

Instructions – Parts List



PLUS Viscount® I Hydraulic Motor

Used as hydraulic drive for reciprocating pumps.

308330 rev.F

1500 psi (10 MPa, 102 bar) Maximum Hydraulic Input Pressure

**Parts 236417, Series A, and 261466, Series A
Hydraulic Motor**

**Parts 236418, Series C, and 253608, Series A,
Hydraulic Reciprocator**

US and Foreign Patents Pending

See also Manual 311211, High-Flo® Pumps

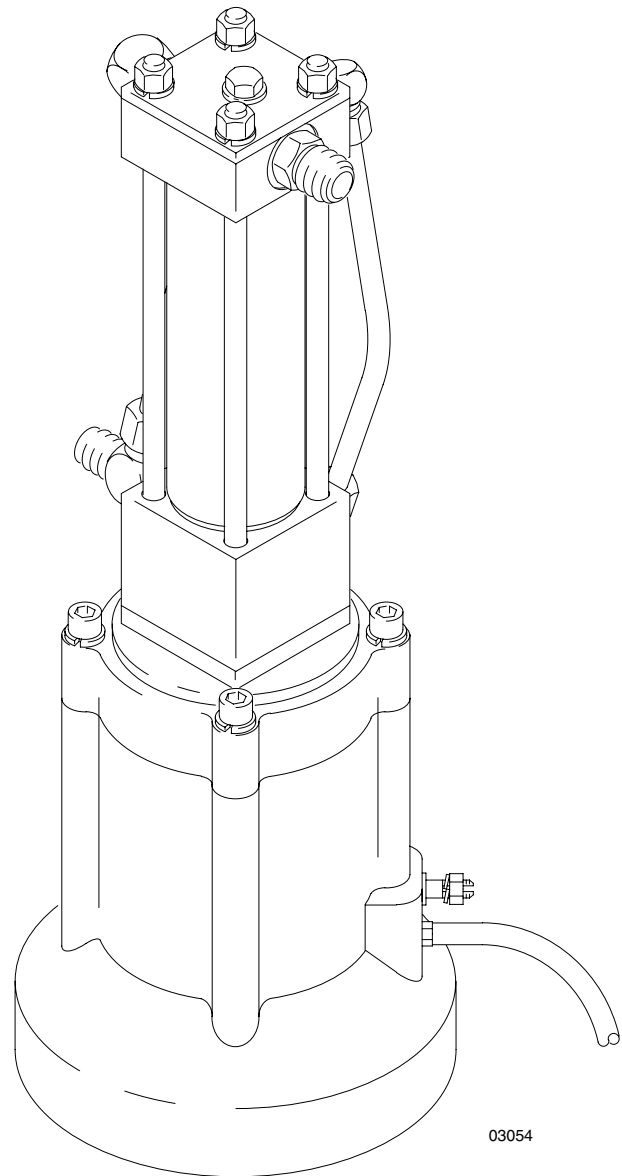


Important Safety Instructions

Read all warnings and instructions in this manual.
Save these instructions.

See page 22 for maximum working pressures.

236417 Motor Shown



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Symbols

Warning Symbol



This symbol alerts you to the possibility of serious injury or death if you do not follow the instructions.

Caution Symbol



This symbol alerts you to the possibility of damage to or destruction of equipment if you do not follow the instructions.

WARNING



INSTRUCTIONS

EQUIPMENT MISUSE HAZARD

Equipment misuse can cause the equipment to rupture or malfunction and result in serious injury.

- This equipment is for professional use only.
- Read all instruction manuals, tags, and labels before operating the equipment.
- Use the equipment only for its intended purpose. If you are not sure, call your Graco distributor.
- Do not alter or modify this equipment. Use only genuine Graco parts and accessories.
- Check equipment daily. Repair or replace worn or damaged parts immediately.
- Do not exceed the maximum working pressure of the lowest rated system component. This equipment has a **1500 psi (10.5 MPa, 105 bar) maximum hydraulic input pressure**.
- Use fluids and solvents which are compatible with the equipment wetted parts. Refer to the **Technical Data** section of all equipment manuals. Read the fluid and solvent manufacturer's warnings.
- Do not kink or overbend hoses or use hoses to pull equipment.
- Route hoses away from traffic areas, sharp edges, moving parts, and hot surfaces. Do not expose Graco hoses to temperatures above 66°C (150°F) or below -40°C (-40°F).
- Wear hearing protection when operating this equipment.
- Do not move or lift pressurized equipment.
- Comply with all applicable local, state, and national fire, electrical, and safety regulations.

! WARNING



SKIN INJECTION HAZARD

Spray from the gun/valve, leaks or ruptured components can inject fluid into your body and cause extremely serious injury, including the need for amputation. Fluid splashed in the eyes or on the skin can also cause serious injury.

- Fluid injected into the skin is a serious injury. The injury may look like just a cut, but it is a serious injury. **Get immediate surgical treatment.**
- Do not point the gun/valve at anyone or at any part of the body.
- Do not put your hand or fingers over the spray tip/nozzle.
- Do not stop or deflect leaks with your hand, body, glove or rag.
- Do not “blow back” fluid; this is not an air spray system.
- Always have the tip guard and the trigger guard on the gun/valve when spraying/dispensing.
- Be sure the gun/valve trigger safety operates before spraying/dispensing.
- Lock the gun/valve trigger safety when you stop spraying/dispensing.
- Follow the **Pressure Relief Procedure** on page 7 if the spray tip/nozzle clogs and before cleaning, checking or servicing the equipment.
- Tighten all fluid connections before operating the equipment.
- Check the hoses, tubes, and couplings daily. Replace worn or damaged parts immediately. Do not repair high pressure couplings; you must replace the entire hose.
- Use only Graco approved hoses. Do not remove hose spring guards, which help protect the hose from rupture caused by kinks or bends near the couplings.



MOVING PARTS HAZARD

Moving parts can pinch or amputate your fingers.

- Keep clear of all moving parts when starting or operating the pump.
- Before checking or servicing the equipment, follow the **Pressure Relief Procedure** on page 7 to prevent the equipment from starting unexpectedly.

WARNING



FIRE AND EXPLOSION HAZARD

Improper grounding, poor ventilation, open flames or sparks can cause a hazardous condition and result in a fire or explosion and serious injury.

- Ground the equipment and the object being sprayed. Refer to **Grounding** on page 5.
- If there is any static sparking or you feel an electric shock while using this equipment, **stop spraying immediately**. Do not use the equipment until you identify and correct the problem.
- Provide fresh air ventilation to avoid the buildup of flammable fumes from solvents or the fluid being sprayed/dispensed.
- Keep the spray area free of debris, including solvent, rags, and gasoline.
- Before operating this equipment, electrically disconnect all equipment in the spray/dispensing area.
- Before operating this equipment, extinguish all open flames or pilot lights in the spray/dispensing area.
- Do not smoke in the spray/dispensing area.
- Do not turn on or off any light switch in the spray/dispensing area while spraying/dispensing or while operating if fumes are present.
- Do not operate a gasoline engine in the spray area.
- If the hydraulic oil temperature approaches 130° F (54° C), shut off the motor and check the hydraulic supply cooling system, filters, etc.
- Keep a fire extinguisher in the work area.




TOXIC FLUID HAZARD

Hazardous fluid or toxic fumes can cause serious injury or death if splashed in the eyes or on the skin, inhaled, or swallowed.


- Know the specific hazards of the fluid you are using.
- Store hazardous fluid in an approved container. Dispose of hazardous fluid according to all local, state and national guidelines.
- Always wear protective eyewear, gloves, clothing and respirator as recommended by the fluid and solvent manufacturer.

Installation

Grounding



WARNING



FIRE AND EXPLOSION HAZARD
Before operating the pump, ground the system as explained below. Also read the section **FIRE AND EXPLOSION HAZARD** on page 4.

1. *Pump*: loosen the grounding lug locknut (W) and washer (X). Insert one end of a 12 ga. (1.5 mm²) minimum ground wire (Y) into the slot in lug (Z) and tighten the locknut securely. Connect the other end of the wire to a true earth ground. See Fig. 1. Order Graco Part. No. 237569.
2. *Hydraulic hoses and fluid outlet hoses*: use only electrically conductive hoses.
3. *Hydraulic power supply*: follow manufacturer's recommendations.
4. *Spray gun/dispensing valve*: obtain grounding through connection to a properly grounded fluid hose and pump.
5. *Fluid supply container*: according to local code.
6. *Object being sprayed*: according to local code.
7. *Any pails used when flushing*: use only metal, grounded pails when flushing. Make firm metal-to-metal contact between a metal part of the gun/valve and the pail. Use the lowest possible pressure.
8. *To maintain grounding continuity when flushing or relieving pressure*, always hold a metal part of the gun/valve firmly to the side of a metal pail, and then open the gun/valve.

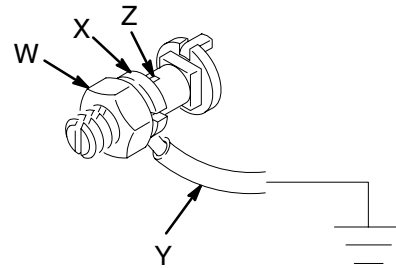


Fig. 1

Installation

General

Connect the hydraulic motor (A) to the displacement pump (B) as explained in your separate pump manual. See Fig. 2.

Mount the pump to suit the type of installation planned. Motor mounting plate kit 236714 (P) is available; contact your Graco distributor for more information.

Be sure that your power supply is equipped with a suction filter to the hydraulic pump and a system return line filter of 10 micron size.

⚠ CAUTION

Keep the hydraulic system clean

To reduce the risk of damaging the hydraulic power supply and motor, blow out all hydraulic lines with air, flush thoroughly with solvent, and then blow out with air again before connecting the lines to the hydraulic motor.

Always plug the hydraulic inlets, outlets, and lines when disconnecting them for any reason to avoid introducing dirt and other contaminants into the system.

Carefully follow the manufacturer's recommendations on reservoir and filter cleaning, and periodic changes of the hydraulic fluid. The maximum water content of the hydraulic oil is 1 percent.

Install the Drain Bottle

1. Push the drain hose (113) securely onto the barbed adapter (112). See Fig. 2.
2. Position the holder (115) on a pump tie rod (C) and secure with the hose clamp (116). Place the drain bottle (114) in the holder.
3. Place the drain hose (113) in the drain bottle so it hangs well down inside the bottle. Adjust the position of the holder, if necessary.

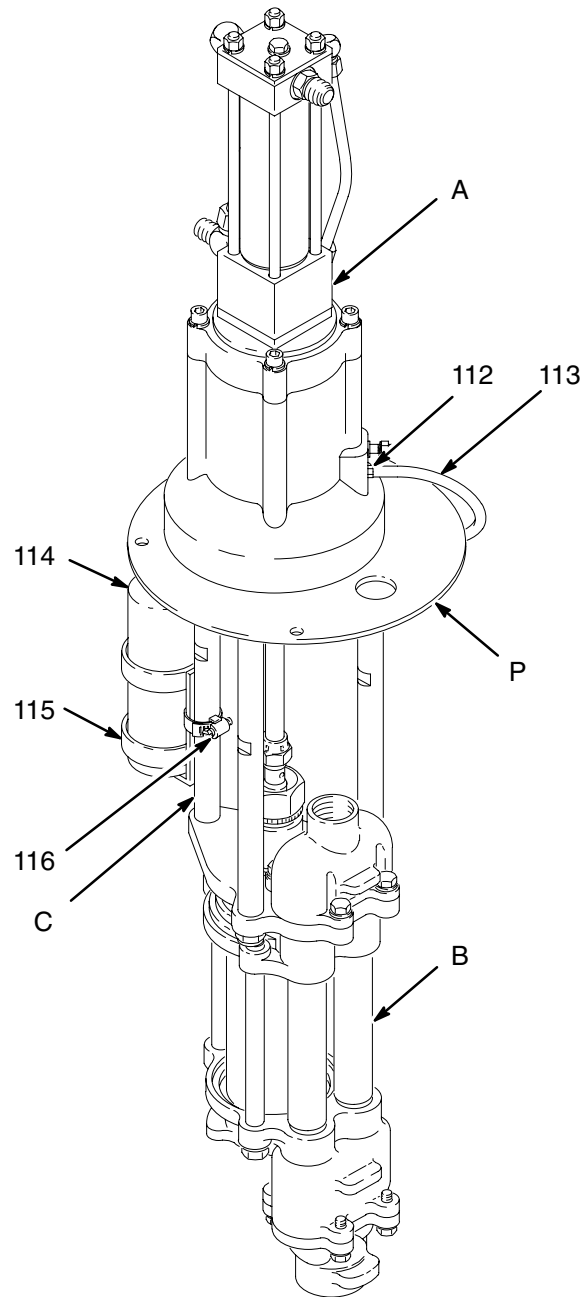


Fig. 2

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Operation

Pressure Relief Procedure

WARNING



SKIN INJECTION HAZARD

Fluid under high pressure can be injected through the skin and cause serious injury. To reduce the risk of an injury from injection, splashing fluid, or moving parts, follow the **Pressure Relief Procedure** whenever you:

- are instructed to relieve the pressure,
- stop spraying,
- check or service any of the system equipment,
- or install or clean the spray tips.

1. Lock the spray gun/dispensing valve safety latch.
2. Close the supply line shutoff valve(s) first, then the return line shutoff valve(s). In a multi-pump system, do this at each pump to isolate the pumps.
3. Unlock the gun/valve safety latch.
4. Hold a metal part of the gun firmly to the side of a grounded metal pail, and trigger the gun/valve to relieve pressure.
5. Lock the gun/valve safety latch.
6. Open the pump outlet drain valve(s), having a container ready to catch the drainage.
7. Leave the drain valve(s) open until you are ready to spray/dispense again.

If you suspect that the tip/nozzle or hose is completely clogged, or that pressure has not been fully relieved after following the steps above, very slowly loosen the tip guard retaining nut or hose end coupling to relieve pressure gradually, then loosen completely. Now clear the obstruction.

Startup

Before each use, check the hydraulic fluid level and add fluid as necessary to fill the lines.

To start the pump, turn on the hydraulic power supply. Open the return line shutoff valve **first**, then open the supply line shutoff valve.

WARNING

Hydraulic Oil Temperature

If hydraulic oil becomes too hot, it can reach its flash point and cause a fire. Operating at too high an oil temperature can also cause faster motor seal wear and leakage. The recommended hydraulic oil operating temperature is 80–115°F (27–45°C). If the oil temperature approaches 130°F (54°C), shut off the motor and check the hydraulic oil supply cooling system, filters, etc. Clean or repair as needed.

Always use Graco-approved Hydraulic Oil or equivalent. Order Part No. 169236, 5 gal. (19 liter) or 207428, 1 gal. (3.8 liter). Do not substitute a lower grade oil or one with a lower flash point.

The equivalent is a premium, ISO grade 46 petroleum-based hydraulic oil containing rust and oxidation inhibitors and anti-wear agents. Before using any other type of oil in this equipment, contact your Graco distributor. **Unauthorized use of lesser grade oil or substitutes will void the warranty.**

Shutdown & Care

WARNING

To reduce the risk of serious injury whenever you are instructed to relieve pressure, always follow the **Pressure Relief Procedure** at left.

Relieve the pressure. Always shut off the supply line shutoff valve **first**, and then the return line shutoff valve. This is to prevent overpressurizing the motor or its seals. When starting the hydraulic system, open the return line shutoff valve first.

Troubleshooting

⚠ WARNING

To reduce the risk of serious injury whenever you are instructed to relieve pressure, always follow the **Pressure Relief Procedure** on page 7.

Relieve the pressure before you check or service any system equipment.

Check all possible problems and solutions before disassembling the motor.

Problem	Cause	Solution
Reciprocator stops running.	Worn valve or valve balls (3); broken valve spring (18).	Repair valve. See page 13.
	Broken trip rod (17), spring (12) or retainers (11).	Replace parts. See page 13.
Poor performance or reduced efficiency.	Worn piston seals (5, 6, 7).	Replace seals. See page 13.
Oil leaking down extension rod.	Worn o-ring (117, 121, or 122) in oil deflector.	Replace o-ring. See page 9.
Oil leaking around cylinder.	Worn cylinder o-rings (2).	Replace o-rings. See page 13.
	Loose tie rods (37).	Tighten nuts (106). See page 9.
Oil leaking around inlet or return tube fittings.	Loose fittings or worn fitting o-rings.	Tighten or replace fittings (31, 34, 38). See page 13.
Excessive oil in drain bottle, or bottle needs frequent emptying.	Worn seals in bottom cylinder cap.	Replace seals (2, 15, 14 and 49). See page 13.

Service

Tools Required

- Set of allen wrenches
- Set of socket or box wrenches
- Adjustable wrench
- Torque wrench
- Spanner wrench
- O-ring pick
- 10–24 unc–2b tap
- Vise
- Shallow metal or plastic pan (approx. 12 x 20 in.)
- Repair Tool 189305
- Thread lubricant
- Lithium-base grease
- *Fresh* Loctite® 242 and 609 thread sealants and Loctite® Primer T or Perma-Loc® 115 thread sealant and Perma-Bond® Surface Conditioner I
- Chlorinated solvent

Disconnecting the Hydraulic Motor

⚠ WARNING

To reduce the risk of serious injury whenever you are instructed to relieve pressure, always follow the **Pressure Relief Procedure** on page 7.

1. Relieve the pressure.
2. Disconnect the hydraulic hoses and plug all hydraulic connections and hoses.

⚠ CAUTION

Keep the hydraulic system clean

Always plug the hydraulic inlets, outlets, and lines when disconnecting them for any reason to avoid introducing dirt and other contaminants into the system.

3. Disconnect the hydraulic motor from the displacement pump as explained in your separate pump manual.
4. Pull the drain hose (113) off the barbed adapter (112).

Reconnecting the Hydraulic Motor

1. Reconnect the drain hose (113) to the barbed adapter (112).
2. Reconnect the hydraulic motor to the displacement pump as explained in your separate pump manual.
3. Unplug all hydraulic connections and hoses. Reconnect the hydraulic hoses.

Service

Motor Disassembly

WARNING

To reduce the risk of serious injury whenever you are instructed to relieve pressure, always follow the **Pressure Relief Procedure** on page 7.

1. Relieve the pressure.
2. Stand the motor upright. Remove the four screws (104) and washers (105) holding the motor cap (102) to the base (103). Lift the reciprocator (101) off the base (103) and lay it in a pan. Remove the large o-ring (108) from the base (103). See Fig. 3.
3. For model 236417 only, remove the cotter pin (111) and unscrew the extension rod (110) from the reciprocator displacement rod (9). See Fig. NO TAG.
4. Remove deflector.
Model 236417, pull the oil deflector (109) off the extension rod (110). Remove the two o-rings (117) from the rod and deflector.

Model 261466, remove the retaining o-ring and slide the deflector off the rod.
5. Unscrew the nuts (106) and washers (105) from the reciprocator tie rods (37) and pull the motor cap (102) off the reciprocator (101). Remove the o-ring (107) from the cap.

6. Clean and inspect all parts. Replace parts as necessary. To service the reciprocator (101), refer to page 13.



Grease.

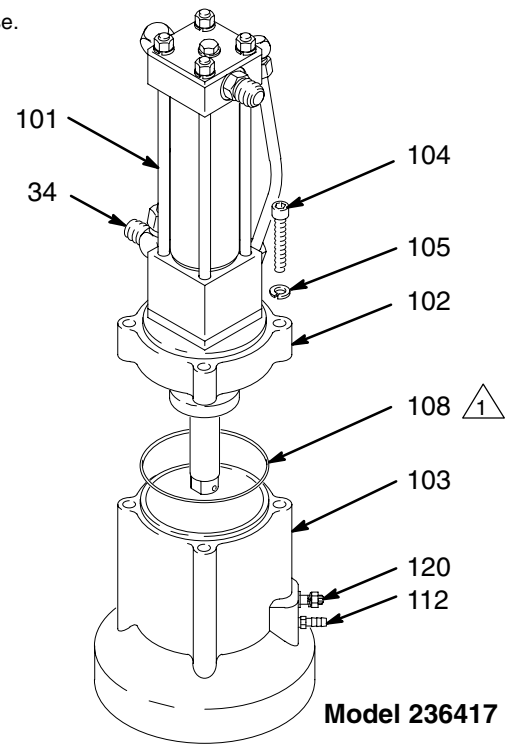


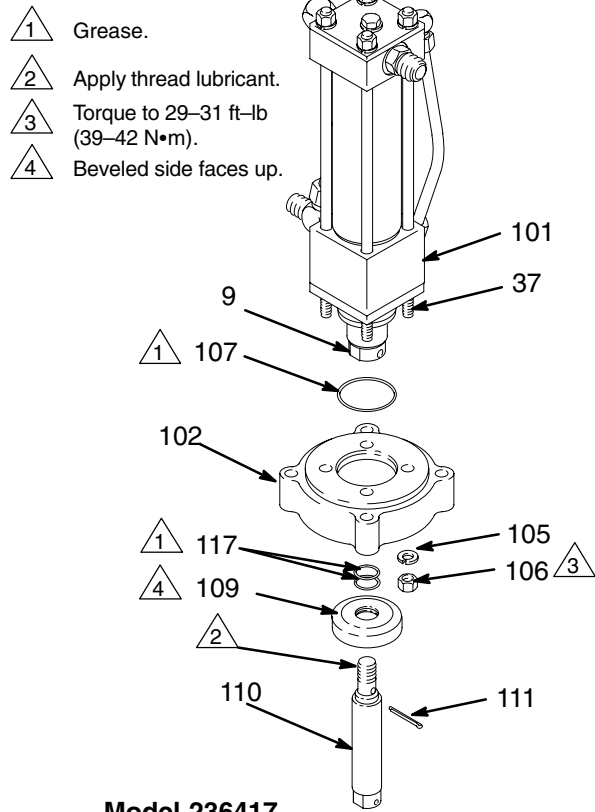
Fig. 3

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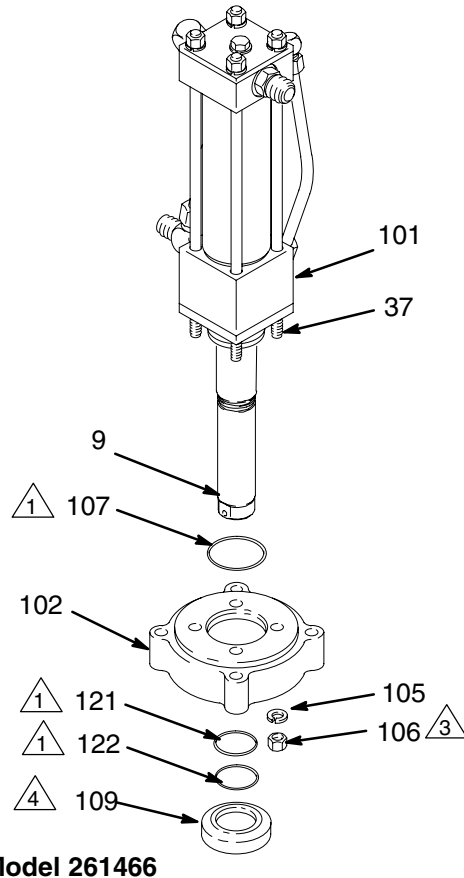
Service

Motor Reassembly

1. Grease the o-ring (107) and install it on the motor cap (102). Install the motor cap, washers (105) and nuts (106) on the reciprocator tie rods (37). Torque the nuts to 29–31 ft-lb (39–42 N•m). See Fig. 4.
2. Connect deflector.
Model 236417 (see Figs.4 and 5), grease the two o-rings (117). Install one of them in the inner groove of the oil deflector (109). Slide the deflector onto the extension rod (110), beveled side facing up, until it seats. Slide the other o-ring (117) onto the rod so it contacts the top of the deflector.
- Model 261466** (see Figs. 4 and 6), grease the thinner o-ring (121) and install on the displacement rod (9). Slide the deflector onto the displacement rod, beveled side facing up, until it seats. Install the thicker o-ring (122).
3. For model 236417 only, apply thread lubricant to the threads of the extension rod (110) and screw it into the reciprocator displacement rod (9) until the pin holes align. Install the cotter pin (111).
4. Grease the large o-ring (108) and install it on the top of the motor base (103). Set the reciprocator (101) and motor cap (102) on the motor base. Orient the reciprocator fluid inlet (34) to the grounding lug (120) as shown in Fig. 3.
5. Secure the motor cap (102) to the base (103) with four washers (105) and screws (104). Torque the screws to 29–31 ft-lb (39–42 N•m).



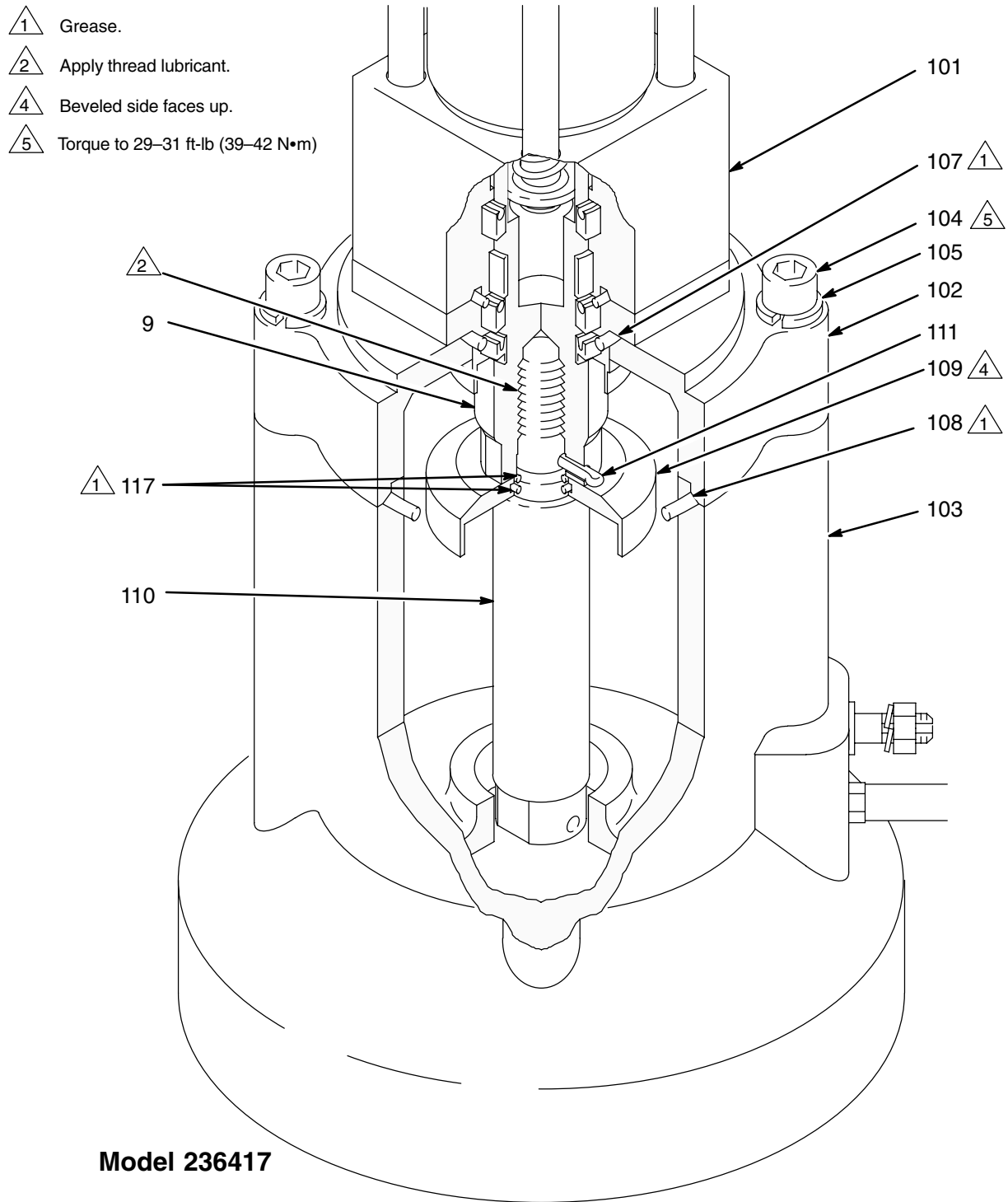
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ti9005a

Fig. 4

Service



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Fig. 5

Service

- 1 Grease.
- 4 Beveled side faces up.
- 5 Torque to 29–31 ft-lb (39–42 N•m)

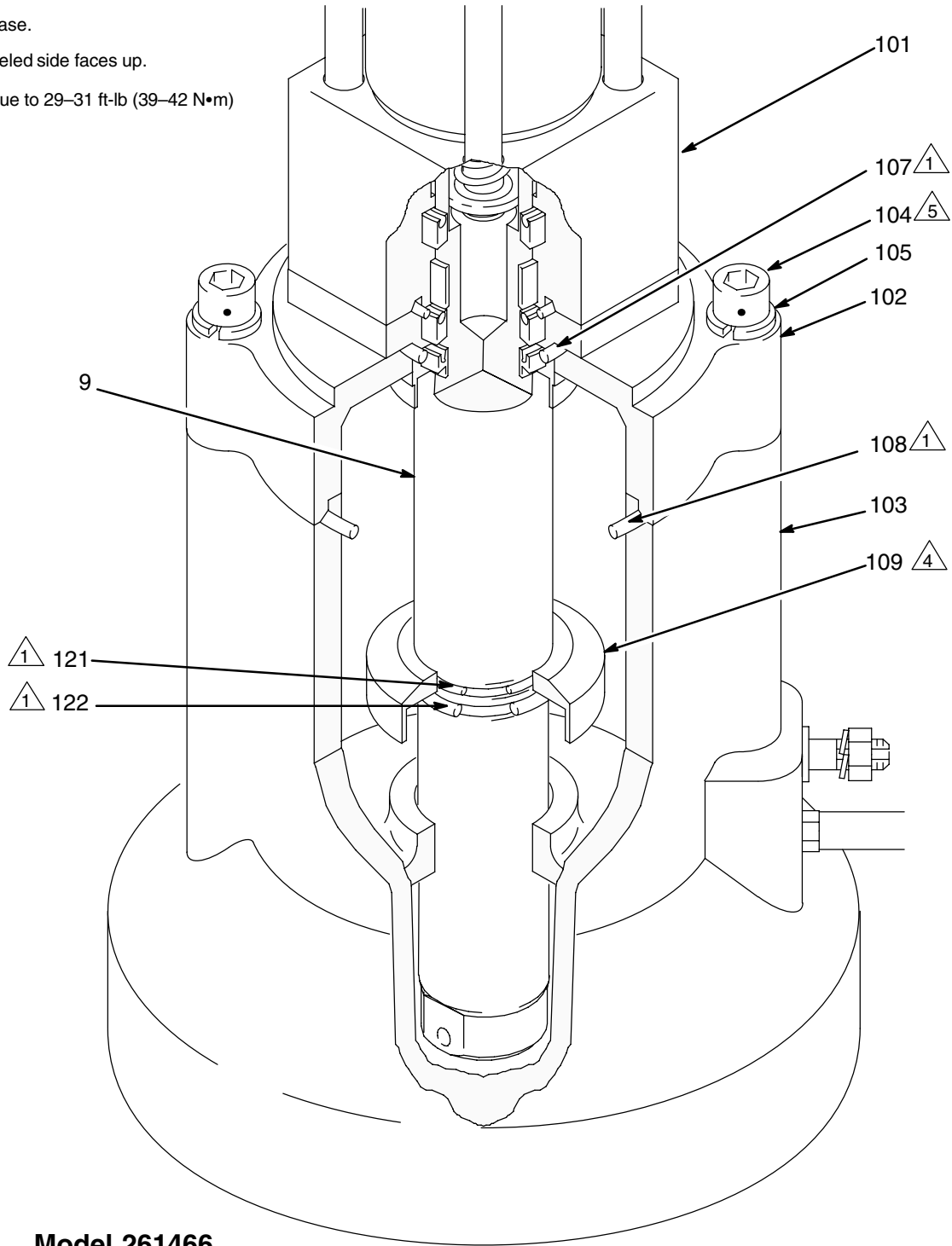
**Model 261466**

Fig. 6

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Service

Reciprocator Service

Disassembly

NOTE: Repair Kit 236698 is available. For the best results, use all the parts in the kit. Kit parts are marked with an asterisk, for example (2*).

NOTE: When disassembling, lay out all parts in sequence, to make reassembly easier. Clean and inspect all parts for wear or damage before reassembling. Replace as necessary.

1. Remove the reciprocator from the motor base as explained on page 9. Lay it on its side in a pan.
2. Unthread the tie rods (37) from the retainer (36) and pull them out through the top of the reciprocator. It should not be necessary to remove the four nuts (27) and lockwashers (28).
3. Unscrew the four fluid tube nuts (N) and remove the tubes (32, 39). See Fig. 7. Allow excess oil to drain from the reciprocator, then plug the fluid fittings.

CAUTION

Keep the hydraulic system clean

Always plug the hydraulic inlets, outlets, and lines when disconnecting them for any reason to avoid introducing dirt and other contaminants into the system.

4. Pull the top cylinder cap (1), cylinder (33), and displacement rod (9) together off the bottom cylinder cap (35). Remove the o-ring (2) from the bottom cap.
5. Grasp the top cap (1) and pull the cylinder (33) off. Slide the cylinder off the displacement rod (9). Be careful not to damage the rod. Remove the o-ring (2) from the top cap.
6. Lay the top cap (1) and displacement rod (9) on a table. Place a clean rag around the yoke (4) to prevent the detent balls (3) from popping out. Push the yoke (4) sideways off the valve sleeve (19) while holding the balls (3) and spring (18) with the rag, then carefully remove the balls and spring.

7. Inspect the valve sleeve (19), valve stop (25), and spool (S) for damage. If any of these parts requires replacement, unscrew the two screws (26) holding the stop (25) to the spool (S). Remove the stop and slide the sleeve (19) off the spool. If the spool is damaged, replace the top cap (1).

NOTE: If any of these parts are being reused, thoroughly clean any adhesive residue from the screws and female threads of the spool. Use a surface cleaner such as chlorinated solvent on the threads and blow dry with compressed air. If necessary, use a 10–24 unc–2b tap to remove adhesive from the female threads.

8. Remove the capscrew (23), sealing washer (22) and o-ring (24) from the cap plate (29). Lift off the cap plate and remove the o-ring (20).
9. Hold the flats of the displacement rod (9) in a vise and use a spanner wrench in the pin holes of the piston (16) to screw it off the rod. Remove the trip rod (17) from the displacement rod.

CAUTION

Be careful not to scratch the outside of the displacement rod.

10. Unscrew the nut (48) and remove the retainers (11) and spring (12) from the trip rod (17).
11. Slide the piston (16) off the trip rod (17). Remove the bearing (5), seal (6), and o-rings (7 and 8) from the piston.
12. Inspect the yoke (4) and trip rod (17) for damage. If either part requires replacement, slide the yoke into Repair Tool 189305 and set the tool in a vise. See Fig. 8. Use a wrench on the flats of the trip rod and unscrew the rod from the yoke.
13. Pull the housing retainer (36) away from the bottom cylinder cap (35).
14. Remove the block packings (14 and 49), wiper (15), bearing (13), and o-ring (2) from the housing retainer and bottom cylinder cap.

Service

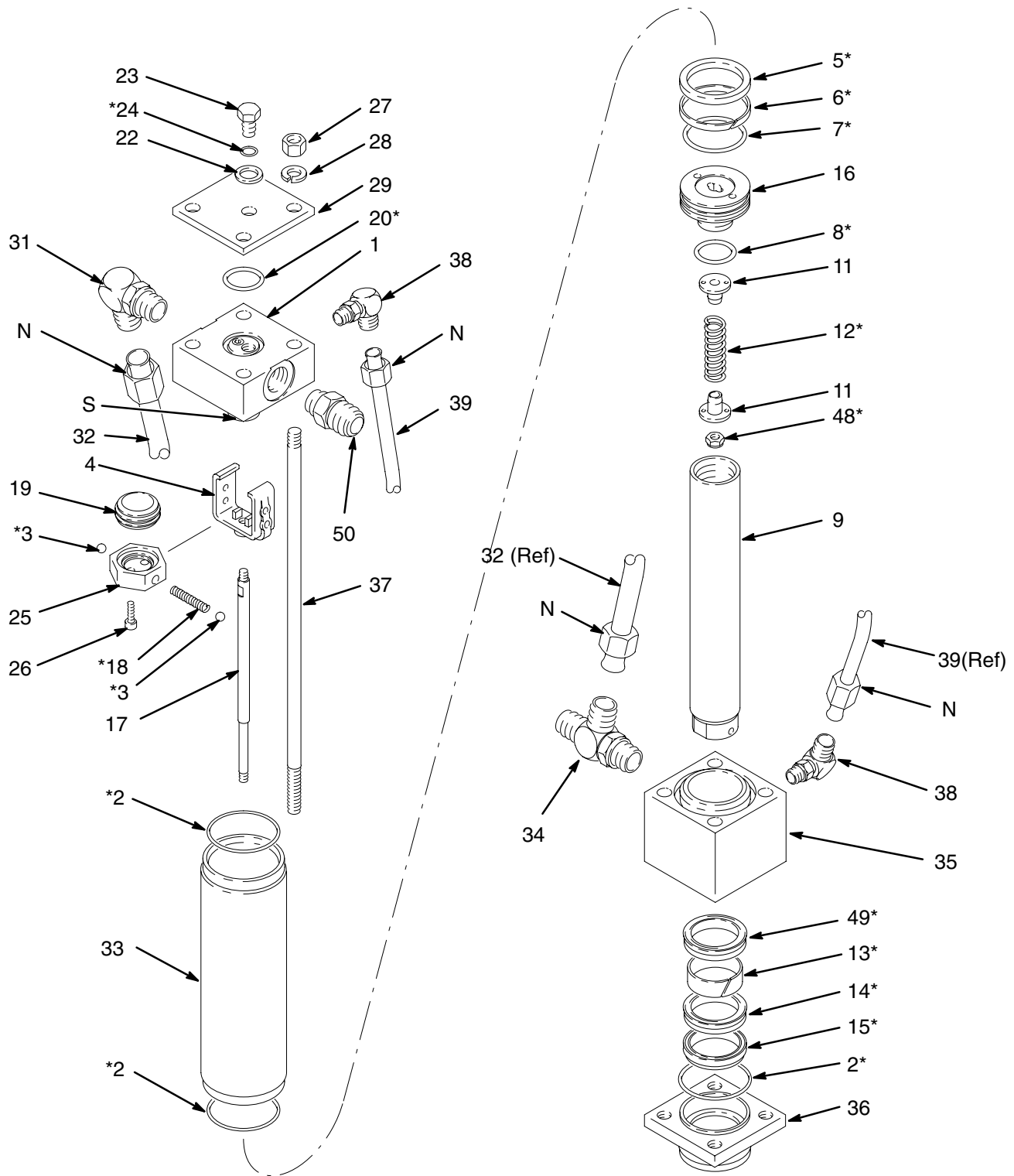


Fig. 7

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Service

Reassembly

1. Install the block packing (14*) and wiper (15*) in the housing retainer (36). *The spring of the block packing and the lips of the wiper must face up.* Install the o-ring (2*) on the top surface of the retainer. See Fig. 8.
2. Install the bearing (13*) and block packing (49*) in the bottom cylinder cap (35). *The lips of the block packing must face up.*
3. Reassemble the housing retainer (36) and the bottom cylinder cap (35).

NOTE: Thread sealant and primer are required. See **Tools Required** on page 8 for specifications. Loctite® 609 is used only in step 4 below. Use Loctite® 242 thread sealant and Loctite® Primer T or Perma-Loc® 115 in all other steps as required.

4. To reassemble the yoke (4) and trip rod (17), clean the threads with primer or chlorinated solvent and let dry for 3 to 4 minutes. Apply Loctite® 609 thread sealant to the female threads of the yoke. Slide the yoke into Repair Tool 189305 and place the tool in a vise. Using a wrench on the flats of the trip rod, screw the rod into the yoke. Torque to 54–56 in–lb (6.1–6.3 N•m).
5. Install the bearing (5*), o-ring (7*), and seal (6*) on the piston (16). Install the second o-ring (8*) on the underside of the piston. Slide the piston onto the trip rod (17) so the wide end of the piston faces the yoke (4).
6. Install the retainers (11) and spring (12*) on the trip rod (17). Screw the nut (48*) onto the rod until it runs out of thread, so that it bottoms out on the shoulder of the rod. See the Detail in Fig. 8.
7. Hold the flats of the displacement rod (9) in a vise. Slide the trip rod (17) into the displacement rod. Use a spanner wrench in the pin holes of the piston (16) to screw it into the displacement rod. Torque to 30–40 ft–lb (41–54 N•m).
8. Install the o-ring (20*) in the top cylinder cap (1), then install the cap plate (29), o-ring (24*), sealing washer (22), and capscrew (23).
9. To reassemble the valve sleeve (19) and valve stop (25), slide the sleeve (19) onto the valve spool (S). (Either side of the sleeve can face up.) Apply primer to the threads of the screws (26) and let dry for 3 to 4 minutes. Apply 1 or 2 drops of thread sealant to the female threads of the spool (S). Install the stop (25) and torque the screws (26) to 42–45 in–lb (4.7–5.1 N•m).

10. To assemble the valve mechanism, use Repair Tool 189305 as follows:
 - a. Slide the yoke (4) into the repair tool, as shown in the Detail in Fig. 8. Align the upper detent holes (H) of the yoke with the center line of the tool.
 - b. Insert the spring (18*) and one ball (3*) into the valve stop (25). Tilt the valve stop and start guiding it into the tool, making sure the ball is sliding into the rounded slot in the tool.
 - c. Place the second ball (3*) at the other end of the spring (18*) and push it in with your thumb while rotating the valve stop (25) until the spring is horizontal and the balls are in place. Continue holding this assembly together.
 - d. Align the curved ends of the yoke with the valve sleeve groove, then press the assemblies firmly together. Make sure the balls snap into the upper detent holes (H) of the yoke (4), and the curved ends of the yoke engage the valve sleeve (19) groove. To remove the tool, slide it over the trip rod (17).
 11. Place the bottom cylinder cap (35) in a vise. Install the o-ring (2*) in the cap. Set the cylinder (33) on the bottom cap.
 12. Install the o-ring (2*) in the top cylinder cap (1). Make sure the hydraulic fittings (31, 34, and 38) are oriented as shown in Fig. 7, then slide the displacement rod (9) and piston (16) into the cylinder (33) until it seats in the top cap.
- ## CAUTION
- When inserting the piston into the cylinder, carefully guide the piston seal (6*) and bearing (5*) to prevent damage to these parts.
13. Install the tie rods (37). If the nuts and washers were removed, screw them onto the ends with short threads. Torque the nuts (27) to 28–30 ft–lb (38–41 N•m).
 14. Remove the plugs from the fluid fittings (31, 34 and 38). Install the tubes (32, 39) and tighten the four fluid tube nuts (N).
 15. Reinstall the reciprocator on the motor base as explained on page 9.

Service

- | | |
|--------------------------------------------|---------------------------------------------------------|
| △1 Spring faces up. | △6 Apply primer to threads and let dry 3 to 4 minutes. |
| △2 Lips face up. | △7 Apply 1–2 drops of thread sealant to female threads. |
| △3 Apply thread sealant to female threads. | △8 Torque to 42–45 in–lb (4.7–5.1 N.m). |
| △4 Torque to 54–56 in–lb (6.1–6.3 N.m). | △9 Torque to 30–40 ft–lb (41–54 N.m). |
| △5 Wide end faces yoke (4). | △10 Torque to 28–30 ft–lb (38–41 N.m). |

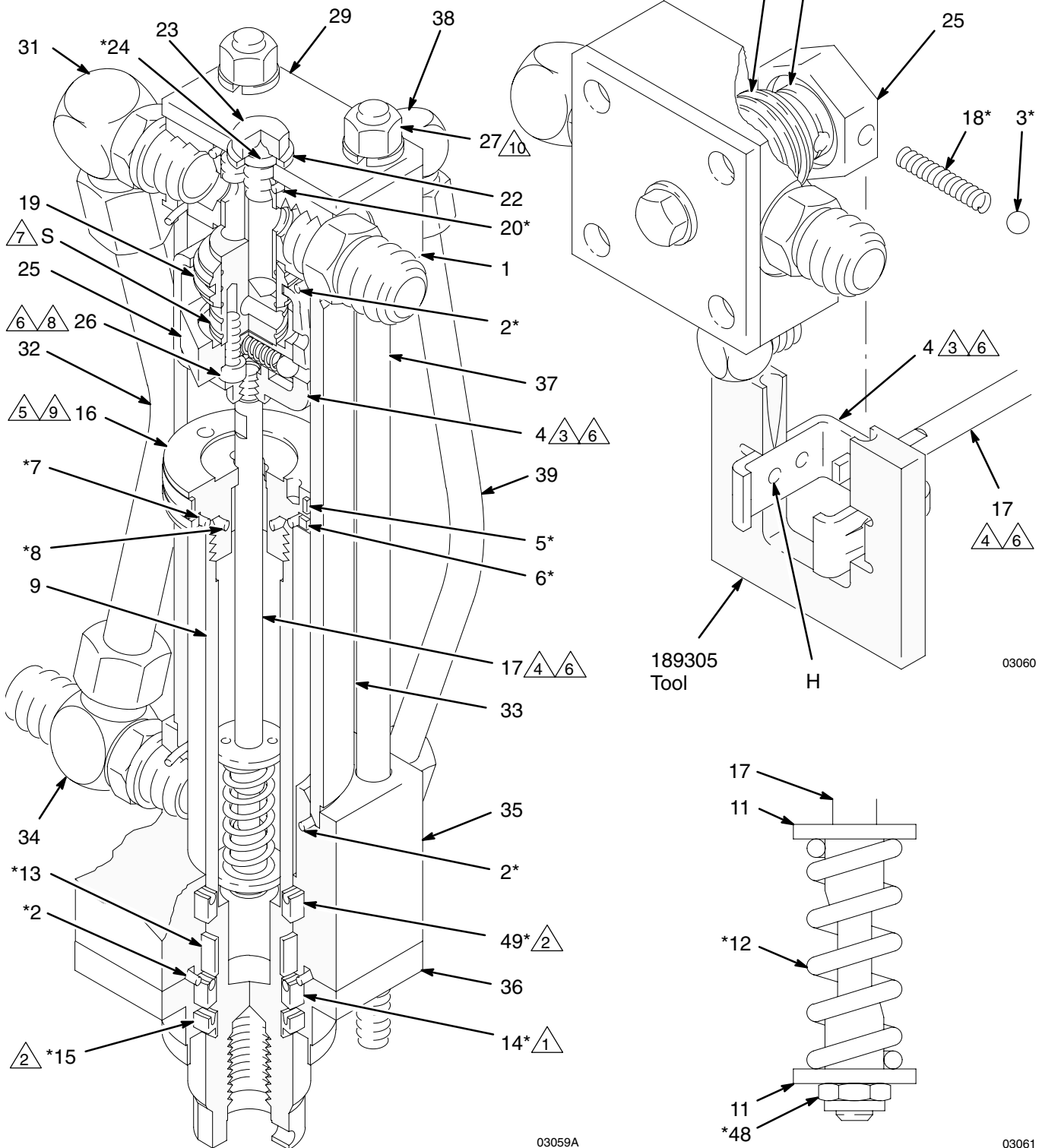


Fig. 8

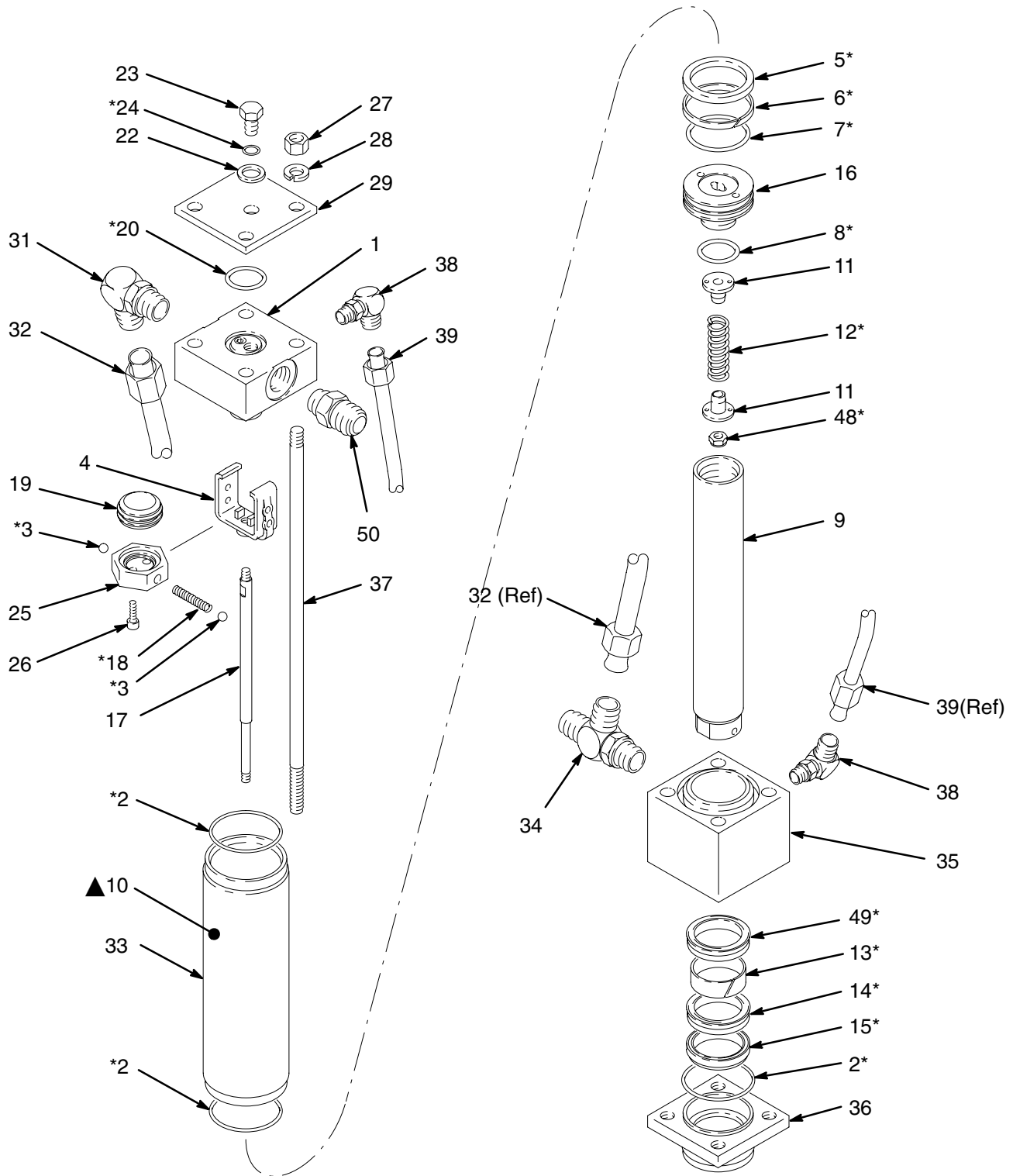
Notes

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Parts

236418 Viscount® I Reciprocator, Series C

253608 Viscount® I Reciprocator, Series A



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Parts

236418, Series C and 253608, Series A, Viscount® I Hydraulic Reciprocator

Ref No.	Part No.	Description	Qty	Ref No.	Part No.	Description	Qty
1	236594	TOP CAP ASSEMBLY	1	27	106292	NUT, hex; 3/8–24 unf–2b	4
2*	106274	O-RING; buna-N	3	28	100133	WASHER, lock; 3/8 in. size	4
3*	100069	BALL; carbon steel	2	29	178181	PLATE, cap	1
4	189077	YOKE, valve	1	31	106470	ELBOW, 90°; 3/4–16 unf–2a;	
5*	178207	BEARING, piston; bronze-filled PTFE	1			fits 1/2 in. (13 mm) diameter tube	1
6*	178226	SEAL, piston; glass-filled PTFE	1	32	236419	TUBE, inlet; w/3/4–16 unf–2b fittings	1
7*	108014	O-RING; buna-N	1	33	178229	CYLINDER	1
8*	105765	O-RING; buna-N	1	34	107197	TEE; 3/4–16 unf–2a	1
9	189070	ROD, displacement, 236418 only	1	35	189073	CAP, cylinder, bottom	1
	15H840	ROD, displacement, 253608 only	1	36	189074	RETAINER, housing	1
10▲	179885	LABEL, warning	1	37	189075	ROD, tie	4
11	189069	RETAINER, spring	2	38	110792	ELBOW, 90°; 7/16–20 unf–2a x	
12*	178189	SPRING, compression	1			9/16–18 unf–2a;	
13*	112342	BEARING, rod; bronze-filled PTFE	1			fits 3/8 in. (10 mm) diameter tube	2
14*	112340	PACKING, block; nitrile rubber	1	39	236420	TUBE, drain;	
15*	112341	WIPER, rod; nitrile rubber	1			w/9/16–18 unf–2b fittings	1
16	192656	PISTON	1	48*	114231	NUT, hex, locking; w/nylon insert;	
17	192657	ROD, trip	1			10–32 unf–3b	1
18*	108437	SPRING, compression	1	49*	112561	PACKING, block; urethane	1
19	189072	SLEEVE, valve	1	50	107195	ADAPTER, straight thread, 37° flare;	
20*	104093	O-RING; buna-N	1			3/4–16 unf–2a x 7/8–14 unf–2a	1
22	178179	WASHER, sealing	1				
23	106276	SCREW, cap, hex hd; 3/8–24 unf–2a;					
		0.625 (16 mm) long	1				
24*	155685	O-RING; buna-N	1				
25	192654	STOP, valve	1				
26	104092	SCREW, cap, socket hd;					
		10–24 unrc–3a; 0.625 (16 mm) long	2				

* These parts are included in Repair Kit 236698, which may be purchased separately.

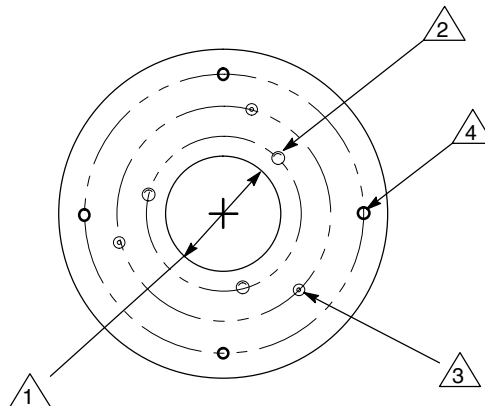
▲ Replacement Danger and Warning labels, tags and cards are available at no cost.

Mounting Hole Layout

3 Tie Rod

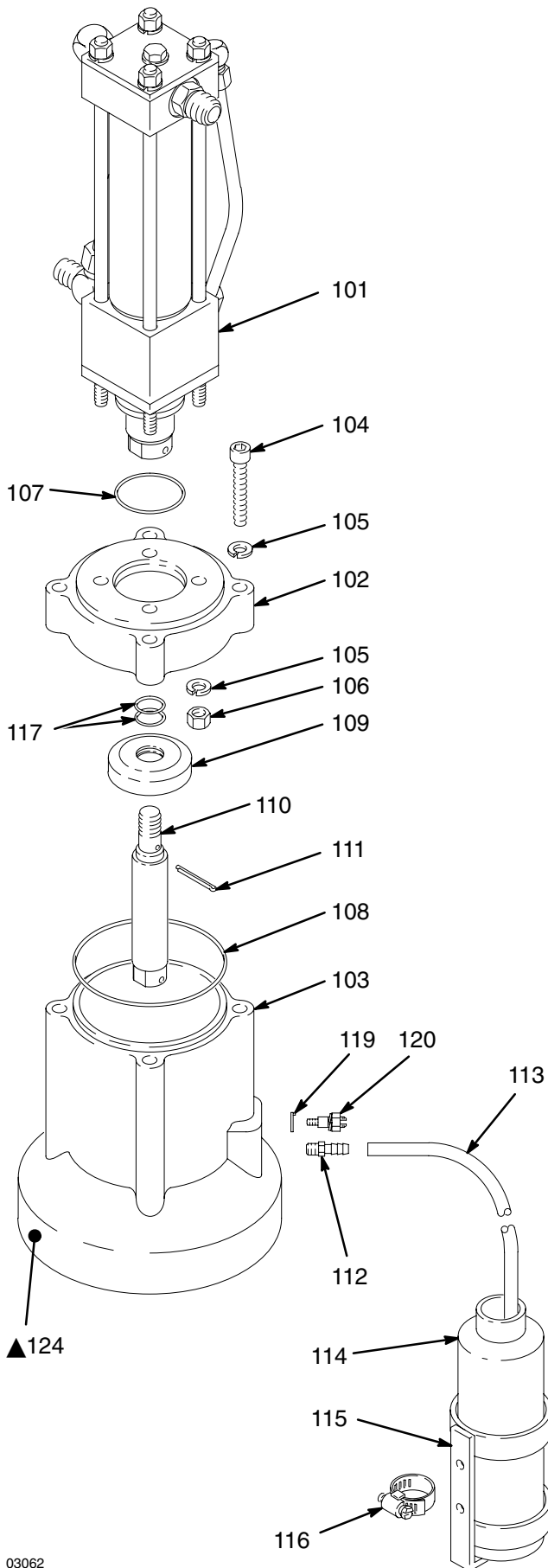
Mounting

- 1 2.62" (67 mm) Dia. Cutout
- 2 Three 1/2–13 unc (2b) holes on a 3.5" (89 mm) dia bolt circle.
- 3 Three 0.45" (11.5 mm) countersunk holes with M10 x 1.5 threaded holes on a 4.92" (125 mm) bolt circle.
- 4 Four 5/16–18 unc (2b) threaded holes on a 6.4" (163 mm) dia bolt circle for adapter plate mounting holes.



Parts

236417 Viscount® I Hydraulic Motor, Series A



Ref No.	Part No.	Description	Qty
101	236418	RECIPROCATOR, hydraulic, See pages 18 and 19 for parts	1
102	189079	CAP, motor	1
103	189068	BASE, motor	1
104	112339	SCREW, cap, socket hd; 3/8-24 unf-3a; 2.25 in. (57.2 mm)	4
105	100133	WASHER, lock; 3/8 in. size	8
106	106292	NUT, hex; 3/8-24 unf-2b	4
107	106274	O-RING; buna-N	1
108	112343	O-RING; buna-N	1
109	189080	DEFLECTOR, oil	1
110	189081	ROD, extension	1
111	100103	PIN, cotter	1
112	103875	ADAPTER, barbed; 1/8 npt(m); fits 0.25 in. (6.3 mm) ID hose	1
113		HOSE, drain; PVC; 0.25 in. (6.3 mm) ID; purchase locally 6 ft	1
114	112279	BOTTLE, drain	1
115	236272	HOLDER, drain bottle	1
116	103927	CLAMP, hose	1
117	112030	O-RING	2
119	104582	WASHER, tab	1
120	104029	LUG, grounding	1
124▲	187959	LABEL, warning	1

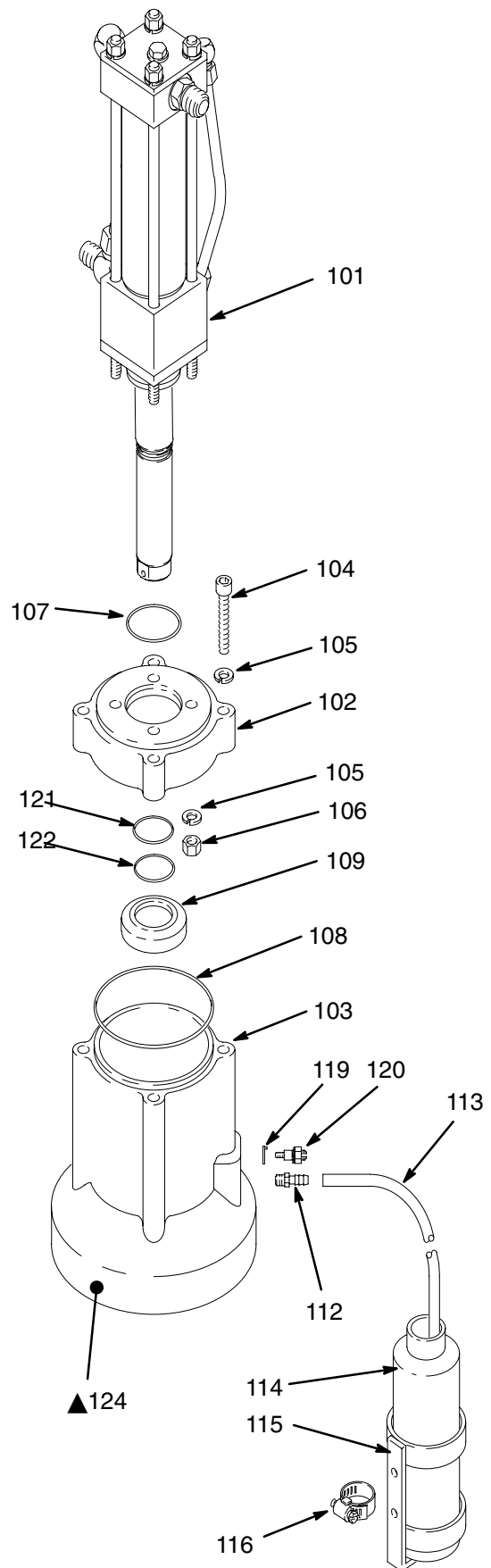
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Parts

261466 Viscount® I Hydraulic Motor, Series A

Ref No.	Part No.	Description	Qty
101	253608	RECIPROCATOR, hydraulic, See pages 17 and 18 for parts	1
102	189079	CAP, motor	1
103	189068	BASE, motor	1
104	112339	SCREW, cap, socket hd; 3/8–24 unf–3a; 2.25 in. (57.2 mm)	4
105	100133	WASHER, lock; 3/8 in. size	8
106	106292	NUT, hex; 3/8–24 unf–2b	4
107	106274	O-RING; buna-N	1
108	112343	O-RING; buna-N	1
109	15K222	DEFLECTOR, oil	1
112	103875	ADAPTER, barbed; 1/8 npt(m); fits 0.25 in. (6.3 mm) ID hose	1
113		HOSE, drain; PVC; 0.25 in. (6.3 mm) ID; purchase locally	6 ft
114	112279	BOTTLE, drain	1
115	236272	HOLDER, drain bottle	1
116	103927	CLAMP, hose	1
119	104582	WASHER, tab	1
120	104029	LUG, grounding	1
121	118381	O-RING, packing	1
122	15K234	O-RING, packing	1
124▲	187959	LABEL, warning	1

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



Technical Data

Category	Data
Maximum hydraulic fluid input pressure	1500 psi (10.5 MPa, 105 bar)
Maximum hydraulic fluid input volume	3 gpm (11.3 liter/min)
Fluid consumption rate	6.5 ounces (0.195 liter) per cycle or 1 gallon per 19.5 cycles
Maximum water content of hydraulic fluid	1 percent
Maximum hydraulic fluid temperature	130° F (54° C)
Effective piston area	1.48 in ² (9.55 cm ²)
Piston rod diameter	1-3/8 in (34.9 mm)
Stroke	4 in (101.6 mm)
Thrust at 1500 psi (10.5 MPa, 105 bar)	2220 lb (9875 N)
Weight with base	28 lb (124.6 N)

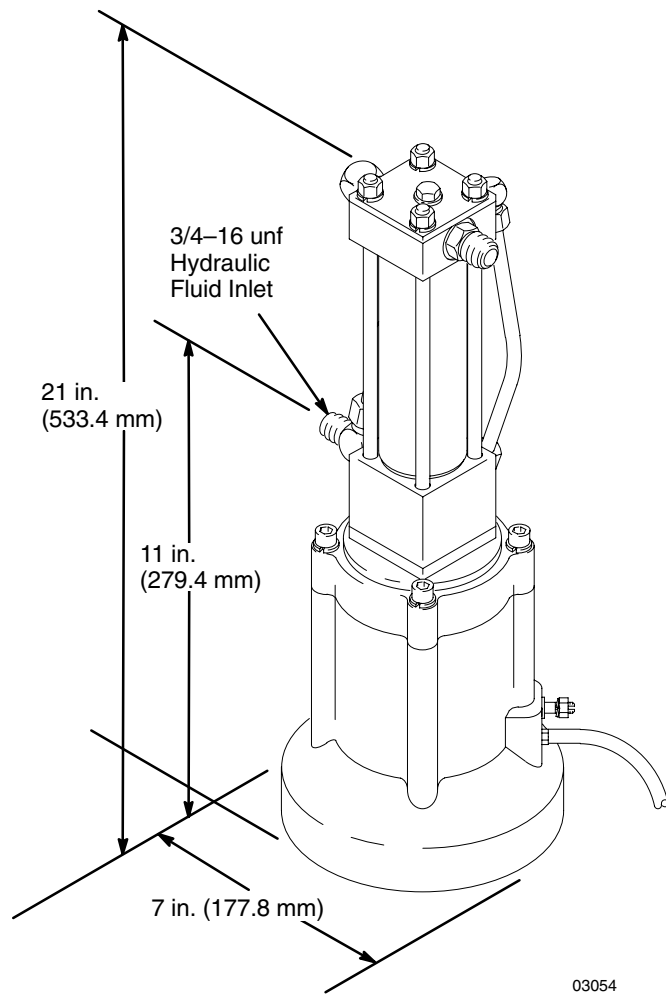
Sound Data

Hydraulic Pressure	dBa at 20 cycles/minute	dBa at 30 cycles/minute	dBa at 60 cycles/minute
500 psi (35 bar)	76.1	77.9	79.5
1000 psi (70 bar)	78.0	78.6	80.5
1500 psi (105 bar)	78.7	80.9	83.0

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Dimensions



Graco Standard Warranty

Graco warrants all equipment manufactured by Graco 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 Graco, Graco will, for a period of twelve months from the date of sale, repair or replace any part of the equipment determined by Graco to be defective. This warranty applies only when the equipment is installed, operated and maintained in accordance with Graco's written recommendations.

This warranty does not cover, and Graco 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-Graco component parts. Nor shall Graco be liable for malfunction, damage or wear caused by the incompatibility of Graco equipment with structures, accessories, equipment or materials not supplied by Graco, or the improper design, manufacture, installation, operation or maintenance of structures, accessories, equipment or materials not supplied by Graco.

This warranty is conditioned upon the prepaid return of the equipment claimed to be defective to an authorized Graco distributor for verification of the claimed defect. If the claimed defect is verified, Graco 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.

Graco'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.

Graco 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 Graco. These items sold, but not manufactured by Graco (such as electric motors, switches, hose, etc.), are subject to the warranty, if any, of their manufacturer. Graco will provide purchaser with reasonable assistance in making any claim for breach of these warranties.

In no event will Graco be liable for indirect, incidental, special or consequential damages resulting from Graco 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 Graco, or otherwise.

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TO PLACE AN ORDER, contact your Graco distributor, or call one of the following numbers to identify the distributor closest to you:

1-800-328-0211 Toll Free

612-623-6921

612-378-3505 Fax

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MM 308330

Graco Headquarters: Minneapolis
International Offices: Belgium, China, Japan, Korea

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