1.1 Pump Rotating Assembly Removal

WARNING
Before the pump is dismantled in any way or removed from the system, the nature of the pump liquid must be ascertained, and the pump isolated and drained as detailed below.

WARNING
Ensure that the electrical supply is physically disconnected or isolated and locked out.

1. The unit can be switched off at any time via the control panel S/S button. However the condensate return should be isolated or diverted to drain.
2. When motor has stopped isolate the pump from the system by completely closing the discharge and suction valves.
3. Drain the auxiliary pipework (if applicable).
4. Decontaminate the pump.
5. Before dismantling any part of the pump, make sure that the pump does not contain any liquids hazardous to health and clean the pump properly according to best site practice.
6. Take the weight of the rotating assembly with a hoist and sling.
7. Remove bolts, nuts and washers (9843, 9844 & 9845) securing the motor support plate (9397) to the tank (9000).

WARNING
The rotating assembly must be securely supported at all times during dismantling.

8. Remove the nuts and washers (1821 & 1822) securing the seal housing (4210) too the volute casing (1112). The seal housing (4210) may need to be lifted up to facilitate removal of the nuts (1821).
9. Carefully withdraw the impeller/motor assembly from the pump casing. If necessary two jacking screws (1824) may be used in the holes provided.
10. Move the impeller/bearing bracket assembly to a bench for further dismantling.
11. Remove casing gasket (4520).

The pump rotating assembly is now removed.

1.2 Dismantling Rotating Assembly

WARNING
The motor must be securely supported at all times during dismantling.

Once rotating assembly is removed from the volute casing (1112). Remove gasket (4520).
Undo the impeller bolt (2913), remove the impeller hubcap (2914) and carefully withdraw the impeller (2200).

CAUTION
Do not apply undue strain to the motor shaft, while removing the impeller

A single mechanical seal (4200) is fitted. These are secured via a friction fit between the bellows and shaft extension (2140). Carefully withdraw the seal from the shaft extension.
Remove nuts and washers (8902 & 8903) and carefully remove the seal housing (4210).
Remove the mechanical seal seat (4200), from the seal housing (4210).
If it is necessary to replace the shaft extension (2140), tap out the drive pin (2931) with a drift, supporting the shaft to avoid damage to the motor bearings. If the shaft extension resists removal, heat it quickly to approximately 170-200°C and pull off with a twisting motion.

1.3 Refurbishment

WARNING
In the interests of safety, only components supplied or recommended by AMARINTH LTD should be used when refurbishing the pumps.
The use of non AMARINTH LTD parts would invalidate your warranty!

1. All pump components should be inspected and replaced if necessary.
2. All gaskets and O rings that have been disturbed should be renewed.
3. If a shrouded impeller is fitted, the running clearance should be checked.

Wear surface / ring outside diameter	Recommended maximum diametric clearance
Up to 200mm	1mm
Over 200mm	1.5mm

Measure the outside diameter of the impeller suction or wear ring and the bore of the casing or wear ring. If the difference is approaching the recommended maximum in the table above, new wear rings should be fitted as follows:

NOTE
If wear rings were not originally fitted, the impeller and casing will need machining to accept wear rings.

1. Extract the wear rings after removing their securing socket set screws.
2. Fit each new ring and drill two new securing holes 4.2mm diameter x 13mm deep, half in the wear ring and half in the mating component, spaced 90° apart.
3. Tap out the holes to M5 x 10mm deep, and secure the wear rings using new M5 x 8mm socket set screws.

1.4 Re-assembly - Rotating Assembly

Re-assembly rotating assembly is generally in reverse order to dismantling: however, the following point should be observed:

Mechanical Seals: Always fit a new mechanical seal. These contain high precision components, and cleanliness and care in handling are essential. When fitting a mechanical seal follow the manufacturer's instructions. Ensure that the seal seat recess and shaft extension are undamaged, and clear of scale and burrs etc. Also ensure that the seal faces are not touched as this may cause the seal life to be affected. The bore of the rotating seal element should be lightly lubricated with soft soap or similar, to enable it to slide freely along the shaft. Caution: Do not use oil or grease.

CAUTION
Ensure the motor shaft is clean and free from burrs.
When fitting the shaft extension ensure the pin holes in the shaft extension and motor shaft align and the motor shaft is fully supported.

1 Clean both motor shaft and shaft extension (2140) bore and apply Loctite Studlock 270 or similar before reassembly. Use a new drive pin (2931).
2 Fit new mechanical seal seat (4200) into seal housing (4210), paying particular attention to mechanical seals note above.

Fastener location & material	Casing & Pipework B8MX or Duplex Typical Proof Stress 550N/mm2		General Fixings B8M 316 S.S. Typical Proof Stress 205N/mm2	
	Typical torque		Typical torque	
Bolt size	Nm	lbf.ft	Nm	lbf.ft
M10	47	33	12	8
M12	81	56	21	14
M14	130	91	33	23
M16	202	142	52	36
M20	315	220	101	70
M24	544	381	174	122
M30	886	620	346	242

3 Replace seal housing (4210) onto motor (8000) gently tap the component fully home before fitting the nuts and washers (8902 & 8903). Tighten seal housing nuts evenly in a diagonal sequence until metal-to-metal contact is achieved.
4 Fit new mechanical seal (4200) onto shaft extension (2140), paying particular attention to mechanical seals note above.
5 Refit impeller (2200) onto shaft extension (2140), and replace impeller hubcap (2914) and impeller bolt (2913).

1.5 How to replace rotating assembly

WARNING
The rotating assembly must be securely supported at all times during reassembly.

1. Prior to reinstalling the rotating assembly it is imperative to replace the volute gasket (4520).
2. With the rotating assembly supported by slings position the rotating assembly over the volute casing (1112).
3. Lower the rotating assembly onto the casing volute, paying particular attention to alignment.
4. With the rotation assembly in place loosely secure the motor support plate (9397) to the tank (9000).
5. Prior to bolting the seal housing (4210) to volute casing (1112), due to the spigot it is best practice to gently tap the component fully home.
6. Tighten all casing nuts evenly in a diagonal sequence until metal-to-metal contact is achieved.
7. Finally the motor support plate bolts are tightened so as to support the pump in a vertical position without putting undue stress on the suction pipe work.