

INSTRUCTIONS-PARTS LIST



307-808

Rev A

This manual contains **IMPORTANT WARNINGS** and **INSTRUCTIONS**
READ AND RETAIN FOR REFERENCE

REPAIR KIT 220-457

For Viscount® II Hydraulic Motor, Models 210-107, 217-022, and 217-338

WARNING

Pressure Relief Procedure

To reduce the risk of serious bodily injury, including fluid injection, splashing in the eyes or on the skin, or injury from moving parts, always follow this procedure whenever the pump is shut off, when checking or servicing any part of the system, when installing or changing spray tips, and whenever you stop spraying.

1. Engage the spray gun or dispensing valve safety latch.
2. Turn off the hydraulic power supply and relieve hydraulic pressure.
3. Close the hydraulic supply valve, then the return valve.
4. Disengage the gun or dispensing valve safety latch.
5. Hold a metal part of the gun or valve firmly to a grounded metal waste container and trigger it to relieve the fluid pressure.
6. Engage the safety latch again.
7. Open the pump drain valve (required in system), having a container ready to catch the drainage.
8. Leave the drain valve open until you are ready to spray again.

If you suspect that the spray tip or hose is completely clogged, or that pressure has not been fully relieved after following the steps above, VERY SLOWLY loosen the hose end coupling and relieve pressure gradually, then loosen completely. Now clear the tip or hose obstruction.

CAUTION

Cleanliness is essential when repairing hydraulic motors. Take special care to avoid getting dust or dirt into the motor during service.

NOTE: Reference letters and numbers in the text refer to the Parts Drawing on page 3. The drawing shows Model 210-107, which has a different base than Models 217-022 and 217-338. All of the parts replaced by this kit are the same in all three models. Procedures are identical except where noted.

INSTALLATION

NOTE: This kit updates the motor to a new, improved valve system by replacing the spool (37), springs (29), gaskets (25), and spring retaining plugs (28). These parts must be replaced as a group. The kit also contains a new trip rod and piston stop, should the existing parts need replacement.

Disassembly

1. Follow the **Pressure Relief Procedure** at left. Disconnect the hydraulic supply, return and drain lines from the motor. Remove the pump from its mounting.
2. Disconnect the displacement pump from the motor as explained in your separate pump or system instruction manual. Plug the hydraulic lines to keep dirt out.
3. Place the hydraulic motor in a bench vise.
4. *On Model 210-107 only*, remove the drip pan screws (A) and drip pan (B) from the motor base (C). Unscrew the drip cover retainer screw (D) and remove the drip cover (E) from the piston (F).
5. Push the piston (F) up as far as possible, to engage the detent mechanism. Tap the piston lightly if necessary.
6. Crack loose *but do not remove* the four tie rod locknuts (G), the compression nuts on the hydraulic tube (H), and the three socket screws (J), fastened with Loctite®, which hold the end cap (K).
7. Remove the motor from the vise and place it on its side in a pan.
8. Remove the detent assembly, consisting of the spring retaining plug (28), gasket (25), spring (29), ball guide (L), and ball (M) from one side of the motor. The spacer(s) (N) may remain in the plug. If the ball or other parts stick in the upper housing (P), turn the motor over and tap lightly. Do not allow the parts to fall into the motor. Repeat the procedure for the detent assembly on the other side of the motor. Discard the plugs, spacers, gaskets, and springs. Retain the balls and guides.
9. Unscrew the top and bottom compression nuts on the hydraulic tube (H) and remove the tube. Allow the oil to drain from the motor into the pan. Remove the three socket screws (J) holding the end cap (K).

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- Remove the four tie rod locknuts (G). Model 210-107 may be turned upright for the remainder of the procedure, if desired. Models 217-022 and 217338 should remain on their side. Remove the four tie rods (R) and washers (S), but do not remove the crown nuts (T) from the top of the rods.

CAUTION

With the tie rods removed, the assembly may separate at the joints between the cylinder (U) and the upper and lower housings (P and V).

- Remove the stop plug (W) from the upper housing (P). Pull the upper housing about 2-3 in. off the cylinder (U). You may have to rock the housing to work it free. It is not necessary to remove the cylinder from the lower housing (V).
- Hold the trip rod (36) steady with an adjustable wrench on the flats of the rod, and remove the top hex nut (X) from the trip rod.
- Lift the valve spool (37) off the trip rod. Discard the spool. Save the trip rod guide (Y) and spring (Z) that came off with the spool, and the guide and spring that remained inside the upper housing. Remove the upper housing.

NOTE: Carefully inspect the trip rod above the shoulder for scoring or damage. There must be no reduction in rod diameter. If the trip rod or piston stop require replacement, proceed with Step 14. If not, skip to Step 3 under Reassembly.

- Pull the trip rod and piston from the lower housing (V) and cylinder (U). Place the piston (F) in a vise, making sure to tighten the vise on the flats of the piston. Use a hammer and punch to remove the retainer (AA) (fastened with Loctite®). Remove the trip rod (36) from the piston (F). Remove the trip rod locknut (BB) and piston stop (33).

Reassembly

- Install the new piston stop (33) on the trip rod. Reinstall the locknut (BB). Check that the compression spring (CC) is in place in the piston (F). Slide the new trip rod (36) into the piston (F). Apply low strength sealant or Loctite® TL-222 to the threads of the retainer (AA). With the piston flats in a vise, screw the retainer *all the way* into the piston. This is important to prevent the retainer from backing out during operation and damaging the motor.
- Reinstall the trip rod and piston into the cylinder (U) and lower housing (V) so the top of the piston is flush with the top of the cylinder.
- Reinstall the upper housing (P), making sure that the tube fittings align with those on the lower housing. The trip rod will protrude from the top.
- Slide the lower trip rod guide (Y) and spring (Z) onto the trip rod. Install the spool (37) with the detent at the top. (See inset in Parts Drawing.) Install the top spring (Z) and guide (Y) on the trip rod. Lift up the upper housing, hold flats of the trip rod with an adjustable wrench, and install the top hex nut (X).

- Set the stop plug (W) atop the spool (37). Reinstall the end cap (K), using low strength Loctite on the socket screws (J). Install the tie rods (R) and washers (S). On Model 210-107, use a torque wrench on the crown nuts (T), and torque the rods into the base (C) at 70-80 ft-lb (95-108 N·m). Hand tighten the tie rod locknuts (G).

- With the motor on its side, install the detent assemblies. Install the ball (M), guide (L) with the concave surface toward the ball, spring (29), gasket (25) and retaining plug (28). Repeat on the other side of the motor.

NOTE: Use all the new parts in the kit. The plugs (28), springs (29), gaskets (25) and spool (37) must be replaced as a group.

- Reinstall the hydraulic tube (H) and tighten the compression nuts snugly.
- Torque the four tie rod locknuts (G) to 20-30 ft-lb (27-41 N·m) on Model 210-107, or 70-80 ft-lb (95-108 N·m) on Models 217-022 and 217338.
- On Model 210-107 only, reinstall the drip cover (E) and screw (D) on the bottom of the piston (F). Reinstall the drip pan (B) and screws (A), making sure the drain adapter aligns with the drain port in the base.
- Reinstall the motor on the displacement pump. Reconnect all fluid lines, and the ground wire, if it was disconnected before service.

PARTS LIST

REF PART NO. NO.	DESCRIPTION	QTY
25	GASKET, plug	2
28	150-114 PLUG, spring retaining	2
33	108-522 SPRING, helical compression	2
	STOP, piston	1
36	ROD, trip	1
37	171-407 SPOOL, valve	1

Refer to How To Order Replacement Parts.

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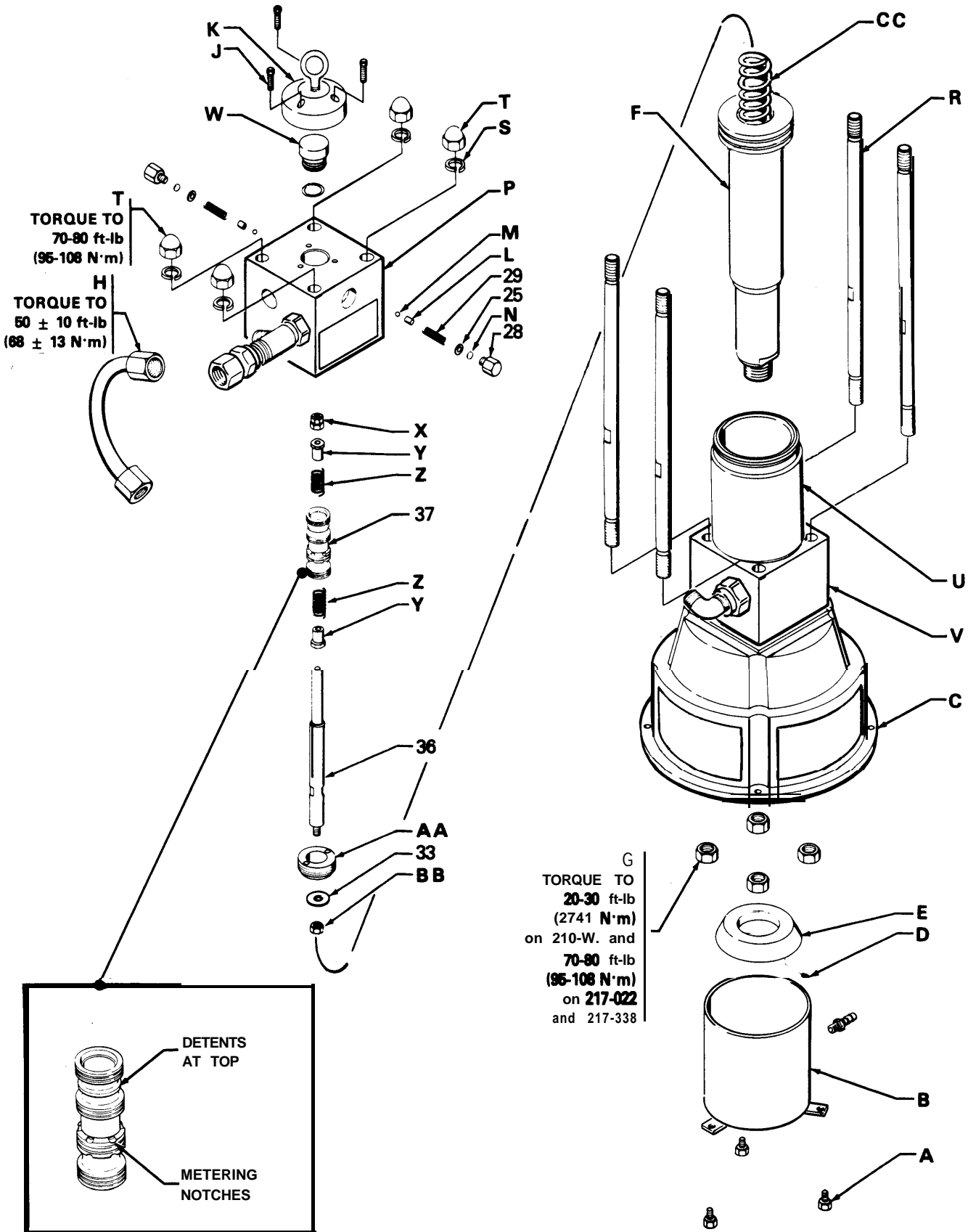
HOW TO ORDER REPLACEMENT PARTS

- To be sure you receive the correct replacement parts, kit or accessories, always give all of the information requested in the chart below.
- Check the parts list to identify the correct part number; do not use *the* ref. no. when ordering.
- Order all parts from your nearest Graco distributor.

6 digit PART NUMBER	QTY	PART DESCRIPTION

PARTS DRAWING

Model **210-107**, Series J shown



THE GRACO WARRANTY AND DISCLAIMERS

WARRANTY

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. 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 voided upon the prepaid return of the equipment claimed to be defective for examination by Graco to verify 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 show 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, how, 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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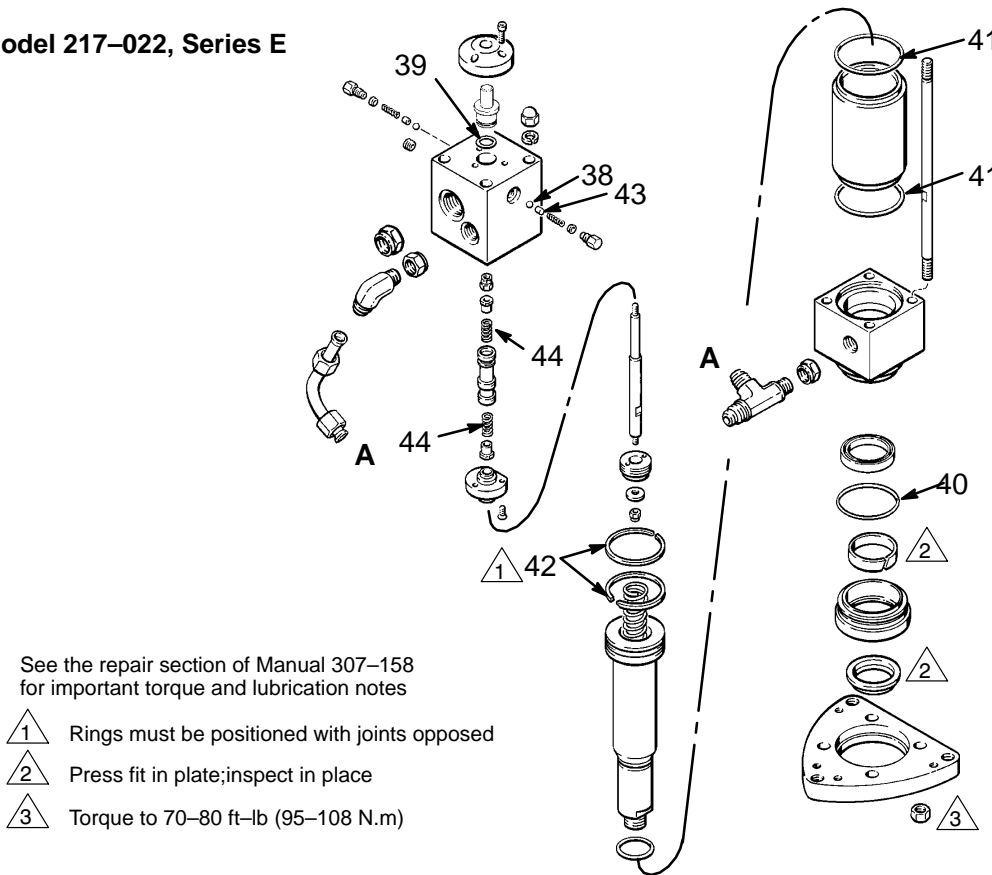
Parts Change Notice

Some parts in Rev. A of manual 307-808 have changed but have not yet been changed in the instruction manual. Please note the changes below and mark them in your manual or keep this sheet with your manual.

Assembly No.	Series Letter Change	Part That Changed	Ref No.	Part Description	Description of Change
220-457 Repair Kit	-	New	38	Ball, 1/4 in. Diameter	Part No. 101-701 (2)
	-	New	39	O-ring, Nitrile Rubber	Part No. 104-093 (1)
	-	New	40	O-ring, Nitrile Rubber	Part No. 104-280 (1)
	-	New	41	O-ring, Nitrile Rubber	Part No. 104-095 (2)
	-	New	42	Ring, Piston, Compression	Part No. 104-103 (2)
	-	New	43	Guide, Ball	Part No. 167-210 (2)
	-	New	44	Spring, Compression	Part No. 171-411 (2)

Keep these parts on hand to reduce down time. Use as necessary. See hydraulic motor instruction manual for details.

Model 217-022, Series E



See the repair section of Manual 307-158 for important torque and lubrication notes

- 1 Rings must be positioned with joints opposed
- 2 Press fit in plate; inspect in place
- 3 Torque to 70-80 ft-lb (95-108 N.m)

