

Instructions – Parts List



2:1 Ratio Standard Pump, 55 Gallon (200 Liter) Size

CIRCULATING SUPPLY PUMP

306560R

360 psi (25 bar) MAXIMUM WORKING PRESSURE

Model 225815 Series B
UL Listed

U.S. Patent No. 2,846,123



Important Safety Instructions.

Read all warnings and instructions in this manual. Save these instructions. **See page 17 for important information regarding changes that have not been implemented in the body of this manual.**

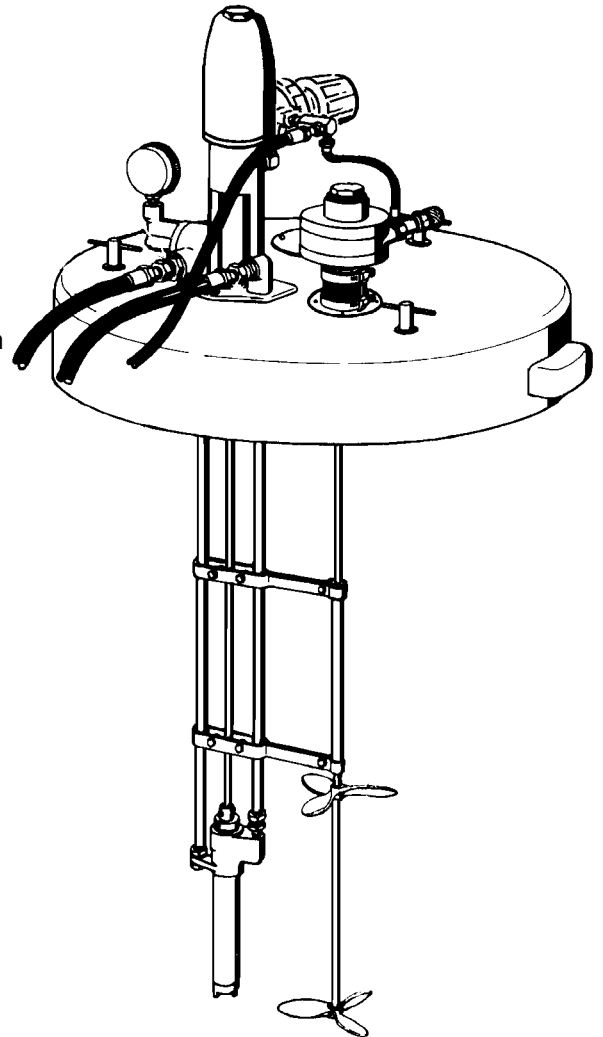


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WARNING

Hazard of Using Fluids Containing Halogenated Hydrocarbons

Never use 1,1, 1-trichloroethane, methylene chloride, other halogenated hydrocarbon solvents or fluids containing such solvents in this equipment. Such use could result in a serious chemical reaction, with the possibility of explosion, which could cause death, serious bodily injury and/or substantial property damage.

Consult your fluid suppliers to ensure that the fluids being used are compatible with aluminum and zinc parts.



SAFETY WARNINGS

FOR PROFESSIONAL USE ONLY. OBSERVE ALL WARNINGS.
Read And Understand All Instruction Manuals Before Operating Equipment.

EQUIPMENT MISUSE HAZARD

General Safety

Any misuse of the spray equipment or accessories, such as overpressurizing, modifying parts, using incompatible chemicals and fluids, or using worn or damaged parts, can cause them to rupture and result in splashing in the eyes or on the skin, or other serious bodily injury, or fire, explosion or property damage.

NEVER alter or modify any part of this equipment; doing so could cause it to malfunction.

CHECK all spray equipment regularly and repair or replace worn or damaged parts immediately.

Always wear protective eyewear, gloves, clothing and respirator as recommended by the fluid and solvent manufacturer.

System Pressure

This pump can develop 360 psi (25 bar) MAXIMUM WORKING PRESSURE, at 180 psi (12 bar) MAXIMUM INCOMING AIR PRESSURE. Be sure that all spray equipment and accessories are rated to withstand the maximum working pressure of this pump.

The MAXIMUM INCOMING AIR PRESSURE to the agitator is 100 psi (7 bar).

DO NOT exceed the maximum working pressure of any component or accessory used in the system.

Fluid Compatibility

BE SURE that all fluids and solvents used are chemically compatible with the wetted parts shown in the **TECHNICAL DATA** on the back cover. Always read the manufacturer's literature before using fluid or solvent in this pump.

Pressure Relief Procedure

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

1. Shut off the air to the pump.
2. Close the bleed-type master air valve (required in your system).
3. Close the pump air valve.
4. Close the pump restrictor valve.
5. Shut off the air to the agitator (if used).
6. Hold a metal part of the spray gun firmly to the side of a grounded metal pail, and trigger the spray gun to relieve pressure.
7. Open the drain valve, having a container ready to catch the drainage.
8. Leave the drain valve open until you are ready to spray again.

HOSE SAFETY

Pressurized fluid in the hoses can be dangerous. If the hose develops a leak, split or rupture due to any kind of wear, damage or misuse, the spray emitted from it can cause serious bodily injury or property damage.

TIGHTEN all fluid connections securely before each use. Pressurized fluid can dislodge a loose coupling or allow pressurized spray to be emitted from the coupling.

NEVER use a damaged hose. Before each use, check the entire hose for cuts, leaks, abrasion, bulging cover, or damage or movement of the hose couplings. If any of these conditions exist, replace the hose immediately.

HANDLE AND ROUTE HOSES CAREFULLY. Do not pull on hoses to move equipment. Do not use fluids which are not compatible with the inner tube and cover of the hose. DO NOT expose Graco hoses to temperatures above 82° C (180° F) or below -40° C (-40° F).

Hose Grounding Continuity

Proper hose grounding continuity is essential to maintaining a grounded spray system. An ungrounded or poorly grounded hose can make your system hazardous. Refer to **FIRE OR EXPLOSION HAZARD** section on page 3.

Check the electrical resistance of your air and fluid hoses at least once a week. If your hose does not have a tag on it which specifies the maximum electrical resistance, contact the hose supplier or manufacturer for the maximum resistance limits. Use a resistance meter in the appropriate range for your hose to check the resistance. If the resistance exceeds the recommended limits, replace it immediately.

MOVING PARTS HAZARD

Moving parts can pinch or amputate your fingers or other body parts. KEEP CLEAR of moving parts when starting or operating the pump. Follow the **Pressure Relief Procedure**, above, to prevent the pump from starting accidentally.

FIRE OR EXPLOSION HAZARD

Static electricity is created by the high velocity flow of fluid through the pump and hose. If every part of the spray equipment is not properly grounded, sparking may occur, and the system may become hazardous. Sparking may also occur when plugging in or unplugging a power supply cord. Sparks can ignite fumes from solvents and the fluid being sprayed, dust particles and other flammable substances, whether you are spraying indoors or outdoors, and can cause a fire or explosion and serious bodily injury and property damage. Do not plug in or unplug any power supply cords in the spray area when there is any chance of igniting fumes still in the air.

If you experience any static sparking or even a slight shock while using this equipment, **STOP SPRAYING IMMEDIATELY**. Check the entire system for proper grounding. Do not use the system again until the problem has been identified and corrected.

Grounding

To reduce the risk of static sparking, ground the pump and all other spray equipment used or located in the spray area. CHECK your local electrical code for detailed grounding instructions for your area and type of equipment. BE SURE to ground all of this spray equipment:

1. *Pump*: use a ground wire and clamp as shown in Fig 1.
2. *Air hoses*: use only grounded air hoses.
3. *Fluid hoses*: use only grounded fluid hoses.
4. *Air compressor*: follow manufacturer's recommendations.
5. *Spray gun*: grounding is obtained through connection to a properly grounded fluid hose and pump.
6. *Fluid supply container*: according to local code.
7. *Object being sprayed*: according to your local code.

8. *All solvent pails used when flushing*, according to local code. Use only metal pails, which are conductive, placed on a grounded surface. Do not place the pail on a non-conductive surface, such as paper or cardboard, which interrupts the grounding continuity.
9. *To maintain grounding continuity when flushing or relieving pressure*, always hold a metal part of the spray gun firmly to the side of a grounded *metal* pail, then trigger the spray gun.

To ground the pump:

To ground the pump, loosen the grounding lug locknut (W) and washer (X). Insert one end of a 1.5 mm² (12 ga) minimum ground wire (Y) into the slot in lug (Z) and tighten the locknut securely. See Fig 1. Connect the other end of the wire to a true earth ground. See **ACCESSORIES** on page 17 to order a ground wire and clamp.

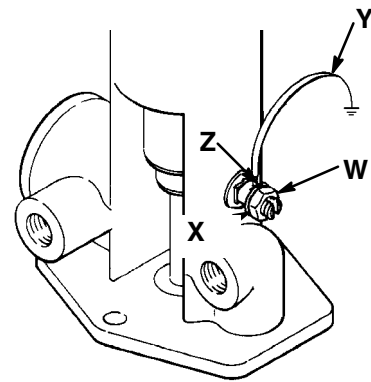


Fig 1

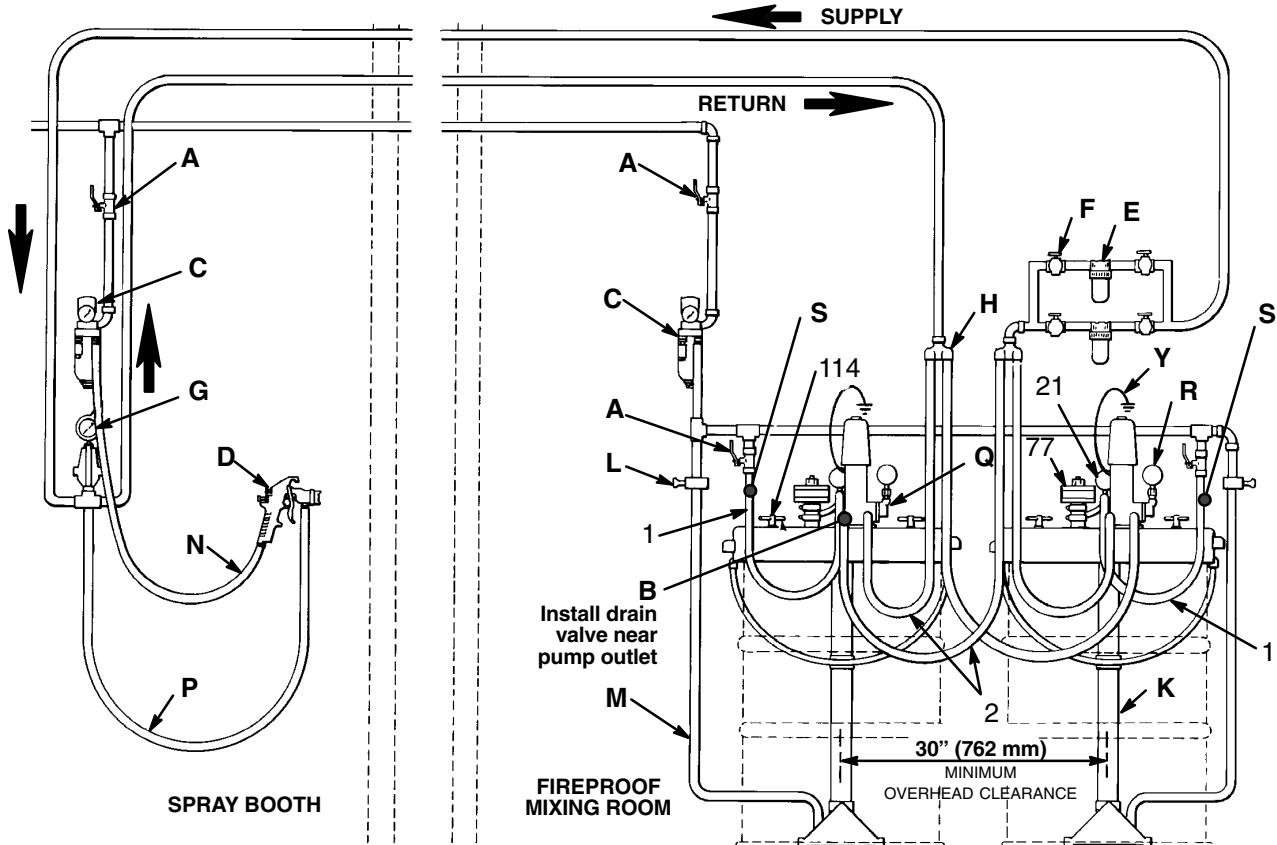
Flushing Safety

To reduce the risk of injury from splashing or static sparking, always hold a metal part of the spray gun firmly to the side of a grounded metal pail, and use the lowest possible fluid pressure when flushing.

IMPORTANT

United States Government safety standards have been adopted under the Occupational Safety and Health Act. These standards – particularly the General Standards, Part 1910, and the Construction Standards, Part 1926 – should be consulted.

TYPICAL INSTALLATION



KEY

A	Bleed-type Master Air Valve	F	Shutoff Valve	P	Gun Fluid Hose	Y	Ground Wire
B	Fluid Drain Valve (install in approximate position shown)	G	Fluid Pressure Regulator	Q	Restrictor Valve	1	Air Hose
C	Air Filter/Regulator	H	Y Adapter	R	Fluid Regulator	2	Fluid Hose
D	Air Spray Gun	K	Elevator	S	Lubricator (install in approximate position shown)	21	Pump Air Regulator
E	Fluid Filter	L	Elevator Restrictor Valve			77	Agitator
		M	Air Hose to Elevator			114	Cover Adjusting Screw
		N	Gun Air Hose				

INSTALLATION

NOTE: The reference numbers and letters in parentheses in the text refer to the callouts in the figure drawings and the Parts Drawing.

The Typical Installation on page 4 is only a guide to selecting and installing required and optional accessories. For assistance in designing a system to suit your particular needs, contact your Graco representative or Graco Technical Assistance (see back page).

Accessories

WARNING

A bleed-type master air valve (A) and a fluid drain valve (B) are required in your system. These accessories reduce the risk of serious bodily injury including splashing in the eyes or on the skin, and injury from moving parts if you are adjusting or repairing the pump.

The **bleed-type master air valve** relieves air trapped between it and the pump after the air is shut off. Trapped air can cause the pump to cycle unexpectedly. Locate the valve close to the pump.

The **fluid drain valve** assists in relieving fluid pressure in the displacement pump, hose and spray gun; triggering the spray gun to relieve pressure may not be sufficient.

Refer to the Typical Installation drawing on page 4, and **ACCESSORIES** on page 17. Be sure the accessories are adequately sized to meet the system's requirements.

Mount the pump to suit the type of installation planned. Be sure the pump is 1/2 in. (13 mm) off the bottom of the supply container. If the pump is mounted in a ram or an elevator, refer to the manual supplied with the ram/elevator for installation and operation instructions. The Typical Installation on page 4 shows the plumbing for an elevator on each pump.

Install the air line accessories in the order shown in the Typical Installation drawing. The air line lubricator (S) provides automatic air motor lubrication. The bleed-type master air valve (A) is used to relieve air pressure. Be sure the valve is easily accessible from the pump. The air filter/regulator assembly (C) filters and regulates the compressed air. To control pump speed and fluid outlet pressure, adjust the pump air inlet pressure with the regulator (21) mounted on the pump.

On the fluid line, install a fluid filter (E) with shutoff valves (F) to isolate it for cleaning. Where the supply and return lines meet, install a fluid pressure regulator (G). In a two-pump system, install Y-adapter (H) at the beginning and end of the supply and return lines.

GROUNDING

WARNING

Before operating the pump, ground the system as explained under **FIRE OR EXPLOSION HAZARD** and **Grounding** on page 3.

WARNING

Pressure Relief Procedure

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

1. Shut off the air to the pump.
2. Close the bleed-type master air valve (required in your system).
3. Close the pump air valve.
4. Close the pump restrictor valve.
5. Shut off the air to the agitator (if used).
6. Hold a metal part of the spray gun firmly to the side of a grounded metal pail, and trigger the spray gun to relieve pressure.
7. Open the drain valve, having a container ready to catch the drainage.
8. Leave the drain valve open until you are ready to spray again.

Flush the Pump

WARNING

For your safety, read the warning section, **FIRE OR EXPLOSION HAZARD**, page 3, before flushing, and follow all recommendations given there.

The pump is tested with lightweight oil, which is left in to protect the pump parts. If the fluid you are using may be contaminated by the oil, flush it out with a compatible solvent before using the pump.

Start and Adjust the Agitator

1. Turn on the main air supply and slowly open the agitator air control valve (78). **DO NOT** exceed 100 psi (7 bar) **MAXIMUM INCOMING AIR PRESSURE** to the agitator.
2. Use the lowest speed possible to thoroughly agitate the fluid. If the agitator is operated at too high a speed, the paint may foam. Agitate the fluid thoroughly before using it.
3. Operate the agitator continuously while you are spraying or circulating the fluid.
4. Stop the agitator by closing the air control valve (78). For overnight shutdown, close the main air supply valve first.

Start and Adjust the Pump

NOTE: Refer to Typical Installation drawing on page 4. Reference numbers and letters in the text correspond to the callouts in the drawings.

1. Close the pump air regulator (21) and the agitator air control valve (78).
2. Turn on the main air supply and open the bleed-type master air valve (A).

When using the pump in a circulating system:

3. Open the air motor restrictor valve (Q) by turning the knob counterclockwise as far as possible.
4. Slowly open the pump air regulator (21) until you obtain the desired pump speed and pressure. To reduce system wear, always use the lowest pump speed and pressure needed for the results you want.
5. Turn the restrictor valve (Q) clockwise until the fluid pressure at the pump is about three times the fluid pressure needed at the last outlet of the circulating system.

For example, if 12 psi (0.8 bar) is needed at the last spray gun, adjust the outlet pressure to 36 psi (2.4 bar).

Adjust the pump air regulator (21) while adjusting the fluid pressure to maintain pump speed and pressure.

6. When the pump speed and fluid pressure have been adjusted, tighten the restrictor valve locknut.
7. Trigger the gun until all air has been purged from the system. The pump will run continuously and speed up or slow down as supply demands until the air supply is shut off.

When using the pump in a direct supply system:

3. Trigger the gun into a waste container and slowly open the pump air regulator (21) until you obtain the desired pump speed and pressure. To reduce system wear, always use the lowest pump speed and pressure needed for the results you want.
4. After all the air is purged, close the gun. The pump will start and stop as the gun is opened and closed.

All systems:

WARNING

To reduce the risk of overpressurizing your system, which could result in component rupture and cause serious bodily injury, **NEVER** exceed the maximum air and fluid working pressure of the lowest rated component in your system. See **EQUIPMENT MIS-USE HAZARD, System Pressure**, on page 3.

WARNING

For your safety, **NEVER** raise the elevator or drum cover until after the pump and agitator are shut off and the pressure has been relieved. Follow the **Pressure Relief Procedure Warning**, above.

NEVER allow the pump to run dry of the fluid being pumped. A dry pump will quickly accelerate to a high speed, possibly damaging itself. If your pump accelerates quickly, or is running too fast, stop it immediately and check the fluid supply. If the supply container is empty and air has been pumped into the lines, refill the container and prime the pump and the lines with fluid, or flush and leave it filled with a compatible solvent. Be sure to eliminate all air from the fluid system.

Shutdown and Care of the Pump

For overnight shutdown, follow the **Pressure Relief Procedure Warning**, below.

Always stop the pump at the bottom of the stroke to prevent the fluid from drying on the exposed displacement rod and damaging the throat packings.

Check the tightness of the pump packing nut periodically. The nut should be tight enough to prevent leakage, but no tighter. *Always* follow the **Pressure Relief Procedure Warning**, below, before adjusting the packing nut.

WARNING

Pressure Relief Procedure

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

1. Shut off the air to the pump.
2. Close the bleed-type master air valve (required in your system).
3. Close the pump air valve.
4. Close the pump restrictor valve.
5. Shut off the air to the agitator (if used).
6. Hold a metal part of the spray gun firmly to the side of a grounded metal pail, and trigger the spray gun to relieve pressure.
7. Open the drain valve, having a container ready to catch the drainage.
8. Leave the drain valve open until you are ready to spray again.

Flush Regularly and Before Storing the Pump

WARNING

To reduce the risk of injury from splashing or static sparking, always hold a metal part of the spray gun firmly to the side of a grounded metal pail, and use the lowest possible fluid pressure when flushing.

If you are pumping fluid which dries, hardens or sets up, flush the system with a compatible solvent as often as necessary to prevent a build-up of dried fluid in the pump or hoses.

Flushing the Agitator Air Motor

WARNING

To reduce the risk of serious injury, including cuts, amputation of fingers, or splashing fluid in the eyes or on skin, always shut off the agitator and disconnect the air line before checking or repairing the agitator.

If the agitator operation is erratic or sluggish, clean the air motor (11) as follows:

1. Remove the muffler and fill the muffler cavity with kerosene. Screw the muffler back in. Also, fill the oiler with kerosene.
2. After soaking for about 10 minutes, cover the agitator muffler with a rag and operate the agitator slowly until all the kerosene is blown out.

WARNING

To reduce the risk of injury from splashing kerosene in the eyes or on the skin, or inhaling kerosene mist, cover the agitator muffler with a rag and keep your face away from the exhaust while flushing.

3. Lubricate the agitator air motor as described below before using the agitator again.

NOTE: Do not try to repair the air motor yourself. Contact a Graco authorized service depot.

Corrosion Protection

CAUTION

Water, or even moist air, can cause your pump to corrode. To help prevent corrosion, NEVER leave the pump filled with water or air. After normal flushing, flush the pump again with mineral spirits or oil-based solvent, relieve pressure, and leave the mineral spirits in the pump. Be sure to follow all steps of the **Pressure Relief Procedure Warning**, to the left.

Lubrication

Pump Air Motor

If you are not using an accessory air line lubricator, manually lubricate the motor daily. Disconnect the air regulator, place about 15 drops of light machine oil in the pump air inlet, and reconnect the regulator. Turn on the air supply to blow the oil into the motor.

Agitator Air Motor

If you are not using an accessory air line lubricator, manually lubricate the motor daily. Place 2 or 3 drops of light machine oil in the agitator air inlet. Cover the agitator muffler with a rag to avoid contaminating your fluid, then operate the agitator for about 30 seconds to blow the oil into the motor.

TROUBLESHOOTING GUIDE

WARNING

Pressure Relief Procedure

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

1. Shut off the air to the pump.
2. Close the bleed-type master air valve (required in your system).
3. Close the pump air valve.
4. Close the pump restrictor valve.
5. Shut off the air to the agitator (if used).
6. Hold a metal part of the spray gun firmly to the side of a grounded metal pail, and trigger the spray gun to relieve pressure.
7. Open the drain valve, having a container ready to catch the drainage.
8. Leave the drain valve open until you are ready to spray again.

NOTE: Check everything in the guide below before disassembling the pump.

NOTE: *To clear the pump, follow the **Pressure Relief Procedure Warning**, to the left. Disconnect the fluid line. If the pump starts when the air is turned on, then the fluid hose or spray gun is obstructed.

PROBLEM	CAUSE	SOLUTION
Pump operates but: -output low on both strokes	Restricted line or inadequate air supply	Clear lines; increase air supply.
	Insufficient air pressure, closed or clogged air valves, etc.	Open, clear.
	Exhausted fluid supply.	Refill and reprime, or flush.
	Obstructed fluid hose or spray gun	Clear.*
	Loose packing nut or worn packings	Tighten, replace.
Pump operates but: -output low on downstroke	Held open or worn intake valve	Clear, service.
Pump operates but: -output low on upstroke	Held open or worn piston valve or packings	Clear, service.
Erratic or accelerated pump speed	Exhausted fluid supply	Refill and reprime, or flush
	Held open or worn intake valve	Clear, service.
	Held open or worn piston valve or packings	Clear, service.
Pump fails to operate	Restricted line or inadequate air supply	Clear lines; increase air supply.
	Incorrect restrictor valve setting	Adjust. See OPERATION .
	Insufficient air pressure, closed or clogged air valves, etc.	Open, clear.
	Exhausted fluid supply.	Refill and reprime, or flush.
	Damaged air motor	Service. See manual 307-851
Leakage around restrictor valve	Worn or clogged fluid intake valve, piston or packings.	Clear, service.

Before you start:

- A. Repair kit 207–848 includes parts to repair both the displacement pump and the air motor. (Refer to manual 307–851 for air motor repair instructions.) For the best results, use all the new parts in the kit, even if the old ones look good. Parts included in the kit are marked with an asterisk, for example (5*).
- B. Use a compatible solvent to clean parts. Inspect parts for wear or damage and replace as needed. Scoring or irregular surfaces on the displacement rod (17) or polished inner wall of the cylinder (16) cause premature packing wear and leaking. Check these parts by rubbing a finger on the surface or by holding the parts up to a light at a slight angle.
- C. To remove the pump from the drum cover, remove the two nuts (126) and washers (122) holding the pump to the cover, and remove the pump.

WARNING

Before servicing any part of the system, follow the **Pressure Relief Procedure Warning** on page 8.

Displacement Pump Repair*Intake Valve (See Fig 2)*

1. Unscrew the intake valve housing (15) and remove all parts.
2. Clean and inspect the parts.
3. To reseal the ball (6*), hold it against the seat in the housing (15) with a brass rod and tap it lightly with a hammer.
4. Install the ball stop (14). Apply thread sealant to the housing (15) and screw it onto the cylinder (16).

Piston (See Fig 2)

1. Remove the intake valve housing (15), then unscrew the cylinder (16) from the outlet housing (19) and pull the cylinder down to expose the piston.
2. Unscrew the piston stud (13) from the displacement rod (17) and remove all parts.
3. Clean and inspect the parts.
4. To seat the ball (5*), hold it against the seat of the piston stud (13) with a brass rod and lightly tap it with a hammer.
5. Place a washer (11), leather u-cup packing (7*), spacer (10), leather u-cup packing (7*), and washer (11) on the piston stud (13). Apply thread sealant to the piston threads. Screw the piston assembly, with the ball in place, into the displacement rod (17). Torque to 20–30 ft–lb (27–47 N.m).

Throat Packings (See Fig 2)

1. Remove the lower locknut and washer (68, 59) from the return tube (67). Unscrew the swivel (64) from the supply tube (66). Remove the cotter pin (61*) from the connecting rod (71). Screw the connecting rod out of the displacement rod (17).
2. Remove the intake valve assembly and unscrew the cylinder (16) from the outlet housing (19).
3. Unscrew the packing nut (12). Pull out the displacement rod (17); if it is stuck, soak it in solvent until loosened. Remove the throat packings.
4. Clean and inspect all parts. Grease the parts, then install the o-ring (18), u-cup packing (9) so the lips of the packing face down into the outlet housing (19), and the bearing (8). Loosely install the packing nut (12). Grease the displacement rod well and slide it up into the throat. Grease the piston (13) and install the cylinder (16), screwing it tightly into the outlet housing (19).
5. Check that the o-ring (72*) is in place on the connecting rod (71). Align the displacement pump with the tubes (66, 67). Screw the connecting rod (71) into the displacement rod (17) and install the cotter pin (61*) through the rods. Secure the swivel (64) to the supply tube (66). Screw the upper locknut (68), with lockwasher (59), down to the outlet housing (19). Install the lower lockwasher (59) and locknut (68) on the return tube (67) and tighten firmly.

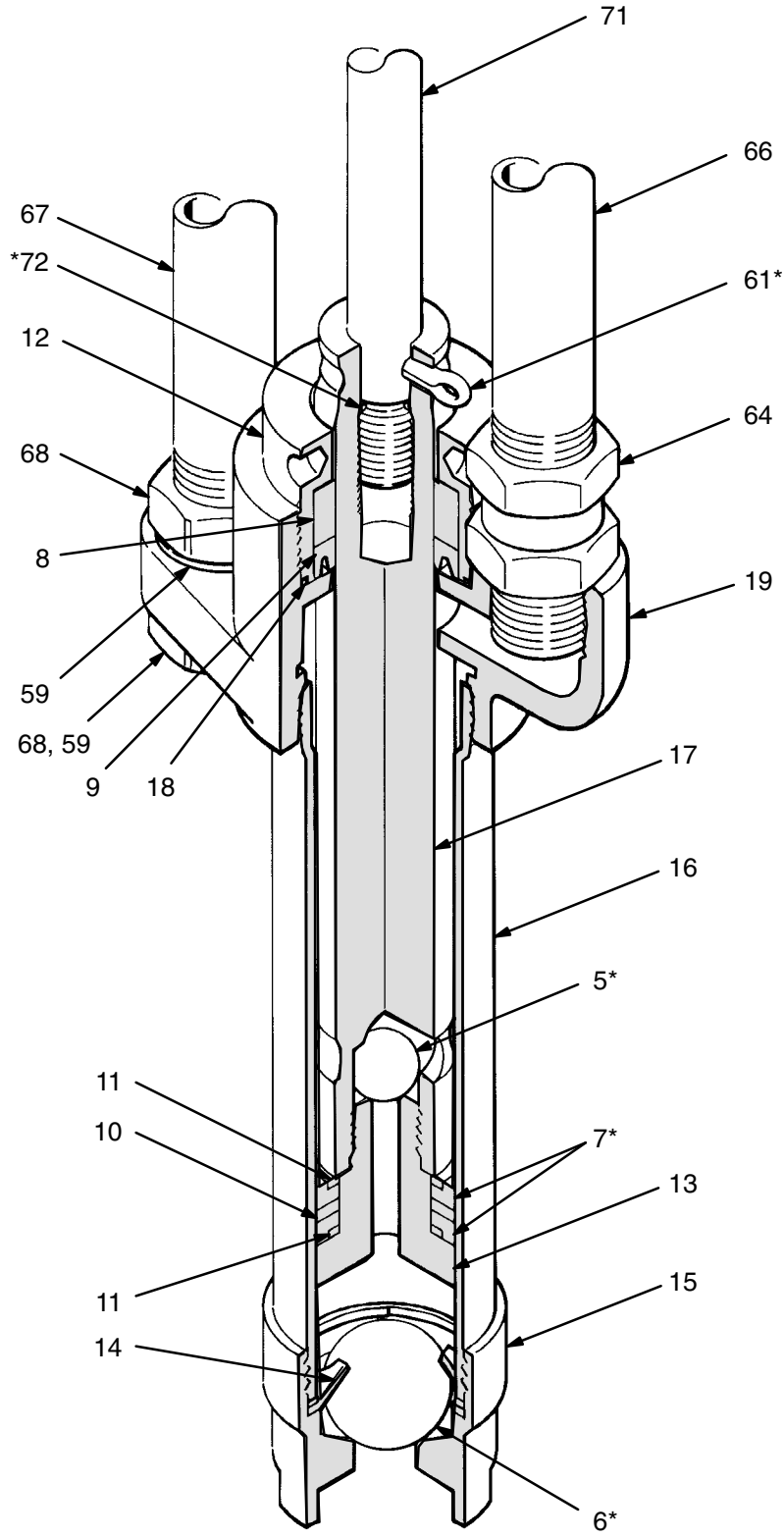
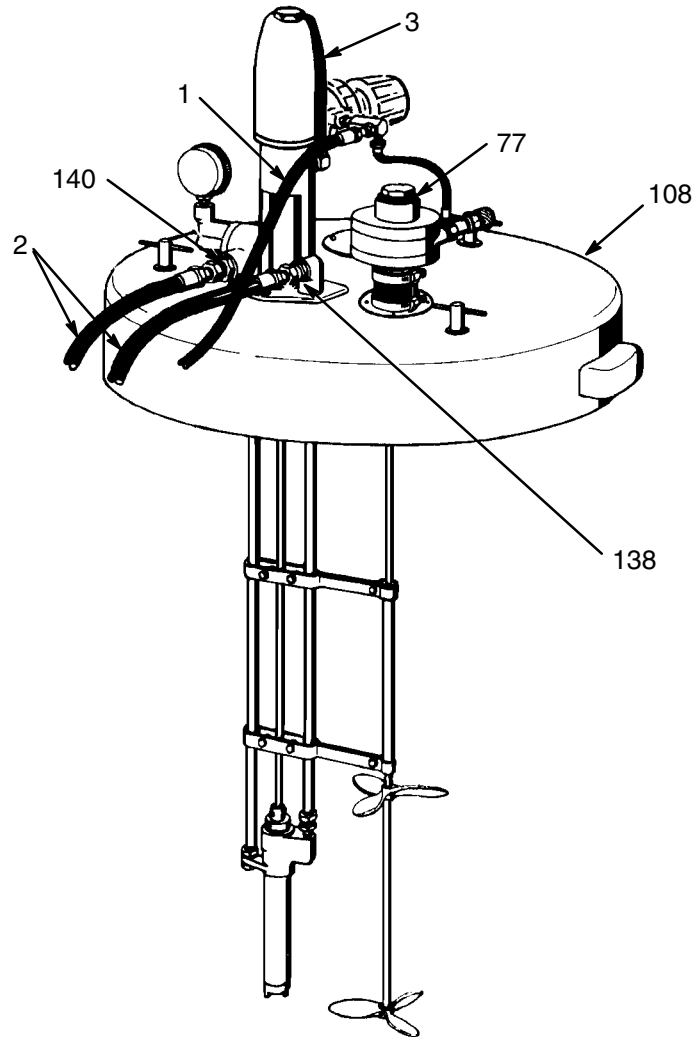


Fig 2

PARTS DRAWING – 2:1 RATIO STANDARD SUPPLY PUMP



PARTS LIST

Model 225815, Series B
 2:1 Ratio Standard Supply Pump
 Includes items listed below.

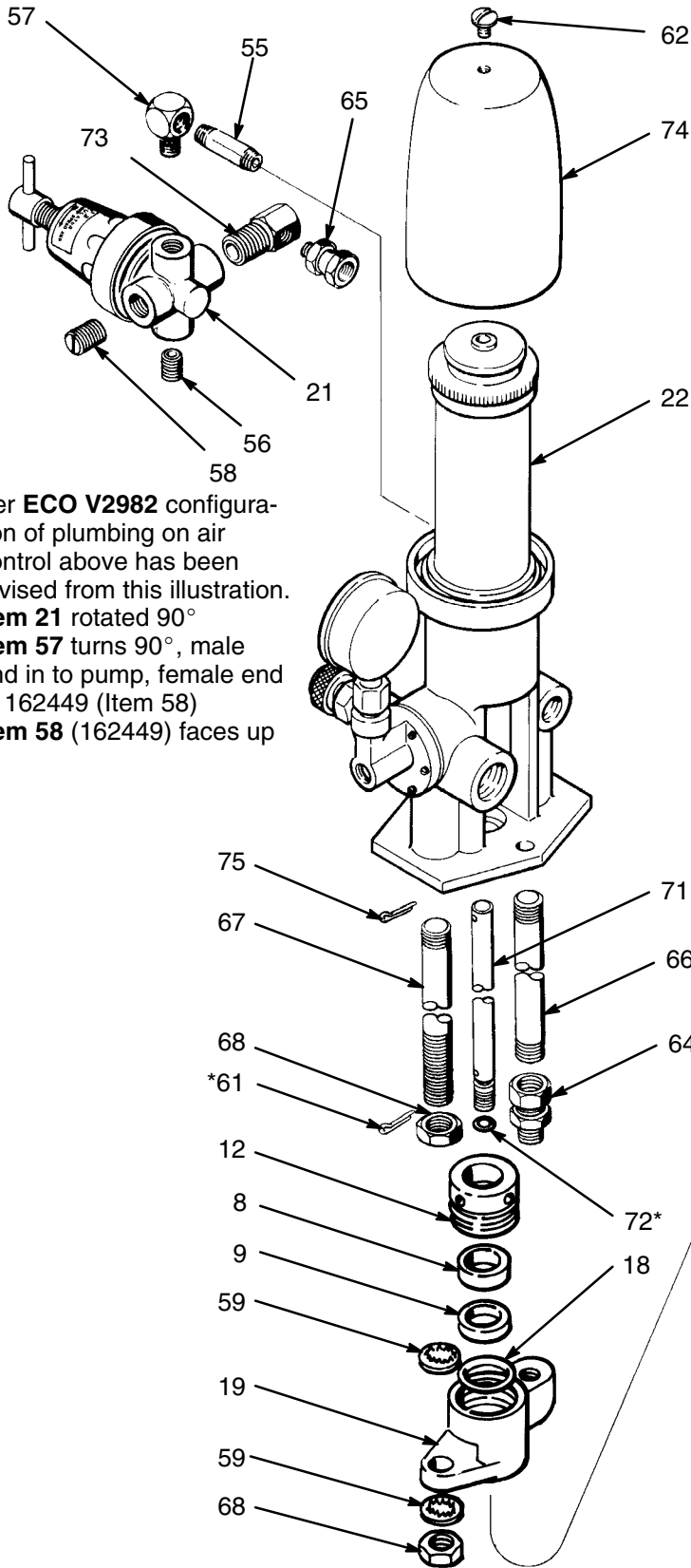
REF NO.	PART NO.	DESCRIPTION	QTY	REF NO.	PART NO.	DESCRIPTION	QTY
1	200033	HOSE , air; cpd 1/4 npt(m); 1/4" ID; 6 ft (1.8 m) lg	1	138	155665	UNION , str adapter; 3/8 npt(m x f)	1
2	202300	HOSE , paint; cpd 3/8 x 1/2 npt(m); 1/2" ID; 6 ft (1.8 m) lg	2	139	157215	WRENCH , special (not shown)	1
3	204456	2:1 STANDARD PUMP Series E <i>See pages 12 & 13</i>	1	140	158256	UNION , str adapter; 3/8(f) x 1/2(m)	1
77	204482	AGITATOR ; 55 gal (208 l) size <i>Includes items 78–107, pages 14 & 15</i>	1	<i>Refer to "How to Order Parts" on page 13.</i>			
108	237310	DRUM COVER <i>See manual 308466 for parts</i>	1				

SERVICE INFORMATION

Repair Kit 220130 is obsolete and has been removed from this manual.

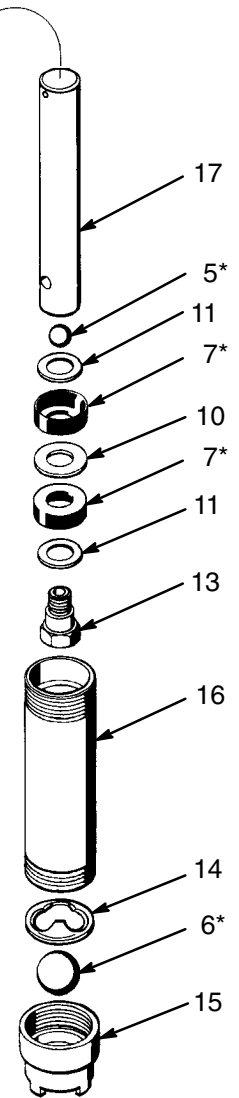
PARTS DRAWING – PUMP

Model 204456, Series E
 2:1 Ratio Standard Pump
 Includes items 4–75



Per **ECO V2982** configuration of plumbing on air control above has been revised from this illustration.
Item 21 rotated 90°
Item 57 turns 90°, male end in to pump, female end to 162449 (Item 58)
Item 58 (162449) faces up

Ref. No. 4 Displacement Pump
 includes items 5–19.



PARTS LIST – PUMP

Model 204456, Series E
 2:1 Ratio Standard Pump
 Includes items listed below.

REF NO.	PART NO.	DESCRIPTION	QTY	REF NO.	PART NO.	DESCRIPTION	QTY
4	203367	DISPLACEMENT PUMP ASSY		64	155665	UNION, str adapter;	
	Series B	Includes items 5–19	1			3/8 npt (m x f)	1
5	100084*	. BALL, steel; 1/2" dia.	1	65	156823	UNION, adapter;	
6	100279*	. BALL, steel; 7/8" dia.	1			1/4 npt (m x f) swivel	1
7	156811*	. CUP; leather	2	66	158872	TUBE, supply	1
8	181255	. BEARING	1	67	158873	TUBE, return	1
9	108285	. PACKING	1	68	158874	NUT, hex jam; 11/16–18	2
10	158886	. SPACER, u-cup; leather	1	71	181256	ROD, connecting	1
11	158887	. WASHER, back-up; UHMWPE	2	72	111316*	O-RING	1
12	181251	. NUT, packing	1	73	161252	MANIFOLD, air	1
13	158891	. STUD, piston	1	74	161255	HOOD, air motor	1
14	159100	. STOP, ball	1	75	101946	PIN, cotter	1
15	159101	. HOUSING, intake valve	1				
16	159469	. CYLINDER	1				
17	159470	. ROD, displacement	1				
18	107078	. O-RING, PTFE	1				
19	181254	. OUTLET HOUSING	1				
21	104266	AIR REGULATOR					
		See 307–204 for parts	1				
22	204464	AIR MOTOR					
		See 307851 for parts	1				
56	100721	PLUG, slotted hd; 1/4 npt	2				
57	100840	ELBOW, street; 1/4 npt	1				
58	162449	PLUG, 3/8" hex socket; 1/2 npt	1				
59	101390	LOCKWASHER, int shkprf; 3/8"	2				
61	101545*	PIN, cotter; 1/8" dia.; 1" long	1				
62	101870	SCREW, oval binding hd;					
		1/4–20 x 3/8" long	1				

* Included in repair kit 207848.

Pump Repair Kit 207848
 Must be purchased separately.

Includes:

Ref. No.	Qty
5	1
6	1
7	2
61	1
72	1

(Also includes repair parts for air motor; see 307851 for repair instructions.)

HOW TO ORDER PARTS

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

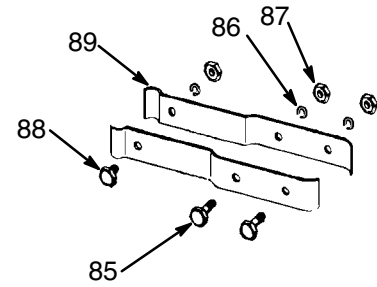
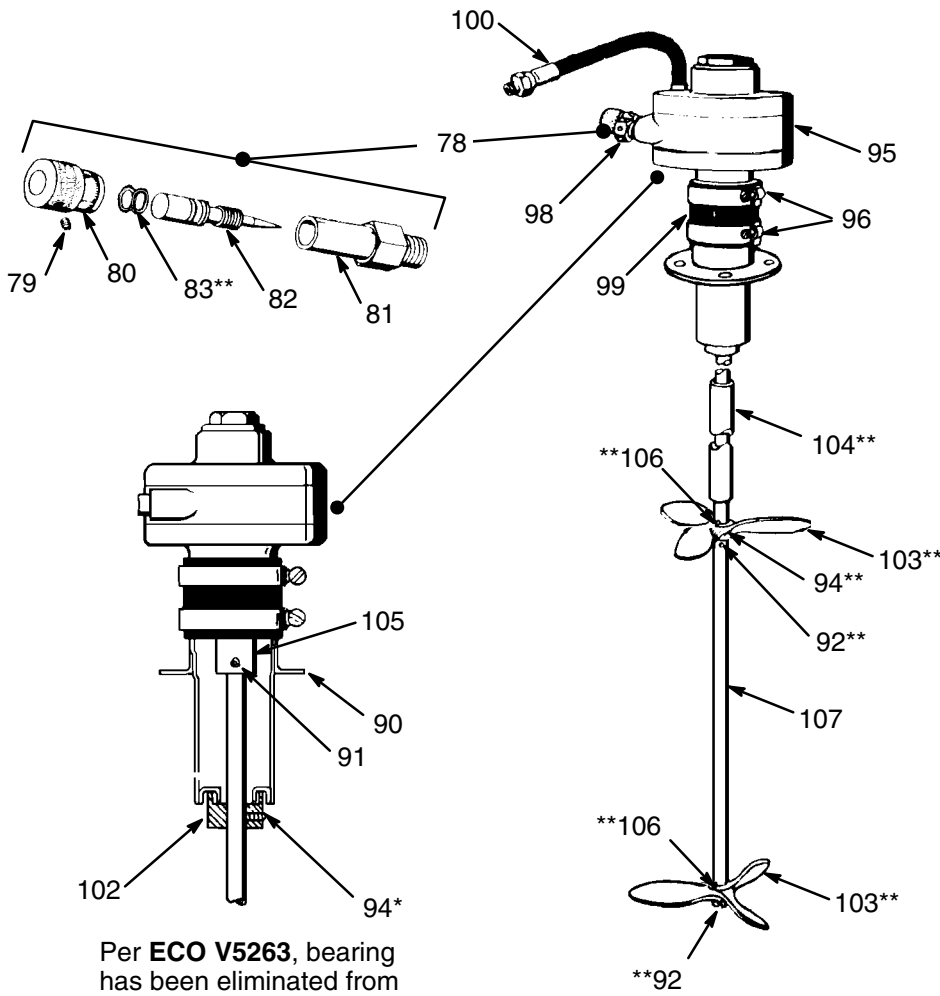
6 digit Part Number	Qty	Part Description

PARTS DRAWING – AGITATOR

Model 204482

Ref No. 77, Agitator (55 gal. [200 liter])

Includes items 78–107 on page 15.



**Ref No. 84
Brace
Includes items 85–89**

Per ECO V5263, bearing has been eliminated from agitator drawing above.

PARTS LIST – AGITATOR

Model 204482

Ref No. 77, Agitator (55 gal. [200 liter])
Includes items 78–107 below.

REF NO.	PART NO.	DESCRIPTION	QTY	REF NO.	PART NO.	DESCRIPTION	QTY
78	202233	NEEDLE VALVE ASSY <i>Includes items 79–83</i>	1	94	101118**	SCREW, cup pt soc hd set; 10–24 x 1/4"	3
79	101326	.SCREW, cup pt soc hd set, no. 10–24 x 3/16"	1	95	101140	MOTOR, air	1
80	156930	.BARREL	1	96	101368	CLAMP, hose	2
81	159448	.HOUSING	1	97	101369	WRENCH, allen; for no 10 or 12 screws	1
82	159449	.NEEDLE	1	98	156969	MUFFLER, air exhaust	1
83	159589**	.O–RING; nitrile rubber	2	99	158865	COUPLING, rubber sleeve	1
84	203599	AGITATOR BRACE ASSY <i>Includes items 85–89</i>	2	100	206749	AIR HOSE, cpld 1/8 npt x 1/8 npt(mbe) 1/4 in. (6.4 mm) ID; 36 in (914 mm) long	1
85	100058	.CAPSCREW, hex hd; 1/4–20 x 3/4"	4	102	159704	CUP, bearing protector	1
86	100015	.NUT, hex; 1/4–20	6	103	159854**	PROPELLER, 3 blade	2
87	100016	.LOCKWASHER, spring; 1/4"	6	104	159856**	GUIDE, agitator	1
88	100022	.CAPSCREW, hex hd; 1/4–20 x 1/2"	1	105	159858	COUPLING, steel	1
89	159855	.STRAP, brace	4	106	160077**	PIN, sheet	2
90	205577	GUIDE, agitator, less bearing	1	107	172311	SHAFT	1
91	100053	SCREW, cup pt soc hd; 5/16–18 x 1/4"	4	108	208536	COUPLER, air line (not shown)	1
92	100579**	PIN, cotter; 1/8" dia; 1" lg	2	109	169969	FITTING, air line (not shown)	1
93	100633	WRENCH, allen; for 5/16" screws	1				

** *Recommended "tool box" spare parts. Keep on hand to reduce down time.*

HOW TO ORDER PARTS

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

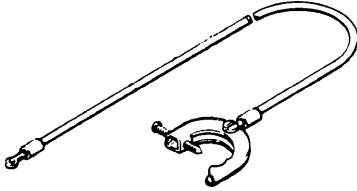
6 digit Part Number	Qty	Part Description

ACCESSORIES

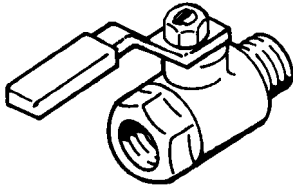
USE GENUINE GRACO PARTS AND ACCESSORIES

Must be purchased separately.

GROUNDING CLAMP 103538
GROUND WIRE 208950
 7.6 m (25 ft) long, 1.5 mm² (12 gauge)



BLEED-TYPE MASTER AIR VALVE 107142
 300 psi (21 bar) **MAXIMUM WORKING PRESSURE**
 Relieves air trapped in the air line between the pump air inlet and this valve when closed. 1/2 npt(m x f)



AIR FILTER & REGULATOR KIT 202660
 180 psi (12.6 bar) **MAXIMUM WORKING PRESSURE**
 To regulate air and filter air. Has gauge and two 1/4 npt(m) air outlet valves. 50 micron filter element with 100 mesh inlet strainer. 1/2 npt(f) air inlet; CFM (m³/min) is over 50 (1.4).

GROUNDED BUNA-N AIR SUPPLY HOSE
 250 psi (17.5 bar) **MAXIMUM WORKING PRESSURE**

Part No.	ID	Length	Thd. Size
214657	1/4" (7 mm)	5 ft (1.5 m)	1/4 npt(f) x 1/2 npt(m)
214650	1/2" (13 mm)	5 ft (1.5 m)	3/8 npt(m)
214651	1/2" (13 mm)	17.6 ft (6 m)	3/8 npt(m)
214655	1/2" (13 mm)	250 ft (7.6 m)	3/8 npt(m)

BALL VALVE
 500 psi (35 bar) **MAXIMUM WORKING PRESSURE**
 For use in air or fluid line. Can be used for relieving fluid line pressure.

- 208630** 1/2(m) x 3/8(f) for non-corrosive fluids; cst and PTFE
- 210071** 3/8(m x f) for corrosive fluids; sst and PTFE

FLUID PRESSURE REGULATOR
 250 psi (17.5 bar) **MAXIMUM WORKING PRESSURE**
 Use on circulating line drops to regulate fluid pressure to one air spray gun or dispensing valve. 3/8 npsm(f) inlet; 3/8 npsm(m) and 3/8 npt(f) outlets

- 203831** Carbon steel: 0–60 psi (0–4 bar) regulated fluid pressure range; 2 gpm (7.6 liter/min) maximum flow rate
- 209030** Stainless steel: 5–100 psi (0–4.7 bar) regulated fluid pressure range; 3 gpm (11.3 liter/min) maximum flow rate

FLUID FILTERS
 300 psi (21 bar) **MAXIMUM WORKING PRESSURE**
 Medium volume, 3/4 npt(f); 6 gpm (23 liter) capacity
 "Red Alert" filters provide filtration of coating materials. Indicator shows full red when filter needs cleaning – full yellow when filter is clean.

Mesh Size	Filter Part No.	Replacement Element Part No.
30	213057	102850
60	213058	102851
100	213059	102852
150	213060	102853
200	213061	102854
None	214001	None

ELEVATOR 225–758
 Elevator assembly mounts circulating supply pump onto open head drums. Includes restrictor valve for elevator control.

TECHNICAL DATA

Maximum working pressure	360 psi (25 bar)
Pump air requirements	40 –180 psi (3 – 12 bar)
Pump air consumption	2 cfm per gallon pumped (0.9 m ³ /hour/liter)
	with pump operated within recommended range
Maximum recommended pump speed	100 cycles per minute
	2 gpm (7.6 liter/min)
Agitator air consumption	2–4 cfm (5.4–6.8 m ³ /hr) for continuous duty
Pump cycles per gallon (liter)	54 (14)
Wetted parts	Steel, Aluminum, Leather, Iron, Nitrile Rubber, Acetal homopolymer, Ultra High Molecular Weight Polyethylene, PTFE, Leather/Thiokol®
Air Inlet Size	1/4 npt(f)
Fluid Outlet Size	1/2 npt(f)
Fluid Return Port Size	3/8 npt(f)
Fluid Intake Size	3/4 npt(f)

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IMPORTANT INFORMATION

Not all ECO changes made to part number 225815 have been implemented in the body of this manual. Changes requested on ECOs are described in the table below along with a description of how the request was handled at this time.

ECO for Change to Revision Level	Part Number(s) Affected	Description of Change
V2982 Rev. M	204456	Revise plumbing on air control to use inlet/outlet ports. Solution: See notes on illustration on page 12 describing changes to the configuration of the plumbing on the air control. The following changes were made to the parts list on page 13: Item 55 100628 – deleted Item 56 100721 – quantity changed to 2 Item 58 100361 changed to 162449
V3126 Rev. N	204482	Change screws on agitator, current screws are too short. 1. Change 100014 (1/4–20x5/8”) to 100058 (1/4–20x3/4”) 2. Change 100270 (1/4–20x1–1/4”) to 100022 1/4–20x1–1/2”) Solution: Part numbers changed on item numbers 85 and 88 on page 15
V5263 Rev. P		The illustration of the agitator (204482) on page 14 shows a bearing that is not on the print. Solution: Bearing has been eliminated from the illustration on page 14.

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 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 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.

Graco Phone Numbers

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.*

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