**Unit: Manual Motor Controls Hands On: Midterm**

**Title: Forward/Reverse/Jog of a Three Phase Motor CLO# 1, 2**

Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Station \_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Objectives**

1. Assess students understanding of a sealing circuit, motor jogging and motor rotational control of a three-phase motor.
2. Evaluate the student’s ability to demonstrate how a forward/reverse motor circuit can be converted to a jogging circuit using additional input devices.
3. Final critique of student’s manual motor control circuit design skills and construction.

**Assessment**

Students shall demonstrate a comprehension of the objectives listed above by scoring a minimum of 75% on this shop job. Grading shall be based on the Manual Motor Controls rubric.

**Instructions**

Design a forward/reverse/jog motor control circuit using any of the available input devices on the training panel. The final circuit shall offer the operator the ability to control a three-phase motor in “forward” or “reverse”. For safety reasons, when going from “forward” to “reverse”, the motor must be stopped, then engaged in the opposite direction. It is very important that never, under any circumstances, should both the forward and reverse contactors be engaged at the same time. The operator should be able to either seal in a “forward” or “reverse” command or be given a “jog” option for both “forward” and “reverse”. An overload condition should also disengage the motor control circuit regardless of direction. If an overload condition occurs, after the overload condition is reset the operator must depress a pushbutton to get the motor to run again. (i.e. resetting the overload condition should not in turn start the motor automatically).

* + The green light indicates that the motor is running in “forward”.
  + The blue light indicates that the motor is running in “reverse”.
  + The red light indicates that the motor has “stopped”.
  + The yellow light indicates an “overload” condition.

Use the space on the opposite side of this page to design your circuit. You may ask the instructor to look over your schematic, but any instructor help shall be a deduction in points. You may wire the circuit without the instructor reviewing your drawing, but you may **not** energize the circuit once wired. Double check your drawing and wiring. Ensure to label all wires with the appropriate wire numbers. Once you are ready for a grade, have your instructor review the drawing and wiring before energizing and testing the circuit.

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