



TECHNICAL DATA
DOCUMENT

Preventive Maintenance & Critical Procedures

Schedules · 500-Hour Service · Pump
Rebuild · Flushing · Season
Shutdown



KEY SPECIFICATIONS

FIRST OIL CHANGE

After 50 hours

500-HOUR SERVICE

Oil · pre-filter · belt · head check

PUMP OIL

#93222 · 15 oz fill · 30-wt non-
detergent

PRE-FILTER

#92608 · 5-micron · every 500 h

SEALS / PACKINGS

Every 2,000 – 2,500 h or when
leaking

VALVES & PLUNGERS

Every 2,500 h or as needed

PLC TIMER RESET

Buttons 3 + 4 together

OFF-SEASON

Run 10–15 min every 14 days, or
drain

WARRANTY

Pump 5 yr · other equipment 2 yr

Maintenance Overview

Regular preventive maintenance minimizes unexpected breakdowns and maximizes the life of your FanMist system. The Pump Station PLC tracks pump run hours and lights the **amber MAINT light** every 500 hours. Keep a **Maintenance Service Log** with the date and all work performed, and watch for signs from the pump that maintenance is needed.



CRITICAL WARNING: DO NOT IGNORE

DO NOT CONTINUE TO RUN the pump if any of these conditions exist:

- A drop in pressure
- Fluctuating pressure
- Vibration
- Unusual noises
- External water or oil leaks
- Excessive pump heat
- Water in the crankcase oil
- Premature wear of parts

Ignoring these signs can cause serious internal damage, shorten pump life and **void the 5-year pump warranty**.

The Critical Maintenance Tasks

Task	Frequency	Part # / Detail	Page
Change pump oil	After the first 50 hours, then every 500 hours or annually	#93222 · 15 oz fill	3
Change water pre-filter	Every 500 hours, at season start-up, or annually	#92608 cartridge · #92609 housing · #95062 wrench	3
Inspect belt & pump head	Every 500 hours	Replace a worn belt. Leaks mean seal replacement.	3
Replace seals / packings	Every 2,000 – 2,500 hours, or when leaking	Seal kit (EP Series)	5
Service valves & plungers	Every 2,500 hours, or as needed	Valve kit (all six valves)	4
End-of-season shutdown	Off-season	Run 10–15 min every 14 days, OR drain completely	8

Safety for All Procedures

- Turn the pump switch OFF and **lock out/tag out** electrical power at the source.
- **Depressurize** the system (the EDV must open) and verify zero pressure on the gauge.
- Use proper PPE: eye protection and gloves.
- Maximum operating pressure is 1000-psi.

Warranty Maintenance

Pumps carry a **5-year** warranty, and all other equipment a **2-year** warranty. The warranty does not cover parts subject to normal wear (seals and packings are not a warranty item), or problems caused by **improper maintenance**, faulty installation or unapproved modifications. Record all filter changes, oil changes and water treatment performance in the service log.

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Maintenance Schedule by Interval

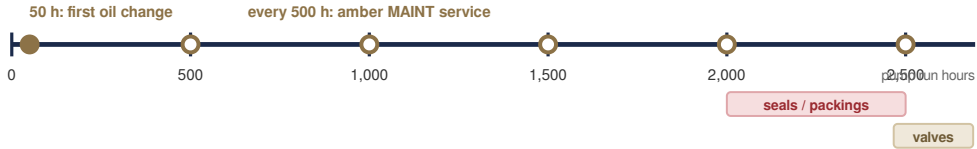


Figure 1 — Maintenance intervals by pump run hours (hour meter). A typical season runs 1,500 – 2,000 hours.

Interval	Tasks
Before every start-up	Main water valve ON · 5-micron pre-filter clean or recently changed · RO/softener operating · inlet gauge reads 25–100 psi · no white scale on nozzles or fittings
First 50 hours	Initial pump oil change (break-in)
Every 500 hours (amber MAINT light)	Change pump oil · replace the pre-filter cartridge · inspect or replace the pulley belt · check the pump head for water or oil leaks (replace seals immediately if leaking) · reset the PLC maintenance timer (buttons 3 + 4)
Annually (minimum)	Oil change and pre-filter change, even if 500 hours have not been reached
2,000 – 2,500 hours	Replace pump water seals (V-packings). Typical life is 500 – 2,500 hours depending on water quality.
2,500 hours	Service all six pump check valves and inspect the plungers
As needed	Nozzle cleaning · inlet solenoid valve service · EDV check · Slip-Lok O-rings
Off-season	Every 14 days run 10–15 min, OR drain the system completely

Maintenance & Spares Pak

Part #	Contents
5.29N · 7.94N	Spare nozzles: Red and Blue band
93712 · 93711	Spare mist rings: 24" and 27"
92707 · 92632 · 93163	Ball valve assembly parts

Part #	Contents
95062	Filter wrench (one per Pump Station)
92608	5-micron pre-filter cartridge (one per Pump Station)
93222	16 oz pump oil (two per Pump Station)
94506	6" SS nozzle extension (flushing)



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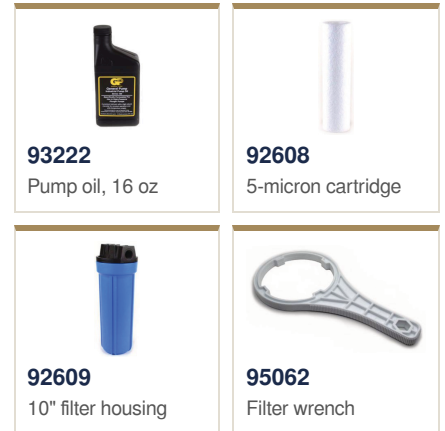
500-Hour Service

When the amber MAINT light comes on, the PLC has counted 500 pump run hours. Perform all five tasks, then reset the timer. The PLC keeps tracking run time, so reset it every 500 hours.

1 · Pump Oil Change

- 1 Run the pump for 15 minutes before changing the oil, to warm it thoroughly.
- 2 Turn the pump OFF and lock out/tag out electrical power at the source.
- 3 Remove the **yellow breather cap** on the top of the pump head.
- 4 Find the drain port on the pump crankcase. Remove the drain cap and drain the old oil completely into a suitable container.
- 5 When draining is complete, reinstall and tighten the drain cap.
- 6 Fill the pump with **15 oz** of new 30-weight non-detergent hydraulic oil through the breather opening.
- 7 Check the oil level in the sight window. It should show **half full**.
- 8 Replace the yellow breather cap (hand-tight only) and reinstall the pump cover if it was removed.
- 9 Restore power and run the pump briefly. Immediately check for water leaking from the seals, and replace leaking seals as soon as possible.
- 10 Reset the amber MAINT light by pressing PLC buttons **3 + 4** together.

Approved oil: 30-weight non-detergent hydraulic oil, Pump Oil #93222 (16 oz). Equivalents: Mobil 60018-9, Chevron 232105.



2 · Pre-Filter Cartridge

Shut off the supply and relieve pressure. Unscrew the housing with wrench #95062, replace cartridge #92608 (9 3/4", 5-micron), and refit the housing. Check for leaks when water is restored.

3 · Pulley Belt

Inspect for wear or cracks, and replace if needed. A loose belt causes slippage and low pressure, and too much tension wears the crankshaft bearing.

4 · Pump Head Check

Look for water or oil leaks. Water leaking from the underside of the brass pump head means the seals must be replaced immediately (page 5).

5 · Reset the Timer

Press PLC buttons 3 + 4 together. The amber light turns off.



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Pump Valves & Plungers

Service interval: every 2,500 hours, or as needed when symptoms appear. Valve problems are usually caused by debris or mineral buildup and can cause heavy vibration, loss of pressure and load knocking. Valve kits for all General Pump EP Series models are stocked by IHC.

Checking the Six Check Valves

- ① Remove the valve caps. Use a **27 mm socket and breaker bar**, because the caps are very tight from the factory.
- ② Use needle-nose pliers to remove each valve assembly.
- ③ Inspect the spring assembly to make sure it closes completely and that no debris is present.
- ④ Clean the valves thoroughly.
- ⑤ Flush the pump head: pour water into the top valve openings and let it drain from the bottom, or run the pump briefly with the water source connected. This can be messy, but it is critical to prevent re-contamination.
- ⑥ Confirm the plastic housing of each valve is not broken.
- ⑦ Use compressed air to clear any remaining debris from the six ports. **Caution:** do not lose the O-rings inside the ports below the check valves.
- ⑧ Examine all O-rings for cuts, abrasions or distortion, and replace any that are damaged.

One valve kit repairs all six valves. It contains new O-rings, valve seat, poppet, spring and retainer, all pre-assembled.

Reinstalling Valves

- ① Install new O-rings in each valve cavity.
- ② Insert the pre-assembled valve into the cavity.
- ③ Replace the valve cap and torque to the manufacturer's specification, following the torque sequence (Figure 3).

Replacing Plungers

- ① Remove the stainless steel piston screw and plunger from the piston rod.
- ② If the slinger washer comes off with the plunger, make sure it is replaced before installing the new plunger.
- ③ Separate the piston screw from the old plunger.
- ④ Install the new O-ring and Teflon backup ring on the piston screw. Apply a thin film of grease to the outside of the O-rings for easier installation.
- ⑤ Carefully press the piston screw into the new plunger. Reassemble in reverse order and torque all fasteners to specification.

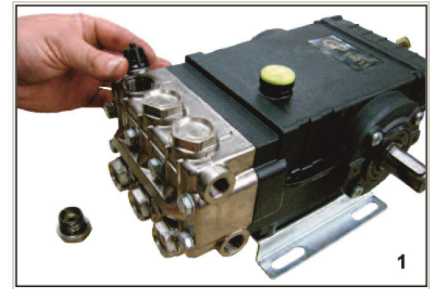


Figure 2 — Removing the valve caps from the manifold head.

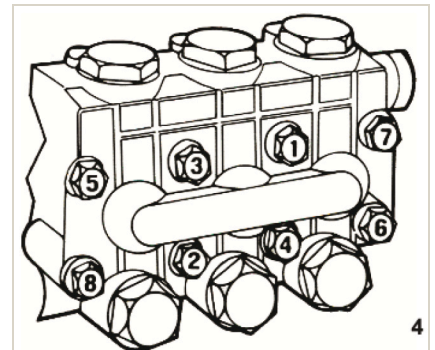


Figure 3 — Head tightening sequence 1 – 8.

Removing the manifold head: remove the head fasteners and separate the head from the crankcase. Tap lightly with a rawhide mallet if needed. Slide the head off with extreme care so the plungers are not damaged.

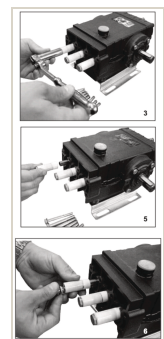


Figure 4 — Plunger removal.

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Pump Seals & Packings

Service interval: every 2,000 – 2,500 hours, or as soon as leakage is seen. The pump's water seals (V-ring packings) wear with normal use and are **not a warranty item**. Seals typically last 500 – 2,500 hours depending on water quality and operating conditions.



Signs of Seal Failure: Do Not Ignore

- Water leaking from the bottom of the pump head, between the brass manifold and the crankcase, means **low-pressure seal wear**.
- Water in the crankcase oil (oil looks milky and foamy) means **high-pressure seal failure**.
- Running the pump after leakage begins will cause lubrication failure and extensive crankcase damage.

Replacing V-Ring Packing Seals

Tools: the proper extractor collet and insertion tool (included in the seal kit).

- 1 Remove the manifold head from the crankcase (page 4).
- 2 Insert the proper extractor collet through the main seal retainer. Tighten the collet and extract the retainers, V-packings and head rings.
- 3 Place the proper insertion tool in the cylinder and install, in order: **front head ring** → **V-packing** → **long-life ring**. Press firmly into the cylinder until they go no further.
- 4 Insert the intermediate seal retainer and press it firmly into place. Then install, in order: **rear head ring** → **V-packing** → **main seal retainer**, pressing firmly into the cylinder.
- 5 Repeat this exact sequence for each cylinder.

After a seal replacement, change the oil if any water got into the crankcase, and inspect the plungers for scoring.

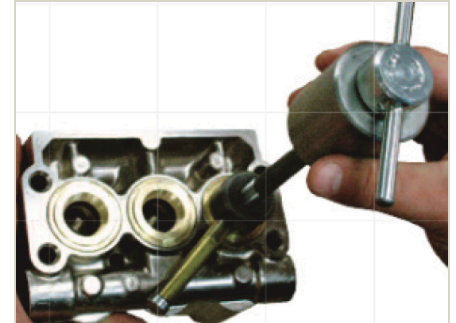


Figure 5 — Extracting retainers with the collet.

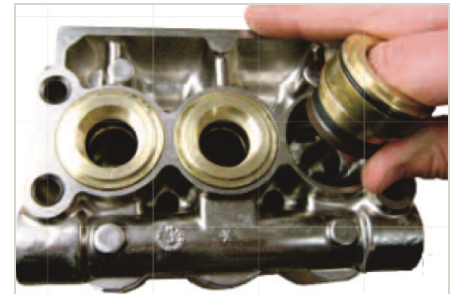


Figure 6 — Pressing the seal retainer into the cylinder.



Figure 7 — Seal stack components, low-pressure to high-pressure.

Frequent or Premature Packing Failure: Causes

Cause	Prevention
Scored, damaged or worn plunger	Replace the plungers when replacing seals
Abrasive material in the water	Maintain the 5-micron pre-filter and water treatment
Inlet overpressure, or excess fluid temperature	Keep inlet at 25–100 psi (125 psi max) and below 165 °F
Running the pump dry	Never run the pump without water. Check the inlet solenoid and supply.



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Component Maintenance Procedures

Nozzle Cleaning

Clean nozzles that show irregular spray or drip from the tip.

- 1 Unscrew the nozzle cap and remove the spring assembly.
- 2 Soak all pieces in a 50/50 warm water and vinegar solution, OR in Works™ toilet bowl cleaner for 1 minute.
- 3 Rinse, then reassemble. Keep the 5-micron white filter in place. It is not packing material.
- 4 Reinstall in the mist ring port **finger-tight only**. Never use pliers or wrenches.

Inlet Solenoid Valve

#93368 (115V) · #93596 (230V). Service if there is no flow on a call, flow when OFF, or no “click.”

- 1 Lock out power and shut off the main water supply.
- 2 Restore power with the humidistat calling, and feel for the coil’s “click.”
- 3 Inspect the DIN plug, and clean the 4 spade prongs.
- 4 Check the coil for bulging, burns or water intrusion. Replace with the correct voltage.
- 5 Meter 115V/230V at the coil prongs on a call.
- 6 Bucket test: water must flow freely when the pump is ON and stop immediately when it is OFF.

Electric Drain Valve (EDV)

#95001. Check at each 500-hour service and whenever nozzles drip after shutdown.

- 1 Run a cycle and watch the shutdown.
- 2 Confirm the EDV opens and drains about ¼ gallon per OFF cycle.
- 3 Confirm pressure drops below 300 psi so the nozzles close.
- 4 Clear the drain line if flow is restricted, and check the DIN connector and coil.

Slip-Lok Fittings

For a fitting that drips: cut the tube square, ease the edge, fully insert it, then pull back to lock. If it still leaks, replace the primary and urethane backup O-rings, or the fitting.

High-Pressure Safety Switch (HPS) Reset

After a red FAULT shutdown, find and correct the cause (leak, low water, clogged filter), check for leaks, then reset by turning the start signal or pump switch **OFF → ON**. Press ESC on the PLC screen to view the fault counters.

Thermal Relief Valve

Opens if inlet water goes above 145 °F and dumps about 8 oz to cool the supply. Frequent discharge means too much bypass. Check pump sizing against the load.

Detail for each component: Inlet Solenoid Valve (IHC–TDD–ISV–1026–RevA) · High-Pressure Safety Switch (IHC–TDD–HPS–1026–RevA) · Unloader Valve (IHC–TDD–UNL–1026–RevA) · High-Pressure Nozzles (IHC–TDD–NOZ–0929–RevA).

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Critical Procedure: Line Flushing

Flushing is **mandatory** after full installation (Pump Station, high-pressure tubing, mist rings and ball valve assemblies), **before** nozzles are installed and before the system is started. It removes fines, debris and installation residue that would foul the nozzle filters and orifices. Repeat it after any major line repair.

Critical safety note: do not run the system continuously at high pressure until flushing is 100% complete.

Preparation

- Scissor lift, several 5-gallon buckets, about 40' of 3/8" OD × 1/4" ID clear plastic tubing, and 6" nozzle extension wands (#94506), one per drop-down line.
- Make two drain lines: insert a wand into the 1/4" ID end of each tube and zip-tie it securely.
- Pump electrical OFF · all fan switches OFF · all mist ring ball valves closed · no nozzles installed.

Team Roles

Person A	At the Pump Station: switches the pump ON/OFF on command
Person B	On the lift: works each ring, runs the ball valve, signals the pump
Person C	On the floor: manages the buckets

Procedure

- 1 Set the humidistat above the room RH (for example 55%) and turn the water supply ON.
- 2 Start at the fan closest to the Pump Station and go fan by fan along the tubing run.
- 3 Plug all ring ports except the two top ports, and thread the two drain lines into those.
- 4 With the fan switched OFF, open the ball valve and signal for the pump to come ON.
- 5 Flush 1.5 – 3 gallons in total, then pump OFF and close the ball valve.
- 6 Remove the wands and plugs, and install all nozzles **finger-tight**.
- 7 Leave the ball valve closed, turn the fan switch ON, and move to the next fan.
- 8 When all fans are done, go to System Start-up.

Each time the pump is turned ON, the fan delay makes it take about 10 seconds to reach full pressure. Do not interrupt this delay.



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Acceptable Water

TDS	< 150 ppm (ideal < 100 ppm)
Hardness	< 10 grains/gallon
pH	6.5 – 8.5
Temperature	< 145 °F
Chlorine	< 1 ppm
Supply	25 – 100 psi · $\geq 1.5 \times$ pump capacity

Two treatments are required: a 5-micron particulate filter (#92608, replaced every 500 h) and scale prevention with RO (preferred) or a softener upstream of the pre-filter.

Choose one, to prevent stagnant water:

- **Exercise:** every 14 days, run the system 10-15 minutes, OR
- **Drain:** drain the system completely.

Start of Season

- Install a new pre-filter cartridge (#92608).
- Change the oil if it is due (annually at minimum).
- Confirm the water treatment is in “run” mode.
- Run the start-up checklist and test one full ON/OFF cycle.

Maintenance Service Log

[illegible]

Keep this log with the Pump Station. Recording water treatment and filter changes helps protect the warranty.
Technical support: **765-702-4083**.