

Model X13

Standard ECM Motor Diagnostics

IF THE MOTOR IS RUNNING

- 1. It is normal for the motor to rock back and forth on start up. Do not replace the motor if this is the only problem identified.**
- 2.** If the system is excessively noisy, does not appear to change speeds in response to a demand (Heat or Cool), or is having symptoms during the cycle such as a tripping limit or freezing coil, check the following:
 - ➔ Wait for programmed delays to time out. If delays are too long, reset them using the manufacturer's charts.
 - ➔ Ensure the airflow settings are correct for the installed system using the manufacturer's charts. If the system is operating normally in each mode, there is no problem.
 - ➔ Remove the filter and check that all of the dampers, registers, and grills are open and free flowing. If removing the filter corrects the problem, clean or replace with a less restrictive filter. Also check and clean as needed the blower wheel, secondary heat exchanger (if applicable) and evaporator coil (if applicable).

If this does not correct the problem then:

- ➔ Check the external static pressure. If it is higher than the manufacturer's recommendations, correct the airflow restriction.
 - 3. If the motor does not shut off at the end of the cycle, check the delay times and wait for the delays to time out. Also make sure that there is no call for "Continuous fan" on the "G" terminal. This motor may take a while to come to a complete stop with selected delays.
 - 4. If the above diagnostics do not solve the problem, confirm the voltage checks in the next section below, then continue diagnostics in the section, "Model X13 Standard ECM Motor Communication Diagnostics."
- The TECMate is not designed for use on this motor.**

WARNING

Always disconnect power from the system before removing the high voltage connection(s) and before reconnecting.

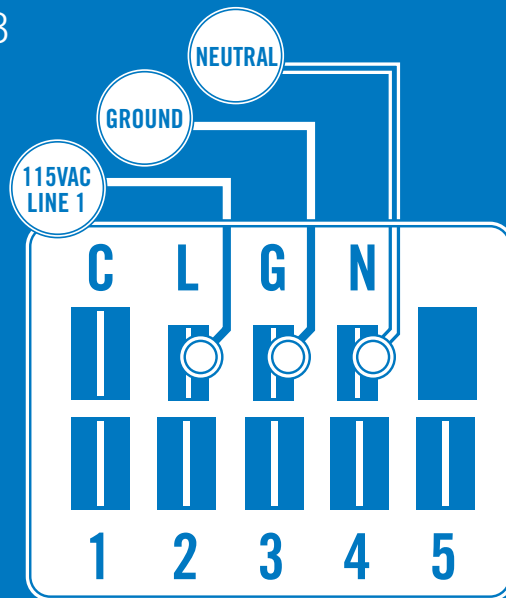
IF THE MOTOR IS NOT RUNNING

1. Check for proper high voltage and ground at the (L)(G)(N) connections at the motor (see Figure 3 on the next page). Correct any voltage issues before proceeding to the next step. The X13 motor is voltage specific. Only the correct voltage should be applied to the proper motor. Input

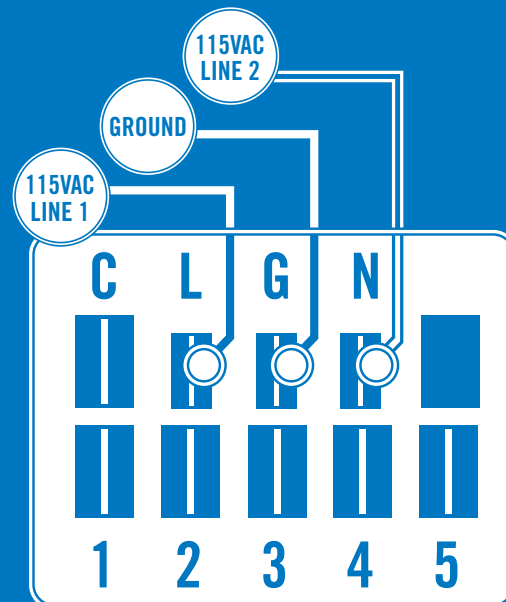
voltage within plus or minus 10% of the nominal 115VAC or 230VAC is acceptable.

- 2. The TECMate is not designed for use on this motor.** If the motor has proper high voltage and ground at the (L)(G)(N) connections, continue diagnostics in the next section, “Model X13 Standard ECM Motor Communication Diagnostics.”

Figure 3



115VAC MOTOR



230VAC MOTOR

Model X13

Standard ECM

Motor Communication Diagnostics

The X13 motor can be communicated through AC or DC low voltage. AC voltage is typically 24VAC and DC voltage can be between 9-23VDC (see Figures 4 and 5 on the next page).

1. Start with the manufacturer's literature to confirm proper set-up, connections and voltage. It is not required that all terminals on the motor have a program. If the low-voltage communication is applied to an unprogrammed terminal, the motor will not operate, which is normal.
2. Initiate a demand from the thermostat and check the voltage between the common and the appropriate motor terminal 1- 5. Confirm the meter is set to the voltage identified from the manufacturer's literature (see Figures 4 and 5 on the next page).

➡ If the low voltage communication is not present, check the demand from the thermostat. Also check the output terminal and wire(s) from the manufacturer's control board or relays to the motor.

➡ If the motor has proper high voltage as identified in the previous section, and proper low voltage to a programmed terminal, and is not operating, the motor is failed. Go to "Replacing the X13 Motor" section on page 29 of this guide.

Figure 4

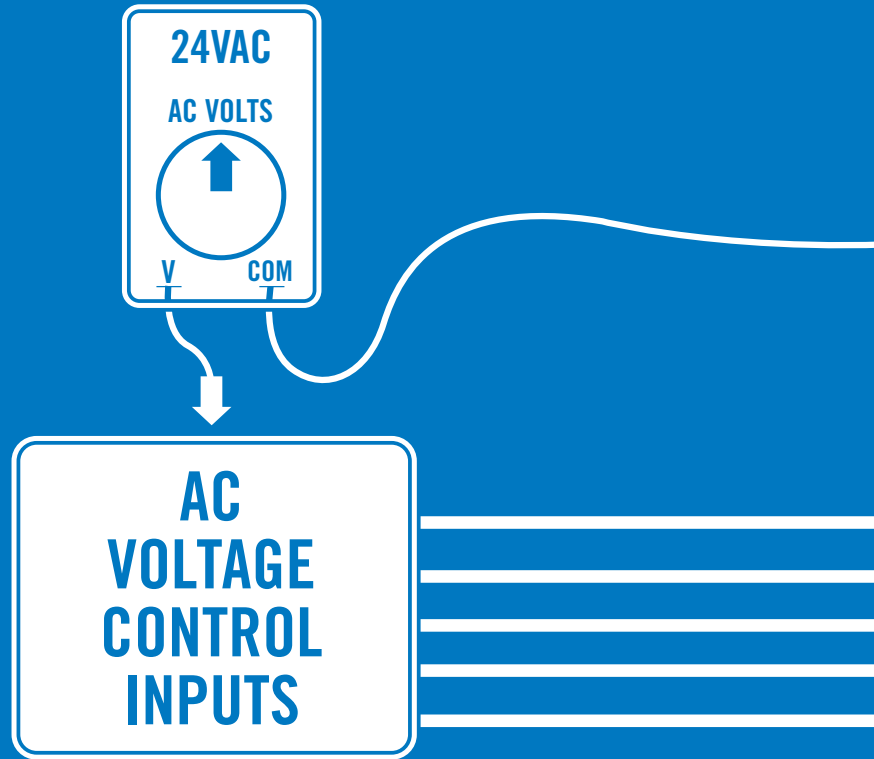
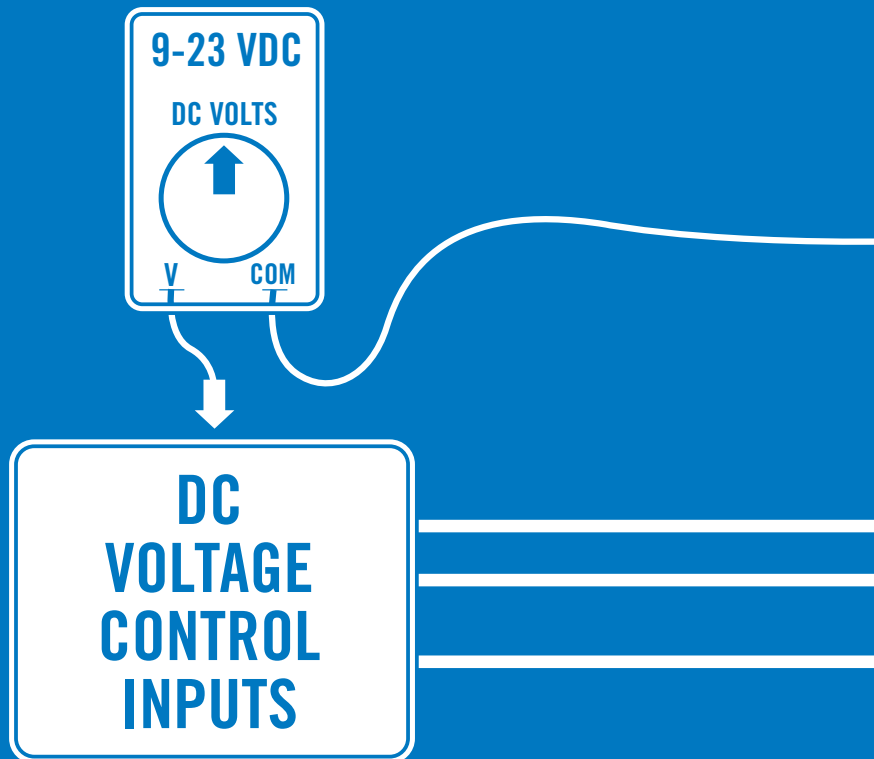
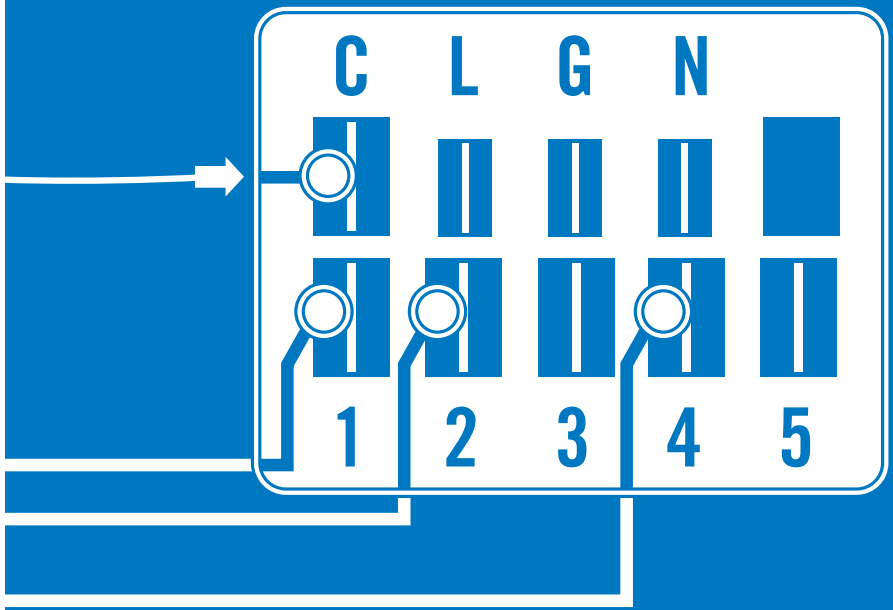
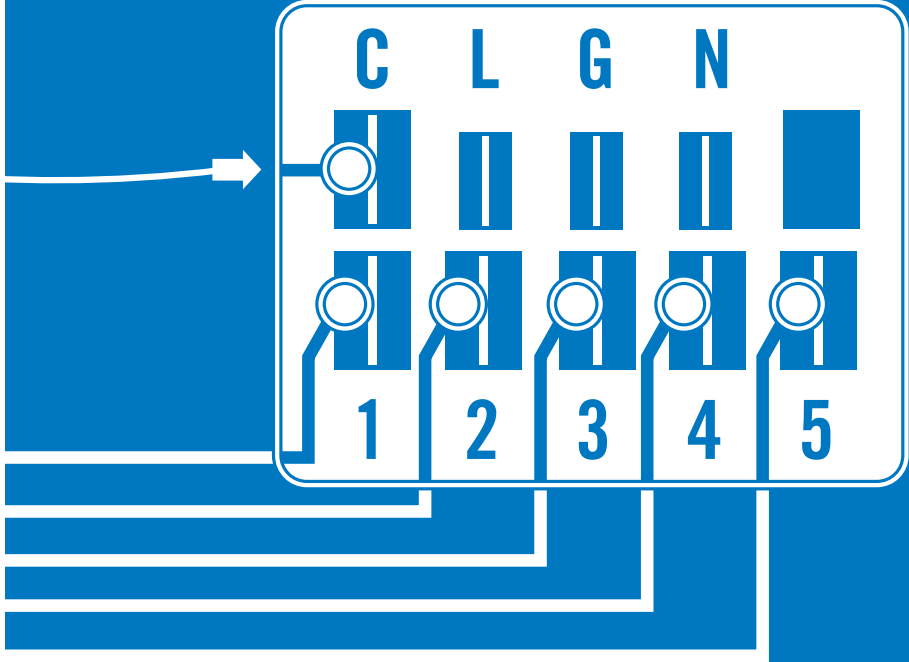


Figure 5





Replacing the X13 Motor

- The X13 is a one piece motor. Do not open motor to service.
- Motor must be a direct replacement from the manufacturer with respect to voltage and model unit.
- When replacing the X13 motor with a belly band for mounting, the band should not be located in the area identified in Figure 11.
- Reconnect high and low voltage wiring according to the manufacturer's guidelines.
- Proper orientation is for the connectors to be facing down or at least between 4 and 8 o'clock (as seen similarly in Figure 10 on the previous page).

