Instructions

Dyna-Star® HP Pump System

Provides lubricant flow and pressure to operate a single line parallel automatic lubrication system. For automatic lubrication systems only. Not approved for use in European explosive atmosphere locations.

Models
77X202 - MODULE, EDS, HP, AFSO, LL, 60 lb
77X203 - MODULE, EDS, HP, AFSO, LL, 90 lb
77X402 - MODULE, EDS, HP, SP, AFSO, LL, 60 lb
77X403 - MODULE, EDS, HP, SP, AFSO, LL, 90 lb
24VDC, Injector module with pump, tube-in-tube, vent valve, auto-fill shut off, low level, 60 lb. or 90 lb. reservoir.

3500 psi (24.1 MPa, 241 bar) Maximum Working Pressure
5000 psi (34 MPa, 344.7 bar) Maximum Refilling Inlet Pressure

Important Safety Instructions
Read all warnings and instructions in this manual, the Dyna-Star HP and HF Pump instruction manual and all related component manuals (listed below). Save all instructions.

Related Manuals

<table>
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<th>Description</th>
</tr>
</thead>
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<td>Dyna-Star HP and HF Pump</td>
</tr>
<tr>
<td>332518</td>
<td>Dyna-Star HP and HF Auto-Fill Shut Off Kit</td>
</tr>
<tr>
<td>332519</td>
<td>Dyna-Star HP Vent Valve Kit</td>
</tr>
<tr>
<td>333393</td>
<td>Fill Valve</td>
</tr>
<tr>
<td>334998</td>
<td>Power Cable Kit</td>
</tr>
<tr>
<td>334999</td>
<td>Cable Harness Kit</td>
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<td>3A2960</td>
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**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.

### FIRE AND EXPLOSION HAZARD

When flammable fluids are present in the work area, such as gasoline and windshield wiper fluid, be aware that flammable fumes can ignite or explode. To help prevent fire and explosion:

- Use equipment only in well ventilated area.
- Eliminate all ignition sources, such as cigarettes and portable electric lamps.
- Ground all equipment in the work area.
- Keep work area free of debris, including rags and spilled or open containers of solvent and gasoline.
- Do not plug or unplug power cords or turn lights on or off when flammable fumes are present.
- Use only grounded hoses.
- **Stop operation immediately** if static sparking occurs or you feel a shock. Do not use equipment until you identify and correct the problem.
- Keep a working fire extinguisher in the work area.

### SKIN INJECTION HAZARD

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. **Get immediate surgical treatment.**

- Do not point dispensing device at anyone or at any part of the body.
- Do not put your hand over the fluid outlet.
- Do not stop or deflect leaks with your hand, body, glove, or rag.
- Follow the **Pressure Relief Procedure** when you stop dispensing and before cleaning, checking, or servicing equipment.
- Tighten all fluid connections before operating the equipment.
- Check hoses and couplings daily. Replace worn or damaged parts immediately.
### WARNINGS

**EQUIPMENT MISUSE HAZARD**
Misuse can cause death or serious injury.
- Do not operate the unit when fatigued or under the influence of drugs or alcohol.
- Do not exceed the maximum working pressure or temperature rating of the lowest rated system component. See Technical Specifications in all equipment manuals.
- Use fluids and solvents that are compatible with equipment wetted parts. See Technical Specifications 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.
- Turn off all equipment and follow the Pressure Relief Procedure when equipment is not in use.
- Check equipment daily. Repair or replace worn or damaged parts immediately with genuine manufacturer’s replacement parts only.
- Do not alter or modify equipment. Alterations or modifications may void agency approvals and create safety hazards.
- Make sure all equipment is rated and approved for the environment in which you are using it.
- Use equipment only for its intended purpose. Call your distributor for information.
- Route hoses and cables away from traffic areas, sharp edges, moving parts, and hot surfaces.
- Do not kink or over bend hoses or use hoses to pull equipment.
- Keep children and animals away from work area.
- Comply with all applicable safety regulations.

### MOVING PARTS HAZARD
Moving parts can pinch, cut or amputate fingers and other body parts.
- Keep clear of moving parts.
- Do not operate equipment with protective guards or covers removed.
- Pressurized equipment can start without warning. Before checking, moving, or servicing equipment, follow the Pressure Relief Procedure and disconnect all power sources.

### BURN HAZARD
Equipment surfaces and fluid that is heated can become very hot during operation. To avoid severe burns:
- Do not touch hot fluid or equipment.

### PERSONAL PROTECTIVE EQUIPMENT
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:
- Protective eyewear, and hearing protection.
- Respirators, protective clothing, and gloves as recommended by the fluid and solvent manufacturer.
Typical Installation: Injector System

Systems with Pressure Relief Valve in the Refilling Line

The installation shown is only a guide for selecting and installing system components. 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. 1**

**Key:**
- A. Lubricant outlet connection (marked with an "O")
- B. Pump
- C. Ignition switch
- C1. Fuse
- D. High-pressure lubricant supply lines
- E. Injector banks
- F. Lubrication controller
- G. Fill port (not used with Auto-Fill Shut Off)
- H. Overflow port (not used with Auto-Fill Shut Off)
- J. Breather
- K. Reservoir
- L. Vent Valve
- M. Motor
- N. Fluid overflow container
- P. Pump - remote filling station
- R. Reservoir - remote filling station
- S. Auto-Fill Shut Off
- T. Low Level Sensor
- U. Pressure Relief
- V. Supply Hose
Typical Installation: Series Progressive System

The installation shown below is only a guide for selecting and installing system components. Contact your Graco distributor for assistance in planning a system to suit your needs.

**Key:**
- **A** Lubricant output connection (marked with an “O”)
- **B** Pump
- **C** Ignition switch*
- **D** High-pressure lubricant supply lines*
- **E** Primary metering device*
- **F** Lubrication controller*
- **G** Fill port (not used with Auto-Fill Shut Off)
- **H** Overflow port (not used with Auto-Fill Shut Off)
- **J** Breather
- **K** Reservoir / Tank
- **L** Series Progressive metering device
- **M** Motor
- **N** Bearing
- **P** Auto-Fill Shut Off

*User provided
Systems with Fill Valve in the Refilling Line

The installation shown is only a guide for selecting and installing system components. 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.

**Key:**

- **P** Pump - remote filling station
- **R** Reservoir - remote filling station
- **V** Supply Hose
- **W** Pressure Relief Line
- **Y** Instruction Label
- **Z** Fill Valve
- **Z1** Pressure Relief Knob
- **AA** Refilling Line
- **BB** Filter

**Install the fill valve (Z) in an easily accessible location between the remote fill station pump (P) and Auto-Fill Shut Off Valve (S).**

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

**NOTE:** The components highlighted in Fig. 3 identify the unique features in a Fill Valve installation. See Typical Installation on page 5 for a complete list of the other system components.
Installation

Pressure Relief Procedure

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.

To relieve pressure in the system, use two wrenches working in opposite directions on pump outlet fitting to **slowly loosen fitting only** until fitting is loose and no more lubricant or air is leaking from fitting as shown in Fig. 4.

Grounding

The equipment must be grounded to reduce the risk of static sparking. Static sparking can cause fumes to ignite or explode. Grounding provides an escape wire for the electrical current.

System Configuration and Wiring

NOTE: Cable wiring harness kits are available from Graco. See Parts page 22 for a complete list of available kits.

Fuses

**NOTICE**

Fuses (user supplied) are required on all models. To avoid equipment damage:

- Never operate the Dyna-Star Pump models without a fuse installed.
- A fuse of the correct voltage and amperage must be installed in line with the power entry to the system. Graco recommends using 35A fuses.

NOTE: The pump is equipped with a 6-pin (4 pins are used), M23 connector for use with Graco cable wiring harness kit 77X546. See Parts page 22.

Fig. 5 shows the pump connections when used with Graco Wire Harness 77X546. Also see pages 10 and 11 for connection details when a customer/user supplied wiring harness is used.
Pump Connection with Graco Wiring Harness 77X546

**Wire Connection Table**

<table>
<thead>
<tr>
<th>Pin</th>
<th>Wire Color</th>
<th>Connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Orange</td>
<td>Signal +</td>
</tr>
<tr>
<td>2</td>
<td>Black</td>
<td>Power -</td>
</tr>
<tr>
<td>4</td>
<td>Red</td>
<td>Power +</td>
</tr>
<tr>
<td>5</td>
<td>Blue</td>
<td>Signal -</td>
</tr>
</tbody>
</table>

**Fig. 5**

**Fig. 6**
Installation

User Supplied Wiring Harness

24 VDC With Signal Input

![Diagram of 24 VDC With Signal Input](image)

Fig. 7: Pump control switch shown in signal mode

*A Vent Valve is only used in an injector-based system.

24 VDC With External Relay

![Diagram of 24 VDC With External Relay](image)

Fig. 8: Pump controls switch shown in power mode

*A Vent Valve is only used in an injector-based system.
**Motor Control Board**

**Key**

A  + (Positive) Power Input  
B  - (Negative) Power Input  
C  Turn On Signal -  
D  Turn On Signal +  
E  Red (Fault) LED - Blinks type of fault (See Fault Table)  
F  Green (Power) LED -  
G  Current Control Potentiometer (Minimum: Turn Knob Counter-Clockwise / Maximum: Turn Knob Clockwise)  
H  Flow Control Potentiometer (Minimum: Turn Knob Counter-Clockwise / Maximum: Turn Knob Clockwise)  
J  Pump Control Switch*  
*NOTE: Be sure power to pump is OFF before switching between the PWR and SIG modes.

- SIG - Turns pump on when voltage is applied to:  
  - SIG IN -  
  - SIG IN +  
K  Blue Motor Wire Connection  
L  Yellow Motor Wire Connection  
M  Green Motor Wire Connection  
N  J5 Connector - Motor Hall Cable Connector

**Fig. 9**
Fault Table: Red LED (E)

<table>
<thead>
<tr>
<th>Fault</th>
<th>Blinks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Over Current</td>
<td>1</td>
</tr>
<tr>
<td>Locked Rotor</td>
<td>2</td>
</tr>
<tr>
<td>Low or High Voltage</td>
<td>3</td>
</tr>
<tr>
<td>High Motor temp</td>
<td>4</td>
</tr>
<tr>
<td>Missing Temp Sensor</td>
<td>5</td>
</tr>
<tr>
<td>High Board Temp</td>
<td>6</td>
</tr>
<tr>
<td>Bad Hall Cable</td>
<td>7</td>
</tr>
</tbody>
</table>

Pump Control Operation

**NOTICE**
To avoid equipment damage, remove power before switching modes from signal to power or power to signal.

- When the pump control switch (J, Fig. 9 page 11) is set in signal mode, the motor/pump runs when voltage is applied to the signal and power connectors.
- When the pump control switch (J, Fig. 9 page 11) is set in power mode, the motor/pump runs when voltage is applied to the power connectors. The signal connectors do not require voltage.

Current Control and Flow Motor Control Settings

Current and Flow Control Adjustment

1. Remove screws (a), cover (b) and gasket (c) to access the control board (Fig. 10).

Fig. 10

2. Current and Flow control are adjusted on the Motor Control Board using the Current Control Potentiometer Knob (G) and the Flow Control Potentiometer Knob (H) (page 11). The Current Control knob (G) governs pump speed, which in turn governs flow. The Current setting has precedence over the Flow Rate setting. You may be limited in achievable Flow Rate by the Current setting.

Turn knob clockwise to increase setting value.
- Turn knob counter-clockwise to decrease setting value.

Current

<table>
<thead>
<tr>
<th>Current</th>
<th>Flow</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

Amps | in³/min.
15   | 10   
30   | 15   

NOTE: Values are based on lab test conditions at ambient temperature 72°F (22°C) with an input voltage of 24V. Actual results may vary and should be verified in the application.

3. Replace gasket (c) and cover (b) and screws (a), being careful not to pinch any wires. Tighten bolts securely. Torque bolts to 17-19 ft.-lbs (23-26 N.m).
Reservoir Mounting

1. Mount Reservoir (K) on a sturdy, flat surface with 6 (six) 3/8 inch diameter bolts. Note location of Fill Port (G), Overflow port (H), and Low Level (T) and Lubricant Outlet Connection (A) for easy access once installed.

2. Connect High Pressure Lubricant Supply Line (D) to the Lubricant Outlet Connection (A).

3. Ground system (see Grounding). Mount reservoir to grounded chassis member.

Pump (B)

Pump instructions are provided in the Dyna-Star HP or HF Pump instruction manual 332514 provided with your system.

Pump Module Operation

The pump module provides lubricant flow and pressure to operate a single line parallel automatic lubrication system.

The module requires an electrical power supply and a timed signal from a lubrication controller (F). Based on these signals, the pump module provides lubricant flow and pressure to operate the injectors (E) and vents the injector system to reset the indicators.

1. At the start of the cycle, the lubrication controller (F) initiates a signal, closing the vent valve (L) and starting the pump (B).

2. The pump (B) builds pressure in supply line (D) until all the injectors have actuated. Then the pressure switch sends a signal to the lubrication controller (F), ending the cycle.

3. The lubrication controller (F) terminates the signal to the pump (B) and power to the vent valve (L).

4. The vent valve (L) opens.

5. Pressure in the supply line (D) is relieved back into the reservoir, resetting all injectors (E).

Inlet and Outlet Components

Vent Valve (L)

The vent valve is used to reduce system pressure and allow the injector to reset. When energized, the valve closes and holds pressure through the outlet port (marked “0”) on the vent valve. When de-energized, it vents pressure internally to tank.

Refer to the Dyna-Star HP or HF Vent Valve Kit manual 332515 for installation and operation instructions.
Refilling Line Requirements

To relieve the stall pressure in the refilling line a pressure relief valve (U) (Fig. 1, page 5) or a fill valve (Z) (Fig. 3, page 7) must be installed in the system.

Systems without Fill Valve

A pressure relief valve (U) and overflow container (N) for collecting excess fluid that drains during pressure relief, must be installed in an easily accessible location between the remote filling station pump (P) and the Auto-Fill Shut Off (S). This pressure relief valve is used to relieve pressure in the refilling line and to reset the Auto-Fill Shut Off. See Typical Installation, page 5.

A Pressure Relief Kit: 247902 is available from Graco. Contact your distributor or Graco Customer Service for additional information about this kit.

Systems with Fill Valve (Z)

Install the fill valve (Z) in an easily accessible location between the remote fill station pump (P) and Auto-Fill Shut Off Valve (S). See Typical Installation, page 7.

The fill valve is used to relieve pressure in the refilling line and to reset the Auto-Fill Shut Off. See the Fill Valve instruction manual 333393. Graco fill valve, part no. 77X542 is available. Contact your local Graco distributor.

Refilling Pump (P) Requirements

The remote filling station pump stalls (dead-heads) when the reservoir is full, causing the supply system pressure to rise to the maximum output pressure of the filling station pump. To help prevent equipment damage or serious injury caused by pressurized fluid, such as skin injection or injury from splashing fluid, always use a remote filling station pump with a maximum output pressure of 5000 psi (34 MPa, 344.7 bar) and use a refill line with a pressure rating equal to or greater than the refill pump.

Low Level Sensor (T)

When grease is present the LED is green. When the lubricant level in the reservoir reaches approximately 30% (low level), the LED turns to an amber color. (See Fig. 11 and the Table below).

<table>
<thead>
<tr>
<th>Condition</th>
<th>LED COLOR</th>
<th>Out 2 (Pin #2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grease Present</td>
<td>Green</td>
<td>0 VDC</td>
</tr>
<tr>
<td>No Grease Present</td>
<td>Amber</td>
<td>24 VDC</td>
</tr>
</tbody>
</table>

NOTE:
- At 30% capacity, the amber low level signals the tank is reaching a point where the operator should refill the tank. There is still lubricant in the tank and immediate shutdown is not required.
- If your are using a GLC2200 (part number 24N468, Series F or later only), the system will enter a low level warning condition (LL03) after the switch input is closed for more than 1 second. The pump continues to operate.

Keep the sensor protective cover (11b, page 19) installed to prevent sensor damage.

Low Level Sensor Wiring instructions begin on page 15.

NOTE: Graco GLC2200 (part number 24N468, Series F or later only) can be used to run the pump and monitor the low level. Refer to Fig. 13 for Low Level Sensor wiring in systems controlled with a GLC2200. A Low Level Sensor cable (part number 129072) and a GLC2200 Wiring Harness (part number 24P314) are required.
Low Level Sensor Wiring with GLC2200 Lube Controller

![Diagram of sensor wiring](image1)

**Fig. 12**

Sensor behaves as a source style sensor

![Diagram of sensor wiring](image2)

**Fig. 13**

6LC-4400

![Diagram of sensor wiring](image3)

**Fig. 14**
Auto-Fill Shut Off

The Auto-Fill Shut Off (S) is used for refilling the grease tank/reservoir in an automatic lubrication system. When the grease level in the tank is full, the Auto-Fill Shut Off automatically ends the filling operation. Refer to the Auto-Fill Shut Off Kit instruction manual 332518 for complete instructions and additional information.

Always fill tank full when refilling tank.

NOTE: For systems without a fill valve, see Refilling Systems without a Fill Valve instructions beginning on page 16. For systems with a fill valve, see Refilling Systems with a Fill Valve beginning on page 18.

As grease is added to the reservoir, it pushes the diaphragm (5b, page 22) up to the top of the reservoir. The diaphragm then pushes the valve pin and closes the inlet fluid path.

When the fluid refilling path closes, the refilling line pressurizes and brings the refilling pump to a pressurized stall condition.

NOTE: The operator must monitor system while filling tank to reduce accidental fluid overflow.

Refilling the Reservoir

Refilling Systems without a Fill Valve

1. Connect lubricant supply hose (V) from remote filling station pump to the Auto-fill Shutoff Inlet (Fig. 1, page 5).

2. Turn on remote filling station pump (P) and fill reservoir (K) until the indicator pin on the Auto-Fill Valve (S) pushes up as shown in Fig. 15; pressure in the refilling pump (P) builds and the pump stalls.

3. Turn off air supply to refilling pump (P).
4. Relieve pressure between the remote filling station pump (P) and the Auto-Fill Shut Off (S):
   a. Open ball valve (bv) (Fig. 16). Pressure will be released and excess fluid will drain out of the drain tube (dt) and into the lubrication collection container (N).
   b. Close ball valve (bv) when all pressure has been relieved.

   NOTE: The pin may not drop and the Auto-Fill Shut Off may not reset because the tank is full. However, when the pump begins using the grease, the pin resets. The pin must reset before the next cycle of refilling.

5. Disconnect lubrication supply hose from Auto-Fill (S).

6. Install plugs in the Auto-Fill Shut Off inlet and the refilling line (V) to prevent contaminants from entering the pump.
Refilling Systems with a Fill Valve (Z)

The reference letters used in the following instructions refer to the Typical Installation diagrams provided, Fig. 3, page 7.

1. Prior to starting the fill, pull out and hold black Pressure Relief Knob (Z1) long enough to relieve line pressure between Fill Valve (Z) and Auto-Fill Shut Off Valve (S).

2. Verify the Auto-Fill Shut Off (S) pin is down, indicating it is reset (Fig. 19).

3. Remove yellow dust cover (Z2) from fill coupler (Z3) (Fig. 18).

4. Connect refilling line (AA) between the remote filling stations pump (P) and fill coupler (Z3) port marked with an “I” (Fig. 18).

5. Start remote filling station pump (P).

6. When reservoir (K) is filled:
   - the Remote filling station pump (P) stalls (dead-heads),
   - Auto-Fill Shut Off (S) pin pops up see Fig. 20,
   - the gauge pressure in the refilling lines (V and AA) rises to the fill pump’s set pressure.

NOTE: If the pump does not stall (dead-head) there is a leak in the system.
7. Relieve pressure between remote filling station pump (P) and the fill valve (Z):
   a. Turn off the remote filling station pump (P).
   b. Pull out and hold black pressure relief knob (Z1) long enough to relieve line pressure between fill valve (Z) and Auto-Fill Shut Off Valve (S) and between the remote filling station pump (P) and fill valve (Z).

   **NOTE:** The length of time it takes to vent varies depending on the system design and installation. In some installations it may be necessary to repeat Step b to ensure pressure is relieved.
   c. Disconnect the refilling line (AA) at the fill coupler (Z3).
   d. Replace the yellow dust cover (Z2).

### Service

*Use only Genuine Graco Repair Parts.*

See separate system component manuals for service instructions. For pump service see manual 332514. For vent valve service see manual 332519.
<table>
<thead>
<tr>
<th>Problem</th>
<th>Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pump (B) is not running; i.e., not cycling, there is no lubricant output, pump runs slow, the control board’s red LED fault is illuminated, etc.</td>
<td>Pump (B) malfunction.</td>
<td>Refer to the pump manual 332514.</td>
</tr>
<tr>
<td>Lubricant is leaking from pressure relief.</td>
<td>Blockage in the line.</td>
<td>Check for blockage in the line. Clear blockage.</td>
</tr>
<tr>
<td></td>
<td>Pressure switch not actuated/malfunctioning.</td>
<td>Check switch wiring</td>
</tr>
<tr>
<td></td>
<td>Pressure switch set too high.</td>
<td>Replace pressure switch</td>
</tr>
<tr>
<td>Lubricant coming out of breather (J).</td>
<td>Reservoir (K) overfilled because Auto-Fill Shut Off (S) did not shut the refilling line (D).</td>
<td>Replace the Auto-Fill Shut Off diaphragm (5b) and Auto-Fill Shut Off valve (5a). Refer to manual 332518.</td>
</tr>
<tr>
<td>Refilling pump (P) slows down or stalls and no output at the fill valve (Z).</td>
<td>Auto-Fill Shut Off Valve (S) has not reset</td>
<td>Relieve all refilling line (AA) pressure. see page 14.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Make sure Auto-Fill Shut Off (S) pin is down. See Fig. 17, page 17.</td>
</tr>
<tr>
<td>Refilling pump (P) runs continuously but does not stall.</td>
<td>Leakage in the system</td>
<td>Inspect the refilling line (V) and correct any leaks.</td>
</tr>
<tr>
<td></td>
<td>Reservoir (K) overfilled because Auto-Fill Shut Off (S) did not close the refill line.</td>
<td>Replace the Auto-Fill Shut Off diaphragm (5b) and Auto-Fill Shut Off Valve (5a). Refer to manual 332518.</td>
</tr>
<tr>
<td>Problem</td>
<td>Cause</td>
<td>Solution</td>
</tr>
<tr>
<td>-----------------------------------------------------------------------</td>
<td>------------------------------</td>
<td>--------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Low level alarm did not come on but pump cavitates (runs out of grease). or Pressure is not building in the system and a “no pressure” error is initiated</td>
<td>Low level sensor malfunction</td>
<td>Check sensor LED. If green, tank has grease but pump is not able to pump grease. See Troubleshooting instructions in pump manual 332514. Check sensor LED. If amber, tank has no grease. check wiring between sensor and alarm. Check sensor LED. If there is no light, check sensor wiring to verify there is power to the sensor.</td>
</tr>
<tr>
<td>Pressure switch malfunction</td>
<td></td>
<td>Check pressure switch wiring</td>
</tr>
<tr>
<td>Low pressure or no pressure in the system</td>
<td>Low level sensor malfunction</td>
<td>Check piping for leaks. If a leak is detected, repair or replace piping. Check injectors for leaks. If a leak is detected repair or replace injectors.</td>
</tr>
<tr>
<td>Low level alarm is activated and continuous but the reservoir is filled with grease</td>
<td>Low level sensor malfunction</td>
<td>Check sensor wiring.</td>
</tr>
</tbody>
</table>
Parts List:

<table>
<thead>
<tr>
<th>Ref. No.</th>
<th>Part No.</th>
<th>Description</th>
<th>Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>77X011</td>
<td>Pump and vent valve, 60#, includes 1a and 1b (77X202)</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>77X012</td>
<td>Pump and vent valve, 90#, includes 1a and 1b (77X203)</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>77X001</td>
<td>Pump, 60#, includes 1a ONLY (77X402)</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>77X002</td>
<td>Pump, 90#, includes 1a ONLY (77X403)</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>195341</td>
<td>LABEL, notice, breather</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>16U728</td>
<td>LABEL, over pressurize warning</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>16U727</td>
<td>LABEL, pinch warning</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>17L372</td>
<td>SWITCH, low level (includes 11c)</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>104663</td>
<td>. PLUG, pipe</td>
<td>2</td>
</tr>
<tr>
<td>10</td>
<td>109114</td>
<td>. SCREW, cap</td>
<td>6</td>
</tr>
<tr>
<td>11</td>
<td>15M442</td>
<td>. GASKET, pump</td>
<td>1</td>
</tr>
<tr>
<td>12</td>
<td>104572</td>
<td>. WASHER, lock, spring</td>
<td>4</td>
</tr>
<tr>
<td>13</td>
<td>17L372</td>
<td>SWITCH, low level (includes 11c)</td>
<td>1</td>
</tr>
<tr>
<td>14</td>
<td>24N468</td>
<td>GLC2200 Lube Controller (Series F or later only)</td>
<td>1</td>
</tr>
</tbody>
</table>

Accessories

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>129072</td>
<td>CABLE, low level</td>
</tr>
<tr>
<td>77X545</td>
<td>KIT, cable, power series progressive system only</td>
</tr>
<tr>
<td>77X546</td>
<td>CABLE, power, straight, 15 feet, with vent valve. Use with 77X551</td>
</tr>
<tr>
<td>24N402</td>
<td>CABLE, 6 ft, vent valve, 2 pin for vent valve control</td>
</tr>
<tr>
<td>24P314</td>
<td>CABLE, GLC2200 Wiring Harness</td>
</tr>
</tbody>
</table>

▲ Replacement Danger and Warning labels, tags and cards are available at no cost.
## Technical Specifications

### Dyna-Star Pump

<table>
<thead>
<tr>
<th>Specification</th>
<th>US</th>
<th>Metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum working pressure</td>
<td>3500 psi</td>
<td>24.1 MPa, 241 bar</td>
</tr>
<tr>
<td>Grease capacity</td>
<td>60 lb</td>
<td>27 kg</td>
</tr>
<tr>
<td></td>
<td>90 lb</td>
<td>41 kg</td>
</tr>
<tr>
<td>Lubricant outlet port size</td>
<td>3/8 npt (f)</td>
<td></td>
</tr>
<tr>
<td>Fill port size (Auto-Fill Shut Off)</td>
<td>3/8 npt (Fig. 1, page 5)</td>
<td></td>
</tr>
<tr>
<td>Pump electrical requirements</td>
<td>See Dyna-Star HP and HF Pump manual: 332514</td>
<td></td>
</tr>
<tr>
<td>Pump wetted parts</td>
<td>See Dyna-Star HP and HF Pump manual: 332514</td>
<td></td>
</tr>
<tr>
<td>Reservoir wetted parts</td>
<td>steel, buna-n rubber</td>
<td></td>
</tr>
<tr>
<td>Vent valve wetted parts</td>
<td>See Dyna-Star HP and HF Vent Valve Kit manual: 332519</td>
<td></td>
</tr>
<tr>
<td>Sound data</td>
<td>See Dyna-Star HP and HF Pump manual: 332514</td>
<td></td>
</tr>
<tr>
<td>Dry pump weight</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model 77X202 - 60#</td>
<td>105 lb</td>
<td>48 kg</td>
</tr>
<tr>
<td>Model 77X203 - 90#</td>
<td>115 lb</td>
<td>52 kg</td>
</tr>
<tr>
<td>Model 77X402 - 60#</td>
<td>105 lb</td>
<td>48 kg</td>
</tr>
<tr>
<td>Model 77X403 - 90#</td>
<td>115 lb</td>
<td>52 kg</td>
</tr>
</tbody>
</table>

### Low Level Sensor

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating voltage</td>
<td>24 VDC</td>
</tr>
<tr>
<td>Sensor current consumption</td>
<td>&lt;50 mA</td>
</tr>
<tr>
<td>Protection</td>
<td>IP69K</td>
</tr>
<tr>
<td>Connector</td>
<td>M12 connector</td>
</tr>
<tr>
<td>Housing materials</td>
<td>stainless steel, PEEK; PEI, FKM</td>
</tr>
<tr>
<td>Wetted parts</td>
<td>PEEK</td>
</tr>
</tbody>
</table>
# Dimensions

## Dimensions Table

<table>
<thead>
<tr>
<th>Ref</th>
<th>60 lb Models</th>
<th>90 lb Models</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>US (inch)</td>
<td>Metric (cm)</td>
</tr>
<tr>
<td>A</td>
<td>30.5</td>
<td>77.47</td>
</tr>
<tr>
<td>B</td>
<td>14.5</td>
<td>36.83</td>
</tr>
<tr>
<td>C</td>
<td>19.4</td>
<td>49.28</td>
</tr>
<tr>
<td>D</td>
<td>six, 7/16 inch Ø hole 13 7/8 inch bolt circle</td>
<td>six, 7/16 inch Ø hole 13 7/8 inch bolt circle</td>
</tr>
<tr>
<td>E</td>
<td>14.5</td>
<td>36.83</td>
</tr>
<tr>
<td>F</td>
<td>16.13</td>
<td>40.97</td>
</tr>
</tbody>
</table>
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