

Introduction

Purpose

This document provides instructions to install the following Master Seal Service Kits:

- M08182K001 Encore® Flex Fuel Dispenser Meters and Standard Meters

WARNING

Meter seals not designed for alternative fuels can fail when used with these fuels. The use of such seals may result in leaks to the environment and an increased risk of fire or explosion from ignited fuel. For alternative fuel applications, use only seals designed for alternative fuels. Q11755-03 can be substituted for Q11755-01 in all applications except for alternative fuels.

These kits are intended to correct issues with internally and externally leaking materials. They may correct issues with excessive Meter linearity error, which results in large differences in calibration readings between slow and fast flow. However, this is not the main benefit of these kits. Unacceptable linearity error may still occur due to worn metallic parts within the Meter, after new internal parts are added.

These seal kits provide materials and instructions to completely replace all seals, as a major rebuild.

Table of Contents

Topic	Page
Introduction	1
Important Safety Information	3
Installing the Meter Master Seal Service Kits	5

Required Tools

Following tools are required to install the Meter Master Seal Service Kit:

- Phillips®-head Screwdriver
- 1/4-inch and 3/8-inch Drive Socket Sets (U.S. and Metric)
- Open-end Wrench Set (U.S. and Metric)

Required Reading

Before installing the equipment, the installer must read, understand, and follow:

- This manual.
- National Fire Protection Association (NFPA) 30A, The Automotive and Marine Service Station Code.
- NFPA 70, The National Electrical Code.
- Applicable federal, state, and local codes and regulations.

Failure to do so may adversely affect the safe use and operation of the equipment.

Parts List

The following table lists the parts provided in M08182K001 Kits (for the exploded view of the Meter Assembly with the parts list, see [Figure 3](#) on [page 8](#)).

Item	Description	Part Number	Quantity
			M08182K001
1	Seal, Quad Ring	Q11755-01	1
2	Seal, Quad Ring	Q11755-03	1
3	O-Ring, Inlet Port	Q12974-223	1
4	Seal, Cover	K93282-02	1
5	Gasket Cylinder End Cover	M08298B001	4
6	Piston Cup Seal	N21252	4
7	Sealant, Loctite 510 (250 ml Tube)	END 1747	- (See Note 1)
8	O-Ring, Discharge Port	Q12974-118	1
9	Seal, End Cover	M09783B001	4 (See Note 2)
10	Gasket Seal Cap Cork	K93407	1

Notes: 1) The item is not included in the kit. It must be ordered separately.
One tube of sealant will service up to 164 feet (50 meters). Allow the sealant to cure for 24 hours before pressurizing the Meter.
2) Only for V Meter.

Related Documents

Document Number	Title	GOLD Library
MDE-2188	C, C+, and HD Meter Quad Ring Top Seal Replacement	Advantage® & Legacy® Models
MDE-3804	Encore/Eclipse® Start-Up/Service Manual	Encore and Eclipse

Abbreviations and Acronyms

Term	Description
NFPA	National Fire Protection Association
STP	Submersible Turbine Pump

Important Safety Information

Notes: 1) Save this Important Safety Information section in a readily accessible location.

2) Although DEF is non-flammable, Diesel is flammable. Therefore, for DEF cabinets that are attached to Diesel dispensers, follow all the notes in this section that pertain to flammable fuels.

This section introduces the hazards and safety precautions associated with installing, inspecting, maintaining, or servicing this product. Before performing any task on this product, read this safety information and the applicable sections in this manual, where additional hazards and safety precautions for your task will be found. Fire, explosion, electrical shock, or pressure release could occur and cause death or serious injury, if these safe service procedures are not followed.


Preliminary Precautions


You are working in a potentially dangerous environment of flammable fuels, vapors, and high voltage or pressures. Only trained or authorized individuals knowledgeable in the related procedures should install, inspect, maintain, or service this equipment.

Emergency Total Electrical Shut-Off

The first and most important information you must know is how to stop all fuel flow to the pump/dispenser and island. Locate the switch or circuit breakers that shut off all power to all fueling equipment, dispensing devices, and Submerged Turbine Pumps (STPs).

⚠ WARNING

 The EMERGENCY STOP, ALL STOP, and PUMP STOP buttons at the cashier's station WILL NOT shut off electrical power to the pump/dispenser. This means that even if you activate these stops, fuel may continue to flow uncontrolled.

 You must use the TOTAL ELECTRICAL SHUT-OFF in the case of an emergency and not the console's ALL STOP and PUMP STOP or similar keys.

Total Electrical Shut-Off Before Access

Any procedure that requires access to electrical components or the electronics of the dispenser requires total electrical shut off of that unit. Understand the function and location of this switch or circuit breaker before inspecting, installing, maintaining, or servicing Gilbarco equipment.

Evacuating, Barricading, and Shutting Off

Any procedure that requires access to the pump/dispenser or STPs requires the following actions:



- An evacuation of all unauthorized persons and vehicles from the work area
- Use of safety tape, cones, or barricades at the affected unit(s)
- A total electrical shut-off of the affected unit(s)

Read the Manual

Read, understand, and follow this manual and any other labels or related materials supplied with this equipment. If you do not understand a procedure, call a Gilbarco Authorized Service Contractor or call the Gilbarco Support Center at 1-800-800-7498. It is imperative to your safety and the safety of others to understand the procedures before beginning work.

Follow the Regulations

Applicable information is available in National Fire Protection Association (NFPA) 30A; *Code for Motor Fuel Dispensing Facilities and Repair Garages*, NFPA 70; *National Electrical Code (NEC)*, Occupational Safety and Health Administration (OSHA) regulations and federal, state, and local codes. All these regulations must be followed. Failure to install, inspect, maintain, or service this equipment in accordance with these codes, regulations, and standards may lead to legal citations with penalties or affect the safe use and operation of the equipment.

Replacement Parts

Use only genuine Gilbarco replacement parts and retrofit kits on your pump/dispenser. Using parts other than genuine Gilbarco replacement parts could create a safety hazard and violate local regulations.

Safety Symbols and Warning Words

This section provides important information about warning symbols and boxes.

Alert Symbol



This safety alert symbol is used in this manual and on warning labels to alert you to a precaution which must be followed to prevent potential personal safety hazards. Obey safety directives that follow this symbol to avoid possible injury or death.

Signal Words

These signal words used in this manual and on warning labels tell you the seriousness of particular safety hazards. The precautions below must be followed to prevent death, injury, or damage to the equipment:



DANGER: Alerts you to a hazard or unsafe practice which will result in death or serious injury.



WARNING: Alerts you to a hazard or unsafe practice that could result in death or serious injury.



CAUTION with Alert symbol: Designates a hazard or unsafe practice which may result in minor injury.

CAUTION without Alert symbol: Designates a hazard or unsafe practice which may result in property or equipment damage.

Working With Fuels and Electrical Energy

Prevent Explosions and Fires

Fuels and their vapors will explode or burn, if ignited. Spilled or leaking fuels cause vapors. Even filling customer tanks will cause potentially dangerous vapors in the vicinity of the dispenser or island.

DEF is non-flammable. Therefore, explosion and fire safety warnings do not apply to DEF lines.

Important Safety Information

No Open Fire



Open flames from matches, lighters, welding torches or other sources can ignite fuels and their vapors.

No Sparks - No Smoking



Sparks from starting vehicles, starting or using power tools, burning cigarettes, cigars or pipes can also ignite fuels and their vapors. Static electricity, including an electrostatic charge on your body, can cause a spark sufficient to ignite fuel vapors. Every time you get out of a vehicle, touch the metal of your vehicle, to discharge any electrostatic charge before you approach the dispenser island.

Working Alone

It is highly recommended that someone who is capable of rendering first aid be present during servicing. Familiarize yourself with Cardiopulmonary Resuscitation (CPR) methods, if you work with or around high voltages. This information is available from the American Red Cross. Always advise the station personnel about where you will be working, and caution them not to activate power while you are working on the equipment. Use the OSHA Lockout/Tagout procedures. If you are not familiar with this requirement, refer to this information in the service manual and OSHA documentation.

Working With Electricity Safely

Ensure that you use safe and established practices in working with electrical devices. Poorly wired devices may cause a fire, explosion or electrical shock. Ensure that grounding connections are properly made. Take care that sealing devices and compounds are in place. Ensure that you do not pinch wires when replacing covers. Follow OSHA Lockout/Tagout requirements. Station employees and service contractors need to understand and comply with this program completely to ensure safety while the equipment is down.

Hazardous Materials

Some materials present inside electronic enclosures may present a health hazard if not handled correctly. Ensure that you clean hands after handling equipment. Do not place any equipment in the mouth

WARNING

In the event of inclement weather, including snow, ice, or flooding that makes driving conditions dangerous, please avoid servicing units. Always use available door stops to secure upper doors against unwanted/unexpected movement, especially during high winds. If necessary, reschedule service to avoid damage to the equipment. Weather may change unexpectedly; be aware of local weather conditions. During service, if conditions develop making service unsafe, close the unit(s) and proceed to a safe location.

WARNING

The pump/dispenser contains a chemical known to the State of California to cause cancer.

WARNING

The pump/dispenser contains a chemical known to the State of California to cause birth defects or other reproductive harm.



Gilbarco Veeder-Root encourages the recycling of our products. Some products contain electronics, batteries, or other materials that may require special management practices depending on your location. Please refer to your local, state, or country regulations for these requirements.

In an Emergency

Inform Emergency Personnel

Compile the following information and inform emergency personnel:

- Location of accident (for example, address, front/back of building, and so on)
- Nature of accident (for example, possible heart attack, run over by car, burns, and so on)
- Age of victim (for example, baby, teenager, middle-age, elderly)
- Whether or not victim has received first aid (for example, stopped bleeding by pressure, and so on)
- Whether or not a victim has vomited (for example, if swallowed or inhaled something, and so on)

WARNING



Gasoline/DEF ingested may cause unconsciousness and burns to internal organs. Do not induce vomiting. Keep airway open. Oxygen may be needed at scene. Seek medical advice immediately.

WARNING

DEF generates ammonia gas at higher temperatures. When opening enclosed panels, allow the unit to air out to avoid breathing vapors. If respiratory difficulties develop, move victim away from source of exposure and into fresh air. If symptoms persist, seek medical attention.

WARNING



Gasoline inhaled may cause unconsciousness and burns to lips, mouth and lungs. Keep airway open. Seek medical advice immediately.

WARNING



Gasoline/DEF spilled in eyes may cause burns to eye tissue. Irrigate eyes with water for approximately 15 minutes. Seek medical advice immediately.

WARNING



Gasoline/DEF spilled on skin may cause burns. Wash area thoroughly with clear water. Seek medical advice immediately.

WARNING

DEF is mildly corrosive. Avoid contact with eyes, skin, and clothing. Ensure that eyewash stations and safety showers are close to the work location. Seek medical advice/recommended treatment if DEF spills into eyes.

IMPORTANT: Oxygen may be needed at scene if gasoline has been ingested or inhaled. Seek medical advice immediately.

Lockout/Tagout

Lockout/Tagout covers servicing and maintenance of machines and equipment in which the unexpected energization or start-up of the machine(s) or equipment or release of stored energy could cause injury to employees or personnel. Lockout/Tagout applies to all mechanical, hydraulic, chemical, or other energy, but does not cover electrical hazards. Subpart S of 29 CFR Part 1910 - Electrical Hazards, 29 CFR Part 1910.333 contains specific Lockout/Tagout provision for electrical hazards.

General Exclusion

Problems caused by faulty installation are not covered by this warranty. This warranty applies only if equipment has been installed, used, and maintained in accordance with Gilbarco installation, operating, and service instruction.

Use of service personnel other than qualified Gilbarco ASCs without prior approval of Gilbarco product support department will void payment of the warranty claim in question.

Damage suffered by Gilbarco equipment resulting from shipping, accident, power surges, neglect, misuse, act of God, or abuse is not covered by this warranty.



Use of non-Gilbarco replacement parts, defect caused by the unauthorized addition of non-Gilbarco equipment or unauthorized alteration of Gilbarco equipment voids this warranty.

Installing the Meter Master Seal Service Kits

Removing the Meter on Encore Units

To remove the Meter on Encore units, proceed as follows:

- 1 Remove power to the unit and close Shear Valve.
- 2 Place a catch pan and absorbent pad beneath the Meter.
- 3 To relieve any residual pressure, slowly and carefully loosen the Discharge Line Flange Bolts at the bottom of the Meter.

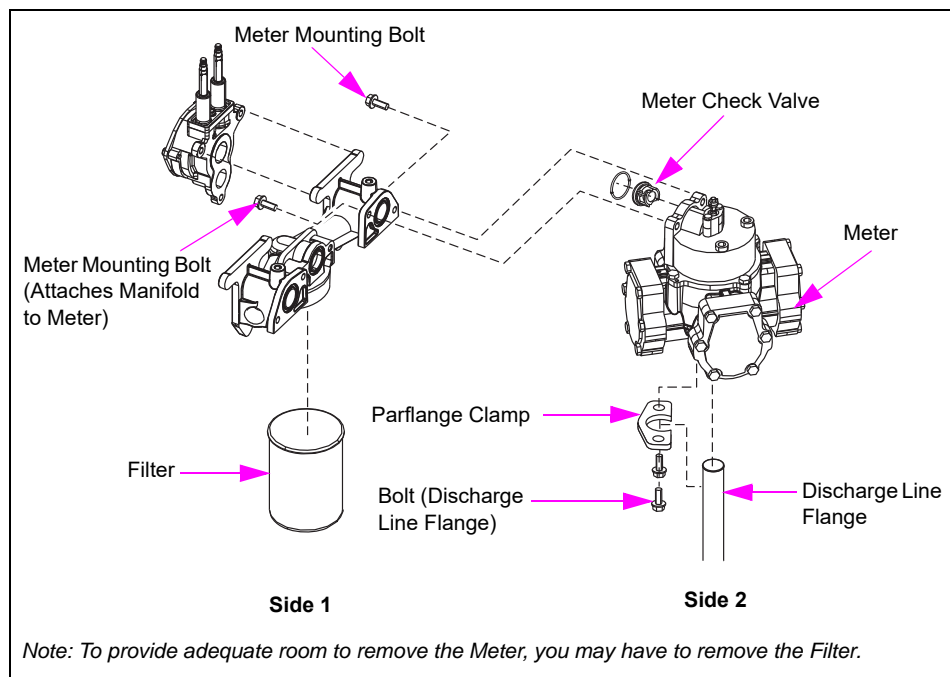
 WARNING
 Spraying fuel from residual pressure in the lines can cause serious eye injuries. Always wear eye protection.

- 4 Remove the Parflange Clamp from the Discharge Line Flange by removing the bolts.
- 5 Pull down on the discharge line to separate it from the Meter outlet.
- 6 Support the Meter and remove the two Meter Mounting Bolts.

IMPORTANT INFORMATION
The Meter Check Valve may fall out when you remove the bolts from the assembly.

- 7 Remove the Meter from the unit.

Figure 1: Exploded View of Encore Meter Assembly



Removing the Meter on Eclipse Units

To remove the Meter on Eclipse units, proceed as follows:

- 1 Remove power to the unit and close Shear Valve.
- 2 Place an absorbent pad beneath the Meter.
- 3 Install a small tubing or hose to the Bleed Valve on the hydraulic manifold adjacent to the Digital Valve.
- 4 Place the other end of tubing into a catch container.
- 5 Loosen the Bleed Valve to relieve any residual pressure.
- 6 Remove the Meter support bracket on top of the Meter.
- 7 Remove Discharge Line Flange Bolts.
- 8 Remove the Parflange Clamp from the Discharge Line Flange by removing the bolts.
- 9 Pull down the Discharge Line Flange to separate it from the Meter outlet.
- 10 Remove Inlet Line Flange Bolts. Pull down slightly on the inlet to separate it from the Meter.

- 11 Support the Meter and remove the two Meter Mounting Bolts.

IMPORTANT INFORMATION

The Meter Check Valve may fall out when you remove the bolts from the assembly.

- 12 Remove the Meter from the unit.

Figure 2: Exploded View of Eclipse Meter Assembly

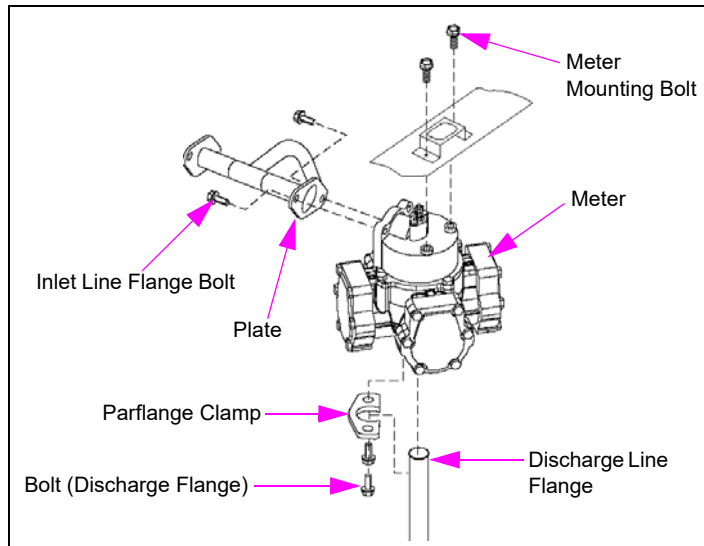
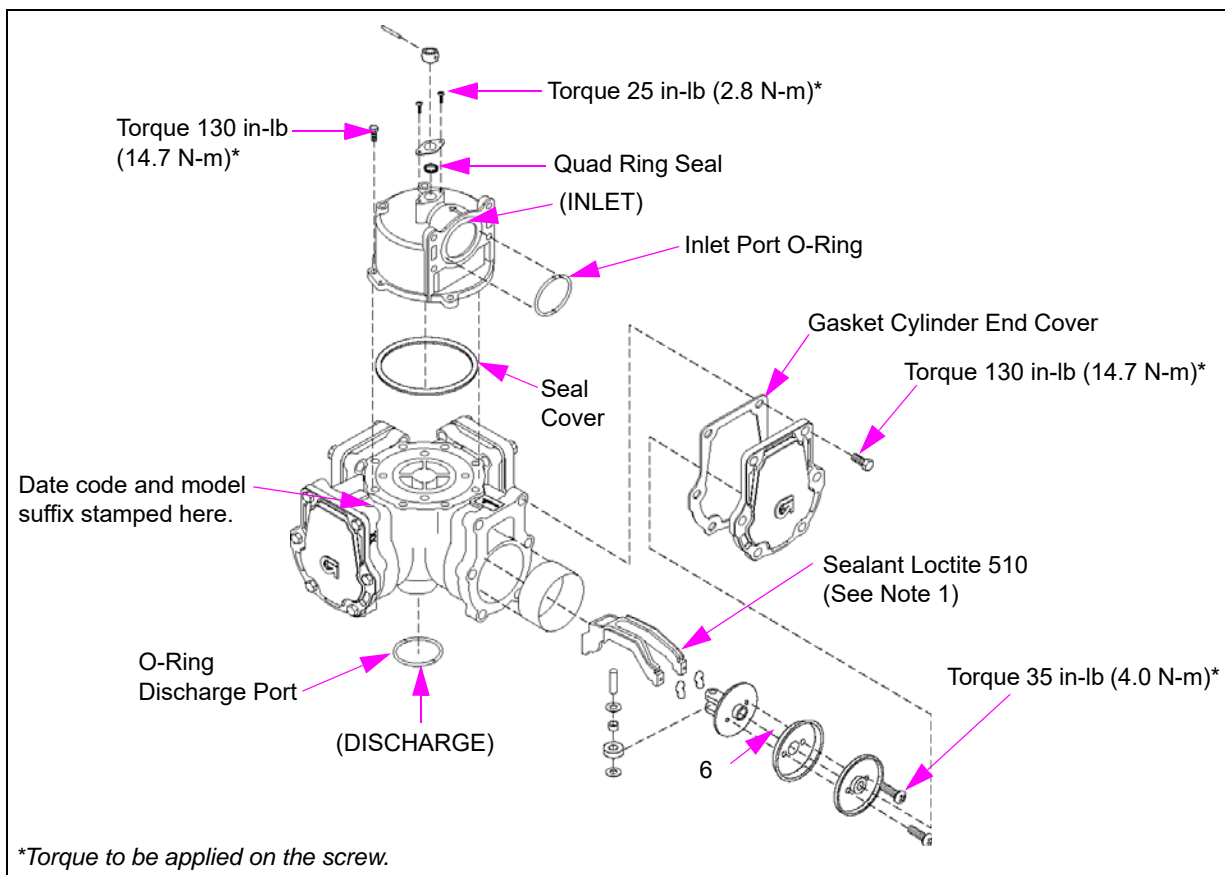


Figure 3: Exploded View of Meter Assembly



Item	Description	Part Number	Quantity
			M08182K001
1	Seal, Quad Ring	Q11755-01	1
2	Seal, Quad Ring	Q11755-03	1
3	O-Ring, Inlet Port	Q12974-223	1
4	Seal, Cover	K93282-02	1
5	Gasket Cylinder End Cover	M08298B001	4
6	Piston Cup Seal	N21252	4
7	Sealant, Loctite 510 (250 ml Tube)	END 1747	- (See Note 1)
8	O-Ring, Discharge Port	Q12974-118	1
9	Seal, End Cover	M09783B001	4 (See Note 2)
10	Gasket Seal Cap Cork	K93407	1

Notes: 1) The item is not included in the kit. It must be ordered separately. One tube of sealant will service up to 164 feet (50 meters). Allow the sealant to cure for 24 hours before pressurizing the Meter.
2) Only for V Meter.

Removing and Installing the Quad Ring Seal

For complete instructions to remove and install the Quad Ring seal, refer to *MDE-2188 C, C+, and HD Meter Quad Ring Top Seal Replacement*.

WARNING

Meter seals not designed for alternative fuels can fail when used with these fuels. The use of such seals may result in leaks to the environment and an increased risk of fire or explosion from ignited fuel. For alternative fuel applications, use only seals designed for alternative fuels. Q11755-03 can be substituted for Q11755-01 in all applications except for alternative fuels.

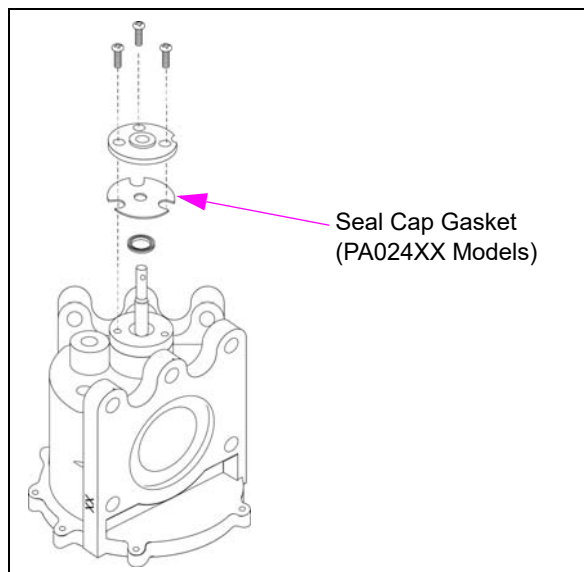
Replacing the Piston Cup Seal

To replace the Piston Cup seal, proceed as follows:

Note: While you perform this procedure, avoid any contamination getting into the Meter. Clean the Meter in non-flammable solvent (Varsol™) before reassembly.

- 1 Remove the cylinder end covers and discard old gaskets.
- 2 On PA024XX meters, remove the gasket under the seal cap, see [Figure 4](#).

Figure 4: Removing the Gasket



- 3 Remove the Piston Screws, Piston Retainer, Piston Cup Seal, and the Piston. Work on one Piston at a time.
- 4 Replace the entire Meter, if the Cylinder Liner is heavily scratched or scored.
Note: If you replace only the Piston Cup seal, it will not improve Meter performance significantly, if the Piston Bore is badly scored.

- 5** Use a small scraper or sandpaper to thoroughly remove the old Loctite Sealant from the connecting bar and rear of the piston. Ensure that you do not gouge the surfaces. Remove the old sealant only.
- 6** Remove all debris and wipe the Cylinder Bore clean.
- 7** Apply Loctite 510 Sealant (Gilbarco part number END 1747) to the ends of the connecting bars, completely around the bolt holes.
- 8** Install the Piston, new Piston Cup Seal, Piston Retainer, and Piston Screws. If the old screws are damaged, replace them (use Gilbarco part number Q11860-01 only).
- 9** Tighten both screws lightly, then final torque to 35 in-lbs (4.0 N-m).
- 10** Install the new Cylinder End Cover Gasket, Cylinder End Cover, and bolts.
- 11** Tighten all bolts lightly, then final torque to 130 in-lbs (14.7 N-m).
- 12** Before pressurizing the Meter, allow the Loctite 510 Sealant to cure for 24 hours.

Reinstalling the Meter on the Unit

To reinstall the Meter on the unit, proceed as follows:

- 1 Inspect and clean the Inlet and Discharge Line mounting surfaces.
- 2 Install the new Inlet and Discharge Line O-Rings.
- 3 Bolt the Meter to the Inlet and Discharge Flanges. For the torques, see [Figure 3](#) on [page 8](#).
- 4 Reinstall the Mounting Brackets and tighten the Bleed Valve on Eclipse units.
- 5 Open the Shear Valve on the dispensers.
- 6 Restore power to the unit and Submersible Turbine Pump (STP).
- 7 Place the unit in normal operation, in the distribution box.
- 8 Purge the air and check for leaks.
- 9 Calibrate the Meter. For instructions, refer to *MDE-3804 Encore/Eclipse Start-Up/Service Manual*.

The installation of the Meter Master Seal Service Kits (M08182K001) is now complete.

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