

Introduction

Purpose

This manual provides instructions on how to install the new Atlas® Diesel Exhaust Fluid (DEF) Magmeter Retrofit Kit (M18023K001) in existing field units.

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Required Tools

The following tools and materials are required for installing the Atlas DEF Magmeter Retrofit Kit:

- Phillips® Screw drivers
- Hexagonal Head Screw Drivers
- Nut Drivers
- Socket Wrench with Society of Automotive Engineers (SAE) and Metric Sockets

Parts List

Item	Description	Part Number	Quantity
1	DEF Krohne Magmeter	M16502B001	1
2	Atlas Meter DEF Bracket	M16286B001	1
3	Inlet Tube Machined	M16940B001	1
4	Outlet Tube Machined	M16941B001	1
5	Nut Metric Hex Serrated Flange	M00414B002	4
6	Bracket Support DEF Atlas	M11176B001	1
7	Hose, Internal DEF Atlas	M10226B104	1
8	Adapter, Hose	M10145B001	1
9	M6 X 100, SOCKET HEAD SCREW	M16237B002	4
10	Nut, Metric M8 Serrated Flange - C Kit K96620 01	M00414B003	2
11	Screw, Metric M8 X 18 Thread Former Comments	M00417B009	5
12	O-RING, DEF MAGMETER	M16763B001	2
13	GROMMET STRIP	Q10315-06	1.55 ft
14	Cable, Magmeter Adapter	M16761A001	1
15	Ground Wire	N22887-G4	1
16	M3 Screw Metric Phillips Pan Head	M00590B106	2

Related Documents

Document Number	Title	GOLD SM Library
FE-356	Atlas Dispenser Field Wiring Diagram Instructions	Gasboy [®] Parts List & Wiring Diagrams
MDE-4331	Atlas Fuel Systems Installation Manual	Gasboy Atlas Pumps/Dispensers
MDE-4334	Atlas Start-up/Service Manual	Gasboy Atlas Pumps/Dispensers
MDE-5044	Atlas DEF operation, Diagnostics, and Recommended Spare Parts Manual	Gasboy Atlas Pumps/Dispensers

Abbreviations and Acronyms

Term	Description
CPR	Cardiopulmonary Resuscitation
DEF	Diesel Exhaust Fluid
FCC	Federal Communications Commission
GOLD	Gilbarco Online Documentation
NEC [®]	National Electrical Code
NFPA	National Fire Protection Association
OSHA	Occupational Safety and Health Administration
SAE	Society of Automotive Engineers
STP	Submersible Turbine Pump
TAC	Technical Assistance Center

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 the Gilbarco Technical Assistance Center (TAC) at 1-800-743-7501. 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.

Federal Communications Commission (FCC) Warning

This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment.

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.



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

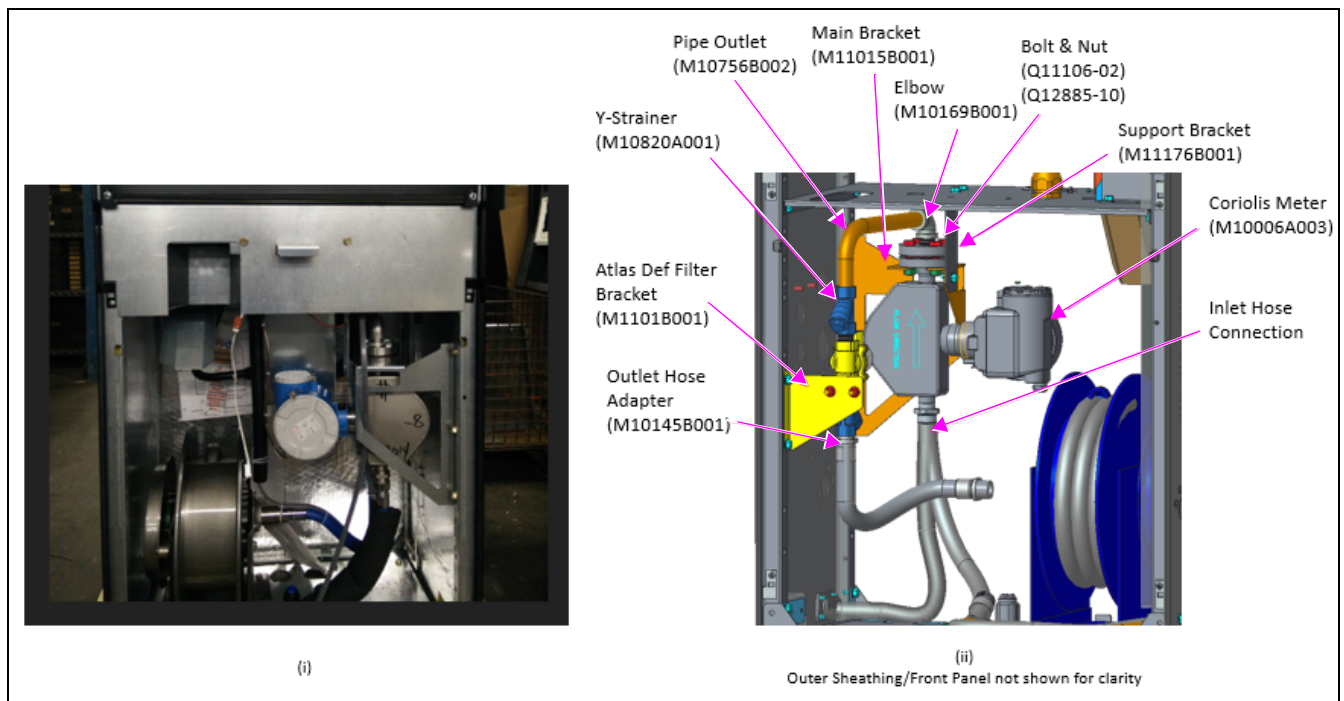
Lockout/Tagout covers servicing and maintenance of machines and equipment in which the unexpected energization or start-up of the machine(s) or equipment or release of stored energy could cause injury to employees or personnel. Lockout/Tagout applies to all mechanical, hydraulic, chemical, or other energy, 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.

Removing Existing Coriolis Meter from the Atlas DEF Lower Hydraulics

To remove the existing Coriolis meter, proceed as follows:

- 1 Remove the lower door panel of Atlas DEF Lower Hydraulic area such that the internal components are visible for removal and replacement.
- 2 Disconnect all electrical cable connections to the existing Coriolis Meter (M10006A003).
- 3 Remove the hose connection at the inlet of the Coriolis Meter and Outlet from the Hose Adapter (M10145B001) using an appropriate wrench.
- 4 Using a socket wrench, remove the nut and bolt holding the Coriolis meter to the Main Bracket (M11015B001) and Support Bracket (M11176B001).
- 5 Remove the Coriolis Meter assembly from the unit.
- 6 Remove the Main Bracket (M11015B001) and Support Bracket (M11176B001) from frame.
- 7 Remove the U-Bolt connected to the Atlas DEF Filter Bracket (M11010B001) so that the hydraulic tree can be dismantled along with the Pipe Outlet Assembly (M10756B002) and Elbow (M10169B001).
- 8 Unthread the Pipe Outlet Assembly from the Strainer (M10820A001) so that it can be removed from the Hydraulic Tree.
- 9 The required parts have been removed, and the unit is ready for the new Magmeter to be installed (see [Figure 1](#)).

Figure 1: Existing Coriolis Meter in the Atlas DEF Hydraulics

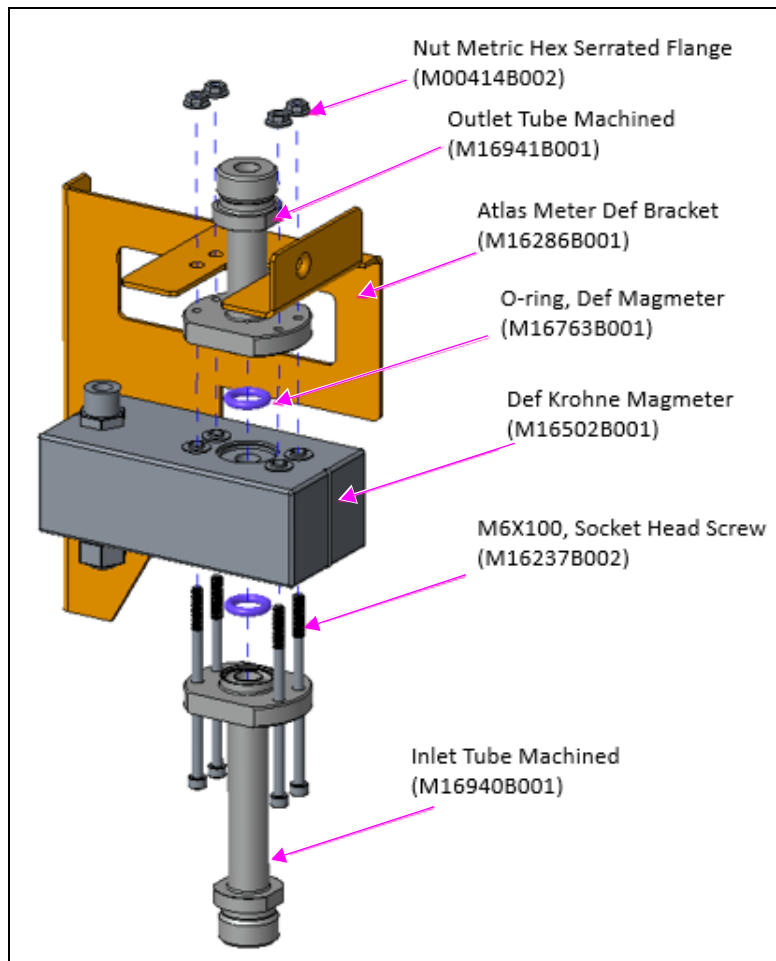


Installing New Atlas DEF Magmeter into the DEF Cabinet

To install the new Atlas DEF Magmeter, proceed as follows:

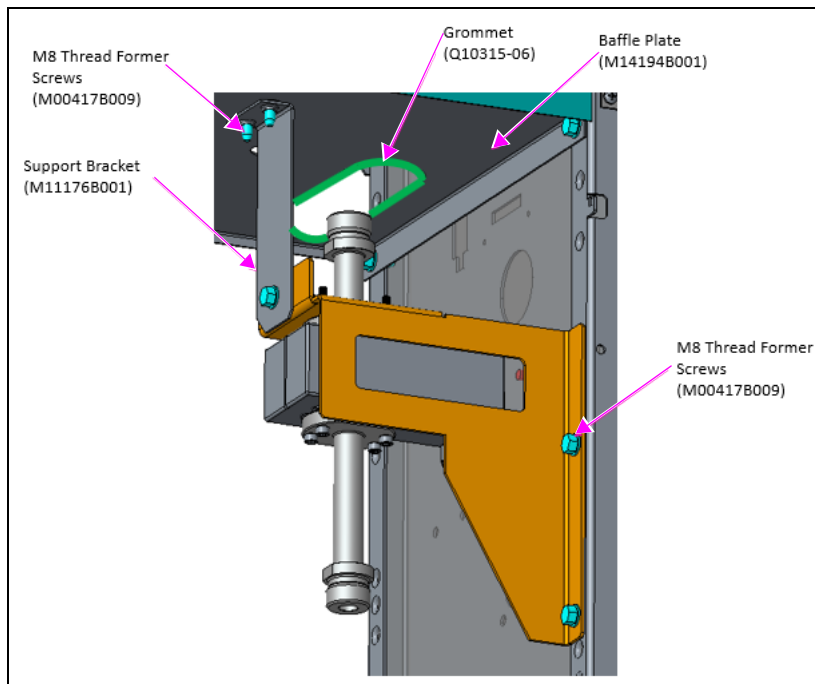
- 1 Assemble the Magmeter (M16502B001) to the Inlet (M16940B001) and Outlet (M16941B001) machined tubes making sure the O-ring (M16763B001) is placed appropriately along with the Atlas Meter DEF Bracket (M16286B001) using four M6 X 100, Socket Head Screw (M16237B002) and four Hexagonal Flange Nut (M00414B002) (see [Figure 2](#)).

Figure 2: Magmeter Sub-assembly



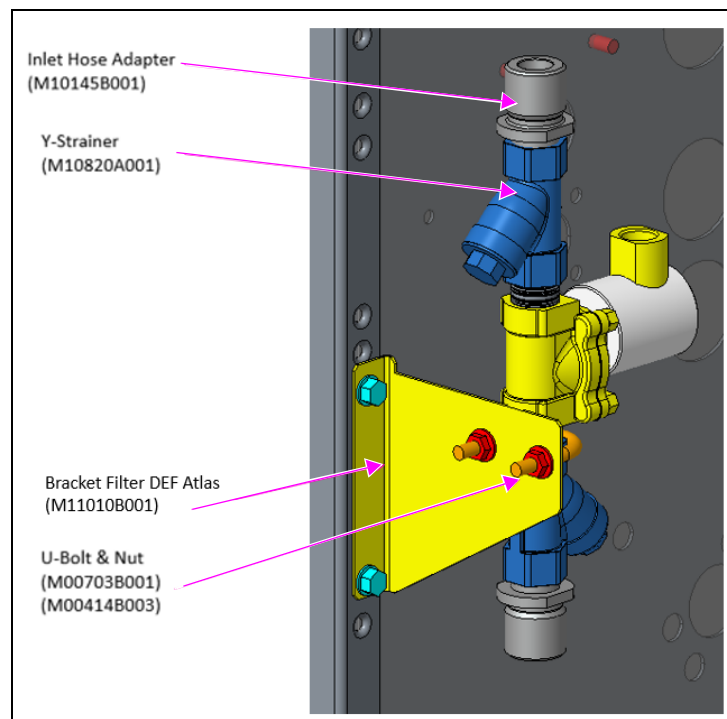
- 2 Install the new Magmeter sub-assembly to the existing baffle plate (M14194B001) using M8 thread former screws (M00417B009) and the Support Bracket (M11176B001) (see [Figure 3](#) on [page 7](#)).
- 3 Add Grommet (Q10315-06) to the slot cutout present on the existing baffle plate to prevent damage to hose.

Figure 3: Magmeter Sub-Assembly on Existing Baffle Plate



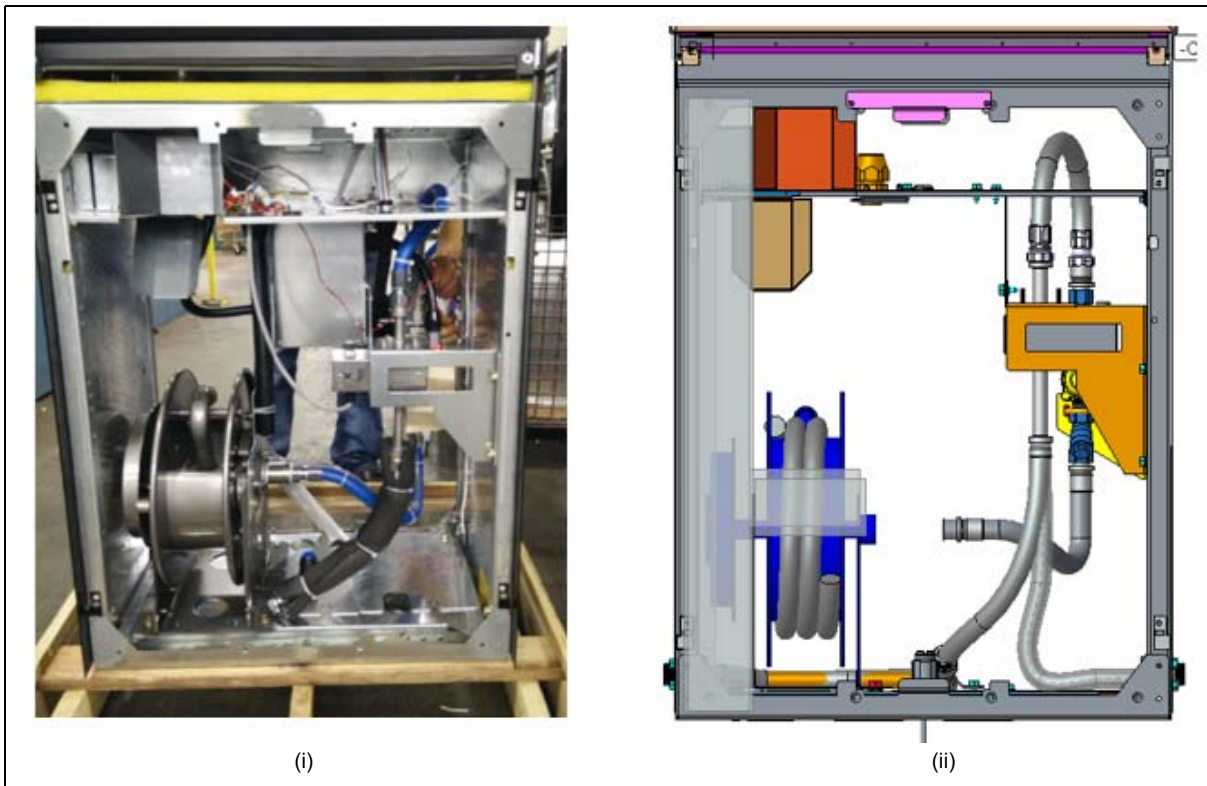
- 4 Assemble Inlet Hose Adapter (M10145B001) to the Y-strainer on the hydraulic tree.
- 5 Now, reassemble the Hydraulic tree that was removed earlier using U-bolt (M00703B001) and Nuts (M00414B003) to the existing Bracket Filter DEF Atlas (M11010B001). (see [Figure 4](#)).

Figure 4: Hydraulics Assembly Line



- 6 Reconnect the hoses at Inlet (M10226B106) to the Magmeter and Outlet (M10226B101) to the Hose Adapter of Hydraulic Line.
- 7 Now connect the Internal Hose (M10226B104), which is the replacement for the steel tube assembly between Magmeter Outlet and Inlet Hose Adapter of the Hydraulic Line.
- 8 Route the cables appropriately and reconnect them to the newly installed Magmeter (see [Figure 5](#)).
- 9 Connect the Conduit (M04114A007 or M04114A008) to the Adapter Cable (M16761A001). The adapter cable is a gender bender cable and can be connected on either side.

Figure 5: Atlas DEF Magmeter Retrofit Unit Overview



- 10 Mount the outer sheathing of the Atlas DEF unit back into position. The installation process is now complete.
Note: There are no programming differences between the Magmeter and the Coriolis meter.

When purging the air from the meter during installation, temporarily connect a standard Atlas Pulser to the CPU, as the dispenser will generate an error code 56 until the fluid is present inside the meter. When dispensing DEF, spin the pulser manually to initiate full flow. Dispense fluid until all the air is purged from the system and CR3 is lit on the Coriolis Meter Interface Board. If this is not done, an error code 56 will be generated by the dispenser

For more information, refer to *MDE-4334 Atlas™ Start-up/Service Manual*.

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