



INSTRUCTIONS

This manual contains important warnings and information.
READ AND KEEP FOR REFERENCE.

Electronic Lubricant Meter

Pistol-Grip Dispense Valves

1500 psi (103 bar) Maximum Working Pressure

FOR USE WITH PETROLEUM-BASED LUBRICANTS ONLY

WITHOUT NOZZLE

- 222-486 Measures in gallons/quarts/pints * †
222-505 Measures in liters † ‡

WITH NOZZLE

Measures in Gallons/Quarts/Pints*

- 222-431 For oil †
222-432 For gear lube † ‡
222-433 For A.T.F. †

Measures in Liters

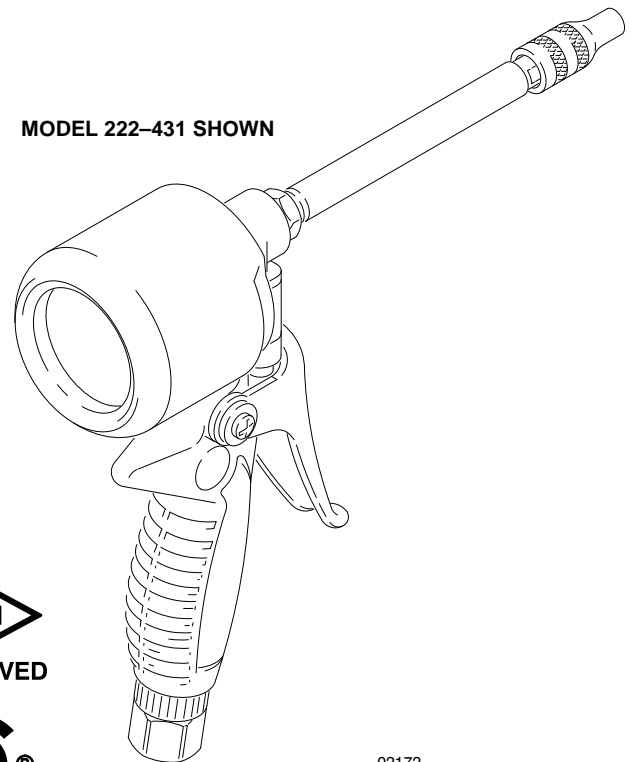
- 222-531 For oil † ‡
222-532 For gear lube † ‡
222-533 For A.T.F. † ‡

* Meter is factory-set in quarts.

† These products are Factory Mutual approved as intrinsically safe for Class I, Division 1, Groups A,B,C,D.

‡ These products are listed by the Canadian Standards Association as certified as intrinsically safe for Class I, Division 1, Groups A,B,C,D.

MODEL 222-431 SHOWN



02172

Table of Contents

Graco Phone Number	2
Technical Data	2
Warnings	3
Operation	
Meter	5
Dispense Valve	6
Service	
Troubleshooting	7
Meter	8
Dispense Valve	9
Parts Lists and Drawings	
Dispense Valve	9
Electronic Meter	10
Dispense Valves with Nozzles	11
Manual Change Summary	10
Graco Warranty	12

Graco Phone Number

TO PLACE AN ORDER, contact your Graco distributor, or call this number to identify the distributor closest to you: **1-800-367-4023 Toll Free**

Technical Data

Electronic Meter

Flow range *	0.12 to 12.0 gpm (0.456 to 45.6 lpm)
Maximum operating pressure	1500 psi (105 bar)
Weight (bare meter)	1.9 lb (0.95 kg)
Units of measurement	Factory-set in quarts. Display shows quantity in 0.01 increments up to 199.99 gallons, quarts, or pints. Totalizes in gallons or liters up to 19,999 units.
Operating temperature range	-4° F to 130° F (-20° C to 55° C)
Storage temperature range	-40° F to 140° F (-40° C to 60° C)
Battery specifications	
Rated discharge current	100 microamps
Rated capacity	1.0 amp hour
Maximum continuous discharge current	1.0 milliamp
Wetted parts	aluminum, nickel, bronze, stainless steel #304, cast ALNICO 8, nitrile rubber

* *Tested in No. 10 motor oil. Flow rates vary with fluid pressure and viscosity.*

Dispense Valve

Recommended maximum flow	5.0 gpm (19 lpm) under normal operating conditions
Maximum operating pressure	1500 psi (105 bar)
Weight (without meter)	4 lb (1.8 kg)
Inlet	1/2 npt
Wetted parts	aluminum, music wire, polyurethane, stainless steel, nitrile rubber

* *Tested in No. 10 motor oil. Flow rates vary with fluid pressure and viscosity.*

WARNING



INSTRUCTIONS

EQUIPMENT MISUSE HAZARD

Equipment misuse can cause the equipment to rupture or malfunction and result in serious injury.

- This equipment is for professional use only.
- Read all instruction manuals, tags, and labels before you operate this equipment.
- Use the equipment only for its intended purpose. If you are not sure, call your Graco distributor.
- Do not alter or modify this equipment.
- Check equipment daily. Repair or replace worn or damaged parts immediately.
- Do not exceed the maximum working pressure of the lowest rated system component. Refer to the **Technical Data** on page 2 for the maximum working pressure of this component.
- Use fluids and solvents which are compatible with the equipment wetted parts. Refer to the **Technical Data** section of all equipment manuals. Read the fluid and solvent manufacturer's warnings.
- Do not use 1,1,1-trichloroethane, methylene chloride, other halogenated hydrocarbon solvents or fluids containing such solvents in pressurized aluminum equipment. Such use could result in a chemical reaction, with the possibility of explosion.
- Do not use hoses to pull equipment.
- Route hoses away from traffic areas, sharp edges, moving parts, and hot surfaces. Do not expose Graco hoses to temperatures above 82° C (180° F) or below -40° C (-40° F).
- Do not lift pressurized equipment.
- Comply with all applicable local, state, and national fire, electrical, and safety regulations.

WARNING



INJECTION HAZARD

Spray from the dispensing valve, leaks or ruptured components can inject fluid into your body and cause extremely serious injury, including the need for amputation. Fluid splashed in the eyes or on the skin can also cause serious injury.

- Fluid injected into the skin may look like just a cut, but it is a serious injury. **Get immediate medical attention.**
- Do not point the dispensing valve at anyone or at any part of the body.
- Do not put your hand or fingers over the end of the dispensing valve.
- Do not stop or deflect leaks with your hand, body, glove or rag.
- Use only extensions and no-drip tips which are designed for use with your dispensing valve.
- Do not use a low pressure flexible nozzle with this equipment.
- Follow the **Pressure Relief Procedure** on page 7 before you clean, check, or service this equipment.
- Tighten all fluid connections before you operate this equipment.
- Check the hoses, tubes, and couplings daily. Replace worn or damaged parts immediately. Do not repair high pressure couplings; you must replace the entire hose.

Operation – Meter

⚠ CAUTION

Never operate the meter with the black plastic cover removed. The cover protects the meter from damage due to impact. Meters are factory sealed to keep moisture and dirt out. See the **Service** section before you service the meter.

⚠ CAUTION

To prevent line contamination, which can cause equipment malfunction or damage, flush the lines before you install this equipment in the system.

To Activate the Digital Display

Press the **RESET** key pad to clear the meter before you start a new dispense cycle. This is the best way to activate the meter since it also clears the quantity of the last dispense cycle.

The digital display can also be activated by pressing the **TOTAL** key pad or running fluid through the meter. See Fig. 1.

NOTE: The digital display of the meter goes blank after approximately two minutes of non-use.

Function of TOTAL

When the digital display is blank, press and release the **TOTAL** key pad to display the quantity of the last dispense cycle. See Fig. 2.

To see the accumulated total of fluid dispensed through the meter, press and hold the **TOTAL** key pad. The accumulated total is shown in gallons for the gallon/quart/pint meter, and liters for liter meter. The meter can accumulate a running total of up to 19999 gallons (or liters) dispensed before returning to zero. See Fig. 3.

Function of RESET

Press the **RESET** key pad to clear the quantity of the last dispense cycle and return the digital display to all zeros. See Fig. 1.

To Change the Measurement Units (gallon/quart/pint meter only)

The meter is factory-set to dispense in quarts. To change the measurement units, press and hold the **RESET** key pad until the measurement unit on the right side of the digital display is flashing. Then press the **TOTAL** key pad until the desired measurement unit is shown. Release both key pads. See Fig. 4.

⚠ CAUTION

To be sure the proper amount of fluid is dispensed, always use the same measurement unit for a particular fluid. Units should be changed only by authorized employees.

For Maximum Dispensing Accuracy (gallon/quart/pint meter only)

Set the meter to dispense in pints or quarts when dispensing 1 gallon or less.

Always press the **RESET** key pad to clear the meter before a new dispense cycle.



Fig. 1 DIGITAL DISPLAY

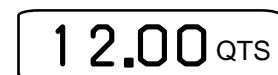


Fig. 2 EXAMPLE OF TOTAL FOR LAST DISPENSE CYCLE

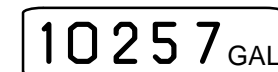


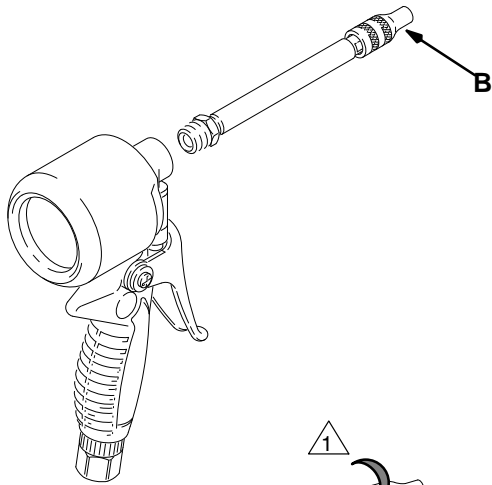
Fig. 3 EXAMPLE OF ACCUMULATED TOTAL



Fig. 4 EXAMPLE OF MEASUREMENT UNITS

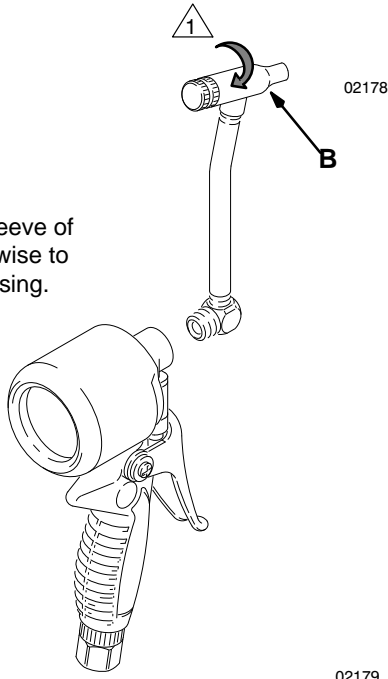
Operation – Dispense Valve

OIL



GEAR LUBE

⚠ Rotate knurled sleeve of coupler (B) clockwise to open it for dispensing.



A.T.F.

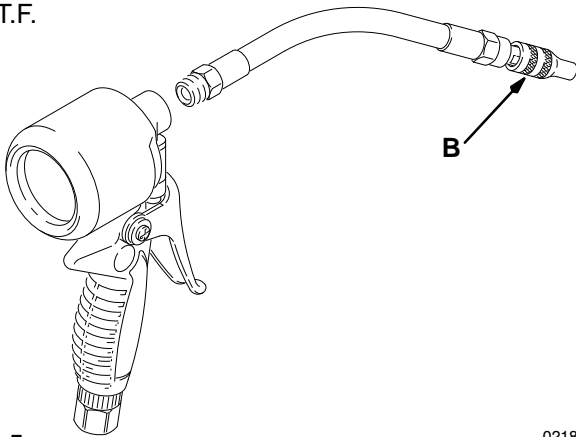


Fig. 5

02180

⚠ WARNING

To reduce the risk of fluid injection, always grasp the nozzle housing (B) from the threaded end, not from the front, when you adjust the nozzle.

⚠ CAUTION

To prevent line contamination, which can cause equipment malfunction or damage, flush the lines before you install this equipment in the system.

To Dispense from the Non-drip Nozzle

Turn the knurled sleeve clockwise until it is open. Trigger the gun.

When you Finish Dispensing

Release the trigger and screw the knurled sleeve fully counterclockwise to close the nozzle.

Press the **RESET** key pad on the meter to clear it before the next dispense cycle.

Clean the Strainer Frequently

Relieve pressure first. Remove the swivel (28) and pull out the strainer (A). Clean the filter in mineral spirits, being careful not to damage the strainer element. Assemble as shown and torque the swivel to 19 to 21 ft-lb (26 to 28 N-m). See Fig. 6.

⚠ Torque to 19 to 21 ft-lb (26 to 28 N-m).

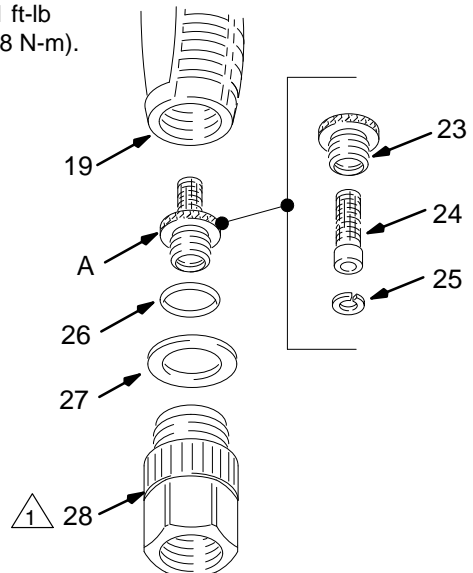
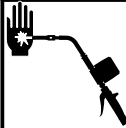


Fig. 6

Troubleshooting – Meter

⚠ WARNING



PRESSURIZED EQUIPMENT HAZARD
 The equipment stays pressurized until pressure is manually relieved. To reduce the risk of serious injury from pressurized fluid, accidental spray from the dispenser or splashing fluid, follow the **Pressure Relief Procedure** whenever you:

- Are instructed to relieve pressure
- Stop dispensing
- Check, clean, or service any system equipment
- Install or clean fluid nozzles

Pressure Relief Procedure

1. Turn off the power supply to the pump.
2. Trigger the valve into a waste container to relieve pressure.
3. Open any bleed-type master air valves and fluid drain valves in the system.
4. Leave the drain valve open until you have completed repairs and are ready to pressurize the system.

Troubleshooting

NOTE: Before you check or repair the meter, be sure all other valves, controls, and the pump are operating properly.

Problem	Cause	Solution
Digital display does not activate.	Electronic control is malfunctioning.	Replace the electronic control. Order Part No. 235–878 for gallons/quarts/pints. Order Part No. 235–901 for liters.
There is no fluid flow.	Metering unit is malfunctioning.	Replace the metering unit. Order Part No. 235–897 for gallons/quarts/pints. Order Part No. 235–898 for liters.
	Strainer is clogged.	Remove and clean strainer.
Digital display is dim.	Battery in electronic control is worn.	Replace electronic control within approximately one week of when you notice the dimness. See the part numbers above.

Service – Meter

⚠ CAUTION

To avoid damaging the electronic components of the control:

- **Always** use the personal grounding strap provided with a replacement metering unit and electronic control when you remove the cover (1), and while you replace the parts. This strap protects the electronic components from damage due to electrostatic discharge.
- Do not lay anything on the control.
- Be sure the open side of the control faces up if you lay it down.
- Do not twist or force parts. Align parts properly as instructed.

⚠ WARNING

To reduce the risk of a fire, explosion, and serious burns to the body, handle and dispose of a used electronic control (103) properly.

The electronic control contains a lithium battery. Do not short circuit, charge, force over discharge, disassemble, crush, penetrate, incinerate or heat the battery to a temperature exceeding 185° F (85° C). Any misuse or abuse of the battery may cause it to leak or explode.

1. Relieve the pressure.

⚠ WARNING

To reduce the risk of serious injury, when you are instructed to relieve pressure, always follow the **Pressure Relief Procedure** on page 7.

2. Attach the disposable grounding wrist strap to your wrist. Connect the adhesive-backed copper foil at the other end to any convenient electrical ground, such as the grounding screw or the metal case of a grounded electrical outlet.
3. Lift the bottom edge of the black cover (6) away from the meter (2), and pull the cover off. Remove and discard the screws (5). Lift off the electronic control (1). Remove and discard the large o-ring (4).
4. Install a new metering unit (2) and/or electronic control (1). Install the large o-ring (4) over the lip on top of the metering unit (2). Align the notch on the side of the electronic control (1) with the notch on the side of the metering unit (2). Install the new screws (5), and torque them oppositely and evenly to 4 to 6 in-lb (0.45 to 0.68 N-m).
5. Install the cover so the rolled-in edges are parallel with the inlet fluid passage of the metering unit.

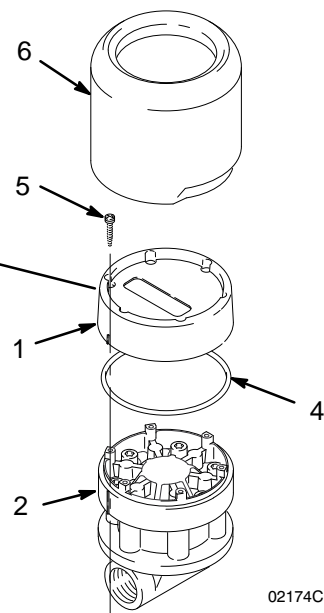
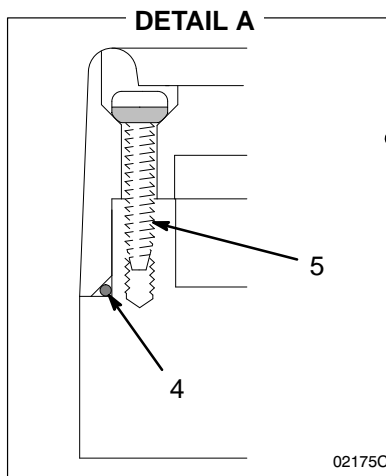


Fig. 7

Service – Dispense Valve

NOTE: The top of the pushrod (20) in the valve handle (19) fits into a notch in the cam (18), which is part of the trigger assembly. This is important when you remove or install parts.

Valve Handle Repair

1. Relieve the pressure.

⚠ WARNING

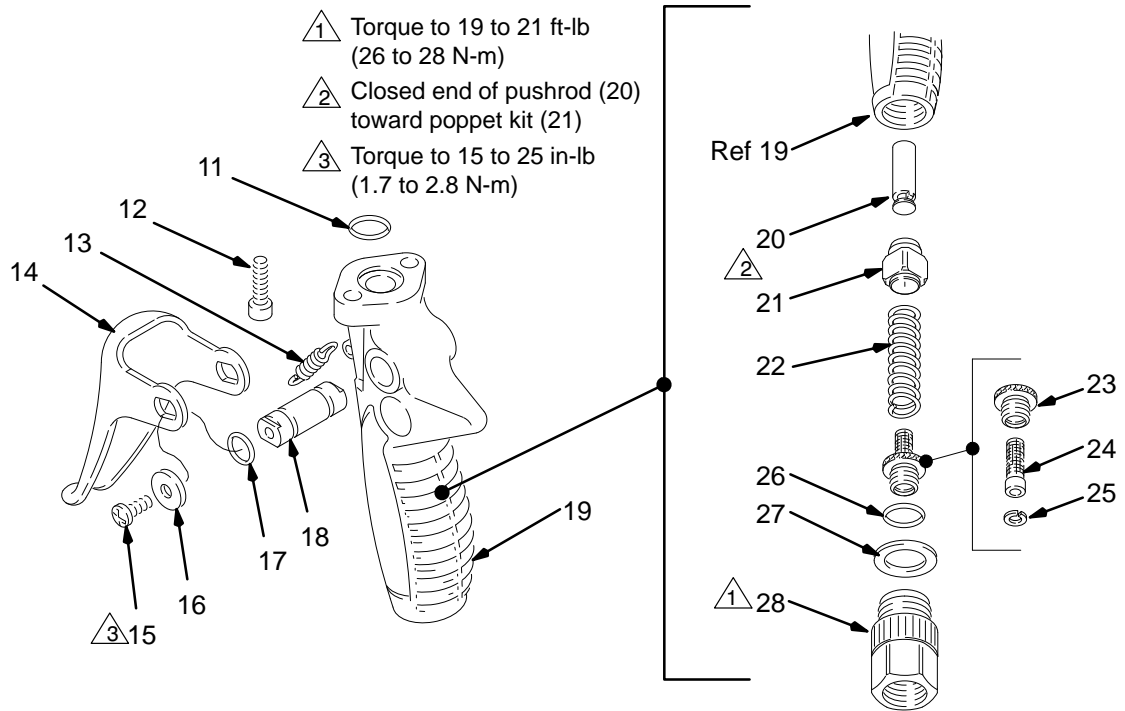
To reduce the risk of serious injury, when you are instructed to relieve pressure, always follow the **Pressure Relief Procedure** on page 7.

2. When you replace any part of the valve handle assembly, unscrew the swivel (28) and remove the parts.
3. Follow the parts drawing below to reassemble. Be sure all parts are installed correctly and that the top of the pushrod (20) is resting in the notch of the cam (18).

Trigger Repair

1. Relieve the pressure.
2. When you replace the quad ring seal (17) or the cam (18), the parts of the valve handle must be removed first. Install the cam and seals before installing the parts of the valve handle.

Parts – Dispense Valve



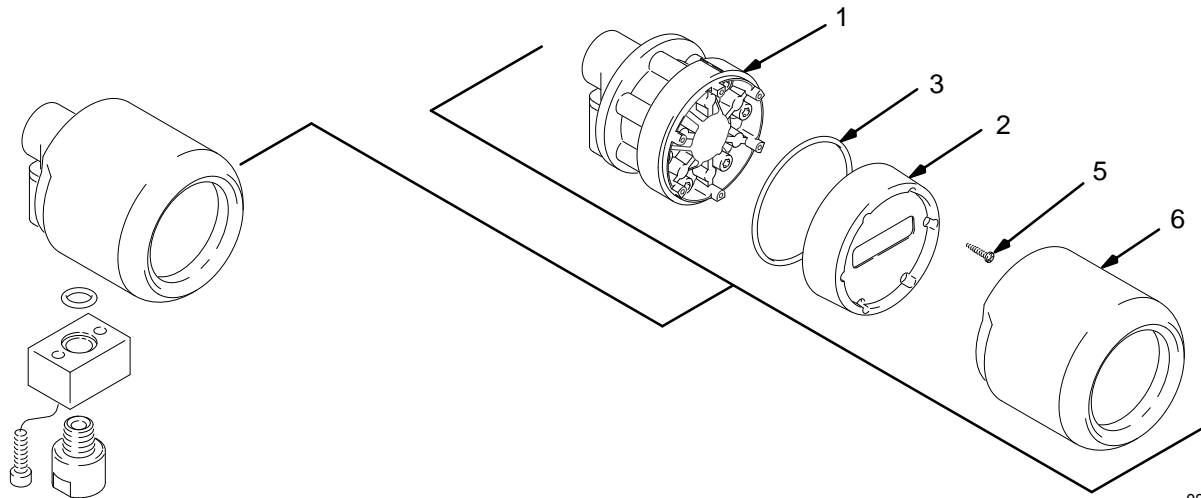
02181

NOTE: This valve has no model number; it is included with the pistol grip dispenser 222–486 and 222–505 shown on page 10.

Ref No.	Part No.	Description	Qty
11	107–187	O-RING, nitrile rubber	1
12	112–166	SCREW, socket head, 1/4–20 x 0.75"	2
13	110–174	SPRING, extension	1
14	185–258	TRIGGER	1
15	110–637	SCREW, 10–24 x 3/8"	2
16	160–172	WASHER, plain	2
17	110–173	SEAL, quad ring	2

Ref No.	Part No.	Description	Qty
18	185–257	CAM	1
19	185–221	HANDLE	1
20	185–320	PUSHROD, valve	1
21	222–647	POPPET KIT	1
22	110–175	SPRING, compression	1
23	185–408	HOUSING, strainer	1
24	185–415	STRAINER	1
25	110–340	RING, internal retaining	1
26	155–500	O-RING, nitrile rubber	1
27	111–853	GASKET	1
28	202–994	SWIVEL, 1/2"	1

Parts – Electronic Meter



02176B

Gallon/Quart/Pint Meter †

Ref No.	Part No.	Description	Qty
1	235-897*	METERING UNIT – gallon/quart/pint	1
2	235-878*	ELECTRONIC CONTROL, – gallon/quart/pint	1
3	109-137	O-RING	1
5	112-093*	SCREW	6
6	186-037	COVER	1

Liter Meter ‡

Ref No.	Part No.	Description	Qty
1	235-898*	METERING UNIT – liter	1
2	235-901*	ELECTRONIC CONTROL, – liter	1
3	109-137	O-RING	1
5	112-093*	SCREW	6
6	186-037	COVER	1

* Replacement screws are included with items 1 and 2.

† This meter is included with Pistol Grip Dispenser 222-486. See page 11.

‡ This meter is included with Pistol Grip Dispenser 222-505. See page 11.

⚠ WARNING

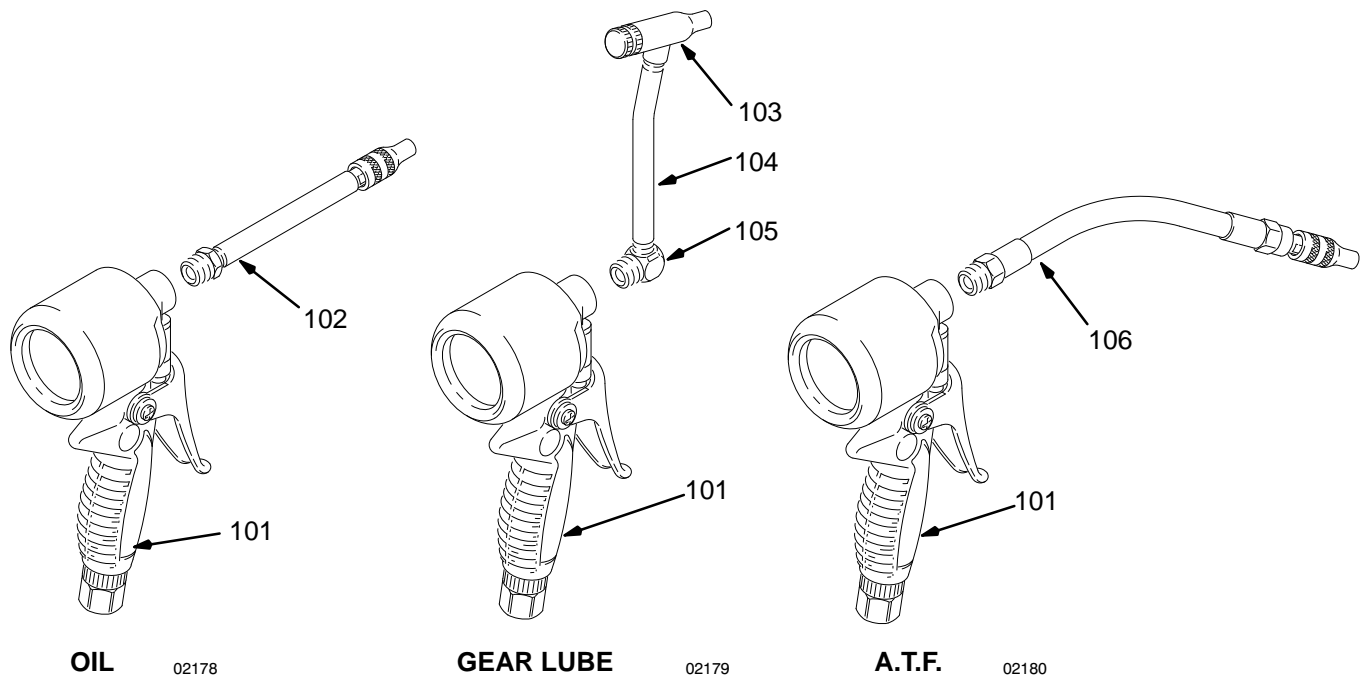
Use only genuine Graco replacement parts. The use of any other parts may impair the intrinsic safety of this meter. This could result in a failure which causes serious bodily injury and/or substantial property damage.

Manual Change Summary

The current revision of this manual contains the following changes:

- A caution about flushing the lines is added to the **Operation** sections on pages 5 and 6.
- The electronic meter bezel-mounting bosses (shown in Fig. 7 on page 8 and in the **Parts** drawing above), are raised by 0.18 in.

Parts – Valves with Dispense Nozzles



With Gallon/Quart/Pint Meter

Model 222-431 – For Oil

Ref No.	Part No.	Description	Qty
101	222-486	PISTOL-GRIP DISPENSER <i>see pages 8 & 9 for parts</i>	1
102	222-496	NOZZLE, oil	1

Model 222-432 – For Gear Lube

Ref No.	Part No.	Description	Qty
101	222-486	PISTOL-GRIP DISPENSER <i>see pages 8 & 9 for parts</i>	1
103	201-540	NOZZLE, gear lube	1
104	160-729	TUBE, nozzle	1
105	110-313	ADAPTER, pipe, 90°	1

Model 222-433 – For A.T.F.

Ref No.	Part No.	Description	Qty
101	222-486	PISTOL-GRIP DISPENSER <i>see pages 8 & 9 for parts</i>	1
106	203-687	NOZZLE, A.T.F.	1

With Liter Meter

Model 222-531 – For Oil

Ref No.	Part No.	Description	Qty
101	222-505	PISTOL-GRIP DISPENSER <i>see pages 8 & 9 for parts</i>	1
102	222-496	NOZZLE, oil	1

Model 222-532 – For Gear Lube

Ref No.	Part No.	Description	Qty
101	222-505	PISTOL-GRIP DISPENSER <i>see pages 8 & 9 for parts</i>	1
103	201-540	NOZZLE, gear lube	1
104	160-729	TUBE, nozzle	1
105	110-313	ADAPTER, pipe, 90°	1

Model 222-533 – For A.T.F.

Ref No.	Part No.	Description	Qty
101	222-505	PISTOL-GRIP DISPENSER <i>see pages 8 & 9 for parts</i>	1
106	203-687	NOZZLE, A.T.F.	1

The Graco Electronic Dispense Valve Warranty and Disclaimers

Graco warrants all equipment manufactured by it and bearing its name to be free from defects in material and workmanship on the date of sale by an authorized Graco distributor to the original purchaser for use. As purchaser's sole remedy for breach of this warranty, Graco will, for a period of twelve months from the date of sale, repair or replace any part of the equipment proven defective, with the exception of defects in the electronic meter control, including the battery, which will be repaired or replaced for twenty-four months from the date of sale. This warranty applies only when the equipment is installed, operated and maintained in accordance with Graco's written recommendations.

This warranty does not cover, and Graco shall not be liable for, 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 with Graco equipment of 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 claim. 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.

Disclaimers and Limitations. The terms of this warranty constitute purchaser's sole and exclusive remedy and are in lieu of any other warranties (express or implied), **including warranty of merchantability or warranty of fitness for a particular purpose**, and of any non-contractual liabilities, including product liabilities, based on negligence or strict liability. Every form of liability for direct, special or consequential damages or loss is expressly excluded and denied. In no case shall Graco's liability exceed the amount of the purchase price. Any action for breach of warranty must be brought within two (2) years of the date of sale.

Equipment not covered by Graco Warranty. Graco makes no warranty, and **disclaims all implied warranties of merchantability and fitness for a particular purpose**, with respect to accessories, equipment, materials, or components sold but not manufactured by Graco. These items sold, but not manufactured by Graco (such as electric motor, 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.

Sales Offices: Atlanta, Chicago, Detroit, Los Angeles
Foreign Offices: Belgium, Canada, England, Korea, Switzerland, France, Germany, Hong Kong, Japan

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PRINTED IN U.S.A. 307-994 July 1989, Revised January 1996