

Example 6.5 - Engine Inverter Control with Parallel Branches

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

0000

Start pushbutton
START_PB

I:1/0

Reset in progress
INT_RESET

B20/40

Stop pushbutton
STOP_PB

I:1/1

Station running
RUN

B20/0

Station running
RUN

B20/0

0001

Station running
RUN

B20/0

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

Move out pallet
STEP_14

B20/14

Wait after moving
out pallet
STEP_15

B20/15

Wait for pallet
STEP_1

B20/1

Step 1 - Wait for pallet

0002

Wait for pallet
STEP_1

B20/1

Proximity sensor
Pallet at engaging
hook 1

PROX1

Station running
RUN

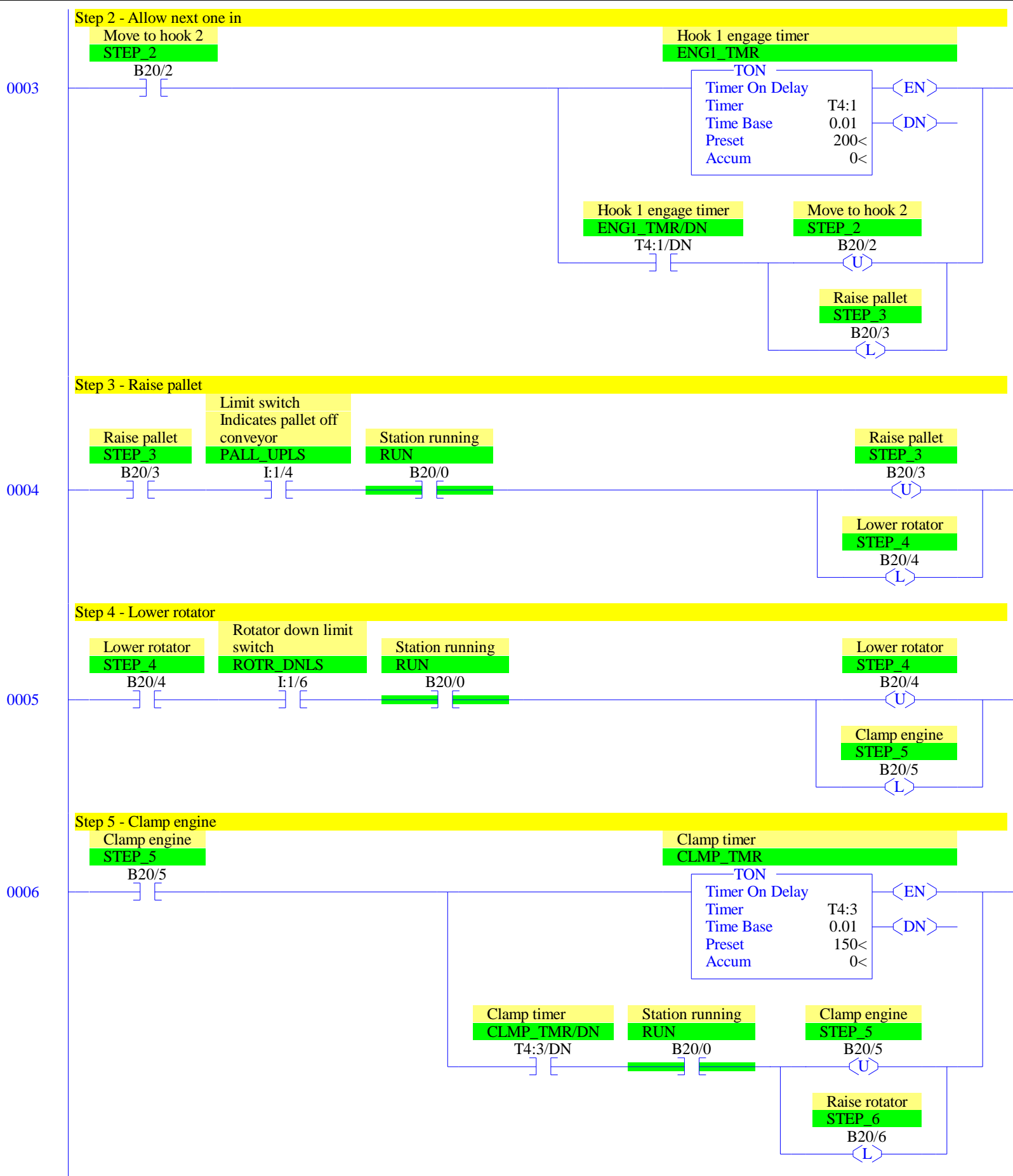
B20/0

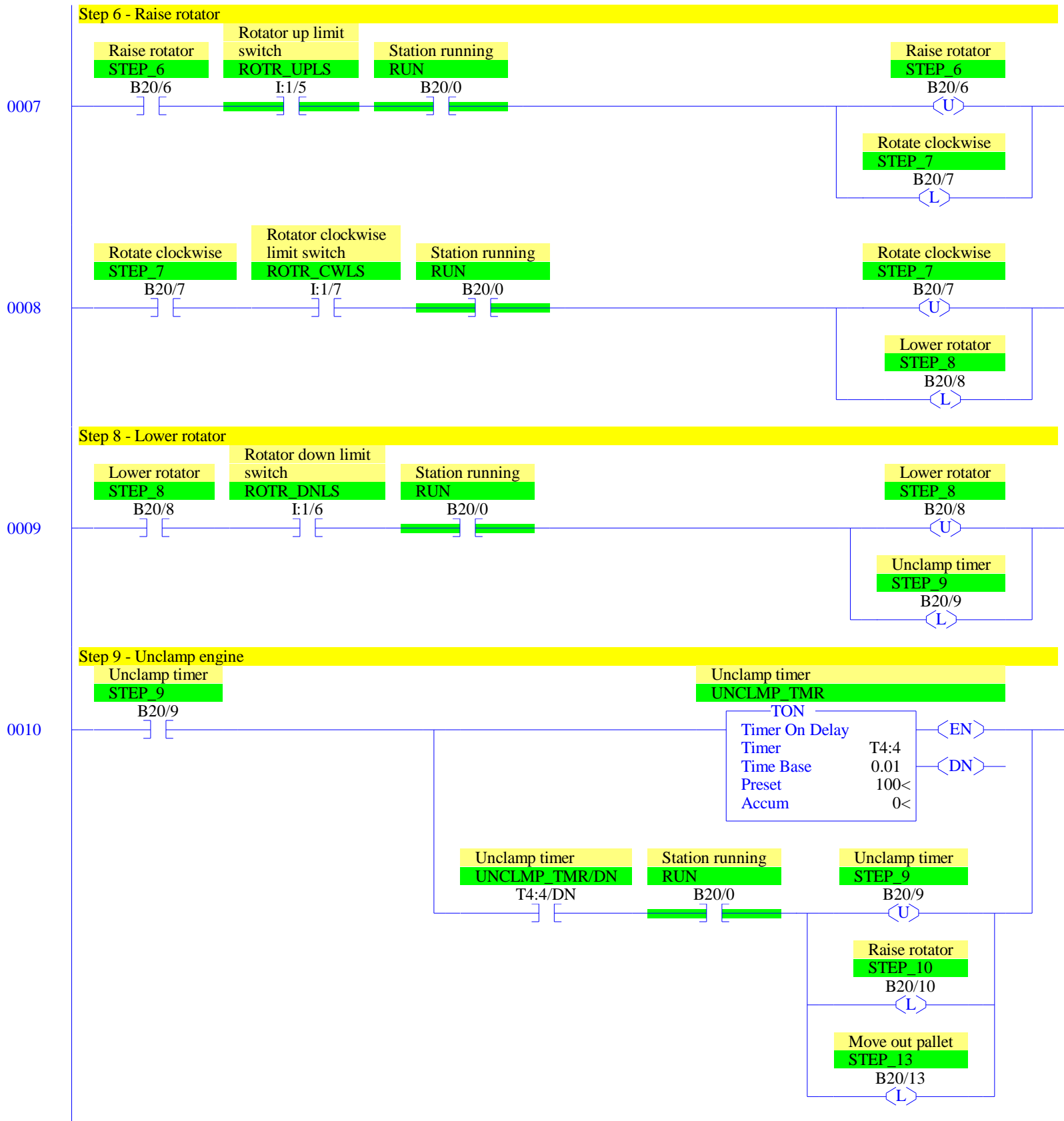
Wait for pallet
STEP_1

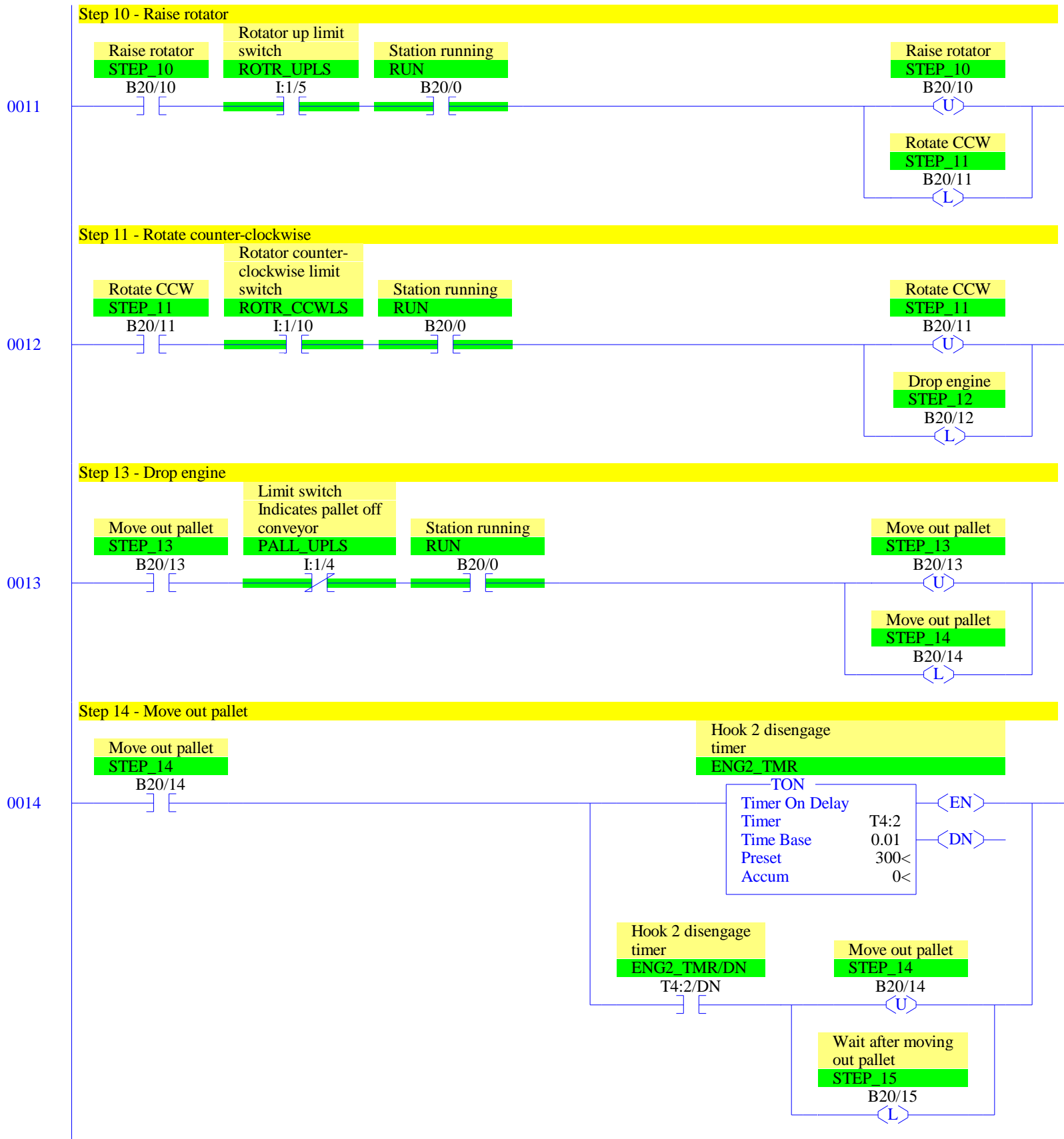
B20/1

Move to hook 2
STEP_2

B20/2

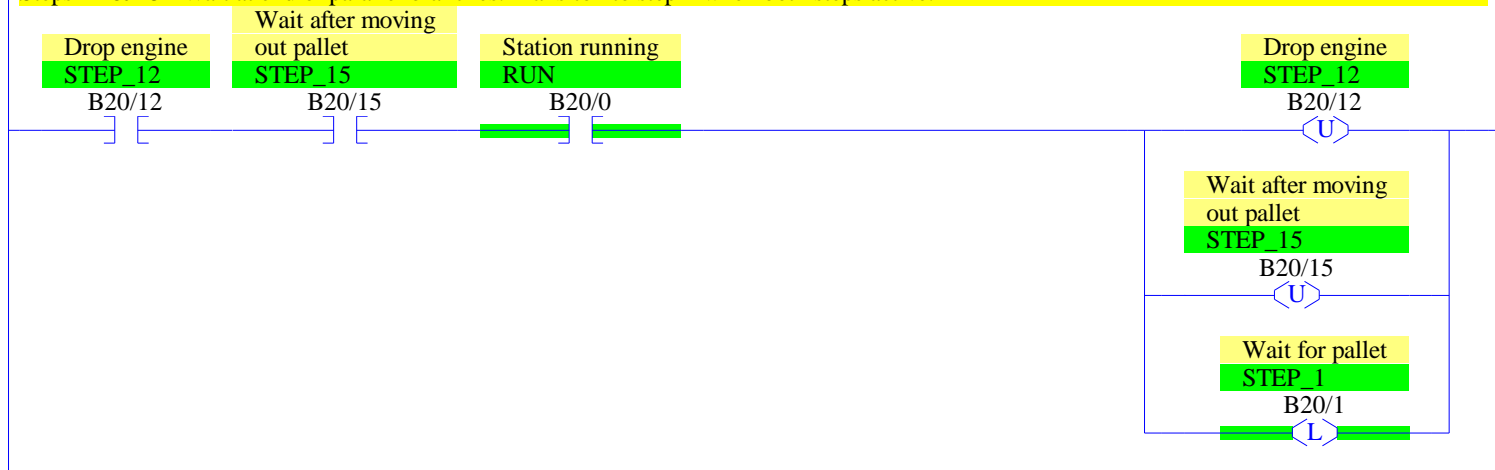


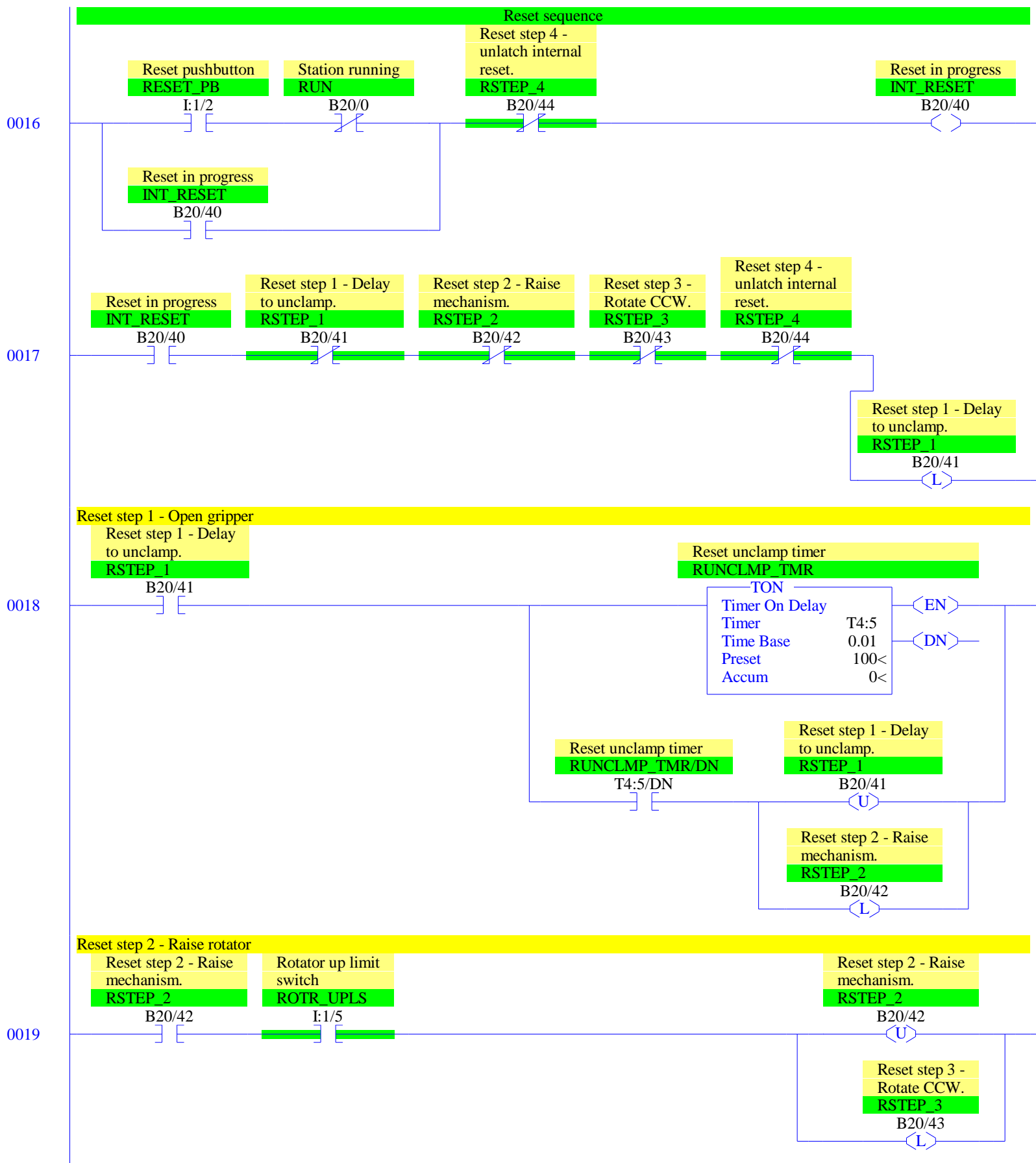


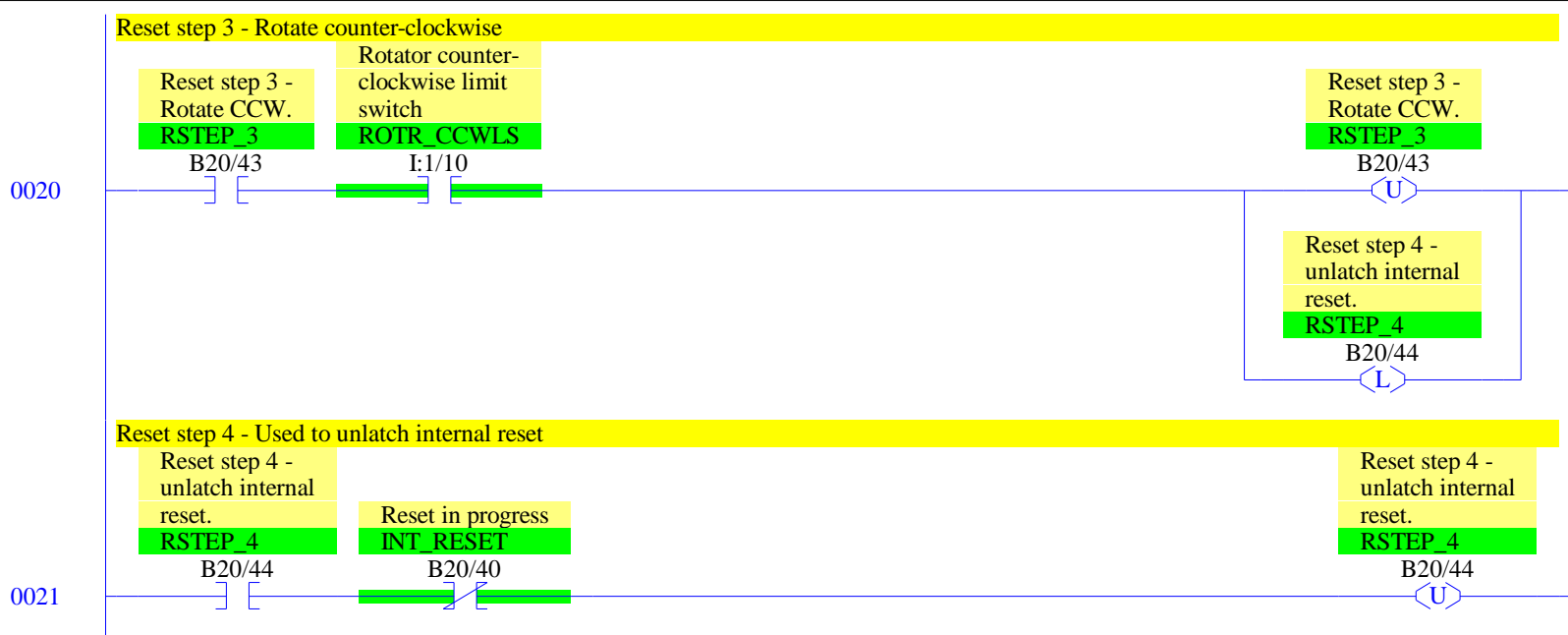


0015

Steps 12 & 15 - Wait at end of parallel branches. Transition to step 1 when both steps active.

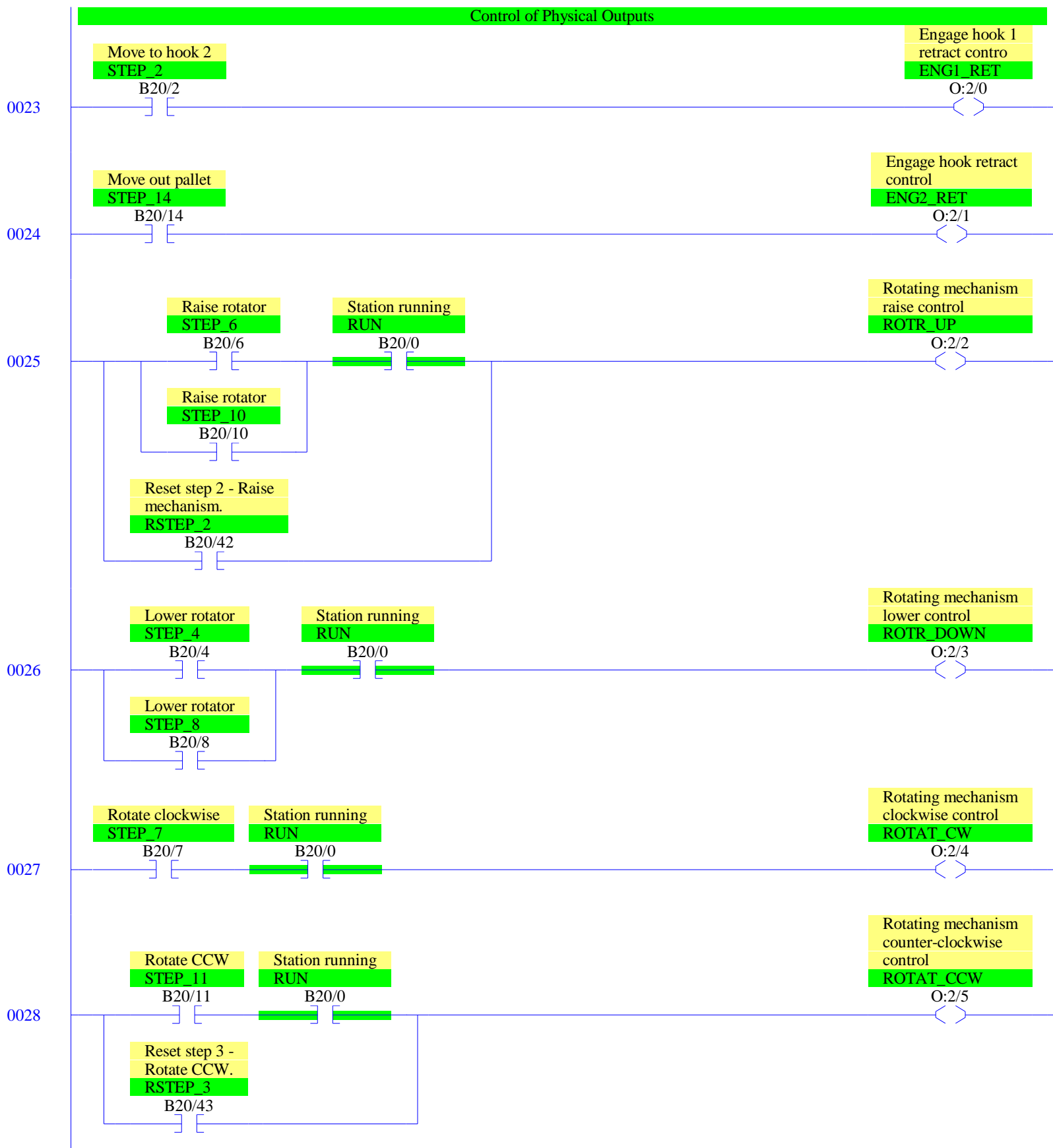


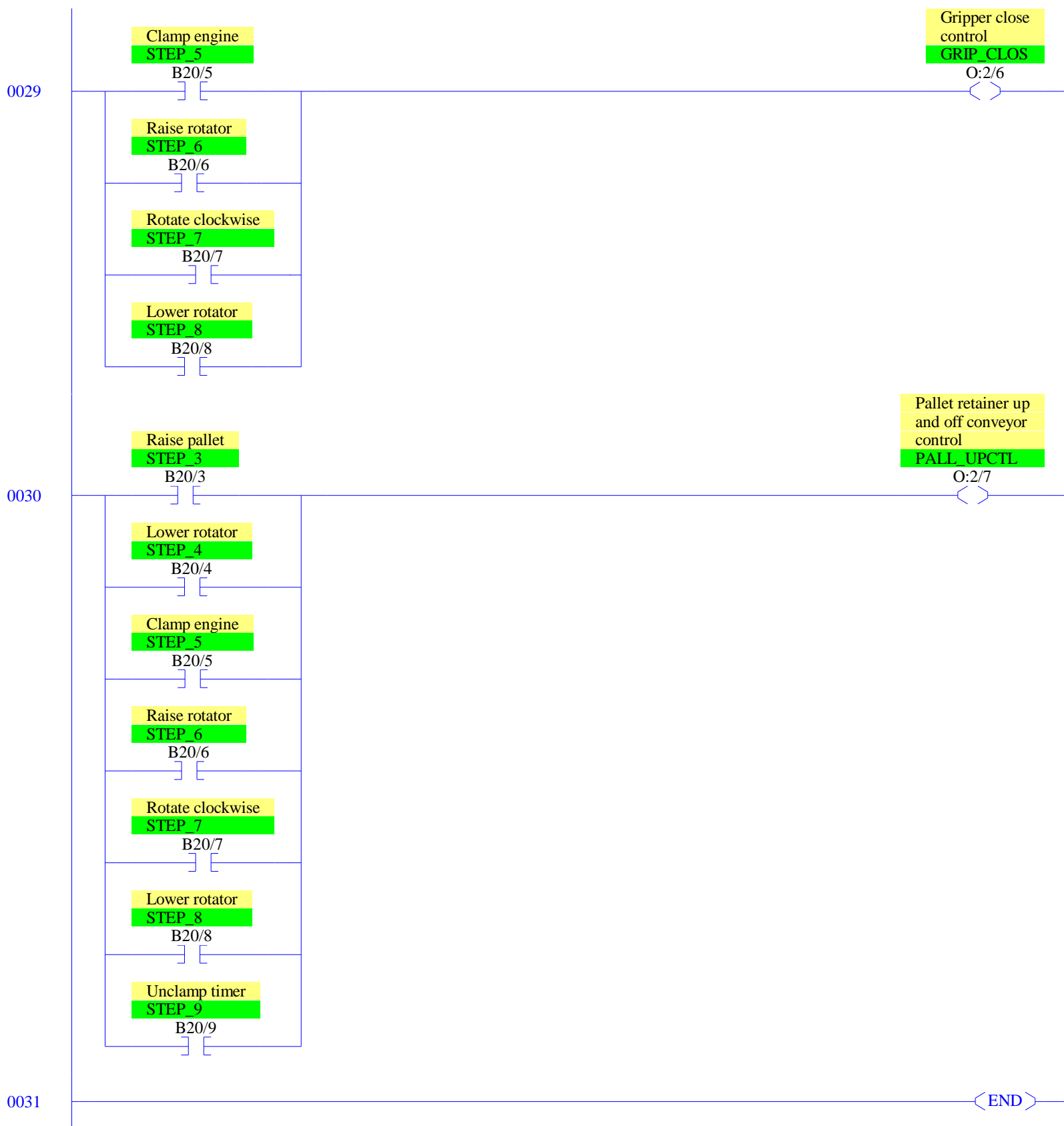












RSLogix 500 Cross Reference Report - Sorted by Address

O:2/0	- {ENG1_RET} Engage hook 1 retract contro OTE - File #2 - 23
O:2/1	- {ENG2_RET} Engage hook retract control OTE - File #2 - 24
O:2/2	- {ROTR_UP} Rotating mechanism raise control OTE - File #2 - 25
O:2/3	- {ROTR_DOWN} Rotating mechanism lower control OTE - File #2 - 26
O:2/4	- {ROTAT_CW} Rotating mechanism clockwise control OTE - File #2 - 27
O:2/5	- {ROTAT_CCW} Rotating mechanism counter-clockwise control OTE - File #2 - 28
O:2/6	- {GRIP_CLOS} Gripper close control OTE - File #2 - 29
O:2/7	- {PALL_UPCTL} Pallet retainer up and off conveyor control OTE - File #2 - 30
I:1/0	- {START_PB} Start pushbutton XIC - File #2 - 0
I:1/1	- {STOP_PB} Stop pushbutton XIC - File #2 - 0
I:1/2	- {RESET_PB} Reset pushbutton XIC - File #2 - 16
I:1/3	- {PROX1} Proximity sensor Pallet at engaging hook 1 XIC - File #2 - 2
I:1/4	- {PALL_UPLS} Limit switch Indicates pallet off conveyor XIC - File #2 - 4 XIO - File #2 - 13
I:1/5	- {ROTR_UPLS} Rotator up limit switch XIC - File #2 - 7, 11, 19
I:1/6	- {ROTR_DNLS} Rotator down limit switch XIC - File #2 - 5, 9
I:1/7	- {ROTR_CWLS} Rotator clockwise limit switch XIC - File #2 - 8
I:1/10	- {ROTR_CCWLS} Rotator counter- clockwise limit switch XIC - File #2 - 12, 20
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 - 18
T4:5/DN	- XIC - File #2 - 18
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, 15 25, 26, 27, 28 XIO - File #2 - 16
B20/1	- {STEP_1} Wait for pallet OTL - File #2 - 1, 15 OTU - File #2 - 2, 22 XIC - File #2 - 2 XIO - File #2 - 1
B20/2	- {STEP_2} Move to hook 2 OTL - File #2 - 2 OTU - File #2 - 3, 22 XIC - File #2 - 3, 23 XIO - File #2 - 1
B20/3	- {STEP_3} Raise pallet

RSLogix 500 Cross Reference Report - Sorted by Address

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      OTL - File #2 - 3
      OTU - File #2 - 4, 22
      XIC - File #2 - 4, 30
      XIO - File #2 - 1
B20/4 - {STEP_4} Lower rotator
      OTL - File #2 - 4
      OTU - File #2 - 5, 22
      XIC - File #2 - 5, 26, 30
      XIO - File #2 - 1
B20/5 - {STEP_5} Clamp engine
      OTL - File #2 - 5
      OTU - File #2 - 6, 22
      XIC - File #2 - 6, 29, 30
      XIO - File #2 - 1
B20/6 - {STEP_6} Raise rotator
      OTL - File #2 - 6
      OTU - File #2 - 7, 22
      XIC - File #2 - 7, 25, 29, 30
      XIO - File #2 - 1
B20/7 - {STEP_7} Rotate clockwise
      OTL - File #2 - 7
      OTU - File #2 - 8, 22
      XIC - File #2 - 8, 27, 29, 30
      XIO - File #2 - 1
B20/8 - {STEP_8} Lower rotator
      OTL - File #2 - 8
      OTU - File #2 - 9, 22
      XIC - File #2 - 9, 26, 29, 30
      XIO - File #2 - 1
B20/9 - {STEP_9} Unclamp timer
      OTL - File #2 - 9
      OTU - File #2 - 10, 22
      XIC - File #2 - 10, 30
      XIO - File #2 - 1
B20/10 - {STEP_10} Raise rotator
      OTL - File #2 - 10
      OTU - File #2 - 11, 22
      XIC - File #2 - 11, 25
      XIO - File #2 - 1
B20/11 - {STEP_11} Rotate CCW
      OTL - File #2 - 11
      OTU - File #2 - 12, 22
      XIC - File #2 - 12, 28
      XIO - File #2 - 1
B20/12 - {STEP_12} Drop engine
      OTL - File #2 - 12
      OTU - File #2 - 15, 22
      XIC - File #2 - 15
      XIO - File #2 - 1
B20/13 - {STEP_13} Move out pallet
      OTL - File #2 - 10
      OTU - File #2 - 13, 22
      XIC - File #2 - 13
      XIO - File #2 - 1
B20/14 - {STEP_14} Move out pallet
      OTL - File #2 - 13
      OTU - File #2 - 14, 22
      XIC - File #2 - 14, 24
      XIO - File #2 - 1
B20/15 - {STEP_15} Wait after moving out pallet
      OTL - File #2 - 14
      OTU - File #2 - 15, 22
      XIC - File #2 - 15
      XIO - File #2 - 1
B20/40 - {INT_RESET} Reset in progress
      OTE - File #2 - 16

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RSLogix 500 Cross Reference Report - Sorted by Address

	XIC - File #2 - 16, 17, 22
	XIO - File #2 - 0, 21
B20/41	- {RSTEP_1} Reset step 1 - Delay to unclamp.
	OTL - File #2 - 17
	OTU - File #2 - 18
	XIC - File #2 - 18
	XIO - File #2 - 17
B20/42	- {RSTEP_2} Reset step 2 - Raise mechanism.
	OTL - File #2 - 18
	OTU - File #2 - 19
	XIC - File #2 - 19, 25
	XIO - File #2 - 17
B20/43	- {RSTEP_3} Reset step 3 - Rotate CCW.
	OTL - File #2 - 19
	OTU - File #2 - 20
	XIC - File #2 - 20, 28
	XIO - File #2 - 17
B20/44	- {RSTEP_4} Reset step 4 - unlatch internal reset.
	OTL - File #2 - 20
	OTU - File #2 - 21
	XIC - File #2 - 21
	XIO - File #2 - 16, 17