

INSTRUCTIONS-PARTS LIST

KEEP FOR REFERENCE



307-270

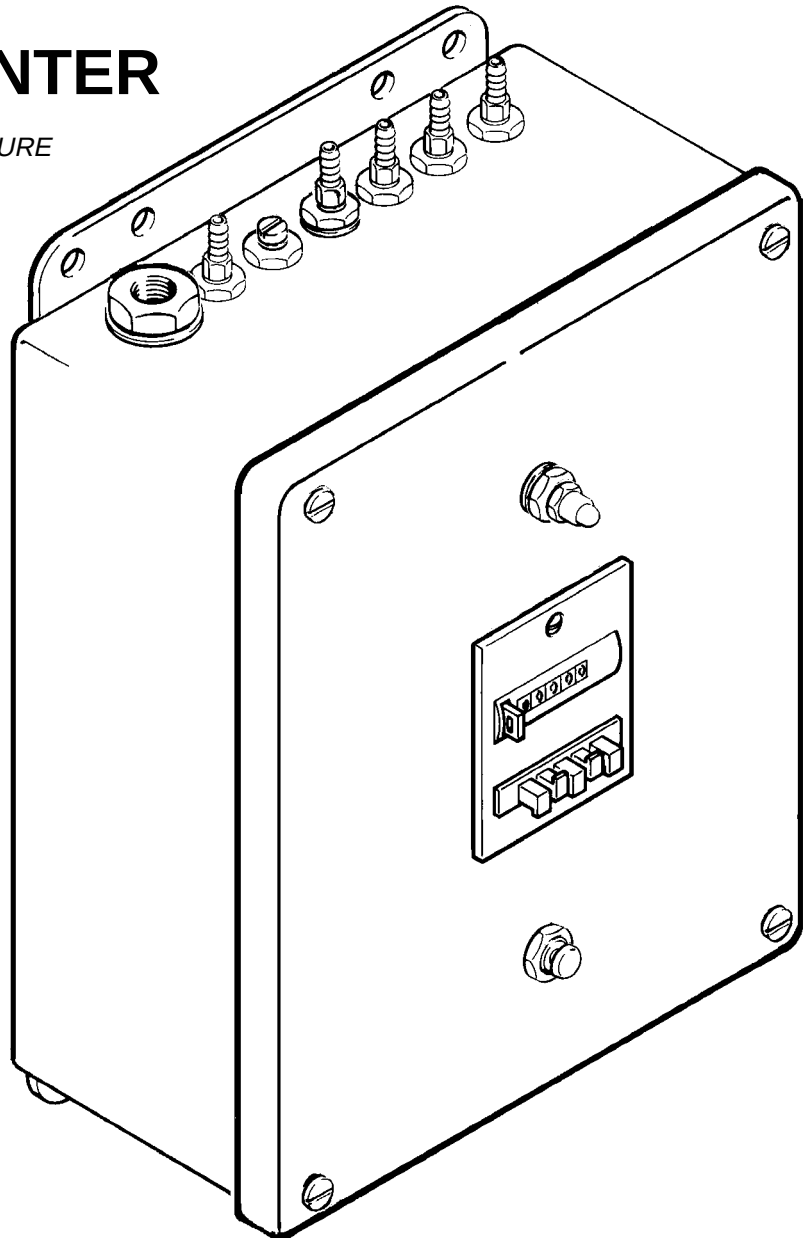
Rev C
Supersedes B

ADJUST-A-STROKE®

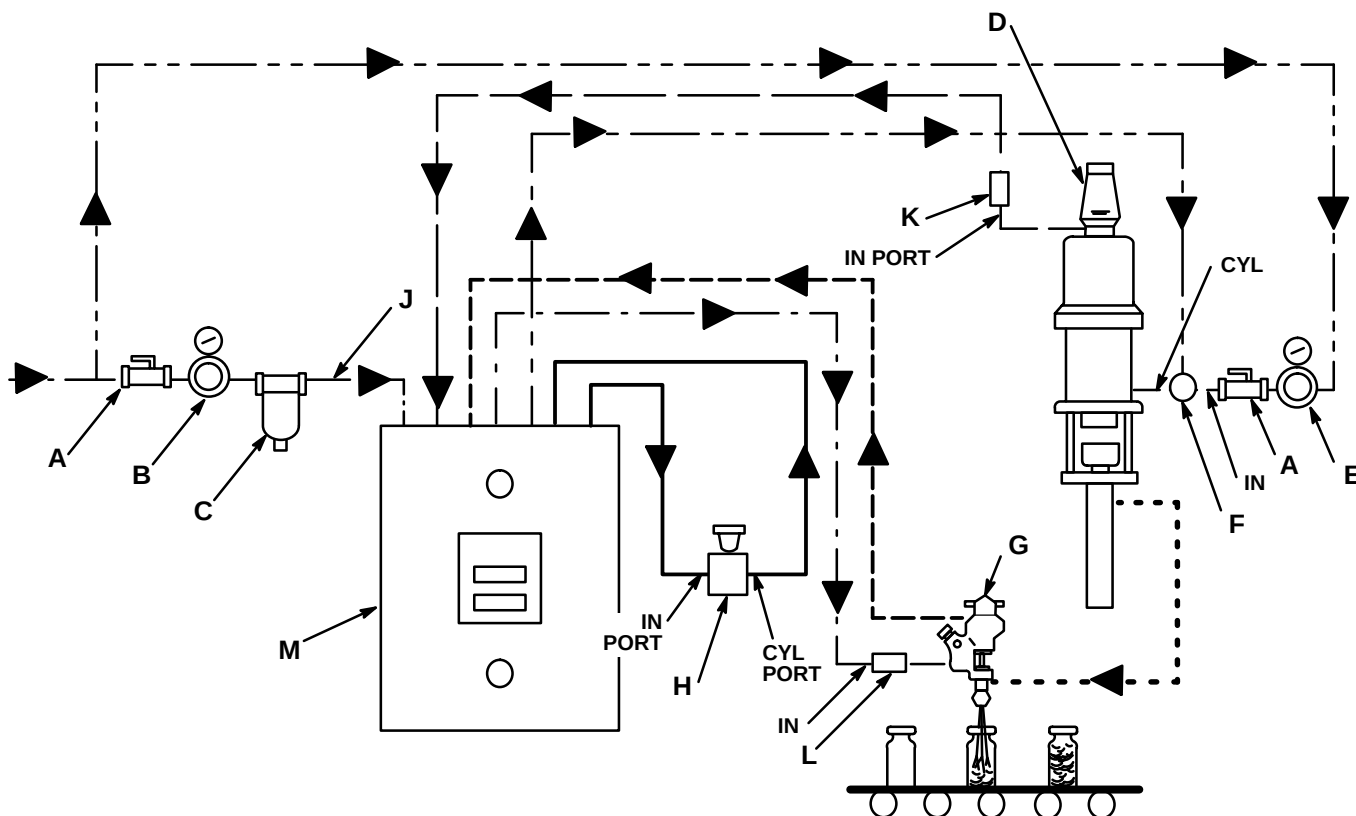
PNEUMATIC COUNTER

100 psi (7 bar) MAXIMUM WORKING PRESSURE

Model 212-093, Series B



TYPICAL INSTALLATION



KEY

A. ON-OFF VALVE (bleed-type) for air supply to counter.

B. AIR REGULATOR & GAUGE Air supply to counter must be 80–100 psi (6–7 bar).*

C. AIR FILTER Air supply to counter must be dry and filtered to 30 micron. **

D. ADJUST-A-STROKE Use this counter only with the following Adjust-A-Stroke Models:

210–514	used with Monark pumps
210–516	used with Monark Sanitary pumps
210–302	Bulldog Adjust-A-Stroke Air Motor
952–356	King Adjust-a-Stroke Air Motor

E. AIR REGULATOR, GAUGE & SHUTOFF VALVE For controlling pump speed and pressure; sized for the pump selected. System must include a shutoff valve between the regulator and the pump.

F. PILOT VALVE Install between the regulator and the pump. For controlling air supply to the pump.

G. AIR-OPERATED DISPENSING VALVE

H. THREE-WAY START VALVE

J. TUBING 0.17" (43 m) ID, polyethylene tubing.

K. QUICK EXHAUST VALVE Included with counter.

L. QUICK EXHAUST VALVE

M. ADJUST-A-STROKE COUNTER

* Failure to limit air supply to 100 psi (7 bar) will void the Graco warranty.

** Failure to ensure that the air supply is dry and properly filtered will void the Graco Warranty.

NOTE: See the ACCESSORIES section on page 8 for available gauges, filters, etc.

INSTALLATION

For proper counter operation:

1. The counter must be mounted as close as practical to the pump, and no more than 20 feet (6 m) away.
2. The **COUNT PULSE** line must be as short as possible, and no more than 20 feet (6 m) long. The maximum length is determined by the speed of the pump. See Fig 1 and the TYPICAL INSTALLATION drawing.

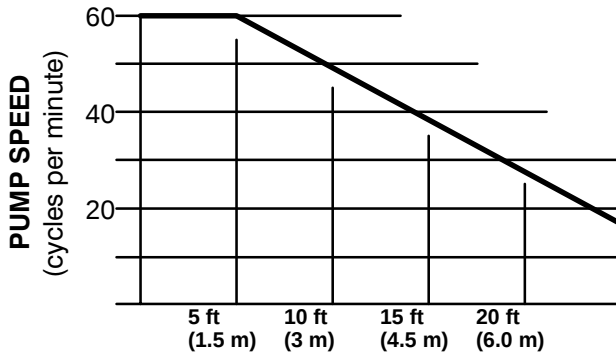


Fig 1 MAXIMUM PULSE LINE LENGTH

Mount the Counter

1. See the mounting diagram in Fig 2.
2. Install the nipple, quick exhaust valve and tube fitting in the Counter or air motor. See Fig 3.
3. Be sure the air supply to the counter is filtered, dry, regulated, and includes a bleed-type master air valve which relieves air pressure to the control systems.

Connections to the Counter

Refer to the Fig 4 and the TYPICAL INSTALLATION drawing

1. Firmly connect tubing between the push-in type fitting on the Adjust-a-Stroke and the barbed fitting marked **COUNT PULSE**.

NOTE: To disconnect tubing from the barbed fitting, slit the tubing end. Trim the end before reconnecting.

To disconnect the push-in fitting, push in and hold the sleeve with a screwdriver and pull the tube from the fitting. Before reconnecting, trim 0.25" (7 mm) from the end.

2. Connect a line between the **DISPENSE ON** port and the dispensing valve. For a double-actuated dispensing valve, remove the plug at **DISPENSE OFF**, install the barbed fitting provided, and connect that line.
3. Connect a line between the **AIR MOTOR PILOT** port and the pilot valve.

4. Connect lines between the three-way start valve and the remaining counter ports: **TO** port to valve IN-LET; **FROM** port to valve CYL. Leave the valve exhaust port open.

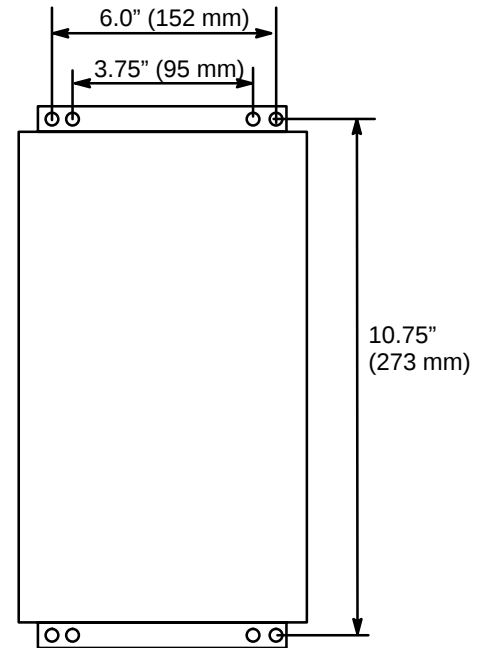


Fig 2 MOUNTING HOLE DIAGRAM

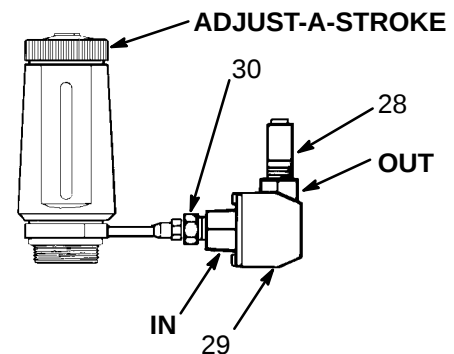


Fig 3

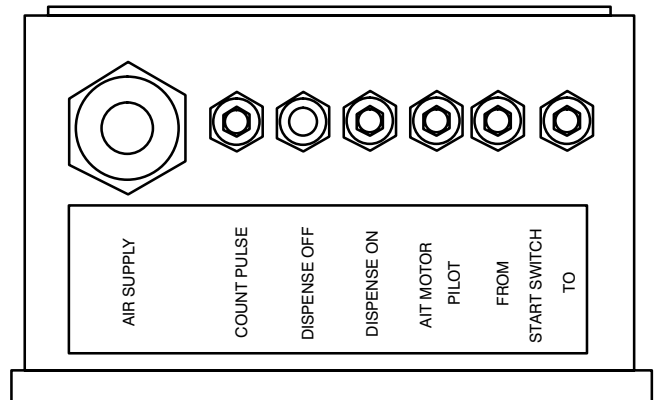


Fig 4

OPERATION

First Time Startup

1. Be sure the air supply to the pump and counter is off.
2. Hold in the reset button. Use the set buttons to set the counter to a high cycle number, such as 9000.
3. Turn on the air supply to the counter and regulate to 80 to 100 psi (6 to 7 bar).
4. Set the pump air regulator to the minimum pressure. Turn on the air supply to the pump and start the system by activating the dispensing valve. Adjust the pump air regulator until the pump delivers the fluid at the desired rate. Use the lowest pressure needed.

NOTE: For proper counter operation: the pump air supply must be operated within a 20 – 100 psi (1.5 – 7 bar) range. The maximum possible pump speed is determined by the pulse line length. See Fig 1.

5. Press **MANUAL RESET** on the counter to stop the system. Reset the counter to the desired number of pump cycles.

Normal Startup

1. Press the **START VALVE** to activate the system. The counter indicator shows red, the pump starts, the dispensing valve opens and the counter counts pump cycles down from the set number.
2. When the counter reaches 00000, the pump air is shut off and relieved, the dispensing valve closes and the counter is automatically reset to the original setting.

3. For simple, non-metered transfer operations, reset the counter to about 9000 and activate the start valve. When the transfer operation is complete, push **MANUAL RESET** to stop the system.

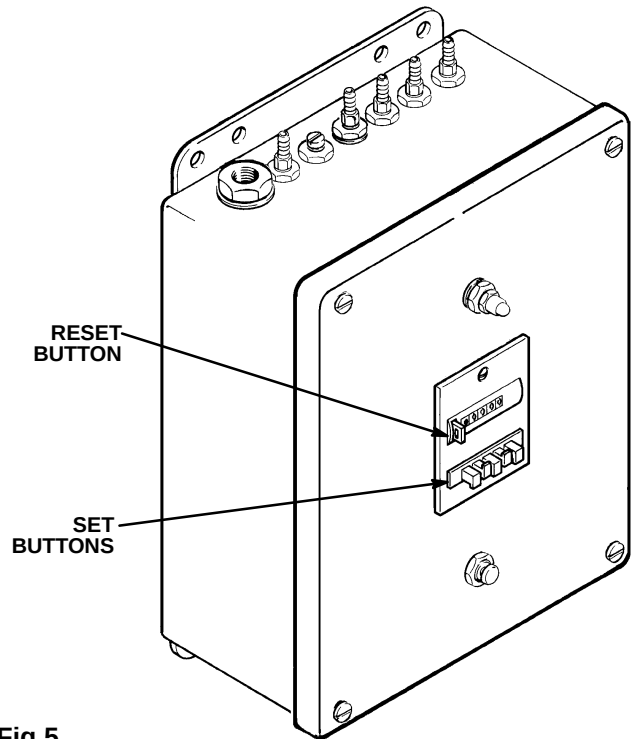


Fig 5

SERVICE

If any problems are noticed, first check that the air supply is on and properly adjusted. Then check all the lines and connections for leaks.

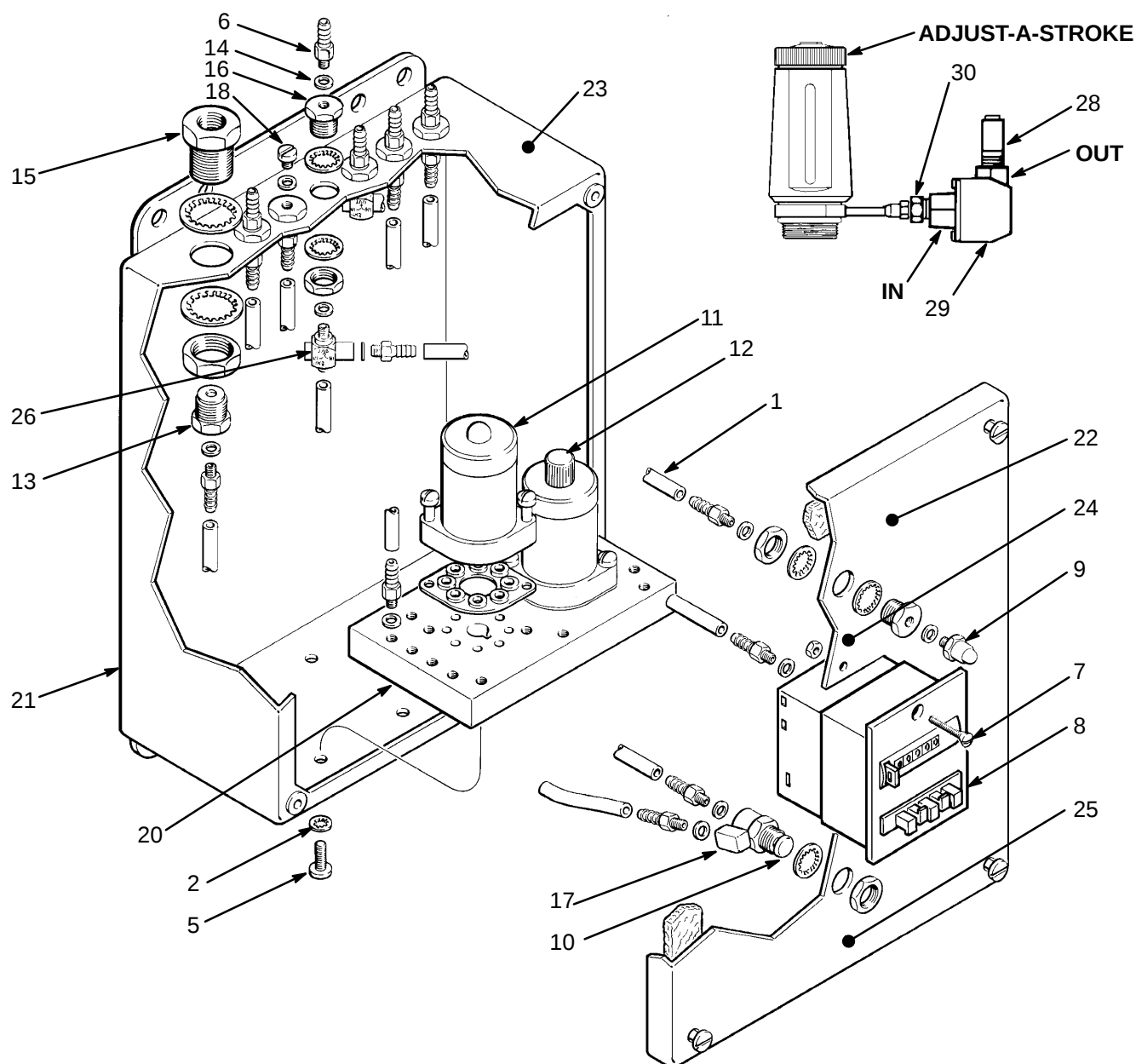
Use the Troubleshooting guide to isolate the problem. Use a blow gun connected to an auxiliary air supply to check any portions of the system suspected of being faulty. Disconnect the air lines from the suspected component and apply air pressure to check whether the component functions.

Example: If the dispensing valve fails to open, disconnect the air line from the counter to the valve and apply air from the auxiliary source. If the valve doesn't open, the problem is in that line or in the valve.

TROUBLESHOOTING GUIDE

PROBLEM	CAUSE	SOLUTION
Counter misses counts	1 COUNT PULSE line too long	1 Correct. See page 3.
	2 Pump air pressure too high or too low	2 Adjust; 20–100 psi (1.5 – 7 bar)
	3 Pump speed too high	3 Adjust; See Fig 1.
	4 Quick exhaust on Adjust-A-Stroke not functioning properly	4 Service or replace.
	5 Counter failure	5 Replace
No count	1 Insufficient air pressure to counter	1 Adjust: 80 – 100 psi (6 – 7 bar)
	2 Pump air pressure too low	2 Adjust: 20 –100 psi (1.5 – 7 bar)
	3 Counter failure	3 Replace
Counter does not reset, or reset is sluggish	1 Insufficient air pressure to counter	1 Adjust: 80 – 100 psi (6 – 7 bar)
	2 Clogged valve (ref. no. 12, page 6.	2 Clean, service.
	3 Incorrect valve adjustment (12)	3 Adjust: turn knob all the way clock-wise, then back off 1/2 of a turn.
	4 Valve (12) failure	4 Replace.
Pump does not operate (counter indicator is off)	1 Insufficient air supply to counter	1 Adjust: 80 – 100 psi (6 – 7 bar)
	2 Start valve (Ref. H, page 2) not opening.	2 Check; service; replace
	3 Four way valve (11) not functioning	3 Clean; service, replace.
Pump does not operate (counter indicator is on)	1 Insufficient air supply to pump	1 Adjust: 20 – 100 psi (1.5 – 7 bar)
	2 Dispensing valve (Ref G, page 2) not opening	2 Check; see above.
	3 Pilot valve (Ref F, page 2) not opening	3 Check; service; repair.
Dispensing valve (Ref G, page 1) does not open (counter indicator is off)	1 See "Pump does not operate (indicator is off), above)	
Dispensing valve (Ref G, page 1) does not open (counter indicator is on)	1 Insufficient air supply to counter	1 Adjust: 80 – 100 psi (6 – 7 bar)
	2 Valve (Ref G, page 2) failure	2 See separate valve manual.

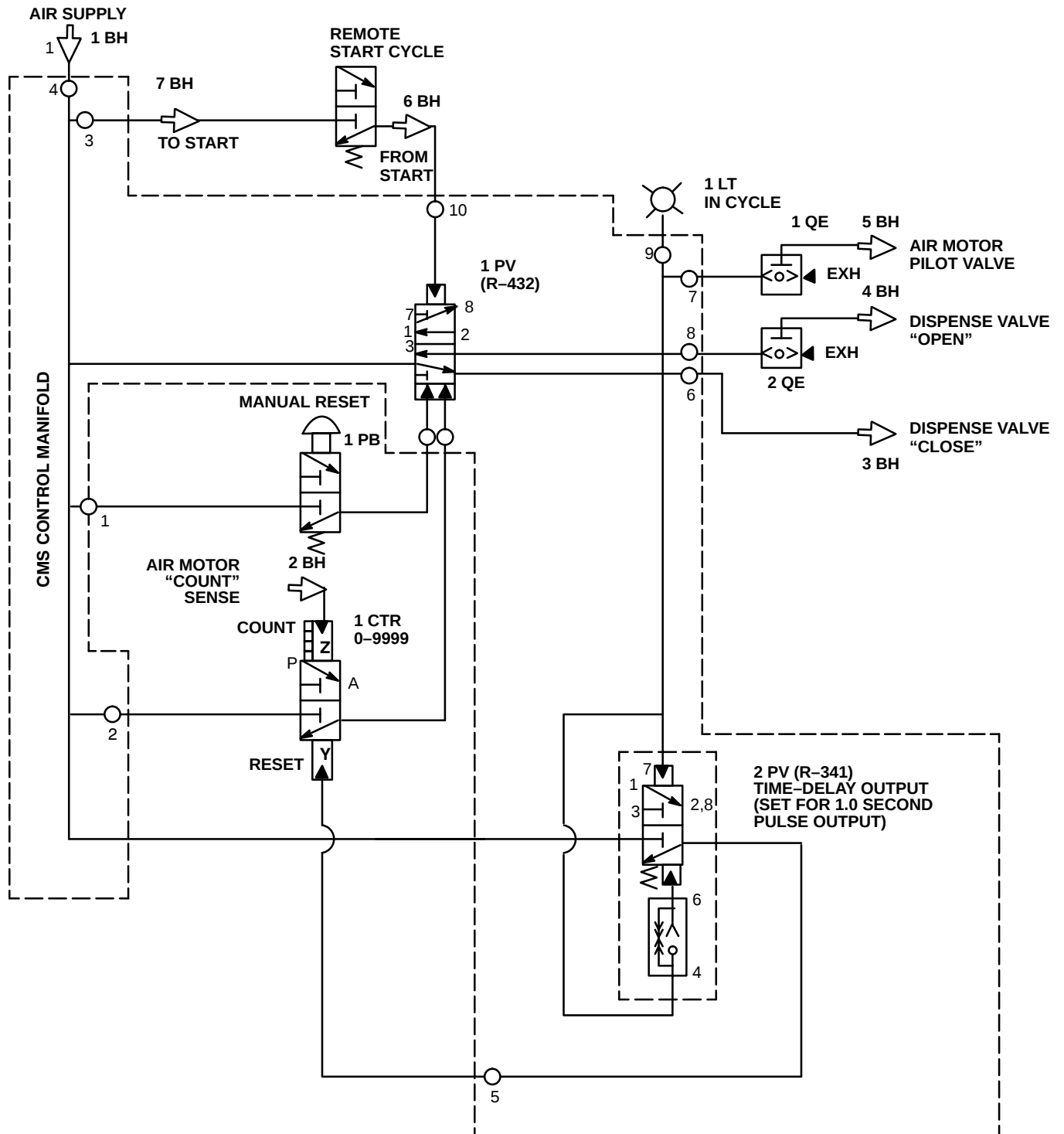
PARTS LIST & DRAWING



REF NO.	PART NO.	DESCRIPTION	QTY	REF NO.	PART NO.	DESCRIPTION	QTY
1	054-138	TUBE, urethane; 0.12 (3 mm) ID 15 ft (4.6 m)		16	104-642	FITTING, bulkhead; 10-32 (f)	7
2	100-718	LOCKWASHER, int; shkprf; No. 10	4	17	104-643	ELBOW, 90°; No 10-32 (m x f)	1
3	100-975	NUT, hex, No. 5-40	2	18	104-644	PLUG, screw, 10-32	1
4	101-792	LOCKWASHER, ext; shkprf, No. 5	2	20	172-472	MANIFOLD	1
5	103-374	SCREW, rdhd mach; 10-32 x 5/8"	4	21	172-743	BOX	1
6	104-164	STUD, hose, barbed	31	22	172-763	LABEL, identification	1
7	104-379	SCREW, flathd mach; 5-40 x 1/2"	2	23	172-764	LABEL, designation	1
8	104-382	COUNTER, pneumatic	1	24	172-767	LABEL, "IN CYCLE"	1
9	105-523	INDICATOR	1	25	172-768	LABEL, "MANUAL RESET"	1
10	104-636	VALVE, manual reset	1	26	104-658*	VALVE, quick exhaust	2
11	104-637	VALVE, 4-way	1	28	104-172	FITTING, push-in	1
12	104-638	VALVE, 3-way delay	1	29	104-661*	VALVE, quick exhaust	1
13	104-639	BUSHING, pipe; 1/4 npt(m) x 10-32 (f)	1	30	100-168	NIPPLE, pipe, 1/8 npt	1
14	104-640	GASKET, nitrile rubber	36				
15	104-461	FITTING, bulkhead; 1/4 npt(f)	1				
6	307-270						

*Recommended parts to keep on hand to reduce down time.

SCHEMATIC



SERVICE INFORMATION NOTE: This manual has been updated to show the new pneumatic counter (Ref No. 8). The part number did not change. The Series level of the unit is now B.

ACCESSORIES

Must be purchased separately.

POLYETHYLENE TUBE 054-130

0.17" ID; 0.25" OD. specify length when ordering

TUBE FITTINGS

104-165 1/4 npt x 1/4" OD tube

104-172 1/8 npt x 1/4" OD tube

PILOT VALVES

Install between pump air regulator and pump air inlet. Includes tube fittings for connecting to 0.17" ID tube

212-097 For use with FireBall and Monark series pumps. 3/8 npt(m x f)

212-098 For use with President and Bulldog series pumps. Install in air regulator assembly between air valve and hose. 1/2 x 3/4 adapter required for King series pumps.

104-661 Quick Exhaust Valve 1/8 npt

AIR REGULATORS

208-858 Air Regulator and Gauge

For use with Monark pumps

208-391 Ball Valve

For use with 202-858 Air Regulator

207-468 Air Control Kit

For use with President Pumps

205-712 Air Control Kit

For use with Bulldog Pumps

207-651 Air Control Kit

For use with King Pumps

START VALVES

Includes tube fittings for connecting to 0.17" ID tube.

212-096 **Push Button Valve**

212-099 **Foot Actuated Valve**

THE GRACO WARRANTY AND DISCLAIMERS

WARRANTY

Graco warrants all equipment manufactured by it and bearing its name to be free from defects in material and workmanship on the date of sale by an authorized Graco distributor to the original purchaser for use. As purchaser's sole remedy for breach of this warranty, Graco will, for a period of twelve months from the date of sale, repair or replace any part of the equipment proven defective. This warranty applies only when the equipment is installed, operated and maintained in accordance with Graco's written recommendations.

This warranty does not cover, and Graco shall not be liable for, any malfunction, damage or wear caused by faulty installation, misapplication, abrasion, corrosion, inadequate or improper maintenance, negligence, accident, tampering, or substitution of non-Graco component parts. Nor shall Graco be liable for malfunction, damage or wear caused by the incompatibility with Graco equipment of structures, accessories, equipment or materials not supplied by Graco, or the improper design, manufacture, installation, operation or maintenance of structures, accessories, equipment or materials not supplied by Graco.

This warranty is 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.

Factory Branches: Atlanta, Chicago, Dallas, Detroit, Los Angeles, West Caldwell (N.J.)

Subsidiary and Affiliate Companies: Canada; England; Switzerland; France; Germany; Hong Kong; Japan

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