Title: **Stop-Start-Jog using 3 Pushbuttons for a 1P Motor** Hands-On: 2

Course: Introduction to Automation Unit: Introduction of PLC CLO: 2, 4

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

**Objectives**

1. Student shall reinforce their knowledge of a stop/start/jog motor control circuit.
2. Student shall develop a knowledge of how to create a jog circuit using three pushbuttons.
3. Student shall apply this circuit in a motor control scenario.

**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 Introduction to PLC rubric.

**Devices**

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| Inputs | | |
| *Device* | *Description* | *Symbol* |
| NC Mushroom Head PB (ESTOP) | Emergency Stop | ESTOP |
| NC Pushbutton (PB1) | Stop Motor | STOP |
| NO Pushbutton (PB2) | Start Motor | START |
| NO Pushbutton (PB3) | Jog Motor | JOG |
| Control Relay Contacts | Motor Status | CR1\_STAT |
| Outputs | | |
| *Device* | *Description* | *Symbol* |
| Green Pilot Light | Motor Running | RUNNING |
| Red Pilot Light | Motor Stopped | STOPPED |
| Blue Pilot Light | Motor Jogging | JOGGING |
| 8-Pin 24VDC Control Relay | Motor Control | CR1 |

**Instructions**

Design a stop/start/jog motor control circuit using three momentary pushbuttons. The circuit will also utilize a latching mushroom head pushbutton to act as an “ESTOP” as well. If the ESTOP is pressed, the motor shall stop and not be able to be restarted and/or jogged until the “ESTOP” is disengaged. One pushbutton shall be traditional stop. When this button is pressed, the motor shall stop running. Another pushbutton shall function as a start button. When this button is pressed, the motor shall start and continue to run even is the button is no longer pressed. The third pushbutton shall operate as a jog button. Pressing the job button shall start and motor and it shall run as long as the button is being pressed. Once the jog button is released, the motor shall stop. Whenever the motor is running (but not being jogged), the green light shall come on. Whenever the motor is running in “jog” mode, the blue light shall illuminate. Whenever the motor is not running, the red light shall be on. No two lights shall be on at the same time. Use the space on the opposite side of this page to design the circuit. Once complete, review the design with the instructor. After obtaining approval, configure the program in RSLogix 500. Have the instructor review the program before downloading. Once the program has been reviewed, verify and download.

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1. Discuss the design with the instructor. Instructor Initials \_\_\_\_\_\_\_
2. Configure, verify the program in RSLogix 500. Initials \_\_\_\_\_\_\_
3. Download and test logic **without** the motor connected. Initials \_\_\_\_\_\_\_
4. Final test with running motor. Initials \_\_\_\_\_\_\_