

INSTALLATION, CARE AND MAINTENANCE



GUARANTEE

Flygt undertakes to remedy faults in products sold by Flygt provided:

- that the fault is due to defects in design, materials or workmanship;
- that the fault is reported to Flygt or Flygt's representative during the guarantee period;
- that the product is used only under conditions described in the care and maintenance instructions and in applications for which it is intended;
- that the monitoring equipment incorporated in the product is correctly connected;
- that all service and repair work is done by a workshop authorized by Flygt;
- that genuine Flygt parts are used.

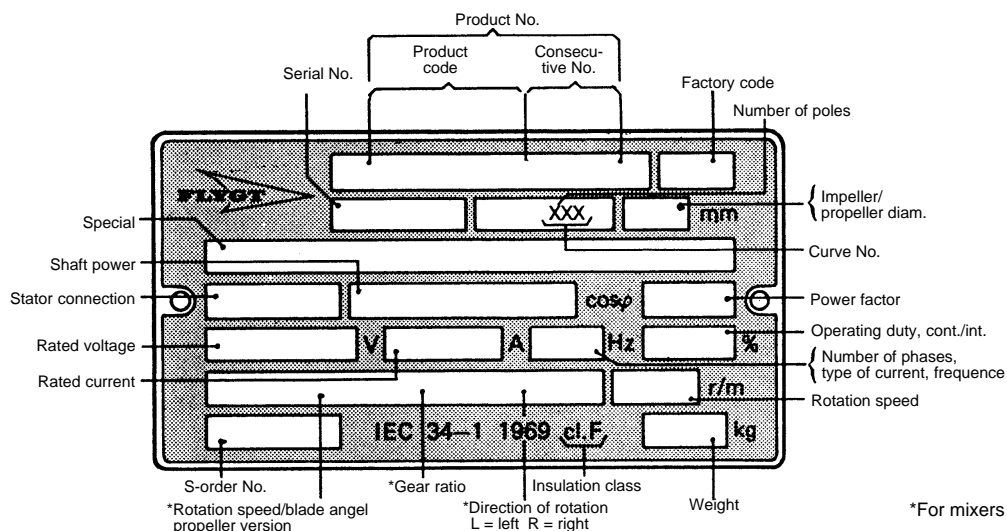
Hence, the guarantee does not cover faults caused by deficient maintenance, improper installation, incorrectly executed repair work or normal wear and tear.

Flygt assumes no liability for either bodily injuries, material damages or economic losses beyond what is stated above.

Flygt guarantees that a spare parts stock will be kept for 10 years after the manufacture of this product has been discontinued.

The manufacturer reserves the right to alter performance, specification or design without notice.

DATA PLATE INTERPRETATION



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PRODUCT DESCRIPTION

Applications

B2060 and C3060 are designed for drainage respectively pumping of industrial waste water, when high demands regarding corrosion resistance are required.

Liquid temperature:

C2060 – max. 40°C (100°F).

C3060 – max. 70°C (160°F).

C3060 – max. 90°C (200°F) with external cooling.

Liquid density: Max. 1100 kg/m³ (9.2 lb per US gal).

The pumped liquid may contain particles up to a size which corresponds to the openings in the strainer.

The pH of the pumped liquid: 5—11, depending of the pumped liquid and its temperature. Contact your nearest Flygt-representative for information.

Depth of immersion: max. 20 m (65 ft).

Pumps with a vortex impeller may not be operated at a too low discharge head, since this causes overloading of the motor. Contact your nearest Flygt-representative for information.



The pump shall not be used in explosive or flammable environments or with flammable liquids.

For other applications, contact your nearest Flygt representative for information.

Dimensions and weights

For dimensions see “Installation alternatives”.

Weight without motor cable:

B 2060 — 32 kg (70 lbs)

C3060 — 41 kg (90 lbs)

Design

B2060 and C3060 are submersible electric motor-driven centrifugal pumps.

Impellers

The pump is available with the following types of impellers:

B2060 — three-vane impeller of acid-proof steel or stainless steel.

C3060 — two-vane impeller or vortex impeller of stainless steel.

Shaft seals

The pump has two mechanical seals which provide the isolation necessary between the electric motor and the pumped liquid.

Materials:

Inner seal: ceramic—carbon.

Outer seal B2060: ceramic—tungsten carbide
C3060: ceramic—ceramic

Shaft

The shaft is delivered with the rotor as an integral part.

Shaft material: stainless steel.

Bearings

The pump bearings are designed for at least 15 000 hours of operation.

The lower bearing consists of a single-row ball bearing.

The upper bearing consists of a single-row ball bearing.

Oil casing

The oil lubricates and cools the seals and acts as a buffer between the pump casing and the electric motor.

Pressure build-up within the oil casing is reduced by means of a built-in air volume.

Motor

Squirrel-cage 3-phase induction motor for 50 Hz or 60 Hz. The motor is also available for 1-phase, 60 Hz.

The motor is started by means of direct on-line start.

The motor can be run continuously or intermittently with a maximum of 15 evenly spaced starts per hour.

The stator is insulated to class F, 155°C (310°F). The motor is designed to supply its rated output at ± 5% variation of the rated voltage. Without overheating the motor, ± 10% variation of the rated voltage can be accepted provided that the motor does not run continuously at full load. The motor is designed to operate with a voltage imbalance of up to 2% between the phases.

Monitoring equipment

The stator incorporates two thermal switches connected in series.

The thermal switches open at 125°C (260°F) and close at 70°C (160°F).

The monitoring equipment shall be of a design that makes automatic restart impossible.

See also "Electrical connections" and separate instructions for starters.

Cooling

B 2060

The stator is cooled by the pumped liquid passing through the space between the stator casing and the outer casing.

C 3060

The stator is cooled by the circulation of a portion of the pumped liquid in the space between the stator casing and the cooling jacket.

Under severe operating conditions and/or at high temperatures of the pumped liquid, internal cooling can be replaced by external cooling. Special rules apply for connecting external cooling to fresh water systems.

C3060 can also be operated without the outer casing, in which case the lowest liquid level shall be above the upper edge of the stator casing.

Technical data

B 2060

The pump curves show:

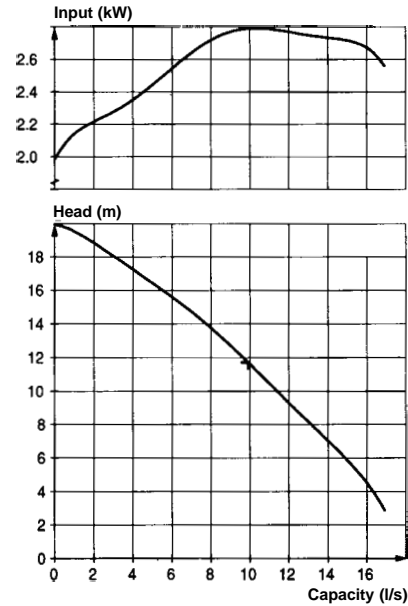
- input power at various operating points.
- flow rate versus total head.

C 3060

For information about the capacity of the pump, contact your nearest Flygt-representative.

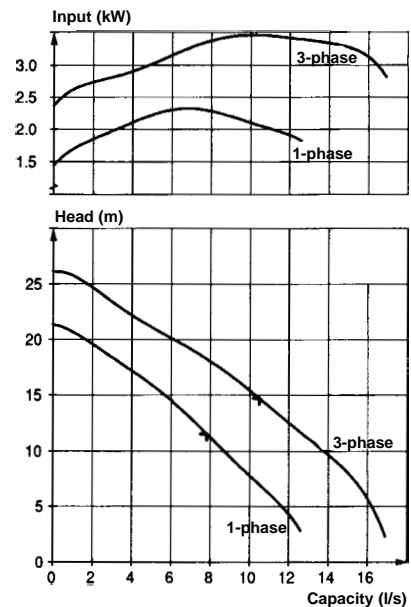
Capacity

50 Hz



Capacity

60 Hz



TRANSPORTATION AND STORAGE

The pump may be transported and stored in a vertical or horizontal position. Make sure that it is securely fastened and cannot roll or fall over.

Always lift the pump by its carrying handle or lifting eyes, **never** by the motor cable or the hose.

The pump is frostproof as long as it is operating or is immersed in the liquid. If the pump is taken up when the temperature is below freezing, the impeller may freeze. The pump shall be operated for a short period after being taken up in order to expel all remaining water.

A frozen impeller can be thawed by allowing the pump to stand immersed in the liquid for a short period

before it is started. Never use an open flame to thaw the pump.

For longer periods of storage, the pump must be protected against moisture and heat. The impeller should be rotated by hand occasionally (for example every other month) to prevent the seals from sticking together. If the pump is stored for more than 6 months, this rotation is mandatory.

After a long period of storage, the pump should be inspected before it is put into operation. Pay special attention to the seals and the cable entry.

Follow the instructions under the heading "Before starting".

INSTALLATION

Safety precautions

In order to minimize the risk of accidents in connection with the service and installation work, the following rules should be followed:

1. Make sure the lifting equipment is in good condition.
2. Be aware of the risk of electrical accidents.
3. Use a safety helmet, safety goggles and protective shoes.
4. Do not ignore the risk of drowning.
5. A first-aid kit must be handy.

Follow all other health and safety rules and local codes and ordinances.



At certain installations and operation points on the pump curve the noise level 70 dB, or for the actual pump specified noise level, can be exceeded.

Installation alternatives

C3060

CP version

In the CP version, the pump is installed on a stationary discharge connection and operates completely or partially submerged in the pumped liquid.

In addition to the pump, the following items are required:

Guide bars consisting of two stainless steel pipes.

Upper guide bar bracket for attaching the guide bars to the access cover or top of the station.

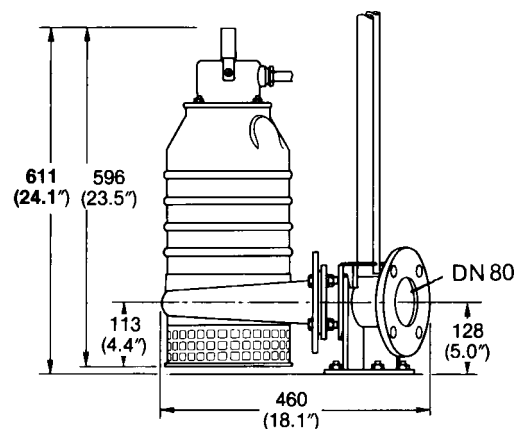
Control equipment for start, stop and alarm.

Cable holder for holding the cable and regulating the height of the level sensors.

Access frame (with covers) to which the upper guide bar bracket and cable holder can be attached.

Discharge connection for connecting the pump to the discharge line. The discharge connection has a flange which fits the flange on the station piping. The pump casing mates with the discharge connection, which also has bosses for holding the guide bars.

CP 3060
With discharge connection assembly




CP installation

All dimensions are in mm (in).

Provide a barrier around the pump pit, for example a guard rail.

Arrange for a cable between the sump and the electric control box. Make sure that the cables are not sharply bent or pinched.



NOTE!
The end of the cable must not be submerged. Leads have to be above flood level, as water may penetrate through the cable into the junction box or the motor.

Place the access frame in position. Align the frame so that it is horizontal and then grout it in place. Check that the guide bars will be vertical using a level or plumb line.

Install the anchor bolts in place. Be careful when aligning and positioning the discharge connection in relation to the access frame.

Place the discharge connection in position and tighten it. Secure the guide bars in the brackets and discharge bosses. Connect the discharge pipe to the discharge connection.

Bolt the cable holder to the access frame.

Protect bolts and nuts with corrosion-preventive compound.

Lower the pump along the guide bars. On reaching its bottom position, the pump will automatically connect to the discharge connection. Fasten the lifting chain on the access frame eyebolt provided and the cables on the cable holder. Cable supports are required for deep installations. Run the cables up to the electric control box.

Clean out debris from the sump before starting up the station.

The pump can be hoisted up along the guide bars for inspection without any connections having to be undone.

CS version

In the CS version, the pump is transportable and intended to operate completely or partially submerged in the pumped liquid.

The pump is equipped with a connection for pipe, see "Parts list".

The pump stands on a strainer with a support plate.

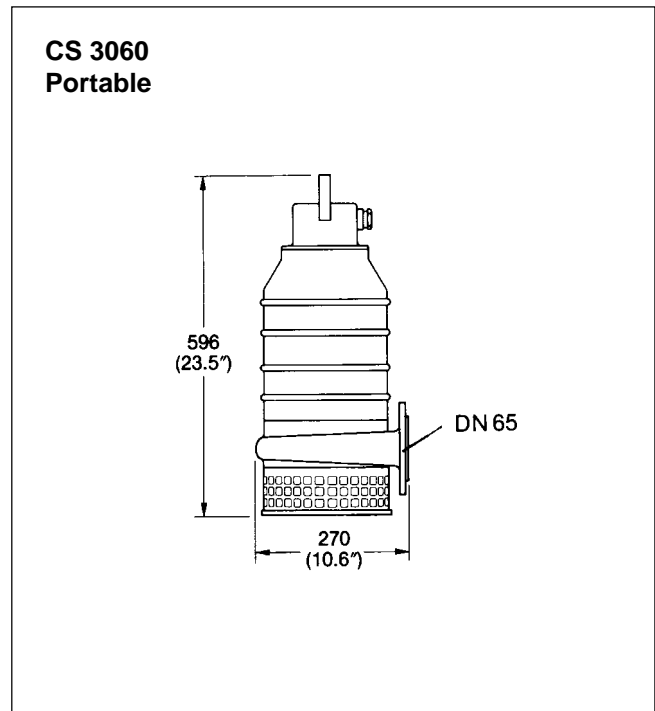
CS installation

Run the cables so that they have no sharp bends, are not pinched and cannot be sucked into the pump inlet. Connect the discharge line and the motor cable. See "Electrical connections".

Lower the pump into the sump.

Place the pump on a base which prevents it from sinking into a soft sump bottom.

Alternatively, the pump can be suspended from above by its handle just above the bottom of the sump.



CT version

In the CT version, the pump is installed in a stationary position in a dry well next to the wet sump.

The pump has a watertight motor and will therefore not be damaged in the event of flooding in the pump room.

The pump is liquid-cooled. See "Cooling".

In addition to the pump, the following items are required:

Base stand and anchor bolts for setting up the pump.

Shut-off valves to permit the pump to be removed for repair.

Air vent on discharge side between the pump and the check valve.

CT installation

The pump should be positioned low in the dry pit for effective drainage.

Bolt the base stand to the concrete base by means of four grouted-in anchor bolts.

Bolt the pump to the stand.

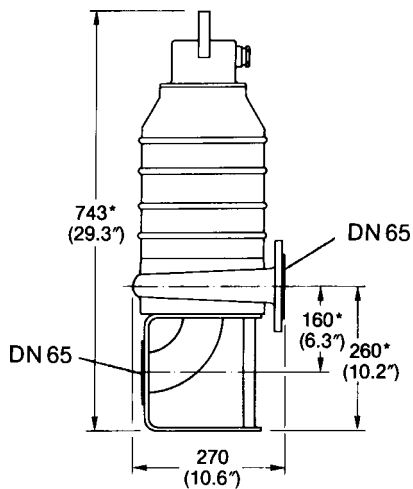
Check that the pump is vertical.

Connect the motor cable, suction line and discharge line.

Make sure that the weight of the pump does not bear on the system piping.

NOTE! The risk of freezing is particularly great at certain CT installations.

CT 3060 Dry installation



* Depending on the number of adjusting shims.

B2060

Pump installation

Run the cables so that they do not have any sharp bends and are not pinched.

Connect the discharge connection and motor cable. See "Electrical connections".

Lower the pump into the sump.

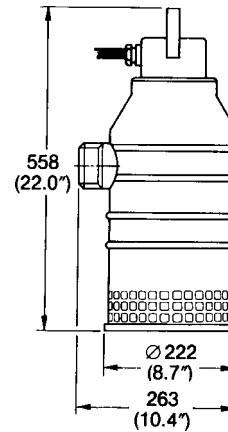
Place the pump on a base which will prevent it from sinking into a soft sump bottom. Alternatively, the pump can be suspended by its handle just above the sump bottom.

For tandem connection of pumps, see "Accessories and tools".

Consult your nearest Flygt representative regarding:

- sizing of sump, pumping station and access frame.
- choice of peripheral equipment.
- other problems in connection with installation.

B 2060



ELECTRICAL CONNECTIONS



WARNING!

All electrical equipment must be earthed. This applies to both pump equipment and any monitoring equipment. Failure to heed this warning may cause a lethal accident. Make sure that the earth lead is correctly connected by testing it.

Check that the main (line) voltage and frequency agree with the specifications on the pump data plate.

The motor can be connected for different voltages as shown on the data plate.

Install the motor cable as illustrated in the exploded figure.

To avoid leakage into the pump, check:

- that the cable entry seal sleeve and washers conform to the outside diameter of the cable. See the parts list.
- that the outer jacket on the cable is not damaged. When refitting a cable which has been used before, **always** cut off a short piece of the cable so that the cable entry seal sleeve does not close around the cable at the same point again.

To protect the motor cable a stainless steel protection hose can be ordered.

Please see under ACCESSORIES AND TOOLS (page 00). To prevent leakage thread tape should be used mounting the hose into the gland screw!

The stator leads are colour coded as follows:

6-and 9-lead stator

U1 = Red
V1 = Brown
W1 = Yellow
U2 = Green
V2 = Blue
W2 = Black
U5 = Red
V5 = Brown
W5 = Yellow

4-lead stator

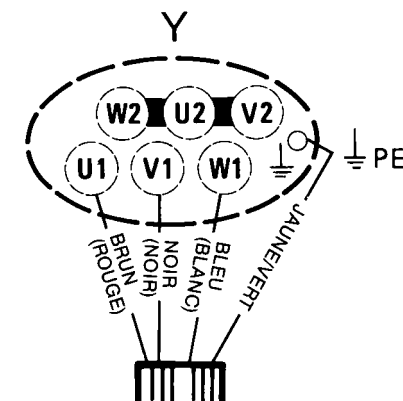
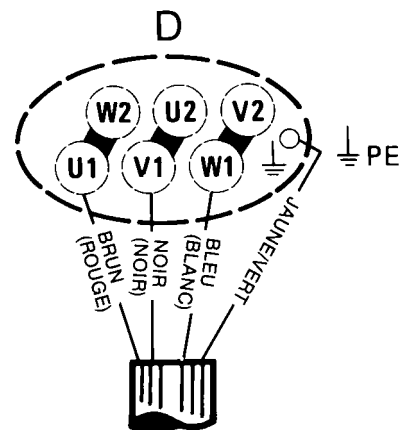
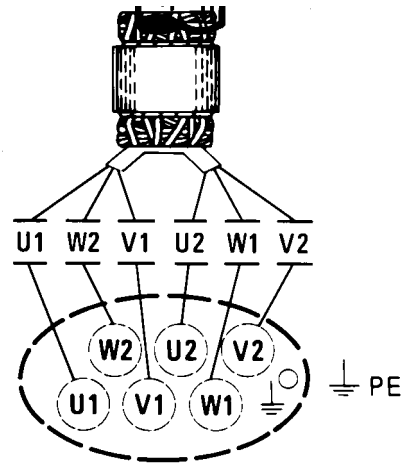
U1 = Red
U2 = Brown
Z1 = Yellow
Z2 = Black

The stator leads are connected to the terminal board as illustrated in the figures.

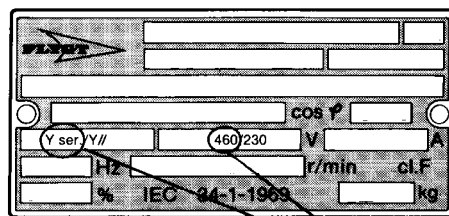
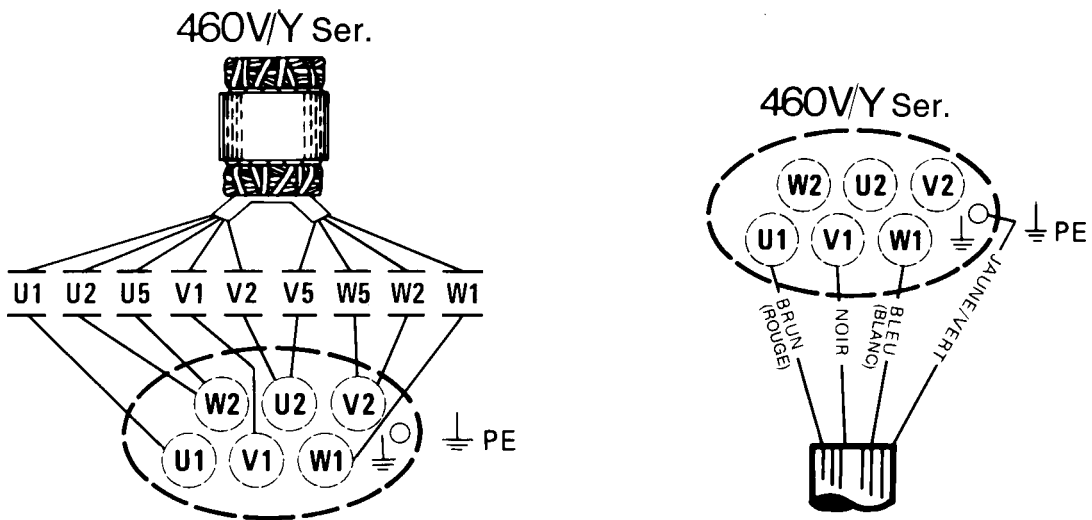
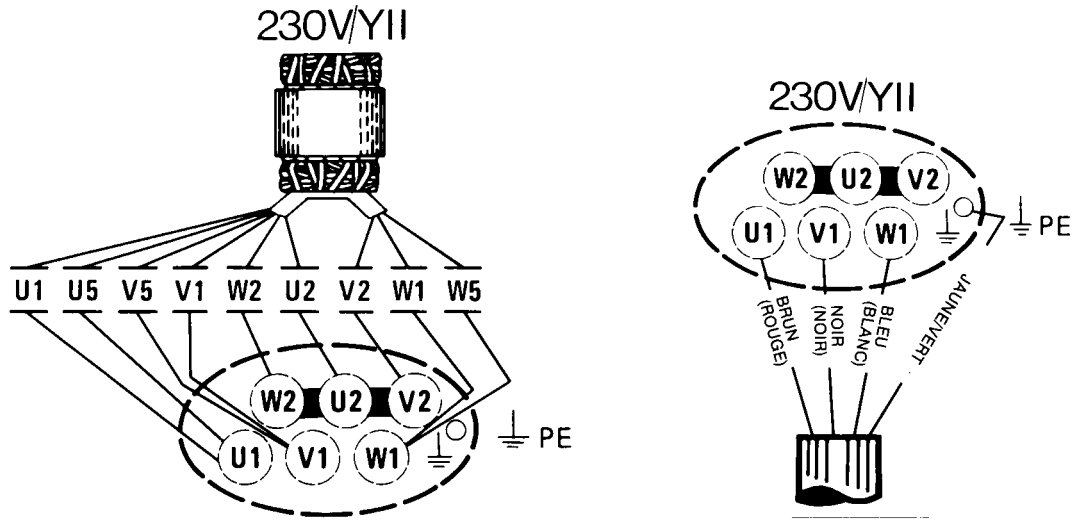
Connect the motor cable to the terminal board as follows. Check on the data plate which connection, star or delta, is valid for used mains voltage.

Then, depending on mains voltage, mount the closing links on the terminal board for star or delta connection, see figure.

6-lead stator

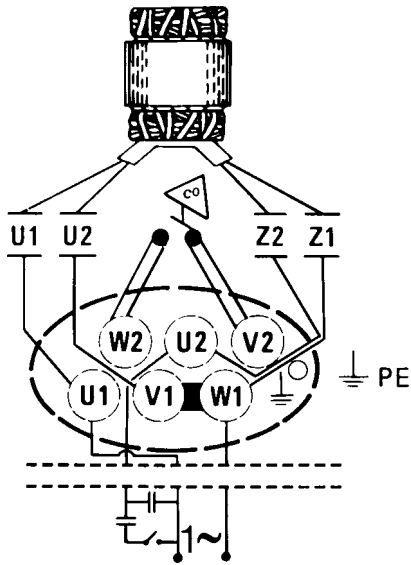


9-lead stator



* NOTE! When connecting pumps which have 1 9-lead stator for 460V Y Ser. 60 Hz, no closing links should be used. For correct connection, see inside of junction box cover.

**4-lead stator
(only 60 Hz, 1 phase)**



Connect the control leads to the terminal board.

Make sure that the pump is correctly earthed (grounded).

Install the cover (51).

Remember that the starting surge with the direct-on line start can be up to six times higher than the rated current.

Make sure that the fuses or circuit breakers are of the proper amperage.

The tables give rated current. Fuse amperage and cable shall be selected in accordance with local rules and regulations. Note that with long cables, the voltage drop in the cable must be taken into consideration, since the motor's rated voltage is the voltage that is measured at the terminal board in the pump.

The overload protection (motor protection breaker) shall be set to the motor's operating current, but no higher than the motor's rated current as given on the data plate.



NOTE!

For safety reasons, the earth lead should be approx. 70 mm (2.8") longer than the phase leads. If the motor cable is jerked loose by mistake, the earth lead should be the last lead to come loose from its terminal. This applies to both ends of the cable.

B 2060

50 Hz	Rated current (A)			
	3-phase	220 V	380 V	440 V
2.2 kW	8.1	4.7	4.1	3.2

C 3060

50 Hz	Rated current (A)			
	3-phase	220 V	380 V	440 V
2.4 kW	9.1	5.3	4.6	3.7

B 2060/C 3060

60 Hz	Rated current (A)			
	3-phase	220 V	380 V	460 V
2.7 kW (3.6 hp)	10	10	5.0	4.0

60 Hz	Rated current (A)			
	1-phase	220 V	230 V	—
1.8 kW (2.5 hp)	11	11	—	—

Before starting

Check the oil level in the oil casing.

Check that the monitoring equipment (if any) works.

Check the direction of rotation. See the figure. The impeller shall rotate clockwise, as viewed from above.

When started, the pump will jerk in the opposite direction to the direction in which the impeller rotates.

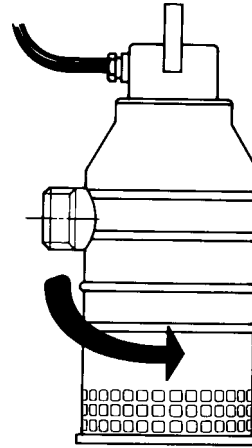


Beware!
The starting jerk on large pumps can be powerful!

In the case of CT installation, the direction of rotation is checked through the inlet elbow access cover.

The above measures are described under "Inspection".

Starting jerk



OPERATION

In order to avoid sedimentation when the pumped medium contains solid particles, the velocity of the medium in the discharge line should be:

Mixture	Min. velocity in discharge line
1. Water + coarse gravel	4 m/s (13.1 ft/s)
2. Water + gravel	3.5 m/s (11.5 ft/s)
3. Water + sand	
Sand particles <0.1 mm (0.004")	1.5 m/s (4.9 ft/s)
Sand particles <0.6 mm (0.024")	2.5 m/s (8.2 ft/s)

The pump can be provided with level regulation in order to prevent unnecessary wear on the hydraulic components.

Cleaning

If the pump has been running in very dirty water, let it run for a while in clean water, or flush it through the discharge connection. If clay, cement or other similar dirt is left in the pump it may clog the impeller and sealings, preventing the pump from working.

CARE AND MAINTENANCE

Safety precautions



WARNING!
Before starting work on the pump, make sure that the pump is isolated from the power supply and cannot be energized. This applies to the control circuit as well.

The following points are important in connection with work on the pump:

- make sure that the pump has been thoroughly cleaned.
- observe good personal hygiene.
- beware the risk of infection.
- follow local safety regulations.

The pump is designed for use in liquids which can be hazardous to health. In order to prevent injury to the eyes and skin, observe the following points when working on the pump:

- Always wear goggles and rubber gloves.
- Rinse the pump thoroughly with clean water before starting work.
- Rinse the components in water after disassembly.
- Hold a rag over the oil casing screw (OIL) and the inspection screw (INSP) when removing them. Otherwise, pressure that may have built up in the pump due to the leakage of pumped liquid into the pump may cause splatter into the eyes or onto skin.

Proceed as follows if you get hazardous chemicals in your eyes:

- rinse immediately in running water for 15 minutes. Hold your eyelids apart with your fingers.
- contact an eye doctor.

On your skin:

- remove contaminated clothes.
- wash skin with soap and water.
- seek medical attention if required.

Inspection

Regular inspection and preventive maintenance ensure more reliable operation.

The pump should be inspected at least every 1000 hours, more frequently under severe operating conditions.

Under normal operating conditions, the pump should have a major overhaul in a service shop one a year.



This requires special tools and should be done by an authorized service shop.

When the pump is new or when the seals have been replaced, inspection is recommended after one week of operation.

Service contract

Flygt or its agent offers service agreements in accordance with a preventive maintenance plan. For further information, please contact your Flygt representative.

Recommended inspections:

Inspection of	Action
Visible parts on pump and installation	<p>Replace or fix worn and damaged parts.</p> <p>Make sure that all screws, bolts and nuts are tight.</p> <p>Check the condition of carrying handle/lifting eyes, chains and wire ropes.</p> <p>Check that the guide bars are vertical.</p>
Pump casing and impeller	<p>Replace worn parts if they impair function.</p> <p>Wear on the outlet flange on the pump casing usually causes corresponding wear on the discharge connection.</p> <p>Wear on the impeller and the parts around it necessitates fine adjustment of the impeller or replacement of worn parts. See “Replacing the impeller” and “Replacing the diffuser”.</p>
Oil quantity	<div data-bbox="491 613 1477 775" style="border: 1px solid black; padding: 5px;">  <p>WARNING. If the seal leaks, the oil casing may be under pressure. Hold a rag over the oil casing screw in order to prevent splatter. See “Safety precautions” for additional information.</p> </div> <p>Check that the oil reaches up to the oil hole when the pump is lying down with the oil hole up.</p> <p>Add oil as needed. See “Changing the oil”.</p>
Condition of the oil	<p>A check of the condition of the oil can show whether there has been an increased leakage. Note! Air/oil mixture can be confused with water/oil mixture.</p> <p>Insert a tube (or hose) into the oil hole. Cover the top end of the tube and take up a little oil from the bottom.</p> <p>Change the oil if it contains too much water, i.e., is heavily emulsified (cream-like), or if the water has settled out. See “Changing the oil”. Check again one week after changing the oil.</p> <p>If the oil contains too much water again, the fault may be:</p> <ul style="list-style-type: none"> — that an oil screw (OIL) is not sufficiently tight. — that the O-ring or its sealing surface is damaged. — that the lower seal (63) is damaged. Contact a Flygt service shop.
Liquid in the stator casing	<div data-bbox="491 1339 1477 1500" style="border: 1px solid black; padding: 5px;">  <p>WARNING. If there has been leakage, the stator casing may be under pressure. Hold a rag over the inspection screw to prevent splatter. See “Safety precautions” for additional information.</p> </div> <p>Note! Make sure that the power supply is turned off.</p> <p>Remove cover (51).</p> <p>Remove the inspection screw (16).</p> <p>Check if there is any liquid in the stator casing.</p> <p>If there is water in the stator casing, the cause may be:</p> <ul style="list-style-type: none"> — that an O-ring is damaged. <p>If there is oil in the stator casing, the cause may be:</p> <ul style="list-style-type: none"> — that the inner seal (72) is damaged. Contact a Flygt service shop. — that an O-ring is damaged.

Inspection of	Action
Cable entry	<p>Make sure that the cable clamps are tight.</p> <p>If the cable entry leaks:</p> <ul style="list-style-type: none"> — check that the entry is tightened so it bottoms out. — cut a piece of the cable off so that the seal sleeve (40) closes around a new position on the cable. — replace the seal sleeve. — check that the seal sleeve and the washers (13) conform to the outside diameter of the cables.
Cables	<p>Replace the cable if the outer jacket is damaged. Make sure that the cables do not have any sharp bends and are not pinched.</p>
Level sensors or other level equipment	<p>Check function. Clean, adjust, replace or repair damaged level sensing equipment. Follow the instructions for the level sensing equipment in question.</p>
Starter equipment	<p>If faulty, contact an electrician.</p>
Rotation direction of impeller (requires voltage)	<p>Transpose two phase leads if the impeller does not rotate clockwise as viewed from above. Rotation in the wrong direction reduces the capacity of the pump and the motor may be overloaded. Check the direction of rotation, every time the pump is reconnected.</p>
Pipes, valves and other peripheral equipment	<p>Repair faults and notify supervisor of any faults or defects.</p>
Insulation resistance in the stator	<p>Contact a Flygt service shop.</p>

Changing the oil

WARNING. If the seal leaks, the oil casing may be under pressure. Hold a rag over the oil plug to prevent splatter.

Lay the pump on its side on a bench or over two supports.

Unscrew the oil casing screw (OIL).

Turn the pump so that the oil hole faces downwards.

It is easier to drain the oil if the other oil hole screw is also removed.

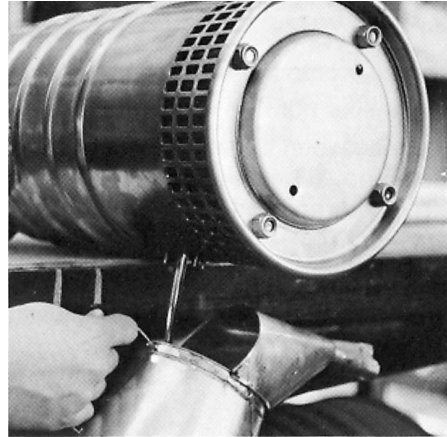
In order to get out all the oil, the pump must be raised upright for a short while during drainage.

Fill with 0.5 litres (0.53 US quarts) of new oil. Use oil filling tube (306 83 00) for filling oil in B2060.

A paraffin oil with viscosity close to ISO VG15 is recommended (e.g. Mobil Whiterex 309), The pump is delivered from factory with this type of oil.

In applications where poisonous properties are of less concern, a mineral oil with viscosity up to ISO VG32 can be used.

Always replace the gaskets under the oil casing screws. Place the screws back in.



B2060

Replacing the diffuser

Removing the diffuser

Lay the pump on its side.

Remove nuts (12) and pull off the strainer bottom (53).

Remove nuts (12).

Remove sleeves (58), diffuser (60) and springs (62).

Installing and adjusting the diffuser

Mount springs (62), diffuser (60) and sleeves (58).

To facilitate the adjustment of the lower diffuser there is a special tool, 399 32 00. With this tool the lower diffuser is pressed in position so that the sleeves (58) and nuts (12) can be mounted.

Press the lower diffuser (60) against the impeller.

Mount the sleeves (58) and screw the adjusting nuts (12) so that the sleeves lie flush against the lower diffuser.

Tighten the nuts (12) evenly all around.

The clearance between the impeller and the lower diffuser shall be as little as possible.

Check that the impeller can easily be rotated by hand.

Install: Strainer bottom (53).

Mount and tighten the nuts (12) evenly all around.

Replacing the impeller

Removing the impeller



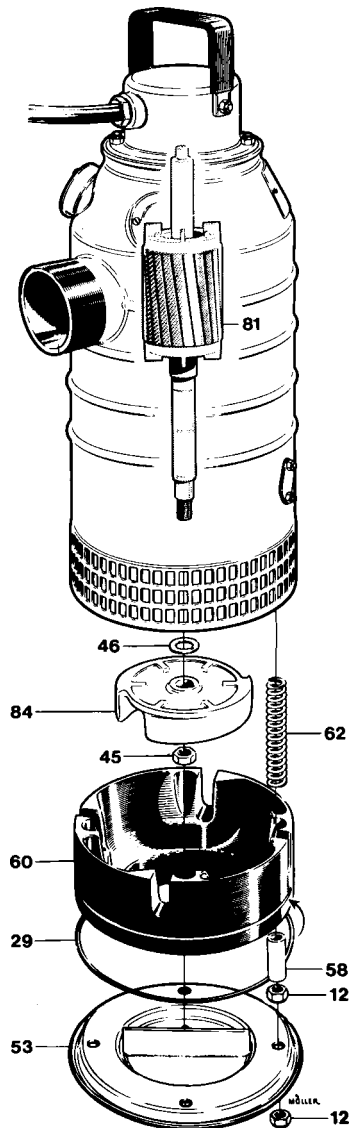
WARNING!
Worn impellers often have very sharp edges.

Demount diffuser. See "Removing the diffuser".

Remove impeller nut (45).

Pull off the impeller.

Use impeller puller 84 20 48.



Installing and adjusting the impeller

Make sure that the end of the shaft is clean and free of burrs. Polish off any flaws.

Check:

- that an appropriate number of adjusting washers (46) are on the shaft.
- that the key (1) is seated in the keyway on the shaft.

Grease end of shaft.

Press the impeller onto the shaft with the impeller nut.

Tighten the impeller nut.

The clearance between the impeller and the oil casing bottom should be minimal when the impeller is tightened. The clearance can be adjusted with the adjusting washers (46).

Check that the impeller can easily be rotated by hand.

Mount the diffuser. See "Installing and adjusting the diffuser".

C 3060

Replacing the suction cover

Removing the suction cover

Lay the pump on its side.

Remove nuts (12) and pull off the strainer bottom (53).

Remove the strainer (77).

Remove nuts (12).

Remove sleeves (83) and suction cover (85).

Installing and adjusting the suction cover

Check that a suitable number of adjusting washers (82) are evenly distributed on the studs (19).

Press the suction cover against the impeller.

Place sleeves (83) and nuts (12) on the studs.

Tighten the nuts (12) evenly all around.

The clearance between the impeller and the suction cover shall be as little as possible. About 0.3 mm (0.01"). If required, adjust with the adjusting washers (82).

Check that the impeller can easily be rotated by hand.

Install: Strainer (77)

Strainer bottom (53).

Mount and tighten the nuts (12) evenly all around.

In order for the pump to perform at maximum capacity, the impeller must be adjusted regularly.

It is particularly important that the clearance between the suction cover and the impeller is kept to a minimum.

Replacing the impeller

Removing the impeller



WARNING!
Worn impellers often have very sharp edges.

Remove the suction cover. See "Removing the suction cover".

Remove impeller screw/nut (45).

Pull off the impeller.

Use impeller puller 84 20 48.

Installing and adjusting the impeller

Make sure that the end of the shaft is clean and free of burrs. Polish off any flaws.

Check:

- that an appropriate number of adjusting washers (46) are on the shaft.
- that the key (1) is seated in the keyway on the shaft.

Grease end of shaft and impeller hub.

Press the impeller onto the shaft with the impeller nut.

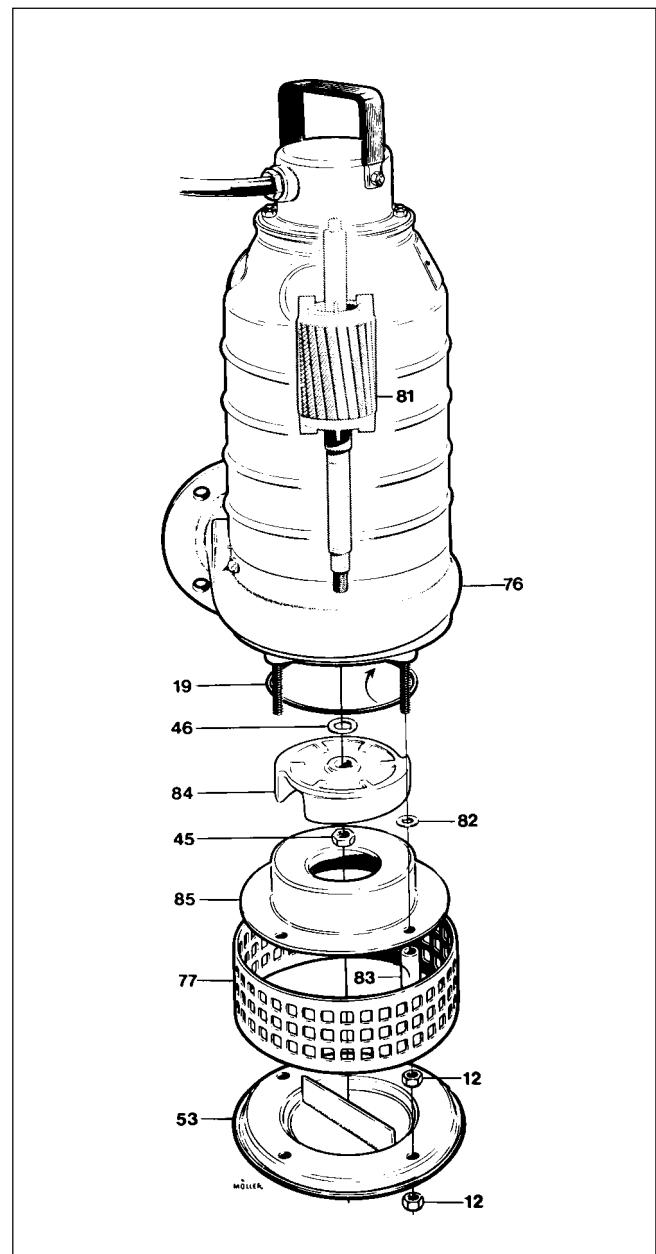
Tighten the impeller nut.

The clearance between the impeller and the oil casing bottom should be minimal when the impeller is tightened. The clearance can be adjusted with the adjusting washers (46).

Check that the impeller can easily be rotated by hand.

Mount the suction cover. See "Installing and adjusting the suction cover".

More extensive repairs require special tools and should be carried out by an authorized service technician.



ACCESSORIES AND TOOLS

Tools

The following tools are required in order to perform the necessary care and maintenance of the pump:

Order No.	Description
84 13 92	Socket, 19 mm
84 15 51	Extension, ½", L = 250 mm
84 15 61	Handle, L = 310 mm
84 20 48	Impeller puller
306 83 01	Oil filler tube
399 32 00	Adjustment tool

For further information on tools, see Flygt's Tool Catalogue.

Start and control equipment

Flygt has suitable start and control equipment for the pump. Contact Flygt for further information.

Protection hose

In order to protect the motor cable it can be fitted with a stainless steel protection hose.

Order No. 400 33 00.

Gland screw for protection hose.

Order No. 400 34 00.

Tandem operation

The delivery head can be increased by connecting two or three pumps in tandem.

Max. permissible operating pressure is 0.5 MPa (71 psi).

The vertical distances between the pumps should be approximately equal.

See special brochure that describes the procedure for tandem connection.

The following complete connection units are available for tandem connection:

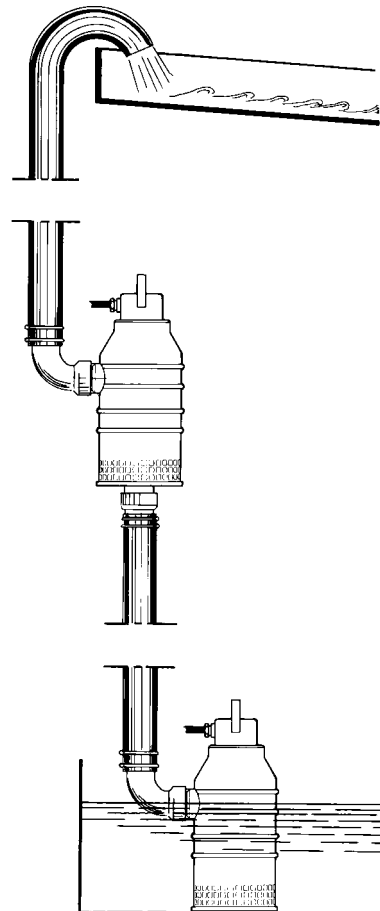
B 2060

Order No.	Intended for
377 26 00	3" hose or pipe R2½"
377 26 01	NPSM 3—8

C 3060

Order No.	
314 92 00	with undrilled flange (is also a pump stool)
314 92 01	with flange drilled for SMS 2031, DIN 2631 and BS 4504:1969 Table 6/2
314 92 05	with flange drilled for ANSI B16.5:1968 Table 13.

Tandem operation



FAULT TRACING (Troubleshooting)

A universal instrument (VOM), a test lamp (continuity tester) and a wiring diagram are required in order to carry out fault tracing on the electrical equipment.

Fault tracing shall be done with the power supply disconnected and locked off, except for those checks which cannot be performed without voltage.

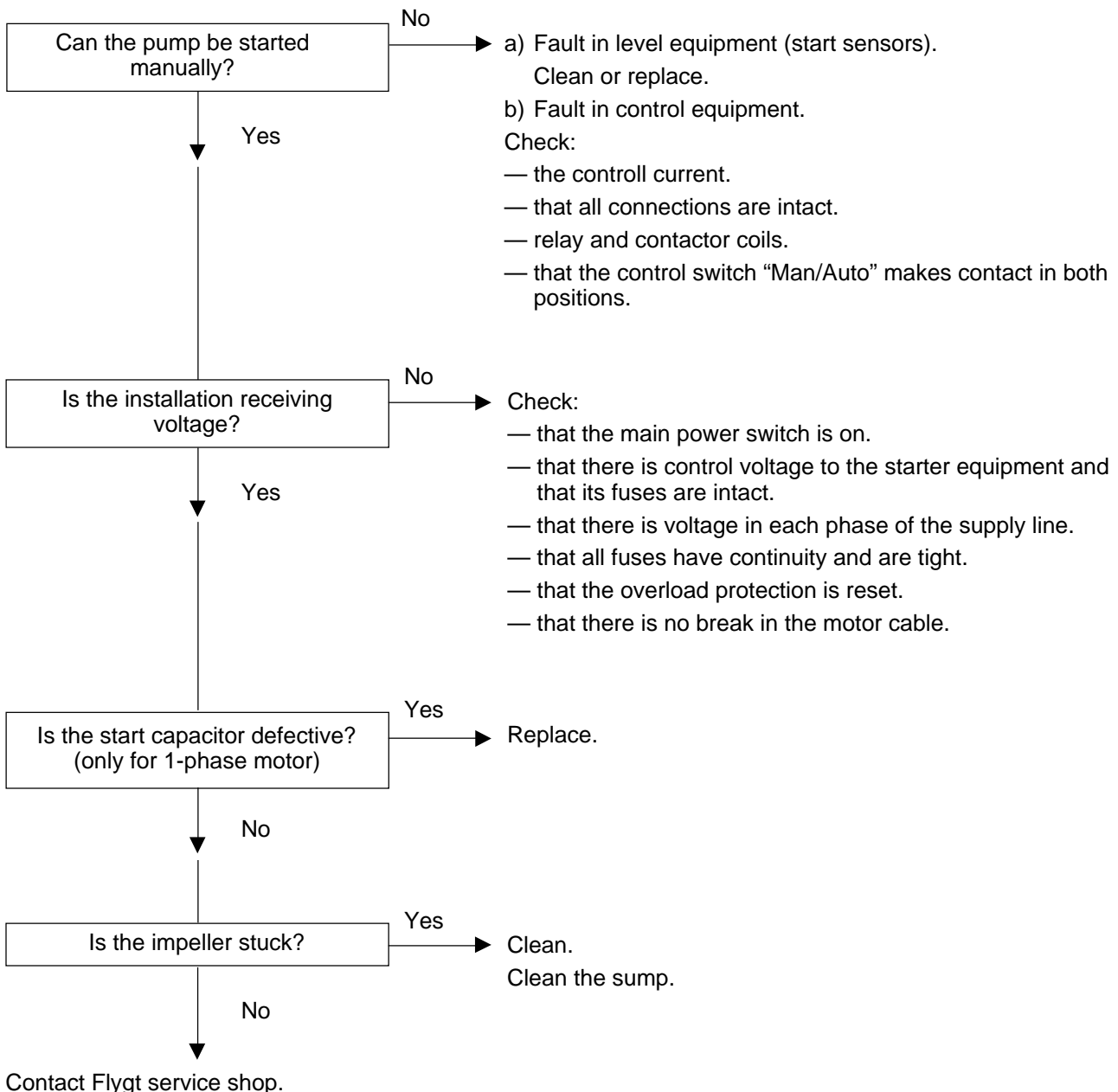
Always make sure that there is no one near the pump when the power supply is turned on.

Use the following checklist as an aid to fault tracing. It is assumed that the pump and installation have formerly functioned satisfactorily.

Electrical work should be performed by an authorized electrician.

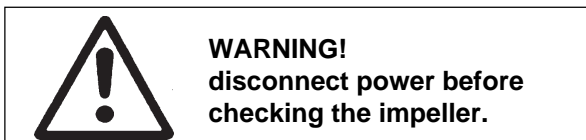
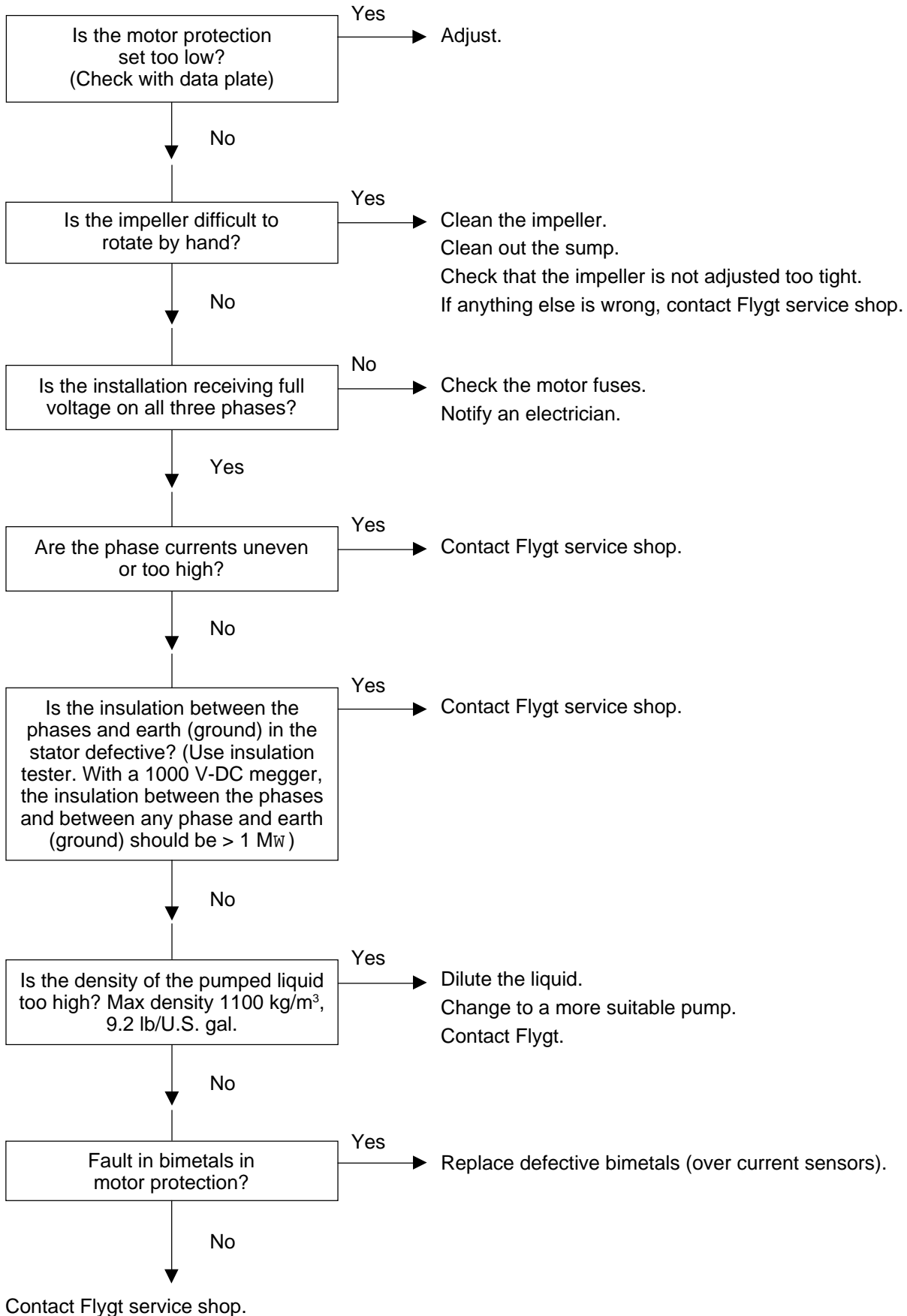
Follow local safety regulations and observe recommended safety precautions.

1. Pump fails to start

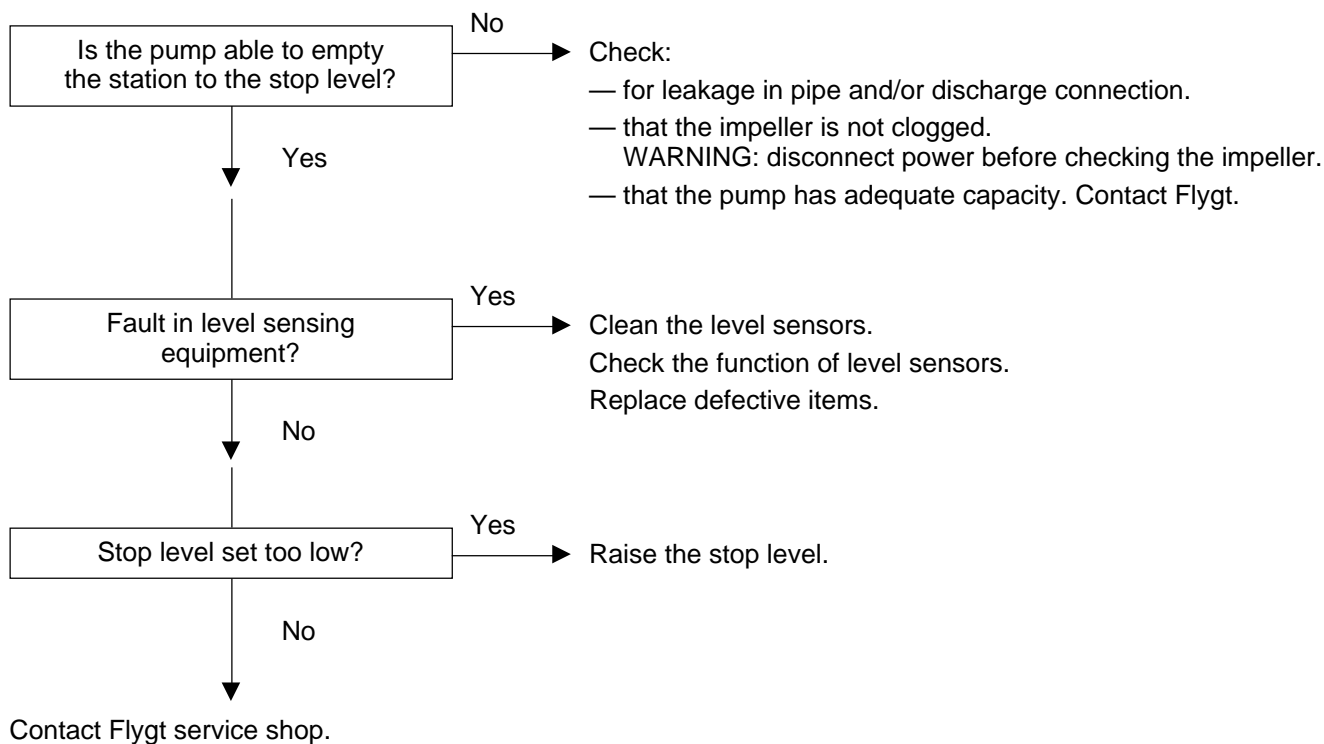


WARNING!
disconnect power before
checking the impeller.

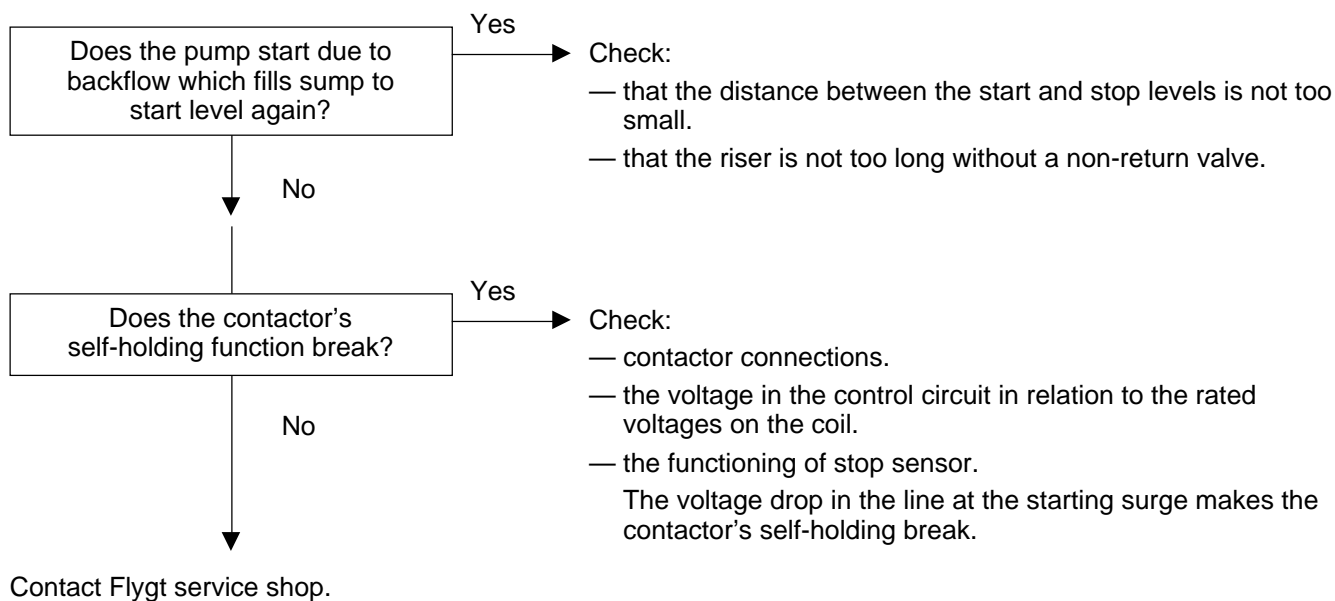
2. Pump starts but motor protection trips



3. The pump does not stop



4. The pump starts-stops-starts in rapid sequence



5. Pump runs but delivers too little or no water

Check:

- direction of rotation of the pump, see “Before starting”.
- the valves are open and intact.
- that pipes, impeller and strainer are not clogged.
- that the impeller rotates easily.
- that the suction lift has not been altered.
- for leakage in the pump installation.
- for wear impeller, suction cover or diffuser.

See also under “Inspection”.

Do not override the motor protection repeatedly if it has tripped.

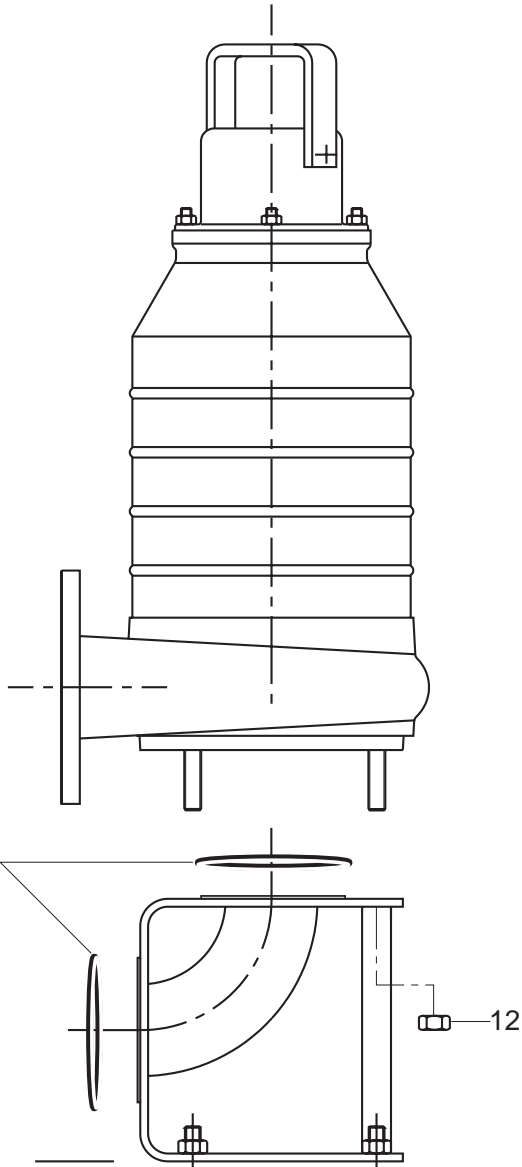
SERVICE LOG

Most recent service date	Pump No.	Hours of operation	Remarks	Sign.

SERVICE LOG

Most recent service date	Pump No.	Hours of operation	Remarks	Sign.

C 3060
with stool for dry installation



C 3060
with automatic discharge
connection assembly

