

INSTRUCTIONS



SDM5 & SDM15 (Manual); SDP5 & SDP15 (Preset) Meters

312865V

EN

For metered dispense of oils and 50:50 antifreeze/water mix fluids.
For professional use only.

Not approved for use in European explosive atmosphere locations.

Maximum Working Pressure: 1500 psi (10 MPa, 103 bar)

Maximum Working Pressure (50:50 antifreeze/water mix): 900 psi (6.2 MPa, 62 bar)

Maximum Flow Rate: 14 gpm (53 lpm)

List of Models page 2



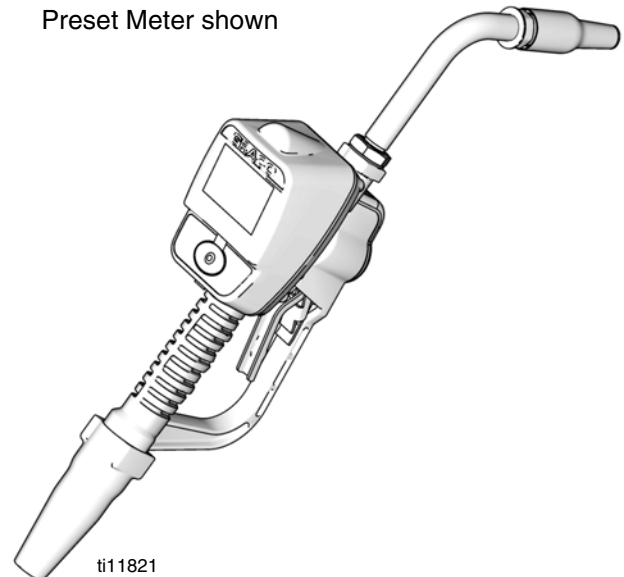
Important Safety Instructions

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

NOTICE

This dispense valve is designed to dispense petroleum-based lubricants and antifreeze only. Do not dispense windshield washer solvent with this dispense valve.

Preset Meter shown



Models

SDM5 Manual Dispense Electronic Meters

Model Number	Swivel	Extension Description	Nozzle	Fluid Type
255348	1/2" NPT(F)	Flexible	Automatic, quick close	Oil, ATF
255349	1/2" NPT(F)	Gear Lube	Quick close	Gear Lube
255350	1/2" NPT(F)	Rigid	Automatic, quick close	Oil, ATF
255802	1/2" NPT(F)	Rigid	Quick close	Anti-freeze
255803	1/2" NPT(F)	Flexible	Quick close	Anti-freeze
24H108	1/2" BSPP(F)	Flexible	Automatic, quick close	Oil, ATF
24H110	1/2" BSPP(F)	Gear Lube	Quick close	Gear Lube
24H112	1/2" BSPP(F)	Rigid	Automatic, quick close	Oil, ATF
24H130	1/2" BSPP(F)	Rigid	Quick close	Anti-freeze
24H132	1/2" BSPP(F)	Flexible	Quick close	Anti-freeze
24H109	1/2" BSPT(F)	Flexible	Automatic, quick close	Oil, ATF
24H111	1/2" BSPT(F)	Gear Lube	Quick close	Gear Lube
24H113	1/2" BSPT(F)	Rigid	Automatic, quick close	Oil, ATF
24H131	1/2" BSPT(F)	Rigid	Quick close	Anti-freeze
24H133	1/2" BSPT(F)	Flexible	Quick close	Anti-freeze

SDM15 Manual Dispense Electronic Meters

Model Number	Swivel	Extension Description	Nozzle	Fluid Type
255800	3/4" NPT(F)	Rigid	High flow, quick close	Oil, ATF, Antifreeze
255801	3/4" NPT(F)	Flexible	High flow, quick close	Oil, ATF, Antifreeze
256836	1/2" NPT(F)	Rigid	High flow, quick close	Oil, ATF Antifreeze
256837	1/2 NPT(F)	Flexible	High flow, quick close	Oil, ATF, Antifreeze
24H126	3/4" BSPP(F)	Rigid	High flow, quick close	Oil, ATF Antifreeze
24H128	3/4" BSPP(F)	Flexible	High flow, quick close	Oil, ATF, Antifreeze
24H150	1/2" BSPP(F)	Rigid	High flow, quick close	Oil, ATF Antifreeze
24H152	1/2" BSPP(F)	Flexible	High flow, quick close	Oil, ATF, Antifreeze
24H127	3/4" BSPT(F)	Rigid	High flow, quick close	Oil, ATF Antifreeze
24H129	3/4" BSPT(F)	Flexible	High flow, quick close	Oil, ATF, Antifreeze
24H151	1/2" BSPT(F)	Rigid	High flow, quick close	Oil, ATF Antifreeze
24H153	1/2" BSPT(F)	Flexible	High flow, quick close	Oil, ATF, Antifreeze

SDP5 Preset Dispense Electronic Meters





Model Number	Swivel	Extension Description	Nozzle	Fluid Type
255200	1/2" NPT(F)	Rigid	Automatic, quick close	Oil, ATF
255351	1/2" NPT(F)	Flexible	Automatic, quick close	Oil, ATF
255352	1/2" NPT(F)	Gear Lube	Quick close	Gear Lube
255355	1/2" NPT(F)	Rigid	Quick close	Anti-freeze
255356	1/2" NPT(F)	Flexible	Quick close	Anti-freeze
24H106	1/2" BSPP(F)	Rigid	Automatic, quick close	Oil, ATF
24H114	1/2" BSPP(F)	Flexible	Automatic, quick close	Oil, ATF
24H116	1/2" BSPP(F)	Gear Lube	Quick close	Gear Lube
24H122	1/2" BSPP(F)	Rigid	quick close	Anti-freeze
24H124	1/2" BSPP(F)	Flexible	Quick close	Anti-freeze
24H107	1/2" BSPT(F)	Rigid	Automatic, quick close	Oil, ATF
24H115	1/2" BSPT(F)	Flexible	Automatic, quick close	Oil, ATF
24H117	1/2" BSPT(F)	Gear Lube	Quick close	Gear Lube
24H123	1/2" BSPT(F)	Rigid	Quick close	Anti-freeze
24H125	1/2" BSPT(F)	Flexible	Quick close	Anti-freeze

SDP15 Preset Dispense Electronic Meters



Model Number	Swivel	Extension Description	Nozzle	Fluid Type
255353	3/4" NPT(F)	Rigid	High flow, quick close	Oil, ATF, Antifreeze
255354	3/4" NPT(F)	Flexible	High flow, quick close	Oil, ATF, Antifreeze
256838	1/2" NPT(F)	Rigid	High flow, quick close	Oil, ATF Antifreeze
256839	1/2 NPT(F)	Flexible	High flow, quick close	Oil, ATF, Antifreeze
24H118	3/4" BSPP(F)	Rigid	High flow, quick close	Oil, ATF Antifreeze
24H120	3/4" BSPP(F)	Flexible	High flow, quick close	Oil, ATF, Antifreeze
24H154	1/2" BSPP(F)	Rigid	High flow, quick close	Oil, ATF Antifreeze
24H156	1/2" BSPP(F)	Flexible	High flow, quick close	Oil, ATF, Antifreeze
24H119	3/4" BSPT(F)	Rigid	High flow, quick close	Oil, ATF Antifreeze
24H121	3/4" BSPT(F)	Flexible	High flow, quick close	Oil, ATF, Antifreeze
24H155	1/2" BSPT(F)	Rigid	High flow, quick close	Oil, ATF Antifreeze
24H157	1/2" BSPT(F)	Flexible	High flow, quick close	Oil, ATF, Antifreeze

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.

 WARNING	
	<p>SKIN INJECTION HAZARD</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. Get immediate surgical treatment.</p> <ul style="list-style-type: none"> • Do not point dispense valve at anyone or at any part of the body. • Do not put your hand over the end of the dispense nozzle. • Do not stop or deflect leaks with your hand, body, glove, or rag. • Follow Pressure Relief Procedure in this manual, when you stop spraying and before cleaning, checking, or servicing equipment.
	<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 forms from distributor or retailer. • Check equipment daily. Repair or replace worn or damaged parts immediately with genuine manufacturer's replacement parts only. • Do not alter or modify equipment. • Use equipment only for its intended purpose. Call your distributor for information. • Route hoses and cables away from traffic areas, sharp edges, moving parts, and hot surfaces. • Do not kink or over bend hoses or use hoses to pull equipment. • Keep children and animals away from work area. • Comply with all applicable safety regulations.
	<p>BATTERY SAFETY</p> <p>The battery may leak, explode, cause burns, or cause an explosion if mishandled:</p> <ul style="list-style-type: none"> • You must use the battery type specified for use with the equipment. • Sparking can occur when changing batteries. Only replace the battery in a non-hazardous location, away from flammable fluids or fumes. • Handle and dispose of battery properly - do not short circuit, charge, force over discharge, disassemble, crush, penetrate, incinerate, or heat the battery to a temperature exceeding 185° F (85° C).


WARNING

	<p>FIRE AND EXPLOSION HAZARD</p> <p>When flammable fluids are present in the work area, such as gasoline and windshield wiper fluid, be aware that flammable fumes can ignite or explode. To help prevent fire and explosion:</p> <ul style="list-style-type: none"> • Use equipment only in well ventilated area. • Eliminate all ignition sources, such as cigarettes and portable electric lamps. • Keep work area free of debris, including rags and spilled or open containers of solvent and gasoline. • Do not plug or unplug power cords or turn lights on or off when flammable fumes are present. • Ground all equipment in the work area. • Use only grounded hoses. • If there is static sparking or you feel a shock, stop operation immediately. Do not use equipment until you identify and correct the problem. • Keep a working fire extinguisher in the work area.
	<p>PERSONAL PROTECTIVE EQUIPMENT</p> <p>Wear appropriate protective equipment when in the work area to help prevent serious injury, including eye injury, hearing loss, inhalation of toxic fumes, and burns. Protective equipment includes but is not limited to:</p> <ul style="list-style-type: none"> • Protective eyewear, and hearing protection. • Respirators, protective clothing, and gloves as recommended by the fluid and solvent manufacturer.
	<p>CALIFORNIA PROPOSITION 65</p> <p>This product contains a chemical known to the State of California to cause cancer, birth defects or other reproductive harm. Wash hands after handling.</p>

Installation

Typical Installations (FIG. 1)

The typical installation shown in FIG. 1 is only a guide. It is not a complete system design. Contact your Graco distributor for assistance in designing a system to suit your needs.

NOTICE

The dispense valve is not designed for in-line installation. Do not install with a shutoff valve on the outlet side of the meter. Such installation could result in damage to the meter housing cover.

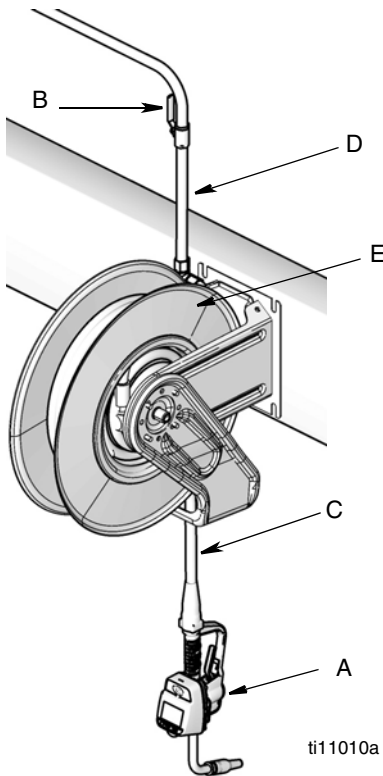


FIG. 1

ITEM	DESCRIPTION
A	Electronic metered dispense valve
B	Fluid shut-off valve
C	Hose
D	Hose reel fluid inlet hose
E	Hose reel

A Thermal Relief Kit (not shown) is required. The kit required will vary by pump selected. See Parts, page 42 for a list of available kits.

Mounting Bracket (FIG. 2)

Mounting Bracket Kit 249440 is available for resting the dispense valve on a console.

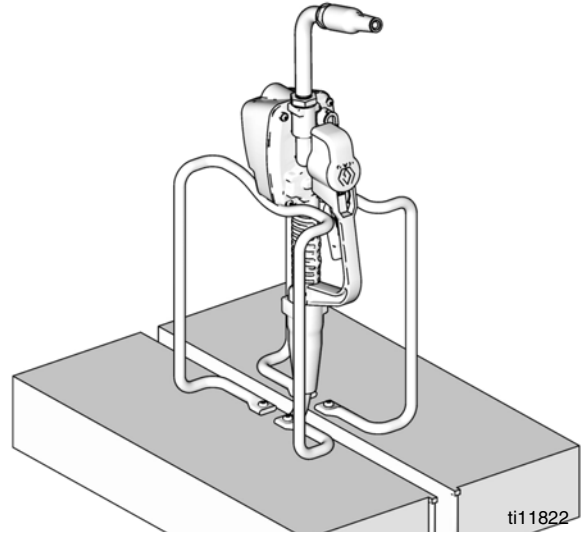
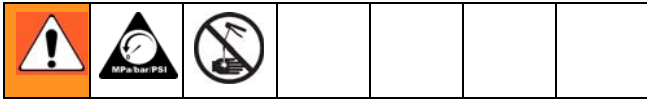


FIG. 2

Pressure Relief Procedure



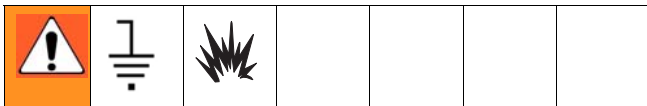
This equipment will stay pressurized until the pressure has been manually relieved. To reduce the risk of serious injury from pressurized fluid, accidental spray from the dispense valve or splashing fluid, follow this **Pressure Relief Procedure** when ever you:

- Are instructed to relieve pressure.
 - Check, clean or service any system equipment.
 - Install or clean fluid nozzles or filter.
1. Turn off power supply to the pump or close upstream ball valve.
 2. Trigger the dispense valve into a waste container to relieve pressure.
 3. Open any bleed-type master air valves and fluid drain valves in the system.
 4. Leave the drain valve open until you are ready to pressurize the system.

Grounding



FIRE HAZARD: Conductive metal surfaces on the meter must not make contact with any positively charged metal surface, including (but not limited to), the starter solenoid terminal, alternator terminal or battery terminal. Such contact could cause electrical arcing and a fire.



The equipment must be grounded. Grounding reduces the risk of static and electric shock by providing an escape wire for the electrical current due to static build up or in the event of a short circuit.

Pump: Follow manufacturer’s recommendations.

Air and fluid hoses: Only use electrically conductive hoses. Check electrical resistance of hoses. If total resistance to ground exceeds 29 megohms, replace hose immediately.

Air compressor: Follow manufacturer’s recommendations.

Fluid supply container: Follow local code.

To maintain grounding continuity when flushing or relieving pressure: hold a metal part of the dispense valve firmly to the side of a grounded metal pail, then trigger the valve.

Pre-Installation Procedure



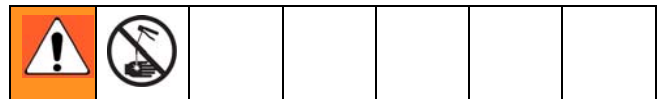
1. **Relieve pressure**, page 9.
2. Close the shut-off valve (B, FIG. 1).
3. Ground the hose and reel or console, page 9. Leave at least two threads bare when using PTFE tape. The bare threads ensure a ground is maintained.

Installation Procedure

NOTICE

- If this is a new installation or if the fluid lines are contaminated, flush the lines before you install the metered valve. Contaminated lines could cause the valve to leak.
- Never dispense compressed air with meter. Doing so will damage meter.

Flushing



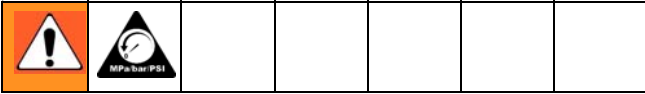
If this is an existing installation, go to Installing Meter section, page 10. The following procedure, Steps 1-5 are the Flushing Procedure.

1. Close the fluid shut-off valve (B, FIG. 1, page 8) at each dispense position.
2. Make sure:
 - main fluid outlet valve at the pump is closed,
 - air pressure to the pump motor is adjusted, **and**
 - air valve is open.

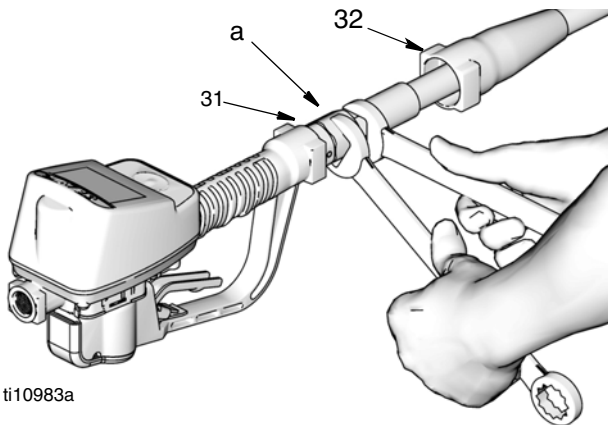
Installation

3. Slowly open the main fluid valve.
 - a. Place the hose end (with no dispense valve connected) into a container for waste oil.
 - b. Secure the hose in the container so it will not come out during flushing.
 - c. If you have multiple dispense positions, first flush the dispense position farthest from the pump and work your way toward the pump.
4. Slowly open the shut-off valve (B) at the dispense position. Flush out a sufficient amount of oil to ensure that the entire system is clean; then close the valve.
5. Repeat Step 4 at all other positions.

Installing Meter (FIG. 3)




1. Relieve pressure, page 9.



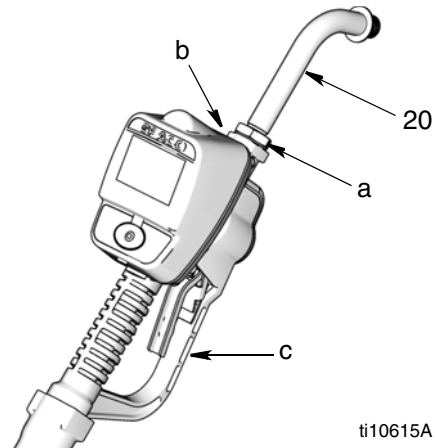
ti10983a

FIG. 3

2. Slide the swivel boot (32) back, over the hose, small end first, to access the swivel fitting (a).
3. Apply thread sealant to the male threads of the hose fitting. Thread the hose fitting into the meter swivel (31). Use two wrenches to tighten securely (FIG. 3).

 Make sure you let the sealant cure to the manufacturer's recommendations before circulating fluid through the system.

Installing Tube Extension (FIG. 4)



ti10615A

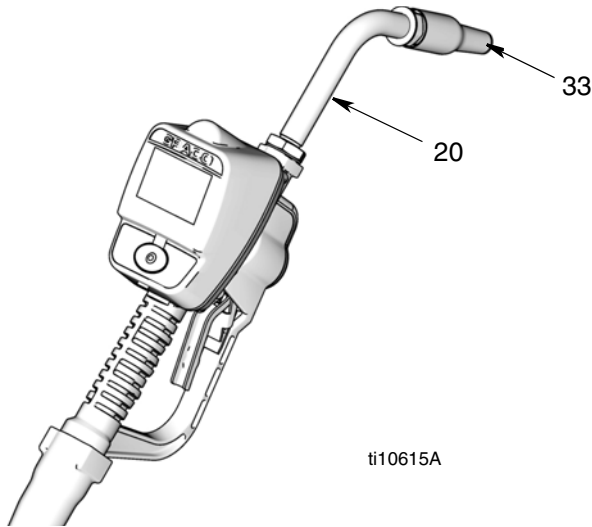
FIG. 4

NOTICE

Do not use PTFE tape or thread sealant on threads of extension tube (20). This could cause the fitting to leak.

1.
 - a. Loosen nut (a) until it is completely off tube threads.
 - b. Thread extension (20) into housing (b) until it bottoms out.
 - c. Align extension (20) with meter housing and handle (c).
 - d. Firmly tighten nut (a).

Installing Nozzle (FIG. 5)



ti10615A

FIG. 5

1.
 - a. Thread new nozzle (33) onto extension (20).
 - b. With an open-end adjustable wrench on flats of nozzle bushing, tighten firmly.
 - *Only* tighten nozzle with wrench on flats of the nozzle bushing.
 - **Do not disassemble the bushing from nozzle.** Disassembly will affect performance of the nozzle.
2. Open automatic twist lock nozzle and all fluid shut-off valves. Start pump to pressurize system. See Operation Screens, Dispensing in either the Manual or Preset Mode instructions beginning on page 21 for complete meter operation information.
3. To ensure dispensing accuracy, purge all air from the fluid lines and dispense valve before you use it.
4. Set the system flow to the desired flow rate.

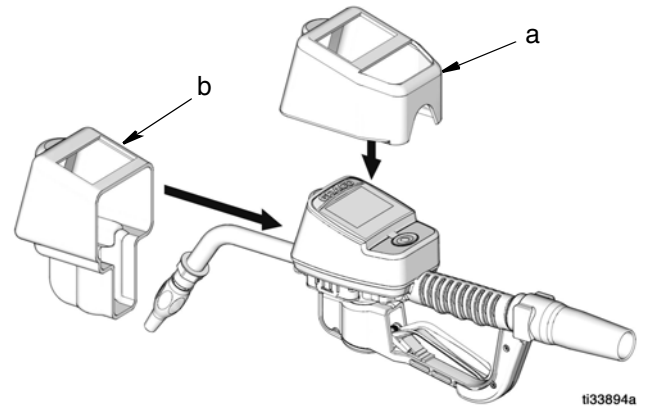
NOTICE

Do not trigger meter when nozzle is closed. Fluid will build up behind the nozzle, leak from the nozzle, and unexpectedly be expelled when the nozzle is opened. If you do accidentally trigger the meter with the nozzle closed, point the nozzle into a waste bucket and open the nozzle to relieve pressure and expel the built up fluid.

Impact Guard Kit (24W327)

Impact Guard Kit, 24W327 is available. This guard provides additional protection for the meter housing and bezel.

1. Install the bezel guard (a) over the meter bezel as shown in FIG. 6.
2. Then install the housing guard (b) over the nozzle/extension and onto the meter and bezel guard (a) as shown in FIG. 6.



ti33894a

FIG. 6

Meter Overview

Navigation and Modes



FIG. 7

5-Way Menu Navigation Button (FIG. 7)

- Includes 4 direction ARROWS (UP, DOWN, LEFT, RIGHT) and a center, ENTER button.
- Pressing the direction ARROWS allows user to easily scroll through menus. To select/store your selection, you **must** press the center, ENTER button.
- Pressing and holding a direction ARROW down allows user to scroll through menus quickly.

Meter Display

Adjusting Screen Contrast using ARROWS

On the Setup Home Screen (page 13), use the LEFT and RIGHT ARROWS to adjust the screen contrast.

- **Darken the Screen:** Press the RIGHT ARROW multiple times.
- **Brighten the Screen:** Press the LEFT ARROW multiple times.

Asleep/Awake Mode

- **Asleep:** Battery-saving mode. The display goes blank after 2 minutes of inactivity during normal operation. Unit continues to keep track of amount dispensed while the display is asleep.
- **Awake:** Display comes awake from sleep mode when you press any ARROW or the ENTER button or when you squeeze the trigger to dispense fluid.

Locking and Unlocking Trigger

The Preset Meters **only**, include a locking trigger feature that allows the user to lock the trigger in the dispense position as shown in FIG. 8. To release the lock, firmly squeeze the trigger to the handle.

Preset Meters Only

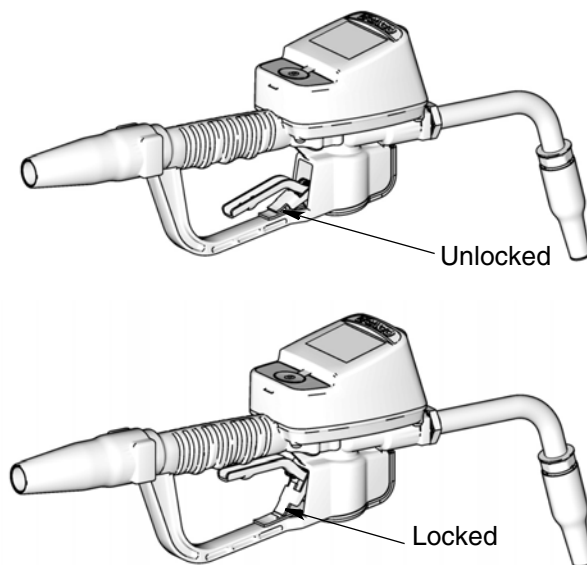


FIG. 8

Setup Mode Screens

If you are in Operation Mode you must be on the Home Screen shown in FIG. 10, to access the Setup Mode Screens. (A complete description of the Home Screen is provided on page 20).

To display the Home Screen:

1. Wake up the meter by pressing any button on the key pad.

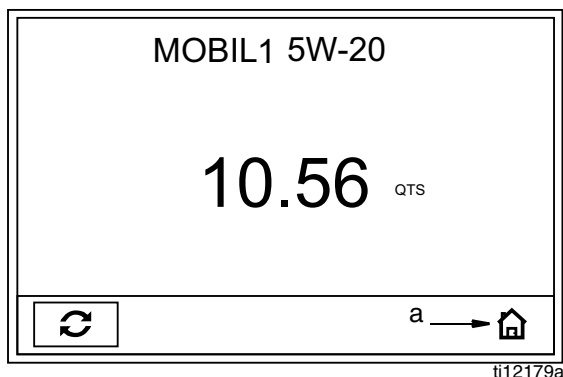


FIG. 9

2. When an operation mode screen displays (such as the one shown in FIG. 9):

- a. Use the RIGHT ARROW to move the cursor over the House icon (a).
- b. Press center, ENTER button to display the Home Screen (FIG. 10).

Manual Meters

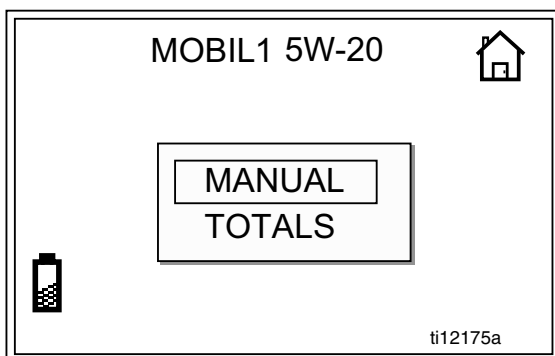
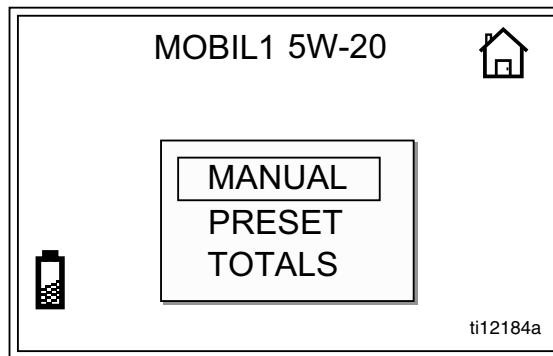


FIG. 10

Preset Meters



Main Setup Screen (FIG. 12)

All Meters

The Main Setup Screen is the first screen displayed when you enter the Setup Mode. This screen displays a list of the available Setup Screens and also includes a link back to the Home Screen.

Manual Meters Screens:

- UNITS/LIMIT
- CALIBRATE
- BANNER
- LANGUAGE
- HOME

Preset Meters include all the Manual Meter's Setup Screens and also a PRESET screen.

- UNITS/LIMIT
- CALIBRATE
- PRESET
- BANNER
- LANGUAGE
- HOME

Manual Meters

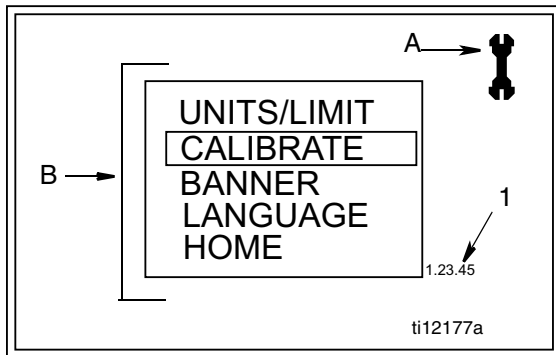


FIG. 12

Main Screen Features (FIG. 12)

A. Screen Identifier Icon: Wrench icon displays in the upper right corner when user is on the Main Screen of the Setup screens.

Displaying Setup Screen from an Operation Mode Screen

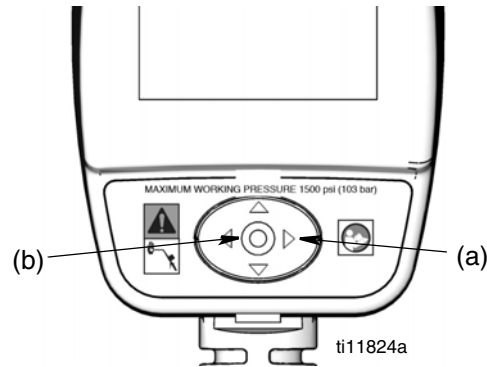
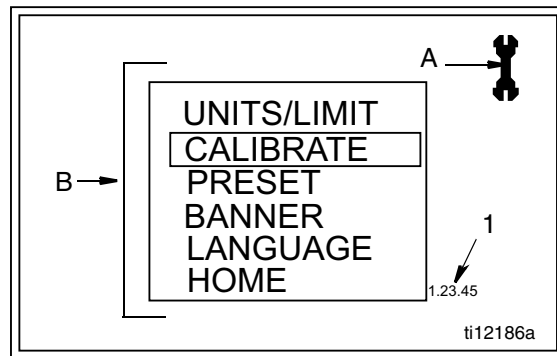


FIG. 11

1. Hold down the RIGHT ARROW (a) only, for a few seconds (FIG. 11).
2. Then at the same time, also press the center, ENTER button (b) (FIG. 11). Hold both buttons down until the Main Setup Screen shown in FIG. 12 displays.

Preset Meters



B. Setup Screens:

- Screens available to user.
1. Use UP or DOWN ARROWS to select a screen from the list.
 2. Press center, ENTER button to confirm selection. Selected screen displays.

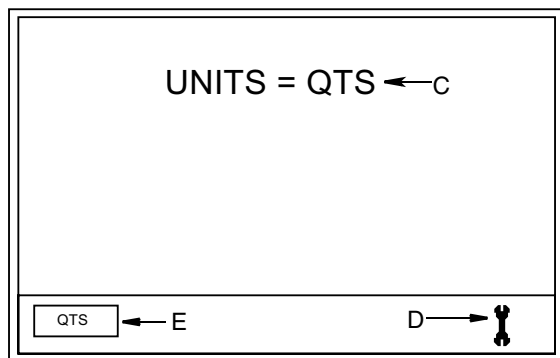
1. Software Version Number: Reference number. You may be asked to provide this number when contacting Graco for technical support.

Units/Limit Screen (FIG. 13)

For All Meters

Sets the units of measurement to pints, quarts, liters, or gallons.

Manual Meters



Preset Meters

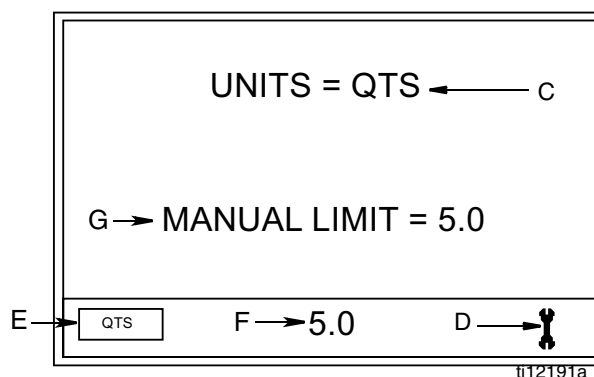


FIG. 13

Units/Limit Screen Features (FIG. 13)

All meters include C - E

C. Units Mode: Displays measurement unit that was selected using the **Set Measurement Units** button (E).

D. Wrench Icon: Returns user to Main Setup Screen.

E. Set Measurement Units button/field: Sets unit of measurement as pint, quart, gallon or liter.

To change/set the Unit of Measurement:

1. Use LEFT or RIGHT ARROW to move cursor to the Set Measurement field (E).
2. Use UP or DOWN ARROWS to display measurement unit choices: PTS, QTS, L, GAL.
3. Press center, ENTER button to confirm selection. Selected measurement unit is displayed on screen (C).
4. When you are finished making changes, use the RIGHT ARROW to move cursor over Wrench icon.
5. Press center, ENTER button to return to Main Setup Screen.

Preset meters also include F - G

F. Set Manual Dispense Limit field: Sets maximum quantity of fluid that can be dispensed in Manual Mode.

To change/set the Manual Dispense Limit:

1. Use RIGHT ARROW to move cursor to Manual Dispense Limit field (F).
2. Use UP or DOWN ARROWS to increase and decrease displayed amount.
3. When amount you want to use is shown in field, press center, ENTER button to confirm amount. Confirmed amount displays on screen (G).
4. When you have finished making changes, use the RIGHT ARROW button to move cursor over Wrench icon.
5. Press center, ENTER button to return to Main Setup Screen.

G. Manual Limit Confirmation: Displays maximum quantity of fluid that can be manually dispensed at one time. Amount is assigned on the task bar **Set Manual Dispense Limit** field (F). Preset dispense amounts are not affected by the manual dispense limit you set.

Calibrate Screen (FIG. 14)

For All Meters

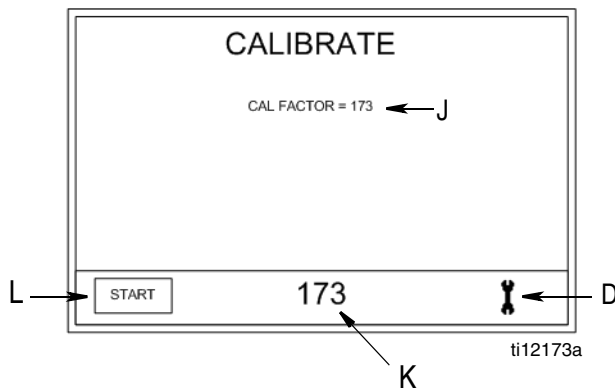
Recalibrates the meter for different fluids.

Table 1. Calibration Factors

Fluids	Calibration Number	
	Quarts	Liters
Oil (10W - 30)	173	183
Gear Lube	173	183
Automatic Transmission Fluid	167	176
Antifreeze	159	168

- Calibration factors at 70°F (21°C) at 2.0 gpm (7.6 lpm).
- Calibration number may vary slightly due to temperature or flow rate.

Calibrate Screen 1



Calibrate Screen 2

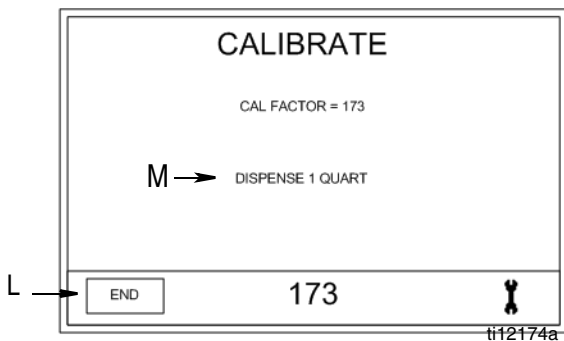


FIG. 14

All meters include D - M

D. Wrench Icon: Returns user to Main Screen.

J. Calibration Factor: Displays amount operator dispensed during meter calibration.

K. Preset Calibration Factor: Preset calibration amount displays.

Adjusting the Preset Calibration Factor:

1. Use your LEFT or RIGHT ARROW to move the cursor to the Calibration Factor Field (K) .
2. Use the UP or DOWN ARROW to manually adjust the Preset Calibration Factor up or down (this can only be done on Calibrate Screen 1 (FIG. 14).
3. Press center, ENTER button to confirm new setting. New setting displays in Calibration Factor field (J).

L. Start/End button: Clicked at the start and completion of calibration. See **Recalibrating the Meter** (page 17).

M. Dispense: Only appears on Screen 2 (FIG. 14). Displays amount operator dispensed during calibration test.

Recalibrating the Meter (FIG. 14)

The meter is shipped from the factory with the default calibration factor for 10W30 motor oil - at 70°F (21°C). This calibration factor is sufficiently accurate for most oils. If other fluids are used or if greater accuracy is required, the meter can be recalibrated by performing one of the following recalibration methods.

1. Choosing a Calibration Factor From the Calibration Table 1

Calibration factors provided in Table 1 (page 16), are only approximate, but sufficient for most applications. For the most accuracy, use method 2, Manual Calibration Procedure.

1. Use LEFT or RIGHT ARROW to move the cursor to the Calibration Factor Field (K) .
2. Use the UP or DOWN ARROWS to manually adjust the Preset Calibration Factor up or down until the number displayed matches the calibration factor you have chosen from Table 1.
3. Press center, ENTER button to confirm new setting. New setting displays in Calibration Factor field (J).
4. Use the RIGHT ARROW button to move cursor over Wrench icon.
5. Press center, ENTER button, to return to Main Setup Screen.

OR

2. Manual Calibration Procedure

See FIG. 14, page 16 for the Calibrate Screens 1 and 2 referenced in the following instructions.

- When an English unit (gallon, quarts, pints) is set as the measurement unit on the Units/Limit Screen, page 15, use a one quart graduated cylinder to calibrate the meter.
 - When a System International Unit (SI) (Liter) is set as the measurement unit on the Units/Limit Screen, use a one Liter graduated cylinder to calibrate the meter.
1. Use the LEFT or RIGHT ARROWS to select START (L) on Calibrate Screen 1.
 2. Press the center, ENTER button to confirm selection. Calibrate Screen 2 will appear.

3. Dispense **exactly** 1 quart (or 1 liter) of fluid into a calibrated 1 quart (or 1 liter) container.

The Calibration Factor will appear on the screen in the Calibration Factor field (J).

4. Use the LEFT or RIGHT ARROWS to select END (L) on Calibrate Screen 2.
5. Press the center, ENTER button to confirm selection. Calibrate Screen 1 will appear.
6. When you have finished making changes, use the RIGHT ARROW button to move cursor over Wrench icon.
7. Press center, ENTER button, to return to Main Setup Screen.

To attain the most accurate calibration:

- Use the manual calibration procedure (Method 2).
- Use a certified, graduated cylinder; either 1-Quart or 1-Liter volume in the system of Units to be used (either English or SI) for real-time dispenses.
- Calibrate using the exact fluid to be dispensed, at the temperature expected during dispense.
- After calibration check your results by measuring a dispense.
- Be sure to remove all fluid from graduated cylinder between calibration attempts.
- Be sure meter is set to proper system of units for container you are using.



Once the meter has been calibrated, the unit of measure can be changed to any other unit, without the need for recalibration.

Preset Screen (FIG. 15)

For Preset Meters Only

Sets the default preset amounts. Typically, you would enter amounts you most frequently dispense.

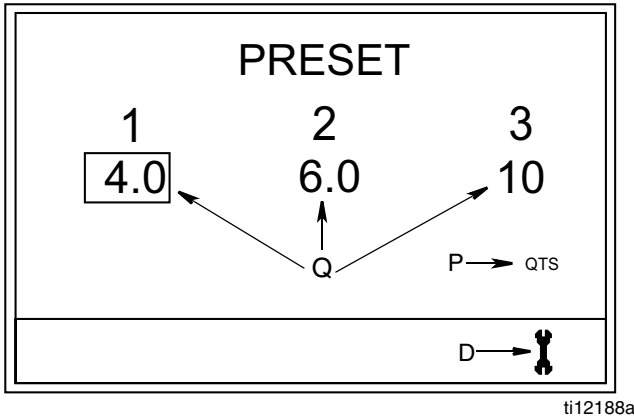


FIG. 15

Preset Meters include D, P and Q

D. Wrench Icon: Returns user to Main Screen.

P. Measurement Unit: Set on Units/Limit Screen, page 15.

Q. Set Preset Amounts: Sets dispensing options for the Preset Dispense mode.


Sets up to 3, default preset quantities. The amounts can be listed in any order and do not have to be in a numeric order.

To set Preset amounts (FIG. 15):

1. Use the LEFT or RIGHT ARROWS to select one of the three amount fields (Q).
2. Use the UP or DOWN ARROWS to increase or decrease the number appearing in the field until the desired amount displays.

Pressing and holding the ARROW button down, increases the scrolling speed.

3. Press center, ENTER button to confirm amount.

 The amounts displayed do not automatically recalculate quantities when changing between measurement units. For example, if you change from quarts to liters you must manually change the preset amounts.

4. When you have finished making changes, use the LEFT OR RIGHT ARROW button to move cursor over Wrench icon.
5. Press center, ENTER button, to return to Main Setup Screen.

Banner Screen (FIG. 16)

For All Meters

Creates the information banner displayed across top of the Home, Manual and Preset Screens.

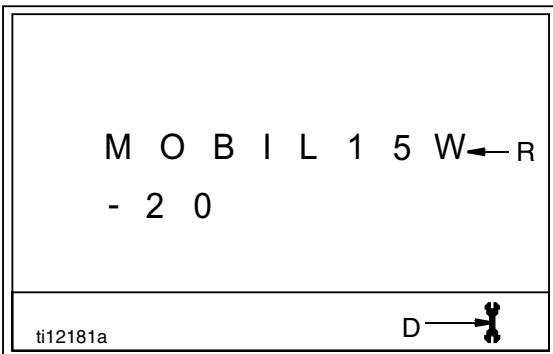


FIG. 16

Banner Screen Features D and R

D. Wrench Icon: Returns user to Main Screen.

R. Banner field: Information line. Provides space for up to 11 numeric and alpha characters and/or spaces.

Using the DOWN ARROW button when a field is blank will also provide the following characters for selection: (period) “. “; (forward slash) “ / “; or (dash) “ - ”.

To create a banner:

1. Use the UP or DOWN ARROWS to scroll through numerals, then alpha characters and then blank/spaces.
2. Press center, ENTER button to select characters. When character is selected, cursor automatically moves to the next character field.

Use the RIGHT ARROW button to skip fields or if you do not need to use all 11 spaces, to return cursor to the Wrench icon. After 11th character has been confirmed, cursor automatically moves to Wrench icon (D).

3. Use the center, ENTER button, to return to the Main Setup Screen.

Language Screen (FIG. 17)

For All Meters

Sets language preference for text displayed on meter. Choices include English and Spanish.

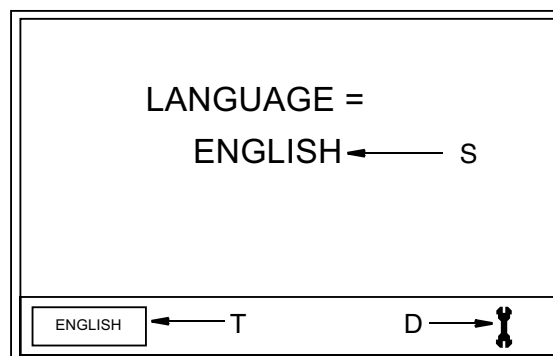


FIG. 17

Language Screen Features D, S, and T

D. Wrench Icon: Returns user to Main Screen.

S. Language field: Identifies selected language.

T. Language field/button: When cursor is over this button, each time UP or DOWN arrow is pressed, the name of the Language displayed on the button changes.

To select your language:

1. Use the LEFT or RIGHT ARROW to move the cursor to the Language field/button (T).
2. Use UP or DOWN ARROWS to view language choices.
3. When the name of your language is displayed on the field/button (T), press the center ENTER button to confirm selection.



The selected language is then displayed on screen in Language field (S).



After you press the center, ENTER button, the name on the field/button will also change from “SPANISH” to “EPANOL” and will appear this way on both the Language button (T) and in the Language field (S) on the screen.

4. When you have finished making changes, use the LEFT OR RIGHT ARROW button to move cursor over Wrench icon.
5. Press center, ENTER button, to return to Main Setup Screen.

Dispensing Fluid and Operation Mode Screens

						
---	---	--	--	--	--	--

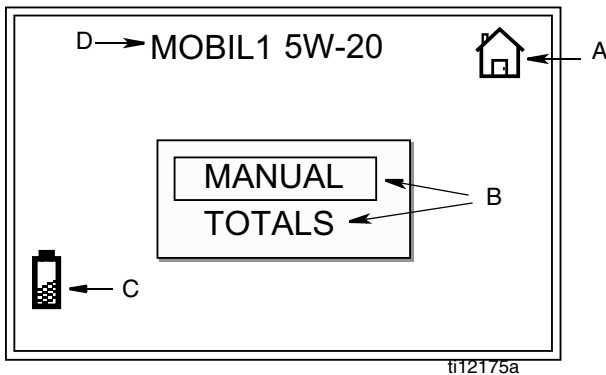
FIRE HAZARD: Conductive metal surfaces on the meter must not make contact with any positively charged metal surface, including (but not limited to), the starter solenoid terminal, alternator terminal or battery terminal. Such contact could cause electrical arcing and a fire.

If you are in the Setup Mode, to display the Operation Mode Screens use the UP or DOWN ARROW button to select HOME from the list. Press the Center ENTER button to display the Operation Mode Home Screen shown in FIG. 18. A complete description of the Setup Mode Screens begins on page 13.

Home Screen (FIG. 18)

All Meters

Manual Meters



Preset Meters

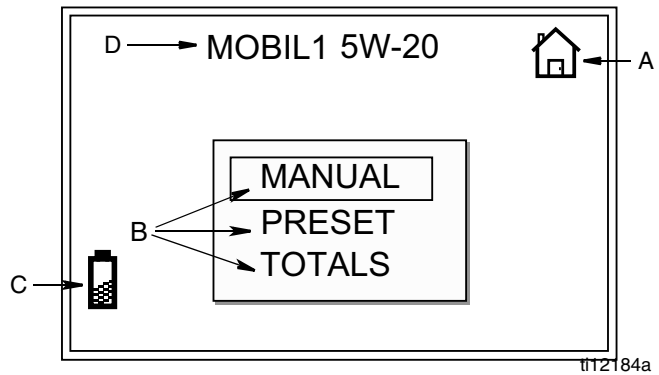


FIG. 18

All Meters include Include A - D

A. Screen Identifier Icon: House displays when user is on the Home Screen.

B. Operation Screens: List/menu of screen choices available to user. Operation Screen choices include:

Manual Meters

- MANUAL
- TOTALS

Preset Meters

- MANUAL
- PRESET
- TOTALS

1. Use UP or DOWN ARROWS to scroll through options.

2. Press center, ENTER button to confirm selection and display the screen.

C. Battery Indicator: Appears only on Home Screen. Shows current battery charge strength. Appears and flashes on all screens when battery's charge is low.

D. Information Banner: Configurable information banner. Data is input on **Setup Mode Banner Screen**, page 19.

Manual Dispense (FIG. 19)

All Meters

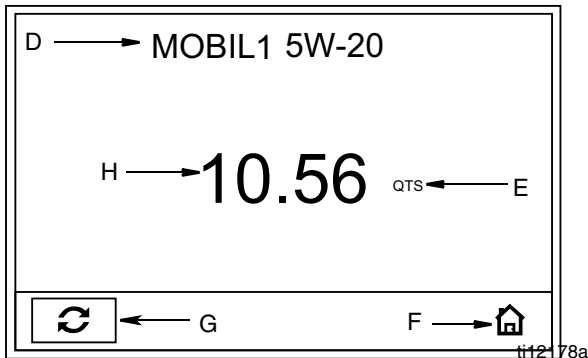


FIG. 19

See FIG. 19 for terms D - H

D. Information Banner: Configurable information banner. Data is input on **Setup Mode Banner Screen**, page 19.

E. Unit of Measurement: Identifies unit of measurement, pint, quart, gallon or liter. Measurement Unit is set on **Setup Mode Units/Limits Screen**, page 15.

F. Home Icon: Returns user to Home Screen.

G. Reset: Resets counter (H) to zero.

H. Counter: Before dispense has begun, display reads 0.00. As fluid is dispensed, counts up from zero.

To reset counter to zero after a dispense:

1. Use the LEFT or RIGHT ARROW button to move cursor to RESET (G).
2. Press center ENTER button. The displayed amount in field H returns to zero.

To dispense in Manual Mode:

If display was asleep, press any button to wake it up.

Preset shown

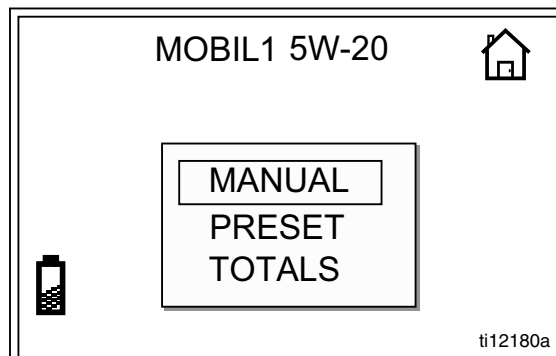


FIG. 20

1. From HOME screen, use the UP or DOWN ARROWS to select MANUAL (FIG. 20).
2. Press center, ENTER button to confirm selection. The Manual Dispense screen (FIG. 21) appears.

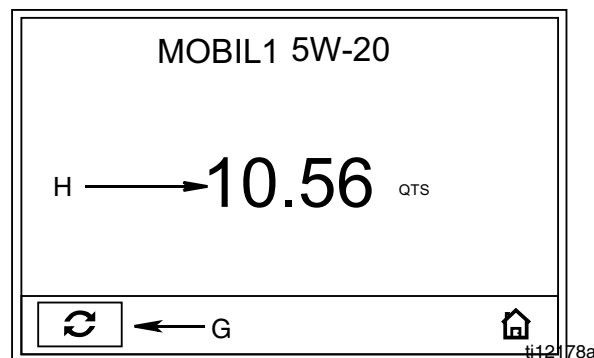


FIG. 21

3. Squeeze trigger to dispense fluid. If using a Preset meter, trigger may be locked during the dispense.

Fluid flows. The amount displayed counts up from zero or from the previously dispensed amount (FIG. 21) and displays in field H.

4. Release, or for Preset meters only, unlock trigger when you have dispensed the desired amount of fluid.

Fluid flow stops. Amount dispensed displays in field H.

5. Use LEFT or RIGHT ARROW to move cursor to RESET button (G). Press center ENTER button to reset the displayed amount in field H to zero.

Preset Dispense (FIG. 22)

Preset Meters Only

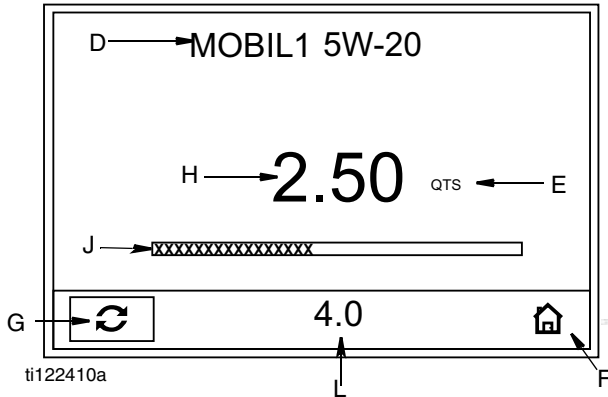


FIG. 22

See FIG. 22 for terms D - L

D. Information Banner: Configurable information banner. Data is input in **Setup Mode, Banner Screen**, page 19.

E. Unit of Measurement: Identifies unit of measurement, pint, quart, gallon or liter. Unit is selected in **Setup Mode, Units/Limit Screen**, page 15.

F. Home Icon: Returns user to Home Screen.

G. Reset: Resets counter (H) to zero.


H. Counter: Before dispense has begun, display reads 0.00. As fluid is dispensed, counts up from zero. At the same time the Progression Bar (J) displays a real-time, visual representation of the progress made toward completing the dispense.

J. Progression Bar: Displays a real-time, visual representation of the progress made toward completing the dispense. Runs in conjunction with Counter (H).

For example, in FIG. 22, a partial dispense of 2.5 quarts of the total Preset Dispense of 5.0 quarts is shown. The Progression Bar shows that approximately half the dispense is complete.

L. Preset Quantities: Use the UP or DOWN ARROW to select field L on the task bar.

- a. Use the UP or DOWN ARROWS to scroll through the 3 available Preset Quantities (L). Each time you press the UP or DOWN ARROWS, one of the 3 preset amounts displays on the task bar in field L.
- b. When the Preset Quantity you want to dispense is shown in field L, press the center, ENTER button to select it.

 If a suitable preset quantity is not available, select an amount that is closest to the amount you want to dispense. Amounts can be modified following the procedure described on page 23.

To modify the amount selected:

- a. Use the UP or DOWN ARROW to scroll up or down to increase or decrease the amount shown in field L. Each time you press the UP or DOWN ARROW the amount will increase or decrease in increments of 0.1 units.

To speed up the scrolling progression, press and hold the UP or DOWN ARROW.

- b. **IMPORTANT!!!** When the new dispense amount is shown in field L, the number flashes, indicating a change has been made that requires confirmation.

To confirm new amount you **MUST PRESS** the center, ENTER button on the key pad within 15 seconds. If you begin a dispense without confirming the new amount, the Preset Amount will return to the previous **confirmed** amount shown in field L.

For example, in FIG. 23 (below) the original, confirmed Preset Dispense amount (A) was 4.0 qts. The amount was increased to 8.0 quarts and because it has not been confirmed, is flashing on the screen (B). After the user confirmed this change by pressing the center ENTER button on the key pad, the new dispense amount no longer flashes and is now set to dispense 8.0 quarts (C).

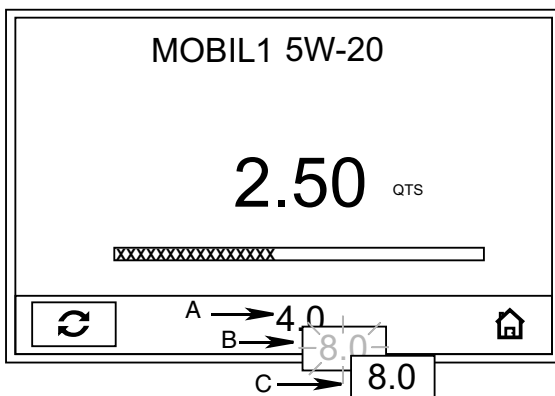


FIG. 23

To permanently modify the default Preset Quantities, see **To set Preset amounts:** on page 18.

To dispense in Preset Mode:

If the display was asleep, press any button to wake up the display.

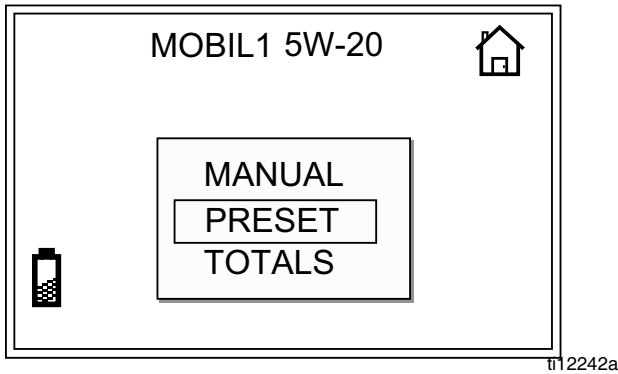


FIG. 24

1. From HOME screen, use the UP or DOWN ARROWS to select PRESET (FIG. 24).
2. Press center, ENTER button to confirm selection. The Preset Dispense screen (FIG. 25) appears.

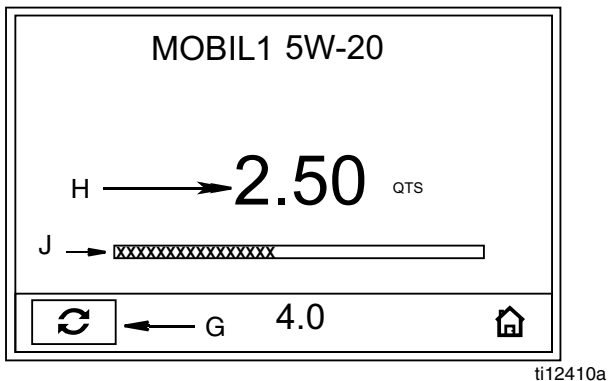


FIG. 25

3. Squeeze trigger to begin dispensing fluid. The trigger may be locked during the dispense.

Fluid flows. The amount displayed counts up from zero or from the previously dispensed amount (FIG. 25) and displays in field H. A visual representation of the dispense progression also appears on the progression bar (J).

When the preset amount has been dispensed, fluid flow stops automatically. The total dispensed amount appears in field H.

If you want to stop fluid flow before the preset amount is dispensed, release or unlock trigger. To continue dispensing fluid, squeeze and/or lock trigger again. Dispensed amount shown in field H and on progression bar (J) continues to count up toward preset amount.

If you want to continue dispensing fluid after preset amount has been dispensed, squeeze trigger. The meter continues dispensing fluid in Manual Mode until you release trigger.

4. Use LEFT or RIGHT ARROW to move cursor to RESET button (G).
5. Press center ENTER button to reset the displayed amount in field H to zero and clear the progression bar (J).

Totals Screen (FIG. 26)

All Meters

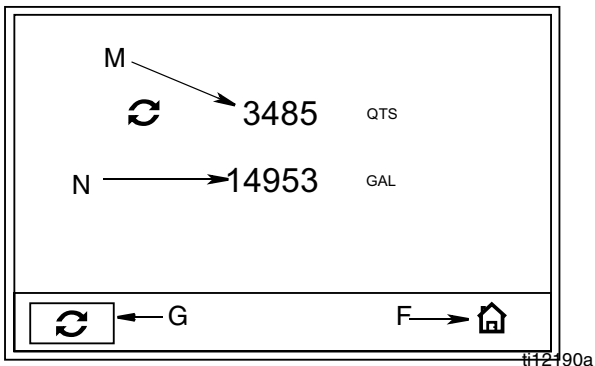


FIG. 26

See FIG. 26 for terms F, G, M - P

F. Home Icon: Returns user to Home Screen.

G. Reset: Resets counter (M) to zero.

M. Resettable Total: Shows cumulative amount that has been dispensed in all modes. Can be reset to zero at any time with Reset button (G).

N. Total: Shows cumulative amount that has been dispensed in all modes for the life of the unit. Cannot be reset.

When the Total (N) reaches 999,999 the count resets automatically to 000.

To display Totals Screen:

If the display was asleep, press any button to wake up the display.

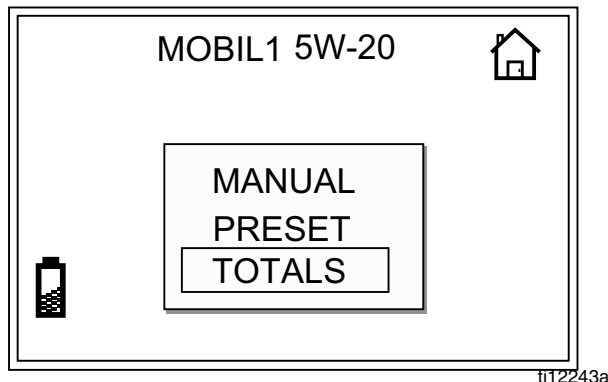


FIG. 27

1. From HOME screen, use the UP or DOWN ARROWS to select TOTALS (FIG. 27).
2. Press center, ENTER button to confirm selection. The Totals screen (FIG. 26) appears.
3. To reset Resettable Total field (M) to zero, use LEFT or RIGHT ARROW to move cursor over RESET button (G).
4. Press center ENTER button to reset the displayed amount in field M to zero.

Troubleshooting



- **Relieve pressure**, page 9, before you check or repair the meter. Be sure all other valves, controls and pump are operating properly.
- When calling for Technical Assistance you may be asked to provide the Software Version that is being used by your meter. Refer to FIG. 10, page 13, item #1 for help determining where this information is shown on your meter.

Problem	Cause	Solution
Battery icon is blinking.	Batteries are low.	Replace batteries, page 29.
Display does not activate.	Batteries are defective.	Replace batteries, page 29.
	Electronic control is malfunctioning.	Replace the electronic bezel assembly. (See Manual Meters Parts page 36 or Preset Meters Parts page 38 to identify which kit is required for your meter).
Cannot read display	Contrast is set too high or too low to be viewed in work area	Adjust contrast. See Adjusting Screen Contrast Using LEFT or RIGHT ARROWS, page 12.
Slow or no fluid flow.	Filter is clogged.	<ol style="list-style-type: none"> 1. Relieve pressure, page 9. 2. Clean or replace filter. Order Filter Kit 255885. 3. If the problem remains, contact your Graco distributor for repair or replacement.
	Pump pressure is low.	Increase pump pressure.
	Twist lock nozzle not fully open.	Aim nozzle into bucket or rag. Fully open nozzle. Do not trigger meter when nozzle is closed! If you do accidentally trigger the meter with the nozzle closed, point nozzle into a waste bucket and open the nozzle to relieve pressure and expel built up fluid.
	Shut-off valve is not fully open.	Fully open shut-off valve.
	Foreign material is jammed in the meter housing.	Contact your Graco distributor for repair or replacement.
Displayed dispensed amount is not accurate.	Unit needs to be calibrated for the fluid that is being dispensed.	Calibrate the meter for the fluid that is being dispensed. See Calibrate Screen, page 16.
Meter leaks from cover/control.	Poor seal at metering cover chamber.	Contact your Graco distributor for repair or replacement.

Problem	Cause	Solution
Preset Models only - Trigger does not reset sufficiently to dispense fluid.	Excessive dirt buildup is causing trip rod to stick.	Clean trip rod or replace (page 30). Order Kit 255889.
Meter leaks from twist lock nozzle. <ul style="list-style-type: none"> It is important to distinguish between the two causes of this problem. A new nozzle will NOT correct a fluid leak caused by a faulty valve. 	Twist lock nozzle has a damaged seal.	Replace nozzle. See Step 1 in Installation Procedure, page 11.
	Valve has damaged or obstructed seals.	Clean valve stem and o-rings or replace. Order Kit 16F811.
Meter leaks from swivel.	Poor swivel/hose connection.	Apply PTFE tape (leave a minimum 2 engaged threads uncovered for electrical continuity) or sealant to threads of hose and tighten the connection. See Step 3 in Installation Procedure, page 10.
	Poor swivel/meter housing connection.	Torque the fitting to 20-25 ft.-lbs.
	Swivel seals have deteriorated and leak.	Replace swivel.
Unit does not stop dispensing when assumed preset amount is dispensed.	Valve is dirty.	Clean valve.
	Low battery.	Replace batteries, page 29.
	Solenoid not functioning (Preset only).	Replace solenoid.

Error Codes

Error codes are listed below. Even in an error condition the unit keeps track of the amount dispensed. With any error code displayed you can:

- Select Manual option on Home Screen.

Error code is cleared. Unit switches to Manual mode and dispensed amount is displayed.

- Select reset option.

Error code is cleared, Unit switches to Auto mode and the present amount is displayed.

Error Code	Cause	Solution
Err 1	Battery voltage is low	Change battery, page 29.
Err 2	Switch Error: Error occurred with pick-up in internal gear. or Unit was dropped or unit encountered excessive vibration during shipping.	Ensure that your flow rate is not higher than 14 gpm (37.8 lpm). For further assistance, contact your Graco distributor. Select Reset, item G, page 21.
Err 4	Flow has continued after it should have shut off. or Flow has occurred in lockout condition.	Check for low battery symbol and replace batteries if indicated, page 29. For further assistance, contact your Graco distributor. Navigate to Home screen. Then re-enter Dispense Screen.
Err 5	<i>In Manual Mode only.</i> The unit has dispensed the shut-off default amount and has stopped fluid flow.	Select Reset, item G, page 21 and dispense again. To change the shut-off default amount, see Units/Limits Screen, page 15.
Err 6	A present dispense amount of zero was entered for the dispense or is stored as the default and a Preset dispense was attempted.	Enter an amount that is not zero. See Preset Dispense Screen, page 22.
Err7	Battery voltage is too low. or CAP ERROR: Error has occurred in control.	Change battery, page 29. Replace the electronic bezel assembly. (See Manual Meters Parts page 36 or Preset Meters Parts page 38 to identify which kit is required for your meter).

Service

See Parts List, page 43, for reference numbers included in the following Service instructions.

Replacing the Battery

<ul style="list-style-type: none"> Only use the size and type of batteries specified in this manual. <p>Batteries required to meet life expectancy:</p> <ul style="list-style-type: none"> Energizer E91 <ul style="list-style-type: none"> Be sure to follow the correct polarity when installing batteries in the battery compartment (FIG. 28). Reversed batteries may damage this meter. Do not mix different types of batteries together or old batteries with fresh ones. Always replace all 4 batteries with 4, fresh, new batteries. 						

The low battery and dead battery displays are explained in the Troubleshooting Table, page 26.

To change the battery:

- Press firmly on battery compartment cover. Using a flat screwdriver turn latch screw counter-clockwise 1/2 turn.
- Remove the battery compartment cover and batteries.
- Install new batteries. See FIG. 28 for battery orientation.

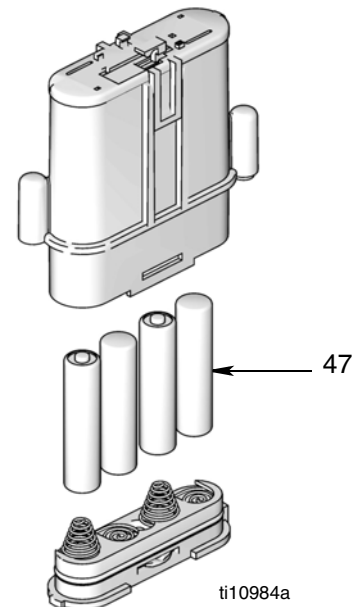


FIG. 28

- Replace cover. The cover is designed to only fit on battery compartment one way. The notch (a) on cover fits into slot (b) on compartment. (FIG. 29).

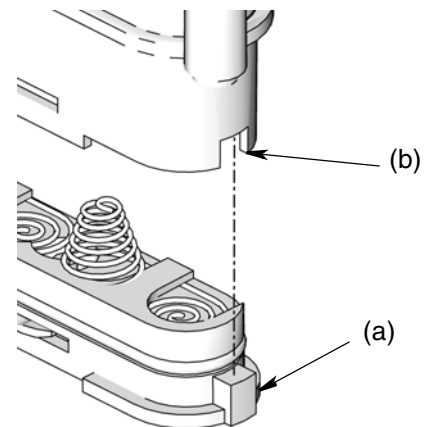
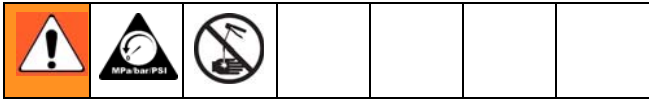


FIG. 29

- Press down firmly on cover. Using a flat screwdriver turn latch screw clockwise 1/2 turn.

Trip Rod Repair

(SDP5 & SDP15 Meters Only)



Disassembly

1. Relieve Pressure, page 9.
2. Use a Torx (T20) wrench to remove 4 corner screws (A) located on the bottom of the meter (FIG. 30). Keep these screws for reassembly.

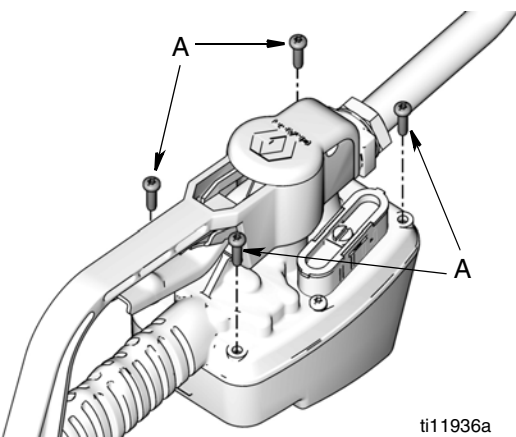



FIG. 30

ti11936a

3. Turn meter over and tilt cover back (FIG. 31).

 You will not be able to completely remove the cover until you disconnect the leads to the battery, solenoid and remove the reed switch PCB.

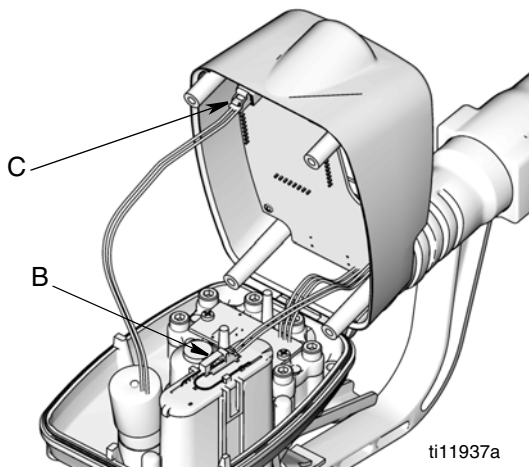


FIG. 31

ti11937a

4. With your finger, **carefully** lift up clip (D) to disconnect battery lead (B) from battery module.

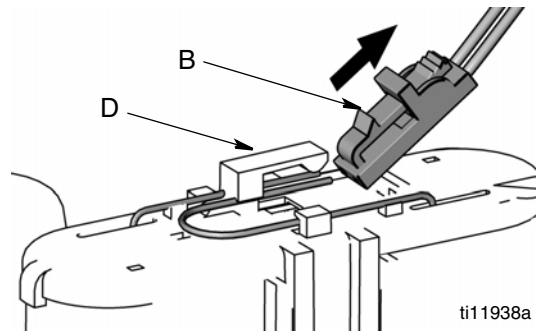
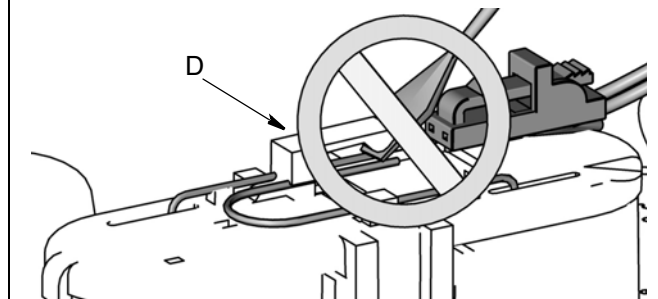


FIG. 32

ti11938a

NOTICE

Do not use a screw driver or any other tool to lift up clip (D) when disconnecting battery lead (B) from battery module. If the clip is damaged or broken it cannot be repaired; you will have to replace the battery module. Order Part No. 255197.



5. Unsnap solenoid lead (C) (FIG. 33).

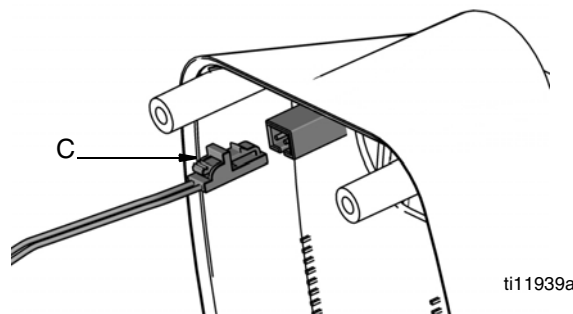


FIG. 33

ti11939a

- Remove two screws (D) holding reed switch board to the cover plate (FIG. 34). Keep these screws for reassembly. Remove cover assembly.

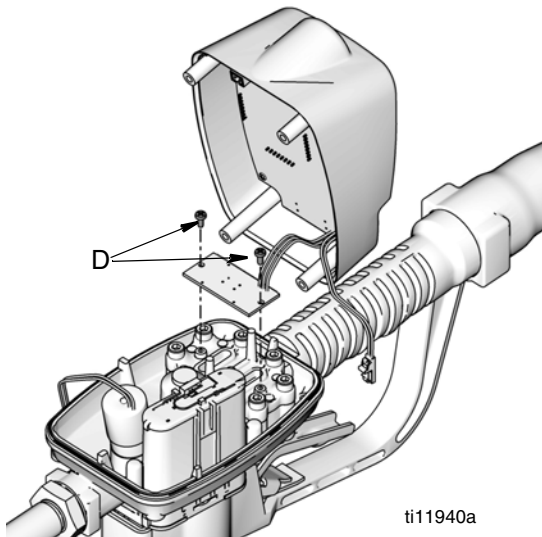


FIG. 34

- Remove and discard o-ring (5) (FIG. 35).

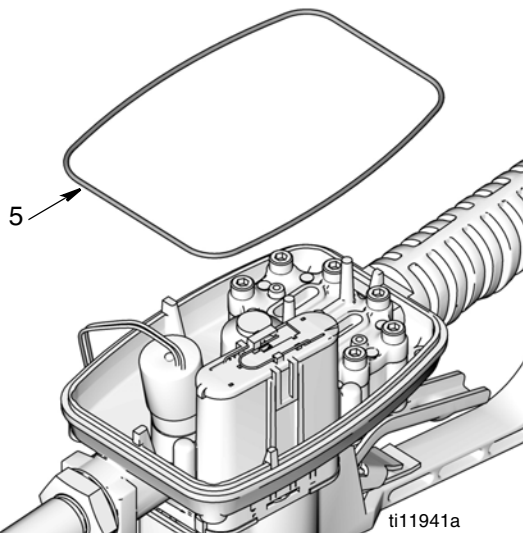


FIG. 35

- Remove guard (9) by inserting your thumb or finger behind the cover and pry it loose. Then slide guard down and out of groove on housing (FIG. 36).

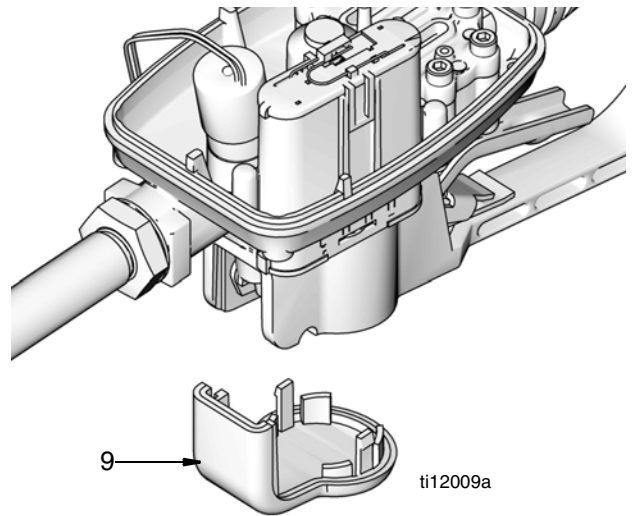


FIG. 36

- Unscrew solenoid (12) and remove from meter housing (FIG. 37). If necessary, a pliers can be used to loosen solenoid.

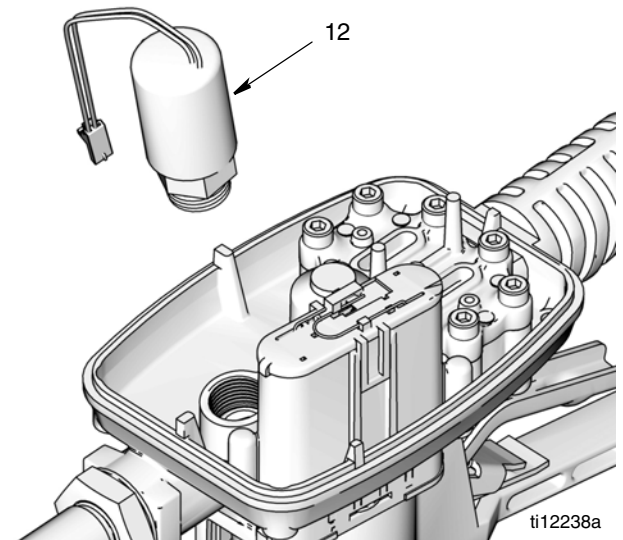


FIG. 37

10. Place meter in a vise as shown in FIG. 38. Use new trip rod from your kit (2) or a non-metal rod or dowel to push trip rod through meter housing (FIG. 38 and FIG. 39) far enough to access pin (19) holding together trip rod and trigger.

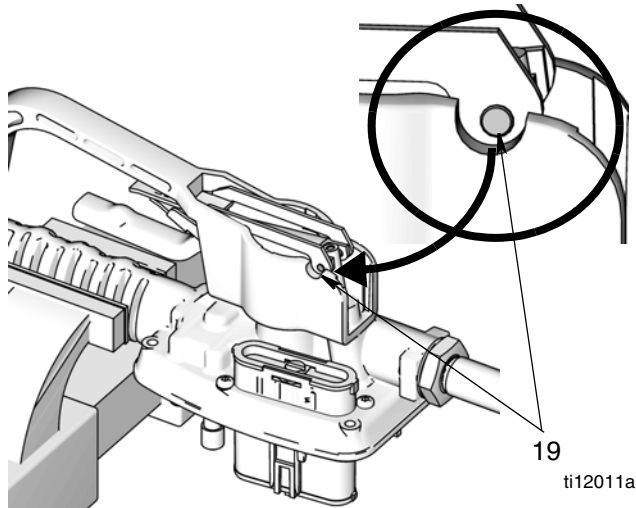


FIG. 38

11. Use a pick to push pin (19) out (FIG. 39).

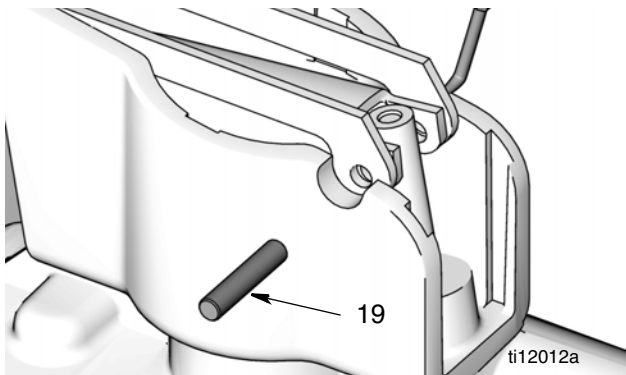


FIG. 39

12. Remove trigger assembly (6) from meter housing.

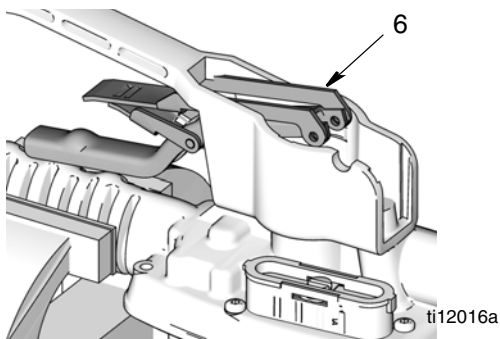



FIG. 40

13. Remove trip rod assembly from meter housing.

 Be careful when you remove the trip rod assembly. Cover the balls with your fingers or a rag to prevent them from falling out.

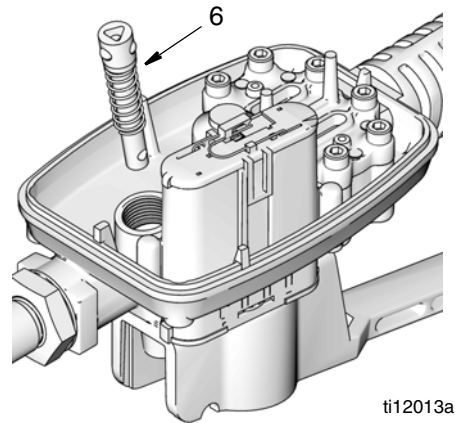


FIG. 41

Cleaning Trip Rod

- a. If the trigger does not reset sufficiently to dispense fluid, clean trip rod and spring with a soft brush and cleaning fluid such as mineral spirits.
- b. Inspect trip rod and spring. If damaged, replace using Trip Rod Replacement Kit 255889.

Reassembly

Use all the new parts provided in the kit. Do not reuse the old parts.

1. Insert balls (3) in trip rod (2) (FIG. 42).
2. Slide spring (1) over trip rod (2) (FIG. 42).

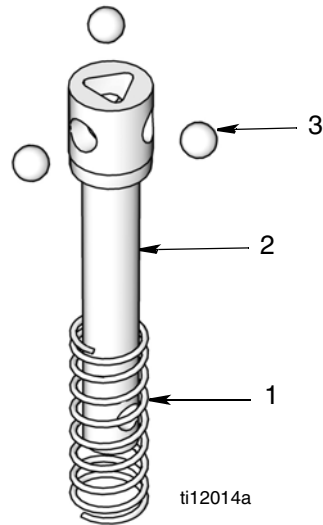


FIG. 42

3. Insert trip rod assembly in opening in meter housing (FIG. 43).

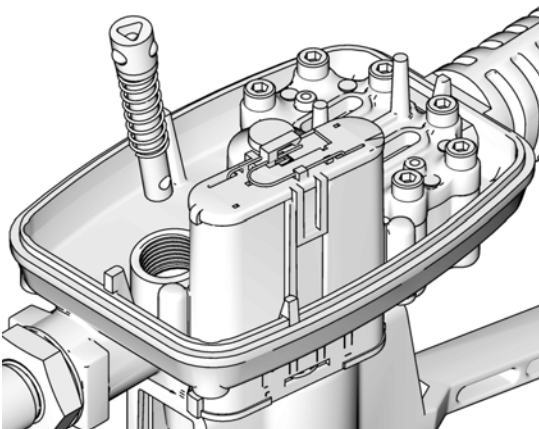


FIG. 43

4. Turn meter over and place in vise. Align holes in trigger assembly with holes in trip rod (2). Use the old trip rod or a non-metal rod or dowel to push trip rod up and out of the meter housing (FIG. 44) far enough to see hole for pin (19) to slide into, however, **do not install pin in this step.**

5. Install trigger assembly (8) (FIG. 44). Push pin (19) through holes in trigger and trip rod assembly.

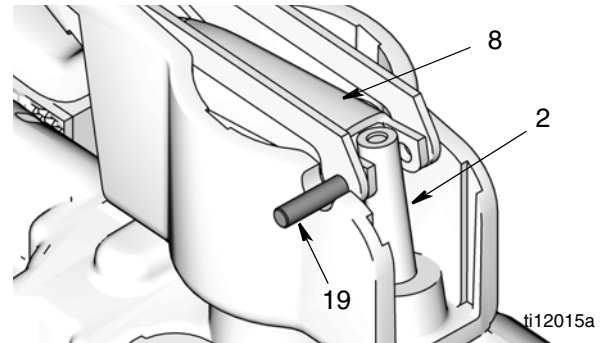


FIG. 44

6. Install solenoid (12). Finger tighten securely.

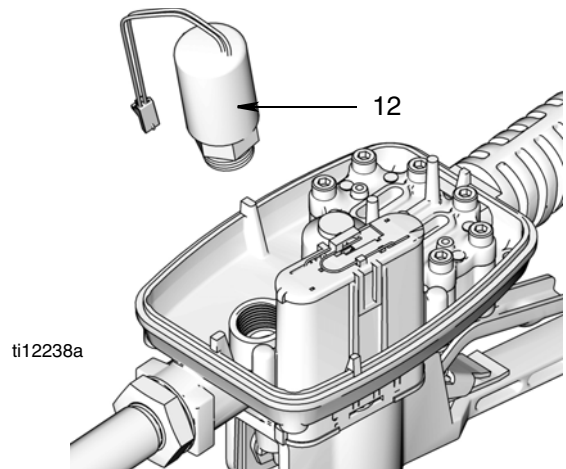


FIG. 45

7. Install o-ring (5).

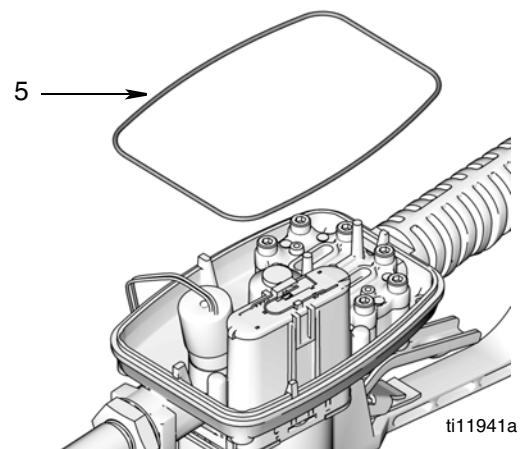


FIG. 46

8. Reinstall reed switch board in meter housing. Use 2 screws (D) to secure reed switch PCB to cover plate. Tighten screws until they bottom out.

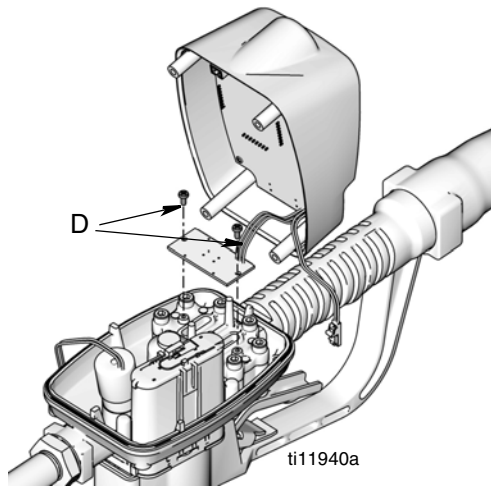


FIG. 47

9. Reconnect lead (B) to battery by carefully sliding connector over battery terminals (E) until it snaps securely into place under clip (D) (FIG. 48).

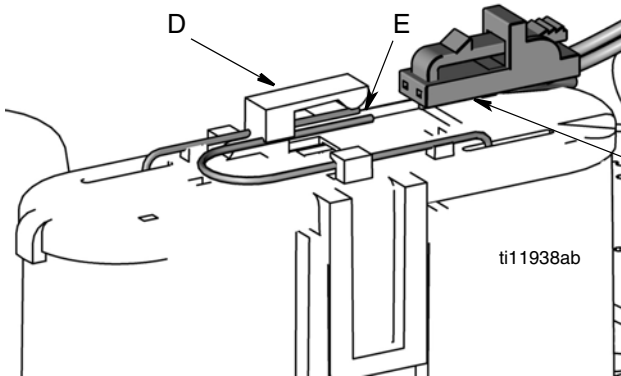


FIG. 48

NOTICE

Do not use a screw driver or any other tool to lift up clip (D) when reconnecting battery lead (B). If the clip is damaged or broken it cannot be repaired; you will have to replace the battery module. Order Part No. 255197.

A technical drawing showing a close-up of the battery terminal area. A screwdriver is shown attempting to lift the clip, labeled 'D', which is holding the battery lead. A large 'X' is drawn over the screwdriver and the clip, indicating that this action is prohibited. The drawing is labeled 'ti11939a'.

10. Reconnect solenoid lead (C) (FIG. 49).

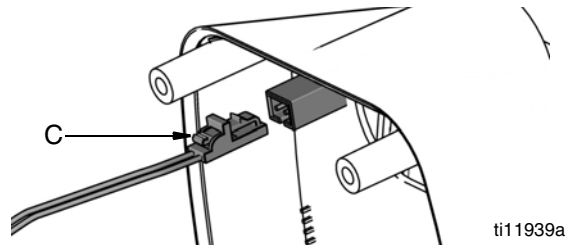


FIG. 49

11. Position cover over meter housing.

NOTICE

When replacing cover, be careful not to pinch wires.

12. Replace 4 screws (A). Torque each to 15-25 inch pounds.

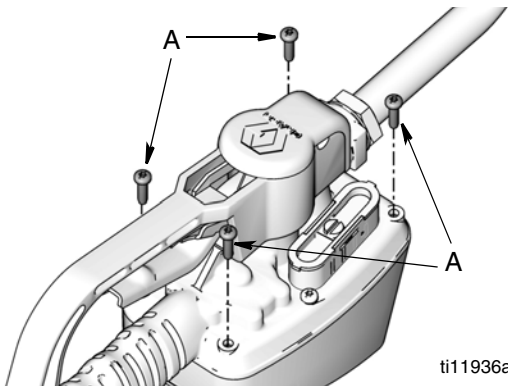


FIG. 50

13. Install guard (9).

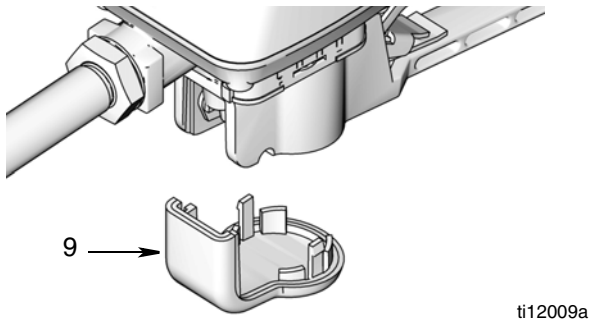




FIG. 51

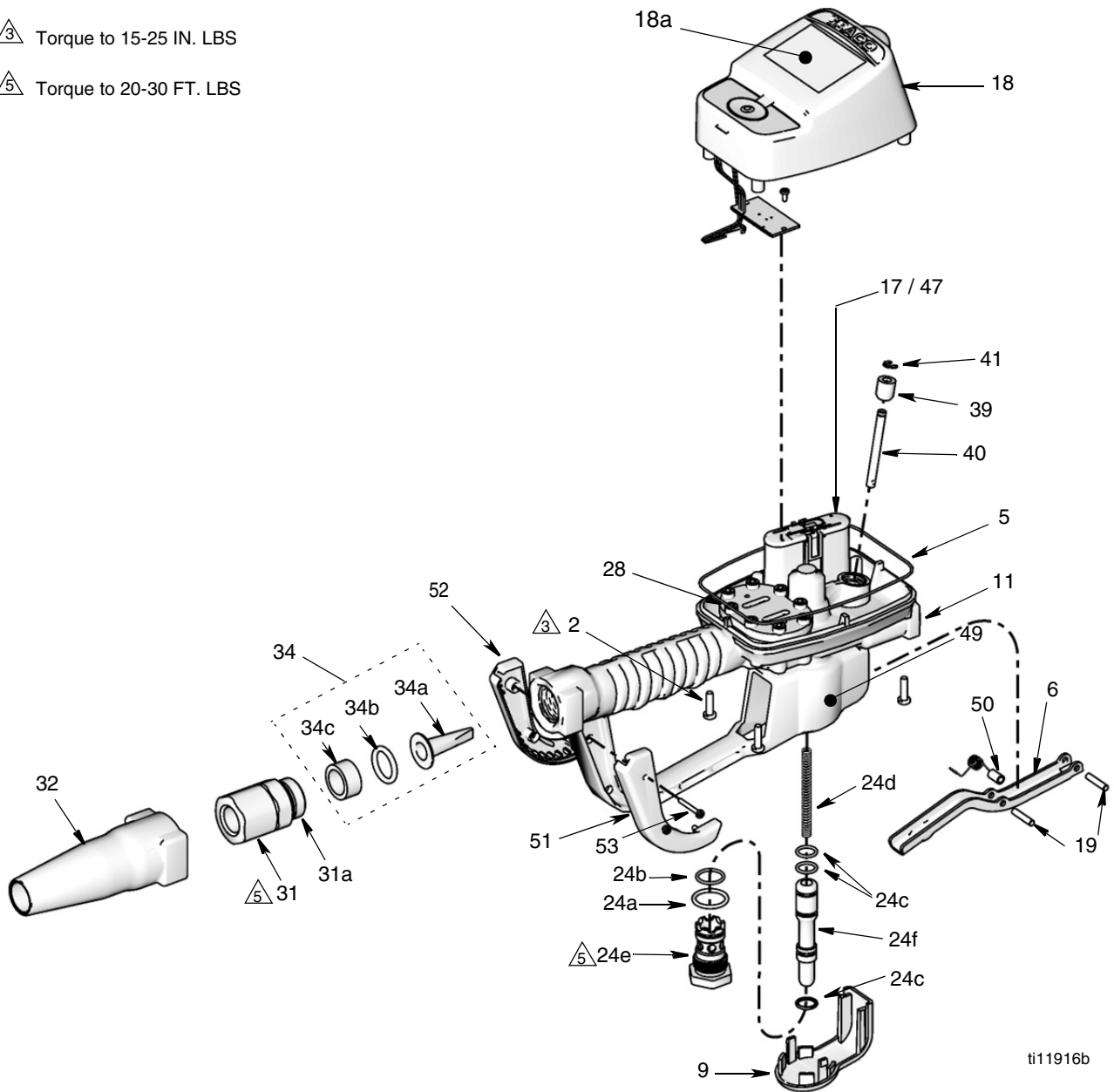
SDM5 & SDM15 Manual Meters Parts

Ref	Part	Description	Qty	Ref	Part	Description	Qty
2	115477	SCREW, mach, torx pan hd	6	15T368	BOOT, swivel, 3/4" hose, blue, NPT, BSPT		1
5	120812	O-RING, seal	1	15T369	BOOT, swivel, 3/4" hose, green, NPT, BSPT		1
6	15K418	TRIGGER, meter	1	15T370	BOOT, swivel, 3/4" hose, yellow, NPT, BSPT		1
9	15K464	GUARD, bumper	1	125961	BOOT, swivel, inlet, black, BSPP		1
11		HOUSING, meter	1	126115	BOOT, swivel, inlet, red, BSPP		1
17	255197	MODULE, battery	1	126116	BOOT, swivel, inlet, blue, BSPP		1
18	256493	KIT, repair, electronic bezel, includes 18a and instruction manual 312942		126117	BOOT, swivel, inlet, green, BSPP		1
18a		LABEL, control, overlay	1	126118	BOOT, swivel, inlet, yellow, BSPP		1
19	120850	PIN, dowel M4	2	34	255885	KIT, filter, includes 34a-34c	1
24	16F811	KIT, repair, valve, spring and seals includes 24a-24f and instruction manual 312939		34a	FILTER, wire, 40 mesh		10
24a		PACKING, o-ring	1	34b	PACKING, o-ring		10
24b		PACKING, o-ring	1	34c	SPACER, strainer		10
24c		O-RING,	3	39	15R057	BUSHING, stationary, rod	1
24d		SPRING, compression 6.1 x 76mm	1	40	15R056	ROD, stationary	1
24e		CARTRIDGE, valve	1	41	115999	RING, retaining	1
24f		STEM, valve	1	47	121413	BATTERY, pkg, 4 count, alkaline, AA (page 29)	1
28	120853	PIN, dowel	1	49▲	15T259	LABEL, CE	1
31	247344	SWIVEL, straight, 1/2-14 NPT, includes 31a (used with 255348, 255349, 255350, 255802, 255803, 255804, 256836, 256837)	1	50	15T492	SPACER, 1/4 OD x 0.9 th	4
	247345	SWIVEL, straight, 3/4-14 NPT includes 31a (used with 255800, 255801)	1	51	15T603	GUARD, right	1
	24H098	SWIVEL, straight, 1/2-14 BSPP, includes 31a (used with 24H108, 224H110, 24H112, 24H130, 24H132, 24H150, 24H152)	1	52	15T604	GUARD, left	1
	24H100	SWIVEL, straight, 3/4-14 BSPP, includes 31a (used with 24H126, 24H128)	1	53	117436	SCREW, thd forming	2
	24H097	SWIVEL, straight, 1/2-14 BSPT, includes 31a (used with 24H109, 24H111, 24H113, 24H131, 24H133, 24H151, 24H153)	1				
	24H099	SWIVEL, straight, 3/4-14 BSPT includes 31a (used with 24H127, 24H129)	1				
31a	105765	O-RING	1				
32	15T366	BOOT, swivel, 3/4" hose, black, NPT, BSPT (standard with meter)	1				
	15T367	BOOT, swivel, 3/4" hose, red, NPT, BSPT	1				

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

 Torque to 15-25 IN. LBS


 Torque to 20-30 FT. LBS




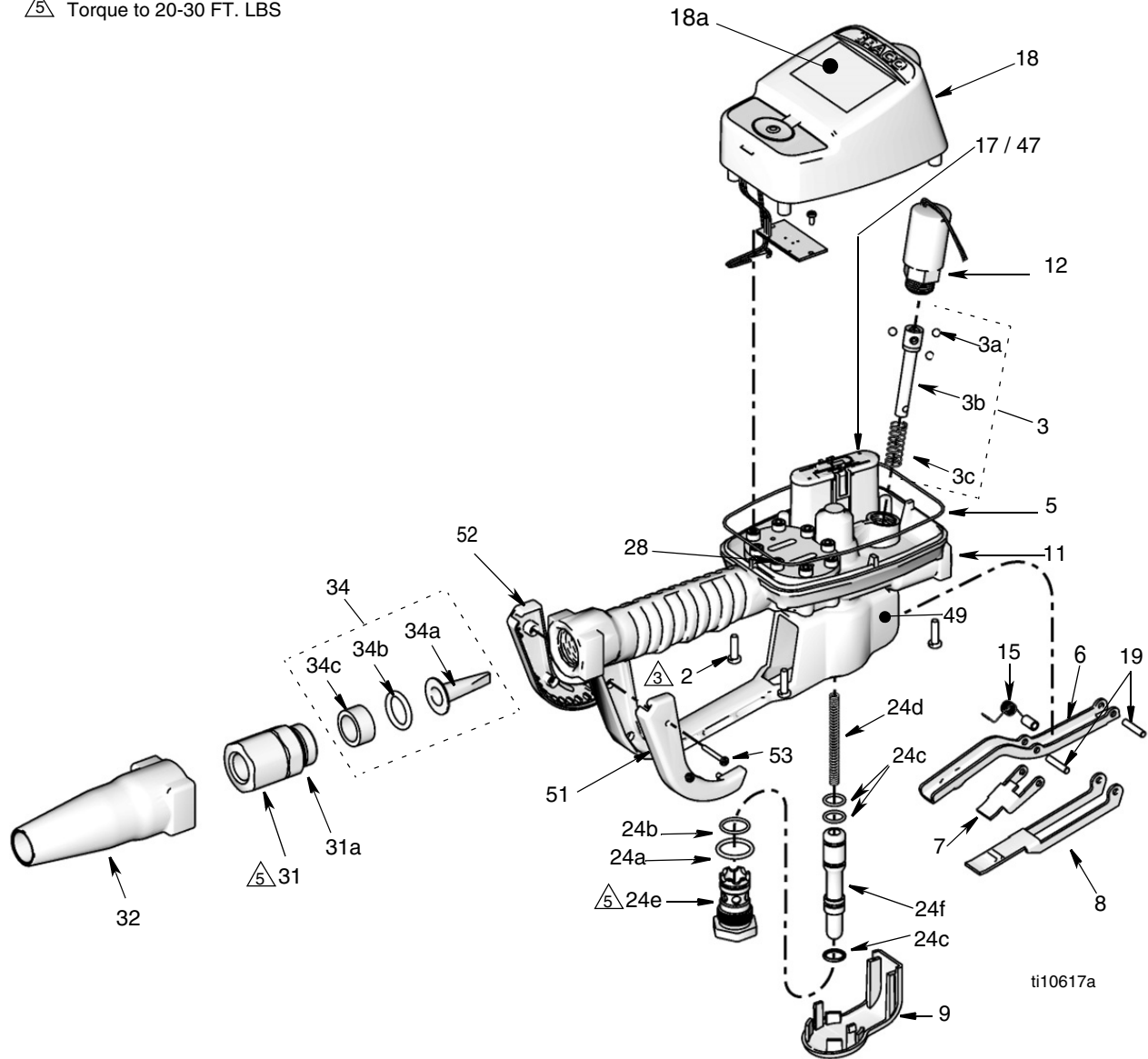
ti11916b

SDP5 & SDP 15 Preset Meters Parts

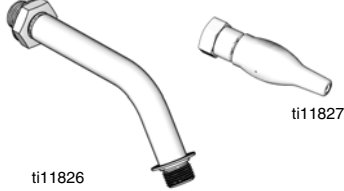
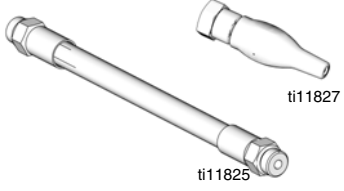
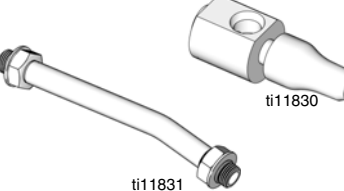
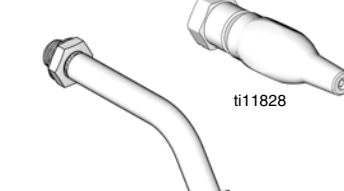
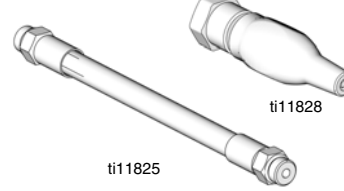
Ref	Part	Description	Qty	Ref	Part	Description	Qty
2	115477	SCREW, mach, torx pan hd	6	15T367	BOOT, swivel, 3/4" hose, red, NPT, BSPT		1
3	255889	KIt, repair, trip rod, includes 3a-3c and instruction manual 312944	1	15T368	BOOT, swivel, 3/4" hose, blue, NPT, BSPT		1
3a		BALL, 5 MM, carbide	3	15T369	BOOT, swivel, 3/4" hose, green, NPT, BSPT		1
3b		ROD	1	15T370	BOOT, swivel, 3/4" hose, yellow, NPT, BSPT		1
3c		SPRING, compression 10.67 mm	1	125961	BOOT, swivel, inlet, black, BSPP		1
5	120812	O-RING, seal	1	126115	BOOT, swivel, inlet, red, BSPP		1
6	15K418	TRIGGER, meter	1	126116	BOOT, swivel, inlet, blue, BSPP		1
7	15K443	ARM, trip	1	126117	BOOT, swivel, inlet, green, BSPP		1
8	15K446	PLATE, ratchet	1	126118	BOOT, swivel, inlet, yellow, BSPP		1
9	15K464	GUARD, bumper	1	34	255885	KIT, filter, includes 34a-34c	1
11		HOUSING, meter	1	34a		KIT, filter, wire, 40 mesh	10
12	15W093	SOLENOID	1	34b		PACKING, o-ring	10
15	15K602	SPRING, torsion	1	34c		SPACER, strainer	10
17	255197	MODULE, battery	1	47	121413	BATTERY, pkg, 4 count, alkaline, AA (page 29)	1
18	256494	KIT, repair, electronic bezel, includes 18a and instruction manual 312942	1	49▲	15T259	LABEL, CE	1
18a		LABEL, control, overlay	1	51	15T603	GUARD, right	1
19	120850	PIN, dowel M4	2	52	15T604	GUARD, left	1
24	16F811	KIT, repair, valve and seal, includes 24a-24f and instruction manual 312939		53	117436	SCREW, thd forming	2
24a		PACKING, o-ring	1	▲ Replacement Danger and Warning labels, tags and cards are available at no cost.			
24b		PACKING, o-ring	1				
24c		PACKING, o-ring	3				
24d		SPRING, compression 6.1 x 76mm	1				
24e		CARTRIDGE, valve	1				
24f		STEM, valve	1				
28	120853	PIN, dowel	1				
31	247344	SWIVEL, straight, 1/2-14 NPT, includes 31a (used with 255200, 255351, 255352, 255355, 255356, 256838, 256839)	1				
	247345	SWIVEL, straight, 3/4-14 NPT includes 31a (used with 255353, 255354)	1				
	24H098	SWIVEL, straight, 1/2-14 BSPP, includes 31a (used with 24H106, 224H114, 24H116, 24H122, 24H124, 24H154, 24H156)	1				
	24H100	SWIVEL, straight, 3/4-14 BSPP, includes 31a (used with 24H118, 24H120)	1				
	24H097	SWIVEL, straight, 1/2-14 BSPT, includes 31a (used with 24H107, 24H115, 24H117, 24H123, 24H125, 24H155, 24H157)	1				
	24H099	SWIVEL, straight, 3/4-14 BSPT includes 31a (used with 24H119, 24H121)	1				
31a	105765	O-RING	1				
32	15T366	BOOT, swivel, 3/4" hose, black (standard with meter)	1				

 Torque to 15-25 In. LBS

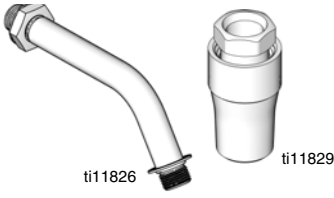
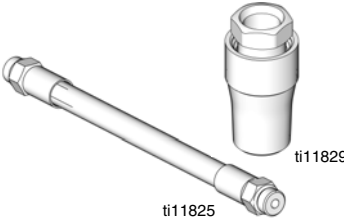
 Torque to 20-30 FT. LBS



Nozzle (33) and Extension (20) Kits

Part No.	Description	Fluid Type	
255852*	Automatic, quick close, non-drip nozzle with rigid extension.	Oil, ATF	
255853*	Automatic, quick close, non-drip nozzle with flexible extension	Oil, ATF	
255854	Quick close, non-drip nozzle with rigid extension	Gear Lube	
255855*	Quick close, non-drip nozzle with rigid extension	Anti-freeze	
255856*	Quick close, non-drip nozzle with flexible extension	Anti-freeze	

*Used for dispensing 5gpm (22.7 lpm) or less.

Part No.	Description	Fluid Type	
255857	High flow, quick close, non-drip nozzle with rigid extension	Oil, ATF, Anti-freeze	
255858	High flow, quick close, non-drip nozzle with flexible extension	Oil, ATF, Anti-freeze	

Nozzle (33) Kits

255459*	Automatic, quick-close, non-drip nozzle	Qty	Oil
	• BODY, nozzle	1	
	• O-RING, packing	1	
	• SPRING, compression	1	
	• O-RING, packing	1	
	• STEM, nozzle, valve	1	
	• SEAT, valve	1	
255460*	Quick-close, non-drip nozzle		Anti-freeze
	• BODY, nozzle	1	
	• SPRING, compression	1	
	• O-RING, packing	1	
	• STEM, nozzle, valve	1	
	• O-RING, packing	1	
	• SEAT, valve	1	
255461	High-flow, quick close, non-drip nozzle		Oil and Antifreeze
	• STEM, nozzle	1	
	• BODY, nozzle	1	
	• O-RING, packing	1	
	• O-RING, packing	1	
	• O-RING, packing	1	
255470	Quick close, non-drip nozzle		Gear Lube
	• Housing	1	
	• Body, nozzle	1	
	• O-RING, packing	1	
	• O-RING, packing	1	
	• Plug, Hollow, hex	1	

*Used for dispensing 5gpm (22.7 lpm) or less.

Thermal Relief Kits (page 8)

Part No. Description

112353 Diaphragm pump for fuel dispense, valve only
 235998 Mini Fire-Ball™ 225, 3:1
 237601 Fire-Ball 425, 3:1
 237893 Fire-Ball 300, 5:1
 248296 Fire-Ball 300, 5:1 (same as 237893 without bung adapter and swivel. Includes 6-foot hose)
 238899 Diaphragm pump
 240429 Fire-Ball 425, 6:1 and 10:1
 248324 Fire-Ball 425, 6:1 and 10:1 (same as 240429 minus bung adapter and swivel. Includes 6-foot hose)

PSI (bar) Rating

50 psi (.34 MPa, 3.4 bar)
 600 psi (4.1 MPa, 41 bar)
 600 psi (4.1 MPa, 41 bar)
 900 psi (6.2 MPa, 62 bar)
 900 psi (6.2 MPa, 62 bar)
 150 psi (1 MPa, 10.4 bar)
 1600 psi (11 MPa, 110 bar)
 1600 psi (11 MPa, 110 bar)

Graco 7-Year Meter and Valve 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 from the date of sale as defined in the table below, repair or replace equipment covered by this warranty and 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.

Graco 7-Year Meter and Valve Extended Warranty	
Components	Warranty Period
Structural Components	7 years
Electronics	3 years
Wear Parts - including but not limited to o-rings, seals and valves	1 year

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 one (1) year past the warranty period, or two (2) years for all other parts.

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

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. Graco reserves the right to make changes at any time without notice.

For patent information, see www.graco.com/patents.

Original instructions. This manual contains English. MM 312865

Graco Headquarters: Minneapolis
International Offices: Belgium, China, Japan, Korea

GRACO INC. AND SUBSIDIARIES • P.O. BOX 1441 • MINNEAPOLIS MN 55440-1441 • USA

Copyright 2008 Graco Inc. All Graco manufacturing locations are registered to ISO 9001.

www.graco.com
Revised May 2018

SDM8™ and SDM18™ Metered Dispense Valves

3A6711F
EN

For dispensing oil, automatic transmission fluid (ATF), gear oils, antifreeze and windshield washer solvent.

Not approved for use in explosive atmospheres or hazardous locations. For professional use only.

See page 6 for model information.

1500 psi (10 MPa, 103 bar) Maximum Working Pressure

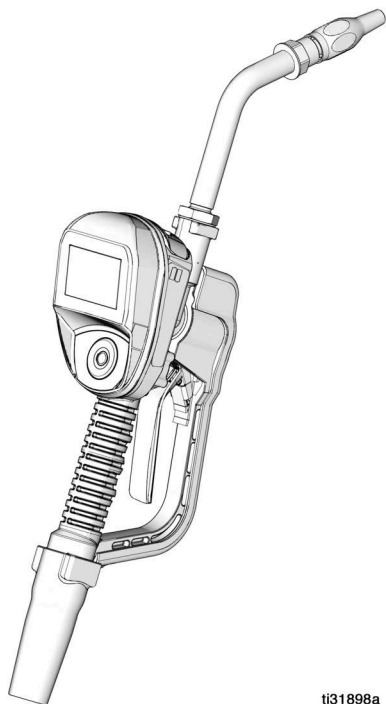


Important Safety Instructions

Read all warnings and instructions in this manual and related system manuals before using the equipment. Save all instructions.

NOTICE

The metered dispense valve is designed to dispense petroleum-based lubricants, windshield washer solvent and antifreeze only. Brake cleaner and/or harsh solvents may damage the plastic components.



ti31898a

Contents

Warnings	3
Models	6
Metered Dispense Valve Overview	7
Navigation Pad	7
Arrows: Move the cursor on the display. 7	
Header Information	7
Sleep / Awake Mode	8
Opening and Closing the Nozzle	8
Mounting Bracket	8
Typical Installation	8
Installation	9
Pressure Relief Procedure	9
Grounding	9
Pre-Installation Procedure	10
Flushing	10
Install the Metered Dispense Valve	11
Install the Extension Tube	11
Install the Nozzle	12
Set Up	13
Calibrate the Metered Dispense Valve	13
Alternate Calibration	14
Operation	16
Menu Screens	17
Main Menu Screen	17
Dispense Screen	17
Total Screen	17
Utility Screen	17
DEVICE INFORMATION	18
Device Information Screen 18	
SET-UP	18
UNIT OF MEASURE	18
BANNER	19
CALIBRATE	19
LANGUAGE	19
LOCK SETTINGS	20
GO BACK	20

RESET	20
GO BACK	20
Service	21
Battery Replacement	21
Troubleshooting	22
Fault Codes	24
Definition of Terms	24
Recycling and Disposal at End of Life	25
Parts	26
Parts	27
Related Kits	27
Technical Specifications	30
California Proposition 65	30
Graco 5-Year Meter and Valve Warranty	31

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



SKIN INJECTION HAZARD

High-pressure fluid from dispensing device, hose leaks, or ruptured components will pierce skin. This may look like just a cut, but it is a serious injury that can result in amputation. **Get immediate surgical treatment.**



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



EQUIPMENT MISUSE HAZARD

Misuse can cause death or serious injury.



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

WARNING



FIRE AND EXPLOSION HAZARD

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



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



PERSONAL PROTECTIVE EQUIPMENT

Wear appropriate protective equipment when in the work area to help prevent serious injury, including eye injury, hearing loss, inhalation of toxic fumes, and burns. Protective equipment includes but is not limited to:

- Protective eye wear, and hearing protection.
- Respirators, protective clothing, and gloves as recommended by the fluid and solvent manufacturer.

Models

Model	Swivel	Extension	Nozzle	Fluid	Max Volumetric Flow Rate	
					GPM	LPM
25M404	1/2 NPT	Rigid	Automatic	Oil	8	30
25M405	1/2 NPT	Rigid	Antifreeze	Antifreeze	8	30
25M406	1/2 NPT	Flexible	Automatic	Oil	8	30
25M407	1/2 NPT	Flexible	Antifreeze	Antifreeze	8	30
25M410	1/2 NPT	Rigid	High Flow	Oil	18	68
25M411	1/2 NPT	Flexible	High Flow	Oil	18	68
25M413	1/2 NPT	Gear Lube	Manual	Gear Lube	5	19
25M415	1/2 NPT	Rigid, open	None	WWS*	8	30
25M416	3/4 NPT	Rigid	High Flow	Oil	18	68
25M417	3/4 NPT	Flexible	High Flow	Oil	18	68
25M419	1/2 BSPP	Rigid	Automatic	Oil	8	30
25M420	1/2 BSPP	Rigid	Antifreeze	Antifreeze	8	30
25M421	1/2 BSPP	Flexible	Automatic	Oil	8	30
25M422	1/2 BSPP	Flexible	Antifreeze	Antifreeze	8	30
25M425	1/2 BSPP	Rigid	High Flow	Oil	18	68
25M426	1/2 BSPP	Flexible	High Flow	Oil	18	68
25M428	1/2 BSPP	Gear Lube	Manual	Gear Lube	5	19
25M430	1/2 BSPP	Rigid, open	None	WWS*	8	30
25M431	3/4 BSPP	Rigid	High Flow	Oil	18	68
25M432	3/4 BSPP	Flexible	High Flow	Oil	18	68
25M434	1/2 BSPT	Rigid	Automatic	Oil	8	30
25M435	1/2 BSPT	Rigid	Antifreeze	Antifreeze	8	30
25M436	1/2 BSPT	Flexible	Automatic	Oil	8	30
25M437	1/2 BSPT	Flexible	Antifreeze	Antifreeze	8	30
25M440	1/2 BSPT	Rigid	High Flow	Oil	18	68
25M441	1/2 BSPT	Flexible	High Flow	Oil	18	68
25M443	1/2 BSPT	Gear Lube	Manual	Gear Lube	5	19
25M445	1/2 BSPT	Rigid, open	None	WWS*	8	30
25M446	3/4 BSPT	Rigid	High Flow	Oil	18	68
25M447	3/4 BSPT	Flexible	High Flow	Oil	18	68

*WWS = Windshield Washer Solvent

Metered Dispense Valve Overview

Metered Dispense Valve Overview

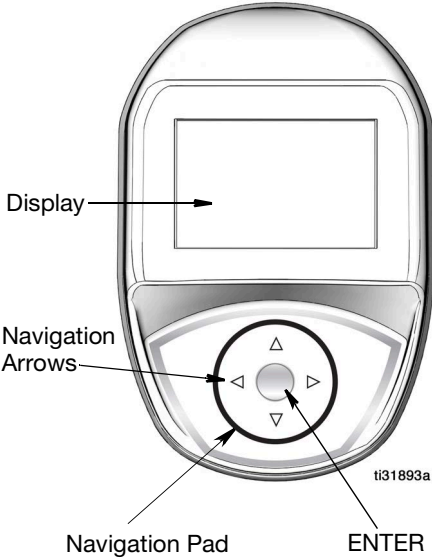


FIG. 1

Navigation Pad

The Navigation Pad (FIG. 1) includes 4 navigation ARROWS (UP, DOWN, LEFT, RIGHT) and a center, ENTER button.

Arrows: Move the cursor on the display.

ENTER button: Used to select or store an entry.

Header Information

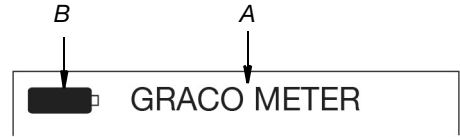


FIG. 2

The following information appears at the top of the Work Offline and Dispense screens.

- A **Banner** - Unique identification. For instructions for assigning a name to the meter, see *Utility Menus, Set-Up, Banner* on page 19.
- B **Battery Indicator** - When the batteries are fully charged, the battery is completely filled in. As the battery discharges, the amount of battery that is filled declines. When the low battery symbol shown in FIG. 3 is shown, replace the batteries. See *Battery Replacement*, page 21.



FIG. 3

Metered Dispense Valve Overview

Sleep / Awake Mode

- **Sleep:** Battery-saving mode.
- **Awake:** To wake up metered dispense valve, press any **ARROW** or the center **ENTER** button on the metered dispense valve's navigation pad.

Opening and Closing the Nozzle

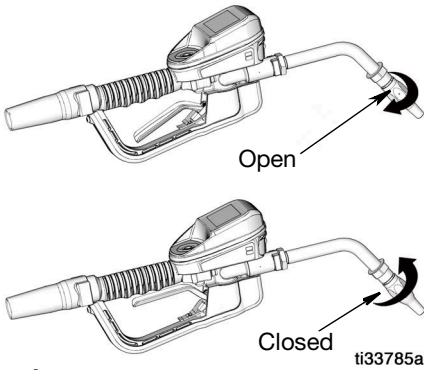


FIG. 4

- To **open** the nozzle, use your hand to rotate the nozzle **clockwise**.
- To **close** the nozzle, use your hand to rotate the nozzle **counter-clockwise**.

Mounting Bracket

Mounting Bracket Kit 249440 is available for mounting the metered dispense valve on a console.

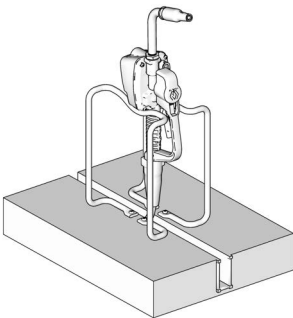


FIG. 5

Typical Installation

The typical installation shown in FIG. 6 is only a guide. It is not a complete system design. Contact your Graco distributor for assistance in designing a system to suit your needs.

The metered dispense valve is not designed for in-line installation.

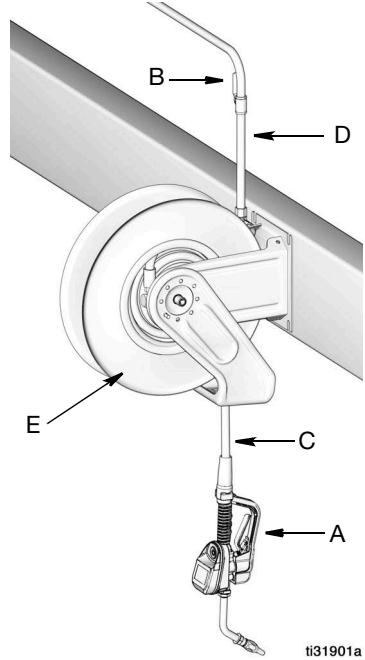


FIG. 6

ITEM	DESCRIPTION
A	Metered Dispense Valve
B	Fluid shut-off valve
C	Hose
D	Hose reel fluid inlet hose
E	Hose reel

A Thermal Relief Kit (not shown) is required. The kit required will vary by pump selected.

Installation

Pressure Relief Procedure



Follow the Pressure Relief Procedure whenever you see this symbol.



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

1. Turn off power supply to the pump or close fluid shut off valve (B).
2. Open nozzle.
3. Trigger the metered dispense valve into a waste container to relieve pressure.
4. Open any bleed-type master air valves and fluid drain valves in the system.
5. Leave the drain valve open until you are ready to pressurize the system.

Grounding

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

Follow manufacturer's recommendations to ground the **pump** and **fluid supply container**.

FIRE HAZARD				
Conductive metal surfaces on the metered dispense valve must not make contact with any positively charged metal surface, including (but not limited to), the starter solenoid terminal, alternator terminal or battery terminal. Such contact could cause electrical arcing and a fire.				

To maintain grounding continuity when flushing or relieving pressure: hold a metal part of the metered dispense valve firmly to the side of a grounded metal pail, then trigger the metered dispense valve.

Hoses: Only use electrically conductive hoses. Check electrical resistance of hoses. If total resistance to ground exceeds 29 megohms, replace hose immediately.

Installation

Pre-Installation Procedure



1. **Relieve pressure**, page 9.
2. Close shut-off valve (B, FIG. 6, page 8).
3. Ground the hose and reel or console. Leave at least two threads bare when using PTFE tape. The bare threads ensure a ground is maintained.

NOTICE

- If this is a new installation or if the fluid lines are contaminated, flush the lines before you install the metered dispense valve. Contaminated lines could cause the metered dispense valve to leak.
 - Never dispense compressed air with metered dispense valve. Dispensing compressed air will damage the metered dispense valve.
4. Flush equipment. See **Flushing**, page 10.

Flushing

The equipment was tested with lightweight oil, which is left in the fluid passages to protect parts. To avoid contaminating your fluid, flush the equipment with a compatible solvent before using it.

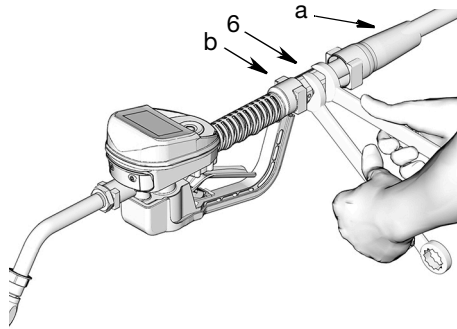


1. Close the fluid shut-off valve (B, FIG. 6, page 8) at each dispense position.
2. Make sure:
 - the main fluid outlet valve at the pump is closed.
 - the air pressure to the pump motor is adjusted to minimize the system flow rate without the metered dispense valve attached.
 - the air valve is open.
3. Slowly open the main fluid outlet valve.
 - a. Place the hose end (with no metered dispense valve connected) into a container for waste oil.
 - b. Secure the hose in the container so it will not come out during flushing.
 - c. If you have multiple dispense positions, first flush the dispense position farthest from the pump and work your way toward the pump.
4. Slowly open the shut-off valve (B) at the dispense position. Flush out a sufficient amount of oil to ensure that the entire system is clean; then close the valve.
5. Repeat Step 4 at all other positions.

Install the Metered Dispense Valve



1. Relieve pressure, page 10.



ti36073a

FIG. 7

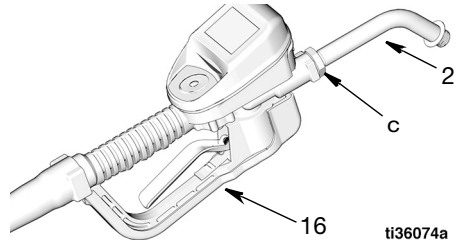
2. Slide the swivel boot (a) back, over the hose, small end first to access the swivel fitting (6) (FIG. 7).
3. Apply thread sealant to the male threads of the hose fitting. Thread the hose fitting (b) into the metered dispense

valve swivel (6). Use two wrenches to tighten securely (FIG. 7).

NOTE: Make sure you let the sealant cure to according to the manufacturer's recommendations before circulating fluid through the system.

Install the Extension Tube

1. Adjust nut (c) on extension (2) so that the maximum thread engagement of the extension can be utilized (FIG. 8).



ti36074a

FIG. 8

2. Thread extension (2) into housing until it bottoms out (FIG. 8).
3. Align extension (2) with metered dispense valve housing and handle (16) (FIG. 8).
4. Firmly tighten nut (c) (FIG. 8).

Installation

Install the Nozzle

1. Thread nozzle (3) onto extension (2) (FIG. 9).

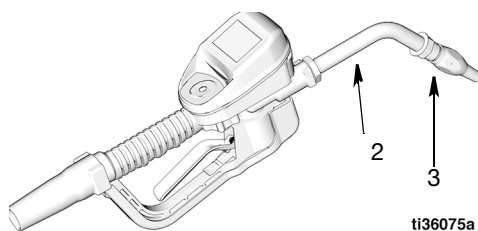


FIG. 9

2. With an open-end adjustable wrench on the flats of the nozzle bushing, tighten firmly (FIG. 10).

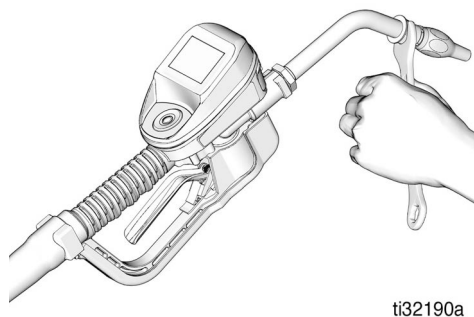


FIG. 10

NOTICE

- To prevent damaging nozzle, *only* tighten nozzle with wrench on flats of the nozzle bushing as shown in FIG. 10.
 - **Do not disassemble the bushing from the nozzle.** Disassembly will affect the performance of the nozzle.
3. Open the automatic twist lock nozzle and all fluid shut-off valves. Start pump to pressurize system.
 4. To ensure dispensing accuracy, purge all air from the fluid lines and metered dispense valve before you use it.
 5. Set the system flow to the desired flow rate. This is typically done by adjusting the pump air pressure.

Set Up

Calibrate the Metered Dispense Valve

NOTE: This calibration procedure requires a **1 quart or 1 liter**, calibrated, volumetric flask.

When the meter is configured to display fluid volume in pints, quarts or gallons, the calibration procedure will require a 1 quart calibrated volumetric flask be used. When the meter is configured in liters, a 1 liter volumetric flask is required for calibration.

The metered dispense valve should be calibrated prior to using it for the first time. Calibrating the metered dispense valve assures you that dispenses are accurate.

Calibration factors can vary due to fluid viscosity and flow rate. Calibrate metered dispense valves for specific fluid at nominal flow rates.

To calibrate the metered dispense valve:

1. If the system is not fully primed, flush the metered dispense valve. See Flushing, page 10.
2. Select the UTILITY MENU option (Fig. 11). (Instructions for accessing Menus are provided in the Menu Screens section of this manual, page 17.)

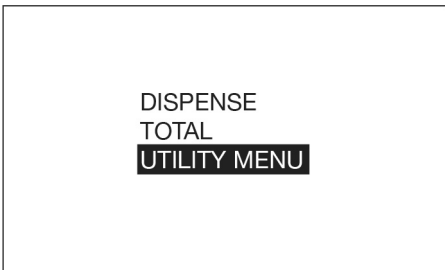


FIG. 11

3. Select the SET-UP option (Fig. 12).

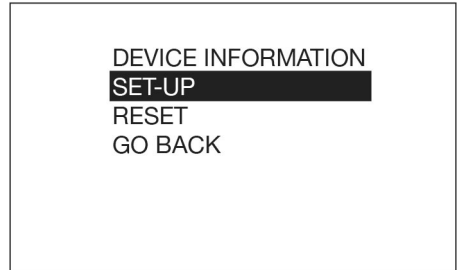


FIG. 12

4. Select the CALIBRATE option (Fig. 13) to display the calibration K-Factor screen shown in Fig. 14.

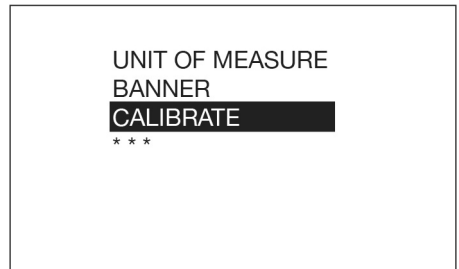


FIG. 13

5. The calibration K-Factor screen shown in Fig. 14 displays.



FIG. 14

Set Up

6. Select ACTIVATE and press the ENTER button. DISPENSE (as shown in FIG. 15) displays on the screen.

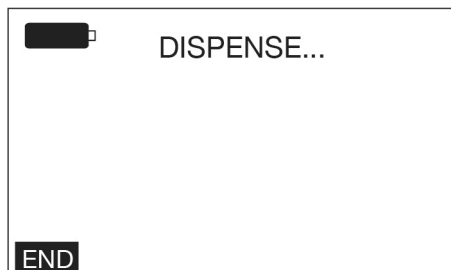


FIG. 15

7. Dispense **exactly 1 quart or 1 liter** of fluid into a clean, calibrated, volumetric flask.

IMPORTANT! The metered dispense valve will not display the volume dispensed. The volume dispensed is only determined by the flask measurement.

8. When **exactly 1 quart or 1 liter** of fluid is dispensed into the flask, select END and press the ENTER button. The new calibration factor displays.
9. Select END and the ENTER button again to complete the operation and save the new calibration factor.



FIG. 16

Alternate Calibration

NOTE: This alternate calibration procedure is used when a **1 quart or 1 liter**, calibrated, volumetric flask is not available.

1. If the system is not fully primed, flush the metered dispense valve. See Flushing, page 10.
2. Dispense a known volume of fluid into a clean, calibrated, volumetric flask. Note this volume as the VOLUME DISPENSED (see Calculating K-Factor, Step 9, page 15).
3. Record the volume displayed on the metered dispense valve. Note this volume as the VOLUME DISPLAYED ON THE metered dispense valve (see Calculating the K-Factor, Step 9, page 15).
4. Select the UTILITY MENU option (FIG. 17).

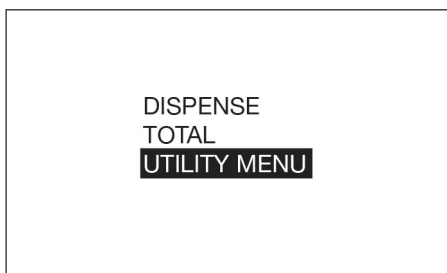


FIG. 17

5. Select the SET-UP option (FIG. 18).

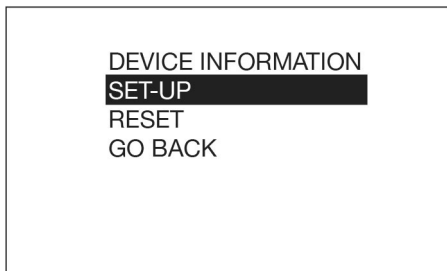


FIG. 18

6. Select the CALIBRATE option.

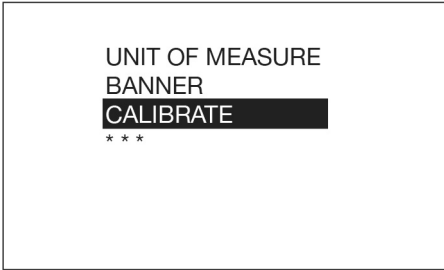


FIG. 19

7. Use the LEFT or RIGHT ARROWS to select +/- and press the ENTER button.

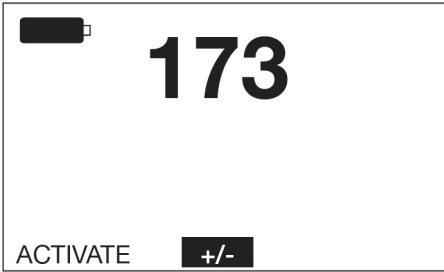


FIG. 20

8. Note the current K-FACTOR is displayed. In the example shown in Fig. 21 the K-FACTOR is 173.

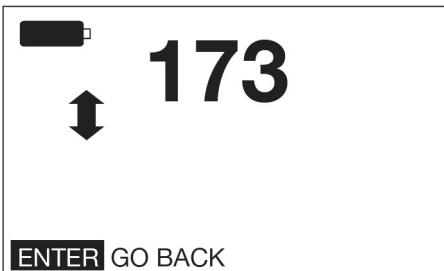


FIG. 21

9. Calculate the new K-Factor using the following equation:

$$K_{\text{new}} = \frac{(K_{\text{current}}) \times (\text{VOLUME DISPLAYED ON METER})}{(\text{VOLUME DISPENSED})}$$

Example:

$K_{\text{current}} = 169$

Volume displayed on metered dispense valve = 0.970 quart

Volume dispensed = 1 quart

$$K_{\text{new}} = \frac{(169) \times (0.970 \text{ quarts})}{(1.0 \text{ quarts})} = 163.9$$

Round to the nearest whole number: 163.9 = 164.

NOTE: The unit of measurement for both volumes must be the same in the above equation.

10. Use the UP or DOWN ARROWS to adjust the K-FACTOR to the K-FACTOR (K_{new}) calculated in Step 9.

See Table 1, page 15 for recommended fluid calibration factors.

NOTE: Your calibration number may vary slightly due to temperature or rate of flow.

Table 1

Fluid	Calibration Factor
Oil (10W30)	173
Gear Lube	173
ATF	173
Antifreeze	150
Windshield Washer Solvent	150

11. Press the ENTER button to complete the calibration operation and save the new calibration factor.

Operation



1. Open nozzle.
2. **IF THE METER IS ALREADY AWAKE:**
On the Main Menu screen, select DISPENSE.

IF THE METER IS NOT AWAKE:

Wake up the metered dispense valve by pressing any button on the metered dispense valve key pad.

3. The Dispense screen displays.
4. Select RESET and then press ENTER to display the volume totalizer and reset the previous dispense.

NOTE: If RESET is not selected/entered, the meter will continue with the previous dispense.

5. Pull the trigger to dispense fluid.

6. When the desired amount of fluid has been dispensed, release the trigger to stop the fluid flow.

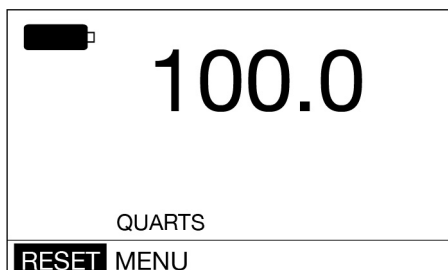


Fig. 22

7. (OPTIONAL) Select RESET and press ENTER to reset the totalizer for the next metered dispense (if desired).
8. (OPTIONAL) Select MENU to return to the main menu.
9. Close nozzle when you have completed dispensing fluid.

Menu Screens

Main Menu Screen

This screen provides access to the main metered dispense valve functions:

- DISPENSE, page 17
- TOTAL, page 17
- UTILITY MENU, page 18

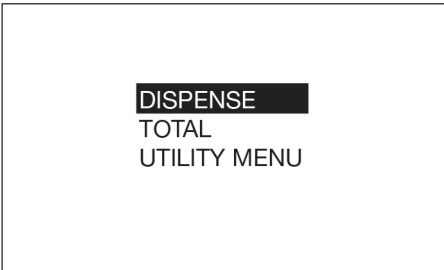


FIG. 23

Dispense Screen

The screen is used for dispensing fluid.

- A** **Volume of fluid dispensed** - as fluid is dispensed, this number increases to reflect the quantity of fluid that is dispensed.
- B** **Unit of measure, US or Metric.** For instructions for changing the units of measure see Utility Menus, Set-Up, Units of Measure on page 18.
- C** **RESET** - Resets the resettable totalizer back to zero.
- D** **MENU** - Takes meter back to Main Menu screen.

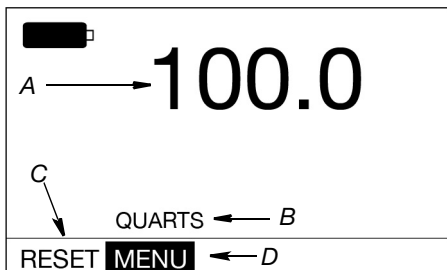


FIG. 24

Total Screen

- E** **Non-Resettable Totalizer** - Lifetime running total of the quantity of fluid dispensed through the meter. The unit of measurement displayed is determined by the Unit of Measurement criteria selected in SET-UP (see SET-UP, page 18). When Pints, Quarts or Gallons are selected, the Unit of Measurement will be shown as Gallons. When Liters are selected, the Unit of Measurement will be shown as Liters.
- F** **Resettable Totalizer** - Running total of the quantity of fluid dispensed through the meter since the last time the total was reset. The unit of measurement displayed is determined by the Unit of Measurement criteria selected in SET-UP (see SET-UP, page 18).
- G** **GO BACK** - Takes meter back to Main Menu screen.
- H** **RESET** - Resets the Resettable Total (F) back to zero.

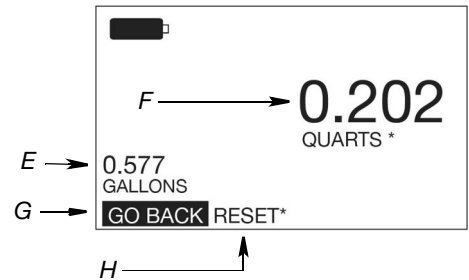


FIG. 25

Utility Screen

There are four functions available from the Utility Menu Screen.

NOTE: Some screens provide additional function screens when selected.

- DEVICE INFORMATION, page 18
- SETUP, page 18
- RESET, page 20
- GO BACK, page 20

Menu Screens

To select one of the Utility Menu screens:

1. Use the UP or DOWN ARROW button to select the desired screen from the list.
2. When the screen is highlighted, press the ENTER button.

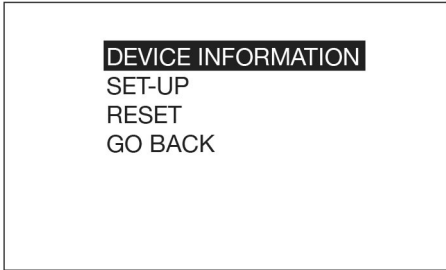


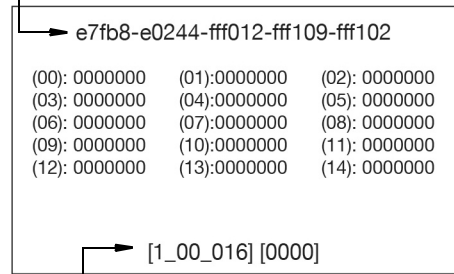
FIG. 26

DEVICE INFORMATION

The Device Information Screen is used for diagnostics only.

Device Information Screen

*Unique device
identification number*



*Indicates meter firmware version
1_00_016*

FIG. 27

SET-UP

The SET-UP Menu includes the following options: UNIT OF MEASURE, BANNER, CALIBRATE and ***.

On the second SET-UP screen (accessed by selecting the ***) LANGUAGE and LOCK

SETTINGS are also available. This screen also includes a GO BACK option to return to the user to the UTILITY Menu screen.

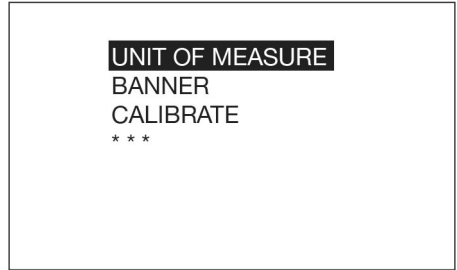


FIG. 28

UNIT OF MEASURE

The meter is factory-set to quarts. The UNIT OF MEASURE screen is used to configure the meter to dispense in PINTS, QUARTS, GALLONS OR LITERS. This screen also includes a GO BACK option to return to the user to the Utility Menu screen.

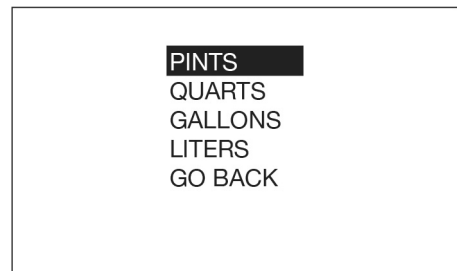


FIG. 29

1. Use the UP or DOWN ARROW button to select the desired unit of measure from the displayed list: PINTS, QUARTS, GALLONS or LITERS.
2. When the desired unit of measure is highlighted, press the ENTER button.

BANNER

The banner screen is used to assign a name to the meter, such as Bay 1, Bay 2, etc. This is useful in shops that have more than one meter in their system.

Names can be made up of any combination of letters or numbers.

The maximum number of characters is 15.

The banner is only displayed on the initial dispense screen and the TOTAL screen.

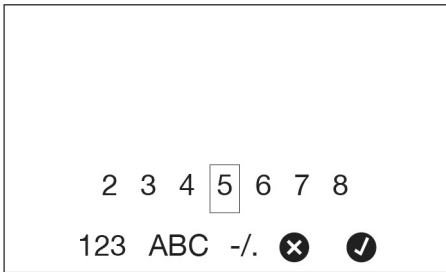


FIG. 30

1. Use the UP, DOWN, LEFT and RIGHT ARROW buttons to select letters and numbers needed to name the meter.
2. You must push the ENTER button after each desired letter or number is highlighted to select it.
3. When you have finished naming the meter, select the ✓ symbol to return to the SET UP Menu Screen.

CALIBRATE

Calibrating the metered dispense valve assures you that dispenses are accurate. See Calibrate the Metered Dispense Valve instructions beginning on page 13.

Indicates there are additional functions; LANGUAGE, LOCK SETTINGS and GO BACK available on the next screen.

LANGUAGE

The meter is factory-set to English. On the first language screen it can be configured to display in ENGLISH, FRENCH, GERMAN, ITALIAN, ***.

On the second language screen (accessed by selecting the ***) POLISH,

PORTUGUESE, RUSSIAN AND SPANISH are also available. This screen also includes a GO BACK option to return to the user to the SET UP Menu screen.

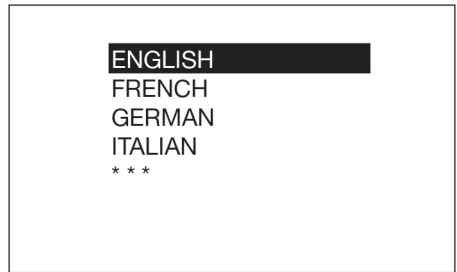


FIG. 31

1. Use the UP or DOWN ARROW button to select the desired unit of measure from the displayed list: ENGLISH, FRENCH, GERMAN, ITALIAN, ***.
2. When the desired unit of measure is highlighted, press the ENTER button.

Menu Screens

LOCK SETTINGS

Prevents unauthorized access to meter settings.

To lock the meter:

1. Use the DOWN ARROW button to select LOCK SETTINGS in the list.



Fig. 32

To UNLOCK the meter:

1. Use the DOWN ARROW button to highlight RESET in the list.

DO NOT PRESS THE CENTER ENTER BUTTON!

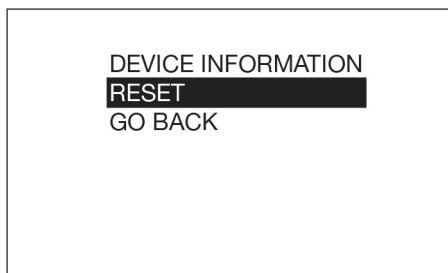


Fig. 33

2. Press and hold the LEFT ARROW button.
3. While still holding down the LEFT ARROW button, press the CENTER ARROW button, press the CENTER button.

GO BACK

The GO BACK option returns the user to the UTILITY MENU screen

RESET

Reboots the meter.

GO BACK

Returns to the Main Menu Screen, page 13.

Service

Battery Replacement

- Replace batteries with four AA, alkaline batteries.
- Be sure to follow the correct polarity as shown on the installation labels located on either side of the metered dispense valve when installing batteries in the battery compartment (FIG. 35).
- Do not mix different types of batteries together or old batteries with fresh ones. Always replace all 4 batteries with 4, fresh, new AA batteries.

To change the battery:

1. Remove screws (36) from the battery compartment cover (5).
2. Use a small, flat screwdriver to gently pry the cover away from the metered dispense valve housing on the bottom side of the cover, near the extension attachment as shown in FIG. 34.

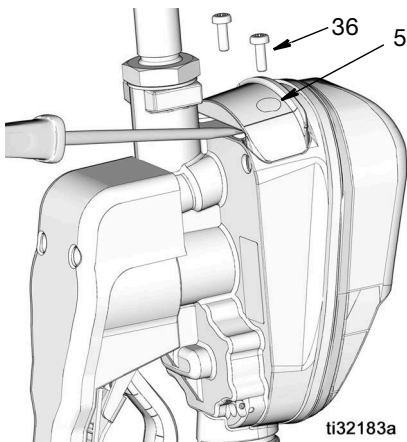


FIG. 34

3. Remove and separately recycle batteries according to all applicable regulations. Do not dispose of with household or commercial waste.

4. Install 4 new batteries. See labels on the each side of the housing and FIG. 35 for battery orientation.

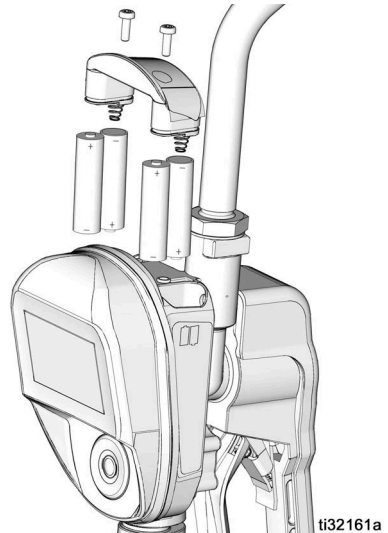


FIG. 35

5. Replace cover (5) and screws (36). Do not over-tighten screws (FIG. 36).

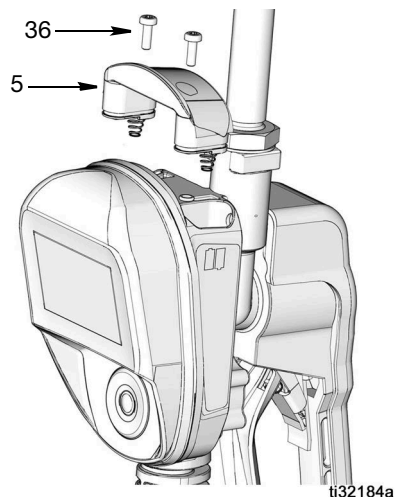


FIG. 36

Troubleshooting



Perform pressure relief procedure, page 9, before you check or repair the metered dispense valve. Be sure all other valves, controls and pump are operating properly.

Problem	Cause	Solution
Battery dead icon is present.	Batteries are low.	Replace batteries, page 21.
Display does not activate	Batteries are dead.	Replace batteries, page 21.
	Electronic control is malfunctioning.	Replace the electronic bezel assembly. Contact your Graco distributor for assistance ordering this part.
Slow or no fluid flow	Filter is clogged.	<ol style="list-style-type: none"> Relieve pressure, page 9. Clean or replace filter. If the problem remains, contact your Graco distributor for repair or replacement.
	Pump pressure is low.	Increase pump pressure.
	Twist lock nozzle not fully open.	Aim nozzle into bucket or rag. Fully open nozzle. Do not trigger metered dispense valve when nozzle is closed! If you do accidentally trigger the metered dispense valve with the nozzle closed, point nozzle into a waste bucket and open the nozzle to relieve pressure and expel built up fluid.
	Shut-off valve is not fully open.	Fully open shut-off valve.
	Foreign material is jammed in the metered dispense valve housing.	Contact your Graco distributor for repair or replacement.
Displayed dispensed amount is not accurate	Unit needs to be calibrated for the fluid that is being dispensed.	Calibrate the metered dispense valve for the fluid that is being dispensed.
	Displayed dispensed amount not reset before starting new dispense.	Reset the fluid dispensed before performing dispense.

Problem	Cause	Solution
Metered dispense valve leaks from cover/control	Poor seal at metering cover chamber	Contact your Graco distributor for repair or replacement.
Metered dispense valve leaks from the nozzle when the nozzle is left in the closed position.	Nozzle has a damaged seal.	Replace nozzle. See Install the Nozzle , page 12.
Metered dispense valve leaks from the nozzle when the nozzle is left in the open position. It is important to distinguish between the two states of the nozzle to determine the cause of this problem. a new nozzle in the open state will NOT correct a fluid leak caused by a faulty valve.	Metered dispense valve with MANUAL nozzle should be closed after each use.	Close MANUAL nozzle when meter is not in use.
	Metered dispense valve with AUTOMATIC nozzle left open exasperated by thermal expansion inside the meter.	Close nozzles when meters are not in use. Wipe nozzle tip after each use.
	Valve cartridge has damaged seals.	Close nozzles when meters are not in use. Wipe nozzle tip after each use. Replace valve cartridge. Replacement Kit Part 25D904.
Metered dispense valve leaks from swivel	Poor swivel/hose connection.	Apply PTFE tape (leave a minimum 2 engaged threads uncovered for electrical continuity) or sealant to threads of hose and tighten the connection.
	Poor swivel/metered dispense valve housing connection.	Torque the fitting to 20-25 ft.-lb (27.12 - 34 N•m).
	Swivel seals have deteriorated and leak.	Replace swivel. Use Swivel Seal and Filter Replacement Kit 25D906. See Swivel Seal and Filter Replacement instructions page
Screen locks up or freezes		Remove batteries. Wait 5 minutes, then replace batteries and restart.
SET-UP screen is missing in Utility Menu	Meter settings are locked.	Unlock meter. See LOCK SETTINGS instructions, page 20.

Fault Codes

Fault codes are listed below. Even in a fault condition the unit keeps track of the amount dispensed. Whenever a fault code is displayed, you must end the dispense.

Fault Code	Cause	Solution
Fault 2	Reed Switch Fault: Fault occurred with pick-up in internal gear.	Ensure that your flow rate is not higher than 18 gpm (68 lpm). For further assistance, contact your Graco distributor.
	Reed switch malfunction.	Replace electronic bezel housing.
	Unit was dropped or unit encountered excessive vibration during shipping.	End dispense
	Air in fluid line.	Fix leaks in pump suction line.
	Excessive pulsation.	Re-plumb suction line to a larger size.

Definition of Terms

Terms	Definition
CALIBRATE	UTILITY MENU/SET-UP option. Calibrating the metered dispense valve ensures dispenses are accurate.
DEVICE INFORMATION	UTILITY MENU option. Used for diagnostics and firmware verification.
DISPENSE	Selecting DISPENSE displays the DISPENSE Screen.
GO BACK	Returns the user to the previous screen.
MANUAL DISPENSE	Amount of fluid dispensed is determined by the operator.
SET UP	List of metered dispense valve function related to initial set up: UNIT OF MEASURE, BANNER, CALIBRATE, LANGUAGE, and LOCK SETTING.
UTILITY MENU	List of metered dispense valve functions: DEVICE INFORMATION, SET-UP, RESET, GO BACK.

Recycling and Disposal


End of Product Life

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

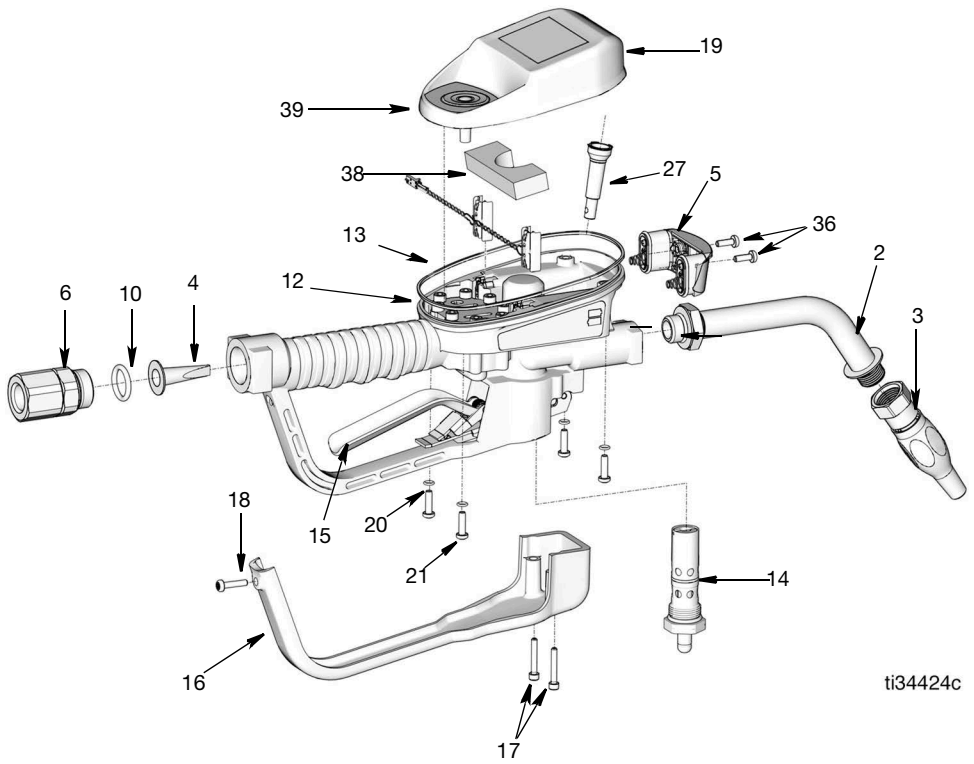
Preparation:

- Perform the **Pressure Relief Procedure**.
- Drain and dispose of fluids according to applicable regulations. Refer to the material manufacturer's Safety Data Sheet.

Dismantle and recycle:

- Remove motors, circuit boards, LCDs (liquid crystal displays), and other electronic components. Recycle according to applicable regulations.
- Do not dispose of electronic components with household or commercial waste. 
- Deliver remaining product to a recycling facility.

Parts



ti34424c

Parts

Ref	Part	Description	Qty	Ref	Part	Description	Qty
1		VALVE, metered dispense valve (see models page 4)	1	18	131256	SCREW, mach, torx pan hd	1
2		EXTENSION		19	26C484	KIT, BEZEL, electrical	1
	16Y863	<i>Flex</i>		20	131257	PACKING, o-ring	4
	255194	<i>Rigid</i>	1	21	25N342	SCREW, mach, torx pan hd	4
	255854	<i>Gear Lube</i>		27 ❖		ROD, trip	1
	273079	<i>Windshield washer solvent</i>		28 ❖	129623	SEAL, molded	1
3		NOZZLE		33	121413	BATTERY, pkg, 4 ct, alkaline AA (not shown)	1
	17R220	<i>Automatic, quick close</i>	1	36 †	112380	SCREW, mach, pan hd	2
	17T207	<i>Manual Antifreeze</i>		38*		Power Cable	1
	255461	<i>High Flow</i>		39*		Foam	1
	255470	<i>Gear Lube/ATF</i>					
4★★		STRAINER, mesh	1	Related Kits			
5 †	25M593	COVER, battery	1	Ref	Part	Description	
6		SWIVEL, straight		†	25D907	KIT, Battery Cover, includes 5 and 36	
	247344	<i>1/2 in. NPT</i>	1	❖	26C394	KIT, Triprod repair, includes 27 and 28	
	247345	<i>3/4 in. NPT</i>		*	25P665	Kit, Power Cable, includes 38 and 39	
	24H097	<i>1/2 - 14 BSPT</i>				For oil and ATF applications order Kit 25D906 (includes 80 mesh strainer (4) and swivel o-ring (10))	
	24H098	<i>1/2 - 14 BSPP</i>				For anti-freeze applications order Kit 25U000 (includes 200 mesh strainer (4) and swivel o-ring (10))	
	24H099	<i>3/4 - 14 BSPT</i>					
	24H100	<i>3/4 - 14 BSPP</i>					
10★	155332	PACKING, o-ring	1				
12		HOUSING, metered dispense valve	1				
13	131258	PACKING, square ring	1				
14	25D904	VALVE, metered dispense valve, assy	1				
15	25M723	TRIGGER, assy	1				
16	129830	COVER, trigger guard	1				
17	16E337	SCREW, cap, sch, sst	2				


Technical Specifications

Technical Specifications

SDM8 and SDM18 Metered Dispense Valve		
	US	Metric
Flow range*	0.25 to 18 gpm	0.9 to 68 lpm
*Tested in 10W motor oil. Flow rates vary with fluid pressure, temperature and viscosity.		
Maximum Working Pressure	1500 psi	103.4 bar
Units of Measure (factory set to quarts)	pints, quarts, gallons	liters
Weight	5.3 lb	2.4 kg
Dimensions (without extension)		
Length	13 in.	33 cm
Width	3.75 in.	9.5 cm
Height	5.75 in.	14.6 cm
Units of measure (factory set in quarts)	maximum recorded dispensed volume = 9999 units	
Inlet	1/2-14 npt or 3/4-14 npt	
	1/2 BSPP/BSPT or 3/4BSPP/BSPT	
Outlet	3/4-16 straight thread o-ring boss	
Operating temperature range	4 °F to 158°F	-16°C to 70°C
Storage temperature range	-40°F to 158°F	-40°C to 70°C
Battery**	4AA alkaline batteries	
**Recommended battery: Energizer® Alkaline E91.		
Wetted parts	aluminum, stainless steel, PBT, nitrile rubber, zinc plated carbon steel, nickel plated carbon steel	
Fluid compatibility	antifreeze, gear oil, crankcase oil, ATF, windshield washer fluid (up to 50% alcohol-based solutions)	
Metered Dispense Valve Accuracy†	+/- 0.5 percent	
† At 2.5 gpm (9.5 lpm), at 70°F (21°C), with 10-weight oil and 1 gallon dispensed. May require calibration.		

California Proposition 65

CALIFORNIA RESIDENTS

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

Graco 5-Year Meter and Valve Warranty

Graco 5-Year Meter and Valve 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 from the date of sale as defined in the table below, repair or replace equipment covered by this warranty and 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.

Graco 5-Year Meter and Valve Extended Warranty	
Components	Warranty Period
Structural Components	5 years
Electronics	3 years
Wear Parts - including but not limited to o-rings, seals and valves	1 year

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 one (1) year past the warranty period, or two (2) years for all other parts.

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

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

For patent information, see www.graco.com/patents.

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. Graco reserves the right to make changes at any time without notice.

Original instructions. This manual contains English. MM 3A6711

Graco Headquarters: Minneapolis

International Offices: Belgium, China, Japan, Korea

GRACO INC. AND SUBSIDIARIES • P.O. BOX 1441 • MINNEAPOLIS MN 55440-1441 • USA

Copyright 2019 Graco Inc. All Graco manufacturing locations are registered to ISO 9001.

www.graco.com, Revision F, October 2021