

Part Width Sorter Control with Parallel Branches

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Additional internal memory:

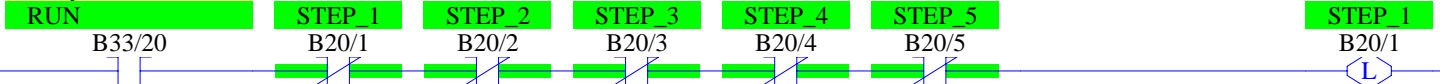
Symbol	Address	
STEP_1 to STEP_5	B20/1 to B20/5	Step-in-progress bits
B1_TMR	T4:1	Times eject pulse for bin 1
B2_TMR	T4:2	Times eject pulse for bin 2
B3_TMR	T4:3	Times eject pulse for bin 3
BIN1	B3/1	Size for bin 1
BIN2	B3/2	Size for bin 2
BIN3	B3/3	Size for bin 3
UX1_INCH	F8:1	UX1 reading in inches
UX2_INCH	F8:2	UX2 reading in inches
UX3_INCH	F8:3	UX3 reading in inches
PART_WIDTH	F8:4	Part width in inches

Conversion formulas

$$UXn_INCH = ((UXn_MEAS - 6241) / 24965) * (30 - 4) + 4$$

Initial start.

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



Convert UX readings to inches.

SUB

Subtract

Source A I:1.0

0<

Source B 6241.0

6241.0<

Dest F8:0

0.0<

DIV

Divide

Source A F8:0

0.0<

Source B 24965.0

24965.0<

Dest F8:0

0.0<

MUL

Multiply

Source A F8:0

0.0<

Source B 26.0

26.0<

Dest F8:0

0.0<

UX1 reading
converted to inches

UX1_INCH

ADD

Add

Source A F8:0

0.0<

Source B 4.0

4.0<

Dest F8:1

0.0<

SUB

Subtract

Source A I:1.1

0<

Source B 6241.0

6241.0<

Dest F8:0

0.0<

DIV

Divide

DIV

Divide

Source A

Source B

Dest

F8:0

0.0<

24965.0<

F8:0

0.0<

MUL

Multiply

Source A

Source B

Dest

F8:0

0.0<

26.0

26.0<

F8:0

0.0<

UX2 reading

converted to inches

UX2_INCH

ADD

Add

Source A

Source B

Dest

F8:0

0.0<

4.0

4.0<

F8:2

0.0<

SUB

Subtract

Source A

Source B

Dest

I:1.2

0<

6241.0

6241.0<

F8:0

0.0<

DIV

Divide

Source A

Source B

Dest

F8:0

0.0<

24965.0<

24965.0<

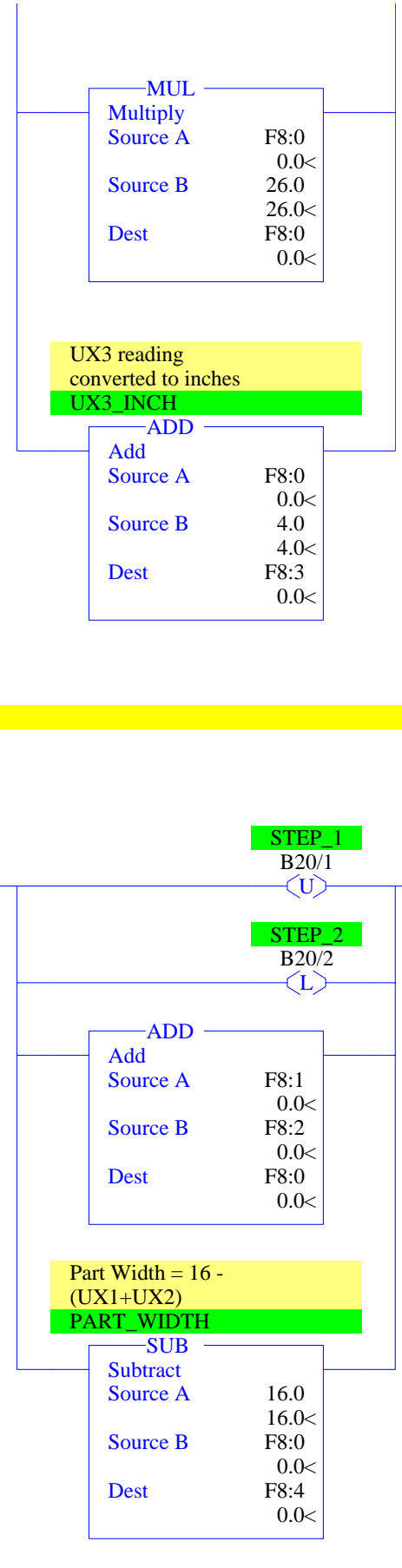
F8:0

0.0<

MUL

Multiply

0002



Step 1. Wait for part in measure position. Calculate part width on transition.

Proximity sensor
that is on when part
is in position for
width measurement

STEP_1

B20/1

PROX

I:0/0

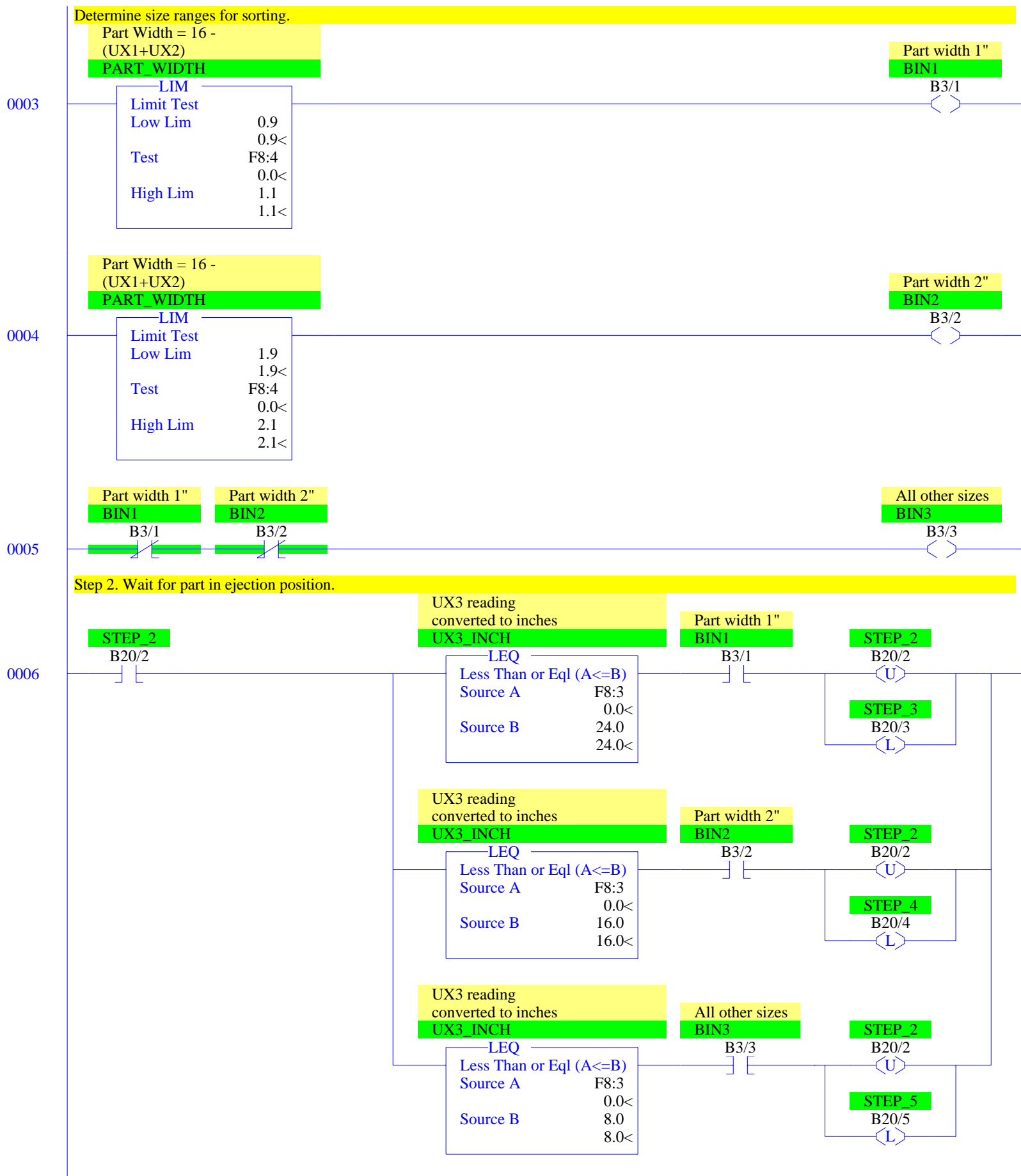
Bul.1764

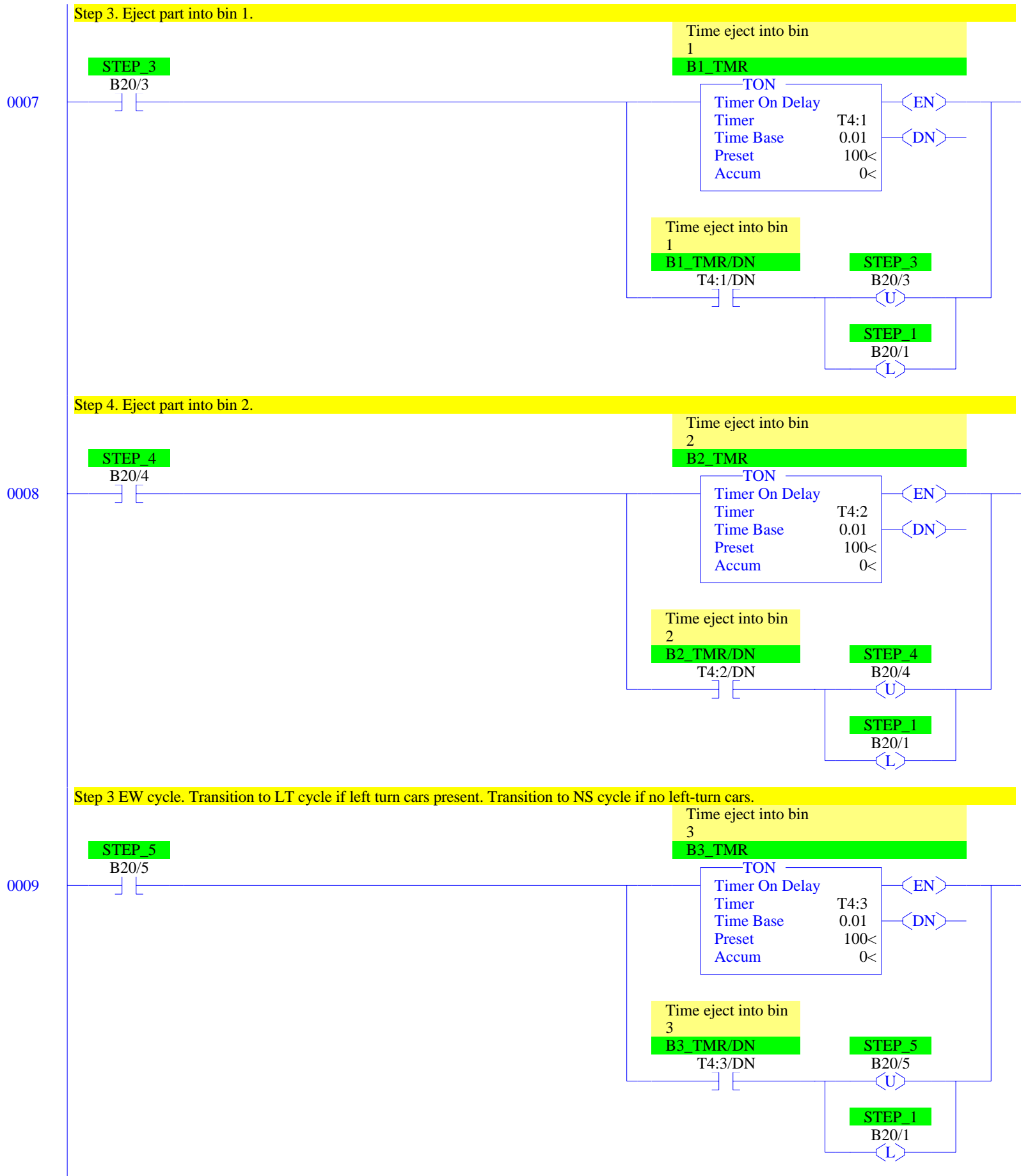
STEP_1

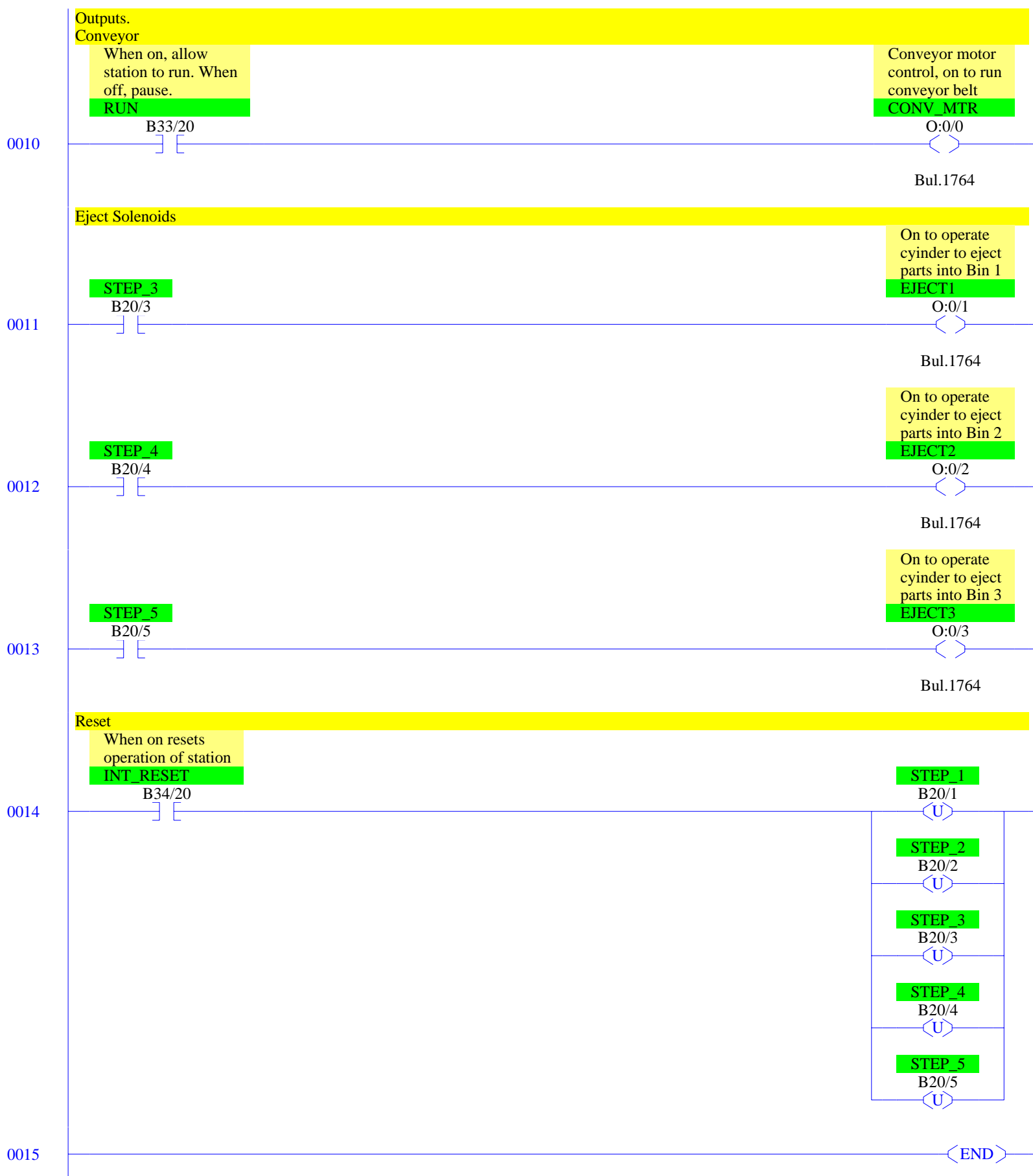
B20/1

STEP_2

B20/2







RSLogix 500 Cross Reference Report - Sorted by Address

O:0/0	- {CONV_MTR} Conveyor motor control, on to run conveyor belt OTE - File #2 - 10
O:0/1	- {EJECT1} On to operate cyinder to eject parts into Bin 1 OTE - File #2 - 11
O:0/2	- {EJECT2} On to operate cyinder to eject parts into Bin 2 OTE - File #2 - 12
O:0/3	- {EJECT3} On to operate cyinder to eject parts into Bin 3 OTE - File #2 - 13
I:0/0	- {PROX} Proximity sensor that is on when part is in position for width measurement XIC - File #2 - 2
I:1.0	- {UX1_MEAS} Distance sensor raw measurement, represents 4 - 30 inches SUB - File #2 - 1
I:1.1	- {UX2_MEAS} Distance sensor raw measurement, represents 4 - 30 inches SUB - File #2 - 1
I:1.2	- {UX3_MEAS} Distance sensor raw measurement, represents 4 - 30 inches SUB - File #2 - 1
B3/1	- {BIN1} Part width 1" OTE - File #2 - 3 XIC - File #2 - 6 XIO - File #2 - 5
B3/2	- {BIN2} Part width 2" OTE - File #2 - 4 XIC - File #2 - 6 XIO - File #2 - 5
B3/3	- {BIN3} All other sizes OTE - File #2 - 5 XIC - File #2 - 6
T4:1	- {B1_TMR} Time eject into bin 1 TON - File #2 - 7
T4:1/DN	- XIC - File #2 - 7
T4:2	- {B2_TMR} Time eject into bin 2 TON - File #2 - 8
T4:2/DN	- XIC - File #2 - 8
T4:3	- {B3_TMR} Time eject into bin 3 TON - File #2 - 9
T4:3/DN	- XIC - File #2 - 9
F8:0	- ADD - File #2 - 1, 2 SUB - File #2 - 1, 2 MUL - File #2 - 1 DIV - File #2 - 1
F8:1	- {UX1_INCH} UX1 reading converted to inches ADD - File #2 - 1, 2
F8:2	- {UX2_INCH} UX2 reading converted to inches ADD - File #2 - 1, 2
F8:3	- {UX3_INCH} UX3 reading converted to inches ADD - File #2 - 1 LEQ - File #2 - 6
F8:4	- {PART_WIDTH} Part Width = 16 - (UX1+UX2) SUB - File #2 - 2 LIM - File #2 - 3, 4
B20/1	- {STEP_1} OTL - File #2 - 0, 7, 8, 9 OTU - File #2 - 2, 14 XIC - File #2 - 2 XIO - File #2 - 0
B20/2	- {STEP_2} OTL - File #2 - 2 OTU - File #2 - 6, 14 XIC - File #2 - 6 XIO - File #2 - 0
B20/3	- {STEP_3} OTL - File #2 - 6 OTU - File #2 - 7, 14 XIC - File #2 - 7, 11 XIO - File #2 - 0
B20/4	- {STEP_4}

RSLogix 500 Cross Reference Report - Sorted by Address

	OTL - File #2 - 6
	OTU - File #2 - 8, 14
	XIC - File #2 - 8, 12
	XIO - File #2 - 0
B20/5	- {STEP_5}
	OTL - File #2 - 6
	OTU - File #2 - 9, 14
	XIC - File #2 - 9, 13
	XIO - File #2 - 0
B33/20	- {RUN} When on, allow station to run. When off, pause.
	XIC - File #2 - 0, 10
B34/20	- {INT_RESET} When on resets operation of station
	XIC - File #2 - 14