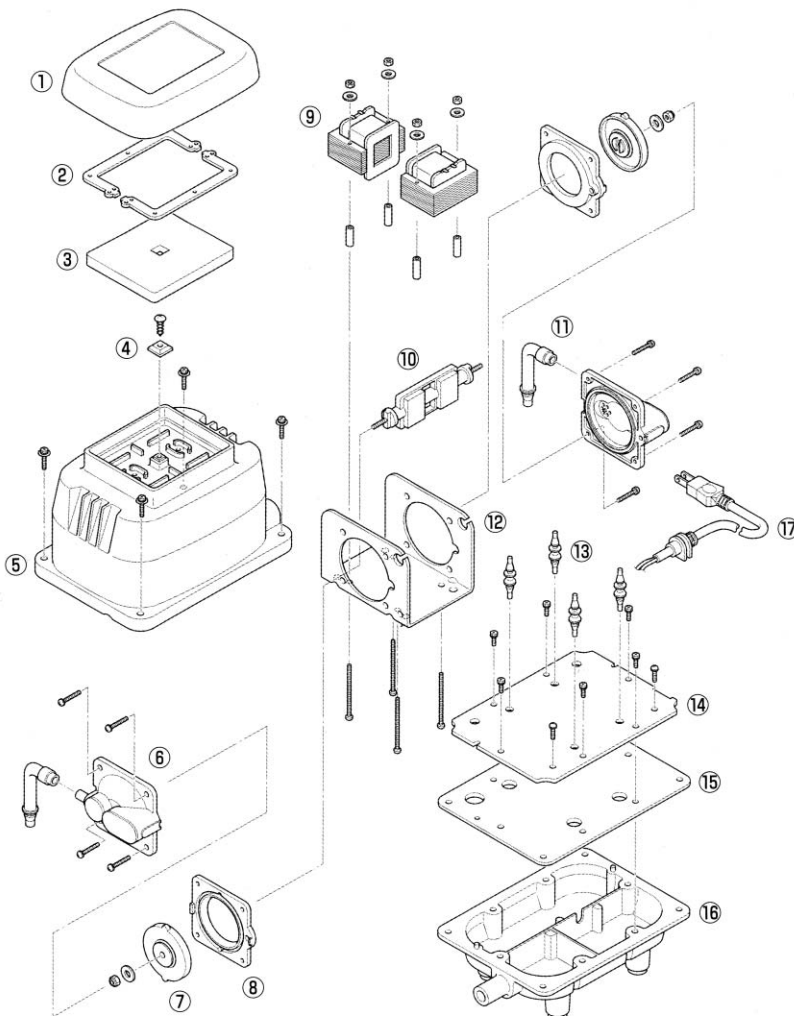




| Air pump | Start of production | Discontinuance of production |
|----------|---------------------|------------------------------|
| HP-10    | 1999/4              | —                            |
| HP-20    | 1999/4              | —                            |

## HP Series

## STRUCTURE AND PART NAMES



### HP-10/20

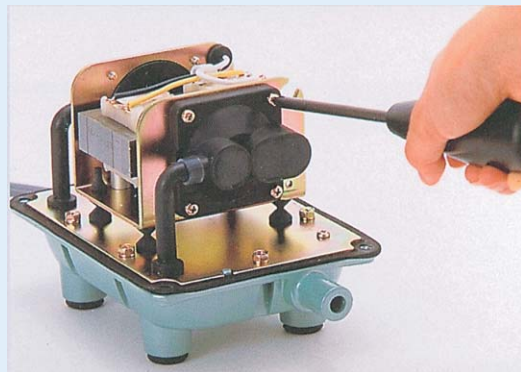
- ① Filter Cover
- ② Semi Cover Packing
- ③ Filter
- ④ Fitting Boss
- ⑤ Upper Housing
- ⑥ Casing Block
- ⑦ Diaphragm
- ⑧ Diaphragm Base
- ⑨ Electromagnet
- ⑩ Actuating Rod
- ⑪ L-Tube
- ⑫ Frame
- ⑬ Vibration Control Rubber
- ⑭ Center Plate
- ⑮ Gasket
- ⑯ Lower Housing
- ⑰ Power Cord

**CAUTION**

- Be sure to unplug the pump unit.
- Replace the diaphragms and the valves with new ones at least once a year to one and a half year regularly in order to maintain their initial performance.
- For chamber block replacement, be sure to change both chamber blocks at the same time.
- The rod employs powerful permanent magnets. Therefore, be sure to remove your watch and any other precision machines before operation as they may be affected by the strong magnetic force.
- Do not put the actuating rod close to a magnetic card, a magnetic disk or other magnetic media as the data may be destroyed.

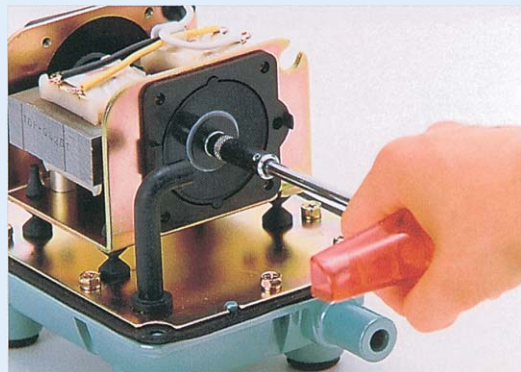
**STEP 1****REMOVAL OF THE CHAMBER BLOCKS**

To remove the upper housing.  
(Refer to "**REMOVING UPPER HOUSING**")  
Pull out the L-tube from the casing block.  
Remove the 4 screws holding the chamber block and the casing block. (4 screws on each side)

**STEP 2**

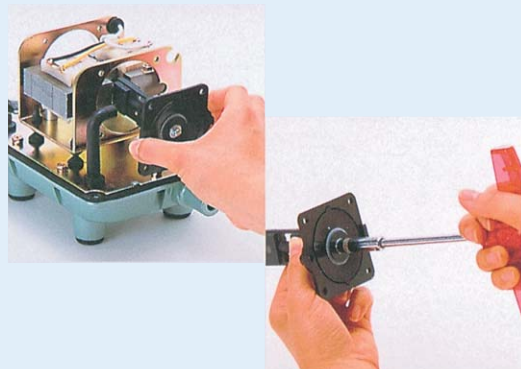
Remove 1 U-lock nuts from one side holding the diaphragm mounting block to the rod.

- Use the nut driver to loosen (or tighten) the U-lock nut.

**STEP 3**

Remove one of the diaphragm mounting blocks from the actuating rod and pull out the other diaphragm mounting block with the rod. After that, separate the diaphragm mounting block and the rod.

This completes the chamber block removal procedure.

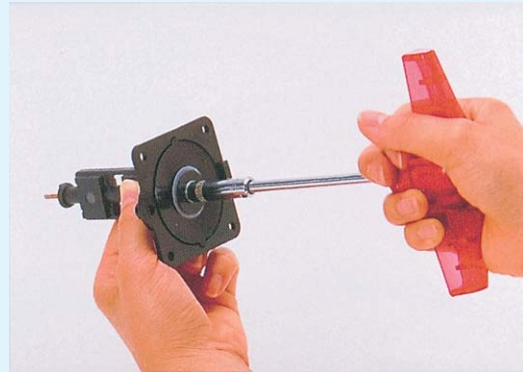


### STEP 4

#### FITTING THE CHAMBER BLOCKS

Fit the actuating rod by aligning it with the groove and tighten U-lock nut and flat washer by the nut driver.

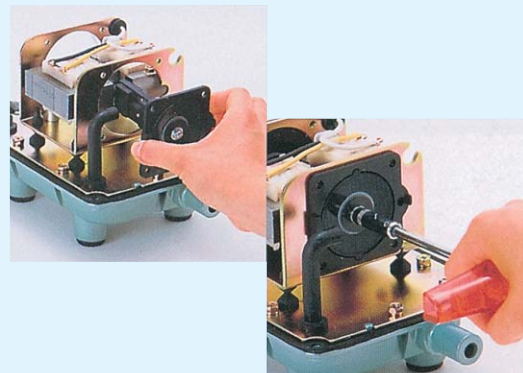
- Use new U-lock nut and washer, otherwise, U-lock nut may work loose and cause malfunction.



### STEP 5

Insert the actuating rod into the machine body. Be sure to fit the positioning boss on the diaphragm base into the concave part of the frame stay. Secure the diaphragm mounting block on the other side and tighten washers and U-lock nuts with the nut driver.

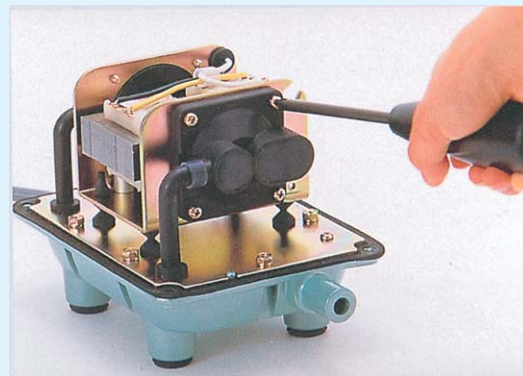
Make sure that gap between the actuating rod and the electromagnets is even.



### STEP 6

Mount the casing block with screws (4screws on each side).

And insert L-tube into the nozzle of casing block. Complete the other casing block at the same way.



### STEP 7

Place the upper housing back on body. Fasten it with the bolts.

Then, place the filter and filter cover on the upper housing. (Refer to **"FILTER CLEANING AND REPLACEMENT"**)

