



KANMED^o WARMINGCABINET

USER MANUAL AND TECHNICAL MANUAL



NOTE: This manual contains important information concerning safety and daily use as well as maintenance instructions and should be stored for future use. This manual is valid for all cabinets that are delivered after 2001.

Manufactured by:

KANMED AB
January 2004

PART NO: GE-1002-070/3



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1 SAFETY INSTRUCTIONS

INTENDED USE

KANMED Warming Cabinet GE-1380-XX is primarily intended for warming of Gel Pads, blankets, fluids, up to a temperature of 42°C
KANMED Warming Cabinet shall be used according to this user manual and in accordance with normal hospital routines.

GENERAL ADVICE

Adjust the cabinet so that it is correctly positioned, vertically and horizontally.
Secure the cabinet to the wall using the built in brackets at the top.
Never pull out all shelves/baskets at the same time. The cabinet can tilt forward if it is not secured to the wall.

Take extra caution if the cabinet is mounted on wheels, especially when the cabinet is moved around.

Note! If the cabinet is not secured to a wall, don't pull out more than **one** shelf/basket at a time.

Do not overload the shelves/basket - maximum 8 kilos per shelf. Max 2 pcs. of gel pads (45x50x1.5) Max load of the basket is 20kg.

Do not overfill the **top shelf** - there must be at least 5 cm's free space to ensure air circulation.

Don't block the ventilation holes at the inside rear of the cabinet.

EXPLANATION OF SYMBOLS



Consult Users Manual



OFF



ON



AC current



UP button, rises temperature



DOWN button, decreases temperature



SET button, for displaying desired temperature

2 GENERAL DESCRIPTION

THE CABINET

The cabinet is made of stainless steel and insulated in order to reduce heat loss to ambience and to reduce noise. For the same reason the door is double glassed.

THE HEATING COMPARTMENT

Heating element, fan, thermostat, temperature regulator/indicator and electrical connections are all placed on a "shelf" at the top of the cabinet. A spare fan is also included and mounted in the heating compartment. The heating compartment is kept in place by a small screw that, when loosened, allows the whole heating compartment to be pulled completely out to make service quick and easy.

THE SHELVES-BASKETS

The shelves/baskets run on wheels and can be pulled fully out until they are automatically stopped. To completely remove the shelves/basket for cleaning or repositioning, lift the front of about 5 cm upwards and remove it. The shelves can carry maximum 8 kilos, basket 20 kg.

EXTRA SHELVES- EXTRA BASKETS

Extra shelves/baskets and rails are available.

Mount the rails with the screws supplied using the prepared mounting holes and then push the shelf/basket in place by holding the front higher than the rear.

3 DESCRIPTION OF FUNCTION

The warming cabinet and its contents are warmed by warm air heated by a 1000 Watt warming element. The hot air is circulated by a fan and distributed evenly through the outlets at the rear of the cabinet. The temperature is regulated, by the temperature regulator T1 to the set temperature.

Thermostat T2 functions as an over temperature protection and will take over the temperature control in case the air temperature exceeds 45°C. At the same time the red lamp on the front panel will be lit to indicate that there is a malfunction. Inside the heating element there is an additional over temperature protection that is self-resetting. It will be activated in case the fan stops or goes too slow.

On old versions of the cabinets a power switch at the door interrupts the power when the door is opened. When restarted again the temperature goes back to the set temp as it was before interrupted.

On the new cabinets this power switch is removed

NOTE: If the red over temperature lamp is lit there is an error that requires a technician.

4 TECHNICAL DATA

ELECTRICAL DATA:

Voltage	220-240 Volt AC
Power max.	1200 Watt *
Frequency	50 -60 Hz
Fuses	T 6,3A L250V

PHYSICAL DATA

Cabinet **GE-1380**

Height	175 cm
Width	66 cm
Dept	60 cm

GE-41500

Shelves inner measure

Height	2 cm (edge)
Width	52 cm
Dept	50 cm

Maximum load per shelf 8 kilos

GE-41600

Basket inner measure

Height	13cm
Width	52cm
Dept	50cm

Maximum load 20kg

TEMPERATURES

Working temperature (Of circulating air)	35°C – 42°C, selectable in steps of 1°C
Over temperature protection	Visual alarm 45°C
Accuracy	± 1°C
Hysteresis (T2 overtemp.)	4°C max

WARMING CAPACITY

Warming of 10 gel pads GE-455015 45 x 50 x 1.5 cm from 22°C to 40°. 3 hours

MODE OF OPERATION

Designed for continuous use

CE - MARKING

According to 89/366/EEC and 93/68/EEC
(EN 60601-1-2, EN55011 (1991))

* The nominal effect of the heating element 1000 W. Due to the thermostat regulation the average power consumption is about 400 W

5 UNPACKING AND PACKING LIST

The cabinet is when shipped from KANMED carefully packed. Check for damages and report them **immediately** to your supplier. Damages reported after the cabinet has been brought into use are not accepted.

See the enclosed unpacking instructions which are attached to the cabinet and marked "Unpacking Instructions."

PACKING LIST

Description	Part no	Quantity
Warming Cabinet 175cm	GE-1380	1
Warming Cabinet 90cm	GE-1380-90	
Warming Cabinet 175cm on wheelbase	GE-1380-W	
Warming Cabinet 90cm on wheelbase	GE-1380-90-W	
Manual	GE-1002-07X	1

6 INSTALLATION

Adjust the feet so that the cabinet is levelled.

Connect the cabinet to a grounded power outlet.

NOTE: Always secure the cabinets to a wall by using the built in top brackets to avoid the risk of tipping forward at unfortunate circumstances.

7 USING THE CABINET

Open the door and switch on the Cabinet with the green power switch at the upper right side. Check the set temperature and adjust if necessary according to 7.2

7.1 GENERAL ADVICE

The Cabinet is designed for continuous use and shall be left switched on in order to ensure that the contents are always warm.

If 2 gel pads are placed on top of each other the warm up time is increased considerably. If often more than 10 gel pads are to be warmed at the same time we recommend that you order extra shelves. Avoid folding gels.

Max load on a shelf is 8kg in basket 20kg.

NOTE: Do not place blankets or other bulky stuff at the top shelf since it may block the air intake and cause overheating in the heating element due to reduced air flow. Ensure that there is at least 5-cm free space.

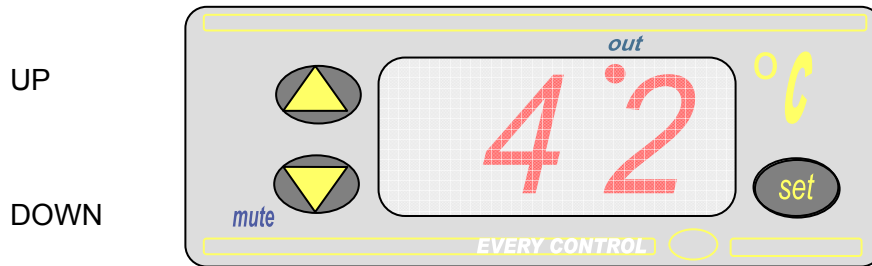
7.2 TEMPERATURE ADJUSTMENT AND INDICATION

The display shows the actual working temperature in the cabinet as long as the ON/OFF switch is on and the door is closed.

The set temperature is indicated when the set button is pressed.

Every time the warming is switched on (ON/OFF or closing door), the set value is automatically set to the set value that was valid at the previous switch off of the warming. The working temperature can be selected in steps of 1°C within the range of 35 to 42°C.

Older version of regulator type (700-0464)



- SET** Press set button to show the set (selected) temperature. The set value is shown and the out lamp blinks as long as the set button is pressed. While the set button is pressed, the set value can be altered by pressing the UP / DOWN button.
- UP** Press for temperature rise
- DOWN** Press for temperature decrease.
- OUT** Flashes as long as the set button is pressed. Lights permanently while heating takes place (relay is closed)

Newer version of regulator (700-0659)



- SET** Press set button to show the set (selected) temperature. The set value is shown and the OUT lamp blinks for 2 sec. The set value can be altered by pressing the UP / DOWN button.
- UP** Press UP within 2 sec. for temperature rise until wished value is shown in the display.
- Down** Press DOWN within 2sec. for temperature decrease until wished value is shown in the display.

8 MAINTENANCE AND TROUBLE SHOOTING

8.1 CLEANING

Clean and disinfect with normal detergents. If hepatitis or HIV is suspected then use stronger disinfectants.

8.2 TEMPERATURE CONTROL/CALIBRATION

To be performed by a qualified technician only.

GENERAL INFORMATION

The working temperature is regulated by the temperature regulator T1 and the over temperature protection by the sensors T2. When control, calibration of T1 and T2, their value is compared to the value of an external precision thermometer. (for example the KANMED article Baywatch-01)

The sensor T2 can be adjusted through a hole in the bottom of the heating compartment. The external control thermometer, with a precision temperature sensor, is to be placed between two gel pads (GE-455015 or GE-255015) in the middle of the centre shelf. Let the cabinet warm up properly (at least 12 hours if cold start) before attempting calibration.

8.2.1 TEMPERATURE REGULATION

INFORMATION ABOUT TEMPERATURE MEASUREMENT AND CALIBRATION

T1 is a powered microprocessor temperature regulator/indicator that has resolution of 1°C. Corrections can be done through a series of pushing's on the regulator buttons according to the description below.

NOTE! To adjust the temperature T1 you have to have the door open. On older cabinets equipped with a door switch the door switch S1 must be pressed with for example some tape while you do the correction. Don't forget to remove the tape when you are finished.

PROCEDURE

Place the external control sensor as described under GENERAL INFORMATION above. Start the warming and wait until the temperature is stable (at least 12 hours). Compare the external control thermometer with the set temperature and if the deviation is bigger than +/- 1°C adjust as follows.

Old regulator type (700-0464)

1. Press UP and DOWN exactly simultaneously (only one beep may be heard, if you don't succeed- .repeat) and keep pressed for 5 sec until the indicator display shows "PA"
2. Press UP or DOWN until the display shows "1"
3. Press SET and at the same time UP or DOWN to compensate the noted temperature difference, one press gives a adjustment of 1°C.
1. For example: The display shows 42°C but the external control temperature shows 39°C. The difference is -3°C, to compensate this difference press three times on DOWN button (the earlier value will drop with 3 degrees)
4. Store the new calibrated value by pressing UP and DOWN simultaneously (only one beep may be heard, if you don't succeed- .repeat)
5. Measure the temperature again and control that T1: s shown value compares to that of the external thermometer.

If necessary dismount the locking of the door switch S1

New regulator type (700-0659)

1. Press UP and DOWN exactly simultaneously (only one beep may be heard, if you don't succeed- .repeat) and keep buttons pressed for 5 sec until the indicator display shows "PA"
2. Press one time on UP, then the display shows μ 1,(parameter for calibration of sensors)
3. Press SET once and within 2 sec on UP or DOWN to compensate for the noted temperature difference, one press gives the change of 1°C.
For example: The display shows 42°C but the external control temperature shows 39°C. The difference is -3°C, to compensate this difference press three times on DOWN button (the earlier value will drop with 3 degrees)
4. Store the new calibrated value by pressing UP and DOWN simultaneously (only one beep may be heard, if you don't succeed- .repeat) and keep pressed for 5 sec until the indicator display shows the actual temperature.
5. Make a new measurement of the temperature and control that T1:s shown value compares to that of the external thermometer

8.2.2 OVER TEMPERATURE

INFORMATION ABOUT TEMPERATURE MEASUREMENT AND CALIBRATION

The temperature sensor T2 is a capillary thermostat. In the KANMED cabinet its hysteresis is 4°C max. When delivered T2 is set to 2°C above the maximum value of T1 (42°C). The activation of T2 is identified by a clear click sound as well as by the red over temperature lamp is lit

The procedure described below is a simplified method to check and if necessary adjust T2

PROCEDURE

1. First check the temperature regulation as described under 8.2.1 above. Set the regulator T1 on max .setting (42°C)
If the cabinet is cold, let it first get proper warm for at least 12 hours, before the measure/calibration is done. Check that the cabinet warms to the max temperature setting.
2. Adjust the set temperature by turning T2: s adjustment screw (you find it through the hole on the underneath of the shelf) with a screwdriver. Turn the adjustment screw fully clockwise (+). Now Turn counter clockwise back to activation (one click sounds), turn again clockwise past the activation point in tiny steps (a new click sounds)
3. Control that you don't activate the over temperature indication when run the cabinet in normal operation (with T1 prepared on 42°C) If this should happen you have to repeat the procedure and set T2:s activation point a bit higher

8.3 TROUBLE SHOOTING

If the warming is not starting, check as follows:

- Power cable connected (UK only - and plug fuse OK)?
- Power in the wall socket?
- Cabinet fuses OK?
- Power Switch on (If power is OK it will show a green light)
- For older Cabinets, is the door properly closed? The door starts the warming by pressing in the safety switch located on the upper left side of the front panel. Pressing in this switch with your finger should start the warming if above switch is OK?
- Is the fan rotating? It shall start as soon as you press in the safety switch as mentioned above. If it is not rotating, making a strange noise or rotates slowly it must be changed.
- Is the heating element getting too warm? The heating element has a self resetting over temperature protection (85°C) and two 1000W heating wire loops. Only one of the 1000W heating wires is being used. If it breaks, the second can be used instead. If the temperature protection cuts out the element frequently, there is not enough airflow through the element.
- Check the fan and that the air intake under the heating compartment is not blocked.

NOTE: All checking that involves opening the heating compartment must be done by a qualified technician.

9 ACCESSORIES AND SPARE PARTS

ACCESSORIES

Part no	Description	Quantity
GE-41500	Shelf	1
GE-41600	Basket	1

SPARE PARTS

Part no	Pos. in drawing	Description	Quantity
700-0180	S2	Mains power switch	1
700-0181	S1	Safety switch at door	1 (old cabinets)
700-0183	M1	Fan	1
700-0184	HE	Heating Element	1
700-0457	G1	Temperature sensor	1
700-0456	Tr	Transformer	1
700-0464	T1	Temperature regulator	1 (earlier model)
700-0659	T1	Temperature regulator	1 (later model)
700-0660		Diode 1N4005	1 (later model)
700-0661		Capacitor 100 µF 63V	1 (later model)
700-0185	T2	Thermostat	1
700-0187	L1	Red lamp	1
700-0201		Glass for door to cabinet 175 cm high	1
700-0211		Glass for door to cabinet 90 cm high	1
700-0202		Handle for door	1
700-0203		Wall mounting bracket	2
700-0204		Door gasket	2 m
700-0205		Set of screws	1
700-0206		Foot for cabinet	1
700-0453		Front panel label WC 1002, adhesive	1
700-0208		Fuse holder	1
700-0209	F1	Fuse T6,3A	10
700-0460	F2	Fuse T50mA	10

10 WARRANTY

KANMED warrants the purchaser that the Warming Cabinet is free from defects in material and workmanship for a period of 12 month from the date of delivery.

The sole obligation of KANMED with respect to any such defect is limited to the repair with new or re-manufactured parts or, at the discretion of KANMED, replacement of the equipment or refunding of the purchase price.

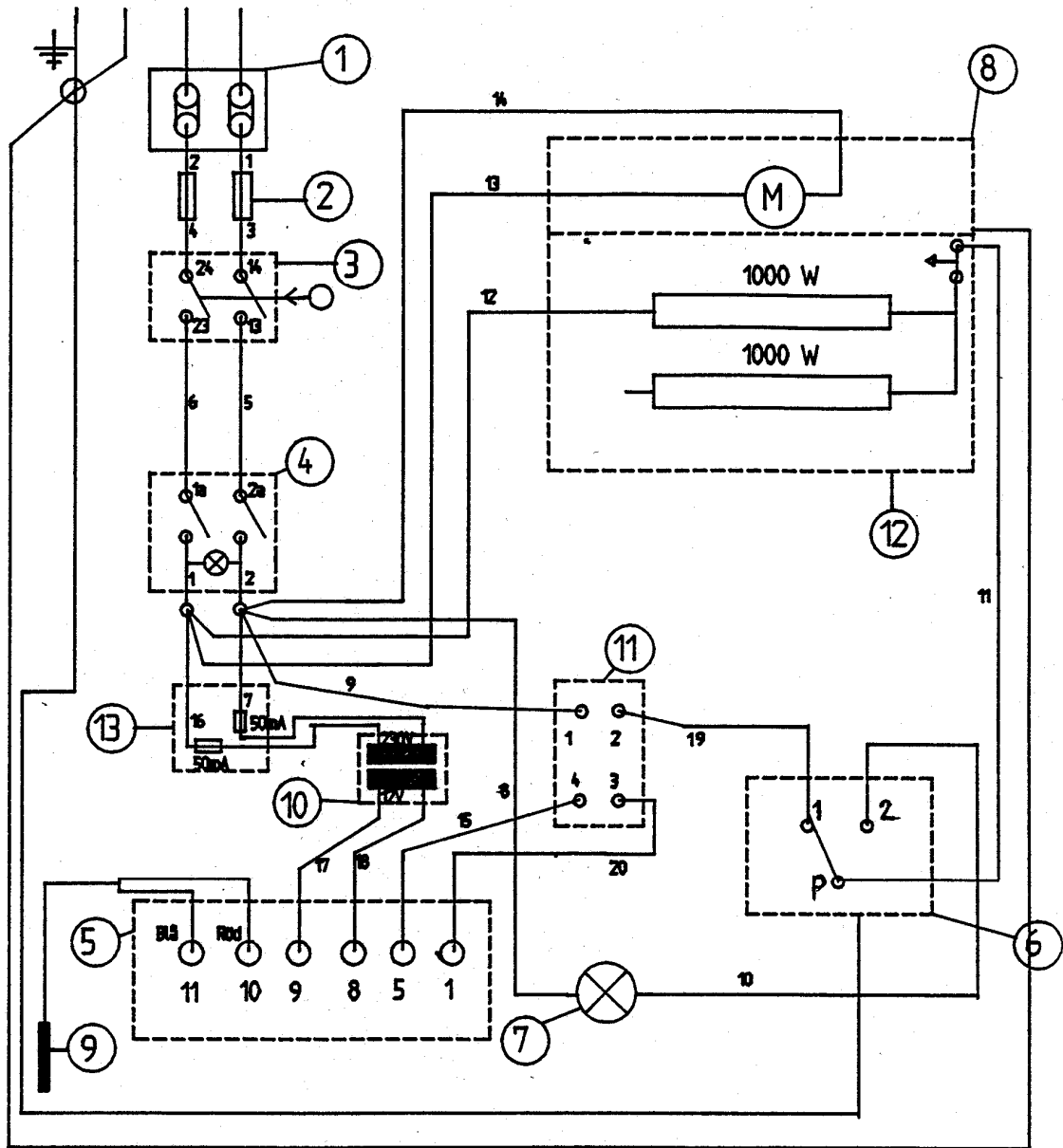
This warranty shall not apply if the product has been modified, adjusted or repaired other than by KANMED or by organisations authorised by KANMED or modified, adjusted or repaired not in accordance with written instructions provided by KANMED or if the equipment has been subject to misuse, negligence or accident.

These warranties are made on the condition that prompt notification of a defect is given to KANMED or its authorised dealers within the warranty period.

KANMED shall have the sole right to determine whether a defect exists.

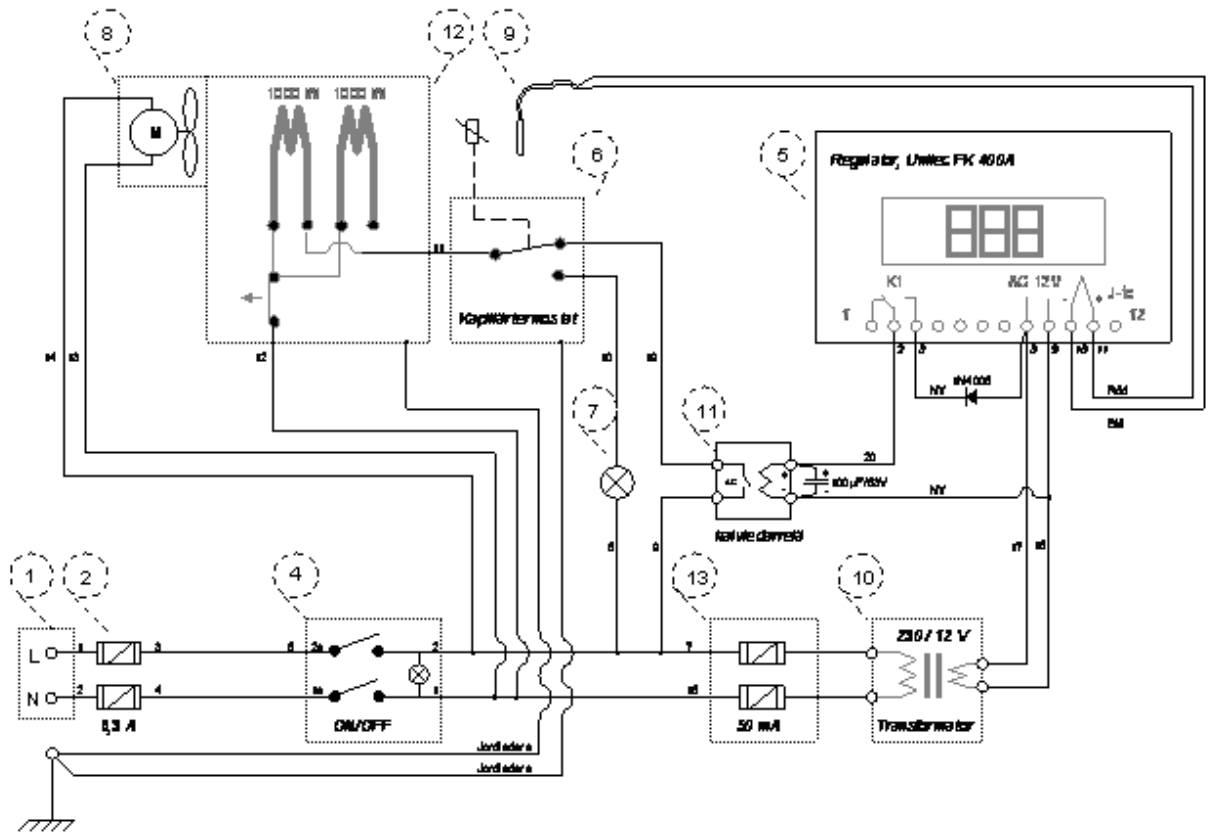
KANMED shall not in any case be liable for special or consequential damages arising from the breach of warranty, breach of contract, negligence or any other legal theory.

11 CIRCUIT DIAGRAM for cabinets delivered until 2003



- 1. Connection socket
- 2. F1 Fuse 6,3 A
- 3. S1 Safety switch activated by the door
- 4. S2 Mains switch
- 5. T1 Temperature regulator
- 6. T2 Over temperature protection
- 7. L1 Warning lamp red - over temperature warning
- 8. M1 Fan
- 9. G1 Temperature sensor
- 10. TR Transformer
- 11. RE Relays
- 12. HE Heating element
- 13. F2 Fuse

12 CIRCUIT DIAGRAM for cabinets delivered from 2004



- 1. Connection socket
- 2. F1 Fuse 6,3A
- 4. S2 Main switch
- 5. T1 Temperature regulator
- 6. T2 Over temperature protection
- 7. L1 Warning lamp red – over temperature warning
- 8. M1 Fan
- 9. G1 Temperature sensor
- 10. TR Transformer
- 11. RE Relays
- 12. HE Heating element
- 13. F2 Fuses 50mA

USER and TECH

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