



Technical Manual

STEREO POWER AMPLIFIER RB-990BX

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Specifications

Continuous Power Output ...	200 watts* per channel, min. RMS both channels driven into 8 ohms from 20 to 20,000 Hz with no more than 0.03% total harmonic distortion.
DIN Power Output	330 watts per channel (1kHz, 4 ohms, 1% THD)
Peak Current	120 A (0.1 ohms, 10 μ sec, 1 pulse)
Total Harmonic Distortion (20 to 20,000 Hz)	No more than 0.03% (con- tinuous rated power output) No more than 0.01% (con- tinuous 1/2 rated power output) No more than 0.02% (1 watt per channel power output, 8 ohms)
Intermodulation Distortion (60 Hz : 7 kHz = 4:1)	No more than 0.02% (con- tinuous rated power output) No more than 0.02% (con- tinuous 1/2 rated power output) No more than 0.02% (1 watt per channel power output, 8 ohms)

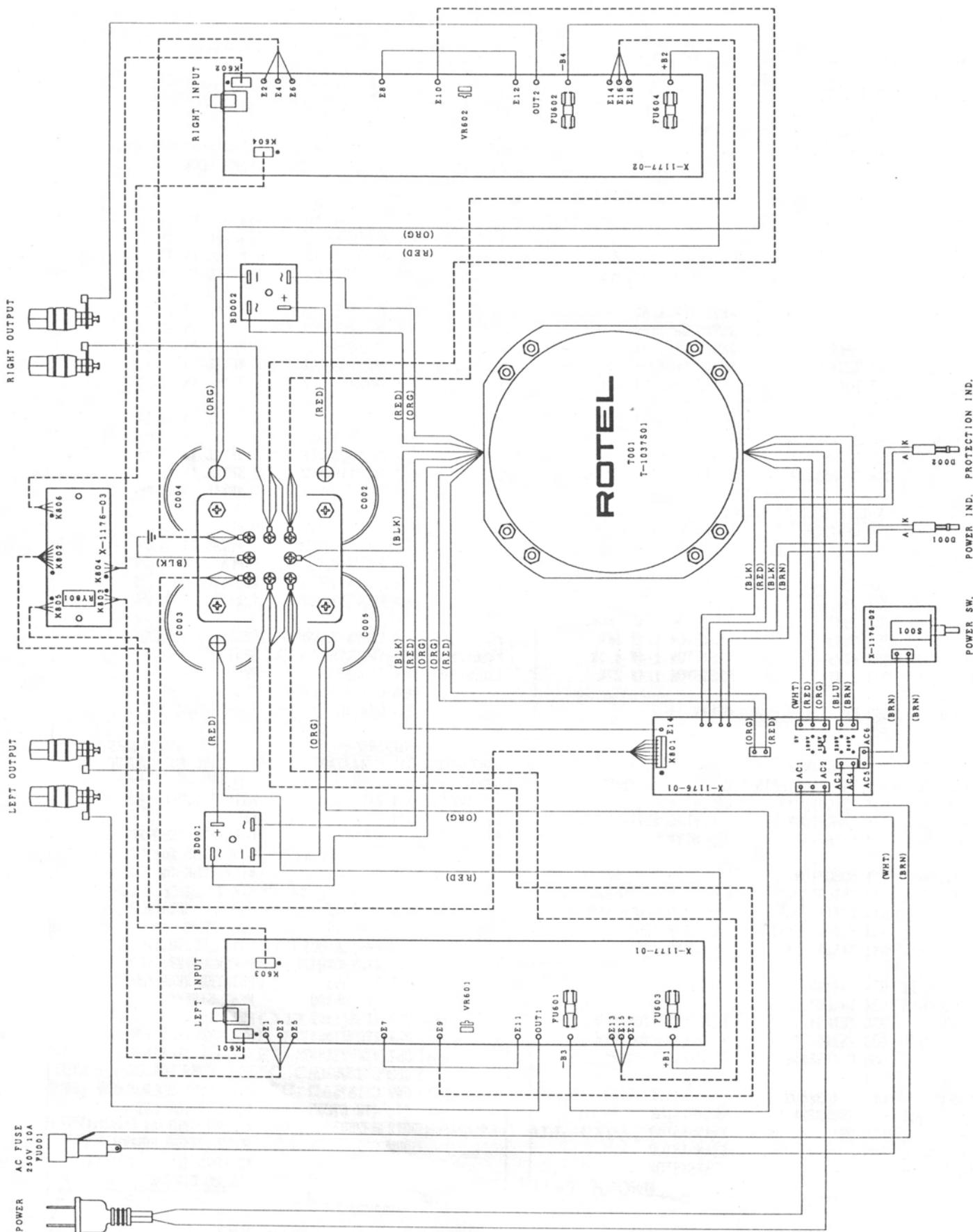
Output	Speaker 8 ohms nominal
Damping Factor	1,000 (20 to 20,000 Hz, 8 ohms)
Input Sensitivity /	
Impedance	1.0 V/33 kohms
Frequency Response	4 to 100,000 Hz, + 0.5 dB, - 3.0 dB
Signal-to-Noise Ratio	
(IHF A network)	120 dB
Power Requirement	120 V/60 Hz, 220 V/50 Hz, 240 V/50 Hz or 100 V/50 Hz- 60 Hz (depending on destinations)
Power Consumption	550 watts
Dimensions (overall)	440 (W) x 120 (H) x 375 (D) mm 17-5/16" x 4-23/32" x 14-3/4"
Weight (net)	15.5 kg/34.1 lbs.

- Specifications and design subject to possible modification without notice.
- Measured pursuant to the Federal Trade Commission's Trade Regulation Rule on Power Claims for Amplifiers (applicable to the U.S.A. only).

Serial No.
Beginning

BUNZAN-SHINSEN-BLD. 4F 10-10 SHINSEN-CHO,
SHIBUYA-KU, TOKYO 150, JAPAN
3RD FLOOR, ROTEL BLDG., NO. 35 FUSHING, NORTH ROAD,
TAIPEI, TAIWAN, REPUBLIC OF CHINA

Wiring Diagram



Parts List

SYMBOL	PARTS NO.	DESCRIPTION
<u>X-1176-01 PCB ASSEMBLY</u>		
C801	041 U100V22	CAP, ELEC. 100V22UF
C802	041 U16V100	CAP, ELEC. 16V100
C803	041 U100V220	CAP, ELEC. 100V220UF
C804	041 U100V22	CAP, ELEC. 100V22UF
D801	034 1N4148	DIODE
D802	034 RD10EB	ZENER DIODE
D803~806	034 1N4003	DIODE
Q801~803	032 2SC2362K-FG	TRANSISTOR
R801	054 RSS1X-5.6KF	RESISTOR 1W 5.6K
R802	053 470J	RESISTOR 1/4W 47Ω
R803	053 104J	RESISTOR 1/4W 100K
R804	053 224J	RESISTOR 1/4W 220K
R805	053 104J	RESISTOR 1/4W 100K
R806	053 333J	RESISTOR 1/4W 33K
R807	053 104J	RESISTOR 1/4W 100K
R808	053 272J	RESISTOR 1/4W 2.7K
R809, R810	054 RSS1X-6.8KF	RESISTOR 1W 6.8K
	068 C-3683#31	CONNECTOR 2P BRN-BLK
	068 C-3683#32	CONNECTOR 2P RED-BLK
<u>X-1176-02 PCB ASSEMBLY</u>		
C001	044 DE7150F472M	SPARK KILLER
S001	061 C-4176A04	POEWR SWITCH
<u>X-1176-03 PCB ASSEMBLY</u>		
D807, D808	034 1N4148	DIODE
R811, R812	053 104J	RESISTOR 1/4W 100K
R813, R814	053 183J	RESISTOR 1/4W 18K
R815, R816	053 472J	RESISTOR 1/4W 4.7K
R817, R818	053 273J	RESISTOR 1/4W 27K
RY801	063 RY24W-KJ	RELAY
<u>X-1177 PCB ASSEMBLY</u>		
C601, C602	041 50BCF4R7M	CAP, ELEC. 50V4.7UF
C603, C604	044 FKP2-100V681H	CAP, FILM 100V680PF
C605, C606	044 #S160V221J	CAP, STYROL 105-062
C607, C608	041 25BGF100M	CAP, ELEC. 25V100UF
C609, C610	044 #S160V331J	CAP, STYROL 105-063
C611, C612	041 50BGF10M	CAP, ELEC. 50V10UF
C613~616	044 #S160V221J	CAP, STYROL 105-062
C617, C618	044 MKT18-100V104K	CAP, FILM 100V0.1UF
C619~622	044 MKT22-100V105K	CAP, FILM 100V1UF
C623~626	041 UVX2A102M	CAP, ELEC. 100V1000UF
D601~608	034 1N4148	DIODE
D609~612	034 1N4003	DIODE
FU601 ~	036 (U)F6A	MINI FUSE for STD
FU604	036 (S)T6.3A	MINI FUSE for CEE
PJ601	066 C-4438A01	1P PINJACK (WHT)
PJ602	066 C-4438A02	1P PINJACK (RED)
Q601~606	033 2SC2362K-FG	TRANSISTOR
Q607~612	033 2SA1016K-FG	TRANSISTOR
Q613, Q614	033 2SA1142-P	TRANSISTOR
Q615, Q616	033 2SC2682-P	TRANSISTOR

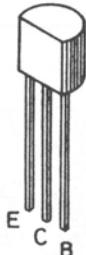
SYMBOL	PARTS NO.	DESCRIPTION
<u>X-1176-01 PCB ASSEMBLY</u>		
Q617, Q618	032 2SD1953	TRANSISTOR
Q619, Q620	033 2SC2910-RST	TRANSISTOR
Q621, Q622	033 2SA1208-RST	TRANSISTOR
Q623~632	033 2SA1492-OPY	TRANSISTOR
Q633, Q634	033 2SB817-DE	TRANSISTOR
Q635, Q636	033 2SD1047-DE	TRANSISTOR
Q637~645	033 2SC3856-OPY	TRANSISTOR
R601, R602	054 MK2001KFECZ	R. METAL 1% 1K
R603, R604	054 MK233K2FECZ	R. METAL 1% 33.2K
R605, R606	054 MK2475RFECZ	R. METAL 1% 475Ω
R607~610	054 MK201K5FECZ	R. METAL 1% 1.5K
R611, R612	054 MK2221RFECZ	R. METAL 1% 221Ω
R613, R614	054 MK2562RFECZ	R. METAL 1% 562Ω
R615~618	054 MK201K5FECZ	R. METAL 1% 1.5K
R619, R620	054 MK2221RFECZ	R. METAL 1% 221Ω
R621, R622	054 MK247K5FECZ	R. METAL 1% 47.5K
R623, R624	054 MK2100RFECZ	R. METAL 1% 100Ω
R625, R626	054 MK28K25FECZ	R. METAL 1% 8.25K
R627, R628	054 MK26K19FECZ	R. METAL 1% 6.19K
R629, R630	054 MK2100RFECZ	R. METAL 1% 100Ω
R631, R632	054 MK2001KFECZ	R. METAL 1% 1K
R633, R634	054 MK247R5FECZ	R. METAL 1% 47.5Ω
R635~654	054 MPC78-0.22F	R. PLATE 2W 0.22Ω
R655, R656	054 RSS2X-10F	RESISTOR 2W 10Ω
R657, R658	054 MK222K1FECZ	R. METAL 1% 22.1K
R659~662	054 RSS2X-6.8KF	RESISTOR 2W 6.8K
VR601, 602	051 VM6CKPH1S-2.2K	SEMI FIXED RESISTOR
TH601, 602	034 TD5C350D	THERMISTOR
	068 C-4349A04	CONNECTOR 3P
	069 C-4446A00	TERMINAL
<u>OTHERS</u>		
C002~005	041 C-4437A00	CAP. ELEC. 80V15000UF
BD001 ~		
BD002	034 BR154	BRIDGE DIODE
D001~002	034 SEL1124R	LED
T001	022 T-1037S01	POWER TRANSFORMER
FU001	036 3AG250V10A	LONG FUSE for STD
	036 (S)T5A	MINI FUSE for CEE
	011 TFP-642	FRONT PANEL
	012 4TQF-15	PUSH KNOB
	013 PM4-10A00T	EARTH PLATE
	014 3TUV-6#9	UPPER COVER
	015 TRP-593	PRINTED REAR CHASSIS
	017 PV4-06A00	HEAT SINKER
	019 4TSH-19#2	PLASTIC FOOT
	067 4TR-2744#1	SPEAKER TERMINAL (RED)
	067 4TR-2744#2	SPEAKER TERMINAL (BLK)
	069 C-4200A00	LONG FUSE HOLDER for STD
	069 C-1575	MINI FUSE HOLDER for CEE
	072 4TR-670#5	AC CORD for STD
	072 C-2504#3	AC CORD for UK
	072 C-3675	AC CORD for EUROPA
	072 C-3763B01	AC CORD for AUSTRALIA
	081 PX4-11A00	INSIDE CARTON

Adjustment

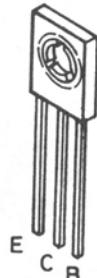
Instruments : DC milli-voltmeter

Notes : Prior to Bias Adjustment, run about 5 minutes with rated output (8 ohms) and warm up Power Transistor and Heat Sink. Set input off.

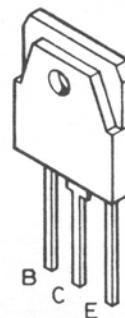
Step	Coupling		Location	Adjust	Adjust for
	Plus Lead	Minus Lead			
1	T P 3	T P 1	X-1177-01 PCB	VR601	DC milli-voltmeter reads 7mV
2	T P 4	T P 2	X-1177-02 PCB	VR602	



2SA1016



2SD1953



2SB817

2SC2362

2SA1142

2SD1047

2SA1208

2SC2682

2SA1492

2SC2910

2SC3856

(RESISTORS)

5% TOLERANCE UNLESS OTHERWISE NOTED.

K --- KILO OHM

(M) --- FIXED PRECISION METAL FILM RESISTORS. (F) : 1%

NON MARK --- LOW NOISE TYPE CARBON RESISTORS. 1/4W

(CAPACITORS)

(S) --- POLYSTYRENE FILM CAPACITORS.

(MP) --- METAL FILM CAPACITORS.

(H) --- ELECTROLYTIC CAPACITORS.

NON MARK --- CERAMIC CAPACITORS.

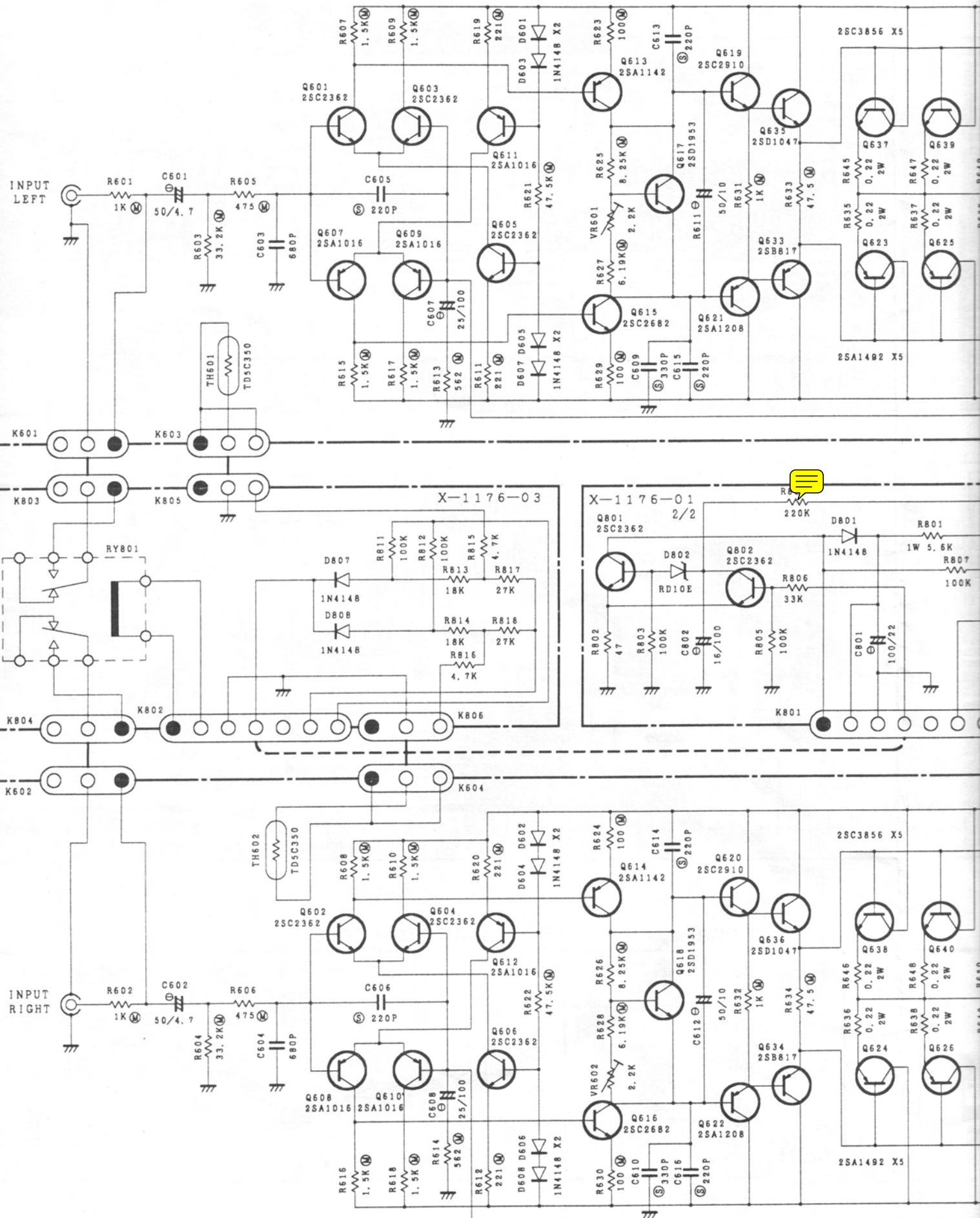
: UNLESS OTHERWISE NOTED IN SCHEMATIC ALL CAPACITANCE VALUES ARE EXPRESSED IN MFD.

: VOLTAGE READING WITH VTVM FROM THE POINT SHOWN TO THE CHASSIS GROUND. (LINE VOLTAGE 120 VOLTS)

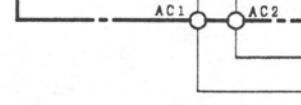
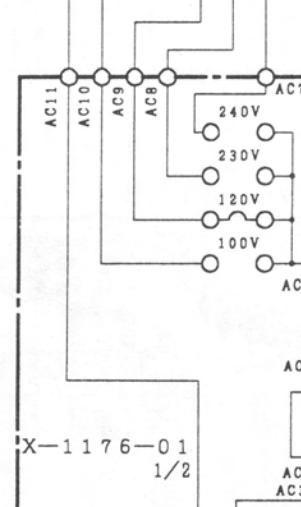
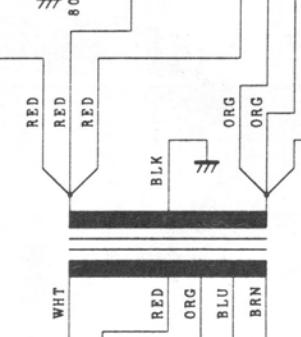
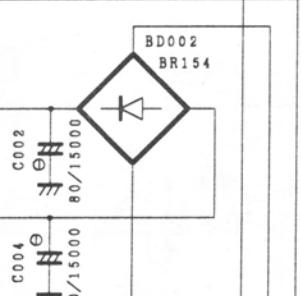
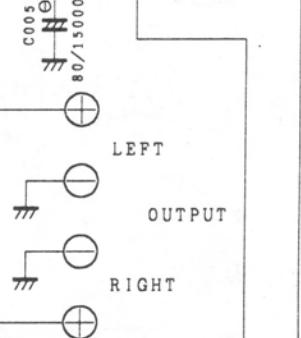
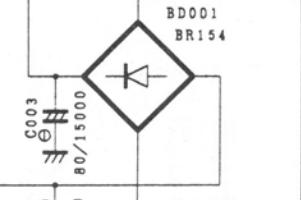
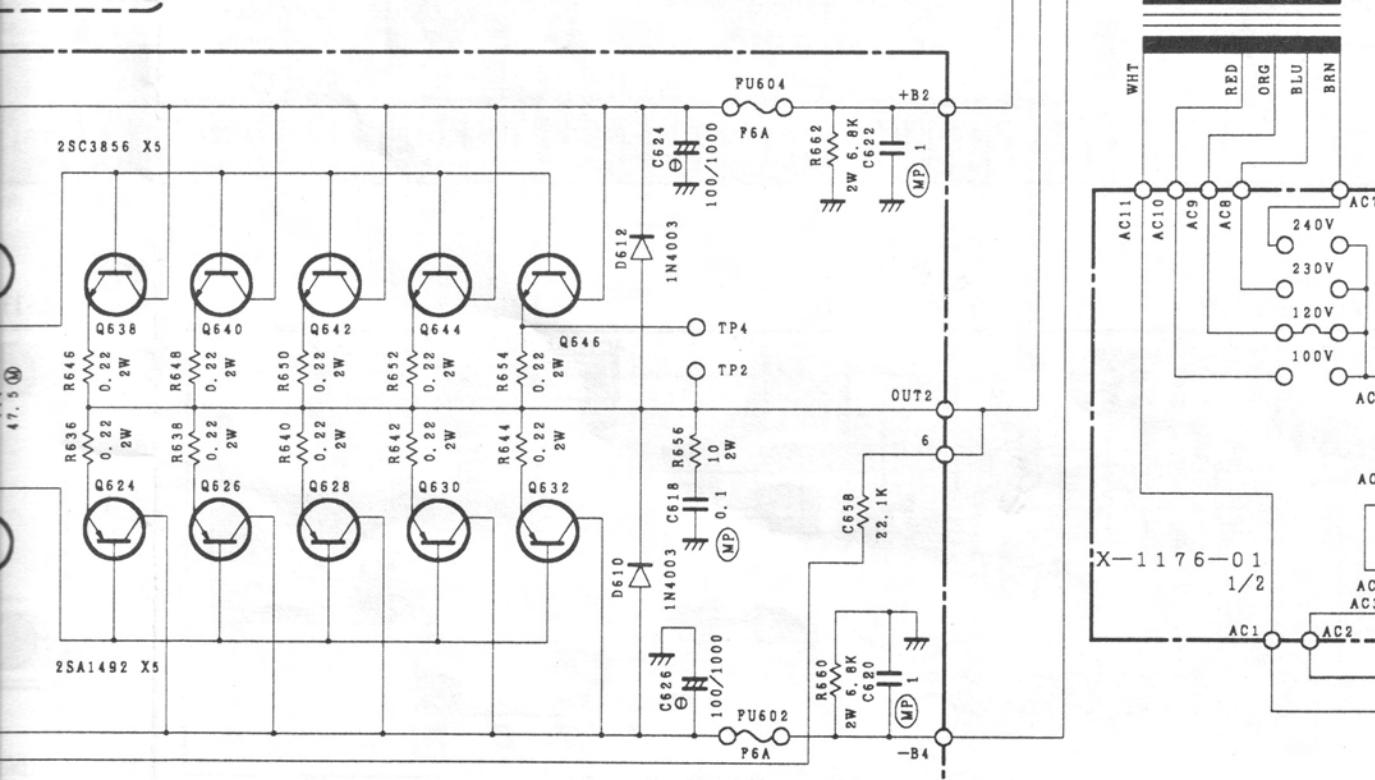
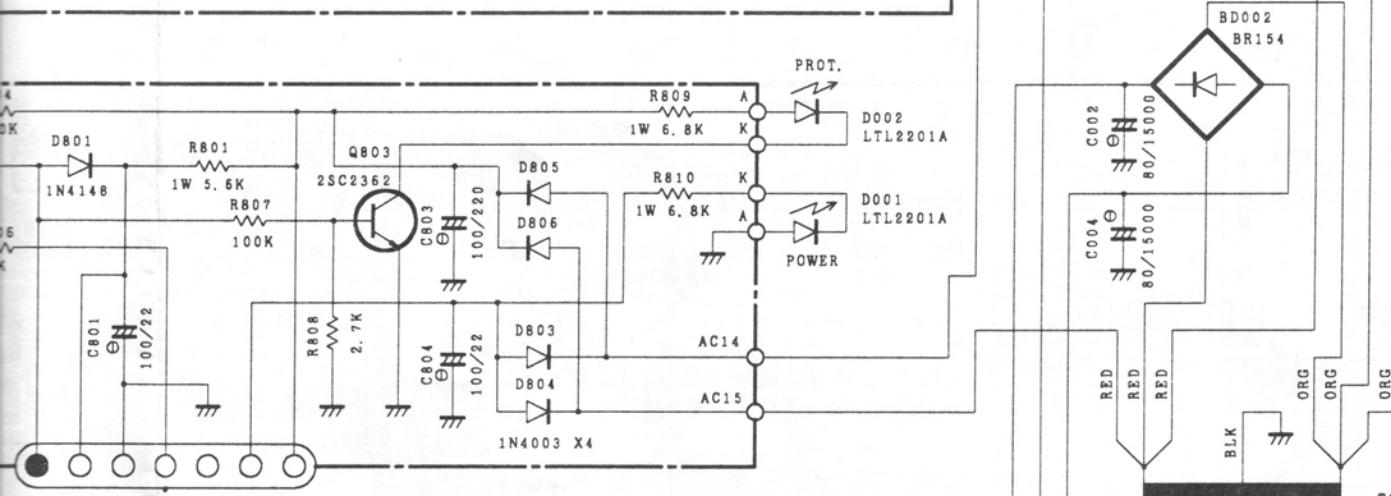
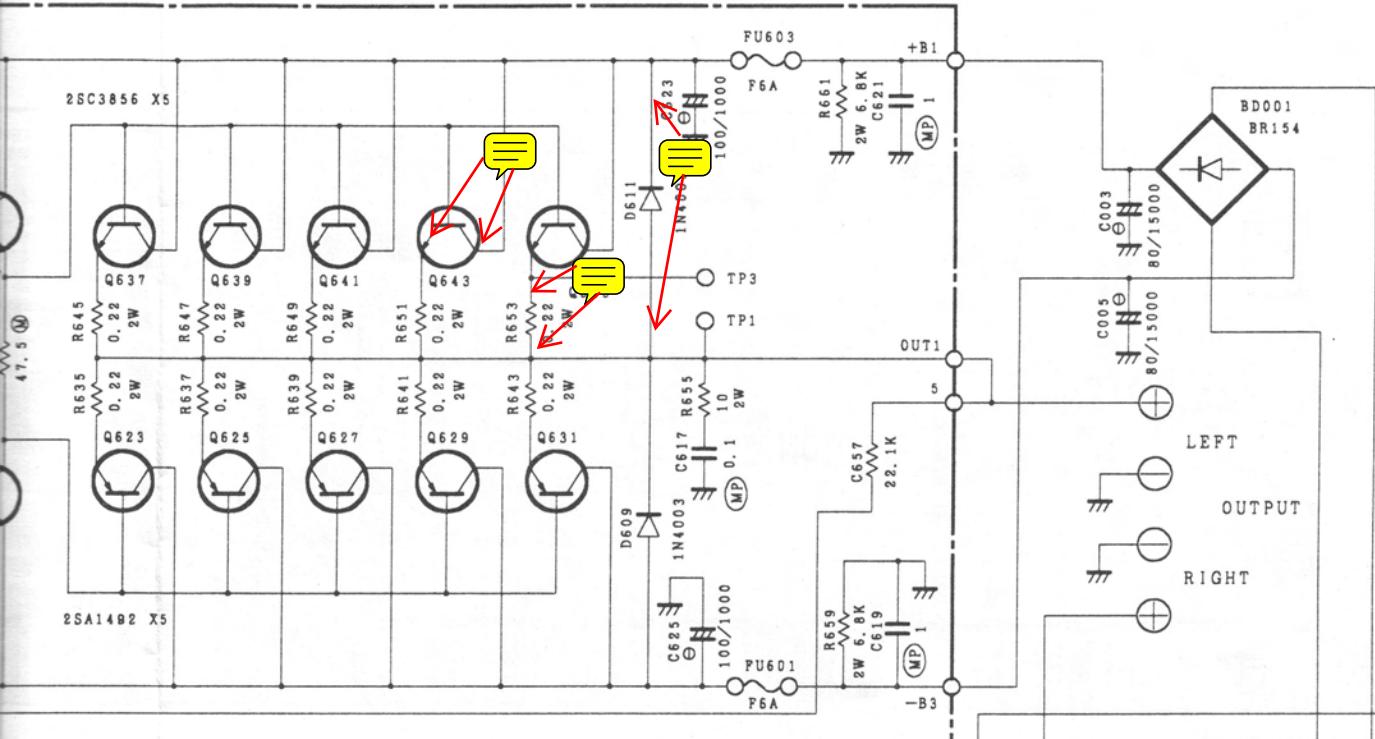
: VOLTAGE READING MAY 20%

Schematic Diagram STEREO POWER AMPLIFIER RB-990BX

X-1177-01



X-1177-02

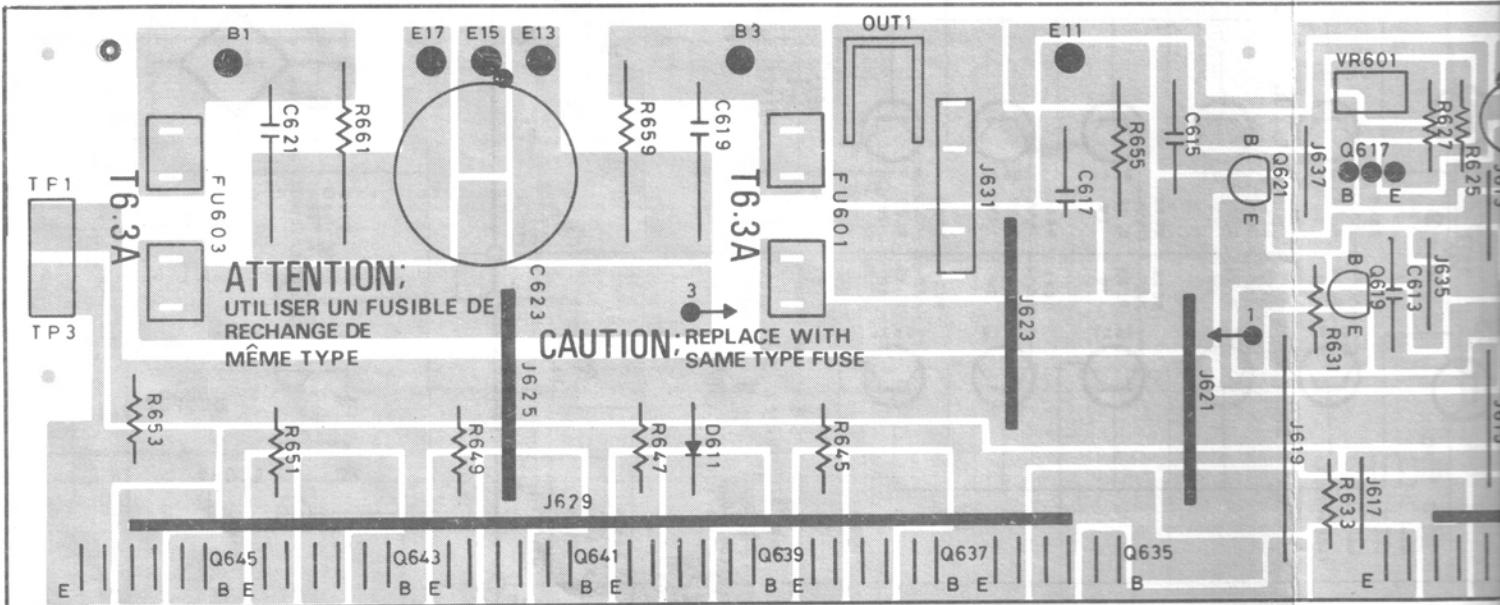


POWER SW.

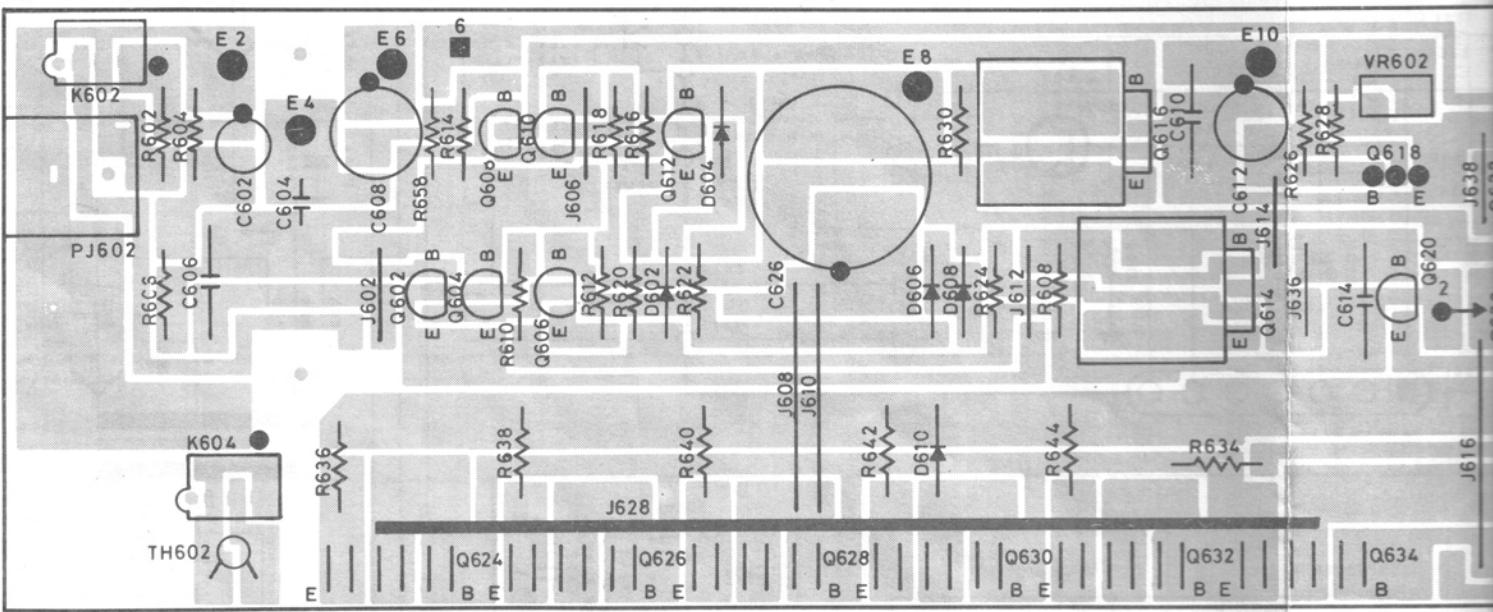
POWER

PCB Assembly

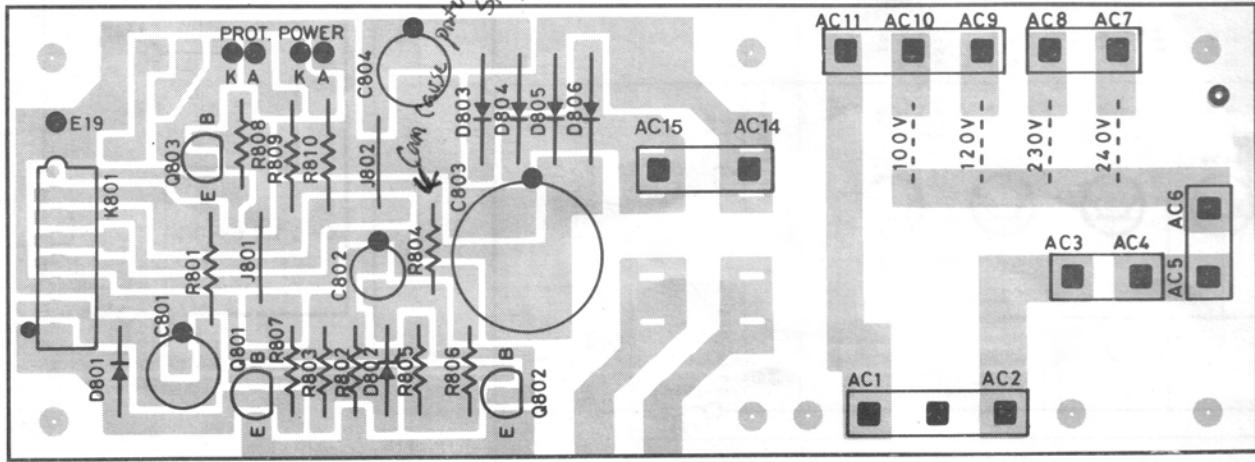
X-1177-01 PCB



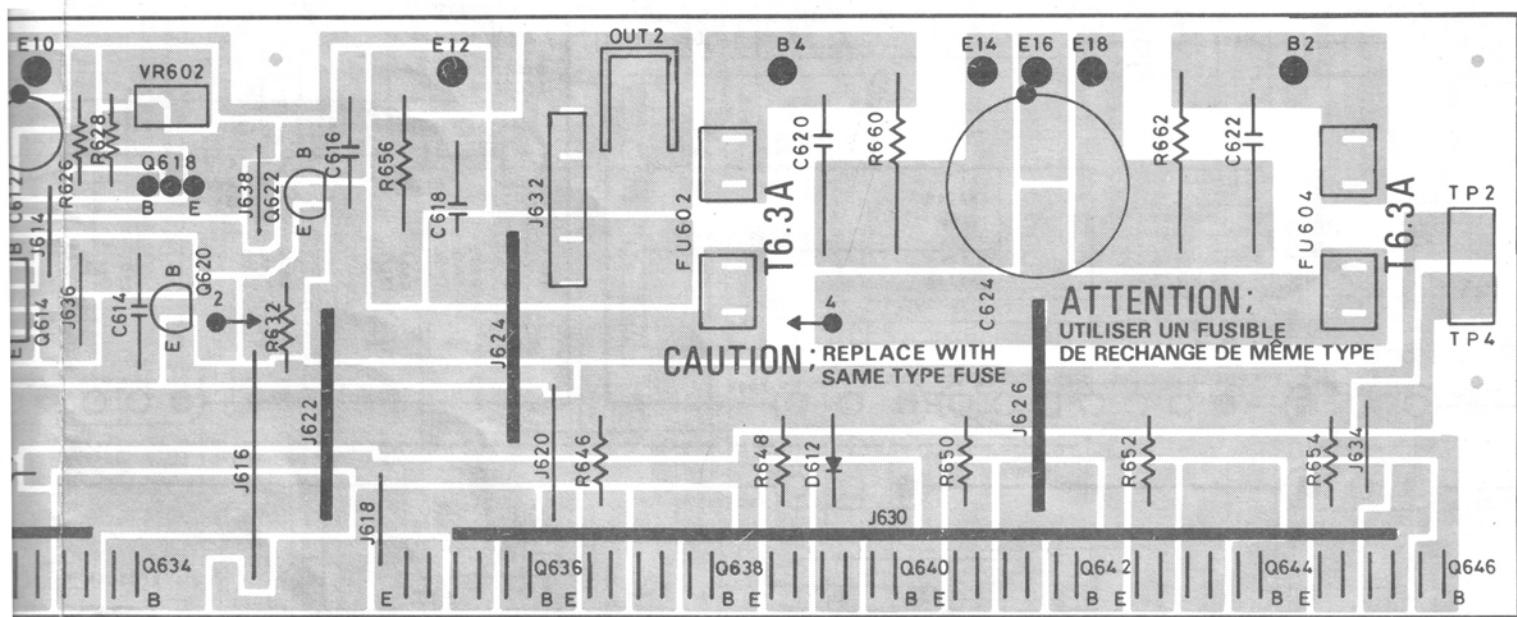
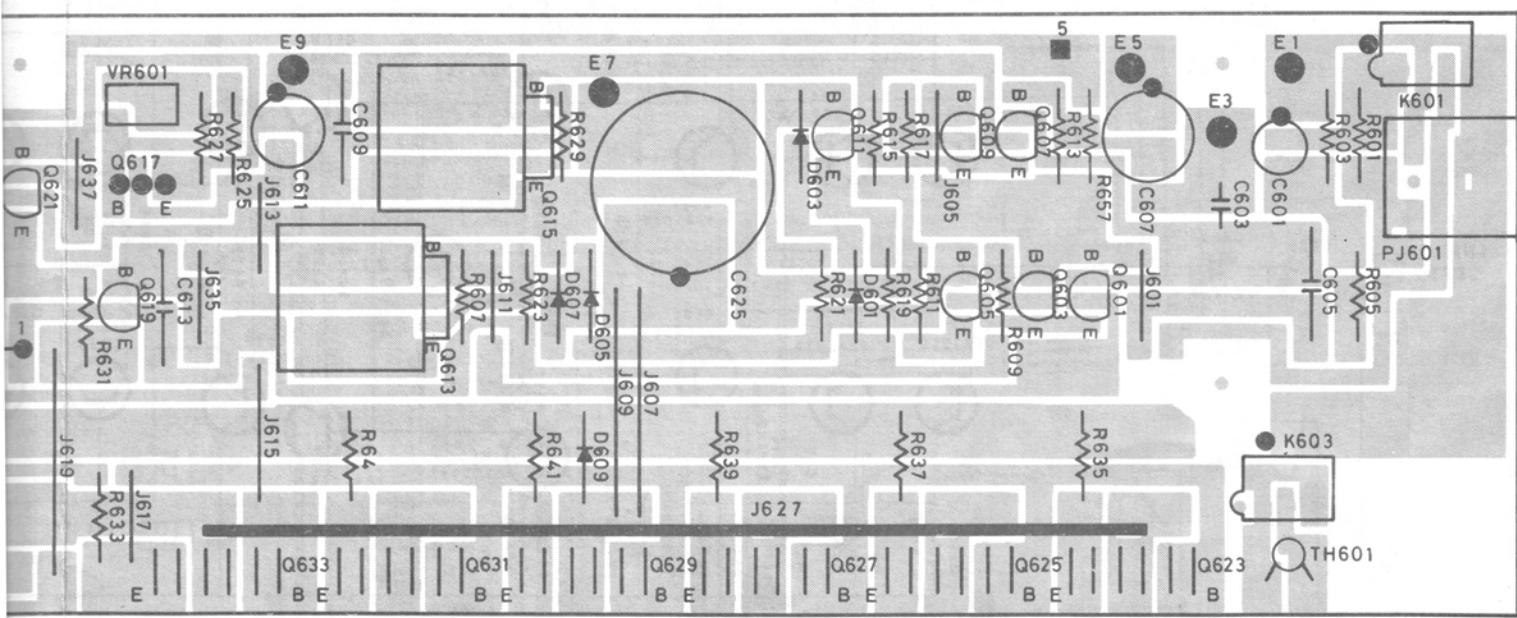
X-1177-02 PCB



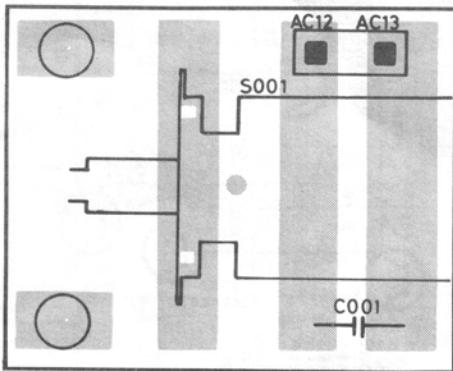
X-1176-01 PCB



X-1176-



X-1176-02 PCB



X-1176-03 PCB

