OPERATION AND PARTS MANUAL

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YELLOW SUBMARINE
SUBMERSIBLE PUMP

Revision #1 (03/22/10)

THIS MANUAL MUST ACCOMPANY THE EQUIPMENT AT ALL TIMES.

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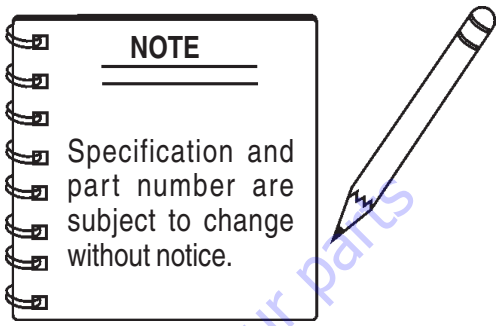
MQ Yellow Submarine Submersible Pump



Do not operate or service the equipment before reading the entire manual. Safety precautions should be followed at all times when operating this equipment. Failure to read and understand the safety messages and operating instructions could result in injury to yourself and others.

SAFETY MESSAGES

The four safety messages shown below will inform you about potential hazards that could injure you or others. The safety messages specifically address the level of exposure to the operator and are preceded by one of four words: **DANGER, WARNING, CAUTION** or **NOTICE.**

SAFETY SYMBOLS

DANGER

Indicates a hazardous situation which, if not avoided, **WILL** result in **DEATH** or **SERIOUS INJURY.**

WARNING

Indicates a hazardous situation which, if not avoided, **COULD** result in **DEATH** or **SERIOUS INJURY.**

CAUTION

Indicates a hazardous situation which, if not avoided, **COULD** result in **MINOR** or **MODERATE INJURY.**

NOTICE

Addresses practices not related to personal injury.

Potential hazards associated with the operation of this equipment will be referenced with hazard symbols which may appear throughout this manual in conjunction with safety messages.

Symbol	Safety Hazard
	Rotating parts hazards
	Electric shock hazards

GENERAL SAFETY

⚠ CAUTION

- **NEVER** operate this equipment without proper protective clothing, shatterproof glasses, respiratory protection, hearing protection, steel-toed boots and other protective devices required by the job or city and state regulations.

- Avoid wearing jewelry or loose fitting clothes that may snag on the controls or moving parts as this can cause serious injury.
- **NEVER** operate this equipment when not feeling well due to fatigue, illness or when under medication.

- **NEVER** operate this equipment under the influence of drugs or alcohol.

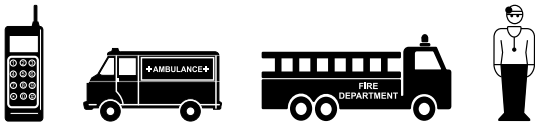
- **ALWAYS** clear the work area of any debris, tools, etc. that would constitute a hazard while the equipment is in operation.
- No one other than the operator is to be in the working area when the equipment is in operation.
- **DO NOT** use the equipment for any purpose other than its intended purposes or applications.

NOTICE

- This equipment should only be operated by trained and qualified personnel 18 years of age and older.
- Whenever necessary, replace nameplate, operation and safety decals when they become difficult read.
- Manufacturer does not assume responsibility for any accident due to equipment modifications. Unauthorized equipment modification will void all warranties.
- **NEVER** use accessories or attachments that are not recommended by Multiquip for this equipment. Damage to the equipment and/or injury to user may result.
- **ALWAYS** know the location of the nearest **fire extinguisher.**

- **ALWAYS** know the location of the nearest **first aid kit.**

- **ALWAYS** know the location of the nearest phone or **keep a phone on the job site.** Also, know the phone numbers of the nearest **ambulance, doctor** and **fire department.** This information will be invaluable in the case of an emergency.



PUMP SAFETY

⚠ DANGER

- **NEVER** operate the equipment in an explosive atmosphere or near combustible materials. An explosion or fire could result causing severe **bodily harm or even death.**
- **NEVER** use pump for swimming pool dewatering applications. This can result in electrical shock or electrocution.

⚠ WARNING

- Accidental starting can cause severe injury or death. **ALWAYS** place the ON/OFF switch in the OFF position.

- **DO NOT** place hands or fingers inside pump when pump is running.
- **NEVER** disconnect any **emergency or safety devices.** These devices are intended for operator safety. Disconnection of these devices can cause severe injury, bodily harm or even death. Disconnection of any of these devices will void all warranties.

⚠ CAUTION

- **DO NOT** restrict the flow of the discharge hose as it may cause overheating.
- Be careful of discharge whipping under pressure.

NOTICE

- **ALWAYS** place the pump in an upright position on a platform before using. The platform will prevent the pump frowm burrowing itself on soft sand or mud.
- **NEVER** operate pump on its side.
- **DO NOT** allow up to freeze in water.
- **NEVER** leave an open pump chamber unattended.
- **ALWAYS** keep the machine in proper running condition.
- **DO NOT** attempt to thaw-out a frozen pump by using a torch or other source of flame. Application of heat in this manner may heat the oil in the seal cavity above the critical point, causing pump damage.
- **DO NOT** pump water greater than 104° F.
- **DO NOT** pump liquids containing acid or alkali.
- **ALWAYS** check strainer before pumping. Make sure strainer is not clogged. Remove any large objects, dirt or debris from the strainer to prevent clogging.
- **ALWAYS** use a large basket strainer when pumping water that contains large debris.
- **ALWAYS** flush pump (clean) after use when pumping water concentrated with heavy debris. It is very important to always flush the pump before turning it off to prevent clogging.
- Fix damage to machine and replace any broken parts immediately.
- **ALWAYS** store equipment properly when it is not being used. Equipment should be stored in a clean, dry location out of the reach of children and unauthorized personnel.
- **NEVER** lubricate components or attempt service on a running machine.
- **ALWAYS** allow the machine a proper amount of time to cool before servicing.
- Keep machine in proper running condition.

ELECTRICAL SAFETY

⚠ DANGER

- The electrical voltage required to operate pump can cause severe injury or even death through physical contact with live circuits. ALWAYS disconnect electrical power from pump before performing maintenance on pump.

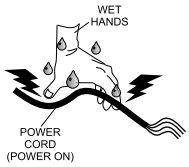
NOTICE

- **ALWAYS** make certain that the voltage supplied to the pump is correct. Always read the pump's nameplate to determine what the power requirements are.

Power Cord/Cable Safety

DANGER

- **NEVER** let power cords or cables **lay in water.**
- **NEVER** use **damaged** or **worn** cables or cords. Inspect for cuts in the insulation.
- **NEVER** grab or touch a live power cord or cable with wet hands. The possibility exists of **electrical shock, electrocution or death.**



- Make sure power cables are securely connected to the motor's output receptacles. Incorrect connections may cause electrical shock and damage to the motor.

WARNING

- **NEVER** attempt to use the power cord as a lifting or lowering device for the pump.

NOTICE

- **ALWAYS** make certain that proper power or extension cord has been selected for the job. See Cable Selection Chart in this manual.

Grounding Safety

DANGER

- **ALWAYS** make sure pump is grounded.
- **ALWAYS** make sure that electrical circuits are properly grounded to a suitable earth ground (ground rod) per the National Electrical Code (NEC) and local codes before operating generator. **Severe injury or death by electrocution** can result from operating an ungrounded motor.
- **NEVER** use gas piping as an electrical ground.

LIFTING SAFETY

CAUTION

- When raising or lowering of the pump is required, always attach an adequate rope or lifting device to the correct lifting point (handle) on the pump.

NOTICE

- **DO NOT** lift machine to unnecessary heights.
- **NEVER** lift the equipment while the engine is running.

TRANSPORTING SAFETY

NOTICE

- **ALWAYS** shutdown pump before transporting.
- **ALWAYS** tie down equipment during transport by securing the equipment with rope.

ENVIRONMENTAL SAFETY

NOTICE

- Dispose of hazardous waste properly. Examples of potentially hazardous waste are used motor oil, fuel and fuel filters.

- **DO NOT** use food or plastic containers to dispose of hazardous waste.
- **DO NOT** pour waste, oil or fuel directly onto the ground, down a drain or into any water source.

Table 1. Specifications	
Model	Yellow Submarine
Type	Submersible Pump
Impeller	Plastic
Suction & Discharge Size	1.25 in. (31.75 mm)
Maximum Pumping Capacity	33 gallons/minute (125 liters/minute)
Discharge Height Above Pumping Level	5 ft (1.5 meters) 1,800 gallons/hr (6,814 liters) 10 ft (3.0 meters) 1,320 gallons/hr (4,997 liters) 15 ft (4.5 meters) 720 gallons/hr (2,725 liters) 20 ft (6.0 meters) 120 gallons/hr (454 liters)
Power	0.25 HP (0.37kw)
Voltage Phase	1Ø 115V
Starting Amps	11.5
Running Amps	2.3
Thermal Overlaod Protection	YES
Rotation	CCW
Power Cable Length	9.0 ft. (274 cm.)
Dimensions (Dia x Height)	6-1/4 in. (15.9 cm.) x 9.5 in. (24 cm.)
Dry Net Weight (Shipping)	8.5 lbs. (3.85 Kg.)
Dry Net Weight	6.0 lbs. 2.72 Kg.)

1. **Motor Rotation –** Upon start-up, the pump "kicks" in the opposite direction of motor rotation. The correct rotation is counterclockwise (CCW) as viewed from the impeller end of the pump.

Introduction

The ***MQ Model Yellow Submarine*** submersible pumps is designed to pump water and is used for the draining (dewatering) of flooded rooms, drains and fill tanks, power fountains and waterfalls swimming pool covers, and flat roofs.

A plastic impeller is attached to the output shaft of a 1/4 HP electric motor which provides adequate power for general purpose pumping. This submersible pump is supplied complete with an electric power cable, and a discharge port located at the top of the pump which accepts a 1-1/4-inch hose. For greater versatility, the 1-1/4-inch NPT discharge port is equipped with a garden hose adapter

This pump is ideal for portability because of its light weight and carrying handle. In addition this pump will pump dry to 1/8-inch. Built in overload protection protect the electric motor from overheating.

The pump when in use, should be installed as free standing (upright position) on its strainer base. A 1-1/4-inch discharge hose (not supplied) should be connected to the discharge port located on top of the pump. The discharge hose should be adequately supported to avoid stress on the pump.

For maximum water flow, the discharge hose should be kept as short as possible, and with minimum elevation above the pump. Remember as the length and/or height of the discharge hose is increased, the flow of water will be reduced. Also any reduction in the hose size, and any fittings such as valves or outlet nozzles, will restrict the water flow.

To avoid back-siphonage when the pump is switched off, ensure that the end of the discharge hose is installed above the water level at the final discharge point.

When the pump is switched off, the water remaining in the hose will run back through the pump. This can be avoided by placing a non-return valve in the hose nearest the pump.

NEVER use this submersible pump to pump flammable liquids or operate in a explosive or flammable environment.

Avoid using this pump in conditions where mud, grit, silt or other debris are present. These conditions could cause blockage and cause excessive pump wear.

DO NOT install the pump directly into an area where there is a heavy build-up of mud, grit, silt or debris. If this condition is present, install the pump on a platform before operating.

This pump must always be positioned on a platform in an upright position. **NEVER** operate the pump by a suspended rope. To prevent large solids from entering the pump, install a wire mesh screen or similar barrier around the pump.

If the pump was used to pump water containing mud, silt, use clean water to flush out the pump after each use.

DO NOT allow the pump to run dry, as this will damage the pump. During maintenance, dry running is permissible but only for a few seconds.

NEVER lift the pump by its electrical power cord. **ALWAYS** lift the pump by its carrying handle or attached a rope to carrying handle.

A fully submerged pump in liquid will not freeze, unless the liquid freezes. **DO NOT** allow a partially submerged pump to freeze. The expansion of water freezing in the volute may crack the pump, causing expensive repairs. If there is any danger of the pump being subjected to freezing temperatures, Lift the pump from water and allow it to drain thoroughly.

If the pump jams or the pump rotor locks for any reason, disconnect the pump from the power source immediately. Allowing the pump motor to cycle **ON** and **OFF** under an overload condition can burn out the motor.

When replacement of nuts and bolts is required, use only recommended parts as referenced in the parts section of this manual. This pump uses ***metric*** threads. **DO NOT** use English measurement threads.

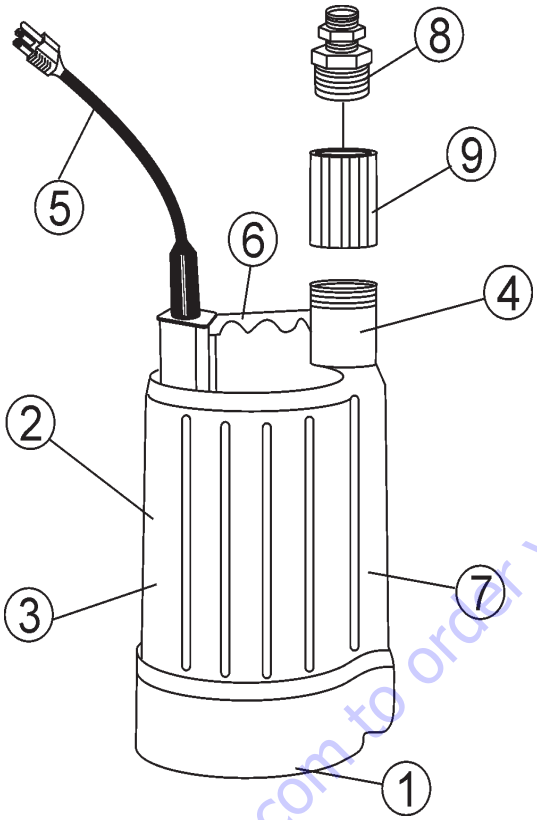


Figure 1. Submersible Pump Components

Figures 1 shows the location of the basic components, for the **MQYELLOW SUBMARINE** submersible pump. Listed below is a brief explanation of each component.

1. **Strainer Base –** This strainer base is made of stainless steel which is resistant to hardware corrosion. **DO NOT** pump large objects or debris with this pump. This pump is for pumping water only. For dewatering purposes, always place the strainer base on a platform.
2. **Volute/Impeller –** Impellers are constructed of high-chrome ductile iron to minimizes wear and prolong service life.
3. **Electric Motor –** This unit utilizes a single-phase, 115 V, 0.25 HP electric motor. Consult with a licenced electrician before connecting motor to a power source. Observe all city and local safety codes.
4. **Discharge Port –** Connect a 1-1/4-inch hose to this port. Remember to adequately support the discharge hose to avoid stress on the pump.
5. **AC Power Cable –** This unit is supplied with a 9.0 ft. (2.74 meters) AC power cable. Always check the cable for signs of wear. **NEVER!** use a defective power cable. Replace the cable immediately if the cable is worn or defective.
6. **Carrying Handle –** Always carry the submersible pump by its handle. **NEVER!** carry the pump by its power cord. Carrying or lifting the pump by the power cord, will cause undue stress on the cord, and ultimately the cord will become dislodged from the pump. See Table 3 for selecting proper extension cord.
7. **Thermal Overload Protection –** This pump will require the use of an external control box with a thermal overload protection device that will shut down the motor in the event of high operating temperatures. The motor will automatically restart once the temperature returns to an acceptable operating temperature.
8. **Garden Hose Adapter –** Connect a 3/4-inch diameter garden hose to this adapter.
9. **3/4 NPT Fitting –** Install this fitting into the discharge port of the pump when using a 3/4-inch garden hose.

Operation

1. Attach a suitable lifting cable (rope) to the carrying handle (Figure 2) on the pump and lower the pump into place. For applications where there is an excessive amount of mud, grit or silt, the use of a support platform is desirable. When pumping water from swimming pool type applications where there is little or no debris, the support platform is not required.

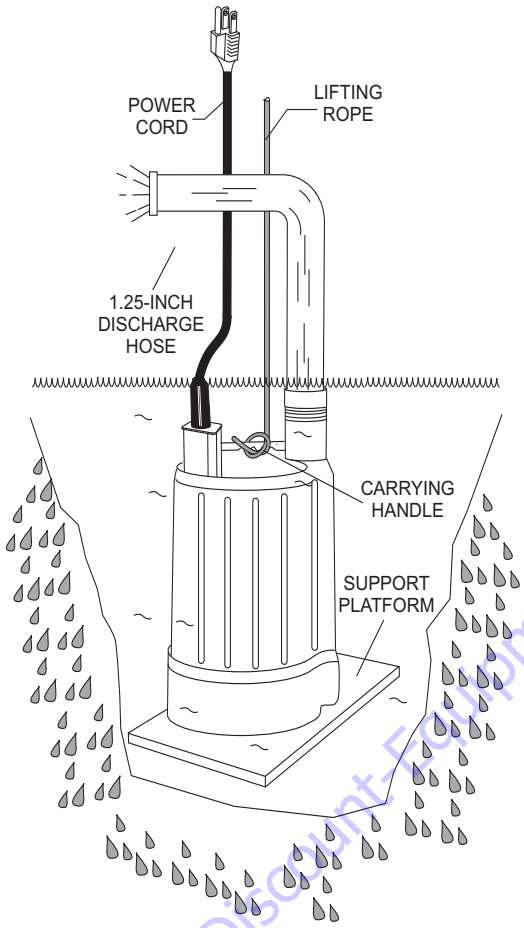


Figure 2. Submersible Pump Upright Position (Correct)

2. Make sure the pump is always placed in an upright position, not tilted (Figure 3). Never position the pump directly on a soft, loose bottom. Remember to attain maximum pumping capacity and prevent excessive wear, position the pump so it will not burrow itself into sand or clay.

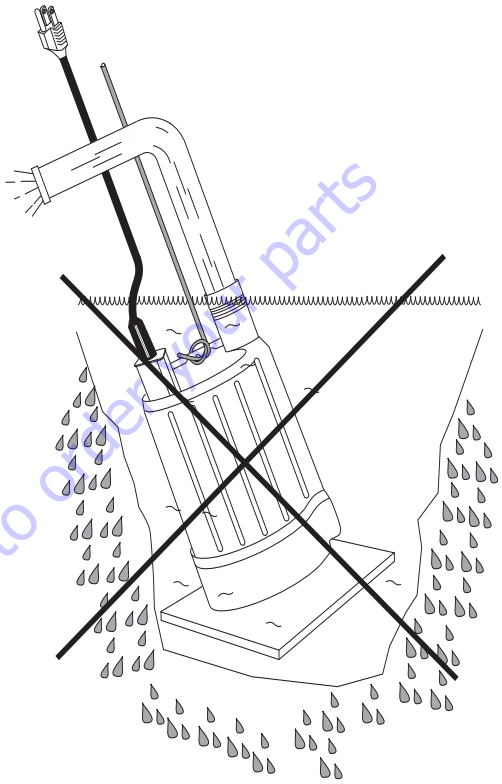


Figure 3. Submersible Pump Upright Position (Incorrect)

3. After the pump has been positioned correctly into place, power can be applied to the pump's electric motor.

4. **NEVER!** grab or touch a live power cord (Figure 4) with wet hands, the possibility exists of ***electrical shock***, ***electrocution*** and even ***death***.

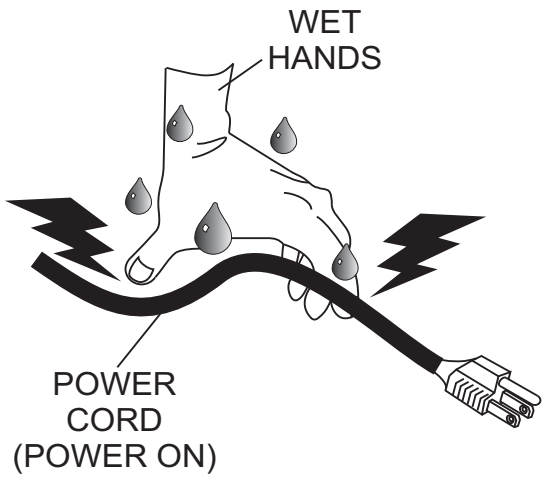


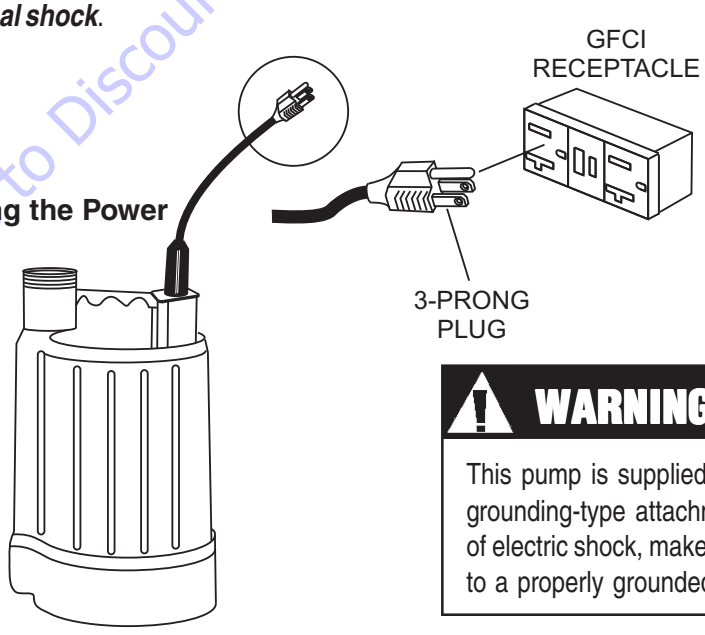
Figure 4. Power Cord (Wet Hands)

DANGER

NEVER! grab or touch a live power cord. **DO NOT** stand in water when connecting the pump's power cord into a voltage source. The possibility exist of electrical shock, electrocution and possibly ***death!***

3. If all of the pump's electrical requirements have been met, insert the power plug (Figure 5) on the pump into the power source receptacle. Make sure the extension cord is of proper size, see Table 3. It is ***recommended*** that the pump's power cord be plugged into a ***GFCI receptacle*** to prevent the possibility of ***electrical shock***.

Figure 5. Connecting the Power



4. Wait a few seconds and water should begin to flow from the discharge hose.

5. If water is not flowing from the discharge hose or not flowing freely after a few minutes, remove the power from the pump and check the system for leaks.

Pump Shut-Down/Clean-up

1. Remove the power from the pump by turning off the circuit breaker or switch that provides power to the pump. Remember to make sure that hands are dry (not wet), and feet are not standing in water when removing or disconnecting power from the pump.

2. Using the lifting rope, lift the pump up from its current position. Remove the discharge hose from the discharge port on the pump.

3. If the pump was used to pump mud, grit or silt, flush vigorously with clean water.

4. Remove the pump from the water. Wipe off any mud or debris that might have attached itself to the pump.

5. Store pump in a clean dry place away from dirt and debris.

WARNING

NEVER ***cut*** or ***remove*** the ground prong from the pump's AC power cord.

WARNING

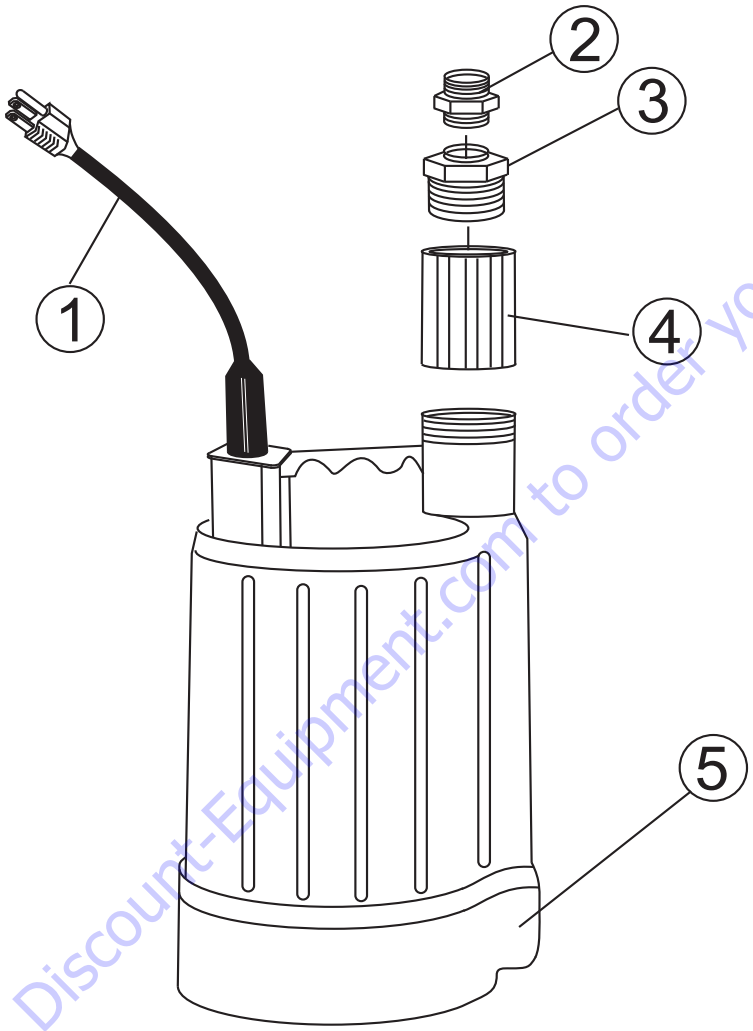
This pump is supplied with a grounding conductor and a grounding-type attachment plug. To reduce the possibility of electric shock, make certain that pump is connected only to a properly grounded receptacle.

TABLE 2. PUMP TROUBLESHOOTING

SYMPTOM	POSSIBLE PROBLEM	SOLUTION
Pump Fails To Start	Incorrect voltage/amps?	Check that proper voltage (115 VAC 1Ø) is being supplied to the pump. Also check that there is an adequate amount of current (amps) to run the pump. Check power source circuit breaker.
	Check electrical connections?	Inspect power cord.
	Blown fuse or defective circuit breaker?	Replace fuse or circuit breaker. Check cause of blown fuse or tripped circuit breaker.
	Impeller locked?	Disconnect power cord and check for clogging and improper impeller clearance. Unclog pump. Check overload protection device.
	Wet motor windings?	Use multimeter to check motor insulation. Insulation resistance must be approximately 15 megaohms. If resistance is low, disassemble pump motor and bake windings to dry them.
	Defective motor and pump bearings?	Check for excessive bearing wear, if worn replace bearings. Replace motor if defective.
Pump Fails to Deliver Full Output	Twisted or restricted discharge hose?	Lay hose flat un-kinked. Remove clog from hose line.
	Clogged pump strainer?	Clean strainer.
	Low voltage?	Use a voltmeter to check voltage while pump is energized. Voltage must be within ±10%. Check power source (no load and load). If an extension cord is used, make sure it has adequate current-carrying capacity for the required length.
	Impeller worn?	Replace impeller.
Water in Seal Oil	Defective mechanical seal?	Replace mechanical seal.

Table 3. Cable Selection (60 Hz, Single Phase Operation)

Current in Amperes	Load In Watts	Maximum Allowable Cable Length			
	115 VAC	#10 Wire	#12 Wire	#14 Wire	#16 Wire
2.5	300	1000 ft.	600 ft.	375 ft.	250 ft.
5	600	500 ft.	300 ft.	200 ft.	125 ft.
7.5	900	350 ft.	200 ft.	125 ft.	100 ft.
10	1200	250 ft.	150 ft.	100 ft.	
15	1800	150 ft.	100 ft.	65 ft.	
20	2400	125 ft.	75 ft.	50 ft.	
CAUTION: Equipment damage can result from low voltage.					



PUMP ASSY.

NO.	PART NO.	PART NAME	QTY.	REMARKS
1	YS139495	CABLE 9 FT.	1	
1	80000-002	CABLE 20 FT	1	
2	YS137728	GARDEN HOSE ADAPTER	1	
3	YS137727	FITTING, 3/4" NPT	1	
4	YS020331	BUSHING YELLOW SUB	1	
5	YS139492	STRAINER BASE	1	

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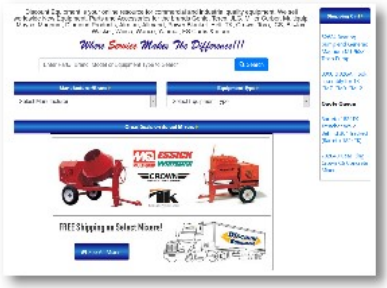

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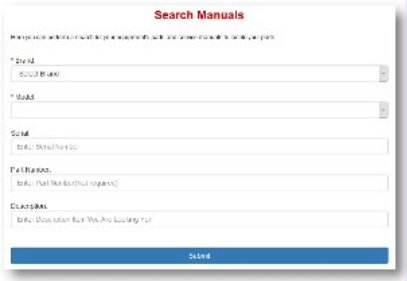

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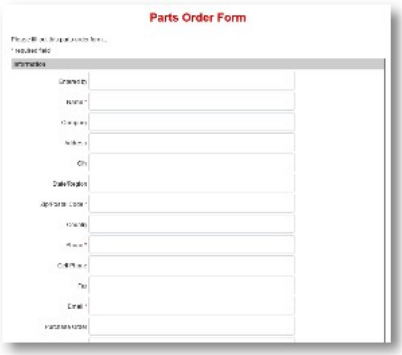

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OPERATION AND PARTS MANUAL

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