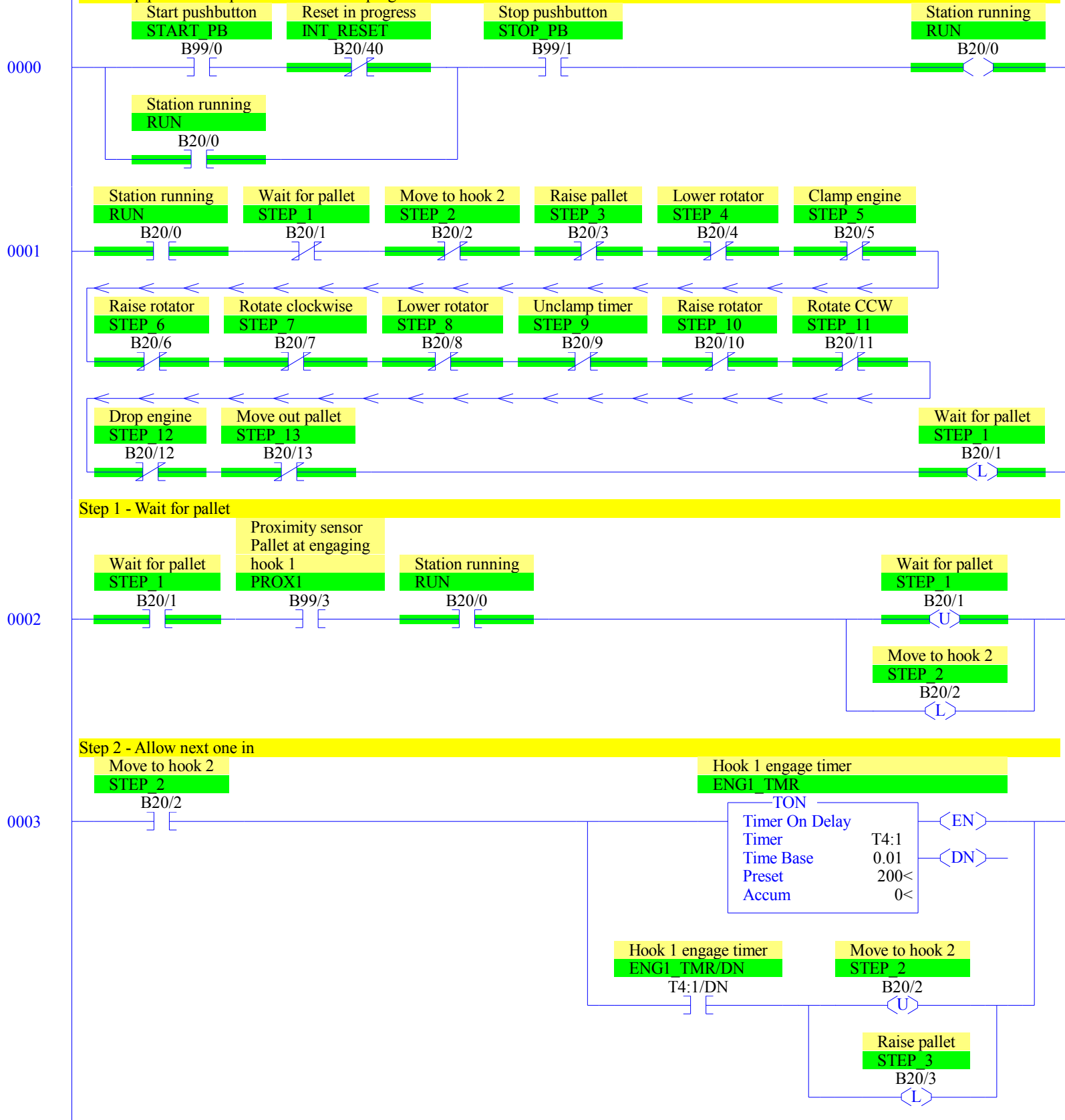
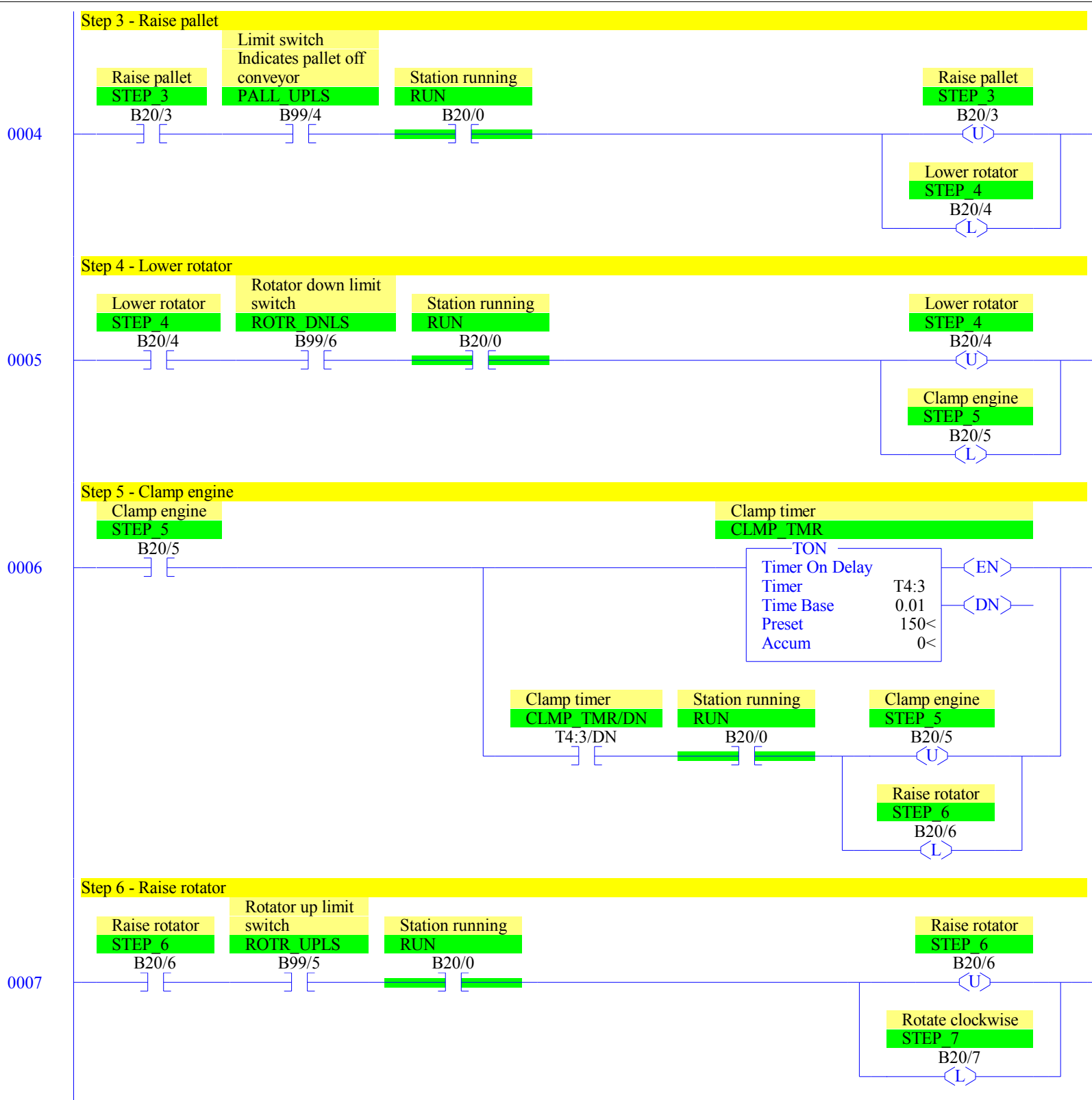


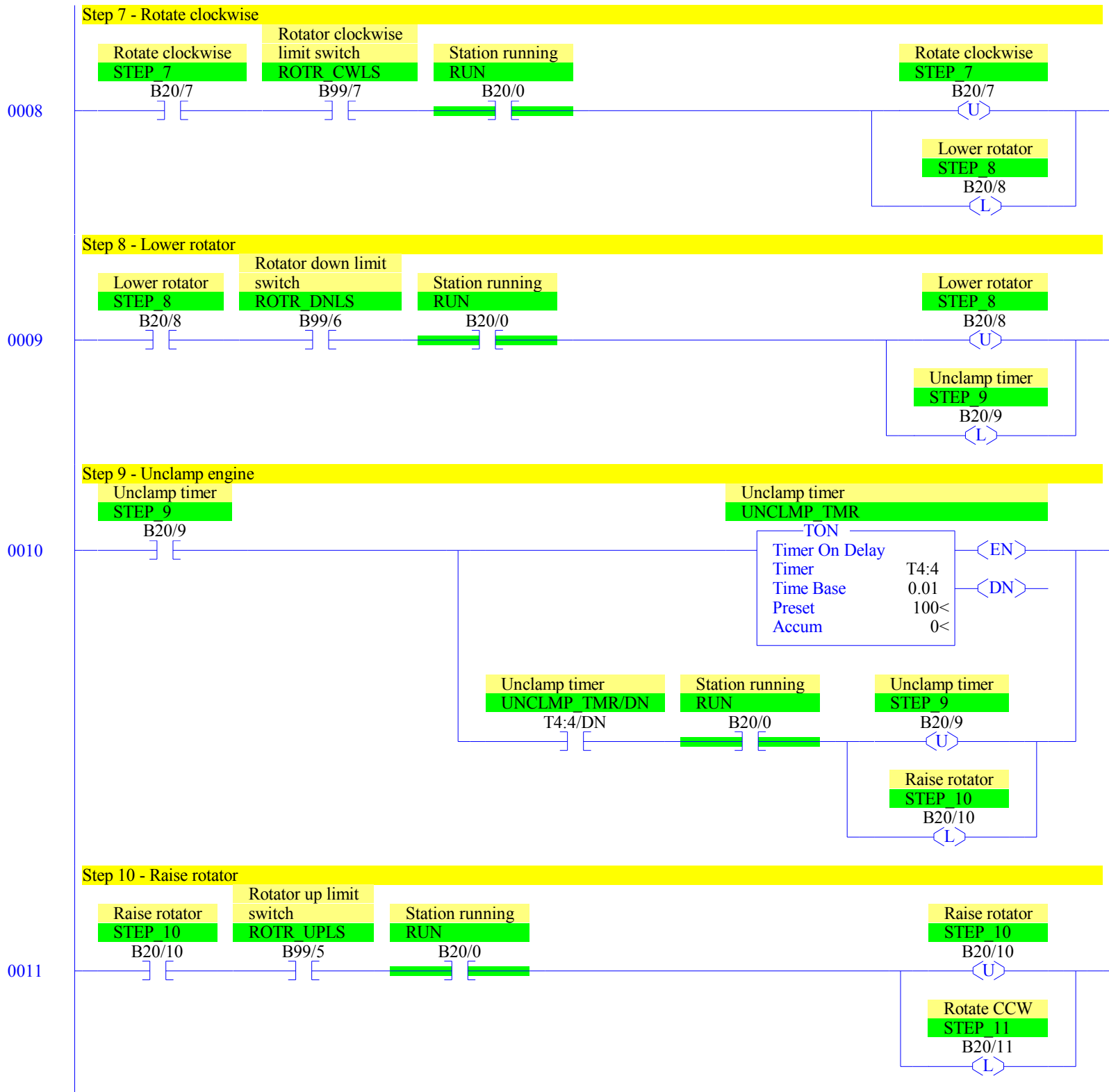
Example 6.4 - Engine Inverter Control with Simulation

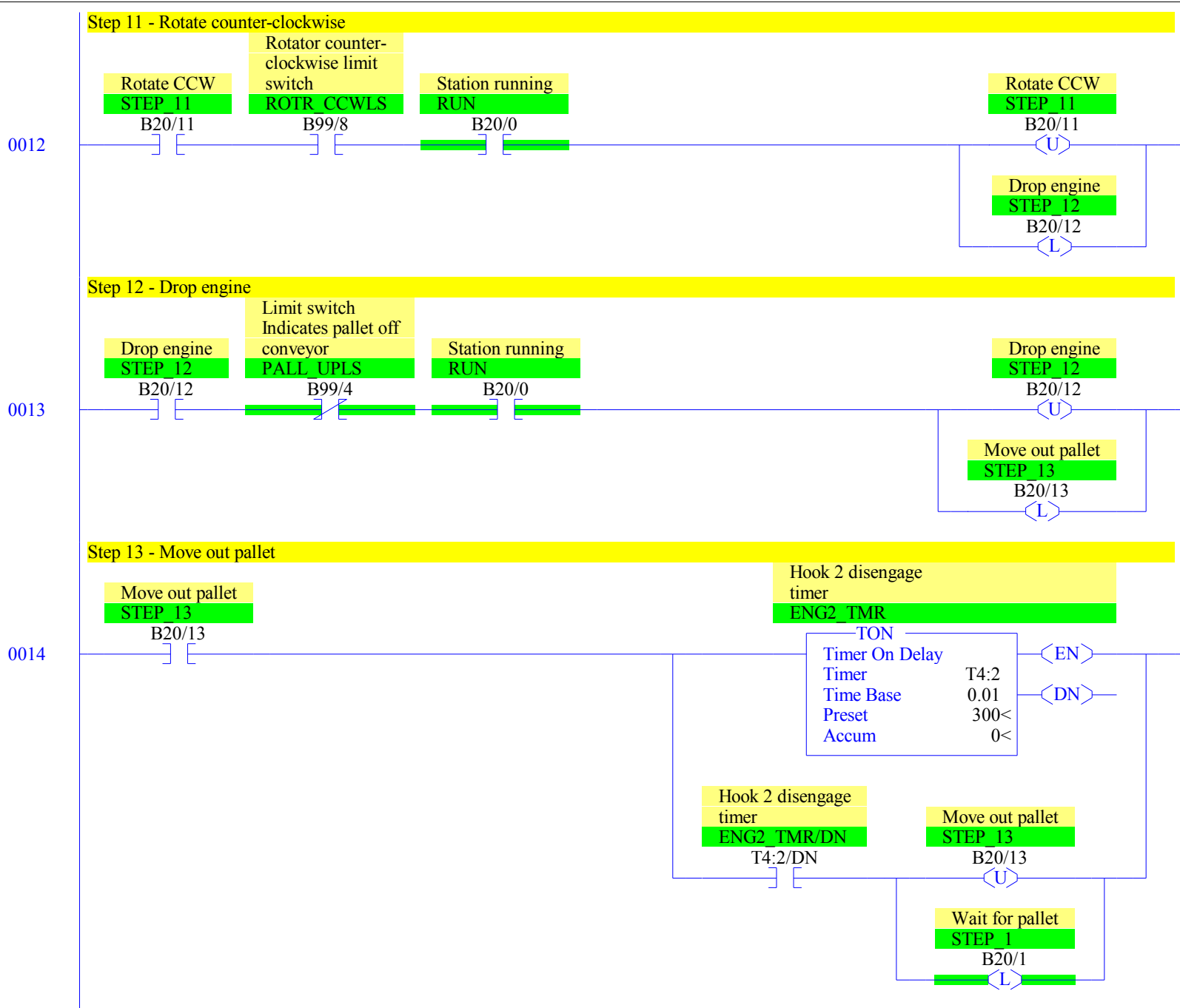
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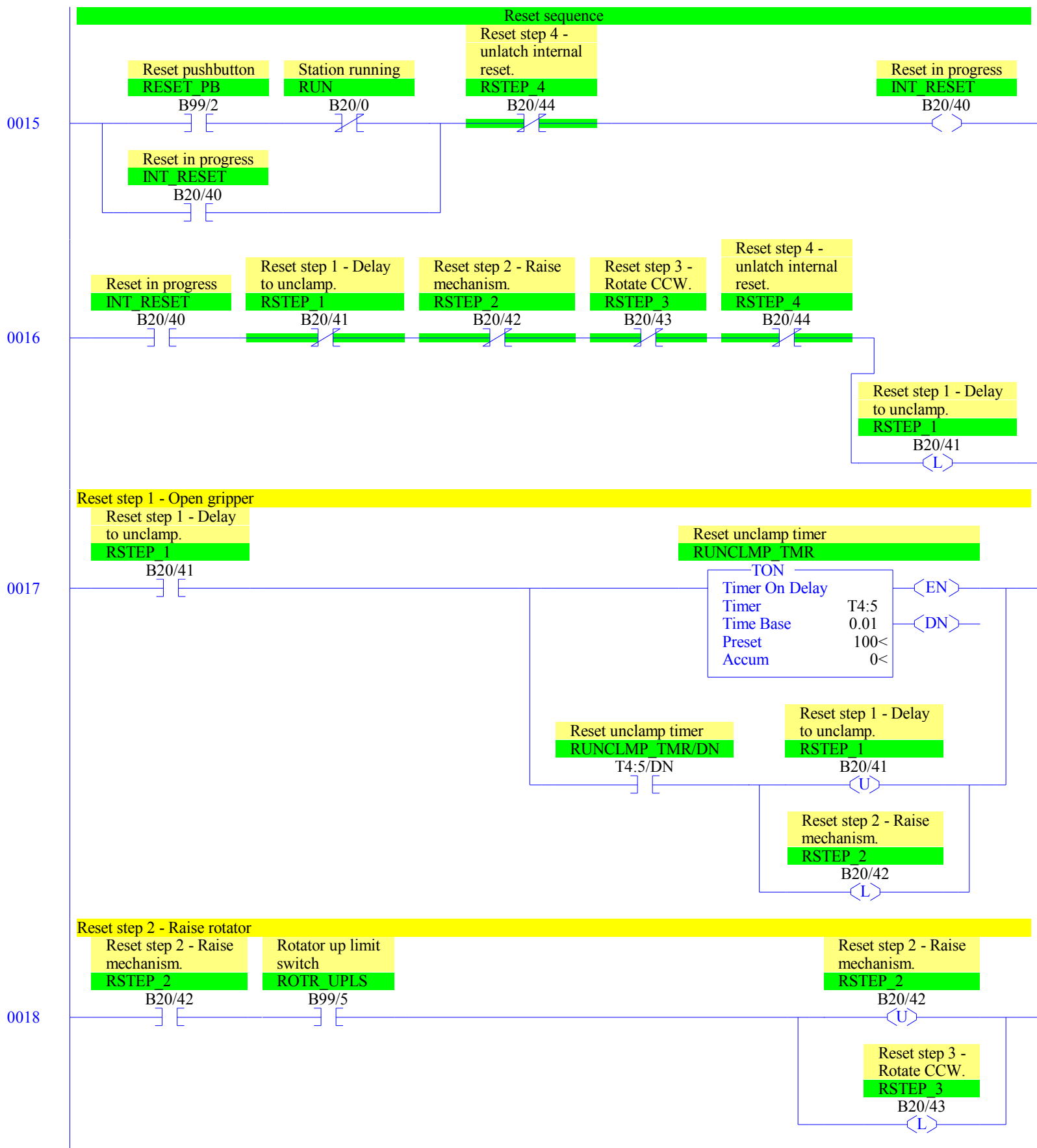
Start/stop/pause. Start prevented if reset in progress.

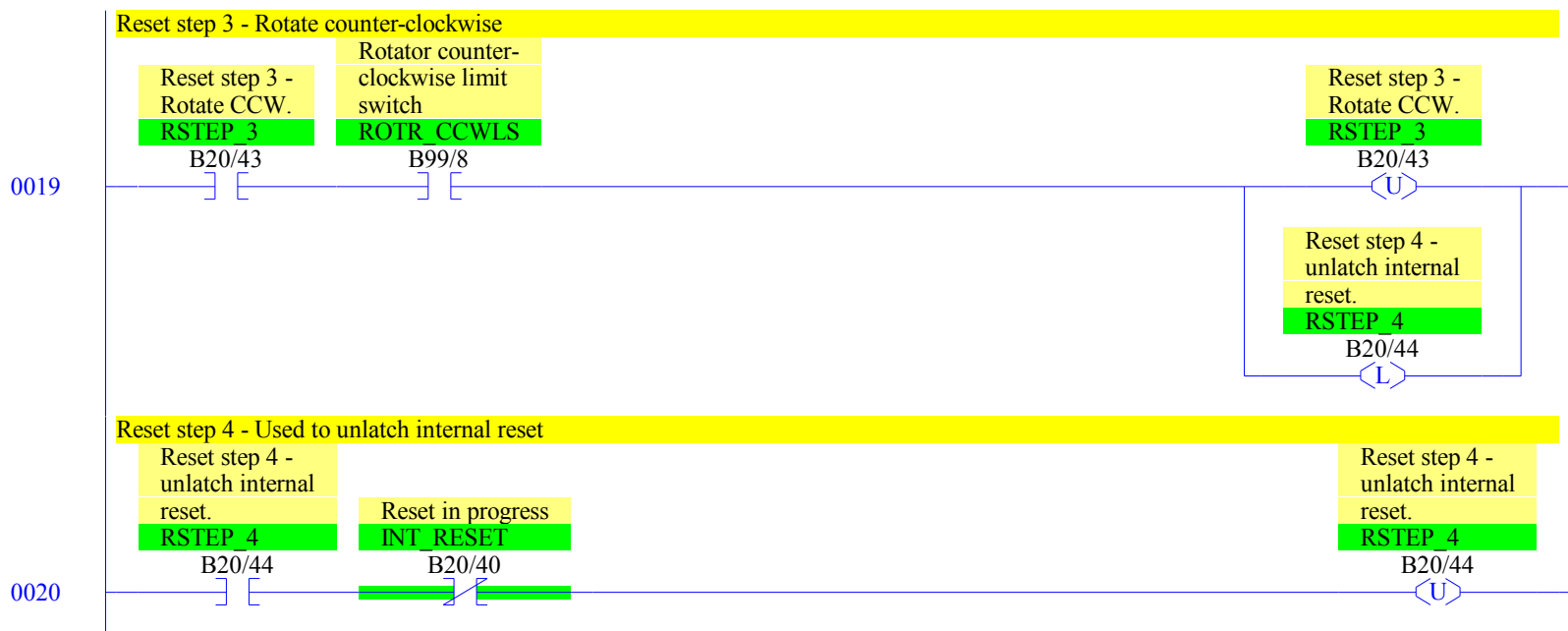












0021

Reset unlatches all normal operation step-in progress bits

Reset in progress

INT RESET

B20/40

Wait for pallet

STEP 1

B20/1

Move to hook 2

STEP 2

B20/2

Raise pallet

STEP 3

B20/3

Lower rotator

STEP 4

B20/4

Clamp engine

STEP 5

B20/5

Raise rotator

STEP 6

B20/6

Rotate clockwise

STEP 7

B20/7

Lower rotator

STEP 8

B20/8

Unclamp timer

STEP 9

B20/9

Raise rotator

STEP 10

B20/10

Rotate CCW

STEP 11

B20/11

Drop engine

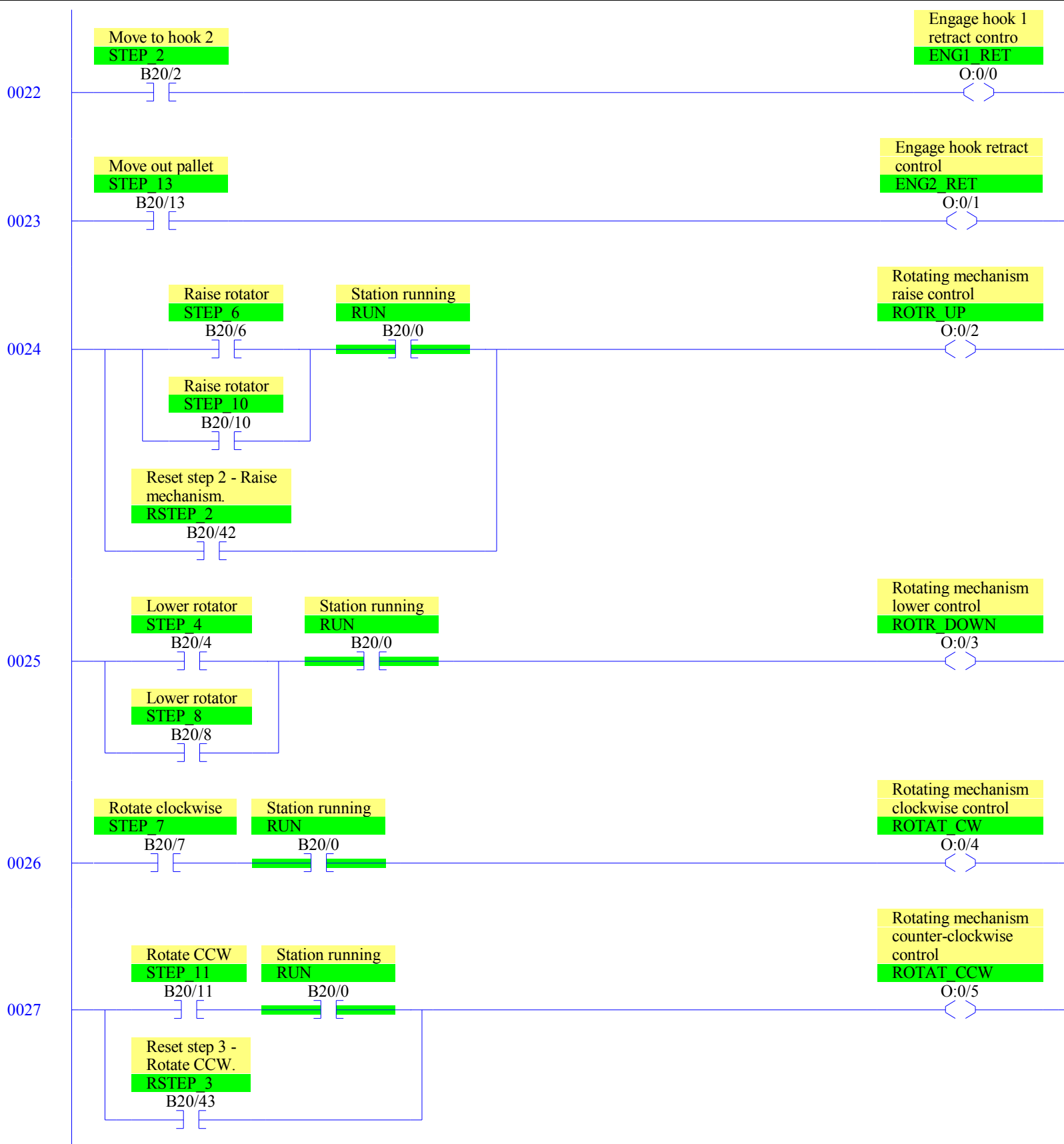
STEP 12

B20/12

Move out pallet

STEP 13

B20/13

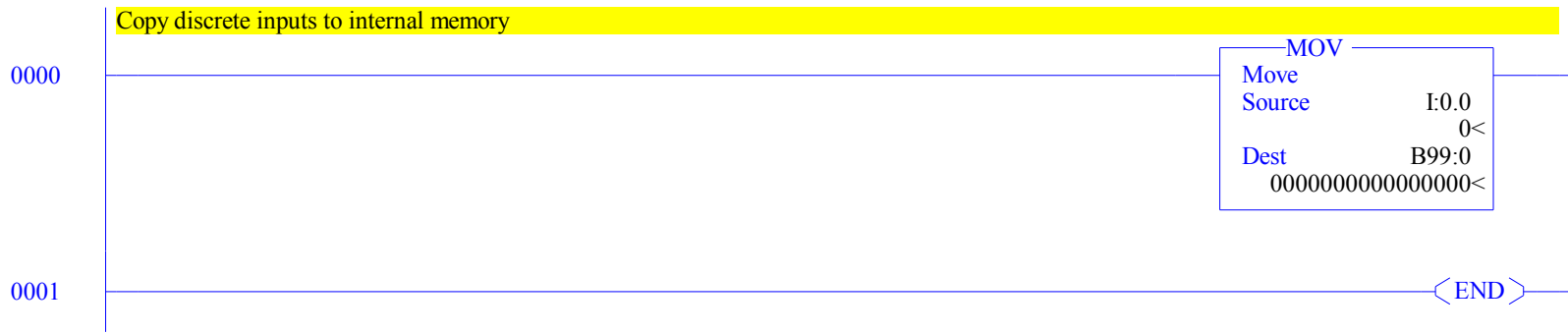






0032

◁END▷

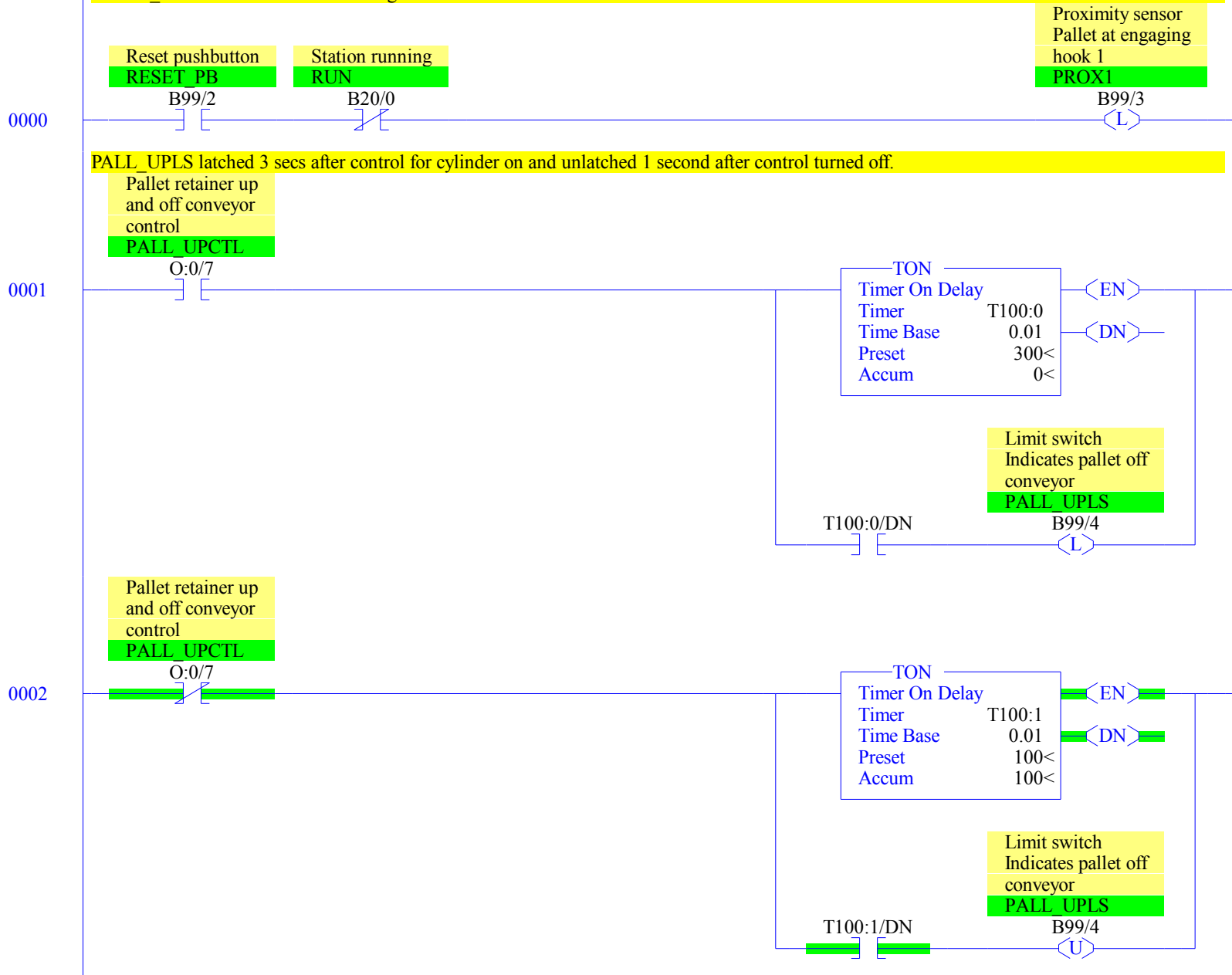


Tieback Logic for Simulation

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This version uses RESET_PB to generate first engine. Each subsequent engine appears 5 seconds after second engage hook goes back up.

RESET_PB latches PROX1 so that engine is at first station when run.



Up/Down limit switches.

Down LS latched 3 secs after down control active and unlatched immediately when up control active.

Up LS latched 3 secs after up control active and unlatched immediately when down control active.

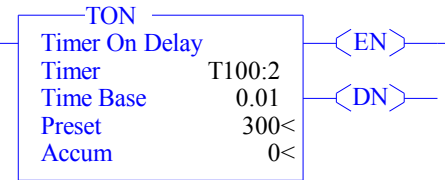
Rotating mechanism

lower control

ROTR_DOWN

O:0/3

0003

Rotator down limit
switch

ROTR_DNLS

T100:2/DN

B99/6

<L>

Rotator up limit
switch

ROTR_UPLS

B99/5

<U>

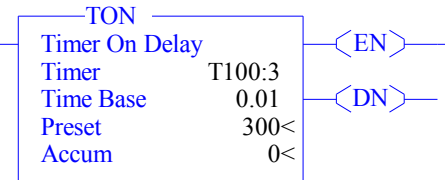
Rotating mechanism

raise control

ROTR_UP

O:0/2

0004

Rotator up limit
switch

ROTR_UPLS

T100:3/DN

B99/5

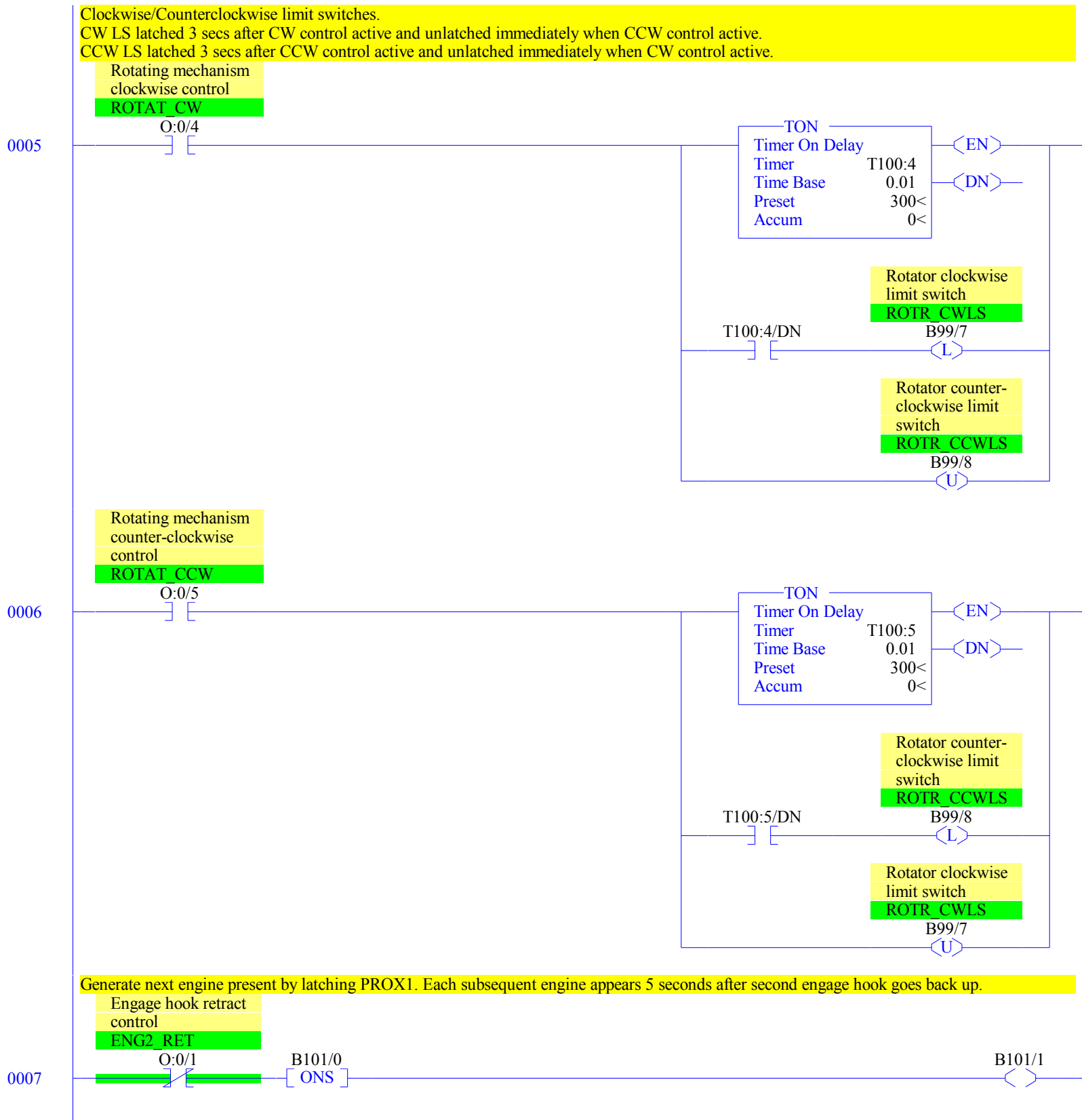
<L>

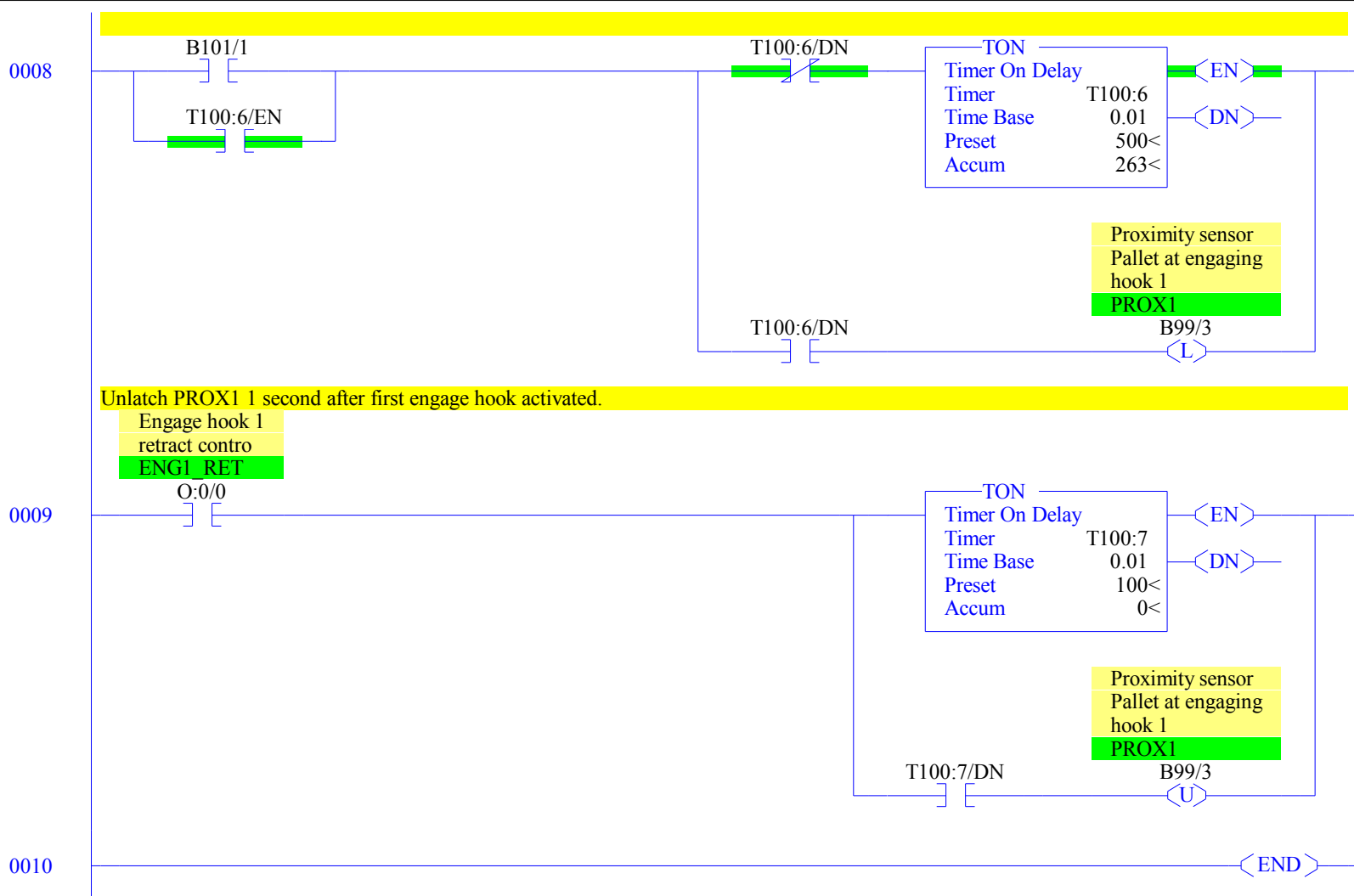
Rotator down limit
switch

ROTR_DNLS

B99/6

<U>





RSLogix 500 Cross Reference Report - Sorted by Address

O:0/0	- {ENG1_RET} Engage hook 1 retract contro
	OTE - File #2 - 22
	XIC - File #100 SIMULATION - 9
O:0/1	- {ENG2_RET} Engage hook retract control
	OTE - File #2 - 23
	XIO - File #100 SIMULATION - 7
O:0/2	- {ROTR_UP} Rotating mechanism raise control
	OTE - File #2 - 24
	XIC - File #100 SIMULATION - 4
O:0/3	- {ROTR_DOWN} Rotating mechanism lower control
	OTE - File #2 - 25
	XIC - File #100 SIMULATION - 3
O:0/4	- {ROTAT CW} Rotating mechanism clockwise control
	OTE - File #2 - 26
	XIC - File #100 SIMULATION - 5
O:0/5	- {ROTAT_CCW} Rotating mechanism counter-clockwise control
	OTE - File #2 - 27
	XIC - File #100 SIMULATION - 6
O:0/6	- {GRIP CLOS} Gripper close control
	OTE - File #2 - 28
O:0/7	- {PALL_UPCTL} Pallet retainer up and off conveyor control
	OTE - File #2 - 29
	XIC - File #100 SIMULATION - 1
	XIO - File #100 SIMULATION - 2
I:0.0	- MOV - File #99 DUPLIC INS - 0
B3/200	- {ENAB_SIMULATION} Enable simulation logic
	XIC - File #2 - 30
	XIO - File #2 - 31
T4:1	- {ENG1_TMR} Hook 1 engage timer
	TON - File #2 - 3
T4:1/DN	- XIC - File #2 - 3
T4:2	- {ENG2_TMR} Hook 2 disengage timer
	TON - File #2 - 14
T4:2/DN	- XIC - File #2 - 14
T4:3	- {CLMP_TMR} Clamp timer
	TON - File #2 - 6
T4:3/DN	- XIC - File #2 - 6
T4:4	- {UNCLMP TMR} Unclamp timer
	TON - File #2 - 10
T4:4/DN	- XIC - File #2 - 10
T4:5	- {RUNCLMP TMR} Reset unclamp timer
	TON - File #2 - 17
T4:5/DN	- XIC - File #2 - 17
B20/0	- {RUN} Station running
	OTE - File #2 - 0
	XIC - File #2 - 0, 1, 2, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 24
	25, 26, 27
	XIO - File #2 - 15
	File #100 SIMULATION - 0
B20/1	- {STEP 1} Wait for pallet
	OTL - File #2 - 1, 14
	OTU - File #2 - 2, 21
	XIC - File #2 - 2
	XIO - File #2 - 1
B20/2	- {STEP 2} Move to hook 2
	OTL - File #2 - 2
	OTU - File #2 - 3, 21
	XIC - File #2 - 3, 22
	XIO - File #2 - 1
B20/3	- {STEP 3} Raise pallet
	OTL - File #2 - 3
	OTU - File #2 - 4, 21
	XIC - File #2 - 4, 29
	XIO - File #2 - 1
B20/4	- {STEP 4} Lower rotator
	OTL - File #2 - 4

RSLogix 500 Cross Reference Report - Sorted by Address

	OTU - File #2 - 5, 21
	XIC - File #2 - 5, 25, 29
	XIO - File #2 - 1
B20/5	- {STEP_5} Clamp engine
	OTL - File #2 - 5
	OTU - File #2 - 6, 21
	XIC - File #2 - 6, 28, 29
	XIO - File #2 - 1
B20/6	- {STEP_6} Raise rotator
	OTL - File #2 - 6
	OTU - File #2 - 7, 21
	XIC - File #2 - 7, 24, 28, 29
	XIO - File #2 - 1
B20/7	- {STEP_7} Rotate clockwise
	OTL - File #2 - 7
	OTU - File #2 - 8, 21
	XIC - File #2 - 8, 26, 28, 29
	XIO - File #2 - 1
B20/8	- {STEP_8} Lower rotator
	OTL - File #2 - 8
	OTU - File #2 - 9, 21
	XIC - File #2 - 9, 25, 28, 29
	XIO - File #2 - 1
B20/9	- {STEP_9} Unclamp timer
	OTL - File #2 - 9
	OTU - File #2 - 10, 21
	XIC - File #2 - 10, 29
	XIO - File #2 - 1
B20/10	- {STEP_10} Raise rotator
	OTL - File #2 - 10
	OTU - File #2 - 11, 21
	XIC - File #2 - 11, 24, 29
	XIO - File #2 - 1
B20/11	- {STEP_11} Rotate CCW
	OTL - File #2 - 11
	OTU - File #2 - 12, 21
	XIC - File #2 - 12, 27, 29
	XIO - File #2 - 1
B20/12	- {STEP_12} Drop engine
	OTL - File #2 - 12
	OTU - File #2 - 13, 21
	XIC - File #2 - 13
	XIO - File #2 - 1
B20/13	- {STEP_13} Move out pallet
	OTL - File #2 - 13
	OTU - File #2 - 14, 21
	XIC - File #2 - 14, 23
	XIO - File #2 - 1
B20/40	- {INT_RESET} Reset in progress
	OTE - File #2 - 15
	XIC - File #2 - 15, 16, 21
	XIO - File #2 - 0, 20
B20/41	- {RSTEP_1} Reset step 1 - Delay to unclamp.
	OTL - File #2 - 16
	OTU - File #2 - 17
	XIC - File #2 - 17
	XIO - File #2 - 16
B20/42	- {RSTEP_2} Reset step 2 - Raise mechanism.
	OTL - File #2 - 17
	OTU - File #2 - 18
	XIC - File #2 - 18, 24
	XIO - File #2 - 16
B20/43	- {RSTEP_3} Reset step 3 - Rotate CCW.
	OTL - File #2 - 18
	OTU - File #2 - 19
	XIC - File #2 - 19, 27

RSLogix 500 Cross Reference Report - Sorted by Address

```

B20/44      XIO - File #2 - 16
            - {RSTEP_4} Reset step 4 - unlatch internal reset.
            OTL - File #2 - 19
            OTU - File #2 - 20
            XIC - File #2 - 20
            XIO - File #2 - 15, 16
B99:0      - MOV - File #99 DUPLIC_INS - 0
B99/0      - {START_PB} Start pushbutton
            XIC - File #2 - 0
B99/1      - {STOP_PB} Stop pushbutton
            XIC - File #2 - 0
B99/2      - {RESET_PB} Reset pushbutton
            XIC - File #2 - 15
            File #100 SIMULATION - 0
B99/3      - {PROX1} Proximity sensor Pallet at engaging hook 1
            OTL - File #100 SIMULATION - 0, 8
            OTU - File #100 SIMULATION - 9
            XIC - File #2 - 2
B99/4      - {PALL_UPLS} Limit switch Indicates pallet off conveyor
            OTL - File #100 SIMULATION - 1
            OTU - File #100 SIMULATION - 2
            XIC - File #2 - 4
            XIO - File #2 - 13
B99/5      - {ROTR_UPLS} Rotator up limit switch
            OTL - File #100 SIMULATION - 4
            OTU - File #100 SIMULATION - 3
            XIC - File #2 - 7, 11, 18
B99/6      - {ROTR_DNLS} Rotator down limit switch
            OTL - File #100 SIMULATION - 3
            OTU - File #100 SIMULATION - 4
            XIC - File #2 - 5, 9
B99/7      - {ROTR_CWLS} Rotator clockwise limit switch
            OTL - File #100 SIMULATION - 5
            OTU - File #100 SIMULATION - 6
            XIC - File #2 - 8
B99/8      - {ROTR_CCWLS} Rotator counter- clockwise limit switch
            OTL - File #100 SIMULATION - 6
            OTU - File #100 SIMULATION - 5
            XIC - File #2 - 12, 19
T100:0     - TON - File #100 SIMULATION - 1
T100:0/DN  - XIC - File #100 SIMULATION - 1
T100:1     - TON - File #100 SIMULATION - 2
T100:1/DN  - XIC - File #100 SIMULATION - 2
T100:2     - TON - File #100 SIMULATION - 3
T100:2/DN  - XIC - File #100 SIMULATION - 3
T100:3     - TON - File #100 SIMULATION - 4
T100:3/DN  - XIC - File #100 SIMULATION - 4
T100:4     - TON - File #100 SIMULATION - 5
T100:4/DN  - XIC - File #100 SIMULATION - 5
T100:5     - TON - File #100 SIMULATION - 6
T100:5/DN  - XIC - File #100 SIMULATION - 6
T100:6     - TON - File #100 SIMULATION - 8
T100:6/DN  - XIC - File #100 SIMULATION - 8
            XIO - File #100 SIMULATION - 8
T100:6/EN  - XIC - File #100 SIMULATION - 8
T100:7     - TON - File #100 SIMULATION - 9
T100:7/DN  - XIC - File #100 SIMULATION - 9
B101/0     - ONS - File #100 SIMULATION - 7
B101/1     - OTE - File #100 SIMULATION - 7
            XIC - File #100 SIMULATION - 8
U:99       - JSR - File #2 - 31
U:100      - {TIEBACK}
            JSR - File #2 - 30

```