

AUDEX

AW Series Manual



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Warnings & Safety

Read this manual carefully before installing and using your Audex AS pump. Improper use of this product can cause personal injury and damage to property and may void the warranty.

Please retain this manual for future reference and keep it readily available at the location of the unit.

It is extremely important that you read and understand the safety messages and regulations carefully before handling the product.

They are published to help reduce the risk of the following hazards as far as reasonably practicable:

- Personal accidents and health problems, now and in the future
- Damage to the product
- Product malfunction

The operator must be aware of all appropriate safety precautions to prevent physical injury.

Operating, installing, or maintaining the unit in any way that is not covered in this manual could cause death, serious personal injury, or damage to the equipment. This includes any modification to the equipment or use of parts not provided. If there is a question regarding the intended use of the equipment, please contact a representative before proceeding.

This manual clearly identifies accepted methods for disassembling units. These methods must be adhered to.

Trapped liquid can rapidly expand and result in explosion and injury. Never apply heat to impellers or their retaining devices to aid in their removal.

Do not change the service application without the approval of an authorized representative.

Always keep the work area for installation, operation and maintenance, clean and tidy.

Pay attention to the risks presented by gas and vapours in the work area.

Avoid all electrical dangers. Pay attention to the risks of electric shock or arc flash hazards.

Always bear in mind the risk of drowning, electrical accidents, and burn injuries.

Never operate a pump unit unless appropriate safety devices are installed.

Electrical connections must be made by certified electricians in compliance with all international, national, state, and local regulations. For more information about requirements, see sections dealing specifically with electrical connections, in conjunction with regulations applicable at the location where the connections are taking place.

Follow all regulations regarding oils and greases used in the operation, storage, and maintenance of your Audex pump.

Installation

For electrical installation recycling requirements, consult your local electricity authority and conform to all local and national regulations.

Disconnect and lock out electrical power before installing, servicing, or maintaining the unit.

Make sure that the unit is mechanically secure, and that it cannot roll or fall over and injure people or damage property.

Rinse the unit thoroughly with clean water before working on it.

Rinse the components in water after dismantling.

Check the explosion risk before you weld or use electrical hand tools.

Allow all system and pump components to cool before you handle them.

Make sure that the product and its components have been thoroughly cleaned.

Do not open any vent or drain valves or remove any plugs while the system is pressurised. Make sure that the pump is isolated from the system and that pressure is relieved before you disassemble the pump, remove plugs, or disconnect piping.

Worn impeller and/or pump housing can have very sharp edges. Wear protective gloves.

Always perform a trial operation when starting the pump after a reassembly. If the pump was assembled improperly, it may lead to abnormal operation, electrical error or water damage.

Use the pump dimensional drawing in order to ensure proper installation.

Provide a suitable barrier around the work area, for example, a guard rail.

The supply voltage variation

- Continuous running: max $\pm 5\%$ of the rated voltage.
- Intermittent running: max $\pm 10\%$ of the rated voltage.

To use the pump, the water temperature should be between 0°C and 40°C .

The pump should be used only for pumping water or water-based fluids. The pump should not be used to pump fluids such as oil or organic solvents.

The pump must never be used to pump explosive liquids and should not be operated in an area where explosive elements may be present.

The pump must not be used in a partially disassembled state.

Do not use the pump in an area where the water pressure exceeds the values given below, as it may damage the pump, or cause a short or electrical shock.

If an excessive amount of sediment is drawn into the pump, it may cause the pump to wear, which can lead to current leakage or electrical error.

Make sure that all unused conductors are insulated.

You must ground all electrical equipment. This applies to the pump, all starting and running control panel/s, and any monitoring equipment. Test the ground lead to verify that it is connected correctly.

If the motor cable is jerked loose by mistake, the ground conductor should be the last conductor to come loose from its terminal. Make sure that the ground conductor is longer than the phase conductors. This applies to both ends of the motor cable.

Risk of electrical shock or burn. You must connect an additional ground fault protection device to the grounded connectors if persons may come into physical contact with the pump or pumped liquids.

If the pump is equipped with automatic level control and/or internal contactor, there is a risk of sudden restart.

Do not insert your finger or any object into the pump's inlet. Doing so may cause injury, and physical damage.

Do not operate the pump below Continuous running Water Level (C.W.L) as doing so will damage the pump, causing current leakage and electrical shock.

Personal injury hazard. Troubleshooting a live control panel exposes personnel to hazardous voltages. Electrical troubleshooting must be done by a qualified electrician. Failure to follow these instructions will result in serious personal injury, death, and/or property damage.

Always disconnect and lock out power before servicing to prevent unexpected start-up. Failure to do so could result in death or serious injury.

Warranty

The Audex comprehensive global warranty is included in your sale price.

Applies to Audex pumps purchased from Atlantic Pumps UK or All Pumps Argentina, or an authorized Intrax distributor.

To keep your Warranty valid, please note:

- This pump has been registered on the Intrax Pump Register
- All wear parts, and normal wear & tear, are excluded from the Warranty
- Inadequate maintenance, or faulty repair by a non-Intrax company invalidates the warranty
- Please use genuine OEM parts manufactured or supplied by an Intrax company
- Please observe the installation and operating instructions
- Specified regular service schedules must be adhered to, and all services logged on the Intrax Pump Register
- Any changes to the pump location or application to be recorded on the Intrax Pump Register
- The warranty starts from the day of despatch from our premises and lasts for 1 year
- This warranty is always subject to our terms and conditions, available on our website at www.atlanticpumps.co.uk
- When purchasing pump parts, please provide the product code shown on the nameplate.

Environmental

Always keep the operation, storage, and maintenance areas clean to avoid and/or discover oil and other contaminant leakages etc.

Dispose appropriately of all waste, particularly if any non-biodegradable oils used.

Handle and dispose of the processed liquid in compliance with all applicable environmental regulations.

Clean up all spills in accordance with all applicable safety and environmental procedures.

Report all environmental emissions and leakages to the appropriate authorities.

Recycling Guidelines

Please recycle every worn and/or disused part and/or pump where possible. Local and national guidelines must be followed. If local recycling facilities are not readily available, please contact your distributor to obtain guidance.

Prior to Use

1. Inspect the product

- a. Ensure that all items on the delivery note or packing list are present, and that no items are damaged.
- b. Unpack the goods and visually ensure that all parts are undamaged. Check that bolts and screws have not come loose during transit.
- c. If any issues are identified do not proceed further and immediately contact your Intrax dealer from whom you purchased the product, or the nearest representative office. The delivery should not be accepted or signed for prior to completion of all of the above checks.

2. Check the specification

- a. Find the nameplate on the pump and verify that it is the one you have ordered.
- b. Ensure that the voltage and frequency specifications match the original specification.
- c. If any issues are identified do not proceed further and immediately contact your Intrax dealer from whom you purchased the product, or the nearest representative office. The delivery should not be accepted or signed for prior to completion of all of the above checks.

3. Method of starting

- a. Ensure that the selected starting method is capable of driving your pump. Please note that electrical motors are largely inductive, so the current may significantly spike on start-up. As a general rule:
 - i. DOL (Direct On Line) start can create a current spike up to approximately 6 times the rated current.
 - ii. Soft Start can create a current spike up to approximately 3 times the rated current.
 - iii. Inverter drive can create a current spike up to approximately 1.2 times the rated current.
- b. If a starting method is yet to be chosen, always choose an inverter drive where budget allows, followed by soft start, and only use DOL where necessary. It is highly recommended to avoid DOL on all pumps over 18.5kW.

Installation Considerations

I. Considerations

a. Mounting

- i. Audex pumps should be either suspended from provided lifting points or rings, or suspended by purpose designed clamps around the pump.
- ii. Audex pumps should never be stood on the base of a tank where silt or sand could build up.
- iii. Ensure that the cable has no sharp bends, is not pinched, and cannot be drawn into the pump inlet.
- iv. Ensure that the hose or pipework is firmly attached to the pump outlet.
- v. The pump should never be suspended by the cable or pipework.

b. Suction requirements

- i. All Audex pumps require submersion up to the rated continuous working level as a minimum. This information is in the data tables later in this manual.
- ii. All Audex pumps have a maximum submersion pressure, this information is in the data tables later in this manual.
- iii. The pump strainer / inlet should never be blocked.
- iv. The fluid should not contain particles with any dimensions larger than the rated pump solids passage.

c. Ensure that the pump noise level is below the site / location permissible level.

Installation Preparation

I. Pre-installation

a. Recommended required install tools

- i. AC voltmeter
- ii. AC ammeter (non-contact CT type)
- iii. Insulation resistance tester
- iv. Spanners / wrenches
- v. Screwdrivers
- vi. Cable preparation tools as appropriate
- vii. Electrical panel key

Installation Electrical

I. Electrical connection

a. Preparation

- i. Ensure that the voltage and frequency of the supply match the requirements on the data plate.
- ii. Ensure that all circuit breakers and similar equipment are rated correctly, and set to the appropriate level where applicable.
- iii. Ensure that all cables and wires are of a sufficient specification for the required current and voltage, and comply with all relevant regulations.
- iv. Ensure that the pump cable sheath is completely undamaged. Any cuts or holes which penetrate the outer sheath or further are not permitted, and the pump should not be used if any such fault is present. Water can travel down the inside of the outer sheath and into the motor.
- v. If the pump will be running intermittently, ensure that the max start/stops of the pump are complied with through the appropriate means.
- vi. The cable gland on the pump is resin-filled to ensure weathertightness. If the cable is strained in any direction this may be compromised and therefore the pump should be returned to the dealer / manufacturer for the cable to be re-set in resin.

b. Connection

- i. Ensure that control panel entry holes are suitably protected to prevent cable damage and isolate accidental cable strain to outside the panel. In most cases this will be an IP rated cable gland.
- ii. Use cable crimps or ferrules where possible to ensure that all strands of each core are used, remain undamaged, and are protected.
- iii. Earth should always be connected to the earth terminal in the panel.
- iv. With three phase pumps the three live connections are usually numbered 1 to 3, and most commonly connected as follows for the correct phase rotation:
 1. Normally Brown / Red
 2. Normally Black
 3. Normally Grey / Gray / Blue

v. With single phase pumps common wire colours are as follows:

1. Live (hot / active) normally Brown / Black

2. Neutral normally Blue / White

vi. Control cores (usually numbered 5 and 6) are provided for a thermal switch. If this is fitted, it will remain closed whilst the pump is under the maximum temperature limit, and opens if the pump overheats. This should be connected into the control panel to cut the pump off if these cores are not continuous.

vii. Control cores (usually numbered 7 and 8) are sometimes provided for a seal fail sensor. This is currently fitted as standard on 22kW pumps and larger. These can safely be left disconnected (no power present), but we recommend that these are connected to a resistance monitoring device. One core (usually 7) is connected to ground in the pump casing, and the other (usually 8) is connected to a probe below the motor. As soon as moisture breaches the seal the resistance will fall between these two cores. The output of a resistance monitoring relay can then be used to cut the pump off before damage occurs to the motor.

viii. Ensure that all terminals are tightened sufficiently to ensure arcing is not possible due to loose connections.

ix. All cable bends should not be sharp. The cables have a minimum bending radius which is available from Audex or your local distributor if in doubt.

x. The voltage drop in long cables must be taken into account. The pump rated voltage is as at the pump, not the supply end of the cable. With 20m or less cables, this voltage drop is usually negligible but if in doubt or if longer cables are used this should be verified. Voltage tolerance is available from Audex or your local distributor.

Installation Testing

I. Operation – This is a general guide and location specific considerations must be taken into account to ensure safety.

i. Rotation direction – Three phase pumps must have their rotation direction verified during installation. If the rotation direction is incorrect, any two of the live wires must be reversed.

1. Turn the pump on whilst the pump partially submerged, or if necessary whilst out of the water (not recommended due to potential of shortening seal life).
2. Quickly check rotation by checking which way the pump kicks on start-up. This is in the opposite direction to the impeller rotation.
3. The impeller should rotate clockwise as the pump is viewed from the top, so the kick should be anticlockwise.
4. Turn the pump back off as soon as possible (within 10 seconds) to prevent overheating.
5. If the kick was clockwise, swap two of the live connections around in the panel, e.g. L1 – L2 and L2 – L1.

ii. Attach the hose / pipework

iii. Put the pump into the fluid in its final location

iv. Turn the pump back on to ensure everything works correctly. Please note that if the pump is turning in the wrong direction, it will still pump in the same direction but the flow will be reduced (normally around 60%), and the pump life will be very dramatically shortened.

Maintenance Routine

I. Routine maintenance

a. Oil checks

i. Remove the oil plug and take out a small amount of oil. The oil can be extracted easily by tilting the pump so that the oil plug faces downward. If the oil appears discoloured or mixed with water, a likely cause is a defective or worn mechanical seal which means that a full refurbishment is necessary before the pump next runs.

b. Oil changes

i. Remove the oil plug and drain the oil completely. Pour the specified oil volume (quantity available in the data tables on page 32) into the oil filter inlet.

ii. Dispose of the drained oil in compliance with the rules and laws of the location where the maintenance is taking place.

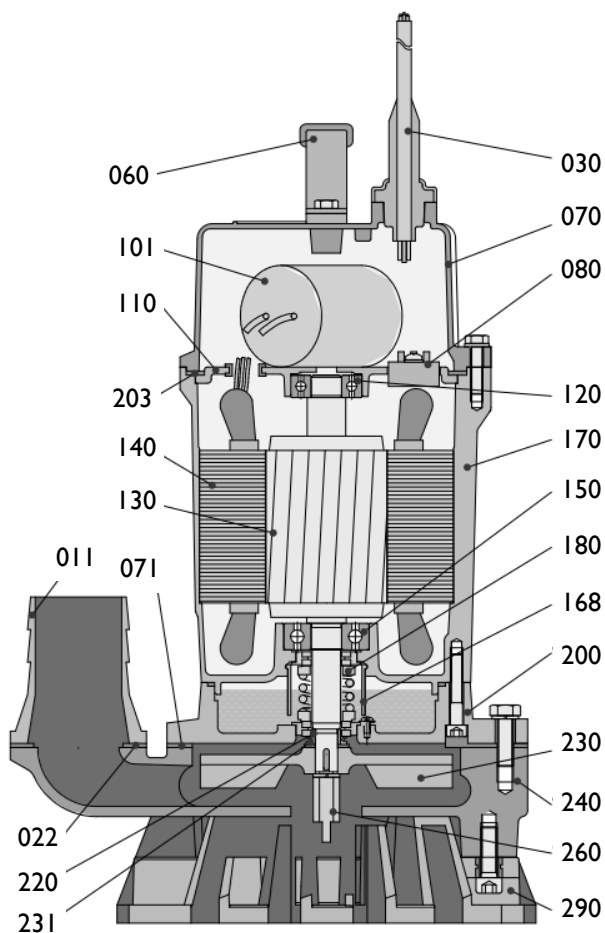
iii. Replace the o-ring which seals the filter plug, and screw the filter plug back into the pump.

c. Power usage

i. Check the power drawn from each phase with the use of a CT type ammeter (clips around the cable). If this has changed significantly since the pump was installed, or if one phase has a notably higher or lower current than any of the other phases, stop the pump and speak to the distributor / manufacturer about the issue.

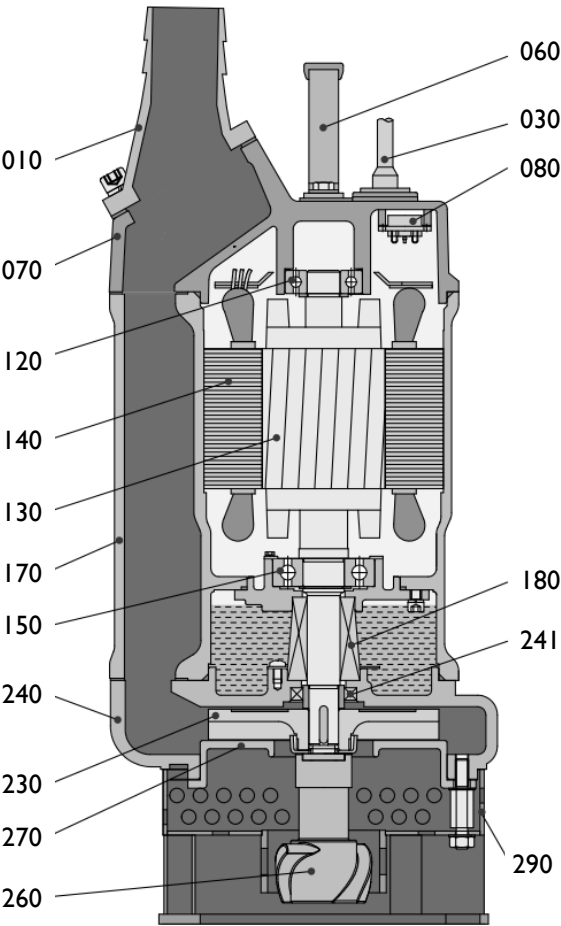
Maintenance Parts Diagrams

AW 0.4 – 0.75kW



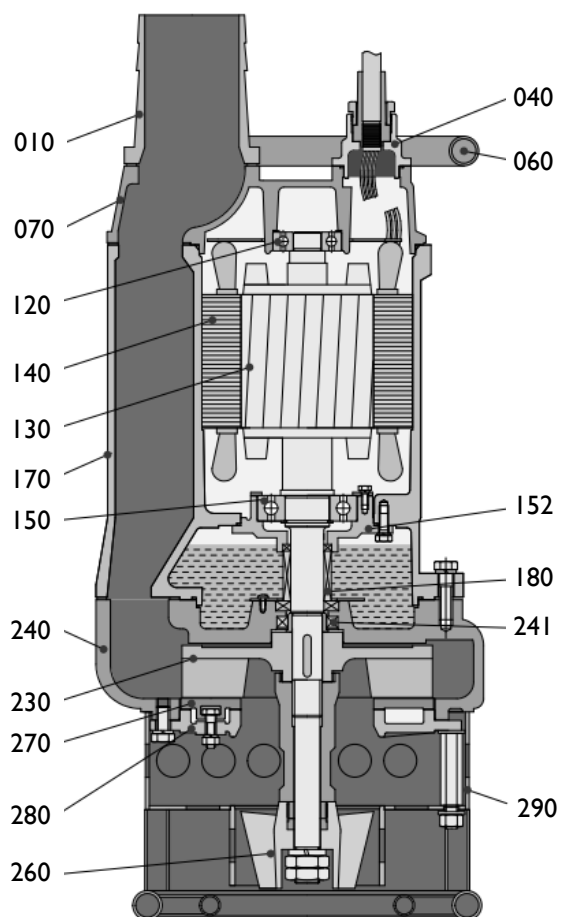
Item No.	Part Name
011	Hosetail Discharge
060	Handle
070	Upper Cover
110	Upper Bearing Support Plate
200	Oil Housing
170	Stator Casing
240	Volute
230	Impeller
260	Agitator
231	Impeller V-ring
186	Mechanical Seal Oil Sleeve
290	Strainer
140	Stator
130	Rotor
120	Upper Bearing
150	Lower Bearing
101	Capacitor
080	Thermal Isolator
180	Mechanical Seal
203	Oil Housing - Volute Gasket
071	Upper Cover - Stator Casing Gasket
022	Discharge Gasket
220	Shaft Sleeve
030	Gland Sleeve with Plate

AW 1.5 – 2.2kW



Item No.	Part Name
010	Hosetail Discharge
060	Handle
070	Upper Cover
170	Stator Casing
240	Volute
230	Impeller
260	Agitator
270	Wear Plate
290	Strainer
140	Stator
130	Rotor
120	Upper Bearing
150	Lower Bearing
080	Thermal Isolator
180	Mechanical Seal
241	Volute Lip Seal
030	Cable Gland Sleeve with Plate

AW 4+ kW



Item No.	Part Name
010	Hosetail Discharge
060	Handle
070	Upper Cover
152	Lower Bearing Housing
170	Stator Casing
240	Volute
230	Impeller
260	Agitator
270	Wear Plate
280	Diffuser
290	Strainer
140	Stator
130	Rotor
120	Upper Bearing
150	Lower Bearing
180	Mechanical Seal
241	Volute Lip Seal
040	Cable Gland Assembly

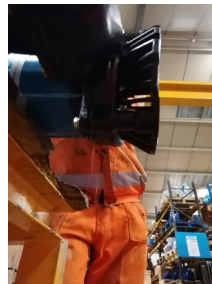
Maintenance Disassembly

AW 0.4 - 0.75kW Disassembly Instructions

1. Ensure that the pump has been isolated and that there is not any static energy within the pump system (i.e. that the discharge is not pressurised).
2. Remove the handle and cable gland, and internally disconnect the cable.



3. Lay the pump on its side, with the oil drain plug lowermost over an oil collection vessel.
4. Unscrew the oil plug allowing the oil to drain into the vessel ready for safe disposal in accordance with local guidelines and regulations.



5. Remove the cap head bolts from the strainer underside and take off the strainer (with discharge).



6. Remove the four hex head set screws from the discharge and remove this along with the discharge gasket.



7. Remove the volute fastening screws if present, take off the volute.



8. Unfasten the agitator by screwing it anti-clockwise with a spanner whilst ensuring the impeller does not rotate.



9. Remove the impeller, either by pulling directly by hand, or with mechanical aids. Do not under any circumstances heat the impeller.



10. Remove the impeller key from the keyway on the shaft.



11. Take off the impeller v-ring.



12. Remove the fixings holding the oil chamber in place, and carefully take off the empty oil chamber. It is important that this part remains perpendicular to the shaft, avoiding contact with the shaft itself. This is to prevent damage to the lower stationary mechanical seal hard wearing face.



13. Remove the oil chamber O-ring seal.
14. Remove the screws holding the lower seal retaining plate to the inside of the oil chamber, and carefully take out the lower stationary mechanical seal hard wearing face by applying pressure from the outside face, to avoid damage.



15. Take the mechanical seal oil sleeve out by pinching at the base to remove from the machined lip.



16. Remove the lower rotating mechanical seal face and remove the seal spring behind this.



17. Remove the upper rotating mechanical seal face.



18. Remove the upper stationary mechanical seal face.



19. Remove the upper cover via the set screws.



20. Unfasten the capacitor (in single phase pumps) and the thermal isolator.

Maintenance Assembly

AW 0.4 - 0.75kW Assembly Instructions

1. Fit the capacitor (in single phase pumps) and the thermal isolator to the stator casing.



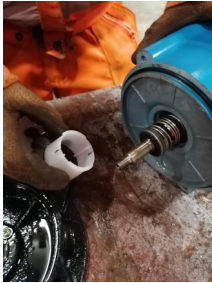
2. Fit the upper cover using the set screws.



3. Install the upper stationary mechanical seal face.
4. Fit the upper rotating mechanical seal face.
5. Fit the mechanical seal spring and low rotating mechanical seal face.



6. Install the mechanical seal oil sleeve into the machined lip.



7. Fit the lower stationary mechanical seal face to the inside of the oil chamber using the seal retaining plate and screws provided.



8. Fit the oil chamber o-ring seal.
9. Fit the oil chamber in place, ensuring that it remains perpendicular to the shaft to prevent damage to the mechanical seal. Fasten it with cap head screws.



10. Install the impeller v-ring seal.



11. Insert the impeller key into the keyway on the shaft.



12. Fit the impeller onto the shaft ensuring it is located with the key.



13. Screw the agitator clockwise onto the shaft, initially by hand followed by mechanical means to tighten.



14. Fit the volute to the stator casing and secure it with the volute fastening screws.



15. Place the discharge gasket and discharge onto the discharge channel and insert the hex head screws.



16. Install the strainer using the strainer cap head bolts from the underside.



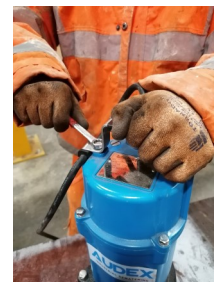
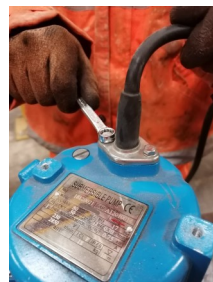
17. Lay the pump on its side and fill the oil chamber with the recommended oil quantity.



18. Connect the supply cable to the stator leads via the gland housing and upper cover.



19. Screw down the cable gland and handle, ensuring that the cable is held by the side of the handle. (right)



Maintenance Disassembly

AW 1.5 - 2.2kW Disassembly Instructions

1. Ensure that the pump has been isolated and that there is not any static energy within the pump system (i.e. that the discharge is not pressurised).
2. Remove the cable gland, and internally disconnect the cable.
3. Lay the pump on its side, with the oil drain plug lowermost over an oil collection vessel.
4. Unscrew the oil plug allowing the oil to drain into the vessel ready for safe disposal in accordance with local guidelines and regulations.
5. Remove the nuts from the strainer underside and take off the strainer.



6. Unscrew the strainer studs.



7. Remove the wear plate and wear plate shims.



8. Unfasten the agitator by screwing it anti-clockwise with a spanner whilst ensuring the impeller does not rotate.



9. Remove the impeller spring washer and impeller protecting cap.



10. Remove the impeller, either by pulling directly by hand, or with mechanical aids. Do not under any circumstances heat the impeller.



11. Remove the impeller key from the keyway on the shaft.



12. Remove the impeller shim.



13. Take the shaft sleeve out.



14. Take off the impeller v-ring.
15. Unfasten the hex head volute set screws.



16. Carefully take off the volute with attached empty oil chamber. It is important that this part remains perpendicular to the shaft, avoiding contact with the shaft itself. This is to prevent damage to the lower stationary mechanical seal hard wearing face.



17. Remove the oil chamber O-ring seal.
18. Remove the screws holding the lower seal retaining plate to the inside of the oil chamber, and carefully take out the lower stationary mechanical seal hard wearing face by applying pressure from the outside face, to avoid damage.



19. Remove the lower rotating mechanical seal face and remove the seal spring behind this.



20. Remove the upper rotating mechanical seal face.
21. Remove the upper stationary mechanical seal face.
22. Unfasten the bearing plate (cap head set screws).



23. Gently remove the rotor from the stator, along with the bearing housing, and both upper and lower bearings. (Left)

24. Remove the fixings from the lower bearing retention plate, which holds the lower bearing(s) into the bearing housing.
25. Remove the bearing housing from the lower bearing(s) using mechanical aids if necessary.
26. Take out the oil (lip) seal from the bearing housing, where present.
27. In order to remove the lower bearing(s) from the shaft, remove the bearing locknut if present, then using heat to gently expand the inner races, slide the bearing(s) off the shaft.
28. Remove the upper bearing retention circlip if present. Gently heat the upper bearing and slide it off the shaft.
29. Remove the wave pad from the upper bearing journal.
30. Stand the pump upright on a clean surface to obtain top access.
31. Remove the set screws holding the discharge in place and remove the discharge and discharge gasket.



32. Remove the upper casing via the set screws.



33. Remove the upper casing, taking care not to damage the stator housing o-ring, the discharge gasket, and the terminal cables of the stator.



Maintenance Assembly

AW 1.5 - 2.2kW Assembly Instructions

1. With the pump casing upright, place the stator housing o-ring onto the upper cover and the discharge gasket around the discharge.
2. Take the upper casing and feed the stator cables through the gland hole.



3. Place the upper casing onto the main casing (and the handle where present), then insert the set screws and tighten. Be careful not to pinch the cable.



4. Place the discharge gasket and discharge (i.e. hosetail) onto the upper casing and insert the set screws.



5. Lay the pump on its side, with the oil plug location uppermost.
6. Insert the wave pad into the upper bearing journal.
7. Heat the upper bearing on a suitable bearing heater, and slide it onto the non-threaded end of the shaft.
8. Add the upper bearing retention circlip if present.
9. **Place the lower bearing retention plate onto the lower end of the shaft.**
10. Heat the lower bearing(s) on a suitable bearing heater and slide it/them onto the shaft.
11. Screw the bearing locknut (if present) onto the shaft with anti-seize compound.
12. Insert the upper stationary mechanical seal face into the bearing housing.
13. Insert the oil (lip) seal into the bearing housing where present.
14. Place the lower bearing housing over the lower bearing(s) and screw the retention plate to the bearing housing to secure the assembly.
15. Insert the rotor into the stator, along with the bearing housing, and both upper and lower bearings.



16. Fasten the bearing plate with cap head or set screws (depending on the pump model).



17. Push the upper rotating mechanical seal face onto the shaft until it meets the stationary face.
18. Place the seal spring onto the shaft, followed by the lower rotating mechanical seal face.
19. Where present, put the oil (lip) seal into the oil chamber.
20. Insert the lower stationary mechanical seal face into the oil chamber, followed by the lower seal retaining plate and screw this on.



21. Place the oil chamber o-ring seal onto the oil chamber.
22. Carefully put the volute assembly onto the shaft, taking great care to ensure that the mechanical seal face does not come into contact with the shaft.



23. Place the lower discharge gasket onto the pump body, using grease to hold it in place if necessary.
24. Fasten the volute to the main pump casing with set screws.



25. Place the shaft sleeve and impeller shim(s) onto the shaft.



26. Insert the impeller key into the keyway on the shaft with anti-seize.



27. Push the impeller onto the shaft with anti-seize, do not use any heat.



28. Insert the impeller boss cap, spring washer and screw on the agitator.



29. Place the wear plate shims onto the wear plate and place into the volute, fastening with the strainer studs.



30. Place the strainer onto the pump and secure with washers and nuts.



31. Pour the recommended amount of oil into the oil chamber (or until almost full). Audex recommends biodegradable hydraulic oil.
32. Ensure the oil plug has its o-ring seal on, and insert it into the pump. Wipe up any excess oil so that any leaks will be quickly spotted.
33. Take a cable gland and insert the pump cable, far enough that the outer cable sheath is visible from the inside.
34. Suspend the cable gland with the inside upwards, ensure the individual cores are spread apart, and pour cable resin into the gland at least until the resin is around each individual core (over the cable sheath end). Leave to cure for at least 24 hours before installing onto the pump.
35. Connect the cable onto the cores protruding from pump upper casing. Connect the sensors if present.
36. Secure the cable gland onto the pump.
37. Check the impeller is free prior to start-up.
38. Check the motor rotation direction on start-up, and correct if necessary.

Maintenance Disassembly

AW 4+ kW Disassembly Instructions

1. Ensure that the pump has been isolated and that there is not any static energy within the pump system (i.e. that the discharge is not pressurised).
2. Remove the cable gland, and internally disconnect the cable.
3. Lay the pump on its side, with the oil drain plug lowermost over an oil collection vessel.



4. Unscrew the oil plug allowing the oil to drain into the vessel ready for safe disposal in accordance with local guidelines and regulations.
5. Remove the nuts from the strainer underside and take off the strainer.



6. Unscrew the strainer studs and set screws.



7. Remove the diffuser (and inner wear plate) and diffuser shims.



8. Unfasten the agitator locking nuts and remove them along with the spring washer. Then unscrew the agitator & shaft by turning it anti-clockwise with a spanner whilst ensuring the impeller does not rotate.



9. Remove the impeller, either by pulling directly by hand, or with mechanical aids. Do not under any circumstances heat the impeller.



10. Remove the impeller key from the keyway on the shaft.
11. Remove the impeller shim.
12. Take the shaft sleeve out.
13. Take off the impeller v-ring.

14. Unfasten the stator casing to volute set screws, then the hex head volute to stator casing set screws.



15. Carefully take off the volute with attached empty oil chamber. It is important that this part remains perpendicular to the shaft, avoiding contact with the shaft itself. This is to prevent damage to the lower stationary mechanical seal hard wearing face.



16. Remove the oil chamber O-ring seal.
17. Remove the screws holding the lower seal retaining plate to the inside of the oil chamber, and carefully take out the lower stationary mechanical seal hard wearing face by applying pressure from the outside face, to avoid damage.



18. Remove the lower rotating mechanical seal face and remove the seal spring behind this.



19. Remove the upper rotating mechanical seal face.
20. Remove the upper stationary mechanical seal face.
21. Unfasten the bearing plate (cap head set screws).



22. Gently remove the rotor from the stator, along with the bearing housing, and both upper and lower bearings.



23. Remove the fixings from the lower bearing retention plate, which holds the lower bearing(s) into the bearing housing.
24. Remove the bearing housing from the lower bearing(s) using mechanical aids if necessary.
25. Take out the oil (lip) seal from the bearing housing, where present.
26. In order to remove the lower bearing(s) from the shaft, remove the bearing locknut if present, then using heat to gently expand the inner races, slide the bearing(s) off the shaft.
27. Remove the upper bearing retention circlip if present. Gently heat the upper bearing and slide it off the shaft.
28. Remove the wave pad from the upper bearing journal.
29. Stand the pump upright on a clean surface to obtain top access.
30. Remove the set screws holding the discharge in place and remove the discharge and discharge gasket.
31. Remove the upper casing via the set screws.
32. Remove the upper casing, taking care not to damage the stator housing o-ring, the discharge gasket, and the terminal cables of the stator.

Maintenance Assembly

AW 4+ kW Assembly Instructions

1. With the pump casing upright, place the stator housing o-ring onto the upper cover and the discharge gasket around the discharge.
2. Take the upper casing and feed the stator cables through the gland hole.
3. Place the upper casing onto the main casing (and the handle where present), then insert the set screws and tighten. Be careful not to pinch the cable.
4. Place the discharge gasket and discharge (i.e. hosedtail) onto the upper casing and insert the set screws.
5. Lay the pump on its side, with the oil plug location uppermost.
6. Insert the wave pad into the upper bearing journal.
7. Heat the upper bearing on a suitable bearing heater, and slide it onto the non-threaded end of the shaft.
8. Add the upper bearing retention circlip if present.
9. **Place the lower bearing retention plate onto the lower end of the shaft.**
10. Heat the lower bearing(s) on a suitable bearing heater and slide it/them onto the shaft.
11. Screw the bearing locknut (if present) onto the shaft with anti-seize compound.
12. Insert the upper stationary mechanical seal face into the bearing housing.
13. Insert the oil (lip) seal into the bearing housing where present.
14. Place the lower bearing housing over the lower bearing(s) and screw the retention plate to the bearing housing to secure the assembly.
15. Insert the rotor into the stator, along with the bearing housing, and both upper and lower bearings.



16. Fasten the bearing plate with cap head or set screws (depending on the pump model).



17. Push the upper rotating mechanical seal face onto the shaft until it meets the stationary face.
18. Place the seal spring onto the shaft, followed by the lower rotating mechanical seal face.
19. Where present, put the oil (lip) seal into the oil chamber.
20. Insert the lower stationary mechanical seal face into the oil chamber, followed by the lower seal retaining plate and screw this on.



21. Place the oil chamber o-ring seal onto the oil chamber.
22. Carefully put the volute assembly onto the shaft, taking great care to ensure that the mechanical seal face does not come into contact with the shaft.



23. Place the lower discharge gasket onto the pump body, using grease to hold it in place if necessary.
24. Fasten the volute to the main pump casing with set screws.



25. Place the shaft sleeve and impeller shim(s) onto the shaft.
26. Insert the impeller key into the keyway on the shaft with anti-seize.

27. Push the impeller onto the shaft with anti-seize, do not use any heat.



28. Screw the agitator & agitator shaft onto the rotor shaft and tighten.



29. Place the spring washer into the end of the agitator, and secure with one half nut. Then fit the second half nut and tighten.



30. Place the diffuser shims onto the diffuser and place into the volute, fastening with the strainer studs and set screws.



31. Place the strainer onto the pump and secure with washers and nuts.



32. Pour the recommended amount of oil into the oil chamber (or until almost full). Audex recommends biodegradable hydraulic oil.
33. Ensure the oil plug has its o-ring seal on, and insert it into the pump. Wipe up any excess oil so that any leaks will be quickly spotted.
34. Take a cable gland and insert the pump cable, far enough that the outer cable sheath is visible from the inside.
35. Tighten the brass nut so that the cable is held securely.
36. Suspend the cable gland with the inside upwards, ensure the individual cores are spread apart, and pour cable resin into the gland at least until the resin is around each individual core (over the cable sheath end). Leave to cure for at least 24 hours before installing onto the pump.
37. Connect the cable onto the cores protruding from pump upper casing. Connect the sensors if present.
38. Secure the cable gland onto the pump.
39. Check the impeller is free prior to start-up.
40. Check the motor rotation direction on start-up, and correct if necessary.

Storage

Storage Instructions

If your pump is not needed for longer than one week, run it anyway for at least 10 seconds per week to ensure that the rotating elements do not seize, and the mechanical seal faces remain wetted.

If your pump will not be in use for longer than one month, it is not advisable to leave it in the water. It should be lifted out and left to dry completely, then stored indoors.

When the pump is needed again, please follow the installation instructions.

Troubleshooting

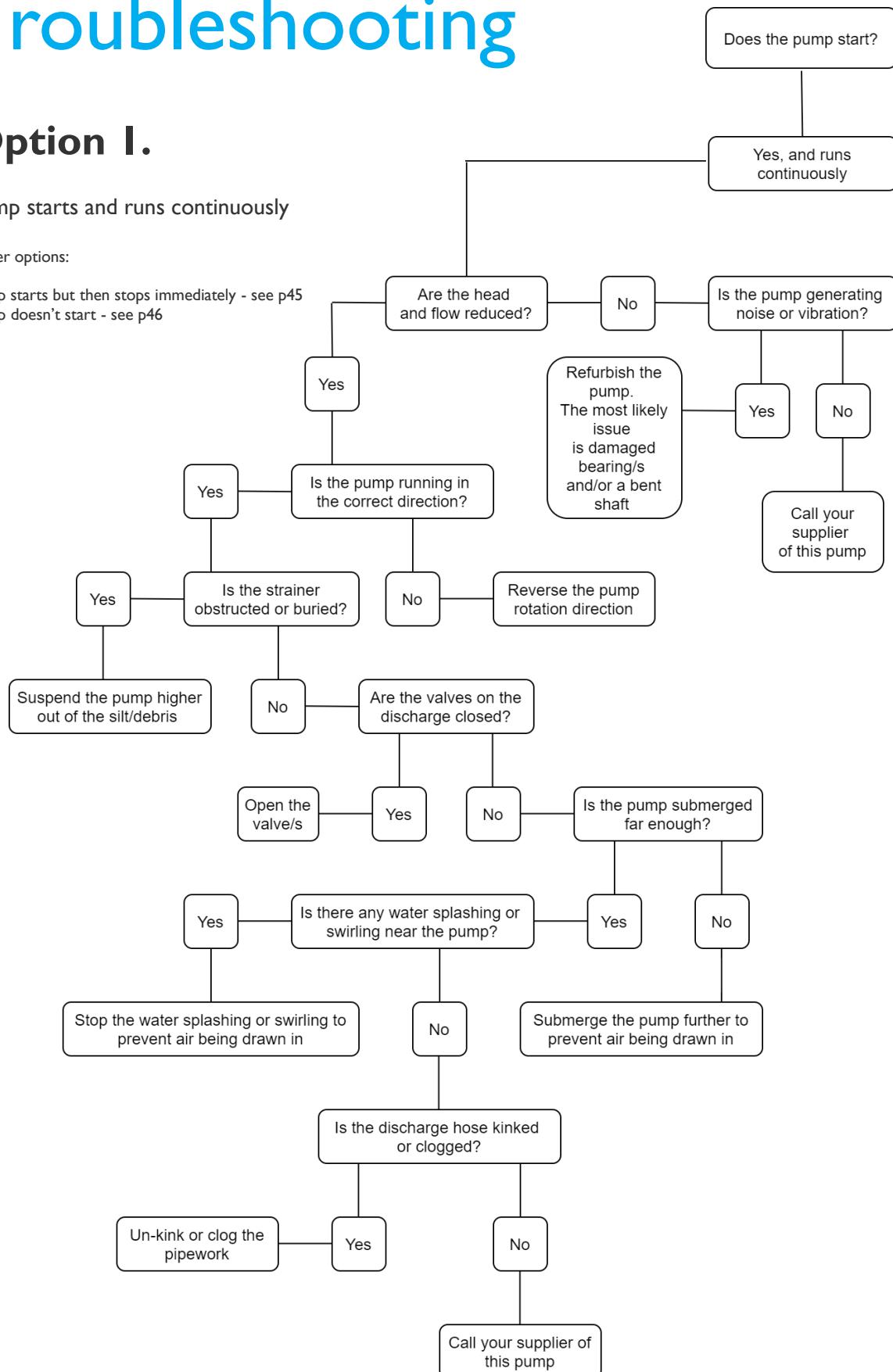
Option 1.

Pump starts and runs continuously

Other options:

Pump starts but then stops immediately - see p45

Pump doesn't start - see p46



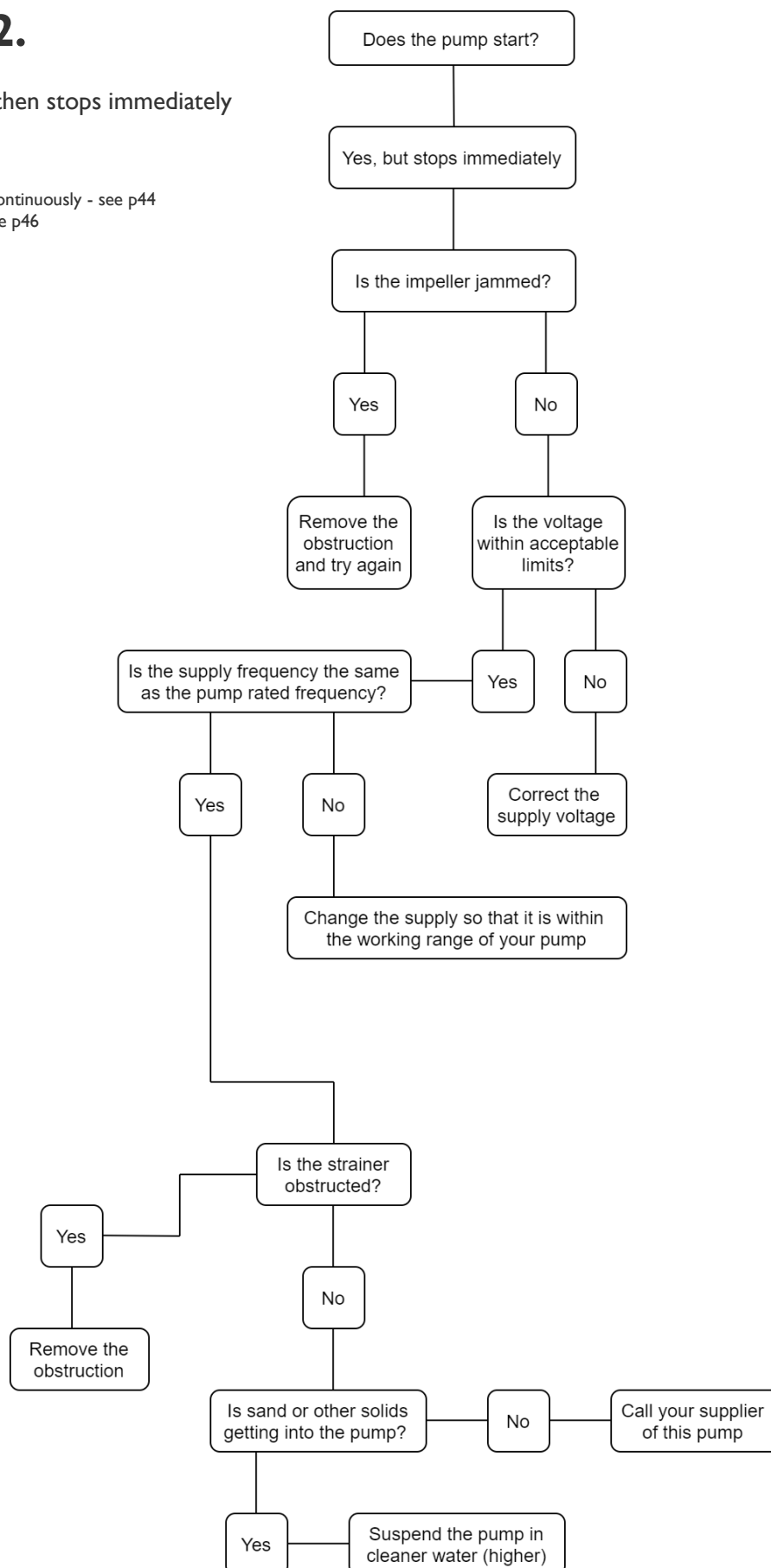
Option 2.

Pump starts but then stops immediately

Other options:

Pump starts and runs continuously - see p44

Pump doesn't start - see p46



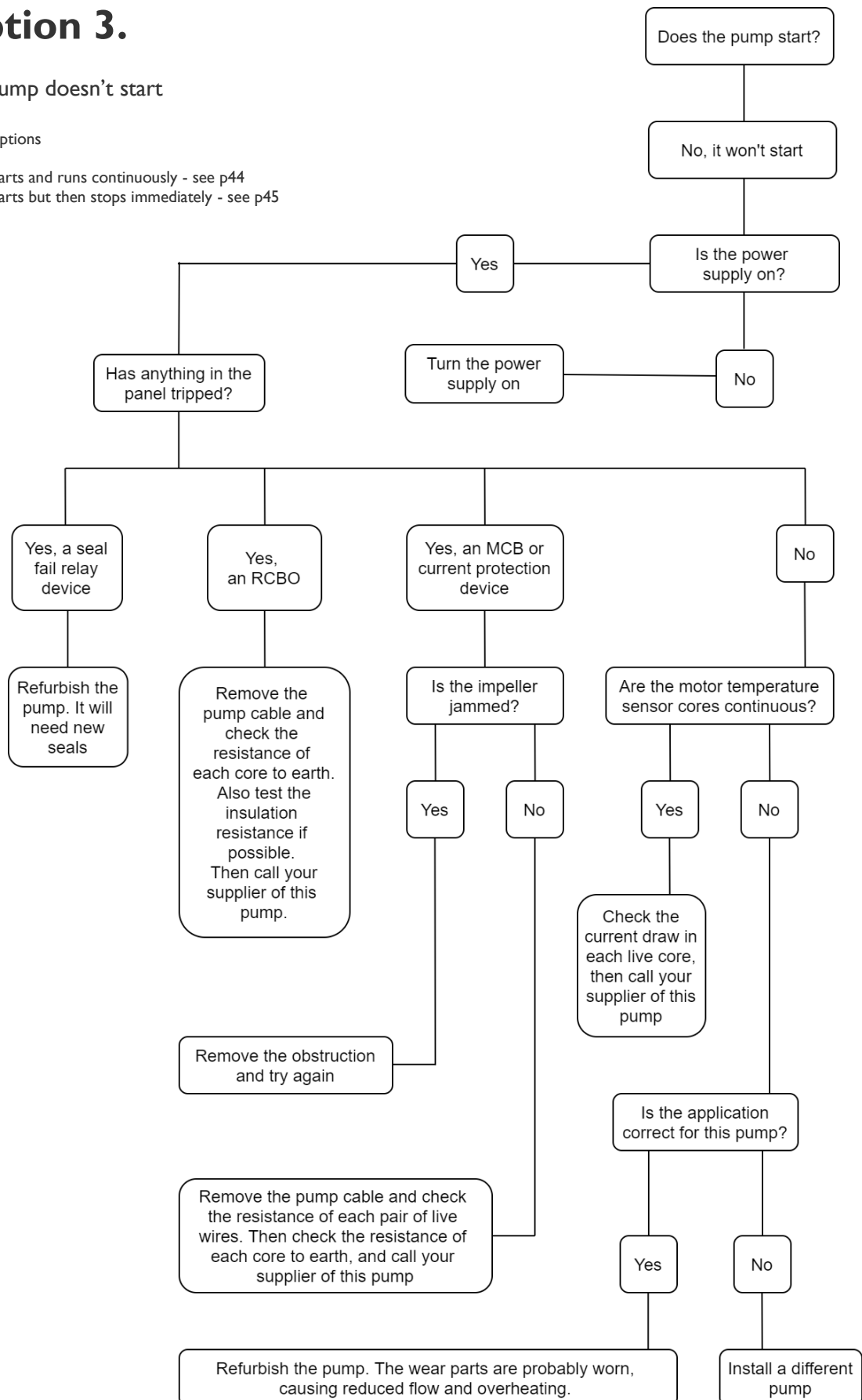
Option 3.

The pump doesn't start

Other options

Pump starts and runs continuously - see p44

Pump starts but then stops immediately - see p45



Data Tables

Model	Oil Volume (ml)	Minimum Continuous Working Level	Maximum Submergence Depth
AW 2-040	180	85mm	10m
AW 3-075	180	85mm	10m
AW 2-150	600	135mm	25m
AW 2-220	600	135mm	25m
AW 3-400	1950	250mm	15m
AW 4-600	2350	250mm	15m
AW 6-900	2300	250mm	15m
AW 8-1500	3500	295mm	15m
AW 8-2200	7000	330mm	15m



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