

- Connect the meter test leads across points A and B as shown in [Table 2-12](#) and compare to the specified value.

Test Point A	Test Point B	Resistance Value
Red wire	Orange wire	approx. 10-11 Ω
Red wire	Yellow wire	approx. 10-11 Ω
Red wire	Brown wire	approx. 10-11 Ω
Red wire	Black wire	approx. 10-11 Ω
Red wire	Ground	INFINITY

Results

- If the stepper motor moved to the wide-open position in Step 5, and to the closed position in Step 9, and the DMM indicated appropriate resistance values, refer back to flow chart.
- If the stepper motor failed to change the throttle position in Steps 5 or 9, replace stepper motor.
- If the stepper motor moved to the wide-open position in Step 5, and to the closed position in Step 9, and the DMM indicated inappropriate resistance values, replace Stepper motor.

Test 14 – Check Voltage and Frequency Under Load

General Theory

It is possible for generator AC output frequency and voltage to be good at no-load, but they may drop excessively when electrical loads are applied. This condition, in which voltage and frequency drop excessively when loads are applied can be caused by (a) overloading the generator, (b) loss of engine power or performance, or (c) a shorted condition in the stator windings or in one or more connected loads.

Procedure

- Set a DMM to measure AC voltage.
- Connect an accurate AC frequency meter and an AC voltmeter across the stator AC power winding leads.
- Start the engine. Let it stabilize and warm-up.
- Apply electrical loads to the generator equal to the rated capacity of the unit. Measure and record the frequency and the voltage.

Results

- If the DMM indicated 60 Hz and approximately 248 VAC during full load, discontinue testing.
- If the DMM indicated a frequency and voltage that dropped while under full load, refer back to flow chart.

Test 15 – Check for an Overload Condition

General Theory

An “overload” condition exists when the generator rated wattage/ampere capacity has been exceeded. To test for an overload condition on an installed unit, the recommended method is to use an ammeter.

Procedure

- Connect the clamp-on ammeter to the generator according to the ammeter manufacturer's specifications.
- Transfer all normal electrical loads to the generator. Measure and record the amperage.

Results

- If the ammeter indicated amperage readings that were above the unit's specified ratings, reduce loads to the rated capacity of the unit.
- If the ammeter indicated amperage readings that were below the unit's specified ratings, but rpm and frequency dropped excessively refer back to flowchart.

Test 16 – Check Engine Condition

General Theory

If engine speed and frequency drop excessively under load, the engine may be underpowered. An underpowered engine can be the result of a dirty air cleaner, loss of engine compression, faulty fuel settings, or incorrect ignition timing, etc. A decrease in available horsepower will proportionally lead to a decrease in kW.

Procedure

For engine testing, troubleshooting, and repair procedures refer to [Section 4.6 Diagnostic Tests](#). For further engine repair information, refer to the appropriate engine service manual.

Test 17 – Current Calibration

General Theory

An Evolution unit monitors load (current) through two Current Transformers (CT) mounted in the AC connection box area. The CTs provide an AC output signal proportional to the current flowing in the load leads 11 and 44.

CT1 and CT2 have identical functions, diagnostic procedures and calibration process. CT1 wire circuits 398A and 399A monitor the current flow on Wire 11. CT2 wire circuits 398B and 399B monitor the current flow on Wire 44. The CTs are calibrated using the Evolution control panel. A password is required to access the Dealer Edit menu when performing calibrations.