

# ELECTRONICS SERVICE MANUAL

## A-04 Amplifier

### TABLE OF CONTENTS

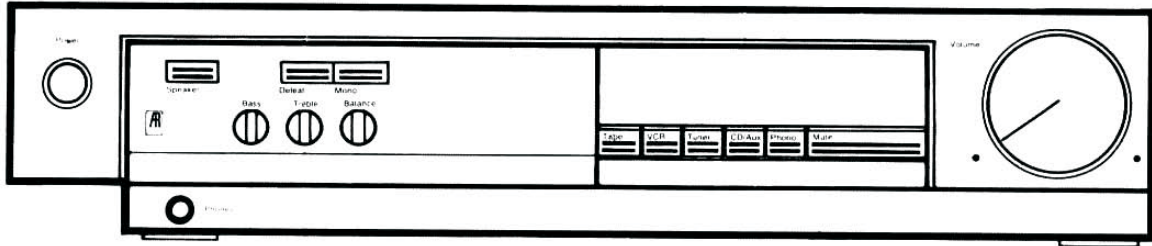
Bias Adjustment.....	1
Schematic Diagram.....	2
Wiring Diagram.....	3
Disassembly Diagram.....	4
Repair Parts List.....	5
Specifications.....	5

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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	

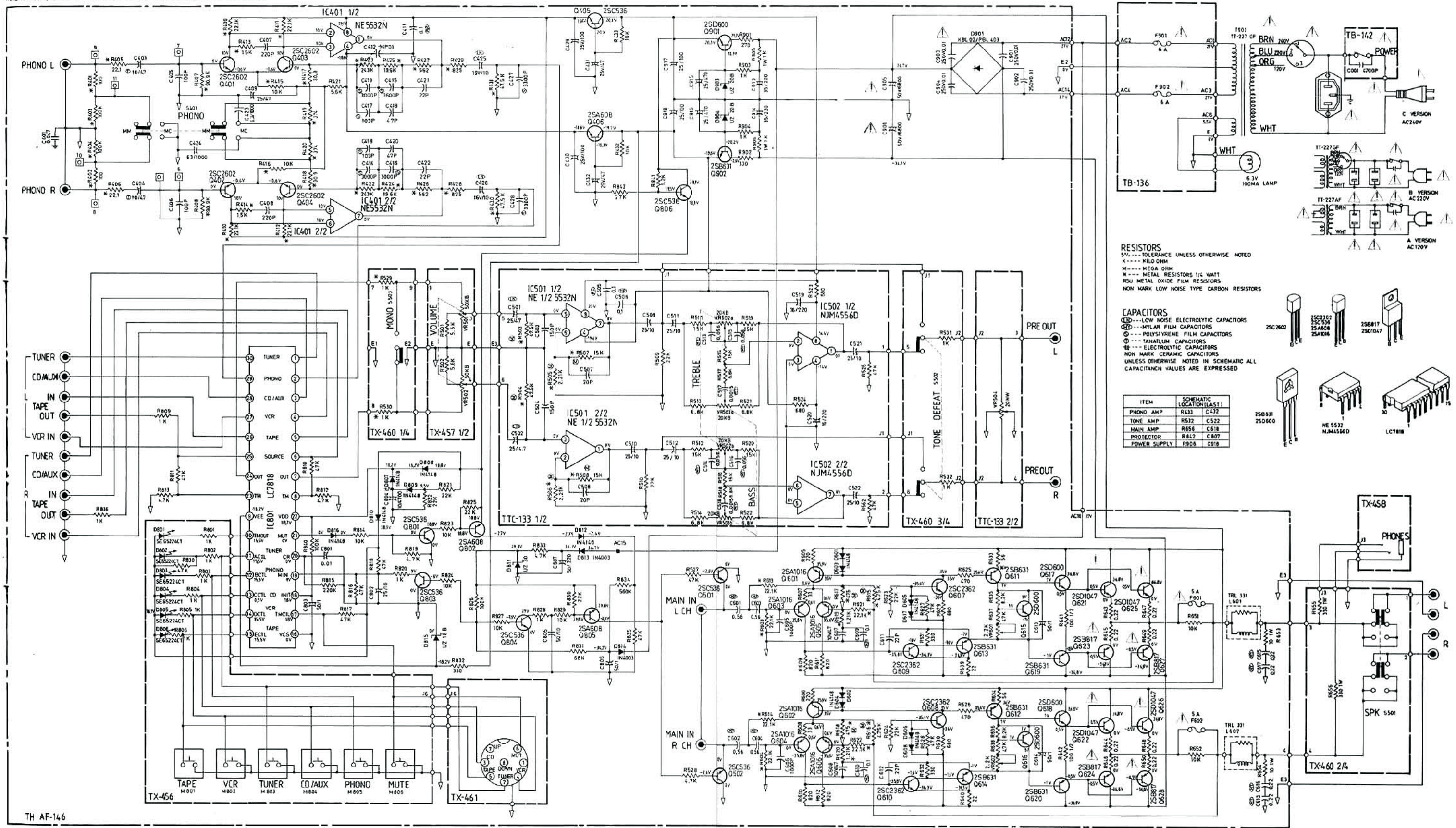
## Specifications

<b>Continuous Power Output</b> .....	40 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
<b>DIN Power Output</b> .....	58 watts per channel (1kHz, 4 ohms, 1% THD)(D)
<b>Music Power</b> .....	200 watts total (100 w/ch)
<b>Continuous Rated Power Output</b> .....	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%
<b>Continuous 1/2 Rated Power Output</b> .....	total harmonic distortion (20 to 20,000 Hz) no more than 0.02% inter modulation distortion (60Hz:7kHz = 4:1)
<b>1 Watt/ch Power Output, 8 ohms</b> .....	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%
<b>Output</b>	
<b>Speaker</b> .....	8 ohm nominal
<b>Headphone</b> .....	8 ohm nominal
<b>Damping Factor</b> .....	120 (1 kHz, 8 ohms)
<b>Input Sensitivity/Impedance</b>	
<b>Phono (MM)</b> .....	2.5mV/47 Kohms
<b>Phono (MC)</b> .....	200µV/100 ohms
<b>CD</b> .....	150mV/20 Kohms
<b>Tuner, Tape Monitor</b> .....	150mV/20 Kohms
<b>Overload Level (THD 0.5% 1 kHz)</b>	
<b>Phono (MM)</b> .....	180mV
<b>Phono (MC)</b> .....	15mV
<b>CD, Tuner, Tape Monitor</b> .....	5V
<b>Frequency Response</b>	
<b>Phono</b> .....	20 to 20,000Hz ± 0.2dB (RIAA STD)
<b>CD, Tuner, Tape Monitor</b> .....	20 to 20,000Hz + 0.5dB - 0.3dB
<b>Signal to Noise Ratio (IHF A Network)</b>	
<b>Phono (MM)</b> .....	80 dB
<b>Phono (MC)</b> .....	70 dB
<b>CD, Tuner, Tape Monitor</b> .....	90 dB
<b>Power Consumption</b> .....	200 watts
<b>Dimensions (Overall)</b> .....	430(W) × 88(H) × 356(D) 16 <sup>1</sup> / <sub>16</sub> " × 3 <sup>1</sup> / <sub>2</sub> " × 14 <sup>1</sup> / <sub>16</sub> "
<b>Weight (net)</b> .....	7.6 kgs/16.72 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).

# Schematic Diagram

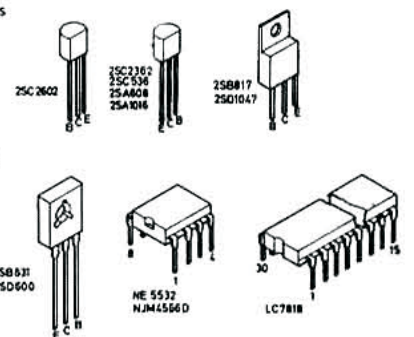
NOTE PARTS AND CIRCUIT SUBJECT TO CHANGES FOR IMPROVEMENTS WITHOUT PRIOR NOTICE



**RESISTORS**  
 5% --- TOLERANCE UNLESS OTHERWISE NOTED  
 K --- KILLOHM  
 M --- MEGA OHM  
 W --- METAL RESISTORS 1/4 WATT  
 RSU --- METAL OXIDE FILM RESISTORS  
 NON MARK LOW NOISE TYPE CARBON RESISTORS

**CAPACITORS**  
 □ --- LOW NOISE ELECTROLYTIC CAPACITORS  
 ○ --- MYLAR FILM CAPACITORS  
 ⊙ --- POLYSTYRENE FILM CAPACITORS  
 ⊖ --- TANTALUM CAPACITORS  
 ⊕ --- ELECTROLYTIC CAPACITORS  
 NON MARK CERAMIC CAPACITORS  
 UNLESS OTHERWISE NOTED IN SCHEMATIC ALL CAPACITANCE VALUES ARE EXPRESSED

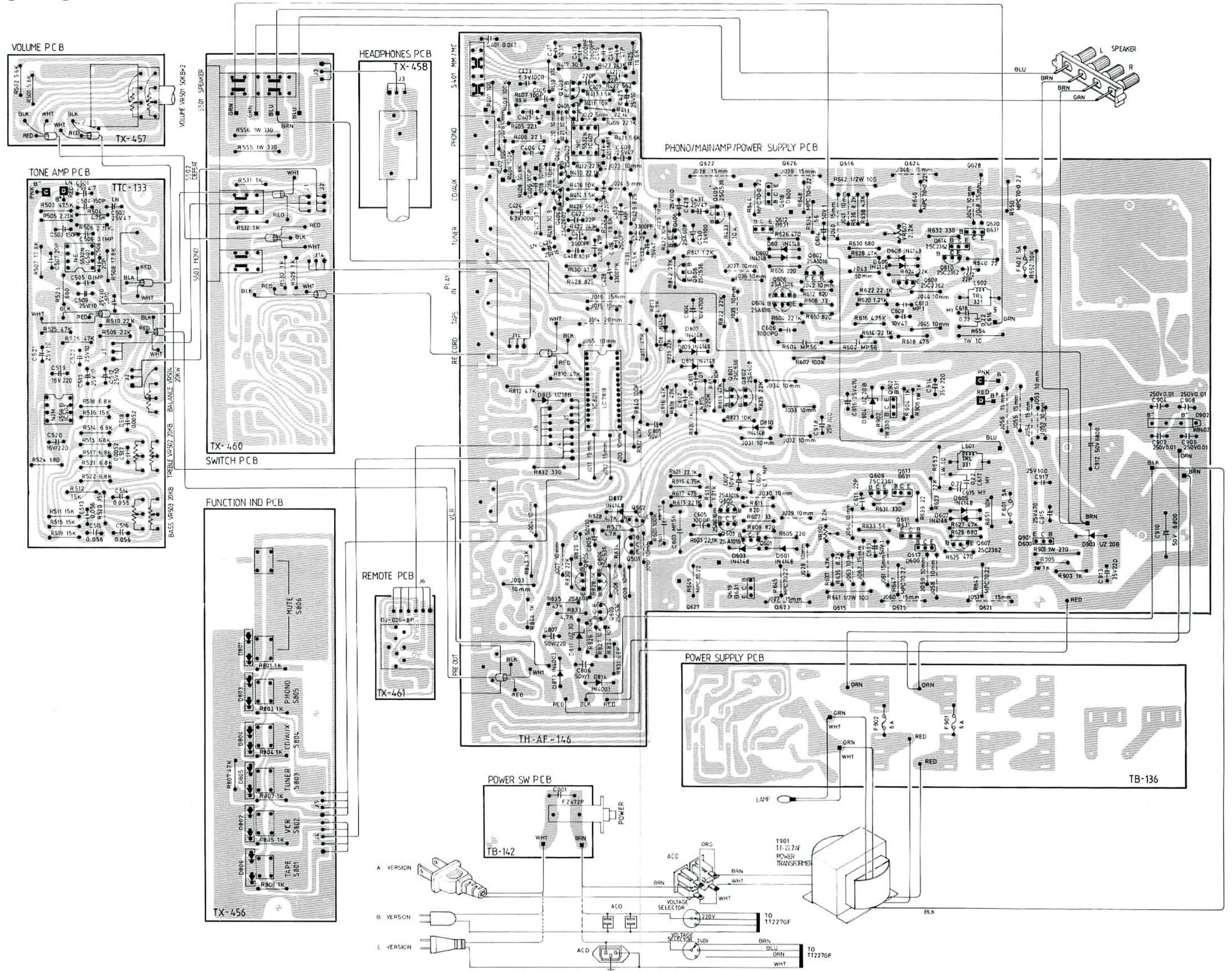
ITEM	SCHEMATIC LOCATION (LAST 1)
PHONO AMP	R433 C432
TONE AMP	R512 C522
MAIN AMP	R656 C618
PROTECTOR	R842 C807
POWER SUPPLY	R808 C818



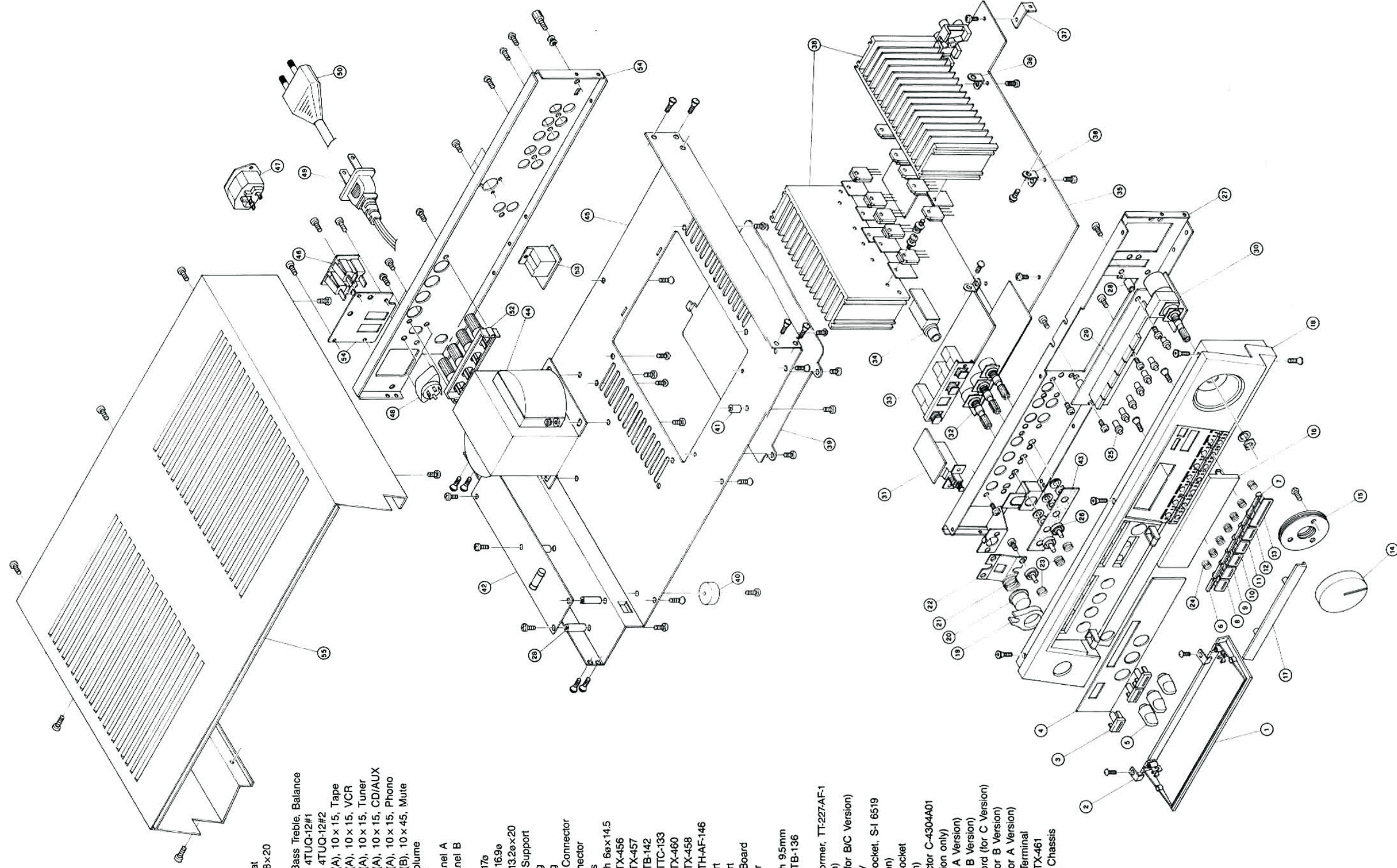
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**INSTRUCTIONS FOR SERVICE PERSONNEL**  
 1) TO USE ONLY REPLACEMENT PARTS THAT HAVE THE CRITICAL CHARACTERISTICS RECOMMENDED BY MANUFACTURER.  
 2) TO MAKE LEAKAGE-CURRENT OR RESISTANCE MEASUREMENTS TO DETERMINE THAT EXPOSED PARTS ARE ACCEPTABLY INSULATED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

# Wiring Diagram



# Disassembly Diagram



**Key No.**

- 1. CM00002054
- 2. SP-10004822
- 3. KB20001664
- 4. OM00002157
- 5. KB10001333
- 6. OM00002080
- 7. OM00002327
- 8. KB20001755
- 9. KB20001767
- 10. KB20001779
- 11. KB20001780
- 12. KB20001792
- 13. KB20001573
- 14. KB10001357
- 15. SR00000780
- 16. SM00002108
- 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. AH20000370
- 39. AB00000158
- 40. FT00000140
- 41. BC00000258
- 42. FE00000407
- 43. PT21004044
- 44. \_\_\_\_\_
- 45. PT21004093
- 46. AM00001318
- 47. SA00001450
- 48. SA00001553
- 49. VC00000048
- 50. CD00000218
- 51. CD00000097
- 52. CD00000048
- 53. SP10005048
- 54. SP10004755
- 55. 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 (B), 10 x 15, Phono
  - Tact Button (B), 10 x 45, Mute
  - Knob, 50g, Volume
  - Knob Spacer
  - Sub Front Panel A
  - Sub Front Panel B
  - Front Panel
  - Button Ring 17e
  - Push Button 16.9e
  - Button Ring 13.2e x 20
  - Push Button Support
  - Button Spring
  - Button Spring
  - Push Button Connector
  - Button Copnector
  - Front Chassis
  - Cylinder Bush 6e x 14.5
  - 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 Sinkor Board
  - Bottom Cover
  - Rubber Foot
  - Cylinder Bush 9.5mm
  - PC.B. Ass'y, TB-136
  - Fell.
  - Power Transformer, TT-227AF-1 (for A Version)
  - TT-227GF-1 (for B/C Version)
  - Chassis Body
  - AC Outlet Socket, S-I 6519 (for A/B Verion)
  - 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

# Repair Parts List

Schematic Location	Parts No.	Description
<b>TRANSISTORS, DIODES AND IC'S</b>		
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
Q901	TR40000069	2SD600K(E,F), Stabilizer
Q902	TR10000047	2SB631K(E,F), 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,	DD10000020	KBL-02/PBL-403, Rectifier
D903, 904	DD20000028	UZ20B, 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
<b>COILS, VARIABLE RESISTORS, SWITCHES AND OTHERS</b>		
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
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	PT21004044	TT-227-AF-1, Power Transformer (for A Version)
	PT21004093	TT-227-GF-1 Power Transformer (for B, C Version)
F601,602	FU12000106	Fuse, 250V 5A (UL)
	FU23000074	Fuse, 250V 5A (Mini)
F901,902	FU12000136	Fuse, 250V 6A (UL)
	FU23000086	Fuse 250V 6.3A (Mini)