Quality Uncompromised

ROTEL®

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 (0.1 ohms, 10μsec, 1 pulse)	120 A
Total Harmonic Distortion (20 to 20,000 Hz)	No more than 0.03% (continuous rated power output) No more than 0.01% (continuous 1/2 rated power output) No more than 0.02% (1 watt per channel power output, 8 ohms)
Intermoduration Distortion (60 Hz : 7 kHz = 4:1)	No more than 0.02% (continuous rated power output) No more than 0.02% (continuous 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.

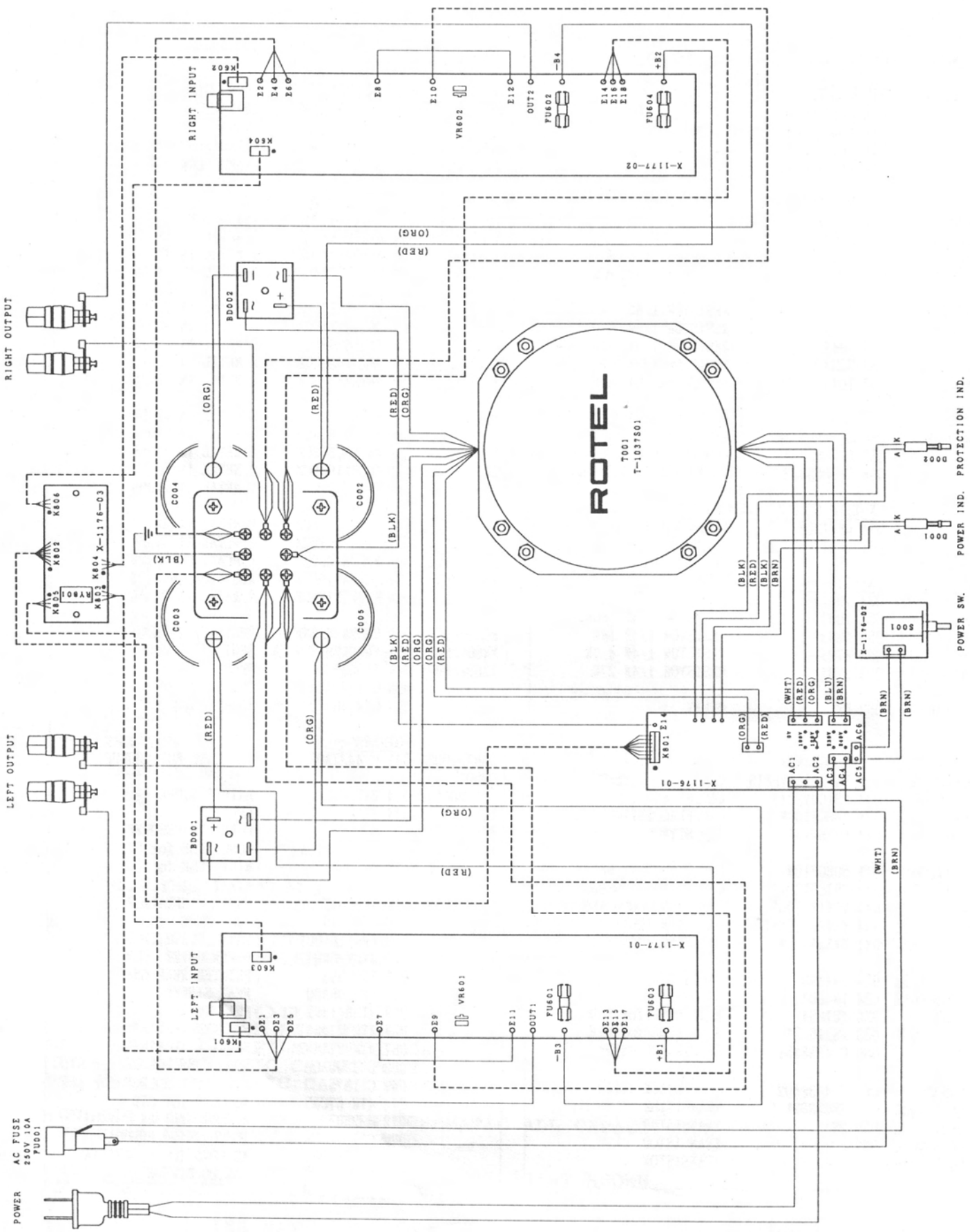
- Specifications and design subject to possible modification without notice.
- * Measured pursuant to the Federal Trade Commission's Trade Regulation Rule on Power Claims for Amplifiers (applicable to the U.S.A. only).

Serial No.
Beginning

THE ROTEL CO., LTD.
BUNZAN-SHINSEN-BLD. 4F 10-10 SHINSEN-CHO, SHIBUYA-KU, TOKYO 150, JAPAN

ROTEL ELECTRONICS CO., LTD.
3RD FLOOR, ROTEL BLDG., NO. 35 FUSHING, NORTH ROAD, TAIPEI, TAIWAN, REPUBLICK OF CHINA

Wiring Diagram



Parts List

SYMBOL	PARTS NO.	DESCRIPTION
	X-1176-01 PCB ASSEMBLY	
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
	X-1176-02 PCB ASSEMBLY	
C001	044 DE7150F472M	SPARK KILLER
S001	061 C-4176A04	POEWR SWITCH
	X-1176-03 PCB ASSEMBLY	
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
	X-1177 PCB ASSEMBLY	
C601, C602	041 50BGF4R7M	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 ～ FU604	036 (U)F6A	MINI FUSE for STD
	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

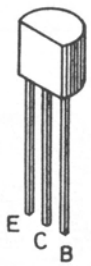
SYMBOL	PARTS NO.	DESCRIPTION
Q617, Q618	032 2SD1953	TRANSISTOR
Q619, Q620	033 2SC2910-RST	TRANSISTOR
Q621, Q622	033 2SA1208-RST	TRANSISTOR
Q623～632	033 2SA1492-OPY	TRANSISTOR
Q633, Q634	033 2SB817-DE	TRANSISTOR
Q635, Q636	033 2SD1047-DE	TRANSISTOR
Q637～645	033 2SC3856-OPY	TRANSITOR
R601, R602	054 MK2001KFECZ	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
	OTHERS	
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

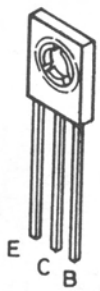
Instruments : DC milli-voltmeter

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

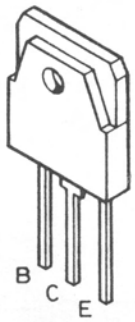
Step	Coupling		Location	Adjust	Adjust for
	Plus Lead	Minus Lead			
1	T P 3	T P 1	X-1177-01 PCB	VR601	DC milli-voltmeter reads 7mV
2	T P 4	T P 2	X-1177-02 PCB	VR602	



2SA1016
2SC2362
2SA1208
2SC2910



2SD1953
2SA1142
2SC2682



2SB817
2SD1047
2SA1492
2SC3856

(RESISTORS)
5%TOLERANCE UNLESS OTHERWISE NOTED.
K --- KILO OHM
Ⓜ --- FIXED PRECISION METAL FILM RESISTORS.(F):1%
NON MARK --- LOW NOISE TYPE CARBON RESISTORS.1/4W

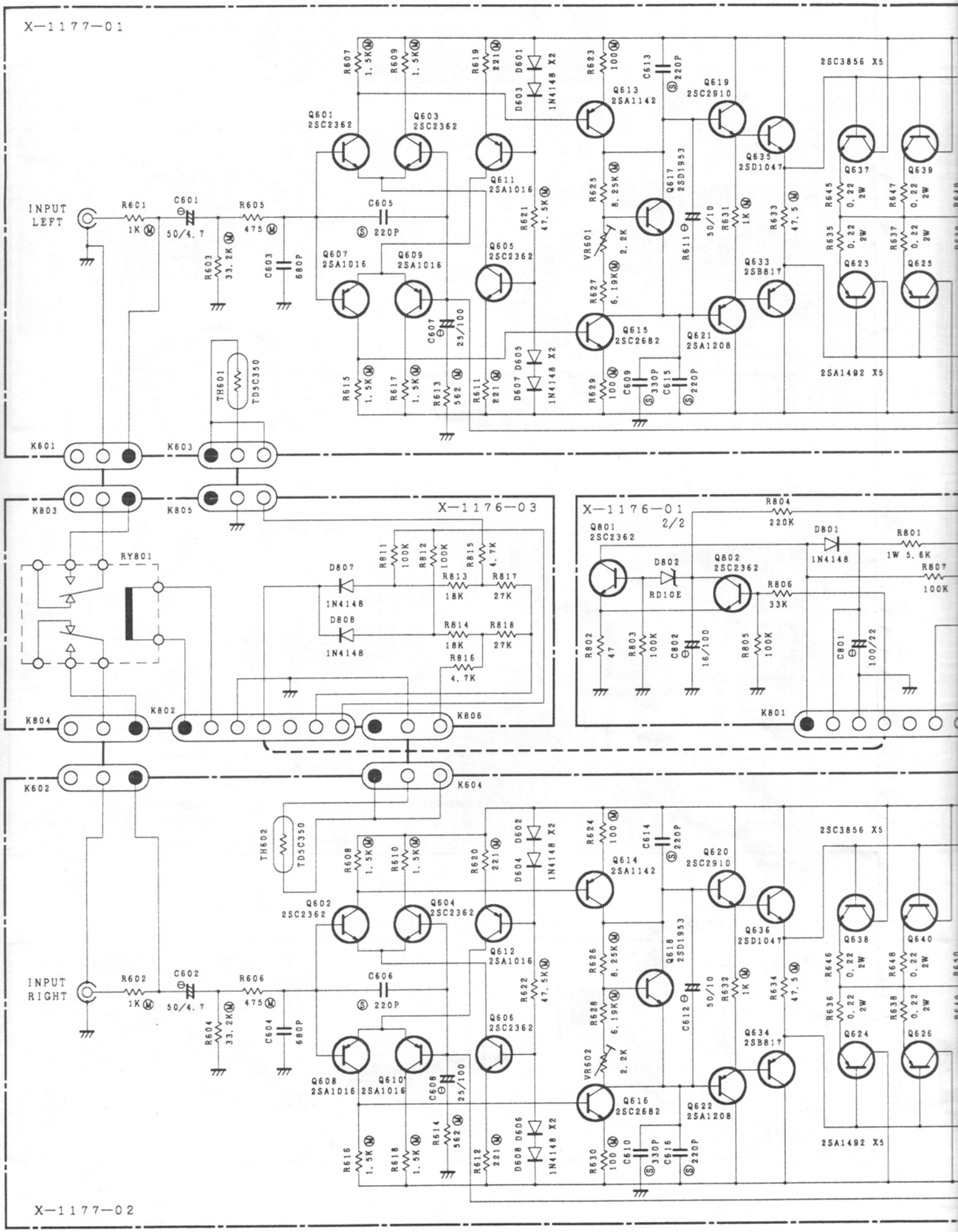
(CAPACITORS)
Ⓢ --- POLYSTYRENE FILM CAPACITORS.
Ⓜ --- METALIZED FILM CAPACITORS.
ǂ --- ELECTROLYTIC CAPACITORS.
NON MARK --- CERAMIC CAPACITORS.

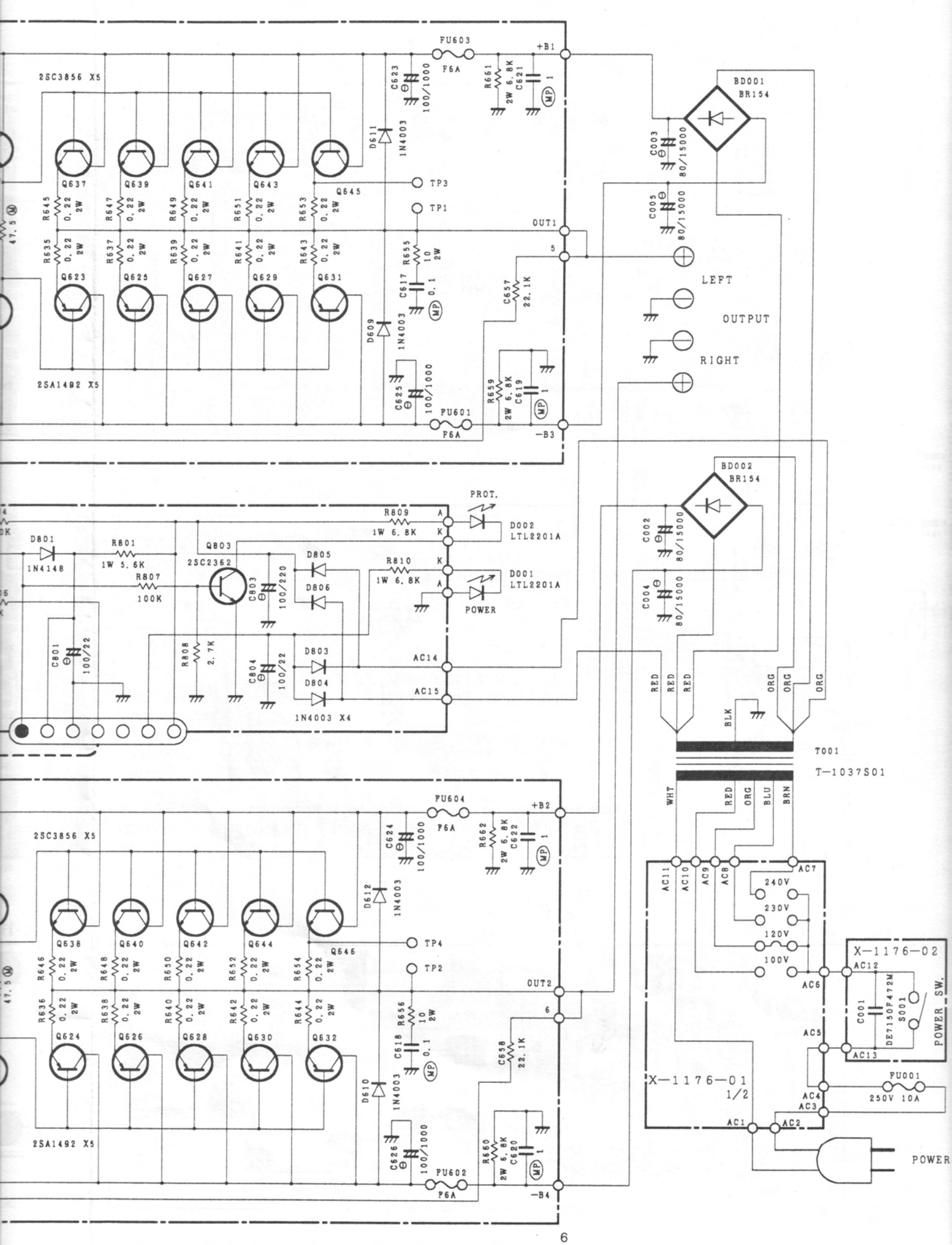
:UNLESS OTHERWISE NOTED IN SCHEMATIC ALL CAPACITANCE VALUSES ARE EXPRESSED IN MFD.

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

:VOLTAGE READING MAY 20%

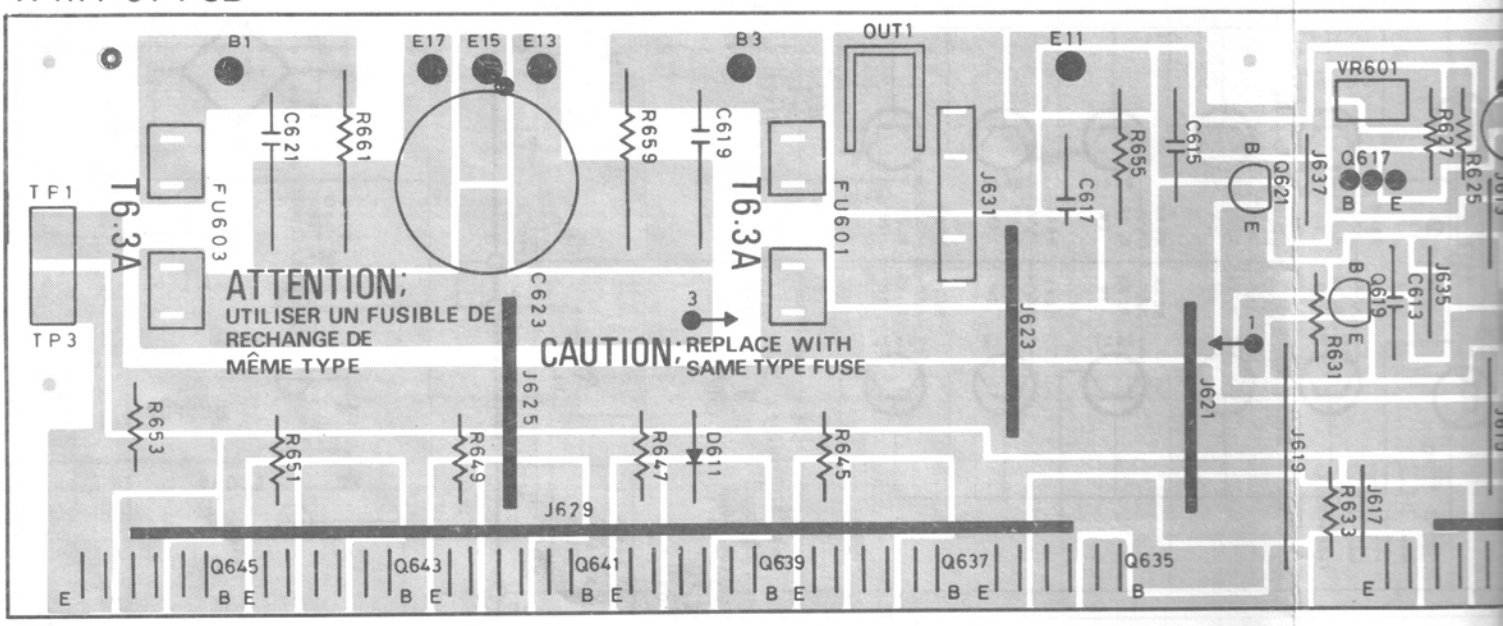
Schematic Diagram **STEREO POWER AMPLIFIER RB-990BX**



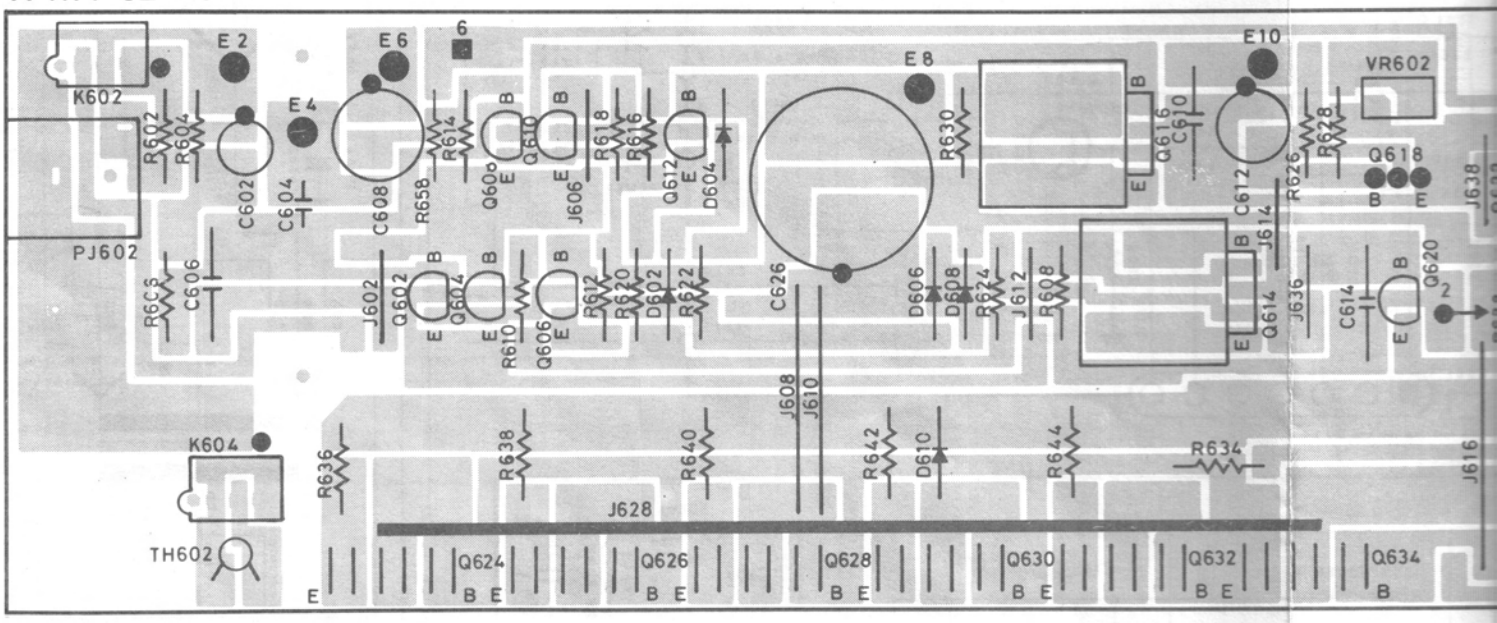

FU603
F6A
+B1
2SC3856 X5
C623
100/1000
R661
2W 6.8K
C621
1
MP
BD001
BR154
D611
1N4003
C003
80/15000
Q637
Q639
Q641
Q643
Q645
TP3
TP1
C005
80/15000
R645
R647
R649
R651
R653
0.22
2W
OUT1
5
R635
R637
R639
R641
R643
Q623
Q625
Q627
Q629
Q631
C617
R655
10
2W
0.1
LEFT
OUTPUT
RIGHT
C657
22.1K
D609
1N4003
2SA1492 X5
C625
100/1000
R659
2W 6.8K
C619
FU601
F6A
-B3
PROT.
R809
1W 6.8K
D002
LTL2201A
D801
1N4148
R801
1W 5.6K
Q803
2SC2362
R807
100K
C803
100/220
D805
D806
R810
1W 6.8K
D001
LTL2201A
POWER
BD002
BR154
C002
80/15000
C004
80/15000
C801
100/22
R808
2.7K
C804
100/22
D803
D804
1N4003 X4
AC14
AC15
RED
RED
RED
ORG
ORG
ORG
BLK
T001
T-1037S01
WHT
RED
ORG
BLU
BRN
FU604
F6A
+B2
2SC3856 X5
C624
100/1000
R662
2W 6.8K
C622
1
MP
AC11
AC10
AC9
AC8
AC7
240V
230V
120V
100V
AC6
X-1176-02
AC12
C001
DE7150F472M
S001
POWER SW.
AC13
D612
1N4003
Q638
Q640
Q642
Q644
Q646
TP4
TP2
R646
R648
R650
R652
R654
OUT2
6
R636
R638
R640
R642
R644
Q624
Q626
Q628
Q630
Q632
C618
R656
10
2W
0.1
AC5
X-1176-01
1/2
FU001
250V 10A
AC4
AC3
C658
22.1K
D610
1N4003
2SA1492 X5
C626
100/1000
R660
2W 6.8K
C620
1
MP
AC1
AC2
POWER
FU602
F6A
-B4

PCB Assembly

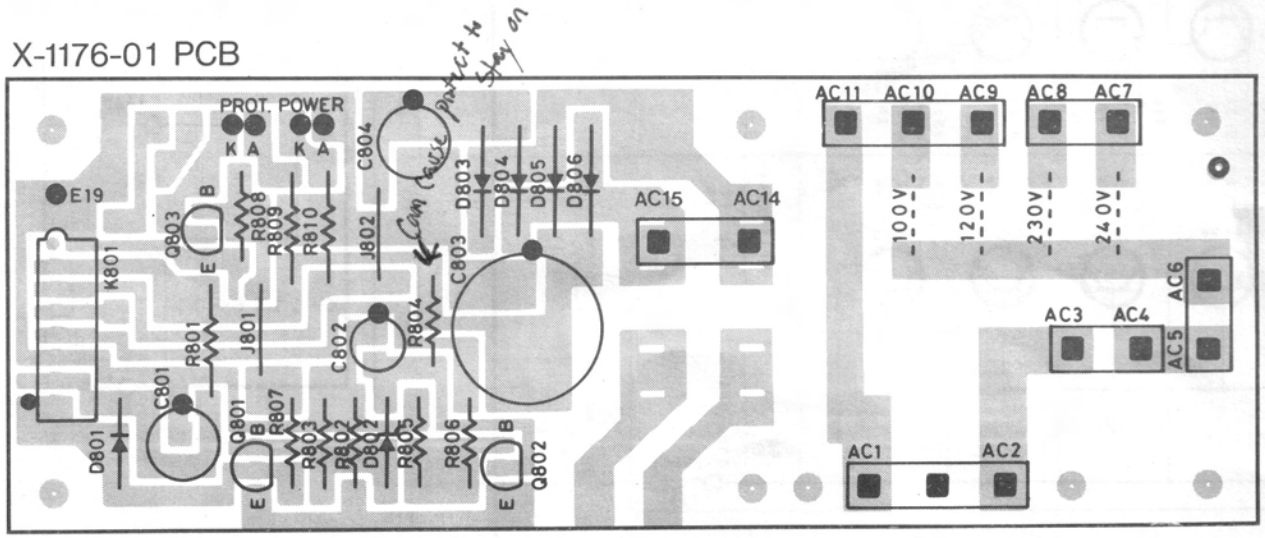
X-1177-01 PCB



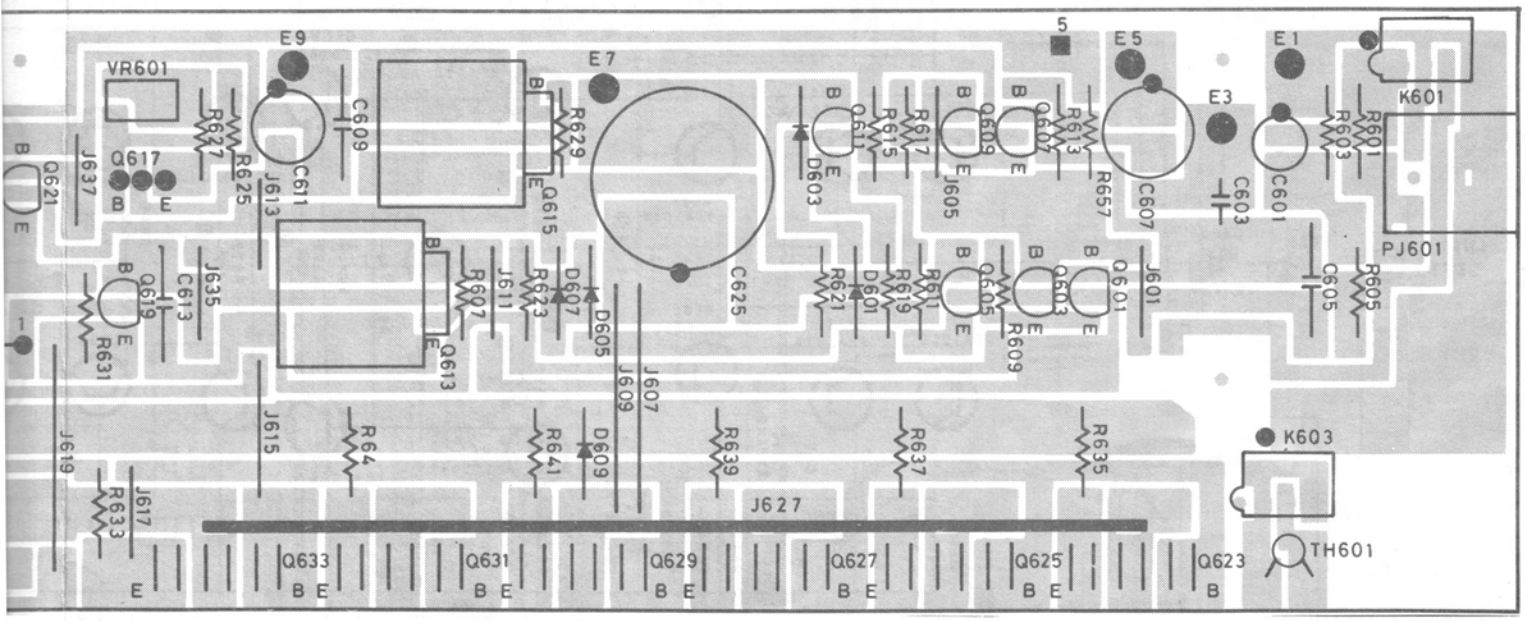
X-1177-02 PCB

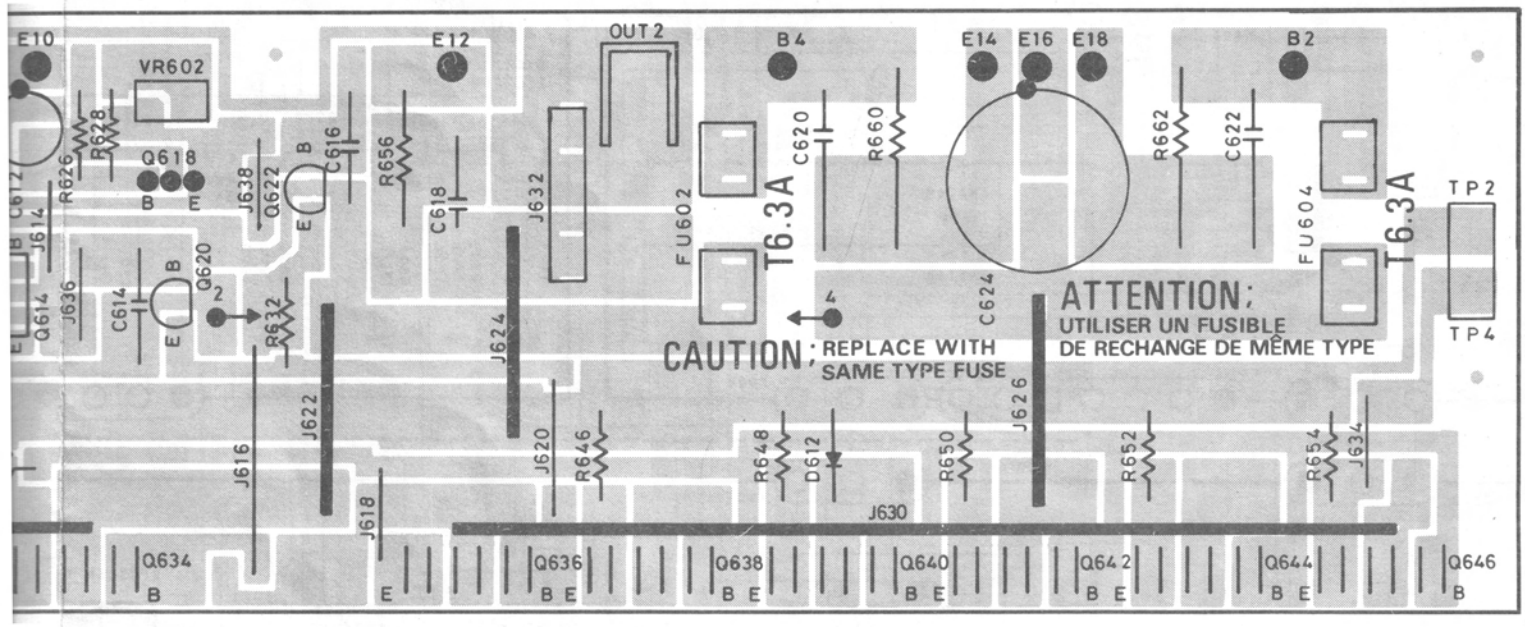


X-1176-01 PCB

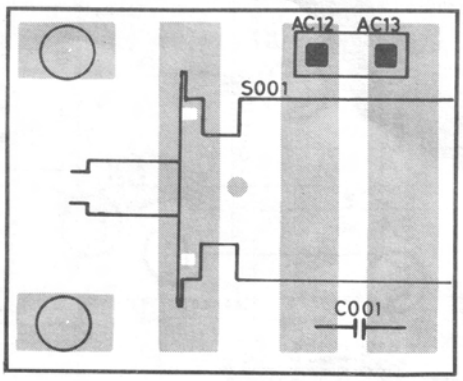


X-1176-





X-1176-02 PCB



X-1176-03 PCB