

# TECHNICAL MANUAL

*Quality Uncompromised*

# ROTEL®

# RA-820BX4

STEREO INTEGRATED AMPLIFIER

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**THE ROTEL CO., LTD.**

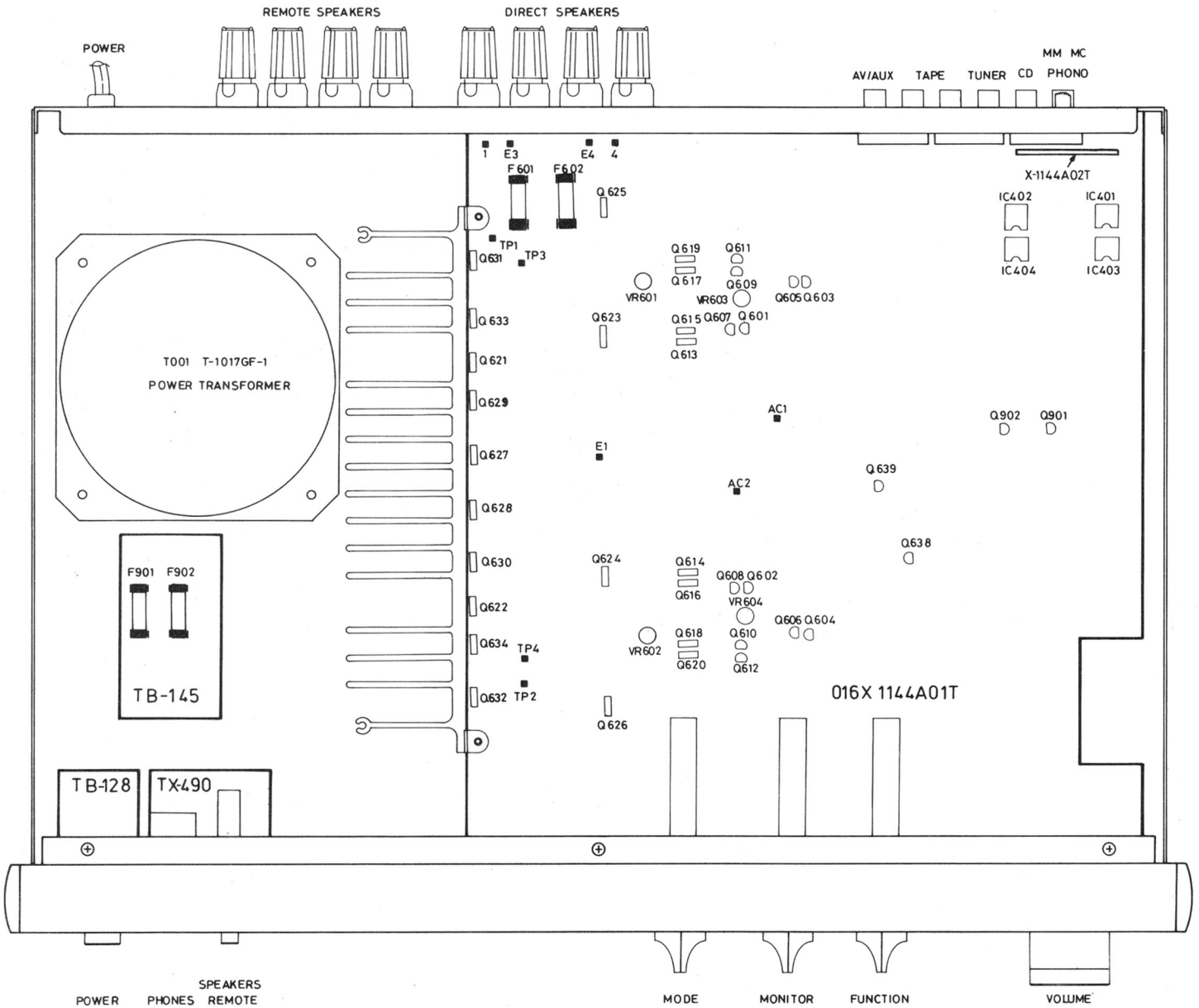
1-36-8 OHOKAYAMA, MEGURO-KU, TOKYO 152, JAPAN

**ROTEL ELECTRONICS CO., LTD.**

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

MN20001743

# Chassis Layout



## Power Amplifier Bias Adjustment

**Instruments:** DC milli-voltmeter

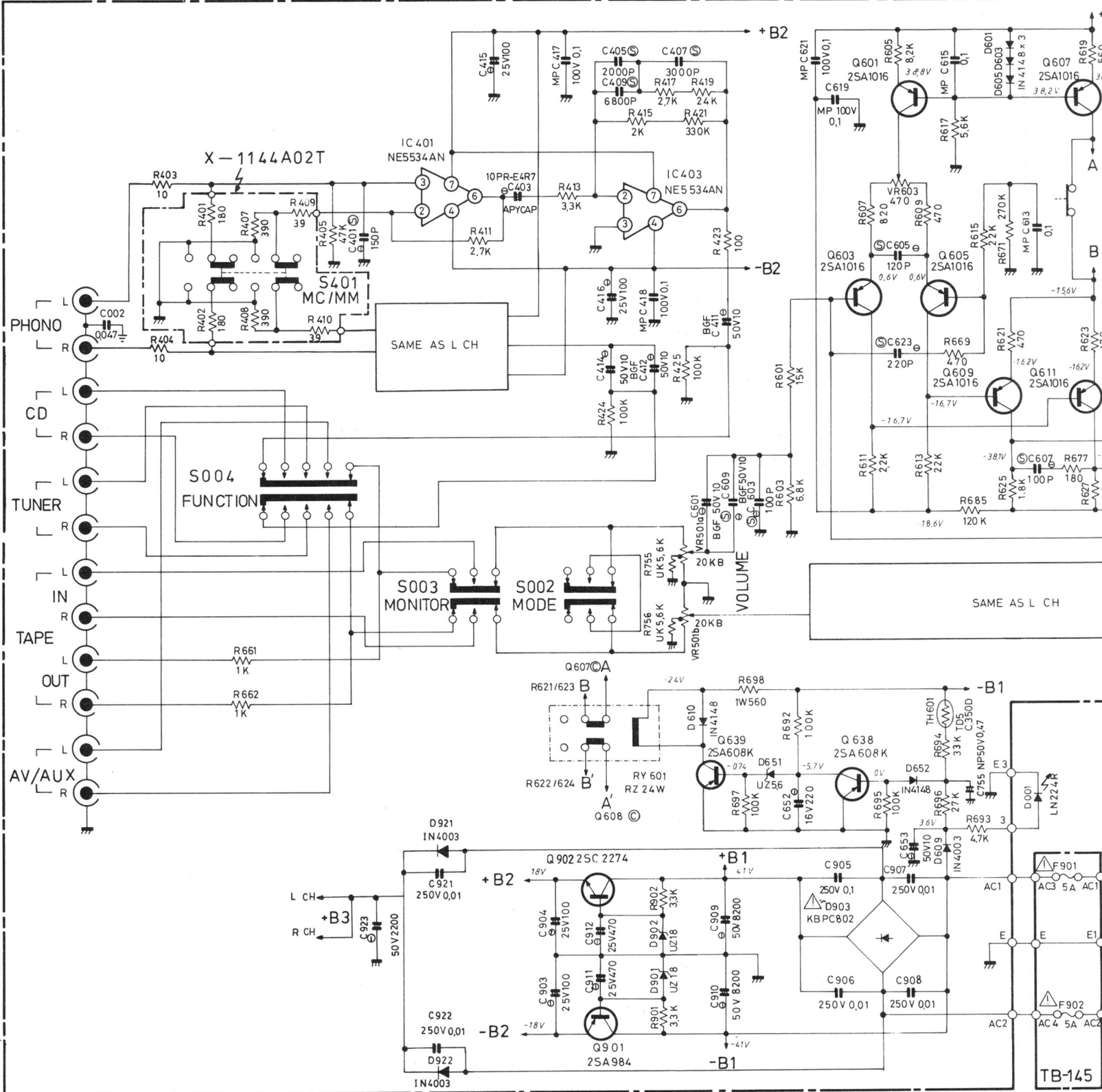
**Notes:** Prior to Bias Adjustment, run about 5 minutes with rated output (8 ohm) and warm up Power Transistor and Heat Sink.  
Set Volume Control to Minimum.

Step	Coupling		Adjust	Adjust for
	Plus Lead	Minus Lead		
1	TP3	TP1	VR601	DC milli-voltmeter reads 2.5mV
2	TP4	TP2	VR602	
3	1	E1	VR603	DC milli-voltmeter reads 0 mV
4	2	E2	VR604	

# Schematic Diagram

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

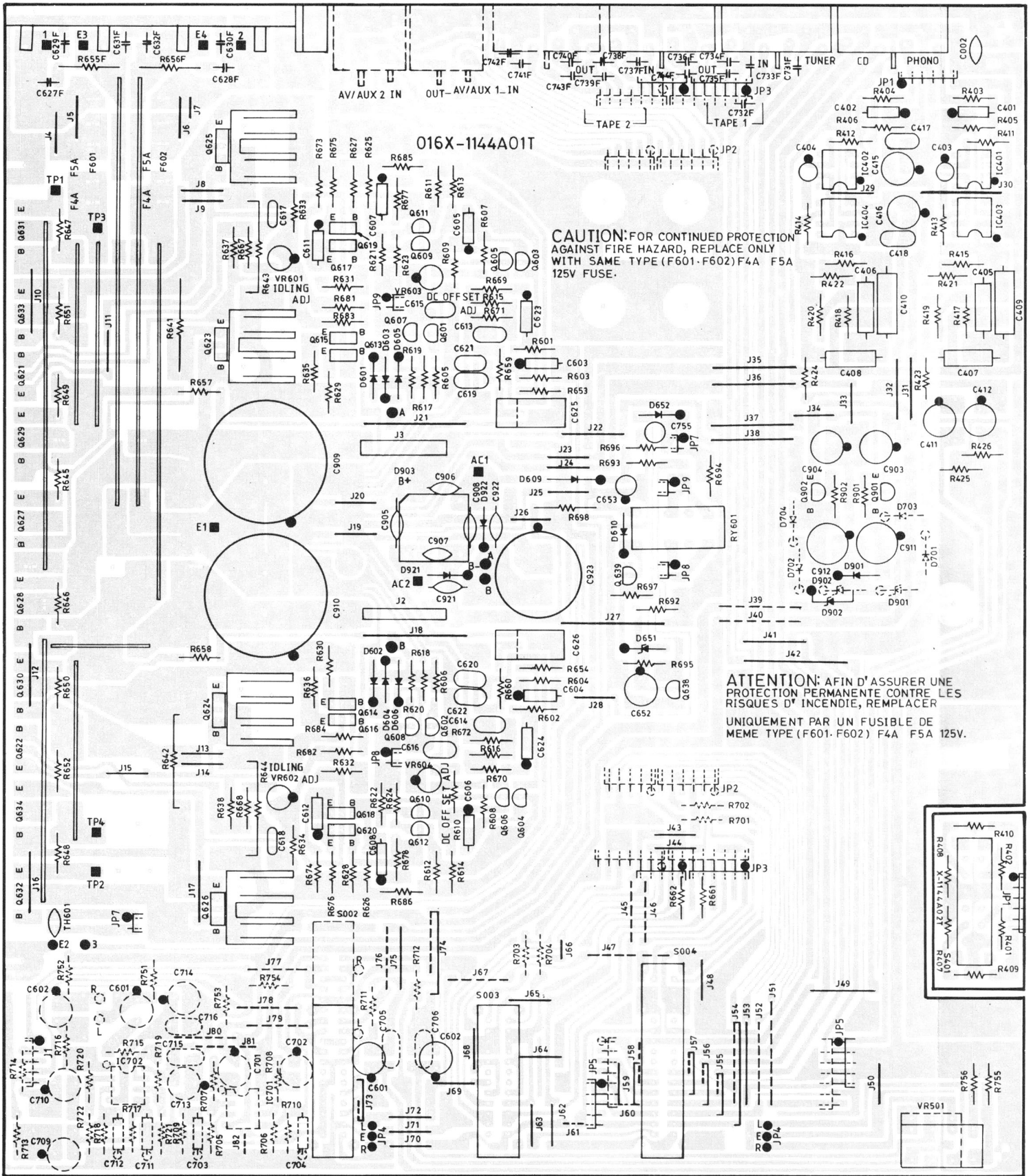
## RA-820BX4



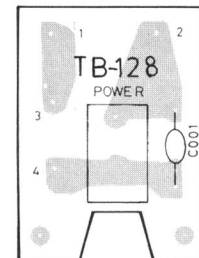
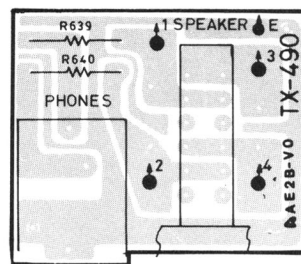
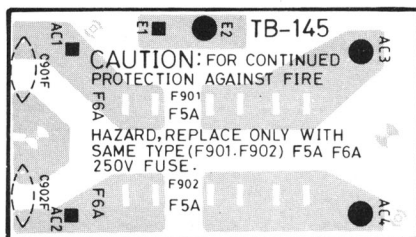




# Printed Circuit Boards



**ATTENTION: AFIN D'ASSURER UNE PROTECTION PERMANENTE CONTRE LES RISQUES D'INCENDIE, REMPLACER UNIQUEMENT PAR UN FUSIBLE DE MEME TYPE (F601-F602) F4A F5A 125V.**





# Parts List

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

SYMBOL	PARTS NO.	DESCRIPTION
X-1144A01T PCB ASSEMBLY		
R403,404	RM11009715	R,METAL MRS25 10R 0.4W
R405,406	RM14702715	R,METAL MRS25 47K 0.4W
R411,412	RM12701718	R,METAL MRS25 2.7K 0.4W
R413,414	RM13301710	R,METAL MRS25 3.3K 0.4W
R415,416	RM12001710	R,METAL MRS25 2K 0.4W
R417,418	RM12701718	R,METAL MRS25 2.7K 0.4W
R419,420	RM12402715	R,METAL MRS25 24K 0.4W
R421,422	RM13303717	R,METAL MRS25 330K 0.4W
R423,424	RM11000712	R,METAL MRS25 100R 0.4W
R425,426	RM11003713	R,METAL MRS25 100K 0.4W
C401,402	CS31511318	CAP,POLYSTYRENE 160V 150P
C403,403	CA14707830	CAP,APYCAP 10PR-E4R7
C405,406	CS32010301	CAP,POLYSTYRENE 160V 2000P
C407,408	CS33010308	CAP,POLYSTYRENE 160V 3000P
C409,410	CS36810300	CAP,POLYSTYRENE 160V 6800P
C411,412	CE51006477	CAP,ELEC. 50BGF10M
C415,416	CE51005254	CAP,ELEC. UKSIE101M
C417,418	CP61008321	CAP,M.P. 100V 0.1uF
IC401-404	IC00001735	IC NJM5534AN
VR501	RV10001504	R,VARIABLE 4TR-2692 20KBx2
R601-604	RM01502714	R,METAL MRS25 15K 0.4W
R605,606	RM18201710	R,METAL MRS25 8.2K 0.4W
R607,608	RM18200716	R,METAL MRS25 820R 0.4W
R609,610	RM14700718	R,METAL MRS25 470R 0.4W
R611-616	RM12202714	R,METAL MRS25 22K 0.4W
R617,618	RM15601712	R,METAL MRS25 5.6K 0.4W
R619,620	RM15600719	R,METAL MRS25 560R 0.4W
R621-624	RM14700718	R,METAL MRS25 470R 0.4W
R625-628	RM11801710	R,METAL MRS25 1.8K 0.4W
R629,630	RM11000712	R,METAL MRS25 100R 0.4W
R631,632	RM15600719	R,METAL MRS25 560R 0.4W
R633,634	RM11009715	R,METAL MRS25 10R 0.4W
R635,636	RM11000712	R,METAL MRS25 100R 0.4W
R637,638	RM11201717	R,METAL MRS25 1.2K 0.4W
R641-644	RM69100221	R,METAL RD2BJ910
R645-652	RS20228230	R,SQUARE TYPE MPC70-0.22F
R653,654	RM16802713	R,METAL MRS25 68K 0.4W
R657,658	RM11203714	R,METAL MRS25 120K 0.4W
R659,660	RM18201710	R,METAL MRS25 8.2K 0.4W
R661,662	RM11001716	R,METAL MRS25 1K 0.4W
R667,668	RM13900719	R,METAL MRS25 390R 0.4W
R669,670	RM14700718	R,METAL MRS25 470R 0.4W
R671,672	RM12703715	R,METAL MRS25 270K 0.4W
R673-676	RM11000712	R,METAL MRS25 100R 0.4W
R677,678	RM01800713	R,METAL MRS25 180R 0.4W
R681-684	RM02201718	R,METAL MRS25 2.2K 0.4W
R685,686	RM11203714	R,METAL MRS25 120K 0.4W
R692	RD21203820	R,CARBON 120K 1/4W J
R693	RD24701829	R,CARBON 4.7K 1/4W J
R694	RD23002828	R,CARBON 30K 1/4W J
R695	RD21003829	R,CARBON 100K 1/4W J
R696	RD22702820	R,CARBON 27K 1/4W J
R697	RD21003829	R,CARBON 100K 1/4W J
R698	RM95600122	R,METAL 560 1W
C601,602	CE51006477	CAP,ELEC. 50BGF10M
C603,604	CS31011310	CAP,POLYSTYRENE 160V 100P

SYMBOL	PARTS NO.	DESCRIPTION
C605,606	CS31211300	CAP,POLYSTYRENE 160V 120P
C607,608	CS31011310	CAP,POLYSTYRENE 160V 100P
C611,612	CS31510302	CAP,POLYSTYRENE 160V 1500P
C613-616	CP61008321	CAP,M.P. 100V 0.1uF
C617,618	CM01009427	CAP,MYLAR 103 J 50V
C619-622	CP61008321	CAP,M.P. 100V 0.1uF
C623,624	CS32211306	CAP,POLYSTYRENE 160V 220P
C625,626	CY02207300	CAP,LAYER 100V 2.2uF
C652	CE02205164	CAP,ELEC. 220uF 16V
C653	CE01006500	CAP,STYROL 10uF 50V
Q601-612	TR10000023	TRANSISTOR 2SA1016
Q613-616	TR10000047	TRANSISTOR 2SB631K
Q617-624	TR40000069	TRANSISTOR 2SD600K
Q625,626	TR10000047	TRANSISTOR 2SB631K
Q627-630	TR40000045	TRANSISTOR 2SD1047
Q631-633	TR20000040	TRANSISTOR 2SB817
Q638,639	TR10000126	TRANSISTOR 2SA608K
D601-606	DD10000100	DIODE 1N4148
D609	DD10000068	DIODE 1N4003
D610	DD10000100	DIODE 1N4148
D651	DD20000168	DIODE RD5.6E
D652	DD10000100	DIODE 1N4148
VR601,602	RV40000046	R,SEMI-FIXED VM6CKPV-1S-B 220 OHM
VR603,604	RV40000058	R,SEMI-FIXED VM6CKPV-1S-B 470 OKM
RY601	LY00000174	RELAY RZ24W
TH601	DD60000260	THERMISTOR TD5C350C $\Delta$
C002	CC05009457	CAP,CERAMIC 0.047uF 50V
F601,602	FU24000112	FUSE 125V UL/CSA SMF4.0A (U,C,A) $\Delta$
	FU23000049	FUSE 250V 4A S $\Delta$
R755,756	RM15601712	R,METAL MRS25 5.6K 0.4W
C755	CN04708503	CAP,NON-POLARIZED NP 0.47uF 50V
S002,003	SH30000389	FUNCTION SW 4TR-2397
S004	SH30000390	FUNCTION 4TR-2398
R901,902	RM13301710	R,METAL MRS25 3.3K 0.4W
C903,904	CE51005254	CAP,ELEC. UKSIE101M
C905-908	CC10009256	CAP,CERAMIC 0.01uF 250V $\Delta$
C909,910	CE58204475	CAP,ELEC. 50 LPSS8200M $\Delta$
C911,912	CE64705259	CAP,ELEC. U25V470RE2
C921,922	CC10009256	CAP,CERAMIC 0.01uF 250V $\Delta$
C923	CE52204477	CAP,ELEC. 50VR SP2200A $\Delta$
Q901	TR10000140	TRANSISTOR 2SA984K
Q902	TR30000121	TRANSISTOR 2SC2274
D901,902	DD20000041	DIODE RD18E
D903	DD10000147	DIODE KBPC802 $\Delta$
D921,922	DD10000068	DIODE 1N4003
X-1144A02T PCB ASSEMBLY		
R401,402	RM01800713	R,METAL MRS25 180R 0.4W
R407,408	RM13900719	R,METAL MRS25 390R 0.4W
R409,410	RM03909719	R,METAL MRS25 39R 0.4W
S401	SH20000265	SLIDE SW 4TR-2172

SYMBOL	PARTS NO.	DESCRIPTION
TX-490 PCB ASSEMBLY		
R639,640	RM93300123	R,METAL 330 1W
S005	SH11000239	1 KEY PUSH SW 4TR-2328
	JH00000135	HEAD PHONE JACK C-3399#1
TB-145 PCB ASSEMBLY		
F901,902	FU24000112	FUSE 125V UL/CSA 5MF 4.0A (U,C,A) ⚠
	FU23000049	FUSE 250V 4A S ⚠
TB128-A PCB ASSEMBLY		
S001	SH40000120	POWER SW C-3600B-T ⚠
C001	CK00000035	SPARK KILLER DE7150F472M ⚠
OTHERS		
	AB00000225	BOTTOM BOARD 3TTH-10B#1
	AF20000210	FRONT CHASSIS 2TTH-2A#2
	AM00001458	CHASSIS BODY 3TTH-6A
	AR20000474	PRINTED CHASSIS TRP-536
	AS01000221	SIDE CHASSIS 3TTH-8A
	PT00000217	POWER TRANSFORMER T-1017-GF-1 ⚠
	FT00000138	RUBBLE FOOT 4TR-2274 40Fx8
	TP20000286	4P SPEAKER TERMINAL 4TR-2267#2
	CD00000218	AC CORD SPT-2 AWG#18 4TR-670#4 (U,C,A,H1-H4) ⚠
	CD00000048	AC POWER CORD 4TR-1037 (H5-H7,E,K2) ⚠
	CD00000085	AC POWER CORD C-2504A (K) ⚠
	CD00000115	AC POWER CORD C-3763-T (G) ⚠
	VC00000048	VOLTAGE SELECTOR FS907B ⚠
	AH20000473	HEAT SINKER BOARD 4TTH-12#1
	AA20000565	FRONT PANEL 2TTH-1B#5
	BU00000384	PUAH RING 4TR-1546#2
	OM10000085	ORNAMENTAL SIDE PLATE 3TTF-6
	BU00000682	POWER BUTTON RING 4TR-2177
	AU00000828	UPPER COVER 3TTF-5#3
	KB10001424	KNOB 4TR-2356#2 20FM
	KB10001436	KNOB 4TR-2366 33F WF
	KB10001448	KNOB 4TR-2367 33F WR
	KB20000507	KNOB BUTTON C-3982#2-T
	KB20001561	PUSH BUTTON 4TR-2176 14x14
	SR00000316	FIBER SPACER 4TZX-27A#2
	SR00000882	UPPER COVER SPACER 4TR-2418
	SP00000936	KNOB SPACER 4TR-2541 29.5F
	PL00000770	STYROL SIDE MOULDING 2TTF-9A TZ-165
	TN10003276	INSIDE CARTON 4TR-2377#9