Paloma

Multi-Outlet Instantaneous AUTOMATIC GAS WATER HEATER

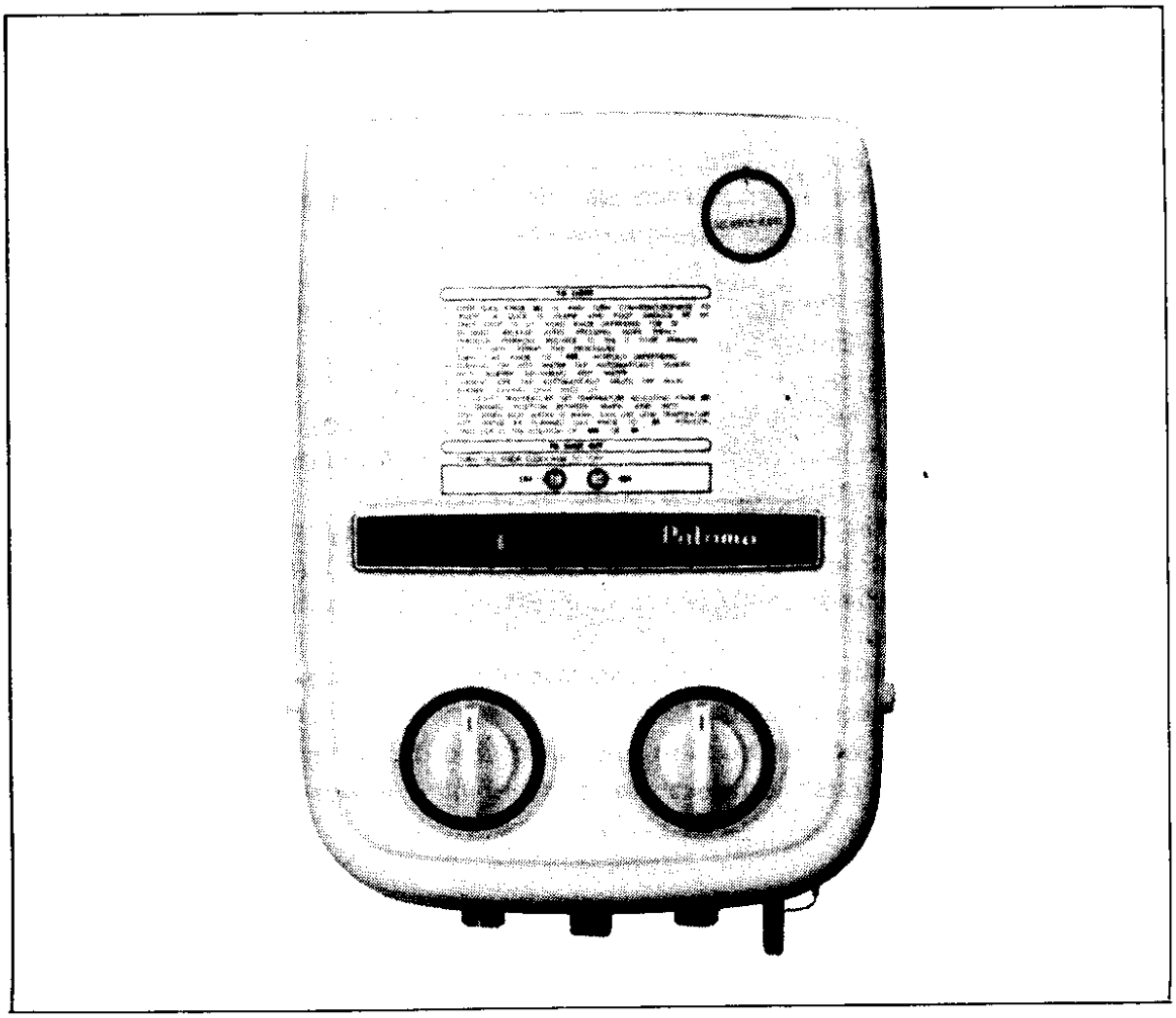
with

Piezo Electric Ignition

Capacity Transfer Device

Pilot Safety Device

INSTRUCTION MANUAL



MODEL PH-5-3F

Thank you for purchasing PALOMA gas water heater.

Reading this manual will give you many hints on using it to best advantage.

FEATURES

- Piezo-electric ignition
  Piezo-electric type requires no matches or dry cell batteries. Electric spark ignites pilot burner.
- Pilot safety device
  Equipped with pilot burner safety shut off device. When pilot is out, no gas will flow to burner. Safe operation is assured.
- Lateral air supply type
  With lateral air supply, oils, vapors, etc. are kept out of interior. Steady combustion is maintained and interior parts remain cleaner.
- Water volume regulator
  Gives continuous, even flow of hot water and stabilizes variation in local water pressure.
- Easy temperature adjuster
  Desired water temperature can be obtained instantly thanks to easy-handle temperature adjusting knob.
- Durable finish
  Front jacket finished with white porcelain enamel, heat resistant and color fast. Easily cleaned.
- Multipoint outlet type
  From one heater, hot water distributed to any place, for instance, shower, kitchen, bathroom etc., and used whenever needed.
- Minimum operating water pressure
  Water heater has been designed for satisfactory service at inlet water pressure as low as 0.3 kg/cm² (4.3 lbs/sq.in.) and may be suitably installed where this minimum pressure is available.
- Easy installation
  Easily installed on wall with screws securing bracket.
- Capacity Transfer Device
  Two stages of combustion are selectable, full or half. It is economical when inlet water temperature is rather high in summer.

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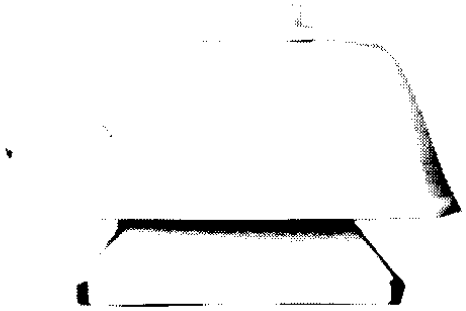
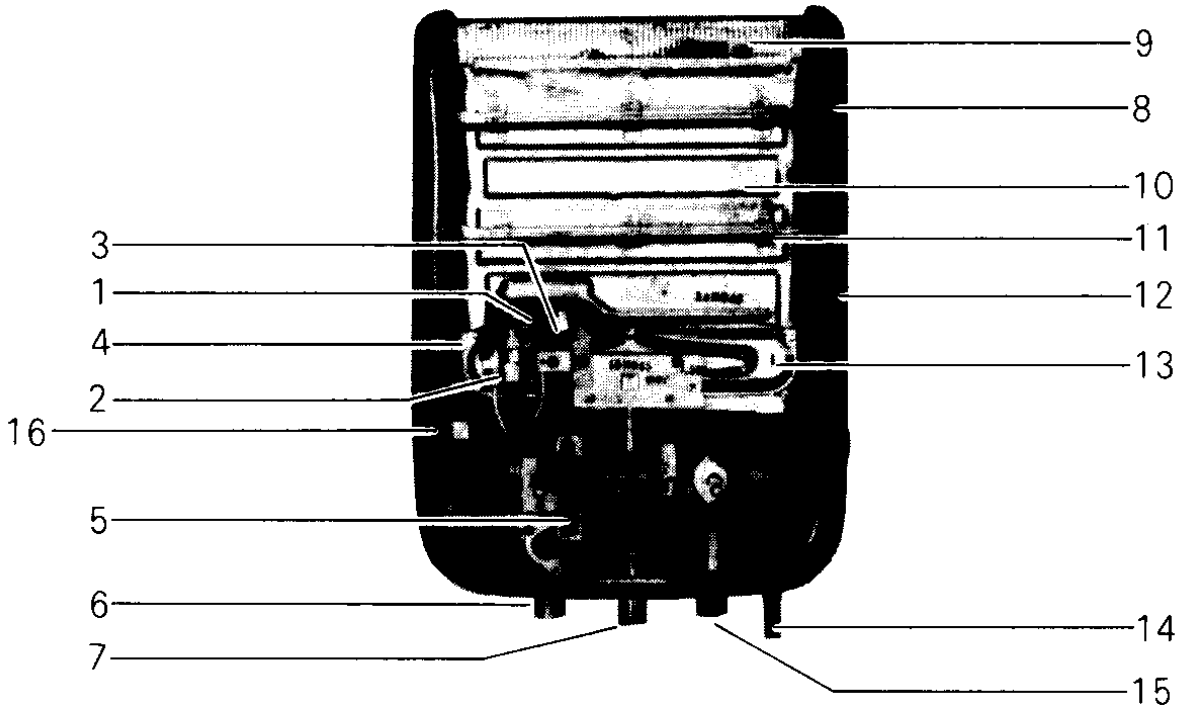
NAME OF PARTS

Pictures shown below are in case of draft hood installation. The draft hood does not come with the unit. It can be purchased separately.



Draft Hood



(1)	Pilot burner	(9)	Heat exchanger
(2)	Electrode	(10)	Inner hull
(3)	Thermocouple	(11)	Inner hull coil
(4)	Subsidiary burner	(12)	Lateral air supply inlet
(5)	Piezo-electric ignition	(13)	Main burner
(6)	Gas inlet	(14)	Drain plug w/relief valve
(7)	Hot water outlet	(15)	Water inlet
(8)	Back jacket	(16)	Pilot jet cleaner

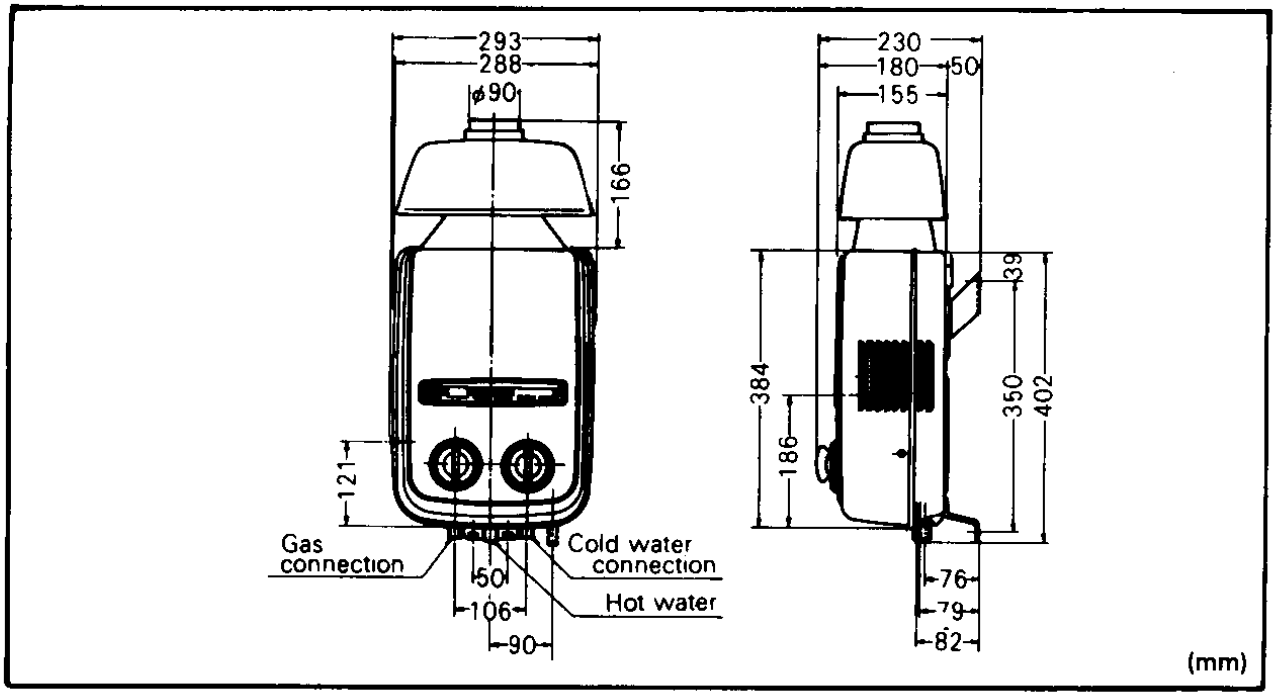
SPECIFICATIONS (PH-5-3F)

Type	Dimensions			Net Weight	Connections		
	Height	Width	Depth		Hot water	Water	Gas
PH-5-3F	15 13/16 in 402mm	11 11/32 in 293mm	9 in 230mm	13.7lbs 6.2kg	½"	½"	½"

				Hot water output per tempeerature rise		
L.P. Rated input (BTU/Hr.)	Full 38,100	Half 28,600	Min. operating water pressure	°C	30	60
				liters/min.	4.3(3.1)	2.1
NAT. Rated input (BTU/Hr.)	Full 38,900	Half 29,200	4.3 Lbs/in²	°F	50	100
				Imp.gal/min.	1.01(0.74)	0.5
				U.S.gal/min.	1.21(0.88)	0.61

( ) HALF POSITION

Configuration and Dimensions (Approx.)



"SINCE WE ARE CONSTANTLY IMPROVING OUR PRODUCTS, ALL SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE."

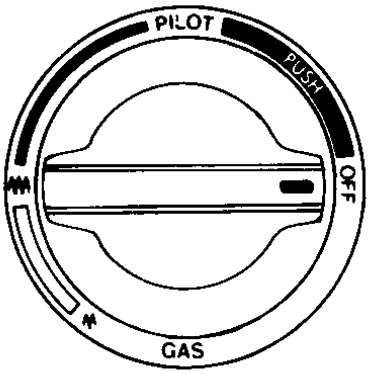
HOW TO USE

NOTE :

After installation, be sure to do trial ignition in accordance with following procedure.

Make sure type of gas you have matches Paloma specifications.

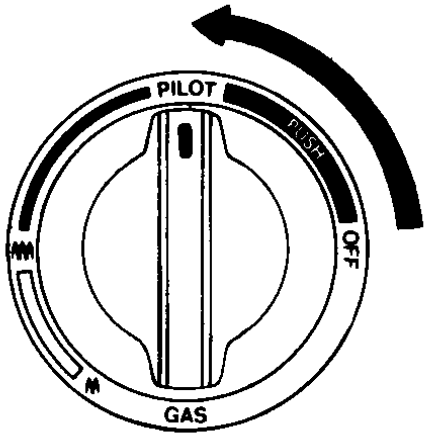
1. Fully open hot water tap and water inlet valve. Make sure water passes through heater. When water flows from hot water tap, turn off tap.



Starting position

2. Push gas adjusting knob and turn to the left till a clicking sound is heard. — Pilot is lit instantaneously by a spark.

Note: With LP gas, the quantity of gas which issues from pilot burner is so small that burner does not ignite until air in the pipe has been completely discharged. Do not hastily conclude that pilot nozzle is clogged.

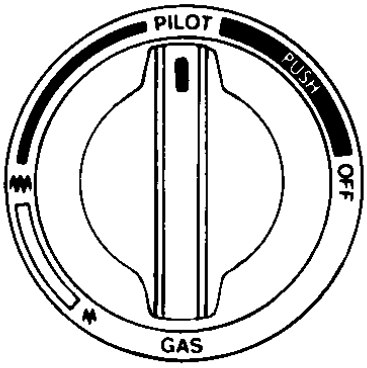


Lighting pilot

3. Once sure pilot is lit, keep pushing knob for about 20 seconds. Then release after pushing more firmly.

Subsidiary burner goes out. Recheck the pilot.

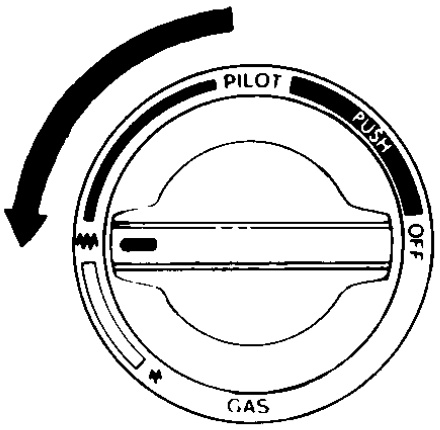
Safety device begins to operate and safety valve is opened. If pilot burner fails to ignite, repeat ignition procedure from the beginning.



Hold here

4. Turn gas adjusting knob to "MM" position completing process.

Now water heater is ready for use.



For hot water –

Turn on hot water tap. Main burner will ignite automatically from pilot. Hot water will flow.

To shut off hot water –

Turning off hot water tap will automatically shut off main burner, leaving only pilot lit. With pilot on, main burner will re-ignite whenever hot water tap is turned on.

How to turn off pilot flame –

Turn gas adjusting knob to OFF position. Pilot will go out automatically.

Temperature adjustment –

This is regulated by amount of water flowing through heater.

(a) For hotter water –

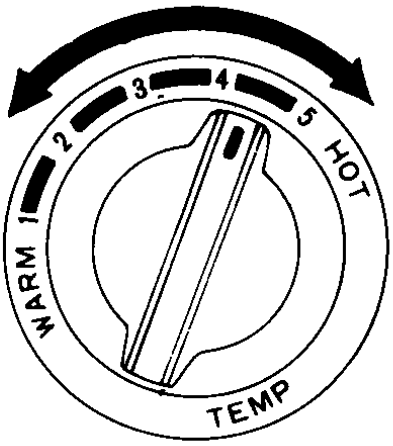
Turn temperature adjusting knob to the right. Water flow decreases and becomes hot.

(b) To decrease temperature –

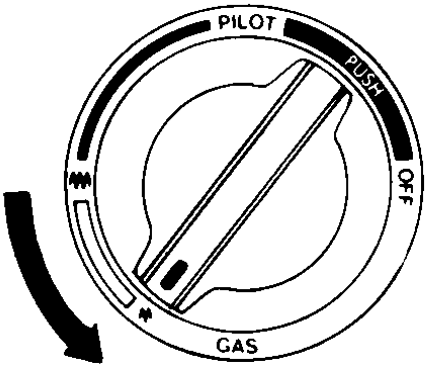
Turn knob to the left. Hot water flow increases.

(c) Capacity Transfer –

When inlet water is warm – Reduce gas volume in half by turning gas adjusting knob to " M " position – cutting down amount of gas. Showers in summer, for example, require less temperature.



Temperature adjustment



water is too hot (even on low)

Note: Make sure gas adjusting knob is set at specified positions, "MM" or "M". Knob in intermediate position will cause damage to burners.
Do not choose half position "M" when inlet water temperature is rather low, because water drain grows and damages combustion chamber.

Hot-water temperature and hot-water output —

The difference between temperature of water before heating and that of heated water is referred to as "temperature rise". When 15°C (59°F) water is heated to 45°C (113°F) temperature rise is 30°C (54°F) This temperature rise varies slightly with geographical location. In Japan, temperature of city water is 2°C (36°F) to 5°C (41°F) in winter and about 25°C (77°F) in summer.

Performance of water heater cannot be determined merely from temperature of the hot water it supplies. Find temperature rise by measuring temperatures of unheated and heated water. At the same time, measure quantity of hot water supplied in one minute and compare this and temperature rise values with relevant figures listed in specification table.

When heater is not in use —

Turn gas adjusting knob back to OFF position.

Close off gas at main intake valve so as to insure absolute safety.

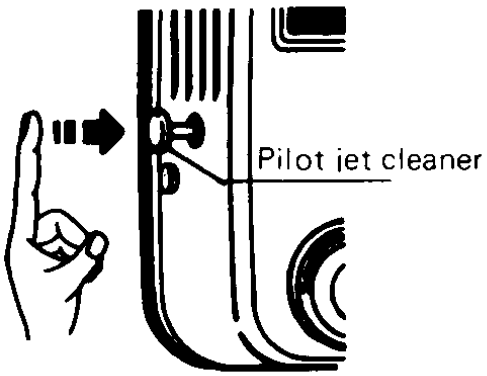
Note: If there is any strong gas odor or smell of burning, turn gas off immediately at the source and consult dealer.

If pilot goes out —

If pilot burner goes out when heater is in operation, do not re-ignite pilot burner immediately; interior of heater may be filled with gas.

First, cut off water supply and turn gas knob to starting position. Before re-igniting heater in accordance with the ignition procedure described above, make sure that there is no odor of gas in and around heater.

How to operate the pilot jet cleaner



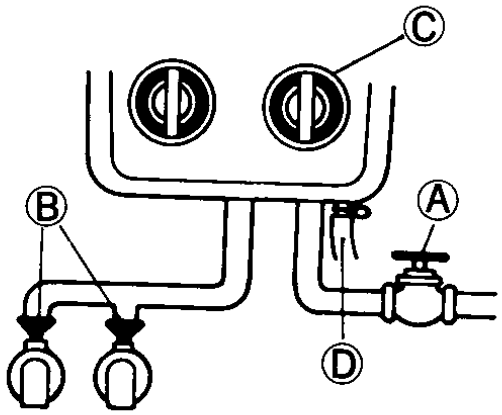
1. Ensure that the gas control knob is in the 'OFF' position before using.
2. The cleaner should be used if the pilot flame becomes reduced in size as a result of clogging on the jet.
3. Depress the button to its full extent several times until the pilot flame becomes larger.
4. Do not use the cleaner when the pilot flame is of normal size and do not operate when the heater is alight as this will extinguish the flame.

EXPOSURE OF HEATER TO COLD WEATHER

Where heater is exposed to freezing conditions, be sure to drain. See "Proper Draining"
Turn off gas at intake valve the night before.
Freezing will damage heater. So, replace drain plug before using heater.
Supply water to heater by turning on water intake valve.
Turn off hot water tap after making certain water flows, then ignite pilot burner in accordance with procedure described.

PROPER DRAINING

1. Turn off main water intake valve Ⓐ. If a non-freezing valve is utilized, turn off and leave valve Ⓐ open.
2. Open all hot water taps Ⓑ.
3. Turn temperature adjusting knob Ⓒ to WARM position.
4. Remove drain plug Ⓓ to drain all water from heater.

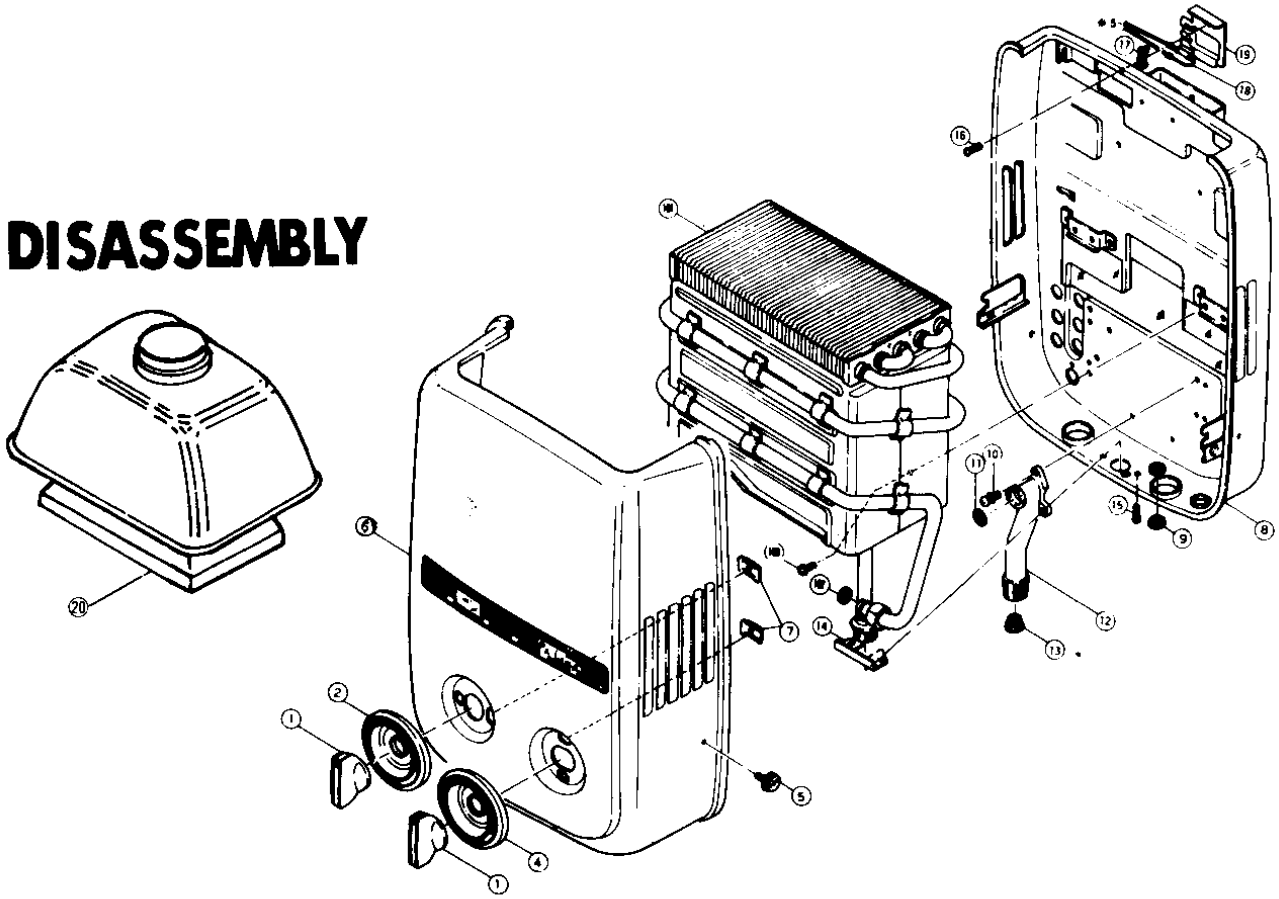


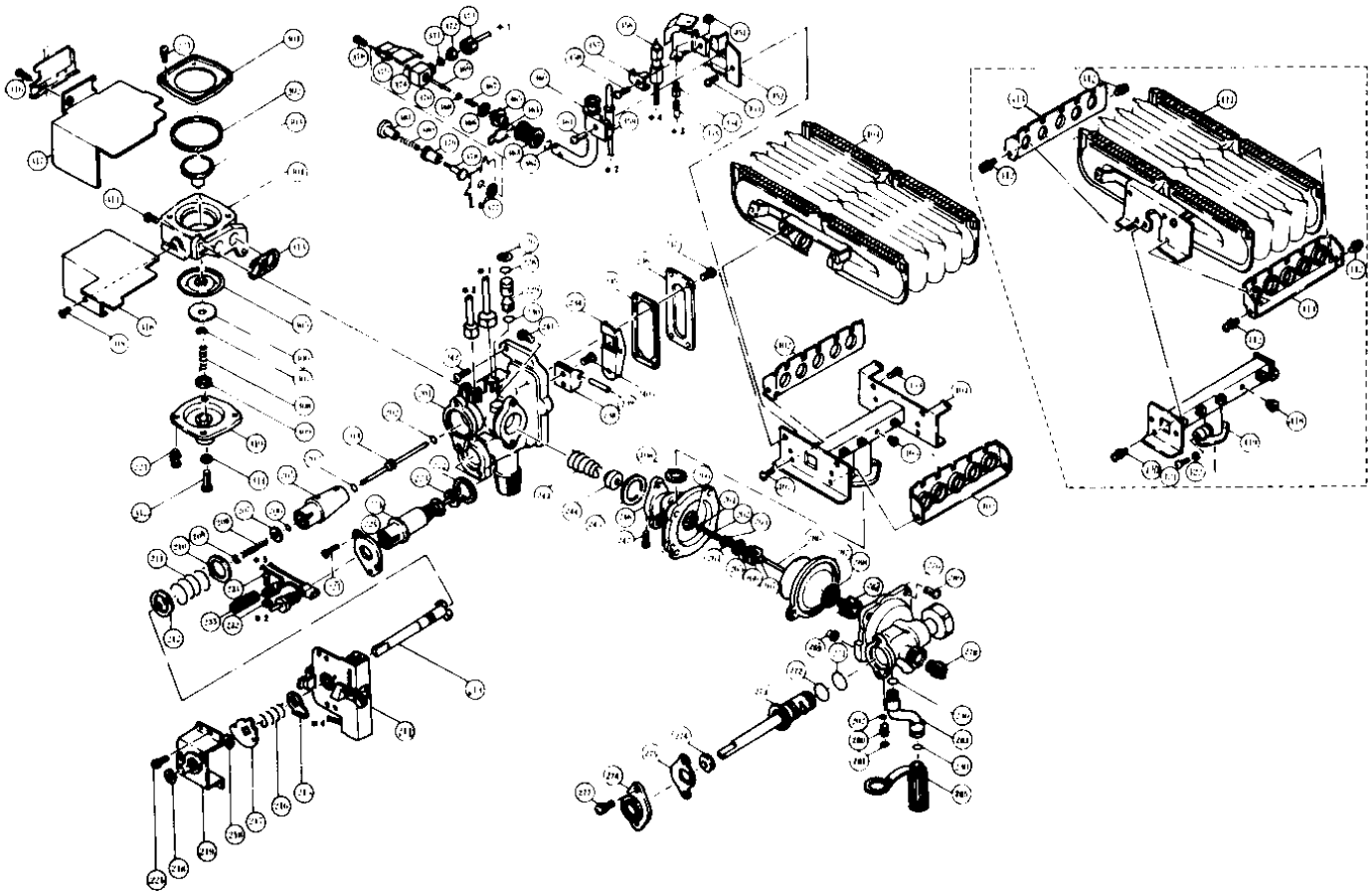
Note: In extremely cold weather, be sure to drain water from heater immediately after use.
If considerable time has lapsed since last use, be sure to light main burner and operate heater at highest temperature before draining to insure that there is no icing in heater and piping.

After steps 1 through 4 are completed, be sure to ignite subsidiary burner for 2-3 minutes to complete draining.

Warning : Drain plug should be removed completely and replaced when the heater is next used.

DISASSEMBLY





SPARE AND REPLACEMENT PARTS

For repairs and replacement, only genuine Paloma components should be used.
Such parts may be ordered by these instruction, and description of the respective parts, its consecutive No. as well as Model for which it is to be used should be quoted.

INSTALLATION

Choose place with good ventilation –

For perfect combustion, gas requires a considerable amount of air. Do not install the heater in very small room. Poor ventilation, lack of fresh air, will mean imperfect combustion. And this is neither healthy nor safe. In place such as the one seen here on the right, be sure to provide a pair of vents above and below heater, as shown in Fig. A. Each vent should be at least 100 cm^2 (16 sq. in.) . . . . e.g. 10 by 10cm (4 by 4 in) . . . . effective area.

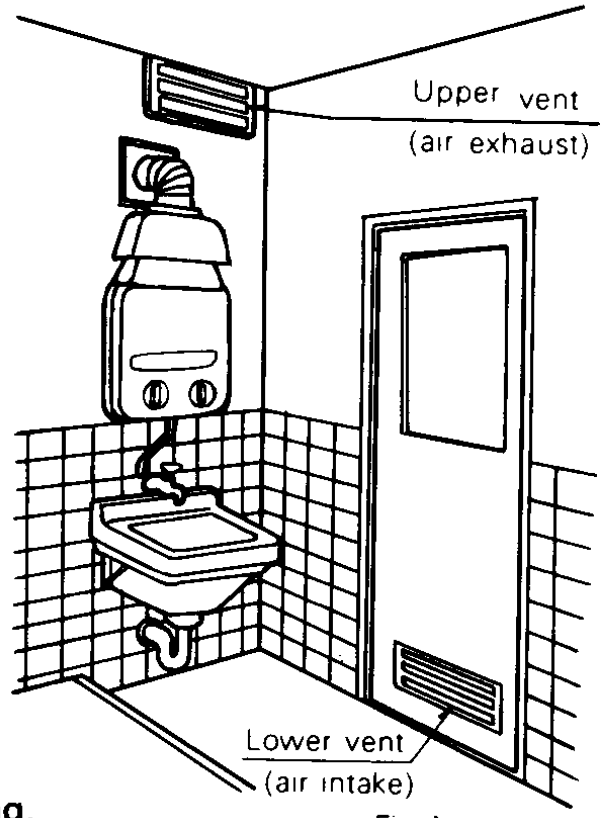


Fig. A

PROHIBITED INSTALLATIONS:

a. In small, poorly ventilated rooms.
b. In air-tight rooms with air-conditioning.
c. Near vents for heating or cooling.
d. In places where chemiacls are used.
e. In bathrooms, bedrooms or any occupied rooms normally kept closed.
f. In a location where water heater may be exposed to freezing temperatures.
g. In a location where water heater is subject to vibration.(such as Carpet Cleaning, etc.)
h. In Recreational Vehicles, Mobile Homes, Boats and other Watercrafts.
i As a part of any circulating systems (such as Home Heating, Spa or Pool Heating, Re-Circulation to the other Tank, etc.)
j. In corrosive, dusty and greasy environments.

NOTE: Any local by-law and regulations pertaining to installation should be strictly observed. Check your area.

PLUMBING

All dimensions necessary for plumbing are shown on page 3.

The models are designed as MULTI-OUTLET TYPE WATER HEATER, to serve more than one outlet.

WATER SUPPLY

(1) Minimum working,water pressure is 30 Kpa (4.3 Lbs/sg. in.) at inlet to provide proper operation of automatic pressure control valve.
However, additional water pressure is required above minimum pressure to cover any pressure head loss or drop in hot water supply lines.
Make sure that total water pressure at inlet is sufficient to operate heater at full capacity.

(2) Install a shutoff valve near water inlet of heater for servicing and draining.

(3) Connection between heater and taps should be as short and direct as possible, and have uniform pipe size of sufficient diameter to carry full capacity of hot water.

(4) Be sure to connect water inlet and hot water outlet as shown on heater. If reversed, heater will not function.

(5) When hot water flows through supply pipes there is an inevitable heat loss, regardless of type of heater. Thus, insulation or protection of hot water piping is encouraged.

Note: Heater is equipped with many delicate mechanisms. Therefore, before connecting to water supply, pass water through heater to wash out dust, sand or other particles to avoid damage.
Make sure that water inlet pipes are cleaned.

WARNING:

Heater must be used in well ventilation.

GAS SUPPLY

a. The gas supply lines should be gas-tight and of such size, and so installed, as to provide a supply of gas sufficient to meet the maximum demand of the water heater without undue loss of pressure.

b. ANSI approved steel or. wrought-iron pipe shoud be used for gas piping.

c. A metal-to-metal type union and a shutoff valve should be installed between the water heater and the gas supply. A pipe joint compound resistant to the action of liquified petroleum gas on the threaded joints must be used.

d. The gas supply piping must include a drip leg in close proximity to the water heater.

e. The inlet gas pressure must not exceed the value specified as maximum gas, supply pressure on the rating plate on the water heater.

Type of gas	Max.supply pressure
L.P. Gas	14" W.C.
NAT. Gas	10.5" W.C.

f. After the water heater is connected to the gas supply, all connections including water heater must be checked for leakage with soapy water,bubble solution or other acceptable means before placing the water heater in operation.DO NOT use Matches, Candles or other sources of Ignition for the purpose of leakage test.

WARNING: Install the gas pressure regulators, in the gas supply line, which do not exceed the maximum supply pressure mentioned above.

DO NOT use the gas pressure regulators, such as the industrial gas pressure regulators, as they are intended for use with medium and high pressure gas. If the gas supply pressure exceeds the maximum mentioned above, imperfect combustion may result and the life of the water heater may be shortened.

INSTALLATION OF EXHAUST PIPE

1. Be sure to discharge waste gas outdoors.

2. Diameter and length of the exhaust pipe

The internal diameter of the exhaust pipe should be specified below. The horizontal part of the pipe should be as short as possible.

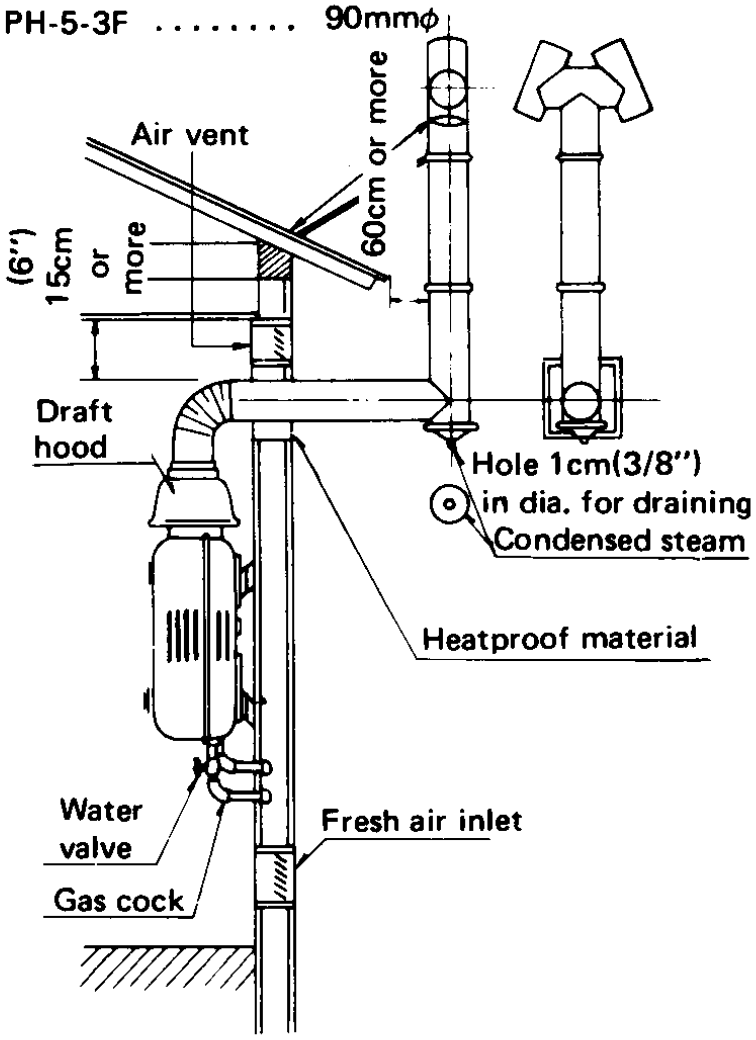
PH-5-3F 90mmϕ

3. Material of the exhaust pipe

The steam in the exhaust gas may form water drops inside the exhaust pipe. Therefore, the pipe should be made of a heat and corrosion-proof material. Available chimneys are made of galvanized iron sheets, copper sheets, slate pipes or enameled material. We recommend the use of a slate pipe or enameled chimney.

4. Installing the exhaust pipe

The vertical part of the exhaust pipe should be about 1.5 times as long as the horizontal part. The section between these two parts should be shaped in such a way as not to prevent the flow of exhaust gas. The temperature of the gas is about 150°C(300°F) but take care to keep the exhaust pipe apart from any inflammable structure. Provide an air gap between the pipe and the structure or support the pipe with a refractories.



TROUBLE SHOOTING

PROBLEM	PROBABLE CAUSE	MEASURES
1. Pilot fails to light (No spark.)	(1) Spark gap is too wide	Adjust gap to 9/64—3/16 inch. (3.5—5.0mm)
	(2) Spark leaks	Pull lead line away from place of spark leaks
	(3) Electrode is dirty.	Clean electrode.
2. Pilot fails to light (With spark.)	(1) Air in line	Push in gas knob at the igniting position long enough to exhaust air.
	(2) Short circuit of lead line	Pull the lead line away from place of short.
	(3) Pilot orifice is clogged	Call your dealer. Use the pilot jet cleaner
3. Pilot lights, then goes out.	Gas knob is not being pushed in long enough.	Keep pushing gas knob for about 20 seconds at pilot position.
4. Pilot flame goes out easily.	(1) Wrong installation.	Check flue outlet. Do not install the heater where wind is blowing to pilot flame.
	(2) Pilot orifice is clogged.	Call your dealer. Use the pilot jet cleaner
5. Pilot keeps lit but main burner is not ignited.	Insufficient water pressure.	With city water, use larger pipes or eliminate resistances in piping. If using pump increase pump pressure.
6. Main burner stays on, even when hot water is off.	Defective automatic gas valve	Stop use immediately and call your dealer.

PROBLEM	PROBABLE CAUSE	MEASURES
7. Soot from the main burner.	(1) Dust or soot has deposited on the heat exchanger, causing poor exhaust.	Call your serviceman
	(2) Improper combustion, result of over gas input.	Reduce gas input to proper rate
8. Water is not hot, even when heater is set at high temperature.	(1) Insufficient gas input.	Increase gas input to proper rate.
	(2) Gas cylinder is almost empty. (L.P. Gas).	Replenish.
	(3) Excessive water flow rate.	Dirt deposit in water control device.
9. Water is too hot, even if set at low temperature.	(1) Inlet water is warmer and/or water volume is low.	Use capacity transfer device.
	(2) gas input excessive	Reduce gas input to proper rate.

HOW TO REMOVE FRONT COVER

(1) Pull off gas and temperature adjusting knobs.

(2) Remove the 2 knurled screws located at bottom on both sides of cover.

(3) Hold lower part of the cover in both hands, pull slightly away from heater at the bottom and lift clear of beaded top edge of rear cover.

NOTE: INSTALLATIONS (PLUMBING, ETC.) SHOULD BE DONE ONLY BY A CERTIFIED AND/OR LICENSED PLUMBER. ALL MODELS SHALL BE INSTALLED INDOORS AT VERTICAL POSITION ON A WALL.

PROPER OPERATION REQUIRES THAT THE HEATER BE USED ONLY:

(A) With clean, potable water*, free of corrosive chemicals, sand, dirt, hair or other contaminants that may clog or damage the Heater,

(B) With inlet water temperature above 32°F but not exceed 90°F

(C) With working water pressure above the Minimum Working Water Pressures described in the SPECIFICATIONS, but not exceed 150 PSI,

(D) In non-corrosive environments and generally clean environments free of dust or grease,

(E) With the heat exchanger free of lime and scale deposits,

(F) In installation free from vibration.

HEATER MUST BE OPERATED IN COMPLIANCE WITH ALL OF THE ABOVE CONDITIONS.

*as per WHO (World-Health Organization) Standards.

CAUTION: For your safety, DO NOT attempt repair of gas piping, thermocouple, burners, Over Heat Limiter or other safety devices. Refer repairs to qualified service personnel.

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