

Instructions – Parts List



HIGH VOLUME

307547 Rev.E

Plural Component Pumps

Air-Powered Pumps

Part No. 246611, Series A (shown)

26:1 Ratio King Pump

*2000 psi (13.8 MPa, 138 bar) Maximum Fluid Working Pressure
75 psi (0.5 MPa, 5 bar) Maximum Air Input Pressure*

Part No. 224567, Series A

13:1 Ratio Bulldog Pump

*1300 psi (9.1 MPa, 91 bar) Maximum Fluid Working Pressure
100 psi (0.7 MPa, 7 bar) Maximum Air Input Pressure*

Hydraulic-Powered Pumps

Part No. 217337, Series B (shown)

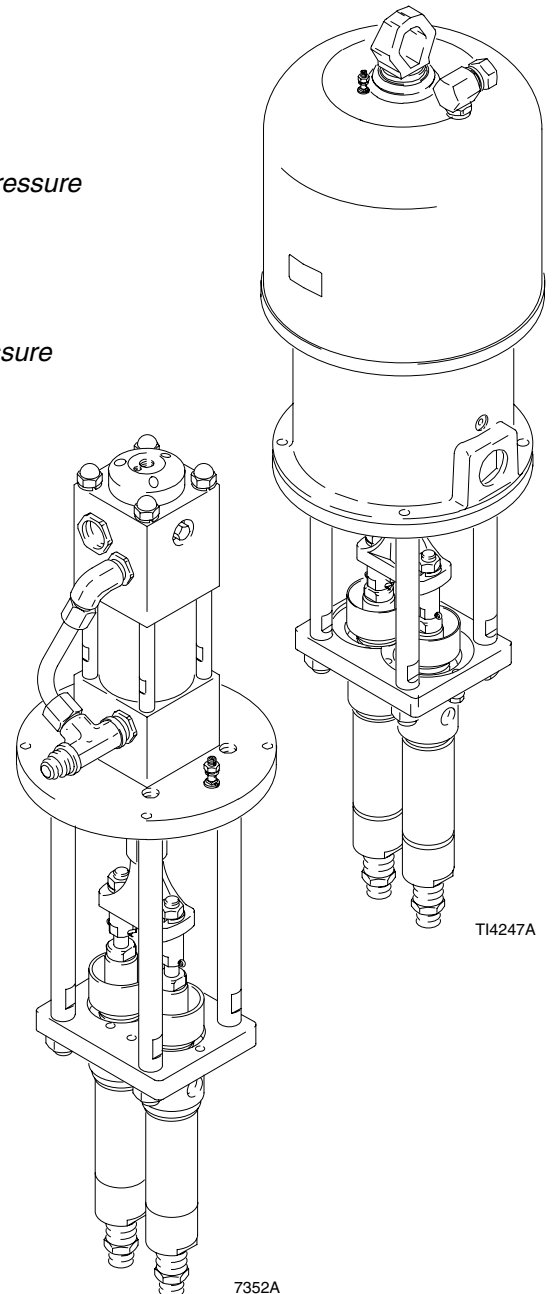
Viscount II Pump

*2000 psi (13.8 MPa, 138 bar)
Maximum Fluid Working Pressure
1250 psi (8.7 MPa, 87.5 bar)
Maximum Hydraulic Input Pressure*

Part No. 246041, Series A

Viscount II Pump

*3000 psi (20.7 MPa, 207 bar)
Maximum Fluid Working Pressure
1150 psi (7.9 MPa, 79 bar)
Maximum Hydraulic Input Pressure*



Read warnings and instructions.

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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

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 uncertain about usage, 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. Refer to the **Technical Data** on page 23 for the maximum working pressure of this equipment.
- 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 use hoses to pull equipment.
- Route hoses away from traffic areas, sharp edges, moving parts, and hot surfaces.
- To avoid excessive heat buildup, never operate the hose when it is coiled.
- To avoid overpressurization, do not install a fluid shutoff device downstream from the heater’s fluid outlet.
- Wear hearing protection when operating this equipment.
- Do not lift pressurized equipment.
- Comply with all applicable local, state, and national fire, electrical, and safety regulations.

! WARNING



INJECTION HAZARD

Spray from the gun, hose 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 might look like just a cut, but it is a serious injury. **Get immediate medical attention.**
- Do not point the gun 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 trigger guard on the gun when spraying.
- Be sure the gun trigger safety operates before spraying.
- Lock the gun trigger safety when you stop spraying.
- Follow the **Pressure Relief Procedure** on page 10 whenever you: are instructed to relieve pressure; stop spraying; clean, check, or service the equipment; and install or clean the spray tip/nozzle.
- Tighten all fluid connections before operating the equipment.
- Check the hoses, tubes, and couplings daily. Replace worn, damaged, or loose parts immediately. Permanently coupled hoses cannot be repaired; replace the entire hose.



PLURAL COMPONENT FLUID HAZARD

Before using this equipment, read the fluid manufacturer’s warnings and determine all facts relating to the fluids used, including any of the potential hazards relating to toxic fumes, fires, explosions, reaction times, and exposure of human beings to the individual components or their resultant mixtures.

- 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.
- Graco does not manufacture or supply any of the reactive chemical components that may be used in this equipment and is not responsible for their effects. Graco assumes no responsibility for loss, damage, expense or claims for personal injury or property damage, direct or consequential, arising from the use of such chemical components.

WARNING



FIRE, EXPLOSION, AND ELECTRIC SHOCK 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.
- All electrical wiring must be done by trained and qualified personnel and comply with all local codes and regulations.
- 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.
- Keep the spray area free of debris, including solvent, rags, and gasoline.
- Electrically disconnect all equipment in the spray area.
- Extinguish all open flames or pilot lights in the spray area.
- Do not smoke in the spray area.
- Do not turn on or off any light switch in the spray area while operating or if fumes are present.
- Do not operate a gasoline engine in the spray area.
- Use only Graco heated hoses. Do not use the hose until the couplings are properly insulated and the hose abrasion cover is in place.
- Do not expose the heated hose to rain.



MOVING PARTS HAZARD

Moving parts, such as the air motor piston, can pinch or amputate your fingers.

- Keep clear of all moving parts when starting or operating the pump.
- Before servicing the equipment, follow the **Pressure Relief Procedure** on page 10 to prevent the equipment from starting unexpectedly.

Installation

General Information

NOTE: Reference numbers and letters in parentheses in the text refer to the callouts in the figures and the parts drawing.

NOTE: Always use Genuine Graco Parts and Accessories, available from your Graco distributor. If you supply your own accessories, be sure they are adequately sized and pressure rated for your system.

Figs. 3 and 4 are only guides for selecting and installing system components and accessories. Contact your Graco distributor for assistance in designing a system to suit your particular needs.

Prepare the Operator

All persons who operate the equipment must be trained in the safe, efficient operation of all system components as well as the proper handling of all fluids. All operators must thoroughly read all instruction manuals, tags, and labels before operating the equipment.

Grounding

⚠ WARNING



FIRE AND EXPLOSION HAZARD

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

1. *Pump Models 217337, 246041, and 224567:* order Part No. 237569 Ground Wire and Clamp. See Fig. 1. Loosen the grounding lug locknut (W) and washer (X). Insert one end of the 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.

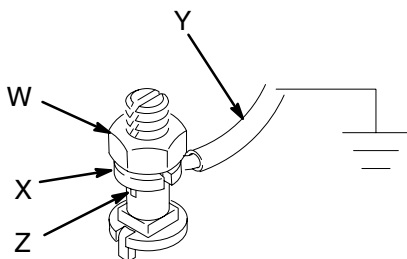


Fig. 1

Pump Model 246611: Remove the ground screw (Z) and insert through the eye of the ring terminal at end of ground wire (Y). Fasten the ground screw back onto the pump and tighten securely. Connect the other end of the ground wire to a true earth ground. See Fig. 2. *To order a ground wire and clamp, order Part No. 222011.*

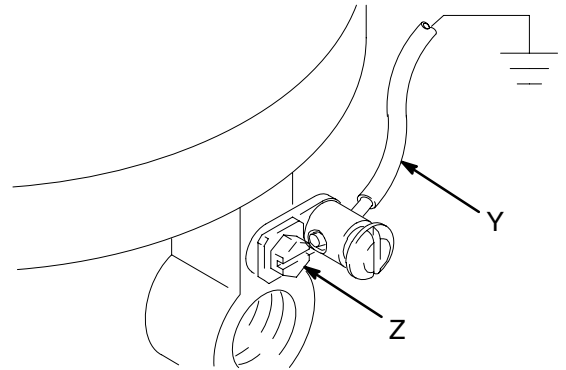


Fig. 2

TI1052

2. *Fluid hoses:* use only the Graco heated hose, which is electrically grounded.
3. *Air and hydraulic hoses:* use only electrically conductive hoses.
4. *Heater:* by wiring to a grounded power supply. In a mobile installation, be sure the truck or trailer is grounded to a true earth ground.
5. *Hydraulic power supply or air compressor:* follow manufacturer's recommendations.
6. *Spray gun:* ground through connection to a properly grounded fluid hose and pump.
7. *Fluid supply container:* follow your local code.
8. *Object being sprayed:* follow your local code.
9. *Solvent pails used when flushing:* follow your local code. Use only metal pails, which are conductive, placed on a grounded surface. Do not place the pail on a nonconductive surface, such as paper or cardboard, which interrupts the grounding continuity.
10. *To maintain grounding continuity when flushing or relieving pressure,* hold a metal part of the spray gun firmly to the side of a grounded *metal* pail, then trigger the gun.

Hydraulic Pump Installation

KEY	
A	Hydraulic Proportioner
B	Mounting Stand
C	Hydraulic Supply Line
D	Hydraulic Return Line
F	Hydraulic Pressure Gauge
H	Fluid Inlet Valves
K	Feed Pumps
L	Fluid Pressure Relief Valves (required)
M	Heated Hose
N	Fusion Spray Gun
P	Hydraulic Supply Line Shutoff Valve
T	Reactor Heater
U	Hydraulic Power Supply, with enclosed return line filter
W	Fluid Supply Lines

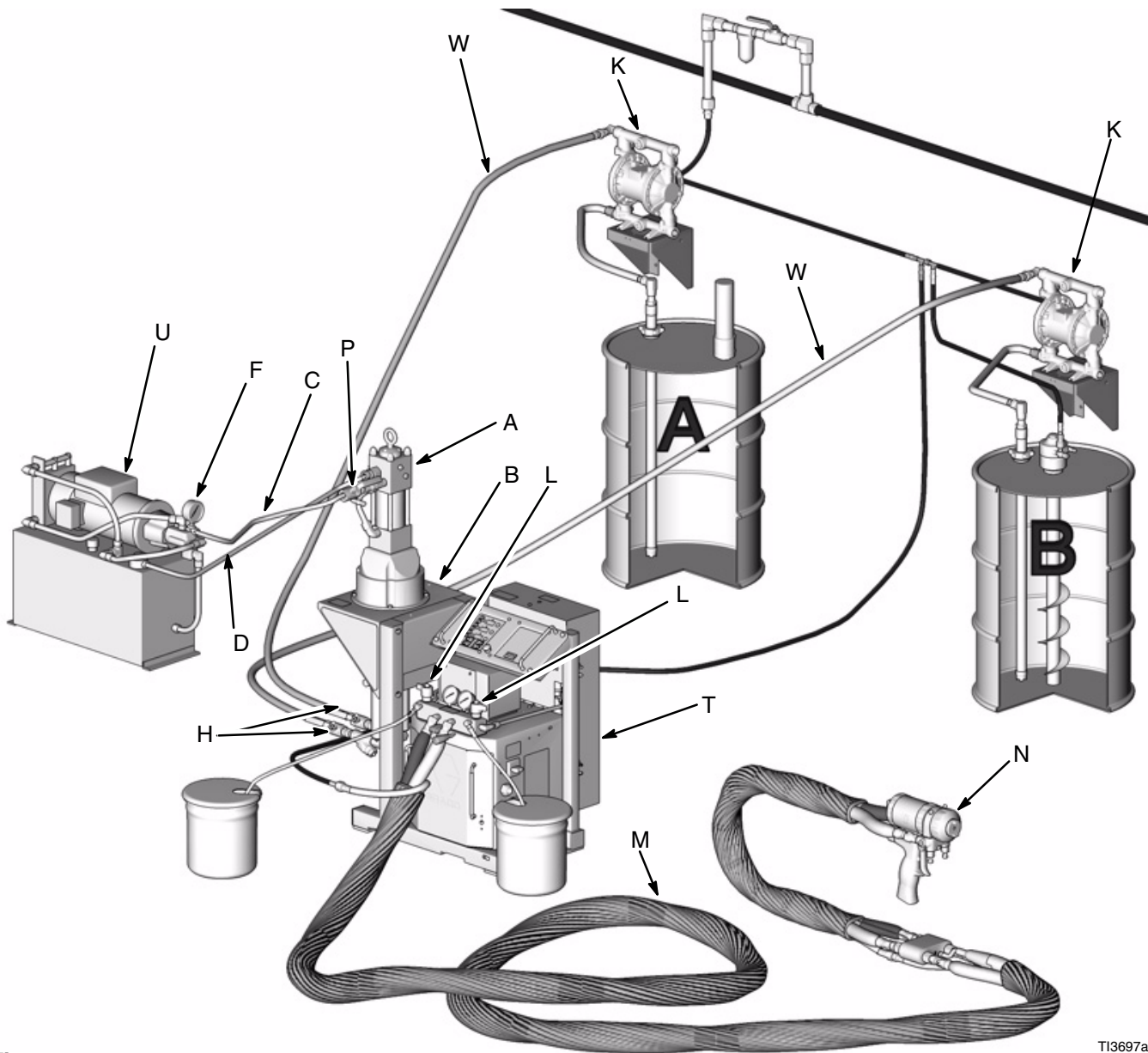


Fig. 3

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Hydraulic Pump Installation

Mounting the Pump

Mount the pump to suit the type of installation planned. The pump dimensions and mounting hole layout are shown on page 21.

In Fig. 3, the pump is shown mounted on a stand which mounts to the Reactor™ frame.

Available Accessories (must be purchased separately)

Filters

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

Carefully follow the manufacturer's recommendations on reservoir and filter cleaning, and periodic changes of hydraulic fluid. Use only Graco approved hydraulic oil. Order Part No. 169236, 5 gallon (19 liter) or 207428, 1 gallon (3.8 liter).

Hydraulic Line Accessories

CAUTION

It is very important to keep the hydraulic supply system clean at all times. Be sure that all hydraulic fluid lines are absolutely clean. Blow out the lines with air and flush thoroughly with solvent before connecting to the hydraulic motor, to avoid introducing harmful contaminants into the motor.

Do not exceed 12 gpm (45.6 liter/min) hydraulic oil volume to the motor, to avoid excessive pump cycle rate which could damage the pump.

For optimum pump performance, keep the temperature of the hydraulic oil below 130°F (54°C).

The hydraulic motor has a 1–1/16–12 un–2a 37° flared hydraulic oil supply fitting, and a 1" npt(f) hydraulic oil return port. Use a minimum 1/2 in. (13 mm) ID hydraulic supply line (C), and a minimum 3/4 in. (19 mm) return line (D).

On the hydraulic supply line (C), install the following accessories in the order shown in Fig. 3, using adapters as necessary.

- **A shutoff valve (P)** to isolate the pump for servicing.

- **A fluid pressure gauge (F)** to monitor hydraulic oil pressure to the motor and to avoid overpressurizing the motor or displacement pumps, and **a pressure and temperature-compensated flow control valve** to prevent the motor from running too fast and possibly damaging itself.
- **A pressure reducing valve with a drain line** running directly into the hydraulic return line (D).
- **An accumulator** to reduce the hammering effect caused by the motor reversing direction.

On the hydraulic return line (D), install the following accessories in the order shown in Fig. 3, using adapters as necessary.

- **A shutoff valve** to isolate the pump for servicing.
- **A filter** of 10 micron size.

Fluid Line Accessories

Install the following accessories in the order shown in Fig. 3, using adapters as necessary.

WARNING

A fluid pressure relief valve (L) is required in both fluid lines to the gun, to help reduce the risk of serious injury, including splashing of fluid in the eyes or on the skin.

The fluid pressure relief valve assists in relieving fluid pressure in the displacement pump, hose, and spray gun. Triggering the gun to relieve pressure may not be sufficient.

- **The fluid pressure relief valves (L)** are required in your system to relieve fluid pressure in the hose and gun (see the **WARNING** above).
- **The fluid inlet valves (H)** shut off fluid flow to the pumps.
- **The Reactor Heater (T)** heats the fluid to the proper spraying temperature.
- **The Reactor Heated Hose (M)** maintains proper fluid temperature between the heater and gun.
- **The Fusion™ Spray Gun (N)** sprays plural component fluids.

Fluid Supply Hoses

Connect a **fluid supply line (W)** to the 3/4 npt(m) fluid inlet of each displacement pump.

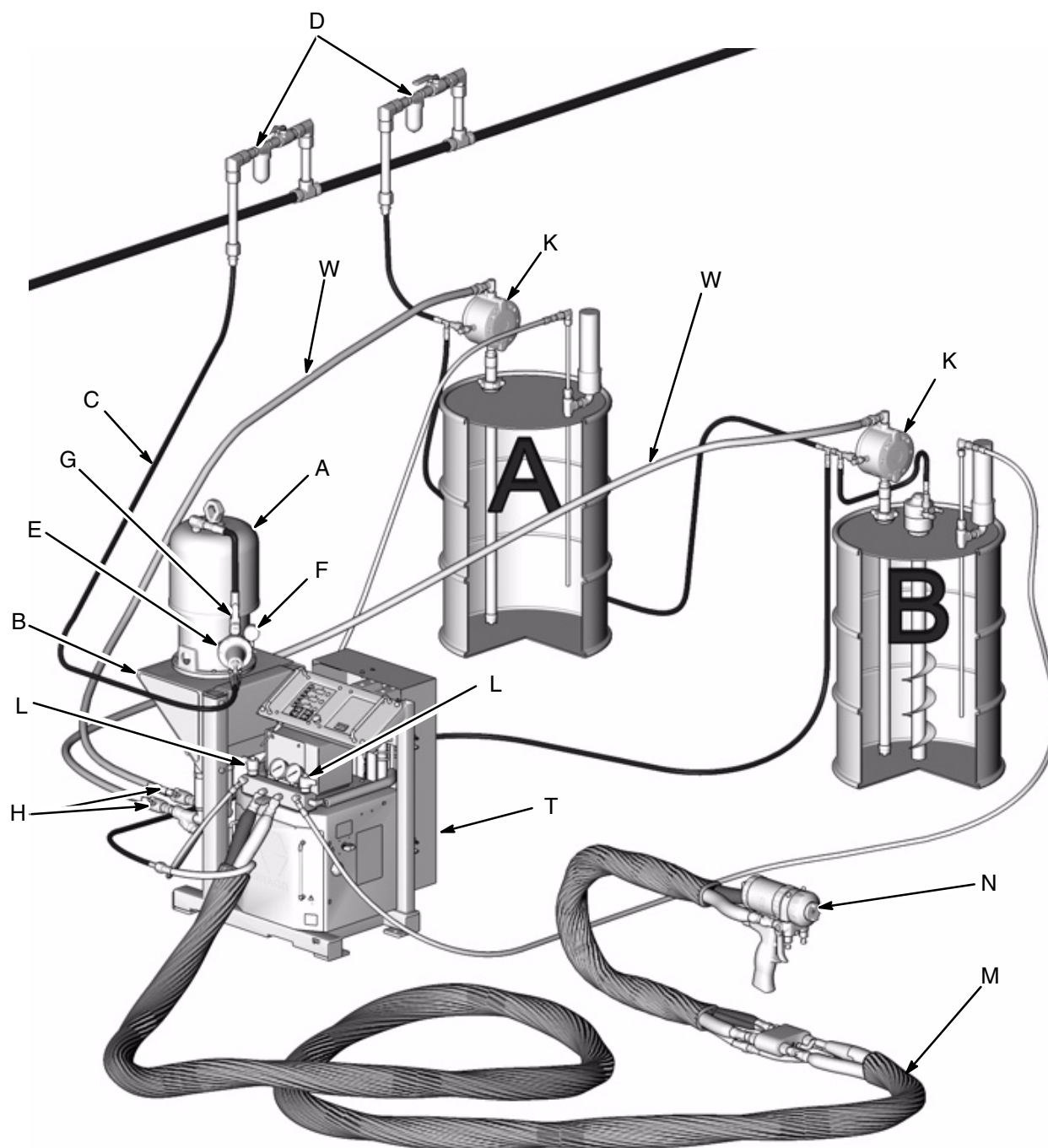
NOTE: One Model 217337, each displacement pump also has a 1" npt(m) optional fluid inlet.

Air-Powered Pump Installation

KEY

A Air-Powered Proportioner
B Mounting Stand
C Air Supply Line
D Air Line Filter
E Air Regulator
F Air Pressure Gauge
G Bleed-Type Master Air Valve

H Fluid Inlet Valves
K Feed Pumps
L Fluid Pressure Relief Valve (required)
M Heated Hose
N Fusion Spray Gun
T Reactor Heater
W Fluid Supply Lines



TI4246A

Fig. 4

Air-Powered Pump Installation

System Accessories

WARNING

A pump air bleed valve (G) and a fluid pressure relief valve (L) in both fluid lines to the gun are required. These accessories help reduce the risk of serious injury, including fluid injection and splashing of fluid in the eyes or on the skin, and injury from moving parts if you are adjusting or repairing the pump.

The pump air bleed valve (G) relieves air trapped between it and the pump after the air is shut off. Trapped air can cause the pump to cycle unexpectedly. Locate the valve close to the pump.

The fluid pressure relief valves (L) assist in relieving fluid pressure in the displacement pump, hose, and gun. Triggering the gun to relieve pressure may not be sufficient.

Air Line

Install the following accessories as shown in Fig. 4, using adapters as necessary:

- **The pump air bleed valve (G)** is required in your system to relieve air trapped between it and the air motor when the valve is closed (see the **WARNING** above). Be sure the valve is easily accessible from the pump, and is located **downstream** from the air regulator (E).
- **The pump air regulator (E) and gauge (F)** control pump speed and outlet pressure by adjusting the air pressure to the pump. Locate the regulator close to the pump, but **upstream** from the pump air bleed valve (G).
- **An air line filter (D)** removes harmful dirt and moisture from the compressed air supply.

Fluid Line Accessories

Install the following accessories in the order shown in Fig. 4, using adapters as necessary.

WARNING

A fluid pressure relief valve (L) is required in both fluid lines to the gun, to help reduce the risk of serious injury, including splashing of fluid in the eyes or on the skin.

The fluid pressure relief valve assists in relieving fluid pressure in the displacement pump, hose, and spray gun. Triggering the gun to relieve pressure may not be sufficient.

- **The fluid pressure relief valves (L)** are required in your system to relieve fluid pressure in the hose and gun (see the **WARNING** above).
- **The fluid inlet valves (H)** shut off fluid flow to the pumps.
- **The Reactor Heater (T)** heats the fluid to the proper spraying temperature.
- **The Reactor Heated Hose (M)** maintains proper fluid temperature between the heater and gun.
- **The Fusion™ Spray Gun (N)** sprays plural component fluids.

Fluid Supply Hoses

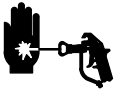
Connect a **fluid supply line (W)** to the 3/4 npt(m) fluid inlet of each displacement pump.

NOTE: Each displacement pump also has a 1" npt(m) optional fluid inlet.

Operation

Pressure Relief Procedure

WARNING



INJECTION HAZARD

To reduce the risk of serious injury, including fluid injection, splashing in the eyes or on the skin, or moving parts,

always follow the **Pressure Relief Procedure** whenever you:

- are instructed to relieve the pressure,
- shut off the pump,
- stop spraying,
- check or service any of the system equipment,
- or install or clean the spray tip/nozzle.

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

Check the Hydraulic Fluid

Before starting the hydraulic power supply, check the hydraulic fluid level. Add fluid as necessary to fill lines to replace the amount used. Use only Graco approved hydraulic oil. Order Part No. 169236, 5 gallon (19 liter) or 207428, 1 gallon (3.8 liter).

Wet-Cup/Packing Nut

WARNING

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

Check the tightness of the packing nut/wet-cup (X) periodically. The nut should be tight enough to prevent leakage. Do not overtighten or you may damage the packings. Relieve pressure before adjusting the nut. See Fig. 5.

Keep the packing nut/wet-cup 1/3 full with ISO pump lube at all times to help prevent the fluid you are pumping from drying on the exposed displacement rod and damaging the pump packings.

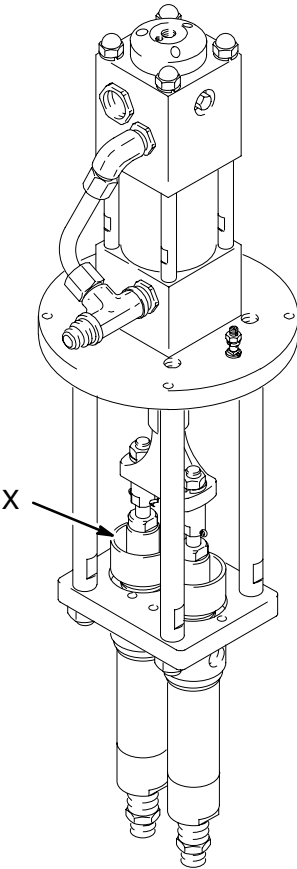
Flush the Pump Before First Use

The pump is tested with lightweight oil, which is left in to protect the pump parts. If the fluid you are using may be contaminated by the oil, flush it out with a compatible solvent. See **Flushing** on page 13.

1. Engage the gun piston safety lock.
2. Shut off power to the feed pumps.
3. Shut off the air or hydraulic power supply.
4. *On air powered pumps*, close the pump air bleed valve (G). *On hydraulic pumps*, close the supply line shutoff valve (P).
5. Close both gun fluid manifold valves.
6. Disengage the gun piston safety lock.
7. Hold a metal part of the gun firmly to the side of a grounded metal pail, and trigger the gun to relieve pressure.
8. Engage the gun piston safety lock.
9. Turn both fluid pressure relief valves (L, required in your system), to PRESSURE RELIEF, having a container ready to catch the drainage.
10. Leave the fluid pressure relief valves open until you are ready to dispense again.

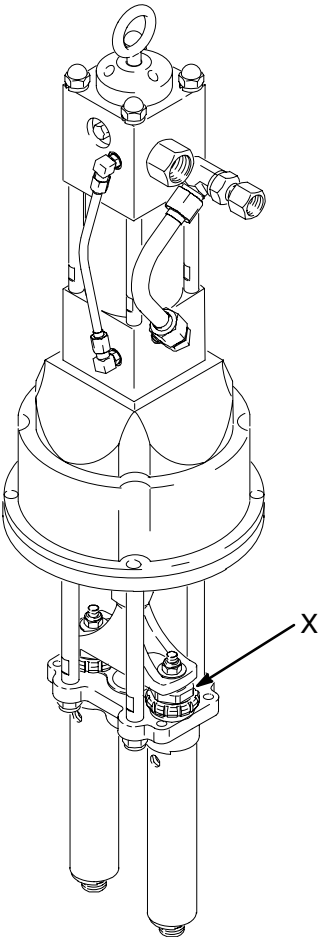
Operation

Model 217337



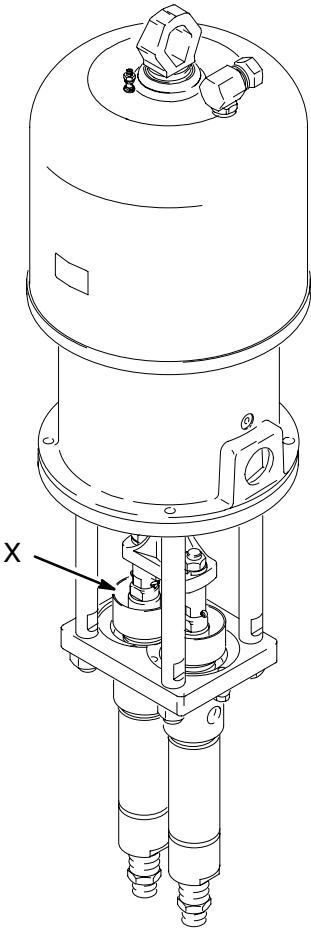
7352A

Model 246041



TI4285A

Models 246611 and 224567



TI4247A

Fig. 5

Operation

Prime the Pump

NOTE: Use this procedure to prime the pump. To prime the entire system including the hose and gun, refer to your system manual.

1. See Figs. 3 and 4. On hydraulic pumps, check the hydraulic fluid level before each use, and add fluid as necessary.
2. Shut off the feed pumps (K).
3. Close both fluid inlet valves (H).
4. Close the hydraulic supply line shutoff valve (P) or the pump air bleed valve (G).
5. Turn both fluid pressure relief valves (L) to PRES-SURE RELIEF.
6. Open both fluid inlet valves (H).
7. Turn on the feed pumps (K).
8. Open the hydraulic supply line shutoff valve (P) or the pump air bleed valve (G).
9. Run the pump slowly until all air is pushed out and the system is fully primed. Always use the lowest pressure necessary to get the desired results. Higher pressures cause premature pump wear.

WARNING

COMPONENT RUPTURE HAZARD



To reduce the risk of overpressurizing your system, which could cause component rupture and serious injury, **never exceed the maximum air or hydraulic input pressure, or the maximum fluid working pressure of the pump (see Technical Data).**

CAUTION

Do not allow the hydraulic oil temperature to exceed 130°F (54°C). The pump seals will wear faster and leakage may occur if the pump is operated at higher oil temperatures.

10. Always use the lowest flow and pressure necessary to get the desired results. Higher pressure causes premature pump wear.

CAUTION

Do not allow the pump to run dry. It will quickly accelerate to a high speed, causing damage. If your pump is running too fast, stop it immediately and check the fluid supply. If the container is empty and air has been pumped into the lines, refill the container and prime the pump and the lines, or flush and leave it filled with a compatible solvent. Eliminate all air from the fluid system.

Maintenance

Shutdown and Care of the Pump

WARNING

To reduce the risk of serious injury whenever you are instructed to relieve pressure, always follow the **Pressure Relief Procedure** on page 10.

For overnight shutdown, stop the pump at the bottom of its stroke to prevent fluid from drying on the exposed displacement rod and damaging the throat packings. Relieve the pressure.

Always flush the pump before the fluid dries on the displacement rod. See **Flushing** below.

Flushing

WARNING



FIRE AND EXPLOSION HAZARD

Before flushing, read the section **FIRE, EXPLOSION, AND ELECTRIC SHOCK HAZARD** on page 4. Be sure the entire system and flushing pails are properly grounded. Refer to **Grounding** on page 5.

Flush the pump:

- Before the first use
- When changing fluids
- Before storing the pump.

Flush with a fluid that is compatible with the fluid you are pumping and with the wetted parts in your system. Check with your fluid manufacturer or supplier for recommended flushing fluids and flushing frequency.

CAUTION

Never leave water or water-base fluid in the pump overnight. If you are pumping water-base fluid, flush with water first, then with a rust inhibitor such as mineral spirits. Relieve the pressure, but leave the rust inhibitor in the pump to protect the parts from corrosion.

WARNING

To reduce the risk of serious injury whenever you are instructed to relieve pressure, always follow the **Pressure Relief Procedure** on page 10.

1. Relieve the pressure.
2. Hold a metal part of the gun firmly to the side of a grounded *metal* pail.
3. Start the pump. Always use the lowest possible fluid pressure when flushing.
4. Trigger the gun.
5. Flush the system until clear solvent flows from the gun.
6. Relieve the pressure.

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Troubleshooting



WARNING

To reduce the risk of serious injury whenever you are instructed to relieve pressure, always follow the **Pressure Relief Procedure** on page 10.

1. Relieve the pressure.
2. Check all possible problems and solutions before disassembling the pump.

Problem	Cause	Solution
Pump fails to operate.	Restricted line or inadequate air or hydraulic supply.	Clear; increase air or hydraulic supply.
	Insufficient air or hydraulic pressure – closed or clogged valves, etc.	Open, clean
	Exhausted fluid supply.	Refill; reprime or flush.
	Clogged fluid line, gun, etc.	Clear.*
	Dirty or damaged motor.	Service motor (see motor manual, supplied).
	Dried fluid seizure of displacement rod.	Service (see displacement pump manual, supplied).
Pump operates but output is low on both strokes.	Restricted line or inadequate air or hydraulic supply.	Clear; increase air or hydraulic supply.
	Insufficient air or hydraulic pressure – closed or clogged valves, etc.	Open, clean
	Exhausted fluid supply.	Refill; reprime or flush.
	Clogged fluid line, gun, etc.	Clear.*
	Packing nut too tight.	Loosen.
	Loose packing nut or worn throat packings.	Tighten packing nut (see page 10); replace throat packings.
Pump operates but output is low on downstroke.	Held open or worn intake valve.	Clear; service (see displacement pump manual, supplied).
Pump operates but output is low on upstroke.	Held open or worn fluid piston valve or packings.	Clear; service (see displacement pump manual, supplied).
Erratic or accelerated operation.	Exhausted fluid supply.	Refill; reprime or flush.
	Piston and intake valves need adjustment.	Adjust (see displacement pump manual, supplied).
	Held open or worn intake valve.	Clear; service (see displacement pump manual, supplied).
	Held open or worn fluid piston valve or packings.	Clear; service (see displacement pump manual, supplied).

* To determine if the fluid hose or gun is obstructed, follow the **Pressure Relief Procedure** on page 10. Disconnect the fluid hose and place a container at the pump fluid outlet to catch any fluid. Turn on the power just enough to start the pump. If the pump starts when the power is turned on, the obstruction is in the fluid hose or gun.

Service

MODELS 217337, 246611, AND 224567

NOTE: See the Parts drawings on pages 18 and 20.

Disconnecting the Displacement Pumps

NOTE: For displacement pump repair instructions, refer to the separate displacement pump manual 307430, supplied.

WARNING

To reduce the risk of serious injury whenever you are instructed to relieve pressure, always follow the **Pressure Relief Procedure** on page 10.

1. Flush the pump if possible. Stop the pump at the bottom of its stroke. Relieve the pressure.
2. Disconnect all hoses from the pump.
3. Plug all hydraulic connections to avoid contamination.
4. Take note of the orientation of the pump fluid outlets to the inlet of the motor.
5. Unscrew the tie rod locknuts (23) and the extension rod locknuts (14). Slide the displacement pumps down off the tie rods (5).
6. Remove the screws (12) and lockwashers (13) from the tie plate (6). Pull the tie plate off the displacement pumps (7).
7. Remove the cotter pins (11). Unscrew the rod extensions (10) from the displacement rods (R). Inspect the o-rings (24).
8. If you are servicing the motor (1), remove the tie rods (5), yoke (4), gasket (3), and coupler (2).

NOTE: For motor repair instructions, refer to the separate motor manual, supplied.

Reconnecting the Displacement Pumps

1. Apply thread sealant to the threads of the coupler (2) and screw it onto the motor. Place the gasket (3) on the yoke (4). Apply sealant to the threads of the yoke and screw it into the coupler.
2. Apply thread sealant to the top threads of the tie rods (5). (The top is the end with short threads, and without flats.) Screw the rods into the base of the motor (1).
3. Lubricate the o-rings (24) and install them on the displacement rods (R). Lubricate the threads of the rods.
4. Screw the extension rods (10) onto the displacement rods (R). Align the holes in the rods and insert the cotter pins (11).
5. Attach the tie plate (6) to the displacement pumps (7), using the six screws (12) and lockwashers (13). Orient the fluid outlets of the displacement pumps as was noted in step 4 under **Disconnecting the Displacement Pumps**.
6. Slide the tie plate (6) onto the tie rods (5) until the threads of the extension rods (10) protrude from the yoke (4). Screw the locknuts (14) onto the extension rods. Torque to 40–50 ft-lb (53–68 N•m).
7. Screw the tie rod locknuts (23) onto the tie rods (5). Torque to 40–50 ft-lb (53–68 N•m).
8. Remount the pump and connect all hoses.
9. Reconnect the ground wire if it was disconnected during repair.
10. Turn on the power to the motor and run the pump slowly, to make sure it is operating properly.
11. Fill the packing nut/wet-cup 1/3 full of ISO pump lube.

Service

MODEL 246041

NOTE: See the Parts drawing on page 19.

Disconnecting the Displacement Pumps

NOTE: For displacement pump repair instructions, refer to the separate displacement pump manual 307944, supplied.

WARNING

To reduce the risk of serious injury whenever you are instructed to relieve pressure, always follow the **Pressure Relief Procedure** on page 10.

1. Flush the pump if possible. Stop the pump at the bottom of its stroke. Relieve the pressure.
2. Disconnect all hoses from the pump.
3. Plug all hydraulic connections to avoid contamination.
4. Take note of the orientation of the pump fluid outlets to the inlet of the motor.
5. Unscrew the tie rod locknuts (23) and the displacement rod locknuts (14). Slide the displacement pumps down off the tie rods (5).
6. Remove the locknuts (8) from the tie plate (6). Pull the tie plate off the displacement pumps (7).
7. If you are servicing the motor (1), remove the tie rods (5), yoke (4), gasket (3), and coupler (2).

NOTE: For motor repair instructions, refer to the separate motor manual, supplied.

Reconnecting the Displacement Pumps

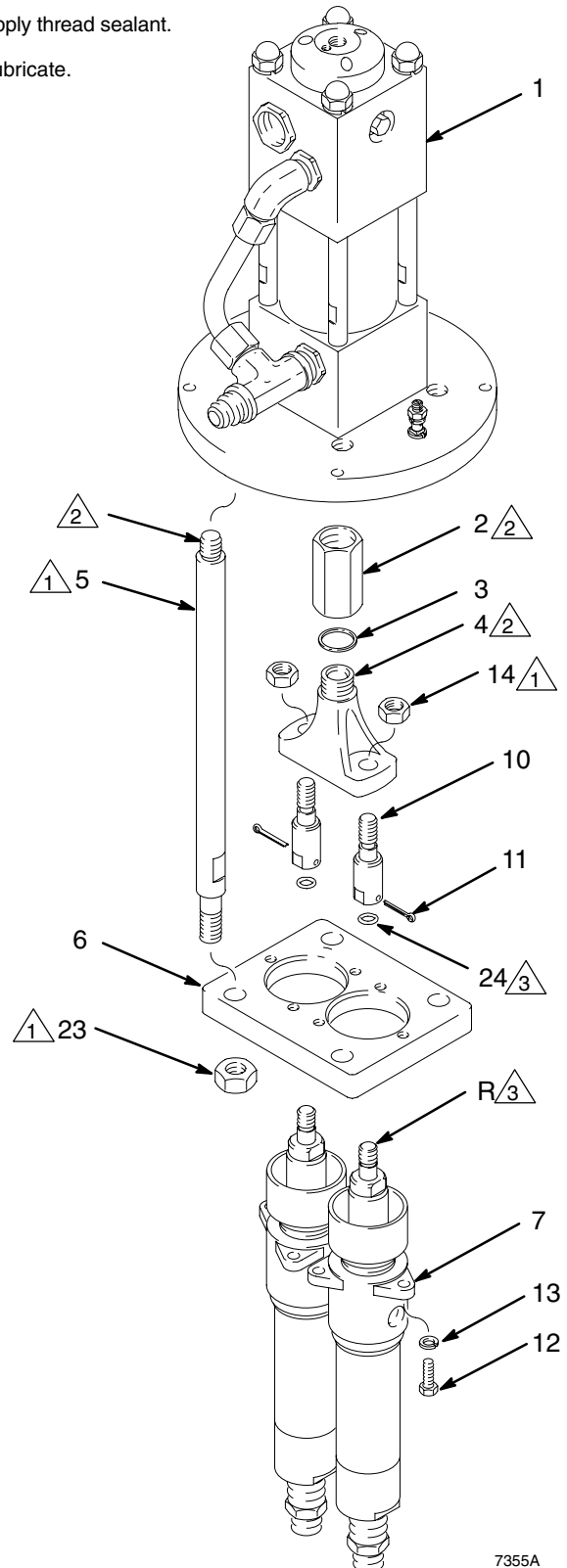
1. Apply thread sealant to the threads of the coupler (2) and screw it onto the motor. Torque to 200–300 ft-lb (270–405 N•m). Place the gasket (3) on the yoke (4). Apply sealant to the threads of the yoke and screw it into the coupler.
2. Apply thread sealant to the top threads of the tie rods (5). (The top is the end with short threads, and without flats.) Screw the rods into the base of the motor (1). Torque to 75–85 ft-lb (101–115 N•m).
3. Install the flat washers (24) on the displacement rods (R). Lubricate the threads of the rods.
4. Slide the tie plate (6) onto the displacement pumps (7). Orient the fluid outlets of the displacement pumps as was noted in step 4 under **Disconnecting the Displacement Pumps**. Screw the locknuts (8) onto the outer threads of the displacement pumps. Torque to 100–200 ft-lb (135–270 N•m).
5. Slide the tie plate (6) onto the tie rods (5) until the threads of the displacement rods (R) protrude from the yoke (4). Screw the locknuts (14) onto the rods. Torque to 53–67 ft-lb (72–90 N•m).
6. Screw the tie rod locknuts (23) onto the tie rods (5). Torque to 75–85 ft-lb (101–115 N•m).
7. Remount the pump and connect all hoses.
8. Reconnect the ground wire if it was disconnected during repair.
9. Turn on the power to the motor and run the pump slowly, to make sure it is operating properly.
10. Fill the packing nut/wet-cup 1/3 full of ISO pump lube.

Parts

Part No. 217337, Series B Viscount II Plural Component Pump

Ref No.	Part No.	Description	Qty
1	217338	VISCOUNT HYDRAULIC MOTOR See manual 307158	1
2	172726	COUPLER	1
3	150429	GASKET, copper	1
4	181887	YOKE, connecting rod	1
5	181888	ROD, tie; 14.091 in. (358 mm) shoulder to shoulder	4
6	181890	PLATE, tie	1
7	217339	DISPLACEMENT PUMP See manual 307430	2
10	171314	EXTENSION, rod, displacement	2
11	101946	PIN, cotter; 1/8" dia. x 1-1/2"	2
12	100101	CAPSCREW, hex hd; 3/8 x 1"	6
13	100133	LOCKWASHER; 3/8" size	6
14	101712	LOCKNUT	2
23	108540	LOCKNUT; 3/4-10 unc-2b	4
24	156082	O-RING; buna-N	2

- 1 Torque to 40–50 ft-lb (53–68 N•m).
 2 Apply thread sealant.
 3 Lubricate.

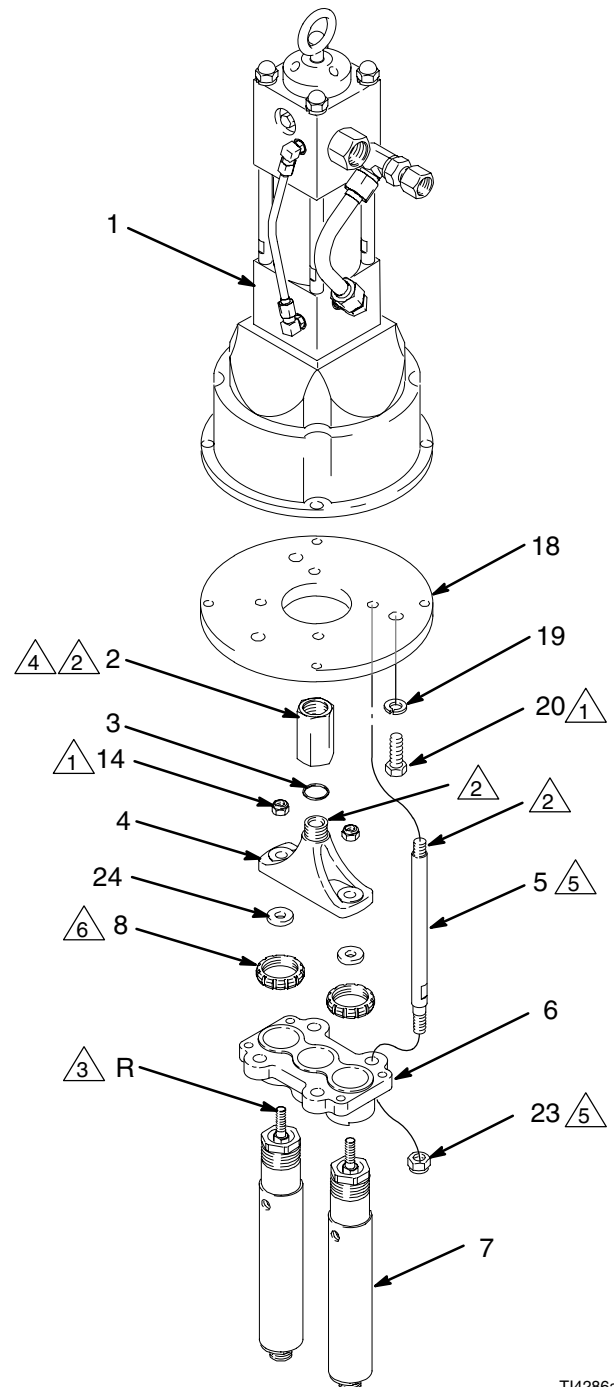


Parts

Part No. 246041, Series A Viscount II Plural Component Pump

Ref No.	Part No.	Description	Qty
1	235345	VISCOUNT HYDRAULIC MOTOR See manual 307158	1
2	172726	COUPLER	1
3	150429	GASKET, copper	1
4	164414	YOKE, connecting rod	1
5	168455	ROD, tie; 8.937 in. (227 mm) shoulder to shoulder	4
6	624912	PLATE, tie	1
7	948640	DISPLACEMENT PUMP See manual 307944	2
8	624887	LOCKNUT	2
14	101926	LOCKNUT	2
18	171122	PLATE, adapter	1
19	100128	LOCKWASHER; 5/8" size	3
20	100428	CAPSCREW, hex hd; 5/8 x 2"	3
23	101712	LOCKNUT	4
24	164416	WASHER, flat	2

-  Torque to 53–67 ft-lb (72–90 N•m).
-  Apply thread sealant.
-  Lubricate.
-  Torque to 200–300 ft-lb (270–405 N•m).
-  Torque to 75–85 ft-lb (101–115 N•m).
-  Torque to 100–200 ft-lb (135–270 N•m).

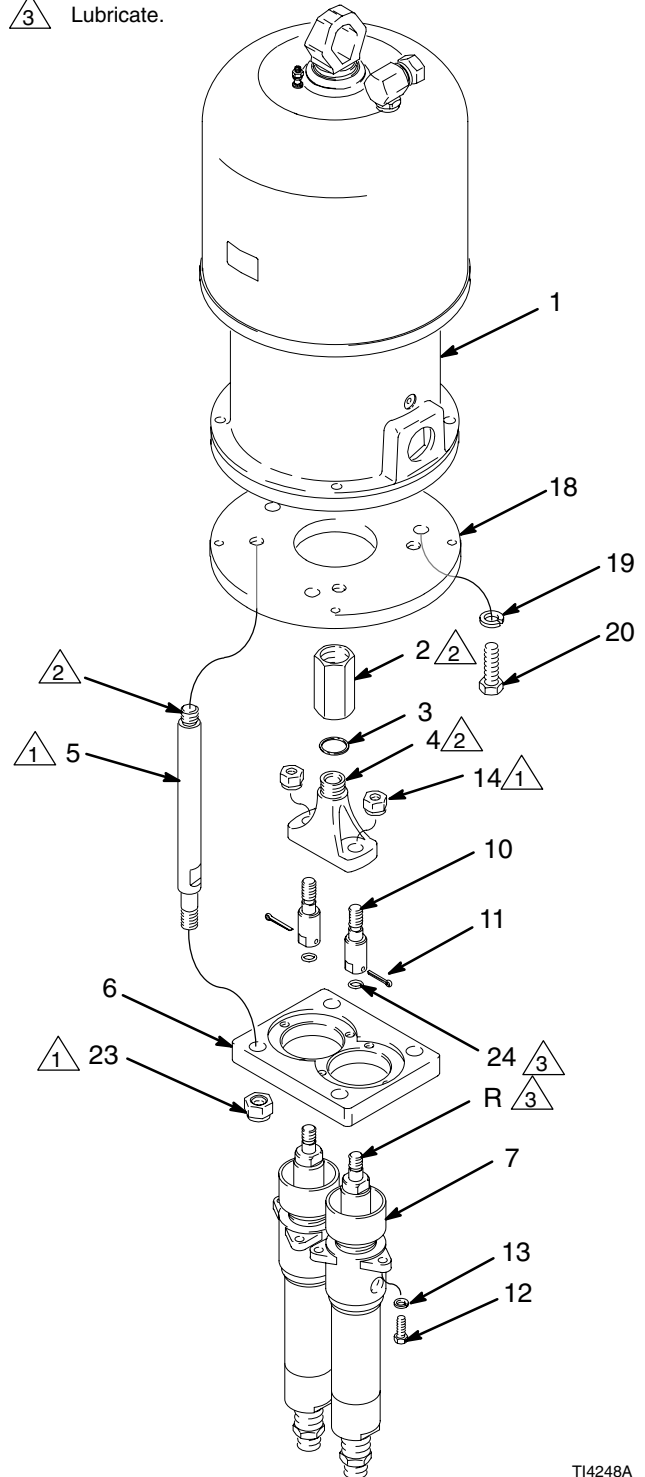


Parts

Part No. 246611, Series A 26:1 King Plural Component Pump (shown)

Ref No.	Part No.	Description	Qty
1	245111	KING AIR MOTOR See manual 309347	1
2	172726	COUPLER	1
3	150429	GASKET, copper	1
4	181887	YOKE, connecting rod	1
5	187056	ROD, tie; 9.16 in. (233 mm) shoulder to shoulder	4
6	181890	PLATE, tie	1
7	217339	DISPLACEMENT PUMP See manual 307430	2
10	171314	EXTENSION, rod, displacement	2
11	101946	PIN, cotter; 1/8" dia. x 1-1/2"	2
12	100101	CAPSCREW, hex hd; 3/8 x 1"	6
13	100133	LOCKWASHER; 3/8" size	6
14	101712	LOCKNUT	2
18	187055	PLATE, adapter	1
19	100128	LOCKWASHER; 5/8" size	3
20	100428	CAPSCREW, hex hd; 5/8 x 2"	3
23	108540	LOCKNUT; 3/4-10 unc-2b	4
24	156082	O-RING; buna-N	2

- 1 Torque to 40–50 ft-lb (53–68 N•m).
 2 Apply thread sealant.
 3 Lubricate.



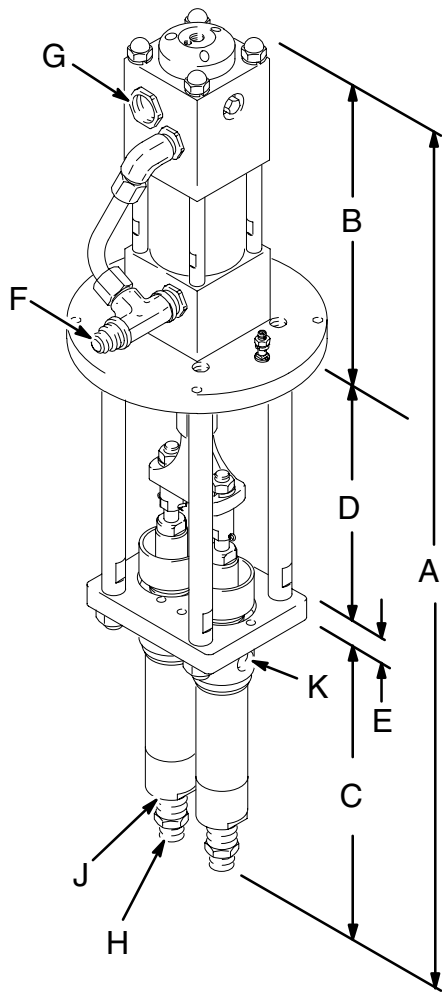
Part No. 224567, Series A 13:1 Bulldog Plural Component Pump

Ref No.	Part No.	Description	Qty
1	208356	BULLDOG AIR MOTOR See manual 307049	1
2	172726	COUPLER	1
3	150429	GASKET, copper	1
4	181887	YOKE, connecting rod	1
5	187056	ROD, tie; 9.16 in. (233 mm) shoulder to shoulder	4
6	181890	PLATE, tie	1
7	217339	DISPLACEMENT PUMP See manual 307430	2
10	171314	EXTENSION, rod, displacement	2
11	101946	PIN, cotter; 1/8" dia. x 1-1/2"	2
12	100101	CAPSCREW, hex hd; 3/8 x 1"	6
13	100133	LOCKWASHER; 3/8" size	6
14	101712	LOCKNUT	2
18	187055	PLATE, adapter	1
19	100128	LOCKWASHER; 5/8" size	3
20	100428	CAPSCREW, hex hd; 5/8 x 2"	3
23	108540	LOCKNUT; 3/4-10 unc-2b	4
24	156082	O-RING; buna-N	2

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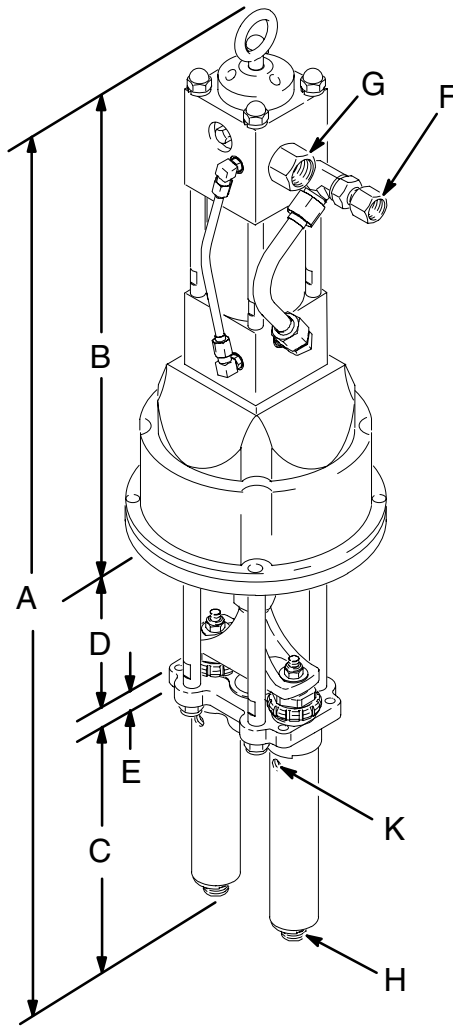
Dimensions

Model 217337



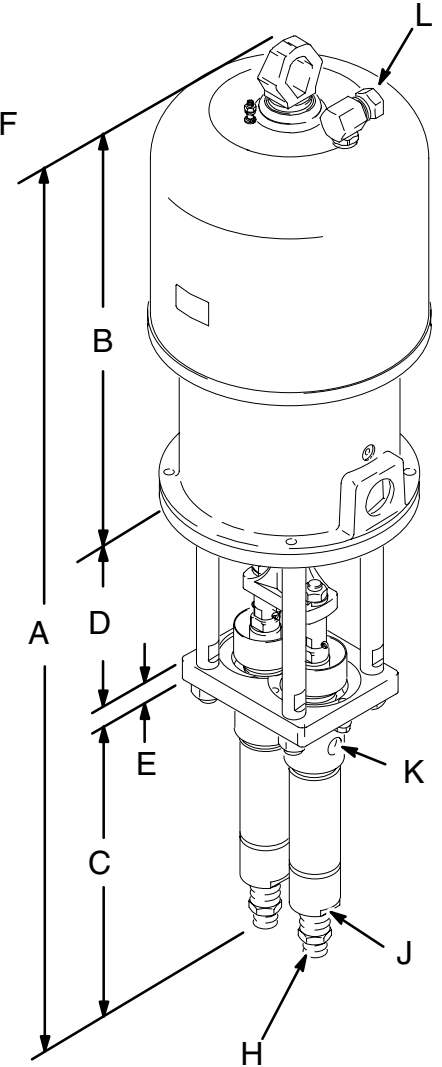
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Model 246041



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Models 246611 and 224567



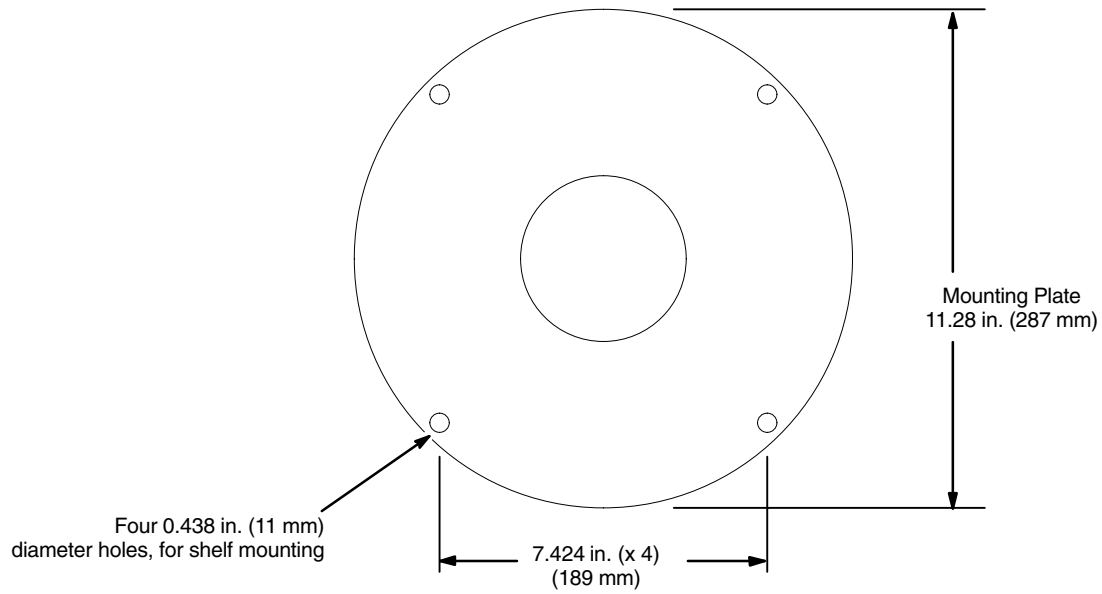
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Pump Model	A in. (mm)	B in. (mm)	C in. (mm)	D in. (mm)	E in. (mm)	F Hydraulic Inlet	G Hydraulic Return	H Fluid Inlet	J Optional Fluid Inlet	K Fluid Outlet	L Air Inlet
217337	44.02 (1118)	16.06 (408)	12.87 (327)	14.09 (358)	1 (25)	1-1/16-12 un-2a 37° Flare	1 in. npt(f)	3/4 npt(m)	1 in. npt(m)	1/2 npt(f)	N/A
246041	46.5 (1182)	26.15 (664)	10.7 (272)	8.94 (227)	0.75 (19)	1-1/16-12 un-2a 37° Flare*	1 in. npt(f)	3/4 npt(m)	N/A	3/8 npt(f)	N/A
246611	45.03 (1144)	22.0 (559)	12.87 (327)	9.16 (233)	1 (25)	N/A	N/A	3/4 npt(m)	1 in. npt(m)	1/2 npt(f)	3/4 npsm(f)
224567	45.03 (1144)	22.0 (559)	12.87 (327)	9.16 (233)	1 (25)	N/A	N/A	3/4 npt(m)	1 in. npt(m)	1/2 npt(f)	3/4 npsm(f)

* Also includes 3/4 npt(f) adapter.

Mounting Hole Layout

All Models



7356A

Technical Data

Category	Data
Maximum fluid working pressure	Part No. 217337 Viscount II Pump: 2000 psi (13.8 MPa, 138 bar) Part No. 246041 Viscount II Pump: 3000 psi (20.7 MPa, 207 bar) Part No. 246611 King Pump: 2000 psi (13.8 MPa, 138 bar) Part No. 224567 Bulldog Pump: 1300 psi (9.1 MPa, 91 bar)
Maximum input pressure	Part No. 217337 Viscount II Pump: 1250 psi (8.7 MPa, 87.5 bar) hydraulic Part No. 246041 Viscount II Pump: 1150 psi (7.9 MPa, 79 bar) hydraulic Part No. 246611 King Pump: 75 psi (0.5 MPa, 5 bar) air Part No. 224567 Bulldog Pump: 100 psi (0.7 MPa, 7 bar) air
Pressure ratio	Part No. 217337 Viscount II Pump: 1.65:1 fluid/oil Part No. 246041 Viscount II Pump: 2.76:1 fluid/oil Part No. 246611 King Pump: 26:1 fluid/air Part No. 224567 Bulldog Pump: 13:1 fluid/air
Pump cycles per 1 gal. (3.8 liters); combined A and B	Part Nos. 217337, 246611, and 224567: 8.5 Part No. 246041: 13.9
Fluid flow at 50 cycles per minute	Part Nos. 217337, 246611, and 224567: 5.9 gpm (22.3 liters/min) Part No. 246041: 3.6 gpm (13.6 liters/min)
Displacement pump effective area	Part No. 217339 Displacement Pump: 1.48 in. ² (9.55 cm ²) each Part No. 948640 Displacement Pump: 0.884 in. ² (5.70 cm ²) each
Hydraulic fluid consumption	Part Nos. 217337 and 246041: 0.2 gal. (0.76 liter) per cycle
Air consumption	Part No. 246611 King Pump: 1.5 scfm per cycle Part No. 224567 Bulldog Pump: 1.4 scfm per cycle
Fluid inlet size	3/4 npt(m)
Fluid outlet size	Part Nos. 217337, 246611, and 224567: 1/2 npt(f) Part No. 246041: 3/8 npt(f)
Hydraulic oil inlet size	Part Nos. 217337 and 246041: 1–1/16–12 un–2a, 37° flare
Air inlet size	Part Nos. 246611 and 224567: 3/4 npsm(f)
Wetted parts	See displacement pump manuals 307430 and 307944

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