

# Z-Series Chemical Pumps

3A0019ZAA  
EN

**For pumping plural component materials. For professional use only.**

**Not for use in explosive atmospheres.**

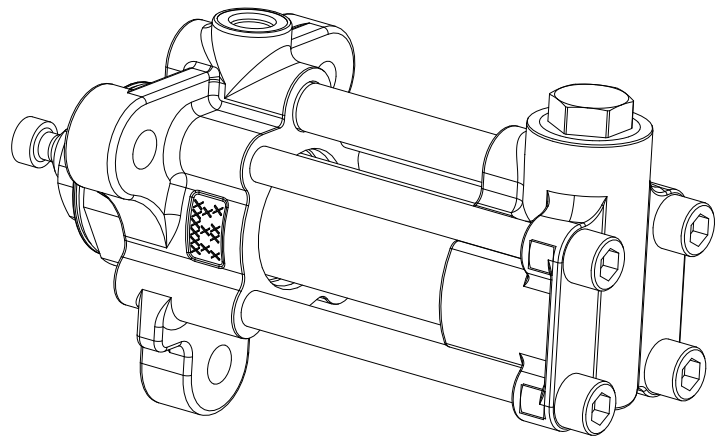
*3500 psi (24 MPa, 241 bar) Maximum Working Pressure*



### **Important Safety Instructions**

Read all warnings and instructions in this manual and all supplied manuals. Save all instructions.

See page 3 for model information.



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# Models

| Model    | Pump Size | System Used On | Pump Style |
|----------|-----------|----------------|------------|
| *L005S1  | 5cc       | HFR            | Standard   |
| L010S1   | 10cc      | HFR            | Standard   |
| L015S1   | 15cc      | HFR            | Standard   |
| L020S1   | 20cc      | HFR            | Standard   |
| L025S1   | 25cc      | HFR            | Standard   |
| L030S1   | 30cc      | HFR            | Standard   |
| L035S1   | 35cc      | HFR            | Standard   |
| L040S1   | 40cc      | HFR            | Standard   |
| L045S1   | 45cc      | HFR            | Standard   |
| L050S1   | 50cc      | HFR            | Standard   |
| L060S1   | 60cc      | HFR            | Standard   |
| L065S1   | 65cc      | HFR            | Standard   |
| L070S1   | 70cc      | HFR            | Standard   |
| L075S1   | 75cc      | HFR            | Standard   |
| L080S1   | 80cc      | HFR            | Standard   |
| L086S1   | 86cc      | HFR            | Standard   |
| L090S1   | 90cc      | HFR            | Standard   |
| L100S1   | 100cc     | HFR            | Standard   |
| L105S1   | 105cc     | HFR            | Standard   |
| L120S1   | 120cc     | HFR            | Standard   |
| L140S1   | 140cc     | HFR            | Standard   |
| L150S1   | 150cc     | HFR            | Standard   |
| L160S1   | 160cc     | HFR            | Standard   |
| **L010S3 | 10cc      | NVH            | Standard   |
| **L020S3 | 20cc      | NVH            | Standard   |
| *L005S4  | 5cc       | EFR            | Standard   |
| L010S4   | 10cc      | EFR            | Standard   |
| L015S4   | 15cc      | EFR            | Standard   |
| L020S4   | 20cc      | EFR            | Standard   |
| L025S4   | 25cc      | EFR            | Standard   |
| L030S4   | 30cc      | EFR            | Standard   |
| L035S4   | 35cc      | EFR            | Standard   |
| L040S4   | 40cc      | EFR            | Standard   |
| L045S4   | 45cc      | EFR            | Standard   |
| L050S4   | 50cc      | EFR            | Standard   |
| L060S4   | 60cc      | EFR            | Standard   |
| L055S4   | 65cc      | EFR            | Standard   |


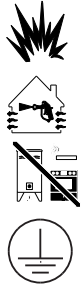


| Model   | Pump Size | System Used On | Pump Style |
|---------|-----------|----------------|------------|
| L070S4  | 70cc      | EFR            | Standard   |
| L075S4  | 75cc      | EFR            | Standard   |
| L080S4  | 80cc      | EFR            | Standard   |
| L086S4  | 86cc      | EFR            | Standard   |
| L090S4  | 90cc      | EFR            | Standard   |
| L100S4  | 100cc     | EFR            | Standard   |
| L105S4  | 105cc     | EFR            | Standard   |
| L120S4  | 120cc     | EFR            | Standard   |
| L140S4  | 140cc     | EFR            | Standard   |
| L150S4  | 150cc     | EFR            | Standard   |
| L160S4  | 160cc     | EFR            | Standard   |
| *L005S5 | 5cc       | HFR/EFR        | High Wear  |
| L010S5  | 10cc      | HFR/EFR        | High Wear  |
| L020S8  | 20cc      | HFR/EFR        | Elite      |
| L040S8  | 40cc      | HFR/EFR        | Elite      |
| L080S8  | 80cc      | HFR/EFR        | Elite      |
| L100S8  | 100cc     | HFR/EFR        | Elite      |
| L120S8  | 120cc     | HFR/EFR        | Elite      |
| L160S8  | 160cc     | HFR/EFR        | Elite      |






\* Due to a small seal cross-section, use unfilled catalysts to achieve the best seal life results.

\*\* S3 pump models are for NVH system use only.






# Warnings

The following warnings are for the setup, use, grounding, maintenance, and repair of this equipment. The exclamation point symbol alerts you to a general warning and the hazard symbol refers to procedure-specific risk. Refer back to these warnings. Additional, product-specific warnings may be found throughout the body of this manual where applicable.

|  <b>WARNING</b> |  |
|--|--|
|                 | <p><b>FIRE AND EXPLOSION HAZARD</b></p> <p>Flammable fumes, such as solvent and paint fumes, in <b>work area</b> can ignite or explode. To help prevent fire and explosion:</p> <ul style="list-style-type: none"> <li>• Use equipment only in well ventilated area.</li> <li>• Eliminate all ignition sources; such as pilot lights, cigarettes, portable electric lamps, and plastic drop cloths (potential static arc).</li> <li>• Keep work area free of debris, including solvent, rags and gasoline.</li> <li>• Do not plug or unplug power cords, or turn power or light switches on or off when flammable fumes are present.</li> <li>• Ground all equipment in the work area.</li> <li>• Use only grounded hoses.</li> <li>• Hold gun firmly to side of grounded pail when triggering into pail.</li> <li>• If there is static sparking or you feel a shock, <b>stop operation immediately</b>. Do not use equipment until you identify and correct the problem.</li> <li>• Keep a working fire extinguisher in the work area.</li> </ul>   |
|               | <p><b>SKIN INJECTION HAZARD</b></p> <p>High-pressure fluid from gun, hose leaks, or ruptured components will pierce skin. This may look like just a cut, but it is a serious injury that can result in amputation. <b>Get immediate surgical treatment.</b></p> <ul style="list-style-type: none"> <li>• Do not point gun at anyone or at any part of the body.</li> <li>• Do not put your hand over the spray tip.</li> <li>• Do not stop or deflect leaks with your hand, body, glove, or rag.</li> <li>• Do not spray without tip guard and trigger guard installed.</li> <li>• Engage trigger lock when not spraying.</li> <li>• Follow <b>Pressure Relief Procedure</b> in this manual, when you stop spraying and before cleaning, checking, or servicing equipment.</li> </ul>  |
|               | <p><b>EQUIPMENT MISUSE HAZARD</b></p> <p>Misuse can cause death or serious injury.</p> <ul style="list-style-type: none"> <li>• Do not operate the unit when fatigued or under the influence of drugs or alcohol.</li> <li>• Do not exceed the maximum working pressure or temperature rating of the lowest rated system component. See <b>Technical Data</b> in all equipment manuals.</li> <li>• Do not leave the work area while equipment is energized or under pressure. Turn off all equipment and follow the <b>Pressure Relief Procedure</b> in this manual when equipment is not in use.</li> <li>• Check equipment daily. Repair or replace worn or damaged parts immediately with genuine manufacturer's replacement parts only.</li> <li>• Do not alter or modify equipment.</li> <li>• Use equipment only for its intended purpose. Call your distributor for information.</li> <li>• Route hoses and cables away from traffic areas, sharp edges, moving parts, and hot surfaces.</li> <li>• Do not kink or over bend hoses or use hoses to pull equipment.</li> <li>• Keep children and animals away from work area.</li> <li>• Comply with all applicable safety regulations.</li> </ul> |

|  <b>WARNING</b> |   |
|--|---|
|                 | <p><b>MOVING PARTS HAZARD</b></p> <p>Moving parts can pinch or amputate fingers and other body parts.</p> <ul style="list-style-type: none"> <li>• Keep clear of moving parts.</li> <li>• Do not operate equipment with protective guards or covers removed.</li> <li>• Pressurized equipment can start without warning. Before checking, moving, or servicing equipment, follow the <b>Pressure Relief Procedure</b> in this manual. Disconnect power or air supply.</li> </ul>  |
|                 | <p><b>TOXIC FLUID OR FUMES HAZARD</b></p> <p>Toxic fluids or fumes can cause serious injury or death if splashed in the eyes or on skin, inhaled, or swallowed.</p> <ul style="list-style-type: none"> <li>• Read MSDS's to know the specific hazards of the fluids you are using.</li> <li>• Store hazardous fluid in approved containers, and dispose of it according to applicable guidelines.</li> <li>• Always wear impervious gloves when spraying or cleaning equipment.</li> <li>• If this equipment is used with isocyanate material, see additional information on isocyanates in Iso-cyanate Conditions Section of this manual.</li> </ul> |
|                 | <p><b>BURN HAZARD</b></p> <p>Equipment surfaces and fluid that's heated can become very hot during operation. To avoid severe burns:</p> <ul style="list-style-type: none"> <li>• Do not touch hot fluid or equipment.</li> <li>• Wait until equipment/fluid has cooled completely.</li> </ul>  |
|               | <p><b>PERSONAL PROTECTIVE EQUIPMENT</b></p> <p>You must wear appropriate protective equipment when operating, servicing, or when in the operating area of the equipment to help protect you from serious injury, including eye injury, inhalation of toxic fumes, burns, and hearing loss. This equipment includes but is not limited to:</p> <ul style="list-style-type: none"> <li>• Protective eyewear</li> <li>• Clothing and respirator as recommended by the fluid and solvent manufacturer</li> <li>• Gloves</li> <li>• Hearing protection</li> </ul>  |

# Isocyanate Conditions

|   |   |   |   |   |  |  |
|---|---|---|---|---|--|--|
|  |  |  |  |  |  |  |
|---|---|---|---|---|--|--|



Spraying materials containing isocyanates creates potentially harmful mists, vapors, and atomized particulates.

Read material manufacturer's warnings and material MSDS to know specific hazards and precautions related to isocyanates.

Prevent inhalation of isocyanate mists, vapors, and atomized particulates by providing sufficient ventilation in the work area. If sufficient ventilation is not available, a supplied-air respirator is required for everyone in the work area.

To prevent contact with isocyanates, appropriate personal protective equipment, including chemically impermeable gloves, boots, aprons, and goggles, is also required for everyone in the work area.

## Material Self-ignition

|   |   |  |  |  |  |  |
|---|---|--|--|--|--|--|
|  |  |  |  |  |  |  |
|---|---|--|--|--|--|--|

Some materials may become self-igniting if applied too thickly. Read material manufacturer's warnings and material MSDS.

## Moisture Sensitivity of Isocyanates

Isocyanates (ISO) are catalysts used in two component foam and polyurea coatings. ISO will react with moisture (such as humidity) to form small, hard, abrasive crystals, which become suspended in the fluid. Eventually a film will form on the surface and the ISO will begin to gel, increasing in viscosity. If used, this partially cured ISO will reduce performance and the life of all wetted parts.

**NOTE: The amount of film formation and rate of crystallization varies depending on the blend of ISO, the humidity, and the temperature.**

To prevent exposing ISO to moisture:

- Always use a sealed container with a desiccant dryer in the vent, or a nitrogen atmosphere. **Never** store ISO in an open container.
- Keep the ISO lube pump reservoir (if installed) filled with Graco Throat Seal Liquid (TSL™), Part 206995. The lubricant creates a barrier between the ISO and the atmosphere.
- Use moisture-proof hoses specifically designed for ISO, such as those supplied with your system.
- Never use reclaimed solvents, which may contain moisture. Always keep solvent containers closed when not in use.
- Never use solvent on one side if it has been contaminated from the other side.
- Always lubricate threaded parts with ISO pump oil or grease when reassembling.

## Keep Components A and B Separate

|  |
|--|
| <b>NOTICE</b>  |
| To prevent cross-contamination of the equipment's wetted parts, <b>never</b> interchange component A (isocyanate) and component B (resin) parts. |

## Foam Resins with 245 fa Blowing Agents

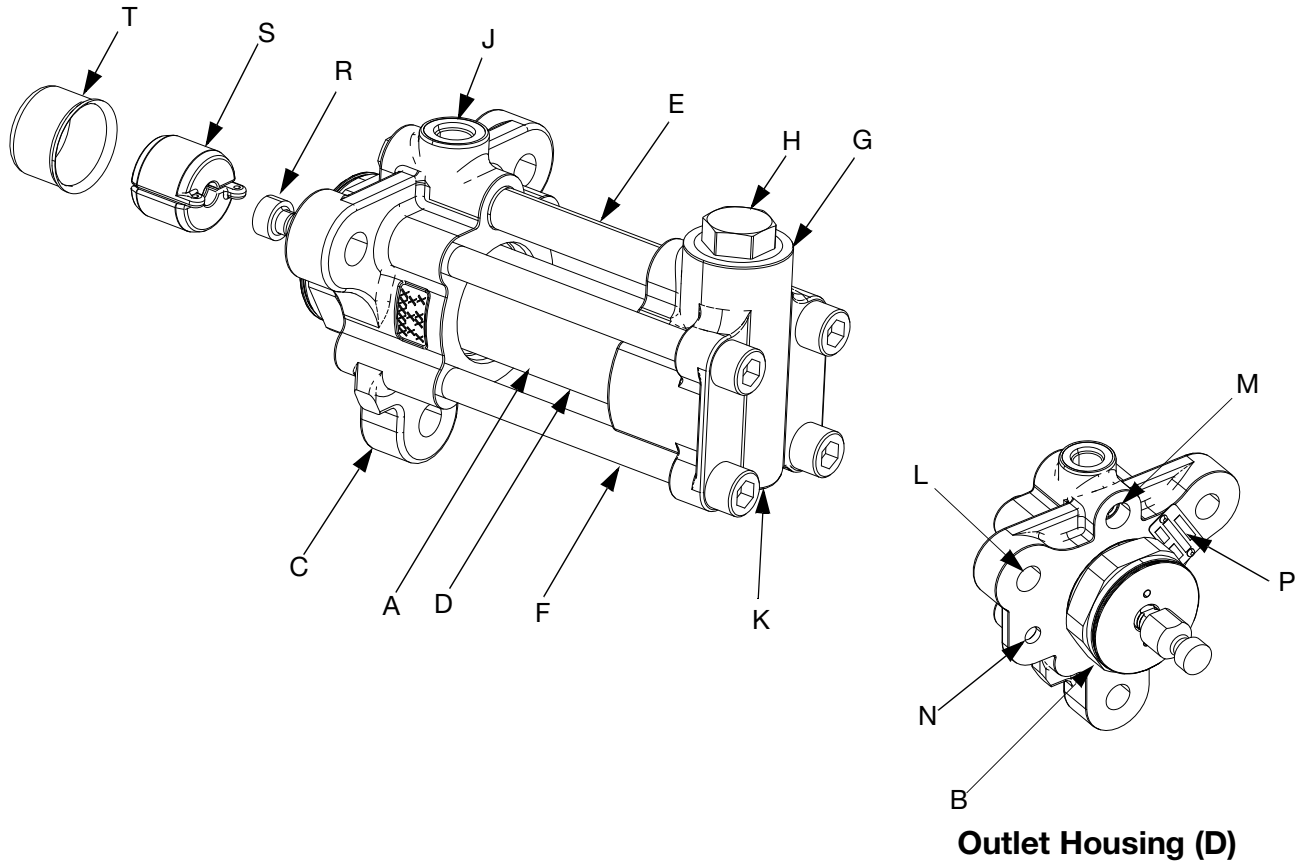
Some foam blowing agents will froth at temperatures above 90°F (33°C) when not under pressure, especially if agitated. To reduce frothing, minimize preheating in a circulation system.

## Changing Materials

- When changing materials, flush the equipment multiple times to ensure it is thoroughly clean.
- Always clean the fluid inlet strainers after flushing.
- Check with your material manufacturer for chemical compatibility.
- Most materials use ISO on the A side, but some use ISO on the B side.
- Epoxies often have amines on the B (hardener) side. Polyureas often have amines on the B (resin) side.

# Component Identification

40cc pump shown








**FIG. 1: Component Identification**

**Key:**





- A Displacement Rod (inside main cylinder)
- B Throat Cartridge/Retainer
- C Outlet Housing
- D Main Cylinder
- E Crossover Tube
- F Tie Bolt
- G Inlet Housing
- H Inlet Cap
- J Fluid Outlet
- K Fluid Inlet (bottom of inlet housing)
- L Pump Mounting Holes
- M Pressure Transducer Port
- N Linear Transducer Mounting Hole
- P Identification Tag
- R Rod Adapter (not on all models)
- S Pump Coupler
- T Coupler Cover

# Pressure Relief Procedure

|  |   |   |   |   |  |  |
|--|---|---|---|---|--|--|
|   |  |  |  |  |  |  |
| Trapped air can cause the pump to cycle unexpectedly, which could result in serious injury from splashing or moving parts. |   |   |   |   |  |  |

1. Select **Park** on Pump Control Switch if available, or turn off.
2. Turn off feed pumps.
3. Trigger gun to relieve pressure.
4. Close gun inlet valves.
5. Close fluid supply inlet valves.
6. Open all fluid drain valves in the system, having a waste container ready to catch drainage. Leave drain valve(s) open until you are ready to spray again.
7. If you suspect the spray tip or hose is clogged or that pressure has not been fully relieved after following the steps above, **VERY SLOWLY** loosen tip guard retaining nut or hose end coupling to relieve pressure gradually, then loosen completely. Clear hose or tip obstruction.

# Flushing

|   |   |  |   |  |  |  |
|---|---|--|---|--|--|--|
|    |  |  |  |  |  |  |
| Flush equipment only in a well-ventilated area. Do not spray flammable fluids. Do not turn on heaters while flushing with flammable solvents. |   |  |   |  |  |  |

- Flush with a fluid that is compatible with the fluid being dispensed and the equipment wetted parts.
- Flush out old fluid with new fluid, or flush out old fluid with a compatible solvent before introducing new fluid.
- Use lowest possible pressure when flushing.



# Repair



## Required Tools

- Large vise
- Set of adjustable wrenches
- 1 in. wrench (S4 only)
- 1 1/4 in. socket (S1 only)
- 3/8 Allen wrench (S4 only)
- 1 1/4 in. wrench (S4 only)
- 1 1/8 in. Crowfoot wrench (S4 only)
- O-ring pick
- 1/2 in. bit socket
- Rubber mallet
- Torque wrench
- 2 in. and 3 in. sockets
- Anti-seize lubricant
- Removable strength thread locker

## Inlet Housing Disassembly

### S1 and S3 Models

**NOTE:** S1 and S3 models can be identified by the hex on the inlet cap (13).

1. Relieve pressure and flush system. See **Pressure Relief Procedure** and **Flushing**, page 8.
2. Remove inlet hose and drain inlet housing (7). See FIG. 2.

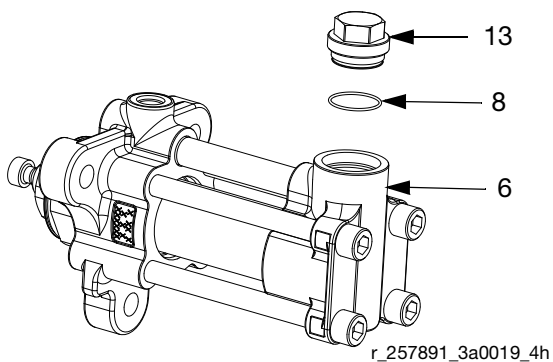


FIG. 2

3. Remove inlet cap (13) from inlet housing (6), and remove o-ring (8).

- a. Remove upper ball cage (12), spring (11), ball (10), o-ring (8) and seat (9).
- b. Press lower ball (10) off seat (9) from fluid inlet and drain the inlet housing (7).
- c. Remove o-ring (8), lower ball cage (12), spring (11), ball (10), seat (9), and o-ring (8). See FIG. 3.

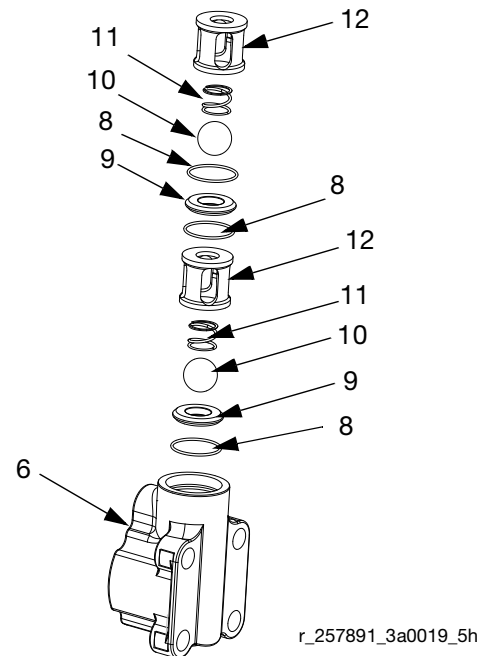


FIG. 3

- d. Clean all parts in a compatible solvent. Lay them in order for easier reassembly. Inspect each ball and seat for nicks or scratches; replace as required.

### S4 Models

**NOTE:** S4 models can be identified by the square on the inlet cap (36).

1. Relieve pressure and flush system. See **Pressure Relief Procedure** and **Flushing**, page 8.

2. Remove inlet hose and drain inlet housing (7). See FIG. 4.

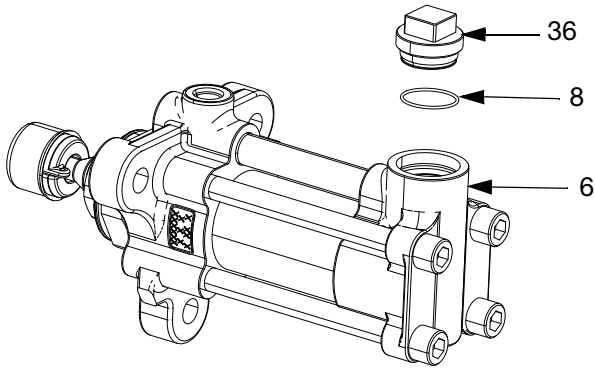


FIG. 4

3. Remove inlet cap (36) from inlet housing (6), and remove o-ring (8).
  - a. Remove upper check (A), including the spring retainer (37), housing (38), spring (39), ball guide (40), ball (41), seat (42), o-ring (43), and seat retainer (44).
  - b. Remove lower check (B), including the spring retainer (37), housing (38), spring (39), ball guide (40), ball (41), seat (42), o-ring (43), and seat retainer (44). See FIG. 5.

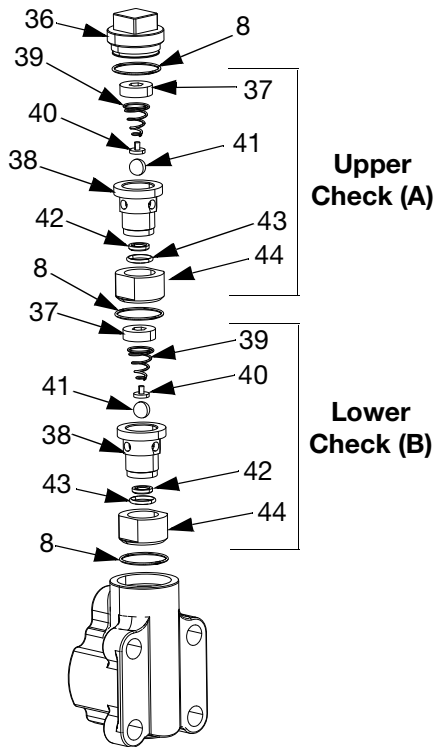


FIG. 5

- c. Clean all parts in a compatible solvent. Lay them in order for easier reassembly. Inspect each ball and seat for nicks or scratches; replace as required.
- d. It is recommended to replace both o-rings (8, 43) after cleaning.

### S5 and L020S8 Model

1. Relieve pressure and flush system. Follow **Pressure Relief Procedure and Flushing**, page 8.
2. Remove inlet hose and drain inlet housing (106).
3. Remove inlet valve cap (113) from inlet housing (106), and remove o-ring (108). See FIG. 6.

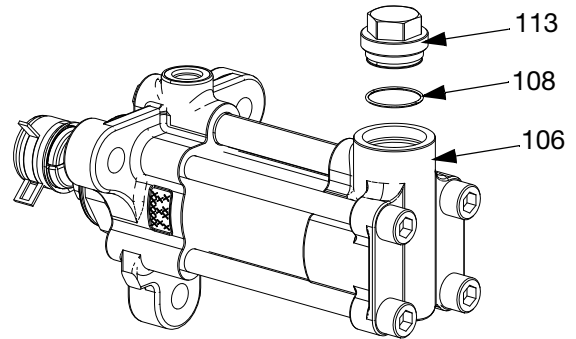


FIG. 6

4. Remove upper check assembly (AA), including the spring retainer (137), check housing (138), conical spring (139), ball housing retainer (140), ball (141), carbide seat (142), O-ring (143), and retainer (144).
5. Remove lower check (BB), including the spring retainer (137), check housing (138), conical spring (139), ball housing retainer (140), ball (141), carbide seat (142), O-ring (143), and retainer (144). See FIG. 7 on page 11.

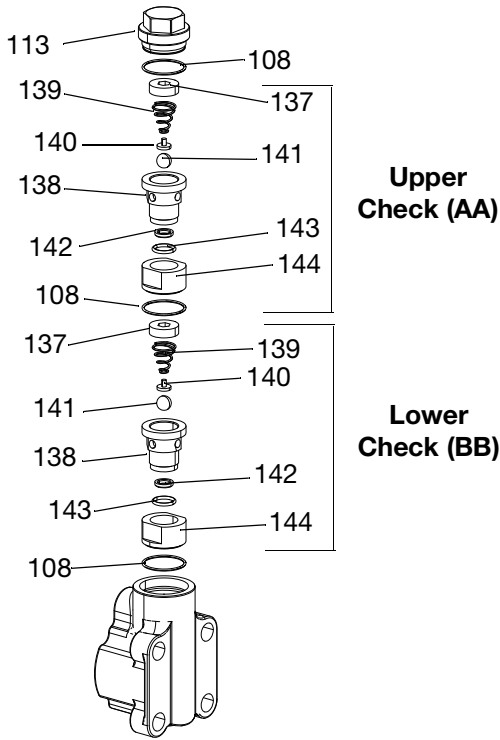


FIG. 7

6. Clean all parts in a compatible solvent. Lay the parts in order for easier reassembly. Inspect each ball and seat for nicks or scratches then replace as required.
7. It is recommended to replace the o-rings (108, 143) after cleaning.

### S8 Models (Except L020S8)

1. Relieve pressure and flush system. Follow **Pressure Relief Procedure** and **Flushing**, page 8.
2. Remove inlet hose and drain inlet housing (106).
3. Remove inlet valve cap (113) from inlet housing (106), and remove o-ring (108). See FIG. 8.

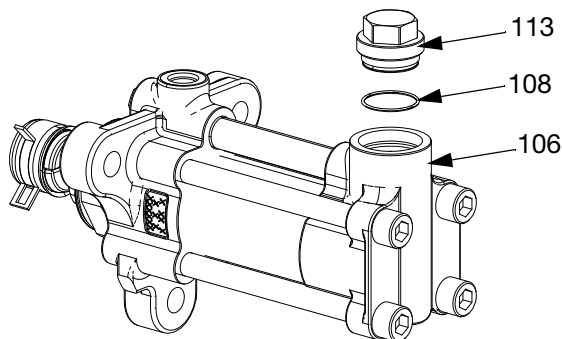


FIG. 8

4. Remove upper check (CC) ball cage (112), check ball spring (111), ball (110), O-ring (108) and carbide seat (109).
5. Press lower ball (110) off seat (109) from fluid inlet and drain the inlet housing (106).
6. Remove lower check (DD) o-ring (108), ball cage (112), check ball spring (111), ball (110), carbide seat (109), and o-ring (108). See FIG. 9.

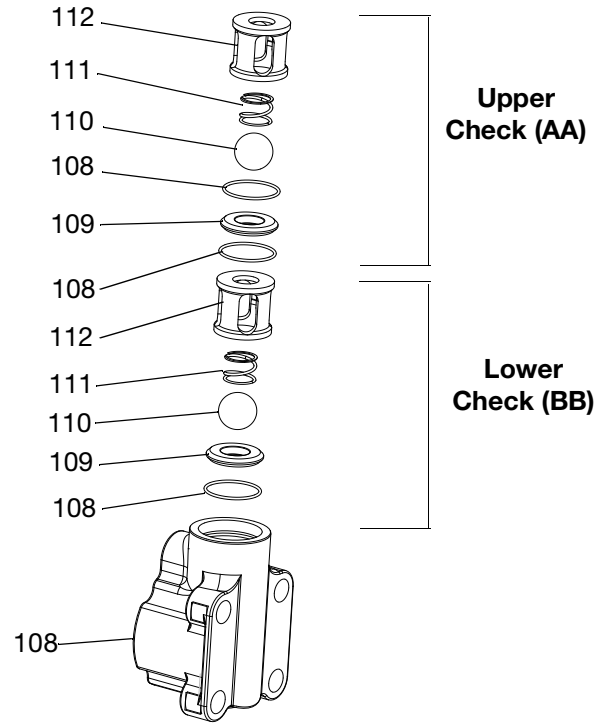


FIG. 9

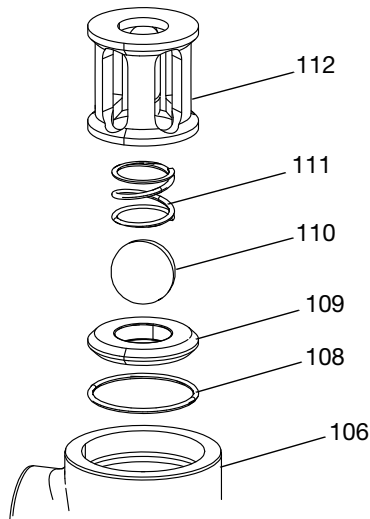
7. Clean all parts in a compatible solvent. Lay the parts in order for easier reassembly. Inspect each ball and seat for nicks or scratches then replace as required.

## Inlet Housing Assembly

### S1 and S8 models (except L020S8)

1. Apply anti-seize lubricant to the threads of inlet valve cap (113) and install O-ring (108) into the groove.
2. Assemble lower check assembly (DD). Install O-ring (108) into inlet housing (106) followed by the carbide seat (109).
3. Place the ball (110) onto the carbide seat (109) followed by the ball check spring (111) and the ball cage housing (112).

**NOTE:** Confirm the orientation of the ball cage prior to installing. The end with the larger opening must face the spring. See FIG. 10.



**FIG. 10**

4. Assemble upper check assembly (CC). Repeat step 2 above after placing an O-ring (108) on top of the lower check assembly (DD).
5. Install the valve inlet cap(113) compressing both check assemblies together into the inlet housing. Torque the valve inlet cap to 70 ft-lbs. (95 N•m).

## S4 Pumps and LO20S8

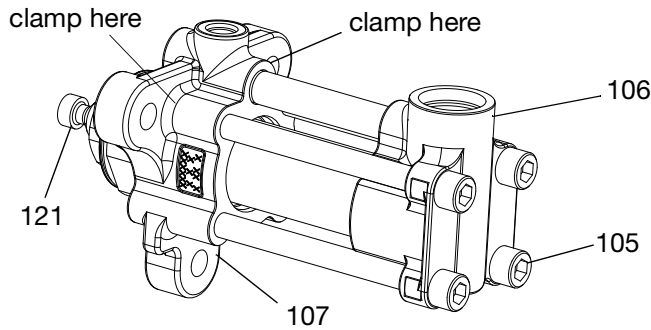
1. When installing the inlet housing components:
  - a. Apply anti-seize lubricant to the housing (38) and retainers (37, 44).
  - b. Attach the housing (38) to the seat retainer (44) and torque to 50 ft-lbs (67.5 N•m) after the seat (42) and o-ring (43) have been installed.

**NOTE:** The radius of the seat (42) must face the ball (41).

- c. Install the ball (41), ball guide (40) and spring (39) into the housing (38).
  - d. Install the spring retainer (37) cup side down into the housing (38) to trap the spring (39) until the spring retainer (37) bottoms out into the housing (38). Torque to 30 ft-lbs (41 N•m).
  - e. Install the o-ring (8) into the inlet housing (6).
  - f. Install lower check (B) into the housing (6) in the orientation shown.
  - g. Install the o-ring (8) into the housing (6).
  - h. Install upper check (A) into the housing (6) in the orientation shown.
2. Install o-ring (8) on inlet cap (13, 36) and apply anti-seize lubricant to inlet cap (13, 36) threads. Tighten inlet cap (13, 36) to 70 ft-lbs. (95 N•m).

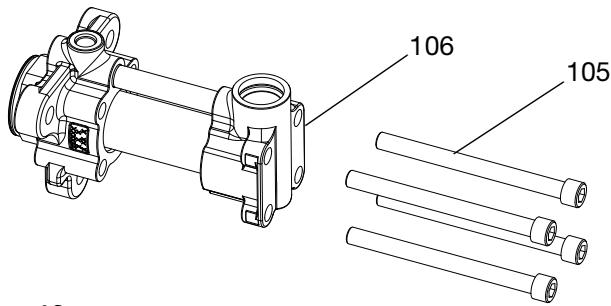
# Pump Disassembly

1. Relieve pressure and flush system. Follow **Pressure Relief Procedure** and **Flushing**, page 8.
2. Remove inlet hose and drain inlet housing (106).
3. Using a bench vice, horizontally clamp the pump on outlet housing (107). Use a 1/2 in. hex bit socket to loosen all four tie bolts (105) from inlet housing (106).
4. For 20cc - 40cc pumps only: Use wrench to remove rod adapter (121). See FIG. 11.



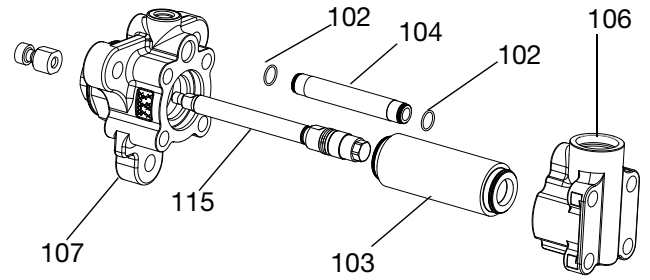
**FIG. 11**

5. Remove pump assembly from vise and lay on a flat surface with towels or in catch pan.
6. Completely remove the tie bolts (105). See FIG. 12.



**FIG. 12**

7. Remove inlet housing (106) from pump cylinder (103). Remove pump crossover tube (104) and o-rings (102). See FIG. 13.



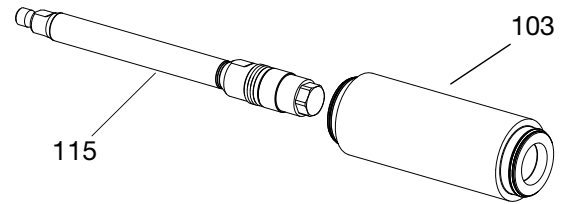
**FIG. 13**

8. Pull pump cylinder (103) and displacement rod (115) away from outlet housing (107).

**NOTICE**

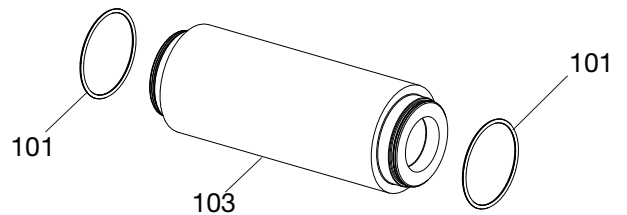
Be careful not to scratch the displacement rod (115); place it on a smooth working surface. Damage to the displacement rod will shorten pump life.

9. Remove displacement rod (115) from pump cylinder (103). See FIG. 14.



**FIG. 14**

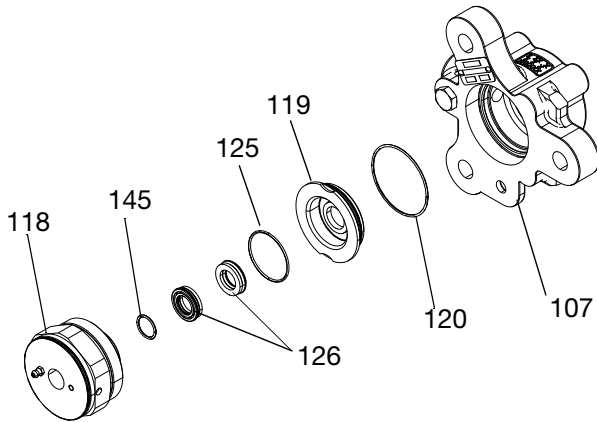
10. Remove two o-rings (101) from pump cylinder (103). See FIG. 15.



**FIG. 15**

11. Place outlet housing (107) in vise so throat cartridge (118) is facing up.

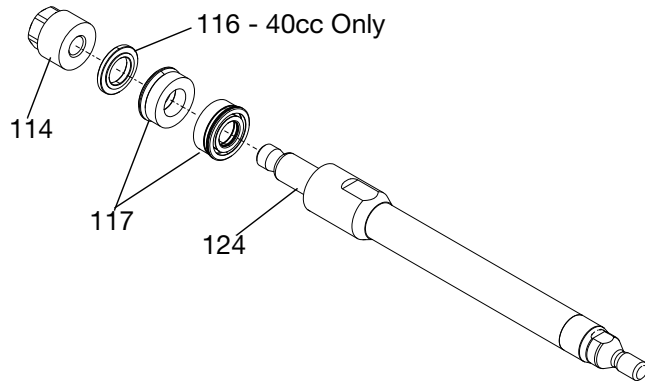
12. Remove Cartridge (118).
13. Use O-ring pick and remove O-ring (145) and two throat seals (126) out of the throat cartridge (118). see FIG. 16.
14. Remove throat retainer (119) and throat cartridge O-rings (120) and (125). See FIG. 16.



**FIG. 16**

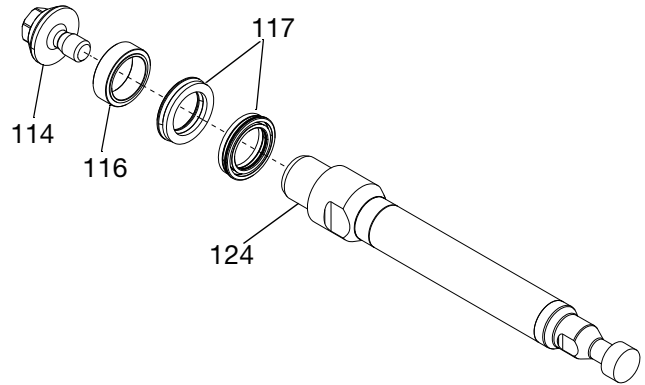
15. Clamp flats on seal end of pump rod bottom(124) in vise. Remove piston retainer (114), piston bearing retainer(116), and two piston seals (117). See FIG. 17 and FIG. 18.

**For 20cc-40cc S8 Pumps**



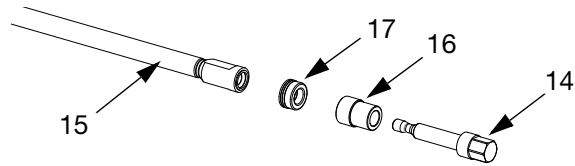
**FIG. 17**

**For 80cc-160cc S8 Pumps**



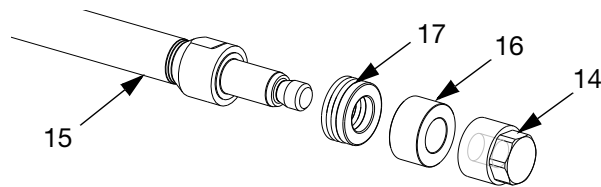
**FIG. 18**

**For 5cc, 10cc, and 15cc S1, S3, S4 and S5 Pumps**



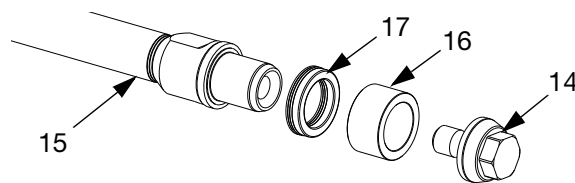
**FIG. 19**

**For 20cc-50cc S1, S3, S4 and S5 Pumps**



**FIG. 20**

**For 60cc-160cc S1, S3, S4 and S5 Pumps**



**FIG. 21**

16. If the pump rod bottom (124) shows damage or wear on the surface below the piston seals (117) it should be replaced to prevent damage to new seals.

17. Thoroughly clean all metal parts in a compatible solvent.

# S1, S3, S4 and S5 Pump Rod Assembly

**NOTICE**  
To prevent cross-contamination of the equipment's wetted parts, never interchange component A (isocyanate) and component B (resin) parts.

**NOTICE**  
To prevent damage to seals always use piston assembly tool (PT) and rod installation tool (RT) from repair kit when assembling the piston seals and displacement rod.

**NOTE: Piston assembly tool is NOT needed for 10cc-15cc pump sizes.**

1. Install piston seal installation tool (PT) from pump repair kit on displacement rod (15). Hand tighten.
2. Apply grease to seal and bearing surface of displacement rod (15).
3. Install u-cup (17) and bearing (16). Ensure u-cup springs face displacement rod. Remove piston seal installation tool (PT).
4. For 20cc-50cc pumps: Apply one stripe of removable strength thread locker to displacement rod (15) male threads and install piston retainer (14). See FIG. 22.

**NOTICE**  
Specification sheets and Graco testing indicate that anaerobic sealant requires three days to fully cure. Failure to allow three days for full cure may result in parts coming loose during operation.

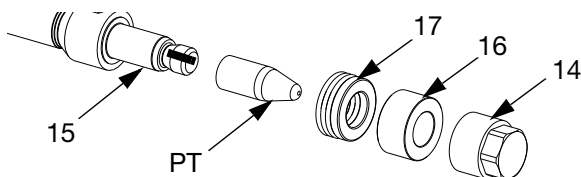


FIG. 22

5. For 5cc, 10cc, 15cc, and 60cc-160cc pumps: Apply one stripe of removable strength thread locker to piston retainer (14) threads and assemble. See FIG. 23.

**NOTICE**  
Specification sheets and Graco testing indicate that anaerobic sealant requires three days to fully cure. Failure to allow three days for full cure may result in parts coming loose during operation.

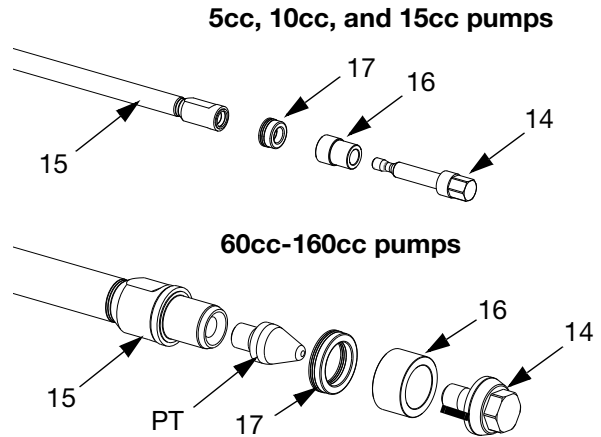


FIG. 23

**NOTICE**  
To prevent displacement rod damage, do not clamp directly onto displacement rod surface.

6. Clamp flats on seal end of displacement rod (15) in vise. See Torque Specification table for piston retainer (14) torque according to pump size.

## Piston Retainer Torque Specifications Chart

| Pump Size | Torque                           |
|-----------|----------------------------------|
| 5cc       | 38 in-lbs (3.2 ft-lbs) (4.3 N•m) |
| 10cc      | 5.5 ft-lbs (7.4 N•m)             |
| 15cc      | 5.5 ft-lbs (7.4 N•m)             |
| 20cc      | 30 ft-lbs (40.6 N•m)             |
| 25cc      | 30 ft-lbs (40.6 N•m)             |
| 30cc      | 30 ft-lbs (40.6 N•m)             |
| 35cc      | 50 ft-lbs (67.5 N•m)             |
| 40cc      | 50 ft-lbs (67.5 N•m)             |
| 45cc      | 50 ft-lbs (67.5 N•m)             |
| 50cc      | 50 ft-lbs (67.5 N•m)             |

| Pump Size | Torque               |
|-----------|----------------------|
| 60cc      | 80 ft-lbs (108 N•m)  |
| 65cc      | 80 ft-lbs (108 N•m)  |
| 70cc      | 80 ft-lbs (108 N•m)  |
| 75cc      | 80 ft-lbs (108 N•m)  |
| 80cc      | 80 ft-lbs (108 N•m)  |
| 86cc      | 80 ft-lbs (108 N•m)  |
| 90cc      | 160 ft-lbs (216 N•m) |
| 100cc     | 160 ft-lbs (216 N•m) |
| 105cc     | 160 ft-lbs (216 N•m) |
| 120cc     | 160 ft-lbs (216 N•m) |
| 140cc     | 160 ft-lbs (216 N•m) |
| 150cc     | 160 ft-lbs (216 N•m) |
| 160cc     | 160 ft-lbs (216 N•m) |

## S8 Pump Assembly

### NOTICE

To prevent cross-contamination and damage of the equipment's wetted parts, never interchange component A (isocyanate) and component B (resin) parts.

1. If the pump rod bottom (124) was replaced clean any residual sealant from the threads of the piston shaft (115). Apply one stripe of removable strength thread locker to the male threads on (115) pump sizes 20-120cc pumps or the male threads on (124) for 160cc pumps. When fully threaded together torque the shafts to the value shown in the table below.

| Pump Size | Torque              |
|-----------|---------------------|
| 20        | 25 ft-lbs (34 Nm)   |
| 40        | 50 ft-lbs (67.5 Nm) |
| 80-160    | 55 ft-lbs (74.5 Nm) |

2. Apply grease to seal and bearing surface of displacement rod (124), piston seals (117) and piston bearing retainer (116) 40cc -160cc only.
3. Install piston seals (117) onto the pump rod bottom (124). Confirm the first piston seal faces the displacement rod (115) and the second piston seal faces the piston retainer (114) for 20cc size and the bearing retainer (116, 40cc-160cc size. only). See FIG. 24 and FIG. 25

### NOTICE

Specification sheets and Graco testing indicate that anaerobic sealant requires three days to fully cure. Failure to allow three days for full cure may result in damage to the equipment from parts coming loose during operation. If faster cure time is required, warm components to 104° F (40° C) for 6 hours.

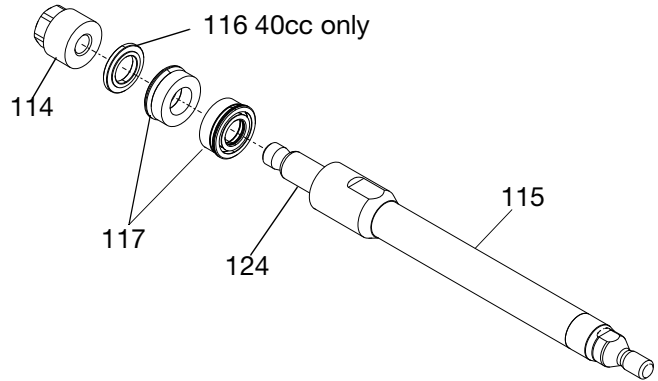


FIG. 24 20cc and 40cc pumps

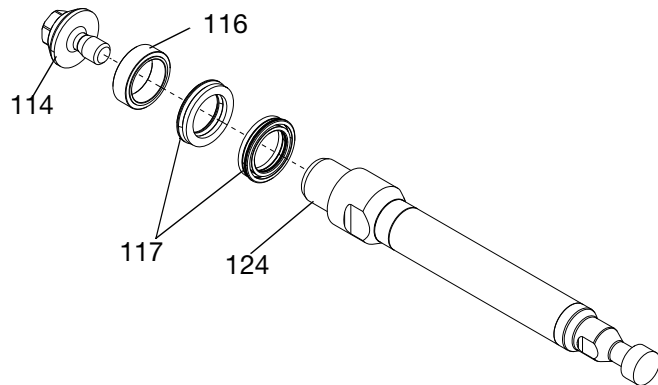


FIG. 25 80cc through 160cc pumps

### NOTICE

To prevent displacement rod damage, do not clamp directly onto displacement rod surface.



- Clamp flats on seal end of pump rod bottom (124) in vise. See Torque Specification table for piston retainer (114) torque according to pump size.

### Piston Retainer Torque Specifications

| Pump Size | Torque               |
|-----------|----------------------|
| 20cc      | 30 ft-lbs (40.6 N•m) |
| 40cc      | 50 ft-lbs (67.5 N•m) |
| 80cc      | 80 ft-lbs (108 N•m)  |
| 100cc     | 160 ft-lbs (216 N•m) |
| 120cc     | 160 ft-lbs (216 N•m) |
| 160cc     | 160 ft-lbs (216 N•m) |

### Assembly for All Pumps

- Apply grease to the o-ring (145) and the two throat seals (126). Install the o-ring (145) into the upper most groove of the throat cartridge (118). slide O-ring (125) over the boss end of the throat cartridge (118). Place first throat seal into the throat cartridge and ensure the first throat seal spring faces towards the bottom of the throat cartridge. Using a suitable size socket or dowel, press the throat seal to the bottom of the throat cartridge
- Place the second throat seal (126) into the throat cartridge (118) ensuring the spring side faces up toward the throat retainer (119). Using a suitable size socket or dowel, press the second throat seal into the throat cartridge until it contacts the first throat seal. See FIG. 26.

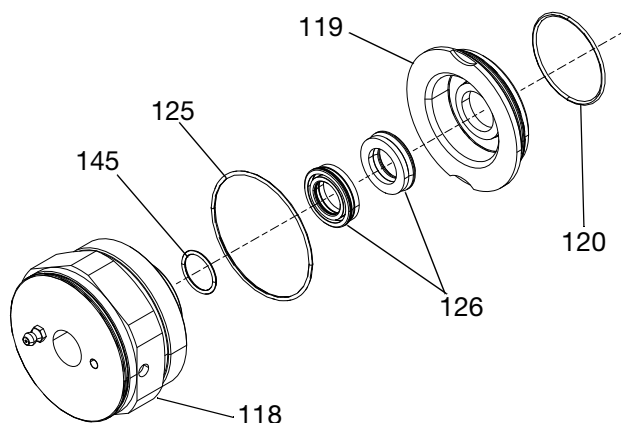


FIG. 26

- With the outlet housing (107) mounted securely in a vise, Install the throat retainer O-ring (120) onto the throat retainer (119). Place the retainer into the outlet housing (107).

- Apply anti-seize to the threads on the throat retainer (119) and thread it into the outlet housing (107). When fully threaded together torque the throat retainer to 200 ft-lbs. (271 N•m). See FIG. 27.

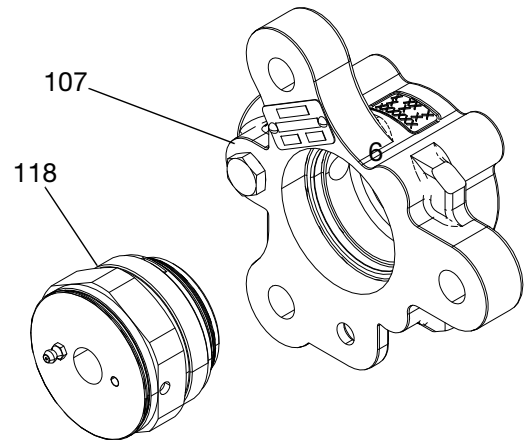


FIG. 27

- Install cylinder o-rings (101) on pump cylinder (103) and crossover tube o-rings (102) on crossover pump tube (104). Lubricate o-rings with grease. See FIG. 28.

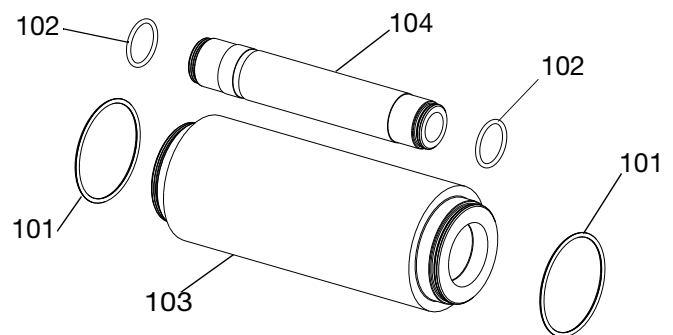
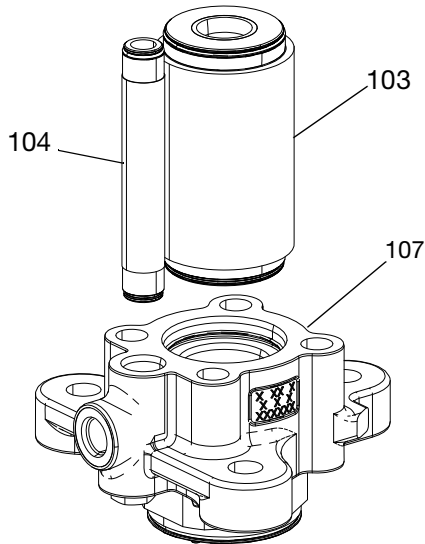


FIG. 28

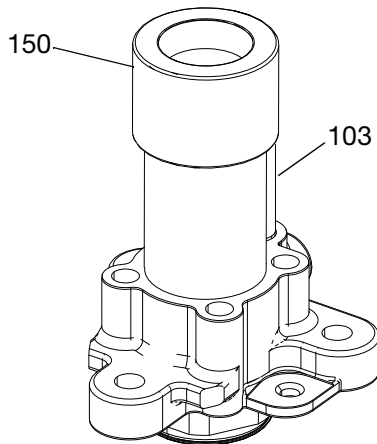
- Install pump cylinder (103) and pump crossover tube (104) in outlet housing (107) with a rubber mallet. See FIG. 29 page 18.



**FIG. 29**

- Lubricate piston seal (117), and piston bearing retainer (116) with grease.

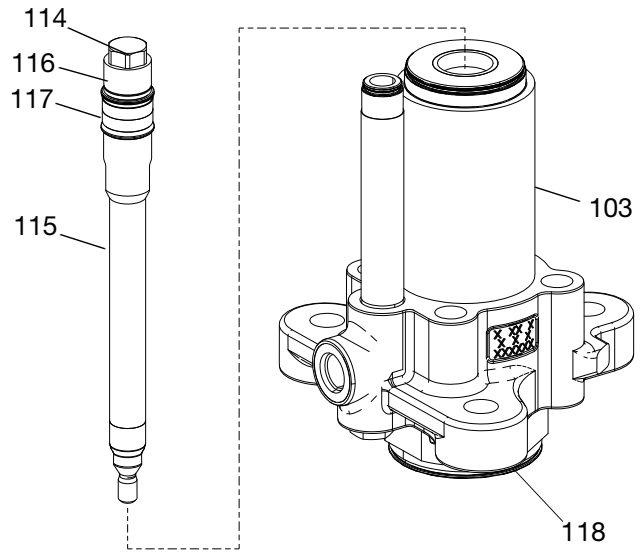
**NOTE:** For 160cc pumps, place the cylinder installation tool (150) over the end of the pump cylinder (103) to help guide the displacement rod (115) during installation. See FIG. 30.



**FIG. 30**

- Install displacement rod (115) in pump cylinder (103) and into throat cartridge (118). Gently tap displacement rod with a rubber mallet until the hex

surface of the piston retainer (114) is flush or below the surface of the pump cylinder (103). See FIG. 31.



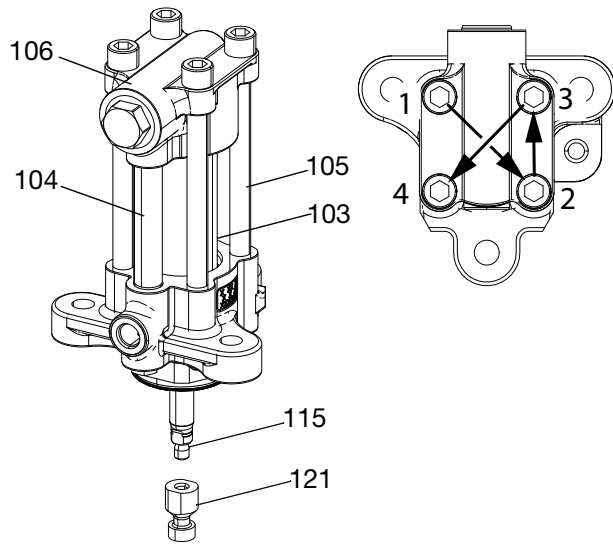
**FIG. 31**

- Gently place inlet housing (106) on pump cylinder (103) and pump crossover tube (104). Ensure inlet housing bores are aligned with pump cylinder and pump crossover tube. Install with a rubber mallet.

**NOTICE**

To prevent damage to o-rings, ensure inlet housing is evenly seated on main cylinder before installing tie bolts (105).

- Lubricate four tie bolts (105) threads and install.
- Torque tie bolts (105) in a star pattern to 10 ft-lbs (13.5 N•m). Then torque again to 50 ft-lbs (67.5 N•m). Torque a final time to 200 ft-lbs (271 N•m).
- After torquing the four tie bolts (105) ensure the inlet housing (107) is evenly seated onto the pump cylinder (103) and pump crossover tube (104).
- For 20cc-40cc pumps only: Clean rod adapter (121) threads with a wire brush and apply removable strength thread locker to displacement rod (115) threads. Install rod adapter (121) on displacement rod (115). Torque Rod adapter and displacement rod together to 45 ft-lbs (60.75 N•m). See FIG. 32 page 19.



**FIG. 32**

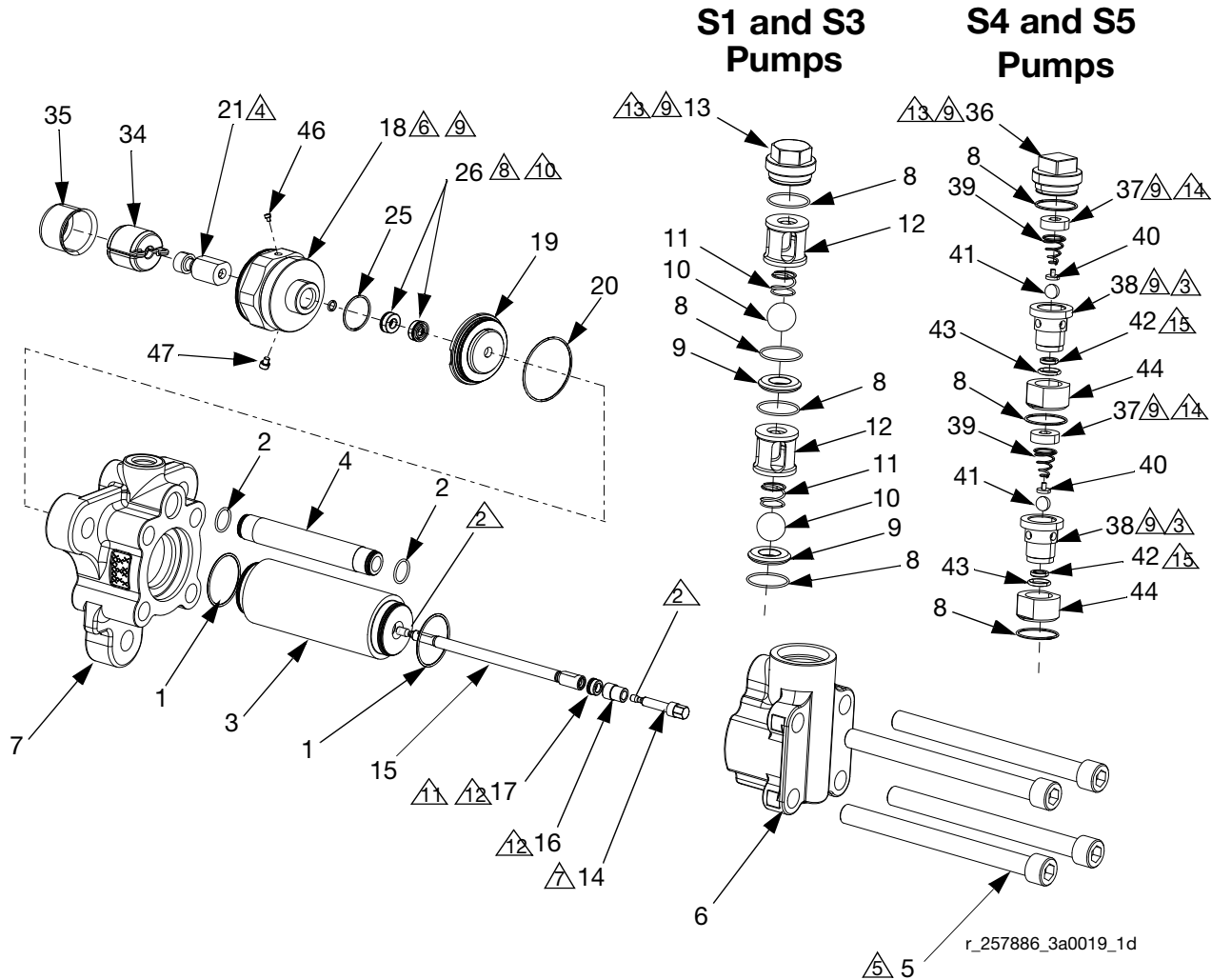
14. For 10cc-50cc pumps only: Clean rod adapter (21) threads with a wire brush and apply removable strength thread locker to displacement rod (15) threads. Install rod adapter (21) on displacement rod (15). See Torque Specification table for rod adapter (21) torque according to pump size.

**Torque Specification Table**

| Pump Size | Torque                           |
|-----------|----------------------------------|
| 5cc       | 38 in-lbs (3.2 ft-lbs) (4.3 N•m) |
| 10cc      | 8.5 ft-lbs (11.5 N•m)            |
| 15cc      | 8.5 ft-lbs (11.5 N•m)            |
| 20cc      | 30 ft-lbs (40.6 N•m)             |
| 25cc      | 30 ft-lbs (40.6 N•m)             |
| 30cc      | 30 ft-lbs (40.6 N•m)             |
| 35cc      | 45 ft-lbs (60.75 N•m)            |
| 40cc      | 45 ft-lbs (60.75 N•m)            |
| 45cc      | 45 ft-lbs (60.75 N•m)            |
| 50cc      | 45 ft-lbs (60.75 N•m)            |

# Parts

## 5cc, 10cc, and 15cc Pumps



1. Lubricate seals, o-rings, lead-in's and moving parts with grease.
- Apply one stripe of removable strength anaerobic sealant on threads.

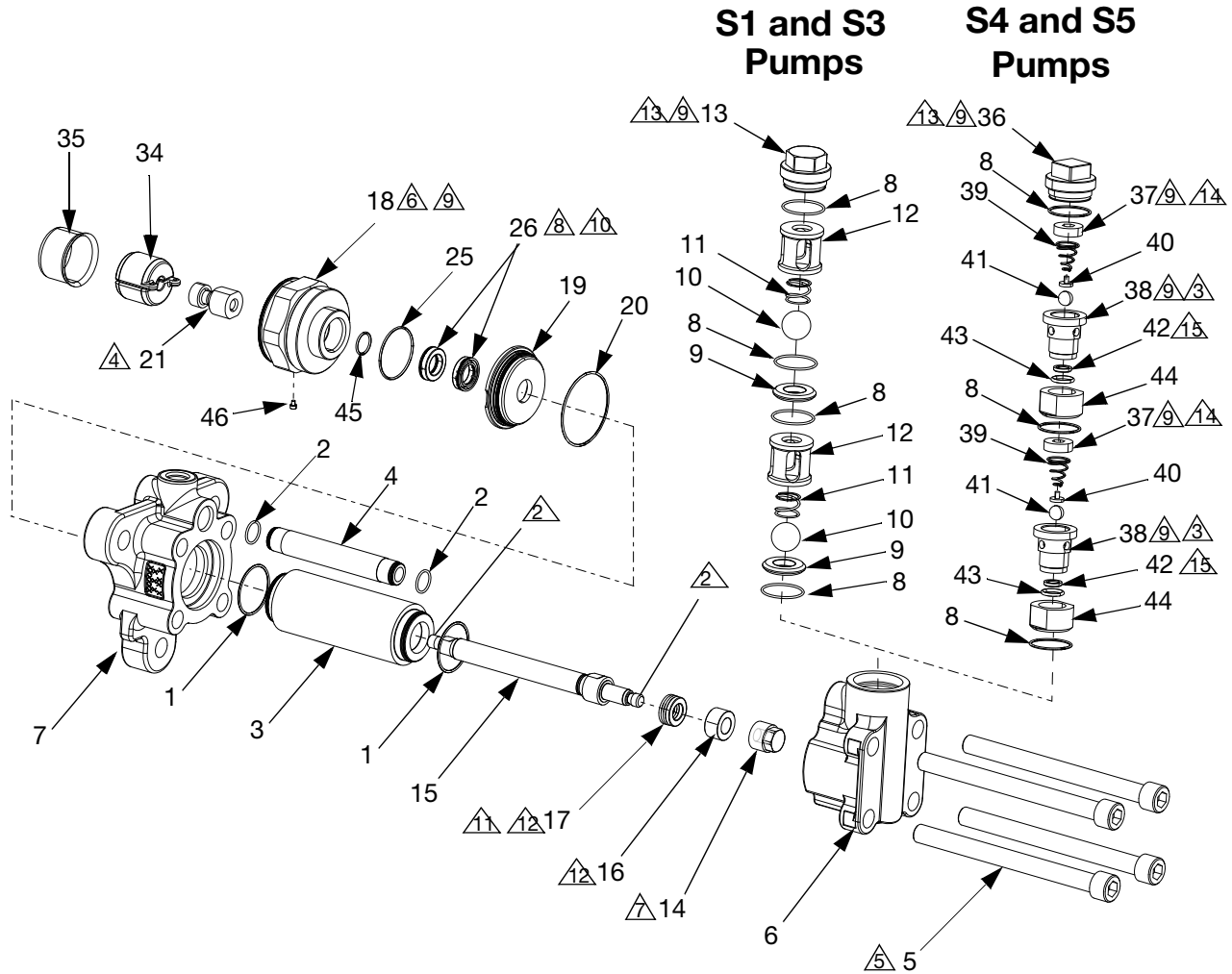
**NOTICE**

Specification sheets and Graco testing indicate that anaerobic sealant requires three days to fully cure. Failure to allow three days for full cure may result in parts coming loose during operation.

- Assemble and torque after displacement rod (15) is assembled through throat retainer (19). See table on page 19 for torque specification.
- Torque tie bolts (5) in star pattern to 10 ft-lbs (13.5 N•m). Then torque again in star pattern to 50 ft-lbs (67.5 N•m). Finally torque again in star pattern to 120 ft-lbs (163 N•m).

- Torque to 200 ft-lbs. (271 N•m).
- See table on page 13 for torque specification.
- Must be pressed straight into housing.
- Apply anti-seize lubricant to threads.
- Ensure u-cup (26) springs face throat cartridge (18).
- Ensure u-cup (17) springs face displacement rod (15).
- Fully assemble u-cup (17) and bearing (16) onto displacement rod (15) before tightening piston retainer (14).
- Torque to 70 ft-lbs. (95 N•m).
- Torque to 30 ft-lbs. (41 N•m).
- The seat radius (42) must face the ball (41).

20cc, 25cc, 30cc, 35cc, 40cc, 45cc, and 50cc Pumps



r\_257891\_3a0019\_20h

1. Lubricate seals, o-rings, lead-in's and moving parts with grease.

Apply one stripe of removable strength anaerobic sealant on threads.

**NOTICE**

Specification sheets and Graco testing indicate that anaerobic sealant requires three days to fully cure. Failure to allow three days for full cure may result in parts coming loose during operation.

Assemble and torque after displacement rod (15) is assembled through throat retainer (19). See table on page 19 for torque specification.

Torque tie bolts (5) in star pattern to 10 ft-lbs (13.5 N•m). Then torque again in star pattern to 50 ft-lbs (67.5 N•m). Finally torque again in star pattern to 120 ft-lbs (163 N•m).

Torque to 200 ft-lbs. (271 N•m).

See table on page 13 for torque specification.

Must be pressed straight into housing.

Apply anti-seize lubricant to threads.

Ensure u-cup (26) springs face throat cartridge (18).

Ensure u-cup (17) springs face displacement rod (15).

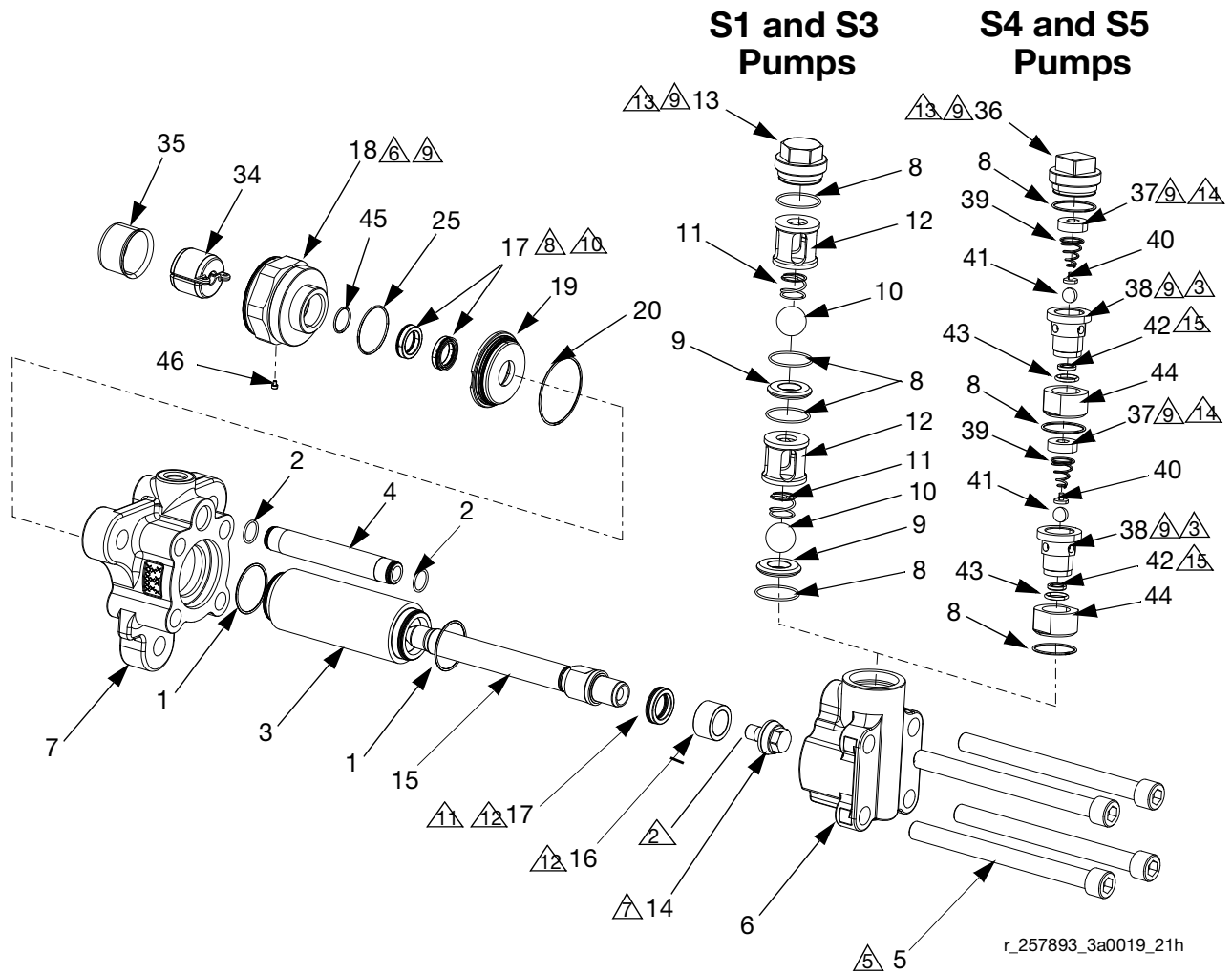
Fully assemble u-cup (17) and bearing (16) onto displacement rod (15) before tightening piston retainer (14).

Torque to 70 ft-lbs. (95 N•m).

Torque to 30 ft-lbs. (41 N•m).

The seat radius (42) must face the ball (41).

60cc, 65cc, 70cc, 75cc, 80cc, 86cc, 90cc, 100cc, 105cc, 120cc, 140cc, 150cc, and 160cc Pumps



r\_257893\_3a0019\_21h

1. Lubricate seals, o-rings, lead-in's and moving parts with grease.

⚠ Apply one stripe of removable strength anaerobic sealant on threads.

**NOTICE**

Specification sheets and Graco testing indicate that anaerobic sealant requires three days to fully cure. Failure to allow three days for full cure may result in parts coming loose during operation.

⚠ Torque tie bolts (5) in star pattern to 10 ft-lbs (13.5 N•m). Then torque again in star pattern to 50 ft-lbs (67.5 N•m). Finally torque again in star pattern to 120 ft-lbs (163 N•m).

⚠ Torque to 200 ft-lbs. (271 N•m).

⚠ See table on page 13 for torque specification.

⚠ Must be pressed straight into housing.

⚠ Apply anti-seize lubricant to threads.

⚠ Ensure u-cup (26) springs face throat cartridge (18).

⚠ Ensure u-cup (17) springs face displacement rod (15).

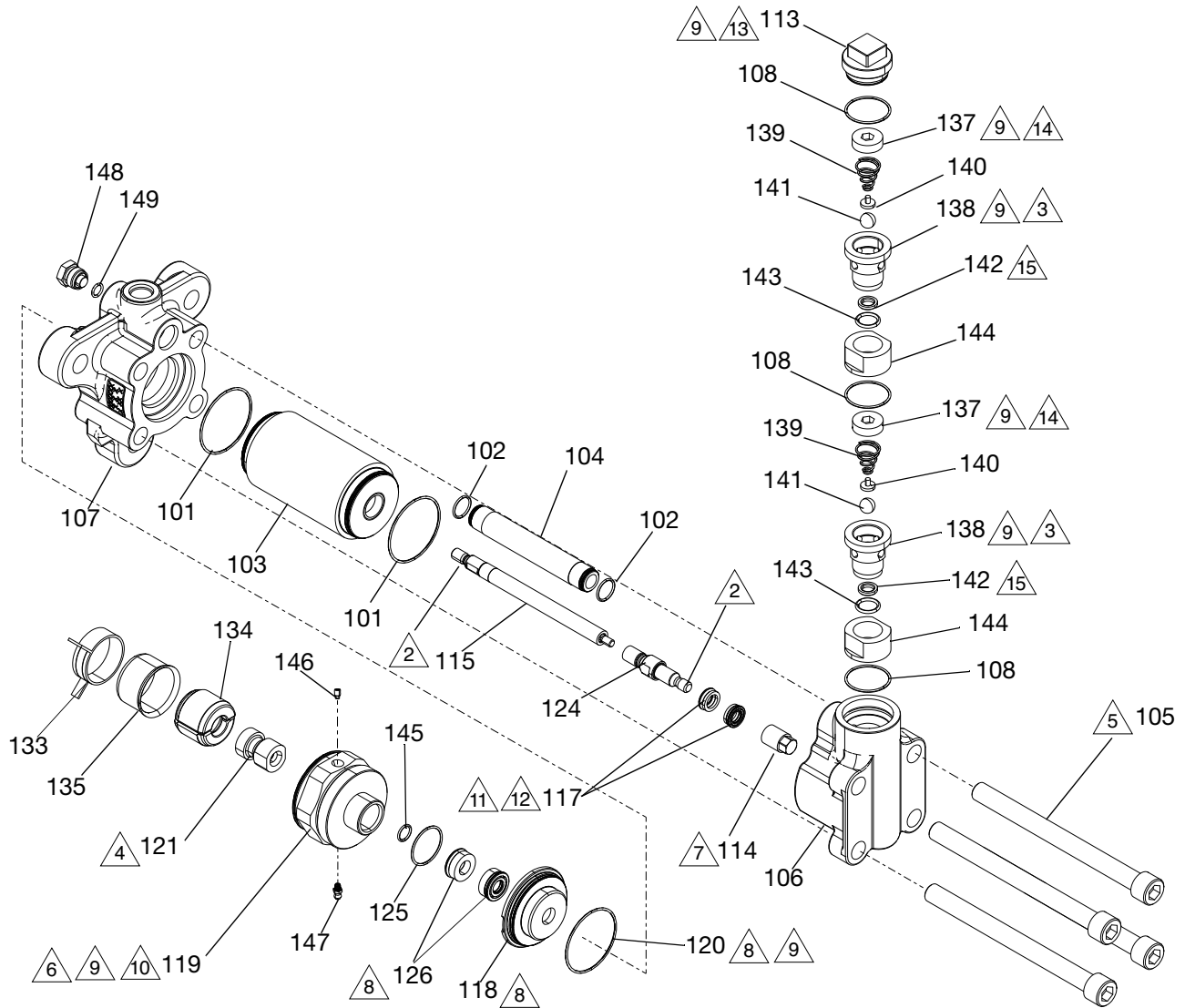
⚠ Fully assemble u-cup (17) and bearing (16) onto displacement rod (15) before tightening piston retainer (14).

⚠ Torque to 70 ft-lbs. (95 N•m).

⚠ Torque to 30 ft-lbs. (41 N•m).

⚠ The seat radius (42) must face the ball (41).

# S8 20cc Pump



1. Lubricate seals, o-rings, lead-in's and moving parts with grease.
2. Apply one stripe of removable strength anaerobic sealant on threads.

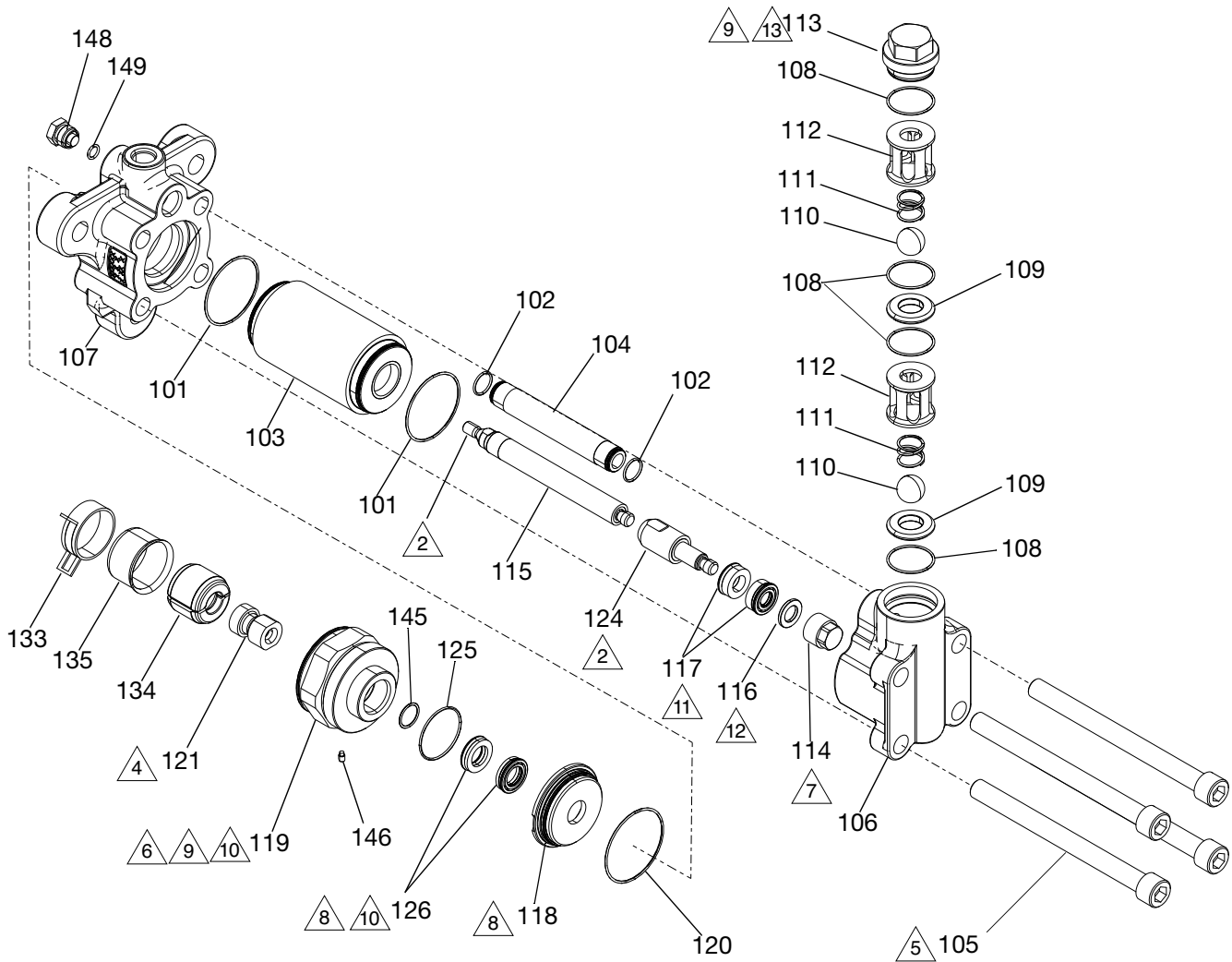
**NOTICE**

Specification sheets and Graco testing indicate that anaerobic sealant requires three days to fully cure. Failure to allow three days for full cure may result in damage to the equipment from parts coming loose during operation. If faster cure time is required, warm components to 104° F (40° C) for 6 hours


3. Torque to 50-ft-lbs (67.5 N•m).
4. Assemble and torque after displacement rod (115) is assembled through throat retainer (119). Torque to 45 ft-lbs (61.01 N•m)
5. Torque tie bolts (105) in star pattern ( Fig. 32 page 19) to 10 ft-lbs (13.5 N•m). Then torque again to 50 ft-lbs (67.5 N•m). Finally torque to 200 ft-lbs (271 N•m).
6. Torque to 200 ft-lbs. (271 N•m).

7. See **Piston Retainer Torque Specifications** table on page 17 for torque specification.
8. Must be pressed straight into housing.
9. Apply anti-seize lubricant to threads.
10. Ensure spring side of one throat seal (126) faces throat cartridge (118) and spring side of other seal faces throat retainer (119).
11. Ensure spring side of one piston seal (117) springs face displacement rod (115) and piston bearing retainer(116).
12. Fully assemble piston seals(117) and piston bearing retainer (116) onto pump rod bottom (124) before tightening piston retainer (114).
13. Torque to 70 ft-lbs. (95 N•m).
14. Torque to 30 ft-lbs. (41 N•m).
15. Carbide seat (142) radius must face ball (141).

## S8 40cc Pump





1. Lubricate seals, o-rings, lead-in's and moving parts with grease.


 Apply one stripe of removable strength anaerobic sealant on threads.


**NOTICE**

Specification sheets and Graco testing indicate that anaerobic sealant requires three days to fully cure. Failure to allow three days for full cure may result in damage to the equipment from parts coming loose during operation. If faster cure time is required, warm components to 104° F (40° C) for 6 hours.


 Torque to 50-ft-lbs (67.5 N•m).


 Assemble and torque after displacement rod (115) is assembled through throat retainer (119). Torque to 45 ft-lbs (61.01 N•m)


 Torque tie bolts (105) in star pattern ( FIG. 32 page 19) to 10 ft-lbs (13.5 N•m). Then torque again to 50 ft-lbs (67.5 N•m). Finally torque to 200 ft-lbs (271 N•m).


 Torque to 200 ft-lbs. (271 N•m).


 See **Piston Retainer Torque Specifications** table on page 17 for torque specification.

 Must be pressed straight into housing.

 Apply anti-seize lubricant to threads.

 Ensure spring side of one throat seal (126) faces throat cartridge (118) and spring side of other seal faces throat retainer (119).

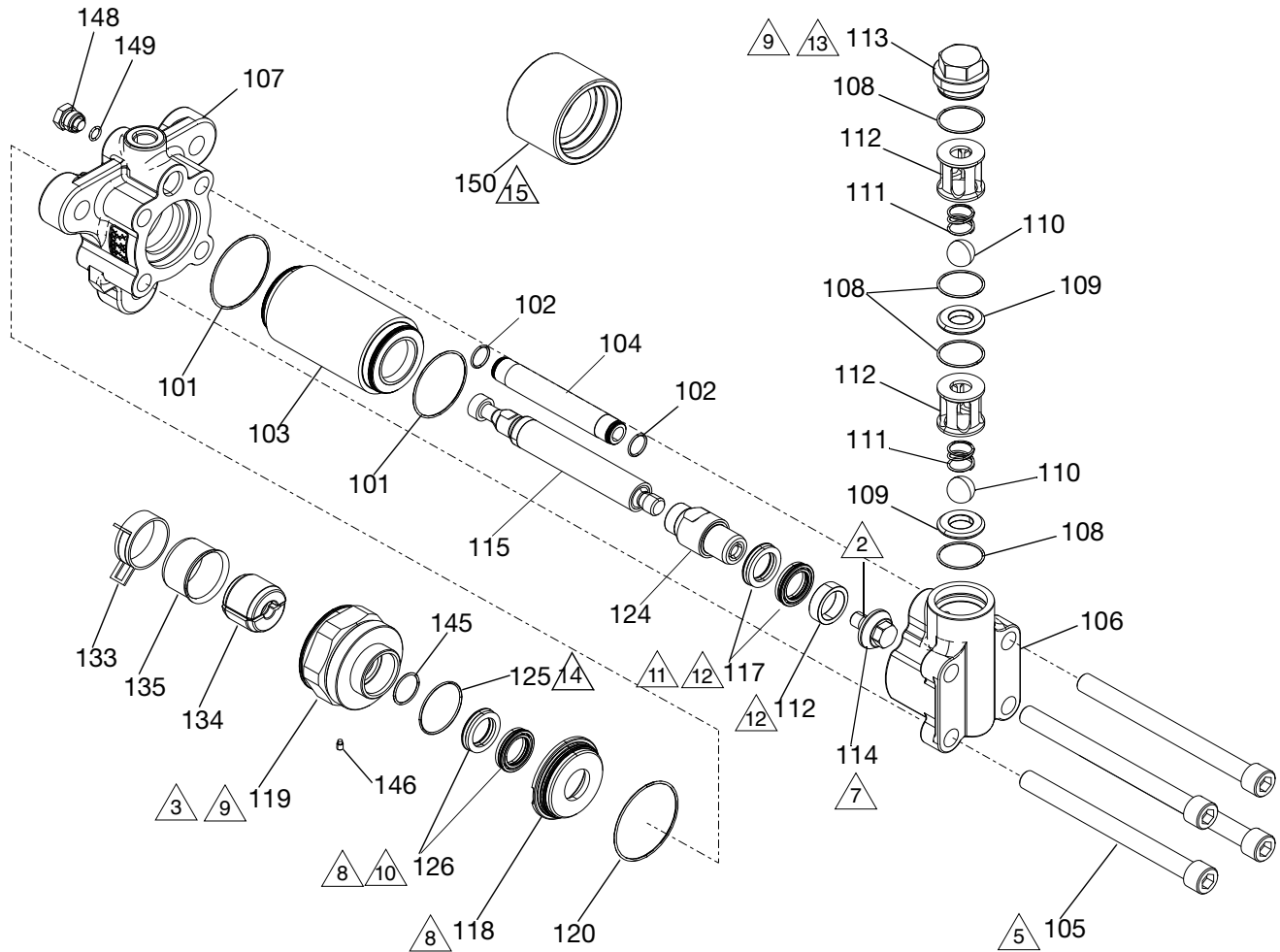
 Ensure spring side of one piston seal (117) springs face displacement rod (115) and piston bearing retainer (116).

 Fully assemble piston seals(117) and piston bearing retainer (116) onto pump rod bottom (124) before tightening piston retainer (114)..

 Torque to 70 ft-lbs. (95 N•m).



### S8 80cc-160cc Pumps



1. Lubricate seals, o-rings, lead-in's and moving parts with grease.

△ Apply one stripe of removable strength anaerobic sealant on threads.

**NOTICE**

Specification sheets and Graco testing indicate that anaerobic sealant requires three days to fully cure. Failure to allow three days for full cure may result in damage to the equipment from parts coming loose during operation. If faster cure time is required, warm components to 104° F (40° C) for 6 hours.

△ Torque to 50-ft-lbs (67.5 N•m).

△ Torque tie bolts (105) in star pattern ( Fig. 32 page 19) to 10 ft-lbs (13.5 N•m). Then torque again to 50 ft-lbs (67.5 N•m). Finally torque to 200 ft-lbs (271 N•m)

△ Torque to 200 ft-lbs. (271 N•m).

△ See **Piston Retainer Torque Specifications** table on page 17 for torque specification.

△ Must be pressed straight into housing.

△ Apply anti-seize lubricant to threads.

△ Ensure spring side of one throat seal (126) faces throat cartridge (118) and spring side of other seal faces throat retainer (119)..

△ Ensure spring side of one piston seal (117) springs face displacement rod (115) and piston bearing retainer (116).

△ Fully assemble u-cups (17) and bearing (16) onto displacement rod (15) before tightening piston retainer (14).

△ Torque to 70 ft-lbs. (95 N•m).

△ Not used on 160cc pump. .

△ Used on 160cc pump only.

## S1, S3, and S4 Pump Parts

| Ref.   | Part          | Description                        | Qty. |
|--------|---------------|------------------------------------|------|
| 1✓❖+◆* |               | O-RING, cylinder                   | 2    |
| 2✓❖+◆* |               | O-RING, crossover tube             | 2    |
| 3❖     |               | CYLINDER, pump                     | 1    |
| 4+     |               | TUBE, crossover, pump              | 1    |
| 5      | 258790        | BOLT, tie                          | 4    |
| 6      | 258792        | HOUSING, inlet                     | 1    |
| 7      | 258791        | HOUSING, outlet                    | 1    |
| 8◆†#•  |               | O-RING, inlet                      | 4    |
|        | 258775        | KIT, package of 4                  | -    |
|        | 258776        | KIT, package of 16                 | -    |
| 9†     |               | SEAT, carbide                      | 2    |
| 10†    |               | BALL, sst                          | 2    |
| 11     | 258784        | SPRING, ball check                 | 2    |
| 12     | 258785        | HOUSING, ball cage                 | 2    |
| 13     | 258787        | CAP, inlet valve                   | 1    |
| 14***  |               | RETAINER, piston                   | 1    |
| 15*    |               | ROD, displacement                  | 1    |
| 16◆*   |               | BEARING, piston, retainer          | 1(2) |
| 17◆*   |               | SEAL, piston                       | 1(2) |
| 18★    |               | CARTRIDGE, throat                  | 1    |
| 19✖    |               | RETAINER, throat                   | 1    |
| 20★*   | 117286        | O-RING, throat cartridge           | 1    |
| 21*    | (See Table 1) | ADAPTER, rod                       | 1    |
| 25◆*   |               | O-ring                             | 1    |
| 26◆*   |               | SEAL, throat                       | 1    |
| 28     |               | PLATE, identification              | 1    |
| 29     |               | SCREW, drive                       | 2    |
| 33‡    |               | SPACER, throat; 10cc-30cc only     | 1    |
| 34❖    | 247167        | COUPLER, assembly, 36-115 xtreme   | 1    |
|        | 244819        | COUPLER, assembly, 115-290, xtreme | 1    |
| 35\$   | 197340        | COVER, coupler                     | 1    |
| &      | 124078        | CLAMP, spring                      | 1    |
| 36•    | 17E794        | CAP, inlet valve                   | 1    |
| 37•    | 17Y222        | RETAINER, spring                   | 2    |
| 38•    | 17Y345        | HOUSING, check valve               | 2    |
| 39#•   | 131767        | SPRING, conical                    | 2    |
| 40•    | 17Y400        | GUIDE, ball                        | 2    |
| 41#•   |               | BALL                               | 2    |
| 42#•   |               | SEAT, carbide                      | 2    |

| Ref. | Part   | Description        | Qty. |
|------|--------|--------------------|------|
| 43#• |        | O-RING             | 2    |
| 44•  | 17E786 | RETAINER, seat     | 2    |
| 45◆* |        | O-Ring             | 1    |
| 46   | 133510 | SCREW, sealing, M3 | 1    |
| 47   | 133892 | SCREW, sealing, M5 | 1    |

- ✓ See Cylinder O-ring Kits, page 30, for kit number.
- ❖ See Cylinder Kits, page 30, for kit number.
- +
- ★ See Throat Cartridge Kits, page 30, for kit number.
- ✖ See Throat Retainer Kits, page 30, for kit number.
- \*\* See Piston Retainer Kits, page 30, for kit number.
- ◆ See Seal Kits, page 32, for kit number.
- \* See Displacement Rod Kits, page 35, for kit number.
- ‡ See Throat Spacer Kits, page 36, for kit number.
- † Included in Kit 258783.
- ❖ Clip coupler cable before installing on to proportioner pumpline.
- # Parts included in Kit 25B124.
- Included fully assembled in Kit 25B123.
- \$ Included in all S1 and S3 models.
- & Included in all S4 models.

## S5 Pump Parts

| Ref. | Part  | Description                               | Qty. |
|------|-------|---|------|
| 1    | ✓♣+◆* | O-RING, cylinder                          | 2    |
| 2    | ✓♣+◆* | O-RING, crossover tube                    | 2    |
| 3    | ♣     | CYLINDER, pump                            | 1    |
| 4    | +     | TUBE, crossover, pump                     | 1    |
| 5    |       | 258790 BOLT, tie                          | 4    |
| 6    |       | HOUSING, inlet                            | 1    |
| 7    |       | HOUSING, outlet                           | 1    |
| 8    | ◆#•   | O-RING, inlet                             | 4    |
|      |       | 258775 KIT, package of 4                  | -    |
|      |       | 258776 KIT, package of 16                 | -    |
| 9    | †     | SEAT, carbide                             | 2    |
| 10   | †     | BALL, carbide                             | 2    |
| 11   |       | 258784 SPRING, ball check                 | 2    |
| 12   |       | 258785 HOUSING, ball cage                 | 2    |
| 13   |       | 258787 CAP, inlet valve                   | 1    |
| 14   | ***   | RETAINER, piston                          | 1    |
| 15   | *     | ROD, displacement                         | 1    |
| 16   | ◆*    | BEARING, piston, retainer                 | 1(2) |
| 17   | ◆*    | SEAL, piston                              | 1(2) |
| 18   | ★     | CARTRIDGE, throat                         | 1    |
| 19   | ✕     | RETAINER, throat                          | 1    |
| 20   | ★*    | 117286 O-RING, throat cartridge           | 1    |
| 21   | *     | (See Table 1) ADAPTER, rod                | 1    |
| 25   | ◆*    | O-Ring                                    | 1    |
| 26   | ◆*    | SEAL, throat                              | 1    |
| 28   |       | PLATE, identification                     | 1    |
| 29   |       | SCREW, drive                              | 2    |
| 34   | ❖     | 247167 COUPLER, assembly, 36-115 xtreme   | 1    |
|      |       | 244819 COUPLER, assembly, 115-290, xtreme | 1    |
| 35   | \$    | 197340 COVER, coupler                     | 1    |
|      | &     | 124078 CLAMP, spring                      | 1    |
| 36   | •     | 17E794 CAP, inlet valve                   | 1    |
| 37   | •     | 17Y222 RETAINER, spring                   | 2    |
| 45   | ◆*    | O-Ring                                    | 1    |
| 46   |       | 133510 SCREW, sealing, M3                 | 1    |
| 47   |       | 133892 SCREW, sealing, M5                 | 1    |

✓ See Cylinder O-ring Kits, page 30, for kit number.

♣ See Cylinder Kits, page 30, for kit number.

+ See Crossover Tube Kits, page 30, for kit number.

★ See Throat Cartridge Kits, page 30, for kit number.

✕ See Throat Retainer Kits, page 30, for kit number.

\*\* See Piston Retainer Kits, page 30, for kit number.

◆ See Seal Kits, page 32, for kit number.

\* See Displacement Rod Kits, page 35, for kit number

❖ Clip coupler cable before installing on to proportioner pumpline.

# Parts included in Kit 25B124.

• Included fully assembled in Kit 25B123.

† Included in Kit 25R213.

## Pump Parts

| Ref.     | Part                     | Part Kit               | Description                    | Qty |
|----------|--------------------------|------------------------|--------------------------------|-----|
| 101 ✓◆◆* | 106259 20-120cc          | 258773 20-120cc        | O-RING Cylinder                | 2   |
|          | 1088223 160cc            | 25R206 160cc           |                                |     |
| 102 ✓◆◆* | 111116                   | ----                   | O-RING crossover tube          |     |
| 103 ◆    | ----                     | ----                   | CYLINDER, pump                 |     |
| 104      | 15V458                   | 24E556 20-120cc        | TUBE, crossover, pump          | 1   |
|          |                          | 25R206 160cc           |                                |     |
| 105      | 122704                   | 258790                 | BOLT, tie                      | 4   |
| 106      | 15Y165 20-120cc          | 258792 20-120cc        | HOUSING, inlet                 | 1   |
|          |                          | 25R211 160cc           |                                |     |
| 107      | 15X946 20-120cc          | 258791 20-120cc        | HOUSING, outlet                | 1   |
|          |                          | 25R212 160cc           |                                |     |
| 108 ◆#•† | 107098                   | ----                   | O-RING, inlet                  | 4   |
|          | 258775                   | ----                   | O-RING, inlet, kit, pkg. of 4  |     |
|          | 258776                   | ----                   | O-RING, inlet, kit, pkg. of 16 |     |
| 109 †    | 196832 20cc              | See Table 4            | SEAT, carbide                  | 2   |
|          | 15J038 40 160cc          |                        |                                |     |
| 110 †    | 17R406 40-160cc          | See Table 4            | BALL, carbide                  | 2   |
| 111      | 122756 40-160cc          | See Table 4            | SPRING, ball, check            | 2   |
| 112      | ----                     | See Table 4            | HOUSING, ball, cage            | 2   |
| 113      | ----                     | See Table 4            | CAP, inlet, valve              | 1   |
| 114 ***  | ----                     | See Table 3            | RETAINER, piston               | 1   |
| 115      | ----                     | See Table 1            | ROD, displacement              | 1   |
| 116 ◆*   | ----                     | See Table 2 and 3      | BEARING, piston, retainer      | 1   |
| 117 ◆*   | ----                     | See Table 2 and 3      | SEAL, piston                   | 2   |
| 118 ★    | ----                     | See Table 1            | CARTRIDGE, throat              | 1   |
| 119 ✕    | ----                     | See Table 1            | RETAINER, throat               | 1   |
| 120 ★*   | 117286                   | See Table 2 and 3      | O-RING, throat, cartridge      | 1   |
| 121 *†   | ----                     | See Table 1            | ADAPTER, rod                   | 1   |
| 124 *    | ----                     | See Table 3            | ROD, pump, bottom              | 1   |
| 125 ✕◆*  | ----                     | See table, 1, 2, and 3 | O-RING, throat                 | 1   |
| 126 ◆*   | ----                     | See Table 2 and 3      | SEAL, throat                   | 1   |
| 128      | ----                     | See Table 1            | PLATE, identification          | 1   |
| 129      | ----                     | See Table 1            | SCREW, drive                   | 1   |
| 133      | 124078                   | -----                  | CLAMP, spring                  | 1   |
| 134      | 15G923 80cc              | ----                   | COUPLER, pump                  | 2   |
|          | 198031 20, 40, 100-160cc |                        |                                |     |
| 135      | 197340                   | ----                   | COVER, coupler                 | 1   |
| 137 •    | 17Y442                   | See Table 4            | RETAINER, spring               | 2   |
| 138 •    | 17Y345                   | See Table 4            | HOUSING, check                 | 2   |
| 139 #•   | 131767                   | See Table 4            | SPRING, conical                | 2   |
| 140 •    | 17Y400                   | See table 4            | RETAINER, housing, ball        | 2   |
| 141 #•   | ----                     | See Table 4            | BALL                           | 2   |
| 142 #•   | ----                     | See Table 4            | SEAT, carbide                  | 2   |
| 143 #•   | ----                     | See Table 4            | O-RING                         | 2   |
| 144 •    | 17E786                   | See Table 4            | RETAINER, check valve          | 2   |
| 145 ✕    | ----                     | ----                   | O-RING                         | 2   |

| Ref. | Part   | Part Kit          | Description                    | Qty |
|------|--------|-------------------|--------------------------------|-----|
| 146  | 133510 | ----              | SCREW, sealing, SHCS, M3 x 4mm | 1   |
| 147  | 133892 | ----              | SCREW, sealing, SHCS, M5 x 6mm | 1   |
| 148  | 198241 | ----              | PLUG, port, pressure           | 1   |
| 149◆ | 121399 | See Table 2       | O-RING                         | 1   |
| 150▲ | 18C159 | See Table 2 and 3 | TOOL, installation, cylinder   | 1   |

✓ See *Cylinder O-Ring Kits* in TABLE 1: for kit number.

✿ See *Cylinder Kts* in TABLE 1: for kit number.

★ See *Throat Retainer Kits* in TABLE 1: on page 30 for kit number.

✘ See *Throat Cartridge Kits* in TABLE 1: on page 30 for kit number.

\*\* See *Piston retainer Kits* in TABLE 1: on page 30 for kit number.

◆ See *Seal Kits* in TABLE 2: **Seal Kits** on page 32 for kit number.

\* See *Displacement Rod kits* in TABLE 4: on page 35 for kit number.

# Included in kit 25B124 for 40-160cc.

• Included in kit 25B123 for 20cc.

† Included in kit 25R213 (S6).

▲ Included in kits 26B843, 26B847, 26B848.

## Various Kits

Table 1:

| Pump Model    | Pump Size | Adapter         | ✓<br>Cylinder<br>O-ring Kit | ✿<br>Cylinder<br>Kit | ⊕<br>Crossover<br>Tube | ** Piston<br>Retainer<br>Kit |
|---------------|-----------|-----------------|-----------------------------|----------------------|------------------------|------------------------------|
| L005S1/L005S4 | 5cc       | 25P039          | 258774                      | 262557               | 24E557                 | 262560                       |
| L005S5        | 5cc       | 29P039          | 258773                      | 25N980               |                        | 258926                       |
| L010S1/L010S4 | 10cc      | 258966          | 258774                      | 258925               |                        | 24U645                       |
| L010S3        | 10cc      | 24U649          |                             | 24U651               |                        | 258926                       |
| L010S5        | 10cc      | 258966          | 258773                      | 25E417               |                        | 258932                       |
| L015S1/L015S4 | 15cc      | 258966          | 258774                      | 258931               |                        | 258938                       |
| L020S1/L020S4 | 20cc      | 258967          |                             | 258937               |                        |                              |
| L020S3        | 20cc      | 24U650          |                             | 24U652               |                        |                              |
| LO20S8        | 20cc      | 26D178          | 258773                      | 26B811               |                        | 2B815                        |
| L025S1/L025S4 | 25cc      | 258967          | 258774                      | 258943               |                        | 258944                       |
| L030S1/L030S4 | 30cc      |                 |                             | 258949               |                        | 258950                       |
| L035S1/L035S4 | 35cc      | 258786          |                             | 24R310               |                        | 24R312                       |
| L040S1/L040S4 | 40cc      |                 |                             | 258795               |                        | 258796                       |
| L040S8        | 40cc      | 25D178          | 258773                      | 26B818               |                        | 26B821                       |
| L045S1/L045S4 | 45cc      | 258786          | 258774                      | 24R311               |                        | 24R313                       |
| L050S1/L050S4 | 50cc      |                 |                             | 258801               |                        | 258802                       |
| L060S1/L060S4 | 60cc      | 258807          |                             | 258808               |                        |                              |
| L065S1/L065S4 | 65cc      | 24H998          |                             | 24J012               |                        |                              |
| L070S1/L070S4 | 70cc      | 25C252          |                             | 25C256               |                        |                              |
| L075S1/L075S4 | 75cc      | 24N821          |                             | 24N822               |                        |                              |
| L080S1/L080S4 | 80cc      | 258813          |                             | 258814               |                        |                              |
| L080S8        | 80cc      | 258773          |                             | 26B824               | 26B828                 |                              |
| L086S1/L086S4 | 86cc      | 258774          |                             | 24H999               | 24J013                 |                              |
| L090S1/L090S4 | 90cc      | Not<br>included |                             | 258773               | 24T165                 | 24T168                       |
| L100S1/L100S4 | 100cc     |                 | 258819                      |                      | 258820                 |                              |
| L100S8        | 100cc     |                 | 26B831                      |                      | 26B834                 |                              |
| L105S1        | 105cc     |                 | 24R011                      |                      | 25R012                 |                              |
| L120S1/L120S1 | 120CC     |                 | 258825                      |                      | 258826                 |                              |
| L120S8        | 120CC     |                 | 26B837                      |                      | 26B840                 |                              |
| L140S1/L140S4 | 140CC     |                 | 24T166                      |                      | 24T169                 |                              |
| L150S1/L150S4 | 150CC     |                 | 24T167                      |                      | 24T170                 |                              |
| L160S1/L160S4 | 160CC     |                 | 258831                      |                      | 258832                 |                              |
| L160S8        | 160CC     |                 | 25R206                      |                      | 26B843                 | 26B846                       |

| Pump Model    | Pump Size | Without Grease Cups    |                       | With Grease Cups       |                       |
|---------------|-----------|------------------------|-----------------------|------------------------|-----------------------|
|               |           | ★ Throat Cartridge Kit | ✖ Throat Retainer Kit | ★ Throat Cartridge Kit | ✖ Throat Retainer Kit |
| L005S1/L005S4 | 5cc       | 262558                 | 262559                | 25U619                 | 25U638                |
| L005S5        | 5cc       |                        |                       |                        |                       |
| L010S1/L010S4 | 10cc      | 258928                 | 258927                | 25U620                 | 25U639                |
| L010S3        | 10cc      | 24U647                 |                       | 25U621                 |                       |
| L010S5        | 10cc      | 258928                 |                       | 25U620                 |                       |
| L015S1/L015S4 | 15cc      | 258934                 | 258933                | 25U622                 | 25U640                |
| L020S1/L020S4 | 20cc      | 258940                 | 258939                | 26B814                 | 26B813                |
| L020S3        | 20cc      | 25U648                 |                       | 25U623                 |                       |
| L020S8        | 20cc      |                        |                       |                        |                       |
| L025S1/L025S4 | 25cc      | 258946                 | 258945                | 25U624                 | 25U641                |
| L030S1/L030S4 | 30cc      | 258952                 | 258951                | 25U625                 | 25U642                |
| L035S1/L035S4 | 35cc      | 24R316                 | 24R314                | 25U626                 | 25U643                |
| L040S1/L040S4 | 40cc      | 258798                 | 258797                | 26B820                 | 26B819                |
| L040S8        | 40cc      |                        |                       |                        |                       |
| L045S1/L045S4 | 45cc      | 24R317                 | 24R315                | 25U627                 | 25U644                |
| L050S1/L050S4 | 50cc      | 258804                 | 258803                | 25U628                 | 25U645                |
| L060S1/L060S4 | 60cc      | 258810                 | 258809                | 25U629                 | 25U646                |
| L065S1/L065S4 | 65cc      | 24J007                 | 24J010                | 25U630                 | 25U647                |
| L070S1/L070S4 | 70cc      | 25C254                 | 25C255                | 25U631                 | 25U648                |
| L075S1/L075S4 | 75cc      | 24N819                 | 24N818                | 25U632                 | 25U649                |
| L080S1/L080S4 | 80cc      | 258816                 | 258815                | 26B827                 | 26B826                |
| L080S8        | 80cc      |                        |                       |                        |                       |
| L086S1/L086S4 | 86cc      | 24J008                 | 24J011                | 25U633                 | 25U650                |
| L090S1/L090S4 | 90cc      | 24T175                 | 24T171                | 25U634                 | 25U651                |
| L100S1/L100S4 | 100cc     | 258822                 | 258821                | 26B833                 | 26B832                |
| L100S8        | 100cc     |                        |                       |                        |                       |
| L105S1        | 105cc     | 24R014                 | 24R013                | 25U635                 | 25U652                |
| L120S1/L120S1 | 120CC     | 258828                 | 258827                | 26B839                 | 26B838                |
| L120S8        | 120CC     |                        |                       |                        |                       |
| L140S1/L140S4 | 140CC     | 24T176                 | 24T172                | 25U636                 | 25U653                |
| L150S1/L150S4 | 150CC     | 24T173                 | 24T173                | 25U637                 | 25U654                |
| L160S1/L160S4 | 160CC     | 258834                 | 258833                | 26B845                 | 26B844                |
| L160S8        | 160CC     |                        |                       |                        |                       |

### Seal Kits With Grease Cup

5cc-30cc Throat Seals  
(excluding L010S3,  
L020S3)

35cc-160cc Throat Seals  
(also includes L010S3,  
L020S3)

Piston Seals

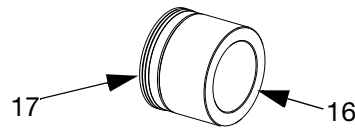
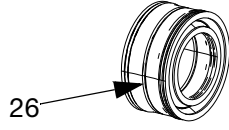
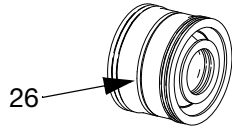


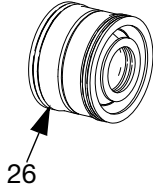
Table 2: Seal Kits

| Pump Model      | Pump Size | Seal Kit | Reference Number and Quantity Included in Kit |   |   |    |    |    |    |    |
|-----------------|-----------|----------|---|---|---|----|----|----|----|----|
|                 |           |          | 1   | 2 | 8 | 16 | 17 | 25 | 26 | 45 |
| L005S1 / L005S4 | 5cc       | 26D569   | 2   | 2 | 4 | 1  | 1  | 1  | 2  | 1  |
| L005S5          | 5cc       | 26D805   | 2   | 2 | 4 | 1  | 1  | 1  | 2  | 1  |
| L010S1 / L010S4 | 10cc      | 26D570   | 2   | 2 | 4 | 1  | 1  | 1  | 2  | 1  |
| L010S3          | 10cc      | 26D592   | 2   | 2 | 4 | 1  | 1  | 1  | 2  | 1  |
| L010S5          | 10cc      | 26D806   | 2   | 2 | 4 | 1  | 1  | 1  | 2  | 1  |
| L015S1 / L015S4 | 15cc      | 26D571   | 2   | 2 | 4 | 1  | 1  | 1  | 2  | 1  |
| L020S1 / L020S4 | 20cc      | 26D572   | 2   | 2 | 4 | 1  | 1  | 1  | 2  | 1  |
| L020S3          | 20cc      | 26D593   | 2   | 2 | 4 | 1  | 1  | 1  | 2  | 1  |
| L020S8          | 20cc      | 26D816   | 2   | 2 | 4 |    | 2  | 1  | 2  | 1  |
| L025S1 / L025S4 | 25cc      | 26D573   | 2   | 2 | 4 | 1  | 1  | 1  | 2  | 1  |
| L030S1 / L030S4 | 30cc      | 26D574   | 2   | 2 | 4 | 1  | 1  | 1  | 2  | 1  |
| L035S1 / L035S4 | 35cc      | 26D575   | 2   | 2 | 4 | 1  | 1  | 1  | 2  | 1  |
| L040S1 / L040S4 | 40cc      | 26D576   | 2   | 2 | 4 | 1  | 1  | 1  | 2  | 1  |
| L040S8          | 40cc      | 26B822   | 2   | 2 | 4 | 1  | 2  | 1  | 2  | 1  |
| L045S1 / L045S4 | 45cc      | 26D577   | 2   | 2 | 4 | 1  | 1  | 1  | 2  | 1  |
| L050S1 / L050S4 | 50cc      | 26D578   | 2   | 2 | 4 | 1  | 1  | 1  | 2  | 1  |
| L060S1 / L060S4 | 60cc      | 26D579   | 2   | 2 | 4 | 1  | 3  | 1  |    | 1  |
| L065S1 / L065S4 | 65cc      | 26D580   | 2   | 2 | 4 | 1  | 3  | 1  |    | 1  |
| L070S1 / L070S4 | 70cc      | 26D581   | 2   | 2 | 4 | 1  | 3  | 1  |    | 1  |
| L075S1 / L075S4 | 75cc      | 26D582   | 2   | 2 | 4 | 1  | 3  | 1  |    | 1  |
| L080S1 / L080S4 | 80cc      | 26D583   | 2   | 2 | 4 | 1  | 3  | 1  |    | 1  |
| L080S8          | 80cc      | 26B829   | 2   | 2 | 4 | 1  | 2  | 1  | 2  | 1  |
| L086S1 / L086S4 | 86cc      | 26D854   | 2   | 2 | 4 | 1  | 3  | 1  |    | 1  |
| L090S1 / L090S4 | 90cc      | 26D585   | 2   | 2 | 4 | 1  | 3  | 1  |    | 1  |
| L100S1 / L100S4 | 100cc     | 26D586   | 2   | 2 | 4 | 1  | 3  | 1  |    | 1  |
| L100S8          | 100cc     | 26B835   | 2   | 2 | 4 | 1  | 2  | 1  | 2  | 1  |
| L105S1          | 105cc     | 26D587   | 2   | 2 | 4 | 1  | 3  | 1  |    | 1  |
| L120S1 / L120S4 | 120cc     | 26D588   | 2   | 2 | 4 | 1  | 3  | 1  |    | 1  |
| L120S8          | 120cc     | 26B841   | 2   | 2 | 4 | 1  | 2  | 1  | 2  | 1  |
| L140S1 / L140S4 | 140cc     | 26D589   | 2   | 2 | 4 | 1  | 3  | 1  |    | 1  |
| L150S1 / L150S4 | 150cc     | 26D590   | 2   | 2 | 4 | 1  | 3  | 1  |    | 1  |
| L160S1 / L160S4 | 160cc     | 26D591   | 2   | 2 | 4 | 1  | 3  | 1  |    | 1  |
| L160S8          | 160cc     | 26B847   | 2   | 2 | 4 | 1  | 2  | 1  | 2  | 1  |

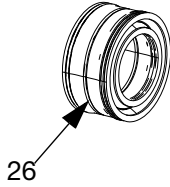


# Seal Kits Without Grease Cup

5cc-30cc Throat Seals  
(excluding L010S3,  
L020S3)



35cc-160cc Throat Seals  
(also includes L010S3,  
L020S3)



Piston Seals

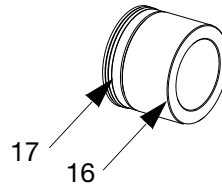
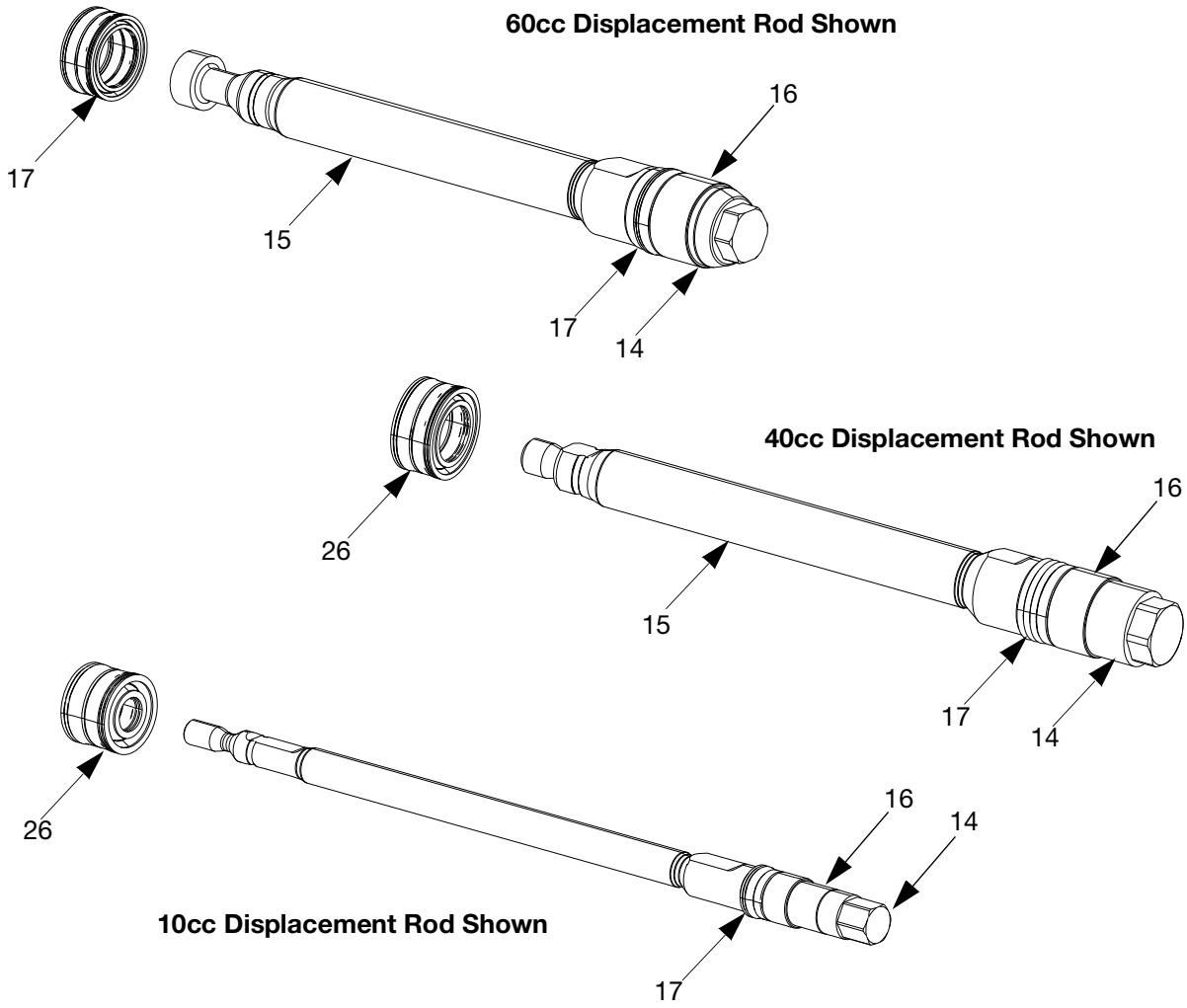


Table 3: Seal Kits

| Pump Model      | Pump Size | Reference Number and Quantity Included in Kit |   |   |   |    |    |    |    |
|-----------------|-----------|---|---|---|---|----|----|----|----|
|                 |           | Seal Kit                                      | 1 | 2 | 8 | 16 | 17 | 25 | 26 |
| L005S1 / L005S4 | 5cc       | 262561  | 2 | 2 | 4 | 1  | 1  | 1  | 1  |
| L005S5          | 5cc       | 25N981  | 2 | 2 | 4 | 1  | 2  | 1  | 1  |
| L010S1 / L010S4 | 10cc      | 258923  | 2 | 2 | 4 | 1  | 1  | 1  | 1  |
| L010S3          | 10cc      | 24U653  | 2 | 2 | 4 | 1  | 1  | 1  | 1  |
| L010S5          | 10cc      | 25E421  | 2 | 2 | 4 | 1  | 2  | 1  | 1  |
| L015S1 / L015S4 | 15cc      | 258929  | 2 | 2 | 4 | 1  | 1  | 1  | 1  |
| L020S1 / L020S4 | 20cc      | 258935  | 2 | 2 | 4 | 1  | 1  | 1  | 1  |
| L020S3          | 20cc      | 24U654  | 2 | 2 | 4 | 1  | 1  | 1  | 1  |
| L025S1 / L025S4 | 25cc      | 258941  | 2 | 2 | 4 | 1  | 1  | 1  | 1  |
| L030S1 / L030S4 | 30cc      | 258947  | 2 | 2 | 4 | 1  | 1  | 1  | 1  |
| L035S1 / L035S4 | 35cc      | 24R306  | 2 | 2 | 4 | 1  | 1  | 1  | 1  |
| L040S1 / L040S4 | 40cc      | 258793  | 2 | 2 | 4 | 1  | 1  | 1  | 1  |
| L045S1 / L045S4 | 45cc      | 24r307  | 2 | 2 | 4 | 1  | 1  | 1  | 1  |
| L050S1 / L050S4 | 50cc      | 258799  | 2 | 2 | 4 | 1  | 1  | 1  | 1  |
| L060S1 / L060S4 | 60cc      | 258805  | 2 | 2 | 4 | 2  | 2  |    |    |
| L065S1 / L065S4 | 65cc      | 24J002  | 2 | 2 | 4 | 2  | 2  |    |    |
| L070S1 / L070S4 | 70cc      | 25C253  | 2 | 2 | 4 | 2  | 2  |    |    |
| L075S1 / L075S4 | 75cc      | 24N820  | 2 | 2 | 4 | 2  | 2  |    |    |
| L080S1 / L080S4 | 80cc      | 258811  | 2 | 2 | 4 | 2  | 2  |    |    |
| L086S1 / L086S4 | 86cc      | 24J003  | 2 | 2 | 4 | 2  | 2  |    |    |
| L090S1 / L090S4 | 90cc      | 24T162  | 2 | 2 | 4 | 2  | 2  |    |    |
| L100S1 / L100S4 | 100cc     | 258817  | 2 | 2 | 4 | 2  | 2  |    |    |
| L105S1          | 105cc     | 24R009  | 2 | 2 | 4 | 2  | 2  |    |    |
| L120S1 / L120S4 | 120cc     | 258823  | 2 | 2 | 4 | 2  | 2  |    |    |
| L140S1 / L140S4 | 140cc     | 24T163  | 2 | 2 | 4 | 2  | 2  |    |    |
| L150S1 / L150S4 | 150cc     | 24T164  | 2 | 2 | 4 | 2  | 2  |    |    |
| L160S1 / L160S4 | 160cc     | 258829  | 2 | 2 | 4 | 2  | 2  |    |    |

# Displacement Rod Kits



# Displacement Rod Kits

Table 4:

| Pump Model      | Pump Size | Displacement Rod Kit | Reference Number and Quantity Included in Kit |   |    |    |    |    |    |    |   |
|-----------------|-----------|----------------------|---|---|----|----|----|----|----|----|---|
|                 |           |                      | 1   | 2 | 14 | 15 | 16 | 17 | 21 | 26 |   |
| L005S1 / L005S4 | 5cc       | 26D594               | 2   | 2 | 1  | 1  | 1  | 1  | 1  | 1  | 2 |
| L005S5          | 5cc       | 25N978               | 2   | 2 | 1  | 1  | 1  | 1  | 1  | 1  | 2 |
| L010S1 / L010S4 | 10cc      | 26D595               | 2   | 2 | 1  | 1  | 1  | 1  | 1  | 1  | 2 |
| L010S3          | 10cc      | 26D617               | 2   | 2 | 1  | 1  | 1  | 1  | 1  | 1  | 2 |
| L010S5          | 10cc      | 25E472               | 2   | 2 | 1  | 1  | 1  | 1  | 1  | 1  | 2 |
| L015S1 / L015S4 | 15cc      | 26D596               | 2   | 2 | 1  | 1  | 1  | 1  | 1  | 1  | 2 |
| L020S1 / L020S4 | 20cc      | 26D597               | 2   | 2 | 1  | 1  | 1  | 1  | 1  | 1  | 2 |
| L020S3          | 20cc      | 26D618               | 2   | 2 | 1  | 1  | 1  | 1  | 1  | 1  | 2 |
| L020S8          | 20cc      | 26B817               | 2   | 2 | 1  | 1  |    | 2  | 1  | 1  | 2 |
| L025S1 / L025S4 | 25cc      | 26D598               | 2   | 2 | 1  | 1  | 1  | 1  | 1  | 1  | 2 |
| L030S1 / L030S4 | 30cc      | 26D599               | 2   | 2 | 1  | 1  | 1  | 1  | 1  | 1  | 2 |
| L035S1 / L035S4 | 35cc      | 26D600               | 2   | 2 | 1  | 1  | 1  | 1  | 1  | 1  | 2 |
| L040S1 / L040S4 | 40cc      | 26D601               | 2   | 2 | 1  | 1  | 1  | 1  | 1  | 1  | 2 |
| L040S8          | 40cc      | 26B823               | 2   | 2 | 1  | 1  |    | 2  | 1  | 1  | 2 |
| L045S1 / L045S4 | 45cc      | 26D602               | 2   | 2 | 1  | 1  | 1  | 1  | 1  | 1  | 2 |
| L050S1 / L050S4 | 50cc      | 26D603               | 2   | 2 | 1  | 1  | 1  | 1  | 1  | 1  | 2 |
| L060S1 / L060S4 | 60cc      | 26D604               | 2   | 2 | 1  | 1  | 2  | 3  |    |    |   |
| L065S1 / L065S4 | 65cc      | 26D605               | 2   | 2 | 1  | 1  | 2  | 3  |    |    |   |
| L070S1 / L070S4 | 70cc      | 26D606               | 2   | 2 | 1  | 1  | 2  | 3  |    |    |   |
| L075S1 / L075S4 | 75cc      | 26D607               | 2   | 2 | 1  | 1  | 2  | 3  |    |    |   |
| L080S1 / L080S4 | 80cc      | 26D608               | 2   | 2 | 1  | 1  | 2  | 3  |    |    |   |
| L080S8          | 80cc      | 26B830               | 2   | 2 | 1  | 1  | 1  | 2  |    |    | 2 |
| L086S1 / L086S4 | 86cc      | 26D609               | 2   | 2 | 1  | 1  | 2  | 3  |    |    |   |
| L090S1 / L090S4 | 90cc      | 26D610               | 2   | 2 | 1  | 1  | 2  | 3  |    |    |   |
| L100S1 / L100S4 | 100cc     | 26D611               | 2   | 2 | 1  | 1  | 2  | 3  |    |    |   |
| L100S8          | 100cc     | 26B836               | 2   | 2 | 1  | 1  | 1  | 2  |    |    | 2 |
| L105S1          | 105cc     | 26D612               | 2   | 2 | 1  | 1  | 2  | 3  |    |    |   |
| L120S1 / L120S4 | 120cc     | 26D613               | 2   | 2 | 1  | 1  | 2  | 3  |    |    |   |
| L120S8          | 120cc     | 26B842               | 2   | 2 | 1  | 1  | 1  | 2  |    |    | 2 |
| L140S1 / L140S4 | 140cc     | 26D614               | 2   | 2 | 1  | 1  | 2  | 3  |    |    |   |
| L150S1 / L150S4 | 150cc     | 26D615               | 2   | 2 | 1  | 1  | 2  | 3  |    |    |   |
| L160S1 / L160S4 | 160cc     | 26D616               | 2   | 2 | 1  | 1  | 2  | 3  |    |    |   |
| L160S8          | 160cc     | 26B848               | 2   | 2 | 1  | 1  | 1  | 2  |    |    | 2 |

## Throat Spacer Kits

Table 5:

| Pump Model      | Pump Size | Throat Spacer Kit |
|-----------------|-----------|-------------------|
| L005S1 / L005S4 | 5cc       | 16E364            |
| L010S1 / L010S4 | 10cc      | 16D188            |
| L010S3          | 10cc      | (Not included)    |
| L015S1 / L015S4 | 15cc      | 16D189            |
| L020S1 / L020S4 | 20cc      | 16D190            |
| L020S3          | 20cc      | (Not included)    |
| L025S1 / L025S4 | 25cc      | 16D191            |
| L030S1 / L030S4 | 30cc      | 16D192            |

## Z-Pump Grease Cup Conversion Kits

The kits listed below are for converting older model Z-Pumps without grease cups.

| Kit Number | Pump Size |
|------------|-----------|
| 25U516     | 5         |
| 25U517     | 10        |
| 25U518     | 15        |
| 25U519     | 20        |
| 25U520     | 25        |
| 25U521     | 30        |
| 25U522     | 35        |
| 25U523     | 40        |
| 25U524     | 45        |
| 25U525     | 50        |
| 25U526     | 60        |
| 25U527     | 65        |
| 25U528     | 70        |
| 25U529     | 75        |
| 25U530     | 80        |
| 25U531     | 86        |
| 25U532     | 90        |
| 25U533     | 100       |
| 25U534     | 105       |
| 25U535     | 120       |
| 25U536     | 140       |
| 25U537     | 150       |
| 25U538     | 160       |

### Grease Cup Upgrade

1. Remove all of the throat seal components: 18, 20, 19, 16/25, and 17/26 from the outlet housing (7). See FIG. 33.

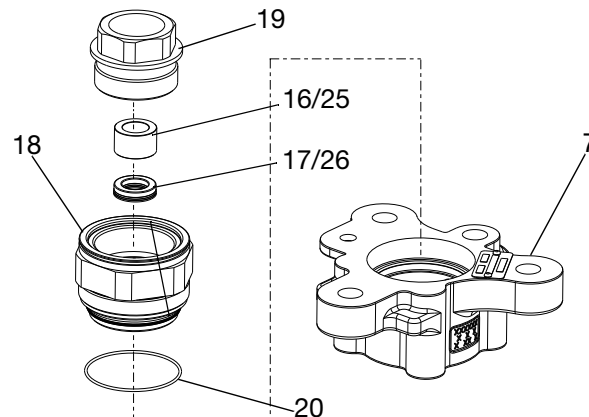
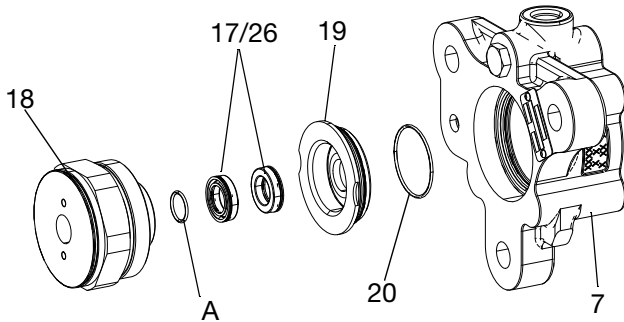


FIG. 33

2. Install shaft seals (17 or 26) back to back in throat cartridge (18).
3. Install O-ring (A) onto throat cartridge (18).
4. Install throat retainer (19) into throat cartridge (18).
5. Install O-ring (20) onto throat retainer (19).
6. install throat seal assembly into outlet housing (7).  
See FIG. 34.



**FIG. 34**

### Grease Cup Maintenance

**NOTE:** For pumps with grease fittings.

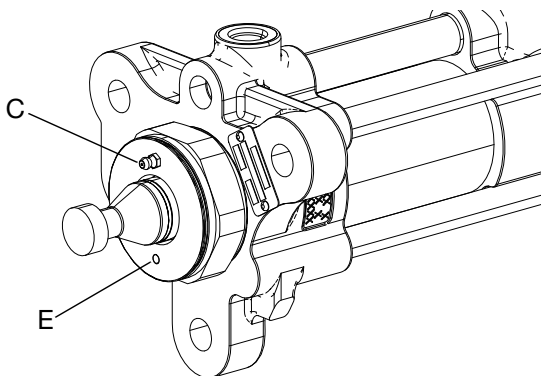
Frequency of greasing intervals is dependent on material being pumped. As a basic schedule, lubricate pump with grease after 250 gallons of material (five of fifty five gallon drums) has been passed through the pump.

If the grease has become hardened, remove the materials or grease, and shorten the intervals between greasing the pump.

If the grease remains clear and free of material, intervals between greasing the pump can be increased.

### To Grease the Pump

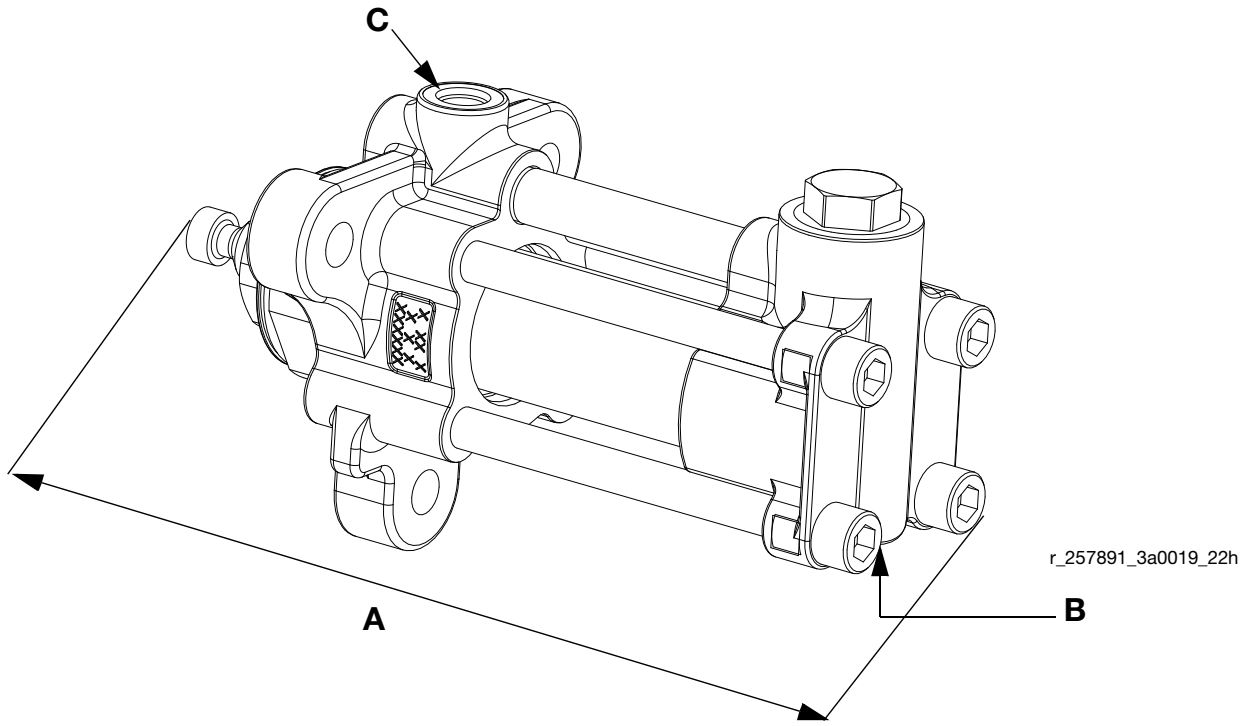
1. Loosen the M5 socket head screw (D) two turns to permit grease to circulate through the pump correctly.
2. Attach grease gun to the grease fitting (C). Pump new grease into the pump until fresh grease is observed from grease relief hole (E). See FIG. 35.



**FIG. 35**

# Dimensions

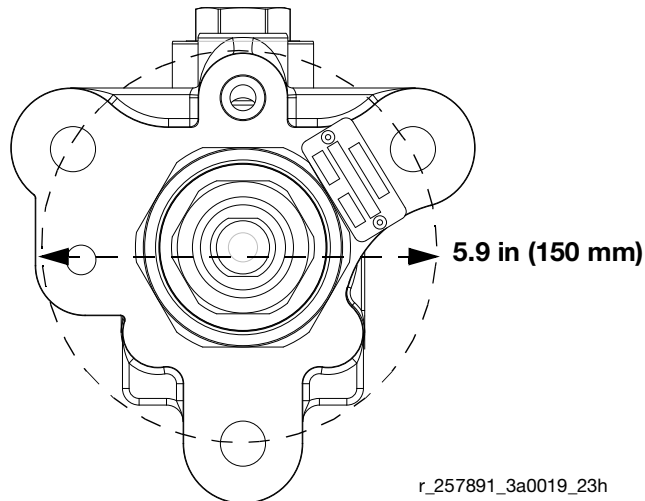
All pump sizes have the same dimensions.



| <b>A</b><br><b>(Length)</b><br>in. (mm) | <b>B</b><br><b>(Inlet)</b><br>in. npt (f) | <b>C</b><br><b>(Outlet)</b><br>SAE (f) |
|---|---|--|
| 13.36 (339.34)                          | 3/4-14                                    | 3/4-16                                 |

## Outlet Housing Mounting Hole Layout

All pumps have the same outlet housing mounting hole layout.



## Technical Data

|  |  |
|--|--|
| Maximum working pressure . . . . .       | 3500 psi (24MPa, 241 bar)  |
| Maximum operating temperature . . . . .  | 180° F (82° C)   |
| Maximum cycle rate . . . . .             | 65 cycles per minute   |
| Minimum feed pressure at inlet . . . . . | 50 psi (0.35 MPa, 3.5 bar)   |
| Weight . . . . .                         | 30 lbs (13.6 kg)   |
| Wetted parts . . . . .                   | SST, tungsten carbide, acetal, PTFE, UHMWPE, silicon nitride (S4 pumps only) |

## California Proposition 65

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