

SAVE THESE INSTRUCTIONS

Owner's Manual



M-3120 Series, 115-Volt M-3120-RDP Series, 115-Volt Heavy Duty Fuel Pump

M-3120-ML Manual Nozzle
M-3120-AL Automatic Nozzle
M-3120-PO Pump Only

M-3220 Series, 230-Volt Heavy Duty Fuel Pump

M-3220-ML Manual Nozzle
M-3220-AL Automatic Nozzle
M-3220-PO Pump Only

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**

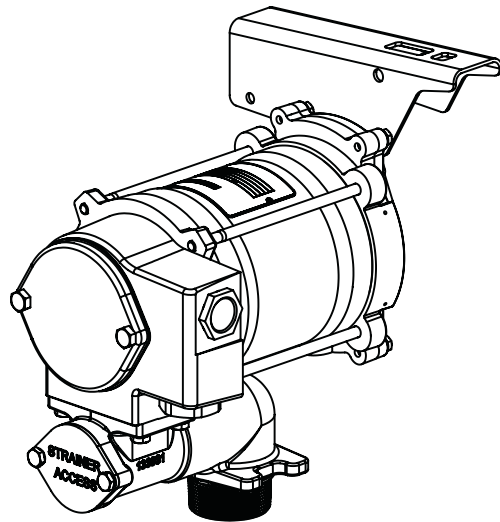


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To the owner...

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

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

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



Victor Lukic, President
Great Plains Industries, Inc.

GENERAL INFORMATION

Your pump is designed for use **only** with thin viscosity petroleum fuels such as 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. Using the pump with other fuels can damage components and void the warranty. Use of alcohol blends above 10% (E10) and biodiesel blends above 5% (B5) have not been reviewed by UL.

Model Components

M-3120-ML / M-3220-ML: Includes pump, hose, manual nozzle and components to assemble to unit before use.

M-3120-AL / M-3220-AL: Includes pump, hose, automatic nozzle and components to assemble to unit before use.

M-3120-PO / M-3220-PO: Includes pump only and components to assemble to unit before use.

M-3120-RDP: Includes dedicated pump only for remote dispensing systems.

NOTE: Suffixes ML, AL and PO are for ordering purposes only. Constructions described above are covered as alternate constructions under the Part No. M-3120 and M-3220 UL Listing.

How to Use This Manual

The purpose of this manual is to assist you in installing, operating and maintaining your GPI pump. If you need additional assistance, contact your GPI dealer or the GPI Customer Service Department.



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 an imminently hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

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

CAUTION

CAUTION indicates a potentially 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.



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.

For 3/4 inch applications, Part No. 111018-1 Bushing is used. (See Illustrated Parts Drawing)

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 feet (4.6 meters). 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 (Not applicable to pumps with -RDP suffix)

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 (2) 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 (2) 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).

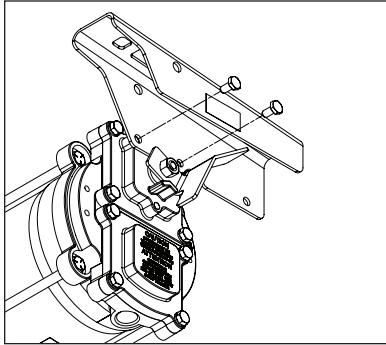


Figure 1

Switch Locking Lever

Attention: The M-3120-RDP remote dispenser pump incorporates an external switch locking lever that locks the pump switch in the "ON" position. The pump is typically shut off using the remote dispensing device "ON-OFF" mechanism.

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 and purple for 230-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 VAC, 60 Hz. M-3220 Series Pumps are designed to operate on 220-240 VAC, 50/60 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.

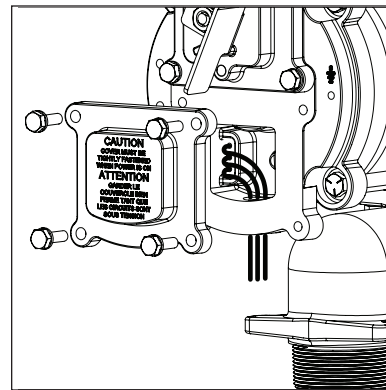


Figure 2

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.

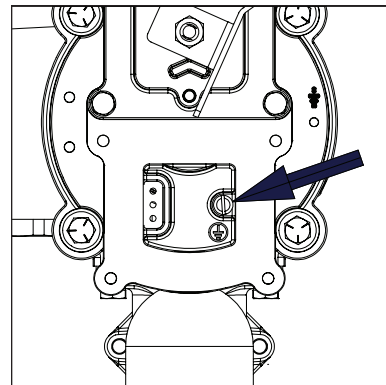
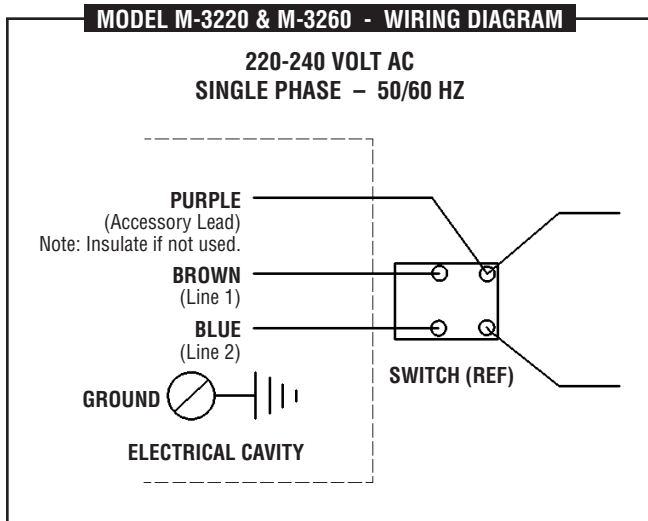
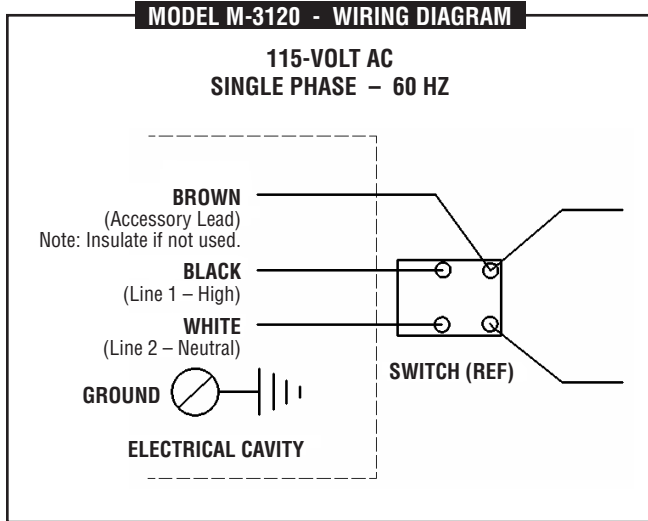


Figure 3

- Position wires inside the electrical box. Replace O-ring and electrical coverplate. Install all four (4) screws. Torque to 45-60 in. lbs.



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 (for pumps with nozzle hanger):

- Remove the nozzle from the holder. Turn the pump on by pulling the switch lever down.
- Insert the nozzle into the receiving tank and squeeze the handle to dispense fuel.
- After dispensing fuel, push the switch lever up to turn the pump off and return the nozzle to the holder. The nozzle may be locked in place to prevent unauthorized use.

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. The Remote Dispenser pump (M-3120-RDP) turns off at the dispensing device. 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.

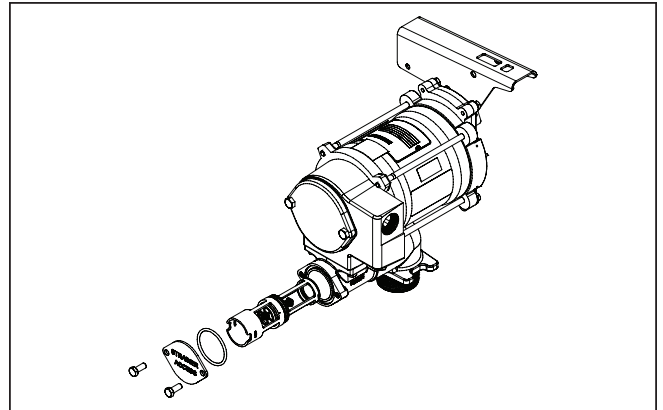
Do not use this pump for water, chemicals or herbicides. Dispensing any fluid other than those listed in this manual will damage the pump. Use of the pump with unauthorized fluids will void the warranty.

To Clean or Replace Strainer

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

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.

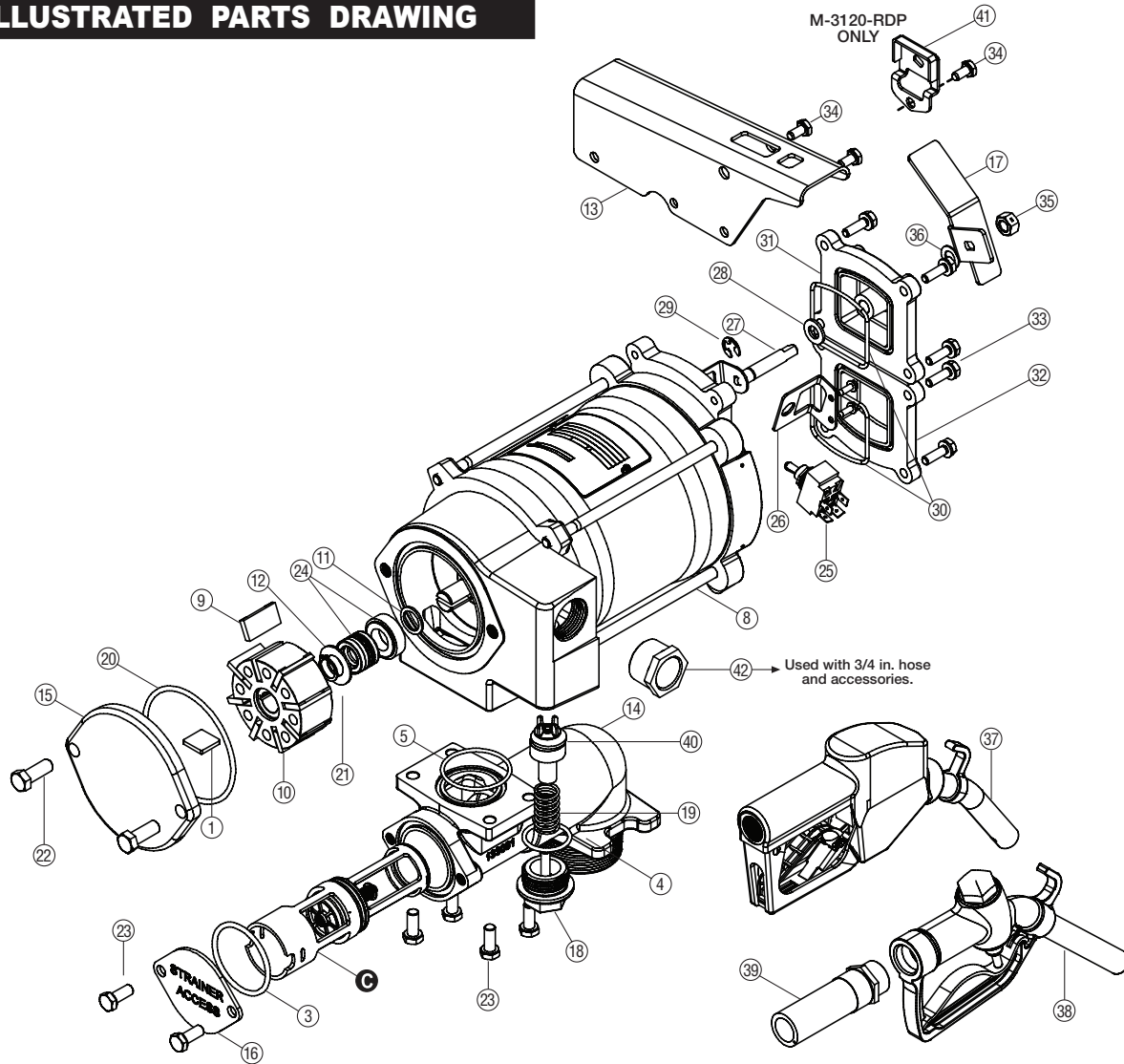
Replace components making sure that they are seated and fasteners are tightened securely.



TROUBLESHOOTING

SYMPTOM	PROBABLE CAUSE	CORRECTIVE ACTION
A. MOTOR DOES NOT RUN	<ol style="list-style-type: none"> 1. No electrical power to pump 2. Temperature-limiting device tripped 3. Rotor or vanes jammed 	<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"> 1. Tank level low 2. Clogged filter assembly 3. Clogged or broken suction pipe 4. Broken shaft key 	<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"> 1. Air leak in system 2. Bypass valve stuck open 3. Check valve stuck open 4. Rotor or vanes worn 	<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"> 1. Low voltage 2. Clogged filter assembly 3. Air leak in system 4. Bypass valve stuck open 5. Rotor or vanes worn 6. Outlet is blocked 7. Clogged or broken suction pipe 	<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"> 1. Bypass valve stuck closed 2. Rotor or vanes worn 3. Low voltage 	<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"> 1. Threaded joint loose 2. Insufficient bolt torque 3. Lost or damaged O-rings 4. Shaft seal worn or damaged 	<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"> 1. Pumping high viscosity fluids 2. Clogged filter assembly 3. Clogged or broken suction pipe 	<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 DRAWING



Item No.	Part No.	Description	No. Req'd.
1	121010-02	Shaft Key	1
3	901001-90	O-Ring or (Kit A)	1
4	901002-50	O-Ring or (Kit A)	1
5	901002-89	O-Ring or (Kit A)	1
8	133516-01	1/3 HP Motor Assembly, 115-volt	1
	133517-01	1/3 HP Motor Assembly, 230-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	133059-05	Poppet Plug	1
19	133062-1	Poppet Spring	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/M-3220
C	121013-503	Check Valve Assembly Kit

Item No.	Part No.	Description	No. Req'd.
20	901003-15	O-Ring or (Kit A)	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	133535-01	Switch Kit (Includes Instructions)	1
26	133848-01	Switch Bracket	1
27	133845-01	Switch Actuator Assembly	1
28	904006-63	Spring Washer	1
29	904004-97	Retaining Ring	1
30	110026-6	O-Ring or (Kit A)	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
37	906004-98	3/4" NPT Auto Leaded Nozzle	1
	110120-2	Nozzle Hook Only	1
	904001-88	Set Screw Only	1
38	906001-6	3/4" NPT Manual Leaded Nozzle	1
39	110049-2	Hose Assembly	1
40	133505-01	Poppet Assembly Kit	1
41	133419-01	Switch Locking Lever (M-3120-RDP only)	1
42	111018-1	Bushing, 1" x 3/4"	1

SPECIFICATIONS

The M-3120 and M-3220 fuel pumps is designed to safely transfer low viscosity petroleum fuels such as gasoline (up to 15% alcohol blends such as E15), diesel fuel (up to 20% biodiesel blends such as B20) and kerosene. The pumps are designed for permanent mounting on vented storage tanks, either in-ground or above-ground. *RAINPROOF* for outdoor use. Use of alcohol blends above 10% (E10) and biodiesel blends above 5% (B5) have not been reviewed by UL.

Performance

Pump Rate:	M-3120: Up to 20 GPM (76 LPM) M-3220: Up to 20 GPM (76 LPM) @ 60 Hz Up to 17 GPM (64 LPM) @ 50 Hz
Duty Cycle:	30 minutes ON, 30 minutes OFF
Dry Prime:	15 ft. (4.6 m) maximum
Discharge Lift:	10 ft. (3 m) maximum

Operating Temperature

-20° F to +125° F (-29° C to +52° C)

Bypass Pressure

22 PSI

Electrical

Input:	M-3120: 115 VAC, 60 Hz M-3220: 220-240 VAC, 50-60 Hz
Conduit:	1/2 inch FNPT
Current Draw:	M-3120: 4.9 amps at full load M-3220: 2.3 amps on 60 Hz 2.5 amps on 50 Hz at full load on 230 VAC
Motor:	M-3120: 1/3 HP, 1725 RPM M-3220: 1/3 HP, 1725 RPM on 60 Hz or .19 kw, 1425 RPM on 50 Hz Both motors are induction type with an internal temperature-limiting device.

Mechanical Connections

Bung:	2 inch NPT
Inlet:	1 inch NPT
Outlet:	3/4 inch NPT or 1 inch NPT when Bushing is not used

Accessories

Hose:	3/4 in. x 12 ft. (3.7 m) Buna-N electrically conductive
Nozzle:	3/4 in. manual or 3/4 in. automatic, leaded spout. For 1 inch applications, only the EBW 402 (GPI Part No. 906001-10) may be used.
Security:	Nozzle can be padlocked

Ship Weight 55.5 pounds (25.2 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.

For the M-3120 and M-3220 series, 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. 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).



Mexico City / Sydney / Wichita



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