



**CUREMASTER SUPER  
digital**

**ASSEMBLY AND OPERATING  
MANUAL**

**North America  
MODELS ETS 2d / ETS 3d / ETS 5d  
ETS 2dt / ETS 3dt / ETS 5dt**

FORM FM450

ISSUE 01 (VALID FROM 30/06/05)  
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# **WARNINGS**

**PLEASE READ THESE INSTRUCTIONS THOROUGHLY BEFORE COMMENCING ASSEMBLY OR OPERATION OF THE MACHINE. FAILURE TO DO SO COULD RESULT IN DAMAGE OR INJURY FOR WHICH TRISK WILL ACCEPT NO RESPONSIBILITY OR LIABILITY.**

The Curemaster unit conforms to North American standard UL 499

THIS EQUIPMENT MUST BE EARTHED.

REMOVE PACKING PIECES FROM CASSETTE HEADS BEFORE USE.

**DANGER** – TO REDUCE THE RISK OF EXPLOSION, DO NOT USE IN PAINT SPRAY BOOTHS OR WITHIN 10 FEET OF SPRAYING OPERATIONS, AS PER THE REQUIREMENTS OF UL499.

THIS UNIT MUST BE OPERATED IN A WELL-VENTILATED AREA.

ISOLATE MAINS SUPPLY BEFORE REMOVING COVERS.

DO NOT MOVE THE UNIT AROUND USING THE MAINS CABLE.

DO NOT MOVE THIS UNIT DURING OPERATION AS THIS MAY LEAD TO PREMATURE EMITTER FAILURE.

CUREMASTER ETS 2d & ETS 2dt MUST BE PROTECTED BY A 16A FUSE.  
CUREMASTER ETS 3d, ETS 3dt, ETS 5 & ETS 5dt MUST BE PROTECTED BY A 30A FUSE.

THIS UNIT MUST NOT BE POINTED AT PERSONNEL OR EASILY FLAMMABLE SUBSTANCES.

THE SUPPORT ARM EXTENDS FIERCELY WHEN THE CASSETTE ASSEMBLY IS NOT FITTED.

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**IF IN ANY DOUBT ABOUT ASSEMBLY OR OPERATION  
OF THE UNIT PLEASE DO NOT HESITATE TO CONTACT  
YOUR DISTRIBUTOR OR THE TRISK SERVICE DEPT.**

# **1. INTRODUCTION**

Congratulations on buying a TRISK branded product! Your unit is manufactured to the highest specifications in order to meet your needs. TRISK is the undisputed market leader in the manufacture of short-wave infra-red paint curing equipment for the automotive refinishing industry. The company now exports to over 40 countries with a wide range of static and mobile infra-red units. TRISK products are not only used in advanced bodyshops throughout the world but also by major car manufacturers including, GM, Ford, Daimler, Chrysler, Nissan, Toyota, Honda and Hyundai. Your product is designed to be energy efficient and versatile, while helping to produce the type of finish you would expect from a quality manufacturer. We are confident that TRISK will remain at the leading edge of developing infra-red technology.

**Please read through this operating manual before using the machine and afterwards store it in a safe place.**

## **2. TECHNICAL SPECIFICATIONS**

### **2.1. CUREMASTER SUPER digital ETS 2d (S214d) & ETS 2dt (S214dt)**

Rated Voltage:	220 / 240V, 60Hz, Single Phase
Rated Input: (Nominal)	3 emitters, full power: 3300W (max)
Heating elements:	3 quartz, tungsten filament, ruby sleeved Infra-Red Emitters
Area of coverage:	100cm x 80cm / 39" x 31"
Dimensions (Nominal):	(Width): 66cm / 27", (Height): 164cm / 66", (Length): 150cm / 60"
Weight:	50Kg / 110lbs

### **2.2. CUREMASTER ULTRA digital ETS 3d (S310d) & ETS 3dt (S310dt)**

Rated Voltage:	220 / 240V, 60Hz, Single Phase
Rated Input: (Nominal)	3 emitters, full power: 4500W (max)
Heating elements:	3 quartz, tungsten filament, ruby sleeved Infra-Red Emitters
Area of coverage:	1m x 1.2m / 39" x 47"
Dimensions (Nominal):	(Width): 66cm / 27", (Height): 164cm / 66", (Length): 150cm / 60"
Weight:	50Kg / 110lbs

### **2.3. CUREMASTER SUPER TWIN digital ETS 5d (S516d) & ETS 5dt (S516dt)**

Rated Voltage:	220 / 240V, 60Hz, Single Phase
Rated Input: (Nominal)	6 emitters, full power: 6000W (max)
Heating elements:	6 quartz, tungsten filament, ruby sleeved Infra-Red Emitters
Area of coverage:	1m x 1.8m / 39" x 71"
Dimensions (Nominal):	(Width): 95cm / 38", (Height): 164cm / 66", (Length): 150cm / 60"
Weight:	65Kg / 144lbs

# 3. ASSEMBLY INSTRUCTIONS

Check that the electricity supply is compatible with the technical specifications of the machine as shown in section 2. If in any doubt about assembly or operation of the unit please do not hesitate to contact your distributor or the Trisk Service Dept.

1. Remove cassette assembly box from the main packaging together with the main upright column and arm assembly. Remove the base unit and attach castors with the braked castors at the rear of the base (see Fig. 1). Ensure that you have a flat floor and apply the brakes on the rear castors. Remove all packaging.

**CAUTION: DO NOT OPERATE GAS STRUT LEVER UNTIL THE CASSETTE ASSEMBLY IS FITTED ON THE ARM. THIS GAS STRUT IS PRESSURISED AND WILL EXTEND THE ARM FIERCELY WHEN THE LEVER IS DEPRESSED IF THE CASSETTES ARE NOT ATTACHED.**

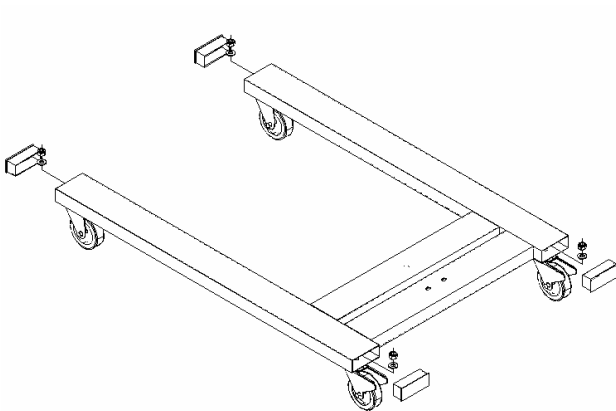


Fig. 1

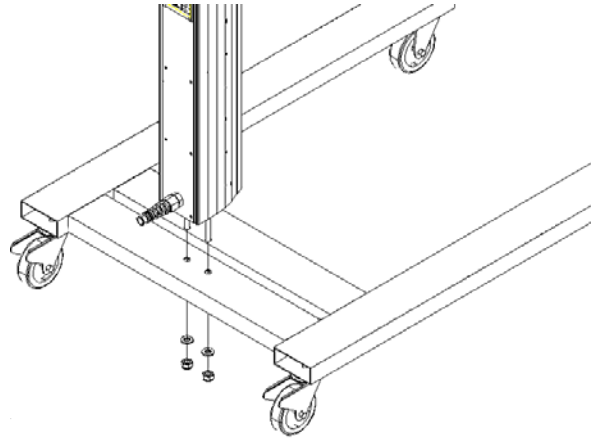


Fig. 2

2. To assemble the upright, undo the nuts and washers from the bolts at the base of the column. Carefully insert the column bolts into the corresponding holes in the base with the column control fascia to the rear (see Fig. 2). Refit washers and locknuts to column bolts by hand and then use a 19mm AF spanner to fully tighten. **Do not over tighten.** Test the upright for rigidity in relation to the base.

3.

## **ETS 2d, ETS 2dt, ETS 3d & ETS 3dt**

Undo the ratchet lever from the end of the swivel bolt on the underside of the socket housing. Slide on the cassette assembly, refit the ratchet lever and tighten until the cassette assembly is fairly stiff to move (see Fig. 3).

- |                      |   |
|----------------------|---|
| DIN plug             | - DIN socket (make sure that this is inserted in the correct orientation) |
| Top cassette plug    | - Top Socket  |
| Middle cassette plug | - Middle socket   |
| Bottom cassette plug | - Bottom socket   |

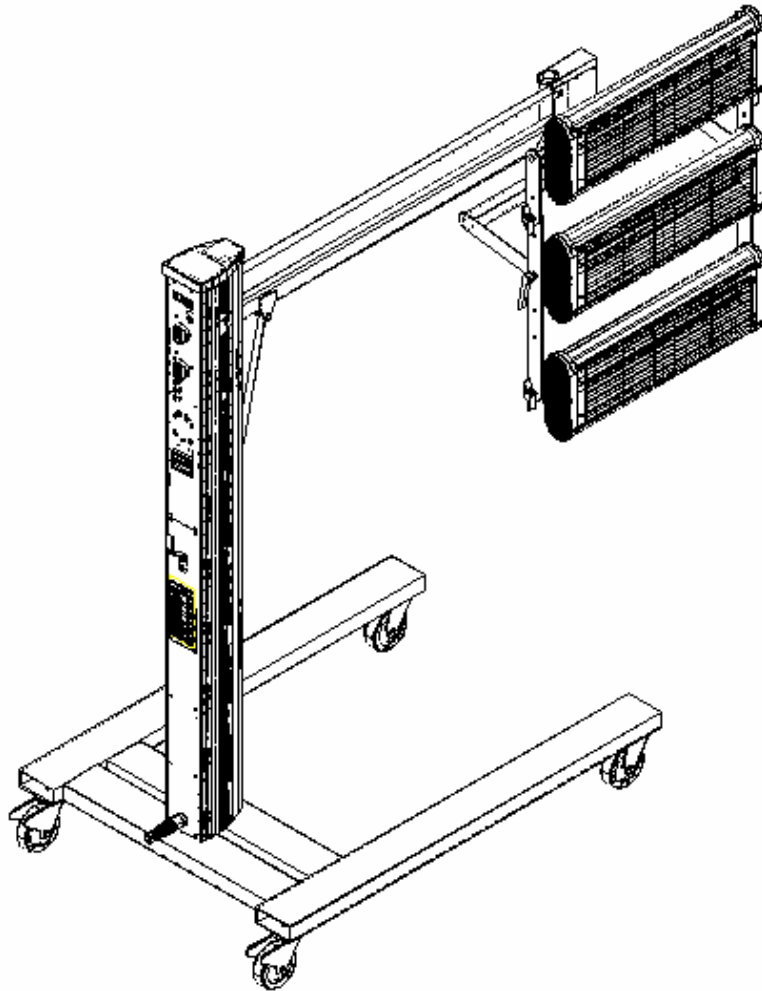


Fig. 3

### ETS 5d & ETS 5dt

Remove the M12 plastic cap, locknut and washer from the pivot bolt on the underside of the socket housing. Position the cross-bar on the pivot bolt, refit the locknut and washer and tighten until the arm is fairly stiff to move (see Fig. 4). Fit the plastic cap onto the locknut. The cassette / backbar assemblies are colour coded (see Fig. 5) – the left hand cassette assembly is marked red, the right-hand assembly is marked green. Attach the cassette assemblies to the cross-bar using the M12 bolts, washers and locknuts supplied (see Fig. 4) and tighten the locknuts until the cassette assemblies are fairly stiff to move. Fit the plastic caps onto the locknuts.

DIN plug

- DIN socket (make sure that this is inserted in the correct orientation)

See Fig. 5 for further lamp to arm connection details

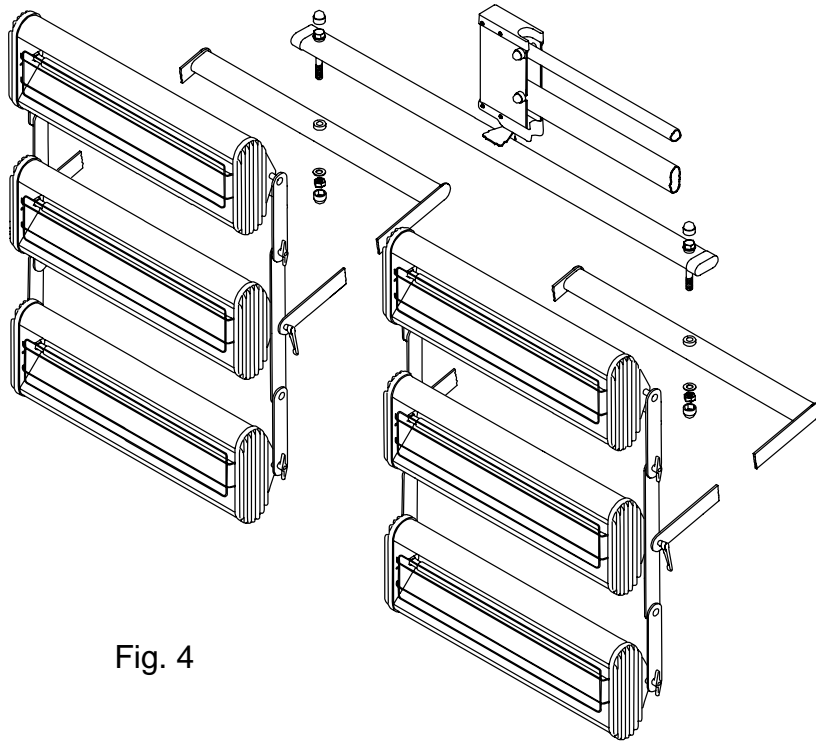


Fig. 4

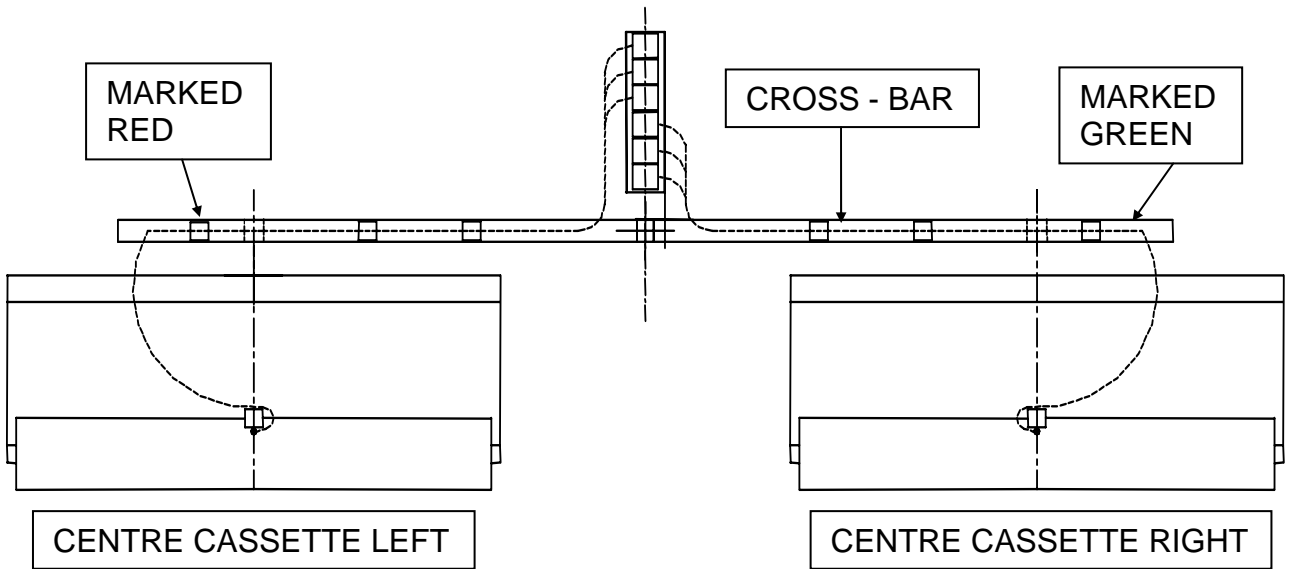


Fig. 5

4.

**ETS 2d, ETS 2dt, ETS 3d, ETS 3dt, ETS 5d & ETS 5dt**

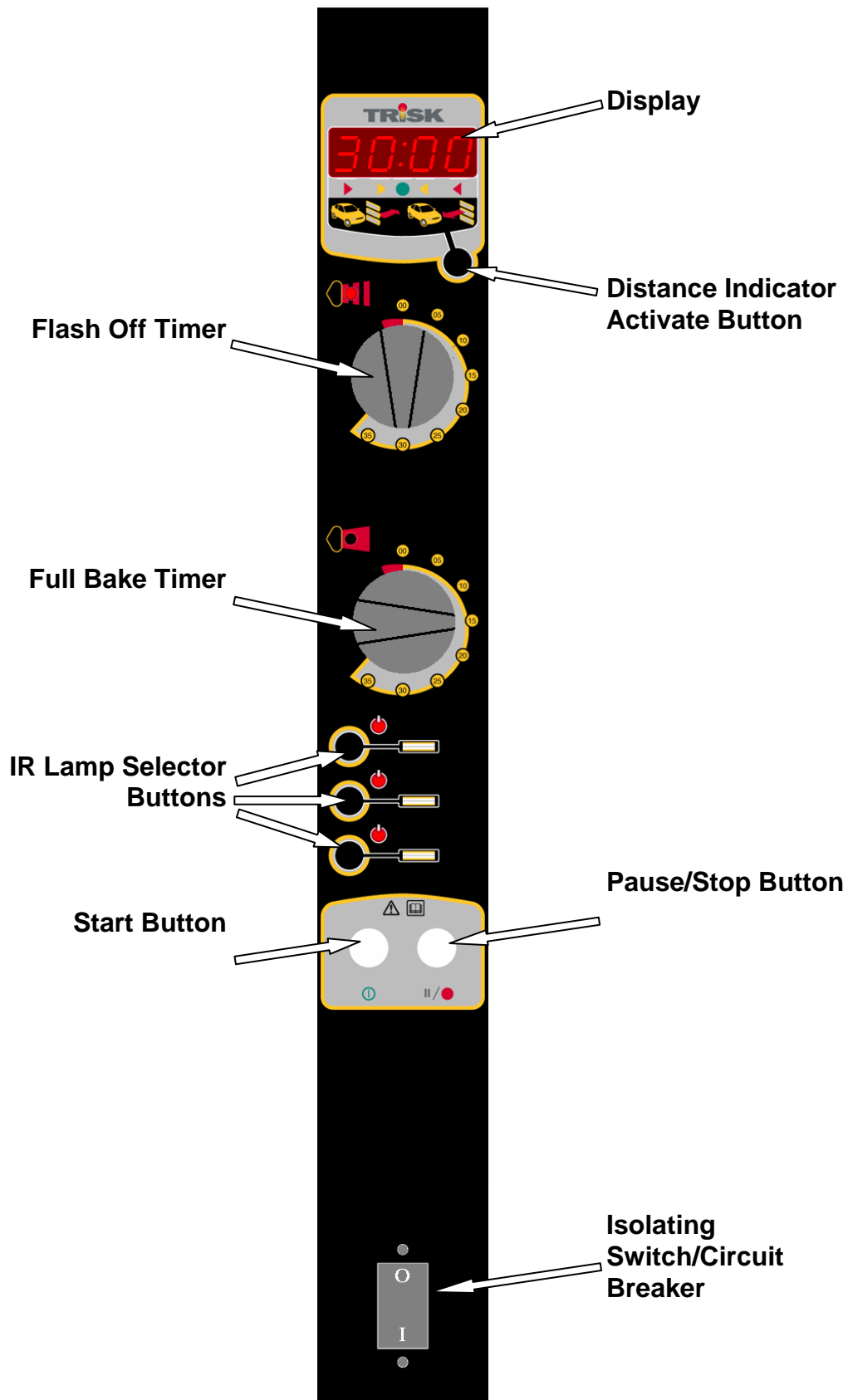
**THIS EQUIPMENT MUST BE GROUNDED**

These units are fitted with mains plugs at the factory. If it is necessary to fit an alternative plug it should be connected as described below:

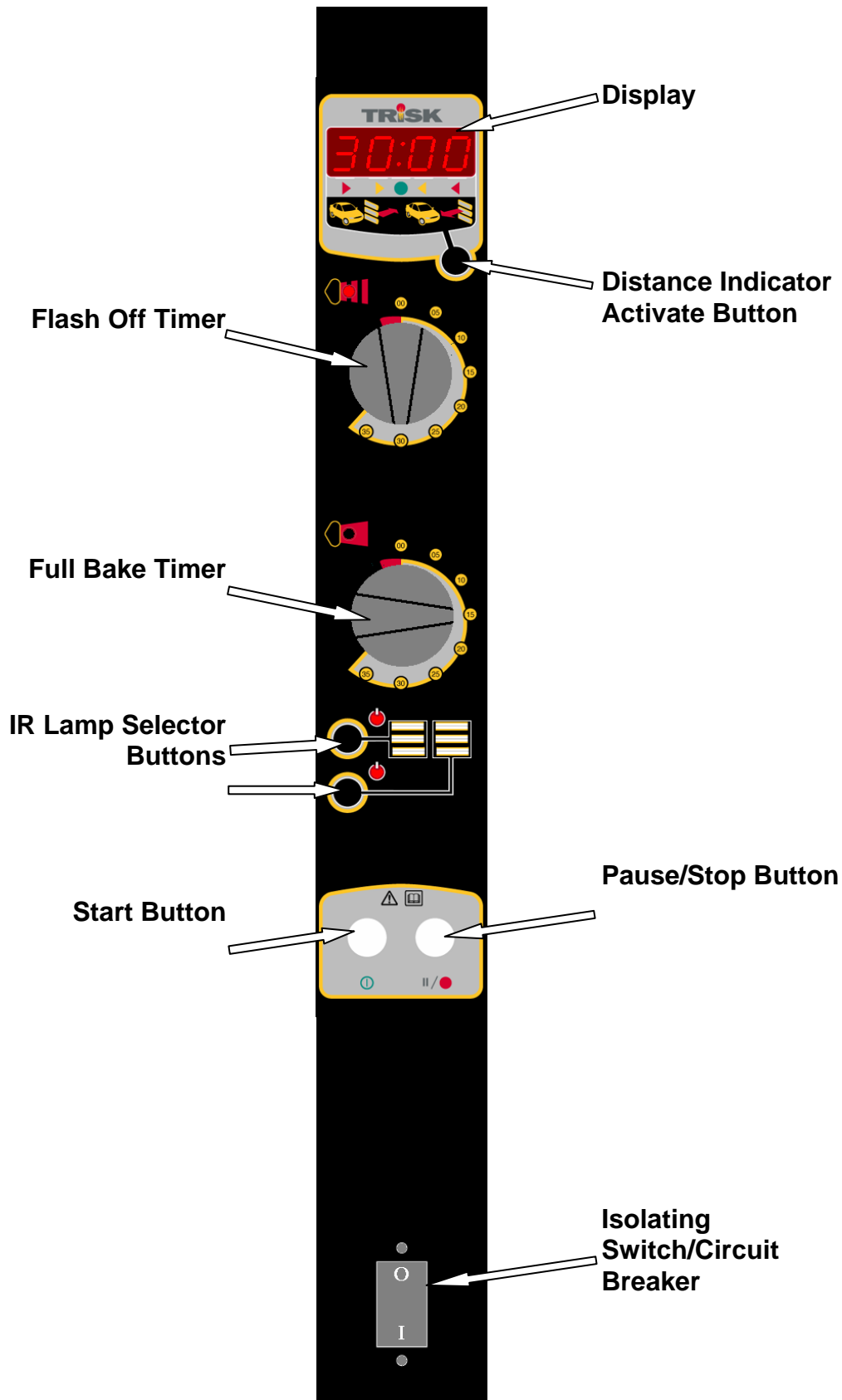
<u>Cable core</u>	<u>Connection</u>
1. BLACK	LINE
2. WHITE	NEUTRAL
3. GREEN	GROUND

**If in any doubt about electrical fittings please consult a qualified electrician or contact Edwin Trisk Service Department.**

## ETS2/3d Front Panel

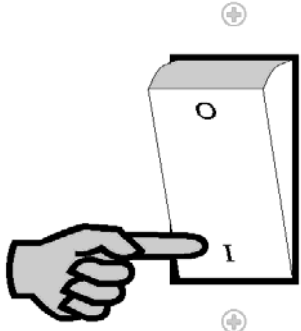
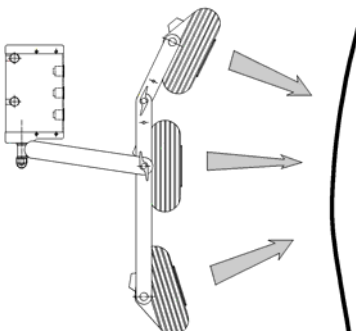
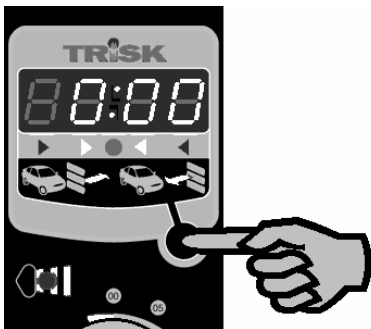
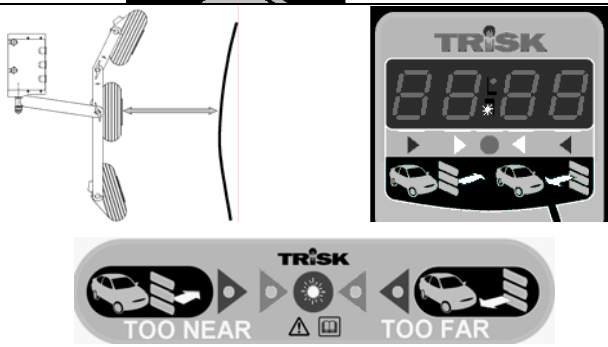


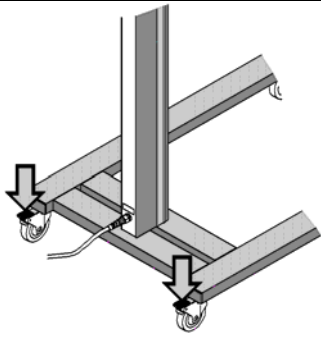

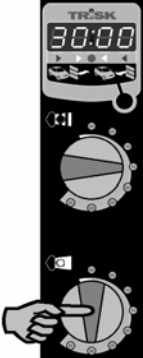
# ETS5d Control panel layout




# 4. OPERATING INSTRUCTIONS

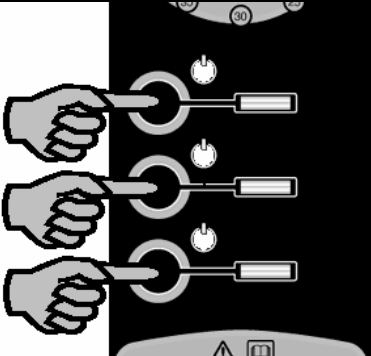
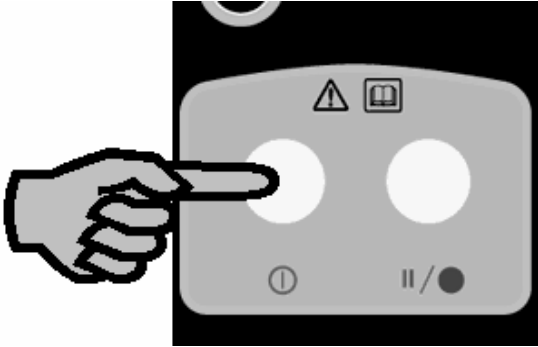
Ensure lamps are not energised before making any adjustments.

<p>1</p>	<p>SWITCH ON UNIT AT MAINS CIRCUIT BREAKER.</p> <p>(Display will illuminate.)</p>	
<p>2</p>	<p>ANGLE INFRA-RED CASSETTES TO POINT DIRECTLY AT SURFACE TO BE CURED.</p>	
<p>3</p>	<p>PRESS <b>DISTANCE INDICATOR</b> BUTTON ON CONTROL PANEL TO ACTIVATE DISTANCE INDICATOR.</p> <p>(Ensure that the overspray cover is <b>not</b> obstructing the distance sensor.)</p>	
<p>4</p>	<p>MOVE INFRA-RED CASSETTES TOWARDS THE PANEL, STOPPING WHEN THE GREEN LIGHT SHOWS ON THE CASSETTE ASSEMBLY (24" / 600mm OR 26" / 650mm ETS 3d &amp; ETS 3dt)</p> <p>THE DISTANCE CAN BE MODIFIED, IF REQUIRED, TO SUIT THE MATERIAL BEING CURED OR THE DISTANCE INDICATOR FUNCTION CAN BE TURNED OFF BY PRESSING THE DISTANCE INDICATOR BUTTON AS ABOVE</p>	

<p>5</p>	<p>LOCK REAR WHEELS OF UNIT TO AVOID ACCIDENTAL MOVEMENT.</p>	
<p>6</p>	<p>ADJUST <b>FLASHOFF TIMER</b> TO SET DESIRED FLASHOFF TIME ON DISPLAY.</p> <p>(This is the duration of half power output from the emitters.)</p>	
<p>7</p>	<p>ADJUST <b>FULLBAKE TIMER</b> TO SET DESIRED FULLBAKE TIME ON DISPLAY.</p> <p>(This is the duration of full power output from the emitters or, if applicable, the duration that the temperature control system will control the temperature.)</p>	

**IMPORTANT OPERATIONAL POINT:** Adjust the thermal sensor so that it is pointing at a flat part of the panel to be cured. The sensor must be at a right angle (or normal) to panel surface. This ensures the unit 'sees' the correct temperature of the panel. Failure to do this will result in imprecise temperature control. Set the desired temperature on the temperature controller.

<p>8</p>	<p><b>TEMPERATURE SETTING DETAILS.</b> The temperature at which the paint cures must be set as follows: The figure displayed by the controller is the temperature the unit can 'see', i.e. the panel temperature. Pressing the DOWN or UP buttons momentarily displays the target panel temperature, this is the temperature the unit will heat the panel up to. To adjust the target temperature, simply hold down the * button and press DOWN or UP until the desired temperature is displayed.</p>	
<p>9</p>	<p>USE LAMP SELECTION BUTTONS TO SELECT THE REQUIRED</p>	

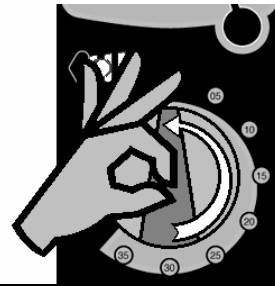
	<p>NUMBER OF INFRA-RED EMITTERS TO COVER THE RESPRAYED AREA.</p> <p>(A RED light shows that the emitter is selected.)</p>	
<p>10</p>	<p>PRESS <b>START</b> BUTTON TO BEGIN CURING.</p>	

**CURING WILL PROCEED AS FOLLOWS:**

- **FLASHOFF PERIOD,**

During the FLASHOFF time, the emitters will pulse: this is normal. The display shows flash-off time remaining:

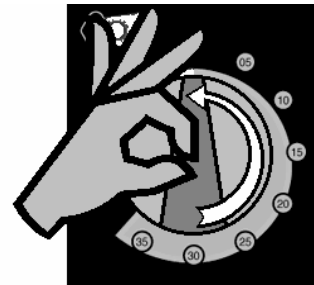
Flash-off can be finished early by turning the flash-off timer to 0.



- **FULLBAKE PERIOD,**

During the FULLBAKE time, if your unit is NOT a temperature control model, the emitters will be on continuously. If your unit does have the function to control the temperature, the emitters will pulse to keep the temperature constant. The display shows full-bake time remaining:

Full-bake can be finished early by turning the full-bake timer to 0.



- **CURING COMPLETE,**

When the curing cycle is complete, an ALARM will sound and the display will flash.

The unit is now ready to be used again.

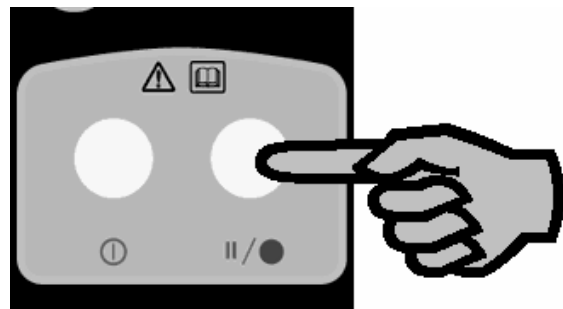


- **PAUSING THE CURING PROCESS,**

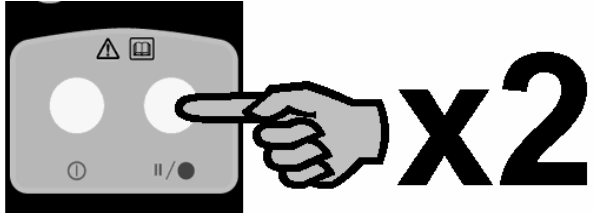
The curing process can be paused at any time by pressing the **PAUSE/STOP** button once.

The emitters switch off and the display shows time remaining:

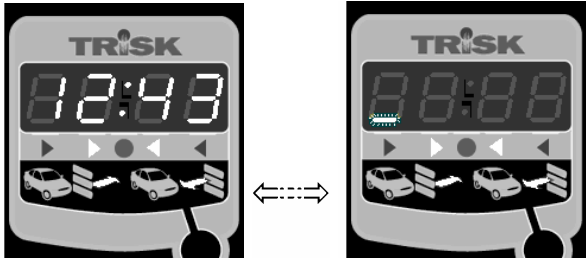
(Curing is resumed by pressing the **START** button.)



- **STOPPING THE CURING PROCESS,**

<p>To abort the curing process and allow the timers to be set again, press the <b>PAUSE/STOP</b> button TWICE.</p> <p>The emitters will switch off and the unit is then ready to be set again.</p>	
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- **THE DISTANCE CHECKING FEATURE**

<p>DISTANCE CHECKING will take place while curing. If the emitters are positioned closer than 475 mm from the painted surface, the emitters will be turned off and an ALARM will sound.</p> <p>When the emitters are moved to the correct distance, curing will resume automatically.</p> <p>(DISTANCE CHECKING can be disabled by pressing the <b>DISTANCE INDICATOR BUTTON</b>.)</p>	<p>Display indicates “too close”.</p> 
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**IMPORTANT NOTES:**

1. The distance indicator produces an **audible clicking** sound when operating. This is normal.
2. The distance sensor **must not** be obstructed by the overspray cover when the machine is being used. (The cover should be closed when not in use to prevent overspray contamination.)
3. Timer knobs **will not** move during curing. The display shows the time remaining.

# **5. PAINT CURING INFORMATION**

## **5.1. PAINT CURE TIMES**

The table below gives a guide for different finishes:

<b>PAINT TYPE</b>	<b>FLASH OFF*</b>	<b>FULL BAKE</b>
Filler/Stopper	--	5 - 7 minutes
Primer	--	6 - 8 minutes
Hi-Build	--	10 -12 minutes
Solid-Colour	--	11 minutes
Clear Coat	--	12 minutes
Waterborne Primer	--	8 -10 minutes
Waterborne Basecoat	--	5 minutes

\*All the above times are based upon FULL BAKE cycles although some coatings require a FLASH OFF / half power setting. This is normally used on coatings with a high film build and also on dark colours. This setting is used for approximately 5 minutes before Full Bake.

For detailed curing information, contact your local TRISK distributor for a data sheet. Paints from Akzo Coatings, B.A.S.F., De Beer, Du Pont / Herberts / Spies Hecker (DPC), P.P.G. / ICI / Maxmeyer (NEXA), Sherwin Williams and Martin Senour are included in this information.

## 5.2. PAINT CURE FAULT FINDING

PROBLEM	POSSIBLE CAUSE	POSSIBLE SOLUTION
SOLVENT POPPING	Unit too close to panel Insufficient flash off time Paint system has a fast thinner	Move unit further away Increase flash off time Use a standard or slow thinner
UNDER CURE OR SOFTNESS OF THE PAINT FILM	Unit too far away Insufficient bake time Excessive film weight	Move unit closer Increase full bake time Apply lighter coats
SOFTNESS ON EDGES OF REPAIR	Repair too large for I.R. unit	Split area into two, move unit for 2nd application. If flash off is used, it will not be necessary on 2 <sup>nd</sup> application
DIFFICULTY IN POLISHING OUT DIRT NIBS	Too long on bake cycle Unit too close to panel	Reduce cure time Move unit further away
UNEVEN CURE	IR cassettes not shaped to contours of repair	Adjust IR cassettes for even heat distribution

## **6. GENERAL MAINTENANCE**

### **6.1. MAINTENANCE SCHEDULE**

TASK	CHECKING PERIOD
Ensure that all operators are fully trained for use of equipment	Continuously
Ensure that equipment is grounded	Continuously
Check Infra Red lamps for cracks (lamps OFF) and functionality	Daily
Check reflectors for correct positioning and imperfections	Weekly
Check fasteners for suitable tensions	Weekly
Check fasteners between cassette and arm	Weekly
Ensure that all warning labels are in place and easily legible	Weekly
Inspect all wires, cables and sockets for imperfections	Weekly
Check internal wiring for imperfections	Monthly
Check gas strut for adequate force and support	Monthly
Grease castors	Yearly

## 6.2. BASIC MAINTENANCE PROCEDURES

### REFLECTOR CLEANING

1. Disconnect the unit from the mains power supply.
2. Allow the cassette to cool down to room temperature if necessary.
3. Remove the contamination on the reflector using a soft cloth with a solvent such as IPA or Methylated Spirits.
4. Allow 15 minutes for the solvent to dissipate before switching the unit back on.

### INFRA-RED EMITTER REPLACEMENT

1. Check that the replacement has the correct voltage and wattage ratings. Check the old emitter end caps if in doubt.
2. Ensure that the unit is disconnected from the mains power supply.
3. Remove the wire grille from the front of the cassette.
4. Remove the self-tapping screws that hold the side reflectors into the cassette. A small screwdriver will be necessary to lift the side reflector from the cassette.
5. When the side reflector is removed, take note of the cable positions before removing the old emitter.
6. The in-line connectors can be separated by hand, but a better solution is to use two pairs of long nosed pliers; one to hold each connector when separating the wires.
7. Fit the new Infra-Red Emitter to the sockets in the cassette. To avoid touching the ruby sleeve with bare hands, use tissue paper when handling.
8. Reconnect the Infra-Red Emitters to the cassette wiring, taking care to replace the wires in the original positions.
9. Fit the side reflectors and then the clean ruby sleeve and reflectors with IPA or Methylated Spirits.
10. Refit the grille.
11. Allow 15 minutes for the solvent to dissipate before switching the unit back on.

## MAINS CABLE REPLACEMENT

1. Ensure that the unit has been disconnected and isolated from the mains supply, i.e. remove mains plug from the supply.
2. Remove the 6 screws that hold the cable gland cover to the column. The cover can be eased away from the column, exposing the connections to the mains cable.
3. Disconnect the mains input cable from the terminal block on the gland cover.
4. Cut the tie wrap holding the cables to the terminal block.
5. Disconnect the mains cable earth from the cover earth stud.
6. Undo the clamping nut on the spiral gland to release the old mains cable.
7. **Make sure new mains cable is of the same type as the original cable.**
8. Strip the sheath 11" / 270 mm. from the cable before inserting into the spiral gland.
9. Fasten cable clamp onto sheath of mains cable allowing a minimum of 0.2" / 5mm of sheath to extend beyond cable gland.
10. Refit cable tie wrap to tidy cables.
11. Tighten nut on spiral gland.
12. Connect cables as below

<b>CABLE CORE</b>	<b>CONNECTION</b>
<b>BLACK</b>	<b>LINE</b>
<b>WHITE</b>	<b>NEUTRAL</b>
<b>GREEN</b>	<b>GROUND</b>

**If in any doubt about any electrical fitting please contact your local qualified electrician or contact Edwin Trisk service department.**

## **7. IN THE EVENT OF A FAILURE**

Please note the following details before phoning your TRISK distributor:

1. SERIAL NUMBER\*
2. MODEL NUMBER
3. DATE OF PURCHASE
4. EXPLANATION OF PROBLEM
5. LOCATION OF DAMAGED PARTS
6. HOW THE DAMAGE WAS CAUSED

\*To be found at the base of the upright

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