

## Portable Hand-Operated Pump

### Description

The major components of the pump assembly in the 7181 model series consist of a:

- hand-operated reciprocating pump
- nozzle assembly with delivery hose (model 7181-K)
- nozzle, delivery hose, and meter (model 7181-M)

#### Models 7181-4, 7181-K, and 7181-M

Model 7181-4 consists of the pump assembly and the container. There are no accessories attached to the outlet of the pump.

Model 7181-K includes a delivery hose and nozzle assembly to distribute oil. A meter that registers in pints is included with model 7181-M. See **Figure 1**.

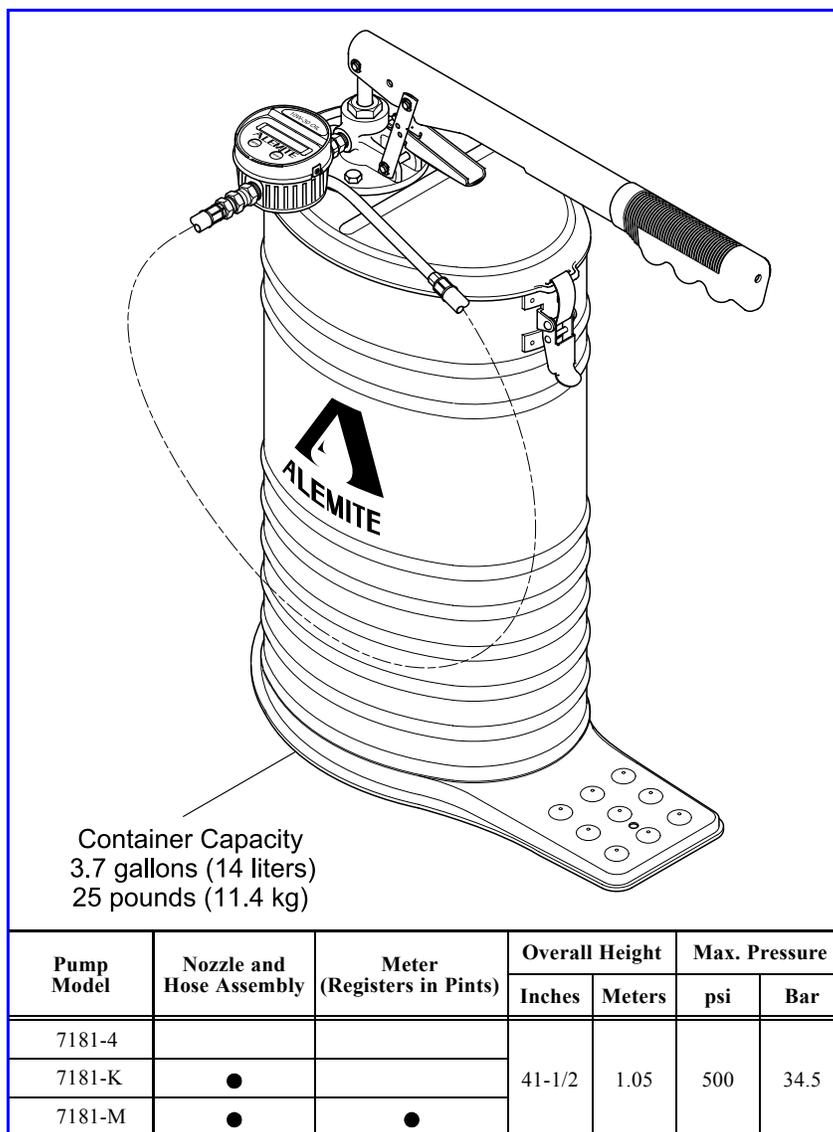
### Pump Delivery

These model pumps are used to dispense oils.\* The pump delivers approximately 1 pint (0.47 liter) of oil in eight cycles [2-strokes per cycle - one upward and one downward].

### Model Assembly

Refer to **Figure 2** for details on the assembly of all packaged components.

\* Model 7181-4 can be accessorized to dispense grease up to NLGI # 2. Dependent on the accessory, the pump delivers approximately 1 pound (0.45 kg) of lubricant in eight cycles.



**Figure 1** Portable Hand-Operated Pump Model 7181 Series  
Model 7181-M Shown

### Accessories

Pump Model	Loader Coupler
7181-4	317219

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SER 7181-4  
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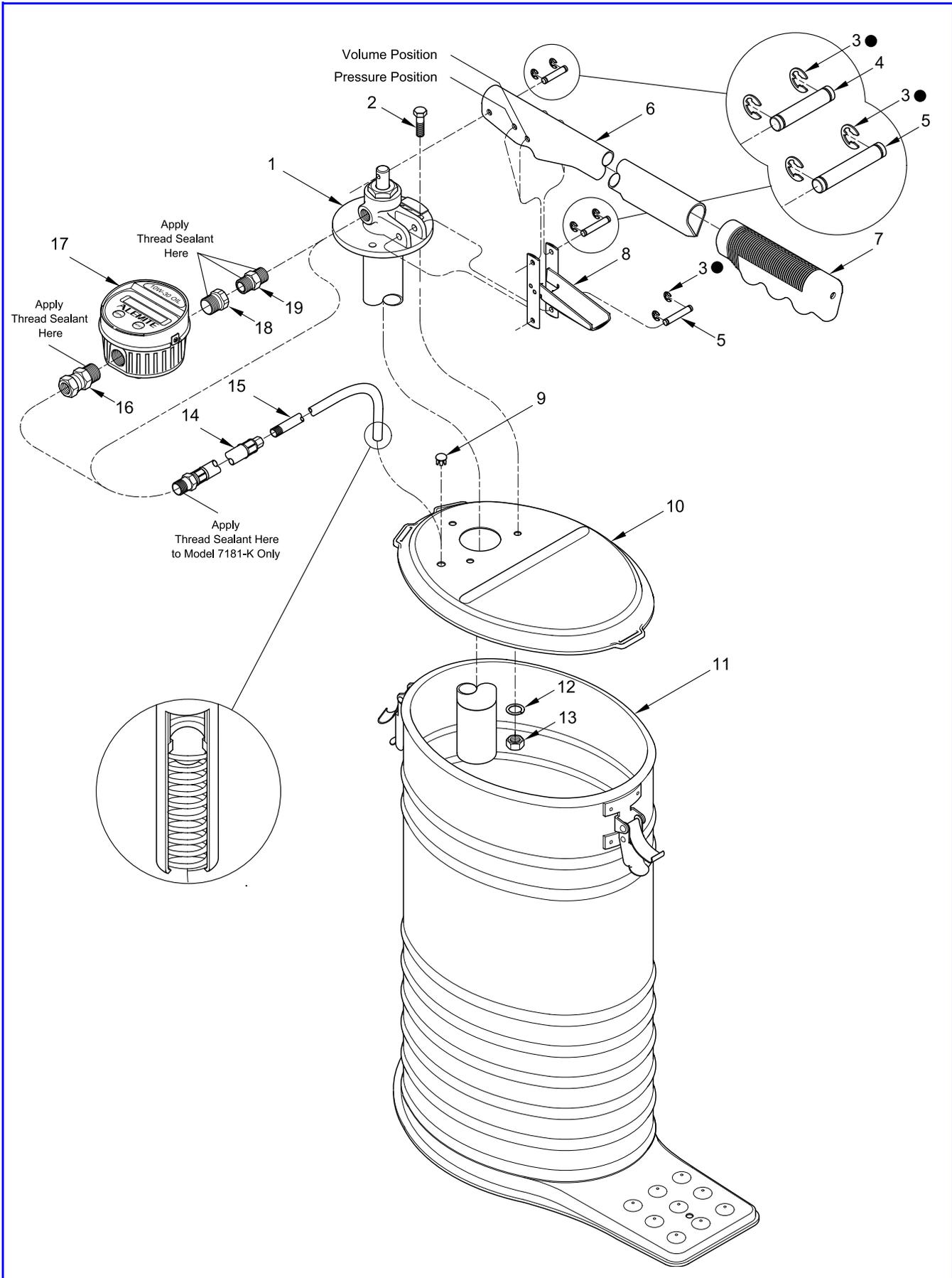


Figure 2 Portable Hand-Operated Pump Model 7181 Series - Exploded View

Item No.	Part No.	Description	Qty	Model Number			Notes	Numeric Order Part # (Item #)	
				7181-4	7181-K	7181-M			
1		Tube Assembly, Pump	1				See <b>Figure 3</b>	1000-86 (16)	
2	76771	Capscrew, 1/4 " -20 x 3/4 "	3						3631 (17)
3		Ring, Retaining	6					●	41729 (19)
4	339961-2	Pin	1						76771 (2)
5	339961-3	Pin	2						<i>77650</i> (13)
6	316320	Lever	1						131586 (18)
7		Grip	1						170692 (9)
8	317246	Link and Handle Assembly	1						<i>171606</i> (3)
9	170692	Plug, Button	1						<i>172207-1</i> (12)
10	319088-4	Cover and Gasket Assembly	1						306610 (15)
11	315569-B4	Container Assembly	1						315569-B4 (11)
12		Washer, Lock, 1/4 "	3						316320 (6)
13		Nut, 1/4 " -20	3						317246 (8)
14	317807-5F	Hose, Material, 1/2 " ID (5-1/2 ' Long)	1						317807-5F (14)
15	306610	Nozzle Assembly	1						319088-4 (10)
16	1000-86	Union, 1/2 " NPTF (m) x 3/8 " NPTF (f)	1						<i>332810</i> (1)
17	3631	Meter Assembly, Electronic (Pint)	1					See <b>SER 3630</b>	<i>338334</i> (7)
18	131586	Bushing, 3/8 " NPTF (f) x 1/2 " NPTF (m)	1						339961-2 (4)
19	41729	Adapter, 3/8 " NPTF (m)	1						339961-3 (5)

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

**Repair Kit**

Part No.	Kit Symbol	Description
398712-1	●	Kit, Repair (Includes items in <b>Figure 2</b> and <b>Figure 3</b> )

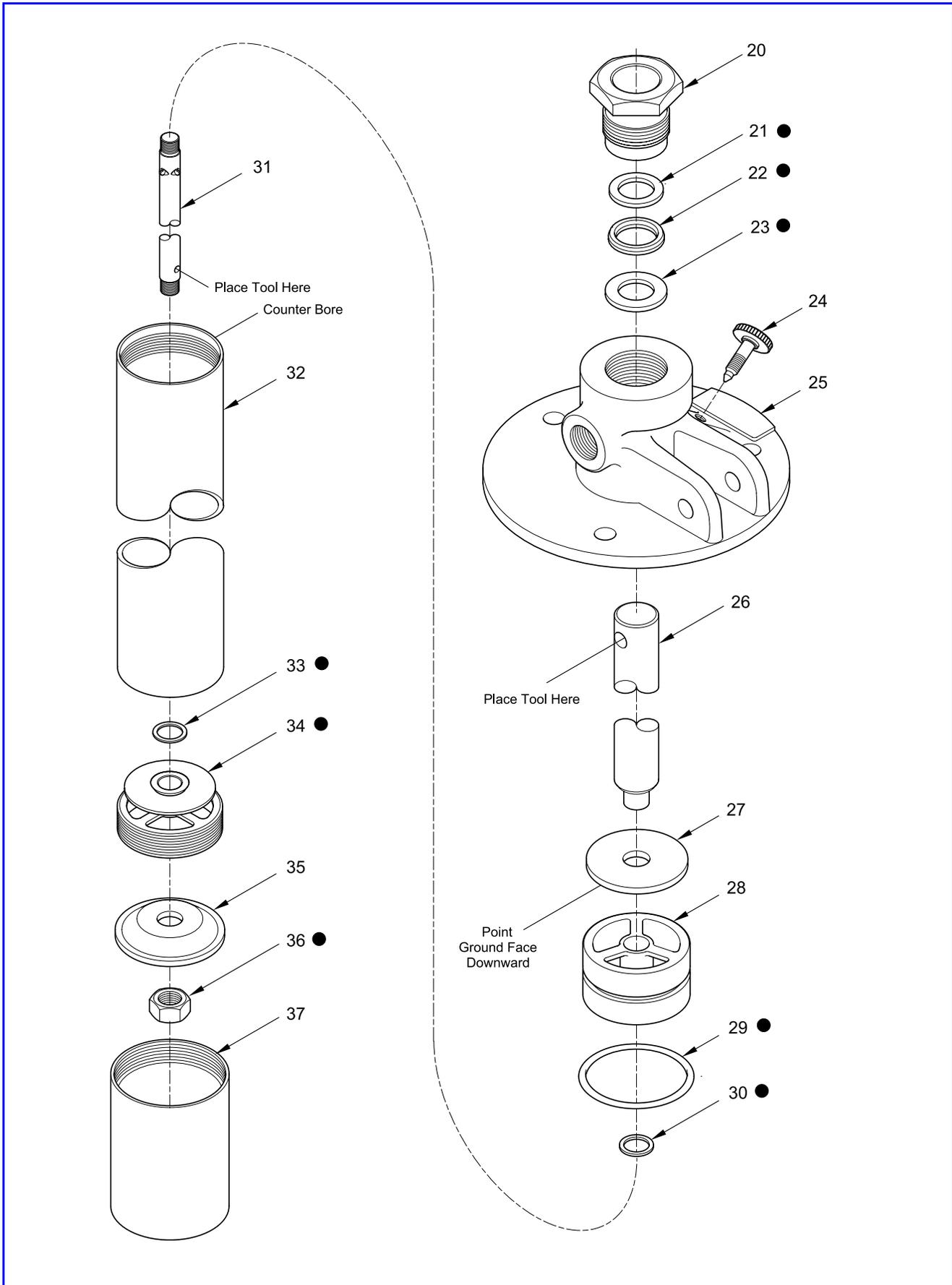


Figure 3 Pump Tube Assembly for Model 7181 Series - Exploded View

Item No.	Part No.	Description	Qty	Notes	Numeric Order Part # (Item #)
20	317248	Bushing	1		18850 (36)
21		Washer, Packing	1	●	<i>70680</i> (33)
22		Packing, Block-V, 0.58 " ID x 0.92 " OD	1	●	171001-23 (29)
23		Gasket (Aluminum)	1	●	<i>314563</i> (21)
24	317208	Screw Assembly, Valve Bleed	1		<i>314564</i> (22)
25	317233-3	Body	1		317208 (24)
26	319086-3	Rod, Upper	1		317233-3 (25)
27	327883	Washer	1		<i>317238</i> (34)
28	319320	Body, Plunger	1		317242 (31)
29	171001-23	O-Ring, 1-1/4 " ID x 1-1/2 " OD	1	●	317243-1 (37)
30		Washer, 0.06 " Thick	1	●	317244 (35)
31	317242	Rod, Lower	1		317248 (20)
32	319085-3	Cylinder	1		<i>317352</i> (23)
33		Washer, 0.03 " Thick	1	●	319085-3 (32)
34		Valve Assembly, Foot	1	●	319086-3 (26)
35	317244	Disc, Primer	1		<i>319319</i> (30)
36	18850	Nut, Elastic Stop, 1/4 " -28	1	●	319320 (28)
37	317243-1	Tube	1		327883 (27)
<b>Legend:</b> Part numbers left blank (or in <i>italics</i> ) are not available separately ● designates a repair kit item					

### Repair Kit

Part No.	Kit Symbol	Description
398712-1	●	Kit, Repair (Includes items in <b>Figure 3</b> and <b>Figure 2</b> )

## Overhaul

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 come in contact with halogenated hydrocarbon solvents.**

**Never point a nozzle 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

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

### Separate Pump Tube from Cover and Lever

1. Remove Retaining Rings (3) from one end of Pins (4 and 5).
2. Remove the Pins that secure Lever (6) to Pump Tube Assembly (1) and Link and Handle Assembly (8).
  - Remove the Lever from the Pump Tube Assembly.
3. Unlatch Cover (10) from Container Assembly (11).
4. Remove Nuts (13), Lockwashers (12) and Capscrews (2) that secure Pump Tube Assembly (1) to the Cover.
  - Remove the Pump Tube Assembly from the Cover.
5. Unscrew Material Hose (14) from the Pump Tube Assembly [model 7181-K only].
  - Unscrew Nozzle Assembly (15) from the Material Hose as required.
6. Unscrew Electronic Meter Assembly (17) [with Material Hose] from the Pump Tube Assembly [model 7181-M only].
  - Separate components as required.

### Pump Tube

**NOTE:** Refer to **Figure 3** for component identification on the pump tube procedures.

7. Position Upper Rod (26) to expose Primer Disc (35) from Cylinder (32).
8. Remove Nut (36) that secures the Primer Disc to Lower Rod (31).
  - Place a tool in the Lower Rod to prevent rotation.
  - Remove the Primer Disc from the Lower Rod.
9. Unscrew Tube (37) [or Cylinder (32)] from Foot Valve Assembly (34).
10. Unscrew the Foot Valve Assembly from the remaining component.
11. Remove the Foot Valve Assembly and Washer (33) from the Lower Rod.
12. Loosen Bushing (20) from Body (25).
 

*IMPORTANT: Hone the top of Upper Rod (26) as required to ease the disassembly process.*
13. Unscrew the Cylinder from the Body.
  - Remove the Cylinder Assembly from the Body.
14. Remove Bushing (20), Packing Washer (21), Block-V Packing (22), and Gasket (23) from the Body.
15. Unscrew the Lower Rod from the Upper Rod.
  - Use tools to prevent rotation. See **Figure 3**.
16. Remove Washer (27), Plunger Body (28), and Washer (30) from the Lower Rod.
17. Remove O-Ring (29) from the Plunger Body.

## Clean and Inspect

**NOTE:** Use the 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 Upper Rod (26) closely. Use a magnifying glass to detect any score marks.
  - Replace as necessary.
4. Inspect the bore of Cylinder (32) for score marks. Replace as necessary.
5. Closely inspect the mating surfaces of Plunger Body (28) and Washer (27) for any imperfections. Ensure a smooth and clean contact is obtained when assembled.

- Inspect the mating surfaces of Foot Valve Assembly (34).

Hold the check valve portion of the assembly against the piston and fill the piston with solvent. Make sure no leakage occurs.

## Assembly

**NOTE:** Prior to assembly, certain components require lubrication in clean oil. Refer to **Table 1** for details.

### Pump Tube

**NOTE:** Refer to **Figure 4** for a section view of the pump tube assembly.

- Install Gasket (23), Block-V Packing (22) [lips downward], and Packing Washer (21) into the top of Body (25).
- Screw Bushing (20) into the Body.
  - Do not tighten at this time.
- Install Upper Rod (26) [small end first ] into the top of the Body.
  - Use care not to damage the Block-V Packing.
- Install O-Ring (29) onto Plunger Body (28).

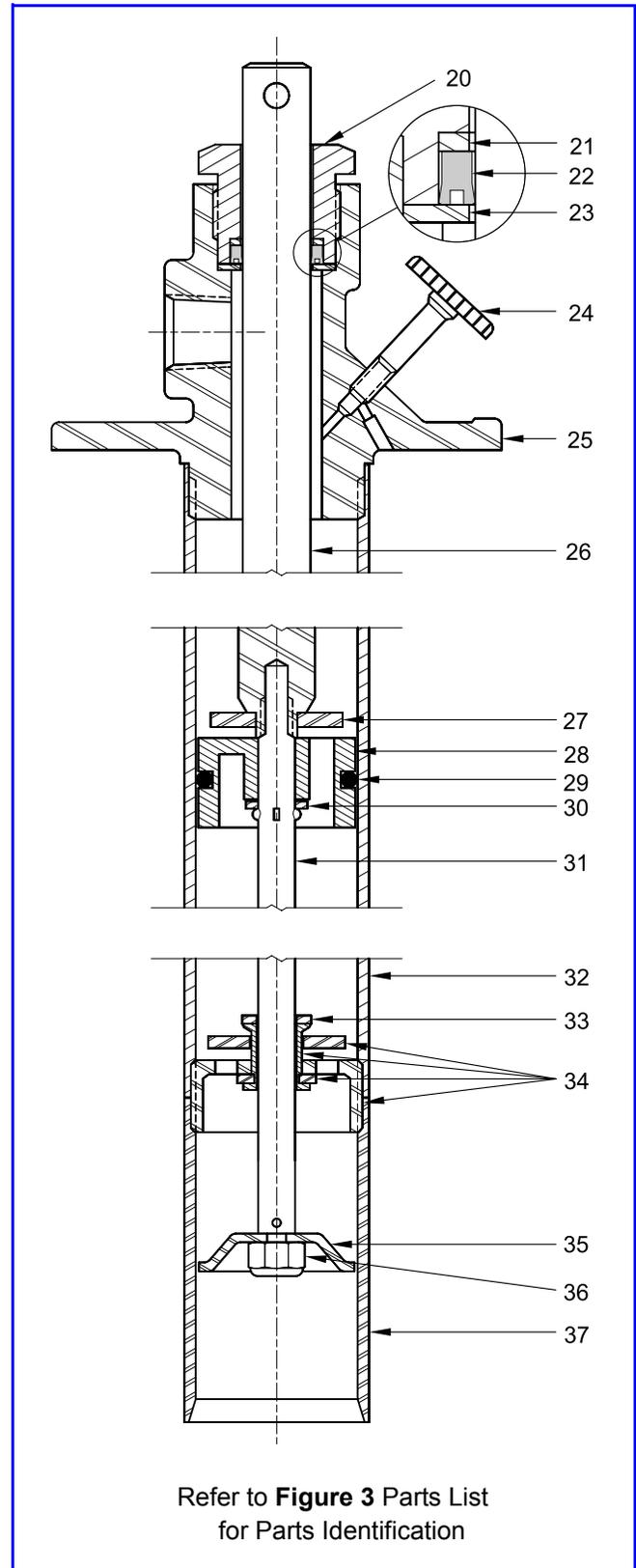
**NOTE:** Do not mix Washer (30) with Washer (33). Washer (30) is twice the thickness.

- Install Washer (30), Plunger Body assembly, and Washer (27) [ground face downward] onto the top of Lower Rod (31).
- Screw the Lower Rod assembly onto the Upper Rod.
  - Do not tighten at this time.
- Install Cylinder (32) [counter bore first] onto the rod assembly and screw onto the Body. See **Figure 3**.
  - Use care no to damage the O-Ring.
  - Do not tighten at this time.
- Install Washer (33) onto the Lower Rod.
- Install Foot Valve Assembly (34) onto the Lower Rod and screw into the Cylinder.
  - Do not tighten at this time.
- Screw Tube (37) onto the Foot Valve Assembly.

Item No.	Description
22	Packing, Block-V, 0.58 " ID x 0.92 " OD
29	O-Ring, 1-1/4 " ID x 1-1/2 " OD

**Table 1** Components Lubricated in Clean Oil

- Tighten the Tube and Cylinder assembly securely to the Foot Valve Assembly and to the Body.
- Install Primer Disc (35) [small diameter first] onto the Lower Rod.



**Figure 4** Pump Tube Assembly 332810- Section View

13. Screw Nut **(36)** onto the Lower Rod.
  - Place a tool into the Upper Rod to prevent rotation.
  - Tighten the Nut securely and at the same time secure the Lower Rod to the Upper Rod.

14. Tighten Bushing **(20)** securely into the Body.

### Attach Lever and Cover to Pump Tube

15. Install Pin **(5)** that secures Link and Handle Assembly **(8)** to Pump Tube Assembly **(1)**.
16. Install Pins **(4 and 5)** that secure Lever **(6)** to the Pump Tube Assembly and the Link and Handle Assembly.
17. Install Retaining Rings **(3)** onto Pins **(4 and 5)**.

**NOTE:** Procedures 18 - 21 are applicable to model 7181-M only.

18. Screw Adapter **(19)** [with thread sealant on each end] into the Body of the Pump Assembly.
19. Screw Bushing **(18)** into the Adapter.
  - Apply thread sealant to the Bushing.
20. Install Electronic Meter **(17)** onto the Bushing.
21. Screw Union **(16)** [with thread sealant] into the Electronic Meter.

**NOTE:** Procedures 22 through 24 are applicable to models 7181-K and 7181-M only.

22. Screw Nozzle Assembly **(15)** [with thread sealant] into Material Hose **(14)**.
23. Screw the Material Hose [with thread sealant] into the Body **(25)** (model 7181-K).
24. Screw the Material Hose into the Union (model 7181-M).
25. Position the Pump Tube Assembly onto Cover **(10)**.
26. Install Capscrews **(2)**, Lockwashers **(12)**, and Nuts **(13)** that secure the Pump Tube Assembly to the Cover.
  - Tighten the Capscrews securely.
27. Latch the Cover to Container Assembly **(11)**.

### Priming the Pump

1. Turn Valve Bleed Screw Assembly **(24)** counterclockwise to open.
2. Cycle the Lever until product causes the cycling of the Lever to stiffen.

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

3. Close the Valve Bleed Screw Assembly until it seats

## Troubleshooting Chart

Pump Indications	Possible Problems	Solution
Pump does not cycle	Pump tube jammed and/or contains loose components	Rebuild pump tube
Pump will not prime	Pump leaking internally	See <b>Internal Leaks</b>
Pump cycles easily	Product source empty	Replenish product
<b>External Leaks</b>		
Product leakage visible at Bushing (20)	<ol style="list-style-type: none"> <li>1. Initial tightening of Bushing (20) into Body (25) not sufficient</li> <li>2. Worn or damaged Block-V Packing (22)</li> <li>3. Damaged Gasket (23)</li> </ol>	<ol style="list-style-type: none"> <li>1. Tighten Bushing (20) into Body (25)</li> <li>2. Replace Block-V Packing (22)</li> <li>3. Replace Gasket (23)</li> </ol>
Product leakage at bottom of Body (25)	Cylinder (32) not sufficiently tight	Tighten Cylinder (32) into Body (25)
<b>Internal Leaks</b>		
Pump does not prime	<ol style="list-style-type: none"> <li>1. Foreign material between Washer (27) and Plunger Body (28)</li> <li>2. Foreign material between components of Foot Valve Assembly (34)</li> <li>3. Worn or damaged Washer (27)</li> <li>4. Worn or damaged Plunger Body (28)</li> <li>5. Worn or damaged Foot Valve (34)</li> <li>6. Worn or damaged O-Ring (29)</li> </ol>	<p>Locate and eliminate source of foreign material</p> <p>Disassemble pump tube, clean, inspect, and replace worn or damaged components</p>

**Changes Since Last Printing**

Replaced Cotter Pins with Retaining Rings

