	SM-7963-A

INSTRUCTION MANUAL

SELF-RESTORATION TYPE MOTOR VALVE

MHBR 1

MHBR 2

CKD Corporation

Thank you very much for adopting the CKD motor valve (type MHBR).

All CKD products are manufactured under a strict quality control system to ensure their being safe and without any defects.

Read this instruction manual thoroughly in order to use your CKD products more effectively.

CONTENTS

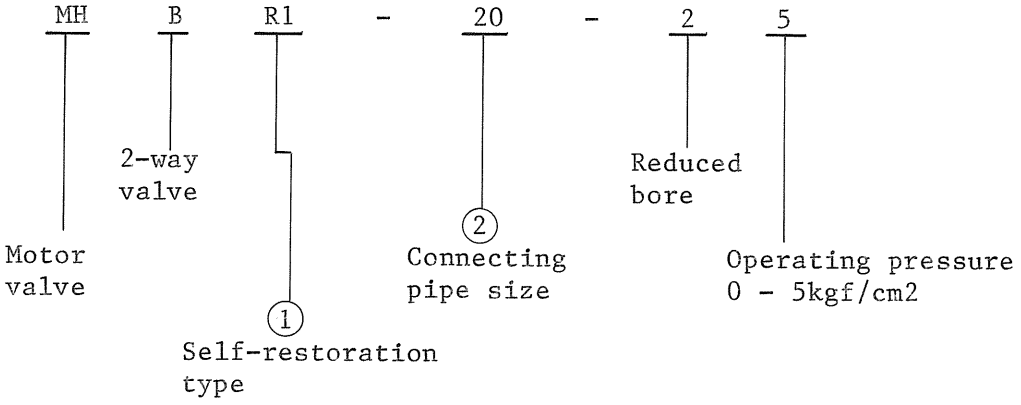
1. Product features

1) As an electrical dual-layer condensor is used in the battery charger, charging takes less time than nickel-cadmium rechargable batteries or lead-acid storage batteries. (While the latter require several hours to charge, for the electrical dual-layer condenser approximately 2 minutes is enough.)

2) Though it is a motor valve, it can be used like a solenoid valve.
Power-cut closing type (Opens/closes when the power is ON/OFF.)
Power-cut opening type (Closes/opens when the power is ON/OFF.)

3) High-speed type - operation time is approximately 3 minutes.

2. How to read the model No.



①	Self-restoration type
1	Power-cut closing type
2	Power cut opening type

②	Connecting pipe size
15	Rc1/2
20	Rc3/4
25	Rc1

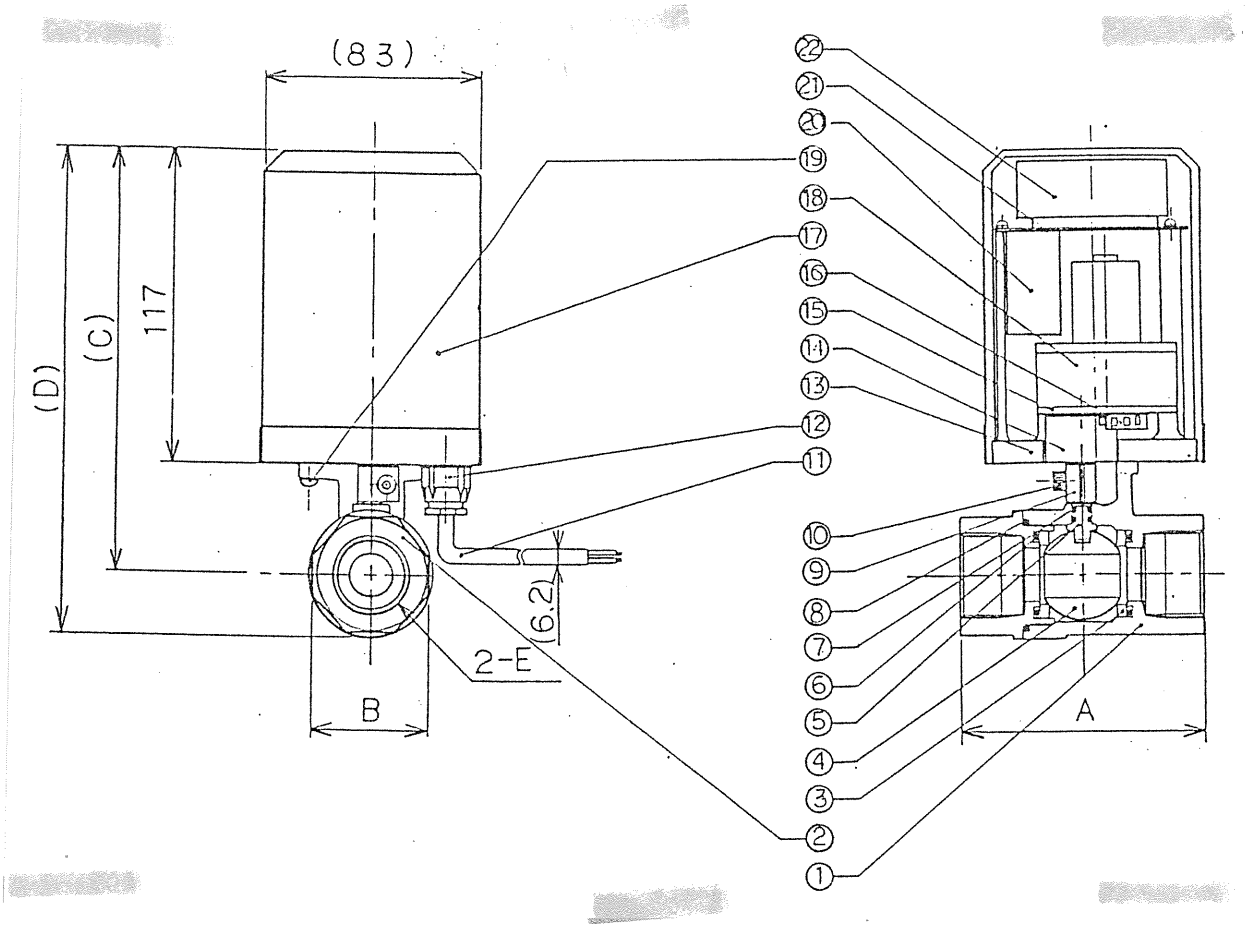
3. Operating procedure

Power-cut closing type (Opening/closing activation is the opposite for the power-cut opening type.)

1) The valve starts operation - opens - immediately after 100 VAC is supplied. Charging is finished approximately 2 minutes after the power is turned ON.
(Initial time to open is approximately 10 seconds.)

2) The valve closes when the power is turned OFF. This operation takes 2.7 to 4 seconds.

4. External dimensions, internal construction and parts list



Lead wire length: Approx. 500 mm

	A	B	C	D	E
15A	65	29	152	168	Rc1/2
20A	80	35	156	176	Rc3/4
25A	92	44	159	184	Rc1

No.	Parts	Material	Q'ty	Remarks
1	Body	BC6	1	
2	Cap	BC6	1	
3	Valve seat	PTFE	2	
4	Valve ball	SUS304	1	
5	Shaft	SUS303	1	
6	O-ring	FKM	2	
7	O-ring	FKM	2	
8	O-ring	FKM	1	
9	Bushing	SS41	1	
10	Hex. socket head cap screw	SUS304	1	
11	Cabtyre round cord	AWG18.SVT	1	2-core
12	Super lock	PC	1	
13	Stuffing	AC7A	1	
14	Cam	SUS303	1	
15	Gear mounting plate	SPCC	1	
16	Micro switch		2	
17	Bonnet	P.P.	1	
18	DC geared motor		1	
19	Cross-recessed pan head screw	SUS304	2	
20	Electrical dual-layer condenser			
21	P plate	G-10 or equivalent	1	
22	Switching power		1	

5. Cautions for use

5-1 Cautions for use

(1) The initial operation requires approximately 10 seconds. Approximately 2 minutes is required for initial charging.

(2) Set the power ON time to 30 seconds or longer.

(3) As the internal temperature of the actuator effects the valve's life-span, install it where the temperature is low or air is able to circulate.

(4) Use within the specified limits of ambient and fluid temperatures.

(5) Be sure to stay within the operating pressure range and the activating frequency.

5-2 Piping precautions

(1) Avoid using in an atmosphere of explosive and corrosive gases, etc.

(2) Do not put heavy objects or step on the drive unit.

(3) Solid substances in the fluid may damage the ball, seat and packings (O-rings) of the valve, causing internal or/and external leakage. Therefore, remove such substances before they enter the valve.

(4) As the valve is for indoor use, do not use it outdoors.

(5) Install the valve either in a vertical or horizontal position, with the motor unit at the top.

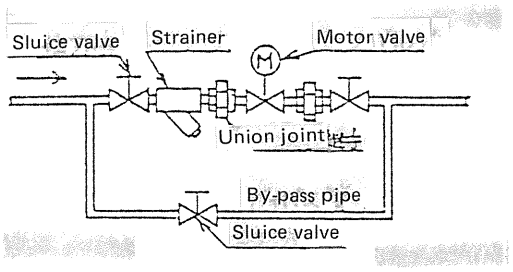
(6) Thoroughly remove any foreign substances such as dust or scale, etc. from the pipes before installing the motor valve. Thorough flushing is required as the chips, welding slag, etc. made during assembly of the pipes may get caught on the valve seat resulting in leakage.

(7) At places likely to cause the fluid to freeze, take appropriate measures such as warmth retaining, etc. in order to prevent freezing.

(8) Provide sufficient space for disassembly for maintenance and inspection. Particularly, keep a space of more than 200 mm over the cover for its casy removal.

(9) Use union joint of flange joint, and add by-pass piping for casy maintenance and inspection.

Example



6. Maintenance and inspection

6-1 Regular inspection

(1) Carry out regular inspection, normally once every six months, in order to maintain the motor valve in an optimum condition.

(2) The inspection items are as follows:

a) Check for any abnormal sounds or heat when the valve is operating.

b) Check that the bolts are tight.

c) Check that the power cable's connection is not loose.

d) Check the valve for internal or external leakage.

(3) Inspection precautions

a) Turn OFF the power before inspection.

b) After inspection, check the insulation using a megger (500 VDC M).

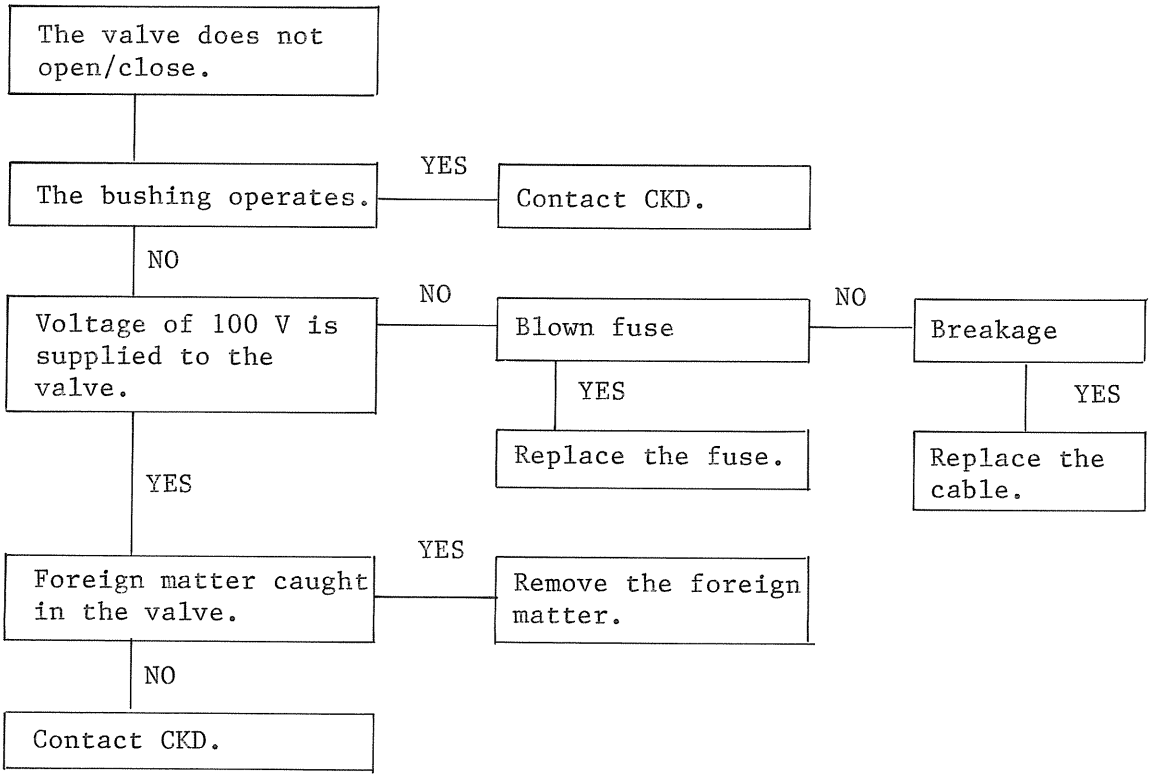
c) If the valve is not operated for over 1 month, carry out no-load operation to check for any trouble.

(4) Replacement of parts

Do not replace the parts by yourself, as adjustment after disassembly is difficult. Contact CKD or its agent through your supplier.

6-2 Troubleshooting

(1)



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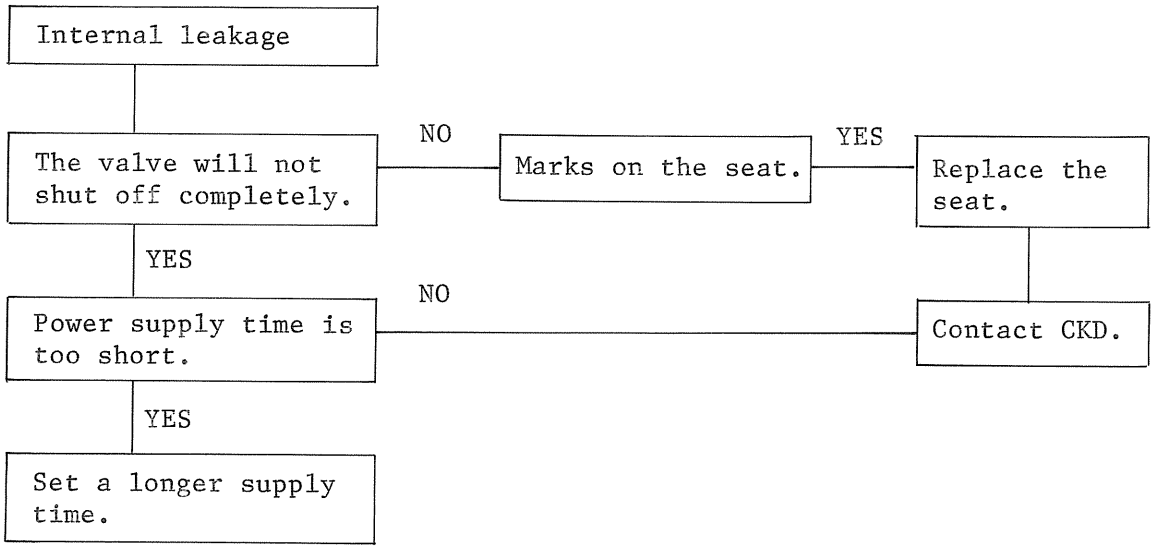

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