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ELECTRONICS SERVICE MANUAL

A-06 Amplifier

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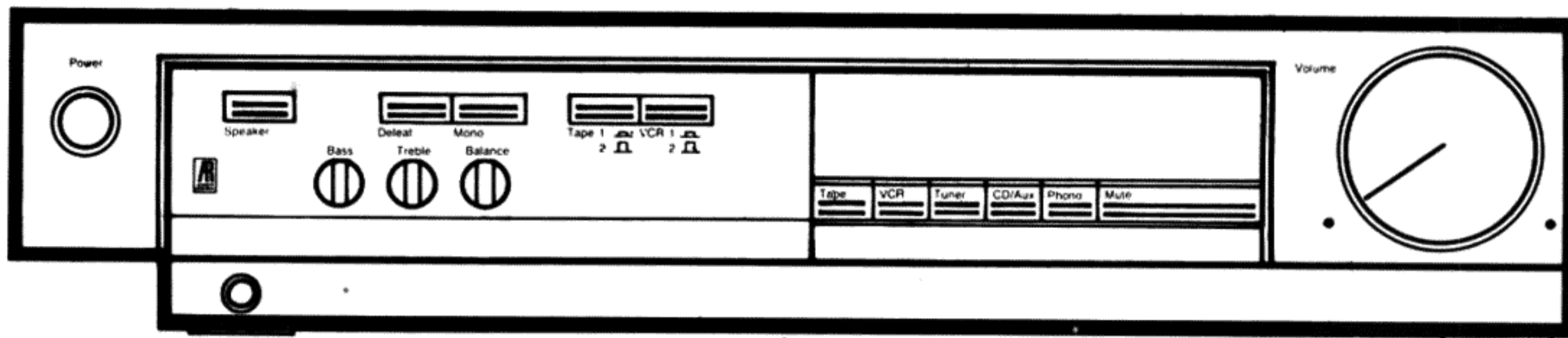
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Bias Adjustment

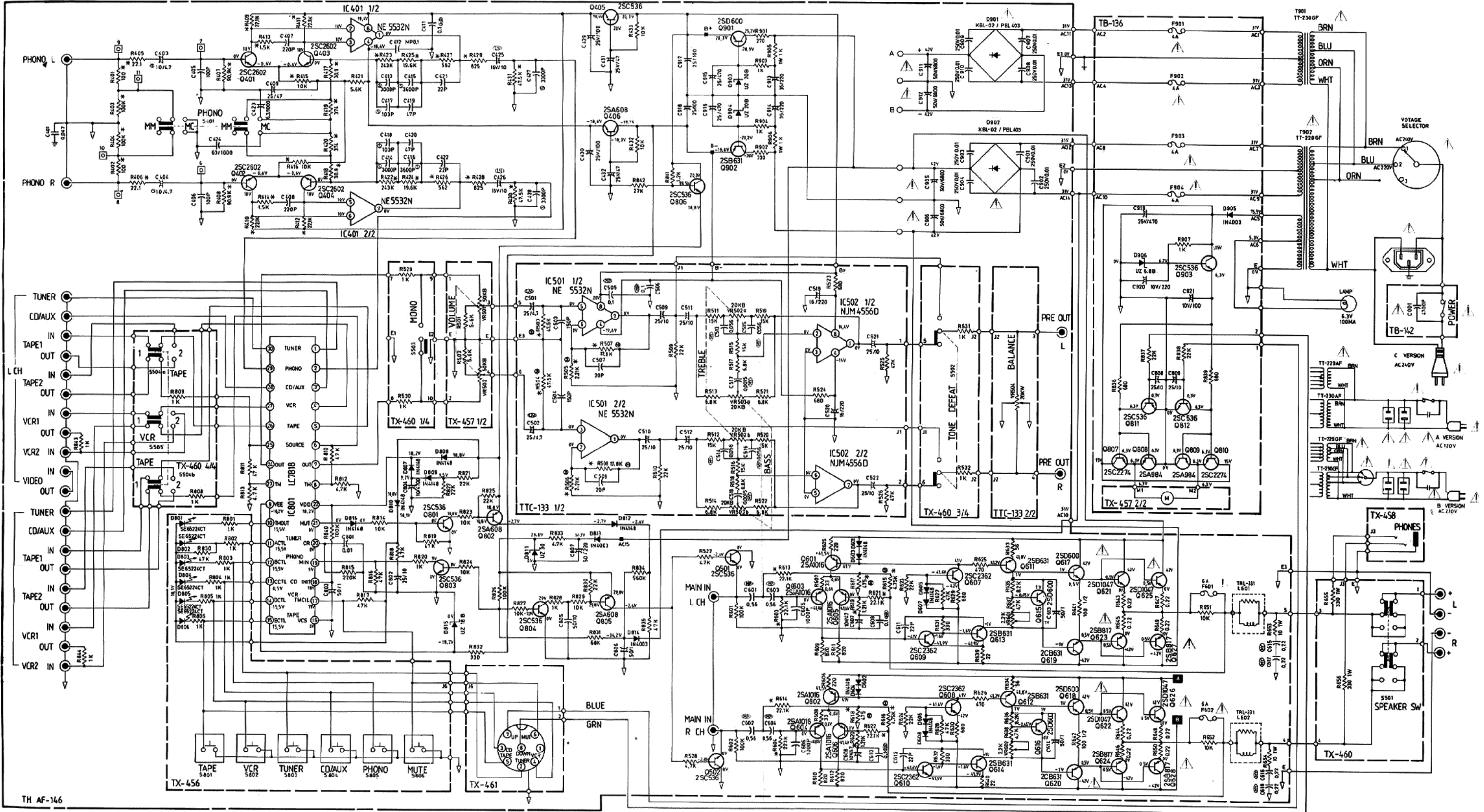
Instruments: DC milli-voltmeter

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 3.0mV
2	TP2	TP4	VR602	

Schematic Diagram

PARTS AND CIRCUIT SUBJECT TO CHANGES FOR IMPROVEMENTS WITHOUT PRIOR NOTICE.

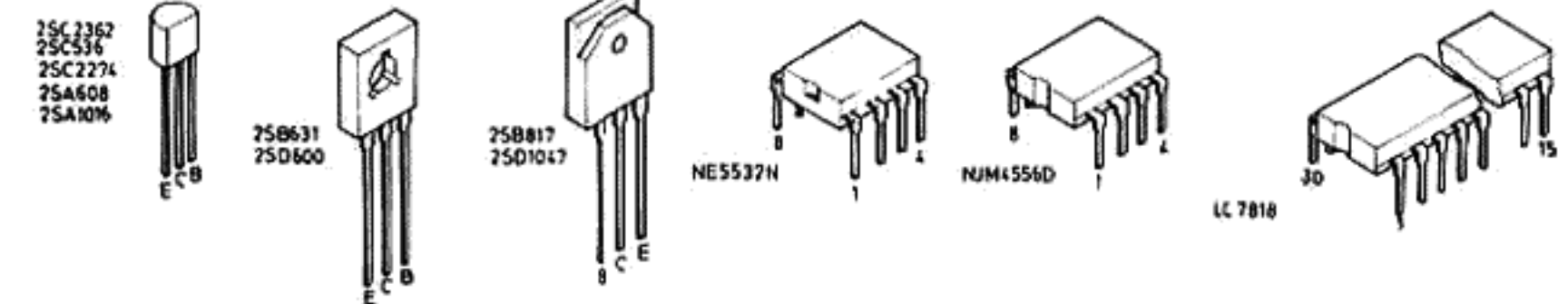


TH AF-146

RESISTORS
 1/4W - TOLERANCE UNLESS OTHERWISE NOTED
 K - KILO OHM
 M - MEGA OHM
 R - METAL RESISTORS 1/4 WATTS
 F - METAL OXIDE FILM RESISTORS
 C - LOW NOISE TYPE CARBON RESISTORS

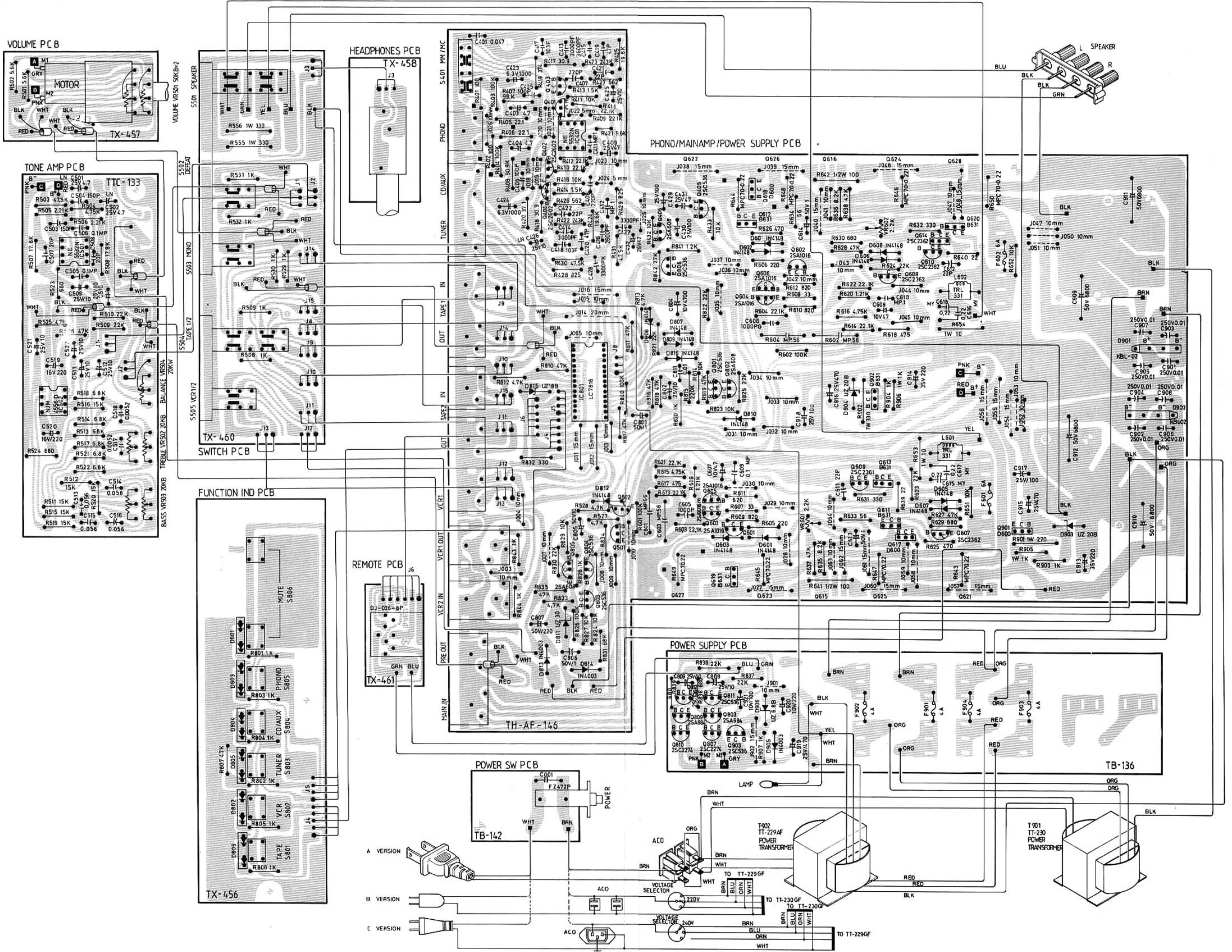
CAPACITORS
 (E) - LOW NOISE ELECTROLYTIC CAPACITORS
 (M) - MYLAR FILM CAPACITORS
 (P) - POLYSTYRENE FILM CAPACITORS
 (T) - TANTALUM CAPACITORS
 (E) - ELECTROLYTIC CAPACITORS
 NON MARK CERAMIC CAPACITORS
 UNLESS OTHERWISE NOTED IN SCHEMATIC ALL CAPACITANCE VALUES ARE EXPRESSED

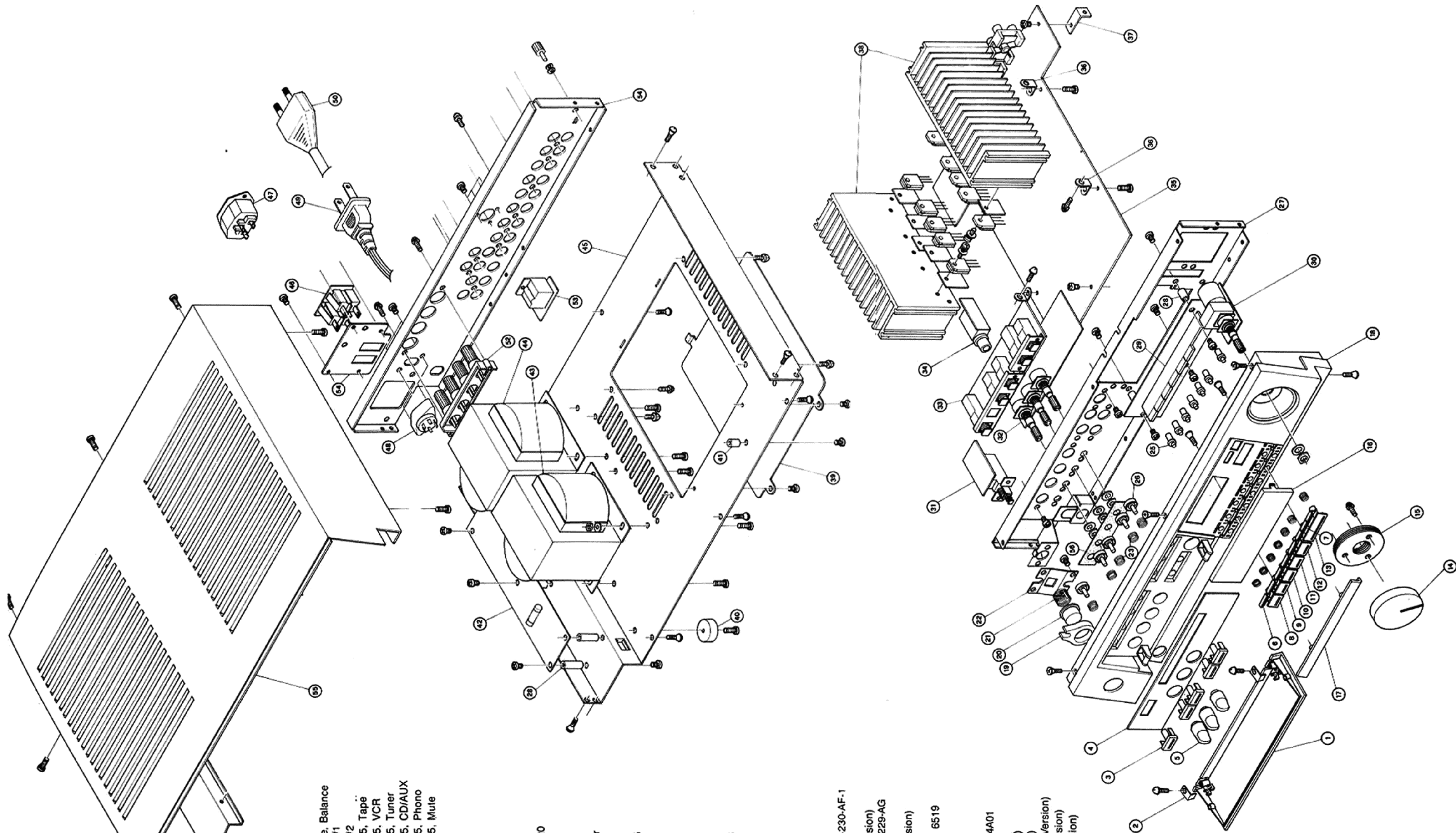
ITEM	SCHEMATIC LOCATION(LAST)
PHONO AMP	R437 C437
TONE AMP	R532 C532
MAINAMP	R556 C618
PROTECTOR	R842 C809
POWER SUPPLY	R907 C921



INSTRUCTIONS FOR SERVICE PERSONNEL
 1. TO USE ONLY REPLACEMENT PARTS THAT HAVE THE CRITICAL CHARACTERISTICS RECOMMENDED BY MANUFACTURER.
 2. TO MAKE LEAKAGE-CURRENT OR RESISTANCE MEASUREMENTS TO DETERMINE THAT EXPOSED PARTS ARE ACCEPTABLY INSULATED FROM THE SUPPLY CIRCUIT BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.
 Y05A-7PABCDEFHGJKLMNORSTUVWXYZ

Wiring Diagram





Key No.

- 1. CM00002054
- 2. SP-10004822
- 3. KB20001664
- 4. OM00002169
- 5. KB10001333
- 6. OM00002080
- 7. OM00002327
- 8. KB20001755
- 9. KB20001767
- 10. KB20001779
- 11. KB20001780
- 12. KB20001792
- 13. KB20001573
- 14. KB10001357
- 15. SR00000780
- 16. OM00002108
- 17. OM00002110
- 18. AA80000821
- 19. BU00000724
- 20. KB20001652
- 21. SN00000180
- 22. SP10004901
- 23. SN00000179
- 24. SN00000192
- 25. OM00002091
- 26. OM00001943
- 27. AF80000299
- 28. BC00000337
- 29. _____
- 30. _____
- 31. _____
- 32. _____
- 33. _____
- 34. _____
- 35. _____
- 36. SP10003258
- 37. SP10003040
- 38. AH20000382
- 39. AB00000158
- 40. FT00000140
- 41. BC00000258
- 42. _____
- 43. PT21006340
- 44. PT21006491
- 45. PT21006144
- 46. PT21006296
- 47. AM00001318
- 48. SA00001450
- 49. SA00001553
- 50. VC00000048
- 51. VC00000218
- 52. CD00000097
- 53. CD00000048
- 54. SP10005048
- 55. SP10004755
- 56. TP20000249

- Description**
- Plastic Door
 - Door Lock Plat
 - Push Button 8x20
 - Door Plate
 - Knob, 13 e, Bass Treble, Balance
 - LED Diffusor, 4TUQ-12#1
 - LED Diffusor, 4TUQ-12#2
 - Tact Button (A), 10 x 15, Tape
 - Tact Button (A), 10 x 15, VCR
 - Tact Button (A), 10 x 15, Tuner
 - Tact Button (A), 10 x 15, CD/AUX
 - Tact Button (A), 10 x 15, Phono
 - Tact Button (B), 10 x 45, Mute
 - Knob, 50e, Volume
 - Knob Spacer
 - Sub Front Panel A
 - Sub Front Panel B
 - Front Panel
 - Button Ring 17e
 - Push Button 16.9e
 - Button Spring 13.2e x20
 - Push Button Support
 - Button Spring
 - Button Spring
 - Push Button Connector
 - Button Connector
 - Front Chassis
 - Cylinder Bush 6e x14.5
 - PC.B. Ass'y, TX-456
 - PC.B. Ass'y, TX-457
 - PC.B. Ass'y, TB-142
 - PC.B. Ass'y, TTC-133
 - PC.B. Ass'y, TX-460
 - PC.B. Ass'y, TX-458
 - PC.B. Ass'y, TH-AF-146
 - PC.B. Support
 - PC.B. Support
 - Heat Sinker Board
 - Bottom Cover
 - Rubber Foot
 - Cylinder Bush 9.5mm
 - PC.B. Ass'y, TB-136
 - Power Transformer, TT-230-AF-1 (for A Version)
 - TT-230-GF (for B/C Version)
 - Power Transformer, TT-229-AG (for A Version)
 - TT-229-GF (for B/C Version)
 - Chassis Body
 - AC Outlet Socket, S-1 6519 (for A/B Version)
 - AC Outlet Socket (for C Version)
 - Voltage Selector C-4304A01 (for B/C Version only)
 - AC Cord (for A Version)
 - AC Cord (for B Version)
 - AC Power Cord (for C Version)
 - ACO Mask (for B Version)
 - ACO Mask (For A Version)
 - 4P Speaker Terminal
 - PC.B. Ass'y, TX-461
 - Printed Rear Chassis
 - Upper Cover
 - Felt

Repair Parts List

Schematic Location	Parts No.	Description
TRANSISTORS, DIODES AND IC'S		
Q401 - 404	TR30000467	2SC2602(G), Phono Amp.
Q405	TR30000327	2SC536(G), Phono Stabilizer.
Q406	TR10000126	2SA608K, Phono Stabilizer
Q501, 502	TR30000327	2SC536(G), Tone Muting.
Q601 - 606	TR10000023	2SA1016(G,H), Constant Current/Differential Amp.
Q607 - 610	TR30000212	2SC2362(G,H), Muting/Pre-Driver.
Q611 - 614	TR10000047	2SB631K(E,F), Constant Current/Pre-Driver.
Q617 - 618	TR40000069	2SD600K(E,F), Driver
Q619, 620	TR10000047	2SB631K(E,F), Driver
Q621, 622	TR40000045	2SD1047(E,F), Power Amp.
Q623, 624	TR20000040	2SB817(D,E), Power Amp.
Q625, 626	TR40000045	2SD1047(E,F), Power Amp.
Q627, 628	TR20000040	2SB817(D,E), Power Amp.
Q801	TR30000327	2SC536(G), Protector
Q802	TR10000126	2SA608K, Protector
Q803, 804	TR30000327	2SC536(G), Protector
Q805	TR10000126	2SA608K, Protector
Q806	TR30000327	2SC536(G), Stabilizer
Q807	TR30000121	2SC2274(E,F), Motor Driver
Q808, 809	TR10000140	2SA984K(E,F), Motor Driver
Q810	TR30000121	2SC2274(E,F), Motor Driver
Q811, 812	TR30000327	2SC536(G), Motor Driver
Q901	TR40000069	2SD600K(E,F), Stabilizer
Q902	TR10000047	2SB631K(E,F), Stabilizer
Q903	TR30000327	2SC536(G), Stabilizer
D601 - 608	DD10000100	IN4148, Bias Compensator
D801 - 806	DD40000812	SE65224DT-D, LED
Q807 - 810	DD10000100	IN4148, Diode
D811	DD20000030	UZ30, Zener Regulator
D812	DD10000100	IN4148, Diode se Prevention
D813, 814	DD10000068	IN4003, Diode
D815	DD20000041	UZ18B, Zener Regulator
D816	DD10000100	IN4148, Diode
D901, 902	DD10000020	KBL-02/PBL-403, Rectifier
D903, 904	DD20000028	UZ20B, Zener Regulator
D905	DD10000068	IN4003, Detector
D906	DD20000065	UZ6.8B, Zener Regulator
IC401	IC00001279	NE5532N, Phono Amp.
IC501	IC00001279	NE5532N, Tone Amp.
IC502	IC00001474	NJM4556D, Tone Amp.
IC801	IC00001541	LC7818, Function

Schematic Location	Parts No.	Description
COILS, VARIABLE RESISTORS, SWITCHES AND OTHERS		
L601, 602	LC23310002	TRL-331, Anti-Parasitic Coil
VR501	RV10001073	051 C-4170A08, 50KB x 2, Volume Control
VR502, 503	RV10000433	4TR-1742, 20KB x 2, Treble, Bass Control
VR504	RV10000378	4TR-1572, 20KW, Balance Control
VR601, 602	RV40000022	VM6CKPV-1S-B 2.2KB, Bias Adj
S501 - 503	SH14000160	4TR-2279, 4 Key Push Switch, Speaker/Defeat/Mono
S504 - 505	SH12000326	4TR-2276, 2 Key Push Switch, Tape 1/2 and VCR 1/2.
S801 - 808	SH60000239	4TR-2301, Key Board Switch, Tape/VCR/Tuner/CD/Phono/Mute
	SH40000155	C-4176A01, Power
S401	SH20000319	SSY342, Slide Switch Phono
T001	PT21006144	TT-229-AF, Power Transformer (for A Version)
	PT21006296	TT-229-GF Power Transformer (for B, C Version)
T002	PT21006340	TT-230-AF-1, Power Transformer (for A Version)
	PT21006491	TT-230-GF Power Transformer (for B, C Version)
F601, 602	FU12000136	Fuse, 125V Long 6A (UL)
	FU23000086	Fuse, 250V6.3A (S)
F901-904	FU12000045	Fuse 250V4A (UL)
	FU23000049	Fuse 250V4A (S)

Specifications

Continuous Power Output	60 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	100 watts per channel (1 kHz, 4 ohms, 1% THD)
Music Power	300 watts total (150 w/ch)
Continuous Rated Power Output	total harmonic distortion (20 to 20,000 Hz) no more than 0.03% inter modulation distortion (60Hz:7kHz = 4:1) no more than 0.03%
Continuous 1/2 Rated Power Output ...	total harmonic distortion (20 to 20,000 Hz) no more than 0.02% inter modulation distortion (60Hz:7kHz = 4:1)
1 Watt/ch Power Output, 8 ohms	total harmonic distortion (20 to 20,000 Hz) no more than 0.03% inter modulation distortion (60Hz:7kHz = 4:1) no more than 0.03%
Output	
Speaker	8 ohm nominal
Headphone	8 ohm nominal
Damping Factor	120 (1 kHz, 8 ohms)
Input Sensitivity/Impedance	
Phono (MM)	2.5mV/47 Kohms
Phono (MC)	200 μ V/100 ohms
CD	150mV/20 Kohms
Tuner, Tape Monitor	150mV/20 Kohms
Overload Level (THD 0.5% 1 kHz)	
Phono (MM)	180mV
Phono (MC)	15mV
CD, Tuner, Tape Monitor	5V
Frequency Response	
Phono	20 to 20,000Hz \pm 0.2dB (RIAA STD)
CD, Tuner, Tape Monitor	20 to 20,000Hz + 0.5dB - 0.3dB
Signal to Noise Ratio (IHF A Network)	
Phono (MM)	80 dB
Phono (MC)	70 dB
CD, Tuner, Tape Monitor	90 dB
Power Consumption	300 watts
Dimensions (Overall)	430(W) \times 88(H) \times 356(D) 16 ^{15/16} " \times 3 ^{15/32} " \times 14 ^{1/16} "
Weight (net)	9.8 kgs/21.56 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).