ECM Blower Motor Quick Test

ECM blower motors are used on some furnace models. These motors are variable speed. They will adjust their RPM in an attempt to deliver the CFM that is programmed by the installing technician. The motors operate on 115 volts if installed on furnaces and 230 volts if installed on air handlers.

The motor has two plugs (fig. 1). One plug is a five pin plug that connects the line voltage to motor. The line voltage must be present for the motor to operate.

The second plug is a 16 pin plug that connects to the furnace IFC board (fig. 2). This plug carries control signals between the IFC and the ECM Motor.
Check Procedure

If the motor does not run, make sure you have power to the IFC board and then check the voltage between pins 4 and 5 of the 5 pin plug on the motor. You should read 115 volts. If voltage is not present, the motor will not run. Check for a break in the wiring between the IFC board and the motor. If the motor is equipped with a choke coil, the choke coil may be open.

If line voltage is present to the motor and the motor does not run, jumper R to G on the thermostat terminal strip (fig. 3). If the motor runs the problem is in the low voltage thermostat wire.

If the motor does not run, remove the 16 pin plug from the IFC board. Locate pins 12 and 15. Connect 24 volts from R to pin 12 and pin 15. Connect pins 1 and 3 to the common side of the 24 volt transformer (fig. 4). The motor should run.

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If the motor does not run, unplug the 16 pin wiring harness from the motor (fig. 5). Put 24 volts to pins 12 and 15 and 24 volt common to pins 1 and 3 at the motor (fig. 6). If the motor starts, the fault is in the harness. If the motor does not run, replace the motor module.