

THERMEX

SPECIALIZED WATER HEATER MANUFACTURER

ELECTRIC WATER HEATER

OPERATION MANUAL

UNIQUE WELDING PRACTICE G.5

HIGH-QUALITY AUSTENITIC STAINLESS STEEL

www.thermex.ru

DEAR BUYER!

We wish to congratulate you on the purchase of **THERMEX** electric water heater. It is safe to say that our wide range of electric water heaters will satisfy any of your needs. The use of modern technologies and high-quality materials in the manufacture of these devices brought about popularity of and confidence in **THERMEX** trade mark. Our electric water heaters can be optionally equipped with a protective cutout device (PCD) to ensure complete electrical safety in operation.

THERMEX electric water heaters are designed and manufactured in strict correspondence with international standards that ensure reliability and safety in operation. The models were all subjected to compulsory certification by the Russian State Standard and fully comply with the requirements of ГOCTP 51318.14.1-2006, ГOCT P 52161-2-21-2006.

This Manual covers **THERMEX models (Series IR, IF, ID, IQ, IS, RZL)**. The model name of the water heater you purchased is shown in Section on “Manufacturer's Warranties” (Subsection on “Sales Mark”) and on an identification plate on the device case. Please read over carefully this Operation Manual.

1. PURPOSE

The electric water heater (hereinafter referred to as EWH) is designed to supply hot water to domestic and industrial facilities having a cold water main operating under a working pressure of not less than 0.05 MPa and not more than 0.6 MPa.

The EWH is to be operated in enclosed heated rooms. **It is not intended for use in continuous flow mode.**

2. ESSENTIAL TECHNICAL CHARACTERISTICS

Power supply voltage for all EWH types and models should be within $220\text{v} \pm 10\%$. Mains frequency must be $50\text{ Hz} \pm 1\%$. Capacity of the inner tank and power of the heating element are shown on an identification plate on the device case. A thread diameter of branch pipes at the water inlet and outlet is $1/2$ ".

Table 1

EWH Capacity, L	Average heating time at $\Delta T=45^{\circ}\text{C}$ (for $P = 2000\text{ W}$)
5	0 hr. 08 min.
10	0 hr. 15 min.
15	0 hr. 25 min.
30	0 hr. 50 min.
40	1 hr. 10 min.
50	1 hr. 25 min.
60	1 hr. 40 min.
80	2 hr. 10 min.
100	2 hr. 45 min.
120	3 hr. 15 min.
150	4 hr. 10 min.

3. DELIVERY SET

- | | |
|---|----------------------------|
| 1. Electric water heater with PCD (optionally) | - 1 pc. |
| 2. Safety valve, GP type | - 1 pc. |
| 3. Operation Manual | - 1 pc. |
| 4. Securing anchor | - 2 pcs per holding plate. |
| 5. Packing | -1 pc. |
| 6. Remote control panel (optionally) | -1 pc. |

4. EWH DESCRIPTION AND OPERATING PRINCIPLE

4.1. The EWH outer case, depending on the model, is made of various high-quality materials such as impact-resistant plastic, low-carbon or special bright-finished stainless steel. The inner tank is made of stainless steel containing titanium to provide good corrosion resistance and, as a result, long-term operation. The space between the outer case and the inner tank is filled with polyurethane foam - a modern, environmentally safe insulation having the improved heat preservation characteristics. Models RZL, IS-V, IR-V, IQ-V, IS-U, IR-U, IQ-U have two threaded branch pipes: for a cold water inlet (with a blue ring) and a hot water outlet (with a red ring), and models IS-H, IR-H, IQ-H, IF-V, IF-H, IF-U, ID-V, ID-H, ID-U are equipped with an additional drainage branch pipe (with a red ring, closed with a metal plug) to wash out water and rinse the inner tank.

The EWH has on its face a thermometer (model IS-V, IS-H and IS-U 30-50, IR-V, IR -H and IR-U 80-150). Location of the control panel depends on EWH model and type: RZL, IR -5, 10, 15 litres - below, ID-V, ID-H, ID-U, IF-V, IF-H, IF-U, IQ-V, IQ-H, IQ-U, IS-V, IS-H, IS-U, IR-V, IR-H, IR-U – on the face side.

4.2. Mounted on the removable flange are: a tubular electric heater (TEHE) and sensors of thermostat and thermoswitch. The TEHE serves to heat water and is controlled by a thermostat, which provides continuous adjustment of temperature up to +75°C. Thermostat automatically maintains a water temperature at the level set by the user. Temperature control knob is located on the mechanical control panel. Models with electronic controls have a touch control (Fig. 5).

The thermoswitch serves for protection of the EWH against overheating and disconnects the TEHE from the mains when a water temperature exceeds +95°C (Fig.4).

Model IR (5-15 litres) contains a pilot lamp to indicate the heater's heating mode. The thermoswitch in model IR (5-15 litres) is under the top cover.

In models for 30-150 litres, the EWH operating mode is indicated by illumination lamps of power selection keys: these lamps are illuminated when water is heated and go out when the temperature of hot water preset on the thermostat is reached. In models with electronic control by version 1, indication is effected by control lamp LI (Fig. 5) – it comes on when a preset temperature is reached. In models with electronic control by version 2, indication is effected by a heat indicator (Fig. 6) where the moving luminous points display the heating and are constantly illuminated when a preset temperature is reached.

The PCD is optionally mounted on an electric cord of the device to disconnect the EWH from the power network in the case of power supply voltage current leakage or break-down in respect of the grounded components of the device.

4.3. The safety valve is acting as a return valve, preventing the ingress of water from the water heater into a water supply system when a pressure decreases in this system and when a pressure increases in the tank at a vigorous heating of the water, and it may also act as a safety valve to relieve excessive pressure in the tank at a vigorous heating of the water. When the water heater is in operation, water may seep out of the outlet pipe of the safety valve to relieve excessive pressure, which is to ensure safety of the water heater. This outlet pipe should remain open to the atmosphere and always held in the down position, especially in non-freezing surroundings. Make provisions in the EWH installation for water drainage from the outlet pipe of the safety valve to a sewer system.

It is necessary, on a regular basis (at least once a month), to drain a small amount of water through the outlet pipe of the safety valve to a sewer system to remove lime residues and to verify that the valve is in good working order. To open the valve it is provided with a handle. Take care that when the water heater is in operation this handle is in a position closing the discharge of water from the tank.

5. SFETY PRECAUTIONS

5.1. The EWH electric safety can be guaranteed only if there is an effective grounding made in accordance with the standing wiring rules for electrical installations.

5.2. Layout of plumbing fittings and shutoff valves must comply with parameters of a water-supply line and have necessary certificates of quality.

5.3. **In installation and operation of the EWH, you should never:**

- connect power to the EWH, if it is not filled with water;
- remove the protective cover with the power “ON”;
- use the EWH without grounding;
- connect the EWH to the water-supply line under a pressure of over 0.6 MPa;
- connect the EWH to the water-supply line without safety valve;
- drain water from the EWH with the power “ON”;
- use spare parts that are not recommended by the Manufacturer;
- use water from the EWH for cooking;
- use water containing mechanical impurities (sand, small stones) that are apt to disorder the normal operation of the EWH and safety valve.
- change the design and mounting dimensions of the EWH brackets.

6. INSTALLATION AND CONNECTION

WARNING!

All the plumbing and electrical work should be carried out by qualified personnel necessarily making records in Section on “Connection Note” (see Section on “Manufacturer’s Warranties”.)

6.1. LAYOUT AND INSTALLATION

The EWH should be installed in accordance with the marking on the case and the table below:

<u>Marking</u>	<u>Volume</u>	<u>Layout</u>
RZL, IS-V, IR-V, IQ-V, IF-V, ID-V	30- 150 litres	Vertical, with branch pipes downwards
IS-H, IR-H, IQ-H, IF-H, ID-H	30- 150 litres	Horizontal, with branch pipes downwards
IS-U, IR-U, IQ-U, IF-U, ID-U	30 - 150 litres	Vertical or horizontal, with branch pipes downwards or to the right, respectively

Models IR 5-15 l are placed vertically.

To reduce heat loss in the pipes, it is recommended to install the EWH as close to the place, where hot water is to be used, as possible.

The EWH is suspended by the case brackets on the anchor hooks fixed in a wall. Mounting hooks in the wall should exclude spontaneous movement of the EWH brackets on them.

For the servicing of the EWH, a distance from the protective cover to the nearest surface in the direction of the axis of the removable flange must be at least:

- 30 centimeters - for models with a capacity of 5-80 litres;
- 50 centimeters – for models with a capacity of 100-150 litres.

WARNING! To avoid damage to the Consumer's and (or) third parties' property, when the hot water supply system is out of order, install the EWH in the rooms provided with floor waterproofing and drainage to a sewer system. Never place under the EWH things that are exposed to water. When placing the EWH in unprotected areas, install under the EWH a protective pallet provided with drainage to a sewer system.

When the EWH is installed in places that are not easily accessible for technical and warranty maintenance (built-in shelves, recesses, inter-ceiling spaces, etc.), the EWH should be removed and installed by the Consumer alone, or at his expense.

Note: the protective pallet is outside the scope of the EWH supply.

6.2. CONNECTION TO A WATER SUPPLY SYSTEM

Install the safety valve at the cold water inlet marked with a blue ring by giving it 3.5 - 4 turns and making the connection tight with any waterproof material (flax, FUM tape, etc.)

Do not use the EWH without a safety valve or the other manufacturers' valves.

When the EWH is in operation, you can watch the appearance of drops from a drain beak of the safety valve (relieving excessive pressure when water is heated). It is recommended to connect to a drain beak a rubber or silicon tube of an appropriate diameter to remove moisture.

Connection to a water supply system is made in accordance with Fig. 1 (for models IS-U, IR-U, IQ-U, IF-U, ID-U in the case of horizontal connection - Fig. 2, while the cold water supply branch pipe must be below the hot water branch pipe intake) only through copper, metal-plastic and plastic pipes, and through a special flexible plumbing inlet pipe. It is recommended to supply water to the EWH through a mud filter mounted in a cold water line (which is outside the scope of supply).

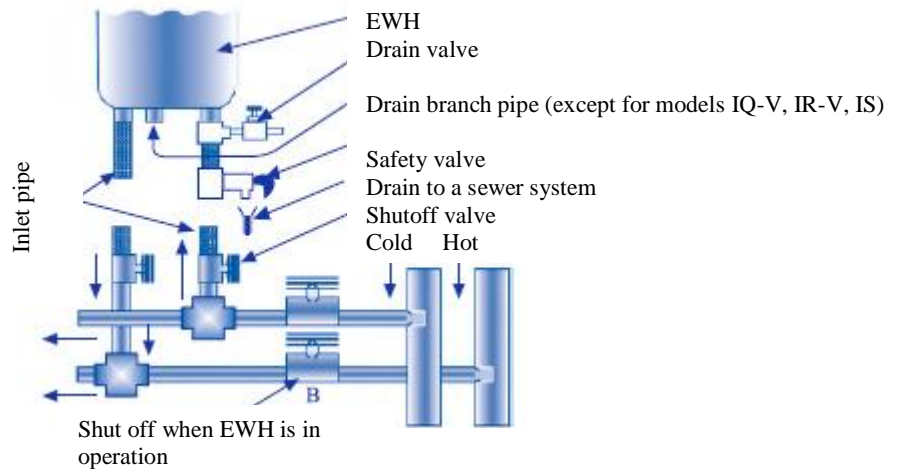
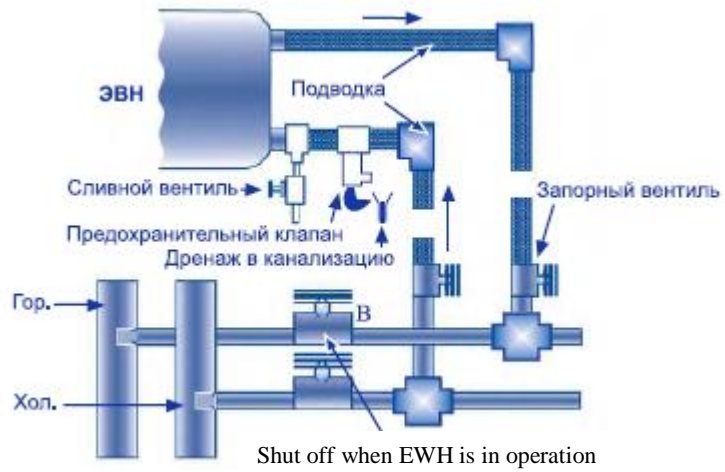


Fig. 1. Connection of EWH to water supply line



- ЭВН = EWH
- Подводка = Inlet pipe
- Сливной вентиль = Drain valve
- Предохранительный клапан = Safety valve
- Дренаж в канализацию = Drain to a sewer system
- Запорный вентиль = Shutoff valve
- Гор. = Hot
- Хол. = Cold

Fig. 2. Horizontal connection of EWH universal models

After connection, open the valve of cold water supply to the EWH and the hot water tap on the mixer to allow air to escape from the water heater. When the EWH is finally filled, cold water will continuously run from the mixer tap.

When the EWH is connected in places, where there is no water supply system, water can be supplied to the EWH from an auxiliary tank located at least at 5 meters from the top of the EWH, or by using a pumping plant.

Note: to facilitate maintenance of the EWH during operation it is recommended to install a drain valve as shown in Fig. 1 (for models that are not equipped with a drain valve (beyond the scope of supply)).

If pressure in a water supply system exceeds 0.6 MPa, it is necessary to install at the inlet in front of the EWH a reducing valve (beyond the scope of supply) to reduce water pressure to its normal value.

6.3. CONNECTION TO A POWER SUPPLY NETWORK

WARNING! Before turning on power supply, make sure that the EWH is filled with water. The EWH is equipped with a standard power cord with a plug and PCD (optionally). An outlet should have an earth terminal and be located in a place, protected against moisture.

The outlet and its leads should be designed for nominal power of 2000W, at the least. Put a plug into the outlet (if the EWH is optionally equipped with PCD, press a button on PCD).

7. OPERATION AND MAINTENANCE

7.1. Models with mechanical control (Fig. 3)

The models with mechanical control on the EWH control panel have power selection keys (I and II) with built-in indicating lamps. Actuated key I corresponds to power of 1.3 kW, actuated both keys correspond to power of 2 kW. You may select one heating power or the other on the basis of your requirements for hot water or depending on the season. When the EWH is in operation, the Consumer may regulate the heating temperature with the regulator on the control panel. Turning the regulator counter-clockwise until it stops disconnects the EWH from the network, while turning the regulator clockwise gradually increases the temperature up to +75°C.

7.2. Models with electronic control by version 1 (Fig. 5)

In the models equipped with electronic panel by version 1 with a digital display, the water heater can be turned on or off with the left-hand button on the control panel, "ON/OFF," in which case the display shows the preset heating temperature. In 2.5 seconds thereafter the display shows the current temperature of the water in the EWH. The heating power can be selected with the middle button "Power selector" on the control panel. The 2 kW mode is accompanied by indication of the pilot lamp L2, and the 1.3 kW mode is accompanied by indication of the pilot lamp L3. When the EWH is in operation, the Consumer can regulate the heating temperature with three soft keys, while the modes can be controlled by information on the display and indication of three pilot lamps. To select the heating temperature, you have to press several times the right-hand button "Temp. Selector" on the control panel. Discreteness of temperature changes - 5°C.

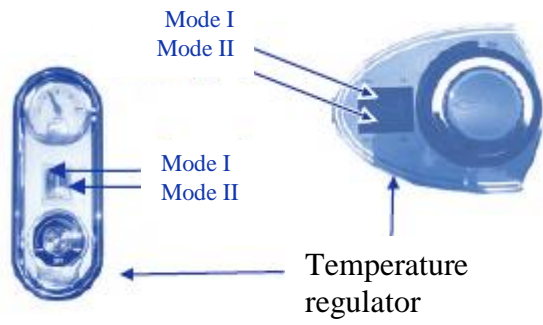


Fig. 3. Mechanical control panel



Fig. 4. Layout of thermostat button



Fig. 5. Electronic control panel (version 1)



When the EWH is turned on for the first time (or after power outages), a temperature is set on default at +75°C.

7.3. Models with electronic control by version 2 (Fig.6)

7.3.1. "Demo" mode

In the models equipped with an electronic control panel by version 2 with a digital touch LED display, when the EWH is turned on for the first time (or after power outages), the water heater passes, on default, into "Demo" (demonstration) mode. In this mode, the EWH heating elements are never enabled.




WARNING! Before interrupting "Demo", make sure that the EWH is filled with water.

Passage into and interruption of the "Demo" mode is done (if necessary) by pressing and holding for 5 seconds keys  and  on the control panel.


7.3.2. Standby mode

Occurrence of the device in standby mode is accompanied by the flashing of logo "Thermex," the temperature indicator indicates the temperature of water in the EWH, and the clock shows the current time.










7.3.3. Heating mode

The EWH can be enabled (disabled) in the heating mode by pressing key . When the heating mode is enabled, the EWH starts heating water to a preset temperature, and, on reaching a preset temperature, the heating indicator will light steadily. In the heating mode, the heating power can be selected by pressing keys  and  on the control panel. The 2 kW power mode is accompanied by indication of pilot lamp "Double power," and 1.3 kW by indication of pilot lamp "Single power."

7.3.4. Timer mode

The timer mode can be enabled (disabled) by pressing key  on the control panel and is accompanied by switching on (off) "Timer" indicator. After passage into the timer mode, the EWH will be in standby mode until a preset time is reached. On reaching the preset time, the EWH starts heating water to a preset temperature.

7.3.5. Adjustment of the EWH parameters

When the EWH is in operation, the Consumer can adjust the operating parameters in any mode. Pressing any key on the control panel is accompanied by a sound signal. After the first pressing of key  (Setting or Selection) the value of "Single power" or "Double power" starts flashing, and with keys  and  you may select an appropriate power mode. The second pressing allows you to set a temperature up to which water will be heated in the EWH, with keys  or  you may adjust the parameter up to an appropriate value. Prolonged holding of keys  or  allows you to quickly change the parameter. The third pressing of key  provides for setting of the value of current time hours. The fourth pressing allows you to set current time minutes. The fifth pressing can set an hour of timer in service, and the sixth pressing can set minutes of timer in service. After the seventh pressing or within 5 seconds of the last pressing of key  the system will return to work. Discreteness of temperature changes -1°C. Temperature is set on default at +75°C.

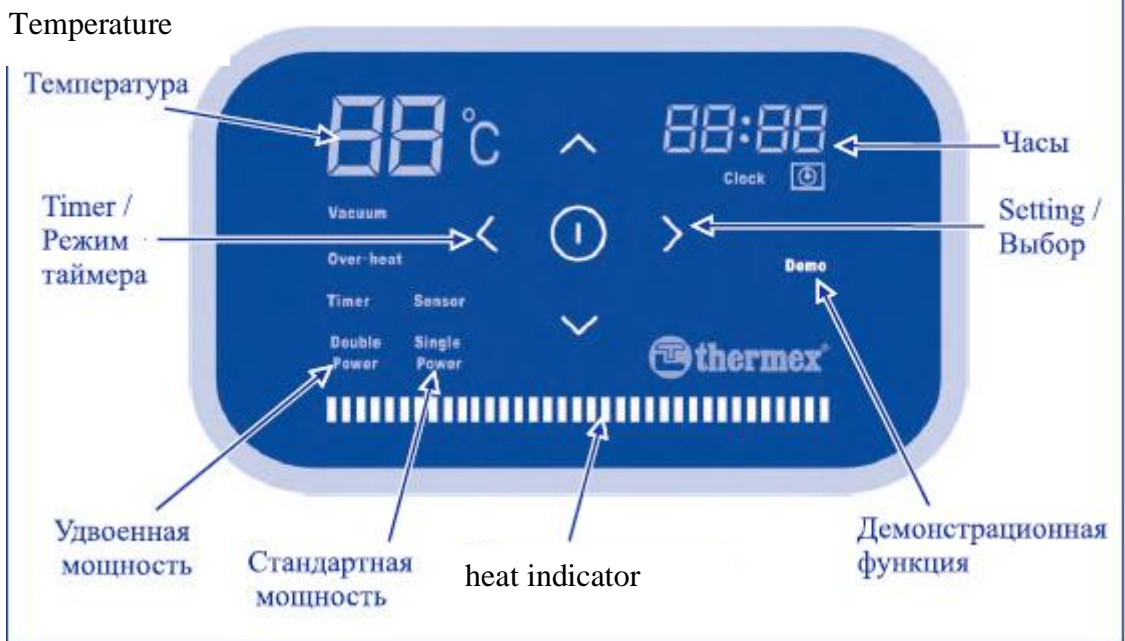


Fig. 6. Electronic control panel (version 2)



Fig. 7. Remote control panel


RECYCLING

When regulations for installation, operation, maintenance of the EWH are observed, and when the water quality complies with effective standards, the Manufacturer establishes a service life for the EWH 9 years.

When the convector is to be recycled, you should comply with local environmental laws and guidelines.

The Manufacturer reserves the right to make changes in the design and specifications of the convector without prior notice.

7.3.6. Remote control panel (Fig. 7)

By using button "Power" on the control panel you may vary power modes between "Single Power" and "Double power". Button "Setting" corresponds to key > on the control panel, button "Timer" corresponds to button < , button "On/Off" corresponds to . By using arrows you may set parameters.

7.4. PCD – protective cutout device

If PCD comes to operate when the EWH is in service, to reset it you have to press button on PCD. If in this case PCD repeatedly comes to operate, you have to call for a specialist at the service center to remove the causes of its operation.

If you are not using the EWH in winter and there is a possibility of freezing of the water mains and the water-heater itself, it is recommended to turn off power supply and drain water from the EWH in order to avoid damage to the inner tank.

7.5. Maintenance (TO)

In the course of maintenance you should examine the tubular electric heating element (TEHE) for scale. At the same time, you have to remove residues, which can form in the EWH lower part. If scale forms on TEHE, you can remove it with special cleaners or mechanically. It is recommended, one year after the EWH was connected, to invite employees of a specialized organization for the initial maintenance and then, judging by the intensity of scaling and residue formation, they may determine the dates of next maintenance. This action will prolong the service life of the EWH as much as possible.

Warning: Accumulation of scale on TEHE may cause damage to it.

Note: This warranty does not cover the damage caused by scaling to TEHE. Regular maintenance is beyond the scope of the Manufacturer's and Seller's warranty responsibilities.

For maintenance, proceed as follows:

- disconnect the EWH from the power supply;
- allow hot water to cool or drain it through a mixer;
- shut off cold water supply to the EWH ;
- screw out the safety valve or open the drain valve;
- put a rubber hose on the cold water branch pipe or on the drain valve, directing its other end piece towards a sewer system;
- open the hot water tap on the mixer and drain water from the EWH through a hose to a sewer system;
- remove the protective cover, disconnect wires, turn out and take the bearing flange out of the case;
- remove scale from TEHE, when necessary, and residues from the tank;
- reassemble and fill the EWH with water and turn on the power.

In the models provided with a drain branch pipe, it suffices to cut off cold water supply to the EWH, turn out a blank plug on the drain branch pipe and open a hot water tap. When the water is completely drained, you may open for a while cold water supply to the EWH to additionally rinse the tank.

When the EWH is maintained by employees of a specialized organization, the relevant marks should be made in the service card.

8. FAULTS AND REMEDIES:

Faults	Causes	Remedies
Pressure of hot water from the EWH, reduced. Pressure of cold water, unchanged	Safety valve inlet, clogged	Remove valve and wash it in water
Heating time, increased	TEHE, covered with a layer of scale	Remove flange and clean the TEHE
	Mains voltage, decreased	Contact a mains operation center
Thermoswitch button, frequent operation	Preset temperature, close to the limit	Turn thermostat regulator towards temperature decrease (-) or set a lower temperature on electronic control panel
	Thermostat tube, covered with scale	Retrieve support flange from the EWH and carefully remove scale from the tube
The EWH is running but fails to heat water	Valve "B" (Fig. 1, 2), not closed or out of order	Close or replace valve "B" (Fig. 1, 2)
The plugged-in EWH fails to heat water. Pilot lamp is not lit	Thermoswitch button came into action or has not been activated (Fig. 4)	Unplug the EWH, remove the cover, press the thermoswitch button until it clicks (Fig. 4), install the cover and turn on the power

For models with electronic control

In the event of an internal fault, the display will show the following notation: E1, E2, EZ, sensor, over-heat or vacuum accompanied by eight warning tones, whereupon the power is turned off	E1 or Vacuum means that there is no water inside the tank, while the heating element is switched on	Fill the tank with water to overflowing and then turn on the power
	E2 or Sensor means that thermostat is out of order	Contact the service center for thermostat replacement
	E3 or Over-heat means that water temperature exceeds 95°C and thermoswitch comes to operate	Unplug the EWH, remove the cover, press the thermoswitch button until it clicks (Fig. 4), install the cover and turn on the power

The above faults are not deemed as being EWH defects and are eliminated by the Consumer alone or at his cost.