

### 3.6. INTELLIGENT PULSER

The Intelligent Pulser contains two sets of hall effect (magnetic) sensors - one set for each meter. Inside the meter dome, a rotating magnetic disk generates a changing magnetic field. The sensors detect changes in the magnetic field which the pulser converts to digital pulses. The pulses are adjusted to meter output with a calibration factor that is stored in the pulser memory. See Figures 3-7 and 3-8.

The Intelligent Pulser has three Operational Modes:

U.S. Mode - - - - - Calibration is done with a 5 gallon measure.

Continental Mode - Calibration is done with a 20 liter measure.

Euro Mode - - - - - Factory Default (for factory diagnostics).

Note: Intelligent pulsers must be set to U.S. or Continental Mode for proper operation in dispensers equipped with Duplex computers.

The procedure to set the Operational Mode is as follows:

1. Power up the dispenser.
2. Enter option programming and confirm that Option 04 is set to 4 = (US Mode - gallons) or to 5 = (Continental Mode - liters).
4. Advance to Option 99 and save the settings (set to 3). Exit Option Programming.
5. Open both calibration doors on all pulsers in the dispenser.
6. Cycle power to the dispenser.
7. Close the calibration doors on all pulsers.

### 3.7. iMETER CALIBRATION

All iMeters are tested, calibrated and sealed at the factory before a dispenser is shipped. Local codes and regulations may require verification of meter accuracy at Start-up. If verification or calibration is required, sufficient product must be run through each meter to thoroughly flush out all air and completely fill the system prior to the calibration process.

Prior to calibrating, the Intelligent pulser **must be set to the proper Operational Mode**. This allows the pulser to identify the size test can used in the calibration process. If the incorrect mode is set, the pulser will not accept the new calibration factor. This calibration factor is essential for calibrating the meter to spec. See Section 3.6. above for mode setting instructions.

Each iMeter module contains two meters. The Intelligent pulser contains two sets of sensors, one set for each meter. On the front of the pulser, there are two calibration doors, one for each meter in the iMeter module. The door closest to the front of the dispenser

controls calibration of the front meter and the other door controls calibration of the rear meter. It is important to verify the product grade for each module to assure the correct door is opened during the calibration process.

### **3.7.1. Verification Accuracy:**

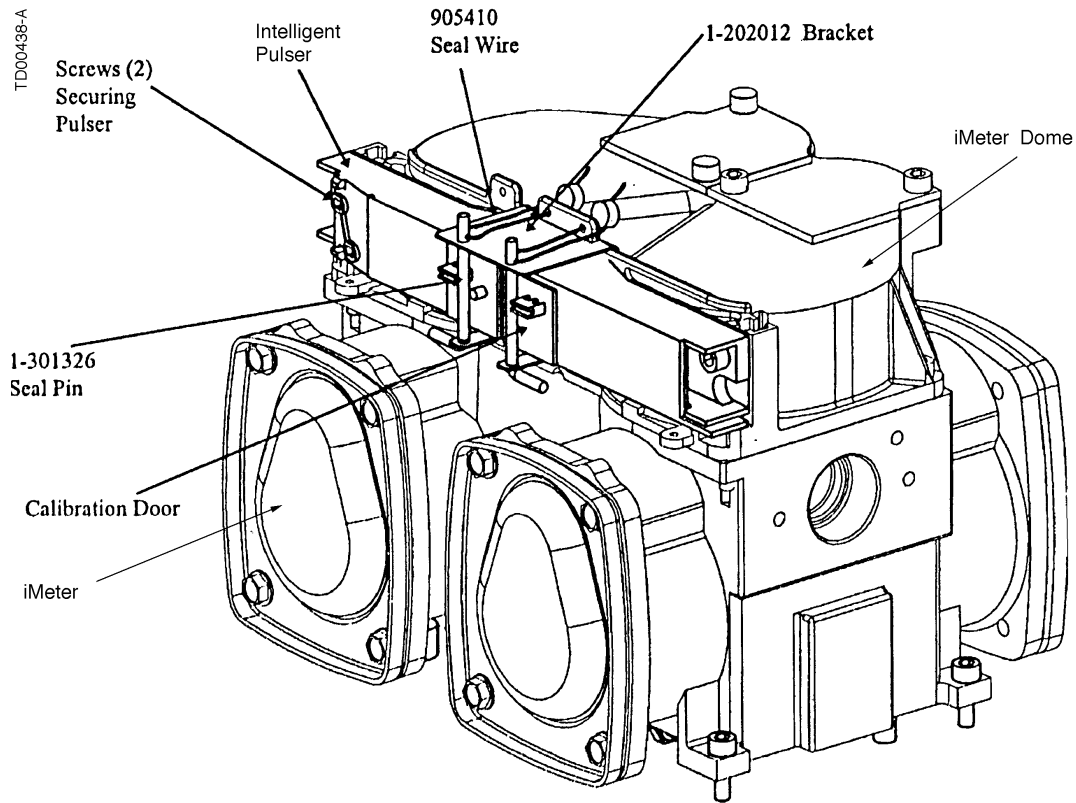
1. Dispense Product into test measure and empty to wet container.
2. Dispense product into test measure until exactly 5 gallons (20 liters for Continental mode) are shown on dispenser display. See Note 1.
3. Compare reading on site glass of test measure to dispenser display. Volume in test measure should be within +/- 3 cu. in. (+/- 50 ml, Continental mode). See Note 2.
4. If values are out of range, calibrate as described below.

### **3.7.2. Calibration:**

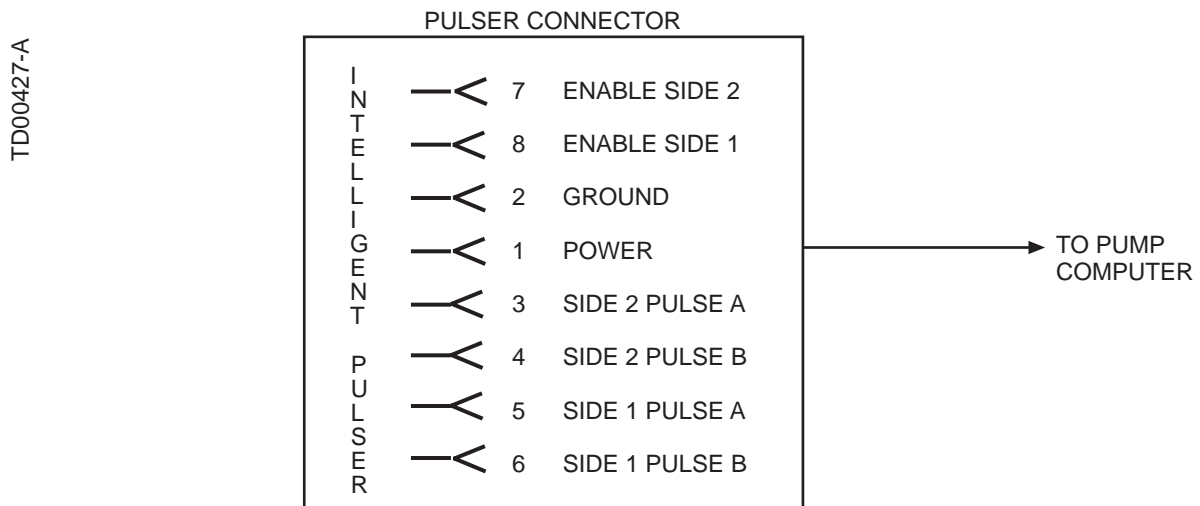
1. Identify calibration door for meter in need of calibration.
2. Remove seal wire and pin to allow access to door.
3. Dispense product into test measure and empty to wet container.
4. Open calibration door of meter to be calibrated. (Only one door can be opened at a time during the calibration process).
5. Dispense exactly 5 gallons (20 liters Continental mode) into the test measure exactly to the "0" mark on the sight glass.
6. Close the calibration door. (This now redefines the calibration factor in the pulser).
7. Empty test measure (drain for 10 seconds) and verify accuracy as described above.
8. Seal calibration door.

**Note 1:** In the Continental mode, in addition to 20 liters, a 10 liter or 5 liter test measure may be used if required by the application. However, you should check with your jurisdiction on Weights & Measures tolerance requirements.

**Note 2:** For the U.S. and Canada, acceptance tolerance of  $\pm 3$  cu.in. for a 5 gallon measurement and  $\pm 50$  ml for a 20 liter measurement is only required for newly installed, newly placed in service devices for 30 days. After 30 days, the tolerance is increased to  $\pm 6$  cu.in. for 5 gallons and  $\pm 100$  ml for 20 liters.



**FIGURE 3-7. INTELLIGENT PULSER LOCATION ON THE iMETER MODULE.** *The Intelligent Pulser controls the pulse count for Side 1 and Side 2 meters.*



**FIGURE 3-8. INTELLIGENT PULSER.** *The pulser evaluates the state of the two enable lines which are set by the pump computer to determine the correct mode of operation.*