

# 10:1 Dyna-Star® Pump Module

312349G  
ENG

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



## Important Safety Instructions

Read all warnings and instructions in this manual. Save these instructions.

## Single Line Parallel Automatic Lubrication Systems

**247444, 247574: Pump Module**

**243170: Hydraulic Vent Valve Kit**

**247538: Hydraulic Control Module Kit**

**Custom Tank Installation Kit: 60#: 247970; 120#: 247456; 400#: 247457**

*3500 psi (24 MPa, 240 bar) Maximum Lubricant Outlet Pressure*

*3500 psi (24 MPa, 240 bar) Maximum Hydraulic Fluid Inlet Pressure*

*350 psi (2.4 MPa, 24.1 bar) Maximum Regulated Hydraulic Fluid Pressure*

## Single Line Series Progressive Lubrication Systems

**247706, 247707: Pump Module**

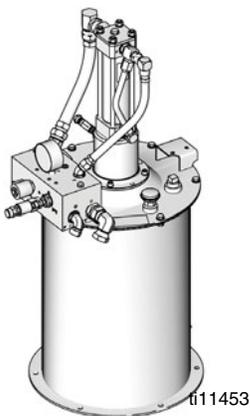
**247705: Hydraulic Control Module Kit for Remote Mounting with Standard Refinery Drums**

**247538: Hydraulic Control Module Kit**

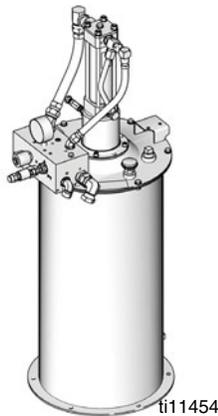
*4500 psi (31 MPa, 310 bar) Maximum Lubricant Outlet Pressure*

*3500 psi (14 MPa, 24.0 bar) Maximum Hydraulic Fluid Inlet Pressure*

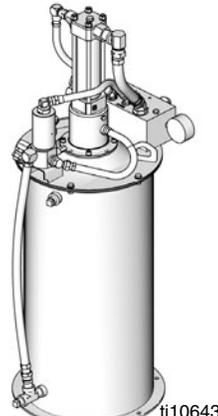
*450 psi (3.1 MPa, 31.0 bar) Maximum Regulated Hydraulic Fluid Pressure*



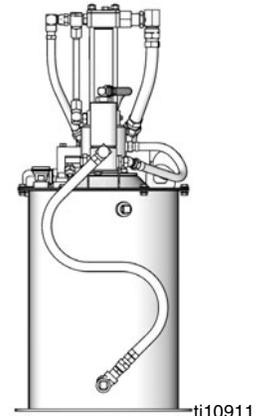
**Model 247706**



**Model 247707**



**Model 247444**



**Model 247574**

# 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>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"> <li>• Use equipment only in well ventilated area.</li> <li>• Eliminate all ignition sources, such as cigarettes and portable electric lamps.</li> <li>• Keep work area free of debris, including rags and spilled or open containers of solvent and gasoline.</li> <li>• Do not plug or unplug power cords or turn lights 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>• 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>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 MSDS forms from distributor or retailer.</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>
 	<p><b>SKIN INJECTION HAZARD</b></p> <p>High-pressure fluid from dispense valve, 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 dispense valve at anyone or at any part of the body.</li> <li>• Do not put your hand over the end of the dispense nozzle.</li> <li>• Do not stop or deflect leaks with your hand, body, glove, or rag.</li> <li>• Follow <b>Pressure Relief Procedure</b> in this manual, when you stop spraying and before cleaning, checking, or servicing equipment.</li> </ul>

 <b>WARNING</b>	
	<p><b>PRESSURIZED EQUIPMENT HAZARD</b></p> <p>Fluid from the gun/dispense valve, leaks, or ruptured components can splash in the eyes or on skin and cause serious injury.</p> <ul style="list-style-type: none"> <li>• Follow <b>Pressure Relief Procedure</b> in this manual, when you stop spraying and before cleaning, checking, or servicing equipment.</li> <li>• Tighten all fluid connections before operating the equipment.</li> <li>• Check hoses, tubes, and couplings daily. Replace worn or damaged parts immediately.</li> </ul>
	<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>BURN HAZARD</b></p> <p>Equipment surfaces and fluid that's heated can become very hot during operation. To avoid severe burns, do not touch hot fluid or equipment. Wait until equipment/fluid has cooled completely.</p>
	<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> </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>

## Unpacking

The Dyna-Star pump module was carefully packaged for shipment by Graco. When the package arrives, perform the following procedure to unpack the units:

1. Inspect the shipping box carefully for shipping damage. Contact the carrier promptly if damage is discovered.
2. Unseal the box and inspect the contents carefully. There should not be any damaged parts.
3. Compare the packing slip against all items included in the box. Any shortages or other inspection problems should be reported immediately.
4. Store the box and packing materials in a safe place for future use. Graco recommends that all packing materials be saved in case the unit needs to be shipped again.

## Pump Module Overview

### Pump Module Capabilities

**Pump Modules 247444 and 247574 for Injector-based, Automatic Lubrication Systems:** provide lubricant flow and pressure to operate a single line parallel automatic lubrication system. The module requires a hydraulic power supply and a timed signal from a lubrication controller. Based on these signals, the pump module provides lubricant flow and pressure to operate the injectors and vents the injector system to reset the injectors.

**Pump Modules 247706 and 247707 for Single Line, Series Progressive-based, Automatic Lubrication Systems:** provide lubricant flow and pressure to operate a single line, series progressive, automatic lubrication system. The module requires a hydraulic power supply and a timed signal from a lubrication controller.

## Pump Module Operation

(See FIG. 4, page 8)

### Cycles for Pump Modules 247444 and 247574 for injector-based, Automatic Lubrication Systems

1. Upon receiving a signal from a 24-volt Lubrication Controller (J), the 3-way Solenoid Valve (F) opens, starting the Pump (D) and closes the Vent Valve (U).
2. The pump builds pressure until the pressure switch in the system sends a signal to the Lubrication Controller (J), ending the cycle or Pump (D) stalls.
3. The Lubrication Controller (J) terminates the 24-volt signal to the 3-way Solenoid Valve (F).
4. The 3-way Solenoid Valve (F) closes, stopping the Pump (D) and opening the Vent Valve (U) into the Reservoir (P).
5. The Pressure Reducing Valve (S) and Flow Control Valve (N) control the pump output pressure and cycle rate.

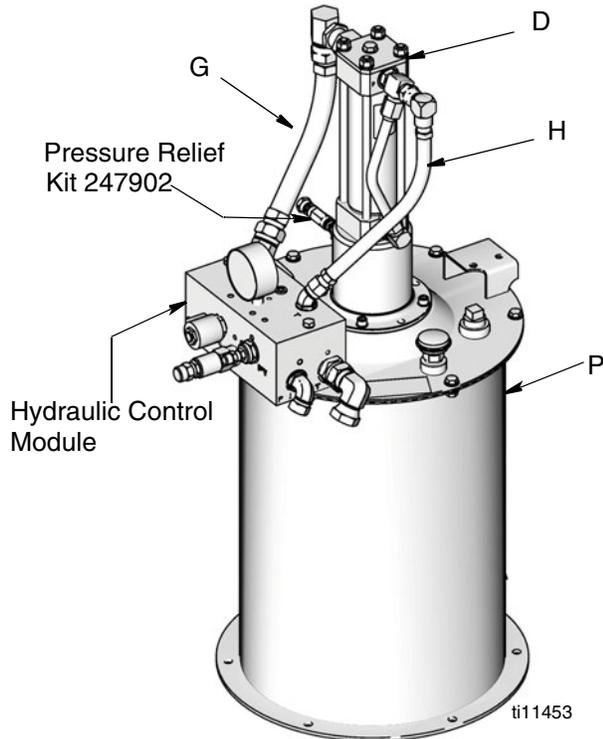
### Cycles for Pump Modules 247706 and 247707 for Single Line, Series Progressive-based, Automatic Lubrication Systems

1. Upon receiving a signal from the 24-volt Lubrication Controller (J), the 3-way Solenoid Valve (F) opens; starting the Pump (D).
2. The Pump (D) provides lubricant flow and pressure until the Lubrication Controller (J) terminates the signal to the 3-way Solenoid Valve; stopping the Pump.
3. The Pressure Reducing Valve (S) and Flow Control Valve (N) control the pump output pressure and cycle rate.

# Pump Module Assembly

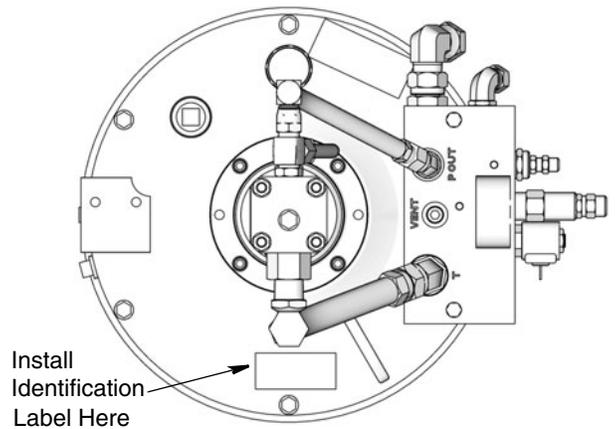
## Models 247706 and 247707 only

For divider valve-based automatic lubrication systems.  
(Unless otherwise indicated, see FIG. 1).



**FIG. 1 Model 247706 shown**

1. Install Pump (D) on Reservoir (P).
2. Remove Vent Valve Hydraulic Control (J) fitting and replace with Plug (R) (FIG. 6, page 9).
3. Install Hydraulic Control Module on Reservoir (P).
4. Connect Tank Line (G) to Pump (D).
5. Connect Pump High Pressure Hydraulic Line (H) to Pump (D).
6. Install Pressure Relief Kit (247902) to Pump Outlet.
7. Install model number label as shown in FIG. 2.



**FIG. 2**

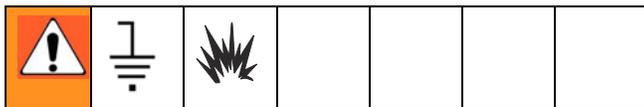
# Installation

Read instruction manual 312350 **BEFORE** installing this product.

						
<ul style="list-style-type: none"> <li>• Be sure unit is securely mounted <b>before</b> operation.</li> <li>• Do not lift pressurized equipment.</li> </ul>						

## Grounding (for non-mobile installation)

(See FIG. 3 below)



1. Loosen grounding lug locknut (A) and washer (B).
2. Insert one end of a 12 gage (1.5 mm<sup>2</sup>) minimum ground wire (C) into slot in lug (D). Tighten locknut securely.
3. Connect other end of wire to true earth ground. To order a ground wire and clamp, order part number 222011.

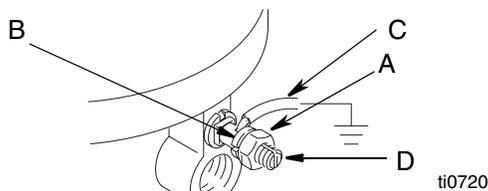


FIG. 3

## Pump Module

(See FIG. 4, page 8)

Mount Reservoir (P) on sturdy, flat surface with 6 (six), 3/8-inch diameter bolts. Note location of Fill Port (K), Hydraulic Lines (A) and Lubricant Outlet Connection (C) for easy access once installed.

						
<ul style="list-style-type: none"> <li>• The hydraulic system must be depressurized before connecting High Pressure Hydraulic Lines (A).</li> <li>• Be sure Breather (M) is not plugged before filling Reservoir (P).</li> </ul>						

### CAUTION

The hydraulic supply must be 10 $\mu$  filtered or better and supply 0.5 - 3.0 gpm (1.9 - 11.4 lpm) at 300 psi - 3500 psi (21 bar - 241 bar (2.1 MPa - 24 MPa).

1. Install Ball Valve (AA) (user provided) in the 3/8-inch High Pressure Hydraulic Line (X).
2. Connect the 3/8-inch High Pressure Hydraulic Line (X) to the High Pressure Hydraulic Connection swivel (Y).
3. Connect the 3/4-inch Hydraulic Tank Line (T) to the Tank Hydraulic Connection swivel (Z).
4. Connect the 24 VDC timer controlled signal to the 3-way Solenoid Valve (F).
5. Connect High Pressure Lubricant Supply Line (G) to the Lubricant Output Connection (C) for Single Line Parallel Systems or to Pressure Relief Kit Output Connection for Single Line, Series Progressive-based Systems.
6. Ground system (see **GROUNDING**). Mount Reservoir (P) to grounded chassis member.

## Vent Valve Kit for Custom Tank Installation

(Unless otherwise indicated, see FIG. 5 and FIG. 6, page 9)

1. Weld the bracket (FIG. 7, page 10) in place per recommended configuration for mounting the vent valve. Paint the bracket if desired.
2. Connect the Hydraulic Control Line (A) to control module Vent Valve Hydraulic Control (J).
3. Connect Pump Output Connection line (C) to Pump outlet.
4. Connect the High Pressure Lubricant Supply Line (G, FIG. 4, page 8) feeding the injector system to the Lubricant Output (E).
5. Connect the Vent Line (F) to Custom Tank (user provided).

### Hydraulic Control Module for Custom Tank Installation

(Unless otherwise indicated, see FIG. 5 and FIG. 6, page 9)

1. Mount control module on a flat, sturdy surface per the recommended configuration (Fig. 2, page 8).
2. Connect Pump Tank Line (G) to pump hydraulic outlet port.
3. Connect Vent Valve Hydraulic Control (J) connection to the hydraulic control line (A).
4. Connect the Pump High Pressure Hydraulic Line (H) to the pump hydraulic input port.
5. Connect high pressure hydraulic supply to the High Pressure Hydraulic Connection (L) and the tank lines to the Hydraulic Tank Connection (K).
6. Connect the 3-way Solenoid Valve (P) to the timer.



Coil should always be installed with lettering facing out.

### Hydraulic Control Module 247705

*(For Single-line, Progressive, Automatic Lubrication Systems with refinery reservoir installation)*

(Unless otherwise indicated, see FIG. 5 and FIG. 6, page 9)

1. Mount control module on a flat, sturdy surface. The 6-foot hydraulic supply and hydraulic tank line must reach the pump when installed in the refinery reservoir.
2. Connect Pump Tank Line (G) to pump hydraulic outlet port.
3. Remove Vent Valve Hydraulic Control (J) and add plug (R) to vent port.
4. Connect the Pump High Pressure Hydraulic Line (H) to the pump hydraulic input port.
5. Connect high pressure hydraulic supply to the High Pressure Hydraulic Connection (L) and the tank lines to the Hydraulic Tank Connection (K).

## Typical Installation

The installation shown in Figures 4, 5, 6 and 7 are only a guide for selecting and installing system components. Contact your Graco distributor for assistance in planning a system to suit your needs.

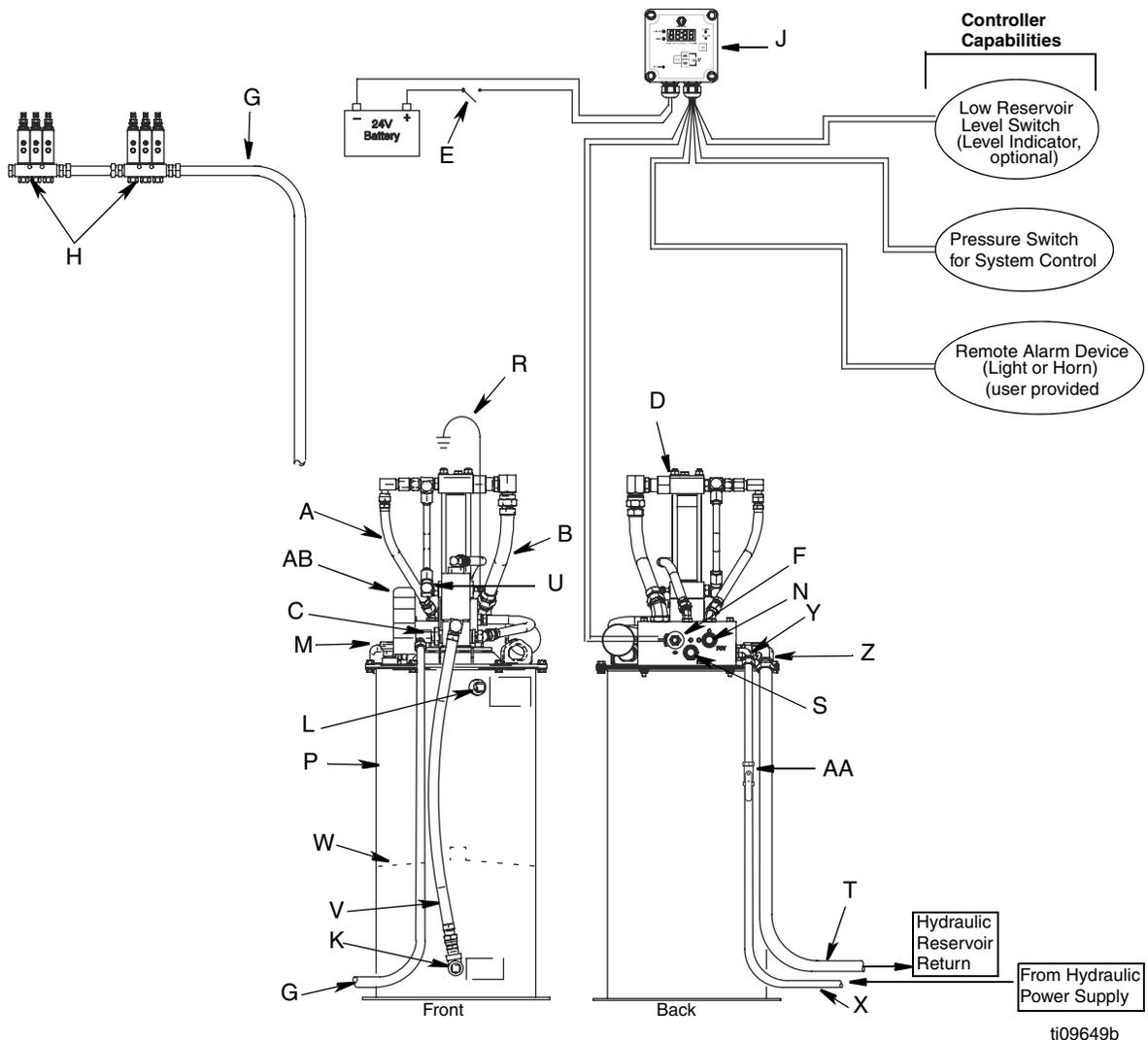


FIG. 4

### Key:

- |   |  |    |   |
|---|--|----|---|
| A | High pressure hydraulic lines              | S  | Pressure reducing valve (PRV)               |
| B | Hydraulic tank line                        | T  | Hydraulic tank line*                        |
| C | Lubricant output connection                | U  | Vent valve                                  |
| D | Pump                                       | V  | Vent line                                   |
| E | Ignition switch*                           | W  | Follower plate (optional)                   |
| F | 3-Way solenoid valve                       | X  | High pressure hydraulic line*               |
| G | High-pressure lubricant supply lines*      | Y  | High pressure hydraulic connection (swivel) |
| H | Injector banks*                            | Z  | Tank hydraulic connection (swivel)          |
| J | Lubrication controller*                    | AA | Ball valve*                                 |
| K | Fill port                                  | AB | Level indicator                             |
| L | Overflow port                              |    |   |
| M | Breather                                   |    |   |
| N | Flow control valve (FCV)                   |    |   |
| P | Reservoir                                  |    |   |
| R | Ground wire (for non-mobile installation)* |    |   |

\*User provided

### Vent Valve Installation Kit

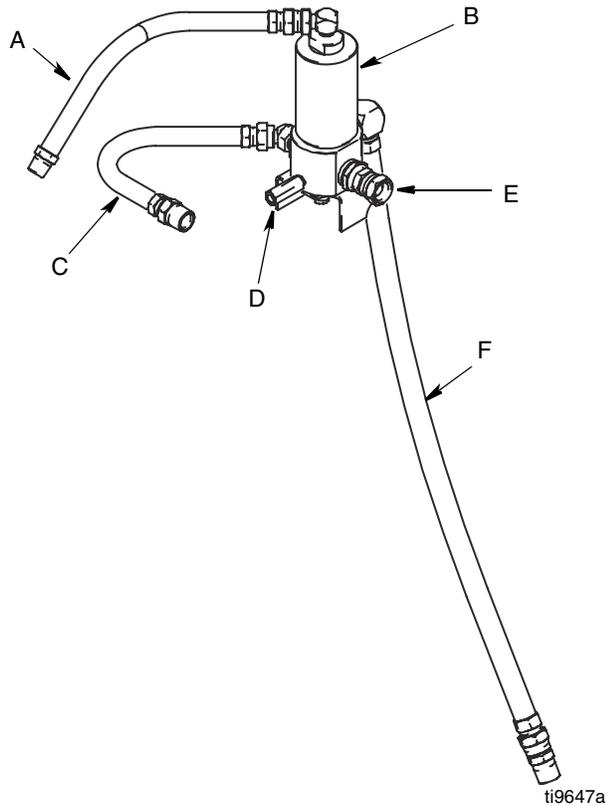


FIG. 5

**Key:**

- A Hydraulic control line
- B Vent valve
- C Pump output connection line
- D Pressure relief valve
- E Lubricant output
- F Vent line

### Control Module Installation Kit

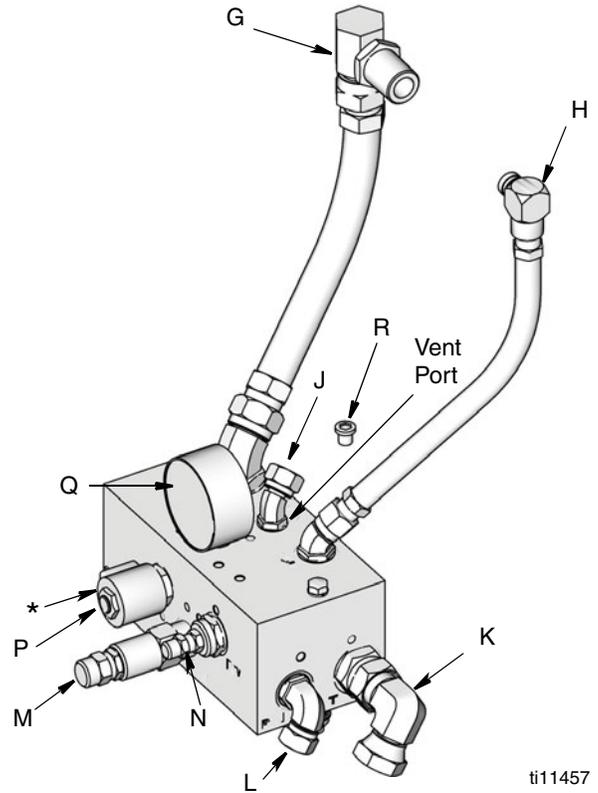


FIG. 6

**Key:**

- G Pump tank line
- H Pump high pressure hydraulic line
- J Vent valve hydraulic control
- K Hydraulic tank connection
- L High pressure hydraulic connection
- M Pressure reducing valve
- N Flow control valve
- P 3-way solenoid valve
- Q Regulated hydraulic pressure gauge
- R Plug for systems without vent valves. (Installed in Vent port instead of J, for models 247706 and 247707 only).

\*coil should always be installed with lettering facing out

# Custom Tank Installation

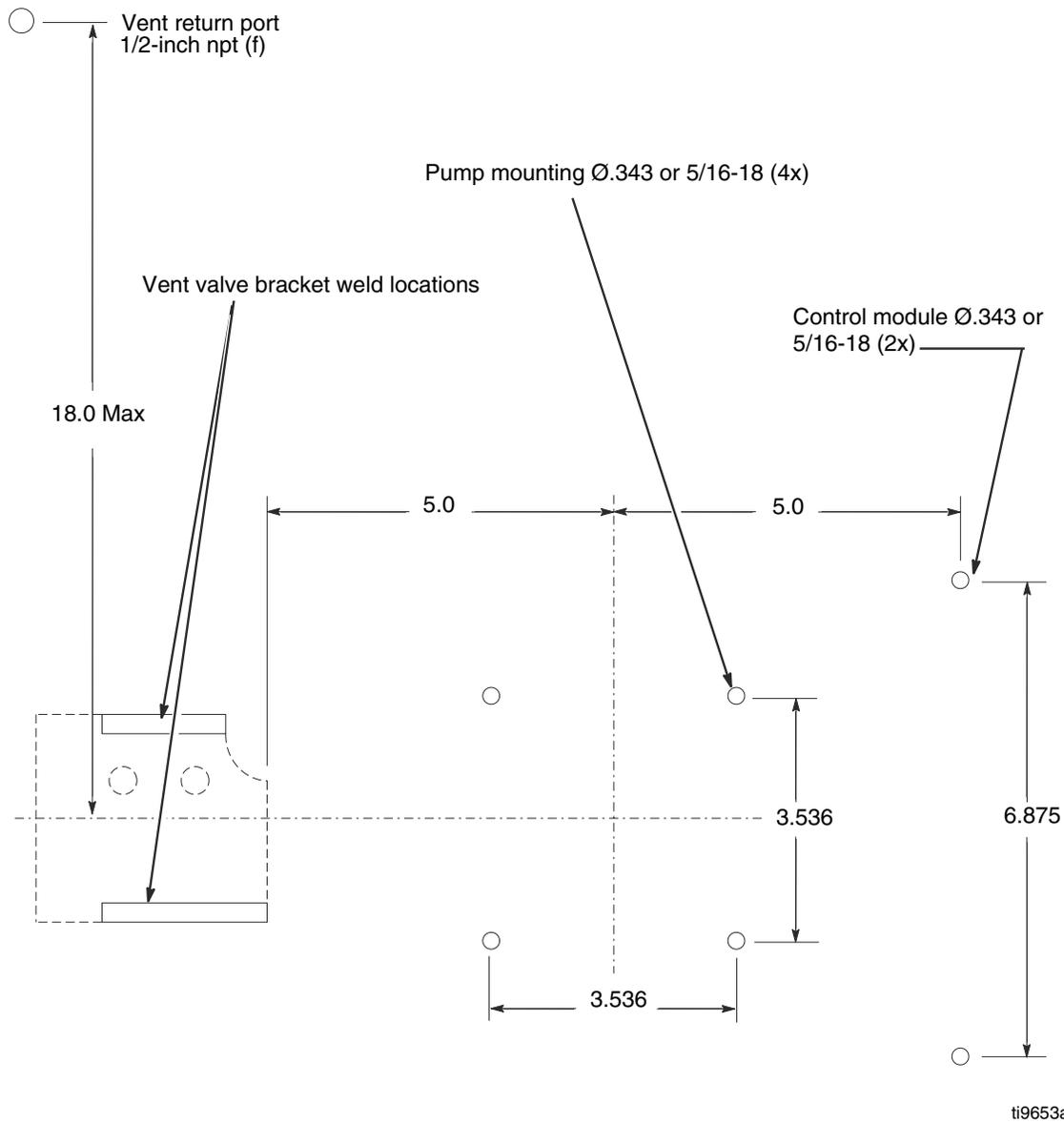


FIG. 7

# Operation

## Pressure Relief Procedure

						
<p>To reduce the risk of serious injury follow this pressure relief procedure whenever you (are):</p> <ul style="list-style-type: none"> <li>Instructed to relieve pressure.</li> <li>Shut off pump.</li> <li>Check, clean or service any of the system equipment.</li> <li>Install or clean the dispensing valve.</li> </ul>						

### Models 247444, 247574, 247456, 247457, 247970

(See FIG. 4, page 8.)

- Disable hydraulic supply to Pump (D) by isolating it from the high pressure hydraulic supply using Ball Valve (AA).
- Do one of the following:
  - Open Pressure Reducing Valve (S) to reduce trapped hydraulic pressure,

or

  - Cycle the timer to open the 3-way solenoid valve to reduce trapped hydraulic pressure.

 Gauge on control module should read zero pressure after performing this step.
- Disconnect power from Lubrication Controller (J).

### Models 247706, 247707

(For these instructions see FIG. 4, page 8.)

- Disable hydraulic supply to Pump (D) by isolating it from the high pressure hydraulic supply using Ball Valve (AA).
- Disconnect power from Lubrication Controller (J).
- Place a container under plastic tube (5g, page 16) in Pressure Relief Kit (247902) to catch fluid when relieving pressure.
- Open ball valve (5d, page 16) in Pressure Relief Kit (247902).

## Start-up

(For these instructions see FIG. 4, page 8.)

						
<p>Do not insert finger into the overflow port while filling a reservoir equipped with a follow plate. Injury or amputation could result.</p>						

### Prime Vent Line Models 247444 & 247574

The first time the reservoir is filled, use the vent valve outlet. This removes all air from the vent line (V).

- Connect lubricant supply hose from remote filling station pump unit to outlet of Vent Valve (U).
- Remove plug in Fill Port (K) located at bottom of reservoir.
- Slowly turn on supply lubricant until lubricant appears in fill port.
- Remove lubricant supply hose from vent valve.

## Fill Reservoir

(For these instructions see FIG. 4, page 8.)

1. Connect lubricant supply hose from remote filling station pump to Fill Port (K).
2. Connect High Pressure Lubricant Supply Line (G) to Vent Valve (U) outlet.
3. Remove plug from Overflow Port (L).
4. Slowly turn on supply lubricant until level of lubricant reaches overflow port.

-  For systems with a follow plate, fill until the follow plate reaches the overflow port.
- Refer to Automatic Lubrication System Design Guidelines Manual 309015 for instructions on priming remaining system lubricant lines and further operating instructions.

5. Set hydraulic pressure to pump at lowest pressure needed (see Technical Data, page 18).
6. Set hydraulic flow rate to pump at lowest rate needed to get desired results.
7. Read and follow instructions supplied with each system component.

 With a primed pump and sufficient hydraulic supply, the pump starts when the timer activates the solenoid valve. The pump stops when the timer deactivates the solenoid valve.

### CAUTION

Never allow pump to run dry of the fluid being pumped. A dry pump will quickly accelerate to a high speed, possibly damaging the pump. If your pump accelerates quickly, or is running too fast, stop the pump immediately and check the fluid supply.

						
<p><b>COMPONENT RUPTURE HAZARD</b></p> <p>The maximum working pressure of each component in the system may not be the same. To reduce the risk of overpressurizing any component in the system, be sure you know the maximum working pressure of each component. <b>Never</b> exceed the maximum working pressure of the lowest rated component in the system. Overpressurizing any component can result in rupture, fire, explosion, property damage and serious injury.</p> <p>Regulate hydraulic pressure to the pump so that no fluid line, component or accessory is overpressurized.</p>						

## Shutdown

(For these instructions, see FIG. 4, page 8.)

1. For normal system shut down, disconnect power to Lubricator Controller (J) by turning off the ignition switch.
2. Turn off hydraulic supply by closing the Ball Valve (AA).

# Service

**Use only Genuine Graco Repair Parts.**

See separate system component manuals for service instructions. For pump service see manual 312350. For vent valve service see manual 309099.

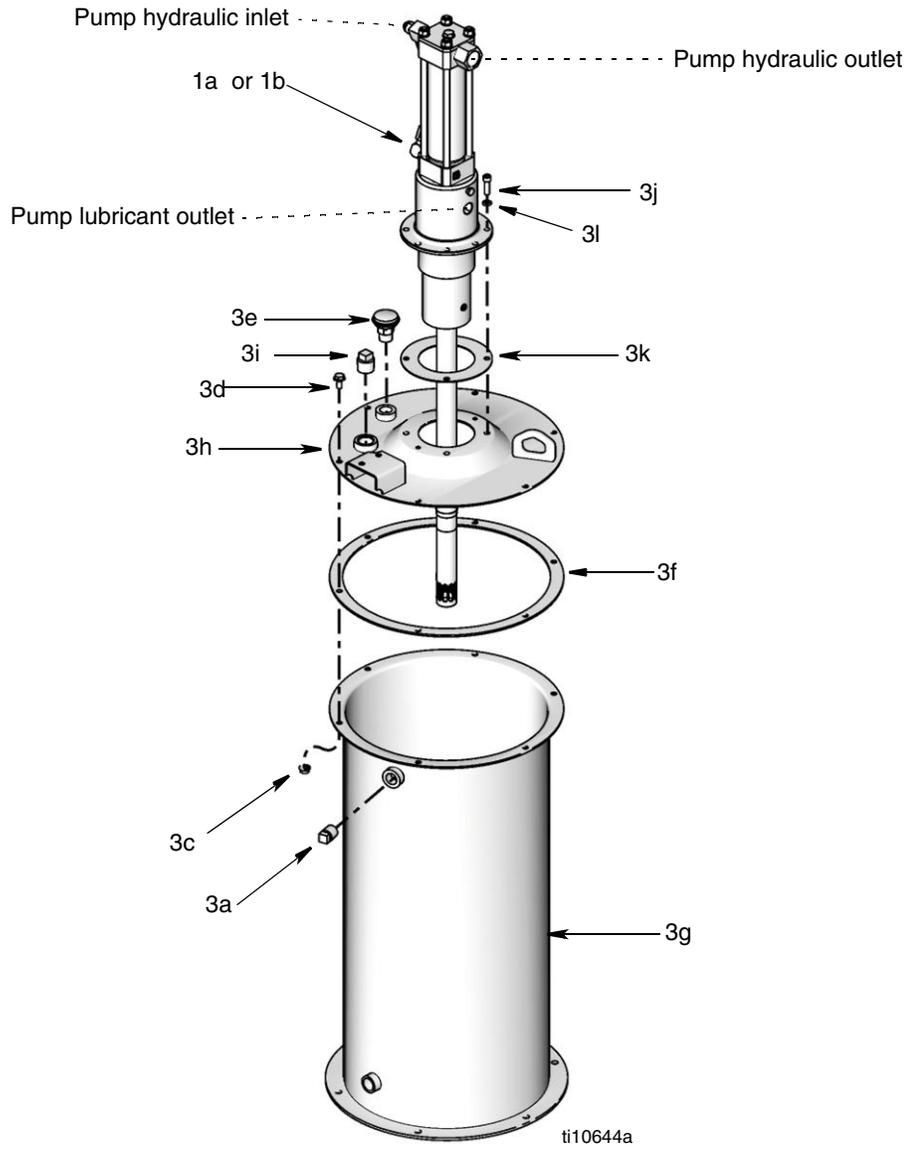


## Troubleshooting

Problem	Cause	Solution
System does not build sufficient pressure.	Pump malfunction.	Refer to manual 312350.
	Pump turned off too soon.	Increase timer "pump on" setting. Increase hydraulic flow rate to pump.
	Solenoid malfunction.	Repair or replace solenoid.
	Too low or no hydraulic supply.	Turn pressure up or supply on.
	Vent valve seal failure.	Replace seal.
	Vent valve needle/seat failure.	Replace needle and seat.
	Reservoir out of grease.	Fill reservoir.
	Broken or leaky supply/branch line.	Tighten connections and/or replace line(s).
	Injector failure.	Repair or replace injector.
	Pressure in tank line too high due to restrictions in tank line or plumbing too small.	Remove tank line restrictions. Use larger plumbing.
Lubricant dispensed from pressure relief valve.	System pressure set too high.	Decrease hydraulic pressure to pump.
Pump runs too fast.	Reservoir out of lubricant.	Fill reservoir.
	Pump cavitation.	Install a follower plate.
	Leak in distribution system.	Repair leak.
Lubricant coming out of breather.	Reservoir overfilled.	Drain lubricant until overflow stops.
Pump will not start.	No hydraulic supply.	Verify/check hydraulic supply.
	Solenoid malfunction.	Replace solenoid.
	No electrical supply to lubrication controller.	Turn on electrical supply.
	Lubrication controller malfunction.	Refer to controller manual 308950.
	Pump malfunction.	Refer to pump manual 312350.

# Parts Drawing

(See Parts List, page 17)

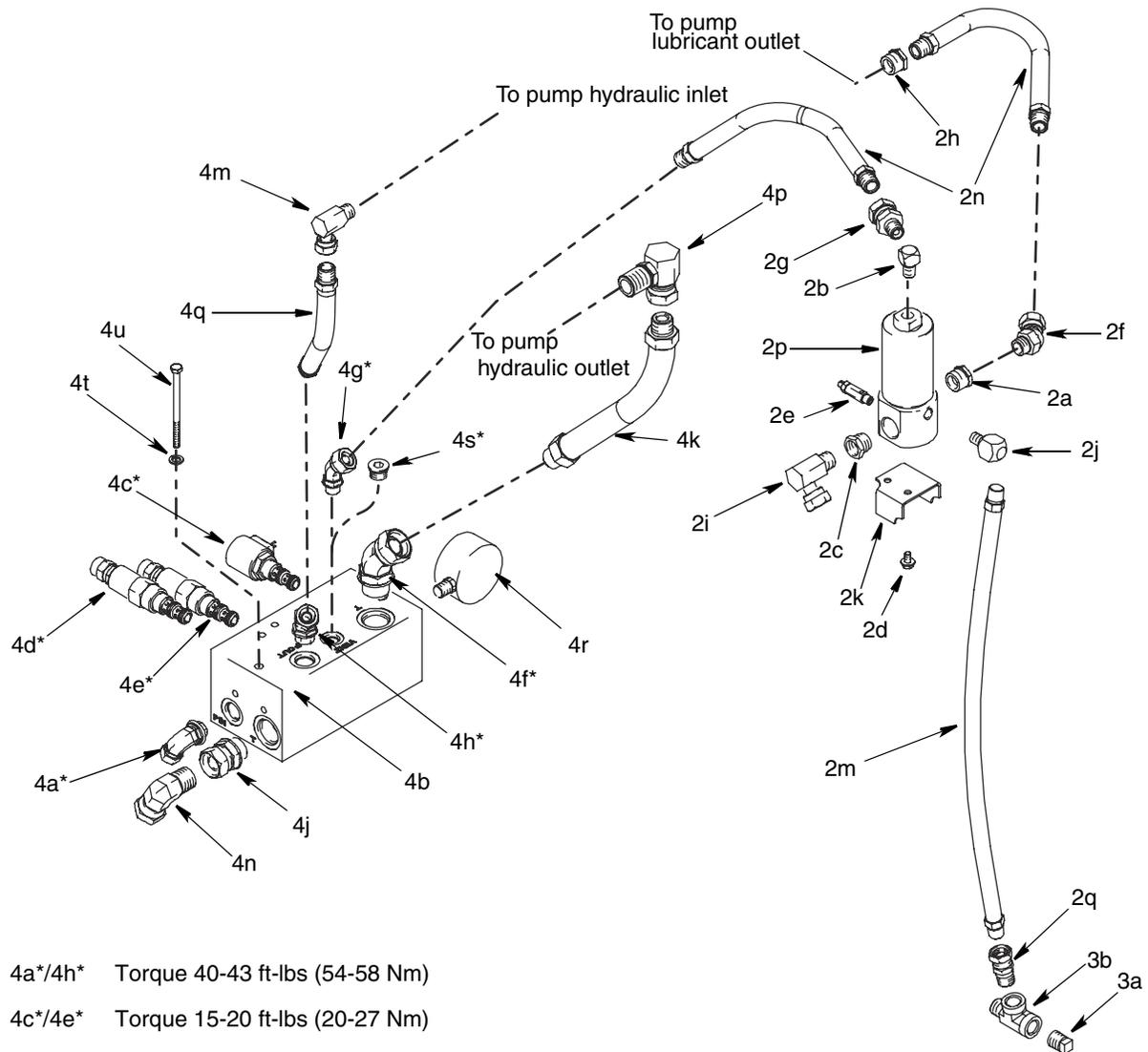


# Parts Drawing

## Vent Valve Kit (2): 237170

## Control Module Kit (4): 247538

(See Parts List, page 17)



- 4a\*/4h\* Torque 40-43 ft-lbs (54-58 Nm)
- 4c\*/4e\* Torque 15-20 ft-lbs (20-27 Nm)
- 4d\* Torque 20-25 ft-lbs (27-34 Nm)
- 4f\* Torque 68-75 ft-lbs (92-102 Nm)
- 4g\* Torque 22-24 ft-lbs (30-33 Nm)
- 4s\* Allows user to plug vent line for use in systems without a vent valve

\* Lubricate o-ring with oil before installation

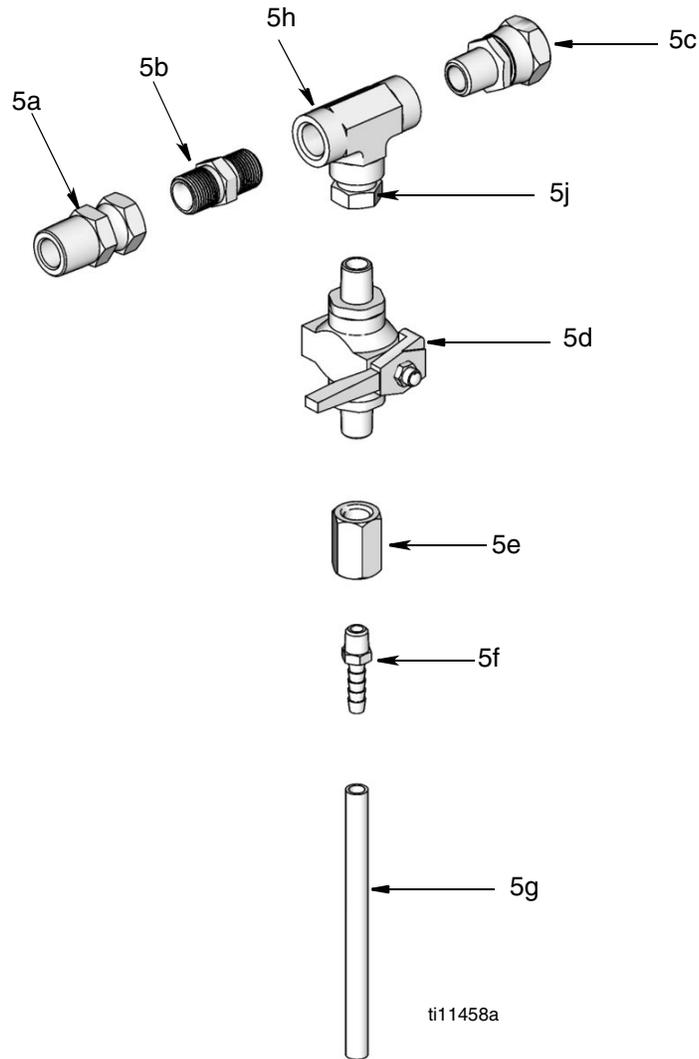
ti10304a

# Parts Drawing

## Pressure Relief Kit (5): 247902

(for models 247706 and 247707 only)

(See Parts List, page 17)



# Parts List

**Model 247706: Dyna-Star 10:1 Pump Module, 60# for Single Line, Progressive, Automatic Lubrication Systems (includes items 1a, 3, 4, 5)**

**Model 247707: Dyna-Star 10:1 Pump Module, 90# for Single Line, Progressive, Automatic Lubrication Systems (includes items 1b, 3, 4, 5)**

**Model 247574: Dyna-Star 10:1 Pump Module, 60# for Single Line, Parallel, Automatic Lubrication Systems (includes items 1a - 4)**

**Model 247444: Dyna-Star 10:1 Pump Module, 90# for Single Line, Parallel, Automatic Lubrication Systems (includes items 1b - 4)**

**\*Model 247970: Dyna-Star Pump Module Installation Kit 60# (includes items 1a, 2, 3k, 4)**

**\*Model 247456: Dyna-Star Pump Module Installation Kit 120# (includes items 1b, 2, 3k, 4)**

**\*Model 247457: Dyna-Star Pump Module Installation Kit 400# (includes items 1c, 2, 3k, 4)**

Ref. No.	Part No.	Description	Qty	Ref. No.	Part No.	Description	Qty
				3h	247448	. COVER, reservoir	1
1a	247540	PUMP, Dyna-Star 60#, see manual 312350		3i	104663	. PLUG, pipe	1
				3j	101864	. SCREW, cap	4
1b	247443	PUMP, Dyna-Star 120#, see manual 312350	1	3k	15M442	. GASKET, pump	1
				3l	100214	. WASHER, lock	6
1c	247450	PUMP, Dyna-Star 400#, see manual 312350	1	4	247538	KIT, installation control module (page 15)	1
2	243170	KIT, installation, vent valve (page 15)	1	4a	112581	. ADAPTER, male	1
				4b	121207	. MODULE, hydraulic control	1
2a	100505	. BUSHING, pipe	1	4c	115775	. VALVE, 3-way solenoid	1
2b	100840	. ELBOW, street	1	4d	115773	. VALVE, flow regulating	1
2c	100896	. FITTING, bushing, pipe	1	4e	121206	. VALVE, pressure reducing	1
2d	111801	. SCREW, cap, hex hd	2	4f	115757	. ADAPTER, straight thread	1
2e	115122	. VALVE, pressure relief	1	4g	115758	. ADAPTER, straight thread	1
2f	161889	. UNION, adapter	1	4h	115760	. ADAPTER, straight thread	1
2g	157705	. UNION, swivel	1	4j	115763	. ADAPTER, straight thread	1
2h	158212	. BUSHING	1	4k	115776	. HOSE, 3/4"X3/4" NPT	1
2i	115470	. UNION, union, swivel, 90_	1	4m	115829	. UNION, swivel, 90 degree	1
2j	162667	. ELBOW, street, pipe	1	4n	160327	. UNION, adapter 90 degree	1
2k	194867	. BRACKET, vent valve	1	4p	207648	. UNION, adapter, 90 degree.	1
2m	194995	. HOSE, vent; 1/2 in.	1	4q	238370	. HOSE, coupled, 1 ft.	1
2n	238370	. HOSE	2	4r	802072	. GAUGE, pressure	1
2p	242063	. VALVE, vent	1	4s	108984	. PLUG, hollow, hex	1
2q	156684	. UNION, adapter	1	4t	100214	. WASHER, lock	6
3	247575	KIT, reservoir, 60# grease, models 247574, 247706 (page 14)	1	4u	110384	. SCREW, cap, hex hd	2
				5	247902	KIT, pressure relief (page 16)	1
	241486	KIT, reservoir, 90# grease, models 247444, 247707 (page 14)	1	5a	158256	. UNION, swivel	1
				5b	156849	. PIPE, nipple	1
3a	100737	. PLUG, pipe	2	5c	162505	. FITTING, union swivel	1
3b	108126	. TEE, pipe	1	5d	210657	. VALVE, ball	1
3c	110996	. NUT, flanged, hex	6	5e	150278	. COUPLING, pipe, hex	1
3d	111800	. SCREW, cap, flange head	4	5f	116746	. FITTING, barbed, plated	1
3e	115254	. BREATHER	1	5g	116750	. TUBE, nylon	1
3f	194868	. GASKET, cover	1	5h	114526	. TEE	1
3g	15R105	. PAIL, reservoir, 60#, models 247706; 247574	1	5j	118758	. REDUCER	1
3g	194907	. PAIL, reservoir, 90#, models 247707; 247444	1				

\* Installation kits for custom user provided lubricant reservoirs not shown.

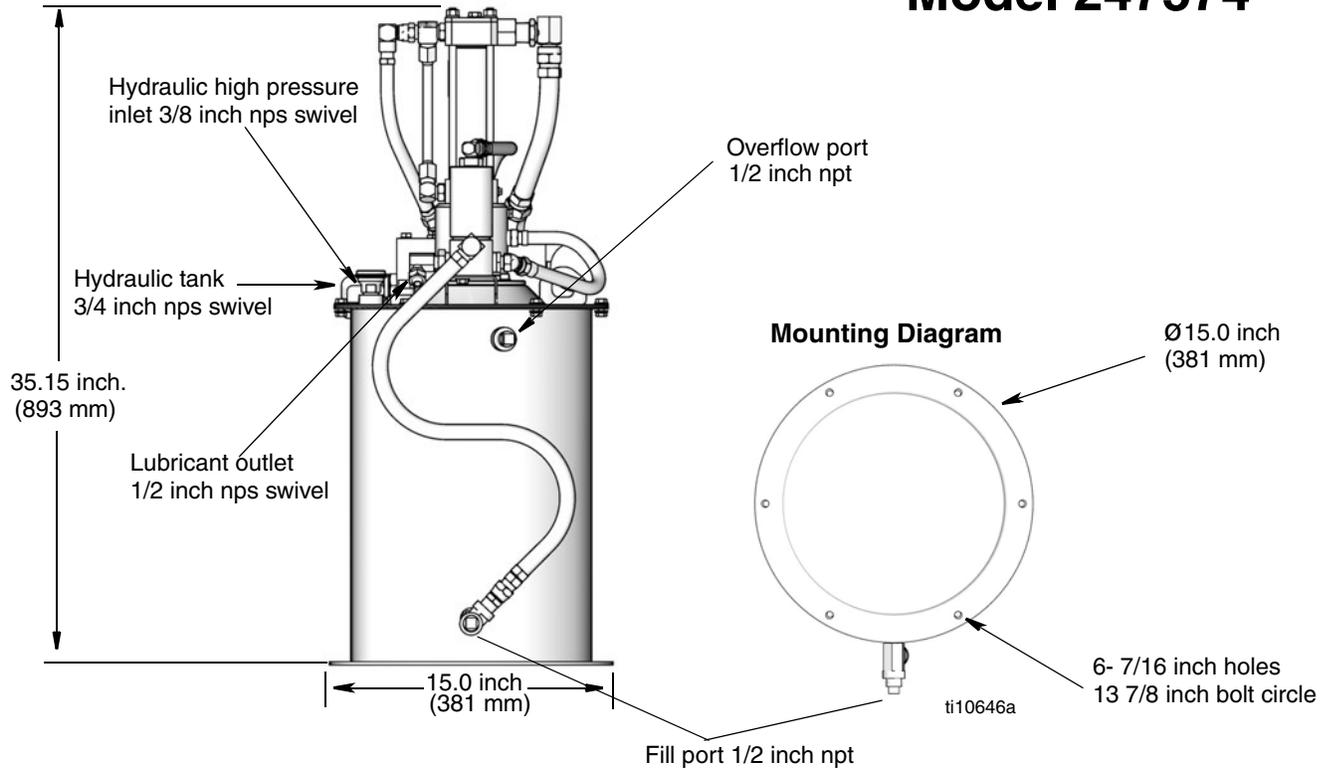
## Technical Data

Maximum hydraulic input pressure	3500 psi (24.0 MPa, 240 bar)
Pump wetted parts	see manual 312350
Vent valve wetted parts	see manual 309099
Reservoir wetted parts	steel, buna-n rubber
Maximum delivery @ 60 cpm	1.1 lb/min, 34.8 in <sup>3</sup> /min, 570 cm <sup>3</sup> /min
Regulated hydraulic pressure operating range	
Models: 247444, 247574, 247456, 247457, 247970	250 to 350 psi (1.7 to 2.4 MPa, 17.0 to 24.1 bar)
Models: 247706, 247707	250 to 450 psi (1.7 to 3.1 MPa, 17.0 to 31.0 bar)
Hydraulic flow rate operating range	0.5 to 3.0 gpm (1.9 to 11.4 liter/min)
Maximum hydraulic fluid temperature	200°F (93.33°C)
Lubricant outlet pressure range	
Models: 247444, 247574, 247456, 247457, 247970	2500 to 3500 psi (17.0 to 24.0 MPa, 170 to 240 bar)
Models: 247706, 247707	2500 to 4500 psi (17.0 to 31.0 MPa, 170 to 310 bar)
Reservoir overflow port size	1/2 inch npt (FIG. 4, L, page 8)
Reservoir fill port size	1/2 inch npt (FIG. 4, K, page 8)
Hydraulic inlet port size	3/8 inch nps swivel (FIG. 4, Y, page 8)
Hydraulic tank line size	3/4 inch nps swivel (FIG. 4, Z, page 8)
Lubricant outlet port size	1/2 inch nps swivel (FIG. 4 G, page 8)
Grease capacity	
Model 247444, 247707	90 lb. (41 kg)
Model 247574, 247706	60 lb. (27 kg)
Mounting holes for pump module	six, 7/16 inch holes on 13 7/8 inch bolt circle
Reservoir diameter	12 3/4 inch (324 mm)
Pump module height	
Model 247444, 247707	42.75 inch (1086 mm)
Model 247574, 247706	35.15 inch (893 mm)
Electrical requirements	Timed 24 VDC signal
Electrical power requirements	14.7 Watts
Filtration (hydraulic fluid)	10μ (microns) or better
Sound Pressure*	77 dB(A)

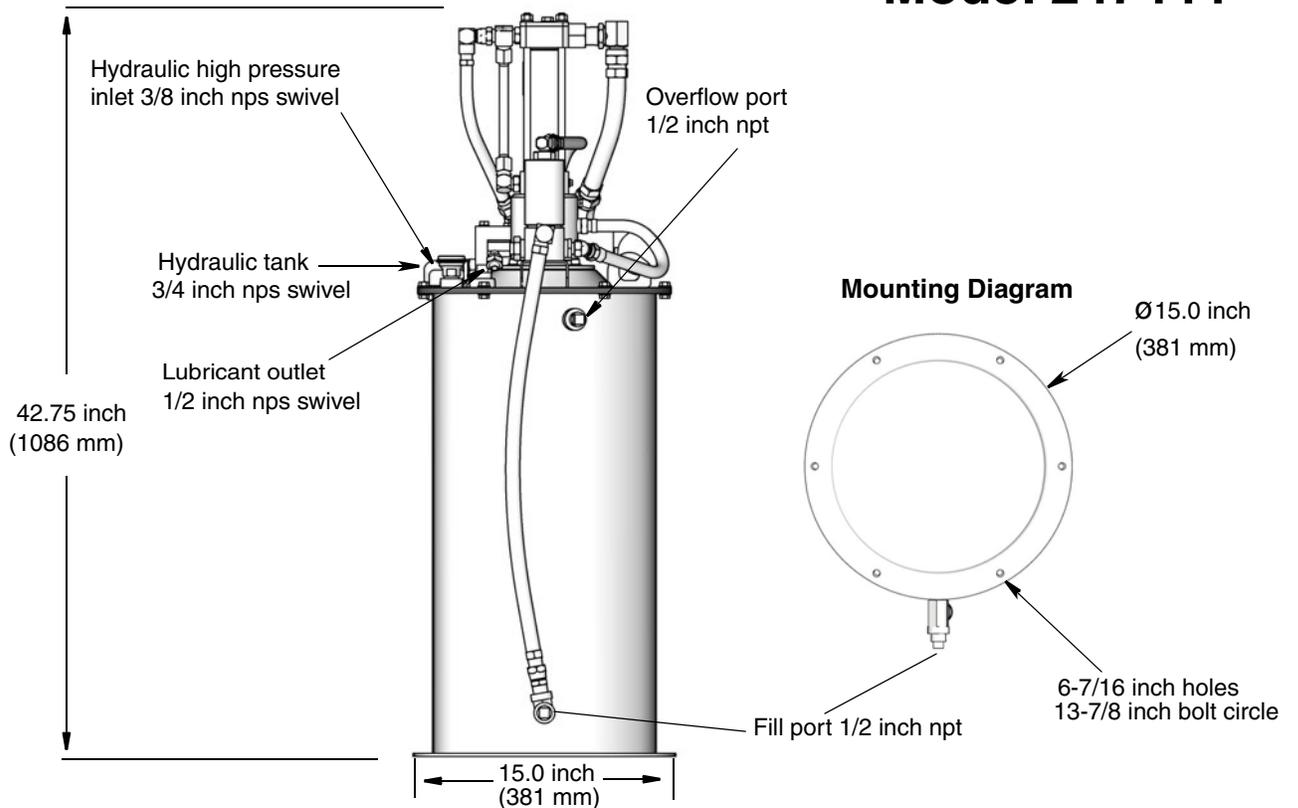
\*Sound pressure reading taken with pump operating at 66 cycles per minute. Sound pressure measured per CAGI-PNEUROP, 1971.

# Dimensions

## Model 247574

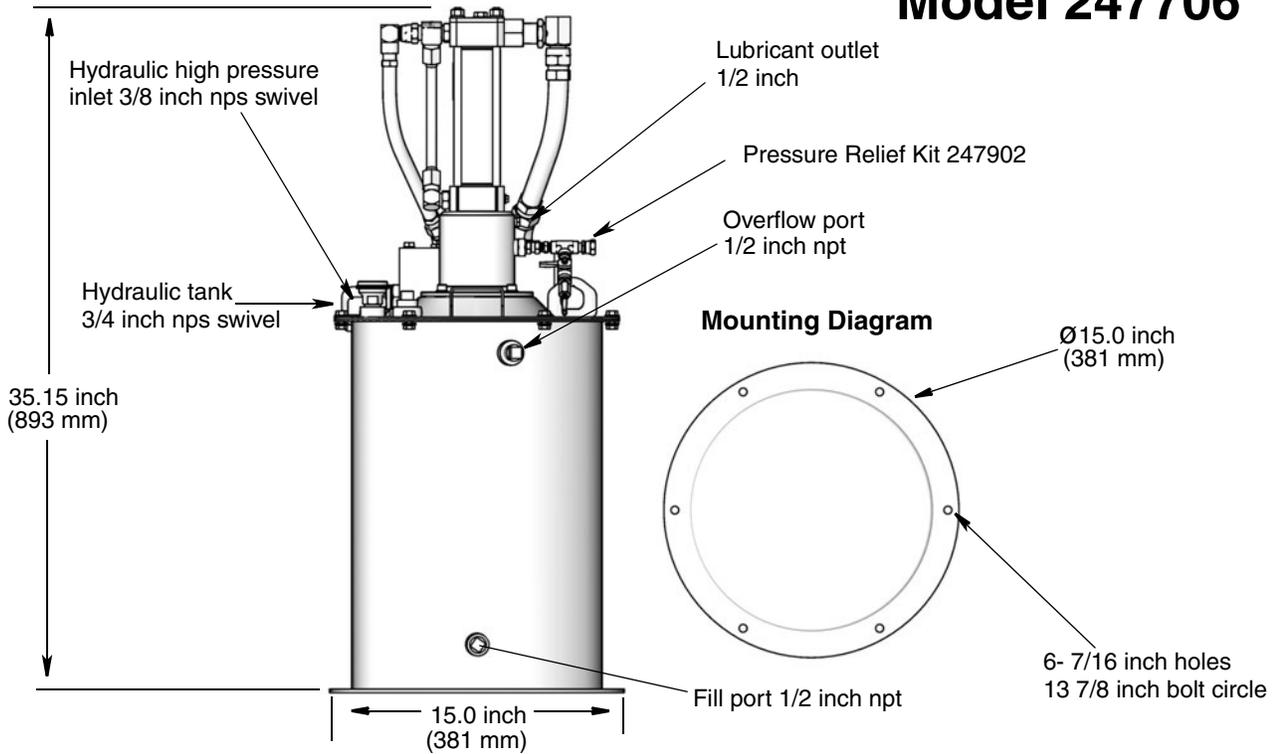


## Model 247444



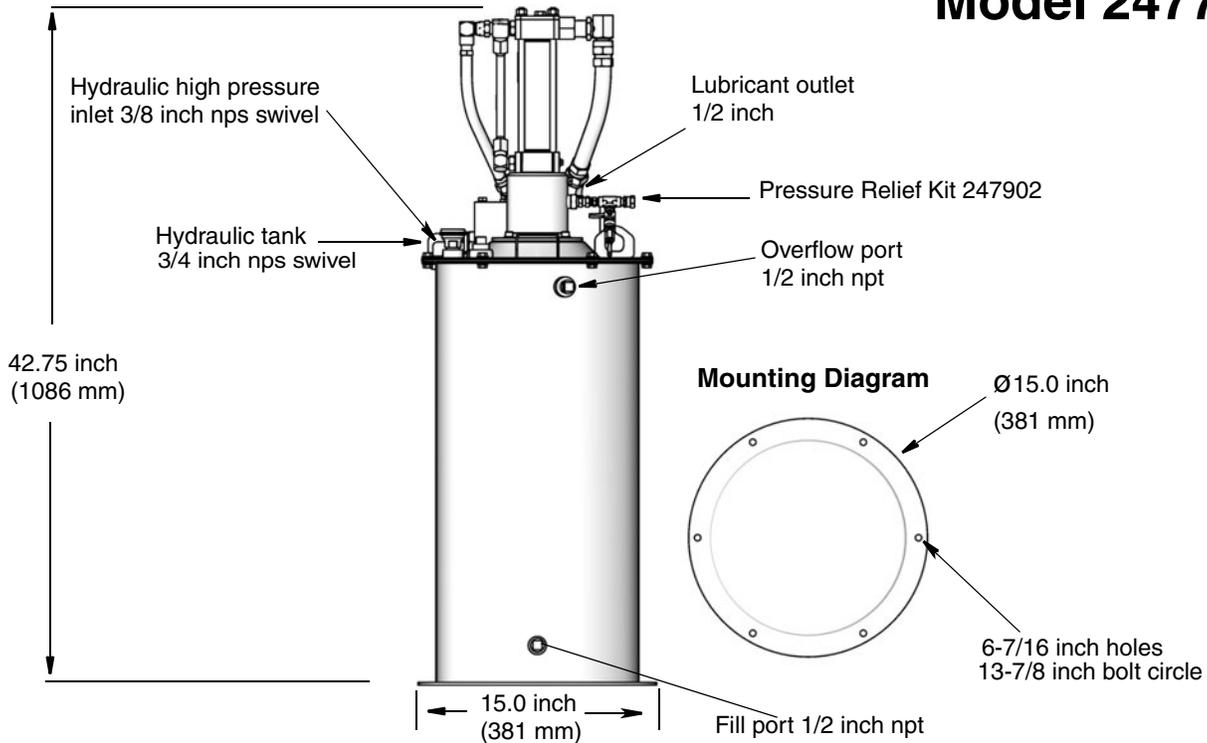
# Dimensions

## Model 247706



ti11451

## Model 247707



ti11452



# 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.

**THIS WARRANTY IS EXCLUSIVE, AND IS IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO WARRANTY OF MERCHANTABILITY OR WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.**

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.

**GRACO MAKES NO WARRANTY, AND DISCLAIMS ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, IN CONNECTION WITH ACCESSORIES, EQUIPMENT, MATERIALS OR COMPONENTS SOLD BUT NOT MANUFACTURED BY GRACO.** These items sold, but not manufactured by Graco (such as electric motors, switches, hose, etc.), are subject to the warranty, if any, of their manufacturer. Graco will provide purchaser with reasonable assistance in making any claim for breach of these warranties.

In no event will Graco be liable for indirect, incidental, special or consequential damages resulting from Graco supplying equipment hereunder, or the furnishing, performance, or use of any products or other goods sold hereto, whether due to a breach of contract, breach of warranty, the negligence of Graco, or otherwise.

## **FOR GRACO CANADA CUSTOMERS**

The Parties acknowledge that they have required that the present document, as well as all documents, notices and legal proceedings entered into, given or instituted pursuant hereto or relating directly or indirectly hereto, be drawn up in English. Les parties reconnaissent avoir convenu que la rédaction du présente document sera en Anglais, ainsi que tous documents, avis et procédures judiciaires exécutés, donnés ou intentés, à la suite de ou en rapport, directement ou indirectement, avec les procédures concernées.

# 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 312349*

**Graco Headquarters:** Minneapolis

**International Offices:** Belgium, China, Japan, Korea

**GRACO INC. P.O. BOX 1441 MINNEAPOLIS, MN 55440-1441**

Copyright 2007, Graco Inc. is registered to I.S. EN ISO 9001

[www.graco.com](http://www.graco.com)

Revised 10/2010