1987

THERMOCOT

TC400

Mk I

Appleyard and Sons
Leeds, Yorkshire

MANUFACTURERS
HANDBOOK

THERMOCOT

TC400 Mk I

MANUFACTURED IN ENGLAND

BY

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APPLEYARD AND SONS will only accept responsibility for the safety, reliability,and performance of the equipment if;-

Assembly operations, repairs, adjustments and modifications are carried out by authorised engineers,

The electrical installation of the relevant room complies with the 'Regulations for electrical equipment of buildings' PUBLISHED BY THE INSTITUTION OF ELECTRICAL ENGINEERS,

The equipment is used in accordance with the instructions for use,

CONTENTS

ILLUSTRATIONS

WARNINGS

Lethal voltages exist within the radiant warmer.

During periods of prolonged useage of the radiant warmer some areas of the outer cover may become very warm, therefore caution should be exercised when handling the ~~radiant warmer~~ element enclosure.

SAFETY PRECAUTIONS

The **TC400 THERMOCOT** must never be operated with any of the covers removed except by an authorised engineer

Before operating the **TC 400 THERMOCOT** always apply and lock the castor brakes.

Before connecting the unit to the mains ensure that the radiant warmer power cable and mains plug are undamaged

Ensure that the electrical installation of the room complies with the 'Regulations for electrical equipment of buildings' PUBLISHED BY THE INSTITUTION OF ELECTRICAL ENGINEERS.

It is ~~strongly~~ recommended that ~~a suitable~~ temperature ~~moniter~~ be ~~used~~ when ~~operating the radiant warmer~~ the patients monitored during use.

If the **TC 400 THERMOCOT** malfunctions immediately disconnect from the mains supply and contact an authorised engineer.

All maintenance, modifications and adjustments are only to be carried out by an authorised engineer.

TECHNICAL DATA

Overall dimensions (Nominal)

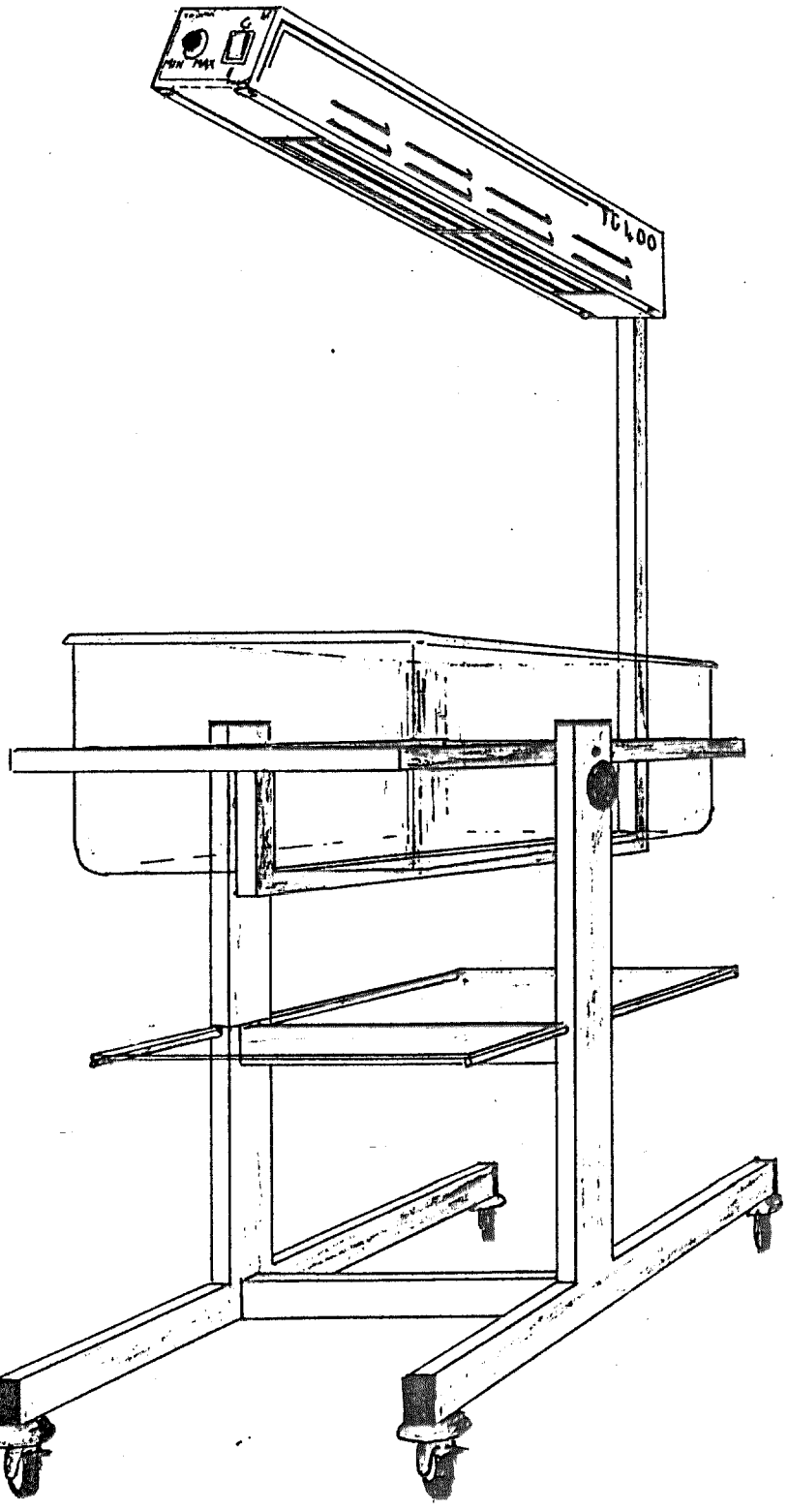
Length	865mm/34in
Width	470mm/18.5in
Height	1700mm/67in
Cot-Heater tilt	0 to 20°
Weight	25Kg/56lb
Heater operating height above baby	660mm/26in-fixed.

Specification

Power supply	220/240V, 50/60Hz
Heater rating	240V - 400Watts nominal
Heater element	Tubalox element Incalox sheathed.
Temperature rise within baby 'cot' area.	Approx 10° C above ambient (nominal) with heat control set to maximum.

Electrical Safety

Designed to comply with BS5724:Part 1 regarding the safety of electrical medical equipment.



THE THERMOCOT TC 400 Mk 1

GENERAL DESCRIPTION

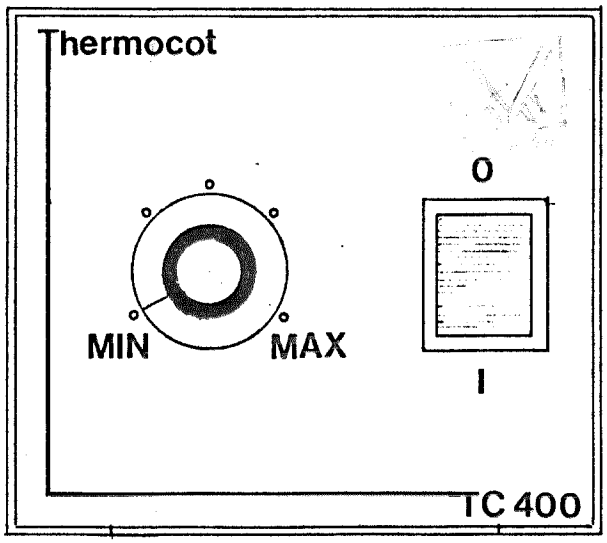
The THERMOCOT is designed to provide a simple effective method of providing additional warmth for infants nursed on the paediatric ward or special care baby unit.

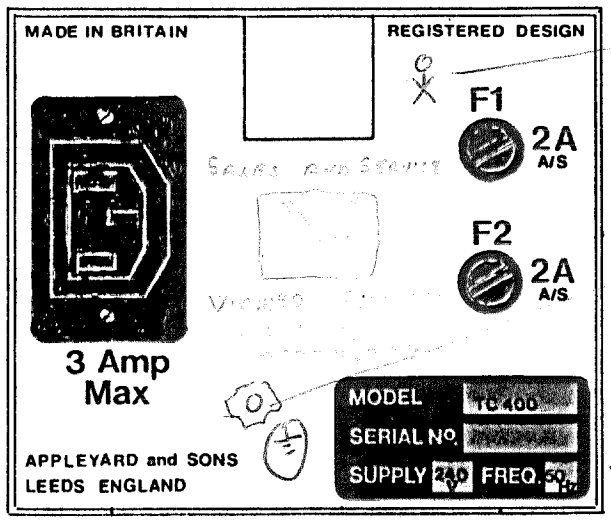
Mounted on a lightweight mobile stand, the cot and the integral radiant warmer can be angled forward from the horizontal to a maximum of 20 degrees.

The THERMOCOT is fitted with four antistatic castors (two incorporating locking brakes) and also a useful clear acrylic shelf.

The 400 Watt radiant warmer is provided with a variable heat control to facilitate the reduction of heater output when required and enable standby operation.

The ~~use of~~ an efficient reflector ensures a safe and uniform warmth over the cot area and will raise the ~~surface~~ temperature by about 10°C above the ambient temperature.





FRONT AND REAR PANELS

INSTRUCTIONS FOR USE

Prior to operating the TC 400 THERMOCOT the warnings and safety precautions printed on page iii must be observed.

Operation of the brakes

Foot brakes are fitted to the front anti static castors.

To operate:- press the red foot pedal fully down - the castor is now locked.
To release:- lift the red foot pedal up.

Note
The brakes must be applied at all times when operating the **TC 400 THERMOCOT.**

Tilting the cot

A special feature of the **TC 400 THERMOCOT** is the capability of the cot and radiant warmer to be tilted to a maximum of 20° from the horizontal.

To tilt the cot and radiant warmer:- slacken the friction locks, situated at each side of the cot, by turning both black knobs anti-clockwise.
Tilt the cot and radiant warmer to the desired angle then tighten the friction locks by turning the black knobs clockwise.

Should the friction locks become inoperative for any reason, the cot and radiant warmer will naturally return to its horizontal position.

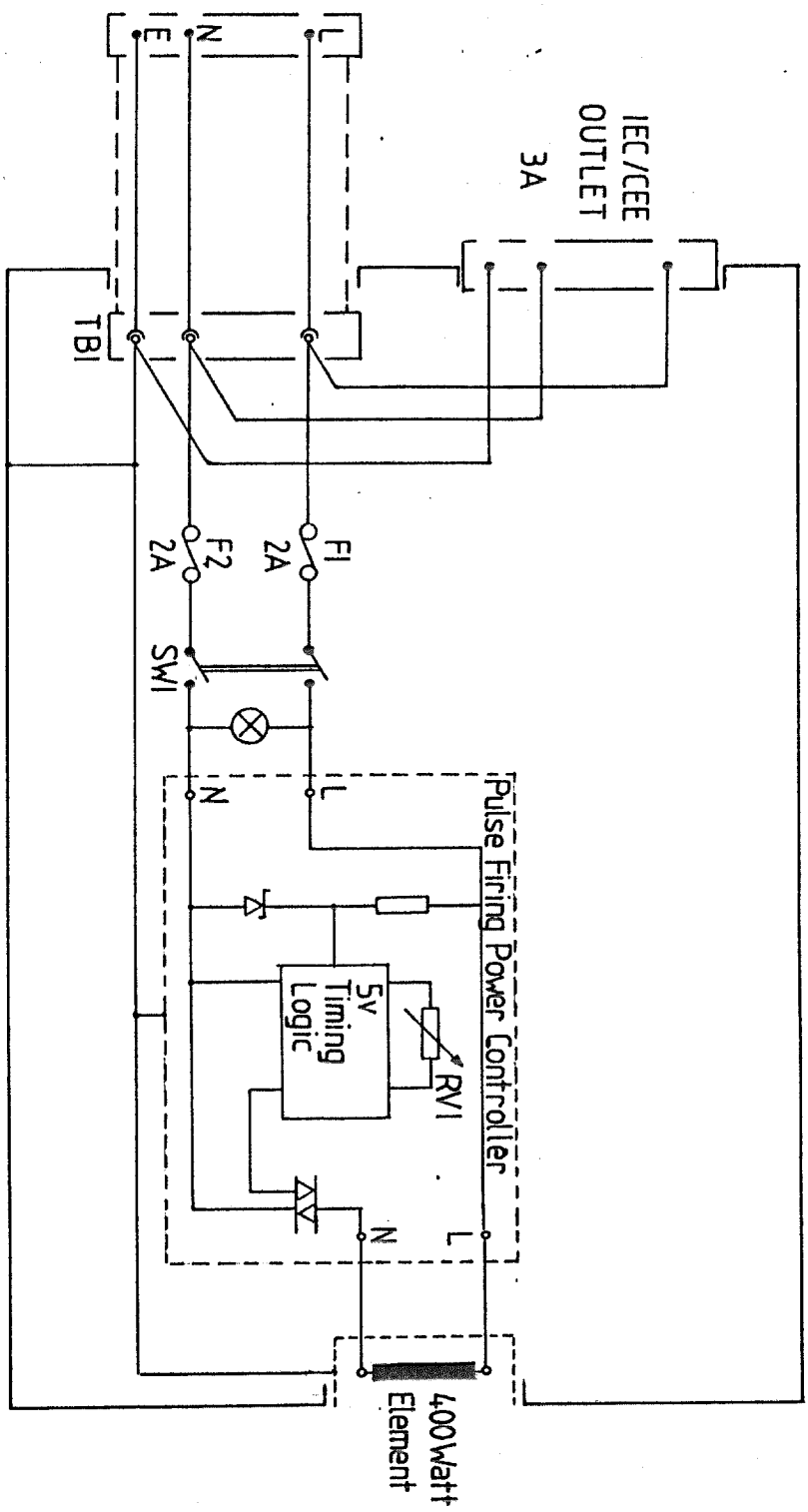
Operation of the Radiant Warmer

Two controls are situated on the front panel of the radiant warmer, these are:- the on-off switch and the temperature control knob.

Before switching the radiant warmer on, turn the temperature control knob anti-clockwise to the MIN position.

Switch the radiant warmer ON by switching the green rocker switch to the 'I' position. The switch should now be illuminated.

Rotate the temperature control knob clockwise to the desired temperature setting. (NB. The type of heating element fitted to the radiant warmer does not respond instantaneously to changes of the temperature control.)



CIRCUIT DIAGRAM

TECHNICAL DESCRIPTION

General

The TC400 THERMOCOT is a mobile self-contained cot stand, cot and radiant warmer. The radiant warmer is mounted at a fixed distance of 26in above the baby. The heater output is sufficient to raise the temperature of the baby 'cot' area by approximatly 10°C above the ambient air temperature.

The radiant warmer is controlled by a double pole illuminated rocker switch and a temperature controller. mounted on the front panel.

Temperature control is achieved using an encapsulated, 15 Amp pulse firing. power controller operating from an input voltage of 220v/240v 50/60hz. This will maintain the output of the incalox sheathed tubalox element at any set level up a maximum of 400 Watts.

The cot and radiant warmer can be tilted forward and locked at any angle up to a maximum of 20 degrees from the horizontal.

Protection of the radiant warmer is provided by two 20mm 2 Amp anti-surge cartridge fuses located on the rear panel.

A standard IEC/CEE shuttered outlet socket (max. output - 3 Amps) is provided on the rear panel of the radiant warmer

Circuit description

The mains input voltage is fed via barrier terminal block TB1 to fuses F1 and F2.

Using high temperature appliance conductors, the input voltage is fed from F1 and F2 via a double pole illuminated switch SW1 to the live and nuetral input terminals of the pulse firing power controller.

The duty cycle of the output triac of the power controller is controlled by an internally generated square wave with an adjustable mark-space ratio which is varied using the potentiometer RV1 to achieve a range of duty cycle from 0% to 100%. Triac switching takes place at the zero voltage point on each cycle virtually eliminating any radio frequency interference.

The live and nuetral outputs of the power controller are fed to the resistive 400 Watt tubalox heating element.

The incalox sheath of the heating element, the power controller and the chassis of the radiant heater and cot stand are all bonded to the protective earth conductor of the non-detachable mains cable.

MAINTENANCE INSTRUCTIONS

Routine maintenance, assembly, repairs, adjustments and modifications are only to be carried out by authorised engineers.

Routine Maintenance

It is recommended that the following maintenance routine should be carried out at intervals not exceeding six weeks ?? Six months

1. Thoroughly clean the stand unit, cot units and the exterior and interior of the radiant warmer.
2. Inspect the mains plug, mains cable, stand unit, cot unit and radiant warmer for damage.
3. Functionally test the castors, brakes and tilt mechanism for correct operation.
4. Inspect all connectors and conductors within the radiant warmer for security and damage.
5. Carry out earth leakage tests in accordance with BS5724:Part 1.
6. Carry out insulation tests.in accordance with BS5724:Part 1.
7. Functionally test the radiant warmer to ensure satisfactory operation.

Removal of the Radiant Warmer

1. Disconnect the **THERMOCOT** from the mains supply.

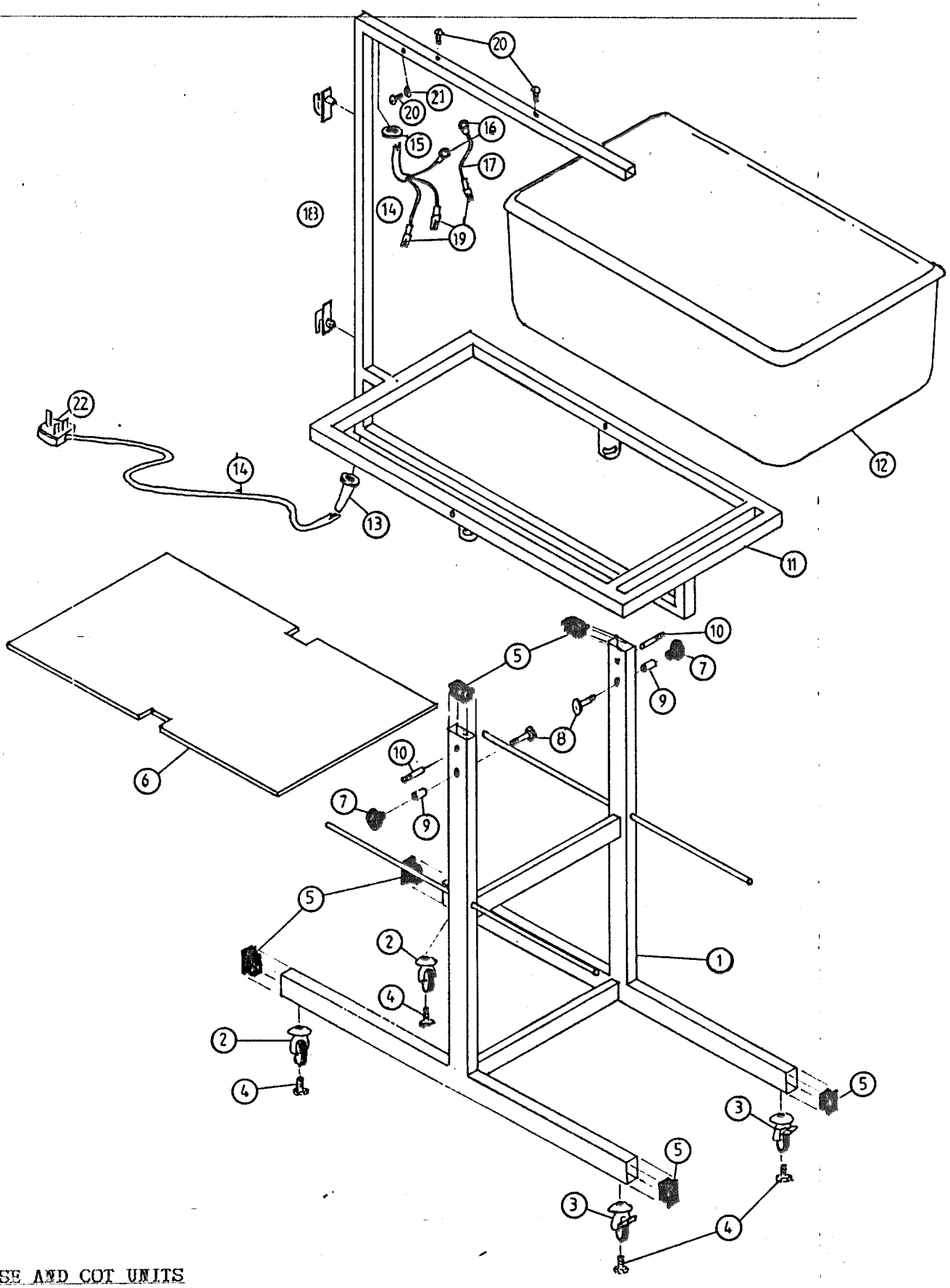
1. Remove the six screws on the top and the four screws on the underside of the unit.

2. Slide the outer cover forward to expose the barrier terminal block TB1 situated beneath the fuseholders F1/2.

3. Disconnect the Live, Neutral and Earth input conductors from TB1.(snap on terminals)

4. Support and slide the radiant warmer unit forward and off it's support arm.

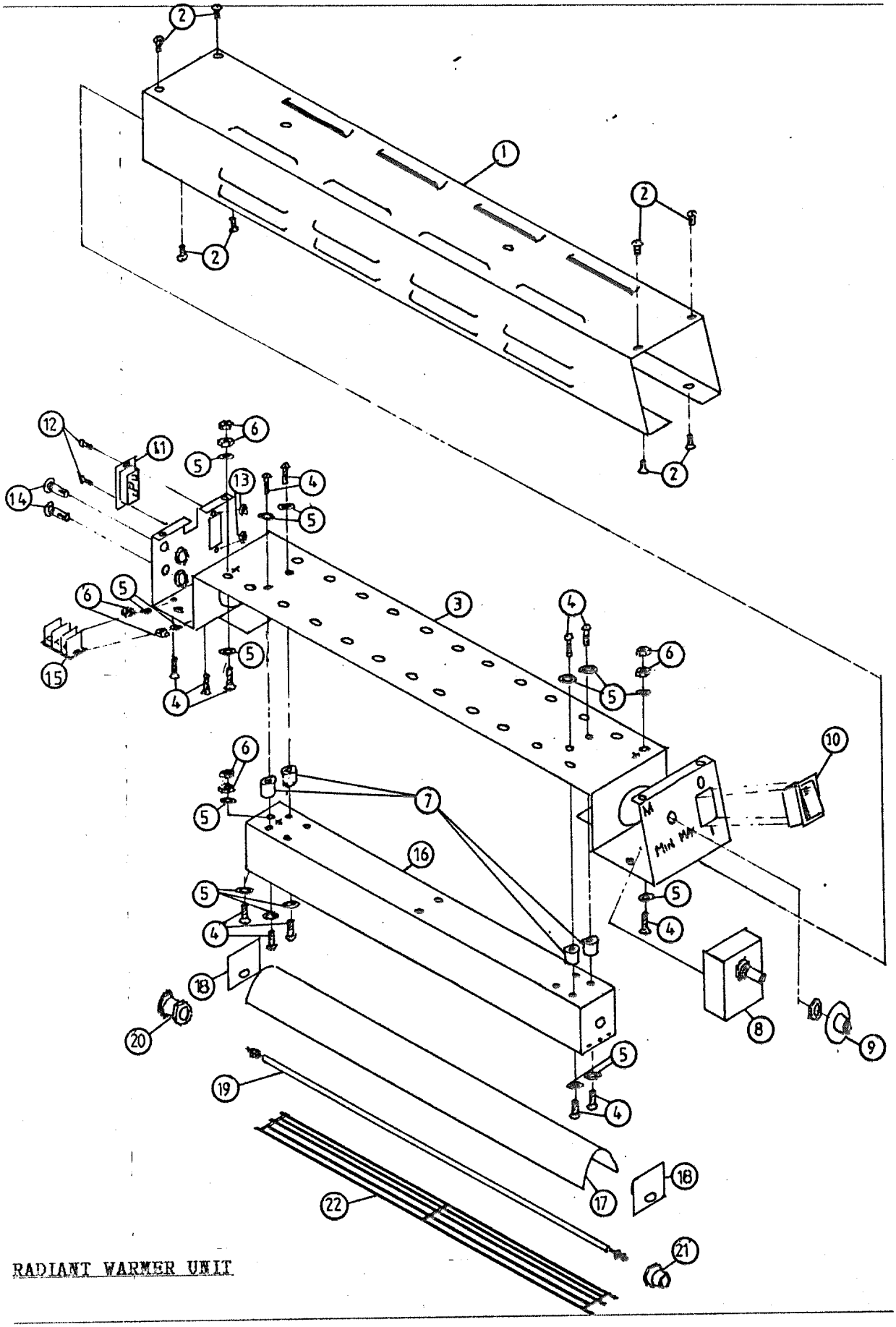
5. Withdraw the heater assembly from the rear of the outer cover.



BASE AND COT UNITS

BASE AND COT UNITS

DRAWING Nº	ITEM	QTY	PART Nº
1	Base Unit	1	1000
2	2½ inch anti-static castor	2	1001
3	2½ inch anti-static castor with brake	2	1002
4	Bolt	4	1003
5	500mm x 250mm plastic end cap	6	1004
6	Clear acrylic shelf	1	1005
7	Knob	2	1006
8	Friction lock bolt	2	1007
9	Friction lock inner sleeve	2	1008
10	Pivot screws	2	1009
11	Cot unit	1	1010
12	Basinette	1	1011
13	Cable grommet	1	1012
14	Cable		1013
15	Cable grommet	1	1014
16	Ring Terminal	1	1015
17	Earth conductor	2	1016
18	Cable stowage	2	1017
19	Snap On terminal	1	1018
20	Screw	3	1019
21	Washer	1	1020
22	Mains plug	1	1021



RADIANT WARMER UNIT

RADIANT WARMER UNIT

DRAWING Nº	ITEM	QTY	PART Nº
	Radiant heater unit	1	2000
1	Cover	1	2001
2	Screws	6	2002
3	Mounting plate	1	2003
4	Screw	13	2004
5	Washer	16	2005
6	Nut	8	2006
7	Insulating spacer	4	2007
8	Power contoller	1	2008
9	Knōb	1	2009
10	Switch	1	2010
11	Outlet socket	1	2011
12	Screw	2	2012
13	Nut	2	2013
14	Fuse holder	2	2014
15	Terminal block	1	2015
16	Radiant cover	1	1016
17	Reflector	1	1017
18	Reflector end plates	2	2018
19	400 Watt element	1	2019
20	Element clamp	1	2020
21	Element holder	1	2021
22	Grille	1	2022