



Motor Controls Lab

Program: Electrical Technician

Course: EL170 – Motor and Industrial Motor Controls

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

- Identify magnetic motor controller
- Identify parts of pushbutton
- Explain the function of various parts of ladder logic diagram
- Make all connections for a magnetic motor controller, controlled by two pushbutton stations, including the connections for holding the circuit interlock.

Lab Equipment:

- 1 – magnetic motor controller
- 2 – Start/stop pushbutton switches
- 1 - Three phase motor
- 3 - Contactors

Required Tools:

- 1 – Pair of strippers
- 1 – Flathead screwdriver
- 1 – Phillips screwdriver

Materials:

- 10' – #14 THHN red

Safety:

- Safety glasses

Resources: N/A

Required Time: One Day

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: (Eye protection must always be worn, and power must be turned off till testing) Use “two station diagram” distributed by your instructor for all steps



Steps for first pushbutton: (see two station diagram)

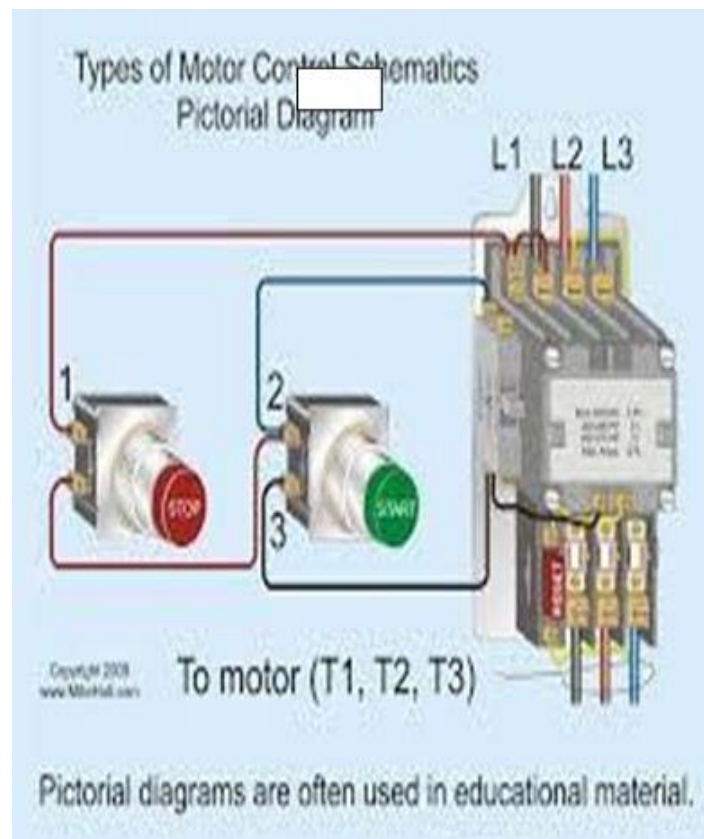
- Connect red wire from terminal line 1 on contactor to first terminal on STOP pushbutton.
- Connect red wire from second terminal on first STOP pushbutton to first terminal on first START pushbutton.
- Connect red wire from second terminal on first STOP pushbutton to first terminal on second STOP pushbutton.
- Connect red wire from first terminal on first START pushbutton to first terminal on second START pushbutton.
- Connect red wire from second terminal on first START pushbutton to first terminal on second START pushbutton.

Steps for second push button:

- Connect red wire from first terminal on START button to top terminal of holding contactor. • Connect red wire from second terminal on START button to bottom terminal of holding contactor.
- Connect red wire from the second terminal on STOP button to the first terminal of the START button.

Steps for contactor:

- Connect incoming power, lines 1, 2, and 3 to the top side of contactor.
- Connect motor to bottom of contactor in Line 1, 2, and 3.
- Connect red wire from line 2 of top contactor to top of second holding contactor terminal.
- Connect red wire from bottom of second holding contactor terminal to contactor.
- Finally, have your instructor check your wiring before turning power.



ETP 107, Lab #6 Motor Controls

