

INSTRUCTIONS



SDMM8 Manual Meter and SDMP8 Preset Meter

333492E

EN

For metered dispense of petroleum-based lubricants, oils and 50:50 antifreeze/water mix fluids only.

For professional use only.

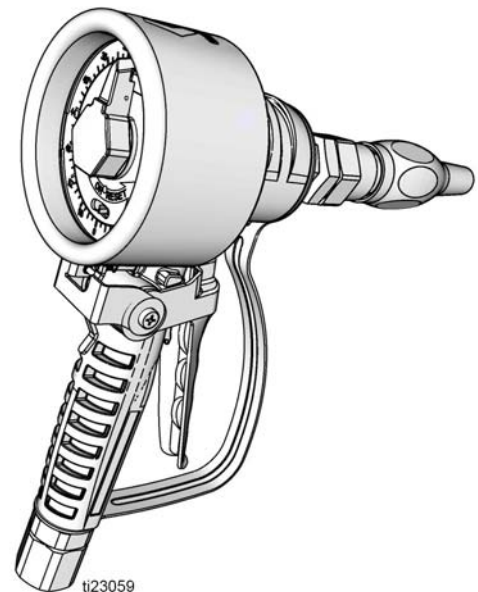
Maximum Working Pressure: 1500 psi (10 MPa, 103 bar)

List of Models page 2



Important Safety Instructions

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



Models

SDMM8 Manual Bare Meters

Bare manual meters do not include a nozzle or extension. Model packages that include a nozzle and extension are provided below.

Model Number	Model Description	Inlet
24U959*	4/16 Quart	NPT
24U960*	4/16 Quart	BSPT
24U961*	4/16 Quart	BSPP
24U956*	4/16 Liter	NPT
24U957*	4/16 Liter	BSPT
24U958*	4/16 Liter	BSPP

SDMM8 Manual Meters with Nozzle and Extension Packages

The following packages include Bare Meter Model 24U959 and the nozzle and extension kits indicated in the table below.

Model Number	Model Description	Inlet	Extension	Nozzle/Extension Kit❖	Nozzle Parts†
24V034	4/16 Quart	NPT	Flex	255853	255459
24V037	4/16 Quart	NPT	Rigid	255852	255459
24V040	4/16 Quart	NPT	Gear Lube	255854	255470

The following packages include Bare Meter Model 24U960 and the nozzle and extension kits indicated in the table below.

Model Number	Model Description	Inlet	Extension	Nozzle/Extension Kit❖	Nozzle Parts†
24V035	4/16 Quart	BSPT	Flex	255853	255459
24V038	4/16 Quart	BSPT	Rigid	255852	255459
24V041	4/16 Quart	BSPT	Gear Lube	255854	255470

The following packages include Bare Meter Model 24U961 and the nozzle and extension kits indicated in the table below.

Model Number	Model Description	Inlet	Extension	Nozzle/Extension Kit❖	Nozzle Parts†
24V036	4/16 Quart	BSPP	Flex	255853	255459
24V039	4/16 Quart	BSPP	Rigid	255852	255459
24V042	4/16 Quart	BSPP	Gear Lube	255854	255470

The following packages include Bare Meter Model 24U956 and the nozzle and extension kits indicated in the table below.

Model Number	Model Description	Inlet	Extension	Nozzle/Extension Kit❖	Nozzle Parts†
24V043	4/16 Liter	NPT	Flex	255853	255459
24V046	4/16 Liter	NPT	Rigid	255852	255459
24V049	4/16 Liter	NPT	Gear Lube	255854	255470

The following packages include Bare Meter Model 24U957 and the nozzle and extension kits indicated in the table below.

Model Number	Model Description	Inlet	Extension	Nozzle/Extension Kit❖	Nozzle Parts†
24V044	4/16 Liter	BSPT	Flex	255853	255459
24V047	4/16 Liter	BSPT	Rigid	255852	255459
24V050	4/16 Liter	BSPT	Gear Lube	255854	255470

The following packages include Bare Meter Model 24U958 and the nozzle and extension kits indicated in the table below.

Model Number	Model Description	Inlet	Extension	Nozzle/Extension Kit❖	Nozzle Parts†
24V045	4/16 Liter	BSPP	Flex	255853	255459
24V048	4/16 Liter	BSPP	Rigid	255852	255459
24V051	4/16 Liter	BSPP	Gear Lube	255854	255470

❖ See Nozzle and Extension Kits, page 27

† See Nozzle Parts, page 28.

SDMP8 Preset Meters

Bare preset meters do not include a nozzle or extension. Model packages that include a nozzle and extension are provided on page 4.

Model Number	Model Description	Inlet
24U947*	60 Quart	NPT
24U948*	60 Quart	BSPT
24U949*	60 Quart	BSPP
24U950*	60 Gallon	NPT
24U951*	60 Gallon	BSPT
24U952*	60 Gallon	BSPP
24U953*	60 Liter	NPT
24U954*	60 Liter	BSPT
24U955*	60 Liter	BSPP

*This meter can be used for antifreeze applications with antifreeze nozzle 255855 or 24W306. See page 27 for information about these nozzles.

SDMP8 Preset Meters with Nozzle and Extension Packages

The following packages include Bare Meter Model 24U947 and the nozzle and extension kits indicated in the table below.

Model Number	Model Description	Inlet	Extension	Nozzle/Extension Kit❖	Nozzle Parts†
24V052	60 Quart	NPT	Rigid	24W641	255459
24Z125	60 Quart	NPT	Rigid	255852	255459
24Z126	60 Quart	NPT	Flex	255853	255459
24Z127	60 Quart	NPT	Rigid	255854	255470

The following packages include Bare Meter Model 24U948 and the nozzle and extension kits indicated in the table below.

Model Number	Model Description	Inlet	Extension	Nozzle/Extension Kit❖	Nozzle Parts†
24V053	60 Quart	BSPT	Rigid	24W641	255459

The following packages include Bare Meter Model 24U949 and the nozzle and extension kits indicated in the table below.

Model Number	Model Description	Inlet	Extension	Nozzle/Extension Kit❖	Nozzle Parts†
24V054	60 Quart	BSPP	Rigid	24W641	255459

The following packages include Bare Meter Model 24U950 and the nozzle and extension kits indicated in the table below.

Model Number	Model Description	Inlet	Extension	Nozzle/Extension Kit❖	Nozzle Parts†
24V055	60 Gallon	NPT	Rigid	24W641	255459
24Z128	60 Gallon	NPT	Rigid	255852	255459
24Z129	60 Gallon	NPT	Flex	255853	255459
24Z130	60 Gallon	NPT	Rigid	255854	255470

The following packages include Bare Meter Model 24U951 and the nozzle and extension kits indicated in the table below.

Model Number	Model Description	Inlet	Extension	Nozzle/Extension Kit❖	Nozzle Parts†
24V056	60 Gallon	BSPT	Rigid	24W641	255459

The following packages include Bare Meter Model 24U952 and the nozzle and extension kits indicated in the table below.

Model Number	Model Description	Inlet	Extension	Nozzle/Extension Kit❖	Nozzle Parts†
24V057	60 Gallon	BSPP	Rigid	24W641	255459

The following packages include Bare Meter Model 24U953 and the nozzle and extension kits indicated in the table below.

Model Number	Model Description	Inlet	Extension	Nozzle/Extension Kit❖	Nozzle Parts†
24V058	60 Liter	NPT	Rigid	24W641	255459
24Z131	60 Liter	NPT	Rigid	255852	255459
24Z132	60 Liter	NPT	Flex	255853	255459
24Z133	60 Liter	NPT	Rigid	255854	255470

The following packages include Bare Meter Model 24U954 and the nozzle and extension kits indicated in the table below.

Model Number	Model Description	Inlet	Extension	Nozzle/Extension Kit❖	Nozzle Parts†
24V059	60 Liter	BSPT	Rigid	24W641	255459

The following packages include Bare Meter Model 24U955 and the nozzle and extension kits indicated in the table below.




Model Number	Model Description	Inlet	Extension	Nozzle/Extension Kit❖	Nozzle Parts†
24V060	60 Liter	BSPP	Rigid	24W641	255459

❖ See Nozzle and Extension Kits, page 27





† See Nozzle Parts, page 28.

Warnings

The following warnings are for the setup, use, grounding, maintenance, and repair of this equipment. The exclamation point symbol alerts you to a general warning and the hazard symbols refer to procedure-specific risks. When these symbols appear in the body of this manual or on warning labels, refer back to these Warnings. Product-specific hazard symbols and warnings not covered in this section may appear throughout the body of this manual where applicable.

 WARNING	
	<p>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. • Stop operation immediately if static sparking occurs or you feel a shock. Do not use equipment until you identify and correct the problem. • Keep a working fire extinguisher in the work area.
	<p>SKIN INJECTION HAZARD</p> <p>High-pressure fluid from dispensing device, hose leaks, or ruptured components will pierce skin. This may look like just a cut, but it is a serious injury that can result in amputation. Get immediate surgical treatment.</p> <ul style="list-style-type: none"> • Do not point dispensing device at anyone or at any part of the body. • Do not put your hand over the fluid outlet. • Do not stop or deflect leaks with your hand, body, glove, or rag. • Follow the Pressure Relief Procedure when you stop dispensing and before cleaning, checking, or servicing equipment. • Tighten all fluid connections before operating the equipment. • Check hoses and couplings daily. Replace worn or damaged parts immediately.

! WARNING

 	<p>EQUIPMENT MISUSE HAZARD</p> <p>Misuse can cause death or serious injury.</p> <ul style="list-style-type: none"> • Do not operate the unit when fatigued or under the influence of drugs or alcohol. • Do not exceed the maximum working pressure or temperature rating of the lowest rated system component. See Technical Data in all equipment manuals. • Use fluids and solvents that are compatible with equipment wetted parts. See Technical Data in all equipment manuals. Read fluid and solvent manufacturer's warnings. For complete information about your material, request MSDS from distributor or retailer. • Do not leave the work area while equipment is energized or under pressure. • Turn off all equipment and follow the Pressure Relief Procedure when equipment is not in use. • Check equipment daily. Repair or replace worn or damaged parts immediately with genuine manufacturer's replacement parts only. • Do not alter or modify equipment. Alterations or modifications may void agency approvals and create safety hazards. • Make sure all equipment is rated and approved for the environment in which you are using it. • Use equipment only for its intended purpose. Call your distributor for information. • Route hoses and cables away from traffic areas, sharp edges, moving parts, and hot surfaces. • Do not kink or over bend hoses or use hoses to pull equipment. • Keep children and animals away from work area. • Comply with all applicable safety regulations.
	<p>PRESSURIZED ALUMINUM PARTS HAZARD</p> <p>Use of fluids that are incompatible with aluminum in pressurized equipment can cause serious chemical reaction and equipment rupture. Failure to follow this warning can result in death, serious injury, or property damage.</p> <ul style="list-style-type: none"> • Do not use 1,1,1-trichloroethane, methylene chloride, other halogenated hydrocarbon solvents or fluids containing such solvents. • Many other fluids may contain chemicals that can react with aluminum. Contact your material supplier for compatibility.
	<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. This protective equipment includes but is not limited to:</p> <ul style="list-style-type: none"> • Protective eyewear, and hearing protection. • Respirators, protective clothing, and gloves as recommended by the fluid and solvent manufacturer

Typical Installation

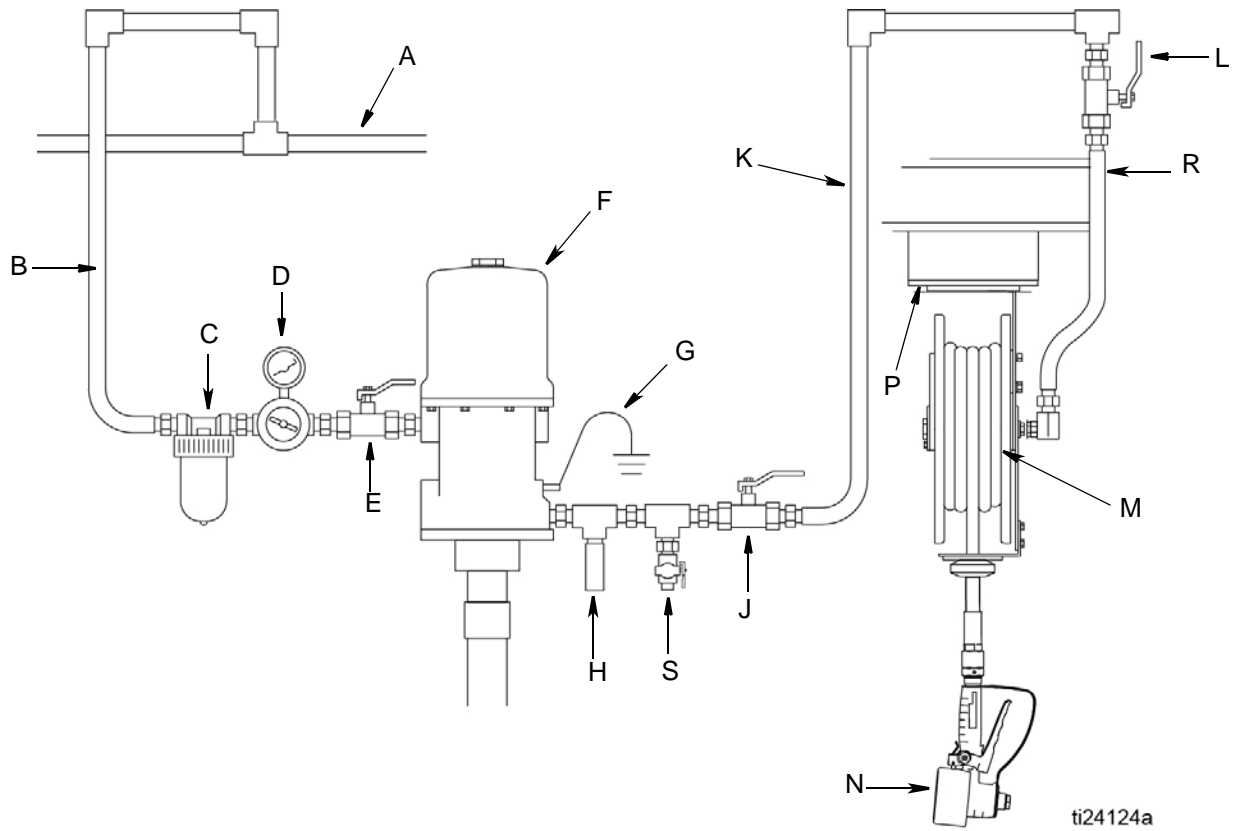


FIG. 1

Key:

- A Main air supply line
- B Pump air supply line
- C Air filter
- D Air regulator
- E Bleed-type master air valve (required)
- F Pump
- G Pump grounding wire (required)
- H Pressure relief valve (required)

NOTE: The relief pressure cannot exceed the meter's maximum working pressure

- J Fluid shut off valve
- K Fluid line
- L Fluid shut off valve
- M Hose reel
- N SDMM8 or SDMP8 meter
- P Mounting channel
- R Hose reel fluid inlet kit
- S Fluid drain valve

Installation

NOTE: The letters used in the following instructions refer to Typical Installation on page 8.

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

1. Turn off power supply to the pump or close upstream master air valve (E).
2. Open all fluid shut off valves (J and L) in the system.
3. Trigger the meter (N) into a waste container to **relieve pressure**.
4. Open fluid drain valves and leave them open until you are ready to pressurize the system.

Grounding

<ul style="list-style-type: none"> • 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. • To prevent electric arcing do not allow the conductive metal surfaces on the meter to make contact with any positively charged metal surface, including (but not limited to), the starter solenoid terminal, alternator terminal or battery terminal. 						

Ground all components in the system:

Pump (F): Follow manufacturer's recommendations.

Air and fluid supply lines (A, B, K): Only use electrically conductive hoses. Check electrical resistance of hoses. If total resistance to ground exceeds 29 meg-ohms, 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 meter firmly to the side of a grounded metal pail, then trigger the valve.

SDMM8 and SDMP8 Meter (N): When installing the meter leave at least two threads bare when using thread sealant. The bare threads ensure a ground is maintained.

Component Identification

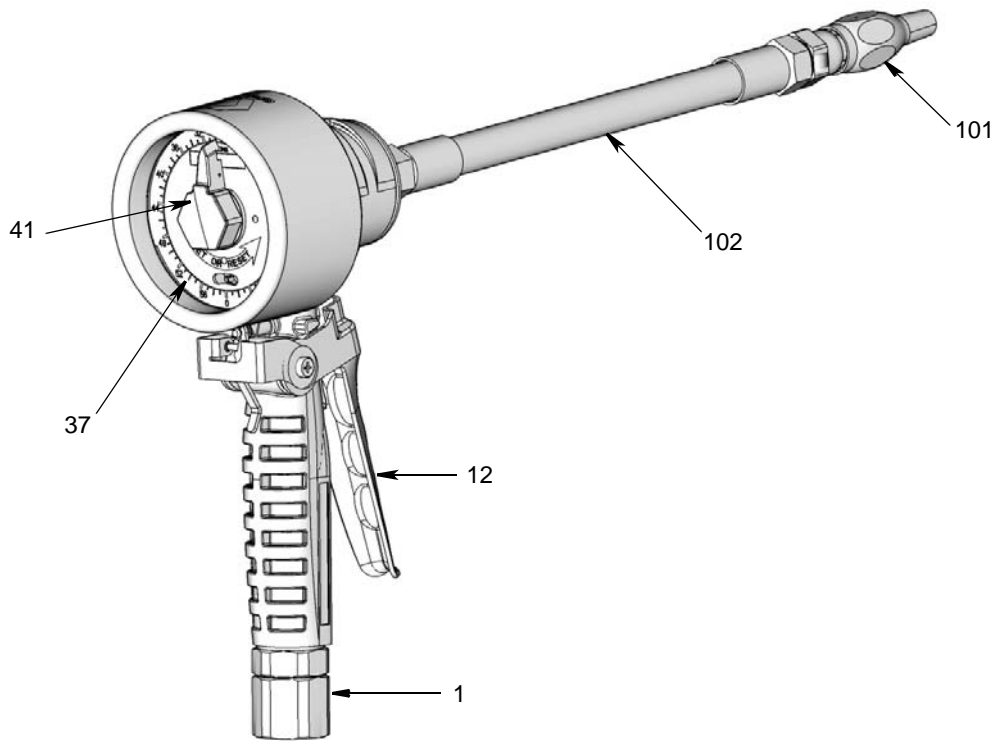


FIG. 2

Key:

- 1 Swivel
- 12 Trigger
- 37 Meter dial
- 41 Meter pointer
- 101 Nozzle
- 102 Extension

Pre-Installation Procedure

NOTE: The letters used in the following instructions refer to Typical Installation on page 8 and the Component Identification on page 10. Numbers used in the following instructions refer to the Parts List on pages 21 - 24.



1. **Relieve pressure**, page 9.
2. Close all fluid drain valves.
3. Ground all equipment as instructed on page 9.

Installation Procedure

NOTICE	
<ul style="list-style-type: none"> 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

NOTE: The meter should not be installed for this procedure.



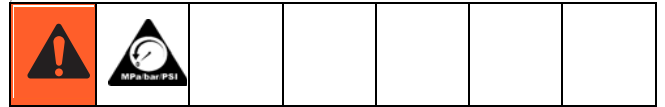
1. Close the fluid shut-off valve (L) at each dispense position.
2. Make sure:
 - all fluid drain valves are closed,
 - fluid shut off valve (J) is closed,

and

 - the bleed-type master air valve (E) is open.
3. Place the end of the hose into a container for waste oil. Secure the hose in the container so it will not come out during flushing.

4. Slowly open the fluid shut off valve (J).
5. If you have multiple dispense positions, first flush the dispense position farthest from the pump and work your way toward the pump. Slowly open the fluid shut-off valve (L) at the dispense position. Flush out a sufficient amount of oil to ensure that the entire system is clean; then close the valve.
6. Repeat Step 5 at all other positions.

Installing Meter (FIG. 3)



1. If this is a new installation and the first time a meter is installed, skip step 1.

For existing installations, to replace the meter (N):

- a. **Relieve pressure**, page 9.
- b. Use two wrenches working in opposite directions to loosen meter and hose fitting. Remove meter (N) from hose.

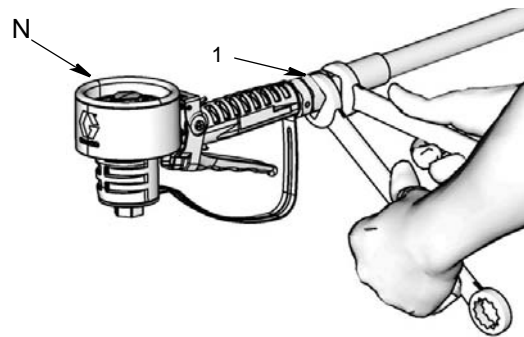


FIG. 3

2. Apply thread sealant to the male threads of the hose fitting. Leave at least two threads bare when using thread sealant. The bare threads ensure a ground is maintained.
3. Thread the meter swivel (1) onto the hose fitting. Use two wrenches working in opposite directions to tighten meter securely to hose fitting.

NOTE: Make sure you allow sufficient time for the sealant to cure to the manufacturer's recommendations before circulating fluid through the system.

4. Install extension (102) to meter:
 - a. Loosen extension nut (102a) (FIG. 4) until it is completely off tube threads.

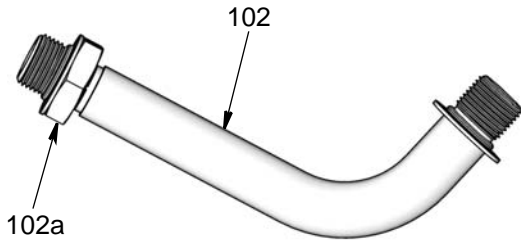


FIG. 4

NOTE: Do not use PTFE tape or thread sealant on threads of extension (102). This could cause the fitting to leak.

- b. Thread extension (102) into meter housing as shown in FIG. 5 until it bottoms out.

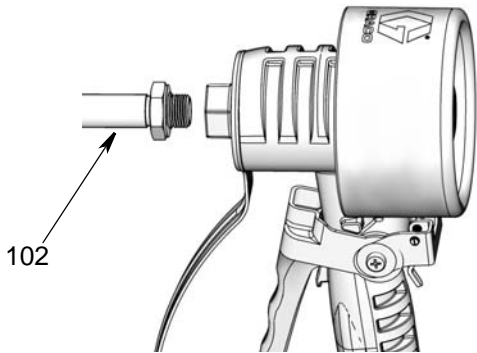


FIG. 5

- c. Align extension (102) with meter housing and handle. Hand tighten extension nut (102a).

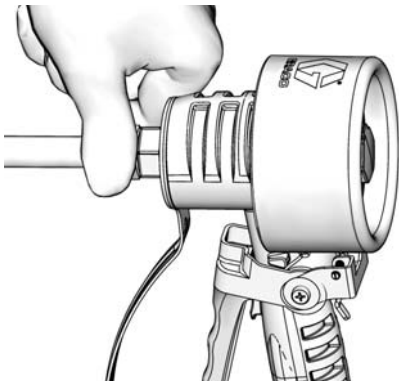


FIG. 6

- d. Wrench tighten extension nut (102a).

5. Install nozzle (101):

NOTE: Do not use PTFE tape or thread sealant on threads of nozzle (101). This could cause the fitting to leak.

- a. Thread nozzle (101) onto extension (102) as shown in FIG. 7.

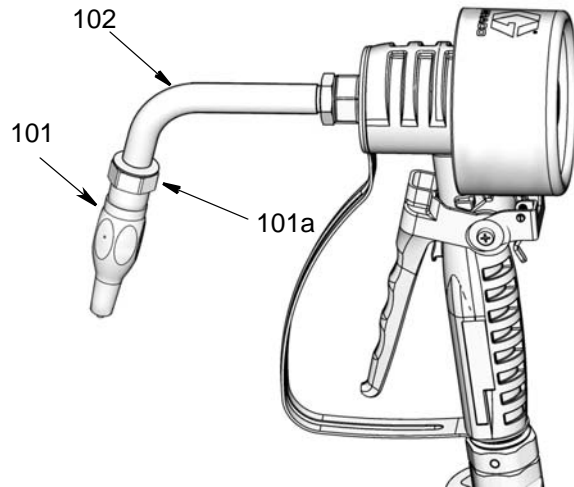


FIG. 7

- b. Use an open-end adjustable wrench on flats of nozzle bushing (101a) (FIG. 7) to tighten fitting.
 - *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.





Operation

NOTE: The letters used in the following instructions refer to Typical Installation on page 8 and the Component Identification on page 10. Numbers used in the following instructions refer to the Parts List on pages 21 - 24.

1. Open fluid shut off valves (J and L).
2. Start pump (F) to pressurize system.
3. Adjust the air pressure to the pump motor so the fluid pressure is no greater than 1500 psi (103.4 bar, 10.34 MPa)

NOTE: To ensure dispensing accuracy, before beginning dispense, pull trigger to purge all air from the fluid lines and meter.

4. Continue operation with instructions for Preset Automatic or Manual Shutoff Valve Instructions.

							
SPLASH HAZARD							
<p>Do not trigger meter when nozzle is closed. Fluid will build up behind the nozzle. Fluid can leak from the nozzle and can unexpectedly be expelled when the nozzle is opened. If the meter is accidentally triggered with the nozzle closed, point the nozzle into a waste bucket and slowly open the nozzle to relieve pressure and expel the built up fluid.</p>							

Preset Automatic Shutoff

NOTE: Clean strainer (3a) regularly. See Parts, page 21.

NOTICE
To avoid costly meter damage, never turn the Preset meter pointer (41) (FIG. 8) backwards (clockwise).

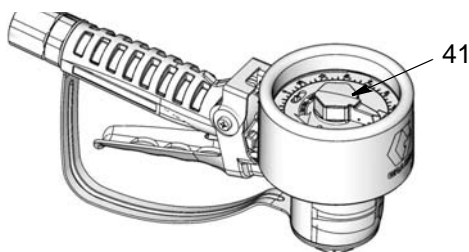
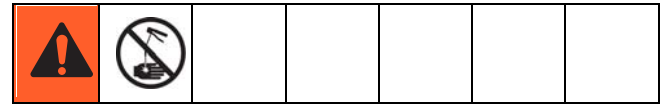


FIG. 8

The totalizer keeps a running total of the amounts dispensed.

1. Turn meter pointer (41) counter-clockwise to select the desired volume.



2. Turn automatic twist lock nozzle (101) clockwise to open nozzle. Insert nozzle into the fluid receptacle and pull the trigger (12).

NOTE: The trigger latches automatically. Do not set trigger to enable meter to dispense when it is unattended.

The meter shuts off automatically when the set amount of fluid is dispensed.

Manual Shutoff Valve

NOTE: Clean strainer (3a) regularly. See Parts, page 24.

NOTICE
To avoid costly meter damage, never turn the Manual Meter pointer (41) backwards (clockwise).

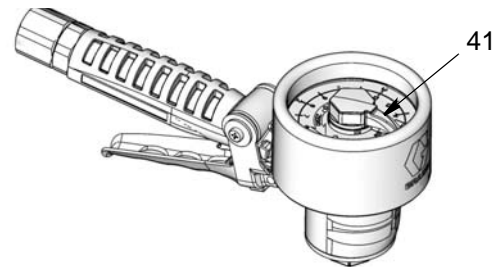


FIG. 9

The totalizer keeps a running total of the amounts dispensed.

1. Turn automatic twist lock nozzle (101) counter-clockwise to open nozzle. Insert nozzle into the fluid receptacle and pull the trigger (12).
2. Watch the meter pointer (41) on the meter dial (37) move. Release the trigger (12) when the desired amount of fluid has been dispensed.
3. Turn the meter pointer (41) counter-clockwise to return it to "0" before dispensing again. See FIG. 9

Troubleshooting



Relieve pressure, page 9, before you check or repair the meter. Be sure all other valves, controls and pump are operating properly.

Problem	Cause	Solution
Slow or no fluid flow.	Strainer (3a) is clogged.	<ol style="list-style-type: none"> 1. Relieve pressure, page 9. 2. Remove meter from hose. 3. Clean or replace strainer (3a). 4. Install meter to hose (See Installing Meter, page 11). 5. 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. 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 slowly open the nozzle to relieve pressure and expel built up fluid.
	Fluid shut-off valve (J or L) is not fully open (page 10).	Fully open fluid shut-off valve (J or L).
	Foreign material is wedged in the meter housing.	Contact your Graco distributor for repair or replacement.
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 a in Installation Procedure, page 12.
	Valve has damaged or obstructed seals.	Clean valve assembly or replace.

Problem	Cause	Solution
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 2 in Installation Procedure, page 11.
	Poor swivel/meter housing connection.	Torque the fitting to 20-25 ft.-lbs.
	Swivel seals have deteriorated and leak.	Replace swivel.

Service

Cleaning / Repairing the Fluid Section

NOTE: Do not disassemble the fluid and counting sections simultaneously. Confirm the fluid section is fully assembled before removing the counting section.



1. **Relieve pressure**, page 9.
2. Close fluid shut off valve (L).
3. Remove nozzle (101) and extension (102).

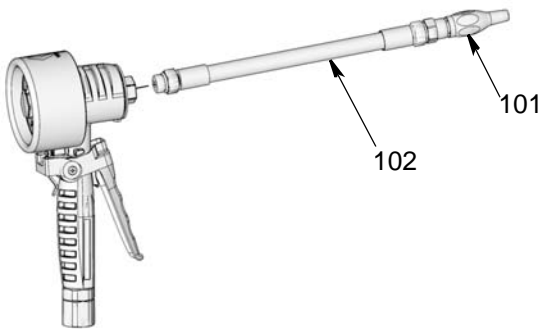


FIG. 10

4. Turn meter cap (17) counter-clockwise to unscrew and remove it from the meter housing.

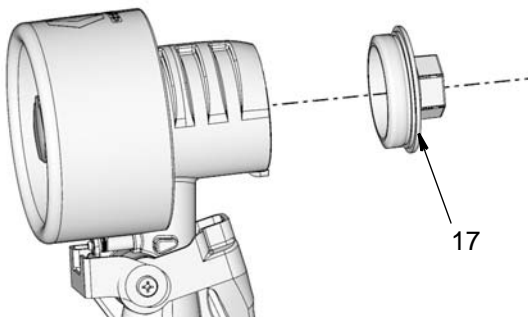


FIG. 11

5. Remove seal (18) and piston assembly (19). If the piston assembly sticks, lightly tap the housing against a flat surface to loosen it (FIG. 12).

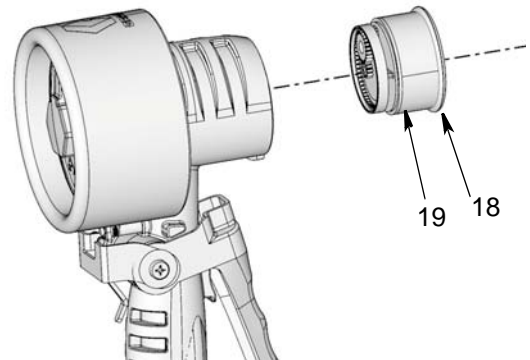


FIG. 12

6. Insert a screwdriver into the notch of the piston assembly (19) and pry off the piston cover (19d). See FIG. 13. Remove all parts.

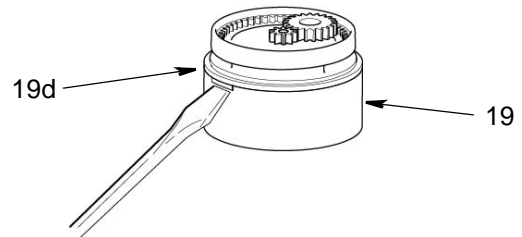


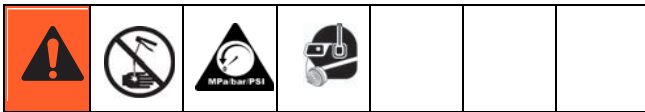
FIG. 13

7. Clean the parts (19a-g) and blow them dry.
8. Reassemble the piston assembly (19) and install in meter.
9. Install cover (17) on meter housing. Torque to 11-14 ft. lbs (14.9-18.9 N•m).
10. Install nozzle and extension assembly (101 and 102).

SDMM8 Manual Meter Counter Section Repair

Disassembly

NOTE: Do not disassemble the fluid and counting sections simultaneously. Confirm the fluid section is fully assembled before removing the counting section.



1. **Relieve pressure**, page 9.
2. Remove the cover (44), small retaining ring (43), pointer pin (41) and pointer spring (42) (FIG. 14).

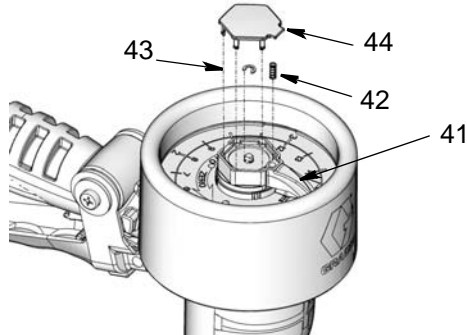


FIG. 14

3. Remove the needle pointer (41), springs (39) and pins (40) (FIG. 15).

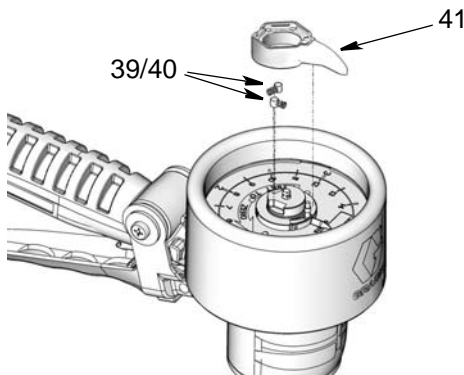


FIG. 15

4. Use a hex wrench to remove the plug setscrew. Remove the plug (50), remove the pin (51), spring (53), and the lower pointer (52) (FIG. 16).

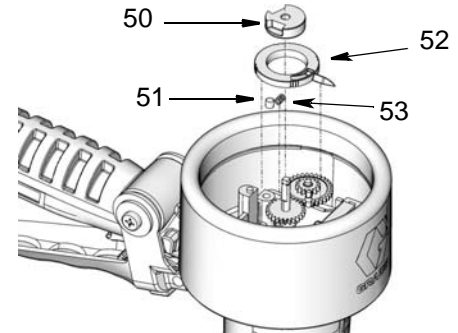


FIG. 16

5. Remove the large retaining clip (38) and then the face plate panel (37) (FIG. 17).

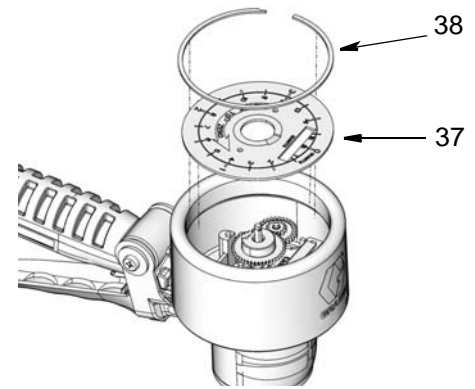


FIG. 17

6. Use a 2 mm hex wrench to remove the gear set-screw (33). Remove the gears (32, 34, 35) (FIG. 18).

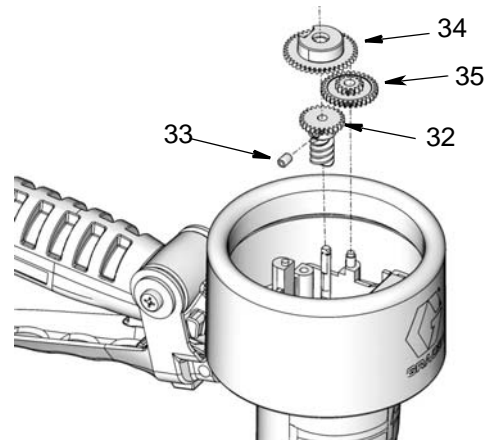


FIG. 18

7. Remove the entire counter assembly (31) (FIG. 19).

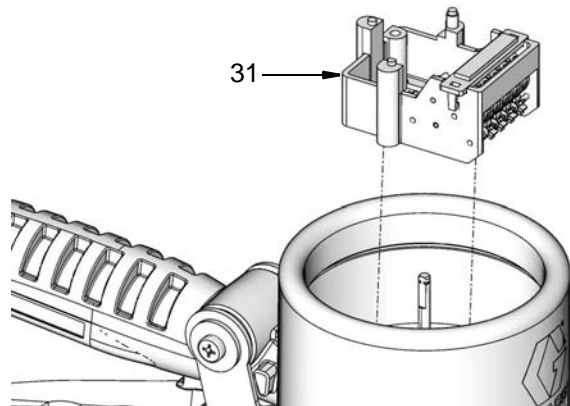


FIG. 19

3. Install the face plate panel (37) and large retaining clip (38) (FIG. 22).

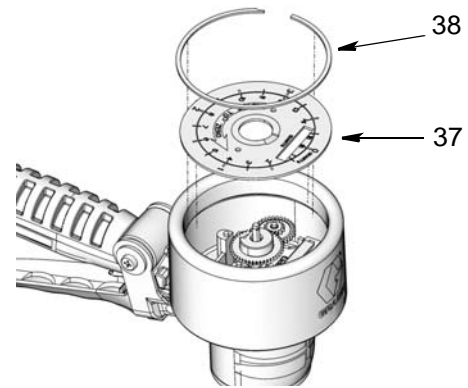


FIG. 22

Reassembly

1. Install counter assembly (31).

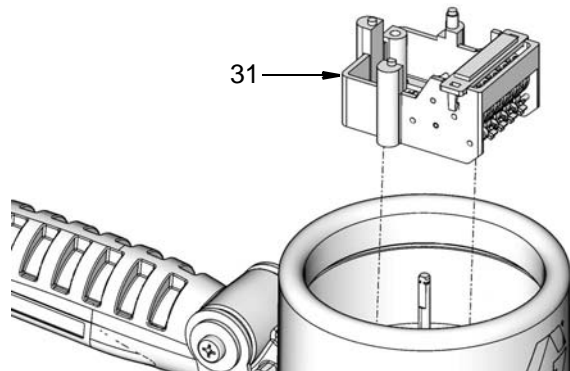


FIG. 20

4. Install the lower pointer (52), spring (53), pin (51) and plug (50) as shown in FIG. 23. Use a hex wrench to tighten the plug setscrew.

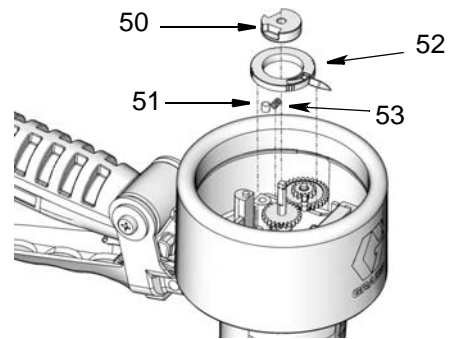


FIG. 23

2. Install the gears (32, 34, 35) as shown in FIG. 21. Use a 2 mm hex wrench to tighten the gear set-screw (33).

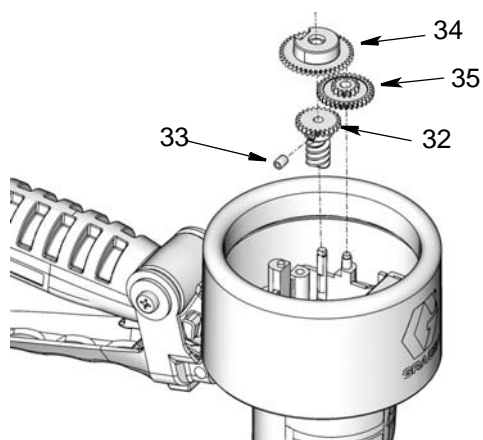


FIG. 21

5. Install the needle pointer (41), springs (39) and pins (40) as shown in FIG. 24.

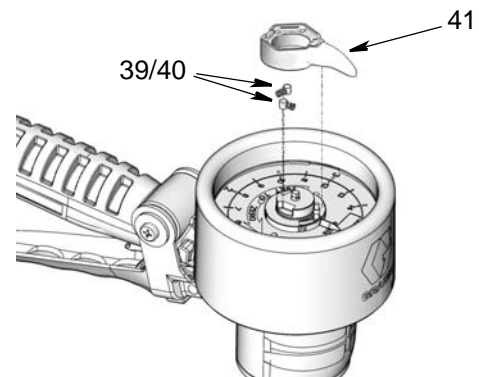


FIG. 24

6. Install small retaining ring (43), pointer pin (41) and pointer spring (42). Install the cover (44). (FIG. 25).

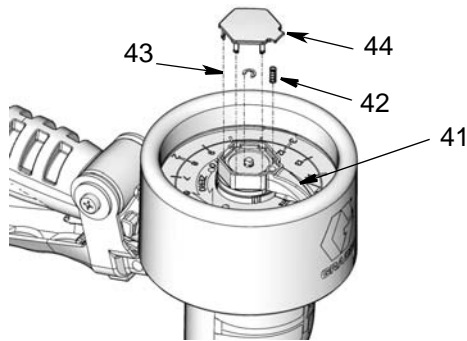


FIG. 25

3. Remove the needle pointer (41), springs (39) and pins (40) (FIG. 27).

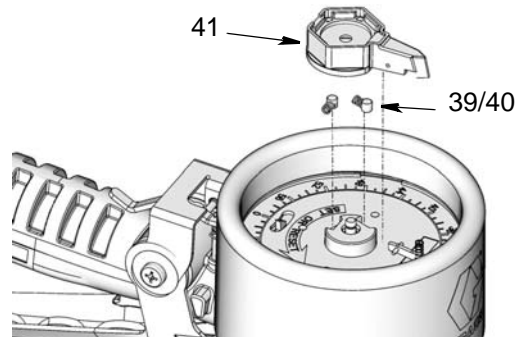


FIG. 27

SDMP8 Preset Meter Counter Section Repair

Disassembly

NOTE: Do not disassemble the fluid and counting sections simultaneously. Confirm the fluid section is fully assembled before removing the counting section.



1. Relieve pressure, page 9.
2. Remove the cover (44), small retaining ring (43), (FIG. 26).

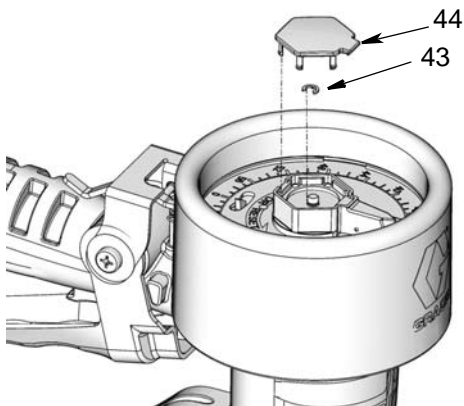


FIG. 26

4. Remove the large retaining clip (38) and then the face plate panel (37) (FIG. 28).

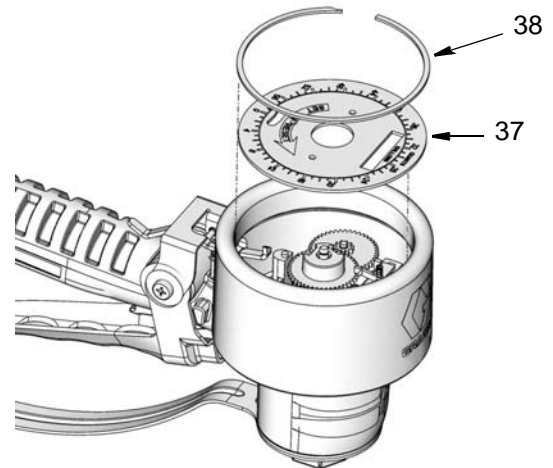


FIG. 28

5. Use a 2 mm hex wrench to remove the gear set-screw (33). Remove the gears (32, 34) (FIG. 29).

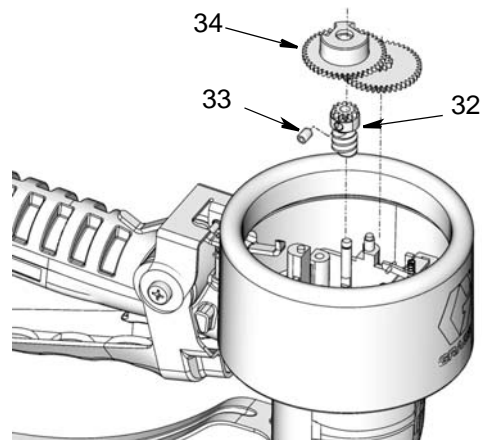


FIG. 29

6. Remove the entire counter assembly (31) (FIG. 30).

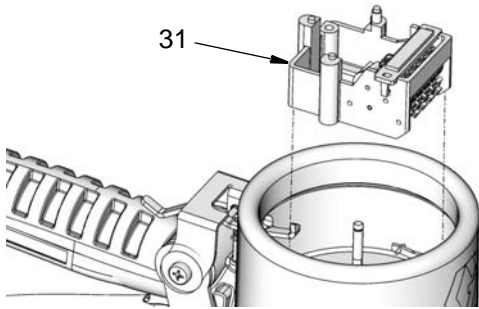


FIG. 30

Reassembly

1. Install counter assembly (31) (FIG. 31).

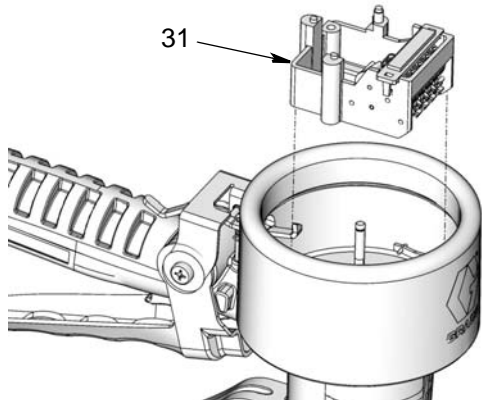


FIG. 31

2. Install the gears (32, 34). Use a 2 mm hex wrench to tighten gear set screw (33). (FIG. 32).

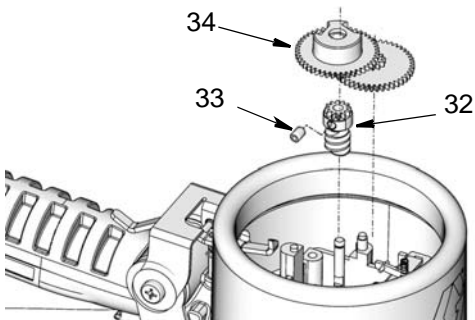


FIG. 32

3. Install face plate panel (37) and large retaining clip (38) (FIG. 33).

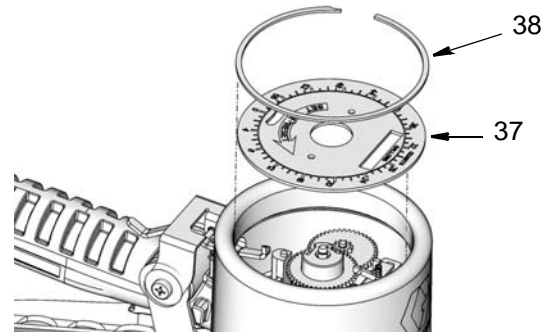


FIG. 33

4. Install the needle pointer (41), springs (39) and pins (40) as shown in FIG. 34.

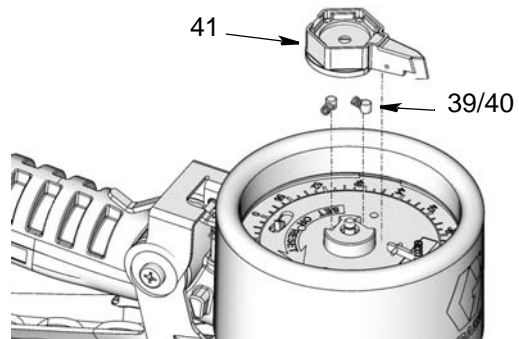


FIG. 34

5. Install small retaining ring (43) and cover (44) (FIG. 35).

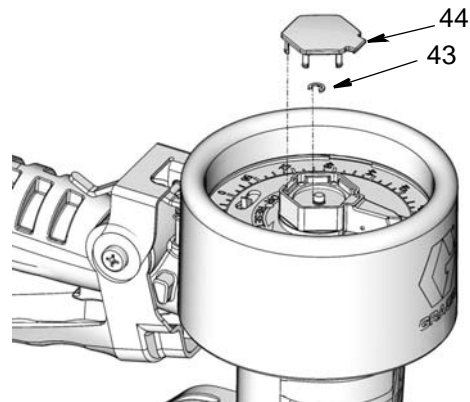


FIG. 35

Technical Data

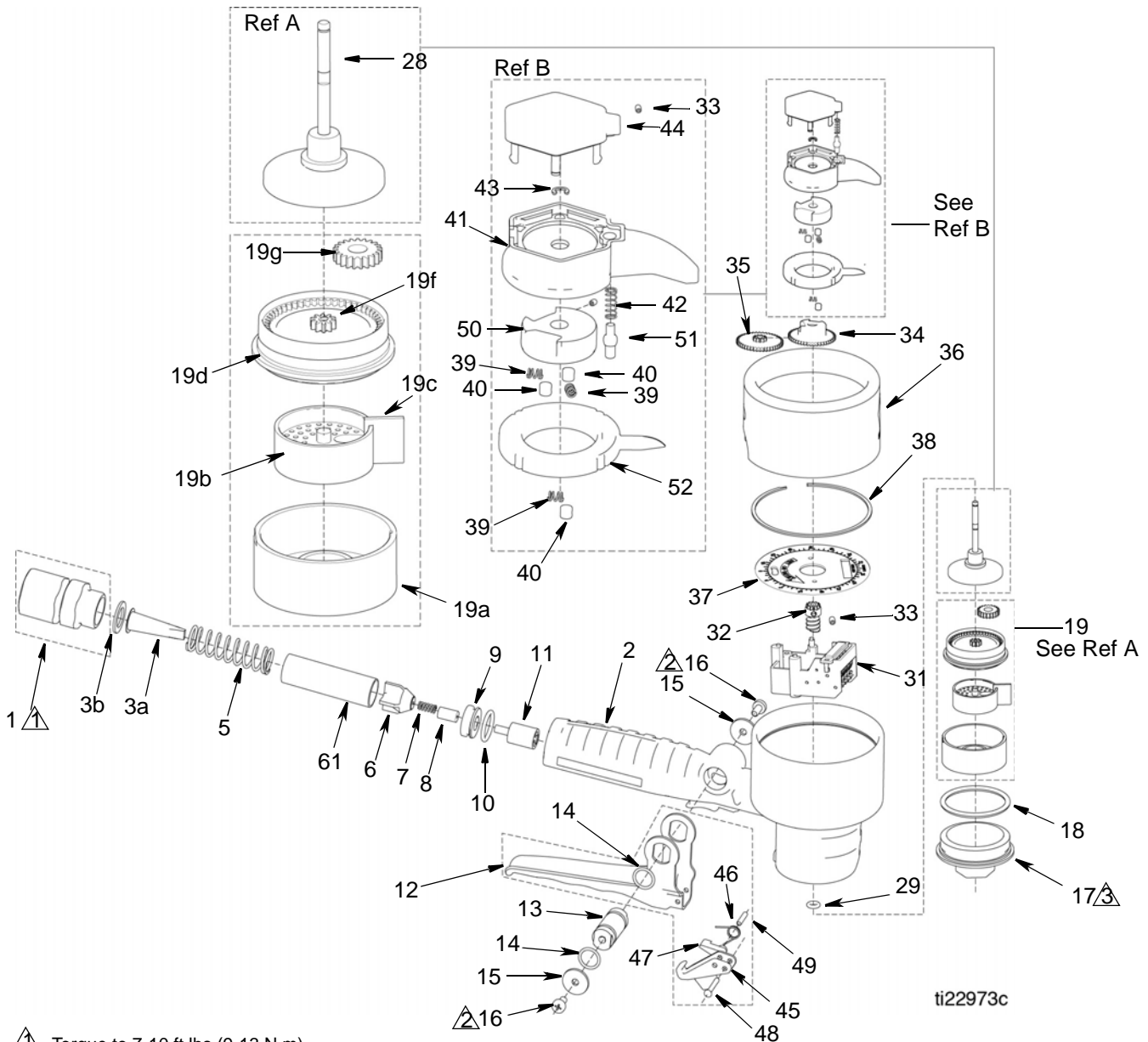
Manual and Preset Meter		
	US	Metric
Flow rate*	0.26 to 8 gpm	1 to 30 lpm
Maximum working pressure	1500 psi	10 MPa, 103.4 bar
Weight		
Manual Meter	3.42 lbs	1.55 kg
Preset Meter	3.50 lbs	1.58 kg
Dimensions (without extension) (see page 29)		
Length	11.4 inches	28.9 cm
Width	3.94 inches	10 cm
Height Manual Meter	4.85 inches	12.3 cm
Height Preset Meter	6.33 inches	16.08 cm
Maximum Totalizer Digits	99,999 units**	
Inlet	1/2-14 NPT	
	1/2-14 BSPP	
	1/2-14 BSPT	
Outlet	3/4-16 straight thread o-ring boss	
Operating temperature range	-50 °F to 160°F	-45°C to 70°C
Wetted parts	brass, aluminum, stainless steel, TPE	
Fluid compatibility	antifreeze, gear oil, crankcase oil	
Meter pressure loss	30 psi @ 4 gpm	
Accuracy - Manual Meter: Oil	+/- 1 percent	
Accuracy - Manual Meter: Antifreeze	+/- 3 percent	
Accuracy - Preset Meter: Oil or Antifreeze	+/- 3 percent	

*Tested in 10W motor oil. Flow rates vary with fluid pressure, temperature and viscosity.

**Rolls over to 00,000 after maximum value is reached.

SDMM8 Manual Meter Parts

Models 24U959, 24U960, 24U961, 24U956,
24U957, 24U958



△1 Torque to 7-10 ft lbs (9-13 N.m)

△2 Torque to 15-25 in. lbs (1.7-2.8 N.m)

△3 Torque to 11-14 ft. lbs (14.9-18.9 N.m)

SDMM8 Manual Meter Parts

Models 24U959, 24U960, 24U961, 24U956, 24U957, 24U958

Ref	Part No.	Description	Qty
1		SWIVEL	1
	238399	model 24U959, 24U956	
	24H383	model 24U960, 24U957	
	24H382	model 24U961, 24U958	
2		HOUSING, meter	1
3	256164	KIT, strainer, includes 3a and 3b	1
3a		STRAINER	10
3b		WASHER, plain	10
5	17J583	SPRING, compression	1
6	17J584	SEAT, valve	1
7	15U701	SPRING, secondary	1
8	15U700	PLUNGER, trigger lift	1
9	16X485	SEAT, valve	1
10	121412	O-RING, pack	1
11	277673	ROD, push	1
12	15M886	TRIGGER	1
13	191315	CAM	1
14	113574	SEAL, o-ring	2
15	191552	WASHER, flat	2
16	110637	SCREW, mach, panhead	2
17	16X493	CAP, housing	1
18	156633	PACKING, o-ring	1
19		KIT, piston, includes 19a-19g	1
	24V470	QUARTS, models 24U959, 24U960, 24U961	
	24V471	LITERS, models 24U956, 24U957, 24U958	
19a		PISTON, chamber	1
19b		PISTON, oscillating	1
19c		DIVIDER	1
19d		GEAR, cover	1
19e		ROLLER (not shown)	1
19f		GEAR, 10 teeth	1

Ref	Part No.	Description	Qty
19g		GEAR, 21 teeth	1
28	24V467	KIT, SHAFT	1
29	106560	PACKING, o-ring	1
31	24U352	COUNTER	1
32❖	16X595	GEAR, worm-spur	1
33❖†	16X589	SCREW, setting M4 x 6	2
34	16X588	GEAR, twins, 14-32	1
35	16X586	GEAR, 42 teeth	1
36	16X491	COVER, protector	1
37		DIAL	1
	16X597	models 24U959, 24U960, 24U961	
	16X596	models 24U956, 24U957, 24U958	
38	16X498	CLIP, ring	1
39†	16X583	SPRING, inner and outer	3
40†	16X592	PIN, inner and outer	3
41†	16X576	NEEDLE, upper	1
42†	16X584	SPRING, outer, pointer	1
43†	17B784	RING, retaining	1
44†	16X575	COVER, needle	1
45◆	15R013	LATCH, lever	1
46◆	15R014	SPRING, latch	1
47◆	15R015	LATCH, arm	1
48◆	15R016	LATCH, pin	1
49◆	114680	PIN, dowel	1
50†	16X580	PLUG	1
51†	16X582	PIN, outer pointer	1
52†	16X578	NEEDLE, lower, casting	1
53†	16X601	SPRING (not shown)	1
61	17J582	SPACER, tube	1

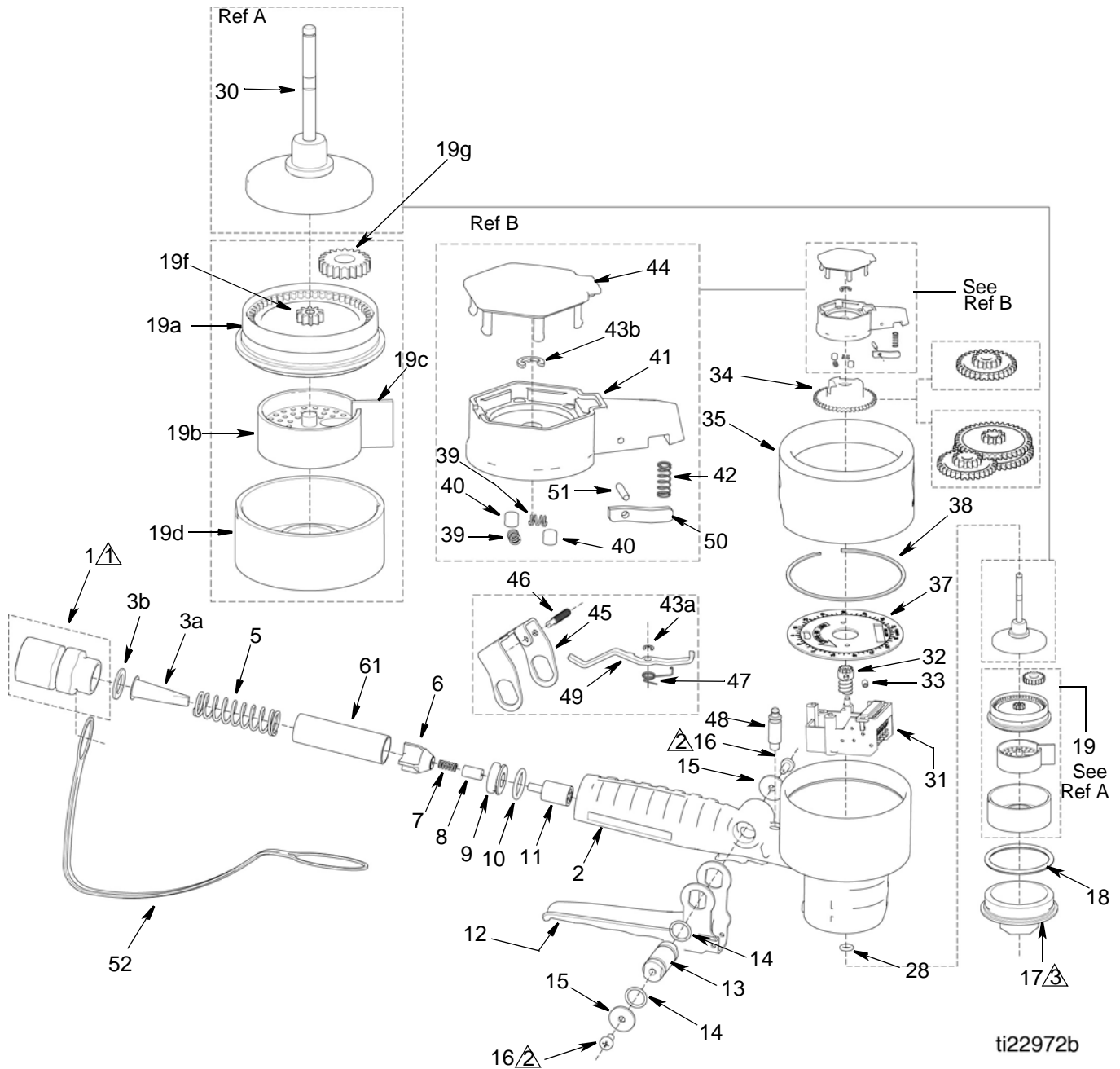
❖ Parts are included in Kit 24V460

† Parts are included in Kit 24V474

◆ Parts are included in Kit 24V473

SDMP8 Preset Meter Parts

Models 24U947, 24U948, 24U949, 24U950, 24U951, 24U952, 24U953, 24U954, 24U955



SDMP8 Preset Meter Parts

Models 24U947, 24U948, 24U949, 24U950, 24U951, 24U952, 24U953, 24U954, 24U955

Ref	Part No.	Description	Qty
1		SWIVEL	1
	238399	model 24U947, 24U950, 24U953	
	24H383	model 24U948, 24U951, 24U954	
	24H382	model 24U949, 24U952, 24U955	
2		HOUSING, meter	1
3	256164	KIT, strainer, includes 3a and 3b	1
3a		STRAINER	1
3b		WASHER, plain	1
5	17J583	SPRING, compression	1
6	17K584	SEAT, valve	1
7	15U701	SPRING, secondary	1
8	15U700	PLUNGER, trigger lift	1
9	16X485	SEAT, valve	1
10	121412	O-RING, packing	1
11	277673	ROD, push	1
12	16Y317	TRIGGER	1
13	16X497	CAM	1
14	113574	SEAL, o-ring	2
15	191552	WASHER, flat	2
16	110637	SCREW, mach, panhead	2
17	16X494	CAP, housing	1
18	156633	PACKING, o-ring	1
19		KIT, piston, includes 19a-19h	1
	24V470	QUARTS, models 24U947, 24U948, 24U949 GALLONS, models 24U950, 24U951, 24U952	
	24V471	LITERS, models 24U953, 24U954, 24U955	
19a		GEAR, cover	1

Ref	Part No.	Description	Qty
19b		PISTON, oscillating	1
19c		DIVIDER	1
19d		PISTON, chamber	1
19e		ROLLER (not shown)	1
19f		GEAR, 10 teeth	1
19g		GEAR, 21 teeth	1
28	106560	PACKING, o-ring	1
30		KIT, shaft	1
	24V468	models 24U947, 24U948, 24U949, 24U953, 24U954, 24U955	
	24V469	models 24U950, 24U951, 24U952	
31		COUNTER	1
	24U354	model 24U947, 24U948, 24U949	
	24U353	model 24U950, 24U951, 24U952	
	24U352	model 24U953, 24U954, 24U955	
32		GEAR, worm-spur	1
‡	16X594	models 24U947, 24U948, 24U949, 24U950, 24U951, 24U952	1
♣	16X593	models 24U953, 24U954, 24U955	1
33‡♣	16X589	SCREW, setting	1
34	16X585	GEAR, 45 teeth	1
35	16X490	COVER	1

Ref	Part No.	Description	Qty
36	16X587	GEAR, twin 11-44 teeth (not shown) Models 24U947, 24U948, 24U949, 24U953, 24U954, 24U955	1
	16Y999	GEAR, twin 24-44 teeth (not shown) Models 24U950, 24U951, 24U952	1
	16X588	GEAR. twins, 14-32, (not shown) Models 24U950, 24U951, 24U952	1
	17A029	GEAR, 11-42 teeth (not shown) Models 24U950, 24U951, 24U952	1
37		DIAL	1
	16X599	model 24U947, 24U948, 24U949	
	16X600	model 24U950, 24U951, 24U952	
	16X598	model 24U953, 24U954, 24U955	
38	16X498	CLIP, ring	1
39★	16X583	SPRING, inner and outer pointer	2
40★	16X581	PIN, inner and outer pointer	2

Ref	Part No.	Description	Qty
41★	16X577	NEEDLE	1
42★	16X584	SPRING, outer pointer	1
43		RING, retaining	
43a*	16X611		1
43b★	17B784		1
44★	16X575	COVER, needle	1
45*	16X606	BRACKET, valve, trigger	1
46*	16X607	PIN, screw	1
47*	16X613	SPRING, lock, pawl	1
48		PIN, lock, pawl	1
49*	16X610	LOCK, pawl	1
50★	16X579	NEEDLE, plate	1
51★	16X590	PIN	1
52	16X492	TRIGGER, guard	1
61	17J582	SPACER, tube	1

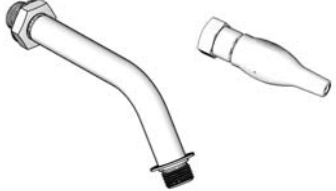
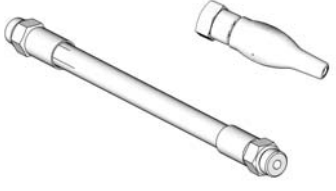
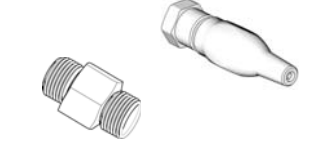
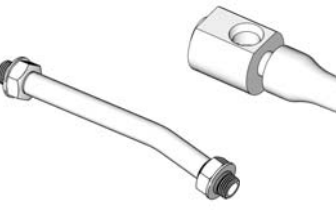

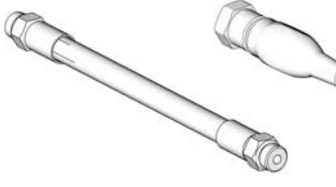
‡ Included in Kit 24V466

♣ Included in Kit 24V472

★ Included in Kit 24V465

* Included in Kit 24V461

Nozzle (101) and Extension (102) Kits

Kit No.	Description	Fluid Type	
255852*	Automatic, non-drip quick close nozzle with rigid extension	Oil	
255853*	Automatic, non-drip quick close nozzle with flexible extension	Oil	
24W641*	Automatic, non-drip quick close nozzle with short rigid extension	Oil	
255854	Non-drip, quick close nozzle with rigid extension	Gear Lube	
255855*	Non-drip, quick close nozzle with rigid extension	Antifreeze	
24W306*	Non-drip, quick close nozzle with flexible extension	Antifreeze	

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

Nozzle (101) Parts

Part No.	Description	Qty	Fluid Type
255459*	Automatic, non-drip, quick-close nozzle		Oil
	• BODY, nozzle	1	
	• O-RING, packing	1	
	• SPRING, compression	1	
	• O-RING, packing	1	
	• STEM, nozzle, valve	1	
	• SEAT, valve	1	
255460*	Automatic, non-drip, quick-close nozzle		Antifreeze
	• BODY, nozzle	1	
	• SPRING, compression	1	
	• O-RING, packing	1	
	• STEM, nozzle, valve	1	
	• O-RING, packing	1	
	• SEAT, valve	1	
255470	Non-drip, quick-close 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.

Dimensions

Manual Meter

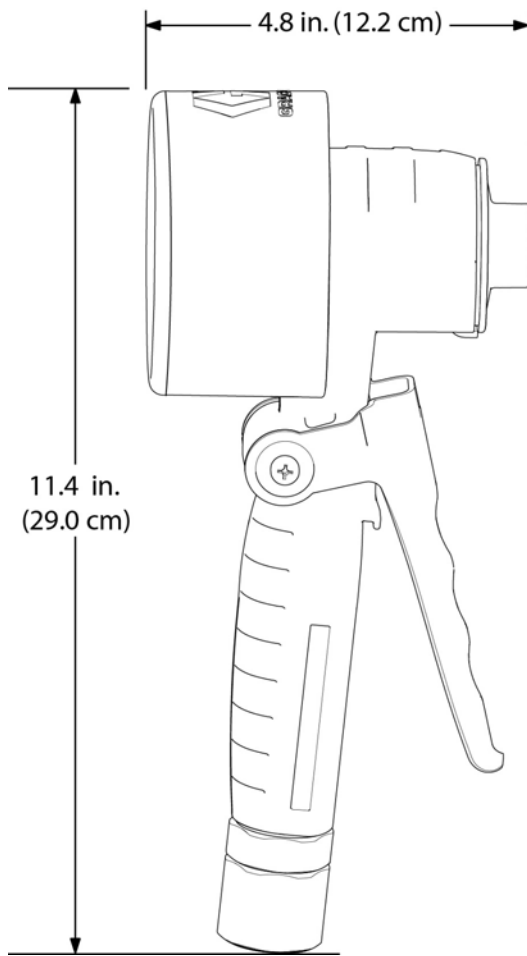


FIG. 36

Preset Meter

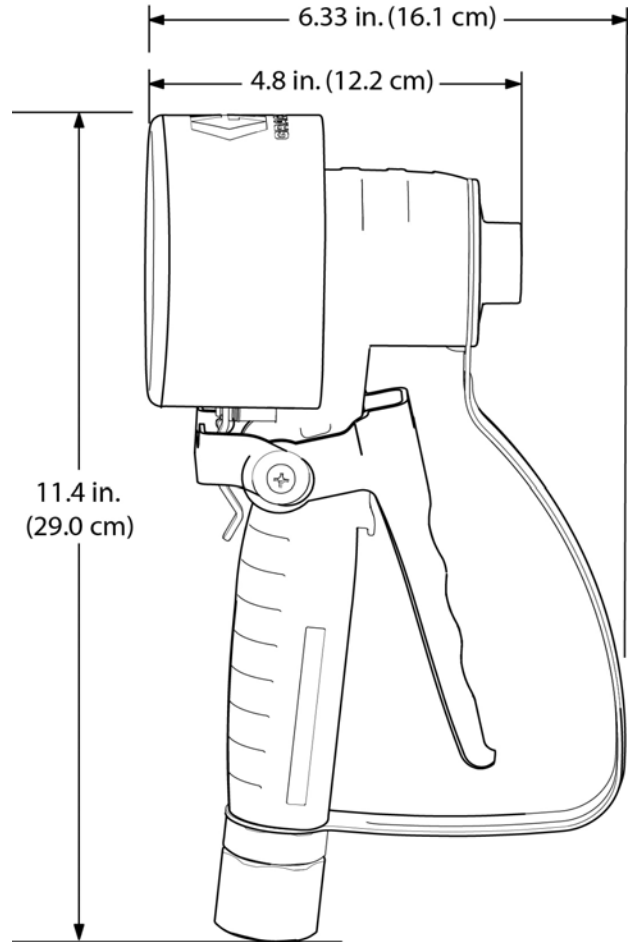


FIG. 37

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	2 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.

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Original instructions. This manual contains English. MM 333492

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March 2016