

Quiet Viscount® II Hydraulic Motor

308048N

EN

*Used as hydraulic drive for reciprocating pumps.
For professional use only.*

Model 223646, Series C and D

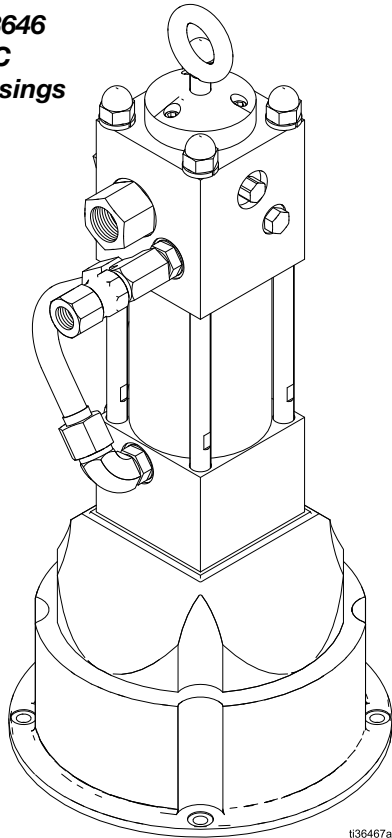
1500 psi (10 MPa, 103 bar) Maximum Hydraulic Fluid Input Pressure



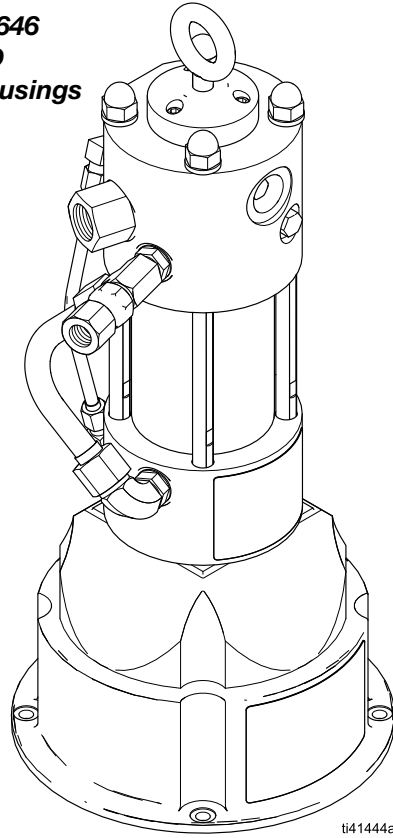
Important Safety Instructions

Read all warnings and instructions in this manual before using the equipment. Save these instructions.

**Model 223646
Series C
Square Housings**



**Model 223646
Series D
Cylindrical Housings**



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IMPORTANT









The design of the Viscount II hydraulic pump upper and lower motor housings has been updated. This cylindrical design replaces the square housing design previously used. There is no performance change associated with this update.

If replacement of a square housing is necessary, both upper and lower housings should be converted to the cylindrical design as it is not backwards compatible. IF REPLACEMENT HOUSING 16F140 IS NEEDED, YOU MUST ORDER REPLACEMENT HOUSING 20B232 TO UPGRADE SYSTEM TO CYLINDRICAL HOUSINGS DESIGN.









Unless otherwise specified in this manual, all Instructions apply to both Square and Cylindrical Series of Models.

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.

 <h2 style="margin: 0;">WARNING</h2>	
 	<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 Specifications in all equipment manuals. • Use fluids and solvents that are compatible with equipment wetted parts. See Technical Specifications in all equipment manuals. Read fluid and solvent manufacturer's warnings. For complete information about your material, request Safety Data Sheets (SDSs) from distributor or retailer. • 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>SKIN INJECTION HAZARD</p> <p>High-pressure fluid from gun, 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 spray without tip guard and trigger guard installed. • Engage trigger lock when not spraying. • Do not point gun at anyone or at any part of the body. • Do not put your hand over the spray tip. • Do not stop or deflect leaks with your hand, body, glove, or rag. • Follow the Pressure Relief Procedure when you stop spraying 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. • Use only Graco approved hoses. Do not remove any spring guard that is used to help protect the hose from rupture caused by kinks or bends near the couplings.



WARNING

 	<p>MOVING PARTS HAZARD Moving parts can pinch, cut or amputate fingers and other body parts.</p> <ul style="list-style-type: none"> • Keep clear of moving parts. • Do not operate equipment with protective guards or covers removed. • Equipment can start without warning. Before checking, moving, or servicing equipment, follow the Pressure Relief Procedure and disconnect all power sources.
   	<p>FIRE AND EXPLOSION HAZARD Flammable fumes, such as solvent and paint fumes, in work area can ignite or explode. Paint or solvent flowing through the equipment can cause static sparking. 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 pilot lights, cigarettes, portable electric lamps, and plastic drop cloths (potential static sparking). • Ground all equipment in the work area. See Grounding instructions. • Never spray or flush solvent at high pressure. • Keep work area free of debris, including solvent, rags and gasoline. • Do not plug or unplug power cords, or turn power or light switches on or off when flammable fumes are present. • Use only grounded hoses. • Hold gun firmly to side of grounded pail when triggering into pail. Do not use pail liners unless they are anti-static or conductive. • 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>TOXIC FLUID OR FUMES HAZARD Toxic fluids or fumes can cause serious injury or death if splashed in the eyes or on skin, inhaled, or swallowed.</p> <ul style="list-style-type: none"> • Read Safety Data Sheets (SDSs) to know the specific hazards of the fluids you are using. • Store hazardous fluid in approved containers, and dispose of it according to applicable guidelines.
	<p>PERSONAL PROTECTIVE EQUIPMENT Wear appropriate protective equipment when in the work area to help prevent serious injury, including eye injury, hearing loss, inhalation of toxic fumes, and burns. Protective equipment includes but is not limited to:</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.

Installation

				
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Maximum Hydraulic Input Pressure
 The maximum safe hydraulic input pressure to this motor depends on the lower displacement pump to which it is connected.
 Refer to the lower manual and the pump manual for the maximum fluid working pressure and the ratio.
 Never exceed the maximum fluid working pressure of the pump. Serious injury or damage to the equipment may result.

				
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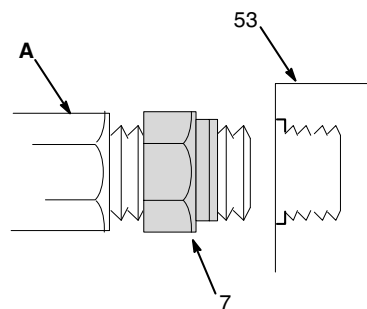
To reduce the risk of serious injury whenever you are instructed to relieve pressure, always follow the Pressure Relief Procedure on page 8.
 Be sure you always shut off the supply line shutoff valve (E) first, and then the return line shutoff valve. This is to prevent over pressurizing the motor or its seals. When starting up the hydraulic system, open the return line shutoff valve first.

NOTICE				
Keep the hydraulic system clean				
To reduce the risk of damaging the hydraulic power supply, blow out all hydraulic lines with air, flush thoroughly with solvent, and then blow out with air again before connecting the lines to the motor.				
Always plug the hydraulic inlets, outlets and lines when disconnecting them to avoid introducing dirt and other contaminants into the system.				
Carefully follow the manufacturer's recommendations on reservoir and filter cleaning, and periodic changes of hydraulic fluid.				

NOTICE
Recommended Hydraulic Oil
Use Graco-approved Hydraulic Oil, Part No. 169236 (5 gal) or 207428 (1 gal) or a premium, ISO grade 46 petroleum-based hydraulic oil containing rust and oxidation inhibitors and anti-wear agents.
Before using any other type of oil in this motor, contact your Graco distributor. Unauthorized use of lesser grade oil or substitutes may void the warranty.
Hydraulic Oil Working Temperature
The recommended hydraulic oil operating temperature is 80 - 115° F (27 - 45° C). The motor seals will wear faster and leakage may occur if the pump is operated at higher oil temperatures.
If the hydraulic oil temperature approaches 130° F (54° C), check the hydraulic fluid supply cooling system, filters, etc. and clean or repair as needed.

Refer to the complete pump manual for detailed installation information or contact your Graco distributor.




NOTE: A 1 in. npt seal (7) is supplied in a plastic bag with the motor. Thread the seal onto the threads of your hydraulic return line fitting (A). Thread the fitting into the upper housing (53) and torque as needed. Then tighten the seal (7) against the motor to provide a secure seal. See Fig. 1.



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FIG. 1 _____

Grounding

				
<p>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.</p>				

Proper grounding is an essential part of maintaining a safe system.

Check your local electrical code for detailed grounding instructions for your area and type of equipment. Be sure to ground all of this equipment:

- **Pump:** use a ground wire and clamp as shown to the right.
- **Hydraulic hoses and fluid outlet hoses:** use only electrically conductive hoses.
- **Hydraulic power supply and air compressor:** follow manufacturer's recommendations.
- **Spray gun:** obtain grounding through connection to a properly grounded fluid hose and pump.
- **Fluid supply container:** according to local code.
- **Object being sprayed:** according to local code.
- **Any pails used when flushing:** Use only metal, grounded pails when flushing. Make firm metal-to-metal contact between the metal part of the spray gun and the pail. Use the lowest possible pressure.
- To maintain grounding continuity when flushing or relieving pressure, always hold a metal part of the gun firmly to the side of a grounded metal pail, and then trigger the spray gun.

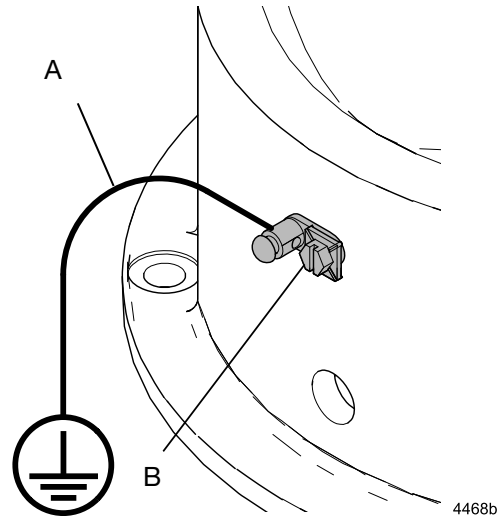


FIG. 2

Service

Pressure Relief Procedure

SKIN INJECTION HAZARD

The system pressure must be manually relieved to prevent the system from starting or spraying accidentally. Fluid under high pressure can be injected through the skin and cause serious injury. To reduce the risk of an injury from injection, splashing fluid, or moving parts, follow the Pressure Relief Procedure whenever you:

- are instructed to relieve the pressure,
- stop spraying,
- check or service any of the system equipment,
- or install or clean the spray tip.

1. Lock the gun trigger safety.
2. Shut off the hydraulic power supply.
3. Close the supply line shutoff valve, and then the return line shutoff valve.
4. Unlock the gun trigger safety.
5. Hold a metal part of the gun firmly to the side of a grounded metal pail, and trigger the gun to relieve pressure.
6. Lock the gun trigger safety.
7. Open the drain valve (required in your 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 tip guard retaining nut or hose end coupling and relieve pressure gradually, then loosen completely. Now clear the obstruction.

Before you start:

Be sure you have all necessary parts on hand.



1. **Repair Kit 223654** is available. The kit must be purchased separately. An asterisk behind a reference number in the parts list, for example (21*), indicates that the part is included in the repair kit.

2. Clean all parts as you disassemble them and inspect them for wear or damage. Replace parts as necessary. Use Loctiter TL--242 thread sealant, or the equivalent, when thread sealant is specified.

Disassembly (Refer to pg. 11)

NOTE: Use all the replacement parts that are in the repair kit.

1. Flush the displacement pump if possible.

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

2. **Relieve the pressure.**
3. Stop the pump at the bottom of its stroke.

NOTICE

Avoid getting dust or dirt in the motor during service. Cleanliness is essential when repairing a hydraulic motor. Foreign particles like dust or dirt in the hydraulic fluid can increase friction between moving parts and increase component wear.

4. Disconnect the displacement pump hoses. Disconnect the hydraulic hoses and plug all hydraulic connections and lines to prevent contamination.

NOTICE

When removing the displacement pump, hold it securely. The pump is heavy and could fall off the motor if not held securely, causing damage to the outside of the pump.

5. Disconnect the displacement pump from the motor, as explained in your separate pump manual.
6. Place the hydraulic motor in a bench vise.
7. Push or lightly tap the piston (30a) up as far as possible.

NOTE: The tie rod nuts (19), socket screws (51), cap screws (36), and retainer (30b) are fastened with Loctite® TL--242. Heat may be used sparingly to soften adhesive sealant during disassembly.

8. Remove the cap screws (12), the drip pan (16), the drip cover (18), and machine screw (20) before loosening the tie rod nuts. Then remove the four tie rod nuts (19). Loosen the nuts (B) on the hydraulic tube (4) and loosen the tie rods (57).
9. Remove the motor from the vise and lay it in a pan.
10. Remove one detent assembly: retaining plug (39), o-ring (41), spring (40), ball guide (42) and ball (43). If the ball or other parts stick in the upper housing (53), turn the motor over and tap lightly. Do not allow the parts to fall into the motor. Repeat the procedure for the other detent assembly.
11. Remove the tie rods (57), but do not remove the crown nuts (44).
12. Remove the socket screws (51) and the end cap (47). Pull the stop plug (48) from the upper housing (53).
13. Unscrew the top and bottom compression nuts (B) on the hydraulic tube (4). Rotate the upper housing (53) and remove the tube, being careful not to damage the flare (A). Allow the oil to drain from the motor into the pan.

NOTICE

With the tie rods removed, the assembly may separate at the joints between the cylinder (29) and the upper and lower housings (53 and 25). Hold motor and housings securely when removing parts to avoid premature separation of large parts and possible damage to parts from falls.

14. Rock the upper housing (53) to work it free and lift it about 3 inches off the cylinder (29). The cylinder can stay in the lower housing (25).
15. Hold the trip rod (31) with an adjustable wrench on the flats of the rod, and remove the top hex nut (46) from the trip rod.
16. Remove the upper housing (53).
17. Remove the trip rod guides (37), compression springs (45) and valve spool (38) from the upper housing. Inspect the bearing inside of the guide (35) in place. If bearing is damaged replace item 35.

NOTE: Inspect the trip rod (31) above the shoulder for damage. There must be no reduction in diameter. Replace if necessary.

18. Pull the trip rod and piston from the lower housing (25) and cylinder (29). Place the piston flats (30a) in a vise; tighten the vise on the *flats of the piston*. Remove retaining ring (30c). Use a face spanner to remove the retainer (30b). Remove the trip rod (31) from the piston (30a).

19. Remove the trip rod locknut (27) and piston stop (28). If the piston is replaced, remove the spring (26) to use in the new piston.
20. Remove the bearing (23), packings (24), and o-ring (21).

Reassembly (Refer to pg. 11)

1. Install the bearing (23*) in the lower housing (25). Lubricate the seals (24*) with hydraulic oil. Install them in the lower housing (25) with the *lips facing up toward the top of the motor*.
2. Install the o-ring (21*) onto the lower housing (25).
3. Place the piston flats in a vise. Install the spring (26) inside the piston (30a). The compression rings (32*) must be positioned with the joints about 180° opposed.
4. Install the piston stop (28) and locknut (27) on the trip rod. Torque the nut to 117--123 in-lb (13.2-13.9 Nm). Slide the trip rod (31) into the piston (30a). Apply thread sealant to the retainer (30b) threads. With the piston flats in a vise, tighten retainer until it is slightly below the retaining ring groove. Install retaining ring (30c). This is important to prevent the retainer from backing out during operation and damaging the motor.

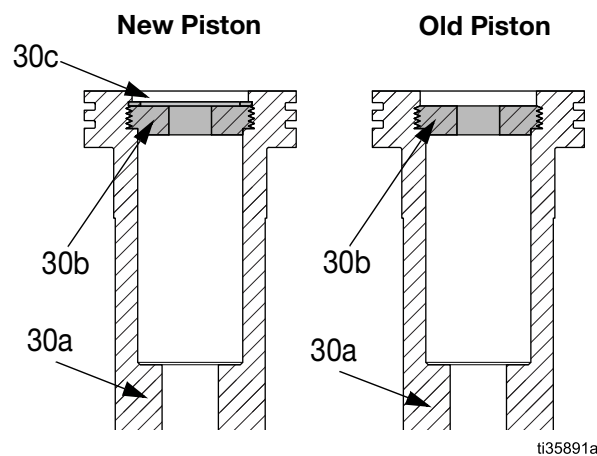


FIG. 3

NOTE: Graco recommends replacing piston (30a), retainer (30b), and retaining ring (30c) together in kits appropriate to motor configurations. Retainer (30c) can be used on old pistons without retaining groove, but must be threaded in completely.

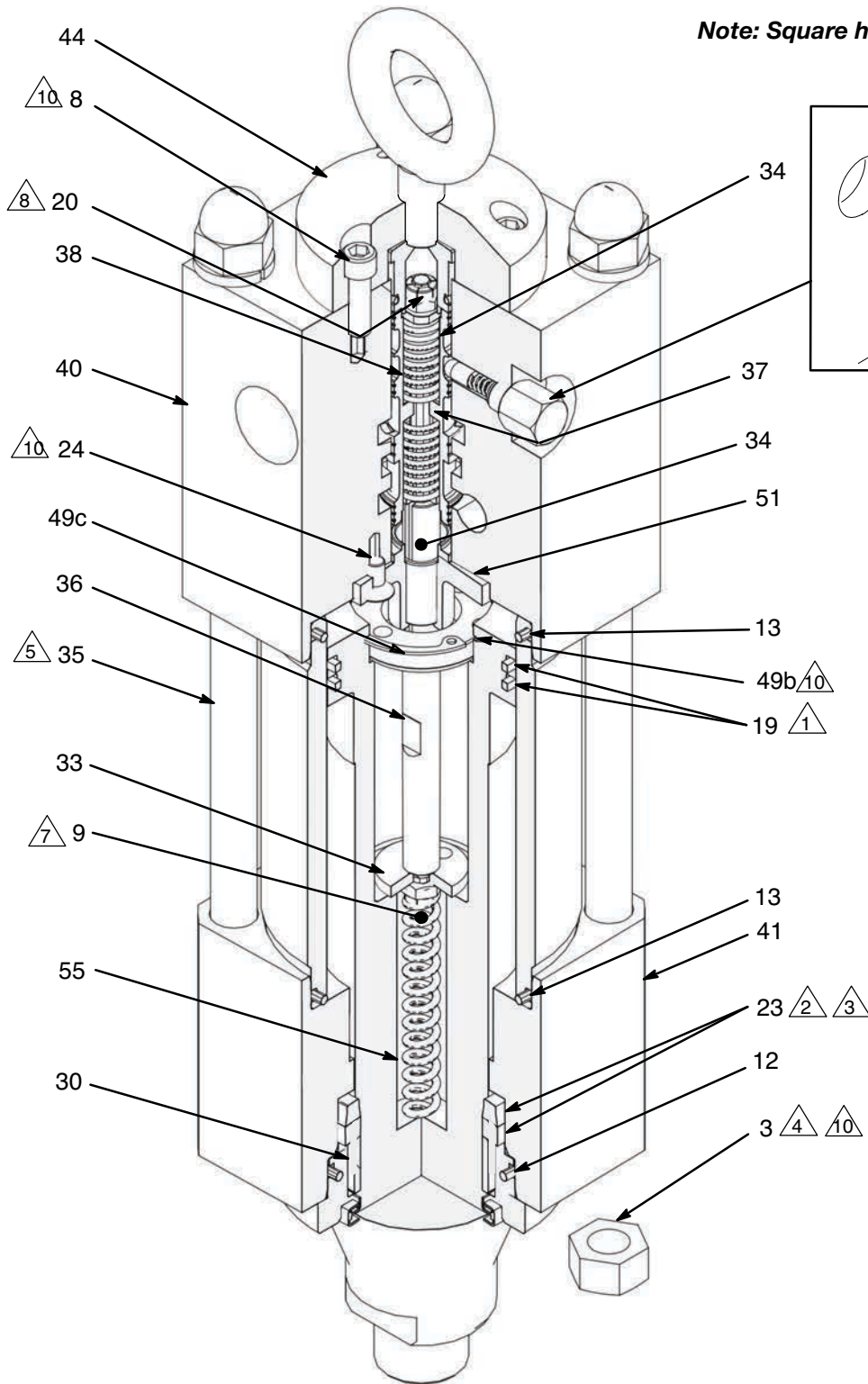
NOTE: Set base (2) on workbench during reassembly.

5. Install the o-ring (33*) onto the cylinder (29). Install the cylinder (29) into the lower housing (25).
6. Install the trip rod and piston into the cylinder (29) and lower housing (25) so the piston is recessed at least 1 inch (25 mm) from the top of the cylinder.

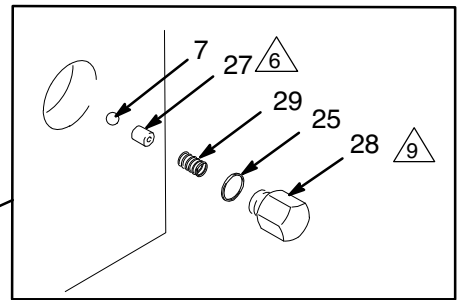
7. If the bearing and guide (35) was removed, install it on the upper housing (53) with the three screws (36) (apply thread sealant).
8. Hold the flats of the trip rod with an adjustable wrench and install the upper housing (53). The trip rod will protrude from the top.
9. Slide the lower trip rod guide (37) and spring (45) onto the trip rod. Install the spool (38) with the detent at the top. Install the top spring (45) and guide (37) on the trip rod. Install the top hex nut (46). Torque the nut to 82-88 in-lb (9.3-9.9 Nm).
10. Remove the adjustable wrench. Seat the upper housing (53) onto the cylinder (29), so the tube fittings align with those on the lower housing (25).

Reinstall the hydraulic tube (4) and **loosely** tighten the compression nuts.

11. Replace the o-ring (49*) on the stop plug (48). Seat the plug into the upper housing (53).
12. Install the end cap (47), using thread sealant on the socket screws (51).
13. Lubricate the threads of the tie rods (57) and install them with lockwashers (52). If the crown nuts (44) were removed, reinstall them and torque them onto the rods to 70-80 ft-lb (95-108 Nm).
14. Torque tie rods into base, apply thread sealant to tie rod threads, then torque the tie rod nuts (19) to 70--80 ft-lb (95-108 Nm).
15. With the motor on its side, install one detent assembly: the ball (43), guide (42) with the concave surface toward the ball, spring (40*), o-ring (41) and retaining plug (39). Torque the plug to 145--160 in-lb (16--18 N.m). Repeat for the other side of the motor.
16. Slide the drip cover (18) onto the piston (30a) up to the o-ring (17). Install screw (20) into the piston. Attach the drip pan (16) to the base using screws (12).
17. Snugly tighten the compression nuts on the hydraulic tube (4) and torque to 60--80 ft-lb (81--108 Nm).
18. Install the motor on the displacement pump. Reconnect all fluid lines. Be sure the ground wire is connected before operating the pump.



Note: Square housings shown



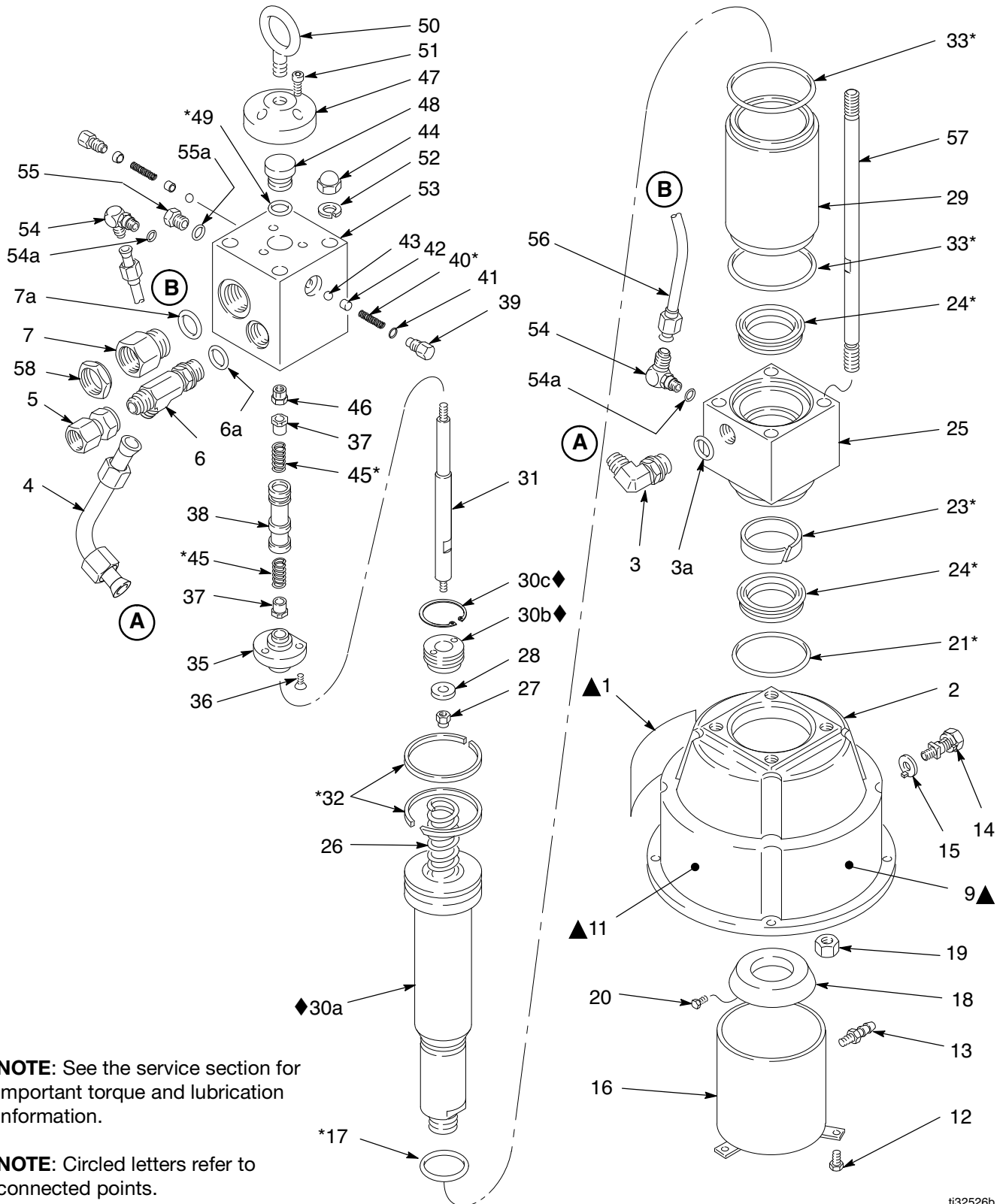
- △1 Rings must be positioned with joints opposed
- △2 Lips must face up toward top of motor
- △3 Model 235345 use only one seal (23)
- △4 Torque to 70--80 ft-lb (95--108 N.m)
- △5 Apply thread lubricant to lower threads
- △6 Concave surface faces ball
- △7 Torque to 117--123 in-lb (13.2--13.9 N.m)
- △8 Torque to 82--88 in-lb (9.3--9.9 N.m)
- △9 Torque to 152--158 in-lb (17.2--17.9 N.m)
- △10 Apply Loctite® TL-242 thread sealant

FIG. 4

4487b

Parts - Square Housings

Model 223646, Series C



NOTE: See the service section for important torque and lubrication information.

NOTE: Circled letters refer to connected points.

NOTE: Graco recommends replacing 30a, 30b, and 30c together in Kit 26C142

ti32526b

Model 223646, Series C

Ref. No.	Part No.	Description	Qty.	Ref. No.	Part No.	Description	Qty.
1▲	290331	LABEL, instruction, English	1	35	210292	BEARING and GUIDE	1
2	186221	BASE	1	36	108538	SCREW, soc flat hd, self locking,	3
3	110797	ELBOW, male, 3/4 npt <i>Includes item 3a</i>	1			1/4--20 x 1/2 in.	
3a	110926	O-RING. nitrile rubber	1	37	183659	GUIDE, trip rod	2
4	210108	TUBE	1	38	183658	SPOOL, valve	1
5	112574	ADAPTER, 3/4 npt (f) x 1-16/16-12	1	39	186222	RETAINER, spring	2
6	110791	TEE, 7/8-14 UNF-2A X 1 1/16-12un-2a, 37_flare for 3/4 in. dia. tube. <i>Includes item 6a</i>	1	40*	108522	SPRING, helical compression	2
6a	110926	O-RING. nitrile rubber	1	41	110801	O-RING, nitrile rubber	2
7	110876	ADAPTER, 1 --11-1/2 npt x 1 5/16--12un--2a, <i>Includes item 7a</i>	1	42	167210	GUIDE, ball	2
7a	110927	O-RING. nitrile rubber	1	43	101701	BALL, 1/4 in. dia.	2
8	183695	LABEL, identification <i>not shown</i>	1	44	104143	NUT, crown, 5/8--18	4
9▲	172975	LABEL, Warning	1	45*	171411	SPRING, compression	2
10	100508	SCREW, type "u" drive, No. 4 x 0.188 in.	4	46	104105	NUT, hex lock, 1/4--20	1
11▲	172815	PLATE, warning	1	47	180953	CAP, end	1
12	100333	SCREW, cap, hex hd; 1/4--20 x .05 in.	3	48	171416	PLUG, stop	1
13	103875	ADAPTER, barbed hose, 1/8 npt x 0.25 in. (6.4 mm) ID hose	1	49*	104093	O-RING, nitrile rubber	1
14	104029	GROUNDING LUG	1	50	108132	RING, lift	1
15	104582	WASHER	1	51	101864	CAPSCREW, soc hd,	3
16	210110	PAN, drip	1			5/16--18 x 1 in.	
17*	165295	O-RING, nitrile rubber	1	52	100128	LOCKWASHER, spring, 5/8 in.	4
18	171397	COVER, drip	1	53	186217	HOUSING, upper	1
19	100155	NUT, hex jam, 5/8-18	4	54	110792	ELBOW, 90_, 7/16--20 unf--2a(m)	2
20	101577	SCREW, machine, hex hd; No. 10--20 x 0.375 in.	1			x 9/16--18 unf--2a(m), 37_flare for 3/8 in. dia. tube, <i>Includes item 54a</i>	
21*	110800	O-RING, buna--N	1	54a	110801	O-RING, nitrile rubber	2
23*	186223	BEARING, piston, bronze-filled PTFE	1	55	110799	PLUG, 9/16--18 unf--2b,	1
24*	110795	SEAL, u-cup, polyurethane	2			<i>Includes item 55a</i>	
25	186218	HOUSING, lower	1	55a	110925	O-RING, nitrile rubber	1
26	104664	SPRING, compression	1	56	223608	TUBE, drain	1
27	103450	NUT, hex, self-locking, 5/16--18	1	57	171405	ROD, tie	4
28	181243	STOP, Piston	1	58	105430	NUT, seal, 1 in. npt	1
29	186219	CYLINDER	1			supplied in a plastic bag	
30	26C142	KIT, piston; includes items 30a, 30b, and 30c	1				
30a◆	---	PISTON	1				
30b◆	171398	RETAINER	1				
30c◆	114962	RING, retaining	1				
31	171407	ROD, trip	1				
32*	104103	RING, piston, compression	2				
33*	166071	O-RING, nitrile rubber	2				

* These parts are also included in Repair Kit 223654, which may be purchased separately.

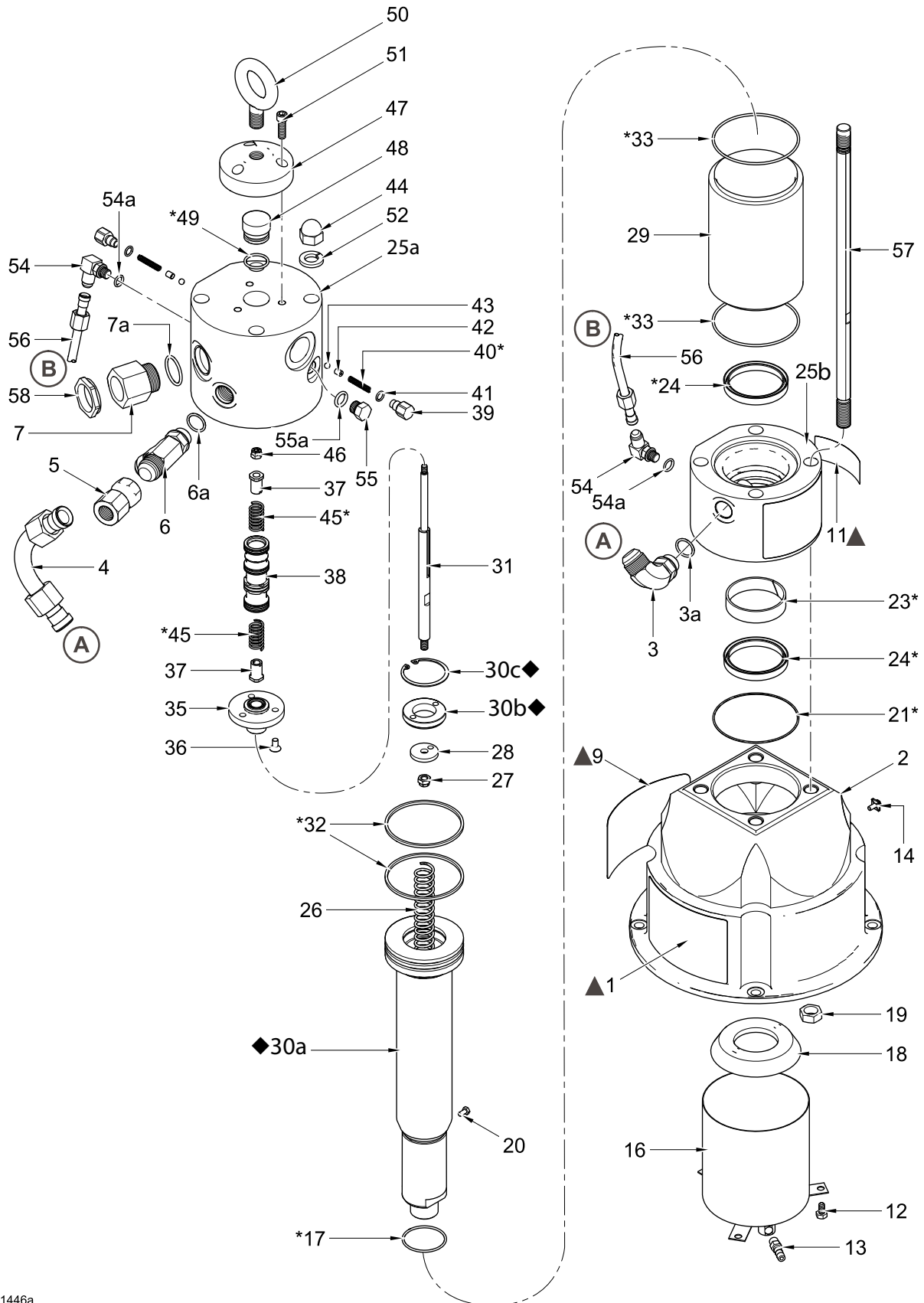
◆ Graco recommends replacing 30a, 30b, and 30c all together in Kit 26C142.

▲ Replacement safety labels, tags, and cards are available at no cost. Label 290331 is also available in the following languages:
German (Part No. 290396)
French (Part No. 290397)
Spanish (Part No. 290398).

Items marked ----- are not available separately.

Parts - Cylindrical Housings

Model 223646, Series D



ti41446a

Model 223646, Series D

Ref. No.	Part No.	Description	Qty.
1▲	290331	LABEL, instruction, English	1
2	186221	BASE	1
3	110797	ELBOW, male, 3/4 npt <i>Includes item 3a</i>	1
3a	110926	O-RING, nitrile rubber	1
4	210108	TUBE	1
5	112574	ADAPTER, 3/4 npt (f) x 1-1/6-16-12	1
6	110791	TEE, 7/8-14 UNF-2A X 1 1/16-12un-2a, 37_flare for 3/4 in. dia. tube. <i>Includes item 6a</i>	1
6a	110926	O-RING, nitrile rubber	1
7	110876	ADAPTER, 1 --11-1/2 npt x 1 5/16--12un--2a, <i>Includes item 7a</i>	1
7a	110927	O-RING, nitrile rubber	1
8	183695	LABEL, identification <i>not shown</i>	1
9▲	172975	LABEL, Warning	1
10	100508	SCREW, type "u" drive, No. 4 x 0.188 in.	4
11▲	172815	PLATE, warning	1
12	100333	SCREW, cap, hex hd; 1/4--20 x .05 in.	3
13	103875	ADAPTER, barbed hose, 1/8 npt x 0.25 in. (6.4 mm) ID hose	1
14	104029	GROUNDING LUG	1
15	104582	WASHER	1
16	210110	PAN, drip	1
17*	165295	O-RING, nitrile rubber	1
18	171397	COVER, drip	1
19	100155	NUT, hex jam, 5/8-18	4
20	101577	SCREW, machine, hex hd; No. 10--20 x 0.375 in.	1
21*	110800	O-RING, buna--N	1
23*	186223	BEARING, piston, bronze-filled PTFE	1
24*	110795	SEAL, u-cup, polyurethane	2
25	20B232	KIT, replacement, housing	1
25a	-----	HOUSING, upper	1
25b	-----	HOUSING, lower	1
26	104664	SPRING, compression	1
27	103450	NUT, hex, self-locking, 5/16--18	1
28	181243	STOP, Piston	1
29	186219	CYLINDER	1
30	26C142	KIT, piston; includes items 30a, 30b, and 30c	1
30a◆	-----	PISTON	1
30b◆	171398	RETAINER	1
30c◆	114962	RING, retaining	1
31	171407	ROD, trip	1

Ref. No.	Part No.	Description	Qty.
32*	104103	RING, piston, compression	2
33*	166071	O-RING, nitrile rubber	2
35	210292	BEARING and GUIDE	1
36	108538	SCREW, soc flat hd, self locking, 1/4--20 x 1/2 in.	3
37	183659	GUIDE, trip rod	2
38	183658	SPOOL, valve	1
39	186222	RETAINER, spring	2
40*	108522	SPRING, helical compression	2
41	110801	O-RING, nitrile rubber	2
42	167210	GUIDE, ball	2
43	101701	BALL, 1/4 in. dia.	2
44	104143	NUT, crown, 5/8--18	4
45*	171411	SPRING, compression	2
46	104105	NUT, hex lock, 1/4--20	1
47	180953	CAP, end	1
48	171416	PLUG, stop	1
49*	104093	O-RING, nitrile rubber	1
50	108132	RING, lift	1
51	101864	CAPSCREW, soc hd, 5/16--18 x 1 in.	3
52	100128	LOCKWASHER, spring, 5/8 in.	4
54	110792	ELBOW, 90_, 7/16--20 unf--2a(m) x 9/16--18 unf--2a(m), 37_flare for 3/8 in. dia. tube, <i>Includes item 54a</i>	2
54a	110801	O-RING, nitrile rubber	2
55	110799	PLUG, 9/16--18 unf--2b, <i>Includes item 55a</i>	1
55a	110925	O-RING, nitrile rubber	1
56	223608	TUBE, drain	1
57	171405	ROD, tie	4
58	105430	NUT, seal, 1 in. npt supplied in a plastic bag	1

* *These parts are also included in Repair Kit 223654, which may be purchased separately.*

◆ *Graco recommends replacing 30a, 30b, and 30c all together in Kit 26C142.*

▲ *Replacement safety labels, tags, and cards are available at no cost. Label 290331 is also available in the following languages:
German (Part No. 290396)
French (Part No. 290397)
Spanish (Part No. 290398).*

Items marked ----- are not available separately.

Technical Data

Category	Data
Maximum hydraulic fluid input pressure	1500 psi (10 MPa, 103 bar). Also see the WARNING on page 5.
Maximum hydraulic fluid flow	12 gpm (45.6 liter/min)
Hydraulic fluid consumption	1 gal. (3.8 liter) per 5 cycles
Effective piston area	4.9 sq. in. (31.6 cm ²)
Piston rod diameter	2.5 in. (64 mm)
Stroke length	4.69 in. (119.1 mm)
Thrust at 1500 psi (10 MPa, 103 bar)	7300 psi (32 472 N)
Weight (Square Housings, Series C)	approx. 96 lb. (43.5 kg)
Weight (Cylindrical Housings, Series D)	approx. 112 lbs (50.8 kg)

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Sound Data

Hydraulic Pressure	dB(A) at 20 cycles per minute	dB(A) at 20 cycles per minute	dB(A) at 20 cycles per minute
1500 psi (10 MPa, 103 bar)	70	78	79

Graco Standard 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 of twelve months from the date of sale, repair or replace any part of the equipment 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.

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 two (2) years of the date of sale.

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In no event will Graco be liable for indirect, incidental, special or consequential damages resulting from Graco supplying equipment hereunder, or the furnishing, performance, or use of any products or other goods sold hereto, whether due to a breach of contract, breach of warranty, the negligence of Graco, or otherwise.

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

TO PLACE AN ORDER, contact your Graco distributor or call to identify the nearest distributor.

Phone: 612-623-6921 **or Toll Free:** 1-800-328-0211, **Fax:** 612-378-3505

All written and visual data contained in this document reflects the latest product information available at the time of publication. Graco reserves the right to make changes at any time without notice.

Original instructions. This manual contains English. MM 308048

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