

### Pump Hoist and Power Ram

#### Description

Model 7818-F5 is a double-post hoist (with follower plate) designed to accommodate pump assemblies (see **Table 1**) capable of pumping medium- to heavy-weight material from original 400-pound (180 kg) containers.

The air-operated power ram raises and lowers the pump (not included) and follower plate assembly. Pressure created from the force on the follower plate causes the material to enter the inlet of the pump.

#### Force and Pressure

The power ram develops a force of 1050 pounds (477 kg) on the follower when 100 psi (6.9 Bars) of air pressure is applied to the hoist. This translates into a pressure of 2.5 psi on the material within a 400-pound container (0.16 Bar for a 180 kg container).

#### Control Box

A pneumatic control box mounts to the left column of the hoist. The operator positions three separate valves to control the flow of air to the hoist, pump's motor, and follower plate.

#### Models 7818-F4 and 7818-F5

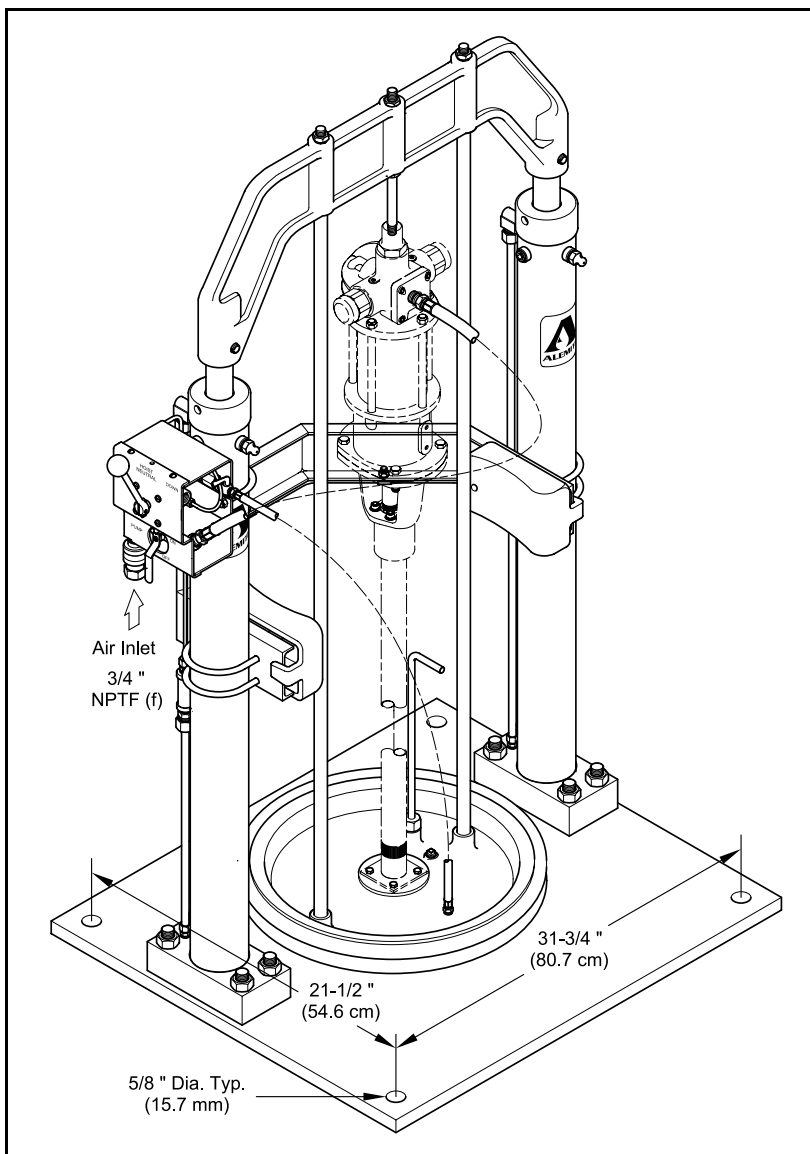
Model 7818-F4 is obsolete.

#### Pump and Adapter

Pump Model	Ratio	Adapter *
7785-A5	40:1	327247
7786-A5	75:1	
7886-A5	11:1	330976
7889-C	40:1	327247
7896-A5	22:1	330976

\* See **Figure 3** for details

**Table 1** Pump and Adapter Usage



Hoist Model	Overall Height				Width x Depth		Follower Plate	Maximum Air Pressure	
	Down Position		Up Position		Inches	Meters		psi	Bars
	Inches	Meters	Inches	Meters					
7818-F4	69	1.75	106	2.69	42 x 24	1.07 x .61	None	200	14
7818-F5							327690		

**Figure 1** Pump Hoist Model 7818-F5

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SER 7818-F5  
Revision (6-04)

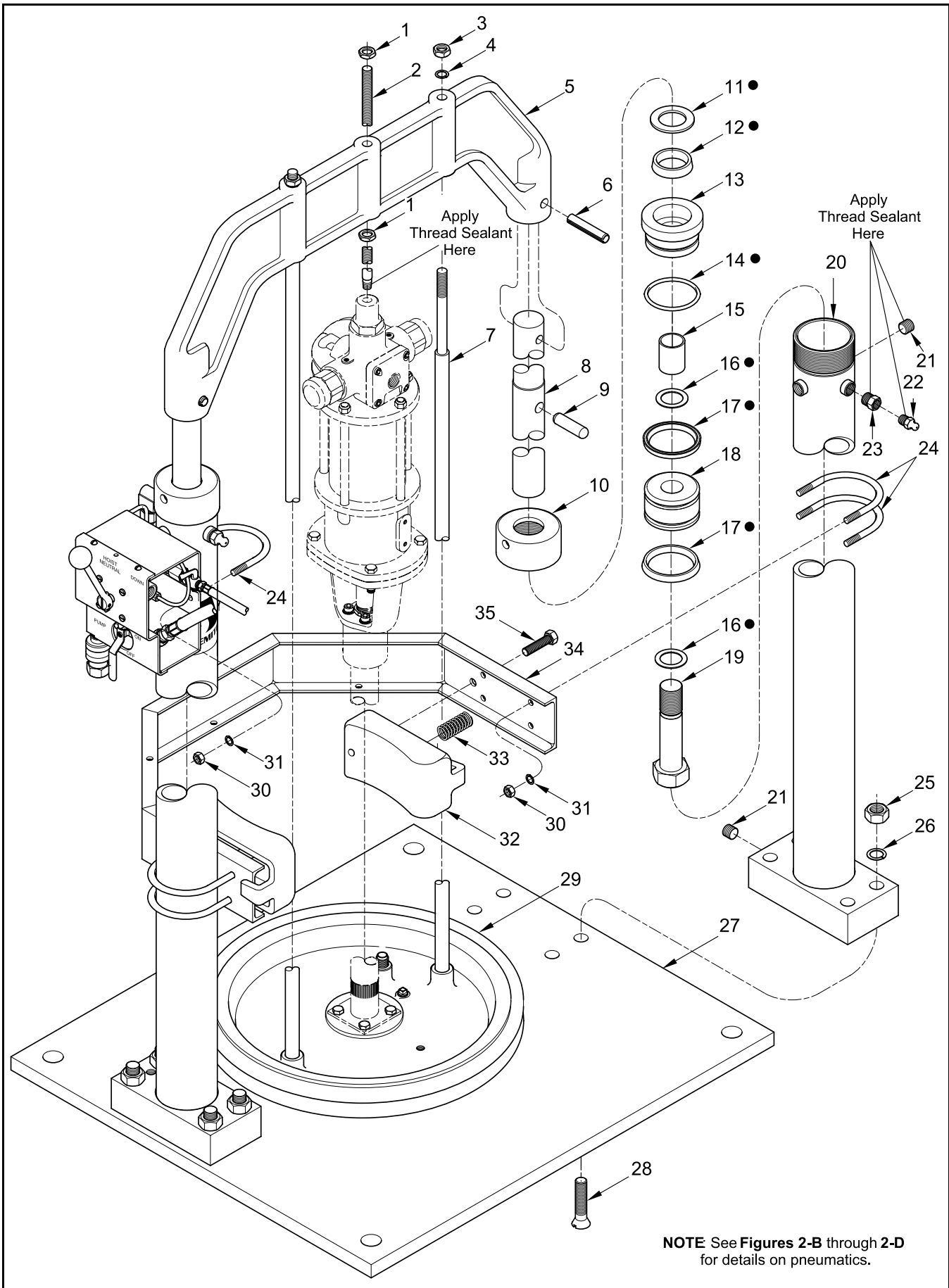


Figure 2-A Pump Hoist Model 7818-F5 - Exploded View

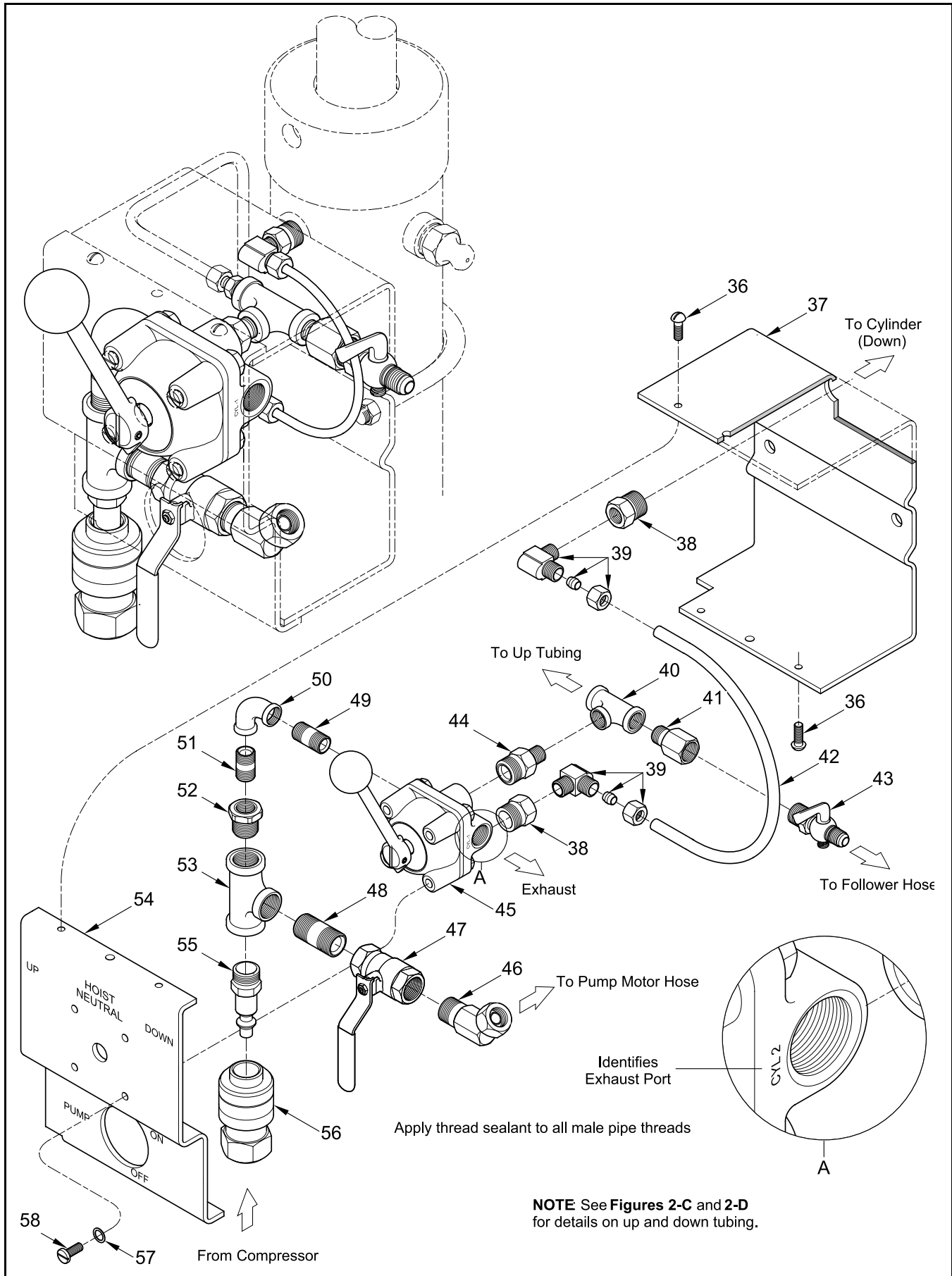
Item No.	Part No.	Description	Qty	Model	Notes	Numeric Order Part # (Item #)
1		Nut, 11/16 " -24	2	Both		1650 (22)
2	331201	Rod	1		<i>11775</i> (35)	
3		Nut, 3/4 " -16	2		45120 (23)	
4		Lockwasher, 3/4 "	2		<i>76925</i> (4)	
5	324957-2	Bridge	1		<i>77783</i> (30)	
6		Pin, Roll, 1/2 " x 3 " Long	2		<i>77890</i> (25)	
7	324958	Rod	2		<i>79832</i> (3)	
8	326896	Rod, Piston	2		170008 (21)	
9		Pin, 5/8 " x 3 " Long	2		<i>171001-38</i> (14)	
10		Cap	2		<i>171040-9</i> (6)	
11		Washer (Leather)	2		● <i>171651</i> (28)	
12		Packing, Block-V	2		● <i>172207-3</i> (31)	
13	324968	Bushing	2		<i>172207-4</i> (26)	
14		O-Ring, 2-3/4 " ID x 3-1/8 " OD	2		● <i>315703</i> (24)	
15		Spacer	2		<i>316090</i> (12)	
16		Gasket (Aluminum)	4		● <i>316091</i> (11)	
17		Packing, Block-V	4		● <i>316093</i> (10)	
18	331048	Piston	2		<i>316094</i> (19)	
19		Bolt, 7/8 " -14 x 5-1/2 "	2		<i>316098</i> (16)	
20		Column	2		<i>316100</i> (9)	
21	170008	Plug, 1/4 " NPTF (m)	5		<i>316102</i> (15)	
22	1650	Fitting	2	7818-F5	318812 (32)	
23	45120	Bushing, 1/4 NPTF (m) x 1/8 " NPTF (f)	2		318815 (33)	
24		U-Bolt, 3/8 " -16	5	Both	<i>319299</i> (1)	
25		Nut, 1/2 " -13	8		324957-2 (5)	
26		Lockwasher, 1/2 "	8		324958 (7)	
27		Base	1		324965 (34)	
28		Screw, 1/2 " -13 x 2-1/2 "	8		324968 (13)	
29	327690	Plate Assembly, Follower	1	7818-F5	See <b>Figure 2-E</b> <i>324975-B4</i> (20)	
30		Nut, 3/8 " -16	10	Both	326896 (8)	
31		Lockwasher, 3/8 "	10		327690 (29)	
32	318812	Shoe	2		<i>330298-2</i> (27)	
33	318815	Spring	2		331048 (18)	
34	324965	Brace	1		<i>331049</i> (17)	
35		Screw, 1/2 " -13 x 2-1/2 "	2		331201 (2)	

**Legend:**

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

**Repair Kit**

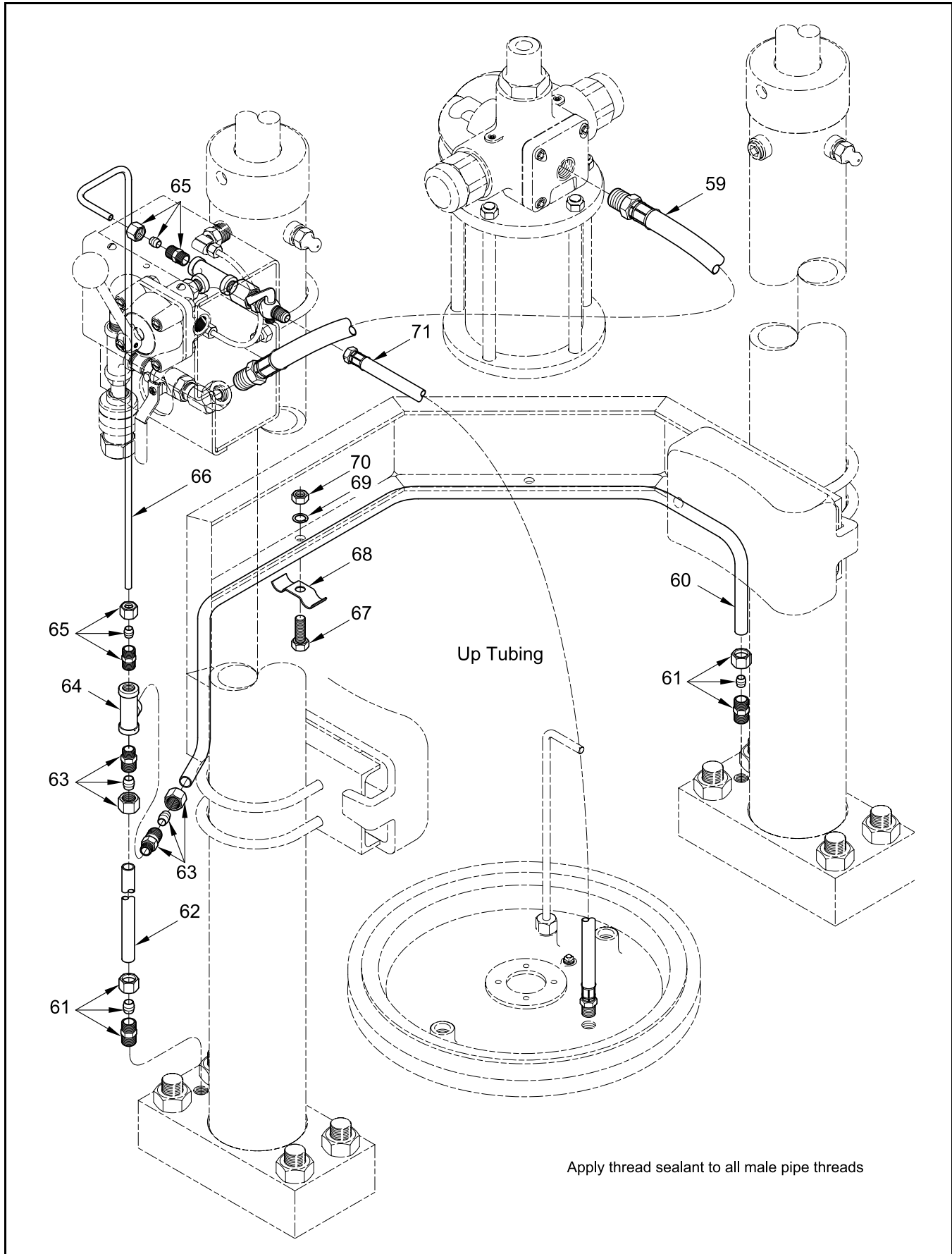
Part No.	Kit Symbol	Description
393703	●	Kit, Cylinder Repair



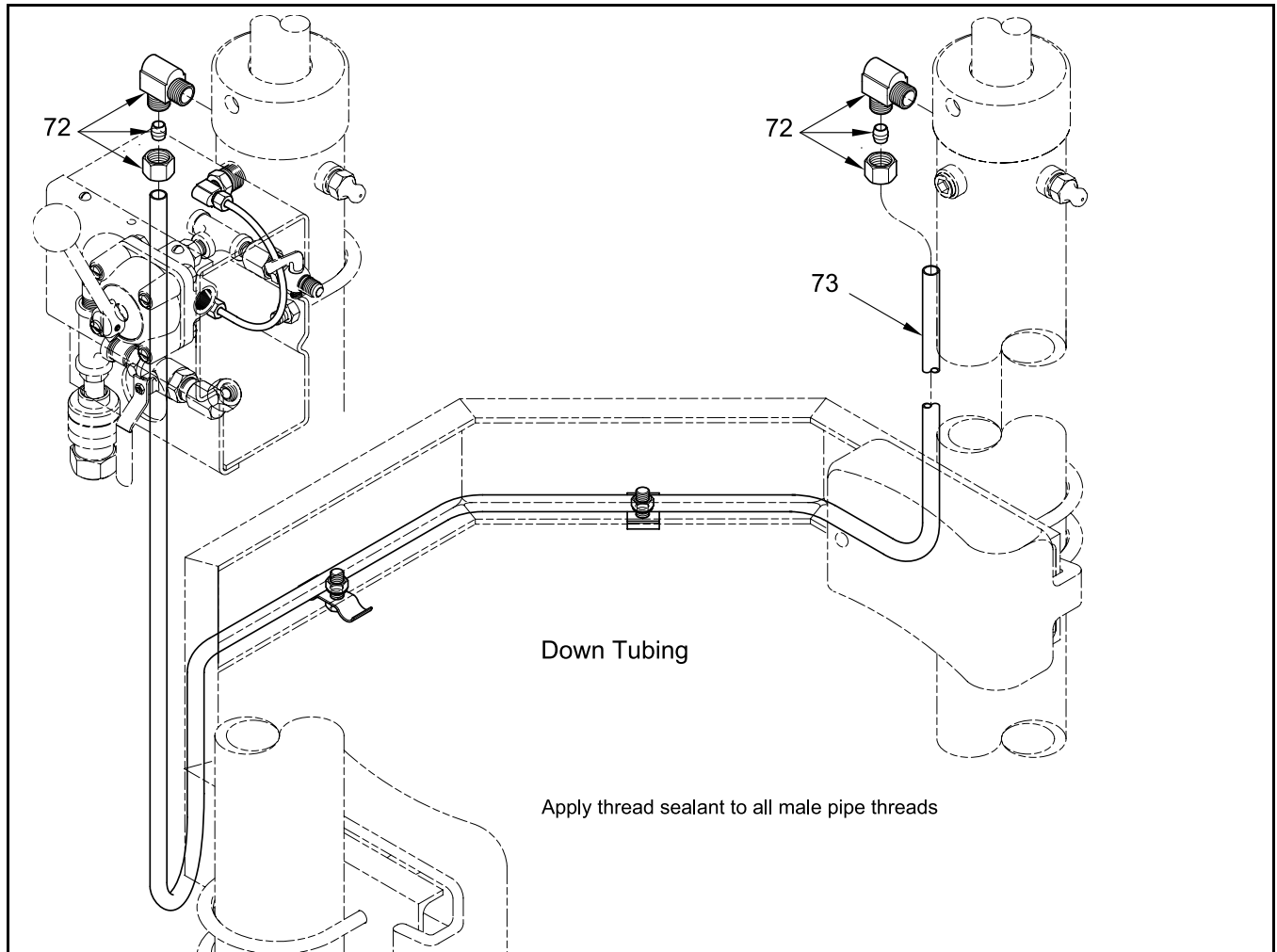
**Figure 2-B** Pump Hoist Model 7818-F5 - Exploded View (Control Box)

Item No.	Part No.	Description	Qty	Model	Numeric Order Part # (Item #)
36		Screw, 10-32 x 3/8 "	4	Both	SWA 274 (47)
37	324951-2	Bracket	1		1002-88 (46)
38	45120	Bushing, 1/4 NPTF (m) x 1/8 " NPTF (f)	2		<i>17412</i> (36)
39		Elbow, Compression, 1/8 " NPTF (m) x 1/8 " Tube	2		43760 (41)
40		Tee, 1/8 "	1		<i>44494</i> (50)
41	43760	Adapter, 1/8 " NPTF (m) x 1/4 " NPTF (f)	1		45120 (38)
42		Tubing, 1/8 " OD x 6 " Long	1		51891 (52)
43	324698	Valve (Follower Plate)	1		<i>61463</i> (57)
44	306722	Adapter, 1/4 " NPTF (m) x 1/8 " NPTF (m)	1		<i>171508</i> (58)
45	329741	Valve (Hoist)	1		<i>172261-1</i> (51)
46	1002-88	Union, 1/2 " NPTF (m) x 1/2 " NPSM (f)	1		<i>172261-3</i> (49)
47	SWA 274	Valve, Ball, (Pump Motor)	1		<i>172263-1</i> (48)
48		Nipple, 1/2 " NPTF x 1-1/8 " Long	1		306722 (44)
49		Nipple, 1/4 " NPTF x 1-3/8 " Long	1		<i>311539</i> (40)
50		Elbow, 1/4 " NPTF	1		311544 (53)
51		Nipple, 1/4 " NPTF x 7/8 " Long	1		324698 (43)
52	51891	Adapter, 1/2 " NPTF (m) x 1/4 " NPTF (f)	1		324951-2 (37)
53	311544	Tee, 1/2 "	1		328032 (56)
54	329742-2	Cover	1		328033 (55)
55	328033	Connector	1		<i>328306-22</i> (39)
56	328032	Coupler, 3/4 " NPTF (f)	1		329741 (45)
57		Lockwasher, 10	4		329742-2 (54)
58		Screw, 10-24 x 1/2 "	4		<i>384317-6</i> (42)

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



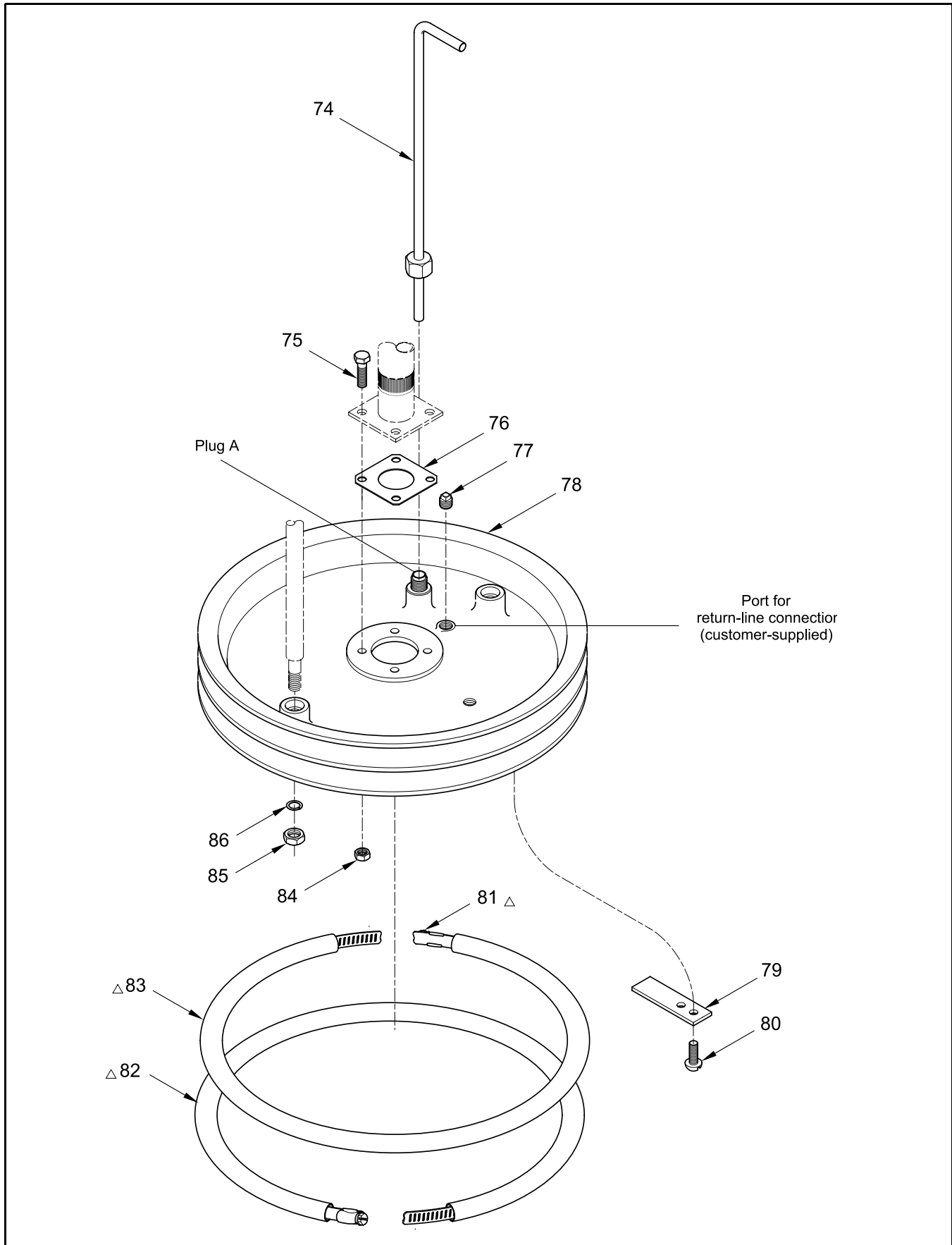
**Figure 2-C** Pump Hoist Model 7818-F5 - Exploded View (Up Tubing)



Item No.	Part No.	Description	Qty	Model	Numeric Order Part # (Item #)
59	317811-5	Hose Assembly, 1/2 " ID x 60 " Long [1/2 " NPTF (m)]	1	Both	76550 (67)
60		Tubing, 3/8 " OD x 50 " Long	1		76784 (70)
61		Connector, Compression, 1/4 " NPTF (m) x 3/8 " Tube	2		76895 (69)
62		Tubing, 3/8 " OD x 50 " Long	1		307416 (68)
63		Connector, Compression, 1/8 " NPTF (m) x 3/8 " Tube	2		311539 (64)
64		Tee, 1/8 "	1		317811-5 (59)
65		Connector, Compression, 1/8 " NPTF (m) x 3/16 " Tube	2		318810-D (62)
66		Tubing, 3/16 " OD x 22 " Long	1		318810-E (60)
67		Screw, 6-32 x 5/8 "	3		318810-F (73)
68		Clamp	3		324964-1 (66)
69		Lockwasher, 6	3		328303-32 (65)
70		Nut, 6-32	3		328303-62 (63)
71		Hose, 1/4 " ID [1/4 " NPTF (m) x 7/16 " -20 UNF-2B	1		328303-64 (61)
72		Elbow, Compression, 1/4 " NPTF (m) x 3/8 " Tube	2		328306-64 (72)
73		Tubing, 3/8 " OD x 82 " Long	1	337482-A1 (71)	

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

**Figure 2-D** Pump Hoist Model 7818-F5 - Exploded View (Down Tubing)



**Figure 2-E** Pump Hoist Model 7818-F5 - Exploded View (Follower Plate Model 327690)



Item No.	Part No.	Description	Qty	Model	Notes	Numeric Order Part # (Item #)	
74	315755	Nut and Handle Assembly, Follower	1	7818-F5		45370 (75)	
75	45370	Screw, 9/16 " -12 x 1-1/4 "	4				45496 (77)
76	327245	Gasket	1				76925 (86)
77		Plug, 1/2 " NPT (m)	1				79832 (85)
78		Plate, Follower	1			w/o Plug A	170304 (80)
79	324685	Valve, Flat	1				315755 (74)
80		Screw, 10-32 x 3/16 "	2				323657 (84)
81		Clamp	2			△	324685 (79)
82		Hose, Wiper, 68 Long	1			△	327245 (76)
83		Hose, Wiper, 68-5/8 " Long	1			△	327691 (78)
84	323657	Nut, 9/16 " -12	4				327694-1 (82)
85		Nut, 3/4 " -16	2				327694-2 (83)
86		Lockwasher, 3/4 "	2				339409 (81)

**Legend:**

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

△ designates a repair kit item

**Repair Kit**

Part No.	Kit Symbol	Description
393704	△	Kit, Follower Hose


# Installation and Operation

**NOTE:** Refer to **Figures 2-A** through **2-E** and **Figure 3** for component identification on the installation and operational procedures.

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**WARNING**

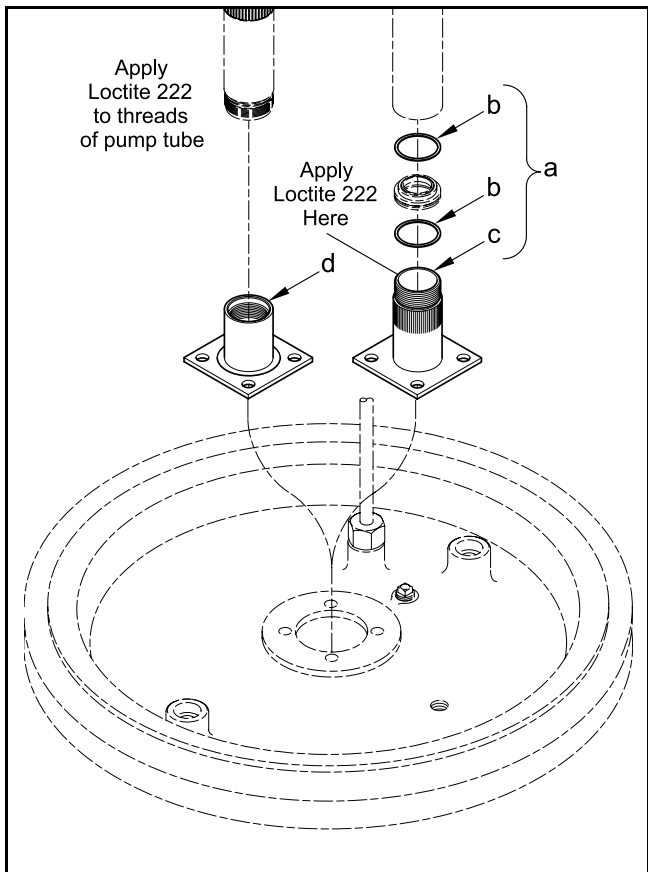
**Do not exceed the lowest pressure rating of any component in the system.**

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

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Item No.	Part No.	Description	Qty
a	327247	Kit, Adapter	1
b	131402	Gasket	2
c	332469	Adapter, 1-3/4 " -20	1
d	330976	Adapter, 2" -16	1

**Legend:**  
Part numbers left blank are not available separately

**Figure 3** Follower Plate Pump Adapters

## Adapter Attachment to Pump

*IMPORTANT: The adapter used is dependent on the model of the pump. See **Table 1**.*

### Adapter Model 327247

1. Remove the original primer body from the pump.
2. Remove the nut that secures the primer plate to the primer rod.
3. Remove the valve seat from the pump tube and discard both aluminum gaskets.
4. Install and seat Gasket (**b**), the valve seat, and additional Gasket (**b**) into the pump tube.
5. Secure the plate to the primer rod with the nut.
  - Tighten the nut securely.
6. Screw Adapter (**c**) [with Loctite 222] into the pump tube.
  - Tighten the pump tube securely.

### Adapter Model 330976

7. Screw Adapter (**d**) onto the pump tube [with Loctite 222].
  - Tighten the pump tube securely.

## Pump Attachment to Hoist

8. Loosen Nuts (**1**) that secure Rod (**2**) to Bridge (**5**).
9. Remove the pipe plug from the top of the air motor.
10. Position the pump assembly onto Follower Plate Assembly (**29**).
11. Thread the Rod (with thread sealant) into the pump's air motor until it bottoms.
  - Tighten the Rod securely.
12. Turn top Nut (**1**) to raise the pump assembly slightly off the Follower Plate Assembly
13. Position Gasket (**76**) onto the Follower Plate.
  - Make sure the holes are in alignment.
14. Install Screws (**75**) into the pump's adapter.
  - This aids in aligning the pump with the Gasket and Follower Plate Assembly.
15. Turn top Nut (**1**) to lower the pump assembly onto the Gasket and Follower Plate.

*IMPORTANT: Both Nuts are secured to the hoist once the Follower Plate is attached.*

16. Check to ensure the position of each of the three (3) hoist's valve handles is as shown in **Figure 4**.
17. Attach an air line to the inlet of the hoist.
18. Set the air pressure regulator to 100 psi (6.9 Bars).
19. Place the **Hoist's Valve Handle** in the Up position.
  - See **Figure 4**.

Allow the hoist to rise to a height that provides access to the bottom of the Follower Plate.



## WARNING

**Position a stable support underneath the Follower Plate.**

**Personal injury can occur.**

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20. Thread Nuts (**84**) onto Screws (**75**).
  - Tighten the Nuts securely in an alternate pattern.
21. Remove the support and lower the Follower Plate onto the Base of the hoist.
  - Place the **Hoist's Valve Handle** in the Down position.
22. Thread top Nut (**1**) on Rod (**2**) until it contacts Bridge (**5**).
  - Repeat the process for the bottom Nut.
23. Tighten each Nut alternately and evenly until secure.

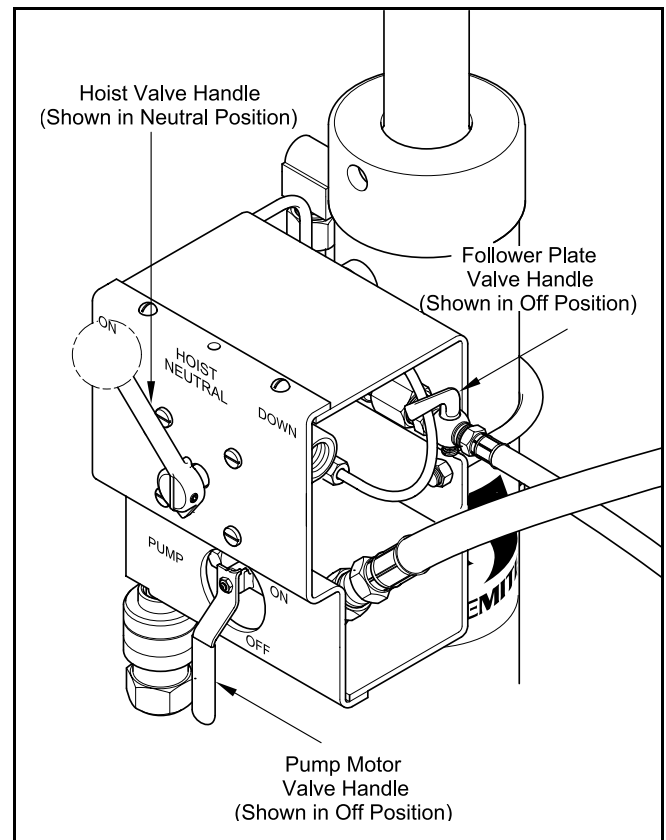
### Hose Attachment

#### Pump Motor

24. Screw Hose (**59**) [with thread sealant] to the inlet of the pump's motor.
  - Tighten the Hose securely.
25. Screw the opposite end of the Hose to Union (**46**).
  - Tighten the Union securely.

#### Follower Plate

26. Screw Hose (**71**) [with thread sealant] into Follower Plate (**78**).
  - Tighten the Hose securely.
27. Screw the opposite end of the Hose to Valve (**43**).
  - Tighten the Hose securely.



**Figure 4** Control Box Valves

## Operation

*IMPORTANT: Hoist operation may vary. Please read the following procedures carefully.*



## WARNING

**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 product 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.**

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### Getting Started

1. Attach a material hose (with control valve) to the outlet of the pump.
2. Lubricate both wipers on the follower plate with the material to be pumped.

3. Unscrew Nut and Handle Assembly (74) on Follower Plate Assembly (78).
  - This allows air trapped underneath the Follower Plate to bleed.
4. Place the **Hoist's Valve Handle** in the Up position.
5. Center the container onto Base (27) once the hoist stops.
  - Make sure each Shoe (32) properly secures the container.
6. Place the **Hoist's Valve Handle** in the Down position.
  - Allow the Follower Plate to enter the container.

Force will cause product to appear at the Follower Plate's bleed valve and the hoist should stall.

7. Screw the Nut and Handle Assembly securely on the Follower Plate.

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**CAUTION**

**Leaving the Hoist's Valve Handle in the Down position may cause the material to bypass the follower's wiper hoses.**

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Whether to place the **Hoist's Valve Handle** in the Neutral position or maintain the Down position is dependent on the:

- viscosity of the material being pumped
- amount of line pressure to the hoist

**Dependent Step**

8. Place the **Hoist's Valve Handle** in the Neutral position as required.
9. Rotate the **Pump's Valve Handle** to the On position.

10. Check the motor for air leakage.

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

11. Operate the control valve into a container.
12. Allow the pump to cycle until the product is free of air.

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

13. Shut off the control valve.
14. 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.

Once the Container is Empty

15. Place the **Follower Plate's Valve Handle** to the On position (in line with the hose).
16. Place the **Hoist's Valve Handle** in the Up position.

Air enters beneath the follower plate to assist the hoist. Once the follower plate is free of the container:

17. Place the **Hoist's Valve Handle** in the Neutral position.
18. Place the **Follower Plate's Valve Handle** in the Off position.

## Preventive Maintenance

Daily	Yearly
Inspect for Air and/or Material Leakage	Attach gun to Fitting (22) and add 2 oz. (59 cc) of clean SAE 30 oil to each column

**Table 2** *Pump Hoist Model 7818-F5 Preventive Maintenance Schedule*

## Prior to Overhaul

**NOTE:** The following procedures pertain to the hoist's cylinders and the Follower Plate.

Operate the hoist and allow the Follower Plate to contact the Base.

**HINT:** Allow the Follower Plate to contact a box or other suitable structure. The structure provides easier:

- removal of the bridge assembly from the Base, if required
- detachment of the Follower Plate from the hoist

## Overhaul

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



### WARNING

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

- **Disconnect the air supply line from the control box.**
- **Into an appropriate container, operate the pump's 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.**

**NOTE:** Refer to **Figures 2-A** through **2-E** for component identification on all overhaul procedures.

## Hoist Cylinder

### Disassembly

1. Remove Roll Pins (6) that secure Bridge (5) to Piston Rods (8).
  - Use a drift and hammer.
2. Rotate the Bridge assembly to expose the top of Columns (20).

3. Unscrew each Cap (10) from each Column.
  - Use a drift and hammer.
4. Remove the entire Piston assembly from each Column.
5. Remove Bushing (13) from the Piston.
6. Remove Washer (11), Block-V Packing (12), and O-Ring (14) from the Bushing.
7. Remove both Block-V Packings (17) from Piston (18).
8. Remove Pin (9) from Piston Rod (8) as required.
9. Unscrew Bolt (19) from the Piston Rod as required.
10. Remove Spacer (15), Gasket (16), Piston (18), and additional Gasket (16) from the Bolt.

### Clean and Inspect

1. Clean all metal parts in a modified petroleum-based solvent. The solvent should be environmentally safe.
2. Inspect the bore of Column (20) for wear and/or corrosion.

If the bore of either Column requires cleaning:

3. Unscrew Hose (59) from Union (46).
4. Remove the Bridge assembly from the hoist's Base.
5. Detach the Base from its foundation.
6. Position the Base assembly to allow access to the Column's bore.

To clean the bore of the Column:

7. Attach a 3-1/4 " (8.3 mm) diameter wire brush to a tube or other suitable holder.
  - Rotate the assembly during the cleaning process.
8. Remove any contaminants from within the Column.

### Assembly

**NOTE:** Prior to assembly, certain components require lubrication. Refer to **Table 3** for details.

Item No.	Description	Type of Lubricant
11	Washer (Leather)	Gear Oil
12	Block V-Packing	
14	O-Ring, 2-3/4 " ID x 3-1/8 " OD	
17	Block V-Packing	
20	Bore of Column	Mobilith AW-1

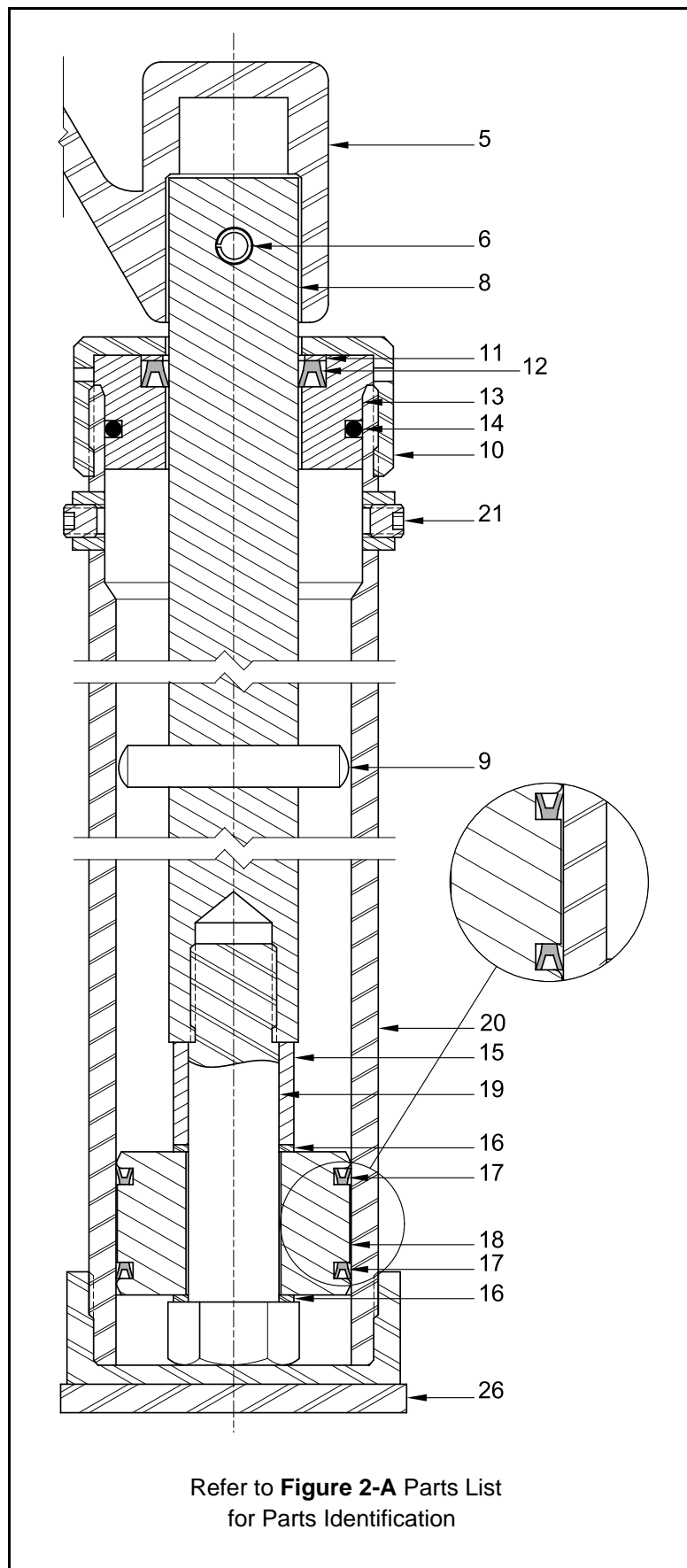
**Table 3** Lubricated Components

1. Install Block-V Packings (17) onto Piston (18).
  - See **Figure 5** for the proper orientation of the Packings.
2. Install and seat Gasket (16), the Piston assembly, additional Gasket (16), and Spacer (15) onto Bolt (19).
3. Screw the Bolt assembly into Piston Rod (8).
  - Tighten the Bolt securely.
4. Install and center Pin (9) in the Piston Rod.

### CAUTION

Use care during the installation of the Piston assembly. Damage to the Block-V Packings can occur.

5. Install the Piston assembly into Column (20).
6. Install O-Ring (14) onto Bushing (13).
7. Install the Bushing assembly onto the Piston and into the Column.
8. Install Block-V Packing (12) [lips downward] and Washer (11) over the Piston and into the Bushing.
  - Use care passing the cross-hole in the Piston.
  - Make sure both components seat properly within the Bushing.
9. Screw Cap (10) onto the Column.
  - Tighten the Cap securely.
10. Install the Bridge assembly onto each Piston Rod.
  - Make sure the pin holes are in alignment.
11. Install Roll Pins (6) that secure the Piston Rods to Bridge (5).



Refer to **Figure 2-A** Parts List  
for Parts Identification

**Figure 5** Hoist Column- Section View

## Follower Plate

### Assembly

#### Hoses to Follower Plate

**NOTE:** Refer to **Figure 2-E** for component identification on the following procedures.

1. Insert Clamp (**81**) into upper Hose (**83**).

*IMPORTANT: Hose (83) is slightly longer than lower Hose (82).*

2. Coil the Hose assembly into the upper groove of Follower Plate (**78**).

**HINT:** Position the Follower Plate assembly on its outer circumference with the Clamp opening upward.

3. Draw the Clamp tight against the Hose and Follower Plate.
4. Close the opening in the Hose.
  - Hammer the Hose with a wooden or rubber mallet.
  - Make sure the ends butt squarely.
5. Repeat steps 1 through 4 for lower Hose (**82**).

*IMPORTANT: Make sure the opening on the Lower Hose is 180 ° opposite the upper Hose.*

#### Changes Since Last Printing

Deleted Pump Models 7785-B5 and 7786-C from **Table 1**

