



M-150S-EM & M-150S-EA FUEL PUMP

OWNER'S MANUAL



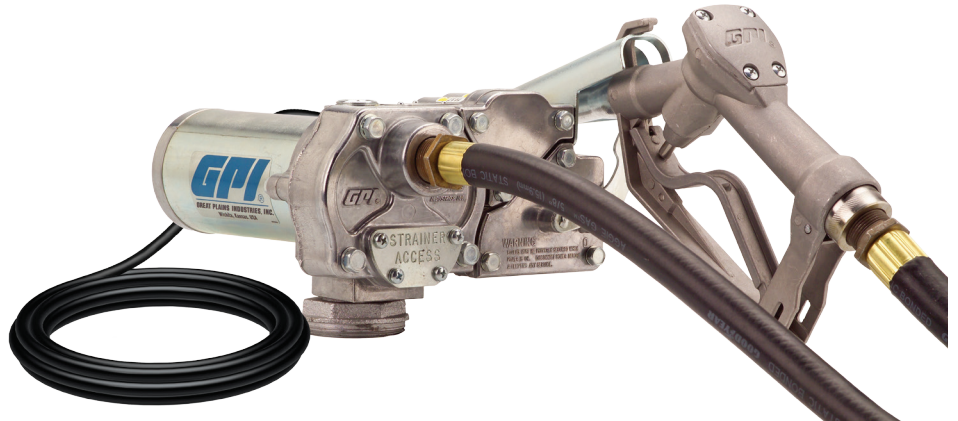
DO NOT RETURN THIS PRODUCT TO THE STORE!

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

800-835-0113,
316-686-7361

or

email: gpisales@gplains.com



Check out the [Great Plains Industries, Inc. YouTube](#)
channel to see Installation and Troubleshooting videos
for the M-150S Fuel Transfer Pump.

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

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 blends, diesel fuel blends and kerosene. 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.

Victor Lukic, President
Great Plains Industries, Inc.

GENERAL INFORMATION

The purpose of this manual is to assist you in installing, operating and maintaining your GPI M-150S 12-volt DC pump, with manual or automatic nozzle.

An automatic bypass valve prevents pressure build up when the pump is on with the nozzle closed. To avoid damage, do not run the pump more than 10 minutes with the nozzle closed.

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

This pump is designed for use **only** with gasoline (up to 15% alcohol blends such as E15), diesel fuel (up to 20% biodiesel blends such as B20) and kerosene. **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.



This pump is designed to operate on a typical DC automotive electrical system. The pump is designed to operate with the appropriate DC voltage at the motor leads and the ratings are determined at this voltage. Performance may vary due to length of power cord, battery condition or output from the vehicle charging system that will affect system voltage.

Do not leave the system running without fluids. "Dry running" can damage the pump.

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

SAFETY INSTRUCTIONS



The following safety alert symbols are used in this manual. Obey all safety messages that follow this symbol to avoid possible injury or death.

DANGER

DANGER indicates a hazardous situation which, if not avoided, will result in serious injury or death.

WARNING

WARNING indicates a hazardous situation which, if not avoided, could result in serious injury or death.

CAUTION

CAUTION indicates a hazardous situation which, if not avoided, may result in minor or moderate injury.

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.
- ensure that all equipment operators have access to

adequate instructions concerning safe operating and maintenance procedures.

Observe all safety precautions concerning safe handling of petroleum fuels.

To ensure 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 ensure proper grounding during initial installation and after any service or repair procedures. For your safety, please take a moment to review the warnings below.

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.

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

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.

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.

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.

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

INSTALLATION

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 you require a greater initial prime height, coat the gears with fluid by removing the plug on the top of the pump and pour a small quantity of motor oil into the gear cavity. Replace the plug and try again. A foot valve with pressure relief may be needed to maintain prime.

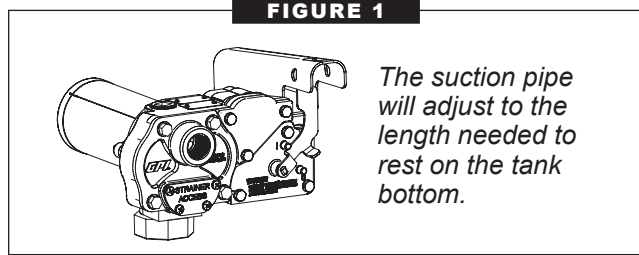
Make sure all threaded fuel connections are wrapped with three to four turns of thread tape or a pipe thread sealant approved for use with petroleum fuels.

Install Bung Adapter and Suction Pipe

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

Install Pump on Tank

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



- 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.
- 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.

Connect to a Power Source

Please consult the Owner's Manual for your vehicle before proceeding.

NOTE: Model M-150S should be connected to a 12-volt DC power source. Do not attempt installation on a 24-volt or 115-volt system.

WARNING: Do not attempt to power the pump from vehicle wiring smaller than 12 gauge, such as the cigarette lighter wire, as these thin wires could overheat and cause a fire.

NOTE: This pump is pre-wired for installation in CLASS I, DIVISION 2 locations such as portable fuel tanks, trailers, etc. Connection to a battery will depend upon the application.

WARNING: If pump is to be installed in a CLASS I, DIVISION I location please contact GPI for the appropriate product.

Verify switch is in OFF position, then route the electrical wires to the source of the vehicle power system. Be sure to support the wires as necessary and protect them from sharp edges, heat or anything that could damage the wires.

Step 1

If the power cord provided is too long cut to desired length. Carefully strip 3 to 4 inches (7.5 to 10 cm) of outer insulation from end of power cord. **DO NOT CUT INNER WIRES.** Next, strip ¼ inch (0.6 cm) of insulation from the black and red power cord wires.

Step 2

For a negative ground system, first disconnect the vehicle's ground wire, and then wire as follows: Insert one end of the fuse (J) into the wire connector (H) and crimp. Insert the red power cord wire into the other end of the wire connector and crimp. Make sure the

fuse is positioned outside of hazardous areas and as close to the battery as possible. Make a solid electrical connection to the grounded side of the battery with the remaining black wire. Connecting directly to the battery terminal or the end of the battery cable is recommended.

Step 3

For temporary wiring: Connect the red and black power cords to alligator clamps (not included) (Figure 6).

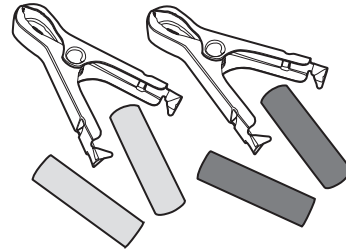


Figure 6

Step 4

For permanent wiring:

Connect the red and black power cords to terminal post rings (not included) (Figure 7).

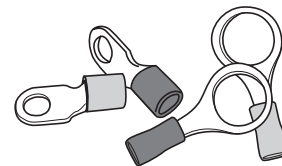


Figure 7

Step 5

Check all connections to make sure they are connected per instructions and all electrical codes. The installation is now complete.

WARNING

Carefully route the power cord to the battery, protecting the power cord from hot surfaces, sharp edges or anything that could damage the power cord, resulting in a short circuit.

A 25 amp fuse is provided to protect the power cord and motor. Install fuse in the red wire of the power cord as close as possible to the battery. Connect the red wire of the fuse to the positive (ungrounded) side of battery. Connect black wire to the negative (grounded) side of battery.

Failure to follow these instructions could result in death, serious injury or loss of equipment due to short circuit, fire or explosion.

DANGER

If the pump is to be installed in a Hazardous (Classified) location, it must be installed by a licensed electrician and conform to National Fire Protection Association (NFPA) codes 30 and 70. You as the owner, are responsible for seeing that the installation and operation of your pump complies with NFPA codes as well as any applicable state and local codes. Rigid conduit must be used to install wiring. Note that the lead wires are factory-sealed isolating the motor from the junction box.

Failure to follow these wiring instructions may result in death or serious injury from shock, fire or explosion.

Install Hose and Nozzle

After sealing threads, tighten the hose into the pump outlet

and the nozzle on the hose. The nozzle can be placed in the nozzle holder only when the pump is off.

ALWAYS FOLLOW SAFETY PRECAUTIONS WHEN OPERATING THIS EQUIPMENT. REVIEW THE SAFETY INSTRUCTIONS.

OPERATION

Before each use, repair leaks around seals or connections. Make sure hoses are in good condition and connections are tight. Make sure the work area is dry. **MAKE SURE THE PUMP IS PROPERLY GROUNDED.** Repair any corroded or damaged wiring before use. Ensure the tank contains enough fuel. Make sure the fuel is not contaminated with debris.

To Dispense Fuel

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

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

If you require a greater initial prime height, coat the gears with fluid by removing the plug on the top of the pump and pour a small quantity of motor oil into the gear cavity. Replace the plug and try again. A foot valve with pressure relief may be needed to maintain prime.

Turn on the pump by removing the nozzle from the holder and pushing up the switch lever. Insert the nozzle into the receiving tank and squeeze the handle to start fuel flow. When done, release the nozzle handle, turn the pump off, and return the nozzle to its holder.

This pump is designed to be self-priming. If fuel is not delivered within 15 to 20 seconds, turn the pump off and refer to priming information in the Troubleshooting Section.

An automatic bypass valve prevents pressure build up when the pump is on with the nozzle closed. To avoid pump damage, do not run the pump more than 10 minutes with the nozzle closed.

Motor Protector

The pump contains a motor protector that provides added protection against motor damage. It must be reset manually.

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

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.

Do not use this pump for water, chemicals or herbicides. Dispensing any fluid other than those listed in this manual will damage the pump. Use of the pump with unauthorized fluids will void the warranty.

To Clean or Replace Strainer

Turn the pump off and disconnect from power. Remove the strainer coverplate. Remove the inlet strainer and inspect for damage or clogs. 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.

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

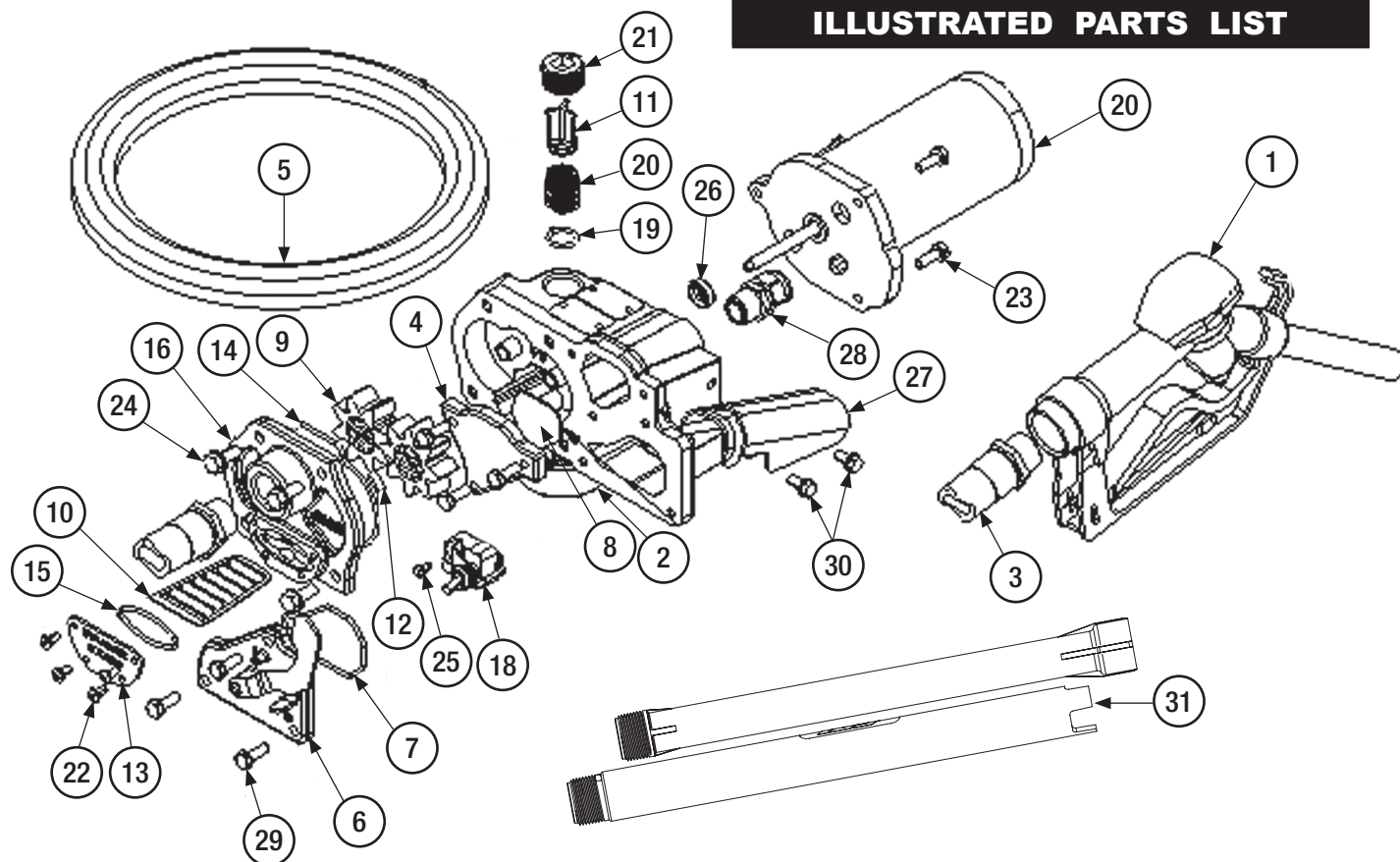
SPECIFICATIONS

Applications for EZ-8	Low viscosity petroleum fuels:
	Gasoline (up to 15% alcohol blends such as E15)
	Diesel fuel (up to 20% biodiesel blends such as B20)
	Kerosene
	Designed for permanent mounting on vented storage tanks
Pump housing	Lightweight, corrosion-resistant, cast aluminum body.
Performance	
Pump rate	Up to 15 GPM (57 LPM)
Duty cycle	30 minutes ON, 30 minutes OFF
Suction lift	Manual nozzle: Up to 5.5 ft. (1.7m)
	Automatic nozzle: Up to 4.8 ft. (1.5m)
Operating temperature	-20°F to +125°F (-29°C to +52°C)
Operating pressure	15 PSI
Electrical specifications	Input: 12-volt DC
	Current draw: 18 amp
	Motor protection: 20 amp circuit breaker
	Motor: 1900 RPM, UL Listed, CSA Certified. 1/5 HP (150 watts)
Mechanical connections	Bung: 2 in. NPT, Inlet: 1 in. NPT, Outlet: 3/4 in. NPT
Accessories	3/4 in. x 10 ft. (3.0m) Buna-N electrically conductive discharge hose
	Standard 3/4 in. manual unleaded nozzle
	Standard 3/4 in. automatic unleaded nozzle
	Cord: 18 ft. (5.5m), 12/2 gauge
	Fuse: 20 amp
	Strain relief grip
Shipping weight	23 lbs. (10.5 kg) with manual nozzle
	24 lbs. (10.8 kg) with automatic nozzle

TROUBLESHOOTING

SYMPTOM	PROBABLE CAUSE	CORRECTIVE ACTION
A. SWITCH FAILS TO OPERATE MOTOR	<ol style="list-style-type: none"> 1. Motor protector activated. 2. Fuse blown. 3. Switch or electrical connections faulty. 4. Motor burned out. 	<p>Turn off switch. Allow motor to cool, then turn on switch.</p> <p>Inspect fuse in fuse holder on power cord. If blown, replace.</p> <p>Inspect for damaged motor protector, defective wiring or switch, or improper electrical connections. Replace as necessary.</p> <p>Inspect and replace as necessary.</p>
B. MOTOR RUNS BUT DOES NOT PUMP FLUID	<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, 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.</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 (+) ungrounded side of battery. Gear with key should turn counterclockwise.</p>
C. LOW FLOWRATE	<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. 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>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, blown fuse, defective wiring or switch, or improper electrical connections. Replace as needed and re-install.</p>
F. RAPID OVER-HEATING 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



Individual Parts

Item No.	Part No.	Description	Req'd.
1	110155-1	Nozzle, Manual 3/4 in., Unleaded	1
2	110382-501	Inlet Fitting	1
3	110187-2	Hose, 3/4 in. x 3/4 in. x 10 ft.	1
4	110195-02	Coverplate, Electrical	1
5	110265-02	Power Cord, 12 ga. x 18 ft.....	1
6	110276-01	Switch Coverplate Assy	1
7	110026-6	Switch Coverplate O-Ring	1
8	110285-01	Electrical Coverplate Gasket.....	1
9	110907-1	Gear Kit-Includes 2 Gears & Drive Key or (Kit A) 1	1
10	110009-501	Inlet Strainer	1
11	110010-501	Bypass Poppet.....	1
12	110017-6	Motor Shaft Key.....	1
13	110024-1	Coverplate, Strainer.....	1
14	901003-70	Gear Coverplate O-Ring	1
15	110026-4	Strainer Coverplate O-Ring.....	1
16	110067-2	Gear Coverplate	1
17	110131-2	Spring, Bypass Poppet	1
18	110277-505	Switch Assy, M-150S (Switch, Breaker, Bracket)..	1
19	118017-3	O-Ring.....	1
20	119200-551	Motor, 12-Volt (M-150).....	1
21	904001-42	Plug, Pipe, 3/4-14 NPT	1
22	904002-22	Sems Screw	4
23	904002-23	Sems Screw, 1/4-20 x 3/4 in.....	3
24	904002-24	Sems Screw	4
25	904003-84	Tapping Screw.....	1
26	11002502	Motor Shaft Seal.....	1

Individual Parts

Item No.	Part No.	Description	Req'd.
27	110360-02	Nozzle Cover.....	1
28	904002-517	Strain Relief Sealing Grip	1
29	904002-23	Sems Screw & Washer Assy	6
30	904006-86	Tapping Screw.....	2
31	110241-01	Telescoping Suction Pipe.....	1

Kits and Accessories

Part No.	Description
110500-02	25 Amp Fuse Kit
110524-1	Armature Assy Kit (includes Armature Assy)
110527-1	Battery Clamp Kit (includes 2 Battery Clamps)
110525-1	Brush Card Assy Kit (includes Brush Holder Assy)
110504-1	Fuel Pump Overhaul Kit (includes 2 Gears, Drive Key & O-Rings)
110907-1	Gear Kit (includes 2 Gears & Drive Key)
110526-1	Motor Housing Kit (includes Motor Housing Assy)
110908-1	Poppet Seal Kit (includes Poppet O-Ring)
906001-4	Pre-Vent Vapor Control Cap (3 psi)
110913-2	Spare Key Kit (includes Spare Drive Key)
902007-530	Switch Kit (includes Switch only)
110906-1	Wet Seal Kit (includes O-Rings & Motor Shaft Seal)

PARTS AND SERVICE

In order to preserve the UL Listing for the motor, do not attempt to service the motor. For products serviced outside the factory, the UL nameplate must be defaced to indicate that the equipment may no longer meet the requirements for UL Listing. This does not apply to products serviced outside the factory under the UL program for Rebuilt Motors for Use in Hazardous Locations.

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 from date of purchase as evidenced by the original sales receipt. A 30 month warranty from product date of manufacture will apply in cases where the original sales receipt is not available. Reference product labeling for the warranty expiration date based on 30 months from date of manufacture. 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.

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

GPI will step you through a product troubleshooting process to determine appropriate corrective actions.

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).



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