ultraflow™

SUBMERSIBLE SUMP PUMP RANGE

Installation Operating Maintenance Instructions & Warranty Conditions

IMPORTANT

This instruction manual must be read and adhered to prior to installating and/or operating the pump/s.

For safety reasons, persons who have not read these instructions should not be authorised to use the pump.

The Installer must provide a copy of this manual to the Operator of the pump/s.

While this booklet is comprehensive, it is not exhaustive. Therefore, if you need clarification of any of the information contained herein, please contact us.

General Pump Company SINCE 1975

Revision 1.2015. This information is subject to change without notice. Please contact General Pump Company to ensure you have the most up to date information.

PRIOR TO INSTALLATION & OPERATION

The Installer must consult a WHS supervisor and/or adhere to all relevant criteria and regulations. The installer should consult an engineer for site assessment and correct installation methods.

When the pump is delivered, first perform the following checks.

INSPECTION

While unpacking, inspect the product for damage during shipment, and make sure all the fasteners, clamps, etc. are tightened properly.

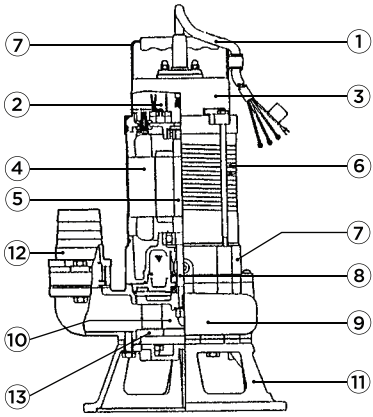
SPECIFICATION CHECK

Check the model number to make sure it is the product that was ordered. Be certain it is the correct voltage and frequency.

PRODUCT SPECIFICATIONS

CAUTION:

- Do not operate this product under any conditions other than those for which it is specified.
- Failure to observe this precaution can lead to electrical shock, electrical leakage, fire, water leakage, damage to property, injury and death.



1. Cable		
2. Protector	6. Motor Frame	10. Impeller
3. Motor Cover	7. Oil Chamber	11. Stand/Strainer
4. Motor	8. Mechanical Seal	12. Discharge
5. Shaft	9. Casing	13. Wear Plate

INSTALLATION

CAUTION:

- Do not use pump in liquids other than water, sewage, or chemically stable wastewater. Do not use pump in oil, salt water, flammable liquids, or organic solvents.
- Use with a power supply voltage within ±5% of the rated voltage.
- Do not use in water temperatures outside the range of 0-35°C. This can lead to failure, electrical leakage, shock or fire.
- Do not use in the vicinity of explosive or flammable materials, or areas classified as hazardous.
- Use only in fully assembled state.

NOTE: *Consult your dealer or representative before using with any liquids others than those indicated in this document.*

PREPARING FOR INSTALLATION

Before installing the pump at a work site, you will need to have the following tools and instruments ready.

- Insulation resistance tester
- AC Voltmeter
- AC ammeter (clamp on type)
- Bolt and nut tighteners
- Power supply connection tools
- Ensure adequate power supply is available

NOTE: *Please read also the instructions that come with each of the test instruments.*

CHECKS TO MAKE BEFORE INSTALLATION

When a three pin plug is used:
Use the megohmeter to measure the insulation resistance between the cabtyre cable plug tips and ground.

When connection leads are used:
With the megohmeter, measure the insulation resistance between each core lead and the ground lead (Green/Yellow).

Reference insulation resistance:
20Ω or greater.

NOTE: *The reference insulation resistance (20Ω or greater) is the value when the pump is new or has been repaired.*

WARNING:

- When installing the pump, pay close attention to its centre of gravity and weight. If it is not lowered into place correctly, it may fall and be damaged or cause injury.
- When transporting the pump by hand, be sure to employ manpower commensurate with the weight of the pump. To avoid back injury when lifting the pump, bend the knees to pick it up rather than bending your back.

CAUTION:

- Do not under any circumstances install or move the pump by suspending it from the power cable. The cable may be damaged, causing electrical leakage, shock, fire, injury or death.

1. Attach the hose to the hose coupling as far as it will go, then fasten it securely with the hose band.
2. Avoid dropping the pump or other strong impact. Lift the pump by holding it firmly with both hands or by attaching a rope or chain to the handle.
3. Install the pump in an upright position on a secure base. Ensure that the inlet to the pump is not blocked by sludge, mud, solids, plastic bags, rubbish.
4. Where a float switch is attached to the pump, ensure the float switch is free to operate without interfering with tank walls, pipe work etc.
5. A swing check non-return valve and isolating valve should be fitted to discharge pipe close to the pump but accessable so that it can be replaced.
6. The pump must not be used in or at swimming pools, garden ponds or where there are people in the water.

CAUTION:

- Avoid dry operation, which will not only lower performance but can cause the pump to malfunction, leading to electrical leakage and shock.

7. Install the pump in a location with sufficient water level, where water collects readily.

NOTE: *Please refer to "Operating Water Level" (page 10) for the water level necessary for operation.*

NOTE: *The discharge end should be located higher than the water surface. If the end of the hose or pipe is submerged, water may flow back to the pump when the pump is stopped; and if the hose end is lower than the water surface, water may overflow when the pump is turned off.*

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CAUTION:

- If large quantities of earth are sucked up, damage resulting from erosion in the pump can lead to electrical leakage and shock.

8 To prevent the pump strainer stand from becoming submerged in mud, causing it to suck in debris, mount it on a block or firm base.

ELECTRICAL WIRING

PERFORMING ELECTRICAL WIRING

WARNING:

- Electrical Wiring should be perfromed by a qualified/licenced person in accord with all applicable regulations. Failure to observe this precaution not only risks breaking the law but is extremely dangerous.
- Incorrect wiring can lead to electrical leakage, electrical shock, fire, property damage, injury or death.
- Always make sure the pump is equipped with the specified overload protectors and fuses or breakers, as required by law, so as to prevent electrical shock from an electrical leak or pump malfunction.
- The voltage, frequency and current rating are displayed on the name plate, please ensure that the power supply meets the requirements.

GROUNDING

WARNING:

- Do not use the pump without first earthing it properly. Failure to earth it can lead to electrical shock from an electrical leak or pump malfunction.

CAUTION:

- Do not attach the earth wire to a gas pipe, water pipe, lightening arrestor or telephone earth wire. Improper earthing can result in electrical shock.

CONNECTING THE POWER SUPPLY

WARNING:

- Before connecting leads to the terminal, make certain the power supply is turned off (circuit breaker, etc), to avoid electrical shock, shorting,

or unexpected starting of the pump, leading to injury or death.

WARNING:

- Before inserting the power supply plug make certain the power supply is turned off (circuit breaker etc), to avoid electrical shock, shorting, or unexpected starting of the pump, leading to injury or death.

CAUTION:

- Do not use the pump with the power cable or plug connected loosely, which can result in electric shock, shorting, fire, injury or death.

CAUTION:

- Draw power from a dedicated power outlet. Sharing the outlet with other equipment may overheat the branch outlet and could result in a fire.
  - When using a three pin plug, connect as described in the manufacturer's instructions.
  - When a single-phase power source is used, connect the leads to the control panel terminals as shown in the diagram, making sure they do not become twisted together.

CAUTION:

- Be sure to use a dedicated power supply with a ground/earth leakage circuit breaker.

POWER CABLE

CAUTION:

- If it is necessary to extend the power cable, use a core size equal to or larger than the original. This is necessary not only for avoiding a voltage drop, but to prevent cable overheating which can result in fire, electrical leakage, electrical shock, injury and death. Refer to AS3000
- If a cable with cut insulation or other damage is submerged in the water, there is a danger of water seeping into the motor causing a short. This may result in damage to pump, electrical leakage, electrical shock, fire, injury or death.
- Be careful not to let the power cable be cut or become twisted. This may result in damage to the pump, electrical leakage, electrical shock, fire, injury or death.

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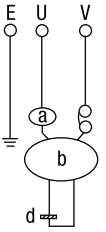
- If it is necessary to submerse the connection leads of the power cable in water, first seal the leads completely in a molded sleeve, to prevent electrical leakage, electrical shock, fire, injury or death.
- Do not allow power cable leads or power supply plug to become wet.
- Make sure that the cable does not become excessively bent or twisted, and does not rub against a structure in a way that might damage it.

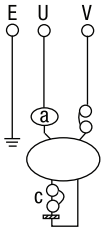
ELECTRICAL CIRCUIT DIAGRAMS

SINGLE PHASE BELOW 1HP (INCLUDE 1HP)



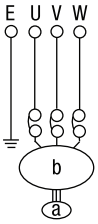
E: Earth Cord Colour: yellow/green (green)
U: Power Colour: brown
V: Power Cord Colour: blue

SINGLE PHASE ABOVE 1HP



E: Earth Cord Colour: yellow/green (green)
U: Power Colour: brown
V: Power Cord Colour: blue

THREE PHASE



E: Earth Cord Colour: yellow/green (green)
U: Power Colour: brown/orange
V: Power Colour: grey
W: Power Colour: black

- THREE PHASE PUMPS must be connected to a external motor starter fitted with a contactor and overload. The nominal current of the motor starter must correspond to the electrical data marked on the pump nameplate.

CHECKING OF DIRECTION OF ROTATION (THREE PHASE PUMPS ONLY)

The direction of rotation should be checked every time the pump is connected to a new installation.

Check the direction of rotation as follows:

At all times keep fingers and hands away from impeller.

1. Position the pump so that the impeller can be observed.
2. Start the pump momentarily, pump will jerk – be careful.
3. Observe the rotation of the impeller. The correct direction of the rotation is indicated by an arrow on the top of the motor (anticlockwise when seen from the bottom). If the impeller rotates in the wrong direction, reverse the direction of rotation by interchanging two phases of the motor.

If the pump is connected to a piping system, the direction of rotation can be checked as follows:

1. Start the pump and check the quantity of water or the discharge pressure.
2. Stop the pump and interchange two of the phases to the motor.
3. Start the pump and check the quantity of water or the discharge pressure.
4. Stop the pump.
5. Compare the results taken under point 1 and 3. The connection which gives the larger quantity of water or the higher pressure is the correct direction of rotation.

OPERATION

BEFORE STARTING

1. Make sure once again that the product is of the correct voltage and frequency rating.

CAUTION:

- Using the product with a voltage and frequency other than the rated voltage frequency will not only lower its performance but damage the product.

NOTE: *Confirm the rated voltage and frequency on the model name plate.*

2. Confirm the wiring, supply voltage, circuit breaker capacity, and motor insulation resistance.

Reference insulation resistance: 20Ω or greater.

NOTE: *The reference insulation resistance (20Ω or greater) is the value when the pump is new or has been repaired.*

3. The setting on the circuit breaker or other overload protector should be made in accord with the rated currency of the pump.

NOTE: *See the model name plate on the pump for its rated current.*

TEST OPERATION

WARNING:

- Never operate the pump while it is suspended in the air. The recoil will result in injury, property damage or death.

1. Run the pump for a short time (3–10 minutes) and confirm the following:

- Using an ammeter (clamp-on type), measure the operating current at the L1, and L2 phase leads on the terminal.

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Countermeasure: If the operating current exceeds the rated value, pump motor overload may be a cause, or there may be insufficient back pressure. Make sure the pump has been installed under proper conditions as described in Installation (page 5).

- Using an AC voltmeter (tester), measure voltage at the terminals.

Supply voltage tolerance: within ±5% of rated voltage.

Countermeasure: If the supply voltage is outside the tolerance, possible causes are the power supply capacity or an inadequate extension cable. Look again at Electrical Wiring (page 8) and make sure the conditions are proper.

CAUTION:

- In case of very excessive vibration, unusual noise or odour, turn off the power immediately and consult with your nearest dealer or representative. Continuing to operate the pump under abnormal conditions may result in electrical shock, fire, property damage, injury or death.

2 If the test operation reveals no problems, continue operating the pump.

OPERATION

WARNING:

- Do not operate the pump in dry pit, well, trench etc.
- The pump may become very hot during operation. To avoid being burned, be careful not to contact the pump accidentally.
- Make sure no extraneous objects such as pins, nails or other metal objects, cloth, wipes, rocks, wood, napkins or sanitary items or products of this nature are sucked into the pump. These can damage the pump or cause it to malfunction, and can result in electrical shock or electrical leakage.
- In case of a power outage, turn off the power to the pump to avoid having it start unexpectedly when the power is restored, presenting serious danger to people in the vicinity.
- Pay careful attention to the water level while the pump is operating. Dry operation may cause the pump to malfunction.

  NOTE: *See page 10, "Operating water level" for the water level necessary for operation.*

- Sharp bends in the hose, especially near its base, may cause air pockets to form resulting in idle operation. Lessen the degree of bending while continuing to operate the pump.

OPERATING WATER LEVEL

CAUTION:

- Do not operate the pump below the C.W.L. (continuous running water level). Failure to observe this condition may result in damage to pump, electrical leakage or electrical shock.

MOTOR PROTECTION SYSTEM (Autocut Protector)

Some single phase pumps have a built-in motor protection system (Autocut Protector). If an excessive current is detected or the motor overheats, for reasons such as the following, the pump will automatically, stop operating regardless of the water level, to protect the motor.

- Change in supply voltage polarity
- Overload
- Open-phase operation or operation under constraint

NOTE: *Always determine the cause of the problem and resolve it before resuming operation. Simply repeating cycles of stopping and restarting will result in damage to the pump. Do not continue operation at a very low lift, low water level, or while the strainer stand is clogged with debris. Not only will performance suffer, but such conditions may cause noise, heavy vibration, and malfunctioning.*

MAINTENANCE AND INSPECTION

Regular maintenance and inspections are necessary for continued efficient functioning of the pump. If any abnormal conditions are noticed, refer to the section on Troubleshooting (pages 12-13) and take corrective measures immediately.

It is highly recommended that a spare pump be kept ready in case of any problems.

PRIOR TO INSPECTION

WARNING:

- Consult WHS supervisor for correct proceedures.

WARNING:

- Detach the power cable from the receptacle or terminals, after making certain the power supply (circuit breaker, etc) is turned off. Failure to follow this precaution will result in a serious accident or death from electrical shock or unexpected starting of the pump motor.

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1 Washing the Pump: Remove accumulated matter from the surface of the pump and wash it with clean water. Take special care to remove any debris from the impeller.

2 When inspecting the pump exterior look for any peeling or chipped paint, and make sure the nuts and bolts are fastened tightly. Any cracks in the surface should be repaired by cleaning up that area, drying it and then applying touchup coating.

NOTE: *touchup is not supplied. Note that some kinds of damage or looseness may require that the unit be dismantled for repairs. Please consult with your nearest dealer.*

Frequency	Inspection Items
MONTHLY	Measure insulation resistance – Reference resistance 1Ω or greater ***NOTE:*** *if the insulation resistance has become notably lower than previous inspection, an inspection of the motor will be necessary.* • Measure operating current - Compare with rated current. • Measure supply voltage - Compare with allowable range (within ±5% of rated voltage) • Pump inspection. • A noticable drop in performance may indicate wear in the impeller, etc., or else clogging of the strainer stand, etc. Remove clogged debris, and replace any worn parts.
BI-ANNUALLY	• Oil inspection. • Check the oil every six months or after 1,000 hours of use, whichever comes first.
ANNUALLY	• Change Oil. • Change oil every 12 months or after 2,000 hours of use, whichever comes first. • Designated Oil: Turbine oil VG32 - Caltex – or similar. • Change mechanical seal. ***NOTE:*** *Trained personnel are required for inspecting and replacing the mechanical seal. Consult with your nearest dealer or representative.*
2 TO 5 YEARS	• Overhaul – This should be carried out even if there are no problems with the pump. The frequency depends on how continuously the pump is in use. ***NOTE:*** *Consult with your nearest dealer*

STORAGE

When the pump is out of use for an extended period, wash it and dry it thoroughly, then store it indoors.

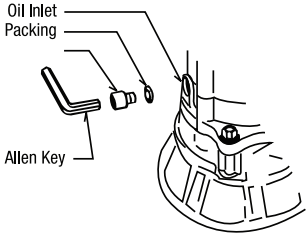
NOTE: *Always run a test operation before putting the pump back into service.*

When the pump is left installed in the water, it should be run at regular intervals (about once a week).

OIL INSPECTION & CHANGE

- Inspecting Oil
  Remove the Oil Plug (Hex. Bolt) and tilt the pump to drain a small amount of oil. If the oil is milk white or has water mixed with it, the Mechanical seal maybe faulty. In this case the pump will need to be dismantled and repaired.
- Replacing the Oil
  Remove the Oil Plug and drain all the oil, then replace it with the specified amount.

NOTE: *Used oil and other waste products should be disposed of by a qualified agent, in accord with applicable laws. The Oil Plug packing and O-Ring should be replaced each time the oil is inspected or changed.*



TROUBLESHOOTING

Trouble	Cause	Remedy
Does not start. Starts, but immediatly stops.	1. Power Failure 2. Large discrepancy between power source and voltage 3. Significant drop in voltage 4. Motor phase malfunction 5. Electric circuit connection faulty 6. Faulty connection of control circuit 7. Fuse blown 8. Faulty magnetic switch 9. Water is not at level indicated by float 10. Float is not at appropriate level 11. Float defective 12. Short circuit breaker is functioning 13. Foreign matter clogging pump 14. Motor burned out 15. Motor bearing failure	1.- 3. Contact electric power company and devise counter measures 4. Inspect connections and magnetic switch 5. Inspect electric circuit 6. Correct wiring 7. Replace with correct type of fuse 8. Replace correct type of magnetic switch 9. Raise water level 10. Move float to appropriate starting level 11. Repair or replace 12. Repair location of short circuit 13. Remove Foreign matter 14. Repair or replace 15. Repair or replace

TROUBLESHOOTING

Trouble	Cause	Remedy
Operates, but stops after a while.	1. Prolonged dry operation has activated motor protector and caused the pump to stop 2. High liquid temperature has activated motor protector and caused the pump to stop.	1. Raise stop water level 2. Lower liquid temperature
Does not pump. Inadequate volume.	1. Reverse rotation 2. Significant drop in voltage 3. Operating a 60Hz pump on 50Hz 4. Discharge head is high 5. Large piping loss 6. Low operating water level causes air suction 7. Leaking from discharge piping 8. Clogging of discharge piping 9. Foreign matter in suction inlet 10. Foreign matter clogging pump 11. Worn impeller	1. Correct rotation (operation 2, 3) 2. Contact electric power company and devise counter measures 3. Check nameplate 4. Recalculate and adjust 5. Recalculate and adjust 6. Raise water level or lower pump. 7. Inspect, repair 8. Remove foreign matter 9. Remove foreign matter 10. Disassemble and remove foreign matter 11. Replace impeller
Over current.	1. Unbalanced current and voltage 2. Significant voltage drop 3. Motor phase malfunction 4. Operating 50Hz pump on 60Hz 5. Reverse rotation 6. Low head, Excessive volume of water 7. Foreign matter clogging pump 8. Motor bearing is worn or damaged	1. Contact electric power company and devise counter measure 2. Contact electric power company and devise counter measure 3. Inspect connections and magnetic switch 4. Check nameplate 5. Correct rotation (see page 7) 6. Replace pump with low head pump 7. Disassemble and remove foreign matter 8. Replace bearing
Pump vibrates; excessive operating noise.	1. SHut off valve closed too far 2. Piping resonates 3. Reverse rotation	1. Open shut off (valve) 2. Improve pipe mounting 3. Correct rotation (see page 7)

WARRANTY CONDITIONS

GENERAL PUMP COMPANY warrants to the original user that its products are free from defects in materials and workmanship at the time of shipment and will make good, by repair or at its option by replacement, faults and/or defects which appear during the warranty period of twelve (12) months after the purchase date, provided that:

1. the equipment was correctly installed and under proper use in accordance with the 'Installation, Operation and Maintenance Instructions' issued by GENERAL PUMP COMPANY and also accepted codes of good practice, relevant Australian Standards and Government regulations.
2. the claim for goods under warranty arises solely from alleged faulty and/or defective materials and/or workmanship.
3. the company is notified in writing within twenty four (24) hours, after the discovery of any alleged faults and/or defects stating the date, place of purchase and invoice number.
4. the repair is carried out by GENERAL PUMP COMPANY or its agent who has been specifically authorised in writing to carry out the repair under warranty.
5. the faulty and/or defective goods are returned freight paid and at the purchaser's risk to the company or its authorised agent as required.
6. pumps returned for service/warranty which have been used for other than clean water must be clearly marked with details of the pumped liquid or application involved.
7. it is the customers responsibility to advise the company when any product returned for service/warranty has been in contact or used with hazardous liquids.
8. goods are maintained and serviced according to instructions set by GENERAL PUMP COMPANY.

GENERAL PUMP COMPANY'S warranty does not cover the failure or defect of any product, process, system, part or component:-

- due to advice, directions or instructions provided by GENERAL PUMP COMPANY, it's Staff and/or contractors.
- that is determined by GENERAL PUMP COMPANY to be fair, normal wear and tear, misuse and abuse
- the Supplier shall not be under any liability for any injury, including loss of life, damage, loss including consequential damage or loss including physical, financial, mental damage or loss, disease resulting from the use of its products or resulting from any faults and/or defects therein. This includes the cost of taking up and reinstalling the equipment and the tradesperson's time and material costs.
- damage caused by abnormal operating conditions, tampering, war, violence, storm, cataclysm or any other force majeure.
- damage caused by pumps jamming on metal objects, wood, wet wipes, sanitary napkins, cloth, non-degradable toweling.
- damage caused by the equipment being used for an application for which it is not manufactured or recommended for.
- damage caused by sand or abrasive materials, corrosion due to saline water,

hazardous liquids, electrolytic action, liqiud temperature beyond the recommended range, cavitation, improper supply voltage, or insufficient liquid to enable the pump to perform to specification.

- damage caused by inadequate power supply, under voltage, power surge or spike, and generator power supply.
- damage caused by the lack of maintenance of installation including but not limited to regular cleaning of pits, pumpwells and float switches
- damage caused by incorrect installation including, but not limited to, incorrect valves, incorrect installation of valves and incorrect electrical termination
- unless an appropriate consulting engineer and WHS officer has agreed to and given written consent to the installation and operating instructions, guidelines, operations, maintenance, service and repairs.
- if the alleged fault or defect would have been detectable prior to installation.

This warranty does not exclude any condition or warranty implied by the Trade Practices Act or seperate state laws and is in additon to any right that the original purchaser or any subsequent purchase may have at law.

In the case of equipment or components which are not manufactured, repaired or installed by GENERAL PUMP COMPANY but are supplied by the company, the warranty is limited to that extended by the manufacturer, supplier, repairer or installer of such equipment or components.

GENERAL PUMP COMPANY has made a diligent effort to accurately illustrate and describe it products in all its literature and quotations. However, such illustrations and descriptions are not a warranty.

The above express warranty is in lieu of and excludes all other warranties, express or implied including without limitation, merchantability or fitness for a particular purpose.

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