

## **Motor Minute™ Technical Tip – How to Replace a Factory Installed PSC 3-Wire Outdoor Fan Motor With a Universal Motor That Can Be Connected With 3 Wires or 4 Wires**

Hi, Chris from Regal here with your Motor Minute™ technical tip. Helping you become an HVAC motor pro one minute at a time.

Today's topic is how to replace a factory installed PSC 3-wire outdoor fan motor with a universal motor that can be connected with 3 wires or 4 wires.

### **OEM 3 Wire PSC Outdoor Fan Motor**

Let's start with a pictorial diagram of the HVAC outdoor unit components including the fan motor, contactor and dual run capacitor. Now we will remove the motor wires from the components.

### **Century® 4-IN-1® Outdoor Fan Motor (3-wire connection)**

For the replacement motor we will use the Century 4-IN-1 outdoor fan motor.

- To connect the new motor in the same manner as the original motor we would look at the "3 line circuit diagram" provided with the motor.
- Starting at the top of the diagram the brown wire with a white strip is not used so we insulate the termination.
- The brown wire is connected to the capacitor. On a dual run capacitor, that would connect to the (F) terminal.
- The white wire is connected to the other side of the capacitor and also to line voltage. This wire connects to the (C) terminal.
- This can be confusing looking at the motor diagram unless you recognize that the connection from the capacitor to line voltage, in this case (T1), already exists from the factory installed red wire.
- The last connection is the black wire to the opposite line voltage, which in this case is (T2).
- If there are no extra terminals on the (C) terminal at the dual run capacitor, the white wire can also be connected to same terminal on the contactor that the (C) terminal is wired to, which in this case is (T1).

### **Century® 4-IN-1® Outdoor Fan Motor (4-wire connection)**

If we choose to install this motor with a separate fan capacitor, we would use the "4 line circuit diagram" provided with the motor.

- Starting with the capacitor, we would connect the brown and brown with white strip wires to either side of the single run capacitor.
- Then we would connect the black and white wires to either side of the contactor since we are not using the dual run capacitor.

And that's a wrap on this segment of Motor Minute technical tips. Remember that we provide motor training and product information in multiple formats including videos, literature, podcasts, articles, of course Motor Minute technical tips and classroom education both online and face to face. All of this industry leading training is available at no charge to HVAC professionals at [regalmmu.com](http://regalmmu.com). Thank you for taking the time to build your motor knowledge.