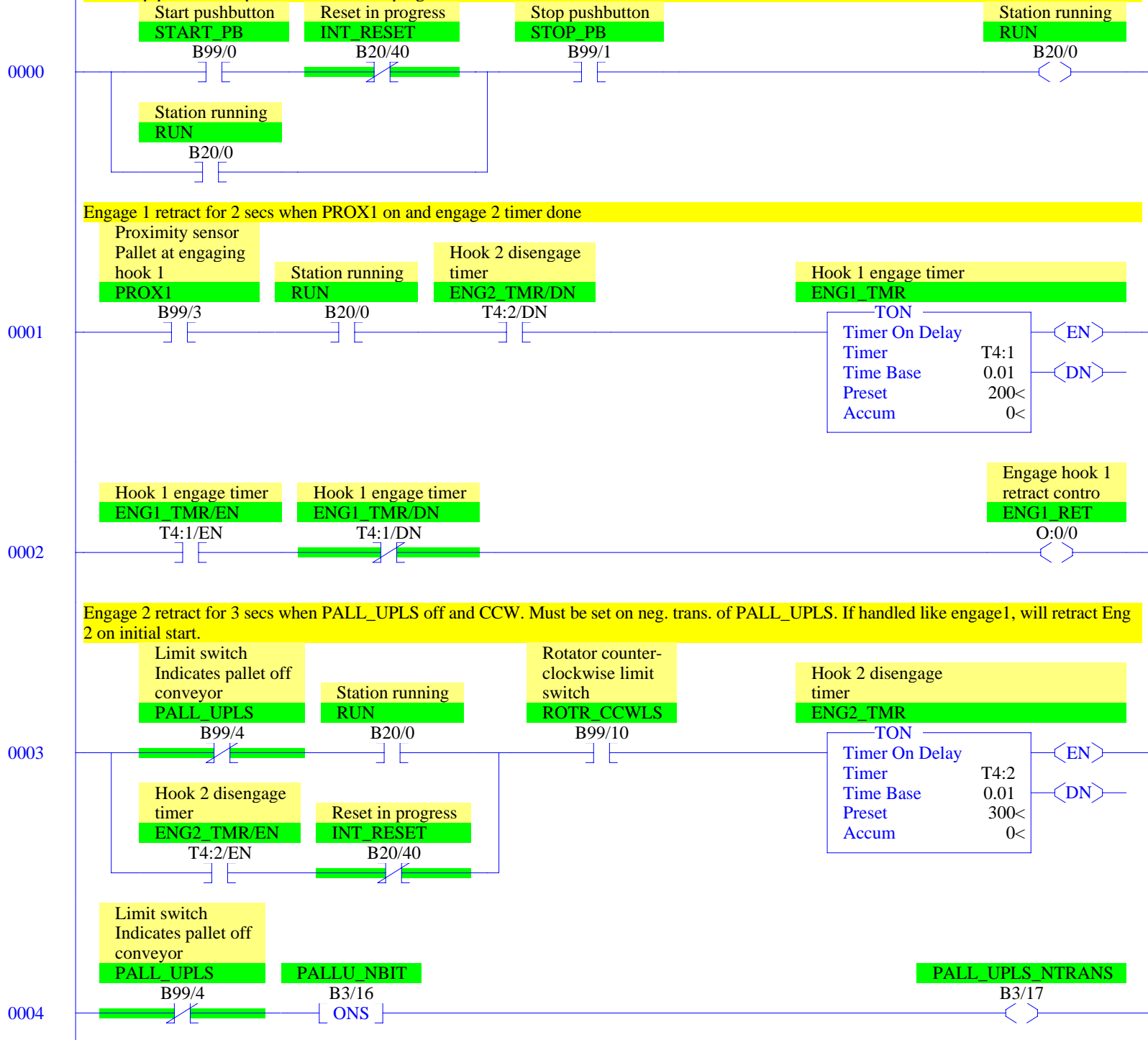
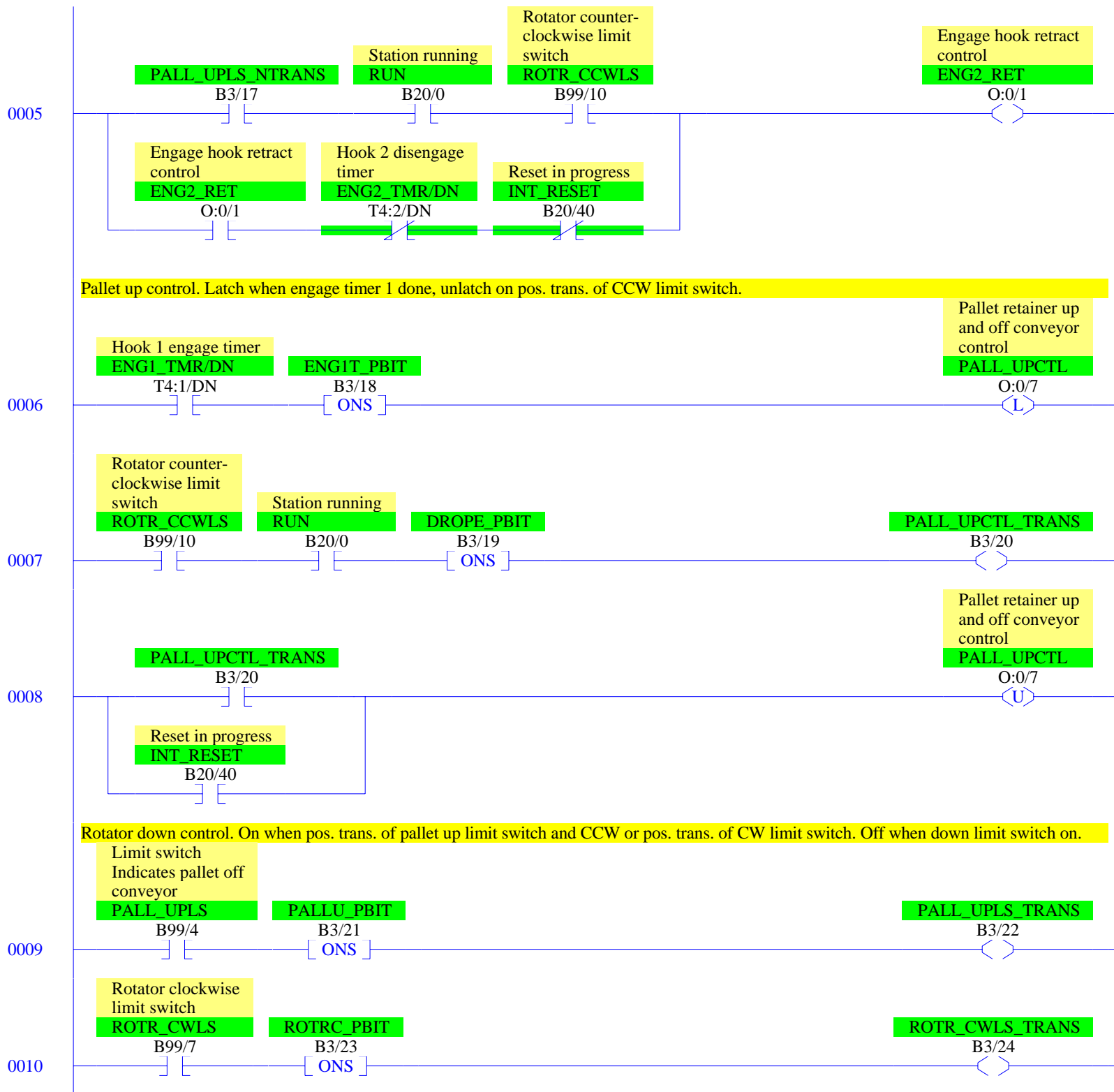


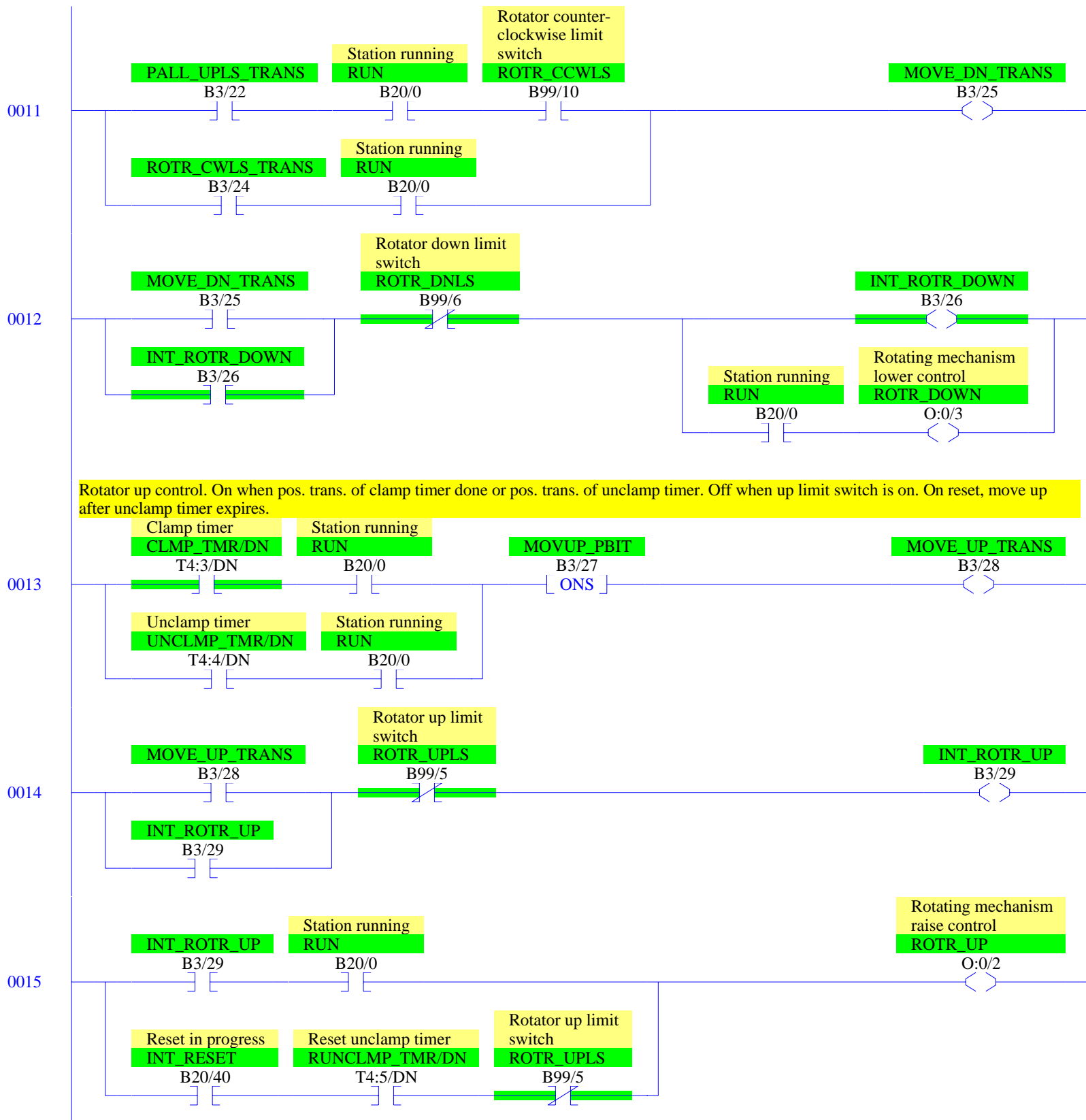
## Example 6.7 - Engine Inverter Control - Unstructured Sequence with Simulation

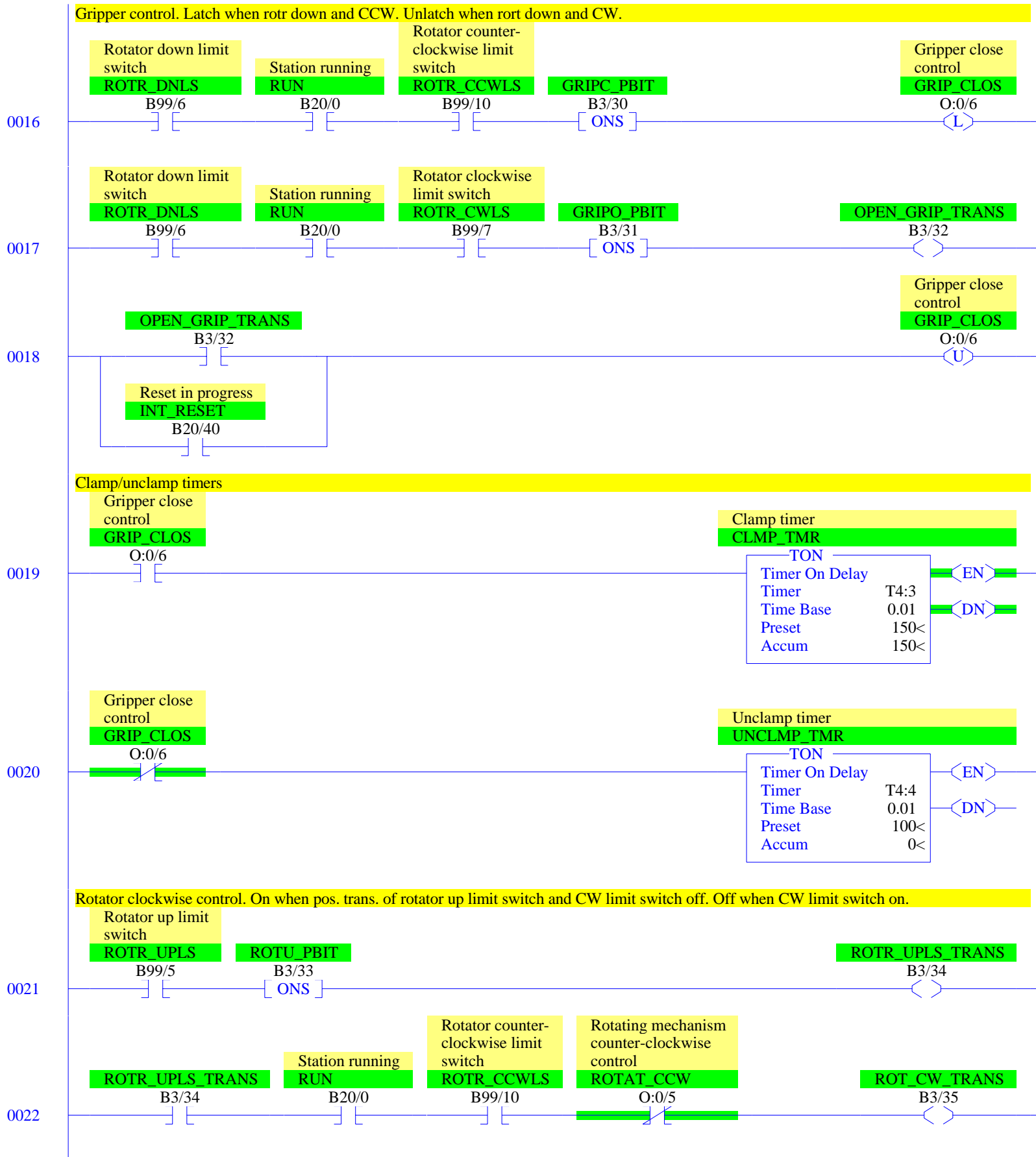
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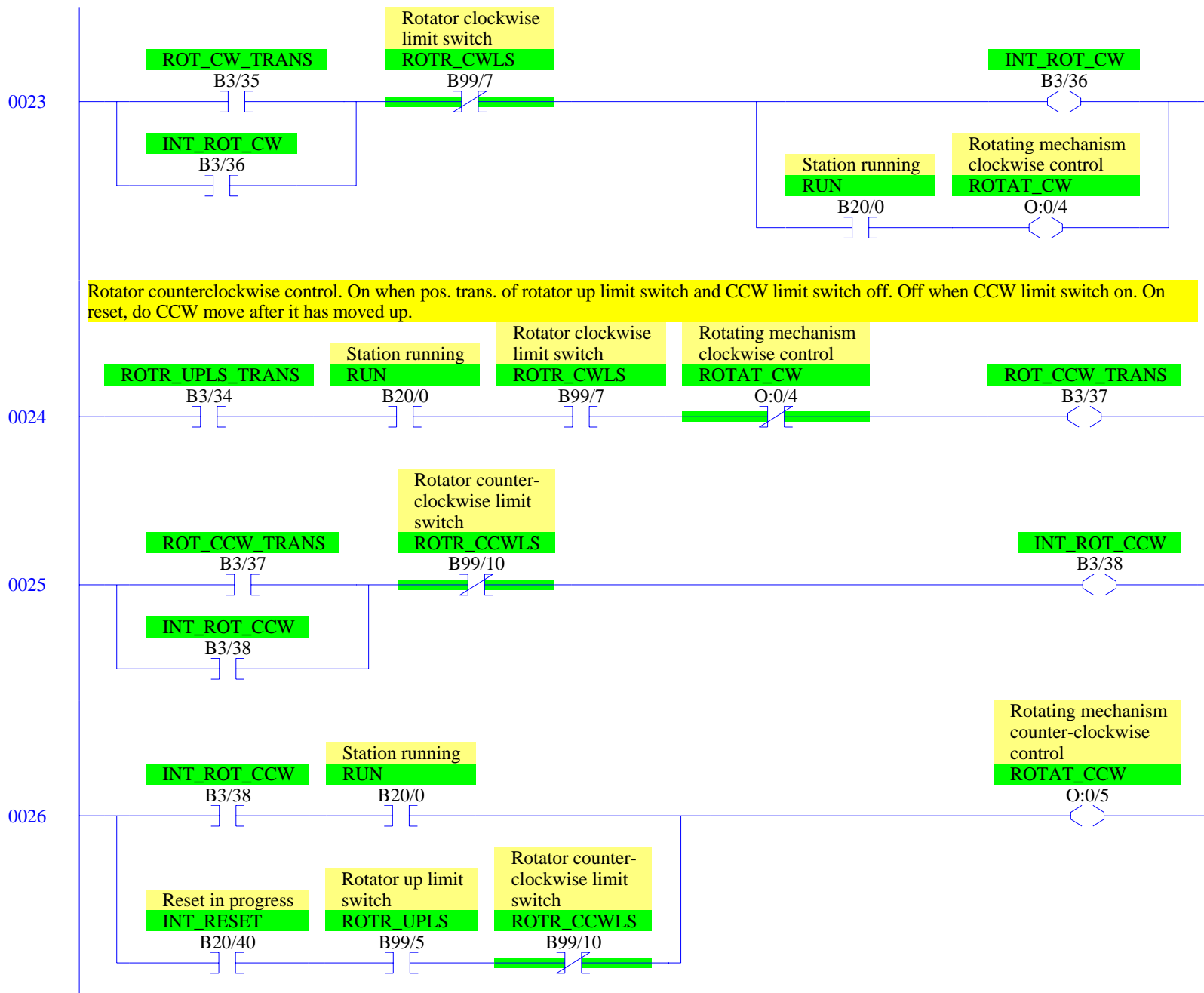
Start/stop/pause. Start prevented if reset in progress.

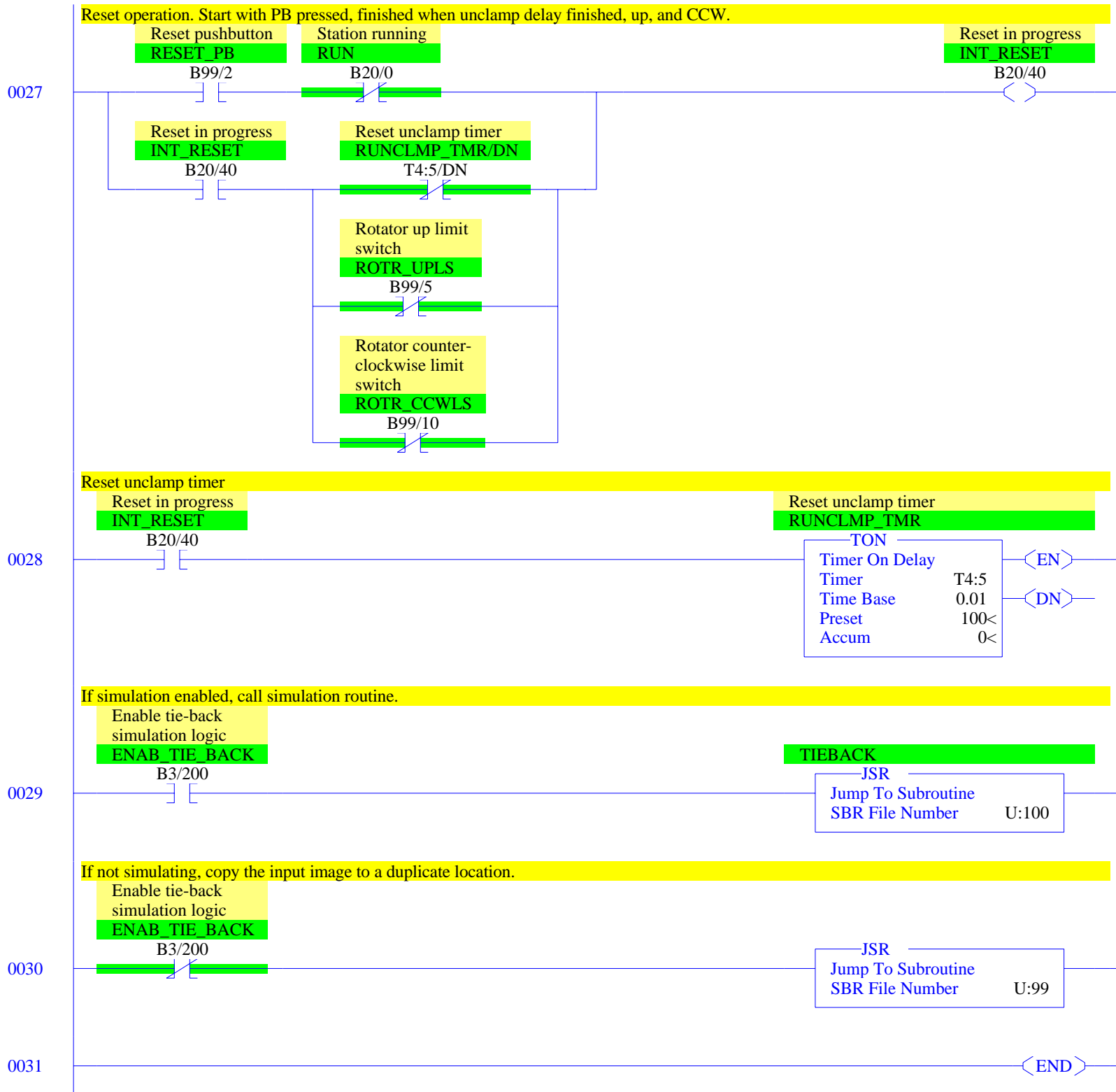


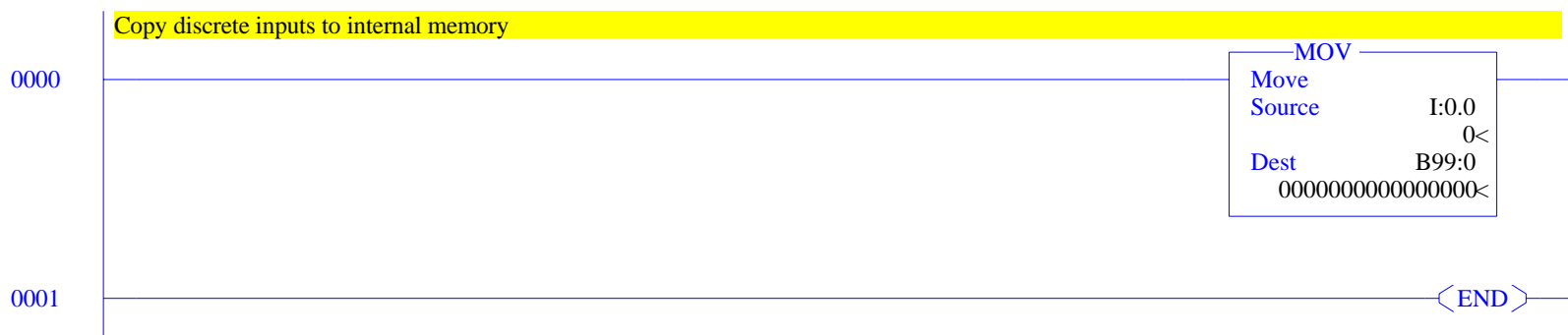










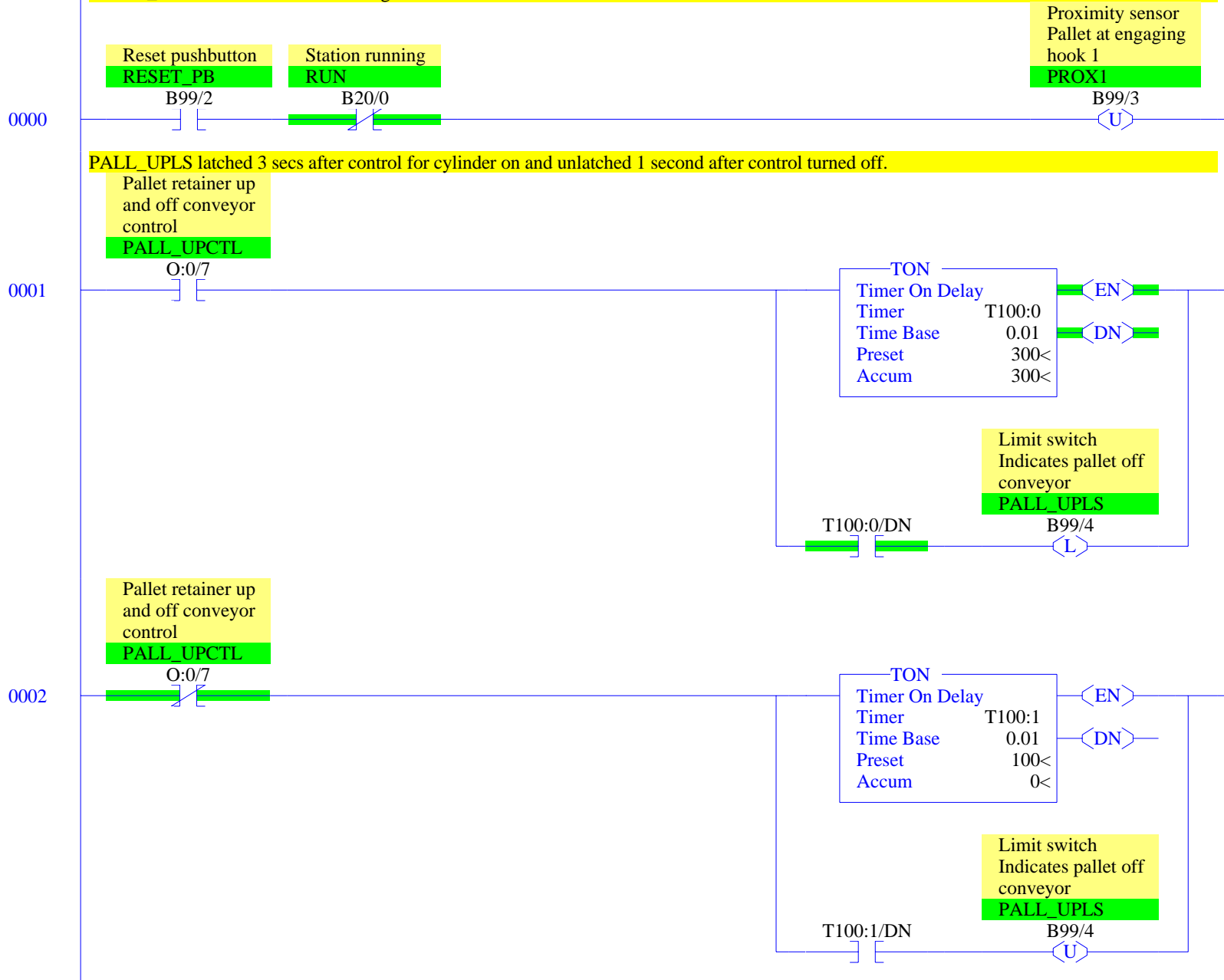


## Tieback Logic for Simulation

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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.

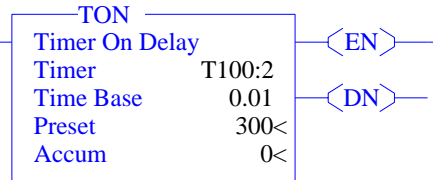
Up LS latched 3 secs after up control active and unlatched immediately when down control active.

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

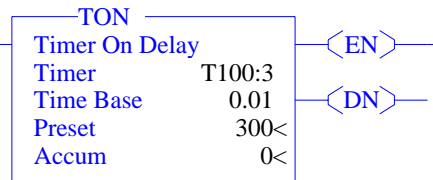
U

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

Clockwise/Counterclockwise limit switches.

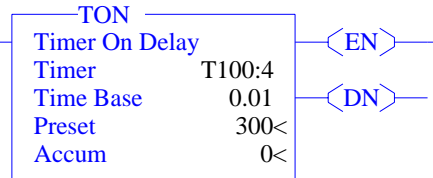
CW LS latched 3 secs after CW control active and unlatched immediately when CCW control active.

CCW LS latched 3 secs after CCW control active and unlatched immediately when CW control active.

Rotating mechanism  
clockwise control

**ROTAT\_CW**

O:0/4



Rotator clockwise  
limit switch

**ROTR\_CWLS**

T100:4/DN

B99/7

L

Rotator counter-  
clockwise limit  
switch

**ROTR\_CCWLS**

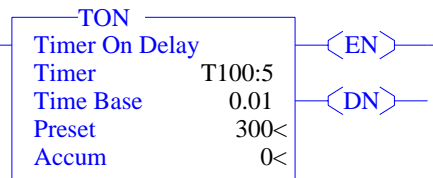
B99/10

U

Rotating mechanism  
counter-clockwise  
control

**ROTAT\_CCW**

O:0/5



Rotator counter-  
clockwise limit  
switch

**ROTR\_CCWLS**

T100:5/DN

B99/10

L

Rotator clockwise  
limit switch

**ROTR\_CWLS**

B99/7

U

Simulate Pallet Prox

Latch it on 6 seconds after one has left the station.

Latch it off 3 second after new one retained.

Station running

**RUN**

B20/0

Engage hook retract  
control

**ENG2\_RET**

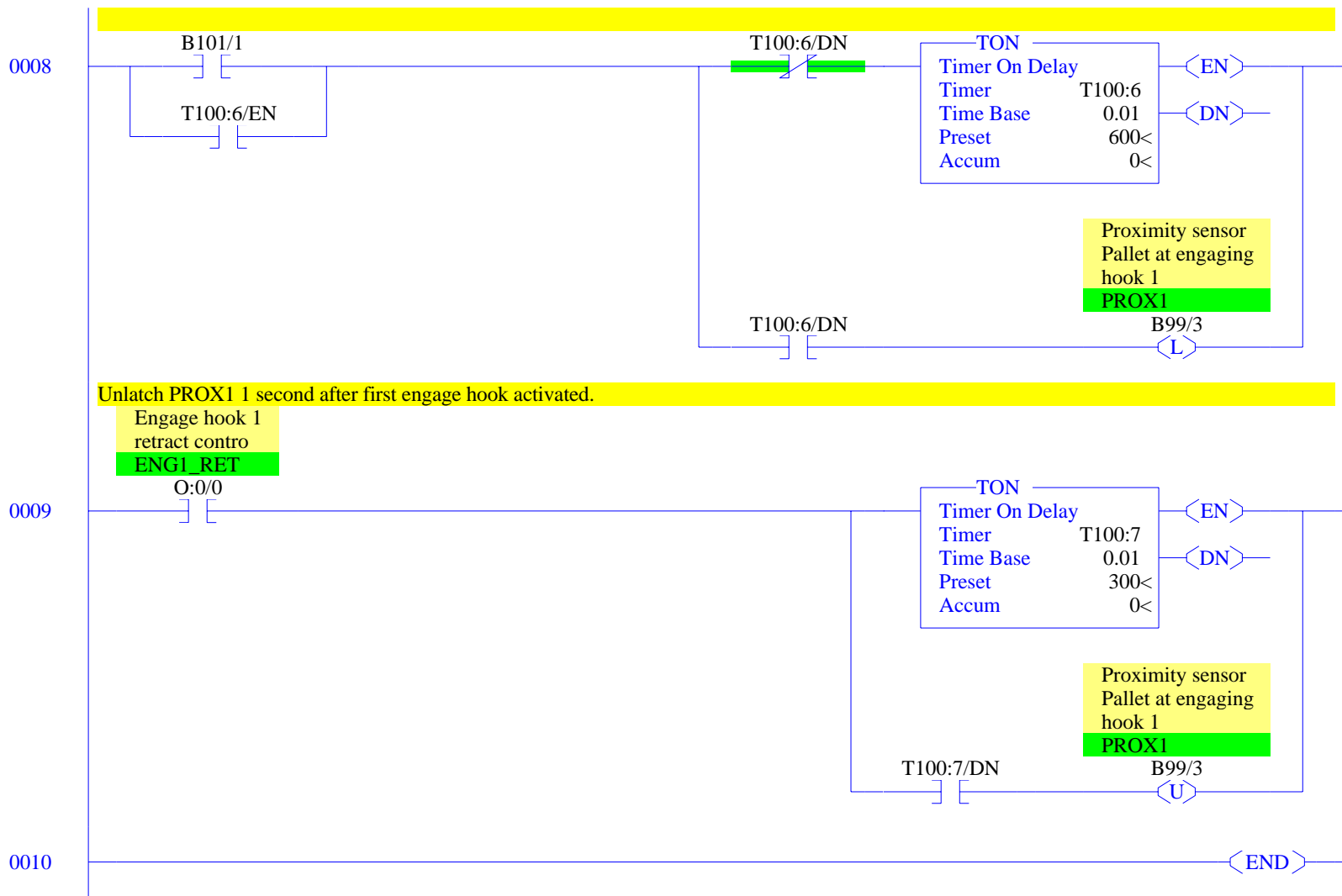
O:0/1

B101/0

ONS

B101/1

<>



## RSLogix 500 Cross Reference Report - Sorted by Address

O:0/0	- {ENGL_RET} Engage hook 1 retract contro XIC - File #100 TIEBACK - 9 OTE - File #2 - 2
O:0/1	- {ENG2_RET} Engage hook retract control XIC - File #2 - 5 OTE - File #2 - 5 XIO - File #100 TIEBACK - 7
O:0/2	- {ROTR_UP} Rotating mechanism raise control XIC - File #100 TIEBACK - 4 OTE - File #2 - 15
O:0/3	- {ROTR_DOWN} Rotating mechanism lower control XIC - File #100 TIEBACK - 3 OTE - File #2 - 12
O:0/4	- {ROTAT_CW} Rotating mechanism clockwise control XIC - File #100 TIEBACK - 5 OTE - File #2 - 23 XIO - File #2 - 24
O:0/5	- {ROTAT_CCW} Rotating mechanism counter-clockwise control XIC - File #100 TIEBACK - 6 XIO - File #2 - 22 OTE - File #2 - 26
O:0/6	- {GRIP_CLOS} Gripper close control OTU - File #2 - 18 XIC - File #2 - 19 XIO - File #2 - 20 OTL - File #2 - 16
O:0/7	- {PALL_UPCTL} Pallet retainer up and off conveyor control XIO - File #100 TIEBACK - 2 OTU - File #2 - 8 XIC - File #100 TIEBACK - 1 OTL - File #2 - 6
I:0.0	- MOV - File #99 DUPLIC_INS - 0
B3/16	- {PALLU_NBIT} ONS - File #2 - 4
B3/17	- {PALL_UPLS_NTRANS} XIC - File #2 - 5 OTE - File #2 - 4
B3/18	- {ENGLT_PBIT} ONS - File #2 - 6
B3/19	- {DROPE_PBIT} ONS - File #2 - 7
B3/20	- {PALL_UPCTL_TRANS} XIC - File #2 - 8 OTE - File #2 - 7
B3/21	- {PALLU_PBIT} ONS - File #2 - 9
B3/22	- {PALL_UPLS_TRANS} XIC - File #2 - 11 OTE - File #2 - 9
B3/23	- {ROTRC_PBIT} ONS - File #2 - 10
B3/24	- {ROTR_CWLS_TRANS} XIC - File #2 - 11 OTE - File #2 - 10
B3/25	- {MOVE_DN_TRANS} OTE - File #2 - 11 XIC - File #2 - 12
B3/26	- {INT_ROTR_DOWN} OTE - File #2 - 12 XIC - File #2 - 12
B3/27	- {MOVUP_PBIT} ONS - File #2 - 13
B3/28	- {MOVE_UP_TRANS} XIC - File #2 - 14 OTE - File #2 - 13
B3/29	- {INT_ROTR_UP}

## RSLogix 500 Cross Reference Report - Sorted by Address

	OTE - File #2 - 14
	XIC - File #2 - 14, 15
B3/30	- {GRIPC_PBIT}
	ONS - File #2 - 16
B3/31	- {GRIPO_PBIT}
	ONS - File #2 - 17
B3/32	- {OPEN_GRIP_TRANS}
	XIC - File #2 - 18
	OTE - File #2 - 17
B3/33	- {ROTU_PBIT}
	ONS - File #2 - 21
B3/34	- {ROTR_UPLS_TRANS}
	XIC - File #2 - 22, 24
	OTE - File #2 - 21
B3/35	- {ROT_CW_TRANS}
	OTE - File #2 - 22
	XIC - File #2 - 23
B3/36	- {INT_ROT_CW}
	OTE - File #2 - 23
	XIC - File #2 - 23
B3/37	- {ROT_CCW_TRANS}
	OTE - File #2 - 24
	XIC - File #2 - 25
B3/38	- {INT_ROT_CCW}
	OTE - File #2 - 25
	XIC - File #2 - 25, 26
B3/200	- {ENAB_TIE_BACK} Enable tie-back simulation logic
	XIC - File #2 - 29
	XIO - File #2 - 30
T4:1	- {ENG1_TMR} Hook 1 engage timer
	TON - File #2 - 1
T4:1/DN	- XIO - File #2 - 2
	XIC - File #2 - 6
T4:1/EN	- XIC - File #2 - 2
T4:2	- {ENG2_TMR} Hook 2 disengage timer
	TON - File #2 - 3
T4:2/DN	- XIC - File #2 - 1
	XIO - File #2 - 5
T4:2/EN	- XIC - File #2 - 3
T4:3	- {CLMP_TMR} Clamp timer
	TON - File #2 - 19
T4:3/DN	- XIC - File #2 - 13
T4:4	- {UNCLMP_TMR} Unclamp timer
	TON - File #2 - 20
T4:4/DN	- XIC - File #2 - 13
T4:5	- {RUNCLMP_TMR} Reset unclamp timer
	TON - File #2 - 28
T4:5/DN	- XIC - File #2 - 15
	XIO - File #2 - 27
B20/0	- {RUN} Station running
	OTE - File #2 - 0
	XIC - File #2 - 0, 1, 3, 5, 7, 11, 12, 13, 15, 16, 17, 22, 23, 24
	26
	File #100 TIEBACK - 7
	XIO - File #2 - 27
	File #100 TIEBACK - 0
B20/40	- {INT_RESET} Reset in progress
	OTE - File #2 - 27
	XIC - File #2 - 8, 15, 18, 26, 27, 28
	XIO - File #2 - 0, 3, 5
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

## RSLogix 500 Cross Reference Report - Sorted by Address

```

XIC - File #2 - 27
      File #100 TIEBACK - 0
B99/3 - {PROX1} Proximity sensor Pallet at engaging hook 1
      OTL - File #100 TIEBACK - 8
      OTU - File #100 TIEBACK - 9
      XIC - File #2 - 1
      OTU - File #100 TIEBACK - 0
B99/4 - {PALL_UPLS} Limit switch Indicates pallet off conveyor
      OTU - File #100 TIEBACK - 2
      XIO - File #2 - 3
      OTL - File #100 TIEBACK - 1
      XIC - File #2 - 9
      XIO - File #2 - 4
B99/5 - {ROTR_UPLS} Rotator up limit switch
      OTU - File #100 TIEBACK - 3
      OTL - File #100 TIEBACK - 4
      XIC - File #2 - 21, 26
      XIO - File #2 - 14, 15, 27
B99/6 - {ROTR_DNLS} Rotator down limit switch
      OTL - File #100 TIEBACK - 3
      OTU - File #100 TIEBACK - 4
      XIC - File #2 - 16, 17
      XIO - File #2 - 12
B99/7 - {ROTR_CWLS} Rotator clockwise limit switch
      OTL - File #100 TIEBACK - 5
      OTU - File #100 TIEBACK - 6
      XIC - File #2 - 10, 17, 24
      XIO - File #2 - 23
B99/10 - {ROTR_CCWLS} Rotator counter- clockwise limit switch
      OTU - File #100 TIEBACK - 5
      OTL - File #100 TIEBACK - 6
      XIC - File #2 - 3, 5, 7, 11, 16, 22
      XIO - File #2 - 25, 26, 27
T100:0 - TON - File #100 TIEBACK - 1
T100:0/DN - XIC - File #100 TIEBACK - 1
T100:1 - TON - File #100 TIEBACK - 2
T100:1/DN - XIC - File #100 TIEBACK - 2
T100:2 - TON - File #100 TIEBACK - 3
T100:2/DN - XIC - File #100 TIEBACK - 3
T100:3 - TON - File #100 TIEBACK - 4
T100:3/DN - XIC - File #100 TIEBACK - 4
T100:4 - TON - File #100 TIEBACK - 5
T100:4/DN - XIC - File #100 TIEBACK - 5
T100:5 - TON - File #100 TIEBACK - 6
T100:5/DN - XIC - File #100 TIEBACK - 6
T100:6 - TON - File #100 TIEBACK - 8
T100:6/DN - XIC - File #100 TIEBACK - 8
      XIO - File #100 TIEBACK - 8
T100:6/EN - XIC - File #100 TIEBACK - 8
T100:7 - TON - File #100 TIEBACK - 9
T100:7/DN - XIC - File #100 TIEBACK - 9
B101/0 - ONS - File #100 TIEBACK - 7
B101/1 - OTE - File #100 TIEBACK - 7
      XIC - File #100 TIEBACK - 8
U:99 - JSR - File #2 - 30
U:100 - {TIEBACK}
      JSR - File #2 - 29

```