Repair/Parts

MODEL MVP-6CFM
VAPOR RECOVERY PUMP

3A5263F EN

Designed for hydrocarbon extraction processing.

For LP-Gas Recovery

Electric-Powered

Dual-Diaphragm

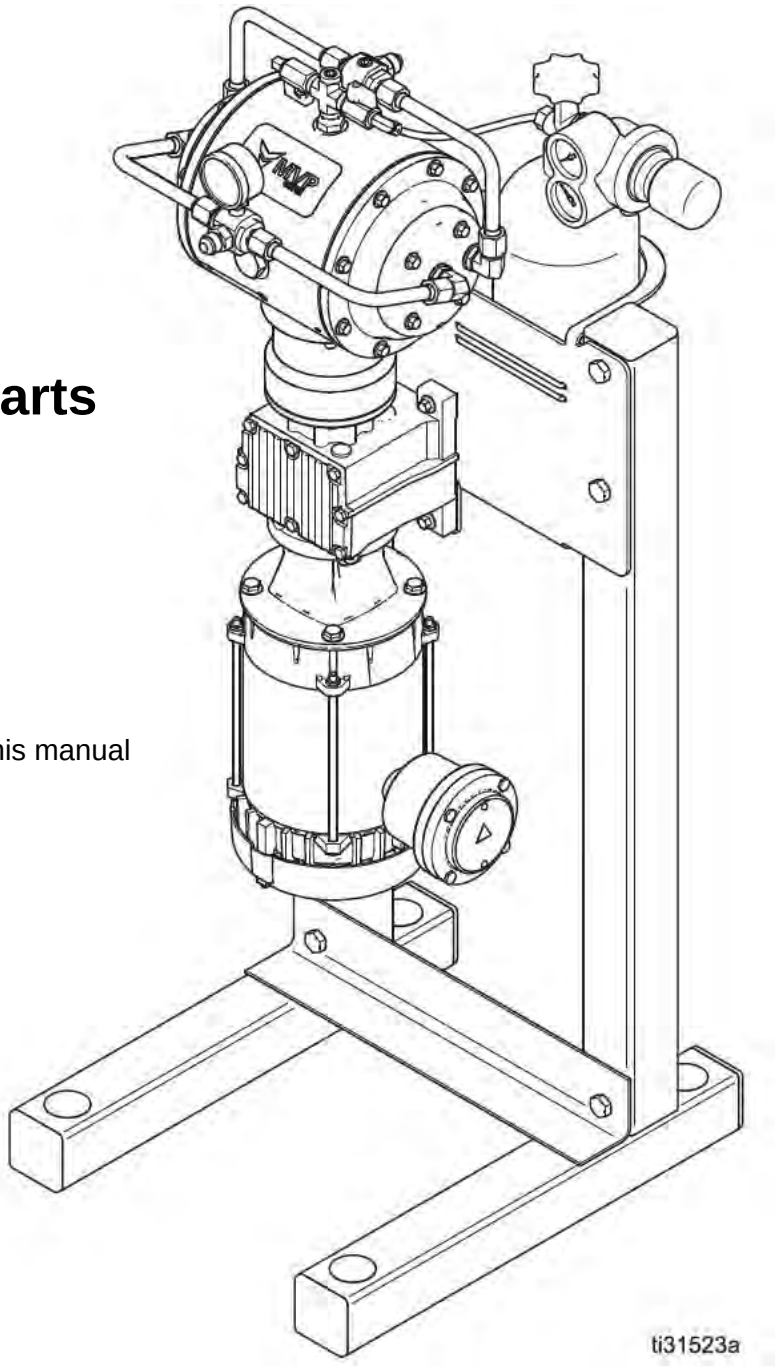
Explosion-Proof Motor

Stainless Steel Wetted Parts

Rated Maximum Allowable
Withstand Pressure (MAWP): LPG-350-PSI

For professional use only.

Important Safety Instructions
Read all warning and instruction in this manual and in the pump Operation manual.
Save these instructions.



Contents

Models

See ID tag for model number.

Model	Includes:		
	Motor	Pump	CO_2 Cylinder
MVP-6CFM-1PH	1 HP 1 Phase	yes	no
MVP-6CFM-3PH	1 HP 3 Phase	yes	no

Related Manuals

Manual Number	Title
3A5262	Model MVP-6CFM Vapor Recovery Pump, Operation

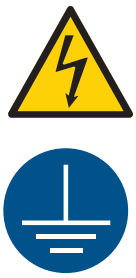
Approvals

Motor Approvals	
UL LISTED	Explosion-proof for Class I, Division 1 (C1D1) hazardous areas
CSA®	Class I Group C&D, Class II Group F&G, T3C

Warnings

The following warnings are for the setup, use, grounding, maintenance, and repair of this equipment. The exclamation point symbol alerts you to a general warning and the hazard symbols refer to procedure-specific risks. When these symbols appear in the body of this manual or on warning labels, refer back to these Warnings. Product-specific hazard symbols and warnings not covered in this section may appear throughout the body of this manual where applicable.

WARNING



ELECTRIC SHOCK HAZARD

This equipment must be grounded. Improper grounding, setup, or usage of the system can cause electric shock.

- Turn off and disconnect power at main switch before disconnecting any cables and before servicing or installing equipment.
- Connect only to grounded power source.
- All electrical wiring must be done by a qualified electrician and comply with all local codes and regulations.

FIRE AND EXPLOSION HAZARD

Flammable fumes in **work area** can ignite or explode. Vapor or solvent flowing through the equipment can cause static sparking. To help prevent fire and explosion:

- Use equipment only in well ventilated area.
- Eliminate all ignition sources; such as pilot lights, cigarettes, portable electric lamps, and plastic drop cloths (potential static arc).
- Ground all equipment in the work area. See **Grounding** instructions.
- Keep work area free of debris, including solvent, rags and gasoline.
- Do not plug or unplug power cords, or turn power or light switches on or off when flammable fumes are present.
- **Stop operation immediately** if static sparking occurs or you feel a shock**.** Do not use equipment until you identify and correct the problem.
- Keep a working fire extinguisher in the work area.

PRESSURIZED EQUIPMENT HAZARD

Vapor or solvent from the equipment, leaks, or ruptured components can splash in the eyes or on skin and cause serious injury.

- Follow the **Pressure Relief Procedure** when you stop operation and before cleaning, checking, or servicing equipment.
- Tighten all hose and pressure connections before operating the equipment.
- Check hoses, tubes, and couplings daily. Replace worn or damaged parts immediately.

WARNING

EQUIPMENT MISUSE HAZARD

Misuse can cause death or serious injury.

- Do not operate the unit when fatigued or under the influence of drugs or alcohol.
- Do not exceed the maximum working pressure or temperature rating of the lowest rated system component. See **Technical Data** in all equipment manuals.
- Use solvents that are compatible with equipment wetted parts. See **Technical Data** in all equipment manuals. Read solvent manufacturer's warnings. For complete information about your material, request Safety Data Sheet (SDS) from distributor or retailer.
- Turn off all equipment and follow the **Pressure Relief Procedure** when equipment is not in use.
- Check equipment daily. Repair or replace worn or damaged parts immediately with genuine manufacturer's replacement parts only.
- Do not alter or modify equipment. Alterations or modifications may void agency approvals and create safety hazards.
- Make sure all equipment is rated and approved for the environment in which you are using it.
- Use equipment only for its intended purpose. Call your distributor for information.
- Route hoses and cables away from traffic areas, sharp edges, moving parts, and hot surfaces.
- Do not kink or over bend hoses or use hoses to pull equipment.
- Keep children and animals away from work area.
- Comply with all applicable safety regulations.

THERMAL EXPANSION HAZARD

Liquids subjected to heat in confined spaces,especially in hoses and pipes, can create a rapid rise in pressure due to the thermal expansion. Over-pressurization can result in equipment rupture and serious injury.

- All hoses and pipes possibly exposed to liquid LP-Gas must be fitted with proper hydrostatic relief valves to prevent over-pressurization.
- Replace hoses proactively at regular intervals based on your operating conditions.

LP-GAS HAZARD

LP-Gas can cause serious injury or death if splashed in the eyes or on skin, inhaled, or ignited.

- Read Safety Data Sheet (SDS) to know the specific hazards of the solvents you are using.
- Store hazardous solvent in approved containers, and dispose of it according to applicable guidelines.

WARNING

BURN HAZARD

Equipment surfaces can become very hot during operation. To avoid severe burns:

- Do not touch hot equipment.

PERSONAL PROTECTIVE EQUIPMENT

Wear appropriate protective equipment when in the work area to help prevent serious injury, including eye injury, hearing loss, inhalation of fumes, and burns. This protective equipment includes but is not limited to:

- Protective eyewear, and hearing protection.
- Respirators, protective clothing, and gloves as recommended by the solvent manufacturer.

Troubleshooting

- Follow the Pressure Relief Procedure, page 7, before checking or servicing the equipment.
- Check all possible problems and causes before disassembly.

Problem	Cause	Solution
Pump cycles but will not prime and/or pump.	Pump head center section has no CO_2 pressure, or CO_2 pressure is too low.	Check CO_2 supply, adjust CO_2 to 70 psi.
	Check valves are worn or damaged.	Replace the check valves.
	Inlet or outlet hose is shut off.	Remove the restriction.
The center section is excessively hot.	The drive shaft is broken.	Replace.
Motor will not run.	Motor or controller is wired improperly.	Wire per manual.
	No power to motor.	Check electrical circuit.
The motor is operating, but the pump will not cycle.	The jaw coupling between the motor and gearbox is not connected properly.	Check the motor coupling.
Pump flow rate is erratic.	Inlet or outlet hose is pinched.	Inspect hoses.
	Check valves are sticky or bent.	Clean or replace check valves.
	Diaphragm ruptured.	Replace diaphragms.
CO_2 consumption is higher than expected.	CO_2 fitting is loose or hose damaged.	Inspect CO_2 fittings and hoses.
	Loose or damaged o-rings or shaft seal in center section.	Rebuild center section.
	Diaphragm ruptured.	Replace diaphragms.
Pump leaks externally from joints.	Loose diaphragm cover screws or fittings.	Check screws and fittings for tightness.

NOTE: For problems with a Variable Frequency Drive (VFD), see your VFD manual.

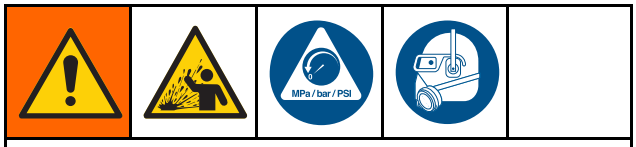
Repair

To avoid serious injury or death from fumes or fluids:

- Never move or lift a pump under pressure. If dropped, the center section may rupture. Always follow the Pressure Relief Procedure, page 7, before moving or lifting the pump.

Pressure Relief Procedure

Follow the Pressure Relief Procedure whenever you see this symbol.



This equipment stays pressurized until pressure is relieved manually. To help prevent serious injury from pressurized vapor, follow the Pressure Relief Procedure when you stop pumping for an extended period of time, and before you clean, check, or service the equipment.

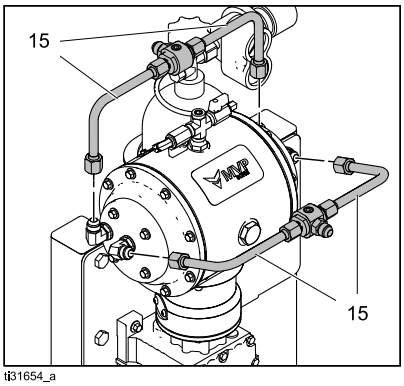
1. Remove electric power from the system.
2. Vent all LP-Gas vapor from the pump and hoses according to extractor system instructions.
3. Close the shutoff valve on the CO_2 cylinder.
4. On CO_2 port (E), open the pump CO_2 bleed valve and CO_2 supply valve.

   NOTE: In the event of a diaphragm rupture, LP-Gas may be present in the pump center section. Always vent all LP-Gas according to extractor system instructions.
5. If performing repairs, remove CO_2 regulator and tank from the pump prior to performing the work.

Check Valve Repair

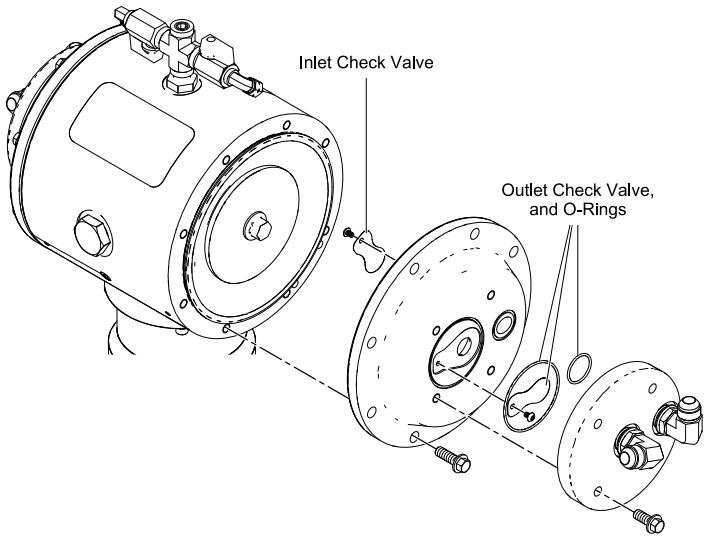
Manifold tubing may become hot during operation. Prior to removal, ensure that tubing has cooled enough to handle safely.

1. Follow the Pressure Relief Procedure, page 7 . Remove power from the motor. Disconnect all hoses.
2. Remove manifold tubing (15).



ti31654_a

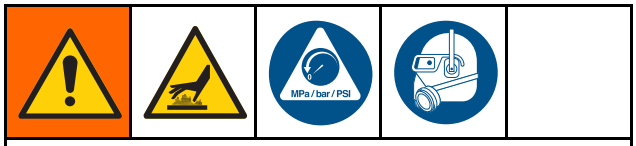
3. Use 10 mm (M8) socket wrench to remove the 8 diaphragm cover screws (13) and the diaphragm cover.
4. Use 10 mm (M8) socket wrench to remove the 4 vapor cap screws (13) and the vapor cap.
5. Inspect the o-rings between the diaphragm cover and the vapor cap for damage. Replace if needed.
6. Use a 2.5 mm hex wrench or star screwdriver to remove the inlet check valve screw. Repeat for the outlet check valve.



ti34278a

7. Inspect the valve screw for damage. Replace if needed. Clean the inlet valve area and install the new check valve. Repeat for the outlet check valve.
8. Install the vapor cap and loosely install the 4 screws (13).
9. Torque the vapor cap screws as described in Torque Instructions, page 17.
10. Install the diaphragm cover and loosely install the 8 screws (13).
11. Torque the diaphragm cover screws as described in Torque Instructions, page 17
12. Repeat steps 2-11 for other side of the pump.
13. Restore all manifold tubing.

Diaphragm Repair

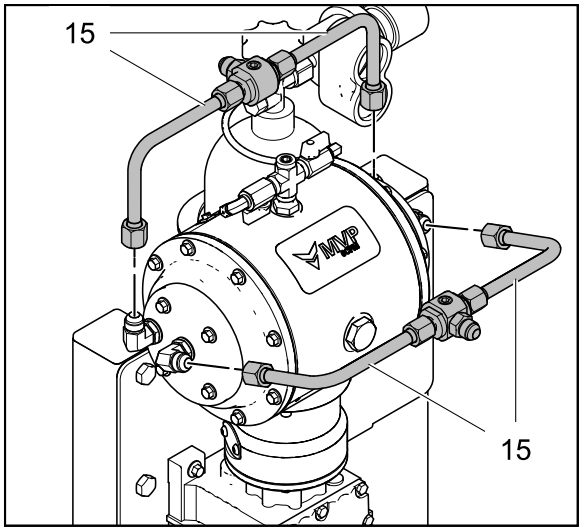


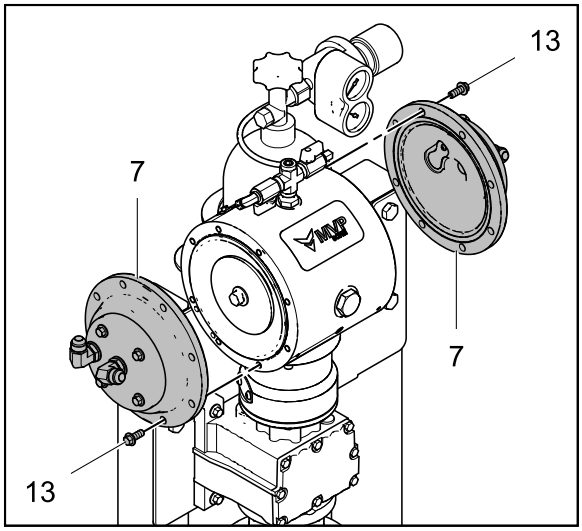
Manifold tubing may become hot during operation. Prior to removal, ensure that tubing has cooled enough to handle safely.

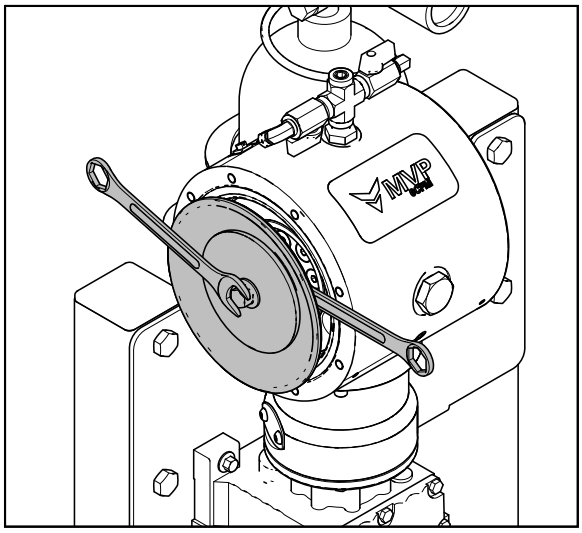
Disassemble the Diaphragms

NOTE: Diaphragm kit is available. See Parts section.

1. Follow the Pressure Relief Procedure, page 7 . Remove power from the motor. Disconnect all hoses.
2. Remove the manifold tubing (15).
3. Use a 10 mm socket wrench to remove the 8 screws (13) from the diaphragm covers (7), then pull the covers off of the pump.
4. To remove the diaphragms, the piston must be moved fully to the side toward the diaphragm to be removed. If the pump is not attached to the motor, turn the shaft by hand to move the piston. If the pump is still attached to the motor, loosen the screws and remove the motor fan cover. Turn the fan by hand in one direction to rotate the shaft to shift the piston to one side.
5. Hold a 16 mm wrench on the wrench flats of the exposed piston shaft. Use another wrench (15 mm) on the shaft bolt to remove it. Then remove all parts of the diaphragm assembly.
6. Rotate the drive shaft to move the piston fully to the opposite side, as described in step 4. Then remove the other diaphragm. assembly.
7. To continue with disassembly, see Disassemble the Center Section, page 11.





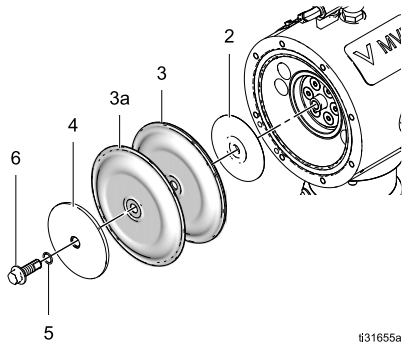


ti31654a

Reassemble the Diaphragms

TIP: If you are also repairing or servicing the center section (drive shaft, piston, etc.), see Center Section Repair, page 11, before you put the diaphragms back on.

1. Clean all parts and inspect for wear or damage. Replace parts as needed. Be sure the center section is clean and dry.
2. Thoroughly clean or replace the piston shaft bolt (6). Install the o-ring (5).
3. Assemble the vapor side plate (4), the diaphragms (3, 3a), and the CO_2 side diaphragm plate (2) on the bolt exactly as shown.
4. Clean the female threads of the piston shaft with a wire brush dipped in solvent to remove any residual thread locker. Apply thread-locking primer and allow it to dry.
5. Apply medium-strength (blue) thread locker to the threads of the bolt.
6. Rotate the drive shaft to move the piston fully to one side. See instructions in step 4 of Disassemble the Diaphragms, page 9 .
7. On the side where the shaft extends outward the farthest from the center section, hold a 16 mm wrench on the wrench flats of the piston shaft. Screw the bolt onto the shaft and torque to 20–25 ft-lb (27–34 N•m).
8. Repeat to install the other diaphragm assembly.
9. Attach the diaphragm covers and vapor caps. Apply medium-strength (blue) thread locker to the screw threads. See Torque Instructions, page 17, to tighten.

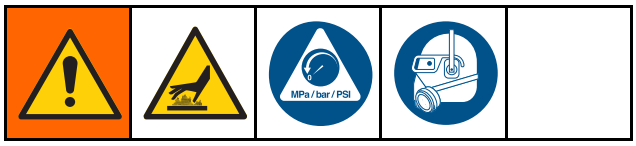


NOTICE

- After reassembly, allow the thread locker to cure for 12 hours, or according to manufacturer's instructions, prior to operating the pump. Damage to the pump will occur if the diaphragm shaft bolt loosens.
- Apply anti-seize to threads on stainless steel fittings used on the manifold tubes.

10. Attach all manifold tubing.

Center Section Repair



Disassemble the Center Section

See the illustrations on page 18.

1. Follow the Pressure Relief Procedure, page 7 . Remove power from the motor. Disconnect all hoses.
2. Remove the manifolds.
3. Remove the covers and diaphragms as directed in Disassemble the Diaphragms, page 9 .

   TIP: Remove pump from stand and secure gearbox to bench. Leave the pump connected to the motor.
4. Remove the drive shaft:

   a. Use a 5 mm hex wrench to remove 4 bolts (117). Pull the pump off of the alignment housing (116).

      TIP: It may be necessary to tap the pump with a rubber mallet to disengage the coupler.

   b. Remove CO_2 inlet fittings. Use a 30 mm socket wrench to remove the bearing bolt (106) and the o-ring (108).

   c. Turn the shaft so the groove on the shaft is in line with the alignment markings on the center section.

   d. Use a 3/4–16 bolt to push out the drive shaft assembly (112). You can also use the bearing bolt (106), but remove the bearing (107) first. Be sure that the groove on the drive shaft remains aligned with the markings in the center section.

   NOTICE

   Proper alignment is essential. Do not apply more than about 10 in-lb (1.1 N•m) of torque. Excessive torque could strip the housing thread. If you encounter resistance, check alignment or contact your distributor.

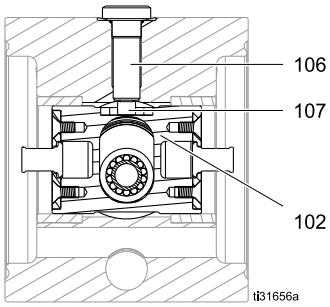
   e. The shaft coupler (113) might come out with the drive shaft assembly. If not, reach into the alignment housing (116) and remove the shaft coupler (113).

   f. Remove the seal cartridge (110), the o-ring (109) and the radial seal (111) with o-ring (111a) from the drive shaft assembly.
5. Slide the piston assembly (102) out of the center.
6. Leave the gearbox coupler (114) attached to the gearbox shaft (118) unless it is damaged. If you need to remove it, first remove the screws (128) and the access cover (126) on the alignment housing. Turn the gearbox coupler until you have access to screw (115) on the coupler (114). Use an 8 mm hex wrench to remove the screw (115), then remove the gearbox coupler (114).

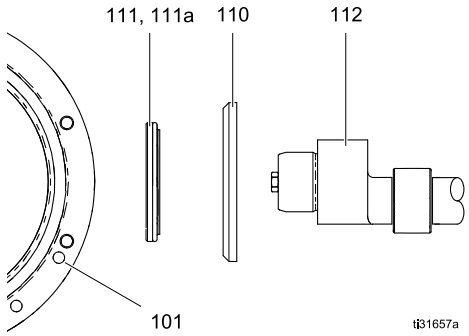
   NOTE: Do not remove the alignment housing (116) from the gearbox unless it is damaged.

Reassemble the Center Section

1. Clean and dry the center housing (101), the center of the piston (102) and the drive shaft (112).
2. Inspect the piston for excessive wear and replace if needed. Grease the piston as shown and install it in the center section with the groove in line with the alignment markings on the center section.
3. Install the o-ring (108) and the bearing bolt (106). Apply medium-strength (blue) thread locker and torque the bolt to 15–25 ft-lb (20–34 N•m). Be sure that the bearing (107) is in the groove on the piston, as shown. Be sure that the piston moves freely.



4. Install the drive shaft:
   a. Be sure the sealing surface of the drive shaft (112) is clean. Install the seal cartridge (110) and the radial seal (111) on the drive shaft. The lips on the radial seal (111) must face **IN** toward the center.



   b. Install o-ring (109).
   c. Apply anti-seize lubricant on the mating edges of the drive shaft, as shown in the illustration, page 18.
   d. Center the piston in the housing and install the drive shaft assembly (112) into the center housing (101) with the groove facing up.
   e. Inspect the shaft coupler (113) for wear and replace if needed. Install on the drive shaft.
5. If removed, install the gearbox coupler (114) in the alignment housing (116) until the coupler seats securely on the shaft. Apply medium strength thread locker and install the screw (115). Torque to 35–45 ft-lb (47–61 N•m). Then install the access cover (126). Torque the screws (128) to 10–20 in-lb (1–2 N•m).
6. Be sure the gearbox coupler (114) is aligned properly. Turn by hand if needed. Connect the pump to the gearbox assembly, engaging the couplers.
7. Apply medium-strength (blue) thread locker and install the housing screws (117). Tighten about 5 turns at a time, in a crisscross pattern, to fully engage the coupler. Torque to 130–160 in-lb (15–18 N•m).
8. Install CO_2 inlet fittings.
9. See Reassemble the Diaphragms, page 10, and Check Valve Repair, page 8 .

△1 Apply medium-strength (blue) thread locker to threads.

△2 Torque to 15–25 ft-lb (20–34 N•m).

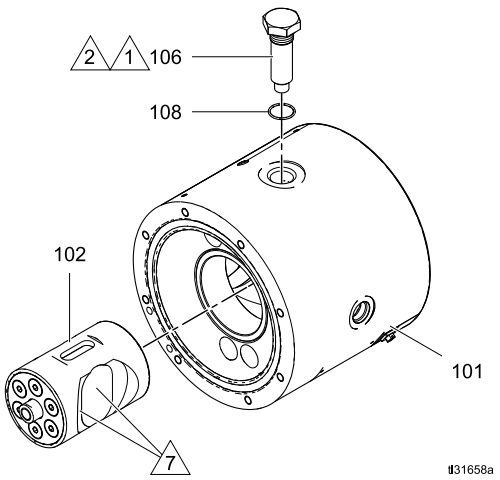
△3 Lips must face **IN** toward the center.

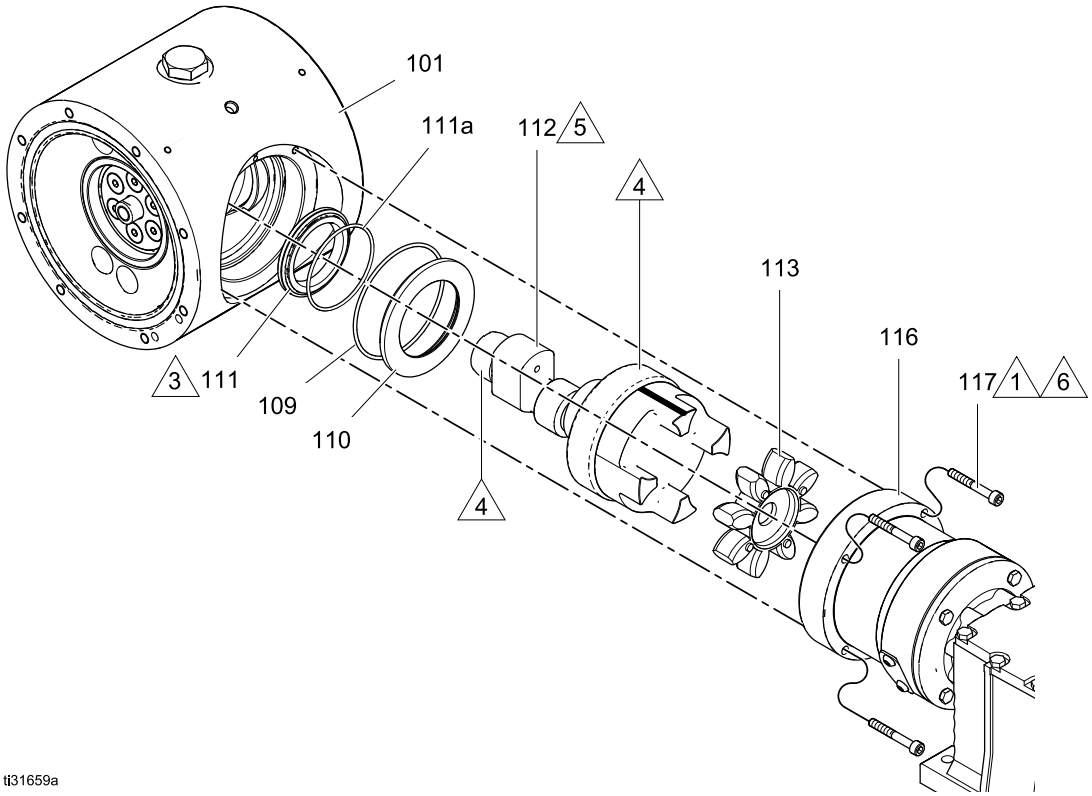
△4 Apply anti-seize lubricant liberally on the radial surfaces of the drive shaft assembly.

△5 Install the drive shaft assembly with the groove facing up.

△6 Tighten screws in a crisscross pattern, 5 turns at a time, to engage the coupler evenly. Torque to 130–160 in-lb (15–18 N•m).

△7 Apply lubricant to inner mating surface.

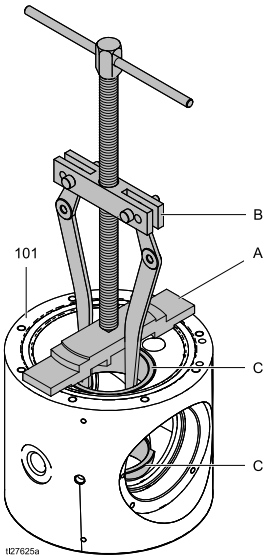




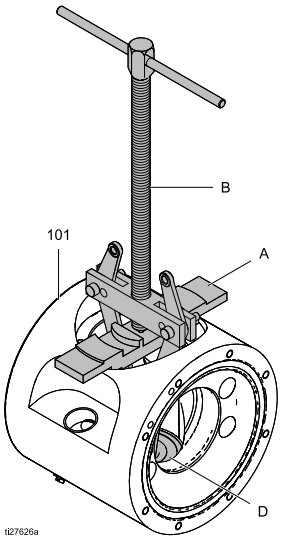
Replace Center Bearing

NOTE: Follow this procedure only if you suspect that the center bearing is damaged. It is not necessary to replace the bearing for normal pump service. You will need Center Section Repair Tool Kit. You also will need a Bearing Puller Kit. The tool (A) was designed to work with this bearing puller.

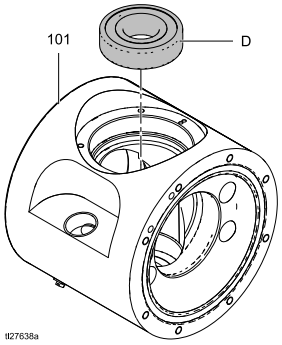
1. Follow all steps in Disassemble the Center Section, page 11.
2. Clamp the center housing (101) in a vise, with one of the bushings facing up.
3. Place the repair tool (A) on the housing with the grooved side down.
4. Remove the bushing (C). Use the upper holes on the medium-sized jaw, and the inner holes on the puller. Be sure that the jaws engage the bottom rim of the bushing. When one bushing is out, turn the housing over and repeat for the other bushing.



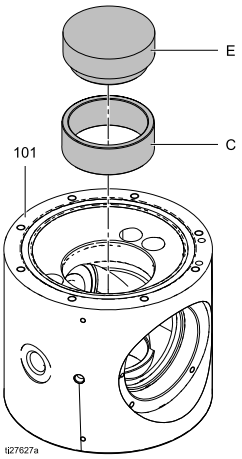
5. Place the center housing (101) in the vise with the bearing (D) side on the bottom.
6. Place the repair tool (A) on the housing with the stepped side down.
7. Remove the bearing (D). Use the lower holes on the medium-sized jaw, and the outer holes on the puller.



8. Use an arbor press to install the new bearing (D) into the center housing (101). Press the bearing to the shoulder in the center housing.



9. Use an arbor press and the press-fit tool (E) to install the two bushings (C). Install the bushings flush with the center housing (101).

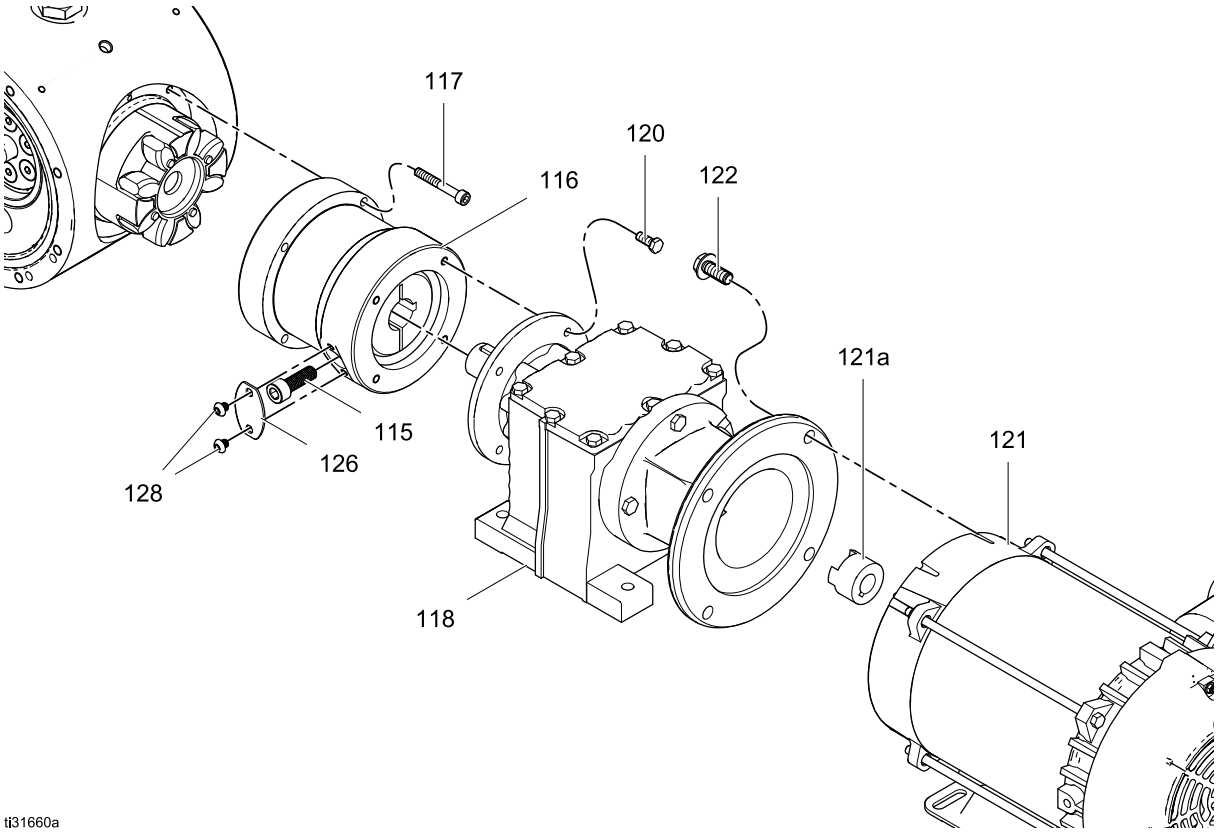


10. Follow all steps in Reassemble the Center Section, page 12.

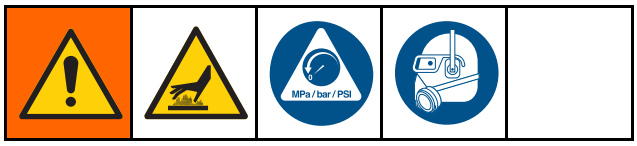
Disconnect the Motor and Gearbox

NOTE: Normally, the motor remains connected to the gearbox. Disconnect the motor only if you suspect that the motor or gearbox must be replaced.

1. Remove the pump from the stand.
2. Use a 9/16 in. socket wrench to remove 4 screws (122).
3. Pull the motor (121) straight off of the gearbox (118).
4. Use a 5 mm hex wrench to remove 4 screws (117). Pull the gearbox, with alignment housing (116) attached, off of the pump.
5. Remove the screws (128) and the access cover (126) on the alignment housing. Turn the gearbox coupler (114) until you have access to the screw (115) on the coupler. Use an 8 mm hex wrench to remove the screw (115). Remove the gearbox coupler (114).
6. Use a 10 mm socket wrench to remove 4 screws (120). Pull the alignment housing off of the gearbox.



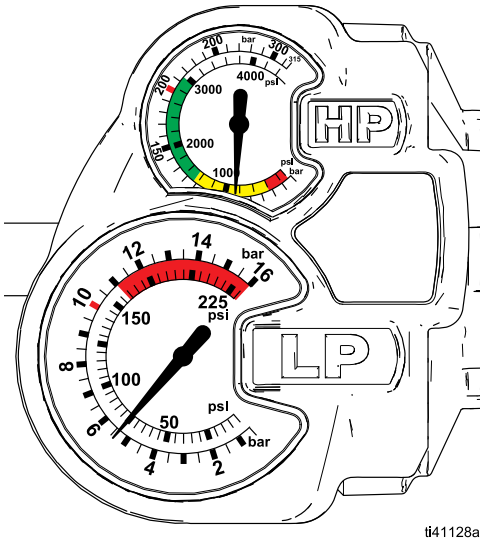
Center Section Leak Testing



1. Perform the Pressure Relief Procedure, page 7 .
2. Close the center section vent valve (22).
3. Open the shutoff valve on the CO_2 cylinder.
4. Open the CO_2 supply line valve (22).
5. Fill the equipment to 60 psi (0.41 MPa, 4.1 bar) with CO_2 and close the shutoff valve on the CO_2 cylinder.
6. Start the equipment and monitor the pressure gauges.

   NOTE: If the high-pressure (HP) gauge reading is less than 800 psi, the CO_2 supply is low. Replace the CO_2 supply.

   NOTE: If the low-pressure (LP) gauge is dropping while the equipment is running, there is a leak in the center section. See Troubleshooting, page 6 .
7. Perform the Pressure Relief Procedure, page 7 .



Torque Instructions

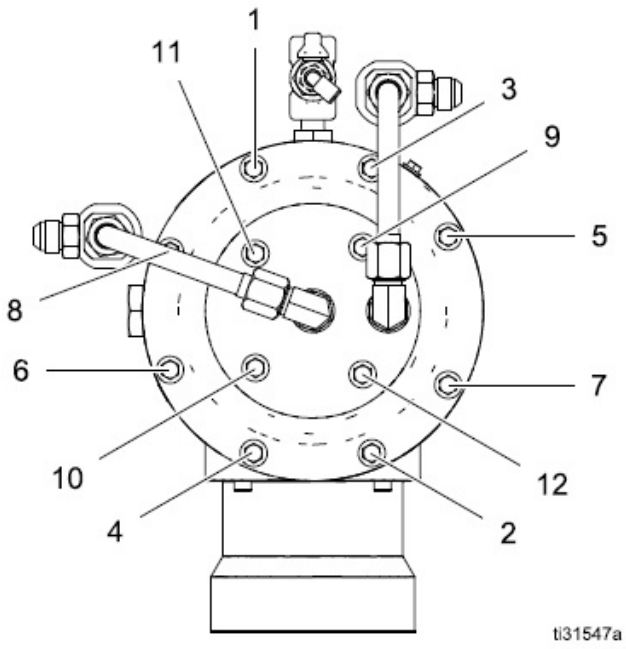
If diaphragm cover or vapor cap fasteners have been loosened, it is important to torque them using the following procedure to improve sealing.

NOTE: Cover and cap screws have a thread-locking adhesive patch applied to the threads. If this patch is excessively worn, the screws may loosen during operation. Replace screws with new ones or apply medium-strength (blue) thread locker to the threads.

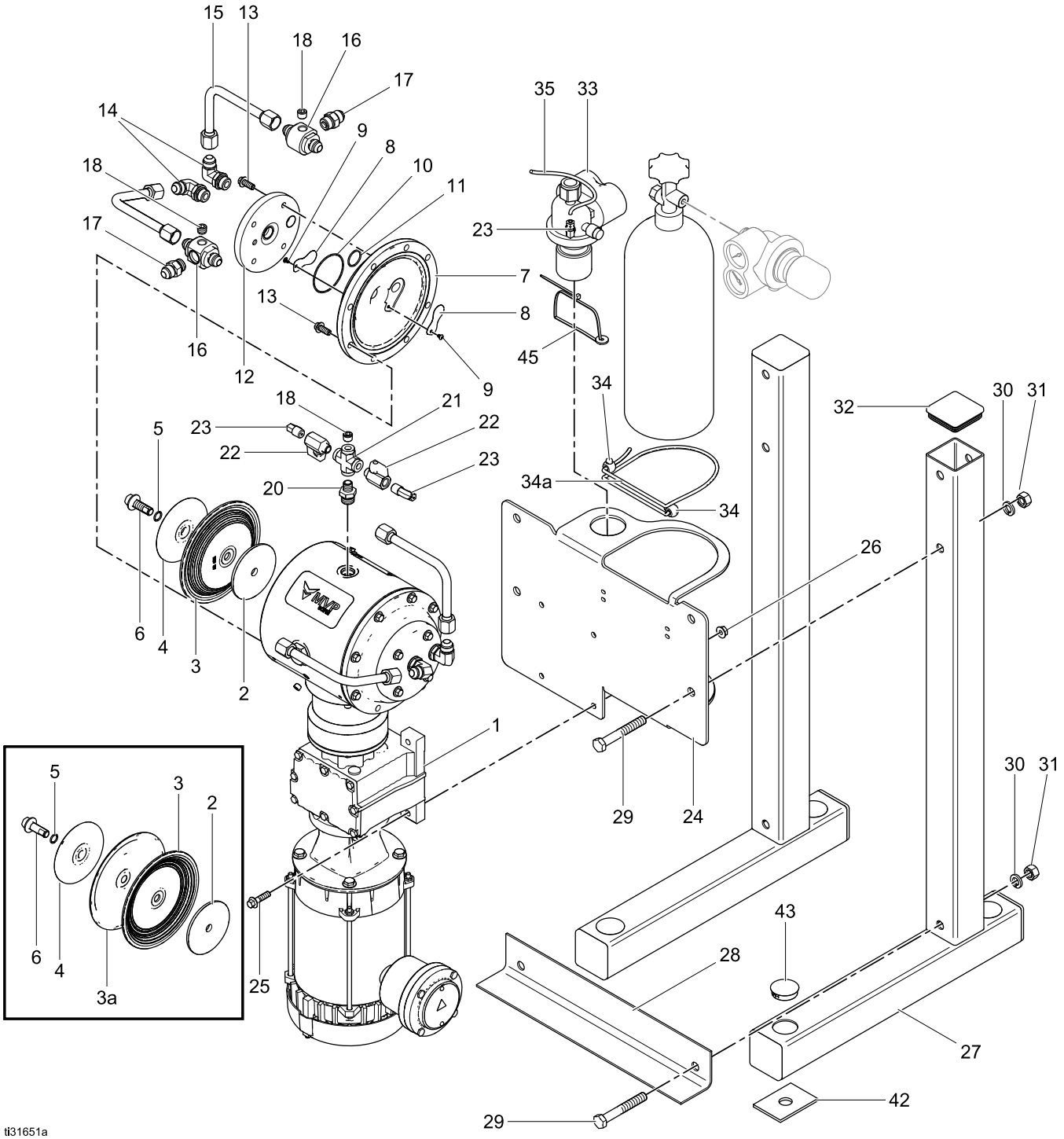
NOTE: Always completely torque covers and caps before tightening manifolds.

1. Start all screws a few turns. Then, turn down each screw just until head contacts cover.
2. Turn each screw by 1/2 turn or less working in a crisscross pattern in the order shown to specified torque.

   Diaphragm covers and vapor cap screws: 90 in-lb (10.2 Nm)



Parts



ti31651a

Parts/Kits Quick Reference

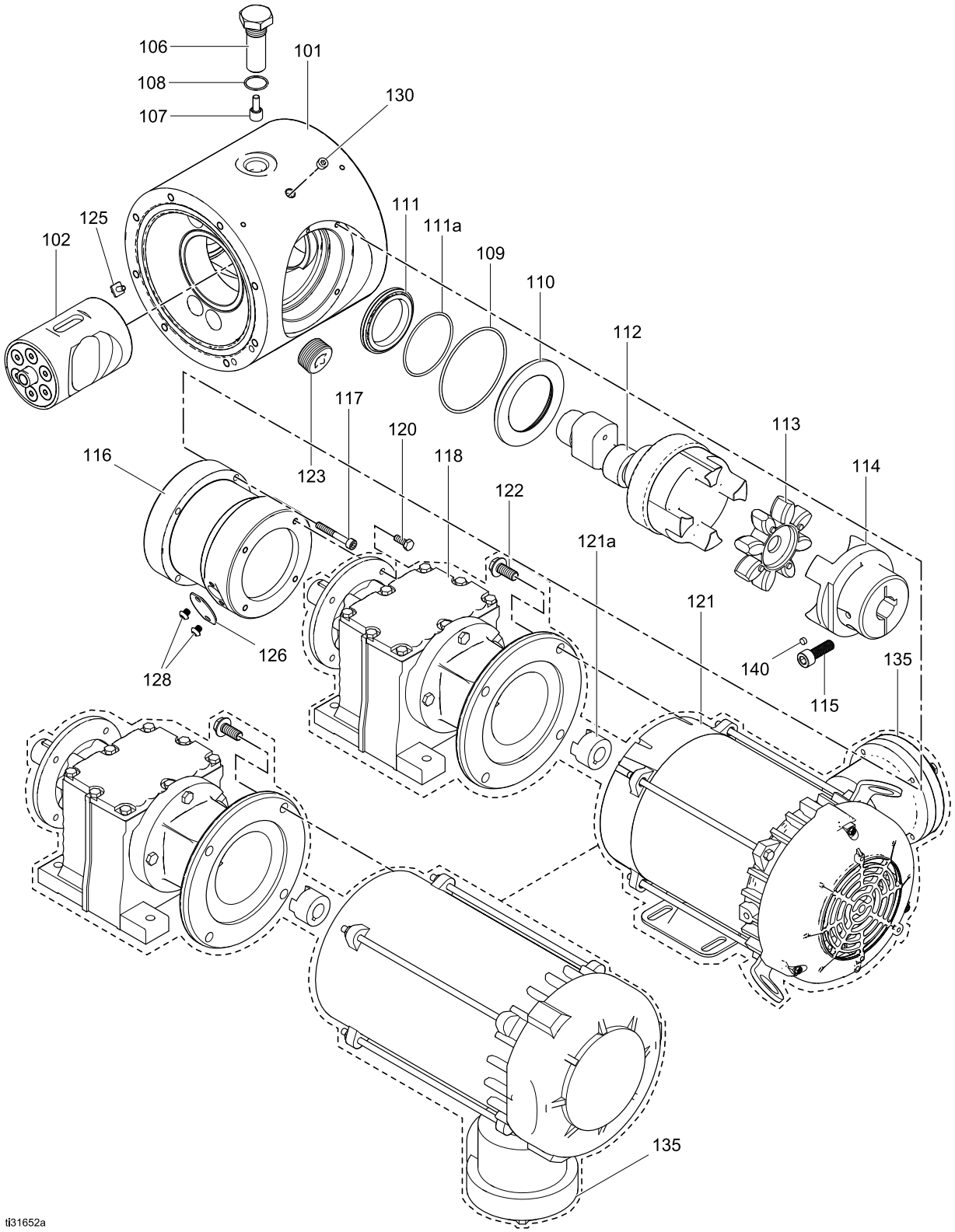
Use this table as a quick reference for kits. Go to the kit table on page 20 for a full description of kit contents.

Ref.	Kit Ref	Description	Qty.
1	— — —	MODULE, drive; *See page 18.*	1
2	— — —	PLATE, CO_2 side	2
3	207 208	DIAPHRAGM	2
3a	207	DIAPHRAGM, backer	2
4	— — —	PLATE, vapor side	2
5	207 208	O-RING, for diaphragm shaft bolt	2
6	207 208	BOLT, shaft	2
7	217	DIAPHRAGM COVER, SST	2
8	216 217	CHECK VALVE, reed	4
9	216 217	SCREW, M4 x 6	4
	223	SCREW, M4 x 6, Bulk Kit	40
10	216 217	O-RING	2
11	216 217	O-RING	2
12	217	VAPOR CAP, SST	2
13	217	SCREWS, cover, M8 x 1.25 x 25 mm	12
	224	SCREWS, cover, M8 x 1.25 x 25 mm, Bulk Kit	150
14	215	FITTING, elbow, 3/4	4
	225	FITTING, elbow, 3/4, Bulk Kit	20
15	215	TUBE, manifold	4
	226	TUBE, manifold, Bulk Kit	20
16	215	FITTING, JIC x 3/4	2
	227	FITTING, JIC x 3/4, Bulk Kit	10
17	215 222	FITTING, adapter	2
	228	FITTING, adapter, Bulk Kit	10
18	215 221	PLUG	3
	229	PLUG, Bulk Kit	15
20	221	FITTING, adapter	1
	230	FITTING, adapter, Bulk Kit	5
21	221	CROSS, pipe	1
	231	CROSS, pipe, Bulk Kit	5
22	221	VALVE, ball	2
	232	VALVE, ball, Bulk Kit	10
23	218 221	FITTING, elbow, 1/4T x 1/4 NPT	3
	233	FITTING, elbow, 1/4T x 1/4 NPT, Bulk	15
24	220	BRACKET	1
25	214	BOLT, M8 x 1.25	4
26	214	NUT	4
27	219	FRAME, leg	2
28	219	BRACE, frame	1
29	219 220	SCREW	6
30	219 220	WASHER, lock	6
31	219 220	NUT	6
32	219 220	PLUG	6
33	218	REGULATOR, CO_2	1
34	— — —	CLAMP, ball, cord lock	2
34a	— — —	CORD	1
42	219	PAD	1
43	219	CAP	4
44	25D054▲	LABEL, caution, electric shock	1
45	25D054▲	LABEL, warning, fire and explosion	1

— — — *Not sold separately.*

▲ Replacement Warning labels, signs, tags, and cards are available at no cost.

Drive Section



Ref	Kit Ref	Description	Qty
101	209	HOUSING, center, assembly; *includes plugs (Refs. 123, 124)*	1
102	206	PISTON, assembly	1
106	234	BOLT, bearing; *includes Refs. 107 and 108*	1
107	234	BEARING, cam follower. *included with Ref. 106*	1
108	234	O-RING, Size 019, Fluoroelastomer; *included with Ref. 106*	1
109	204 205	O-RING, Size 153, Buna-N	1
110	204 205	CARTRIDGE, seal	1
111	204 205	SEAL, radial	1
111a	204 205	O-RING, seal	1
112	204	SHAFT, drive	1
113	203 239	COUPLER, shaft	1
114	239	COUPLER, gearbox	1
115	239	SCREW, socket head, M10 x 30 mm	1
116	210	HOUSING, alignment	1
117	210	SCREW, socket head, M6 x 40 mm	4
	235	SCREW, socket head, M6 x 40 mm, Bulk Kit	20

Ref	Kit Ref	Description	Qty
118	214	GEARBOX	1
118a	— — —	COUPLER, motor drive	1
120	214	SCREW, cap, hex head, M6 x 16 mm	4
	236	SCREW, cap, hex head, M6 x 16 mm, Bulk Kit	20
121	212 213	MOTOR	1
122	212 213 214	SCREW, cap, hex head, 3/8 x7/8	4
	— — —	SCREW, cap, hex head, 3/8 x7/8, Bulk Kit	20
123	209	PLUG, pipe, headless	1
	237	PLUG, pipe, headless, Bulk Kit	5
125	— — —	SCREW, ground, M5 x 0.8	1
126	210 211	COVER, access	1
128	210 211	SCREW, button head, M6 x 8 mm	2
130	— — —	PLUG, pipe, sst, 1/8 NPT	1
	238	PLUG, pipe, sst, 1/8 NPT, Bulk Kit	15
140	239	MAGNET, reed sensor	1

— — — *Not sold separately.*

Kits and Accessories

Ref.	Kit	Description	Qty.
201	25D028	Kit, VFD, 1–Phase	1
202	25D029	Kit, VFD, 3–Phase	1
203	25D034	Kit, coupler, includes:Ref 113	1
204	25D035	Kit, shaft assembly, includes: Ref 112, 110, 109, 111, 111a	1 ea
205	25D036	Kit, shaft seal, includes: Ref 110, 109, 111, 111a	1 ea
206	25D037	Kit, piston, includes Ref 102	1
207	25D038	Kit, diaphragm, 2-piece PTFE, includes: Ref 3, 3a, 5, 6	2 ea
208	25D039	Kit, diaphragm, fluoroelastomer, includes: Ref 3, 5, 6	2 ea
209	25D040	Kit, center section, includes: Ref 101, 123	1 ea
210	25D041	Kit, alignment housing, includes: Ref 116, 126 Ref 117 Ref 128	 1 ea 4 ea 2 ea
211	25D042	Kit, access cover, includes: Ref 126 Ref 128	 1 ea 2 ea
212	25D043	Kit, motor, 1Hp, 3 Phase, includes: Ref 121 Ref 122	 1 ea 4 ea
213	25D044	Kit, motor, 1Hp, 1 Phase, includes: Ref 121 Ref 122	 1 ea 4 ea
214	25D045	Kit, gear reducer, includes: Ref 118 Ref 25, 26, 120, 122	 1 ea 4 ea
215	25D046	Kit, manifold assembly, includes: Ref 16, 17, 18 Ref 14, 15	 1 ea 2 ea
216	25D047	Kit, check valves, includes Ref 8, 9 Ref 10, 11	 4 ea 2 ea
217	25D048	Kit, fluid cover, includes: Ref 7, 10, 11, 12 Ref 8, 9 Ref 13	 1 ea 2 ea 12 ea
218	25D049	Kit, CO_2 regulator, includes: Ref 23, 33	1 ea
219	25D050	Kit, stand legs, includes: Ref 28 Ref 27 Ref 42, 43 Ref 29, 30, 31, 32	 1 ea 2 ea 4 ea 6 ea
220	25D051	Kit, stand bracket, includes: Ref 24 Ref 29, 30, 31, 32	 1 ea 4 ea
221	25D052	Kit, fill/vent fittings, includes: Ref 18, 20, 21 Ref 22, 23	 1 ea 2 ea
222	25D053	Kit, fitting, includes Ref 17	2
234	20B032	Kit, bearing bolt, includes: Ref 106, 107, 108	1 ea
239	20B036	Kit, coupler magnet and bolt, includes: Ref 113, 114, 115, 140	1 ea

Bulk Kits

Ref.	Kit	Description	Qty.
223	20B009	Kit, reed check fastener, bulk, includes: Ref 9	40
224	20B010	Kit, cover, screw, bulk, includes: Ref 13	150
225	20B011	Kit, fitting, elbow, bulk, includes: Ref 14	20
226	20B012	Kit, tube, manifold, bulk, includes: Ref 15	20
227	20B013	Kit, fitting, JIC, bulk, includes: Ref 16	10
228	20B014	Kit, fitting, adapter, bulk, includes: Ref 17	10
229	20B015	Kit, plug, bulk, includes: Ref 18	15
230	20B016	Kit, fitting, adapter, bulk, includes: Ref 20	5
231	20B017	Kit, cross pipe, bulk, includes: Ref 21	5
232	20B018	Kit, valve ball, bulk, includes: Ref 22	10
233	20B019	Kit, fitting, elbow, includes: Ref 23	15
235	20B021	Kit, alignment housing screw, bulk, includes: Ref. 117	20
236	20B024	Kit, screw, bulk, includes: Ref 120	20
237	20B025	Kit, plug, headless, bulk, includes: Ref 123	5
238	20B023	Kit, plug, pipe, bulk, includes: Ref 130	15

Technical Data

	US	Metric
Model MVP-6CFM Vapor Recovery Pump		
LP-Gas vapor recovery rate	6 cfm	0.17 m^3/min
Butane recovery rate	1 lb/min	0.45 kg/min
Butane recovery and re-condense rate	12 GPH	45.42 L/hour
Maximum pumping outlet pressure, continuous	60 psi	0.41 MPa, 4.1 bar
Maximum pumping outlet pressure, intermittent	70 psi	0.48 MPa, 4.8 bar
Maximum pumping inlet vacuum produced Gauge Absolute	 27 inHg 9.3 kPa, 93 Mbar	
Center section CO_2 charge range, continuous	5 to 70 psi	0.03–0.48 MPa, 0.3–4.8 bar
Center section CO_2 charge range, intermittent	80 psi	0.55 MPa, 5.5 bar
Equipment Withstand Pressure	350 psi	2.41 MPa, 24.1 bar
Maximum CO_2 consumption	<0.2 scfh	<0.006 cubic meters/hour
CO_2 inlet size	1/4 in. npt(f)	
Maximum pump speed	190 cpm	
Process Inlet and Outlet Size	3/4 in. tri-clamp or 1/2 in. JIC male	
Optional pressure gauge ports: inlet and outlet	1/4 in. npt(f)	
Weight	182.5 lb	82.8 kg
Electric Motor: Explosionproof for C1D1 hazardous areas (see approvals page)		
Model MVP-6CFM-3PH, inverter rated		
Power	1 Hp	0.75 kW
Speed	1800 rpm (60 Hz)	
Gear Ratio	9.41	
Voltage	3–phase 208-230/460V	
Maximum Amperage Load	3.3 A (230V) / 1.65 A (460V)	
Model MVP-6CFM-1PH		
Power	1 Hp	0.75 kW
Speed	1800 rpm (60 Hz)	
Gear Ratio	9.41	
Voltage	1–phase 115/208-230V	
Maximum Amperage Load	13.4 A (115V) / 6.7 A (230V)	
Noise Data		
Sound Power (measured per ISO-9614–2)	88.5 dBa	
Sound Pressure [tested 3.28 ft (1 m) from equipment]	80.5 dBa	
Materials		
Process Pressure Section and Reed Valves	stainless steel	
Diaphragms	standard: PTFE optional: FKM fluoroelastomer	
Process Vapor Temperature Range	FKM: -40° to 275°F (-40° to 135°C) PTFE: +40° to 220°F (+4° to 104°C)	

MVP Standard Warranty

MVP warrants all equipment referenced in this document which is manufactured by MVP and bearing its name to be free from defects in material and workmanship on the date of sale to the original purchaser for use. With the exception of any special, extended, or limited warranty published by MVP, MVP will, for a period of twelve months from the date of sale, repair or replace any part of the equipment determined by MVP to be defective. This warranty applies only when the equipment is installed, operated and maintained in accordance with MVP's written recommendations.

This warranty does not cover, and MVP shall not be liable for general wear and tear, or any malfunction, damage or wear caused by faulty installation, misapplication, abrasion, corrosion, inadequate or improper maintenance, negligence, accident, tampering, or substitution of non-MVP component parts. Nor shall MVP be liable for malfunction, damage or wear caused by the incompatibility of MVP equipment with structures, accessories, equipment or materials not supplied by MVP, or the improper design, manufacture, installation, operation or maintenance of structures, accessories, equipment or materials not supplied by MVP.

This warranty is conditioned upon the prepaid return of the equipment claimed to be defective to an authorized MVP distributor for verification of the claimed defect. If the claimed defect is verified, MVP will repair or replace free of charge any defective parts. The equipment will be returned to the original purchaser transportation prepaid. If inspection of the equipment does not disclose any defect in material or workmanship, repairs will be made at a reasonable charge, which charges may include the costs of parts, labor, and transportation.

THIS WARRANTY IS EXCLUSIVE, AND IS IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO WARRANTY OF MERCHANTABILITY OR WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.

MVP's sole obligation and buyer's sole remedy for any breach of warranty shall be as set forth above. The buyer agrees that no other remedy (including, but not limited to, incidental or consequential damages for lost profits, lost sales, injury to person or property, or any other incidental or consequential loss) shall be available. Any action for breach of warranty must be brought within two (2) years of the date of sale.

MVP MAKES NO WARRANTY, AND DISCLAIMS ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, IN CONNECTION WITH ACCESSORIES, EQUIPMENT, MATERIALS OR COMPONENTS SOLD BUT NOT MANUFACTURED BY MVP. These items sold, but not manufactured by MVP (such as electric motors, switches, hose, etc.), are subject to the warranty, if any, of their manufacturer. MVP will provide purchaser with reasonable assistance in making any claim for breach of these warranties.

In no event will MVP be liable for indirect, incidental, special or consequential damages resulting from MVP supplying equipment hereunder, or the furnishing, performance, or use of any products or other goods sold hereto, whether due to a breach of contract, breach of warranty, the negligence of MVP, or otherwise.

FOR MVP CANADA CUSTOMERS

The Parties acknowledge that they have required that the present document, as well as all documents, notices and legal proceedings entered into, given or instituted pursuant hereto or relating directly or indirectly hereto, be drawn up in English. Les parties reconnaissent avoir convenu que la rédaction du présente document sera en Anglais, ainsi que tous documents, avis et procédures judiciaires exécutés, donnés ou intentés, à la suite de ou en rapport, directement ou indirectement, avec les procédures concernées.

MVP Information

For the latest information about MVP products, visit MasterVaporPumps.com.

Protected as patented technology.

To place an order, contact your MVP Distributor or call to identify the nearest distributor.

Toll Free: 1-888-502-3303

Email: info@MasterVaporPumps.com

All written and visual data contained in this document reflects the latest product information available at the time of publication.
MVP reserves the right to make changes at any time without notice.
Original Instructions. This manual contains English. MM 3A5263

MVP Headquarters: Santa Cruz

Master Vapor Pumps LLC • 849 Almar Ave., Suite C, #209 • Santa Cruz CA 95060 • USA

MasterVaporPumps.com
Revision F, March 2022