

SERVICE MANUAL

AKAI AMPLIFIER

MODEL AA-8500

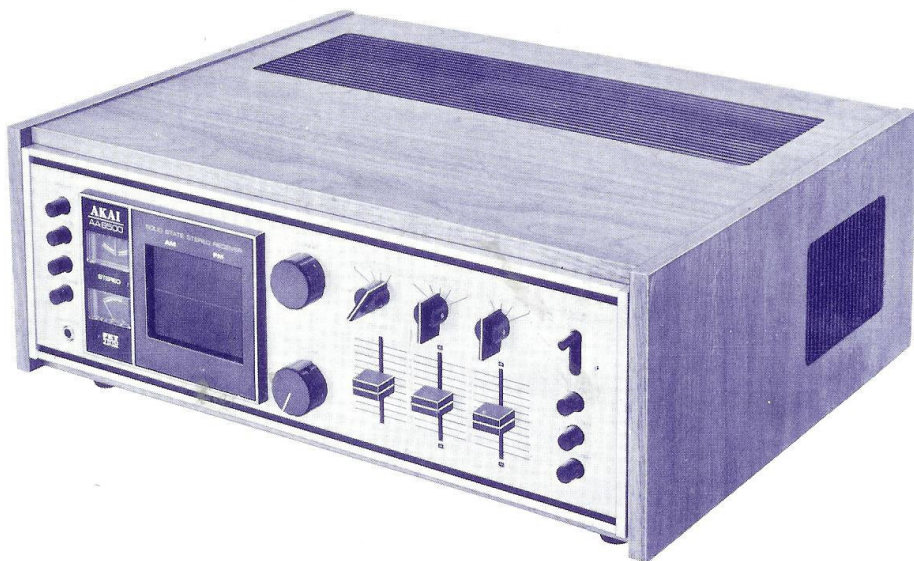


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I. SPECIFICATIONS

FM TUNER SECTION

RECEIVING FREQUENCY RANGE

- : 87.5 to 108.5 MHz (U.S. Ch.)
- : 75.5 to 90.5 MHz (JAPAN Ch.)

IF FREQUENCY

- : 10.7 MHz

SENSITIVITY

- : 2 μ V (IHF) at 98 MHz

SELECTIVITY

- : Better than 60 dB ($\pm$ 400 kHz)

HARMONIC DISTORTION

- : MONO : Less than 0.3% (400 Hz, 100% Mod.)
- : STEREO : Less than 1.0% (400 Hz, 100% Mod.)

IMAGE FREQUENCY RATIO

- : Better than 90 dB at 98 MHz

IF REJECTION RATIO

- : Better than 90 dB at 98 MHz

CAPTURE RATIO

- : Less than 2 dB (IHF)

SPURIOUS RADIATION

- : Less than 34 dB

MUTING SENSITIVITY

- : 20 dB $\pm$ 2 dB

SIGNAL TO NOISE RATIO

- : Better than 60 dB

FM STEREO SEPARATION

- : Better than 35 dB

AM TUNER SECTION

RECEIVING FREQUENCY RANGE

- : 520 – 1650 kHz

IF FREQUENCY

- : 455 kHz

SENSITIVITY : DIRECT

- : 10 μ V (IHF)

: LOOP

- : 200 μ V (IHF)

SELECTIVITY

- : Better than 30 dB ($\pm$ 20 kHz)

IMAGE FREQUENCY RATIO

- : Better than 70 dB

IF REJECTION RATIO

- : Better than 70 dB

HARMONIC DISTORTION

- : Less than 1.0% (400 Hz, 30% Mod.)

SIGNAL TO NOISE RATIO

- : Better than 50 dB

AUDIO SECTION

POWER OUTPUT

- : (MUSIC POWER) : 240 W (120 W/120 W) at 4 Ω
- : : 170 W (85 W/85 W) at 8 Ω
- : (RATED POWER) : 180 W (90 W/90 W) at 4 Ω
- : : 130 W (65 W/65 W) at 8 Ω

POWER BAND WIDTH

- : 20 Hz – 30 kHz (at 8 Ω)

FREQUENCY RESPONSE

- : (AUX) : 20 Hz – 50 kHz (–3 dB)
- : (PHONO): RIAA $\pm$ 1 dB

HARMONIC DISTORTION

- : Less than 0.05%, at 8 Ω , 30 W

INPUT SENSITIVITY

- : PHONO : 3 mV (Impedance 50 k Ω)
- : AUX. : 150 mV (Impedance 50 k Ω)
- : TAPE MONITOR (PIN) : 200 mV (Impedance 50 k Ω)
- : TAPE MONITOR (DIN) : 200 mV (Impedance 50 k Ω)
- : MAIN : 0.77 mV (Impedance 100 k Ω)

TAPE REC. OUTPUT

- : (PIN) : 150 mV
- : (DIN) : 25 mV

HUM AND NOISE (BELOW RATED OUTPUT)

- : PHONO : Better than 70 dB
- : AUX. : Better than 80 dB
- : VOLUME MINIMUM : Less than 2 mV

CHANNEL SEPARATION (AT RATED OUTPUT)

- : PHONO : Better than 60 dB (at 1 kHz)
- : AUX. : Better than 60 dB (at 1 kHz)

TONE CONTROL

- : BASS : 100 Hz $\pm$ 10 dB ($\pm$ 1 dB)
- : TREBLE : 10 kHz $\pm$ 10 dB ($\pm$ 1 dB)

LOUDNESS CONTROL

- : 100 Hz 8 dB $\pm$ 2 dB (–30 dB FROM VOLUME MAXIMUM)

- : 10 kHz 4 dB $\pm$ 1 dB

FILTER

- : HIGH : 10 kHz –5 dB $\pm$ 1 dB
- : LOW : 50 Hz –9 dB $\pm$ 1 dB

SEMI-CONDUCTORS

- : 65 Silicon Transistors
- 1 FET
- 2 IC
- 29 Diodes
- 1 VC Diode
- 1 Tuner Diode
- 4 Thermistors

POWER CONSUMPTION

- : 350 W

POWER SOURCE

- : AC 100 to 240 V AC; 50/60 Hz

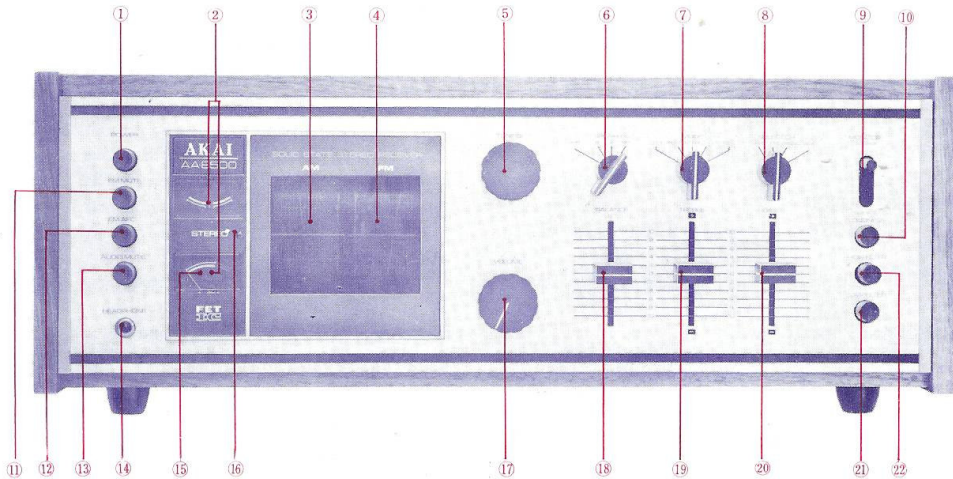
DIMENSIONS

- : 165(H) $\times$ 487(W) $\times$ 346(D) mm
- (6.6 $\times$ 19.5 $\times$ 13.8")

WEIGHT

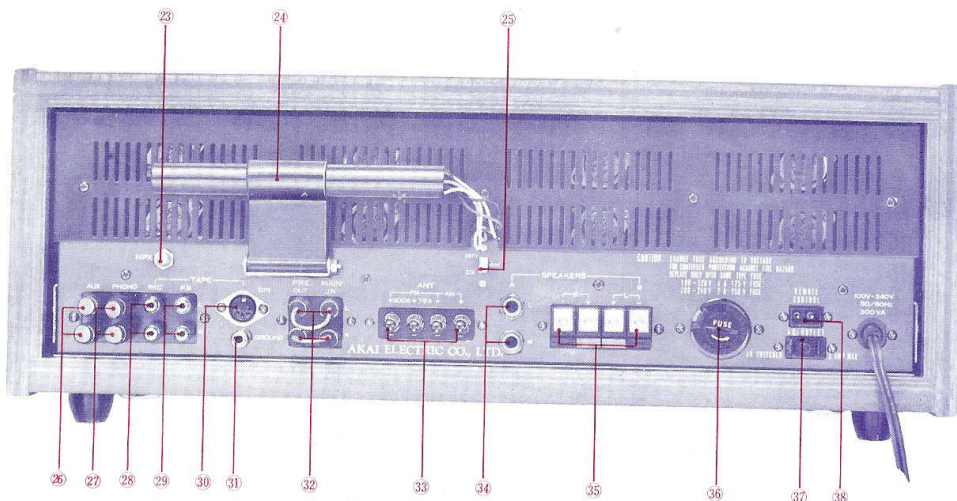
- : 16 kg (35.2 lbs.)

II. CONTROLS & CONNECTION



- ① POWER SWITCH: Depress to turn "ON"
- ② FM AND FM/AM SIGNAL STRENGTH METERS (for FM tuning): While observing both meters, rotate TUNING KNOB to tune in broadcasted signals. When signal is strong, the indicator needle of the FM/AM Meter (lower meter) will swing to the right. For good tuning, the needle must be within the green mark at extreme right.
Movement of the FM Meter (upper meter) needle to the left and right (indicates the strength of the broadcasted signals. Mid-scale indicates perfect tuning. Turn TUNING KNOB until perfect tuning is attained.
- ③ AM DIAL SCALE: With this new type dial mechanism, the Dial Scales are much easier to see. The AM DIAL SCALE will light up when the SELECTOR SWITCH is set to "AM" position.
- ④ FM DIAL SCALE: The FM DIAL SCALE will light up when the SELECTOR SWITCH is set to "FM" position.
- ⑤ TUNING KNOB: For selection of AM or FM stations. Rotate Knob for receiving desired broadcasted signals.
- ⑥ SPEAKER SYSTEM SWITCH: For selection of "A + B", "A", or "B" speaker systems. When at "Off" position, the sound is cut off from all speaker systems. (Use this setting for private headphone listening.)
- ⑦ MODE SWITCH: For automatic selection of speaker systems.
Left: Left speaker(s) only
Right: Right speaker(s) only
Stereo: Left and Right (Stereo tracks)
L & R: Left and Right (monaural track through both speakers)
Rev: Reverse left and right speaker sound (can be used to check balance of sound).
- ⑧ SELECTOR SWITCH: Set TAPE MONITOR SWITCH to "SOURCE" and select program source.
AM: For AM Radio Reception
FM: For FM Radio Reception
PHONO: For Record player
AUX: For Tape Recorders and external tuners or other sources connected to AUX terminals at rear of amplifier (high output players, ceramic or crystal pick-up, etc).
- ⑨ TAPE MONITOR SWITCH: For sound during recording or playback with a 3-head tape recorder, depress to "Tape Play" position. For sound from other sources (Record Player, FM, AM, etc.), set to "Source" position.
- ⑩ LOUDNESS SWITCH: Boosts bass and treble response at low volume level.
- ⑪ FM MUTE SWITCH: For use when receiving FM signals. When this switch is depressed and no signals are being received, interference is muted. When signals are being received, interstation tuning noise is automatically eliminated. (Do not use when tuning in weak stations).

- ⑫ FM AFC (Automatic Frequency Control) SWITCH: After the FM station has been tuned in and the signal strength meters indicate perfect tuning, depress this switch for finer tuning-perfection (perfects signal frequency even to point beyond capacity of the human ear).
- ⑬ AUDIO MUTE SWITCH: Reduces audio level to soft audibility. When switch is released audio level will be restored to former setting.
- ⑭ STEREO HEADPHONE JACK: Accommodates Stereo Headphones for monitoring or private listening. (Turn Speaker Switch to "Off" position for private listening). Dynamic Stereo type headphones should be used. AKAI Model No. ASE-20 is highly recommended.
- ⑮ FM/AM SIGNAL STRENGTH METER (for AM tuning): When receiving AM Signal broadcasts, the needle at the right scale indicates perfect tuning. When the broadcasted signals are very strong, the needle will point to the extreme right.
- ⑯ FM STEREO TUNING INDICATOR LAMP: When FM Stereo signals are being received, this lamp will automatically light.
- ⑰ VOLUME CONTROL KNOB: For overall adjustment of sound level (both channels). Turning Knob clockwise increases the volume.
Caution:
Before changing input or connections, etc., make sure that the Volume Control Knob is turned to minimum position.
- ⑱ BALANCE CONTROL KNOB: For balancing volume of left and right speakers. Sliding Knob upward will increase the volume of the left channel by reducing the output of the right channel and vice-versa.
- ⑲ TREBLE CONTROL KNOB: Use to control high range frequency response. Slide Knob upward to increase treble sound and downward to decrease treble sound.
- ⑳ BASS CONTROL KNOB: Use to control low range frequency response. Slide Knob upward to increase bass sound and downward to decrease bass sound.
- ㉑ LOW FILTER SWITCH: An aid in the elimination of low frequency disturbances such as turntable rumble, etc. Use only when necessary.
- ㉒ HIGH FILTER SWITCH: An aid in the elimination of high frequency surface noise such as noise caused by nearby electrical appliances, noise from old or worn tapes, or phonograph record scratch, etc. Use only when such noise exists.

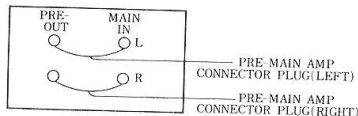


- 23 MPX (Multiplex Channel Separation Adjuster): For adjusting channel separation. Please do not touch or re-position (requires precise adjustment by qualified service engineer).
- 24 AM BAR ANTENNA: For AM broadcast reception, pull AM Bar Antenna away from back of amplifier and properly position for good reception. If broadcasted signals cannot be heard clearly, use AM antenna terminals.
- 25 AM HI-FI/DISTANCE SWITCH: Set according to strength of signals. If AM wave signals are strong, set to "HI-FI" position. If signals are weak, set to "DX" position.
- 26 AUX JACK: Use for relatively high voltage input such as radio tuner, output from the amplifier of a tape recorder or a recorder with a ceramic or crystal cartridge.
- 27 PHONO JACK: Can be used with magnetic cartridge (MM, MC, or IM). To avoid hum, these jacks must be shorted (shorting plugs provided) when not in use.
- 28 TAPE REC. JACK: Connects to line input (phono/radio) of a tape deck for recording of radio or phono programs. Recording source is selected by operating the SELECTOR SWITCH.
- 29 P.B. JACK: Connects to the line or pre-amp output of a tape deck and permits monitoring of the tape playback through use of the TAPE MONITOR SWITCH.
- 30 DIN JACK: This one-connection system can be used instead of Tape Rec. Jack and Tape P.B. Jack if the tape recorder has a corresponding connection. If your tape recorder is not equipped with a DIN Jack, AKAI Connection Cord DR-110 can be used.
- 31 GROUND TERMINAL: This terminal is for use in grounding the amp with a tape recorder, or with a record player. If this connection causes excessive noise, connect a thick cable from these terminals to a buried underground metal bar. Also when using an outside antenna, these terminals should be grounded to an under ground metal bar as described above.

Caution:

Do not connect to a gas pipe or gas line, etc.

- 32 PRE-AMP OUTPUT JACK & MAIN AMP INPUT JACK:

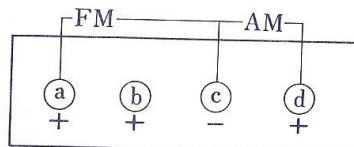


With the pre-main amp connector plugs connected as shown in the above figure, the premain amplifiers function normally. Removing these plugs separates the main amp from the pre-amp and only the main amp functions. This separation permits multiple amplifier operation through the main amplifier only.

Caution:

Be sure that the connection plugs are connected during normal operation.

- 33 ANTENNA TERMINALS



AM: (c + d) can be used if the signal is not strong enough to be picked up by the Bar Antenna.

FM: (a + b) For connection of 300Ω antenna feeder. (a + c) Use when connecting a 75Ω coaxial cable with antenna.

- 34 SPEAKER JACKS: For connection of a single + - Plug for "A" Speaker System operation. AKAI Speaker Cord AS-170 (optional accessory) is recommended.
- 35 SPEAKER TERMINALS: Supplies output to Speaker System "B" Connect plus and minus terminals to correspond with polarity of speakers.
- 36 UNIVERSAL VOLTAGE SELECTOR & FUSE: Permits selection of voltage from 100 to 240V. Fuse must be changed to correspond with voltage.

100-120V	3A
200-240V	1.5A
- 37 AC OUTLET: Extra power supply for record player or tape recorder. This 300W unswitched outlet is not interlocked with the front panel power switch (power is applied even with the unit turned off).
- 38 REMOTE CONTROL SOCKET (for Audio Mute): With AKAI's remote control unit (optional accessory), the audio mute function can be remote controlled. Plug remote control cable into this socket.

III. TUNER & AMPLIFIER ADJUSTMENT

1. POWER AMPLIFIER CIRCUIT ADJUSTMENTS

In case power amplifier circuit has been repaired or power transistors have been replaced, the following adjustments are necessary for each channel:

1-1 No-signal Current Adjustment of Power Amplifier

- Connect a 1.5 A full scale DC Ammeter in place of the protector fuse in the left channel amplifier. An Ammeter with range selector covering 1.5 – 0.1 A is recommended.
- Set VOLUME Knob (VR-403) on the front panel to the full counterclockwise (minimum) position.
- Turn Potentiometer VR-202 (1 K Ω B, L. CH.) of the power amplifier printed board full counterclockwise, and VR-201 (100 K Ω B, L. CH.) to the half way position of its movable range.
- Depress the power switch to "ON" position, and adjust VR-202 so that the Ammeter indicates 80 mA (0.08 A).
- Adjust VR-202 of the right channel amplifier in the same way.

1-2 DC Balance Adjustments

Adjust the DC Balance after completing current adjustment of the power amplifier.

- Connect the audio oscillator to the AUX. input terminals of both the left and right channel amplifiers, and supply a 1,000 Hz sine wave, setting the oscillator output to zero.
- Connect an 8 Ω 120 W resistor to the left and right channel speaker terminals, and connect the oscilloscope across this resistor (see Fig. 1).
- Set VOLUME Knob on the front panel to the full clockwise (maximum position).
- Gradually increase the output of the audio oscillator until the wave form on the oscilloscope (see Fig. 2) begins to be clipped. Adjust the left channel potentiometer VR-201 (100 K Ω) and the right channel VR-201 (100 K Ω) so that both upper and lower peaks of the wave forms begin to be clipped simultaneously at the same point of the curve.
- In case an audio oscillator or an oscilloscope is not available, adjust Potentiometer VR-201 (L. CH.) and VR-201 (R. CH.) so that the voltage between the plus side of the large capacity condenser which is connected to the speaker and ground is half of the supply voltage (80 V). At this time, the VOLUME knob on the front panel should be kept at minimum position.

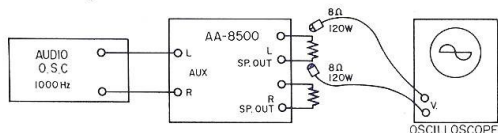


Fig. 1

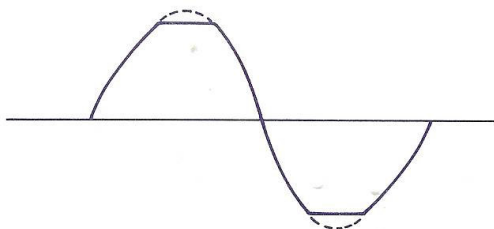


Fig. 2

2. ADJUSTMENT OF PROTECTIVE CIRCUIT FOR POWER TRANSISTORS

Power transistors will be destroyed by an over-current when the output terminals of the speaker are shorted. To protect them, a protective circuit automatically operates to cut off the supply voltage in the driver stage and control the current to the power transistors.

- Connect instruments as shown in Fig. 1 and use a VTVM in place of the oscilloscope.
- Turn VOLUME knob on the front panel to the fully wound clockwise (maximum position).
- Connect a 8 Ω 120 W resistor to the speaker output terminals as a load, and an Oscilloscope across the resistor.
- Set Potentiometer VR-101 (100 K Ω B), the adjusting operation point of the protective circuit, to the fully wound counterclockwise position.
- Gradually increase the output of audio oscillator, which is connected to AUX terminals, until the wave form on the Oscilloscope (see Fig. 2) begins to be clipped.
- Then, exchange the load resistor at the speaker output terminals with a 4 Ω 20 W resistor. At this position, adjust Potentiometer VR-101 to obtain a speaker output nearing the critical point of zero.
- Exchange the load resistor at the speaker output terminals with an 8 ohm 120 W resistor. Adjust the Oscillator output so that the waveform on the oscilloscope is about 1/3 that of procedure 2. e). At this condition, check to see whether the protective circuits operates properly while shorting speaker terminals.

3. TUNER SECTION ADJUSTMENTS

3-1 FM IF Circuit (AA-858 printed board) Adjustment
FM-IF circuit adjustment should be made with calibrated instruments because this adjustment has a great influence on tone quality, separation, S/N, etc. in Stereo FM reception.

(1) Instrument Connection

- Connect the output lead of the Sweep Generator to test points (1) and (2) on the IF Printed Board (AA-858).

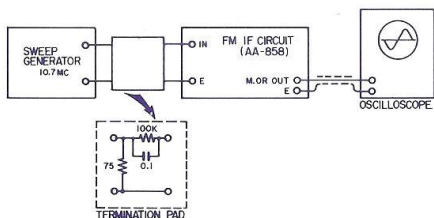


Fig. 3

- b) Connect the input lead of the Oscilloscope to test points (11) and (12).
- c) Set FREQUENCY BAND of the Sweep Generator to 10.7 MHz.
- d) Adjust V-POSITION, SWEEP-WIDTH and CENTER-FREQUENCY respectively so that the wave forms are in the center of the oscilloscope.
- e) Set STEREO MODE SWITCH on the front panel of AA-8500 to "MONO" position SELECTOR SWITCH to "FM" position and MUTE SWITCH to "Off" position.
- f) TUNING DIAL should be set to a non-receiving point on the dial.

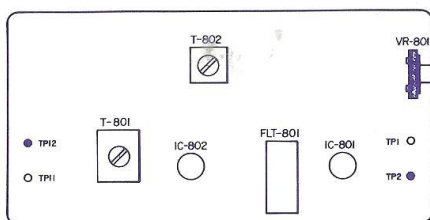


Fig. 4

(2) Adjustments

- a) For adjustment of cores of FM-IF transformers, adjust with 70 dB output level of the Sweep Generator.
- b) Adjust the upper and lower cores of T-801 to obtain the waveform shown in Fig. 5. Adjust to maximum amplitude and proper linearity between ± 150 kHz markers.
- c) Amplitude can be adjusted at the upper core of T-801 (left and right symmetry), and linearity can be adjusted at the lower core.
- d) There are 2 adjustment points for T-801. Adjust lower part at bottom position and upper part at top position (the upper part will protrude from one end of the coil and the lower part from the other end). This particular adjustment is made at the upper position.
- e) Because FLT-801 is a ceramic filter, the respective frequency responses cause the center frequency of 10.7 mHz to slightly fluctuate.

Ceramic Filter Center Frequency

Mark	Center Frequency	Tolerance
Green	10.62 MHz	± 30 kHz
Blue	10.66 MHz	"
Red	10.70 MHz	"
White	10.74 MHz	"
Yellow	10.78 MHz	"

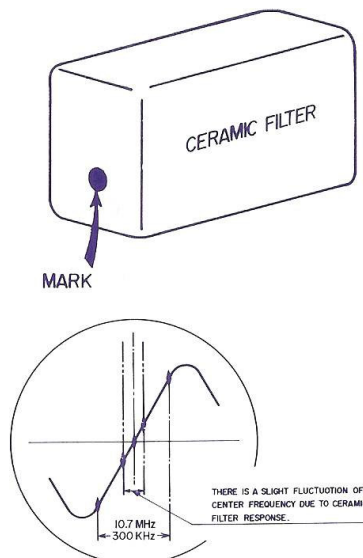


Fig. 5

3-2 Connection with Front End

(1) Instrument Connections

Use the same instruments as used in item 1), and connect the Sweep Generator output lead to FM antenna terminal and the input lead of the Oscilloscope to test point (11) and (12).

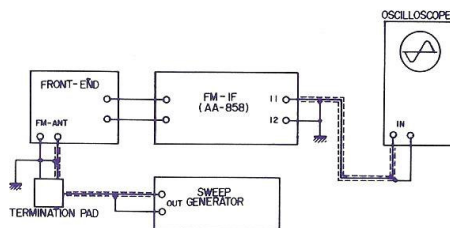


Fig. 6

- (2) Turn the core of the output transformer T_2 on the front end so that the horizontal stripes visible in the center of the waveform in Fig. 8 and maximum amplitude is located in the center of the S-shaped curve. At this time, the horizontal stripe should be symmetrical at about the center line.

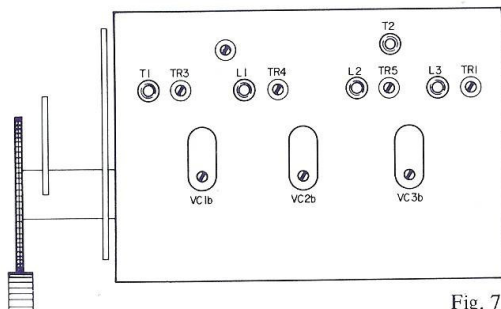


Fig. 7

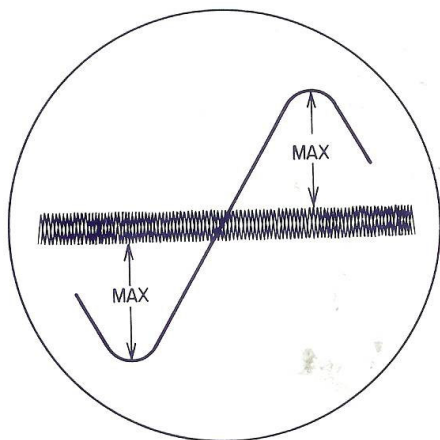


Fig. 8

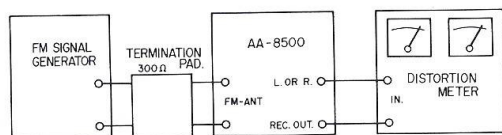


Fig. 9

3-3 Adjustment of FM Reception Frequency Range

(1) Instrument Connections

- Connect the Signal Generator (MSG-276A) output lead to the FM antenna terminals of AA-8500 through the 300 Ω terminal pad.
- Set SELECTOR switch of AA-8500 to the FM position, STEREO MODE switch to IN and AFC to OUT.
- Connect the Distortion Meter to "TAPE-REC" terminal on rear panel (See Fig. 9).

(2) Adjustments

- Set the Signal Generator frequency to 87.5 MHz (internal modulation 400 Hz, 75%), and the output to 60 dB (1 mV).
- Set the tuning dial of AA-8500 to the left end, and adjust L_2 of the front end (see

Fig. 7) so that the Distortion meter level indicates maximum.

- Set the Signal Generator frequency to 108.5 MHz. Set the tuning dial of AA-8500 to the right end. Adjust C_0 (see Fig. 7) on the front end so that the Distortion meter level indicates maximum.
- Repeat procedures b) and c) two or three times.

3-4 FM Tuner Tracking Adjustment

(1) Instrument Connections

Use the same instruments as used in item 3-3 (Fig. 9), and connect them in the same way.

(2) Adjustments

- Set the signal generator frequency to 90.0 MHz (internal modulation 400 Hz, 75%), and the output to 15 dB.
- Turn the tuning dial of AA-8500 to receive the 90.0 MHz signal. (Set SIGNAL GENERATOR to the position where the distortion factor on the meter is approximately 3%).
- Adjust the cores of L_1 and T_1 (see Fig. 7) on front end of AA-8500 so that the Distortion meter level indicates maximum and the distortion factor is minimum.
- Set the Signal Generator frequency to 106 MHz, then turn the tuning dial of AA-8500 to receive this signal. Adjust the trimmer condensers VC1a and VC2a of the tuning variable condenser in the front end so that the Distortion meter level indicates maximum and minimum distortion factors.
- Repeat procedures c) and d) two or three times.

3-5 Tuning Indicator Check and Muting Adjustment

- Use the same instruments as used in item 3-3 and connect them in the same way. (Fig. 9) Set the signal generator frequency to 98 MHz, and the output to 60 dB (1 mV). Turn the tuning dial of AA-8500 to receive this signal.
- Then decrease the attenuator of the Signal Generator to 20 dB and change the FM-MUTE SWITCH to "IN" position. Adjust VR-201 (50 K Ω -VR) of the FM IF BOARD (2007) until the distortion meter level indicates the critical point of "Zero".
- Next, set the signal generator output to 60 dB (1 mV) and make sure that the upper tuning indicator deflects more than 7 mm to both sides from beginning to end of signal reception. (If it is unbalanced, adjust the upper core of T-801). At this time, the distortion factor should be within 0.5% (If it is more than 0.5%, adjust the lower core of T-801).
- At this time, check to see that the lower tuning indicator is within the green area. If it is not within the green area, the core of T-802 must be adjusted until the needle indication is correct.

- e) If the upper tuner indication is "off-center" (about 7 mm to left or right), set AFC Switch to IN position and confirm that the needle returns toward center position.

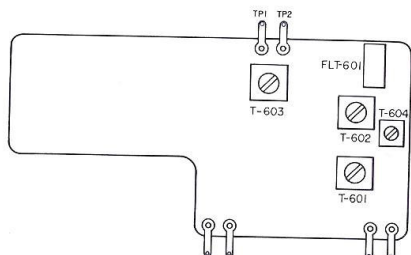


Fig. 10

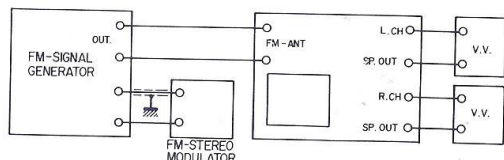


Fig. 11

- h) Set the FM stereo modulator signal to "L" and adjust T-601, T-602 and T-603 so that the milli-voltmeter connected to R CH. indicates minimum. Then adjust VR-501 so that R CH. output becomes minimum.
- i) Set the FM stereo modulator signal to R CH. and note the indication of the milli-voltmeter connected to L CH. Then re-adjust T-502 and VR-501 so that the leakages of R CH. and L CH. are as closely balanced as possible.
- 4-3 For adjustment of 19 kHz Filter (T-604), follow the same procedure outlined in item 4-2 (a) (b) (c) and (d) Connect a milli-voltmeter to TP-2 and connect TP-1 to ground.
- (e) Adjust core of T-604 so that the milli-voltmeter indicates minimum.

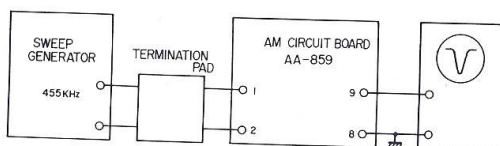


Fig. 12

4. SEPARATION ADJUSTMENT

4-1 Instruments Required:

FM Signal Generator
Stereo Modulator
AC Voltmeter (VTVM)

4-2 Instrument Connections:

- Adjust PILOT SIGNAL 19 kHz of the FM stereo modulator to 10% modulation and adjust MAIN SIGNAL (L + R) of the FM stereo modulator to 400 Hz, 90%. Then connect output to EXT. MOD terminals of the FM Signal Generator.
- Set the FM Signal Generator to EXT. MOD and its modulation to 100%.
- Set the FM Signal Generator frequency to 98 MHz and the output voltage to 60 dB (1 mV). Connect output to the FM-ANT terminals of Model AA-8500.
- Connect an 8 Ω 120 W dummy load resistor to the speaker terminal of AA-8500 and a milli-voltmeter (VTVM) to both terminal ends.
- Receive signal from the FM Generator by tuning the AA-8500. Adjust VOLUME on the front panel so that the milli-voltmeter indicates +10 dBm. (Stereo Mode)
- Turn MPX-SEPARATION variable resistor VR-501 located at the left end of the rear panel of AA-8500 fully clockwise.
- Set the FM stereo modulator signal to "MAIN" (L + R), and check whether the outputs of both channels are balanced. If they are out of balance, adjust by turning BALANCE knob on the front panel.

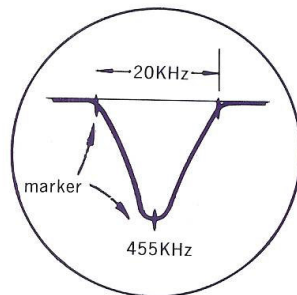


Fig. 13

5. AM-IF CIRCUIT ADJUSTMENT

5-1 Instrument Connections

5-2 Adjustments

- Connect the Sweep Generator output lead to test point (1) and (2) of the AM-IF circuit board (AA-859). Connect the oscilloscope input lead to test point (9) and (8). (Fig. 12).
- Set the Sweep Generator FREQUENCY BAND to 455 kHz. Adjust V-POSITION, SWEEP-WIDTH, and CENTER FREQUENCY respectively so that the waveform is at the center of the Oscilloscope.
- Turn SELECTOR Switch on the front panel of AA-8500 to AM position, VOLUME to minimum position, and set AM Sensitivity SELECTOR Switch (rear panel) to DX position. Then adjust the cores of T-903 (yellow), T-904 (white), and T-905 (black) to obtain the waveform as shown in Fig. 13.

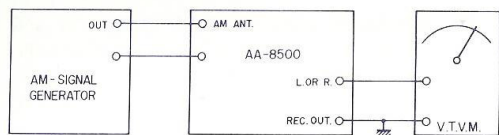


Fig. 14

5-3 AM Receiving Frequency Range Adjustment

(1) Instrument Connections

- Connect the AM signal generator to the AA-8500 AM antenna terminals. Connect the VTVM to Left or Right channel (TAPE REC Terminal on rear panel).
- After setting AA-8500 to AM, set the dial to the left end. Set the AM signal generator to 400 Hz, 30% internal modulation, frequency to 520 kHz, and output to 40 dB (100 μ V).
- Adjust the core of AM local oscillator transformer T-902 on AM-IF printed board (AA-859) so that the milli-voltmeter indicates maximum.
- Then, turn the tuning dial of the AA-8500 to the right end. Set the AM signal generator frequency to 1,650 kHz and adjust trimmer condenser VC3b of the AM local oscillator variable condenser of the front end so that the milli-voltmeter indicates maximum.
- Repeat procedures c) and d) two or three times.

5-4 AM Tuner Tracking Adjustment

(1) Instrument Connections

Use the same instruments and connections as shown in (Fig. 14).

(2) Adjustment

- Set the AM signal generator frequency to 600 kHz (internal modulation 400 Hz, 30%) and the output to 50 dB (310 μ V).
- Turn the dial of AA-8500 to receive the 600 kHz signal.
- Adjust the RF transformer to T-901 on the AM-IF printed board (AA-859) and core of the Ferrite Bar Antenna so that the milli-voltmeter which is connected to the speaker terminals indicates maximum.
- Next, set the AM signal generator frequency to 1,400 kHz, and turn the tuning dial of AA-8500 to receive the 1,400 kHz signal. Adjust trimmer condensers VC1b and VC2b which are variable condensers on the front end so that the milli-voltmeter indicates maximum.
- Repeat procedures c) and d) two or three times.

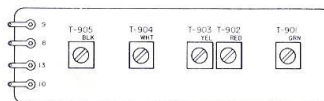


Fig. 15

6. DIAL MECHANISM ADJUSTMENT

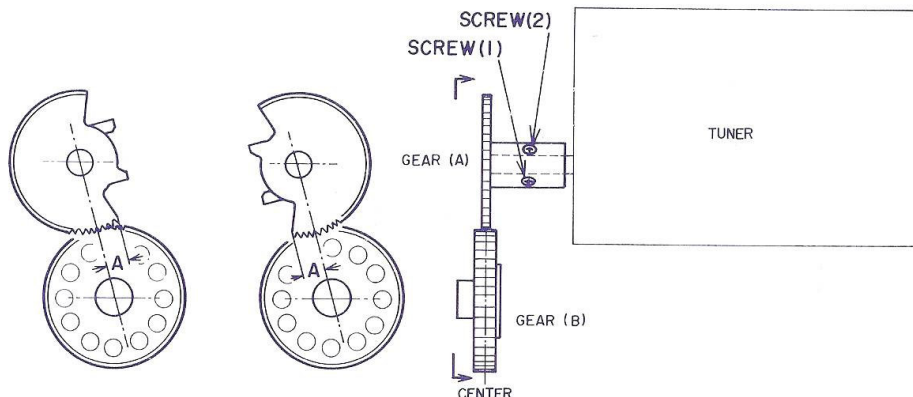


Fig. 16

- Adjust Screws (1) and (2) so that as the dial is rotated from end to end, the teeth of the fan-shaped gear (last tooth on both ends) are symmetrical (left/right) and comes to the center of the meshing gear.

- Adjustment is made with dial scale at extreme top position (knob turned to extreme left). Tighten screws (3) and (4) so that dial drum is in exact center of dial scale (Fig. 17) and at position where needle lines (right and left) are exactly aligned with horizontal line at middle of dial (as shown in Fig. 18).

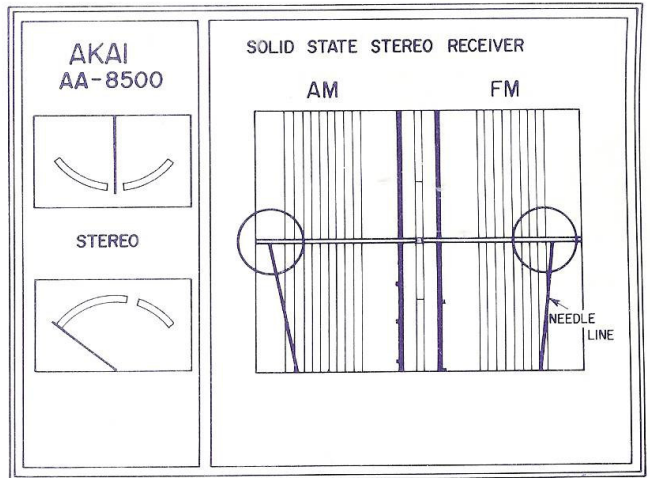


Fig. 17

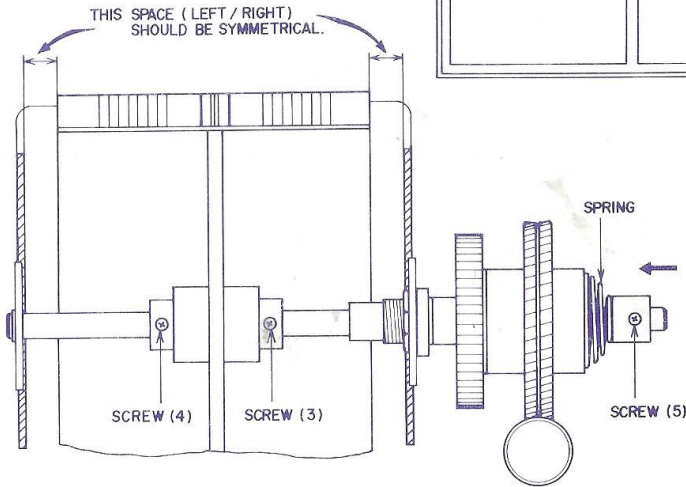


Fig. 18

- 3) If tension is loose at screw (5), it becomes the source of backlash when dial is rotated. In this instance, tighten screw (5) for stronger spring tension.
- 4) Because the knob rotation holder prop moves slightly when the tuning knob is turned, when the holder prop comes to extreme front position, with screw (6), stationary metal fitting. When the dial knob is rotated within its complete rotatable range, there should be no substantial change.

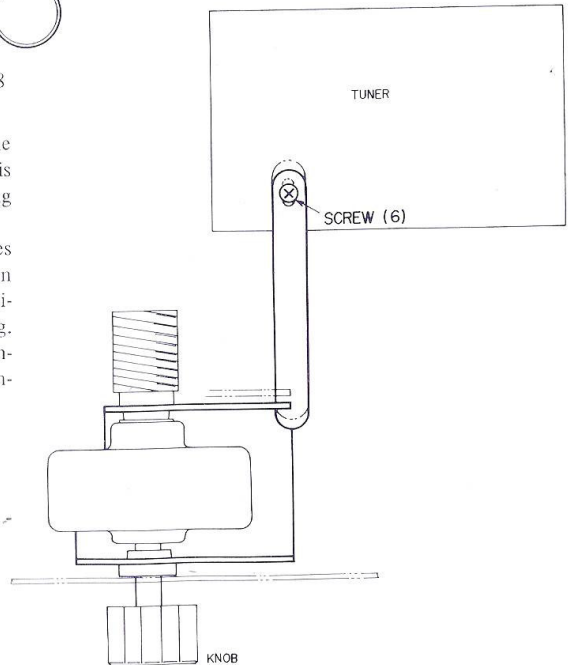


Fig. 19

IV. TROUBLE SHOOTING CHART

NO SOUND

Symptom	REMARKS	
Defective speaker system.	• Speaker cables open or shorted. • Speaker voice coil open.	• Check speaker terminals for looseness. • Repair or replace speaker.
No electrical supply.	• Absence of power supply. • Defective power switch. • Line cord plug has faulty contact or is disconnected. • Line fuse blown.	
Blown fuse upon replacement.	• Short in power transformer. • Shorted diodes for D-101 to D-109. • Shorted electrolytic capacitors: C-103 to 107, C-109, 110, 116.	• Replace transformer. • Replace defective diodes. • Replace defective capacitors.
Pilot lamp lights, but no sound from speaker.	• Protection circuit in operation. • Speaker changeover switch at "PHONO". • "TAPE MONITOR" switch at "TAPE PLAY".	• Check speaker output terminals and leads for short. • Set to "A" or "B" position. • Set switch to "SOURCE".
Internal Failure.	• Inoperative B power source Circuit. • Fuses F-102 and F-103 (protecting power transistors) blown.	• Secondary winding in power transformer open. Resistors R-101 to R-105 open. • Shorted power transistors TR-206 to TR-209, TR-256 to TR-259.
Sound from one channel only.	• Improper position of balance control. • Defective channel audio circuit.	• Adjust balance control. • Check for defect by measuring voltages at check points, comparing them with normal channel.

LOW SOUND LEVEL

Symptom	REMARKS	
Low sound on both channels.	• Defective power supply circuit.	• Check wiring and voltage.
Low sound on the channel.	• Defective speaker. • Discharged coupling capacitor.	• Replace Speaker. • Replace defective capacitor(s).

DISTORTION

Symptom	REMARKS	
Distorted sound on both channels.	• Defective power supply circuit.	• Check AA-851.
Distorted sound on one channel.	• Defective speaker. • Leaky coupling capacitor(s). • Defective or unbalanced power transistors.	• Replace speaker. • Replace defective capacitor(s). • Adjust or replace.

HUM AND NOISE

Symptom	REMARKS	
Excessive hum.	• Discharged capacitor in power supply circuit. • Defective rectifying diodes in power supply circuit. • Defective transistor in power supply filter circuit.	• Check C-104 to C-107, C-109, 110, 116. • Check D-101 to D-109. • Replace TR-101 or TR-102 for short.

Symptom	REMARKS	
Excessive noise.	- Defective transistor in pre-amplifier circuit. - Defective volume control variable resistor.	- Check TR-301, TR-351, TR-401 to TR-404, TR-451 to TR-454, TR-501, TR-502, TR-551 and TR-552. - Check VR-403.
Inoperative loudness control.	Defective loudness circuit AA-853.	Check C-301, 302, C-351, 352, R-301, 302, R-351, 352 and VR-403.
Inoperative tone control.	- At "TREBLE" - At "BASS"	- Check C-408, 409, C-458, 459, R-411, 412, R-461, 462, R-415, 465, VR-402, 452. - Check C-407, 457, C-416, 466, R-409, 459, R-410, 460, VR-401, 451.

FM RECEPTION TROUBLE

Symptom	REMARKS	
No FM reception.	FM front-end, FM-IF or MPX circuit defective.	Check SELECTOR switch. Check voltage of IC-801, 802 and FLT-801.
Sound satisfactory but stereo indicator lamp not lit.	Defective operation of stereo beacon circuit or defective lamp.	Check voltage of TR-604 to TR-608 printed board AA-856. Replace lamp if defective.
Incomplete separation during FM reception.	Defective FM multiplex circuit.	- Defective circuit of TR-601 to 603, TR-610 to 613 on printed board AA-856. - Adjust VR-601 with measuring equipment or stereo FM wave.
Excessive noise.	Weak broadcasting signal or weak input signal to amplifier.	Orient or replace antenna with a higher gain. Antenna feeder open or loosely connected.
Intermittent noises.	Due to automobile ignition noises.	Install FM antenna as far away from streets as possible.
Noise increases during FM reception.	Due to peculiar FM receiver noise when signal is very weak.	Set DISTANCE switch to ON. If sensitivity of FM receiver decreases, check or re-adjust FM-IF circuit.
Stereo indicator lamp always lit.	Defective FM multiplex circuit.	Defective transistor TR-607, 608.

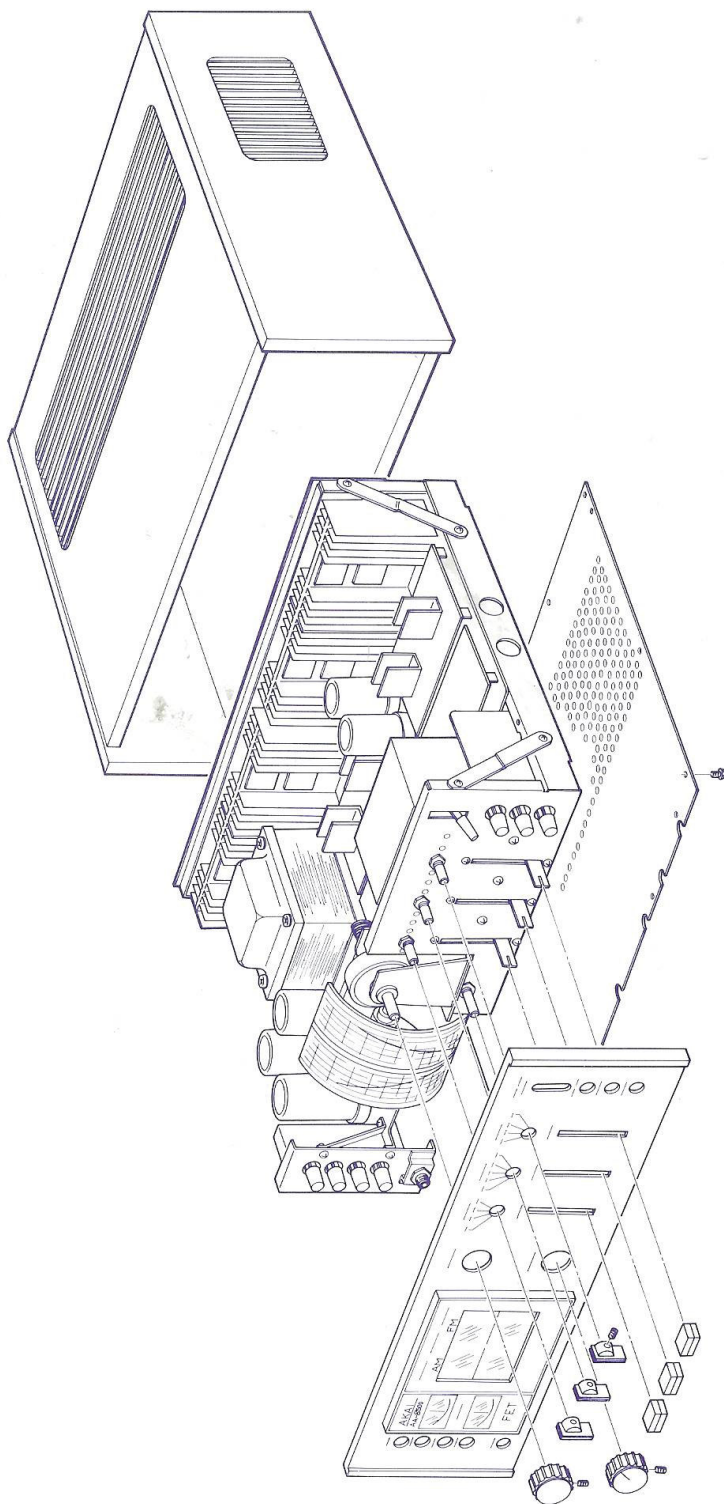
AM RECEPTION TROUBLE

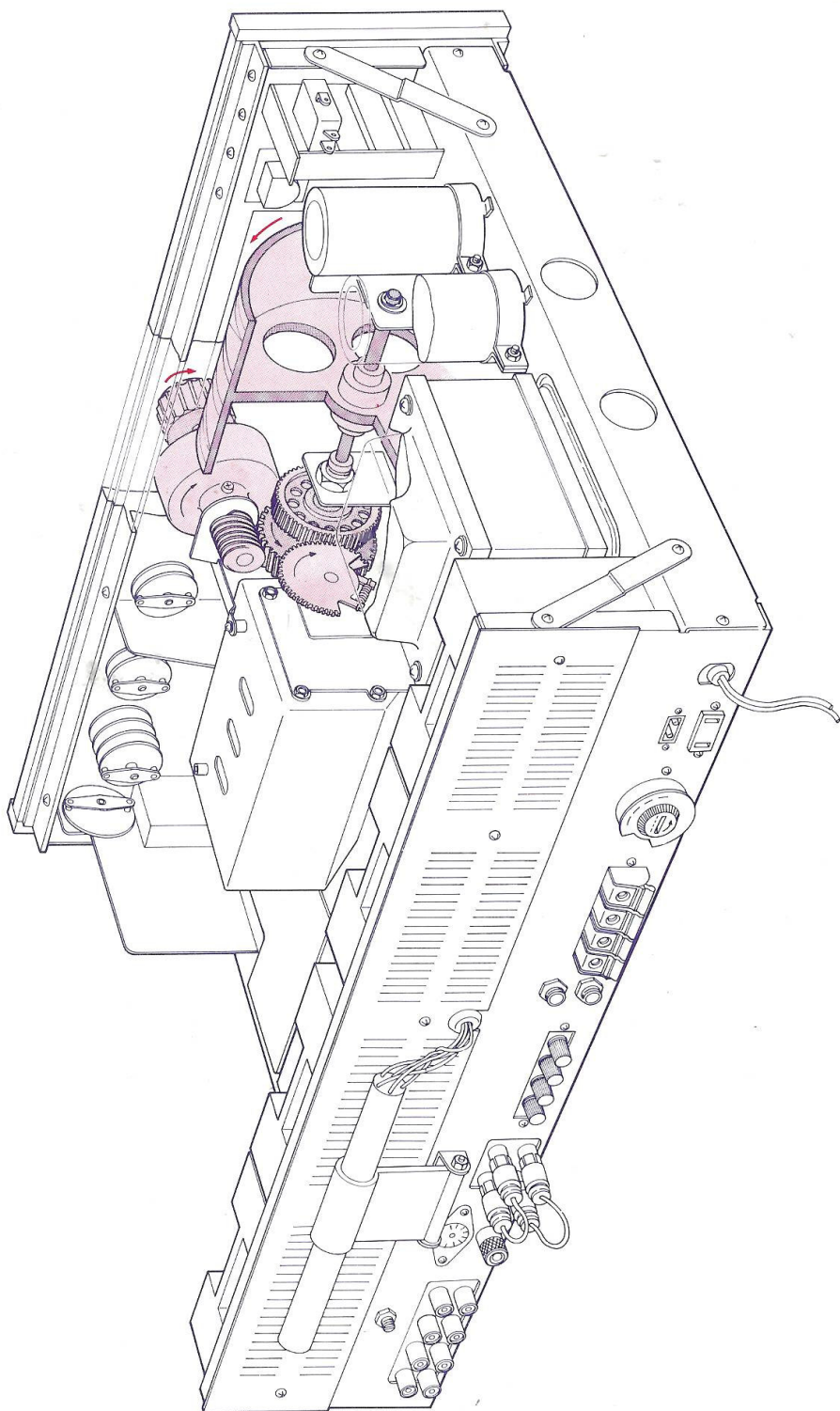
Symptom	REMARKS	
No AM reception.	Defective AM IF circuit AA-859.	Check voltage of TR-901 - TR-904. Check selector switch.
Excessive Noise.	Weak signal.	Use external antenna.
Hum when tuned to broadcasting station.	Due to transmission lines or generating noise of electrical apparatuses (e.g. fluorescent lamps, motors, etc.) nearby.	When bar antenna is used, reposition until noise is minimized. Reset AC cord plug.
Buzzing Noise.	Due to a TV set nearby.	Relocate amplifier.

WHEN EXTERNAL INPUT IS USED (Tape recorder, recorder, etc.)

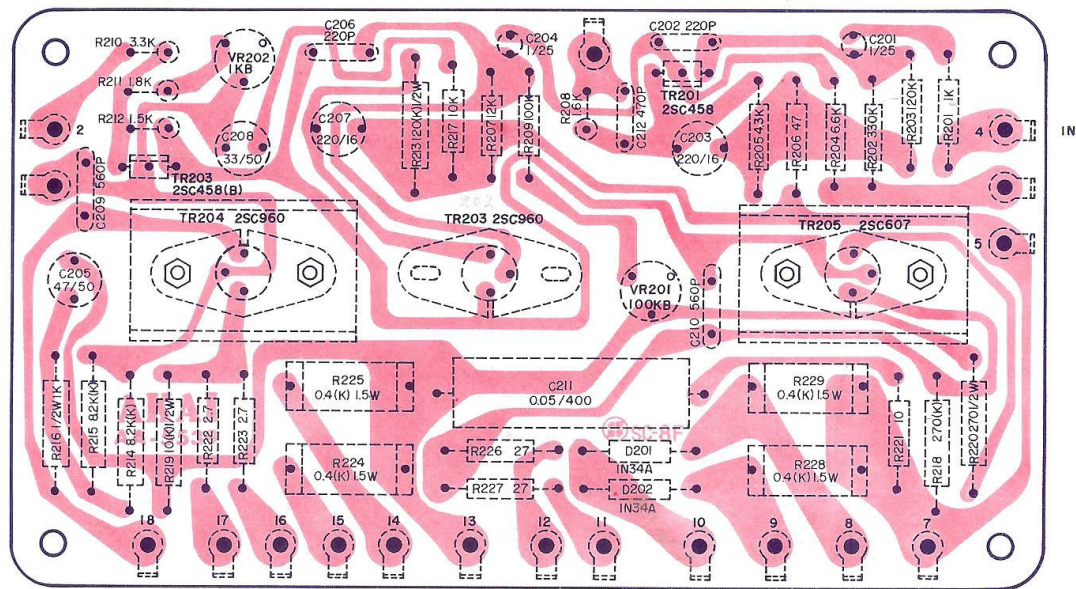
Symptom	REMARKS	
No sound or Increase of noise or Hum.	Faulty connection.	- Check connections and polarity referring to operator's manual. - Check selector switch.

V. DISASSEMBLY / DIAL STRINGS

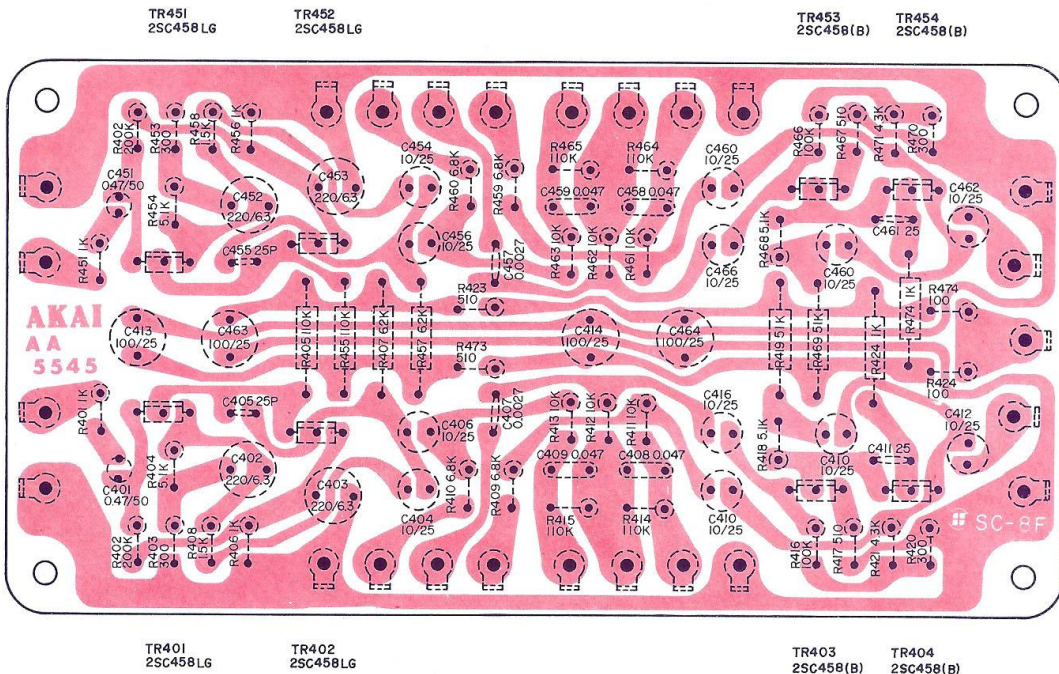




MAIN AMPLIFIER P.C. BOARD (AA-5539)

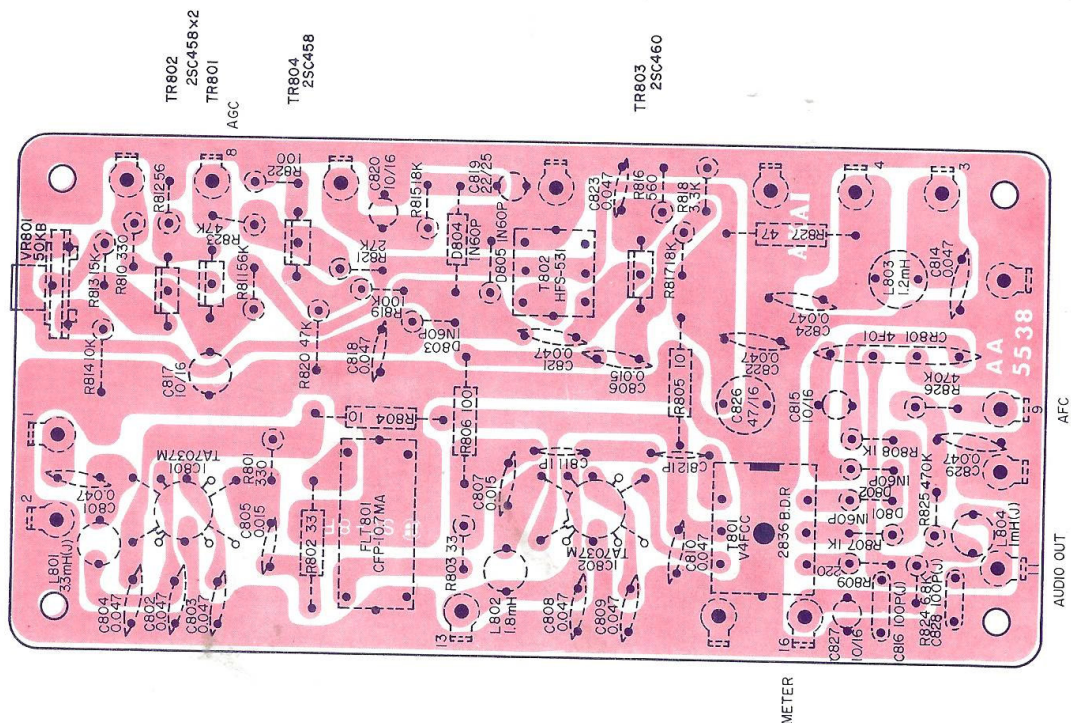


TR45I
2SC458 LG

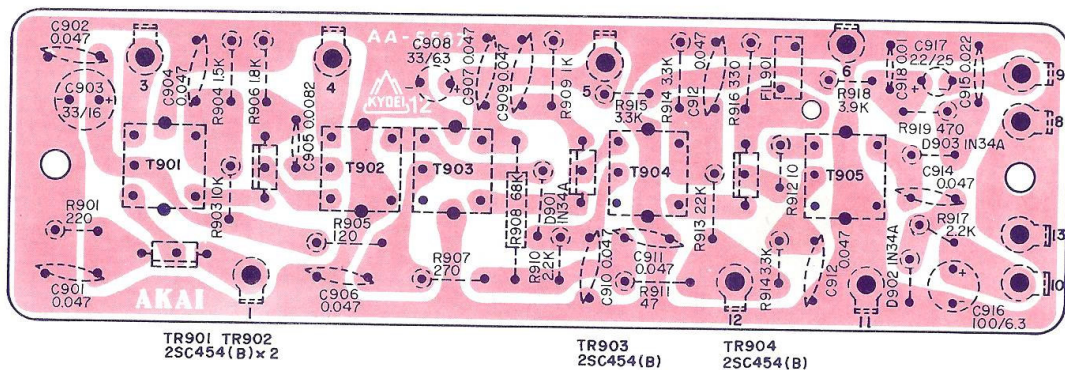


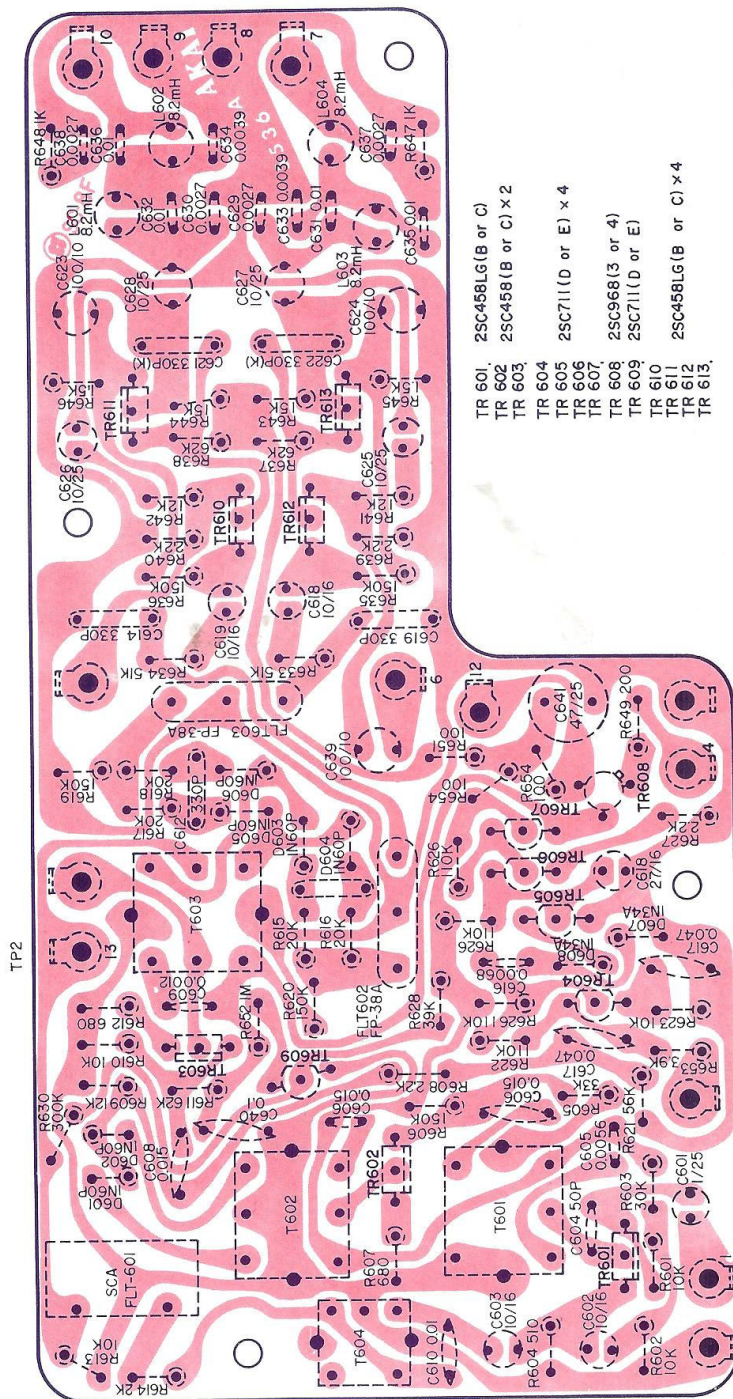
TR403	TR404
2SC458(B)	2SC458(B)

FM-IF P.C. BOARD (AA-5538)

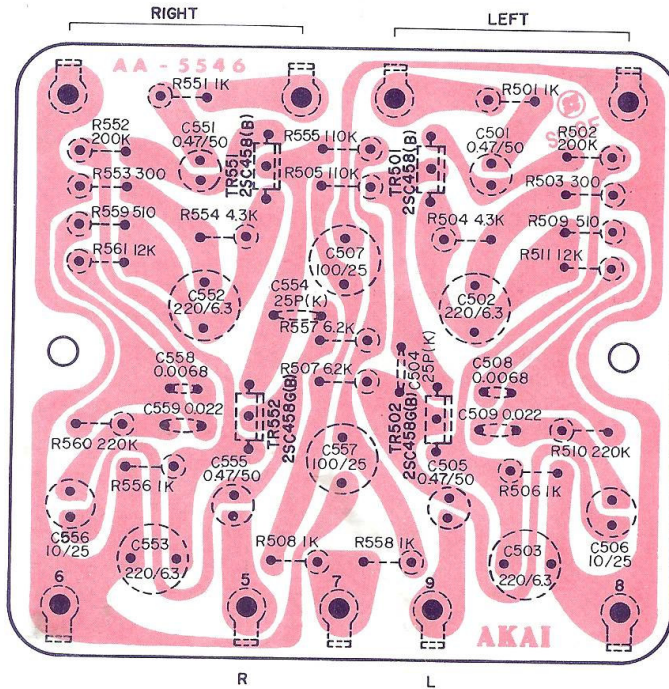


AM-IF P.C. BOARD (AA-5537)

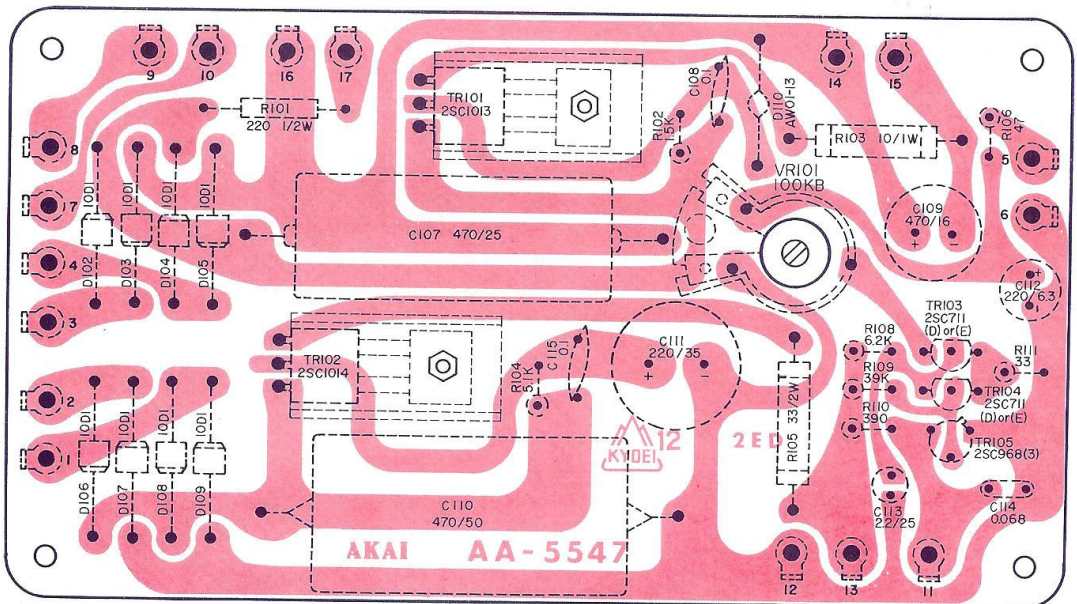




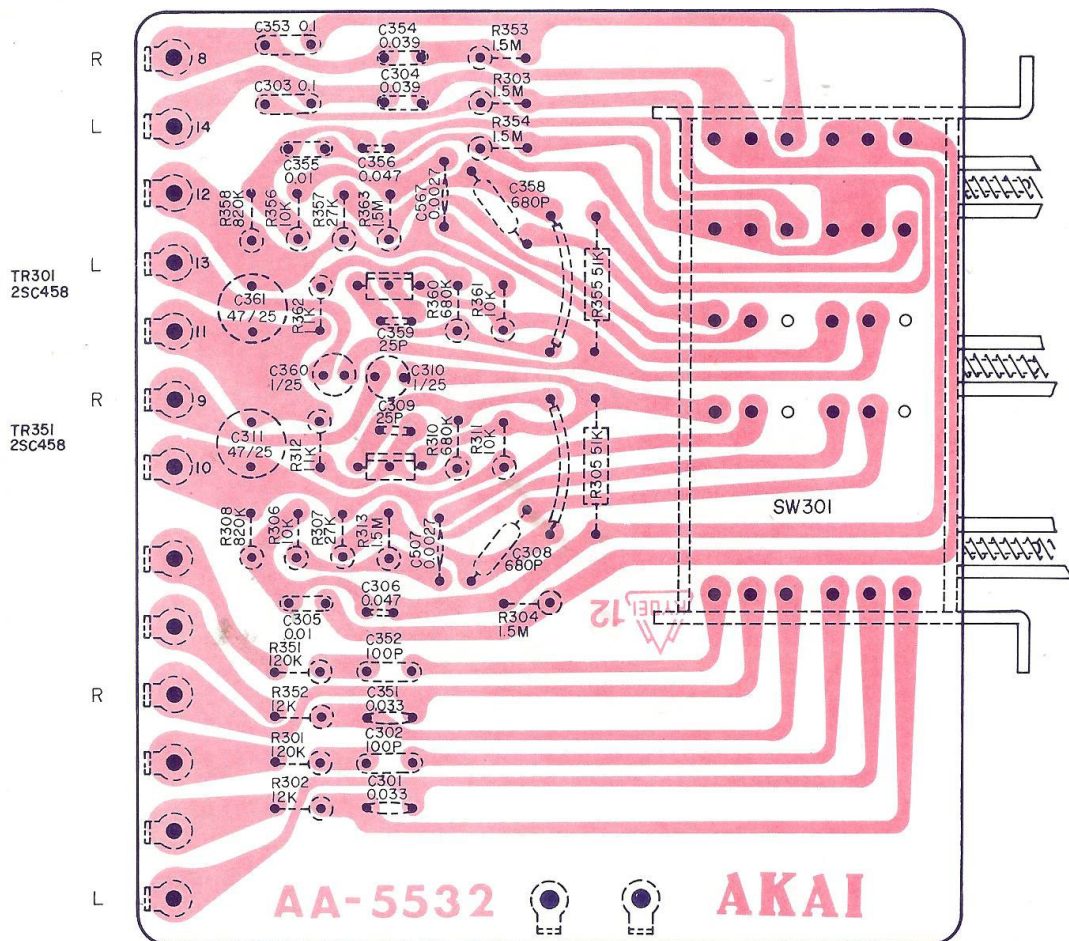
EQUALIZATION P.C. BOARD (AA-5546)



POWER SOURCE P.C. BOARD (AA-5547)



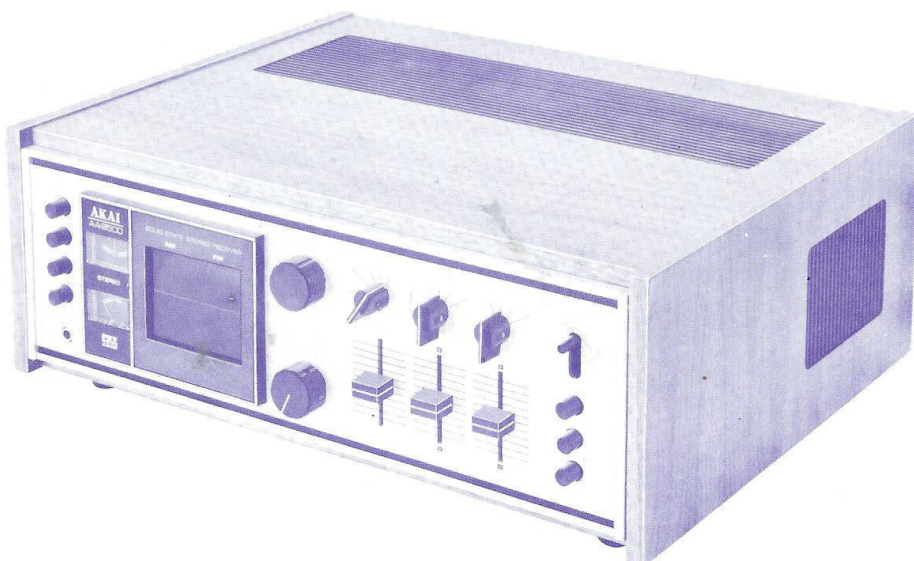
FILTER P.C. BOARD (AA-5532)



PARTS LIST

AKAI AMPLIFIER

MODEL AA-8500



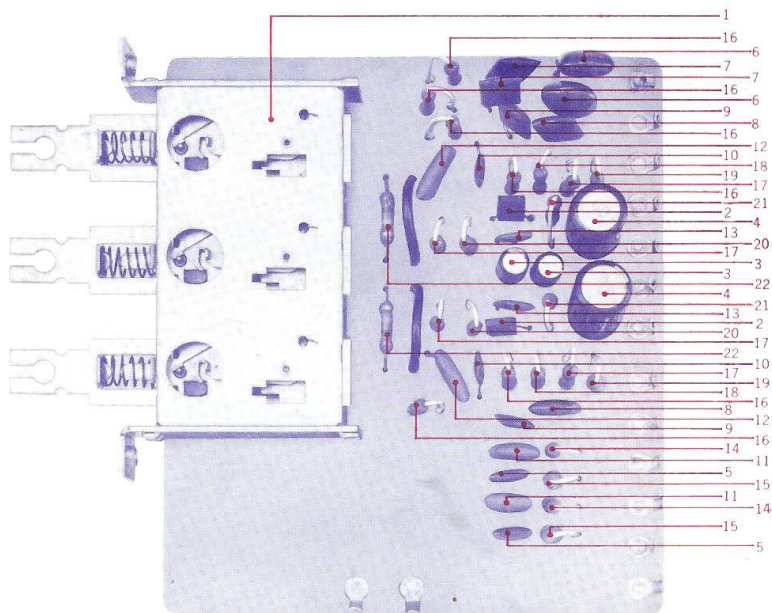
WHEN YOU ORDER THESE PARTS
PLEASE DESCRIBE THEIR PARTS NO.
AND SERIAL NO. IN DETAIL

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FILTER P.C. BOARD BLOCK.	3
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PRE-AMPLIFIER P.C. BOARD BLOCK	9
EQUALIZER AMP. P.C. BOARD BLOCK.	10
POWER SOURCE P.C. BOARD BLOCK	11
ASSEMBLY BLOCK	12

NOTE: *mark shows more than 10 pieces.

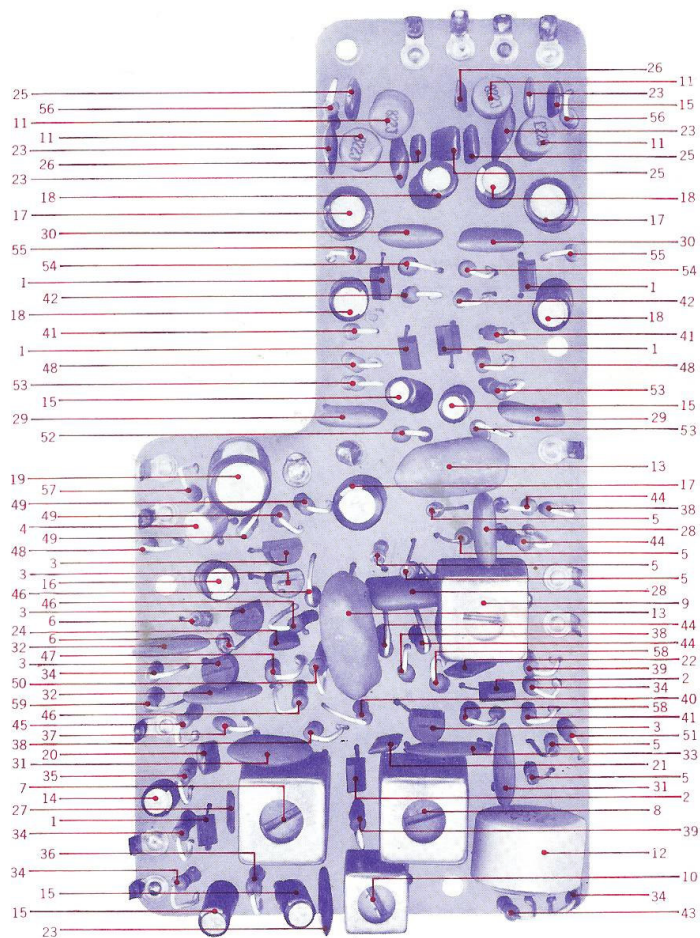
FILTER P.C. BOARD BLOCK



Ref. No.	Parts No.	Description	Schematic No.	Quantity
—	A-381172	Filter P.C. Board Assy. Comp.	AA-5532	1
1	A-379260	Push Switch Um-318-20	25-5-30	1
2	A-368021	Transistor 2SC458 (B) (C)	TR-301	2
Capacitor, Vertical Type c				
3	A-450055	Electrolytic 1 μ F 25 WV	310	2
4	A-220678	Electrolytic 47 μ F 25 WV	311	2
5	A-379157	Mylar 0.033 μ F (J) 50 WV	301	2
6	A-379170	Mylar 0.1 μ F (J) 50 WV	303	2
7	A-379192	Mylar 0.039 μ F (J) 50 WV	304	2
8	A-250841	Mylar 0.01 μ F (J) 50 WV	305	2
9	A-379214	Mylar 0.047 μ F (J) 50 WV	306	2
10	A-250683	Mylar 0.0022 μ F (J) 50 WV	307	2
11	A-337476	HI-Q 100PF (K) 50 WV	302	2
12	A-379236	HI-Q 680PF (J) 50 WV	308	2
13	A-397247	HI-Q Z-12 25P (J) 50 WV	309	2
Carbon Resistor, Stopper Type				
		R		
14	A-450011	RD 1/4 120K J	301	2
15	A-211858	RD 1/4 12K J	302	2
16	A-379078	RD 1/4 1.5M K	303, 4 13, 14	8
17	A-336442	RD 1/4 10K J	306, 11	4
18	A-342933	RD 1/4 27K J	307	2
19	A-350021	RD 1/4 820K K	308, 9	4
20	A-346645	RD 1/4 680K K	310	2
21	A-379113	RD 1/4 1.1K J	312	2
22	A-378696	RD 1/4 51K J (Insulator)	305	2

When you order these parts, Please describe their Parts No. and Serial No. in detail

MPX. P.C. BOARD BLOCK

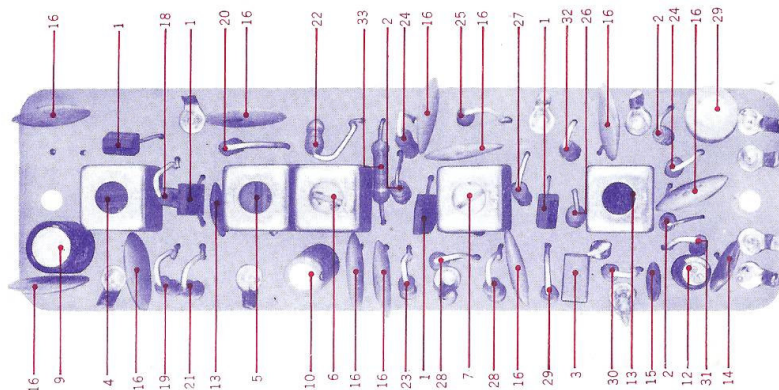


MPX P.C. BOARD BLOCK

Ref. No.	Parts No.	Description	Schematic No.	Quantity	Ref. No.	Parts No.	Description	Schematic No.	Quantity
-	B-381194	MPX. P.C. Board Assy. Comp. (U,A,O)	AA-5536	1	42	B-379517	RD 1/4 62K J	611.37.38	3
-	B-381205	MPX. P.C. Board Assy. Comp. (J)	AA-5536	1	43	B-371946	RD 1/4 2K J	614	1
1	B-234843	Transistor 2SC458LG (B) (C)	TR601.10 to 13	5	44	B-349828	RD 1/4 20K J	615 to 18	4
2	B-368021	Transistor 2SC458 (B) (C)	TR602.3	2	45	B-361528	RD 1/4 56K J	621	1
3	B-379462	Transistor 2SC711 (D) (E)	TR604.5 6. 7. 9	5	46	B-379552	RD 1/4 110K J	622.25.26	3
4	B-338894	Transistor 2SC968(3)	TR608	1	47	B-379596	RD 1/4 16K J	624	1
5	B-379855	Germanium Diode 1N60P	D601 to 6	6	48	B-357456	RD 1/4 2.2K J	627.39.40	3
6	B-219464	Germanium Diode 1N34A	D607.8	2	49	B-211667	RD 1/4 100Ω J	628.50 51.54	4
7	B-379866	Transformer (19K Hz) 06Y-033-681	T601	1	50	B-357535	RD 1/4 39K J	629	1
8	B-379877	Transformer (19K Hz) 06Y-033-695	T602	1	51	B-379631	RD 1/4 300K J	630	1
9	B-379890	Transformer (38K Hz) 06Y-033-683	T603	1	52	B-379675	RD 1/4 51K J	633.34	2
10	B-379888	Transformer (19K Hz) 06Y-067-151	T604	1	53	B-357570	RD 1/4 150K J	635.36	2
11	B-379923	Ferri-Inductor FL7H 8.2MH (J)	L601 to 4	4	54	B-306887	RD 1/4 15K J	643.44	2
12	B-379901	Filter (72K Hz) FL-1371	FLT601	1	55	B-211320	RD 1/4 1.5K J	645.646	2
13	B-379912	Filter (38K Hz) FP-38A	FLT602.3	2	56	B-211465	RD 1/4 1K J	647.48	2
		Capacitor, Vertical Type C			57	B-347073	RD 1/4 200Ω J	649	1
14	B-450055	Electrolytic 1 μF 25 WV	601	1	58	B-350188	RD 1/4 1M J	652	1
15	B-320051	Electrolytic 10 μF 16 WV	602.3 19.20	4	59	B-212545	RD 1/4 3.6K J	653	1
16	B-350695	Electrolytic 22 μF 25 WV	618	1					
17	B-220105	Electrolytic 100 μF 10 WV	623.24.39	3					
18	B-220994	Electrolytic 10 μF 25 WV	625 to 28	4					
19	B-220678	Electrolytic 47 μF 25 WV	641	1					
20	B-329883	Mylar 0.0056 μF (J) 50 WV	605	1					
21	B-337500	Mylar 0.0047 μF (J) 50 WV	607	1					
22	B-379721	Mylar 0.0012 μF (J) 50 WV	609	1					
23	B-250841	Mylar 0.01 uF (J) 50 WV	610.31 32.35.36	5					
24	B-379800	Mylar 0.0068 μF (M) 50 WV	616	1					
25	B-379765	Mylar 0.0027 μF (J) 50 WV	629.30 37.38	4					
26	B-379787	Mylar 0.0039 μF (J) 50 WV	633.34	2					
27	B-379271	HI-Q Z-12 50P (K) 50 WV	604	1					
28	B-450606	HI-Q 470PF (K) 50 WV	611.12	2					
29	B-349301	HI-Q 390PF (J) 50 WV	613.14	2					
-	B-310792	VFM 120PF (J) 50 WV	613.14	2					
30	B-332280	HI-Q 330PF (K) 50 WV	621.22	2					
31	B-393930	Ceramic UFD13R 0.015 μM 25 WV	606.8	2					
32	B-379743	Ceramic TLD14F 0.047 μZ 25 WV	615.17	2					
33	B-404346	Ceramic TLD14F 0.1 μZ 25 WV	640	1					
		Carbon Resistor, Stopper Type	R						
34	B-336442	RD 1/4 10 K J	610.2.10 13.23	5					
35	B-379473	RD 1/4 30K J	603	1					
36	B-213096	RD 1/4 510Ω J	604	1					
37	B-349907	RD 1/4 33K J	605	1					
38	B-357570	RD 1/4 150K J	606.19.20	3					
39	B-213300	RD 1/4 680Ω J	607.12	2					
40	B-212264	RD 1/4 22K J	608	1					
41	B-211858	RD 1/4 12K J	609.41.42	3					

When you order these parts, Please describe their Parts No. and Serial No. in detail

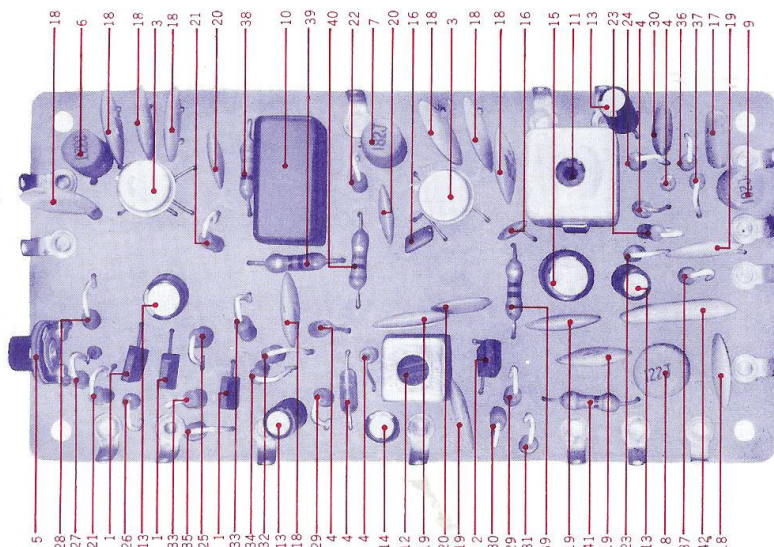
AM-IF P.C. BOARD BLOCK



Ref. No.	Parts No.	Description	Schematic No.	Quantity	Ref. No.	Parts No.	Description	Schematic No.	Quantity
—	C-381216	AM-IF P.C. Board Assy. Comp. (J,U,A)	AA-5537	1	27	C-212310	RD 1/4 22K K	913	1
—	C-381227	AM-IF P.C. Board Assy. Comp. (O)	AA-5537	1	28	C-211072	RD 1/4 3.3K K	* 914, 15	2
1	C-345802	Transistor 2SC454 (B)	TR901 to 4	4	29	C-211116	RD 1/4 330Ω K	916	1
2	C-219464	Germanium Diode 1N34A	D901, 2, 3	3	30	C-211094	RD 1/4 3.9K K	918	1
3	C-380406	Filter BFB 455B-5 (J,U,A)	FLT901	1	31	C-211138	RD 1/4 470Ω K	919	1
—	C-380417	Filter BFB 464-A (O)	FLT901	1	32	C-379934	RD 1/4 27Ω J	920	1
4	C-379978	RF Coil YXR 18887 KO	T901	1	33	C-214593	RD 1/4 68K K (Insulator)	908	1
5	C-379980	Oscillator Coil YXR 18888 MG	T902	1					
6	C-379991	Transformer (455K Hz) HI-137S	T903	1					
7	C-380384	Transformer (455K Hz) HI-134S	T904	1					
8	C-380395	Transformer (455K Hz) 168-D	T905	1					
		Capacitor, Vertical Type c							
9	C-450066	Electrolytic 33 μF 16 WV	903	1					
10	C-307664	Electrolytic 33 μF 6.3 WV	908	1					
11	C-220364	Electrolytic 100 μF 6.3 WV	916	1					
12	C-220432	Electrolytic 2.2 μF 25 WV	917	1					
13	C-379833	Mylar 0.0082 μF (K) 50 WV	905	1					
14	C-251087	Mylar 0.022 μF (K) 50 WV	915	1					
15	C-250885	Mylar 0.01 μF (K) 50 WV	918	1					
16	C-379822	Ceramic DB-207 0.047 μF (Z) 50 WV	901, 2, 4, 6 7, 9 to 14	10					
		Carbon Resistor, Stopper Type	R						
17	C-212354	RD 1/4 220Ω K	901	1					
18	C-211590	RD 1/4 10K K	903	1					
19	C-210925	RD 1/4 1.5K K	904	1					
20	C-357614	RD 1/4 120Ω K	905	1					
21	C-211408	RD 1/4 1.8K K	906	1					
22	C-212455	RD 1/4 270Ω K	907	1					
23	C-382116	RD 1/4 1Ω K	909	1					
24	C-212220	RD 1/4 2.2 K K	910, 17	2					
25	C-320973	RD 1/4 47Ω K	911	1					
26	C-211577	RD 1/4 10Ω K	912	1					

When you order these parts, Please describe their Parts No. and Serial No. in detail

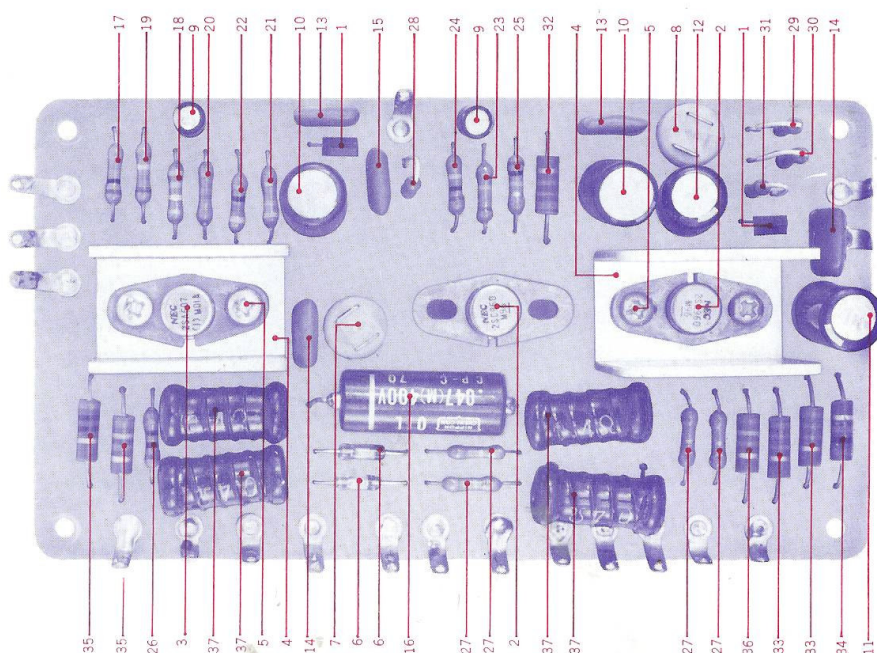
FM. IF. P.C. BOARD BLOCK



Ref. No.	Parts No.	Description	Schematic No.	Quantity	Ref. No.	Parts No.	Description	Schematic No.	Quantity
—	D-381238	FM. IF. P.C. Board Assy. Comp.	AA-5538	1					
1	D-234753	Transistor 2SC458 (B)	TR801,2,4	3	21	D-211116	RD 1/4 330 Ω K	801.10	2
2	D-380430	Transistor 2SC460 (C)	TR803	1	22	D-212646	RD 1/4 33 Ω K	803	1
3	D-380441	I.C. TA7037M	IC801.2	2	23	D-210958	RD 1/4 1K K	807.8	2
4	D-379855	Germanium Diode 1N60P	D801 to 5	5	24	D-212354	RD 1/4 220 Ω K	809	1
5	D-335046	Semi-variable Resistor V101KRZ 50KB	VR801	1	25	D-213153	RD 1/4 56K K	811	1
6	D-243988	Ferri-Inductor FL7H 3.3 MH (J)	L.801	1	26	D-336464	RD 1/4 56 Ω K	812	1
7	D-380564	Ferri-Inductor FL7H 1.8 MH (J)	L.802	1	27	D-211983	RD 1/4 15K K	813	1
8	D-380575	Ferri-Inductor FL9H 1.2 MH (J)	L.803	1	28	D-211590	RD 1/4 10K K	814	1
9	D-243977	Ferri-Inductor FL7H 1.0 MH (J)	L.804	1	29	D-212117	RD 1/4 18K K	815.17	2
10	D-380520	Filter CFP-10.7 MA	FL.T801	1	30	D-213186	RD 1/4 560 Ω K	816	1
11	D-380531	IFT (F. discriminator) V4FCC 2836BDR 10.7 MHZ	T801	1	31	D-211072	RD 1/4 3.3K K	818	1
12	D-380542	IFT HMS-531 10.7 MHZ	T802	1	32	D-211781	RD 1/4 100K K	819	1
		Capacitor, Vertical Type C			33	D-212940	RD 1/4 47K K	820.23	2
13	D-320051	Electrolytic 10 μF 16 WV	815.17 20.27	4	34	D-212433	RD 1/4 27K K	821	1
14	D-220432	Electrolytic 2.2 μF 25 WV	819	1	35	D-210971	RD 1/4 100 Ω K	822	1
15	D-320040	Electrolytic 47 μF 16 WV	826	1	36	D-213243	RD 1/4 6.8K K	824	1
16	D-380507	HI-Q 1 PF (J) 50 WV	811.12	2	37	D-213006	RD 1/4 470K K	825.26	2
17	D-329848	HI-Q 100 PF (J) 50 WV	816.28	2	38	D-380452	RD 1/4 33 Ω K (Insulator)	802	1
18	D-379822	Ceramic DB-207 0.047 μF (Z) 50 WV	801 to 4.8 9.10.14	9	39	D-364465	RD 1/4 10 Ω K (Insulator)	804.5	2
19	D-379822	Ceramic DB-207 0.047 μF (Z) 50 WV	821 to 24 29	5	40	D-213682	RD 1/4 100 Ω K (Insulator)	806	1
20	D-380496	Ceramic DB-205 0.015 μF (Z) 50WV	805.6.7	3	41	D-214345	RD 1/4 47 Ω K (Insulator)	827	1
					42	D-244304	CR Compound Body 4F01	CR801	1

When you order these parts, Please describe their Parts No. and Serial No. in detail

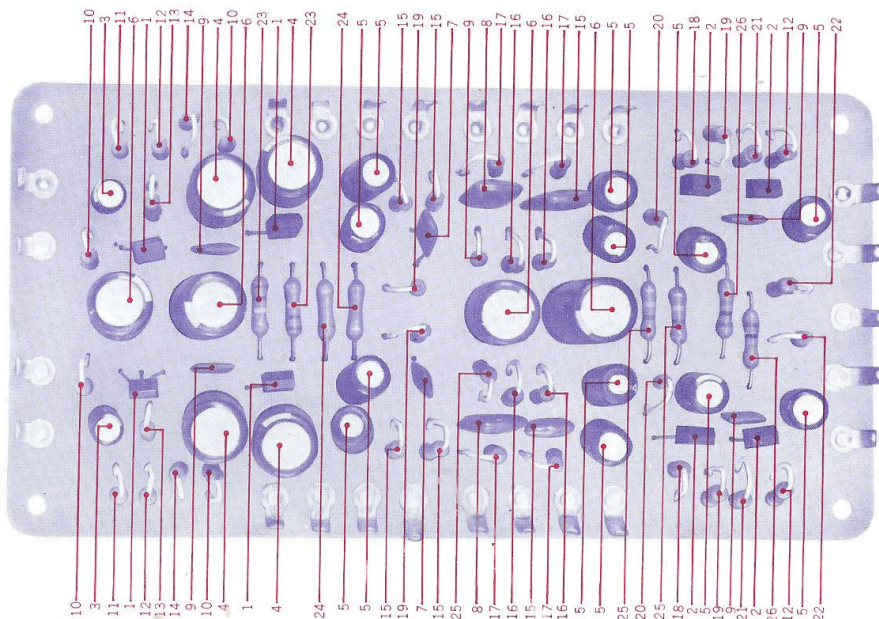
MAIN AMPLIFIER P.C. BOARD BLOCK



Ref. No.	Parts No.	Description	Schematic No.	Quantity	Ref. No.	Parts No.	Description	Schematic No.	Quantity
—	E-380992	Main Amp. P.C. Board Assy. Comp.	AA-5539	2	20	E-324718	RD 1/4 5.6K J	204	2
1	E-234753	Transistor 2SC458 (B)	TR201.3	4	21	E-380070	RD 1/4 4.3K J	205	2
2	E-380002	Transistor 2SC960 (L) or (M)	TR202.4	4	22	E-450347	RD 1/4 47Ω J	206	2
3	E-380024	Transistor 2SA607 (L) or (M)	TR205	2	23	E-348478	RD 1/4 12K J	207	2
4	E-378178	Heat Sink Plate B	AA-5542	4	24	E-213704	RD 1/4 100K J	209	2
5	E-380046	ISO Screw, pan head 3 x 10		8	25	E-213636	RD 1/4 10K J	217	2
—	E-348107	M3 ISO Nut		8	26	E-380136	RD 1/4 10Ω J	221	2
6	E-219464	Germanium Diode 1N34A	B201.2	4	27	E-382127	RD 1/4 2.7Ω J	222, 23 26, 27	8
7	E-380204	Semi-variable Resistor SV10KR 1KB	VR201	2	28	E-343135	RD 1/4 1.6K J (w/stopper)	208	2
8	E-380215	Semi-variable Resistor SV10KR 100KB	VR202	2	29	E-212477	RD 1/4 3.3K J (w/stopper)	210	2
		Capacitor, Vertical Type C			30	E-362441	RD 1/4 1.8K J (w/stopper)	211	2
9	E-450055	Electrolytic 1 μF 25 WV	201.4	4	31	E-211320	RD 1/4 1.5K J (w/stopper)	212	2
10	E-321208	Electrolytic 220 μF 16 WV	203.7	4			Solid Resistor	R	
11	E-346735	Electrolytic 47 μF 50 WV	205	2	32	E-353700	RC 1/2 120Ω K	213	2
12	E-370631	Electrolytic 33 μF 50 WV	208	2	33	E-380114	RC 1/2 8.2K K	214.5	4
—	E-450213	Electrolytic 10 μF 50 WV	214	2	34	E-380125	RC 1/2 1K K	216	2
13	E-329826	HI-Q 220 PF (K) 50 WV	202.6	4	35	E-803237	RC 1/2 270Ω K	218, 20	4
14	E-394020	HI-Q 560 PF (K) 50 WV	209, 10	4	36	E-332212	RC 1/2 10Ω K	219	2
15	E-450606	HI-Q 470 PF (K) 50 WV	212, 13	4	37	E-380171	Wire-wound 1.5WL 2.7Ω J	224, 25 28, 29	8
16	E-210273	Oil Tubular 0.05 μF (M) 400 WV	211	2					
		Carbon Resistor, Insulator Type	R						
17	E-324630	RD 1/4 1K J	201	2					
18	E-450090	RD 1/4 330 K J	202	2					
19	E-213783	RD 1/4 120K J	203	2					

When you order these parts, Please describe their Parts No. and Serial No. in detail

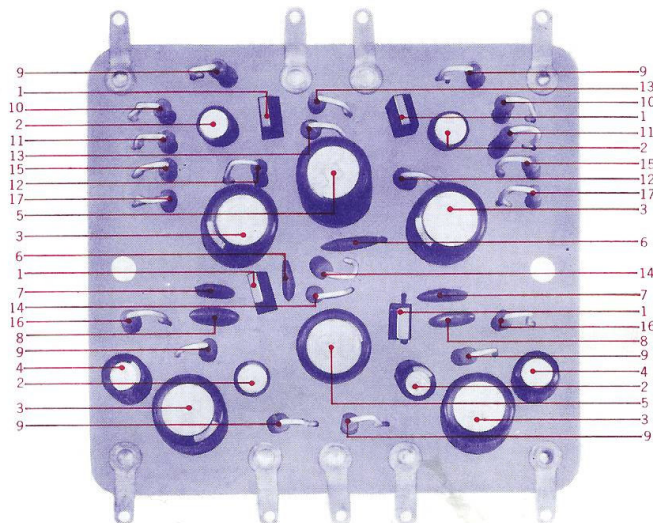
PRE-AMPLIFIER P.C. BOARD BLOCK



Ref. No.	Parts No.	Description	Schematic No.	Quantity	Ref. No.	Parts No.	Description	Schematic No.	Quantity
—	F-381003	Pre-Amp. P.C. Board Assy. Comp.	AA-5545	1					
1	F-234843	Transistor 2SC458LG (B) (C)	TR401.2	4	23	F-380226	Carbon Resistor, Insulator Type RD 1/4 110K J	406	2
2	F-368021	Transistor 2SC458 (B) (C)	TR403.4	4	24	F-380261	RD 1/4 6.2K J	407	2
		Capacitor, Vertical Type c			25	F-380654	RD 1/4 51K J	419	2
3	F-450281	Electrolytic 0.47 μ F 50 WV	401	2	26	F-324630	RD 1/4 1K J	422	2
4	F-324516	Electrolytic 220 μ F 6.3 WV	402.3	4					
5	F-220994	Electrolytic 10 μ F 25 WV	404, 6, 10, 12, 13, 16	12					
6	F-220151	Electrolytic 100 μ F 25 WV	414, 15	4					
7	F-250683	Mylar 0.0022 μ F (J) 50 WV	407	2					
8	F-380608	Mylar 0.047 μ F (J) 50 WV	408, 9	4					
9	F-380698	HI-Q 250 PF (K) 50 WV Z-12	405, 11	4					
		Carbon Resistor, Stopper Type	R						
10	F-211465	RD 1/4 1K J	401, 6	4					
11	F-362272	RD 1/4 200K J	402	2					
12	F-361607	RD 1/4 300 Ω J	403, 20	4					
13	F-324202	RD 1/4 5.1K J	404	2					
14	F-211320	RD 1/4 1.5K J	408	2					
15	F-306360	RD 1/4 6.8K J	409, 10	4					
16	F-336442	RD 1/4 10K J	411, 12, 13	6					
17	F-380305	RD 1/4 110K J	414, 15	4					
18	F-211757	RD 1/4 100K J	416	2					
19	F-213096	RD 1/4 510 Ω J	417, 23	4					
20	F-380340	RD 1/4 51K J	418	2					
21	F-212872	RD 1/4 4.3K J	421	2					
22	F-211667	RD 1/4 100 Ω J	424	2					

When you order these parts, Please describe their Parts No. and Serial No. in detail

EQUALIZER AMP. P.C. BOARD BLOCK



Ref. No.	Parts No.	Description	Schematic No.	Quantity
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—	G-381240	Equalizer Amp. P.C. Board Assy. Comp.	AA-5546	1
1	G-234843	Transistor 2SC458LG (B) (C)	TR501.2	4

Capacitor, Vertical Type C

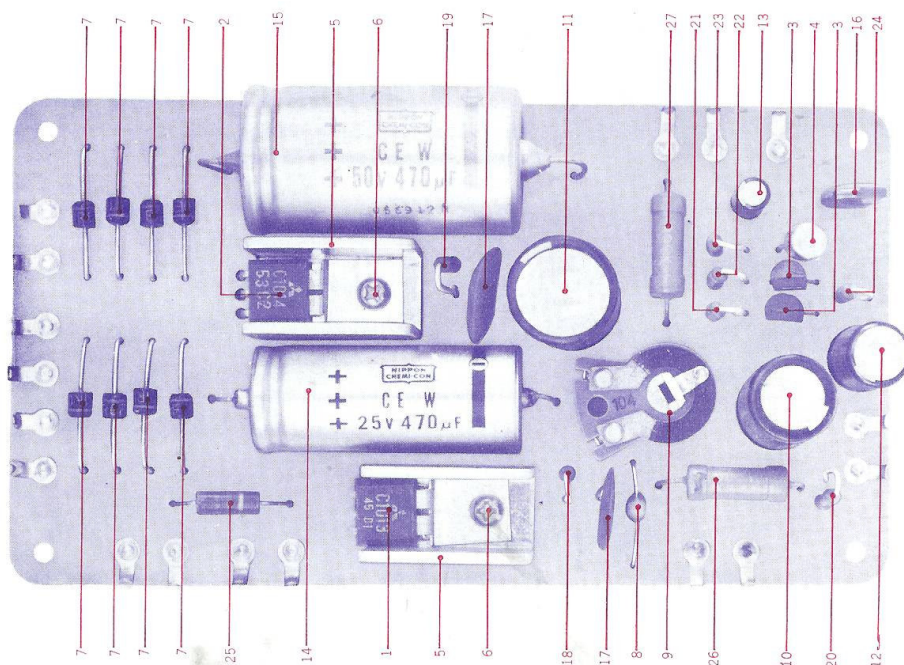
2	G-450281	Electrolytic 0.47 μ F 50 WV	501.5	4
3	G-324516	Electrolytic 220 μ F 6.3 WV	502.3	4
4	G-220994	Electrolytic 10 μ F 25 WV	506	2
5	G-220151	Electrolytic 100 μ F 25 WV	507	2
6	G-380698	HI-Q Z-12 25PF (K) 50 WV	504	2
7	G-380621	Mylar 0.0068 μ F (J) 50 WV	508	2
8	G-368335	Mylar 0.022 μ F (J) 50 WV	509	2

Carbon Resistor, Stopper Type

			R	
9	G-211465	RD 1/4 1K J	501.6, 8	6
10	G-362272	RD 1/4 200K J	502	2
11	G-361607	RD 1/4 300 Ω J	503	2
12	G-212872	RD 1/4 4.3K J	504	2
13	G-380305	RD 1/4 110K J	505	2
14	G-380755	RD 1/4 6.2K J	507	2
15	G-213096	RD 1/4 510 Ω J	509	2
16	G-380711	RD 1/4 220K J	510	2
17	G-211858	RD 1/4 12K J	511	2

When you order these parts, Please describe their Parts No. and Serial No. in detail

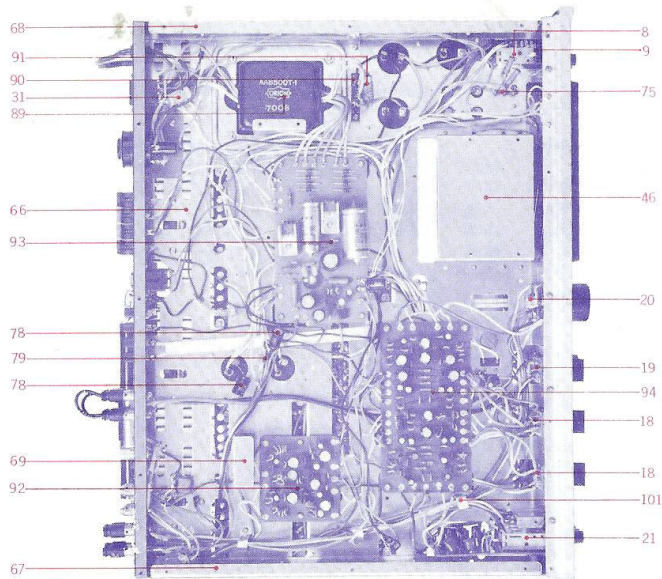
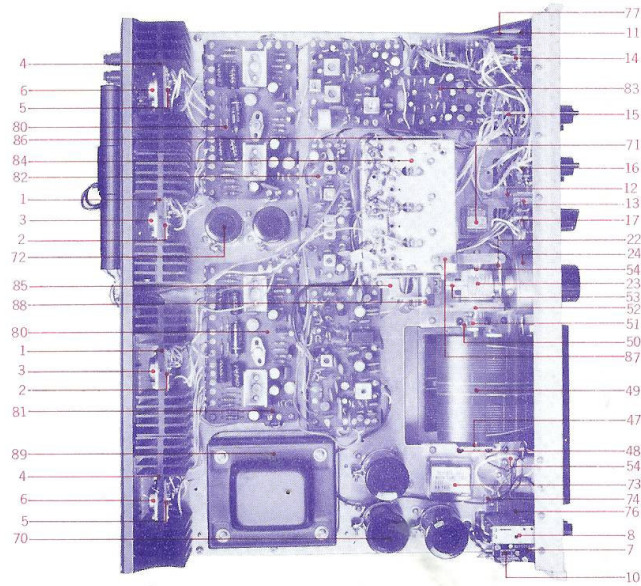
POWER SOURCE P.C. BOARD BLOCK



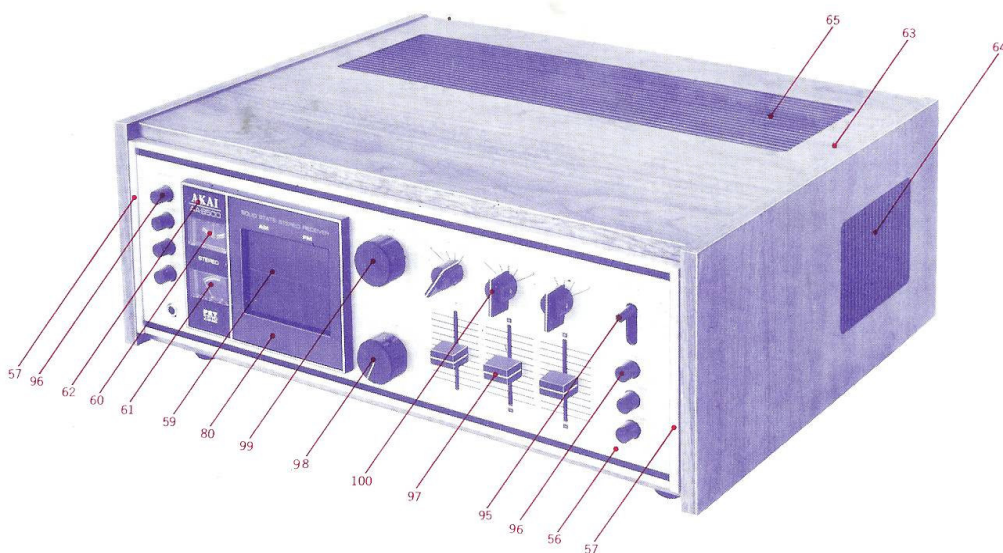
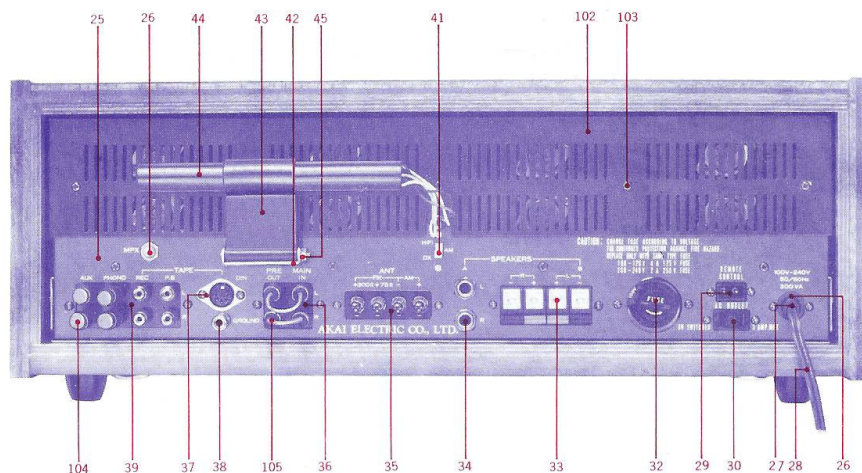
Ref. No.	Parts No.	Description	Schematic No.	Quantity	Ref. No.	Parts No.	Description	Schematic No.	Quantity
—	H-381251	Power Source P.C. Board Assy. Comp.	AA-5547	1	20	H-361642	RD 1/4 47 Ω J	106	1
1	H-380790	Transistor 2SC1013 (D)	TR101	1	21	H-380755	RD 1/4 6.2K J	108	1
2	H-380812	Transistor 2SC1014 (D)	TR102	1	22	H-357535	RD 1/4 39K J	109	1
3	H-371935	Transistor 2SC711 (D)	TR103,4	2	23	H-349784	RD 1/4 390 Ω J	110	1
4	H-394018	Transistor 2SC968 (3)	TR105	1	24	H-380913	RD 1/4 33 Ω J	111	1
5	H-378235	Heat Sink Plate A	AA-5548	2	25	H-380845	Solid RC 1/2 W 220 Ω K	101	1
6	H-380046	ISO Screw, pan head 3 x 10		2	26	H-380856	Metal Oxide Film 2 W 10 Ω K	103	1
—	H-348107	M3 ISO Nut		2	27	H-380867	Metal Oxide Film 2 W 33 Ω K	105	1
7	H-224526	Silicon Diode 10D1	D102 to 9	8					
8	H-393963	Zener Diode AW01-13	D110	1					
9	H-380981	Semi-Variable Resistor V17K3C-1 100 KB	VR101	1					
		Capacitor, Vertical Type c							
10	H-339096	Electrolytic 470 μF 16 WV	109	1					
11	H-372148	Electrolytic 220 μF 35 WV	111	1					
12	H-324516	Electrolytic 2.2 μF 6.3 WV	112	1					
13	H-220432	Electrolytic 2.2 μF 25 WV	113	1					
—	H-373296	Electrolytic 33 μF 50 WV	116	1					
14	H-342472	Electrolytic 470 μF 25 WV (Tublar)	107	1					
15	H-460067	Electrolytic 470 μF 50 WV (Tublar)	110	1					
16	H-380957	Mylar 0.068 μF (M) 50 WV	114	1					
17	H-404346	Ceramic TLD14F 0.1 μF 25 WV	108,15	2					
		Carbon Resistor, Stopper Type	R						
18	H-211320	RD 1/4 1.5K J	102	1					
19	H-324202	RD 1/4 5.1K J	104	1					

When you order these parts, Please describe their Parts No. and Serial No. in detail

ASSEMBLY BLOCK



ASSEMBLY BLOCK



HEAT SINK (A) BLOCK

Ref. No.	Parts No.	Description	Schematic No.	Quantity
—	I-381047	Heat Sink (A) Assy. Comp.	A85	2
1	I-377662	Radiator	AA-5543	2
2	I-378628	Socket, Transistor S2-104W	31-1-71	4
—	I-371856	ISO Screw, binding head 3 x 5		12
—	I-255082	Lug Plate VB2L	33-4-10	2
—	I-321390	Thermister 41D26	45-5-5	2
—	I-405112	Holder, Thermister	AA-5567	2
3	I-378641	Transistor 2SD218L	45-1-78	4

HEAT SINK (B) BLOCK

Ref. No.	Parts No.	Description	Schematic No.	Quantity
—	J-381262	Heat Sink (B) Assy. Comp.	A85	2
4	J-377662	Radiator	AA-5543	2
5	J-378628	Socket, Transistor S2-104W	31-1-71	4
—	J-371856	ISO Screw, binding head 3 x 5		8
6	J-378641	Transistor 2SD218L	45-1-78	4

When you order these parts, Please describe their Parts No. and Serial No. in detail

SWITCH PLATE (L) BLOCK

Ref. No.	Parts No.	Description	Schematic No.	Quantity
—	K-381150	Switch Plate (L) Assy. Comp.	A85	1
7	K-378077	Switch Plate L	AA-5533	1
8	K-379416	Push Button Switch (4 Way Control)		1
—	K-379405	ISO Screw, binding head 3 x 6		2
—	K-378088	Jack Plate	AA-5534	1
—	K-200687	Tapping Screw #2 3 x 6 (round)		2
—	K-379427	Washer (SK3) 9.1 x 11.7 x 0.25t		1
9	K-378843	Mic Jack 3PMJ1	31-2-17	1
—	K-375153	E Jack Nut		1
—	K-378854	Metal Oxide Film Resistor 2W 470 Ω K	35-15-3	2
10	K-250042	Micro Switch V-1A U/L		1

SWITCH PLATE (R) BLOCK

Ref. No.	Parts No.	Description	Schematic No.	Quantity
—	L-381161	Switch Plate (R) Assy. Comp.	A85	1
11	L-378033	Switch Plate R	AA-5529	1
12	L-378055	Shield Angle	AA-5531	1
—	L-200687	Tapping Screw #2 3 x 6 (round)		3
13	L-378044	Shield Plate	AA-5530	1
14	L-378865	Lever Switch S-321-122		1
—	L-379405	ISO Screw, binding head 3 x 6		10
15	L-378876	Rotary Switch F464	25-6-27	1
16	L-378887	Rotary Switch F235		1
—	L-213636	Carbon Resistor RD1/4 10K J	35-9-3	2
17	L-378898	Rotary Switch F244		1
18	L-378900	Slide Volume LG45 100KB x 2	36-20-2	2
19	L-378911	Slide Volume (Balance) LG45 100KMN	36-20-1	1
20	L-378922	Double Volume G16T2 250KA x 2	36-22-1	1
21	L-381172	Filter P.C. Board Assy. Comp.	AA-5532	1

FLYWHEEL WORM GEAR BLOCK

Ref. No.	Parts No.	Description	Schematic No.	Quantity
—	M-381137	Flywheel & Worm Gear Comp.	A85	1
22	M-377987	Shaft Bracket, w/metal	AA-5524	1
23	M-378000	Worm Shaft A	AA-5526	1
—	M-382083	Washer (Nylon) 6.1 x 13 x 1t		2
24	M-377998	Wlywheel	AA-5525	1
—	M-379383	ISO Screw, pan head 4 x 7		1
—	M-330423	Adjusting Washer 4.0 x 13 x 0.25t		3
—	M-330434	Adjusting Washer 4.0 x 13 x 0.5t		3

REAR PANEL BLOCK

Ref. No.	Parts No.	Description	Schematic No.	Quantity
—	N-381183	Rear Panel Assy. Comp.	A85	1
25	N-378246	Rear Panel	AA-5549,5	1
—	N-378540	Vinyl Bushing	AA-801	1
26	N-378551	2 Core Plate	AA-803	1
27	N-246914	Strain Relax SR-2P-1	2-7-9	1
28	N-374940	U/L AC Cord 3M	26-3-18	1
—	N-379438	ISO Screw, round head 3 x 6		2
29	N-378933	2P Plug S-1 0805	31-1-68	1
—	N-393794	ISO Screw, round head 3 x 8		8
—	N-348107	ISO M3 Nut		14
30	N-378944	U/L AC Concent S-1 9122	31-1-47	1
31	N-378786	Oil Tublar Capacitor 0.01 μF (M) 600WV	24-8-4	2
32	N-233370	Power Concent (Voltage Selector) S-18010	40-2-3	1
33	N-378955	Push Terminal, 4PD Type (S-Q 2350)	32-1-16	1
34	N-378966	Mic Jack 2PMJ2	31-2-26	2
—	N-375153	E Jack Nut		2
35	N-378977	4P Terminal Plate X-P4852	32-1-15	1
36	N-378988	4P US Pin Jack S-Q 3460	31-1-69	1
37	N-379001	5P DIN Jack S-1 8123	31-1-24	1
38	N-379012	Metal Terminal X-Q 0204	32-1-11	1
39	N-379023	8P Pin Jack S-Q 3654	31-1-70	1
—	N-348478	Carbon Resistor RD1/4 12K J	35-9-3	4
—	N-345745	Carbon Resistor RD1/4 68K J	35-9-3	2
—	N-378696	Carbon Resistor RD1/4 51K J	35-9-3	2
40	N-379034	Volume V16N-30KB	36-7-5	1
41	N-379045	6P Slide Switch SJ-0282	25-3-36	1
—	N-379056	Mylar Capacitor 0.015 μF (M) 50WV	24-1-1	1
—	N-390971	Screw, binding head 2 x 4		2
42	N-378257	Antenna Channel	AA-5551	1
—	N-372104	Tapping Screw #2 3 x 6 (round)		2
43	N-378268	Antenna Holder	AA-5552	1
44	N-379067	Bar Antenna	55-1-3	1
—	N-273914	M4 Spring Washer		2
45	N-379451	ISO Screw, round head 4 x 50		1
—	N-348030	ISO M4 Nut		1

When you order these parts, Please describe their Parts No. and Serial No. in detail

DIAL DRUM BLOCK

Ref. No.	Parts No.	Description	Schematic No.	Quantity
-	O-381115	Dial Drum Assy. Comp. (U,O)	A85	1
-	O-381126	Dial Drum Assy. Comp. (A)	A85	1
-	O-381104	Dial Drum Assy. Comp. (J)	A85	1
46	O-377774	Dial Plate	AA-5507	1
47	O-377796	Drum Shaft A	AA-5509	1
-	O-270123	"E" Ring 4M	6-1-9	1
-	O-382083	Washer (Nylon) 6.1 x 13 x 1t		1
48	O-382094	Drum Angle A	AA-5508	1
49	O-377807	Drum A	AA-5510	1
-	O-393827	ISO Set Screw 3 x 4		2
-	O-377820	Scale Film A (U,O)	AA-5512	1
-	O-377818	Scale Film B (J)	AA-5511	1
-	O-378180	Scale Film C (A)	AA-5557	1
50	O-377785	Drum Angle B	AA-5508	1
51	O-377831	Metal B	AA-5513	1
-	O-273600	M12 Toothed Lock Washer		1
-	O-303344	M12 Hexagon Nut	RD643	1
52	O-377842	Spur Gear A	AA-5514	1
-	O-377853	Friction Ring A 12.5 x 26.5 x 1t (Rubber)	AA-5515	1
53	O-377864	Worm Gear A	AA-5516	2
-	O-377875	Worm Pin B L=9	AA-5517	1
-	O-377897	Worm Pin A L=13	AA-5517	1
-	O-377886	Friction Ring B 12.5 x 26.5 x 1t	AA-5515	1
-	O-243437	Spring, Worm Gear A	BT-170	1
54	O-377908	Friction Spring	AA-5518	1
-	O-377910	Friction Collar	AA-5519	1
-	O-393827	ISO Set Screw 3 x 4		1
-	O-381137	Flywheel & Worm Gear Comp.	A85	1
-	O-377943	Lamp P.C. Board	AA-5521	2
-	O-295312	Lamp #2 8V 0.2A	28-2-8	2
55	O-377921	Right Plate A	AA-5520	1
-	O-377932	Right Plate B	AA-5520	1
-	O-377954	Right Case	AA-5522	2
-	O-377965	AF Plate A (Blue)	AA-5523	1
-	O-377976	AF Plate B (Green)	AA-5523	1
-	O-379372	ISO Screw, Countersunk Head 3 x 12		4
-	O-348107	M3 ISO Nut		4

AMPLIFIER PANEL BLOCK

Ref. No.	Parts No.	Description	Schematic No.	Quantity
-	P-381148	Amplifier Panel Assy. Comp.	A85	1
56	P-378382	Amplifier Panel	AA-5606	1
57	P-378336	Side Frame	AA-5601	2
58	P-378393	Dial Esuctchon	AA-5608	1
-	P-378426	Stereo Indicator (Red)	AA-5612	1
59	P-378404	Scale Plate	AA-5610	1
-	P-378415	Scale Plate Holder	AA-5611	2
-	P-375118	Screw, binding head 2.3 x 6		4
-	P-259391	Washer (SUP) 2.4 x 6 x 0.35t		4
-	P-355555	Screw, binding head 2.6 x 6		8
-	P-378270	Lamp Meter Holder B	AA-5553	1
-	P-390982	Rubber Bushing D9		1
-	P-408960	Small Lamp 24V 35MA 600MM	28-2-15	1
60	P-378821	Meter SB-45 (No. 4398DS) (FM)	46-1-31	1
61	P-378832	Meter V-45 (No. 4397DS)	46-1-30	1
-	P-379405	ISO Screw, binding head 3 x 6		4
62	P-378527	Name Plate	AA-5624	1

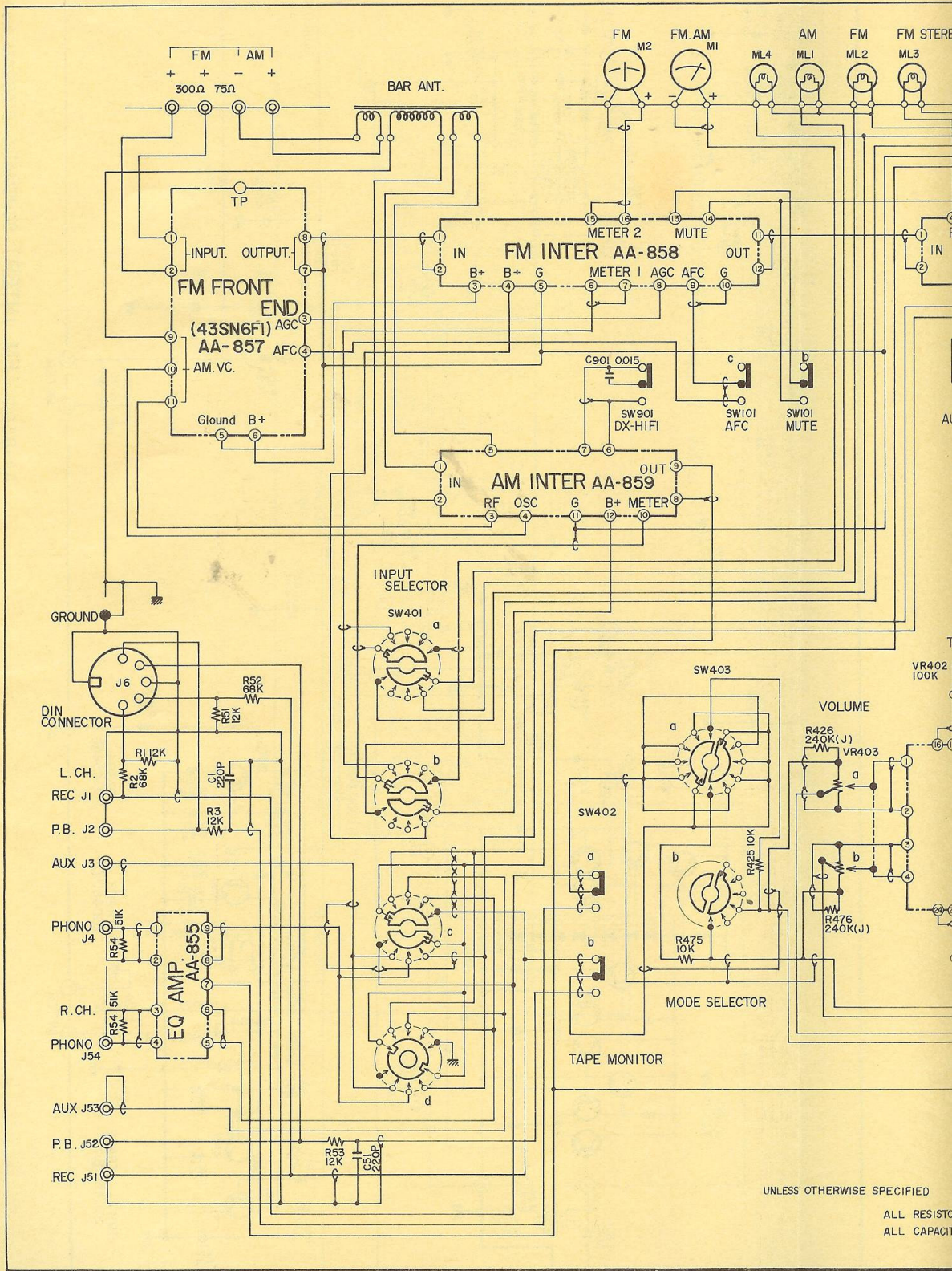
WALNUT CASE BLOCK

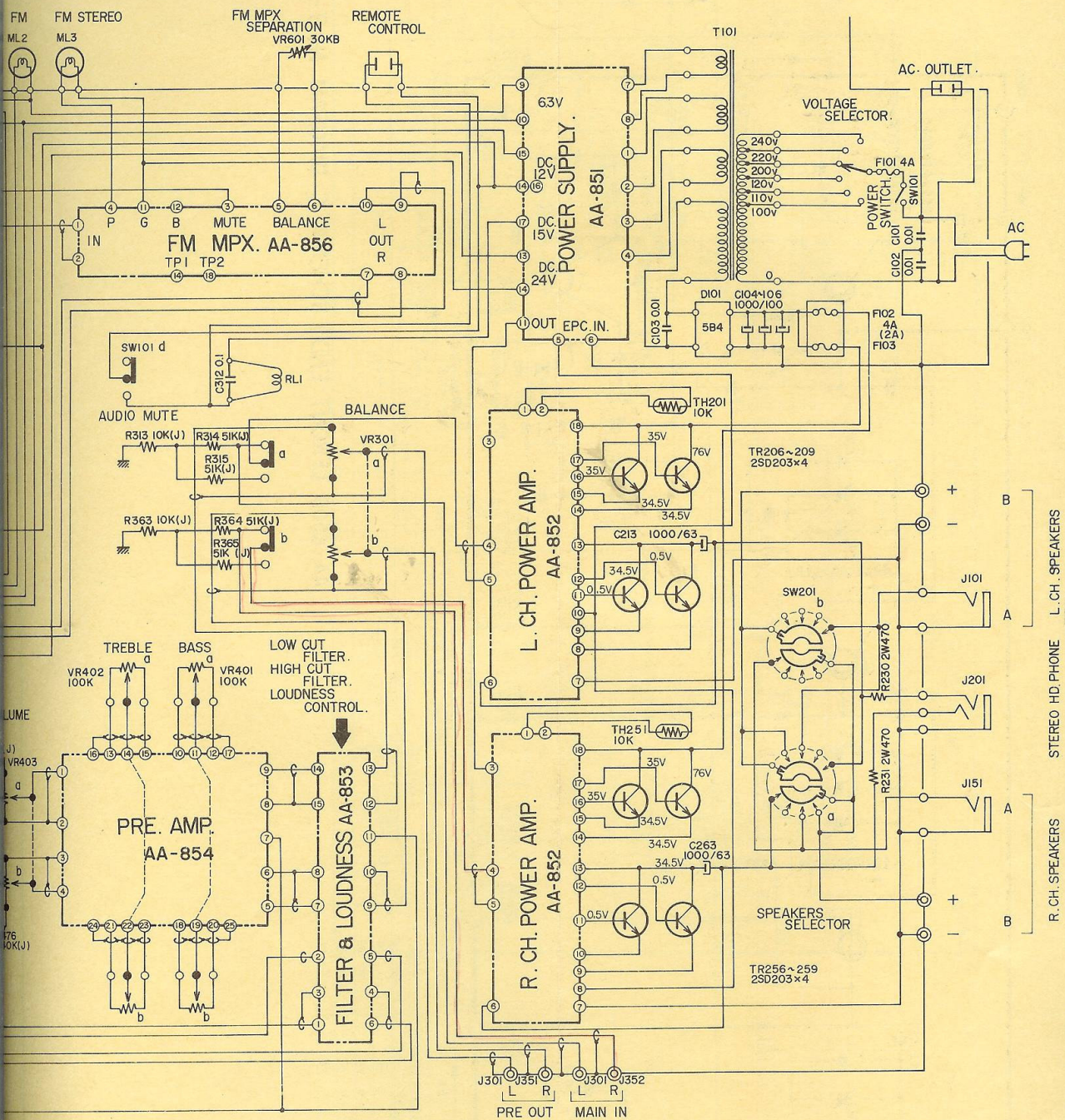
Ref. No.	Parts No.	Description	Schematic No.	Quantity
63	Q-381058	Walnut Case Assy. Comp.	A85	1
64	Q-377122	Esuctchon A	AA-793	2
65	Q-377133	Esuctchon B	AA-794	1
-	Q-379293	Wood Screw, round head 3.1 x 10		32
-	Q-377190	LM Rubber Foot	LM-404	4
-	Q-259830	Washer (SPC) 4.5 x 9.8 x 0.5t		4
-	Q-379304	Wood Screw, round head 3.8 x 25		4
-	Q-405606	Case Supporting Angle	AA-5626	2

FINAL ASSEMBLY BLOCK

Ref. No.	Parts No.	Description	Schematic No.	Quantity	Ref. No.	Parts No.	Description	Schematic No.	Quantity
66	R-377695	Main Chassis	AA-5501	1	88	R-377741	Boss, w/plate gear A,B		
67	R-377706	Channel Chassis A	AA-5502	1			Comp.	AA-5505,6	1
68	R-377717	Channel Chassis B	AA-5502	1	—	R-379315	ISO Set Screw 3 x 4		2
—	R-200700	Tapping Screw # 2 4 x 8 (round)		8	—	R-243437	Spring, Plate Gear	BT-170	1
69	R-377728	Chassis Setting	AA-5503	1	89	R-378764	Power Transformer T-1	38-4-95	1
70	R-378652	Electrolytic Capacitor 1000 μ F 100WV	24-10-52	3	90	R-378775	Silicon Diode 5B4	45-2-34	1
—	R-200687	Tapping Screw # 2 3 x 6 (round)		8	91	R-378786	Oil Tubular Capacitor 0.01 μ F (M) 600WV	24-8-4	1
71	R-378663	Sub Miniature Relay MH2PM-1	47-2-16	1	92	R-381240	Equalizer Amp. P.C. Board Assy. Comp.	AA-5546	1
—	R-350594	Ceramic Capacitor TLD14F 0.1 μ Z 25WV	24-5-52	1	93	R-381251	Power Source P.C. Board Assy. Comp.	AA-5547	1
72	R-378674	Electrolytic Capacitor 1000 μ F 63WV	24-10-61	2	94	R-381003	Pre-Amp. P.C. Board Assy. Comp.	AA-5545	1
73	R-378685	2P Fuse Holder, w/cover	40-1-10	1	95	R-378450	Lever Switch Knob	AA-5615	1
—	R-200687	Tapping Screw # 2 3 x 6 (round)		6	96	R-378461	Push Switch Knob	AA-5616	7
74	R-255115	Lug Plate VB2L2	33-4-3	1	—	R-378483	Spring, Knob	AA-5618	10
—	R-378696	Carbon Resistor RD1/4 51K J	35-9-3	4	97	R-378472	Slide Knob	AA-5617	3
—	R-213636	Carbon Resistor RD1/4 10K J	35-9-3	2	98	R-378494	TV Knob A	AA-5619	1
75	R-255082	Lug Plate VBL2	33-4-10	2	99	R-378505	TV Knob B	AA-5619	1
—	R-273778	M3 Earth Lug		1	—	R-393805	ISO Set Screw 4 x 10.7		2
76	R-378090	Switch Plate Supporting	AA-5535	1	100	R-378516	Rotary Switch Knob	AA-5620	3
77	R-378303	Side Frame Supporting	AA-5556	4	—	R-393816	ISO Set Screw 4 x 5		3
—	R-329826	HI-Q Capacitor 220PF (K) 50WV	24-6-4	2	101	R-259233	Wire Band C	3A-745	5
78	R-450224	Electrolytic Capacitor 10 μ F 50WV	24-12-10	2	—	R-378437	Bottom Plate	AA-5613	1
79	R-254970	Lug Plate KP1L1	33-3-3	1	—	R-396358	Wood Case Washer	AA-5625	4
—	R-295312	Lamp # 2 8V 0.2A	28-2-8	1	—	R-400702	ISO Screw, truss head 4 x 25		4
80	R-380992	Main Amp. P.C. Board Assy. Comp.	AA-5539	2	102	R-378448	Rear Panel Plate	AA-5614	1
—	R-378167	Lead-wire Holder	AA-5541	1	103	R-372104	Tapping Screw # 2 3 x 6		5
81	R-381238	FM-IF P.C. Board Assy. Comp.	AA-5538	1	—	R-378595	Fuse ST-2 4A	39-1-26	1
82	R-381216	AM-IF P.C. Board Assy. Comp. (J,U,A)	AA-5537	1	—	R-277413	Fuse ST-2 2A	39-1-26	1
—	R-381228	AM-IF P.C. Board Assy. Comp. (O)	AA-5537	1	104	R-378797	Short Pin Plug	42-1-37	2
83	R-381194	MPX. P.C. Board Assy. Comp. (U,A,O)	AA-5536	1	105	R-402603	Pin Plug Cord	42-1-43	2
—	R-381205	MPX. P.C. Board Assy. Comp. (J)	AA-5536	1	—	R-378573	FM Dipole Antenna A (J)	55-1-1	1
84	R-378753	FM Front End (Tuner) 43SN3FI-251 (U,O)	53-1-7	1	—	R-378548	FM Dipole Antenna B (U,A,O)	55-1-2	1
—	R-378371	FM Front End (Tuner) 43SN3FI-252 (J)	53-1-9	1					
—	R-378742	FM Front End (Tuner) 43SN3FI-253 (A)	53-1-8	1					
—	R-213895	Carbon Resistor RD1/4 150K K	35-9-3	1					
85	R-395728	Boss Supporting Angle	AA-5566	1					
86	R-377730	Front End Angle	AA-5504	2					
87	R-378022	Shaft Retaining Holder	AA-5528	1					

When you order these parts, Please describe their Parts No. and Serial No. in detail

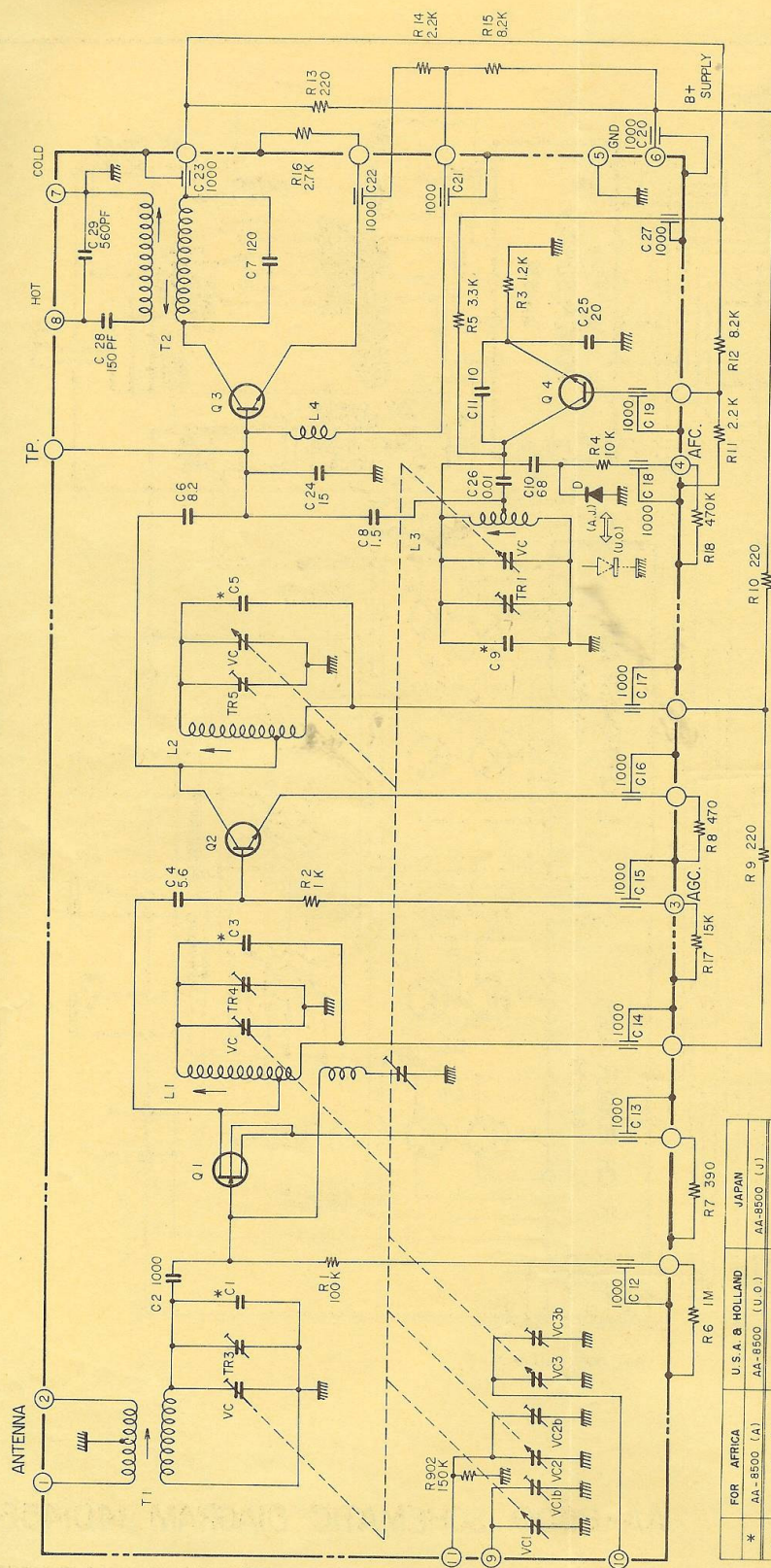




UNLESS OTHERWISE SPECIFIED

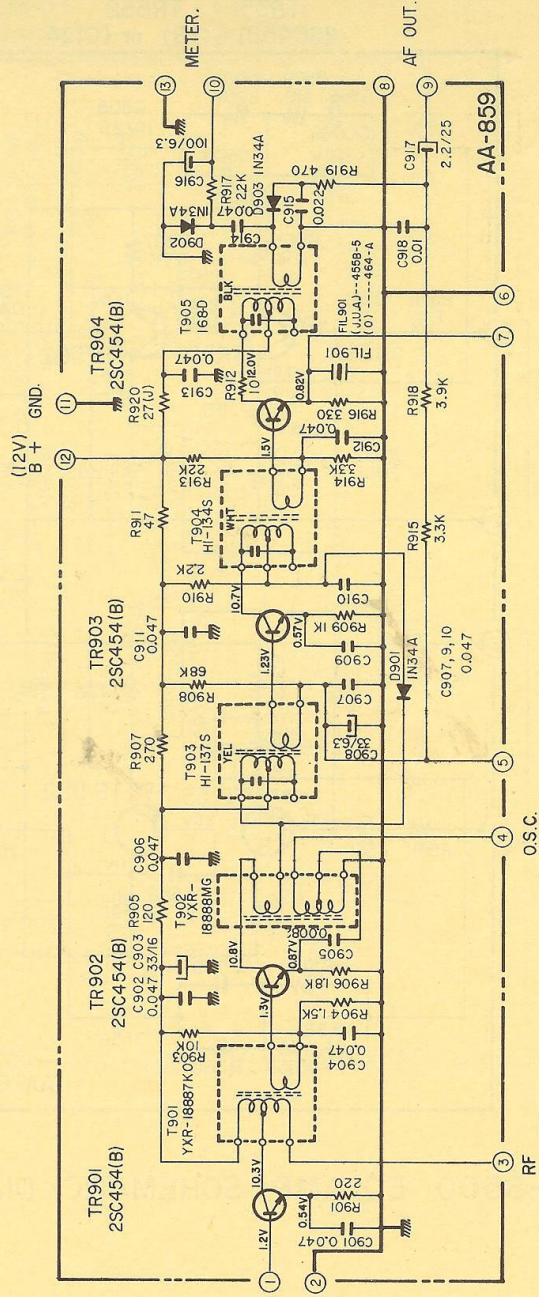
ALL RESISTORS IN OHMS 1/4W K
ALL CAPACITORS IN MFD (MFD/WV)

AA-8500 SCHEMATIC DIAGRAM 14014560

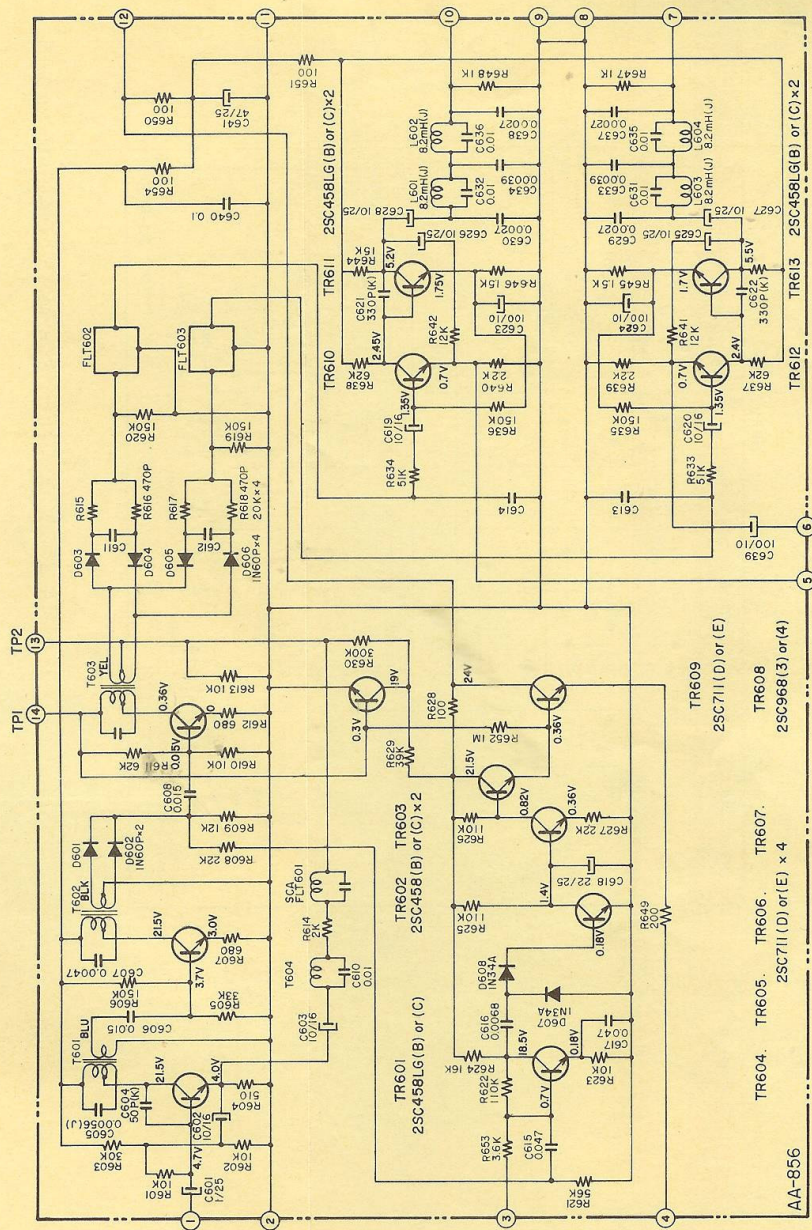


AA-8500 (FRONT END.) SCHEMATIC DIAGRAM. No. 9 - I

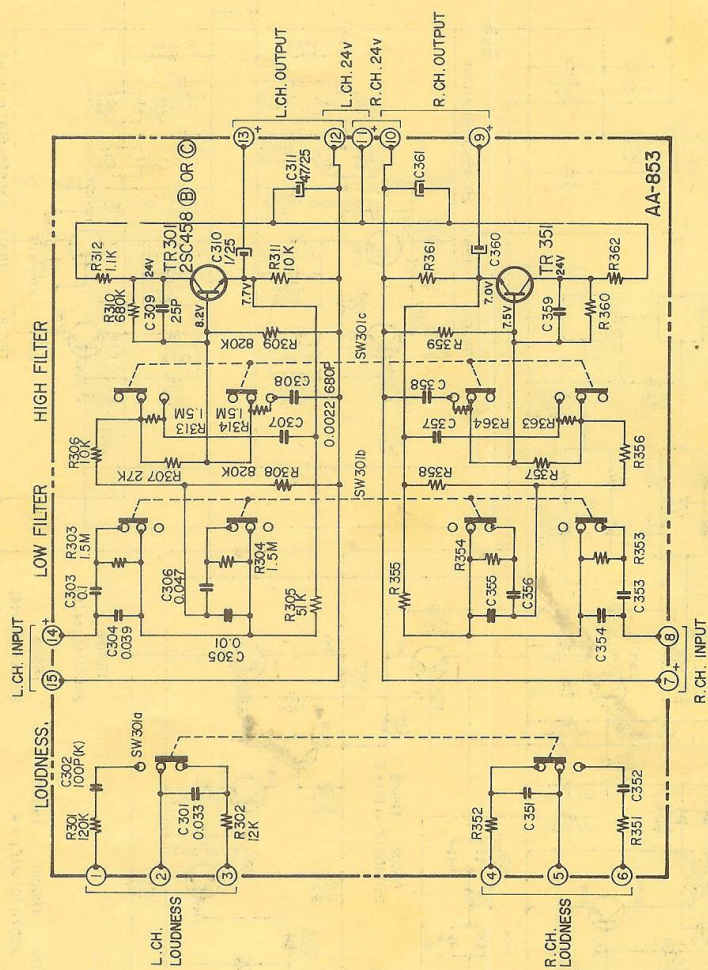
*	FOR AFRICA		U.S.A. & HOLLAND		JAPAN	
	AA-8500 (A)	AA-8500 (U.O.)	AA-8500 (U.O.)	AA-8500 (J)	AA-8500 (J)	AA-8500 (J)
C1	10 PF	12 PF	10 PF	10 PF	10 PF	10 PF
C3	14 PF	15 PF	15 PF	20 PF	20 PF	20 PF
C5	14 PF	15 PF	15 PF	20 PF	20 PF	20 PF
C9	4 PF	15 PF	15 PF	15 PF	15 PF	15 PF



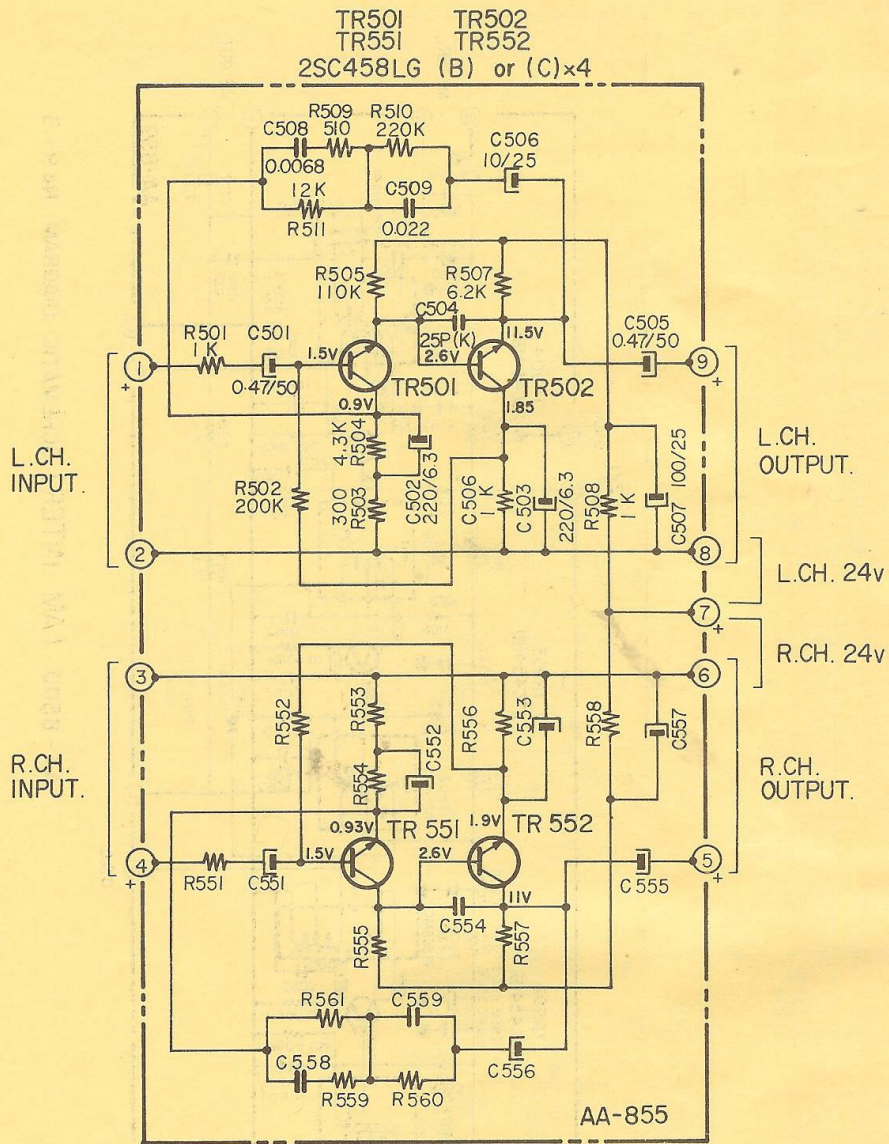
AA - 8500 (AM INTER) SCHEMATIC DIAGRAM. No.9 - 3



AA-8500 FM-MPX SCHEMATIC DIAGRAM. No.9-4



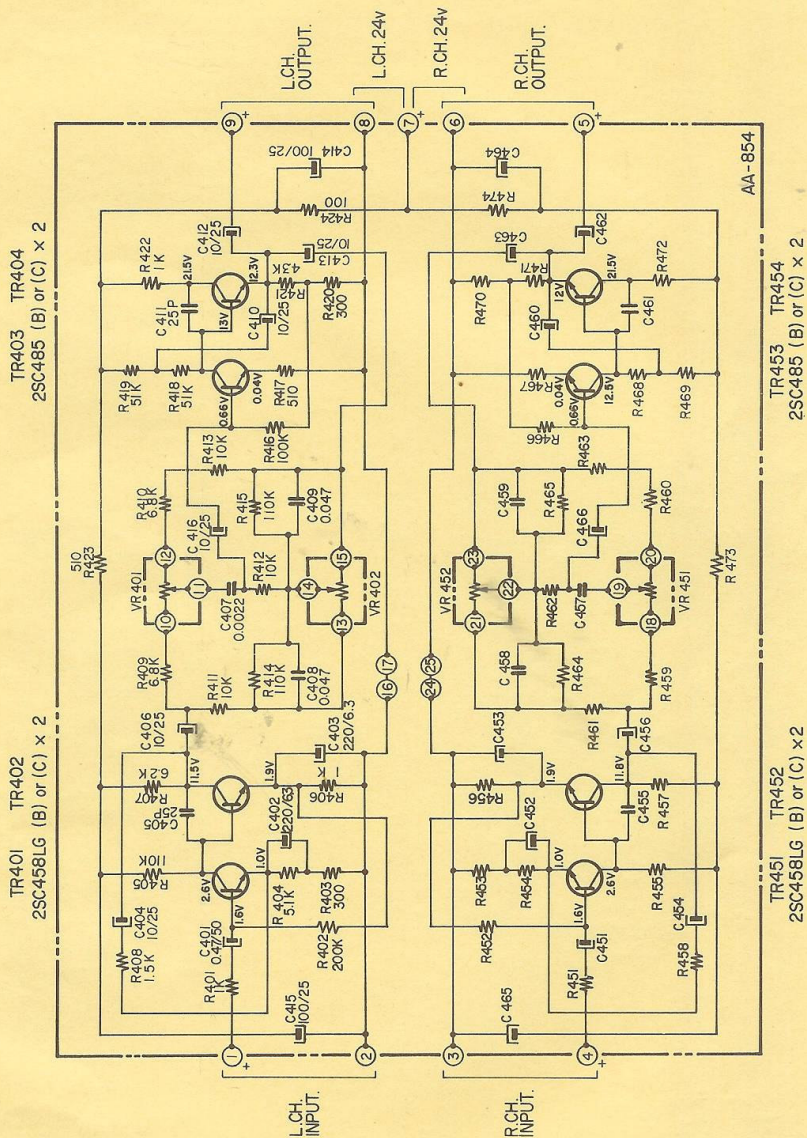
AA-8500 FILTER SCHEMATIC DIAGRAM, No.9 - 5



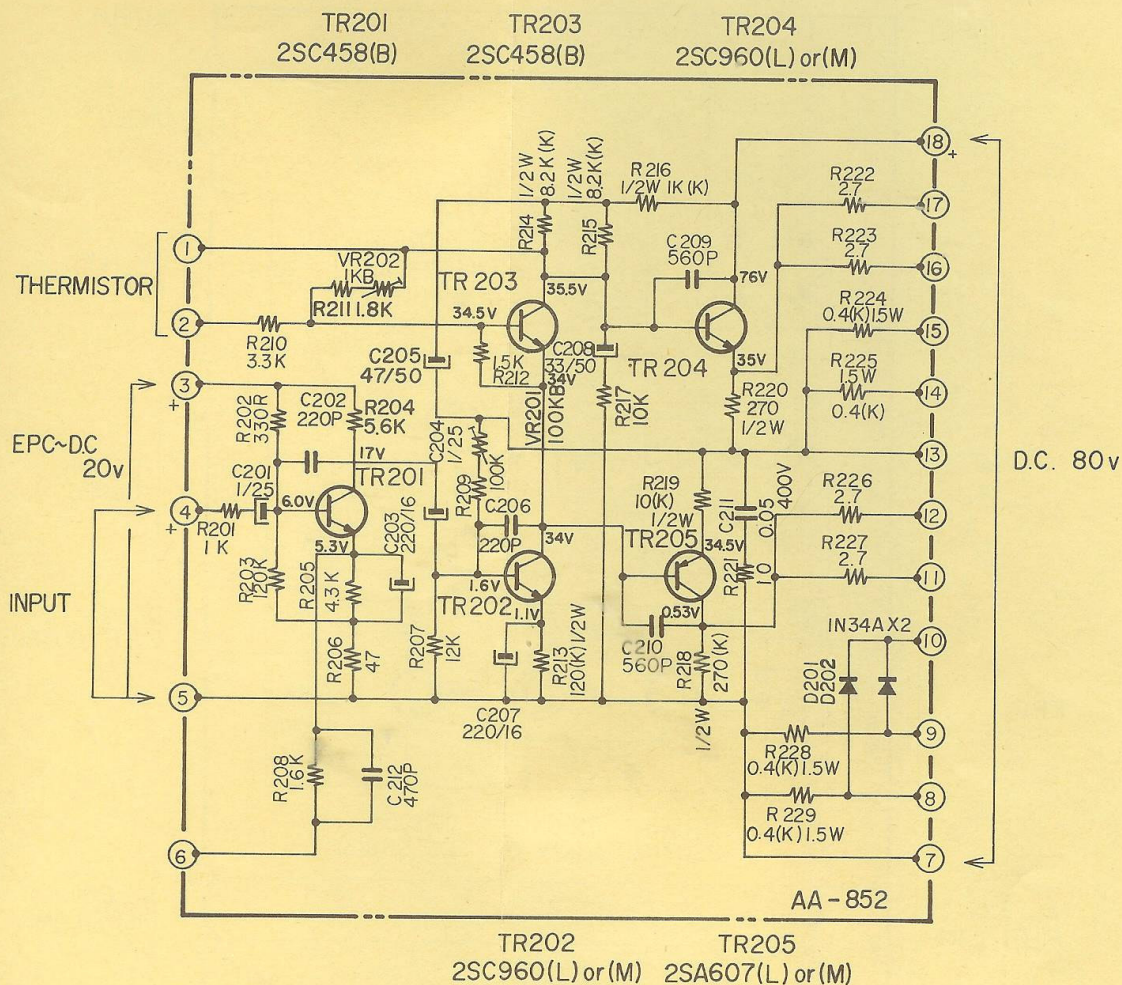
AA-8500 EQ. AMP. SCHEMATIC DIAGRAM. No.9 - 6

TR403
2SC485 (B) or (C) x 2

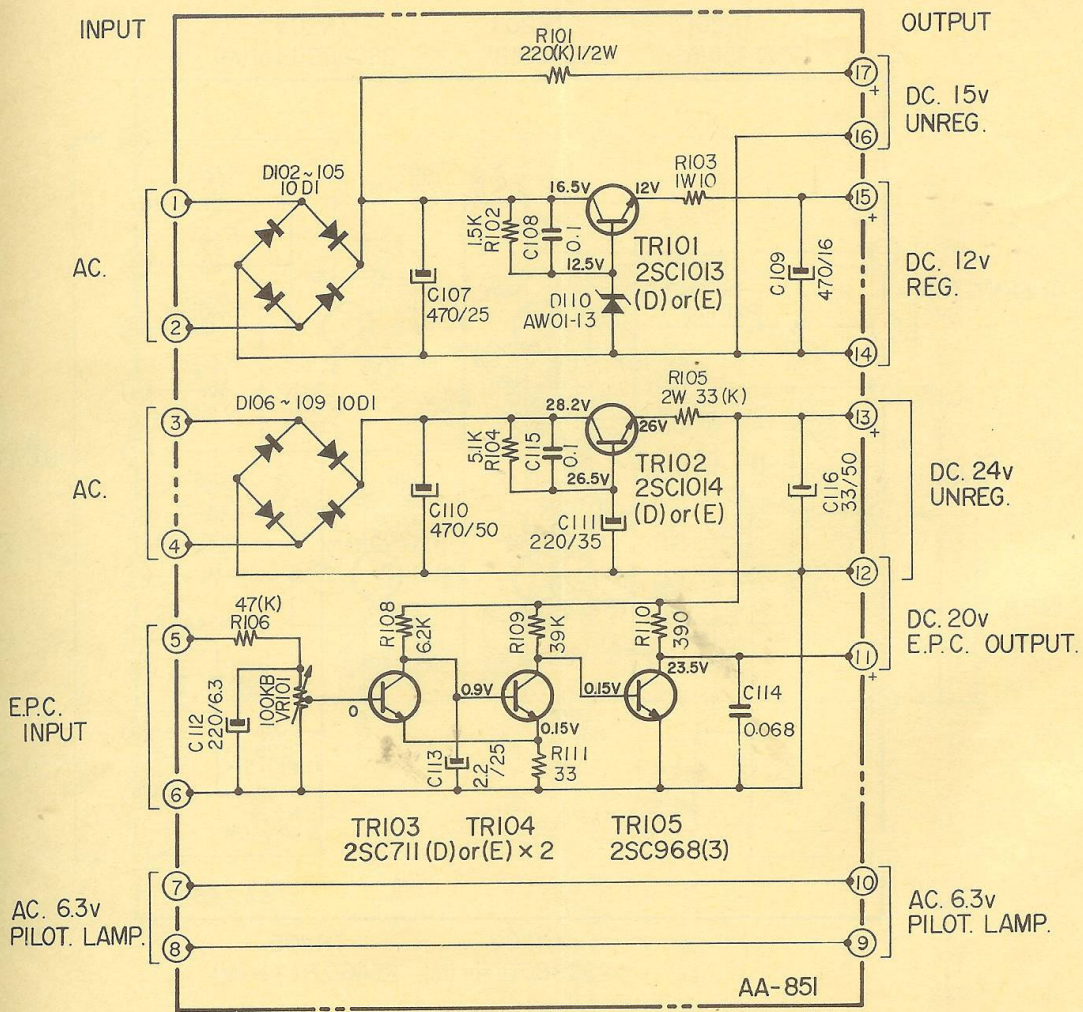
TR402
2SC458LG (B) or (C) x 2



AA-8500 PRE. AMP. SCHEMATIC DIAGRAM. No.9-7



AA-8500 POWER AMP. SCHEMATIC DIAGRAM. No.9-8



AA-8500 POWER SUPPLY SCHEMATIC DIAGRAM. No.9 - 9