



40-70 OPERATING MANUAL

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Val-Tex Air Operated Lubrication Equipment



"Quality That Pays For Itself"

These powerful, portable, air operated lubrication guns have a 70:1 ratio air motor to quickly pump bulk lube sealants and Valve Flush. A special follower plate and spring assures positive priming. All units come equipped with a 15,000 PSI gauge, Gauge Guard, dual swivels, control handle, 10 foot, 3/8 inch I.D. high pressure grease hose and whip end hose with giant buttonhead coupler. Fully automated with no manual activation required.

NOTE: When pumping Valve Flush, remove the follower plate.

Delivery: 1/16 ounce per stroke

PSI Rating: 10,000

Self Priming: Spring loaded follower plate

CFM Required: 6

Air Pressure Required: 125 to 185 PSI

Typical Pressure Delivered through a 10 foot hose at 150 PSI:

Lube Sealant - 8,000 PSI

Valve Flush - 8,000 PSI

Gauge: Included

Internal Relief Valve: No

"L'il Greaser" - Model 5-70

The carrying handle makes this compact, portable gun ideal for tight places, overhead lubrication, and easy transporting around the field. The enclosed sealant canister keeps dirt and foreign material out.

For Use With: 5 qt. / 10 lb. can

Dimensions: 25" high X 10" width

Approximate Weight: 50 lbs. / 22.68 kg.



"Easy Lube" - Model 10-70

Caddy type cart with large rubber tired wheels assures easy maneuverability. The enclosed sealant canister keeps dirt and foreign material out.

For Use With: 5 qt. / 10 lb. can

Dimensions: 43" high X 18" wide X 28" long

Approximate Weight: 76 lbs. / 34.47 kg.



"Easy Lube" - Model 40-70

A practical gun for servicing a large number of valves. The reversible pail adapter provides uninterrupted flow. The swing type dolly mounted on rubber tired wheels keeps the container upright at all times. The enclosed sealant canister keeps dirt and foreign material out. Heavy duty latches keep the lid secure.

For Use With: 5 gal. / 40 lb. pail

Dimensions: 37" high X 19" wide X 24" long

Approximate Weight: 78 lbs. / 35.38 kg.



The **Val-Tex 40-70** comes equipped with a modified 8540-A1 High Pressure Pump. The service instructions enclosed provide a general guide as to safety requirements, disassembly, reassembly and parts. Please consult Val-Tex when reordering replacement parts. Standard Alemite parts may not apply.

40-70 Requirements

To obtain 8000 PSI output requires 150 PSI of air at 6 CFM.

Air Regulator, moisture separator and oiler (not included) are recommended on the air supply line to prolong the life of the pump.

Before Operating the 40-70

1. Connect lube sealant hose assembly to the motor. Check all threaded connections to ensure the hose assembly is properly tightened.
2. To Pump Lube Sealant: (**NOTE:** See the instructions for use of the 40-70 pail adapter prior to inserting the pail.)
 - A. Open the pail of lube sealant and place it in the bottom of the canister.
 - B. Insert the follower plate into the lube sealant can.
 - C. Clamp the canister lid down by tightening down the knurled nuts on the three thumb screws.
 - D. Secure the latches by engaging them into the strike.
3. To Pump Valve Flush: (**NOTE:** See the instructions for use of the 40-70 pail adapter prior to inserting the pail.)
 - A. Open the pail of Valve Flush and place it in the bottom of the canister.
 - B. Remove the follower plate from the pump tube before use.
 - 1) Remove the snap ring that secures the follower plate to the bottom of the pump tube.
 - 2) Remove the follower plate from the pump tube.
 - C. Insert the pump tube into the Valve Flush can.
 - D. Clamp the canister lid down by tightening down the knurled nuts on the three thumb screws.
 - E. Secure the latches by engaging them into the strike.
4. Connect the air hose to the pump

Operating the 40-70

1. Depressing the control handle (6438) will activate the pump. Continue until material flows from the end of the hose. *
2. Connect to the fitting and begin injecting into the valve.
3. After the pail is approximately half empty, please refer to the "Instructions for use of 40-70 Pail Adapter."

*Dispose of any expelled material properly.

Periodic Maintenance

1. Refer to service instructions for model 8540-A1.

FOR VAL-TEX 40-70 ONLY

1. When loading a full pail of Val-Tex lube sealant the pail should fit down inside the centering ring and rest on the bottom of the pump canister.
2. When the pail is about half empty it should be removed from the canister and the centering ring turned over so that the pail is sitting elevated 3 inches off the bottom of the canister. Valve Flush pails should always be loaded in the half empty position without a follower plate.



POSITION WHEN FULL



POSITION WHEN HALF EMPTY



High-Pressure Pump (Stationary and Portable)

Description

The major components of high-pressure pump assembly models 8540-A1 and 8541-5 consist of a(n):

- air-operated motor
- lubricant pressure controller (pressurtrol)
- double-acting reciprocating pump tube
- cover assembly and follower plate
- control valve, z-swivel, hose, & dolly (Model 8541-5)

The pressurtrol minimizes material pressure drop that occurs when the pump cycles. Refer to SER 319800-1 for details.

Pump Assembly

The high-pressure (70:1 ratio) pump assembly included with each model is designed to deliver a range of greases [up to NLGI # 3] and operates directly from an original 120-pound container.

Models 8540-A1 and 8541-5

Model 8540-A1 is stationary. It contains a cover and follower plate. Model 8541-5 is portable and includes a dolly, control valve, z-swivel, and delivery hose.

Specifications

Air Motor

Piston Diameter x Stroke		Air Inlet	Max. Air Pressure *	
Inches	Centimeters		psi	Bars
3 x 1-5/8	7.6 x 4.1	1/4 " NPTF (f)	200	13.8
* With pressurtrol, [100 psi (6.9 Bars) without pressurtrol] For information on the air motor, refer to SER 324400-5				

Pump Tube

Material Outlet	Max. Material Pressure		Max. Delivery/Minute (Approximate)*		Displacement per Cycle	
	psi	Bars	Ounces	Grams	in ³	cm ³
3/8 " NPTF (f)	7500	517	32	909	0.277	4.54
* For detailed information, refer to Service Guide SER 8540-B						

Table 1 Pump Assembly Specifications

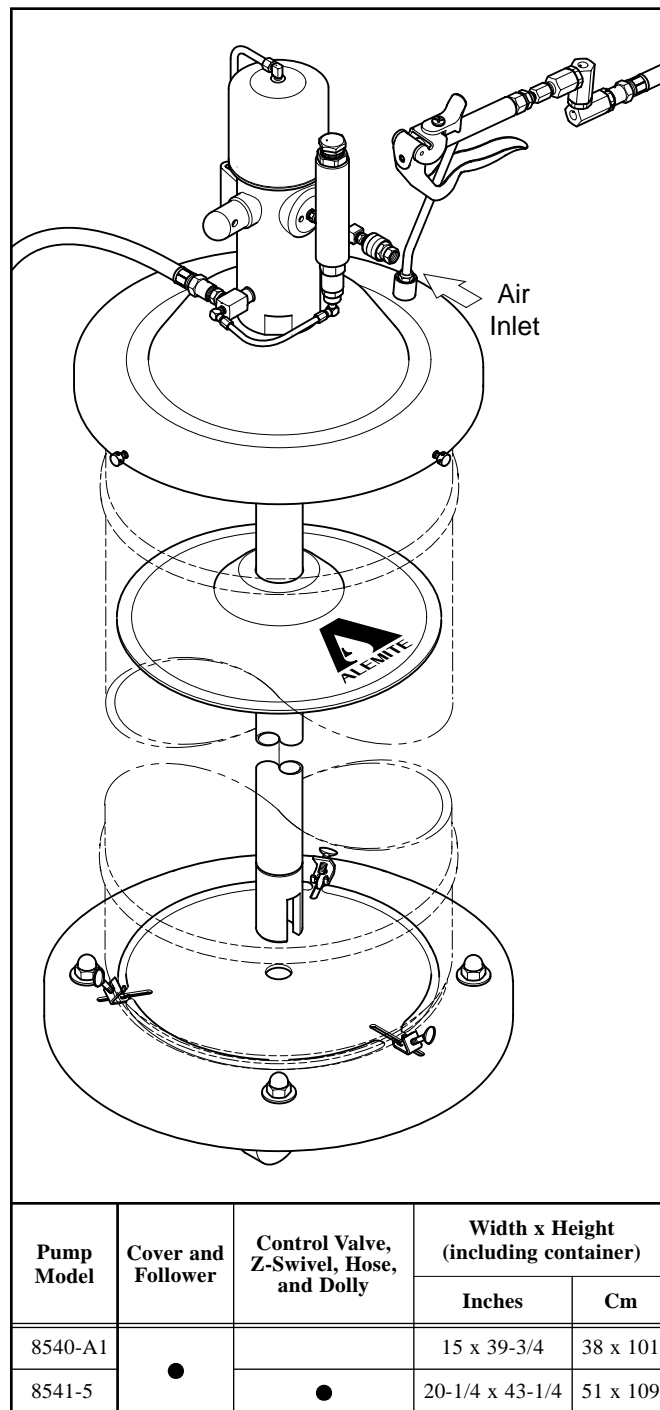


Figure 1 Pump Models 8540-A1 and 8541-5
Model 8541-5 Shown

Pump Model	Cover and Follower	Control Valve, Z-Swivel, Hose, and Dolly	Width x Height (including container)	
			Inches	Cm
8540-A1	●		15 x 39-3/4	38 x 101
8541-5	●	●	20-1/4 x 43-1/4	51 x 109

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SER 8540-A1
Revision (7-98)

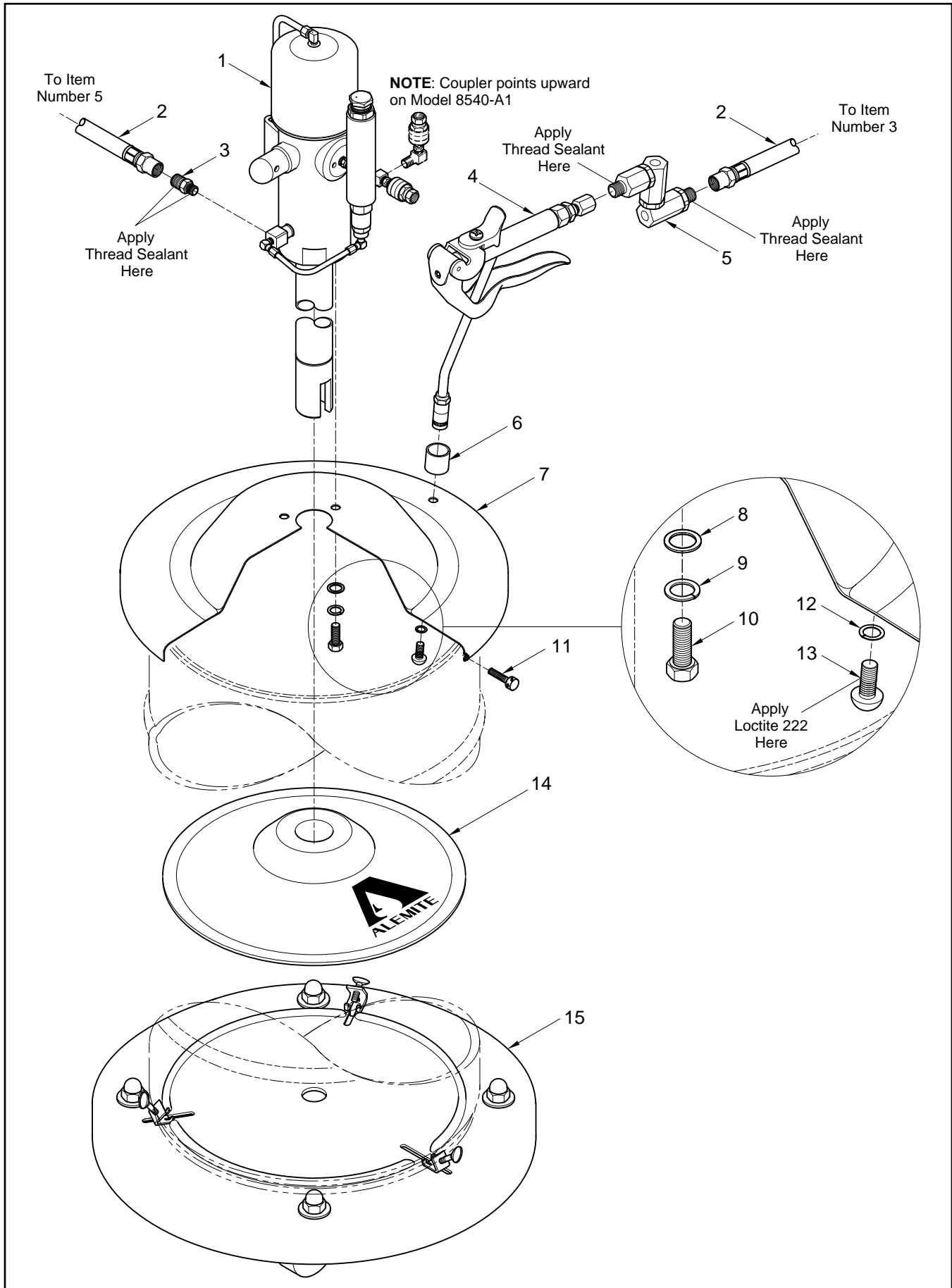


Figure 2 High-Pressure Lubricant Pump (Stationary and Portable) Models 8540-A1 and 8541-5 - Exploded View

Item No.	Part No.	Description	Qty	Notes		Numeric Order Part # (Item #)
1	8540-B	Pump Assembly, High-Pressure	1		See SER 8540-B	6320-3 (4)
2	317875-7	Hose Assembly, Material	1	Model 8541-5		8540-B (1)
3	44734	Adapter, 3/8 " NPTF (m) x 1/2 " -27	1			<i>17804</i> (8)
4	6320-3	Valve Assembly, Control	1		See SER 6320-3	44734 (3)
5	B52752	Z-Swivel Assembly, High-Pressure	1		See Figure 3	48018 (11)
6	315943	Bushing	1			B52752 (5)
7	338371	Cover Assembly	1			<i>77009</i> (12)
8		Washer, 1/4 "	3	Included w/ 338371		<i>77786</i> (10)
9		Washer, Lock, 1/4 "	3			<i>170561</i> (13)
10		Capscrew, 1/4 " -20 x 1/2 "	3			<i>172207-1</i> (9)
11	48018	Screw, Thumb, 1/4 " -28 x 1-1/8 "	3			315953 (6)
12		Washer, Internal Tooth Lock, 1/4 "	1			316315-5 (15)
13		Screw, 1/4 " -20 x 5/16 "	1			317875-7 (2)
14	338802	Plate, Follower	1			320998-B4 (7)
15	316315-5	Dolly Assembly	1	Model 8541-5	See SER 316315-5	338802 (14)
Legend: Part numbers left blank (or in <i>italics</i>) are not available separately						

Assembly

NOTE: Refer to **Figure 2** for component identification on all assembly procedures.

CAUTION

Select a clean environment for all assembly procedures. Prevent contamination from foreign material. Damage to components can occur.

Pump Assembly and Cover

IMPORTANT: Make sure to remove the protective cover from the inlet of Pump Assembly (1).

1. Install Pump Assembly (1) into Cover Assembly (7).
2. Secure the Pump Assembly to the Cover with Washers (8), Lock Washers (9), and Capscrews (10).
 - Tighten the Capscrews securely.

Cover Assembly and Follower Plate

3. Place Follower Plate (14) onto the top of the product.
 - With a wobbling motion, eliminate any air that may be trapped underneath the Follower Plate. Force the product through the hole in the center of the Plate.
4. Guide the pump tube into the Follower Plate and fit the Cover onto the container.
5. Secure the Cover to the container with Thumb Screws (11).

NOTE: On model 8541-5, secure the container to Dolly (15). Refer to SER **316315-5** for details.

Control Valve and Material Hose

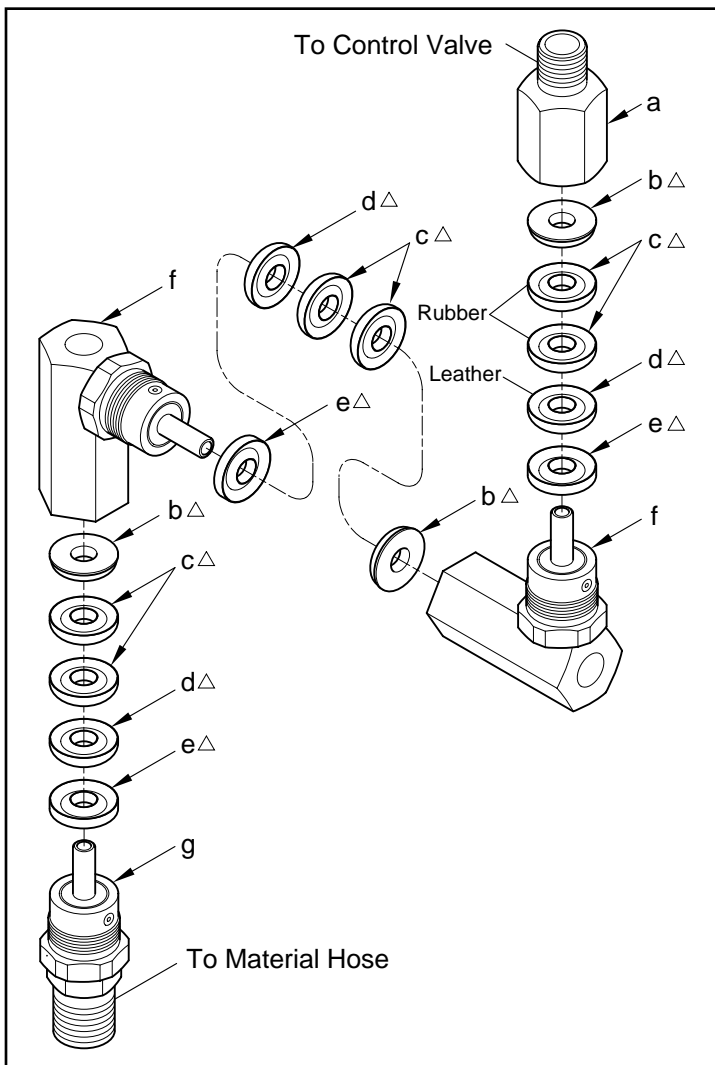
NOTE: The following procedures are applicable to pump model 8541-5.

IMPORTANT: Do not apply thread sealant to the first two (2) threads of any connection. Contamination can occur.

WARNING

Do not alter the design of the pump. Never install additional components to the outlet of the pressurtrol. Personal injury can occur.

6. Screw the 3/8 " NPTF end of Adapter (3) [with thread sealant] into the adapter at the outlet of the air motor.
 - Tighten the Adapter securely.
7. Screw either end of Material Hose (2) into the Adapter [with thread sealant].
 - Tighten securely.
8. Screw the 1/2 " -27 end of Z-Swivel (5) [with thread sealant] into the Material Hose.
 - See **Figure 3**.
 - Tighten securely.
9. Screw the opposite end of the Z-Swivel [with thread sealant] into Control Valve (4).
 - Tighten securely.
10. Test/Prime the Pump assembly.
 - Refer to Service Guide SER 8540-B for details.



Item No.	Part No.	Description	Notes	Qty
a		Adapter, Swivel, 1/4 " NPTF (m)		1
b		Ring, Support, Male	Δ	3
c		V-Packing (Rubber)	Δ	6
d		V-Packing (Leather)	Δ	3
e		Ring, Support, Female	Δ	3
f		Body and Stud Assembly		2
g		Adapter, Swivel, 1/2 " -27		1

Legend:
 Part numbers left blank are not available separately
 Δ designates a repair kit item

Repair Kit

Part No.	Kit Symbol	Description
398719-1	Δ	Kit, Repair [Quantity for two (2) Z-Swivels]

Figure 3 High-Pressure Z-Swivel - Exploded View

Changes Since Last Printing

New Format



Service Guide

324400-2
324400-4
324400-5

Air Motor

Description

Overview of Non-Divorced Pumps

The pump tubes that connect to these motors are of a non-divorced design.

Non-divorced pumps contain a packing group that fits directly into the lower portion of the motor. This lower packing group is designed to prevent product from entering the pneumatic portion of the motor. Product is distributed through an outlet in the air motor base. See **Figure 1**.

Pump tube separation requires that the pump tube (with attached components) be unthreaded from the base of the air motor.

Models 324400-2, 324400-4, and 324400-5

The difference between the models in the 324400 series air motors is illustrated in **Figure 1**.

The obsolete lower packing group in air motor model 324400-2 can be updated with the molded lower packing group kit that is current in model 324400-4.

These two models contain an obsolete body. Each of these models can be updated to the current model (324400-5) with the use of a body replacement kit.

NOTE: With this kit it is necessary to purchase the stepped toggle cap with the o-ring seal along with the current molded lower packing group.

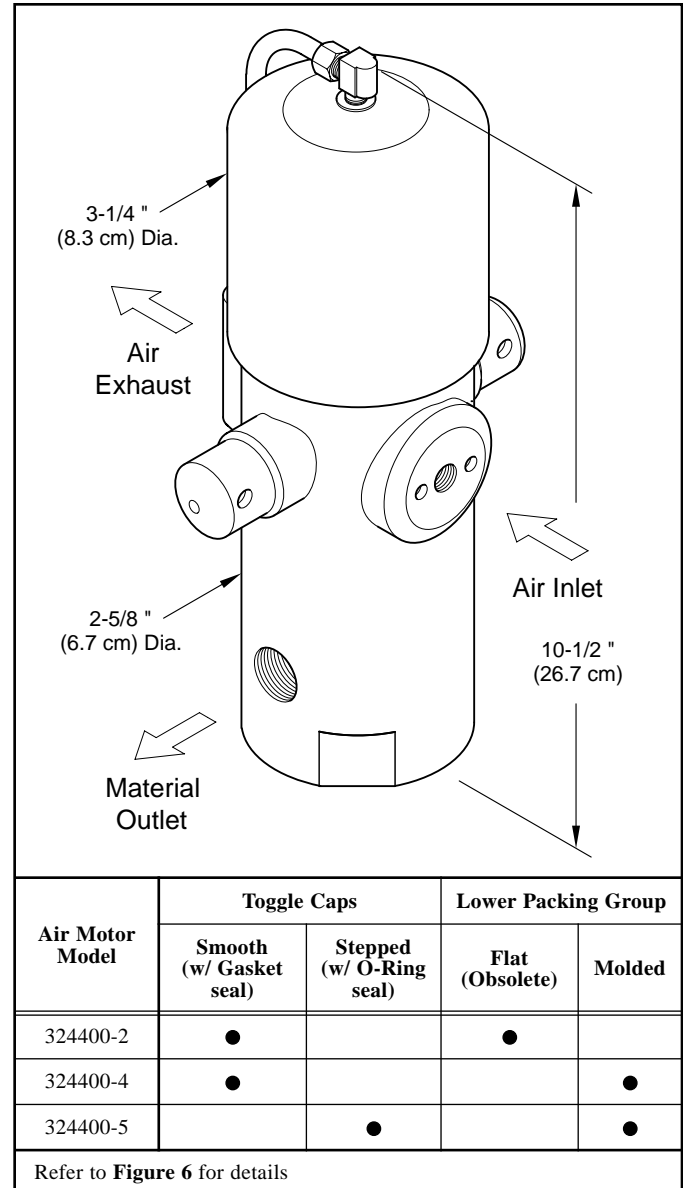


Figure 1 Air Motor Model 324400 Series
Model 324400-5 Shown

Specifications

Piston Diameter x Stroke		Air Inlet	Material Outlet	Maximum Air Pressure	
Inches	Centimeters			psi	Bars
3 x 1-5/8	7.6 x 4.1	1/4 " NPSI (f)	3/8 " NPTF (f)	200	13.8

Table 1 Air Motor Model 324400 Series Specifications

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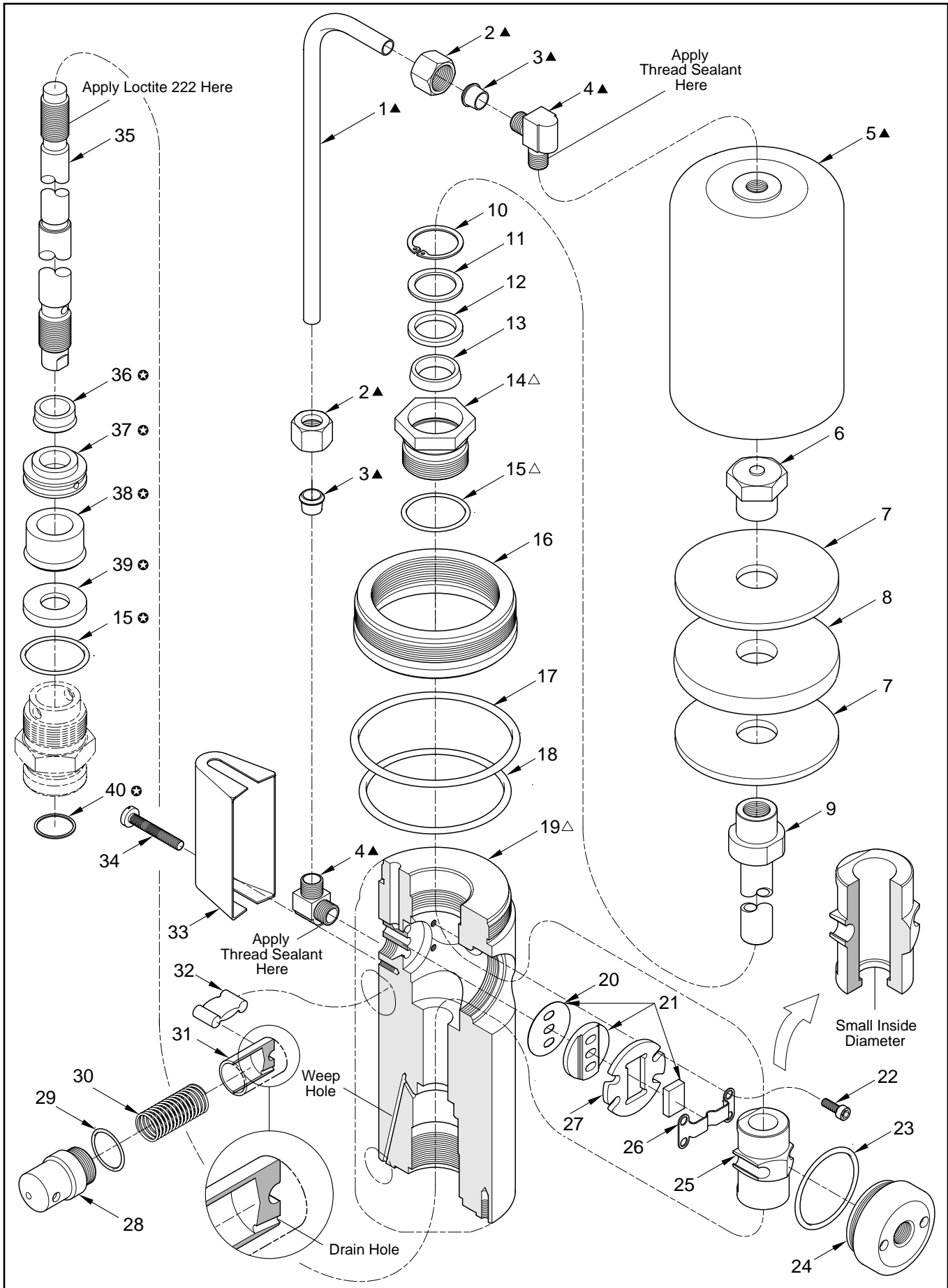


Figure 2 Air Motor Model 324400-5 (with High-Pressure Pump Tube Adapter) - Exploded View

Item No.	Part No.	Description	Qty	Notes		Numeric Order Part # (Item #)
1	331244	Tube, 5/16 " OD	1	▲		51017 (40)
2	328301-5	Nut, Compression, 1/2 " -24	2	▲		131618 (7)
3	328302-5	Sleeve, Compression, 5/16 "	2	▲		170290 (34)
4	331841	Elbow, 1/2 " -24 x 1/8 " NPTF (m)	2	▲		171000-14 (29)
5	331843-4	Cylinder	1	▲		171003-11 (17)
6	321086	Nut, Piston	1			171006-15 (10)
7	131618	Washer	2			171009-29 (23)
8	321082	Packing (Rubber)	1			171009-41 (18)
9	320749	Spacer	1			171013-12 (15)
10	171006-15	Ring, Retaining	1			171636 (22)
11	320748	Washer (Brass)	1			<i>172190-3</i> (36)
12	314671	Washer (Leather)	1			<i>172190-11</i> (38)
13	314670	V-Packing	1			314670 (13)
14	320745	Nut, Packing	1	△		314671 (12)
15	171013-12	O-Ring, 1-1/8 " ID x 1-1/4 " OD	2	△☀	Qty of 1 in each kit	317524 (30)
16	321087	Adapter	1			317529 (33)
17	171003-11	O-Ring, 2-7/8 " ID x 3-1/8 " OD	1			320727 (24)
18	171009-41	O-Ring, 2-5/16 " ID x 2-1/2 " OD	1			<i>320731</i> (20)
19		Body	1	△		320736 (25)
20		Gasket	1			320737 (32)
21	398439	Valve and Seat Assembly (w/ Gasket)	1			320745 (14)
22	171636	Screw, 10- 32 x 3/8 "	4			320746 (35)
23	171009-29	O-Ring, 1-9/16 " ID x 1-3/4 " OD	1			320748 (11)
24	320727	Inlet, Body	1			320749 (9)
25	320736	Shuttle	1			321082 (8)
26	330842	Spring, Valve Retaining	1			321086 (6)
27	330843	Retainer, Valve	1			321087 (16)
28	337471	Cap, Toggle (Stepped)	2			321457 (31)
29	171000-14	O-Ring, 3/4 " ID x 15/16 " OD	2			328301-5 (2)
30	317524	Spring	2			328302-5 (3)
31	321457	Plunger	2			330842 (26)
32	320737	Toggle	2			330843 (27)
33	317529	Muffler	1			331244 (1)
34	170290	Screw, 8 -32 x 1 "	1			331841 (4)
35	320746	Rod, Piston	1			331843-4 (5)
36		Seal, 0.437 " ID x 0.687 " OD	1	☀		<i>337386</i> (37)
37		Ring, Lantern	1	☀		<i>337387</i> (19)
38		Seal, 0.437 " ID x 0.937 " OD	1	☀		<i>337394</i> (39)
39		Washer	1	☀		337471 (28)
40	51017	Gasket, 0.815 " ID (Aluminum)	1	☀	High-Pressure Pump	398439 (21)

Legend:Part numbers left blank (or in *italics*) are not available separately

▲☀△ designates a repair kit item

Repair Kits

Part No.	Kit Symbol	Description	Notes
393496-1		Kit, Major Repair	See Figure 3
393495	☀	Kit, Lower Packing Group (Includes protective sleeve)	
393124	▲	Kit, Cylinder Repair	
393533	△	Kit, Body Repair	

NOTE: Additional repair kits for air motor model 324400 series are illustrated on the following page.

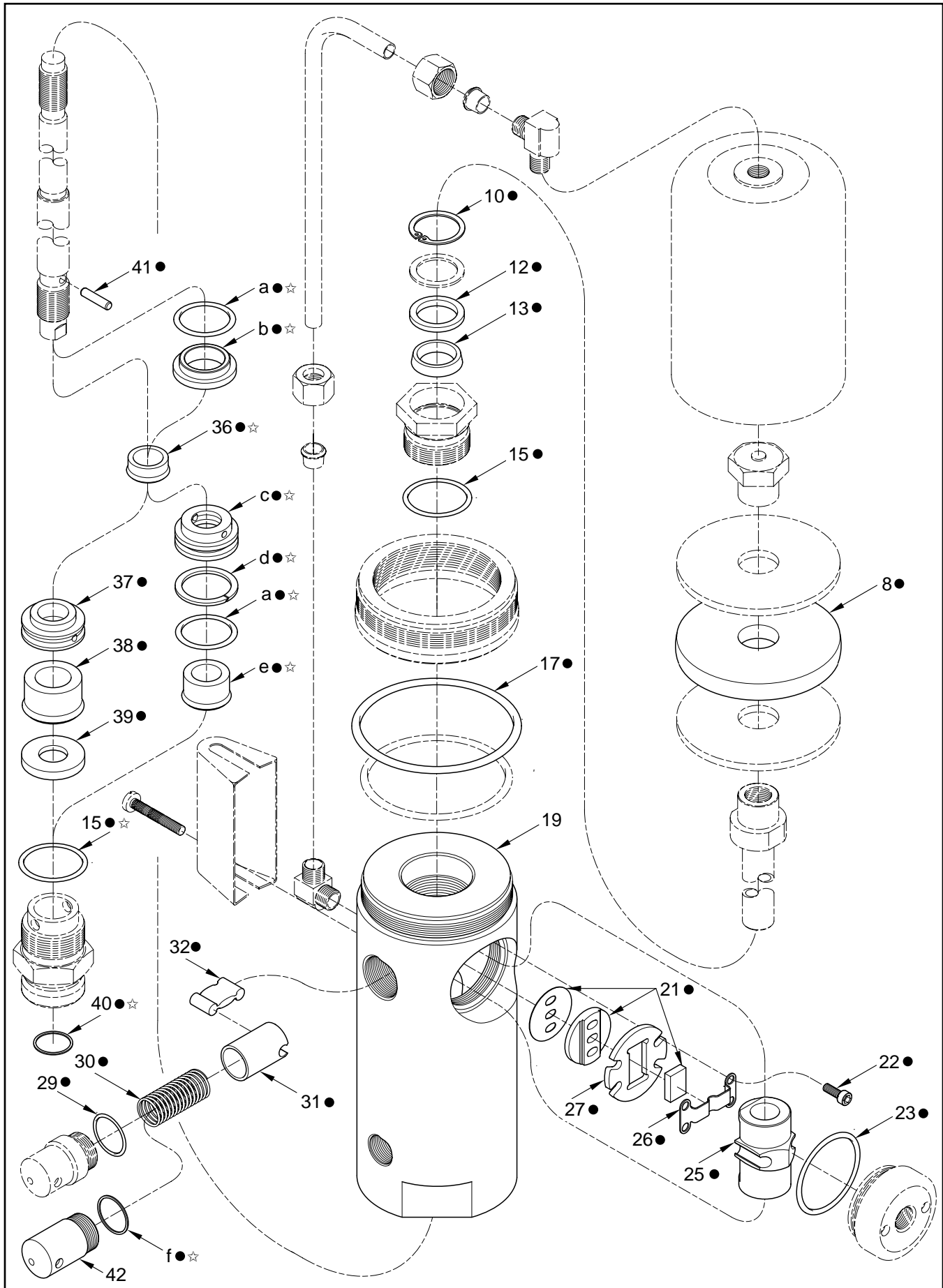


Figure 3 Additional Kits for Air Motor Model 324400 Series- Exploded View

Item No.	Part No.	Description	Qty	Notes		Numeric Order Part # (Item #)
8	321082	Packing (Rubber)	1	●		51017 (40)
10	171006-15	Ring, Retaining	1	●		171000-14 (29)
12	314671	Washer (Leather)	1	●		171006-15 (10)
13	314670	V-Packing	1	●		<i>171009-19</i> (a)
15	171013-12	O-Ring, 1-1/8 " ID x 1-1/4 " OD	2	●☆	Qty of 1 in ☆ kit	171009-29 (23)
17	171003-11	O-Ring, 2-7/8 " ID x 3-1/8 " OD	1	●		171009-41 (18)
19		Body (Obsolete)	1		Model 324400-2 & -4	171013-12 (15)
21	398439	Valve and Seat Assembly (w/ Gasket)	1	●		171636 (22)
22	171636	Screw, 10- 32 x 3/8 "	4	●		<i>172190-2</i> (e)
23	171009-29	O-Ring, 1-9/16 " ID x 1-3/4 " OD	1	●		<i>172190-3</i> (36)
25	320736	Shuttle	1	●		<i>172190-11</i> (38)
26	330842	Spring, Valve Retaining	1	●		314670 (13)
27	330843	Retainer, Valve	1	●		314671 (12)
29	171000-14	O-Ring, 3/4 " ID x 15/16 " OD	2	●		317524 (30)
30	317524	Spring	2	●		320724 (42)
31	321457	Plunger	2	●		320736 (25)
32	320737	Toggle	2	●		320737 (32)
36		Seal, 0.437 " ID x 0.687 " OD	1	●☆		320971 (41)
37		Ring, Lantern	1	●		321082 (8)
38		Seal, 0.437 " ID x 0.937 " OD	1	●		321457 (31)
39		Washer	1	●		321458 (f)
40	51017	Gasket, 0.815 " ID (Aluminum)	1	●☆		<i>327329</i> (19)
41	320971	Pin	1	●		330842 (26)
42	320724	Cap, Toggle (Smooth)	1		Model 324400-2 & -4	330843 (27)
Kit Items Applicable to Models 324400-2 and 324400-4						<i>337093</i> (b)
a		O-Ring, 1 " ID x 1-3/16 " OD	2	●☆	These lower packing group components replace the obsolete packing group in Model 324400-2	<i>337096</i> (c)
b		Ring	1	●☆		<i>337097</i> (d)
c		Adapter	1	●☆		<i>337386</i> (37)
d		Ring, Split (Nylon)	1	●☆		<i>337394</i> (39)
e		Seal, 0.430 " ID x 0.804 " OD	1	●☆		398439 (21)
f	321458	Gasket, 0.885 " ID (Aluminum)	2	●☆		

Legend:
Part numbers left blank (or in *italics*) are not available separately
● ☆ designates a repair kit item

Repair Kits

Part No.	Kit Symbol	Description	Notes
393496-1	●	Kit, Major Repair (Includes protective sleeve)	
393487	☆	Kit, Lower Packing Group (Includes protective sleeve)	Models 324400-2 & -4
393530-2		Kit, Seal [Includes five (5) of item e]	
393530-3		Kit, Seal [Includes five (5) of item 36]	
393530-11		Kit, Seal [Includes five (5) of item 38]	

Service Hints

Refer to the Overhaul Procedures for Details

Soak Leather Washer in Clean Oil for Eight Hours Prior to Installation

V-Packing Requires Lubrication

Tighten Screws Alternately and Evenly from 25 to 30 Inch-Pounds (2.8 - 3.4 Nm)

Screw Heads may Break

Inspect the Surfaces Contacted by the Shuttle for Damage

Lips of Shuttle may Break

Inspect Piston Rod for Straightness

Air Leakage can Occur

Install Seals after Installation of Piston Rod

Damage to Seals may Occur

Model 324400-4

Air Motor Shown with Medium-Pressure Adapter

IMPORTANT: 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 motor. An explosion can result within an enclosed device capable of containing pressure when aluminum and/or zinc-plated parts 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 motor.
- Into an appropriate container, operate the control valve to discharge remaining pressure within the system.

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

Overhaul

NOTE: Refer to **Figures 2 and 3** for component identification on all overhaul procedures.

Disassembly

Separate Pump from Air Motor

1. Clamp the air motor assembly horizontally in a soft-jaw vise.

CAUTION

Support the pump tube assembly during removal. Damage to components can occur.

2. Unscrew the pump tube [with attached components] from the air motor.
3. Pull on the pump tube to expose the coupling.
4. Remove upper Pin (41) that secures the air motor Piston Rod to the coupling.
5. Unscrew the coupling from the air motor Piston Rod.
 - Rotate the entire pump tube assembly.

6. Remove the adapter from Body (19).
7. Remove O-Ring (15) from the adapter.
8. Remove Gasket (40) from the high-pressure adapter.

Air Motor

Toggle Cap Assembly

1. Unscrew Toggle Caps (28 or 42) from Body (19).
 - Use special tool 398500-2. See **Figure 4**.
2. Remove Springs (30) from each Toggle Cap.
3. Remove O-Rings (29) from each Toggle Cap.

NOTE: Cap (42) seals with Gasket (f).

Cylinder and Upper Packings

4. Remove Screw (34) that secures Muffler (33) to the Body.
 - Remove the Muffler.
5. Loosen each Compression Nut (2) from Elbows (4).
6. Remove Tube (1) [with Compression Sleeves (3) and Nuts] from the Elbows.

NOTE: The Tube, Compression Sleeve, and Nut assembly can be reused if no marring or distortion is visible.

7. Unscrew Cylinder (5) from Adapter (16).
8. Remove O-Ring (17) from the Adapter.
9. Grip the flats of Spacer (9) and unscrew Piston Nut (6) from Piston Rod (35).
10. Remove Washer (7), Packing (8) and additional Washer (7) from the Spacer.
11. Grip the flats of the Piston Rod and unscrew the Spacer.

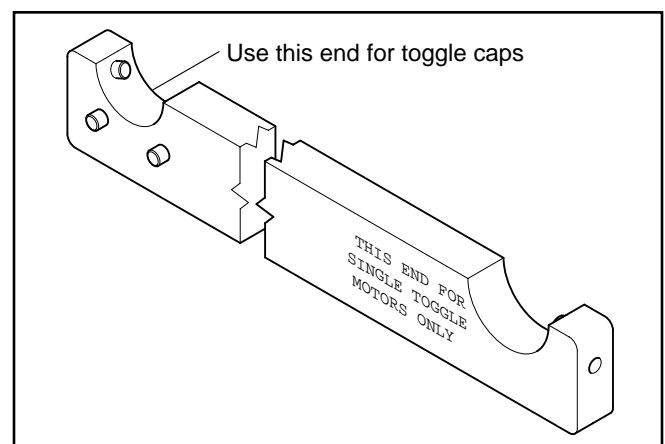


Figure 4 Spanner Wrench 398500-2 (Special Tool)

12. Remove the Piston Rod from the Body.
13. Remove Retaining Ring (10) from Packing Nut (14).
 - Use internal circlip pliers.
14. Remove Brass Washer (11), Leather Washer (12), and V-Packing (13) from the Packing Nut.

Body Inlet

15. Unscrew Body Inlet (24) from the Body.
 - Use the special tool.
16. Remove O-Ring (23) from the Inlet Body.
17. Maneuver Shuttle (25) to remove Plungers (31) from Toggles (32).
18. Remove the Toggles from the Shuttle.
19. Remove the Shuttle from the Body.

Valve and Seat Assembly

20. Remove Screws (22) that secure Valve Retaining Spring (26) to the Body.
 - Remove the Valve Retaining Spring.
21. Remove the Valve from the Seat.
22. Remove Valve Retainer (27), the Valve Seat, and Gasket (20) from the Body.

Lower Packing

- NOTE:** Model 324400-2 contains a packing group that is obsolete. This model can use the packing group in:
- model 324400-4
 - model 324400-5 with a new Body. See **Figure 6**.

Model Dependent Step

23. Remove Washer (39), Seal (38), Lantern Ring (37), and Seal (36) from the Body [*model 324400-5*].

Remove Adapter (c) [with attached components] and Ring (b) [with attached components] from the Body.

- Remove Seal (e), O-Ring (a), and Split Ring (d) from the Adapter.
- Remove Seal (36) from the Ring.
- Remove additional O-Ring (a) from the Body [*model 324400-4*].

Remove and discard the stacked group from the Body [*model 324400-2*].

Optional Procedures

24. Unscrew Elbows (4) from the Cylinder and the Body as required.
25. Unscrew Packing Nut (14) from the Body as required.
 - Remove O-Ring (15).

26. Unscrew Adapter (16) from the Body as required.
 - Remove O-Ring (18).

NOTE: The Packing Nut and Adapter are staked to the Body in three places.

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 a cleaning solvent. The solvent should be environmentally safe.
2. Inspect all parts for wear and/or damage.
 - Replace as necessary.
3. Inspect the large diameter of Piston Rod (35) and the inside diameter of Cylinder (5) closely for score marks.
 - Replace as necessary.
4. Inspect the Piston Rod for straightness.
 - Roll the Piston Rod on a flat surface by hand.
5. Make sure the shoulder of the Piston Rod is square.
6. Closely inspect the mating surfaces of the Valve Seat and the Valve Slide (21). Ensure a smooth and clean contact is obtained.
 - Replace as necessary.
7. Inspect the bottom of interior bore in Body (19) for deformity due to excessive hammering.
 - Replace the Body with a kit as required.

Assembly

NOTE: Prior to assembly, certain components require lubrication. Refer to **Table 2** for details.

Air Motor

NOTE: Refer to **Figure 6** for a section view of the Air Motor Assembly.

1. Install O-Ring (18) onto Body (19) as required.
2. Screw and seat Adapter (16) onto the Body.
 - Stake the Adapter to the Body in three places. See **Figure 5**.

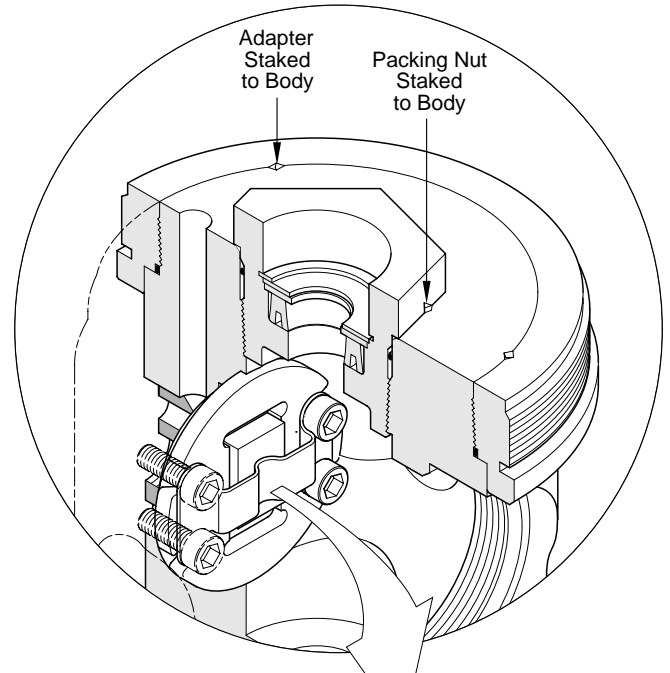
Upper Packing

3. Install O-Ring (15) onto Packing Nut (14) as required.
4. Screw and seat the Packing Nut into Body (19).
 - Stake the Packing Nut to the Body in three places. See **Figure 5**.

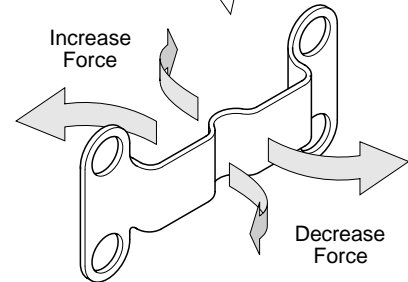
5. Install and seat V-Packing (13) [lip side first], Leather Washer (12), and Brass Washer (11) into the Packing Nut.
6. Install Retaining Ring (10) into the Packing Nut.
 - Use internal circlip pliers.

Valve, Seat, and Shuttle Assembly

7. Install and seat Gasket (20) and Valve Seat (21) into the Body.
 - Make sure the holes are in alignment.
8. Install and seat Valve Retainer (27) [flat side first] onto the Valve Seat.
9. Install Valve (21) [concave side first] into the opening of the Valve Retainer and onto the Valve Seat.
10. Position Valve Retaining Spring (26) onto the Slide Valve and Valve Retainer.



To Adjust Spring Tension:



CAUTION

Do not overtighten Screws (22). Damage to the Valve Retaining Spring can occur.

11. Install Screws (22) that secure the Valve Retaining Spring to the Body.
 - Torque the Screws alternately in a crisscross pattern to 27 inch-pounds (3 Nm).
12. Measure the amount of force required to move the Valve on the Valve Seat.

Figure 5 Valve Retaining Spring Adjustment

NOTE: The Valve should begin to move with approximately 8 ounces (227 gms) of force. If the force is too great or too slight, remove the Valve Retaining Spring and carefully bend by hand. See **Figure 5**.

Item No.	Description	Item No.	Description
Clean Oil			
12	Washer (Leather) [Soak 8 hours at room temperature]	23	O-Ring, 1-9/16 " ID x 1-3/4 " OD
13	V-Packing	29	O-Ring, 3/4 " ID x 15/16 " OD
15	O-Ring, 1-1/8 " ID x 1-1/4 " OD	36	Seal, 0.437 " ID x 0.687 " OD
17	O-Ring, 2-7/8 " ID x 3-1/8 " OD	38	Seal, 0.437 " ID x 0.937 " OD
18	O-Ring, 2-5/16 " ID x 2-1/2 " OD	e	Seal, 0.430 " ID x 0.804 " OD
a	O-Ring, 1 " ID x 1-3/16 " OD		
Viscous H Lubricant			
5	Cylinder - Inside Bore	25	Shuttle - Inside Diameter and Toggle Sockets
8	Packing - Outside Diameter	28 (42)	Toggle Cap - Inside Bore
19	Body - 1/4 oz. (7 gms) in Cavity	30	Spring - Coated
21	Valve Slide - Surface in Contact with Spring Retainer	31	Plunger - Outside Diameter and Toggle Socket
NOTE: Part number 398030 is a 2 ounce (57 gm) tube of Viscous H Lubricant			

Table 2 Lubricated Components

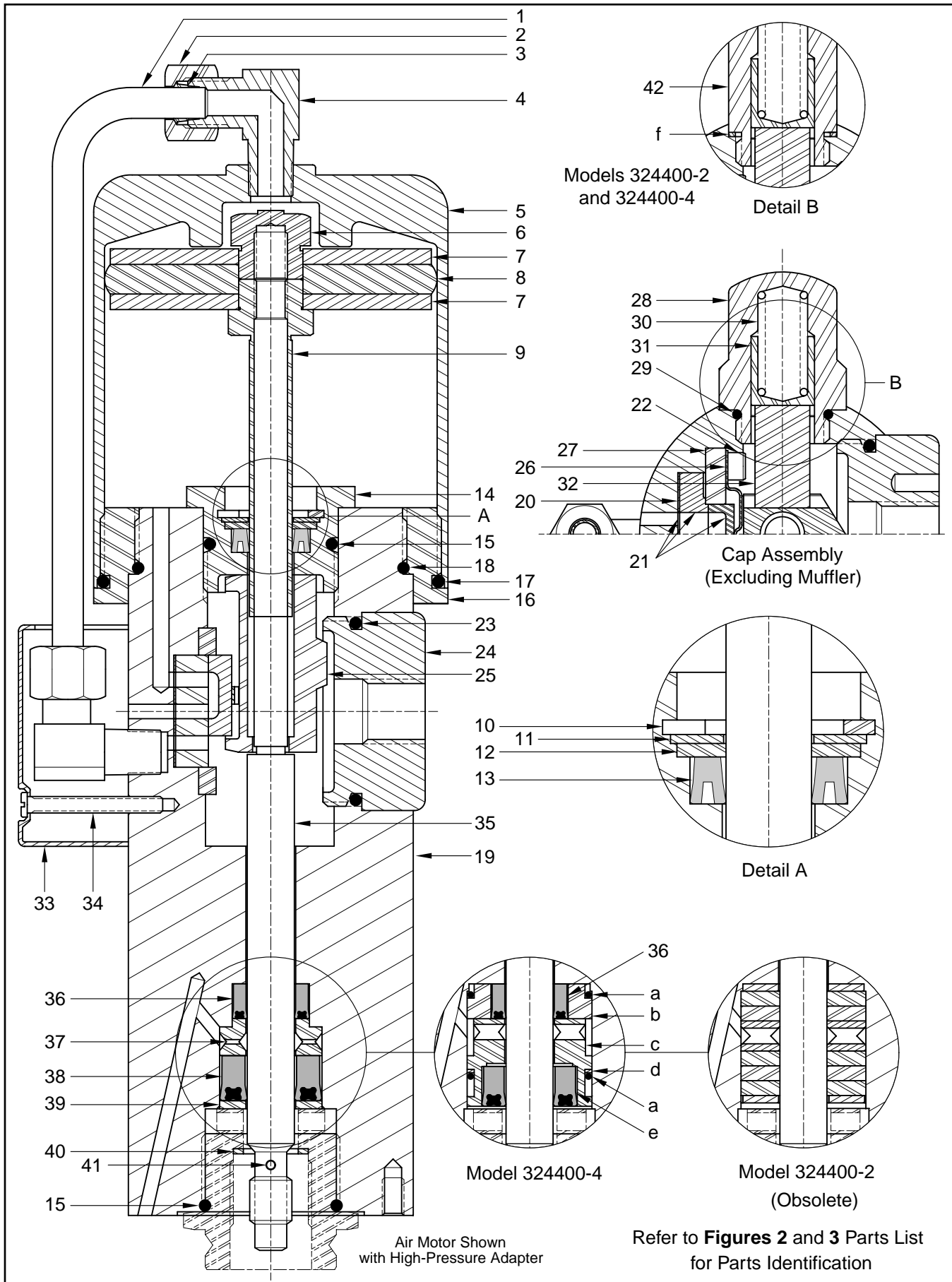


Figure 6 Air Motor Model 324400 Series - Section View

IMPORTANT: Make sure the smaller inside diameter on Shuttle (23) points downward. See Figure 2.

13. Install Shuttle (25) [flat side first and small inside diameter downward] into the Body and onto the Valve.
14. Install each Toggle (32) onto the Shuttle .

Piston Rod Assembly

15. Install Piston Rod (35) [small diameter first] into the bottom of the Body and through the Shuttle.
16. Install Spacer (9) [stem end first] onto the top of the Piston Rod [with Loctite 222] and into the V-Packing.
 - Use care not to damage the V-Packing.
17. Screw the Spacer onto the Piston Rod until it seats.
 - Grip the flats at the bottom of the Piston Rod.
18. Install Washer (7), Packing (8) and additional Washer (7) onto the Spacer and Piston Rod.
19. Screw Piston Nut (6) onto the Piston Rod and into the Washer and Packing.
 - Grip the flats of the Piston Rod and tighten the Piston Nut to 10 foot-pounds (13.5 Nm).
20. Screw Spacer (9) [counterclockwise] against the Piston Nut.
 - Tighten to 20 foot-pounds (27 Nm).

Toggle Caps and Body Inlet

IMPORTANT: Make sure the drain hole on Plunger (31) points downward. See Figure 2.

21. Install Plunger (31) [drain hole downward] onto each Toggle.
22. Install Spring (30) into each Toggle Cap (28 or 42).

Model Dependent Step

23. Install O-Ring (29) onto each Toggle Cap (28) [model 324400-5].

Install Gaskets (f) onto Toggle Caps (42) [models 324400-2 and 324400-4].

CAUTION

Make sure each Toggle is centered in the Shuttle and the Plunger before Toggle Cap installation. Damage to the Toggle can occur.

24. Screw the Toggle Caps into the Body.
 - Make sure the Spring aligns properly.
 - Tighten each Toggle Cap securely with the use of special tool 398500-2. See Figure 4.
25. Install O-Ring (23) onto Body Inlet (24).
26. Screw the Body Inlet into the Body.
 - Tighten the Body Inlet securely with the use of the special tool.

Cylinder Assembly

27. Install O-Ring (17) onto Adapter (16).

CAUTION

Install Cylinder (5) squarely over the Packing assembly. Thread damage can occur.

28. Carefully install Cylinder (5) over the Packing assembly.
 - Screw the Cylinder securely onto the Adapter.

29. Apply thread sealant to Elbows (4). See Figure 2.

CAUTION

Do not overtighten the Elbow into the Body. Too much force can damage the surface used for seating Valve Assembly (21).

30. Screw the Elbows into the Body and Cylinder.
 - Make sure to orient the Elbows properly.
31. Slide Compression Nut (2) [small diameter first] and Ferrule (3) [large diameter first] onto each end of Tube (1).

NOTE: The old Tube, Compression Sleeve, and Nut assembly can be reused if no mar-ring or distortion is visible.

32. Position the Tube Assembly onto each Elbow.
33. Tighten each Compression Nut securely.
34. Secure Muffler (33) to the Body with Screw (34).
 - Tighten the Screw securely.

Lower Packing

NOTE: Procedures 35 - 39 are applicable to model 324400-5.

35. Install and seat Seal (36) [heel end first] onto the Piston Rod and into the Body.
 - Use the protective sleeve included in the kit. See **Figure 7**.
36. Remove the protective sleeve from the Piston Rod.
37. Install and seat Lantern Ring (37) [small diameter first] into the Body.
38. Install and seat Seal (38) [heel end first] onto the Piston Rod and into the Body.
 - Use the protective sleeve included in the kit.
39. Install Washer (39) into the Body.

NOTE: Procedures 40 - 47 are applicable to models 324400-2 and 324400-4.

40. Install and seat O-Ring (a) into the Body.
 - Use care not to damage the O-Ring when passing the weep hole.
41. Install and seat Ring (b) [small diameter first] into the Body.
42. Install and seat Seal (36) [heel end first] onto the Piston Rod and into the Ring.
 - Use the protective sleeve included in the kit. See **Figure 7**.
43. Remove the protective sleeve from the Piston Rod.
44. Position Adapter (c) large diameter upward.
45. Install Split Ring (d) and additional O-Ring (a) into the groove of the Adapter.

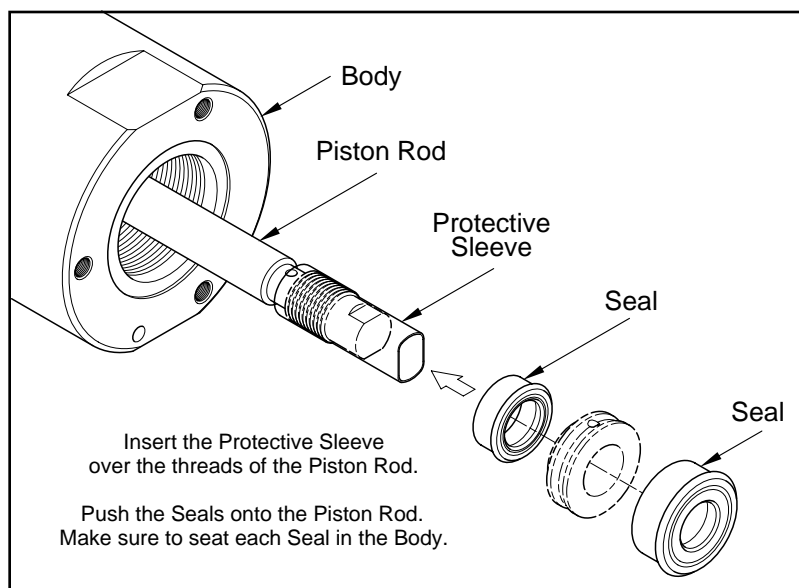


Figure 7 Use of Kit Sleeve to Install Seals onto the Piston Rod
Model 324400-5 Shown

46. Install and seat the Adapter assembly [small diameter first] into the Body.
47. Install and seat Seal (e) [heel end first] onto the Piston Rod and into the Adapter.
 - Use the protective sleeve included in the kit.

Connect Pump to Air Motor

48. Clamp the air motor assembly horizontally in a soft-jaw vise.
49. Install O-Ring (15) onto the pump tube's adapter.
50. Screw the adapter into the Body of the air motor.
 - Tighten the adapter securely.
51. Install and seat Gasket (40) into the high-pressure adapter (high-pressure pump only).
52. Pull on the pump tube to expose the coupling as necessary.

CAUTION

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

53. Screw the coupling onto the air motor Piston Rod.
 - Rotate the entire pump tube assembly.
54. Install Pin (41) that secures the air motor Piston Rod to the coupling.
55. Screw the pump tube securely to the adapter.

Pump Operation



WARNING

Do not exceed the lowest pressure rating of any component in the system.

Never point a control valve at any portion of your body or another person. Lubricant discharged at high velocity can penetrate the skin and cause severe injury. Should any fluid appear to puncture the skin, get medical care immediately.

Ensure all components are in operable condition. Replace any suspect parts prior to operation. Personal injury can occur.

1. Make sure air pressure at the regulator reads zero.
2. Slowly supply air pressure [not to exceed 25 psi (1.7 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:

3. Connect a product hose to the pump's material outlet.
 - Direct the hose into an appropriate container.
4. Place the pump in the product to be dispensed.
5. Slowly supply air pressure to the pump's motor.
6. Allow the pump to cycle slowly until the system and product 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:

7. Attach a control valve to the outlet hose of the pump.
8. Slowly supply 35 psi (2.4 Bars) air pressure to the pump's motor.
9. Operate the control valve into a container.
10. Allow the pump to cycle until the system and product is once again free of air.
11. Shut off the control valve.
12. Set the air pressure to 100 psi (6.9 Bar).
13. Visually inspect the pump for external leaks.
 - The pump should not cycle.

If the pump does not stall, refer to the **Troubleshooting Chart** in the **Pump Service Guide** for details.

14. Check the motor for air leakage.

If the motor leaks, refer to the **Troubleshooting Chart** for details.

Installation

Additional items that should be incorporated into the air piping system are listed in **Table 3**.

Part Number	Description
338860	Moisture Separator/Regulator & Gauge Combination
5604-2	Moisture Separator
SM7604-B	Regulator and Gauge
5904-2	Lubricator *

Table 3 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.

Troubleshooting Chart

Indications	Possible Problems	Solution
Air Motor and/or Pump does not cycle	1. Insufficient air pressure 2. Air motor jammed and/or contains loose components, i.e. Shuttle (25) installed upside down 3. Pump tube jammed and/or contains loose components	1. Increase air pressure 2. Rebuild air motor 3. Rebuild pump tube
Pump Assembly		
Pump will not prime	1. Excessive cycling speed 2. Air leaking into pump tube 3. Pump leaking internally	1. Reduce air pressure 2. Tighten connection 3. See Pump SER Service Guide
Pump cycles rapidly	Product source empty	Replenish product and inspect Air Motor
Air Motor		
External Leaks		
Air leakage at top and /or bottom of Tube (1)	1. Compression Nut (2) not sufficiently tight 2. Elbow (4) not sufficiently tight and/or no sealant 3. Compression Sleeve (3) not sealing properly	1. Tighten Compression Nut (2) 2. Apply thread sealant* to Elbow (4) and tighten 3. Replace Compression Sleeves (3) and Tube (1)
Air leakage at bottom of Cylinder (5)	1. Worn or damaged O-Ring (18) 2. Worn or damaged Cylinder (5)	1. Replace O-Ring (18) 2. Replace Cylinder (5)
Air leakage between Adapter (16) and Body (19)	Worn or damaged O-Ring (17)	Replace O-Ring (17)
Air leakage at Toggle Cap (28 or 42)	1. Initial tightening of Toggle Cap to Body (19) not sufficient 2. Damaged O-Ring (29) [Gasket(f)]	1. Tighten Toggle Cap to Body (19) 2. Replace O-Ring (29) [Gasket (f)]
Air leakage at Body Inlet (24)	1. Initial tightening of Body Inlet (24) to Body (19) not sufficient 2. Worn or damaged O-Ring (23)	1. Tighten Body Inlet (24) to Body (19) 2. Replace O-Ring (23)
Product leakage at weep hole in Body (19)	Worn or damaged Seal (38)	Replace Seal (38)
Internal Leaks		
Air leakage felt at exhaust	1. Worn or damaged V-Packing (13) 2. Worn or damaged Packing (8) 3. Damaged Gasket (20) 4. Worn or damaged Valve (21) 5. Worn or damaged Valve Seat (21) 6. Worn or damaged O-Ring (15) 7. Worn or damaged Cylinder (5) 8. Worn or damaged Valve Retaining Spring (26) 9. Valve Retaining Spring (26) improperly tensioned 10. Elbow (4) overtightened distorting valve seat cavity in Body (19)	1. Disassemble air motor, clean, inspect, and replace worn or damaged components. 9. Bend Valve Retaining Spring (26) in the proper direction. Measure the amount of force required to move the Valve on the Valve Seat. 10. Replace Body (19)
* Do not apply thread sealant to the first two (2) threads. Contamination can occur.		

Changes Since Last Printing
New Format

"Porta-Kart" Dolly**DESCRIPTION**

The 6777-5 "Porta-Kart" Dolly provides a convenient method for moving bucket-type pumps with a minimum of effort,

The "Porta-Kart" comes with the necessary mounting hardware for attaching any of the Series 7149 or 7181 bucket pumps.

When any of these pumps is securely attached to the bottom plate of the "Porta-Kart," the pump can also be easily operated after it has been transported.

**INSTALLATION
(FIGURE 3)**

To install the 7149 or 7181 bucket pump on the "Porta-Kart," follow these steps:

1. Position the bucket pump on the plate of the cart so that the foot rest is on the tapered end of the plate

2a. Series 7149:

Insert screw 170353 through the hole in the foot rest and the plate. Secure with lo&washer 172207-1 and hex nut 77650.

2b. Series 7181:

Insert screw 170361 through the hole in the foot rest and the plate. Secure with elastic stop nut 170989.

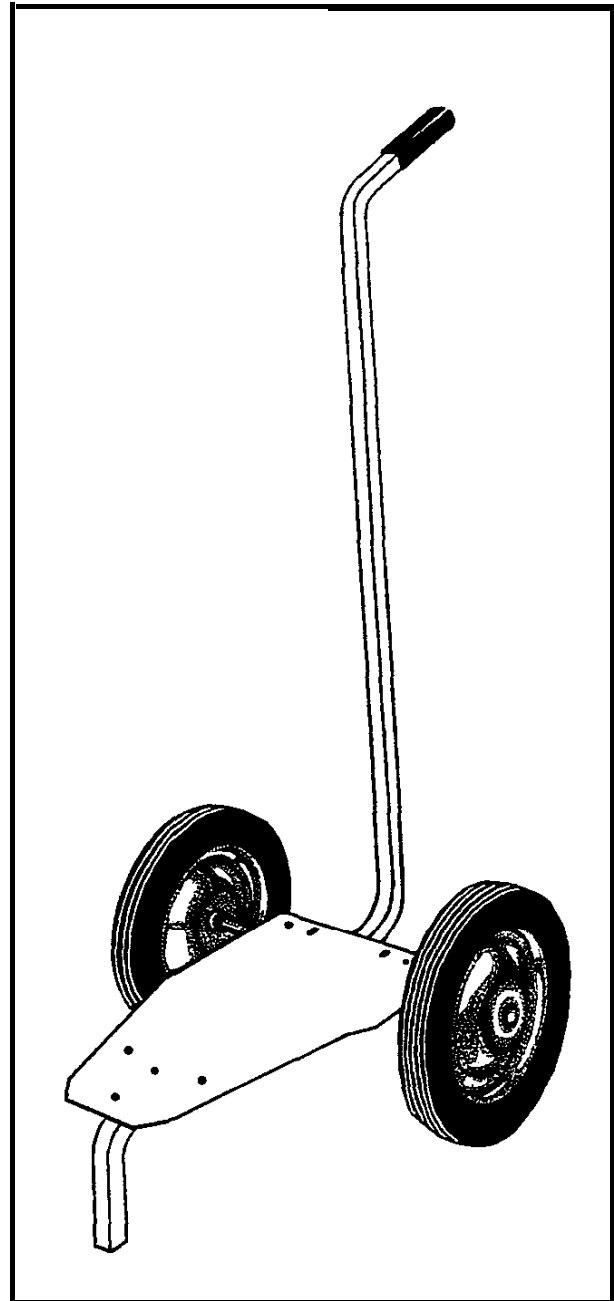


Figure 1: Model 6777-5 "Porta-Kart" Dolly

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ALEMITE CORPORATION
4701 PARK RD CHARLOTTE NC 28209-9967

3. Place the two clamps 322892 on the rim of the bucket pump and secure to the plate of the cart with two screws 170349, two lo&washers 172207-i and two hex nuts 77650 (Figure 3a).

4. Series 7149 only:

Attach the elbow-extension 327333 into the lubricant outlet of the pump.

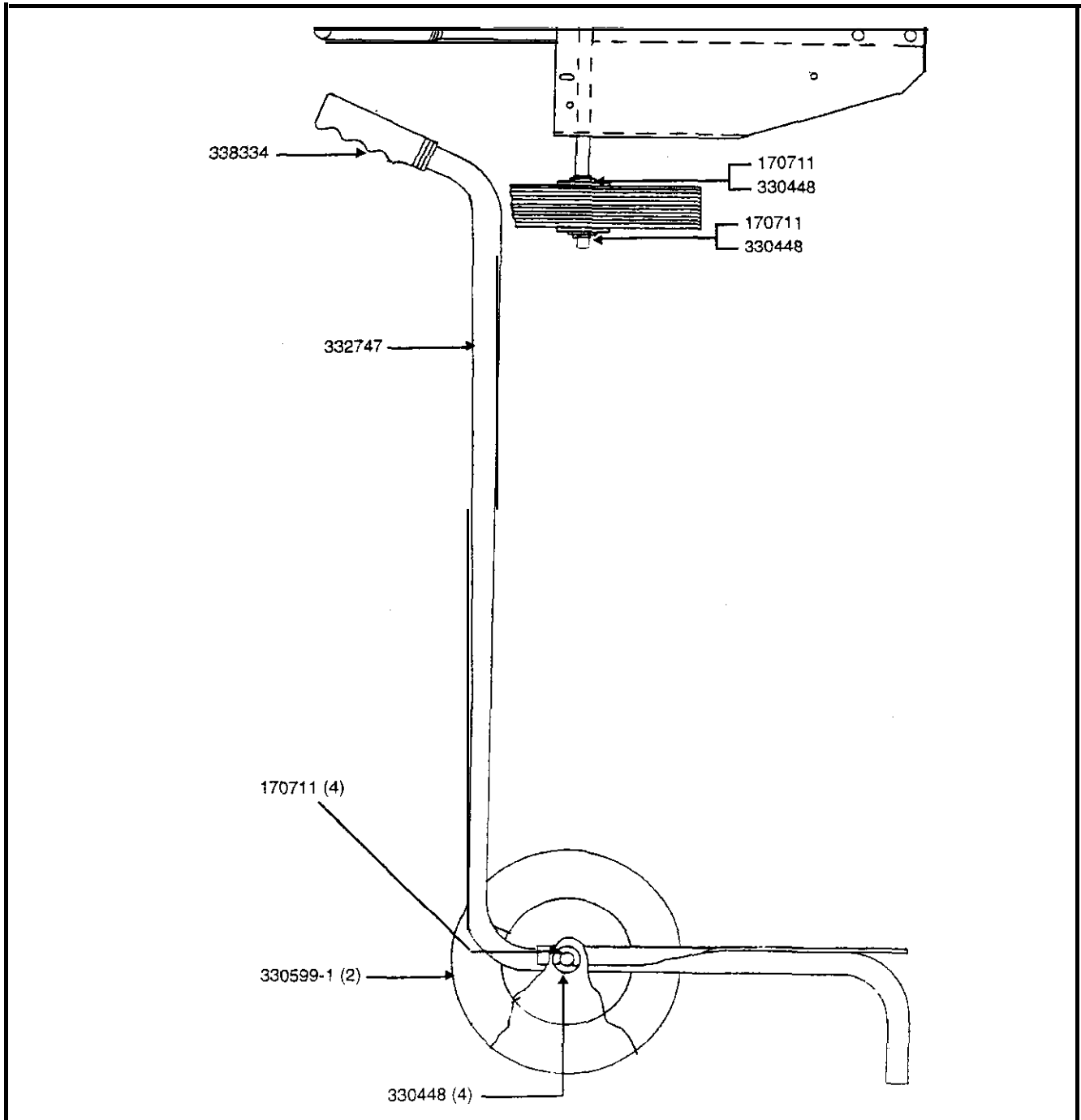


Figure 2: Components of "Porta-Kart" Dolly

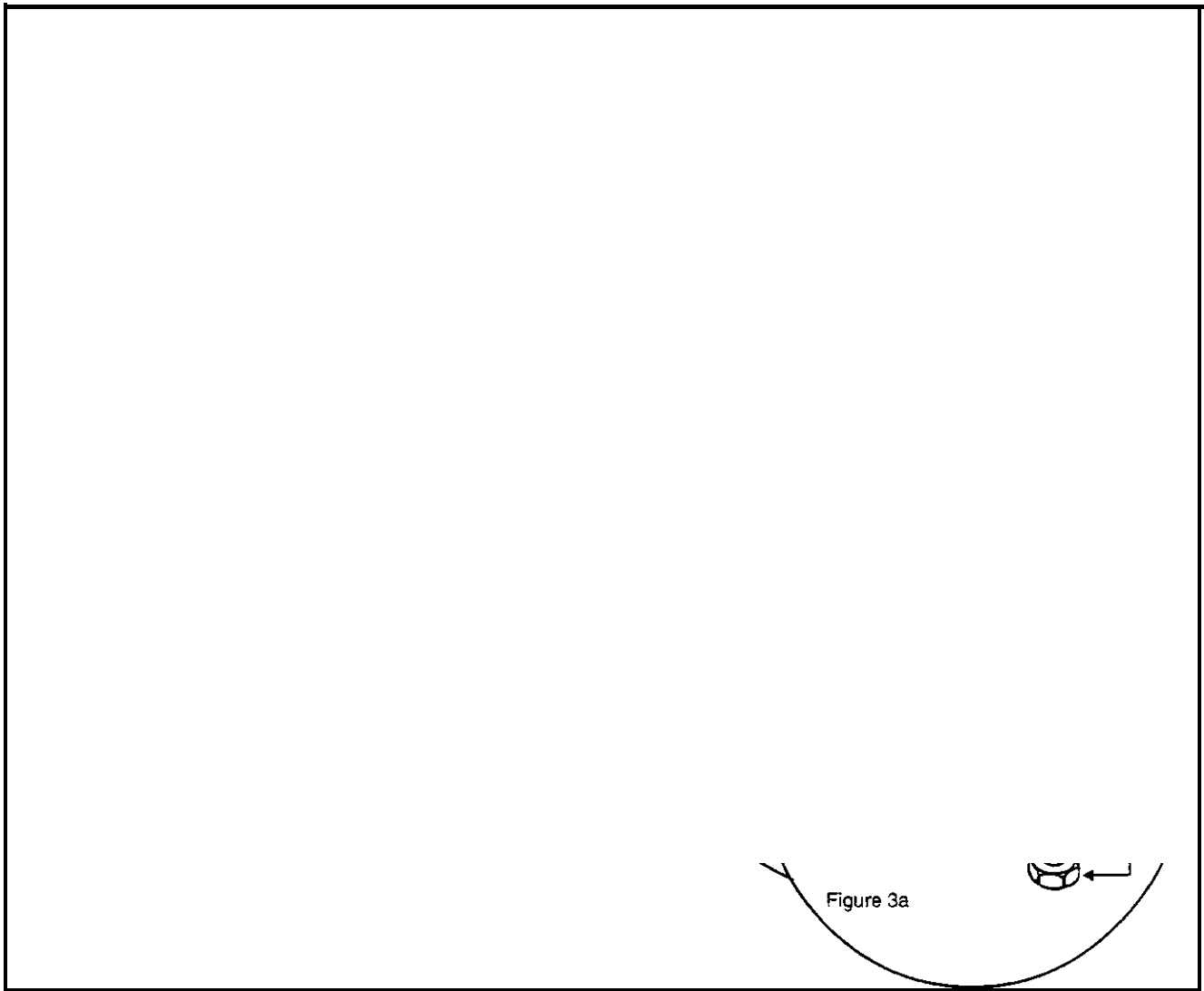


Figure 3: Attaching Bucket Pumps or Grease Pails

ADDITIONAL PARTS LISTING

FOLLOWER PLATE ASSEMBLY WITH SPRING

<u>PART NUMBER</u>	<u>DESCRIPTION</u>
FP-40-70	Follower Plate for 40-70 & Grommet (327170)
SPRG 4X16	Large Spring for 40-70
SNAP RING	Snap Ring
1.25 WASHER	1 ¼" Washer for Follower Plate
SCL-25-SS (2)	Spring Retaining Clip
371028450 (2)	Latch

40-70 PAIL ADAPTER

<u>PART NUMBER</u>	<u>DESCRIPTION</u>
40-70 PL ADPT	40-70 Pail Adapter

HOSE ASSEMBLY

<u>PART NUMBER</u>	<u>DESCRIPTION</u>
51541	1/2" Straight Swivel
51543	1/2" Z Swivel
1012-88 (2)	Hose Adapters
S23-8-A8-120	1/2"- 10 Foot Hose
6438	Control Handle w/ Bleeder Assembly (47123-&-47124)
301296	Adapter
.25 TEE	1/4" Tee
15MGF	15,000 PSI Gauge
GC-250	Gauge Guard
16	Straight Swivel
20	Hose
43379	Adapter
6	Giant Buttonhead Coupler

OPTIONAL EQUIPMENT

<u>PART NUMBER</u>	<u>DESCRIPTION</u>
SM-7604-B*	Air Line Regulator with Gauge
5604-2*	Moisture Separator
5904-2*	Airline Lubricator

***Adapters required depending upon your configuration.**