TECHNICAL MANUAL

Quality Uncompromised

ROTEL®

RA-820AX

STEREO INTEGRATED AMPLIFIER

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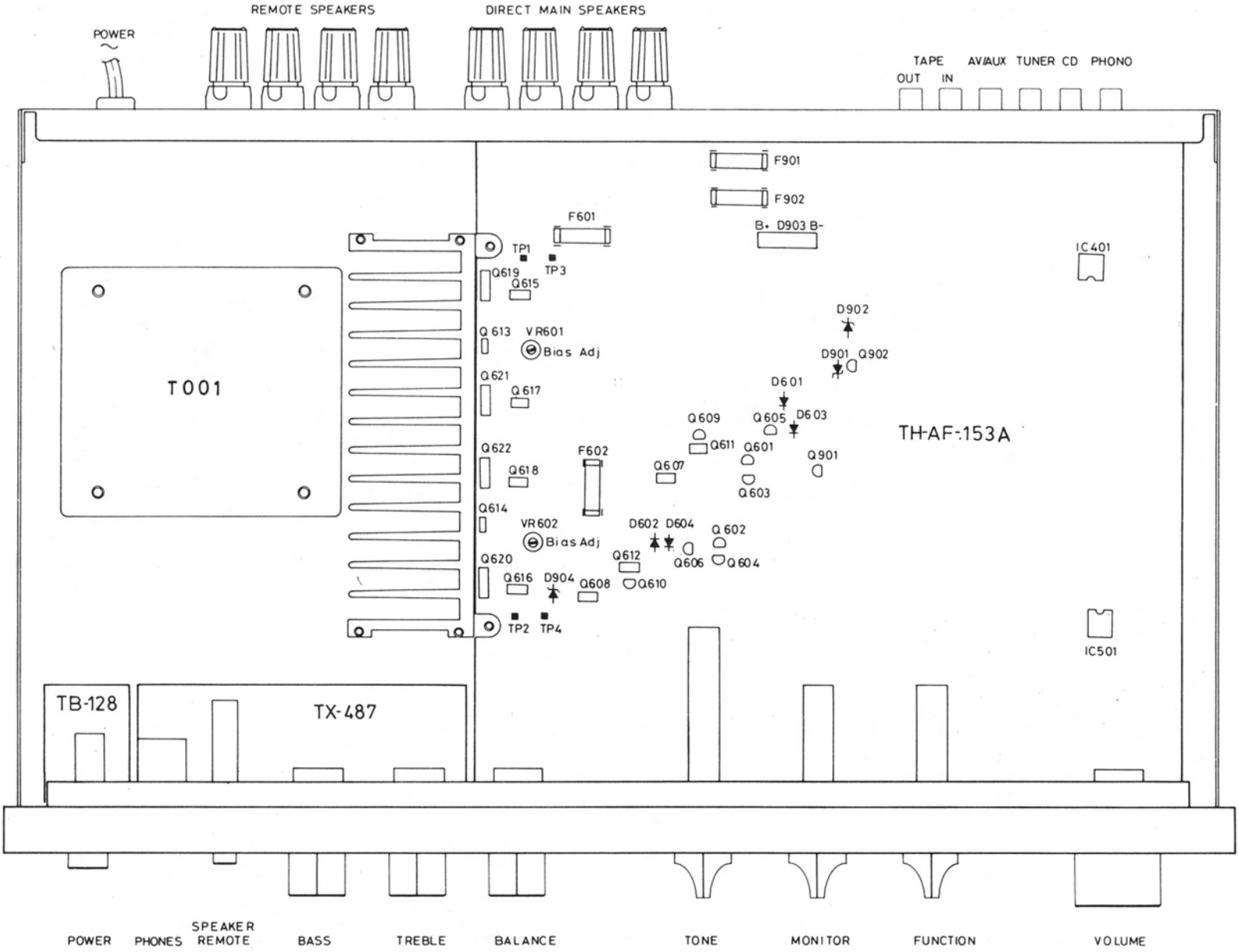
THE ROTEL CO., LTD.
1-36-8 OHOKAYAMA, MEGURO-KU, TOKYO 152, JAPAN

ROTEL ELECTRONICS CO., LTD.
ROTEL BLDG., 3F. NO. 35, FUSING N. ROAD, TAIPEI, TAIWAN, REPUBLIC OF CHINA

Chassis Layout



Power Amplifier Bias Adjustment

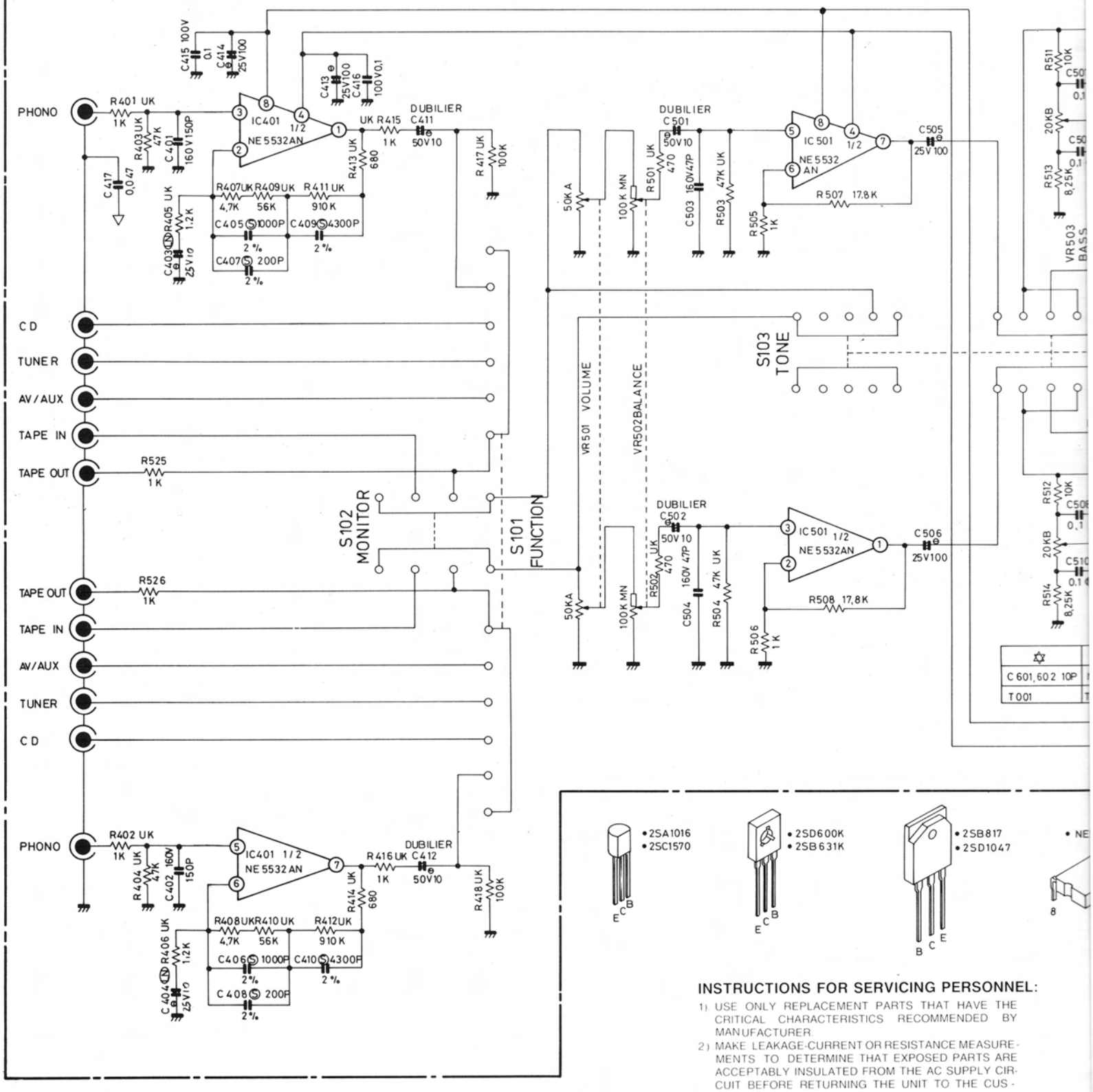
Instruments: DC milli-voltmeter

Notes: Prior to Bias Adjustment, run about 5 minutes with rated output (8 ohm) and warm up Power Transistor and Heat Sink.
Set Volume Control to Minimum.

Step	Coupling		Adjust	Adjust for
	Plus Lead	Minus Lead		
1	TP1	TP3	VR601	DC milli-voltmeter reads 4 mV
2	TP2	TP4	VR602	

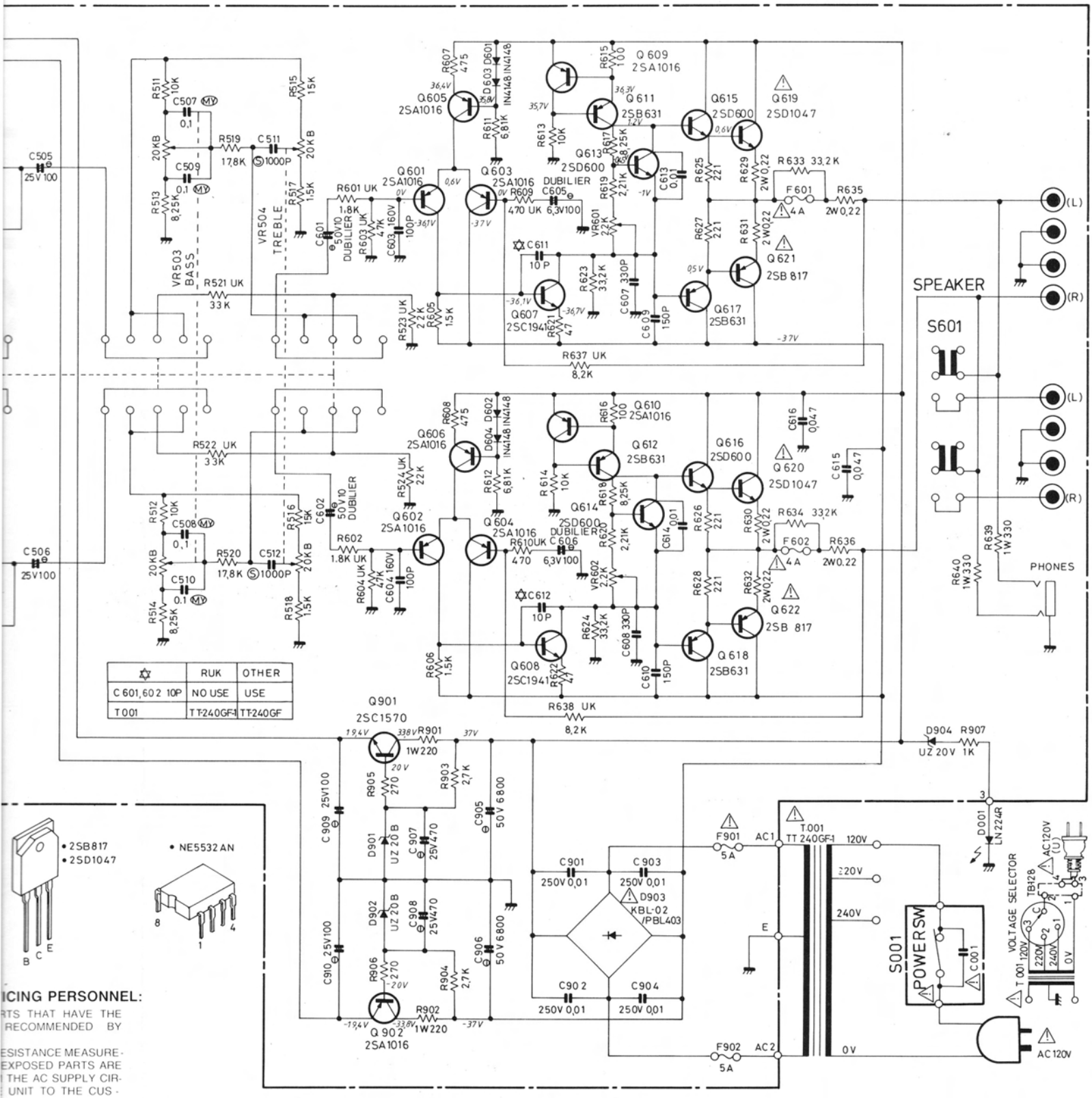
Schematic Diagram

NOTE: PARTS AND CIRCUIT SUBJECT TO CHANGES FOR IMPROVEMENTS WITHOUT PRIOR NOTICE

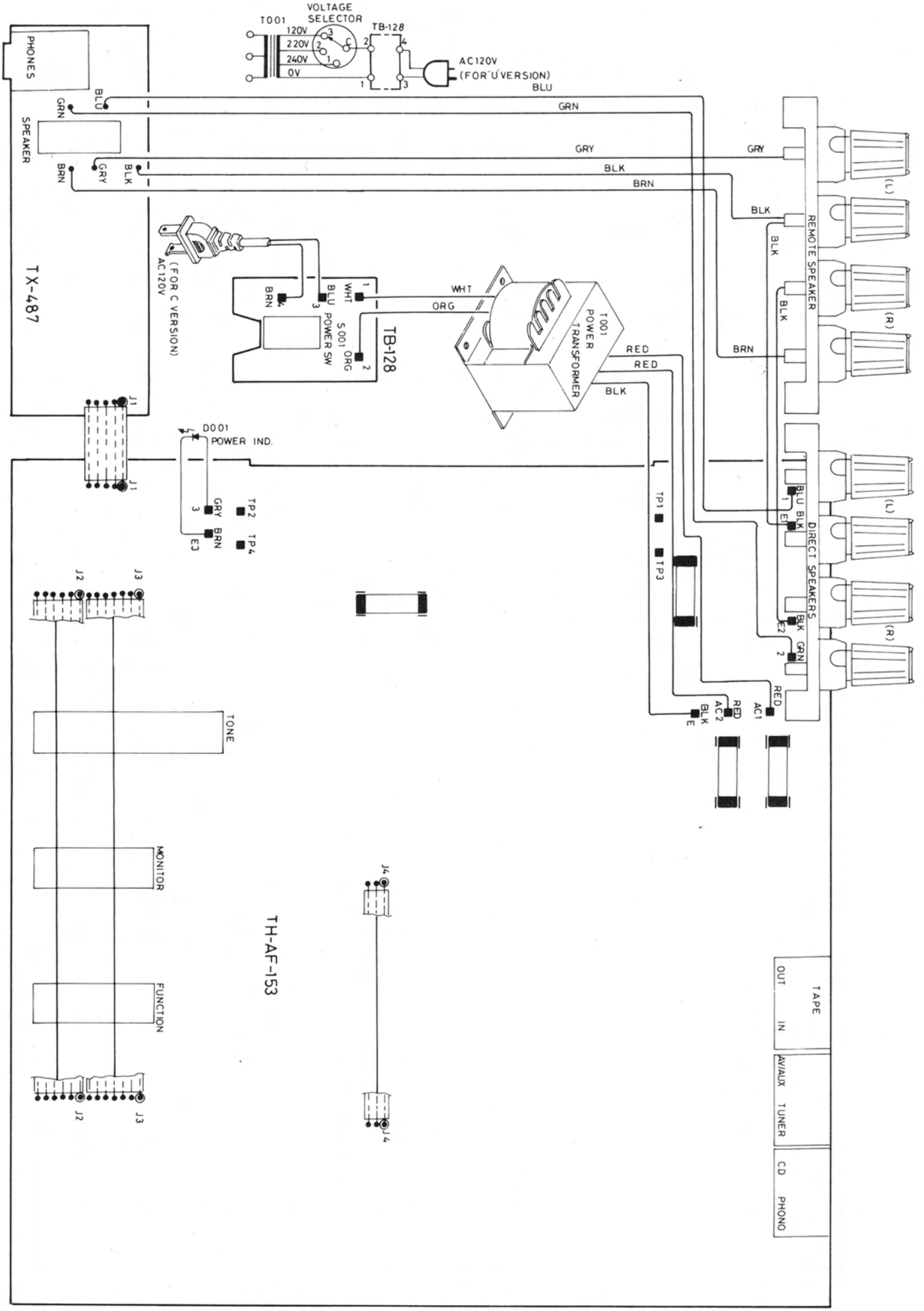


INSTRUCTIONS FOR SERVICING PERSONNEL:

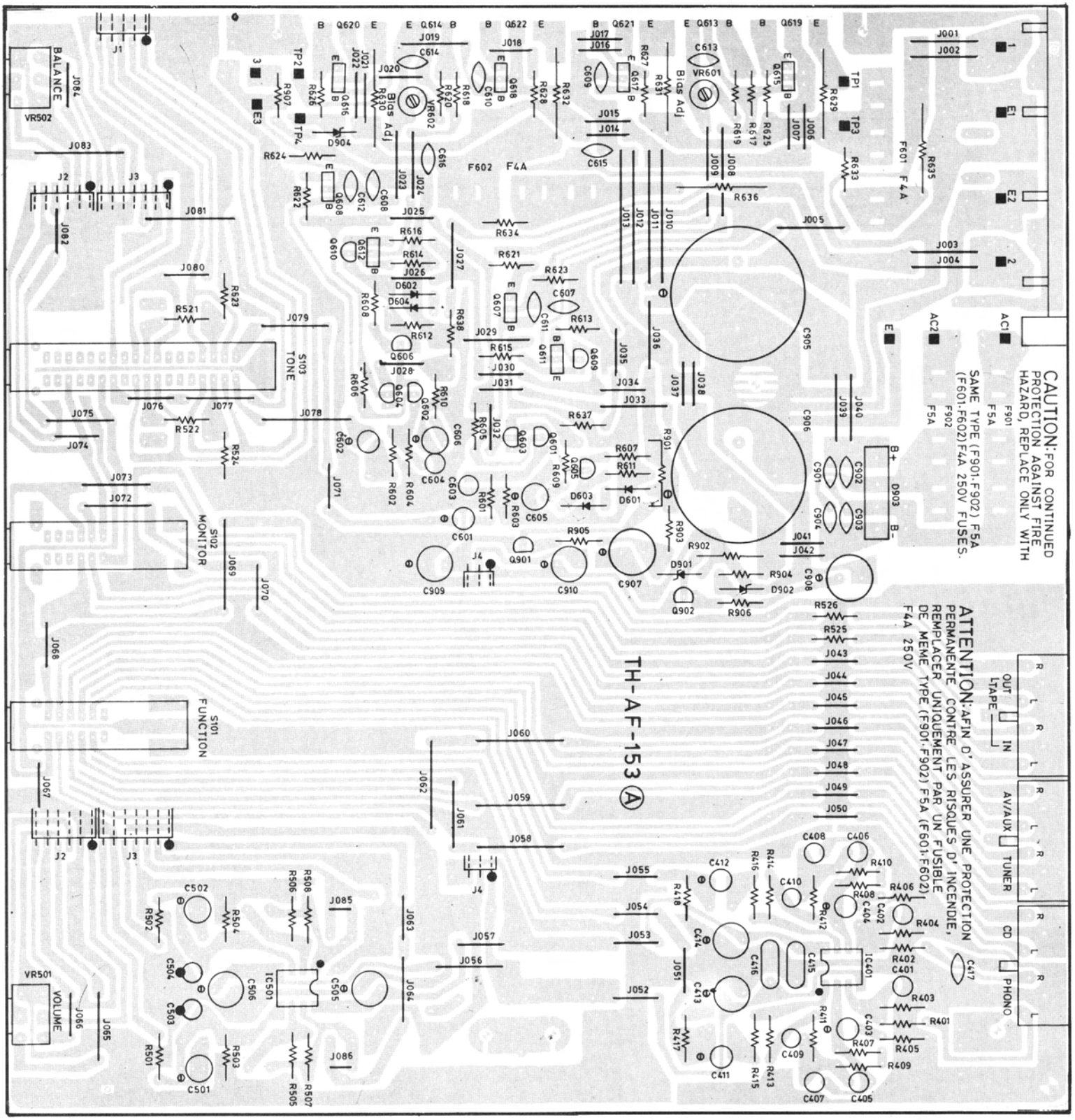
1) USE ONLY REPLACEMENT PARTS THAT HAVE THE CRITICAL CHARACTERISTICS RECOMMENDED BY MANUFACTURER.
2) MAKE LEAKAGE-CURRENT OR RESISTANCE MEASUREMENTS TO DETERMINE THAT EXPOSED PARTS ARE ACCEPTABLY INSULATED FROM THE AC SUPPLY CIRCUIT BEFORE RETURNING THE UNIT TO THE CUSTOMER.

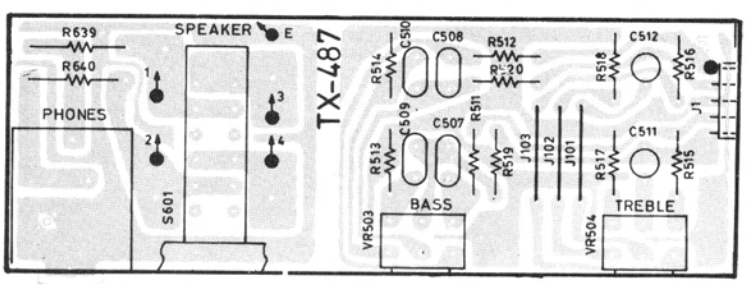

SPEAKER
S601
(L)
(R)
PHONES
VR503 BASS
VR504 TREBLE
VOLTAGE SELECTOR
POWER SW
S001
C001
D001 LN224R
T.001 TT240GF-1
F901 5A
F902 5A
F601 4A
F602 4A
D903 KBL-02 /PBL403
D904 UZ 20V 1K
Q901 2SC1570
Q902 2SA1016
Q605 2SA1016
Q606 2SA1016
Q607 2SC1941
Q608 2SC1941
Q609 2SA1016
Q610 2SA1016
Q611 2SB631
Q612 2SB631
Q613 2SD600
Q614 2SD600
Q615 2SD600
Q616 2SD600
Q617 2SB631
Q618 2SB631
Q619 2SD1047
Q620 2SD1047
Q621 2SB817
Q622 2SB817
Q601 2SA1016
Q602 2SA1016
Q603 2SA1016
Q604 2SA1016
• 2SB817
• 2SD1047
• NE5532AN
B C E
8 4 1
R637 UK 8,2K
R638 UK 8,2K
R601 UK 1,8K
R602 1,8K UK
R609 470 UK
R610 UK 470
R521 UK 33K
R522 UK 33K
R523 UK 22K
R524 UK 22K
C605 6,3V100
C606 6,3V100
C611 10P
C612 10P
C505 25V100
C506 25V100
C507 0,1
C508 0,1
C509 0,1
C510 0,1
C511 1000P
C512 1000P
C601 50V10 DUBILIER
C602 50V10 DUBILIER
C603 160V 100P
C604 160V 100P
C607 330P
C608 330P
C609 150P
C610 150P
C613 0,01
C614 0,01
C615 0,047
C616 0,047
C901 250V 0,01
C902 250V 0,01
C903 250V 0,01
C904 250V 0,01
C905 50V 6800
C906 50V 6800
C907 25V 470
C908 25V 470
C909 25V100
C910 25V100
R901 1W 220
R902 1W 220
R903 2,7K
R904 2,7K
R905 270
R906 270
R907 1K
R511 10K
R512 10K
R513 8,25K
R514 8,25K
R515 1,5K
R516 15K
R517 1,5K
R518 1,5K
R519 17,8K
R520 17,8K
R603 UK 47K
R604 UK 47K
R605 1,5K
R606 1,5K
R607 475
R608 475
R611 6,81K
R612 6,81K
R613 10K
R614 10K
R615 100
R616 100
R617 8,25K
R618 8,25K
R619 2,21K
R620 2,21K
R621 47
R622 47
R623 33,2K
R624 33,2K
R625 221
R626 221
R627 221
R628 221
R629 2W0,22
R630 2W022
R631 2W0,22
R632 2W022
R633 33,2K
R634 33,2K
R635 2W0,22
R636 2W0.22
R639 1W330
R640 1W330
VR601 2,2K
VR602 2,2K
D601 IN4148
D602 IN4148
D603 IN4148
D604 IN4148
T001 TT-240GF-1 TT-240GF
C 601,602 10P NO USE USE
RUK OTHER
ICING PERSONNEL:
RTS THAT HAVE THE
RECOMMENDED BY
ESISTANCE MEASURE-
EXPOSED PARTS ARE
THE AC SUPPLY CIR-
UNIT TO THE CUS-

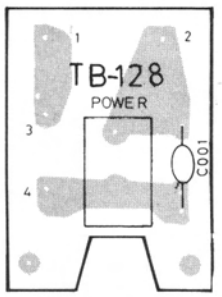
Wiring Diagram



Printed Circuit Boards







Parts List

NOTE:THE COMPONENTS INDENTIFIED BY ⚠ MARK ARE FOR SAFETY.REPLACE ONLY WITH ORIGINAL PARTS.DO NOT SUBSTITUTE.

SYMBOL	PARTS NO.	DESCRIPTION
	AF153A PCB ASSEMBLY	
R401,402	RM11001716	R,METAL MRS251K 0.4W
R403,404	RM14702715	R,METAL MRS2547K 0.4W
R405,406	RM11201717	R,METAL MRS251.2K 0.4W
R407,408	RM14701711	R,METAL MRS254.7K 0.4W
R409,410	RM15602716	R,METAL MRS2556K 0.4W
R411,412	RM19103718	R,METAL MRS25910K 0.4W
R413,414	RM16800716	R,METAL MRS25680R 0.4W
R415,416	RM11001716	R,METAL MRS251K 0.4W
R417,418	RM11003713	R,METAL MRS25100K 0.4W
C401,402	CS31511318	CAP,POLYSTYRENE 150P 160V
C403,404	CL31006258	CAP,LOW NOISE 10uF 25V LN
C405,406	CS41010417	CAP,STYROL 1000P 50V
C407,408	CS42011417	CAP,STYROL 200P 50V
C409,410	CS44310412	CAP,STYROL 4300P 50V
C411,412	CE51006507	CAP,ELEC. U50V10RC2
C413,414	CE01005258	CAP,ELEC. 100uF 25V
C415,416	CP11008330	CAP,M.P. 0.1uF 100V
C417	CC05009457	CAP,CERAMIC 0.047uF 50V
IC401	IC00001693	IC NE5532AN
R501,502	RM14700718	R,METAL MRS25470R 0.4W
R503,504	RM14702715	R,METAL MRS2547K 0.4W
R505,506	RM11001693	R,METAL MRS251K 0.4W
R507,508	RM51782814	R,MFTAL 17.8K 1/4W F
R521,522	RM13302713	R,METAL MRS2533K 0.4W
R523,524	RM12202714	R,METAL MRS2522K 0.4W
C501,502	CE51006507	CAP,ELEC. U50V10RC2
C503,504	CS34712311	CAP,POLYSTYRENE 47P 160V
C505,506	CE01005258	CAP,ELEC. 100uF 25V
IC501	IC00001693	IC NE5532AN
VR501	RV10001474	R,VARIABLE 4TR-2689 50KAx2
VR502	RV10000457	R,VARIABLE 4TR-1793
R601,602	RM11801710	R,METAL MRS251.8K 0.4W
R603,604	RM14702715	R,METAL MRS2547K 0.4W
R605,606	RM51501813	R,METAL 1.5K 1/4W F
R607,608	RM54750812	R,METAL 475 1/4W F
R609,610	RM14700718	R,METAL MRS25470R 0.4W
R611,612	RM56811816	R,METAL 6.81K 1/4W F
R613,614	RM51002810	R,METAL 10K 1/4W F
R615,616	RM51000812	R,METAL 100 1/4W F
R617,618	RM58251814	R,METAL 8.25K 1/4W F
R619,620	RM52211818	R,METAL 2.21K 1/4W F
R621,622	RM54759815	R,METAL 47.5 1/4W F
R623,624	RM53322818	R,METAL 33.2K 1/4W F
R625-628	RM52210814	R,METAL 221 1/4W F
R629-632	RM10228226	R,METAL 0.22 2W
R633,634	RM53322818	R,METAL 33.2K 1/4W F
R635,636	RM10228226	R,METAL 0.22 2W
R637,638	RM18201710	R,METAL MRS258.2K 0.4W
C601,602	CE51006507	CAP,ELEC. U50V10RC2
C603,604	CS31011310	CAP,POLYSTYRENE 100P 160V
C605,606	CE51005904	CAP,ELEC. U6.3V100RC2
C607,608	CC03011436	CAP,CERAMIC 300P 50V
C609,610	CC31511432	CAP,CERAMIC 150P 50V
C611,612	CC01012437	CAP,CERAMIC 10P 50V
C613,614	CC31009465	CAP,CERAMIC 0.01uF 50V
C615,616	CC05009457	CAP,CERAMIC 0.047uF 50V

SYMBOL	PARTS NO.	DESCRIPTION
Q601-606	TR10000023	TRANSISTOR 2SA1016
Q607,608	TR30000169	TRANSISTOR 2SC1941
Q609,610	TR10000023	TRANSISTOR 2SA1016
Q611,612	TR10000047	TRANSISTOR 2SB631K
Q613-616	TR40000069	TRANSISTOR 2SD600K
Q617,618	TR10000047	TRANSISTOR 2SB631K
Q619,620	TR40000045	TRANSISTOR 2SD1047
Q621,622	TR20000040	TRANSISTOR 2SB631K
D601-604	DD10000100	DIODE 1N4148
VR601,602	RV40000022	R,SEMI-FIXED VM6CKPV-1S-B 2.2K
F601,602	FU24000112	FUSE 125V UL/CSA 5MF 4.0A (U,C,A) ⚠
	FU23000049	FUSE 4A S ⚠
S101	SH30000390	FUNCTION SW 4TR-2398
S102	SH30000389	FUNCTION SW 4TR-2397
S103	SH30000420	FUNCTION SW 4TR-2401
R901,902	RM51000812	R,METAL 100 1/4W F
R903,904	RM52741819	R,METAL 2.74K 1/4W F
R905,906	RM52740815	R,METAL 274 1/4W F
R907	RM51001816	R,METAL 1K 1/4W F
C901-904	CC01009256	CAP,CERAMIC 0.01uF 250V
C905,906	CE56804451	CAP,ELEC. 50LPSS6800M ⚠
C907,908	CE04705255	CAP,ELEC. 470uF 25V
C909,910	CE01005258	CAP,ELEC. 100uF 25V
F901,902	FU24000124	FUSE 125V UL/CSA 5MF 5.0A (U,C,A) ⚠
	FU23000074	FUSE 5A S ⚠
D901,902	DD20000028	DIODE RD20E
D903	DD10000020	DIODE KBL02
D904	DD20000028	DIODE RD20E
	TX-487 PCB ASSEMBLY	
R511,512	RM21002815	R,METAL 10K 1/4W F
R513,514	RM28251812	R,METAL 8.25K 1/4W F
R515,516	RM21502812	R,METAL 15K 1/4W F
R517,518	RM21501819	R,METAL 1.5K 1/4W F
R519,520	RM21782810	R,METAL 17.8K 1/4W F
C507-510	CM01008423	CAP,MYLAR 104 J 50V
C511,512	CS41010429	CAP,STYROL 1000P 50V
VR503,504	RV10000433	R,VARIABLE 4TR-1742 20KBx2
R639,640	RM13300121	R,METAL 330 J 1W
S601	SH11000239	1 KEY PUSH SW 4TR-2328
	JH00000135	HEAD PHONE JACK C-3399#1
	TB128A PCB ASSEMBLY	
S001	SH40000120	POWER SW C-3600B-T ⚠
C001	CK00000035	SPARK KILLER DE7150F472M ⚠
	OTHERS	
	AB00000213	BOTTOM BOARD 3TTH-9
	AF20000209	FRONT CHASSIS 2TTH-2A#1
	AM00001446	CHASSIS BODY 2TTH-5B
	AR20000498	PRINTER REAR CHASSIS TRP-538

SYMBOL	PARTS NO.	DESCRIPTION
	AS01000210	SIDE CHASSIS 3TTH-7
	PT24027122	POWER TRANSFORMER TT-240-GF-2 ⚠
	FT00000138	RUBBER FOOT 4TR-2274 40Fx8
	CD00000218	AC CORD SPT-2 AWG#18 4TR-670#4 (U,C) ⚠
	CD00000097	AC CORD SPT-2 AWG#18 4TR-670#2 (H1-4) ⚠
	CD00000048	AC POWER CORD 4TR-1037 (H5-7,E,K2) ⚠
	CD00000085	AC POWER CORD C-2504A (K1) ⚠
	CD00000267	AC CORD SPT-2 AWG#16 C-2743 (A) ⚠
	CD00000115	AC POWER CORD C-3763-T (G) ⚠
	VC00000048	VOLTAGE SELECTOR FS907B (U,H1,2,4,5,6,E1) ⚠
	AH20000461	HEAT SINKER BOARD 4TTH-11#1
	AU00000816	UPPER COVER 3TTF-5#2
	KB10001310	KNOB 4TR-2254 33F
	KB10001321	KNOB 4TR-2255 20F
	KB10001424	KNOB 4TR-2356 20F M
	KB20000507	PUSH BUTTON C-3982#2-T
	KB20001561	PUSH BUTTON 4TR-2176 14x14
	SR00000316	FIBER SPACER 4TZX-27A#2
	SR00000882	UPPER COVER SPACER 4TR-2418
	PL00000782	STYROL SIDE MOULDING 4TTH-13 TZ-166
	TN10003290	INSIDE CARTON 4TR-2410#3
	BU00000384	PUSH RING 4TR-1546#2
	OM10000085	ORNAMENTAL SIDE PLATE 3TTF-6
	AA20000579	FRONT PANEL 2TTH-1B#7 TFP-582
	BU00000682	POWER BUTTON RING 4TR-2717 14x14
	SR00000870	ORNAMENTAL PLATE SPACER 4TR-2411