



Golden Rules

18 General Orders – GTI Bi-Fuel®/STEPCON®

The following is a list of standing requirements for any GTI Bi-Fuel installation and commissioning:

1. An electrical load bank with metering or equivalent means of setting a controlled/stable load on the generator set, variable throughout its full range of operation (0%-100% of rated load) in repeatable increments of 5% to 10% of rated load.
2. Basic hand tools, high quality digital multi meter, and digital differential manometer (minimum range -2.0 to 30.0 psig).
3. A reliable and accurate method of measuring real-time diesel fuel consumption throughout the commissioning process and full range of operation (0% to 100% of rated load).
4. A responsible operator who will maintain responsibility for engine operation and safety.
5. Adequate supply of clean, dry, fuel-grade gas be available at a statically and dynamically stable pressure from 0.5 psig to 4.0 psig at a rate of 8.0 SCFH per kW of set rating.
6. Verify a full and complete installation of the Bi-Fuel kit in accordance with best practices and local authority.
7. Verify manual gas isolation valve is closed, and remain closed, before and during "Configure" and "Calibrate" operations.
8. With engine off: set the Zero Pressure Regulator bias spring adjustment to fully counter-clockwise; the Dual Modular Valve delayed-open adjustment to fully clockwise; and all Air-Gas Power Valve (AGM-PV) venturi adjustment to fully closed.
9. With engine off, use appropriate Altronic Terminal Program to: "Configure" panel; "Edit Setpoints" and replace default "Safety" and "Control" values with "anticipated/working" values to provide minimal system protection during commissioning.
10. With engine off, use appropriate Altronic Terminal Program to "Calibrate" GSP(s), VAC(s), MAP(s) sensors.
11. If applicable, with engine running at no-load rated speed and full-load rated speed, use appropriate Altronic Terminal Program to "Calibrate" kW% and DF% sensors.
12. Verify general condition of engine and related systems by gathering a complete "Diesel Only Base-line" data set consisting of a minimum of 11 load points; sampled in 10% load steps (0% to 100% of rated load).
13. With the engine off, open the manual gas isolation valve and open the Air-Gas Power Valve (AGM-PV) venturi adjustment to 1-1/2 turns open.
14. With the engine at 50% rated load with Bi-Fuel "ON" and while measuring the gas pressure at the inlet flange of the Dual Modular Valve (port 6), slowly adjust the Zero Pressure Regulator bias spring clockwise to achieve an indication of 0" to +1" of water column.
15. At the suspected most restrictive gas substitution load point within the defined Bi-Fuel load widow(s), establish the maximum desired/acceptable ratio of gas-to-diesel ratio and proper operation throughout defined Bi-Fuel window(s).
16. Gather "Bi-Fuel" operational data consisting of a minimum of 2 load points at the minimum and maximum "Bi-Fuel On" control points plus additional samples in 10% load steps within the Bi-Fuel On load window(s) of operation (0% to 100% of rated load).
17. "Edit Setpoints" to update the "anticipated/working" values with "Final" "Safety" and "Control" values to provide required system protection during normal Bi-Fuel operation.
18. Install anti-tamper seals and verify Bi-Fuel Commissioning Worksheet for completeness of all required data: have end user sign Commissioning Worksheet and return worksheet to factory for final approval.