

INSTRUCTIONS - PARTS LIST

KEEP
FOR
REFERENCE



306-487

NOV. 1973

Supersedes NOV. 1959

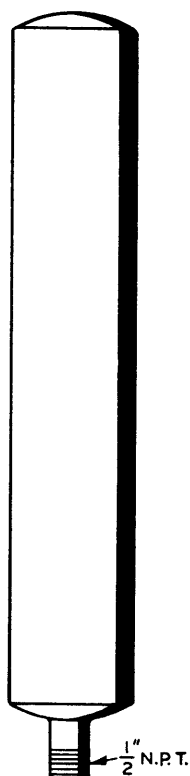
POWERFLO PUMP ACCESSORIES

STURDI-CLAMP
203-813

SURGE TANKS
202-375 AND 205-123

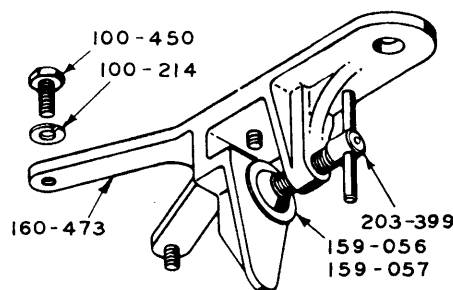
**MATERIAL
MANIFOLD**
203-809

**EXTERNAL
RELAX-A-VALVES**
203-786

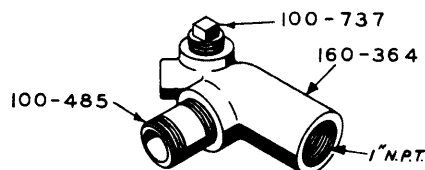


**205-123
SURGE TANK**

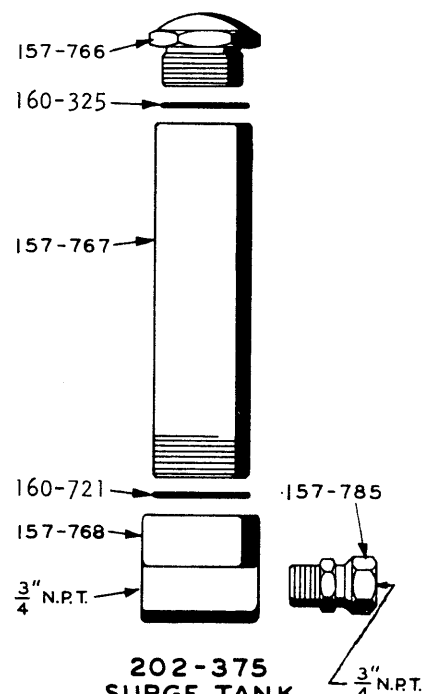
500 Psi -- 35 bar
MAX WORKING PRESSURE



**203-813
STURDI-CLAMP**

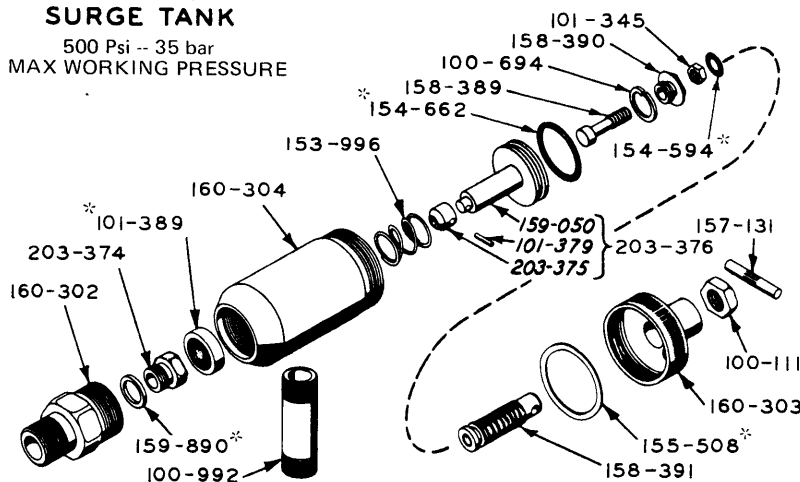


**203-809
MATERIAL MANIFOLD**

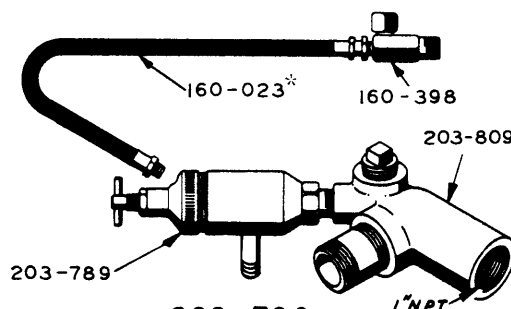


**202-375
SURGE TANK**

1600 PSI -- 110 bar
MAX WORKING PRESSURE



**203-789
EXTERNAL RELAX-A-VALVE**



**203-786
EXTERNAL RELAX-A-VALVE & MANIFOLD
(FOR DIVORCED PUMPS)**

DESCRIPTION

MODEL 203-809 MANIFOLD ASSEMBLY. For mounting surge tank 205-123 to material inlet of a divorced-type pump.

MODEL 203-813 STURDI-CLAMP. For holding divorced-type Monark or President pump securely to side of open head drum or tank. Also accommodates Evenflo Air Control.

MODELS 202-375 AND 205-123 SURGE TANKS. For limiting the pulsation action in supply line. Can be mounted on pump or in stationary line.

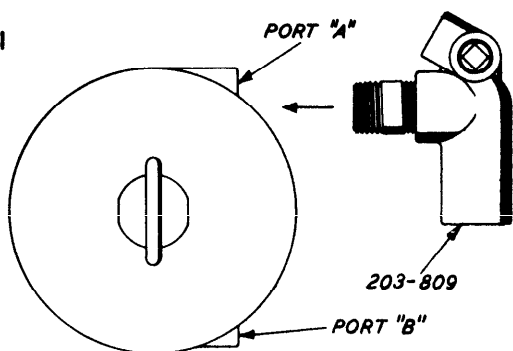
MODEL 203-786 EXTERNAL RELAX-A-VALVE. Model 203-786 is for divorced-type Monark, President and Bulldog pumps, up to and including the 10-1 ratio Bulldog. These Relax-A-Valves, when hooked up to pumps, will relieve fluid or material line pressure each time air pressure to pump is relieved. Graco Evenflo Air Control Model 202-844 should be used in conjunction with these Relax-A-Valves to automatically relieve the air pressure to pump each time spray gun is shut off.

INSTALLATION

NOTE: Use thread sealer on all threads in the material and air lines.

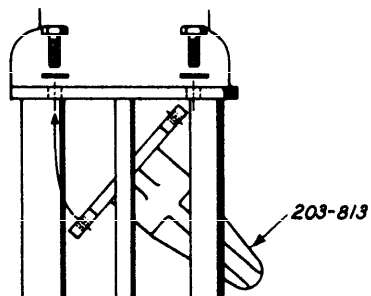
1. Screw manifold 203-809 securely into pump material outlet (Port A) as indicated in Figure 1, before mounting pump in RAM, drum or tank. **NOTE:** Pump return (Port B) is not used in this case.

FIG. 1



2. Screw relax-a-valve 203-789, if used, into manifold 203-809 as indicated in Figure 4, before mounting pump in RAM, drum or tank. When installed relax-a-valve drain back tube must be pointing downward.

FIG. 2



3. Tilt sturdi-clamp 203-813 so that fingers of clamp will pass between divorced pump stanchion tubes as shown in Figure 2. Straighten up and attach clamp to pump base with screws provided.

4. Remove original cover from drum upon which pump is to be mounted. Place clamp over edge of drum or tank and tighten "Tee" handle screw of clamp securely, as shown in Figure 3.

5. Remove pipe plug 100-737 from manifold 203-809 and screw surge tank 205-123, if used, into manifold opening as indicated in Figure 3. **NOTE:** If the other $\frac{1}{2}$ " NPT opening is not to be used, plug it with pipe plug 100-737.

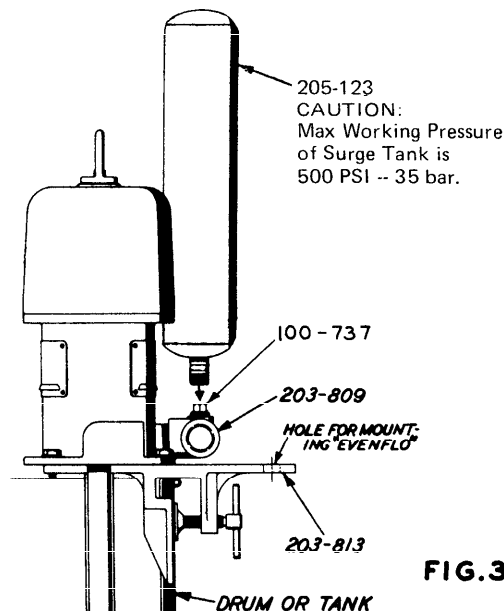
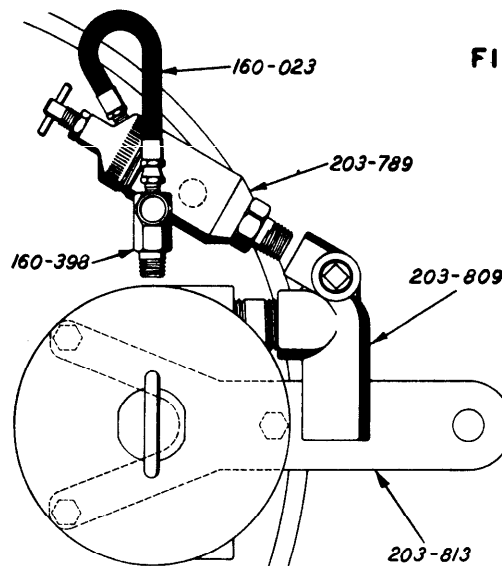


FIG. 3

6. If relax-a-valve 203-786 is to be used, screw air manifold union 160-398 into divorced pump air inlet as indicated in Figure 4. Connect the fixed end of 17' air hose 160-023 to relax-a-valve 203-789 and swivel end to union 160-398 as shown. **NOTE:** If Evenflo air control 202-844 is

FIG. 4



used in conjunction with relax-a-valve 203-786, attach Evenflo to sturdi-clamp 203-813 (Refer to Figure 3) and connect one end of Evenflo whipend hose to right-hand regulator of Evenflo and other end to union 160-398 in pump air inlet. Refer to Figure 4.

OPERATION

RELAX-A-VALVE ADJUSTMENT

1. Relax-a-valve 203-786 is a specially constructed valve designed for use with Graco divorced-type pumps up to and including the 10-1 Bulldog series pumps.

In the automatic position it relieves fluid or material line pressure each time air pressure to the pump is relieved. For spraying operations the Graco Evenflo 202-844 should be used to provide this automatic pressure relief to the pump each time the spray gun is shut off. For other types of operation a master shut off valve of the drain or bleed type should be provided in the air supply line.

To set relax-a-valve in automatic position, loosen nut 100-111, turn tee handle 157-131 clockwise as far as possible, back it off 4 turns and retighten nut. See Figure 5.

2. When pump is used in a bung type barrel the relax-a-valve should be closed to prevent

the material from relaxing back on top of the drum.

To close relax-a-valve, loosen nut 100-111, turn handle 157-131 clockwise as far as possible and retighten nut. See Figure 5.

3. To flush the pump or recirculate the material for mixing purposes, set relax-a-valve in the open position. This allows material or fluid to pass through valve and return tube 100-992 back into the drum while pump is in operation.

To open relax-a-valve, loosen nut 100-111 and turn handle 157-131 counterclockwise as far as possible.

NOTE

In any case where setting of relax-a-valve has been temporarily changed, be sure to return it to original setting before resuming operation.

MAINTENANCE

FREEZING TEMPERATURES

All compressed air contains a degree of moisture. Condensate in air cylinder actually assists lubrication of "O" rings. However, if pump is temporarily shut off or stored in freezing temperatures, observe maintenance precaution as follows:

1. If relax-a-valve is being used, shut off pump at end of each 8 hour shift, unscrew cap 160-303 and pull it outward just far enough to permit drainage of any accumulated moisture.

SERVICE DIAGNOSIS AND REMEDIES

IF PUMP OPERATES BUT INSUFFICIENT FLUID OR MATERIAL FLOWS.

1. Relax-a-valve tip 203-375 or seat 203-374 may be worn or damaged. This would allow material or fluid to flow through drain back tube 100-992.

Unscrew and remove cap 160-303 and parts attached from body 160-304. Unscrew seat 203-374 and replace if damaged or worn. Inspect valve tip 203-375 and "O" ring 154-662 for damage or wear and replace if necessary.

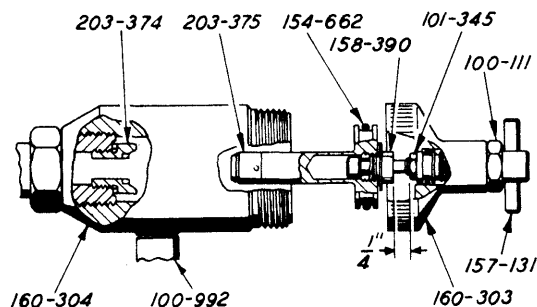


Fig 5

2. Relax-a-valve stem 203-376 may be unseated, due to improper adjustment.

a. Loosen nut 100-111 and turn "Tee" handle 157-131 clockwise as far as possible. Back it off 4 turns and retighten nut.

b. Operate pump. If fluid or material still flows through drain back tube, shut off pump, unscrew cap 160-303 and parts attached from body 160-304. Check clearance between stop nut 158-390 and hex. jam nut 101-345. Loosen jam nut 101-345 and set clearance at $\frac{1}{4}$ ". See Figure 5. Reassemble all parts, following a procedure reverse from disassembly.

PARTS LIST

PART NO.	DESCRIPTION	QUANTITY	PART NO.	DESCRIPTION	QUANTITY
100-111	NUT, hex. jam- $\frac{1}{2}$ "-20	0 or 1	158-390	NUT, stop	0 or 1
100-214	WASHER, spring lock- 5/16"	0 or 3	158-391	SCREW, adjusting	0 or 1
100-450	SCREW, hex.hd.cap- 5/16"-18x1"	0 or 3	158-491	NIPPLE, hex.pipe- $\frac{1}{2}$ " NPT x $1\frac{5}{8}$ "	0 or 1
100-485	NIPPLE, short pipe-1" NPT	0 or 1			
100-694	WASHER, Int.Shkprf. Lock- 7/16"	0 or 1	159-050	STEM, relax-a-valve	0 or 1
100-737	PLUG, sq.hd.pipe- $\frac{1}{2}$ " NPT	0 or 1	159-056	PAD, screw mounting	0 or 1
100-992	NIPPLE, pipe- $\frac{3}{8}$ " NPT x $2\frac{1}{2}$ "	0 or 1	159-057	RETAINER, pad	0 or 1
			*159-890	GASKET, copper	0 or 1
101-345	NUT, hex. jam- $\frac{1}{4}$ "-20	0 or 1			
101-379	PIN, drive	0 or 1	*160-023	HOSE, low pressure- $\frac{1}{4}$ " I.D. x 17° ,	0 or 1
*101-389	SEAL	0 or 1		coupled $\frac{1}{8}$ "(M) x $\frac{1}{8}$ " NPT (M) swivel	
			160-302	ADAPTER, relax-a-valve	0 or 1
153-996	SPRING, compression	0 or 1	160-303	CAP, relax-a-valve	0 or 1
			160-304	BODY, relax-a-valve	0 or 1
*154-594	RING, "o"	0 or 1	160-325	O-RING; nitrile rubber	0 or 1
*154-662	RING, "o"	0 or 1	160-721	O-RING; nitrile rubber	0 or 1
			160-364	MANIFOLD, material	0 or 1
*155-508	GASKET	0 or 1	160-398	ADAPTER, 90° union- $\frac{3}{8}$ "(M)x $\frac{1}{8}$ " (F) NPT swivel	0 or 1
157-131	HANDLE, valve tee	0 or 1	160-473	CLAMP (casting only)	0 or 1
157-766	CAP, surge tank	0 or 1	203-374	RELAX-A-VALVE SEAT Assy.	0 or 1
157-767	TUBE, surge tank	0 or 1	203-375	RELAX-A-VALVE TIP Assy.	0 or 1
157-768	BASE, surge tank	0 or 1	203-376	RELAX-A-VALVE STEM Assy.	0 or 1
157-785	UNION, straight adapter $\frac{3}{4}$ " (M) x $\frac{3}{4}$ " NPT (F) swivel	0 or 1	203-399	STURDI-CLAMP MOUNTING SCREW Assy,	0 or 1
			203-789	BARE RELAX-A-VALVE Assy.	0 or 1
158-389	STEM, adjusting	0 or 1	203-809	MATERIAL MANIFOLD Assy.	0 or 1

*SUGGESTED REPLACEMENT PARTS

Order parts by number and name. Also give series letter and model number for which parts are ordered. Call or write your Graco distributor, nearest Graco factory branch or service depot for parts or service.

THE GRACO WARRANTY

Graco Inc. warrants all equipment manufactured by it and bearing its name to be free from defects in material and workmanship under normal use and service. Scope of this warranty extends to the original purchaser for a period of 12 months from the date of purchase and is applicable only when the equipment is installed and operated in accordance with factory recommendations. The warranty does not extend to damage or wear caused by misuse, abrasion, corrosion, negligence, accident, faulty installation or tampering in a manner to impair its normal operation.

In the event the equipment supplied by Graco Inc. is found to be defective within the above-stated 12-month period, Graco Inc. will repair or replace free of charge such defective parts if rendered prepaid to the factory or to an authorized Graco service agency and is found by Graco Inc.'s inspection to be truly defective in workmanship or material. In the event said material is deemed defective in workmanship or material, it will be corrected and shipped transportation prepaid within the continental U.S. If inspection of any such equipment by Graco Inc. does not disclose any defect in workmanship or material, repairs will be made at a reasonable charge. Purchased assemblies which are incorporated into Graco equipment, carry the manufacturer's regular warranty.

The foregoing warranties are exclusive, and are in lieu of all other warranties (whether written, oral or implied) including warranty of merchantability in other respects than expressly set forth above and warranty of fitness for a particular purpose. Except as herein provided, every form of liability for direct or consequential damages or loss is expressly excluded and denied.

SERVICE INFORMATION

Listed below by the number of the assembly changed are OLD and NEW parts.

ASSEMBLY CHANGED	PART DESIGNATION	PART NO.	NAME
202-375	OLD	157-764	O-Ring
SURGE	NEW	160-325	O-Ring
TANK	OLD	157-765	O-Ring
	NEW	160-721	O-Ring

INTERCHANGEABILITY NOTE: NEW parts replace OLD parts listed directly above them.

DISCONTINUED PRODUCT NOTE: 203-808 Surge Tank and 204-519 External Relax-A-Valve have been discontinued.



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306-487
 Nov., 1954
 Revised
 Nov., 1973
 PRINTED
 IN
 U.S.A.