

## K 107, 154, 207, 254, 305

### SERVICE INSTRUCTION



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K 107/154/207/254/305.58.0101.Eng/Digital

K 107-K 305 is a series of submersible pumps designed specifically for pumping of sewage water, sludge etc.

This service manual covers the pumps K107- K305 in following designs:

### Type F Wet Pit Installation

Installed on a guide rail system with a quick-release base elbow, the base elbow is bolted to the floor of the sump. The volute is equipped with an adapter to be connected to the discharge elbow. Two twin guide rails are mounted to the discharge elbow to steer the pump into right position when hoisted up and down.

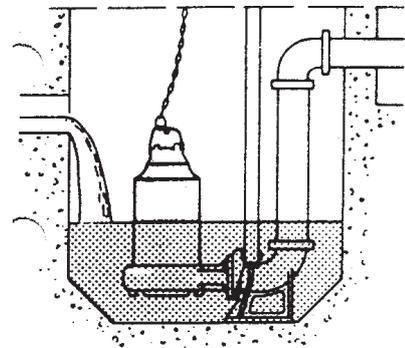
### Type T, Dry Pit Installation

Installed in a normally dry well, but still fully submersible. The pump is supported by a fabricated steel stand, mounted at the factory. The pump volute is drilled or threaded on the connection-flange (metric standard). The motors are equipped with a maintenance-free internal, closed loop cooling system which dissipates the heat to the liquid that is being pumped.

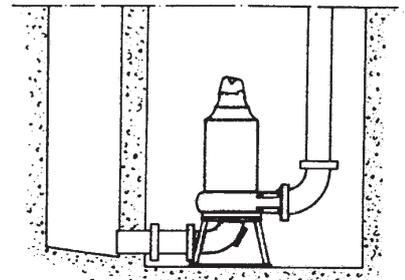
### Type P, Wet Pit Portable or fixed installation

A version of pump which is suitable for temporary or permanent installations. The pump is equipped with a fabricated steel stand and either a threaded (BSP, NPT) or plain hose connection. The motor can if required, be equipped with a maintenance-free internal, closed loop cooling system which dissipates the heat to the liquid that is being pumped.

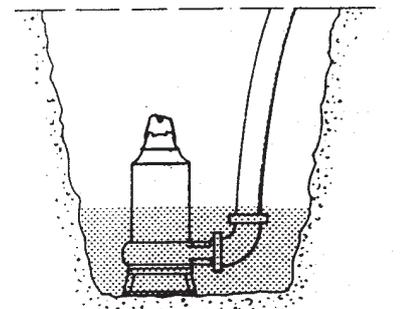
When installed without a cooling jacket, the minimum water level in the wet well for continuous operation should not be below the top edge of the pump house. Intermittent operation down to a water level above half the height of the stator is acceptable, see picture. For continuous operation at water levels below the top edge of the pump house, an internal cooling jacket is recommended.



Installed below liquid level with discharge elbow



Dry installation with cooled motor. Suction bend provided with cleaning cover.



Installed below liquid level, either stationary or for portable

PUMPEX			
Type	①		
No.	②	Year	
	③	l/s	③ m
Impeller	vortex	<input type="checkbox"/> dia.	④ mm
	channel	<input type="checkbox"/> dia.	mm
Motor	Class ⑧		
	⑤ kW	⑤ hp	cos φ
n	⑥ rpm	3~	⑦ Hz
<input type="checkbox"/> Cooled		⑨	V
<input type="checkbox"/> Uncooled		⑩	A

PUMPEX AB  
JOHANNESHÖV SWEDEN

CE

- 1 Type of pump
- 2 Serial number
- 3 Head
- 4 Impeller type
- 5 Rated output
- 6 Speed
- 7 Frequency
- 8 Winding class
- 9 Rated voltage
- 10 Rated current

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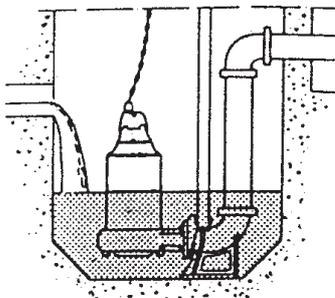
### Assembly

Set the discharge elbow base frame in position on the sump floor, relating it correctly to the upper guide rail bracket, and then bolt it securely to the floor. Mount the pipe of the discharge elbow, taking care not to subject the latter to abnormal forces or moments.

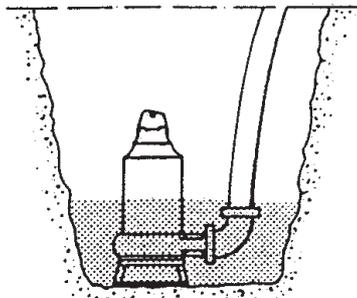
Fit the two guide pipes between the discharge elbow and the upper guide bracket and then lift the pump. The lifting device must be placed straight above the pump.

### **Important!**

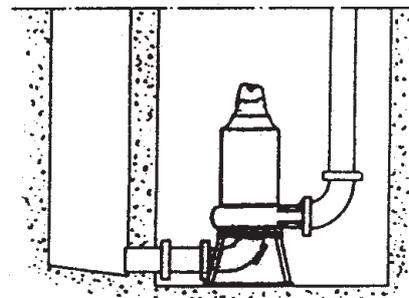
**Make sure that no pull is exerted on the cables while the pump is being submerged.**



Installed below liquid level with discharge elbow and guide system



Installed below liquid level stationary or portable use.



Dry installation with cooled motor.

### Electrical installation

Before making the electrical connections, check the following:

- that the cables are long enough when the pump is in the submerged position
- that the cables are undamaged after connection to the pump
- that the mains power supply voltage corresponds to the value stated on the pump's data plate.

The electric cables are of the "heavy rubber hose cable with oil- and weatherproof sheathing" type. The same type of cable must also be used if it should be necessary to lengthen the cable.

Cable connections should be made according to the appropriate diagram on page 5.

### Direction of rotation

Check the direction of rotation of the impeller as follows:

Allow the pump to hang freely in the guides and switch the power on for a moment. The pump should attempt to turn in the opposite direction to that shown by the arrow on the top. If it turns in the other direction, exchange two of the connections to reverse the rotation.

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### Starting up for the first time

If the pump has been stored for a long time, the pump shaft must be turned through half a revolution prior to starting in order to ensure effective lubrication of the seal.

Before starting for the first time, check that the pump contains the prescribed amount of oil.

**Note!** Fill cooling liquid (water + 30% Propylen glycol DOWCAL ® 20) before starting the pump. The pump is delivered **without** cooling liquid.

Inspect the sump and remove any large or potentially damaging items, which could enter the pump suction.

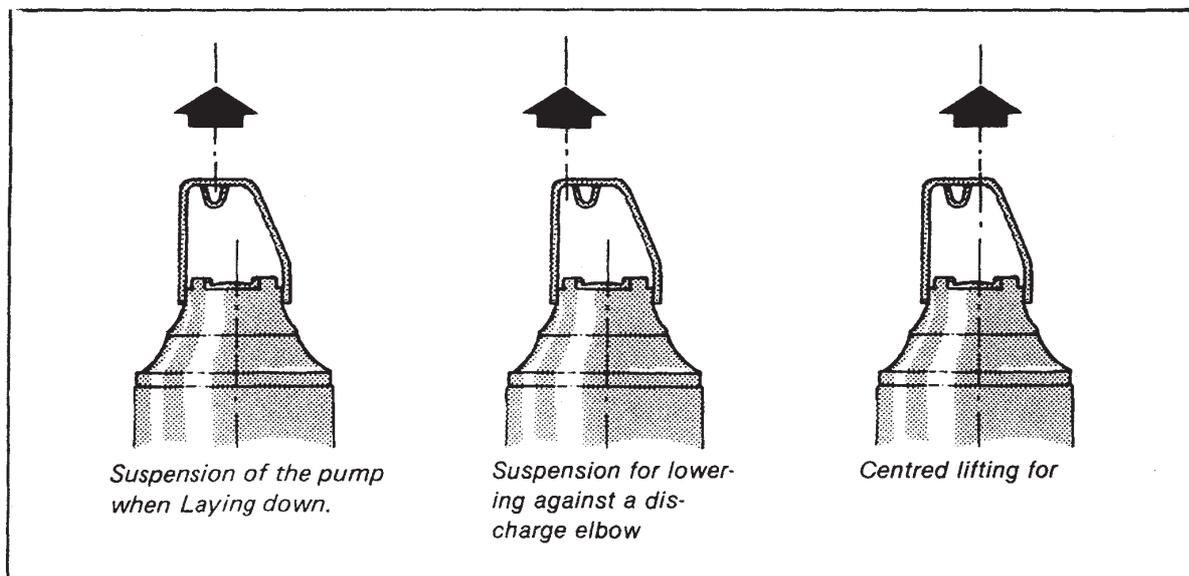
### **Lower the pump to the working position, checking:**

- that the cables are not stretched
- that the space between the pump flange and connection foot is clear
- that the pump takes up the correct position against the discharge elbow.

Start the pump when the pump casing is completely covered by water, put the level control (if any) out of action and pump until water reaches the suction level of the pump. Check that there is no leakage at the pump connection to the discharge elbow.

If it is suspected that the pump has not primed properly, this may be due to air in the casing. If so, raise the pump slightly in order to fill the casing with water. For a pump fitted with a vortex impeller, it should be completely raised above the liquid level and then lowered again.

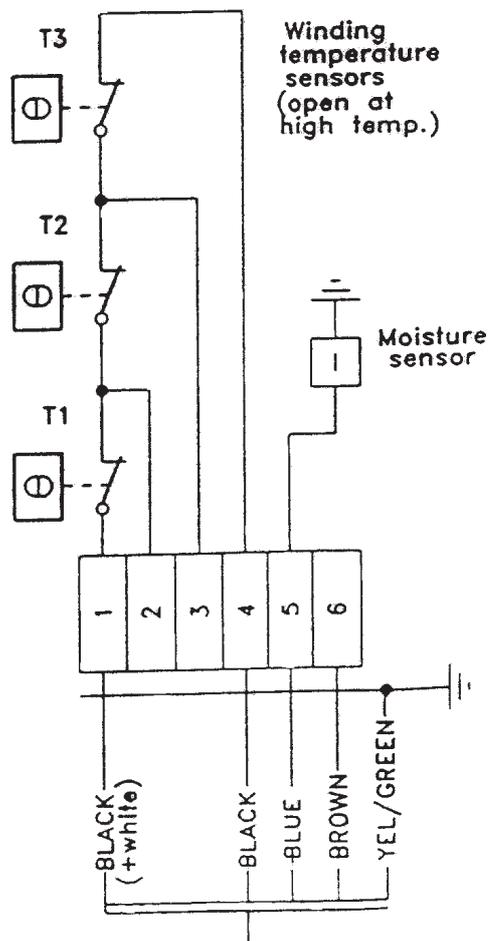
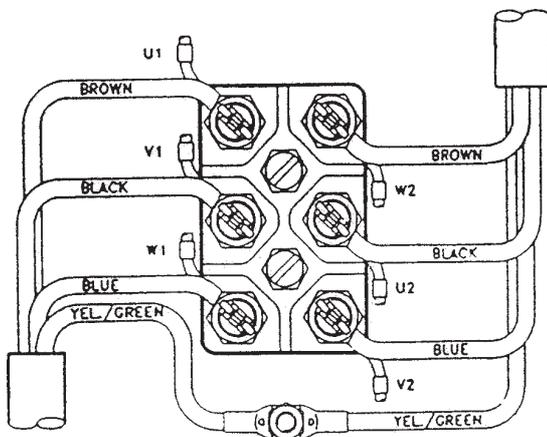
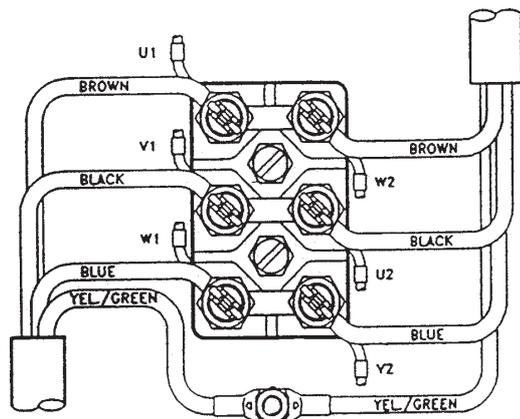
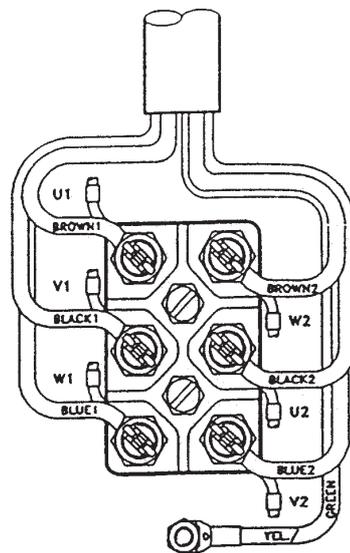
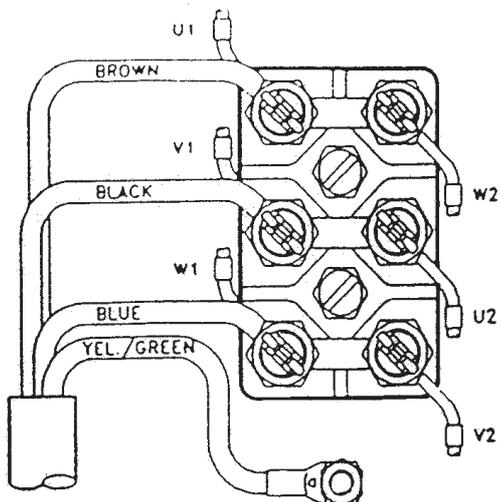
Check that the pump power consumption is as specified.



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### Main connection



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### Service

#### Periodical maintenance

Change the oil in the pump once every year or after approx. 2000 running hours. If there are any traces of water in the drained oil, check the seals in the pump.

Fill new oil. Oil amount, see "Starting and operating instructions" delivered with the pump. The oil should be of type Shell Tellus 46 ISO VG 46 or similar.

If the pump is of the cooled version, check the coolant (water + 30% Propylene glycol DOWCAL ® 20). The positions of the filling and level plugs are shown in the pictures below.

#### Suitable greases

**BP:** Grease 1729. **Shell:** Dolium Grease R **Texaco:** Ultra Temp. Grease **Esso:** Unirex N3. **Chevron:** industrial Grease H

#### General remarks on trouble shooting

Experience indicates that operational problems are often due to the control equipment and not the pump.

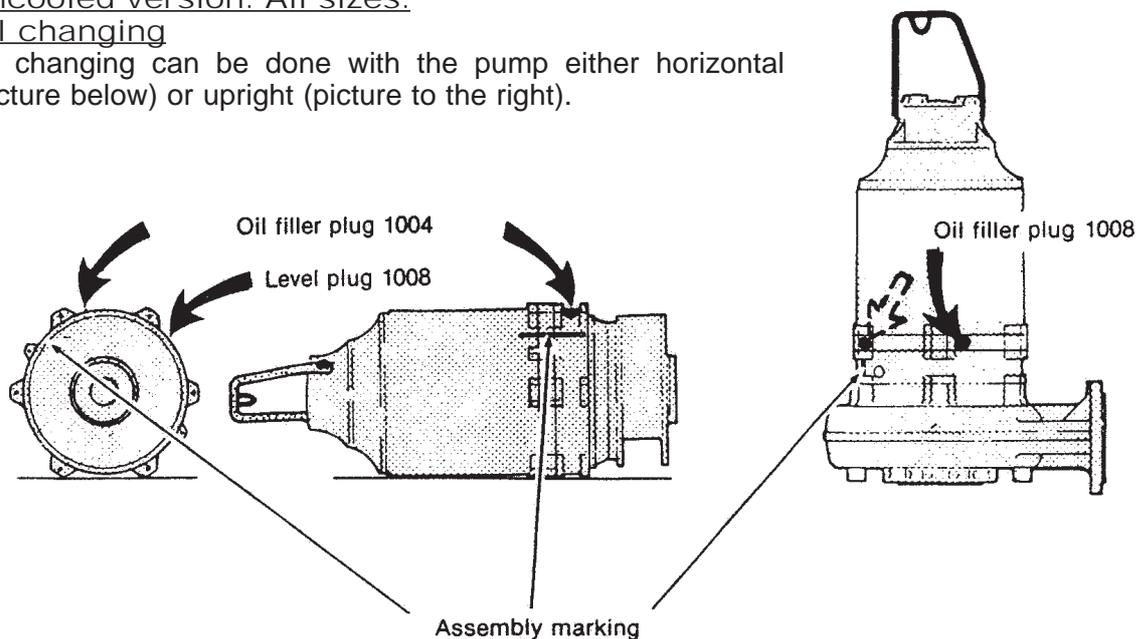
Measuring instruments and a circuit diagram will be needed in order to trace faults in the electrical installation. This work must be done by suitably qualified electricians. Ensure that the power supply has been locked off before attempting to work on the pump.

After doing any work on the pump, check that it has been correctly re-installed. Begin any trouble-shooting by clearly defining the fault and noting the conditions under which it appears.

#### Uncooled version. All sizes.

##### Oil changing

Oil changing can be done with the pump either horizontal (picture below) or upright (picture to the right).



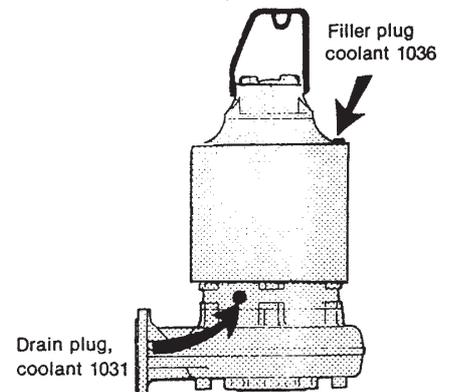
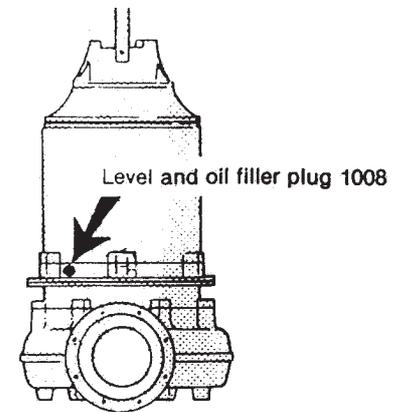
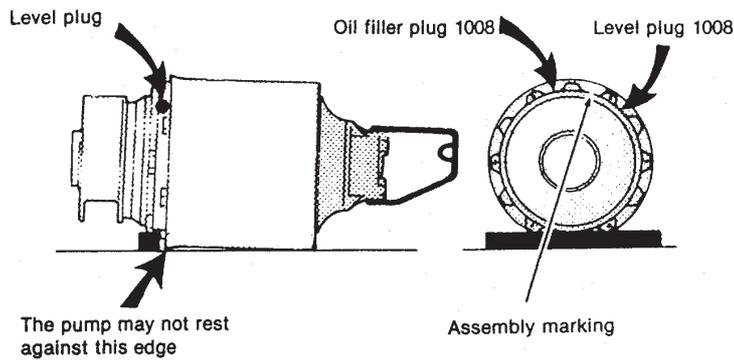
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### Cooled version

### Oil changing

Oil changing can be done with the pump horizontal (picture below) or upright if the cooling jacket is removed (picture to the right).



### Coolant

Coolant should be poured in to a level 50 mm below the filler hole (picture on the right).

