Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Partner: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

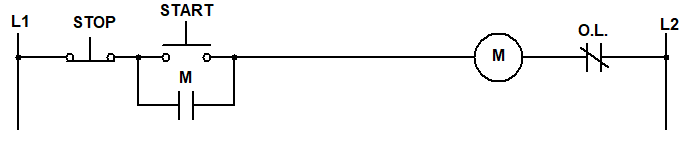
Use the check-off method as you wire the circuit. Alternate with your partner being the one to wire each circuit. Completely disassemble your circuit between exercises to help build your understanding and familiarity with these circuits.

* + - 1. Familiarize yourself with the mag starter. Find the coil and measure its resistance. Find the contacts and measure their resistance. Can you manually actuate the relay?

1. Wire the Standard START/STOP station below. Get your instructor’s initials once it’s working.

Initials

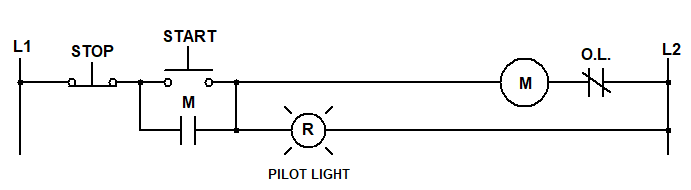
\_\_\_\_\_\_\_



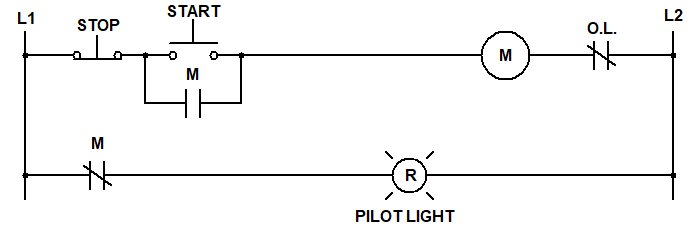
1. Look at the schematic diagram below (for #3) and describe how it works. Always be sure to indicate what causes each load to energize or de-energize and what happens when each input is pressed or released.
2. Wire this pilot light START/STOP station. Get your instructor’s initials once it’s working.

Initials

\_\_\_\_\_\_\_



1. Look at the schematic diagram below (for #7) and describe how it works. Indicate what causes each load to energize or de-energize and what happens when each input is pressed or released.
2. Once wired and plugged in, what should (estimate before building) the voltage be (no button press):  
   1. Across the STOP button \_\_\_\_\_\_\_\_\_\_
   2. Across the START button \_\_\_\_\_\_\_\_\_\_
   3. Across the M contacts (rung 2 / 3) \_\_\_\_\_ / \_\_\_\_\_
   4. Across the mag starter coil \_\_\_\_\_\_\_\_\_\_
   5. Across the pilot light \_\_\_\_\_\_\_\_\_\_
3. What should (estimate before building) the voltage be after the START button is pressed:  
   1. Across the STOP button \_\_\_\_\_\_\_\_\_\_
   2. Across the START button \_\_\_\_\_\_\_\_\_\_
   3. Across the M contacts (rung 2 / 3) \_\_\_\_\_ / \_\_\_\_\_
   4. Across the mag starter coil \_\_\_\_\_\_\_\_\_\_
   5. Across the pilot light \_\_\_\_\_\_\_\_\_\_



1. Now wire this pilot light START/STOP station (previous page) using the check-off method. Get your instructor’s initials once it’s working.

Initials

\_\_\_\_\_\_\_

1. Once working, measure voltage (no buttons pressed):
   1. Across the STOP button \_\_\_\_\_\_\_\_\_\_
   2. Across the START button \_\_\_\_\_\_\_\_\_\_
   3. Across the M contacts (rung 2 / 3) \_\_\_\_\_ / \_\_\_\_\_
   4. Across the mag starter coil \_\_\_\_\_\_\_\_\_\_
   5. Across the pilot light \_\_\_\_\_\_\_\_\_\_
2. Measure the voltage after the START button is pressed:  
   1. Across the STOP button \_\_\_\_\_\_\_\_\_\_
   2. Across the START button \_\_\_\_\_\_\_\_\_\_
   3. Across the M contacts (rung 2 / 3) \_\_\_\_\_ / \_\_\_\_\_
   4. Across the mag starter coil \_\_\_\_\_\_\_\_\_\_
   5. Across the pilot light \_\_\_\_\_\_\_\_\_\_
3. Explain any inconsistencies. Are there measurements that surprised you, or were you able to correctly estimate expected voltage?

1. **Draw and label** a ladder diagram below for a START/STOP station that contains two pilot lights. Lamp\_1 comes on only when the motor is running and Lamp\_2 only comes on when the motor stops. Wire your circuit using the check-off method and get your instructor’s initials once it’s working.

Initials

\_\_\_\_\_\_\_