

## 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.

RUN

B33/20

STEP\_1

STEP\_2

STEP\_3

STEP\_4

STEP\_5

STEP\_6

STEP\_1

B20/1

B20/2

B20/3

B20/4

B20/5

B20/6

B20/1

(L)

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\_1

B20/1

PROX

I:1/0

RUN

B33/20

STEP\_1

B20/1

(U)

STEP\_2

B20/2

(L)

Step 2. Head down.

Pressurizing head  
height, in mm (REAL)

HD\_HGT

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

STEP\_2

B20/2

LEQ

Less Than or Eq (A&lt;=B)

Source A

F8:50

150.0&lt;

Source B

F24:15

100.0&lt;

B33/20

STEP\_2

B20/2

(U)

STEP\_3

B20/3

(L)

Step 3. Pressurize.

Pressure, in psi  
(REAL)

VLV\_PRES

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

STEP\_3

B20/3

GEQ

Grtr Than or Eq (A&gt;=B)

Source A

F8:51

0.0&lt;

Source B

F24:16

60.0&lt;

B33/20

STEP\_3

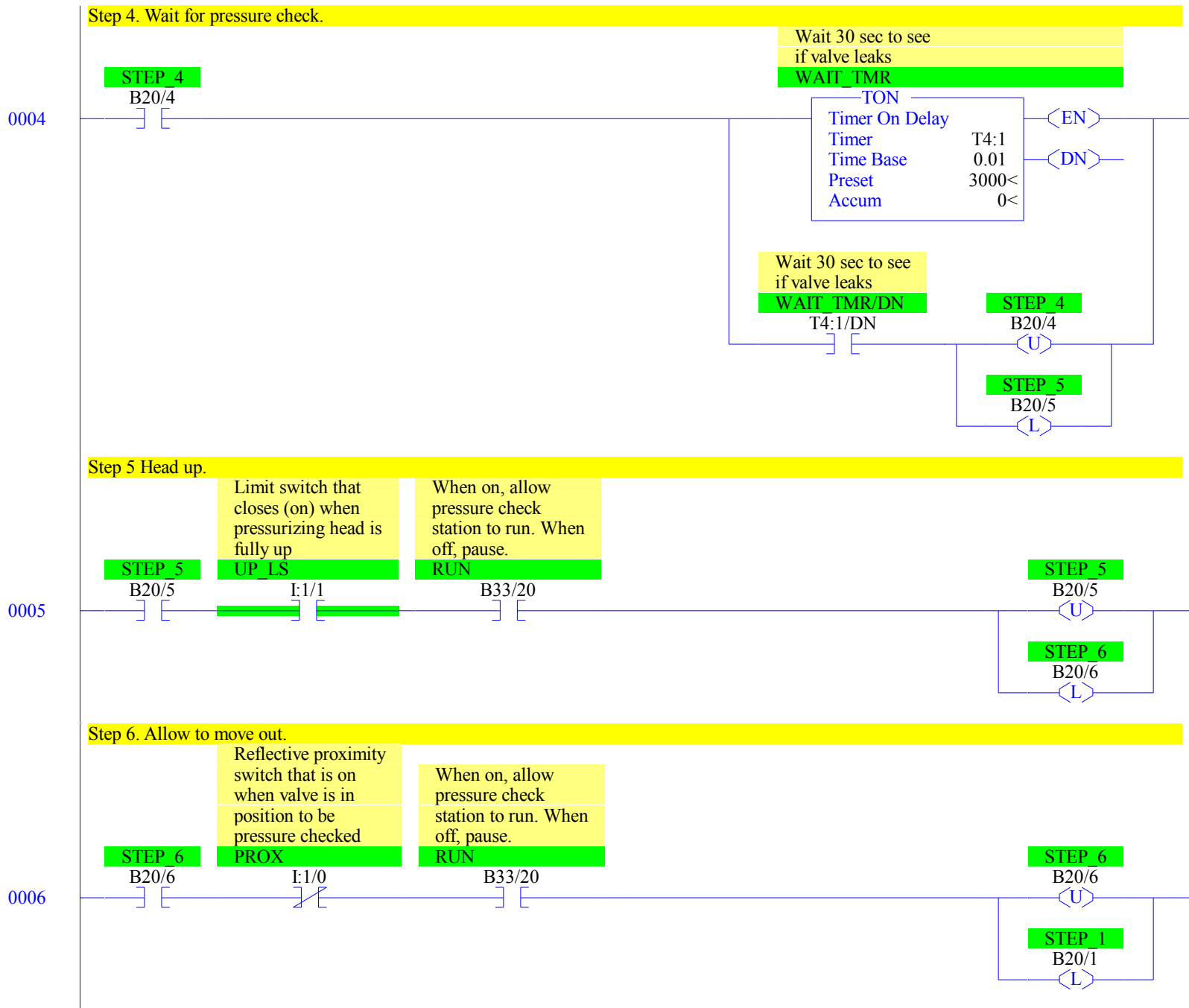
B20/3

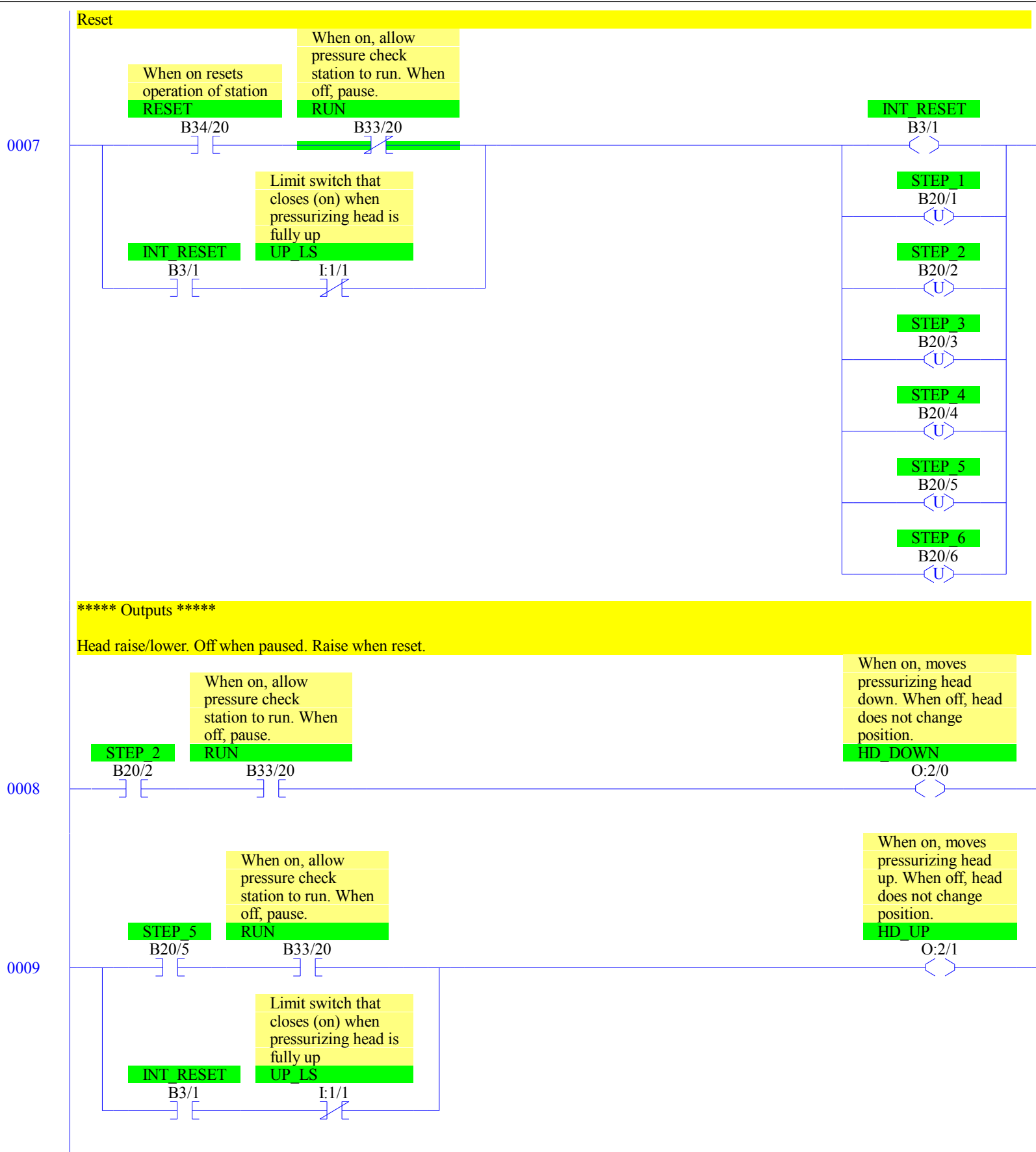
(U)

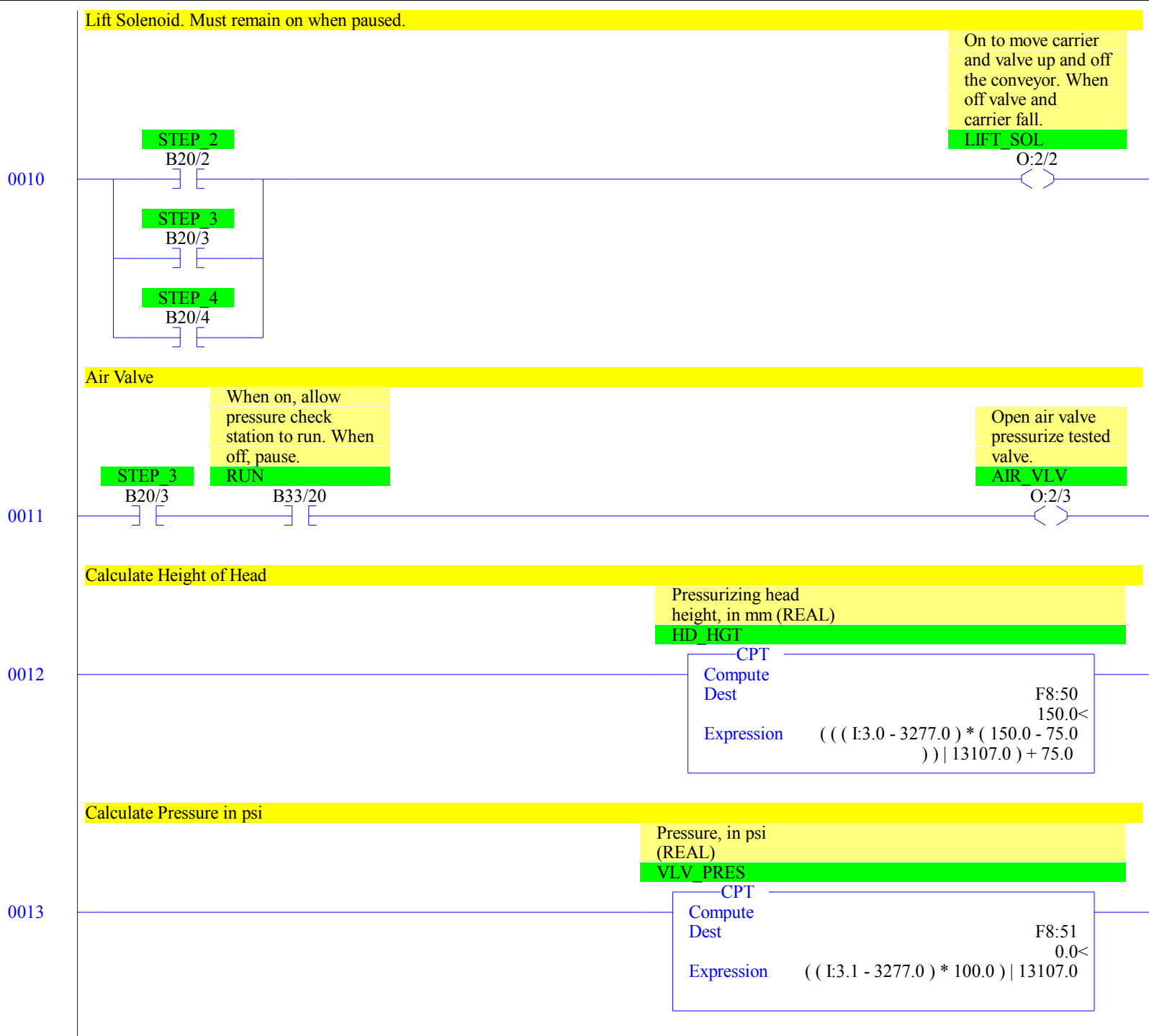
STEP\_4

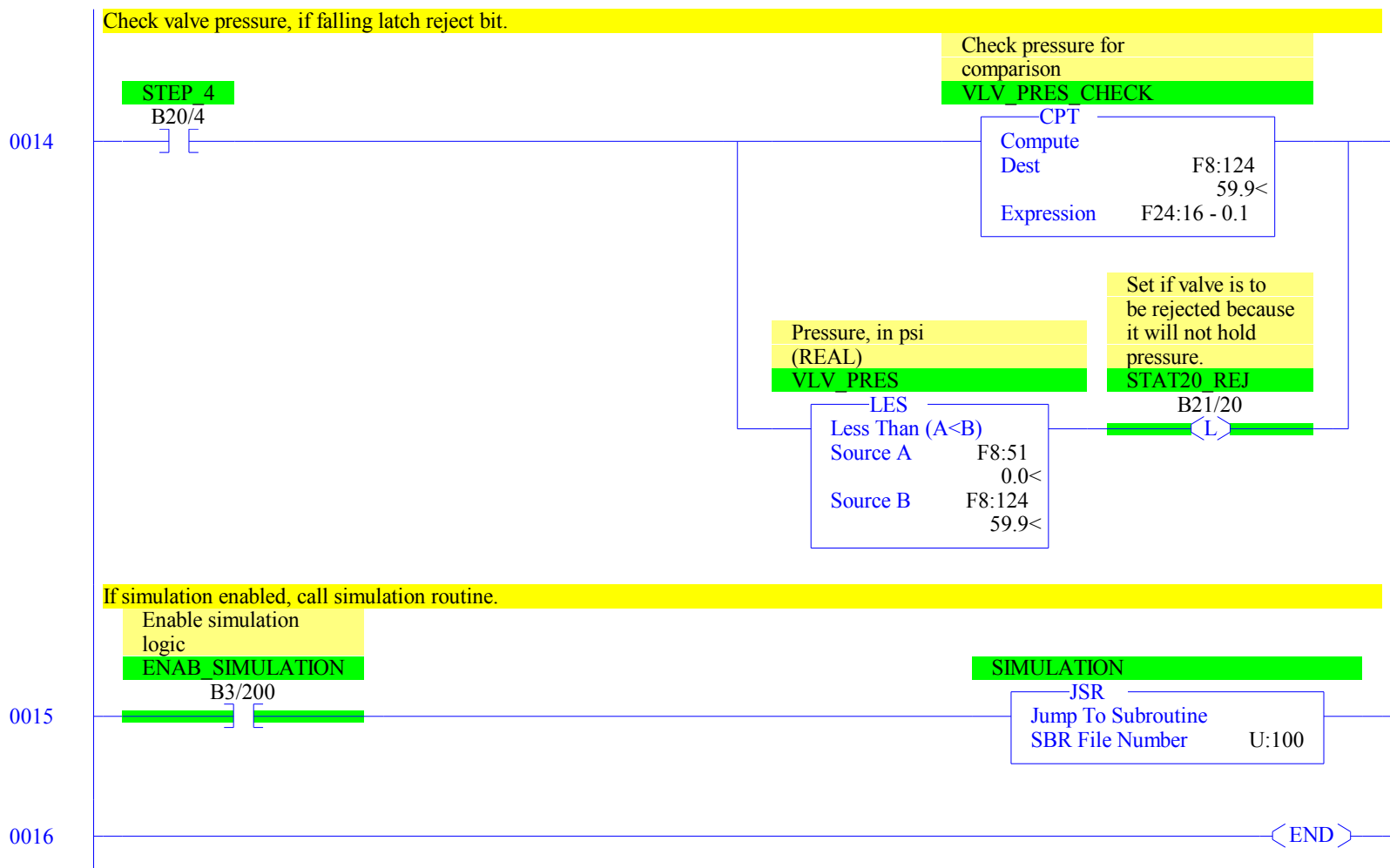
B20/4

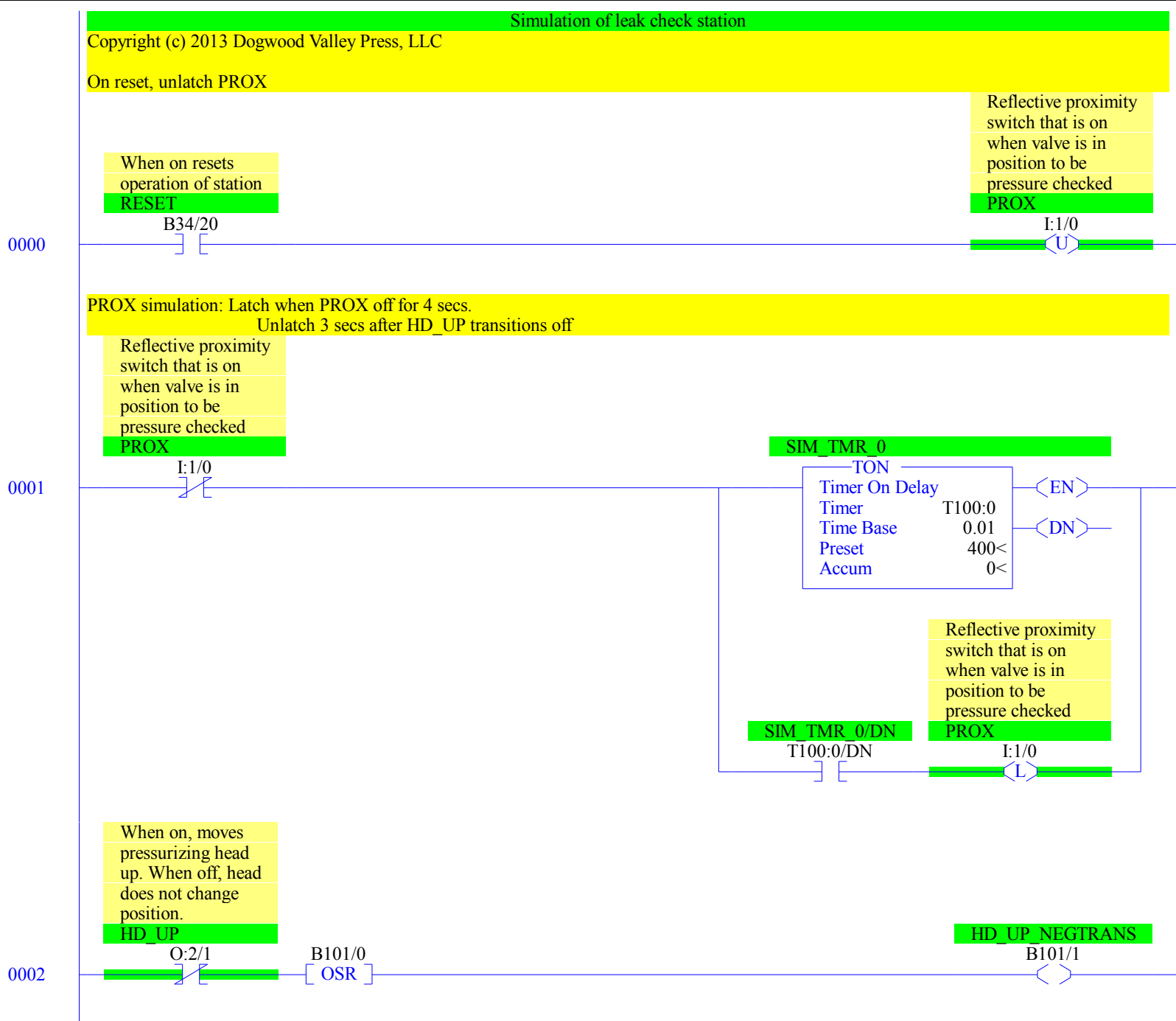
(L)

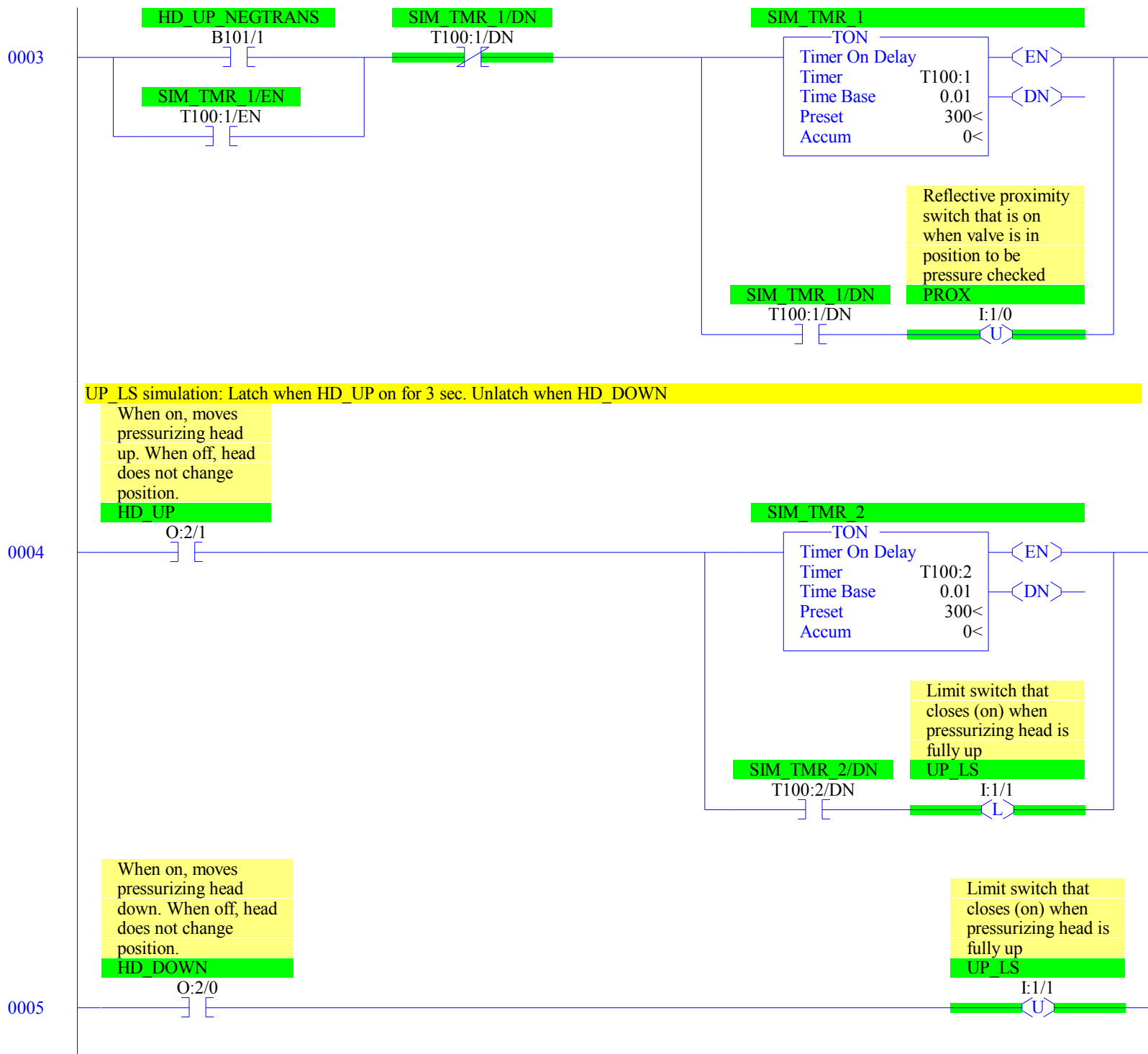












HGT\_MEAS Simulation: When HD\_DOWN, decrement every 50 ms by 13107/80, meaning it goes from high to low in 4 sec. Also make sure no less than 3277.

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

SIM\_TMR\_4/DN

T100:4/DN

SIM\_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

SIM\_TMR\_4/DN

T100:4/DN

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

SIM\_TMR\_5/DN

T100:5/DN

SIM\_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

SIM\_TMR\_5/DN

T100:5/DN

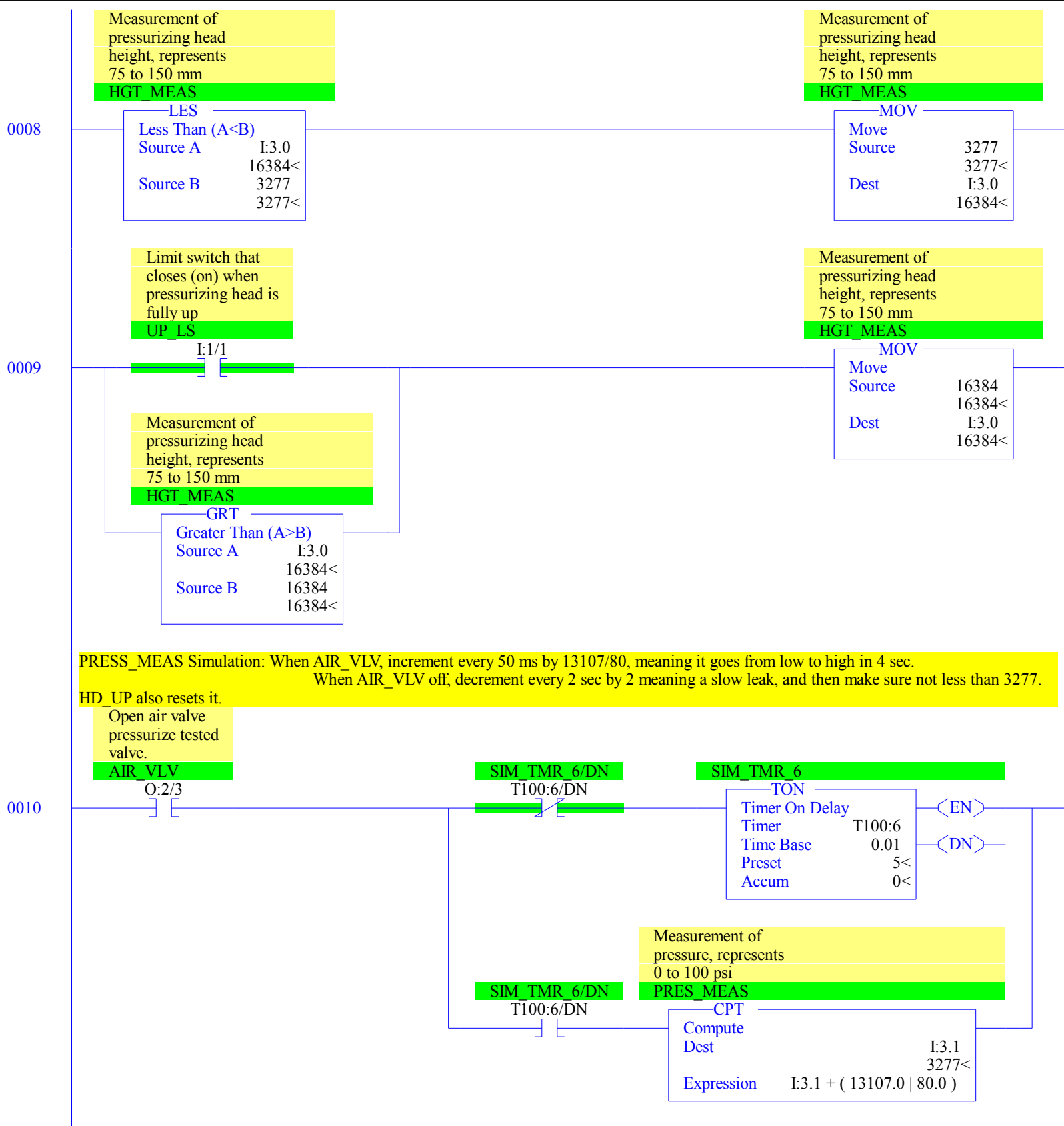
CPT

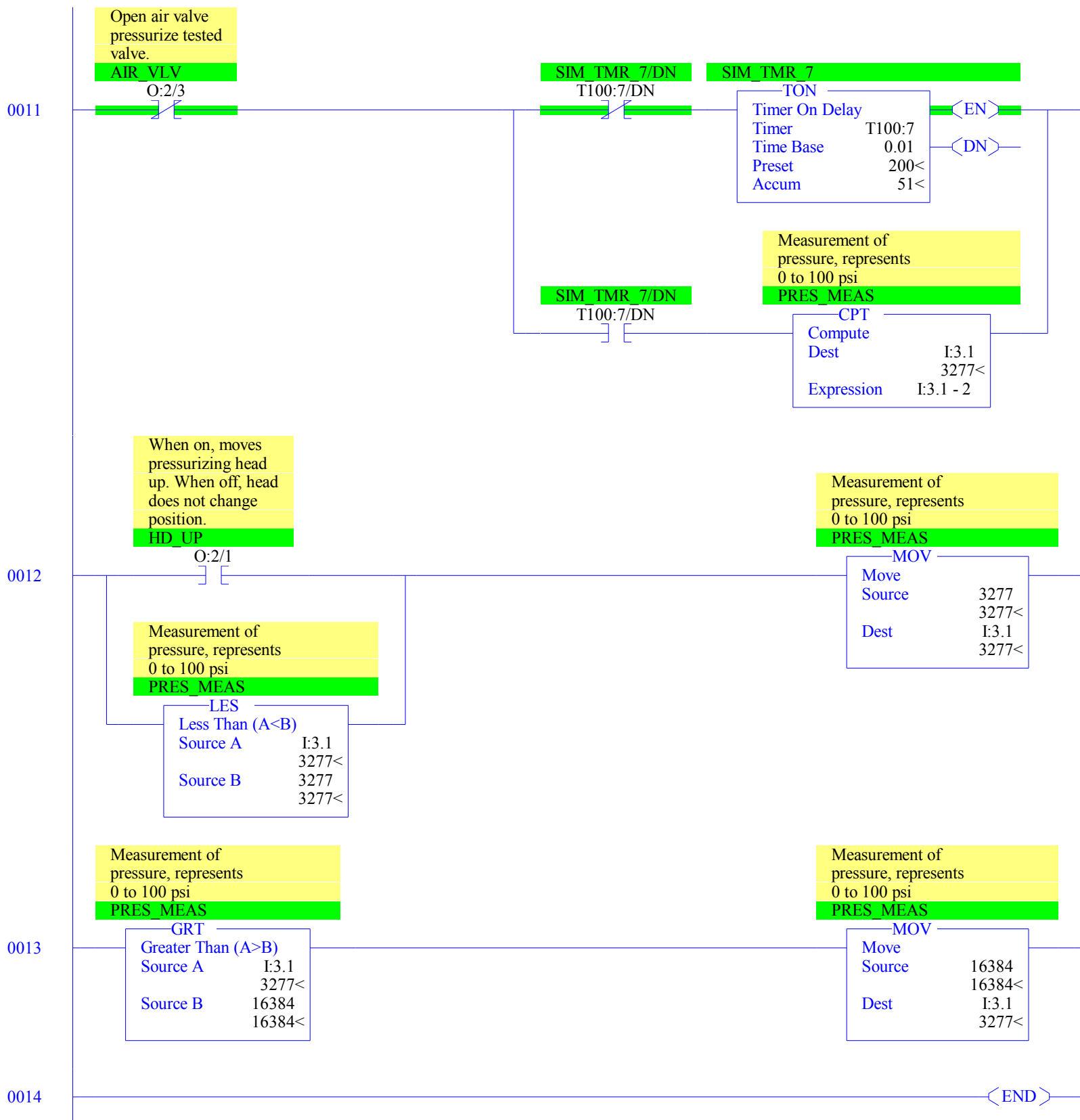
Compute  
Dest I:3.0  
16384<  
Expression  $I:3.0 + (13107.0 \mid 40.0)$

0006

0007







## 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 fall. 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 pressure checked 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_SIMULATION} Enable 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

## RSLogix 500 Cross Reference Report - Sorted by Address

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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}
            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 (REAL)
            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     - {SIM_TMR_0}
            TON - File #100 TIEBACK - 1

T100:0/DN  - XIC - File #100 TIEBACK - 1

T100:1     - {SIM_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     - {SIM_TMR_2}
            TON - File #100 TIEBACK - 4

T100:2/DN  - XIC - File #100 TIEBACK - 4

T100:4     - {SIM_TMR_4}
            TON - File #100 TIEBACK - 6

T100:4/DN  - XIC - File #100 TIEBACK - 6
            XIO - File #100 TIEBACK - 6

T100:5     - {SIM_TMR_5}
            TON - File #100 TIEBACK - 7

T100:5/DN  - XIC - File #100 TIEBACK - 7
            XIO - File #100 TIEBACK - 7

T100:6     - {SIM_TMR_6}
            TON - File #100 TIEBACK - 10

T100:6/DN  - XIC - File #100 TIEBACK - 10
            XIO - File #100 TIEBACK - 10

T100:7     - {SIM_TMR_7}
            TON - File #100 TIEBACK - 11

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## RSLogix 500 Cross Reference Report - Sorted by Address

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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	- {SIMULATION}
	JSR - File #2 - 15