
L115
VFD COMMUINCATION ERROR
14
(91)
M1010
NETWORK FWD COMMAND
M1011
NETWORK REV COMMAND
M1012
NETWORK STOP COMMAND
15
(97)
M1010
NETWORK FWD COMMAND
M1011
NETWORK REV COMMAND
M1012
NETWORK STOP COMMAND
MOV
K17
D1030
CONTROL WORD
16
(107)
M1011
NETWORK REV COMMAND
M1010
NETWORK FWD COMMAND
M1012
NETWORK STOP COMMAND
MOV
K33
D1030
CONTROL WORD


1 2 3 4 5 6 7 8 9 10 11 12
17
M1012
M1010
M1011
(117)
NETWORK STOP COMMAND
NETWORK FWD COMMAND
NETWORK REV COMMAND
MOV
K1
D1030
CONTROL WORD
18
M1001
(127)
CONTROL WRITE COMMAND
ADPRW
K1
H6
H1
K0
D1030
CONTROL WORD
M1103
CONTROL COMMAND RUNNING
19
M1104
CONTROL COMMAND DONE OK
RST
M1005
MODBUS PROCESSING
20
M1105
CONTROL COMMAND DONE NG
21
M1105
CONTROL COMMAND DONE NG
SET
L115
VFD COMMUINCATION ERROR
22
M1002
(161)
DATA MONITORING COMMAND
ADPRW
K1
H3
H2100
K7
D1100
VFD ALARM CODE
M1106
MONITORING COMMAND RUNNING
23
M1107
MONITORING COMMAND DONE OK
RST
M1005
MODBUS PROCESSING
24
M1108
MONITORING COMMAND DONE NG


1
2
3
4
5
6
7
8
9
10
11
12
25
M1108
MONITORING COMMAND DONE NG
SET
L115
VFD COMMUINCATION ERROR
26
(195)
=
K0
D1103
OUTPUT FREQUENCY
=
K0
D1104
OUTPUT CURRENT
=
K0
D1106
OUTPUT VOLTAGE
M1200
MOTOR STOP
27
(209)
[END]


1
SM400
M24
M132
(0)
Always ON
offset set pulse
AUTO MODE SS
EMOV
D5003
current position
D1300
OFFSET
2
E-
D1300
OFFSET
E2
D1302
STEP 1 POS
3
E+
D1300
OFFSET
D1304
GROOVING SIZE
D1306
TOTAL STROKE
4
EMOV
D1302
STEP 1 POS
D1200
STEP 1 POSITION
5
EMOV
D1306
TOTAL STROKE
D1204
STEP 2 POSITION
6
L51
(36)
COUNTER RESET PULSE
DMOV
K0
D250
PART COUNT ACTUAL
7
[Title]INITIALIZATION
8
M35
SM411
(43)
CHECK TORQUE START
200 ms Clock
D+
D5009
current torque
D256
TORQUE COUNTING
9
X2
M150
(83)
AUTO STOP PB
AUTO START AUX.
SET
M153
STOP MEMORY


1
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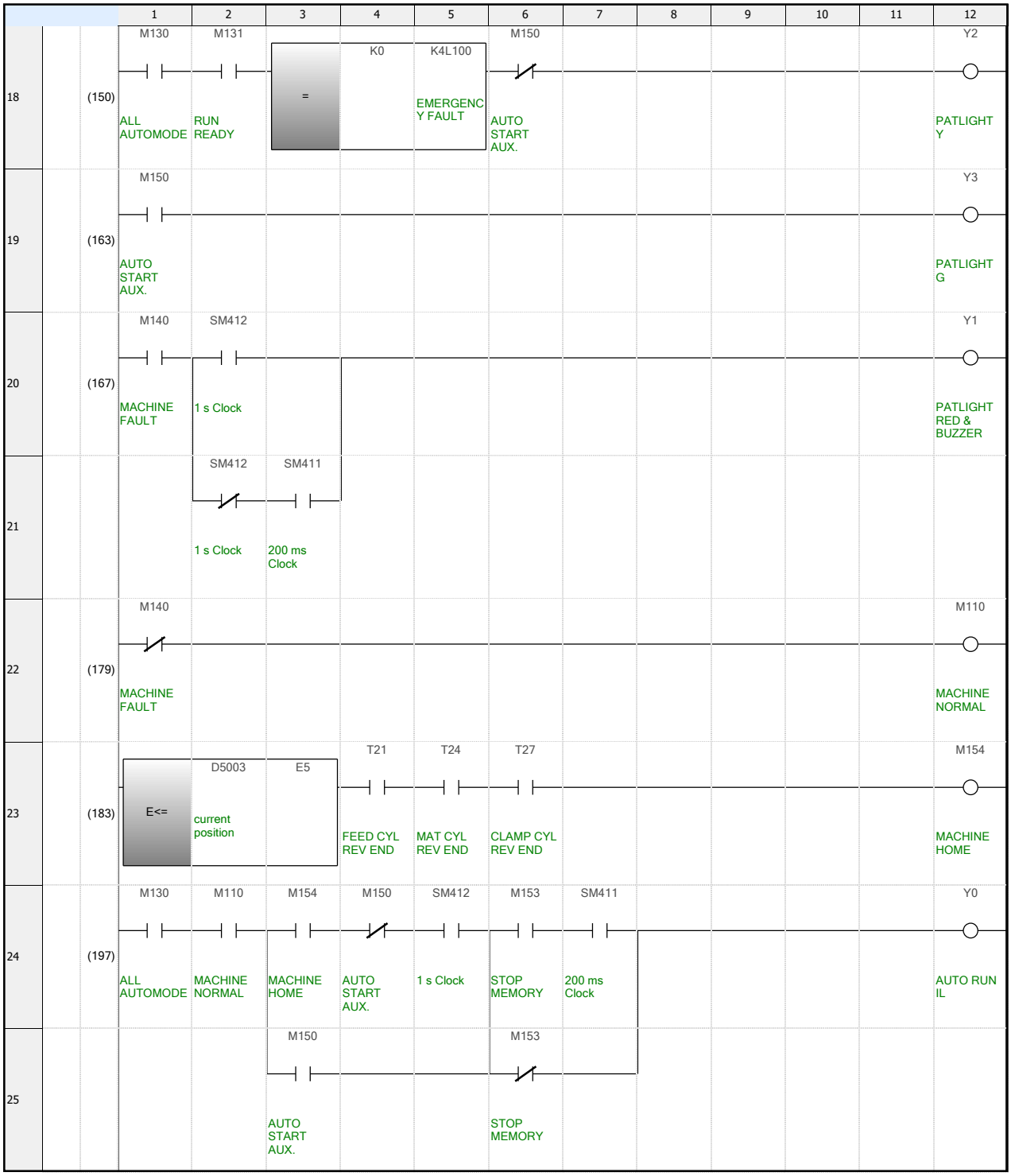
7
8
9
10
11
12
10
(89)
SM402
After RUN 1 Scan ON
MOV
K15
D0
BASE SCREEN
11
(97)
M153
STOP MEMORY
M152
AUTO STOP
12
(101)
<>
K0
K4L100
EMERGENCY FAULT
M140
MACHINE FAULT
13
(108)
M140
MACHINE FAULT
M131
RUN READY
14
(112)
X0
AUTO/MANUAL SS
M132
AUTO MODE SS
15
(116)
M132
AUTO MODE SS
X3
JOG FWD SS
M9
Forward Rotation
16
X4
JOG REV SS
E<=
E-20
D5003
current position
M10
Reverse Rotation
17
(134)
M4101
SPINDLE MOTOR/MANUAL
M4111
BRAKE/MANUAL
M4141
FEED CYL/MANUAL
M4151
MATERIAL CYL/MANUAL
M4161
CLAMPING CYL/MANUAL
M4171
COOLING PUMP/MANUAL
M132
AUTO MODE SS
M130
ALL AUTOMODE


1
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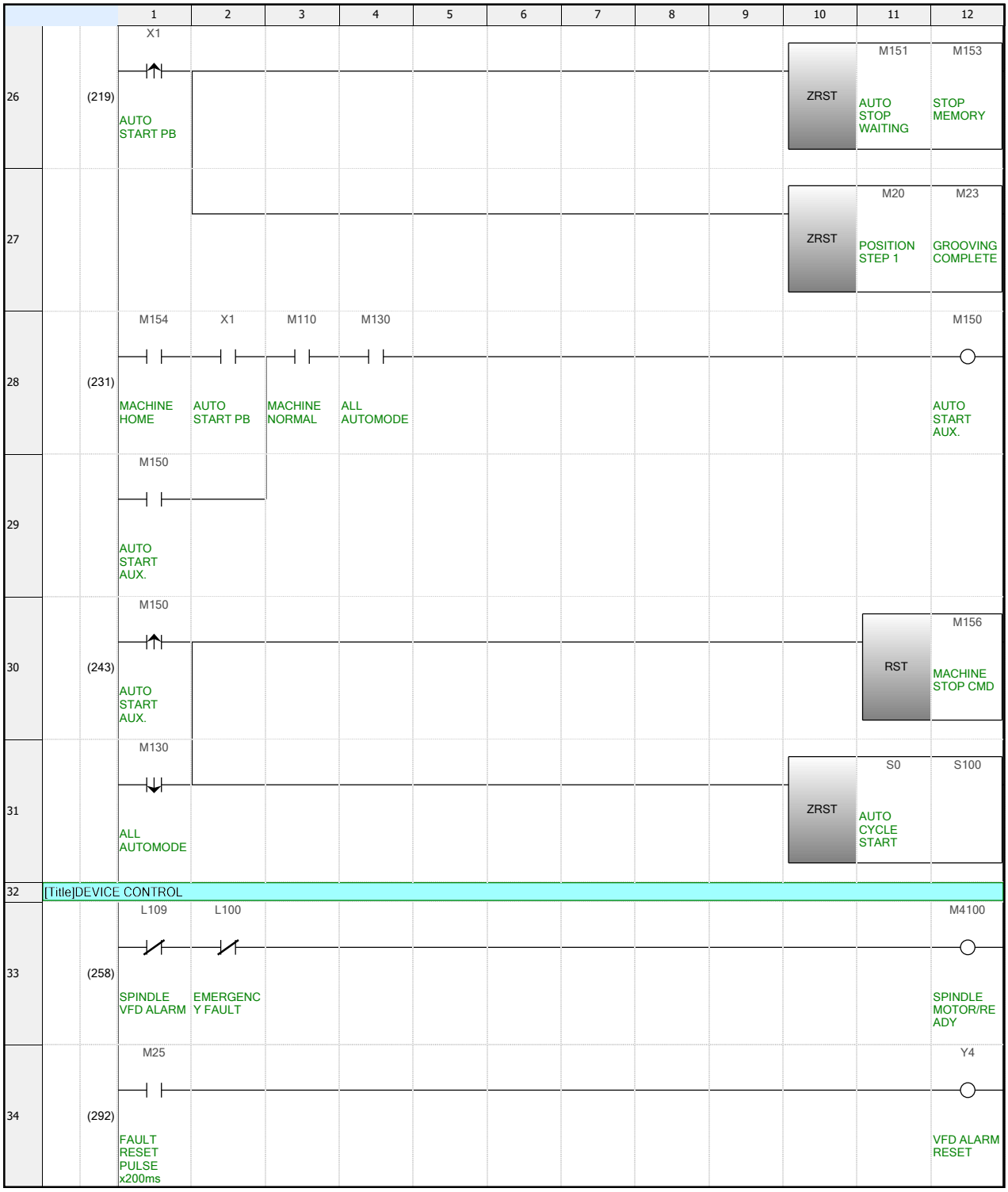
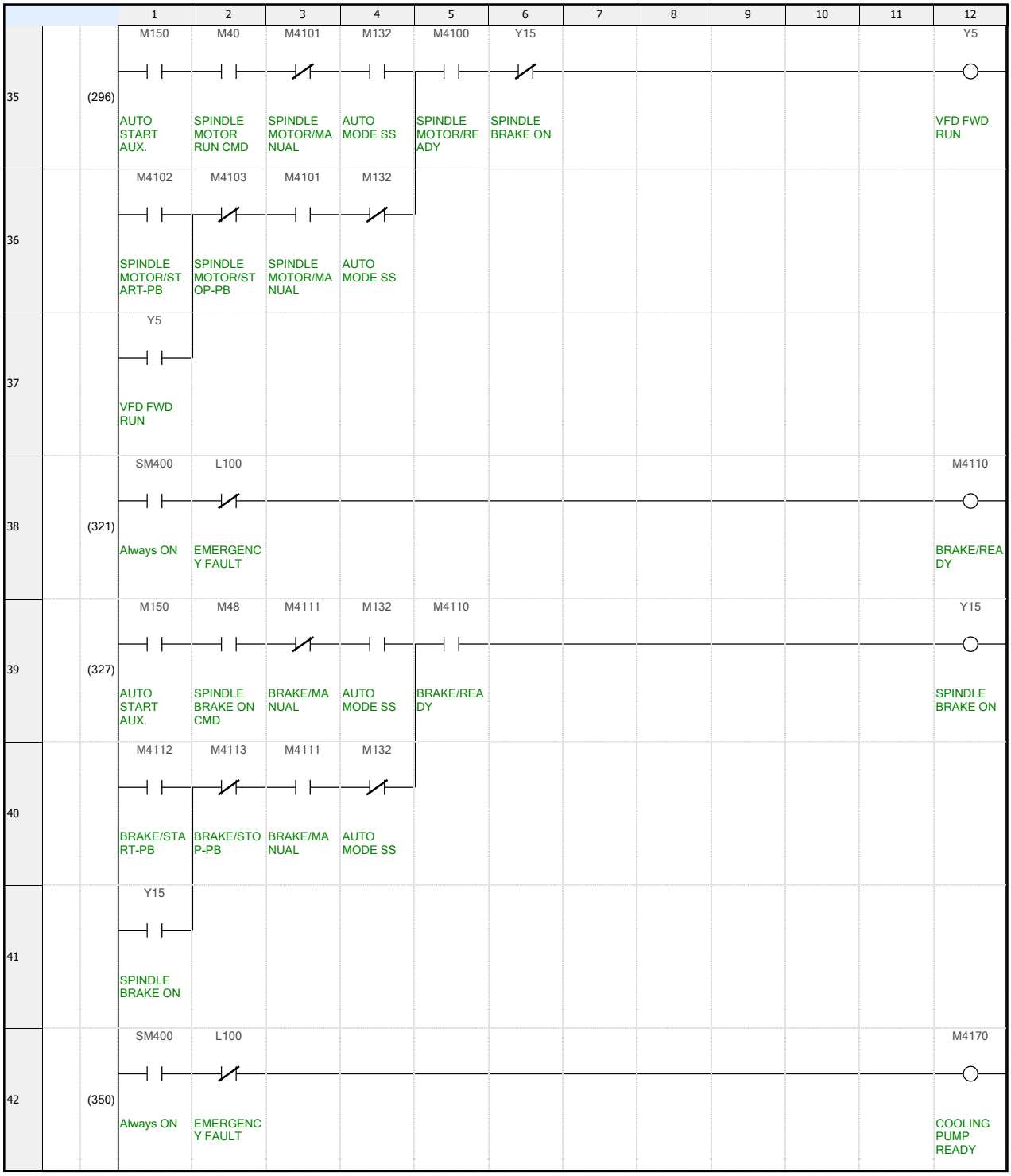
18
(150)
M130
ALL AUTOMODE
M131
RUN READY
=
K0
K4L100
EMERGENCY FAULT
M150
AUTO START AUX.
Y2
PATLIGHT Y
19
(163)
M150
AUTO START AUX.
Y3
PATLIGHT G
20
(167)
M140
MACHINE FAULT
SM412
1 s Clock
Y1
PATLIGHT RED & BUZZER
21
SM412
1 s Clock
SM411
200 ms Clock
22
(179)
M140
MACHINE FAULT
M110
MACHINE NORMAL
23
(183)
E<=
D5003
current position
E5
T21
FEED CYL REV END
T24
MAT CYL REV END
T27
CLAMP CYL REV END
M154
MACHINE HOME
24
(197)
M130
ALL AUTOMODE
M110
MACHINE NORMAL
M154
MACHINE HOME
M150
AUTO START AUX.
SM412
1 s Clock
M153
STOP MEMORY
SM411
200 ms Clock
Y0
AUTO RUN IL
25
M150
AUTO START AUX.
M153
STOP MEMORY


1 2 3 4 5 6 7 8 9 10 11 12
26 (219) X1 AUTO START PB ZRST M151 AUTO STOP WAITING M153 STOP MEMORY
27 ZRST M20 POSITION STEP 1 M23 GROOVING COMPLETE
28 (231) M154 MACHINE HOME X1 AUTO START PB M110 MACHINE NORMAL M130 ALL AUTOMODE M150 AUTO START AUX.
29 M150 AUTO START AUX.
30 (243) M150 AUTO START AUX. RST M156 MACHINE STOP CMD
31 M130 ALL AUTOMODE ZRST S0 AUTO CYCLE START S100
32 [Title]DEVICE CONTROL
33 (258) L109 SPINDLE VFD ALARM L100 EMERGENCY FAULT M4100 SPINDLE MOTOR/READY
34 (292) M25 FAULT RESET PULSE x200ms Y4 VFD ALARM RESET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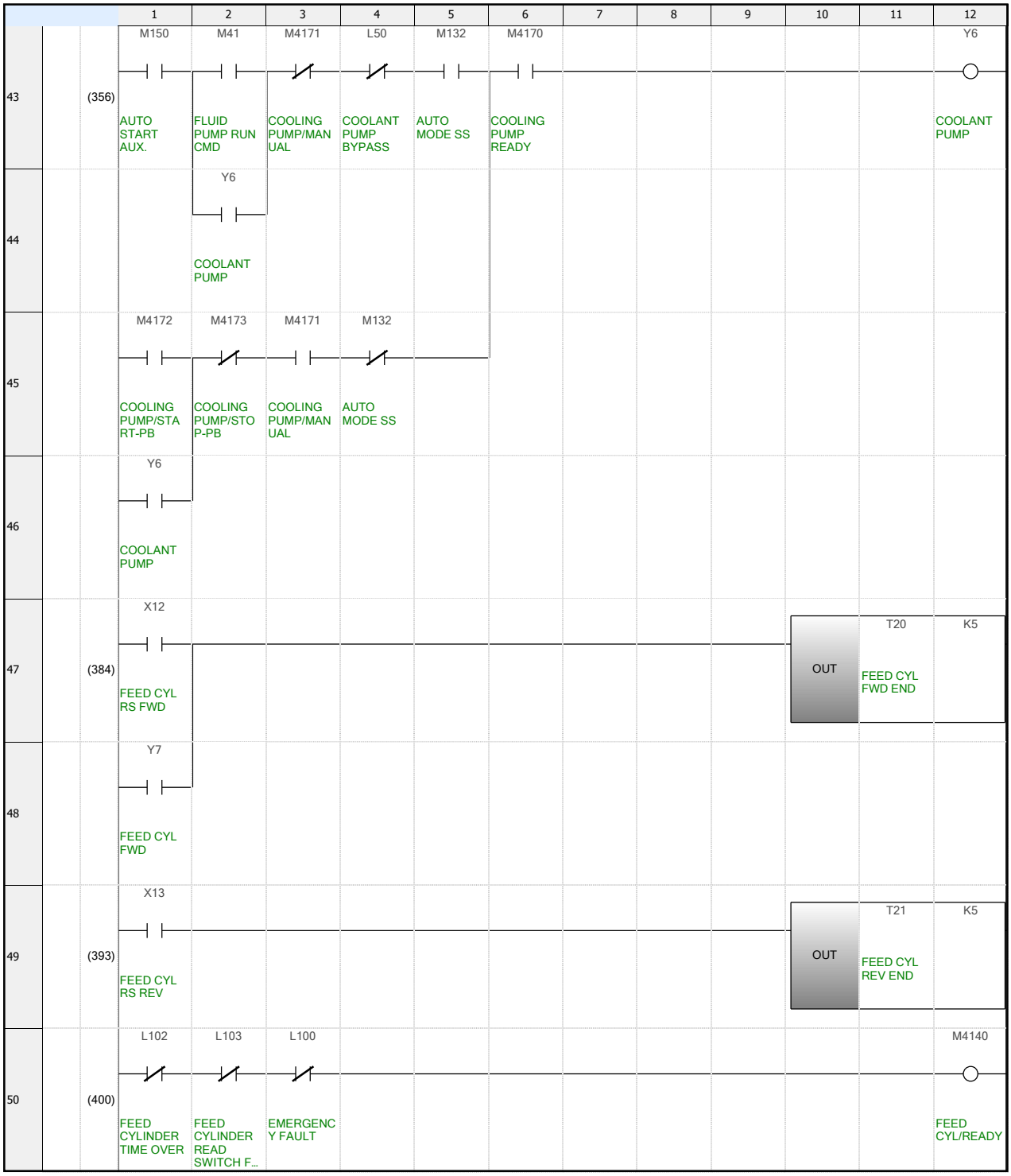
12
35
(296)
M150
AUTO START AUX.
M40
SPINDLE MOTOR RUN CMD
M4101
SPINDLE MOTOR/MANUAL
M132
AUTO MODE SS
M4100
SPINDLE MOTOR/READY
Y15
SPINDLE BRAKE ON
Y5
VFD FWD RUN
36
M4102
SPINDLE MOTOR/START-PB
M4103
SPINDLE MOTOR/STOP-PB
M4101
SPINDLE MOTOR/MANUAL
M132
AUTO MODE SS
37
Y5
VFD FWD RUN
38
(321)
SM400
Always ON
L100
EMERGENCY FAULT
M4110
BRAKE/READY
39
(327)
M150
AUTO START AUX.
M48
SPINDLE BRAKE ON CMD
M4111
BRAKE/MANUAL
M132
AUTO MODE SS
M4110
BRAKE/READY
Y15
SPINDLE BRAKE ON
40
M4112
BRAKE/START-PB
M4113
BRAKE/STOP-PB
M4111
BRAKE/MANUAL
M132
AUTO MODE SS
41
Y15
SPINDLE BRAKE ON
42
(350)
SM400
Always ON
L100
EMERGENCY FAULT
M4170
COOLING PUMP READY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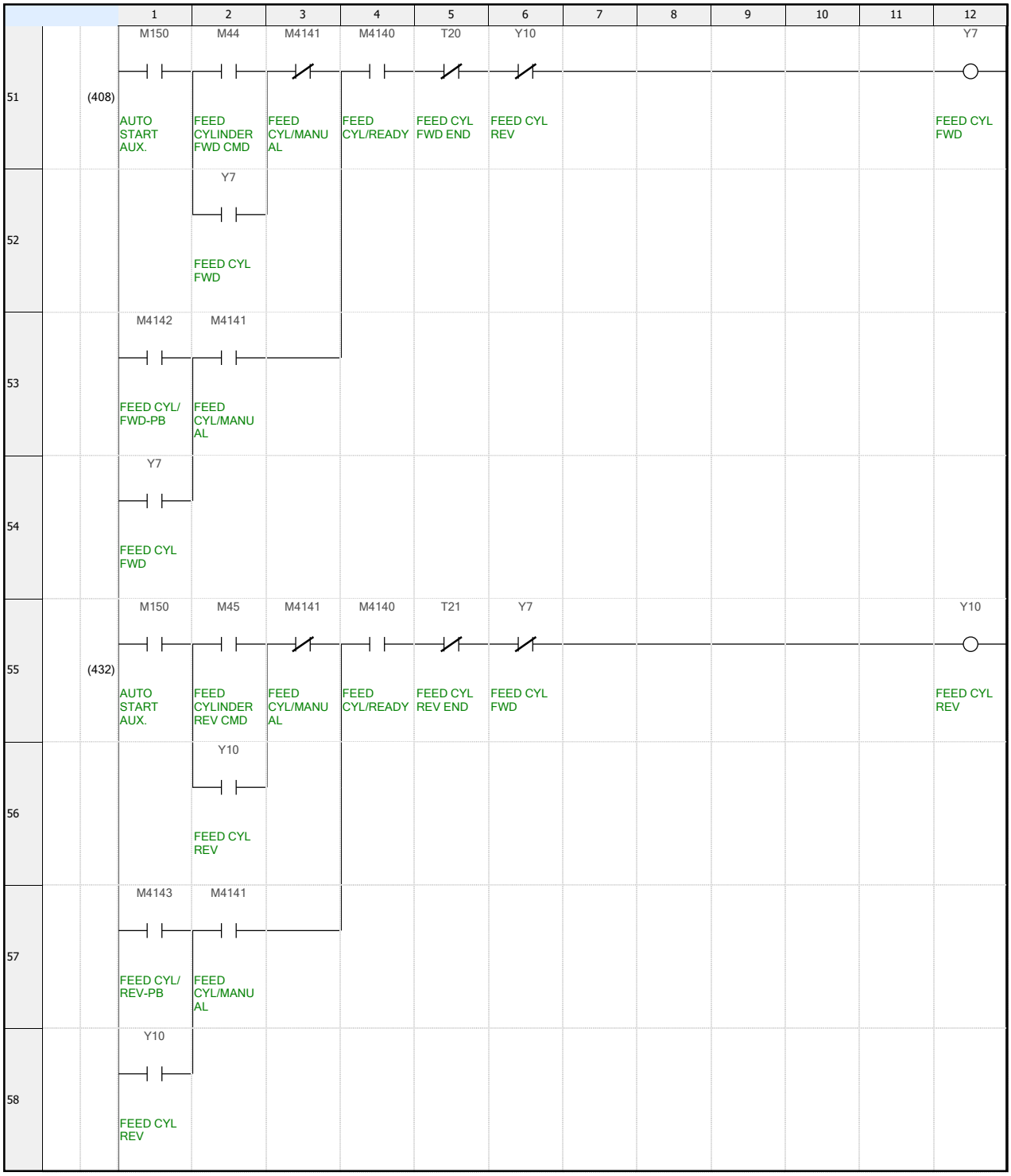
12
43
(356)
M150
AUTO START AUX.
M41
FLUID PUMP RUN CMD
M4171
COOLING PUMP/MANUAL
L50
COOLANT PUMP BYPASS
M132
AUTO MODE SS
M4170
COOLING PUMP READY
Y6
COOLANT PUMP
44
Y6
COOLANT PUMP
45
M4172
COOLING PUMP/START-PB
M4173
COOLING PUMP/STOP-PB
M4171
COOLING PUMP/MANUAL
M132
AUTO MODE SS
46
Y6
COOLANT PUMP
47
(384)
X12
FEED CYL RS FWD
OUT
T20
FEED CYL FWD END
K5
48
Y7
FEED CYL FWD
49
(393)
X13
FEED CYL RS REV
OUT
T21
FEED CYL REV END
K5
50
(400)
L102
FEED CYLINDER TIME OVER
L103
FEED CYLINDER READ SWITCH F...
L100
EMERGENCY FAULT
M4140
FEED CYL/READY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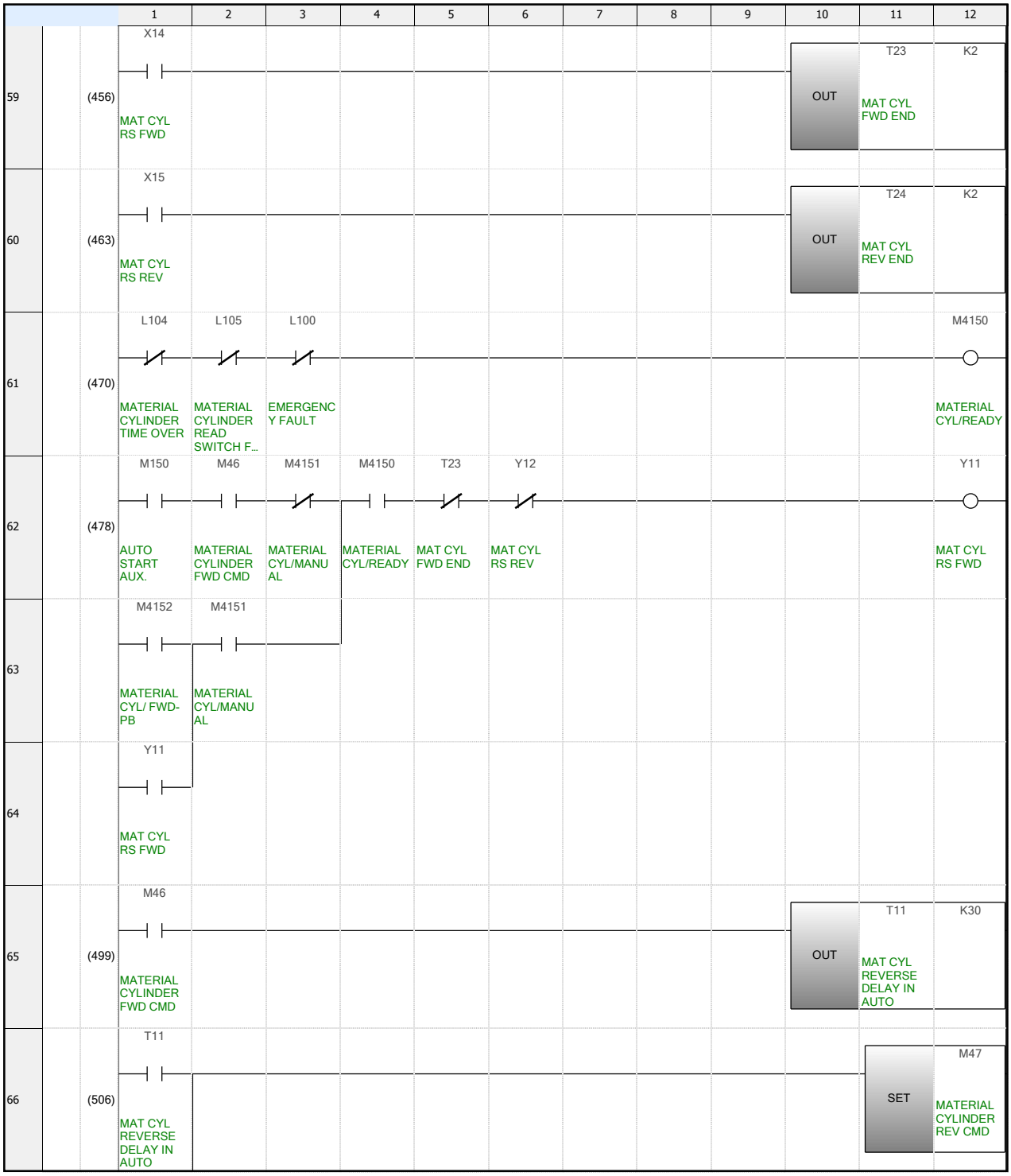
11
12
51
(408)
M150
M44
M4141
M4140
T20
Y10
Y7
AUTO START AUX.
FEED CYLINDER FWD CMD
FEED CYL/MANUAL
FEED CYL/READY
FEED CYL FWD END
FEED CYL REV
FEED CYL FWD
52
Y7
FEED CYL FWD
53
M4142
M4141
FEED CYL/ FWD-PB
FEED CYL/MANUAL
54
Y7
FEED CYL FWD
55
(432)
M150
M45
M4141
M4140
T21
Y7
Y10
AUTO START AUX.
FEED CYLINDER REV CMD
FEED CYL/MANUAL
FEED CYL/READY
FEED CYL REV END
FEED CYL FWD
FEED CYL REV
56
Y10
FEED CYL REV
57
M4143
M4141
FEED CYL/ REV-PB
FEED CYL/MANUAL
58
Y10
FEED CYL REV


1
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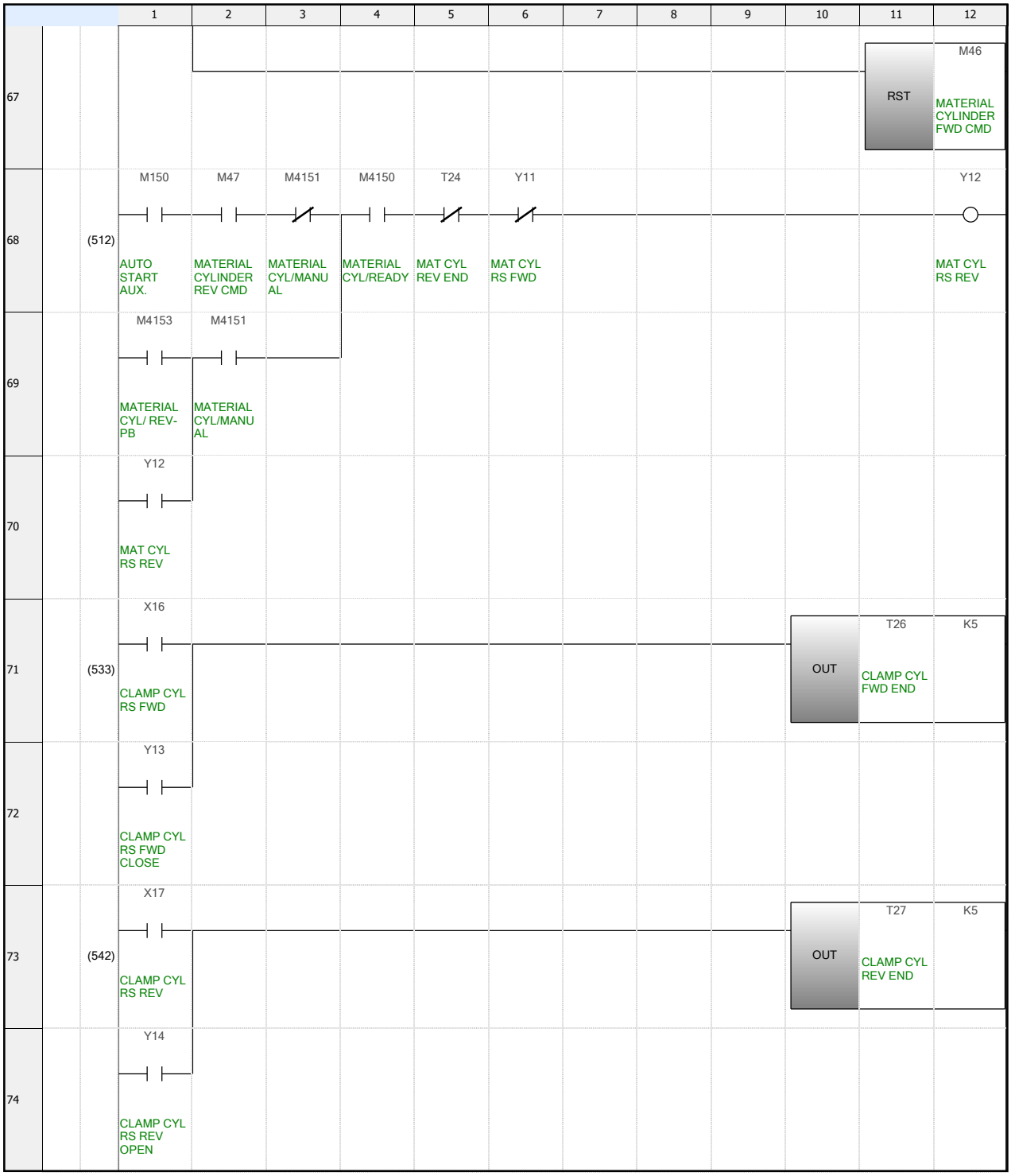
59
(456)
X14
MAT CYL RS FWD
OUT
T23
MAT CYL FWD END
K2
60
(463)
X15
MAT CYL RS REV
OUT
T24
MAT CYL REV END
K2
61
(470)
L104
MATERIAL CYLINDER TIME OVER
L105
MATERIAL CYLINDER READ SWITCH F…
L100
EMERGENCY FAULT
M4150
MATERIAL CYL/READY
62
(478)
M150
AUTO START AUX.
M46
MATERIAL CYLINDER FWD CMD
M4151
MATERIAL CYL/MANUAL
M4150
MATERIAL CYL/READY
T23
MAT CYL FWD END
Y12
MAT CYL RS REV
Y11
MAT CYL RS FWD
63
M4152
MATERIAL CYL/ FWD-PB
M4151
MATERIAL CYL/MANUAL
64
Y11
MAT CYL RS FWD
65
(499)
M46
MATERIAL CYLINDER FWD CMD
OUT
T11
MAT CYL REVERSE DELAY IN AUTO
K30
66
(506)
T11
MAT CYL REVERSE DELAY IN AUTO
SET
M47
MATERIAL CYLINDER REV CMD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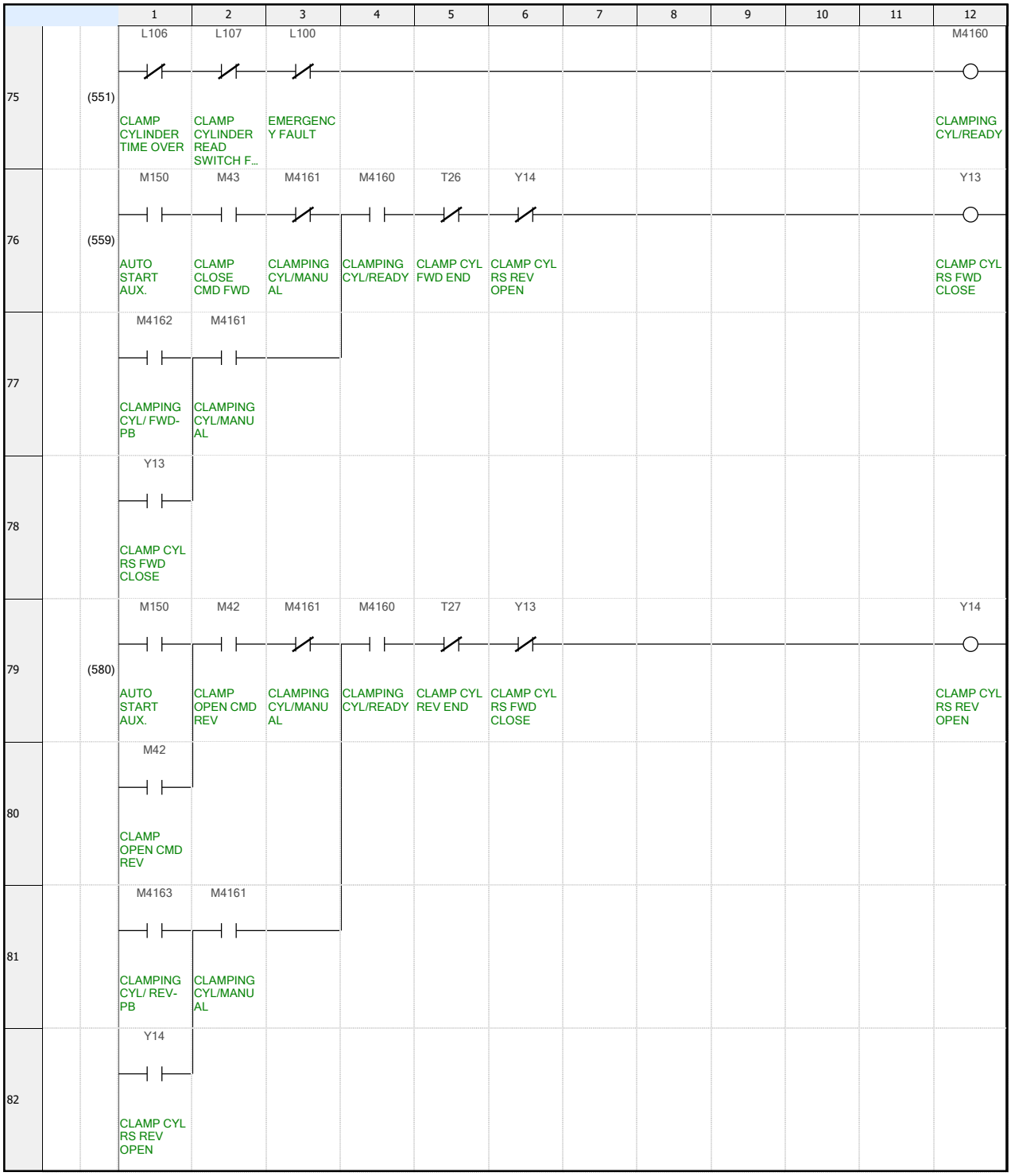
12
67
RST
M46
MATERIAL CYLINDER FWD CMD
68
(512)
M150
AUTO START AUX.
M47
MATERIAL CYLINDER REV CMD
M4151
MATERIAL CYL/MANUAL
M4150
MATERIAL CYL/READY
T24
MAT CYL REV END
Y11
MAT CYL RS FWD
Y12
MAT CYL RS REV
69
M4153
MATERIAL CYL/ REV-PB
M4151
MATERIAL CYL/MANUAL
70
Y12
MAT CYL RS REV
71
(533)
X16
CLAMP CYL RS FWD
OUT
T26
CLAMP CYL FWD END
K5
72
Y13
CLAMP CYL RS FWD CLOSE
73
(542)
X17
CLAMP CYL RS REV
OUT
T27
CLAMP CYL REV END
K5
74
Y14
CLAMP CYL RS REV OPEN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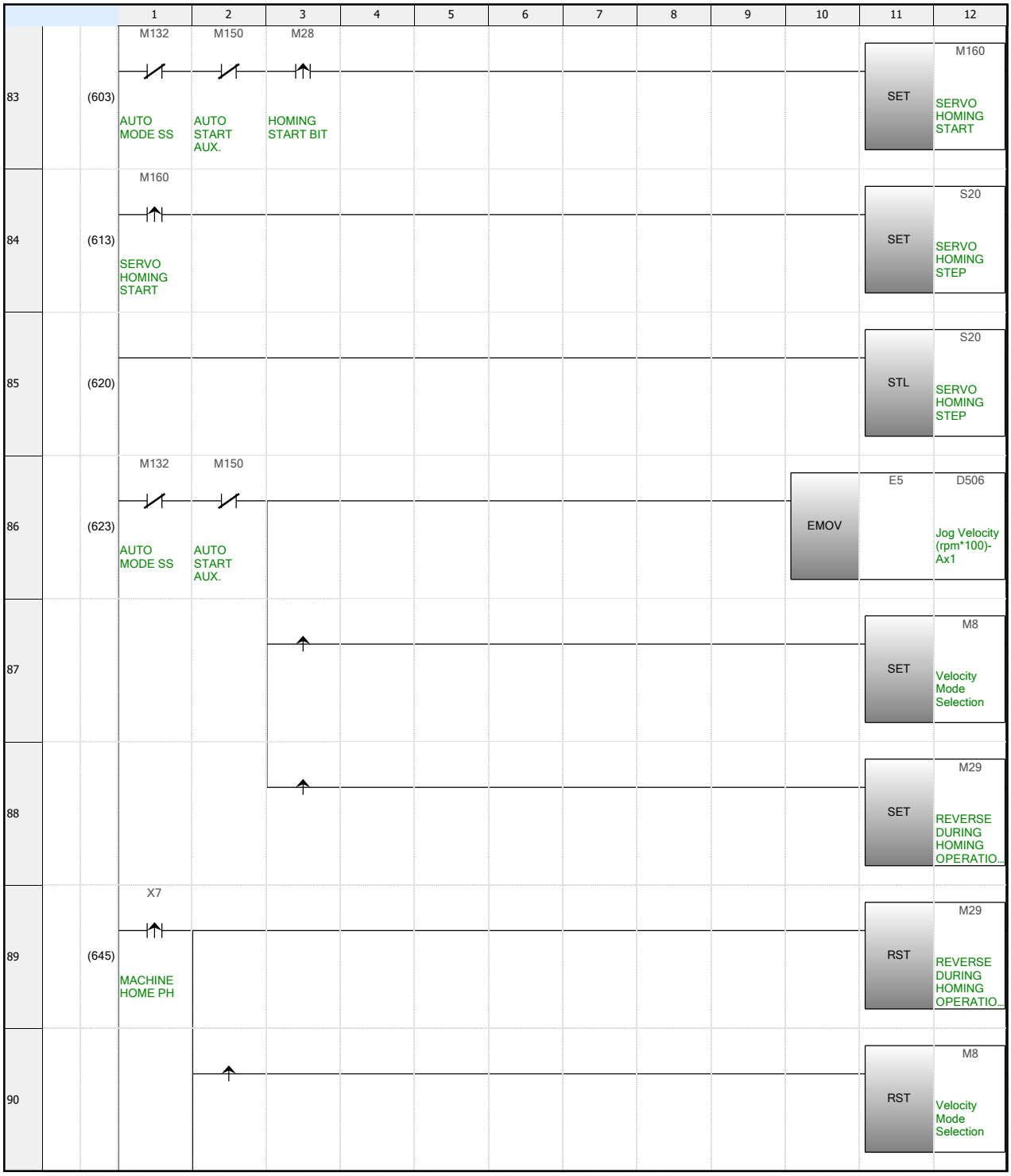
11
12
75
(551)
L106
L107
L100
M4160
CLAMP CYLINDER TIME OVER
CLAMP CYLINDER READ SWITCH F...
EMERGENCY FAULT
CLAMPING CYL/READY
76
(559)
M150
M43
M4161
M4160
T26
Y14
Y13
AUTO START AUX.
CLAMP CLOSE CMD FWD
CLAMPING CYL/MANUAL
CLAMPING CYL/READY
CLAMP CYL FWD END
CLAMP CYL RS REV OPEN
CLAMP CYL RS FWD CLOSE
77
M4162
M4161
CLAMPING CYL/ FWD-PB
CLAMPING CYL/MANUAL
78
Y13
CLAMP CYL RS FWD CLOSE
79
(580)
M150
M42
M4161
M4160
T27
Y13
Y14
AUTO START AUX.
CLAMP OPEN CMD REV
CLAMPING CYL/MANUAL
CLAMPING CYL/READY
CLAMP CYL REV END
CLAMP CYL RS FWD CLOSE
CLAMP CYL RS REV OPEN
80
M42
CLAMP OPEN CMD REV
81
M4163
M4161
CLAMPING CYL/ REV-PB
CLAMPING CYL/MANUAL
82
Y14
CLAMP CYL RS REV OPEN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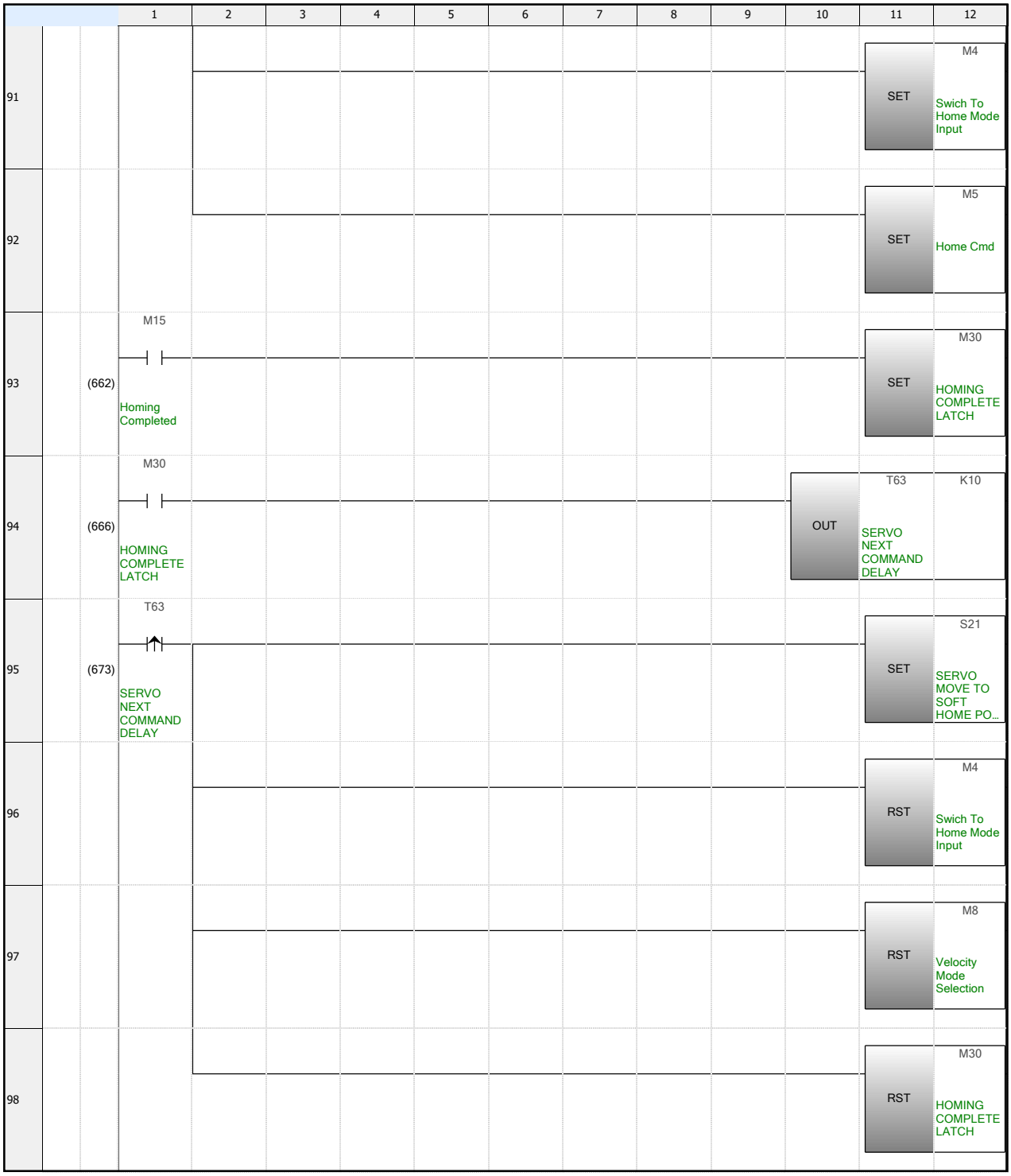
11
12
83
(603)
M132
AUTO MODE SS
M150
AUTO START AUX.
M28
HOMING START BIT
SET
M160
SERVO HOMING START
84
(613)
M160
SERVO HOMING START
SET
S20
SERVO HOMING STEP
85
(620)
STL
S20
SERVO HOMING STEP
86
(623)
M132
AUTO MODE SS
M150
AUTO START AUX.
EMOV
E5
D506
Jog Velocity (rpm*100)-Ax1
87
SET
M8
Velocity Mode Selection
88
SET
M29
REVERSE DURING HOMING OPERATIO...
89
(645)
X7
MACHINE HOME PH
RST
M29
REVERSE DURING HOMING OPERATIO...
90
RST
M8
Velocity Mode Selection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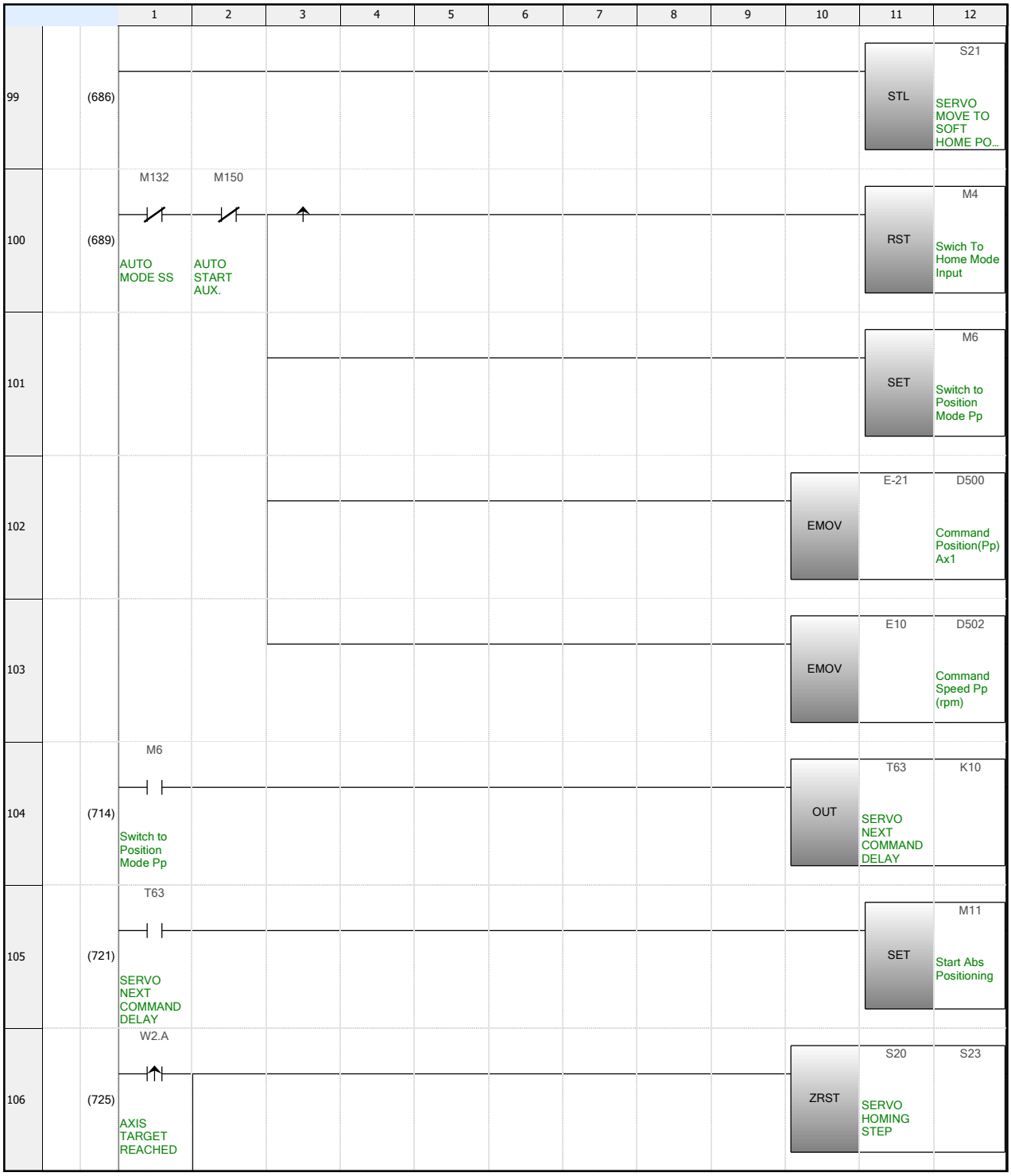
11
12
91
SET
M4
Swich To Home Mode Input
92
SET
M5
Home Cmd
93
M15
(662)
Homing Completed
SET
M30
HOMING COMPLETE LATCH
94
M30
(666)
HOMING COMPLETE LATCH
OUT
T63
SERVO NEXT COMMAND DELAY
K10
95
T63
(673)
SERVO NEXT COMMAND DELAY
SET
S21
SERVO MOVE TO SOFT HOME PO...
96
RST
M4
Swich To Home Mode Input
97
RST
M8
Velocity Mode Selection
98
RST
M30
HOMING COMPLETE LATCH


1
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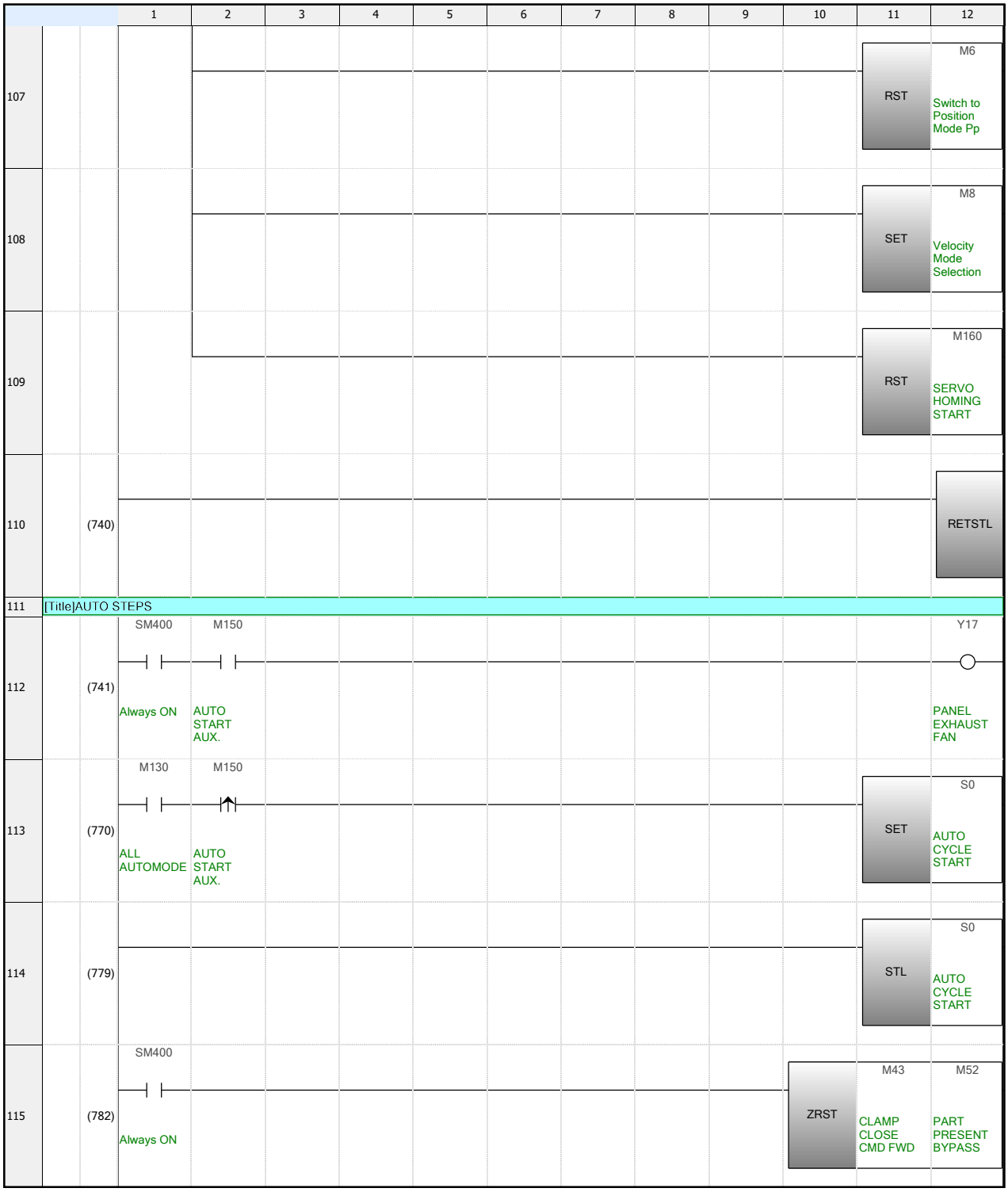
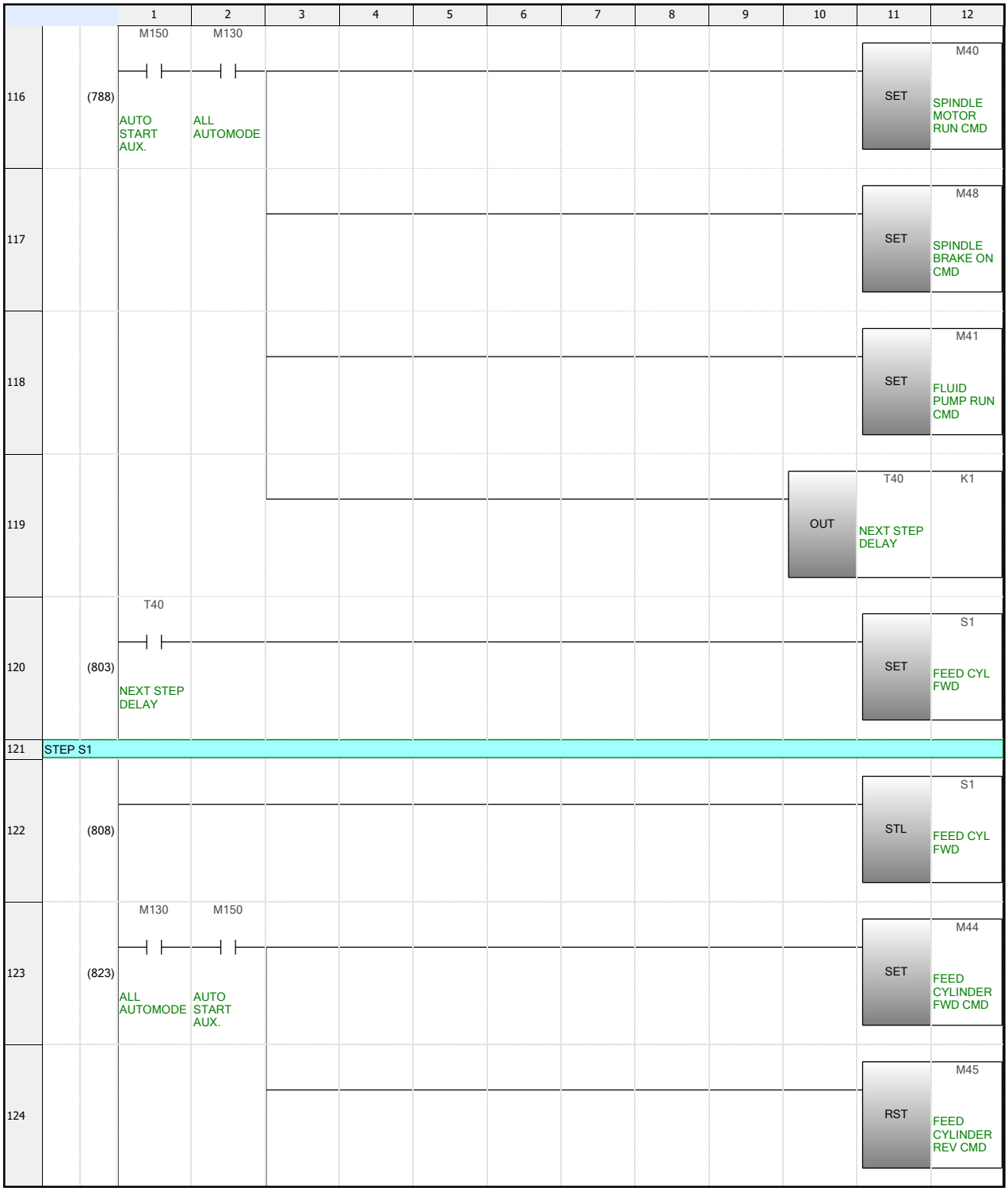
11
12
99
(686)
STL
S21
SERVO MOVE TO SOFT HOME PO...
100
(689)
M132
AUTO MODE SS
M150
AUTO START AUX.
RST
M4
Swich To Home Mode Input
101
SET
M6
Switch to Position Mode Pp
102
EMOV
E-21
D500
Command Position(Pp) Ax1
103
EMOV
E10
D502
Command Speed Pp (rpm)
104
(714)
M6
Switch to Position Mode Pp
OUT
T63
SERVO NEXT COMMAND DELAY
K10
105
(721)
T63
SERVO NEXT COMMAND DELAY
SET
M11
Start Abs Positioning
106
(725)
W2.A
AXIS TARGET REACHED
ZRST
S20
SERVO HOMING STEP
S23


1 2 3 4 5 6 7 8 9 10 11 12
107
RST
M6
Switch to Position Mode Pp
108
SET
M8
Velocity Mode Selection
109
RST
M160
SERVO HOMING START
110
(740)
RETSTL
111
[Title]AUTO STEPS
112
(741)
SM400
Always ON
M150
AUTO START AUX.
Y17
PANEL EXHAUST FAN
113
(770)
M130
ALL AUTOMODE
M150
AUTO START AUX.
SET
S0
AUTO CYCLE START
114
(779)
STL
S0
AUTO CYCLE START
115
(782)
SM400
Always ON
ZRST
M43
CLAMP CLOSE CMD FWD
M52
PART PRESENT BYPASS


1
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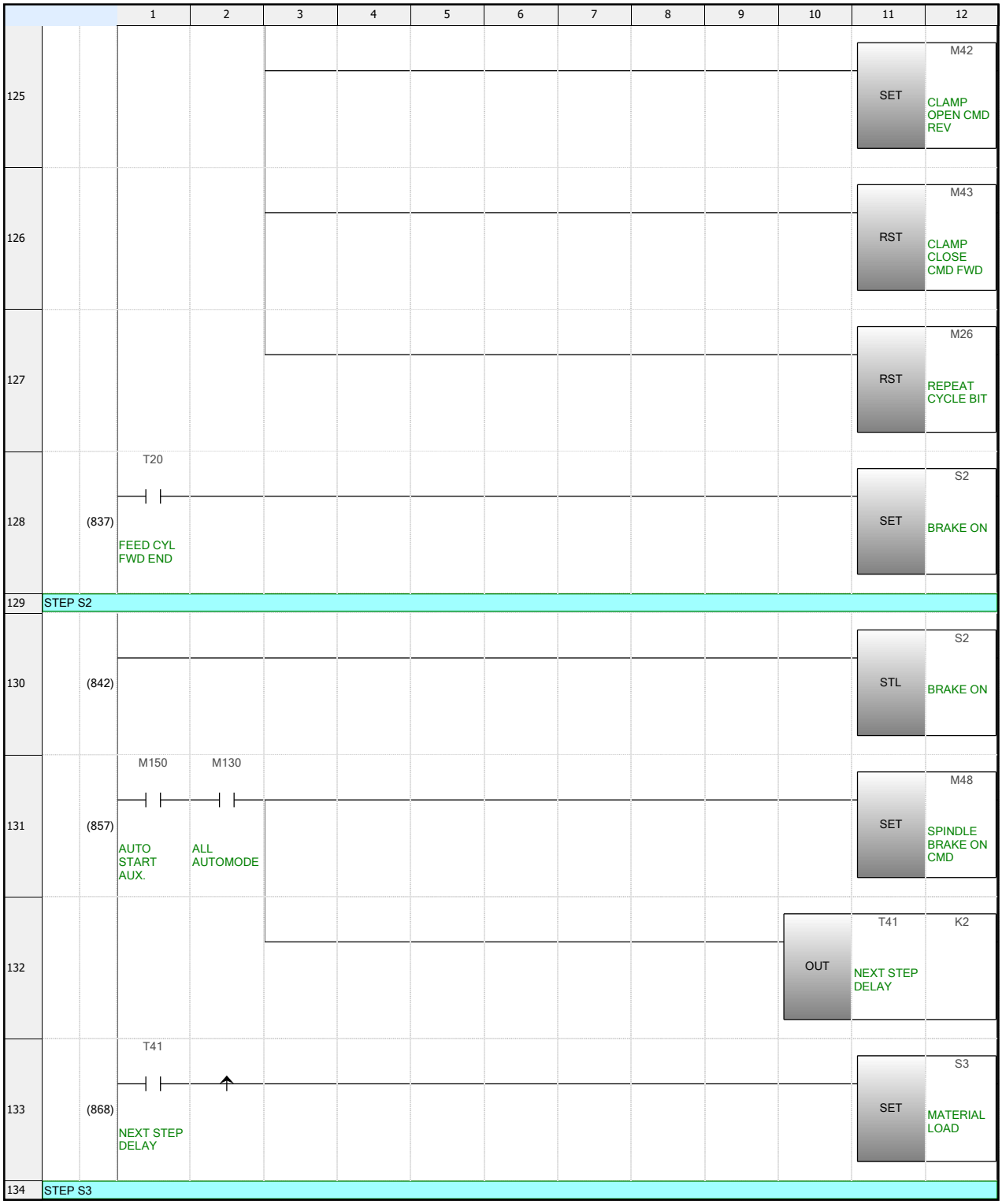
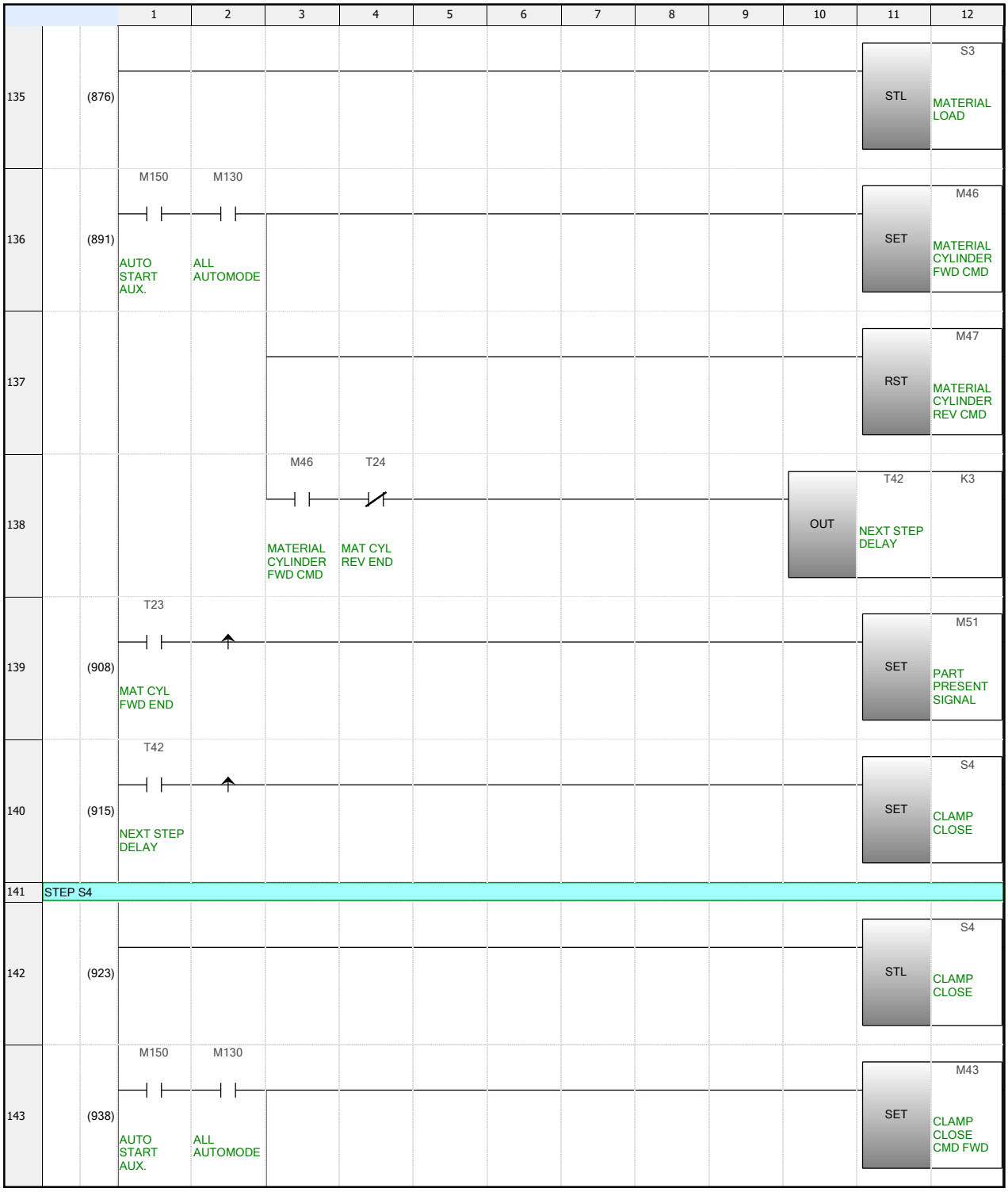
10
11
12
116
(788)
M150
AUTO START AUX.
M130
ALL AUTOMODE
SET
M40
SPINDLE MOTOR RUN CMD
117
SET
M48
SPINDLE BRAKE ON CMD
118
SET
M41
FLUID PUMP RUN CMD
119
OUT
T40
NEXT STEP DELAY
K1
120
(803)
T40
NEXT STEP DELAY
SET
S1
FEED CYL FWD
121
STEP S1
122
(808)
STL
S1
FEED CYL FWD
123
(823)
M130
ALL AUTOMODE
M150
AUTO START AUX.
SET
M44
FEED CYLINDER FWD CMD
124
RST
M45
FEED CYLINDER REV CMD


1 2 3 4 5 6 7 8 9 10 11 12
125
SET
M42
CLAMP OPEN CMD REV
126
RST
M43
CLAMP CLOSE CMD FWD
127
RST
M26
REPEAT CYCLE BIT
128
T20
(837)
FEED CYL FWD END
SET
S2
BRAKE ON
129
STEP S2
130
(842)
STL
S2
BRAKE ON
131
M150
M130
(857)
AUTO START AUX.
ALL AUTOMODE
SET
M48
SPINDLE BRAKE ON CMD
132
OUT
T41
NEXT STEP DELAY
K2
133
T41
(868)
NEXT STEP DELAY
SET
S3
MATERIAL LOAD
134
STEP S3


1
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9
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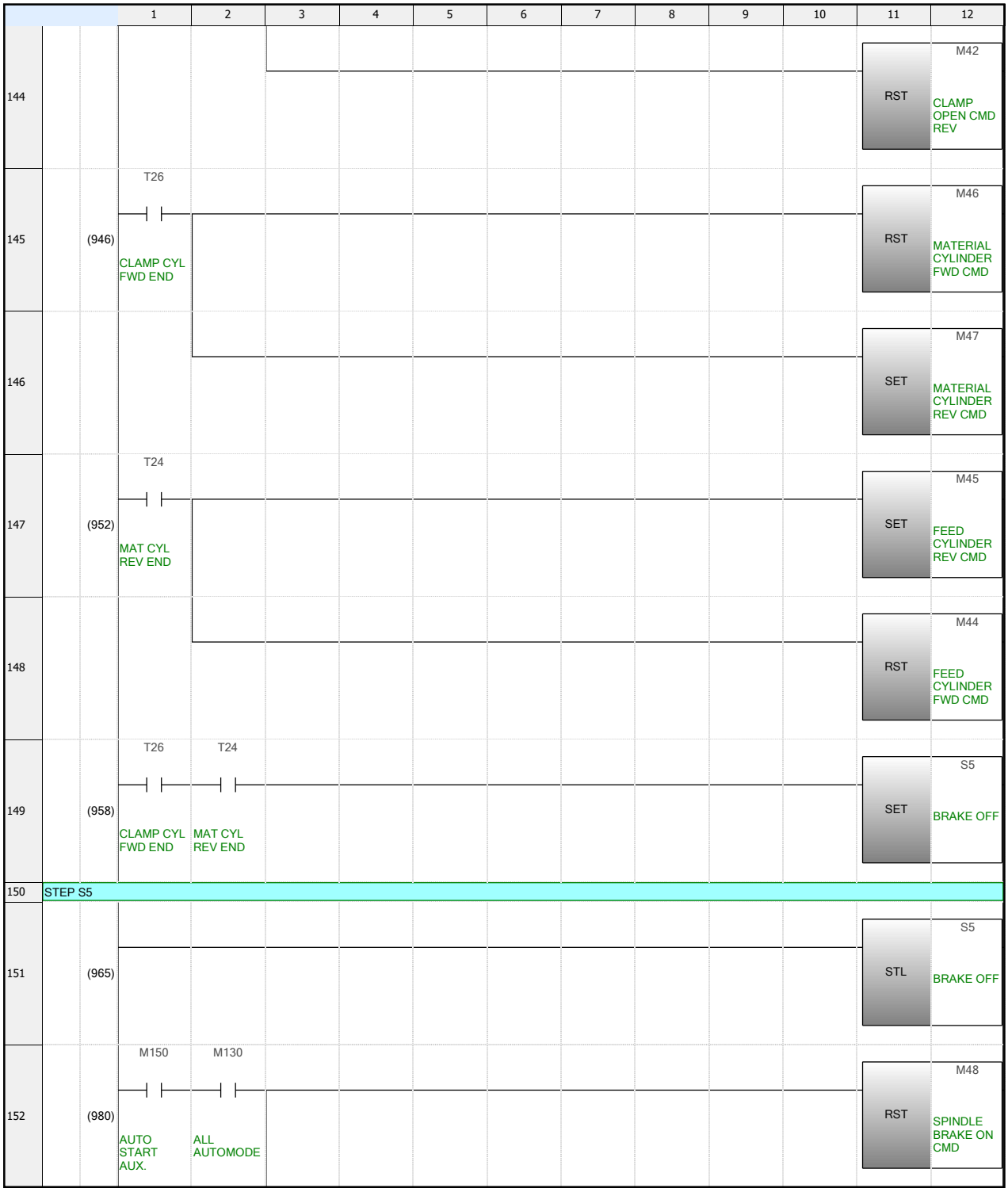
11
12
135
(876)
STL
S3
MATERIAL LOAD
136
(891)
M150
AUTO START AUX.
M130
ALL AUTOMODE
SET
M46
MATERIAL CYLINDER FWD CMD
137
RST
M47
MATERIAL CYLINDER REV CMD
138
M46
MATERIAL CYLINDER FWD CMD
T24
MAT CYL REV END
OUT
T42
NEXT STEP DELAY
K3
139
(908)
T23
MAT CYL FWD END
SET
M51
PART PRESENT SIGNAL
140
(915)
T42
NEXT STEP DELAY
SET
S4
CLAMP CLOSE
141
STEP S4
142
(923)
STL
S4
CLAMP CLOSE
143
(938)
M150
AUTO START AUX.
M130
ALL AUTOMODE
SET
M43
CLAMP CLOSE CMD FWD


1
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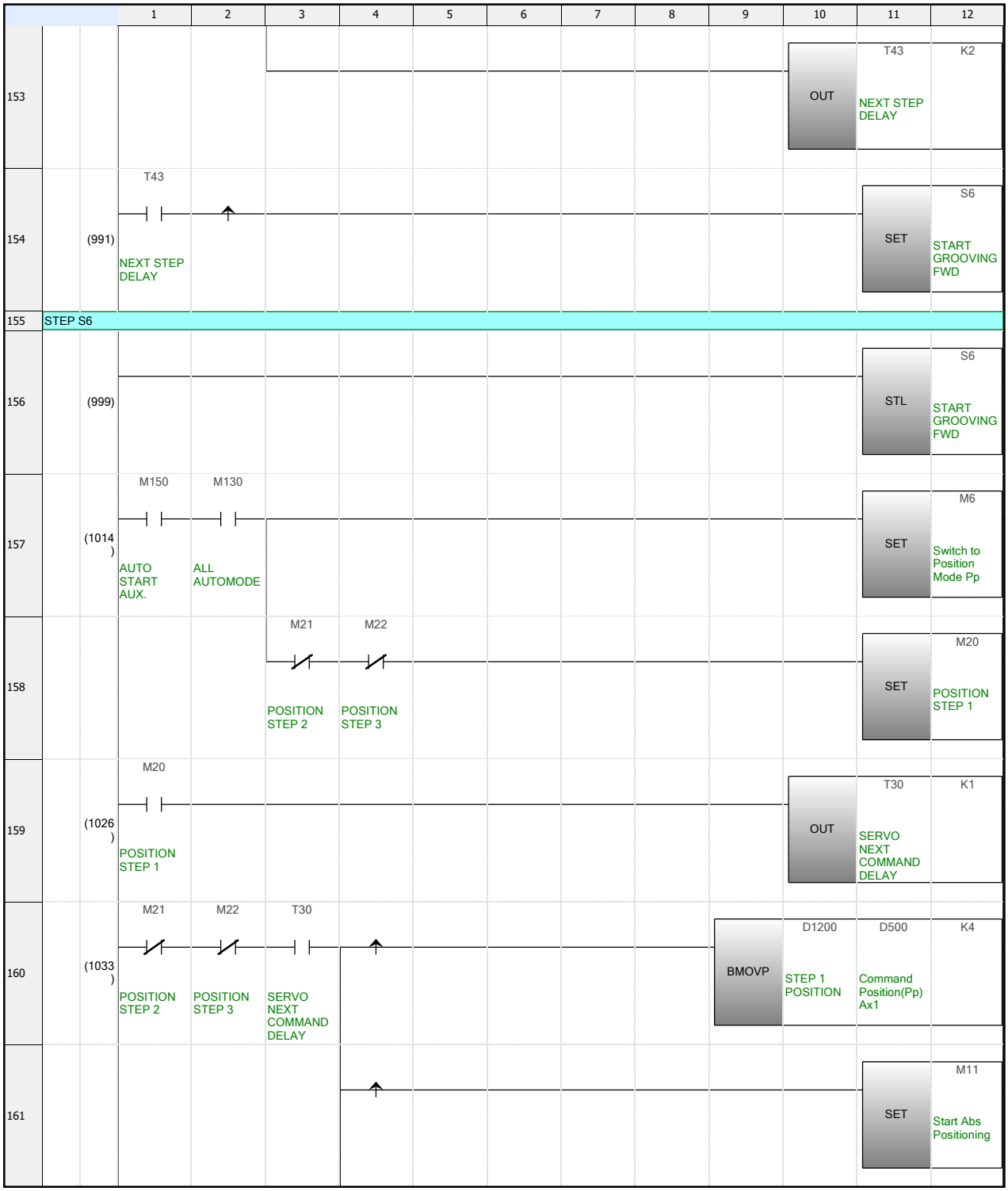
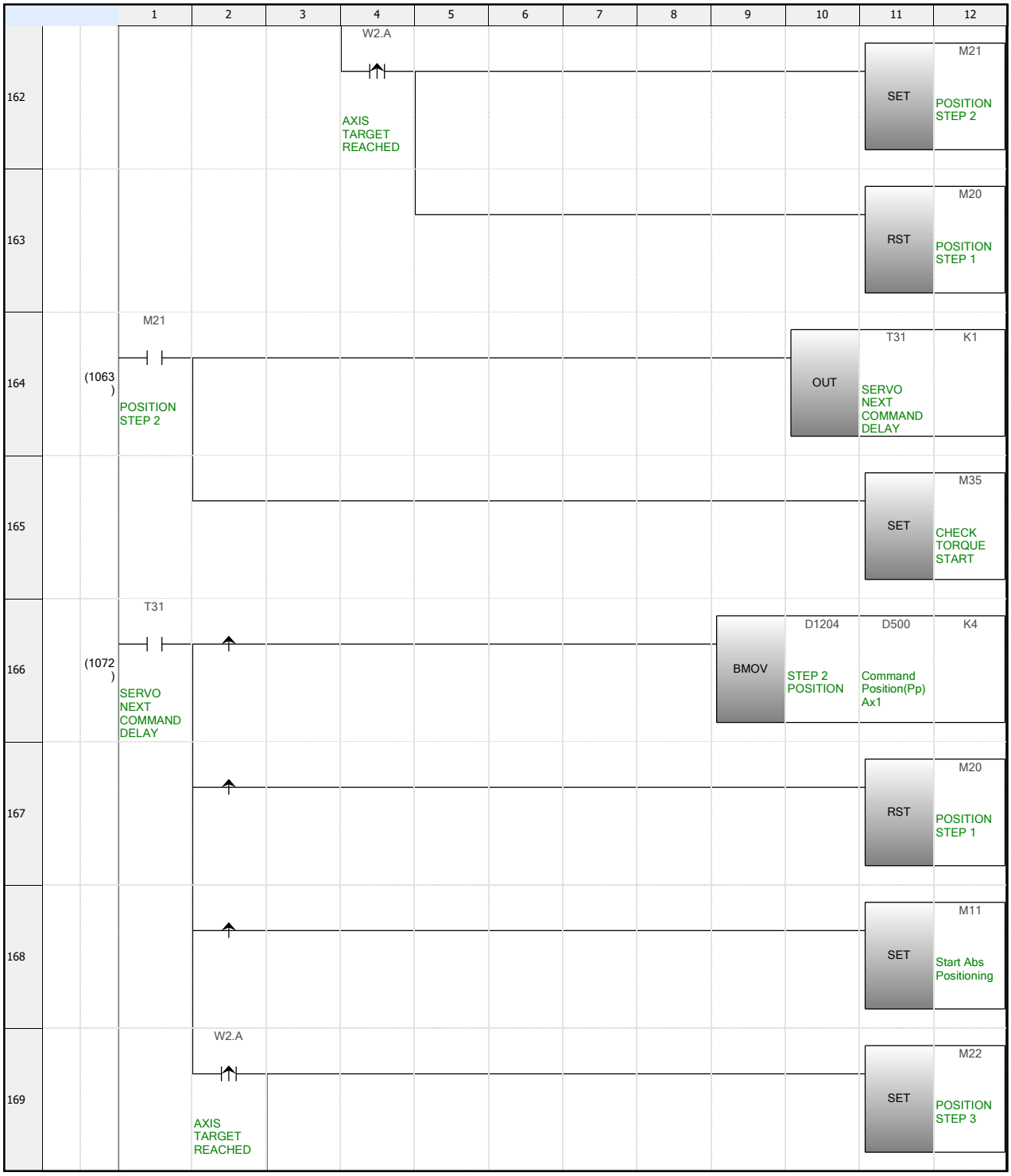
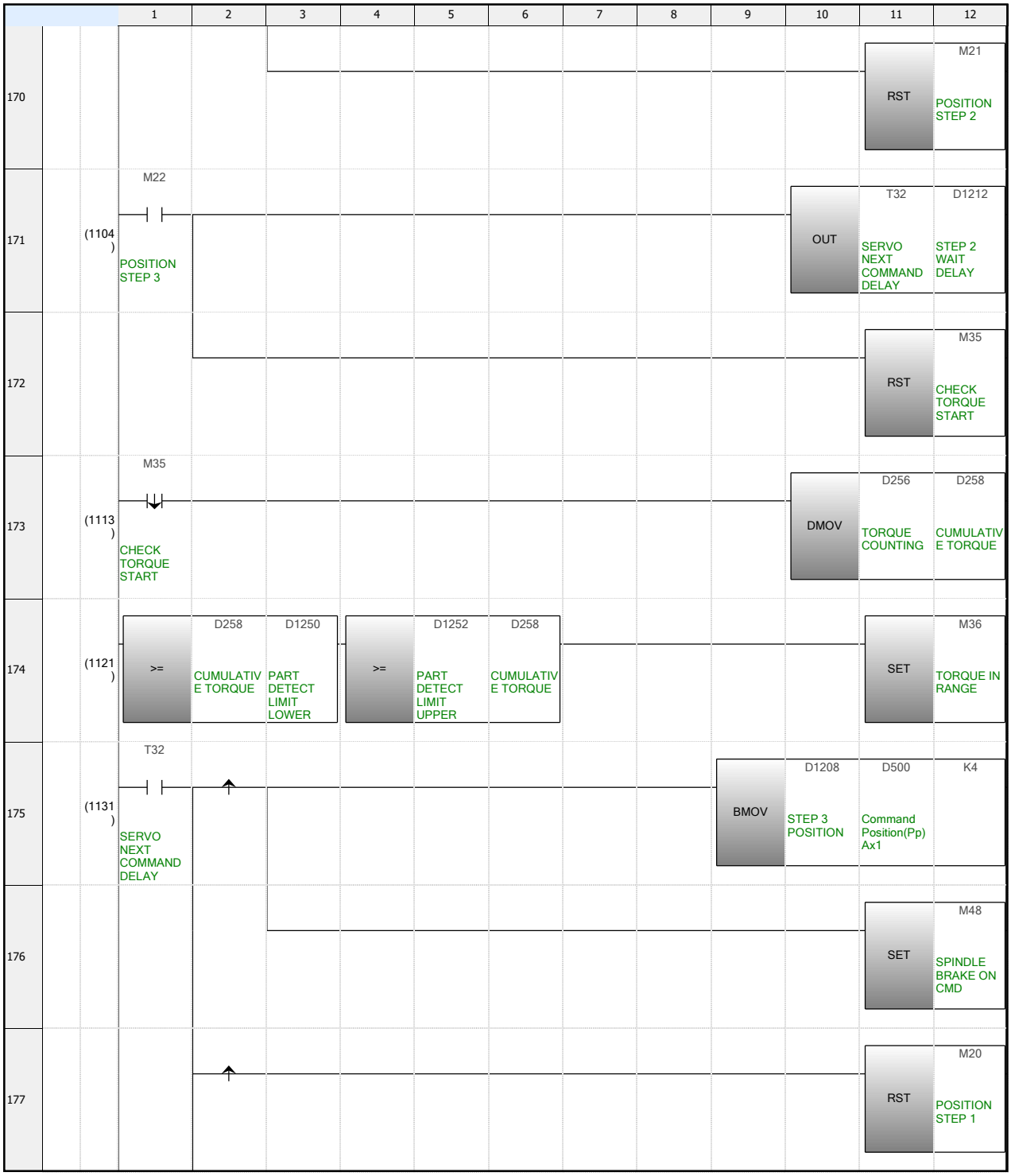
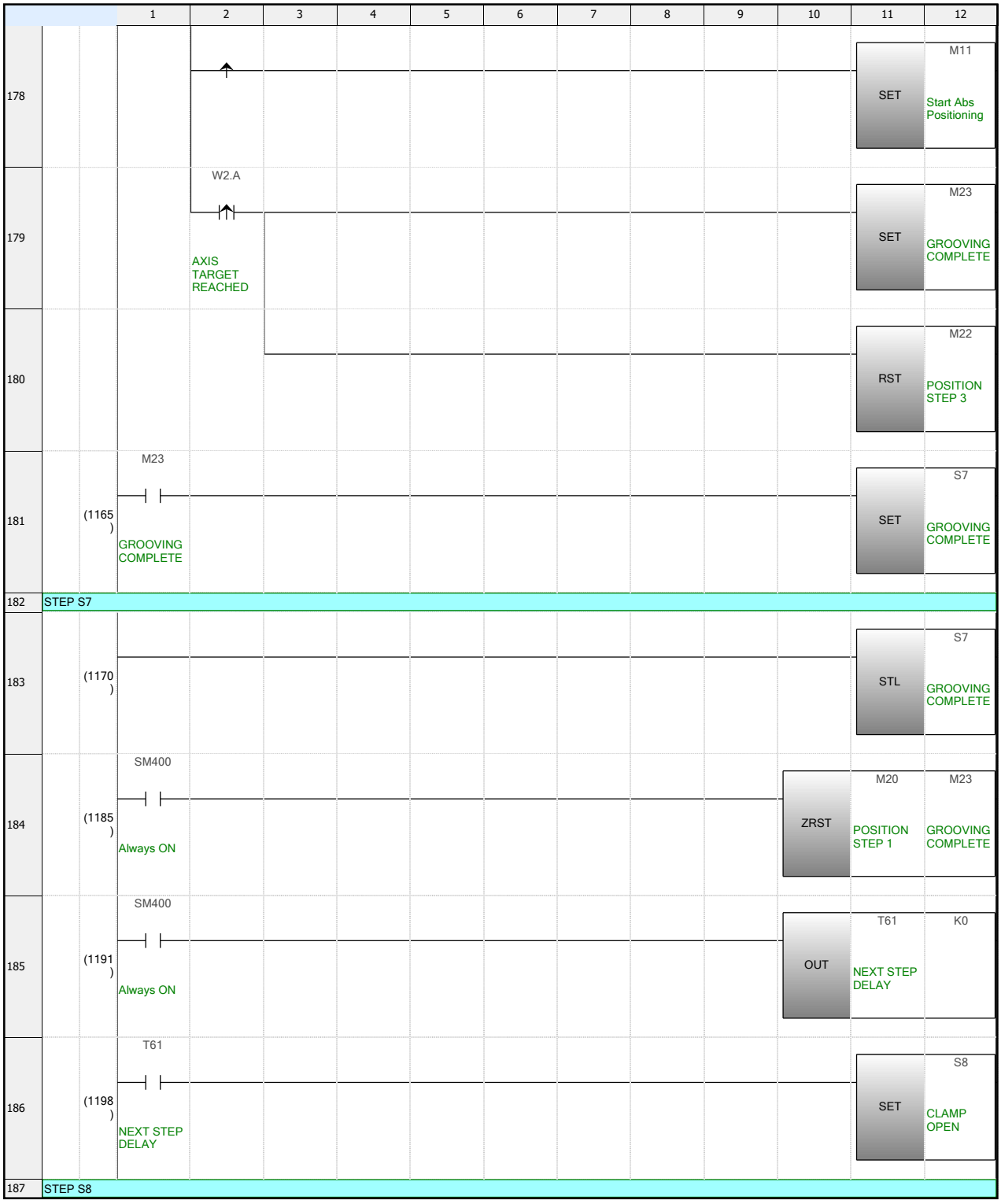
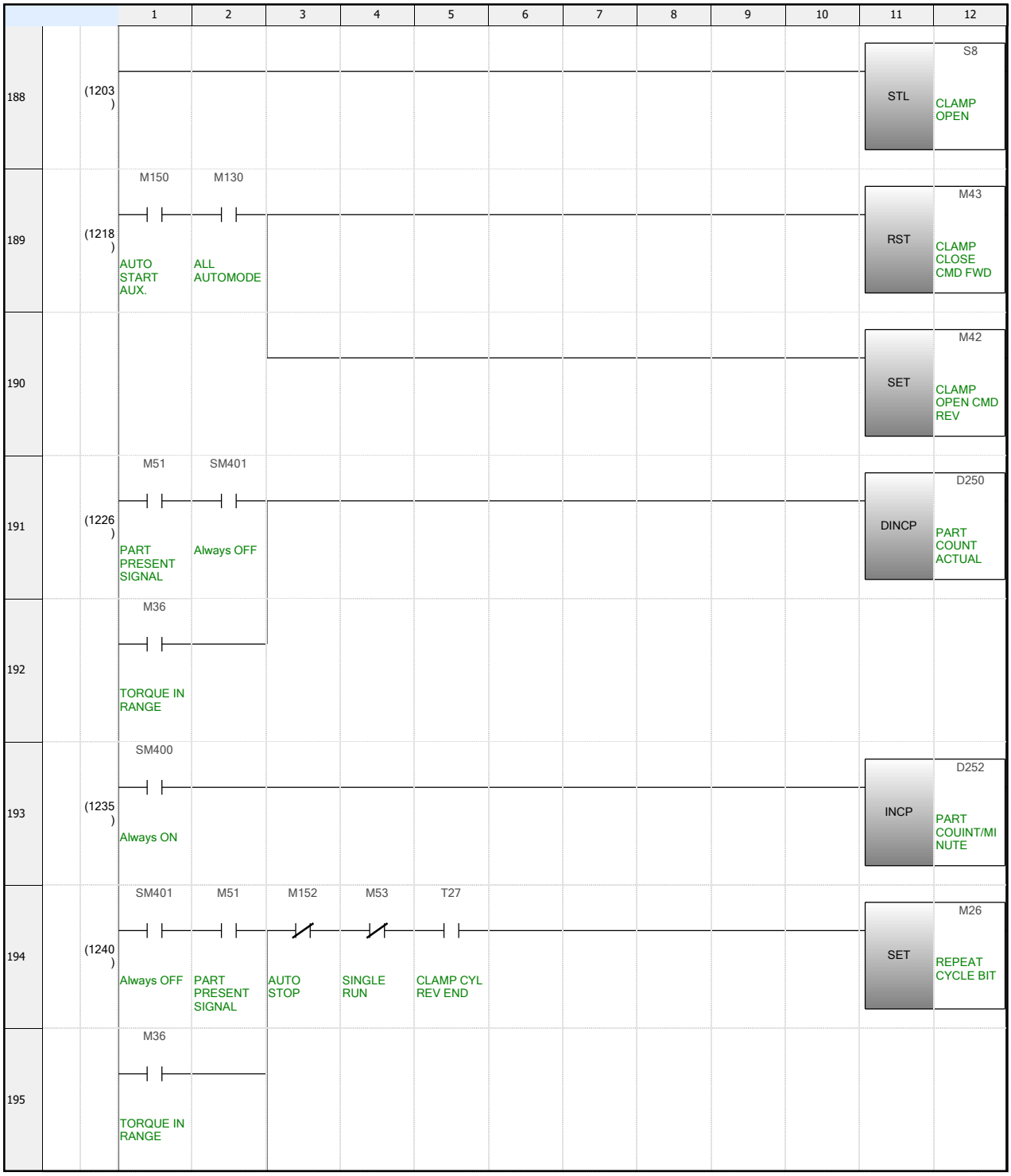
9
10
11
12
144
RST
M42
CLAMP OPEN CMD REV
145
T26
(946)
CLAMP CYL FWD END
RST
M46
MATERIAL CYLINDER FWD CMD
146
SET
M47
MATERIAL CYLINDER REV CMD
147
T24
(952)
MAT CYL REV END
SET
M45
FEED CYLINDER REV CMD
148
RST
M44
FEED CYLINDER FWD CMD
149
T26
T24
(958)
CLAMP CYL FWD END
MAT CYL REV END
SET
S5
BRAKE OFF
150
STEP S5
151
(965)
STL
S5
BRAKE OFF
152
M150
M130
(980)
AUTO START AUX.
ALL AUTOMODE
RST
M48
SPINDLE BRAKE ON CMD

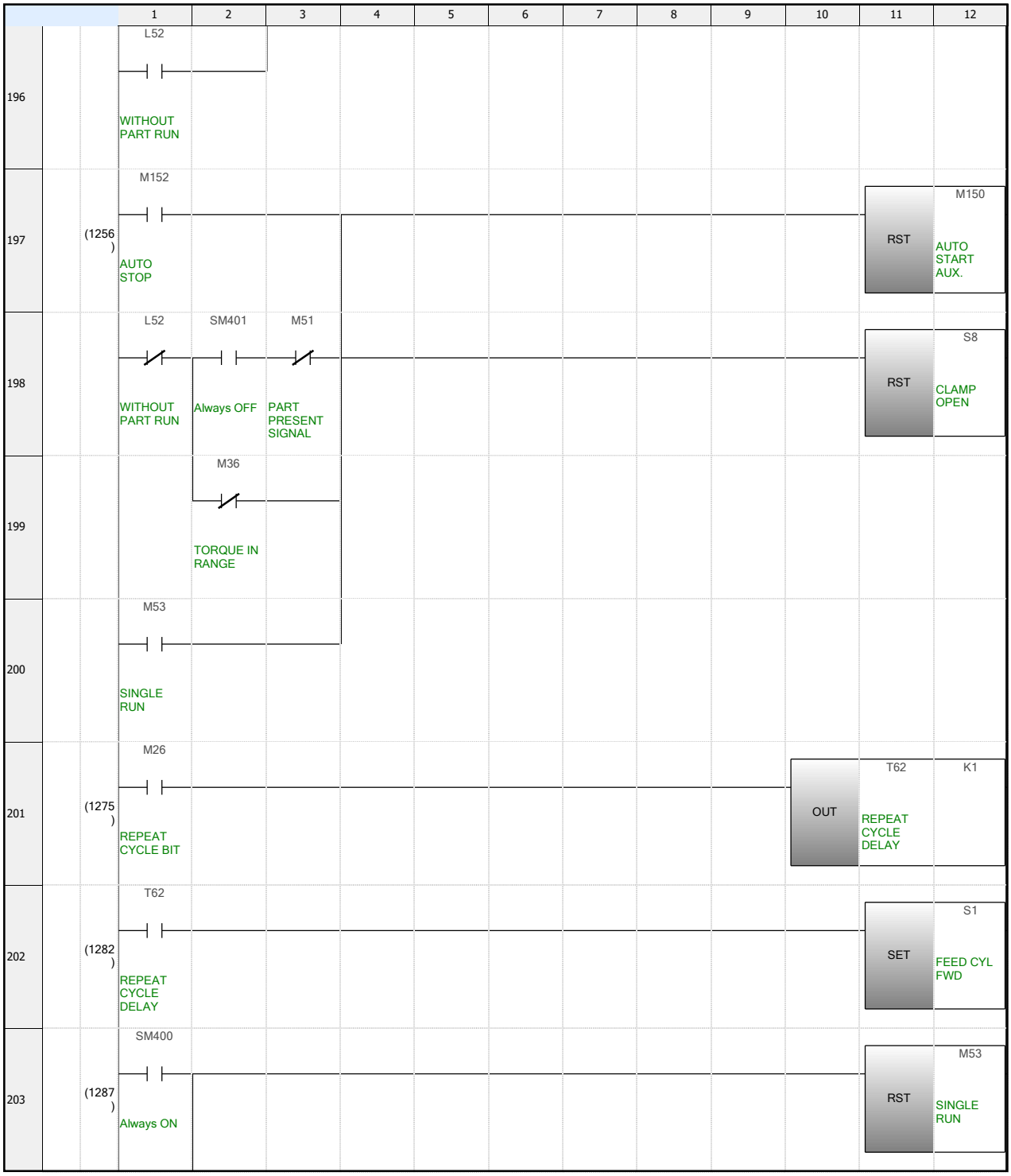

1 2 3 4 5 6 7 8 9 10 11 12
153
OUT
T43
NEXT STEP DELAY
K2
154
T43
(991)
NEXT STEP DELAY
SET
S6
START GROOVING FWD
155
STEP S6
156
(999)
STL
S6
START GROOVING FWD
157
M150
M130
(1014)
AUTO START AUX.
ALL AUTOMODE
SET
M6
Switch to Position Mode Pp
158
M21
M22
POSITION STEP 2
POSITION STEP 3
SET
M20
POSITION STEP 1
159
M20
(1026)
POSITION STEP 1
OUT
T30
SERVO NEXT COMMAND DELAY
K1
160
M21
M22
T30
(1033)
POSITION STEP 2
POSITION STEP 3
SERVO NEXT COMMAND DELAY
BMOVP
D1200
STEP 1 POSITION
D500
Command Position(Pp) Ax1
K4
161
SET
M11
Start Abs Positioning

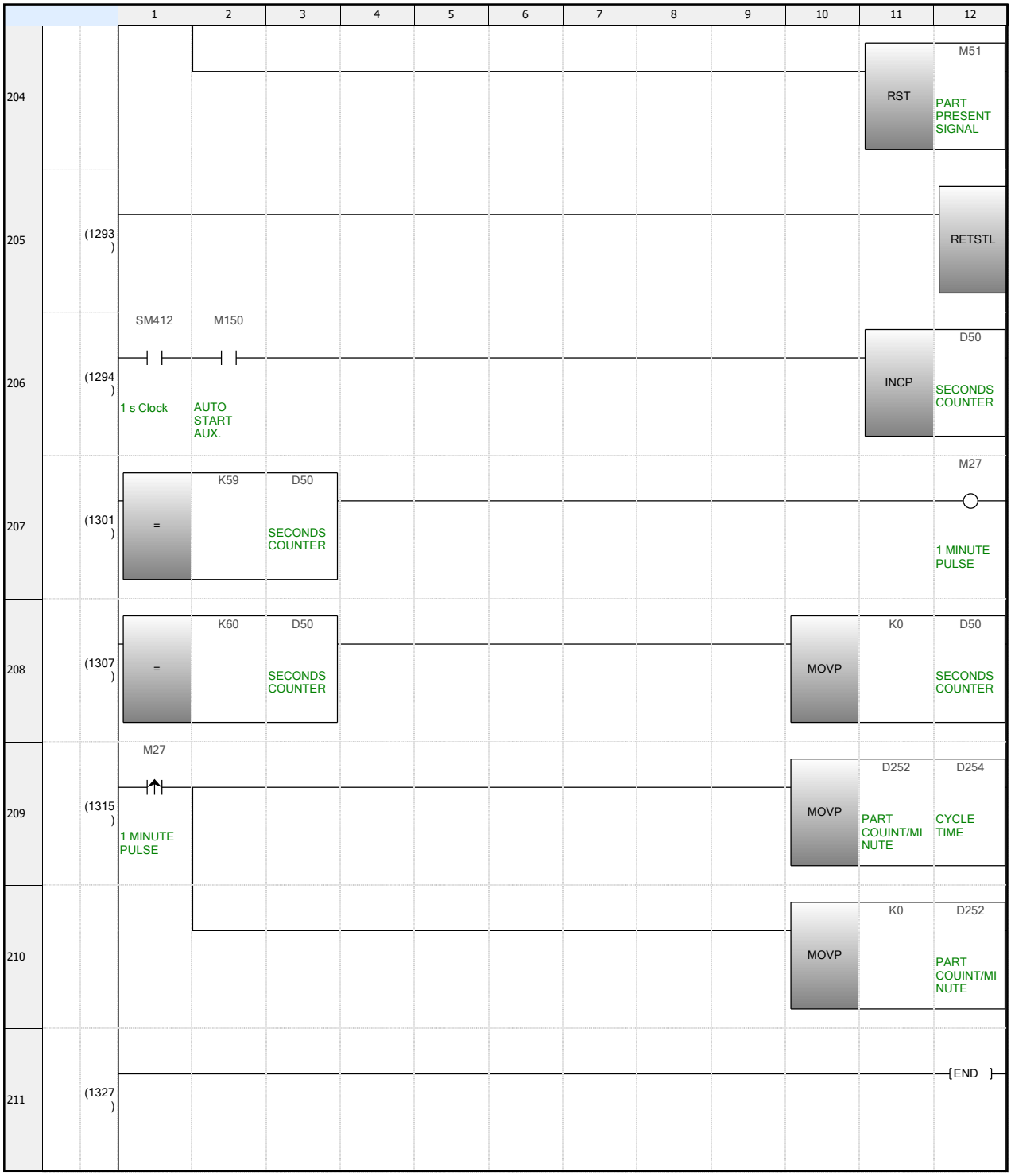

1
2
3
4
5
6
7
8
9
10
11
12
162
W2.A
AXIS TARGET REACHED
SET
M21
POSITION STEP 2
163
RST
M20
POSITION STEP 1
164
M21
(1063)
POSITION STEP 2
OUT
T31
K1
SERVO NEXT COMMAND DELAY
165
SET
M35
CHECK TORQUE START
166
T31
(1072)
SERVO NEXT COMMAND DELAY
BMOV
D1204
STEP 2 POSITION
D500
Command Position(Pp) Ax1
K4
167
RST
M20
POSITION STEP 1
168
SET
M11
Start Abs Positioning
169
W2.A
AXIS TARGET REACHED
SET
M22
POSITION STEP 3


1 2 3 4 5 6 7 8 9 10 11 12
170
RST
M21
POSITION STEP 2
171
M22
(1104)
POSITION STEP 3
OUT
T32
SERVO NEXT COMMAND DELAY
D1212
STEP 2 WAIT DELAY
172
RST
M35
CHECK TORQUE START
173
M35
(1113)
CHECK TORQUE START
DMOV
D256
TORQUE COUNTING
D258
CUMULATIVE TORQUE
174
(1121)
>=
D258
CUMULATIVE TORQUE
D1250
PART DETECT LIMIT LOWER
>=
D1252
PART DETECT LIMIT UPPER
D258
CUMULATIVE TORQUE
SET
M36
TORQUE IN RANGE
175
T32
(1131)
SERVO NEXT COMMAND DELAY
BMOV
D1208
STEP 3 POSITION
D500
Command Position(Pp) Ax1
K4
176
SET
M48
SPINDLE BRAKE ON CMD
177
RST
M20
POSITION STEP 1


1
2
3
4
5
6
7
8
9
10
11
12
178
SET
M11
Start Abs Positioning
179
W2.A
AXIS TARGET REACHED
SET
M23
GROOVING COMPLETE
180
RST
M22
POSITION STEP 3
181
M23
(1165)
GROOVING COMPLETE
SET
S7
GROOVING COMPLETE
182
STEP S7
183
(1170)
STL
S7
GROOVING COMPLETE
184
SM400
(1185)
Always ON
ZRST
M20
POSITION STEP 1
M23
GROOVING COMPLETE
185
SM400
(1191)
Always ON
OUT
T61
NEXT STEP DELAY
K0
186
T61
(1198)
NEXT STEP DELAY
SET
S8
CLAMP OPEN
187
STEP S8


1
2
3
4
5
6
7
8
9
10
11
12
188
(1203)
STL
S8
CLAMP OPEN
189
M150
AUTO START AUX.
M130
ALL AUTOMODE
(1218)
RST
M43
CLAMP CLOSE CMD FWD
190
SET
M42
CLAMP OPEN CMD REV
191
M51
PART PRESENT SIGNAL
SM401
Always OFF
(1226)
DINCP
D250
PART COUNT ACTUAL
192
M36
TORQUE IN RANGE
193
SM400
Always ON
(1235)
INCP
D252
PART COUINT/MINUTE
194
SM401
Always OFF
M51
PART PRESENT SIGNAL
M152
AUTO STOP
M53
SINGLE RUN
T27
CLAMP CYL REV END
(1240)
SET
M26
REPEAT CYCLE BIT
195
M36
TORQUE IN RANGE


1
2
3
4
5
6
7
8
9
10
11
12
196
L52
WITHOUT PART RUN
197
M152
(1256)
AUTO STOP
RST
M150
AUTO START AUX.
198
L52
SM401
M51
WITHOUT PART RUN
Always OFF
PART PRESENT SIGNAL
RST
S8
CLAMP OPEN
199
M36
TORQUE IN RANGE
200
M53
SINGLE RUN
201
M26
(1275)
REPEAT CYCLE BIT
OUT
T62
K1
REPEAT CYCLE DELAY
202
T62
(1282)
REPEAT CYCLE DELAY
SET
S1
FEED CYL FWD
203
SM400
(1287)
Always ON
RST
M53
SINGLE RUN


1
2
3
4
5
6
7
8
9
10
11
12
204
RST
M51
PART PRESENT SIGNAL
205
(1293)
RETSTL
206
(1294)
SM412
1 s Clock
M150
AUTO START AUX.
INCP
D50
SECONDS COUNTER
207
(1301)
=
K59
D50
SECONDS COUNTER
M27
1 MINUTE PULSE
208
(1307)
=
K60
D50
SECONDS COUNTER
MOVP
K0
D50
SECONDS COUNTER
209
(1315)
M27
1 MINUTE PULSE
MOVP
D252
PART COUINT/MINUTE
D254
CYCLE TIME
210
MOVP
K0
D252
PART COUINT/MINUTE
211
(1327)
{END }