Title: **Fwd-Rev using Three Pushbuttons for 3P Motor** Job: 25

Course: Intro to Automation Unit: Manual Motor Control CLO: 1, 2

Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Grade \_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Objectives**

1. Student shall develop a further understanding of reversing a motor.
2. Student shall enhance motor circuit design skills.
3. Upon completion, a student shall have a more complete knowledge base for creating proficient motor control circuits.

**Assessment**

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

**Devices**

|  |  |  |
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| Inputs | | |
| *Device* | *Description* | *Symbol* |
| Normally Closed Pushbutton | Stop Motor | STOP |
| Normally Open Pushbutton | Forward Button | FWD |
| Normally Open Pushbutton | Reverse Button | REV |
| Outputs | | |
| *Device* | *Description* | *Symbol* |
| Green Pilot Light | Motor Running Forward | FORWARD |
| Red Pilot Light | Motor Stopped | STOPPED |
| Yellow Pilot Light | Motor Overload | OVERLOAD |
| Blue Pilot Light | Motor Running Reverse | REVERSE |
| 3-phase 24VDC Motor Starter | 3-phase Motor Starter, Forward with 2 NO, 2 NC auxiliary contacts | MS1\_F |
| 3-phase 24VDC Motor Contactor | 3-phase Motor Contactor, Reverse with 2 NO, 2 NC auxiliary contacts | MS1\_R |
| 208VAC/3P Motor | Three-phase AC Motor | M1 |

**Instructions**

Design a forward/reverse motor control circuit using the devices listed above. One pushbutton shall be a “forward” button, another pushbutton shall be a “reverse” pushbutton and the remaining pushbutton a “stop” button. If the motor is running “forward” the operator shall not be able to select “reverse” without pressing stop first (i.e. if the motor is running “forward” and the “reverse” button is pressed, no action shall be taken). The same shall be true if the motor is running in “reverse”. The green light shall indicate “forward”, the blue light shall indicate “reverse”, the red light shall indicate “stopped” and the yellow light shall indicate “overload”. Once complete, review the design with the instructor. After obtaining approval, wire the circuit ensuring to label all wires with the appropriate wire numbers. Have the instructor review all wiring before energizing the circuit. Render the schematic using a CAD type software package. Post the schematic to the *student share* folder using filename *MMC Job 25 – name.ext.*

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Discussed design \_\_\_\_\_\_\_\_ Checked wiring \_\_\_\_\_\_\_\_ Energized Test \_\_\_\_\_\_\_\_