

G1™ Plus Lubrication Pump

332317H
EN

For dispensing of NLGI Grades #000 to #2 greases and oil with at least 40cSt. For Professional Use Only.

Not approved for use in explosive atmospheres or hazardous locations.

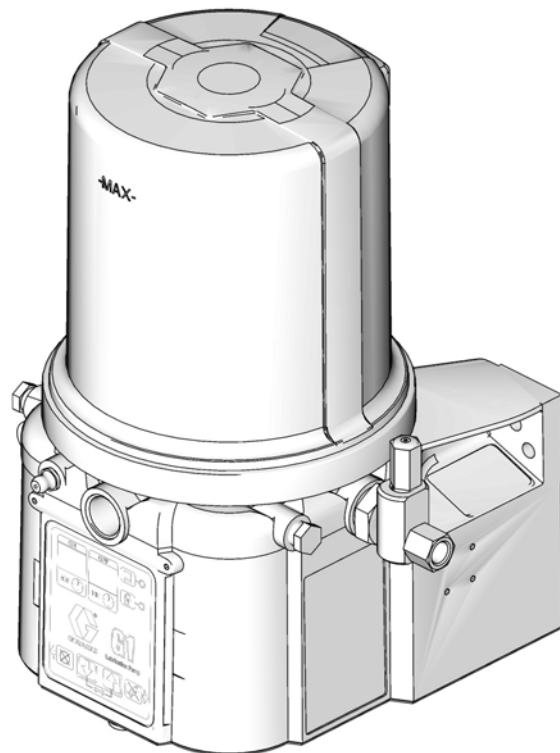
Part Nos., page 3

5100 psi (35.1 MPa, 351.6 bar) Maximum Working Pressure



Important Safety Instructions

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



3132066
conforms to ANSI/UL 73
certified to CAN/CSA
Std. 22.2 No 68-09




24V and 110-240VAC Pumps ONLY.


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Grease Models





Model	Reservoir Size				CPC	DIN	Wiper	Follower	Low Level
	2 Liter	4 Liter	8 Liter						
94G000	X				X		X		
94G001		X			X		X		
94G002			X		X		X		
94G003	X				X		X		X
94G004		X			X		X		X
94G005			X		X		X		X
94G012	X			X	X		X		
94G013		X		X	X		X		
94G014			X	X	X		X		
94G015	X			X	X		X		X
94G016		X		X	X		X		X
94G017			X	X	X		X		X
94G024	X			X		X	X		
94G025		X		X		X	X		
94G026			X	X		X	X		
94G027	X			X		X	X		X
94G028		X		X		X	X		X
94G029			X	X		X	X		X
94G048	X			X		X	X		
94G049		X		X		X	X		
94G050			X	X		X	X		
94G051	X			X		X	X		X
94G052		X		X		X	X		X
94G053			X	X		X	X		X
94G054	X			X		X		X	X
94G055		X		X		X		X	X
94G056			X	X		X		X	X
94G080	X					X	X		

Oil Models






Model	Reservoir Size				CPC	DIN	Low Level
	2 Liter	4 Liter	8 Liter				
94G030	X			X		X	
94G031		X		X		X	
94G032			X	X		X	
94G033	X			X		X	X
94G034		X		X		X	X
94G035			X	X		X	X
94G057	X			X		X	
94G058		X		X		X	
94G059			X	X		X	
94G060	X			X		X	X
94G061		X		X		X	X
94G062			X	X		X	X

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.

 WARNING	
	<p>ELECTRIC SHOCK HAZARD</p> <p>This equipment must be grounded. Improper grounding, setup, or usage of the system can cause electric shock.</p> <ul style="list-style-type: none"> • Turn off and disconnect power at main switch before disconnecting any cables and before servicing or installing equipment. • Connect only to grounded power source. • All electrical wiring must be done by a qualified electrician and comply with all local codes and regulations.
 	<p>EQUIPMENT MISUSE HAZARD</p> <p>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 Data in all equipment manuals. • Use fluids and solvents that are compatible with equipment wetted parts. See Technical Data in all equipment manuals. Read fluid and solvent manufacturer's warnings. For complete information about your material, request MSDS from distributor or retailer. • Do not leave the work area while equipment is energized or under pressure. • 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.

⚠ WARNING

	<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. <p>Follow Pressure Relief Procedure in this manual before servicing.</p>
	<p>PLASTIC PARTS CLEANING SOLVENT HAZARD</p> <p>Many solvents can degrade plastic parts and cause them to fail, which could cause serious injury or property damage.</p> <ul style="list-style-type: none"> • Use only compatible water-based solvents to clean plastic structural or pressure-containing parts. • See Technical Data in this and all other equipment instruction manuals. Read fluid and solvent manufacturer's MSDSs and recommendations.
	<p>MOVING PARTS HAZARD</p> <p>Moving parts can pinch 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. • Pressurized equipment can start without warning. Before checking, moving, or servicing equipment, follow the Pressure Relief Procedure in this manual. Disconnect power or air supply.
	<p>PERSONAL PROTECTIVE EQUIPMENT</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, hearing loss, inhalation of toxic fumes, and burns. This 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.

Installation

Component Identification

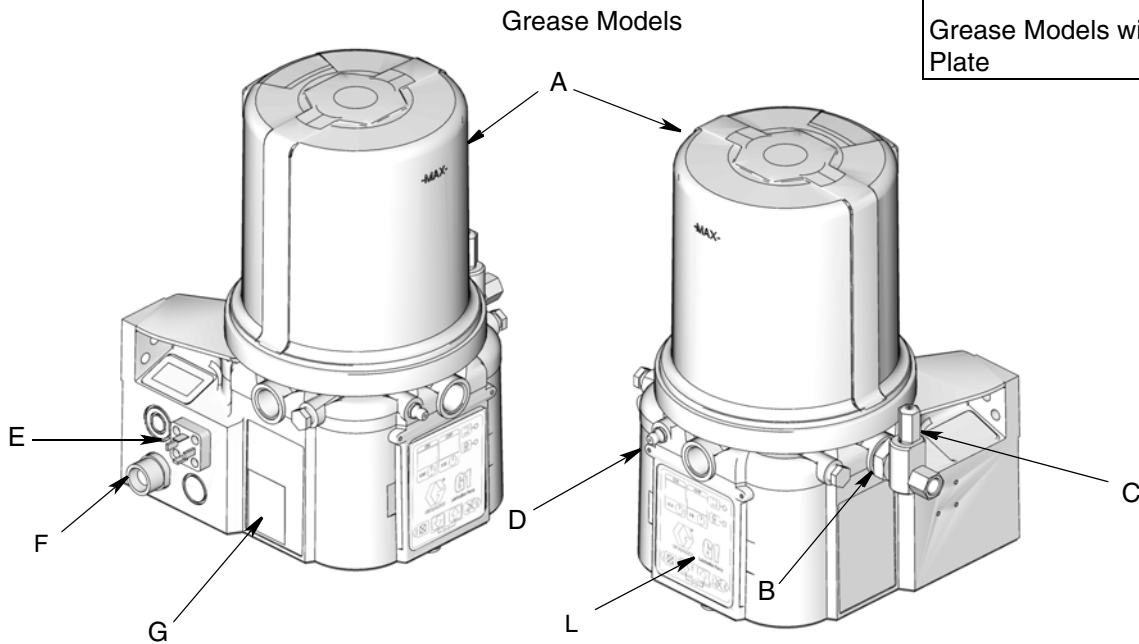
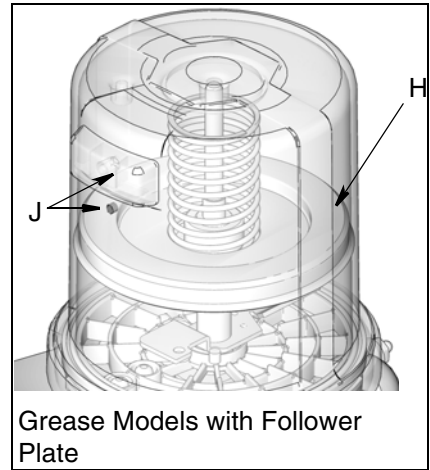
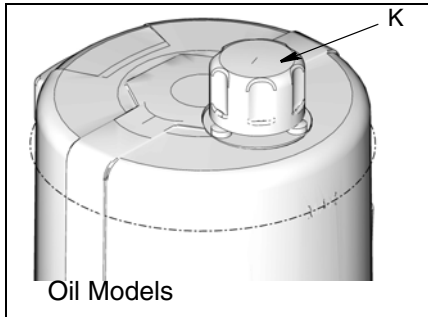
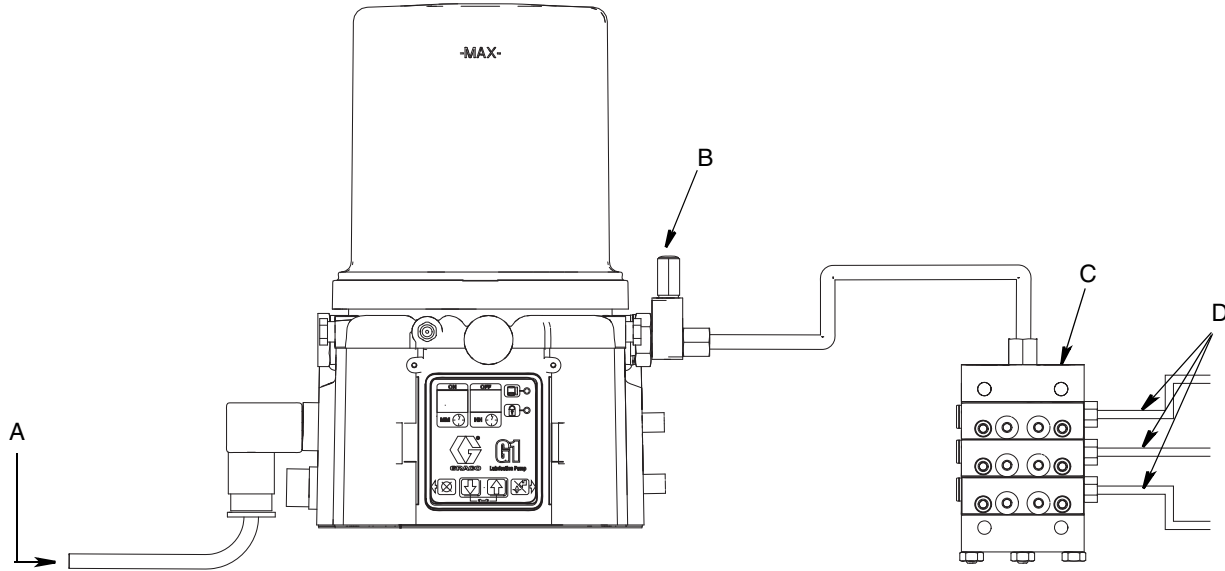


FIG. 1:

Key:

- A Reservoir
- B Pump Element
- C Pressure Relief Valve (Not included / required)
- D Zerk Inlet Fill Fitting (1 included / grease models only)
- E Power, DIN (if equipped)
- F Power, CPC (if equipped)
- G Model Number/ Serial Number
- H Follower Plate (grease models only / not available on all grease models)
- J Vent Hole
- K Fill cap (oil models only)
- L Control Panel

Typical Installation



- A Connected to fuse / power
- B Pressure relief valve (required, user supplied)
- C Series progressive divider valves
- D To lube points

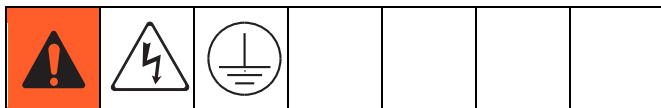
Choosing an Installation Location

AUTOMATIC SYSTEM ACTIVATION HAZARD					
Unexpected activation of the system could result in serious injury, including skin injection and amputation.					
This device has an automatic timer that activates the pump lubrication system when power is connected or when exiting the programming function. Before you install or remove the lubrication pump from the system, disconnect and isolate all power supplies and relieve all pressure.					

- Select a location that will adequately support the weight of the G1 Pump and lubricant, as well as all plumbing and electrical connections.
- Refer to the two mounting hole layouts provided in the Mounting Pattern section of this manual, page 32.
- **NOTE:** The two mounting hole layouts provided in the Technical Data section show the only correct installation patterns to use for mounting the G1. No other installation configurations should be used.
- Use designated mounting holes and provided configurations only.
- Always mount the G1 oil models upright.
- If the G1 grease model is going to be operated in a tilted or inverted position for any period of time, you must use a model that includes a follower plate, otherwise the G1 must be mounted upright.
- Use the three fasteners (included) to secure the G1 to the mounting surface.
- In high vibration environments and when using an AC model, additional dampening at mounting point is necessary.

System Configuration and Wiring

Grounding



Improper installation of the grounding conductor may result in a risk of electric shock. This product must be installed by a qualified electrician in compliance with all state and local codes and regulations.

If the product is permanently connected:

- it must be installed by a qualified electrician or serviceman.
- it must be connected to a grounded, permanent wiring system.

If an attachment plug is required in the end use application:

- it must be rated for the product electrical specifications.
- it must be an approved, 3-wire grounding type attachment plug.
- it must be plugged into an outlet that is properly installed and grounded in accordance with all local codes and ordinances.
- when repair or replacement of the power cord or plug is required, do not connect the grounding wire to either flat blade terminal.

Fuses

NOTICE
<p>Fuses (user supplied) are required on all DC models. To avoid equipment damage:</p> <ul style="list-style-type: none"> • Never operate G1 Pump DC models without a fuse installed. • A fuse of the correct voltage must be installed in line with the power entry to the system.

Fuse Kits are available from Graco. The following Table identifies the correct fuse to use for your input voltage and the corresponding Graco Kit number.

Input Voltage	Fuse Value	Graco Kit No.
12 VDC	7.5 A	571039
24 VDC	4 A	571040


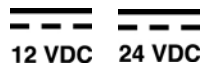
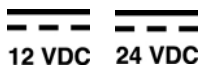
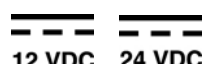
Recommendations for Using Pump in Harsh Environments

- Use pump with CPC style power cable.
- If using a DIN style power harness with a right angle mating connector, make sure the connector does not exit the unit in the UP direction.
- Use a corrosion preventative electrical grease on all contacts.

Wiring and Installation Diagrams

NOTE: Graco does not provide a power cable with the G1. Power cables are available for purchase from Graco or the user may provide their own. See Table 1 for reference pages containing additional information related to Graco power cables.

Table 1: Graco Power Cables

Cable Part No.	Diagram	Symbol	Page #
123358 DIN 15 ft.	Power DIN AC	 AC	11
	Power DIN DC	 12 VDC 24 VDC	12
127783 CPC 15 ft., 3-wire	Power CPC DC	 12 VDC 24 VDC	13
123750 CPC 15 ft., 5-wire	Power CPC DC	 12 VDC 24 VDC	14
127781 CPC 20 ft., 5-wire			14
127782 CPC 30 ft., 5-wire			14



Power DIN AC - 15 foot: Part No. 123358


Din Connector Specifications

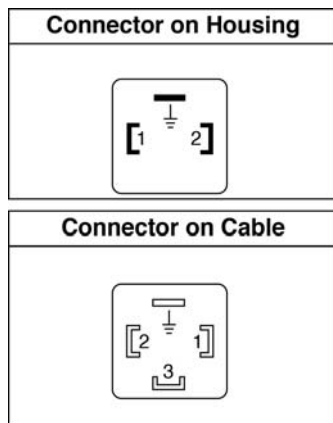
- DIN 43650 Form A, 18 mm, assembled to power cable manufacturer's instructions
- Rated to 6 Amps minimum at 250V AC

Cable Specifications

- **United States/Canada:** 3 conductor 16 AWG UL62 and CSA 22.2 No. 49 listed SOOW cable with black, white, green insulation
- **Europe:** 3 Class-5 conductor, 1.5 mm² Agency Listed H07RN-F cable with blue, brown, green/yellow insulation
- **Japan/Taiwan:** 3 conductor, 1.25 mm² Agency Listed 2 PNCT cable with black, white, red insulation
- **SEA/India/Australia:** 3 conductor, 1.5 mm² Agency Listed H07RN-F blue, brown, green/yellow insulation
- **China:** 3 conductor, 1.5 mm² Agency Listed YZW cable with blue, brown, green/yellow insulation

Pin and Related Wire Color (FIG. 2)

PIN	Pin Name	Wire Color				
		United States/ Canada	Europe	Japan/ Taiwan	SEA/India/ Australia	China
1	Line	Black	Brown	Black	Brown	Brown
2	Neutral	White	Blue	White	Blue	Blue
3	Not used	Not used	Not used	Not used	Not used	Not used
	Ground	Green	Green/Yellow	Red	Green/Yellow	Green/Yellow



t127630a

FIG. 2

12 VDC 24 VDC Power DIN DC - 15 foot: Part No. 123358


Din Connector Specifications

- DIN 43650 Form A, 18 mm assembled to power cable manufacturer’s instructions
- Rated to 6 Amps minimum at 250V AC

Cable Specifications

- **United States/Canada:** 3 conductor 16 AWG UL62 and CSA 22.2 No. 49 listed SOOW cable with black, white, green insulation
- **Europe:** 3 Class-5 conductor, 1.5 mm² Agency Listed H07RN-F cable with blue, brown, green/yellow insulation
- **Japan/Taiwan:** 3 conductor, 1/25 mm² Agency Listed 2 PNCT cable with black, white, red insulation
- **SEA/India/Australia:** 3 conductor, 1.5 mm² Agency Listed H07RN-F blue, brown, green/yellow insulation
- **China:** 3 conductor, 1.5 mm² Agency Listed YZW cable with blue, brown, green/yellow insulation

Pin and Related Wire Color (FIG. 3)

PIN	Pin Name	Wire Color				
		United States/ Canada	Europe	Japan/ Taiwan	SEA/India/ Australia	China
1	-VDC	Black	Brown	Black	Brown	Brown
2	+VDC	White	Blue	White	Blue	Blue
3	Not used	Not used	Not used	Not used	Not used	Not used
	Not used	Green	Green/Yellow	Red	Green/Yellow	Green/Yellow

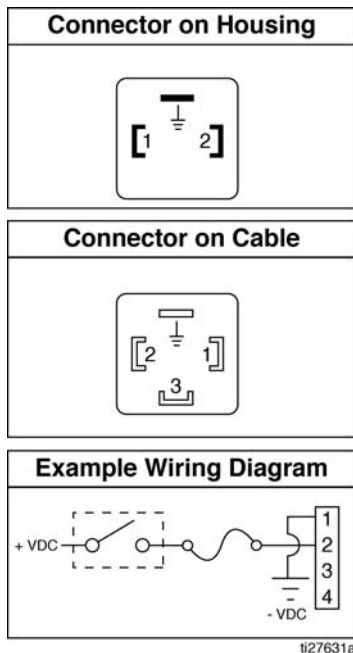


FIG. 3

Power CPC DC - 3-Wire, 15 foot: Part No. 127783
 12 VDC 24 VDC

CPC Connector Specifications

- One, 7-position, 1.5 mm socket connector AMP 967650-1
- Three, 16 - 14 gauge female pins AMP 962999-1
- One, 180-degree strain relief or one, 90-degree strain relief AMP 965576-1 (determined by cable exit for cable configuration)

- **SEA/India/Australia:** 3 conductor, 1.5 mm² Agency Listed H07RN-F blue, brown, green/yellow insulation
- **China:** 3 conductor, 1.5 mm² Agency Listed YZW cable with blue, brown, green/yellow insulation

Installation Notes

- Crimp pins to wire and install in socket connector per manufacturer’s instructions.
- See Pin Layout shown in FIG. 4 for proper location in the connector.
- Secure socket connector to the cable per the desired strain relief configuration.

Cable Specifications

- **United States/Canada:** 3 conductor 16 AWG UL62 and CSA 22.2 No. 49 listed SOOW cable with black, white, green insulation
- **Europe:** 3 Class-5 conductor, 1.5 mm² Agency Listed H07RN-F cable with blue, brown, green/yellow insulation
- **Japan/Taiwan:** 3 conductor, 1/25 mm² Agency Listed 2 PNCT cable with black, white, red insulation

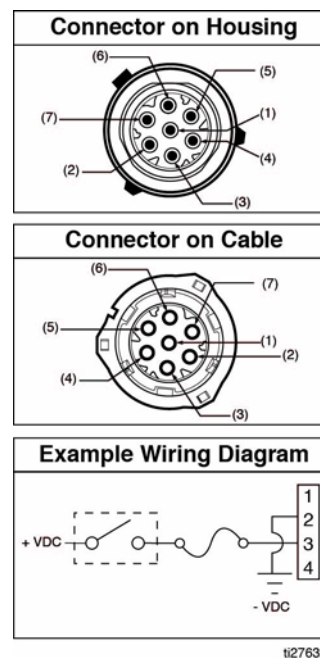


FIG. 4

Pin and Related Wire Color (FIG. 4)

Pin	Pin Name	Color				
		United States / Canada	Europe	Japan / Taiwan	SEA / India / Australia	China
1	Not Used	Not Used	Not Used	Not Used	Not Used	Not Used
2	-VDC	Black	Brown	Black	Brown	Brown
3	+VDC	White	Blue	White	Blue	Blue
4	Not Used	Not Used	Not Used	Not Used	Not Used	Not Used
5	Not Used	Not Used	Not Used	Not Used	Not Used	Not Used
6	Not Used	Not Used	Not Used	Not Used	Not Used	Not Used
7	Not Used	Green	Green/Yellow	Red	Green/Yellow	Green/Yellow

Power CPC DC - 5 wire
12 VDC 24 VDC

- Part No.: 17780: 15 ft (4.5 m)**
- Part No.: 127781: 20 ft (6.1 m)**
- Part No.: 127782: 30 ft (9.1 m)**

NOTE: An Illuminated Remote Run Button Kit: 571030, 571031 for starting a manual run cycle remotely if used in conjunction with a 5-wire CPC cable, is available from Graco. Contact your local Graco distributor or Graco Customer Service for additional information about these kits.

CPC Connector Specifications

- One, 7-position, 1.5 mm socket connector AMP 967650-1
- Five, 16 - 14 gauge female pins AMP 962999-1
- One, 180-degree strain relief or one, 90-degree strain relief AMP 965576-1 (determined by cable exit for cable configuration)

Installation Notes

- Crimp pins to wire and install in socket connector per manufacturer's instructions.
- See Pin Layout shown in FIG. 5 for proper location in the connector.
- Secure socket connector to the cable per the desired strain relief configuration.

Cable Specifications

- **United States/Canada:** 5 conductor 16 AWG UL62 and CSA 22.2 No. 49 listed SOOW cable with black, white, red, orange, green/yellow insulation
- **Europe:** 5 Class-5 conductor, 1.5 mm² Agency Listed H07RN-F cable with blue, brown, black, grey, green/yellow insulation
- **Japan/Taiwan:** 5 conductor, 1/25 mm² Agency Listed 2 PNCT cable with black, white, red insulation, green, black
- **SEA/India/Australia:** 5 conductor, 1.5 mm² Agency Listed H07RN-F black, white, red insulation, green, black
- **China:** 5 conductor, 1.5 mm² Agency Listed YZW cable with black, white, red insulation, green, black

Pin and Related Wire Color (FIG. 5, page 15)

Pin	Pin Name	Color				
		United States / Canada	Europe	Japan / Taiwan	SEA / India / Australia	China
1	Not Used	Not Used	Not Used	Not Used	Not Used	Not Used
2	-VDC	Black	Brown	Black	Brown	Brown
3	+VDC	Red	Blue	White	Blue	Blue
4	LIGHT	White	Black	Green	Black	Black
5	MANUAL	Orange	Grey	Not Used	Grey	Grey
6	Not Used	Not Used	Not Used	Not Used	Not Used	Not Used
7	Not Used	Green	Green/Yellow	Black	Green/Yellow	Green/Yellow

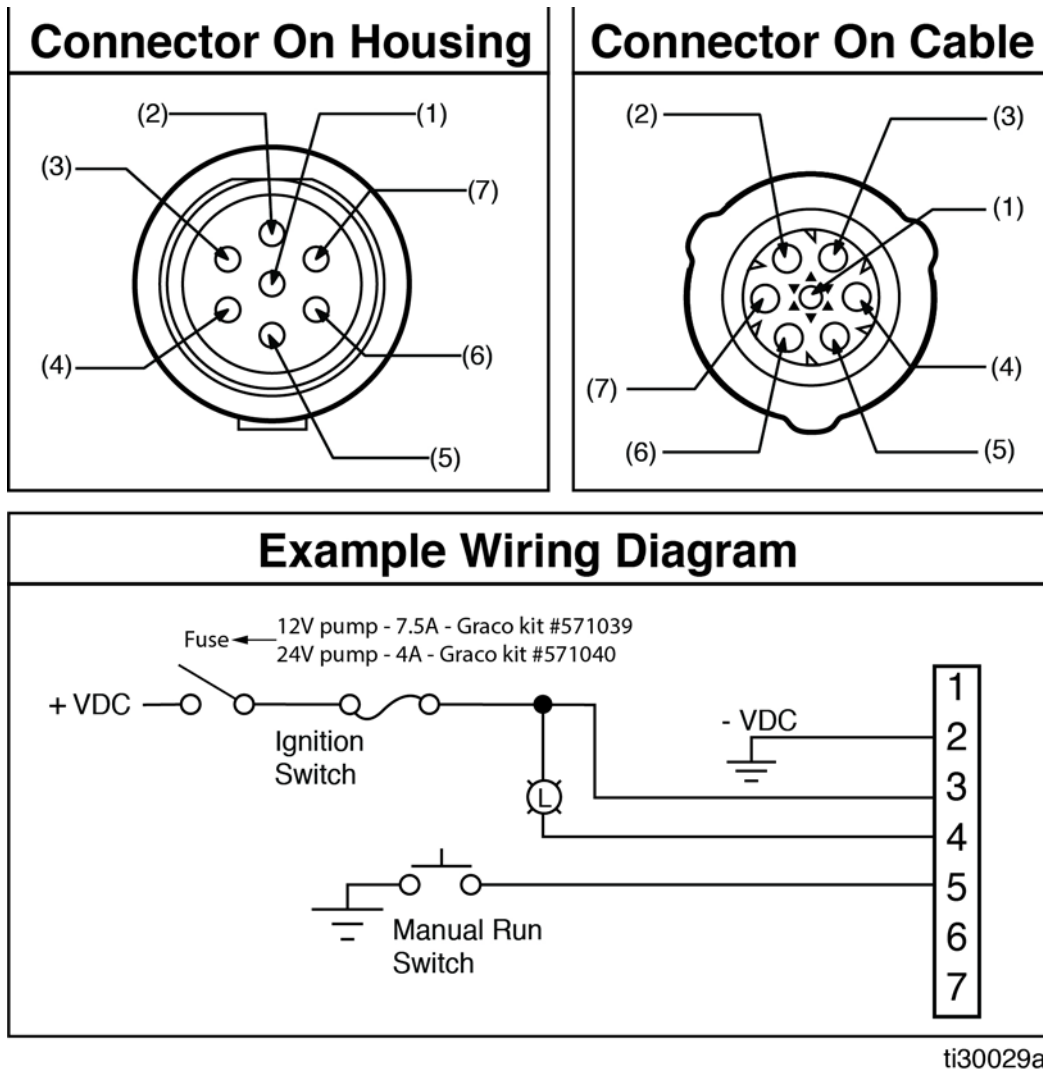


FIG. 5

Remote Illumination Response

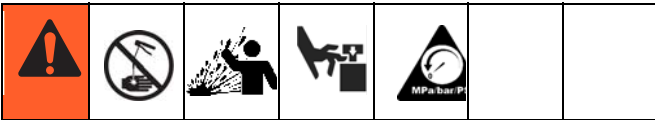
	Standard Remote Illumination (via 5-wire CPC power cable)
Unit in OFF Mode	Off
Unit in ON Mode	On
Fault Condition	Toggles On and Off once per second

Setup

Pressure Relief



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 spraying and before cleaning, checking, or servicing the equipment.

Relieve pressure in system using two wrenches working in opposite directions on pump element and pump element fitting to **slowly loosen fitting only** until fitting is loose and no more lubricant or air is leaking from fitting.

NOTE: When loosening pump element fitting, do NOT loosen **pump element**. Loosening pump element will change the output volume.

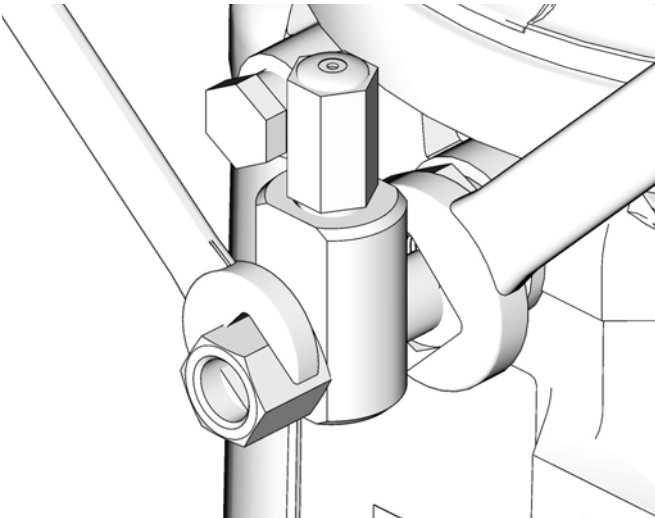


FIG. 6

Connecting to Auxiliary Fittings

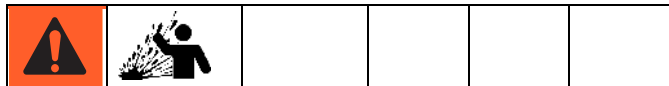


NOTICE

Do not attach unsupported equipment to auxiliary fittings such as fill ports and pump element. Attaching unsupported equipment to these fitting can result in irreparable housing damage.

- Always use two wrenches working in opposite directions when connecting anything to pump element or auxiliary fittings. See FIG. 6 for an example.
- Torque pump element fittings to 50 in. lbs (5.6 N•m).
- When connecting pump element into housing torque to 50 in. lbs (5.6 N•m).

Pressure Relief Valves



A pressure relief valve appropriate for the lubrication system must be installed close to the pump outlet to alleviate unintended pressure rises in the system and protect the G1 pump from damage.

- Only use a pressure relief valve that is rated for no more than the working pressure of the G1 pump it is installed on. See Technical Data, page 25.
- Install a pressure relief valve before any auxiliary fitting.

Loading Grease

To ensure optimal performance from the G1:

- Only use NLGI #000 - #2 greases appropriate for your application, automatic dispensing, and the equipment's operating temperature. Consult with machine and lube manufacturer for details.
- The reservoir can be filled using a hand operated pump, pneumatic pump or electric transfer pump.
- Do not overfill (FIG. 8).
- Do not operate G1 without reservoir attached.

NOTICE

- Always clean fitting (37) with a clean dry cloth prior to filling reservoir. Dirt and/or debris can damage pump and/or lubrication system.
- Care must be used when filling the reservoir using a pneumatic or electric transfer pump to not pressurize and break the reservoir.

Models without a follower plate:

1. Connect fill hose to inlet fitting (37) (FIG. 7).

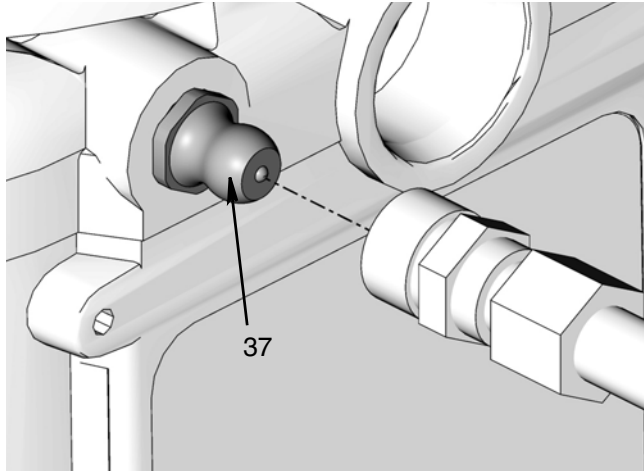


FIG. 7

2. For higher viscosity fluids, press the manual run button to start the pump during fill to rotate the stirring paddle and prevent air pockets from forming in grease.



3. Fill reservoir with NLGI grease to max fill line.

NOTE: Vent port, located in rear of reservoir, should not be used as an overfill port/indicator.

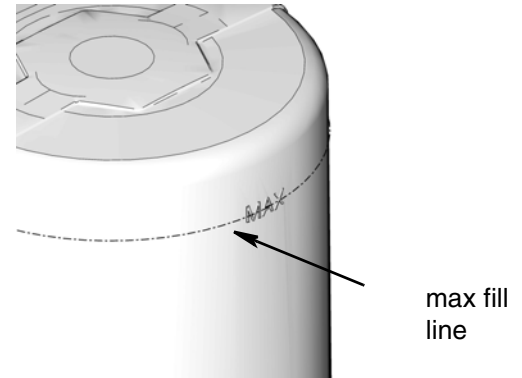


FIG. 8

4. Remove fill hose.

Models with a follower plate:

1. Connect fill hose to inlet fitting (FIG. 7).
2. For higher viscosity fluids, press the manual run button to start the pump during fill to rotate the stirring paddle and prevent air pockets from forming in grease.



3. Fill reservoir with grease until seal of follower plate breaches the vent hole (FIG. 9) and the majority of air is expelled from the reservoir.

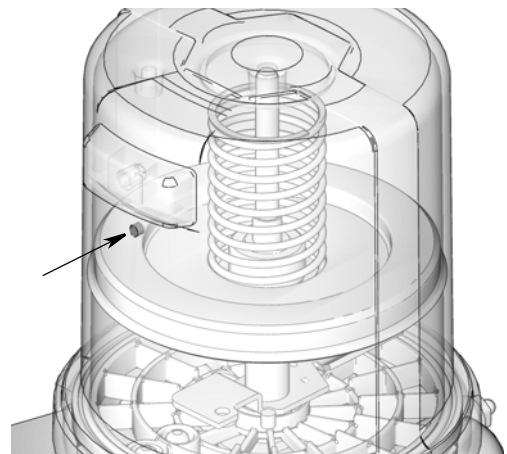


FIG. 9

NOTE: Vent port, located in rear of reservoir, should not be used as an overfill port/indicator.

4. Remove fill hose.

Changing Greases

When changing greases, always use compatible fluids or greases.

Filling Oil Unit

- Only use oil appropriate for your application, automatic dispensing, and the equipment's operating temperature. Consult with machine and lube manufacturer for details.
- The reservoir can be filled using a hand operated pump, pneumatic pump or electric transfer pump.
- Do not overfill (FIG. 10).
- Do not operate G1 without reservoir attached.
- Only use oils with viscosity at least 40 cSt.

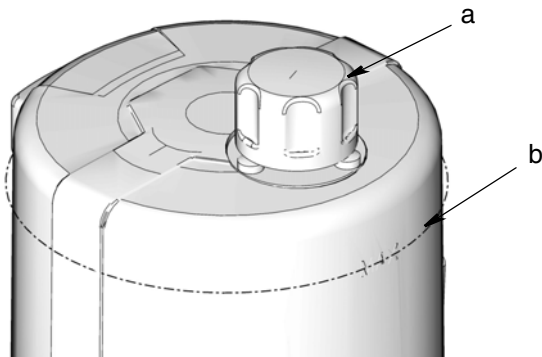


FIG. 10

1. Remove fill cap (a).
2. Pour oil into reservoir to fill line (b).
3. Replace fill cap. Hand tighten cap, securely.

Priming

NOTE: It is not necessary to prime pump every time pump is filled with lubricant.

Pump only requires priming the first time it is used or if it is allowed to run dry.

1. Loosen pump element fitting (FIG. 11).

NOTE: When loosening pump element fitting, do NOT loosen **pump element**. Loosening pump element will change the output volume

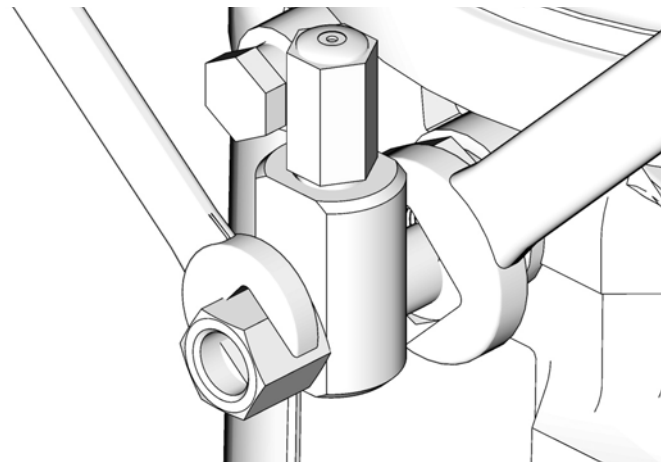


FIG. 11

2. Only run pump until air is no longer dispensed with the lubricant coming out of element fitting (FIG. 12).

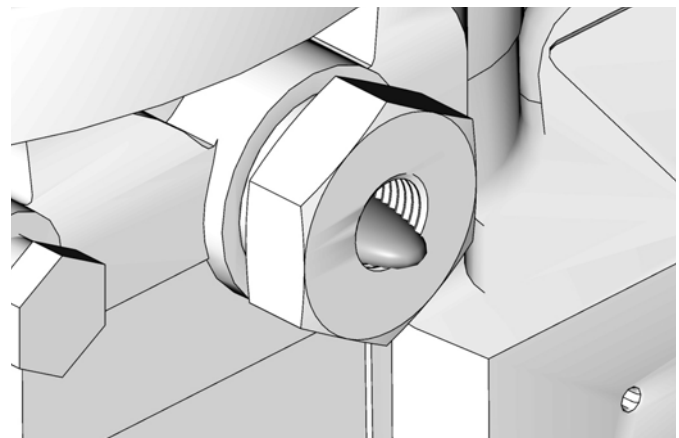


FIG. 12

3. Tighten pump element fitting using two wrenches working in opposite directions (FIG. 11).

Plus Model Control Setup

Control Panel Overview (FIG. 13)

NOTE: Programming instructions begin on page 20.

ON TIME

- The blinking LED below ON indicates the ON Time sequence is running.
- Display shows time as MM (minutes).
i.e., 02 is 2 minutes.
- Times lubrication cycle.
- Counts down from a set time

OFF TIME

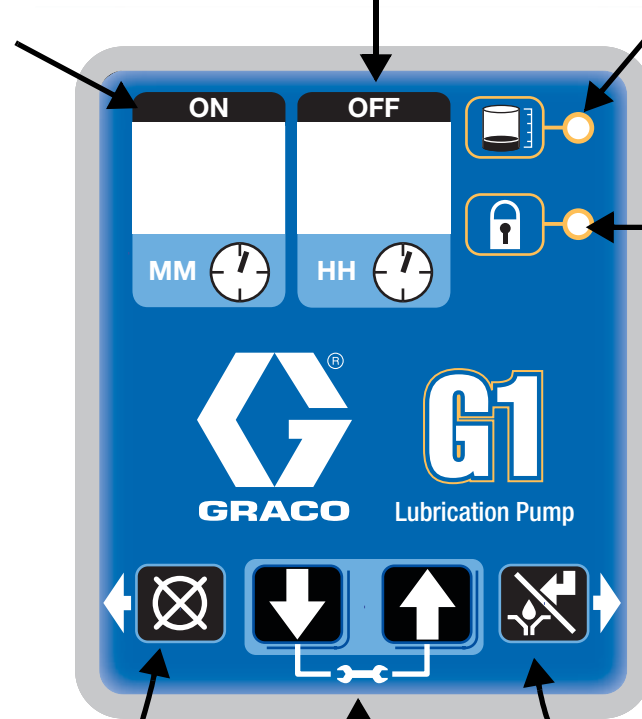
- The blinking LED below OFF indicates the OFF Time sequence is running.
- Value is entered in HH.
- Displays in HH.
- Times pump rest between cycles.
- Counts down from a set time to zero.

LOW LEVEL FAULT

LED next to icon lights when pump is out of lubricant. Pump run cycle stops.

LOCK ICON

- LED next to icon lights indicating PIN is required to enter setup.
- In SETUP MODE LED lights when setting up the PIN.



LEFT DIRECTION ARROW / RESET

- In SETUP MODE, moves cursor in display one field to the left.
- In Low Level Fault Mode: pressing and holding for 3 seconds clears fault and switches cycle to OFF MODE.

UP and DOWN ARROW

- Hold both the UP and DOWN ARROW buttons down together for 3 seconds to enter SETUP MODE.
- In SETUP MODE, increases or decreases number values shown in display.

RIGHT DIRECTION ARROW / MANUAL RUN / ENTER:

- In SETUP MODE, saves entry, moves cursor in display one field to the right or to the next setup step.
- In RUN MODE starts a manual run cycle.

FIG. 13

Instructions

Checking the Firmware Version

To check the firmware version installed on the pump:

1. Remove power to the pump by disconnecting the power cable from the connection.
2. Reconnect the power cable to the power connection.

This creates a power cycle and the firmware version displays on the screen during the first few seconds of power up. See FIG. 14.



FIG. 14

Powering Units With Controllers

By default, units with controllers are set to operate in a timed mode with 1 minute of ON time and 8 hours of OFF time. The unit should be powered up in OFF mode, counting down from the 8 hours. If the unit powers up in ON mode and has not been primed, hold the reset button located on the control panel (example shown on the right) for 1 second to move to the OFF mode.



The G1 Plus model uses a timer to regulate how long a pump cycle runs and the length of time the pump rests between cycles.

NOTE:

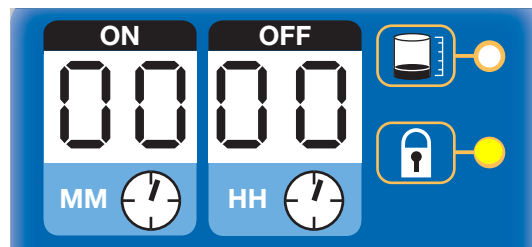
- A blinking number on the display indicates the G1 is in SETUP MODE.
- In RUN MODE numbers on the display do not blink.
- After 60 seconds of no activity, the device returns to RUN MODE in the OFF Time cycle and the OFF Time restarts counting down the total programmed amount of time. It does **not** resume the countdown from the point where the cycle was interrupted when you entered SETUP MODE.

Entering Setup Mode

Press both the UP and DOWN ARROW buttons together for 3 seconds to enter the SETUP MODE.



NOTE: If the lock LED is lit after entering Setup Mode and four 0000's are displayed, the unit has a PIN Code lock out enabled. See Entering a PIN Code to Access Setup Mode for instructions on entering a value.



Entering a PIN Code to Access Setup Mode

The G1 controller does not require a user to provide a PIN code to access the programming features of the unit. However, Graco understands that some users may want to protect the program settings and therefore, an option for adding PIN Code authorization is available. The instructions for setting a PIN Code are provided in the Advanced Programming section of this manual. See page 22.

To enter the PIN Code:

1. Press both the UP and DOWN ARROW buttons for 3 seconds.



2. The LED next to the LOCK ICON on the display lights and the 4 zeros appear on the display indicating the system requires a PIN Code entry to access the G1 in SETUP MODE.



- The cursor is automatically positioned to enter the first character of the PIN Code. Use the UP and DOWN ARROW buttons to move up and down through the numbers 0-9 until the first number in the PIN code is displayed in the field.



- Press the ENTER button to set the number. The cursor automatically moves to the next number field.



- Repeat steps 3 and 4 for each PIN Code prompt field.

If the PIN Code you entered is correct, the first editable character on the display will flash.

NOTE: A blinking field on the display indicates the G1 is in SETUP MODE. In RUN MODE numbers on the display will not blink.

ON Time

- ON Time is set in Minutes (MM).
- In SETUP MODE, the number displayed in the first field, on the left side of display blinks, indicating the device is ready to program the ON Time minutes.
- The total amount of ON Time cannot exceed 30 minutes.



Programming ON Time

NOTE: When programming a time of less than 10 minutes you **must** program a leading zero in the first number field and press the ENTER button to save the zero selection.

- To set the ON Time use the UP or DOWN ARROW button to scroll through numerals 0 to 3 until the desired number appears in the first MM (minutes) field.
- Press the ENTER button. The next MM number field to the right flashes indicating it is ready for programming.



- Use the UP or DOWN ARROW button to scroll through numerals 0 to 9 until the desired number appears in the second MM number field.



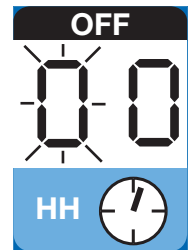
- After pressing the ENTER button to set the last MM field, all the programmed ON Time information is saved.



The G1 automatically switches to the OFF Time SETUP MODE.

OFF Time

- OFF Time is set in Hours (HH).
- In SETUP MODE the number displayed in the first field, on the left side of display blinks, indicating the device is ready to program the OFF Time hours.
- Total amount of OFF time cannot exceed 24 hours.



Programming OFF Time

NOTE: When programming a time of **less than 10 hours** you **must** program a leading zero in the first number field and press the ENTER button to save the zero selection.

- To set the OFF Time use the UP or DOWN ARROW button to scroll through numerals 0 to 9 until the desired number appears in the first HH (hour) field.



- Press the ENTER button to lock in the selection. The next HH number field to the right flashes indicating it is ready for programming.



- Use the UP or DOWN ARROW button to scroll through numerals 0 to 2 until the desired number appears in the second HH number field.



- After pressing the ENTER button to set the last HH field, the OFF Time information is saved.



Advanced Programming

Advanced Option	Setting	Format/ Description	Why Use This?
A1	Lockout Code (Optional)	Secures setup modes with PIN	Prevents unauthorized users to adjusting settings.

Firmware 4.01 and later - Low Level with Controller Units

A10	Low Level Reset Upon Power ON	Changes low level fault upon power ON. Default = OFF	This function changes the behavior of the low level fault upon power ON.
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Entering a PIN Code for the First Time

Setting Up PIN Code

A PIN Code can be programmed into the G1 to protect the settings from inadvertently being changed by unauthorized users.

1. Press the UP ARROW button for 10 seconds.



The LED next to the LOCK ICON on the display lights, indicating you have entered the PIN Mode.



2. The word OFF appears in the display. Press the UP or DOWN ARROW button to change this to ON.



3. Press the ENTER button to enter the PIN Code.



4. The cursor automatically is positioned to entered the first character of the PIN Code. Use the UP and DOWN ARROW buttons to move up and down through the numbers 0-9 until the first number in the PIN code is displayed in the field.



5. Press the ENTER button to set the number. The cursor automatically moves to the next number field.



6. Repeat steps 4 and 5 for each PIN Code prompt field.

7. Press the ENTER button to save the PIN Code and exit Advanced Setup.



Entering Advanced Setup

Press the UP ARROW button for 10 seconds.



If the G1 was previously set up to require a PIN Code, the LED next to the LOCK ICON lights, indicating a PIN Code is required.



1. The cursor is automatically positioned to enter the first character of the PIN Code. Use the UP and DOWN ARROW buttons to move up and down through the numbers 0-9 until the first number in the PIN code is displayed in the field.



2. Press the ENTER button to set the number. The cursor automatically moves to the next number field.



3. Repeat steps 1 and 2 for each PIN Code prompt field.

If the PIN Code you entered is correct, the G1 will be in the Advanced Setup option used to change the PIN Code.

A1 - Changing PIN Code

To change a PIN Code, follow instructions for Entering a PIN Code for the first time.

Models with Firmware 4.01 and Later

A10 - Low Level Reset Upon Power On.

This function changes the behavior of the low level upon pump power on. When A10 is on, a low level fault clears when the pump power is cycled. The pump will revolve 5 revolutions, checking to see if the low level condition is still present. If not, it will self clear and continue. If a low level condition exists during the 5 revolutions, it will go into a low level fault.

Low Level ON LED illuminates (FIG. 15).

2. Press the UP or DOWN ARROW button to change OFF to ON on the display to change the low level reset upon power on.
3. Press the ENTER button.



FIG. 15

1. The default OFF is displayed. The alarm output will toggle once a second.

OFF



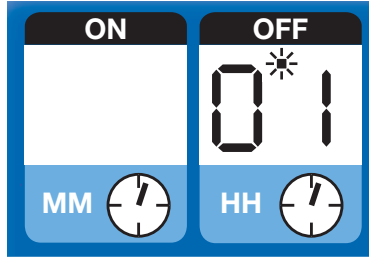
Run Mode

Time Control

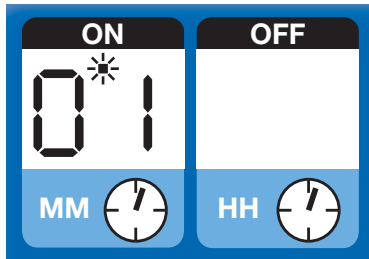
After setup is complete, the G1 automatically begins to run the OFF Time sequence.

- The G1 runs the programmed OFF sequence.

(Notice the dot below OFF flashes on the display while the OFF Time counts down. This count down is in hours.)



- When the OFF Time count reaches zero, the G1 Automatic Lubrication Pump turns the pump on and it runs for the programmed ON Time cycle.



(Notice the dot below ON flashes on the display.)

- When the ON Time count reaches zero, the pump shuts off again and the system again runs OFF Time cycle and the OFF Time LED flashes again.

This sequence repeats itself until the device is reprogrammed or a Low Level Fault occurs.

- If power to the pump is lost during a lubrication cycle, when power is restored the pump will resume the cycle with the same amount of time remaining in the cycle as when the power was lost.

Low Level

Pumps equipped with low level detection will stop when the fluid level is sufficiently low to trigger the low level fault.

- The LED next to the LOW LEVEL ICON on the display flashes.



Add lubricant to the pump. See Loading Grease instructions, page 17 or Filling Oil Unit, page 18.

- After lubricant is added, press the RESET button to clear the fault.



NOTE: For higher viscosity fluids it may be necessary to clear the low level fault prior to filling the pump. You can then press the Manual Start button to start the pump during the fill.



Manual Run Cycle

To run an extra (non-programmed) lubrication cycle, push the Manual Start button.



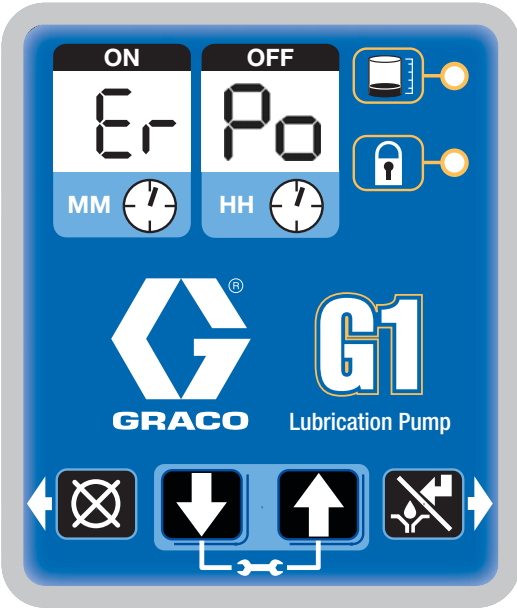

NOTE: An Illuminated Remote Run Button Kit: 571030, 571031 for starting a manual run cycle remotely if used in conjunction with a 5-wire CPC cable, is available from Graco. Contact your local Graco distributor or Graco Customer Service for additional information about these kits.

Troubleshooting



Problem	Cause	Solution
Unit does not power on	Incorrect/loose wiring	Refer to Installation instructions, page 7.
Unit does not power on (DC models only)	Tripped external fuse due to internal component failure	Contact Graco Customer Service.
	Tripped external fuse due to pumping non-cold weather lubricant in cold weather -13°F (-25°C)	Replace lubricant with pumpable lubricant, rated for environmental conditions and application. Replace fuse.
Unit does not power on (AC models only)	Tripped internal power supply fuse due to power supply failure	Contact Graco Customer Service.
Can't set desired ON/OFF times	Allowable ON time: 1-30 minutes Allowable OFF time: 1-24 hours (in full minute or hour increments)	Adhere to allowable duty cycle. Contact Graco Customer Support if other duty cycles are required for application.
Unit is not operating based on the time that was programmed	Time entered was misinterpreted as MM instead of HH (or visa versa)	Verify the unit was programmed as intended, referencing programming instructions.
Lubricant leaks past seal located on the bottom of the reservoir	Reservoir retaining tabs are cracked or broken	Replace reservoir.
	Reservoir is being pressurized during filling	Ensure vent hole is not plugged. If problem persists, contact Graco Customer Service or your local Graco distributor for assistance.
Unit not pumping during ON cycle, but controller lights and functions	Failed motor	Replace unit.
Follower plate is not going down	Air is trapped in the reservoir between the follower plate and lubricant	Add grease following Loading Grease instructions, page 17. Ensure air is purged.
Pump takes several minutes before it begins pumping	Pumping non-cold weather lubricant in cold weather -13°F (-25°C)	Increase pump on time.
		Use grease suitable for temperature and conditions.
Dim display, unit is not operating	Tripped internal, resettable fuse due to internal component failure or short circuit condition	Verify manual run inputs have not created a short circuit condition. Cycle power.
Unit indicates a cycle or pressure alarm before the lubrication cycle could complete	The ON Time was not entered correctly	Refer to programming ON Time, page 21.

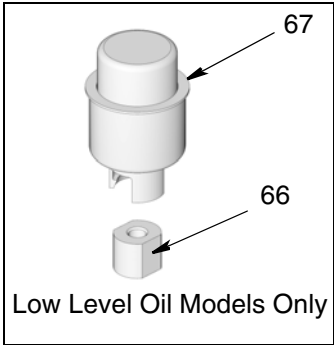
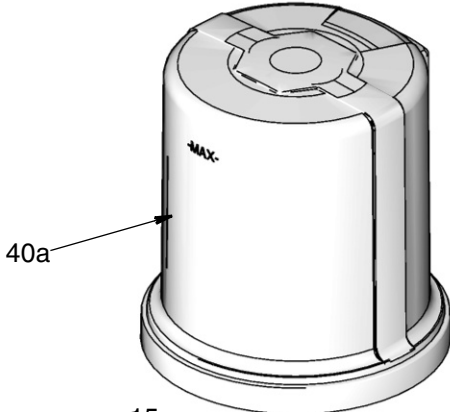
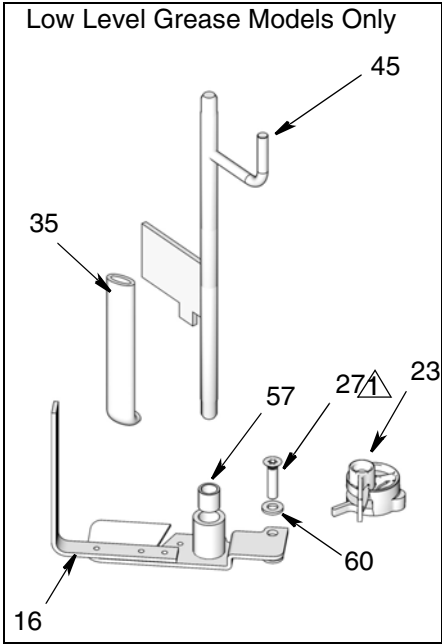
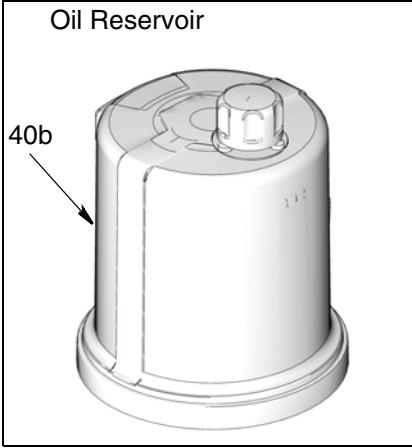
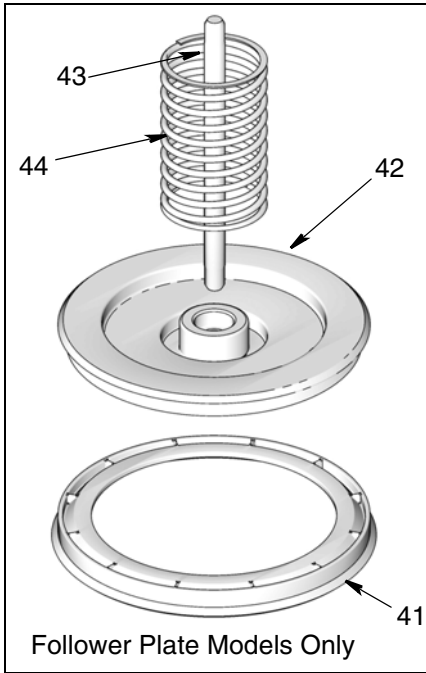
Additional Fault/Warning Scenarios for Firmware Versions 0402

Alarm Type	What it Looks Like	What it Indicates	Solution
Low Power Fault		There is a low voltage condition at the power source.	<p>Check voltage and available current output at the power source of the pump.</p> <p>Press and hold the RESET button to clear fault.</p>
			

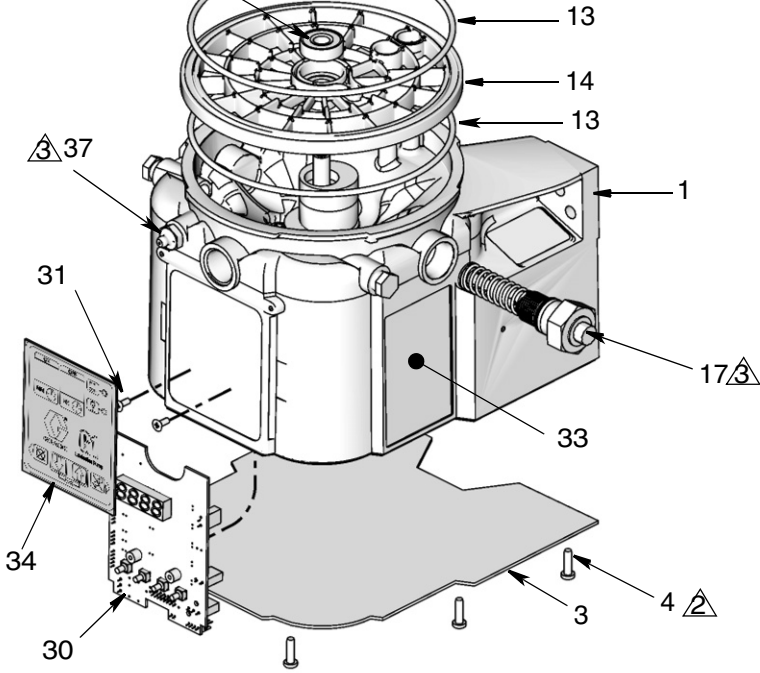
Maintenance

Frequency	Component	Required Maintenance
Daily and at refill	Zerk Fittings	Keep all fittings clean using a clean dry cloth. Dirt and/or debris can damage pump and/or lubrication system.
Daily	G1 Pump Unit and Reservoir	Keep pump unit and reservoir clean using a clean dry cloth.
Daily	Display	Keep display clean using a clean dry cloth.
Monthly	External Wiring Harness	Verify external harnesses are secure.

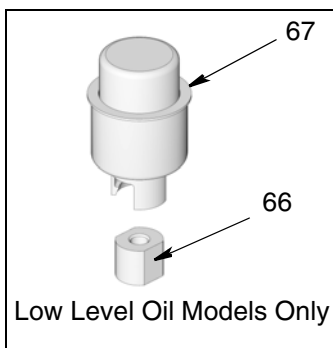
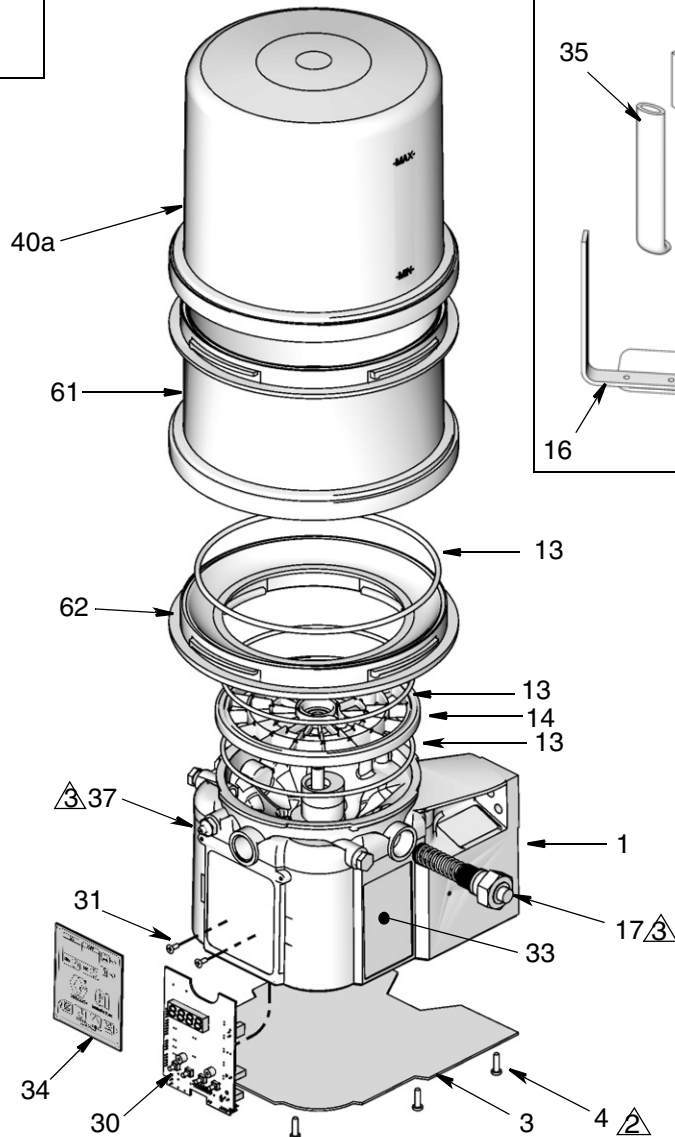
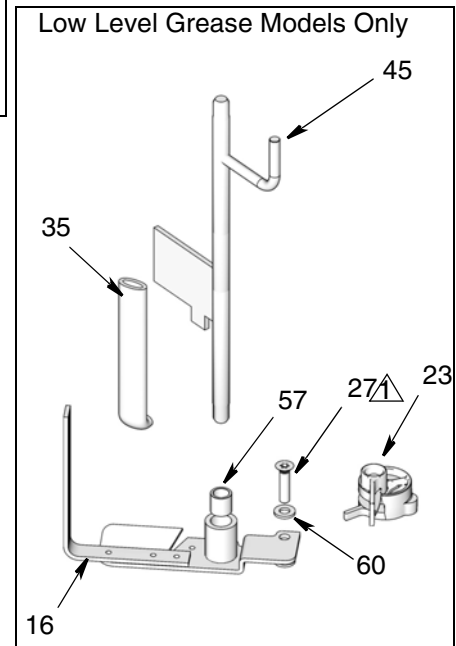
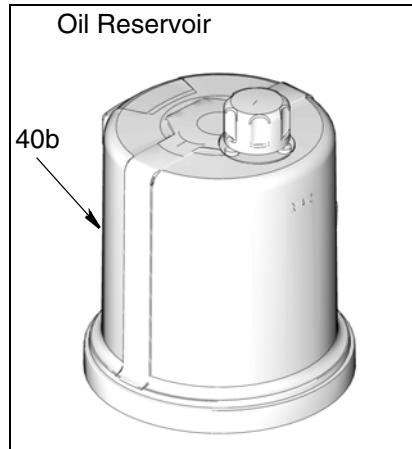
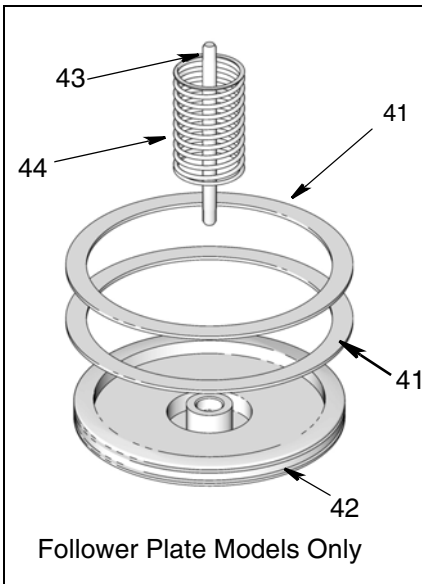
Parts: 2 Liter Models



- Torque to 4 in. lbs (0.45 N.m)
- Torque to 30 in. lbs (3.4 N.m)
- Torque to 50 in. lbs (5.6 N.m)



Parts: 4 and 8 Liter Models



- ⚠ Torque to 4 in. lbs (0.45 N.m)
- ⚠ Torque to 30 in. lbs (3.4 N.m)
- ⚠ Torque to 50 in. lbs (5.6 N.m)

Parts

FN	Part No.	Description	Qty.
1		BASE, molded	1
3	278142	BOTTOM, cover	1
4	115477	SCREW, bottom cover	9
13	124396	O-RING, 258 (green), included in Kit 571042, 571043, 571044, 571045, 571069, 571179	2
	124510	O-RING, included in Kit 571069, 571179, 571182, 571183	1
14		PLATE, ricer	1
15		BEARING, ball	1
16		PADDLE, stirring, 2 liter models without follower plate, included in Kit 571044	1
		PADDLE, stirring, 4 and 8 liter models without follower plate, included in Kit 571046	1
		PADDLE, stirring, 2 liter models with follower plate, included in Kit 571045	1
		PADDLE, stirring, 4 liter models with follower plate, included in Kit 571047	1
17		ELEMENT, pump	1
23‡	278136	PADDLE, low level models	1
27	123025	SCREW, M6	1
30‡?	262912	BOARD, circuit	1
31	119228	SCREW, machine, flat head	2
33▲	16A579	LABEL, safety	1
34	16T912	LABEL, overlay	1
35		WIPER, stirring, models without follower plate, included in Kit 571044, 571046	1
		WIPER, stirring, models with follower plate, included in Kit 571045, 571047	1
37	123741	FITTING, zerk, grease models (not included on oil models)	1
40a		RESERVOIR, 2 liter, grease, included in Kit 571042, 571069	1
40b		RESERVOIR, 2 liter, oil, included in Kit 571179	1
40a		RESERVOIR, 4 liter, grease, included in Kit 571183	1
40b		RESERVOIR, 4 liter, oil, included in Kit 571182	1
40a		RESERVOIR, 8 liter grease	1
40b		RESERVOIR, 8 liter, oil, included in Kit 571182	1

FN	Part No.	Description	Qty.
41	278139	SEAL, follower plate, 2 liter grease models	1
	16F472	SEAL, follower plate, 4 liter grease models	2
	16V763	SEAL, follower plate, 8 liter grease models	2
42		PLATE, follower, grease models	1
43		ROD, follower plate, grease models	1
44		SPRING, compression, grease models	1
45†	24D838	BAFFLE, low level, 2 liter models	1
	24E246	BAFFLE, low level, 4 liter models	1
	24F836	BAFFLE, low level, 8 liter models	1
57	117156	BEARING, sleeve	1
58▲	196548	LABEL, shock warning	1
60	16D984	WASHER, low level models	2
61		RESERVOIR, mid-section, 8 liter models	1
62		ADAPTER, reservoir 4 and 8 liter models	1
66	126417	NUT	1
67	24N806	FLOAT, oil models	1

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

‡ Also order Ref 31 and Ref 34.

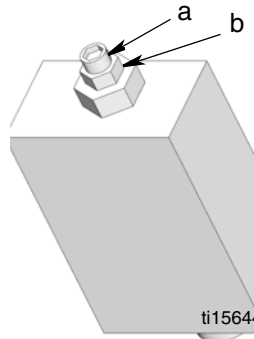
† Also order Ref. 57 when ordering this part.

Pressure Relief Valves

Important Information regarding Pressure Relief Valve 16C807.

Pressure Relief Valve 16C807 can only be used on the G1 and G3 Pumps. It is not intended for use with any other products.

The pressure relief valve uses a pressure adjustment screw (a) to set the pressure release point. **It is not intended as a way to relieve pressure during normal operation,** but as a protective measure in the event there is an unintended pressure increase in the system. Do not use this pressure relief valve as a means of relieving pressure in day-to-day, normal cycle operation.



a = adjustment screw

The pressure adjustment screw will require periodic adjustments. Whenever the valve is set/adjusted (after the set point is found) it is important to ensure that the valve is not bottomed out and there is at least 1/2 turn of adjustment remaining. This is determined by turning the screw (a) 1/2 turn and then back turning it out again.

NOTE: Turning adjustment screw (a) clockwise increases pressure.

Part	Description	Qty
16C807	VALVE, pressure relief, 500-3500 psi (3.44 MPa, 34.4 bar - 24.1 MPa, 241 bar), Set pressure 3000 psi \pm 10% (20.68 MPa, 206.8 bar \pm 10%) Included in Kit 571028	1
563156	VALVE, pressure relief, 750 psi (5.17 MPa, 51.71 bar)	1
563157	VALVE, pressure relief, 1000 psi (6.89 MPa, 68.95 bar)	1
563158	VALVE, pressure relief, 1500 psi (10.34 MPa, 103.42 bar)	1
563159	VALVE, pressure relief, 2000 psi (13.78 MPa, 137.89 bar)	1
563160	VALVE, pressure relief, 2500 psi (17.23 MPa, 172.36 bar)	1
563161	VALVE, pressure relief, 3000 psi (20.68 MPa, 206.84 bar)	1
563190	VALVE, pressure relief, 5500 psi (37.92 MPa, 379.21 bar)	1

Fuses

Part	Description	Qty
571039	FUSE, 12 volt DC	1
571040	FUSE, 24 volt DC	1

Installation and Repair Kits

Kit No.	Description	Manual Number
571028	KIT, return to reservoir NPT, includes pressure relief valve 16C807	3A0525
571071	KIT, return to reservoir BSPP, includes pressure relief valve 16C807	
571030	KIT, remote manual run, 12 volt DC	3A0528
571031	KIT, remote manual run, 24 Volt DC	
571036	KIT, cover with "G" label	NA
571041	KIT, pump element, includes Ref 17, 18, 33	3A0533
571042	KIT, repair, 2 liter reservoir, includes Ref 13, 36, 40	3A0534
571069	KIT, repair, 2 liter reservoir, for models with follower plate, includes Ref 13, 36, 40	
571044	KIT, replacement, paddle, 2 liter, for models without follower plate, includes Ref 13, 16, 35, 57	3A0535
571045	KIT, replacement, paddle, 2 liter, for models with follower plate, includes Ref 13, 16, 35, 40a, 42, 57	
571046	KIT, replacement, paddle, 4-8 liter, for models without follower plate, includes Ref 13, 16, 35, 57	
571047	KIT, replacement, paddle, 4 liter, for models with follower plate, includes Ref 13, 16, 35, 57	
571058	KIT, output adapter, NPT	3A0522
571070	KIT, output, adapter, BSPP	
571060	KIT, fill, zerk, leakproof	NA
571179	KIT, repair, reservoir oil, 2 liter models, includes Ref 13, 36, 40b	3A0534
571182	KIT, repair, reservoir, oil 4 liter models, includes Ref 13, 36, 40b	
571183	KIT, repair, reservoir, grease, 4 liter models, includes Ref 13, 36, 40b	
127685	Fixing Ring for CPC connector	NA

Technical Data

Maximum Working Pressure	5100 psi (35.1 MPa, 351.6 bar)
Power	
100-240 VAC	88 - 264 VAC; 0.8 A current, 90 VA Power, 47/63 Hz, Single phase, inrush/locked rotor, max 40A (1ms)
12 VDC	9 - 16 VDC; 5 A current, 60 W, inrush/locked rotor 12 A
24 VDC	18 - 32 VDC; 2.5 A current, 60 W, inrush/locked rotor 6 A
Fluid	
Grease Models	Grease NLGI 000 - #2
Oil Models	At least 40 cSt oil.
Pumps	1
Pump Output	0.25 in. ³ (4 cm ³) / minute
Pump Outlet	1/4-18 NPSF. Mates with 1/4-18 NPT male fittings
Reservoir Size	2 Liters, 4 Liters, 8 Liters
IP Rating	IP69K
Ambient Temps	-40°F - 158°F (-40°C to 70°C)
Weight (Dry)	
Without follower plate	13.3 lbs (6.03 kg)
With follower plate	14.2 lbs (6.44 kg)
Wetted Parts	nylon 6/6 (PA), amorphous polyamide, zinc plated steel, carbon steel, alloy steel, stainless steel, nitrile rubber (buna-N), bronze, nickel plated alnico, chemically lubricated acetal, aluminum, PTFE
Sound Data	<60 dB

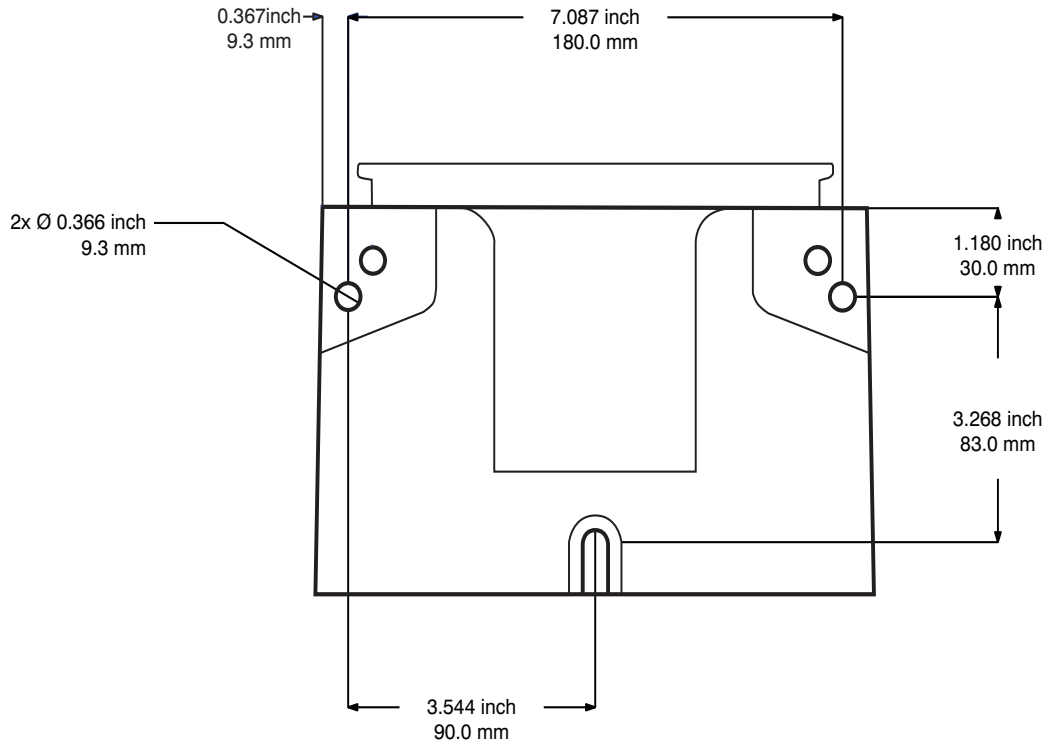
Dimensions

Model	Height		Width		Depth	
	Inches	cm	Inches	cm	Inches	cm
2L	13.25	33.65	8.00	20.32	9.00	22.86
4L	14.50	36.83	9.25	23.50	10.00	25.40
8L	18.50	47.00	9.25	23.50	10.00	25.40

Mounting Pattern

For correct mounting configuration, choose either Option 1 or Option 2. See Part Number 126916 template.

Option 1



Option 2

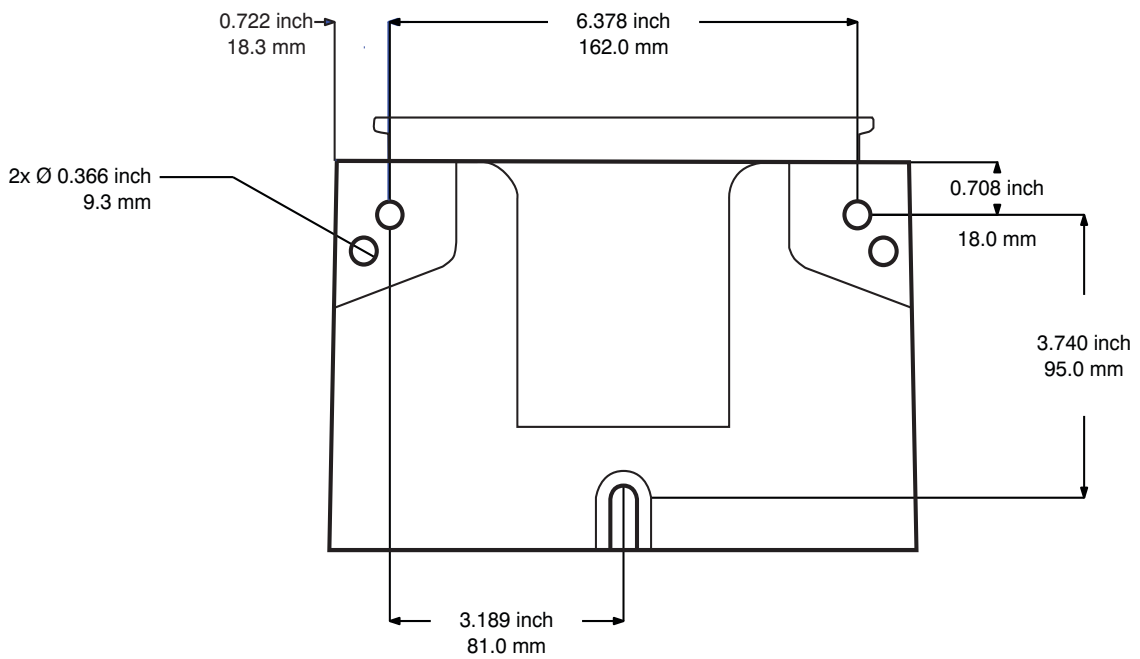


FIG. 16

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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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.

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Graco Information

For the latest information about Graco products, visit www.graco.com.

TO PLACE AN ORDER, contact your Graco distributor or call to identify the nearest distributor.

Phone: 612-623-6928 **or 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.
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Original instructions. This manual contains English. MM 332317

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