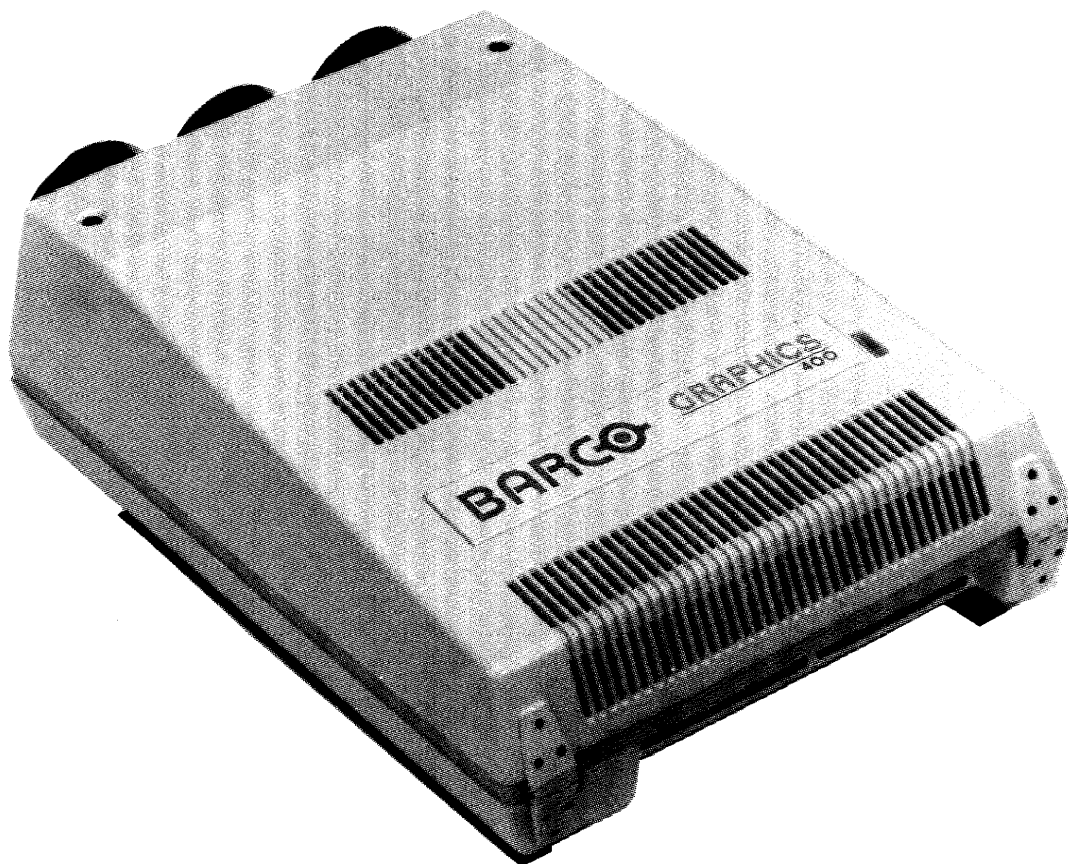


BARCO



BARCO **GRAPHICS**
400

90 00190

90 00199 — Same as 190 except setup
for 110V at factory

SERVICE MANUAL

DATE :
06/05/88

ART. NR. :
59 75682

OMTRENT DEZE MANUAL :

Deze manual bevat algemene informatie over de projector en "service sheets" met specifieke informatie over de afzonderlijke printen van de projector.
De bladzijden met algemene informatie hebben opeenvolgende paginanummers, maar de "service sheets" zijn aangeduid door de nummers van de afzonderlijke printen als referentienummers.

SUR CE MANUEL :

Ce manuel contient des informations générales sur le projecteur entier et des "service sheets" contenant des informations sur les platines différentes du projecteur.
Les pages générales sont paginées successivement tandis que les "service sheets" sont cotées par le numéro d'article de la platine particulière.

ABOUT THIS MANUAL

This manual contains general information about the entire projector and "service sheets" with specific information about the different boards in the projector.
The general pages are numbered successively, but the service sheets are indicated by the part number of the particular board.

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- Lens cleaning procedure - Procedure d'entretien des lentilles	11
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- Service sheets	<u>Ref. nr.</u>
- 110/220 VAC. Mains input board	76 11802
- Horizontal deflection + EHT board	76 1265
- NS - Correction + Horizontal shift board	76 1268
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- Convergence module	76 1284
- G2 control board	76 1285
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- RGB 100 MHz output board	76 1440
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- DC fans control board	76 1473
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- 110/220 VAC. Mains input board	76 1548
- Control switch box	79 15512
- Replacement of a picture tube	76 1546X
- List of Spare parts	
- Appendix A : List of modifications	
- Appendix B : Glossary	

1. X-RADIATION.

Because the picture tube is the primary potential source of X-radiation, this set is specially constructed to prohibit X-radiation emissions. The replacement picture tube must be the same type as the original. However, to avoid possible exposure to soft X-radiation, ensure that all X-ray shields are in place before completing service.

DO NOT OPERATE THIS SET WITHOUT LENSES AND SHIELDS IN PLACE.

2. HIGH VOLTAGE

This projector chassis contains HIGH VOLTAGES derived from power supplies capable of delivering LETHAL quantities of energy. To avoid DANGER TO LIFE, do not attempt to service the chassis until all precautions necessary for working on HIGH VOLTAGE equipment have been observed. In order to prevent damage to solid state devices, do not arc picture tube anode lead to chassis or earth ground.

High voltage is maintained within specified limits by safety-related components/adjustments in the high voltage circuit. If the high voltage exceeds the specified limits (projector in "hold down"), check each component specified on the schematic and take corrective action.

CAUTION : This chasis uses high voltage (34.7 kV) on the picture tube.

3. CRT HANDLING

The picture tube encloses a high vacuum and care must be taken not to bump or scratch the picture tube as this may cause the tube to implode resulting in personal injury and property damage. Shatter-proof goggles must always be worn by individuals while handling the CRT or installing it in the projector. People not so equipped must be kept safely away while picture tubes are handled. Keep the picture tube away from your body. Do not handle the picture tube by its neck.


WARNING : X-RADIATION WARNING

REPLACEMENT OF CRITICAL COMPONENTS OF THIS APPARATUS (PICTURE TUBE AND OTHER) CAN RESULT IN EXCESSIVE X-RADIATION.

THESE COMPONENTS ARE MARKED IN THE SERVICE MANUAL BY AN * .
REPLACE ONLY BY CONFORM TYPES.

WARNING : SAFETY

REPLACEMENT OF CRITICAL COMPONENTS OF THIS APPARATUS CAN RESULT IN ELECTRIC SHOCK OR FIRE HAZARD.

THESE COMPONENTS ARE MARKED IN THE SERVICE MANUAL BY  .
REPLACE ONLY BY CONFORM TYPES.

PRODUCT SAFETY SERVICING GUIDELINES.

CAUTION

No modification af any circuit should be attempted. Service work should be performed only after you are thoroughly familiar with all of the following safety checks and servicing guidelines. To do otherwise increases the risk of potential hazards and injury to the user.

GENERAL SERVICING PRECAUTIONS

Always unplug the projector AC power cord from the AC power source before removing or re-installing any component, module or any other instrument assembly.

Test high voltage only by measuring it with an appropriate high voltage probe and a voltage measuring device. Do not test high voltage by 'drawing an arc'.

Do not spray chemicals on or near the projector or any of its assemblies.

Do not apply AC power to this projector unless all solid-state device heat sinks are correctly installed.

Always connect the test instrument ground lead to the appropriate projector ground before connecting the test instrument positive lead.

FIRE AND SHOCK HAZARD

Do not install, remove, or handle the picture tubes in any manner unless shatter-proof goggles are worn. People not so equipped should be kept away while picture tubes are handled. Keep the picture tube away from the body while handling.

When service is required, observe the original lead dress. Extra precaution should be taken to assure correct lead dress in the high voltage circuitry area. When a short circuit has occurred, replace the components that indicate evidence of overheating. Always use the manufacturer's replacement component.

Protection shields are provided on this chassis for the protection of both service technician and the customer. Protective shields removed for servicing reinstalled and ANY MISSING SHIELD MUST BE REPLACED.

Check for frayed insulation on wires including A.C.Cord.

Check across-the-line components for damage and replace if necessary.

ELECTROSTATICALLY SENSITIVE (ES) DEVICES

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called ELECTROSTATICALLY SENSITIVE (ES) DEVICES. Examples of typical ES devices are integrated circuits and some field-effect transistors and semiconductor 'chip' components. The following techniques should be used to help reduce the incidence of component damage caused by static electricity.

Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground.

After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminium foil, to prevent electrostatic charge buildup or exposure of the assembly.

Use only a grounded-tip soldering iron to solder or unsolder ES devices.

Use only an anti-static type solder removal device. Some solder removal devices not classified as 'anti-static' can generate electrical charges sufficient to damage ES devices.

Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.

Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminium foil or comparable conductive material.)

Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed. CAUTION : Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.

Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ES device.)

MAINS WIRE CONNECTION

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows :

The wire which is coloured Green and Yellow must be connected to the terminal in the plug which is marked by the letter E or by the safety earth symbol \$ or coloured green and yellow.

The wire which is coloured Blue must be connected to the terminal which is marked with the letter N or coloured black.

The wire which is coloured Brown must be connected to the terminal which is marked with the letter L or coloured red.

WARNING : This apparatus must be earthed.

IMPORTANT : The wires of the mains lead are coloured in accordance with the following code :

green and yellow	: earth
blue	: neutral
brown	: live

To minimize the possibility of damaging the optical coating or scratching exposed lens surfaces, the following recommendations have to be strictly followed :

First : We recommend you try to remove any material from the lens by blowing it off with deionized air or LIGHTLY brushing it with a soft, camel's hair brush.

Second :

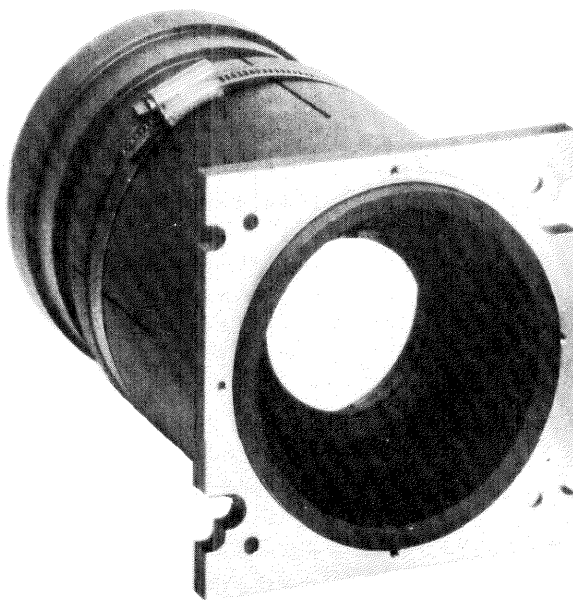
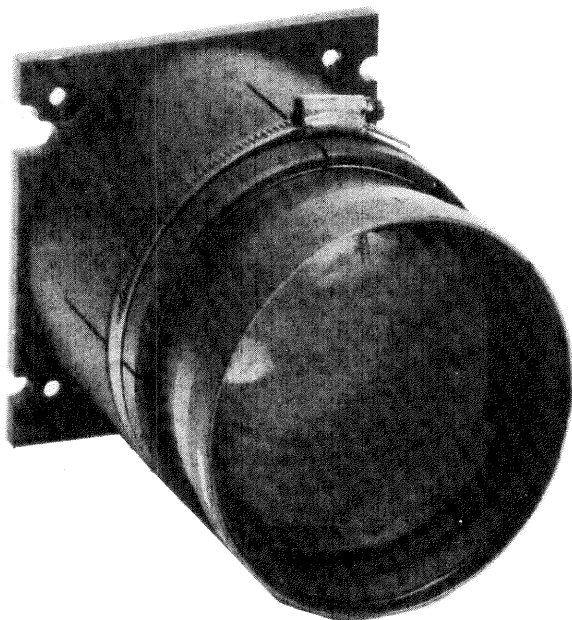
- We recommend the use of distilled water or a typical glass cleaning fluid (e.g. Glassex or equivalent)
- Use any soft roll tissue (i.e. Charmin, Softweve or equivalent).
- Wet the tissue with the liquid and lightly wipe the surface clean.
Then lightly dry the surface with a clean piece of SOFT tissue.

Afin de réduire la possibilité éventuelle d'abîmer la couche optique ou de provoquer des rayures sur la surface des lentilles exposée au minimum, les conseils suivants doivent être suivis strictement :

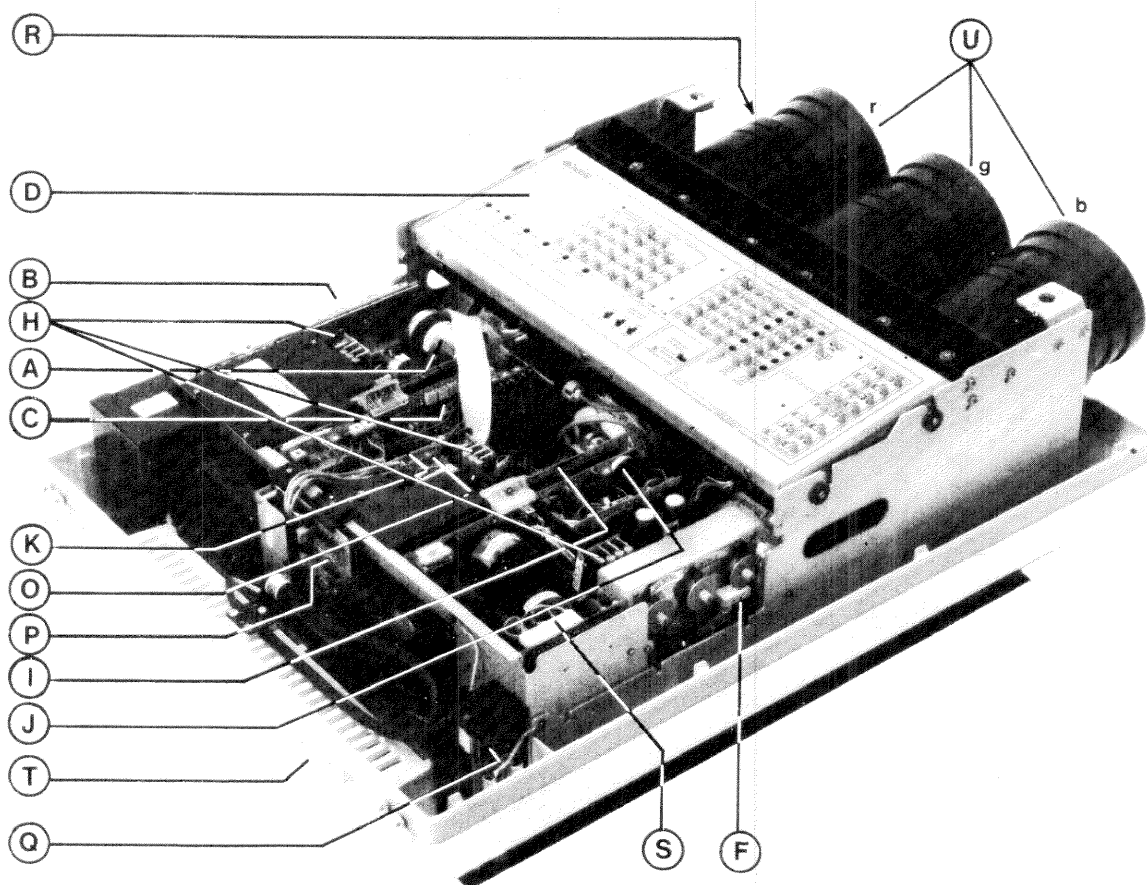
Premièrement : Nous vous conseillons d'essayer d'ôter toutes poussières en soufflant de l'air déionisé ou en brossant à l'aide d'un pinceau en poil de chameau.

Deuxièmement :

- Nous vous recommandons l'utilisation de l'eau distillée ou d'une liquide spécifique pour la nettoyage de verre (p.e. Glassex ou quelque chose pareille)
- Utiliser toujours une pièce de tissu doux.
- Humecter le tissu avec le liquide et nettoyer les surfaces.
Ensuite, sécher doucement la surface avec une pièce de tissu propre et DOUX.



22X glass lenses



A	Horizontal deflection + EHT board -----	761265
B	North-South correction + Horizontal shift board ---	761268
C	Vertical deflection + sync module -----	761274
D	Convergence module -----	761284
E	G2 control board -----	761285
F	Electrical Focus control board -----	7613841
G	Frame CPL board -----	761395
H	RGB 100 MHz output board -----	761440
I	RGB 100 MHz driver board -----	761441
J	Switch mode power supply module -----	761442
K	Input RGB-analog board -----	761443
L	CRT socket red -----	7614522
M	" green -----	7614525
N	" blue -----	7614526
O	Video input + convergence generator board ----	761470
P	Input RGB-TTL board -----	761471
Q	DC-fan control board -----	761473
R	Autolock board -----	761479
S	110/220 VAC. Mains input board -----	761548
	or -----	7611802
T	Control switch box -----	791395
U	Lens 22X -----	130982

Remarks : see next page

Opmerkingen :

- 110 VAC. Mains input board n°7611802 is gebruikt tot eind 1987.
110 VAC. Mains input board n°761548 is gebruikt vanaf begin 1988.
- G2 control board n° 761285 is gemonteerd in de convergentiemodule n° 761284.
- CRT 's n°761546X zijn op de foto onzichtbaar onder de convergentiemodule.
- Autolock board n° 761479 is vooraan in de projector gemonteerd, onder de lenzen.
- Frame CPL board is op de bodem van de projector gemonteerd.
- Andere lenzen kunnen besteld worden :
 - * 14X : kit n° 98 26150
 - * 27X : kit n° 98 26500

Remarks :

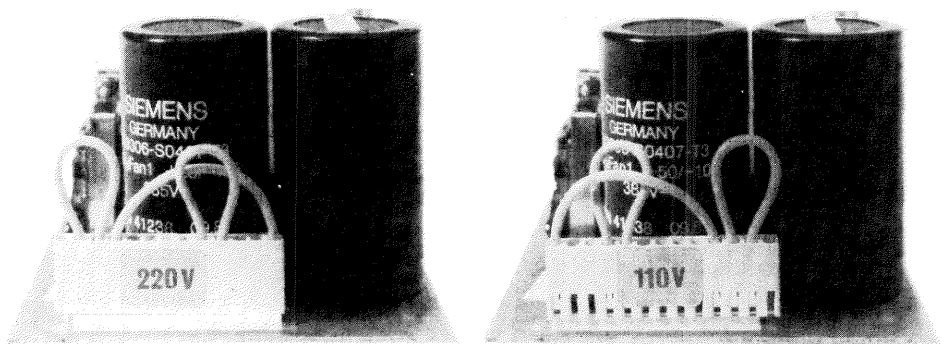
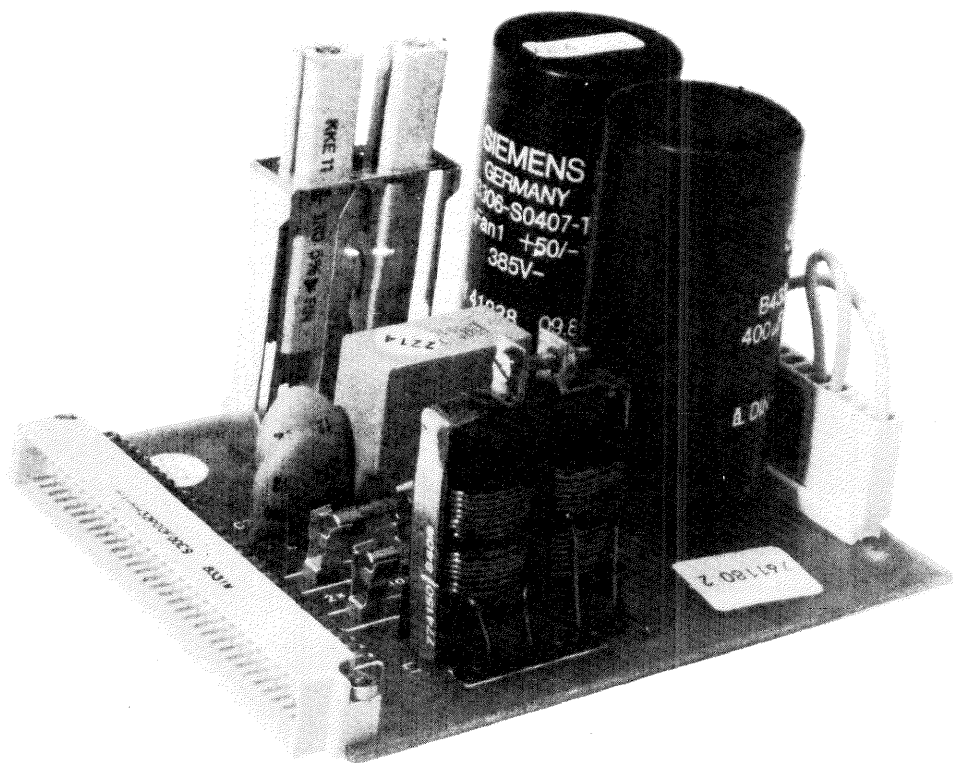
- Mains input board n° 7611802 is used up to the end of 1987.
Mains input board n° 761548 is used from the beginning of 1988.
- G2 control board n° 761285 is mounted in the Convergence module n° 761284.
- CRT's n° 761546X are invisible under the convergence module on the photograph.
- Autolock board n° 761479 is mounted under the lenses.
- Frame CPL board n° 761395 is mounted on the bottom of the projector.
- Other lenses can be ordered :
 - * 14X : kit n° 98 26150
 - * 27X : kit n° 98 26500

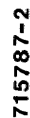
Remarques :

- 110 VAC. Mains input board n° 7611802 est utilisé jusqu'au fin de 1987.
110 VAC. Mains input board n° 761548 est utilisé depuis le début de 1988.
- G2 control board n° 761285 est monté dans la module de convergence n° 761284.
- Autolock board n° 761479 est monté sous les lentilles.
- Frame CPL board n° 761395 est monté sur le fond du projecteur.
- CRT's n° 761546X sont invisibles sous la module de convergence sur le photo.
- Autres lentilles peuvent être commandées :
 - * 14X : kit n° 98 26150
 - * 27X : kit n° 98 26500

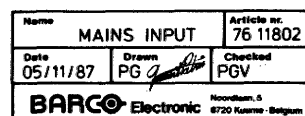
Bemerkungen :

- Mains input board n° 7611802 ist verwendet bis Ende 1987.
Mains input board n° 761548 ist verwendet von Anfang 1988.
- G2 control board n° 761285 ist montiert im Konvergenzmodul n° 761284.
- CRT's n° 761546X sind unsichtbar unter dem Konvergenzmodul auf dem photo.
- Autolock board n° 761479 ist montiert unter den Linsen.
- Frame CPL board n° 761395 ist montiert auf dem Boden des Projektors.
- Andere Linsen können bestellt werden :
 - * 14X : kit n° 98 26150
 - * 27X : kit n° 98 26500





MODIFICATIONS RESERVED



ITEM NO.	SIT.	DESCRIPTION	ITEM NO.	SIT.	DESCRIPTION
11 4716	C..1	CAPACITOR POSAPO 1M M AC250	10 4401	R..1	RESISTOR WW V 1E K 11W
11 4722	C..2	CAPACITOR CESA Y 2K2 M 400	10 4401	R..2	RESISTOR WW V 1E K 11W
11 4722	C..3	CAPACITOR CESA Y 2K2 M 400	10 1266	R..3	RESISTOR CF 330K J OW50
11 1655	C..4	CAPACITOR ELRA 400M T 385			
11 1655	C..5	CAPACITOR ELRA 400M T 385	31 3525	001.	CONNECTOR EURO MOBSE P64
			36 7435	0011	RIVET AL AL AD34ABS D2,4
31 41041	F..1	FUSE 4A 5X20 SLOW	71 4831	002.	RESISTOR WW V HOLDER PJ
31 41041	F..2	FUSE 4A 5X20 SLOW	71 2792	003.	RESISTOR WW V HOLDER H15
77 4150	L..1	COIL CHOKE MAINS DATA	31 4514	004.	FUSE 5X20 CAP+HOLDER
10 5018	NTC1	RESISTOR NTC 4E7 2W	71 4943	005.	SPACER RIV L10,75D7 M3 AL
10 5018	NTC2	RESISTOR NTC 4E7 2W	31 3472	006.	CONNECTOR SL MOBTE P12
			13 3036	007.	SPACER L 6 D 6 D2,4 CER
71 5787	PC..	PC DATA2B MAINS INP 7611802			

