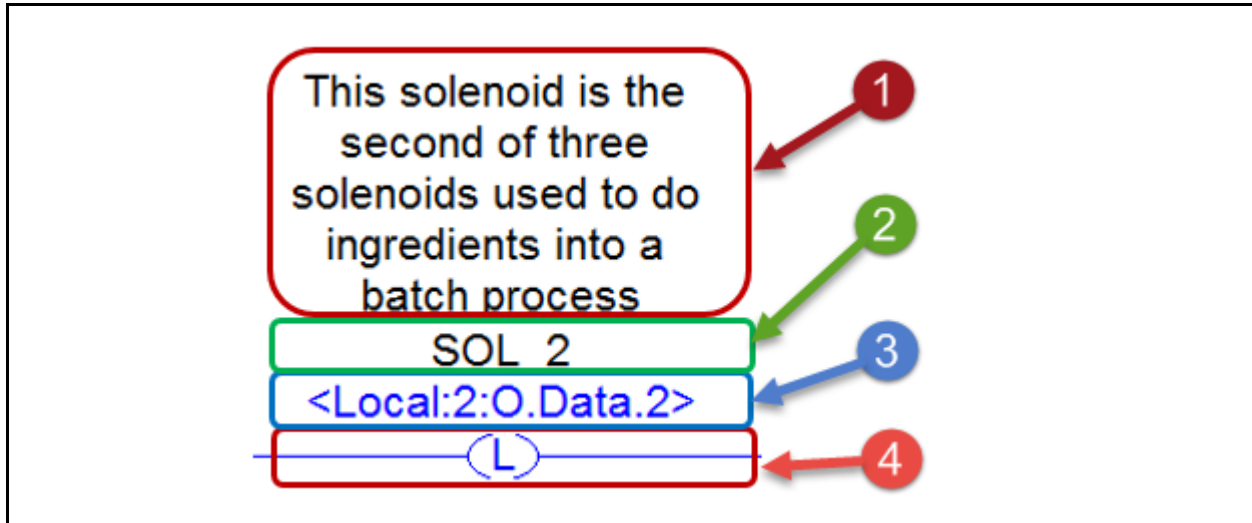


Practice Quiz:

1. T F The user has two options for a timer time base in a CompactLogix system: 0.001 seconds, and 0.01 seconds.

Explanation: There is only one option for a timer time base in a CompactLogix: 0.001 second, or a thousandths of a second. This give the user more accuracy with their timers. Also the data range for a timer is 0-2,147,483,647, which means that a timer can time over 2 million seconds.

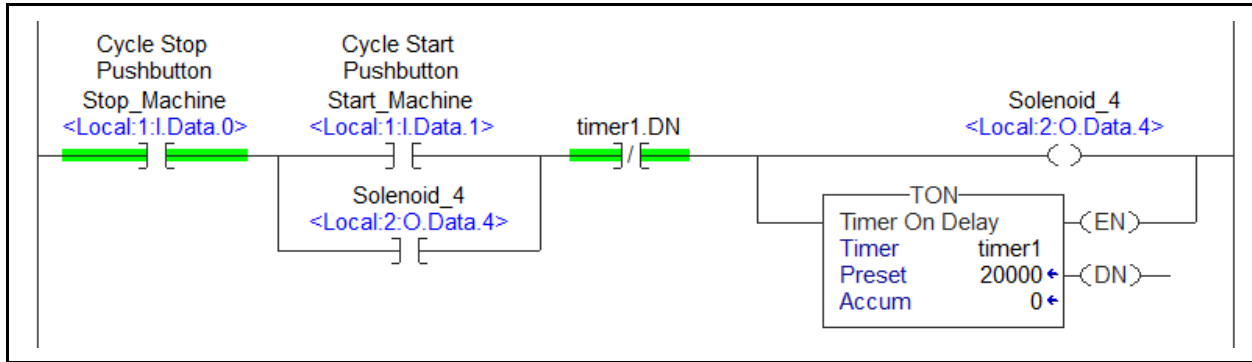


<https://sakai.northweststate.edu/access/content/group/7312-201830/Images/Test%20Images/Mod%207%20KAA%20images/PLC200%20M7%20PQ%20Q1%20documentation.png>

2. In this graphic of an instruction with documentation information, which object is an Alias Tag?

- a. Object 1
- b. Object 2**
- c. Object 3
- d. Object 4

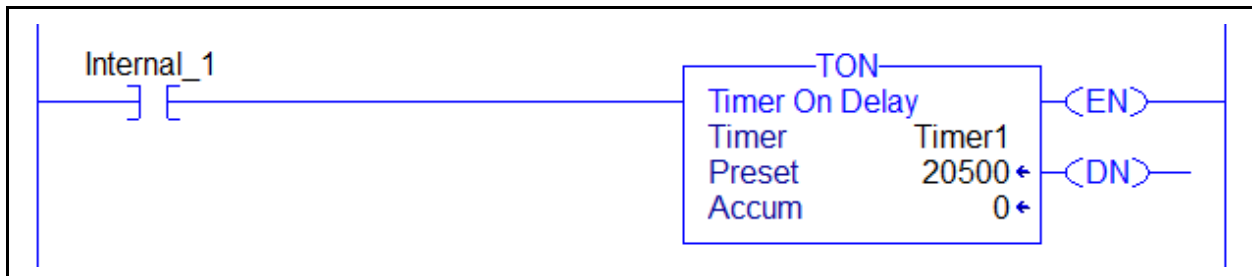
Explanation: Object 1 is operand description, sometime termed the address description. Object 2 is the Alias Tag. Object 3 is the Base Tag. Object 3 is the instruction, which in this case is an OTL (latch coil)



<https://sakai.northweststate.edu/access/content/group/7312-201830/Images/Test%20Images/Mod%207%20KAA%20images/PLC200%20M7%20PQ%20Q3%20timer%20hold%20in%20logic.png>

3. T F Once the Start_Machine input is momentarily pushed, turning on Solenoid_4, the only way to shut off Solenoid_4 is to press the Stop_Machine pushbutton.

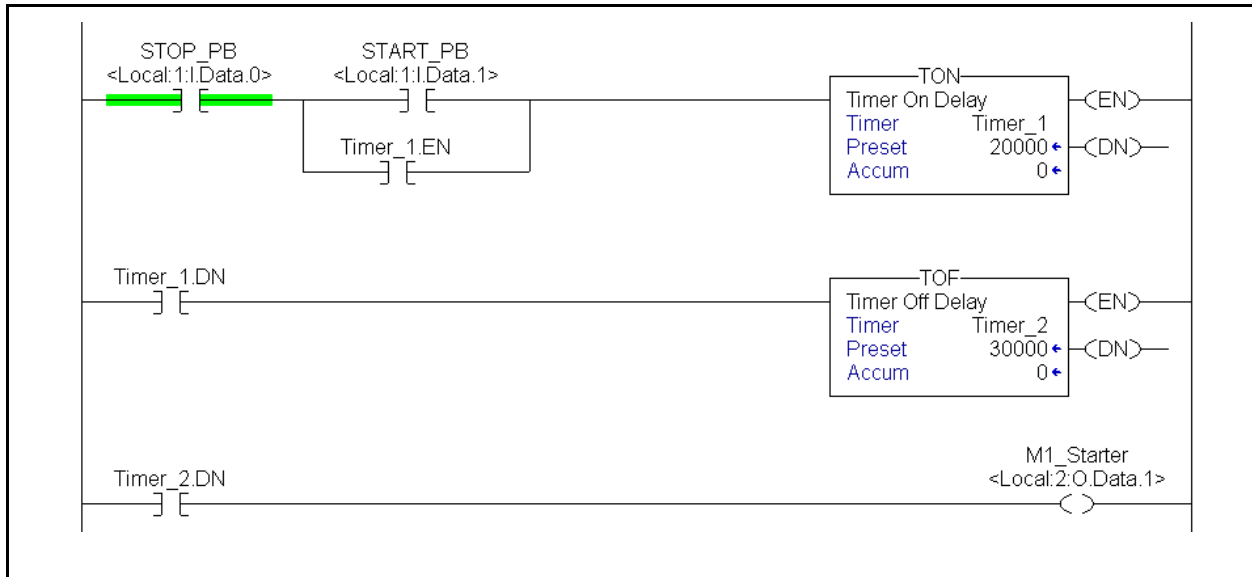
Explanation: When the Start_Machine input is toggled, Solenoid_4 comes on immediately. The TON instruction is also turned on and starts timing. After 20 seconds the timer times out and turns on the timer.DN bit, causing the XIO of timer.DN to lose logic continuity (it opens), causing the solenoid to drop out. So Solenoid_4 will be shut off 20 seconds after the start is pushed, or immediately if the Stop_Machine pushbutton is pressed.



<https://sakai.northweststate.edu/access/content/group/7312-201830/Images/Test%20Images/Mod%207%20KAA%20images/PLC200%20M7%20PQ%20Q4%20timer%20dwell%20time.png>

4. Once this timer get logic power flow, how long until it times out?
- 2.05 seconds
 - 2.5 seconds
 - 20.5 seconds**
 - 25 seconds

Explanation: The CompactLogix only has a 0.001 timebase, so with a preset of 20500, you would multiply the two and get 20.5 seconds.



<https://sakai.northweststate.edu/access/content/group/7312-201830/Images/Test%20Images/Mod%207%20KAA%20images/PLC200%20M7%20PQ%20Q5%20TON%20TOF.png>

5. In this timer program, explain how M1_Starter output responds when the START_PB is momentarily pushed, and then how the output responds when the STOP_PB is momentarily pushed.

- 20 second delay to start M1_Starter; 30 second delay then M1_Starter shuts off.
- 20 second delay to start M1_Starter; M1_Starter stops when STOP_PB is pushed
- 30 second delay to start M1_Starter; 20 second delay then M1_Starter shuts off
- M1 will never come on

Explanation: Click here to review the video on how the TON and TOF instructions work in this program.

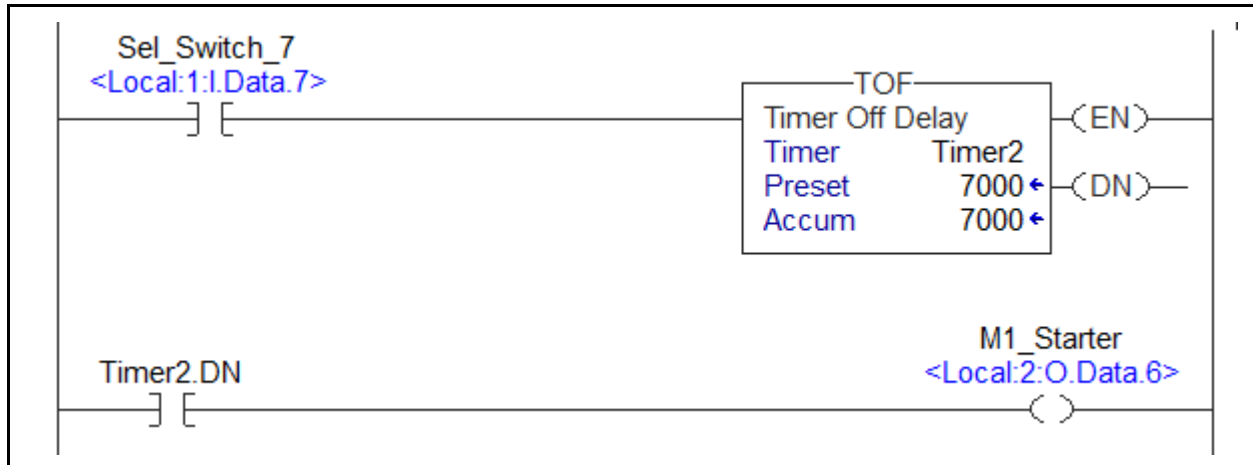
6. T F The TON instruction starts timing when it is turned off (goes false).

Explanation: The TON instruction is an On-delay timer, thus the time cycle will start when it is turned on. The TOF instruction is an Off-delay timer, thus the time cycle will start when the timer instruction loses power.

7. What data format will a CompactLogix timer accumulated value be stored in?

- BOOL
- DINT**
- FP
- BCD

Explanation: A timer element (tag format for a timer) is made up of three DINT storage locations, one for the preset value, one for the accumulated value and one for the status bits. The status bits will be viewed in a BOOL format. A DINT stands for double integer, which consists of 32 bits, or two 16-bit words.



<https://sakai.northweststate.edu/access/content/group/7312-201830/Images/Test%20Images/Mod%207%20KAA%20images/PLC200%20M7%20PQ%20Q8%20TOF.png>

8. How will the M1_Starter output respond if the Sel_Switch_7 input is turned on then off right away?

- a. Nothing, since the input to the TOF is shut off
- b. M1_Starter output came on for the length of time that the Sel_Switch_7 was on
- c. M1_Starter output will come on after 7 seconds
- d. M1_Starter output will come on and stay on for 7 seconds, then shut off**

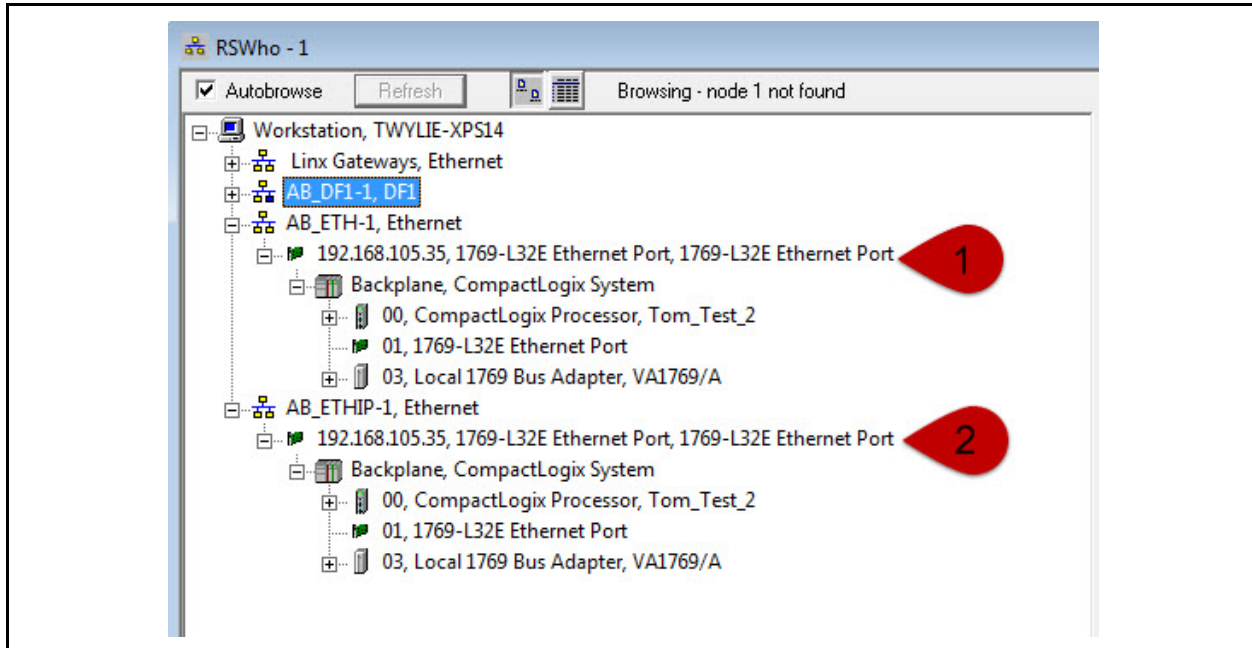
Explanation: When the controller holding this program goes into the Run mode, the Accum value of the timer is adjusted to equal the Preset value. The .DN of a TOF will come on when the Accum is not equal to the Preset (Just opposite of the TON and RTO). When the Sel_Switch_7 input comes on, the TOF get power and the Accum is reset to zero, turning on the .DN, thus giving logic continuity to the XIC of Timer2_DN, turn on the M1_Starter output. The output remain on, until the Sel_Switch_7 input is shut off, and the timer times out.

9. The .DN bit controlled by a TOF instruction will come on (set to a “1”) when:

- a. The Accum and Preset values of the timer are the same
- b. The Accum and Preset values of the timer are not the same**

Explanation: The .DN bit from a TON or RTO (both on-delay timers) will come on when the timer times out, which means the Accum value is equal to the Preset value. The .DN from a TOF (off-delay) will come on when the Accum and Preset are not equal. When a TOF get logic power flow (turns on) it resets the Accum value to zero, which turns on the .DN bit will come

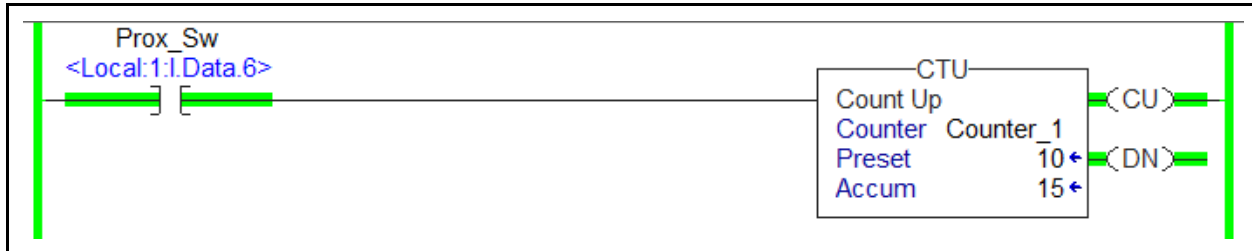
on. When the instruction is shut off, the .DN bit remains on, but the TOF starts timing. When the Accum & Preset are equal, the .DN bit shuts off.



<https://sakai.northweststate.edu/access/content/group/7312-201830/Images/Test%20Images/Mod%207%20KAA%20images/PLC200%20M7%20PQ%20Q10%20rslinx%20enet%20drivers.png>

10. **T F** In this RSWho window, there are two Ethernet drivers listed (AB_ETH-1 and AB_ETHIP-1), which means there must be two Ethernet ports on the program panel (computer).
Explanation: Both of the drivers have the same Ethernet address, which means they are both communicating with the same Ethernet port. The basic Ethernet driver (AB_ETH-1) requires that the user enter the IP address into the driver. The Ethernet IP driver (AB_ETHIP-1) automatically detects and reads the IP address of the port, if it is on the same subnet.

11. **T F** Prior to trying to setup an Ethernet driver in RSLinx, the user should PING the IP address of the processor to make sure the program panel can communicate with it.
Explanation: From the Command Prompt, the user can type in the command PING, a space and the IP address of the processor. Make sure there is communications prior to using RSLinx.

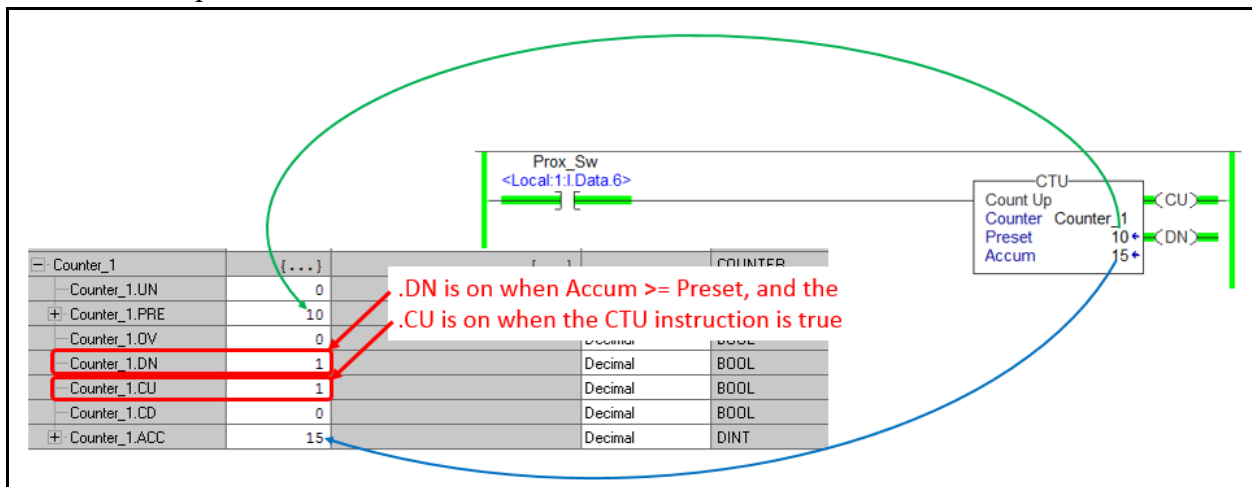


[https://sakai.northweststate.edu/access/content/group/7312-](https://sakai.northweststate.edu/access/content/group/7312-201830/Images/Test%20Images/Mod%207%20KAA%20images/PLC200%20M7%20PQ%20Q12%20ctu%20status%20bits.png)

[201830/Images/Test%20Images/Mod%207%20KAA%20images/PLC200%20M7%20PQ%20Q12%20ctu%20status%20bits.png](https://sakai.northweststate.edu/access/content/group/7312-201830/Images/Test%20Images/Mod%207%20KAA%20images/PLC200%20M7%20PQ%20Q12%20ctu%20status%20bits.png)

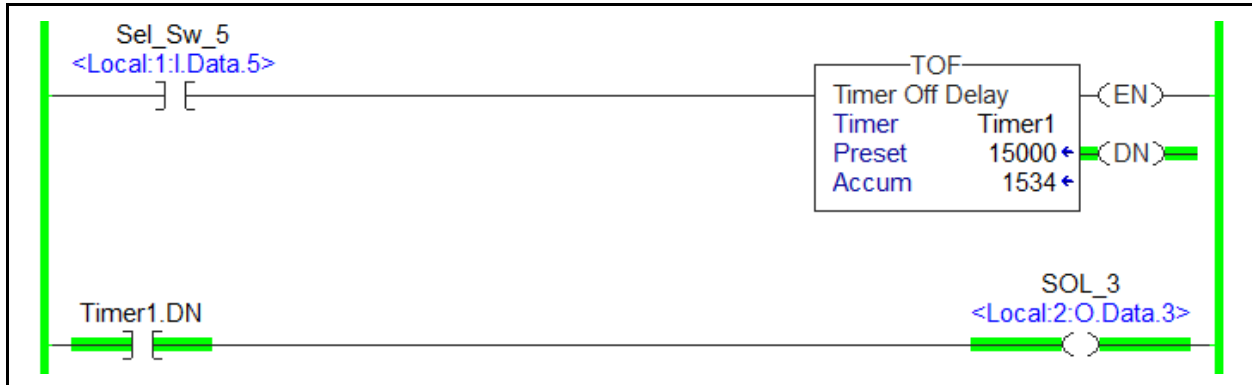
12. Based on this logic, which status bits are on for Counter_1 (choose all the apply)?
- Counter_1.CU
 - Counter_1.CD
 - Counter_1.DN
 - Counter_1.OV
 - Counter_1.UN

Explanation: This graphic was taken of this rung while online, and the processor was in the Run mode (green power flow). The input is on, thus the CTU has power, which will turn on the .CU bit. Since the input has been pulsed 15 times, the Accum value has surpassed the Preset value, which will keep the .DN bit on.



[https://sakai.northweststate.edu/access/content/group/7312-](https://sakai.northweststate.edu/access/content/group/7312-201830/Images/Test%20Images/Mod%207%20KAA%20images/PLC200%20M7%20PQ%20Q12%20ctu%20status%20bits%20FB.png)

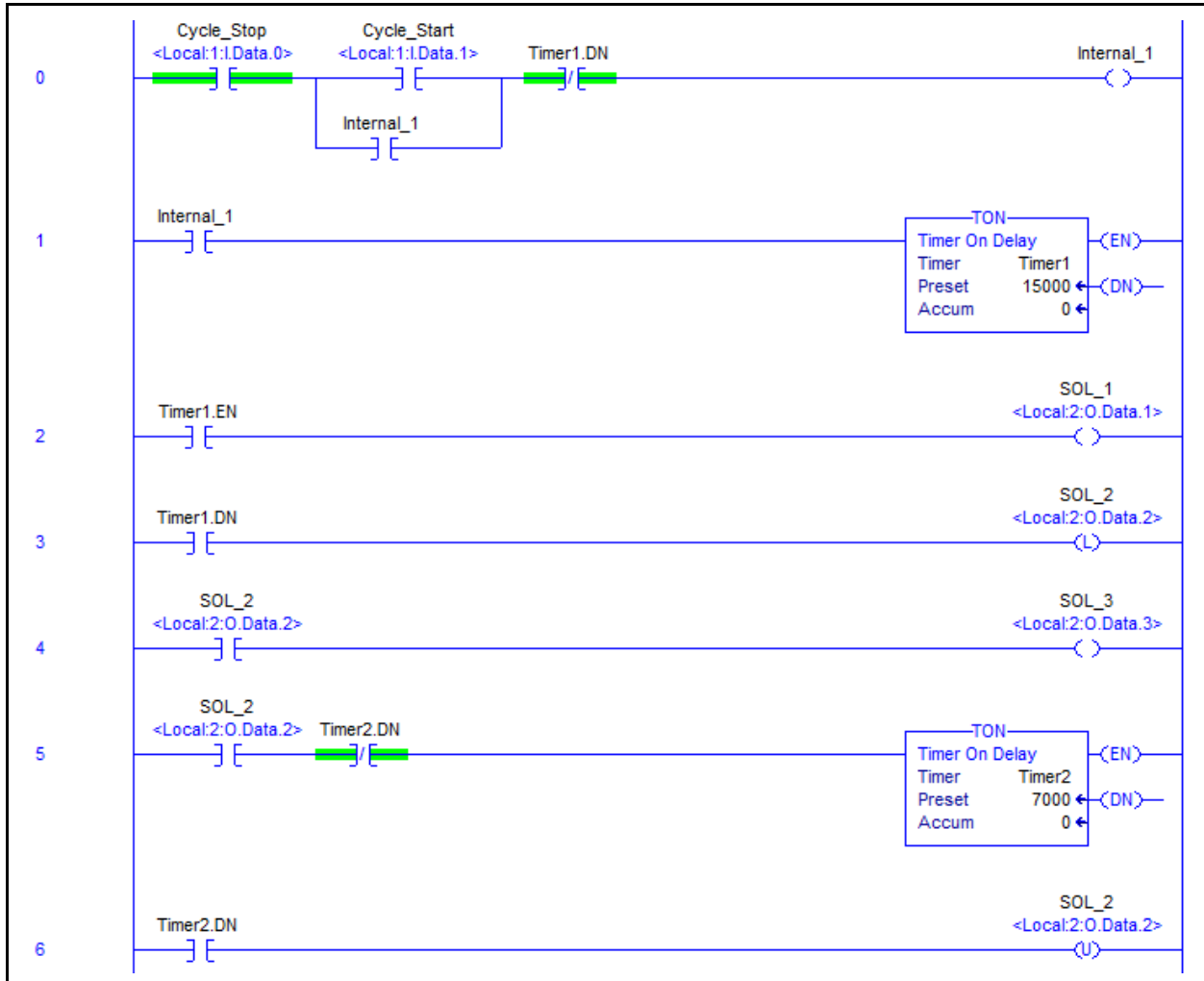
[201830/Images/Test%20Images/Mod%207%20KAA%20images/PLC200%20M7%20PQ%20Q12%20ctu%20status%20bits%20FB.png](https://sakai.northweststate.edu/access/content/group/7312-201830/Images/Test%20Images/Mod%207%20KAA%20images/PLC200%20M7%20PQ%20Q12%20ctu%20status%20bits%20FB.png)



<https://sakai.northweststate.edu/access/content/group/7312-201830/Images/Test%20Images/Mod%207%20KAA%20images/PLC200%20M7%20PQ%20Q13%20TOF%20circuit.png>

13. In this program, when will Timer1.DN go to “0” shutting off the XIC in the second rung?
- e. **When the TOF times out and the Accum is 15000**
 - f. When the TOF is turned on, resetting the .DN bit
 - g. When the TOF Accum value is equal to zero
 - h. Sel_Sw_5 must be turned on to clear out the Timer1.DN bit

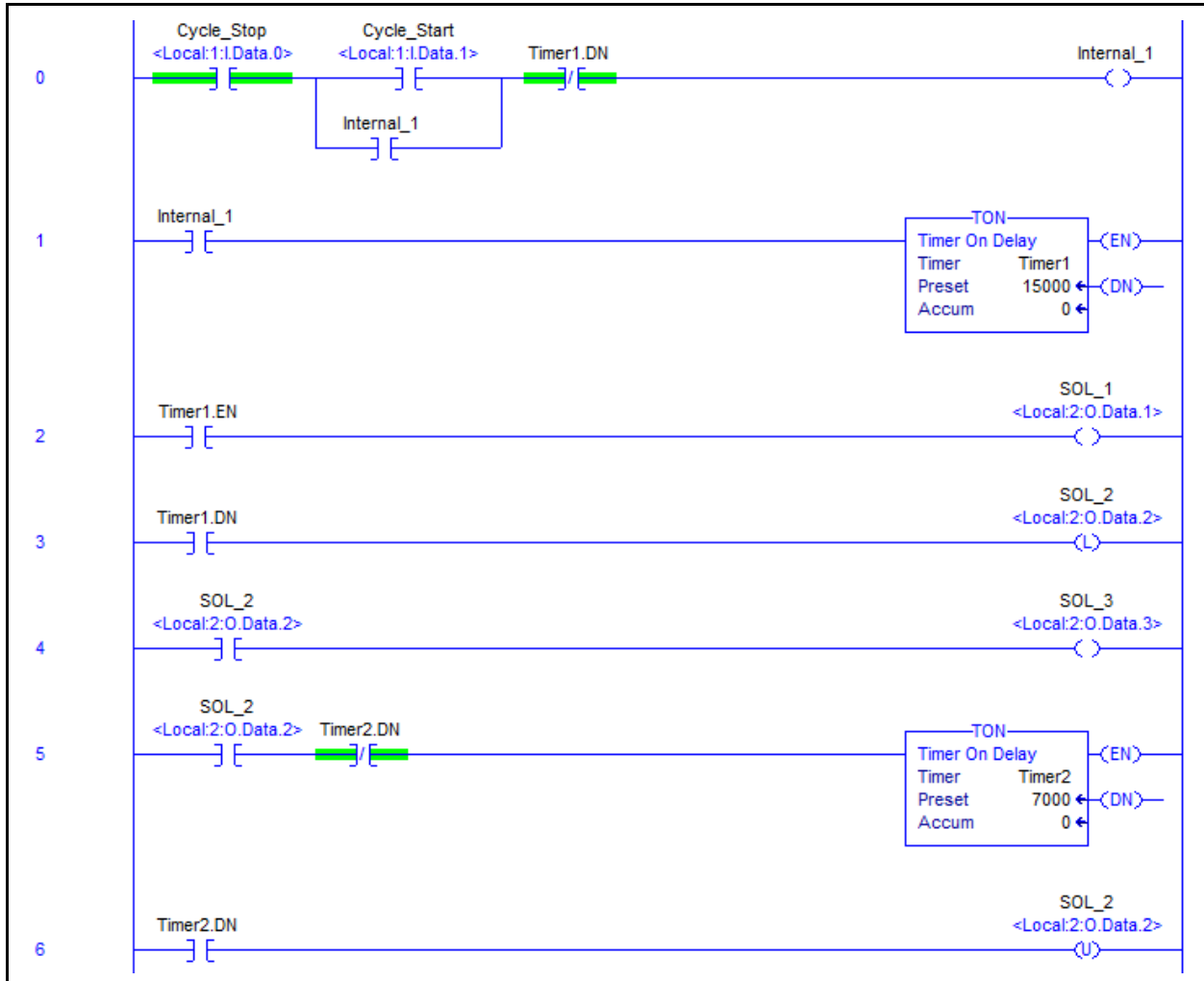
Explanation: Currently in this program, the input was turned on, resetting the Accum to zero, which turned on the .DN (“on” when the Accum is not equal to the Preset), and is now shut off, which starts the TOF timing. The .DN bit will stay on until it times out.



<https://sakai.northweststate.edu/access/content/group/7312-201830/Images/Test%20Images/Mod%207%20KAA%20images/PLC200%20M7%20PQ%20Q14%20and%20Q15.png>

14. How does SOL_1 respond once the CYCLE_START Pushbutton is toggled?
- SOL_1 comes on after 15 seconds and stays on for 7 seconds
 - SOL_1 comes on immediately and stays on for 15 seconds**
 - SOL_1 comes on after 15 seconds and stays on for 22 seconds
 - SOL_1 comes on immediately and stays on for 22 seconds

Explanation: Click here to review the video on how the two TON instructions control 3 solenoids in this program.



<https://sakai.northweststate.edu/access/content/group/7312-201830/Images/Test%20Images/Mod%207%20KAA%20images/PLC200%20M7%20PQ%20Q14%20and%20Q15.png>

15. How does SOL_3 respond once the CYCLE_START Pushbutton is toggled?
- SOL_3 comes on after 15 seconds and stays on for 7 seconds.
 - SOL_3 comes on immediately and stays on for 15 seconds
 - SOL_3 comes on after 15 seconds and stays on for 7 seconds**
 - SOL_3 comes on immediately and stays on for 22 seconds

Explanation: Click here to review the video on how the two TON instructions control 3 solenoids in this program.

DOL DISCLAIMER:

This product was funded by a grant awarded by the U.S. Department of Labor’s Employment and Training Administration. The product was created by the grantee and does not necessarily reflect the official position of the U.S. Department of Labor. The Department of Labor makes no guarantees, warranties, or assurances of any kind, express or implied, with respect to such information, including any information on linked sites and including, but not limited to, accuracy of the information or its completeness, timeliness, usefulness, adequacy, continued availability, or ownership.



This work is licensed under a [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/).