STANDARD LOAD BANK TESTING PROCEDURE

The following is the basic step-by-step procedure for performing load-bank testing on a generator-set by utilizing a portable resistive load-bank unit. Duration of actual test varies based on type of test (NFPA-110) and customer preference.

The following items are performed prior to operating the unit and with the unit in its normal operating position (estimated duration 30-90 minutes depending on unit size / cable run):

1. Remove breaker / switchgear access panels and determine suitable cable termination point. (Note: Ideal location is after the generator-set breaker at a point where the load cables can remain connected to the generator. This allows a seamless application of facility load in the event of a loss of utility power. Load-bank equipment is designed to shut itself down if it senses AC voltage / frequency lower than set parameters. In the event the customers load cables must be disconnected in order to terminate temporary cables customer will be notified immediately of additional unit down time related to hook-up and disconnect of cables in the event of a loss of utility power.)
2. Calculate necessary cable run based on distance between portable load-bank unit and cable termination point.
3. Calculate number of cable runs necessary based on total amperage load that is to be applied to unit and amperage rating of temporary cables.
4. Roll out necessary cable based on above calculations, phase by phase to prevent cross phase connections.
5. Terminate cabling at portable load-bank.

The following steps are performed prior to operating the unit and with the unit off-line, circuit breaker open (if connection point is beyond the generator-set circuit breaker) (estimated duration 15-45 minutes):

6. Land temporary load-cables, phase by phase, at connection point designated in step #1. If customer load cables are disconnected from the system ensure that cable ends are properly taped up to prevent fraying and that cables are secured to prevent rubbing against temporary load-cables or breaker enclosure.
7. Visually verify that no phase to phase connections have been made.

The following steps are performed with the unit on-line and breaker closed (estimated duration 2 hours 10 minutes to 4 hours 10 minutes):

8. Start unit up at control panel. Allow unit to come up to speed.
10. After 5-minute warm up period take base readings.
11. After initial readings are taken apply load accordingly based on type of test (ex: Standard annual NFPA-110 test consists of a 2-hour test; 30-minutes at 25% unit rating, 30-minutes at 50% unit rating and 60-minutes at 75% unit rating).
12. Readings are taken every 15-minutes and are recorded.
13. Readings throughout the load-bank test consist of the following:
   - Time
   - Frequency (Hz)
   - Battery Voltage (DC)
   - Voltage (AC-L1, L2, L3)
   - Oil Pressure (PSI)
   - Amperage (AC-L1, L2, L3)
   - Coolant Temperature
   - Power Factor (1.0)
   - Ambient Temperature
   - kW
   - Exhaust Temperature
   - Load Percentage

14. Upon completion of test load is removed from unit and a 5-minute cool-down period is allowed for both the unit and load-bank.

15. Upon completion of cool-down period load-bank is powered down and unit is turned to the “OFF” position with the circuit breaker open.

The following steps are performed with the unit off-line and the circuit breaker open (estimated duration 15-45 minutes):

16. Disconnect temporary load cables from designated connection point.
17. Terminate customer load cables (if disconnected). Verify connections are secure and properly phased.
18. Secure cover panels.
19. Return unit to its normal operating positions, unit in “AUTO” circuit breaker closed.

The following steps are performed with all controls in their normal operating positions (estimated duration 30-90 minutes depending on unit size / cable run):

20. Roll up temporary load cables and secure to load-bank.
21. Re-verify all controls in normal operating position and secure customer site.