

Please read and save this Repair Parts Manual. Read this manual and the General Operating Instructions carefully before attempting to assemble, install, operate or maintain the product described. Protect yourself and others by observing all safety information. The Safety Instructions are contained in the General Operating Instructions. Failure to comply with the safety instructions accompanying this product could result in personal injury and/or property damage! Retain instructions for future reference. AMT reserves the right to discontinue any model or change specifications at any time without incurring any obligation.

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Periodic maintenance and inspection is required on all pumps to insure proper operation. Unit must be clear of debris and sediment. Inspect for leaks and loose bolts. Failure to do so voids warranty.

# Polypropylene Piston Drum Pumps

## DESCRIPTION

These thermoplastic hand pumps are double-action piston pumps which deliver up to 17 gallons per 100 strokes. The pumps are self-priming and are built for everyday pumping at farms, construction sites and manufacturing plants.

Polypropylene pump (Model 4660-99) has excellent resistance to many organic acids, plating solutions, alcohols, and most water soluble inorganic chemicals.

**IMPORTANT:** Always refer to a chemical resistance chart to confirm compatibility. Not rated for food products.

## SPECIFICATIONS

Type.....	Piston
Flow.....	17 gallons per 100 strokes
Maximum Liquid Temperature.....	1 0 F 77
Mounting.....	2" Bung Adapter
Inlet.....	1" NPT
Outlet.....	1/4" NPT
Spout.....	Polypropylene
Nozzle.....	Polypropylene
Pump Housing.....	Polypropylene
Piston.....	Polypropylene/Viton/Teflon
Piston Rod.....	16 Stainless Steel
Valves.....	Polypropylene/Viton
Vacuum Breaker.....	Viton
over Plate.....	Polypropylene
Fastener external.....	18-8 Stainless Steel
Ph Range.....	4 to 11
Suction Tube.....	-Piece Polypropylene (std.)
Gasket.....	ork/Nitrile

## GENERAL SAFETY INFORMATION

### ▲ WARNING

*It is the responsibility of the user to operate the pump in conformance with OSHA rules for dispensing liquids. Pump containers should be grounded when using with flammable liquids to avoid static electricity. Pump should be washed out before usage since processing lubricants could contaminate the fluid.*

- When using a hand pump (especially when pumping flammable, combustible or hazardous liquids) follow all electrical and safety codes, as well as the United States Occupational Safety and Health Act (OSHA), most recent National Electrical Code (NEC), National Fire Protection Association, Inc.\* (NFPA) Code 30 (Flammable and Combustible Code), NFPA 56A (Standard for use of Inhalation Anesthetics), NFPA 77 (Static Electricity), NFPA 78 (Lighting Protection Code), NFPA 80 (Standard for Fire Doors and Windows), NFPA 251 (Standard Method of Fire Test of Building Construction), NFPA 704 (Identification of the Fire Hazards of Materials), other NFPA codes, local codes and ordinances, as needed in a particular application.

(\*Any of the NFPA Codes can be obtained from: National Fire Protection Association, Inc., 1 Batterymarch Park, Quincy, MA 02269, telephone 1-800-344-3555. Write or call for listing and prices.

- Know the pump application, limitations, and potential hazards. The WARNING statements indicate potentially

hazardous conditions for the operator or equipment. TAKE NECESSARY STEPS TO PROTECT PERSONNEL AND EQUIPMENT.

Pump should only be used with liquids compatible with pump component materials. Consult PUMP CHEMICAL COMPATIBILITY CHART and PUMP SPECIFICATIONS. Also, the chemical supplier should be consulted regarding any questions of chemical compatibility, proper and safe use and handling of chemical. Misapplication of pump or use of incompatible liquids will void warranty.

### ▲ WARNING

*In order to properly use this product familiarize yourself with this pump and also with the liquid (chemical, etc.) that is going to be pumped through the unit. Although this pump is suitable for many liquids, it is not suitable for all liquids or liquids with debris or solids!*

- Pumping hazardous, flammable, or combustible liquids should only be done in buildings, rooms, or areas suited for this purpose. (See NFPA 30, NFPA 78, NFPA 80, NFPA 251, NFPA 704, other suitable NFPA codes, OSHA, insurance companies, local codes and ordinances.)

### ▲ WARNING

*When filling cans, drums, etc. with combustible or flammable liquids, both containers (container pumping from and container pumping to), should be bonded and grounded to dissipate possible accumulations of static electricity and minimize sparks caused by static electricity. (Refer to NFPA 77 for specifics and further details.) Removal of outer garments in work areas where there may be flammable or explosive liquids, which are ignitable with low electrical energy can be fatal and/or cause property damage. (Refer to NFPA 56A and NFPA 77 for further details.)*

- The WARNING and instructions that follow pertain not only to gasoline, but to any flammable, combustible or hazardous fluid.

### ▲ WARNING

*Gasoline is a highly flammable fuel. The improper use, handling, or storage of gasoline can be dangerous. Prevent accidents by following these safety rules.*

- Use gasoline only as fuel, never as a cleaning fluid.
- Use only an approved container to hold or store gasoline. Never store gasoline in familiar containers such as milk containers or soda pop bottles.
- Store gasoline in a cool location, out of the reach of children. Never store gasoline near heat or an open flame.

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- d. Provide a fire extinguisher nearby when working with gasoline. Be sure extinguisher is in operating condition – check the pressure gauge of indicator. Be familiar with its proper use. Consult local fire department for the correct type of extinguisher for your application. Extinguishers rated ABC by the National Fire Protection Association are appropriate for most applications.
- e. Provide positive shut-off valves on all permanent fuel supplies. Fuel lines must be of steel piping, adequately secured, and free from leaks.
- f. Provide adequate ventilation, and clean up any spills when handling or pumping flammable liquids.
- g. **POSITIVELY NO SMOKING!**
5. Do not use torches or apply fire to this pump for any reason.
6. Secure the discharge line before starting the pump. An unsecured discharge line will slip, possibly causing personal injury and/or property damage.
7. Do not over tighten nonmetallic, threaded fittings. One full turn past hand tight is usually enough to prevent leakage. Teflon® sealant tape is provided and should be used on all threaded joints, including the spout.
8. Check hoses for weak or worn conditions before each use, making certain that all connections are secure.
9. Periodically inspect pump and system components. Perform routine maintenance as required.
10. Drain all liquids from the system before servicing.
11. **PREVENT SPILLING LIQUID WHEN REMOVING PUMP FROM BARREL:**
  - a. Straighten the discharge hose and hold it below the pump discharge. Allow hose to drain into a container.
  - b. Loosen bung adapter clamp (Ref. No. 30, Figure 8).
  - c. Pull pump from bung adapter and allow suction tube to drain back to the barrel. Lay pump flat with handle up. Place container under nozzle. Operate handle until liquid is cleared from pump housing.
  - d. Allow discharge hose to drain. Place the hose nozzle in its hanger. If pump will not be installed in a new barrel, all caustic or corrosive chemicals should be flushed with fresh water internally and externally to prevent personal injury during handling.

## ▲ WARNING

**Any pump used to transfer flammable liquids must be stored in a well-ventilated area after use.**

12. Personal Safety
  - a. Wear safety glasses at all times when working with pump.
  - b. Wear a face shield, proper apparel and suitable respiratory equipment when pumping hazardous chemicals.
  - c. Keep work area clean, uncluttered, and properly lighted. Replace all unused tools and equipment.
  - d. Keep visitors at a safe distance from the work area.
  - e. Make workshop childproof with padlocks, master switches, and by removing starter keys.

## ▲ WARNING

**Failure to follow all General Safety Information can result in a fatality, personal injury and/or property damage!**

## INSTALLATION

(All Ref. Nos. correspond to the Replacement Parts List, Figure 9).

1. Screw the bung adapter (Ref. No. 30) into the drum or barrel. Be sure that the gasket (Ref. No. 29) is in place and that the threads are not over-tightened.



Figure 1

2. Install the bung adapter clamp loosely around the bung adapter.
3. Thread the reducer bushing (Ref. No. 35) and the appropriate length of suction tube (Ref. No. 33) into pump inlet. Use the Teflon sealant tape provided.

**NOTE:** The suction tube and extension tube supplied are 19½" long. The suction tube has a bevel cut at one end and is threaded at the other end. The extension tubes are threaded at both ends.

A 55 gallon drum requires one extension tube, one coupling and one suction tube, threaded together (See Figure 2). For 275 gallon tanks, thread together two extension tubes, two couplings (one of each is supplied with pump. See Replacement Parts List to order others if needed), and one suction tube.

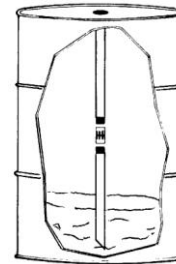


Figure 2



Figure 3

4. Install pump and tubing into bung adapter by firmly pushing straight down. Pump will snap into place (See Figure 3). Tighten the bung adapter clamp. Thread hose assembly (Ref. No. 16) and adapter or spout (Ref. No. 34) into pump housing.
5. The handle position can be changed to either the 12:00 or 6:00 positions.
  - a. Remove hairpin clip (Ref. No. 6) from the clevis pin (Ref. No. 7).
  - b. Remove clevis pin from housing to free links (Ref. No. 8). See Figure 4.

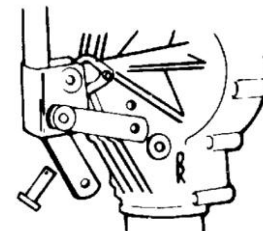


Figure 4

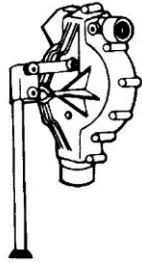
- c. With links clear of housing, rotate handle one-half turn to new position



Figure 5

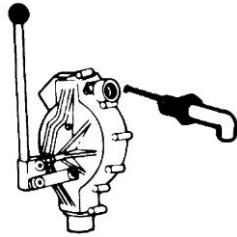
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- d. Install clevis pin through the links and the opposite hole in the housing.



**Figure 6**

- e. Install hairpin clip through the hole in the clevis pin. Ensure that the flat washer (Ref. No. 5) is installed between the hairpin clip and the link.
6. A spout (Ref. No. 34) is provided as a standard accessory. The spout is threaded into the 3/4" discharge outlet. (Position spout downward). Wrap the threads with Teflon tape (approx. 2 turns) and screw in hand tight only.



**Figure 7**

## OPERATION

1. Remove hose from hanger and place nozzle in a container. Operate handle to prime the pump. Six to twelve rapid strokes are required under most conditions for priming. After the pump is primed, it will deliver about one gallon for every five strokes (17 gallons per 100 strokes).

**NOTE:** A vacuum breaker is built into the pump discharge. This prevents siphoning the drum if the hose drops from its hanger.

**NOTE:** The barrel is vented by four relief channels molded into the bung adapter. This prevents drawing a vacuum in the barrel.

## MAINTENANCE

**Important:** Periodically inspect the pump, hose assembly and suction tubes for weak or worn conditions. Make certain that all connections and fasteners are tight and secure. Perform routine maintenance as required.

1. To test vacuum breaker, lay loose on ground with nozzle in a suitable container to hold the liquid. Operate the handle until liquid flows from the nozzle. Stop pumping: the hose should drain and the flow should stop. If flow continues without moving the handle, place the nozzle in its hanger to stop the flow. Inspect the vacuum breaker vent for blocking or freezing. Flush the vent with fresh water if pumping chemicals, or with cleaning product if pumping petroleum products.

## IN ORDER TO INSPECT INTERNAL PARTS, THE PUMP MUST BE DISASSEMBLED AS FOLLOWS:

1. Remove hose assembly and suction tubes from the pump housing.
2. Remove hex nuts (Ref. No. 21) and screws (Ref. No. 19) from the pump housing. Remove cover plate (Ref. No. 18) and gasket (Ref. No. 17), being careful not to damage the gasket.

3. Remove large and small valve assemblies (Ref. Nos. 11 and 23) and inspect for broken or weak springs or damaged or clogged valves.
4. Remove cotter pin (Ref. No. 6) from 1" clevis pin (Ref. No. 3) which holds handle (Ref. No. 2) to the piston rod. Remove cotter pin clip, flat washer and clevis pin (Ref. Nos. 6, 4 and 7) from links (Ref. No. 8). Remove pin from piston rod and set handle aside. Slide piston assembly (Ref. No. 25) from the housing (Ref. No. 1)
5. Inspect Teflon piston (Ref. No. 27) in piston groove. It must extend 1/32" above the edge of the piston to seal properly. If the ring has worn flush with the piston edge, then the Teflon piston ring must be replaced. When replacing the Teflon piston ring, always replace the Viton O-ring (Ref. No. 26) because extended compression reduces its ability to seal.
6. Inspect piston bore in housing (Ref. No. 1) for wear. Any gouging or scraping indicates the liquid being pumped contains abrasives. Replace the housing, Teflon piston ring and Viton O-ring (Ref. Nos. 1, 26 and 27) if the surfaces are gouged or worn.
7. Remove the two screws (Ref. No. 9) which hold retaining plate (Ref. No. 10) to the housing. Remove plate to expose piston rod O-ring (Ref. No. 1). Replace O-ring if worn or cut.

## IN ORDER TO REASSEMBLE THE PUMP, PROCEED AS FOLLOWS:

1. Install piston rod O-ring (Ref. No. 11). Install retaining plate (Ref. No. 10) with the groove facing away from the pump housing. Ensure that the Viton O-ring is inserted in the piston ring groove first and then the Teflon piston ring. Slide piston rod into housing. The Teflon piston ring may catch on the edge of the housing. To help seat the ring, turn piston slowly while pushing ring into groove with fingers. **DO NOT FORCE THE PISTON!**
2. Install clevis pin (Ref. No. 3) through the piston rod and handle.
3. Install the two small valve assemblies (Ref. No. 22) in the housing first and then the two large valve assemblies (Ref. No. 23). There is a small tab molded into the valve seats which fits a guide channel in the housing. This prevents installing the valve seats backwards. If these tabs are broken, please note the (lower) suction valve seats should have their springs facing each other and that the (upper) discharge valve seats should have their springs facing away from each other, when installed.
4. Inspect cover plate gasket (Ref. No. 17) for damage.
5. Lay cover plate and gasket assembly on the housing and install screws (Ref. No. 19) and hex nuts (Ref. No. 21). Tighten the screws and nuts firmly enough to compress the gasket.
6. **DO NOT OVER TIGHTEN!**
7. Install the hose and suction tubes as required. Refer to Figure 3.

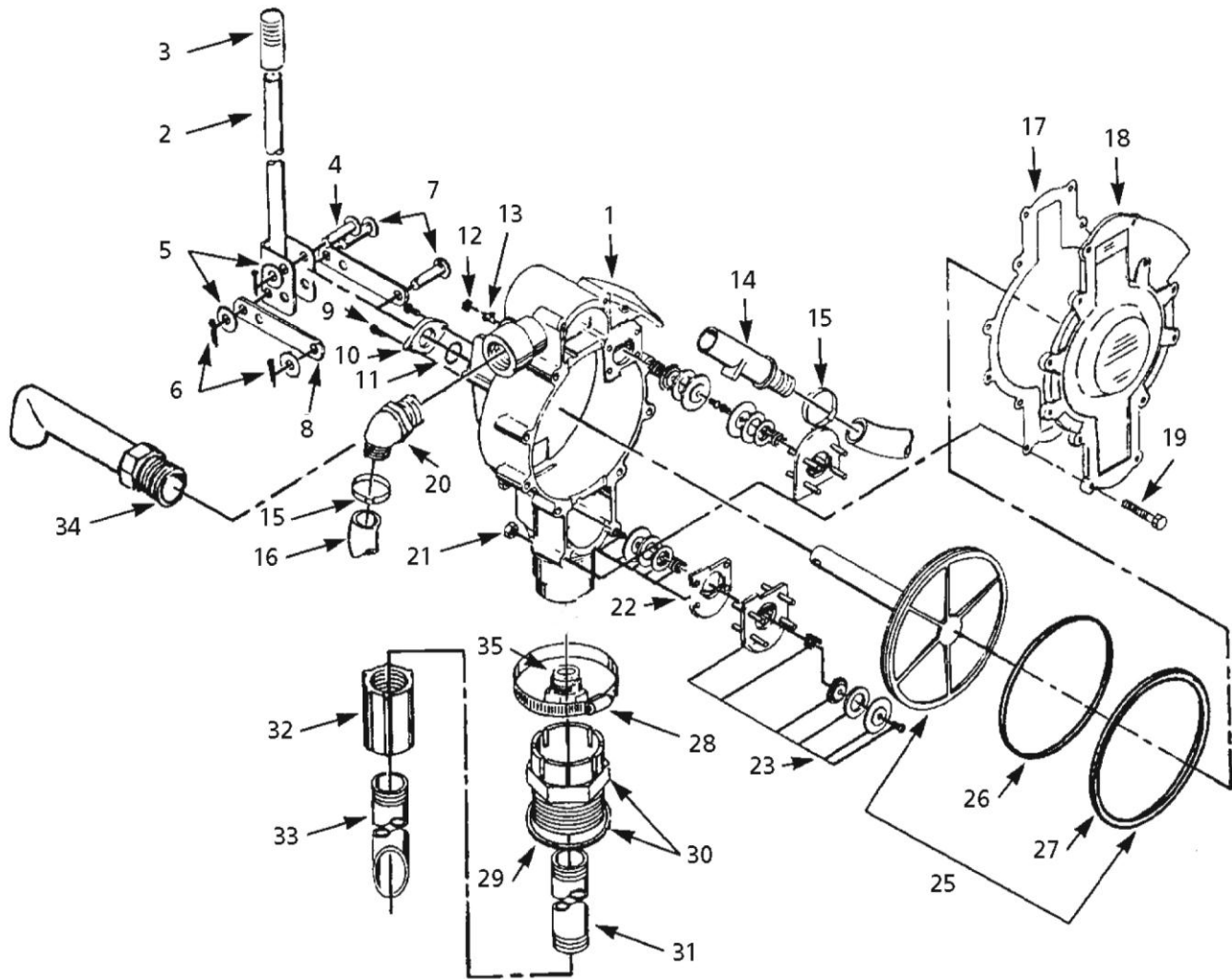
# For Repair Parts contact dealer where pump was purchased.

Please provide following information:

-Model Number

-Serial Number (if any)

Part description and number as shown in parts list



## Repair Parts List

Ref. No.	Description	Part Number for Model:	
		4660-99	Qty.
1	Pump Body	4660-001-00	1
2	Handle	4660-101-90	1
3	Grip	4660-104-00	1
4	Clevis Pin, Plated 5/16 x 1-1/8"	1766-024-00	1
5	5/16" Flat Washer	1790-003-00	3
6	Cotter Pins, Plates	1766-022-00	3
7	Clevis Pin, Plated 5/16 x 1-3/8"	1766-025-00	2
8	Link, Plated	4660-105-00	2
9	Screw, #10 x 3/4", S.S.	*	2
10	Retaining Plate	4660-050-00	1
11	Piston Rod O-Ring, Viton	2186-002-00	1
12	Vent Plug	4660-051-00	1
13	Vacuum Valve, Viton	4660-052-00	1
14	Nozzle	4660-073-00	1
15	Hose Clamp, S.S.	N/A	N/A
16	Hose, 8ft	N/A	N/A
17	Gasket, Cork/Nitrile	4660-300-00	1
18	Front Cover	4660-020-00	1
19	Hex Head Screw, 1/4-20 x 2" S.S.	*	12
20	Hose Adapter	4660-172-00	1
21	Hex Nut, 1/4-20 S.S.	*	12
22	Valve Assembly, Small	4660-070-99	2
23	Valve Assembly, Large	4660-071-99	2
25	Piston Assembly, S.S. (includes Viton O-Ring and Teflon Ring)	4660-012-99	1
26	Piston O-Ring, Viton	2186-003-00	1
27	Piston Ring, Teflon	4660-304-00	1
28	Bung Adapter Clamp, S.S.	4660-184-00	1
29	Bung Adapter Gasket, Cork/Nitrile	4660-301-00	1
30	Bung Adapter Assembly	4660-174-99	1
†31	Suction Tube Extension	4660-175-00	1
†32	Coupling	4660-177-00	1
33	Suction Tube	4660-176-00	1
34	Spout, 3/4" NPT	4660-179-00	1
35	Reducer Bushing	4660-181-00	1
◇	Teflon Tape	1696-094-00	1

(\*) Standard Hardware Item, Available Locally

(†) Pump reaches depth of 55 gallon drum with pieces provided. To reach depth of 275 gallon tank requires an addition of one (1) each of Ref. Nos. 34 and 35 (these extra parts are not supplied).

(◇) Not Shown