PLC Lab # 4
TIMERS OFF DELAY

Program: Electrician Technician

Course: EL- 180 – Programmable Logic Controls - Unit 3 Day 2

TIMER OFF's

Objectives: Under the supervision of your instructor, you should be able to do the following:

- Explain the difference in operation between timer ON and Timer Off.
- Identify and describe the basic concepts and elements of digital logic circuits.
- Identify and describe the memory elements and their function in digital circuits.
- Describe the various number systems that correspond with the digital operation of PLCs.

Lab Equipment:

- Click PLC
- Computer system

Required Tools:

- N/A

Material:

- N/A

Safety:

- N/A

Resources:

- N/A

Instructors Notes:

- N/A

Required time: 240 minutes.

Shop Maintenance:

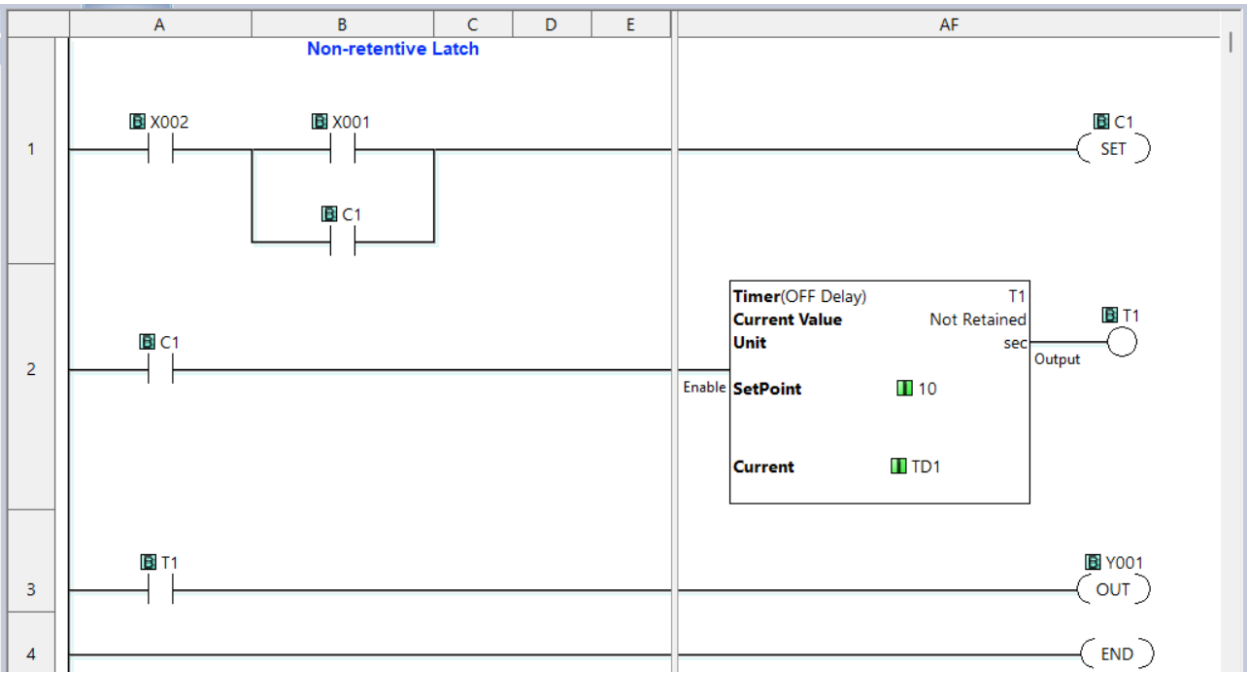
- All work will cease 20 minutes prior to the end of class.
- All work areas must be cleaned.
- Tools and equipment must be cleaned and returned to the designated areas (cage, tool room, cabinets etc.)
- Any broken or missing tools must be reported immediately.
- Tools and equipment are students' responsibility.

Procedures:

Exercise 1 Binary Non-retentive Latch ENABLES a TOF. Set the timer for 10 secs.

Control Concepts used – Binary Non-retentive latch and Timer Off Delay.

Program and test the following:



1. Q: Explain the primary difference in the Timer On and the Timer Off delays.

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1.2 Add a Red light to the above circuit. When the Non-retentive Latch is OFF, the RED light is ON.

Exercise 2 Timer On and Timer Off together.

Control Concepts – Binary non-retentive latch, Timer On, Timer Off.

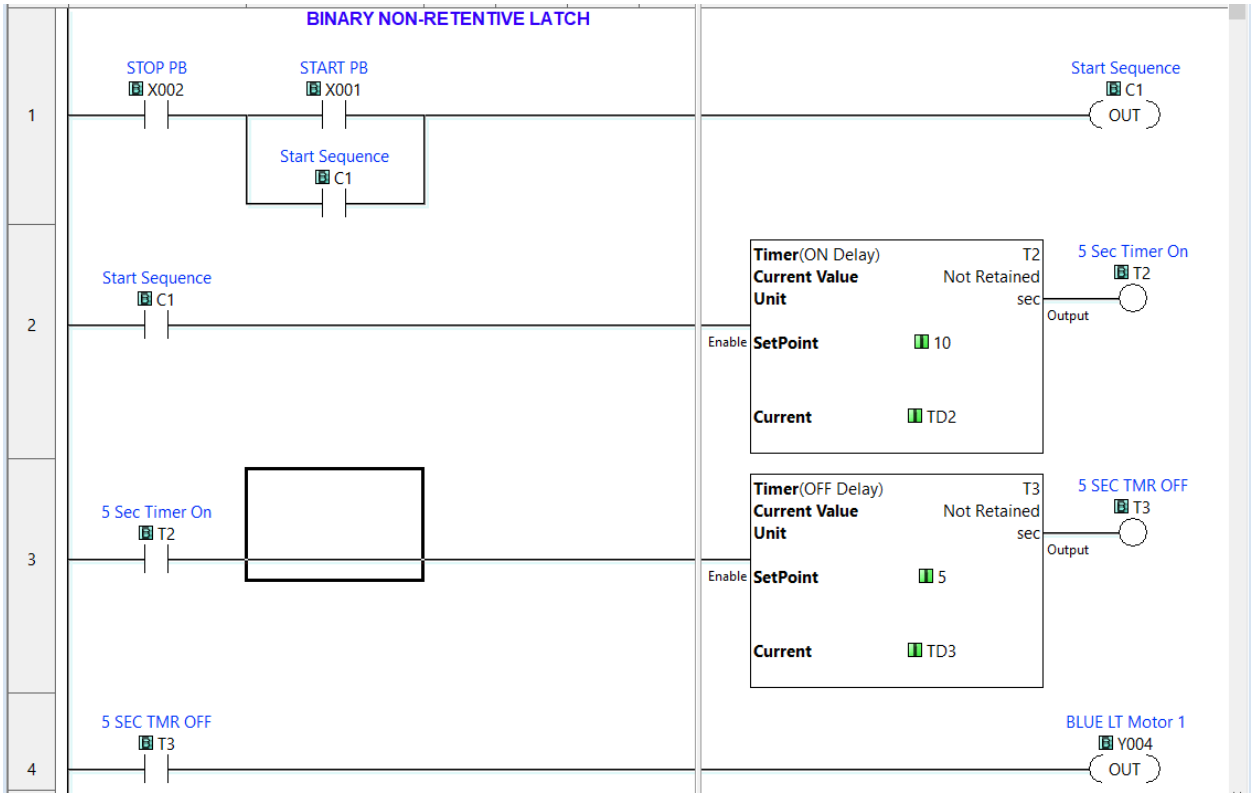
Program and test the following:

A binary non-retentive latch delay starts, and delay stops Motor 1.

The BLUE light represents Motor 1.

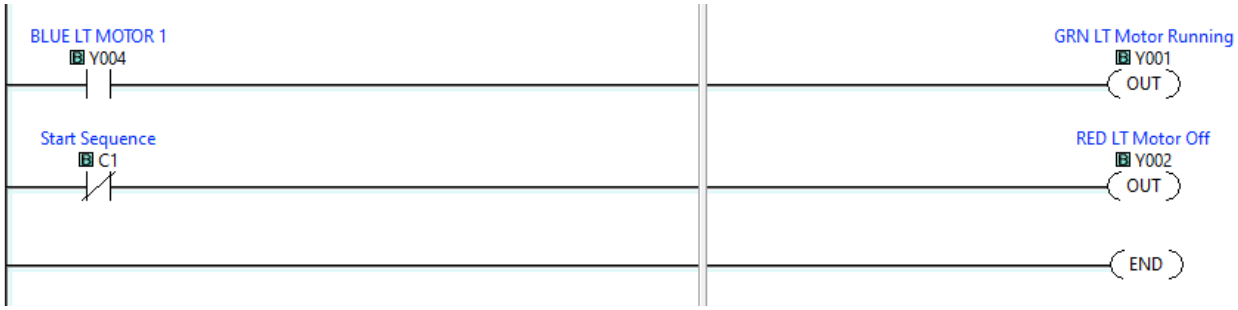
When PB x001 is pressed, there is a 10 second delay before MOTOR 1 (Blue Light) starts.

When PB X002 is pressed, there is a 5 second delay before it stops.



2.1 Add the following to exercise 2:

When the Motor starts, the GREEN light comes on.
When MOTOR is OFF the RED light is ON.

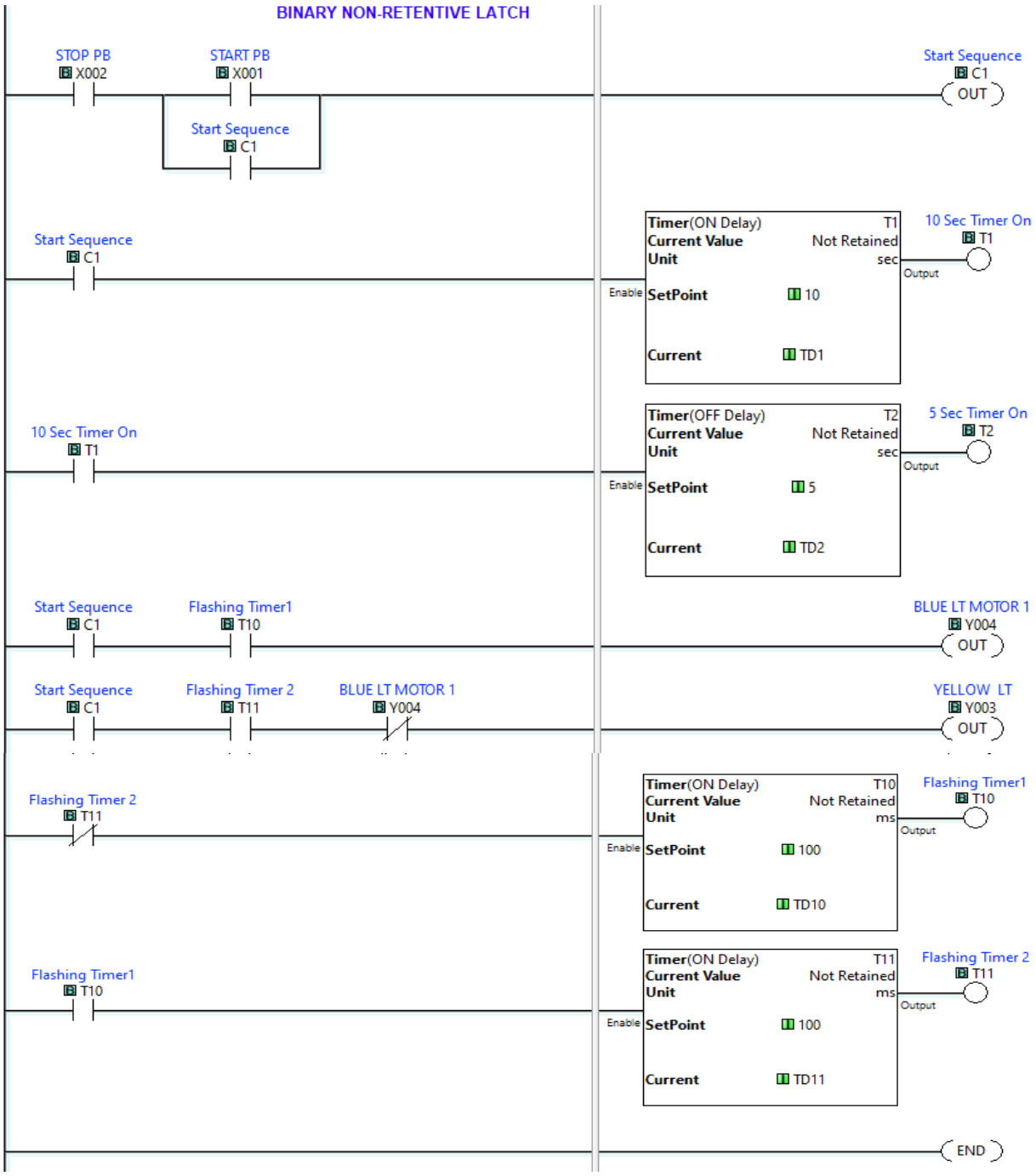


Exercise 3 **Flashing warning lights:** Add a Flashing Yellow light to the logic below. The yellow light

Control Concepts – Timer On, Timer Off, Two Timer Flasher, Non-retentive latch.

Using program 6.2, add the following logic:

program and test the following:



1. Q: Why is N.C. Y004 necessary in rung 5?

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Notes: *OHSA signed into law in 1993, that prior to any process starting there must be a Flashing Light and an Audible Alarm (120 decibels) to warn anyone in the area the process is going to start. This is required to be a minimum of 10 sec warning*.

3.2 Add the following logic to 6.3:

When the Motor starts, the GREEN light comes on.
When MOTOR is OFF the RED light is ON.