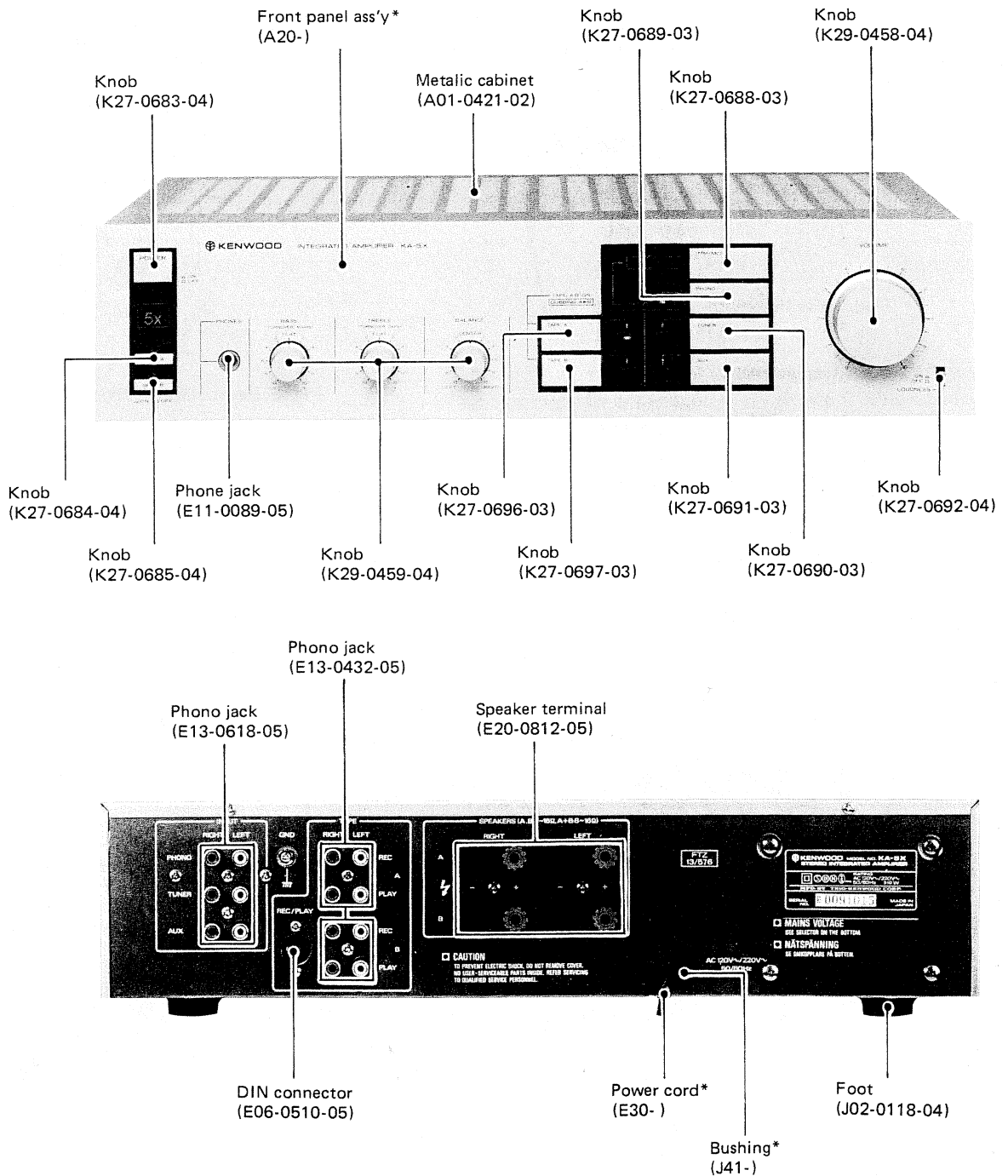


## INTEGRATED AMPLIFIER

SERVICE MANUAL



\* Refer to Parts List on page 8.

## DISASSEMBLY FOR REPAIR

### Removing the LED Board

- 1) Pull the board in the direction indicated by arrow ② while pressing the retaining hooks in the direction indicated by arrows ①

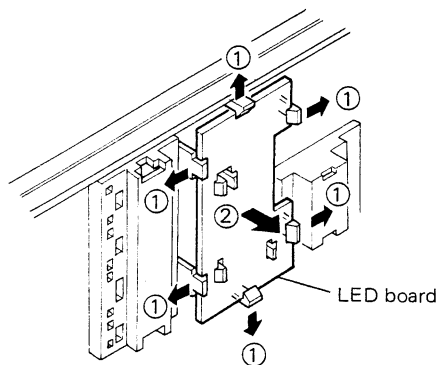


Fig. 1 Removing the LED Board

### Power Transistor Replacement

- 1) Remove the 2 screws ( ① ) holding the varistors and the 2 screws ( ② ) holding the heat sink and mounting hardware.
- 2) Press the radiator fins of the heat sink above the projection attached to its bottom in the direction indicated by arrow ③ to slide the projection out from under the PC board ; then lift the entire heat sink upward.
- 3) The 4 power transistors will be removed from their sockets as the heat sink is lifted upward.

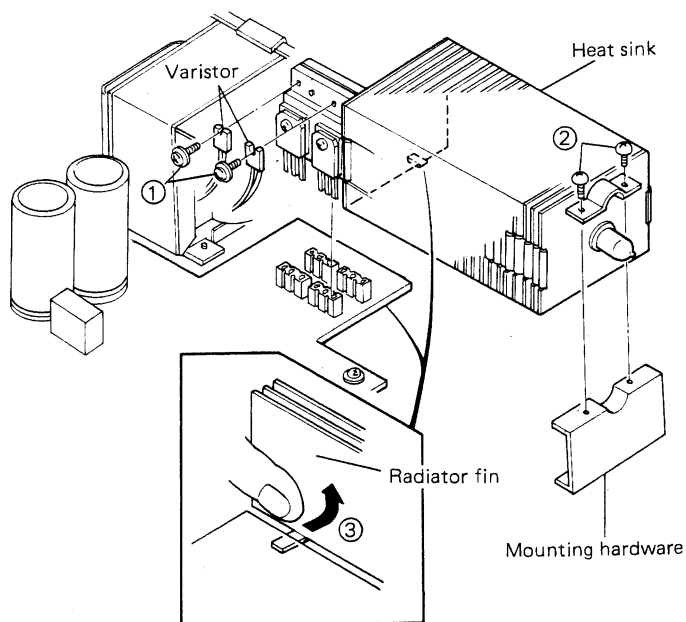


Fig. 2 Power Transistor Replacement

### Removing the Extension Shafts

- 1) Slide the shaft in the direction indicated by arrow ② while lightly pressing the retaining hook in the direction indicated by arrow ①

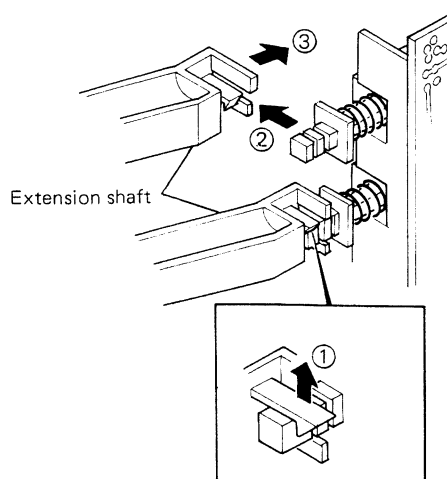


Fig. 3 Removing the Extension Shafts

### Removing the Knob

- 1) Press the retaining hooks in the direction indicated by arrows ①

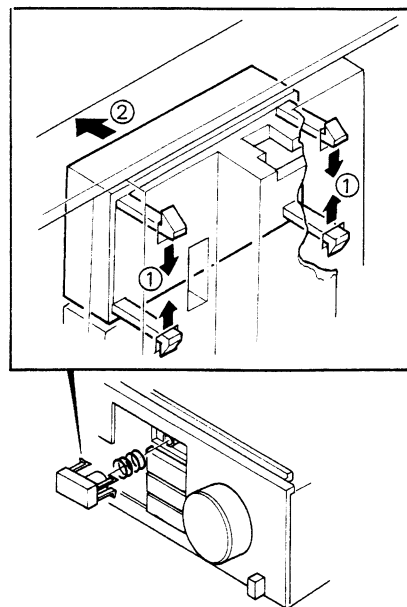


Fig. 4 Removing the Knob

## ADJUSTMENT/REGLAGES/ABGLEICH

### INTERNAL CIRCUIT OF AN7060

The IC (AN7060) internal circuit are shown in the figure on the right.

**Note:**

If the plug of this unit is inserted in reverse, it will immediately damage the unit.

If it is damaged, further damage will be caused to the adjacent circuits. So be very careful.

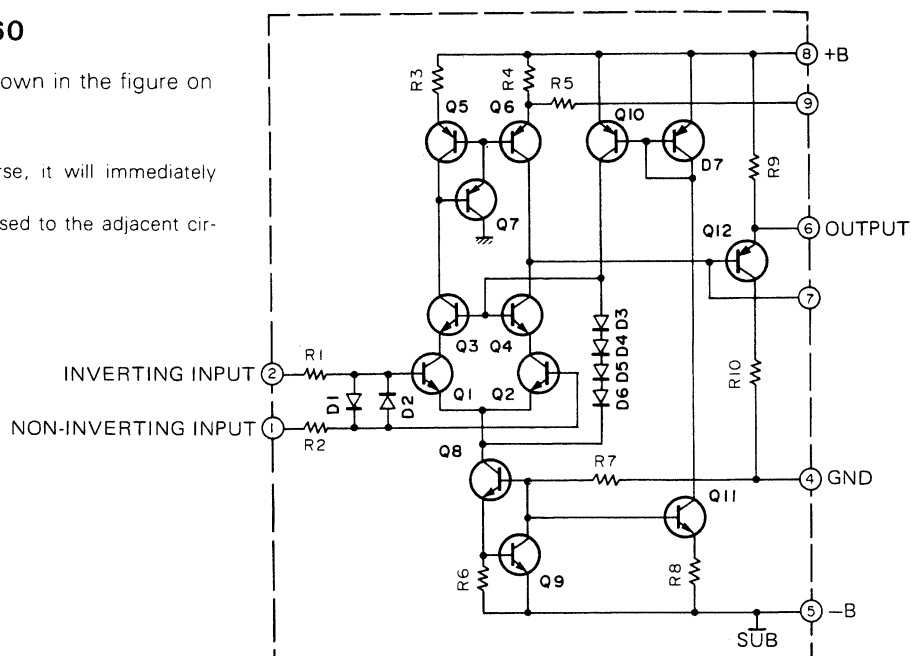


Fig. 5 Internal Circuit of AN7060

### IDLE CURRENT ADJUSTMENT (BIAS CURRENT ADJUSTMENT)

1. Turn the volume knob fully counterclockwise.
2. Connect a DC voltmeter to both pins of R29 (R30) of the audio unit (X09-1800-10). (See the figure below.)
3. Turn the power on and wait 5 minutes.
4. Adjust VR5 (VR6) so that the DC voltmeter reads 18 ~ 22 mV

**Note:**

Since a heat pipe is used in the heat radiator of the KA-5X, be sure that the unit is level when making the adjustment.

### BLINDSTROMEINSTELLUNG (SIGNALLOSER ZUSTAND) (VORSPANNUNGSSTROM-EINSTELLUNG)

1. Den Lautstärkesteller ganz nach links drehen.
2. Einen Gleichspannungsmesser an beide Stifte von R29 (R30) des Audiogerätes (X09-1800-10) anschließen. (Siehe nachstehende Zeichnung.)
3. Die Stromversorgung einschalten und 5 Minuten warten.
4. VR5 (VR6) so einstellen, daß der Gleichstrommesser 18 ~ 22 mV anzeigt.

**Hinweis:**

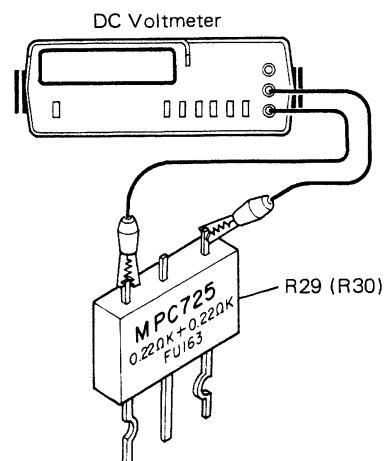
Da im Wärmestrahler des KA-5X eine Heat Pipe verwendet wird, sollte man beim Einstellen unbedingt auf waagerechte Stellung des Gerätes achten.

### RÉGLAGE DU COURANT LIBRE (SANS SIGNAL) (RÉGLAGE DU COURANT DE POLARISATION)

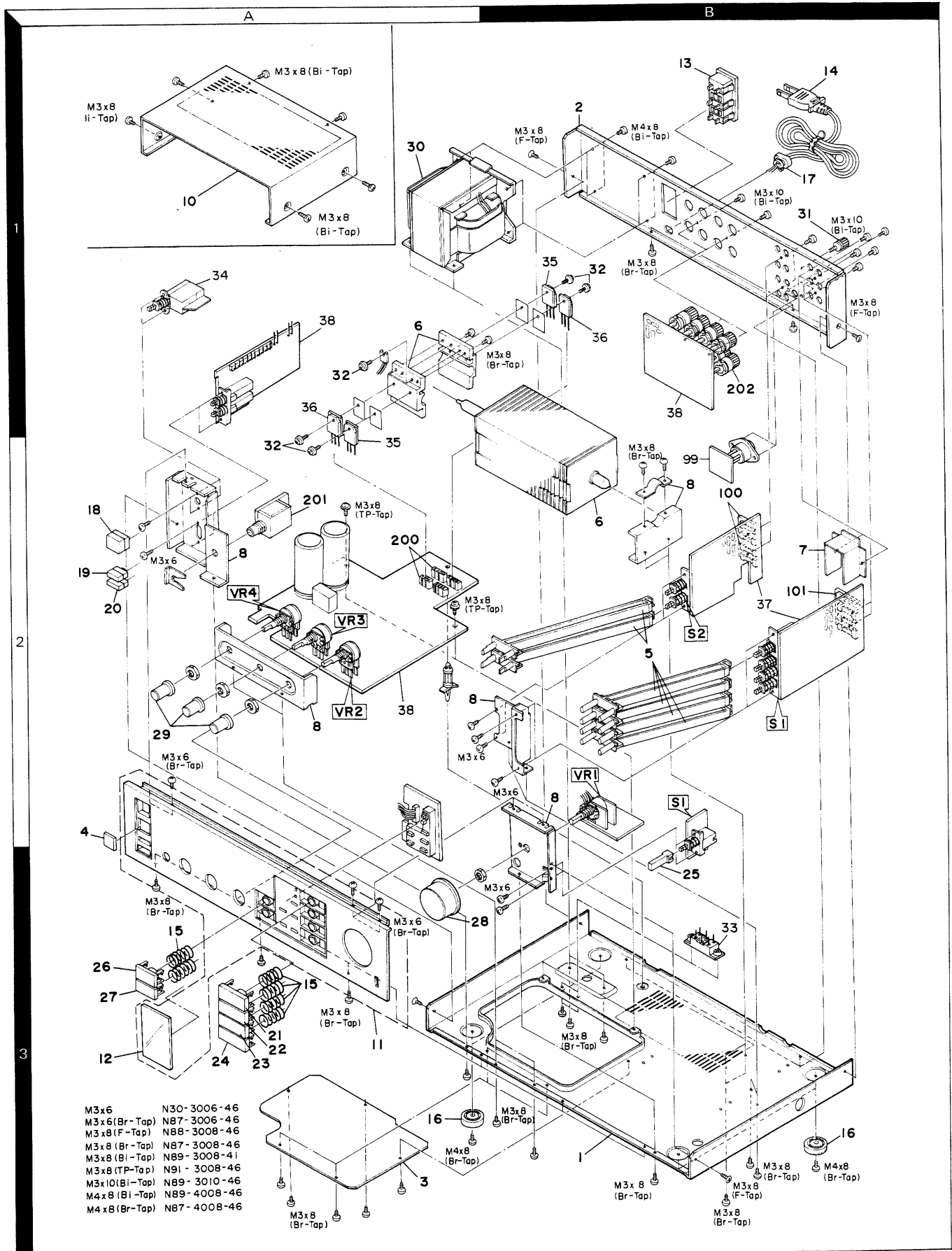
1. Tourner le réglage du volume à fond de course vers la gauche.
2. Relier un voltmètre pour courant continu aux deux broches du R29 (R30) de l'appareil audio (X09-1800-10). (Se reporter à l'illustration ci-dessous.)
3. Mettre le circuit sous tension et attendre cinq minutes.
4. Régler le VR5 (VR6) de façon que le voltmètre indique 18 à 22 mV.

**Remarque:**

Etant donné qu'une conduite de chaleur est incluse dans le radiateur du KA-5X, s'assurer que l'appareil repose sur une surface plane avant de procéder au réglage.



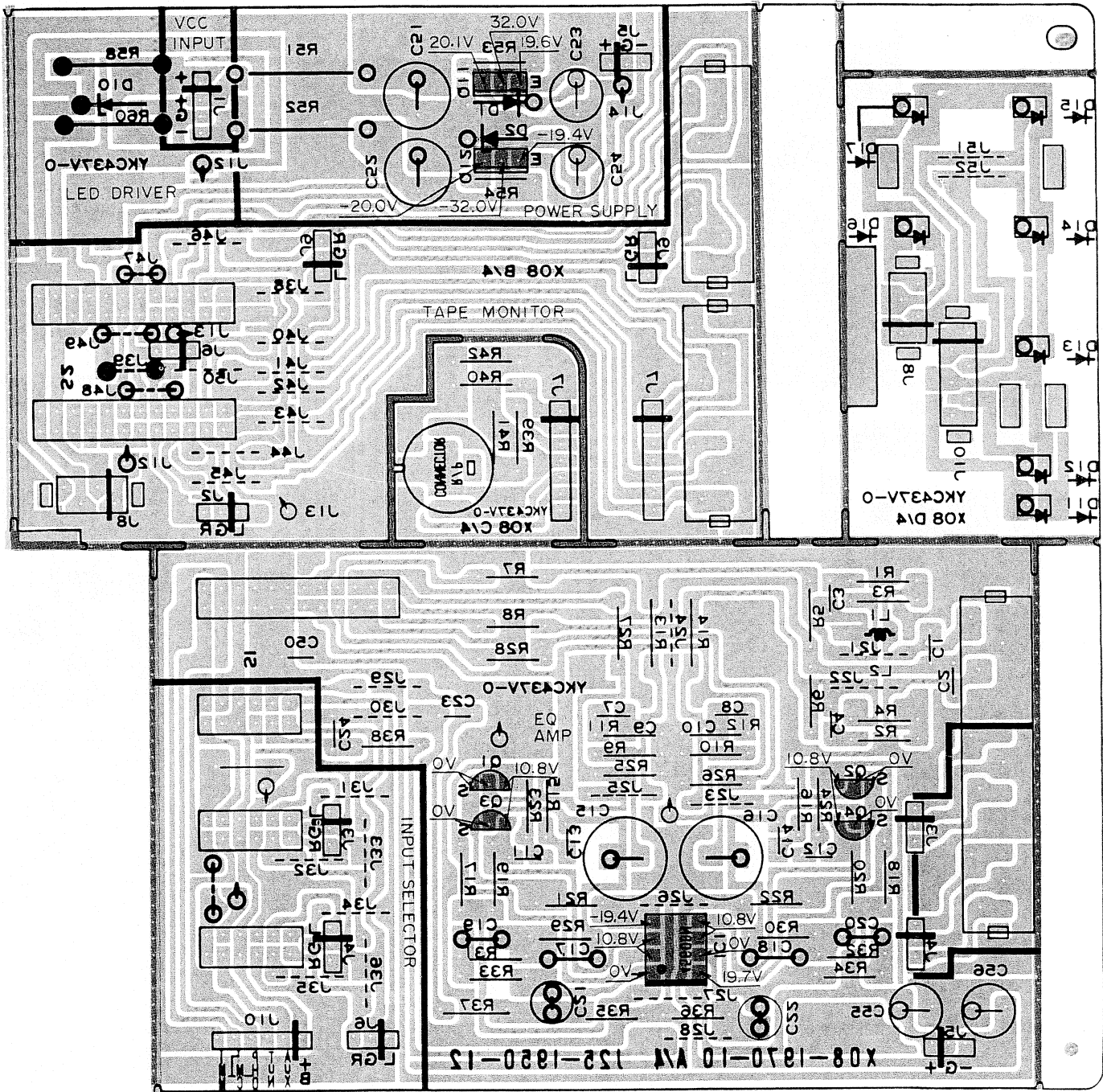
## EXPLODED VIEW



M3x6	N30-3006-46
M3x6 (Br-Tap)	N87-3006-46
M3x8 (F-Tap)	N88-3008-46
M3x8 (Br-Tap)	N87-3008-46
M3x8 (Bi-Tap)	N89-3008-41
M3x8 (TP-Tap)	N91-3008-46
M3x10 (Bi-Tap)	N89-3010-46
M4x8 (Bi-Tap)	N89-4008-46
M4x8 (Br-Tap)	N87-4008-46

**PC BOARD**

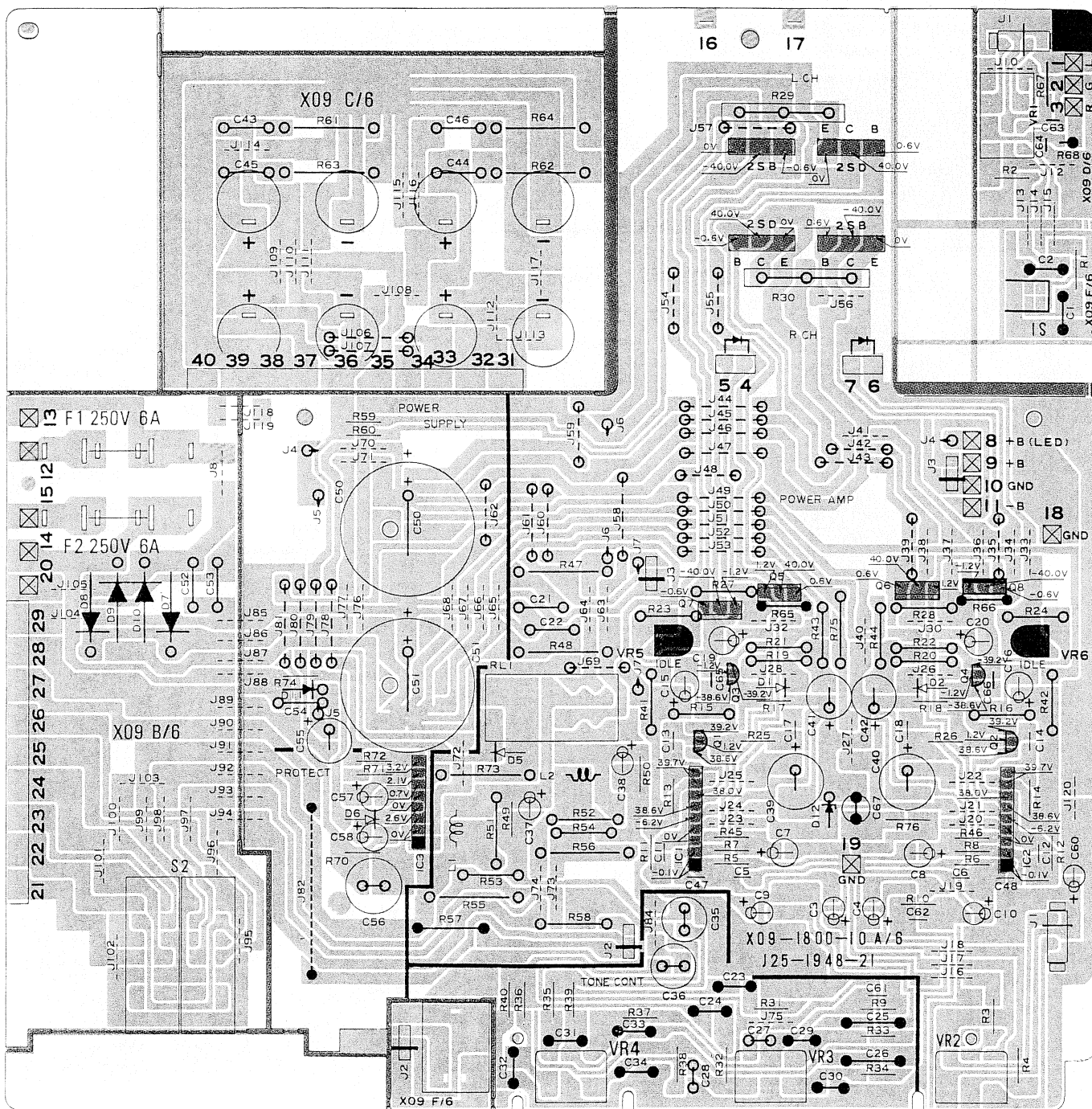
PRE AMP (X08-1970-10) Foil side view



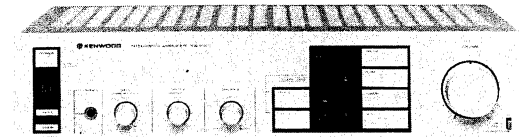
Refer to the schematic diagram for the values of resistors and capacitors.  
The PC board drawing is viewed from the side easy to check.

## PC BOARD

AUDIO AMP (X09-1800-10) Component side view



Refer to the schematic diagram for the values of resistors and capacitors.  
The PC board drawing is viewed from the side easy to check.



### SPECIFICATIONS

#### AUDIO SECTION

Rated Power Output  
 8 ohms at 20 Hz to 20 kHz  
 no more than 0.03% THD (FTC) ..... 45 W + 45 W  
 4 ohms at 63 Hz to 12.5 kHz  
 no more than 0.7% THD (IEC) ..... 55 W + 55 W  
 Total Harmonic Distortion  
 Rated Power Output into 8 ohms ..... 0.03%  
 Intermodulation Distortion ..... 0.03%  
 Frequency Response ..... 8 Hz ~ 100 kHz  
 -3 dB

#### S/N Weighted: Rated Output Power (IEC-A)

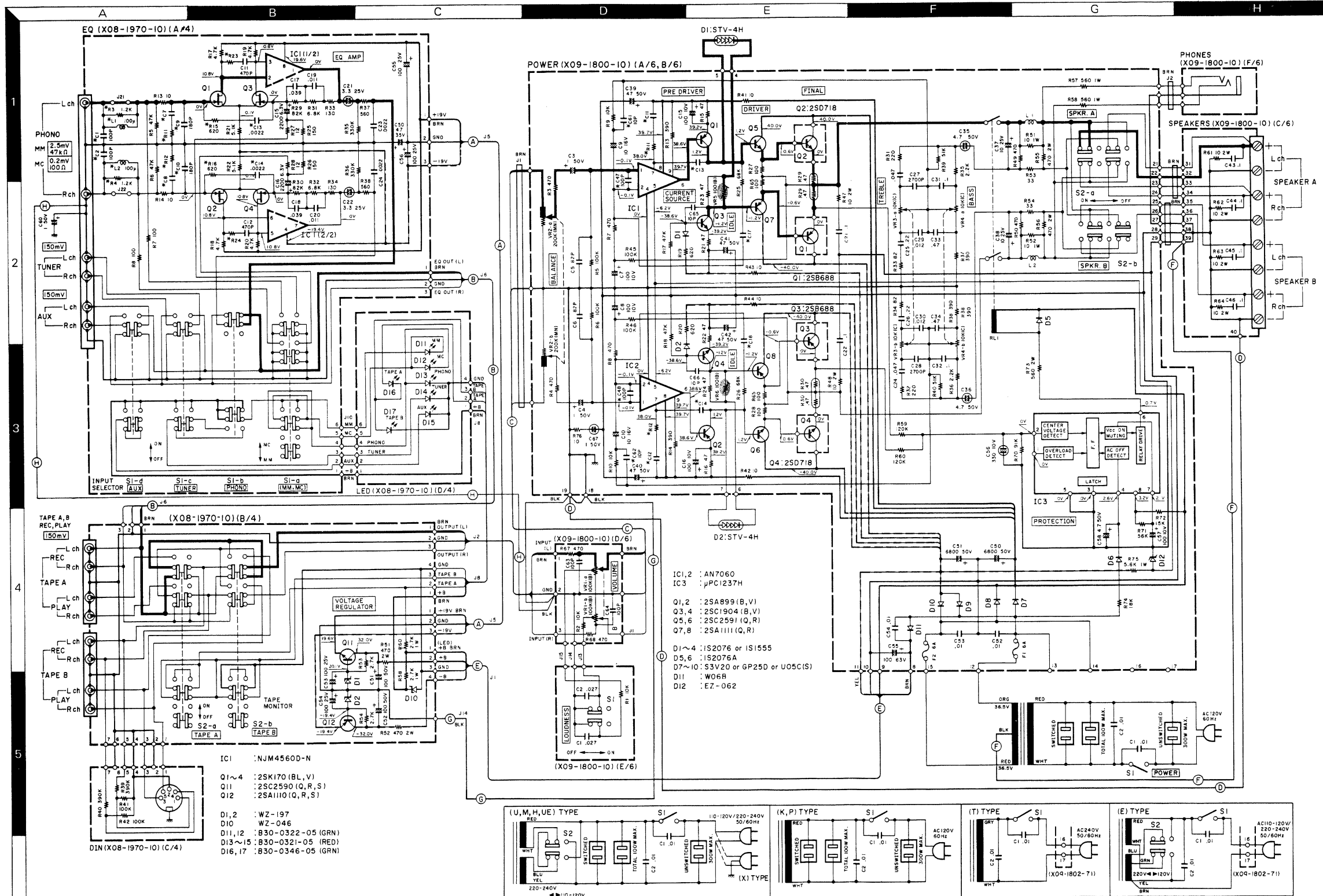
( ) = Unweighted at 50 mW (DIN)  
 Phono MM ..... 86 dB (59 dB)  
 Phono MC ..... 69 dB  
 Tuner, Aux, Tape ..... 105 dB (59 dB)  
 Damping Factor at 8 ohms, 100 Hz ..... 400  
 Input Sensitivity/Impedance  
 Phono MM ..... 2.5 mV/47 kΩ  
 Phono MC ..... 0.2 mV/100 Ω  
 Tuner, Aux, Tape ..... 150 mV/47 kΩ

#### Tone Control

Bass, Turnover Freq. 400 Hz ..... ± 10 dB at 100 Hz  
 Treble, Turnover Freq. 3 kHz ..... ± 10 dB at 10 kHz  
 Loudness Control (-30 dB) ..... + 10 dB at 100 Hz

#### GENERAL

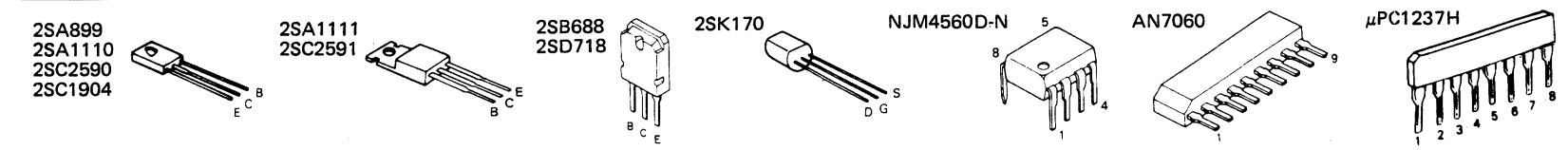
Power Consumption (IEC) ..... 310 W  
 Dimensions ..... W: 440 mm  
 H: 109 mm  
 D: 340 mm  
 Weight (Net) ..... 7.2 kg



6 Caution : If the plug of AN7060 is inserted in reverse, it will immediately damage itself.

	C1, 2	C7, 8	C9, 10	C13, 14	L1, 2	R3, 4	R11, 12	R15, 16	R23, 24	J21, 22
X08-1970-10 (K, P, U, M, H, UE, X, T)	X	o	X	X	X	X	o	X	430	o
X08-1972-71 (E)	o	X	o	o	o	o	X	o	620	X

	C11, 12	C17, 18	C61, 62	C47, 48	C13, 14	R11, 12
X09-1800-10 (K)	0.0033μF	3pF	X	X	33pF	560
X09-1800-81 (U, M, H, UE, X)	0.0033μF	3pF	X	X	33pF	560
X09-1801-01 (P)	0.0033μF	3pF	X	X	33pF	560
X09-1802-71 (T, E)	0.0039μF	5pF	o	o	39pF	1.5k



- DC voltages are measured by a VOM of 20kΩ/V input impedance.
- Les tensions de courant continu sont mesurées par un multimètre d'une impédance d'entrée de 20kΩ/V.
- Die Gleichstrom-Spannungen werden durch ein Vielfachmeßgerät von 20kΩ/V Eingangs-Impedanz gemessen.

