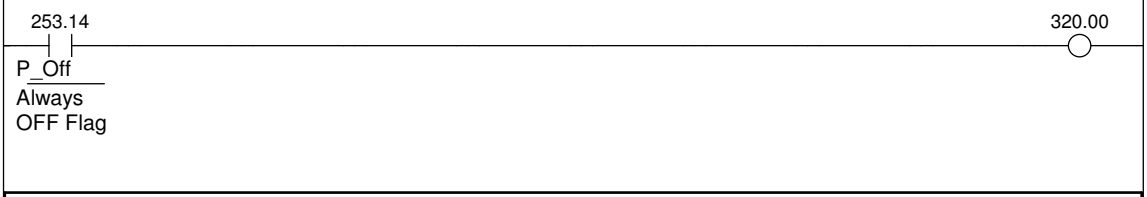
000000
(000000)

[Program Name : ELT215_SPRING2012]
PLC TO RUN: "T" Electronic Part Testing Station "ID" All 4 Part Identification Station and "F" Feeder Sequencing

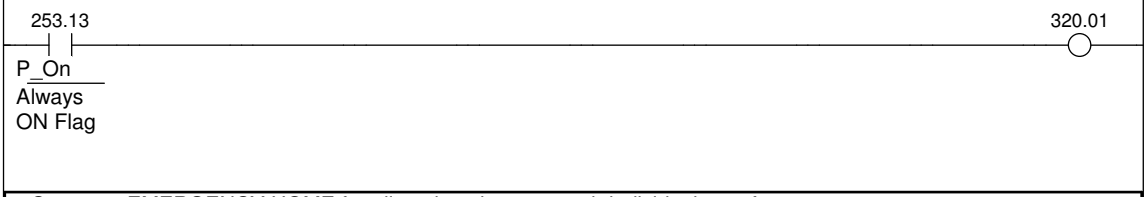
[Section Name : UNIVERSAL_PARAMETERS]
Parameters that control large changes in the ladder logic. The "user editable" section to be changed on the fly.

3 Sensor Method Active Bit (WARNING, 4 SENSOR METHOD BIT CANNOT ALSO BE ACTIVE)



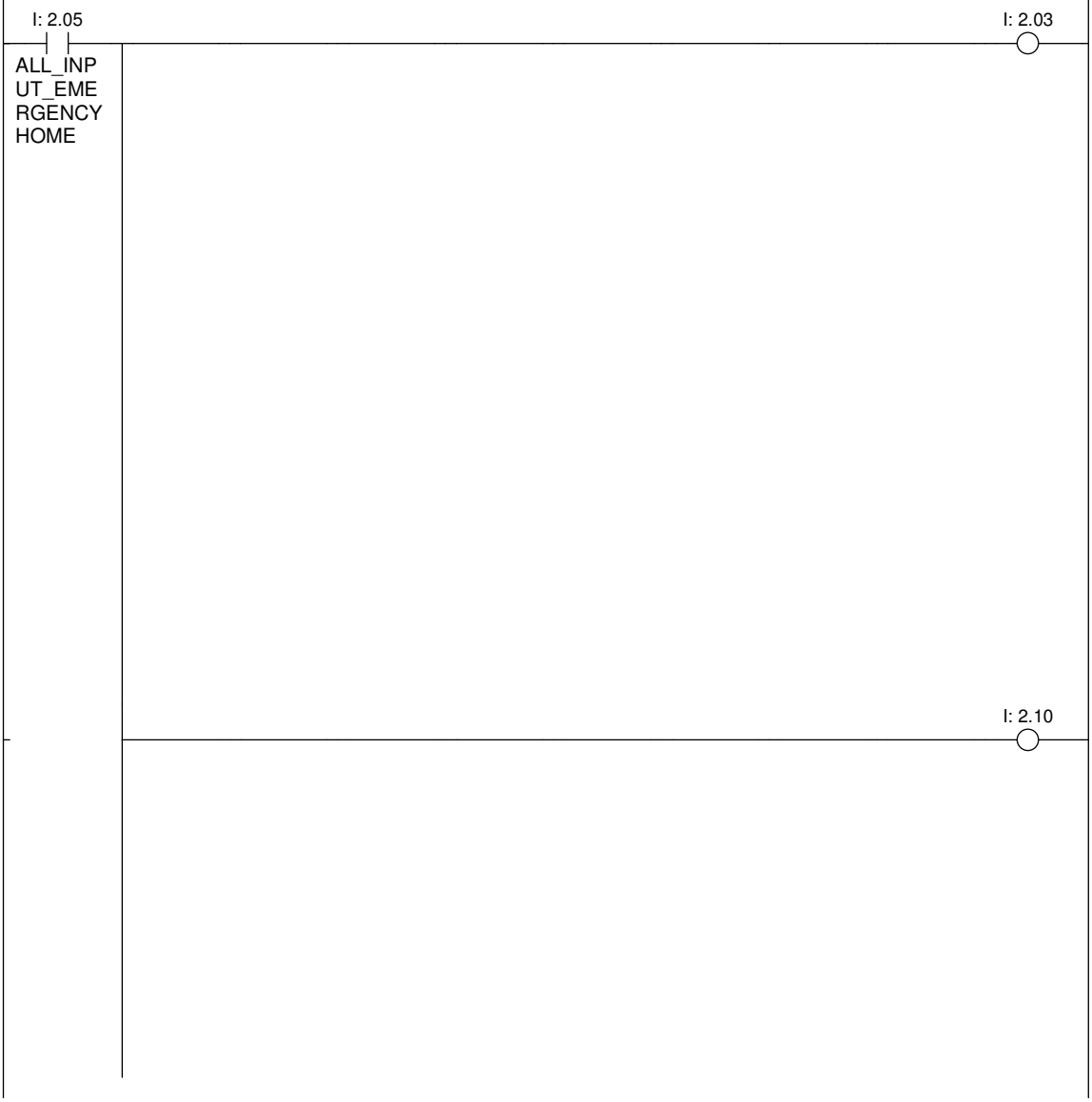
000001
(000002)

4 Sensor Method Active Bit (WARNING, 3 SENSOR METHOD BIT CANNOT ALSO BE ACTIVE)



000002
(000004)

Connects EMERGENCY HOME for all stations input to each individual set of emergency stops.



b228 b232 b238
b243 b248 b254
b259 b264 b267
b272 b276 b282
b292 b295 b298
b303 b306 b311
b318

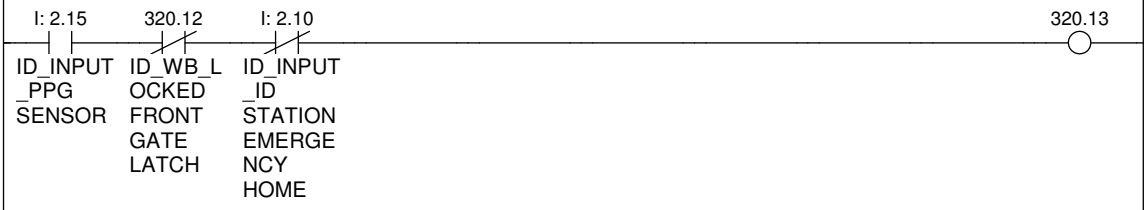
F_INPUT_STOP
FEEDER
SEQUENCE
<2.08>
b689 b703 b715
b727 b739 b751
b763 b775 b787
b799 b811 b823
b835 b847 b880
b883

000000
(000009)

[Program Name : ELT215_SPRING2012]
PLC TO RUN: "T" Electronic Part Testing Station "ID" All 4 Part Identification Station and "F" Feeder Sequencing

[Section Name : ID_GETTING_PART_TO_SCANNING_AREA]
Ladder logic for ID Station to identify a part has come in, prevent other parts from getting in, and clamp the part.

The instant the "PART PAST GATE" (PPG) Sensor trips, as long as the gate isn't already locked, the LOCK FRONT GATE TRIGGER goes off, for the duration of the sensor output.

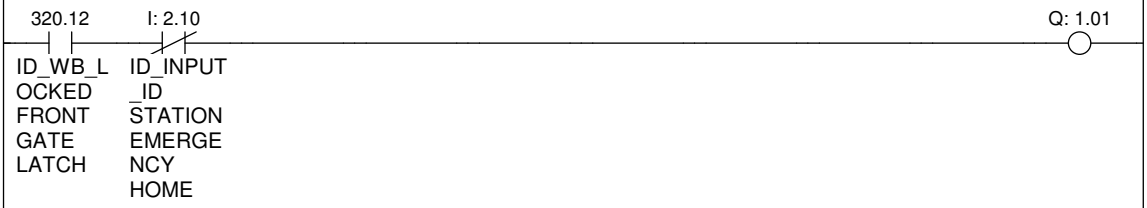


000001
(000013)

The LOCK FRONT GATE TRIGGER latches a LOCKED FRONT GATE LATCH state that can be broken by or prevented by a single ping to UNLOCK FRONT GATE TRIGGER. Replace 321.12 with 321.13 to incorporate the unlock timer if need be.

000002
(000018)

Translates Latching Workbit to Output

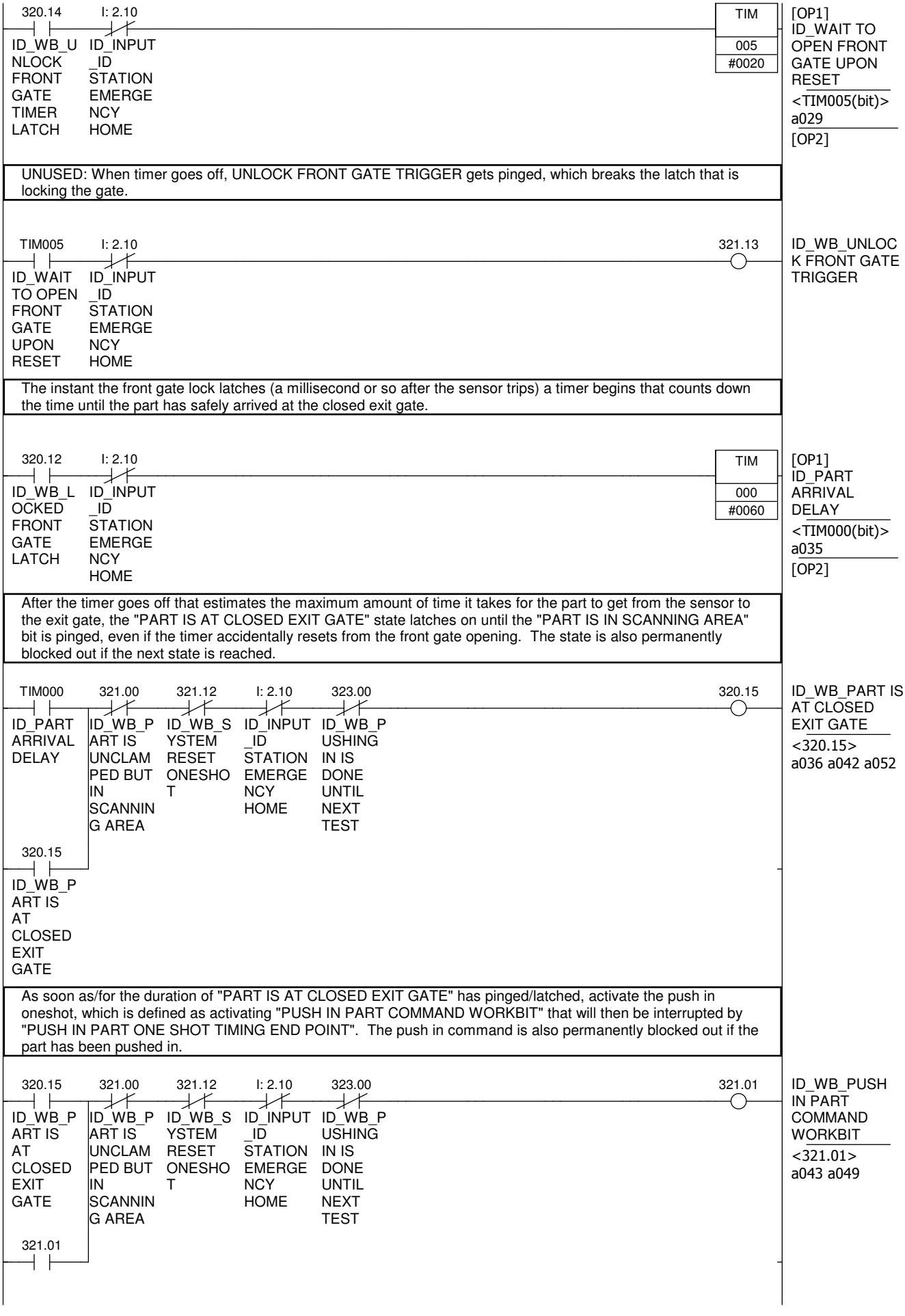


000003
(000021)

UNUSED: Command trigger to SYSTEM RESET latches a bit that runs the timer to wait to open the front gate. Latch resets upon seeing the gate unlock.

000004
(000026)

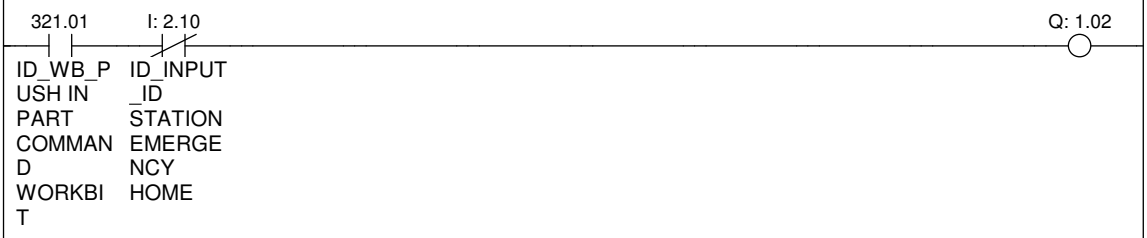
UNUSED: Waits time after system reset command to open front gate.


320.14
ID_WB_UNLOCK FRONT GATE TIMER LATCH
I: 2.10
ID_INPUT_ID STATION EMERGENCY HOME
TIM
005
#0020
[OP1]
ID_WAIT TO OPEN FRONT GATE UPON RESET
<TIM005(bit)>
a029
[OP2]
000005
(000029)
UNUSED: When timer goes off, UNLOCK FRONT GATE TRIGGER gets pinged, which breaks the latch that is locking the gate.
TIM005
ID_WAIT TO OPEN FRONT GATE UPON RESET
I: 2.10
ID_INPUT_ID STATION EMERGENCY HOME
321.13
ID_WB_UNLOCK FRONT GATE TRIGGER
000006
(000032)
The instant the front gate lock latches (a millisecond or so after the sensor trips) a timer begins that counts down the time until the part has safely arrived at the closed exit gate.
320.12
ID_WB_LOCKED FRONT GATE LATCH
I: 2.10
ID_INPUT_ID STATION EMERGENCY HOME
TIM
000
#0060
[OP1]
ID_PART ARRIVAL DELAY
<TIM000(bit)>
a035
[OP2]
000007
(000035)
After the timer goes off that estimates the maximum amount of time it takes for the part to get from the sensor to the exit gate, the "PART IS AT CLOSED EXIT GATE" state latches on until the "PART IS IN SCANNING AREA" bit is pinged, even if the timer accidentally resets from the front gate opening. The state is also permanently blocked out if the next state is reached.
TIM000
ID_PART ARRIVAL DELAY
321.00
ID_WB_PART IS UNCLAMPED BUT IN SCANNING AREA
321.12
ID_WB_SYSTEM RESET ONESHOT
I: 2.10
ID_INPUT_ID STATION EMERGENCY HOME
323.00
ID_WB_PUSHING IN IS DONE UNTIL NEXT TEST
320.15
ID_WB_PART IS AT CLOSED EXIT GATE
320.15
ID_WB_PART IS AT CLOSED EXIT GATE
ID_WB_PART IS AT CLOSED EXIT GATE
<320.15>
a036 a042 a052
000008
(000042)
As soon as/for the duration of "PART IS AT CLOSED EXIT GATE" has pinged/latched, activate the push in oneshot, which is defined as activating "PUSH IN PART COMMAND WORKBIT" that will then be interrupted by "PUSH IN PART ONE SHOT TIMING END POINT". The push in command is also permanently blocked out if the part has been pushed in.
320.15
ID_WB_PART IS AT CLOSED EXIT GATE
321.00
ID_WB_PART IS UNCLAMPED BUT IN SCANNING AREA
321.12
ID_WB_SYSTEM RESET ONESHOT
I: 2.10
ID_INPUT_ID STATION EMERGENCY HOME
323.00
ID_WB_PUSHING IN IS DONE UNTIL NEXT TEST
321.01
321.01
ID_WB_PUSH IN PART COMMAND WORKBIT
<321.01>
a043 a049

ID_WB_PUSH IN PART COMMAND WORKBIT

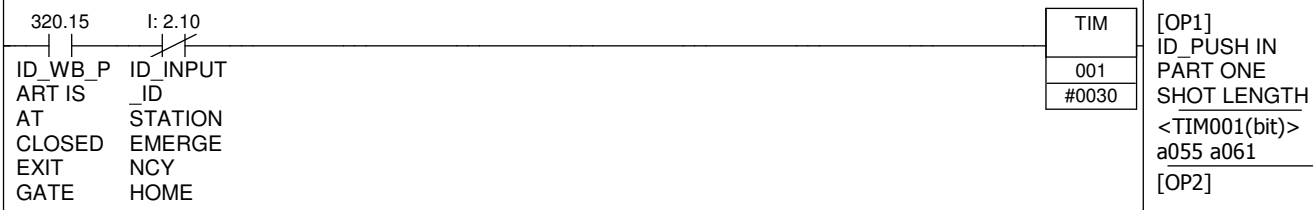
000009 (000049)

Translates Workbit to Output



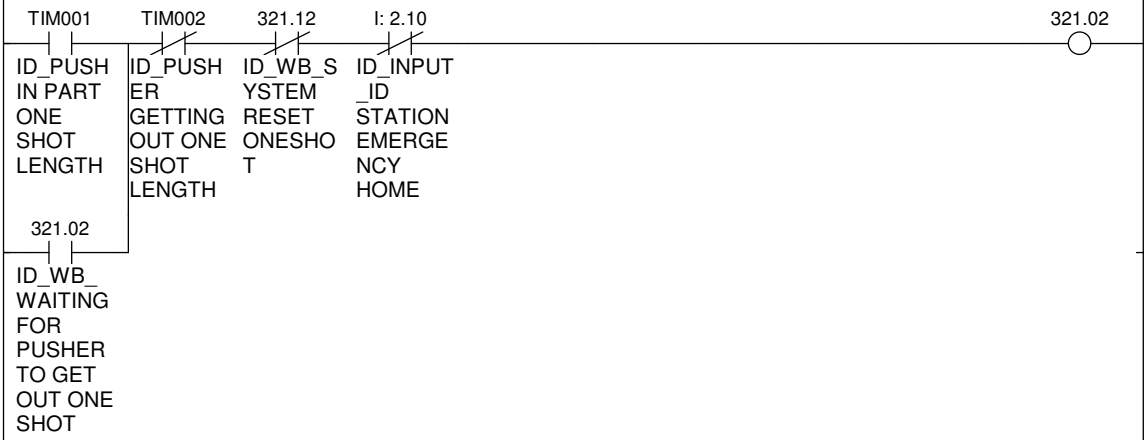
000010 (000052)

As soon as/for the duration of "PUSH IN PART COMMAND WORKBIT" has pinged/latched, begin "PUSH IN PART ONE SHOT TIMING END POINT".



000011 (000055)

UNNECCESARY RUNG: As soon as part has finished getting pushed in (ie. the push in cylinder begins retracting) it begins a waiting period one shot called "WAITING FOR PUSHER TO GET OUT ONE SHOT" that latches until the length of the one shot breaks the latch, meaning that the pusher has had enough time to get out of the way.

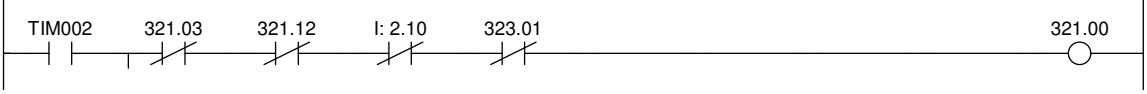


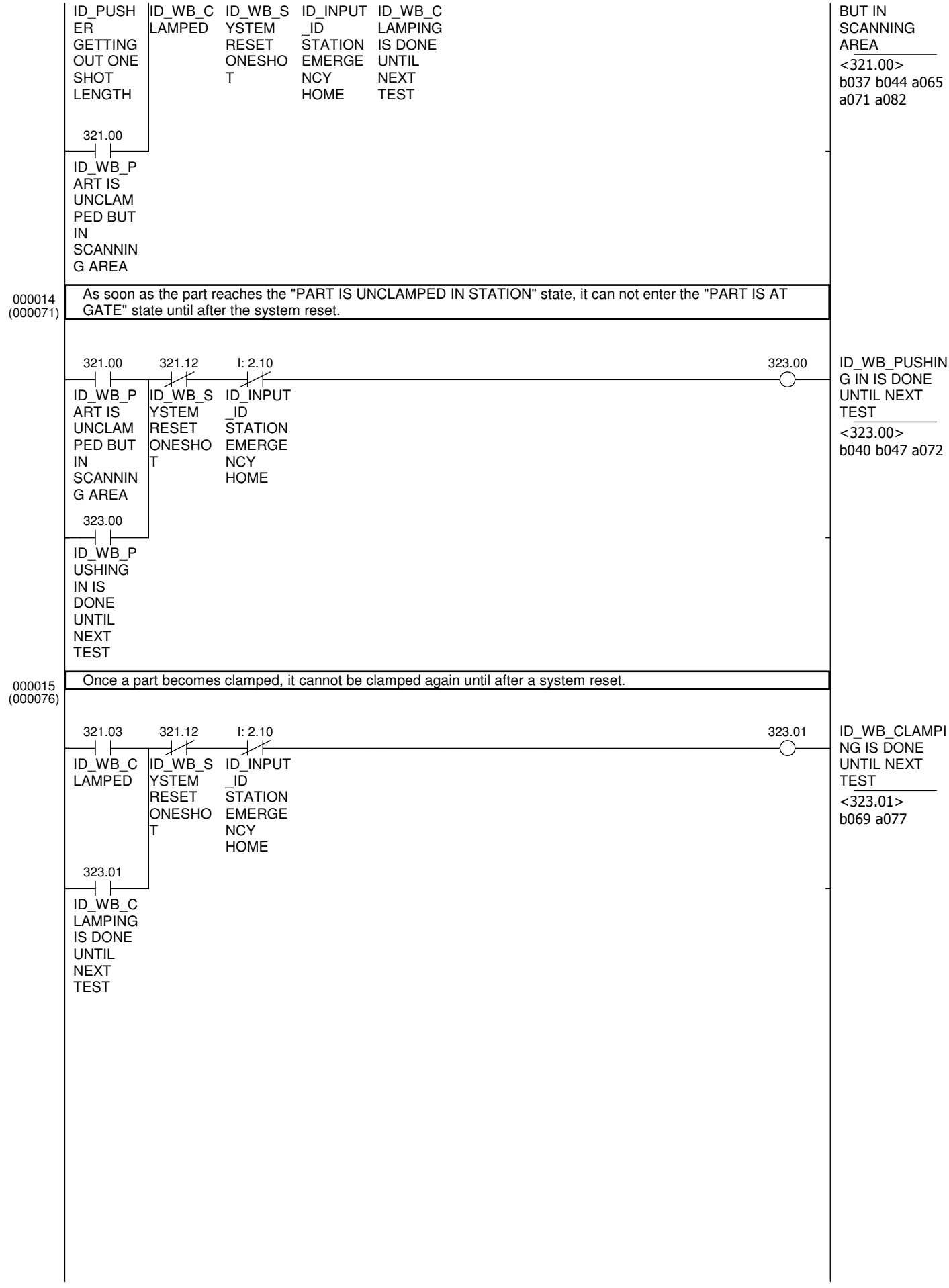
000012 (000061)

As soon as part has finished getting pushed in (the one shot length of TIM001 goes off, and the cylinder begins retracting) TIM002 begins counting down for the maximum amount of time it takes for the pusher to get out of the way. In the next rung, when TIM002 goes off, it will shift states from "PART IS AT CLOSED EXIT GATE" to "PART IS IN SCANNING AREA".

000013 (000064)

After the cylinder has had time to get out of the way, the state is shifted from "PART IS AT CLOSED EXIT GATE" to "PART IS UNCLAMPED IN SCANNING AREA". This is broken by the next state, "CLAMPED".



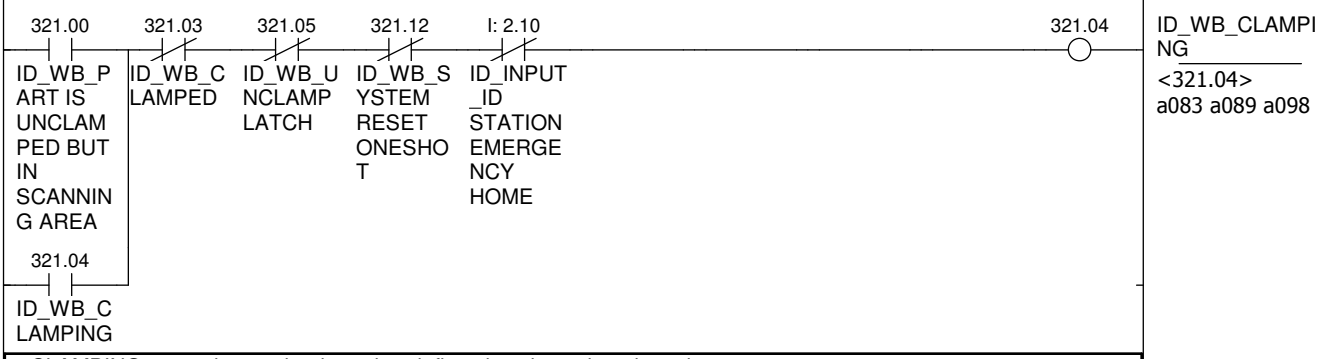

ID_PUSHER GETTING OUT ONE SHOT LENGTH
ID_WB_CLAMPED
ID_WB_SYSTEM RESET ONESHOT
ID_INPUT_ID STATION EMERGENCY HOME
ID_WB_CLAMPING IS DONE UNTIL NEXT TEST
BUT IN SCANNING AREA
<321.00>
b037 b044 a065 a071 a082
321.00
ID_WB_PART IS UNCLAMPED BUT IN SCANNING AREA
000014
(000071)
As soon as the part reaches the "PART IS UNCLAMPED IN STATION" state, it can not enter the "PART IS AT GATE" state until after the system reset.
321.00
321.12
I: 2.10
323.00
ID_WB_PART IS UNCLAMPED BUT IN SCANNING AREA
ID_WB_SYSTEM RESET ONESHOT
ID_INPUT_ID STATION EMERGENCY HOME
ID_WB_PUSHING IN IS DONE UNTIL NEXT TEST
<323.00>
b040 b047 a072
323.00
ID_WB_PUSHING IN IS DONE UNTIL NEXT TEST
000015
(000076)
Once a part becomes clamped, it cannot be clamped again until after a system reset.
321.03
321.12
I: 2.10
323.01
ID_WB_CLAMPED
ID_WB_SYSTEM RESET ONESHOT
ID_INPUT_ID STATION EMERGENCY HOME
ID_WB_CLAMPING IS DONE UNTIL NEXT TEST
<323.01>
b069 a077
323.01
ID_WB_CLAMPING IS DONE UNTIL NEXT TEST

000000
(000082)

[Program Name : ELT215_SPRING2012]
PLC TO RUN: "T" Electronic Part Testing Station "ID" All 4 Part Identification Station and "F" Feeder Sequencing

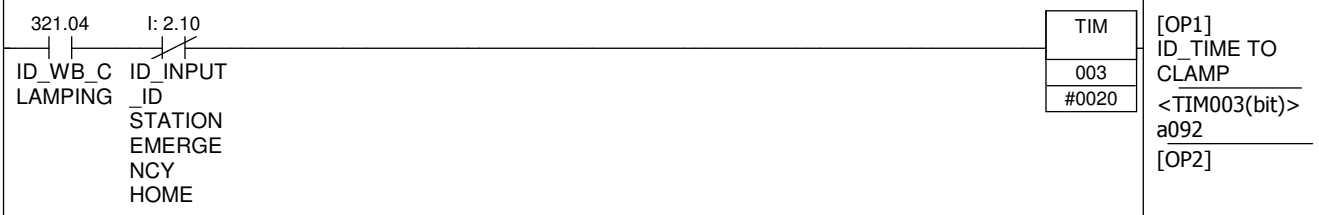
[Section Name : ID_CLAMPING_AND_UNCLAMPING_PART]
Manages the CLAMPING, UNCLAMPING, CLAMPED, and UNCLAMPED states.

As soon as "PART IS IN SCANNING AREA" state activates, latch "CLAMPING" state, which will latch until the state "CLAMPED" activates or "UNCLAMP" is pinged.



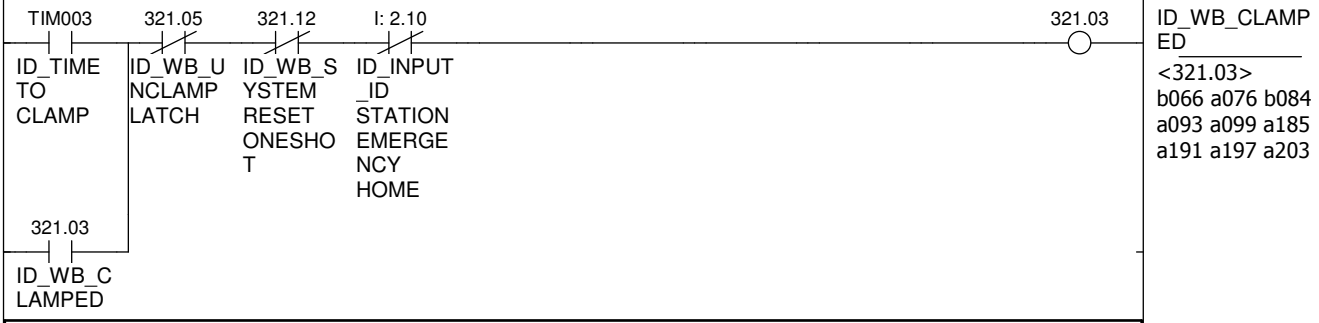
000001
(000089)

CLAMPING state triggers the timer that defines how long clamping takes.



000002
(000092)

After the amount of time to clamp has passed, the "CLAMPED" state latches, until it is broken by a command to UNCLAMP.

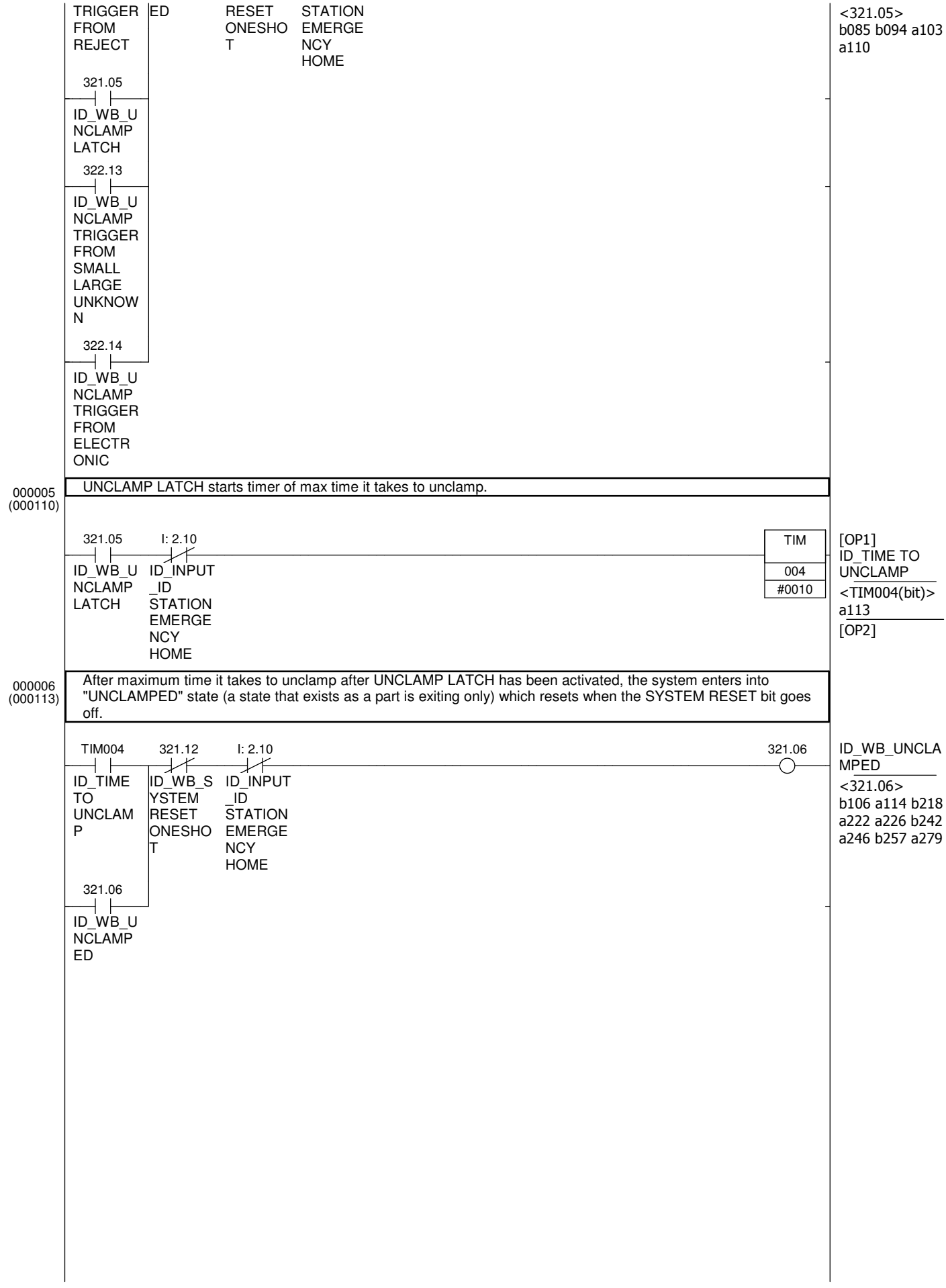


000003
(000098)

Translates state of CLAMPING or CLAMPED into the CLAMP ENGAGE OUTPUT.

000004
(000102)

Translates UNCLAMP TRIGGERS into UNCLAMP LATCH


TRIGGER FROM REJECT
ED
RESET ONESHOT
STATION EMERGENCY HOME
<321.05>
b085 b094 a103 a110
321.05
ID_WB_UNCLAMP LATCH
322.13
ID_WB_UNCLAMP TRIGGER FROM SMALL LARGE UNKNOWN
322.14
ID_WB_UNCLAMP TRIGGER FROM ELECTRONIC
000005
(000110)
UNCLAMP LATCH starts timer of max time it takes to unclamp.
321.05
ID_WB_UNCLAMP LATCH
I: 2.10
ID_INPUT_ID STATION EMERGENCY HOME
TIM
004
#0010
[OP1]
ID_TIME TO UNCLAMP
<TIM004(bit)>
a113
[OP2]
000006
(000113)
After maximum time it takes to unclamp after UNCLAMP LATCH has been activated, the system enters into "UNCLAMPED" state (a state that exists as a part is exiting only) which resets when the SYSTEM RESET bit goes off.
TIM004
ID_TIME TO UNCLAMP
321.12
ID_WB_SYSTEM RESET ONESHOT
I: 2.10
ID_INPUT_ID STATION EMERGENCY HOME
321.06
ID_WB_UNCLAMPED
ID_WB_UNCLAMPED
<321.06>
b106 a114 b218 a222 a226 b242 a246 b257 a279
321.06
ID_WB_UNCLAMPED

000000
(000119)

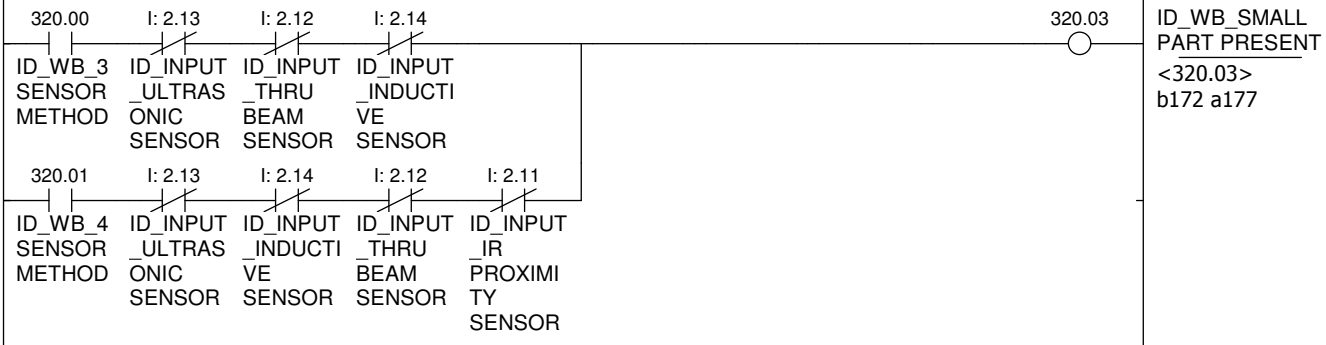
[Program Name : ELT215_SPRING2012]
PLC TO RUN: "T" Electronic Part Testing Station "ID" All 4 Part Identification Station and "F" Feeder Sequencing

[Section Name : ID_IDENTIFICATION_MATRIX_AND_REQUESTS]
Combinational logic that converts sensor outputs into actual part identifcation bits. In 3 Sensor Mode, Inductive sees REJECT, Ultrasonic sees REJECT, SMALL, and ELECTRONIC, and Thru Beam sees ELECTRONIC AND LARGE. In 4 Sensor Mode, Inductive sees REJECT, Ultrasonic sees REJECT, SMALL, and ELECTRONIC, Infrared Prox sees ELECTRONIC and LARGE, and Thru Beam sees only LARGE PART.

In 3 Sensor Mode, if Ultrasonic and Inductive trip, but Thru Beam does not, it is a REJECT PART. In 4 Sensor Mode, if Inductive and Ultrasonic trip, but Thru Beam and IR Prox do not, it is a REJECT PART.

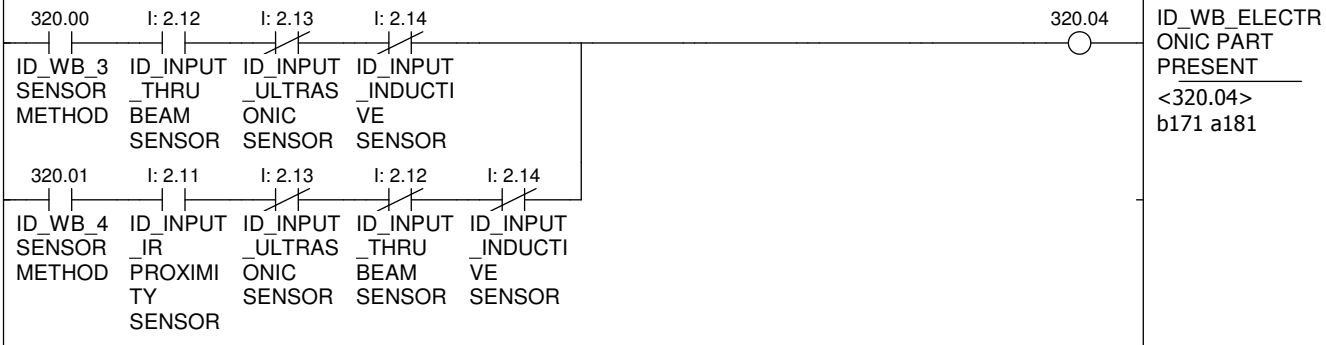
000001
(000125)

In 3 Sensor Mode, if Ultrasonic trips, but Inductive and Thru Beam do not, it is a SMALL PART. In 4 Sensor Mode, if Ultrasonic trips but Thru Beam, Inductive, and IR Prox do not, it is a SMALL PART.



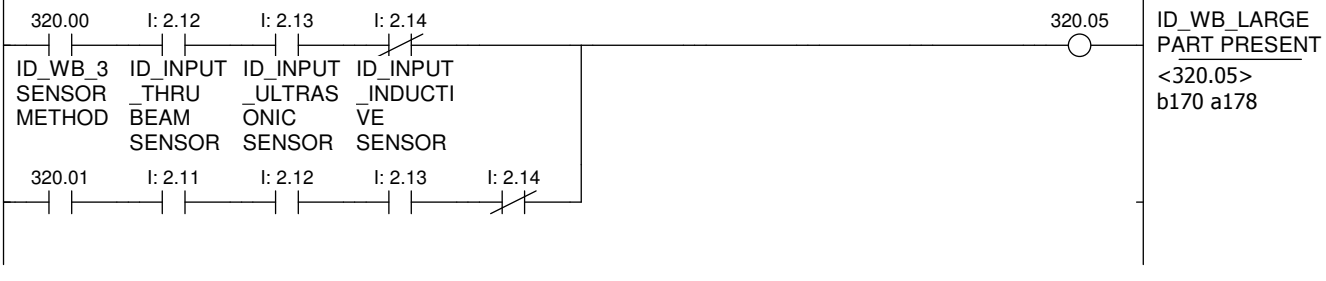
000002
(000136)

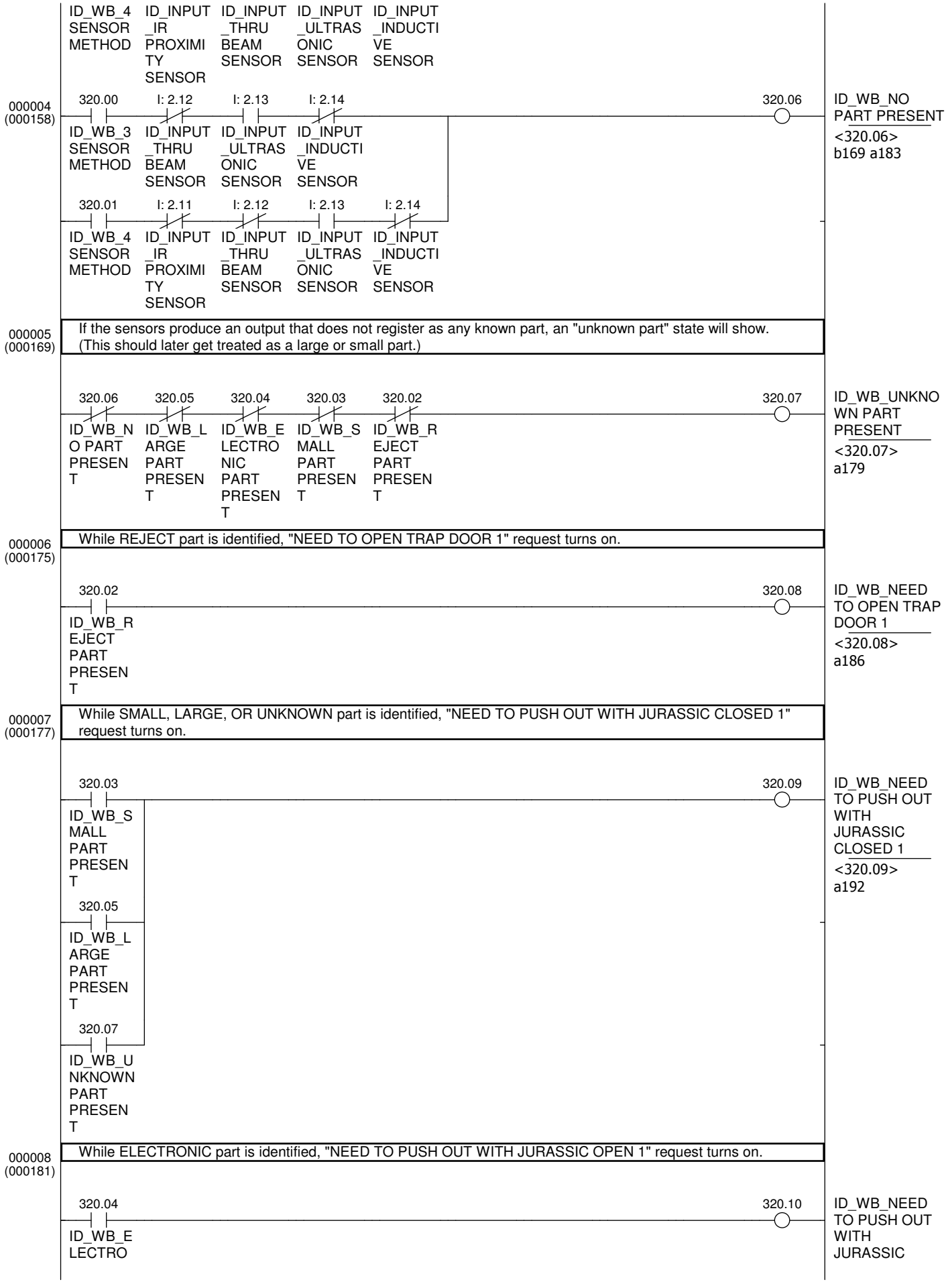
In 3 Sensor Mode, if Ultrasonic and Thru Beam trip, but Inductive does not, then part is ELECTRONIC PART. In 4 Sensor Mode, if Ultrasonic and Infrared Prox trip, but Inductive and Thru Beam do not, then part is ELECTRONIC PART.



000003
(000147)

In 3 Sensor Mode, if Thru Beam trips, but Inductive and Ultrasonic do not, then part is LARGE PART. In 4 Sensor Mode, if Thru Beam and IR Prox trip, but Inductive and Ultrasonic do not, then part is LARGE PART.




ID_WB_4 SENSOR METHOD
ID_INPUT _IR PROXIMITY SENSOR
ID_INPUT _THRU BEAM SENSOR
ID_INPUT _ULTRASONIC SENSOR
ID_INPUT _INDUCTIVE SENSOR
000004 (000158)
320.00
I: 2.12
I: 2.13
I: 2.14
320.06
ID_WB_NO PART PRESENT
<320.06>
b169 a183
ID_WB_3 SENSOR METHOD
ID_INPUT _THRU BEAM SENSOR
ID_INPUT _ULTRASONIC SENSOR
ID_INPUT _INDUCTIVE SENSOR
320.01
I: 2.11
I: 2.12
I: 2.13
I: 2.14
ID_WB_4 SENSOR METHOD
ID_INPUT _IR PROXIMITY SENSOR
ID_INPUT _THRU BEAM SENSOR
ID_INPUT _ULTRASONIC SENSOR
ID_INPUT _INDUCTIVE SENSOR
000005 (000169)
If the sensors produce an output that does not register as any known part, an "unknown part" state will show. (This should later get treated as a large or small part.)
320.06
320.05
320.04
320.03
320.02
320.07
ID_WB_UNKNOWN PART PRESENT
<320.07>
a179
ID_WB_NO PART PRESENT
ID_WB_LARGE PART PRESENT
ID_WB_ELECTRONIC PART PRESENT
ID_WB_SMALL PART PRESENT
ID_WB_REJECT PART PRESENT
000006 (000175)
While REJECT part is identified, "NEED TO OPEN TRAP DOOR 1" request turns on.
320.02
320.08
ID_WB_NEED TO OPEN TRAP DOOR 1
<320.08>
a186
ID_WB_REJECT PART PRESENT
000007 (000177)
While SMALL, LARGE, OR UNKNOWN part is identified, "NEED TO PUSH OUT WITH JURASSIC CLOSED 1" request turns on.
320.03
320.09
ID_WB_NEED TO PUSH OUT WITH JURASSIC CLOSED 1
<320.09>
a192
ID_WB_SMALL PART PRESENT
320.05
ID_WB_LARGE PART PRESENT
320.07
ID_WB_UNKNOWN PART PRESENT
000008 (000181)
While ELECTRONIC part is identified, "NEED TO PUSH OUT WITH JURASSIC OPEN 1" request turns on.
320.04
320.10
ID_WB_NEED TO PUSH OUT WITH JURASSIC
ID_WB_ELECTRO

NIC PART PRESENT

OPEN 1 <320.10> a198

000009 (000183)

While NO part is identified, "NEED TO RESET 1" request turns on.

320.06 — ID_WB_NO PART PRESENT

320.11 — ID_WB_NEED TO RESET 1 <320.11> a204

000010 (000185)

Requests can only be filled if CLAMPED state is active, and cannot be filled if another request is already being filled.

321.03 — ID_WB_CLAMPED
320.08 — ID_WB_NEED TO OPEN TRAP DOOR 1
322.08 — ID_WB_SMALL LARGE UNKNOWN SEQUENCE RUNNING LATCH
322.09 — ID_WB_ELECTRONIC PART SEQUENCE RUNNING LATCH
I: 2.10 — ID_INPUT_ID STATION EMERGENCY HOME

321.08 — ID_WB_NEED TO OPEN TRAP DOOR 2 <321.08> a211

000011 (000191)

Requests can only be filled if CLAMPED state is active, and cannot be filled if another request is already being filled.

321.03 — ID_WB_CLAMPED
320.09 — ID_WB_NEED TO PUSH OUT WITH JURASSIC CLOSED 1
322.01 — ID_WB_REJECT SEQUENCE RUNNING LATCH
322.09 — ID_WB_ELECTRONIC PART SEQUENCE RUNNING LATCH
I: 2.10 — ID_INPUT_ID STATION EMERGENCY HOME

321.09 — ID_WB_NEED TO PUSH OUT WITH JURASSIC CLOSED 2 <321.09> a235

000012 (000197)

Requests can only be filled if CLAMPED state is active, and cannot be filled if another request is already being filled.

321.03 — ID_WB_CLAMPED
320.10 — ID_WB_NEED TO PUSH OUT WITH JURASSIC OPEN 1
322.01 — ID_WB_REJECT SEQUENCE RUNNING LATCH
322.08 — ID_WB_SMALL LARGE UNKNOWN SEQUENCE RUNNING LATCH
I: 2.10 — ID_INPUT_ID STATION EMERGENCY HOME

321.10 — ID_WB_NEED TO PUSH OUT WITH JURASSIC OPEN 2 <321.10> a251

000013 (000203)

Requests can only be filled if CLAMPED state is active, and cannot be filled if another request is already being filled.

321.03 — ID_WB_CLAMPED
320.11 — ID_WB_NEED TO RESET 1
322.01 — ID_WB_REJECT SEQUENCE RUNNING LATCH
322.08 — ID_WB_SMALL LARGE UNKNOWN SEQUENCE RUNNIN
322.09 — ID_WB_ELECTRONIC PART SEQUENCE RUNNING LATCH
I: 2.10 — ID_INPUT_ID STATION EMERGENCY HOME

321.11 — ID_WB_NEED TO RESET 2 <321.11> a314

G LATCH

000000
(000211)

[Program Name : ELT215_SPRING2012]
PLC TO RUN: "T" Electronic Part Testing Station "ID" All 4 Part Identification Station and "F" Feeder Sequencing

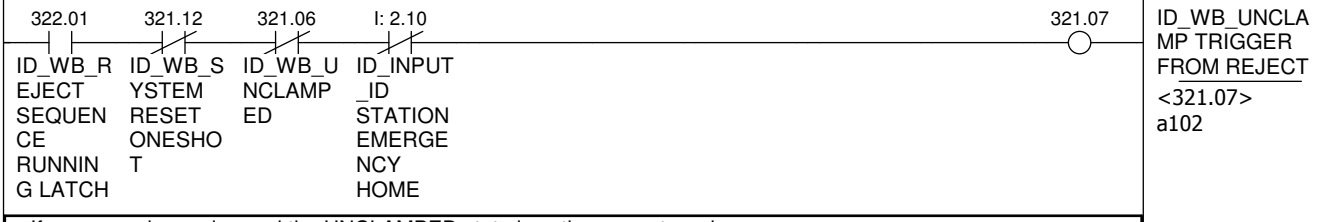
[Section Name : ID_OUTCOME_REJECT]
The actions required if a "REJECT" part is identified to be in the station.

NEED TO OPEN TRAP DOOR latches REJECT SEQUENCE RUNNING LATCH until it is broken by the system resetting, and then the door will close.

<322.01>
b193 b199 b205 a212 a216 a221 a225

000001
(000216)

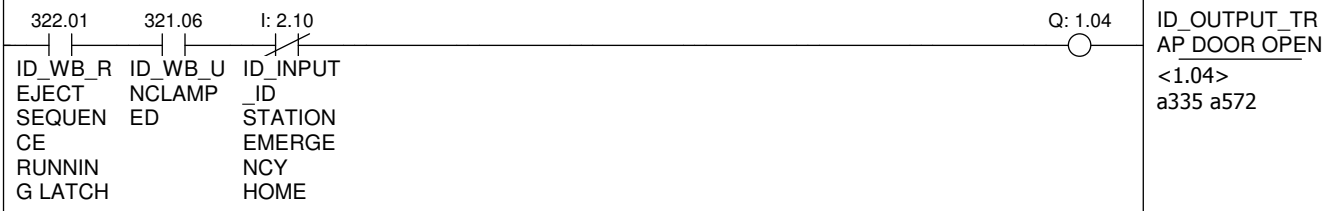
Reject Sequence Running Latch will be translated to UNCLAMP TRIGGER unless the system reset goes off or the UNCLAMPED state is reached.



<321.07>
a102

000002
(000221)

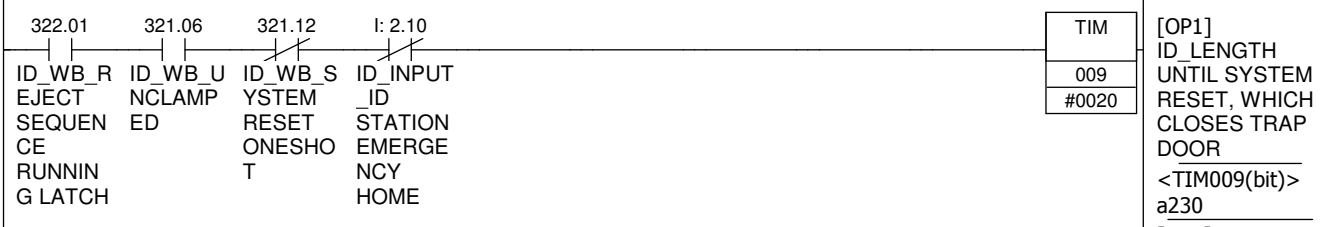
If sequence is running and the UNCLAMPED state is active, open trap door.



<1.04>
a335 a572

000003
(000225)

Timer for length of trap door open. When this goes off, it resets the whole system, which closes the door.



<TIM009(bit)>
a230

000004
(000230)

When TIM009 goes off, it will activate SEQUENCE COMPLETE 2 until that succesfully causes a system reset, which will stop the ping and stop the source of the rung.

<321.15>
a316

WHICH T NCY
CLOSES HOME
TRAP
DOOR

000000
(000235)

[Program Name : ELT215_SPRING2012]
PLC TO RUN: "T" Electronic Part Testing Station "ID" All 4 Part Identification Station and "F" Feeder Sequencing

[Section Name : ID_OUTCOME_SMALL_LARGE_UNKNOWN]
The actions required if the part identified in the station is SMALL, LARGE, or UNKNOWN. (They all have the same outcome.) This triggers the same push sequence as the ELECTRONIC PART except it does not raise the JURASSIC GATE or wait for the JURASSIC GATE to open.

If the request to push out with jurassic gate down is issued, latch SMALL LARGE UNKNOWN SEQUENCE RUNNING LATCH. Broken by System Reset.

000001
(000240)

If sequencer is running, issue UNCLAMP TRIGGER until "UNCLAMPED" state is reached.

000002
(000245)

If sequence is running, and unclamped state is reached, fire push out trigger until system reset.

000000
(000251)

[Program Name : ELT215_SPRING2012]
PLC TO RUN: "T" Electronic Part Testing Station "ID" All 4 Part Identification Station and "F" Feeder Sequencing

[Section Name : ID_OUTCOME_ELECTRONIC]
The actions required if the part identified to be in the station is an ELECTRONIC PART. This triggers the same PUSH sequence as the SMALL/LARGE/UNKNOWN PART, but waits for the JURASSIC GATE to open.

If request is issued, latch ELECTRONIC PART SEQUENCE RUNNING LATCH until system reset.

000001
(000256)

If the sequence is running, activate the Unclamp Trigger until the UNCLAMPED state is reached, or the system reset pings.

000002
(000261)

If the sequence is running, raise the jurassic gate until the JURASSIC GATE RAISED state is achieved or the system reset pings.

000003
(000266)

Amount of time it takes to open the Jurassic Gate.

000004
(000269)

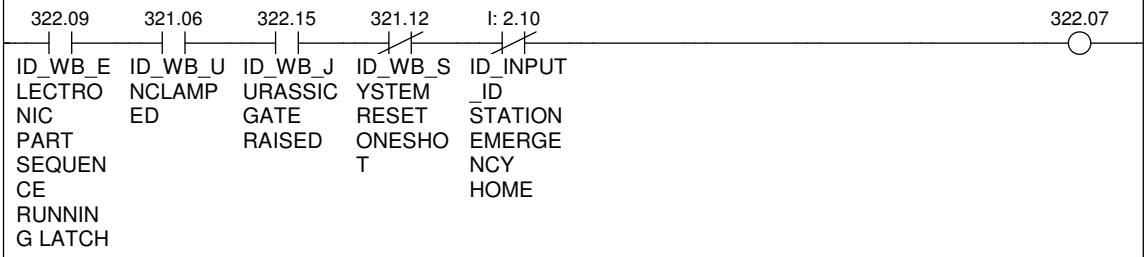
After the time it takes for the jurassic gate to open, the JURASSIC GATE RAISED state is latched on until broken by the system reset.

000005
(000274)

Either the command to raise the jurassic gate or the state of jurassic gate being raised retracts the jurassic gate cylinder.

000006
(000278)

If the sequence is running, the unclamped state has been reached, and the jurassic gate has opened, push the part out.

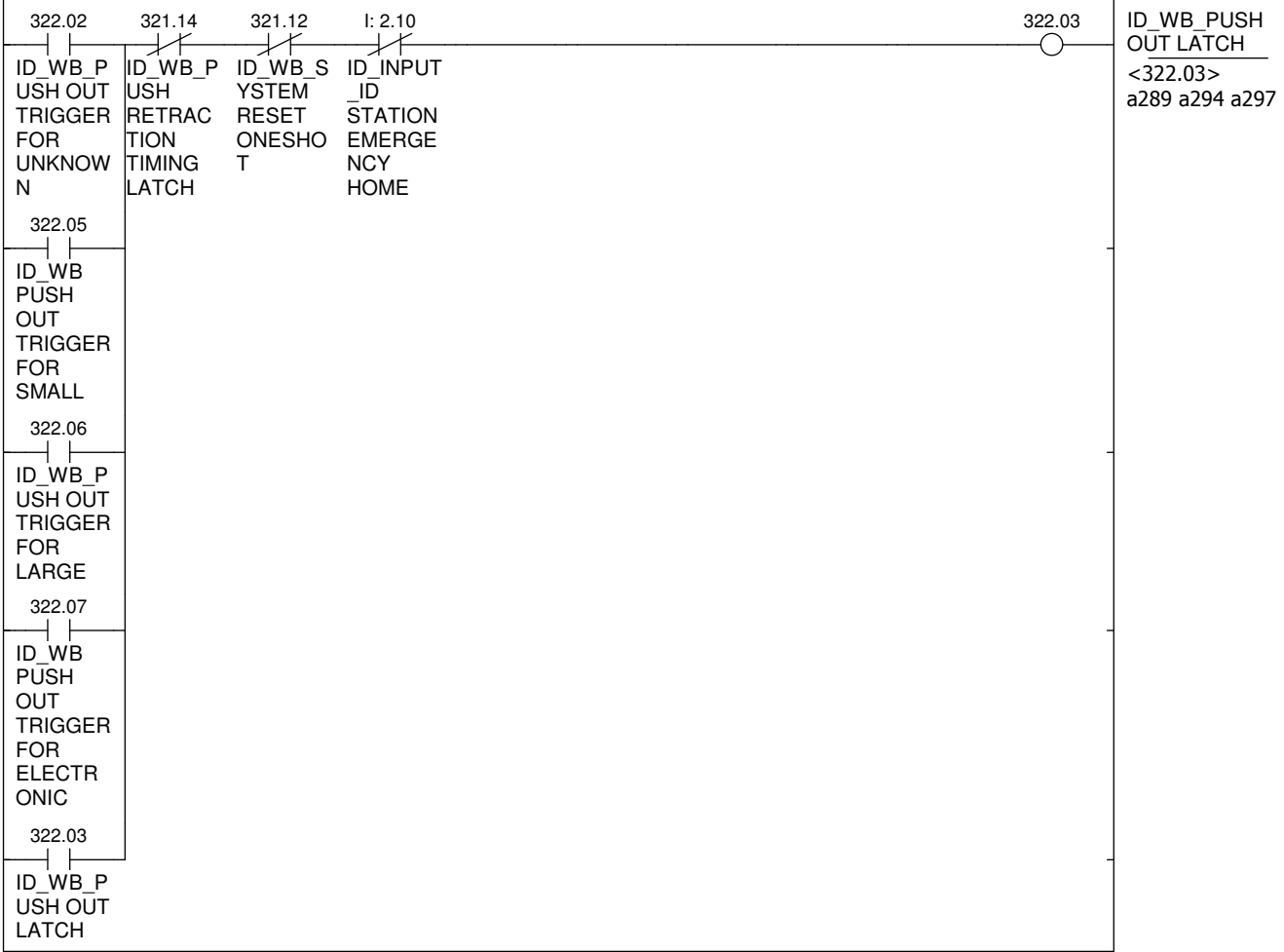


000000
(000285)

[Program Name : ELT215_SPRING2012]
PLC TO RUN: "T" Electronic Part Testing Station "ID" All 4 Part Identification Station and "F" Feeder Sequencing

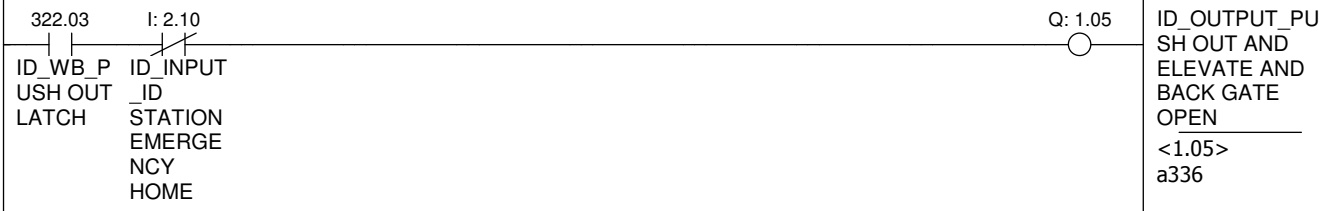
[Section Name : ID_PUSH_CONCLUSION]
Contains the pushing out sequence of actions from the result of either SMALL, LARGE, UNKNOWN, or ELECTRONIC parts.

Latches PUSH OUT TRIGGERS into PUSH OUT LATCH. Broken by PUSH RETRACTION TIMING LATCH



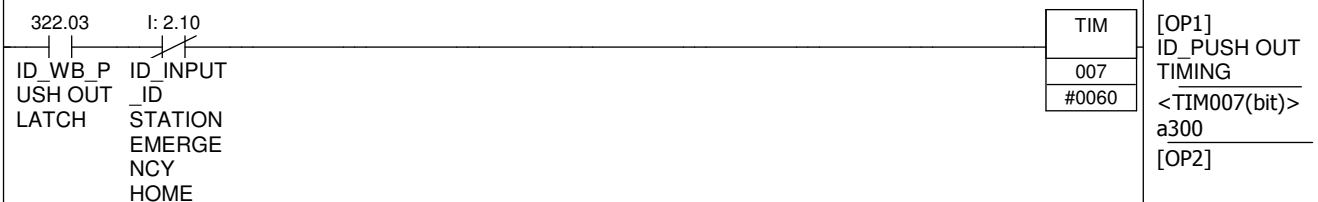
000001
(000294)

Translates Workbit to Output



000002
(000297)

Timer for length of pushing out.



000003
(000300)

As soon as TIM007 pings, latch PUSH RETRACTION TIMING LATCH. (TIM007 is broken by that.)

ID_WB_PUSH RETRACTION TIMING LATCH
<321.14>
b290 a301 a305

000004
(000305)

TIMER FOR CYLINDERS TO RETRACT

[OP1]
ID_WAIT FOR PUSH AND ELEVATE CYLINDERS TO RETRACT BEFORE SYSTEM RESET
<TIM006(bit)>
a308
[OP2]

000005
(000308)

Timer going off pings SEQUENCE COMPLETE, which pings the actual SYSTEM RESET TRIGGER. Broken by the SYSTEM RESET ONESHOT.

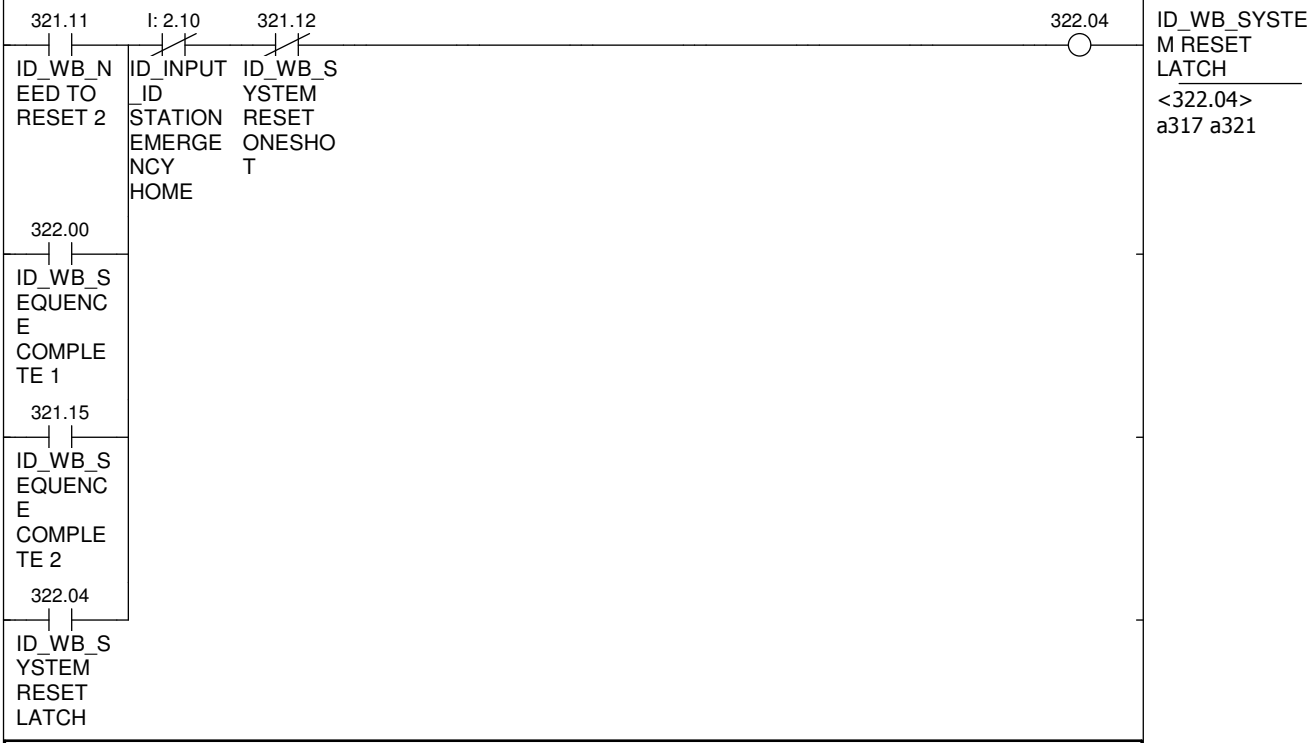
ID_WB_SEQUENCE COMPLETE 1
<322.00>
b302 a309 a315

000000
(000314)

[Program Name : ELT215_SPRING2012]
PLC TO RUN: "T" Electronic Part Testing Station "ID" All 4 Part Identification Station and "F" Feeder Sequencing

[Section Name : ID_SYSTEM_RESET_ONESHOT]
Either from no part or from sequence complete, the ladder logic for system resets.

SYSTEM RESET LATCH latches from either "WE NEED TO RESET 2" request from no part being in station, SEQUENCE COMPLETE 1 as a result of any part being ejected, or SEQUENCE COMPLETE 2 from the completion of the REJECT part. Functions as the "ON" of the oneshot. End timing dictated by TIM008



000001
(000321)

System Reset Oneshot

[Program Name : ELT215_SPRING2012]
PLC TO RUN: "T" Electronic Part Testing Station "ID" All 4 Part Identification Station and "F" Feeder Sequencing

[Section Name : ID_OBSERVATION_ONLY]

000000
(000327)

Q: 1.01 — ID_OUTPUT_FRONT GATE CLOSE

Q: 1.02 — ID_OUTPUT_PUSH IN
I: 2.15 — ID_INPUT_PPG SENSOR
I: 2.12 — ID_INPUT_THRU BEAM SENSOR
I: 2.13 — ID_INPUT_ULTRASONIC SENSOR
I: 2.14 — ID_INPUT_INDUCTIVE SENSOR

Q: 1.03 — ID_OUTPUT_CLAMP ENGAGE

Q: 1.04 — ID_OUTPUT_TRAP DOOR OPEN

Q: 1.05 — ID_OUTPUT_PUSH OUT AND ELEVATE AND BACK GATE OPEN

Q: 1.06 — Output #6, Block 2 UNUSED

Q: 1.07 — ID_OUTPUT_JURASSIC GATE PULL UP

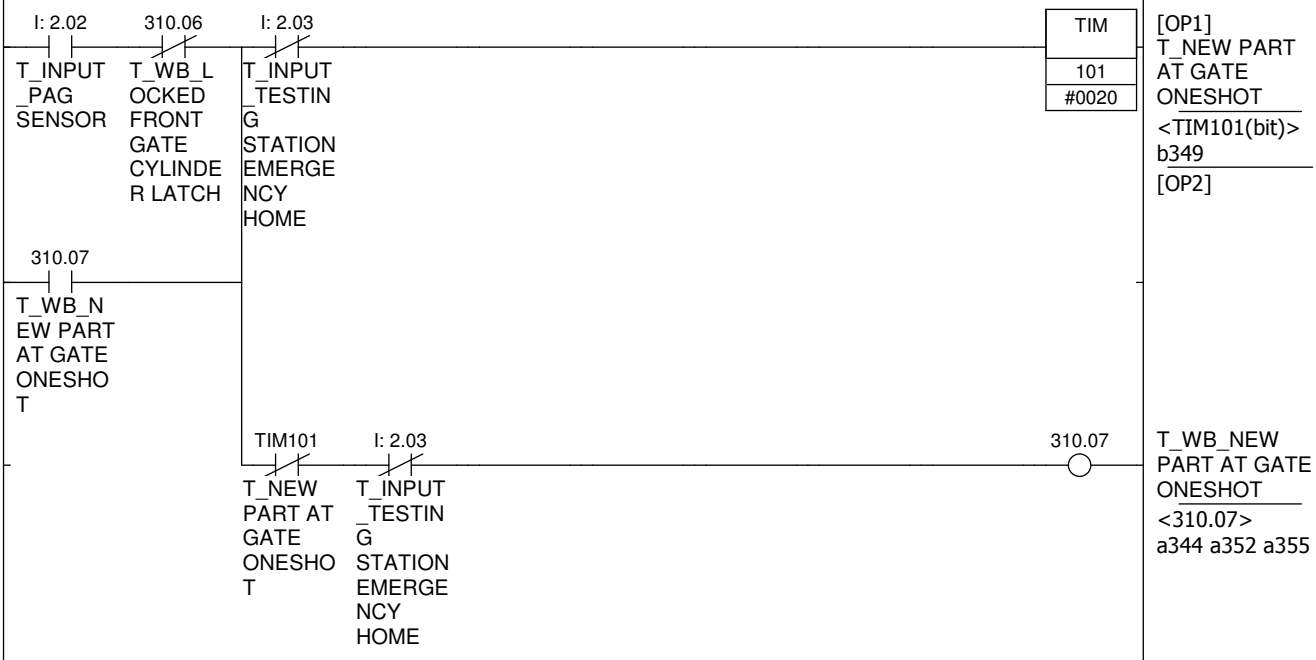
323.02 — ID_WB_PLACEHOLDER

000000
(000342)

[Program Name : ELT215_SPRING2012]
PLC TO RUN: "T" Electronic Part Testing Station "ID" All 4 Part Identification Station and "F" Feeder Sequencing

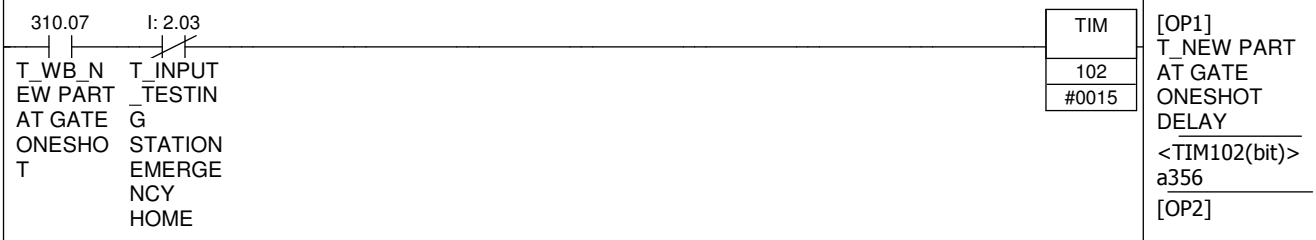
[Section Name : T_GETTING_PART_RESEATING_AND_LOCKING]
Ladder logic that gets the part into the testing station.

As soon as a part is seen, a 3 second oneshot goes off, which drives an on delay to send a one second trigger to start everything. Basically, an uninterruptible delayed oneshot of .5 second long (that doesn't come on until after 2.5 seconds after it was initially triggered.)



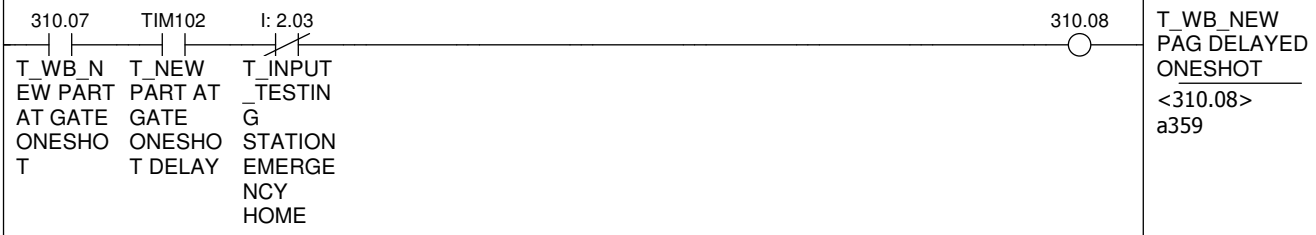
000001
(000352)

This timer is driven for the duration of the oneshot timer that goes off when a part is seen.



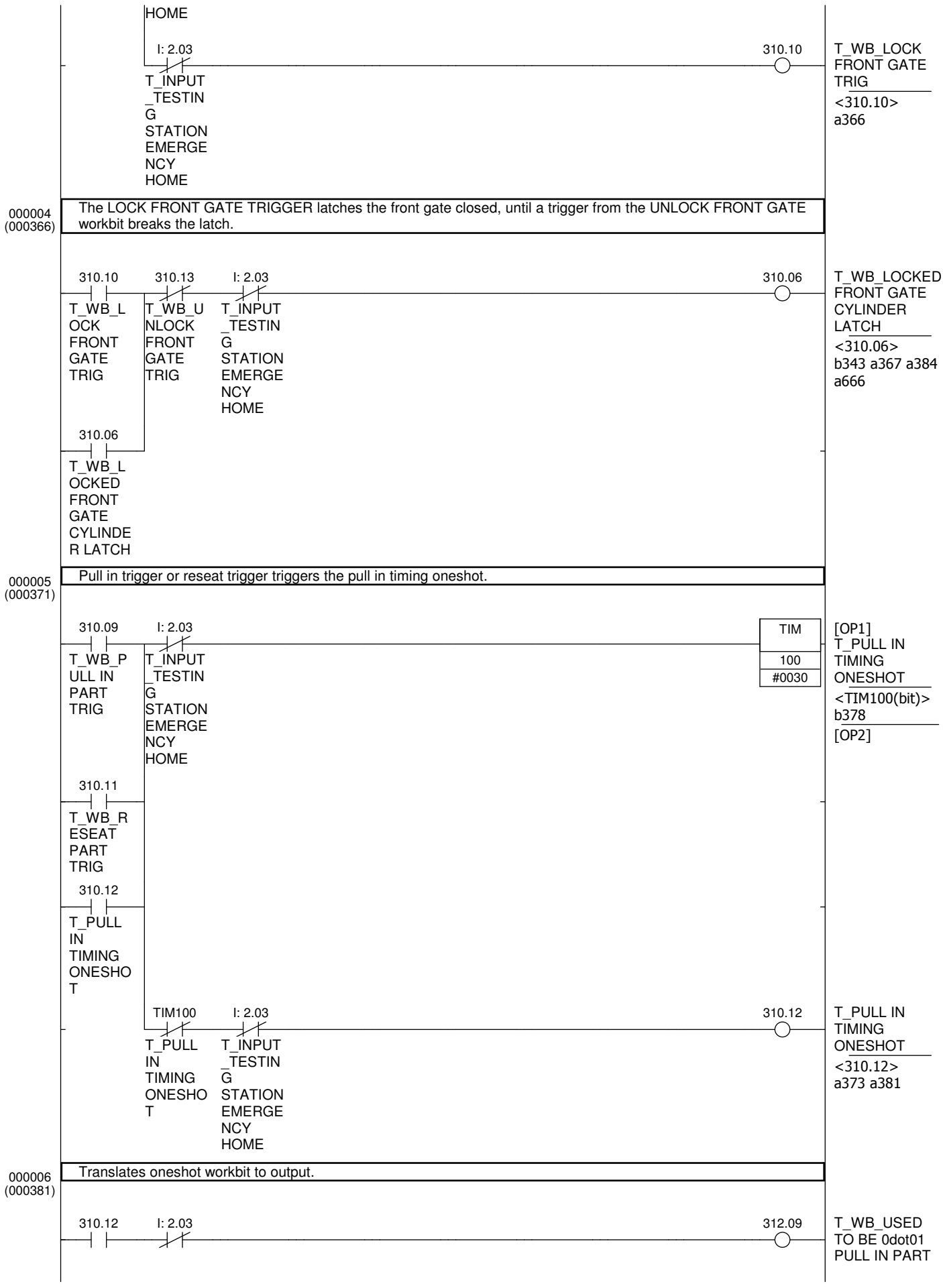
000002
(000355)

As soon as a part is seen, TIM101 goes off on a oneshot for 3 seconds. The oneshot triggers an on delay that happens after two and a half seconds. Both will be on for a duration of half a second, which constitutes a 2.5 second delayed .5 second long one shot that triggers everything to happen.



000003
(000359)

The one second long oneshot pulse drives a trigger to pull the part in as well as a trigger to lock the front gate.


HOME
I: 2.03
T_INPUT _TESTIN G STATION EMERGE NCY HOME
310.10
T_WB_LOCK FRONT GATE TRIG
<310.10>
a366
000004 (000366)
The LOCK FRONT GATE TRIGGER latches the front gate closed, until a trigger from the UNLOCK FRONT GATE workbit breaks the latch.
310.10
T_WB_L OCK FRONT GATE TRIG
310.13
T_WB_U NLOCK FRONT GATE TRIG
I: 2.03
T_INPUT _TESTIN G STATION EMERGE NCY HOME
310.06
T_WB_LOCKED FRONT GATE CYLINDER LATCH
<310.06>
b343 a367 a384 a666
310.06
T_WB_L OCKED FRONT GATE CYLINDE R LATCH
000005 (000371)
Pull in trigger or reseat trigger triggers the pull in timing oneshot.
310.09
T_WB_P ULL IN PART TRIG
I: 2.03
T_INPUT _TESTIN G STATION EMERGE NCY HOME
TIM
100
#0030
[OP1]
T_PULL IN TIMING ONESHOT
<TIM100(bit)>
b378
[OP2]
310.11
T_WB_R ESEAT PART TRIG
310.12
T_PULL IN TIMING ONESHO T
TIM100
T_PULL IN TIMING ONESHO T
I: 2.03
T_INPUT _TESTIN G STATION EMERGE NCY HOME
310.12
T_PULL IN TIMING ONESHOT
<310.12>
a373 a381
000006 (000381)
Translates oneshot workbit to output.
310.12
I: 2.03
312.09
T_WB_USED TO BE 0dot01 PULL IN PART

T_PULL IN TIMING ONESHOT

T_INPUT_TESTING STATION EMERGENCY HOME

000007 (000384)

Translates workbit latch to output.

310.06 T_WB_LOCKED FRONT GATE CYLINDER LATCH

I: 2.03 T_INPUT_TESTING STATION EMERGENCY HOME

Q: 0.00 T_OUTPUT_FRONT GATE CLOSE <0.00> a670

000008 (000387)

7 seconds after the pull in trigger pings, (2 seconds longer than the time to pull in) TIM104 goes off, signalling the the pull in cylinder has had time to get out of the way.

310.09 T_WB_PULL IN PART TRIG

I: 2.03 T_INPUT_TESTING STATION EMERGENCY HOME

TIM 104 #0070 [OP1] T_INITIAL PULL IN AND RETRACT TIMING [OP2]

311.01 T_WB_T104 DRIVER

311.02 T_WB_PART IN STATION LATCH

I: 2.03 T_INPUT_TESTING STATION EMERGENCY HOME

311.01 T_WB_T104 DRIVER <311.01> a388

000009 (000396)

DUPLICATION FOR RESEAT PULL. 7 seconds after the pull in trigger pings, (2 seconds longer than the time to pull in) TIM104 goes off, signalling the the pull in cylinder has had time to get out of the way.

310.11 T_WB_RESEAT PART TRIG

I: 2.03 T_INPUT_TESTING STATION EMERGENCY HOME

TIM 117 #0070 [OP1] T_RESEAT PULL IN AND RETRACT TIMING [OP2]

312.07 T_WB_T117 DRIVER

311.14 T_WB_RESEATING PUSH DONE

I: 2.03 T_INPUT_TESTING STATION EMERGENCY

312.07 T_WB_T117 DRIVER <312.07> a397

HOME

000010
(000405)

As soon as TIM118 goes off, the PART IN STATION LATCH latches and will only unlatch if it gets an abort pulse or seq start pulse.

000000
(000412)

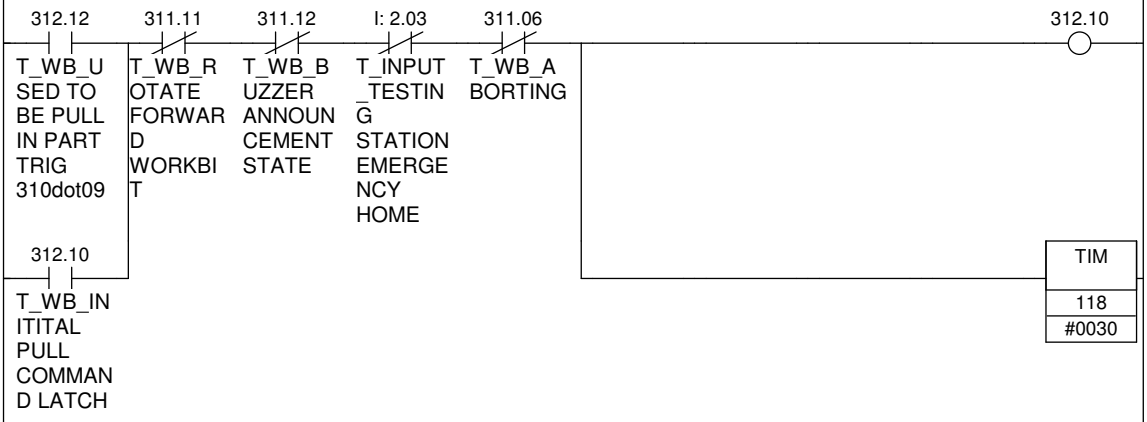
[Program Name : ELT215_SPRING2012]
PLC TO RUN: "T" Electronic Part Testing Station "ID" All 4 Part Identification Station and "F" Feeder Sequencing

[Section Name : T_NEW_PULL_IN_BEHAVIOR]

The activation of either of these workbits will pull in for the duration of the activation.

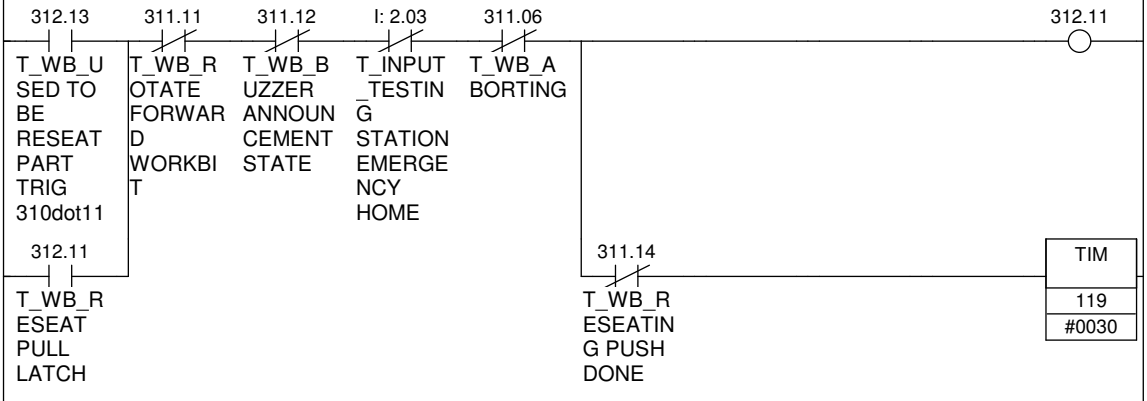
000001
(000416)

When the program says to pull in part, in pulls in and stays in until either the turntable rotates forward (in reorienting state) or the buzzer goes off (in testing state). In the case of reorienting, it will relatch when the command to reseat is made. In the case of testing, it will relatch when it pulls the next part in.



000002
(000424)

Same as above. To reset to normal, replace T118 in the rest of the program with T104. And replace T119 reference point with T117. Replace 312.09 with 000.01. Replace 312.12 output with 310.09, and replace 312.13 output with 310.11.

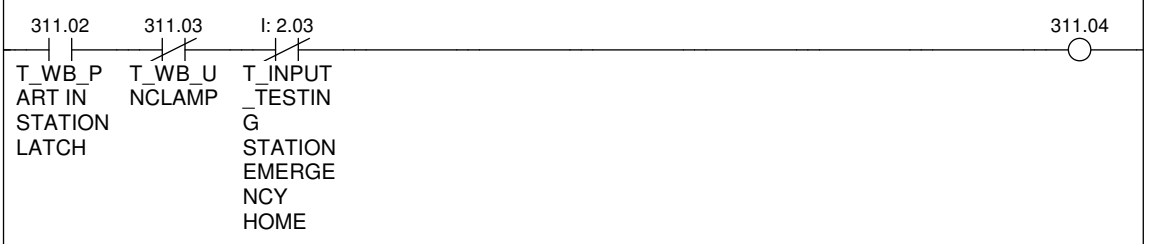


000000
(000434)

[Program Name : ELT215_SPRING2012]
PLC TO RUN: "T" Electronic Part Testing Station "ID" All 4 Part Identification Station and "F" Feeder Sequencing

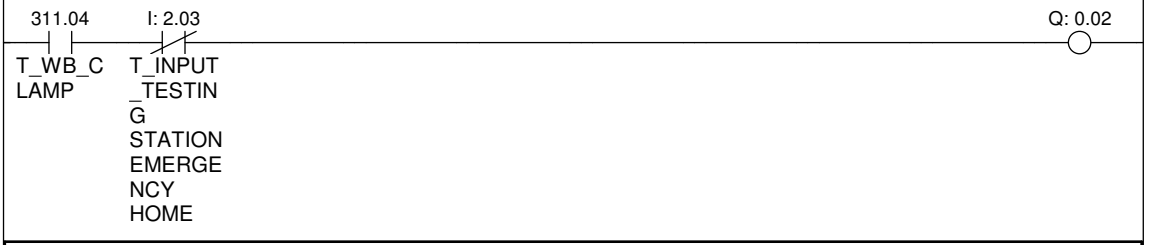
[Section Name : T_CLAMPED_STATE]
Sets the "CLAMPED" state and manages UNCLAMP interrupts to that.

When part is believed to be in the testing area, try clamping it unless the UNCLAMP command is being issued, in which case, temporarily unclamp.



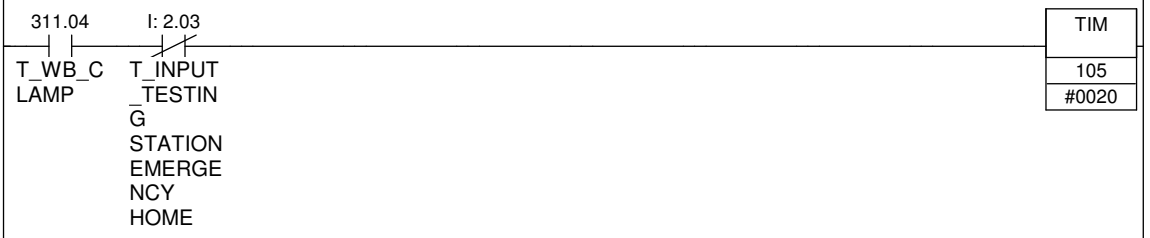
000001
(000438)

Translates workbit to output.



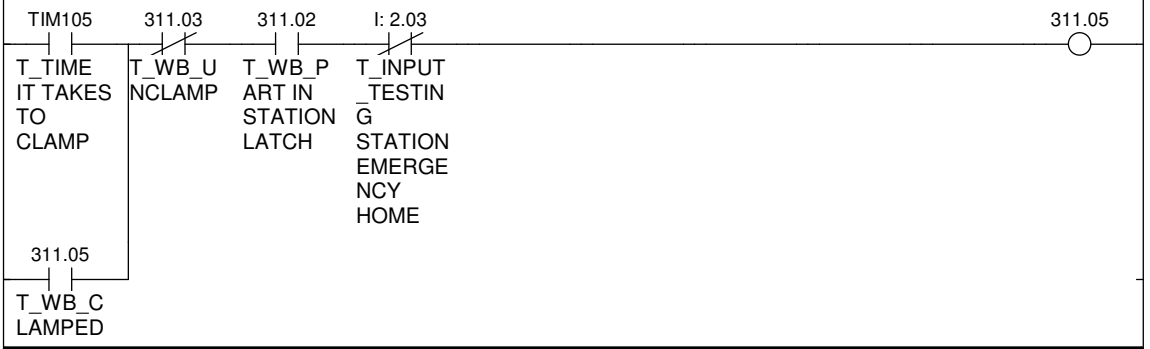
000002
(000441)

Time it takes to clamp.



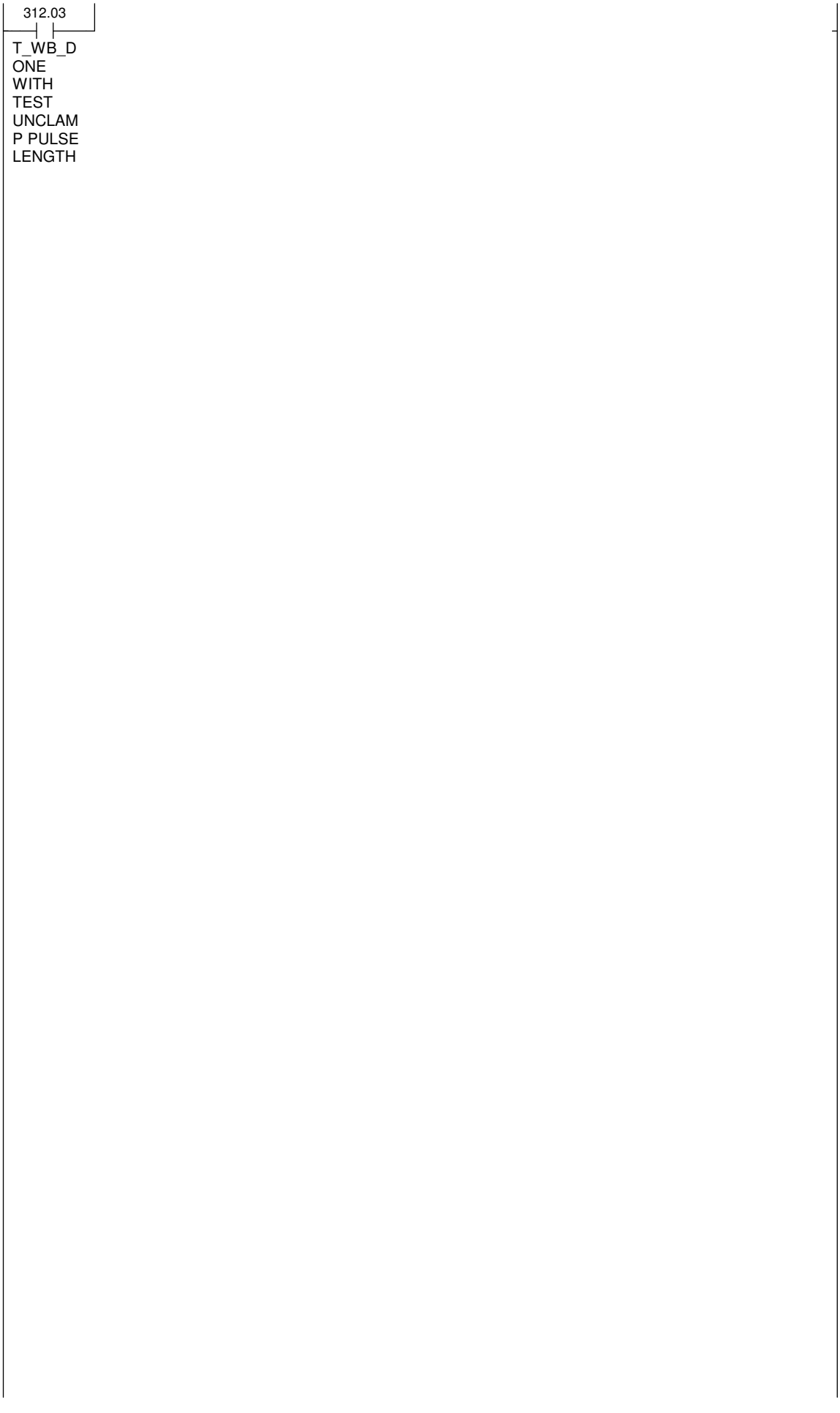
000003
(000444)

After the time it takes to clamp has expired, latch the CLAMPED state, which will be interrupted by the UNCLAMP command, or anything else that causes the PART IN STATION to fail.



000004
(000450)

Places the UNCLAMP command can come from.

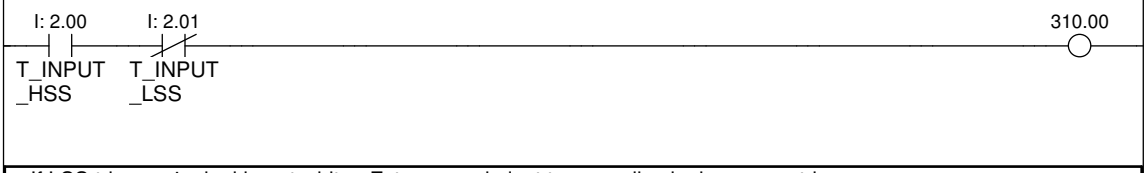

312.03
T_WB_D
ONE
WITH
TEST
UNCLAM
P PULSE
LENGTH

000000
(000455)

[Program Name : ELT215_SPRING2012]
PLC TO RUN: "T" Electronic Part Testing Station "ID" All 4 Part Identification Station and "F" Feeder Sequencing

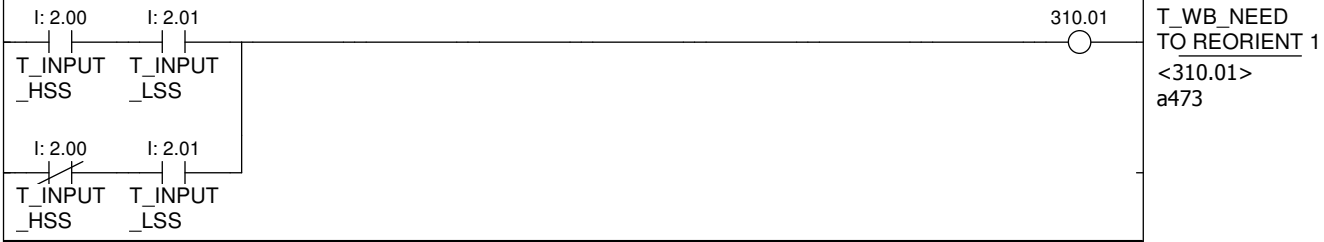
[Section Name : T_ORIENTATION_STATES_AND_REQUESTS]
Combinational logic that converts sensor outputs into orientation identifcation work bits and then into action requests.

If HSS trips but LSS does not, we're looking at Black. Should hold for testing.



000001
(000458)

If LSS trips, we're looking at white. Extra rungs in just to normalize logic rung matrix.

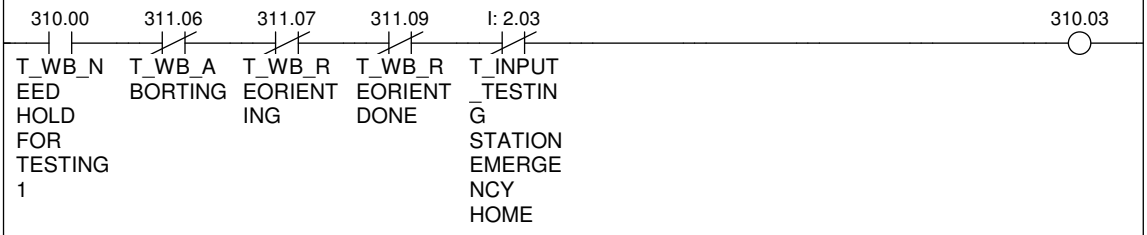


000002
(000464)

If neither sensor trips, part disappeared. Reset the system.

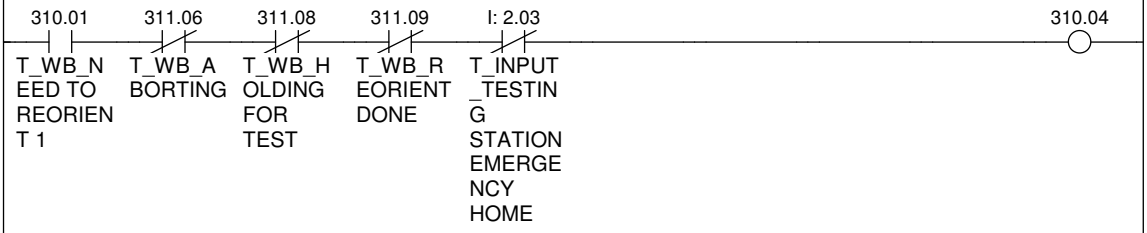
000003
(000467)

If we need to hold for testing, and it is not in the process of ABORTING or REORIENTING, then allow request to HOLD FOR TESTING 2 to go through.



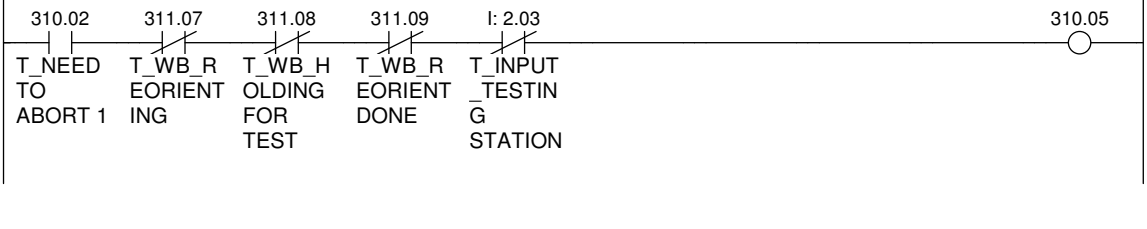
000004
(000473)

If we need to reorient, and we are not in the process of aborting or holding for testing, then allow the request to NEED TO REORIENT 2 to go through.



000005
(000479)

If we need to abort, and we are not in the process of reorienting or holding for test, then allow the request to NEED TO ABORT 2 to go through.



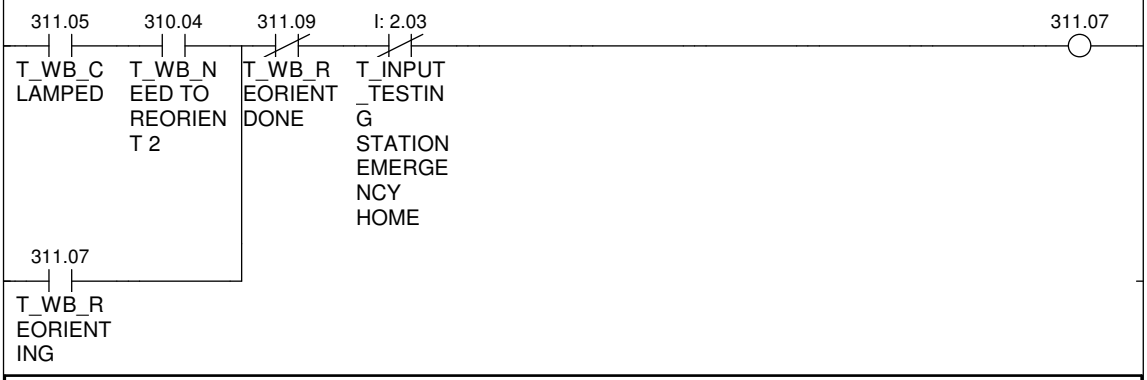
EMERGE
NCY
HOME

000000
(000486)

[Program Name : ELT215_SPRING2012]
PLC TO RUN: "T" Electronic Part Testing Station "ID" All 4 Part Identification Station and "F" Feeder Sequencing

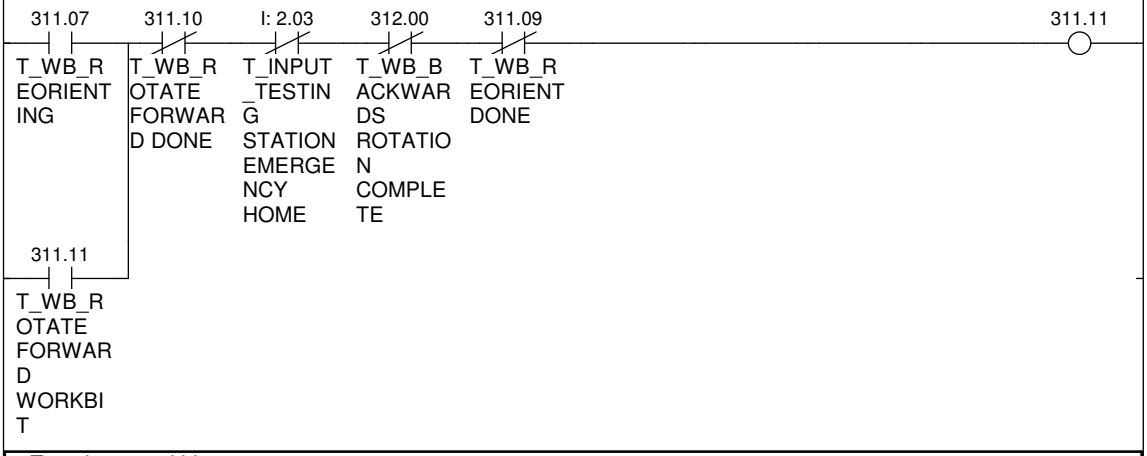
[Section Name : T_REORIENTING]
Ladder logic that performs the actions necessary to accept a second tier request to reorient the part and physically reorient the part itself by 90 degrees.

If we are clamped and NEED TO REORIENT 2, then latch on REORIENTING state until REORIENT DONE.



000001
(000492)

Turntable holds in rotated position until "FULL UNCLAMP DONE"



000002
(000499)

Translates workbit to output.

000003
(000502)

000004
(000505)

When forward rotate has completed, unclamp the two side clamps until realignment push has completed.

FORWARD ROTATE
G PUSH DONE
G STATION EMERGENCY HOME
311.13
T_WB_REORIENT UNCLAMP LENGTH PULSE
<311.13>
a450 a506 a519

000005
(000510)

When forward rotate has gone off, pull out the alignment clamp until backwards rotate has completed.

TIM106
T_LENGTH OF FORWARD ROTATE
I: 2.03
T_INPUT_TESTING STATION EMERGENCY HOME
312.00
T_WB_BACKWARDS ROTATION COMPLETE
311.09
T_WB_REORIENT DONE
311.15
T_WB_RETRACT ALIGNMENT CLAMP
<311.15>
a511 a516
311.15
T_WB_RETRACT ALIGNMENT CLAMP

000006
(000516)

Translates workbit to output.

311.15
T_WB_RETRACT ALIGNMENT CLAMP
I: 2.03
T_INPUT_TESTING STATION EMERGENCY HOME
Q: 0.03
T_OUTPUT_ALIGNMENT CLAMP RETRACT
<0.03>
a677

000007
(000519)

After the amount of time to retract all three clamps, the timer goes off.

311.13
T_WB_REORIENT UNCLAMP LENGTH PULSE
I: 2.03
T_INPUT_TESTING STATION EMERGENCY HOME
TIM
107
#0015
[OP1]
T_TIME TO UNCLAMP ALL THREE
<TIM107(bit)>
a522
[OP2]

000008
(000522)

After the time to unclamp all three clamps has expired, latch the "ROTATE FORWARD DONE" bit (which rotates backwards) until "BACKWARDS ROTATION COMPLETE".

TIM107
T_TIME TO UNCLAMP ALL THREE
312.00
T_WB_BACKWARDS ROTATION COMPLETE
I: 2.03
T_INPUT_TESTING STATION EMERGENCY HOME
311.09
T_WB_REORIENT DONE
311.10
T_WB_ROTATE FORWARD DONE
<311.10>
b494 a523 a528
311.10

T_WB_ROTATE FORWARD DONE

000009 (000528)

Amount of time it takes to rotate backwards.

311.10 — T_WB_ROTATE FORWARD DONE

I: 2.03 — T_INPUT_TESTING STATION EMERGENCY HOME

TIM 108 #0030

[OP1] T_TIME TO ROTATE BACKWARDS <TIM108(bit)> a531 [OP2]

000010 (000531)

After time to rotate backwards has expired, latch the state BACKWARDS ROTATION COMPLETE until the REORIENT DONE oneshot.

TIM108 — T_TIME TO ROTATE BACKWARDS

311.09 — T_WB_REORIENT DONE

I: 2.03 — T_INPUT_TESTING STATION EMERGENCY HOME

312.00 — T_WB_BACKWARDS ROTATION COMPLETE <312.00> b496 b513 b524 a532 a536

312.00 — T_WB_BACKWARDS ROTATION COMPLETE

000011 (000536)

As soon as BACKWARDS ROTATION COMPLETE, latch RESEAT PART TRIG until RESEATING PUSH DONE goes off.

312.00 — T_WB_BACKWARDS ROTATION COMPLETE

311.14 — T_WB_RESEATING PUSH DONE

I: 2.03 — T_INPUT_TESTING STATION EMERGENCY HOME

312.13 — T_WB_USED TO BE RESEAT PART TRIG 310dot11 <312.13> a424

310.11 — T_WB_RESEAT PART TRIG

000012 (000541)

After maximum time to reseat and retract has expired, latch the state RESEATING PUSH DONE until REORIENT DONE.

TIM119 — T_PULL IN TIME FROM RESEAT

311.09 — T_WB_REORIENT DONE

I: 2.03 — T_INPUT_TESTING STATION EMERGENCY HOME

311.14 — T_WB_RESEATING PUSH DONE <311.14> b402 b431 b507 b538 a542 a546

311.14

T_WB_R
ESEATIN
G PUSH
DONE

000013
(000546)

Once both RESEATING PUSH DONE goes off and CLAMPED state is reached, do a oneshot pulse of REORIENT DONE.

311.14
T_WB_R
ESEATIN
G PUSH
DONE

311.05
T_WB_C
LAMPED

I: 2.03
T_INPUT
_TESTIN
G
STATION
EMERGE
NCY
HOME

TIM
109
#0005

[OP1]
T_REORIENT
DONE
ONESHOT
LENGTH
<TIM109(bit)>
b553
[OP2]

311.09
T_WB_R
EORIENT
DONE

TIM109
T_REORI
ENT
DONE
ONESHO
T
LENGTH

I: 2.03
T_INPUT
_TESTIN
G
STATION
EMERGE
NCY
HOME

311.09

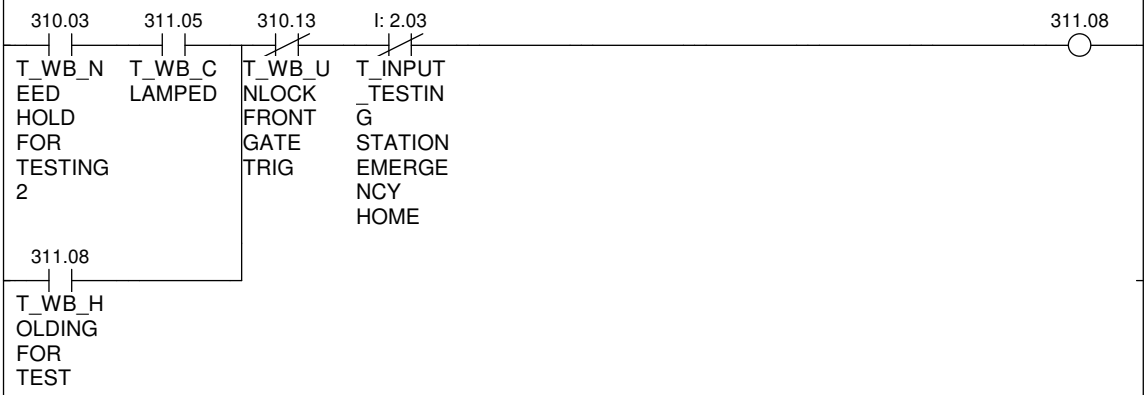
T_WB_REORIE
NT DONE
<311.09>
b470 b476 b482
b489 b497 b514
b526 b533 b543
a548

000000
(000557)

[Program Name : ELT215_SPRING2012]
PLC TO RUN: "T" Electronic Part Testing Station "ID" All 4 Part Identification Station and "F" Feeder Sequencing

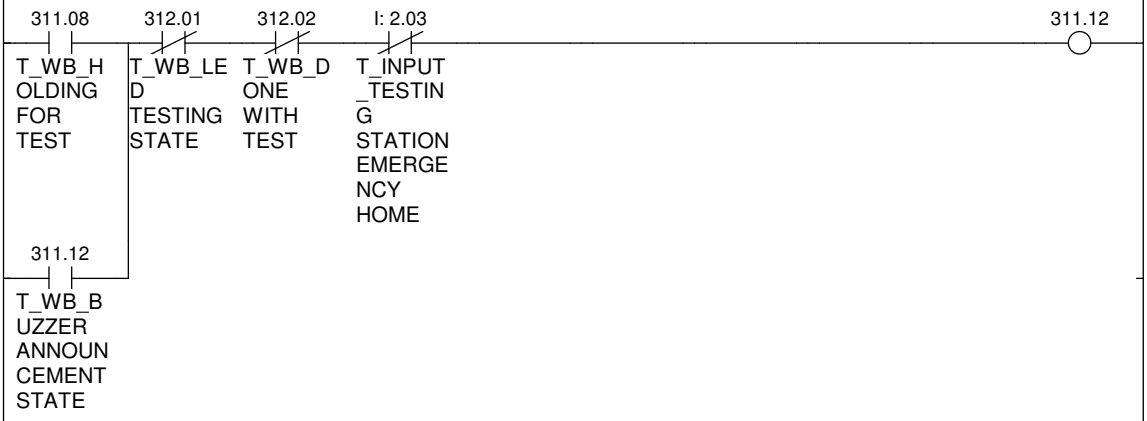
[Section Name : T_HOLD_FOR_TESTING]
Ladder logic that can accept a tier 2 request to hold the part for testing (identified as being properly oriented) and can perform the actions to hold the piece, run the test sequence, and then eject the piece from the system.

If we NEED TO HOLD FOR TEST 2, and we are CLAMPED, then latch HOLDING FOR TEST until UNLOCK FRONT GATE (as a result of the collision avoidance delay going off.) This is not only to run this branch of the program, but also to prevent other branches from triggering once this branch is triggered. (This will always be the last branch of the program.)



000001
(000563)

If we are HOLDING FOR TEST, and LED TEST STATE and DONE WITH TEST states are not active, go into BUZZER ANNOUNCEMENT STATE.

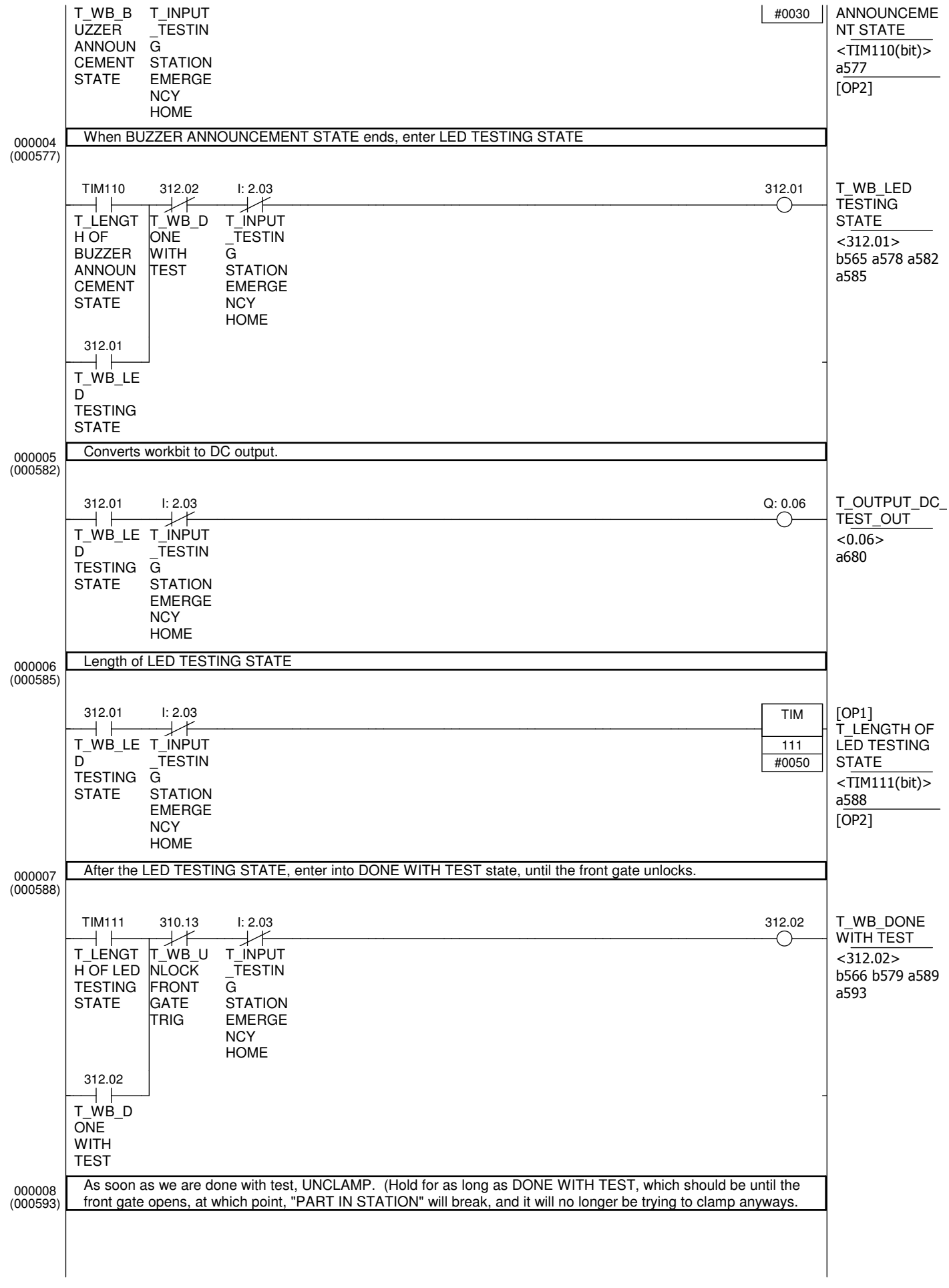


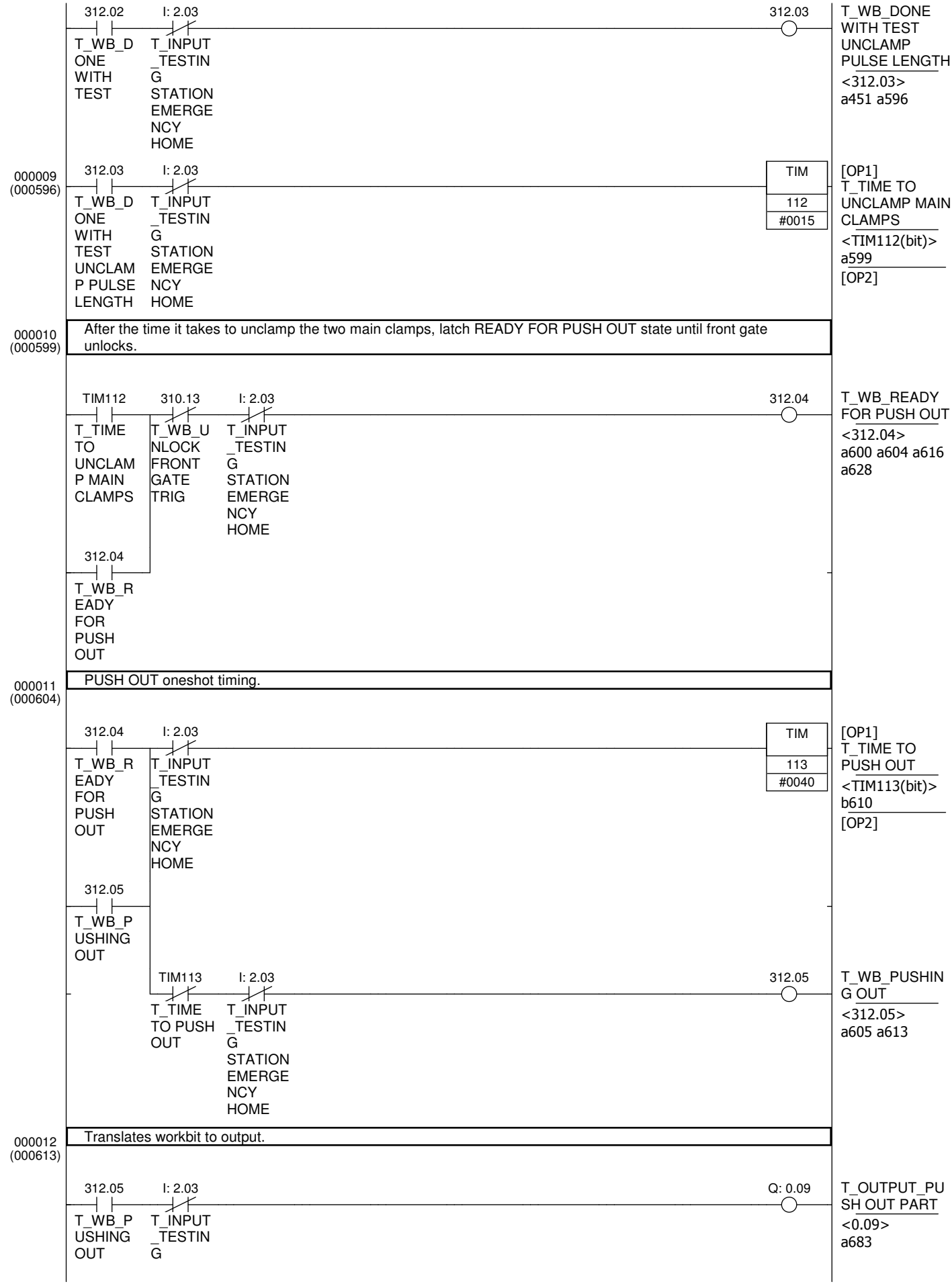
000002
(000569)

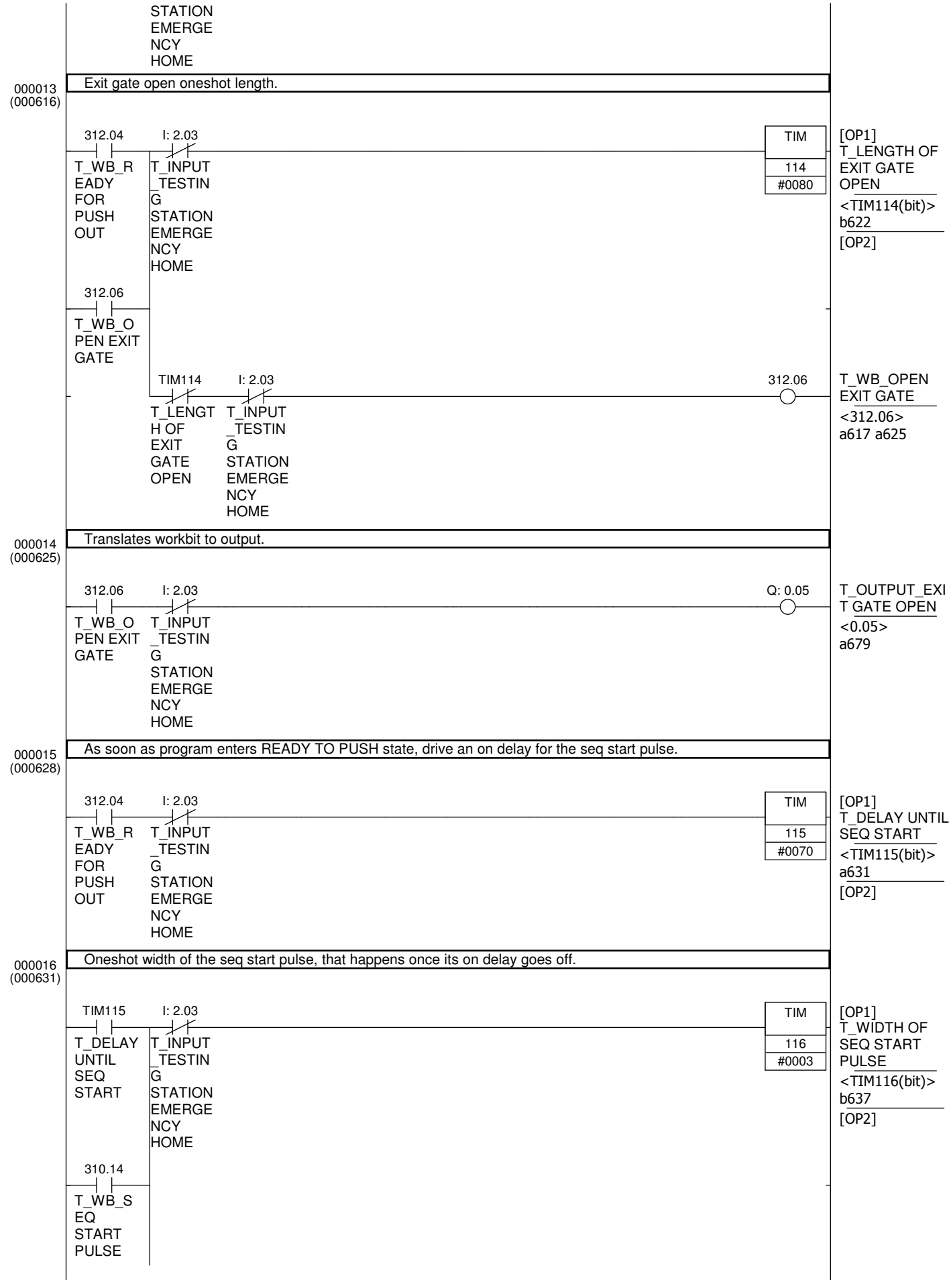
Converts latched workbit to 1 second cycling output.

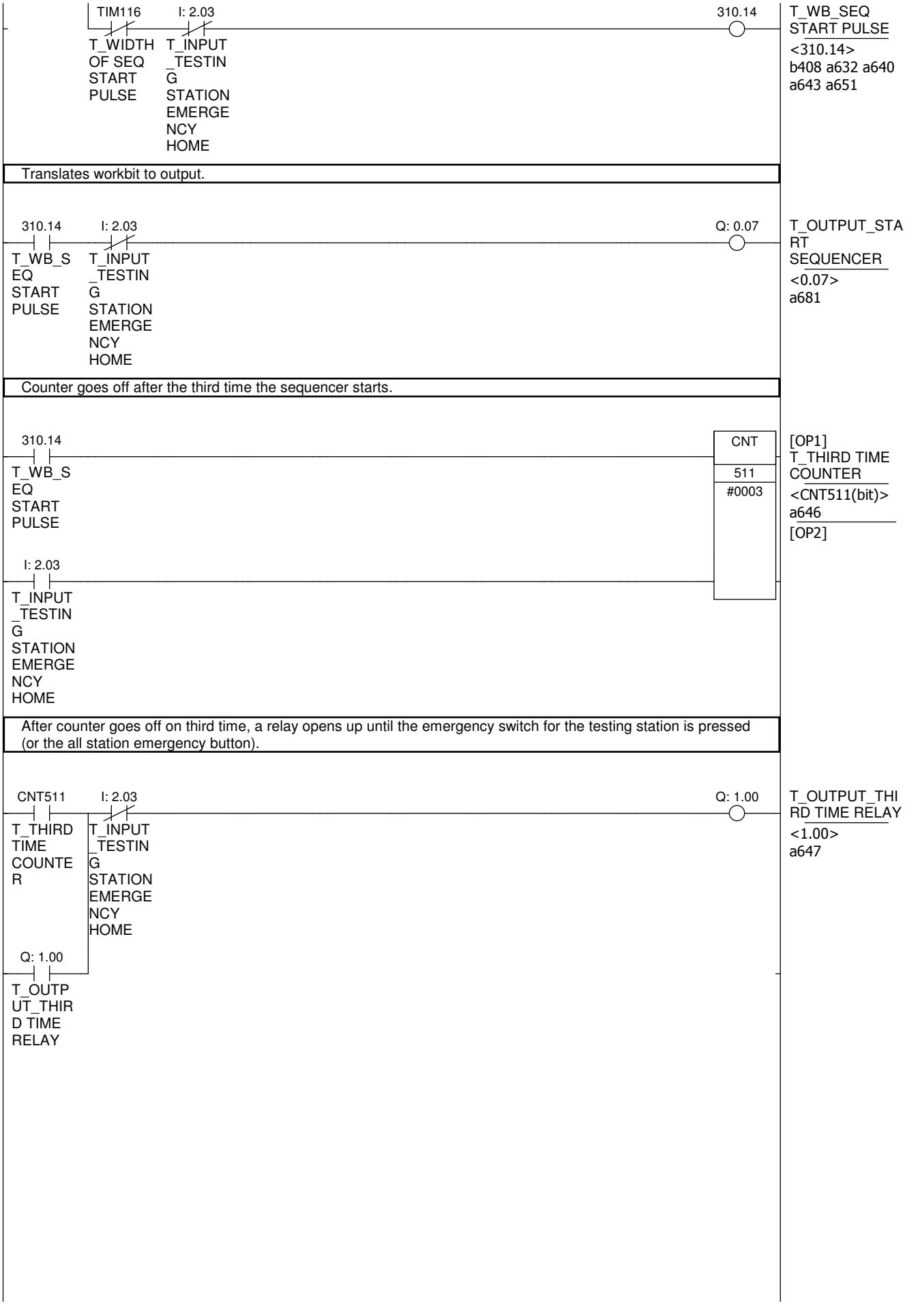
000003
(000574)

Length of Buzzer Announcement State


T_WB_BUZZER ANNOUNCEMENT STATE
T_INPUT_TESTING STATION EMERGENCY HOME
#0030
ANNOUNCEMENT STATE
<TIM110(bit)>
a577
[OP2]
000004
(000577)
When BUZZER ANNOUNCEMENT STATE ends, enter LED TESTING STATE
TIM110
T_LENGTH OF BUZZER ANNOUNCEMENT STATE
312.02
T_WB_DONE WITH TEST
I: 2.03
T_INPUT_TESTING STATION EMERGENCY HOME
312.01
T_WB_LED TESTING STATE
<312.01>
b565 a578 a582 a585
312.01
T_WB_LED TESTING STATE
000005
(000582)
Converts workbit to DC output.
312.01
T_WB_LED TESTING STATE
I: 2.03
T_INPUT_TESTING STATION EMERGENCY HOME
Q: 0.06
T_OUTPUT_DC_TEST_OUT
<0.06>
a680
000006
(000585)
Length of LED TESTING STATE
312.01
T_WB_LED TESTING STATE
I: 2.03
T_INPUT_TESTING STATION EMERGENCY HOME
TIM
111
#0050
[OP1]
T_LENGTH OF LED TESTING STATE
<TIM111(bit)>
a588
[OP2]
000007
(000588)
After the LED TESTING STATE, enter into DONE WITH TEST state, until the front gate unlocks.
TIM111
T_LENGTH OF LED TESTING STATE
310.13
T_WB_UNLOCK FRONT GATE TRIG
I: 2.03
T_INPUT_TESTING STATION EMERGENCY HOME
312.02
T_WB_DONE WITH TEST
<312.02>
b566 b579 a589 a593
312.02
T_WB_DONE WITH TEST
000008
(000593)
As soon as we are done with test, UNCLAMP. (Hold for as long as DONE WITH TEST, which should be until the front gate opens, at which point, "PART IN STATION" will break, and it will no longer be trying to clamp anyways.


312.02
I: 2.03
312.03
T_WB_DONE WITH TEST UNCLAMP PULSE LENGTH
<312.03>
a451 a596
T_WB_DONE WITH TEST
T_INPUT_TESTING STATION EMERGENCY HOME
000009
(000596)
312.03
I: 2.03
TIM
112
#0015
[OP1]
T_TIME TO UNCLAMP MAIN CLAMPS
<TIM112(bit)>
a599
[OP2]
T_WB_DONE WITH TEST UNCLAMP PULSE LENGTH
T_INPUT_TESTING STATION EMERGENCY HOME
000010
(000599)
After the time it takes to unclamp the two main clamps, latch READY FOR PUSH OUT state until front gate unlocks.
TIM112
310.13
I: 2.03
312.04
T_WB_READY FOR PUSH OUT
<312.04>
a600 a604 a616 a628
T_TIME TO UNCLAMP MAIN CLAMPS
T_WB_UNLOCK FRONT GATE TRIG
T_INPUT_TESTING STATION EMERGENCY HOME
312.04
T_WB_READY FOR PUSH OUT
000011
(000604)
PUSH OUT oneshot timing.
312.04
I: 2.03
TIM
113
#0040
[OP1]
T_TIME TO PUSH OUT
<TIM113(bit)>
b610
[OP2]
T_WB_READY FOR PUSH OUT
T_INPUT_TESTING STATION EMERGENCY HOME
312.05
T_WB_PUSHING OUT
TIM113
I: 2.03
312.05
T_WB_PUSHING OUT
<312.05>
a605 a613
T_TIME TO PUSH OUT
T_INPUT_TESTING STATION EMERGENCY HOME
000012
(000613)
Translates workbit to output.
312.05
I: 2.03
Q: 0.09
T_OUTPUT_PUSH OUT PART
<0.09>
a683
T_WB_PUSHING OUT
T_INPUT_TESTING


STATION EMERGENCY HOME
000013 (000616)
Exit gate open oneshot length.
312.04
T_WB_READY FOR PUSH OUT
I: 2.03
T_INPUT_TESTING STATION EMERGENCY HOME
TIM
114
#0080
[OP1]
T_LENGTH OF EXIT GATE OPEN
<TIM114(bit)>
b622
[OP2]
312.06
T_WB_OPEN EXIT GATE
TIM114
T_LENGTH OF EXIT GATE OPEN
I: 2.03
T_INPUT_TESTING STATION EMERGENCY HOME
312.06
T_WB_OPEN EXIT GATE
<312.06>
a617 a625
000014 (000625)
Translates workbit to output.
312.06
T_WB_OPEN EXIT GATE
I: 2.03
T_INPUT_TESTING STATION EMERGENCY HOME
Q: 0.05
T_OUTPUT_EXIT GATE OPEN
<0.05>
a679
000015 (000628)
As soon as program enters READY TO PUSH state, drive an on delay for the seq start pulse.
312.04
T_WB_READY FOR PUSH OUT
I: 2.03
T_INPUT_TESTING STATION EMERGENCY HOME
TIM
115
#0070
[OP1]
T_DELAY UNTIL SEQ START
<TIM115(bit)>
a631
[OP2]
000016 (000631)
Oneshot width of the seq start pulse, that happens once its on delay goes off.
TIM115
T_DELAY UNTIL SEQ START
I: 2.03
T_INPUT_TESTING STATION EMERGENCY HOME
TIM
116
#0003
[OP1]
T_WIDTH OF SEQ START PULSE
<TIM116(bit)>
b637
[OP2]
310.14
T_WB_SEQ START PULSE


TIM116
T_WIDTH OF SEQ START PULSE
I: 2.03
T_INPUT _TESTING STATION EMERGENCY HOME
310.14
T_WB_SEQ START PULSE
<310.14>
b408 a632 a640 a643 a651
000017
(000640)
Translates workbit to output.
310.14
T_WB_SEQ START PULSE
I: 2.03
T_INPUT _TESTING STATION EMERGENCY HOME
Q: 0.07
T_OUTPUT_START SEQUENCER
<0.07>
a681
000018
(000643)
Counter goes off after the third time the sequencer starts.
310.14
T_WB_SEQ START PULSE
I: 2.03
T_INPUT _TESTING STATION EMERGENCY HOME
CNT
511
#0003
[OP1]
T_THIRD TIME COUNTER
<CNT511(bit)>
a646
[OP2]
000019
(000646)
After counter goes off on third time, a relay opens up until the emergency switch for the testing station is pressed (or the all station emergency button).
CNT511
T_THIRD TIME COUNTER
I: 2.03
T_INPUT _TESTING STATION EMERGENCY HOME
Q: 1.00
T_OUTPUT_THIRD TIME RELAY
Q: 1.00
T_OUTPUT_THIRD TIME RELAY
<1.00>
a647

000000
(000651)

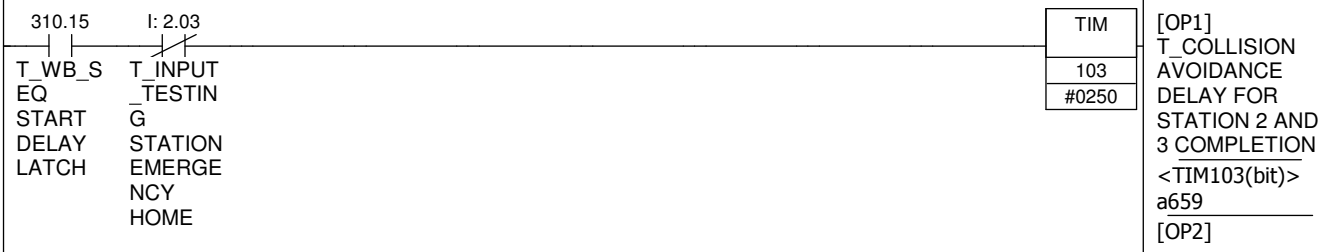
[Program Name : ELT215_SPRING2012]
PLC TO RUN: "T" Electronic Part Testing Station "ID" All 4 Part Identification Station and "F" Feeder Sequencing

[Section Name : T_SYSTEM_RESET_AND_ABORT]
Ladder logic that defines the two different ways the program can end and reset. A. Through an abort command B. Through a SEQ START pulse, which will then get delayed to avoid a possible collision if the next part comes in properly oriented.

The "Sequencer Start Pulse" latches a bit on that starts a delay before the front gate is unlocked. The command to unlock the front gate breaks the latch.

000001
(000656)

Timer goes off after time it takes for parts to get through stations 2 and 3. When it goes off, it issues the unlock front gate trig, which will reset the timer itself.



000002
(000659)

Either the pulse from the collision avoidance delay or the abort command will unlock the front gate, essentially resetting the system.

000003
(000663)

If the "NEED TO ABORT 2" request goes through (meaning it's been issued and it's clamped), latch the ABORTING state until the abort is apparently successful.


CYLINDE
R LATCH
EMERGE
NCY
HOME
311.06
T_WB_A
BORTING

[Program Name : ELT215_SPRING2012]
PLC TO RUN: "T" Electronic Part Testing Station "ID" All 4 Part Identification Station and "F" Feeder Sequencing

[Section Name : T_OBSERVATION_ONLY]

000000
(000670)

Q: 0.00 — 312.08 T_WB_PLACEHOLDER

T_OUTPUT_FRONT GATE CLOSE

Q: 0.01 I: 2.02 I: 2.01 I: 2.00

T_OUTPUT_PULL IN PART | T_INPUT_PAG SENSOR | T_INPUT_LSS | T_INPUT_HSS

Q: 0.02

T_OUTPUT_CLAMP ENGAGE

Q: 0.03

T_OUTPUT_ALIGNMENT CLAMP RETRACT

Q: 0.04

T_OUTPUT_TURNTABLE ROTATE FORWARD

Q: 0.05

T_OUTPUT_EXIT GATE OPEN

Q: 0.06

T_OUTPUT_DC_TEST_OUT

Q: 0.07

T_OUTPUT_START SEQUENCER

Q: 0.08

T_OUTPUT_BUZZER (INTERMITTENT)

Q: 0.09

T_OUTPUT_PUSH OUT PART

000000
(000687)

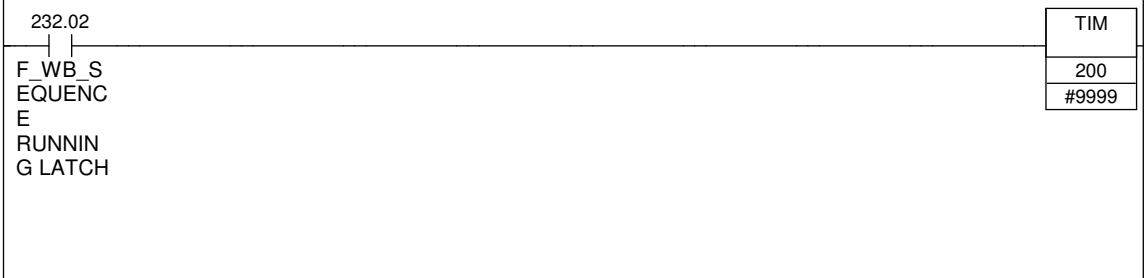
[Program Name : ELT215_SPRING2012]
PLC TO RUN: "T" Electronic Part Testing Station "ID" All 4 Part Identification Station and "F" Feeder Sequencing

[Section Name : F_FEEDER_SEQUENCE_TIME]
Offset from T=0, contains timings for the ejection of each part, as well as the "SEQUENCE OVER" point. For example, if parts are supposed to come out at ten second intervals, part 1 would be released at 0, part 2 at 10, part 3 at 20, etc.

Pressing the start button latches the sequence on until the stop button is pressed or SEQUENCE OVER

000001
(000692)

END OF SEQUENCE TIME

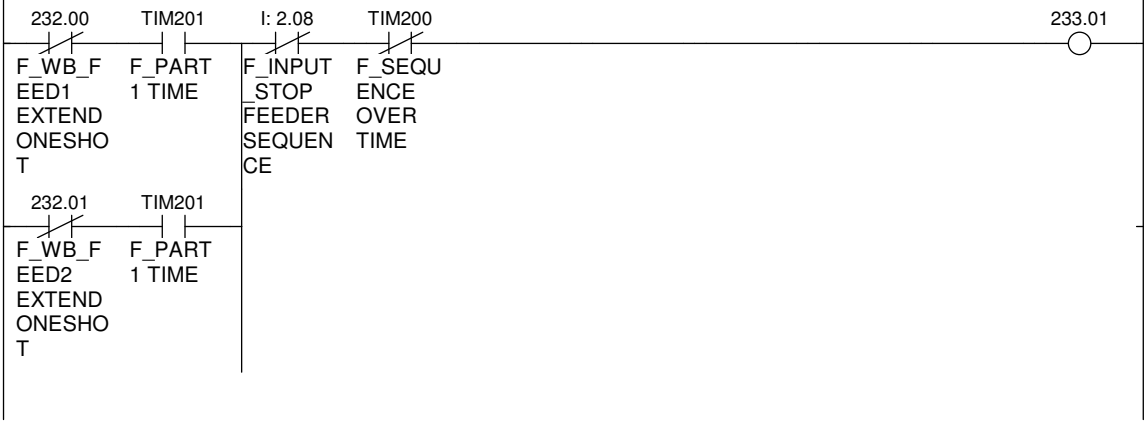


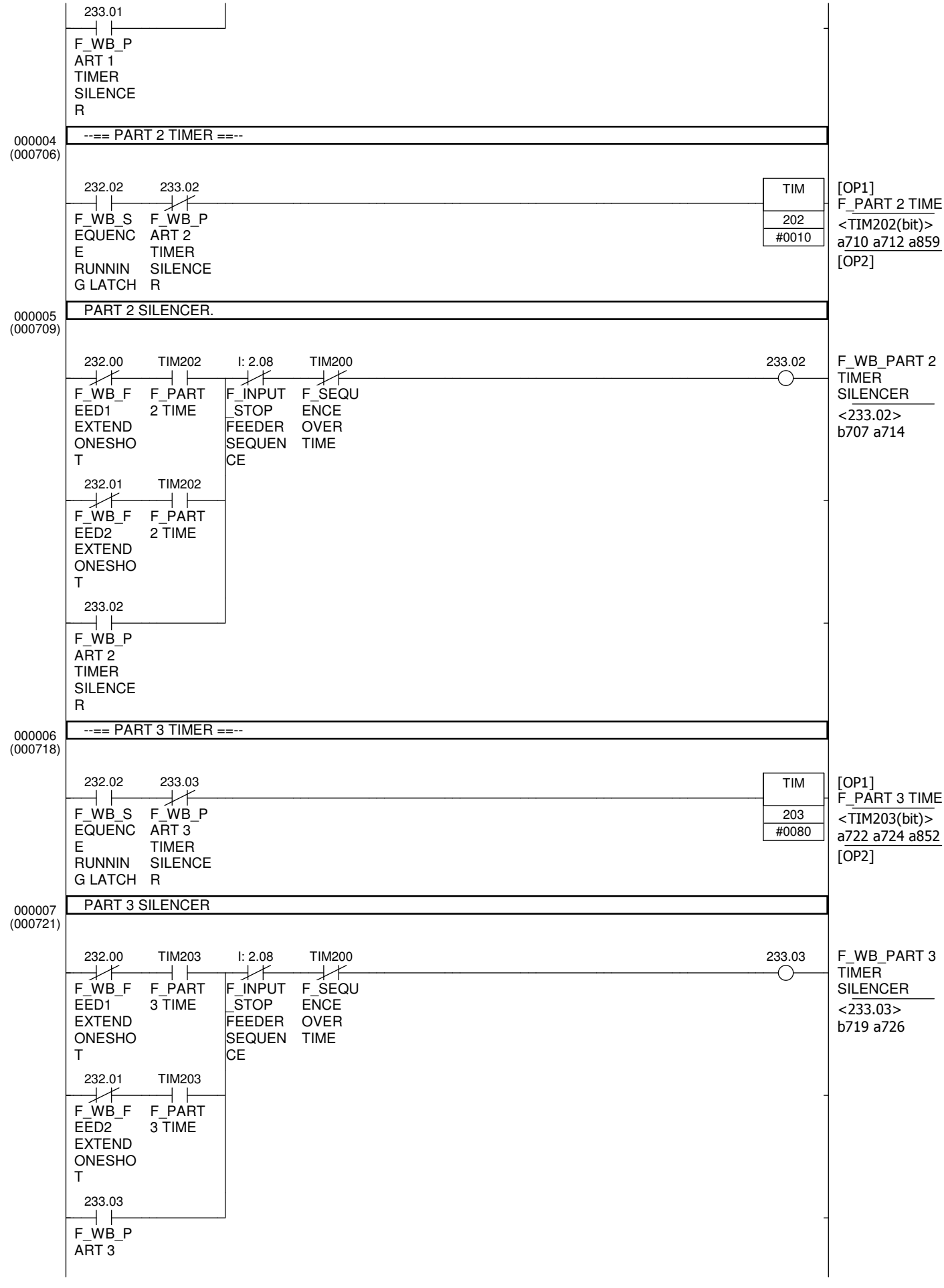
000002
(000694)

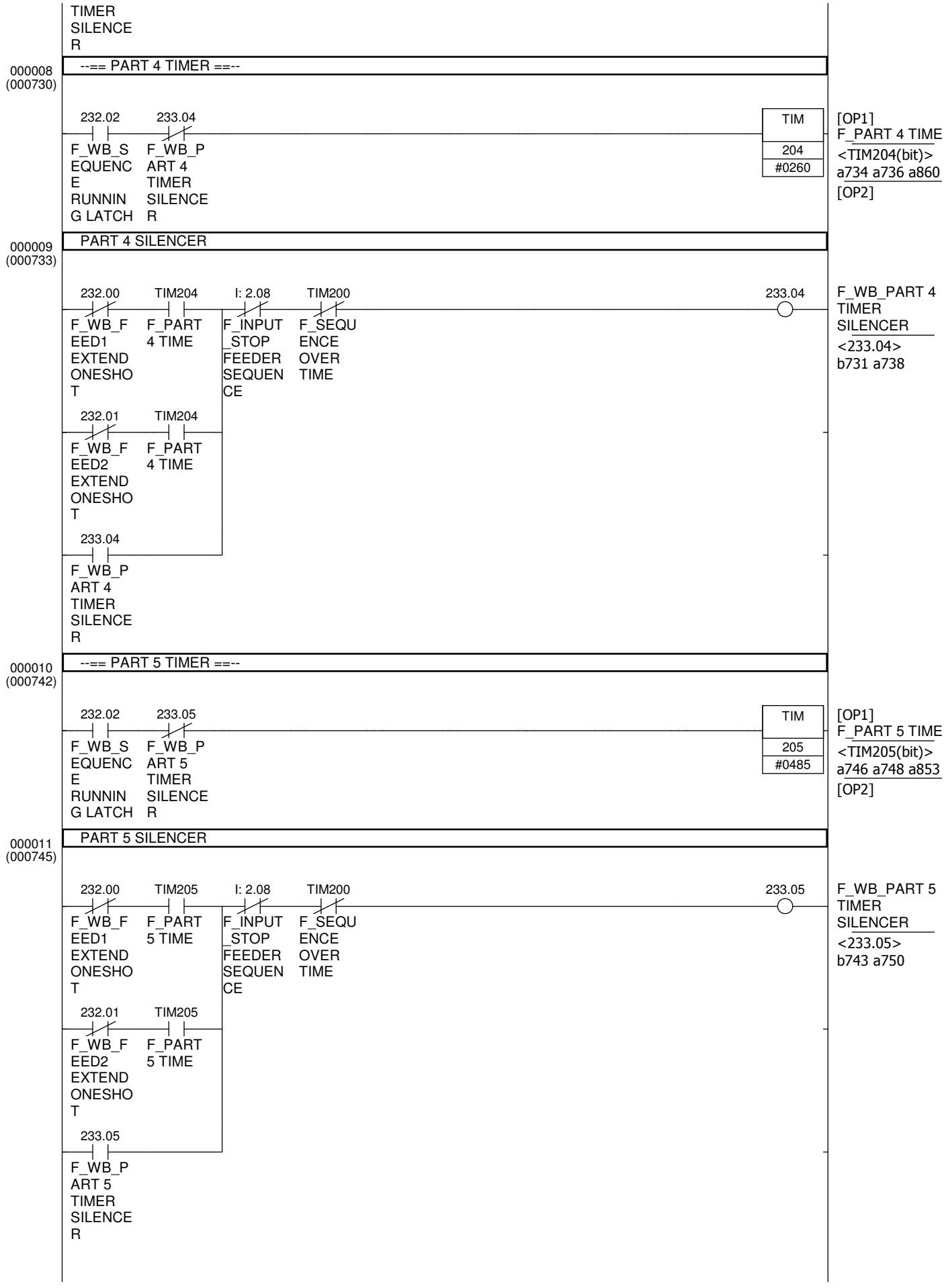
--== PART 1 TIMER ==-- (Time until Part 1 comes out.) Also, if the sequence is running, start the timer. Silence the timer when PART 1 TIMER SILENCER goes off (which latches until end of sequence or STOP).

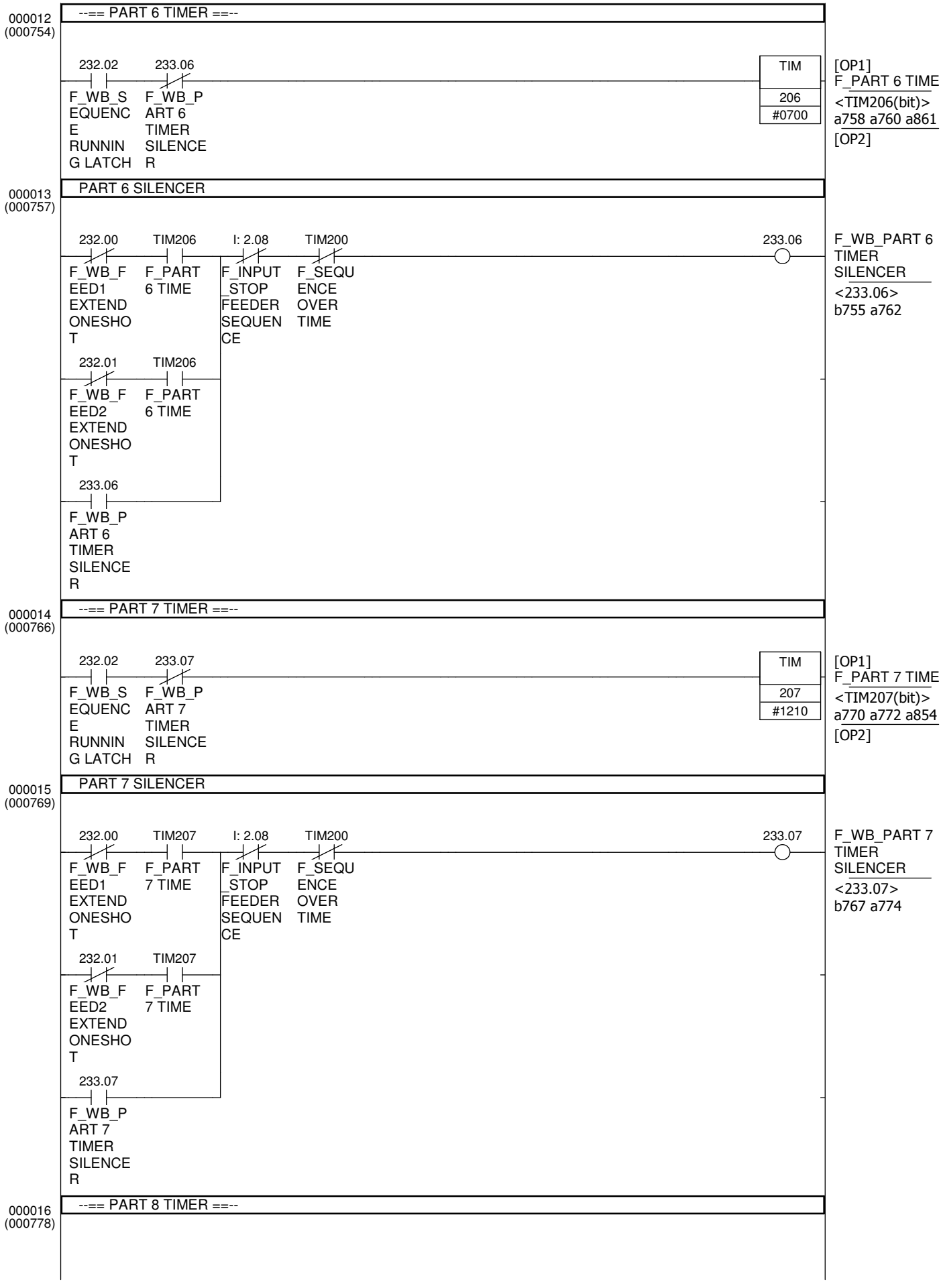
000003
(000697)

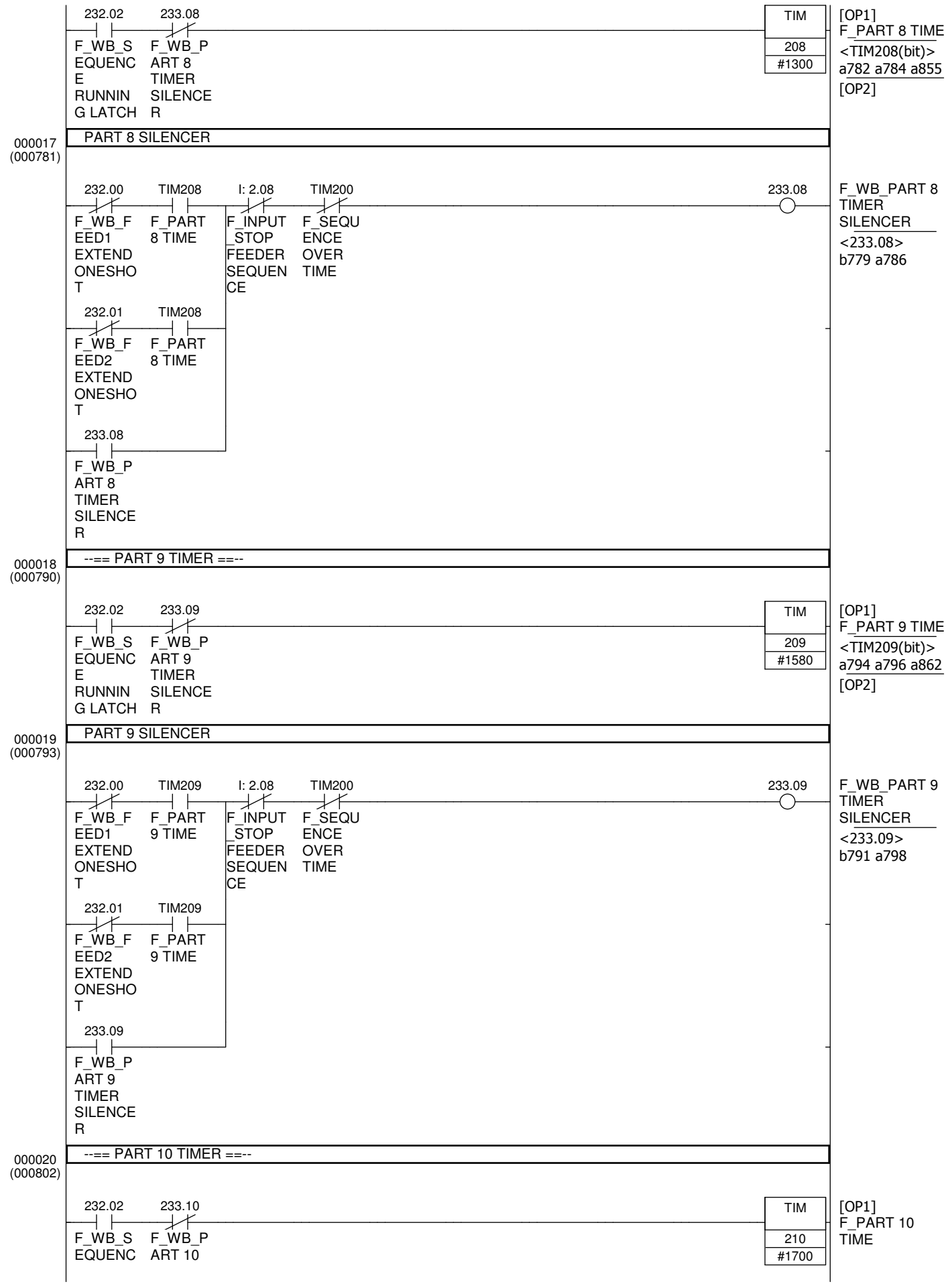
PART 1 SILENCER. If the timer has gone off, which then triggers the feeder, regardless of which feeder goes off, the TIMER SILENCER for this part latches until sequence completes or sequence is stopped.

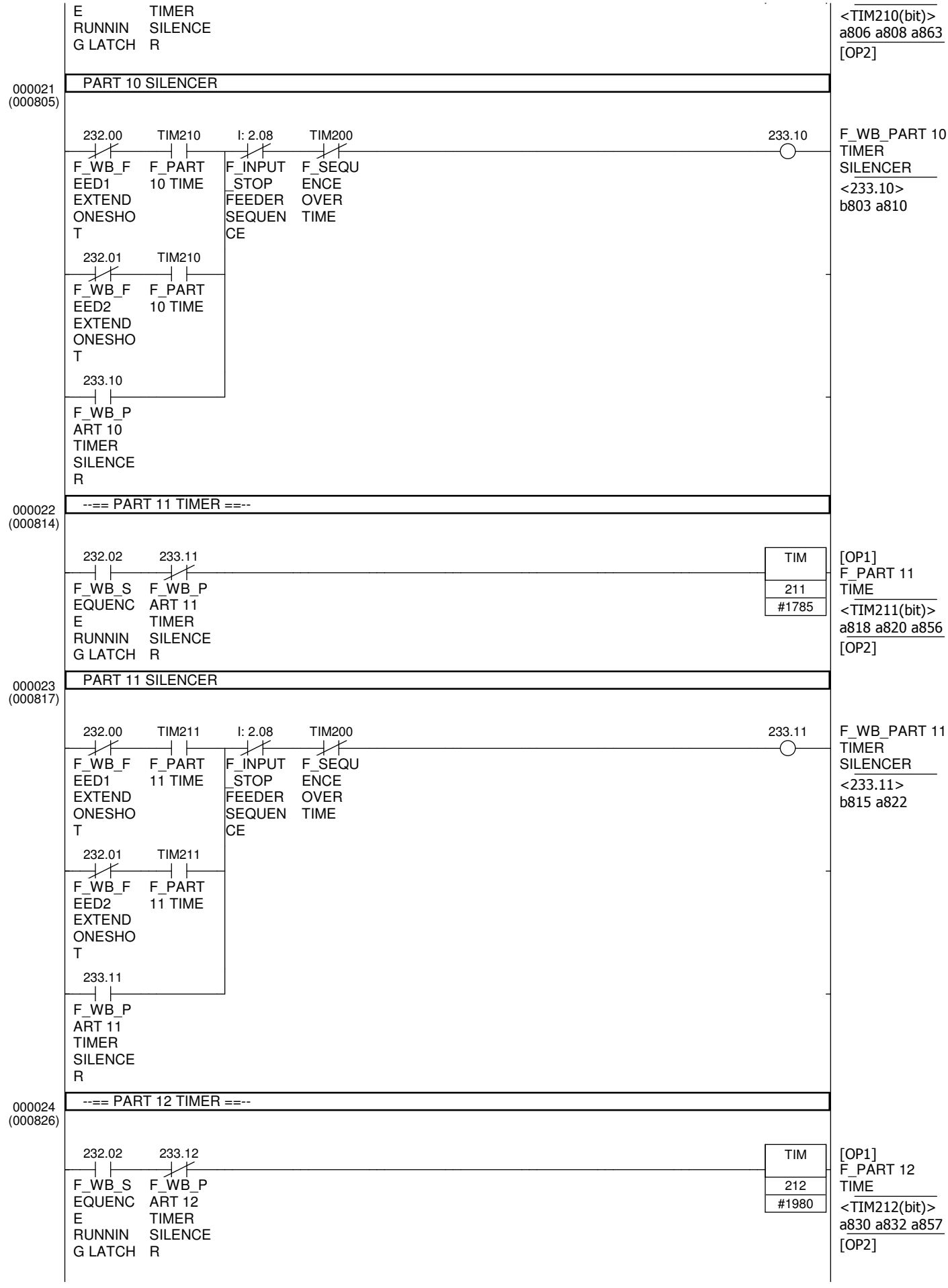


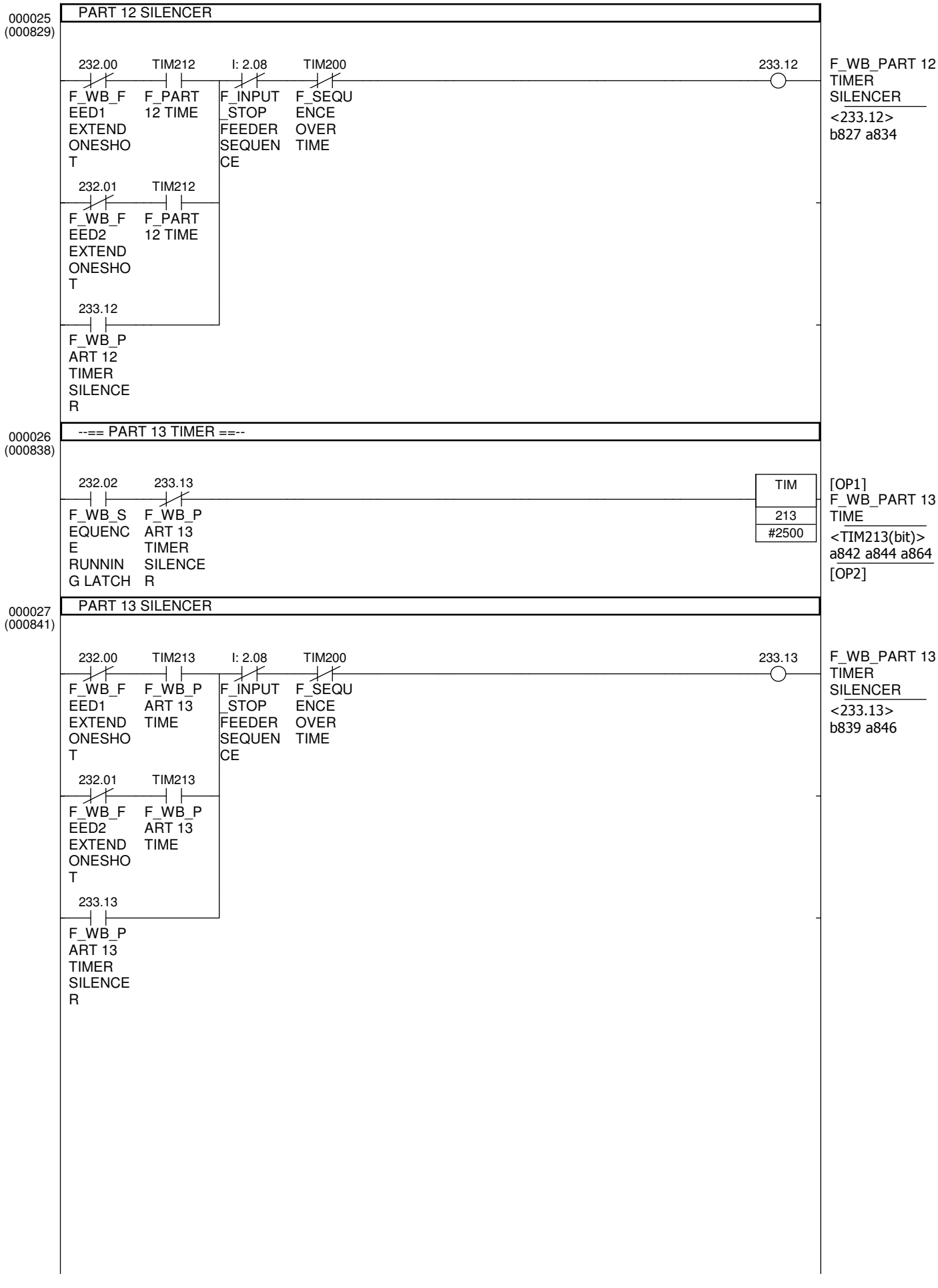

233.01
F_WB_PART 1 TIMER SILENCER
000004 (000706)
--== PART 2 TIMER ==--
232.02
F_WB_SEQUENCE RUNNING LATCH
233.02
F_WB_PART 2 TIMER SILENCER
TIM
202
#0010
[OP1]
F_PART 2 TIME
<TIM202(bit)>
a710 a712 a859
[OP2]
000005 (000709)
PART 2 SILENCER.
232.00
F_WB_FEED1 EXTEND ONESHOT
TIM202
F_PART 2 TIME
I: 2.08
F_INPUT_STOP FEEDER SEQUENCE
TIM200
F_SEQUENCE OVER TIME
233.02
F_WB_PART 2 TIMER SILENCER
<233.02>
b707 a714
232.01
F_WB_FEED2 EXTEND ONESHOT
TIM202
F_PART 2 TIME
233.02
F_WB_PART 2 TIMER SILENCER
000006 (000718)
--== PART 3 TIMER ==--
232.02
F_WB_SEQUENCE RUNNING LATCH
233.03
F_WB_PART 3 TIMER SILENCER
TIM
203
#0080
[OP1]
F_PART 3 TIME
<TIM203(bit)>
a722 a724 a852
[OP2]
000007 (000721)
PART 3 SILENCER
232.00
F_WB_FEED1 EXTEND ONESHOT
TIM203
F_PART 3 TIME
I: 2.08
F_INPUT_STOP FEEDER SEQUENCE
TIM200
F_SEQUENCE OVER TIME
233.03
F_WB_PART 3 TIMER SILENCER
<233.03>
b719 a726
232.01
F_WB_FEED2 EXTEND ONESHOT
TIM203
F_PART 3 TIME
233.03
F_WB_PART 3


TIMER
SILENCE
R
000008
(000730)
--== PART 4 TIMER ==--
232.02
F_WB_S
EQUENC
E
RUNNIN
G LATCH
233.04
F_WB_P
ART 4
TIMER
SILENCE
R
TIM
204
#0260
[OP1]
F_PART 4 TIME
<TIM204(bit)>
a734 a736 a860
[OP2]
000009
(000733)
PART 4 SILENCER
232.00
F_WB_F
EED1
EXTEND
ONESHO
T
TIM204
F_PART
4 TIME
I: 2.08
F_INPUT
_STOP
FEEDER
SEQUEN
CE
TIM200
F_SEQU
ENCE
OVER
TIME
232.01
F_WB_F
EED2
EXTEND
ONESHO
T
TIM204
F_PART
4 TIME
233.04
F_WB_P
ART 4
TIMER
SILENCE
R
233.04
F_WB_PART 4
TIMER
SILENCER
<233.04>
b731 a738
000010
(000742)
--== PART 5 TIMER ==--
232.02
F_WB_S
EQUENC
E
RUNNIN
G LATCH
233.05
F_WB_P
ART 5
TIMER
SILENCE
R
TIM
205
#0485
[OP1]
F_PART 5 TIME
<TIM205(bit)>
a746 a748 a853
[OP2]
000011
(000745)
PART 5 SILENCER
232.00
F_WB_F
EED1
EXTEND
ONESHO
T
TIM205
F_PART
5 TIME
I: 2.08
F_INPUT
_STOP
FEEDER
SEQUEN
CE
TIM200
F_SEQU
ENCE
OVER
TIME
232.01
F_WB_F
EED2
EXTEND
ONESHO
T
TIM205
F_PART
5 TIME
233.05
F_WB_P
ART 5
TIMER
SILENCE
R
233.05
F_WB_PART 5
TIMER
SILENCER
<233.05>
b743 a750


000012
(000754)
--== PART 6 TIMER ==--
232.02
F_WB_SEQUENCE RUNNING LATCH
233.06
F_WB_PART 6 TIMER SILENCER
TIM
206
#0700
[OP1]
F_PART 6 TIME
<TIM206(bit)>
a758 a760 a861
[OP2]
000013
(000757)
PART 6 SILENCER
232.00
F_WB_FEED1 EXTEND ONESHOT
TIM206
F_PART 6 TIME
I: 2.08
F_INPUT_STOP FEEDER SEQUENCE
TIM200
F_SEQUENCE OVER TIME
232.01
F_WB_FEED2 EXTEND ONESHOT
TIM206
F_PART 6 TIME
233.06
F_WB_PART 6 TIMER SILENCER
233.06
F_WB_PART 6 TIMER SILENCER
<233.06>
b755 a762
000014
(000766)
--== PART 7 TIMER ==--
232.02
F_WB_SEQUENCE RUNNING LATCH
233.07
F_WB_PART 7 TIMER SILENCER
TIM
207
#1210
[OP1]
F_PART 7 TIME
<TIM207(bit)>
a770 a772 a854
[OP2]
000015
(000769)
PART 7 SILENCER
232.00
F_WB_FEED1 EXTEND ONESHOT
TIM207
F_PART 7 TIME
I: 2.08
F_INPUT_STOP FEEDER SEQUENCE
TIM200
F_SEQUENCE OVER TIME
232.01
F_WB_FEED2 EXTEND ONESHOT
TIM207
F_PART 7 TIME
233.07
F_WB_PART 7 TIMER SILENCER
233.07
F_WB_PART 7 TIMER SILENCER
<233.07>
b767 a774
000016
(000778)
--== PART 8 TIMER ==--


232.02
F_WB_SEQUENCE RUNNING LATCH
233.08
F_WB_PART 8 TIMER SILENCER
TIM
208
#1300
[OP1]
F_PART 8 TIME
<TIM208(bit)>
a782 a784 a855
[OP2]
000017
(000781)
PART 8 SILENCER
232.00
F_WB_FEED1 EXTEND ONESHOT
TIM208
F_PART 8 TIME
I: 2.08
F_INPUT_STOP FEEDER SEQUENCE
TIM200
F_SEQUENCE OVER TIME
233.08
F_WB_PART 8 TIMER SILENCER
<233.08>
b779 a786
232.01
F_WB_FEED2 EXTEND ONESHOT
TIM208
F_PART 8 TIME
233.08
F_WB_PART 8 TIMER SILENCER
000018
(000790)
--== PART 9 TIMER ==--
232.02
F_WB_SEQUENCE RUNNING LATCH
233.09
F_WB_PART 9 TIMER SILENCER
TIM
209
#1580
[OP1]
F_PART 9 TIME
<TIM209(bit)>
a794 a796 a862
[OP2]
000019
(000793)
PART 9 SILENCER
232.00
F_WB_FEED1 EXTEND ONESHOT
TIM209
F_PART 9 TIME
I: 2.08
F_INPUT_STOP FEEDER SEQUENCE
TIM200
F_SEQUENCE OVER TIME
233.09
F_WB_PART 9 TIMER SILENCER
<233.09>
b791 a798
232.01
F_WB_FEED2 EXTEND ONESHOT
TIM209
F_PART 9 TIME
233.09
F_WB_PART 9 TIMER SILENCER
000020
(000802)
--== PART 10 TIMER ==--
232.02
F_WB_SEQUENC
233.10
F_WB_PART 10
TIM
210
#1700
[OP1]
F_PART 10 TIME


E RUNNIN G LATCH
TIMER SILENCE R
<TIM210(bit)> a806 a808 a863 [OP2]
000021 (000805)
PART 10 SILENCER
232.00
F_WB_F EED1 EXTEND ONESHO T
TIM210
F_PART 10 TIME
I: 2.08
F_INPUT _STOP FEEDER SEQUEN CE
TIM200
F_SEQU ENCE OVER TIME
233.10
F_WB_PART 10 TIMER SILENCER <233.10> b803 a810
232.01
F_WB_F EED2 EXTEND ONESHO T
TIM210
F_PART 10 TIME
233.10
F_WB_P ART 10 TIMER SILENCE R
000022 (000814)
--== PART 11 TIMER ==--
232.02
F_WB_S EQUENC E RUNNIN G LATCH
233.11
F_WB_P ART 11 TIMER SILENCE R
TIM
211
#1785
[OP1] F_PART 11 TIME <TIM211(bit)> a818 a820 a856 [OP2]
000023 (000817)
PART 11 SILENCER
232.00
F_WB_F EED1 EXTEND ONESHO T
TIM211
F_PART 11 TIME
I: 2.08
F_INPUT _STOP FEEDER SEQUEN CE
TIM200
F_SEQU ENCE OVER TIME
233.11
F_WB_PART 11 TIMER SILENCER <233.11> b815 a822
232.01
F_WB_F EED2 EXTEND ONESHO T
TIM211
F_PART 11 TIME
233.11
F_WB_P ART 11 TIMER SILENCE R
000024 (000826)
--== PART 12 TIMER ==--
232.02
F_WB_S EQUENC E RUNNIN G LATCH
233.12
F_WB_P ART 12 TIMER SILENCE R
TIM
212
#1980
[OP1] F_PART 12 TIME <TIM212(bit)> a830 a832 a857 [OP2]

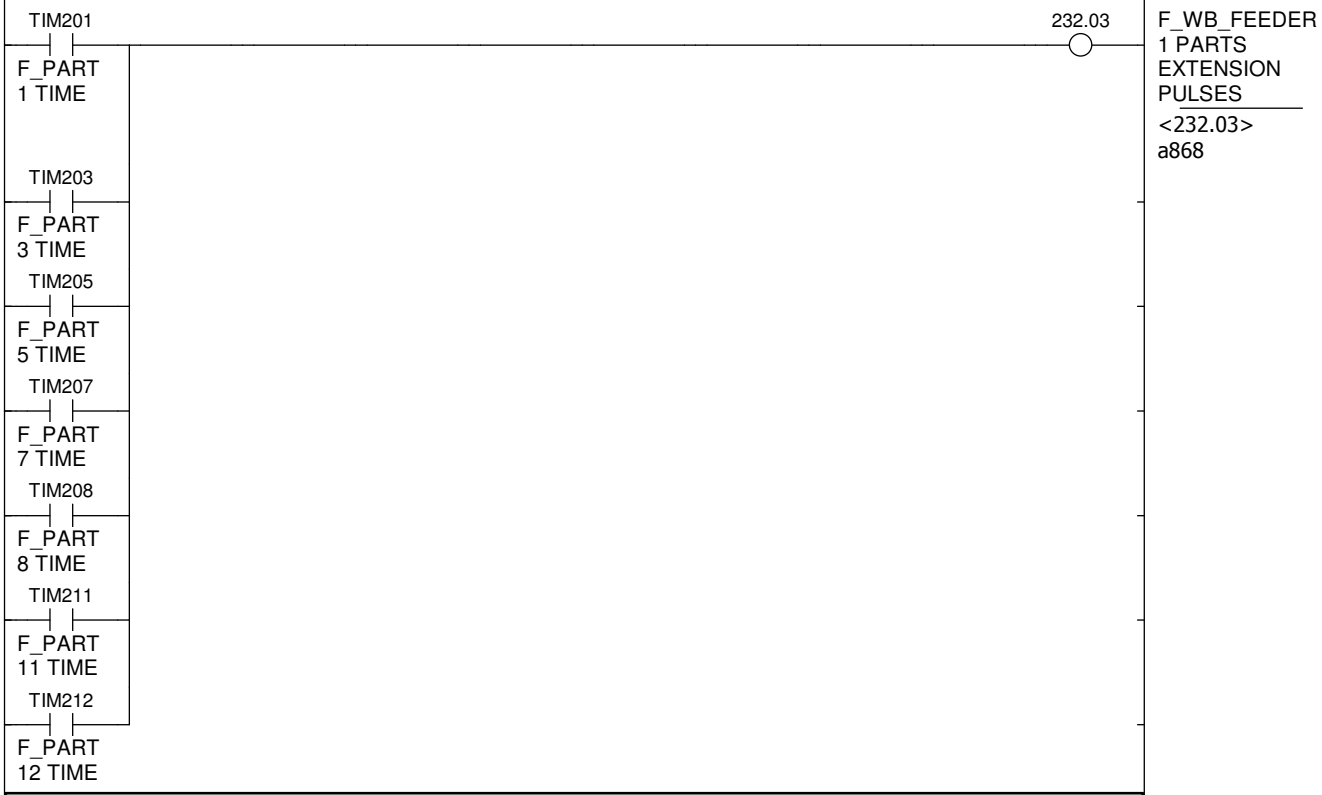

000025
(000829)
PART 12 SILENCER
232.00
F_WB_FEED1 EXTEND ONESHOT
TIM212
F_PART 12 TIME
I: 2.08
F_INPUT_STOP FEEDER SEQUENCE
TIM200
F_SEQUENCE OVER TIME
233.12
F_WB_PART 12 TIMER SILENCER
<233.12>
b827 a834
232.01
F_WB_FEED2 EXTEND ONESHOT
TIM212
F_PART 12 TIME
233.12
F_WB_PART 12 TIMER SILENCER
000026
(000838)
--== PART 13 TIMER ==--
232.02
F_WB_SEQUENCE RUNNING LATCH
233.13
F_WB_PART 13 TIMER SILENCER
TIM
213
#2500
[OP1]
F_WB_PART 13 TIME
<TIM213(bit)>
a842 a844 a864
[OP2]
000027
(000841)
PART 13 SILENCER
232.00
F_WB_FEED1 EXTEND ONESHOT
TIM213
F_WB_PART 13 TIME
I: 2.08
F_INPUT_STOP FEEDER SEQUENCE
TIM200
F_SEQUENCE OVER TIME
233.13
F_WB_PART 13 TIMER SILENCER
<233.13>
b839 a846
232.01
F_WB_FEED2 EXTEND ONESHOT
TIM213
F_WB_PART 13 TIME
233.13
F_WB_PART 13 TIMER SILENCER

000000
(000851)

[Program Name : ELT215_SPRING2012]
PLC TO RUN: "T" Electronic Part Testing Station "ID" All 4 Part Identification Station and "F" Feeder Sequencing

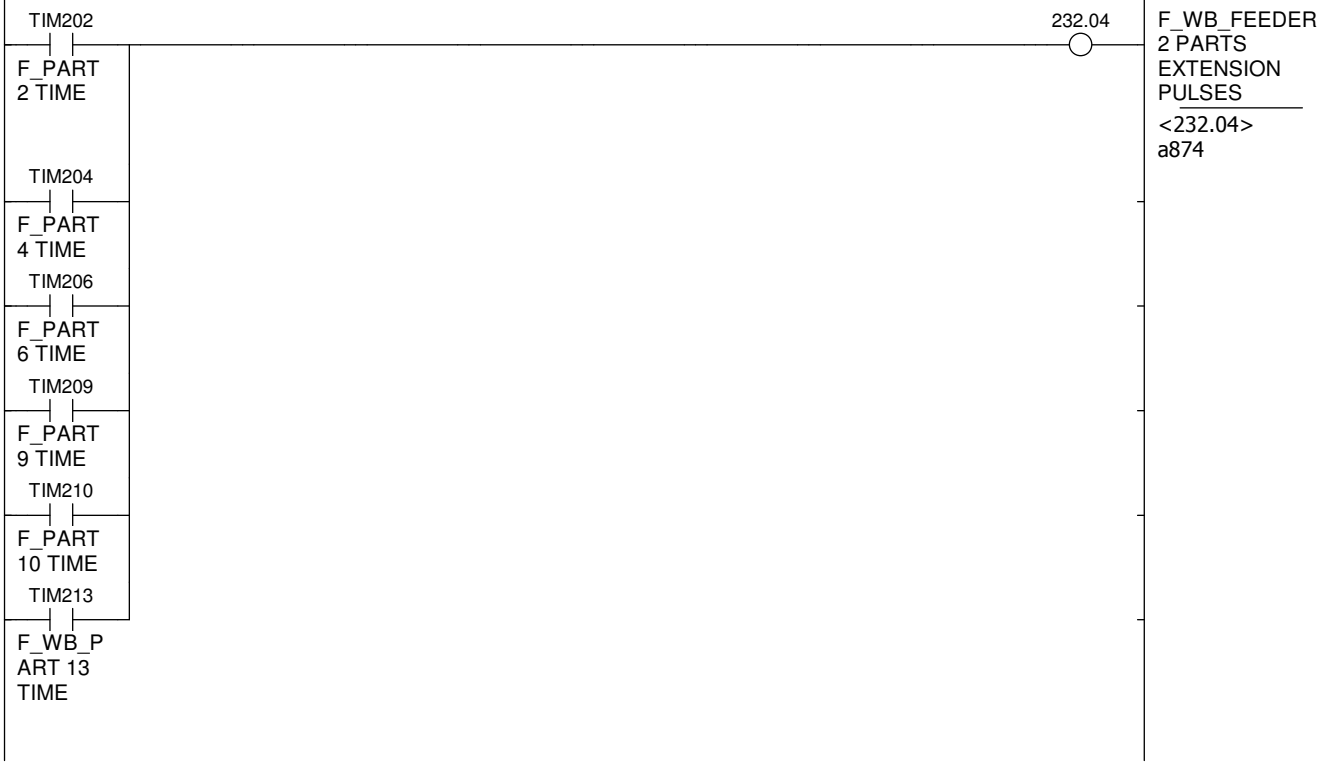
[Section Name : F_FEEDER_SEQUENCE_ORDER]
When the timer for a specific part goes off, that signal is sent to either Feeder 1 or Feeder 2. These first two rungs determine which go where.

PART NUMBERS THAT ARE COMING OUT OF FEEDER 1. (Each of these timers will go off when the next part is scheduled for deployment. The workbit that extends the pushing cylinder on the feeder will squelch each timer.)



000001
(000859)

PART NUMBERS THAT ARE COMING OUT OF FEEDER 1.

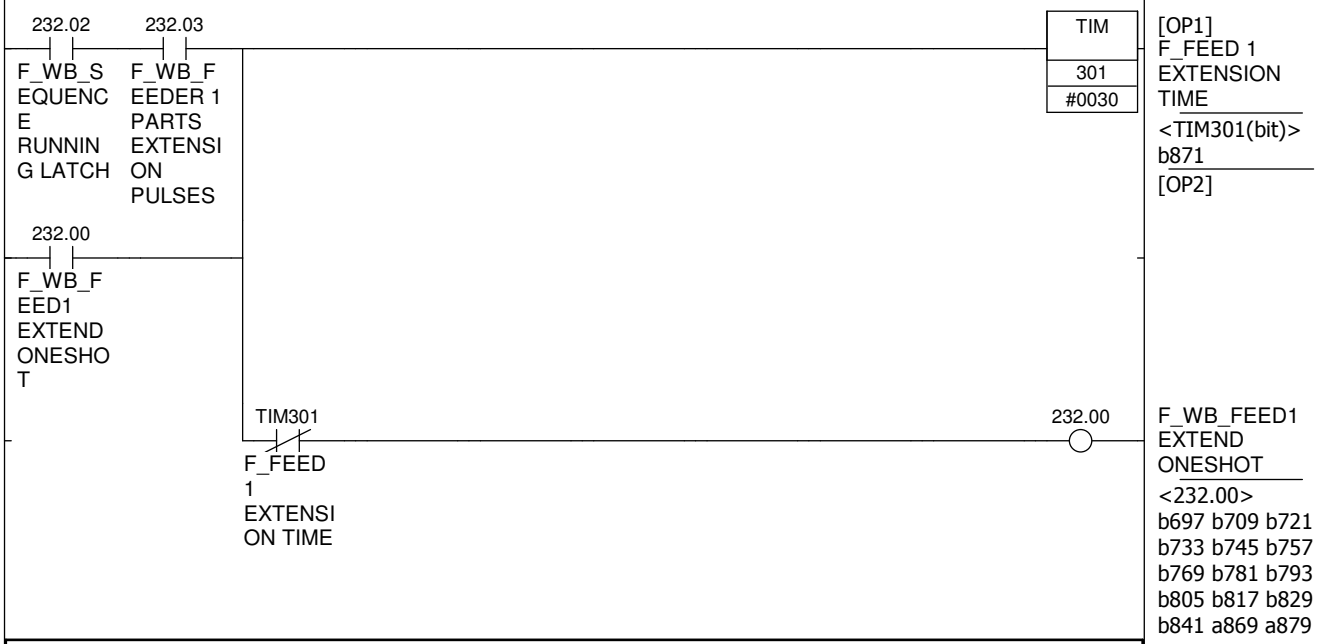


000000
(000867)

[Program Name : ELT215_SPRING2012]
PLC TO RUN: "T" Electronic Part Testing Station "ID" All 4 Part Identification Station and "F" Feeder Sequencing

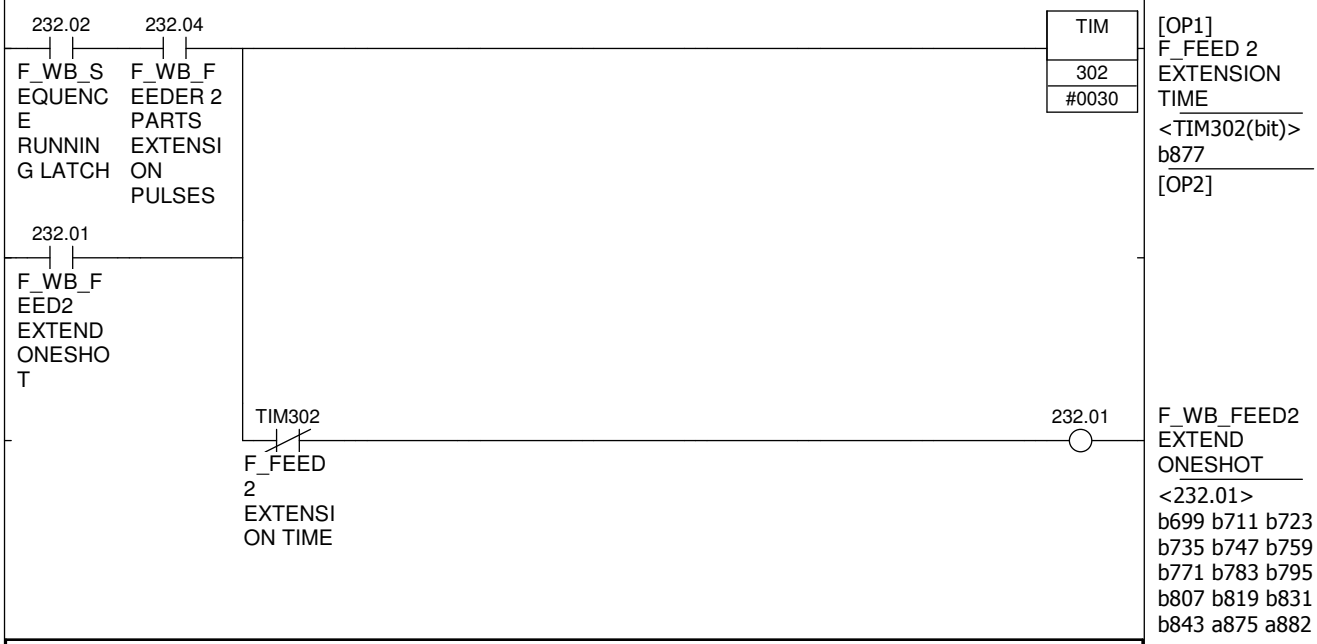
[Section Name : F_FEEDER_PUSH_TIMING]
Contains the oneshot durations for the cylinder of Feeder 1 and the cylinder for Feeder 2.

ONESHOT LENGTH FOR FEEDER 1 PUSH.



000001
(000873)

ONESHOT LENGTH FOR FEEDER 2 PUSH.



000002
(000879)

Feed 1 workbit to output.

000003
(000882)

Feed 2 workbit to output.

[Program Name : ELT215_SPRING2012]
PLC TO RUN: "T" Electronic Part Testing Station "ID" All 4 Part Identification Station and "F" Feeder Sequencing

[Section Name : END]

000000
(000886)

END
(01)