

Dyna-Star[®] HP Pump System

332540L

EN

Provides lubricant flow and pressure to operate a single-line parallel automatic lubrication system. For automatic lubrication systems only. For professional use only.

Not approved for use in explosive atmospheres or hazardous (classified) locations.

Models

3500 psi (24.1 MPa, 241 bar) Maximum Working Pressure

See page 3 for model information and approvals.



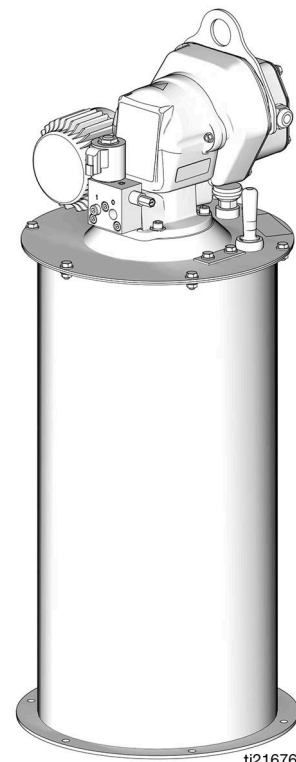
Important Safety Instructions

Read all warnings and instructions in this manual and the Dyna-Star HP and HF Pump before using the equipment. Be familiar with the proper control and usage of the equipment. Save these instructions.

Related Manuals

Find English manuals and any available translations at www.graco.com.

English Manual Number	Description
332514	Dyna-Star HP and HF Pump
332515	Dyna-Star HP or HF Pump Low Level Indicator Kit; Dip Stick Kit
332518	Dyna-Star HP and HF Pump Auto-Fill Shut Off Kit
332519	Dyna-Star HP Vent Valve Kit



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Models 77X100 and 77X101 shown

Contents

Related Manuals	1	Parts	13
Models	3	Model 77X100: Dyna-Star Pump, 60#, Dip Stick, Reservoir, Cover, Vent Valve	13
Safety Symbols	4	Model 77X101: Dyna-Star Pump, 90#, Dip Stick, Reservoir, Cover, Vent Valve	13
General Warnings	5	Model 77X300: Dyna-Star Pump, 60#, Dip Stick, Reservoir, Cover	13
Typical Installation	7	Model 77X301: Dyna-Star Pump, 90#, Dip Stick, Reservoir, Cover	13
Injector System	7	Model 77X102: Dyna-Star Pump, 60#, Auto-Fill Shut Off, Reservoir, Cover, Vent Valve	14
Series Progressive System	8	Model 77X103: Dyna-Star Pump, 90#, Auto-Fill Shut Off, Reservoir, Cover, Vent Valve	14
Installation	9	Model 77X104: Dyna-Star Pump, 60#, Low Level, Reservoir, Cover, Vent Valve	15
Grounding	9	Model 77X105: Dyna-Star Pump, 90#, Low Level, Reservoir, Cover, Vent Valve	15
System Configuration and Wiring	9	Model 77X304: Dyna-Star Pump, 60#, Low Level, Reservoir, Cover	15
Fuses	9	Model 77X305: Dyna-Star Pump, 90#, Low Level, Reservoir, Cover	15
Reservoir Installation	9	Model 133846: Dyna-Star Pump, 60#, Low Level, Follower Plate, Reservoir, Cover, Vent Valve	15
Reservoir	9	Cable Harness Kits (all models)	15
Pump	9	Dimensions	16
Vent Valve Kit	9	Technical Specifications	17
Auto-Fill Shut Off	9	California Proposition 65	17
Operation	10	Graco Standard Warranty	18
Pressure Relief Procedure	10		
Start Up and Adjustment	10		
Prime	10		
Fill the Reservoir	11		
Shutdown	11		
Recycling and Disposal	12		
End of Product Life	12		

Models

All models include Tube-in-Tube design, vent valve, cover, and tank.

System Models	Size		Maximum Working Pressure*	Dip Stick	Low Level	Follower Plate*	Auto-Fill Shut Off	Approvals
	35/60 Pound	90/120 Pound						
77X100	X		3500 psi (24.1 MPa. 241 bar)	X				CE
77X101		X		X				
77X102	X						X	
77X103		X					X	
77X104	X					X	X	
77X105		X				X	X	
77X300	X			X				
77X301		X		X				
77X304	X					X	X	
77X305		X				X	X	
133846	X					X	X	






*Can only be used with Low Level models

※The Dyna-Star HP Pump is rated for a maximum working pressure of 5000 psi (34.4 MPa, 344 bar). However, when a vent valve is installed on the HP Pump, the maximum working pressure is reduced to 3500 psi (24.1 MPa, 241 bar).

Safety Symbols

The following safety symbols appear throughout this manual and on warning labels. Read the table below to understand what each symbol means.

Symbol	Meaning
	Burn Hazard
	Equipment Misuse Hazard
	Fire and Explosion Hazard
	Moving Parts Hazard
	Skin Injection Hazard
	Skin Injection Hazard
	Splash Hazard

Symbol	Meaning
	Do Not Place Hands or Other Body Parts Near Fluid Outlet
	Do Not Stop Leaks with Hand, Body, Glove or Rag
	Follow Pressure Relief Procedure
	Ground Equipment
	Read Manual
	Wear Personal Protective Equipment













Safety Alert Symbol







This symbol indicates: Attention! Become Alert! Look for this symbol throughout the manual to indicate important safety messages.

General Warnings

The following warnings apply throughout this manual. Read, understand, and follow the warnings before using this equipment. Failure to follow these warnings can result in serious injury.

 WARNING	
 	<p>FIRE AND EXPLOSION HAZARD</p> <p>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:</p> <ul style="list-style-type: none"> • 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.
    	<p>SKIN INJECTION HAZARD</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. Get immediate surgical treatment.</p> <ul style="list-style-type: none"> • 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.
 	<p>PRESSURIZED EQUIPMENT HAZARD</p> <p>Over-pressurization can result in equipment rupture and serious injury.</p> <ul style="list-style-type: none"> • A pressure relief valve is required at each pump outlet. • Follow the Pressure Relief Procedure in this manual before servicing.

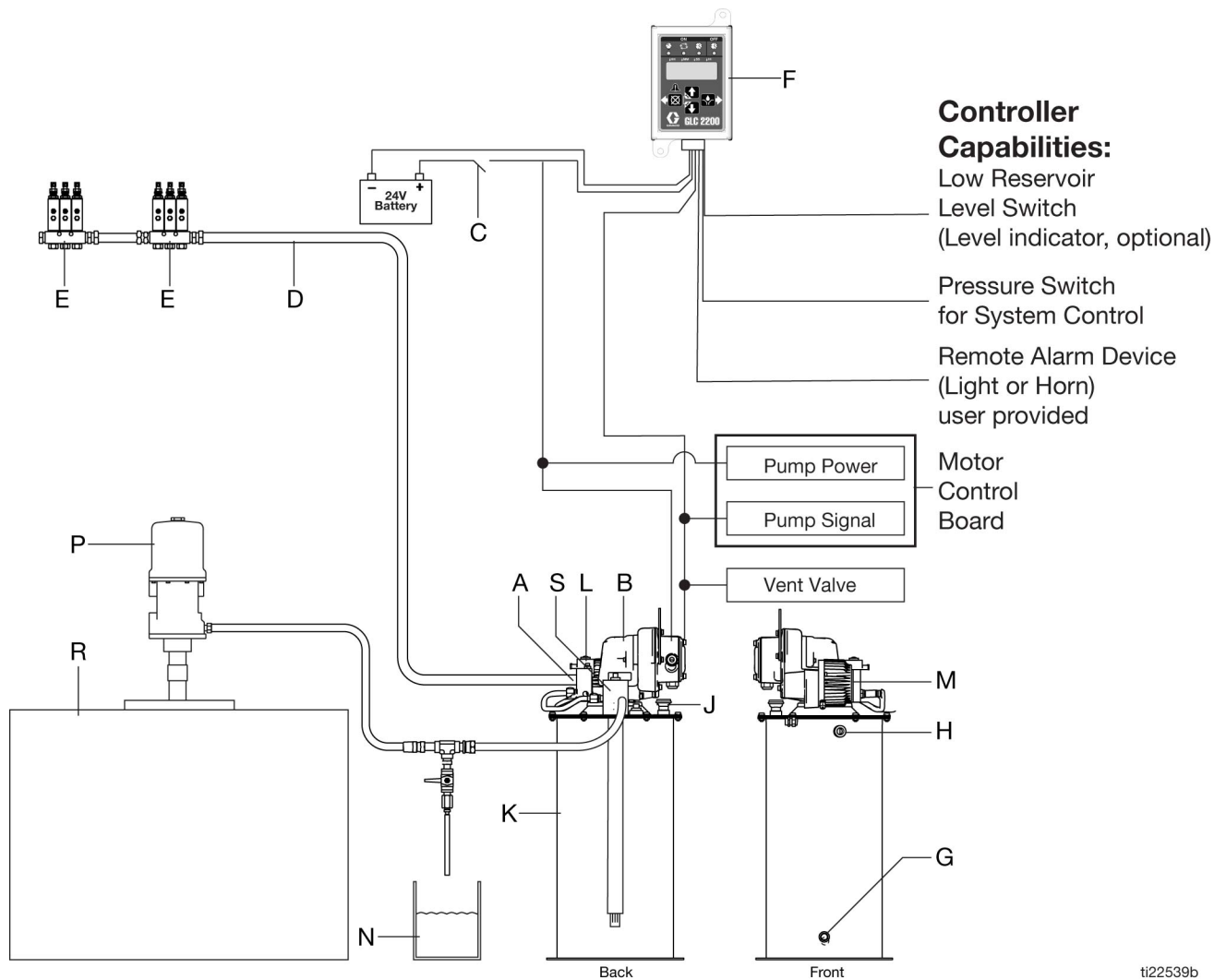
⚠️ WARNING

 	<p>EQUIPMENT MISUSE HAZARD Misuse can cause death or serious injury.</p> <ul style="list-style-type: none"> • 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 Sheets (SDSs) 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.
 	<p>MOVING PARTS HAZARD Moving parts can pinch, cut or amputate fingers and other body parts.</p> <ul style="list-style-type: none"> • Keep clear of moving parts. • Do not operate equipment with protective guards or covers removed. • Equipment can start without warning. Before checking, moving, or servicing equipment, follow the Pressure Relief Procedure and disconnect all power sources.
	<p>BURN HAZARD Equipment surfaces and fluid that is heated can become very hot during operation. To avoid severe burns:</p> <ul style="list-style-type: none"> • Do not touch hot fluid or equipment.
	<p>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:</p> <ul style="list-style-type: none"> • Protective eyewear, and hearing protection. • Respirators, protective clothing, and gloves as recommended by the fluid and solvent manufacturer.

Typical Installation

Injector System

The installation shown in FIG. 1 is only a guide for selecting and installing system components and accessories. Contact your Graco distributor for assistance in designing a system.



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FIG. 1

Key:

- | | |
|--|--------------------------------------|
| A Lubricant Outlet Connection | K Reservoir |
| B Pump | L Vent Valve |
| C Ignition Switch* | M Motor |
| D High-Pressure Lubricant Supply Lines* | N Fluid Overflow Container |
| E Injector Banks* | P Pump - Remote Filling Station |
| F Lubrication Controller* | R Reservoir - Remote Filling Station |
| G Fill Port (not used with Auto-Fill Shut Off) | S Auto-Fill Shut Off |
| H Overflow Port (not used with Auto-Fill Shut Off) | |
| J Breather Vent | |

*User Supplied

Series Progressive System

The installation shown in FIG. 2 is only a guide for selecting and installing system components and accessories. Contact your Graco distributor for assistance in designing a system.

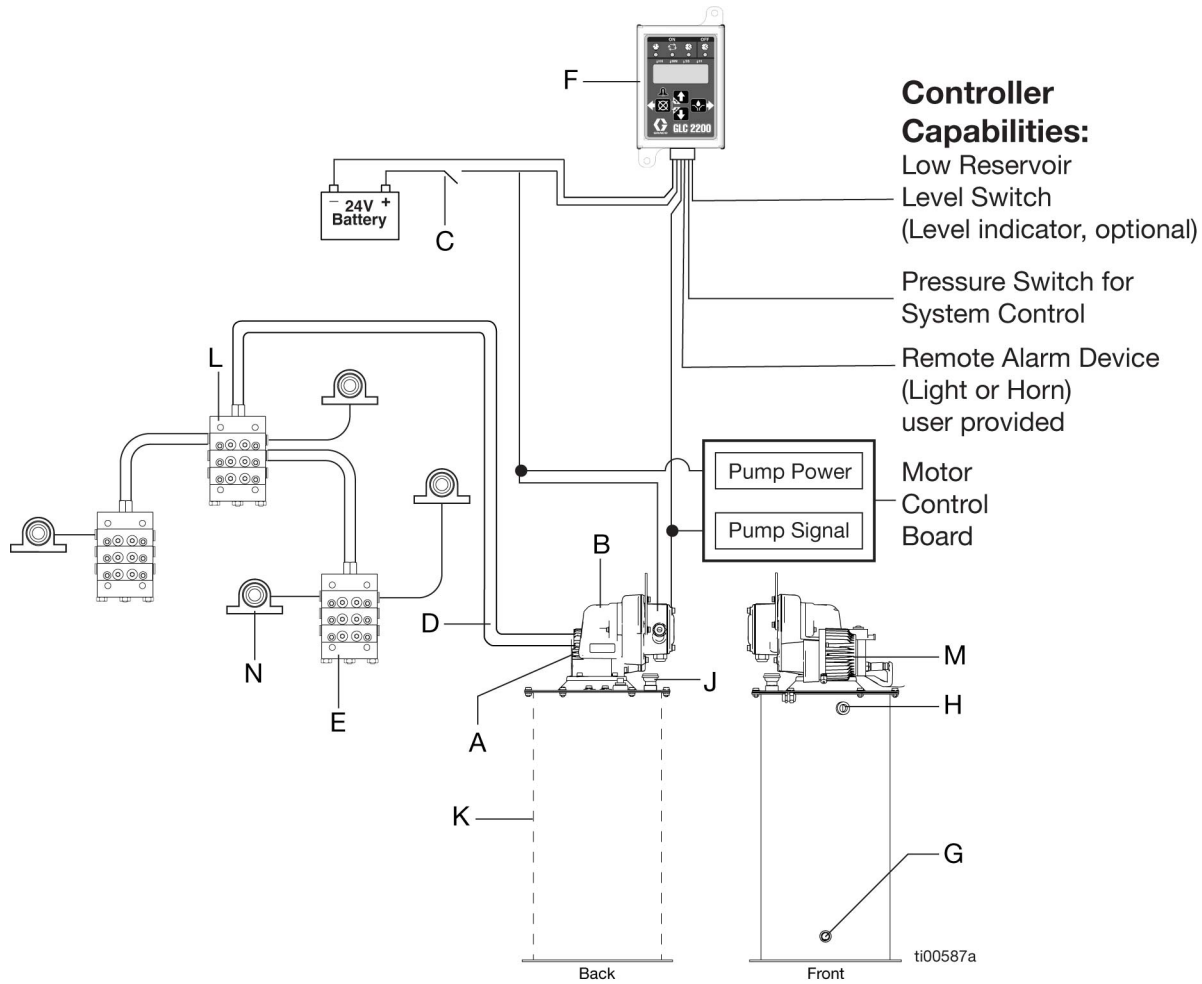


FIG. 2

Key:

- A Lubricant Outlet Connection†
- B Pump†
- C Ignition Switch*
- D High-Pressure Lubricant Supply Lines*
- 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 Vent
- K Reservoir
- M Motor
- T Primary Divider Valve*
- U Secondary Divider Valve*
- V Bearing

†The pump outlet requires modification to convert an Injector based system to Series Progressive system. Graco offers Dyna Star HF and HP Outlet Adapter Kits 77X543 rated 4000 psi (27.58 MPa, 275.8 bar) and 77X544 rated 5000 psi (34.47 MPa, 344.7 bar). Contact Graco Customer Service or your local Graco distributor to identify the correct kit for the installation location.

* User Supplied

Installation

The reference letters in the following instructions refer to **Typical Installation**, page 7.

Grounding



The equipment must be bonded (grounded) directly to the truck. Grounding reduces the risk of static shock due to static build up on the equipment.

System Configuration and Wiring

NOTE: Cable wiring harness kits are available from Graco. See **Cable Harness Kits (all models)**, page 15, for a complete list of available kits.

Fuses

NOTICE
<p>Fuses (user supplied) are required on all models. To avoid equipment damage:</p> <ul style="list-style-type: none"> • 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. The recommended fuses are 35A.

Reservoir Installation



Mount the equipment securely so that it cannot move around during operation. Failure to do so could result in injury or equipment damage.

Reservoir

1. Install the reservoir in a location that adequately supports the weight of the reservoir when filled with lubricant and also provides easy operator access to the fill port (G) and lubricant outlet connection (A).
2. Connect the high-pressure lubricant supply line (D) to the lubricant outlet connection (A).
3. Ground the system, see **Grounding**, page 9. Mount the reservoir to the grounded chassis member.

Pump

Follow the pump installation instructions provided in the Dyna-Star HP and HF Pump manual, see **Related Manuals**, page 1, provided with the system.

Vent Valve Kit

The vent valve reduces system pressure and allows the injector to reset. When energized, grease is pumped through the outlet port (marked 0) on the vent valve; when de-energized, it vents pressure internally to the tank.

For installation and operation instructions, see the Dyna-Star HP Vent V.alve kit manual, see **Related Manuals**, page 1.

Auto-Fill Shut Off

The auto-fill shut off refills the grease reservoir instead of using the fill port (G). When the grease level in the tank is full, the auto-fill shut off automatically ends the filling operation. For installation and operation instructions, see the Dyna-Star HP and HF Pump Auto-Fill Shut Off Kit manual, see **Related Manuals**, page 1.

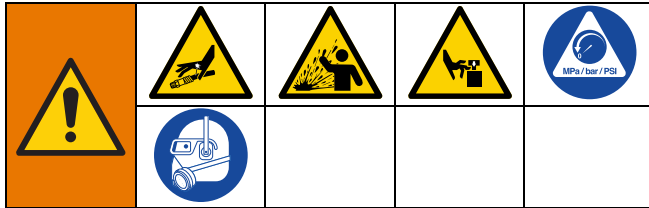
Operation

The reference letters in the following instructions refer to **Typical Installation**, page 7.

Pressure Relief Procedure

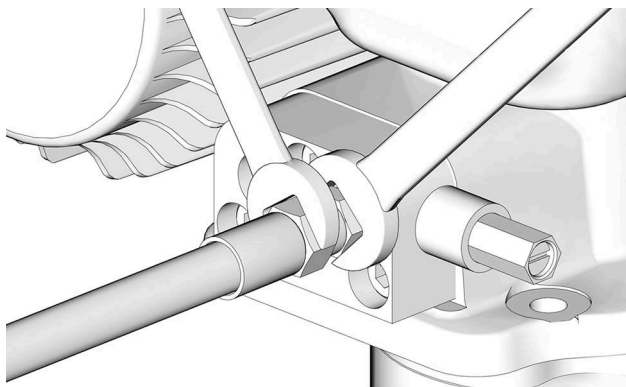


Follow the Pressure Relief Procedure whenever you see this symbol.



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.
Do not lift pressurized equipment.

To relieve pressure in the system, use two wrenches working in opposite directions on the pump outlet fitting to slowly loosen the fitting only until no more lubricant or air is leading from the fitting (FIG. 3).



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FIG. 3

COMPONENT RUPTURE HAZARD				
The maximum working pressure of each component in the system may not be the same. To reduce the risk of over-pressurizing any component in the system, be sure you know the maximum working pressure of each component. Never exceed the maximum working pressure of the lowest rated component in the system. Over-pressurizing any component can result in rupture, fire, explosion, property damage and serious injury.				
Regulate input pressure to the remote fill pump so that no fluid line, component or accessory is over pressurized.				

Start Up and Adjustment

Do not insert fingers into the overflow port while filling a reservoir equipped with a follower plate. Injury or amputation could result.				

Prime

1. After the reservoir is completely filled, remove the high-pressure lubricant supply line (D) from the outlet.
2. Connect the power to the pump.
3. Start and run the pump until all of the air has been expelled and the fluid flow is continuous.
4. Reconnect the high-pressure lubricant supply line (D) to the outlet.

Fill the Reservoir

There are two methods to fill the reservoir: Port Fill and Auto-Fill Shut Off.

Port Fill

NOTICE

To prevent damage to the equipment:

- Check breather vent (J) for proper operation before filling the reservoir.
- Open the overflow port (H) before filling for visual inspection of the lubricant level.
- Do not fill beyond the overflow port (H).
- Do not use the overflow port (H) to fill the reservoir.

1. Connect the lubricant supply hose from the remote filling station pump (P) to the fill port (G).
2. Remove the plug from the overflow port (H).
3. Slowly turn on the lubricant supply hose until the level of the lubricant reaches the overflow port (H).

NOTE: For systems with a follower plate, fill the unit until the follower plate reaches the overflow port (H).

4. Disconnect the lubricant supply hose from the fill port (G).
5. Plug the fill port (G) and the overflow port (H).

NOTICE

Do not allow the pump to run dry of the fluid being pumped. Running a pump dry can damage the pump.

Auto-Fill Shut Off (S)

See the operation instructions in the Dyna-Star HP and HF Pump Auto-Fill Shut Off Kit manual, see **Related Manuals**, page 1.

Shutdown

For normal system shutdown, disconnect the power by turning off the ignition switch (C).

Recycling and Disposal

End of Product Life

At the end of the product's useful life, dismantle and recycle it in a responsible manner.

- Perform the **Pressure Relief Procedure**, page 10.
- Drain and dispose of fluids according to applicable regulations. Refer to the material manufacturer's Safety Data Sheet.
- Remove motors, batteries, circuit boards, LCDs (liquid crystal displays), and other electronic components. Recycle according to applicable regulations.
- Do not dispose of batteries or electronic components with household or commercial waste.



- Deliver remaining product to a recycling facility.

Parts

Model 77X100: Dyna-Star Pump, 60#, Dip Stick, Reservoir, Cover, Vent Valve

Model 77X101: Dyna-Star Pump, 90#, Dip Stick, Reservoir, Cover, Vent Valve

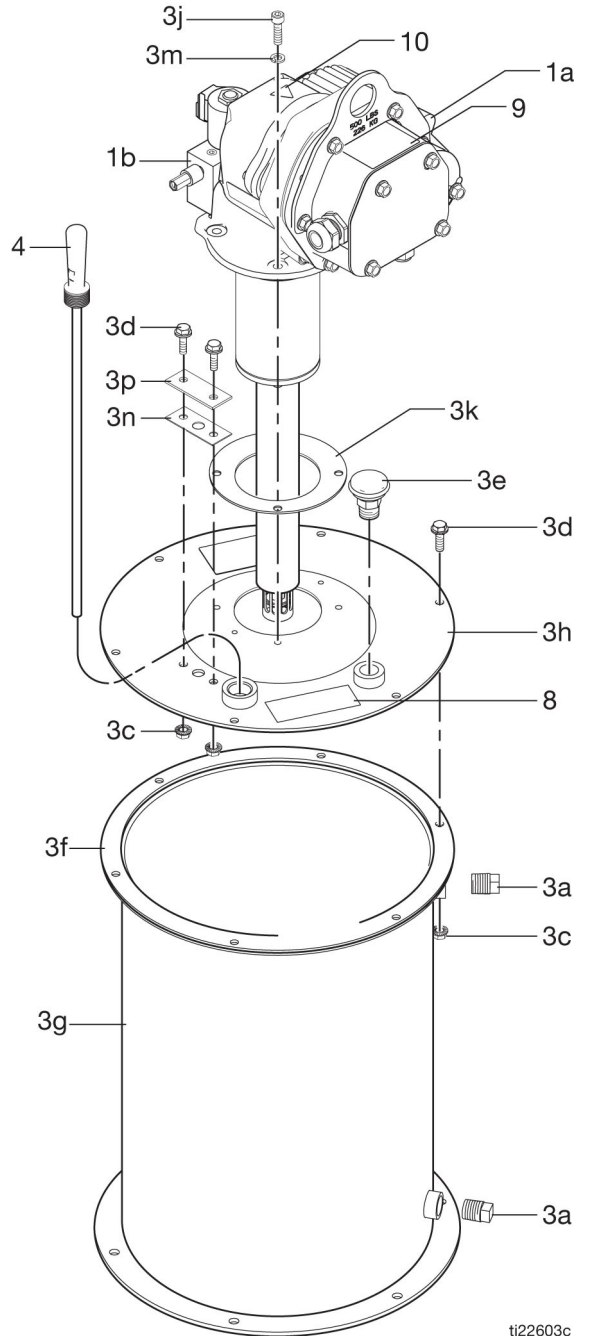
Model 77X300: Dyna-Star Pump, 60#, Dip Stick, Reservoir, Cover

Model 77X301: Dyna-Star Pump, 90#, Dip Stick, Reservoir, Cover

Ref.

No.	Part No.	Description	Qty
1	77X001	KIT, pump, model 77X300	1
	77X002	KIT, pump, model 77X301	1
	77X011	KIT, pump and vent valve, includes 1a and 1b, Dyna-Star 60#, models 77X100	1
	77X012	KIT, pump and vent valve, includes 1a and 1b, Dyna-Star 90#, models 77X101	1
1a		PUMP	1
1b		VENT VALVE	1
3	77X535	KIT, reservoir, 60# grease, includes 3a-3n, models 77X100	1
	77X536	KIT, reservoir, 90# grease, includes 3a-3n, models 77X101	1
3a		PLUG, pipe	2
3c		NUT, flanged, hex	8
3d		SCREW, cap, flange head	8
3e		BREATHER	1
3f	194868	GASKET, cover	1
3g		PAIL, reservoir, 60#, included in kit 77X535	1
		PAIL, reservoir, 90#, included in kit 77X536	1
3h	16V394	COVER, reservoir	1
3j	109114	SCREW, cap	4
3k	15M442	GASKET, pump	1
3m	104572	WASHER, lock, spring	4
3n	16V396	SEAL	1
3p	16V395	COVER	1
4	77X531	KIT, dip stick, 60#, grease	1
	77X530	KIT, dip stick, 90#, grease	1
8▲	195341	LABEL, notice, breather	1
9▲	16U728	LABEL, over pressurize warning	1
10▲	15H108	LABEL, pinch warning	1

▲ Replacement safety labels, tags, and cards are available at no cost.



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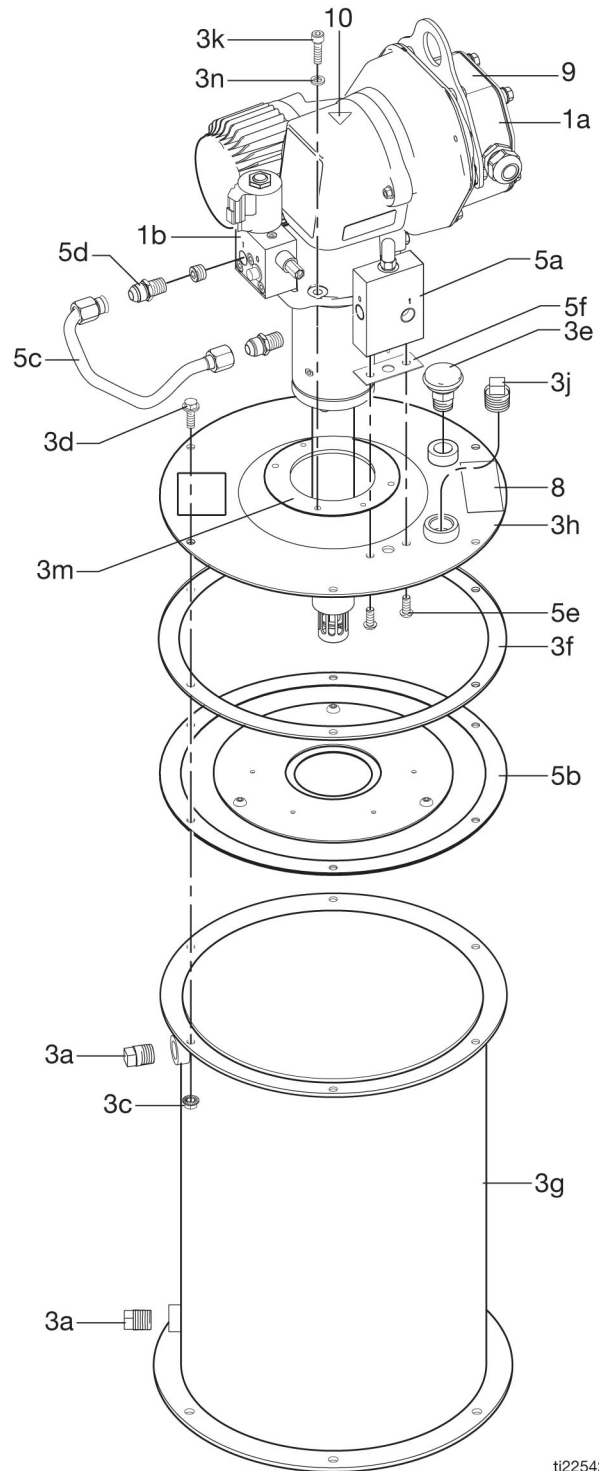
Parts

Model 77X102: Dyna-Star Pump, 60#, Auto-Fill Shut Off, Reservoir, Cover, Vent Valve

Model 77X103: Dyna-Star Pump, 90#, Auto-Fill Shut Off, Reservoir, Cover, Vent Valve

Ref. No.	Part No.	Description	Qty
1	77X011	KIT, pump and vent valve, includes 1a and 1b, Dyna-Star 60#, models 77X100	1
	77X012	KIT, pump and vent valve, includes 1a and 1b, Dyna-Star 90#, models 77X10	1
1a		PUMP	1
1b		VENT VALVE	1
3	77X535	KIT, reservoir, 60# grease, includes 3a-3l, models 77X100	1
	77X536	KIT, reservoir, 90# grease, includes 3a-3l, models 77X101	1
3a		PLUG, pipe	2
3c		NUT, flanged, hex	6
3d		SCREW, cap, flange head	6
3e		BREATHER	1
3f	194868	GASKET, cover	1
3g		PAIL, reservoir, 60#, included in kit 77X535	1
		PAIL, reservoir, 90#, included in kit 77X536	1
3h	16V394	COVER, reservoir	1
3j	104663	PLUG, pipe	1
3k	109114	SCREW, cap	4
3m	15M442	GASKET, pump	1
3n	104572	WASHER, lock, spring	4
5	77X521	VALVE, auto-fill shut off	1
5a		VALVE, auto shut off	1
5b		DIAPHRAGM, assembly	1
5c		TUBE, vent valve	1
5d		FITTING, connector, 3/8 in. npt* x JIC	2
5e		BOLT, M8 x 1.25 x 2 mm	2
5f		SEAL, auto shutoff valve	1
8▲	195341	LABEL, notice, breather	1
9▲	16U728	LABEL, over pressurize warning	1
10▲	16U727	LABEL, pinch warning	1

▲ Replacement safety labels, tags, and cards are available at no cost.



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Model 77X104: Dyna-Star Pump, 60#, Low Level, Reservoir, Cover, Vent Valve

Model 77X105: Dyna-Star Pump, 90#, Low Level, Reservoir, Cover, Vent Valve

Model 77X304: Dyna-Star Pump, 60#, Low Level, Reservoir, Cover

Model 77X305: Dyna-Star Pump, 90#, Low Level, Reservoir, Cover

Model 133846: Dyna-Star Pump, 60#, Low Level, Follower Plate, Reservoir, Cover, Vent Valve

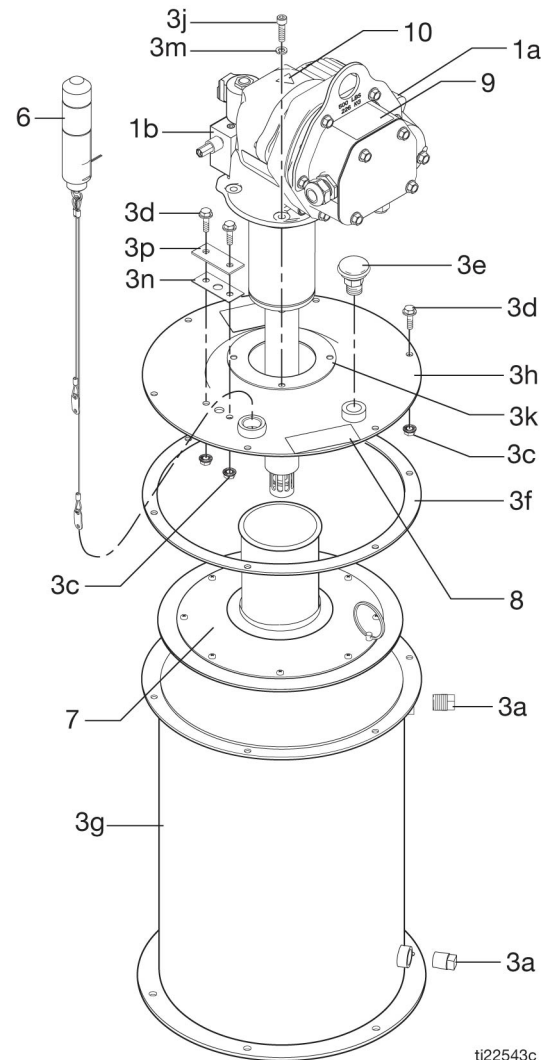
Ref.

No.	Part No.	Description	Qty
1	77X001	KIT, pump, model 77X304	1
	77X002	KIT, pump, model 77X305	1
	77X011	KIT, pump and vent valve, includes 1a and 1b, Dyna-Star 60#, models 77X104 and 133846	1
	77X012	KIT, pump and vent valve, includes 1a and 1b, Dyna-Star 90#, models 77X105	1
1a		PUMP	1
1b		VENT VALVE	1
3	77X535	KIT, reservoir, 60# grease, includes 3a-3n, models 77X100	1
	77X536	KIT, reservoir, 90# grease, includes 3a-3n, models 77X101	1
3a	100737	PLUG, pipe	2
3c		NUT, flanged, hex	8
3d		SCREW, cap, flange head	8
3e		BREATHER	1
3f	194868	GASKET, cover	1
3g		PAIL, reservoir, 60#, included in kit 77X535	1
		PAIL, reservoir, 90#, included in kit 77X536	1
3h	16V394	COVER, reservoir	1
3j	109114	SCREW, cap	4
3k	15M442	GASKET, pump	1
3m	104572	WASHER, lock, spring	4
3n	16V396	SEAL	1
3p	16V395	COVER	1
6	77X522	KIT, low level	1
	25U932	KIT, low level, model 133846	1
7	77X500	KIT, plate, follower 60# / 90#	1
8▲	195341	LABEL, notice, breather	1
9▲	16U728	LABEL, over pressurize warning	1
10▲	15H108	LABEL, pinch warning	1

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

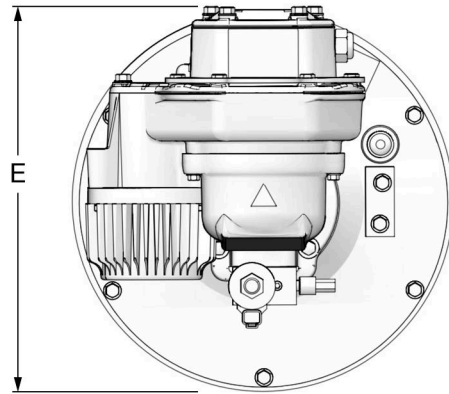
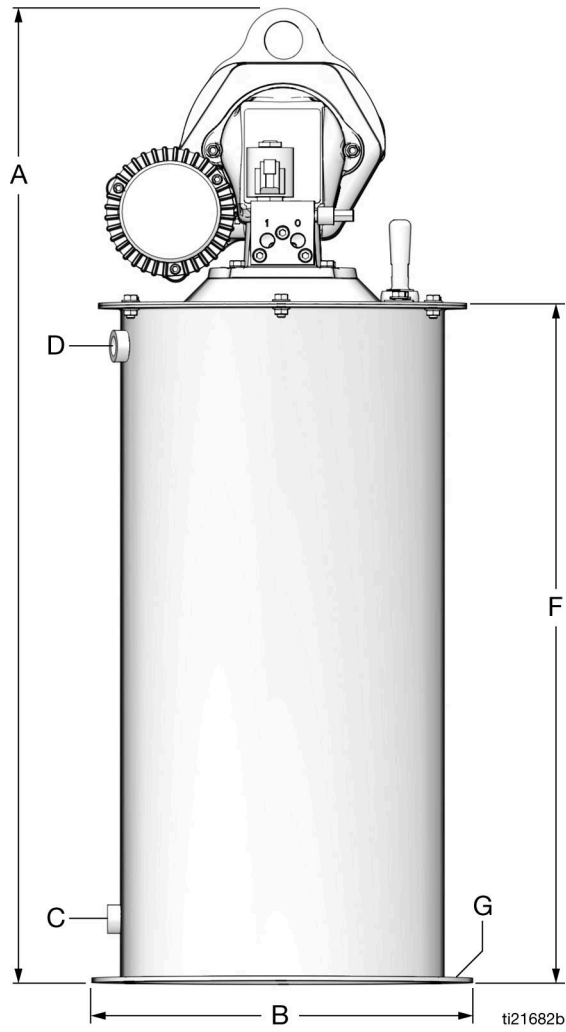
Cable Harness Kits (all models)

Part No.	Description
77X545	KIT, cable, power series progressive system only.
77X546	KIT, cable, power injector system only. For use with 77X528
24N402	KIT, cable, 6 ft (1.8 m), vent valve, 2 pin. For use with vent valve control.



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Dimensions



Ref	60 lb Models		90 lb Models	
	US (in.)	Metric (cm)	US (in.)	Metric (cm)
A	30.5	77.47	38.0	96.52
B	14.5	36.83	14.5	36.83
C	1/2 in.npt		1/2 in.npt	
D	1/2 in.-14 npt		1/2 in.-14 npt	
E	14.5	36.83	14.5	36.83
F	19.4	49.28	27.0	36.83
G	7/16 in. diameter hole - 6; 13-7/8 in. bolt circle			

Technical Specifications

Dyna-Star HP Pump System		
	US	Metric
Maximum working pressure*	3500 psi	24.1 MPa, 241 bar
Wetted Parts		
Pump Wetted Parts	See Dyna-Star HP and HF Pump manual, Related Manuals , page 1.	
Vent Valve Wetted Parts	See Dyna-Star HP Vent Valve Kit manual, Related Manuals , page 1.	
Reservoir Wetted Parts	steel, buna-n rubber	
Port Size		
Reservoir Overflow Port Size	1/2 NPT	
Reservoir Fill Port Size	1/2 NPT	
Lubricant Outlet Port Size	3/8 NPT(F)	
Grease Capacity		
Models 77X101, 77X103, 77X105, 77X301, 77X305	90 lb	41 kg
Models 77X100, 77X102, 77X104, 77X300, 77X304	60 lb	27 kg
Sound Data: All pumps	See Dyna-Star HP and HF Pump manual, Related Manuals , page 1	
<p>*The Dyna-Star HP Pump is rated for a maximum working pressure of 5000 psi (34.4 MPa, 344 bar). However, when a vent valve is installed on the HP Pump, the maximum working pressure is reduced to 3500 psi (24.1 MPa, 241 bar).</p> <p>All trademarks or registered trademarks are the property of their respective owners.</p>		

California Proposition 65

CALIFORNIA RESIDENTS

 **WARNING:** Cancer and reproductive harm – www.P65warnings.ca.gov.

Graco Standard Warranty

Graco warrants all equipment referenced in this document which is manufactured by Graco and bearing its name to be free from defects in material and workmanship on the date of sale to the original purchaser for use. With the exception of any special, extended, or limited warranty published by Graco, Graco will, for a period of twelve months from the date of sale, repair or replace any part of the equipment determined by Graco to be defective. This warranty applies only when the equipment is installed, operated and maintained in accordance with Graco's written recommendations.

This warranty does not cover, and Graco shall not be liable for general wear and tear, or any malfunction, damage or wear caused by faulty installation, misapplication, abrasion, corrosion, inadequate or improper maintenance, negligence, accident, tampering, or substitution of non-Graco component parts. Nor shall Graco be liable for malfunction, damage or wear caused by the incompatibility of Graco equipment with structures, accessories, equipment or materials not supplied by Graco, or the improper design, manufacture, installation, operation or maintenance of structures, accessories, equipment or materials not supplied by Graco.

This warranty is conditioned upon the prepaid return of the equipment claimed to be defective to an authorized Graco distributor for verification of the claimed defect. If the claimed defect is verified, Graco will repair or replace free of charge any defective parts. The equipment will be returned to the original purchaser transportation prepaid. If inspection of the equipment does not disclose any defect in material or workmanship, repairs will be made at a reasonable charge, which charges may include the costs of parts, labor, and transportation.

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Graco's sole obligation and buyer's sole remedy for any breach of warranty shall be as set forth above. The buyer agrees that no other remedy (including, but not limited to, incidental or consequential damages for lost profits, lost sales, injury to person or property, or any other incidental or consequential loss) shall be available. Any action for breach of warranty must be brought within two (2) years of the date of sale.

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