



# M-3120-AV 115-Volt Fuel Pump

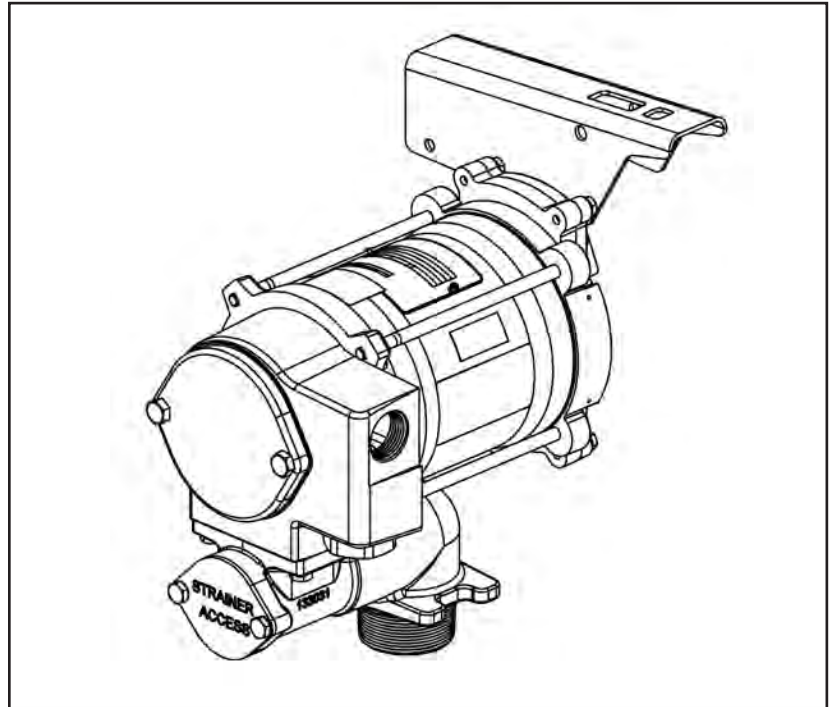
## Owner's Manual

# 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**



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### 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 for use with aviation gasoline (AVGAS 100LL) and kerosene grade (JET A). 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 purpose of this manual is to assist you in installing, operating and maintaining your GPI pump. This manual covers 115-volt AC model M-3120-AV with or without flowmeters.

Model M-3120-AV must be connected to a 115-volt power source only.

### WARNING

**For ground-based refueling only. Do not use in or on the aircraft.**

**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 aviation gasoline (AVGAS 100LL) and kerosene grade (JET A). **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.

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.

### 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.

### CAUTION

**CAUTION** used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.

There are inherent dangers wherever flammable fuel and AC electrical sources are in close proximity.

Static electricity as a source of sparking is always a concern and requires extreme care in the installation and operation of your entire fuel transfer system.

Additional components such as meters, automatic nozzles and filters must be listed for use with fuel transfer systems. The flow of fuel through a hose and nozzle can generate static electrical charges and dangerous sparking can result in fire or explosion. Hoses and nozzles must be electrically conductive and bonded to ground.

### 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.

### WARNING

- **For ground-based refueling only. Do not use in or on the aircraft.**
- **For use with aviation gasoline (AVGAS 100LL) and kerosene grade (JET A).**
- **Meter accuracy is  $\pm 2\%$  when calibrated with specified fuel.**
- **User should consult NFPA 407 *Standard for Aircraft Fuel Servicing* for safety requirements during ground fuel servicing of aircraft using liquid petroleum fuels. This product has no actual or implied compliance with this standard.**

## INSTALLATION

### WARNING

**Coverplates protect the operator from moving parts. Never operate the pump without coverplates in place. Never apply electric power to the pump without coverplates in place. Always disconnect power before repairing or servicing.**

### Mechanical Connections

All threaded fuel connections must be sealed with thread tape or a pipe thread sealing compound approved for use with petroleum fuels and tightened securely to prevent leakage.

Your pump must be mounted on a vented tank. If the tank is not vented, contact your GPI distributor for the correct vent cap.

This pump has a built-in check valve to keep the pump primed. No additional check valve is required on suction pipes shorter than 15 ft. (4.6 m). Make sure any check valves or foot valves used are equipped with proper pressure relief valves.

Your pump is designed to mount directly to a standard 2-inch female tank fitting. For the suction pipe, a 1-inch galvanized steel pipe cut to length and threaded on one end may be used. Suction pipe should extend to within 3 inches of tank bottom. Apply thread tape to the suction pipe thread and securely tighten the suction pipe to the pump inlet port.

## Install Nozzle Hanger

**Attention:** The nozzle hanger for your pump was removed before shipping to protect against damage.

To reinstall the nozzle hanger follow the steps below.

1. Remove the two 1/4"-20 x 1/2" bolts from the switch coverplate.
2. Place the nozzle cover on the switch coverplate and align holes.
3. Insert the two 1/4"-20 x 1/2" bolts through the nozzle cover and thread into the switch coverplate. Torque bolts to 45-60 in/lb. (Figure 1).

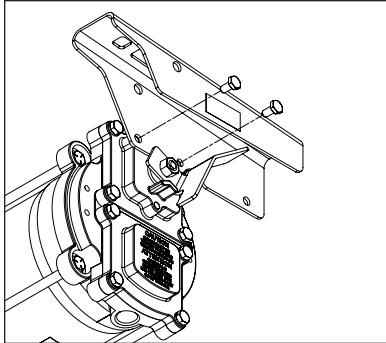


Figure 1

## Electrical Connections

### **⚠ DANGER**

**Pump 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.**

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

**The pump must be properly grounded to avoid personal injury. Operating an ungrounded or improperly grounded pump may result in death due to electrical shock, fire or explosion.**

Electrical wiring and connections must be made only by a licensed electrician in accordance with national, state and local electrical codes regarding Class I, Division 1, Group D locations. Other codes may apply.

Thread for the conduit connection at the pump electrical box is 1/2 inch FNPT.

A standard 15-amp breaker is recommended.

This pump is equipped with an auxiliary AC accessory lead. The third wire (brown for 115-volt system) is to be used to energize a control circuit that operates a device such as a signal light or a solenoid operated valve. Maximum amp draw on the control circuit is 1 amp. If you do not need this feature, ensure that the wire is insulated and enclosed within the electrical cavity of the pump.

### **⚠ CAUTION**

**Connect pump to the proper voltage source. M-3120 Series Pumps are designed to operate on 115-volts AC, 60 Hz. Connection to improper voltage will damage pump.**

## Wiring Details

1. Remove electrical coverplate and O-ring (Figure 2). Install conduit and cable from switchbox to pump electrical box. Wiring must be in accordance with Class I, Division 1 requirements in the applicable national electrical code. Note that the lead wires are factory-sealed isolating the motor from the junction box.

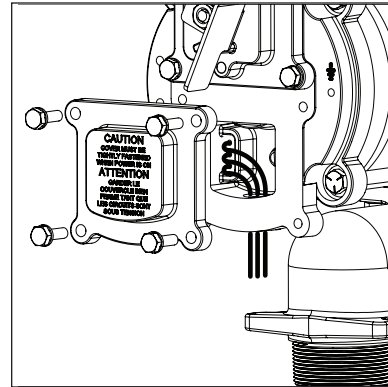


Figure 2

2. Attach ground wire using the green ground screw located inside the electrical box (Figure 3). The external bonding connection is only a supplemental bonding connection where local authorities permit or require such a connection. For 115-volt system connect the power cable to the black and white pump wires and the control circuit (if required) to the brown wire. For 230-volt system connect the power cable to the brown and blue wires and the control circuit (if required) to the purple wire. Secure with wire nuts. Refer to appropriate wiring diagram on Page 4.

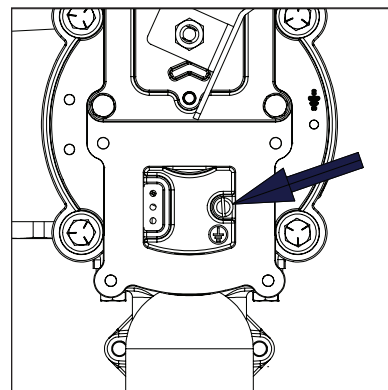
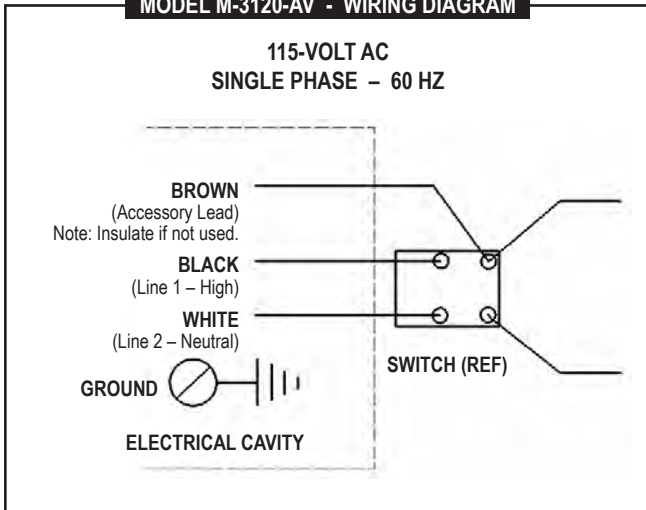


Figure 3

3. Position wires inside the electrical box. Replace O-ring and electrical coverplate. Install all four screws. Torque to 45-60 in/lb.

## MODEL M-3120-AV - WIRING DIAGRAM



## OPERATION

### ⚠ DANGER

To prevent physical injury, observe precautions against fire or explosion when dispensing fuel. Do not operate the dispenser 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.

### ⚠ CAUTION

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.

#### To dispense fuel:

1. Turn the pump on by pulling the switch lever down.
2. Insert the nozzle into the receiving tank and squeeze the handle to dispense fuel.
3. After dispensing fuel, push the switch lever up to turn the pump off and return the nozzle to its holder.

The pump contains an automatic bypass valve to prevent pressure buildup when the pump is on but the nozzle is closed. Do not leave the pump on for more than 10 minutes with the nozzle closed.

Never leave the pump running without fluid. Dry running can damage the pump components.

The pump has a duty cycle of 30 minutes ON and 30 minutes OFF. Do not overheat. Allow the motor to cool the same length of time it was in operation.

The fuel strainer and check valve assembly should be cleaned on a regular basis or if low flow rate is noticed.

If the pump becomes too hot, an internal temperature-limiting device will automatically shut the motor off and prevent operation until it cools.

### ⚠ CAUTION

Always turn the pump off if the temperature-limiting device trips. If left on, the pump will automatically reset when cool and start pumping.

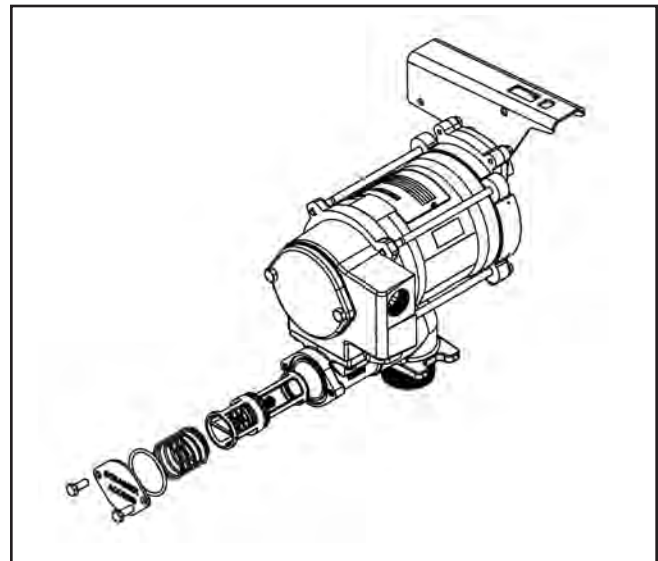
## MAINTENANCE

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

All pump models have an inlet strainer. If flowrate is reduced, clean or replace strainer (see below).



Turn the pump off and disconnect from power. Remove and 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.

Replace components making sure that they are seated and fasteners are tightened securely.

## 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.

### CAUTION

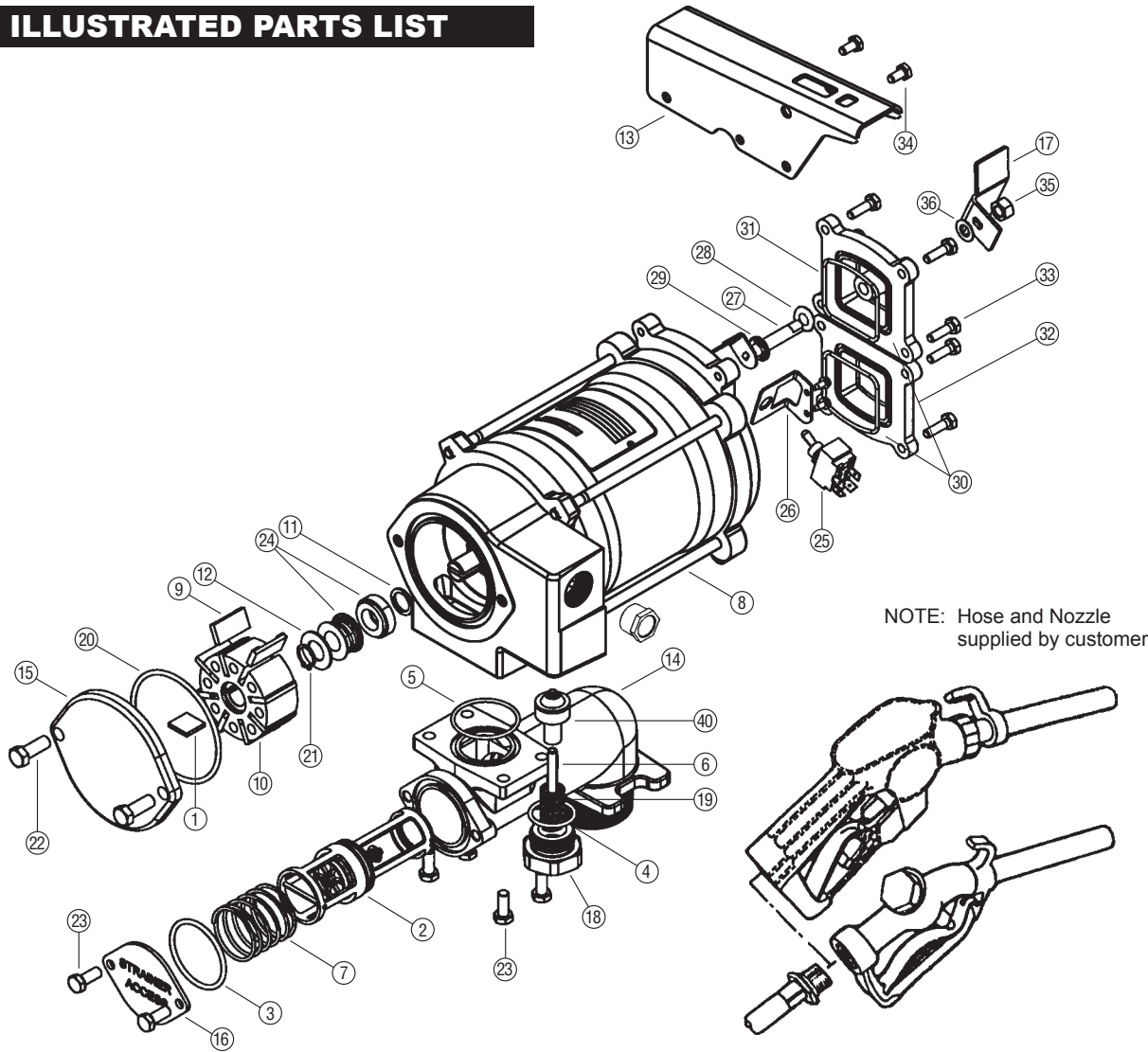
Avoid prolonged skin contact with petroleum fuels. Use protective goggles, gloves and aprons in case of splashing or spills. Change saturated clothing and wash skin promptly with soap and water.

## TROUBLESHOOTING

SYMPTOM	PROBABLE CAUSE	CORRECTIVE ACTION
A. MOTOR DOES NOT RUN	<ol style="list-style-type: none"> <li>1. No electrical power to pump</li> <li>2. Temperature-limiting device tripped</li> <li>3. Rotor or vanes jammed</li> </ol>	<p>Check breaker, switchbox and wiring.</p> <p>Allow motor to cool. Temperature-limiting device will automatically reset.</p> <p>Remove coverplate and check for damage or obstruction.</p>
B. MOTOR RUNS, BUT NO FLOW	<ol style="list-style-type: none"> <li>1. Tank level low</li> <li>2. Clogged filter assembly</li> <li>3. Clogged or broken suction pipe</li> <li>4. Broken shaft key</li> </ol>	<p>Add fuel to tank.</p> <p>Remove and clean filter assembly.</p> <p>Remove pump and clear suction pipe, replace as needed.</p> <p>Replace shaft key. Check rotor or vanes for obstruction.</p>
C. PUMP FAILS TO PRIME	<ol style="list-style-type: none"> <li>1. Air leak in system</li> <li>2. Bypass valve stuck open</li> <li>3. Check valve stuck open</li> <li>4. Rotor or vanes worn</li> </ol>	<p>Check for air leaks at all joints.</p> <p>Remove bypass valve and clean or replace as needed.</p> <p>Remove check valve and clean or replace as needed.</p> <p>Check rotor and vanes for excessive wear.</p>
D. LOW FLOWRATE	<ol style="list-style-type: none"> <li>1. Low voltage</li> <li>2. Clogged filter assembly</li> <li>3. Air leak in system</li> <li>4. Bypass valve stuck open</li> <li>5. Rotor or vanes worn</li> <li>6. Outlet is blocked</li> <li>7. Clogged or broken suction pipe</li> </ol>	<p>Check incoming line voltage.</p> <p>Clean filter assembly.</p> <p>Check for air leaks at all joints.</p> <p>Remove bypass valve and clean or replace as needed.</p> <p>Check rotor and vanes for excessive wear.</p> <p>Check all accessories for blockage.</p> <p>Remove pump and clear suction pipe, replace as needed.</p>
E. MOTOR STALLS WHEN NOZZLE IS CLOSED	<ol style="list-style-type: none"> <li>1. Bypass valve stuck closed</li> <li>2. Rotor or vanes worn</li> <li>3. Low voltage</li> </ol>	<p>Remove bypass valve and clean or replace as needed.</p> <p>Check rotor and vanes for excessive wear.</p> <p>Check incoming line voltage.</p>
F. FUEL LEAKAGE	<ol style="list-style-type: none"> <li>1. Threaded joint loose</li> <li>2. Insufficient bolt torque</li> <li>3. Lost or damaged O-rings</li> <li>4. Shaft seal worn or damaged</li> </ol>	<p>Check and reseal threaded joint.</p> <p>Retighten bolts.</p> <p>Check O-rings for damage. Replace as needed.</p> <p>Fuel leaking from drain hole indicates shaft seal needs to be replaced.</p>
G. MOTOR OVERHEATS	<ol style="list-style-type: none"> <li>1. Pumping high viscosity fluids</li> <li>2. Clogged filter assembly</li> <li>3. Clogged or broken suction pipe</li> </ol>	<p>Pump only low viscosity fluids.</p> <p>Clean filter assembly.</p> <p>Remove pump and clear suction pipe, replace as needed.</p>



# ILLUSTRATED PARTS LIST



Item No.	Part No.	Description	No. Req'd.
1	121010-02	Shaft Key, SS .....	1
2	121013-1	Check Valve Strainer Assembly.....	1
3	901001-90	O-Ring or (Kit <b>A</b> ) .....	1
4	901002-50	O-Ring or (Kit <b>A</b> ) .....	1
5	901002-89	O-Ring or (Kit <b>A</b> ) .....	1
6	906004-50	Spring Pin .....	1
7	121019-1	Spring .....	1
8	133516-01	1/3 HP Motor Assembly, 115-volt.....	1
9	133020-1	Vanes.....	8
10	133022-1	Rotor.....	1
11	133026-1	Slinger Washer .....	1
12	133027-1	Spacer Washer .....	1
13	13312401	Nozzle Cover .....	1
14	133052-01	Base Assembly with Check Valve.....	1
15	133032-02	Coverplate .....	1
16	133033-1	Base End Plate.....	1
17	13312201	Switch Lever .....	1
18	133059-02	Poppet Plug .....	1
19	133062-1	Poppet Spring.....	1

Item No.	Part No.	Description	No. Req'd.
20	901003-15	O-Ring or (Kit <b>A</b> ) .....	1
21	904006-33	Retaining Ring .....	1
22	904006-38	Hex Head Screw 3/8 - 16 x 1.....	2
23	904001-37	Hex Head Screw 5/16 - 18 x 3/4.....	6
24	906006-53	Shaft Seal .....	1
25	133865-01	Switch or (Kit <b>B</b> ) .....	1
26	133848-01	Switch Bracket.....	1
27	133845-01	Switch Acuator Assembly .....	1
28	904006-63	Spring Washer.....	1
29	904004-97	Retaining Ring .....	1
30	110026-6	O-Ring or (Kit <b>A</b> ) .....	2
31	133802-01	Switch Cover .....	1
32	133881-01	Cover .....	1
33	904005-39	Hex Head Screw 1/4-20 x 7/8.....	8
34	904003-33	Hex Head Screw 1/4-20 x 1/2.....	2
35	904006-62	Hex Nut, 3/8-16 .....	1
36	904006-16	Nylon Washer .....	1
40	133505-01	Poppet Assembly Kit.....	1

## Kits and Accessories

- 133501-1 Vane Kit
- 133503-1 Shaft Seal Kit
- A** 133504-1 Seal Kit
- B** 133535-01 Switch Kit, M-3120-AV

## SPECIFICATIONS

### Application

For use with aviation gasoline (AVGAS 100LL) and kerosene grade (JET A) with or without flowmeter. The pump is designed for permanent mounting on vented storage tanks, either in-ground or above-ground. *RAINPROOF* for outdoor use.

### Housing

Cast Iron

### Performance

Pump Rate	Up to 20 GPM (76 LPM)
Duty Cycle	30 min. ON, 30 min. OFF
Suction Lift	Up to 15 ft. (4.6 m)
Discharge Lift	Up to 10 ft. (3 m)

### Operating Temperature

-20° F to 125° F (-29° C to +52° C)

**Operating Pressure** 22 PSI

### Electrical Specifications

Input	115-volt AC, 60 Hz
Conduit	1/2 inch NPT
Current Draw	4.9 amps at full load
Motor	1725 RPM, 1/3 hp (250 watts)
Motor Approval	cUL Listed, Class I, Division I, Group D
Motor Protection	Motor is induction type with an internal temperature-limiting device

### Mechanical Connection

Bung	2 inch NPT
Inlet	1 inch NPT
Outlet	1 inch NPT

### Meter

Meter accuracy is  $\pm 2\%$  when calibrated with specified fuel.  
Not for resale.

### Accessories

None

### Weight

Pump Only	45.5 lbs. (20.6 kg)
Pump and Meter	51 lbs. (23.1 kg)

## PARTS AND SERVICE

In order to preserve the UL Listing for pump safety, return the entire pump to the factory for repair or replacement. For products serviced outside the factory, the UL nameplates 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 manufacturing date code of your pump.

The date code is located on the motor nameplate.

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

Please contact GPI before returning any pump. It may be possible to diagnose the trouble and find a solution with a telephone call. GPI can also inform you of any special requirements you will need to follow for shipping.

### CAUTION

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

**SAVE THESE INSTRUCTIONS**

## Limited Warranty Policy

Great Plains Industries, Inc. 5252 E. 36<sup>th</sup> 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. 36<sup>th</sup> 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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***GREAT PLAINS INDUSTRIES, INC.***

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[www.gpipumps.net](http://www.gpipumps.net)

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