Lubrication
Use transformer oil, Shell Tellus Turbo T or equal. The ball bearings are of the closed design and permanently greased.

Inspecting the Hydraulic Parts
The pump housing (volute) and the impeller should be visually inspected every time an oil and stator inspection is made. Change parts if excessive wear has occurred or if performance of pump has been impaired.

Note: If impeller is worn and in need of replacing, always install new oil lip seals and, on models with a shaft sleeve a new shaft sleeve at the same time.

Inspecting Motor Cable
Carefully inspect the outer shield and the wire endings. If the outer shield has been damaged, water can enter the pump through the core. The cable should never be stretched by force and the pump never lifted by the motor cable. This could severely damage the cable and the cable glands in the cable holder. Perform continuity test on each lead.

Detailed Overhaul
A complete overhaul should be made if water has been detected in the stator housing, or if the pump has been in daily use for a year. The intervals can be increased if the pump has been permanently installed as a sump pump with automatic controls. Dismantle the pump completely, replace damaged or worn parts with new, original parts. Clean all surfaces and check for cracks or damage. If water is present in stator housing and/or in oil chamber, replace mechanical seals, O-rings, oil seal and bearings.

SUBMERSIBLE PUMP OPERATOR'S MANUAL

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Start-up Description
Check that the voltage of the power supply is the same as that marked on the pump. When permanently installing the pump, in a sump for example, make sure that the holding capacity of the sump is commensurate with the capacity of the pump. If the sump is too small the pump will stop and start too often resulting in damage to the pump. Recommended maximum start-ups per hour is 6. If used with hose, check that no kinks or restrictions are present.

Electrical Connection
Check that the power is off and the line is disconnected before working on any pump.

WARNING
Always disconnect power before undertaking any work on a pump, cable, control box or accessories.

Handling
Never lift a pump by its power cord. Always lift by its handle or attach a rope or wire cable to the handle or lifting rings. Lifting by the power cord can cause dangerous electrical shorts or pump failure.

Rotation
Make sure that the impeller rotates in the correct direction by tilting the pump slightly to one side and starting up the pump for a short moment. The pump should twist in the opposite direction of the attached arrow. The arrow shows the running direction of the impeller.

Placing the Pump
Never place the pump on a loose or soft bottom. It could sink in and fill the pump housing with material, blocking water flow to the impeller. Install the pump on a solid bottom or hang the pump by a wire. If the pump is being hung by wire, it will have to be restricted from twisting during start-up. This can be done by securing the pump to one side of the sump. Side discharge pumps should always be kept submerged by 1/3 of the pump for cooling effect. Stop and starts not to exceed 6 times per hour, make sure to size the pump according the sump size and water inflow.

Liquid Temperature
The temperature of the water must not exceed 120 degrees Fahrenheit.

Submersion Depth
The maximum depth is 33 ft. (10m) or the length of the factory installed electrical cable, whichever is less. If the initial start depth in water is less than 3 inches, the pump must be primed.

Caution
Always mount control panels in a vertical position and in a dry area above ground near the pump. If outdoor installation is unavoidable, make sure a suitable control panel enclosure is used.

Cold Weather
The pump can not freeze as long as it is submerged and in operation. If it is removed from the liquid, empty the pump, clean it and dry it. Then store it in a place where the temperature is not below 32 degrees Fahrenheit (0 Celsius). If the pump has been exposed the freezing temperatures, let it thaw slowly before it is started again. Never thaw using flame or similar methods as O-rings and other materials may be damaged.

TROUBLE SHOOTING

General
1. Not Starting:
The cause could be the wrong voltage, no power, a damaged cable, a bad fuse or the thermal contactor has opened due to an overheated motor caused by locked rotor or wrong connections.

2. Low Capacity or Low Head:
The cause can be clogged passages, for example the strainer, a damaged or worn impeller or pump housing, broken pipes, damaged or kinked hoses or discharge pipe or too long or too narrow a hose. This problem can also be caused by the wrong rotation (3 phase only) due to miswiring.

3. Water in the Stator Housing:
If water is found in the stator housing the pump must be dismantled for a complete overhaul and the stator dried out. Probable causes: damaged, worn shaft seals or bad O-rings. (Check oil housing for water contamination.) Change seals. Damaged cable entrance (change).

4. Water in the Oil Housing:
Problem can be: Worn or damaged oil lipseal and mechanical seals. Change if needed. Leaking inspection plug or oilhouse cover. Change elastomers.

If The Pump Does Not Start:
1. Check the power supply, testing both voltage and amps.
2. Check any fuses and switches.
3. Check the cable, contactor and all connections. Test for continuity. Also test the stator for turn fault and insulation to ground.
4. Make sure that the impeller is clean and rotating freely.

IMPORTANT!

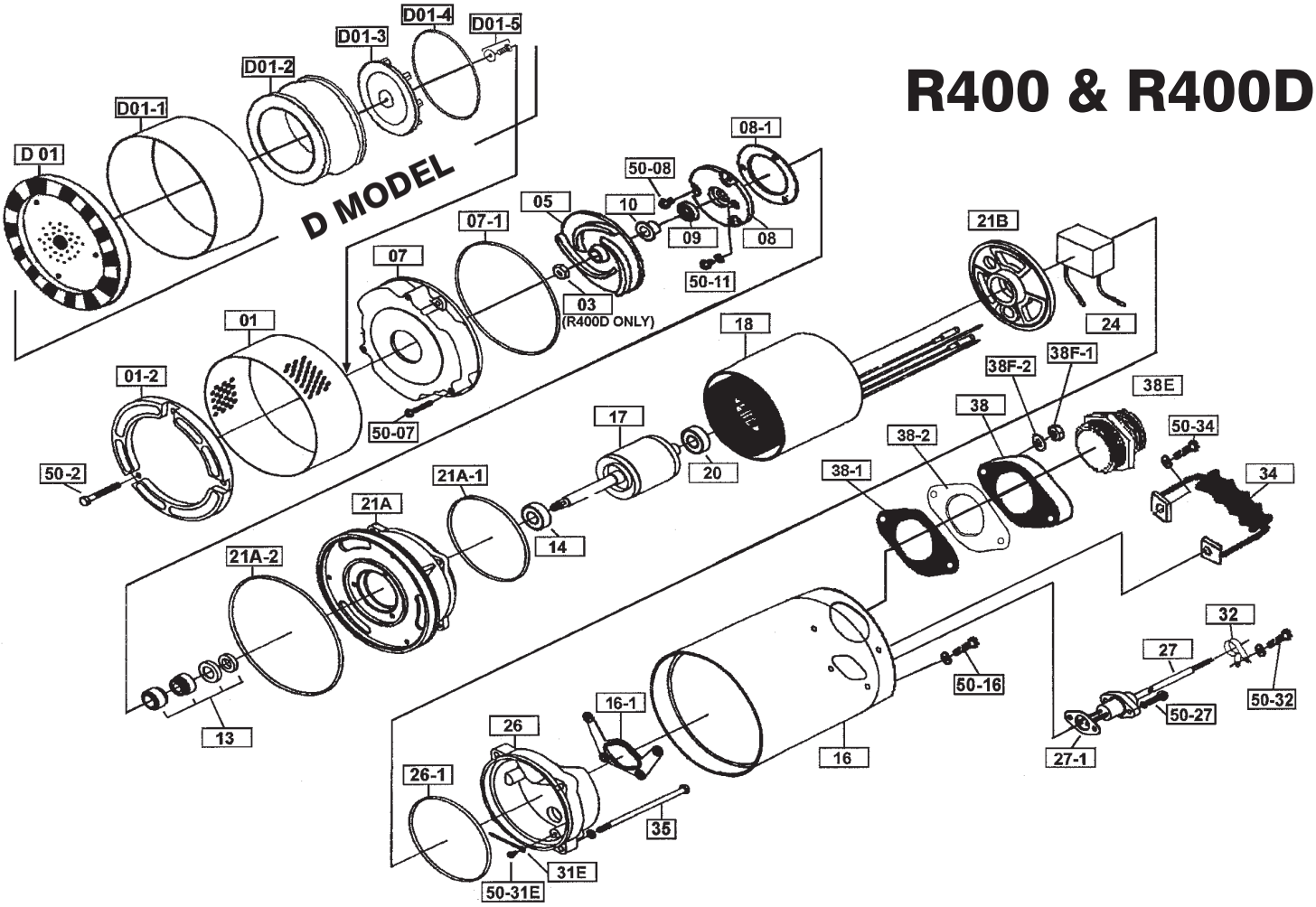
When troubleshooting always follow local, provincial and federal regulations regarding procedures and safety. If the pump still does not start, please contact the closest available recommended repair shop.

OVERHAUL

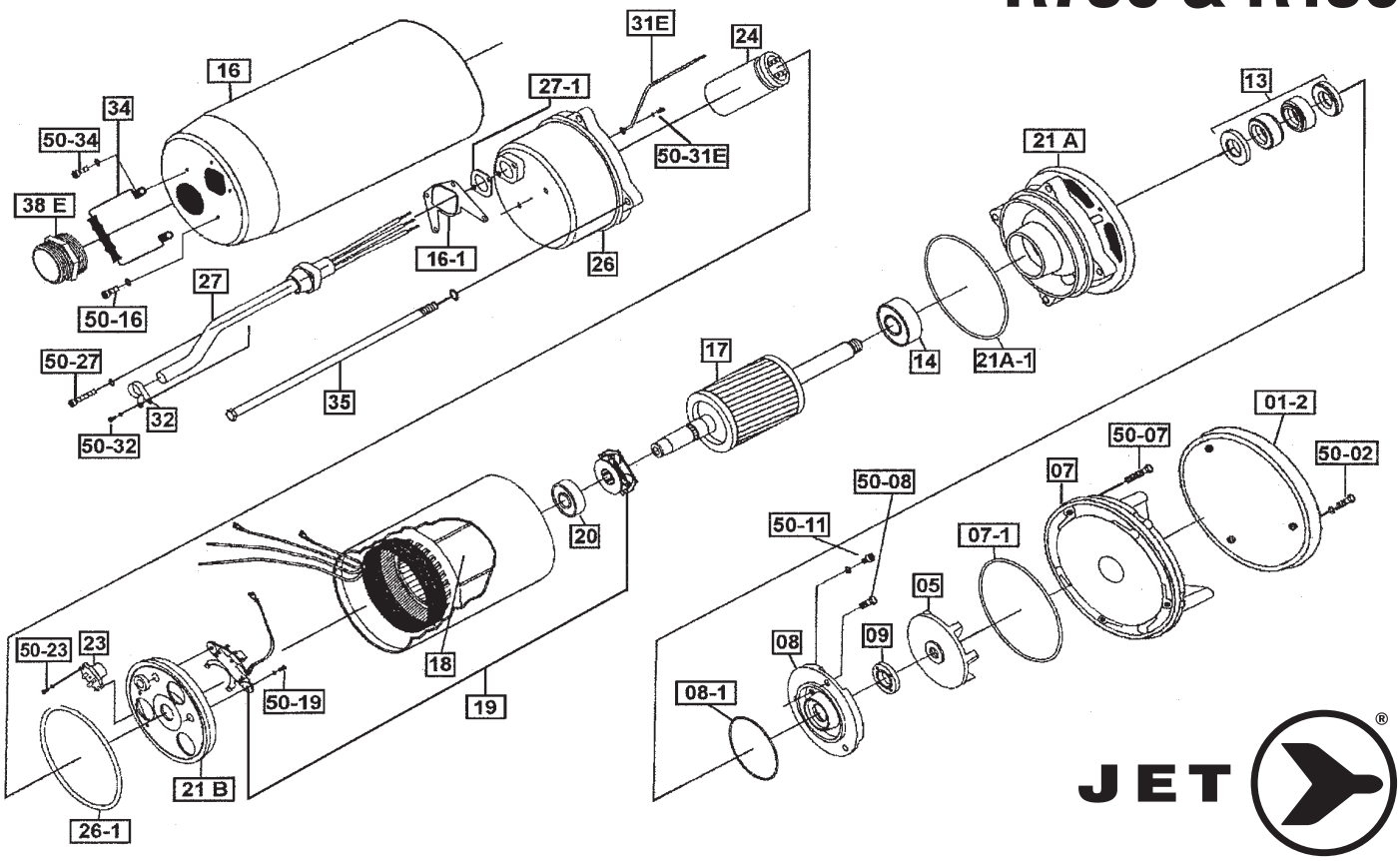
General
If the pump, or the mechanical seals are new, the oil should be checked after 15 hours of running. A second check after 100 hours of use. After the initial check ups, a periodic maintenance check every 1,000 hours of running will suffice if pump is used in relatively clean water. If the liquid is very dirty or laden with abrasive material, the pump should be checked every 10, 50 and 100 hours. When inspecting the oil in the oil housing, make sure that no water is present. Change the O-ring under the inspection plug each inspection. Additional instructions can be found under “Mechanical Seal Inspection.”

Mechanical Seal Inspection
Remove the oil inspection plug located above the impeller. Tilt the pump so that some oil is drained from the oil chamber. If the oil is free from water and particles the lower mechanical seal and the oilseal ring are okay. Check that the oil housing contains the correct quantity of oil. If the oil is contaminated, (“milkish” in appearance) remove and inspect the seals. Change oil. Check oil again after 15 hours. Repeat the above steps. Use oil as specified under “lubrication”:, on page 4. When installing mechanical seals, make sure a sleeve is used and that the shaft is well lubricated with the same oil as used in the oil housing.

R400 & R400D



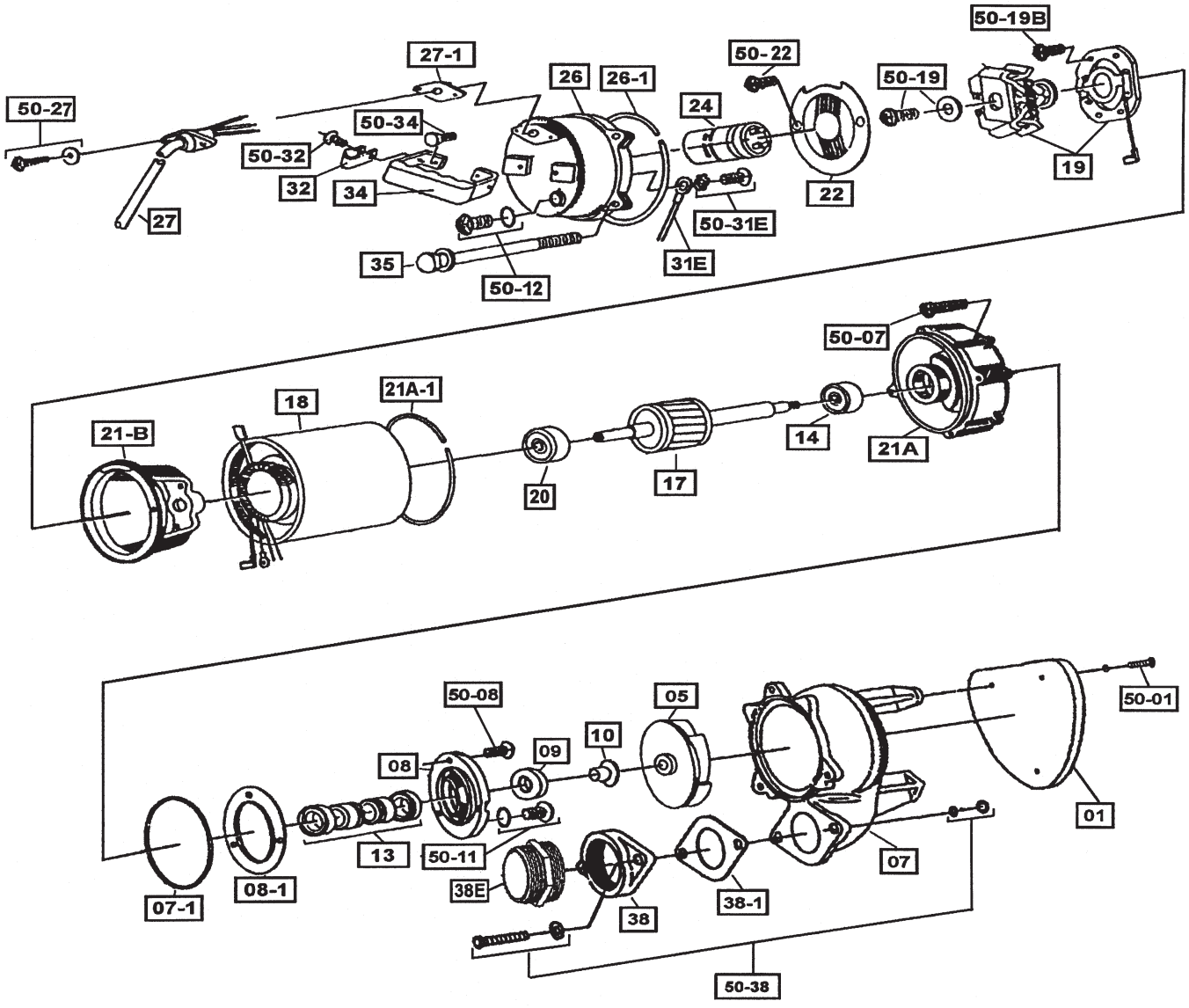
R750 & R1500



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