Component Description

Feed Pump

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Alfa Laval Marine & Diesel Equipment

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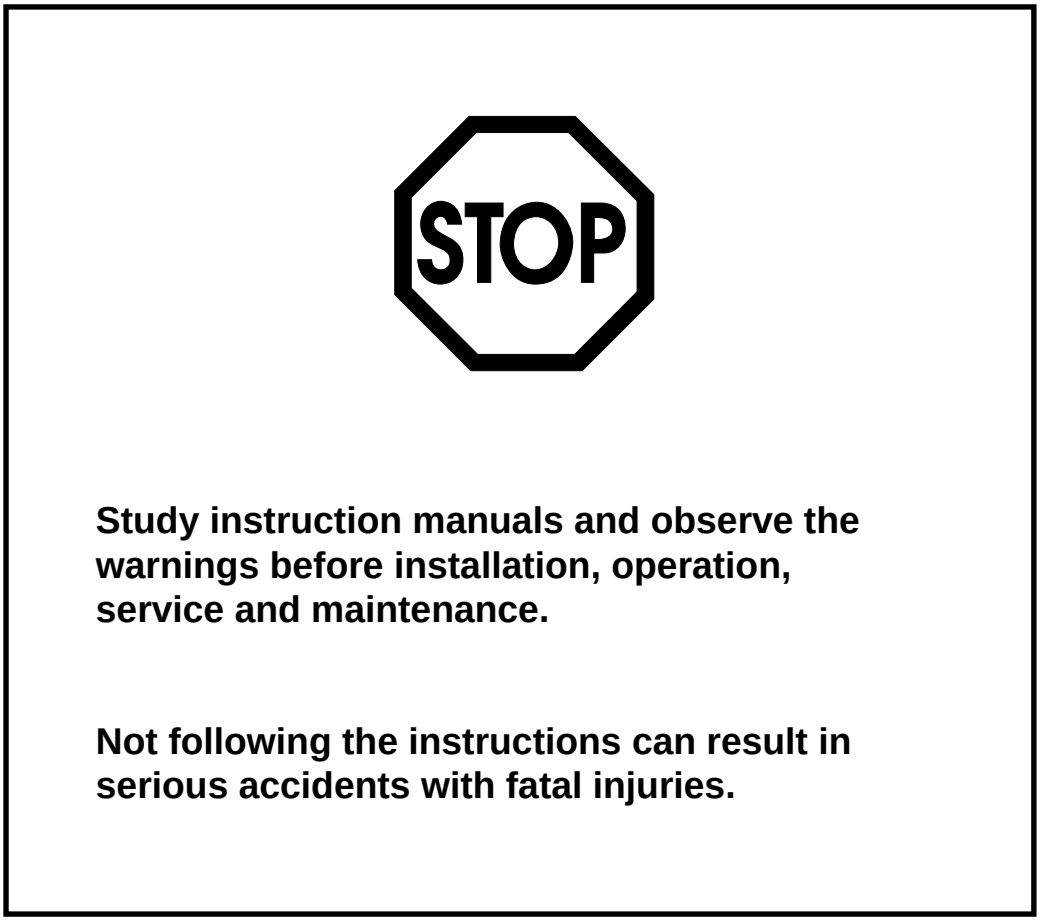


In order to make the information clear only foreseeable conditions have been considered. No warnings are given, therefore, for situations arising from unintended usage of the machine and its tools.

A summary of the safety information is found in the Safety chapter under divider 1.

Contents

1 Function Description

1.1 Application

The feed pump is used to feed lube oil, gas oil, or marine diesel oil to the separator.

1.2 Design

The pump is of constant flow gear type. The pump unit consists of an electric motor and a pump.

1.3 Working Principle

The working part of the pump is a rotor with internal gears, rotating ab eccentically placed rotor with external gears..

Due to the suction capacity the pump give a pulsation free flow to the separator inlet.

Priming

To receive best pump performance, the pump must first be filled with oil.

If the pump is not completely filled, disconnect the flexible hose on the separator inlet and fill with oil.

Direction of Rotation

The pump rotates in an anti-clockwise direction, as seen from the pump to the electric motor.

2 Fault Finding

Fault	Probable cause	Remedy
Low capacity or low pressure	Suction valves shut off, or clogged strainer	Open the valves, or clean the strainer
Pump does not prime	Pump too dry	Fill the pump housing with oil
	Air leak on suction side of the pump	Seal off the air leak
Drive motor tends to stop by tripping the overload relay	The counter pressure after the pump is too high	Check the valves between pump and separator
	The cut-off setting of the motor relay is too low	Adjust the relay setting according to the motor power rating in Amps
Pump noisy when running	Suction valves shut off, or clogged strainer	Open the valves, or clean the strainer
	Air leak on suction side of the pump	Seal off the air leak
	Heavy wear in the pump	Dismantle the pump and replace the worn parts

3 Maintenance

WARNING

Entrapment hazard

Do not start maintenance work unless the power is switched off and the inlet and outlet are shut.

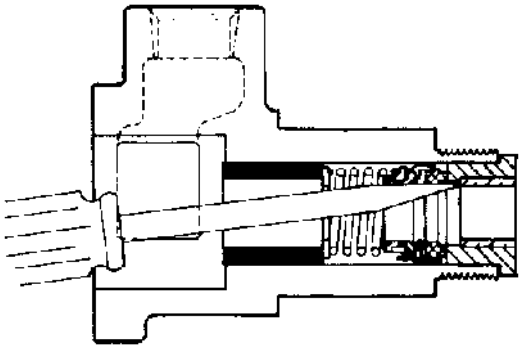
3.1 Disassembly

1. Remove the capscrews and the head from the pump. It may be necessary to apply a slight pressure on the drive end of the rotor shaft to free the ehad from the casing. Do not pry the ehad from the casing as this may damage and mar the gasket surfaces.

CAUTION: The rotor and shaft is made of two pieces and the shaft can move in the rotor if tapped too hard. Carefully check rotor and shaft assembly before reassembling the pump.

2. Remove the idler from the idler pin. If the idler pin is worn, both the head and idler pin, and idler should be replaced.
3. Next, completely remove the rotor and shaft from the casing by exerting perssure on the drive end of the shaft.
4. Remove the packing nut.

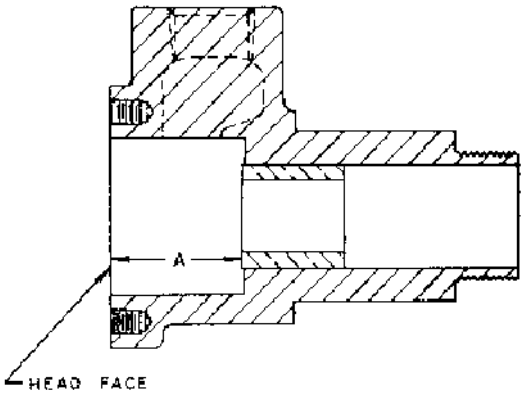
5. The pump is now ready for removal of mechanical seal, see fig. It is recommended to replace the mechanical seal after disassembly.
6. All parts should be examined for wear before reassembly. When making major repairs, such as replacing the rotor and shaft, a new casing bushing should be used.



Replacing the casing bushing

The casing bushing should be replaced as follows:

Insert a bar approximately 15/16" diameter and at least 3½" long in the seael of the casing and press the bushing out of the casing.



When installing a new carbon graphite bushing, extreme care should be taken to prevent breakage as carbon graphite is a brittle material and easily cracked. When cracked, the bushing may quickly disintegrate in operation. An arbor press shouldalways be used and the bushing should be installed in one even uninterrupted stroke of the press. Dip the bushing in lube oil and start the bushing in the head end of the casing. Press until located to the "A" dimension is 1-3/16" to 1-¼".

The end clearance within the pump is governed by the location of the casing bushing as well as the number of head gaskets. To correctly position the casing bushing in the casing, see no. 3 in assembly.

3.2 Assembly

1. Clean all parts thoroughly.
2. Place the rotor and shaft in the casing.

3. Put the head gasket on the head and the idler on the idler pin projecting from the head. Replace the head in the casing; thighten cap screws.
4. If a new casing bushing has been installed in the casing, use only .002" gasket on the head and tighten the cap screws evenly and securely. This will position the bushing correctly in the casing. remove the head, add one .002" head gasket and replace the capscrews and tighten securely.
5. Turn the rotor by hand to be curtain it turns without any problems.
6. When reassembling a mechanical seal pump, place the spring washer and spring on the shaft.
7. Coat the shaft and the inside of the rubber bellows of the seal rotary member with light oil. Slide the rotary member part way down the shaft.

N.B. The lapped face of the carbon wear ring must face toward the shaft end of the pump. Be sure the notches on the edge of the carbon wear ring mate with the retainer lugs in the rotary member.

4 Technical Data

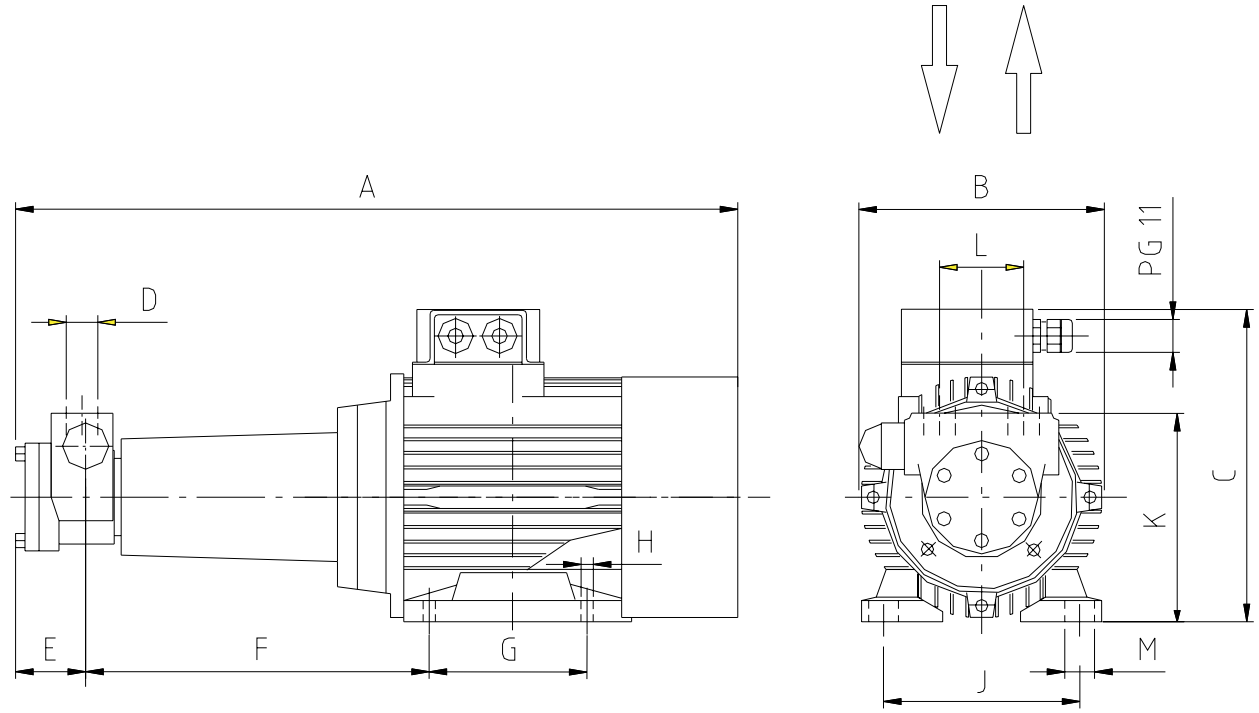
4.1 Specification

Media		Lube oil, Marine diesel oil (MDO), Gas oil
Maximum media temperature		80 °C
Pump type		Gear
Max. capacity	Lube oil Diesel oil	360 l/h at 50 Hz or 430 l/h at 60 Hz 630 l/h at 50 Hz or 760 l/h at 60 Hz
	Diesel oil	630 l/h, 24V DC
Mounting style		Horizontally
Weight incl. electric motor		8,5 kg, 110/230V AC 11 kg, 24V DC
Material		
Pump housing		Cast iron
Rotor with vanes		Steel
Stator		Steel
Sealing		Mechanical seal, carbon wear ring
Motor		
Insulation		According to class F
Enclosure		IP 54
Speed		1400 rpm at 50 Hz 1680 rpm at 60 Hz 1400 rpm,24V DC
Power consumption		0,25 kW

Article No.	Voltage	Frequency	Current	Flow l/h 50 Hz	Flow l/h 60 Hz
1767052-04/03	110/230V	50/60 Hz	1,5/3,0 A	360	430
1767052-02/01	110/230V	50/60 Hz	1,5/3,0 A	630	760

1767088-01	24V DC		13 A	630	

4.2 Dimensions



Ref. 1767052 Rev. 0

Article No.	A	B	C	D	E	F	G	H	J	K	L	M	Voltage	Current
1767052-01	412	140	180	NPT 1/2"	40	196	90	7	112	122	48	17	230 VAC	1,5A
1767052-02	412	140	180	NPT 1/2"	40	196	90	7	112	122	48	17	110 VAC	3,0A
1767052-03	412	140	180	NPT 1/2"	40	196	90	7	112	122	48	17	230 VAC	1,5A
1767052-04	412	140	180	NPT 1/2"	40	196	90	7	112	122	48	17	110 VAC	1,5A

5 Installation

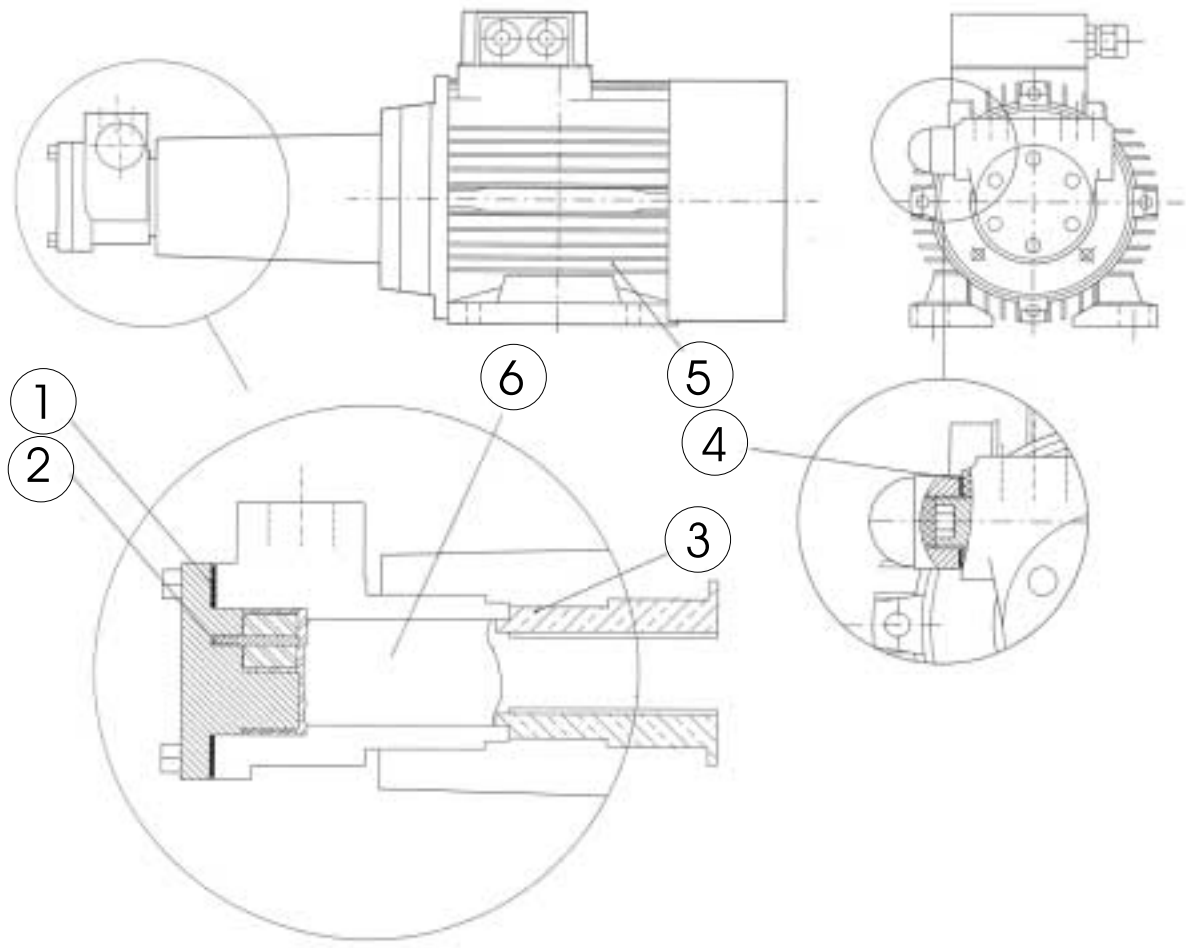
The feed pump must be installed to meet the following demands:

- The pump must be installed on a solid foundation and on a drip tray or in a cofferdam. It must be installed in horizontal position.
- The suction height must not cause a pressure exceeding 0.4 bar (40 kPa).

Storage

If the pump is to be stored, or not used for six months or more, the pump must be drained and a light coat of non-detergent SAE 30 weight oil must be applied to all internal pump parts. Lubricate fittings and apply grease to pump shaft extension. To ensure proper function of the pump after storage, it is recommended to circulate the oil in the pump every 30 days by rotating the pump shaft by hand one complete revolution.

6 Spare Parts



Item	Qty	Article No.	Description
		17617116-80	**2-year spare parts kit comprising:**
1	4	1767116-01	Head gasket
2	1	1767116-02	Idler pin
3	1	1767116-03	Mechanical seal
4	2	1767116-04	Gasket for cap
5		1767116-10	Electric motor 1 phase 230 VAC
5	or	1767116-11	Electric motor 1 phase 110 VAC
5	or	1767116-12	Electric motor 1 phase 24 VDC
6	1	1767116-05	Casing bushing