Title: **Sealing Circuit** Job: 6

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

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

**Objectives**

1. Student shall identify the purpose for a sealing control circuit.
2. Student shall develop a foundation of knowledge for an “OR” circuit.
3. Student shall analyze the circuit and determine its inherent problem.

**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 instructor evaluation.

**Materials**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Inputs | | | Outputs | | |
| Q | Input Device | Function | Q | Input Device | Function |
| 0 | Mushroom head PB |  | 1 | Green Pilot Light |  |
| 0 | 3P selector switch |  | 0 | Yellow Pilot Light |  |
| 0 | 2P selector switch |  | 0 | Red Pilot Light |  |
| 0 | NC Pushbutton |  | 0 | Blue Pilot Light |  |
| 1 | Dual Pushbutton |  | 1 | Eight-pin relay |  |
|  |  | | 0 | Eleven-pin relay |  |

**Instructions**

Wire the schematic found on page 2. Ensure to use the proper colored wire and label all wires with the appropriate wire number. Have the instructor review your circuit before energizing the panel. After obtaining approval, energize the circuit and follow the steps in the table below.

**Diagram**

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**Schematic**



1. After energizing the circuit but before pressing PB2, complete row *Step 1* in the following truth table.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Step | PB2 | CR1 1-3 | CR1 8-6 | CR1 | Green Light |
| 1 | 0 |  |  |  |  |
| 2 | 1 |  |  |  |  |
| 3 | 0 |  |  |  |  |

1. Press and hold PB2, complete row Step 2 in the above truth table.
2. Release PB2 and complete row Step 3 in the above truth table.
3. Explain why the relay stays energized and the pilot light stays lit even though the pushbutton is no longer depressed.

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1. This circuit has an inherent problem. What is the problem?

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1. Notice that a wire 1 is connected from PB2 terminal 3 to contact CR1 terminal 1 and a wire 3 is connected from CR1 terminal 3 to PB2 terminal 4. Would connecting PB2 terminal 3 to CR1 terminal 3 and PB2 terminal 4 to CR1 terminal 1 work? \_\_\_\_

Why would this not be an ideal configuration?

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1. There is a way to simplify this circuit to only use one set of contacts. How can this be done? Draw your solution below.

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