

Valve Leak Check Station Control - With Simulation

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Additional internal memory:

Symbol	Address	
INT_RESET	B3/1	Internal reset
STEP_1 to STEP_6	B20/1 to B20/6	Step-in-progress bits
WAIT_TMR	T4:1	Times leak test

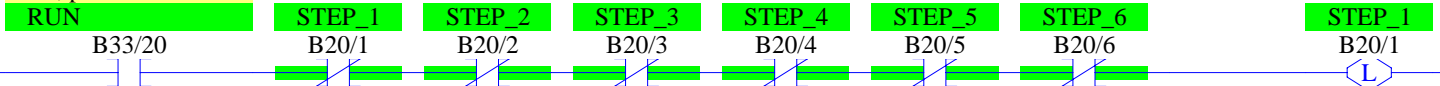
Conversion formulas

$$HD_HGT = ((HGT_MEAS - 3277) / 13107) * (150 - 75) + 75$$

$$VLV_PRES = ((PRES_MEAS - 3277) / 13107) * (100)$$

Initial start.

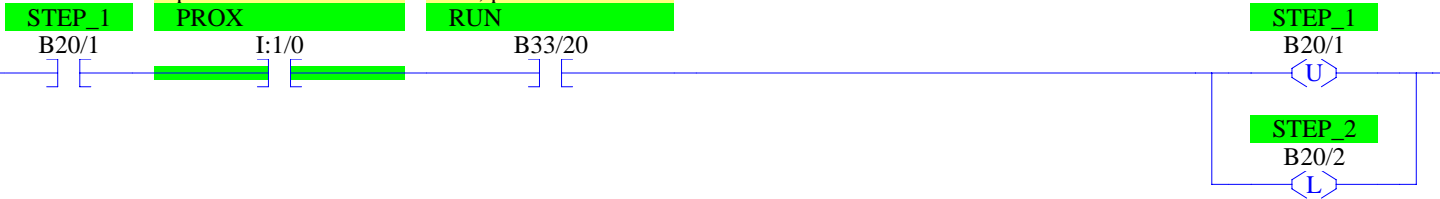
When on, allow pressure check station to run. When off, pause.



Step 1. Wait for valve.

Reflective proximity switch that is on when valve is in position to be pressure checked

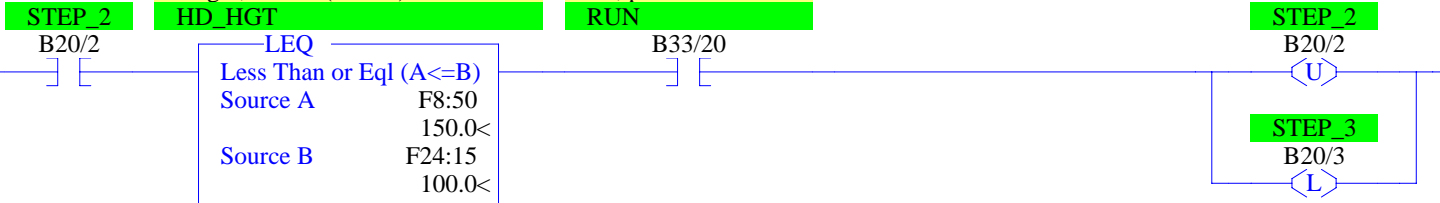
When on, allow pressure check station to run. When off, pause.



Step 2. Head down.

Pressurizing head height, in mm (REAL)

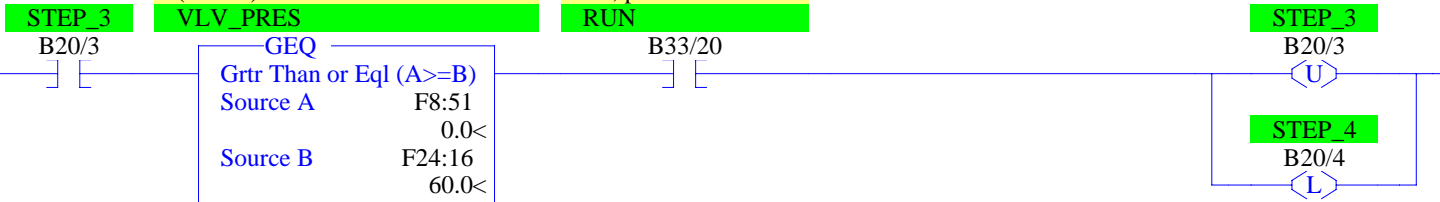
When on, allow pressure check station to run. When off, pause.

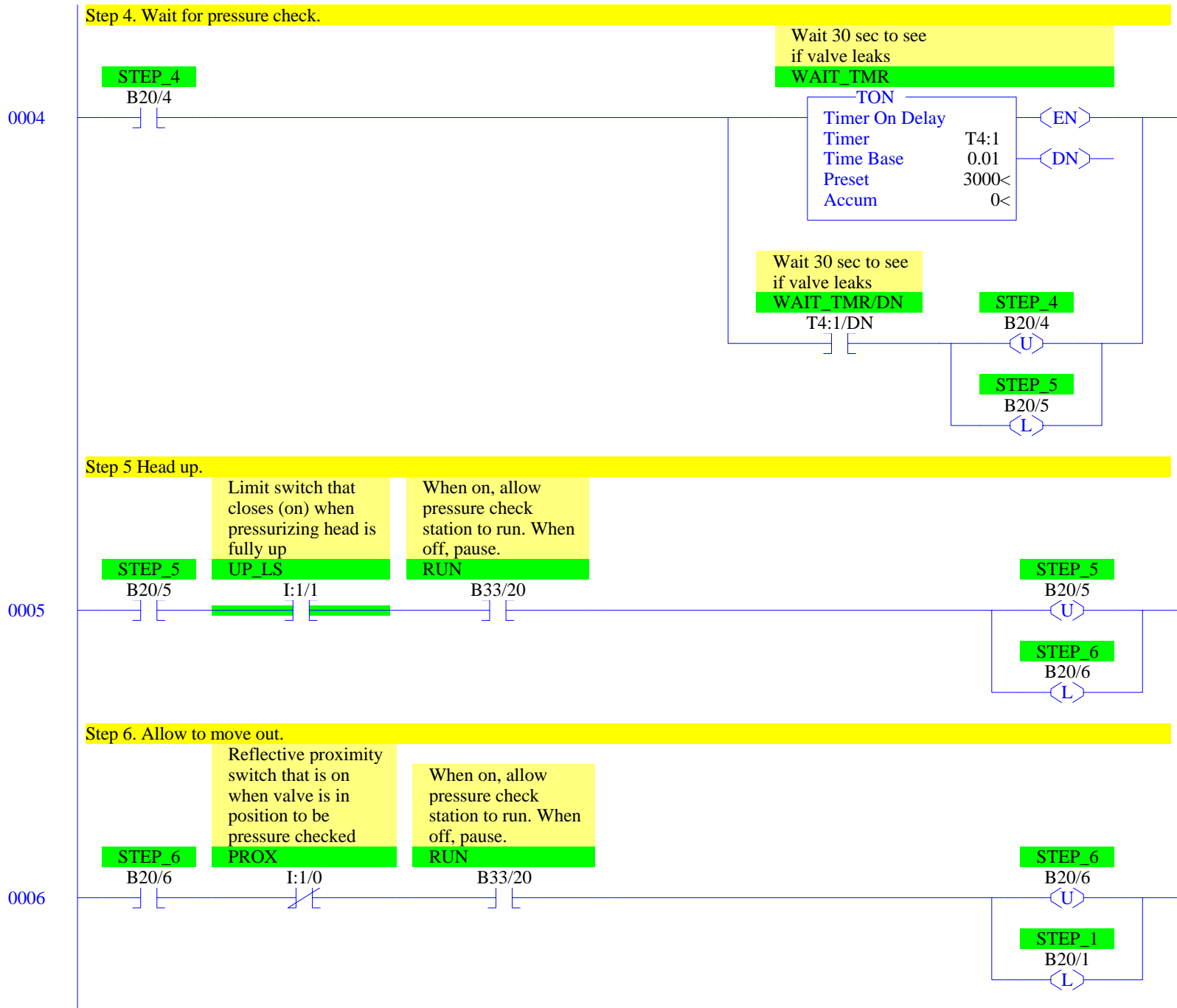


Step 3. Pressurize.

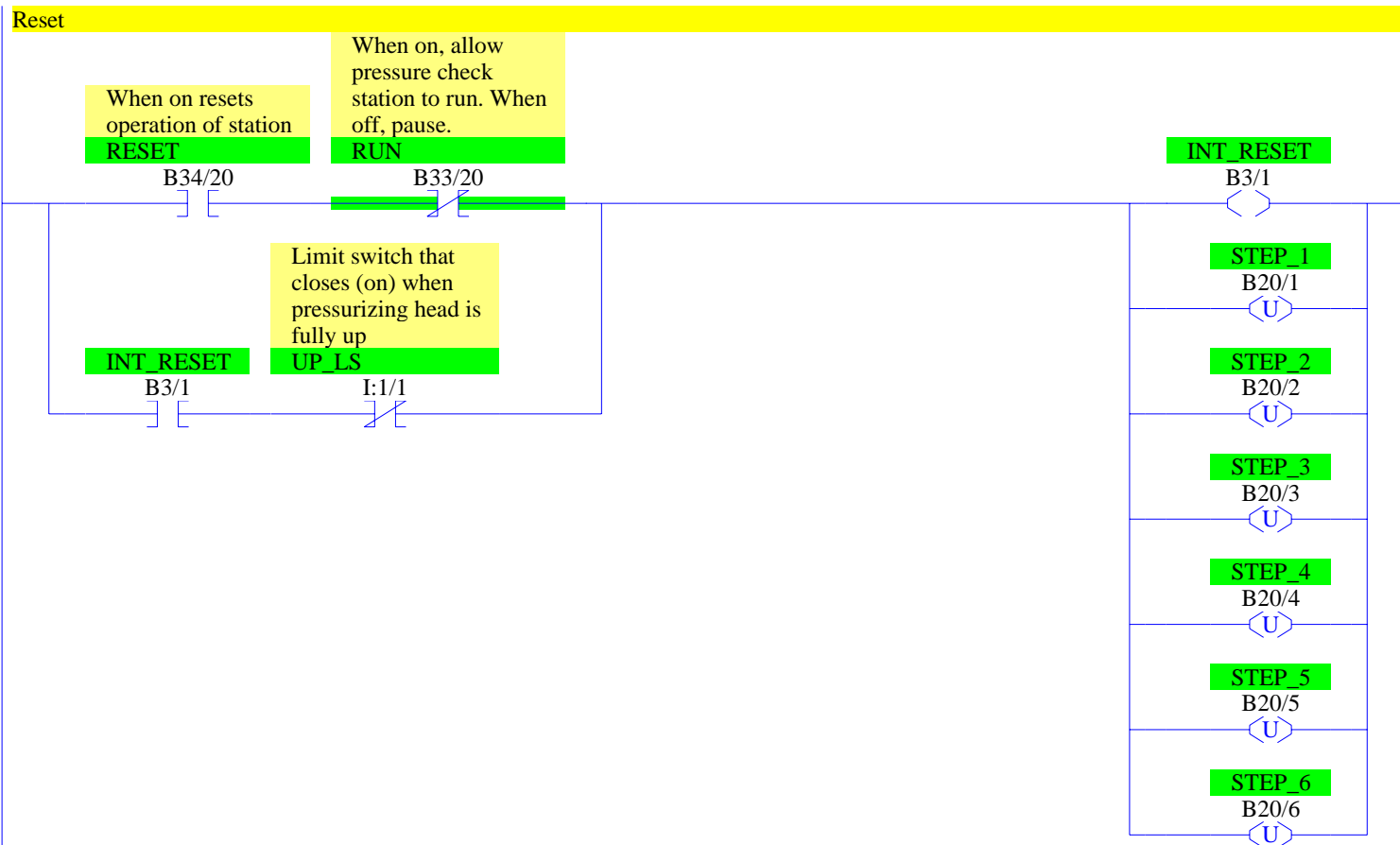
Pressure, in psi (REAL)

When on, allow pressure check station to run. When off, pause.

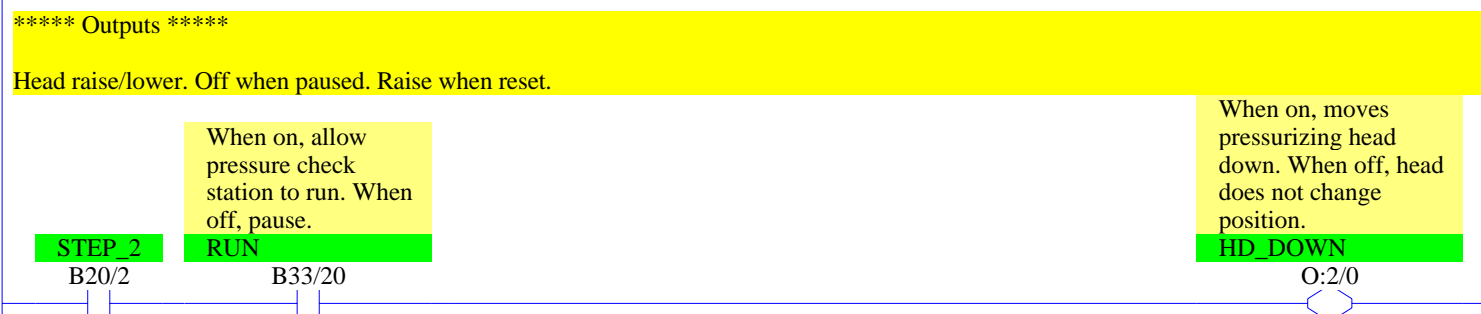




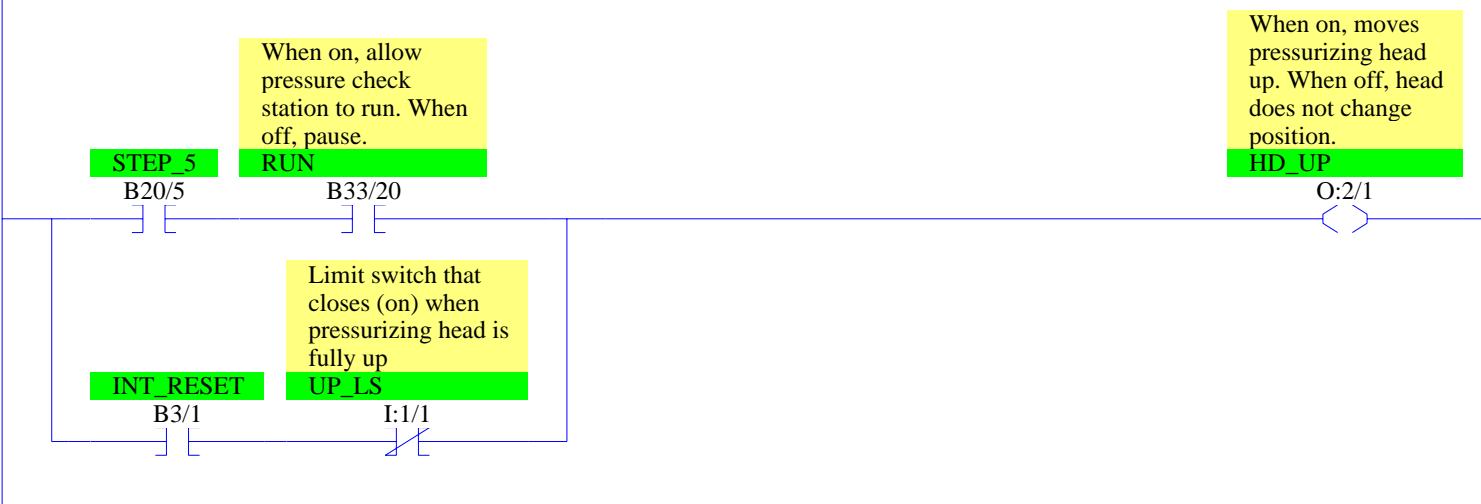
0007

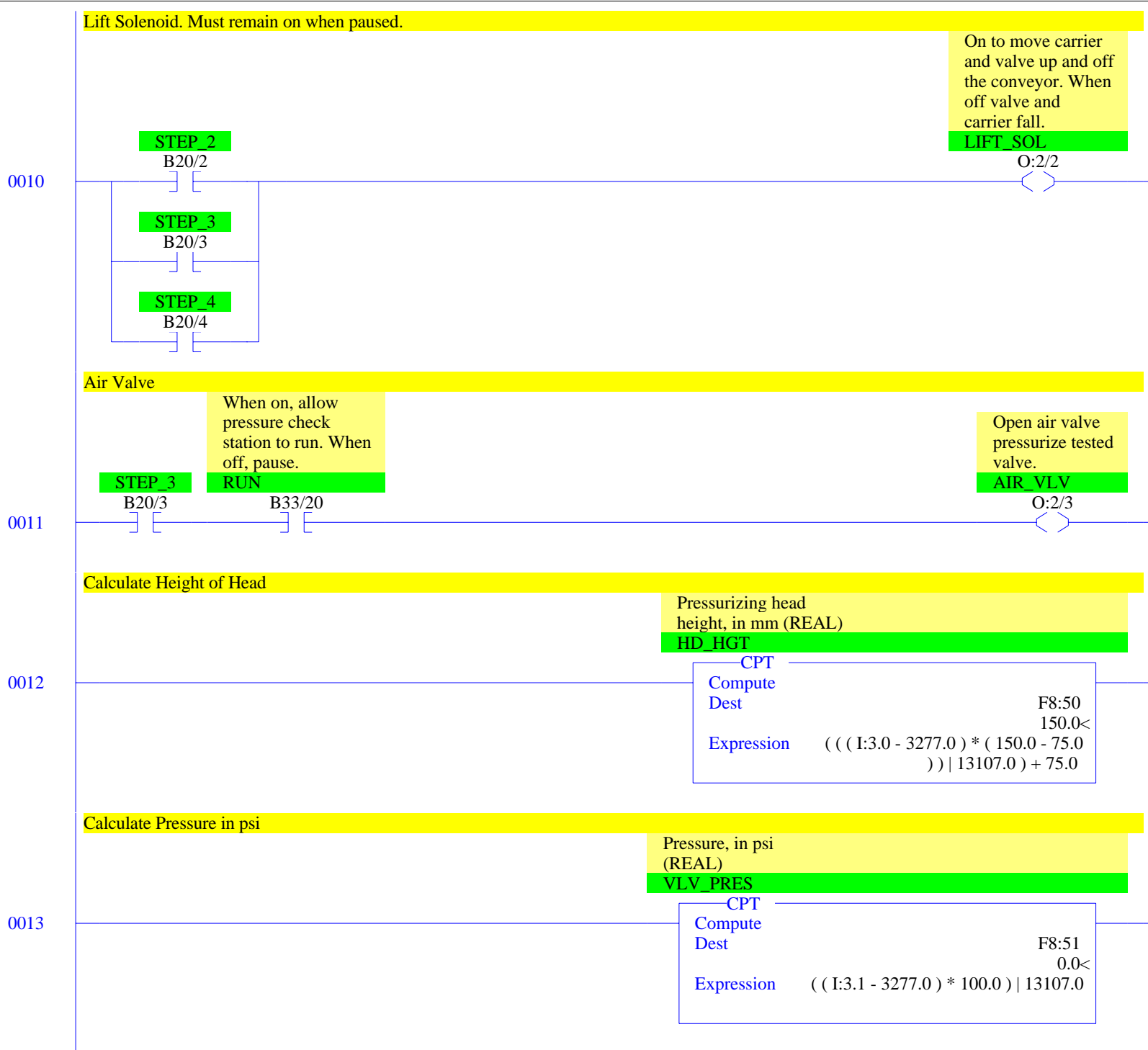


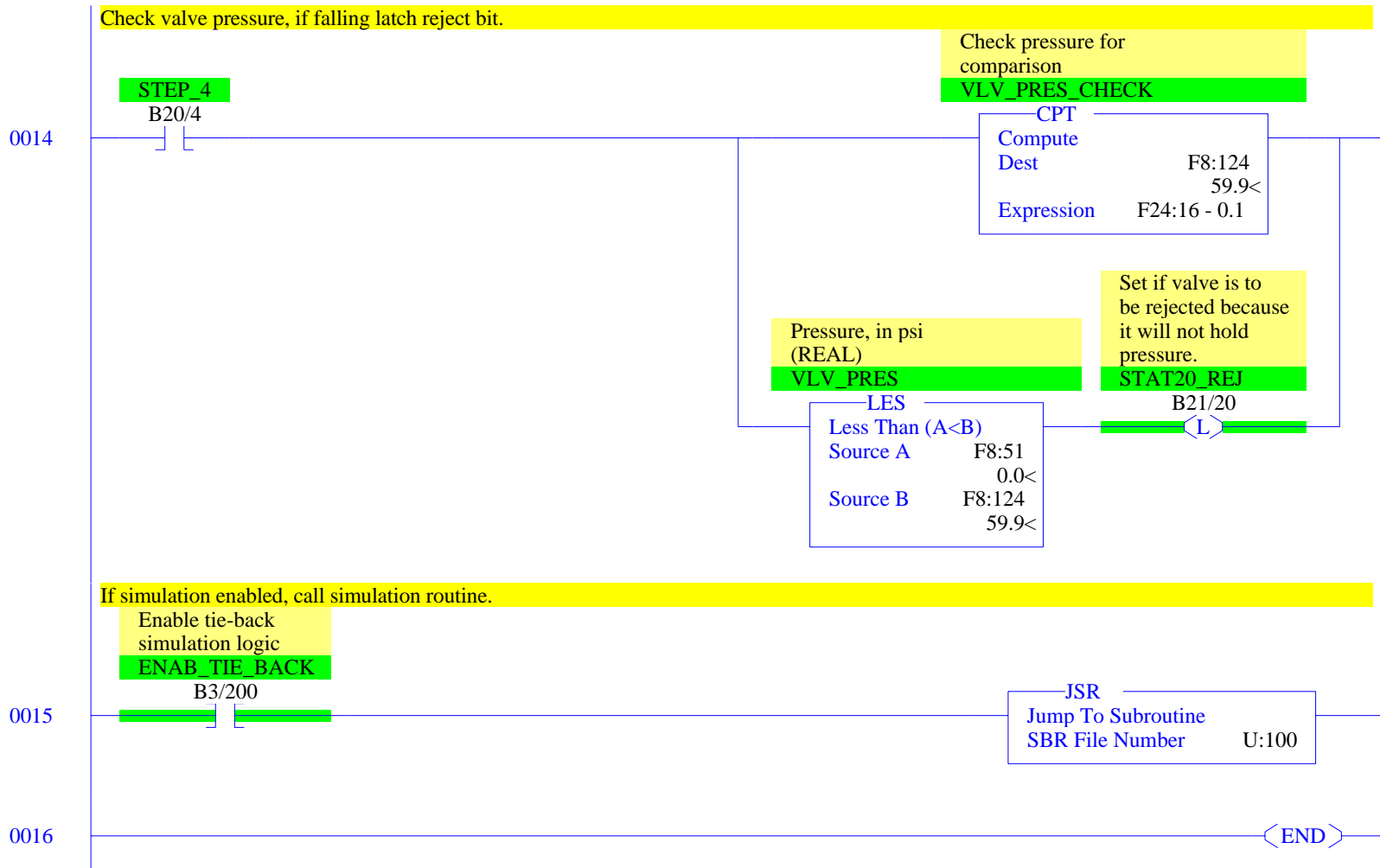
0008

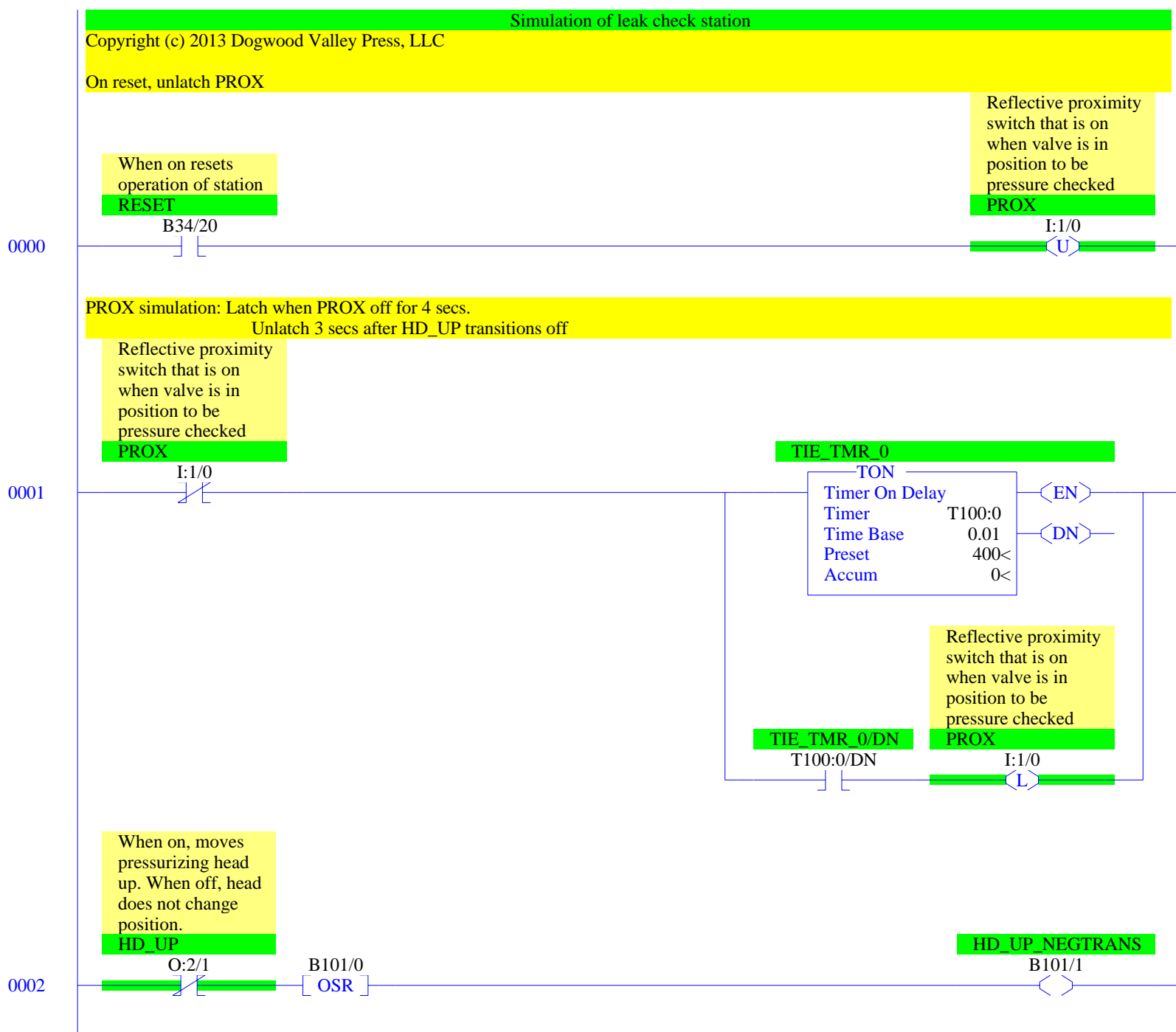


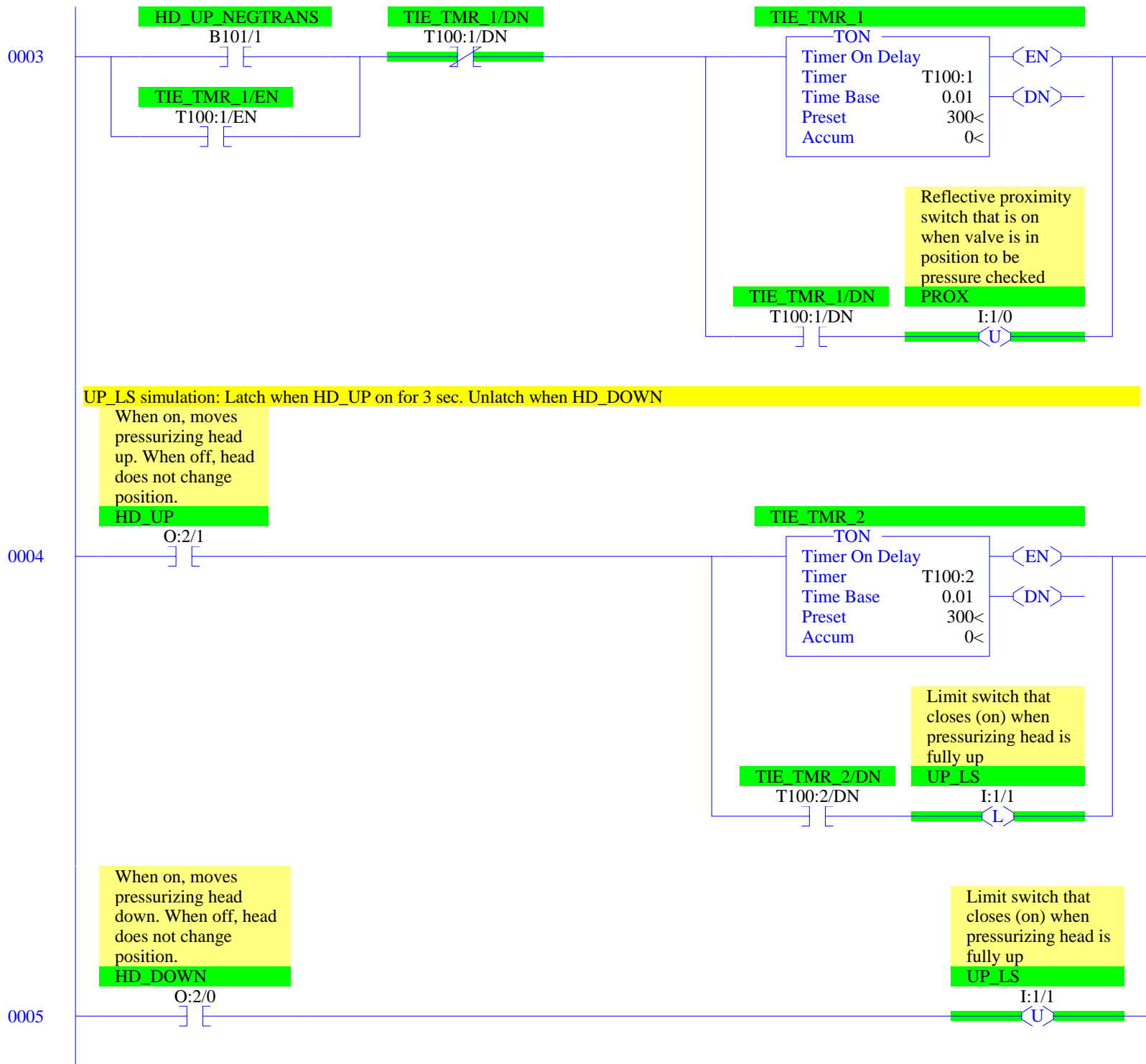
0009











HGT_MEAS Simulation: When HD_DOWN, decrement every 50 ms by 13107/80, meaning it goes from high to low in 4 sec. Also make sure no less than 3277.

When HD_UP increment every 50 ms by 13107/40 meaning it goes to high in at most 2 sec, and then make sure not larger than 16384

When on, moves
pressurizing head
down. When off, head
does not change
position.

HD_DOWN

O:2/0

TIE_TMR_4/DN

T100:4/DN

TIE_TMR_4

TON
Timer On Delay
Timer T100:4
Time Base 0.01
Preset 5<
Accum 0<

EN

DN

Measurement of
pressurizing head
height, represents
75 to 150 mm

TIE_TMR_4/DN

T100:4/DN

HGT_MEAS

CPT
Compute
Dest

I:3.0
16384<

Expression $I:3.0 - (13107.0 \mid 80.0)$

When on, moves
pressurizing head
up. When off, head
does not change
position.

HD_UP

O:2/1

TIE_TMR_5/DN

T100:5/DN

TIE_TMR_5

TON
Timer On Delay
Timer T100:5
Time Base 0.01
Preset 5<
Accum 0<

EN

DN

Measurement of
pressurizing head
height, represents
75 to 150 mm

TIE_TMR_5/DN

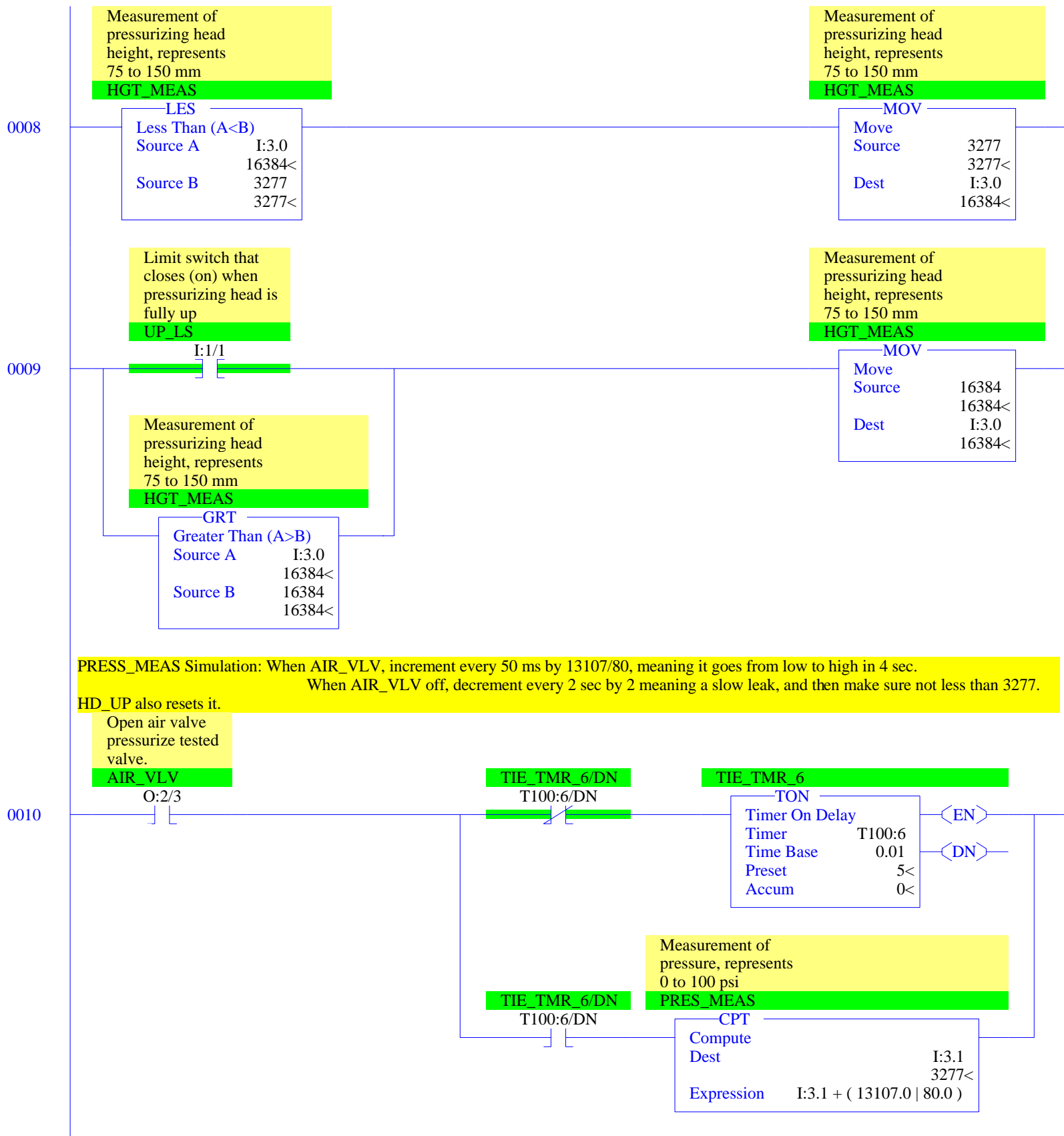
T100:5/DN

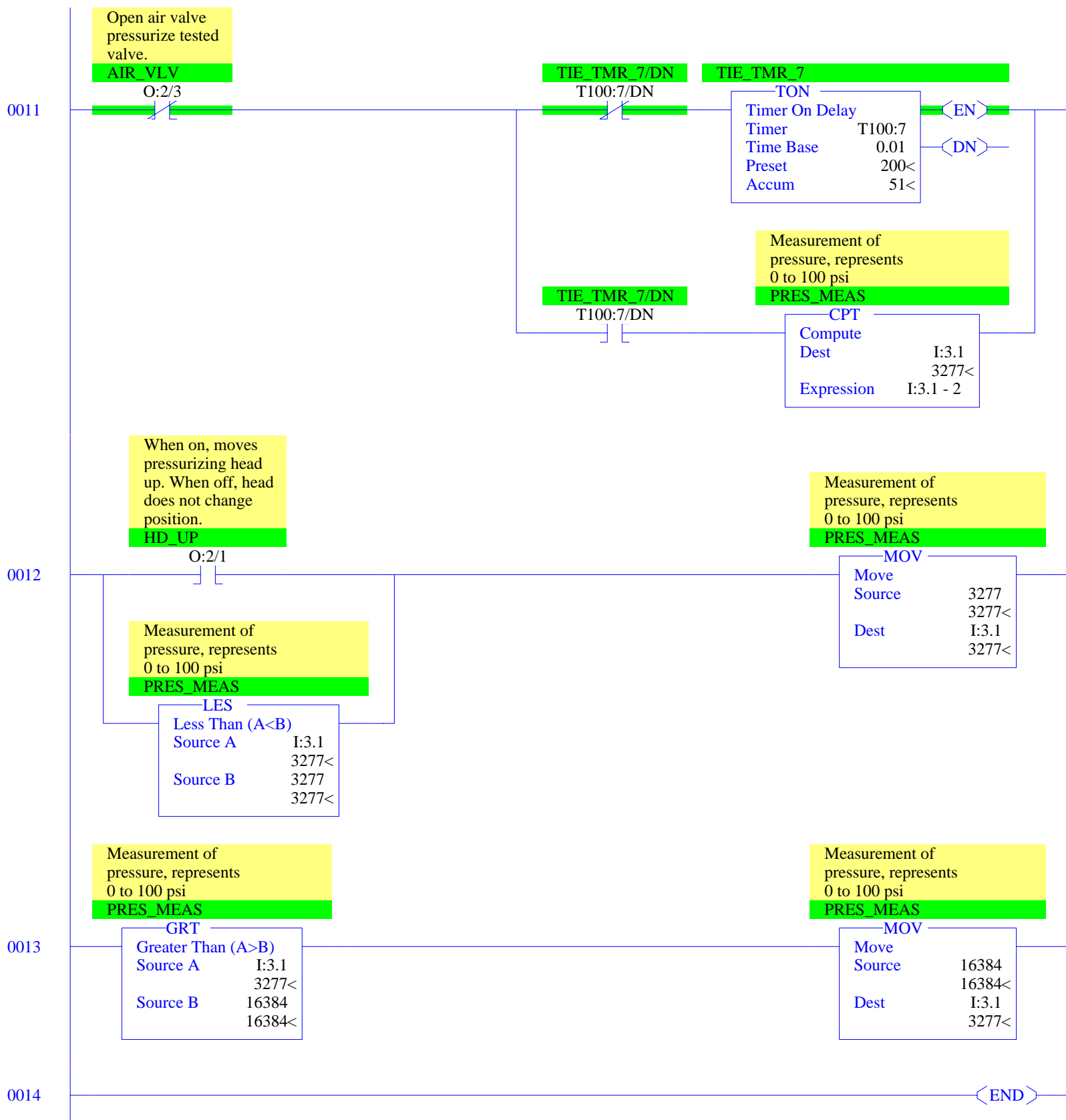
HGT_MEAS

CPT
Compute
Dest

I:3.0
16384<

Expression $I:3.0 + (13107.0 \mid 40.0)$





RSLogix 500 Cross Reference Report - Sorted by Address

O:2/0	- {HD_DOWN} When on, moves pressurizing head down. When off, head does not change position. OTE - File #2 - 8 XIC - File #100 TIEBACK - 5, 6
O:2/1	- {HD_UP} When on, moves pressurizing head up. When off, head does not change position. OTE - File #2 - 9 XIC - File #100 TIEBACK - 4, 7, 12 XIO - File #100 TIEBACK - 2
O:2/2	- {LIFT_SOL} On to move carrier and valve up and off the conveyor. When off valve and carrier stop. OTE - File #2 - 10
O:2/3	- {AIR_VLV} Open air valve pressurize tested valve. OTE - File #2 - 11 XIC - File #100 TIEBACK - 10 XIO - File #100 TIEBACK - 11
I:1/0	- {PROX} Reflective proximity switch that is on when valve is in position to be pressurized. OTL - File #100 TIEBACK - 1 OTU - File #100 TIEBACK - 0, 3 XIC - File #2 - 1 XIO - File #2 - 6 File #100 TIEBACK - 1
I:1/1	- {UP_LS} Limit switch that closes (on) when pressurizing head is fully up OTL - File #100 TIEBACK - 4 OTU - File #100 TIEBACK - 5 XIC - File #2 - 5 File #100 TIEBACK - 9 XIO - File #2 - 7, 9
I:3.0	- {HGT_MEAS} Measurement of pressurizing head height, represents 75 to 150 mm MOV - File #100 TIEBACK - 8, 9 CPT - File #2 - 12 File #100 TIEBACK - 6, 7 GRT - File #100 TIEBACK - 9 LES - File #100 TIEBACK - 8
I:3.1	- {PRES_MEAS} Measurement of pressure, represents 0 to 100 psi MOV - File #100 TIEBACK - 12, 13 CPT - File #2 - 13 File #100 TIEBACK - 10, 11 GRT - File #100 TIEBACK - 13 LES - File #100 TIEBACK - 12
B3/1	- {INT_RESET} OTE - File #2 - 7 XIC - File #2 - 7, 9
B3/200	- {ENAB_TIE_BACK} Enable tie-back simulation logic XIC - File #2 - 15
T4:1	- {WAIT_TMR} Wait 30 sec to see if valve leaks TON - File #2 - 4
T4:1/DN	- XIC - File #2 - 4
F8:50	- {HD_HGT} Pressurizing head height, in mm (REAL) CPT - File #2 - 12 LEQ - File #2 - 2
F8:51	- {VLV_PRES} Pressure, in psi (REAL) CPT - File #2 - 13 GEQ - File #2 - 3 LES - File #2 - 14
F8:124	- {VLV_PRES_CHECK} Check pressure for comparison CPT - File #2 - 14 LES - File #2 - 14
B20/1	- {STEP_1} OTL - File #2 - 0, 6 OTU - File #2 - 1, 7 XIC - File #2 - 1 XIO - File #2 - 0
B20/2	- {STEP_2} OTL - File #2 - 1 OTU - File #2 - 2, 7 XIC - File #2 - 2, 8, 10 XIO - File #2 - 0
B20/3	- {STEP_3}

RSLogix 500 Cross Reference Report - Sorted by Address

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OTL - File #2 - 2
OTU - File #2 - 3, 7
XIC - File #2 - 3, 10, 11
XIO - File #2 - 0
B20/4 - {STEP_4}
      OTL - File #2 - 3
      OTU - File #2 - 4, 7
      XIC - File #2 - 4, 10, 14
      XIO - File #2 - 0
B20/5 - {STEP_5}
      OTL - File #2 - 4
      OTU - File #2 - 5, 7
      XIC - File #2 - 5, 9
      XIO - File #2 - 0
B20/6 - {STEP_6}
      OTL - File #2 - 5
      OTU - File #2 - 6, 7
      XIC - File #2 - 6
      XIO - File #2 - 0
B21/20 - {STAT20_REJ} Set if valve is to be rejected because it will not hold pressure.
      OTL - File #2 - 14
F24:15 - {VLV_HGT} Height of valve, desired height of pressurizing head to do pressure check
      LEQ - File #2 - 2
F24:16 - {DES_PRES} Desired test pressure, in psi (REAL)
      CPT - File #2 - 14
      GEQ - File #2 - 3
B33/20 - {RUN} When on, allow pressure check station to run. When off, pause.
      XIC - File #2 - 0, 1, 2, 3, 5, 6, 8, 9, 11
      XIO - File #2 - 7
B34/20 - {RESET} When on resets operation of station
      XIC - File #2 - 7
      File #100 TIEBACK - 0
T100:0 - {TIE_TMR_0}
      TON - File #100 TIEBACK - 1
T100:0/DN - XIC - File #100 TIEBACK - 1
T100:1 - {TIE_TMR_1}
      TON - File #100 TIEBACK - 3
T100:1/DN - XIC - File #100 TIEBACK - 3
      XIO - File #100 TIEBACK - 3
T100:1/EN - XIC - File #100 TIEBACK - 3
T100:2 - {TIE_TMR_2}
      TON - File #100 TIEBACK - 4
T100:2/DN - XIC - File #100 TIEBACK - 4
T100:4 - {TIE_TMR_4}
      TON - File #100 TIEBACK - 6
T100:4/DN - XIC - File #100 TIEBACK - 6
      XIO - File #100 TIEBACK - 6
T100:5 - {TIE_TMR_5}
      TON - File #100 TIEBACK - 7
T100:5/DN - XIC - File #100 TIEBACK - 7
      XIO - File #100 TIEBACK - 7
T100:6 - {TIE_TMR_6}
      TON - File #100 TIEBACK - 10
T100:6/DN - XIC - File #100 TIEBACK - 10
      XIO - File #100 TIEBACK - 10
T100:7 - {TIE_TMR_7}
      TON - File #100 TIEBACK - 11
T100:7/DN - XIC - File #100 TIEBACK - 11
      XIO - File #100 TIEBACK - 11
B101/0 - OSR - File #100 TIEBACK - 2
B101/1 - {HD_UP_NEGTRANS}
      OTE - File #100 TIEBACK - 2
      XIC - File #100 TIEBACK - 3
U:100 - JSR - File #2 - 15

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