

# Hydraulic Dyna-Star<sup>®</sup> Pump Auto-Fill<sup>®</sup> Shut Off Kit

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***Used with Dyna-Star Pumps to fill Graco Tank/Reservoir. For automatic grease lubrication systems only. Cannot be used with pumps equipped with a dip stick, low level indicator or follower plate. For professional use only.***



## **Important Safety Instructions**

Read all warnings and instructions in this manual and the Dyna-Star HP and HF Pump instruction manual. Save all instructions.

*3500 psi (24 MPa, 240 bar) Maximum Lubricant Inlet Pressure  
3/8 inch npt inlet and outlet  
Maximum Flow: 2 gpm (7.57 lpm)*








**Model: 17L749**

## **Associated Manuals**

3A3429 - 10:1 Dyna-Star Pump Module with Auto-Fill Shutoff






# 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 symbols refer to procedure-specific risks. When these symbols appear in the body of this manual or on warning labels, refer back to these Warnings. Product-specific hazard symbols and warnings not covered in this section may appear throughout the body of this manual where applicable.

 <h1 style="margin: 0;">WARNING</h1>	
    	<p><b>SKIN INJECTION HAZARD</b></p> <p>High-pressure fluid from dispensing device, 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 dispensing device at anyone or at any part of the body.</li> <li>• Do not put your hand over the fluid outlet.</li> <li>• Do not stop or deflect leaks with your hand, body, glove, or rag.</li> <li>• Follow the <b>Pressure Relief Procedure</b> when you stop dispensing and before cleaning, checking, or servicing equipment.</li> <li>• Tighten all fluid connections before operating the equipment.</li> <li>• Check hoses and couplings daily. Replace worn or damaged parts immediately.</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>• Use fluids and solvents that are compatible with equipment wetted parts. See <b>Technical Data</b> in all equipment manuals. Read fluid and solvent manufacturer's warnings. For complete information about your material, request Safety Data Sheet (SDS) from distributor or retailer.</li> <li>• Turn off all equipment and follow the <b>Pressure Relief Procedure</b> 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. Alterations or modifications may void agency approvals and create safety hazards.</li> <li>• Make sure all equipment is rated and approved for the environment in which you are using it.</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>



# WARNING

 	<p><b>MOVING PARTS HAZARD</b></p> <p>Moving parts can pinch, cut 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> and disconnect all power sources.</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 Safety Data Sheet (SDS) 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> </ul>
	<p><b>BURN HAZARD</b></p> <p>Equipment surfaces and fluid that is 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> </ul>
	<p><b>PERSONAL PROTECTIVE EQUIPMENT</b></p> <p>Wear appropriate protective equipment when in the work area to help prevent serious injury, including eye injury, hearing loss, inhalation of toxic fumes, and burns. Protective equipment includes but is not limited to:</p> <ul style="list-style-type: none"> <li>• Protective eyewear, and hearing protection.</li> <li>• Respirators, protective clothing, and gloves as recommended by the fluid and solvent manufacturer.</li> </ul>


# Auto-Fill Shut Off Overview

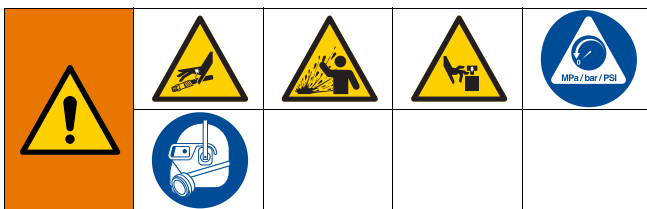
The Auto-Fill Shut Off is used for refilling the grease tank/reservoir in an automatic lubrication system. As grease is added to the reservoir, it pushes the diaphragm up to the top of the reservoir. The diaphragm then pushes the valve pin and closes the inlet fluid path.

3. Disconnect power from Lubrication Controller (F).
4. **Relieve pressure** in high pressure supply line (K) using two wrenches working in opposite directions to ***slowly loosen fitting only*** until fitting is loose and no more lubricant or air is leaking from fitting.

## Pressure Relief Procedure

Reference letters used in the Pressure Relief Procedure refer to the Component Identification and Typical Installation illustrations beginning on page 5.

 Follow the Pressure Relief Procedure whenever you see this symbol.



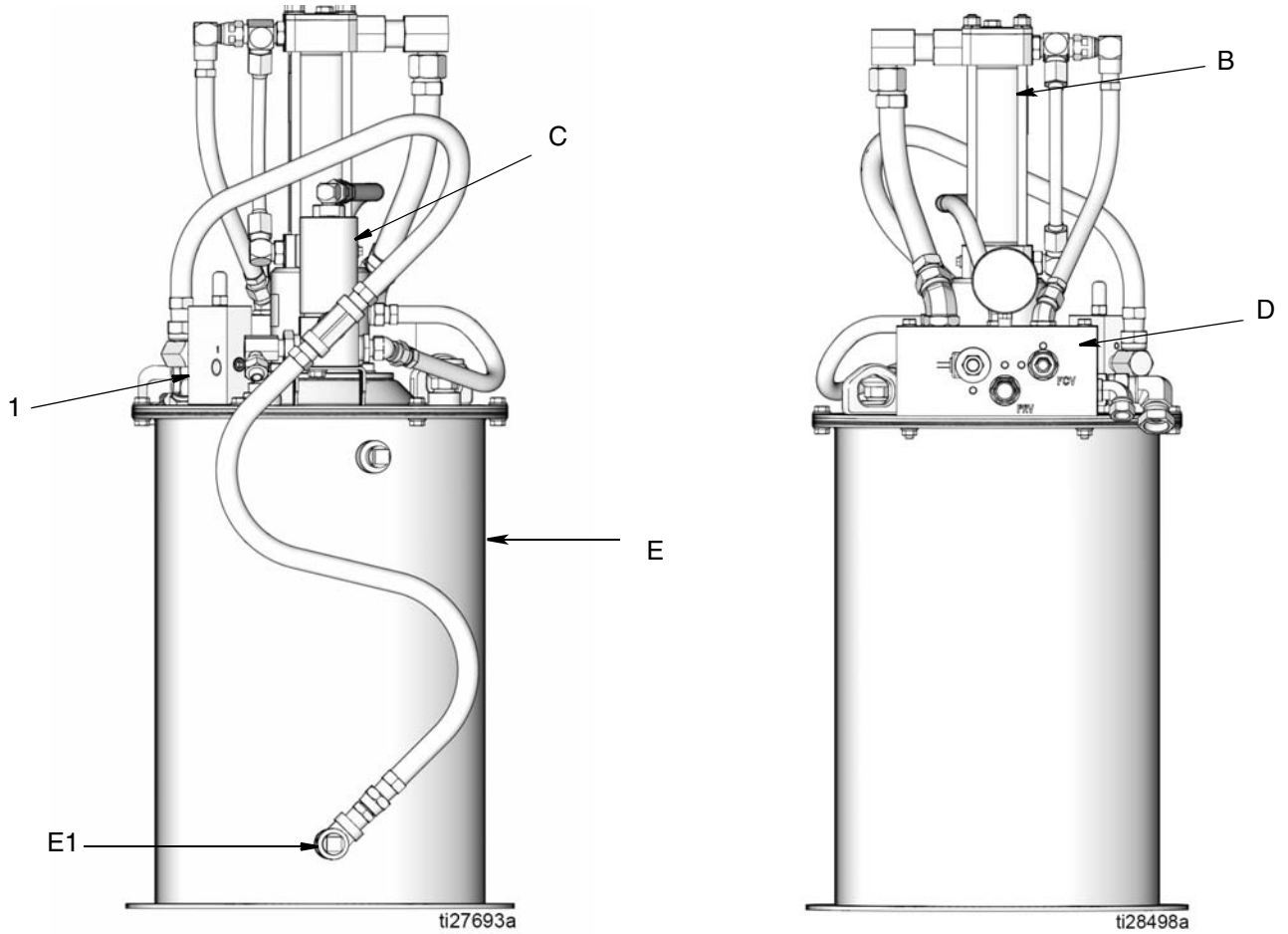
This equipment stays pressurized until pressure is manually relieved. To help prevent serious injury from pressurized fluid, such as skin injection, splashing fluid and moving parts, follow the Pressure Relief Procedure when you stop dispensing and before cleaning, checking, or servicing the equipment.

1. Disable hydraulic supply to Pump (B) by isolating it from the high pressure hydraulic supply using Ball Valve (J).
2. Do one of the following:
  - Cycle the timer [lubrication controller (F), (FIG. 4, page 7)] to open the 3-way solenoid valve to reduce trapped hydraulic pressure.
 or
  - Open Pressure Reducing Valve (D6) to reduce trapped hydraulic pressure (FIG. 3, page 6).

**NOTE:** The gauge (D5) on control module (D) should read zero pressure after performing this step.

# Installation

## Component Identification

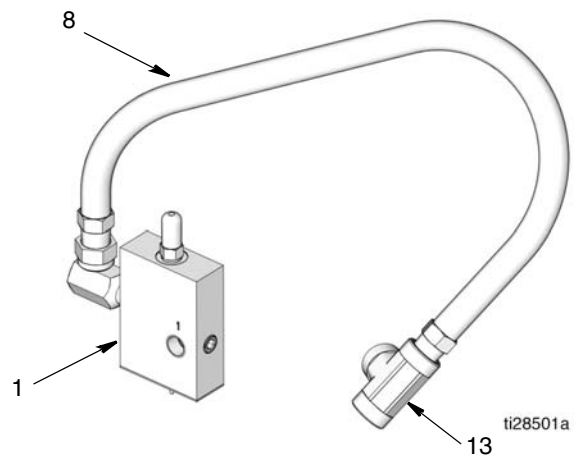


**Key:**

- 1 Auto-Fill Shut Off (FIG. 1)
- B Dyna-Star Pump
- C Vent Valve (FIG. 2, page 6)
- D Control Module (FIG. 3, page 6)
- E Reservoir
- E1 Tank Port

**Auto-Fill Shut Off (1)**

- 8 Refill line to pipe tee fitting
- 13 Pipe tee fitting (replaces elbow C5 (FIG. 2, page 6))



**FIG. 1**

### Vent Valve (C)

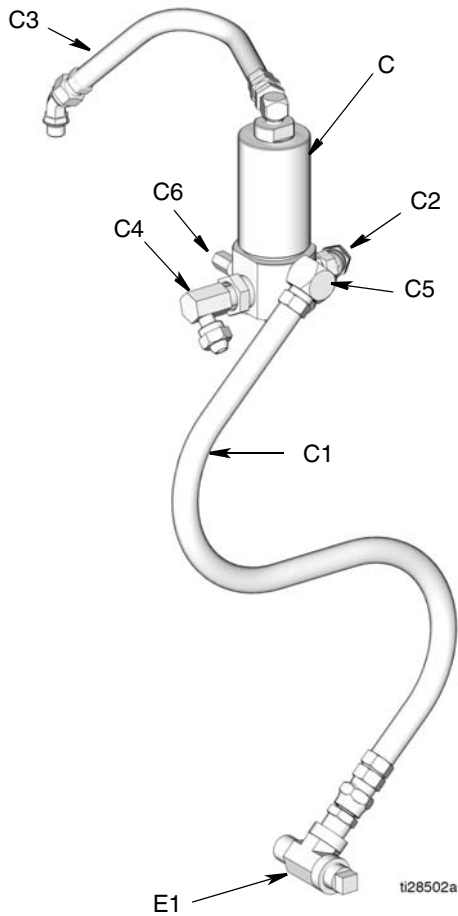


FIG. 2

#### Key: Vent Valve Hoses, Fittings, Valves

- C1 Vent Line
- C2 Pump Outlet Connection
- C3 Vent Valve Hydraulic Control Line
- C4 Lubricant Output Connection
- C5 Elbow
- C6 Pressure Relief Valve

### Control Module (D)

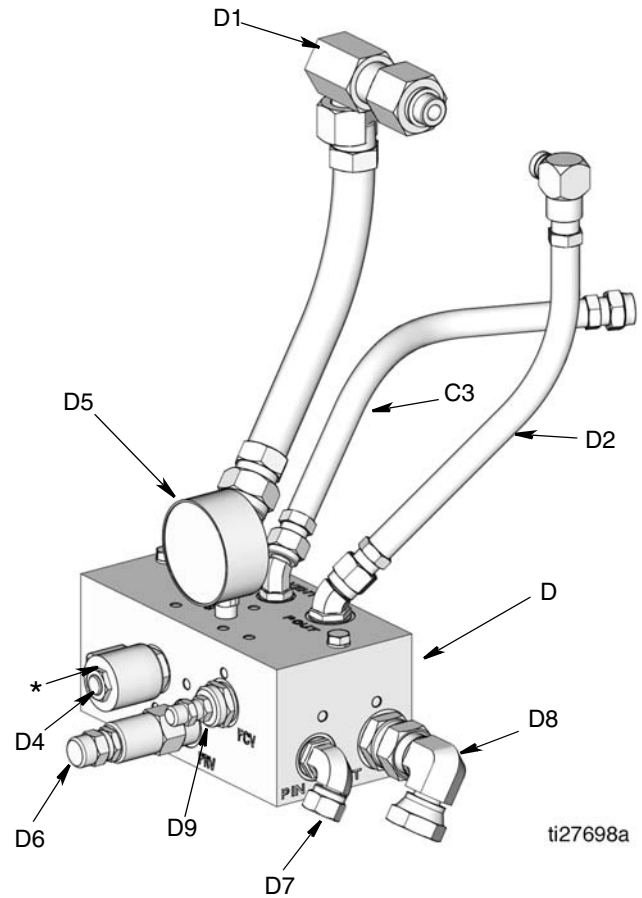


FIG. 3

#### Key: Control Module Hoses, Fittings, Valves

- D1 Pump tank line
- D2 Pump high pressure hydraulic line
- C3 Vent Valve Hydraulic Control Line
- D4 3-Way Solenoid Valve
- D5 Regulated hydraulic pressure gauge
- D6 Pressure reducing valve
- D7 High pressure hydraulic connection (swivel)
- D8 Hydraulic tank connection (swivel)
- D9 Flow control valve

\*coil should always be installed with lettering facing out

# Typical Installation

## Systems with Pressure Relief Valve in the Refilling Line

The installation shown is only a reference guide. See your system instruction manual for a detailed Typical Installation diagram or contact your Graco distributor for assistance in planning a system to suit your needs.

**NOTE:** The remote filling station pump stalls (dead-heads) when the reservoir is full. If the pump does not stall (dead-head) there is a leak in the system.

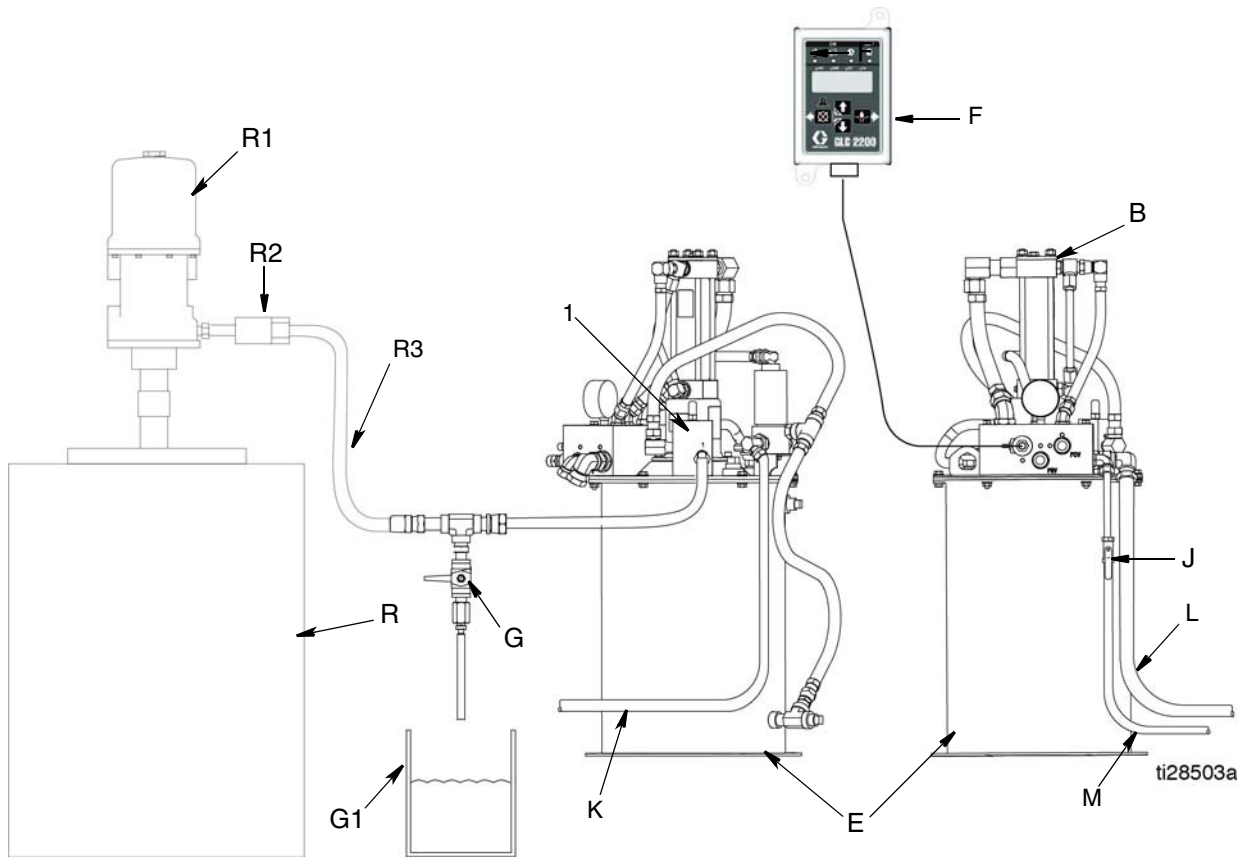


FIG. 4

### Key:Dispense System

- B Pump
- E Reservoir
- F Lubrication Controller
- G Pressure Relief Valve
- G1 Fluid Overflow Container
- J Ball Valve
- K High Pressure Lubricant Supply Line
- L Hydraulic Tank (return) Line
- M High Pressure Hydraulic Line

### Key:Remote Fill

- R Remote Fill Reservoir
- R1 Remote Fill Pump
- R2 Filter (recommended in grease systems and contaminated environments)
- R3 Refill Line

*\* A pressure relief valve (G) and overflow container (G1) for collecting excess fluid that drains during pressure relief **must** be installed in an easily accessible location between the remote filling station pump (R1) and the Auto-Fill Shut Off (1). This pressure relief valve is used to relieve pressure in the refill line and to reset the Auto-Fill Shut Off.*

## Typical Installation

### Systems with Fill Valve in the Refilling Line

The installation shown is only a reference guide. See your system instruction manual for a detailed Typical Installation diagram or contact your Graco distributor for assistance in planning a system to suit your needs.

**NOTE:** The remote filling station pump stalls (dead-heads) when the reservoir is full. If the pump does not stall (dead-head) there is a leak in the system.

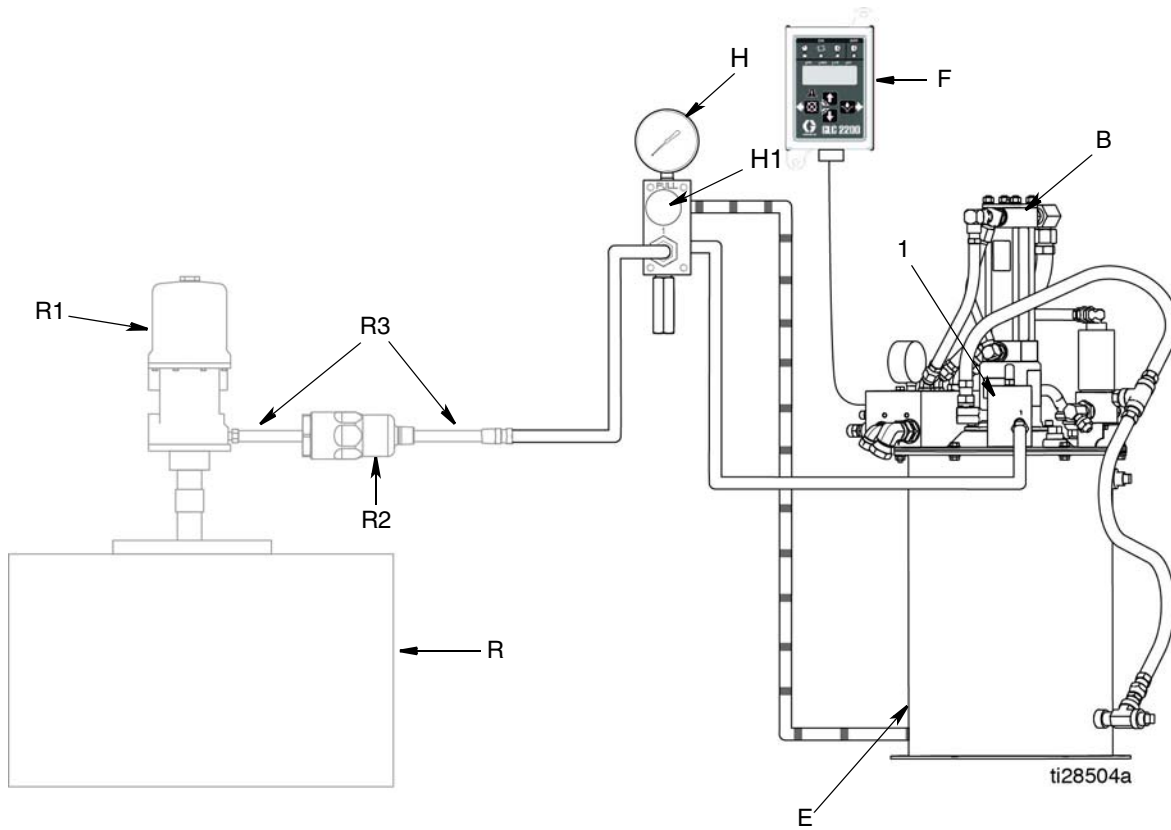


FIG. 5

#### Key:Dispense System

- B Pump
- E Reservoir
- F Lubrication Controller
- H Fill Valve
- H1 Pressure Relief Knob

#### Key:Remote Fill

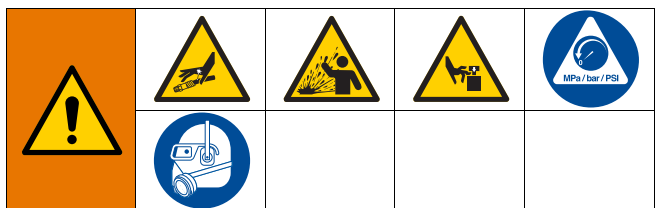
- R Remote Fill Reservoir
- R1 Remote Fill Pump
- R2 Filter (recommended in grease systems and contaminated environments)
- R3 Refill Line◆

◆ Install the refill line (R3) in an easily accessible location between the Remote Fill Station Pump (R1) and Auto Fill Shut Off Valve (1).

The fill valve is used to relieve pressure in the refill line and to reset the Auto Fill Shut Off.

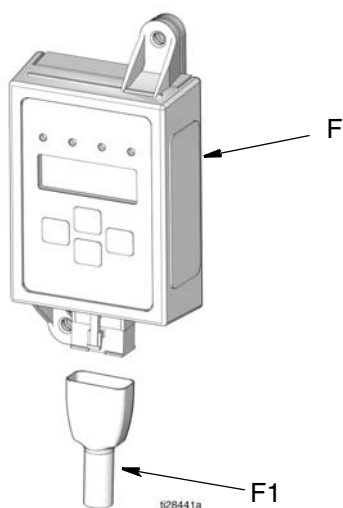


## Disassembly



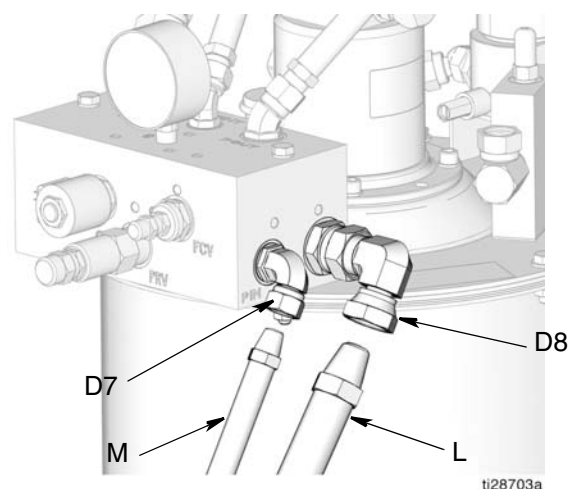
**NOTE:**

- The reference numbers used in the following instructions refer to Kit Parts, page 18.
  - The upper case letters used in the following instructions refer to the Component Identification and Typical Installation illustrations beginning on page 5.
  - The double lower case letters used in the following instructions refer to component parts or user provided parts not included in the Kit.
1. Disconnect the Dyna-Star pump (B) from power source.
  2. **Relieve pressure** (see Pressure Relief Procedure, page 4).
  3. Disconnect power connector (F1) between the lubrication controller (F) and control module (FIG. 6).



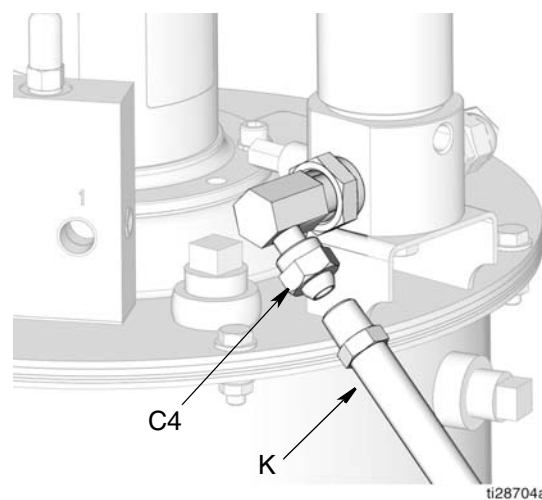
**FIG. 6**

4. Disconnect hydraulic lines (L and M) connected to the control module (D) fittings (D7) and (D8).



**FIG. 7**

5. Disconnect the high pressure lubricant supply line (K) from the lubricant output connection (C4).



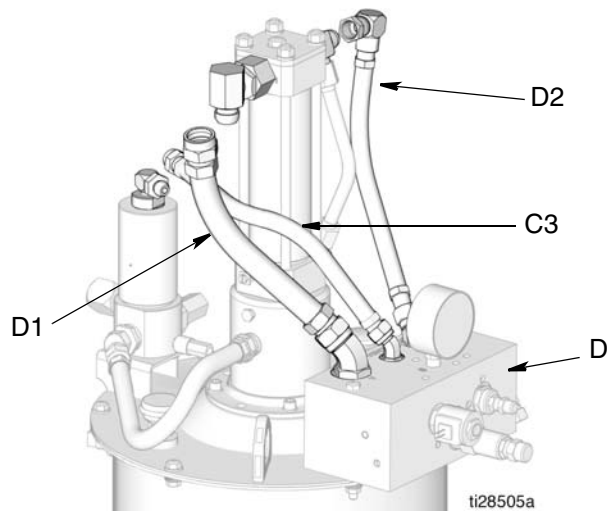
**FIG. 8**

6. Disconnect the pump tank line (D1) and the pump high pressure hydraulic line (D2) from the pump fittings as shown in FIG. 9.

**NOTE:** Do not disconnect these lines from the control module (D).

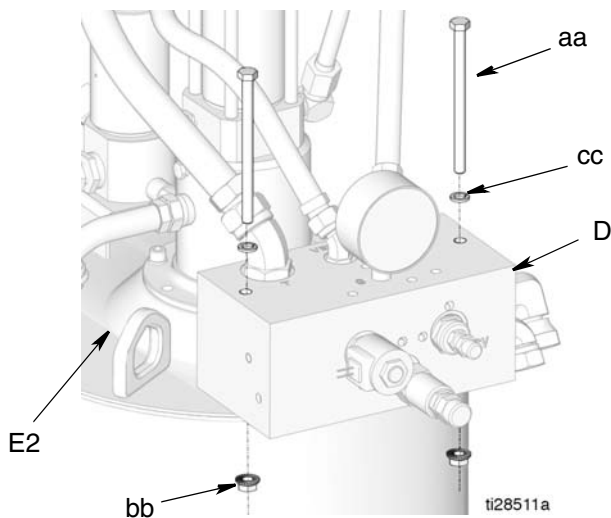
7. Disconnect the vent valve hydraulic control line (C3) from the vent valve (C) (see FIG. 9).

**NOTE:** Do not disconnect these lines from the control module (D).



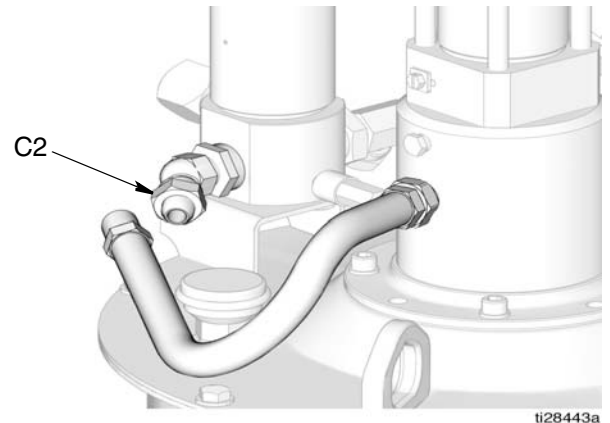
**FIG. 9**

- Remove screws (aa), nuts (bb) and washers (cc) holding control module (D) to the pump cover (E2). Remove the control module (including hoses C3, D1 and D2) disconnected from pump in Step 6-7) from pump cover (FIG. 9).



**FIG. 10**

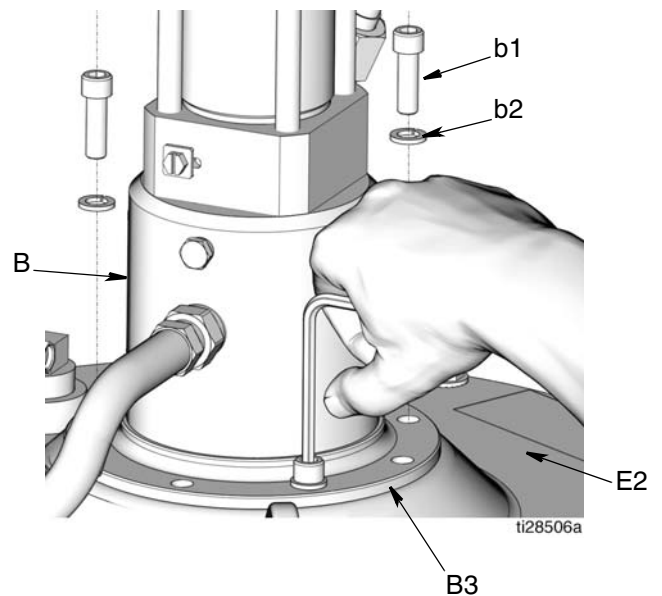
- Disconnect the pump output line from the vent valve pump outlet fitting (C2) as shown in FIG. 11. Do not disconnect the line from the pump.



**FIG. 11**

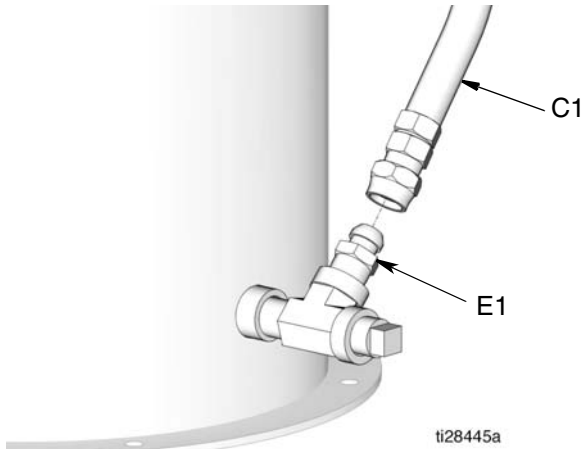
- Remove the four screws (b1) and washers (b2) securing pump (B) to reservoir cover (E2) (FIG. 12). Save these screws and washers for reassembly.

Remove pump (B) and gasket (B3) from reservoir cover. Discard gasket. A new gasket is included in the kit and should be used for reassembly.



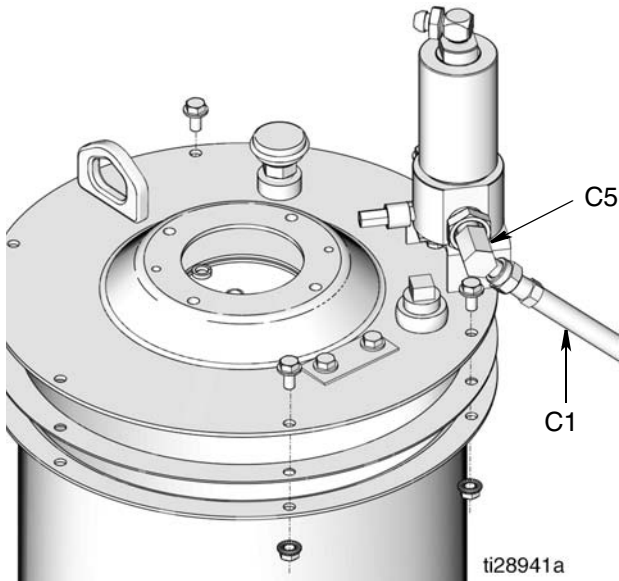
**FIG. 12**

11. Disconnect hose (C1) from tank port fitting (E1) (FIG. 13).



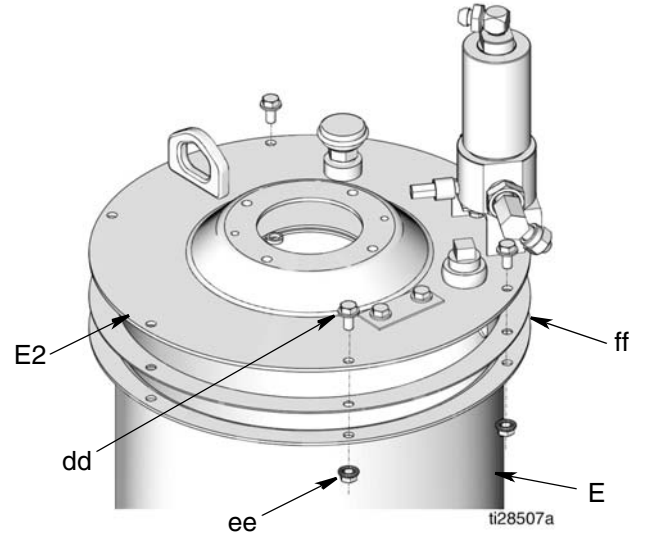
**FIG. 13**

12. Disconnect hose (C1) from elbow fitting (C5) (FIG. 14).



**FIG. 14**

13. Remove the screws (dd) and nuts (ee) (holding the cover (E2) to the reservoir (E) (FIG. 15). Discard these parts. For reassembly use the new, longer screws and nuts included in the kit.



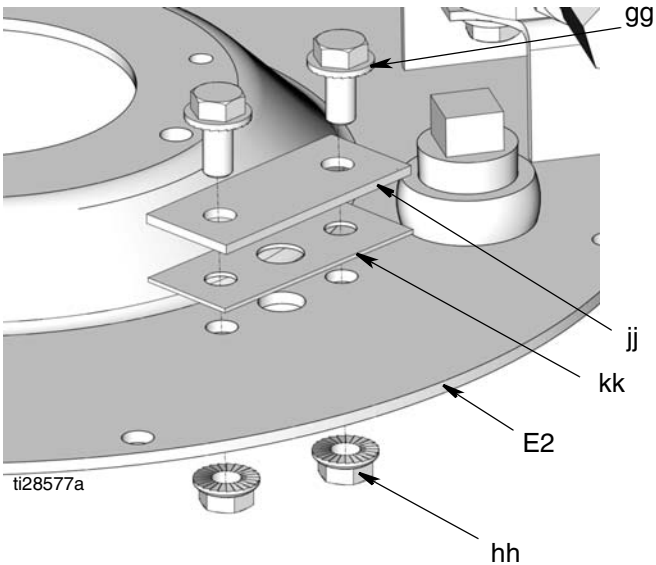
**FIG. 15**

14. Remove cover (E2) and gasket (ff) (FIG. 15). Discard gasket. A new gasket is provided in the kit.

## Reassembly

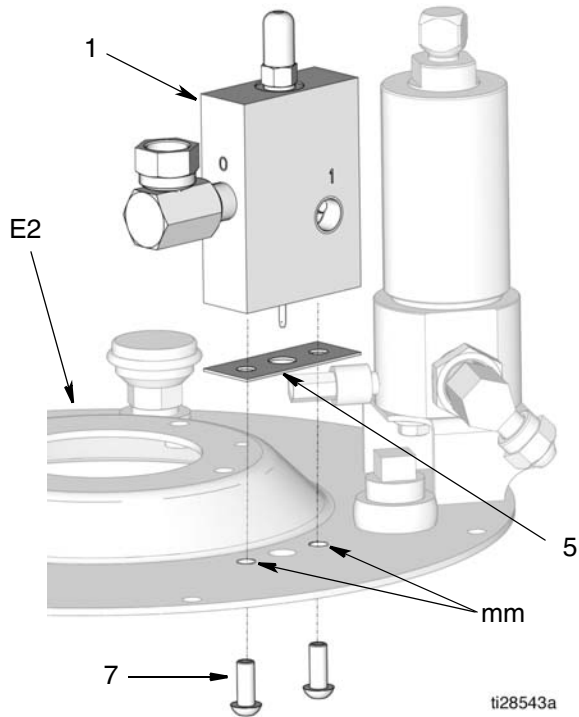
**NOTE:**

- For reassembly, always use the new parts included in the kit.
  - Prior to installation, apply thread sealant or PTFE tape to all npt tapered pipe threads.
  - The reference numbers used in the following instructions refer to Kit Parts, page 18.
  - The upper case letters used in the following instructions refer to the Component Identification and Typical Installation illustrations beginning on page 5.
  - The double lower case letters used in the following instructions refer to component parts or user provided parts not included in the Kit.
1. Remove screws (gg) and nuts (hh) from accessory cover plate (jj) installed on the pump reservoir cover (E2) (FIG. 16). Remove plate and gasket (kk). Discard screws, nuts, plate and gasket, you will not use them again. Use new parts included in the kit.



**FIG. 16**

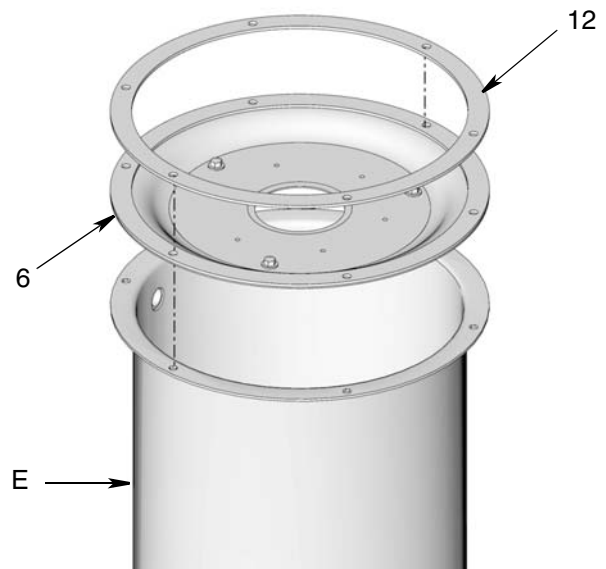
2. Align the Auto-Fill Shut Off Valve seal (5) with holes (mm) in cover (E2) (FIG. 17).
3. Install Auto-Fill Shut Off Valve (1) over the Auto-Fill Shut Off seal (5). Install button screws (7) through holes (mm). Tighten screws securely. See FIG. 17.



**FIG. 17**

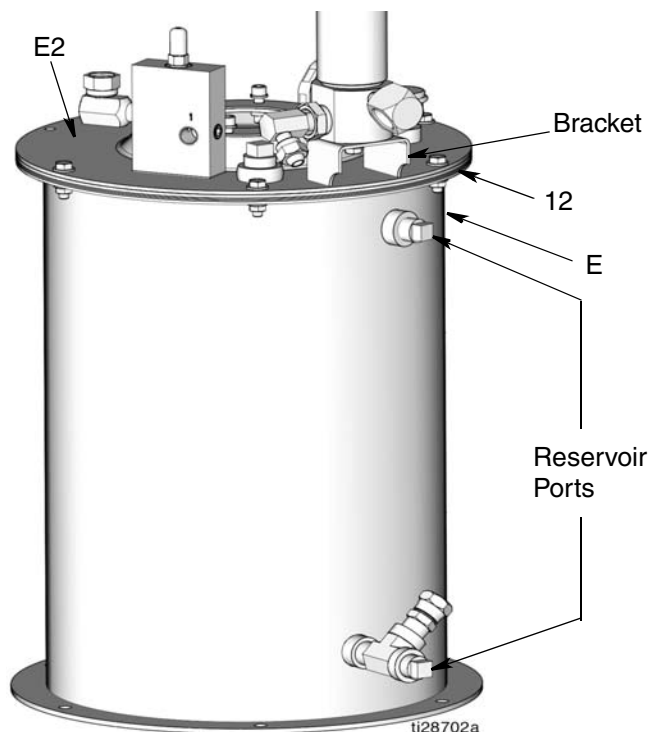
4. Align the diaphragm (6) on reservoir (E) (FIG. 18), matching holes around the rim of diaphragm with the holes in the top of the reservoir. Refer to FIG. 18 to determine the correct orientation of the diaphragm.

**NOTE:** The diaphragm (6) has six flapper valves (not pictured). When the diaphragm is correctly installed, flapper valves will face downward.



**FIG. 18**

5. Install gasket (12) over the diaphragm (6) (FIG. 18), matching holes in gasket with the holes in rim of diaphragm.
6. Install cover (E2) over gasket (12). Be sure the cover is correctly aligned on reservoir (E) as shown in (FIG. 19). When the cover is correctly aligned the vent valve bracket will align with the reservoir ports.

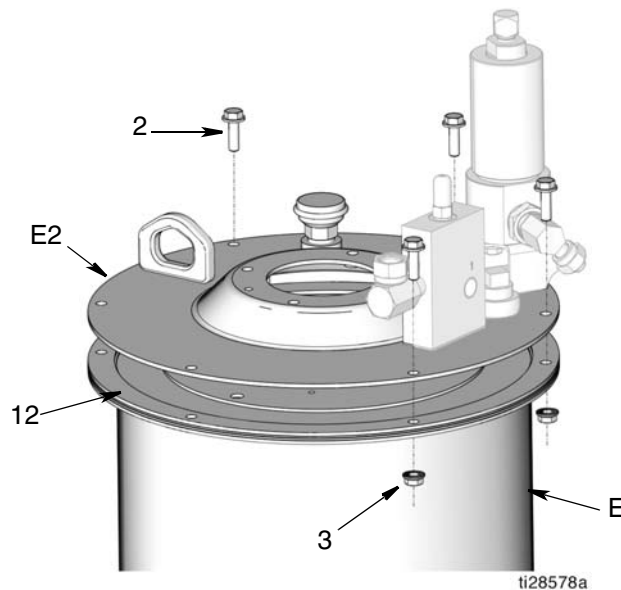


**FIG. 19**

7. Securely fasten cover (E2) in place on top of reservoir (E) using new longer screws (2) and nuts (3) included in the kit.

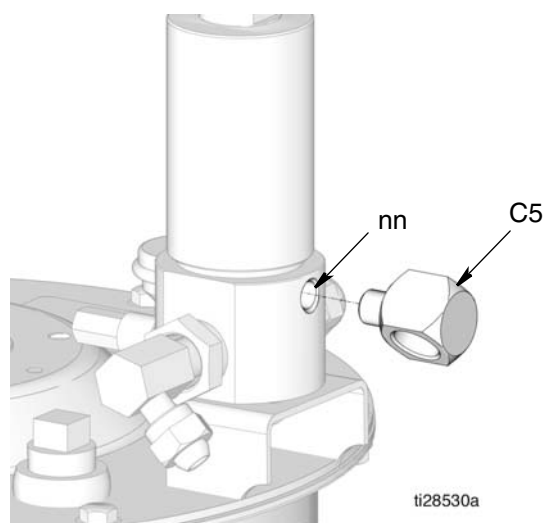
**HINT:** To ensure the cover (E2) is tightened correctly, turn nuts (3) until the cover is snug to reservoir (E). Then turn each nut one more half turn.

**NOTE:** Do not over tighten cover (E2) to reservoir (E). Over tightening could crush the gasket (12) installed between the cover and reservoir and push the gasket out of place and break the seal.



**FIG. 20**

8. Remove elbow fitting (C5) from vent valve outlet (nn). Discard elbow fitting (FIG. 21).



**FIG. 21**

9. Install the tee fitting (13) to the adapter fitting (11). Then install fitting assembly in the vent valve port (nn).

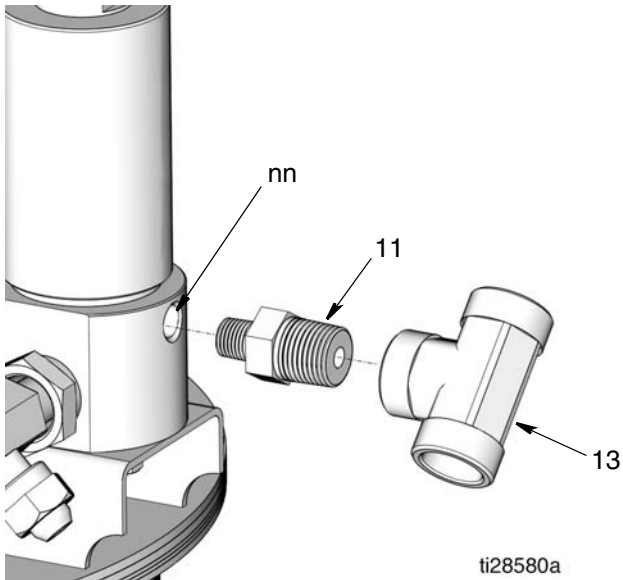


FIG. 22

**NOTE:** When the tee fitting (13) is correctly installed, the tee fitting should be oriented to the vent valve (C) as shown in FIG. 23.

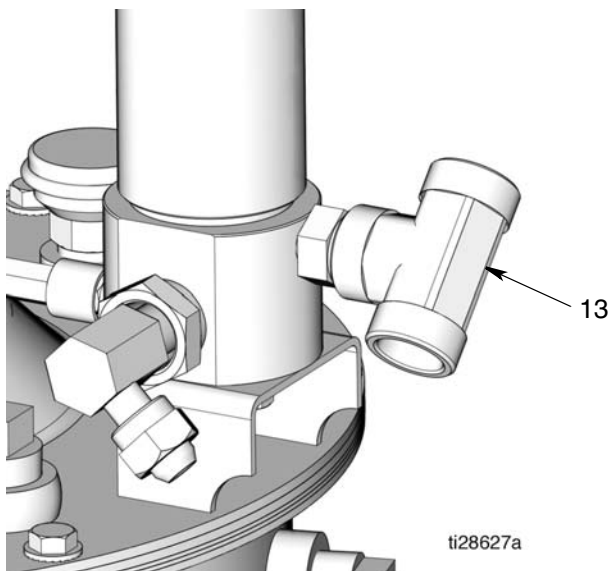


FIG. 23

10. Install swivel fitting (9) in Auto-Fill Shut Off (1) outlet port (pp) marked with a "0".

**NOTE:** When correctly installed, the outlet elbow should be facing up as shown in FIG. 24.

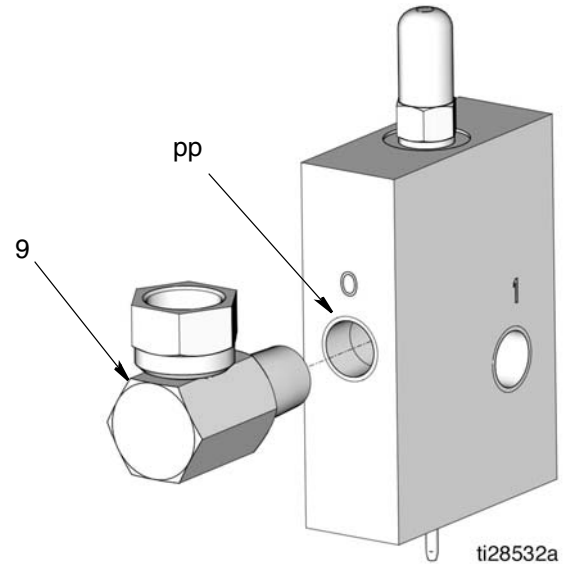


FIG. 24

11. Install the vent hose line (C1) removed in Step 11, page 11, between the fill port fitting (E1) and the tee fitting (13). Refer to FIG. 25.

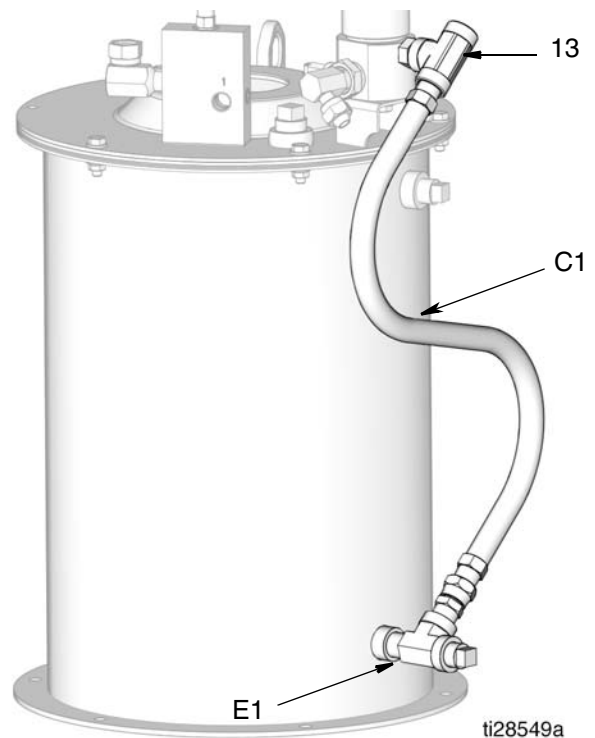


FIG. 25

12. Install fill hose (8) as shown in FIG. 26 - between the elbow fitting (9) and the tee fitting (13).

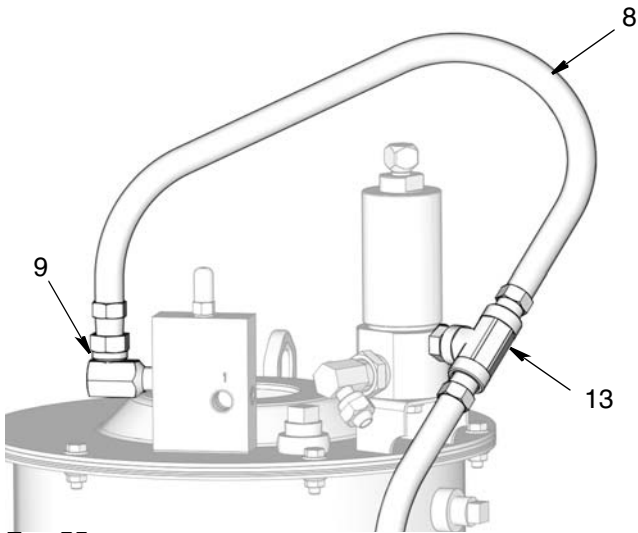


FIG. 26

13. Install control module (D) to pump cover (E2) using screws (aa) and nuts (bb) and washers (cc) removed in Step 8, page 10.

**NOTE:** Do not over screws (aa) to control module (D). Over tightening could crush the gasket (12) installed between the cover and reservoir (E) and push the gasket out of place and break the seal.

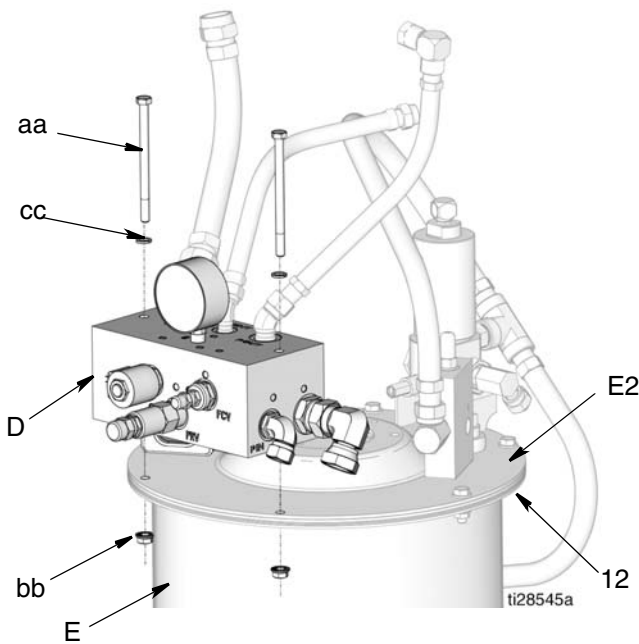


FIG. 27

14. Align pump gasket (4) over opening in the center of the pump cover (E2). Then install pump down-tube through opening in the center of the cover (E2) and hole in the center of the diaphragm (6) as shown in FIG. 28.

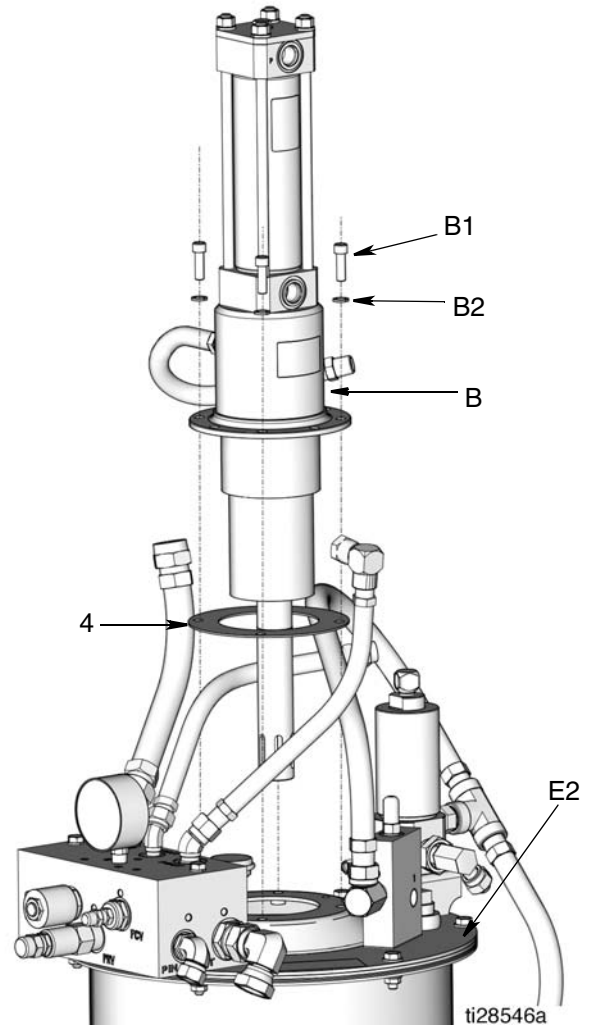
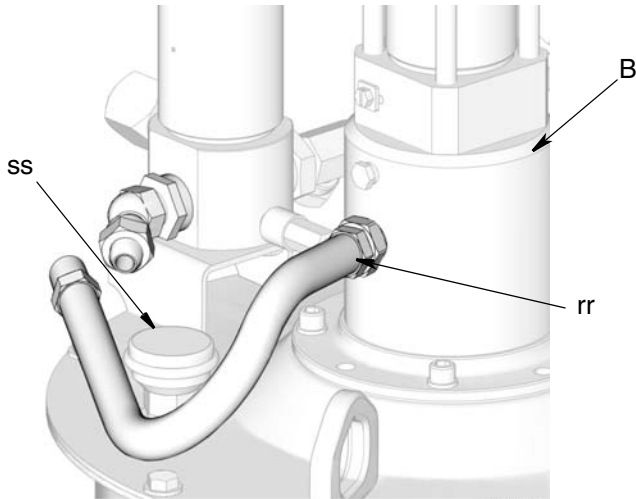


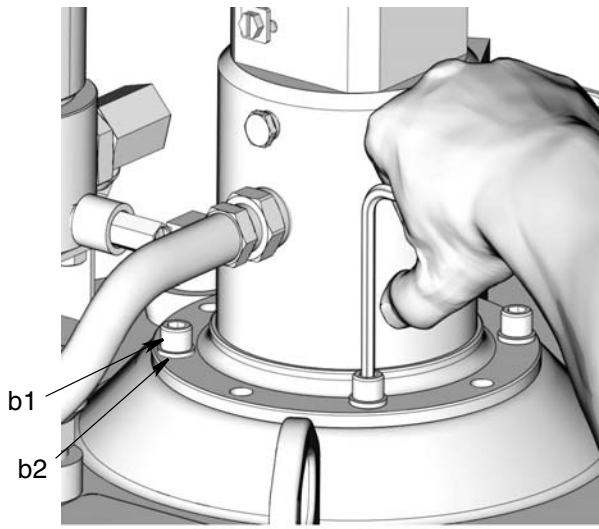
FIG. 28

**NOTE:** When the pump (B) is correctly installed, the pump outlet (rr) will be aligned to the breather (ss) as shown in FIG. 29.



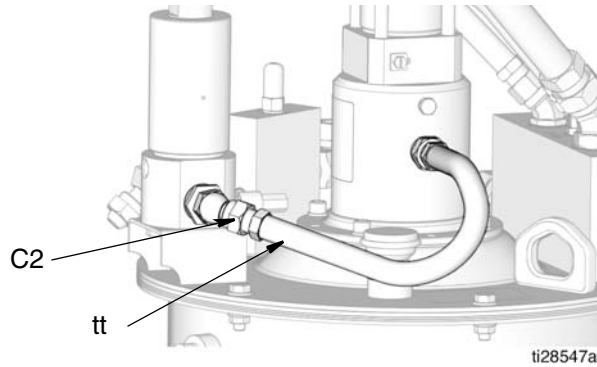
**FIG. 29**

15. Securely fasten pump (B) to cover (E2) using screws (b1) and washers (b2) (FIG. 28 and FIG. 30) removed during disassembly. Use a wrench to tighten securely.



**FIG. 30**

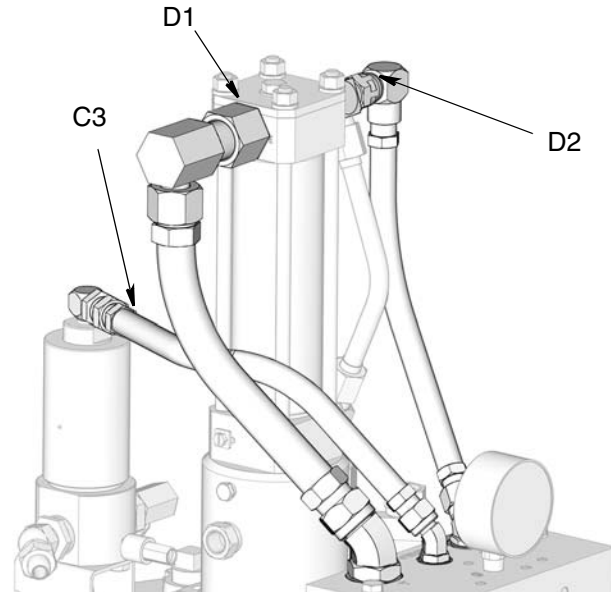
16. Connect the pump output line (tt) to the vent valve pump output fitting (C2) as shown in FIG. 31. Use a wrench to tighten securely.



**FIG. 31**

17. Connect the pump tank line (D1), and the pump high pressure hydraulic line (D2) to the pump fittings as shown in FIG. 32. Use a wrench to tighten securely.

18. Connect the vent valve hydraulic control line (C3) to the vent valve as shown in FIG. 32.

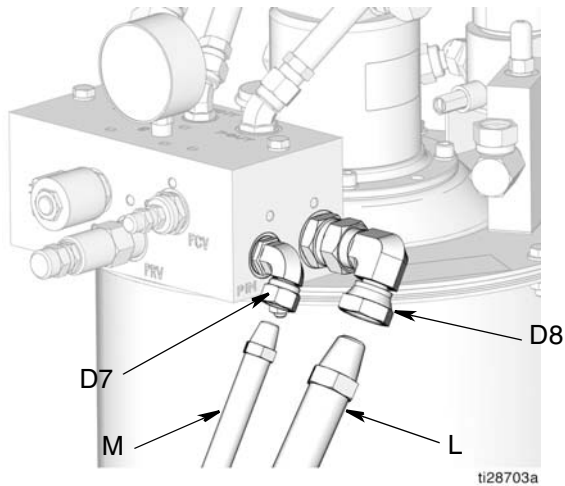


**FIG. 32**



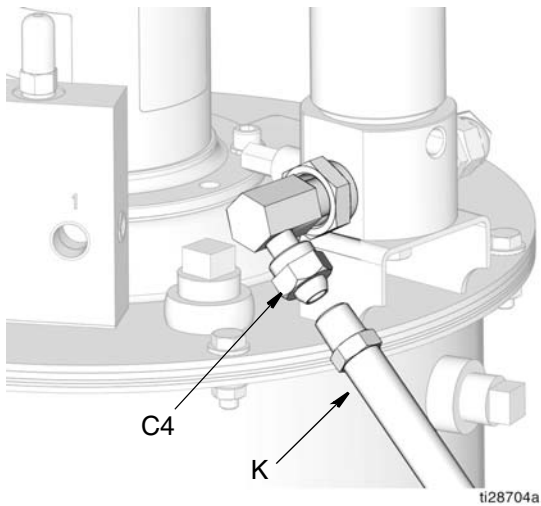
19. On the control module (D) (FIG. 33):

- a. Connect the hydraulic tank line (L) to the hydraulic tank connection swivel (D8).
- b. Connect the high pressure hydraulic line (M) to the high pressure hydraulic connection swivel (D7).



**FIG. 33**

20. Connect the high pressure lubricant supply line (K) to the lubricant output connect (C4) (FIG. 34).



**FIG. 34**

21. Start and run pump. Refer to instruction manual 3A3429 (included in this kit), for pump operation and troubleshooting instructions.

# Kit 17L749 Parts

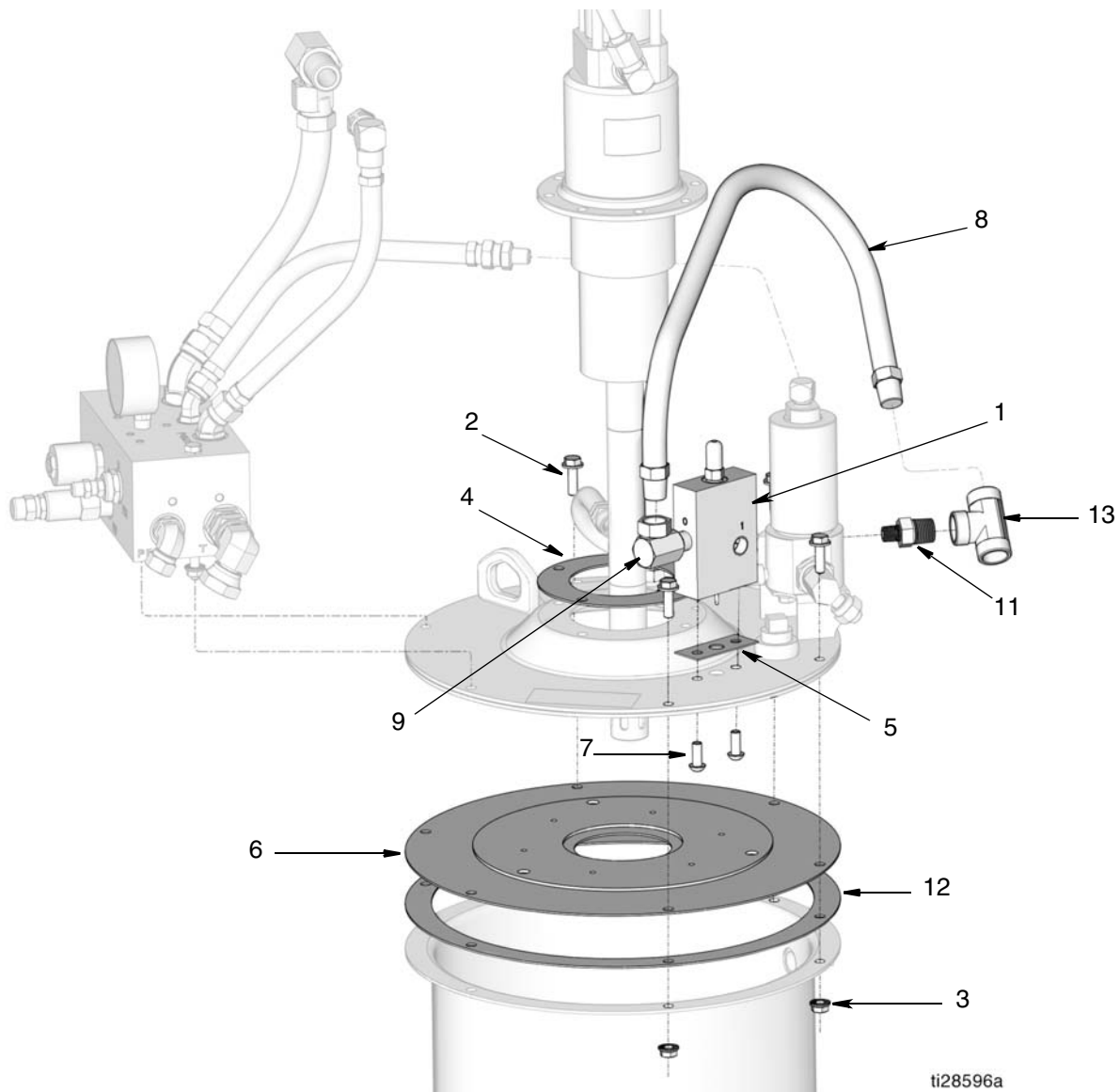


FIG. 35

Ref	Description	Qty
1	VALVE, Auto-Fill Shut Off	1
2	SCREW, cap, hex head	4
3	NUTS	4
4	GASKET, pump	1
5	SEAL, Auto-Fill Shut Off Valve	1
6	DIAGPHRAGM assembly	1
7	SCREW, cap, button head, M8 x 20	2
8	HOSE, 1/2 inch vent	1
9	FITTING, swivel, union, 90-degree	1
11	FITTING, nipple, 1/2 in x 1/4 in hex	1
12	GASKET, cover	1
13	FITTING, tee, pipe	1
❖	MANUAL, instructions, 3A3429	

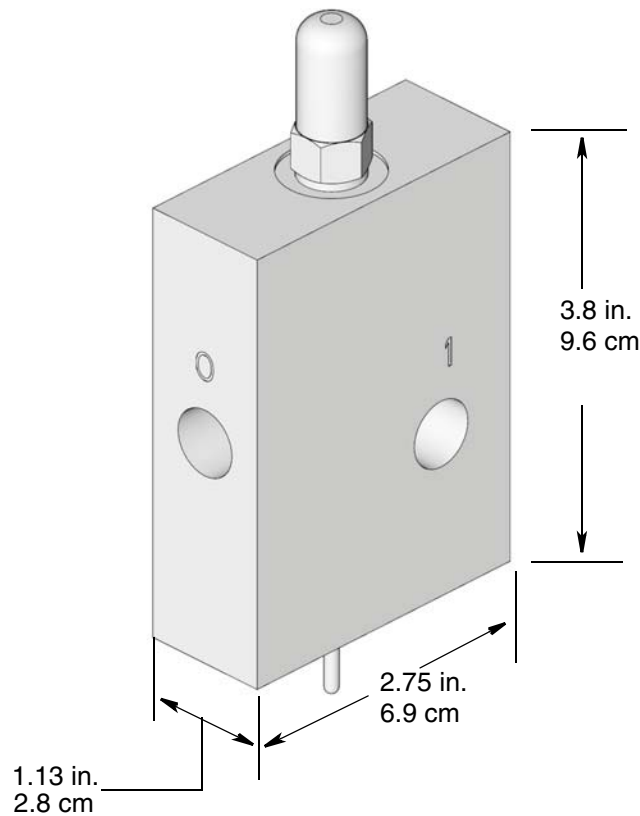
\*Prior to installation, apply thread sealant or PTFE Tape to all npt tapered pipe threads.

❖After the Auto-Fill Shut Off is installed on the Dyna-Star pump, refer to instruction manual 3A3429 (included in this kit), for pump instructions, including Operation and Troubleshooting.

# Technical Data

Auto-Fill Shutoff Valve for Dyna-Star HP or HF Pump		
	US	Metric
Maximum working pressure	5000 psi	34.4 MPa, 344 bar
..... Inlet/Outlet Sizes		
Outlet (marked "0")	3/8 in. npt(f)	
Inlet (refill - marked "1")	3/8 in. npt(f)	
.....		
Maximum flow	2 gpm	7.6 lpm
..... Wetted Parts		
Valve	neoprene rubber, zinc plated parts, stainless steel, chrome plated parts, plastic acetal	
Seal	fluorocarbon	
..... Temperature		
Working temperature	-13° F to +122°F	-25°C to +50°C

# Dimensions



## Graco Information

**To place an order**, contact your Graco distributor or to identify the nearest distributor call,  
**Toll Free: 1-800-533-9655, Fax: 612-378-3590**

*All written and visual data contained in this document reflects the latest product information available at the time of publication.  
Graco reserves the right to make changes at any time without notice.*

Original instructions. This manual contains English. MM 3A3993

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