

High-Pressure Bulk Grease Pump

Description

The major components of pump model 7730 consist of an air-operated motor and a pump tube. The air motor connects directly to the double-acting reciprocating pump tube.

This high-pressure (75:1 ratio) grease pump is designed to deliver a range of greases [up to NLGI # 3] directly from bulk containers.

Mounting

In most cases these pumps connect horizontally to a bulk container. See **Figure 6**. The pump includes the male portion of a 3-inch camlock connection for ease in installation.

Distribution System

The use of the proper equipment that comprise the entire product distribution system is essential.

All components must have a pressure rating that allows safe operation at the maximum anticipated pump pressure.

Specifications

Air Motor

Piston Diameter x Stroke		Air Inlet / Outlet	Max. Air Pressure	
Inches	Centimeters		psi	Bars
4-1/4 x 4	10.8 x 10.2	3/4 " NPTF (f)	100	6.9
For information on the air motor, refer to Service Guide SER 323440-4				

Pump Tube

Material Outlet	Max. Material Pressure		Max. Delivery/Minute (Approximate)*		Displacement per Cycle	
	psi	Bars	Pounds	Kilograms	in ³	cm ³
1/2 " NPTF (f)	7500	517	12.5	5.7	1.36	22.3
* For detailed information, refer to Figure 3						

Table 1 7730 Model Series Specifications

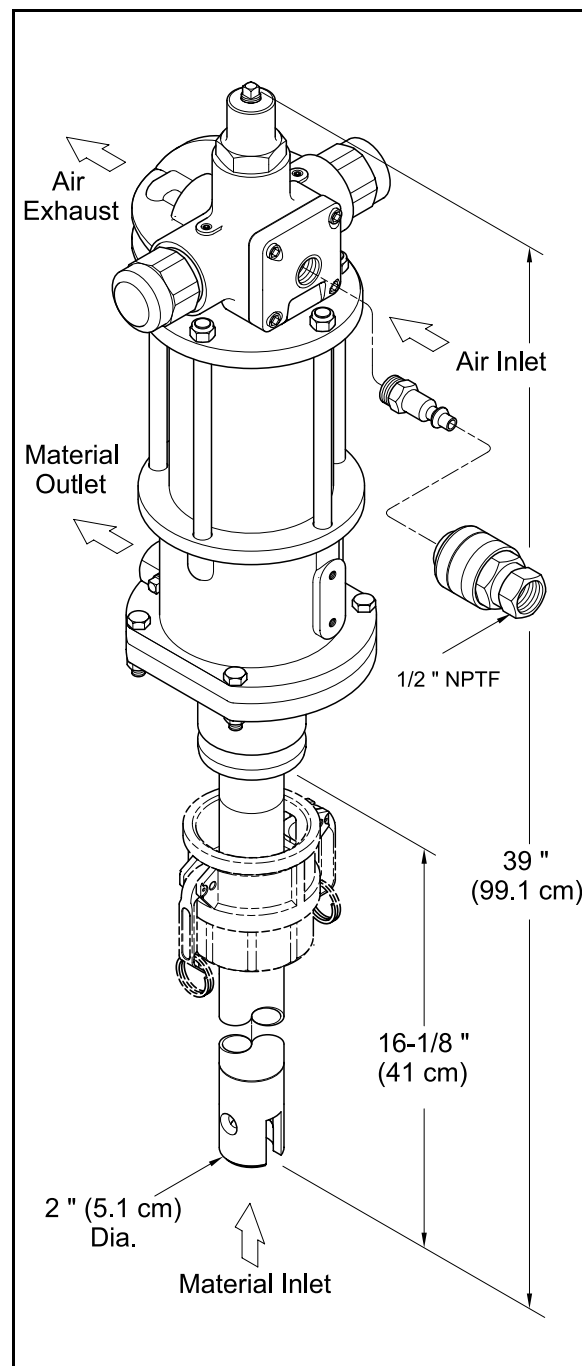


Figure 1 High-Pressure Bulk Grease Pump Model 7730

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SER 7730

Revision (8-01)

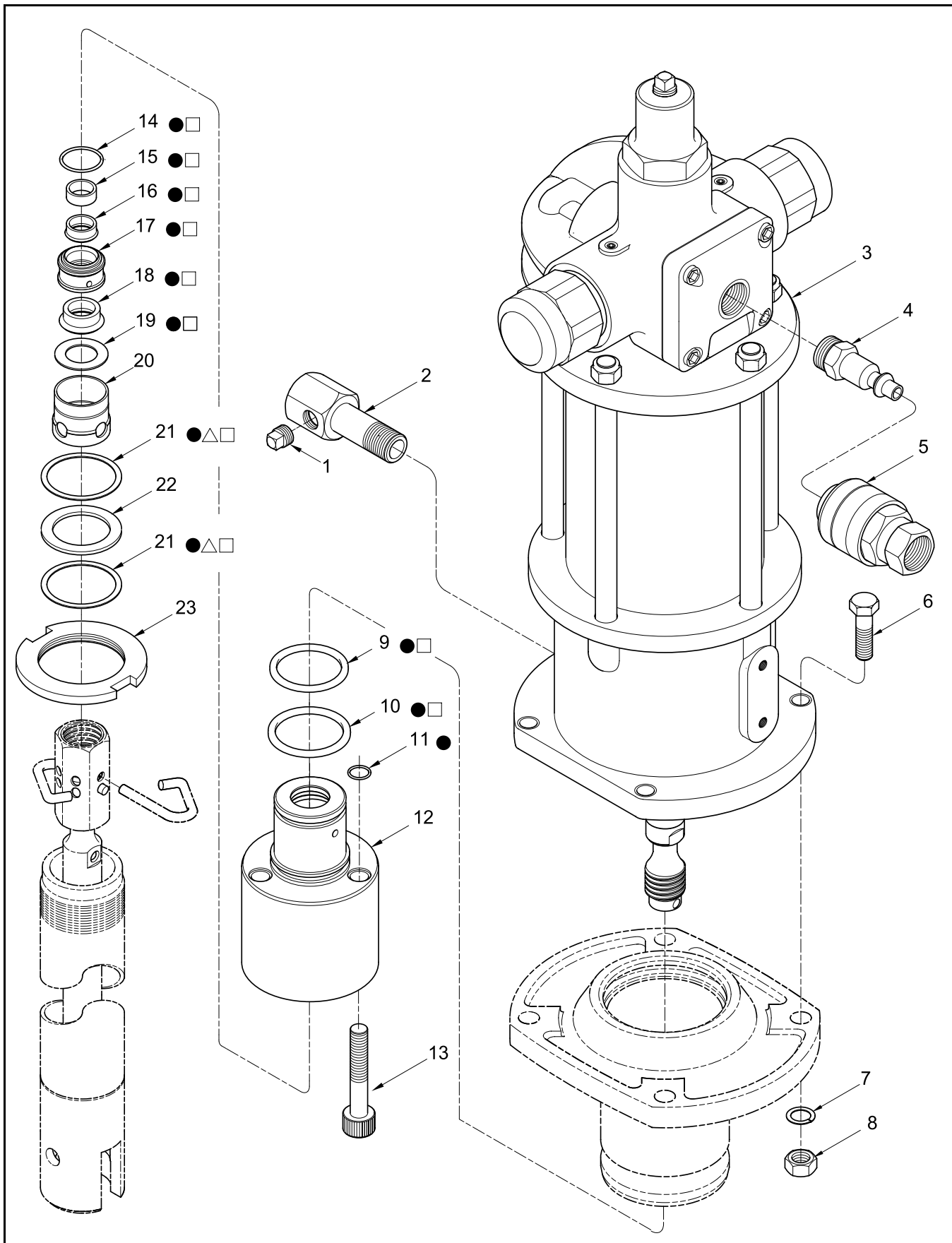


Figure 2-A High-Pressure Bulk Grease Pump Model 7730- Exploded View

Item No.	Part No.	Description	Qty	Notes	Numeric Order Part # (Item #)
1	10522	Plug, Square Head Pipe, 1/4 " NPTF (m)	1		10522 (1)
2	327706	Adapter, 1/2 " NPTF (m)	1		11828 (6)
3		Motor Assembly, Air	1	See SER 323440-4	77807 (8)
4	328037	Connector, 3/4 " NPTF (m)	1		171009-2 (11)
5	328031	Coupler Air, 1/2 " NPTF (f)	1		171009-13 (14)
6		Screw, 1/2 " -20 x 2 "	4		171009-33 (9)
7		Lockwasher, 1/2 "	4		171009-35 (10)
8		Nut, 1/2 " -20	4		172190-5 (16)
9	171009-33	O-Ring, 1-13/16" ID x 2 " OD	1	● □	172190-6 (18)
10	171009-35	O-Ring, 1-15/16" ID x 2-1/8 " OD	1	● □	172207-4 (7)
11		O-Ring, 1/2" ID x 5/8 " OD	3	●	323440-C1 (3)
12	338881	Body	1		323693 (21)
13	323787	Screw, Cap, Socket Head, 1/2 " - 13	3		323787 (13)
14		O-Ring, 1-3/16" ID x 1-5/16 " OD	1	● □	327706 (2)
15		Spacer	1	● □	328031 (5)
16		Seal, 13/16 " ID x 1-1/16 " OD	1	● □	328037 (4)
17		Ring, Lantern (Brass)	1	● □	332465 (22)
18		Seal, 13/16 " ID x 1-9/16 " OD	1	● □	332466 (20)
19	337361	Washer, 1.55 " OD	1	● □	333256 (23)
20	332466	Spacer	1		337361 (19)
21	323693	Gasket (Aluminum)	2	● △ □	337362 (17)
22	332465	Washer, 1.93 " OD	1		337363 (15)
23	333256	Nut, Jam, 2.00 - 16 UN - 2B	1		338881 (12)
Legend: Part numbers left blank (or in <i>italics</i>) are not available separately ● △ □ designates a repair kit item					

Repair Kits

Part No.	Kit Symbol	Description	Notes
393669	●	Kit, Major Repair	Includes items on Figure 2-A and 2-B
393623	△	Kit, Minor Repair (for Pump Tube Assembly)	Includes items on Figure 2-A and 2-B
393040-1	□	Kit, Minor Repair (for Body and Seal Group)	
393530-5		Kit, Seal [includes five (5) of item number 16]	
393530-6		Kit, Seal [includes five (5) of item number 18]	

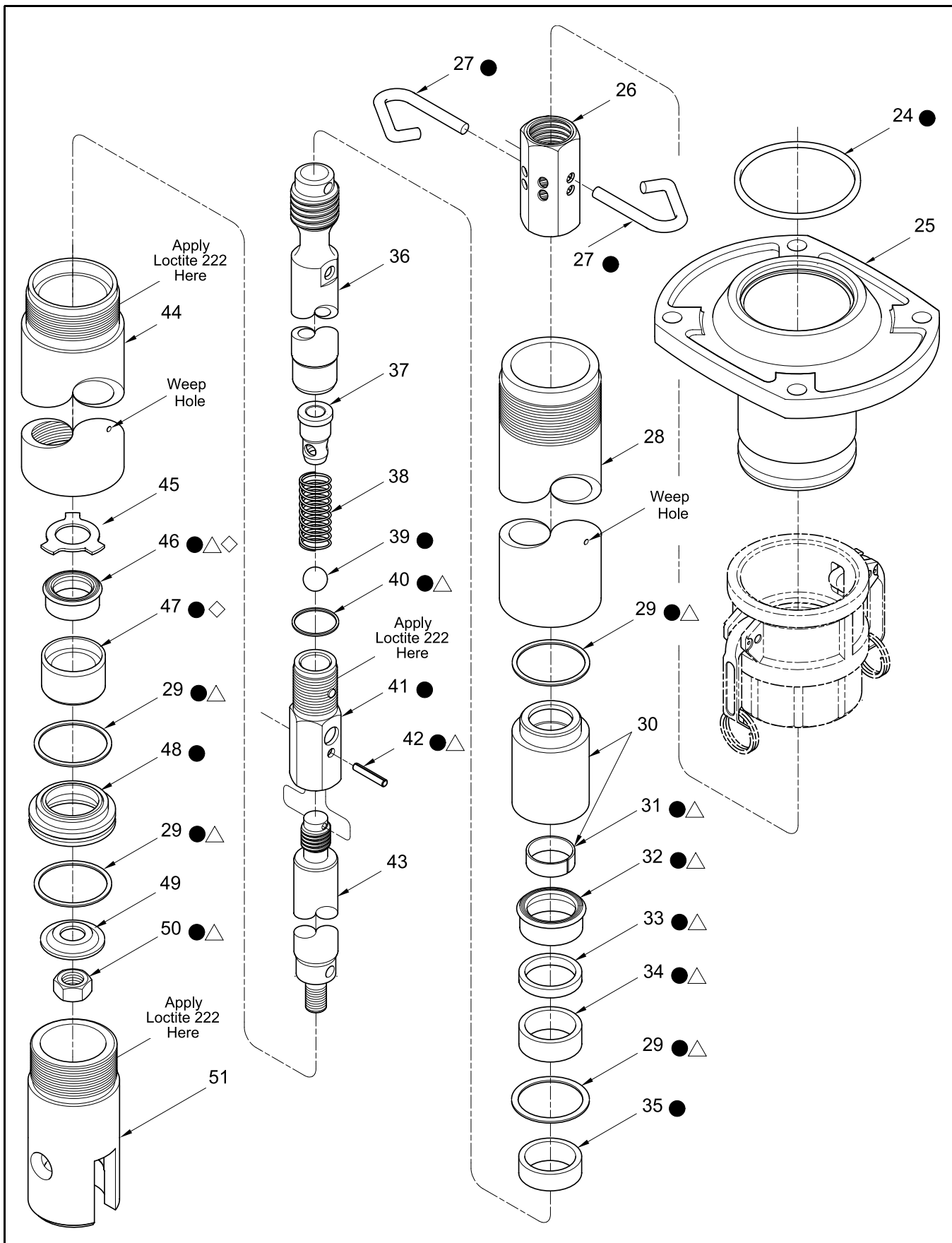


Figure 2-B High-Pressure Bulk Grease Pump Model 7730 Series - Exploded View

Item No.	Part No.	Description	Qty	Notes	Numeric Order Part # (Item #)
24	171000-107	O-Ring, 4 " ID x 4-3/8 " OD	1	●	18850 (50)
25	338838	Adapter, Camlock	1		46584 (40)
26	323439	Coupling	1		131398-1 (48)
27	324648	Clip, Spring	2	●	131402 (29)
28	333257-6	Tube, Upper Pump, 9 " Long	1		171000-107 (24)
29	131402	Gasket, 1.68 " OD (Aluminum)	4	● △	171032-8 (42)
30	337461	Barrel Assembly	1	Includes Item 31	172190-13 (46)
31	337465	Ring, Wear (Glass-Reinforced Nylon)	1	● △	172190-14 (32)
32		Seal, 0.925 " ID x 1.300 " OD	1	● △	172270-9 (39)
33	337464	Ring, Back-Up	1	● △	319763 (37)
34	337463	Bearing (Brass)	1	● △	323439 (26)
35	337462	Spacer	1	●	323734 (49)
36	337466	Piston	1		323747-1 (44)
37	319763	Retainer	1		324648 (27)
38	327704	Spring, 1-7/8 " Long Straight	1		326852 (45)
39		Ball, 3/8 " Dia.	1	●	326855 (41)
40	46584	Gasket, 0.64 " OD (Aluminum)	1	● △	327704 (38)
41	326855	Adapter and Insert Assembly	1	●	333085 (51)
42	171032-8	Pin, Roll, 3/32 Dia. x 11/16 " Long	1	● △	333257-6 (28)
43	333343	Rod, Primer, 21/32 " Dia. x 7-3/16 "	1		333343 (43)
44	323747-1	Adapter	1		337461 (30)
45	326852	Washer, Guide	1		337462 (35)
46		Seal, 0.650 " ID x 0.990 " OD	1	● △ ◇	337463 (34)
47		Body, Valve	1	● ◇	337464 (33)
48	131398-1	Seat, Valve	1	●	337465 (31)
49	323734	Plate	1		337466 (36)
50	18850	Nut, Elastic Stop, 1/4 " - 28	1	● △	338422 (47)
51	333085	Body, Primer	1		338838 (25)
Legend: Part numbers left blank (or in <i>italics</i>) are not available separately ● △ ◇ designates a repair kit item					

Repair Kits

Part No.	Kit Symbol	Description	Notes
393669	●	Kit, Major Repair	Includes items on Figure 2-A and 2-B
393623	△	Kit, Minor Repair (for Pump Tube Assembly)	Includes items on Figure 2-A and 2-B
394078	◇	Kit, Minor Repair (for Lower Pump Tube Packing)	
393530-13		Kit, Seal [includes five (5) of item number 46]	
393530-14		Kit, Seal [includes five (5) of item number 32]	

Accessory

Part Number	Description
324170	Muffler

Table 2 Model 7730 Accessory

Preventive Maintenance

Refer to section entitled **Overhaul** for the procedures necessary to perform maintenance.

Daily	Weekly	Monthly	Yearly
Wipe Exterior with Clean Cloth	Inspect for Air and/or Material Leakage		

Table 3 7730 Model Series Preventive Maintenance Schedule

Performance Curves

A pump’s ability to deliver material is based on the pressure (psi/Bars) and quantity (cfm/lpm) of air supplied to the motor and the amount of material discharge [back] pressure to be overcome within the system.

This chart contains curves based on three different air pressures. The curves relate delivery in pounds (kilograms) per minute (X axis) to air consumption in cubic feet (liters) per minute (right Y axis) and to material discharge pressure in psi/Bars (left Y axis).

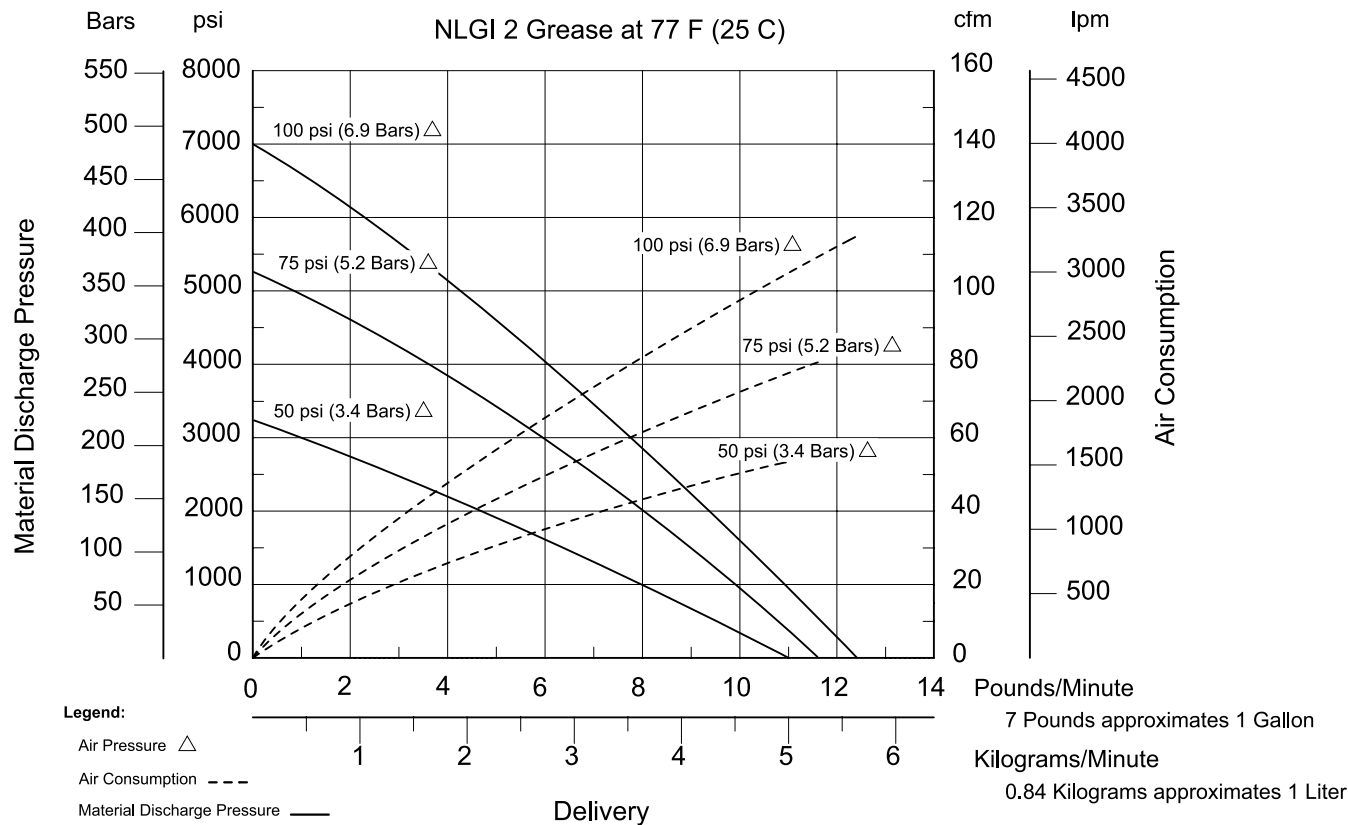
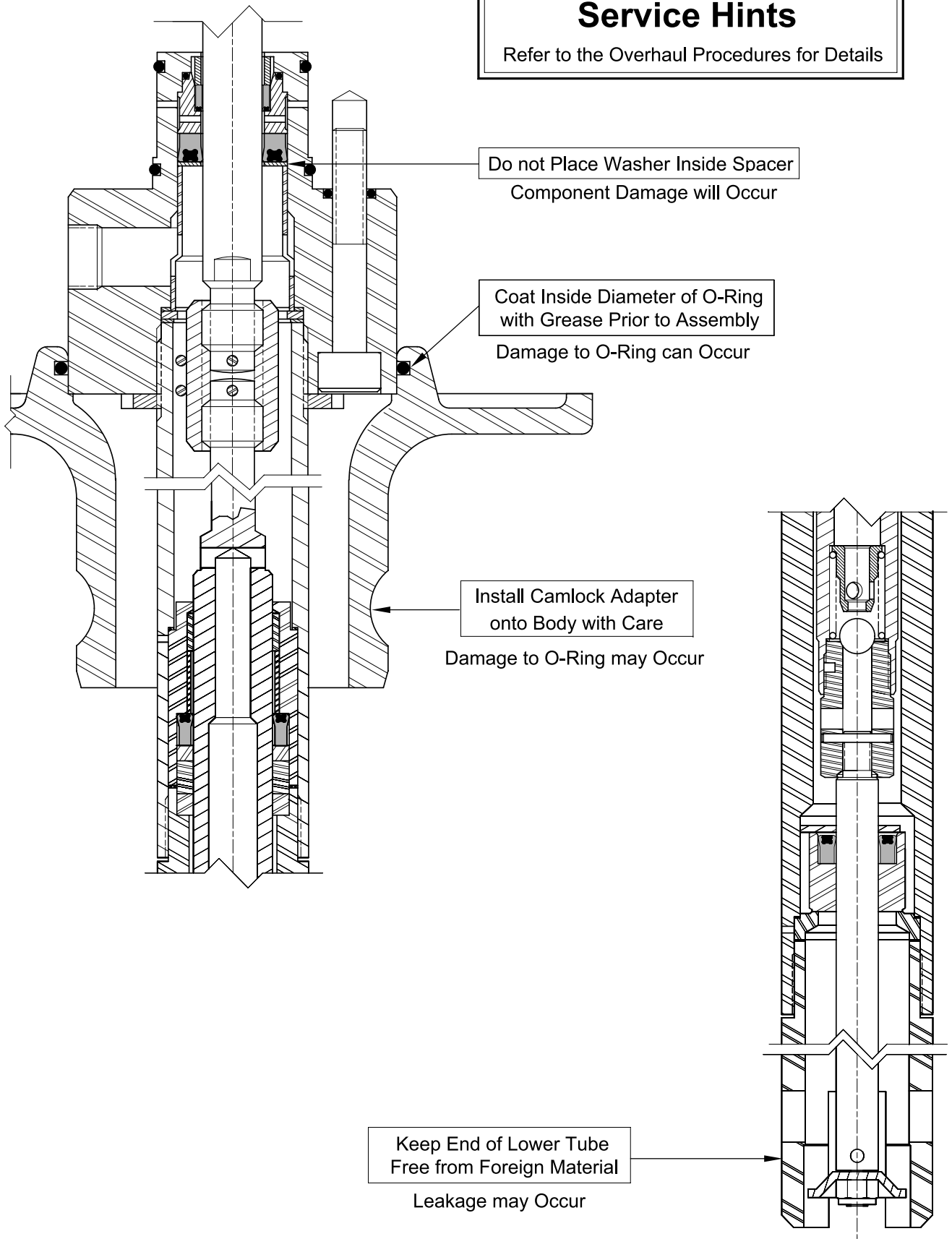


Figure 3 Delivery versus Discharge Pressure and Air Consumption

Service Hints

Refer to the Overhaul Procedures for Details



Overhaul

NOTE: Refer to **Figure 2-A** and **2-B** for component identification on all overhaul procedures.

Prior to performing any maintenance procedure, the following safety precautions must be observed. Personal injury may occur.



WARNING

Do not use halogenated hydrocarbon solvents such as methylene chloride or 1,1,1-trichloroethane in this pump. An explosion can result within an enclosed device capable of containing pressure when aluminum and/or zinc-plated parts in the pump come in contact with halogenated hydrocarbon solvents.

Release all pressure within the system prior to performing any overhaul procedure.

- **Disconnect the air supply line from the pump motor.**
- **Into an appropriate container, operate the control valve to discharge remaining pressure within the system.**

Never point a control valve at any portion of your body or another person. Accidental discharge of pressure and/or material can result in injury.

Read each step of the instructions carefully. Make sure a proper understanding is achieved before proceeding.

Disassembly

Separate Pump Tube from Air Motor

1. Clamp the motor assembly in a vise.
2. Remove Nuts (8), Lockwashers (7), and Screws (6) that secure Camlock Adapter (25) to Air Motor Assembly (3).
 - Remove the Camlock Adapter from the Air Motor Assembly.
3. Remove O-Ring (24) from the Camlock Adapter.
4. Loosen Jam Nut (23) that secures the Pump Tube assembly to the Air Motor Assembly.

CAUTION

Support the Pump Tube assembly during removal. Damage to components can occur.

5. Unscrew Pump Tube (28) [with attached components] from the Air Motor.
6. Pull on the Pump Tube to expose Coupling (26).
7. Remove upper Spring Clip (27) that secures the Coupling to the air motor piston rod.
8. Unscrew the Coupling from the air motor piston rod.
 - Rotate the entire Pump Tube assembly.

Pump Tube Upper Packing

9. Unscrew Adapter (2) from the air motor housing.
10. Unscrew Cap Screws (13) that secure Body (12) to the Air Motor.
 - Do not remove the Cap Screws from the Body.
11. Remove the Body from the Air Motor.
 - Use the Cap Screws as levers.
12. Remove O-Rings (11), O-Ring (9), and O-Ring (10) from the Body.
13. Position the Body on the bench with the larger diameter facing upward.
14. Remove aluminum Gasket (21), Washer (22), and additional Gasket (21) from the Body.
15. Remove Spacer (20), Washer (19), and Seal (18).
16. Remove Lantern Ring (17) with Seal (16), and Spacer (15).
 - Remove the Seal from the Lantern Ring.
17. Remove O-Ring (14) from the Body.

Pump Tube

18. Clamp the pump tube assembly at Adapter (44) securely in a soft-jaw vise.
19. Remove lower Spring Clip (27) that secures Piston (36) to Coupling (26).
 - Unscrew the Coupling from the Piston.
20. Unscrew and remove Upper Pump Tube (28) from the Adapter.
21. Remove Barrel Assembly (30) from the Piston.
22. Remove both aluminum Gaskets (29).

23. Remove brass Bearing (34), Back-Up Ring (33), and Seal (32) from the Barrel Assembly.

NOTE: Inspect the inside diameter of nylon Wear Ring (31). Remove the Wear Ring if rough or worn.

24. Remove Spacer (35) from the top of the Adapter.
25. Unscrew Primer Body (51) from Adapter (44).
26. Remove Primer Rod (43) [with attached components] from the bottom of the Adapter.
27. Remove Stop Nut (50) from the Primer Rod.
- Place a small punch into the hole of the Primer Rod to prevent its rotation.
28. Remove Plate (49), Gasket (29), Valve Seat (48), and additional Gasket (29) from the Primer Rod assembly.

CAUTION

Support the Piston and Primer Rod assembly during Roll Pin (42) removal. Damage to components can occur.

29. Remove Roll Pin (42) that secures Adapter and Insert assembly (41) to Primer Rod (43).
- Use a punch and a small hammer.
30. Unscrew the Primer Rod from the Adapter and Insert assembly.
31. Remove Valve Body (47) and Guide Washer (45) from the upper end of the Primer Rod assembly.
32. Remove Seal (46) from the Valve Body.
33. Unscrew the Adapter and Insert Assembly from Piston (36).
34. Remove aluminum Gasket (40), Ball (39), Spring (38), and Retainer (37) from the Piston.

Clean and Inspect

NOTE: Use the appropriate repair kit for replacement parts. Make sure all the components are included in the kit before discarding used parts.

1. Clean all metal parts in cleaning solvent. The solvent should be environmentally safe.
2. Inspect all parts for wear and/or damage.
 - Replace as necessary.
3. Inspect Piston (36) and Primer Rod (43) closely. Use a magnifying glass to detect any score marks.
 - Replace as necessary.
4. Closely inspect the mating surfaces of all check valve components for any imperfections. Ensure a smooth and clean contact is obtained when assembled.

Assembly

NOTE: Prior to assembly, certain components require lubrication in clean oil. Refer to **Table 4** for details.

Pump Tube Upper Packing

NOTE: Refer to **Figure 4** for a section view of the upper packing components.

1. Position Body (12) with the large diameter upward.
2. Install Spacer (15) into the Body.
 - Make sure the Spacer centers and seats properly.
3. Install Seal (16) [lip end first] into Lantern Ring (17).
4. Install O-Ring (14) onto the top of the Lantern Ring.
5. Install the Lantern Ring assembly into the Body.
 - Make sure the assembly centers and seats properly.
6. Install and seat Seal (18) [heel end first] into the Body.

Item No. on Figure 2-A	Description	Item No. on Figure 2-B	Description
9	O-Ring, 1-13/16 " ID x 2 " OD	24	O-Ring, 4 " ID x 4-3/8 " OD
10	O-Ring, 1-15/16 " ID x 2-1/8 " OD	31	Ring, Wear (Glass-Reinforced Nylon)
11	O-Ring, 1/2" ID x 5/8 " OD	32	Seal, 0.925 " ID x 1.300 " OD
14	O-Ring, 1-3/16 " ID x 1-5/16 " OD	46	Seal, 0.650 " ID x 0.990 " OD
16	Seal, 13/16 " ID x 1-1/16 " OD		
18	Seal, 13/16 " ID x 1-9/16 " OD		

Table 4 Components Lubricated in Clean Oil

CAUTION

Do not place Washer (19) inside Spacer (20). Damage to components will occur.

7. Install Washer (19) and Spacer (20) [small end first] into the Body.
8. Install O-Ring (9) and O-Ring (10) onto the top of the Body.
9. Install O-Rings (11) into the Body.
 - Apply a dab of grease to prevent movement.
10. Lubricate the air motor piston rod with grease.
11. Install the Body assembly (while holding the Spacer in place) onto the piston rod.
 - Use a small hammer or other suitable tool.
12. Rotate the Body to align the product outlet with the hole in the air motor housing.
13. Install Cap Screws (13) that secure the Body to the air motor.
 - Tighten each Cap Screw securely.

NOTE: Refer to **Figure 2-A** for step 14.

14. Install Adapter (2) into the Body.
 - Tighten securely.
15. Install aluminum Gasket (21), Washer (22), and additional Gasket (21) into the Body.
 - Make sure the components maintain their position.

Pump Tube

NOTE: Refer to **Figure 5** for cross section view of pump tube components.

16. Clamp the flats of Piston (36) into a soft-jaw vise.
 - Make sure the Piston bore points upward.
17. Install Retainer (37) [flange end first] into the Piston.
 - Make sure the Retainer centers and seats properly.
18. Install Spring (38) into the Piston.
19. Install Ball (39) into the Spring.
20. Install Gasket (40) onto Adapter and Insert Assembly (41).
21. Screw the Adapter and Insert Assembly (with Loctite 222) into the Piston. See **Figure 2-B**.
 - Follow the thread sealant manufacturer's recommendations.
 - Tighten securely.

22. Install and seat Seal (46) [heel end first] into Valve Body (47).
23. Lubricate Primer Rod (43) with grease.
24. Install the Valve Body assembly onto the Primer Rod.
 - Use a small hammer or other suitable tool.
25. Install Guide Washer (45) onto the Primer Rod.
26. Screw the Primer Rod assembly into the Adapter and Insert Assembly until the Roll Pin holes align.

CAUTION

Support the Primer Rod and the Adapter and Insert Assembly during Roll Pin (42) installation. Damage to components can occur.

27. Install Roll Pin (42) that secures the Primer Rod to the Adapter and Insert Assembly.
 - Use a small hammer.

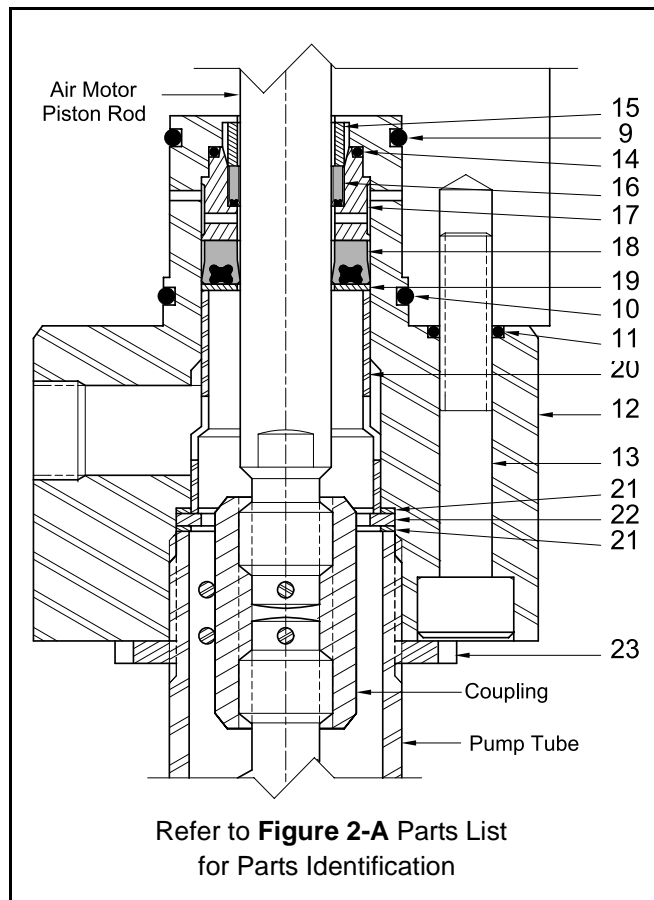


Figure 4 Pump Tube Upper Packing - Section View

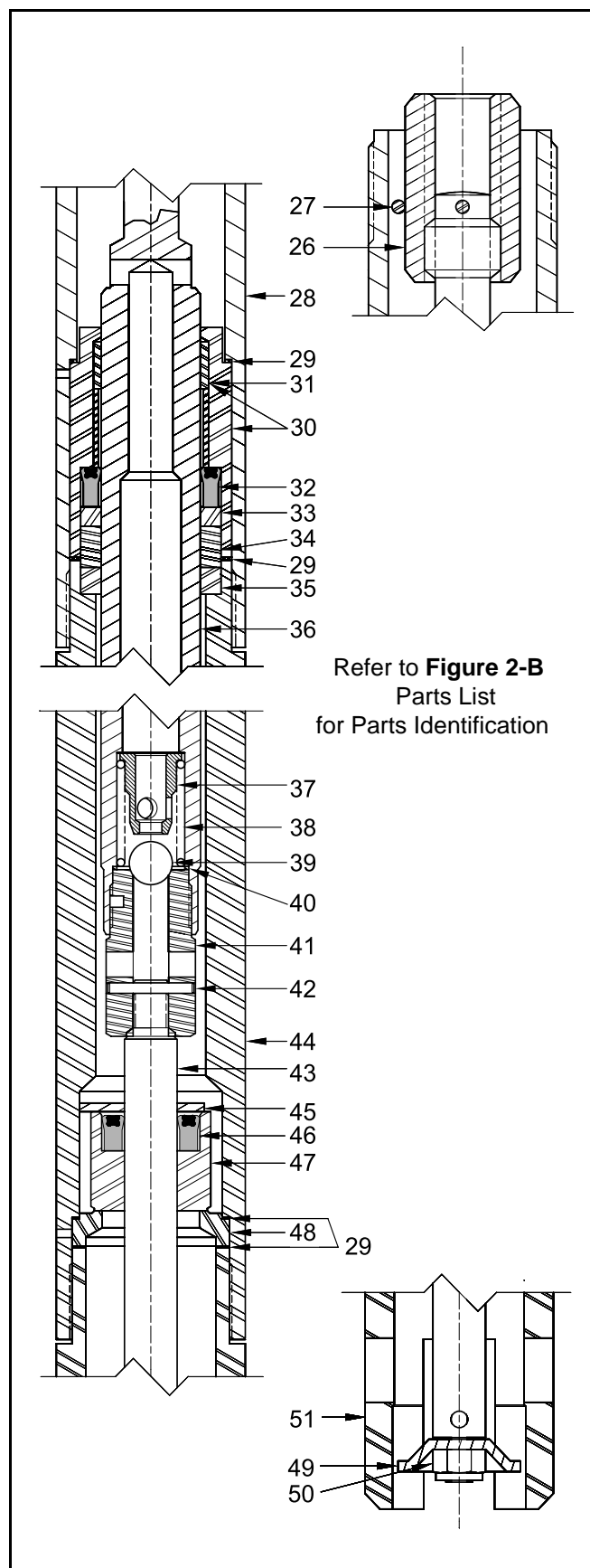


Figure 5 Pump Tube Assembly - Section View

28. Install Valve Seat (48), Plate (49), and Stop Nut (50) onto the Primer Rod.
 - Tighten the Stop Nut securely.
 - Place a small punch into the hole of the Primer Rod to prevent its rotation.

29. Position Adapter (44) horizontally into the vise.

Internally-Threaded End of Adapter

30. Install Gasket (29) into the internally-threaded end of the Adapter.
31. Install the Primer Rod and Piston assembly (Piston end first) into the Adapter.
 - Center and seat all components properly. Pull on the Piston as necessary. Use care to ensure the Gasket does not move.

32. Install the additional Gasket (29) onto Valve Seat (48).

Externally-Threaded End of Adapter

33. Install Spacer (35) into the externally-threaded end of the Adapter.
 - Make sure the Spacer centers and seats properly.
34. Install Gasket (29) into the Adapter.
35. Position Barrel Assembly (30) with the large diameter pointing upward.
36. Install Wear Ring (31) into the Barrel Assembly.
37. Install and seat Seal (32) [lip end first] into the Barrel Assembly.
38. Install Back-Up Ring (33) and brass Bearing (34) into the Barrel Assembly.

CAUTION

Use care installing the Barrel Assembly over the threads of Piston (36). Damage to the Seal can occur.

39. Install the Barrel Assembly (large diameter first) onto Piston (36).
 - Make sure the Barrel Assembly seats properly against the Spacer.
40. Install Gasket (29) onto the Barrel Assembly.
41. Screw Coupling (26) onto the end of the Piston until the Spring Clip holes align.
42. Install lower Spring Clip (27) that secures the Coupling to the Piston.

IMPORTANT: If a primer is used with Loctite 222, the curing time is greatly reduced.

43. Screw Pump Tube (28) onto Adapter (44) [with Loctite 222]. See **Figure 2-B**.
 - Follow the thread sealant manufacturer's recommendations.
 - Do not tighten at this time.
44. Screw Primer Body (51) [with Loctite 222] into the opposite end of the Adapter. See **Figure 2-B**.
 - Follow the thread sealant manufacturer's recommendations.
 - Do not tighten at this time.
45. Screw Jam Nut (23) onto the Pump Tube.
46. Push on Plate (49) to expose Coupling (26) from the Pump Tube as necessary.

Attach Pump Tube to Air Motor

47. Screw the Coupling onto the air motor piston rod until the Spring Clip holes align.
 - Rotate the entire pump tube assembly.
48. Install the Spring Clip.
49. Screw the pump tube assembly into Body (12).
50. Place a large wrench or other suitable tool into the slot of Primer Body (51).
 - Tighten all the components of the assembly securely. Crush all gaskets.
51. Tighten the Jam Nut.
52. Install O-Ring (24) into Camlock Adapter (25).

IMPORTANT: Lightly coat the inside diameter of the O-Ring with grease.

53. Install the Camlock Adapter onto Air Motor Assembly (3).
 - Use care when O-Ring passes Body (12).
54. Install Screws (6), Lockwashers (7), and Nuts (8) that secure the Camlock Adapter to the Air Motor Assembly.
 - Tighten the Screws securely in an crisscross pattern.

Bench Test

1. Make sure air pressure at the regulator reads zero.
2. Install air Connector (4) to the inlet of the air motor.
3. Connect Air Coupler (5) to the Connector.

4. Slowly supply air pressure [not to exceed 20 psi (1.4 Bars)] to the pump's motor.
 - The pump assembly should cycle.

If the pump assembly does not cycle, refer to the **Troubleshooting Chart** for details.

With air pressure at zero:

5. Connect a product hose to the pump's material outlet.
 - Direct the hose into an appropriate collection container.
6. Place the pump in oil.
7. Slowly supply air pressure to the pump's motor.
8. Allow the pump to cycle slowly until the system and oil is free of air.

If the pump assembly does not prime, refer to the **Troubleshooting Chart** for details.



WARNING

Should leakage occur anywhere within the system, disconnect air to the motor. Personal injury can occur.

With air pressure at zero:

9. Attach a control valve to the outlet hose of the pump.
10. Set the air pressure to 100 psi (6.9 Bar).
11. Operate the control valve into a container.
12. Allow the pump to cycle until the system and oil is once again free of air.
13. Shut off the control valve.
 - Visually inspect the pump for external leaks.
 - The pump should not cycle. *

If the pump does not adequately stall, refer to the **Troubleshooting Chart** for details.

14. Check the motor for air leakage.

If the motor leaks, refer to the **Air Motor Service Guide** for details.

* A pump that does not completely stall with oil does not necessarily mean that it will not stall with grease.

Installation

These pumps connect to a female camlock which is part of a bulk container system. See **Figure 6** for a typical installation.

Additional items that should be incorporated into the air piping systems are listed in **Table 5**.

Part Number	Description
5612-2	Moisture Separator
SM7612-B	Regulator and Gauge
5912-2	Lubricator *

Table 5 Air Line Components

* Although the air motor is lubricated at the factory, the life of the motor can be extended with the use of a lubricator.

Prove the Pump

Aerated product is due to external leakage; either at the pump or at the connection fittings on the bulk container. Isolation of the pump from the bulk container can help “prove the pump”.

1. Place the pump in oil.
2. Follow procedures 9 through 13 within the section entitled **Bench Test**.

If the pump does not leak externally * the fittings on the bulk container may not be sealing properly.

* The pump may still contain an air leak at O-Rings (11) and/or (24). Refer to the **Troubleshooting Chart** for details.

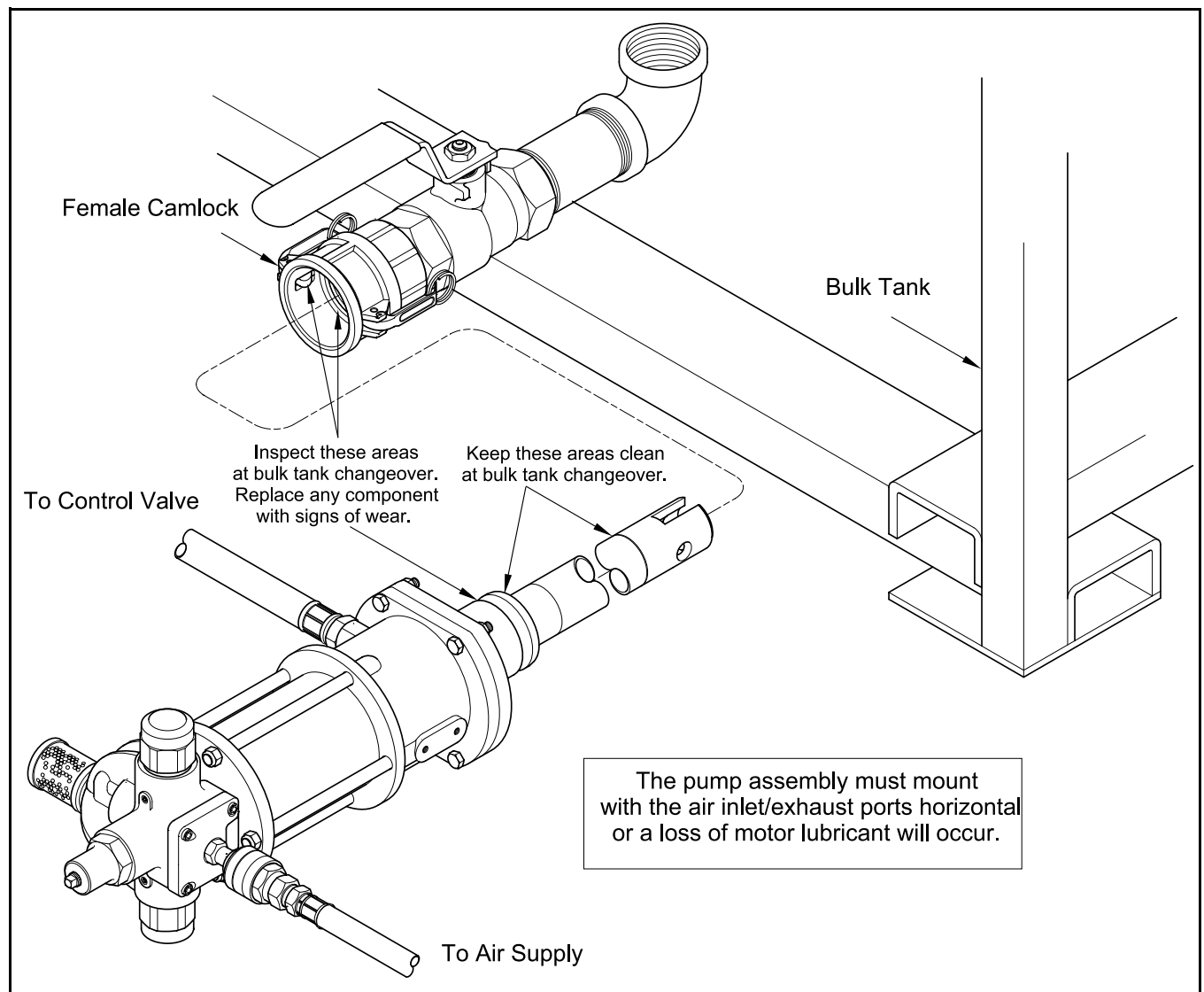


Figure 6 Medium-Pressure Grease Pump Model 7730 (Shown with Accessories) - Typical Installation

Troubleshooting Chart

Pump Indications	Possible Problems	Solution
Pump does not cycle	1. Insufficient air pressure 2. Air motor not operating properly 3. Pump tube jammed and/or contains loose components	1. Increase air pressure 2. Inspect air motor and rebuild or replace as necessary 3. Rebuild pump tube
Pump will not prime	1. Pump leaking internally 2. Improper seal between Camlock Adapter (25) and camlock 3. Bulk container connection fittings leaking 4. Pump leaking externally	1. See Internal Leaks 2. Replace seal in camlock 3. Seal fittings and tighten securely 4. See External Leaks
Product is aerated *	1. Improper seal between Camlock Adapter (25) and camlock 2. Bulk container connection fittings leaking 3. Pump leaking externally	1. Replace seal in camlock 2. Seal fittings and tighten securely 3. See External Leaks
Pump cycles rapidly	Product source empty	Replenish product
Pump will not stall (cycles more than once or twice/hour)	1. Pump leaking internally 2. Pump leaking externally 3. Distribution system leaking	1. See Internal Leaks 2. See External Leaks 3. Correct leak
External Leaks		
Product leakage from weep hole in Body (12) Visible at air motor base	1. Damaged Seal (18) 2. Damaged air motor piston rod.	1. Separate pump tube from air motor and replace Seal (18) 2. Inspect piston rod and replace as necessary
Product leakage at bottom of Body (12) Visible on Pump Tube (28)	1. Pump tube not sufficiently tight 2. Damaged Gaskets (21)	1. Tighten pump tube assembly 2. Separate pump tube from air motor and replace Gaskets (21)
Air leakage from weep hole in Body (12) Felt at air motor base	Damaged Seal (16)	Separate pump tube from air motor and replace Seal (16)
Product leakage visible at weep hole in Pump Tube (28) and/or Adapter (44)	1. Pump tube not sufficiently tight 2. Damaged Gasket(s) (29)	1. Tighten pump tube assembly 2. Disassemble pump tube and replace Gaskets (29)
Pump will not prime or product is aerated *	1. Damaged O-Ring (24) 2. Damaged O-Rings (11)	1. Remove Camlock Adapter (25) and replace O-Ring (24) 2. Replace O-Rings (11)
Internal Leaks		
Pump will not prime or pump will not stall (cycles more than once or twice/hour)	1. Foreign material between Ball (39) and Adapter and Insert Assembly (41) 2. Foreign material between Valve Body (47) and Valve Seat (48) 3. Worn or damaged Ball (39) 4. Worn or damaged Adapter and Insert Assembly (41) 5. Worn or damaged Valve Body (47) 6. Worn or damaged Valve Seat (48) 7. Worn or damaged Seal (32) 8. Worn or damaged Piston (36) 9. Worn or damaged Seal (46) 10. Worn or damaged Primer Rod (43)	Locate and eliminate source of foreign material. Disassemble pump tube, clean, inspect and replace worn or damaged components.
* Should the pump aerate product, see Section entitled Prove the Pump for details.		

Changes Since Last Printing

Changed Configuration of Retainer 319763