

Multi-tank Batch Control

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Additional internal memory:

Symbol	Address	
RUN	B3/0	On while batch running
STEP_1 to STEP_22	B20/1 to B20/22	Step-in-progress bits
DELAY_TMR	T4:1	Delay after emptying half of tanks
REACTION_TMR	T4:2	Times reaction

Conversion formulas

$$WT10x_VAL = ((WT10x_MEAS - 6241) / 31206) * (1000)$$

$$TT103_VAL = ((TT103_MEAS - 6241) / 31206) * (100)$$

Start/Stop/Pause. Initial start

Start push button,
on (closed) to start

START_PB

I:0/0

Stop push button,
off (open) to stop

STOP_PB

I:0/1

Process running

RUN

B3/0

Process running
RUN

B3/0

Process running
RUN

B3/0

STEP_1

B20/1

STEP_2

B20/2

STEP_3

B20/3

STEP_4

B20/4

STEP_5

B20/5

STEP_6

B20/6

STEP_7

B20/7

STEP_8

B20/8

STEP_9

B20/9

STEP_10

B20/10

STEP_11

B20/11

STEP_12

B20/12

STEP_13

B20/13

STEP_14

B20/14

STEP_15

B20/15

STEP_16

B20/16

STEP_17

B20/17

STEP_18

B20/18

STEP_19

B20/19

STEP_20

B20/20

STEP_21

B20/21

STEP_22

B20/22

STEP_1

B20/1

Step 1. Make sure Run is on (especially after a pause).

STEP_1

B20/1

Process running

RUN

B3/0

STEP_1

B20/1

STEP_2

B20/2

STEP_4

B20/4

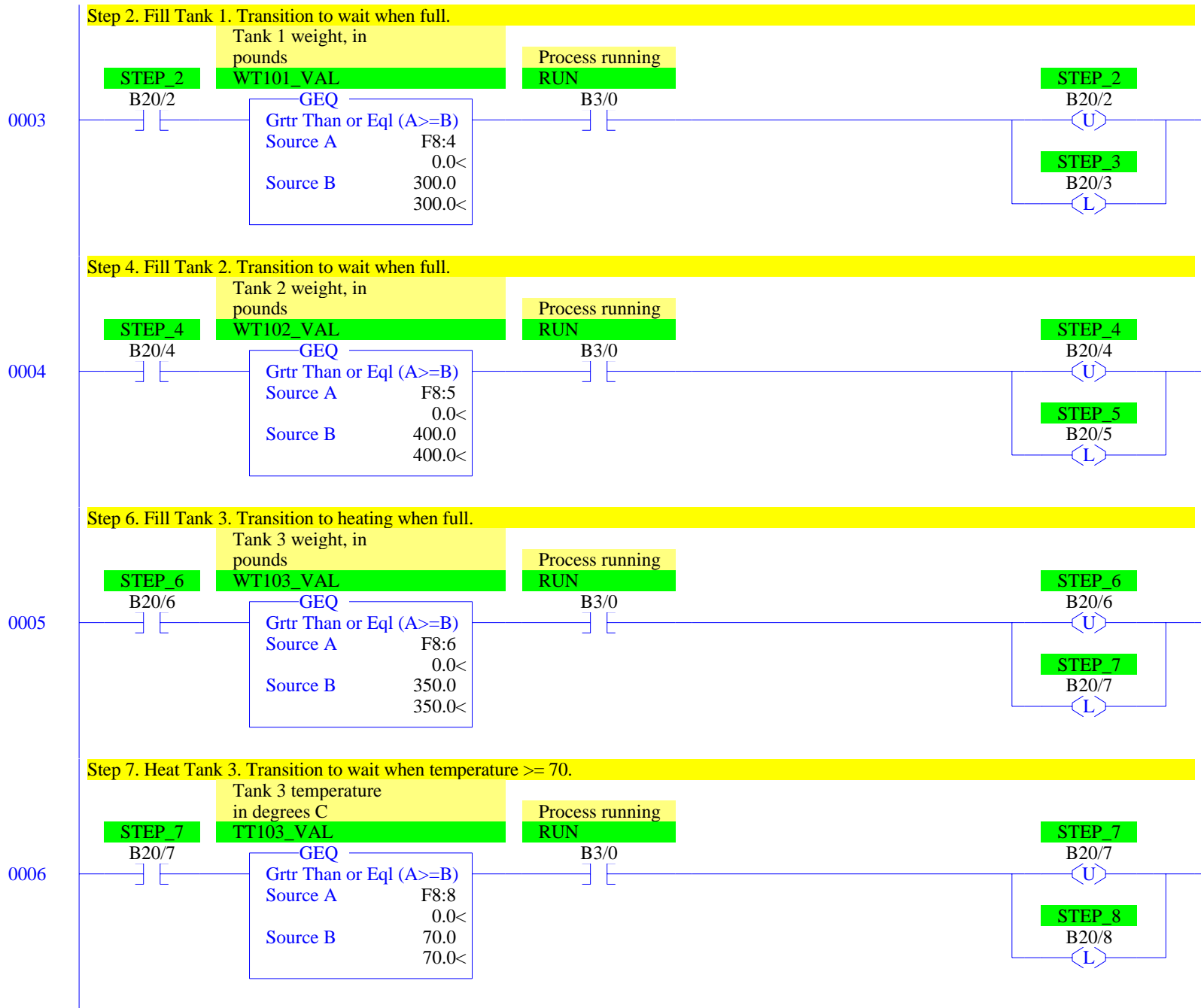
STEP_6

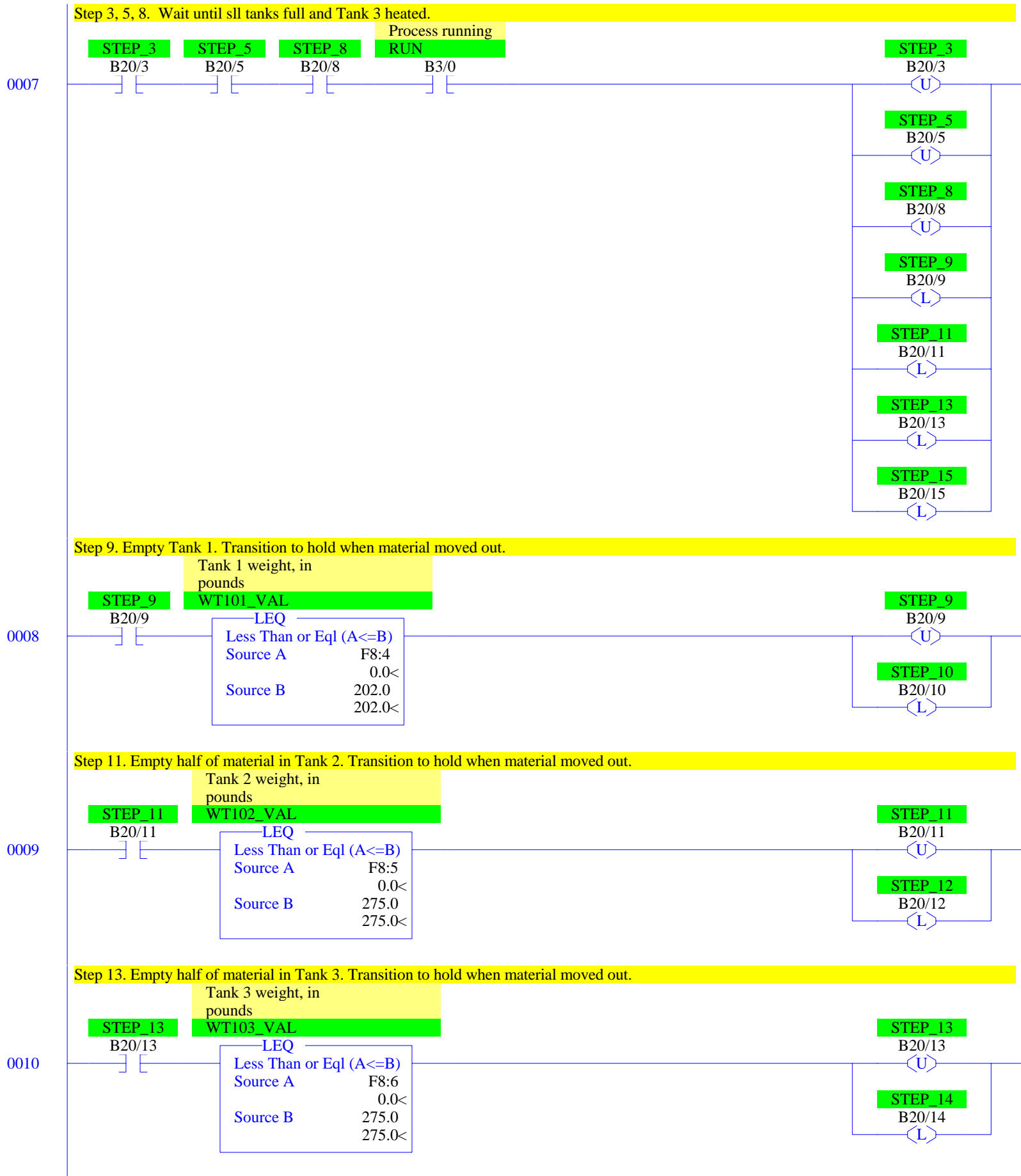
B20/6

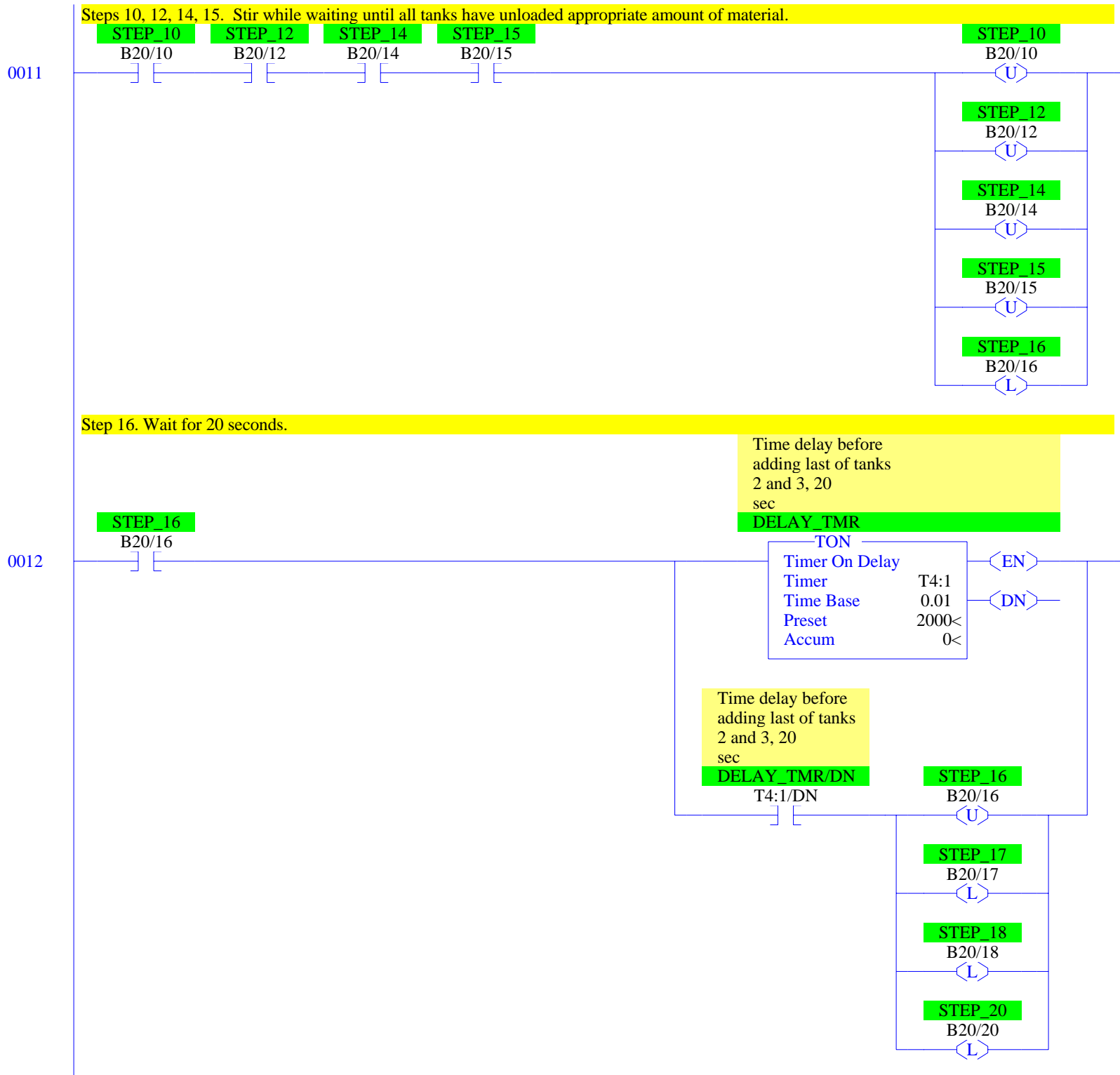
0000

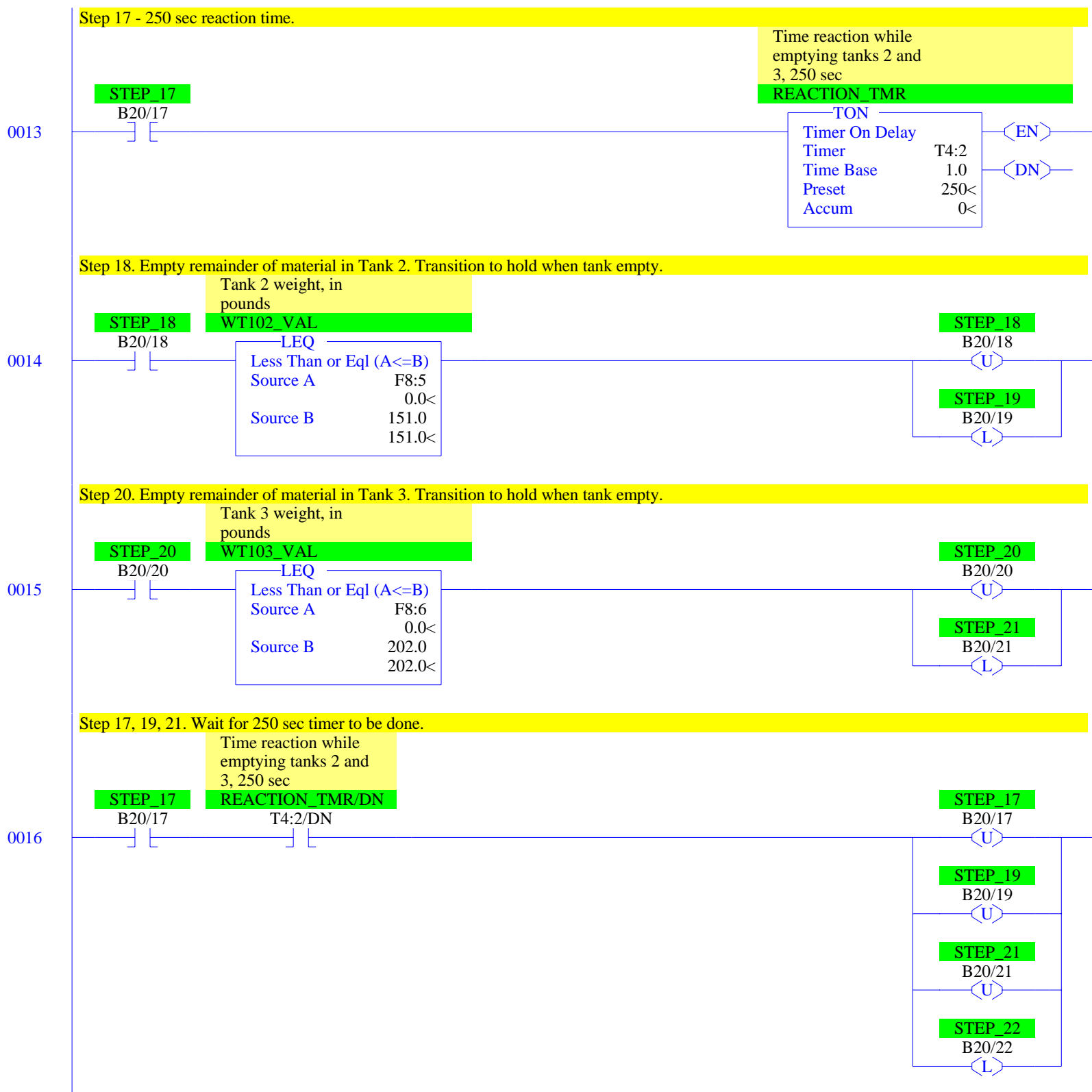
0001

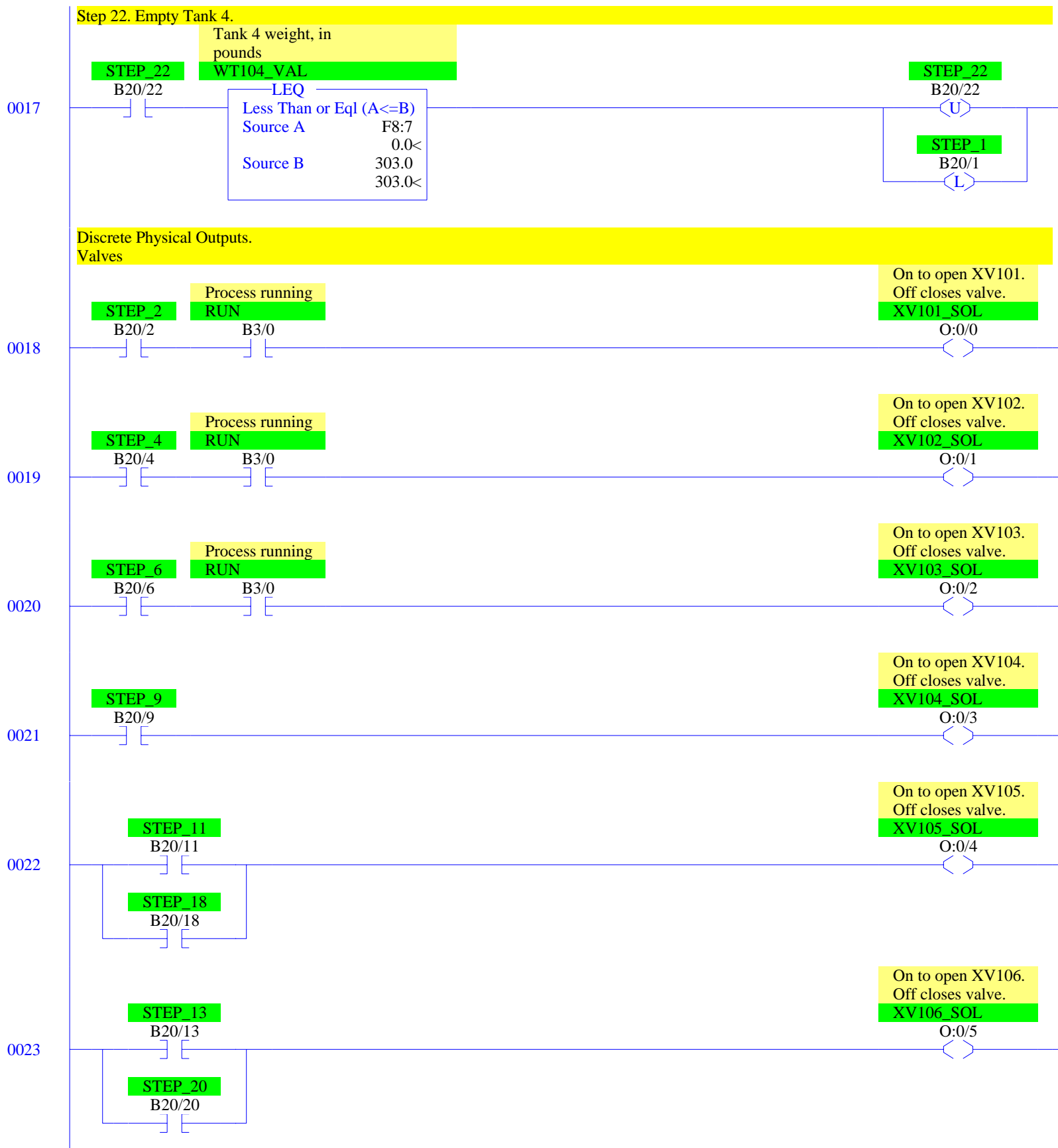
0002

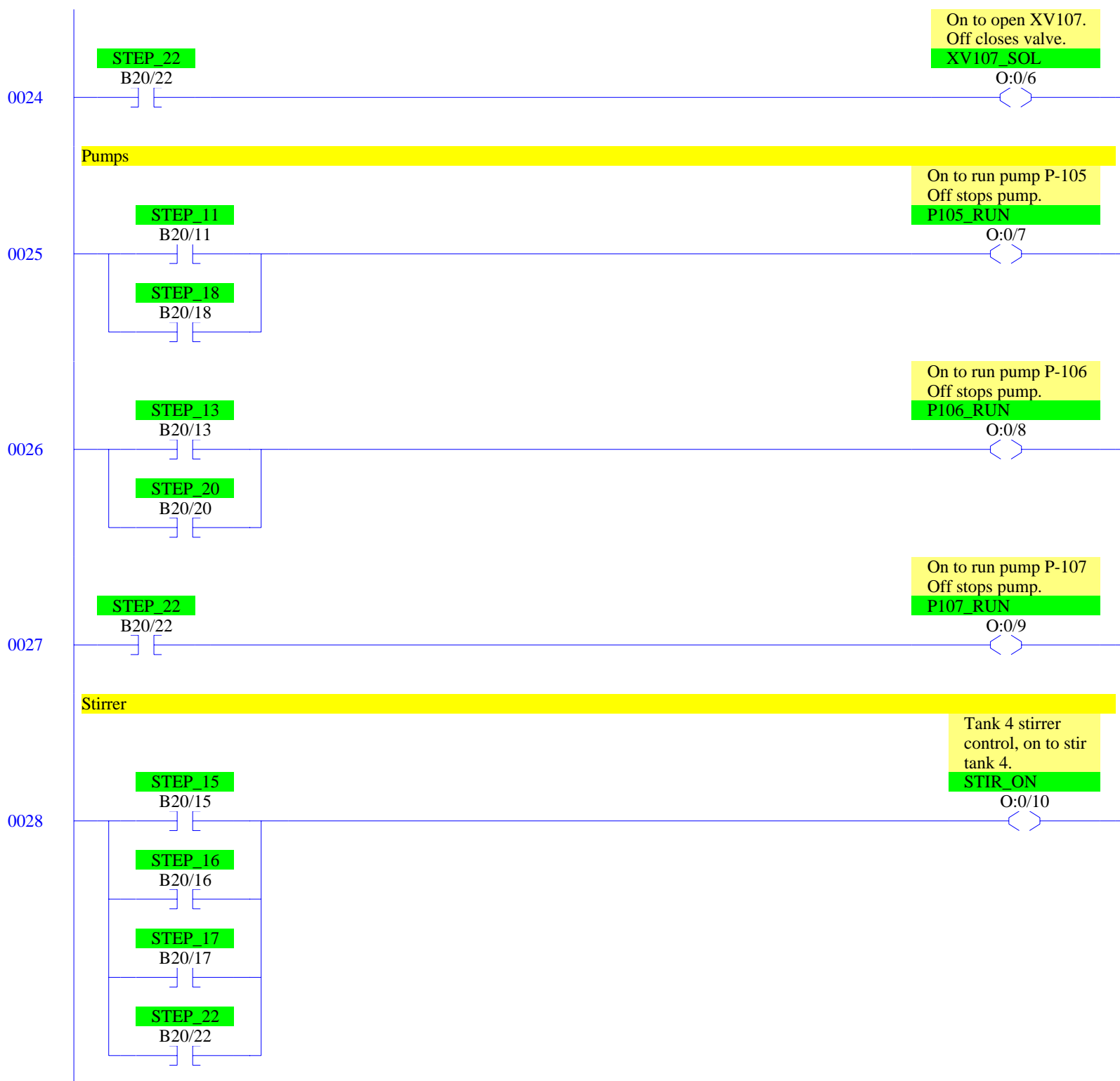


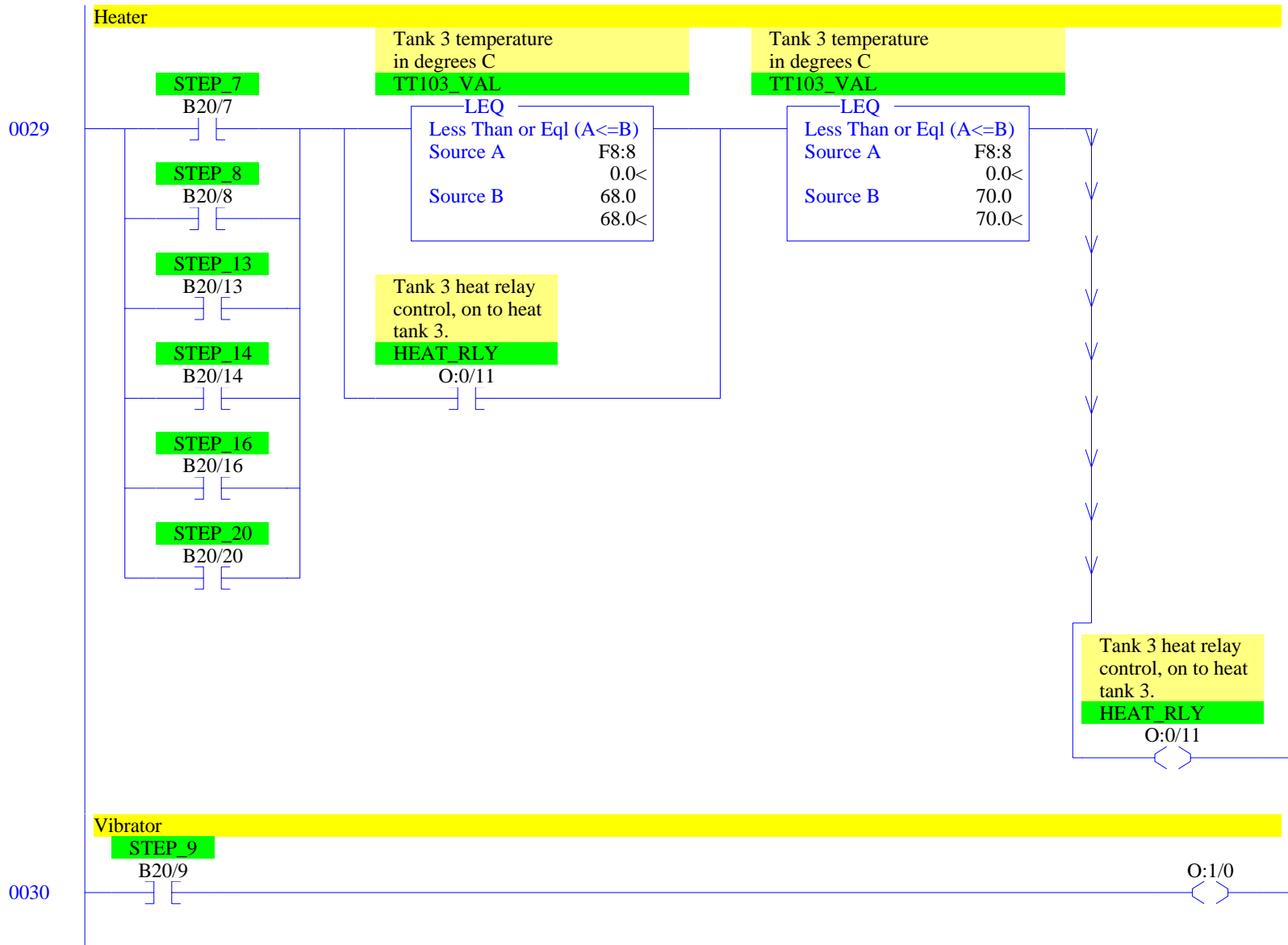












Calculations
Weights

0031

SUB
Subtract
Source A I:2:0
0<
Source B 3277.0
3277.0<
Dest F8:0
0.0<

DIV
Divide
Source A F8:0
0.0<
Source B 24965.0
24965.0<
Dest F8:0
0.0<

Tank 1 weight, in
pounds

WT101_VAL

MUL
Multiply
Source A F8:0
0.0<
Source B 1000.0
1000.0<
Dest F8:4
0.0<

SUB
Subtract
Source A I:2:1
0<
Source B 3277.0
3277.0<
Dest F8:0
0.0<

DIV
Divide
Source A F8:0
0.0<
Source B 24965.0
24965.0<
Dest F8:0
0.0<

Tank 2 weight, in
pounds

Tank 2 weight, in
pounds

WT102_VAL

MUL

Multiply

Source A F8:0
0.0<

Source B 1000.0
1000.0<

Dest F8:5
0.0<

SUB

Subtract

Source A I:2.2
0<

Source B 3277.0
3277.0<

Dest F8:0
0.0<

DIV

Divide

Source A F8:0
0.0<

Source B 24965.0
24965.0<

Dest F8:0
0.0<

Tank 3 weight, in
pounds

WT103_VAL

MUL

Multiply

Source A F8:0
0.0<

Source B 1000.0
1000.0<

Dest F8:6
0.0<

SUB

Subtract

Source A I:2.3
0<

Source B 3277.0
3277.0<

Dest F8:0
0.0<

DIV

Divide

0032

Temperature

0033

<END>

DIV	
Divide	
Source A	F8:0
	0.0<
Source B	24965.0
	24965.0<
Dest	F8:0
	0.0<

Tank 4 weight, in
pounds

WT104_VAL

MUL	
Multiply	
Source A	F8:0
	0.0<
Source B	1000.0
	1000.0<
Dest	F8:7
	0.0<

SUB	
Subtract	
Source A	I:3.0
	0<
Source B	3277.0
	3277.0<
Dest	F8:0
	0.0<

DIV	
Divide	
Source A	F8:0
	0.0<
Source B	24965.0
	24965.0<
Dest	F8:0
	0.0<

Tank 3 temperature
in degrees C

TT103_VAL

MUL	
Multiply	
Source A	F8:0
	0.0<
Source B	100.0
	100.0<
Dest	F8:8
	0.0<

RSLogix 500 Cross Reference Report - Sorted by Address

O:0/0	- {XV101_SOL} On to open XV101. Off closes valve. OTE - File #2 - 18
O:0/1	- {XV102_SOL} On to open XV102. Off closes valve. OTE - File #2 - 19
O:0/2	- {XV103_SOL} On to open XV103. Off closes valve. OTE - File #2 - 20
O:0/3	- {XV104_SOL} On to open XV104. Off closes valve. OTE - File #2 - 21
O:0/4	- {XV105_SOL} On to open XV105. Off closes valve. OTE - File #2 - 22
O:0/5	- {XV106_SOL} On to open XV106. Off closes valve. OTE - File #2 - 23
O:0/6	- {XV107_SOL} On to open XV107. Off closes valve. OTE - File #2 - 24
O:0/7	- {P105_RUN} On to run pump P-105 Off stops pump. OTE - File #2 - 25
O:0/8	- {P106_RUN} On to run pump P-106 Off stops pump. OTE - File #2 - 26
O:0/9	- {P107_RUN} On to run pump P-107 Off stops pump. OTE - File #2 - 27
O:0/10	- {STIR_ON} Tank 4 stirrer control, on to stir tank 4. OTE - File #2 - 28
O:0/11	- {HEAT_RLY} Tank 3 heat relay control, on to heat tank 3. OTE - File #2 - 29 XIC - File #2 - 29
O:1/0	- OTE - File #2 - 30
I:0/0	- {START_PB} Start push button, on (closed) to start XIC - File #2 - 0
I:0/1	- {STOP_PB} Stop push button, off (open) to stop XIC - File #2 - 0
I:2.0	- {WT101_MEAS} Tank 1 weight measurement, represents 0-1000 pounds SUB - File #2 - 31
I:2.1	- {WT102_MEAS} Tank 2 weight measurement, represents 0-1000 pounds SUB - File #2 - 31
I:2.2	- {WT103_MEAS} Tank 3 weight measurement, represents 0-1000 pounds SUB - File #2 - 31
I:2.3	- {WT104_MEAS} Tank 4 weight measurement, represents 0-1000 pounds SUB - File #2 - 31
I:3.0	- {TT103_MEAS} Tank3 temperature measurement, represents 0-100 C SUB - File #2 - 32
B3/0	- {RUN} Process running OTE - File #2 - 0 XIC - File #2 - 0, 1, 2, 3, 4, 5, 6, 7, 18, 19, 20
T4:1	- {DELAY_TMR} Time delay before adding last of tanks 2 and 3, 20 sec TON - File #2 - 12
T4:1/DN	- XIC - File #2 - 12
T4:2	- {REACTION_TMR} Time reaction while emptying tanks 2 and 3, 250 sec TON - File #2 - 13
T4:2/DN	- XIC - File #2 - 16
F8:0	- SUB - File #2 - 31, 32 MUL - File #2 - 31, 32 DIV - File #2 - 31, 32
F8:4	- {WT101_VAL} Tank 1 weight, in pounds MUL - File #2 - 31 GEQ - File #2 - 3 LEQ - File #2 - 8
F8:5	- {WT102_VAL} Tank 2 weight, in pounds MUL - File #2 - 31 GEQ - File #2 - 4 LEQ - File #2 - 9, 14
F8:6	- {WT103_VAL} Tank 3 weight, in pounds MUL - File #2 - 31 GEQ - File #2 - 5 LEQ - File #2 - 10, 15
F8:7	- {WT104_VAL} Tank 4 weight, in pounds MUL - File #2 - 31

RSLogix 500 Cross Reference Report - Sorted by Address

F8:8	LEQ - File #2 - 17 - {TT103_VAL} Tank 3 temperature in degrees C MUL - File #2 - 32 GEQ - File #2 - 6 LEQ - File #2 - 29
B20/1	- {STEP_1} OTL - File #2 - 1, 17 OTU - File #2 - 2 XIC - File #2 - 2 XIO - File #2 - 1
B20/2	- {STEP_2} OTL - File #2 - 2 OTU - File #2 - 3 XIC - File #2 - 3, 18 XIO - File #2 - 1
B20/3	- {STEP_3} OTL - File #2 - 3 OTU - File #2 - 7 XIC - File #2 - 7 XIO - File #2 - 1
B20/4	- {STEP_4} OTL - File #2 - 2 OTU - File #2 - 4 XIC - File #2 - 4, 19 XIO - File #2 - 1
B20/5	- {STEP_5} OTL - File #2 - 4 OTU - File #2 - 7 XIC - File #2 - 7 XIO - File #2 - 1
B20/6	- {STEP_6} OTL - File #2 - 2 OTU - File #2 - 5 XIC - File #2 - 5, 20 XIO - File #2 - 1
B20/7	- {STEP_7} OTL - File #2 - 5 OTU - File #2 - 6 XIC - File #2 - 6, 29 XIO - File #2 - 1
B20/8	- {STEP_8} OTL - File #2 - 6 OTU - File #2 - 7 XIC - File #2 - 7, 29 XIO - File #2 - 1
B20/9	- {STEP_9} OTL - File #2 - 7 OTU - File #2 - 8 XIC - File #2 - 8, 21, 30 XIO - File #2 - 1
B20/10	- {STEP_10} OTL - File #2 - 8 OTU - File #2 - 11 XIC - File #2 - 11 XIO - File #2 - 1
B20/11	- {STEP_11} OTL - File #2 - 7 OTU - File #2 - 9 XIC - File #2 - 9, 22, 25 XIO - File #2 - 1
B20/12	- {STEP_12} OTL - File #2 - 9 OTU - File #2 - 11 XIC - File #2 - 11 XIO - File #2 - 1
B20/13	- {STEP_13}

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	OTL - File #2 - 7
	OTU - File #2 - 10
	XIC - File #2 - 10, 23, 26, 29
	XIO - File #2 - 1
B20/14	- {STEP_14}
	OTL - File #2 - 10
	OTU - File #2 - 11
	XIC - File #2 - 11, 29
	XIO - File #2 - 1
B20/15	- {STEP_15}
	OTL - File #2 - 7
	OTU - File #2 - 11
	XIC - File #2 - 11, 28
	XIO - File #2 - 1
B20/16	- {STEP_16}
	OTL - File #2 - 11
	OTU - File #2 - 12
	XIC - File #2 - 12, 28, 29
	XIO - File #2 - 1
B20/17	- {STEP_17}
	OTL - File #2 - 12
	OTU - File #2 - 16
	XIC - File #2 - 13, 16, 28
	XIO - File #2 - 1
B20/18	- {STEP_18}
	OTL - File #2 - 12
	OTU - File #2 - 14
	XIC - File #2 - 14, 22, 25
	XIO - File #2 - 1
B20/19	- {STEP_19}
	OTL - File #2 - 14
	OTU - File #2 - 16
	XIO - File #2 - 1
B20/20	- {STEP_20}
	OTL - File #2 - 12
	OTU - File #2 - 15
	XIC - File #2 - 15, 23, 26, 29
	XIO - File #2 - 1
B20/21	- {STEP_21}
	OTL - File #2 - 15
	OTU - File #2 - 16
	XIO - File #2 - 1
B20/22	- {STEP_22}
	OTL - File #2 - 16
	OTU - File #2 - 17
	XIC - File #2 - 17, 24, 27, 28
	XIO - File #2 - 1