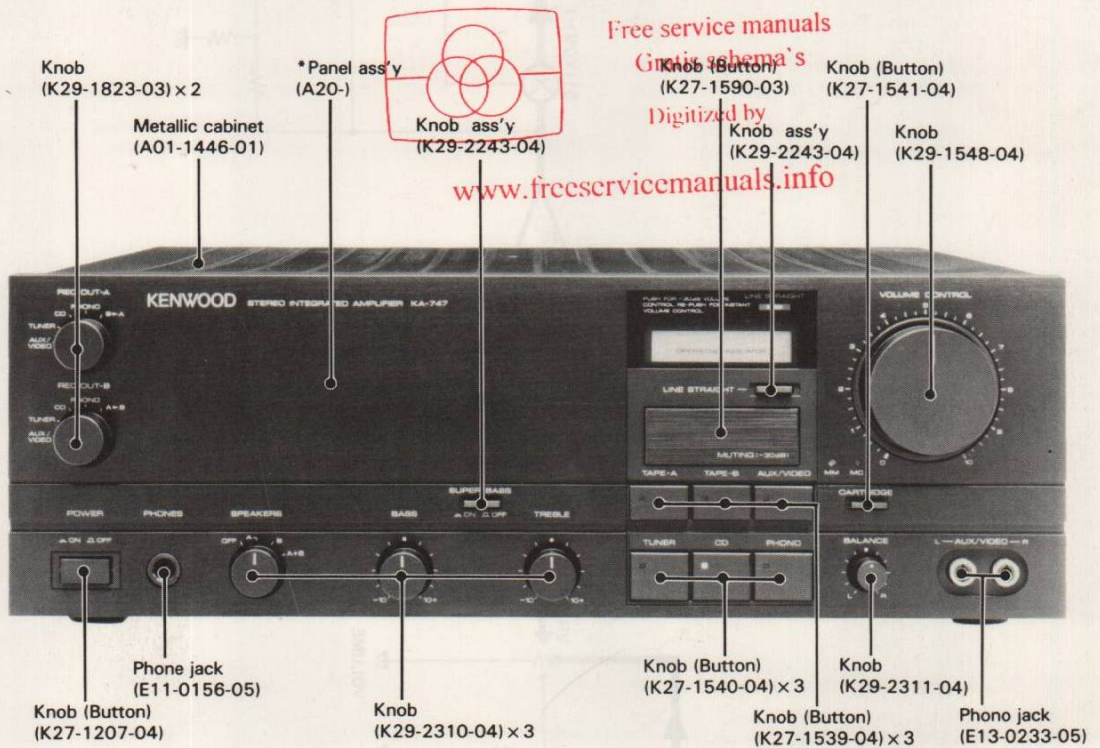


# KENWOOD

# KA-747

## STEREO INTEGRATED AMPLIFIER

SERVICE MANUAL

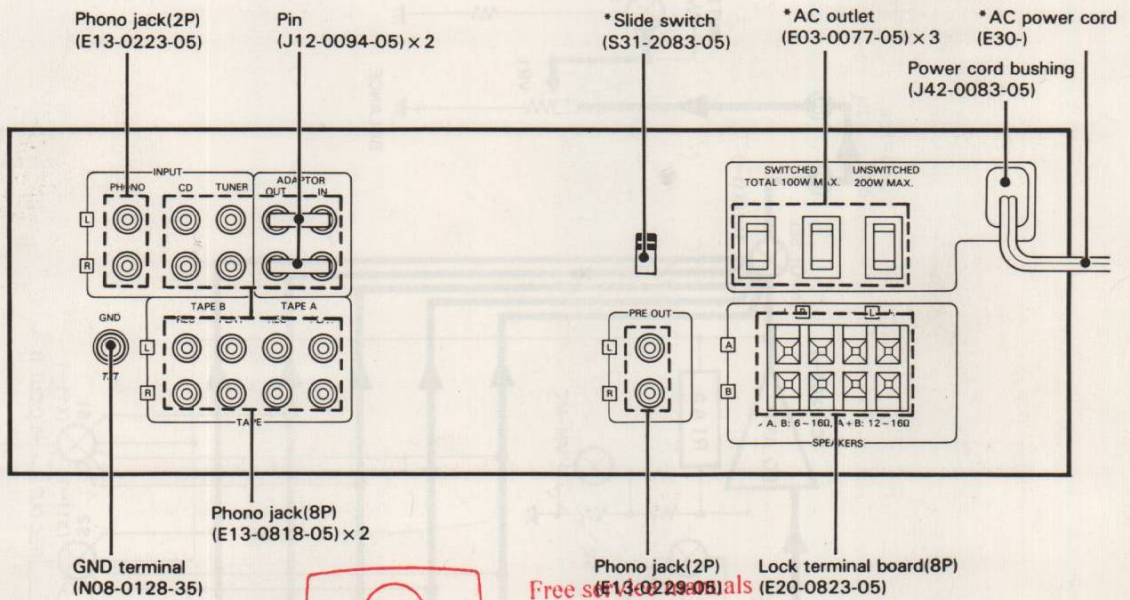


Free service manuals

Gratis schema's

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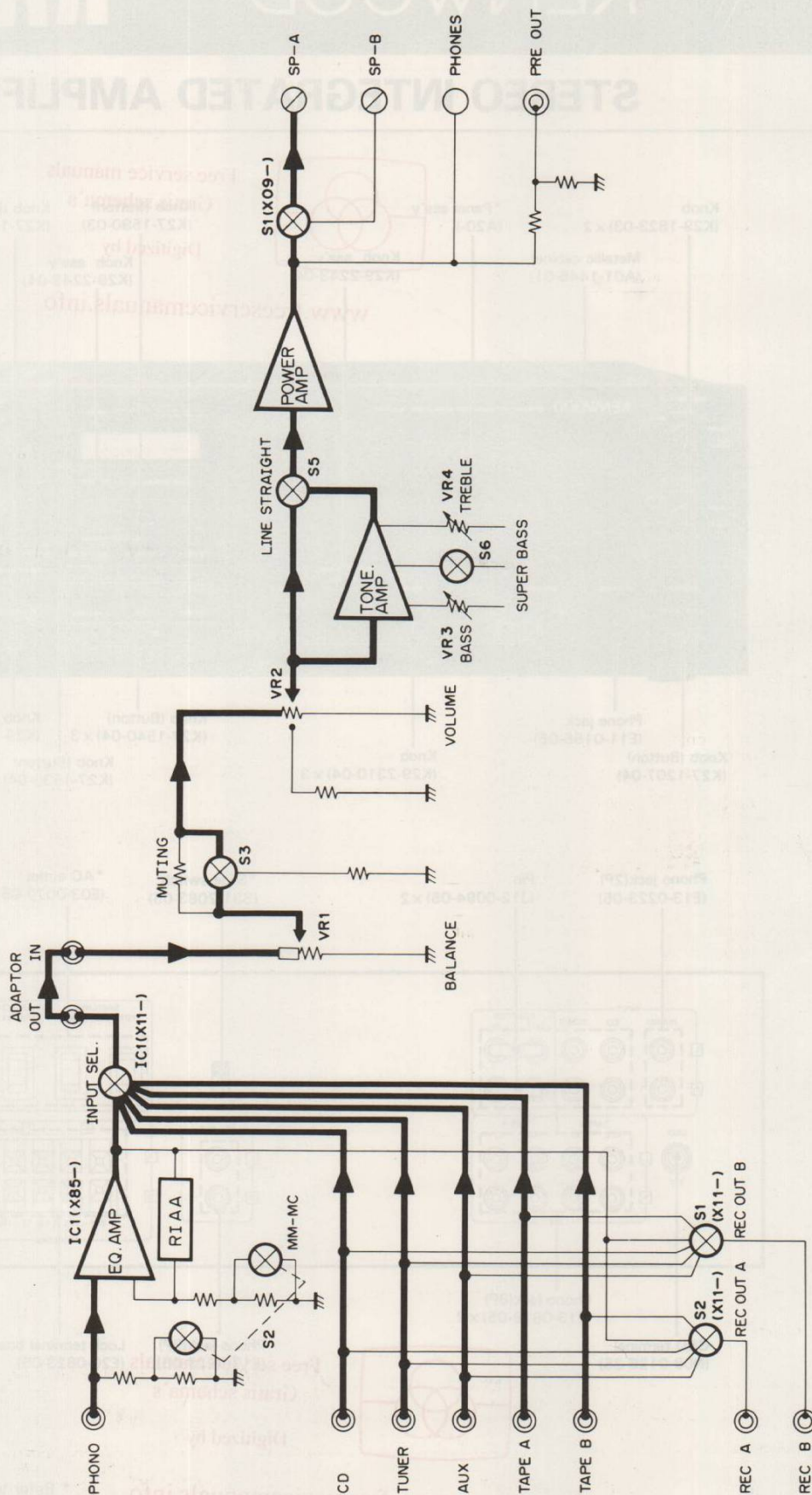
Gratis schema's

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\* Refer to Parts List on page 6.

# BLOCK DIAGRAM



## CIRCUIT DESCRIPTION

## DESCRIPTION OF ELEMENTS

## Audio unit (X09-2232-71)

| Elements   | Use & Function   | Operation, Condition & Interchangeability  |
|------------|--|--|
| Q1,2       | Temperature compensation                                 |  |
| Q3~6       | Driver   |  |
| Q9~12      | Driver   |  |
| Q7,8,12,14 | Final  |  |
| Q15~18     | Current limiter  | Final protection in case of overload drive.  |
| Q21        | Protection driver  | Turns the relay OFF when current limiters are activated.                                 |
| Q22~25     | Equalizer amp constant-voltage circuit                   | Feedback-type constant-voltage circuit is inserted in the B line towards the EQ circuit. |
| Q26,27     | Fast OFF transistors for EQ amp constant-voltage circuit | Turn -B to 0 V before +B   |
| Q28        | Lamp driver  |  |
| IC 1       | Protection IC  | This circuit turns the relay OFF in case of amplifier abnormality                        |

## Tone unit (X11-2222-72)

| Elements | Use & Function                                   | Operation, Condition & Interchangeability |
|----------|--|---|
| Q1,2     | IC 1 constant-voltage supply                     | 2SC2003, 2SA954                           |
| Q3~6     | IC 1 control                                     |   |
| Q7,8     | Muting during INPUT switching                    |   |
| Q1       | IC 1 control                                     |   |
| D1~36    | Static electricity protection                    | IS2076, IS2076A, IS1555, ISS178, ISS131   |
| D37~48   | IC 1 control                                     | IS2076, IS2076A, IS1555, ISS178, ISS131   |
| D49~52   | Backup power supply switching                    | IS2076, IS2076A, IS1555, ISS178, ISS131   |
| D53~62   | Static electricity protection                    | IS2076, IS2076A, IS1555, ISS178, ISS131   |
| D63      | Muting shock noise prevention                    | IS2076, IS2076A, IS1555, ISS178, ISS131   |
| D64,65   | Static electricity protection                    |   |
| D66      | IC 1 control                                     | IS2076, IS2076A, IS1555, ISS178, ISS131   |
| D67      | Prevention of erroneous LED lighting at POWER ON | W06B                                      |
| D70      | Backup capacitor charging power supply           |   |
| D71,72   | Lamp overvoltage prevention                      |   |
| D73,74   | Tone amp power supply                            |   |
| D75      | LED power supply                                 |   |
| D77,78   | MM/MC indicator LEDs                             |   |
| D79      | INPUT indicator LEDs                             |   |
| D80~85   | LINE STRAIGHT indicator LED                      |   |
| D87~93   | Static electricity protection                    |   |
| IC 1     | Input switching                                  |   |
| IC 2     | Tone amp   |   |

## Pre amplifier unit (X85-1010-10)

| Elements | Use & Function                        | Operation, Condition & Interchangeability |
|----------|---------------------------------------|---|
| Q5~8     | EQ circuit 1st stage differential amp |   |
| IC 1     | EQ circuit opamp IC                   |   |

## CIRCUIT DESCRIPTION

## Main amplifier unit (X85-1070-01)

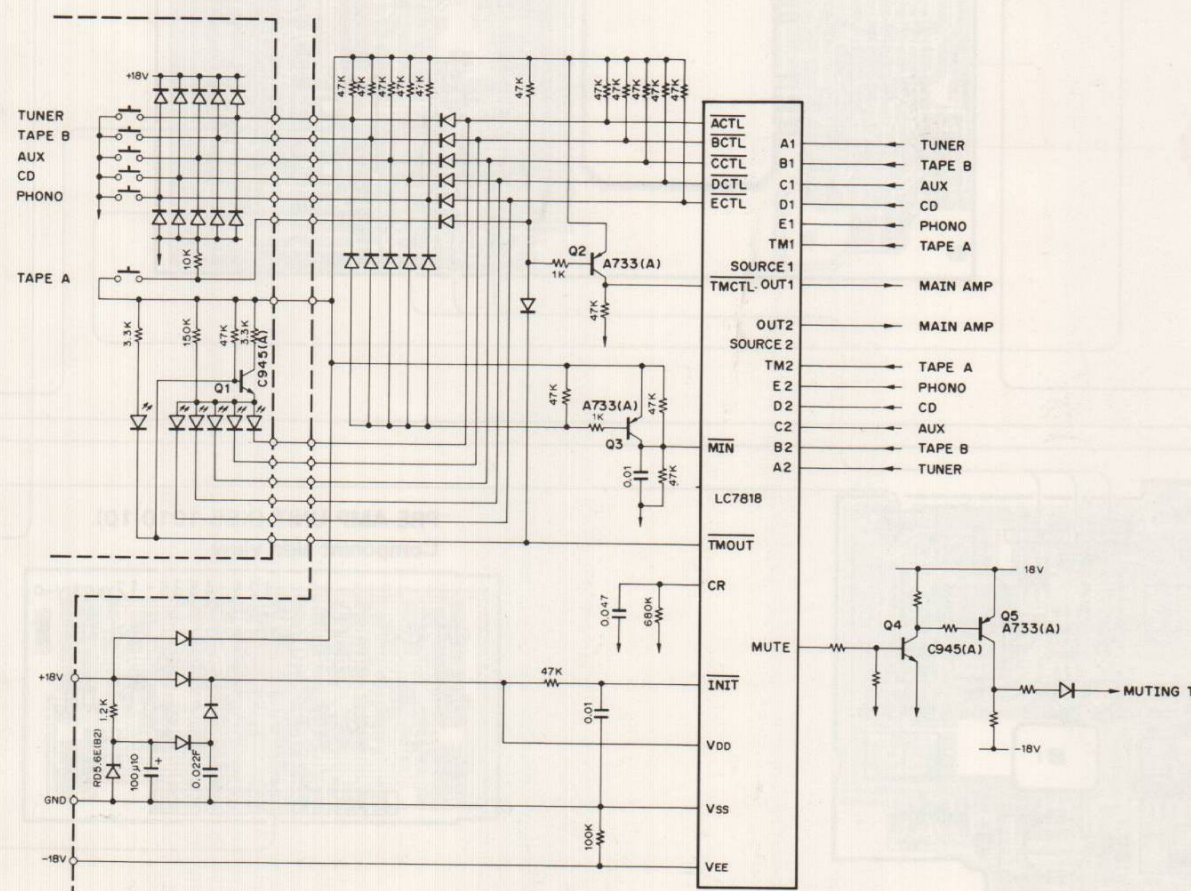
| Elements | Use & Function                           | Operation, Condition & Interchangeability |
|----------|--|---|
| Q1~4     | A class 1st stage differential amp       |   |
| Q5~8     | Current Miller circuit                   |   |
| Q13,14   | 1st stage constant-current circuit       |   |
| Q15,16   | Amplifier stage constant-current circuit |   |
| Q17,18   | A class amplifier stage                  |   |
| Q19,20   | Amplifier stage cascode circuit          |   |

## Input Selector IC (LC7818)

A 6-input switching circuit is made up using input switching IC L7818 which has 5 inputs + tape monitor functions. The IC is used as a 6-input IC by using its auto function switching feature (with which the tape monitor switch is turned OFF by pressing one of the input select keys while the tape monitor switch is ON). The tape monitor is turned OFF by turning MIN to "H" while INIT is "H" MIN is turned "H" when Q3 and the diode connected to its base detect that one of keys ACTL to ECTL is pressed.

When LC7818 is used alone, the tape monitor condition is

reversed each time TMCTL turns "L". To prevent this, Q2 is used so that key inputs are not accepted as long as the tape monitor function is ON. To prevent simultaneous lighting of the tape monitor LED and an LED of another input, the Q1 transistor switch is used so that other LEDs go off when the tape monitor LED lights. All these controls are performed via tape monitor LED terminal TMOUT. Q4 and Q5 are used to shift the level of the MUTE control signal, from between 0 V and 18 V to between -18 V and +18 V.



## ADJUSTMENT/REGLAGES/ABGLEICH

## ADJUSTMENT

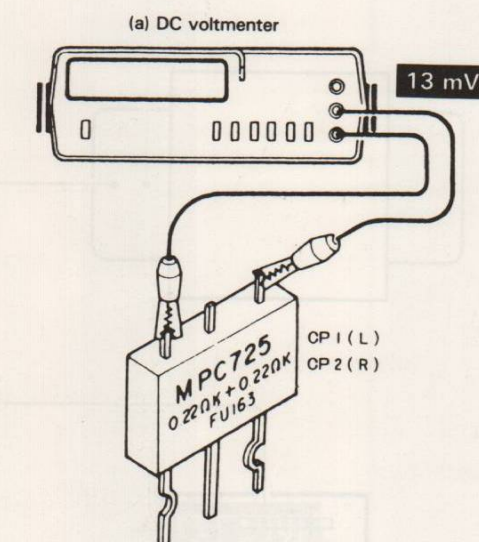
| No. | ITEM         | INPUT SETTINGS | OUTPUT SETTINGS                               | AMPLIFIER SETTINGS | ALIGNMENT POINTS | ALIGN FOR | FIG. |
|-----|--------------|----------------|---|--------------------|------------------|-----------|------|
| 1   | IDLE CURRENT | -              | Connect a DC voltmeter across CP1 (L) CP2 (R) | VOLUME: 0          | VR1 (L) VR2 (R)  | 13mV      | (a)  |

## REGLAGES

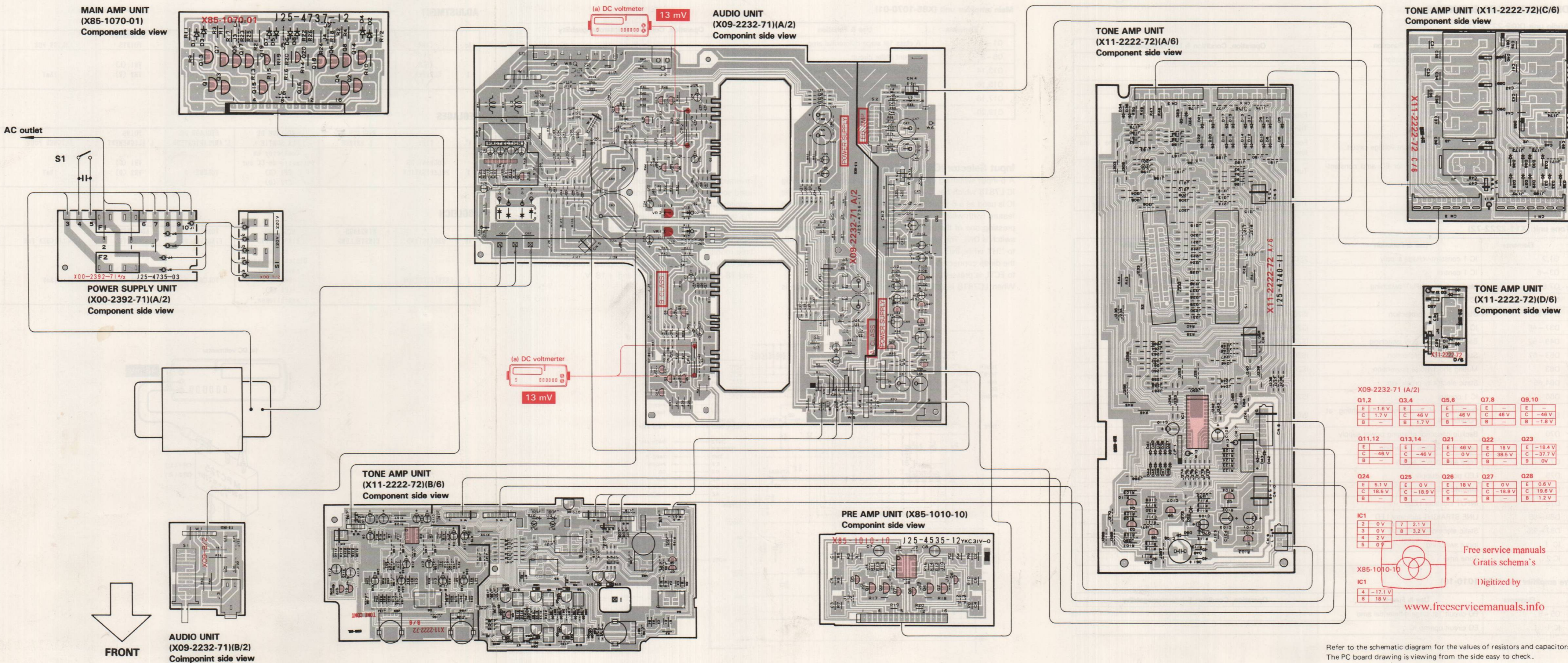
| N° | ITEM                    | REGLAGE DE L'ENTREE | REGLAGE DE LA SORTIE                             | REGLAGE DE L'AMPLIFICATEUR | POINS L'ALIGNEMENT | ALIGNER POUR | FIG. |
|----|-------------------------|---------------------|--|----------------------------|--------------------|--------------|------|
| 1  | COURANT DE POLARISATION | -                   | Connecter un voltmètre de CC sur CP1 (G) CP2 (D) | VOLUME: 0                  | VR1 (G) VR2 (D)    | 13mV         | (a)  |

## ABGLEICH

| NR. | GEGENSTAND    | EINGANGS-EINSTELLUNG | AUSGANGS-EINSTELLUNG  | VORSTÄRKER EINSTELLUNG | ABGLEICH-PUNKTE | ABGLEICHEN FÜR | ABB. |
|-----|---------------|----------------------|---|------------------------|-----------------|----------------|------|
| 1   | LEERLAUFSTROM | -                    | Einen Gleichspannungsmesser über CP1 (L) CP2 (R) anschließen. | VOLUME: 0              | VR1 (L) VR2 (R) | 13mV           | (a)  |

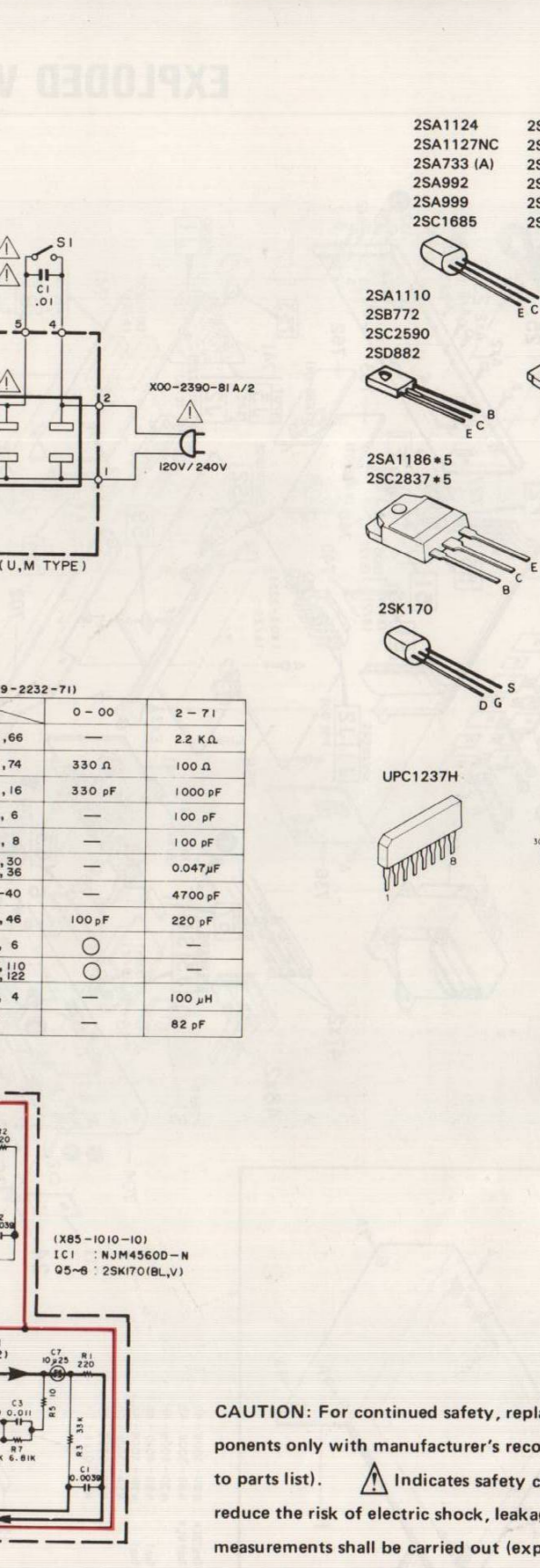
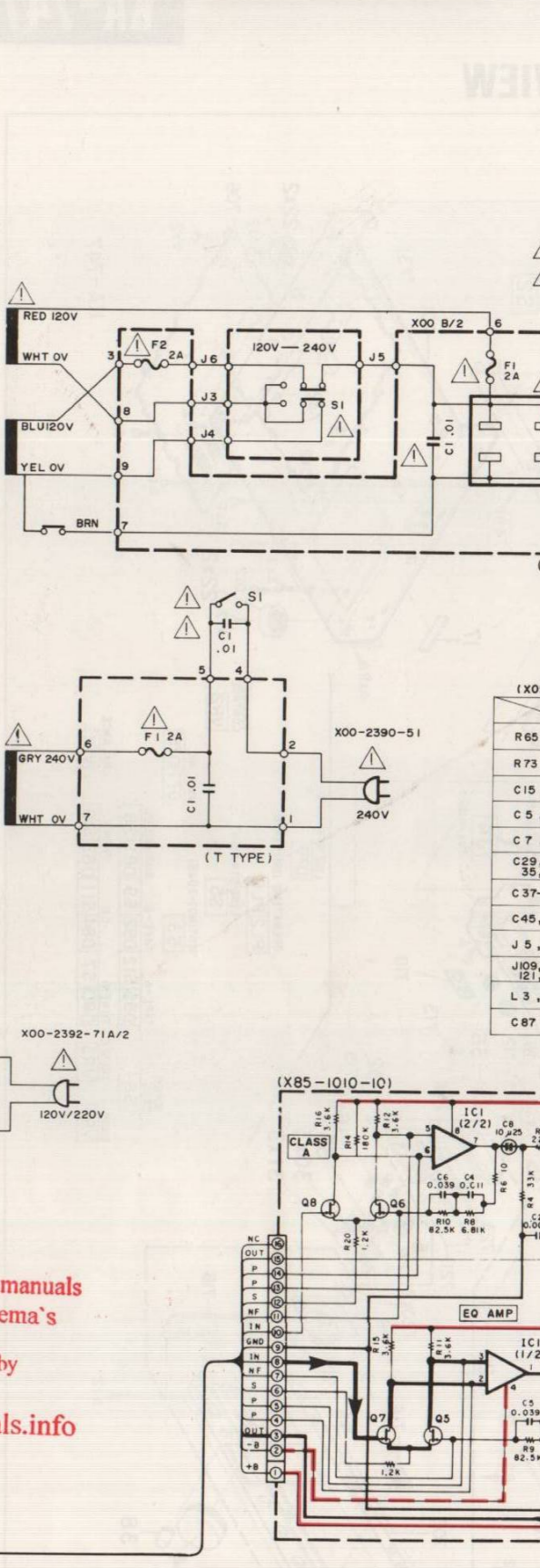
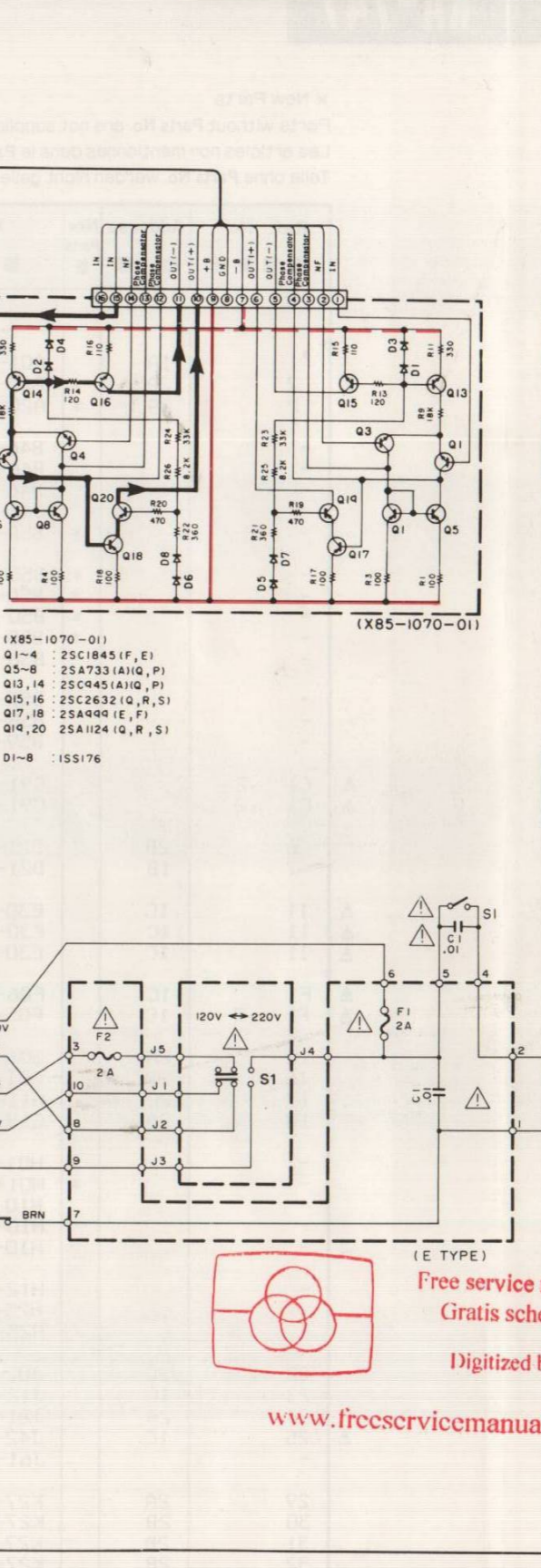
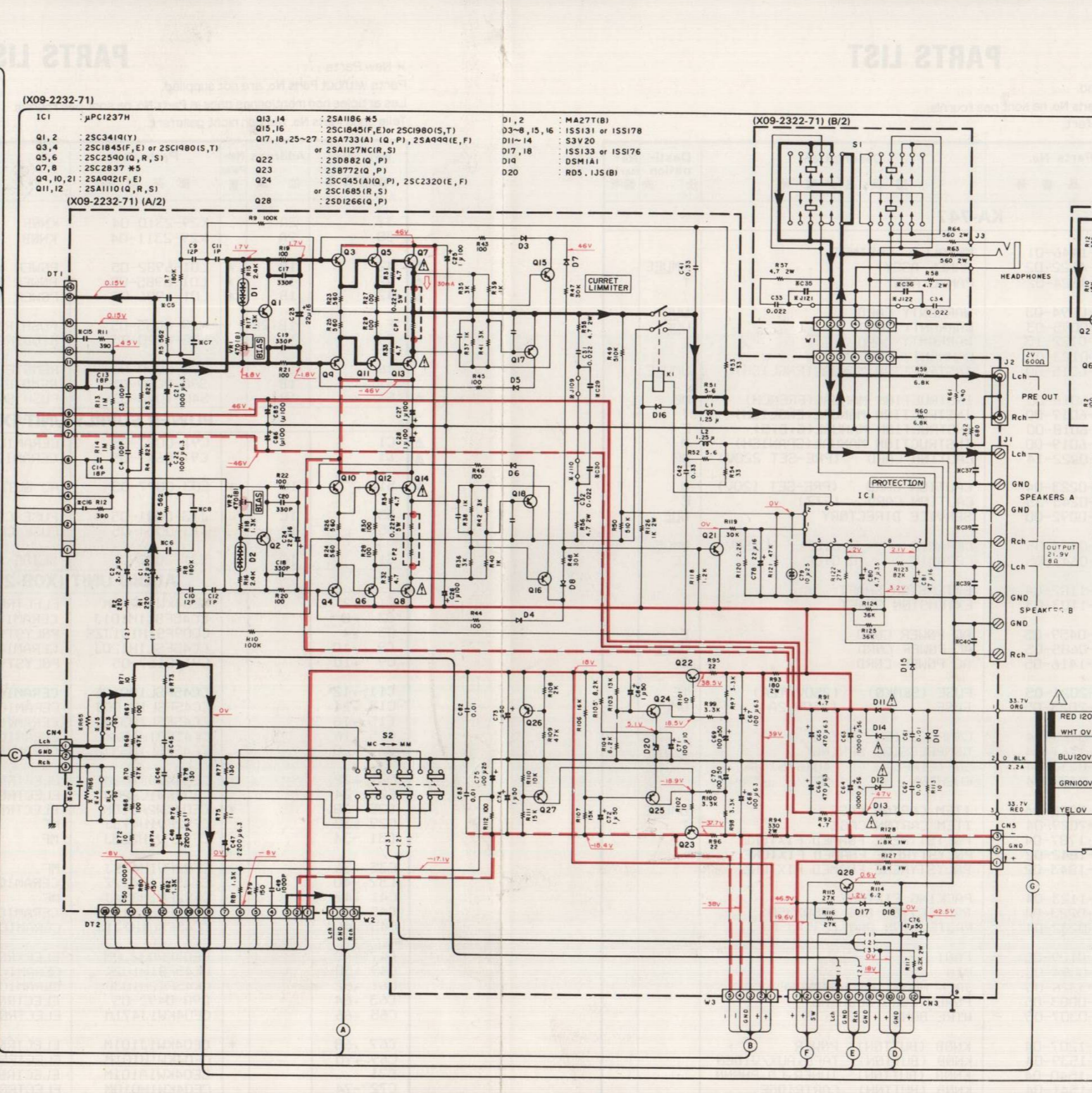
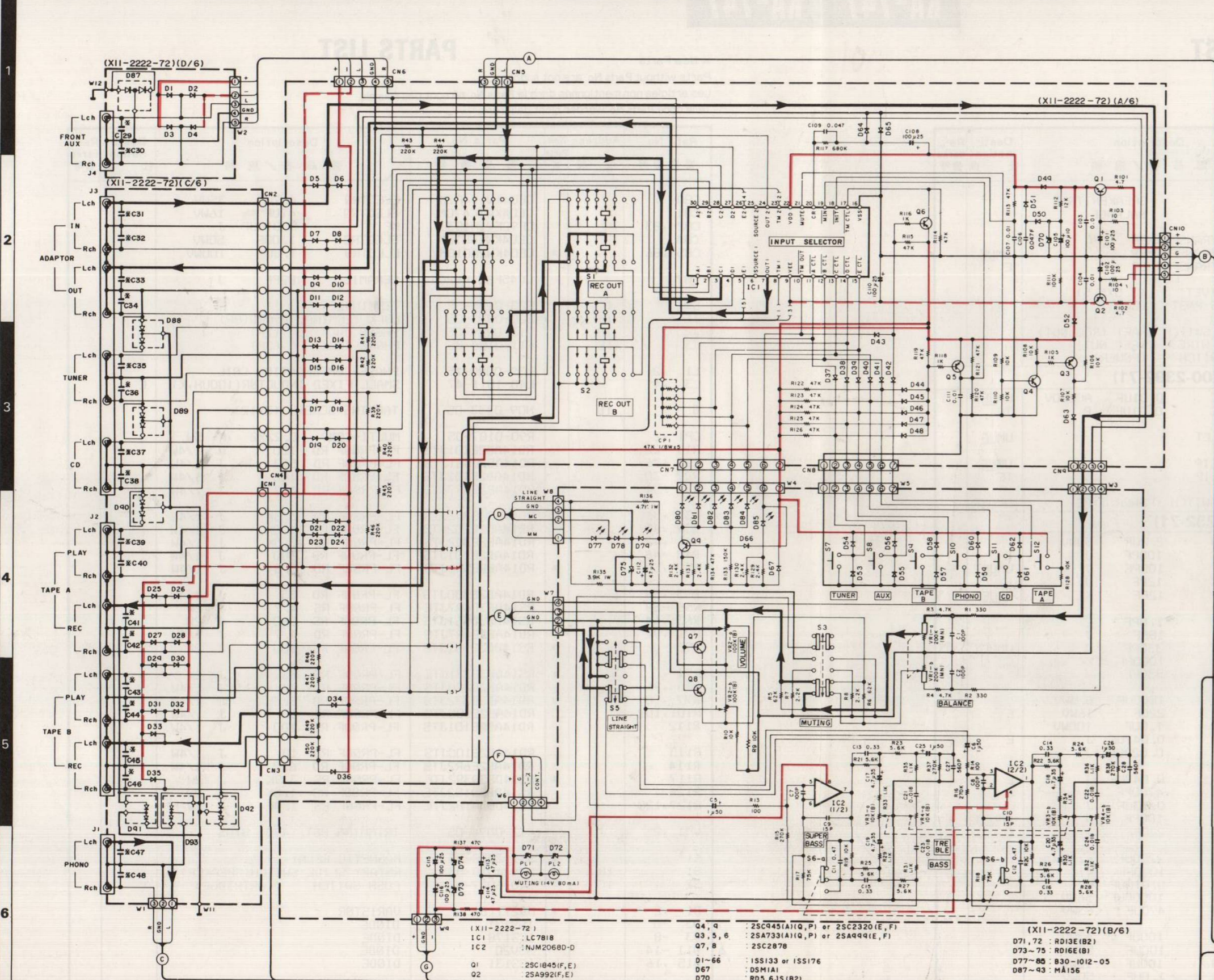


PC BOARD



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



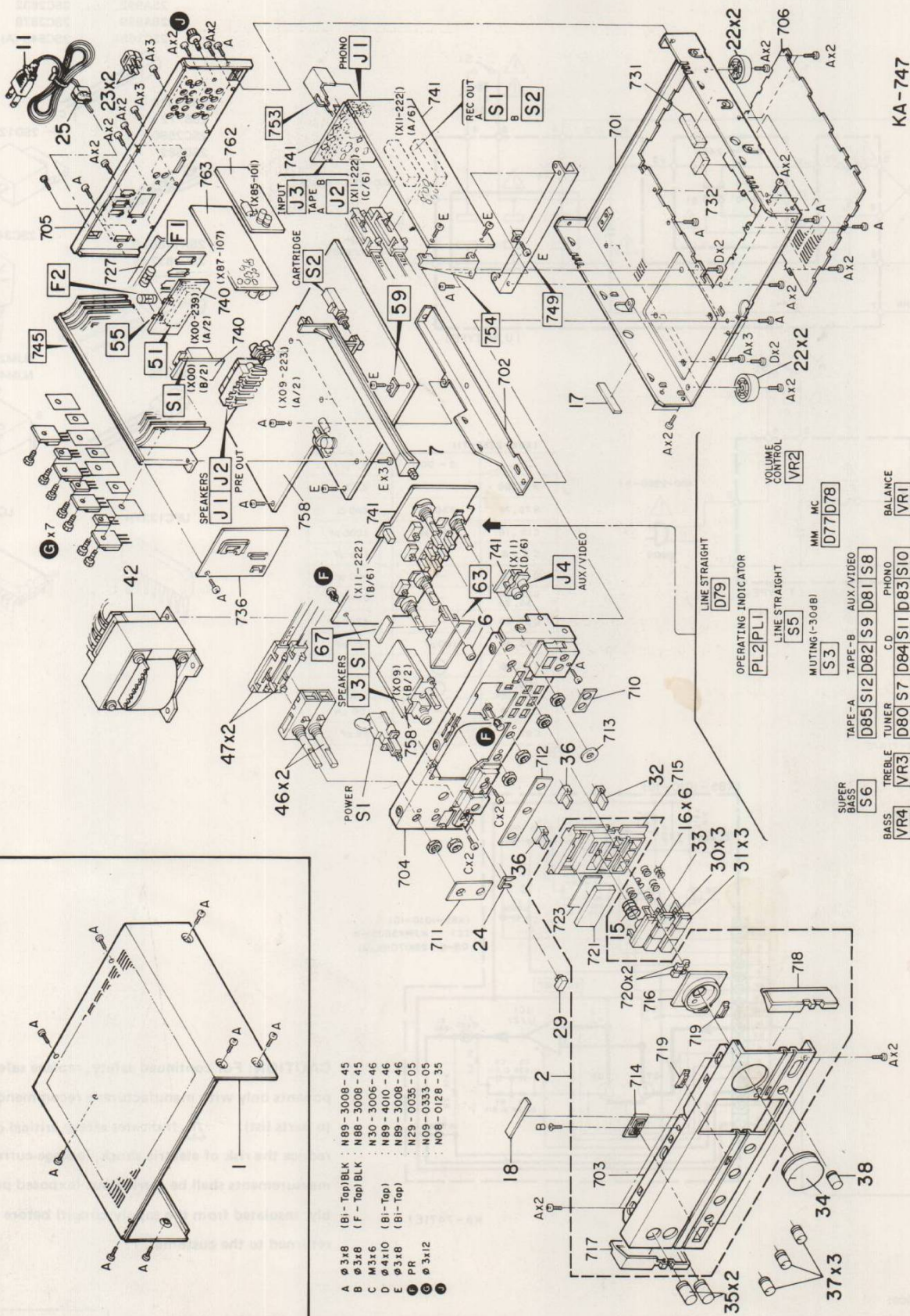
- 25A1124
- 25A1127NC
- 25A733 (A)
- 25A992
- 25A999
- 25C1685
- 25C1845
- 25C1980
- 25C2320
- 25C2632
- 25C2878
- 25C945 (A)
- 25A1110
- 25B772
- 25C2590
- 25D882
- 25D1266
- 25A1186+5
- 25C2837+5
- 25C3419
- 25K170
- NJM2068D-D
- NJM4560D-N
- UPC1237H
- LC7818

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**CAUTION:** For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). ⚠ Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

■ This circuit is a standard circuit, but is subject to change without notice.  
DC voltages are as measured with a high impedance voltmeter with no signal input. Values may vary slightly due to variations between individual instruments or/and units.  
Les tensions c.c. doivent être mesurées avec un voltmètre à haute impédance sans signal d'entrée. Les valeurs peuvent différer légèrement du fait des variations inhérentes aux appareils et aux instruments de mesure individuels.  
Die angegebenen Gleichspannungswerte wurden mit einem hochohmigen Spannungsmesser ohne Eingangssignal gemessen. Dabei schwanden die Meßwerte aufgrund von Unterschieden zwischen einzelnen Instrumenten oder Geräten u.U. geringfügig.

EXPLODED VIEW



PARTS LIST

\* New Parts

Parts without Parts No. are not supplied.

Les articles non mentionnés dans le Parts No. ne sont pas fournis.

Telle ohne Parts No. werden nicht geliefert.

| Ref. No.      | Address | New Parts | Parts No.   | Description                  | Destination | Remarks |
|---------------|---------|-----------|-------------|------------------------------|-------------|---------|
| 参照番号          | 位置      | 新         | 部品番号        | 部品名/規格                       | 仕向          | 備考      |
| <b>KA-747</b> |         |           |             |                              |             |         |
| 1             | 1A      |           | A01-1446-01 | METALLIC CABINET             |             |         |
| 2             | 2A      | *         | A20-4622-02 | PANEL ASSY                   | UMUEE       |         |
| 2             | 2A      | *         | A20-4624-02 | PANEL ASSY                   | T           |         |
| -             | -       |           | B46-0094-03 | WARRANTY CARD                | UUE         |         |
| -             | -       |           | B46-0095-03 | WARRANTY CARD                | UUE         |         |
| -             | -       |           | B46-0122-13 | WARRANTY CARD                | E           |         |
| -             | -       |           | B46-0123-03 | WARRANTY CARD                | T           |         |
| -             | -       | *         | B50-6015-00 | INSTRUCTION MANUAL (ENGLISH) | UMUEE       |         |
| -             | -       | *         | B50-6016-00 | INSTRUCTION MANUAL (FRENCH)  | ME          |         |
| -             | -       | *         | B50-6017-00 | INSTRUCTION MANUAL (ENGLISH) | T           |         |
| -             | -       | *         | B50-6018-00 | INSTRUCTION MANUAL (G,D,S)   | E           |         |
| -             | -       | *         | B50-6019-00 | INSTRUCTION MANUAL (SPANISH) | M           |         |
| -             | -       |           | B58-0222-14 | CAUTION CARD (PRE-SET 220V)  | UE          |         |
| -             | -       |           | B58-0223-04 | CAUTION CARD (PRE-SET 120V)  | U           |         |
| -             | -       |           | B58-0245-33 | CAUTION CARD (FTZ)           | E           |         |
| -             | -       |           | B59-0092-00 | SERVICE DIRECTORY            | UUE         |         |
| Δ             | C1      | ,2        | C91-0023-05 | CERAMIC 0.01UF AC250V        | UMUE        |         |
| Δ             | C1      | ,2        | C91-0647-05 | CERAMIC 0.01UF P             | TE          |         |
| 6             | 2B      |           | D21-1102-04 | EXTENSION SHAFT              |             |         |
| 7             | 1B      |           | D21-1103-03 | EXTENSION SHAFT              |             |         |
| Δ             | 11      | 1C        | E30-0459-05 | AC POWER CORD                | E           |         |
| Δ             | 11      | 1C        | E30-0685-05 | AC POWER CORD                | UMUE        |         |
| Δ             | 11      | 1C        | E30-1416-05 | AC POWER CORD                | T           |         |
| Δ             | F1      | 1C        | F06-2021-05 | FUSE (SEMKO) (250V T2A)      | TE          |         |
| Δ             | F1      | ,2        | F05-2023-05 | FUSE (250V 2A)               | UMUE        |         |
| 15            | 2A      |           | G01-0489-04 | COMPRESSION SPRING           |             |         |
| 16            | 2B      |           | G01-1767-04 | COMPRESSION SPRING           |             |         |
| 17            | 2C      |           | G11-0130-04 | SOFT TAPE (40X6X5)           |             |         |
| 18            | 2A      |           | G13-0439-04 | CUSHION                      |             |         |
| -             | -       | *         | H01-7028-04 | ITEM CARTON CASE             | UMUEE       |         |
| -             | -       | *         | H01-7029-04 | ITEM CARTON CASE             | T           |         |
| -             | -       |           | H10-1787-04 | POLYSTYRENE FOAMED FIXTURE   |             |         |
| -             | -       |           | H10-1842-02 | POLYSTYRENE FOAMED FIXTURE   |             |         |
| -             | -       |           | H10-1843-02 | POLYSTYRENE FOAMED FIXTURE   |             |         |
| -             | -       |           | H12-1123-04 | PACKING FIXTURE              |             |         |
| -             | -       |           | H25-0223-04 | PROTECTION BAG (750X350)     |             |         |
| -             | -       |           | H25-0232-04 | PROTECTION BAG (235X350)     |             |         |
| 22            | 2C      |           | J02-0129-05 | FOOT                         |             |         |
| 23            | 1C      |           | J12-0094-05 | PIN                          |             |         |
| 24            | 2A      |           | J21-3326-05 | JACK MOUNTING HARDWARE       |             |         |
| 25            | 1C      |           | J42-0083-05 | POWER CORD BUSHING           |             |         |
| -             | -       |           | J61-0307-05 | WIRE BAND                    |             |         |
| 29            | 2A      |           | K27-1207-04 | KNØB (BUTTON) POWER          |             |         |
| 30            | 2B      |           | K27-1539-04 | KNØB (BUTTON) TAPE,AUX/VIDEO |             |         |
| 31            | 2B      |           | K27-1540-04 | KNØB (BUTTON) TUNER,CD,PHONO |             |         |
| 32            | 2B      |           | K27-1541-04 | KNØB (BUTTON) CARTRIDGE      |             |         |
| 33            | 2B      |           | K27-1590-03 | KNØB (BUTTON) MUTING         |             |         |
| 34            | 2A      |           | K29-1548-04 | KNØB VOLUME CONTROL          |             |         |
| 35            | 2A      |           | K29-1823-03 | KNØB REC OUT                 |             |         |
| 36            | 2B      |           | K29-2243-04 | KNØB ASSY SUPER BASS,LINE    |             |         |

E: Scandinavia & Europe H: Audio Club K: USA

P: Canada

S: South Africa

T: England

U: PX(Far East, Hawaii)

UE: AAFES(Europe)

X: Australia

M: Other Areas

Δ indicates safety critical components.

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|---|----------------|-------------------|--|---|--------------------------|--------------------|
| 37<br>38  | 2A<br>2A       |                   | K29-2310-04<br>K29-2311-04   | KNØB<br>KNØB  |                          |                    |
| Δ 42<br>Δ 42<br>Δ 42                                | 1B<br>1B<br>1B | *                 | L01-6982-05<br>L01-6985-05<br>L01-6986-05  | POWER TRANSFORMER<br>POWER TRANSFORMER<br>POWER TRANSFORMER   | T<br>UMUE<br>E           |                    |
| F<br>J  | 1B, 2B<br>1C   |                   | N29-0035-05<br>NØ8-0128-35   | PUSH RIVET (3.5X5.5)<br>BINDING POST (GND)  |                          |                    |
| 46<br>47<br>S1                                      | 1B<br>1B<br>1B |                   | S90-0098-05<br>S90-0099-05<br>S40-1073-05  | REMOTE SWITCH SHAFT (REC ØUT)<br>REMOTE WIRE (REC ØUT)<br>PUSH SWITCH (POWER)                               |                          |                    |
| <b>POWER SUPPLY UNIT (X00-2392-71)</b>              |                |                   |  |   |                          |                    |
| Δ C1<br>Δ C1  |                |                   | C91-0023-05<br>C91-0647-05   | CERAMIC 0.01UF AC250V<br>CERAMIC 0.01UF P   | UMUE<br>TE               |                    |
| Δ 51  | 1C             | *                 | E03-0077-05  | AC ØUTLET   | UMUE                     |                    |
| 55<br>55  | 1C<br>1C       |                   | J13-0041-05<br>J13-0054-05   | FUSE CLIP<br>FUSE CLIP  | UMUE<br>TE               |                    |
| Δ S1  | 1C             |                   | S31-2083-05  | SLIDE SWITCH (POWER TYPE)   | UMUEE                    |                    |
| <b>AUDIO UNIT (X09-2232-71)</b>                     |                |                   |  |   |                          |                    |
| C1 ,2<br>C3 -8<br>C3 ,4<br>C9 ,10<br>C9 ,10         |                |                   | CE04KW1H2R2M<br>CC45FSL1H101J<br>CØ09FS1H101JZS<br>CC45FSL1H120J<br>C91-0167-05  | ELECTRØ 2.2UF 50WV<br>CERAMIC 100PF J<br>POLYSTY 100PF J<br>CERAMIC 12PF J<br>POLYSTY 12PF K                | E<br>UMUET<br>E<br>UMUET |                    |
| C11 ,12<br>C13 ,14<br>C15 ,16<br>C15 ,16<br>C17 -20 |                |                   | CC45FSL1HØ10C<br>CC45FSL1H18ØJ<br>CC45FSL1H331J<br>CK45FB1H1Ø2K<br>CC45FSL1H331J | CERAMIC 1.ØPF C<br>CERAMIC 18PF J<br>CERAMIC 33ØPF J<br>CERAMIC 1ØØØPF K<br>CERAMIC 33ØPF J                 | UMUET<br>E               |                    |
| C21 ,22<br>C23 ,24<br>C25 -28<br>C29 ,30<br>C31 -34 |                | *                 | CE04KWØJ1Ø2M<br>CE04KW1C22ØM<br>CE04KW2AØ1ØM<br>CF92FV1H473J<br>CF92FV1H223J     | ELECTRØ 1ØØØUF 6.3WV<br>ELECTRØ 22UF 16WV<br>ELECTRØ 1.ØUF 1ØØWV<br>MF 0.Ø47UF J<br>MF 0.Ø22UF J            | E<br>E                   |                    |
| C35 ,36<br>C37 -4Ø<br>C41 ,42<br>C45 ,46<br>C45 ,46 |                |                   | CF92FV1H473J<br>CK45FF1H472Z<br>CF92FV1H334J<br>CC45FSL1H1Ø1J<br>CC45FSL1H221J   | MF 0.Ø47UF J<br>CERAMIC 47ØØPF Z<br>MF 0.33UF J<br>CERAMIC 1ØØPF J<br>CERAMIC 22ØPF J                       | E<br>E<br>UMUET<br>E     |                    |
| C47 ,48<br>C49 ,5Ø<br>C61 ,62<br>C63 ,64<br>C65 ,66 |                |                   | CE04KWØJ222M<br>CK45FB1H1Ø2K<br>CK45FE2H1Ø3P<br>C9Ø-Ø492-Ø5<br>CE04KW1J471M      | ELECTRØ 22ØØUF 6.3WV<br>CERAMIC 1ØØØPF K<br>CERAMIC 0.Ø1ØUF P<br>ELECTRØ 1ØØØØUF 56WV<br>ELECTRØ 47ØUF 63WV | E<br>E                   |                    |
| C67 ,68<br>C69 ,7Ø<br>C71<br>C72 -74<br>C75         |                | *                 | CE04KW1J1Ø1M<br>CE04KW1H1Ø1M<br>CE04KW1A1Ø1M<br>CE04KW1HØ1ØM<br>CE04KW1E1Ø1M     | ELECTRØ 1ØØUF 63WV<br>ELECTRØ 1ØØUF 5ØWV<br>ELECTRØ 1ØØUF 1ØWV<br>ELECTRØ 1.ØUF 5ØWV<br>ELECTRØ 1ØØUF 25WV  |                          |                    |
| C76<br>C78<br>C79                                   |                | *                 | CE04KW1H47ØM<br>CE04KW1C22ØM<br>C9Ø-1333-Ø5                                      | ELECTRØ 47UF 5ØWV<br>ELECTRØ 22UF 16WV<br>NP-ELEC 1ØUF 25WV   |                          |                    |

E: Scandinavia &amp; Europe H: Audio Club K: USA P: Canada

S: South Africa T: England U: PX(Far East, Hawaii)

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|---|----------------------|-------------------|--|---|-------------------------|--------------------|
| C80<br>C81<br>C82 ,83<br>C84<br>C85 ,86             |                      |                   | CE04KW1V4R7M<br>CE04KW1C47ØM<br>CF92FV1H1Ø3J<br>CE04KW1HØ1ØM<br>CE04KW2AØ1ØM           | ELECTRØ 4.7UF 35WV<br>ELECTRØ 47UF 16WV<br>MF 0.Ø1ØUF J<br>ELECTRØ 1.ØUF 5ØWV<br>ELECTRØ 1.ØUF 1ØØWV                              |                         |                    |
| C87   |                      | *                 | CC45FSL1H82ØJ  | CERAMIC 82PF J  |                         |                    |
| 59<br>J1<br>J2<br>J3                                | 1C<br>1B<br>1B<br>1B |                   | E23-Ø125-Ø5<br>E2Ø-Ø823-Ø5<br>E13-Ø229-Ø5<br>E11-Ø156-Ø5                               | TERMINAL<br>LOCK TERMINAL BOARD(8P)<br>PHONE JACK (2P)<br>PHONE JACK (3P)   |                         |                    |
| L1 ,2<br>L3 ,4                                      |                      |                   | L39-ØØ8Ø-15<br>L4Ø-1Ø11-47   | PHASE-COMPENSATION COIL<br>SMALL FIXED INDUCTØR(1ØØØH,K)  | E                       |                    |
| 6   | 1B                   |                   | NØ9-Ø333-Ø5  | TAPPING SCREW (3X12)  |                         |                    |
| CP1 ,2<br>R19 -22<br>R23 -26<br>R27 -3Ø<br>R31 -34  |                      |                   | R9Ø-Ø187-Ø5<br>RD14AB2E1Ø1JTS<br>RD14AB2E561JTS<br>RD14AB2E1Ø1JTS<br>RD14AB2E4R7JTS    | MULTI-COMP 0.22X2 K 5W<br>FL-PROOF RD 1ØØ J 1/4W<br>FL-PROOF RD 56Ø J 1/4W<br>FL-PROOF RD 1ØØ J 1/4W<br>FL-PROOF RD 4.7 J 1/4W    |                         |                    |
| R35 ,36<br>R37 -4Ø<br>R41 ,42<br>R43 -46<br>R51 ,52 |                      | *                 | RD14AB2E3Ø2JTS<br>RD14AB2E1Ø2JTS<br>RD14AB2E3Ø2JTS<br>RD14AB2E1Ø1JTS<br>RD14AB2E5R6JTS | FL-PROOF RD 3.ØK J 1/4W<br>FL-PROOF RD 1.ØK J 1/4W<br>FL-PROOF RD 3.ØK J 1/4W<br>FL-PROOF RD 1ØØ J 1/4W<br>FL-PROOF RD 5.6 J 1/4W |                         |                    |
| R53 ,54<br>R55 -58<br>R63 ,64<br>R91 ,92<br>R93     |                      | *                 | RD14AB2E33ØJTS<br>RS14DB3D4R7JTE<br>RS14DB3D561JTE<br>RD14AB2E4R7JTS<br>RS14DB3D181JTE | FL-PROOF RD 33 J 1/4W<br>FL-PROOF RS 4.7 J 2W<br>FL-PROOF RS 56Ø J 2W<br>FL-PROOF RD 4.7 J 1/4W<br>FL-PROOF RS 18Ø J 2W           |                         |                    |
| R94<br>R95 ,96<br>R97 ,98<br>R1Ø1,1Ø2<br>R112       |                      | *                 | RS14DB3D331JTE<br>RD14AB2E22ØJTS<br>RD14AB2E332JTS<br>RD14AB2E1ØØJTS<br>RD14AB2E1Ø1JTS | FL-PROOF RS 33Ø J 2W<br>FL-PROOF RD 22 J 1/4W<br>FL-PROOF RD 3.3K J 1/4W<br>FL-PROOF RD 1Ø J 1/4W<br>FL-PROOF RD 1ØØ J 1/4W       |                         |                    |
| R113<br>R114<br>R117<br>R126<br>R127,128            |                      | *                 | RD14AB2E1ØØJTS<br>RD14AB2E6R2JTS<br>RS14DB3D392JTE<br>RS14DB3D1Ø2JTE<br>RS14DB3A182JTE | FL-PROOF RD 1Ø J 1/4W<br>FL-PROOF RD 6.2 J 1/4W<br>FL-PROOF RS 3.9K J 2W<br>FL-PROOF RS 1.ØK J 2W<br>FL-PROOF RS 1.8K J 1W        |                         |                    |
| VR1 ,2  |                      |                   | R12-ØØ94-Ø5  | TRIMMING POST.(47Ø) BIAS  |                         |                    |
| K1<br>S1<br>S2                                      |                      | *                 | S51-2Ø78-Ø5<br>S29-4Ø18-Ø5<br>S4Ø-6Ø27-Ø5  | MAGNETIC RELAY<br>ROTARY SLIDE SWITCH(SPEAKER)<br>PUSH SWITCH (CARTRIDGE)   |                         |                    |
| D1 ,2<br>D3 -8<br>D3 -8<br>D11 -14<br>D15 ,16       |                      | *                 | MA27T(B)<br>1SS131<br>1SS178<br>S3V2Ø<br>1SS131  | VARISTØR<br>DIØDE<br>DIØDE<br>DIØDE<br>DIØDE  |                         |                    |
| D15 ,16<br>D17 ,18<br>D17 ,18<br>D19<br>D2Ø         |                      |                   | 1SS178<br>1SS133<br>1SS176<br>DSM1A1<br>RDS.1JS(B)                                     | DIØDE<br>DIØDE<br>DIØDE<br>DIØDE<br>ZENER DIØDE   |                         |                    |

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|------------------------------------|---------------|-------------------|-------------------|----------------------------|------------------------|--------------------|
| IC1                                |               |                   | UPC1237H          | IC (PROTECTION)            |                        |                    |
| Q1 ,2                              |               |                   | 2SC3419(Y)        | TRANSISTOR                 |                        |                    |
| Q3 ,4                              |               |                   | 2SC1845(F,E)      | TRANSISTOR                 |                        |                    |
| Q3 ,4                              |               |                   | 2SC1980(S,T)      | TRANSISTOR                 |                        |                    |
| Q5 ,6                              |               |                   | 2SC2590(Q,R,S)    | TRANSISTOR                 |                        |                    |
| Q7 ,8                              |               | *                 | 2SC2837*5         | TRANSISTOR                 |                        |                    |
| Q9 ,10                             |               |                   | 2SA992(F,E)       | TRANSISTOR                 |                        |                    |
| Q11 ,12                            |               |                   | 2SA1110(Q,R,S)    | TRANSISTOR                 |                        |                    |
| Q13 ,14                            |               | *                 | 2SA1186*5         | TRANSISTOR                 |                        |                    |
| Q15 ,16                            |               |                   | 2SC1845(F,E)      | TRANSISTOR                 |                        |                    |
| Q15 ,16                            |               |                   | 2SC1980(S,T)      | TRANSISTOR                 |                        |                    |
| Q17 ,18                            |               |                   | 2SA1127NC(R,S)    | TRANSISTOR                 |                        |                    |
| Q17 ,18                            |               |                   | 2SA733(A)(Q,P)    | TRANSISTOR                 |                        |                    |
| Q17 ,18                            |               |                   | 2SA999(E,F)       | TRANSISTOR                 |                        |                    |
| Q21                                |               |                   | 2SA992(F,E)       | TRANSISTOR                 |                        |                    |
| Q22                                |               |                   | 2SD882(Q,P)       | TRANSISTOR                 |                        |                    |
| Q23                                |               |                   | 2SB772(Q,P)       | TRANSISTOR                 |                        |                    |
| Q24                                |               |                   | 2SC1685(R,S)      | TRANSISTOR                 |                        |                    |
| Q24                                |               |                   | 2SC2320(E,F)      | TRANSISTOR                 |                        |                    |
| Q24                                |               |                   | 2SC945(A)(Q,P)    | TRANSISTOR                 |                        |                    |
| Q25 -27                            |               |                   | 2SA1127NC(R,S)    | TRANSISTOR                 |                        |                    |
| Q25 -27                            |               |                   | 2SA733(A)(Q,P)    | TRANSISTOR                 |                        |                    |
| Q25 -27                            |               |                   | 2SA999(E,F)       | TRANSISTOR                 |                        |                    |
| Q28                                |               |                   | 2SD1266(Q,P)      | TRANSISTOR                 |                        |                    |
| <b>TONE AMP UNIT (X11-2222-72)</b> |               |                   |                   |                            |                        |                    |
| 63                                 | 2B            |                   | A33-0093-04       | REFLECTOR                  |                        |                    |
| D77 -85                            | 2B            |                   | B30-1012-05       | LED(SLP-981C-50)           |                        |                    |
| PL1 ,2                             | 2B            |                   | B30-1025-05       | LAMP (14V 0.08A)           |                        |                    |
| C1 ,2                              |               |                   | CC45FSL1H101J     | CERAMIC 100PF J            |                        |                    |
| C5 ,6                              |               |                   | CE04KW1H010M      | ELECTRO 1.0UF 50WV         |                        |                    |
| C7 ,8                              |               |                   | CC45FSL1H101J     | CERAMIC 100PF J            |                        |                    |
| C9 ,10                             |               |                   | CC45FSL1H150J     | CERAMIC 15PF J             |                        |                    |
| C11 ,12                            |               |                   | CF92FV1H474J      | MF 0.47UF J                |                        |                    |
| C13 -16                            |               |                   | CF92FV1H334J      | MF 0.33UF J                |                        |                    |
| C17 -20                            |               |                   | CE04KW1V4R7M      | ELECTRO 4.7UF 35WV         |                        |                    |
| C21 -24                            |               |                   | CF92FV1H183J      | MF 0.018UF J               |                        |                    |
| C25 ,26                            |               |                   | CE04KW1H010M      | ELECTRO 1.0UF 50WV         |                        |                    |
| C27 ,28                            |               |                   | CK45FB1H561K      | CERAMIC 560PF K            |                        |                    |
| C29 -46                            |               |                   | CK45FB1H391K      | CERAMIC 390PF K            |                        | E                  |
| C47 ,48                            |               |                   | C91-0753-05       | CERAMIC 470PF K            |                        | E                  |
| C101,102                           |               |                   | CE04KW1E101M      | ELECTRO 100UF 25WV         |                        |                    |
| C103,104                           |               |                   | CF92FV1H103J      | MF 0.010UF J               |                        |                    |
| C105                               |               |                   | CE04KW1A101M      | ELECTRO 100UF 10WV         |                        |                    |
| C106                               |               | *                 | C91-0789-05       | BACKUP C 0.047F            |                        |                    |
| C107                               |               |                   | CF92FV1H103J      | MF 0.010UF J               |                        |                    |
| C108                               |               |                   | CE04KW1E101M      | ELECTRO 100UF 25WV         |                        |                    |
| C109                               |               |                   | CF92FV1H473J      | MF 0.047UF J               |                        |                    |
| C110                               |               |                   | CE04KW1E101M      | ELECTRO 100UF 25WV         |                        |                    |
| C111                               |               |                   | CF92FV1H103J      | MF 0.010UF J               |                        |                    |
| C112-114                           |               |                   | CE04KW1E470M      | ELECTRO 47UF 25WV          |                        |                    |
| C115,116                           |               |                   | CE04KW1E101M      | ELECTRO 100UF 25WV         |                        |                    |
| J1                                 | 1C            |                   | E13-0223-05       | PHONE JACK (2P)PHONE       |                        |                    |
| J2 ,3                              | 1C            |                   | E13-0818-05       | PHONE JACK (8P)TAPE, INPUT |                        |                    |

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|---|----------------------------|----------------|---|--|-------------------------|--------------------|
| J4  | 2B                         |                | E13-0233-05   | PHONE JACK (2P)AUX/VIDEO   |                         |                    |
| 67  | 1B                         |                | G11-1098-04   | SOFT TAPE  |                         |                    |
| CP1<br>R101,102<br>R103,104<br>R135<br>R136   |                            |                | R90-0274-05<br>RD14AB2E4R7JTS<br>RD14AB2E100JTS<br>RS14DB3A392JTE<br>RS14DB3A472JTE | MULTI-COMP 47KX5 J 1/6W<br>FL-PROOF RD 4.7 J 1/4W<br>FL-PROOF RD 10 J 1/4W<br>FL-PROOF RS 3.9K J 1W<br>FL-PROOF RS 4.7K J 1W |                         |                    |
| R137,138<br>VR1<br>VR2<br>VR3 ,4              | 2B<br>2B<br>2B             | *              | RD14GB2E471JTS<br>R06-5145-05<br>R06-5144-05<br>R06-3051-05                         | FL-PROOF RD 470 J 1/4W<br>POTENTIOMETER(200K)BALANCE<br>POTENTIOMETER(100K)VOLUME<br>POTENTIOMETER(10K) BASS, TREBLE         |                         |                    |
| S1 ,2<br>S3<br>S5<br>S6<br>S7 -12             | 2C<br>2B<br>2B<br>2B<br>2B |                | S90-0038-05<br>S40-4062-05<br>S40-4062-05<br>S40-2200-05<br>S40-1064-05             | SLIDE SWITCH REC OUT<br>PUSH SWITCH MUTING<br>PUSH SWITCH LINE STRAIGHT<br>PUSH SWITCH SUPER BASS<br>PUSH SWITCH TAPE, INPUT |                         |                    |
| D1 -66<br>D1 -66<br>D67<br>D70<br>D71 ,72     |                            |                | 1SS133<br>1SS176<br>DSM1A1<br>RD5.6JS(B2)<br>RD13E(B2)                              | DIODE<br>DIODE<br>DIODE<br>ZENER DIODE<br>ZENER DIODE  |                         |                    |
| D73 -75<br>D87 -93<br>IC1<br>IC2<br>Q1        |                            | *              | RD16E(B)<br>MA156<br>LC7818<br>NJM2068D-D<br>2SC1845(F,E)                           | ZENER DIODE<br>DIODE<br>IC(ELECTRON CONTROL SWITCH (2H))<br>IC(OP AMP X2)<br>TRANSISTOR                                      |                         |                    |
| Q2<br>Q3<br>Q3<br>Q4<br>Q4                    |                            |                | 2SA992(F,E)<br>2SA733(A)(Q,P)<br>2SA999(E,F)<br>2SC2320(E,F)<br>2SC945(A)(Q,P)      | TRANSISTOR<br>TRANSISTOR<br>TRANSISTOR<br>TRANSISTOR<br>TRANSISTOR   |                         |                    |
| Q5 ,6<br>Q5 ,6<br>Q7 ,8<br>Q9<br>Q9           |                            |                | 2SA733(A)(Q,P)<br>2SA999(E,F)<br>2SC2878<br>2SC2320(E,F)<br>2SC945(A)(Q,P)          | TRANSISTOR<br>TRANSISTOR<br>TRANSISTOR<br>TRANSISTOR<br>TRANSISTOR   |                         |                    |
| <b>PRE AMP UNIT (X85-1010-10)</b>             |                            |                |   |  |                         |                    |
| C1 ,2<br>C3 ,4<br>C5 ,6<br>C7 ,8              |                            |                | CF92FV1H392J<br>CF92FV1H113J<br>CF92FV1H393J<br>CE04HW1E100MEL                      | MF 3900PF J<br>MF 0.011UF J<br>MF 0.039UF J<br>NP-ELEC 10UF 25WV   |                         |                    |
| R7 ,8<br>R9 ,10                               |                            |                | RN14BK2C6811FTS<br>RN14BK2C8252FTS  | RN 6.81K F 1/6W<br>RN 82.5K F 1/6W   |                         |                    |
| IC1<br>Q5 -8<br>Q5 -8                         |                            |                | NJM4560D-N<br>2SK170(BL)<br>2SK170(V)   | IC(OP AMP X2)<br>FET<br>FET  |                         |                    |
| <b>MAIN AMP UNIT (X85-1070-01)</b>            |                            |                |   |  |                         |                    |
| D1 -8<br>Q1 -4<br>Q5 -8<br>Q13 ,14<br>Q15 ,16 |                            |                | 1SS176<br>2SC1845(F,E)<br>2SA733(A)<br>2SC945(A)(Q,P)<br>2SC2632(Q,R,S)             | DIODE<br>TRANSISTOR<br>TRANSISTOR<br>TRANSISTOR<br>TRANSISTOR  |                         |                    |

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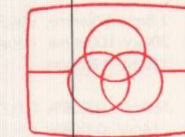
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|--------------------|---------------|----------------|-------------------------------|--------------------------|-------------------------|--------------------|
| Q17 ,18<br>Q19 ,20 |               |                | 2SA999(E,F)<br>2SA1124(Q,R,S) | TRANSISTOR<br>TRANSISTOR |                         |                    |



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KA-747

# SPECIFICATIONS

## Power output

60 watts per channel minimum RMS, both channels driven at 8ohms from 20Hz to 20,000Hz with no more than 0.02% total harmonic distortion

|  |                                |
|--|--------------------------------|
| Maximum Continuous Power Output (DIN) 1kHz at 4ohms .....                  | 98W + 98W                      |
| Maximum Continuous Power Output (DIN) 1kHz at 8ohms .....                  | 73W + 73W                      |
| Maximum Continuous Power Output (IEC/NF) from 63Hz to 12,500Hz, 0.7% ..... |                                |
| Total Harmonic Distortion at 8ohms .....                                   | 72W + 72W                      |
| <b>Total Harmonic Distortion</b>   |                                |
| (20Hz-20,000Hz, 8ohms)   | : 0.009% at 30W                |
| (1kHz, 8ohms)  | : 0.009% at 60W                |
| <b>Inter Modulation Distortion</b>   | : 0.02% at 60W                 |
| <b>Frequency Response</b>  |                                |
| PHONO "RIAA" Response  | : 20Hz-20,000Hz, $\pm 0.3$ dB  |
| TUNER/CD/AUX/TAPE  | : 1Hz-70,000Hz, +0dB, -3dB     |
| <b>Signal to Noise Ratio (IHF-A)</b>                                       |                                |
| PHONO (MM)   | : 86dB                         |
| PHONO (MC)   | : 68dB                         |
| TUNER/CD/AUX/TAPE  | : 100dB                        |
| <b>Signal to Noise Ratio at Unweighted, 50mW Output (DIN)</b>              |                                |
| PHONO (MM)   | : 60dB                         |
| PHONO (MC)   | : 60dB                         |
| TUNER/CD/AUX/TAPE  | : 61dB                         |
| <b>Input Sensitivity/Impedance</b>   |                                |
| PHONO (MM)   | : 2.5mV/47kohms, 690pF         |
| PHONO (MC)   | : 200 $\mu$ V/100ohms, 690pF   |
| TUNER/CD/AUX/TAPE  | : 150mV/47kohms                |
| <b>Phono Maximum Input Level</b>   |                                |
| (MM)   | : 180mV, 0.008% T.H.D. at 1kHz |
| (MC)   | : 14mV, 0.008% T.H.D. at 1kHz  |
| <b>Output Level/Impedance</b>  |                                |
| TAPE REC   | : 150mV/220ohms                |
| ADAPTOR OUT  | : 150mV/300ohms                |
| PRE OUT  | : 2V/600ohms                   |
| <b>Channel Separation (DIN) at 1,000Hz</b>                                 |                                |
| PHONO (Terminated with 2.2kohms)   | : 60dB                         |
| AUX (Terminated with 47kohms + 250pF)                                      | : 55dB                         |
| <b>Tone Control</b>  |                                |
| TREBLE   | : $\pm 10$ dB at 10kHz         |
| BASS   | : $\pm 10$ dB at 100 Hz        |
| Super Bass   | : +5dB at 30Hz                 |

## GENERAL

|                           |   |                |
|---------------------------|---|----------------|
| <b>Power Requirements</b> | : 120V/220V, 50/60Hz .....                  | European Model |
|                           | : 240V, 50Hz .....                          | U.K. Model     |
|                           | : 110-120V/220-240V, 50/60Hz .....          | Other Models   |
| <b>Power Consumption</b>  | : 230watts at Rated Output Power into 8ohms |                |
|                           | : 29watts at No Signal                      |                |
| <b>Dimensions</b>         | : W 340mm (13-3/8")                         |                |
|                           | : H 119mm (4-11/16")                        |                |
|                           | : D 368mm (14-1/2")                         |                |
| <b>Weight (Net)</b>       | : 7.6kg (16.7lb)                            |                |
| <b>(IHF'66)</b>           |   |                |

### Note:

We follow a policy of continuous advancements in development. For this reason specifications may be changed without notice.

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