

Introduction

Purpose

This manual provides instructions to install the Filter Kits (M02144K001 and M02144K002) on Encore® Ultra-Hi™ and Encore satellite dispensing systems.

- **M02144K001 Filter Kit** is used for units built prior to January 15, 2013.
- **M02144K002 Filter Kit** is used for units built after January 15, 2013.

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Required Tools and Materials

Following tools and materials are required for installing the Filter Kits:

- Approved absorbent material
- Approved containers for catching fuel
- Pipe Wrenches
- Underwriters Laboratories (UL®) approved pipe sealant for diesel fuels (do not use plastic pipe tape)

Parts List

Following table lists the parts included in the M02144K001 Filter Kit for one unit:

Item	Description	Part Number	Quantity
1	Filter, Adapter Housing	M02091B010	1
2	Filter, Gasoline/Diesel	M02264B001	1
3	Standard Pipe Nipple, 1-1/4 X 6-7/8" NPT	R11494-66	1
4	Hexagonal-head Reducing Bushing	K07799-22	1

Following table lists the parts included in the M02144K002 Filter Kit for one unit:

Item	Description	Part Number	Quantity
1	Filter, Adapter Housing	M02091B010	2
2	Filter, Gasoline/Diesel	M02264B001	2
3	Standard Pipe Nipple, 1-1/4 X 1-1/2" NPT	R11494-37	4
4	Standard Pipe Nipple, 1-1/4 X 12-3/8" NPT	R11494-77	1
5	Standard Pipe Nipple, 1-1/4 X 1-7/8" NPT	R11494-76	1
6	Hexagonal-head Screw	Q11889-12	4

Item	Description	Part Number	Quantity
7	Gasket, O-ring	Q12974-118	4
8	O-ring	Q10068-24	1

Ultra-Hi Generation Table

Following table lists the Ultra-Hi generations:

Ultra-Hi Generations	Ultra-Hi Title	Production Date
Generation 1	Standard Footprint	Jun 2002
Generation 2	Alternative Footprint	Feb 2009
Generation 3	Raised Footprint Revision A	Jan 2013
Generation 4	Raised Footprint Revision B	Oct 2014

Requirements

Following table lists the requirements for each dispenser type:

Dispenser Type	Number of Kits	
	M02144K001	M02144K002
Dual Master	2	1
Combo	2	1
Satellite Only (Encore)	1	1
Single Master	1	(see Note)

Note: One kit is required for Single Master and Satellite Only (Encore) dispensers.

Related Documents

Document Number	Title	GOLD SM Library
MDE-2531	Gilbarco® Pump and Dispenser Start-up and Service	<ul style="list-style-type: none"> Pump & Dispenser Service Manual Service Manual

Abbreviations and Acronyms

Term	Description
D-Box	Distribution Box
GOLD	Gilbarco Online Documentation
NPT	<ul style="list-style-type: none"> National Pipe Taper National Pipe Thread
OSHA	Occupational Safety and Health Administration
STP	Submersible Turbine Pump
UL	Underwriters Laboratories

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

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.

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

Before You Begin



- 1 Read all instructions before beginning.
- 2 Follow all safety precautions.
- 3 Isolate unit at Distribution Box (D-Box).
- 4 Close and test shear valves on applicable unit.
- 5 Turn off all power to unit, including unit lights. Turn off all associated Submersible Turbine Pump (STP) power. Use system circuit breakers. Multiple disconnects may be required.
- 6 Follow OSHA lockout and tagout requirements. For more information, refer to *MDE-2531 Gilbarco Pump and Dispenser Start-up and Service*.
- 7 Place nozzle(s) into approved container to drain and bleed pressure. Some residual pressure may remain.
- 8 Position an approved container for catching fuel under hydraulic assembly being removed/disconnected.
- 9 Match the parts received in the kit with [“Parts List”](#) on [page 1](#).

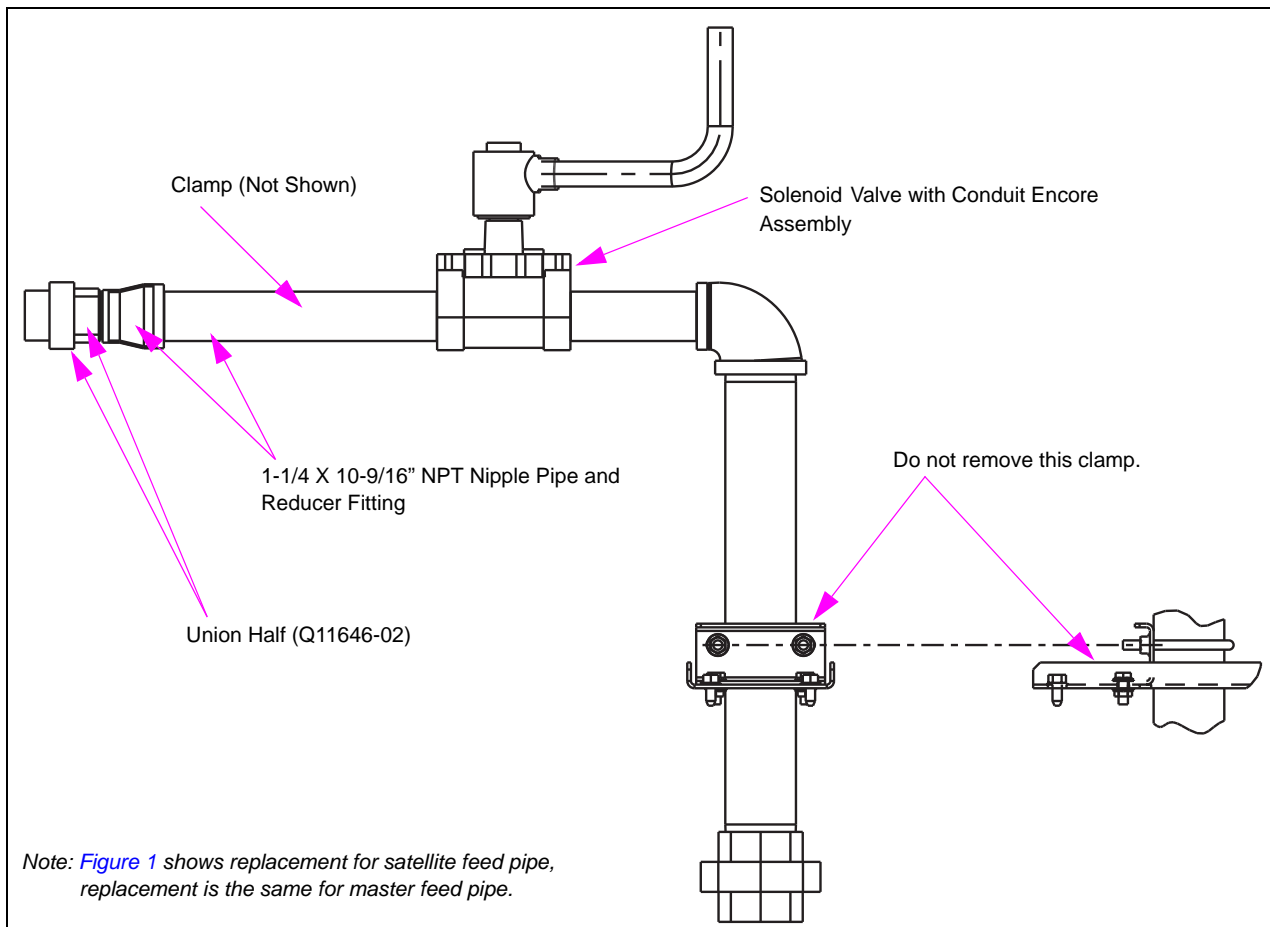
Installing M02144K001 Filter Kit

To install the M02144K001 Filter Kit, proceed as follows:

Removing Piping

Before the filter can be installed, certain piping must be removed. Use caution when removing and replacing piping so that existing joint seals are not broken causing leakage.

Figure 1: Removing Piping



To remove the piping, proceed as follows:

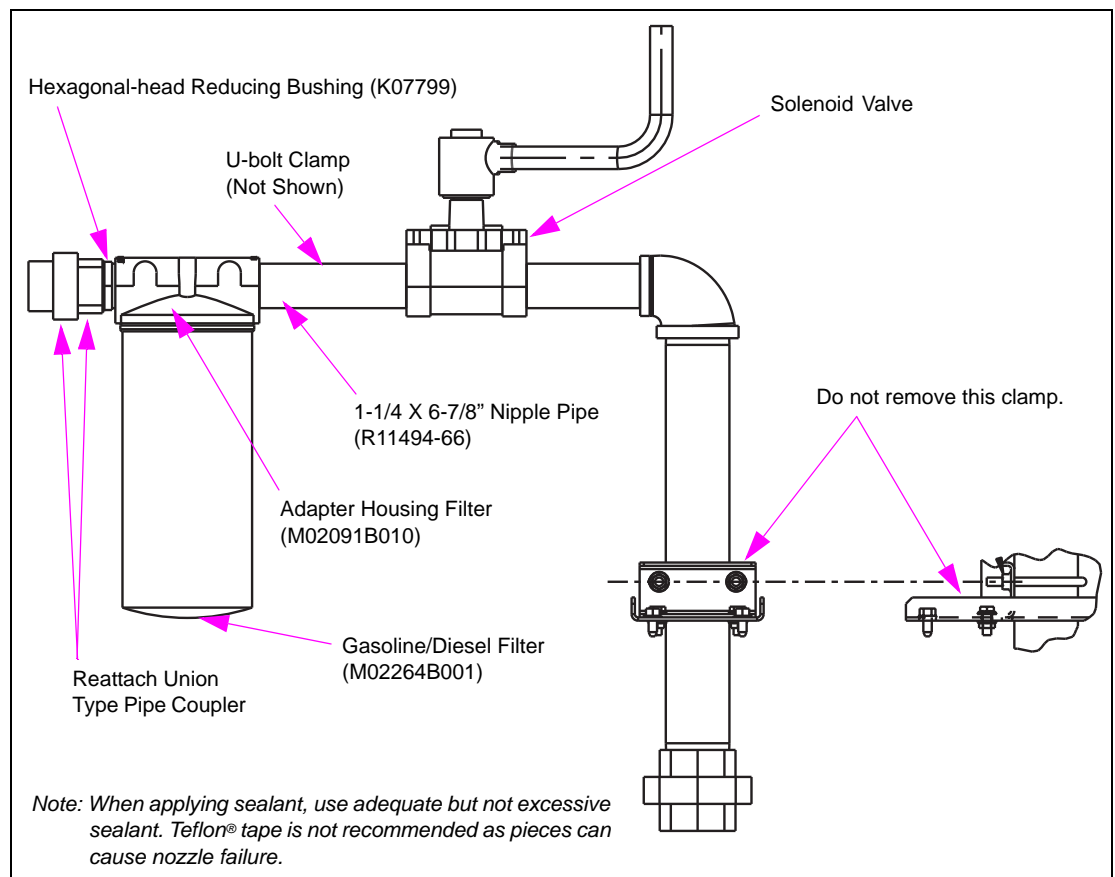
- 1 Remove the clamp supporting the 1-1/4 X 10-9/16-inch NPT nipple pipe (see [Figure 1](#)).
- 2 Loosen and remove the Union (Q11646-02) half from the Reducer Fitting (M2135B001), (see [Figure 1](#)).
Note: Retain the union half for reuse.
- 3 Remove the 1-1/4 X 10-9/16-inch NPT nipple and the coupling reducer pipe iron NPT from the solenoid valve with conduit assembly (see [Figure 1](#)).
Note: Ensure care not to turn the solenoid valve with conduit assembly.

Assembling Piping and Filter

To assemble the piping and filter, proceed as follows:

Note: Ensure to use UL-approved diesel resistant pipe sealant on all pipe threads before assembling and tightening.

Figure 2: Installing Piping and Filter



- 1 Assemble and tighten the 1-1/4 X 6-7/8-inch NPT Nipple Pipe (R11494-66) into the solenoid valve assembly (see [Figure 2](#)).
- 2 Assemble and tighten the Adapter Housing Filter (M02091B010) on to the 1-1/4 X 6-7/8-inch NPT nipple pipe. Ensure that the adapter housing filter is pointing down as shown in [Figure 2](#) and make note of fuel flow direction.
- 3 Assemble and tighten the Hexagonal-head Reducing Bushing (K07799-22) into the discharge end of adapter housing filter (see [Figure 2](#)).
- 4 Attach the union half showing external threads to the hexagonal-head reducing bushing.
- 5 Connect the union and tighten.
- 6 Reattach the clamp removed in step 1 on [page 6](#).

- 7 Attach the Gasoline/Diesel Filter (M02264B001) to the adapter housing filter following any instructions on the filter (see [Figure 2](#) on [page 7](#)).
- 8 When completed, power up the unit, purge 10 gallons per hose and check the system for leaks.
- 9 Return the system to normal working condition.

Installing the M02144K001 Filter Kit is now complete.

Installing M02144K002 Filter Kit

To install the M02144K002 Filter Kit, proceed as follows:

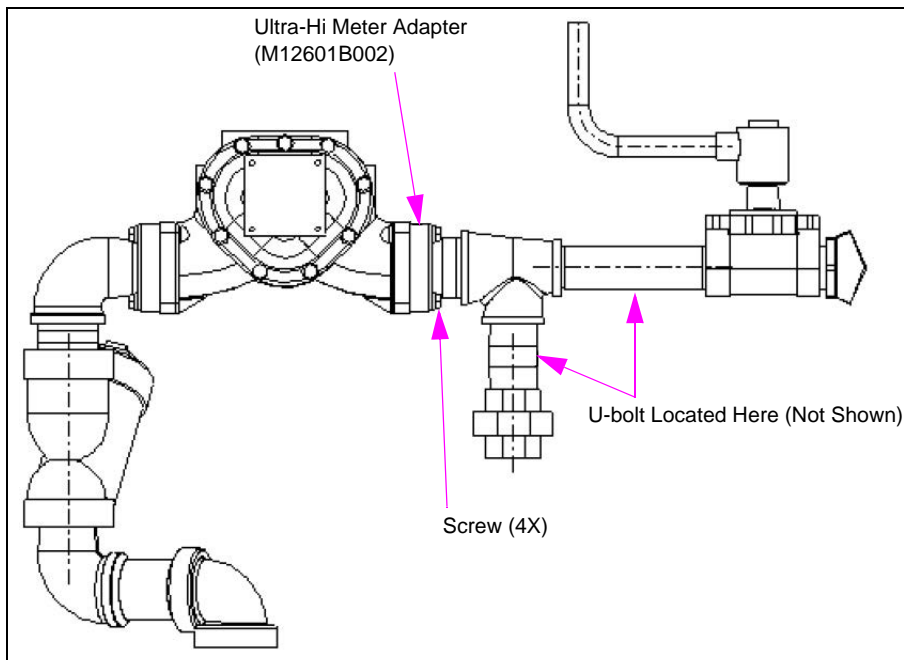
For Master Side

Removing Piping

Before the filter can be installed, certain piping must be removed. Use caution when removing and replacing piping so that existing joint seals are not broken causing leakage.

- 1 Remove the U-bolts from the assembly (see [Figure 3](#)).
Note: Retain the U-bolts for reassembling.

Figure 3: Removing U-bolt

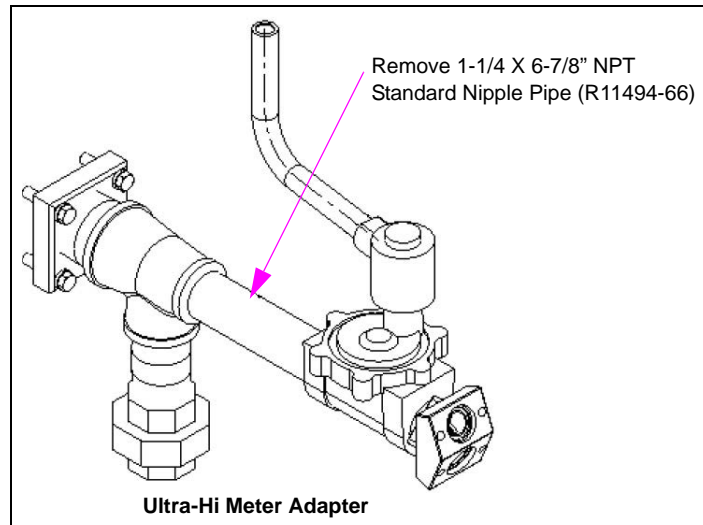


- 2 Disconnect both discharge tubes from the Ultra-Hi assembly.

- Loosen the four screws on the Ultra-Hi Meter Adapter (M12601B002) and dismount it from the main assembly (see [Figure 3](#) on [page 8](#)).

The entire subassembly is taken out as shown in [Figure 4](#).

Figure 4: Subassembly Removed



- Remove the 1-1/4 X 6-7/8-inch NPT Standard Nipple Pipe (R11494-66) attached at one end to pipe tee and at other end to the solenoid valve assembly (see [Figure 4](#)). Ensure care not to turn the solenoid valve with conduit assembly.

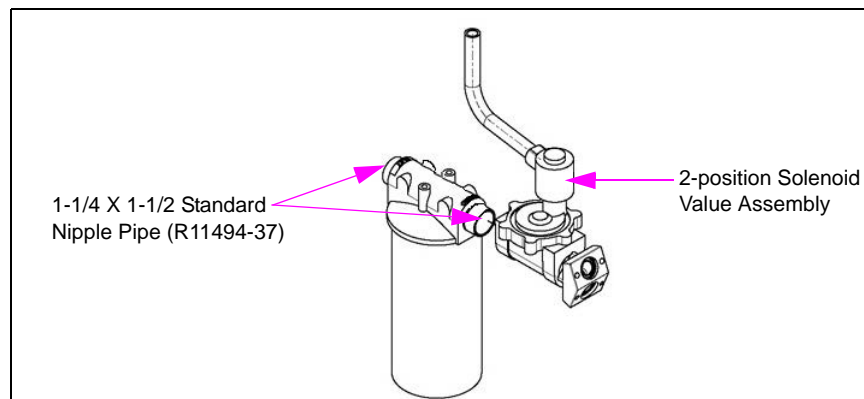
Assembling Piping and Filter

To install the piping and filter, proceed as follows:

Note: Ensure to use UL-approved diesel resistant pipe sealant on all pipe threads before assembling and tightening.

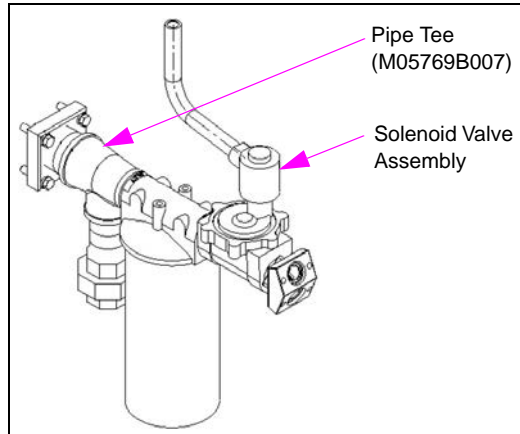
- Assemble and tighten the 1-1/4 X 1-1/2-inch Standard Nipple Pipe (R11494-37) into the solenoid valve assembly (see [Figure 5](#)).

Figure 5: Installing Nipple Pipe



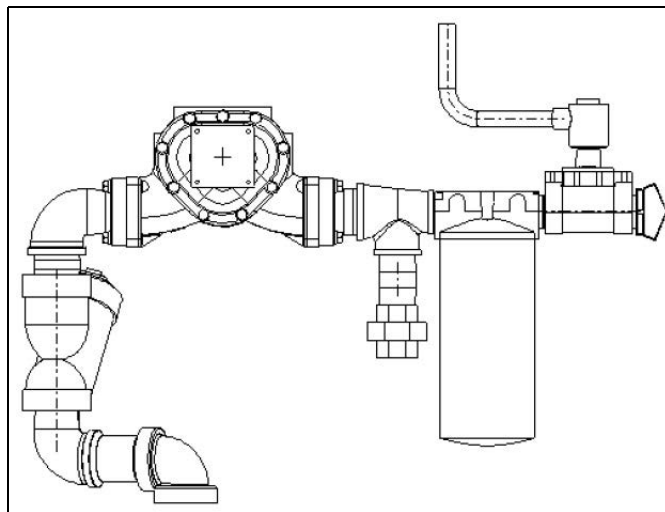
- 2 Assemble and tighten the Adapter Housing Filter (M02091B010) onto the Nipple Pipe [R11494-37 (see [Figure 6](#))]. Ensure that the adapter housing filter is pointing down and make note of fuel flow direction.

Figure 6: Installing Adapter Housing Filter



- 3 Assemble and tighten one end of the nipple pipe into the adapter housing filter and the other end into the Pipe Tee [M05769B007 (see [Figure 6](#))].
- 4 Attach the subassembly as shown in [Figure 6](#) [without Gasoline/Diesel Filter (M02264B001)] to the main assembly by tightening the four screws on the adapter Ultra-Hi meter along with O-ring [Q10068-24 (see [Figure 7](#))].

Figure 7: Installing Adapter Housing Filter to Main Assembly



- 5 Reattach the sub-assembly shown in [Figure 7](#) to the mounting brackets in the dispenser.
- 6 Reattach the U-bolts removed in step 1 on [page 8](#).

- 7 Using new O-rings (Q12974-118), reconnect the two discharge tubes to the end of the sub-assembly as shown in [Figure 7](#) on [page 10](#).
- 8 Attach the gasoline/diesel filter to adapter housing filter, following any instructions on the filter.
- 9 Attach the adapter housing filter to the bracket (in main assembly) using two Hexagonal-head Screws (Q11889-12).
- 10 When completed, power up the unit, purge 25 gallons per hose and check the system for leaks.
- 11 Once it has been verified that there are no leaks, the unit may be placed back into service.

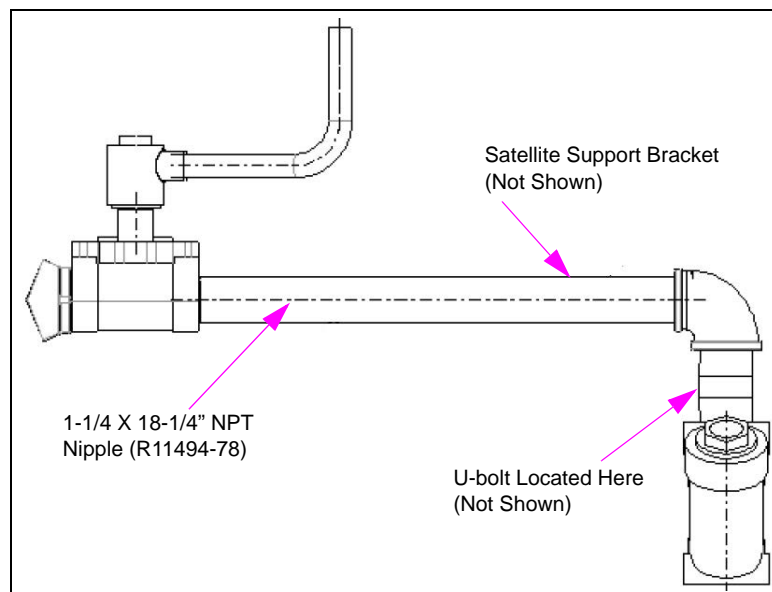
For Satellite Side (Revision B)

Removing Piping

Before the filter can be installed, certain piping must be removed. Use caution when removing and replacing piping so that existing joint seals are not broken causing leakage.

- 1 Remove the U-bolts from the assembly (see [Figure 8](#)).
Note: Retain the U-bolts for reassembling.

Figure 8: Removing Piping



- 2 Disconnect both discharge tubes from the Ultra-Hi assembly.
- 3 Remove the satellite support bracket (see [Figure 8](#)).

The entire assembly is taken out as shown in [Figure 8](#).

- 4 Remove the 1-1/4 X 18-1/4-inch NPT Nipple (R11494-78) attached at one end to the elbow and at other end to the solenoid valve assembly. Ensure care not to turn the solenoid valve with conduit assembly.

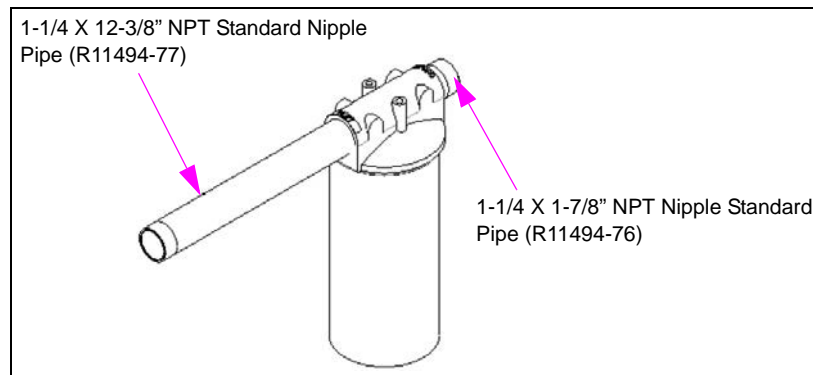
Assembling Piping and Filter

To install the piping and filter, proceed as follows:

Note: Ensure to use UL-approved diesel resistant pipe sealant on all pipe threads before assembling and tightening.

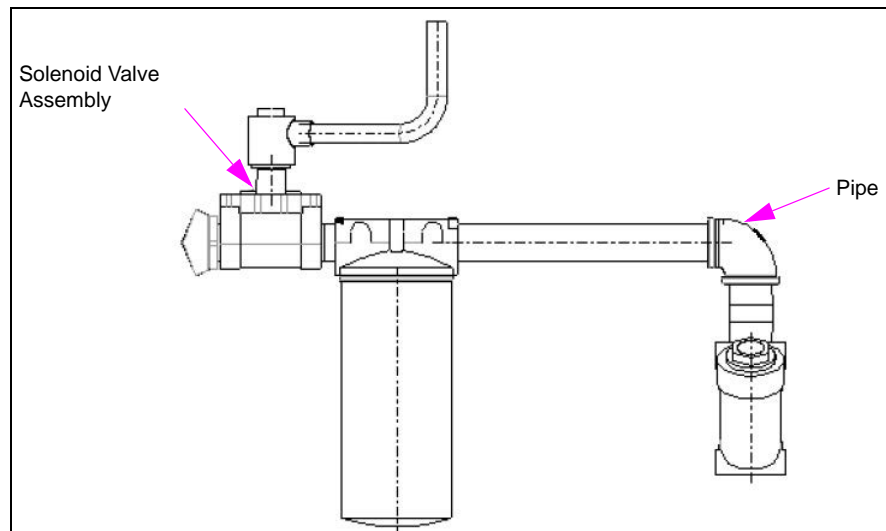
- 1 Assemble and tighten the 1-1/4 X 1-7/8-inch NPT Standard Nipple Pipe (R11494-76) into the solenoid valve assembly (see [Figure 9](#)).

Figure 9: Installing Standard Nipple Pipe



- 2 Assemble and tighten the Adapter Housing Filter (M02091B010) onto the Standard Nipple Pipe [R11494-76] (see [Figure 10](#)). Ensure that the adapter housing filter is pointing down and make note of fuel flow direction.

Figure 10: Installing Adapter Housing Filter



- 3 Assemble and tighten one end of the 1-1/4 X 12-3/8-inch NPT Nipple Standard Pipe (R11494-77) into the adapter housing filter and the other end into the pipe elbow (see [Figure 10](#) on [page 12](#)).
- 4 Reattach the sub-assembly shown in [Figure 10](#) on [page 12](#) [without Gasoline/Diesel Filter (M02264B001)] to the mounting brackets in the dispenser.
- 5 Reattach the U-bolts removed in step 1 on [page 11](#).
- 6 Reattach the satellite support bracket in step 3 on [page 11](#).
- 7 Using new O-rings, reconnect the two discharge tubes to the end of the sub-assembly shown in [Figure 10](#) on [page 12](#).
- 8 Attach the gasoline/diesel filter to the adapter housing filter, following any instructions on the filter.
- 9 Attach the adapter filter to the bracket (in main assembly) using two Hexagonal-head Screws (Q11889-12).
- 10 When completed, power up the unit, purge 25 gallons per hose and check the system for leaks.
- 11 Once it has been verified that there are no leaks, the unit may be placed back into service.

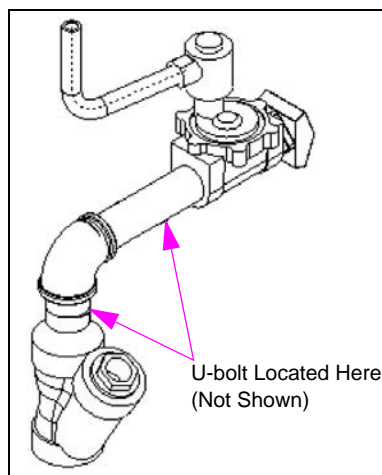
For Satellite Side (Revision A)

Removing Piping

Before the filter can be installed, certain piping must be removed. Use caution when removing and replacing piping so that existing joint seals are not broken causing leakage.

- 1 Remove the U-bolts from the assembly (see [Figure 11](#)).
Note: Retain the U-bolts for reassembling.

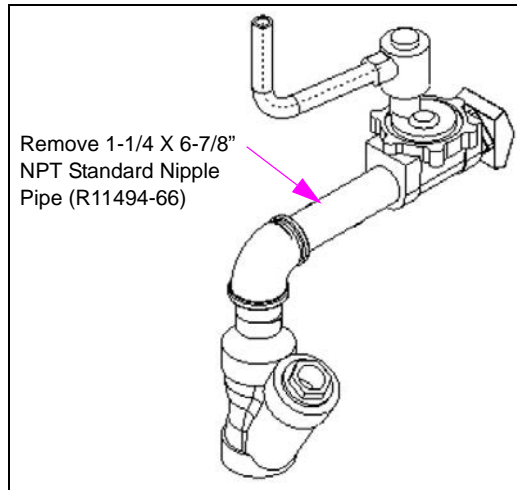
Figure 11: Removing U-bolt



The entire subassembly is taken out as shown in [Figure 11](#) on [page 13](#).

- 2 Disconnect both discharge tubes from the Ultra-Hi assembly.
- 3 Remove the 1-1/4 X 6-7/8-inch NPT Standard Nipple Pipe (R11494-66) attached at one end to the elbow and at the other end to the solenoid valve assembly (see [Figure 12](#)). Use caution not to turn the solenoid valve with conduit assembly.

Figure 12: Removing Nipple



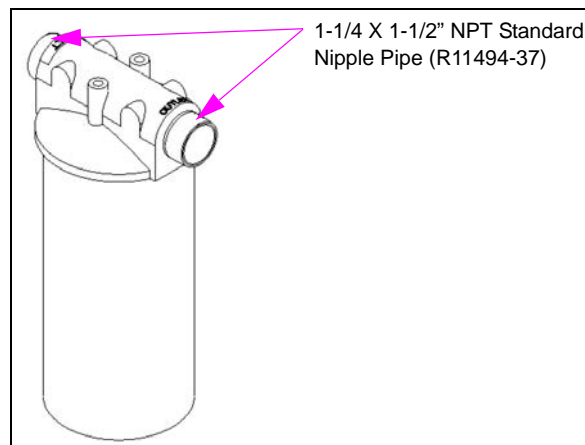
Assembling Piping and Filter

To install the piping and filter, proceed as follows:

Note: Ensure to use UL-approved diesel resistant pipe sealant on all pipe threads before assembling and tightening.

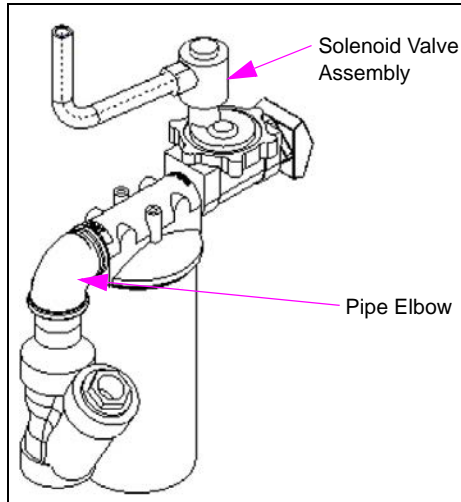
- 1 Assemble and tighten the 1-1/4 X 1-1/2-inch NPT Standard Nipple Pipe (R11494-37) into the solenoid valve assembly (see [Figure 13](#)).

Figure 13: Installing Standard Nipple Pipe



- 2 Assemble and tighten the Adapter Housing Filter (M02091B010) onto the Standard Nipple Pipe [R11494-37 (see [Figure 14](#))]. Ensure that the adapter housing filter is pointing down and make note of fuel flow direction.

Figure 14: Installing Adapter Housing Filter



- 3 Assemble and tighten one end of the nipple pipe into the adapter housing filter and the other end into the pipe elbow (see [Figure 14](#)).
- 4 Reattach the sub-assembly shown in [Figure 14](#) [without Gasoline/Diesel Filter (M02264B001)] to the mounting brackets in the dispenser.
- 5 Reattach the U-bolts removed in step 1 on [page 13](#).
- 6 Using new O-rings, reconnect the two discharge tubes to the end of the sub-assembly as shown in [Figure 14](#).
- 7 Attach the gasoline/diesel filter to adapter housing filter, following any instructions on the filter.
- 8 Attach the adapter filter to the bracket (in main assembly) using two Hexagonal-head Screws (Q11889-12).
- 9 When completed, power up the unit, purge 25 gallons per hose and check the system for leaks.
- 10 Once it has been verified that there are no leaks, the unit may be placed back into service.

Installing the M02144K002 Filter Kit is now complete.

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