Parts

INSTRUCTIONS - PARTS LIST

INSTRUCTIONS

This manual contains important warnings and information.
READ AND RETAIN FOR REFERENCE

819.6247

Rev. R

VERDERAIR VA 8 Air-Operated Diaphragm Pumps

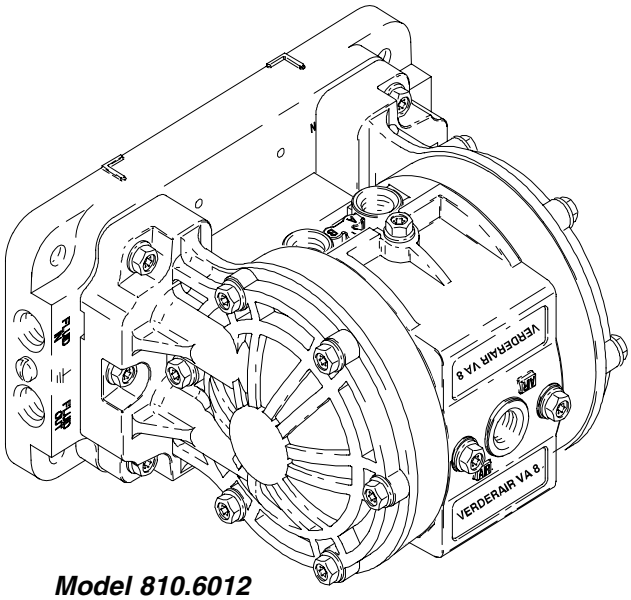
0.7 MPa, 7 bar Maximum Incoming Air Pressure
0.7 MPa, 7 bar Maximum Fluid Working Pressure

*** NOTE:** Refer to the pump listing on page to determine the Model No of your pump.

Patent Pending

Contents

CE Ex II 2 G



Model 810.6012 shown

Warnings

Warning Symbol

⚠ Warning

This symbol alerts you to the possibility of serious injury or death if you do not follow the instructions.

Caution Symbol

⚠ Caution

This symbol alerts you to the possibility of damage to or destruction of equipment if you do not follow the instructions.

⚠ Warning

INSTRUCTIONS

EQUIPMENT MISUSE HAZARD

Any misuse of the 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, other serious injury, or fire, explosion or property damage.

- This equipment is for professional use only. Observe all warnings. Read and understand all instruction manuals, warning labels, and tags before you operate this equipment. If you are not sure, or if you have questions about installation or operation, call your VERDER distributor.
- Never alter or modify any part of this equipment; doing so could cause it to malfunction.
- Check all equipment regularly and repair or replace worn or damaged parts immediately.
- Never exceed the recommended working pressure or the maximum air inlet pressure stated on your pump or in the **Technical Data** on page 19.
- Do not exceed the maximum working pressure of the lowest rated component in your system. This equipment has a **0.7 MPa (7 bar) maximum working pressure at 0.7 MPa (7 bar) maximum incoming air pressure.**
- Be sure that all fluids and solvents used are chemically compatible with the wetted parts shown in the **Technical Data** on page 19. Always read the manufacturer's literature before you use fluid or solvent in the pump.
- Never move or lift a pump under pressure. If dropped, the fluid section may rupture. Always follow the **Pressure Relief Procedure** on page 7 before you move or lift the pump.

⚠ Warning

HAZARDOUS FLUIDS

Improper handling of hazardous fluids or inhaling toxic vapors can cause extremely serious injury or death from splashing in the eyes, ingestion, or bodily contamination. Observe all the following precautions when you handle hazardous or potentially hazardous fluids.

- Know what fluid you are pumping and its specific hazards. Take precautions to avoid a toxic fluid spill.
- Always wear appropriate clothing and equipment, such as eye protection and breathing apparatus, to protect yourself.
- Store hazardous fluid in an appropriate, approved container. Dispose of it according to all Local, State, and Federal guidelines for hazardous fluids.
- Secure the fluid outlet hose tightly into the receiving container to prevent it from coming loose and improperly draining the fluid.
- Pipe and dispose of the exhaust air safely, away from people, animals, and food handling areas. If the diaphragm fails, the fluid is exhausted along with the air. See **Air Exhaust Ventilation** on page 4.

FIRE AND EXPLOSION HAZARD

Static electricity is created by the flow of fluid through the pump and hose. If the equipment is not properly grounded, sparking may occur. Sparks can ignite fumes from solvents and the fluid being pumped, dust particles, and other flammable substances, whether you are pumping indoors or outdoors, and can cause a fire or explosion and serious injury and property damage.

- To reduce the risk of static sparking, ground the pump and all other equipment used or located in the work area. Check your local electrical code for detailed grounding instructions for your area and type of equipment. See **Grounding** on page 4.
- If you experience any static sparking or even a slight shock while using this equipment, **stop pumping immediately.** Check the entire system for proper grounding. Do not use the system again until you have identified and corrected the problem.
- Pipe and dispose of the exhaust air safely, away from all sources of ignition. If the diaphragm fails, the fluid is exhausted along with the air. See **Air Exhaust Ventilation** on page 4.
- ***Never*** use a polypropylene or Kynar® pump with non-conductive flammable fluids as specified by your local fire protection code. Refer to **Grounding** on page 4 for additional information. Consult your fluid supplier to determine the conductivity or resistivity of your fluid.
- Provide fresh air ventilation to avoid the buildup of flammable fumes from solvents or the fluid being pumped.
- Do not smoke in the work area. Do not operate the equipment near a source of ignition or an open flame, such as a pilot light.

Comply with all applicable local, state and national fire, electrical and safety regulations.

Installation

Tightening Threaded Fasteners Before First Use

After unpacking the pump, and before using it for the first time, check and retorque all external fasteners. See **Service** for torque specifications. See **Torque Sequence,** page 17, for torque sequence. After the first day of operation, retorque the fasteners again. Although pump use varies, a general guideline is to retorque fasteners every two months.

Use a compatible thread sealant on all male threads. Tighten all connections firmly to avoid air or fluid leaks.

⚠ Caution

To avoid pump damage, do not overtighten the fittings to the pump.

Grounding

⚠ Warning

This pump must be grounded. Before you operate the pump, ground the system as explained below. Also read the section **FIRE AND EXPLOSION HAZARD** on page 3.

The acetal pump contains stainless steel fibers which make the wetted parts conductive. Attaching the ground wire to one of the grounding locations grounds the wetted parts.

The polypropylene and Kynar® pumps are ***not*** conductive. When you pump conductive flammable fluids, ***always*** ground the entire fluid system. Make sure the fluid has an electrical path to a true earth ground, see Fig 1. ***Never*** use a polypropylene or Kynar® pump with non-conductive flammable fluids as specified by your local fire protection code.
US Code (NFPA 77 Static Electricity) recommends a conductivity greater than 50 x 10^{-12} Siemans/meter (mhos/meter) over your operating temperature range to reduce the hazard of fire. Consult your fluid supplier to determine the conductivity or resistivity of your fluid. The resistivity must be less than 2 x 10^{12} ohm-centimeters.

To reduce the risk of static sparking, ground the pump and all other equipment used or located in the pumping area. Check your local electrical code for detailed grounding instructions for your area and type of equipment.

Acetal Pump Grounding Instructions

For polypropylene and Kynar® pumps, see the warning above.

Ground all of this equipment.

Pump: Connect a ground wire (A) and clamp, Part No. 819.0157. See Fig. 1. The pump grounding locations are on the manifold between the inlet and outlet ports. Use the nut (B) and bolt (C) that are provided with the pump, and install as follows:

1. Place the nut in the nut catcher on the underside of the manifold.
2. Insert the bolt through the loop end of the ground wire.
3. Insert the bolt through the hole on the pump manifold and tighten it into the nut that you positioned in step 1.
4. Connect the clamp end of the ground wire to a true earth ground.

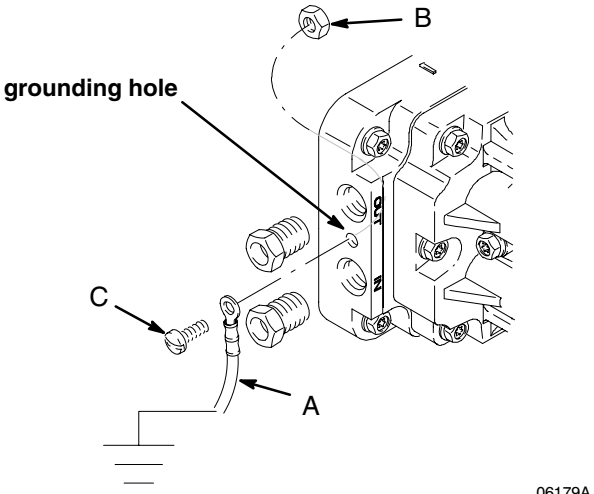


Fig. 1

Air and fluid hoses: Use only grounded hoses with a maximum of 500 ft (150 m) combined hose length to ensure grounding continuity.

Air compressor: Follow the manufacturer's recommendations.

All solvent pails used when flushing: Follow the local code. Use only grounded metal pails, which are conductive. Do not place the pail on a non-conductive surface, such as paper or cardboard, which interrupts the grounding continuity.

Fluid supply container: Follow the local code.

Air Exhaust Ventilation

⚠ Warning

TOXIC FLUID HAZARD

Read the **USING HAZARDOUS FLUIDS** and **FIRE AND EXPLOSION HAZARD** sections on page 3 before you operate this pump.

Be sure the system is properly ventilated for your type of installation. You must vent the exhaust to a safe place, away from people, animals or food handling areas when pumping flammable or hazardous fluids

If the diaphragm ruptures, the fluid being pumped is exhausted with the air. Place a container at the end of the air exhaust line to catch fluid in case the diaphragm ruptures, and disconnect the pump.

Installation

Mountings

⚠ Caution

The pump exhaust air may contain contaminants. If needed, ventilate to a remote area to reduce possible fluid contamination. See **Air Exhaust Ventilation** on page 4.

- Be sure the mounting can support the weight of the pump, hoses, and accessories, as well as the stress caused during operation.
- For all mountings, be sure the pump is secured with screws and nuts.

⚠ Warning

To reduce the risk of serious injury, splashing in the eyes or on the skin, and toxic fluid spills, **never** move or lift a pump under pressure. If dropped, the fluid section may rupture. Always follow the **Pressure Relief Procedure** on page 7 before you move or lift the pump.

Air Lines

⚠ Warning

Bleed-Type Master Air Valve and Fluid Drain Valve

A bleed-type master air valve and a fluid drain valve are required on your system.

The bleed-type master air valve relieves air trapped between itself and the pump. Trapped air can cause the pump to cycle unexpectedly, which could result in serious bodily injury, including splashing in the eyes, injury from moving parts, or contamination from hazardous fluids.

The fluid drain valve reduces the risk of serious bodily injury, including splashing in the eyes or on the skin, or contamination from hazardous fluids. Install the fluid drain valve close to the pump's fluid outlet to relieve pressure in the hose if the hose becomes plugged.

1. Mount the air line accessories on the wall or on a bracket. Be sure the air line supplying the accessories is grounded.

   a. The pump speed can be controlled in one of two ways: To control it on the air side, install an air regulator. To control it on the fluid side, install a fluid valve near the outlet.

   b. Install a bleed-type master air valve downstream from the air regulator, and use it to relieve trapped air. See the **Bleed-Type Master Air Valve and Fluid Drain Valve** warning at left. Locate another bleed-type master air valve upstream from all air line accessories, and use it to isolate the accessories during cleaning and repair.

   c. The air line filter removes harmful dirt and moisture from the compressed air supply.

2. Install a flexible air hose between the accessories and the pump air inlet. Screw the air line fitting into the air inlet.

3. Do not restrict the exhaust port. Excessive exhaust restriction can cause erratic pump operation.

Fluid Lines

Fig. 2. On each end of the fluid manifold are a fluid IN port and a fluid OUT port. **NOTE: Make sure the fluid OUT port on the fluid manifold is mounted up.** This will insure proper pump priming. **Fluid-in** and **fluid-out** lines can be connected on the same end, or opposite ends of the manifold. Plug ports that are not used (plugs provided).

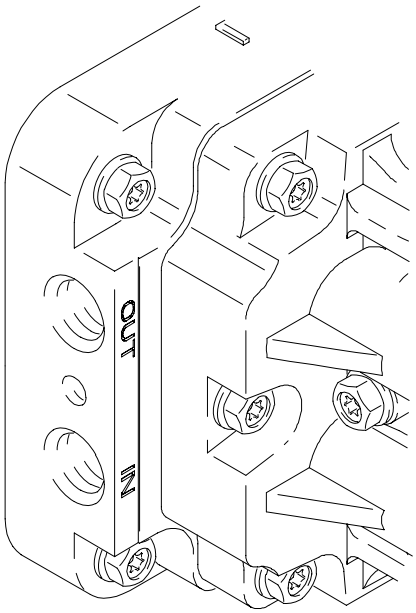


Fig. 2 06179A

Installation

Typical Installation

The installation shown in Fig. 3 is only a guide to help select and install a pump; they are not actual system designs.

Typical installation includes (not supplied by VERDER):

- For solenoid operation: four-way, 5-port, 2-position solenoid valve with 1/4-in. ports. Schrader Bellows® Part No. C511ABB5 or equivalent.
- PLC or timer. Consult your local industrial controls distributor.

⚠ Caution

For solenoid operation, the pump must exhaust through the solenoid. Failure to exhaust through solenoid could cause the diaphragms to fail.

KEY

A *VERDERAIR VA 8* pump
B Bleed-type master air valve (required for pump)
C Air line(s)
E Master air valve (for accessories)
F Air line filter
G Muffler
H Pump air regulator
J Fluid drain valve (required on fluid outlet side of pump)
L Fluid suction line
N Fluid supply hose
T Bung adapter
U 4-way solenoid
Y Ground wire (required)

See page 4 for installation instructions.

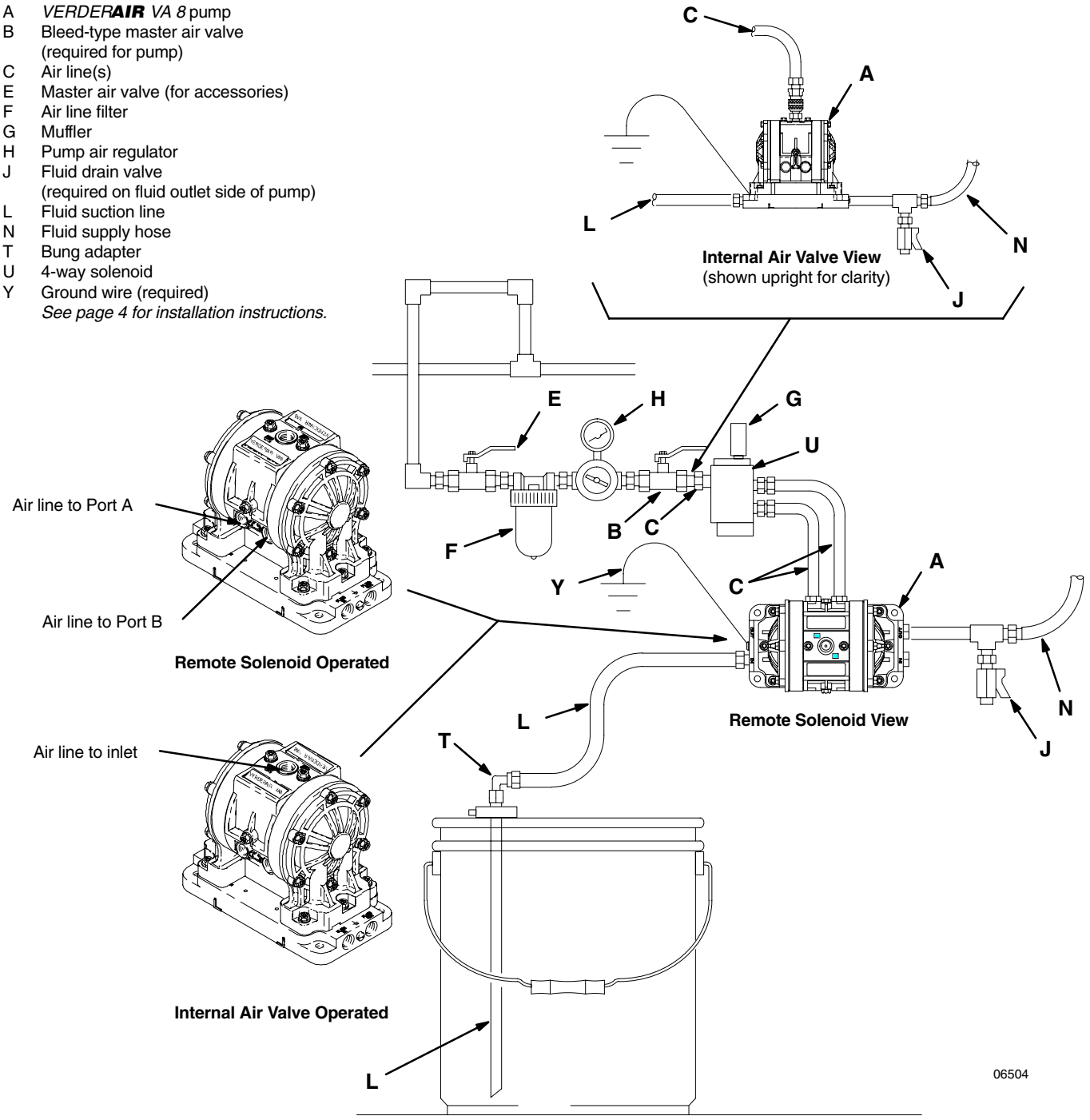


Fig. 3

Operation

Pressure Relief Procedure

⚠ Warning

To reduce the risk of serious injury, including splashing fluid in the eyes or on the skin, follow this procedure whenever you are instructed to relieve pressure, when you shut off the pump, and before you check, adjust, clean, move, or repair any system equipment.

1. Shut off air and reserve air to the pump.
2. Open the dispensing valve if the system has one.
3. Open the fluid drain valve to relieve all system pressure, and have a container ready to catch the drainage.

Flushing the Pump Before First Use

The pump was tested in water. If water could contaminate the fluid you are pumping, flush it thoroughly with a compatible solvent. Follow the procedure in **Starting and Adjusting the Pump.**

Starting and Adjusting the Pump

⚠ Warning

To reduce the risk of serious injury, splashing in the eyes or on the skin, and toxic fluid spills, **never** move or lift a pump under pressure. If the pump is dropped, the fluid section could rupture. Always follow the **Pressure Relief Procedure** above before you move or lift the pump.

1. Be sure the pump is properly grounded. Read and follow the instructions in **Grounding** on page 4.
2. Check all fittings to be sure they are tight. Be sure to use a compatible liquid thread sealant on all male threads. Tighten the fluid inlet and outlet fittings and plugs securely. Retorque all fasteners before start-up.
3. Place the suction tube (if used) in the fluid to be pumped.
4. Place the end of the outlet hose into an appropriate container.
5. Close the fluid drain valve.
6. With the air regulator closed, open all bleed-type master air valves.
7. If the outlet hose has a dispensing device, hold it open while continuing with step 8.
8. Slowly open the air regulator until the pump starts to cycle. Allow the pump to cycle until all air is pushed out of the lines and the pump is primed.

NOTE: To prime a remote solenoid-operated air valve, operate the pump at a minimum 60 cpm rate until the pump is fully primed.

Pump Shutdown

At the end of the work shift, and before you check, adjust, clean, or repair the system, **relieve air and fluid pressure**.

⚠ Warning

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

Maintenance

Lubrication

The air valve is lubricated at the factory and designed to operate without additional lubrication.

If added lubrication is desired, every 500 hours of operation (or monthly), remove the hose from the pump air inlet and add two drops of machine oil to the air inlet.

⚠ Caution

Do not over-lubricate the pump. Excess oil is exhausted through the muffler, which could contaminate your fluid supply or other equipment.

Tightening Threaded Connections

Before each use, check all hoses for wear or damage, and replace as necessary. Be sure all threaded connections are tight and free of leaks.

Check fasteners. Tighten or retorque as necessary. Although pump use varies, a general guideline is to retorque fasteners every two months. See **Service** for torque specifications. See **Torque Sequence,** page 17, for torque sequence.

Flushing and Storage

Flush the pump to prevent the fluid from drying or freezing in the pump and damaging it. Always flush the pump and **relieve the pressure** before storing for any length of time. Use a compatible solvent.

⚠ Warning

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

If you are flushing, run the pump long enough to thoroughly clean the pump and hoses, close the air regulator, and remove the suction hose from the solvent and place it in the fluid to be pumped.

If you are shutting down the pump, remove the suction hose from the fluid container, run the pump until the fluid is forced out of the system, and shut off the air supply immediately.

Troubleshooting

Relieve the pressure before you check or service the equipment.

Check all possible problems and causes before you disassemble the pump.

⚠ Warning

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

Internal Air Valve-Operated and Remote Solenoid-Operated Pumps

PROBLEM	CAUSE	SOLUTION
The pump cycles at stall, or it fails to hold pressure at stall.	The check valves (20) or o-rings (21) are leaking.	Replace the check valves and/or o-rings. See page 13.
	The check valves (20) are worn.	Replace the check valves. See page 13.
	Debris is stuck between the a check valve (20) and the seat.	Clean the check valve/seat area. See page 13.
The pump operates erratically.	The suction line is clogged.	Inspect and clear the line.
	The check valves (20) are sticking or leaking.	Replace the check valves, or clean and check the valve/seat area. See page 13.
	A diaphragm (30) is ruptured.	Replace the ruptured diaphragm. See page 12.
There are air bubbles in the fluid.	The suction line is loose.	Tighten the suction line.
	A diaphragm (30) is ruptured.	Replace the ruptured diaphragm. See page 12.
	The manifold (52) is loose, or the o-rings (21) are damaged.	Tighten the manifold screws (58). Replace the o-rings (21). See page 13.
	The fluid covers (51) are loose.	Tighten the fluid cover screws (58). See page12 .
There is fluid in the exhaust air.	A diaphragm (30) is ruptured.	Replace the ruptured diaphragm. See page 12.
	A diaphragm plate (50) is loose.	Tighten the diaphragm plate. See page 12.
The pump exhausts air near the fluid covers.	The fluid covers (51) are loose, or the o-rings (57) are damaged.	Tighten the fluid cover screws (58), or replace the o-rings. See page12.
The pump exhausts air near the air valve.	The air valve cover screws (14) are loose.	Tighten the screws. See page 11.
	The top (5) and/or side (6) air valve o-rings are damaged.	Replace these o-rings. See the Parts Drawing on page 16.
The pump leaks fluid from the check valves.	The o-rings (21) are leaking, or the screws (58) are loose.	Replace these o-rings, and tighten the screws. See page 13.

Troubleshooting

Internal Air Valve-Operated Pumps Only

PROBLEM	CAUSE	SOLUTION
The pump will not cycle, or it cycles once and stops.	The air valve is stuck or dirty.	Disassemble and clean or repair the air.
		Use filtered air.
	Not enough air pressure supplied.	Increase air pressure supply. Do not exceed maximum input pressure.

Remote Solenoid-Operated Pumps Only

PROBLEM	CAUSE	SOLUTION
The pump will not prime or loses prime.	The cycle rate is too low.	Increase cycle rate to 60 cpm.
	The check valves (20) are not sealing.	Inspect the check valves, and replace them if worn or damaged. See page 13.
	Fluid manifold not mounted with OUT port up.	Re-mount fluid manifold so OUT port is up.
The pump leaks air or does not operate.	Air is supplied to Port A and Port B at the same time.	Replace both diaphragms (30). See page 12.
		Check your installation. See page 6.
	Solenoid exhaust is plugged.	Ensure that exhaust (G on page 6) is free of obstructions.

Service

Service Kits

Service Kits may be ordered separately.

To repair the air valve, order Part No. 819.6249. Parts included in the Air Valve Service Kit are marked with an asterisk in the **Parts Drawing** on page 16, for example (3*).

For fluid section repair section parts, see the **Service Kit Listing** on page 14. Parts included in the Fluid Section Service Kit are marked with a dagger in the **Parts Drawing** on page 16, for example (4†).

Servicing the Air Valve

Service the air valve as follows. See Fig. 4.

1. **Relieve the fluid pressure**, and disconnect air line from the pump.

⚠ Warning

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

2. Remove the four screws (14) that hold the valve cover (7) on the center housing (1).
3. Remove the valve block (4) and valve carriage (2), and replace the u-cups (3). Replace the valve carriage and valve block. When you replace the valve carriage, position it all the way to one side or the other.

   NOTE: The valve block shown in Fig. 4 is for pumps with an air-operated air motor. If your pump has a solenoid-operated air motor, this step does not pertain. Items 2, 3, 4, 16, and 17 are not required.
4. Clean any parts that are dirty.
5. To replace the value cover (7), spread cover apart enough not to damage the square ring packings (6) and slide cover (7) into the center section.
6. Replace screws (14), and torque the screws to 40 in-lb (4.5 N.m). See **Torque Sequence** on page 17.
7. Reconnect the pump.

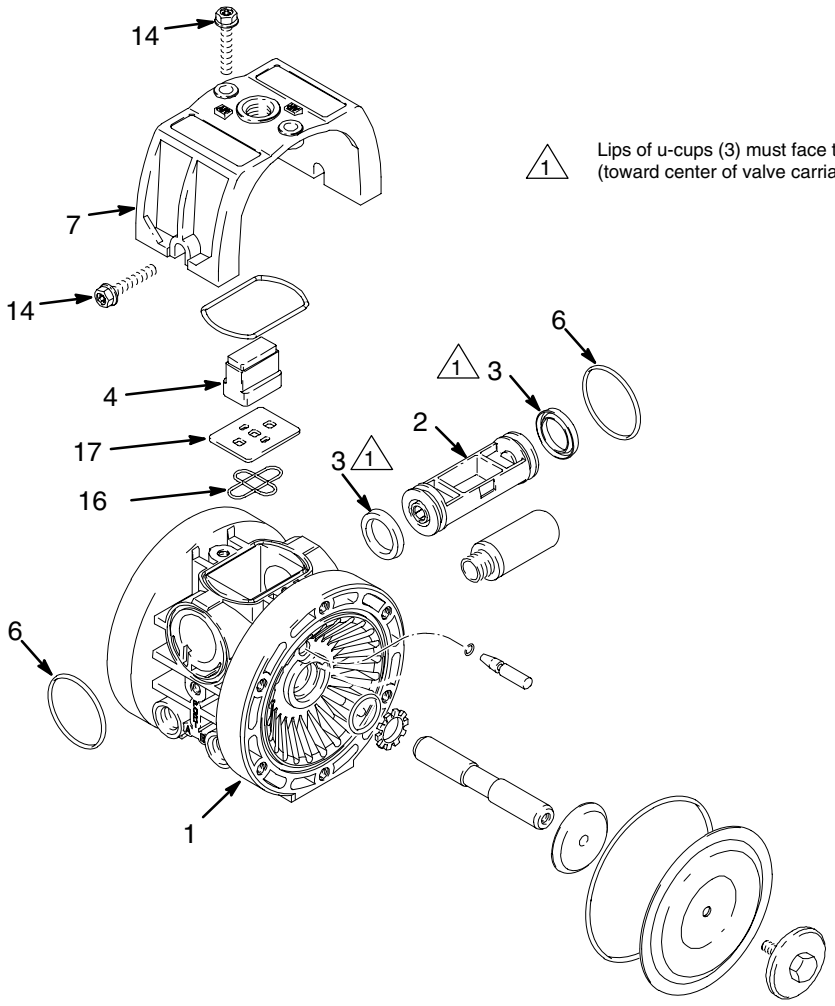


Fig. 4

06177C

Service

Replacing Diaphragms

Replace the diaphragms as follows. See Fig. 5 and Fig. 6.

1. **Relieve the pressure**, and disconnect the air line from the pump.

⚠ Warning

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

2. Remove the eight screws (58) that fasten the two fluid covers (51) to manifold (52), and remove the fluid cover/ center housing assembly from the manifold.

3. Remove the six screws (58) that fasten each fluid cover (51) to the center housing (1), and pull the fluid covers off of the center housing.

4. Remove the diaphragm plates (50) from the shaft (10), and remove the diaphragms (30), and air-side diaphragm plates (11).

5. Remove the diaphragm pins (8), remove and replace the o-rings (9), and reinstall the diaphragm pins in the center housing (1).

6. Reinstall the diaphragm shaft (10).

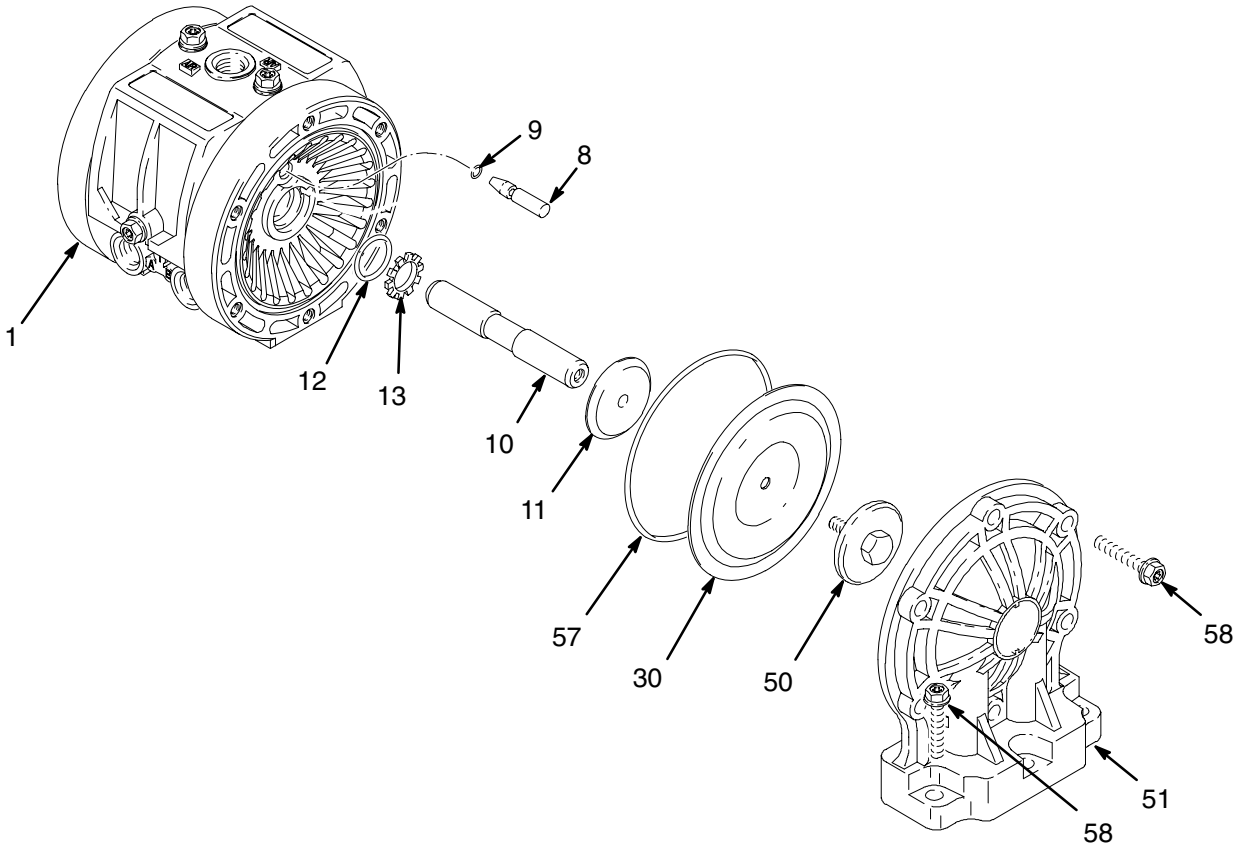
7. Install the new diaphragms (30) with the concave side toward the center housing (1).

8. Screw the diaphragm plates (50) onto the shaft (10), and torque to 40 in-lb (4.5 N.m)

9. Replace the fluid covers (51) on the center housing (1), replace the screws (58) that fasten the fluid covers to the center housing, and torque the screws to 40 in-lb (4.5 N.m). See **Torque Sequence** on page 17.

10. Replace the manifold covers/center housing assembly on the manifold (52), replace the screws (58) that fasten the manifold covers/center housing assembly to the manifold, and torque the screws to 40 in-lb (4.5 N.m)

11. Reconnect the pump.



06180C

Fig. 5

Service

Replacing Check Valves

Replace each pair of check valves as follows. See Fig. 6.

1. **Relieve the pressure**, and disconnect the air line from the pump.

⚠ Warning

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

2. Remove the eight screws (58) that hold the fluid cover/ center housing assembly on the manifold (52), and lift the manifold covers/center housing assembly off of the manifold (52).

3. Remove and replace the check valves (20), **being careful to orient each check valve exactly like the one it is replacing.** Make sure the check valve/seat area is clean.

4. Remove and replace the sealing o-rings (21). Once compressed, o-rings may not be reused. Make sure the check valve/seat area is clean.

5. Replace the manifold covers/center housing assembly on the manifold (52), replace the screws (58) that fasten the manifold covers/center housing assembly to the manifold, and torque the screws to 40 in-lb (4.5 N.m). See **Torque Sequence** on page 17.

6. Reconnect the pump.

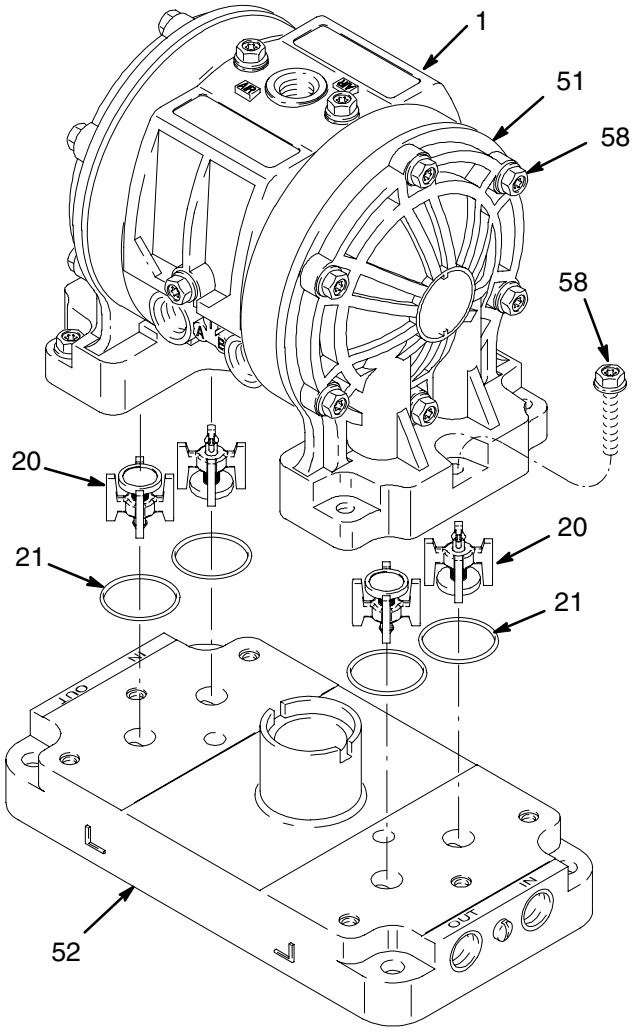


Fig. 6 06178A

Parts Listing

VERDERAIR VA 8 Polypropylene, Acetal, and Kynar® Pumps, Series B

Your Model No. is marked on the pump's serial plate. The listing of existing *VERDERAIR VA 8* pumps is below:

Standard operation

Ref. Nr.	Fluid Section	Seats and guides	Checks	Diaphragms
810.6012	AC	NUL	AC	TF
810.6016	PP	NUL	PP	TF
810.6026	KY	NUL	KY	TF
810.6996	AC	NUL	AC	SP
810.6997	PP	NUL	PP	SP
810.6998	KY	NUL	KY	SP

For Solenoid Operation

Ref. Nr.	Fluid Section	Seats and guides	Checks	Diaphragms
810.5997	AC	NUL	AC	TF
810.6001	PP	NUL	PP	TF
810.6011	KY	NUL	KY	TF
810.6999	AC	NUL	AC	SP
810.7000	PP	NUL	PP	SP
810.7001	KY	NUL	KY	SP

AC = Acetal AL = Aluminium KY = Kynar NUL = Null PP = Polypropylene SST = Stainless Steel TF = PTFE SP = Santoprene®

Service Kit Listing

Air Valve and Fluid Section Service Kits for *VERDERAIR VA 8* Pumps

Service Kits may only be ordered as kits. Parts included in the Air Valve Service Kit are marked with a symbol in the parts list, for example (2†). The list of existing Service Kits is below:

Ref. No	Air Motor	Seats	Checks	Diaphragms
819.6027	ALL	NUL	NUL	NUL
819.6028	ALL	NUL	NUL	TF
819.6029	ALL	NUL	AC	NUL
819.6030	ALL	NUL	AC	TF
819.6031	ALL	NUL	PP	NUL
819.6032	ALL	NUL	PP	TF
819.6033	ALL	NUL	KY	NUL
819.6034	ALL	NUL	KY	TF

AC = Acetal KY = Kynar NUL = Null PP = Polypropylene TF = PTFE

Parts

Air Motor Section

Ref. No.	Part No.	Description	Qty.
1	819.6900	HOUSING, center	1
2	819.6252	CARRIAGE, valve	1
3	819.6860	SEAL, u-cup	2
4	819.6901	VALVE BLOCK *(for pump with air-operated air motor)*	1
5	819.6256	GASKET, molded	1
6	819.7016	Packing, square ring	2
8	819.6258	PIN, actuator	2
9	819.6259	O-RING, packing	2
10	819.6902	SHAFT, diaphragm	1
11	819.7017	PLATE, diaphragm, air side	2
12	819.7018	O-RING, diaphragm shaft	2
13	819.6903	RING, retaining	2
14	819.6263	SCREW, torx	4
15	819.6861	MUFFLER, porous plastic	1
16	819.6904	SEAL, valve plate	1
17	819.6905	PLATE, valve	1
1	819.6906	HOUSING, center	1
10	819.6902	SHAFT, diaphragm	1
11	819.7017	PLATE, diaphragm, air side	1
12	819.7018	O-RING, diaphragm shaft	2
13	819.6903	RING, retaining	2
14	819.6263	SCREW, torx	4
15	819.6861	MUFFLER, porous plastic	1
16	819.6904	SEAL, valve plate	1
17	819.6905	PLATE, valve	1

Fluid Section

Fluid Section Material	Ref. No.	Part No.	Description	Qty.
ACETAL	7	819.5965	COVER, valve	1
	49	819.5970	LABEL, warning	1
	50	819.6271	PLATE, diaphragm; acetal	2
	51	819.7019	COVER, fluid; acetal	2
	52	819.7020	MANIFOLD; acetal	1
	53	819.6272	PLUG, port; acetal	2
	54	819.0186	SCREW, grounding	2
	55	819.0185	NUT, hex , grounding	2
	57	819.6273	O-RING, packing	2
	58	819.6263	SCREW, torx	20
	59	819.7021	O-RING, exhaust	1
	60	819.6908	BRACKET, mounting	1
	61	819.0175	SCREW, machine, pn hd	4
POLYPROPYLENE	7	819.5965	COVER, valve	1
	49	819.5970	LABEL, warning	1
	50	819.6274	PLATE, diaphragm; polypropylene	2
	51	819.7022	COVER, fluid; polypropylene	2
	52	819.7023	MANIFOLD; polypropylene	1
	53	819.6265	PLUG, port; polypropylene	2
	57	819.6273	O-RING, packing	2
	58	819.6263	SCREW, torx	20
	59	819.7021	O-RING, exhaust	1
	60	819.6908	BRACKET, mounting	1
	61	819.0175	SCREW, machine, pn hd	4
KYNAR	7	819.5965	COVER, valve	1
	49	819.5970	LABEL, warning	1
	50	819.6275	PLATE, diaphragm; Kynar®	2
	51	819.7024	COVER, fluid; Kynar®	2
	52	819.7025	MANIFOLD; Kynar®	1
	53	819.6276	PLUG, port; Kynar®	2
	57	819.6273	O-RING, packing	2
	58	819.6263	SCREW, torx	20
	59	819.7021	O-RING, exhaust	1
	60	819.6908	BRACKET, mounting	1
	61	819.0175	SCREW, machine, pn hd	4

Parts

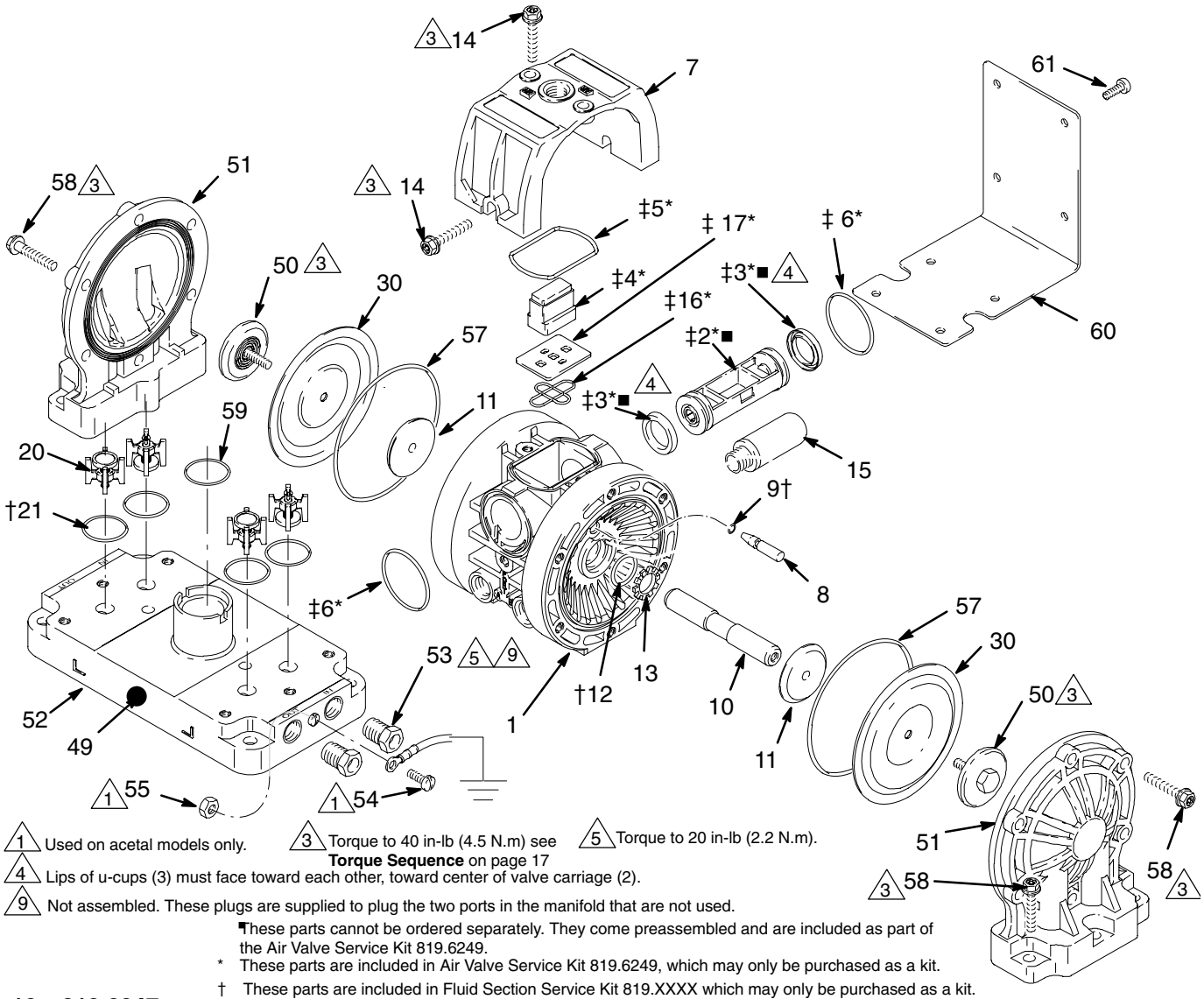
Check Valve

Check Valve Material	Ref. No.	Part No.	Description	Qty.
ACETAL	20	819.7027	VALVE, check; acetal	4
	21	819.6262	O-RING, packing	4
POLYPROPYLENE	20	819.7028	VALVE, check; polypropylene	4
	21	819.6262	O-RING, packing	4

Check Valve Material	Ref. No.	Part No.	Description	Qty.
KYNAR	20	819.7029	VALVE, check; Kynar®	4
	21	819.6262	O-RING, packing	4

Diaphragm

Ref. No.	Part No.	Description	Qty.
30	819.6270	DIAPHRAGM; PTFE *(Standard for VERDERAIR VA 8 pumps)*	2
30	819.7069	DIAPHRAGM; Santoprene	2



1 Used on acetal models only.

3 Torque to 40 in-lb (4.5 N.m) see **Torque Sequence** on page 17

5 Torque to 20 in-lb (2.2 N.m).

4 Lips of u-cups (3) must face toward each other, toward center of valve carriage (2).

9 Not assembled. These plugs are supplied to plug the two ports in the manifold that are not used.

¶ These parts cannot be ordered separately. They come preassembled and are included as part of the Air Valve Service Kit 819.6249.

* These parts are included in Air Valve Service Kit 819.6249, which may only be purchased as a kit.

† These parts are included in Fluid Section Service Kit 819.XXXX which may only be purchased as a kit.

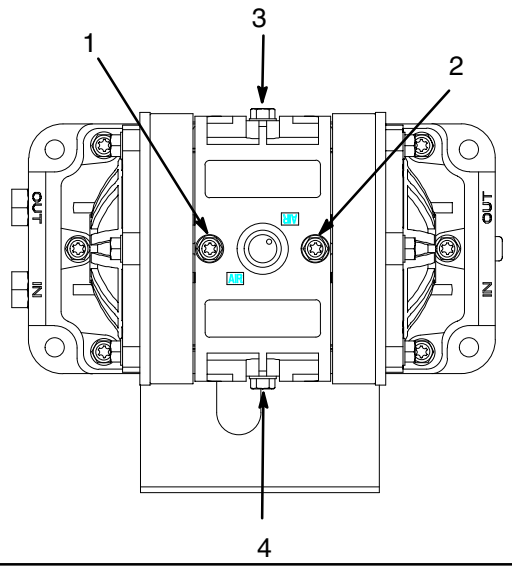
‡ These parts are included in pump with integral air valve only.

06175C

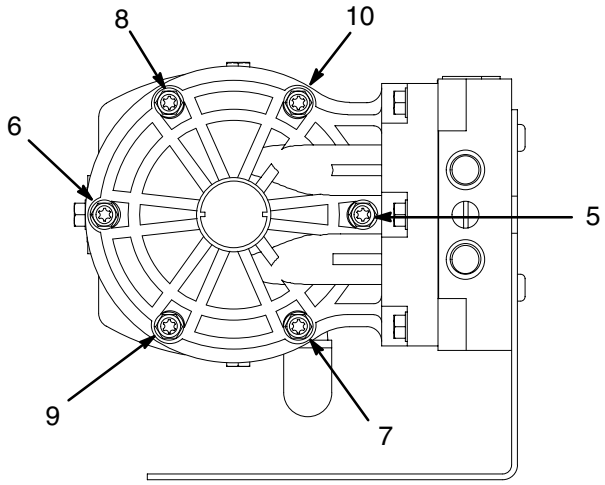
Torque Sequence

For proper installation, always follow torque sequence whenever you are instructed to torque screws.

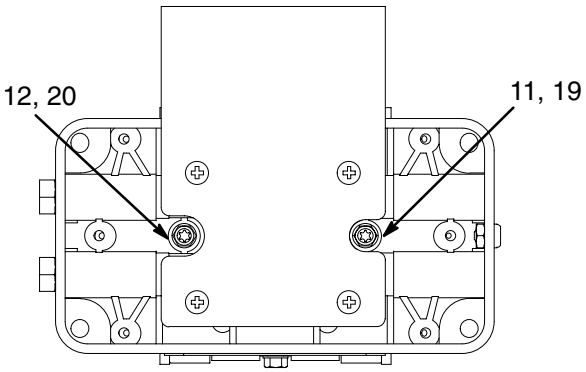
1. Valve Cover



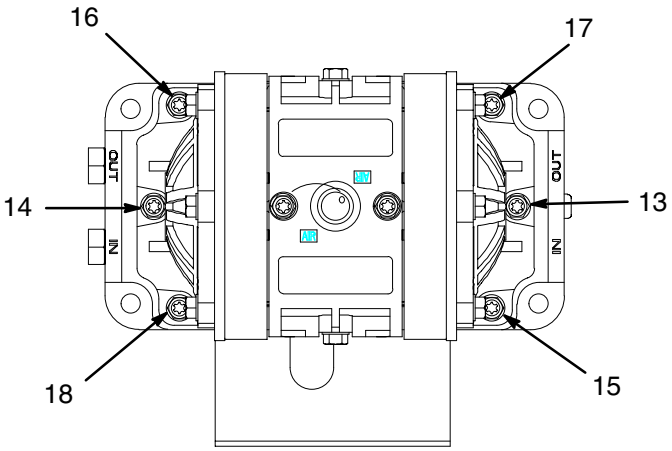
2. Left/Right Fluid Cover



3. Manifold to Center Section



Back View



Front View

Technical Data

Maximum fluid working pressure	100 psi 0.7 MPa (7 bar)
Maximum/minimum air pressure	100 psi/20 psi 0.7 MPa (7 bar) 0.14MPa (1.4 bar)
Maximum fluid flow	5 gpm (18,9 lpm)
Maximum pump speed	320(dry) cycles per minute 250(wet) cycles per minute
Volume per stroke*	0.006 gal (23 cc)
Volume per cycle*	0.0012 gal (46 cc)
Maximum suction lift dry	8 to 10 foot (2,5 to 3 m)
Maximum size pumpable solids	0.06 in (1,5 mm)
Maximum operating temperature	180° F (82° C)
Maximum air consumption	9.0 scfm 0,252 m^3/min.
Air inlet size**	1/4 npt(f)/1/4 bspt(f)
Fluid inlet size**	1/4 npt(f)/1/4 bspt(f)
Fluid outlet size**	1/4 npt(f)/1/4 bspt(f)
Air exhaust port size**	1/4 npt(f)/1/4 bspt(f)

Weight	
Polypropylene pump	2.0 lb (0.9 kg)
Acetal pump	2.5 lb (1,1 kg)
Kynar® pump	2.8 lb (1.3 kg)
Wetted parts (housings, diaphragms, check valves)	
Polypropylene pump:	
Glass-filled polypropylene, PTFE, polypropylene	
Acetal pump:	
Acetal with SST fibers, PTFE, acetal	
Kynar® pump:	
Kynar®, PTFE, Kynar®	
Sound power level (pressure) (per ANSI STD S12.1)	
at 100 psi (0.7 MPa, 7 bar)	75.5 dBa
at 70 psi (0.49 MPa, 4.9 bar)	72.0 dBa
at 40 psi (0.28 MPa, 2.8 bar)	68.2 dBa
Sound power level (intensity) (per ANSI STD S12.1)	
at 100 psi (0.7 MPa, 7 bar)	84.5 dBa
at 70 psi (0.49 MPa, 4.9 bar)	81.1 dBa
at 40 psi (0.28 MPa, 2.8 bar)	76.6 dBa

** Volume per cycle may vary based on suction condition, discharge head, air pressure, and fluid.*

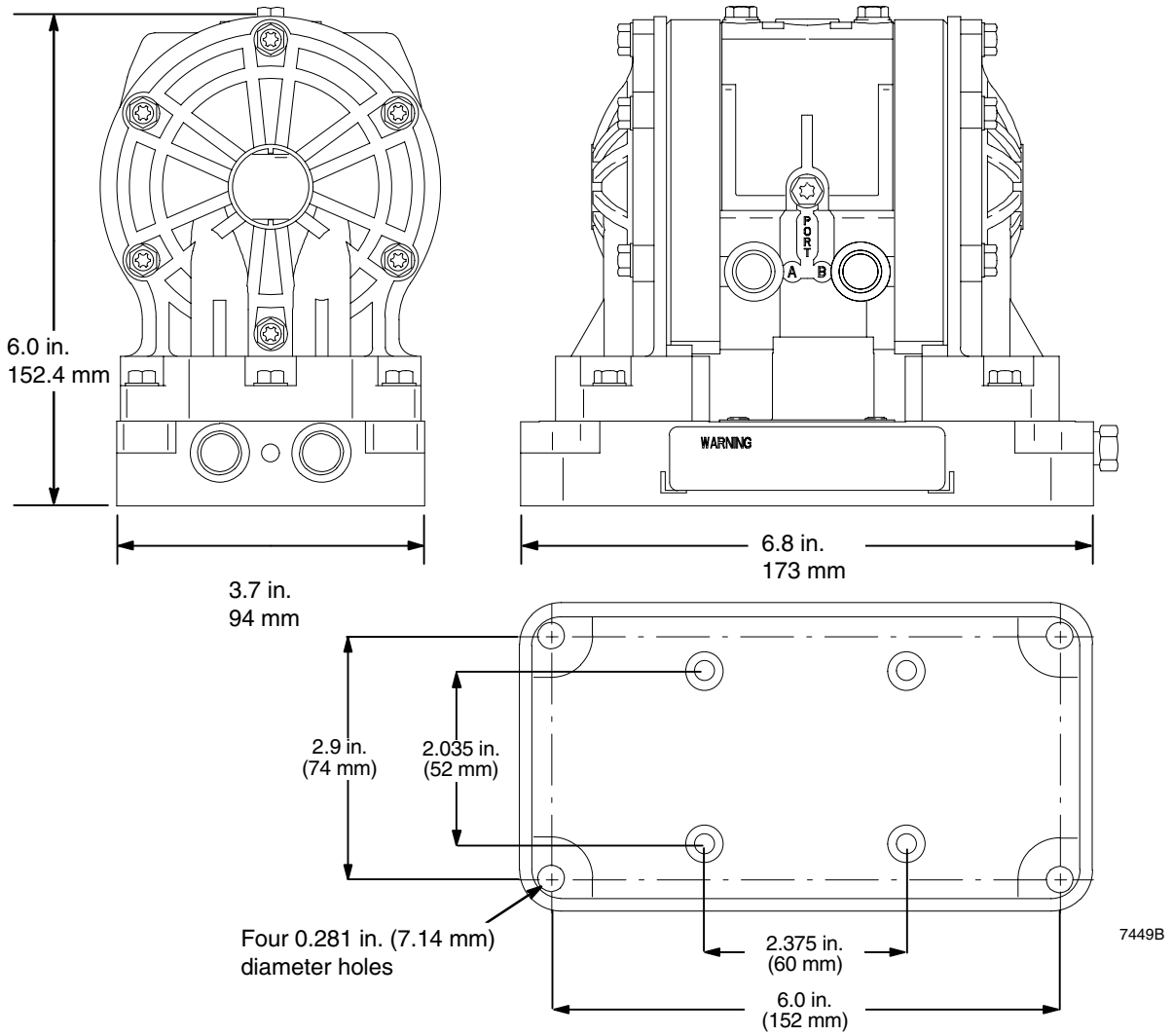
*** Hybrid thread allows for either 1/4 npt or 1/4 bspt fitting.*

Kynar® is a registered trademark of Atochem North America, Incorporated.

Schrader Bellows® is a registered trademark of Schrader Bellows.

Santoprene® is a registered trademark of the Monsanto Company.

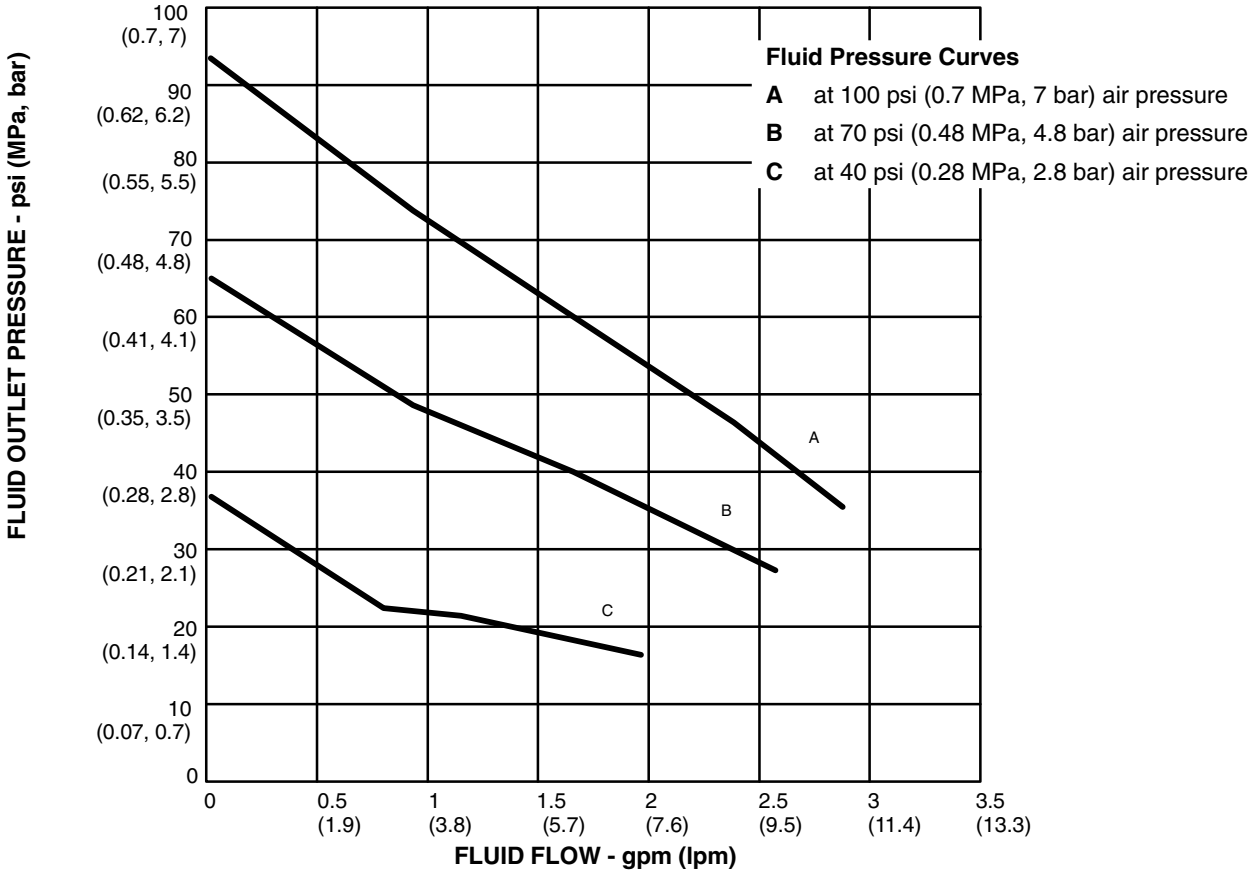
Dimensions and Mounting Hole Layout



Performance Charts

VERDERAIR VA 8 Fluid Outlet Pressure

Test Conditions: Pump tested in water with inlet submerged.



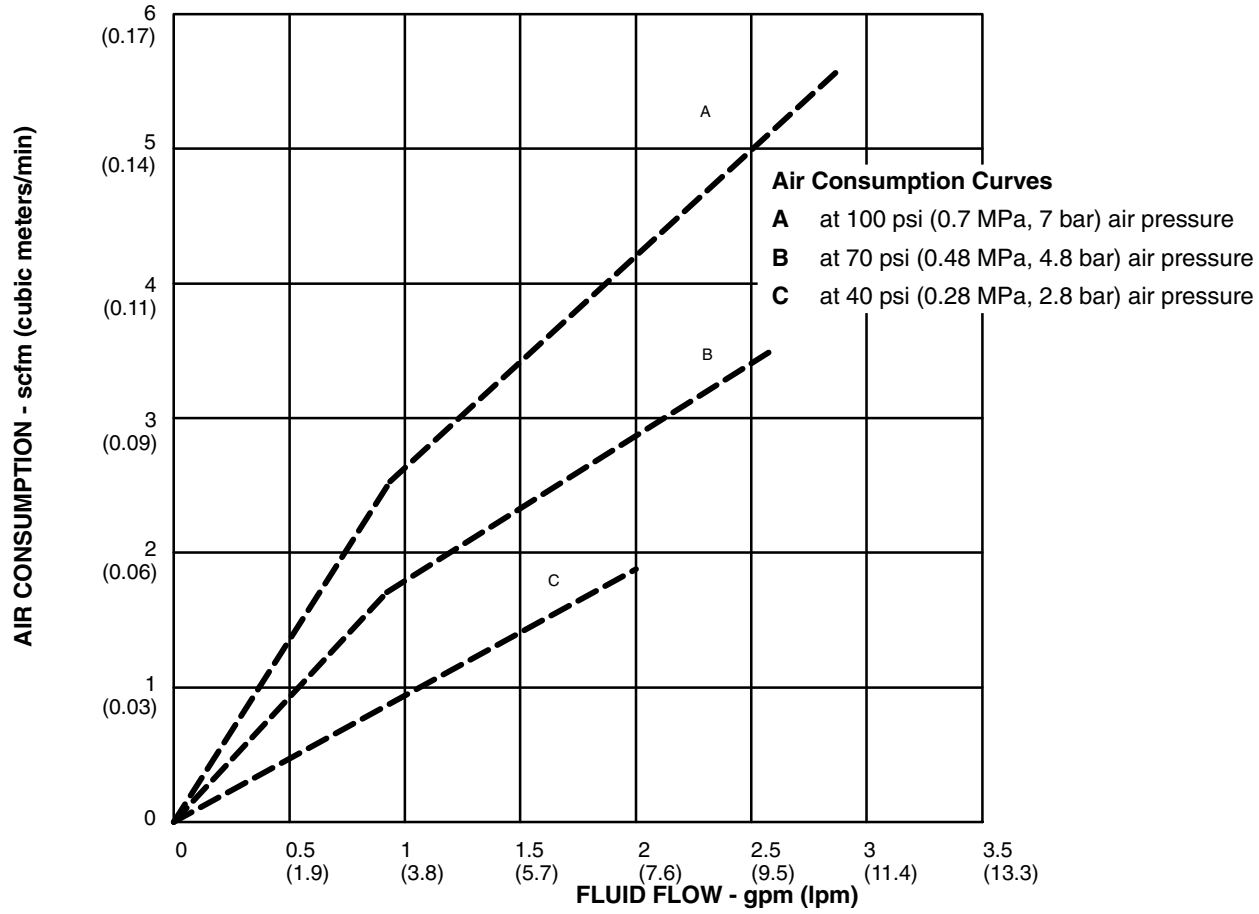
To find Fluid Outlet Pressure (psi/MPa/bar) at a specific fluid flow (gpm/lpm) and operating air pressure (psi/MPa/bar):

1. Locate fluid flow rate along bottom of chart.
2. Follow vertical line up to intersection with selected fluid outlet pressure curve.
3. Follow left to scale to read fluid outlet pressure.

Performance Charts

VERDERAIR VA 8 Air Consumption

Test Conditions: Pump tested in water with inlet submerged.



To find Pump Air Consumption (scfm or m^3/min) at a specific fluid flow (gpm/lpm) and air pressure (psi/MPa/bar):

1. Locate fluid flow rate along bottom of chart.
2. Read vertical line up to intersection with selected air consumption curve.
3. Follow left to scale to read air consumption.

Customer Services/Guarantee

CUSTOMER SERVICES

If you require spare parts, please contact your local distributor, providing the following details:

- Pump Model
- Type
- Serial Number, and
- Date of First Order.

GUARANTEE

All VERDER pumps are warranted to the original user against defects in workmanship or materials under normal use (rental use excluded) for two years after purchase date. This warranty does not cover failure of parts or components due to normal wear, damage or failure which in the judgement of VERDER arises from misuse.

Parts determined by VERDER to be defective in material or workmanship will be repaired or replaced.

LIMITATION OF LIABILITY

To the extent allowable under applicable law, VERDER's liability for consequential damages is expressly disclaimed. VERDER's liability in all events is limited and shall not exceed the purchase price.

WARRANTY DISCLAIMER

VERDER has made an effort to illustrate and describe the products in the enclosed brochure accurately; however, such illustrations and descriptions are for the sole purpose of identification and do not express or imply a warranty that the products are merchantable, or fit for a particular purpose, or that the products will necessarily conform to the illustration or descriptions.

PRODUCT SUITABILITY

Many regions, states and localities have codes and regulations governing the sale, construction, installation and/or use of products for certain purposes, which may vary from those in neighboring areas. While VERDER attempts to assure that its products comply with such codes, it cannot guarantee compliance, and cannot be responsible for how the product is installed or used. Before purchasing and using a product, please review the product application as well as the national and local codes and regulations, and be sure that product, installation, and use complies with them.

VERDER

EC-DECLARATION OF CONFORMITY

EU-OVERENSSTEMMELSESERKLÆRING, *EY-ILMOITUS YHTÄPITÄVYYDESTÄ*, CE-DECLARATION DE CONFORMITE, *EG-ÜBEREINSTIMMUNGSERKLÄRUNG*, DICHIARAZIONE DI CONFOMITÀ-CE, *EG-VERKLARING VAN OVEREENSTEMMING*, EC-DECLARACÃO DE CONFOMIDADE, *EC-DECLARACIÓN DE CONFORMIDAD*, EG-DECLARATION OM ÖVERENSSTÄMMELSE, ΔΗΛΩΣΗ ΣΥΜΜΟΡΦΩΣΗΣ–ΕΚ

Model

Model, *Malli*, Modèle, *Modell*, Modello, *Model*, Modelo, *Modelo*, Model, Μοντέλο

VERDERAIR VA 8

Part No.

Part No., *Osanro*, Référence, *Teile-Nr.*, Parte Codice, *Part Nr.*, Peça No., *Referencia*, Part No., Αρ. Ανταλλακτικού

810.5997 to 810.6026
810.6997 to 801.7001

This Product Complies With The Following European Community Directives:

Dette produkt opfylder kravene i de følgende direktiver af det Europæiske Fællesskab, *Tämä tuote on yhtäpitävä ministerineuvoston allamainitun direktiivin vaatimusten kanssa*, Ce produit se conforme aux directives de la Communauté Européenne suivantes, *Dieses Produkt entspricht den nachstehend aufgeführten Richtlinien der Europäischen Union*, Questo prodotto si conforma ai seguenti direttivi della Comunità europea, *Dit produkt voldoet aan de volgende richtlijnen van de Europese Gemeenschap*, Este Produto Cumpre As Seguintes Directivas das Comunidades Europeias, *Este producto cumple con las directivas siguientes de la Comunidad Económica Europea*, Denna Product Överensstämmer Med Kraven Ministerrådets Direktiv Enligt Följande, Το Προϊόν Αυτό Έρει Κατασκευαστεί Σύμφωνα Με Τις Παρακάτω Κοινοτικές Οδηγες:

98/37/EC Machinery Directive

94/9/EC ATEX Directive (Ex II 2 G EEx c IIA T6)

The Following Standards Were Used To Verify Compliance With The Directives:

De følgende standarder blev anvendt som bekræftelse på at direktivernes bestemmelser overholdes, *Allaolevaa standardia on käytetty vahvistamaan yhtäpitävyyttä direktiivin kanssa*, Les normes suivantes ont été appliquées pour vérifier que ce produit se conforme aux directives, *Die folgenden Normen garantieren die Übereinstimmung mit diesen Richtlinie*, Sono state usate le seguenti norme per verificare la conformità ai direttivi, *De overeenstemming met de richtlijnen werd gecontroleerd aan de hand van de volgende normen*, Para Verificar A Conformidade Com As Directivas Utilizaram-se As Seguintes Normas, *Las normas siguientes han sido utilizadas para verificar que el producto cumpla con las directivas correspondientes*, Följande standard Har Använts För Att Bestyrka Överenstämmelse Med Direktiven, Ως Κριτήρια Τήρησης Των Οδηγιών γρησιμοποιήθηκαν Τα Παρακάτω Πρότυπα:

EN 292 EN 1127–1 EN 13463–1

ISO 9614–1

EC Notified Body:

EU Bemyndigede Organer, *Tiedon Antava Viranomainen*, Organisme Agreé, *EG Anerkanntes Organ*, Ente-CE notificato, *EG Aangemelde Instantie*, Organismo Reconhecido pela CE, *Organismo Certificado por la CE*, Underrätad EG Myndighet, Ενήμερο Κοιοτικό Όργανο

0359

Approved By:

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Frank Meersman

DIRECTOR (Print)

Date

Dato, *Päivä ys*, Date, *Datum*, Data, *Datum*, Data, *Jecha*, Datum, Ημερομηνία 12January2005

Date

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