

SAVE THESE INSTRUCTIONS



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GREAT PLAINS INDUSTRIES, INC.

"A Great Plains Ventures Subsidiary"

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M-150S, M-180S and M-240S Fuel Pump

Owner's Manual

STOP

**DO NOT RETURN
THIS PRODUCT
TO THE STORE!**

Please contact GPI before returning any product. If you are missing parts or experience problems with your installation, our Customer Support Department will be happy to assist you.

GPI Customer Support
**800-835-0113 or
316-686-7361**



TABLE OF CONTENTS

General Information	2
Installation	3
Operation	4
Maintenance	5
Repair	5
Troubleshooting	9
Illustrated Parts Drawing	10
Specifications	11
Parts and Service	11

To the owner...

Congratulations on receiving your GPI fuel pump. We are pleased to provide you with a system designed to give you maximum reliability and efficiency.

Your fuel pump is designed, tested, and approved for use with gasoline, kerosene, and diesel fuel. Please take all due precautions when handling these flammable liquids. Your safety is important to us.

Also, to assure the longest possible service life, it is important that you follow the operation and maintenance procedures outlined in this manual. We are proud to provide you with a quality product and dedicated support. Together with your conscientious use, we are sure that you will obtain years of safe, dependable service.



Great Plains Industries, Inc. is a member of
the Petroleum Equipment Institute.

President
Great Plains Industries, Inc.

GENERAL INFORMATION

The information in this manual applies to a series of GPI pumps:

- M-150S 12-volt, available with automatic or manual nozzle
- M-180S High flow pump available with automatic or manual nozzle
- M-240S 24-volt pump with manual nozzle

The information applies to all models, except where noted.

This manual will assist you in operating and maintaining your 12-volt or 24-volt fuel pump. It furnishes information which will help you achieve years of dependable performance and trouble-free operation.

Please take a few moments to read through this manual before installing and operating your pump. If you have problems with the pump, refer to the Maintenance and Troubleshooting Sections.

If you need assistance, contact the dealer from whom you received your pump. If you need further assistance, please call the factory.

How to Use this Manual

Most information in this manual applies to both 12-volt and 24-volt electric gear pumps with an automatic or manual nozzle.



This symbol is used throughout this manual to call your attention to safety messages.

Warnings alert you to the potential for personal injury.

Cautions call attention to practices or procedures which may cause damage to your equipment.

Notes give you information that can improve efficiency of operations.

It is your responsibility to:

- know and follow applicable national, state, and local safety codes pertaining to installing and operating electrical equipment for use with flammable liquids.
- know and follow all safety precautions when handling petroleum fuels.
- insure that all equipment operators have access to adequate instructions concerning safe operating and maintenance procedures.

Safety Instructions

This is a safe product, designed and manufactured to meet the high safety standards of Underwriters Laboratories (Motor for Hazardous Locations) and the Canadian Standards Association (CSA). It is designed to safely handle fuel products and, if installed, operated, and maintained correctly, will give years of dependable service.



Important Information

To insure safe operation, all fuel transfer systems must be properly grounded.

Proper grounding means a continuous metal-to-metal contact from one component to the next, including tank, bung, pump, meter, filter, hose, and nozzle. Care should be taken to insure proper grounding during initial installation and after any service or repair procedures.

All factory-supplied accessories and components assure proper grounding.

Here is a list of major warnings and cautions that are given throughout this manual. Please take a moment to review them now for your future safety.

1. To prevent physical injury, observe precautions against fire or explosion when dispensing fuel. Do not operate the system in the presence of any source of ignition including running or hot engines, lighted cigarettes, or gas or electric heaters.
2. Observe precautions against electrical shock when operating the system. Serious or fatal shock can result from operating electrical equipment in damp or wet locations.
3. Avoid prolonged skin contact with petroleum fuels. Use protective goggles, gloves, and aprons in case of splashing or spills. Change saturated clothing and wash skin promptly with soap and water.
4. This pump is designed for use only with gasoline, kerosene, and diesel fuel. Do not use this pump for dispensing any fluids other than those for which it was designed. To do so may damage pump components and will void the warranty.
5. Do not leave the system running without fluids. "Dry running" can damage the pump. If the system fails to deliver fuel after 15 to 20 seconds, turn the system off and refer to the Troubleshooting Section.
6. Inspect external pump wiring regularly to make sure it is correctly attached to the battery. To avoid electrical shock, use extra care when connecting the pump to power.
7. Do not pump the tank completely dry, as contaminants from the bottom of the tank may enter the pump.
8. To avoid pump damage, do not run the pump for more than 10 minutes with the nozzle closed.
9. The duty cycle of this pump is 30 minutes ON and 30 minutes OFF. Allow the pump to cool for 30 minutes.
10. Observe precautions against electrical shock when servicing the pump. Always disconnect power before repairing or servicing. Never apply electrical power to the system when any of the coverplates are removed.
11. If using solvent to clean pump components or tank, observe the solvent manufacturer's recommendations for safe use and disposal.

Damage Inspection

Upon receipt of your system, inspect all parts and components. Remove protective caps and plugs, as needed, for a thorough inspection.

If any items are damaged or missing, please contact your dealer or distributor.

INSTALLATION

Before installation, wrap all threaded fuel connections with three to four turns of Teflon® tape or a pipe thread sealant approved for use with petroleum fuels.

Review the Important Information on page 1 before proceeding.

Priming

This pump is designed to self-prime with dry gears. Expect suction lift as follows:

- Manual Nozzle: 5.5 feet (1.7 m) with diesel
6.7 feet (2.1 m) with gasoline
- Automatic Nozzle: 4.8 feet (1.5 m) with diesel
5.8 feet (1.8 m) with gasoline

If your installation requires a greater distance from the lowest fuel level to the pump, the pump may not prime until the gears are coated with fluid.

To coat the gears, remove the plug on the top of the pump (as detailed in Figure 8) and pour a small quantity of motor oil into the gear cavity. Replace the plug, turn the pump on, and open the nozzle.

A UL Listed foot valve with pressure relief will be required to maintain prime.

Install Bung Adapter and Suction Pipe

Before installation, wrap all threaded fuel connections with three to four turns of Teflon® tape or a pipe thread sealant approved for use with petroleum fuels.

1. Tighten the bung adapter snugly on the fuel tank.
2. Place the union ring gasket into the inlet fitting on the bottom of the pump.
3. Thread the suction pipe into the inlet fitting and tighten until snug.

Install Pump on Tank

1. Clean the tank interior of all dirt and foreign material.
2. Extend the suction pipe to its full length and insert into the tank opening. (Figure 1)

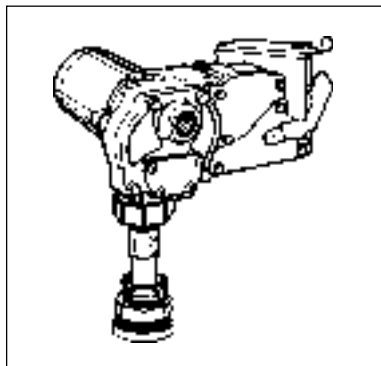


Figure 1

The suction pipe will adjust to the length needed to rest on the tank bottom.

3. Place the pump on the bung adapter and tighten the union ring securely with a pipe wrench. Make sure the union ring is not cross-threaded.

NOTE: To prevent pressure buildup and possible fuel leaks through the nozzle, make sure the tank is vented. A vent cap rated at 3 psi or less is recommended.

Install Electrical Connections

Pumps designed for a 12-volt power source should be connected to a 12-volt battery. Pumps designed for a 24-volt power source should be connected to a 24-volt battery. Do not attempt to install on a 115-volt power source.

To install power cord:

1. Remove the electrical coverplate from the pump housing. (Figure 2)

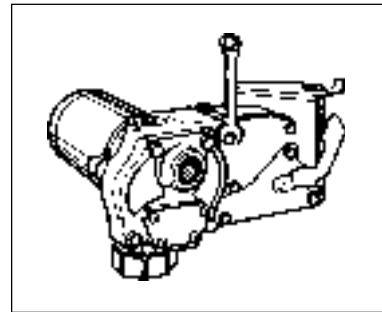


Figure 2

2. Models M-150S and M-180S: Adjust power cord to desired length. Strip 3 to 4 inches (7.5 to 10 cm) of outer insulation from the power cord.
Model M-240S only: Adjust power cord to desired length. Strip 3 to 4 inches (7.5 to 10 cm) of outer insulation from the power cord end without the fuse.
3. Slide the strain relief grip over the end of the power cord. The threaded end of the strain relief grip must face the power cord end. (Figure 3)

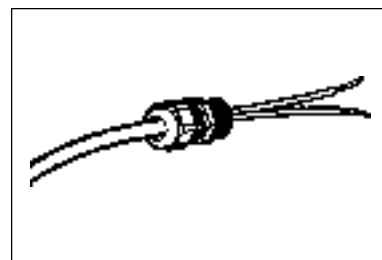


Figure 3

4. Strip 1/2 inch (1.3 cm) of insulation from the red and black power cord wires.
5. Insert the power cord through the power cord inlet on the back of the pump. (Figure 4) Using wire nuts, connect the black wire of the power cord to the black wire in the electrical cavity. Connect the red wires in the same manner.
6. Position wires inside the electrical cavity until flush. Insert the strain relief into the back of pump and tighten. Tighten the strain relief grip securely.

INSTALLATION cont'd.

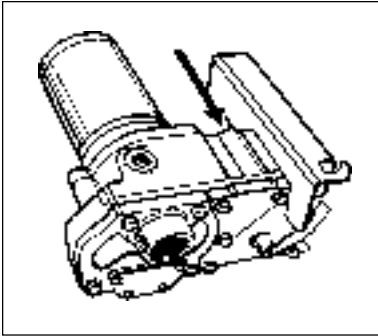


Figure 4

7. Make sure mating surfaces are clean. Install the electrical coverplate and tighten screws securely.

The system is now wired for negative ground. To connect to power source, red is positive (+).

Install Hose and Nozzle

NOTE: If installing accessories such as flow meters or filters, do so now, following the manufacturer's instructions.

1. Tighten the hose into the pump outlet.
2. Tighten the nozzle onto the opposite hose end.
3. Place the nozzle into the nozzle holder on the pump housing. Note that the nozzle cannot be placed in the holder unless the pump is OFF.

NOTE: The nozzle holder allows the pump to be locked when the nozzle is in place.

OPERATION

!!! WARNING !!!

To prevent physical injury, observe precautions against fire or explosion when dispensing fuel. Do not operate the system in the presence of any source of ignition including running or hot engines, lighted cigarettes, or gas or electric heaters.

!!! WARNING !!!

Observe precautions against electrical shock when operating the system. Serious or fatal shock can result from operating electrical equipment in damp or wet locations.

!!! WARNING !!!

Avoid prolonged skin contact with petroleum fuels. Use protective goggles, gloves, and aprons in case of splashing or spills. Change saturated clothing and wash skin promptly with soap and water.

CAUTION: This pump is designed for use only with gasoline, kerosene, and diesel fuel. Do not use this pump for dispensing any fluids other than those for which it was designed. To do so may damage pump components and will void the warranty.

CAUTION: Do not leave the system running without fluids. "Dry running" can damage the pump. If the pump fails to deliver fuel after 15 to 20 seconds, turn OFF and refer to the Troubleshooting Section.

Before Each Use

1. Check for leaks around seals or connections. Refer to the Troubleshooting Section of this manual for corrective action.
2. Make sure hoses are in good condition and connections are tight.
3. Make sure the work area is dry.
4. Inspect wiring to ensure the pump is properly grounded. Also check for any corroded or damaged wiring.

!!! WARNING !!!

Inspect external pump wiring regularly to ensure it is correctly attached to the battery. To avoid electrical shock, use extra care when connecting the pump to power.

5. Ensure the tank contains enough fuel.

CAUTION: Do not pump the tank completely dry, as contaminants from the bottom of the tank may enter the pump.

6. Check for obvious signs of fuel contamination such as a loose or missing tank lid which could allow debris into the tank.

Dispense Fuel

1. To turn the pump ON, remove the nozzle from its holder and push the switch lever up.

NOTE: The nozzle holder and switch are designed so the pump motor cannot operate with the nozzle in the holder.

2. Insert the nozzle into the receiving tank or container. Squeeze the handle to start fuel flow.

This pump is designed to self-prime. If it does not begin to deliver fuel within 15 to 20 seconds after turning the pump ON and opening the nozzle, turn OFF. Refer to the Priming and Troubleshooting Sections to correct problem.

An automatic bypass valve prevents pressure buildup when the pump is ON with the nozzle closed.

CAUTION: To avoid pump damage, do not run the pump for more than ten minutes with the nozzle closed.

Do not overfill the tank. Repeated attempts to "top off" the tank with an automatic nozzle may result in overfilling.

3. After dispensing fuel, release the nozzle handle, turn the pump OFF, and return the nozzle to its holder.

CAUTION: The duty cycle of this pump is 30 minutes ON and 30 minutes OFF. Allow to cool for 30 minutes.

Motor Protector (Models M-150S and M-180S only)

The motor protector trips automatically. This feature provides added protection against motor damage and must be reset manually.

When the motor protector trips, reset by turning the switch to OFF. Let the pump cool then turn ON again. If the motor protector trips again, see the Troubleshooting Section of this manual.

Motor Protector (M-240S model)

An inline fuse provides Overload Protection on the 24-volt models. Follow the instructions in the Repair Section to replace the fuse.

MAINTENANCE

This pump is designed for minimum maintenance. Motor bearings are sealed and require no lubrication. Inspect the pump and components regularly for fuel leaks and make sure the hose and power cord are in good condition. Keep the pump exterior clean to help identify leaks.

Perform a regular visual inspection of the system using the "Before Each Use" procedure in the Operation Section.

Do not use this pump to pump water, chemicals, or herbicides. Dispensing any fluid other than gasoline, diesel, or kerosene fuel will damage the pump. Use of the pump with unauthorized fluids will void the warranty.

Remove and clean the fuel strainer after every 40 hours of operation or if low flow is noticed. Refer to the Repair Section for instructions on cleaning the strainer.

The pump may not deliver fluid if an air lock occurs due to an external filter, meter, or an off-the-shelf automatic nozzle. To correct, remove the pipe plug in the top outlet port and fill the gear cavity and meter with fuel. Use of a factory-supplied automatic nozzle is recommended.

REPAIR

When disassembling, carefully inspect all parts for wear or damage. Replace components, as necessary. The Illustrated Parts List gives information on replacement parts and kits.

Review the Important Information material on page 1 before proceeding.

!!! WARNING !!!

Observe precautions against electrical shock when servicing the pump. Always disconnect power before repairing or servicing. Never apply electrical power to the system when any of the coverplates are removed.

!!! WARNING !!!

Avoid prolonged skin contact with petroleum fuels. Use protective goggles, gloves, and aprons in case of splashing or spills. Change saturated clothing and wash skin promptly with soap and water.

Remove Pump from Tank

1. Turn the pump OFF and disconnect from power.
2. Turn the union ring counterclockwise to release the inlet fitting.
3. Lift the pump and suction pipe straight up from the bung adapter.
4. Elevate the nozzle and hose to allow excess fuel to drain into the tank.
5. Wipe the entire system with a clean cloth.

Service O-Rings

A Wet Seal Kit contains all seals for your pump and should be on hand when performing repairs. Old seals may then be replaced with new seals.

In general, when inspecting O-rings, look for breaks, wear, and signs of deterioration, such as swelling. Replace, as necessary. Before seating, coat O-rings with light grease.

Clean or Replace Strainer

Clean the inlet strainer after every 40 hours of operation or if low flow occurs.

1. Turn the pump OFF and disconnect from power.
2. Remove the four Phillips screws from the strainer access coverplate.
3. Remove the inlet strainer and inspect for damage or debris. (Figure 5)

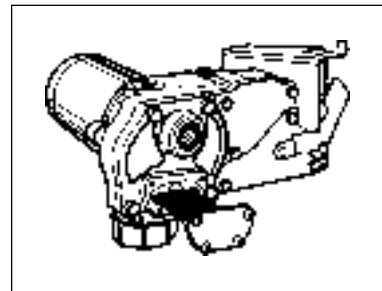


Figure 5

4. Clean the strainer with a soft-bristled brush and solvent. If the strainer is very dirty, compressed air may be used. If damaged, replace the strainer.

NOTE: A very dirty strainer can indicate a contaminated fuel tank. Clean the tank, as necessary.

!!! WARNING !!!

If using solvent to clean pump components or tank, observe the solvent manufacturer's recommendations for safe use and disposal.

5. Clean the coverplate and O-ring. Coat the O-ring lightly with grease.
6. Place the strainer in the cavity.
7. Ensure the coverplate O-ring is properly seated and tighten the strainer access coverplate.

Replace Gears and Drive Key

1. Turn the pump OFF and disconnect from power.
2. Remove the gear coverplate. (Figure 6)

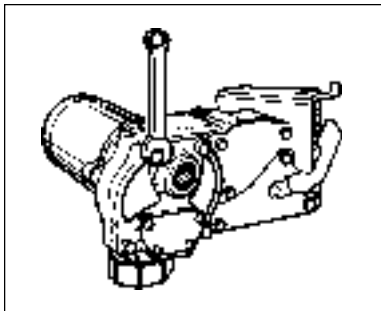


Figure 6

3. Lift the drive key and gears from the pump. (Figure 7)

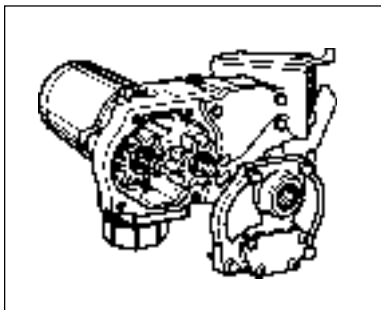


Figure 7

4. Inspect the gears and key for wear and damage. Replace, as necessary.
5. Wipe the gear cavity with a clean cloth.
6. Replace the gears. Make sure they turn freely.
7. Replace the drive key.
8. Make sure the gear coverplate O-ring is securely in place. Tighten the coverplate to the housing.

Clean or Replace Bypass Poppet

1. Turn the pump OFF and disconnect from power.
2. Using a drive ratchet or extension, remove the pipe plug from the top outlet port. (Figure 8)

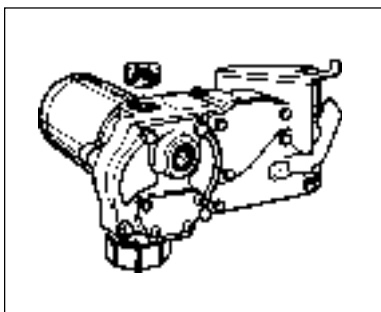


Figure 8

3. Remove the gear coverplate and O-ring from the pump housing.
4. Lift the drive key and two gears from the pump.

5. To clean the bypass poppet:
 - a. With a clean cloth, wipe the poppet cavity through the top outlet port.
 - b. Push down on the poppet until the poppet O-ring is exposed inside the housing. (Figure 9)

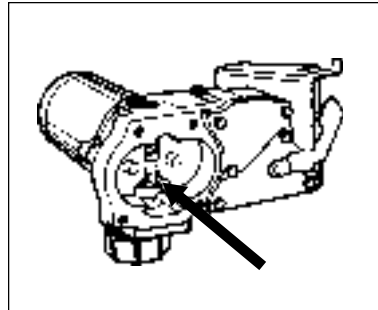


Figure 9

- c. Using a clean cloth, rotate the poppet and clean it thoroughly.
6. To remove or replace the bypass poppet:
 - a. As above, push down on the poppet until the O-ring is exposed.
 - b. Remove the O-ring with a small screwdriver or similar tool. Take care not to damage the poppet or O-ring. (Figure 10)

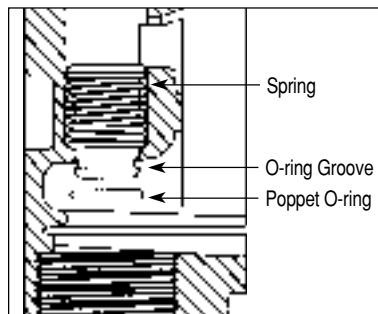


Figure 10

- c. From inside the housing, use a small screwdriver to push the poppet and spring through the top outlet port. (Figure 11)

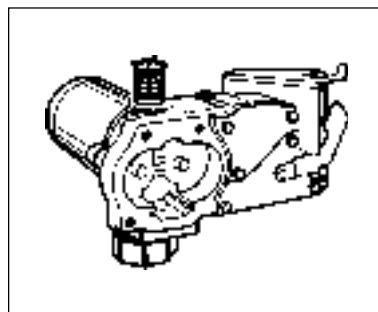


Figure 11

- d. Wipe the poppet and gear cavities with a clean cloth.
 - e. Replace the poppet, O-ring, and spring, as necessary.
- NOTE: Replace O-ring if damaged, swollen, or loose-fitting.
7. To assemble, place the spring and poppet into the poppet cavity through the top outlet port. Compress the poppet into the housing until the poppet appears in the lower chamber. (see Figure 10) Coat the O-ring lightly with grease and slip over the poppet head. Make sure the O-ring is well-seated.

8. Push on the poppet through the top outlet port to make sure it moves freely.
9. Install the pipe plug again.
10. Replace the gears and drive key. Make sure gears turn freely with the key removed.
11. Make sure the gear coverplate O-ring is in place. Tighten the coverplate to the pump housing.

Service Motor Wiring

1. Turn the pump OFF and disconnect from power.
2. Remove the electrical coverplate from the pump housing. (Figure 12)

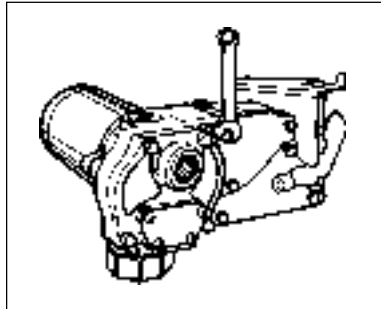


Figure 12

3. Inspect the wiring connections and cavity. (Figure 13)

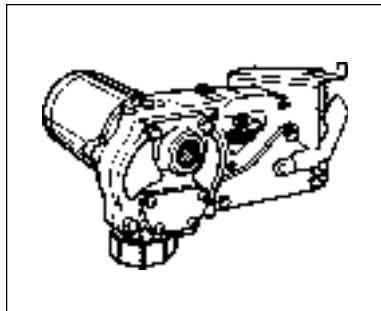


Figure 13

NOTE: If permanent wiring is damaged or corroded, the pump must be returned to the factory for wire replacement.

4. Assemble again. Make sure the O-ring is in place and the coverplate is tightened securely.

Model M-240S

To replace fuse on Model M-240S:

NOTE: The pump may remain on the tank during fuse replacement.

1. Turn the pump OFF and disconnect from power.
2. Locate the fuse holder on the end of the power cord assembly.
3. Push ends of the fuse holder together and twist. Replace the blown fuse. See Specifications for proper amperage.

Replace Power Switch

1. Turn the pump OFF and disconnect from power.
2. Remove the switch coverplate from the pump housing. (Figure 14)

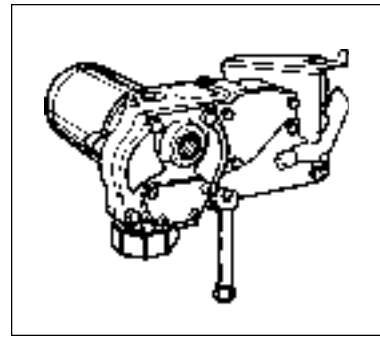


Figure 14

3. Remove switch mounting plate from the pump housing.
4. Remove the torx head screw, then remove the switch assembly. (Figure 15)

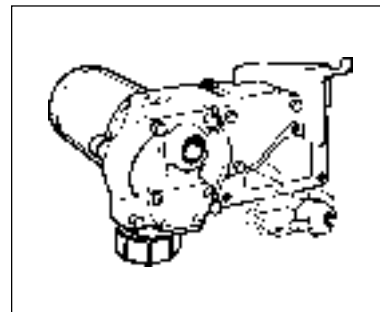


Figure 15

5. Models M-150S and M-180S: Remove one pump wire from the back of the switch and one wire from the circuit protector.
Model M-240S only: Remove both pump wires from the back of the switch.
6. Install a new switch by reversing the above procedure. Insert the switch assembly into the pump cavity. Place the red wire between the circuit breaker and the wall of the pump. Make sure the O-ring is seated properly before tightening the switch coverplate.

NOTE: For the proper operation of the switch lever and cam, attach the mounting plate to the switch with a clearance of 0.175 or about 3/16 inch. (Figure 16)

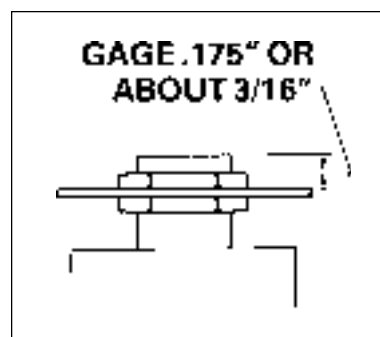


Figure 16

Replace Motor Protector

NOTE: The pump can remain on the tank during motor protector replacement.

1. Turn off the pump and disconnect from power.
2. Remove the switch coverplate from the pump housing. (Figure 17)

REPAIR cont'd.

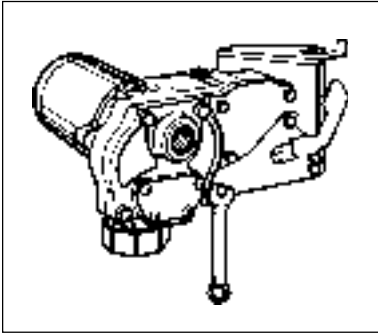


Figure 17

3. Remove switch bracket mounting screw and gently pull switch from switch cavity. (Figure 18)

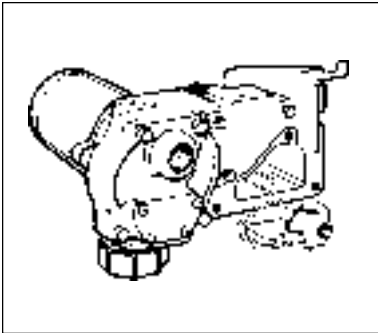


Figure 18

NOTE: Switch shown is for models M-150S and M-180S. Model M-240S switch does not require a jumper wire and circuit breaker.

4. Remove the red wires from the terminals on the back of the switch.
5. Remove the remaining wire on motor protector then remove the motor protector from switch cavity.
6. Install new motor protector by reversing above procedure.

NOTE: Make sure the O-ring is seated properly before tightening the switch coverplate.

Replace Switch Lever or Switch Lever Shaft O-Ring

1. Turn off the pump and disconnect from power.
2. Remove the switch coverplate from the pump housing.
3. Remove the screw connecting the switch cam to the coverplate.
4. Remove the cam and switch lever.
5. Replace the switch lever or switch lever shaft O-ring as needed.
6. Reassemble by reversing the above procedure. Make sure the O-ring is seated properly before tightening the coverplate.

NOTE: In order to preserve the UL Listing or CSA Certification for pump safety, return the entire pump to the factory for motor repair or replacement. For products serviced outside the factory, the UL and CSA nameplates must be defaced to indicate the equipment may no longer meet the requirements for UL Listing or CSA Certification. This does not apply to products serviced outside the factory under the UL program for Rebuilt Motors for Use in Hazardous Locations and the CSA rebuild program.

Replace Motor Shaft Seal

1. Turn the pump OFF and disconnect from power.
2. Remove the gear coverplate, gears, and drive key as described in Gear Replacement instructions.
3. Remove the motor from the pump housing.
4. Remove the motor shaft seal by prying out with a small screwdriver. (Figure 19)

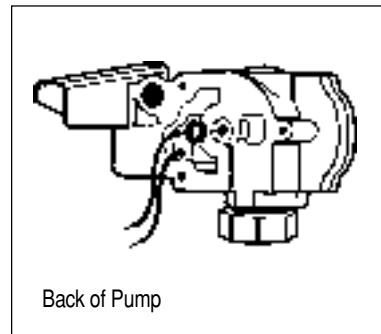


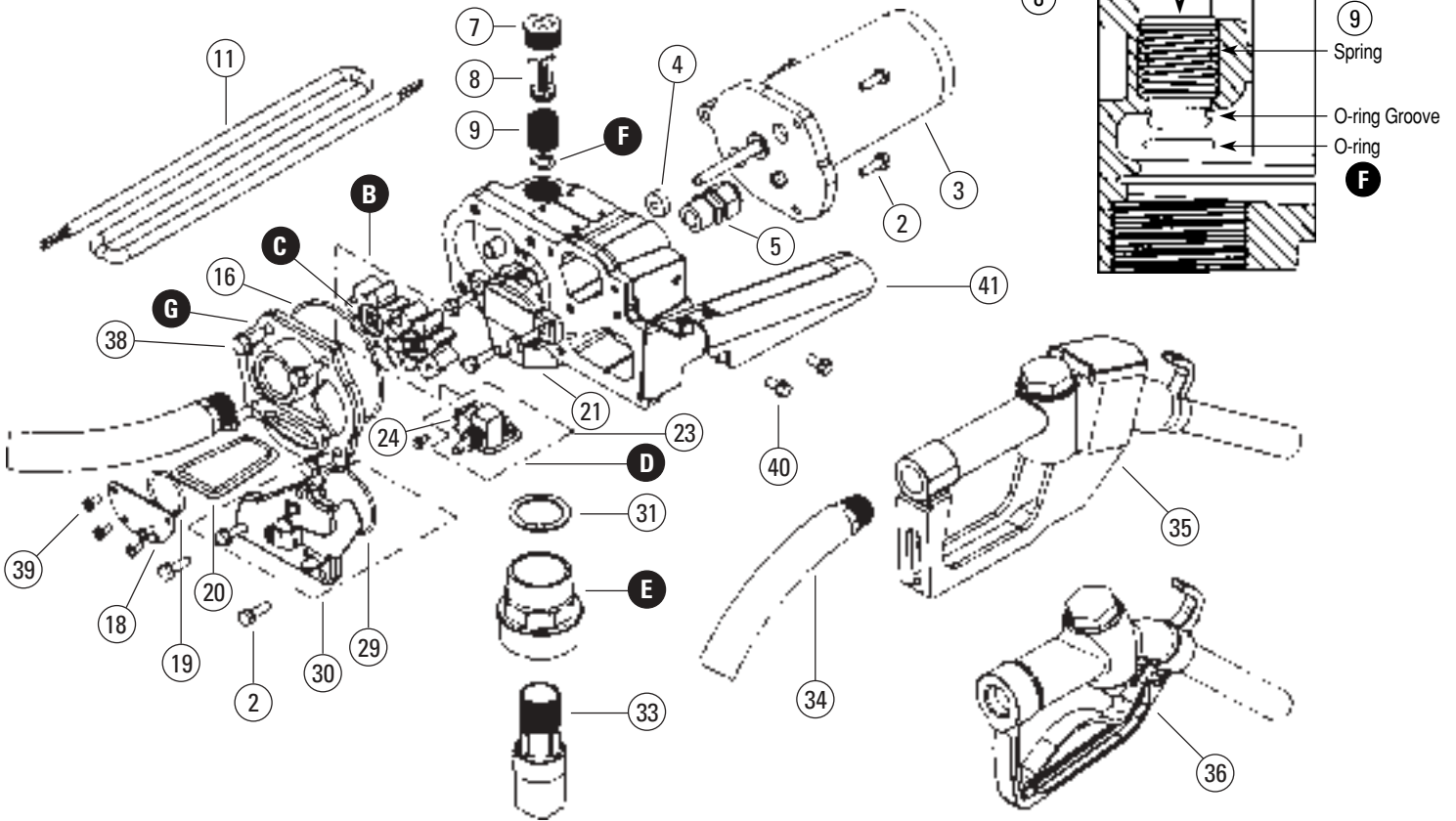
Figure 19

5. Lubricate the gear shaft with WD-40 or a similar penetrating oil.
6. Press a new motor shaft seal evenly in the pump housing until seated. Lubricate the seal with a lightweight motor oil.
7. Gently slide the shaft through the seal until the motor is flush against the pump housing.
8. Tighten the motor to the pump housing. Check for proper installation by working a .0015 feeler gauge around the motor flange. The gauge should not fit between the flange and the housing.
9. Install the gears and drive key as described in Gear Replacement instructions.

TROUBLESHOOTING

SYMPTOM	PROBABLE CAUSE	CORRECTIVE ACTION
A. MOTOR DOES NOT RUN	<ol style="list-style-type: none"> 1. Fuse blown 2. Switch defective 3. Motor burned out 4. Switch or electrical connections faulty (Model M-150S and Model M-180S) 5. Circuit breaker tripped 	<p>Inspect fuse in fuse holder on power cord for Model M-240S. If blown, replace using instructions in the Repair Section.</p> <p>Remove switch coverplate and inspect switch. Replace, if necessary.</p> <p>Replace motor as described in the Repair Section.</p> <p>Inspect for damaged motor protector, defective wiring or switch, or improper electrical connections. Replace as needed and re-install.</p> <p>Turn power off at source. Inspect the pump thoroughly; clean or repair. Reset circuit breaker by turning the power switch off then back on.</p>
B. MOTOR RUNS BUT DOES NOT PUMP	<ol style="list-style-type: none"> 1. Suction pipe clogged, damaged, or missing 2. Gear coverplate or O-ring damaged 3. Strainer clogged or defective 4. Bypass poppet O-ring worn or missing 5. Bypass poppet O-ring dirty 6. Bypass poppet binding or damaged 7. System air leak 8. System air lock 9. Poor connections or low voltage 10. Fuel level low 11. Motor running backwards due to incorrect polarity 	<p>Remove pump from tank. Inspect suction pipe. Clean or replace, as necessary.</p> <p>Remove and inspect the coverplate and O-ring. Replace, as necessary. Refer to the Repair Section on Servicing O-rings.</p> <p>Remove strainer coverplate. Remove and clean strainer. Install again.</p> <p>Inspect O-ring using instructions in the Repair Section. Replace, if necessary.</p> <p>Remove poppet assembly and clean poppet and cavity.</p> <p>Using instructions in the Repair Section, remove the bypass poppet, spring, and O-ring. Clean cavity. Inspect and replace components, as necessary.</p> <p>Tighten all pump fittings and connections. Inspect suction pipe for leaks or damage.</p> <p>This can occur if external filter, meters, or an off-the-shelf automatic nozzle is used. To correct, remove the pipe plug in the top outlet port and fill the gear cavity with fuel. Use of a factory-supplied automatic nozzle is recommended.</p> <p>Make sure electrical connections are secure. Also check battery voltage.</p> <p>Fill tank.</p> <p>Connect red wire to positive (+). Gear with key should turn counterclockwise.</p>
C. LOW FLOW RATE	<ol style="list-style-type: none"> 1. Poor connections or low voltage 2. Strainer partially clogged 3. Suction pipe clogged or damaged 4. Fuel tank empty 5. Using off-the-shelf automatic nozzle 6. System air leak 7. Suction pipe too close to tank bottom 8. Bypass poppet spring weak 	<p>Make sure electrical connections are secure. Also check battery voltage</p> <p>Remove the strainer coverplate. Remove and clean the strainer. Install again.</p> <p>Remove pump from tank. Inspect suction pipe. Clean or replace, as necessary.</p> <p>Fill tank.</p> <p>Factory-supplied automatic nozzle is recommended.</p> <p>Tighten all pump fittings and connections. Inspect suction pipe for leaks or damage. Replace, as necessary.</p> <p>Suction pipe must have at least 1/4 in. (0.6 cm) clearance from the tank bottom.</p> <p>Using instructions in the Repair Section, remove the bypass poppet and inspect spring. Replace, if necessary.</p>
D. MOTOR STALLS WHEN OPERATING IN BYPASS MODE	<ol style="list-style-type: none"> 1. Motor protector activated 2. Gears locked 3. Wiring defective 4. Bypass poppet binding or damaged 5. Motor defective 	<p>Turn off switch. Allow motor to cool, then turn on switch.</p> <p>Remove gear coverplate and inspect gears and drive key. Make sure gears turn freely with the key removed. Replace, if worn.</p> <p>Use Wiring instructions in the Installation Section to ensure proper connections.</p> <p>Using instructions in the Repair Section, remove the bypass poppet, spring, and O-ring. Clean cavity. Inspect components and replace, as necessary.</p> <p>Replace motor as described in the Repair Section.</p>
E. SWITCH FAILS TO OPERATE MOTOR	<ol style="list-style-type: none"> 1. Switch or electrical connections faulty (Model M-240S) 2. Motor burned out 3. Motor protector activated 4. Switch or electrical connections faulty (Models M-150S and M-180S) 	<p>Inspect for a blown fuse, defective wiring or switch, or improper electrical connections. Replace or install again, as necessary. Refer to Switch Replacement instructions in the Repair Section.</p> <p>Replace motor as described in the Repair Section.</p> <p>Turn off switch. Allow motor to cool, then turn on switch.</p> <p>Inspect for damaged motor protector, defective wiring or switch, or improper electrical connections. Replace as needed and re-install.</p>
F. RAPID OVERHEATING OF MOTOR	<ol style="list-style-type: none"> 1. Duty cycle too long 2. Strainer clogged 3. Suction pipe clogged or damaged 4. Gears worn 5. Fuel level low 6. Running too long in bypass mode 	<p>Pump operation should not exceed the standard duty cycle of 30 minutes ON, and 30 minutes OFF. Allow the pump to cool for 30 minutes.</p> <p>Remove strainer coverplate. Remove and clean strainer. Install again.</p> <p>Remove pump from tank. Inspect suction pipe. Clean or replace, as necessary.</p> <p>Remove gear coverplate and inspect gears and drive key. Make sure gears turn freely with key removed. Replace, if necessary.</p> <p>Fill tank.</p> <p>Limit bypass operation to 10 minutes.</p>

ILLUSTRATED PARTS LIST



Item No.	Part No.	Description	No. Req'd.
2	904002-23	Sems Screw, 1/4-20 x 3/4 in.	9
3	119000-1	Motor, 12-volt (UL) (M-150S)	1
	119001-1	Motor, 12-volt (UL) (M-180S)	1
	119000-2	Motor, 24-volt (UL) (M-240S)	1
4	110025-1	Seal, Motor Shaft or (Kit A or H)	1
5	904002-17	Strain Relief Sealing Grip (12-volt & 24-volt) ...	1
7	904001-42	Pipe Plug, 3/4 inch	1
8	110010-1	Bypass Poppet	1
9	110131-2	Spring, Bypass Poppet (except M-180S)	1
	110011-2	Spring, Bypass Poppet (M-180S)	1
11	110265-1	Power Cord, 12-volt, 12 ga. x 15 ft. (4.6 m)	1
	110141-2	Power Cord, 24-volt, with Fuse, 12 ga. x 15 ft. (4.6 m)	1
16	110026-1	Gear Coverplate O-ring or (Kit A or H)	1
18	110024-1	Coverplate, Strainer	1
19	110026-4	Strainer Coverplate O-ring or (Kit A or H)	1
20	110009-1	Inlet Strainer	1
21	110195-01	Coverplate, Electrical	1
23	110277-05	M-150 Switch Assembly	1
	110277-06	M-240S Switch Assembly	1
	110277-07	M-180S Switch Assembly	1
24	902006-31	Motor Protector (M-150S) (shown in kit)	1
	902006-38	Motor Protector (M-180S) (shown in kit)	1
29	110026-6	Switch Coverplate O-ring or (Kit H)	1
30	110276-01	Switch Coverplate Assembly	1
31	110032-1	Gasket, Union Ring	1
33	110100-1	Suction Pipe Assembly	1
34	110187-1	Hose, 3/4 in. x 12 ft., (3.7 m)	1
	110188-1	Hose, 1 in. x 12 ft., (3.7 m) (M-180S only)	1
35	110121-8	Nozzle, Automatic 3/4 in., Unleaded (UL)	1
	110120-1	Hook for Automatic Nozzle	1
36	110155-1	Nozzle, Manual 3/4 in., Unleaded	1
	110155-3	Nozzle, Manual 1 in., Leaded	1
38	904002-24	Sems Screw	4
39	904002-22	Sems Screw	4
40	904006-86	Tapping Screw	2
41	110360-01	Nozzle Cover	1
	110191-1	Jumper Wire (not shown)	1

Accessories and Kits

110016-1	Inlet Fitting (not shown)
110158-1	Union Ring (not shown)
110217-2	Fuse & Holder, 24-volt, 12 amp
110524-1	Armature Assembly Kit (M-150S)
110524-2	Armature Assembly Kit (M-240S)
110525-1	Brush Card Assembly Kit (M-150S, M-240S)
110527-1	Battery Clamp Kit
111501-1	Adapter Kit
906001-4	Pressure Vent Cap (3 psi)
A 110906-1	Wet Seal Kit - Motor Shaft Seal and O-Rings for: Strainer Coverplate; Gear Coverplate; Bypass Poppet
B 110907-1	Gear Kit or (Kit H)
C 110913-2	Drive Key Kit
D 110910-02	Switch Kit (12-volt and 24-volt)
902006-31	M-150S Motor Protector Only
902006-38	M-180S Motor Protector Only
E 110909-1	Bung Adapter Kit
F 110908-1	Bypass Poppet O-Ring Kit or (Kit A or H)
G 110927-04	Gear Coverplate Kit (M-150S, M-240S)
110927-05	Gear Coverplate Kit (M-180S)
H 110504-5	Overhaul Kit - Wet Seal Kit plus: 2 Gears; Drive Key; O-Ring for Switch Coverplate

12 -VOLT SPECIFICATIONS

Applications

Fluids: Low viscosity petroleum fuels such as gasoline, kerosene, and diesel fuel.

Operating Environment: Outdoor, year-round with an operating temperature range of -20 to +125°F (-29 to +52°C). Designed for mounting on above-ground, vented petroleum storage tanks.

Pump Housing

Lightweight, corrosion-resistant, cast aluminum body. Convenient union ring for easy installation.

Performance

Pump Rate:	<u>M-150S</u>	<u>M-180S</u>
	Up to 15 GPM (57 LPM)	Up to 18 GPM (68 LPM)

Duty Cycle:	30 min. on, 30 min. off
Suction Lift:	Manual Nozzle: Up to 5.5 ft. (1.7 m) Automatic Nozzle: Up to 4.8 ft. (1.5 m)

Electrical Specifications

Input:	12 volt DC
Cord:	15 ft. (4.6m) of 12 gauge
Current Draw:	M-150S Manual = 18 amps/Auto = 19 amps M-180S Manual = 20 amps/Auto = 21 amps
M-150S Motor:	1900 RPM, UL Listed, CSA Certified
M-180S Motor:	2000 RPM, UL Listed, CSA Certified

Mechanical Connections

Bung:	2 in. NPT
Inlet:	1 in. NPT
M-150S Outlet:	3/4 in. NPT
M-180S Outlet:	1 in. NPT

Accessories

- M-150S standard 3/4 in. x 12 ft. (3.7m) Buna-N statically grounded discharge hose
- M-150S standard 3/4 in. manual unleaded nozzle
- M-150S standard 3/4 in. automatic shutoff unleaded nozzle
- M-180S standard 1 in. x 12 ft. (3.7m) Buna-N statically grounded discharge hose
- M-180S standard 1 in. manual leaded nozzle
- M-180S standard 1 in. automatic shutoff unleaded nozzle

Weight

M-150S Shipping:	23 lbs. (10.5kg) with manual nozzle 24 lbs. (10.8kg) with automatic nozzle
M-180S Shipping:	26.5 lbs. (12.0kg) with manual nozzle 27.0 lbs. (12.2kg) with automatic nozzle

24 -VOLT SPECIFICATIONS

Applications

Fluids: Low viscosity petroleum fuels such as gasoline, kerosene, and diesel fuel.

Operating Environment: Outdoor, year-round with an operating temperature range of -20 to +125°F (-29 to +52°C). Designed for mounting on above-ground, vented petroleum storage tanks.

Pump Housing

Lightweight, corrosion-resistant, cast aluminum body. Convenient union ring for easy installation.

Performance

Pump Rate:	Up to 15 GPM (57 LPM)
Duty Cycle:	30 min. on, 30 min. off
Suction Lift:	Manual Nozzle: Up to 5.5 ft. (1.7 m)

Electrical Specifications

Input:	24 volt DC
Cord:	15 ft. (4.6m) of 12 gauge
Current Draw:	9 amps
Motor:	1900 RPM, UL Listed, CSA Certified

Mechanical Connections

Bung:	2 in. NPT
Inlet:	1 in. NPT
Outlet:	3/4 in. NPT

Accessories

- Standard 3/4 inch x 12 ft. (3.7m) Buna-N statically grounded discharge hose
- Standard 3/4 inch manual unleaded nozzle

Weight

Shipping: 23 lbs. (10.5kg)

PARTS AND SERVICE

For warranty consideration, parts, or other service information, please contact your local distributor. If you need further assistance, contact the GPI Customer Service Department in Wichita, Kansas, during normal business hours.

A toll free number is provided for your convenience.

1-800-835-0113

To obtain prompt, efficient service, always be prepared with the following information:

1. The model number of your pump.
2. The serial number or manufacturing date code of your pump.
3. Part descriptions and numbers.

Part information can be obtained from the Illustrated Parts List.

For warranty work, always be prepared with your original sales slip or other evidence of purchase date.

Please contact GPI before returning any parts. It may be possible to diagnose the trouble and identify needed parts in a telephone call. GPI can also inform you of any special requirements you will need to follow for shipping fuel dispensing equipment.

CAUTION: Do not return the pump or parts without authority from the Customer Service Department. Due to strict government regulations, GPI cannot accept parts unless they have been drained and cleaned.

SAVE THESE INSTRUCTIONS

Limited Warranty Policy

Great Plains Industries, Inc. 5252 E. 36th Street North, Wichita, KS USA 67220-3205, hereby provides a limited warranty against defects in material and workmanship on all products manufactured by Great Plains Industries, Inc. This product includes a 2 year warranty. Manufacturer's sole obligation under the foregoing warranties will be limited to either, at Manufacturer's option, replacing or repairing defective Goods (subject to limitations hereinafter provided) or refunding the purchase price for such Goods theretofore paid by the Buyer, and Buyer's exclusive remedy for breach of any such warranties will be enforcement of such obligations of Manufacturer. The warranty shall extend to the purchaser of this product and to any person to whom such product is transferred during the warranty period.

The warranty period shall begin on the date of manufacture or on the date of purchase with an original sales receipt. This warranty shall not apply if:

- A. the product has been altered or modified outside the warrantor's duly appointed representative;
- B. the product has been subjected to neglect, misuse, abuse or damage or has been installed or operated other than in accordance with the manufacturer's operating instructions.

To make a claim against this warranty, contact the GPI Customer Service Department at 316-686-7361 or 800-835-0113. Or by mail at:
Great Plains Industries, Inc.
5252 E. 36th St. North
Wichita, KS, USA 67220-3205

The company shall, notify the customer to either send the product, transportation prepaid, to the company at its office in Wichita, Kansas, or to a duly authorized service center. The company shall perform all obligations imposed on it by the terms of this warranty within 60 days of receipt of the defective product.

GREAT PLAINS INDUSTRIES, INC., EXCLUDES LIABILITY UNDER THIS WARRANTY FOR DIRECT, INDIRECT, INCIDENTAL AND CONSEQUENTIAL DAMAGES INCURRED IN THE USE OR LOSS OF USE OF THE PRODUCT WARRANTED HEREUNDER.

The company herewith expressly disclaims any warranty of merchantability or fitness for any particular purpose other than for which it was designed.

This warranty gives you specific rights and you may also have other rights which vary from U.S. state to U.S. state.

Note: In compliance with MAGNUSON MOSS CONSUMER WARRANTY ACT – Part 702 (governs the resale availability of the warranty terms).



5252 East 36th Street North
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www.gpi.net

1-800-835-0113

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