

Figure 20-3/2

Centrifugal Pump Make SIHI

- |                     |                          |
|---------------------|--------------------------|
| 1 Suction housing   | 6 Woodruff key           |
| 2 Discharge housing | 7 Fixing screws and nuts |
| 3 Spacer            | 8 Bearing bushing        |
| 4 Impeller          | 9 Bearing bushing        |
| 5 Spacer            |                          |

### c) Removal and Installation of V-belt

(between crankshaft and water pump of engine)

1. Loosen and tilt the generator (see Job No. 20-6, Paragraph 1).
2. At the coupling installed between the front end of the crankshaft and the centrifugal pump loosen the screws located at one of the coupling halves.
3. Pull out the coupling section in a radial direction and remove the V-belt.
4. The installation is done in the reverse order.
5. Adjust the tension of the V-belt (see Job No. 20-6, Paragraph 2).

### B. Version B

The heat exchanger and the expansion tank are installed separately. The heat exchanger (1) is installed at the flywheel end, the expansion tank is arranged above the water-cooled exhaust pipe (3) (see Figure 20-3/3).

The centrifugal pump (4) is fixed to the side of the engine and is driven by a V-belt from the front end of the crankshaft. The centrifugal pump is supplied as Simplex pump or Duplex pump (for recooling and bilge pumping).

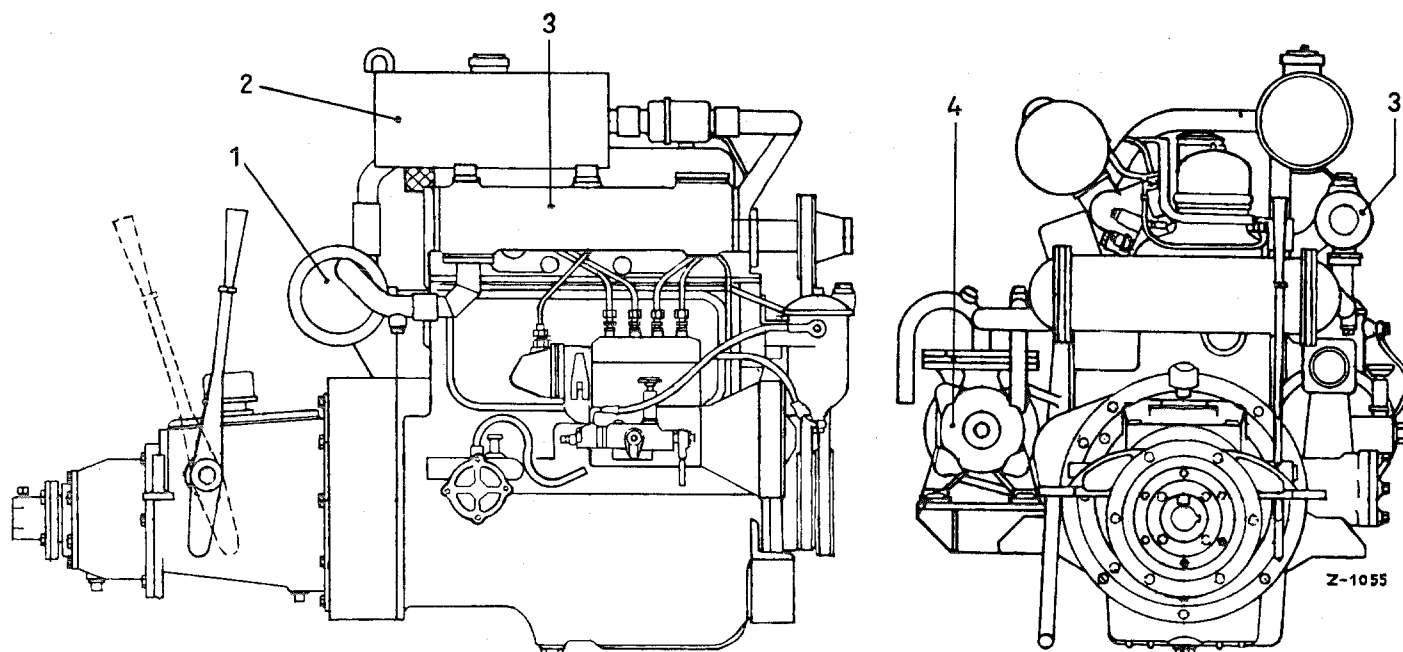


Figure 20-3/3

Engine with circulation cooling system, in which the expansion tank and the heat exchanger are arranged separately (UkWtKr)

1 Heat exchanger  
2 Expansion tank

3 Exhaust pipe (exhaust manifold)  
4 Centrifugal pump

### Removal, Installation, Disassembly and Assembly of the Centrifugal Pump and/or the Centrifugal Pump and Bilge Pump

#### a) Removal and Installation:

1. Drain the water of the outer cooling water circuit.
2. Remove the pipe lines and cover the openings of the pump.
3. Unbend the lock plate of the fixing nut on the belt pulley and unscrew the nut.
4. Remove the V-belt and pull off the belt pulley.
5. Unscrew and remove the pump from the bracket.
6. The installation is executed in the reverse order.

**Note:** Before the final tightening of the pump the belt pulleys of the pump and of the crankshaft must be aligned with the help of a ruler.

#### b) Disassembly and Assembly:

1. Unscrew the fixing screws and nuts (12) (see Figure 20-3/4).
2. Pull off the discharge housing (2) and the spacer (3).
3. Take out the impeller (4) and the Woodruff key (11).
4. Pull off the spacer (7), the center housing (5) and the spacer (6).
5. Pull off the impeller (8) and the spacer (9) and take out the Woodruff key (11).
6. Unscrew the ball-bearing yoke (10) from the suction housing (1) and pull the yoke off the shaft.
7. Pull the suction housing (1) with the stuffing box packing off the shaft.
8. The assembly is executed in the reverse order.

**Note:** The end play of the impellers depends on the ball-bearing (13) and/or the ball-bearing yoke (10) and cannot be adjusted.

The V-belt can be tensioned by tightening of the belt pulley halves. The lock screw loosened for this purpose must be well tightened after the tensioning operation.

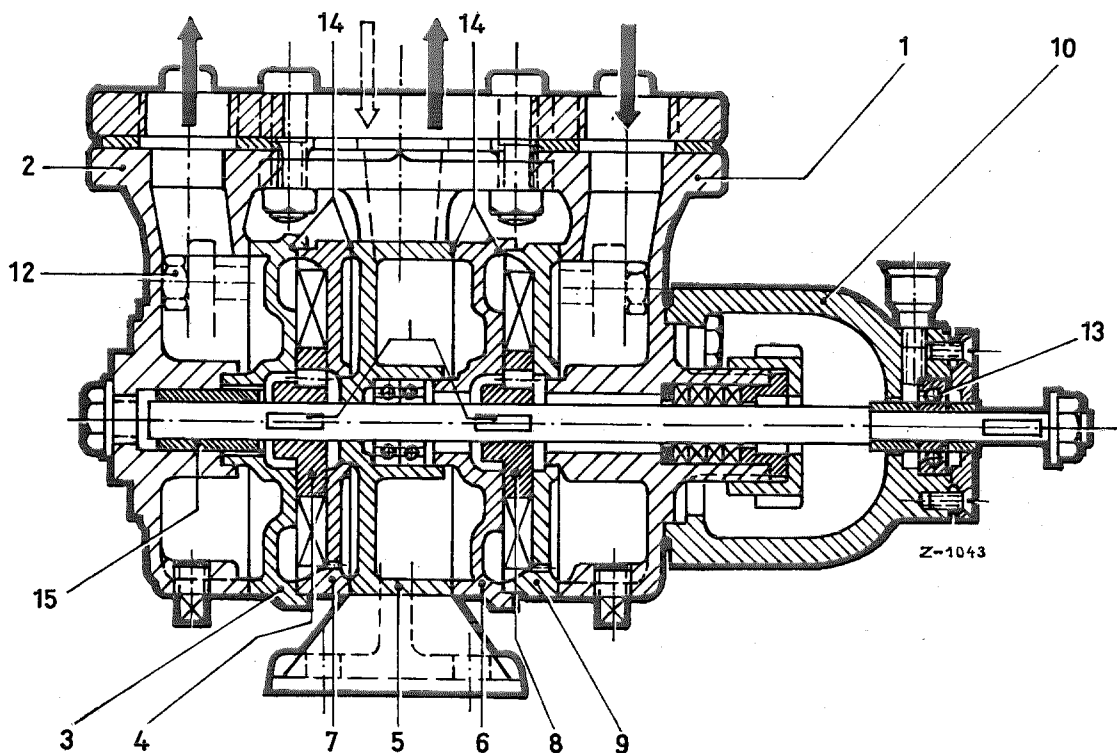


Figure 20-3/4

Centrifugal Pump and Bilge Pump, Make SIHI

- |                     |                      |                           |
|---------------------|----------------------|---------------------------|
| 1 Suction housing   | 6 Spacer             | 11 Woodruff key           |
| 2 Discharge housing | 7 Spacer             | 12 Fixing screws and nuts |
| 3 Spacer            | 8 Impeller           | 13 Ball-bearing           |
| 4 Impeller          | 9 Spacer             | 14 Gasket                 |
| 5 Center housing    | 10 Ball-bearing yoke | 15 Bushing                |

C. Schematic Diagram of Pipe Connections and Directions for the Operation of the Centrifugal Pumps Version A and B

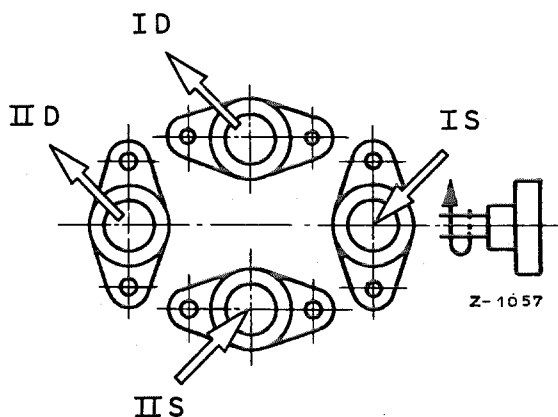


Figure 20-3/5

Pipe Connection Diagram

- ID = Centrifugal pump, discharge pipe connector  
 IS = Centrifugal pump, suction pipe connector  
 IID = Bilge pump, discharge pipe connector  
 IIS = Bilge pump, suction pipe connector

Self-priming centrifugal pumps are sensitive to dirt and foreign bodies and should therefore not be operated without filter.

During the assembly of the pump make sure that the open connectors are covered previous to the installation of the pipe lines, so that foreign bodies (hard solder, welding globules etc.) cannot enter the pump housing; they can destroy the impellers even during initial operation of the pump.