EZ-8 & EZ-8 METHANOL FUEL PUMP

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**.

Check out the Great Plains Industries, Inc. YouTube channel to see Installation and Troubleshooting videos for the EZ-8 Fuel Transfer Pump.

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To the owner...

Congratulations on receiving your GPI® Fuel Transfer Pump. We are pleased to provide you with a system designed to give you maximum reliability and efficiency.

Your fuel pump is engineered, tested, and approved for use with gasoline blends, diesel fuel blends and kerosene (and methanol for the EZ-8 Methanol model). 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. Our commitment, together with your conscientious use, will ensure years of safe, dependable service from your fuel pump.

Victor Lukic

Victor Lukic, President
Great Plains Industries, Inc.

GENERAL INFORMATION

The purpose of this manual is to assist you installing, operating, and maintaining your GPI EZ-8 or EZ-8 Methanol 12-volt DC pump, with manual nozzle.

NOTE: This pump is not intended for use with an automatic nozzle.

An automatic bypass valve inside the pump prevents pressure build up when the pump is on with the nozzle closed. To avoid motor damage, do not run the pump more than 5 minutes with the nozzle closed.

The rated duty cycle of this pump is **15 minutes ON** and **30 minutes OFF**. Allow the pump to cool for 30 minutes.

The EZ-8 is designed for use with gasoline (up to 15% alcohol blends such as E15), diesel fuel (up to 20% biodiesel blends such as B20) and kerosene only. Do not use this pump for dispensing any fluids other than those for which it was designed. Doing so may damage pump components and will void the warranty.

The EZ-8 Methanol pump is specifically designed for use with methanol and ethanol. The pump is also compatible with gasoline (E15), diesel fuel (B20), and kerosene. Do not use this pump for dispensing any fluids other than those for which it was designed. Doing so may damage pump components and will void the warranty.

This pump is designed to operate on a typical 12-volt DC automotive electrical system. The pump is designed to operate with 12-volts DC at the motor leads, and the ratings are determined at that voltage. Performance may vary due to length of power cord, battery condition, or output from vehicle charging system affecting system voltage.

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 Troubleshoot- ing Section.

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

SAFETY INSTRUCTIONS

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, tank adapter, 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.
- Ensure that all operators who use this pump are educated on its function and precautions. All operators must have convenient access to adequate instructions concerning safe operating and maintenance procedures contained in this manual.
- Ensure all fluid connections to and from the pump are properly sealed and tightened with appropriate thread tape, gaskets, or o-rings.
- If using solvent to clean pump components or tank, observe the solvent manufacturer’s recommendations for safe use and disposal.

Safety Symbols

This symbol indicates a general warning to the user. See additional specific warnings.

This symbol indicates electrical shock hazard. Follow proper installation and maintenance instructions in this manual.

This symbol indicates hot surface. Take care to avoid coming into contact with hot surface.

This symbol indicates automatic restart. Pump contains thermal protection which automatically shuts off motor before overheating. Pump will turn back on automatically after cooling. Turn switch OFF and wait 30 minutes to resume normal pumping. Disconnect power before any inspection or service.

Owner's manual must be read before using, inspecting, or servicing this product.

Disconnect power when product is unattended or in the case of a malfunction. Disconnect power before any inspection, servicing, or maintenance.

Smoking, open flames, fires, and open ignition sources are prohibited in the vicinity of this product.

PARTS & 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 or the GPI Customer Service Department in Wichita, Kansas U.S.A., during normal business hours at:

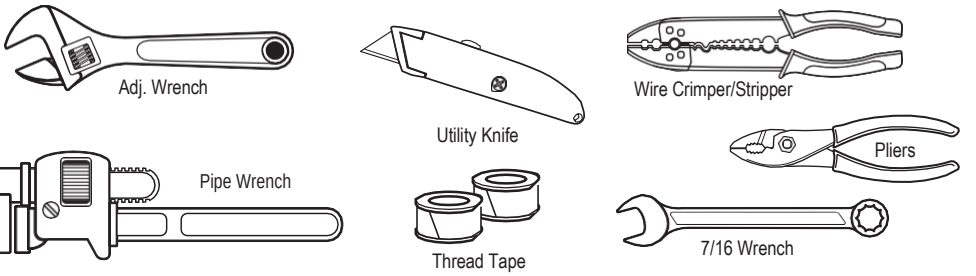
To obtain prompt, efficient service, always be prepared with the model number of your pump, the serial number or manufacturing date code of your pump, and part descriptions and numbers.

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

Please contact GPI before returning any parts. GPI can inform you of special requirements you will need to follow.

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

TOOLS & SUPPLIES NEEDED

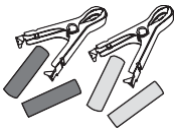


STOP

Before proceeding with installation determine if the pump will be temporarily or permanently wired to your vehicle.

Temporary Wiring

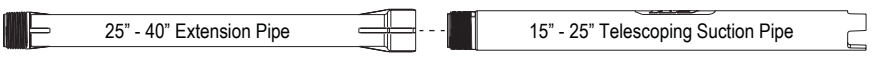
Alligator Clamps
(Not included)



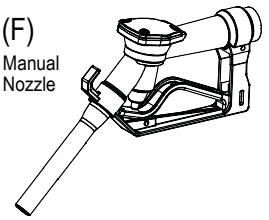
Permanent Wiring

Terminal Post Rings
(Not included)

CONTENTS CHECKLIST

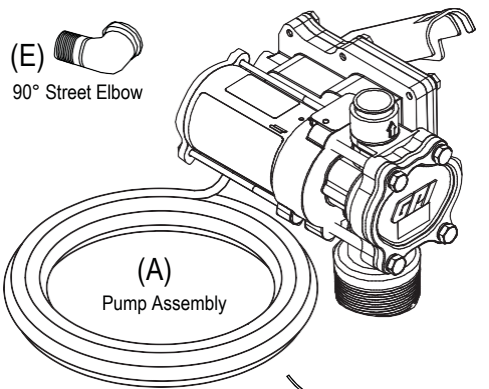


(D) 15" - 40" Telescoping Suction Pipe (2 pc)

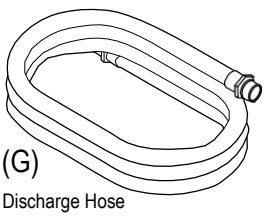


(F) Manual Nozzle

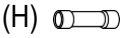
(E) 90° Street Elbow



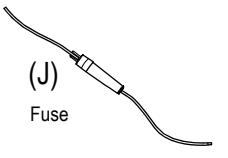
(A) Pump Assembly



(G) Discharge Hose



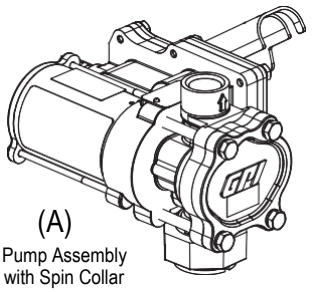
(H) Wire Connector



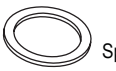
(J) Fuse

EZ-8 Model
with Easy Spin Collar

(Suction pipe not included)



(A) Pump Assembly with Spin Collar



(C) Spin Collar Gasket

(B) Tank Adapter

INSTALLATION

INSTALL PUMP ON TANK

Step 1
Wrap threads of EZ-8 inlet 3 or 4 times with thread tape.
NOTE: *For EZ-8 with Spin Collar, wrap tank adapter bung threads 3 or 4 times with thread tape, and then tighten into tank (Figure 1).*

NOTE: Aluminum Tank Installation *- To prevent thread galling of aluminum fittings, always prepare the threads for assembly using an anti-seize compound such as Loctite® 567TM, Hernon® Drip-stop® 940, or equivalent.*

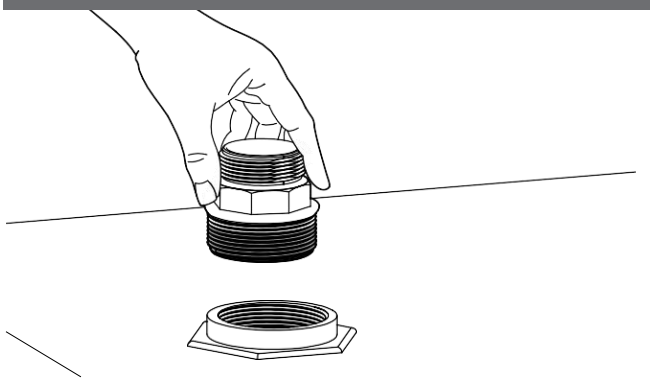


Figure 1

Step 2
Using pliers, remove the plastic plug from inlet port on bottom of pump. ***Note: For EZ-8 models with Spin Collar, place the spin collar gasket (C) into the inlet fitting on bottom of pump (see Figure 2)***.

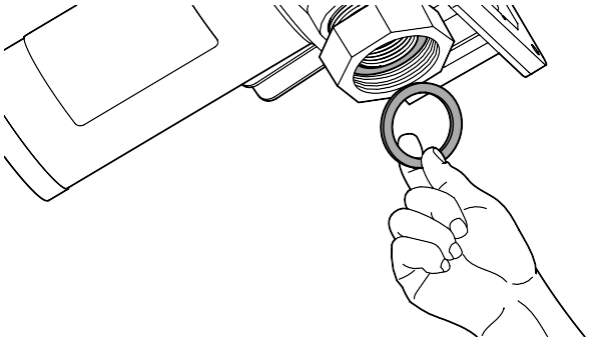


Figure 2

Step 3
Wrap the threaded end of the telescoping suction pipe (D) with 3 to 4 turns of thread tape.

Note: If your tank is 15" - 25" deep, do not use the included suction pipe extension; if your tank is 25" - 40" deep, attach the suction pipe extension.

Step 4
Thread the suction pipe into the pump's inlet fitting and tighten until snug.

Step 5
Before installing the pump on the tank, clean the tank interior of all dirt and foreign material

Step 6
Fully extend the telescoping portion of the suction pipe. Carefully insert suction pipe into the tank opening, position pump and tighten securely.

NOTE: *Be sure tank is properly vented (Vent cap sold separately) (Figure 3).*

NOTE: *For EZ-8 with Spin Collar, securely tighten spin collar.*

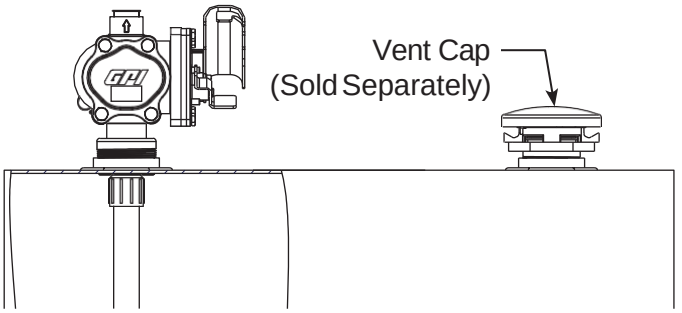


Figure 3

INSTALL ELBOW, HOSE & NOZZLE

Step 1
Seal the threaded ends of the 90° street elbow (E) and both ends of the discharge hose (G) with 3 to 4 turns of thread tape.

Step 2
Using pliers, remove the plastic plug from outlet port on top of pump. Thread the 90° street elbow into outlet port and tighten securely.

Step 3
Thread one end of hose into the 90° street elbow and tighten securely. Thread opposite end of hose into nozzle (F) and tighten securely (Figure 4).

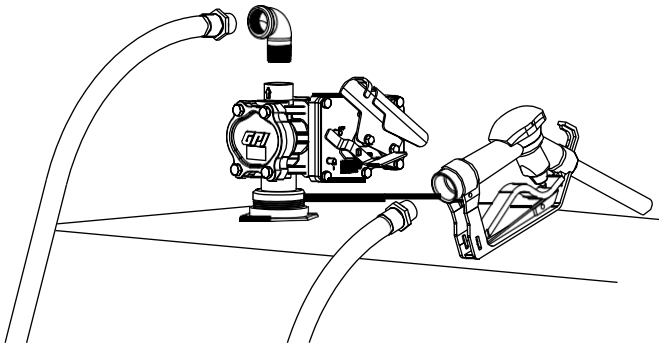


Figure 4

Step 4
Place the nozzle into the nozzle holder on the end of the pump motor housing. Note that the nozzle cannot be placed in the holder unless the pump switch is OFF (Figure 5).

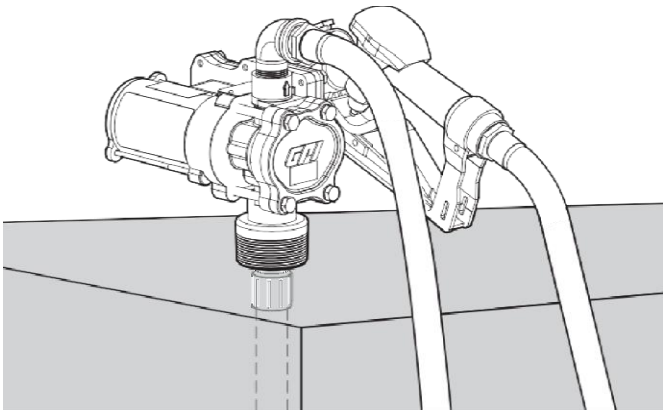


Figure 5

CONNECT TO A POWER SOURCE

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

NOTE: *The pump is designed for use with a 12-volt 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 14 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 5
If the power cord provided is too long, cut to desired length. Using utility knife, 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 insu- lation from the black and red power cord wires.

Step 6
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 7
For temporary wiring: Connect the red and black power cords to alligator clamps (not included) (Figure 6).

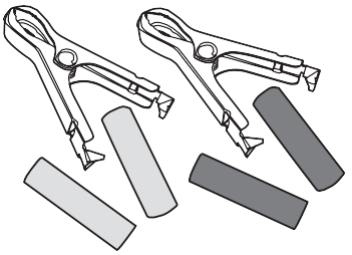


Figure 6

Step 8
For permanent wiring:
Connect the red and black power cords to terminal post rings (not included) (Figure 7).

Figure 7

Step 9
Check all connections to make sure they are connected per instructions and all electrical codes. The installation is now complete.

OPERATION

Always follow safety precautions when operating this equipment. Review the Safety Instructions. 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. Tighten loose tank lids regularly.

To Dispense Fuel

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 5 minutes with the nozzle closed.

After running the pump for a maximum of 15 minutes, allow it to cool for 30 minutes.

Auxiliary Temperature-Limiting Device

The motor is provided with an internal auxiliary temperature-limiting device. Excessive motor heat can trip the device. It resets automatically after the motor has cooled. Pump will restart automatically when cooled if switch is in the “ON” position.

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 that listed in this manual will damage the pump. Use of the pump with unauthorized fluids will void the warranty.

TROUBLESHOOTING

Always disconnect power before repairing or servicing the pump. **Never apply power to the system when any coverplate is removed.**

MOTOR DOES NOT RUN

- Auxiliary temperature-limiting device tripped. Turn pump switch off. Allow motor to cool. Device resets automatically. Try again.
- Fuse blown. Inspect fuse in fuse holder. If blown, replace (See Figure 8).

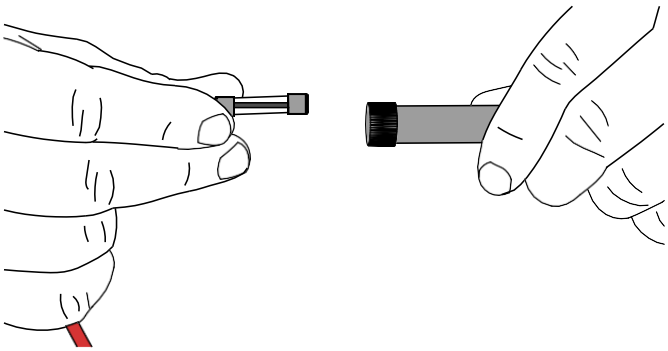


Figure 8

- Switch defective. Remove electrical coverplate and inspect switch (Figure 9). Replace if necessary.

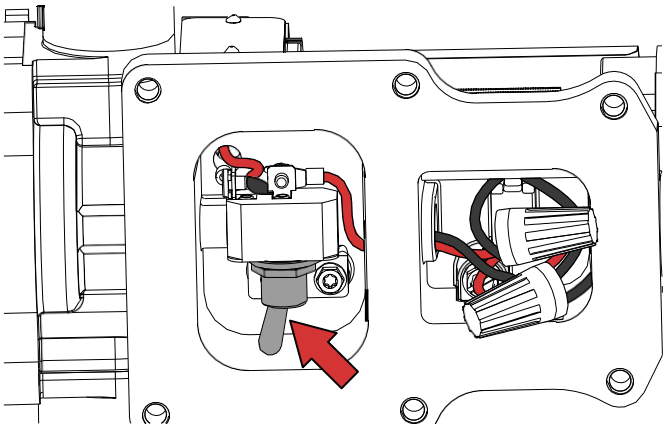


Figure 9

- Switch or electrical connection faulty. Inspect for defective wiring or switch, or improper electrical connections. Replace as necessary.
- Motor burned out. Inspect and replace as necessary.

MOTOR RUNS BUT DOES NOT PUMP FLUID

- Fuel level low. Fill tank.
- Strainer clogged or defective. Inspect and clean as required (See Figure 10).

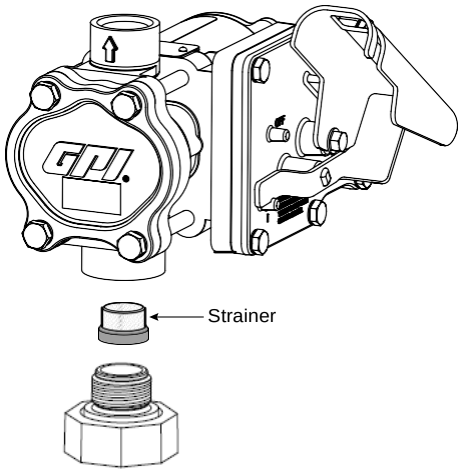


Figure 10

- Suction pipe clogged, damaged, or missing. Remove pump from tank. Inspect suction pipe. Clean or replace, as necessary.
- Gear coverplate or O-ring damaged. Remove and inspect the coverplate and O-ring (See Figure 11). Replace as necessary.

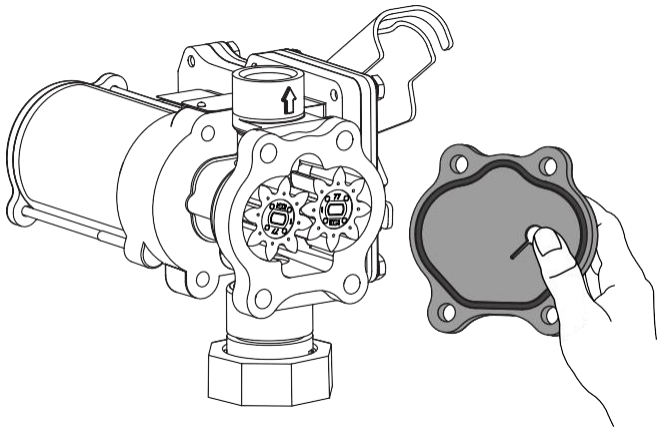


Figure 11

Bypass poppet O-ring worn, missing or dirty. Inspect the O-ring. Replace as necessary. To remove the o-ring, first remove the gear coverplate and drive gears. Using an index finger, push the poppet assembly downward through the outlet port, and then remove the o-ring using an o-ring puller (See Figure 12).

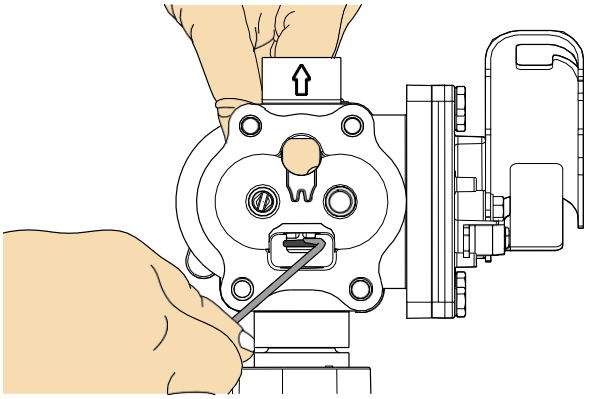


Figure 12

- Bypass poppet binding or damaged. Remove the bypass poppet, spring, and O-ring (Figure 13). Clean cavity. Inspect and replace as necessary.

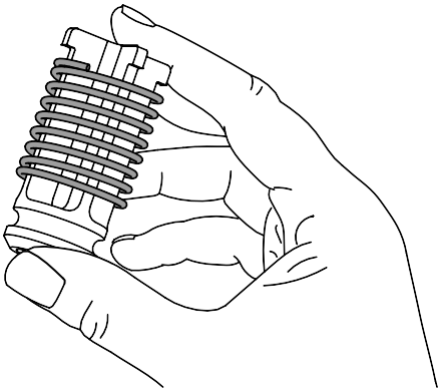


Figure 13

- System air leak. Tighten all pump fittings and connections. Inspect suction pipe for leaks or damage.
- Poor connections or low voltage. Make sure electrical connections are secure. Also check battery voltage.
- Motor running backwards due to incorrect polarity (See Figure 14). Connect red wire to positive (+) ungrounded side of battery.

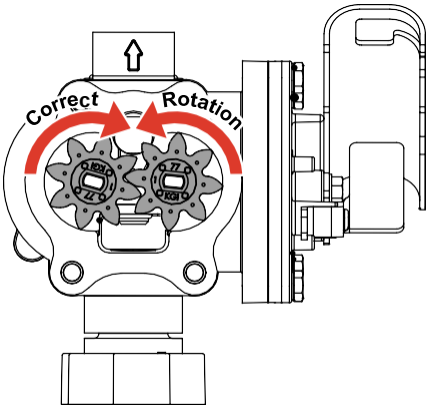


Figure 14

LOW FLOWRATE

- Fuel tank empty. Fill tank.
- Strainer partially clogged. Inspect and clean as required.
- Suction pipe clogged or damaged. Remove pump from tank. Inspect suction pipe. Clean or replace.
- Suction pipe too close to tank bottom. Suction pipe must have at least 1/2 in. (1.2 cm) clearance from bottom of tank.
- System air leak. Tighten all pump fittings and connections. Inspect suction pipe for leaks or damage. Replace as necessary.
- Poor connections or low voltage. Make sure electrical connections are secure. Also check battery voltage.

MOTOR STALLS WHEN OPERATING IN BYPASS MODE

- Bypass poppet binding or damaged. Remove the bypass poppet, spring, and O-ring. Clean cavity. Inspect components and replace as necessary.
- Wiring defective. Use instructions in the Installation Section to ensure proper electrical connections.
- Gears locked. Remove gear coverplate and inspect gears and drive key. Replace, if worn.
- Motor defective. Inspect and replace as necessary.

SWITCH FAILS TO OPERATE MOTOR

- Switch or electrical connections faulty. Inspect for blown fuse, defective wiring/switch, or improper electrical connections. Replace as necessary.
- Motor burned out. Inspect and replace as necessary.

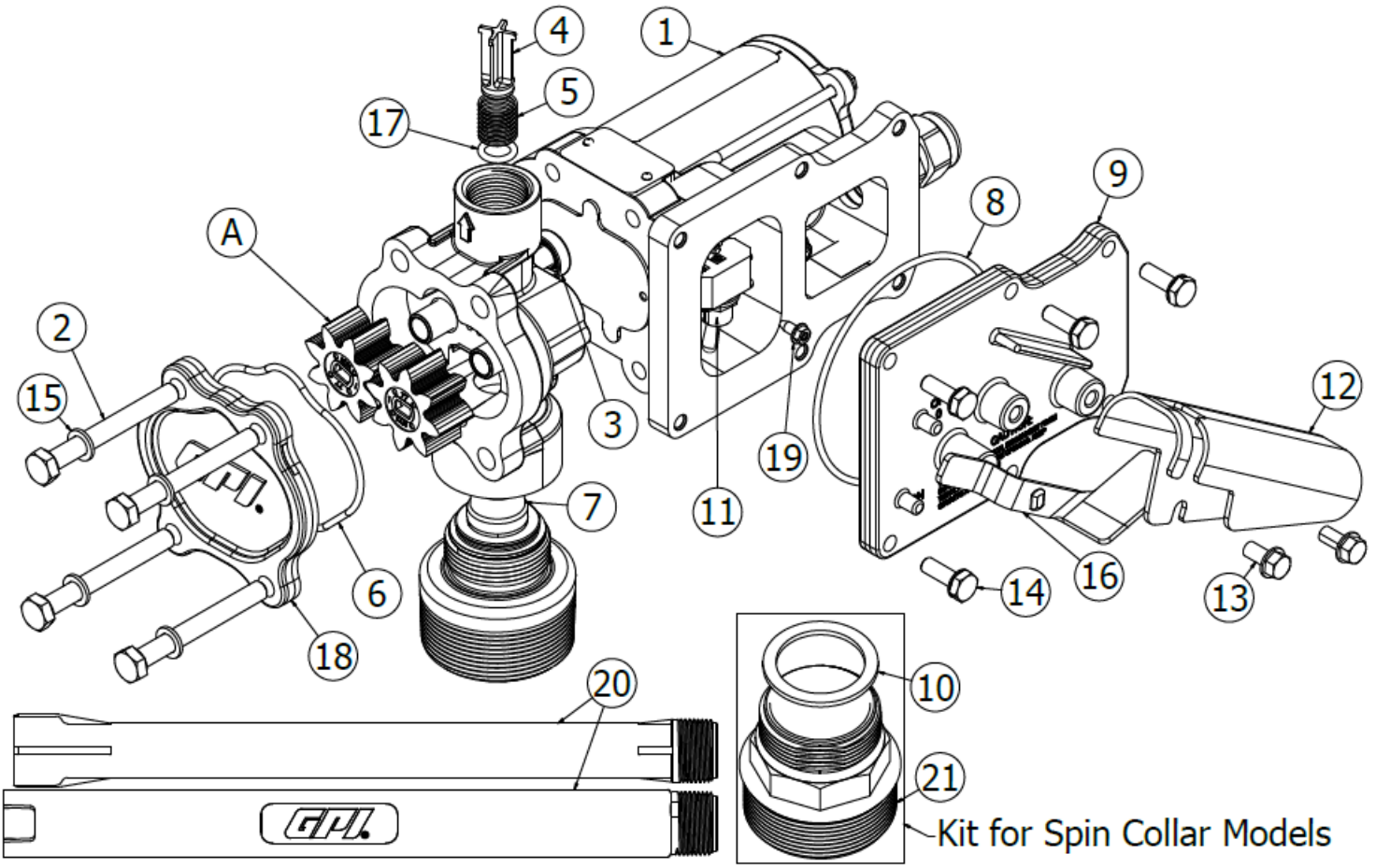
RAPID OVERHEATING OF MOTOR

- Fuel level low. Fill tank.
- Duty cycle too long. Pump operation should not exceed the standard duty cycle of 15 minutes on and 30 minutes off. Allow the pump to cool for 30 minutes.
- Running too long in bypass mode. Limit bypass operation to 5 minutes.
- Strainer clogged. Inspect and clean as required.
- Suction pipe clogged or damaged. Remove pump from tank. Inspect suction pipe. Clean or replace as necessary.

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
Applications for EZ-8 Methanol	Methanol and Ethanol
	Gasoline
	Diesel fuel (up to 20% biodiesel blends such as B20)
	Kerosene
Pump housing	Lightweight, corrosion-resistant, cast aluminum body
Performance:	
Pump rate	Up to 8 GPM (30 LPM)
Duty cycle	15 minutes ON, 30 minutes OFF
Suction lift	Manual nozzle: Up to 5.5 ft (1.7m)
Operating temperature	-20°F to +125°F (-29°C to +52°C)
Operating pressure	15 PSI
Electrical specifications	Input: 12-volt DC
	Current draw: 11 amp
	Motor: 2100 RPM, UL Listed to UL Canadian Standards, 1/10 HP (75 watts)
Mechanical connections	Bung: 2 in. NPT, Inlet: 3/4 in. NPT, Outlet: 3/4 in. NPT
Accessories	5/8 in. x 10 ft. (3.0m) Buna-N electrically conductive discharge hose
	Standard 3/4 in. manual unleaded nozzle
	Cord: 15 ft. (4.6m), 14/2 gauge
	Fuse: 20 amp
	Strain relief grip
Shipping weight	16.0 lbs (7.5 kg) with manual nozzle

ILLUSTRATED PARTS LIST - EZ-8 & EZ-8 METHANOL



Individual Parts

Item No.	Part No.	Description	Req'd.
1	137078-501	Motor, 12-Volt	1
2	904004-2	Screw, Hex Head Cap	4 ea.
3	11002502	Motor Shaft Seal	1
4	137031-01	Bypass Poppet	1
5	137039-06	Spring, Bypass Poppet	1
6	901003-76	O-Ring	1
7	123038-1	Inlet Strainer	1
8	901003-70	O-Ring	1
9	137014-01	Switch Coverplate	1
10	110032-1	Gasket, Union Ring	1
11	902007-530	Switch	1
12	110360-02	Nozzle Cover	1
13	904006-86	Tapping Screw	2 ea.
14	904002-23	SEMS Screw	6 ea.
15	904007-65	Washer, Flat	4 ea.
16	137007-01	Switch Lever Assy	1
17	901003-77	O-Ring	1
18	137012-01	Gear Coverplate	1
	137012-02	Gear Coverplate, ENP (For Methanol models)	1
19	904003-84	Screw, Switch Bracket	1
20	110241-01	Telescoping Suction Pipe NOTE: Does not fit Spin Collar model	1
21	110037-1	Tank Bung Adapter (Spin Collar model)	1

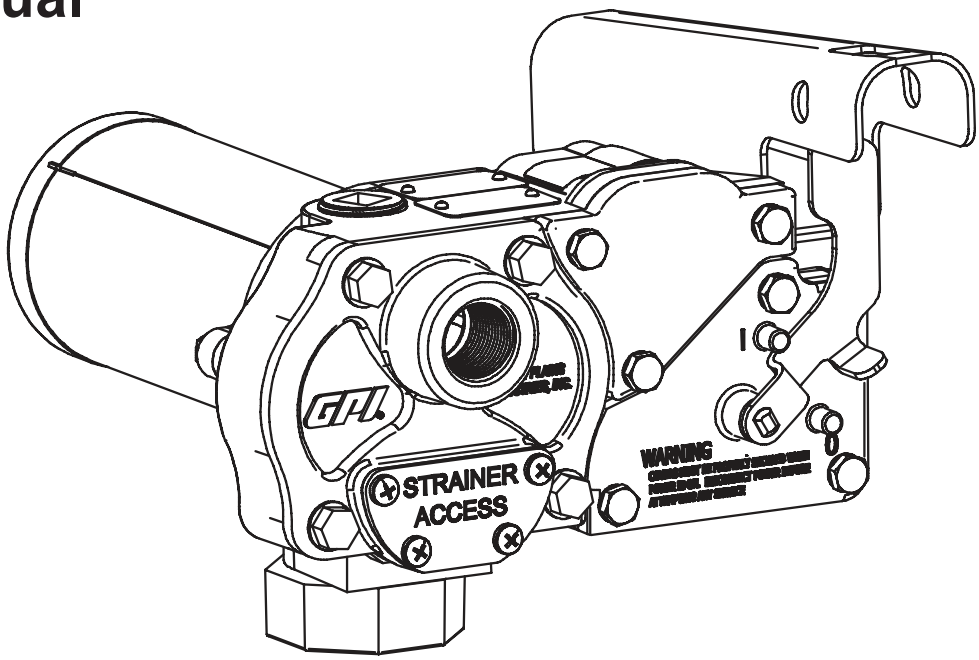
Kits and Accessories

Item No.	Part No.	Description
	110909-1	Kit, Bung Adapter (Spin Collar model)
	13750006	Drive Key Kit (includes Drive Key)
	13750001	Fuse Holder Kit (includes Fuse Holder, Fuse, Wire)
	110032-501	Kit, Gasket, Union Ring (Spin Collar Model)
	13750004	Gear Coverplate Kit (includes Gear Coverplate, O-Ring #6)
A	13750003	Gear Kit (includes 2 Gears & Drive Key) or (Kit B) **For pumps mfg. on or before Jan. 8, 2016**
A	137500-13	Gear Kit (includes 2 Gears, coverplate, #6 o-ring) or (Kit C) **For pumps mfg. Jan. 15, 2016 or later**
	136157-01	Hose, (3/4-inch NPT x 5/8 x 10 ft.)
	110155-1	Nozzle, Manual 3/4 in., Unleaded
B	13750005	Overhaul Kit (includes Drive Key, Motor Shaft Seal, 2 Gears, O-Ring #8, O-Ring #6, O-Ring #18) **For pumps mfg. on or before Jan. 8, 2016**
C	137500-14	Overhaul Kit (includes Motor Shaft Seal #3, 2 Gears, O-Ring #8, O-Ring #6, O-Ring #17, switch lever, shaft seal) **For pumps mfg. Jan. 15, 2016 or later**
	110412-15	Power Cord, 14 ga. x 15 ft. (4.6 m)
	904002-17	Strain Relief Sealing Grip
	13750002	Wet Seal Kit (includes Motor Shaft Seal, O-Ring #6, O-Ring #18

SAVE THESE INSTRUCTIONS

M-150S-Methanol Pump

Owner's Manual



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:

TABLE OF CONTENTS

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, methanol, ethanol, diesel fuel (up to 20% biodiesel such as B20) 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 impor-tant that you follow the operation and maintenance procedures outlined in this manual. We are proud to provide you with a quality product and dedicated sup-port. Together with your conscientious use, we are sure that you will obtain years of safe, dependable service.

Victor Lukic

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 pump. This manual covers the 12-volt DC electric gear pump, model M-150S-Methanol.

The pump should be connected to a 12-volt DC power source.

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.

This pump is specifically designed for use with methanol and ethanol. The pump is also compatible with gasoline, 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 with 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 death or serious injury.

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

⚠ 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.
- insure 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.

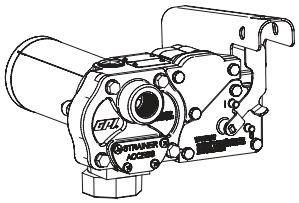
Install Bung Adapter and Suction Pipe

- 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)

FIGURE 1



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

- 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.

Install Electrical Connections

A grounding connection is provided. It is identified as a green colored binding head screw in the electrical cavity.

Connect the pump to a 12-volt DC power source.

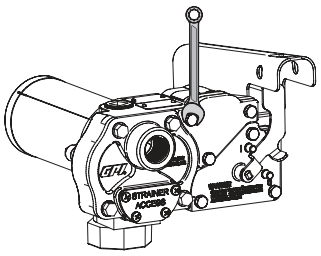
Do not connect this pump to a 115-volt AC or 230-volt AC power source.

For installation in unclassified areas, the supplied power cord, fuse and strain relief grip may be used.

NOTE: These components have not been evaluated as part of the UL Listed Equipment and are not intended for use in a Hazardous (Classified) Location.

To install the power cord, remove the electrical coverplate. (Figure 2)

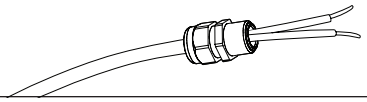
FIGURE 2



If necessary, trim the power cord to the desired length. Strip 3 to 4 inches (7.5 to 10 cm) of outer insulation from the power cord end. Then strip 1/2 inch (1.3 cm) of insulation from the power cord wires.

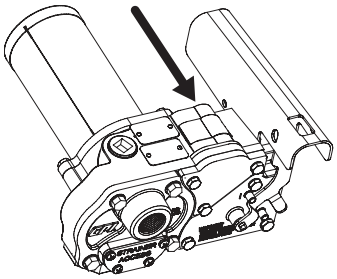
Slide the strain relief grip onto the power cord so that the threaded end of the strain relief grip faces the stripped power wires. (Figure 3)

FIGURE 3



Insert the power cord through the 1/2 inch NPT connection on the back of the pump (Figure 4). Using wire nuts, connect the black wire to the black wire and the red wire to the red in the pump's electrical cavity. Position the wires inside the electrical cavity and tighten the strain relief grip securely. Make sure surfaces are clean. Install the coverplate and tighten securely.

FIGURE 4



⚠ WARNING

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

A 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 the 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 the 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.

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

OPERATION

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

Dispense Fuel

Turn the pump on by removing the nozzle from its 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 the priming information in the Troubleshooting Section.

An automatic bypass valve prevents pressure buildup when the pump is on with the nozzle closed. To avoid pump damage, do not run the pump for 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.

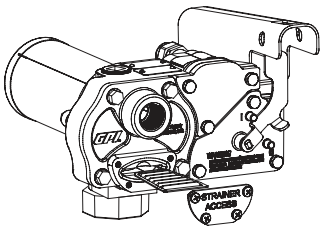
Do not use this pump for water, chemicals, or herbicides. Dispensing any fluid other than those listed in this manual will damage the pump. Use of the pump with unauthorized fluids will void the warranty.

To Clean or Replace Strainer

Turn the pump off and disconnect from power. Remove the strainer coverplate. (Figure 5) 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.

FIGURE 5



REPAIR

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 Safety Instructions 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

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

Service O-Rings

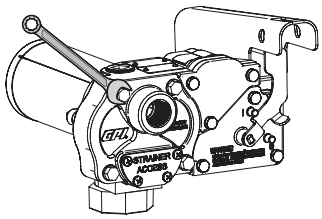
A Wet Seal Kit contains all seals for your pump and should be on hand when performing repairs. Old seals may then be replaced with new seals.

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.

Replace Gears and Drive Key

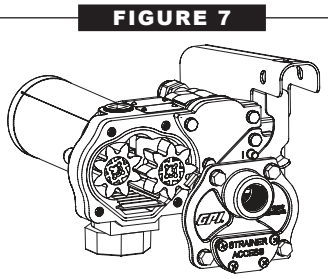
- Turn the pump OFF and disconnect from power.
- Remove the gear coverplate. (Figure 6)

FIGURE 6



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

FIGURE 7

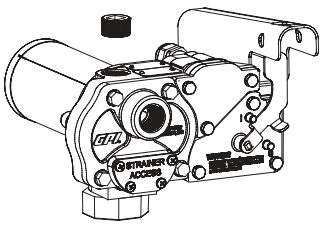


- Inspect the gears and key for wear and damage. Replace, as necessary.
- Wipe the gear cavity with a clean cloth.
- Replace the gears. Make sure they turn freely.
- Replace the drive key.
- Make sure the gear coverplate O-ring is securely in place. Tighten the coverplate to the housing.

Clean or Replace Bypass Poppet

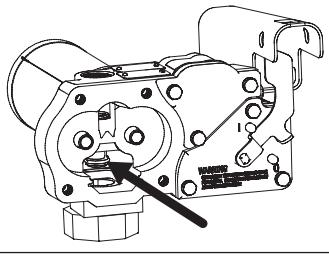
- Turn the pump OFF and disconnect from power.
- Using a drive ratchet or extension, remove the pipe plug from the top outlet port. (Figure 8)

FIGURE 8



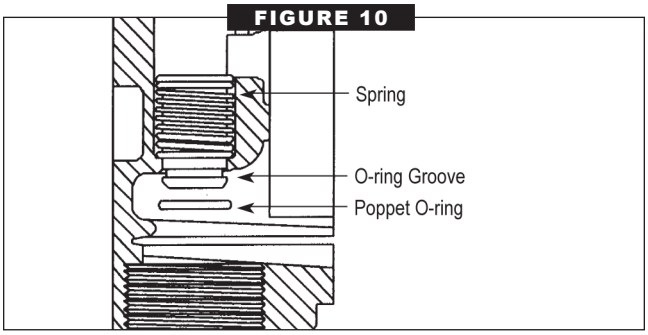
- Remove the gear coverplate and O-ring from the pump housing.
- Lift the drive key and two gears from the pump.
- To clean the bypass poppet:
  a. With a clean cloth, wipe the poppet cavity through the top outlet port.
  b. Push down on the poppet until the poppet O-ring is exposed inside the housing. (Figure 9)

FIGURE 9



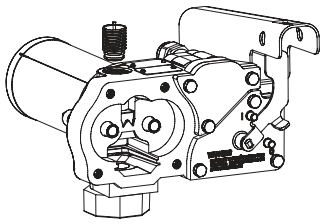
  c. Using a clean cloth, rotate the poppet and clean it thoroughly.
- To remove or replace the bypass poppet:
  a. As above, push down on the poppet until the O-ring is exposed.
  b. Remove the O-ring with a small screwdriver or similar tool. Take care not to damage the poppet or O-ring. (Figure 10)

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.

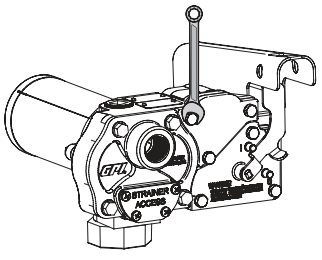
NOTE: Replace O-ring if damaged, swollen, or loose-fitting.

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

Replace Power Switch

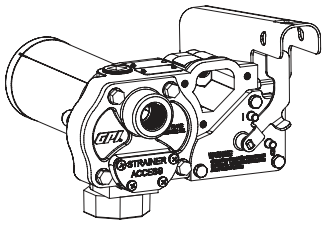
- Turn the pump OFF and disconnect from power.
- Remove the switch coverplate from the pump housing. (Figure 12)

FIGURE 12



- Remove the torx head screw, then remove the switch assembly. (Figure 13)

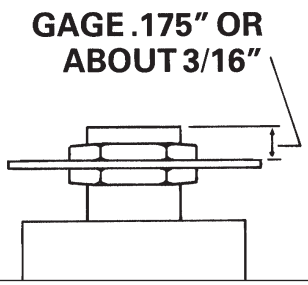
FIGURE 13



- Remove one pump wire from the back of the switch and one wire from the circuit protector.
- 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 14)

FIGURE 14

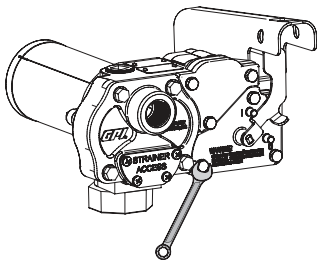


Replace Motor Protector

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

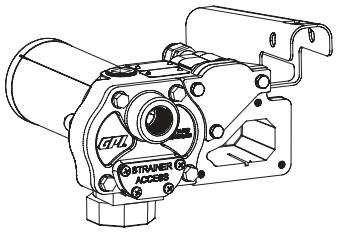
- Turn off the pump and disconnect from power.
- Remove the switch coverplate from the pump housing. (Figure 15)

FIGURE 15



- Remove switch bracket mounting screw and gently pull switch from switch cavity. (Figure 16)

FIGURE 16



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

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

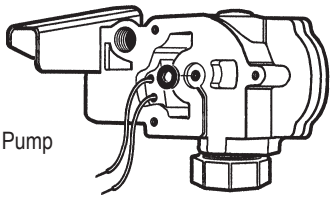
Replace Switch Lever or Switch Lever Shaft O-Ring

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

Replace Motor Shaft Seal

- Turn the pump OFF and disconnect from power.
- Remove the gear coverplate, gears, and drive key as described in Gear Replacement instructions.
- Remove the motor from the pump housing.
- Remove the motor shaft seal by prying out with a small screwdriver. (Figure 17)

FIGURE 17



- Lubricate the gear shaft with WD-40 or a similar pene-trating oil.
- Press a new motor shaft seal evenly in the pump housing until seated. Lubricate the seal with a lightweight motor oil.
- Gently slide the shaft through the seal until the motor is flush against the pump housing.
- 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.
- Install the gears and drive key as described in Gear Replacement instructions.

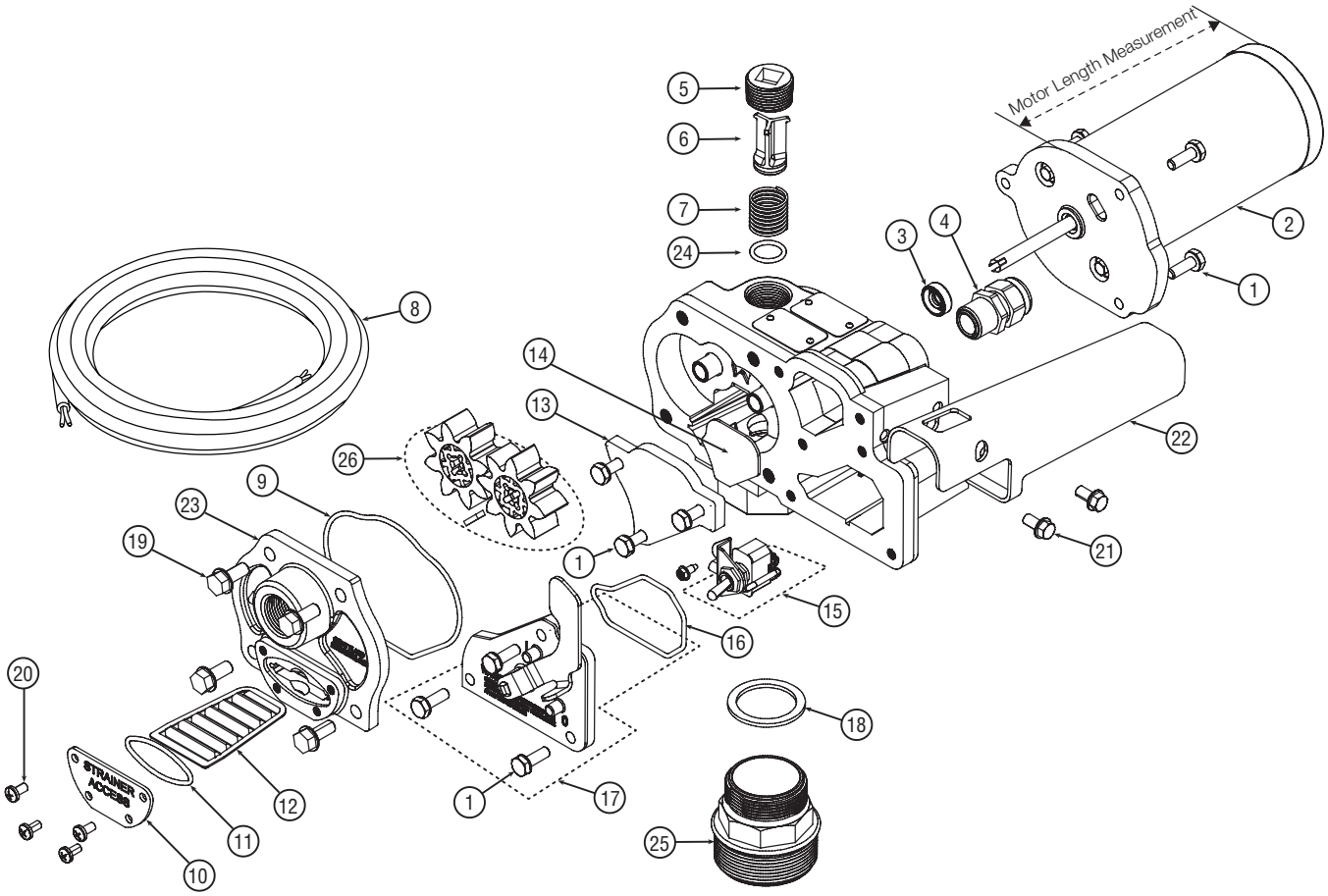
Replace Motor

In order to preserve the UL Listing for pump safety, return the entire pump to the factory for motor repair or replacement. For products serviced outside the factory, the UL nameplate must be defaced to indicate 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.

TROUBLESHOOTING

SYMPTOM	PROBABLE CAUSE	CORRECTIVE ACTION
A. MOTOR DOES NOT RUN	1. Fuse blown	Inspect fuse in fuse holder on power cord. If blown, replace.
	2. Switch defective	Remove switch coverplate and inspect switch. Replace, if necessary.
	3. Motor burned out	Replace motor as described in the Repair Section.
	4. Switch or electrical connections faulty	Inspect for damaged motor protector, defective wiring or switch, or improper electrical connections. Replace as needed and re-install.
	5. Circuit breaker tripped	Turn power off at source. Inspect the pump thoroughly; clean or repair. Reset circuit breaker by turning the power switch off then back on.
B. MOTOR RUNS BUT DOES NOT PUMP	1. Suction pipe clogged, damaged, or missing	Remove pump from tank. Inspect suction pipe. Clean or replace, as necessary.
	2. Gear coverplate or O-ring damaged	Remove and inspect the coverplate and O-ring. Replace, as necessary. Refer to the Repair Section on Servicing O-rings.
	3. Strainer clogged or defective	Remove strainer coverplate. Remove and clean strainer. Install again.
	4. Bypass poppet O-ring worn or missing	Inspect O-ring using instructions in the Repair Section. Replace, if necessary.
	5. Bypass poppet O-ring dirty	Remove poppet assembly and clean poppet and cavity.
	6. Bypass poppet binding or damaged	Using instructions in the Repair Section, remove the bypass poppet, spring, and O-ring. Clean cavity. Inspect and replace components, as necessary.
	7. System air leak	Tighten all pump fittings and connections. Inspect suction pipe for leaks or damage.
	8. System air lock	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.
	9. Poor connections or low voltage	Make sure electrical connections are secure. Also check battery voltage.
	10. Fuel level low	Fill tank.
	11. Motor running backwards due to incorrect polarity	Connect red wire to positive (+) ungrounded side of battery. Gear with key should turn counterclockwise.
C. LOW FLOWRATE	1. Poor connections or low voltage	Make sure electrical connections are secure. Also check battery voltage
	2. Strainer partially clogged	Remove the strainer coverplate. Remove and clean the strainer. Install again.
	3. Suction pipe clogged or damaged	Remove pump from tank. Inspect suction pipe. Clean or replace, as necessary.
	4. Fuel tank empty	Fill tank.
	5. Using off-the-shelf automatic nozzle	Factory-supplied automatic nozzle is recommended.
	6. System air leak	Tighten all pump fittings and connections. Inspect suction pipe for leaks or damage. Replace, as necessary.
	7. Bypass poppet spring weak	Using instructions in the Repair Section, remove the bypass poppet and inspect spring. Replace, if necessary.
D. MOTOR STALLS WHEN OPERATING IN BYPASS MODE	1. Motor protector activated	Turn off switch. Allow motor to cool, then turn on switch.
	2. Gears locked	Remove gear coverplate and inspect gears and drive key. Make sure gears turn freely with the key removed. Replace, if worn.
	3. Wiring defective	Use Wiring instructions in the Installation Section to ensure proper connections.
	4. Bypass poppet binding or damaged	Using instructions in the Repair Section, remove the bypass poppet, spring, and O-ring. Clean cavity. Inspect components and replace, as necessary.
	5. Motor defective	Replace motor as described in the Repair Section.
E. SWITCH FAILS TO OPERATE MOTOR	1. Switch or electrical connections faulty	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.
	2. Motor burned out	Replace motor as described in the Repair Section.
	3. Motor protector activated	Turn off switch. Allow motor to cool, then turn on switch.
	4. Switch or electrical connections faulty	Inspect for damaged motor protector, blown fuse, defective wiring or switch, or improper electrical connections. Replace as needed and re-install.
F. RAPID OVERHEATING OF MOTOR	1. Duty cycle too long	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.
	2. Strainer clogged	Remove strainer coverplate. Remove and clean strainer. Install again.
	3. Suction pipe clogged or damaged	Remove pump from tank. Inspect suction pipe. Clean or replace, as necessary.
	4. Gears worn	Remove gear coverplate and inspect gears and drive key. Make sure gears turn freely with key removed. Replace, if necessary.
	5. Fuel level low	Fill tank.
	6. Running too long in bypass mode	Limit bypass operation to 10 minutes.

ILLUSTRATED PARTS LIST



Item No.	Part No.	Description	No. Req'd.
1	904002-23	Sems Screw, 1/4-20 x 3/4 in	9
2	119200-551	Motor, 12-volt (UL)	1
3	110025-1	Seal, Motor Shaft	1
4	904002-17	Strain Relief Sealing Grip	1
5	90400770	Pipe Plug, 3/4 inch	1
6	110010-1	Bypass Poppet	1
7	110131-2	Spring, Bypass Poppet	1
8	110265-02	Power Cord, 12 ga. x 18 ft. (5.5 m)	1
9	901003-70	Gear Coverplate O-Ring	1
10	11040201	Coverplate, Strainer, ENP	1
11	110026-4	Strainer Coverplate O-Ring	1
12	110009-1	Inlet Strainer	1
13	110195-02	Coverplate, Electrical	1
14	110285-01	Electrical Coverplate Gasket	1
15	110277-05	Switch Assembly	1
16	110026-6	Switch Coverplate O-Ring	1
17	110276-01	Switch Coverplate Assembly	1
18	110032-1	Gasket, Union Ring	1
19	904002-24	Sems Screw	4
20	904002-22	Sems Screw	4
21	904006-86	Tapping Screw	2
22	11030302	Nozzle Cover	1
23	11040301	Coverplate, Gear, ENP	1
24	90100399	O-Ring, NBR	1
25	110037-1	Bushing, Tank Bung Adapter	1
26	110907-1	Gear Kit - Includes 2 Gears & Drive Key	1

Items not shown

11040001	Inlet Fitting, ENP
110158-1	Union Ring
110191-1	Jumper Wire
110500-02	25-amp Fuse Kit
110524-1	Armature Assembly Kit (6 3/8 in. Motor)
110525-1	Brush Card Assembly Kit - Includes Brush Holder Assembly (6 3/8 in. Motor)
110526-1	Motor Housing Kit - Includes Motor Housing Assembly (6 3/8 in. Motor)
110527-1	Battery Clamp Kit - Includes 2 Battery Clamps
110909-1	Bung Adapter Kit
110910-02	Switch Kit - Includes Switch
110913-2	Spare Key Kit - Includes Spare Drive Key
110524-05	Armature Assembly Kit (6 5/8 in. Motor)
110525-04	Brush Card Assembly Kit - Includes Brush Holder Assembly (6 5/8 in. Motor)
110526-02	Motor Housing Kit - Includes Motor Housing Assembly (6 5/8 in. Motor)

SPECIFICATIONS

Application:
This pump is specifically designed for use with methanol and ethanol. The pump is also compatible with gasoline, diesel fuel (up to 20% biodiesel blends such as B20) and kerosene. Pump is designed for permanent mounting on vented storage tanks.

Pump Housing:
Lightweight, corrosion-resistant, nickel plated, 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 feet (1.7 meters)
	Automatic Nozzle	Up to 4.8 feet (1.5 meters)

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 amps
Motor	1900 RPM, 1/5 hp (150 watts)
Motor Approval	UL Listed
Motor Protection	20 amp circuit breaker
Cord	18 feet of 12 gauge (5.5 meters)
Fuse	25 amp

Mechanical Connection:

Bung	2 inch NPT
Inlet	1 inch NPT
Outlet	3/4 inch NPT

Weight:
15 lbs. (6.8 kg)

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.

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.