

SERVICE MANUAL

PARTS LIST

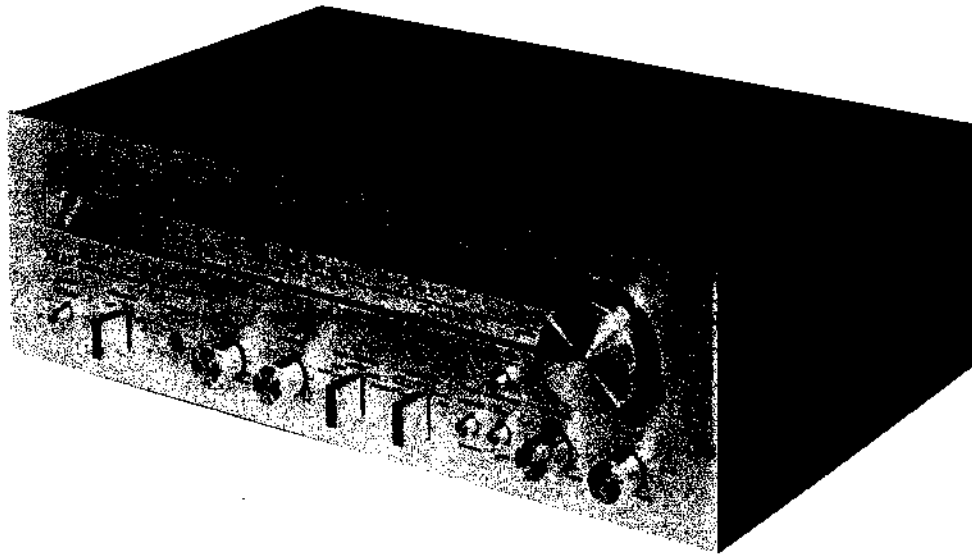
AA-1135
AA-1150

AA-1135

MODEL AA-1150

AKAI

ALSO APPLICABLE TO BLACK MODEL



AKAI STEREO RECEIVER

MODEL AA-1135 AA-1150

| | | |
|-----------|-------------------------|----|
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SECTION 1

SERVICE MANUAL

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For basic adjustments, measuring methods, and operating principles, refer to GENERAL OPERATING PRINCIPLES AND ADJUSTMENTS.

I. TECHNICAL DATA

AMPLIFIER SECTION

| | | AA-1135 | AA-1150 |
|--------------------------------|--|--|--|
| POWER OUTPUT | | 35 watts per channel, min RMS, at 8 ohms from 20 to 20,000 Hz with no more than 0.2% T.H.D. | 50 watts per channel, min RMS, at 8 ohms from 20 to 20,000 Hz with no more than 0.1% T.H.D. |
| POWER BAND WIDTH (IHF) | | 6 Hz to 50 kHz T.H.D. 0.2% at 8 ohms | 6 Hz to 50 kHz T.H.D. 0.1% at 8 ohms |
| S/N RATIO | PHONO AUX | Better than 80 dB Better than 90 dB | Better than 80 dB Better than 90 dB |
| RESIDUAL NOISE | | Less than 0.8 mV at 8 ohms | Less than 0.5 mV at 8 ohms |
| CHANNEL SEPARATION (IHF) PHONO | | Better than 55 dB at 1 kHz | Better than 55 dB at 1 kHz |
| DAMPING FACTOR | | More than 30 (1 kHz, 8 ohms) | More than 30 (1 kHz, 8 ohms) |
| OUTPUT | SPEAKER HEADPHONES | A, B (4 to 16 ohms)/A+B (8 to 16 ohms) 4 to 16 ohms | A, B (4 to 16 ohms)/A+B (8 to 16 ohms) 4 to 16 ohms |
| INPUT SENSITIVITY/IMPEDANCE | PHONO AUX | 3 mV/47 kohms 150 mV/100 kohms | 3 mV/47 kohms 150 mV/100 kohms |
| TAPE MONITOR | 1) INPUT OUTPUT 2) INPUT OUTPUT | PIN: 150 mV/100 kohms DIN: 150 mV/100 kohms PIN: 150 mV/4 kohms DIN: 30 mV/30 kohms PIN: 150 mV/100 kohms PIN: 150 mV/100 kohms | PIN: 150 mV/100 kohms DIN: 150 mV/100 kohms PIN: 150 mV/4 kohms DIN: 30 mV/30 kohms PIN: 150 mV/100 kohms PIN: 150 mV/100 kohms |
| FREQUENCY RESPONSE | PHONO (RIAA) AUX/TAPE MONITOR | 30 Hz to 15 kHz ± 1 dB 6 Hz to 70 kHz +0 dB, -2 dB | 30 Hz to 15 kHz ± 1 dB 6 Hz to 70 kHz +0 dB, -2 dB |
| TONE CONTROL | BASS TREBLE | ± 9 dB at 100 Hz ± 9 dB at 10 kHz | ± 9 dB at 100 Hz ± 9 dB at 10 kHz |
| LOUDNESS CONTROL | | ± 10 dB at 100 Hz, +5 dB at 10 kHz (Volume control set -30 dB position) | +10 dB at 100 Hz, +5 dB at 10 kHz (Volume control set -30 dB position) |
| FILTER | HIGH LOW | | -6 dB at 10 kHz -6 dB at 50 Hz |

TUNER SECTION

FM

| | | AA-1135 | AA-1150 |
|------------------------|----------------|--|---|
| FREQUENCY RANGE | | 88 MHz to 108 MHz | 88 MHz to 108 MHz |
| SENSITIVITY (IHF) | | 1.8 μ V | 1.7 μ V |
| CAPTURE RATIO | | 1.3 dB | 1.3 dB |
| SELECTIVITY (IHF) | | More than 70 dB | More than 70 dB |
| IMAGE REJECTION | | More than 65 dB (at 98 MHz) | More than 90 dB (at 98 MHz) |
| IF REJECTION | | More than 90 dB (at 98 MHz) | More than 100 dB (at 98 MHz) |
| SPURIOUS REJECTION | | More than 90 dB (at 98 MHz) | More than 100 dB (at 98 MHz) |
| AM SUPPRESSION | | 50 dB | 50 dB |
| S/N RATIO | | 65 dB | 65 dB |
| HARMONIC DISTORTION | MONO STEREO | Less than 0.2% (100% Mod.) Less than 0.4% (100% Mod.) | Less than 0.15% (100 Mod.) Less than 0.3% (100 Mod.) |
| STEREO SEPARATION | | More than 40 dB at 1 kHz | More than 42 dB at 1 kHz |
| SUBCARRIER SUPPRESSION | | More than 52 dB | More than 75 dB |

AM

| | | | |
|-------------------|--|---|---|
| FREQUENCY RANGE | | 520 kHz to 1,605 kHz | 520 kHz to 1,605 kHz |
| SENSITIVITY (IHF) | | 180 μ V/m (Bar antenna), 10 μ V (External antenna) | 180 μ V/m (Bar antenna), 10 μ V (External antenna) |
| SELECTIVITY (IHF) | | More than 30 dB | More than 30 dB |
| IMAGE REJECTION | | More than 65 dB at 1 MHz | More than 65 dB at 1 MHz |
| IF REJECTION | | More than 45 dB | More than 45 dB |
| S/N RATIO | | 45 dB | 45 dB |

| | | | |
|-------------------------|--|---|--|
| TUNING INDICATOR METER | | FM center tuning/AM, FM signal strength meter | FM center tuning/AM, FM signal strength meter |
| MUTING LEVEL CONTROL | | Switchable to ON/OFF | Switchable to ON/OFF, 3 to 30 μ V Variable |
| ANTENNA INPUT IMPEDANCE | | 300 ohms balanced, 75 ohms unbalanced | 300 ohms balanced, 75 ohms unbalanced |

V. OPERATING PRINCIPLES OF QUADRATURE DETECTION SYSTEM

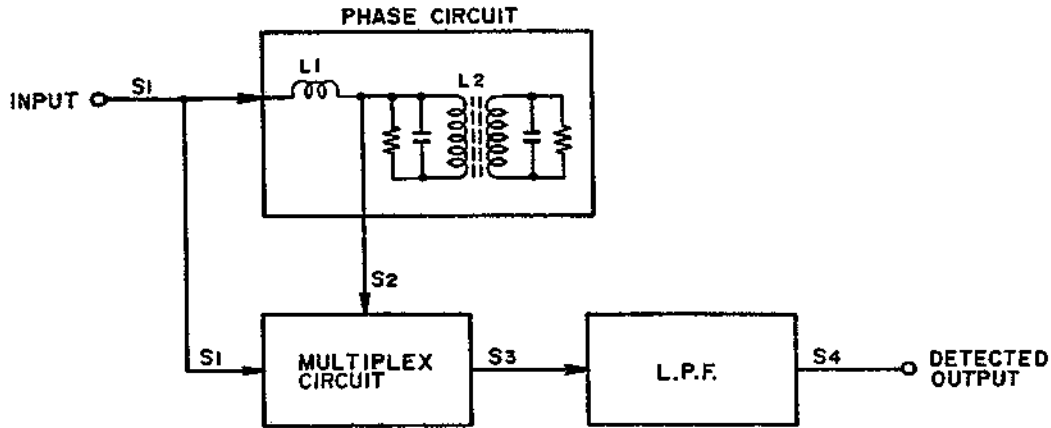


Fig. 7 Quadrature Detection Block Diagram

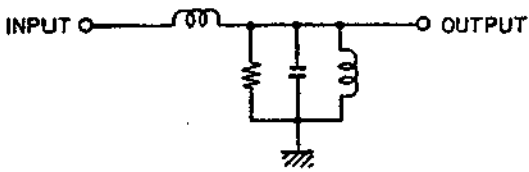


Fig. 8 Single Tuning Type

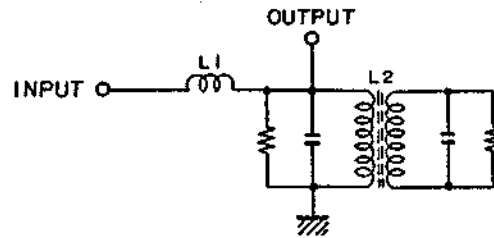


Fig. 9 Double Tuning Type

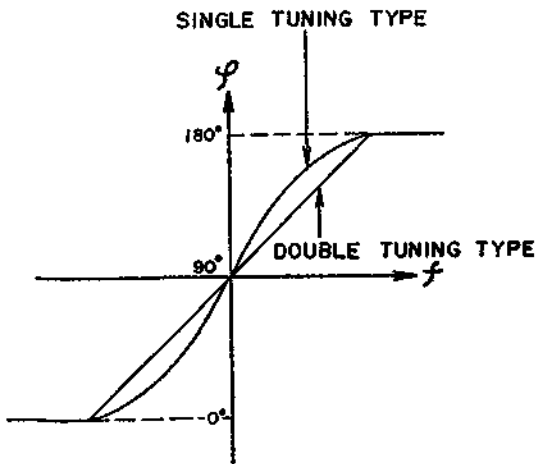


Fig. 10 Tuning Curve

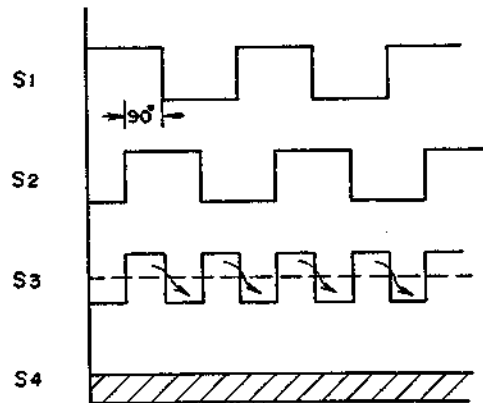


Fig. 11 Output at Non-modulation

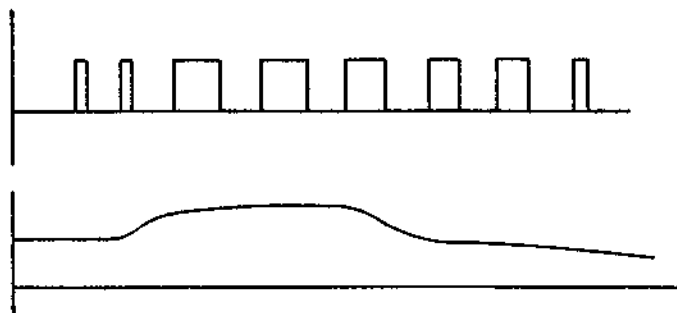


Fig. 12 Output at Modulation Time

The Quadrature Detection Circuit is comprised of a Phase Circuit, a Multiplier Circuit and a Low Pass Filter (L.P.F.) as shown in Fig. 7.

There are two types of Phase Circuits, the Single tuning type shown in Fig. 8 and the Double tuning type shown in Fig. 9. However, because with the double tuning type there is less frequency deviation in relation to carrier frequency, linearity is improved as shown in Fig. 10 and phase distortion is reduced this type phase circuit is employed in the AA-1135 and AA-1150.

Input signal S1 is divided into the part which enters the direct multiplier circuit and the part which passes the phase circuit and enters the multiplier circuit. The signal supplied to the phase circuit is always 90° phase delayed at L1. Also because at Non-modulation time, L2 is tuned to 10.7 MHz, if modulation is applied and S1 is changed from 10.7 MHz, phase deviation at L2 will take place proportionately in relation to this changed part and this becomes S2 signal which is delayed in relation to S1.

At Non-modulation, because as shown in Fig. 11 input signal S1 and 90° phase delayed (by means of L1) signal S2 are switched by means of the multiplier circuit, the output signal becomes S3. Because this S3 passes the low pass filter and becomes S4 fixed direct current, the detector output is zero. Then, when modulation is applied, because the switched output is varied according to the degree of modulation, and the output which passed the low pass filter becomes the pulsating current part as shown in Fig. 12 detector output is obtained.

VI. OPERATING PRINCIPLES OF PLL CIRCUIT EMPLOYED IN STEREO DEMODULATION CIRCUIT

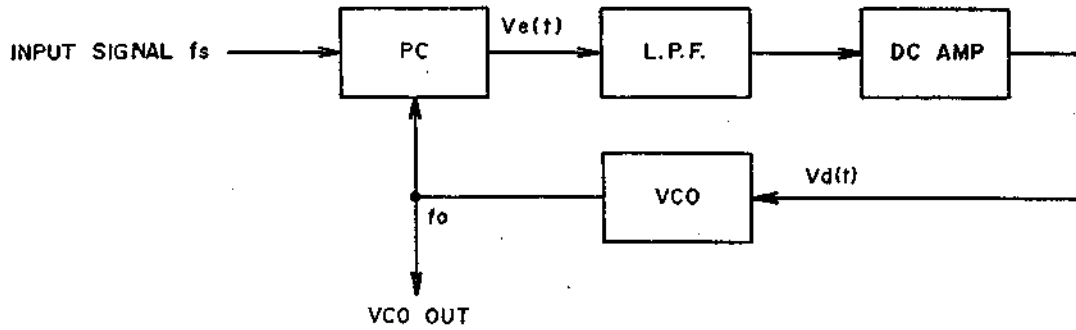


Fig. 13 PLL Circuit

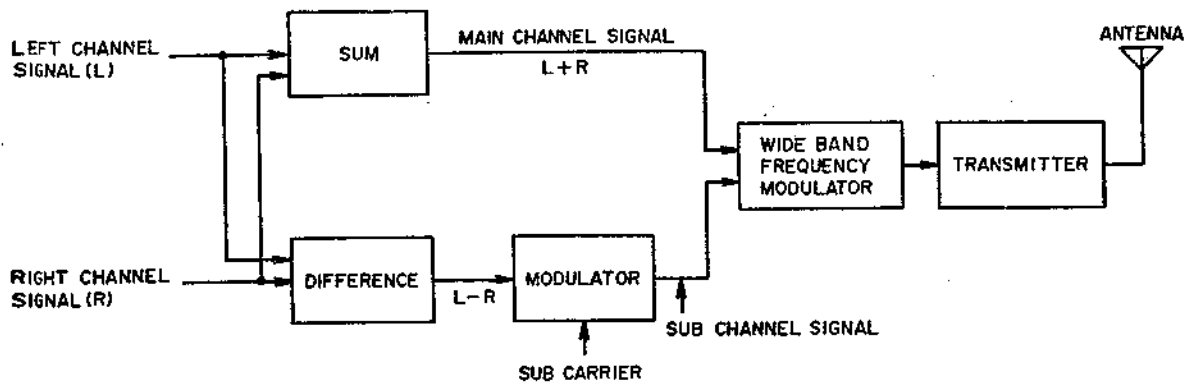


Fig. 14 FM Broadcasting System Diagram

To separate FM stereo broadcast signal received to data into left and right signals, a 19 kHz pilot signal was successively multiplied to form a 38 kHz signal and stereo separation was effected from this. However, with this multiplier system, change in coils due to wear occurred and adjustment points were numerous, etc. Therefore, this model employs a newly developed PLL circuit which produces an exceedingly accurate 38 kHz switching signal.

1. PLL CIRCUIT OPERATION

PLL circuit is a kind of feedback circuit and is comprised of a Phase Comparator (PC), a Low Pass Filter (LPF), a Direct Current Amplifier (DC Amp), and a Voltage Control Oscillator (VCO) as shown in Fig. 13.

The PC compares input signal F_s and VCO oscillator output and generates the difference in signal voltage $V_e(t)$ proportionately to this phase deviation. This $V_e(t)$ passes LPF and the DC Amp and becomes control voltage. This control voltage supplied to VCO and VCO oscillation frequency is DC controlled. When there is no input signal F_s , because there is also no $V_e(t)$, control voltage $V_d(t)$ becomes zero, and VCO maintains a *free-running oscillation frequency. When a signal enters, VCO oscillation frequency f_o is controlled to narrow the difference between F_s by means of feedback as described above, and the PLL circuit assumes a synchronous condition. This is referred

to as input signal lock. (In case the difference between F_o and F_s is too large, the differential signal frequency becomes high and is reduced at the LPF. However, because the VCO control voltage does not change, PLL will not stay within the *lock range).

Because of the ability of the signal interference removing LPF to accumulate the previous voltage; in case the PLL deviates from within the lock range due to certain interference, the original condition is quickly reinstated.

* Free running frequency:

Oscillating frequency when there is no input signal.

* Lock range:

At the condition in which the VCO oscillation frequency is locked to the input signal, the lock range is the oscillating frequency in which when the input signal changes, the PLL maintains its input signal lock condition. Accordingly, in case F_s is changed inside the PLL lock range, VCO oscillation frequency always follows this, and a no frequency deviation and no phase difference signal is obtained. In other words, VCO oscillation frequency can be locked to F_s .

2. STEREO DEMODULATION CIRCUIT

As shown in Fig. 14 for FM broadcasts, the sum signal (L+R) consists of left signal (L) and right signal (R) and the audio frequency band of this signal in its original form is frequency modulated. On the other hand, the difference signal of both (L-R) is changed to high frequency through the use of the sub carrier, and is referred to as the sub channel signal. The carrier is further frequency modulated and sent to the FM stereo transmitter.

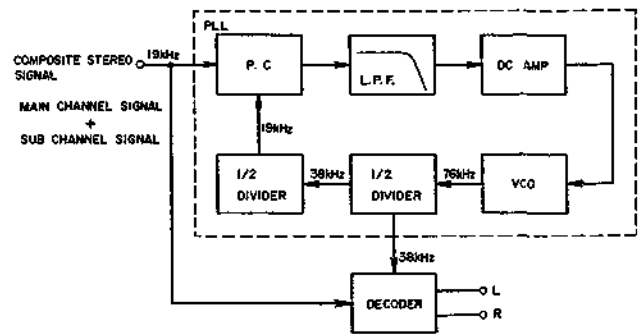


Fig. 15 MPX IC Function

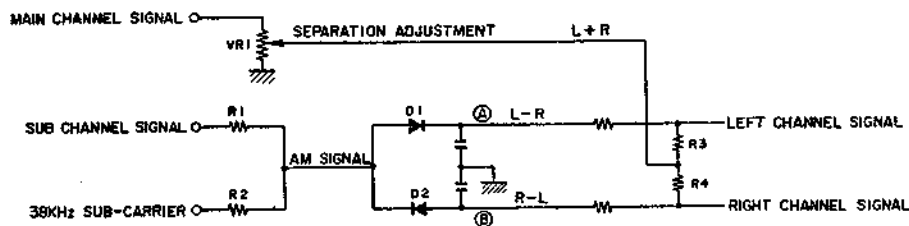


Fig. 16 Multiplex Decoder

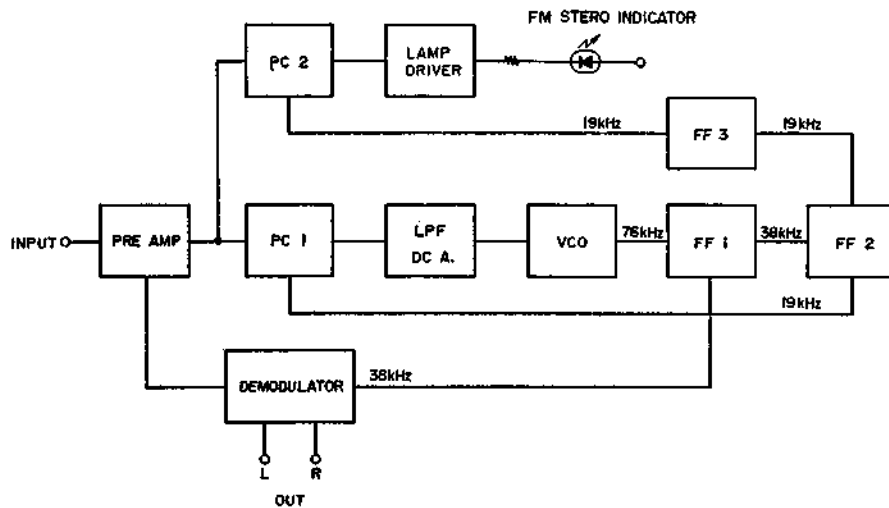


Fig. 17 LA-3350 Function System Diagram

Accordingly, for composite stereo signal demodulation, the sub carrier used for demodulation at the transmitter must be the same uniform 38 kHz signal as the frequency and phase. If the 38 kHz waveform is asymmetrical, channel separation will become poor. At the PLL employed MPX stereo demodulator circuit, as shown in Fig. 13 first a 76 kHz signal is oscillated and when this passes the divider, a symmetrical 38 kHz signal is obtained. This 38 kHz sub carrier is supplied to the multiplex decoder together with the sub channel of the composite stereo signal. At the multiplex decoder, left and right channel audio signals are separated in order as shown in Fig. 16. The 38 kHz sub carrier composited with the sub channel signal of which the carrier part was

removed when sub channel signal and sub carrier passed R1, R2 produces the regular AM wave. Then, because this envelope is detected by mutually reverse polarity connected diodes D1 and D2, L-R signal is emitted at point A and R-L signal at point B.

Also, because main channel signal (L+R) is supplied to R3, R4 center point, A, B point voltage is added and subtracted and becomes

$$(L+R) + (L-R) = 2L \text{ (left channel)}$$

$$(L+R) + (R-L) = 2R \text{ (right channel)}$$

The level of the main channel signal (L+R) can be adjusted by means of variable resistor VR for optimum separation. Thus, the function of actually employed PLL IC LA-3350 is shown in Fig. 17.

VII. LEVEL DIAGRAM

1. MODEL AA-1135

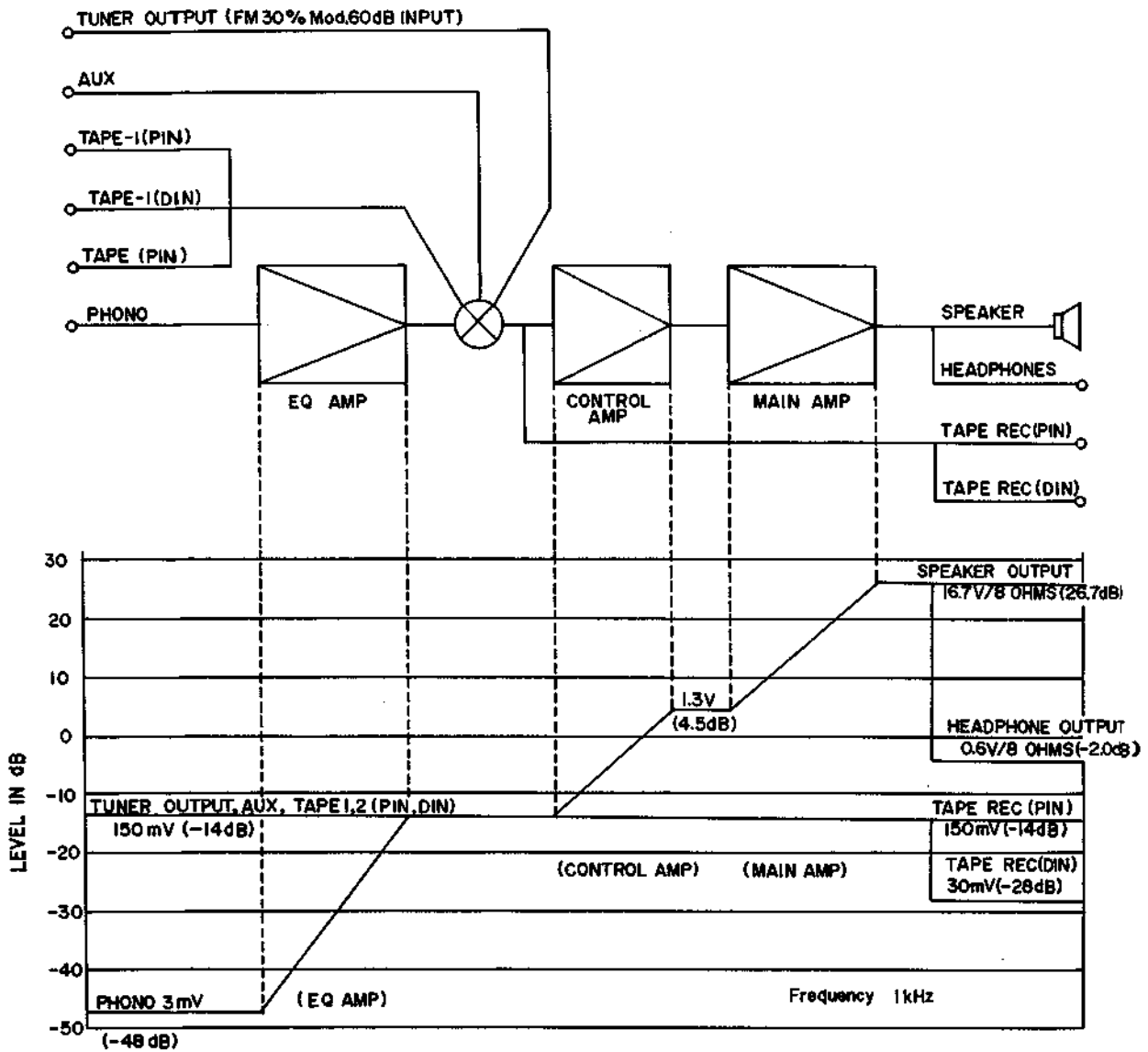


Fig. 18 Level Diagram of Model AA-1135

2. MODEL AA-1150

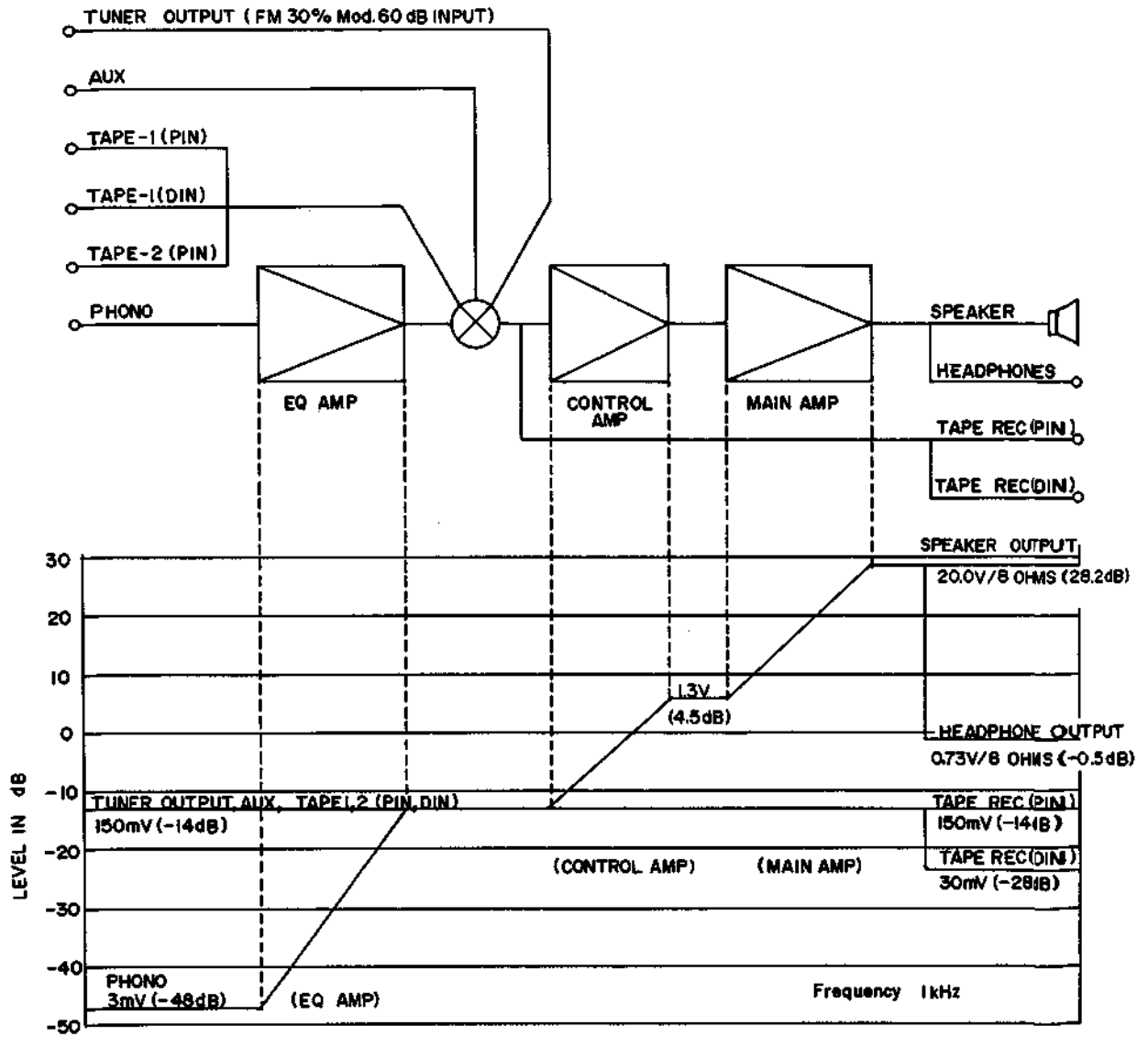


Fig. 19 Level Diagram of Model AA-1150

VIII. TUNER ADJUSTMENT

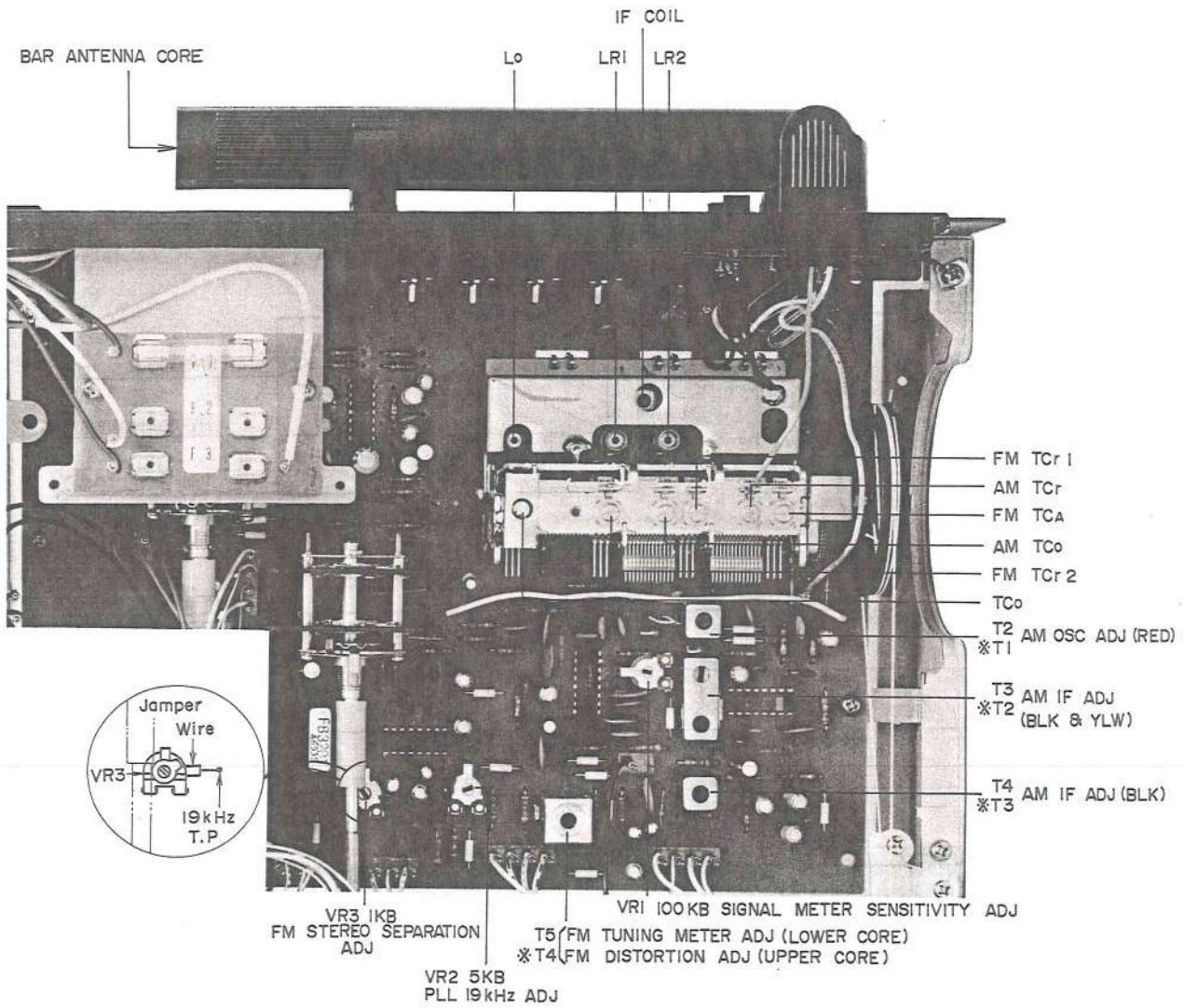


Fig. 20 Multi Function P.C Board AB-3501A (AA-1135)
AB-5001A (AA-1150)

- Notes; 1. Schematic Numbers of AA-1135 indicated by * mark.
2. Please refer to Fig. 21 for Front End of AA-1135.

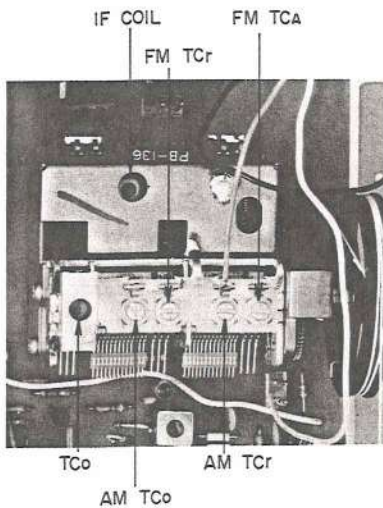


Fig. 21 Front End (AA-1135)

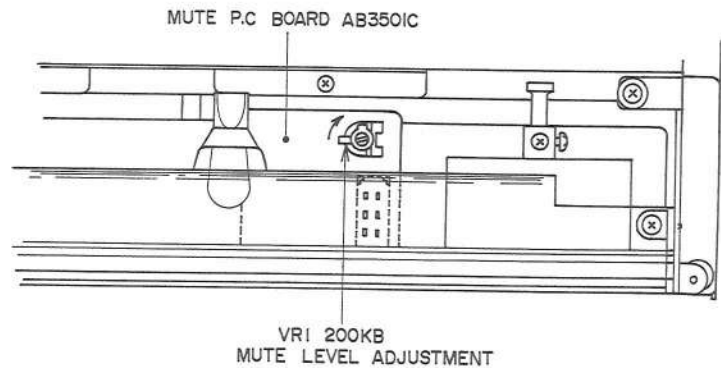


Fig. 22 Mute Level Adjustment (Only AA-1135)

1. FM TUNER SECTION ADJUSTMENT (Refer to Fig. 20, 21 and 22)

| Step | Adjustment Item | Adjustment Point | Result | Remarks |
|------|---|---|--|---|
| 1 | Front End IF Coil | IF Coil (Front End) | Maximum Noise Level | Selector to FM. FM Mute to OFF. Tune only noise without interference of broadcasting. |
| 2 | Tuning Meter Centering | T5 *T4 Lower Side core (Multi Function P.C Board) | Center Tuning Meter Indication | Same as above |
| 3 | Distortion Factor | T5 *T4 Upper Side core (Multi Function P.C Board) | Less than 0.15% *0.2% Distortion Factor | 98 MHz, 60 dB (mono) input. Less than 0.15% *0.2% on both channels. |
| 4 | Confirmation of Tuning Meter Indication | | | If Tuning Meter Indication is not at center position, re-adjust STEP 2 and 3 above. |
| 5 | High Range Frequency Coverage | TCo (Front End) | error: within ± 300 kHz | 108 MHz, 60 dB (mono) input. |
| 6 | Low Range Frequency Coverage | Lo (Front End) | error: within ± 300 kHz | 88 MHz, 60 dB (mono) input. (only AA-1150) |
| 7 | High Range Sensitivity | FM TCr, FM TCA (Front End) | Less than 3% Distortion Factor | FM Mute to OFF. 108 MHz, Less than 10 dB, *12 dB (mono) input. |
| 8 | Low Range Sensitivity | LR1, LR2 (Front End) | Less than 3% Distortion Factor | FM Mute to OFF. 88 MHz, Less than 10 dB (mono) input. (For AA-1135: confirmator only) |
| 9 | Mid Range Sensitivity Confirmation | | Less than 3% Distortion Factor | FM Mute to OFF. 98 MHz, Less than 10 dB, *12 dB (mono) input. |
| 10 | Mute Level | VR1 200 kB (Mute P.C Board) | No signal emitted from output | FM Mute to OFF. 88 MHz, 20 dB (mono) input. (Refer to Fig. 22) (only AA-1135) |
| 11 | PLL IC Free Running Frequency | VR2 5 kB (Multi Function P.C Board) | 19.00 kHz | Frequency Counter to Test Point (Multi Function P.C Board) See NOTE 3. |
| 12 | Stereo Indicator Lighting Confirmation | | | 98 MHz, 60 dB (stereo) input. No lighting of stereo indicator indicates no stereo separation. |
| 13 | Stereo Separation | VR 3 1 kB (Multi Function P.C Board) | More than 42 dB, *40 dB (1 kHz) | 98 MHz, 60 dB (stereo) 1 ch input. Distortion Factor must be less than 0.3%, *0.4%. |

| Step | Adjustment Item | Adjustment Point | Result | Remarks |
|------|--------------------------|---------------------------------------|---------------------------------|---|
| 14 | Stereo Separation | | More than 42 dB, *40 dB (1 kHz) | 98 MHz, 60 dB (stereo) R ch input. Distortion Factor must be less than 0.3%, *0.4%. If it exceeds 0.3% *0.4% adjust the coil in STEP 1 within 1/2 turn. |
| 15 | Signal Meter Sensitivity | VR1 100 kB (Multi Function P.C Board) | Indicator at "5". | 98 MHz, 100 dB (mono) input. |

Chart 1

- NOTES: 1. AA-1135 specifications are indicated by * marks.
 2. When the distortion factor of less than 3% cannot be obtained at Step 9, repeat Front End IF Coil and Step 7 through 9 adjustments several times.
 3. Free Running Frequency of the PLL IC must be an exact 19.00 kHz.

2. AM TUNER SECTION ADJUSTMENT (Refer to Fig. 20 and 21)

| Step | Adjustment Item | Adjustment Point | Result | Remarks |
|------|-----------------------------|---|---|--|
| 1 | Low Range Scale Indication | T2 *T1 (RED) (Multi Function P.C Board) | Maximum Output | Selector to AM. 520 kHz 50 dB input. Tuning Indicator to 520 kHz. Error within 2%. |
| 2 | Low Range Sensitivity | T3 *2 (BLK and YLW) T4 *T3 (BLK) (Multi Function P.C Board) Bar Antenna Core (Rear Panel) | Maximum Output Minimum Distortion Factor | 520 kHz, 50 dB input. Less than 10% Distortion Factor. |
| 3 | High Range Scale Indication | AM TCo (Front End) | Maximum Output | 1,400 kHz, 50 dB input. Tuning Indicator to 1,400 kHz. Error within 2%. |
| 4 | High Range Sensitivity | AM TCr (Front End) | Maximum Output Minimum Distortion Factor | 1,400 kHz, 50 dB input. Less than 10% Distortion Factor. |

Chart 2

- NOTES: 1. AA-1135 specifications are indicated by * mark.
 2. For best results, repeat Steps 1 through 4 two or three times.

IX. MAIN AMPLIFIER ADJUSTMENT

MODEL AA-1135 and AA-1150

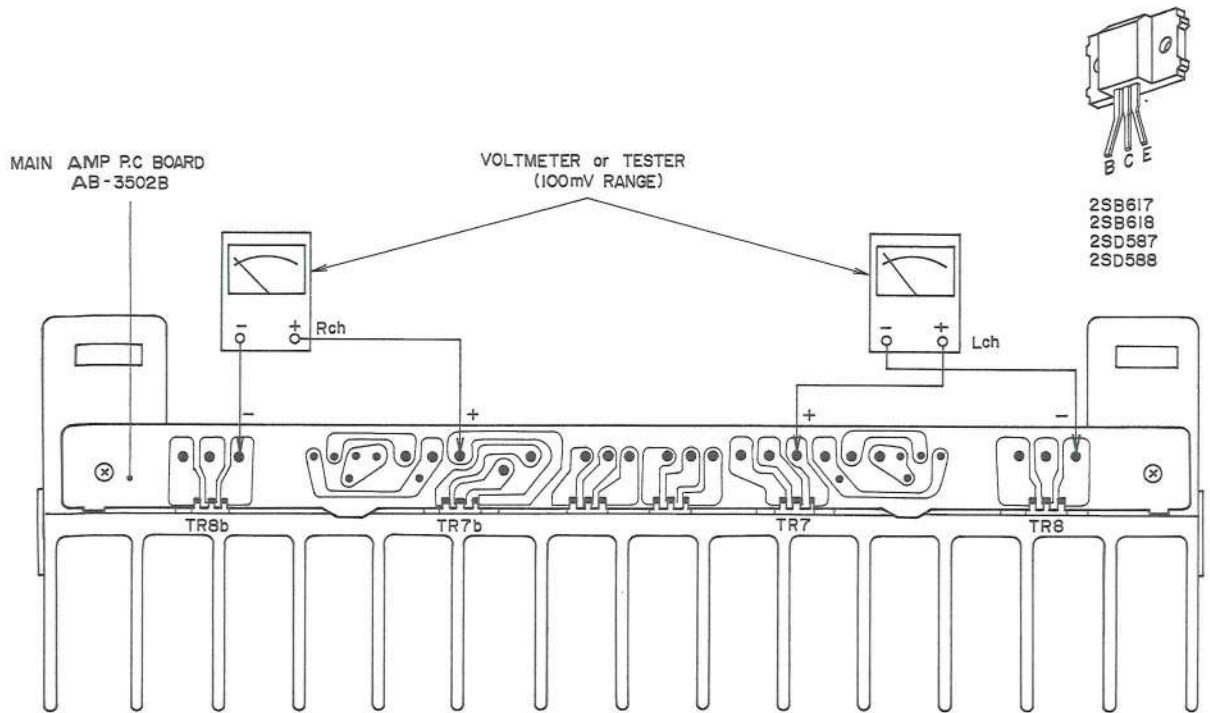


Fig. 23 Instrument Connection

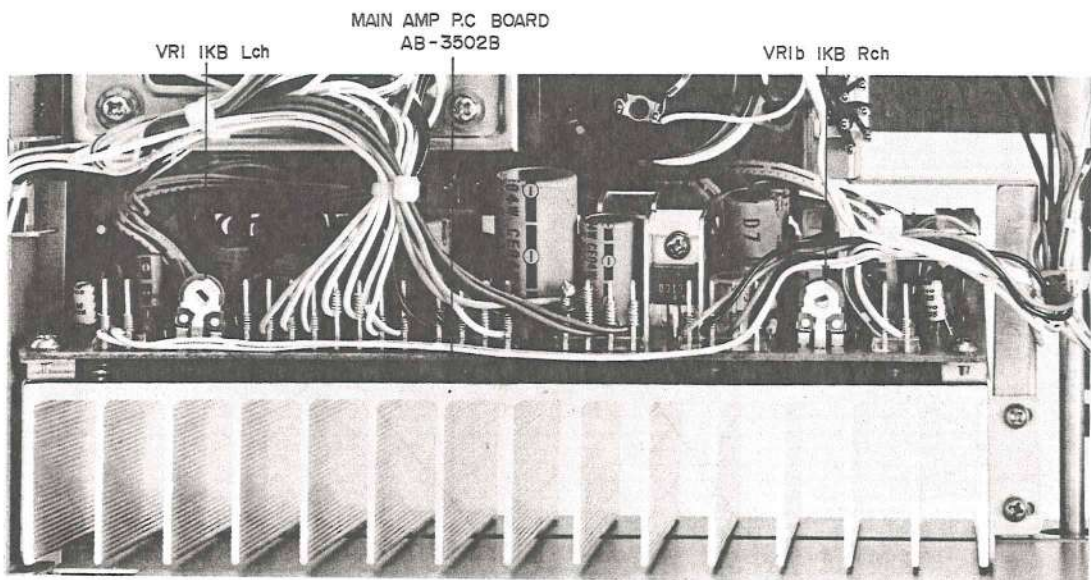


Fig. 24 Adjustment Point

| Step | Adjustment Item | Adjustment Point | Result | Remarks |
|------|--------------------------------|-----------------------------------|--------|---|
| 1 | Idling Current (Left channel) | VR1 1 kΩ (Main Amp P.C Board) | 25 mV | Use a Voltmeter or Tester with DC 100 mV range. |
| 2 | Idling Current (Right channel) | VR1b 1 kΩ (Main Amp P.C Board) | 25 mV | |

Chart 3

* Be careful not to damage the Power Transistors.

X. TUNING CORD THREADING

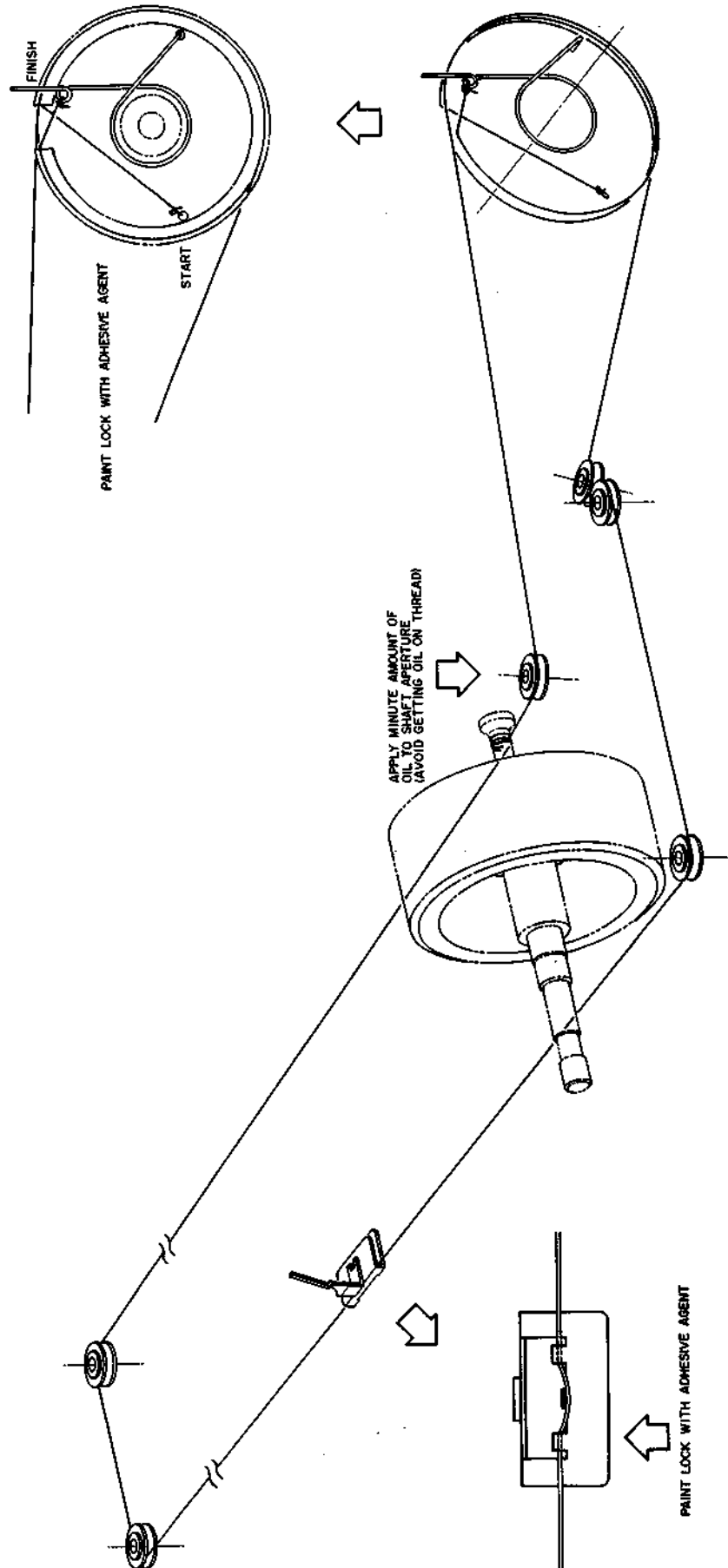


Fig. 25 Tuning Cord Threading

XI. CLASSIFICATION OF VARIOUS P.C BOARDS

1. RELATION OF P.C BOARD TITLE AND IDENTIFICATION NUMBER

1) Model AA-1135

| P.C Board Title | P.C Board Number |
|--------------------------|------------------|
| Multi Function P.C Board | AB-3501A |
| Tone Control P.C Board | AB-3501B |
| Mute P.C Board | AB-3501C |
| LED P.C Board | AB-3501D |
| Fuse P.C Board | AB-3501E |
| Main Amp (A) P.C Board | AB-3502A |
| Main Amp (B) P.C Board | AB-3502B |

Chart 4

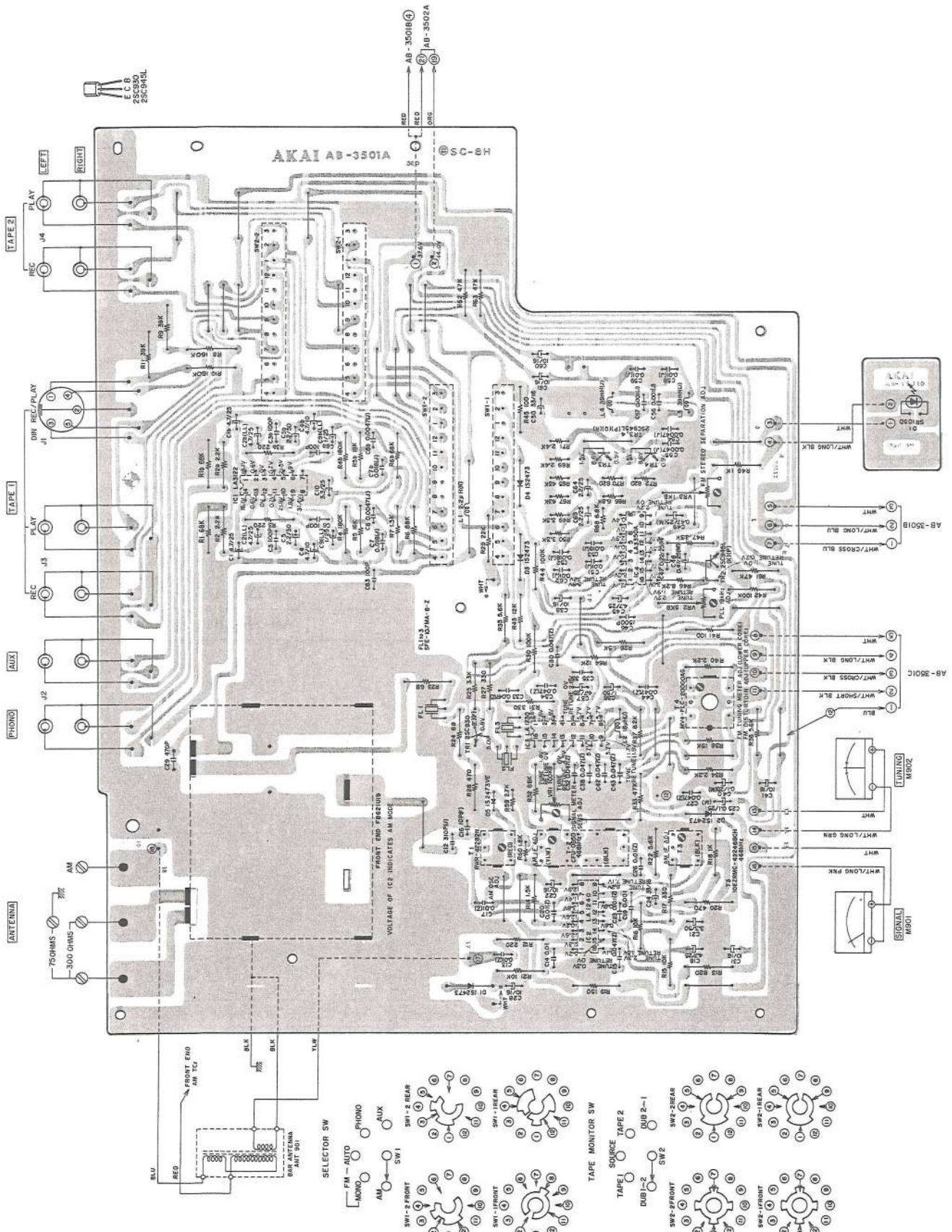
2) Model AA-1150

| P.C Board Title | P.C Board Number |
|--------------------------|------------------|
| Multi Function P.C Board | AB-5001A |
| Tone Control P.C Board | AB-5001B |
| Filter Mute P.C Board | AB-5001C |
| LED (A) P.C Board | AB-5001D |
| LED (B) P.C Board | AB-5001E |
| Fuse P.C Board | AB-5001F |
| Main Amp (A) P.C Board | AB-3502A |
| Main Amp (B) P.C Board | AB-3502B |

Chart 5

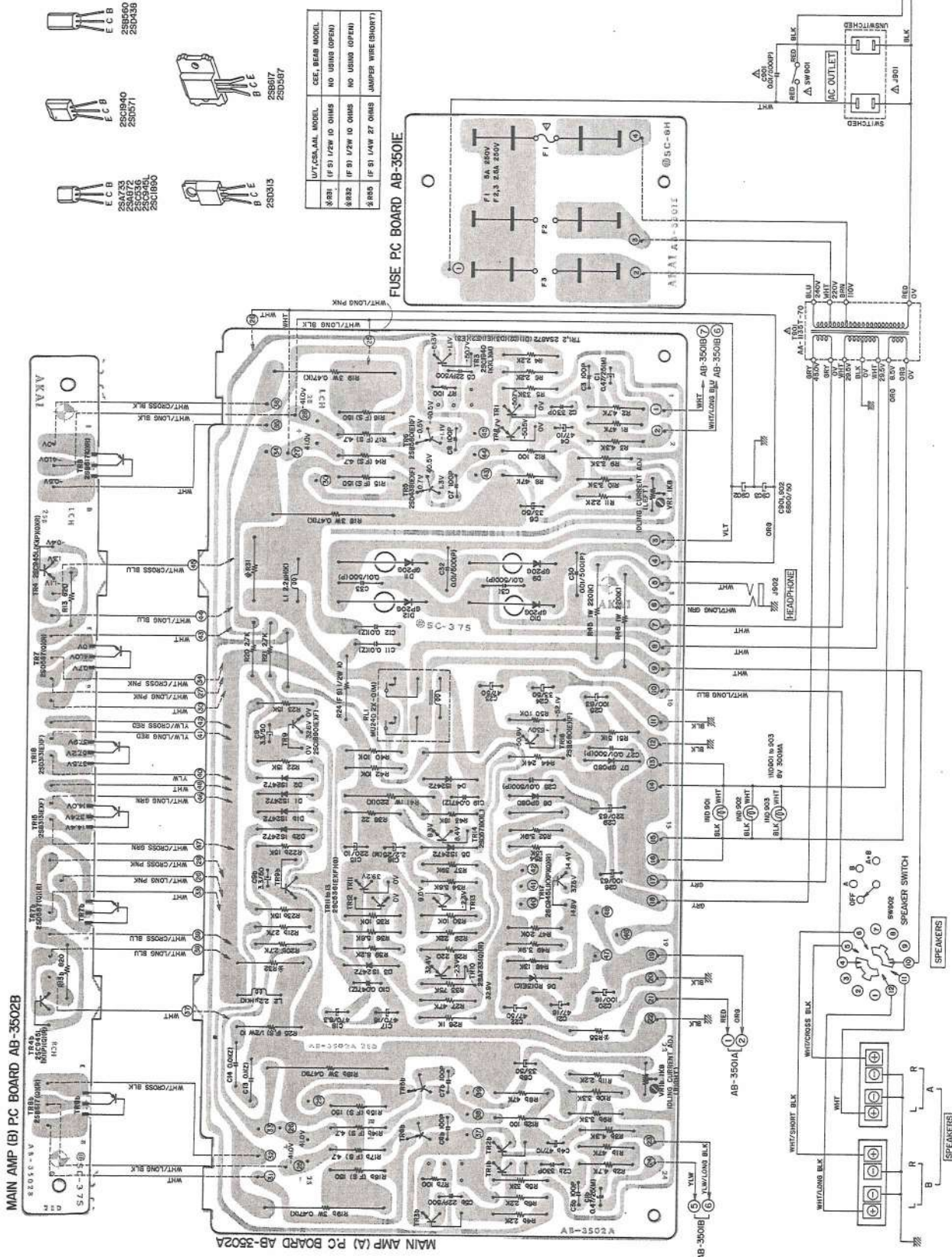
2. MODEL AA-1 135 COMPOSITION OF VARIOUS P.C BOARDS

1) MULTI FUNCTION P.C BOARD AB-3501A (3 ED) & LED P.C BOARD AB-3501D



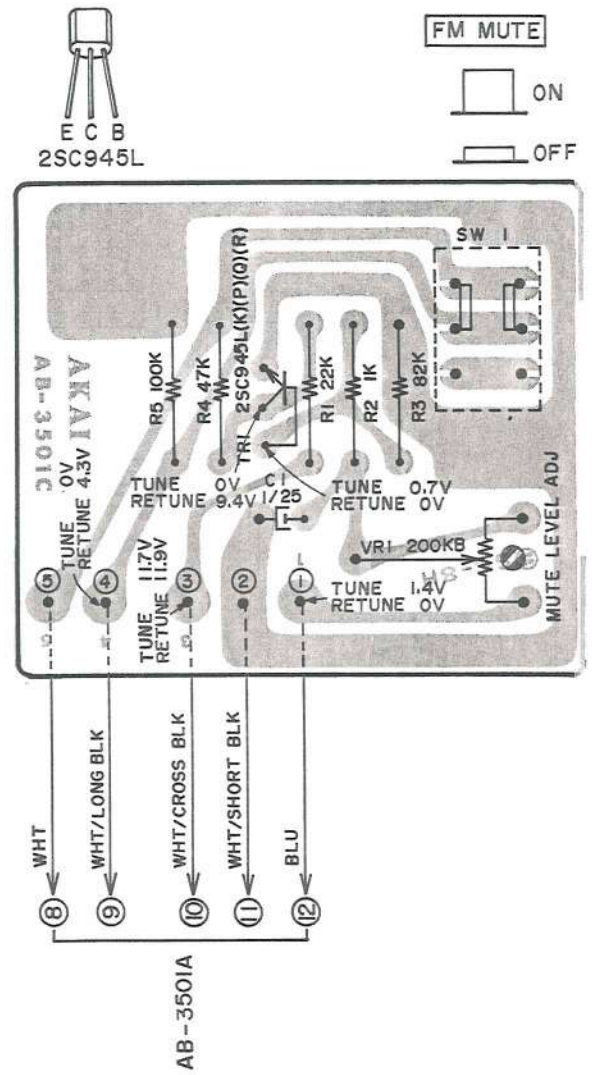
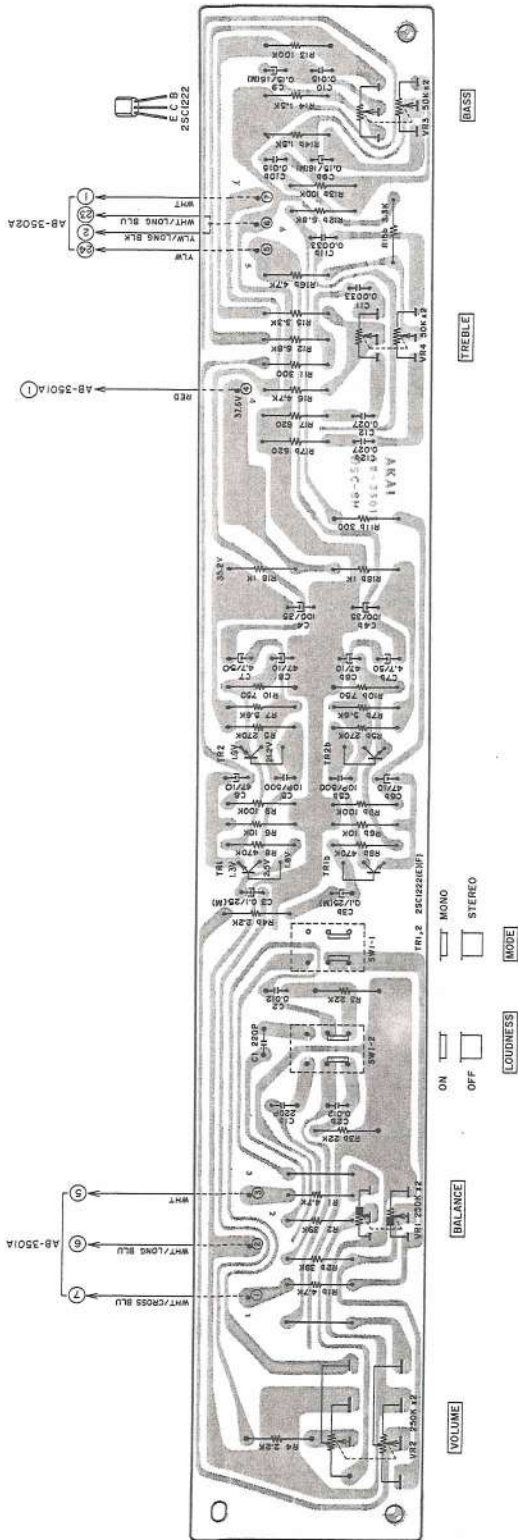
2) MAIN AMP (A/B) P.C BOARD AB-3502A/B (2ED) & FUSE P.C BOARD AB-3501E

WARNING: Δ INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS
 AVERTISSEMENT: Δ IL INDIQU LES COMPOSANTS CRITIQUES DE SÛRETÉ. POUR MAINTENIR LE DEGRÉ DE SÛRETÉ DE L'APPAREIL, NE REMPLACER LES COMPOSANTS DONT LE FONCTIONNEMENT EST CRITIQUE POUR LA SÛRETÉ QUE PAR DES PIÈCES RECOMMANDÉES PAR LE FABRICANT

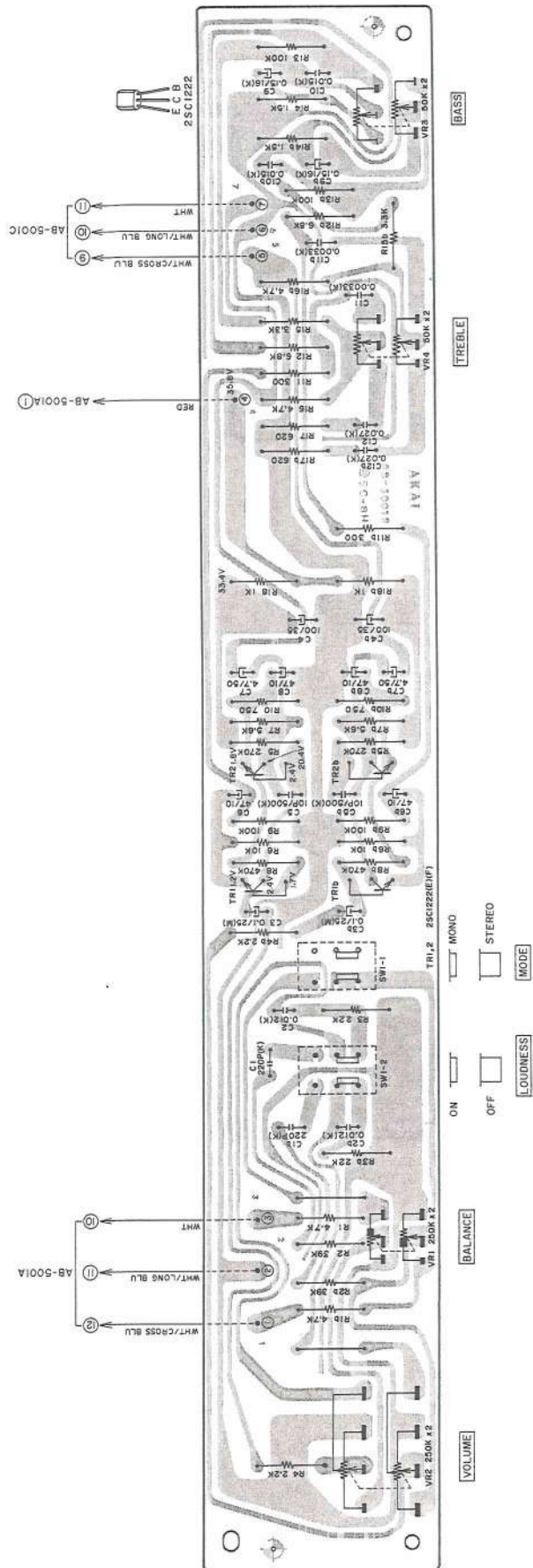


3) TONE CONTROL P.C BOARD AB-3501B

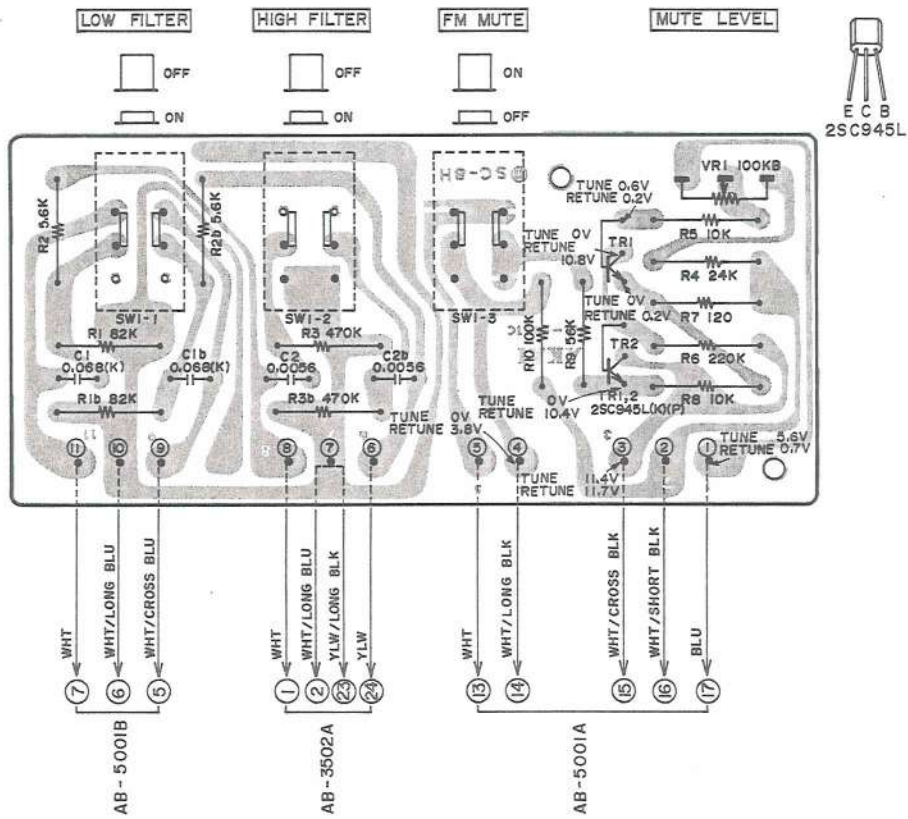
4) MUTE P.C BOARD AB-3501C



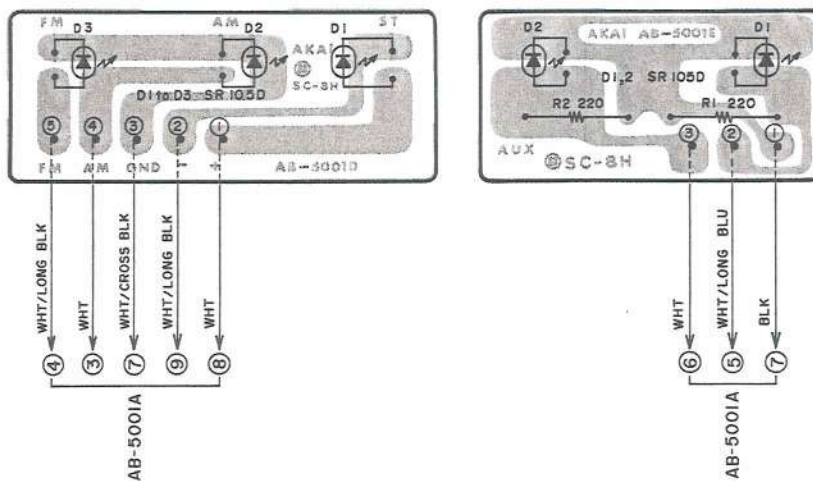
3) TONE CONTROL P.C BOARD AB-5001B



4) FILTER MUTE P.C BOARD AB-5001C



5) LED (A/B) P.C BOARD AB-5001D/E



SECTION 2

PARTS LIST

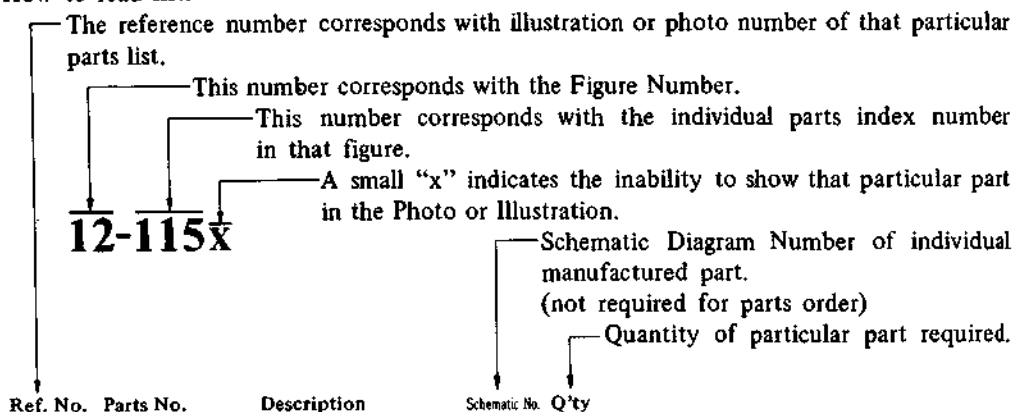
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Resister and Capacitor which is not listed in this parts list, please refer to COMMON LIST FOR SERVICE PARTS.

HOW TO USE THIS PARTS LIST

1. This parts list is compiled by various individual blocks based on assembly process.
2. When ordering parts, please describe parts number, serial number, and model number in detail.
3. How to read list.



4. The symbol numbers shown on the P.C. Board list can be matched with the Composite Views of components of the Schematic Diagram or Service Manual.
5. The indications of Resistors and Capacitors in the photos of P.C. Board are being eliminated.
6. The shape of the parts and parts name, etc. can be confirmed by comparing them with the parts shown on the Electrical Parts Table of P.C. Board.
7. Both the kind of part and installation position can be determined by the Parts Number. To determine where a parts number is listed, utilize Parts Index at end of Parts List.
It is necessary first of all to find the Parts Number. This can be accomplished by using the Reference Number listed at right of parts number in the Parts Index. (meaning of ref. no. outlined in Item 3 above).
8. Utilize separate "Price List for Parts" to determine unit price. The most simple method of finding parts Price is to utilize the reference number.

CAUTION:

1. When placing an order for parts, be sure to list the parts no. model no., and description. There are instances in which if any of this information is omitted, parts cannot be shipped or the wrong parts will be delivered.
2. Please be careful not to make a mistake in the parts no. If the parts no. is in error, a part different from the one ordered may be delivered.
3. Because parts number and parts unit supply in the Preliminary Service Manual (Basic Parts List) may be partially changed, please use this parts list for all future reference.

WARNING: Δ INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.

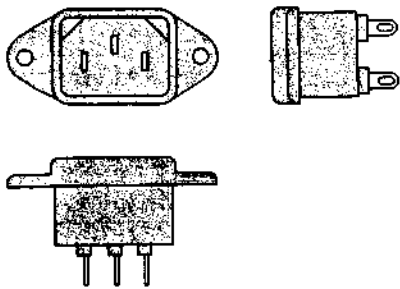
AVERTISSEMENT: Δ IL INDIQUE LES COMPOSANTS CRITIQUES DE SURETE. POUR MAINTENIR LE DEGRE DE SECURITE DE L'APPAREIL NE REMPLACER LES COMPOSANTS DONT LE FONCTIONNEMENT EST CRITIQUE POUR LA SECURITE QUE PAR DES PIECES RECOMMANDEES PAR LE FABRICANT.

AC INLET SYSTEM

This model is equipped with an AC INLET SYSTEM. Please refer to the AC INLET SYSTEM CHART below for the specific type. By the AC INLET SYSTEM, AC (mains) cord can be connected to and disconnected from the model because the model is provided with socket exclusively for AC (mains) cord on its main body. Please note, however, that certain models are not equipped with this system and has a built-in AC (mains) cord as before.

AC INLET SYSTEM CHART

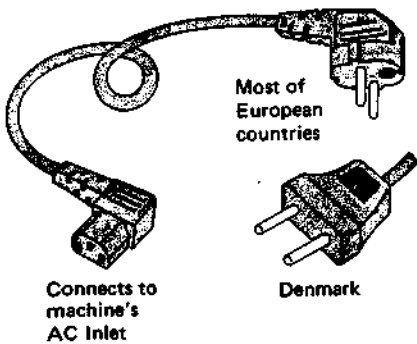
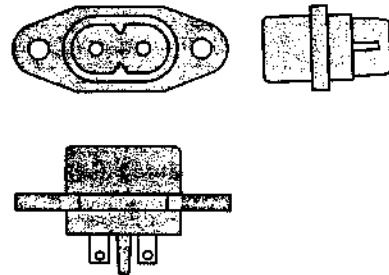
CLASS I



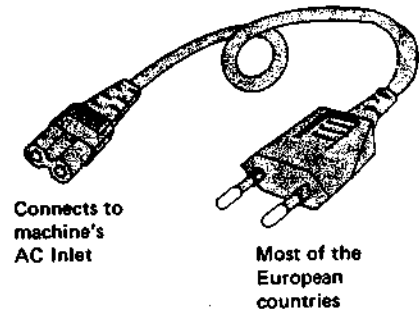
Picture 1
AC INLET
to be
installed
on machines

CLASS II

☐ This mark indicating double insulation will be attached to machine's rear panel



Picture 2
AC (mains)
cord



Parts List for AC (mains) Cord Set

| | Standard | Description | Type of AC Inlet | Part No. |
|----------|----------|-------------------------|------------------|----------|
| Class I | CEE | Cord Set CEE (3 cores) | 3P | EW32993 |
| | BEAB | Cord Set BEAB (3 cores) | 3P | EW32994 |
| | SAA | Cord Set SAA (3 cores) | 3P | EW32996 |
| | U/T | Cord Set U/T (3 cores) | 3P | EW32646 |
| Class II | CEE | Cord Set CEE (2 cores) | 2P | EW68144 |
| | BEAB | Cord Set BEAB (2 cores) | 2P | EW32995 |
| | SAA | Cord Set SAA (2 cores) | 2P | EW32991 |
| | U/T | Cord Set U/T (2 cores) | 2P | EW32899 |

RECOMMENDED SPARE PARTS LIST

Because, if the parts listed below are on hand, almost any repair can be accomplished, we suggest that you stock these Recommended Spare Parts Items.

| Parts No. | Description | Note |
|-----------|---|----------------------------|
| BA300377 | Multi Function P.C Board Comp. AB-3501A | U/T, CSA, AAL AA-1135 Only |
| BA303317 | Multi Function P.C Board Comp. AB-3501A | CEE, BEAB AA-1135 Only |
| BA300375 | Tone Control P.C Board Comp. AB-3501B | AA-1135 Only |
| BA300371 | Mute P.C Board Comp. AB-3501C | AA-1135 Only |
| BA300387 | Main Amp P.C Board (A) Comp. AB-3502A | U/T, CSA, AAL AA-1135 Only |
| BA304137 | Main Amp P.C Board (A) Comp. AB-3502A | CEE, BEAB AA-1135 Only |
| BA300732 | Multi Function P.C Board Comp. AB-5001A | U/T, CSA, AAL AA-1150 Only |
| BA303319 | Multi Function P.C Board Comp. AB-5001A | CEE, BEAB AA-1150 Only |
| BA301548 | Tone Control P.C Board Comp. AB-5001B | AA-1150 Only |
| BA300728 | Filter Mute P.C Board Comp. AB-5001C | AA-1150 Only |
| BA301654 | Main Amp P.C Board (A) Comp. AB-3502A | U/T, CSA, AAL AA-1150 Only |
| BA304138 | Main Amp P.C Board (A) Comp. AB-3502A | CEE, BEAB AA-1150 Only |
| BA300389 | Main Amp P.C Board (B) Comp. AB-3502B | |
| BT301177 | △ Power Trans. AA-1135T-70 | T901 U/T AA-1135 Only |
| BT301171 | △ Power Trans. AA-1135T-30 | T901 CSA |
| BT301172 | △ Power Trans. AA-1135T-20 | T901 AAL |
| BT301174 | △ Power Trans. AA-1135T-40 | T901 CEE |
| BT301175 | △ Power Trans. AA-1135T-50 | T901 BEAB |
| BT301239 | △ Power Trans. AA-1150T-70 | T901 U/T AA-1150 Only |
| BT301236 | △ Power Trans. AA-1150T-30 | T901 CSA |
| BT301234 | △ Power Trans. AA-1150T-20 | T901 AAL |
| BT301237 | △ Power Trans. AA-1150T-40 | T901 CEE |
| BT301238 | △ Power Trans. AA-1150T-50 | T901 BEAB |
| ED300924 | Silicon Diode GP08D | |
| ED245417 | Silicon Diode GP20G | AA-1135 Only |
| ED245428 | Silicon Diode GP30G | AA-1150 Only |
| ED300829 | Zener Diode RD13E (C) | |
| ED698826 | LED SR-105D | |
| EE301419 | Front End FB513U12 | AA-1135 Only |
| EE301242 | Front End FB621U19 | AA-1150 Only |
| EI697871 | IC LA3122S | |
| EI293185 | IC LA1240 | AA-1150 Only |
| EI299700 | IC HA1197 | AA-1135 Only |
| EI650586 | IC LA1230 | |
| EI293207 | IC LA3350A | |
| EM204344 | Signal Meter KL-243X-9 | M901 |
| EM300355 | Signal Meter KL-243X-26 (BL) | M901 (BL) Model Only |

| Parts No. | Description | Note |
|-----------|---|----------------------|
| EM204355 | Tuning Meter KL-243X-10 | M902 |
| EM300354 | Tuning Meter KL-243X-27 (BL) | M902 (BL) Model Only |
| EP300917 | Relay MU24D2X-0 (M) | RL1 |
| ES224436 | △ Push SW. JP01 | SW901 U/T |
| ES239218 | △ Push SW. JP01 (TV-4) | SW901 CSA, AAL |
| ES242346 | △ Push SW. JP17 | SW901 CEE, BEAB |
| ET557965 | Transistor 2SA733 (Q) (R) | |
| ET293218 | Transistor 2SA872 (D1) (D2) (D3) (E1) (E2) (E3) | |
| ET219868 | Transistor 2SB560 (E) (F) | |
| ET302713 | Transistor 2SB617 (Q) (R) | AA-1135 Only |
| ET302716 | Transistor 2SB618 (Q) (R) | AA-1150 Only |
| ET301165 | Transistor 2SB631K (E) (F) | AA-1150 Only |
| ET240660 | Transistor 2SB560 (E) (F) RED | AA-1135 Only |
| ET621235 | Transistor 2SC536 (E) (F) (G) | |
| ET618873 | Transistor 2SC930 (E) (F) | |
| ET635220 | Transistor 2SC945L (K) (P) | |
| ET635218 | Transistor 2SC945L (K) (P) (Q) (R) | |
| ET459810 | Transistor 2SC1222 (E) (F) | |
| ET300928 | Transistor 2SC1890 (E) (D) | |
| ET240636 | Transistor 2SC1940 (K) (L) (M) | |
| ET452531 | Transistor 2SD313 (E) (F) | |
| ET240671 | Transistor 2SD438 (E) (F) RED | AA-1135 Only |
| ET666404 | Transistor 2SD571 (K) (L) | |
| ET302714 | Transistor 2SD587 (Q) (R) | AA-1135 Only |
| ET302715 | Transistor 2SD588 (Q) (R) | AA-1150 Only |
| ET300931 | Transistor 2SD600K (E) (F) | AA-1150 Only |

[1] AA-1135/BL

1. MULTI FUNCTION P.C BOARD (AB-3501A) BLOCK

| Symbol No. | Parts No. | Description | Schematic Q'ty No. |
|------------|-----------|--|--------------------|
| 1-1 | BA300377 | Multi Function P.C Board Comp. AA-1135 | AB-3556 1 |
| 1-2 | BA303317 | Multi Function P.C Board Comp. AA-1135 (CEE) | AB-3556 1 |
| 1-IC1 | EI697871 | IC LA-3122S | 45-8-185 1 |
| 1-IC2 | EI299700 | IC HA1197 | 45-8-218 1 |
| 1-IC3 | EI650586 | IC LA-1230 | 45-8-152 1 |
| 1-IC4 | EI293207 | IC LA-3350A | 45-8-153 1 |
| 1-TR 1 | ET618873 | Transistor 2SC930 (E) (F) | 45-1-185 1 |
| 1-TR2to4 | ET635220 | Transistor 2SC945L (K) (P) | 45-1-85 3 |
| 1-D1to4 | ED624903 | Silicon Diode 1S2473 | 45-3-28 4 |
| 1-D5 | ED560913 | Silicon Diode 1S2473 VE | 45-3-23 1 |
| 1-L1 | E0539820 | Peaking Coil 2.2 μ F(K) | 23-1-187 1 |
| 1-L2 | E0650610 | Inductor 144LZ 18 μ H(J) | 23-1-240 1 |
| 1-L3,4 | E0650428 | Inductor 146LY 39 μ H(J) | 23-1-214 2 |
| 1-T1 | E0293387 | Osc Coil RWR-42282N | 23-4-41 1 |
| 1-T2 | BT650384 | AM-IF Trans. CFU-085-D 468 kHz | 23-1-214 1 |
| 1-T3 | BT293398 | AM-IF Trans. 10EZ RMC-42246BCH 468 kHz | 23-1-276 1 |
| 1-T4 | E0650608 | Discri Coil MV4-FLC-20000 | 23-1-243 1 |
| 1-FL1to3 | ER650430 | Ceramic Filter SFE-10.7 MA-8-Z | 53-1-102 3 |
| 1-VR 1 | EV550023 | Semi-fixed/Vol. V10K8-4-2 100 kB | 36-10-250 1 |
| 1-VR 2 | EV499364 | Semi-fixed/Vol. V10K8-4-2 5 kB | 36-10-250 1 |
| 1-VR 3 | EV484863 | Semi-fixed/Vol. V10K8-4-2 1 kB | 36-10-250 1 |
| 1-SW 1 | ES301188 | Rotary SW. SR26(PH-2)N 2-5-5 | 25-6-113 1 |
| 1-SW 2 | ES245733 | Rotary SW. SR26N 1-2-5 20 KC | 25-6-98 1 |
| 1-J1 | EJ698051 | DIN Jack | 31-1-158 1 |
| 1-J2to4 | EJ293365 | 4P Pin Jack | 31-1-197 3 |
| 1-C9 | EC493323 | Elect./C. (Vert. Type) 1 μ F 25WV NL | 24-20-4 2 |
| 1-C25 | EC523282 | Solid Aluminum/C. (Vert. Type) 0.1 μ F(M) 25WV | 24-19-2 1 |
| 1-C46 | EC666494 | Styrol/C. (Vert. Type) 1500PF(K) 50WV | 24-11-3 1 |
| 1-C47 | EC522167 | Solid Aluminum/C. (Vert. Type) 0.22 μ F(M) 25WV | 24-19-2 1 |
| 1-C48,49 | EC621257 | Solid Aluminum/C. (Vert. Type) 0.47 μ F(M) 25WV | 24-19-2 2 |

2. TONE CONTROL P.C BOARD (AB-3501B) BLOCK

| Symbol No. | Parts No. | Description | Schematic Q'ty No. |
|------------|-----------|---|--------------------|
| 2-1 | BA300375 | Tone Control P.C Board Comp. AA-1135 | AB-3560 1 |
| 2-TR1,2 | ET459810 | Transistor 2SC1222(E)(F) | 45-1-110 4 |
| 2-VR1 | EV301168 | Single axial 2 throw Vol. V16L4G1Z 250kx2 | 36-22-29 1 |
| 2-VR2 | EV301200 | Single axial 2 throw Vol. V24L5G3BM 250kx2 | 36-1-54 1 |
| 2-VR3,4 | EV242267 | Single axial 2 throw Vol. V16L4G3N 50kx2 | 36-22-19 2 |
| 2-SW1 | ES301169 | Push SW. J-P7164#01 | 25-5-294 1 |
| 2-C3 | EC523282 | Solid Aluminum/C. (Vert. Type) 0.1 μ F(M) 25WV | 24-19-2 2 |

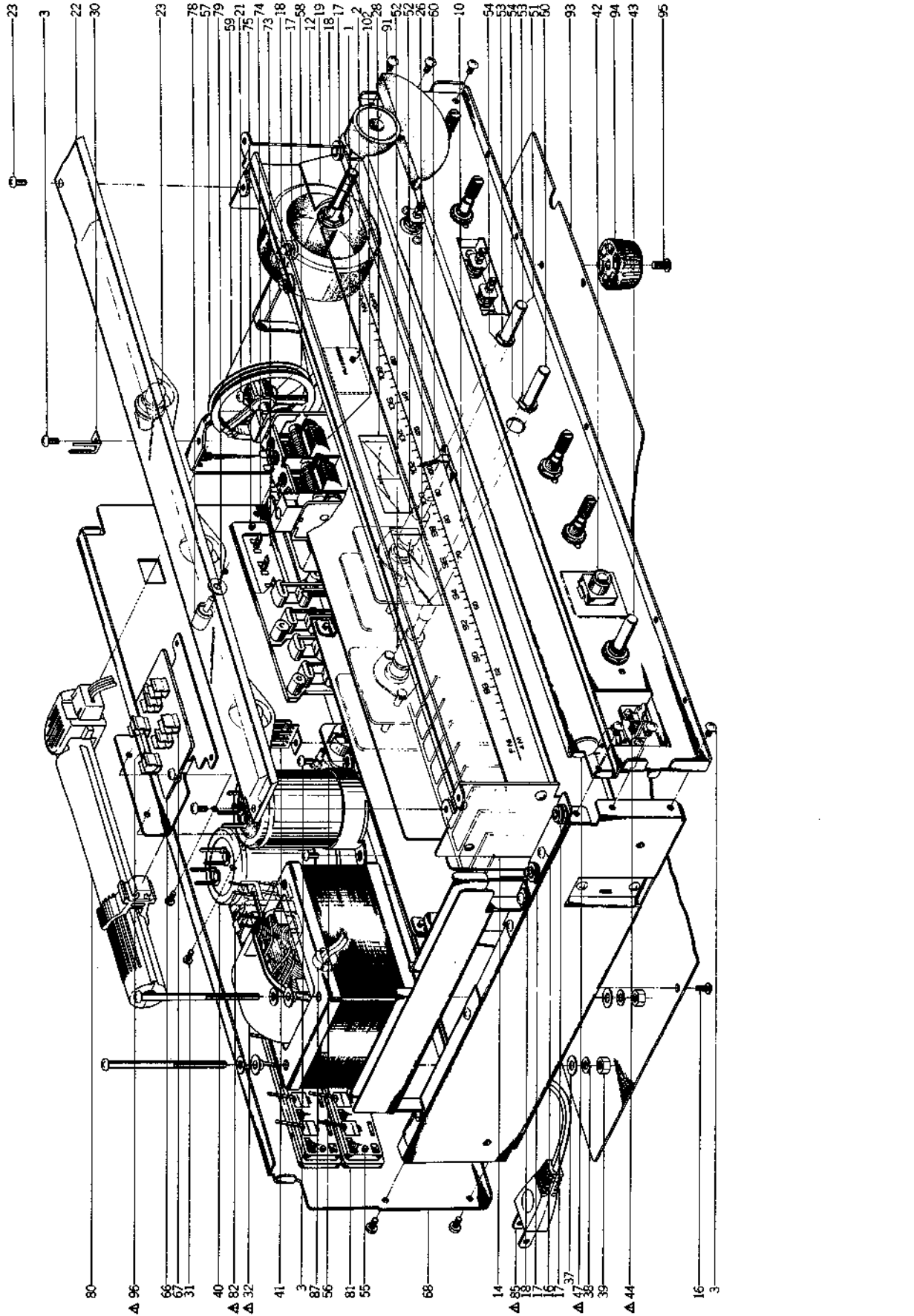
3. MUTE P.C BOARD (AB-3501C) BLOCK

| Symbol No. | Parts No. | Description | Schematic No. | Q'ty |
|------------|-----------|-------------------------------------|---------------|------|
| 3-1 | BA300371 | Mute P.C Board Comp. AA-1135 | AB-3558 | 1 |
| 3-TR1 | ET635218 | Transistor 2SC945L (K)(P)(Q)(R) | 45-1-85 | 1 |
| 3-VR1 | EV648527 | Semi-fixed/Vol. V10K8-4-2 200 kΩ | 36-10-250 | 1 |
| 3-SW1 | ES301180 | Push SW. J-P7104#04 | 25-5-262 | 1 |

4. MAIN AMP P.C BOARD (A)(AB-3502A)/ (B)(AB-3502B) BLOCK

| Symbol No. | Parts No. | Description | Schematic No. | Q'ty |
|------------|-----------|---|---------------|------|
| 4-1 | BA300387 | Main Amp P.C Board (A) Comp. AA-1135 | AB-3557 | 1 |
| 4-2 | BA304137 | Main Amp P.C Board (A) Comp. AA-1135 (CEE) | | 1 |
| 4-TR1,2 | ET293218 | Transistor 2SA872(D1,2,3) (E1,2,3) | 45-1-260 | 4 |
| 4-TR3 | ET240636 | Transistor 2SC1940(K)(L)(M) | 45-1-241 | 2 |
| 4-TR5 | ET240671 | Transistor 2SD438(E)(F) RED | 45-1-252 | 2 |
| 4-TR6 | ET240660 | Transistor 2SB560(E)(F) RED | 45-1-251 | 2 |
| 4-TR9 | ET300928 | Transistor 2SC1890(E)(D) | 45-1-279 | 2 |
| 4-TR10 | ET557965 | Transistor 2SA733(Q)(R) | 45-1-124 | 1 |
| 4-TR11to13 | ET621235 | Transistor 2SC536(E)(F)(G) | 45-1-55 | 3 |
| 4-TR14 | ET666404 | Transistor 2SD571(K)(L) | 45-1-218 | 1 |
| 4-TR16 | ET219868 | Transistor 2SB560(E)(F) | 45-1-232 | 1 |
| 4-TR17 | ET635218 | Transistor 2SC945L (K)(P)(Q)(R) | 45-1-85 | 1 |
| 4-D1to5 | ED214457 | Silicon Diode 1S2472 | 45-3-41 | 4 |
| 4-D6 | ED300829 | Zener Diode RD-13E(C) | 45-6-72 | 1 |
| 4-D7,8 | ED300924 | Silicon Diode GP08D | 45-2-68 | 2 |
| 4-D9to12 | ED245417 | Silicon Diode GP20G | 45-2-70 | 4 |
| 4-VR1 | EV300921 | Semi-fixed/Vol. V10K8-1-2 1 kΩ | 36-10-255 | 2 |
| 4-L1,2 | EO650823 | Phase Compensation Coil 2.2μH(F) | 23-1-239 | 2 |
| 4-RL1 | EP300917 | Relay MU24D2X-0(M) | 47-1-34 | 1 |
| 4-R14 | ER293580 | Carbon/R.(F) 1/4W 4.7 ohms(J) | 35-11-12 | 2 |
| 4-R15,16 | ER663614 | Carbon/R.(F) 1/4W 150 ohms(I) | 35-11-12 | 4 |
| 4-R17 | ER293580 | Carbon/R.(F) 1/4W 4.7 ohms(J) | 35-11-12 | 2 |
| 4-R18 | ER301762 | Cement/R. (Wire Wound Type) 3W 0.47 ohms(I) | 35-16-58 | 2 |
| 4-R19 | ER300925 | Cement/R. (Wire Wound Type) 3W 0.47 ohms(I) | 35-16-2 | 2 |
| 4-R24,25 | ER666224 | Carbon/R.(F) 1/2W 10 ohms(J) | 35-11-13 | 2 |
| 4-R31,32 | ER666224 | Carbon/R.(F) 1/2W 10 ohms(J) | 35-11-13 | 2 |
| 4-R41 | ER389687 | Metal Oxide Film/R. 1W 220 ohms(I) | 35-15-10 | 1 |
| 4-R45,46 | ER389687 | Metal Oxide Film/R. 1W 220 ohms(I) | 35-15-10 | 2 |
| 4-R55 | ER223525 | Carbon/R.(F) 1/4W 27 ohms(J) | 35-11-12 | 1 |
| 4-C1 | EC621257 | Solid Aluminum/C.(Vert. Type) 0.47μF(M) 25WV | 24-19-2 | 2 |
| 4-C16 | EC662128 | Solid Aluminum/C.(Vert. Type) 2.2μF(M) 25WV | 24-19-2 | 1 |
| 4-C27,28 | EC204671 | Ceramic/C. DD31-6 0.01μRP 500WV | 24-5-66 | 2 |
| 4-C30to33 | EC204671 | Ceramic/C. DD31-6 0.01μRP 500WV | 24-5-66 | 4 |
| 4-3 | BA300389 | Main Amp P.C Board (B) Comp. AA-1135 | AB-3557 | 1 |
| 4-TR4 | ET635218 | Transistor 2SC945L (K)(P)(Q)(R) | 45-1-85 | 2 |

5. ILLUSTRATION OF ASSEMBLY BLOCK

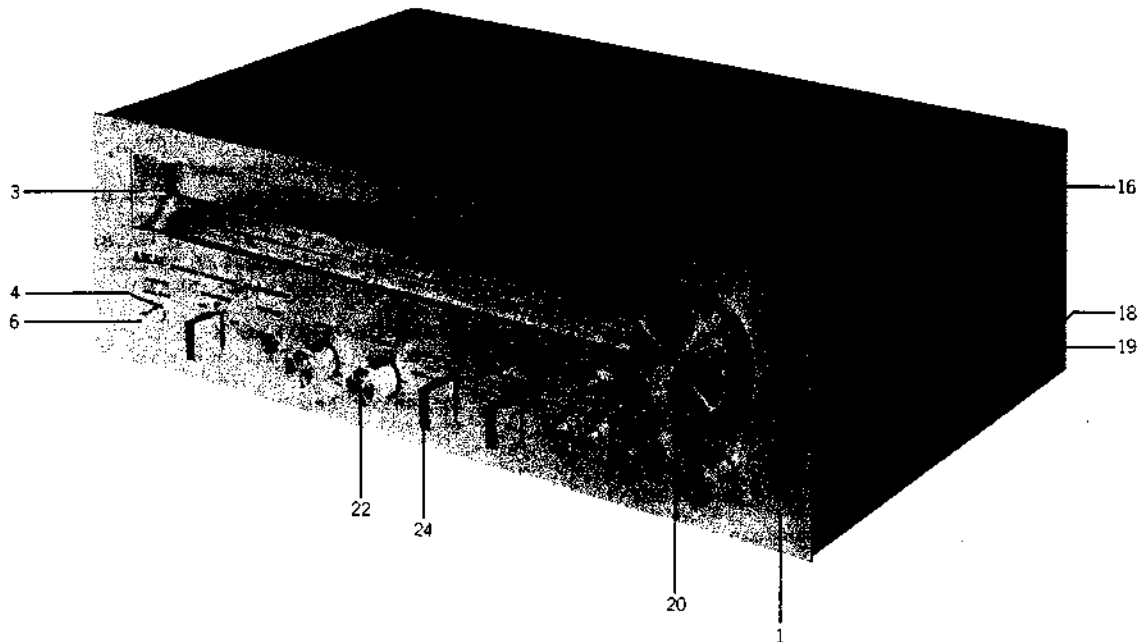


5) ASSEMBLY BLOCK

| Ref. No. | Parts No. | Description | Schematic Q'ty No. | Ref. No. | Parts No. | Description | Schematic Q'ty No. |
|---------------------------------|-----------|--|--------------------|-----------------------------|-----------|---|--------------------|
| LED P.C BOARD BLOCK | | | | | | | |
| 5-1 | BA300378 | LED P.C Board Comp. | | 5-57 | MI301149 | Dial Wheel AA-1135 | 2-15-17 1 |
| | | AA-1135 | AB-3559 1 | 5-58 | ZG300891 | Dial Wheel Spring | AB-3533 1 |
| 5-2 | ED698826 | LED SR-105D | 45-15-16 1 | 5-59 | TA207347 | Thread D0.5 2m | 1 |
| | | | | 5-60 | TA300414 | Pointer Part AA-1135 | AB-3534 1 |
| | | | | 5-61x | ZW288786 | Earth Lug M3 (BSP) 0.8t (CSA, AAL) | 1 |
| MAIN AMP P.C BOARD BLOCK | | | | | | | |
| 5-3 | ZS325495 | Tapping Screw #2, 3x6(BR) | 47 | 5-62x | ZS417150 | Screw, pan head 4x6 (CEE, BEAB) | 1 |
| 5-4x | ET302714 | Transistor 2SD587(Q)(R) | 45-1-274 2 | 5-63x | ZW273892 | Toothed Lock Washer (CEE, BEAB) | 1 |
| 5-5x | ET302713 | Transistor 2SB617(Q)(R) | 45-1-273 2 | 5-64x | ZW273881 | Earth Lug (CEE, BEAB) | 1 |
| 5-6x | ET452531 | Transistor 2SD313(E)(F) | 45-1-105 1 | 5-65x | ZW416698 | Nut M4 (CEE, BEAB) | 1 |
| 5-7x | ET452531 | Transistor 2SD313(E)(F) | 45-1-105 1 | FUSE P.C BOARD BLOCK | | | |
| 5-8x | ZW632226 | Insulator Washer, Bush M | 45-16-27 2 | 5-66 | BA300381 | Fuse P.C Board Comp. AA-1135 (only U/T) | AB-3561 1 |
| 5-9x | ZS421806 | Screw, pan head 3x8 | 10 | 5-67 | EJ514822 | Fuse Holder, P.C Board S-N5051 | 40-1-28 6 |
| SCALE PLATE BLOCK | | | | | | | |
| 5-10 | TA301023 | Scale Plate (A) | AB-3525/ 3526 1 | REAR PANEL BLOCK | | | |
| 5-11x | TA303289 | Scale Plate (C)(BL) | AB-3525/ 3526 1 | 5-68 | SP300952 | Rear Panel (1) | AB-3520 1 |
| 5-12 | TA300904 | Scale Holder (A) | AB-3512 1 | 5-69x | SP300953 | Rear Panel (2) (CSA) | AB-3520 1 |
| 5-13x | TA301650 | Scale Holder (A-BL) | AB-3512 1 | 5-70x | SP300954 | Rear Panel (3) (AAL) | AB-3521 1 |
| 5-14 | TA300905 | Scale Holder (B) | AB-3513 1 | 5-71x | SP300948 | Rear Panel (4) (CEE) | AB-3522 1 |
| 5-15x | TA301649 | Scale Holder (B-BL) | AB-3513 1 | 5-72x | SP300949 | Rear Panel (5) (BEAB) | AB-3522 1 |
| 5-16 | ZS447840 | Tapping Screw #2, 3x8(BR) | 8 | 5-73 | EJ293646 | 3P Antenna Terminal Plate | 32-1-78 1 |
| 5-17 | MR530662 | Roller B | 91-5009 6 | 5-74 | ML300879 | Earth Parts | AB-3517 1 |
| 5-18 | ZS530673 | Roller Screw A | 91-5010 6 | 5-75 | ZS355522 | Screw, pan head 3x6 | 4 |
| 5-19 | TA301772 | Tuning Wheel Part-G | 13-2-34 1 | 5-76x | ZW288786 | Earth Lug M3 (BSP) 0.8t | 1 |
| 5-20x | ZW259514 | Washer (Nylon) D3.1x8x1t | 7 | 5-77x | ZW562476 | Earth Lug M3 | 1 |
| 5-21 | ZS379350 | Screw, pan head 3x6 | 13 | 5-78 | SK652397 | Knob 0512-2 | 34-1-4 1 |
| 5-22 | SM300915 | Illumination Plate | AB-3524 1 | 5-79 | ZW652408 | Washer (SPC) D3.2x10x0.5t | 1 |
| 5-23 | EL301185 | Lamp 8V 300MA(400MMx2) | 28-2-60 1 | 5-80 | EE299621 | Bar Antenna | 55-1-49 1 |
| 5-24 | EL301191 | Lamp 8V 300MA(500MMx2) | 28-2-60 1 | 5-81 | EJ240581 | 4P Push Terminal | 32-1-72 2 |
| 5-25 | EL301204 | Lamp 8V 300MA(600MMx2) | 28-2-60 1 | 5-82 | EZ225145 | △ 2 throw AC Outlet | 31-1-166 1 |
| 5-26 | EM204344 | Signal Meter KL-243X-9 | 46-1-127 1 | 5-83x | EJ296853 | △ 3P Inlet CM-3 (CEE, BEAB) | 31-1-199 1 |
| 5-27x | EM300355 | Signal Meter KL-243X-26 (BL) | 46-1-165 1 | 5-84x | ZS463353 | Tapping Screw #2, 3x8 (BR) (CEE, BEAB) | 2 |
| 5-28 | EM204355 | Tuning Meter KL-243X-10 | 46-1-128 1 | 5-85 | EW374894 | △ AC Cord CUL 3M | 26-3-19 1 |
| 5-29x | EM300354 | Tuning Meter KL-243X-27 (BL) | 46-1-163 1 | 5-86x | EW207742 | △ AC Cord CUL (CSA, AAL) | 26-3-45 1 |
| ASSEMBLY BLOCK | | | | 5-87 | EZ631945 | Strain Relief SR-4N-4 | 2-7-49 1 |
| 5-30 | EJ539447 | Earth Terminal 2P, T4460 | 32-1-32 1 | 5-88x | EJ301197 | Fuse Holder AA-35L (CSA, AAL) | 40-1-150 1 |
| 5-31 | ZS447761 | Tapping Screw #2, 3x6(BR) (Black) | 8 | 5-89x | EJ303141 | Fuse Holder AA-35S1 (CEE) | 40-1-151 1 |
| 5-32 | BT301177 | △ Power Trans. AA-1135T-70 | 38-4-519 1 | 5-90x | EJ303140 | Fuse Holder AA-35S2 (BEAB) | 40-1-160 1 |
| 5-33x | BT301171 | △ Power Trans. AA-1135T-30 (CSA) | 38-4-539 1 | 5-91 | SE300910 | Nut Cover | AB-3518 1 |
| 5-34x | BT301172 | △ Power Trans. AA-1135T-20 (AAL) | 38-4-553 1 | 5-92x | SE301680 | Nut Cover (BL) | AB-3518 1 |
| 5-35x | BT301174 | △ Power Trans. AA-1135T-40 (CEE) | 38-4-517 1 | 5-93 | SP300914 | Bottom Plate | AB-3523 1 |
| 5-36x | BT301175 | △ Power Trans. AA-1135T-50 (BEAB) | 38-4-518 1 | 5-94 | SZ645243 | Circular Foot A CA | CA-6014 4 |
| 5-37 | ZW575774 | Washer (SPC) D4.5x9.8x0.7t | 4 | 5-95 | ZS565942 | Tapping Screw #2, 4x8 (pan) | 4 |
| 5-38 | ZW273914 | Spring Washer | 4 | 5-96 | EF575212 | △ Fuse 4A 250V | 39-1-50 1 |
| 5-39 | ZW273960 | Nut M4 | 4 | 5-97x | EF277402 | △ Fuse ST-2 1A (CSA, AAL) | 39-1-63 1 |
| 5-40 | EC301170 | Elect./C. 6800µF 50WV | 24-10-118 2 | 5-98x | EF378595 | △ Fuse ST-2 4A (CSA, AAL) | 39-1-63 1 |
| 5-41 | EJ551035 | Wrapping Terminal, 4P T-5251 | 32-1-36 1 | 5-99x | EF623103 | △ Fuse (SEMKO T Type) 1AT (CEE, BEAB) | 39-1-53 2 |
| 5-42 | EJ301199 | Headphone Jack 3P64M | 31-2-83 1 | 5-100x | EF668474 | △ Fuse (SEMKO T Type) 400MAT (CEE, BEAB) | 39-1-53 1 |
| 5-43 | ES301166 | Rotary SW. SR321N1-2-4 | 25-7-48 1 | 5-101x | EF690996 | △ Fuse (SEMKO T Type) 4AT (CEE, BEAB) | 39-1-53 2 |
| 5-44 | ES224436 | △ Push SW. JP01 | 25-5-221 1 | 5-102 | EE301419 | Front End FB513U12 | 57-2-44 1 |
| 5-45x | ES239218 | △ Push SW. JP01 (TV-4) (CSA) | 25-5-222 1 | | | | |
| 5-46x | ES242346 | △ Push SW. JP17 (CEE) | 25-5-224 1 | | | | |
| 5-47 | EC684720 | △ Ceramic/C. CLD16YE 0.01µF(P) 500WV | 24-5-61 1 | | | | |
| 5-48x | EC286198 | △ Ceramic/C. AL-10 0.01µF(Z) 125WV (CSA) | 24-5-69 1 | | | | |
| 5-49x | EC301320 | △ MP/C. PME271Y447 4700PF 250WV(CEE) | 24-9-118 2 | | | | |
| 5-50 | MS300898 | Relay Shaft (B) | AB-3538 1 | | | | |
| 5-51 | MS300899 | Relay Shaft (C) | AB-3538 1 | | | | |
| 5-52 | TA646773 | Joint | AA-5240 2 | | | | |
| 5-53 | ZW270123 | 'E' Ring 4M | 6-1-9 4 | | | | |
| 5-54 | ZW322110 | Washer (Nylon) D6.1x10.3x1.0t | 2 | | | | |
| 5-55 | ZS522865 | Tapping Screw #2, 3x12(BR) | 10 | | | | |
| 5-56 | ZW698308 | Nylon Rivet (FNPR) 3x5.5 (Black) 2-7-54 1 | 1 | | | | |

When ordering parts, please describe Parts Number, Description, and Model Number in detail.

6. PHOTO OF FINAL ASSEMBLY BLOCK



6) FINAL ASSEMBLY BLOCK

| Ref. No. | Parts No. | Description | Schematic Q'ty No. |
|-----------------------------|-----------|---------------------------------------|--------------------|
| FRONT PANEL BLOCK | | | |
| 6-1 | BD300383 | Front Panel Block Comp. AA-1135 | 1 |
| 6-2x | BD303296 | Front Panel Block Comp. AA-1135-BL | 1 |
| 6-3 | SP300938 | Front Plate | AB-3536 1 |
| 6-4 | SE286560 | Button Escutcheon (B) | AC-3538 2 |
| 6-5x | ZG286435 | Taper Spring | AC-3536 4 |
| 6-6 | SK301969 | Push Button Knob (B) | AC-3537 4 |
| 6-7x | SK301807 | Push Button Knob (D) (BL) | AC-3562 4 |
| FINAL ASSEMBLY BLOCK | | | |
| 6-8x | ZS447840 | Tapping Screw #2, 3x8 (BR) | 2 |
| 6-9x | ZS379350 | Screw, pan head 3x6 | 2 |
| 6-10x | ZW330412 | Adjust, Washer (U) D4x13x0.13t | 2 |
| 6-11x | ZW330423 | Adjust, Washer (U) D4x13x0.25t | 2 |
| 6-12x | ZW603797 | Adjust. Washer (U) D4x13x0.5t | 2 |
| 6-13x | ZW413190 | Adjust. Washer (U) D4x13x0.8t | 2 |
| 6-14x | ZW330456 | Adjust. Washer (U) D4x13x1t | 2 |
| 6-15x | ZW439547 | Adjust. Washer (U) D4x13x1.5t | 2 |
| 6-16 | BC300940 | Cabinet | AB-3529 1 |
| 6-17x | BC301651 | Cabinet BL | AB-3529 1 |
| 6-18 | ZW548010 | Spot Facing Washer | MU-6028 4 |
| 6-19 | ZS510344 | Screw, binding head 4x12 | 4 |
| 6-20 | SK300889 | Tuning Knob | AB-3530 1 |
| 6-21x | SK301682 | Tuning Knob (BL) | AB-3530 1 |
| 6-22 | SK646817 | Single Knob | AA-5250 4 |
| 6-23x | SK281564 | Single Knob (BL) | AA-5250 4 |
| 6-24 | SK646830 | Selector Knob | AA-5253 3 |
| 6-25x | SK281586 | Selector Knob (BL) | AA-5253 3 |

[2] AA-1150/BL

7. MULTI FUNCTION P.C BOARD (AB-5001A) BLOCK

| Symbol No. | Parts No. | Description | Schematic Q'ty No. |
|------------|-----------|--|--------------------|
| 7-1 | BA300732 | Multi Function P.C Board Comp. AA-1150 | AB-5007 1 |
| 7-2 | BA303319 | Multi Function P.C Board Comp. AA-1150 (CEE) | AB-5007 1 |
| 7-IC1 | EI697871 | IC LA-3122S | 45-8-185 1 |
| 7-IC2 | EI293185 | IC LA-1240 | 45-8-220 1 |
| 7-IC3 | EI650586 | IC LA-1230 | 45-8-152 1 |
| 7-IC4 | EI293207 | IC LA-3350A | 45-8-153 1 |
| 7-TR1 | ET618873 | Transistor 2SC930(E)(F) | 45-1-185 1 |
| 7-TR2to4 | ET635220 | Transistor 2SC945L(K)(P) | 45-1-85 3 |
| 7-D1 | ED560913 | Silicon Diode 1S2473 VE | 45-3-23 1 |
| 7-D2to6 | ED624903 | Silicon Diode 1S2473 | 45-3-28 5 |
| 7-T1 | BT444137 | Balun Trans. 75 ohms— 300 ohms | 23-1-129 1 |
| 7-T2 | EO293387 | Osc Coil RWR-42282N | 23-4-41 1 |
| 7-T3 | BT650384 | AM-IF Trans. CFU-085-D 468 kHz | 23-1-241 1 |
| 7-T4 | BT293398 | AM-IF Trans. 10EZ RMC- 42246BCH 468 kHz | 23-1-276 1 |
| 7-T5 | EO650608 | Discr Coil MV4-FLC-20000 | 23-1-243 1 |
| 7-L1 | EO539820 | Peaking Coil 2.2μH(K) | 23-1-187 1 |
| 7-L2 | EO650610 | Inductor 144LZ 18μH(J) | 23-1-240 1 |
| 7-FL1to3 | ER650430 | Ceramic Filter SFE-10.7 MA-8-Z | 53-1-102 3 |
| 7-FL4 | ER656908 | Block Filter FB3201 | 53-1-103 1 |
| 7-VR1 | EV550023 | Semi-fixed/Vol. V10K8-4-2 100 kΩ | 36-10-250 1 |
| 7-VR2 | EV499364 | Semi-fixed/Vol. V10K8-4-2 5 kΩ | 36-10-250 1 |
| 7-VR3 | EV484863 | Semi-fixed/Vol. V10K8-4-2 1 kΩ | 36-10-250 1 |
| 7-SW1 | ES301188 | Rotary SW. SR26(PH-2)N 2-5-5 | 25-6-113 1 |
| 7-SW2 | ES245733 | Rotary SW. SR26N 1-2-5 20 kΩ | 25-6-98 1 |
| 7-J1 | EJ698051 | Din Jack | 31-1-158 1 |
| 7-J2to4 | EJ293365 | 4P Pin Jack | 31-1-197 3 |
| 7-C12 | EC650406 | Styrol/C. (Vert. Type) 310PF(J) 50WV | 24-11-3 1 |
| 7-C25 | EC523282 | Solid Aluminum/C. (Vert. Type) 0.1μF(M) 25WV | 24-19-2 1 |
| 7-C41 | EC523282 | Solid Aluminum/C. (Vert. Type) 0.1μF(M) 25WV | 24-19-2 1 |
| 7-C46 | EC666494 | Styrol/C. (Vert. Type) 1500PF(K) 50WV | 24-11-3 1 |
| 7-C48 | EC522167 | Solid Aluminum/C. (Vert. Type) 0.22μF(M) 25WV | 24-19-2 1 |
| 7-C49,50 | EC621257 | Solid Aluminum/C. (Vert. Type) 0.47μF(M) 25WV | 24-19-2 2 |

8. TONE CONTROL P.C BOARD (AB-5001B) BLOCK

| Symbol No. | Parts No. | Description | Schematic Q'ty No. |
|------------|-----------|---|--------------------|
| 8-1 | BA301548 | Tone Control P.C Board Comp. AA-1150 | AB-5012 1 |
| 8-TR1,2 | ET459810 | Transistor 2SC1222(E)(F) | 45-1-110 4 |
| 8-VR1 | EV301168 | Single axial 2 throw Vol. V16L4G1Z 250kx2 | 36-22-29 1 |
| 8-VR2 | EV301200 | Single axial 2 throw Vol. V24L5G3BM 250kx2 | 36-1-54 1 |
| 8-VR3,4 | EV301294 | Double axial 2 throw Vol. V16L4DG 15C 50kx2 | 36-18-6 2 |
| 8-SW1 | ES301169 | Push SW. J-P7164#01 | 25-5-264 1 |
| 8-C3 | EC523282 | Solid Aluminum/C. (Vert. Type) 0.1μF(M) 25WV | 24-19-2 2 |
| 8-C9 | EC301214 | Aluminum/C. (Vert. Type) 0.15μF(K) 16WV | 24-19-2 2 |

9. FILTER MUTE P.C BOARD (AB-5001C) BLOCK

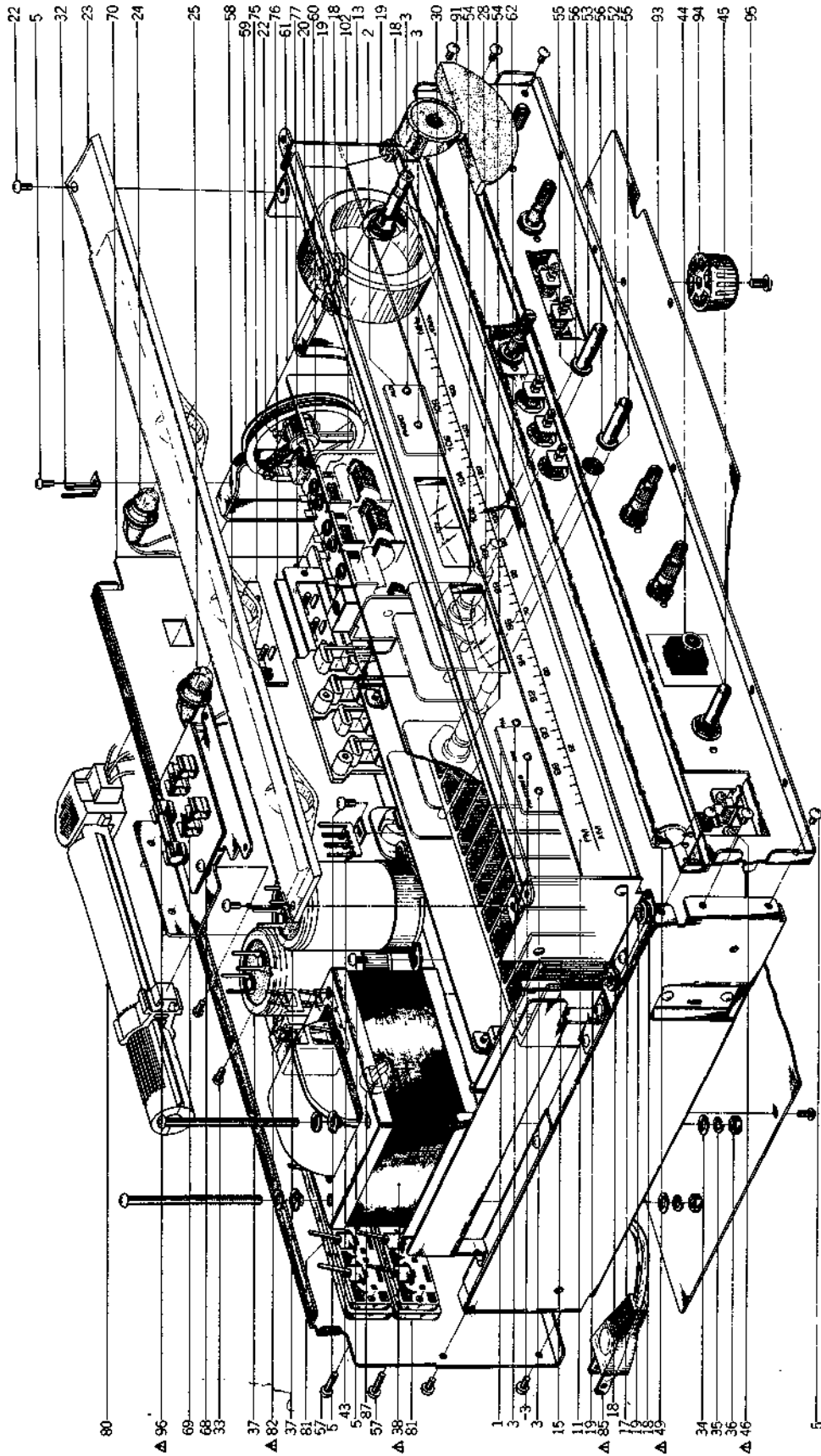
| Symbol No. | Parts No. | Description | Schematic Q'ty No. |
|------------|-----------|--|--------------------|
| 9-1 | BA300728 | Filter Mute P.C Board Comp. AA-1150 | AB-5009 1 |
| 9-TR1,2 | ET635220 | Transistor 2SC945L(K)(P) | 45-1-85 2 |
| 9-SW1 | ES301299 | Push SW. | 25-5-263 1 |
| 9-VR1 | EV301233 | Vol. V16L4 100 kΩ | 36-6-27 1 |

10. MAIN AMP P.C BOARD (A)(AB-3502A)/ (B)(AB-3502B) BLOCK

| Symbol No. | Parts No. | Description | Schematic Q'ty No. |
|-------------|-----------|--|--------------------|
| 10-1 | BA301654 | Main Amp P.C Board (A) Comp. AA-1150 | AB-3557 1 |
| 10-2 | BA304138 | Main Amp P.C Board (A) Comp. AA-1150 (CEE) | AB-3557 1 |
| 10-TR1,2 | ET293218 | Transistor 2SA872(D1,2,3) (E1,2,3) | 45-1-260 4 |
| 10-TR3 | ET240636 | Transistor 2SC1940(K)(L)(M) | 45-1-241 2 |
| 10-TR5 | ET300931 | Transistor 2SD600K(E)(F) | 45-1-276 2 |
| 10-TR6 | ET301165 | Transistor 2SB631K(E)(F) | 45-1-277 2 |
| 10-TR9 | ET300928 | Transistor 2SC1890(E)(D) | 45-1-279 2 |
| 10-TR10 | ET557965 | Transistor 2SA733(Q)(R) | 45-1-124 1 |
| 10-TR11to13 | ET621235 | Transistor 2SC536(E)(F)(G) | 45-1-55 3 |
| 10-TR14 | ET666404 | Transistor 2SD571(K)(L) | 45-1-218 1 |
| 10-TR16 | ET219868 | Transistor 2SB560(E)(F) | 45-1-232 1 |
| 10-TR17 | ET635218 | Transistor 2SC945L(K)(P) (Q)(R) | 45-1-85 1 |
| 10-TR19 | ET557965 | Transistor 2SA733(Q)(R) | 45-1-124 2 |
| 10-D1to5 | ED214457 | Silicon Diode 1S2472 | 45-3-41 7 |
| 10-D6 | ED300829 | Zener Diode RD-13E(C) | 45-6-72 1 |
| 10-D7,8 | ED300924 | Silicon Diode GP08D | 45-2-68 2 |
| 10-D9to12 | ED245428 | Silicon Diode GP30G | 45-2-69 4 |
| 10-VR1 | EV300921 | Semi-fixed/Vol. V10K8-1-2 1 kΩ | 36-10-255 2 |
| 10-L1,2 | EO650823 | Phase Compensation Coil 2.2μH(K) | 23-1-239 2 |
| 10-RL1 | EP300917 | Relay MU24D2X-O(M) | 47-1-34 1 |
| 10-R14 | ER293580 | Carbon/R. (F) 1/4W 4.7 ohms(J) | 35-11-12 2 |
| 10-R15,16 | ER663614 | Carbon/R. (F) 1/4W 150 ohms(J) | 35-11-12 4 |
| 10-R17 | ER293580 | Carbon/R. (F) 1/4W 4.7 ohms(J) | 35-11-12 2 |
| 10-R18,19 | ER653567 | Cement/R. (Wire-wound Typ) SW 0.47 ohms(K) | 35-16-3 4 |
| 10-R24,25 | ER666224 | Carbon/R. (F) 1/2W 10 ohms(J) | 35-11-13 2 |
| 10-R31,32 | ER666224 | Carbon/R. (F) 1/2W 10 ohms(J) | 35-11-13 2 |
| 10-R41 | ER389687 | Metal Oxide Film/R. 1W 220 ohms(K) | 35-15-10 1 |
| 10-R45,46 | ER409814 | Metal Oxide Film/R. 2W 220 ohms(K) | 35-15-8 2 |
| 10-C1 | EC621257 | Solid Aluminum/C. (Vert. Type) 0.47μF(M) 25WV | 24-19-2 2 |
| 10-C16 | EC662128 | Solid Aluminum/C. (Vert. Type) 2.2μF(M) 25WV | 24-19-2 1 |
| 10-C27,28 | EC204671 | Ceramic/C. DD31-6 0.01μF(f) 500WV | 24-5-66 2 |
| 10-C30to33 | EC204671 | Ceramic/C. DD31-6 0.01μF(f) 500WV | 24-5-66 4 |
| 10-3 | BA300389 | Main Amp P.C Board (B) Comp. AA-1153 | AB-3557 1 |
| 10-R13 | ER245395 | Carbon/R. (F) 1/4W 820 ohms(J) | 35-11-12 2 |
| 10-TR4 | ET635218 | Transistor 2SC945L(K)(P) (Q)(R) | 45-1-85 2 |

When ordering parts, please describe Parts Number, Description, and Model Number in detail.

11. ILLUSTRATION OF ASSEMBLY BLOCK

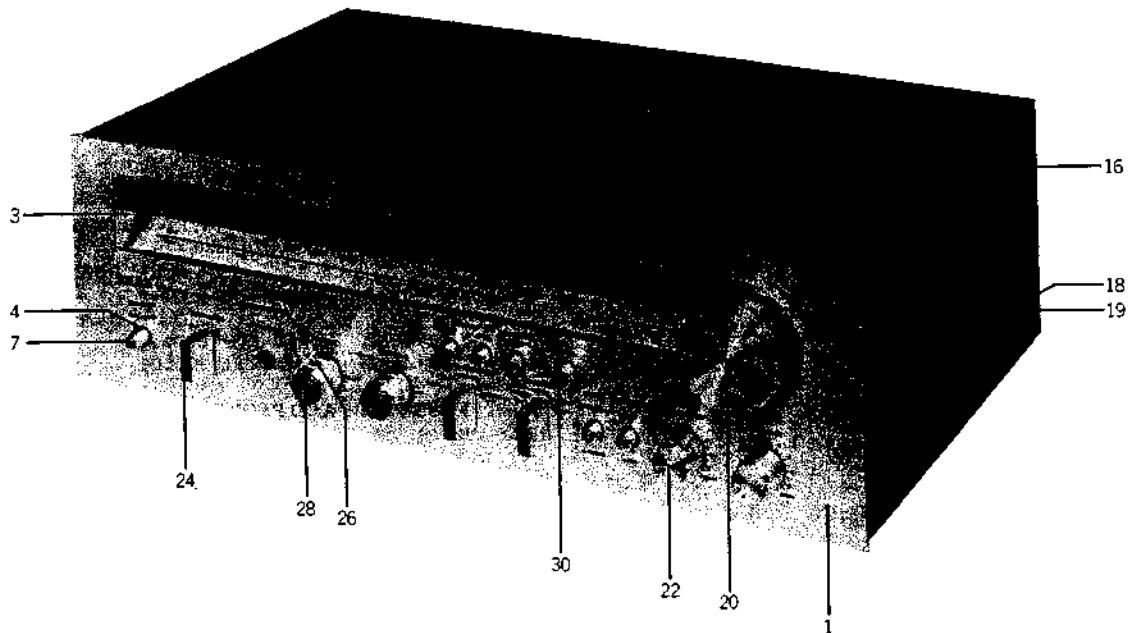


11) ASSEMBLY BLOCK

| Ref. No. | Parts No. | Description | Schematic Q'ty No. | Ref. No. | Parts No. | Description | Schematic Q'ty No. |
|----------------------------|-----------|---|--------------------|-----------------------------|-----------|---|--------------------|
| LED P.C BOARD BLOCK | | | | 11-56 | ZW270123 | 'E' Ring 4M | 6-1-9 4 |
| 11-1 | BA300729 | LED P.C Board Comp. AA-1150(A) | AB-5010 1 | 11-57 | ZS522865 | Tapping Screw #2, 3x12(BR) | 10 |
| 11-2 | BA300730 | LED P.C Board Comp. AA-1150(B) | AB-5011 1 | 11-58 | ZW698308 | Nylon Rivet (FNPR) 3x5.5 (Black) | 2-7-54 3 |
| 11-3 | ED698826 | LED SR-105D | 45-15-16 5 | 11-59 | MI301149 | Dial Wheel AA-1135 | 2-15-17 1 |
| 11-4x | ZW632226 | Insulator Washer, Bush M | 45-16-27 5 | 11-60 | ZG300891 | Dial Wheel Spring | AB-3533 1 |
| MAIN AMP BLOCK | | | | 11-61 | TA207347 | Thread D0.5 2m | 1 |
| 11-5 | ZS325495 | Tapping Screw #2, 3x6(BR) | 55 | 11-62 | TA300414 | Pointer Part AA-1135 | AB-3534 1 |
| 11-6x | ET302715 | Transistor 2SD588(Q)(R) | 45-1-276 2 | 11-63x | ZW288786 | Earth Lug M3, (BSP) 0.8t (CSA, AAL) | 1 |
| 11-7x | ET302716 | Transistor 2SB618(Q)(R) | 45-1-275 2 | 11-64x | ZS417150 | Screw, pan head 4x6 (CEE, BEAB) | 1 |
| 11-8x | ET452531 | Transistor 2SD313(E)(F) | 45-1-105 2 | 11-65x | ZW273892 | Toothed Lock Washer (CEE, BEAB) | 1 |
| 11-9x | ZW632226 | Insulator Washer, Bush M | 45-16-27 2 | 11-66x | ZW273881 | Earth Lug (CEE, BEAB) | 1 |
| 11-10x | ZS421806 | Screw, pan head 3x8 | 10 | 11-67x | ZW416698 | Nut M4 (CEE, BEAB) | 1 |
| SCALE PLATE BLOCK | | | | FUSE P.C BOARD BLOCK | | | |
| 11-11 | TA301024 | Scale Plate (B) | AB-3526/ 3526 1 | 11-68 | BA301554 | Fuse P.C Board Comp. AA-1150 (U/T) | AB-5013 1 |
| 11-12x | TA303290 | Scale Plate (D) (BL) | AB-3526/ 3526 1 | 11-69 | EJ514822 | Fuse Holder, P.C Board S-N5051 | 40-1-28 6 |
| 11-13 | TA300904 | Scale Holder (A) | AB-3512 1 | REAR PANEL BLOCK | | | |
| 11-14x | TA301650 | Scale Holder (A-BL) | AB-3512 1 | 11-70 | SP300955 | Rear Panel (6) | AB-5002 1 |
| 11-15 | TA300905 | Scale Holder (B) | AB-3513 1 | 11-71x | SP300956 | Rear Panel (7) (CSA) | AB-5002 1 |
| 11-16x | TA301649 | Scale Holder (B-BL) | AB-3513 1 | 11-72x | SP300957 | Rear Panel (8) (AAL) | AB-5003 1 |
| 11-17 | ZS447840 | Tapping Screw #2, 3x8 (BR) | 6 | 11-73x | SP300950 | Rear Panel (9) (CEE) | AB-5003 1 |
| 11-18 | MR530662 | Roller B | 91-5009 6 | 11-74x | SP300951 | Rear Panel (10) (BEAB) | AB-5004 1 |
| 11-19 | ZS530673 | Roller Screw A | 91-5010 6 | 11-75 | EJ293646 | 3P Antenna Terminal Plate | 32-1-78 1 |
| 11-20 | TA301772 | Tuning Wheel Part-G | 13-2-34 1 | 11-76 | EJ302685 | 2P Antenna Terminal Plate | 32-1-82 1 |
| 11-21x | ZW259514 | Washer (Nylon) D3.1x8x1t | 2 | 11-77 | ML300879 | Earth Parts | AB-3517 1 |
| 11-22 | ZS379350 | Screw, panhead 3x6 | 14 | 11-78x | ZS355522 | Screw, pan head 3x6 | 4 |
| 11-23 | SM300915 | Illumination Plate | AB-3524 1 | 11-79x | ZW562476 | Earth Lug M3 | 1 |
| 11-24 | EL301185 | Lamp 8V 300MA(400MMx2) | 28-2-60 1 | 11-80 | EE299621 | Bar Antenna | 55-1-49 1 |
| 11-25 | EL301191 | Lamp 8V 300MA(500MMx2) | 28-2-60 1 | 11-81 | EJ240581 | 4P Push Terminal | 32-1-72 2 |
| 11-26x | EL301204 | Lamp 8V 300MA(600MMx2) | 28-2-60 1 | 11-82 | EZ225145 | △ 2 throw AC Outlet (U/T, CSA, AAL) | 31-1-166 1 |
| 11-27x | ZW259514 | Washer (Nylon) D3.1x8x1t | 4 | 11-83x | EJ296853 | △ 3P Inlet CM-3 (CEE, BEAB) | 31-1-199 1 |
| 11-28 | EM204344 | Signal Meter KL-243X-9 | 46-1-127 1 | 11-84x | ZS463353 | Tapping Screw #2, 3x8 (BR) (CEE, BEAB) | 2 |
| 11-29x | EM300355 | Signal Meter KL-243X-26 (BL) | 46-1-165 1 | 11-85 | EW374894 | △ AC Cord CUL 3M | 26-3-19 1 |
| 11-30 | EM204355 | Tuning Meter KL-243X-10 | 46-1-128 1 | 11-86 | EW207742 | △ AC Cord CUL (CSA, AAL) | 26-3-45 1 |
| 11-31x | EM300354 | Tuning Meter KL-243X-27 (BL) | 46-1-163 1 | 11-87 | EZ631945 | Strain Relief SR-4N-4 | 2-7-49 1 |
| ASSEMBLY BLOCK | | | | 11-88x | EJ301150 | Fuse Holder AA-50L (CSA, AAL) | 40-1-152 1 |
| 11-32 | EJ539447 | Earth Terminal 2P, T4460 | 32-1-32 1 | 11-89x | EJ303142 | Fuse Holder AA-50S1 (CEE) | 40-1-153 1 |
| 11-33 | ZS447761 | Tapping Screw #2, 3x6 (BR) (Black) | 14 | 11-90x | EJ303143 | Fuse Holder AA-50S2 (BEAB) | 40-1-159 1 |
| 11-34 | ZW575774 | Washer (SPC) D4.5x9.8x0.7t | 4 | 11-91 | SE300910 | Nut Cover | AB-3518 1 |
| 11-35 | ZW273914 | Spring Washer | 4 | 11-92x | SE301680 | Nut Cover (BL) | AB-3518 1 |
| 11-36 | ZW273960 | Nut M4 | 4 | 11-93 | SP300914 | Bottom Plate | AB-3523 1 |
| 11-37 | EC301298 | Elect./C. 10,000µF 50WV | 24-10-119 2 | 11-94 | SZ645243 | Circular Foot A CA | CA-6014 4 |
| 11-38 | BT301239 | △ Power Trans. AA-1150T-70 | 38-4-524 1 | 11-95 | ZS65942 | Tapping Screw #2, 4x8 (Pan) | 4 |
| 11-39x | BT301236 | △ Power Trans. AA-1150T-30 (CSA) | 38-4-521 1 | 11-96 | EF575223 | △ Fuse 5A 250V | 39-1-50 1 |
| 11-40x | BT301234 | △ Power Trans. AA-1150T-20 (AAL) | 38-4-520 1 | 11-97x | EF277402 | △ Fuse ST-2 1A (CSA, AAL) | 39-1-63 2 |
| 11-41x | BT301237 | △ Power Trans. AA-1150T-40 (CEE) | 38-4-522 1 | 11-98x | EF459843 | △ Fuse ST-2 5A (CSA, AAL) | 39-1-63 1 |
| 11-42x | BT301238 | △ Power Trans. AA-1150T-50 (BEAB) | 38-4-523 1 | 11-99x | EF623103 | △ Fuse (SEMKO T Type) 1AT | 39-1-53 2 |
| 11-43 | EJ551035 | Wrapping Terminal, 4P T-5251 | 32-1-36 1 | 11-100x | EF668474 | △ Fuse (SEMKO T Type) 400MAT (CEE, BEAB) | 39-1-53 1 |
| 11-44 | EJ301199 | Headphone Jack 3P64M | 31-2-43 1 | 11-101x | EF249851 | △ Fuse (SEMKO T Type) 5AT (CEE, BEAB) | 39-1-53 2 |
| 11-45 | ES301166 | Rotary SW. SR321N1-2-4 | 25-7-48 1 | 11-102 | EE301242 | Front End FB621U19 | 57-2-45 1 |
| 11-46 | ES224436 | △ Push SW. JP01 | 25-5-221 1 | | | | |
| 11-47x | ES239218 | △ Push SW. JP01 (TV-4)(CSA) | 25-5-222 1 | | | | |
| 11-48x | ES242346 | △ Push SW. JP17 (CEE) | 25-5-224 1 | | | | |
| 11-49 | EC684720 | △ Ceramic/C. CLD16YE 0.01µF(P) 500WV | 24-5-61 1 | | | | |
| 11-50x | EC286198 | △ Ceramic/C. AL-10 0.01µF(Z) 125WV (CSA) | 24-5-69 1 | | | | |
| 11-51x | EC301320 | △ MP/C. PME271Y447 4700PF 250WV (CEE) | 24-9-118 2 | | | | |
| 11-52 | MS300898 | Relay Shaft (B) | AB-3538 1 | | | | |
| 11-53 | MS300899 | Relay Shaft (C) | AB-3538 1 | | | | |
| 11-54 | TA646773 | Joint | AA-5240 2 | | | | |
| 11-55 | ZW322110 | Washer (Nylon) D6.1x10.3x1.0t | 2 | | | | |

When ordering parts, please describe Parts Number, Description, and Model Number in detail.

12. PHOTO OF FINAL ASSEMBLY BLOCK



12) FINAL ASSEMBLY BLOCK

| Ref. No. | Parts No. | Description | Schematic Q'ty No. | Symbol No. | Parts No. | Description | Schematic Q'ty No. |
|-----------------------------|-----------|----------------------------|--------------------|------------|-----------|-------------|--------------------|
| FRONT PANEL BLOCK | | | | | | | |
| 12-1 | BD301551 | Front Panel Block Comp. | | | | | |
| | | AA-1150 | AB-3545 | 1 | | | |
| 12-2x | BD303315 | Front Panel Block Comp. | | | | | |
| | | AA-1150-BL | AB-3545 | 1 | | | |
| 12-3 | SP300938 | Front Plate | AB-3536 | 1 | | | |
| 12-4 | SE286560 | Button Escutcheon (B) | AC-3538 | 3 | | | |
| 12-5x | SK301807 | Push Button Knob (D) (BL) | AC-3562 | 6 | | | |
| 12-6x | ZG286435 | Taper Spring | AC-3536 | 6 | | | |
| 12-7 | SK301969 | Push Button Knob (B) | AC-3537 | 6 | | | |
| FINAL ASSEMBLY BLOCK | | | | | | | |
| 12-8x | ZS447840 | Tapping Screw #2, 3x8 (BR) | | 4 | | | |
| 12-9x | ZS379350 | Screw, pan head 3x6 | | 2 | | | |
| 12-10x | ZW330412 | Adjust. Washer (U) | | | | | |
| | | D4x13x0.13t | | 2 | | | |
| 12-11x | ZW330423 | Adjust. Washer (U) | | | | | |
| | | D4x13x0.25t | | 2 | | | |
| 12-12x | ZW603797 | Adjust. Washer (U) | | | | | |
| | | D4x13x0.5t | | 2 | | | |
| 12-13x | ZW413190 | Adjust. Washer (U) | | | | | |
| | | D4x13x0.8t | | 2 | | | |
| 12-14x | ZW330456 | Adjust. Washer (U) | | | | | |
| | | D4x13x1t | | 2 | | | |
| 12-15x | ZW439547 | Adjust. Washer (U) | | | | | |
| | | D4x13x1.5t | | 2 | | | |
| 12-16 | BC300940 | Cabinet | AB-3529 | 1 | | | |
| 12-17x | BC301651 | Cabinet (BL) | AB-3529 | 1 | | | |
| 12-18 | ZW548010 | Spot Facing Washer | MU-6028 | 4 | | | |
| 12-19 | ZS510344 | Screw, binding head 4x12 | | 4 | | | |
| 12-20 | SK300889 | Tuning Knob | AB-3530 | 1 | | | |
| 12-21x | SK301682 | Tuning Knob (BL) | AB-3530 | 1 | | | |
| 12-22 | SK646817 | Single Knob | AA-5250 | 4 | | | |
| 12-23x | SK281564 | Single Knob (BL) | AA-5250 | 4 | | | |
| 12-24 | SK646830 | Selector Knob | AA-5253 | 3 | | | |
| 12-25x | SK281586 | Selector Knob (BL) | AA-5253 | 3 | | | |
| 12-26 | SK300901 | Double Knob (Lower) | AB-3537 | 2 | | | |
| 12-27x | SK301681 | Double Knob Lower (BL) | AB-3537 | 2 | | | |

When ordering parts, please describe Parts Number, Description, and Model Number in detail.

LIST OF INTERCHANGEABLE SEMICONDUCTORS

As far as service is concerned, in case the original parts cannot be obtained, the interchangeable parts listed below can be substituted.

| Original Parts | | | Interchangeable Parts | |
|----------------------------|-----------|----------------------------|-------------------------------------|----------------------|
| Description | Parts No. | Utilizing P.C Board | Description | Parts No. |
| 2SA733(P)(Q)(R) | ET539122 | AB-3501A | 2SA564(Q)(R) | ET538154 |
| 2SA733(Q)(R) | ET557965 | AB-5001A AB-3502A | 2SA628(D)(E)(F)(G) | ET539144 |
| 2SA872(E1)(E2) (F1)(F2) | ET300929 | AB-3502A | 2SA640-1(E)(F)(G)(H) | ET204221 |
| 2SB560(E)(F) | ET240660 | AB-3502A | 2SA815(O)(Y) | ET649078 |
| 2SB617(Q)(R) | ET302713 | AB-3502B | | |
| 2SB618(Q)(R) | ET302716 | AB-3502B | | |
| 2SB631K(E)(F) | ET301165 | AB-3502A (only AA-1150) | 2SA814(O)(Y) | ET623057 |
| 2SC536(E)(F)(G) | ET621235 | AB-3502A | 2SC711(E)(F)(G)(H) 2SC945L(K)(P) | ET619727 ET635220 |
| 2SC930(E)(F) | ET618873 | AB-3501A AB-5001A | 2SC454(B)(C) 2SC372(Y) | ET591316 ET234808 |
| 2SC945L(K)(P)(Q)(R) | ET635218 | AB-3502B | 2SC536(F)(G)(H) | ET631215 |
| 2SC945L(Q)(R) | ET635220 | AB-3501A/C AB-5001A/C | 2SC711(F)(G)(H) 2SC1647(R)(S) | ET621268 ET651181 |
| 2SC1222(E)(F) | ET459810 | AB-3501B AB-5001B | 2SC1000(BL)(GR) 2SC1313(G)(H) | ET621181 ET604124 |
| 2SC1890(E)(D) | ET300928 | AB-3502A | 2SC1628(O)(Y) | ET623035 |
| 2SC1940(K)(L)(M) | ET240636 | AB-3502A | | |
| 2SD313(E)(F) | ET452531 | AB-3502A | 2SC1061(A)(B)(C) 2SD571(L)(M) | ET371880 ET651356 |
| 2SD438(E)(F) | ET240671 | AB-3502A (only AA-1135) | 2SC1625(O)(Y) | ET640667 |
| 2SD571(K)(L) | ET666404 | AB-3502A | 2SC1384(Q)(R)(S) 2SD438(E)(F) | ET623801 ET240671 |
| 2SD587(Q)(R) | ET302714 | AB-3502B | | |
| 2SD588(Q)(R) | ET302715 | AB-3502B | | |
| 2SD600K(E)(F) | ET300931 | AB-3502A (only AA-1150) | 2SC1624(O)(Y) | ET621046 |
| 1S2472 | ED214457 | AB-3502A | | |
| 1S2473 | ED624903 | AB-3501A AB-5001A | 1S1588 WG599 | ED591447 ED511721 |
| GP08D | ED300924 | AB-3502A | 10D2 1N4003 | ED22548 ED57295 |

| Original Parts | | | Interchangeable Parts | |
|----------------|-----------|----------------------------|---------------------------|----------------------|
| Description | Parts No. | Utilizing P.C Board | Description | Parts No. |
| GP20G | ED245417 | AB-3502A (only AA-1135) | HIFI SPECIAL SR3AM-1-B | ED558033 ED523642 |
| GP30G | ED245428 | AB-3502A (only AA-1150) | HIFI SPECIAL SR3AM-1-B | ED558033 ED523642 |
| RD13E(B) | ED223558 | AB-3502A | WZ-130 | ED539976 |
| SR105D | ED293523 | AB-3501D AB-5001D/E | | |

INDEX

| Parts No. | Ref. No. & Symbol No. | Parts No. | Ref. No. & Symbol No. | Parts No. | Ref. No. & Symbol No. | Parts No. | Ref. No. & Symbol No. | Parts No. | Ref. No. & Symbol No. |
|-----------|-----------------------|-----------|-----------------------|-----------|-----------------------|-----------|-----------------------|-----------|-----------------------|
| BA300371 | 3-1 | ED560913 | 1-D5 | EP300917 | 4-RL1 | EV300921 | 10-VR1 | TA207347 | 11-61 |
| BA300375 | 2-1 | ED560913 | 7-D1 | EP300917 | 10-RL1 | EV301168 | 2-VR1 | TA300414 | 5-60 |
| BA300377 | 1-1 | ED624903 | 1-D1to4 | ER223525 | 4-R55 | EV301168 | 8-VR1 | TA300414 | 11-62 |
| BA300378 | 5-1 | ED624903 | 7-D2to6 | ER245395 | 10-R13 | EV301200 | 2-VR2 | TA300904 | 5-12 |
| BA300381 | 5-66 | ED698826 | 5-2 | ER293580 | 4-R14 | EV301200 | 8-VR2 | TA300904 | 11-13 |
| BA300387 | 4-1 | ED698826 | 11-3 | ER293580 | 4-R17 | EV301233 | 9-VR1 | TA300905 | 5-14 |
| BA300389 | 4-3 | EE299621 | 5-80 | ER293580 | 10-R14 | EV301294 | 8-VR3,4 | TA300905 | 11-15 |
| BA300389 | 10-3 | EE299621 | 11-80 | ER293580 | 10-R17 | EV484863 | 1-VR3 | TA301023 | 5-10 |
| BA300728 | 9-1 | EE301242 | 11-102 | ER300925 | 4-R19 | EV484863 | 7-VR3 | TA301024 | 11-11 |
| BA300729 | 11-1 | EE301419 | 5-102 | ER301762 | 4-R18 | EV499364 | 1-VR2 | TA301649 | 5-15x |
| BA300730 | 11-2 | EF249851 | 11-101x | ER389687 | 4-R41 | EV499364 | 7-VR2 | TA301649 | 11-16x |
| BA300732 | 7-1 | EF277402 | 5-97x | ER389687 | 4-R45,46 | EV550023 | 1-VR1 | TA301650 | 5-13x |
| BA301548 | 8-1 | EF277402 | 11-97x | ER389687 | 10-R41 | EV550023 | 7-VR1 | TA301772 | 5-19 |
| BA301554 | 11-68 | EF378595 | 5-98x | ER409814 | 10-R45,46 | EV648527 | 3-VR1 | TA301772 | 11-20 |
| BA301654 | 10-1 | EF459843 | 11-98x | ER650430 | 1-FL1to3 | EW207742 | 5-86x | TA303289 | 5-11x |
| BA303317 | 1-2 | EF575212 | 5-96 | ER650430 | 7-FL1to3 | EW207742 | 11-86 | TA303290 | 11-12x |
| BA303319 | 7-2 | EF575223 | 11-96 | ER653567 | 10-R18,19 | EW374894 | 5-85 | TA301650 | 11-14x |
| BA304137 | 4-2 | EF623103 | 5-99x | ER656908 | 7-FL4 | EW374894 | 11-85 | TA646773 | 5-52 |
| BA304138 | 10-2 | EF623103 | 11-99x | ER663614 | 4-R15,16 | EZ225145 | 5-82 | TA646773 | 11-54 |
| BC300940 | 6-16 | EF668474 | 5-100x | ER663614 | 10-R15,16 | EZ225145 | 11-82 | ZG286435 | 6-5x |
| BC300940 | 12-16 | EF668474 | 11-100x | ER666224 | 4-R24,25 | EZ631945 | 5-87 | ZG286435 | 12-6x |
| BC301651 | 6-17x | EF690996 | 5-101x | ER666224 | 4-R31,32 | EZ631945 | 11-87 | ZG300891 | 5-58 |
| BC301651 | 12-17x | EI293158 | 7-IC2 | ER666224 | 10-R24,25 | MI301149 | 5-57 | ZG300891 | 11-60 |
| BD300383 | 6-1 | EI293207 | 1-IC4 | ER666224 | 10-R31,32 | MI301149 | 11-59 | ZS325495 | 5-3 |
| BD301551 | 12-1 | EI293207 | 7-IC4 | ES224436 | 5-44 | ML300879 | 5-74 | ZS325495 | 11-5 |
| BD303296 | 6-2x | EI299700 | 1-IC2 | ES224436 | 11-46 | ML300879 | 11-77 | ZS355522 | 5-75 |
| BD303315 | 12-2x | EI650586 | 1-IC3 | ES239218 | 5-45x | MR530662 | 5-17 | ZS355522 | 11-78x |
| BT293398 | 1-T3 | EI650586 | 7-IC3 | ES239218 | 11-17x | MR530662 | 11-18 | ZS379350 | 5-21 |
| BT293398 | 7-T4 | EI697871 | 1-IC1 | ES242346 | 5-46x | MS300898 | 5-50 | ZS379350 | 6-9x |
| BT301171 | 5-33x | EI697871 | 7-IC1 | ES242346 | 11-48x | MS300898 | 11-52 | ZS379350 | 11-22 |
| BT301172 | 5-34x | EJ240581 | 5-81 | ES245733 | 1-SW2 | MS300899 | 5-51 | ZS379350 | 12-9x |
| BT301174 | 5-35x | EJ240581 | 11-81 | ES245733 | 7-SW2 | MS300899 | 11-53 | ZS417150 | 5-62x |
| BT301175 | 5-36x | EJ293365 | 1-J2to4 | ES301166 | 5-43 | SE286560 | 6-4 | ZS417150 | 11-64x |
| BT301177 | 5-32 | EJ293365 | 7-J2to4 | ES301166 | 11-45 | SE286560 | 12-4 | ZS421806 | 5-9x |
| BT301234 | 11-40x | EJ293646 | 5-73 | ES301169 | 2-SW1 | SE300910 | 5-91 | ZS421806 | 11-10x |
| BT301236 | 11-39x | EJ293646 | 11-75 | ES301169 | 8-SW1 | SE300910 | 11-91 | ZS447761 | 5-31 |
| BT301237 | 11-41x | EJ296853 | 5-83x | ES301180 | 3-SW1 | SE301680 | 5-92x | ZS447761 | 11-33 |
| BT301238 | 11-42x | EJ296853 | 11-83x | ES301188 | 1-SW1 | SE301680 | 11-92x | ZS447840 | 5-16 |
| BT301239 | 11-38 | EJ301150 | 11-88x | ES301188 | 7-SW1 | SK281564 | 6-23x | ZS447840 | 6-4x |
| BT444137 | 7-T1 | EJ301197 | 5-88x | ES301299 | 9-SW1 | SK281564 | 12-23x | ZS447840 | 11-17 |
| BT650384 | 1-T2 | EJ301199 | 5-42 | ET219868 | 4-TR16 | SK281586 | 6-25x | ZS447840 | 12-8x |
| BT650384 | 7-T3 | EJ301199 | 11-44 | ET219868 | 10-TR16 | SK281586 | 12-25x | ZS463353 | 5-44x |
| EC204671 | 4-C27, 28 | EJ302685 | 11-76 | ET240636 | 4-TR3 | SK287662 | 12-29x | ZS463353 | 11-84x |
| EC204671 | 4-C30to33 | EJ303140 | 5-90x | ET240636 | 10-TR3 | SK300889 | 6-20 | ZS510344 | 6-19 |
| EC204671 | 10-C27, 28 | EJ303141 | 5-89x | ET240660 | 4-TR6 | SK300889 | 12-20 | ZS510344 | 121-9 |
| EC204671 | 10-C30to33 | EJ303142 | 11-89x | ET240671 | 4-TR5 | SK300901 | 12-26 | ZS522865 | 5-45 |
| EC286198 | 5-48x | EJ303143 | 11-90x | ET293218 | 4-TR1,2 | SK301681 | 12-27x | ZS522865 | 11-57 |
| EC286198 | 11-50x | EJ514822 | 5-67 | ET293218 | 10-TR1,2 | SK301682 | 6-21x | ZS530673 | 5-8 |
| EC301170 | 5-40 | EJ514822 | 11-69 | ET300928 | 4-TR9 | SK301682 | 12-21x | ZS530673 | 11-19 |
| EC301214 | 8-C9 | EJ539447 | 5-30 | ET300928 | 10-TR9 | SK301683 | 12-31x | ZS565942 | 5-45 |
| EC301298 | 11-37 | EJ539447 | 11-32 | ET300931 | 10-TR5 | SK301807 | 6-7x | ZS565942 | 119-5 |
| EC301320 | 5-49x | EJ551035 | 5-41 | ET301165 | 10-TR6 | SK301807 | 12-5x | ZW259514 | 5-10x |
| EC301320 | 11-51x | EJ551035 | 11-43 | ET302713 | 5-5x | SK301969 | 6-6 | ZW259514 | 112-1x |
| EC493323 | 1-C9 | EJ698051 | 1-J1 | ET302714 | 5-4x | SK301969 | 12-7 | ZW259514 | 112-7x |
| EC522167 | 1-C47 | EJ698051 | 7-J1 | ET302715 | 11-6x | SK644670 | 12-28 | ZW270123 | 5-3 |
| EC522167 | 7-C48 | EL301185 | 5-23 | ET302716 | 11-7x | SK646817 | 6-22 | ZW270123 | 115-6 |
| EC523282 | 1-C25 | EL301185 | 11-24 | ET452531 | 5-6x | SK646817 | 12-22 | ZW273881 | 5-44x |
| EC523282 | 2-C3 | EL301191 | 5-24 | ET452531 | 5-7x | SK646830 | 6-24 | ZW273881 | 116-6x |
| EC523282 | 7-C25 | EL301191 | 11-25 | ET452531 | 11-8x | SK646830 | 12-24 | ZW273914 | 5-8 |
| EC523282 | 7-C41 | EL301204 | 5-25 | ET459810 | 2-TR1,2 | SK646841 | 12-30 | ZW273914 | 113-5 |
| EC523282 | 8-C3 | EL301204 | 11-26x | ET459810 | 8-TR1,2 | SK652397 | 5-78 | ZW273960 | 5-19 |
| EC621257 | 1-C48,49 | EM300354 | 5-29x | ET557965 | 4-TR10 | SM300915 | 5-22 | ZW273960 | 113-6 |
| EC621257 | 4-C1 | EM300354 | 11-31x | ET557965 | 10-TR10 | SM300915 | 11-23 | ZW273892 | 5-33x |
| EC621257 | 7-C49,50 | EM300355 | 5-27x | ET557965 | 10-TR19 | SP300914 | 5-93 | ZW273892 | 116-5x |
| EC621257 | 10-C1 | EM300355 | 11-29x | ET618873 | 1-TR1 | SP300914 | 11-93 | ZW288786 | 5-41x |
| EC650406 | 7-C12 | EM204344 | 5-26 | ET618873 | 7-TR1 | SP300938 | 6-3 | ZW288786 | 5-16x |
| EC662128 | 4-C16 | EM204344 | 11-28 | ET621235 | 4-TR11to13 | SP300938 | 12-3 | ZW288786 | 116-3x |
| EC662128 | 10-C16 | EM204355 | 5-28 | ET621235 | 10-TR11to13 | SP300948 | 5-71x | ZW322110 | 5-4 |
| EC666494 | 1-C46 | EM204355 | 11-30 | ET635218 | 3-TR1 | SP300949 | 5-72x | ZW322110 | 115-5 |
| EC666494 | 7-C46 | EO293387 | 1-T1 | ET635218 | 4-TR4 | SP300950 | 11-73x | ZW330412 | 6-0x |
| EC684720 | 5-47 | EO293387 | 7-T2 | ET635218 | 4-TR17 | SP300951 | 11-74x | ZW330412 | 121-0x |
| EC684720 | 11-49 | EO539820 | 1-L1 | ET635218 | 10-TR4 | SP300952 | 5-68 | ZW330423 | 6-11x |
| ED214457 | 4-D1to5 | EO539820 | 7-L1 | ET635218 | 10-TR17 | SP300953 | 5-69x | ZW330423 | 121-1x |
| ED214457 | 10-D1to5 | EO650428 | 1-L3,4 | ET635220 | 1-TR2to4 | SP300954 | 5-70x | ZW330456 | 6-44x |
| ED245417 | 4-D9to12 | EO650608 | 1-T4 | ET635220 | 7-TR2to4 | SP300955 | 11-70 | ZW330456 | 121-4x |
| ED245428 | 10-D9to12 | EO650608 | 7-T5 | ET635220 | 9-TR1,2 | SP300956 | 11-71x | ZW413190 | 6-3x |
| ED300829 | 4-D6 | EO650610 | 1-L2 | ET666404 | 4-TR14 | SP300957 | 11-72x | ZW413190 | 121-3x |
| ED300829 | 10-D6 | EO650610 | 7-L2 | ET666404 | 10-TR14 | SZ645243 | 5-94 | ZW416698 | 5-5x |
| ED300924 | 4-D7,8 | EO650823 | 4-L1,2 | EV242267 | 2-VR3,4 | SZ645243 | 11-94 | ZW416698 | 116-7x |
| ED300924 | 10-D7,8 | EO650823 | 10-L1,2 | EV300921 | 4-VR1 | TA207347 | 5-59 | ZW439547 | 6-5x |

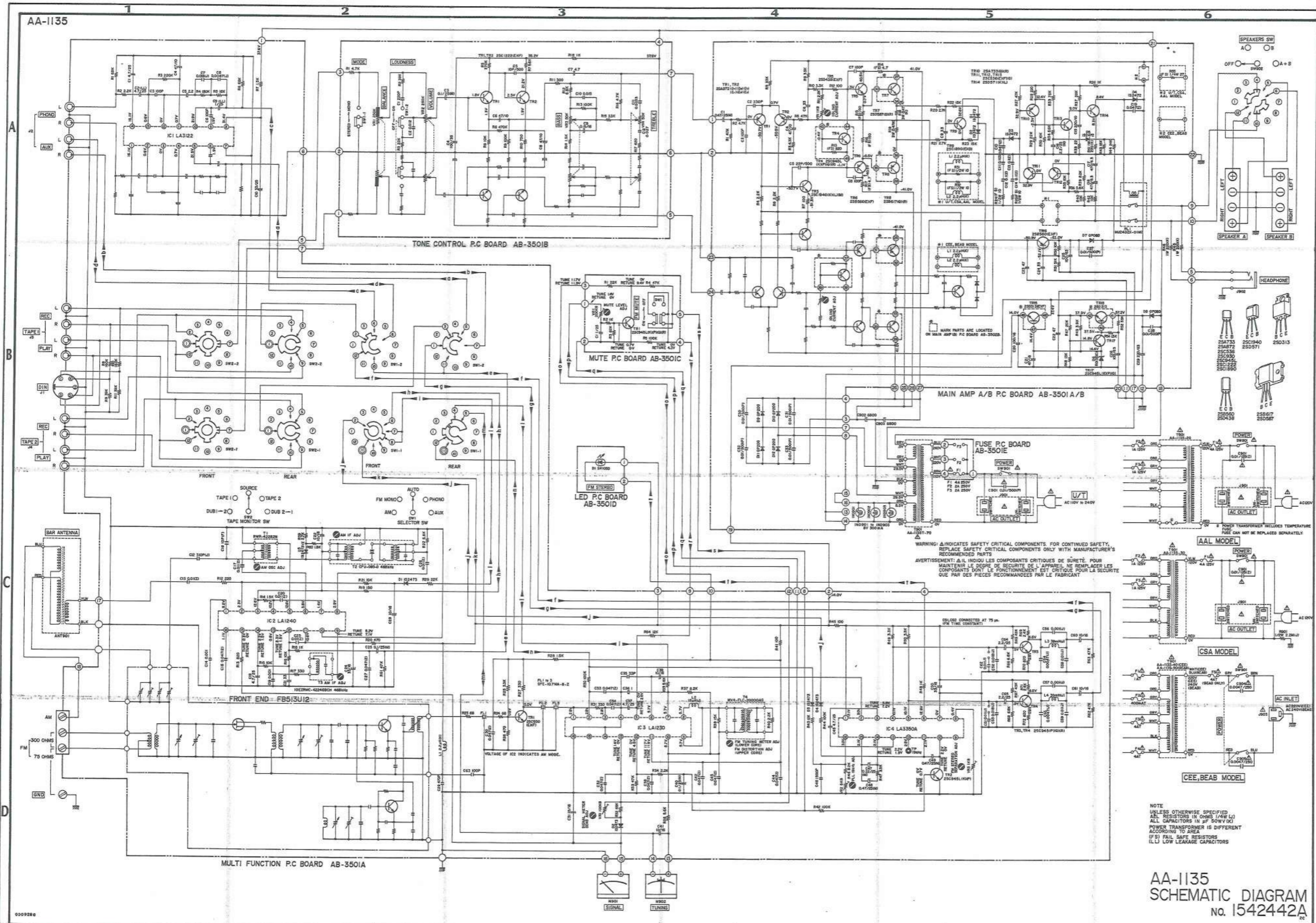
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| Parts No. | Ref. No. & Symbol No. | Parts No. | Ref. No. & Symbol No. | Parts No. | Ref. No. & Symbol No. | Parts No. | Ref. No. & Symbol No. | Parts No. | Ref. No. & Symbol No. |
|-----------|-----------------------|-----------|-----------------------|-----------|-----------------------|-----------|-----------------------|-----------|-----------------------|
| ZW439547 | 12-15x | | | | | | | | |
| ZW562476 | 5-77x | | | | | | | | |
| ZW562476 | 11-79x | | | | | | | | |
| ZW548010 | 6-18 | | | | | | | | |
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| ZW575774 | 5-37 | | | | | | | | |
| ZW575774 | 11-34 | | | | | | | | |
| ZW603797 | 6-12x | | | | | | | | |
| ZW603797 | 12-12x | | | | | | | | |
| ZW632226 | 5-8x | | | | | | | | |
| ZW632226 | 11-4x | | | | | | | | |
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| ZW698308 | 11-58 | | | | | | | | |

SECTION 3

SCHEMATIC DIAGRAM

1. AA-1135 SCHEMATIC DIAGRAM No. 2-1 1542442A
2. AA-1150 SCHEMATIC DIAGRAM No. 2-2 1542443A

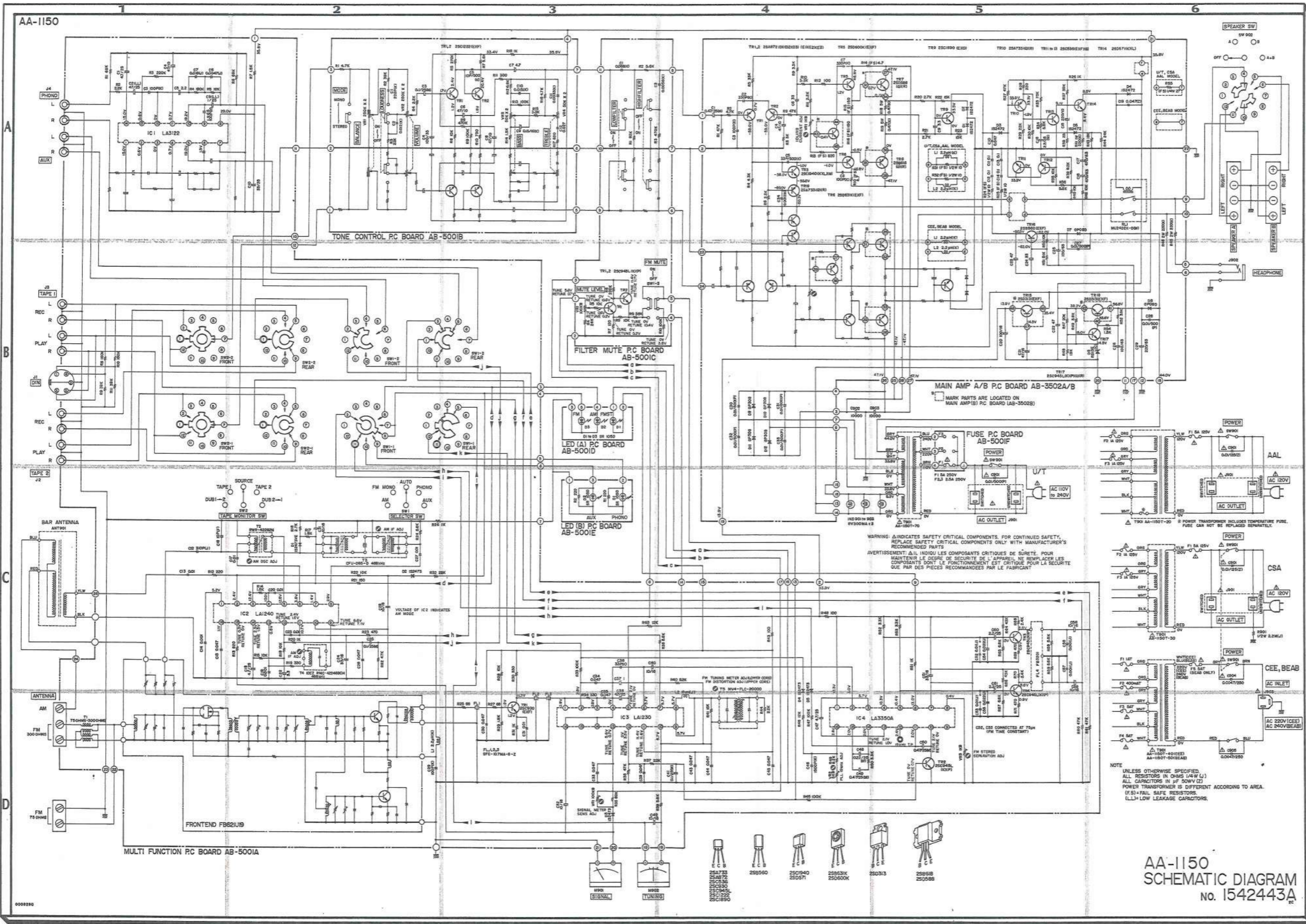


WARNING: Δ INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.
 AVERTISSEMENT: Δ IL INDIQUE LES COMPOSANTS CRITIQUES DE SÛRETÉ. POUR MAINTENIR LE DEGRÉ DE SÛRETÉ DE L'APPAREIL, NE REMPLACER LES COMPOSANTS DONT LE FONCTIONNEMENT EST CRITIQUE POUR LA SÛRETÉ QUE PAR DES PIÈCES RECOMMANDÉES PAR LE FABRICANT.

NOTE
 UNLESS OTHERWISE SPECIFIED
 ALL RESISTORS IN OHMS (AWG L)
 ALL CAPACITORS IN μF 50V/50V
 POWER TRANSFORMER IS DIFFERENT
 ACCORDING TO AREA
 (F) FAIL SAFE RESISTORS
 (L) LOW LEAKAGE CAPACITORS

AA-1135
 SCHEMATIC DIAGRAM
 No. 1542442A

AA-1150



AA-1150
SCHEMATIC DIAGRAM
No. 1542443A

909328