**Unit: Manual Motor Controls Job: 14**

**Title: Forward/Reverse using a Selector Switch of a 1P Motor CLO# 2**

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

**Objectives**

1. Identify how to change directional rotation of a single-phase motor.
2. Define the function of start windings within a single-phase motor.
3. Recognize the purpose for a start switch within a single-phase motor.

**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 motor control circuit using two momentary pushbuttons and a three-position selector switch. One pushbutton shall be a traditional “start” button. When the start button is pressed, the motor shall start and continue to run even if the “start” button is no longer pressed. If the “stop” button is pressed, the motor shall stop. The selector switch shall determine if the motor is to rotate “forward” (CCW) or “reverse” (CW). If the motor is running and the selector switch is changed, the motor shall stop running. If the selector switch is in the “off” position, the motor cannot be started. If a direction is selected, the operator shall have to press the “start” button to engage the motor in the newly selected direction. While the motor is running, the green light shall come on and the red light shall be off. When the motor is not running, the green light shall be off and the red light shall be on. If the reverse option is selected, the blue light shall be illuminated when the motor is running. HINT: This job shall require two control relays. Use the space on the opposite side of this page to design your circuit. Once complete, review your design with you instructor. After obtaining approval, you may wire your circuit. Ensure to label all wires with the appropriate wire numbers. Have your instructor review your wiring before energizing your circuit.

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| --- | --- | --- | --- |
|  |  | Black | Red |
| Forward | Counter Clockwise (CCW) | A | 5 |
| Reverse | Clockwise (CW) | 5 | A |

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Render the schematic you designed using a CAD type software package on a classroom PC. Once complete, post the schematic to your student network folder using filename MMC Job 14 – *username.ext*