

Applicability: All new tank installations

After any tank service which requires opening or fully depressurizing the tank

Purpose: Liquid propane autogas tanks must be purged prior to initial fill in order to:

- Remove shipping gas (nitrogen), or moisture and air
- Prevent excessively high pressures in the tank.
- Prevent rusting and fading of the odorant
- Verify the tank and fittings are leak-free

The preferred purge procedure (listed here as Procedure A) utilizes a vacuum pump to evacuate the system prior to fill. If the technician does not have access to a vacuum pump (explosion-proof pump required for service), follow Procedure B, Purge with Propane Vapor on Page 3.

**NOTE:** When filling a tank for the first time, always start filling at a very low flow rate for the first gallon of fuel. If filled at normal speed, it is possible for the filler valve (OPD) to close very shortly after the start of fill, and remain closed; this will give the impression of a failed OPD. If this occurs:

1. Disconnect the fuel fill line at any convenient location (at the remote fill valve, either side of the fill filter, or at the tank) to relieve the pressure in the line, then reconnect.
2. Allow the tank to sit for at least 15 minutes to allow the pressure in the OPD to equalize.
3. Try to fill again (again, starting the fill at a very low rate). If the valve is still closed, shut off the pump, disconnect the fuel fill line, and tap the tank near the OPD with a metallic object; this may help the OPD to return to its open position.
4. If the tank still will not fill, contact ROUSH CleanTech hotline at 1-800-59-ROUSH for further assistance. *Note: All OPD's are verified functional at Roush prior to shipping, therefore actual OPD failure on a new tank is unlikely. Please contact ROUSH CleanTech before removing the OPD from the tank or requesting a replacement part.*

## **Procedure A. Purge / Fill with Vacuum Pump**

**Special Tools:** Vacuum pump with gage set (explosion-proof pump required for service tanks)

Filler valve gage adapter

**WARNING:** Fuel tanks which have been exposed to propane may contain combustible vapors even if all liquid has been evacuated. Any tank which has been exposed to propane should only be purged using an explosion-proof vacuum pump.

**NOTE:** For vehicles equipped with dual tanks, bleed the driver's side tank first, then repeat the procedure for the passenger side tank. Once both tanks are evacuated and verified leak-free, both tanks may be filled together.

1. The tank should be installed in the vehicle. Verify all fuel system connections are completed (quick connects fully inserted, threaded features at proper torque).
2. Open the bleed port on the tank (procedure may also be performed at remote bleed valve for vehicles so equipped; ensure that the tank valve is open). Allow all pressurized gas to escape (if present).
3. Connect the low pressure hose from the vacuum pump to the bleed port.
4. Connect vacuum gauge to the fuel filler valve.
5. Open the valve on the vacuum line (if present) and turn on the vacuum pump.
  - a. Depending on the size of the fuel tank and the flow rate of the pump, it may take 5-10 minutes to achieve a noticeable vacuum drop on the gage. This is normal.
  - b. If system does not pull vacuum, check for large leaks.
6. Continue evacuating the system to at least 15inHg vacuum indicated. This may take up to 30 minutes.
7. Close the bleeder valve and turn off the vacuum pump. Record the vacuum level on the gauge, then record again after 5 minutes and after 10 minutes.
8. If minimum 10inHg is maintained after 5 minutes, and no more than 2inHg change from 5 minutes to 10 minutes, then leak check is passed.
  - a. If excessive pressure bleed-up is seen, inspect all system fittings for leaks. Repair and repeat steps 5-7.
9. Ensure bleeder valve is closed and remove all vacuum equipment.
10. Fill tank with 5 gallons of propane autogas, following established local fill safety procedures. Turn key to crank position; key off after 10 seconds or if vehicle starts to crank.
11. Inspect all fuel connections for leaks and repair if present.
12. Once all leaks are repaired, procedure is complete. Add additional fuel if required according to local build process.

## **Procedure B. Purge / Fill with Propane Vapor**

**WARNING:** This procedure requires venting of propane vapors to atmosphere. Ensure that vehicle is located outdoors, in a safe area away from any combustion sources. Protective equipment (protective gloves and goggles) is required.

**NOTE:** For vehicles equipped with dual tanks, purge the driver's side tank first, then repeat the procedure for the passenger side tank. Once both tanks are purged and verified leak-free, both tanks may be filled together.

1. The tank should be installed in the vehicle. Verify all fuel system connections are completed (quick connects fully inserted, threaded features at proper torque).
2. Open the bleed valve on the tank (procedure may also be performed at remote bleed valve for vehicles so equipped; ensure that the tank valve is open). Allow all pressurized gas to escape (if present). Close the bleed valve.
3. Fill tank with 0.1 gallons of propane autogas, following established local fill safety procedures.
  - a. **NOTE:** For this procedure, filling with vapor is preferred if possible, as it prevents concerns with freezing. If filling with vapor, fill to approximately 15 PSI.
4. Open bleed valve and allow vapor to vent completely. Close the bleed valve.
5. Repeat steps 3-4 four additional times (total of five fill/vent cycles).
6. Fill tank with 5 gallons of propane autogas, following established local fill safety procedures. Turn key to crank position; key off after 10 seconds or if vehicle starts to crank.
7. Inspect all fuel connections for leaks and repair if present.
8. Once all leaks are repaired, procedure is complete. Add additional fuel if required according to local build process.