



# 5-30 GPM (19-114 L/min) Fuel Meter

## Models:

**M30-G6N, M30-L6N, M30-G8N, M30-L8N, M30-G8B, M30-L8B**

## BEFORE YOU BEGIN



### Usage Requirements

- This manual covers fuel meter models M30-G6N, M30-L6N, M30-G8N, M30-L8N, M30-G8B, and M30-G8B.
- This fuel meter is designed, tested and approved for use with thin viscosity petroleum fuels such as gasoline blends (up to E15), diesel fuel blends (up to B20) and kerosene. Please take all due precautions when handling these flammable liquids.
- Do not use this meter for measuring any fluids other than those for which it was designed. To do so may damage the meters' components and will void the warranty.
- The M30 Mechanical Fuel Meter is designed for the field measurement of thin viscosity petroleum fuels only and intended for use with pump systems in the 5 to 30 GPM or 19 to 114 L/m flow range (not intended for gravity flow systems). Using mechanical gears, these meters translate flow data from a nutating disk into calibrated units which are indicated on the face of the meter. This meter is factory calibrated for diesel fuel. A field calibration feature is available for other fluids (see Calibration section).



### Tools Needed

- 10mm Open-end Wrench, Hex Wrenches (Hex Keys, 3mm & 5mm), Thread Tape or Pipe Thread Sealing Compound (approved for use with flammable liquids)

## UNPACKING



### Contents

- (1) Nutating Disc Fuel Meter, U.S. Gallon or Litre Version
- (1) Register Knob
- (1) 3/4 in. or 1 in. NPT or 1 in. BSPP Inlet Fitting with O-ring and mounting screws
- (1) 3/4 in. or 1 in. NPT or 1 in. BSPP Outlet Fitting with O-ring and mounting screws



### Inspect

- After unpacking the unit, inspect carefully for any damage that may have occurred during transit. Check for loose, missing or damaged parts. Shipping damage claims must be filed with carrier.
- Review General Safety Instructions and all Caution, Warning, and Danger statements as shown.





## GENERAL SAFETY INSTRUCTIONS

**IMPORTANT:** It is your responsibility to:

- Know and follow applicable national, state and local safety codes pertaining to installing and operating electrical equipment for use with flammable liquids.
- Know and follow all safety precautions when handling petroleum fuels.
- Ensure that all equipment operators have access to adequate instructions concerning safe operating and maintenance procedures.

Observe all safety precautions concerning safe handling of petroleum fuels.

**▲ DANGER** *To prevent physical injury or property damage, observe precautions against fire or explosion when dispensing fuel. Do not operate the meter in the presence of any source of ignition including running or hot engines, lighted tobacco products, gas or electric heaters, or any type of electronic device. A spark can ignite fuel vapors.*

**▲ WARNING** *Avoid prolonged skin contact with petroleum fuels. Use protective goggles, gloves and aprons in case of splashing or spills. Change saturated clothing and wash skin promptly with soap and water.*

**▲ WARNING** *Any components such as hose, nozzle, or pump added to your meter must be statically grounded and approved for use with petroleum fuels.*

**▲ WARNING** *This product shall not be used for pumping fuel or other liquids into aircraft.*

## SPECIFICATIONS

**M30-G6N, M30-L6N, M30-G8N, M30-L8N, M30-G8B, & M30-L8Bf**

### Dimensions

|                      |                     |
|----------------------|---------------------|
| A. Meter Assy Width  | 5.91 in. (15.01 cm) |
| B. Meter Assy Height | 7.88 in. (20.01 cm) |
| C. Meter Assy Depth  | 5.21 in. (13.23 cm) |

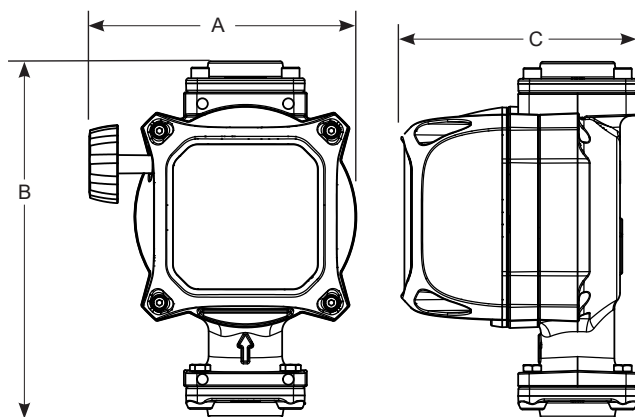


Figure 1

## SPECIFICATIONS (CONTINUED)

|                              | M30-G6N, M30-G8N, & M30-G8B (GALLON MODEL) | M30-L6N, M30-L8N, & M30-L8B (LITRE MODEL) |
|------------------------------|--|---|
| Unit of Measure              | U.S. Gallon                                | Litre                                     |
| Flow Range                   | 5 to 30 GPM                                | 19 to 114 L/min                           |
| Operating Temperature        | -20° F to 125° F                           | -29° C to 52° C                           |
| Typical Accuracy             | ± 2%                                       |   |
| Technology                   | Nutating Disc                              |   |
| Housing, Cover, Fittings     | Aluminum                                   |   |
| Maximum Working Pressure     | 50 PSIG / 3.4 bar                          |   |
| Pressure Drop (at Max. Flow) | Diesel: 7.0 PSI / 0.5 bar                  |   |
|                              | Unleaded: 5.0 PSI / 0.3 bar                |   |
| Inlet/Outlet Threads         | 3/4 in. NPT or 1 in. NPT or 1 in. BSPP     |   |
| Maximum Batch Total          | 999.9                                      |   |
| Maximum Cumulative Total     | 999,999.9                                  |   |
| Weight                       | 8.1 lbs                                    | 3.7 kg                                    |

### Maximum Dimensions

|         |         |         |
|---------|---------|---------|
| Width:  | 5.9 in. | 15.0 cm |
| Height: | 7.9 in. | 20.0 cm |
| Depth:  | 5.3 in. | 13.3 cm |

### Wetted Materials

|                  |  |
|------------------|--|
| Nutator Assembly | PBT (Polybutylene Terephthalate), Stainless Steel  |
| Seals            | NBR (Nitrile Butadiene Rubber)                     |
| Mag-Drive        | Acetal, Stainless Steel, Neodymium (Nickel Plated) |

Approvals



**NOTE:** Accuracy is factory calibrated using diesel fuel. Field calibration is available on all models.



## DECLARATION OF CONFORMITY

We declare, that the product:

Product Name: M30 Mechanical Fuel Meter

Model Numbers: M30-G\*N, M30-L\*N, M30-G\*B, M30-L\*B

Conforms with the requirements of the Directive (s) below by compliance with the Standards subsequently listed:

1. Council Directive 2014/34/EU relating to equipment and protective systems intended for use in potentially explosive atmospheres,

ISO 80079-36: 2016, Non-electrical equipment for explosive atmospheres- Basic methods and requirements.

ISO 80079-37:2016, Non -electrical equipment for explosive atmospheres- Non electrical type of protection constructional safety "c".

I the undersigned, hereby declare that the equipment specified above conforms to the above Directive(s) and Standard(s).

Signature:

Full Name: Victor Lukic

Position: President

Great Plains Industries, Inc.

Place: Wichita, KS USA

January 2020

## INSTALLATION INSTRUCTIONS

### ⚠ CAUTION

Your system must be installed on a vented tank. If the tank is unvented, your local dealer or distributor can supply a pressure cap.

### ⚠ CAUTION

If the meter is located in a rigid piping system where the fluid is trapped (for example, by gravity, valves or nozzles) thermal expansion of the fluid can create pressure spikes that can damage a meter. Install a thermal relief valve or otherwise allow for thermal expansion of the fluid.

### Before Installing

**NOTE:** All threaded fuel connections must be sealed with thread tape or a pipe thread sealing compound approved for use with petroleum fuels and tightened securely to prevent leakage.

Before installing your meter, review the safety instructions in the *General Safety Instructions* section at front of manual. Examine your meter to make sure there are no visible signs of shipment damage. Plan your meter installation by reviewing the following procedures. Prior to installation, determine the orientation of the meter body required for the system. The arrows on the housing are there to indicate flow direction and assist in this process (see Figure 2).

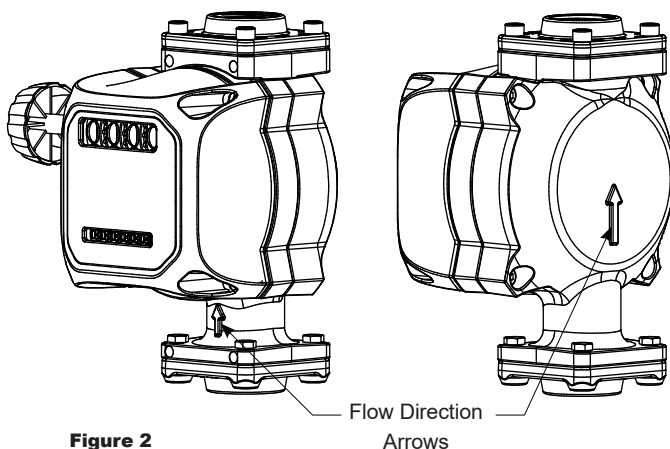


Figure 2

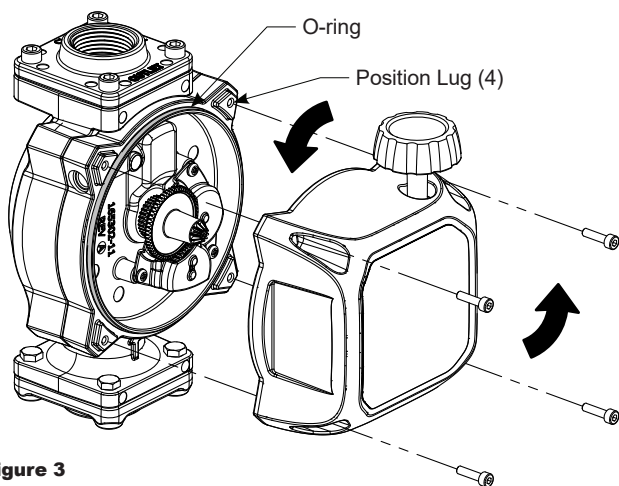
Flow Direction  
Arrows

## INSTALLATION INSTRUCTIONS (CONTINUED)

### Change Register Orientation

**NOTE:** If the meter is plumbed in any orientation other than bottom-up flow, the register may need to be reoriented.

1. Using a 3mm L-hex wrench, remove the (4) screws that hold register in place
2. Rotate the register to the desired orientation, making sure the O-ring is fully seated (see Figure 3).
3. Reattach the register using the (4) screws previously removed (see Figure 3).



**Figure 3**

## INSTALLATION INSTRUCTIONS (CONTINUED)

### Installation Meter - Threaded Connection

1. Remove protective plugs from the meter inlet and outlet ports.
2. Wrap threaded male connections with thread tape or use a pipe sealant compound compatible with petroleum fuels.
3. Install the meter using appropriately sized fittings. "INLET" and "OUTLET" threads are labeled to assist piping connections.
4. Install other system components on the meter and tighten snugly.

### Installation Meter - Modular Connection

1. Using a 5mm hex wrench and 10mm open-end wrench, remove inlet and outlet fitting. They will not be used in the modular connection (see Figure 4a).
2. Using 5mm hex wrench, remove the outlet of modular pump and reattach it to the outlet flange of the meter, making sure the O-ring is fully seated (see Figure 4b).
3. Using the hex bolts removed in step 1, attach meter inlet flange to pump outlet flange, making sure O-ring is fully seated (see Figure 4b).

**NOTE:** If modular filter adapter is also used in set-up, first attach filter adapter to pump outlet then attach the meter and filter to the filter adapter (see Figure 4c).

4. Install other system components on the meter and tighten snugly.

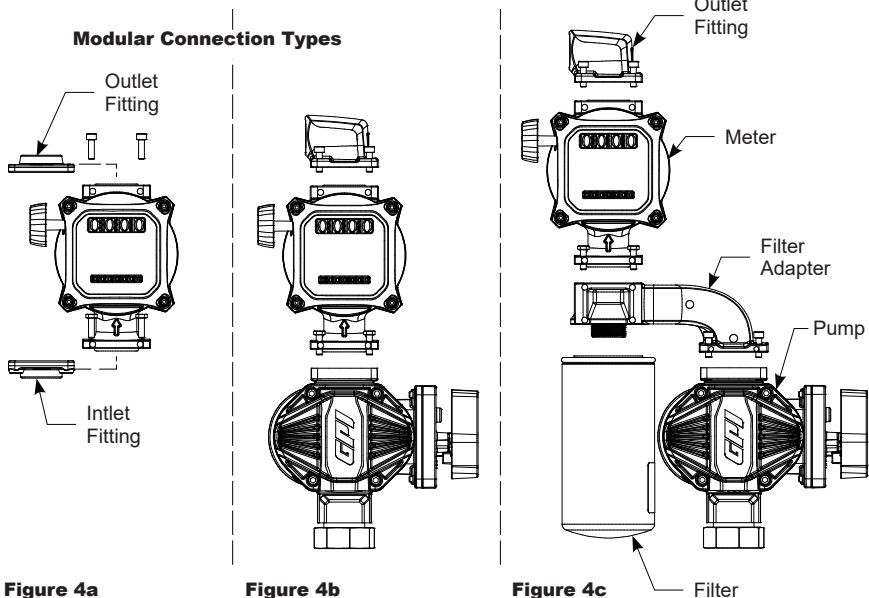


Figure 4a

Figure 4b

Figure 4c



## OPERATION (CONTINUED)

**CAUTION**

*Always follow safety precautions when operating this equipment. Review the General Safety Instructions at front of manual.*

**IMPORTANT:** Before each use, visually check the meter to ensure it is securely connected to other system components and there is no leakage. Promptly wipe spilled fuel from the meter's exterior and other system components.

**NOTE:** The large meter display represents the Batch Total for each fuel delivery. Before dispensing, reset the Batch Total to zero by turning the knob (see Figure 5)

**NOTE:** The small display represents the Cumulative Total of all fuel deliveries and cannot be reset.

### Calibration

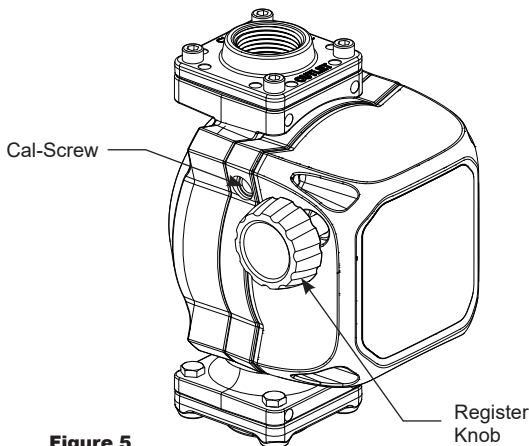
The Calibration Screw is located on the side of the meter (see Figure 6) and can be adjusted with a 3mm hex wrench. The meter is accurately calibrated at the factory for use with diesel fuel. In the event the screw is accidentally moved, the meter will need to be recalibrated. To recalibrate the meter for diesel fuel, turn the screw completely in (clockwise) then back out (counter-clockwise) 3 turns.

To recalibrate the meter for gasoline, turn the screw completely in (clockwise). The Cal-screw does not need to be turned back out for gasoline.

Due to differences in viscosity and flow rates, the meter may require recalibration to measure other fluids or to adjust for inaccuracies.

In general, if the register indicates less than what is dispensed, the Cal-Screw needs turned in; if the register indicates more than what was dispensed, the Cal-Screw needs turned out.

**NOTE:** Never back the Cal-Screw out more than 12 turns from completely closed. Doing so could inhibit the seal resulting in leaking.



**Figure 5**

## TROUBLESHOOTING

| Symptom  | Possible Cause(s)                                   | Corrective Action  |
|--|---|--|
| A. Meter counter does not operate (Normal fuel delivery)   | 1. Dirty register                                   | 1. Clean register  |
|  | 2. Broken register                                  | 2. Replace register  |
|  | 3. Foreign material in register or nutator assembly | 3. Remove and clean register or nutator assembly   |
| B. Meter counter does not operate (Little or no fuel flow) | 1. Other system components malfunctioning           | 1. Check all system components (tank to nozzle) for clogs and/or malfunctions. Repair as needed  |
|  | 2. Foreign material in meter housing                | 2. Clean meter housing   |
| C. Fuel leakage  | 1. Leakage between coverplate and housing           | 1. Remove coverplate and inspect for damaged, missing or incorrectly seated seal. Replace as required  |
|  | 2. Leakage at fittings                              | 2. Remove fittings and inspect for damaged, missing or incorrectly seated seals. Replace as required   |
|  | 3. Leakage at threads                               | 3. Remove meter and reseal all threaded connections with thread tape or pipe thread sealing compound approved for use with flammable liquids |



## MAINTENANCE

**NOTE:** This meter is designed for minimum maintenance. Inspect meter and components regularly for fuel leaks. Keep the meter exterior clean to help identify leaks.

**IMPORTANT:** This fuel meter is designed, tested and approved for use with thin viscosity petroleum fuels such as gasoline blends (up to E15), diesel fuel blends (up to B20) and kerosene (see **BEFORE YOU BEGIN: Usage Requirements** at front of manual). Use of the meter with unauthorized fluids will void the warranty.

### **Clean Register and Nutator Assembly**

1. Turn the system off and disconnect from power. Remove the coverplate and O-ring, and inspect for damage (see Figure 6). If O-ring is damaged, replace.
2. Remove (2) register screws and register from cover plate. Clean register with a soft-bristled brush and solvent. If the register is very dirty, compressed air may be used. Replace register.
3. Remove the gearplate and O-ring from the backshell, and inspect for damage (see Figure 6). If O-ring is damaged, replace.
4. Remove (2) nutator assembly screws and nutator assembly from back shell. Clean nutator assembly with a soft-bristled brush and solvent. If the nutator assembly is very dirty, compressed air may be used. Replace nutator assembly.
5. Coat the O-rings lightly with grease. Reinstall meter components. Ensure the O-rings are properly seated and tighten securely.

## REPAIR

**IMPORTANT:** Carefully inspect all parts for wear or damage. Replace components, as necessary. The Illustrated Parts List gives information on replacement parts and kits. Review the Safety Instructions before proceeding.

**▲ WARNING** *Avoid prolonged skin contact with petroleum fuels. Use protective goggles, gloves and aprons in case of splashing or spills. Change saturated clothing and wash skin promptly with soap and water.*

### Service O-rings

**NOTE:** A Wet Seal Kit contains all seals for your meter and should be on hand when performing repairs. Old seals may then be replaced with new seals.

1. In general, when inspecting O-rings, look for breaks, wear, and signs of deterioration, such as swelling.
2. Replace, as necessary.
3. Before seating, coat O-rings with light grease.

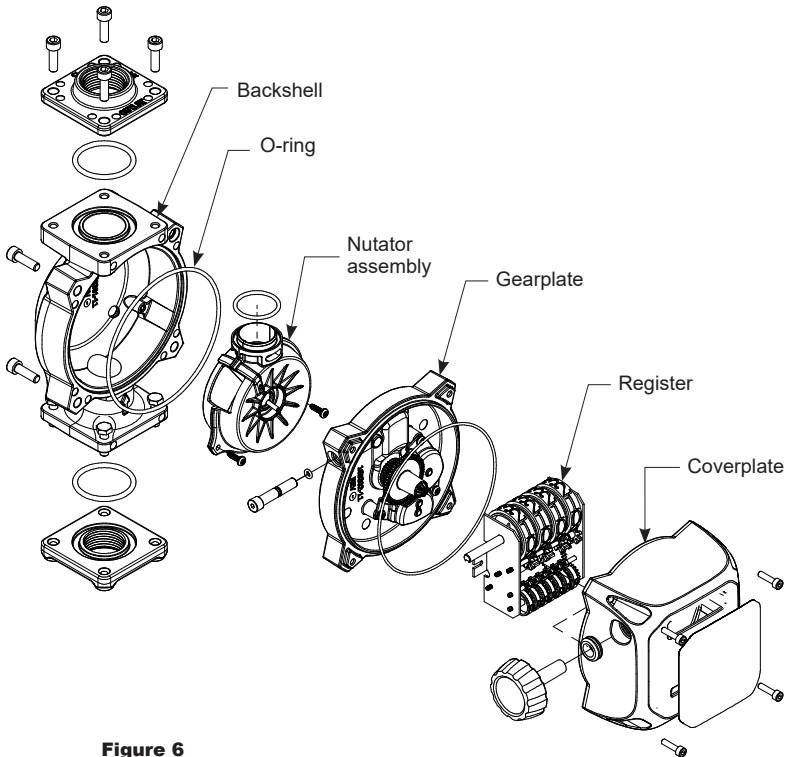


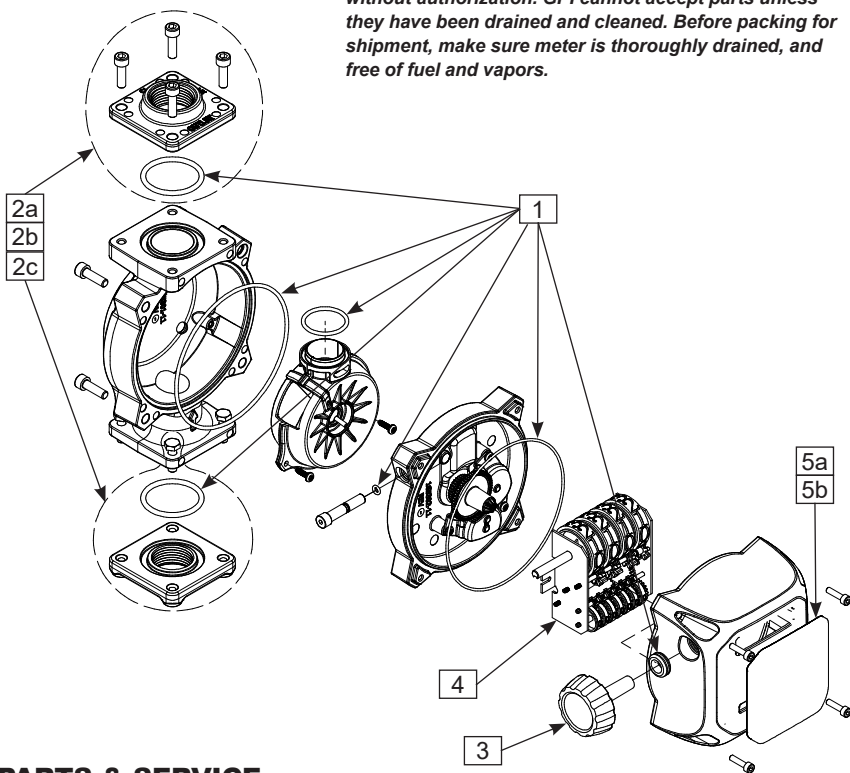
Figure 6



## REPAIR PARTS ILLUSTRATION FOR M30-G6N, M30-L6N, M30-G8N AND M30-L8N

### ⚠ CAUTION

*Do not return the pump or parts without prior approval from the GPI Customer Service Department. Due to strict government regulations governing flammable liquids, meters may be refused and returned to the sender if sent without authorization. GPI cannot accept parts unless they have been drained and cleaned. Before packing for shipment, make sure meter is thoroughly drained, and free of fuel and vapors.*



## PARTS & SERVICE

For warranty consideration, parts, or other service information, please contact your local distributor. If you need further assistance, contact the GPI Customer Service Department in Wichita, Kansas, during normal business hours.

- The model number of your meter.
- The manufacturing date located on the back of your meter.
- Part descriptions and numbers.

For warranty work, always be prepared with your original sales slip or other evidence of purchase date.

## REPAIR PARTS LIST FOR M30-G6N, M30-L6N, M30-G8N AND M30-L8N

| Ref. No. | Description                             | Part Number      | Qty. |
|----------|---|------------------|------|
| 1        | <b>M30 Seal Kit</b>                     | <b>165700-01</b> | 1    |
|          | O-rings (various sizes)                 | ▲                | 6    |
|          | Grommet                                 | ▲                | 1    |
| 2a       | <b>3/4 in NPT Fitting Kit</b>           | <b>165700-08</b> | 1    |
|          | Inlet NPT fitting                       | ▲                | 1    |
|          | Outlet NPT fitting                      | ▲                | 1    |
|          | Flange O-ring                           | ▲                | 2    |
|          | M6-1.0 X 20mm Hex Head Cap Screw        | ▲                | 8    |
| 2b       | <b>1 in NPT Fitting Kit</b>             | <b>165700-02</b> | 1    |
|          | Inlet NPT fitting                       | ▲                | 1    |
|          | Outlet NPT fitting                      | ▲                | 1    |
|          | Flange O-ring                           | ▲                | 2    |
|          | M6-1.0 X 20mm Hex Head Cap Screw        | ▲                | 8    |
| 2c       | <b>1 in BSPP Fitting Kit</b>            | <b>165700-09</b> | 1    |
|          | Inlet BSPP fitting                      | ▲                | 1    |
|          | Outlet BSPP fitting                     | ▲                | 1    |
|          | Flange O-ring                           | ▲                | 2    |
|          | M6-1.0 X 20mm Hex Head Cap Screw        | ▲                | 8    |
| 3        | <b>Knob Kit (includes 1 reset knob)</b> | <b>165700-04</b> | 1    |
| 4        | <b>Counter Assembly (Register) Kit</b>  | <b>165700-05</b> | 1    |
| 5a       | <b>Gallon Decal Kit</b>                 | <b>165700-06</b> | 1    |
| 5b       | <b>Litre Decal Kit</b>                  | <b>165700-07</b> | 1    |

(▲) Available as part of kit only.

**IMPORTANT:** Please contact GPI before returning any parts. It may be possible to diagnose the trouble and identify needed parts in a telephone call. GPI can also inform you of any special requirements you will need to follow for shipping fuel dispensing equipment.