

Red Jacket UMP

Replacement Instructions

Red Jacket[®] Quick-Set[®] Submersible Pump



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Contact Red Jacket Technical Support for additional troubleshooting information at 800-323-1799.

DAMAGE GOODS/LOST EQUIPMENT

Thoroughly examine all components and units as soon as they are received. If any cartons are damaged or missing, write a complete and detailed description of the damage or shortage on the face of the freight bill. The carrier's agent must verify the inspection and sign the description. Refuse only the damaged product, not the entire shipment.

VR must be notified of any damages and/or shortages within 30 days of receipt of the shipment, as stated in our Terms and Conditions.

VEEDER-ROOT'S PREFERRED CARRIER

1. Fax Bill of Lading to V/R Customer Service at 800-234-5350.
2. Call V/R Customer Service at 800-873-3313 with the specific part numbers and quantities that were received damaged or lost.
3. VR will file the claim with the carrier and replace the damaged/missing product at no charge to the customer. Customer Service will work with production facility to have the replacement product shipped as soon as possible.

CUSTOMER'S PREFERRED CARRIER

1. Customer files claim with carrier.
2. Customer may submit a replacement purchase order. Customer Service will work with production facility to have the replacement product shipped as soon as possible.
3. If "lost" equipment is delivered at a later date and is not needed, VR will allow a Return to Stock without a restocking fee.
4. VR will NOT be responsible for any compensation when a customer chooses their own carrier.

RETURN SHIPPING

For the parts return procedure, please follow the instructions in the "General Returned Goods Policy" pages of the "Policies and Literature" section of the Veeder-Root North American Red Jacket Mechanical Products Price Book. Veeder-Root will not accept any return product without a Return Goods Authorization (RGA) number clearly printed on the outside of the package.

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Introduction

Red Jacket 4-inch diameter non-CPT UMPs are interchangeable except that the lengths vary dependent upon the model and inlet area. When changing the model of the installed UMP, be sure to check the length (ref. Table 5/ Figure 1) so that proper clearance off the tank bottom is maintained (4 to 5" [100 to 125mm] for standard and TRAPPER™ UMPs and 14" [355mm] for UMPs with a floating suction adapter.)

Red Jacket CPT UMP models (UMP200U20-2 and AGUMP20T20-2) can only replace non-CPT models if the entire system is upgraded to include the VSFC controller and PLLD pressure transducer.

Safety Precautions

The following safety symbols are used throughout this manual to alert you to important safety hazards and precautions.

 <p>EXPLOSIVE Fuels and their vapors are extremely explosive if ignited.</p>	 <p>FLAMMABLE Fuels and their vapors are extremely flammable.</p>
 <p>ELECTRICITY High voltage exists in, and is supplied to, the device. A potential shock hazard exists.</p>	 <p>TURN POWER OFF Live power to a device creates a potential shock hazard. Turn Off power to the device and associated accessories when servicing the unit.</p>
<p>WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.</p>	<p>CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.</p>
 <p>WEAR EYE PROTECTION Wear eye protection when working with pressurized fuel lines to avoid possible eye injury.</p>	<p>NOTICE is used to address practices not related to physical injury.</p>
 <p>WEAR GLOVES Wear gloves to protect hands from irritation or injury.</p>	 <p>NO POWER TOOLS Sparks from power tools (such as drills) can ignite fuels and their vapors.</p>
 <p>NO SMOKING Sparks and embers from burning cigarettes or pipes can ignite fuels and their vapors.</p>	 <p>NO OPEN FLAMES Open flames from matches, lighters, welding torches, etc. can ignite fuels and their vapors.</p>
 <p>READ ALL RELATED MANUALS Knowledge of all related procedures before you begin work is important. Read and understand all manuals thoroughly. If you do not understand a procedure, ask someone who does.</p>	 <p>TURN OFF CELL PHONES/PAGERS Sparks from electronic devices in the vicinity of gasoline storage tanks could cause an explosion or fire resulting in bodily injury or death.</p>

⚠ WARNING



This product operates in the highly combustible atmosphere of a gasoline storage tank. **FAILURE TO COMPLY WITH THE FOLLOWING WARNINGS AND SAFETY PRECAUTIONS COULD CAUSE DAMAGE TO PROPERTY, ENVIRONMENT, RESULTING IN SERIOUS INJURY OR DEATH.**

1. All installation work must comply with the latest issue of the National Electrical Code (NFPA 70), the Code for Motor Fuel Dispensing Facilities and Repair Garages (NFPA 30A), and any European, national, state, and local code requirements that apply.
2. Turn off, tag, and lockout power to the STP before connecting or servicing the STP.
3. Before installing pipe threads apply an adequate amount of fresh, UL classified for petroleum, non-setting thread sealant. For E85AG applications, Loctite 564 is recommended for all field serviceable pipe threads.
4. When servicing unit, use non-sparking tools and use caution when removing or installing equipment to avoid generating a spark.
5. To protect yourself and others from serious injury, death, or substantial property damage, carefully read and follow all warnings and instructions in this manual.

In addition to the specified torque values noted in this manual, when properly tightened, all flanged fittings should have metal-to-metal contact.

The Red Jacket Submersible Turbine Pump's A-weighted emission sound pressure level at work stations (inside the sump pit or on forecourt while refueling) does not exceed 70 dB.

Warnings and Instructions



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 damage to property, environment, resulting in serious injury or death, 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.



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 1-800-323-1719 to locate a qualified technician. It is imperative to your safety and the safety of others to understand the procedures before beginning work. **Make sure your employees and any service contractors read and follow the instructions.**

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 Hazard Association (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.

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.

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 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. 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. Before you start work, know the location of the Emergency Power Cutoff Switch (the E-STOP). This switch cuts off power to all fueling equipment and submerged turbine pumps and is to be used in the event of an emergency. The buttons on the console at the cashier's station WILL NOT shut off electrical power to the pump/dispenser. This means that even if you press a button on the console labeled EMERGENCY STOP, ALL STOP, PUMP STOP, or something similar, fuel may continue to flow uncontrolled.

Hazardous Materials

Some materials 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

FAILURE TO COMPLY WITH THE FOLLOWING WARNINGS AND SAFETY PRECAUTIONS COULD RESULT IN PROPERTY DAMAGE, INJURY OR DEATH.



FIRE HAZARD! Do **NOT** use **power tools** (Class I Division I and Class I Division II) during the installation or maintenance of equipment. Sparking could ignite fuel or vapors, resulting in fire.



CHEMICAL EXPOSURE HAZARD! Wear appropriate **safety equipment** during installation or maintenance of equipment. Avoid exposure to fuel and vapors. Prolonged exposure to fuel may cause severe skin irritations and possible burns.

REQUIREMENTS FOR USE

- The Red Jacket is designed for use only at facilities dispensing motor fuels.
- Application of The Red Jacket must be consistent with NFPA Code 30A, OSHA regulations, and federal, state and local fire codes, and other applicable local regulations.
- The selection of any Veeder-Root product must be based upon physical specifications and limitations and the product's compatibility with the materials to be handled. Veeder-Root makes no warranty of fitness for a particular purpose.
- All Veeder-Root products should be used in accordance with applicable federal, state and local laws, ordinances and regulations.

OPERATING PRECAUTIONS



- **NO SMOKING.** Extinguish all open flames and pilot lights, such as on RV appliances.
- **TURN OFF** cell phones and other electronic devices to prevent sparks which could cause an explosion or fire.

Fuel Compatibilities

Pumps are designed to operate in a Class 1, Group D atmosphere and in accordance with the European Directive 2014/34/EU “Equipment for Potentially Explosive Atmospheres” when installed with certified equipment. See Table 1 for UMP models and working parameters.

All models of The Red Jacket STP or Standard STP are UL Listed for the following fuel compatibility						
100% Diesel	100% Gasoline	Gasoline and up to				
		10% Ethanol	15% Methanol	20% MTBE	20% ETBE	20% TAME

All models of The Red Jacket with the AG prefix are UL Listed for the following fuel compatibilities								
100% Diesel	Diesel and up to	100% Biodiesel	100% Gasoline	Gasoline and up to				
	20% Biodiesel			85% Ethanol	15% Methanol	20% MTBE	20% ETBE	20% TAME

For Internal Fluid Confining Components, Replace Only With Identical Parts.

The UMP is designed to be compatible with 100 percent gasoline, or diesel and 80 percent gasoline with 20 percent methanol, ethanol, TAME, ETBE, or MTBE. All UMPs having the model numbers including the AG prefix are designed to be compatible with 100 percent gasoline, methanol, 90 percent ethanol with 10 percent gasoline, and 80 percent gasoline with 20 percent TAME, ETBE, or MTBE; and 100 percent diesel, diesel and up to 20 percent biodiesel and 100 percent biodiesel.

The product temperature must not exceed 105°F (41°C) because the thermal overload protectors in the submersible motor may trip.

Table 1. Maximum Specific Gravity And Maximum Viscosity

UMP Model	Maximum Specific Gravity	Maximum Viscosity
AGUMP33S1, UMP33U1	.95	70SSU at 60°F (15°C)
AGUMP75S1, UMP75U1	.95	70SSU at 60°F (15°C)
AGUMP150S1, UMP150U1	.95	70SSU at 60°F (15°C)
AGUMP75S3-3, UMP75U3-3	.95	70SSU at 60°F (15°C)
AGUMP150S3-3, UMP150U3-3	.95	70SSU at 60°F (15°C)
X3AGUMP150S1, X3UMP150U1	.87	70SSU at 60°F (15°C)
AGUMP75S17-3, UMP75U17-3	.95	70SSU at 60°F (15°C)
AGUMP150S17-3, UMP150U17-3	.95	70SSU at 60°F (15°C)
X4AGUMP150S17, X4UMP150U17	.86	70SSU at 60°F (15°C)
X4AGUMP150S3, X4UMP150U3	.86	70SSU at 60°F (15°C)
AGUMP200S1-3, UMP200U1-3,	.87	70SSU at 60°F (15°C)
AGUMPL200S1-3, UMPL200U1-3	.91	70SSU at 60°F (15°C)
AGP200S3-4, P200U3-4	.87	70SSU at 60°F (15°C)
AGP200S17-4, P200U17-4	.87	70SSU at 60°F (15°C)

Electrical Data and Service Information

Table 2 and Table 3 show pump electrical service requirements for UMPs with end views A and B, respectively. Table 4 shows pump electrical service requirements for EN 15268 UMPs with end view B.

Table 2. Electrical Service Information (For Umps Containing A Franklin Motor With End View A) - For STPs With UL, cUL, 03ATEX0237289X, 04ATEX0330285X, 06ATEX6050X, ANZEX 04.3005X Or POCC 05.B02160 Markings

Required power supply rating for 60 Hz, 1 phase pumps is 208 - 230 Vac. For 50 Hz, 1 phase pumps, required rating is 220 - 240 Vac. For 3 phase pumps, required rating is 380 - 415 Vac.

UMP Model No.	HP	Hz	PH	Voltage Fluctuation Range		Max. Load Amps	Locked Rotor Amps	Winding Resistance (Ohms)			Capacitor Kit (µF) or Heaters (KXX)
				Min.	Max.			Black-Orange	Red-Orange	Black-Red	
AGUMP33S1, UMP33U1	1/3	60	1	200	250	4.0	13	7.7 - 9.4	17.4 - 21.2	25 - 30.7	144-224-5 (17.5)
AGUMP75S1, UMP75U1	3/4	60	1	200	250	6.5	25	2.9 - 3.6	14.9 - 18.2	17.7 - 21.9	410164-001 (17.5)
AGUMP150S1, UMP150U1	1-1/2	60	1	200	250	10.5	37	2.0 - 2.5	11.6 - 14.2	13.5 - 16.8	410164-002 (25)
X3AGUMP150S1, X3UMP150U1	1/1/2	60	1	200	250	10.5	37	2.0 - 2.5	11.6 - 14.2	13.5 - 16.8	410164-002 (25)
AGUMP200S1-3, UMP200U1-3	2	60	1	200	250	11.4	46	1.4 - 1.7	2.5 - 3.2	3.8 - 5	410164-003 (40)
AGUMP75S3-3, UMP75U3-3	3/4	50	1	200	250	5.8	17	3.6 - 4.5	20.4 - 25	23.9 - 29.6	410164-001 (17.5)
AGUMP150S3-3, UMP150U3-3	1-1/2	50	1	200	250	10	28	2.5 - 3.1	11.5 - 14	13.9 - 17.2	410164-002 (25)
X4AGUMP150S3, X4UMP150U3	1-1/2	50	1	200	250	10	28	2.5 - 3.1	11.5 - 14	13.9 - 17.2	410164-002 (25)
AGUMP200S3-4, UMP200U3-4	2	50	1	200	250	11	37	1.9 - 2.4	3.1 - 3.9	5.0 - 6.3	410164-003 (40)
AGUMP75S17-3, UMP75U17-3	3/4	50	3	342	457	2.2	8	25.8- 32.4	25.8- 32.4	25.8- 32.4	K26
AGUMP150S17-3, UMP150U17-3	1-1/2	50	3	342	457	3.8	15	13.1 - 16.4	13.1 - 16.4	13.1 - 16.4	K33
X4AGUMP150S17, X4UMP150U17	1-1/2	50	3	342	457	3.8	15	13.1 - 16.4	13.1 - 16.4	13.1 - 16.4	K33
AGUMP200S17-4, UMP200U17-4	2	50	3	342	457	5.0	22	9.3 - 11.6	9.3 - 11.6	9.3 - 11.6	K37

Table 3. Electrical Service Information (For UMPs Containing A Faradyne Motor With End View B) - For STPs With UL, cUL, 03ATEX0237289X, 04ATEX0330285X Or 06ATEX6050X Markings

Required power supply rating for 60 Hz, 1 phase pumps is 208 - 230 Vac. For 50 Hz, 1 phase pumps, required rating is 220 - 240 Vac. For 3 phase pumps, required rating is 380 - 415 Vac.

UMP Model No.	HP	Hz	PH	Voltage Fluctuation Range		Max. Load Amps	Locked Rotor Amps	Winding Resistance (Ohms)			Capacitor Kit (µF)
				Min.	Max.			Black-Orange	Red-Orange	Black-Red	
AGUMP33S1, UMP33U1	1/3	60	1	200	250	4.0	10	8.9 - 10.8	11.5 - 13.9	20.2 - 24.5	144-224-5 (17.5)
AGUMP75S1, UMP75U1	3/4	60	1	200	250	6.5	19	4.7 - 5.7	7.1 - 8.6	11.7 - 14.1	410164-001 (17.5)
AGUMP150S1, UMP150U1	1-1/2	60	1	200	250	10.5	33	2.8 - 3.4	6.8 - 8.2	9.4 - 11.3	410164-002 (25)
X3AGUMP150S1, X3UMP150U1	1/1/2	60	1	200	250	10.5	33	2.8 - 3.4	6.8 - 8.2	9.4 - 11.3	410164-002 (25)
AGUMP200S1-3, AGUMPL200S1-3, UMP200U1-3, UMPL200U1-3	2	60	1	200	250	11.4	44	1.9 - 2.3	3.4 - 4.1	5.1 - 6.2	410164-003 (40)
AGUMP75S3-3, UMP75U3-3	3/4	50	1	200	250	5.8	18	5.2 - 6.3	10.3 - 12.5	15.4 - 18.6	410164-001 (17.5)
AGUMP150S3-3, UMP150U3-3	1-1/2	50	1	200	250	10	31	2.8 - 3.4	13.4 - 16.3	16.1 - 19.5	410164-002 (25)
X4AGUMP150S3, X4UMP150U3	1-1/2	50	1	200	250	10	31	2.8 - 3.4	13.4 - 16.3	16.1 - 19.5	410164-002 (25)
AGUMP200S3-4, UMP200U3-4	2	50	1	200	250	11	38	2.2 - 2.6	6.0 - 7.3	8.0 - 9.7	410164-003 (40)

When using a Red Jacket IQ™ Control Unit with an UMP containing a Faradyne motor, IQ software 805-001C (Version3.2) or newer, is required for proper operation of the system. The UMPs will have an 'FM' designation printed on the UMP shell. Software upgrade kit part number is 410600-001.

Table 4. Electrical Service Information (For EN 15268 UMPs Containing A Motor With End View B) - For STPs With UL, cUL, 03ATEX0237289X, 04ATEX0330285X, 06ATEX6050X Or 12ATEX1247797X Markings

Required power supply rating for 3 phase pumps, required rating is 380 - 415 Vac.

UMP Model No.	HP	Hz	PH	Voltage Fluctuation Range		Max. Load Amps	Locked Rotor Amps	Winding Resistance (Ohms)			Setting on Motor Protection Device
				Min.	Max.			Black-Orange	Red-Orange	Black-Red	
AGUMP75S17-3, UMP75U17-3	3/4	50	3	342	457	2.2	8.1	24.4 - 29.6	24.4 - 29.6	24.4 - 29.6	1.8
AGUMP150S17-3, UMP150U17-3	1-1/2	50	3	342	457	3.8	14.1	12.1 - 14.7	12.1 - 14.7	12.1 - 14.7	3.8
X4AGUMP150S17, X4UMP150U17	1-1/2	50	3	342	457	3.8	14.1	12.1 - 14.7	12.1 - 14.7	12.1 - 14.7	3.8
AGUMP200S17-4, UMP200U17-4	2	50	3	342	457	5.0	17.7	9.9 - 12.0	9.9 - 12.0	9.9 - 12.0	4.5

Table 5 lists UMP weights and lengths and Table 6 lists pump shut-off pressures.

NOTE: The weights and lengths listed below are approximate values and will vary due to manufacturing tolerances.

The optional trapper intake screen is available as a field installed accessory. Trapper options will increase the length of the UMP by 3.3 inches (83 mm). For installation instructions, see Red Jacket installation instructions #051-256-1. For models with floating suction adapter, add 2-3/8 inches (59 mm) and 4 pounds (1.8 kg).

Table 5. UMP Model Dimensions

UMP Model		HP	Franklin Motor (Use these lengths for UMPs with end view A shown in Figure 1)		Faradyne Motor (Use these lengths for UMPs with end view B shown in Figure 1)		Weight	
			in.	mm	in.	mm	lb.	kg
UMP33U1, AGP33R1		1/3	15-1/2	390	15-3/8	391	24	11.0
UMP75U1, AGUMP75S1		3/4	17-3/4	447	17-5/8	448	28	12.7
UMP75U3-3, AGUMP75S3-3		3/4	20	507	19-7/8	505	30.5	13.9
UMP75U17-3, AGUMP75U17-3		3/4	19-1/4	489	19	483	28	12.7
UMP150U1, AGUMP150S1		1-1/2	20-1/2	519	20-5/8	524	34	15.5
X3P150U1, X3AGUMP150S1		1-1/2	21-1/4	540	21-1/2	546	35	15.8
UMP150U3-3, AGUMP150S3-3		1-1/2	22-1/4	565	22-1/4	565	34	15.5
X4P150U3, X4GUMP150S3		1-1/2	22-3/4	576	22-7/8	581	35	15.9
UMP150U17-3, AGUMP150S17-3		1-1/2	21	532	21-1/4	540	31	14.1
X4P150U17, X4AGUMP150S17		1-1/2	21-1/2	547	21-3/4	552	32	14.5
UMP200U1-3, AGUMP200S1-3, UMPL200U1-3, AGUMPL200S1-3		2	24-1/4	618	24-5/8	626	36	16.3
UMP200U3-4, AGUMP200S3-4		2	26	660	26-1/4	667	38	17.2
UMP200U17-4, AGUMP200S17-4		2	23-3/4	600	23-3/4	603	36	16.3

Table 6. Approximate Pump Shut-Off Pressures

UMP Model	Approximate Shut-Off Pressure
AGUMP33S1, UMP33R1	25 psi (172 kPa) .74 SG @ 60°F (15°C)
AGUMP75S1, UMP75U1	28 psi (193 kPa) .74 SG @ 60°F (15°C)
AGUMP150S1, UMP150U1	30 psi (207 kPa) .74 SG @ 60°F (15°C)
X3AGUMP150S1, X3UMP150U1	43 psi (297 kPa) .74 SG @ 60°F (15°C)
AGUMP75S3-3, UMP75U3-3	30 psi (207 kPa) .74 SG @ 60°F (15°C)
AGUMP75S17-3, UMP75U17-3	29 psi (200 kPa) .74 SG @ 60°F (15°C)
AGUMP150S3-3, UMP150U3-3	32 psi (220 kPa) .74 SG @ 60°F (15°C)
AGUMP150S17-3, UMP150U17-3	32 psi (220 kPa) .74 SG @ 60°F (15°C)

Table 6. Approximate Pump Shut-Off Pressures

UMP Model	Approximate Shut-Off Pressure
X4AGUMP150S3, X4UMP150U3	40 psi (275 kPa) .74 SG @ 60°F (15°C)
X4AGUMP150S17, X4UMP150U17	39 psi (267 kPa) .74 SG @ 60°F (15°C)
AGUMP200S1-3, UMP200U1-3	43 psi (297 kPa) .74 SG @ 60°F (15°C)
AGUMP200S3-4, UMP200U3-4	43 psi (297 kPa) .74 SG @ 60°F (15°C)
AGUMP200U17-4, UMP200U17-4	43 psi (297 kPa) .74 SG @ 60°F (15°C)
AGUMPL200S1-3, UMPL200U1-3	36 psi (248 kPa) .74 SG @ 60°F (15°C)

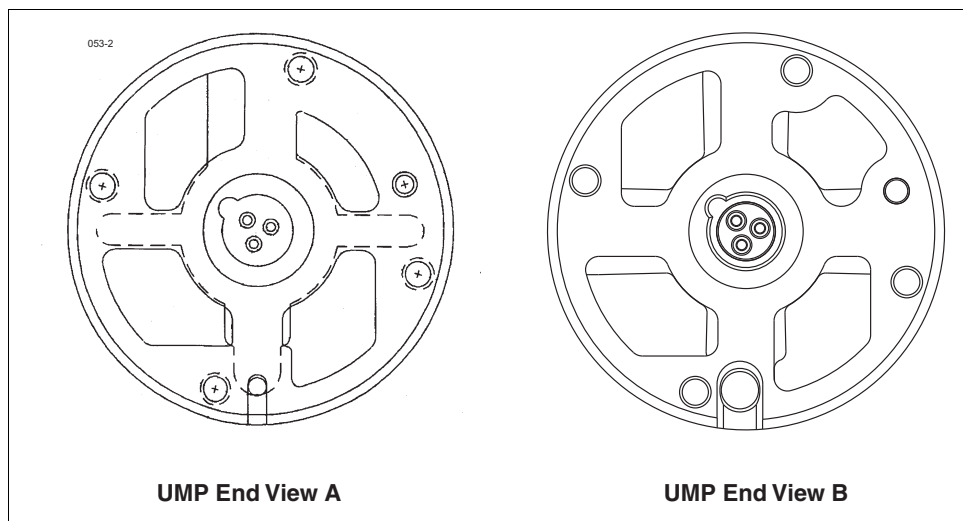


Figure 1. Identifying UMP Models By Their End View

Replacing the UMP for the Red Jacket STP

WARNING



Disconnect, lock out, and tag power at the panel before starting to service the pump.



When servicing equipment, use non-sparking tools and use caution when removing or installing equipment to avoid generating a spark.

Kit Required:

- Hardware/Seal Kit, P/N 410154-001
- Die Spring Kit, P/N 410485-001 (P/N 410906-001 for RA models)

1. If a ball valve is installed down line from the pump, close it.
2. Remove the two extractable lock-down nuts and discard them (see Figure 2). The springs on the lock-down studs between the extractable's flange and the manifold will push the extractable up, breaking the seals.

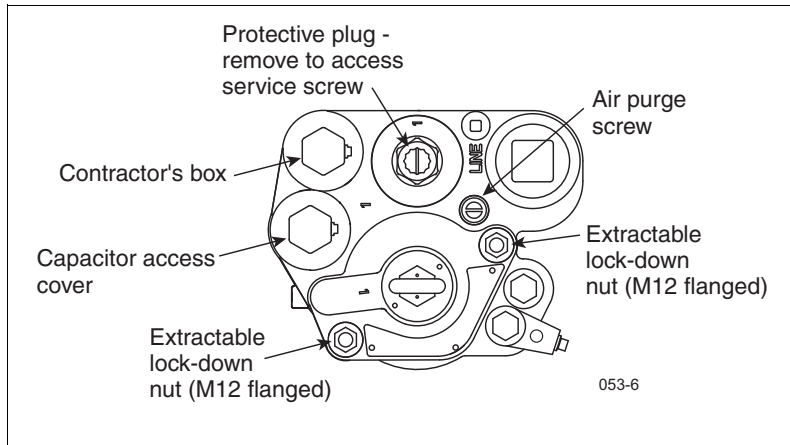


Figure 2. Extractable Lock-Down Nuts

WARNING

Confirm that the lifting eyebolt is properly torqued to 10 ft-lbs (13.6 N•m) with a minimum of 6 full threads installed. Occasionally, eyebolts are removed after pump installation and corrosion may occur in the threaded areas of the wiring compartment cover (eyebolt plug) and the eyebolt. If corrosion has occurred, the cover and eyebolt should be replaced.

- Utilize the lifting eyebolt to lift out the extractable unit and place it on a clean surface. **Removal of the extractable section of the pump must be conducted with caution.** Make certain that the extractable section remains centered within the riser pipe and that no portion of the extractable binds during the removal process. If binding occurs during removal, stop and determine the cause of the binding and correct the situation before proceeding with removal.

NOTICE

For all models with the 'RA' suffix, take care not to damage the powder coating on the packer/manifold and discharge head when placing the pump on the working surface.

- Lift out the extractable unit allowing the pump to drain into the tank before complete extraction.
- Place the unit on a clean surface.
- Remove the old UMP by removing the four bolts holding the discharge head as shown in Figure 3. Discard the old gasket and fasteners.
- Visually inspect the pigtail connector in the discharge head - replace if damaged. Be certain the indexing tab of the pigtail is seated in the notch of the discharge head.

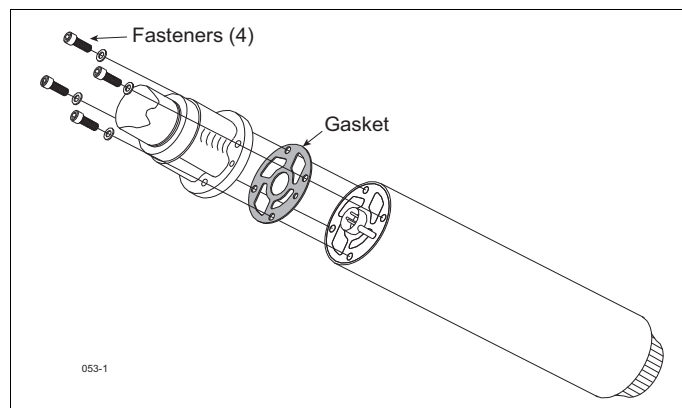


Figure 3. UMP Bolts And Gasket

8. Pull the pigtail connector in the discharge head out far enough to see the o-ring in the sidewall of its socket (see Figure 4). Remove the connector's o-ring from the connector's socket and discard it. Get a 0.551" ID x 0.070" wide o-ring from the hardware/seal kit and lubricate it with petroleum jelly. Slide the new o-ring over the pigtail connector and push it in the groove in the wall of the connector's socket. Lubricate the pigtail connector body with petroleum jelly and push it back into its socket, making sure its index tab is in the socket's notch.

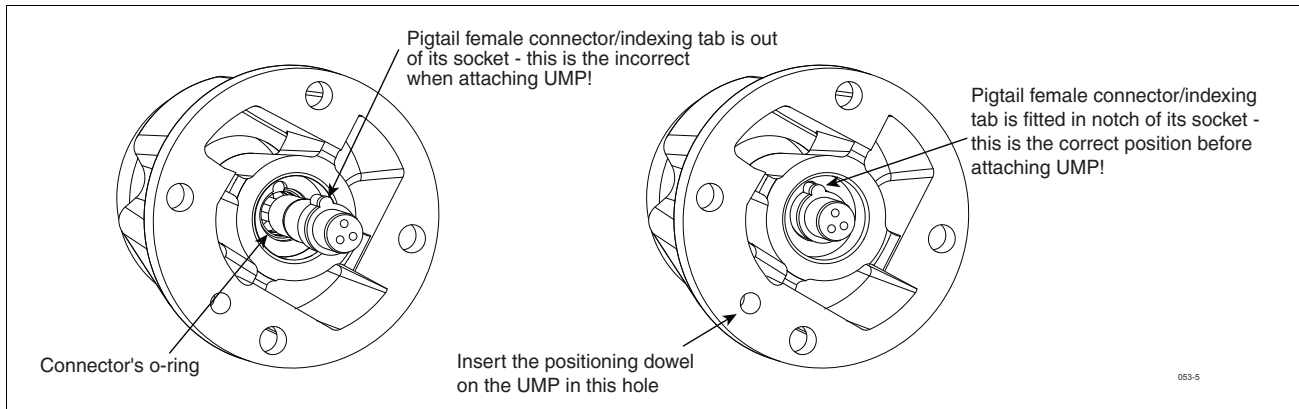


Figure 4. Verifying Pigtail's Female Connector Is Seated Properly In Discharge Head

9. Place the new gasket from the UMP replacement kit on the new UMP so that all the holes align.

CAUTION Gaskets from competitive UMPs will not seal properly and performance will be reduced.

10. Align the UMP positioning dowel so it inserts in the proper hole in the discharge head (see Figure 4) and push the UMP into position using hand force only. The UMP should be snug against the discharge head prior to installing the UMP retaining bolts.

WARNING Use hand force to push the UMP onto the discharge head. If the UMP does not seat snug against the discharge head, remove the UMP and correct the problem.

Fasteners are not metric - use fasteners provided with equipment.

11. Install the four new UMP retaining bolts and lock washers from the UMP replacement kit. Snug and then torque the bolts using a cross pattern technique to 7 ft-lbs (11 N•m).

WARNING Do not use the bolts to pull the UMP into position. Use the cross pattern to snug and torque the bolts. Do not over torque the bolts. Not following these instructions may cause parts to fail.

12. Get the three extractable o-ring seals (3.975" ID x 0.210" wide [upper], 3.850" ID x 0.210" wide [middle], and 3.725" x 0.210" wide [lower]) from the hardware/seal kit. The three o-rings are very close in size so take extra care to distinguish each one before replacing them in the extractable. Lubricate each o-ring with petroleum jelly and then install them in their assigned grooves in the extractable (see Figure 5).

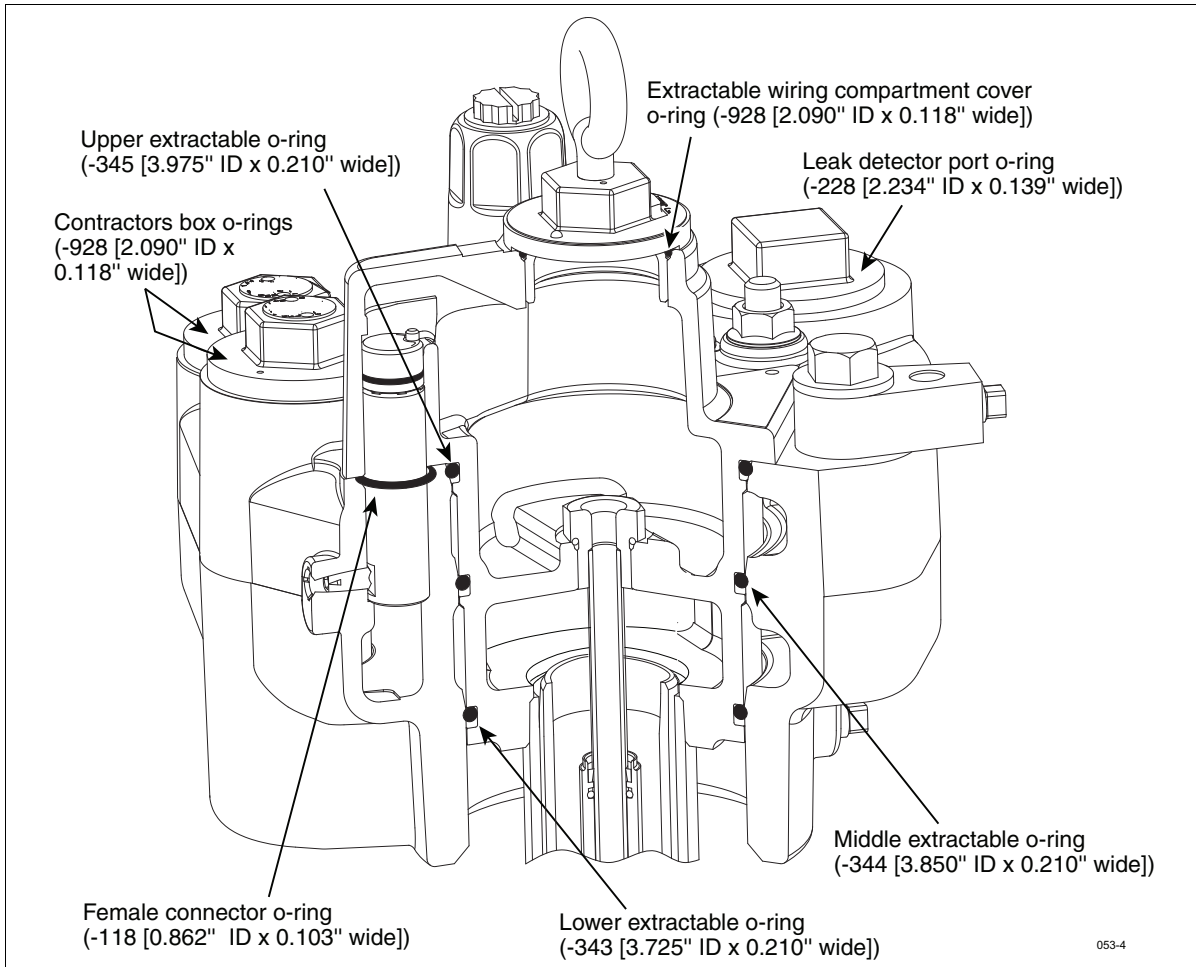


Figure 5. Locating Packer And Manifold O-Rings

13. Remove the manifold's female connector's o-ring (see Figure 5). Get a 0.862" ID x 0.103" wide o-ring from the hardware/seal kit and lubricate it with petroleum jelly. Slide the o-ring over the female connector and push it down into its groove.



14. Reinstall the extractable unit into the manifold and tank. Torque the extractable lock-down nuts in an alternating pattern to 50 ft-lbs (68 N•m).

NOTICE Remove the springs around the lock-down studs and replace with the springs from the kit.

For all models with the 'RA' suffix, stainless steel lock-down nuts and washers are used and found in the kit. Apply anti-seize (also found in the kit) to the lock-down studs prior to nut and washer installation.

15. Turn the air purge screw 2 - 3 turns counterclockwise (see Figure 2).

WARNING The air purge screw is retained by a hitch pin to limit travel. Do not attempt to rotate beyond 3 turns.

16. Turn the pump on and let it run for about 2 minutes to purge air from the manifold's hydraulic cavities. While the pump is still running, turn the air purge screw clockwise until it is completely closed.

17. If applicable, open the ball valve down line from the pump.

Replacing the UMP for the Standard STP



Disconnect, lock out, and tag power at the panel before starting to service the pump.



When servicing equipment, use non-sparking tools and use caution when removing or installing equipment to avoid generating a spark.

Service Parts Required:

- 410109-001 Discharge Head O-Ring Kit
- 072-718-1 Packer O-ring Seal - Or - 072-542-1 Packer O-ring Seal 'AG'
- 072-240-5 Discharge Quad Seal - Or - 076-380-5 Discharge Quad Seal 'AG'

1. If a ball valve is installed down line from the pump, close it.
2. Back out the electrical yoke disconnect bolt (see Figure 6).

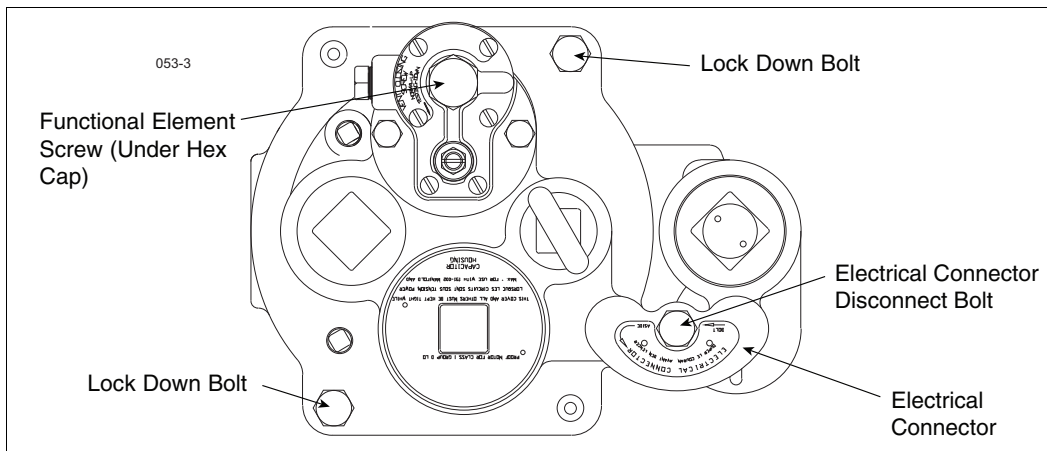


Figure 6. Packer

3. Swing the electrical connector aside.
4. If a siphon system is in place, disconnect the siphon tubing. If ball valves are installed, close them.
5. Remove the two lock-down bolts. To relieve pressure, rock the pump to allow excess pressure to flow into the tank or back out Functional Element screw.



Confirm that the packer wiring compartment cover/plug (with lifting eyebolt) is properly torqued at 50 ft-lbs (70 N•m). Confirm that the lifting eyebolt is properly torqued to 10 ft-lbs (13.6 N•m) with a minimum of 6 full threads installed. Occasionally, eyebolts are removed after pump installation and corrosion may occur in the threaded areas of the wiring compartment cover/plug and the eyebolt. If corrosion has occurred, the cover/plug and eyebolt should be replaced.

6. Utilize the lifting eyebolt to lift out the extractable unit and place it on a clean surface. **Removal of the extractable section of the pump must be conducted with caution.** Make certain that the extractable portion remains centered within the riser pipe and that no portion of the extractable binds during the removal process. If binding occurs during removal, stop and determine the cause of the binding and correct the situation before proceeding with removal.

- Lift out the extractable unit allowing the pump to drain into the tank before complete extraction.

CAUTION DO NOT damage the surface above the discharge port. The o-ring below the leak detector port seals on this surface.

NOTICE Before replacing the extractable portion, make sure that the packer o-ring and discharge o-ring seal surfaces are clean. New o-rings should be installed, lubricate with petroleum jelly.

- Place the unit on a clean surface
- Remove the old UMP by removing the four bolts holding the discharge head as shown in Figure 7. Discard the old gasket and fasteners.
- Visually inspect the pigtail connector in the discharge head - replace if damaged. Be certain the indexing tab of the pigtail is seated in the notch of the discharge head.

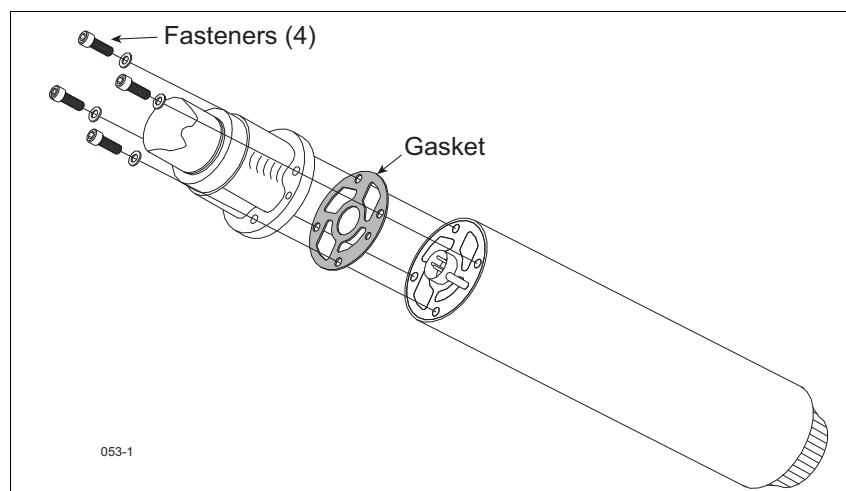


Figure 7. UMP Bolts And Gasket

- Pull the pigtail connector in the discharge head out far enough to see the o-ring in the sidewall of its socket (see Figure 8). Remove the connector's o-ring from the connector's socket and discard it. After referring to the instructions in the Discharge Head O-ring Kit, select the correct o-ring from the kit and lubricate it with petroleum jelly. Slide the new o-ring over the pigtail connector and push it in the groove in the wall of the connector's socket. Lubricate the pigtail connector body with petroleum jelly and push it back into its socket, making sure its index tab is in the socket's notch.
- Place the new gasket from the UMP replacement kit on the new UMP so that all the holes align.

CAUTION Gaskets from competitive UMPs will not seal properly and performance will be reduced.

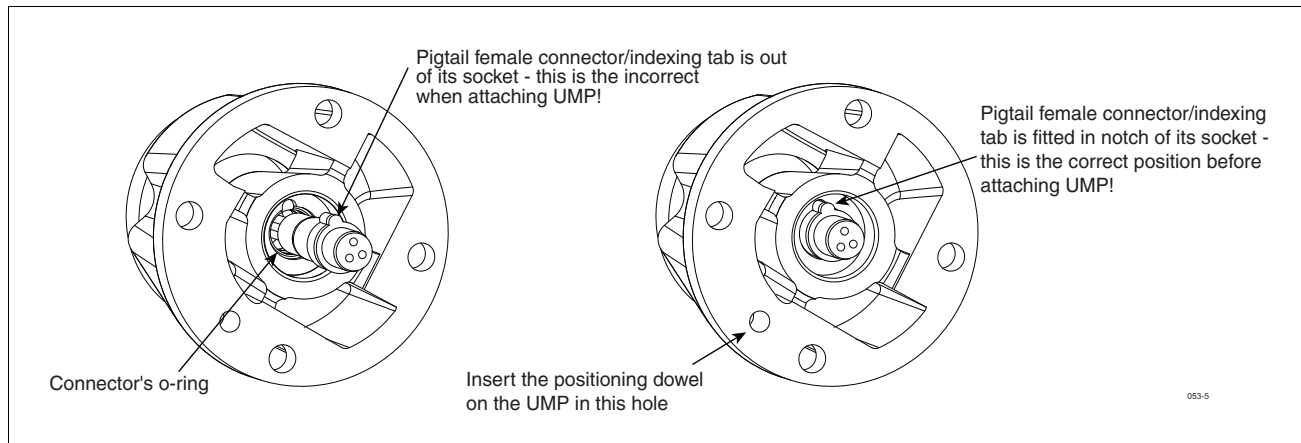


Figure 8. Verifying Pigtail's Female Connector Is Seated Properly In Discharge Head

- Align the UMP positioning dowel and boss with the proper holes in the discharge head and push the UMP into position using hand force only. The UMP should be snug against the discharge head prior to installing the UMP retaining bolts.

⚠ WARNING Use hand force to put the UMP onto the discharge head. If the UMP does not seat properly, snug against the discharge head, remove the UMP and correct the problem.

- Install the four new 5/16-18 x 1" UMP retaining bolts and lock washers. Snug and then torque the bolts using a cross pattern technique. Torque to 7 ft-lb (11 N•m).

⚠ WARNING Do not use the bolts to pull the UMP into position. Use the cross pattern to snug and torque bolts. Do not over torque the bolts. Not following these instructions may cause parts to fail.

Fasteners are not metric - use fasteners provided with equipment.

- Replace the packer o-ring and discharge Quad seal after lubricating them with petroleum-based jelly.
- Reinstall the extractable portion into the tank, aligning the positioning dowels of the manifold with the holes in the packer.
- Push the packer down as far as possible against the manifold.
- Insert the lock-down bolts and torque to 45-55 ft-lb (61 to 75 N•m).
- Loosen the bolts that hold the conduit box to the manifold. Do not remove it.
- Swing the electrical connector into position.
- Torque the electrical connector bolt to 25-50 ft-lb (34-68 N•m).
- Torque the conduit box bolts to 30-45 ft-lb (41 to 61 N•m).
- If the Functional Element screw was opened in Step 5, check the seating pressure of the adjustable Functional Element for proper setting.
- Reconnect the siphon tubing and open the ball valves if these items are used.

Test the Piping

1. Block lines at each dispenser by tripping dispenser shear valve. Remove line test plug on the packer for this test.
2. Close pump check valve by turning the vent closing screw on the Pressurstat/functional element as far down as possible.
3. Apply line test pressure at line test port (50 psi (345 kPa) maximum.)

▲ CAUTION Excessive pressure (above normal test pressure of 50-55 psi (345-380 kPa)) may damage check valve seat and other system components.

4. After completion of line test, release pressure by turning the vent closing screw on the Pressurstat/ functional element as far up as possible.
5. Reconnect power to the pump.
6. Purge the system of air by pumping at least 15 gallons (57 liters) through each dispenser. Begin with the dispenser furthest from the pump and work toward the pump.

Appendix A: CCC Certification For Single Phase UMPs

The following China certification and marking applies to single phase UMPs only:

For UMPs assembled and manufactured in Altoona, CCC Certificate Number: 2020312301002287

For UMPs assembled and manufactured in China, CCC Certificate Number: 2020012302271570

Marking:





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other assistance, please visit:
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