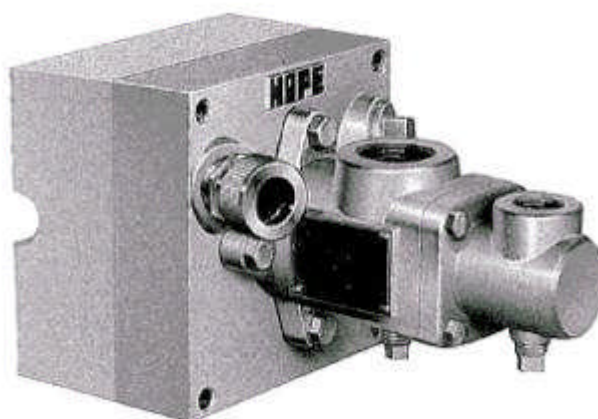


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HOPE

INSTRUCTION MANUAL FOR CUP FLAME GAS BURNER TYPE CB



YOKOI KIKAI KOSAKUSHO CO., LTD.

2720-1, OBORAGUCHI, NAKASHIDAMI
MORIYAMA-KU, NAGOYA 463, JAPAN
TEL: +81-52-736-0773 FAX: +81-52-736-0258

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Thank you for your selection of Cup Flame Gas Burner Type CB. Please carefully read this instruction manual in order for you to be fully satisfied with the performance of this burner and to secure the safety in operation, maintenance and inspection. Also, please be sure to deliver this instruction manual to the end user, as well as to the constructor.

1. Inspection of Product and Accessories, and Outline and Specifications of Product

Inspection:

Check to confirm whether or not the product is exactly in accordance with your order by referring to the nameplate and the specification table given below. Also check for damage and other irregularities caused by and during transportation.

Outline:

Perfect combustion on the burner tile surface allows proximate heating. Heat, emitted from the burner tile surface, has a high emissivity, so the heat is used for heating materials. The burner itself generates and emits heat. It has the merits of both electric furnace and gas furnace.

Specifications:

Model	Combustion capacity kW	Connection caliber (Rc)		Mass (kg)
		Air	Gas	
CB-1	5.8	1	1/2	7
CB-2	11.6			
CB-3	23.0			14
CB- 4	35.0			

- Reference pressure:
Gas : 2-10 kPa
Air : 6 kPa

2. Installation

- (1) Back up the outside surfaces, particularly the bottom surface, of the burner tiles with refractory bricks, castable refractory or the like to prevent the burner tiles from dropping.
- (2) In installing the burner to the furnace body, fill up the clearance between the burner mount of the furnace and the burner tiles with refractory mortar and fix the burner to the furnace.

3. Piping

- (1) Direct good care to the inside of the pipe not to leave seal tape fractions, bond, cutting chips, etc. there which may cause malfunction of the solenoid valve, governor, valve, etc.
- (2) In connecting the pipes, provide pipe support in proper positions to prevent the application of any excess force.

Before installing, trial- operating, maintaining or inspecting this burner, please learn the inside of this burner, information of safety and other matters to be attended by reading this instruction manual and all of attached documents.

The rank of the matters to be attended is classified to "Top danger", "Danger" and "Caution" in this instruction manual.

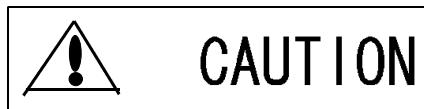


In case of wrong operating, it is predicted that a serious dangerous situation will happen and the operator or other people.

May die or may be seriously injured.



In case of wrong operating, it is predicted that a dangerous situation will happen and operator or other people may die or may be seriously injured.



In case of wrong operating, it is predicted that a dangerous situation will happen and the operator or other people will be injured or only material described.

NOTE, Even the matters classified to CAUTION have a possibility of causing serious results. Then, never fail to abide by matters described.

	Meaning of the mark	Sample
 COMPULSION	This is to tell that there is indication to instruct compulsorily your action. Contents of the instruction must be described definitely nearby.	 never fail to do
 PROHIBITION	This is to tell the prohibited action. Specifically prohibited actions are described.	 TOUCH PROHIBITED
 CAUTION	This is to tell that there is a thing to be attended. The specifically attended thing is described nearby.	 HIGH TEMPERATURE

Read without foil

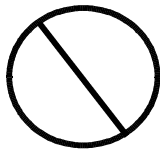


Never fail to exhaust the air in the furnace (pr-purge) before igniting. Repeated ignitions may cause explosion due to the gas stagnated in the furnace. Please install safety devices like a flame supper visor.



ELECTRIC SHOCK
CAUTION

Never fail to cut the electricity of transformer when you take off the ignition plug in order to i check the spark of it.



Never fail to take off the site hole when igniting or firinf the burner.
※ flame in the furnace may blow out.



TOUCHING
PROHIBITED

Never touch the mounting plate of the burner and fitting parts of the pilot burner. These area are high temperature when the burner is burning.

1. Do not use the attached gasket for sering this burner.
2. Put the replaced old gaskets pouch and thrae'away therm according to the waste disposal regulation or the waste cleaning regulation.
Never burn up them.

5. Operation

Preparing

- ① Check to confirm that all the gas cocks have been closed.
- ② Check for in-pipe gas leakage with air or nitrogen.
- ③ Check to confirm that each component unit of the air and gas lines are in normal operation.
- ④ Check to confirm that gas is being supplied under the specified pressure and that the inside of the pipe has been subjected to replacement purge.
- ⑤ Start the blower, and check to confirm that the outlet pressure is at the specified pressure level.
- ⑥ Set the pressure to the pressure in the maximum combustion (6kPa) and to the pressure of the minimum combustion (0.1-0.5kPa) by using the damper.
- ⑦ Fully open the control damper, and air-purge the inside of the furnace. (Use approx. 3 times as much as the furnace volume as the reference volume of air-purge.)
- ⑧ Set the control damper to the position for the minimum combustion.

Igniting

- ⑨ Check to confirm that the cock, solenoid valve and limiting valve located immediately before the burner have fully been closed.
- ⑩ Ignite the pilot burner by pressing the ignition push button. (Be sure to check to confirm visually or by using a flame detector that the pilot burner has been ignited.)
- ⑪ Fully open the cock and solenoid valve located immediately before the burner, slowly open the limiting valve, and check to confirm that the main burner has exactly been ignited.

Adjusting

- ⑫ Read the air quantity referring to the burner air quantity characteristic table (burner PQ characteristic table).
- ⑬ Calculate the necessary gas quantity, and adjust the gas quantity by using an orifice flow meter (MO) or other flow meter and manipulating the limiting valve until the specified excess air ratio is obtained.
- ⑭ When the equalizing valve method is used, slowly open the control damper to the position for the maximum combustion while checking the combustion state, and check to confirm the flowrates of gas and air.
- ⑮ When a safety circuit has been incorporated into the flame detector, also check to conform the flame current value.
- ⑯ After setting the excess air ratio, return the control damper to the position for the minimum combustion.
- ⑰ When the control motor is used, joint the control damper to the specified position.

Extinguishing

- ⑱ Fully close the cock and solenoid valve located immediately before the burner, and check to confirm that the fire has been extinguished.
- ※ Stop the combustion blower after the in-furnace temperature lowers to below 500 °C to protect the nozzle.

6. Inspection (Nozzle, Burner Tiles)

- ※ Inspection must be made after the furnace has sufficiently been cooled. In inspecting, be sure to wear heat insulating gloves and other protective gear.
- 1 Check to confirm that the combustion blower, as well as the shut-off valve and the solenoid valves, are in the OFF position.
- 2 Loosen the union, etc. of the gas pipe.
- 3 Loosen the hexagon nuts setting the air body ③ and the gas body ④.

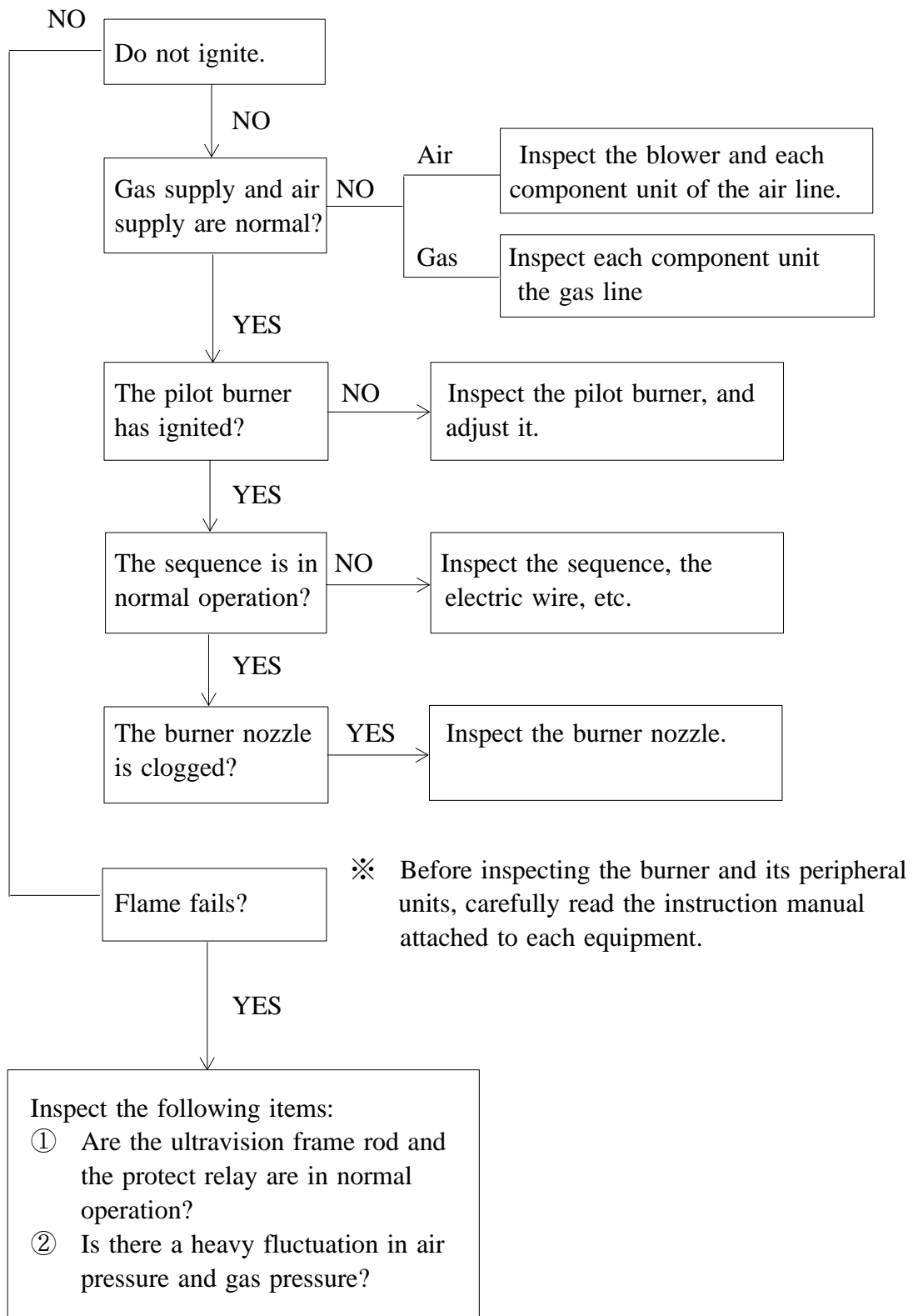
- 4 Firmly hold the gas body ④ and slowly pull out the gas nozzle ⑥ of the gas pipe ⑦ .
 - 5 Remove the union or flange of the air pipe.
 - 6 Loosen the hexagon nuts setting the burner plate ② and the air body ③ .
 - 7 Remove the air body ③ , and remove the air nozzle ⑤ set in the burner plate ② .
 - 8 In replacing the gas nozzle ⑥ by a new gas nozzle, remove the old gas nozzle ⑥ by applying a pipe wrench to the gas pipe ⑦ and a monkey wrench to the gas nozzle ⑥ .
 - 9 Inspect the inner surface of the burner tiles. If the burner tiles are damaged, as it may often affect combustion, contact us for instructions.
 - 10 Reassemble the burner by reversing the order of the above steps.
- ※ Inspect and clean the burner and its accessories from time to time according to the operational conditions.

7. Warning Plate

When the installation construction has been completed, check to confirm that the warning plate shown below is firmly attached to the burner body. If the warning plate is lost, immediately contact our sales department for instructions.

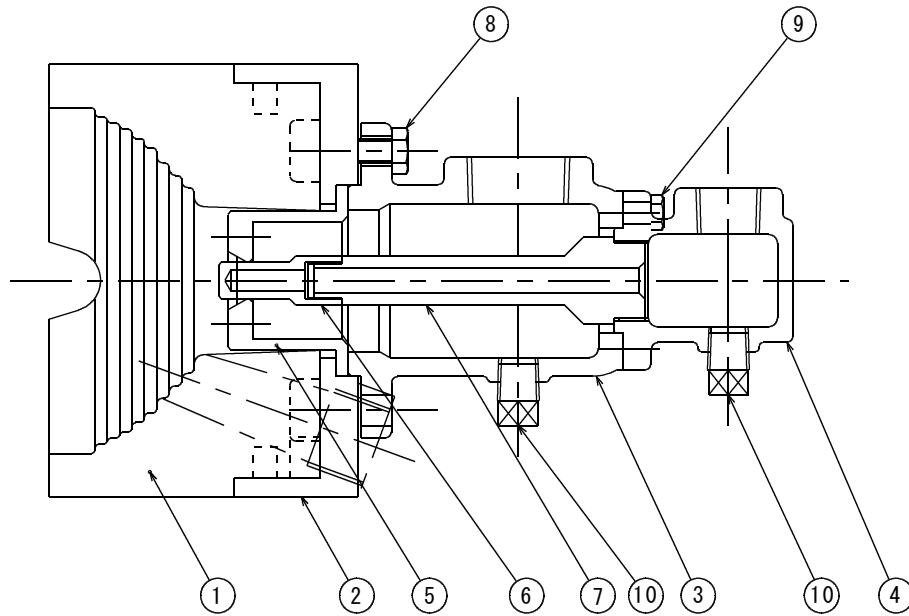


8. Troubleshooting



※ If there is any questions, contact our sale department.

Structural Drawing



NO.	Parts Name	Quan.	Note
1	Burner Tile	1	
2	Burner Plate	1	
3	Air Body	1	
4	Gas Body	1	
5	Air Nozzle	1	
6	Gas Nozzle	1	
7	Gas Pipe	1	
8	Bolt M8	4	
9	Bolt M6	4	
10	Plug R 1/4	2	