

KEEP
FOR
REFERENCE



306-773

JULY 1973

Supersedes SEPT. 1966

1:1 RATIO

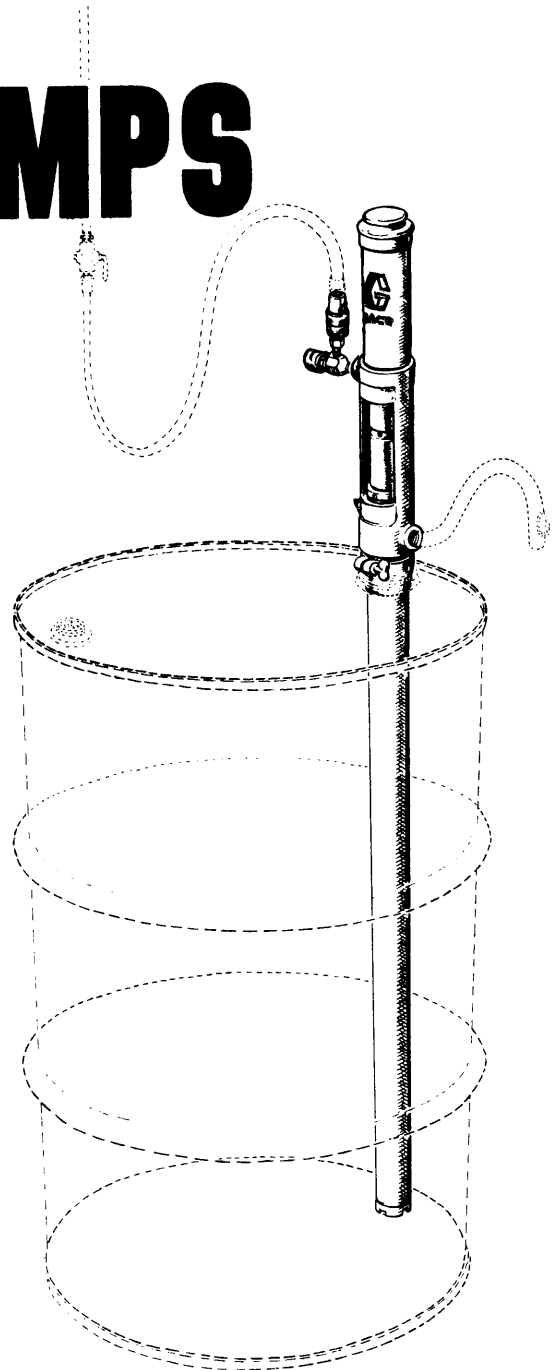
FAST-FLO PUMPS



type 21

Model **226-226** SERIES "A"
WITH NEEDLE VALVE & QUICK COUPLER

- For pumping fluids from closed, 2 in. bung, drums
- Air-operated, with adjustable air control valve
- Model 226-226 has a quick-coupler and pin fitting
- Technical Data on back page; Accessories on page 5



INSTALLATION

1 INSTALL AIR VALVE AND AIR SUPPLY HOSE

(1) Apply thread sealer sparingly to male threads of the coupler pin fitting and air valve, and install in the pump air inlet. Connect the $\frac{1}{4}$ NPT (F) air coupler to an air hose. Connect the other end of hose to a bleed type master air valve. See Fig. 1.

2 ATTACH ACCESSORIES (See Accessories on page 5.)

OPERATION

3 CHECKS BEFORE STARTING

- (1) Screw the bung adapter tightly into bunghole and adjust to hold the pump $\frac{1}{2}$ in. off the drum bottom. When changing drums, keep the pump clean and check the $\frac{1}{2}$ in. clearance. See Fig 2.
- (2) Loosen the drum vent plug so a vacuum doesn't form in drum.
- (3) Check the fluid level in drum. Be ready to disconnect the air coupler as soon as the pump empties drum.
- (4) Oil the pump exhaust tube regularly. If air supply is dry, oil the air motor periodically by injecting 15 drops of light oil into the pin fitting. When pumping a non-lubricating fluid, grease the pump often through fitting on pump. See Fig 3.

4 STARTING

- (1) With air control valve closed, open the master air valve and snap the air line coupler onto the pin fitting.
- (2) Open the air valve slowly, to start pump. Do not run it faster than necessary.

NOTE

A dispensing valve (see Accessories, page 5) will start and stop pump automatically, once the speed is set by air valve.

5 STOPPING

- (1) To stop pump, disconnect air coupler or close air valve.
- (2) If pump suddenly races, the drum is empty. Disconnect air coupler immediately.
- (3) When shutting down for more than a few days, lubricate pump (par 3 (4)). When pumping fluids which may harden or dry, flush pump daily (par. 6).

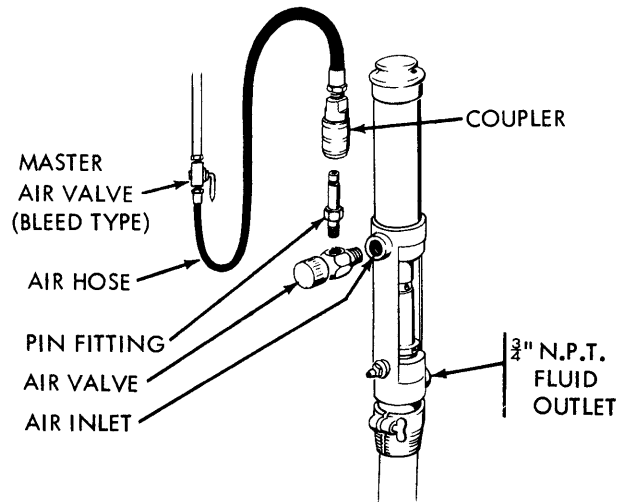


Fig. 1

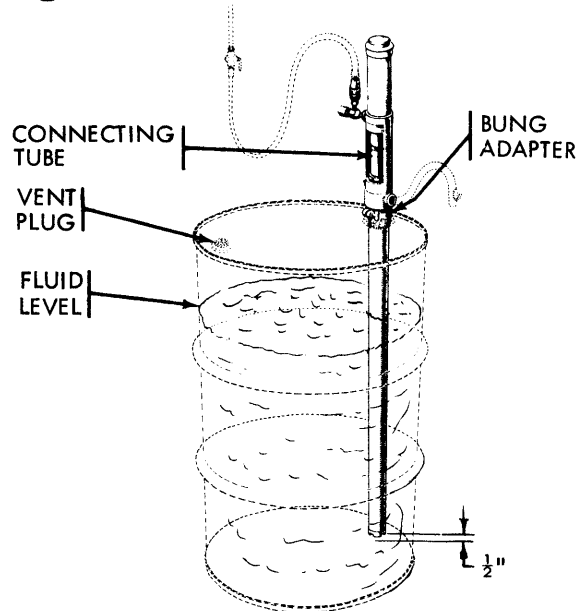


Fig. 2

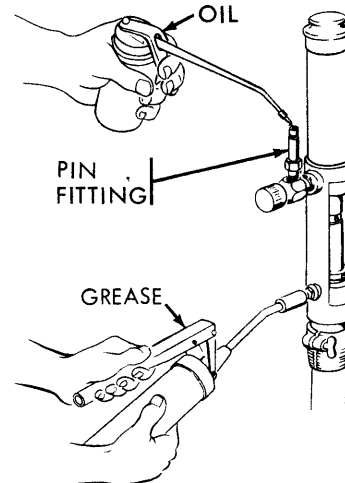


Fig. 3

6 FLUSHING

- (1) Connect a 4 ft hose to fluid outlet. See Fig 4.
- (2) Take pump out of drum and stand it in a pail of compatible solvent. Refer to Fig 4.
- (3) Put hose in the pail and start the pump. Circulate the solvent for at least 5 min.
- (4) After stopping the pump, press up on the bottom of the foot valve to drain the lower part; then tip the pump over to drain the upper part. Refer to Fig 4.
- (5) Lubricate the pump (par 3 (4))

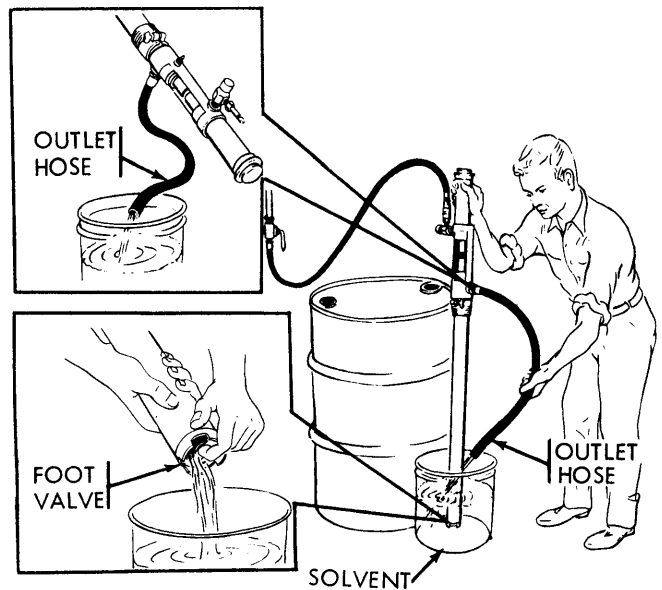


Fig. 4

MAINTENANCE

7 TROUBLESHOOTING CHART

TROUBLES:

- 1 Fluid leaks around connecting tube
- 2 Pump runs fast or erratically
- 3 Output low on DOWN stroke
- 4 Output low on UP stroke
- 5 Output low on BOTH strokes
- 6 Pump does not run

CAUSES & REMEDIES:

Restricted or clogged air supply line, outlet hose, valve, etc. (Clear)

Closed or clogged air valve (Open, clean)

Air piston clogged or packing worn (Clear, replace - par 9)

Drum empty (Replace drum)

Fluid piston clogged or worn (Clear, replace - par 8)

Intake valve clogged or worn (Clear, replace - par 8)

Upper air motor spring broken (Replace - par 9)

Packing nut loose or throat packings worn (Tighten, replace - par 8)

Packing nut tight (Loosen - step (8), par 8)

Pump seized by dried material (Test *, flush - par 6)

*Disconnect coupler, insert a rod through connecting tube ports and check for free movement.

8 FLUID PUMP SERVICE

Flush with solvent before servicing, if possible. See par. 6. Disconnect the air and fluid hoses, and remove pump from drum.

- (1) INTAKE VALVE: Unscrew intake valve from riser tube, clean and inspect for obstruction or damage. Replace if necessary.

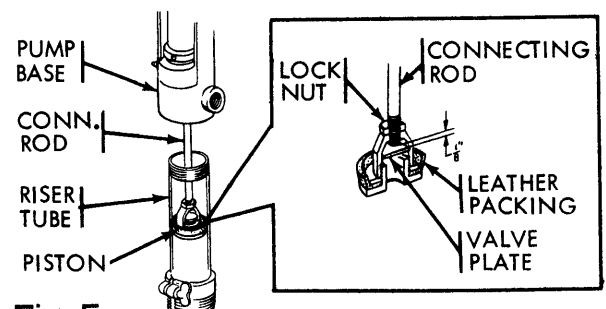


Fig. 5

(2) **FLUID PISTON:** Unscrew riser tube from pump base. Clean and inspect piston. Replace worn or damaged parts. Soak leather packing in light oil until flexible. When reassembling, allow valve plate $\frac{1}{8}$ in. travel. See Fig 5.

(3) **THROAT PACKINGS:** Remove cotter pin and unscrew connecting rod from connecting tube. Remove air cylinder from base, loosen packing nut and carefully pull connecting tube from top of base. See Fig. 6. Remove packing retainer (special tool no. 168-019 available) from bottom of base. Remove packing nut and push bearing gland and packings from bottom of base. Clean and inspect all parts for damage or wear. Replace as necessary. Soak new leather packings in light oil till flexible. Push gland and packings one by one into base and hand tighten packing retainer. Install packing nut loosely, lubricate connecting tube and carefully slide it through packings and base. Draw up packing nut snugly, do not overtighten. Reassemble remaining parts, reverse from disassembly.

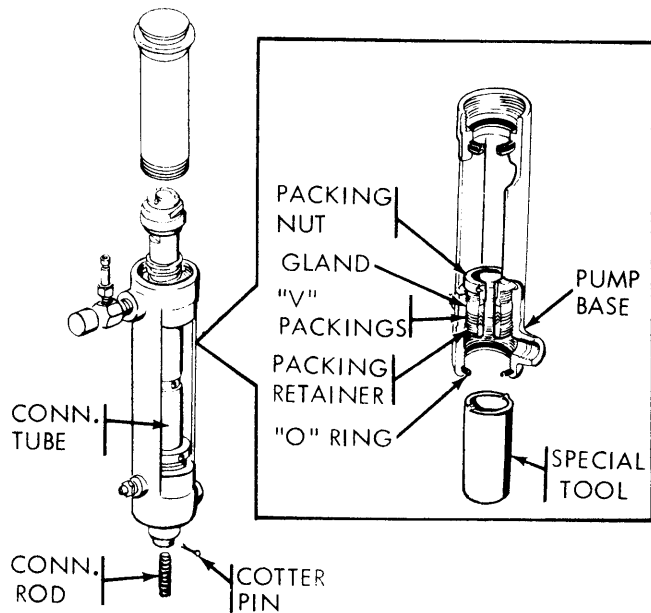


Fig. 6

9 AIR MOTOR SERVICE

(1) Disconnect air and fluid hoses and remove pump from drum. Unscrew air cylinder from base.

(2) Inspect plates of air valve and piston for dirt. To remove dirt, wash the air valve with a soft brush and nonflammable solvent. Blow dry.

(3) To replace parts of air valve and piston assembly, remove air valve and piston from connecting tube using wrenches on flats of piston and tube and disassemble air valve and piston. Remove spring and gasket from air motor base. Refer to Fig 7. Clean and inspect parts, and replace as necessary. If any of the valve plate spacers are damaged, replace all three. Apply thread sealer to screw threads and reassemble as shown in Fig 7. Tighten screws securely. Install gasket and spring in pump base. Install washer on connecting tube, lightly coat the tube threads with thread sealer and carefully screw air valve and piston assembly hand tight onto tube. Use wrenches and tighten only enough to form an air tight seal. DO NOT strain threads.

(4) To replace upper air motor spring, remove cap from air cylinder and remove spring and gasket from cap. Refer to Fig. 7. Clean and inspect parts and replace as necessary.

(5) To replace "v" block packing at top of base (see Fig 7), first remove connecting tube (par 8 (3)). Then remove "v" block packing and backup.

(6) Reassemble, reverse from disassembly and reinstall pump in drum.

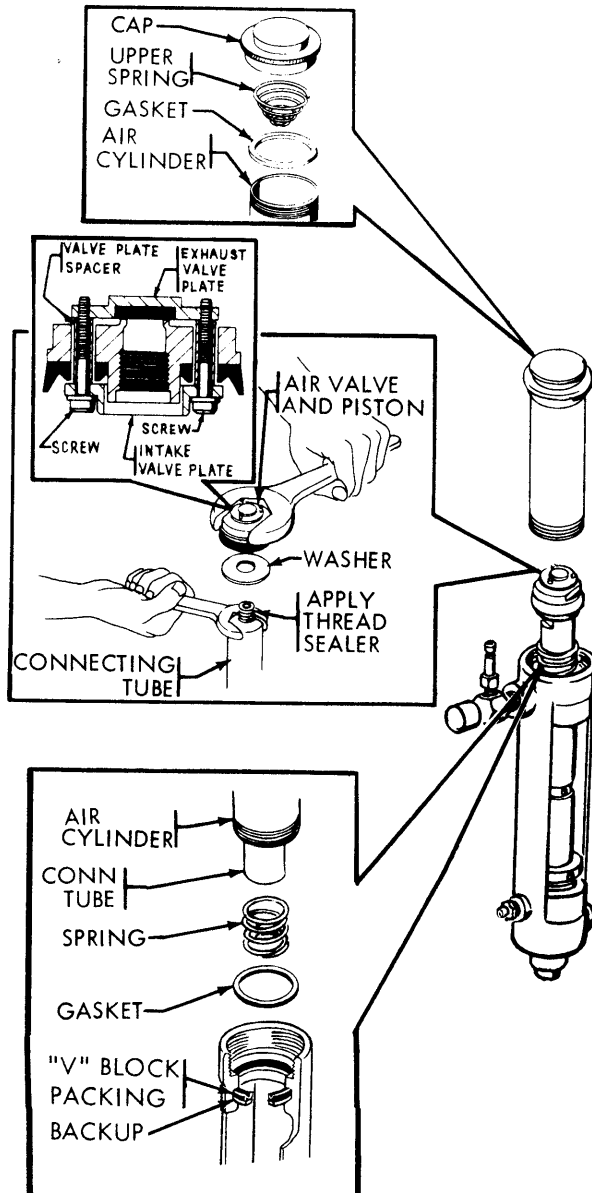
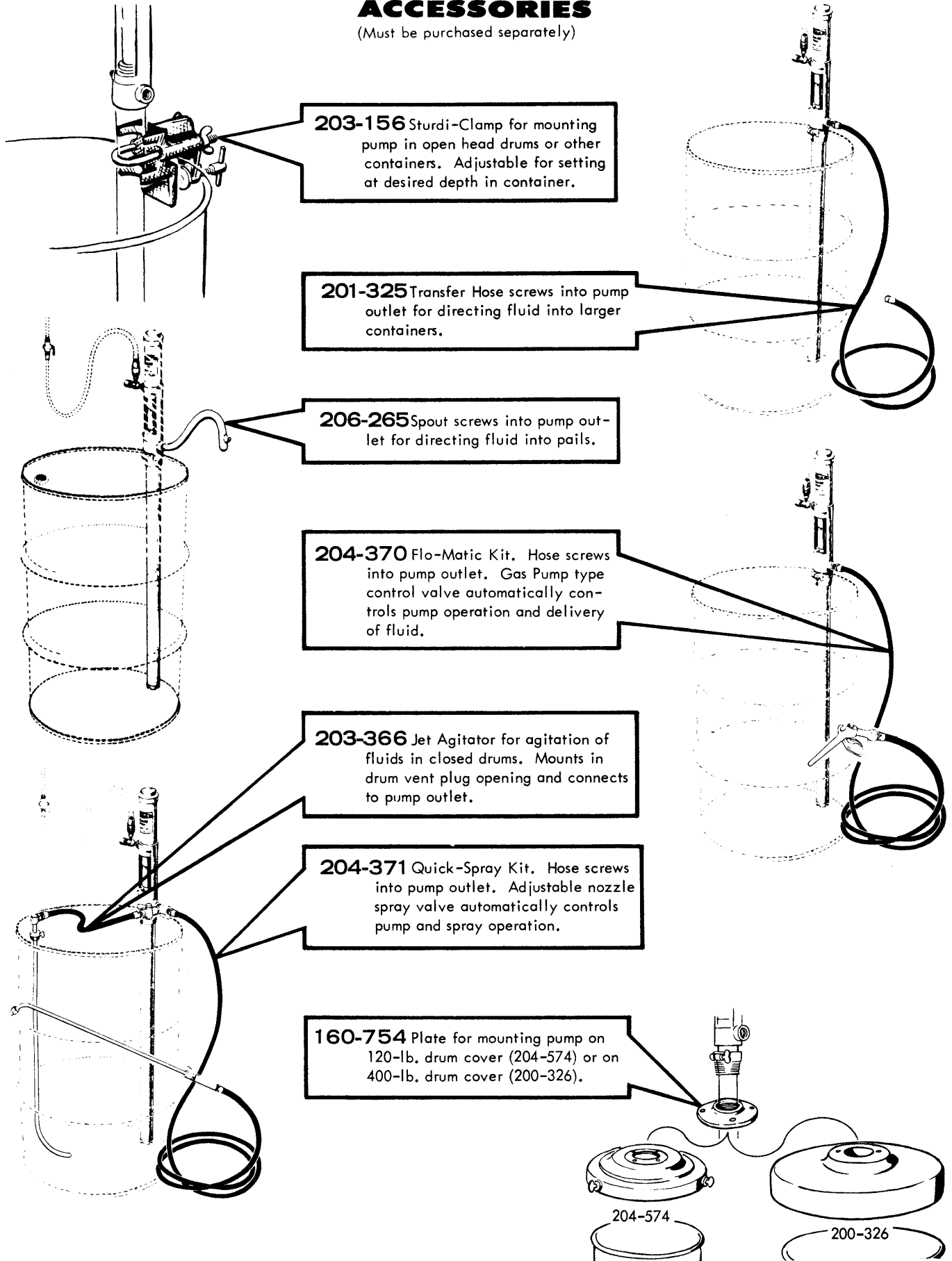


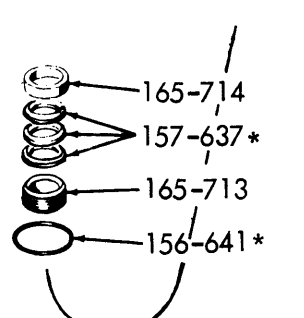
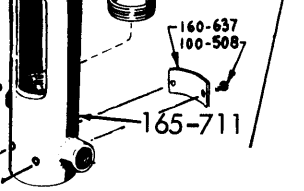
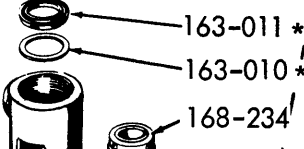
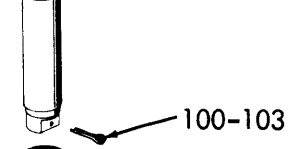
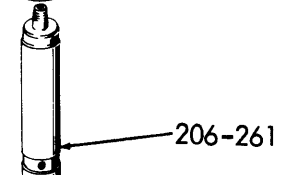
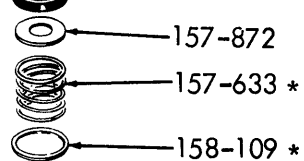
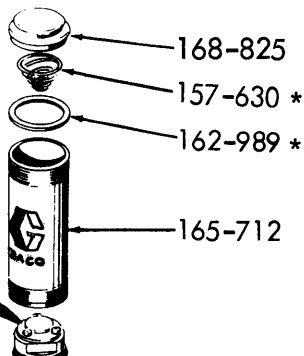
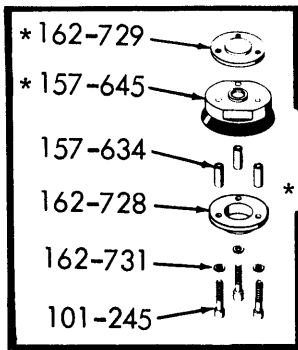
Fig. 7

ACCESSORIES

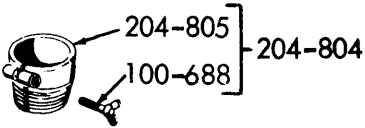
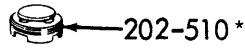
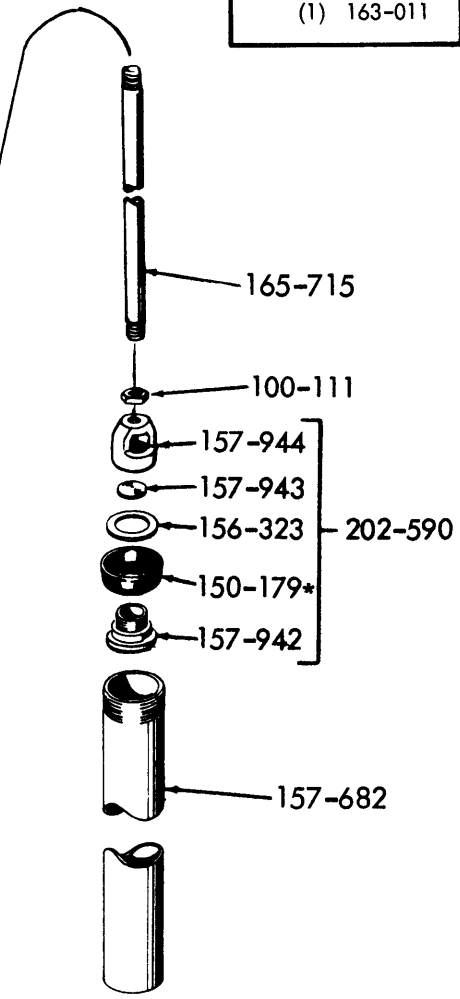
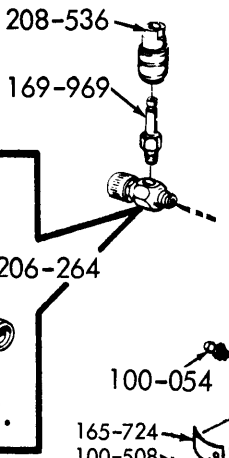
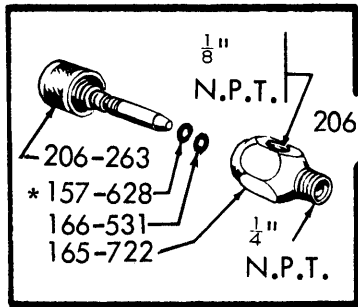
(Must be purchased separately)



Model
226-226 SERIES "A"
 WITH NEEDLE VALVE & QUICK COUPLER



207-182
 REPAIR PARTS KIT
 Consists of:
 (1) 150-179
 (1) 156-641
 (3) 157-637
 (1) 158-109
 (1) 162-989
 (1) 163-010
 (1) 163-011



PARTS LIST

PART NO.	DESCRIPTION	QTY.	PART NO.	DESCRIPTION	QTY.
100-054	FITTING, grease; straight; $\frac{1}{8}$ NPT	1	*162-729	PLATE, exhaust valve: air piston	1
100-103	PIN, cotter; $\frac{1}{8}$ dia; $1\frac{1}{2}$ " lg	1	162-731	GASKET, copper: air piston	3
100-111	NUT, hex jam; $\frac{1}{2}$ -20 thd size	1	*162-989	GASKET, rubber: air motor cap	1
100-508	SCREW, type "u" drive; No. 4 size; $\frac{3}{16}$ lg	4	*163-010	BACKUP, packing: air motor throat	1
100-688	SCREW, thumb; $\frac{1}{4}$ -20 thd size; $1\frac{1}{2}$ " lg	1	*163-011	PACKING, "v" block: air motor throat	1
101-245	SCREW, socket hd cap; No. 6-32 thd size; 1" lg	3	165-711	BASE: air motor	1
*150-179	PACKING, cup leather: fluid piston	1	165-712	CYLINDER: air motor	1
156-323	BACKUP, washer; fluid piston	1	165-713	RETAINER, male gland packing: pump throat	1
*156-641	SEAL, "o" ring: riser tube	1	165-714	GLAND, female bearing: pump throat	1
*157-628	PACKING, "o" ring: air valve	1	165-715	ROD, connecting	1
*157-630	SPRING, tapered helical compression	1	165-722	BODY: air valve	1
*157-633	SPRING, helical compression: air motor	1	165-724	PLATE, "UL"	1
157-634	SPACER, valve plate: air piston	1	166-531	RING, friction washer	1
*157-637	PACKING, "v" leather: pump throat	3	168-234	NUT, packing	1
*157-645	PISTON, air	1	168-825	CAP: air motor	1
157-682	TUBE, fluid riser	1	169-969	FITTING, air line	1
157-872	WASHER, valve trip: air motor	1	*202-510	INTAKE VALVE Assy.	1
157-942	BODY, fluid piston	1	202-590	FLUID PISTON Assy.	1
157-943	VALVE, fluid piston	1	204-804	BUNG ADAPTER & SCREW Assy.	1
157-944	HOUSING, valve: fluid piston	1	204-805	BUNG ADAPTER Assy. (bare)	1
*158-109	GASKET, rubber: air cylinder	1	*205-101	AIR VALVE AND PISTON Assy.	1
160-637	PLATE, pump serial (when ordering give pump model, ratio and series data)	1	206-261	CONNECTING TUBE Assy.	1
162-728	PLATE, intake valve: air piston	1	206-263	AIR VALVE NEEDLE Assy.	1
			206-264	AIR VALVE Assy.	1
			208-536	COUPLER, air line	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.

SERVICE INFORMATION

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

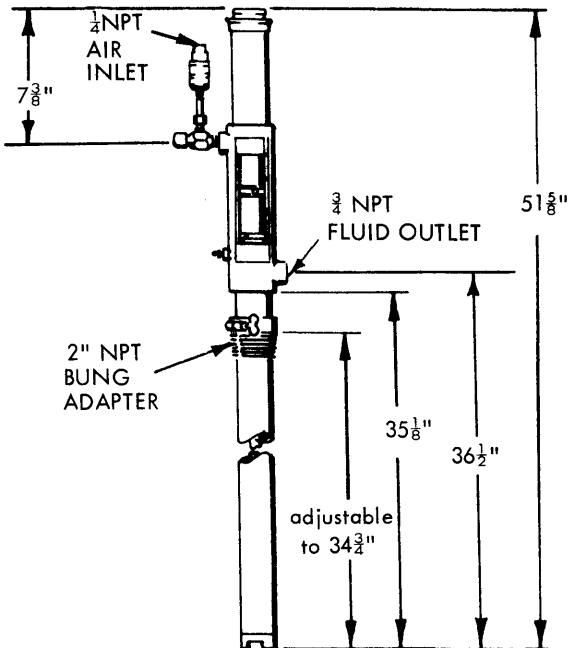
ASSEMBLY CHANGED	PART DESIGNATION	PART NO.	NAME
226-226	OLD	202-437	Coupler
FINAL	NEW	208-536	Coupler
PUMP	OLD	206-262	Packing Nut
Assy	NEW	168-234	Packing Nut
	OLD	157-367	Fitting
	NEW	169-969	Fitting
	OLD	157-631	Cap
	NEW	168-825	Cap

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

DISCONTINUED PRODUCT NOTE: Model 207-364 has been removed.

TECHNICAL DATA

Recommended air operating range	40 psi (2,8 bar) min. to 180 psi (12,4 bar) max.
Air consumption	$\frac{1}{2}$ to 1 cfm per gallon of fluid delivered, depending on viscosity.
Output	Up to 20 gpm
Pump ratio	1:1
Fluid outlet	$\frac{3}{4}$ NPT (F) - Model 226-226 $\frac{3}{4}$ garden hose (M) - Model 207-364
Wetted Parts	Steel, Aluminum, Zinc, Leather
Shipping weight	14 lb



THE GRACO WARRANTY

Based on the logical assumption that manufacturing and material deficiencies will manifest themselves within twelve months' time, 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.



Factory Branches: ATLANTA, CHICAGO(Broadview), CLEVELAND, DALLAS, DETROIT(Southfield), FT. LAUDERDALE, HOUSTON, LOS ANGELES, PHILADELPHIA(Levittown), ST. LOUIS(Maryland Heights), SOUTH SAN FRANCISCO, WEST CALDWELL(N.J.)
 Subsidiary and Affiliate Companies: CANADA; ARGENTINA; BRAZIL; VENEZUELA; ENGLAND; FRANCE; GERMANY; ITALY; SWITZERLAND; SWEDEN; HONG KONG; JAPAN

GRACO INC. P.O. BOX 1441 Minneapolis, MN 55440

306-773
 Jan., 1963
 Revised
 July, 1973
 PRINTED
 IN
 U.S.A.