Runs when the subroutine is being scanned

0

Prod_Running (L)
O_Amber_Tower_Ind <Local:5:O.Data.9> (U)
O_Green_Tower_Ind <Local:5:O.Data.8> (L)
O_Red_Tower_Ind <Local:5:O.Data.10> (U)
Prod_ONS.0 [ONS] Prod_Step.0 (L)

1

I_Box_Magazine_Low <Local:3:I.Data.3> Slow_Flasher → O_Amber_Tower_Ind <Local:5:O.Data.9>

2

I_box_Magazine_Out <Local:3:I.Data.4> I_Box_Ejector_Extended <Local:2:I.Data.4> [/] → Stop_Command

Step 0. Eject the current box

3

Prod_Step.0 Prod_Test.0 Box_In_Position → O_Box_Eject <Local:4:O.Data.0>

TON
Timer Prod_Timer[0]
Preset 1000
Accum 0
EN DN

Step 0. Latch step 1 if step 0 is completed

4

I_Box_Ejector_Extended <Local:2:I.Data.4> Prod_Timer[0].DN → Prod_Step.1 (L)

Step 1. Lower the head and turn on the vacuum

5

Prod_Step.1 Prod_Test.1 → O_Vacuum_On <Local:5:O.Data.1>

Prod_Step.12 (L)

TON
Timer Prod_Timer[1]
Preset 1000
Accum 0
EN DN

If "Step 12" is activated, then lower the vacuum head

6

Prod_Step.12 → O_Vacuum_Head_Lower <Local:4:O.Data.5>

If Step 1 is finished, then latch step 2

7

I_Vacuum_Head_Lowered <Local:2:I.Data.10> Prod_Timer[1].DN → Prod_Step.2 (L)

Extend the vacuum head if either step 2 or step 9 is activated

8

Prod_Step.2 Prod_Test.2 O_Vacuum_Head_Extend <Local:4:O.Data.8>

TON
Timer Prod_Timer[2] EN
Preset 1500 DN
Accum 1500

Prod_Step.9 Prod_Test.9

TON
Timer Prod_Timer[9] EN
Preset 1500 DN
Accum 0

Once the vacuum head is extended and the step 2 timer is finished, then move to step 3

9

I_Vacuum_Head_Extended <Local:2:I.Data.14> Prod_Timer[2].DN Prod_Step.1 U

Prod_Step.3 L

Prod_Step.0 U

Step 3. Capture the box.

10

Prod_Step.3 Prod_Test.3

TON
Timer Prod_Timer[3] EN
Preset 10000 DN
Accum 10000

Step 3. FAULT. If the timer runs out and the box has not been grabbed, then stop the program

11

Prod_Timer[3].DN I_Vacuum_Sensor_On <Local:3:I.Data.8> / Stop_Command

I_box_Magazine_Out <Local:3:I.Data.4>

Step 3. EXIT. If the box is grabbed before the next step, then move on to the next step.

12

Prod_Timer[3].DN / I_Vacuum_Sensor_On <Local:3:I.Data.8> Prod_Step.4 L

Step 4. Raise the Vacuum Head

13

Prod_Step.4 Prod_Test.4 Prod_Step.12 U

TON
Timer Prod_Timer[4] EN
Preset 1000 DN
Accum 0

14 Once step 4 is completed, move to step 5

Prod_Timer[4].DN — I_Box_Ejector_Extended <Local:2:I.Data.4> — Prod_Step.3 (U) — Prod_Step.5 (L)

15 Step 5. Retract the vacuum head

Prod_Step.5 — Prod_Test.5 — Prod_Step.2 (U) — TON Timer Prod_Timer[5] Preset 1000 Accum 0 (EN, DN)

16 Once step 5 is completed, move to step 6

Prod_Timer[5].DN — I_Vacuum_Head_Raised <Local:2:I.Data.9> — Prod_Step.4 (U) — Prod_Step.6 (L)

17 Step 6. Delay for safety purposes

Prod_Step.6 — Prod_Test.6 — TON Timer Prod_Timer[6] Preset 500 Accum 0 (EN, DN)

18 Once step 6 is completed and the vacuum head is not extended, then move to step 7

Prod_Timer[6].DN — I_Vacuum_Head_Extended <Local:2:I.Data.14> — Prod_Step.5 (U) — Prod_Step.7 (L)

19 Step 7. Move Vacuum head to the conveyor

Prod_Step.7 — Prod_Test.7 — O_Vacuum_Head_to_Conveyor <Local:4:O.Data.9> — TON Timer Prod_Timer[7] Preset 2000 Accum 0 (EN, DN)

20 Once step 7 is completed, move to step 8

Prod_Timer[7].DN — I_Vacuum_Head_at_Conveyor <Local:3:I.Data.0> — Prod_Step.6 (U) — Prod_Step.8 (L)

Step 8. Move vacuum head Clockwise

21
Prod_Step.8 Prod_Test.8 O_Vacuum_Head_Rotate_CW <Local:4:O.Data.6>

TON
Timer Prod_Timer[8] EN
Preset 500 DN
Accum 0

Once the vacuum head is rotated clockwise and is verified to be at the conveyor, move to step 9

22
Prod_Timer[8].DN I_Vacuum_Head_Rotated_CW <Local:2:I.Data.12> I_Vacuum_Head_at_Conveyor <Local:3:I.Data.0> Prod_Step.7 U
Prod_Step.9 L

Step 9b. Turn off the vacuum and wait

23
Prod_Timer[9].DN I_Vacuum_Head_Extended <Local:2:I.Data.14> O_Vacuum_On <Local:5:O.Data.1> U
O_Vacuum_Off <Local:5:O.Data.2>

TON
Timer Prod_Timer[10] EN
Preset 750 DN
Accum 0

Once the box is released, then move to step 10

24
Prod_Timer[10].DN I_Vacuum_Sensor_On <Local:3:I.Data.8> / Prod_Step.8 U
Prod_Step.10 L

Step 10a. Retract the vacuum head

25
Prod_Step.10 Prod_Test.10 Prod_Step.9 U

TON
Timer Prod_Timer[11] EN
Preset 500 DN
Accum 0

Step 10b. Rotate the vacuum head CCW

26
Prod_Timer[11].DN I_Vacuum_Head_Retracted <Local:2:I.Data.13> I_Vacuum_Head_Extended <Local:2:I.Data.14> / O_Vacuum_Head_Rotate_CCW <Local:4:O.Data.7>
O_Vacuum_Head_Rotate_CW <Local:4:O.Data.6> U

TON
Timer Prod_Timer[12] EN
Preset 500 DN
Accum 0

Stpe 10c. Move the vacuum head back to the conveyor

27

Prod_Timer[12].DN
I_Vacuum_Head_Rotated_CCW <Local:2:I.Data.11>
I_Vacuum_Head_Rotated_CW <Local:2:I.Data.12>
O_Vacuum_Head_to_Conveyor <Local:4:O.Data.9> (U)
O_Vacuum_Head_to_Magazine <Local:4:O.Data.10>
TON
Timer Prod_Timer[13]
Preset 1500
Accum 0
EN
DN

Step 10e. Verify that the vacuum head has been moved back

28

Prod_Timer[13].DN
I_Vacuum_Head_at_Magazine <Local:2:I.Data.15>
I_Vacuum_Head_at_Conveyor <Local:3:I.Data.0>
Prod_Step.11 (L)

Step 11. Increment the magazine position

29

Prod_Step.11
Prod_Test.11
Move_Magazine
TON
Timer Prod_Timer[14]
Preset 1500
Accum 0
EN
DN

Once the magazine has been incremented, reset the production routine. If the auto switch is on, then reset the one-shot as well to start another cycle.

30

Prod_Timer[14].DN
Prod_Step.10 (U)
Prod_Step.11 (U)
Prod_Timer[14] (RES)
CLR
Dest Prod_Step
0
I: Manual mode
II: Auto mode
I_Auto_Mode_Selector <Local:2:I.Data.2>
CLR
Dest Prod_ONS
1

(End)