KENWOOD

HI/FI STEREO COMPONENTS

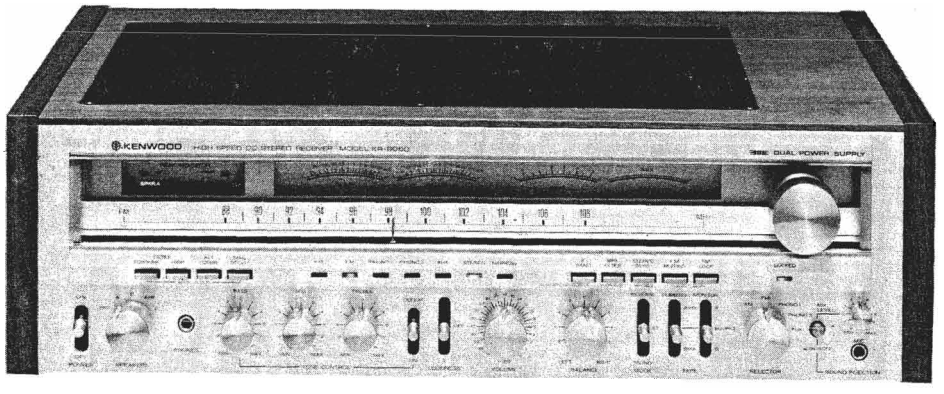
# SERVICE MANUAL

## KR-9050

An item of adjustment is written in three languages — English, French and German.

*Un article sur réglages est écrit en trois langues, Anglais, Français et Allemand.*

Ein Artikel der Abgleich wird auf drei Sprachen, Englische, Französisch und Deutsch geschrieben.



## HIGH SPEED DC STEREO RECEIVER

# CONTENTS

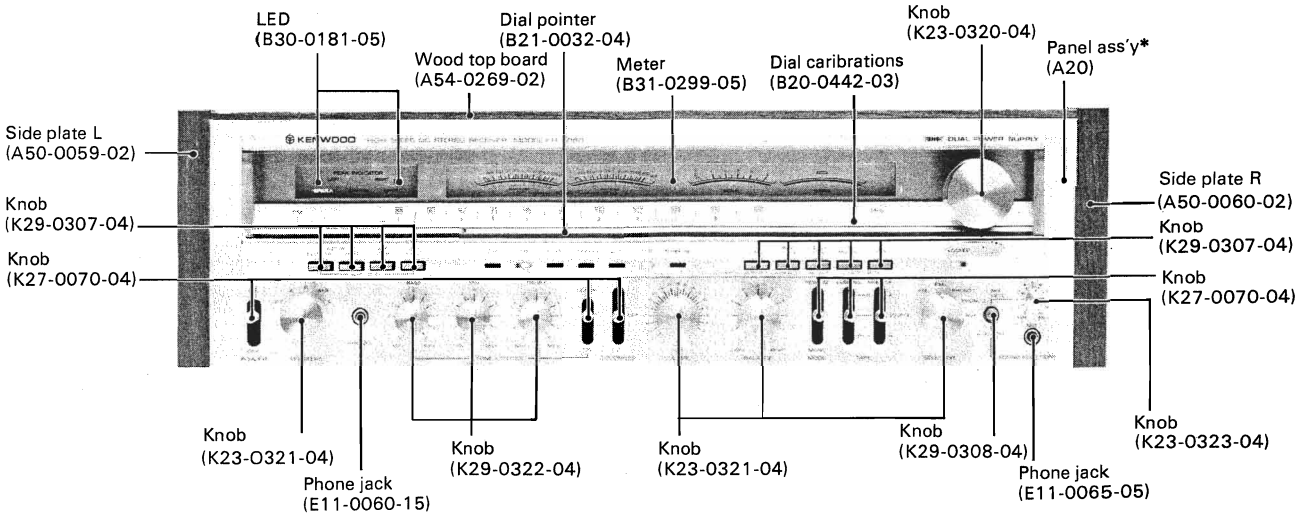


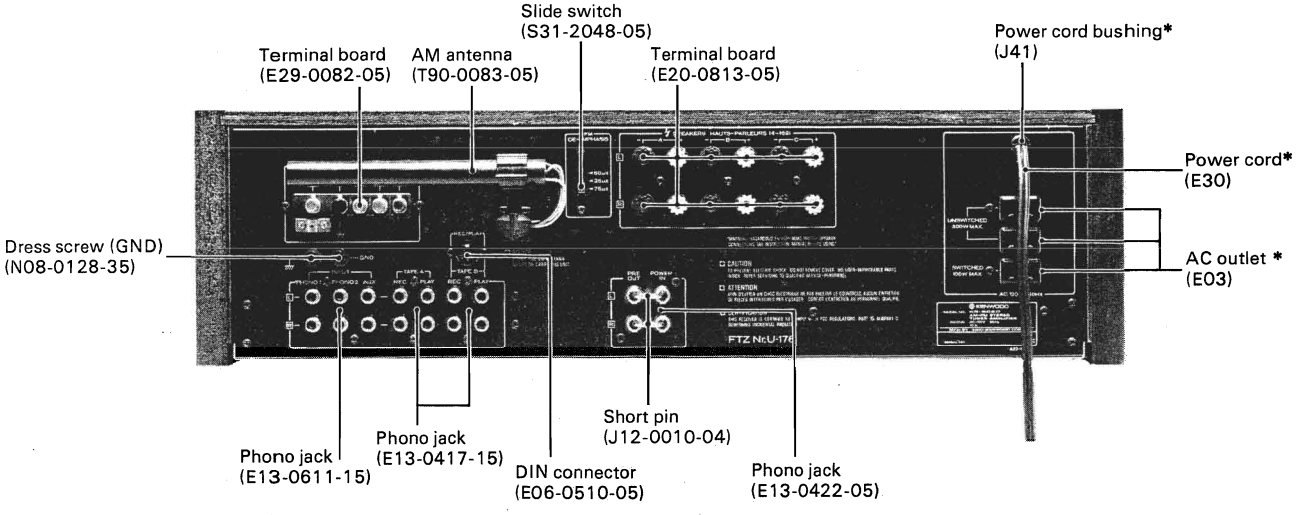
**Note:**
Component and circuitry are subject to modification to insure best operation under differing local conditions. This manual is based on, the U.S. (K) standard, and provides information on regional circuit modification through use of alternate schematic diagrams, and information on regional component variations through use of parts list.

| Region | Code |
|---|---|
| U.S.A. | K |
| Canada | P |
| PX | U |
| Australia | X |
| Europe | W |
| Scandinavia | L |
| England | T |
| South Africa | S |
| Other Areas | M |

There is no plan for producing units of X and S types.

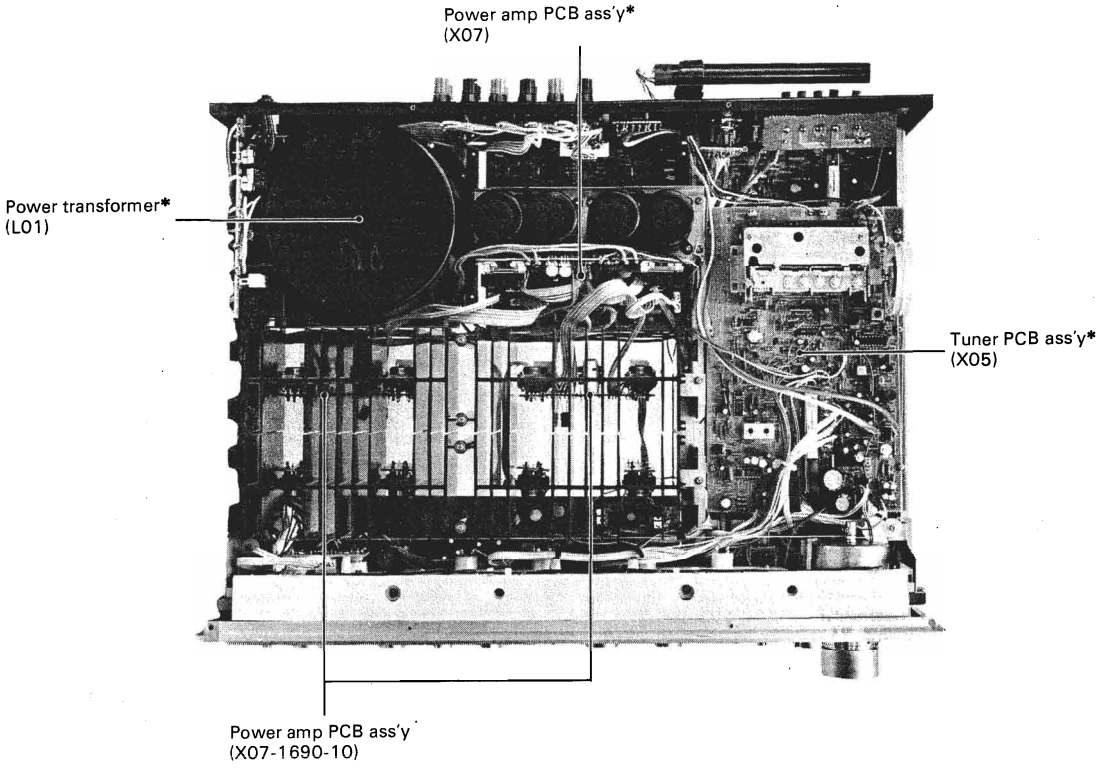
# EXTERNAL VIEW

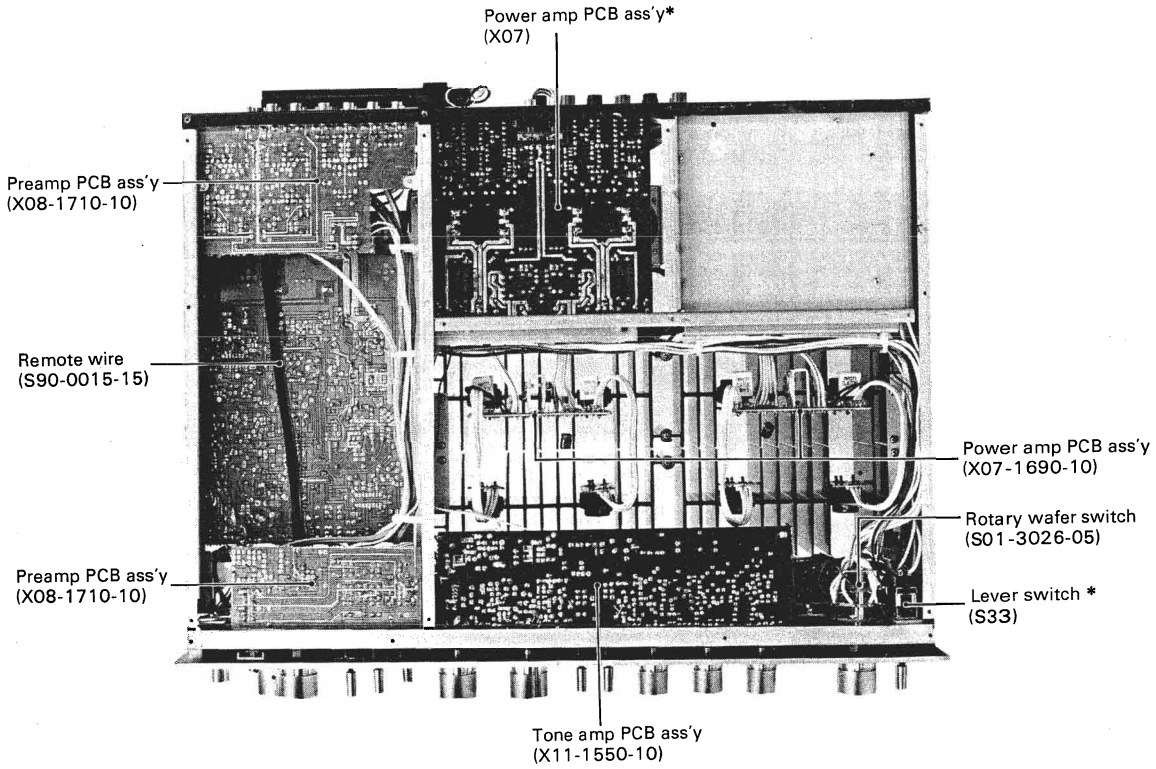



* Refer to parts list.

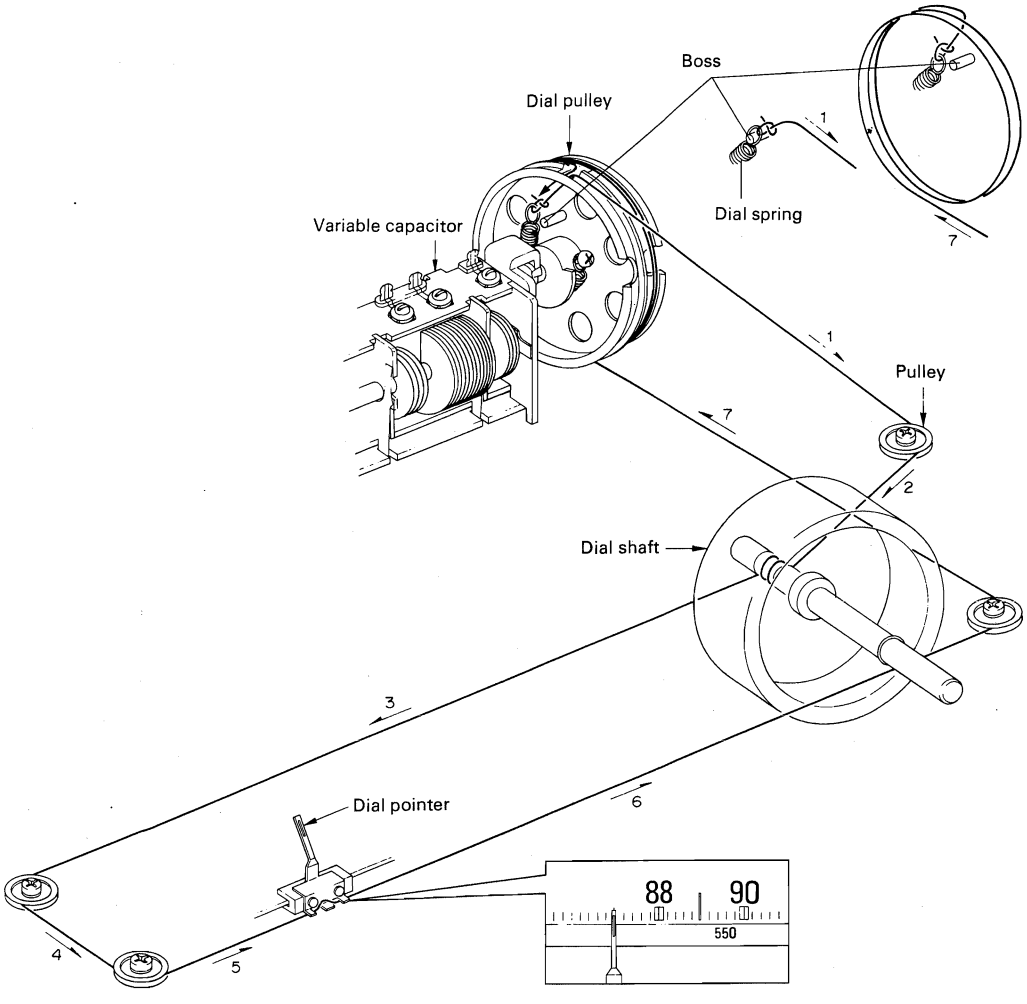
# INTERNAL VIEW




* Refer to parts list.

# DIAL CORD STRINGING

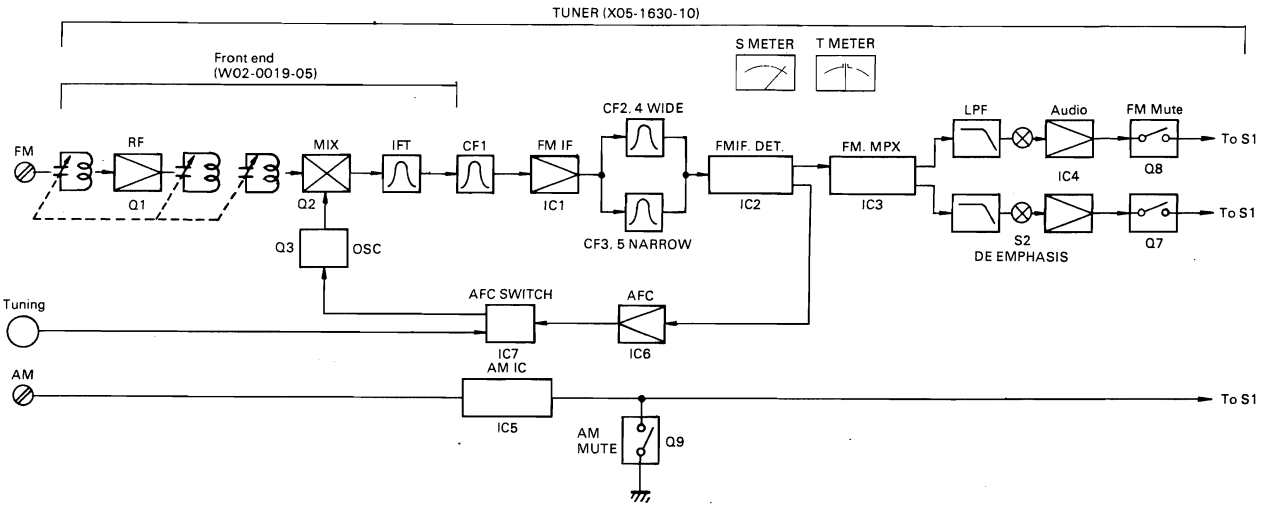



## DIAL CORD STRINGING

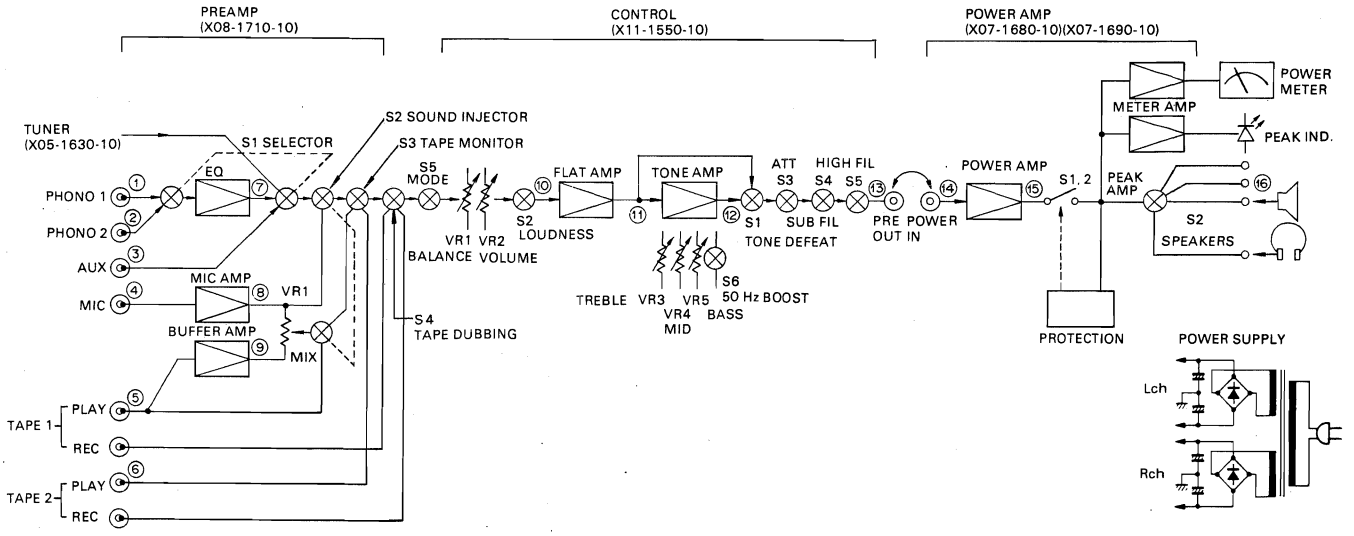
1. Fully open the variable capacitor.
2. Set the dial pulley as illustrated and fix it with a screw.
3. Tie the end of the dial cord at the dial spring, giving a margin of about 10 cm. Hook the spring on the boss.
4. Dress the dial cord in the direction of "1" to "2" and wind 2 turns around the dial shaft starting from its lower side.
5. Dress the dial cord in the direction of "3" through "7" and wind it 2 and a half turns around the dial pulley starting from its lower side.
6. Rigidly tie it with the margin cord and the dial spring (provided as described in 3, above) and release the dial spring from the boss.
7. Fully close the variable capacitor, then mount the dial pointer as illustrated.

# BLOCK AND LEVEL DIAGRAM

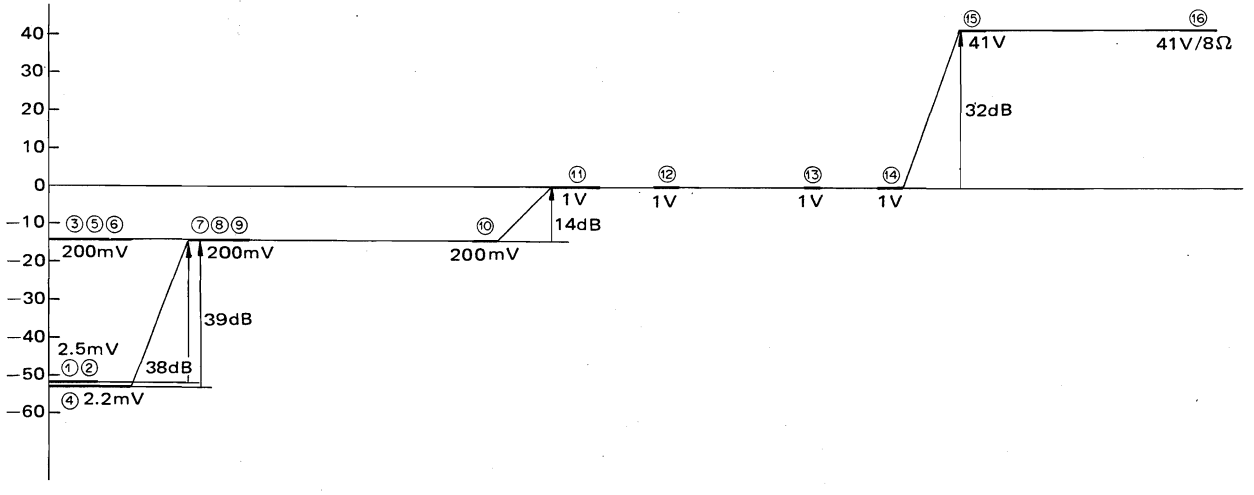
## TUNER




## AMP




## LEVEL DIAGRAM



# CIRCUIT DESCRIPTION

## SOUND INJECTION

### MIC and SOURCE mixing

If a single tape deck is used in your system it should be connected to the TAPE B jacks; the factory-installed U-shaped jumpers should be in place in the TAPE A jacks.

To mix mic and source signals, proceed as follows.

1. Turn the SOUND INJECTION switch on to activate sound injection. Select the desired source with the SELECTOR switch.
2. Set the TAPE DUBBING switch to A ▷ B and the TAPE MONITOR switch to A.
3. The sound heard from the speakers will be mic plus source. Adjust mic level for your preference by turning the SOUND INJECTION knob.
4. A recording of the mixed performance can be made with the tape deck connected to the B jacks.

Table 1 gives a summary of audio combinations at speaker and tape REC jacks for all applicable switch settings.

### MIC and TAPE mixing

If two tape decks are incorporated into your system, you can mix mic audio with playback signals from tape deck A and record the mix on tape deck B.

For this operation the U-shaped jumpers should have been removed from the jacks marked TAPE A, and the second tape deck connected to these jacks.

1. Turn the SOUND INJECTION switch on to activate sound injection.
2. Set the TAPE DUBBING switch to A ▷ B and the TAPE MONITOR switch to A.
3. Play back the tape on tape deck A. The sound heard in the speakers will be the mic plus tape deck A playback.
4. Adjust mic level for your preference by turning the SOUND INJECTION knob.
5. A recording of the TAPE A playback with your added accompaniment can be recorded on tape deck B.

Table 2 gives a summary of audio combinations at speaker and tape jacks for all applicable switch settings.

**Table 1 (With U-shaped jumpers)**

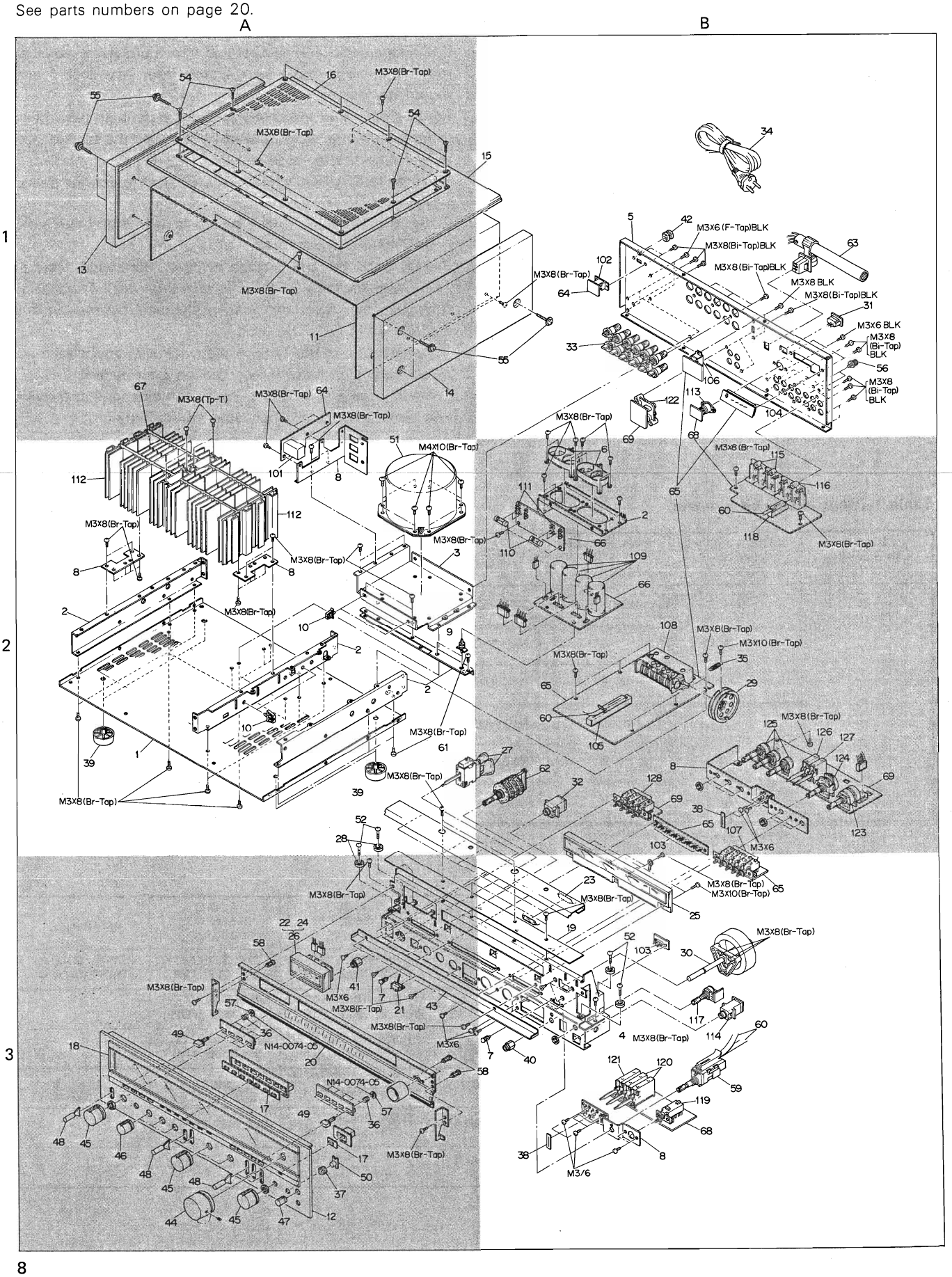
| SOUND INJECTION SWITCH | TAPE DUBBING SWITCH POSITION | TAPE MONITOR SWITCH POSITION | SPEAKER AUDIO | AUDIO TAPE A "REC" JACKS | AUDIO TAPE B "REC" JACKS | REFERENCE |
|---|---|---|---|---|---|---|
| "ON" | "SOURCE" | "SOURCE" | MIC AND SOURCE | SOUND SELECTED BY SELECTOR | SOUND SELECTED BY SELECTOR | MIXING VOLUME INOPERATIVE |
| | | "A" | MIC AND SOURCE | SOUND SELECTED BY SELECTOR | SOUND SELECTED BY SELECTOR | |
| | | "B" | TAPE B | SOUND SELECTED BY SELECTOR | SOUND SELECTED BY SELECTOR | |
| | "A ▷ B" | "SOURCE" | MIC AND SOURCE | SOUND SELECTED BY SELECTOR | MIC AND SOURCE | |
| | | "A" | MIC AND SOURCE | SOUND SELECTED BY SELECTOR | MIC AND SOURCE | |
| | | "B" | TAPE B | SOUND SELECTED BY SELECTOR | MIC AND SOURCE | |

**Table 2 (Without U-shaped jumpers)**

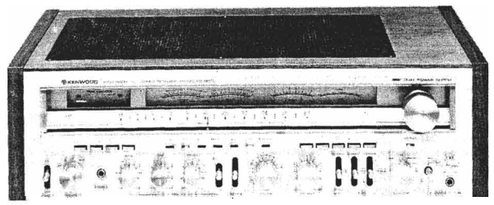
| SOUND INJECTION SWITCH | TAPE DUBBING SWITCH POSITION | TAPE MONITOR SWITCH POSITION | SPEAKER AUDIO | AUDIO TAPE B "REC" JACKS | AUDIO REFERENCE JACKS | REFERENCE |
|---|---|---|---|---|---|---|
| "ON" | "SOURCE" | "SOURCE" | MIC ONLY | SOUND SELECTED BY SELECTOR | SOUND SELECTED BY SELECTOR | MIXING VOLUME INOPERATIVE |
| | | "A" | MIC AND TAPE A | SOUND SELECTED BY SELECTOR | SOUND SELECTED BY SELECTOR | |
| | | "B" | TAPE B | SOUND SELECTED BY SELECTOR | SOUND SELECTED BY SELECTOR | |
| | "A ▷ B" | "SOURCE" | MIC ONLY | SOUND SELECTED BY SELECTOR | MIC AND TAPE A | |
| | | "A" | MIC AND TAPE A | SOUND SELECTED BY SELECTOR | MIC AND TAPE A | |
| | | "B" | TAPE B | SOUND SELECTED BY SELECTOR | MIC AND TAPE A | |

# EXPLODED VIEW

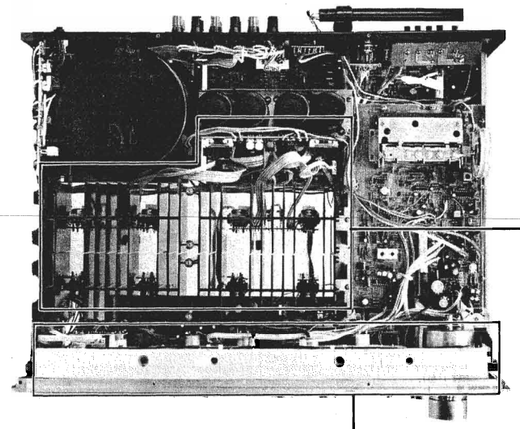
See parts numbers on page 20.



# DISASSEMBLY FOR REPAIR

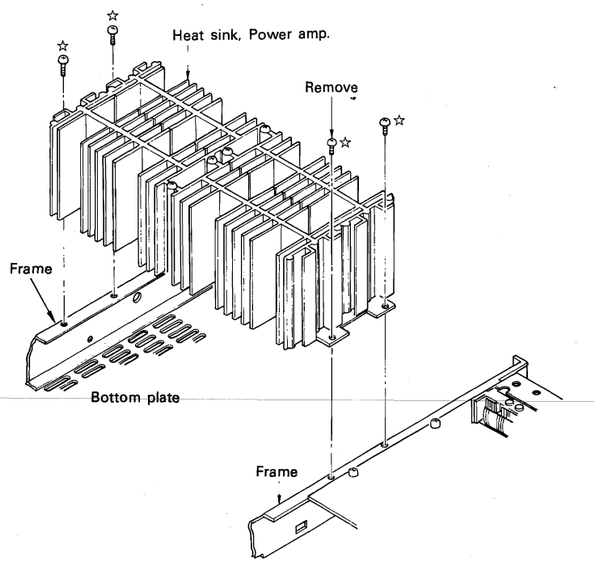


1. Remove the bottom plate.
2. Remove the side plate (L), (R) and the wood top board.
3. Remove the case. (Refer to EXPLODED VIEW)

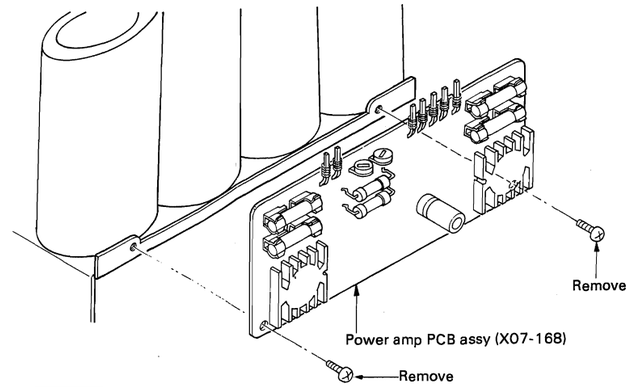


## POWER AMP (X07-169)

Lift up the heat sink after removing four screws (☆).

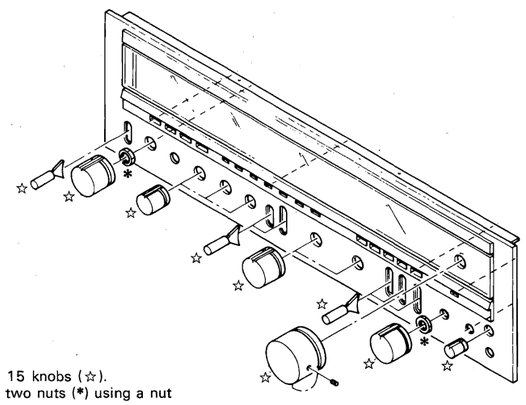



## POWER AMP (X07-168)



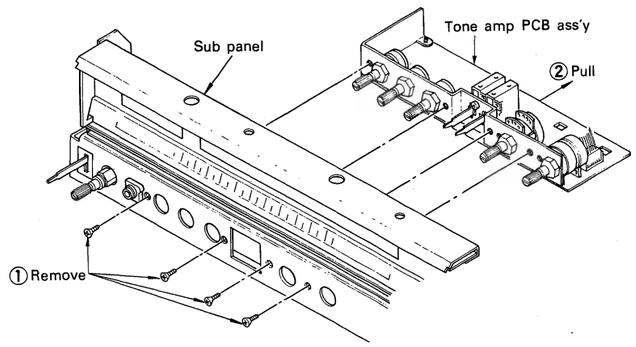

Remove the PCB ass'y after removing the heat sink.

## REMOVE THE PANEL

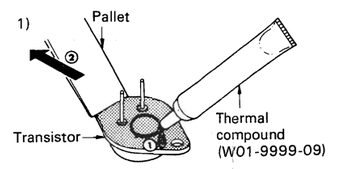


Remove 15 knobs (☆).
Remove two nuts (*) using a nut driver.

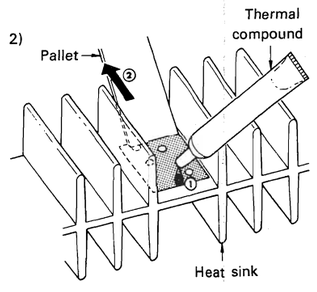
## CONTROL AMP. ETC.

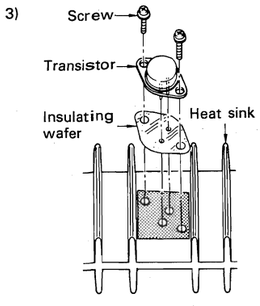



## POWER TRANSISTOR




1. Paint thermal compound on a transistor using a pallet.
2. Paint thermal compound on a heat sink where the transistor is mounted using a pallet.
3. Mount the transistor on the heat sink.



KR-9050 KR-9050

# ADJUSTMENT

## INSTRUMENTS USED

AM signal generator ..... AM-SG
FM signal generator ..... FM-SG
Audio generator ..... AG
Solid state voltmeter ..... SSVM
FM multiplex generator ..... FM-MPX
Oscilloscope
Frequency counter
Distortion meter

## NOTES FOR ADJUSTMENT

* The check points are shown on both circuit diagram and printed circuit board diagram.
* 0 dB = 1 μV

| NO. | ALIGN-MENT | TEST EQUIPMENTS | | RECEIVER SETTING | OUTPUT SETTING | ADJUSTMENT POINTS | REMARKS |
|---|---|---|---|---|---|---|---|
| | | CONNEC-TION | SETTING | | | | |
| **FM SECTION** | | | | | | | |
| ① | **DISCRI** | – | – | FM<br>ST. SENS 2<br>LOCK OFF<br>IF WIDE<br>TUNING:<br>To a dead spot in the FM band | T meter | L5a | Meter indication in the center |
| ② | | Ⓐ | 95 MHz<br>60 dB (ANT.)<br>1 kHz (MOD.)<br>75 kHz (DEV.) | FM<br>95 MHz<br>SENS 2<br>LOCK OFF<br>IF WIDE | Ⓑ | L5b | Minimum distortion |
| Repeat the alignments of 1 and 2 a few times. | | | | | | | |
| ③ | **VCO** | Ⓐ | 95 MHz<br>60 dB (ANT.)<br>0 (DEV.) | - ditto - | Ⓒ<br>Frequency counter between R63 and GND via SSVM Note 1 | VR3 | Adjusted to 76 kHz ±200 Hz |
| ④ | **19 kHz CANCEL** | Ⓓ | FM-MPX:<br>PILOT SIGNAL<br>FM-SG:<br>60 dB (ANT.) | -ditto - | SSVM to Pin 5 or Pin 6 of IC3 | VR4 | A compromise adjustment may be required if left and right outputs are unequal. |
| ⑤ | **SEPARATION** | Ⓓ | FM-MPX:<br>SELECTOR L or R<br>1 kHz (MOD.)<br>PILOT (6.75 kHz DEV.)<br>FM-SG:<br>955 MHz 60 dB (ANT.)<br>68.25 kHz (DEV.) | - ditto - | Ⓑ<br>R out (SELECTOR→L)<br>L out (SELECTOR→R) | VR5 | A compromise adjustment may be required if left-to-right and right-to-left separations are unequal. |
| ⑥ | **IFT** | Ⓓ | FM-MPX:<br>SELECTOR L + R<br>1 kHz (MOD.)<br>PILOT (6.75 kHz DEV.)<br>FM-SG:<br>95 MHz 60 dB (ANT)<br>68.25 kHz (DEV.) | - ditto - | Ⓑ | IFT<br>(Front end) | Minimum distortion.<br>Adjust slightly. |
| ⑦ | **STEREO BEACON** | Ⓓ | FM-MPX:<br>SELECTOR L + R<br>1 kHz (MOD.)<br>PILOT (6.75 kHz DEV)<br>FM-SG:<br>95 MHz 20 dB (ANT)<br>68.25 kHz (DEV.) | FM 95 MHz<br>SENS 1<br>LOCK OFF<br>IF WIDE | STEREO INDICATOR<br>(Front panel) | VR1 | STEREO INDICATOR lights |

| NO. | ALIGN-MENT | TEST EQUIPMENTS | | RECEIVER SETTING | OUTPUT SETTING | ADJUSTMENT POINTS | REMARKS |
|---|---|---|---|---|---|---|---|
| | | CONNEC-TION | SETTING | | | | |
| **AM SECTION** | | | | | | | |
| 1 | **IFT** | Ⓔ | 1000 kHz<br>400 Hz 30% (MOD.) | AM<br>1000 kHz | Ⓑ | L10 | Maximum optimum waveform. |
| 2 | **TRACKING** | Ⓔ | 600 kHz<br>400 Hz 30% (MOD.) | AM<br>600 kHz | Ⓑ | L9<br>Bar antenna | Maximum optimum waveform. |
| 3 | | | 1400 kHz<br>400 Hz 30% (MOD.) | AM<br>1400 kHz | | TCAM 1,2 | |
| Repeat the alignments of 2 and 3 a few times. | | | | | | | |
| **AUDIO SECTION** | | | | | | | |
| I | **OFFSET VOLTAGE** | – | – | VOLUME to minimum position<br>SPEAKERS B | Ⓕ<br>Lch<br>(R-ch) | X07-1680<br>VR1<br>(VR2) | 0V |
| II | **BIAS CURRENT** | – | – | VOLUME to minimum position | DC voltmeter between the emitters of Q7 and Q11 (Q8 and Q12) Note 2 | X07-1690<br>VR1<br>(VR2) | 20 mV |
| III | **POWER METER** | Ⓖ | 1 kHz<br>1V | TAPE B PLAY<br>Adjust VOLUME so that SSVM indicates 4.9V<br>SPEAKERS A | Ⓗ<br>POWER METER | X07-1680<br>VR3<br>(VR4) | SSVM<br>4.9V<br>POWER METER<br>3W |

## REFERENCE: FM FRONT END

The FM front end section is completely adjusted in the factory and further adjustment is not necessary.
When the transistor and/or FET are replaced, perform the following adjustment.

(1) Set FM-SG to 108 MHz, 1 kHz Mod, ±75 kHz Dev. and connect it to the antenna terminal of the receiver.
(2) Set the dial pointer at 108 MHz.
(3) Adjust TCO so that T meter gives a mid-scale reading.
(4) Adjust TCA, TCR1 and TCR2 so that S meter deflects maximum.

When the FM front end section cannot be repaired by replacing semiconductors and taking steps in "(1)~(4)", replace the front end (W02-0019-05) and do the following.

(1) Set FM-SG to 90 MHz, 1 kHz Mod, ±75 kHz, 60 dB and connect it to the antenna terminal of the receiver.
(2) Receive the FM-SG signal.
(3) Fix the dial pointer at 90 MHz.

* Repeat tracking adjustments 2 or 3 times and finally confirm the result using respective local stations.
* FM tracking on lower side cannot be adjusted since a fixed coil is employed.

# RÉGLAGES

## INSTRUMENTS USITE

Générateur MA ..... AM-SG
Générateur MF ..... FM-SG
Générateur Audio fréquences ..... AG
Voltmètre à transistor ..... SSVM
Générateur multiplex stéréo ..... FM-MPX
Oscilloscope
Compteur de fréquence
Distorsiomètre

## REMARQUES DE RÉGLAGES

* Le point de contrôle est indiqué sur le schéma de montage et le tracé du circuit imprimé.
* 0 dB = 1 $\mu$V

| NO. | ALIGNEMENT | APPAREILLAGE | | RÉGLAGE DU AMPLI-TUNER | INDICATEUR DE SORTIE | POINTS DE RÉGLAGE | REMARQUES |
|---|---|---|---|---|---|---|---|
| | | RACCORDEMENT | RÉGLAGE | | | | |
| **SECTION MF** | | | | | | | |
| ① | **INDICATEUR À ZÉRO CENTRAL** | – | – | FM<br>STEREO SENS: 2<br>LOCK: OFF<br>IF: WIDE<br>NOISE: | INDICATEUR A ZÉRO CENTRAL | L5 | Aiguille de l'indicateur à zéro central en position centrale. |
| ② | **INDICATEUR À ZÉRO CENTRAL** | Ⓐ | 96 MHz<br>1 kHz (Mod.)<br>75 kHz (Dev.)<br>60 dB (Ant.) | FM<br>95 MHz<br>STEREO SENS: 2<br>LOCK: OFF<br>IF: WIDE | Ⓑ | L5 | Distorsion minimale. |
| Répéter les points "1" et "2" plusieurs fois. | | | | | | | |
| ③ | **VCO** | Ⓐ | 95 MHz<br>0 (Dev.)<br>60 dB (Ant.) | idem | Ⓒ<br>Relier le compteur de fréquence a la resistence R63 par SSVM | VR3 | oscillateur à 76 kHz ±200 Hz (Note 1) |
| ④ | **Circuit suppression de signal pilote** | Ⓓ | 95 MHz<br>SIGNAL PILOTE<br>60 dB (Ant.) | idem | Relier le SSVM à plot 5 et 6 de IC3 | VR4 | Si la sortie de la droit et la gauche ne sont pas mêre, régler le potentiomètre ajustable pour que la tension de sortie est même. |
| ⑤ | **SÉPARATION** | Ⓓ | 95 MHz<br>1 kHz (Mod.)<br>68,25 kHz (Dev.)<br>60 dB (Ant.)<br>6,75 kHz (PILOTE)<br>SELECTION (L ou R) | idem | Ⓑ<br>Sortie de droit (SELECTION: L) sortie de gauche (SELECTION: R) | VR5 | Si la sortie la droit de diaphonie et la gauche ne sont pas même régler le potentiomètre ajustable pour que la tension de sortie est même. |
| ⑥ | **TFI** | Ⓓ | 95 MHz<br>1 kHz (Mod.)<br>68,25 kHz (Dev.)<br>60 dB (Ant.)<br>6,75 kHz (PILOTE)<br>SELECTION (L+R) | idem | Ⓑ | TFI | Distorsion minimale. |
| ⑦ | **INDICATEUR DE STÉRÉO** | Ⓓ | 95 MHz<br>1 kHz (Mod.)<br>68,25 kHz (Dev.)<br>20 dB (Ant.)<br>6,75 kHz (PILOTE)<br>SELECTION (L+R) | FM<br>95 MHz<br>SENS: 1<br>LOCK: OFF<br>IF: WIDE | INDICATEUR DE STÉRÉO | VR1 | INDICATEUR DE STÉRÉO Luit |

| NO. | ALIGNEMENT | APPAREILLAGE | | RÉGLAGE DU AMPLI-TUNER | INDICATEUR DE SORTIE | POINTS DE RÉGLAGE | REMARQUES |
|---|---|---|---|---|---|---|---|
| | | RACCORDEMENT | RÉGLAGE | | | | |
| **SECTION MA** | | | | | | | |
| [1] | **TFI** | Ⓔ | 1000 kHz<br>4000 Hz, 30% (Mod.) | AM<br>1000 kHz | Ⓑ | L10 | Déviation maximale. |
| [2] | **ALIGNEMENT** | idem | 600 kHz<br>400 Hz, 30% (Mod.) | AM<br>600 kHz | idem | L9<br>Antenne ferrite MA | Déviation maximale |
| [3] | **ALIGNEMENT** | idem | 1400 kHz<br>400 Hz, 30% (Mod.) | AM<br>1400 kHz | idem | TCAM 1,2 | Déviation maximale. |
| Répéter les 2 et 3 plusieurs fois. | | | | | | | |
| **SECTION AMPLI** | | | | | | | |
| I | **TENSION DE DÉCALAGE** | – | – | VOLUME: minimale<br>SPEAKERS: B | Ⓕ | VR1, 2<br>(X07-1680) | 0V |
| II | **COURANT DE POLARISATION** | – | – | idem | Brancher le voltmètre c.c. aux émetteur de Q7 et Q11 (Q9 et Q12) (Note 2) | VR1, 2<br>(X07-1690) | 20 mV |
| III | **POWER MÈTRE** | Ⓖ | 1 kHz<br>1V | Regler le VOLUME en sortie que. Le VU mètre indique 3W lorsque le voltmètre indique 4,9V | Ⓗ<br>POWER MÈTRE | VR3, 4<br>(X07-1680) | 3W |

## REFERENCE: PARTIE FRONTALE FM

La partie frontale FM a été parfaitement réglée en usine et aucun réglage supplémentaire n'est requis.
Si l'on remplace le transistor et/ou FET, il convient d'effectuer le réglage suivant:
(1) Régler FM-SG sur 108 MHz, 1 kHz Mod, ±75 kHz Dev et le connecter à la borne d'antenne du ampli-tuner.
(2) Mettre l'aiguille du cadran à 108 MHz.
(3) Régler TCO de façon que l'indicateur à ZERO CENTRAL donne une lecture à mi-échelle.
(4) Ajuster TCA, TCR1 et TCR2 de façon que l'indicateur de champ dévie au maximum.

Si la partie frontale FM ne peut pas être réparée en remplaçant les semi-conducteurs et en procédant suivant les indications dans (1)~(4), remplacer l'assemblage PCB de la partie frontale (W02-0019-05) et effectuer les opérations suivantes:
(1) Régler FM-SG à 90 MHz, 1 kHz Mod, ±75 kHz, 60 dB et le connecter à la borne d'antenne du récepteur.
(2) Recevoir le signal FM-SG.
(3) Fixer l'aiguille du cadran à 90 MHz.

* Renouveller plusieurs fois le réglage de reproduction et confirmer la réception de l'émission.
* Comme on utilise une bobine fixée, l'alignement sur band latérale inferieure n'est pas possible.

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# ABGLEICH

## PRÜFEINRICHTUNGEN

MW-Signalgenerator ..... AM-SG
UKW-Signalgenerator ..... FM-SG
NF-Signalgenerator ..... AG
Transistor-Voltmeter ..... SSVM
Multiplex-Signalgenerator ..... FM-MPX
Oszilloskop
Frequenzzähler
Klirrfactormesser

## HINWEISE

* Der Prüfpunkt (TP) ist im Schaltplan auf geführt.
* 0 dB = 1 $\mu$V

| NR. | ABGLEICH | PRÜFEINRICHTUNG AN-SCHLÜSSE | PRÜFEINRICHTUNG EINSTELLUNG | STEUERGERÄT EINSTELLUNG | AUSGANGS-ANZEIGE | EINSTELL-PUNKT | BEMERKUN-GEN |
|---|---|---|---|---|---|---|---|
| **UKW-EMPFANGSABTEILUNG** | | | | | | | |
| ① | **DISKRIMI-NATOR (1)** | — | — | SELECTOR: FM<br>STEREO SENS: 2<br>FM LOCK: OFF<br>IF BAND: WIDE<br>Abstimmung: zu einem toten Freck im UKW-Bereich. | Kanalmitten-Anzeiger | L5a | Den Zeiger des Kanalmitten-Anzeiger mitting einstellen. |
| ② | **DISKRIMI-NATOR (2)** | Ⓐ | 95 MHz<br>60 dB (Steuergerät-Eingengespep)<br>1 kHz, ±75 kHz Hub | SELECTOR: FM<br>STEREO SENS: 2<br>FM LOCK: OFF<br>IF BAND: WIDE<br>Abstimmung: 95 MHz | Ⓑ | L5b | Minimaler Klirrfaktor |
| Abstimmungen „1 und 2" mehrere Male miederholen. | | | | | | | |
| ③ | **SPANNUNGS-GEREGELTER OSZILLATOR** | Ⓐ | 95 MHz<br>60 dB (Steuergerät-Eingangspegel)<br>0 Hub | SELECTOR: FM<br>STEREO SENS: 2<br>FM LOCK: OFF<br>IF BAND: WIDE<br>Abstimmung: 95 MHz | Ⓒ<br>Frequenzzähler Zwischen R63 und GND via SSVM | VR3 | 76 kHz<br>±200 Hz |
| ④ | **PILOTTON-UNTER-DRÜCKUNG** | Ⓓ | 95 MHz<br>60 dB (Steuergerät-Eingangspegel)<br>Pilotton | - dito - | Gleichspannungs-messer zu Klemme 5 von IC3 | VR4 | Eine Kompromiß-einstellung wird gefordern wenn Ausschlag von den rechten und linken Kanäle ungleich sind. |
| ⑤ | **STEREO KANAL TRENNUNG** | - dito - | 95 MHz<br>60 dB (Steuergerät-Eingangspegel)<br>1 kHz,<br>±68,25 kHz Hub<br>Wähler:<br>Loder R<br>Pilotton<br>(±6,75 kHz Hub) | - dito - | Ⓑ<br>R-Aus<br>(Wähler: L)<br>L-Aus<br>(Wähler: R) | VR5 | Eine Kompromiß-einstellung wird geforden wenn dem Übersprech-anteil des linken kanals in den rechten kanal und dem Über-sprechanteil des rechten kanals in den linken kanal ungleich sind. |
| ⑥ | **ZF-T** | - dito - | 95 MHz<br>60 dB (Steuergerät-Eingangspegel)<br>1 kHz,<br>±68,25 kHz Hub<br>Wähler:<br>L + R<br>Pilotton:<br>(±6,75 kHz Hub) | - dito - | Ⓑ | ZF-T<br>(Frontende) | Minimaler Klirr faktor, Schwacher Einstellung |
| ⑦ | **STEREO INDIKATOR** | - dito - | 95 MHz<br>20 dB (Steuergerät-Eingangspegel)<br>1 kHz,<br>±68,25 kHz Hub<br>Wähler: L + R<br>Pilotton<br>(±6,75 kHz Hub) | SELECTOR: FM<br>STEREO SENS: 1<br>FM LOCK: OFF<br>IF BAND: WIDE<br>Abstimmung: | INDIKATOR | VR1 | STEREO INDIKATOR aufleuchtet. |

| NR. | ABGLEICH | PRÜFEINRICHTUNG AN-SCHLÜSSE | PRÜFEINRICHTUNG EINSTELLUNG | STEUERGERÄT EINSTELLUNG | AUSGANGS-ANZEIGE | EINSTELL-PUNKT | BEMERKUN-GEN |
|---|---|---|---|---|---|---|---|
| **MW-EMPFANGSABTEILUNG** | | | | | | | |
| 1 | **ZF-T** | Ⓔ | 1.000 kHz<br>400 Hz, 30% Mod. | SELECTOR: AM<br>Abstimmung: 1.000 kHz | Ⓑ | L10 | Maximaler Ausschlag |
| 2 | **EMPFANGS-BEREICH (1)** | - dito - | 600 kHz<br>400 Hz, 30% Mod. | SELECTOR: AM<br>Abstimmung: 600 kHz | - dito - | L9<br>MW-Ferritantenna | - dito - |
| 3 | **EMPFANGS-BEREICH (2)** | - dito - | 1.400 kHz<br>400 Hz, 30% Mod. | SELECTOR: AM<br>Abstimmung: 1.400 kHz | - dito - | TCAM1, 2 | - dito - |
| Abstimmungen „2 und 3" mehrere Male wiederholen. | | | | | | | |
| **VERSTÄRKER** | | | | | | | |
| I | **OFFSET-SPANNUNG** | — | — | VOLUME zu Stellung „∞" | Ⓕ<br>L-Kanal<br>(R-Kanal) | X07-1680<br>VR1<br>(VR2) | 0V |
| II | **LEERLAUFS** | — | — | - dito - | Gleichspannungs-messer Zwischen den Emitter-Elektroden von Qu und Q11. (Q8 und Q12) Siehe Bemerkung 1. | X07-1690<br>VR1<br>(VR2) | 20 mV |
| III | **LEISTUNGS-MESSER** | Ⓖ | 1 kHz<br>1V | Den VOLUME so regulieren, daß die Gleichspannungs-messer- Ablesung 4,9V ist. | Ⓗ<br>Leistungs-messer | X07-1680<br>VR3<br>(VR4) | 3W |

## HINWEISE: UKW-Frontende.

Das UKW-Frontende wird bereits im Werk vollständig eingestelt. Weitere Einstellung ist daher nicht nötig. Bein Auswechseln des Transistors und/oder des FETs die Einstellung wie folgt vornehmen.

(1) Den UKW-Signalgenerator auf 108 MHz, 1 kHz Modulation und ±75 kHz Hub einstellen und mit der Antennenklemme des Steuergeräts verbinden.
(2) Den Skalenzeiger auf 108 MHz stellen.
(3) TCO so einstellen, daß Kanalmitten-anzeiger in der Mitte ausschlägt.
(4) TCA, TCR1 und TCR2 so einstellen, daß Feldstärkeinstrument das Maximum anzeigt.

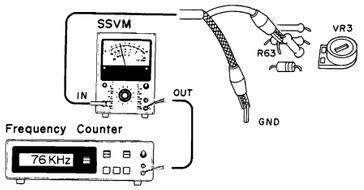
Wenn des UKW-Frontende durch Auswechseln der Halbleiter und/oder durch in Abschnitt „1 ~ 4" genannten Schritte nicht repariert werden kann, ist die Leiterplatte (W02-0019-05) des Frontendes auszwechseln und folgende Einstellung vorzunehmen.

(1) Den UKW-Signalgenerator auf 90 MHz, 1 kHz Modulation, ±75 kHz Hub, und 60 dB einstellen und mit der Antennenklemme des Steuergeräts verbinden.
(2) Den Steuergeräts so einstellen, daß Meßsendersignal empfangen wird, während der Skalenzeiger auf 90 MHz zeigt.

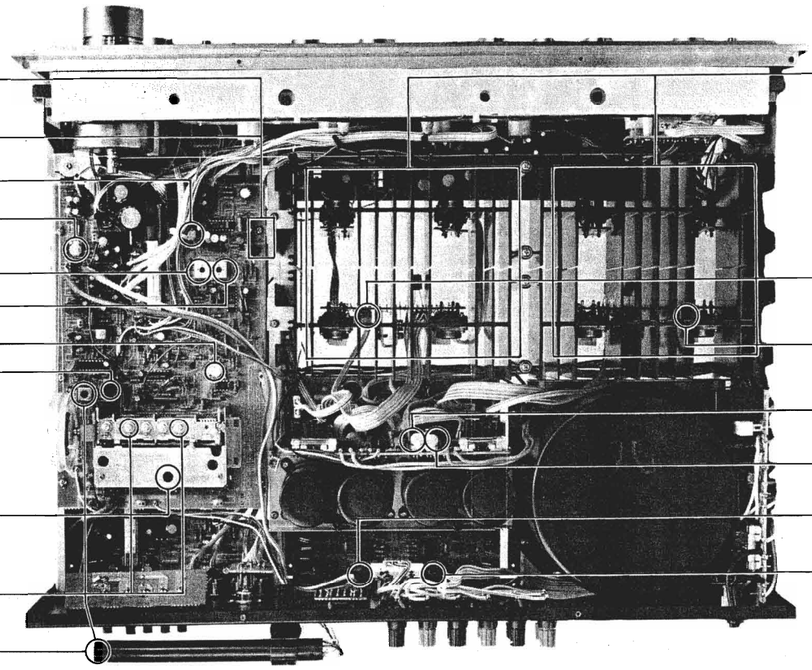
* Den Empfangsbereich einige Male einstellen und den Empfang überprüfen.
* Die UKW-Empfangsbereich auf der unteren Seite kann nicht geregelt werden, weil eine Festspule verwendet wird.

# ADJUSTMENT

## FM, AM SECTION




**Note 1:**
SSVM is used for an amplifier. When you have a high-sensibility frequency counter, you need not use the SSVM.

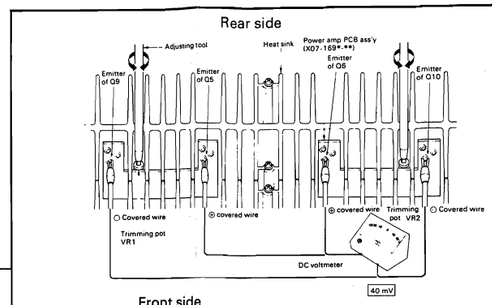


- ③ VCO — VR3
- ④ 19 kHz CANCEL — VR4
- ⑤ SEPARATION — VR5
- ①② DISCRI — L5b, L5a
- ⑦ ST. BEACON — VR1
- 1 AM. IFT — L10
- ⑥ FM IFT — IFT
- 2 3 TRACKING (AM) — TCAM1,2; L9; Bar antenna

Ⓓ AG — MPX-SG — FM-SG — Dummy antenna
Ⓐ FM-SG — Dummy antenna
Ⓔ AM-SG — Dummy antenna

Ⓑ SSVM
Oscilloscope
Distortion meter

## AUDIO SECTION




**Note 2:**
1. Turn the volume control knob fully counterclockwise.
2. Connect the DC voltmeter between the emitters of Q5 and Q9 (Q6 and Q10).
3. Adjust the trimming pot. VR1 (VR2) for 40 mV reading of the voltmeter.

- VR2 (X07-1690), VR1 — BIAS CURRENT — II
- VR4 (X07-1680), VR3 — POWER METER — III
- VR2 (X07-1680), VR1 — OFFSET VOLTAGE — I

DC voltmeter Ⓕ

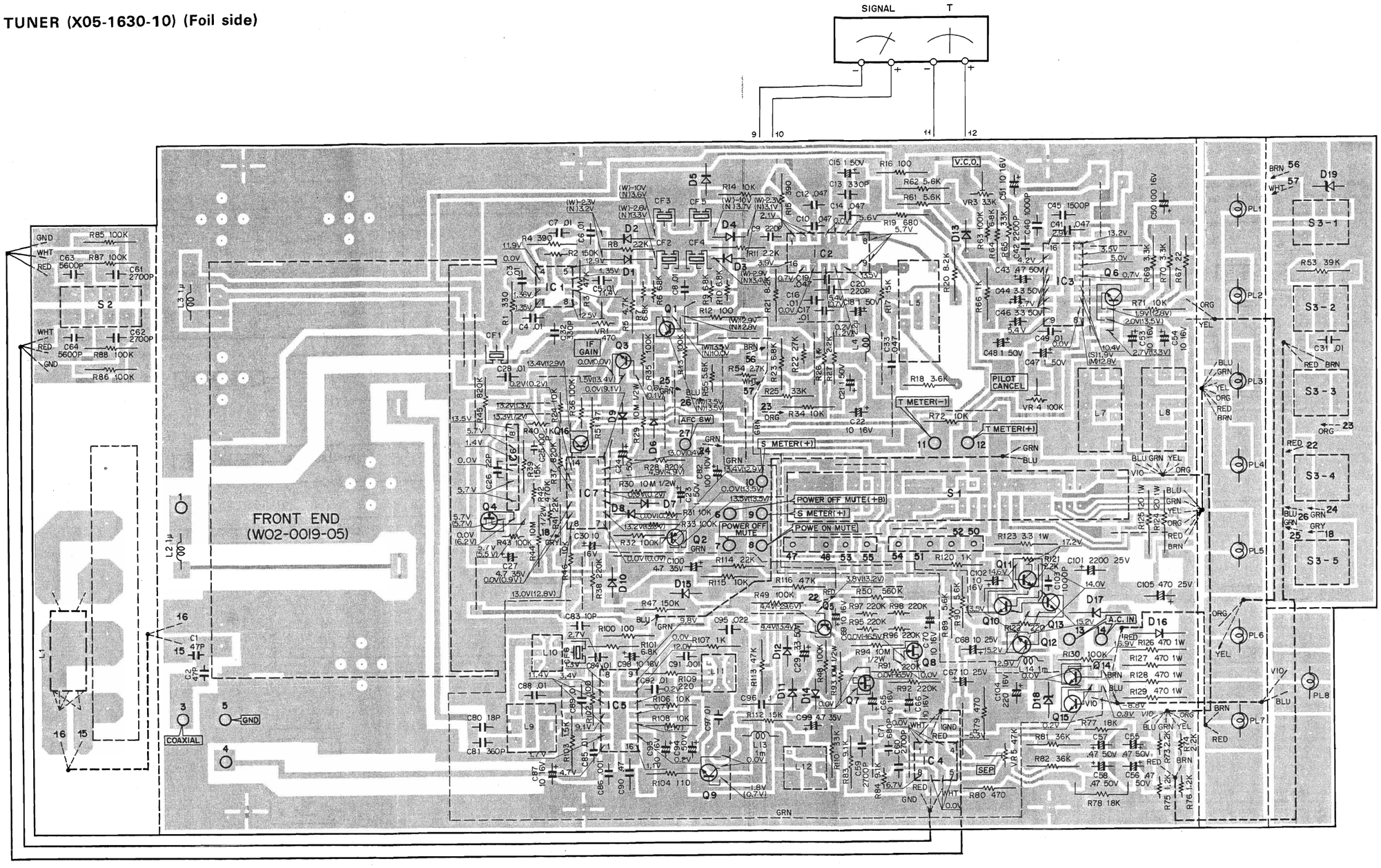
SSVM Ⓗ
Dummy load 8Ω 200W

Ⓖ AG

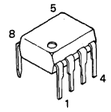
# KR-9050 KR-9050

## PC BOARD

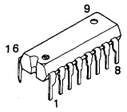
▼ TUNER (X05-1630-10) (Foil side)



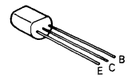

LA1222
NJM4558D



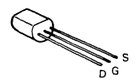
HA11225
HA11223W
LA1240



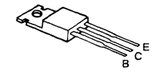
2SA733A
2SC945
2SC1222



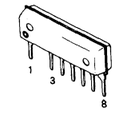
2SK117
2SK163



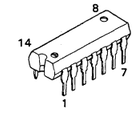
2SD330



HA1457



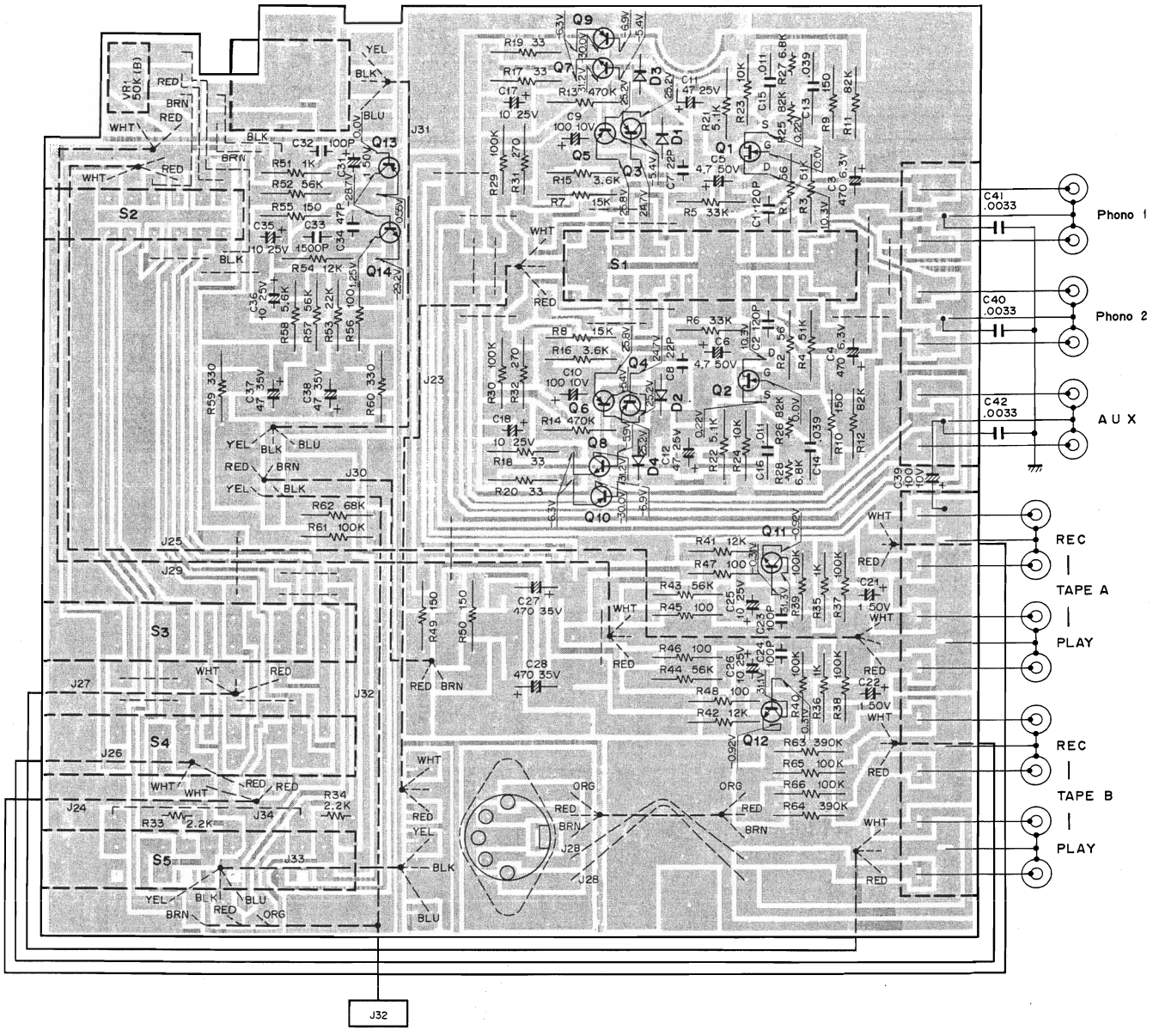
TC4069UBP
MC14069UBCP



| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Q1,2,5: | 2SA733A(Q,P) | Q14: | 2SC1222(U) | IC1: | LA1222 | IC7: | TC4069UBP or MC14069UBCP |
| Q3,6,9,10, 12,13,15,16: | 2SC945(Q,P,K) | D1,2: | 1N60 | IC2: | HA11225 | | |
| Q4,7,8: | 2SK163 or 2SK117 (Y,GR,BL) | D3～15: | 1S1555 or 1S2076 | IC3: | HA11223W | | |
| Q11: | 2SD330(E,F) | D16,17: | W06B | IC4: | NJM4558D(A,B) | | |
| | | D18: | XZ-127 | IC5: | LA1240 or HA1197 | | |
| | | D19: | YZ-040B | IC6: | HA1457 | | |

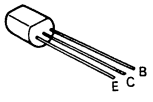
# PC BOARD

## ▼ PREAMP (X08-1710-10) (Foil side)

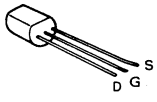



| | |
|---|---|
| Q1,2: | 2SK163(K,L) or<br>2SK68A(L,M,N) |
| Q3～6,9,10: | 2SB725(Q,R) or<br>2SA1023(P,K) |
| Q7,8: | 2SD767(Q,R) or<br>2SC2378(P,K) |
| Q11,12,14: | 2SC1845(F,E) |
| Q13: | 2SA992(F,E) |
| D1～4: | 1S2076 or<br>1S1555 |

2SA992
2SA1023
2SB725
2SC1845
2SC2378
2SD767

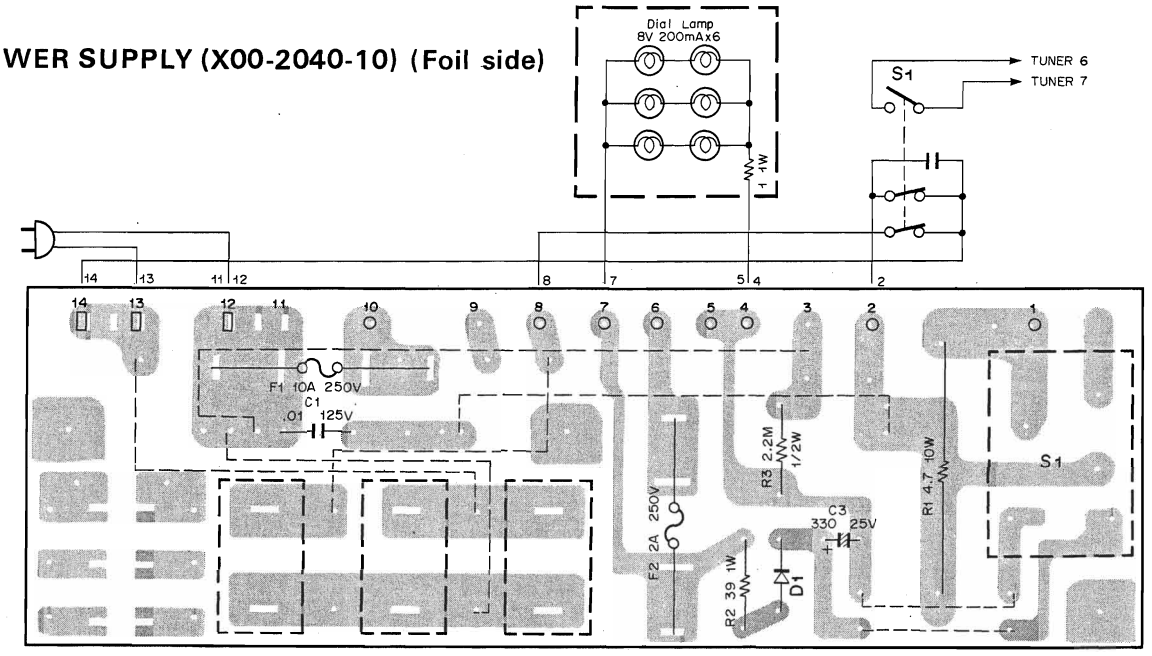



2SK163
2SK68A

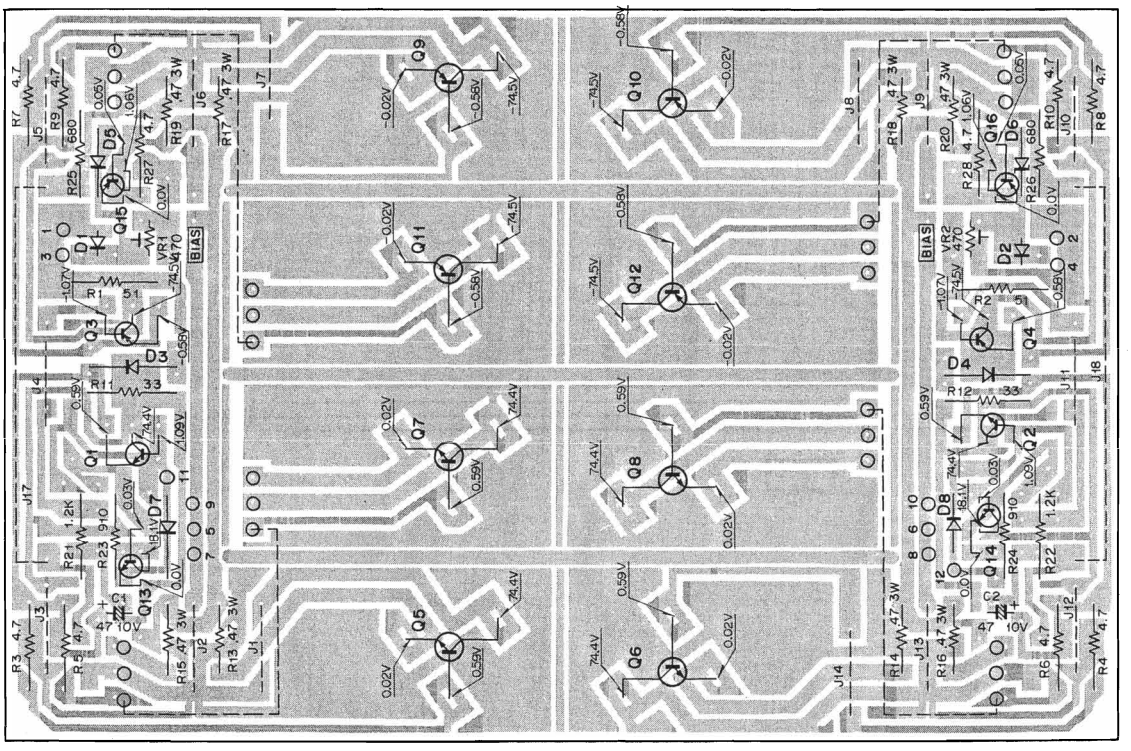


# PC BOARD

## ▼ POWER SUPPLY (X00-2040-10) (Foil side)

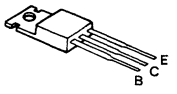



## ▼ POWER AMP (X07-1690-00) (Foil side)

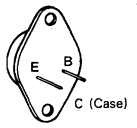



| | | | |
|---|---|---|---|
| Q1,2: | 2SD760(B,C) | Q15,16: | 2SA733A(R,Q) |
| Q3,4: | 2SB720(B,C) | D1,2: | STV-4H(W) |
| Q5～8: | 2SC2607(O,Y) | D3,4,7,8: | 1S2076A |
| Q9～12: | 2SA1116(O,Y) | D5,6: | YZ-040B |
| Q13,14: | 2SC1890(E,F) | | |

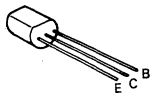
2SB720
2SD760




2SA1116
2SC2607

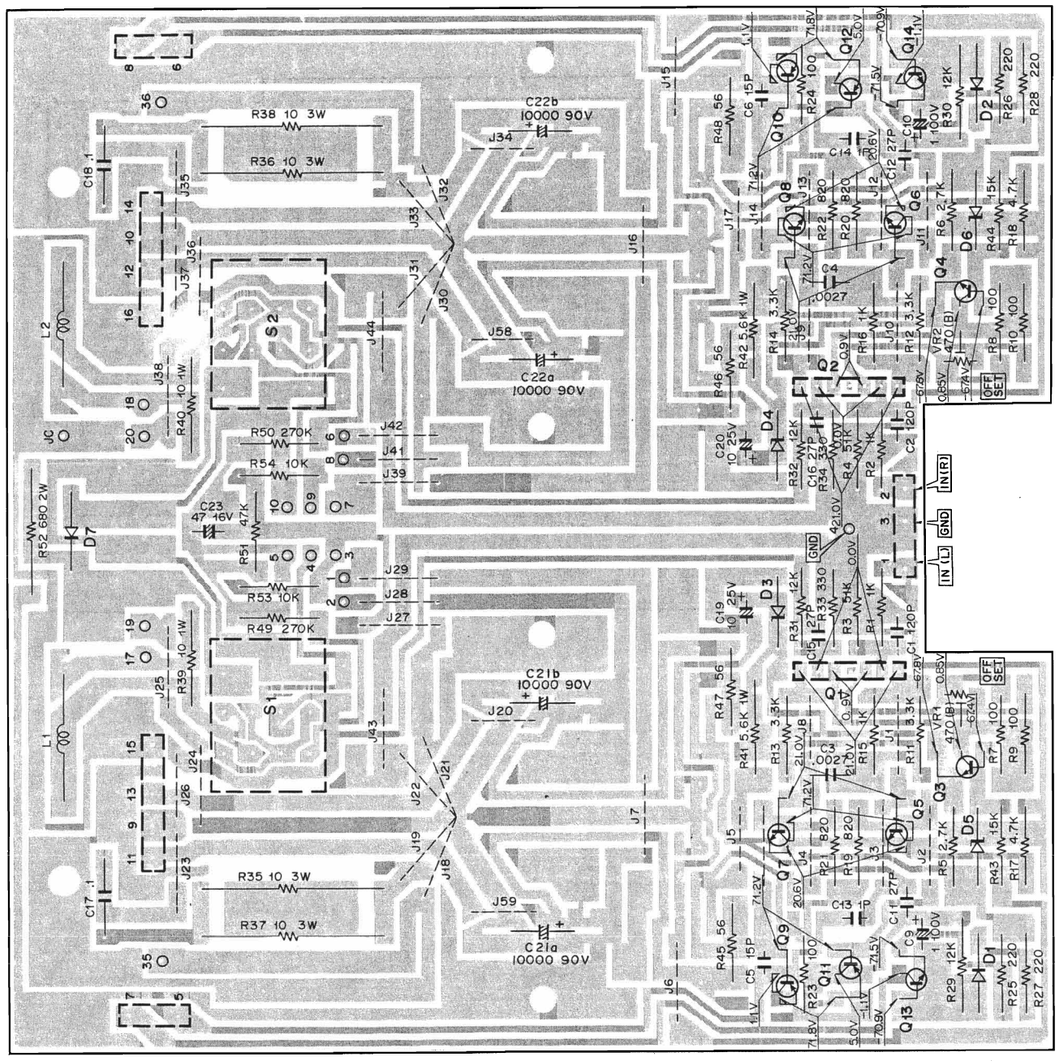



2SA733A
2SC1890

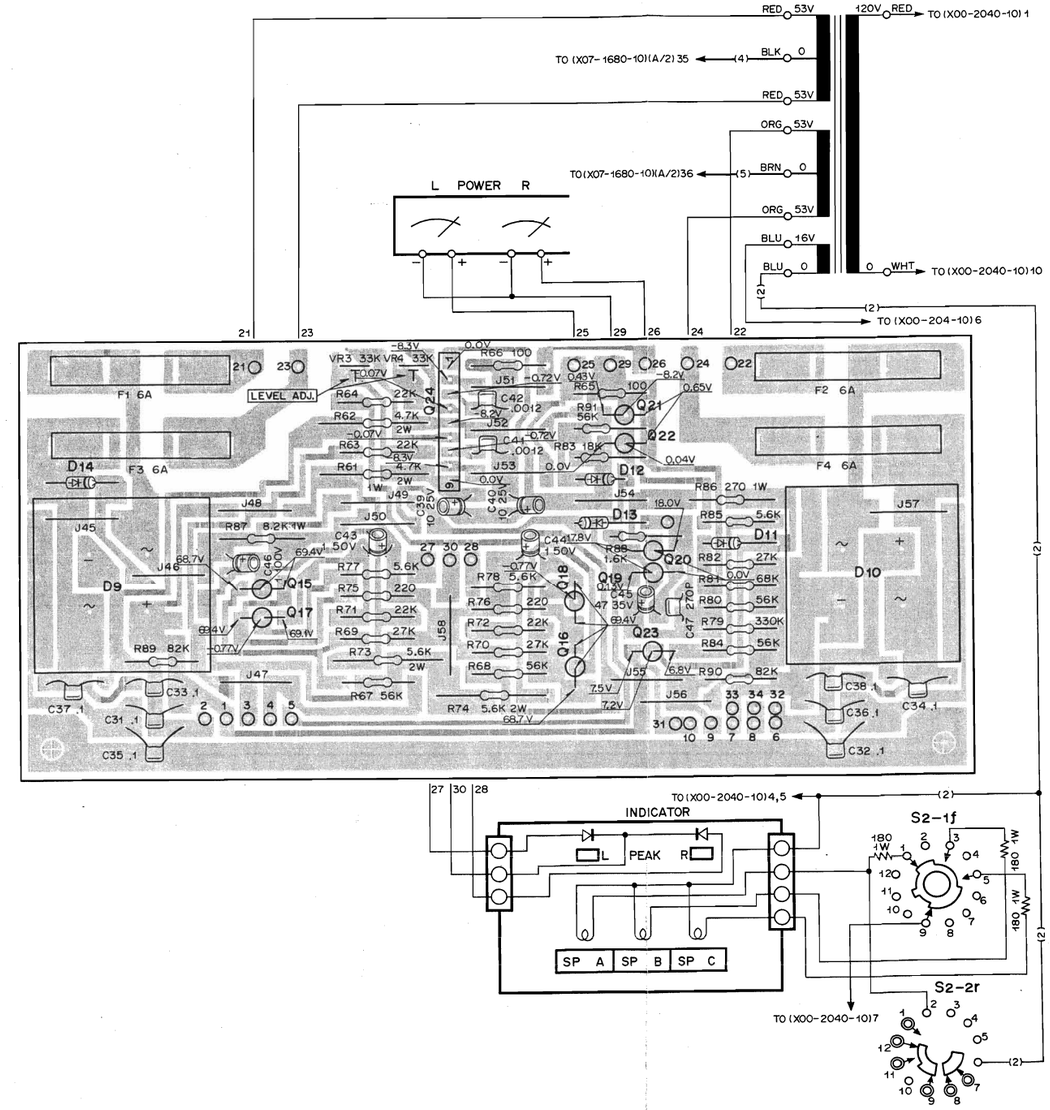


# PC BOARD

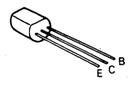
## ▼ POWER AMP (X07-1680-10) (A/2)(Foil side)



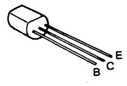

## (B/2)(Component side)



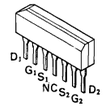

2SC1890A 2SA893
2SC1890 2SC945
2SA733A



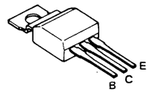
2SA850



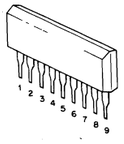
2SK150A
μPA68H



2SB718
2SD758



TA7318P

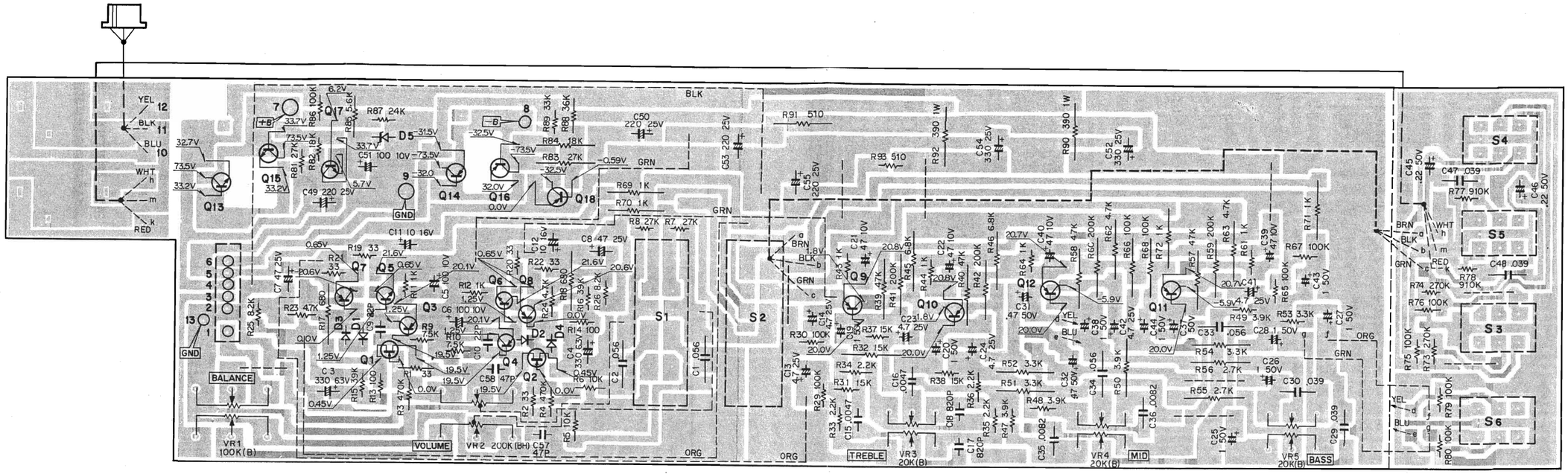


| | | | |
|---|---|---|---|
| Q1,2: | 2SK150A (GR,BL) or μPA68H (L,M) | Q23: | 2SA850(E) |
| Q3,4: | 2SC1890A(E,F) | Q24: | TA7318P |
| Q5～8,22: | 2SC1890(E,F) | D1,2,11,12: | 1S2076 or 1S1555 |
| Q9～12: | 2SB718(B,C) | D3,4: | EQA01-24 |
| Q13,14: | 2SD758(B,C) | D5,6: | XZ060 |
| Q15,16,20,21: | 2SA733(Q,R) | D7,14: | W06B |
| Q17,18: | 2SA893(E,F) | D9,10: | M4C-51-12*1 |
| Q19: | 2SC945(Q,R) | D13: | 1S2076A |

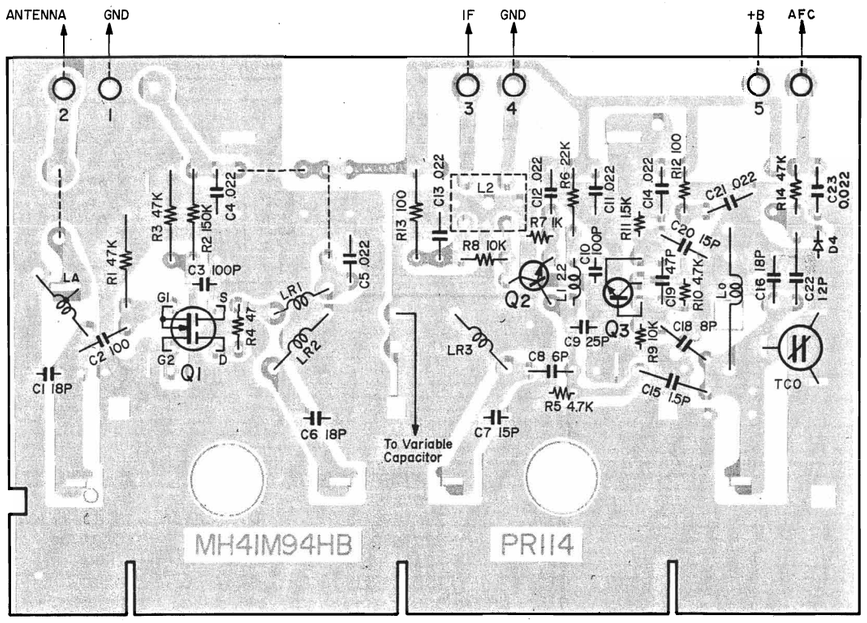
# KR-9050 KR-9050

## PC BOARD

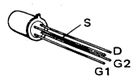
▼ CONTROL (X11-1550-10) (Foil side)



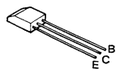

▼ FRONT END (W02-0019-05) (Foil side)




3SK45B



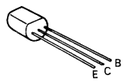

2SC535
2SC461



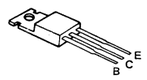

Q1: 3SK45B
Q2: 2SC535
Q3: 2SC461B
D1: 1S2236

| | | | |
|---|---|---|---|
| Q1,2: | 2SK68(M) or 2SK117(GR) | Q14: | 2SB514 |
| Q3,4,7～12: | 2SA872(E) | Q15,17: | 2SC1890(E) |
| Q5,6: | 2SC1775(E) | Q16,18: | 2SA893(E) |
| Q13: | 2SD330 | D1～4: | 1S1555 |
| | | D5: | EQA01-06R |

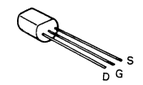
2SA872
2SA893
2SC1775
2SC1890




2SB514
2SD330




2SK68
2SK117

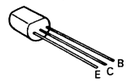


KENWOOD

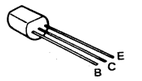


2SA640
2SA733A
2SA750
2SA777
2SA872
2SA893
2SA992
2SB725
2SC945
2SC1222

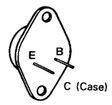
2SC1439
2SC1509
2SC1735
2SC1775
2SC1775A
2SC1890
2SC1980
2SC2008
2SC2089
2SD767



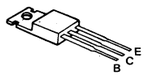

2SA794
2SA850



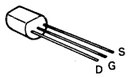

2SA1116
2SC2607



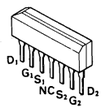

2SB507V-AL
2SB514
2SB720
2SC1419
2SD330
2SD313V-AL
2SD760



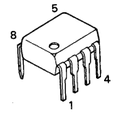

2SK68
2SK105
2SK117
2SK163



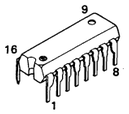

2SK150A
μPA68H



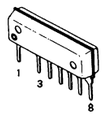

LA1222
NJM4558D
NJM4559D



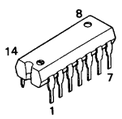

HA11223W
HA11225
HA1197
LA1240



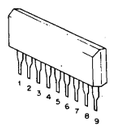

HA1457



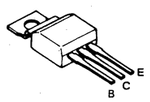

TC4069UBP
MC14069UBCP

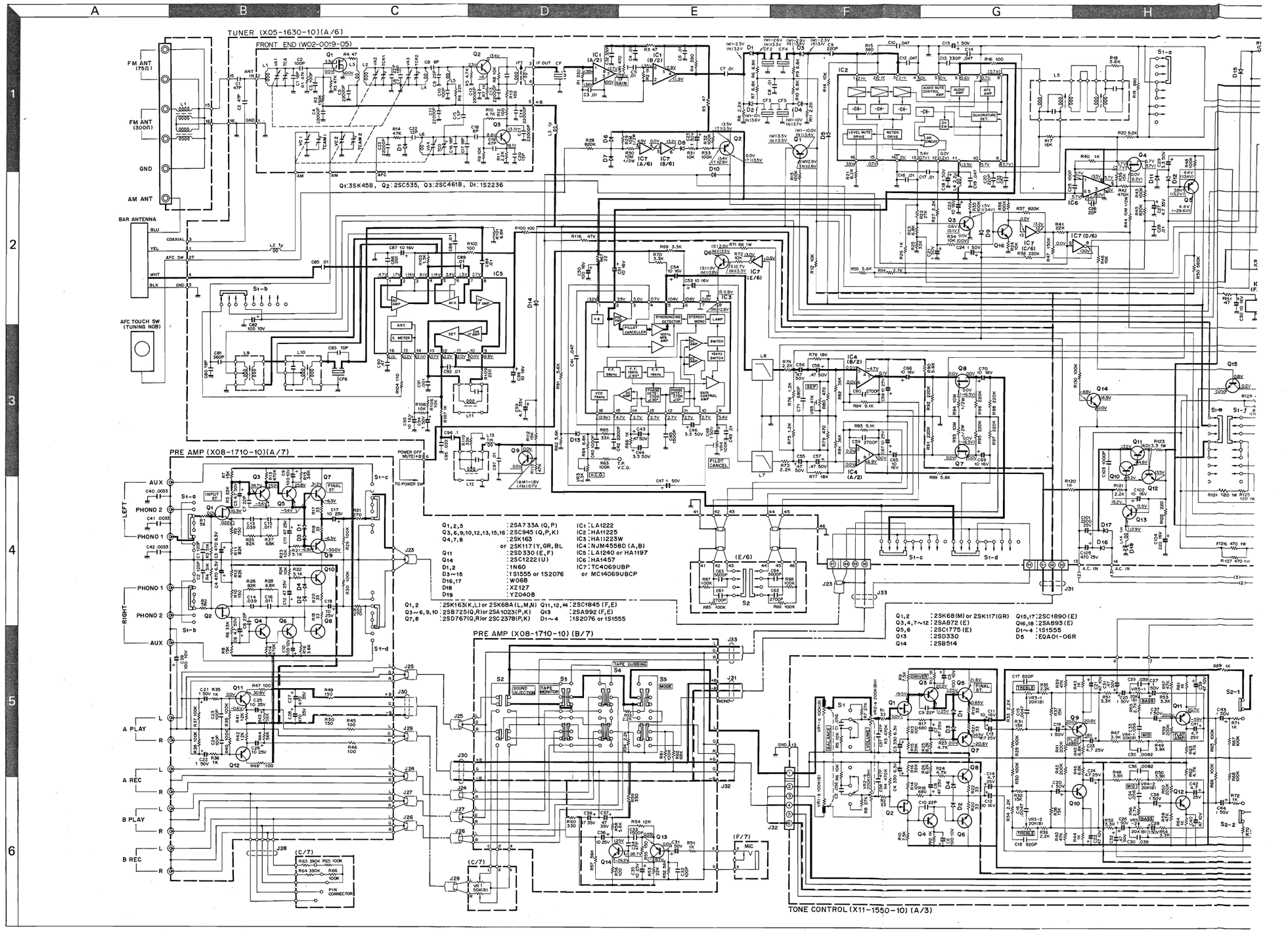



TA7318P



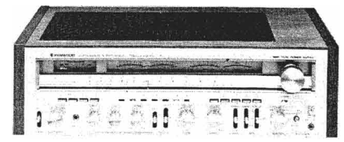

2SB718
2SD758

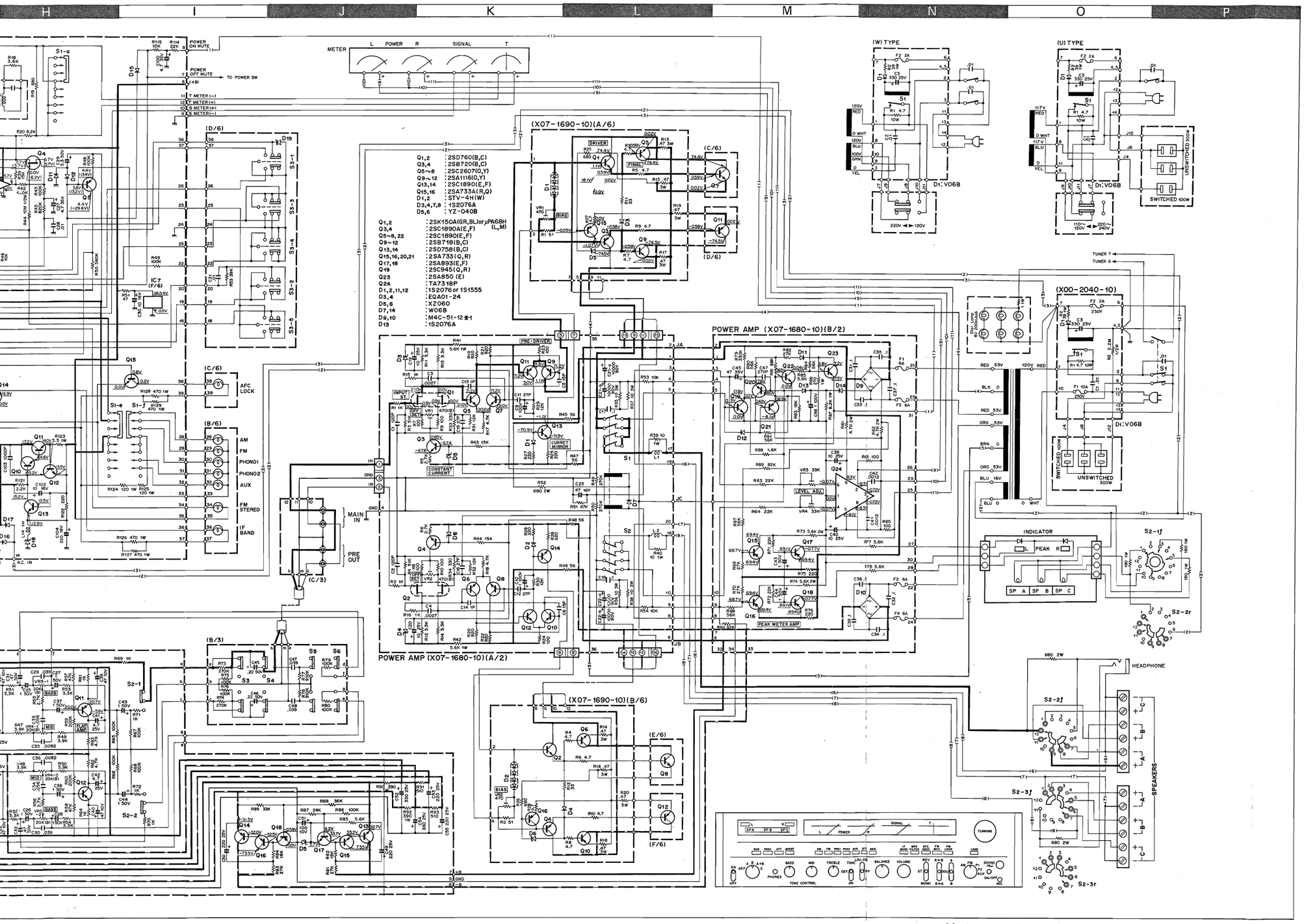


# HIGH SPEED DC STEREO RECEIVER

# KR-9050






DC voltage measured with 20kΩ/V VOM.

**Note:**
Kenwood follows a policy of continuous advancements in development. For this reason specifications may be changed without notice.

## POWER AMPLIFIER SECTION

**Power Output**

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

| | |
|---|---|
| **Both Channels Driven** | |
| into 8Ω at 1,000 Hz | 210W + 210W |
| into 4Ω at 1,000 Hz | 250W + 250W |
| **Dynamic Power Output** | 600W at 8Ω |
| **Total Harmonic Distortion (20 Hz to 20,000 Hz from AUX)** | |
| rated power into 8Ω | 0.02% |
| 1W power into 8Ω | 0.007% |
| **Intermodulation Distortion (60 Hz : 7 kHz = 4 : 1 SMPTE)** | |
| rated power into 8Ω | 0.0045% |
| 1W power into 8Ω | 0.006% |
| **Slew Rate** | ±110V/μsec |
| **Rise Time** | 0.95 μsec |
| **Frequency Response** | DC to 280,000 Hz−3 dB |
| **Signal to Noise Ratio (A weighted)** | 115 dB |
| **Damping Factor (20 to 20 kHz at 8Ω)** | 50 |
| **Input Sensitivity/Impedance** | 1V/50 kΩ |

## PRE AMPLIFIER SECTION

| | |
|---|---|
| **Input Sensitivity/Impedance** | |
| PHONO 1, 2 | 2.5 mV/50 kΩ |
| AUX and TAPE | 200 mV/50 kΩ |
| MIC | 2.2 mV/50 kΩ |
| **Signal to Noise Ratio (A weighted)** | |
| PHONO 1, 2 | 85 dB for 2.5 mV input |
| | 91 dB for 5.0 mV input |
| AUX and TAPE | 110 dB for 200 mV input |
| MIC | 74 dB for 2.2 mV input |
| **Maximum Input Level** | |
| at 1,000 Hz | 260 mV(RMS), T.H.D. 0.02% |
| **Frequency Response** | |
| PHONO RIAA | |
| Standard Curve | 20 Hz to 20,000 Hz ±0.2 dB |
| AUX and TAPE | 5 Hz to 210,000 Hz − 3 dB |
| **Tone Control** | |
| Bass | ±12 dB at 100 Hz |
| (50 Hz Boost) | ±10 dB at 50 Hz |
| Mid | ±10 dB at 800 Hz |
| Treble | ±12 dB at 10 kHz |
| **Loudness Control** | |
| (VOL −30 dB) 1 | +8 dB at 100 Hz |
| 2 | +5 dB at 100 Hz |
| **Subsonic Filter** | 18 Hz 6 dB/oct |
| **High Filter** | 7 kHz 6 dB/oct |
| **Output Level/Impedance** | |
| TAPE REC Out (Pin) | 200 mV/300Ω |
| TAPE REC Out (DIN) | 30 mV/80 kΩ |
| PRE Out | 1 0V/1 kΩ |

## FM TUNER SECTION

| | |
|---|---|
| **Usable Sensitivity** | 9.8 dBf (1.7 μV) |
| **50 dB Quieting Sensitivity** | |
| Mono | 14.1 dBf (2.8 μV) |
| Stereo | 36.1 dBf (35 μV) |
| **Stereo Sensitivity** | |
| position 1 (S/N 40 dB) | 25.2 dBf (10 μV) |
| position 2 (S/N 60 dB) | 45.2 dBf (100 μV) |
| **Signal to Noise Ratio at 65 dBf** | |
| Mono | 83 dB |
| Stereo | 76 dB |
| | 77 dB at 10 mV input |
| **Total Harmonic Distortion** | |
| Mono | 0.07% |
| Stereo | 0.1% |
| **Frequency Response** | 20 Hz to 15,000 Hz ±0.5 dB |
| **Capture Ratio** | 1.0 dB |
| **Image Rejection Ratio** | 105 dB |
| **Spurious Response Ratio** | 115 dB |
| **IF Response Ratio** | 105 dB |
| **Alternate Channel Selectivity** | |
| WIDE | 35 dB at 300 kHz |
| NARROW | 60 dB at 300 kHz |
| **AM Suppression Ratio** | 65 dB |
| **Stereo Separation Ratio** | 50 dB at 1,000 Hz |
| | 40 dB at 50 Hz to 10,000 Hz |
| **Subcarrier Product Ratio** | 73 dB |
| **Antenna Impedance** | 300Ω Balanced and 75Ω unbalanced |
| **FM Frequency Range** | 88 MHz to 108 MHz |

## AM TUNER SECTION

| | |
|---|---|
| **Usable Sensitivity** | 10 μV (250 μV/m) |
| **Signal to Noise Ratio** | 55 dB |
| **Image Rejection** | 50 dB |
| **Selectivity** | 45 dB |

## GENERAL

| | |
|---|---|
| **Power Consumption** | 1,200 watts at full power |
| **AC Outlet** | Switched 1, Unswitched 2. |
| **Dimensions** | W: 602 mm (23-11/16") H: 177 mm (6-31/32") D: 465 mm (18-5/16") |
| **Weight (Net)** | 24.0 kg (52.9 lbs) |
| **(Gross)** | 26.0 kg (57.3 lbs) |

* Measured pursuant to Federal Trade Commission's Trade Regulation rule on Power Output Claims for Amplifier in U.S.A.

# PARTS LIST

PARTS LIST

See instructions at the end of the parts list.

| Ref. No. 参照番号 | Parts No. 部品番号 | Description 部品名／規格 | Remarks 備考 |
|---|---|---|---|
| **KR-9050 (UNIT)** | | | |
| 1 2A | - | BOTTOM PLATE | |
| 2 2A | - | METALLIC FRAME | |
| 3 2A | - | CHASSIS | |
| 4 3B | - | SUB PANEL | |
| 5 1B | - | REAR PANEL | |
| 6 2B | - | HOLDER | |
| 7 3A, 3B | - | FASTENER | |
| 8 2A, B | - | MOUNTING HARDWARE | |
| 9 2A | - | PCB HOLDER | |
| 10 2A | - | WIRE CRAMPER | |
| - | 351-0003-14 | DIAL CORD | |
| 11 1A | A01-0352-02 | CASE | * |
| 12 3A | A20-1402-03 | FRONT PANEL | *K |
| 12 3A | A20-1402-03 | FRONT PANEL | PU |
| 12 3A | A20-1402-03 | FRONT PANEL | MW |
| 12 3A | A20-1402-03 | FRONT PANEL | L |
| 12 3A | A20-1403-03 | FRONT PANEL | T |
| 13 1A | A50-0059-02 | SIDE PLATE (L) | * |
| 14 1A | A50-0060-02 | SIDE PLATE (R) | * |
| 15 1A | A54-0169-02 | WOOD TOP BOARD | * |
| - | B07-0235-04 | ESCUTCHEON (LEVER) | |
| - | B07-0262-04 | ESCUTCHEON (KNOB) | * |
| - | B07-0263-04 | ESCUTCHEON (KNOB) | * |
| - | B07-0265-04 | ESCUTCHEON (KNOB) | * |
| - | B46-0055-20 | WARRANTY CARD | P |
| - | B46-0060-00 | WARRANTY CARD | T |
| - | B46-0061-20 | WARRANTY CARD | K |
| - | B46-0062-20 | WARRANTY CARD | U |
| - | B46-0063-00 | WARRANTY CARD | U |
| - | B50-1845-00 | INSTRUCTION MANUAL | *K |
| - | B50-1846-00 | INSTRUCTION MANUAL | PM |
| - | B50-1847-00 | INSTRUCTION MANUAL | T |
| 16 1A | B04-0065-02 | MESH PLATE | *K |
| 16 1A | B04-0065-02 | MESH PLATE | PU |
| 16 1A | B04-0065-02 | MESH PLATE | M |
| 16 1A | B04-0066-02 | MESH PLATE | *T |
| 16 1A | B04-0066-02 | MESH PLATE | WL |
| 17 3A | B08-2018-04 | INDICATOR | * |
| 18 3A | B10-0244-04 | FRONT GLASS | * |
| 19 3B | B11-0002-03 | FILTER | * |
| 20 3A | B20-0442-03 | DIAL CALIBRATIONS | * |
| 21 3A | B21-0032-04 | DIAL POINTER | * |
| 22 3A | B30-0084-05 | LAMP | |
| 23 3B | B30-0179-05 | LAMP | * |
| 24 3A | B30-0181-05 | LED | * |
| 25 3B | B31-0299-05 | METER | * |
| 26 3A | B38-0008-04 | DISPLAY ASSY | * |
| 27 2B | C54-3310-39 | CERAMIC 0.01UF DC2KV | TW |
| 27 2B | C54-3310-39 | CERAMIC 0.01UF DC2KV | L |
| 27 2B | C90-0145-05 | FILM 0.01UF AC125V | K |
| 27 2B | C91-0023-05 | CERAMIC 0.01UF AC250V | UM |
| 27 2B | C91-0072-05 | FILM 0.01UF AC125V | P |
| - | D32-0075-04 | STOPPER (P. VOLT. SELECT) | UM |
| - | D32-0075-04 | STOPPER (P. VOLT. SELECT) | WL |
| 28 2A, 3B | D15-0170-14 | PULLEY | |
| 29 2B | D15-0171-13 | PULLEY | |
| 30 3B | D20-0147-04 | DIAL SHAFT | * |
| 31 1B | E04-0004-05 | RECEPTACLE (FM ANT.) | TW |
| 31 1B | E04-0004-05 | RECEPTACLE (FM ANT.) | L |

| Ref. No. 参照番号 | Parts No. 部品番号 | Description 部品名／規格 | Remarks 備考 |
|---|---|---|---|
| 32 2B | E11-0060-15 | PHONE JACK | |
| 33 1B | E20-0813-05 | TERMINAL BOARD | |
| 34 1B | E30-0290-05 | POWER CORD | KP |
| 34 1B | E30-0515-05 | POWER CORD | UM |
| 34 1B | E30-0580-05 | POWER CORD | W |
| 34 1B | E30-0585-05 | POWER CORD | L |
| 34 1B | E30-0602-05 | POWER CORD | T |
| 35 2B | G01-0045-24 | COIL SPRING | |
| 36 3A | G01-0364-04 | COIL SPRING | * |
| 37 3A | G01-0365-04 | COIL SPRING | * |
| 38 2B, 3B | G10-0017-04 | DUST SEET | |
| - | H01-3001-04 | CARTON BOX | *K |
| - | H01-3001-04 | CARTON BOX | UM |
| - | H01-3002-04 | CARTON BOX | *P |
| - | H01-3003-04 | CARTON BOX | *T |
| - | H01-3052-04 | CARTON BOX | *W |
| - | H01-3052-04 | CARTON BOX | L |
| - | H10-1528-02 | POLYSTYRENE FIXTURE | * |
| - | H10-1529-02 | POLYSTYRENE FIXTURE | * |
| - | H20-0443-04 | COVER | *M |
| - | H20-0449-04 | COVER | *K |
| - | H20-0449-04 | COVER | PU |
| - | H20-0449-04 | COVER | TW |
| - | H20-0449-04 | COVER | L |
| - | H25-0078-04 | BAG | KP |
| - | H25-0078-04 | BAG | UM |
| - | H25-0078-04 | BAG | T |
| - | J12-0010-04 | SHORT PIN | |
| 39 2A | J02-0101-05 | FOOT | * |
| 40 3B | J32-0249-04 | BOSS | * |
| 41 3A | J32-0250-04 | BOSS | * |
| 42 1B | J41-0024-15 | POWER CORD BUSHING | TL |
| 42 1B | J41-0033-05 | POWER CORD BUSHING | KP |
| 42 1B | J41-0033-05 | POWER CORD BUSHING | UM |
| 42 1B | J41-0033-05 | POWER CORD BUSHING | W |
| 43 3A | J90-0092-03 | RAIL | * |
| 44 3A | K23-0320-04 | KNOB (TUNING) | * |
| 45 3A | K23-0321-04 | KNOB (SP. SEL. VOL. BAL.) | * |
| 46 3A | K23-0322-04 | KNOB (TONE) | * |
| 47 3A | K23-0323-04 | KNOB (MIC) | * |
| 48 3A | K27-0070-04 | KNOB (LEVER) | |
| 49 3A | K29-0307-04 | KNOB (PUSH) | * |
| 50 3A | K29-0308-04 | KNOB (PUSH) | * |
| 51 2A | L01-1741-05 | POWER TRANSFORMER | *K |
| 51 2A | L01-1742-05 | POWER TRANSFORMER | *T |
| 51 2A | L01-1745-05 | POWER TRANSFORMER | *U |
| 51 2A | L01-1745-05 | POWER TRANSFORMER | M |
| 51 2A | L01-1746-05 | POWER TRANSFORMER | *W |
| 51 2A | L01-1746-05 | POWER TRANSFORMER | L |
| 51 2A | L01-1747-05 | POWER TRANSFORMER | *P |
| 52 2A, 3B | N09-0293-05 | SCREW (PULLEY) | |
| 53 1B | N09-0303-05 | SCREW | |
| 54 1A | N09-0306-05 | SCREW (MESH PLATE) | * |
| 55 1A, 1B | N08-0127-05 | DRESSED SCREW (CASE) | |
| 56 1B | N08-0128-35 | DRESSED SCREW (GND) | |
| 57 3A | N14-0074-05 | NUT | |
| 58 3A | N29-0033-05 | FASTENER | |
| R1 | R47-5418-15 | FL-PROOF RS180 J 3A | |
| R2 | R47-5568-15 | FL-PROOF RS680 J 3D | |

| Ref. No. 参照番号 | Parts No. 部品番号 | Description 部品名／規格 | Remarks 備考 |
|---|---|---|---|
| 59 3B | S90-0001-05 | REMOTE SW. SHAFT | |
| 60 3B | S90-0015-05 | REMOTE WIRE | * |
| 61 2A | S33-4012-05 | LEVER SWITCH S1 | KP |
| 61 2A | S33-4013-05 | LEVER SWITCH S1 | TW |
| 61 2A | S33-4013-05 | LEVER SWITCH S1 | L |
| 61 2A | S33-4014-05 | LEVER SWITCH S1 | UM |
| 62 2B | S01-3026-05 | ROTARY SWITCH S2 | |
| - | T90-0202-05 | ANTENNA (FM) | |
| 63 1B | T90-0083-05 | ANTENNA (AM) | |
| 64 1A | X00-2040-10 | POWER SUPPLY PCB ASSY | *K |
| 64 1A | X00-2040-51 | POWER SUPPLY PCB ASSY | *T |
| 64 1A | X00-2040-61 | POWER SUPPLY PCB ASSY | *W |
| 64 1A | X00-2040-61 | POWER SUPPLY PCB ASSY | L |
| 64 1A | X00-2040-81 | POWER SUPPLY PCB ASSY | *U |
| 64 1A | X00-2040-81 | POWER SUPPLY PCB ASSY | M |
| 64 1A | X00-2041-01 | POWER SUPPLY PCB ASSY | *P |
| 65 2B, 3B | X05-1630-10 | TUNER PCB ASSY | *K |
| 65 2B, 3B | X05-1630-10 | TUNER PCB ASSY | P |
| 65 2B, 3B | X05-1630-11 | TUNER PCB ASSY | *U |
| 65 2B, 3B | X05-1630-11 | TUNER PCB ASSY | MT |
| 65 2B, 3B | X05-1630-11 | TUNER PCB ASSY | WL |
| 66 2B | X07-1680-10 | POWER AMP PCB ASSY | *K |
| 66 2B | X07-1680-10 | POWER AMP PCB ASSY | PU |
| 66 2B | X07-1680-10 | POWER AMP PCB ASSY | M |
| 66 2B | X07-1680-61 | POWER AMP PCB ASSY | *T |
| 66 2B | X07-1680-61 | POWER AMP PCB ASSY | WL |
| 67 1A | X07-1690-10 | POWER AMP PCB ASSY | * |
| 68 2B, 3B | X08-1710-10 | PRE AMP PCB ASSY | * |
| 69 1B, 2B | X11-1550-10 | TONE AMP PCB ASSY | * |
| **POWER SUPPLY (X00-2040)** | | | |
| C1 | C90-0145-05 | CAPACITOR 0.01UF AC125V | K |
| C1 | C91-0023-05 | CERAMIC 0.01UF AC250V | UM |
| C1 | C91-0072-05 | FILM 0.01UF AC125V | P |
| C3 | C24-1433-71 | ELECTRO 330UF 25WV | |
| - | E03-0008-05 | AC OUTLET | PK |
| - | E03-0008-05 | AC OUTLET | U |
| F1 | F05-1032-05 | FUSE (10A) | KP |
| F2 | F05-2021-05 | FUSE (2A) | KP |
| F2 | F05-2023-05 | FUSE (2A) | UM |
| - | J13-0055-05 | FUSE HOLDER | |
| R1 | R92-0199-05 | CEMENT 4.7 J 4A | * |
| R2 | R47-1439-05 | FL-PROOF RS39 J 3A | |
| R3 | R92-0173-05 | RC 2.2M J 2H | KP |
| 101 2A | S51-1023-05 | RELAY S1 | |
| 102 1B | S31-2001-05 | SLIDE SWITCH S2 | UM |
| 102 1B | S31-2001-05 | SLIDE SWITCH S2 | WL |
| D1 | V11-0219-05 | V06B | |
| **TUNER (X05-1630)** | | | |
| 103 2B, 3B | B30-0084-05 | LAMP | |
| C1 ,2 | C71-1747-05 | CERAMIC 47PF J | |
| C3 -8 | C55-1710-38 | CERAMIC 0.01UF Z | |
| C9 | C71-1722-15 | CERAMIC 220PF J | |
| C10 | C55-1747-38 | CERAMIC 0.047UF Z | |
| C12 | C55-1747-38 | CERAMIC 0.047UF Z | |
| C13 | C71-1733-15 | CERAMIC 330PF J | |
| C14 | C55-1747-38 | CERAMIC 0.047UF Z | |
| C15 | C24-1710-51 | ELECTRO 1UF 50WV | |
| C16 ,17 | C55-1710-38 | CERAMIC 0.01UF Z | |

| Ref. No. 参照番号 | Parts No. 部品番号 | Description 部品名／規格 | Remarks 備考 |
|---|---|---|---|
| C18 | C24-1710-51 | ELECTRO 1UF 50WV | |
| C19 | C55-1747-38 | CERAMIC 0.047UF Z | |
| C20 | C71-1722-15 | CERAMIC 220PF J | |
| C21 | C24-1710-51 | ELECTRO 1UF 50WV | |
| C22 | C24-1210-61 | ELECTRO 10UF 16WV | |
| C23 ,24 | C24-1710-51 | ELECTRO 1UF 50WV | |
| C25 | C71-1710-15 | CERAMIC 100PF J | |
| C26 | C71-1722-05 | CERAMIC 22PF J | |
| C27 | C24-6547-51 | ELECTRO 4.7UF 35WV | |
| C28 | C55-1710-38 | CERAMIC 0.01UF Z | |
| C29 | C24-1733-51 | ELECTRO 3.3UF 50WV | |
| C30 | C24-1210-61 | ELECTRO 10UF 16WV | |
| C31 | C46-1710-36 | MYLAR 0.01UF K | |
| C32 | C71-1733-15 | CERAMIC 330PF J | |
| C33 | C55-1747-38 | CERAMIC 0.047UF Z | |
| C40 | C48-1710-25 | POLYSTY 1000PF J | |
| C41 | C46-1747-36 | MYLAR 0.047UF K | |
| C42 | C52-1722-26 | CERAMIC 0.0022UF K | |
| C43 | C25-1747-47 | LL-ELEC 0.47UF 50WV | |
| C44 | C25-1733-57 | LL-ELEC 3.3UF 50WV | |
| C45 | C52-1715-26 | CERAMIC 0.0015UF K | |
| C46 | C25-1733-57 | LL-ELEC 3.3UF 50WV | |
| C47 ,48 | C24-1710-51 | ELECTRO 1UF 50WV | |
| C49 | C46-1710-36 | MYLAR 0.01UF K | |
| C50 | C24-1210-71 | ELECTRO 100UF 16WV | |
| C51 | C24-1210-61 | ELECTRO 10UF 16WV | |
| C53 ,54 | C24-1210-61 | ELECTRO 10UF 16WV | |
| C55 -58 | C25-1747-47 | LL-ELEC 0.47UF 50WV | |
| C59 -62 | C46-1727-25 | MYLAR 0.0027UF J | |
| C63 ,64 | C46-1756-25 | MYLAR 0.0056UF J | |
| C65 ,66 | C24-1210-61 | ELECTRO 10UF 16WV | |
| C67 ,68 | C24-1410-61 | ELECTRO 10UF 25WV | |
| C69 ,70 | C24-1210-61 | ELECTRO 10UF 16WV | |
| C71 | C52-1768-16 | CERAMIC 680PF K | |
| C80 | C70-1718-05 | CERAMIC 18PF J | |
| C81 | C48-1736-15 | POLYSTY 360PF J | |
| C82 | C24-1010-71 | ELECTRO 100UF 10WV | |
| C83 | C71-1710-02 | CERAMIC 10PF D | |
| C84 ,85 | C90-0245-05 | CERAMIC 0.01UF M | |
| C86 | C52-1710-26 | CERAMIC 0.001UF K | |
| C87 | C24-1210-61 | ELECTRO 10UF 16WV | |
| C88 ,89 | C90-0245-05 | CERAMIC 0.01UF M | |
| C90 | C55-1747-38 | CERAMIC 0.047UF Z | |
| C91 | C52-1710-26 | CERAMIC 0.001UF K | |
| C92 | C90-0245-05 | CERAMIC 0.01UF M | |
| C93 | C24-1210-61 | ELECTRO 10UF 16WV | |
| C94 | C24-1710-51 | ELECTRO 1UF 50WV | |
| C95 | C90-0253-05 | CERAMIC 0.022UF M | |
| C96 | C46-1710-47 | MYLAR 0.1UF M | |
| C97 | C90-0245-05 | CERAMIC 0.01UF M | |
| C98 | C24-1210-61 | ELECTRO 10UF 16WV | |
| C99 ,100 | C24-6547-51 | ELECTRO 4.7UF 35WV | |
| C101 | C24-1422-81 | ELECTRO 2200UF 25WV | |
| C102 | C24-1210-61 | ELECTRO 10UF 16WV | |
| C103 | C52-1710-26 | CERAMIC 0.001UF K | |
| C104 | C24-1222-71 | ELECTRO 220UF 16WV | |
| C105 | C24-1447-71 | ELECTRO 470UF 25WV | |
| 104 1B | E29-0082-05 | TERMINAL BOARD | |
| - | L79-0085-05 | FILTER ASSY(CF1-CF5,FM) | * |
| CF6 | L72-0075-05 | CERAMIC FILTER (AM) | * |
| L1 | L19-0021-05 | BALUN TRANSFORMER | |

| Ref. No. 参照番号 | |
|---|---|
| L2 ,3 | L |
| L4 | L |
| L5 | L |
| L7 ,8 | L |
| L9 | L |
| L10 | L |
| L11 | L |
| L12 | L |
| L13 ,14 | L |
| R5 | F |
| R18 | F |
| R29 ,30 | F |
| R44 | F |
| R51 | F |
| R67 | F |
| R71 | F |
| R93 ,94 | F |
| R100 | F |
| R123 | F |
| R124,125 | F |
| R126-129 | F |
| VR1 | F |
| VR3 | F |
| VR4 | F |
| VR5 | F |
| 105 2B | S |
| 106 1B | S |
| 107 3B | S |
| D1 ,2 | V |
| D3 -15 | V |
| D16 ,17 | V |
| D18 | V |
| D19 | V |
| IC1 | V |
| IC2 | V |
| IC3 | V |
| IC4 | V |
| IC5 | V |
| IC6 | |
| IC7 | V |
| Q1 ,2 | V |
| Q3 | V |
| Q4 | V |
| Q5 | V |
| Q6 | V |
| Q7 ,8 | V |
| Q9 ,10 | V |
| Q11 | V |
| Q12 ,13 | V |
| Q14 | V |
| Q15 ,16 | V |
| 108 2B | W |
| 109 2B | C |
| 109 2B | C |
| C1 ,2 | C |
| C3 ,4 | C |
| C5 ,6 | C |
| C9 ,10 | C |
| C11 ,12 | C |

# PARTS LIST

PARTS LIST

| Ref. No. 参照番号 | Parts No. 部品番号 | Description 部品名／規格 | Remarks 備考 |
|---|---|---|---|
| L2 ,3 | L40-1092-44 | INDUCTOR 1UH | |
| L4 | L40-2292-44 | INDUCTOR 2.2UH | |
| L5 | L30-0322-05 | IFT (FM) | * |
| L7 ,8 | L79-0071-15 | FILTER | |
| L9 | L32-0205-15 | OSCILLATING COIL (AM) | |
| L10 | L30-0321-05 | IFT (AM) | * |
| L11 | L30-0284-05 | IFT (AM) | |
| L12 | L79-0073-05 | FILTER | * |
| L13 ,14 | L40-1021-45 | INDUCTOR 1MH | |
| R5 | R43-1247-05 | FL-PROOF RD47 J 2E | |
| R18 | R48-2360-14 | RN 3.6K G 2E | |
| R29 ,30 | R40-8310-68 | RC 10M M 2H | |
| R44 | R40-8310-68 | RC 10M M 2H | |
| R51 | R43-1247-05 | FL-PROOF RD47 J 2E | |
| R67 | R43-1222-05 | FL-PROOF RD22 J 2E | |
| R71 | R47-6468-05 | FL-PROOF RS68 J 3A | |
| R93 ,94 | R40-8310-68 | RC 10M M 2H | |
| R100 | R43-1210-15 | FL-PROOF RD100 J 2E | |
| R123 | R47-6433-95 | FL-PROOF RS3.3 J 3A | |
| R124,125 | R47-6412-15 | FL-PROOF RS120 J 3A | |
| R126-129 | R47-6447-15 | FL-PROOF RS470 J 3A | |
| VR1 | R12-0065-05 | TRIMMING POT. 470 | |
| VR3 | R12-1041-05 | TRIMMING POT. 3.3K | |
| VR4 | R12-5030-05 | TRIMMING POT. 100K | |
| VR5 | R12-3046-05 | TRIMMING POT. 47K | |
| 105 2B | S90-0016-05 | SLIDE SWITCH S1 | * |
| 106 1B | S31-2048-05 | SLIDE SWITCH S2 | |
| 107 3B | S42-5013-05 | PUSH SWITCH S3-S7 | * |
| D1 ,2 | V11-0051-05 | 1N60 | |
| D3 -15 | V11-0076-05 | 1S1555 | |
| D16 ,17 | V11-0295-05 | W06B | |
| D18 | V11-4101-80 | XZ-127 | |
| D19 | V11-4104-60 | YZ-040B | |
| IC1 | V30-0215-05 | LA1222 | |
| IC2 | V30-0321-10 | HA11225 | * |
| IC3 | V30-0266-20 | HA11223W | |
| IC4 | V30-0217-05 | NJM4558D(A,B) | |
| IC5 | V30-0245-10 | LA1240 | |
| IC6 | V30-0264-10 | HA1457 | |
| IC7 | V30-0297-20 | TC4069UBP | |
| Q1 ,2 | V01-0733-40 | 2SA733A(Q,P) | |
| Q3 | V03-0945-40 | 2SC945(Q,P,K) | |
| Q4 | V09-0126-60 | 2SK117(Y,GR,BL) | |
| Q5 | V01-0733-40 | 2SA733A(Q,P) | |
| Q6 | V03-0945-40 | 2SC945(Q,P,K) | |
| Q7 ,8 | V09-0126-60 | 2SK117(Y,GR,BL) | |
| Q9 ,10 | V03-0945-40 | 2SC945(Q,P,K) | |
| Q11 | V04-0330-20 | 2SD330(E,F) | |
| Q12 ,13 | V03-0945-40 | 2SC945(Q,P,K) | |
| Q14 | V03-0416-05 | 2SC1222(U) | |
| Q15 ,16 | V03-0945-40 | 2SC945(Q,P,K) | |
| 108 2B | W02-0019-05 | FM FRONT END | |
| **POWER AMP (X07-1680)** | | | |
| 109 2B | C90-0403-05 | ELECTRO 10000UF 90WV | * |
| 109 2B | C90-0403-05 | C21,22 | * |
| C1 ,2 | C71-1712-15 | CERAMIC 120PF J | |
| C3 ,4 | C46-1727-25 | MYLAR 0.0027UF J | |
| C5 ,6 | C71-1715-05 | CERAMIC 15PF J | |
| C9 ,10 | C24-2010-51 | ELECTRO 1UF 100WV | |
| C11 ,12 | C71-1727-05 | CERAMIC 27PF J | |
| C13 ,14 | C71-1701-01 | CERAMIC 1PF C | |
| C15 ,16 | C71-1727-05 | CERAMIC 27PF J | |
| C17 ,18 | C46-2010-47 | MYLAR 0.1UF M | |
| C19 ,20 | C24-1410-61 | ELECTRO 10UF 25WV | |
| C23 | C26-1247-67 | NP-ELEC 47UF 16WV | |
| C31 -38 | C91-0039-05 | MYLAR 0.1UF J | |
| C39 ,40 | C24-1410-61 | ELECTRO 10UF 25WV | |
| C41 ,42 | C46-1712-26 | MYLAR 0.0012UF K | |
| C43 ,44 | C24-1710-51 | ELECTRO 1UF 50WV | |
| C45 | C25-6547-67 | ELECTRO 47UF 35WV | |
| C46 | C24-2010-51 | ELECTRO 1UF 100WV | |
| C47 | C71-1727-15 | CERAMIC 270PF J | |
| 110 2B | F05-6024-05 | FUSE (6A) F1-4 | KP |
| 110 2B | F05-6024-05 | FUSE (6A) F1-4 | UM |
| 110 2B | F05-6322-05 | FUSE (6.3A) F1-4 | TW |
| 110 2B | F05-6322-05 | FUSE (6.3A) F1-4 | L |
| 111 2B | J13-0055-05 | FUSE HOLDER | |
| L1 ,2 | L39-0085-05 | COIL | |
| R5 ,6 | R43-1227-25 | FL-PROOF RD2.7K J 2E | |
| R17 ,18 | R43-1247-25 | FL-PROOF RD4.7K J 2E | |
| R23 ,24 | R43-1210-15 | FL-PROOF RD100 J 2E | |
| R25 -28 | R43-1222-15 | FL-PROOF RD220 J 2E | |
| R29 ,30 | R47-1412-35 | FL-PROOF RS12K J 3A | |
| R35 -38 | R47-1610-05 | FL-PROOF RS10 J 3F | |
| R39 ,40 | R47-1410-05 | FL-PROOF RS10 J 3A | |
| R41 ,42 | R47-1456-25 | FL-PROOF RS5.6K J 3A | |
| R43 ,44 | R47-1415-35 | FL-PROOF RS15K J 3A | |
| R45 -48 | R43-1256-05 | FL-PROOF RD56 J 2E | |
| R52 | R47-1568-15 | FL-PROOF RS680 J 3D | |
| R61 ,62 | R47-1547-25 | FL-PROOF RS4.7K J 3D | |
| R73 ,74 | R47-1556-25 | FL-PROOF RS5.6K J 3D | |
| R86 | R47-1427-15 | FL-PROOF RS270 J 3A | |
| R87 | R47-1482-25 | FL-PROOF RS8.2K J 3A | |
| VR1 ,2 | R12-0058-05 | TRIMMING POT. 470 | |
| VR3 ,4 | R12-3054-05 | TRIMMING POT. 47K | * |
| S1 ,2 | S51-4034-05 | RELAY | |
| D1 ,2 | V11-0271-05 | 1S2076 | |
| D3 ,4 | V11-0416-05 | EQA01-24 | |
| D5 ,6 | V11-4101-20 | XZ-060 | |
| D7 | V11-0295-05 | W06B | |
| D9 ,10 | V11-2101-40 | M4C-51-12*1 | |
| D11 ,12 | V11-0271-05 | 1S2076 | |
| D13 | V11-0273-05 | 1S2076A | |
| D14 | V11-0295-05 | W06B | |
| Q1 ,2 | V09-0137-50 | 2SK150A(GR,BL) | |
| Q3 ,4 | V03-1890-50 | 2SC1890A(E,F) | |
| Q5 -8 | V03-1890-20 | 2SC1890(E,F) | |
| Q9 -12 | V02-0718-10 | 2SB718(B,C) | * |
| Q13 ,14 | V04-0758-10 | 2SD758(B,C) | * |
| Q15 ,16 | V01-0733-30 | 2SA733A(R,Q) | |
| Q17 ,18 | V01-0893-50 | 2SA893(E,F) | |
| Q19 | V03-0270-05 | 2SC945(R,Q) | |
| Q20 ,21 | V01-0733-30 | 2SA733A(R,Q) | |
| Q22 | V03-1890-20 | 2SC1890(E,F) | |
| Q23 | V01-0850-10 | 2SA850(E) | |
| Q24 | V30-0292-10 | TA7318P | |
| **POWER AMP (X07-1690)** | | | |
| C1 ,2 | C24-1047-61 | ELECTRO 47UF 10WV | |
| - | E02-0004-05 | SOCKET | |
| - | F01-0306-04 | HEAT SINK | * |
| 112 2A | F01-0305-03 | HEAT SINK | * |
| 112 2A | F01-0310-03 | HEAT SINK | * |
| R3 -10 | R43-1247-95 | FL-PROOF RD4.7 J 2E | |
| R11 ,12 | R43-1233-05 | FL-PROOF RD33 J 2E | |
| R13 -20 | R92-0111-05 | METAL 0.47 J 3F | |
| R27 ,28 | R43-1247-95 | FL-PROOF RD4.7 J 2E | |
| VR1 ,2 | R12-0072-05 | TRIMMING POT. 470 | * |
| D1 ,2 | V11-5100-10 | STV-4H(W) | |
| D3 ,4 | V11-0273-05 | 1S2076A | |
| D5 ,6 | V11-4104-60 | YZ-040B | * |
| D7 ,8 | V11-0273-05 | 1S2076A | |
| Q1 ,2 | V04-0760-10 | 2SD760(B,C) | * |
| Q3 ,4 | V02-0720-10 | 2SB720(B,C) | * |
| Q5 -8 | V03-2607-00 | 2SC2607 | * |
| Q9 -12 | V01-1116-00 | 2SA1116 | * |
| Q13 ,14 | V03-1890-20 | 2SC1890(E,F) | |
| Q15 ,16 | V01-0733-30 | 2SA733A(R,Q) | |
| **PRE AMP (X08-1710)** | | | |
| C1 ,2 | C71-1712-15 | CERAMIC 120PF J | |
| C3 ,4 | C24-0847-71 | ELECTRO 470UF 6.3WV | |
| C5 ,6 | C24-1747-51 | ELECTRO 4.7UF 50WV | |
| C7 ,8 | C71-1722-05 | CERAMIC 22PF J | |
| C9 ,10 | C24-1010-71 | ELECTRO 100UF 10WV | |
| C11 ,12 | C24-1447-61 | ELECTRO 47UF 25WV | |
| C13 ,14 | C49-2039-34 | MYLAR 0.039UF G | |
| C15 ,16 | C49-2011-34 | MYLAR 0.011UF G | |
| C17 ,18 | C24-1410-61 | ELECTRO 10UF 25WV | |
| C21 ,22 | C25-1710-57 | LL-ELEC 1UF 50WV | |
| C23 ,24 | C71-1710-15 | CERAMIC 100PF J | |
| C25 ,26 | C24-1410-61 | ELECTRO 10UF 25WV | |
| C27 ,28 | C24-6547-71 | ELECTRO 470UF 35WV | |
| C31 | C25-1710-57 | LL-ELEC 1UF 50WV | |
| C32 | C71-1710-15 | CERAMIC 100PF J | |
| C33 | C52-1715-26 | CERAMIC 0.0015UF K | |
| C34 | C71-1747-05 | CERAMIC 47PF J | |
| C35 | C24-1410-61 | ELECTRO 10UF 25WV | |
| C36 | C25-1410-67 | LL-ELEC 10UF 25WV | |
| C37 ,38 | C24-6547-61 | ELECTRO 47UF 35WV | |
| C39 | C24-1010-71 | ELECTRO 100UF 10WV | |
| C40 -42 | C53-1733-27 | CERAMIC 0.0033UF M | |
| 113 1B | E06-0510-05 | DIN CONNECTOR | |
| 114 3B | E11-0065-05 | PHONE JACK (MIC) | |
| 115 2B | E13-0417-15 | PHONO JACK | |
| 116 2B | E13-0611-15 | PHONO JACK | |
| 117 3B | R06-4032-05 | POT.METER 50K(B)X2 VR1 | |
| R17 -20 | R43-1233-05 | FL-PROOF RD33 J 2E | |
| R25 ,26 | R48-2820-24 | RN 82K G 2E | |
| R27 ,28 | R48-2680-14 | RN 6.8K G 2E | |
| R49 ,50 | R43-1215-15 | FL-PROOF RD150 J 2E | |
| R59 ,60 | R43-1233-15 | FL-PROOF RD330 J 2E | |
| 118 2B | S90-0003-05 | SLIDE SWITCH S1 | |
| 119 3B | S40-4027-05 | PUSH SWITCH S2 | * |
| 120 3B | S33-4018-05 | LEVER SWITCH S3,4 | |
| 121 3B | S33-4022-05 | LEVER SWITCH S5 | * |
| D1 -4 | V11-0271-05 | 1S2076 | |
| Q1 ,2 | V09-0144-30 | 2SK163(K,L) | |
| Q3 -6 | V02-0725-00 | 2SB725 | |
| Q7 ,8 | V04-0767-00 | 2SD767 | |
| Q9 ,10 | V02-0725-00 | 2SB725 | |
| Q11 ,12 | V03-1845-10 | 2SC1845(F,E) | |
| Q13 | V01-0992-10 | 2SA992(F,E) | |
| Q14 | V03-1845-10 | 2SC1845(F,E) | |
| **TONE AMP (X11-1550)** | | | |
| C1 ,2 | C46-1756-35 | MYLAR 0.056UF J | |
| C3 ,4 | C24-0833-71 | ELECTRO 330UF 6.3WV | |
| C5 ,6 | C24-1010-71 | ELECTRO 100UF 10WV | |
| C7 ,8 | C24-1447-61 | ELECTRO 47UF 25WV | |
| C9 ,10 | C71-1722-05 | CERAMIC 22PF J | |
| C11 ,12 | C25-1210-67 | LL-ELEC 10UF 16WV | |
| C13 ,14 | C25-1447-57 | LL-ELEC 4.7UF 25WV | |
| C15 ,16 | C46-1747-25 | MYLAR 0.0047UF J | |
| C17 ,18 | C52-1782-16 | CERAMIC 820PF K | |
| C19 ,20 | C25-1710-57 | LL-ELEC 1UF 50WV | |
| C21 ,22 | C24-1047-61 | ELECTRO 47UF 10WV | |
| C23 ,24 | C25-1447-57 | LL-ELEC 4.7UF 25WV | |
| C25 -28 | C25-1710-57 | LL-ELEC 1UF 50WV | |
| C29 ,30 | C46-1739-35 | MYLAR 0.039UF J | |
| C31 ,32 | C25-1747-47 | LL-ELEC 0.47UF 50WV | |
| C33 ,34 | C46-1756-35 | MYLAR 0.056UF J | |
| C35 ,36 | C46-1782-25 | MYLAR 0.0082UF J | |
| C37 ,38 | C25-1710-57 | LL-ELEC 1UF 50WV | |
| C39 ,40 | C24-1047-61 | ELECTRO 47UF 10WV | |
| C41 ,42 | C25-1447-57 | LL-ELEC 4.7UF 25WV | |
| C43 ,44 | C25-1710-57 | LL-ELEC 1UF 50WV | |
| C45 ,46 | C25-1722-47 | LL-ELEC 0.22UF 50WV | |
| C47 ,48 | C46-1739-35 | MYLAR 0.039UF J | |
| C49 ,50 | C24-1422-71 | ELECTRO 220UF 25WV | |
| C51 | C24-1010-71 | ELECTRO 100UF 10WV | |
| C52 | C24-1433-71 | ELECTRO 330UF 25WV | |
| C53 | C24-1422-71 | ELECTRO 220UF 25WV | |
| C54 | C24-1433-71 | ELECTRO 330UF 25WV | |
| C55 | C24-1422-71 | ELECTRO 220UF 25WV | |
| C57 ,58 | C71-1747-05 | CERAMIC 47PF J | |
| 122 1B | E13-0422-05 | PHONO JACK | * |
| - | F01-0294-04 | HEAT SINK | |
| 123 2B | R08-5042-05 | POT.METER 200K(BH) VR1 | * |
| 124 2B | R08-5041-05 | POT.METER 100K(B)X2VR2 | * |
| 125 2B | R06-3018-05 | POT.METER 20K(B) VR3-5 | * |
| R90 | R47-1439-15 | FL-PROOF RS390 J 3A | |
| R92 | R47-1439-15 | FL-PROOF RS390 J 3A | |
| 126 2B | S33-2034-05 | LEVER SWITCH S1 | |
| 127 2B | S33-2049-05 | LEVER SWITCH S2 | * |
| 128 2B | S42-4009-05 | PUSH SWITCH S3-6 | * |
| D1 -4 | V11-0076-05 | 1S1555 | |
| D5 | V11-0339-05 | EQA01-06(R) | |
| Q1 ,2 | V09-0122-20 | 2SK68(M) | |
| Q3 ,4 | V01-0189-05 | 2SA872(E) | |
| Q5 ,6 | V03-1775-06 | 2SC1775(E) | |
| Q7 -12 | V01-0189-05 | 2SA872(E) | |
| Q13 | V04-0330-00 | 2SD330 | |
| Q14 | V02-0514-00 | 2SB514 | |
| Q15 | V03-1890-70 | 2SC1890(E) | |
| Q16 | V01-0893-60 | 2SA893(E) | |
| Q17 | V03-1890-70 | 2SC1890(E) | |
| Q18 | V01-0893-60 | 2SA893(E) | |

# PARTS LIST

| Fig. No. | Parts No. |
|---|---|
| M3 × 6 | N30-3006-46 |
| M3 × 6 BLK | N30-3006-45 |
| M3 × 6 (F-Tap) BLK | N88-3006-45 |
| M3 × 8 BLK | N30-3008-45 |
| M3 × 8 (Br-Tap) | N87-3008-46 |
| M3 × 8 (F-Tap) | N88-3008-46 |
| M3 × 8 (Bi-Tap) BLK | N89-3008-45 |
| M3 × 8 (Tp-T) | N91-3008-46 |
| M3 × 10 (Br-Tap) | N87-3010-46 |
| M3 × 10 (F-Tap) | N88-3010-46 |
| M4 × 10 (Br-Tap) | N87-4010-46 |

**INSTRUCTIONS FOR PARTS LIST**

| Ref. No. 参照番号 | Parts No. 部品番号 | Description 部品名／規格 | Remarks 備考 |
|---|---|---|---|
| 11 1A | A01-0352-02 | CASE | * |
| 12 3A | A20-1402-03 | FRONT PANEL | *K |
| 12 3A | A20-1402-03 | FRONT PANEL | PU |
| 12 3A | A20-1402-03 | FRONT PANEL | MW |
| 12 3A | A20-1402-03 | FRONT PANEL | L |
| 12 3A | A20-1403-03 | FRONT PANEL | T |
| 13 1A | A50-0059-02 | SIDE PLATE (L) | * |
| 14 1A | A50-0060-02 | SIDE PLATE (R) | * |
| 15 1A | A54-0169-02 | WOOD TOP BOARD | * |
| C31 -38 | C91-0039-05 | MYLAR 0.1UF J | |
| C39 ,40 | C24-1410-61 | ELECTRO 10UF 25WV | |
| C41 ,42 | C46-1712-26 | MYLAR 0.0012UF K | |
| C43 ,44 | C24-1710-51 | ELECTRO 1UF 50WV | |
| C45 | C25-6547-67 | ELECTRO 47UF 35WV | |
| C46 | C24-2010-51 | ELECTRO 1UF 100WV | |
| C47 | C71-1727-15 | CERAMIC 270PF J | |
| 110 2B | F05-6024-05 | FUSE (6A) F1-4 | KP |
| 110 2B | F05-6024-05 | FUSE (6A) F1-4 | UM |
| 110 2B | F05-6322-05 | FUSE (6.3A) F1-4 | TW |
| 110 2B | F05-6322-05 | FUSE (6.3A) F1-4 | L |
| 111 2B | J13-0055-05 | FUSE HOLDER | |
| L1 ,2 | L39-0085-05 | COIL | |
| R5 ,6 | R43-1227-25 | FL-PROOF RD2.7K J 2E | |
| R17 ,18 | R43-1247-25 | FL-PROOF RD4.7K J 2E | |
| R23 ,24 | R43-1210-15 | FL-PROOF RD100 J 2E | |
| R25 -28 | R43-1222-15 | FL-PROOF RD220 J 2E | |
| R29 ,30 | R47-1412-35 | FL-PROOF RS12K J 3A | |

① Exploded view drawing No.
② Position in exploded view.
③ Symbol of new parts.
④ Area to which parts are shipped. Example: A20-1402-03 is the parts No. of FRONT PANEL ASS'Y for the "K" type products (for USA).
When this column is blank, it means that the same type of parts (same parts No.) are used for the products shipped to all areas.
⑤ Reference No. in schematic diagram.
⑥ Abbreviation of "ceramic capacitor".
All capacitors and resistors are listed using abbreviations.

⑦ Abbreviations

* Abbreviations of capacitors (Parts No. with initial letter "C")

ELECTRO ..... Electrolytic capacitor
LL-ELEC ..... Low leak electrolytic capacitor
NP-ELEC ..... Non-pole electrolytic capacitor
MICA ..... Mica capacitor
POLYSTY ..... Polystyrene capacitor
MYLAR ..... Mylar capacitor
CERAMIC ..... Ceramic capacitor
TANTAL ..... Tantalum capacitor
MF ..... Metallized film capacitor
OIL ..... Oil capacitor
The unit "UF" is used in lieu of "μF".

* Abbreviations of resistors (Parts No. with initial letters "R").

RC ..... Carbon composition resistor
RD ..... Carbon film resistor
FL-PROOF RD ..... Flame-proof carbon film resistor
RW ..... Wire wound power resistor
FL-PROOF RS ..... Flame-proof metal oxide film resistor
RN ..... Metal film resistor

2B ..... Rated wattage 1/8W
2E ..... Rated wattate 1/4W
2H ..... Rated wattage 1/2W
3A ..... Rated wattage 1W
3D ..... Rated wattage 2W
3F ..... Rated wattage 3W
3G ..... Rated wattage 4W
3H ..... Rated wattage 5W
All resistor values are indicated with the unit (Ω) omitted.

* Abbreviations common to capacitors and resistors.

C ..... ±0.25 pF (Used for capacitors only)
D ..... ±0.5 pF (Used for capacitors only)
F ..... ±1%
G ..... ±2%
J ..... ±5%
K ..... ±10%
M ..... ±20%
Z ..... +80%, −20% (Used for capacitors only)
P ..... +100%, −0% (Used for capacitors only)

⑧ Resistors RD (carbon composition resistors) are not listed in the parts list. For values, refer to the schematic diagram.

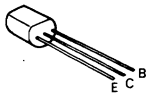
# SEMICONDUCTOR SUBSTITUTIONS

| Ref. No. | Name | Substitutions |
|---|---|---|
| **X05-1630-10 (−11)** | | |
| IC1 | LA1222 | — |
| IC2 | HA11225 | — |
| IC3 | HA11223W | — |
| IC4 | NJM4558D (A,B) | NJM4559D |
| IC5 | LA1240 | HA1197 |
| IC6 | HA1457 | — |
| IC7 | TC4069UBP | MC14069BCP |
| Q1,2,5 | 2SA733A(Q,P) | 2SA640, 2SA750 |
| Q3,6,9,10, 12,13, 15,16 | 2SC945(Q,P,K) | 2SC1980(S,T), 2SC1845(F,E) |
| Q4,7,8 | 2SK117(Y,GR,BL) | 2SK105, 2SK163 |
| Q11 | 2SD330(E,F) | 2SC1419, 2SD313-AL |
| Q14 | 2SC1222(U) | 2SC1775, 2SC1980 |
| **X07-1680-10 (−61)** | | |
| Q1,2 | 2SK150A(GR,BL) | μPA68H(L,M) |
| Q3,4 | 2SC1890A(E!F) | 2SC1775A, 2SC1439 |
| Q5～8,22 | 2SC1890(E,F) | 2SC1775, 2SC2089 |
| Q9～12 | 2SB718(B,C) | — |
| Q13,14 | 2SD758(B,C) | — |
| Q15,16 20,21 | 2SA733A(R,Q) | 2SA640, 2SA750 |
| Q17,18 | 2SA893(E,F) | 2SA872 |
| Q19 | 2SC945(R,Q) | 2SC1980(S,T), 2SC1845(F,E) |
| Q23 | 2SA850(E) | 2SA794 |
| Q24 | TA7138P | — |
| **X07-1690-10** | | |
| Q1,2 | 2SD760(B,C) | — |
| Q3,4 | 2SB720(B,C) | — |
| Q5～8 | 2SC1607(O,Y) | — |
| Q9－12 | 2SA1116(O,Y) | — |
| Q13,14 | 2SC1890(E,F) | 2SC1775, 2SC1089 |
| Q15,16 | 2SA733(A)(R,Q) | 2SA640, 2SA750 |
| **X08-1710-10** | | |
| Q1,2 | 2SK163(K,L) | 2SK68A(L,M,N) |
| Q3～6, 9,10 | 2SB725 | 2SA1023(P,K), 2SA777, 2SA850 |
| Q7,8 | 2SD767 | 2SC2378(P,K), 2SC1509, 2SC1735 |
| Q11,12,14 | 2SC1845(F,E) | 2SC1890, 2SC2008 |
| Q13 | 2SA992(F,E) | 2SA872 |
| **X11-1550-10** | | |
| Q1,2 | 2SK68(M) | 2SK117(GR), 2SK105 |
| Q3,4, 7～12 | 2SA872(E) | 2SA992 |
| Q5,6 | 2SC1775(E) | 2SC1890, 2SC2089 |
| Q13 | 2SD330 | 2SC1419, 2SD313V-AL |
| Q14 | 2SB514 | 2SB507V-AL |
| Q15,17 | 2SC1890(E) | 2SC1775, 2SC2089 |
| Q16,18 | 2SA893(E) | 2SA872 |

2SA640
2SA733A
2SA750
2SA777
2SA872
2SA893
2SA992

2SB725
2SC945
2SC1222
2SC1439
2SC1509
2SC1735
2SC1775

2SC1775A
2SC1890
2SC1980
2SC2008
2SC2089
2SD767

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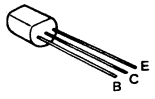
2SA850

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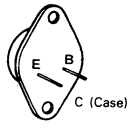


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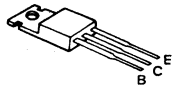


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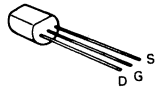


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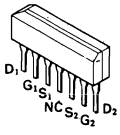


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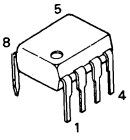
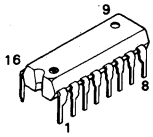
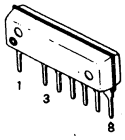
NJM4559D




HA11223W
HA11225
HA1197
LA1240




HA1457

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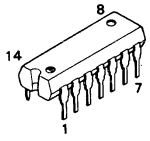


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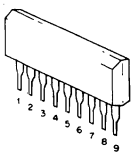


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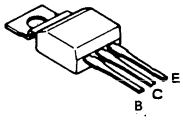


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