



INSTRUCTION MANUAL SOLENOID VALVE

Direct Type

HB11 • HB21

- Prior to using the Product, it is essential to read this INSTRUCTION MANUAL, especially the description of safety-use issue.
- For quick reference whenever necessary, keep this INSTRUCTION MANUAL in a good manner.

FOR SAFETY USE

The Product is to be used by those who has a basic knowledge about material, fluid, piping electricity regarding Control Valves (solenoid valves, motor valves, air operated valves and so on.)

Never use this Product by those who have no knowledge or are not well trained about Control Valves.

Should be any trouble or accident caused by a wrong selection and/or wrong use of the Product even by a person of basic knowledge about Control Valves, we are not responsible therefore.

Since any customer of the Product have a variety of its application, we are not in a position to get all the information on how and where the Product is used. There may be the cases where that the Product may not meet customers' requirement or may cause any trouble or accident, by fluid, piping or other condition that are not within the specifications of the Product.

Under such a circumstance, select with their responsibility the most suitable application and use of the Product according to the customers' requirements.

The Product incorporates a various safety arrangement, however miss-handling of the product may lead to any trouble or accident on customers side. To avoid any possible trouble, read this INSTRUCTION MANUAL carefully and understand it fully.

Pay your attention to the items described in this Text, as well as the items indicated below.



CAUTIONS

- When energized, heat is generated at coil portion of solenoid valves and motor valves particularly "Class H" coil where may have a high temperature.
- There may have electric shock when wire connecting portion of solenoid valves or motor valves are touched. In case of disassembly or inspection, turn off power supply beforehand. Don't touch live portion by wet hands.
- Make piping so as not to have leakage and check for no leakage before use, because in case of control valves for high temperature fluid like steam, leakage may cause heat injury.

Thank you very much for purchasing CKD's small size direct operated type 2-port solenoid valve models HB11 • HB21. These solenoid valves are developed for multiple use so that variety of applications is possible.

We ask you to read this instruction manual thoroughly before use, and make maintenance and control sufficient.

CONTENTS

CAUTIONS FOR USE	2
MAINTENANCE AND INSPECTION	
Periodic inspection	3
Cautions for maintenance	3
Disassembly drawing	4
TROUBLESHOOTING	
Produces sound when energized	5
Fluid is not flowed	6
Flowing fluid is not stopped	7

CAUTIONS FOR USE

- Before piping, carry out flushing with 0.3MPa air pressure to remove dusts, metal chips, seal tapes, rusts completely.
- Keep the fluid temperature below 60°C.
- Do not use the valve in the place where corrosive gas is included in the air. However the corrosive gas can be shut out depending upon the material used.
- Place of use shall be below 50°C.
- Use below the rated pressure. If used above the rated pressure, it may cause malfunction. And it may extremely shorten its life.
- Excessive use of sealing material for piping (seal tape, jelly type sealing material, etc.) may cause inclusion inside the solenoid valve, which may interfere normal function of the valve.
- Use within the voltage fluctuation range. If used beyond the range, it may cause defective movement or coil burning.
- Quality of the fluid, and dusts, foreign materials included in the fluid greatly affect the function of the solenoid valve. So install a filter for air and strainer for liquid.
- The solenoid coil used here is a continuous rating. So the solenoid valve can be continuously energized. In that case, surface temperature of coil becomes high and if touched, you can feel it. But it is nothing wrong with the solenoid valve.

MAINTENANCE AND INSPECTION

Periodic Inspection

- Execution of periodic inspection once or twice a year is the best way to prolong the life of the solenoid valve.

Following cases may disturb smooth operation and shorten its life.

- (1) Change of quality of fluid in use.
- (2) Rust inside the pipe.
- (3) Adhesion of dusts and foreign materials in the solenoid valve.

In the above three cases, smooth and normal operation will not take place, resulting in shorter service life of the valve.

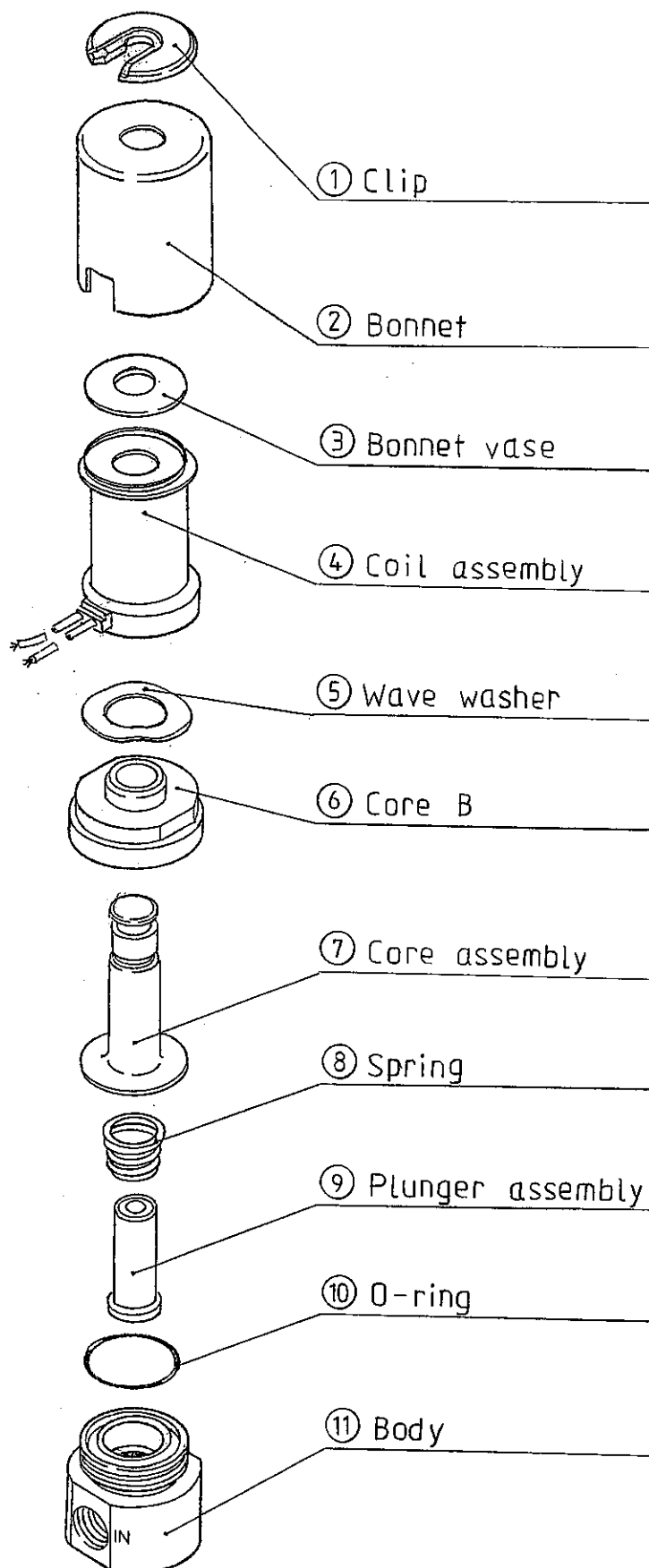
Cautions for Maintenance

- Turn off the power, and drain the fluid and pressure out before disassembling.
- Refer to the disassembly drawing for disassembly procedure.
 - a) As the clip ① are removed, Nos. ②, ③, ④ and ⑤ can be removed in order.
 - b) Utilizing the spanner hook of core B ⑥, remove ⑦, ⑨, ⑩ and ⑧ in order using a spanner. At this time, never hold the pipe section of core assembly to remove.
- When cleaning each parts, use trichlorethylen solution or kerosene oil. (However rubber parts may expand, so replace them with new one, if necessary.)
- Expendable parts marked with asterisks in the disassembly drawing are replaced as a kit.
- Expendable parts

Model No. Part No.	HB11	HB21
※ ⑩	O-ring	
※ ⑧ ⑨	Plunger assembly kit	

- Take reverse order for reassembly. Never forget to assemble any part. However the coil may be freely rotated.
- Inspection after reassembly
 - a) Electrical test ... Every time the switch is turned ON and OFF, a click sound can be heard.
 - b) Check for leakage by applying pressure.
 - c) Operation test ... The valve should run correctly when the switch is turned ON.

Disassembly drawing

HB21

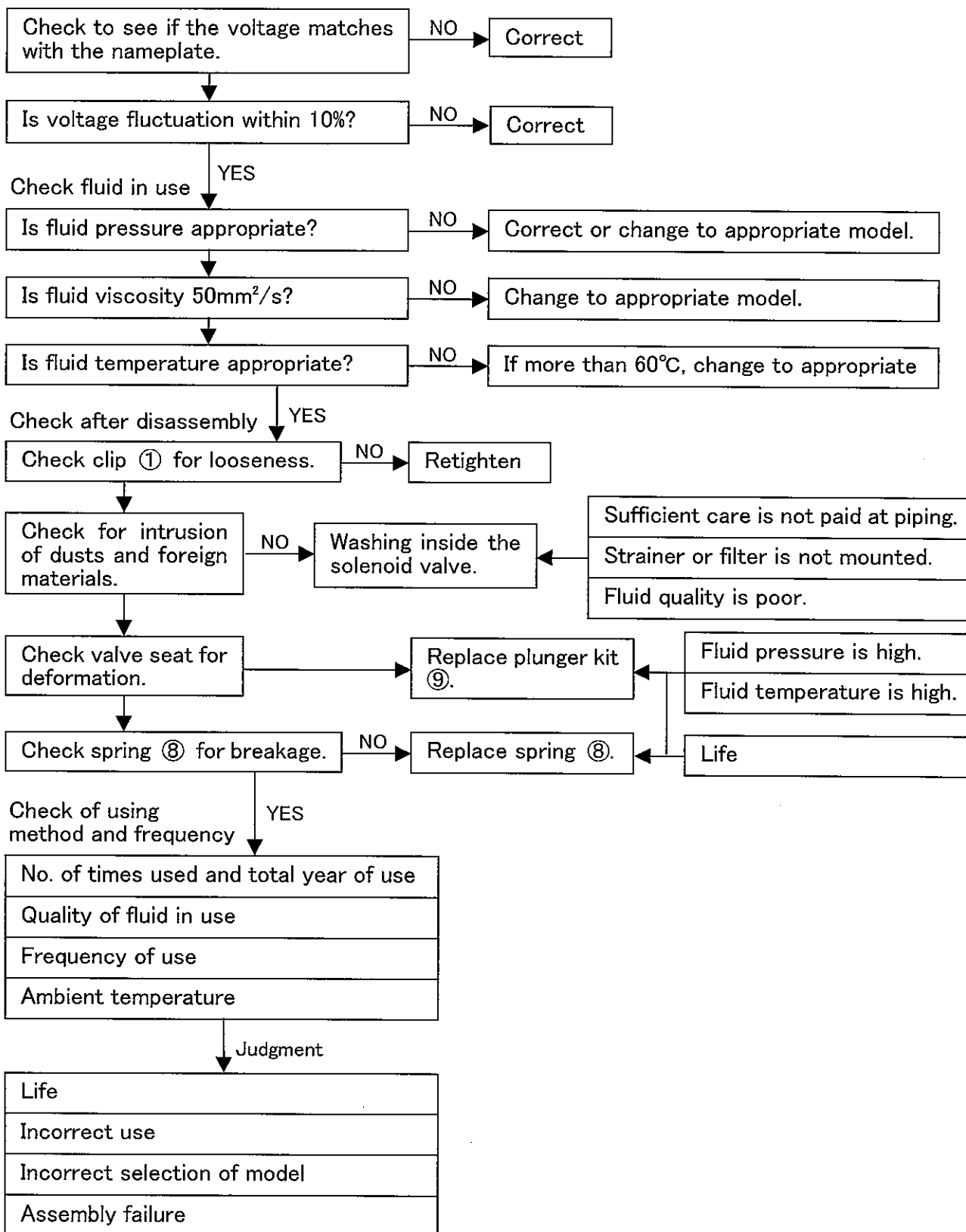
Tools required for disassembly

Part name	Tool	Standard
⑥ Core B	Spanner	18mm (HB11), 22mm (HB21)

TROUBLESHOOTING

Produces sound when energized

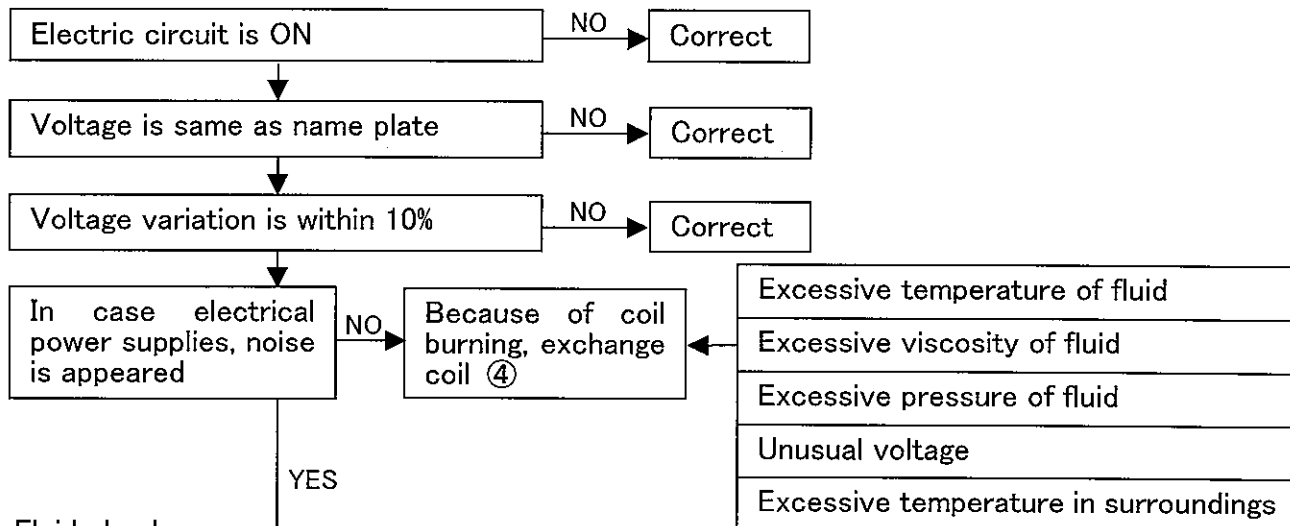
Check electric circuit.



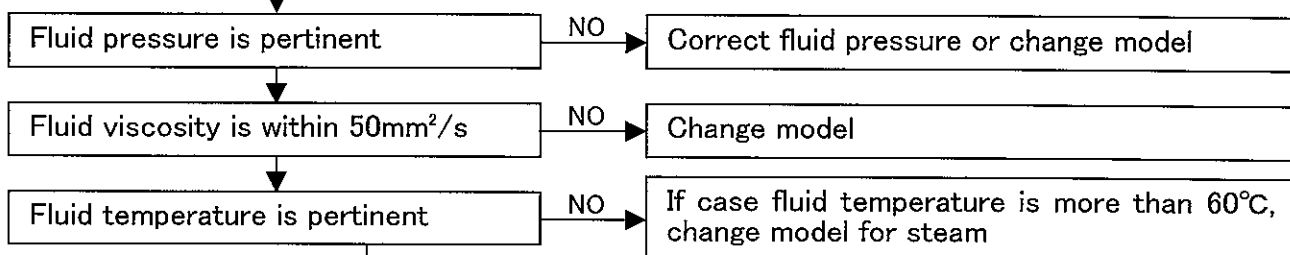
Fluid is not flowed

Following should be checked :

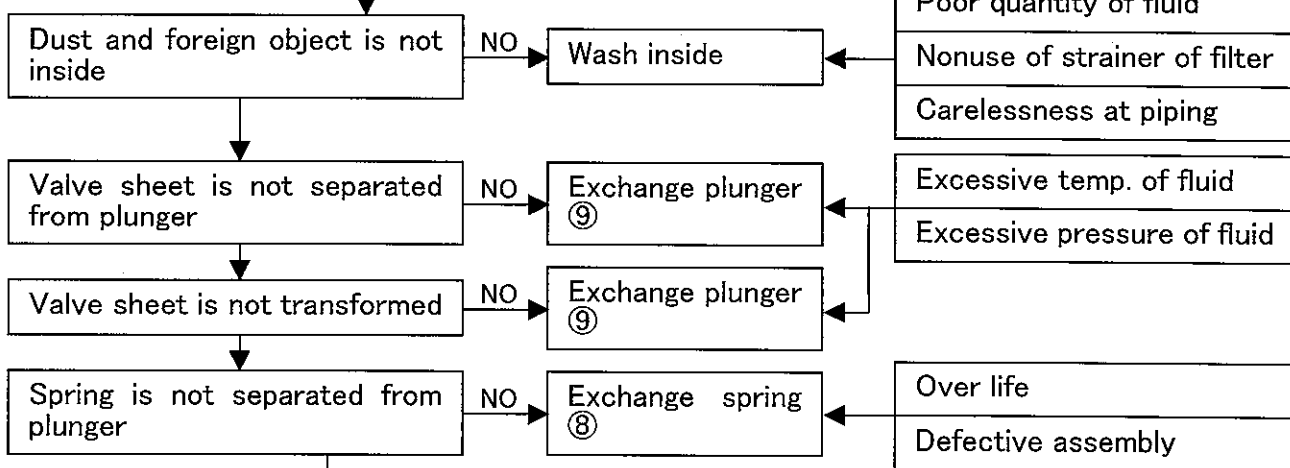
Electrical check



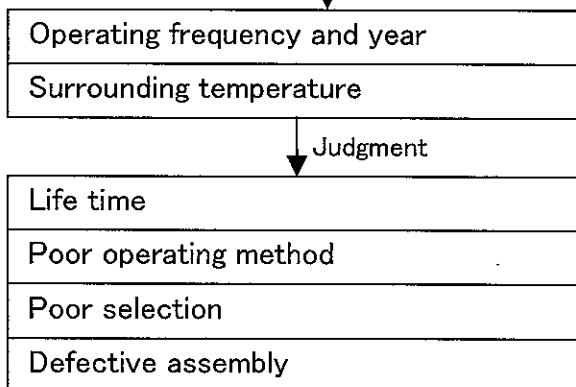
Fluid check



Disassembly check



Operating method and frequency check



Flowing fluid is not stopped

Following should be checked :

Piping check

