

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.

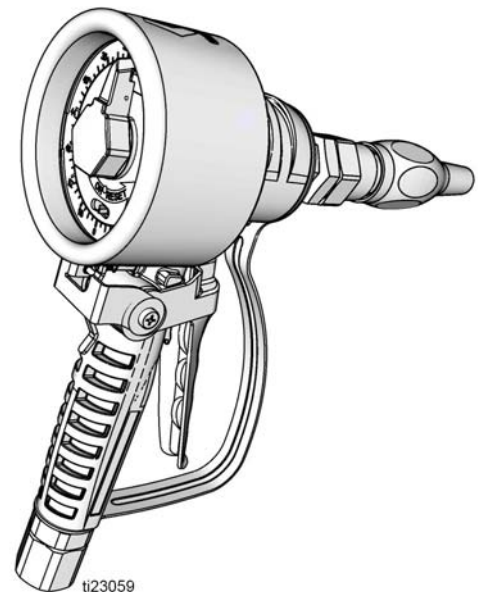
Maximum Working Pressure: 1500 psi (10 MPa, 103 bar)

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

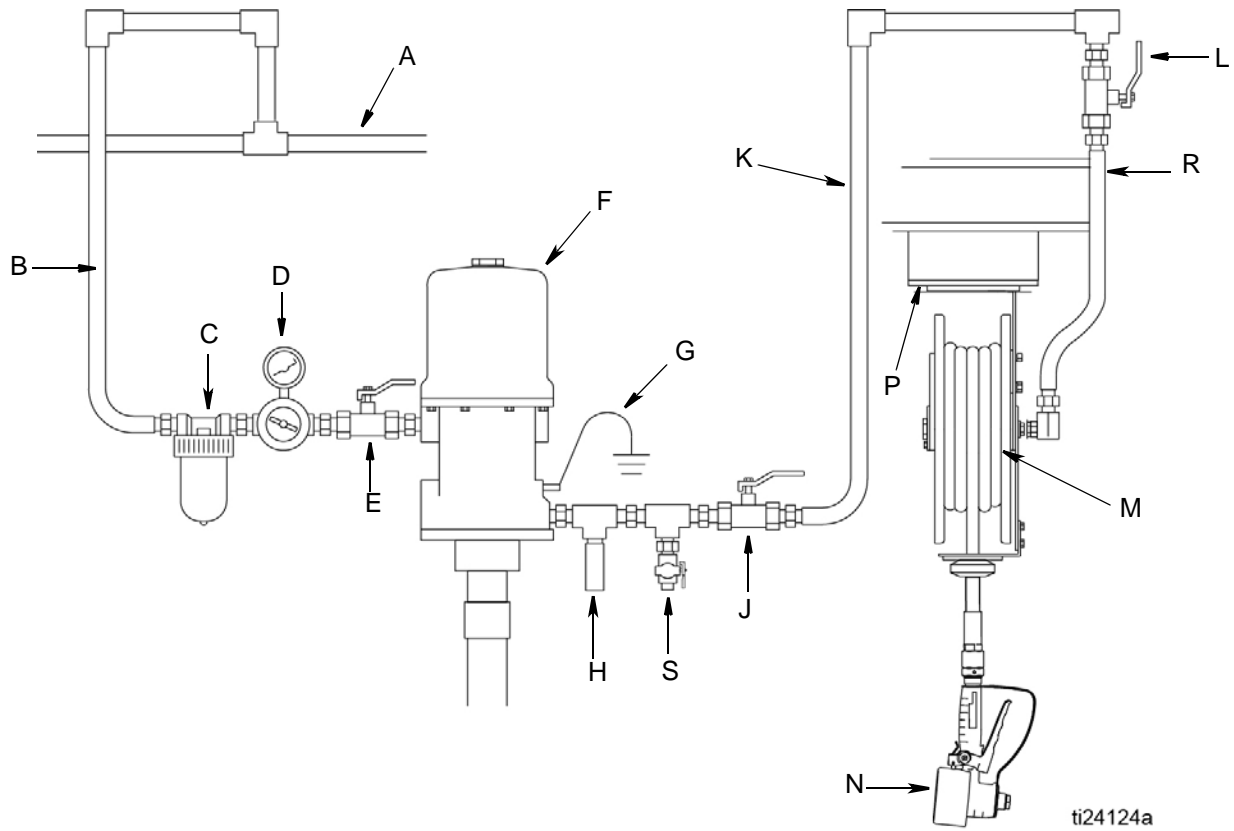


FIG. 1

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



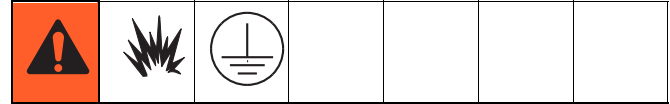
Follow the Pressure Relief Procedure whenever you see this symbol.



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



- 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

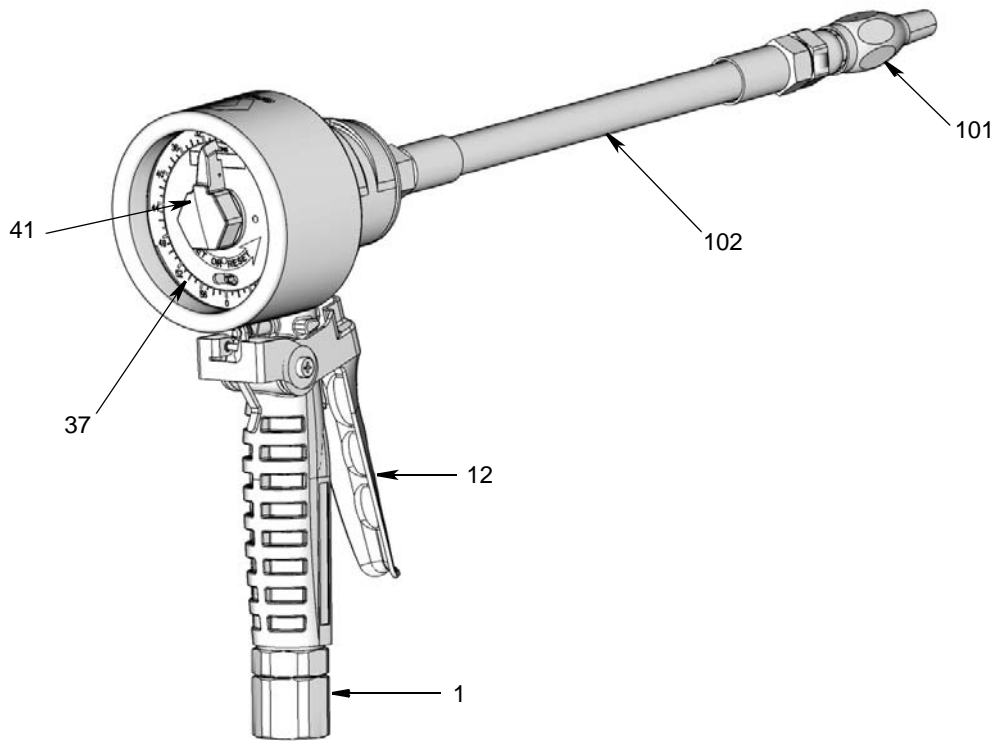


FIG. 2

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.



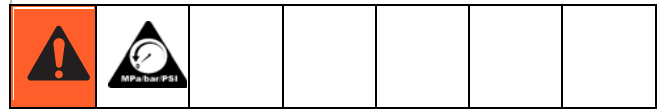
1. Close the fluid shut-off valve (L) at each dispense position.
2. Make sure:
 - all fluid drain valves are closed,
 - fluid shut off valve (J) is closed,

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.

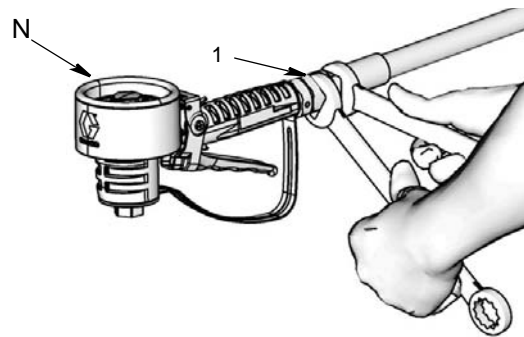


FIG. 3

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.

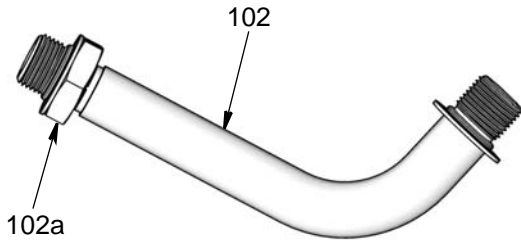


FIG. 4

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.

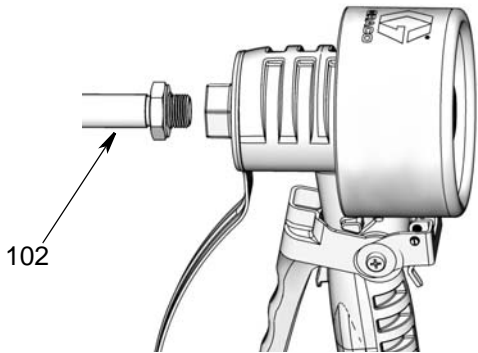


FIG. 5

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

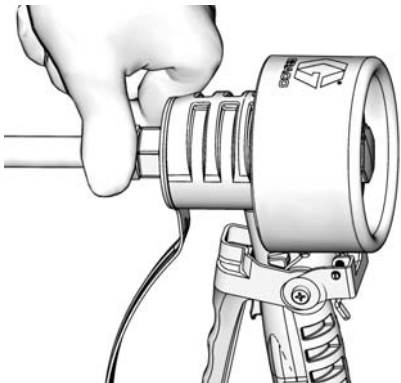


FIG. 6

- 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.

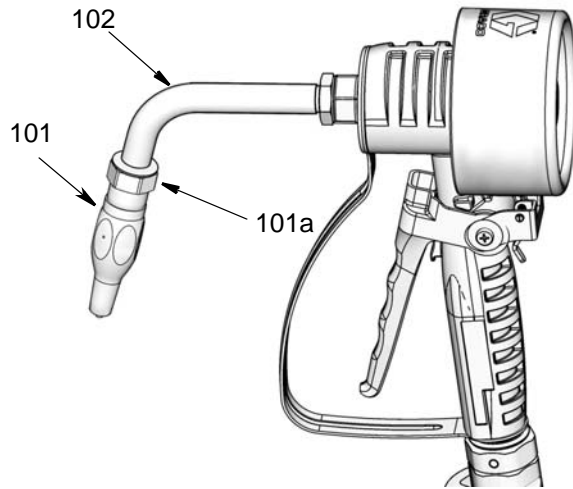


FIG. 7

- 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 |
| <p>To avoid costly meter damage, never turn the Preset meter pointer (41) (FIG. 8) backwards (clockwise).</p> |

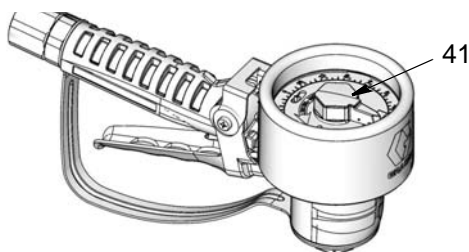
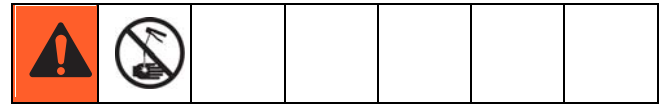


FIG. 8

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 |
| <p>To avoid costly meter damage, never turn the Manual Meter pointer (41) backwards (clockwise).</p> |

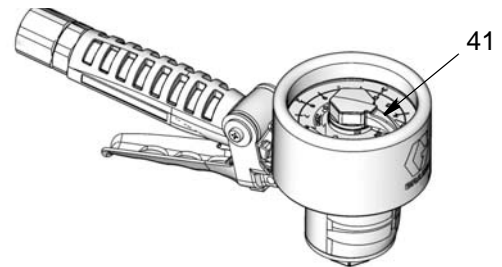


FIG. 9

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).

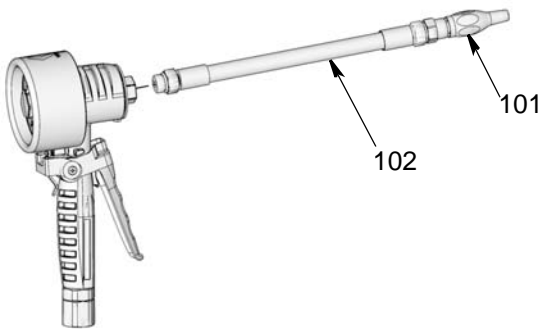


FIG. 10

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

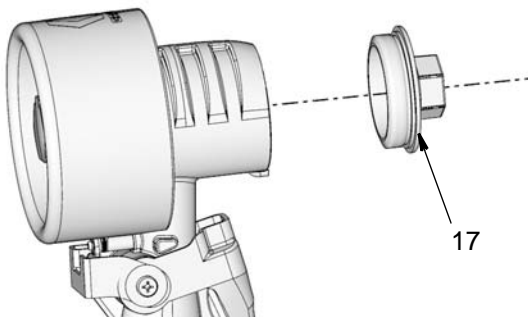


FIG. 11

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).

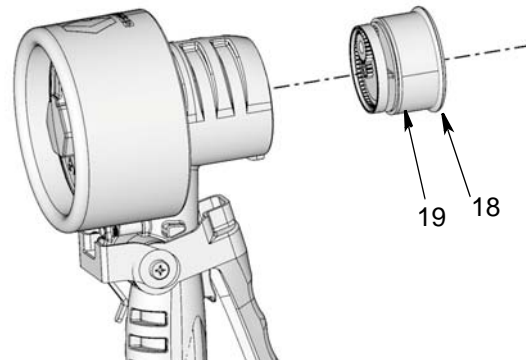


FIG. 12

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.

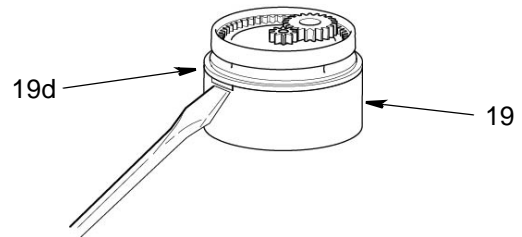


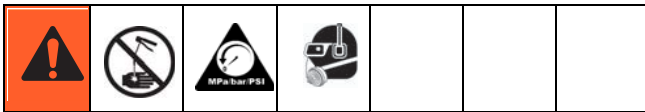
FIG. 13

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).

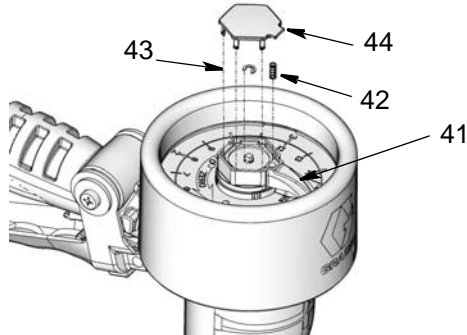


FIG. 14

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

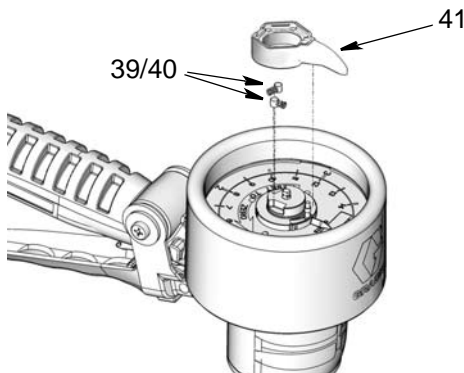


FIG. 15

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).

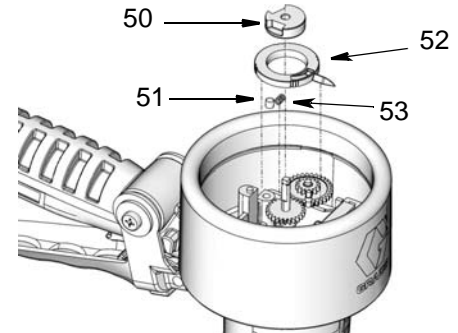


FIG. 16

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

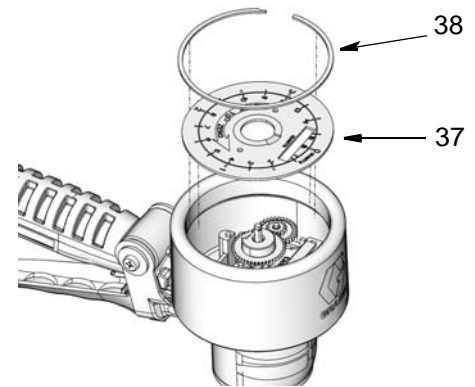


FIG. 17

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

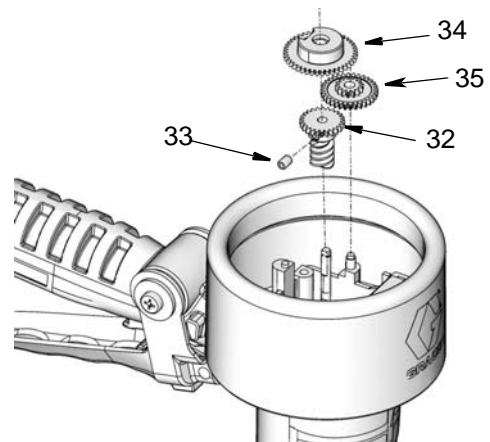


FIG. 18

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

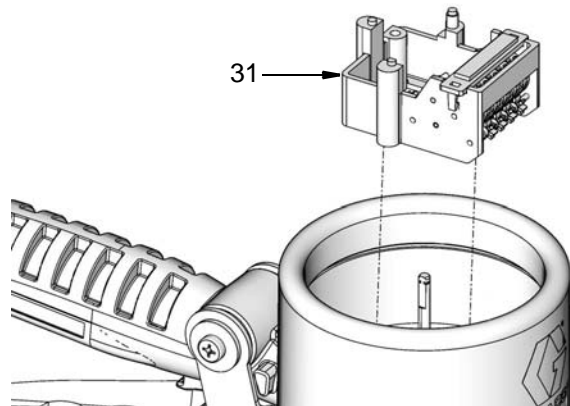


FIG. 19

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

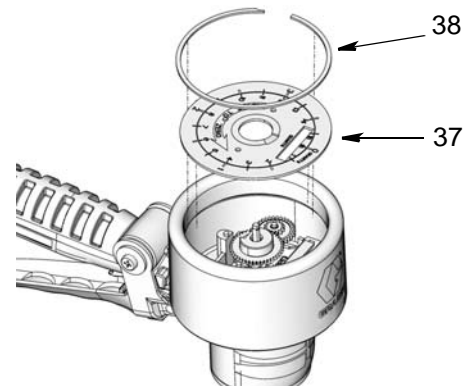


FIG. 22

Reassembly

1. Install counter assembly (31).

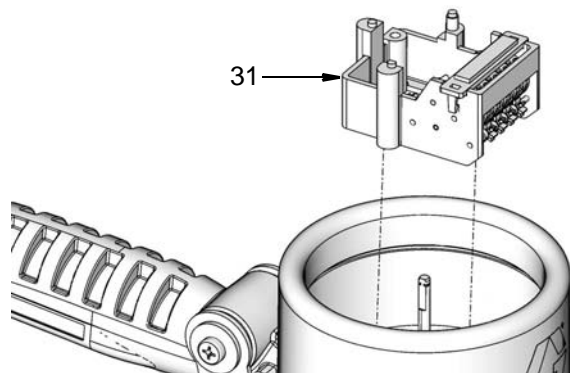


FIG. 20

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.

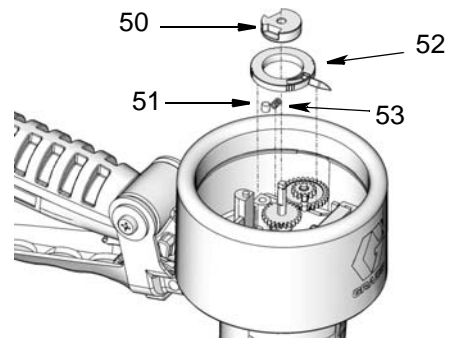


FIG. 23

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).

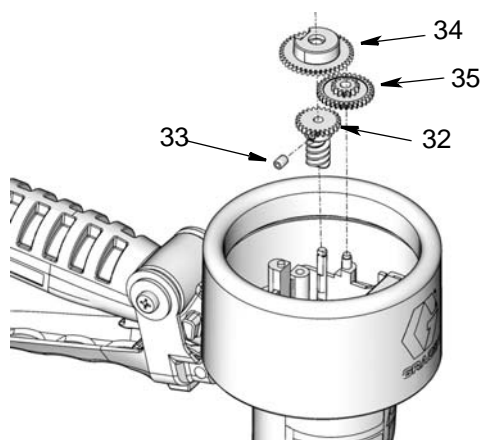


FIG. 21

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

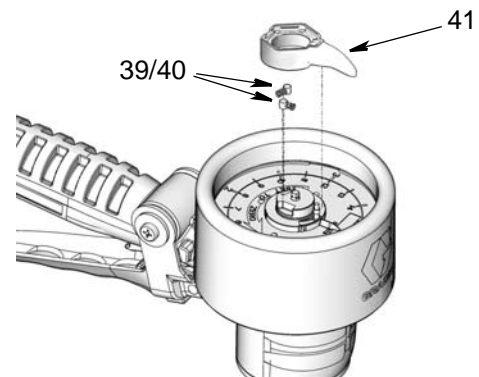


FIG. 24

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

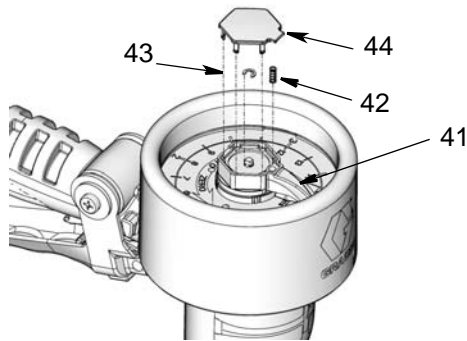


FIG. 25

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

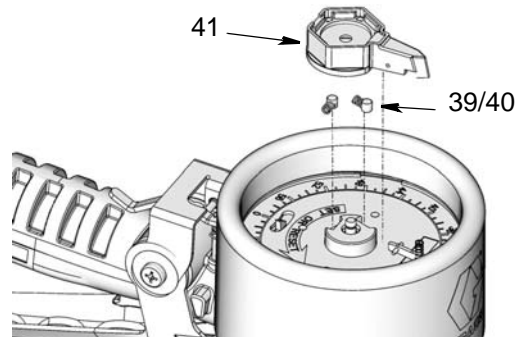


FIG. 27

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).

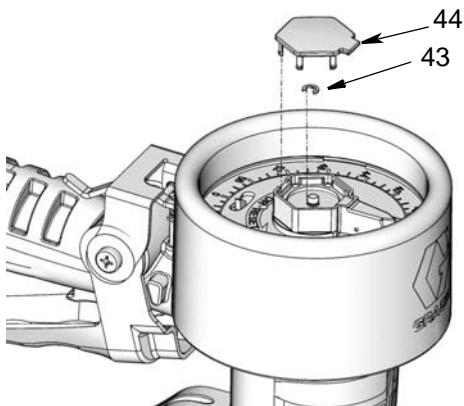


FIG. 26

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

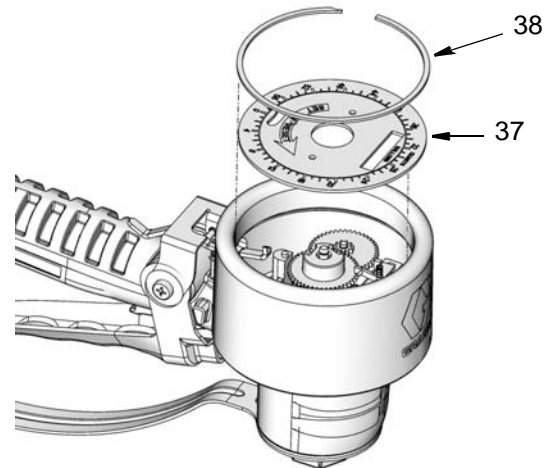


FIG. 28

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

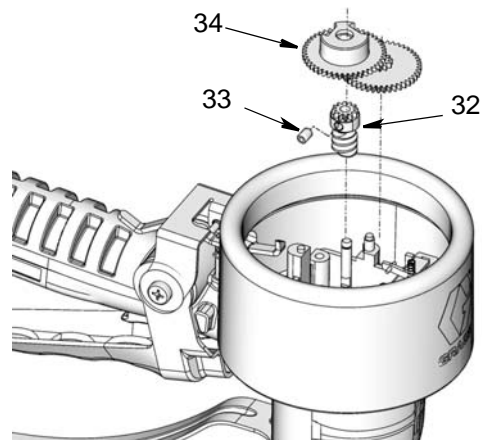


FIG. 29

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

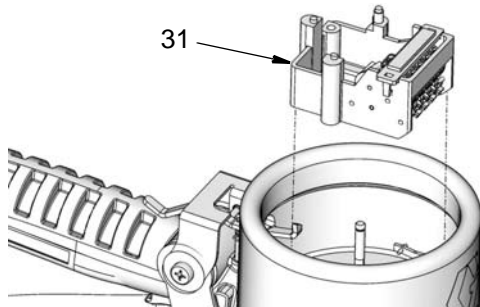


FIG. 30

Reassembly

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

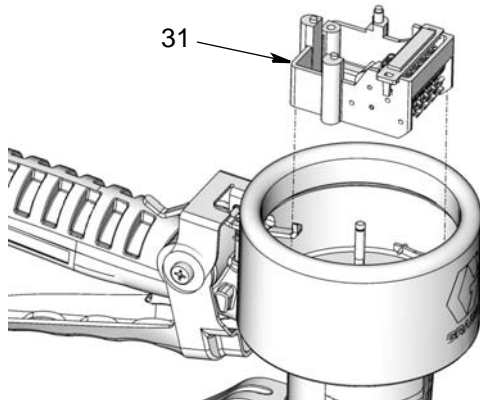


FIG. 31

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

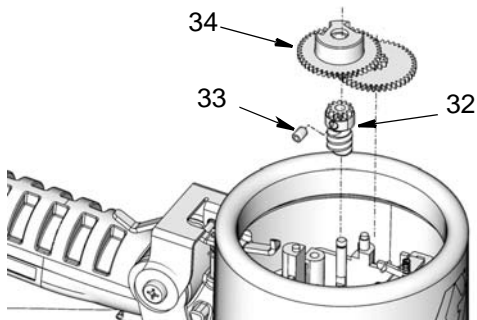


FIG. 32

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

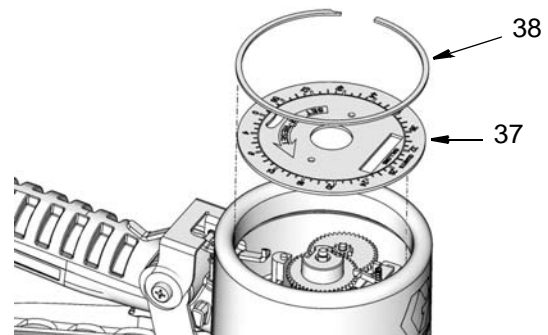


FIG. 33

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

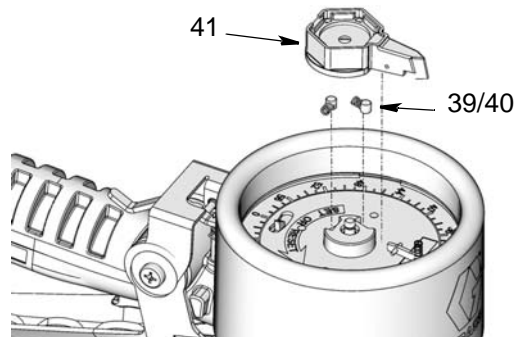


FIG. 34

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

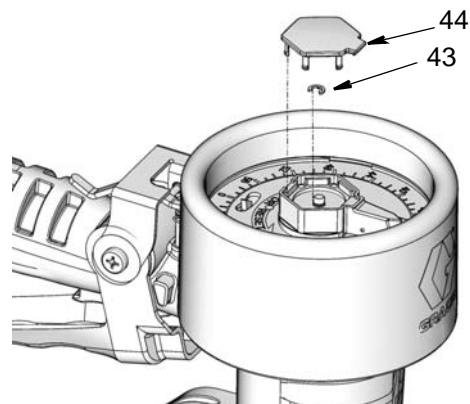


FIG. 35

Technical Data

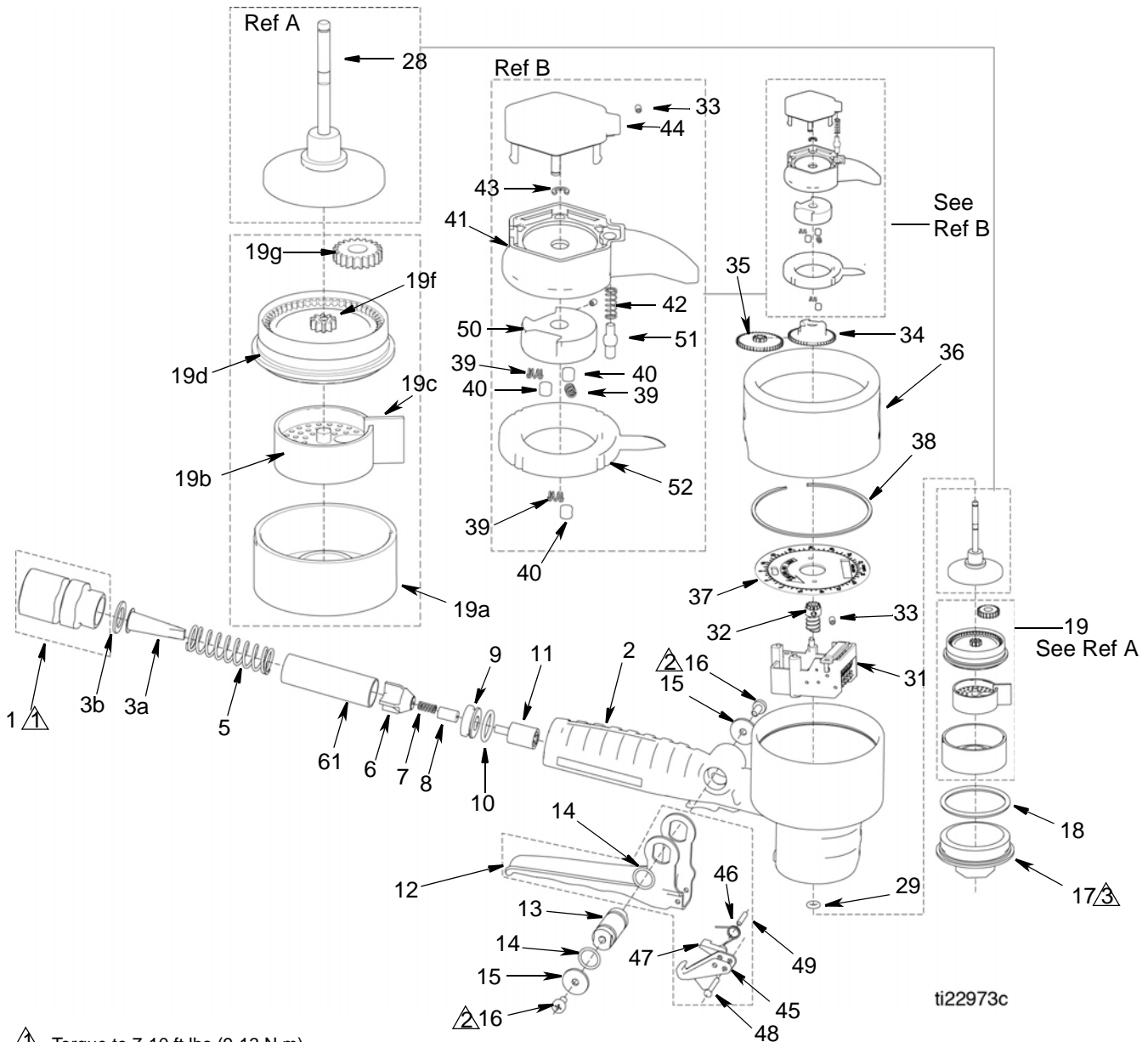
| Manual and Preset Meter | | |
|--|---------------------------------------|-------------------|
| | US | Metric |
| Flow rate* | 0.26 to 8 gpm | 1 to 30 lpm |
| Maximum working pressure | 1500 psi | 10 MPa, 103.4 bar |
| Weight | | |
| Manual Meter | 3.42 lbs | 1.55 kg |
| Preset Meter | 3.50 lbs | 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



Torque to 7-10 ft lbs (9-13 N.m)

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

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 |

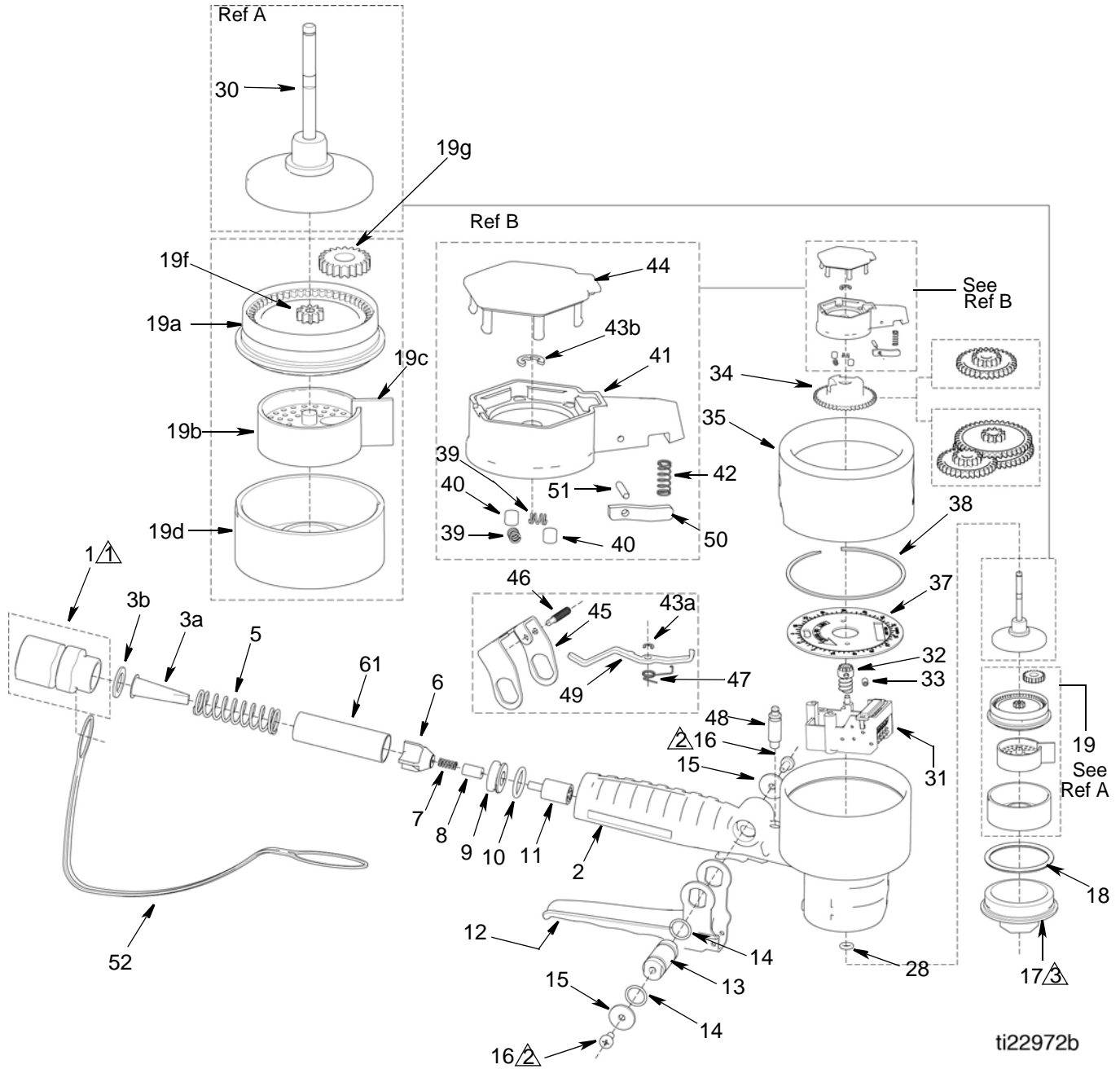
❖ Parts are included in Kit 24V460

† 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 |

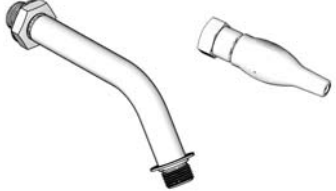
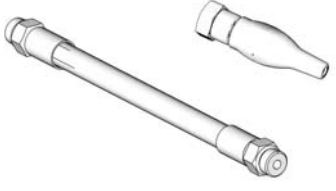
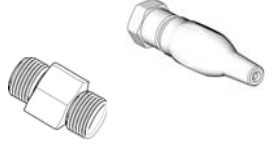
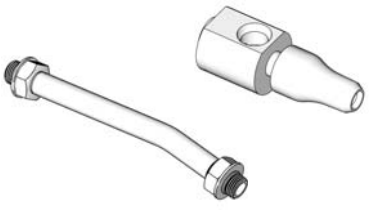

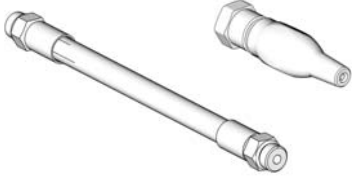
‡ Included in Kit 24V466

♣ 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

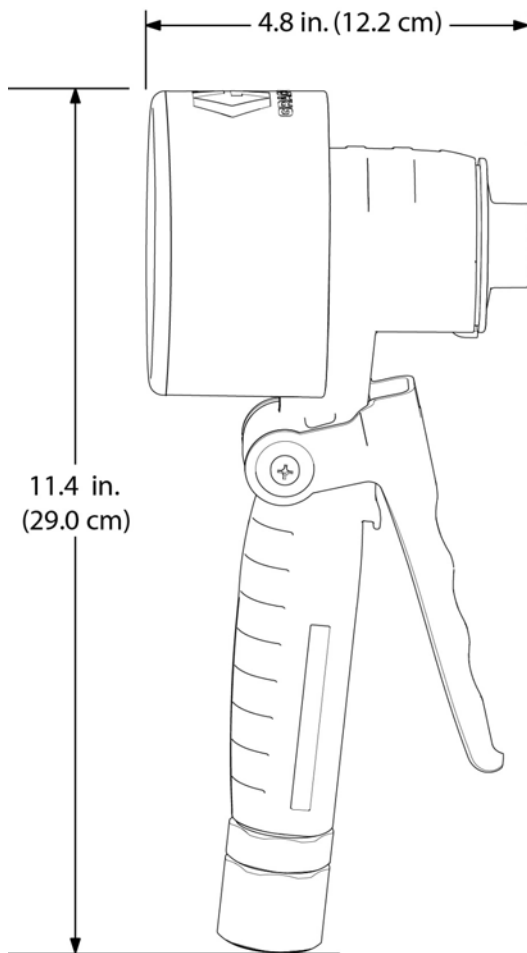


FIG. 36

Preset Meter

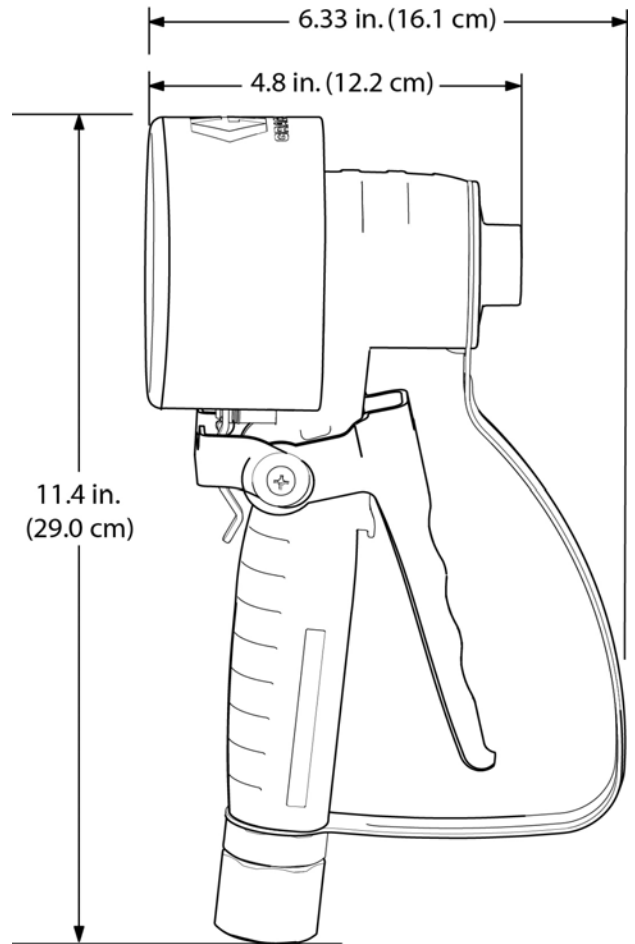


FIG. 37

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.

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.

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FOR GRACO CANADA CUSTOMERS

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