

## PROV-CNG50

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### **1.0 Safety**

After opening the prover, look at all connection points for debris and damage. Any sign of wear, oil deposit or physical damage needs to be repaired by a qualified person before any attempt to use this device. Look around the fueling area and locate all emergency shutdown devices in the dispenser area. Block traffic from coming within 20 feet of your test area. Ensure the PROV-50 has a secure place to set while it is performing the test. The area around the dispenser is Class 1, Division 2, Group D within five (5) feet in any direction. The dispenser is equipped with an electrically conductive hose that will dissipate any static electricity that would build. You should visually inspect the hose before each use for cuts, bubbles and abrasions, and replace hoses as needed. The hose should be checked with a 500v Meger per NGV-4 within the month that you are using it. The PROV-50 is not watertight, so try to keep it out of direct rain. A secondary ground cable may be necessary at some locations to ensure that no static is built up in the system. Contact TGT for a 5 Meg ohm secondary ground cable if necessary.

### **2.0 Sequence of Operation**

When beginning the calibration process, look at the area and make an evaluation for safety. In the NFPA52, Table 4-12, the Class 1, Division 2 area extends 5 feet from the dispenser in any direction. You should have the prover outside the Division 2 area. Make sure there are no gas leaks and then inspect the hose for safety. The hose will conduct electricity while it is connected. If you disconnect the hose from the dispenser you will need to connect a ground wire to the ground lug on the prover to maintain electrical continuity.

The prover is a self-powered device that has a 24VDC battery supply. It is recommended that you do a fresh charge on the batteries before you begin proving the dispenser. The battery life, with the unit on, is approximately (12) hours.

1. Attach the discharge hose to the prover.
2. Close the vent valve on the prover by turning the needle valve clockwise until tight.
3. Attach the hose to the vehicle or tank.
4. Turn the three-way valve on the end of the discharge hose to the “**VENT**” position.
5. Connect the hose from the dispenser to the inlet on the prover.
6. Turn the valve on the dispenser nozzle to the “**FILL**” position.
7. Pressurize the prover to the final temperature compensated pressure that the dispenser will deliver.
8. The dispenser and the prover must be equalized to the temperature compensated stop pressure before every batch is run. The start pressure and the final pressure needs to be as close to the same as possible to ensure an accurate calibration.
9. Now the prover **MUST** be zeroed. Refer to “Zeroing the Meter” in this manual. The zeroing process only needs to be done on the initial setup when you move the prover. You can skip this step until you relocate the prover.
10. After you are sure the dispenser is equalized, the three-way valve on the end of the discharge hose will now, in effect, be your fill valve for the dispenser.
11. You now need to reset the totals for the pounds (lb) display. (See Resetting Totalizer)
12. After you reset the total you now need to tell the PROVER to start to total the flow through the meter. (See Starting the Totalizer)
13. Begin the fill of the vehicle or tank through the normal authorize procedure. Turn the three-way valve on the end of the discharge hose to the “**FILL**” position after the dispenser has reset its totals. If you must stop the dispenser, use the valve on the end of the discharge hose and let the pressure reach the equalized pressure (Temperature Compensated Stop Pressure). It is best to let the dispenser do a complete fill of the tank or vehicle. A minimum of a 1 GGE draft is required to get an accurate test.

## **2.0 Sequence of Operation (Cont.)**

14. Turn the three-way valve on the discharge hose of the prover to the “**VENT**” position at the end of each test to ensure that the gas stops flowing and the test is over. It is not necessary to disconnect the hose from the tank after each test.
15. To perform another test on the same dispenser hose, repeat steps 10 through 14.
16. To perform a test on a different dispenser hose, repeat steps 2 through 14.
17. If you relocate the prover you must zero the meter.

## **3.0 Zeroing the Meter**

1. After power is applied to the prover, allow it to warm up for approximately 30 minutes.
2. Ensure that the prover is at full temperature compensated stop pressure.

3. Turn the three-way valve on the discharge hose to the “**VENT**” position to insure there is no flow through the meter.
4. With the Prov-50 at pressure and the discharge hose valve in the vent position press the **ZERO** button.
5. While the zero is in process the LED on the display face will turn Orange until complete.
6. When the zero is complete the LED will turn Green.

#### **4.0 Resetting Totalizer**

1. Press and release the **SCROLL** button until the display shows “**TOTAL LB**”.
2. Press **SELECT** and the word “**RESET**” will appear beneath the current totalizer value.
3. Press **SELECT** and the word “**YES**” begins to alternate with the word “**RESET**”.
4. Press **SELECT** to reset the mass total.
5. When resetting totalizer process is complete, return to Sequence of Operations 3.0.11.

#### **5.0 Starting the Totalizer**

1. Press **SCROLL** until the word “**START**” appears beneath the current totalizer value.
2. Press **SELECT** and the word “**START**” will appear beneath the current totalizer value.
3. Press **SELECT** and the word “**YES**” begins to alternate with the word “**START**”.
4. Press **SELECT** to start the mass display total.
5. You can now flow gas. Return to the main Sequence of Operation. 3.0.12.

#### **6.0 Math**

The math formula to determine the accuracy of a dispenser is as follows:

See form in attachments.

1 GGE=5.66 Lbs. of natural gas, per NIST Handbook 44, Sec.3.37, Mass Flow Meter Table S.5.1.

D = Display in Mass. If no mass reading is available, multiply Volume x 5.66lbs.

P = Prove-50 Display in Lbs.

$(( P-D) / P ) \times 100 = \% \text{ of Error}$

Maintenance tolerance 2.0%, per NIST Handbook 44, Sec.3.37, Mass Flow Meter Table T.2

#### **7.0 Purging for Shipment**

1. Disconnect the Prov-50 from the discharge tank and the dispenser.
2. Open the vent valve on the front of the prover to release any gas in the prover.

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3. The gauge on the prover will show you when the pressure is gone.
4. Install the purging adapter in series with the discharge hose of the prover.
5. Turn the three-way valve on the end of the discharge hose to the “**FILL**” position.
6. Attach the nozzle to the inlet connector on the prover.
7. Attach an air hose or an inert gas to the Schrader valve on the purging adapter and let the air or gas flow freely until the prover is purged of all natural gas.
8. Remove purging adapter and discharge hose but leave the vent valve open.
9. Return discharge hose and purging adapter to the storage section of the prover.

## **8.0 Storage of the PROV50**

1. Purge the Prov-50 in the same manner as you would for shipment. If you are going to have the prover in storage for more than 3 months you will need to charge the battery to keep it performing to its maximum potential.
2. The Prov-50 should be kept in a clean, dry place. The Prov-50 is NOT watertight.

## **9.0 Recharging the Battery**

1. The batteries in the PROV-50 are two 12VDC batteries connected in series to make 24VDC.
2. The charging receptacle is located on the front panel near the On/Off Switch.
3. The charger is **NOT** rated to be used in a classified area and should only be used in a safe area.
4. The green light will come on when the batteries are fully charged.
5. Full charge of the batteries should last approximately 12 hours of operating time.

## **10.0 Attachments**

Error calculation form  
P&ID Drawing  
Electrical Drawing  
Physical Dimensions  
Bill of Material  
Battery Charger Product Data Sheet  
Micro Motion CNG50 Product Data Sheet

## **11.0 Calibration Report on Meter**

## **12.0 Documentation**

Certificate of Conformance NIST (When Available)  
Certificate of Conformance on Hose  
Manufactures Data and Contact Information  
Quality control/ final inspection sheet.

## **13.0 TGT Calibration Software**

E-mail: [tsewell@tulsagastech.com](mailto:tsewell@tulsagastech.com)

Website: [www.tulsagastech.com](http://www.tulsagastech.com)

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**TULSA, OK**

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