

SERVICE MANUAL

PARTS LIST

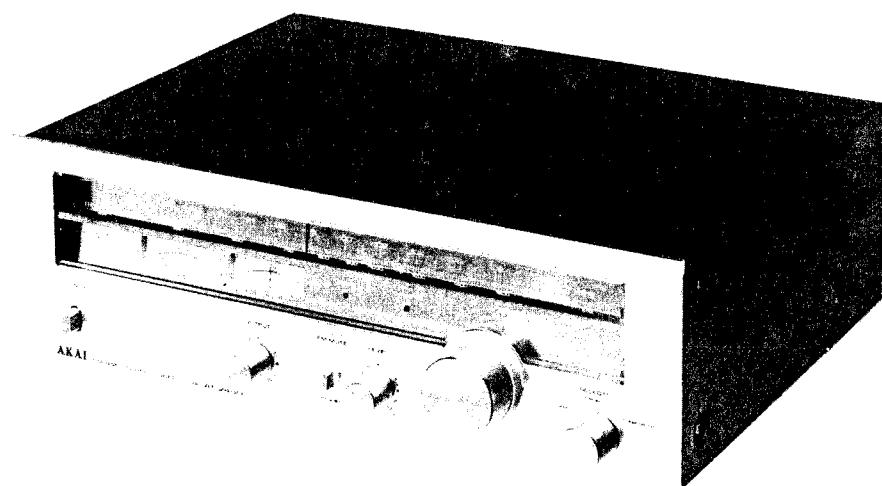
MODEL AT-2450
AM-2450

AKAI

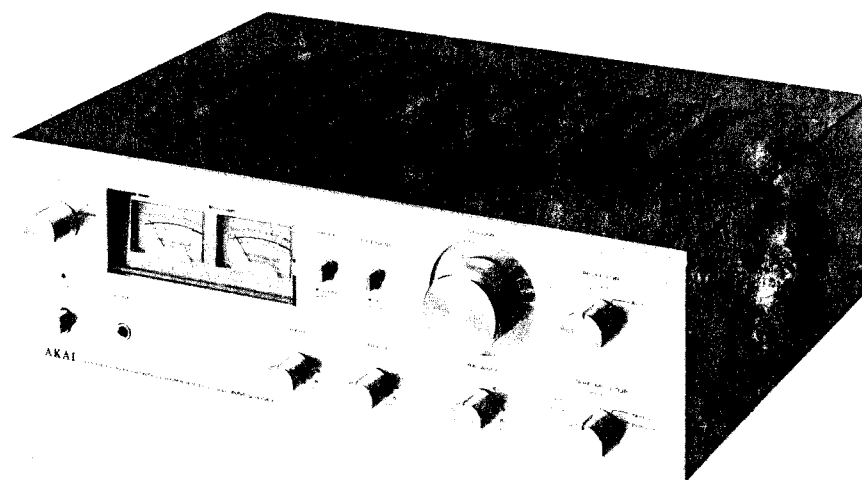
ALSO APPLICABLE TO BLACK PANEL MODEL

MC-Service

AT-2450
AM-2450



AT-2450



AM-2450

AKAI STEREO TUNER AND STEREO INTEGRATED AMPLIFIER

MODEL **AT-2450 AM-2450**

ALSO APPLICABLE TO BLACK PANEL MODEL

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

SERVICE MANUAL

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For basic adjustments, measuring methods, and operating principles, refer to GENERAL TECHNICAL MANUAL.

I. TECHNICAL DATA

1. MODEL AT-2450

FM TUNER SECTION

| | | |
|------------------------------|--------|---|
| FREQUENCY RANGE | | 87.5 MHz to 108 MHz |
| SENSITIVITY (IHF) | | 1.7 μ V |
| CAPTURE RATIO | | 1.2 dB |
| SELECTIVITY (IHF) | | More than 80 dB |
| IMAGE REJECTION | | More than 90 dB (98 MHz) |
| IF REJECTION | | More than 100 dB (98 MHz) |
| SPURIOUS REJECTION | | More than 100 dB (98 MHz) |
| AM SUPPRESSION | | 55 dB |
| SIGNAL TO NOISE RATIO | | 75 dB |
| HARMONIC DISTORTION | MONO | Less than 0.15% (100% modulation) |
| | STEREO | Less than 0.2% (100% modulation) |
| FM STEREO FREQUENCY RESPONSE | | 20 Hz to 15 kHz +1/-3 dB |
| MUTING | | Level Control (1 μ V to 100 μ V) |
| STEREO SEPARATION | | More than 45 dB (1 kHz) |
| SUB CARRIER SUPPRESSION | | More than 65 dB |
| OUTPUT VOLTAGE | | Controllable from 0 to 2V (100% modulation) |
| ANTENNA INPUT IMPEDANCE | | 300 ohms balanced, 75 ohms unbalanced |

AM TUNER SECTION

| | | |
|-----------------------|--|--|
| FREQUENCY RANGE | | 520 kHz to 1,605 kHz |
| SENSITIVITY (IHF) | | 100 μ V/m (bar antenna), 15 μ V (external antenna) |
| SELECTIVITY (IHF) | | More than 30 dB |
| IMAGE REJECTION | | More than 50 dB (1,000 kHz) |
| IF REJECTION | | More than 40 dB |
| SIGNAL TO NOISE RATIO | | More than 55 dB |
| OUTPUT VOLTAGE | | Controllable from 0 to 2V |
| ANTENNA | | Built-in ferrite bar antenna |

MISCELLANEOUS

| | | |
|--------------------|--|--|
| SEMICONDUCTORS | | Transistors: 9, Diodes: 14, FET: 1, ICs: 4 |
| POWER REQUIREMENTS | | 120 V, 60 Hz for U.S.A. and Canada |
| | | 220 V, 50 Hz for Europe |
| | | 240 V, 50 Hz for UK |
| | | 110/220/240 V, 50/60 Hz Switchable for other countries |
| DIMENSIONS | | 440 (W) x 144 (H) x 368 (D) mm (17.3 x 5.7 x 14.5) inches |
| WEIGHT | | 7.3 kg (16.1 lbs) |

* For improvement purposes, specifications and design are subject to change without notice.

2. MODEL AM-2450

POWER AMPLIFIER SECTION

| | | |
|-----------------------------|-----------------------|---|
| RATED OUTPUT POWER | 2-CHANNELS DRIVEN | 45 watts per channel, minimum RMS, at 8 ohms from 20 to 20,000 Hz with no more than 0.1% total harmonic distortion. |
| POWER BANDWIDTH (IHF) | | 6 Hz to 60 kHz/8 ohms (Total Harmonic Distortion: 0.1%) |
| SIGNAL TO NOISE RATIO (IHF) | PHONO AUX | Better than 75 dB Better than 95 dB |
| RESIDUAL NOISE | | Less than 0.5 mV at 8 ohms |
| CHANNEL SEPARATION (IHF) | PHONO | Better than 55 dB at 1,000 Hz |
| DAMPING FACTOR | | More than 30 (1 kHz, 8 ohms) |
| OUTPUT | SPEAKERS HEADPHONE | A, B (4 to 16 ohms)/A + B (8 to 16 ohms) 4 to 16 ohms |

PREAMPLIFIER SECTION

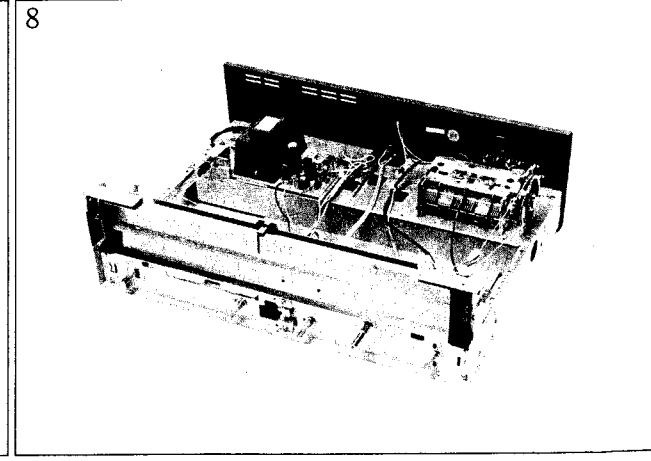
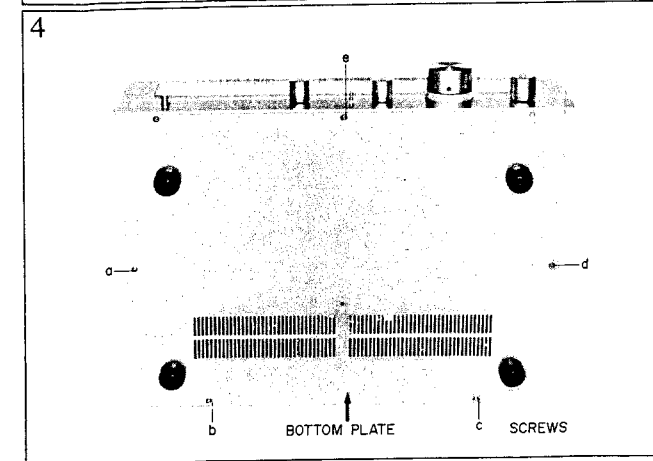
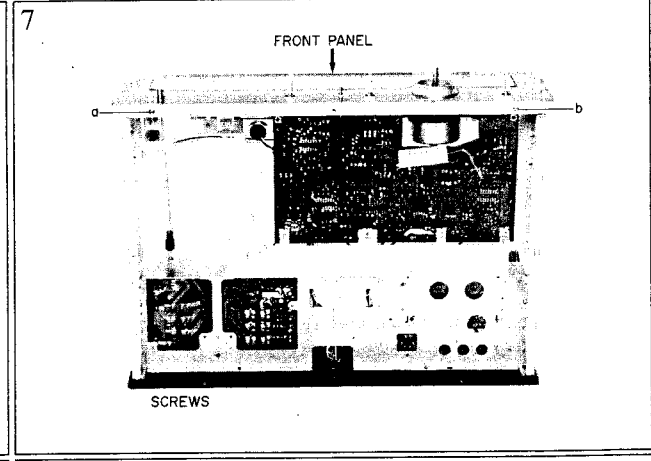
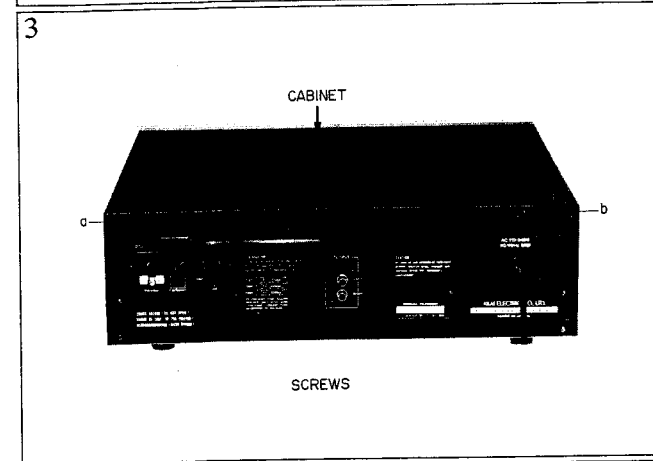
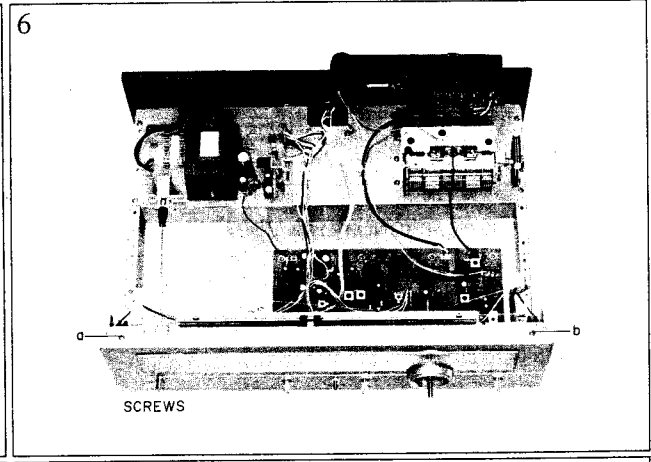
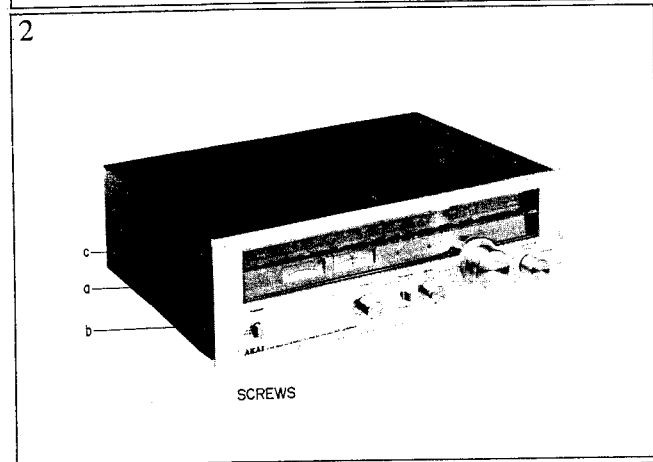
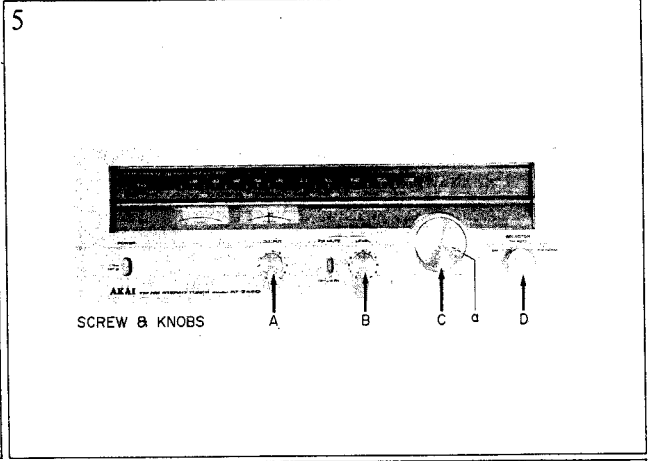
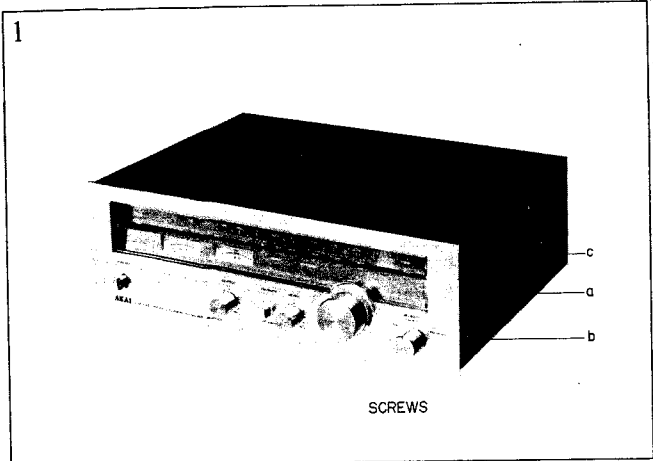
| | | |
|-----------------------------|---|--|
| INPUT SENSITIVITY/IMPEDANCE | PHONO AUX TUNER TAPE MONITOR | 3 mV/47 kohms 150 mV/100 kohms 150 mV/100 kohms PIN: 150 mV/100 kohms DIN: 150 mV/100 kohms |
| OUTPUT LEVEL/IMPEDANCE | TAPE REC | PIN: 150 mV/1 kohms DIN: 30 mV/80 kohms |
| FREQUENCY RESPONSE | PHONO (RIAA EQUALIZATION) TUNER, AUX, TAPE MONITOR | 30 Hz to 15 kHz +1 dB, -1 dB 10 Hz to 60 kHz +1 dB, -1 dB |
| TONE CONTROL | BASS TREBLE | ±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 at -30 dB position) |
| MISCELLANEOUS | | |
| SEMICONDUCTORS | | Transistors: 27, Diodes: 17, ICs: 4 |
| POWER REQUIREMENTS | | 120 V, 60 Hz for U.S.A. and Canada 220 V, 50 Hz for Europe 240 V, 50 Hz for UK 110/220/240 V, 50/60 Hz Switchable for other countries |
| DIMENSIONS | | 440 (W) x 144 (H) x 345 (D) mm (17.3 x 5.7 x 13.6 inches) |
| WEIGHT | | 9.9 kg (21.8 lbs) |

* For improvement purposes, specifications and design are subject to change without notice.

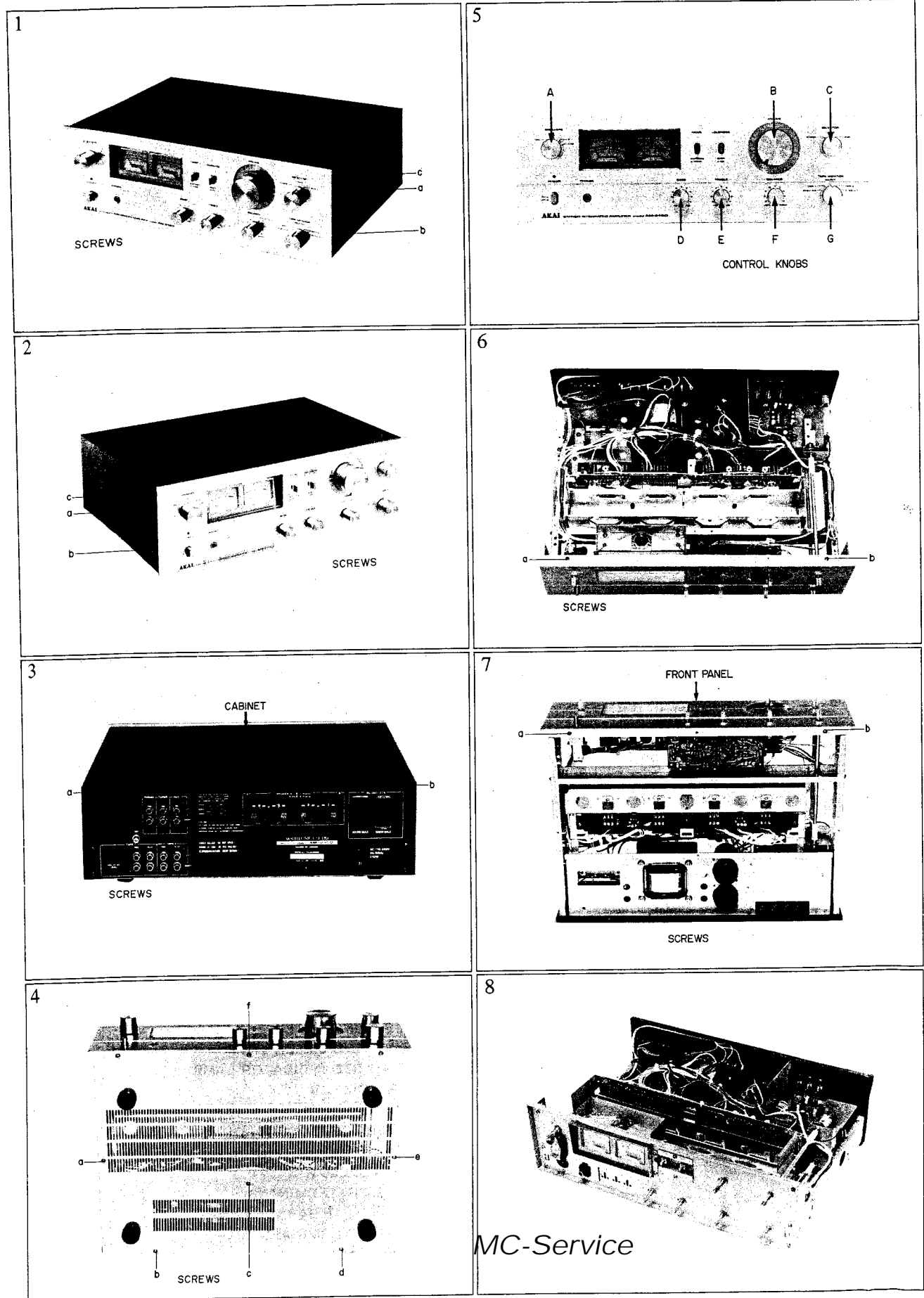
II. DISMANTLING OF UNIT

1. MODEL AT-2450

In case of trouble, etc. necessitating dismantling, please dismantle in the order shown in the photographs. Reassemble in reverse order.



2. MODEL AM-2450



III. CONTROLS

1. MODEL AT-2450

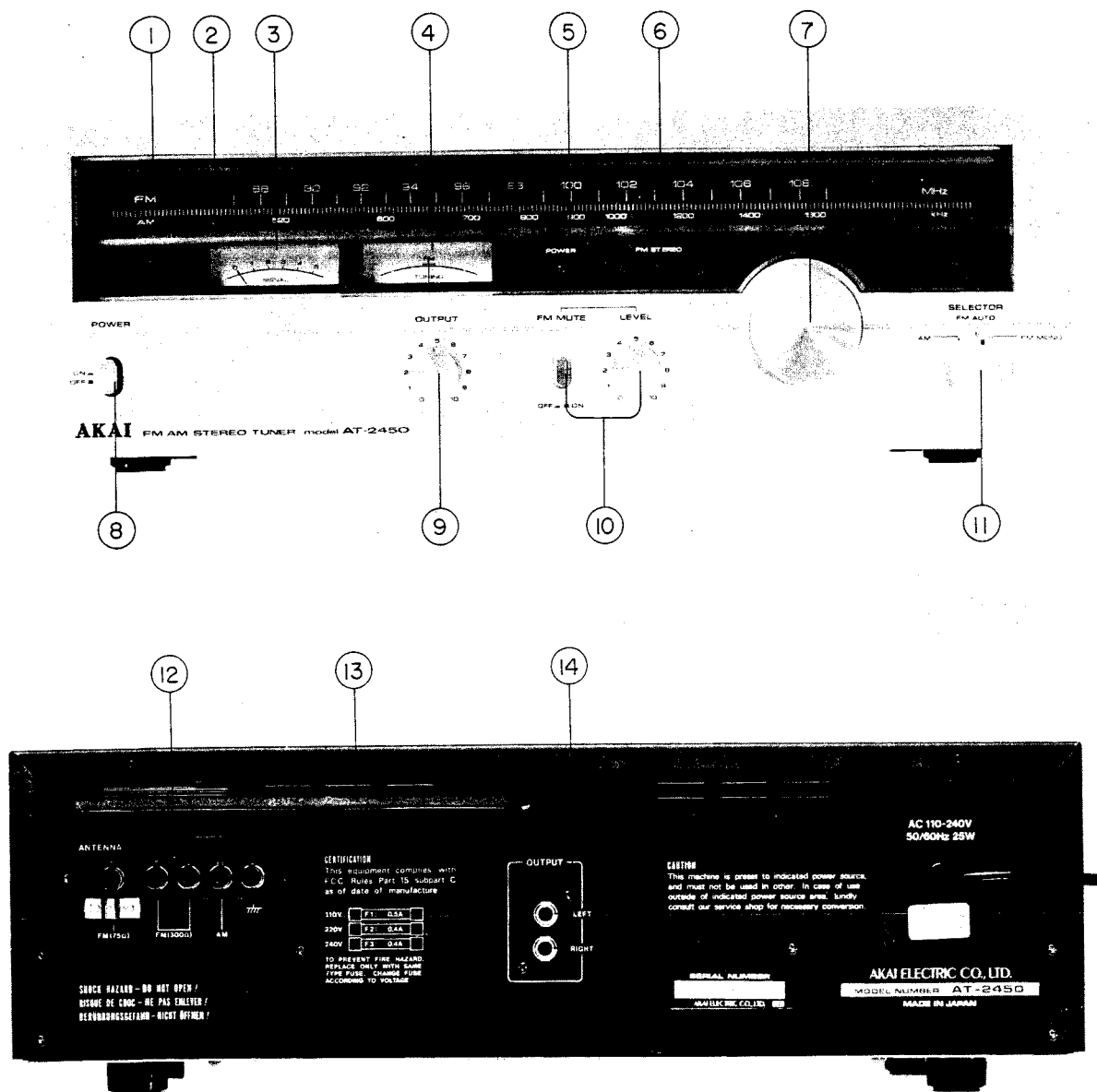


Fig. 1 Controls AT-2450

1. FM DIAL SCALE
2. AM DIAL SCALE
3. SIGNAL STRENGTH METER
4. FM TUNING METER
5. POWER INDICATOR LAMP
6. FM STEREO INDICATOR LAMP
7. TUNING KNOB
8. POWER SWITCH
9. OUTPUT LEVEL CONTROL
10. FM MUTE SWITCH and LEVEL ADJUSTER
11. INPUT SELECTOR
12. ANTENNA TERMINALS
13. AM FERRITE BAR ANTENNA
14. OUTPUT TERMINALS

2. MODEL AM-2450

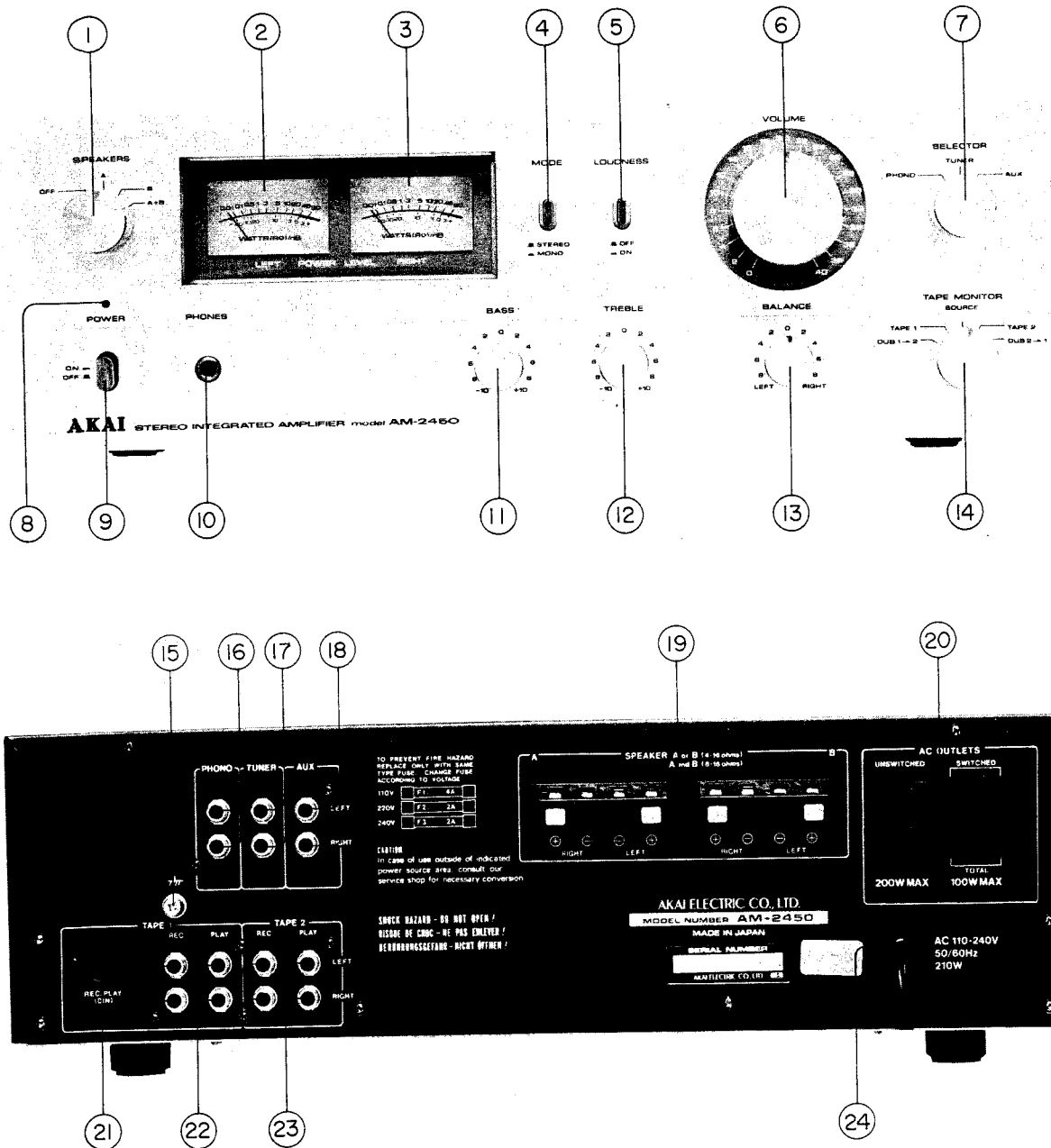


Fig. 2 Controls AM-2450

1. SPEAKER SYSTEM SELECTOR
2. LEFT OUTPUT POWER LEVEL METER
3. RIGHT OUTPUT POWER LEVEL METER
4. MODE SWITCH
5. LOUDNESS SWITCH
6. VOLUME CONTROL
7. INPUT SELECTOR
8. POWER INDICATOR LAMP
9. POWER SWITCH
10. HEADPHONE JACK
11. BASS TONE CONTROL
12. TREBLE TONE CONTROL
13. STEREO BALANCE CONTROL
14. TAPE MONITOR SWITCH

15. GROUND TERMINALS
16. PHONO TERMINALS
17. TUNER TERMINALS
18. AUX TERMINALS
19. A and B SYSTEM SPEAKER TERMINALS
20. EXTRA AC OUTLETS (Some models are not equipped with this facility)
21. TAPE 1 SYSTEM DIN JACK
22. TAPE 1 SYSTEM REC/PB TERMINALS
23. TAPE 2 SYSTEM REC/PB TERMINALS
24. AC CORD (Some models are equipped with an AC Inlet instead of an AC cord. Connect with an appropriate power cord.)

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IV. PRINCIPAL PARTS LOCATION

1. MODEL AT-2450

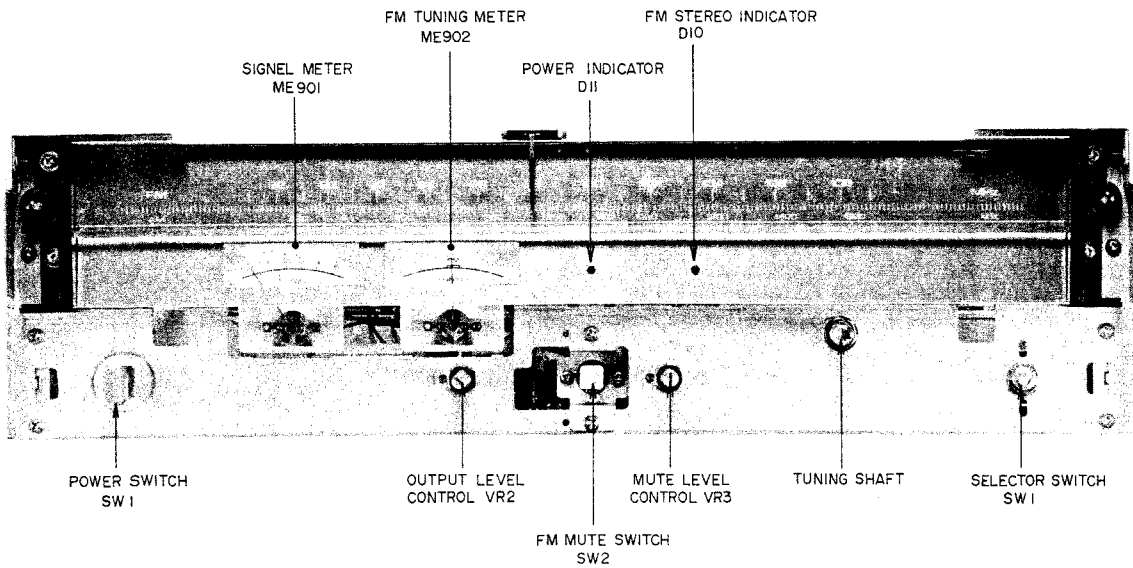


Fig. 3 Front View

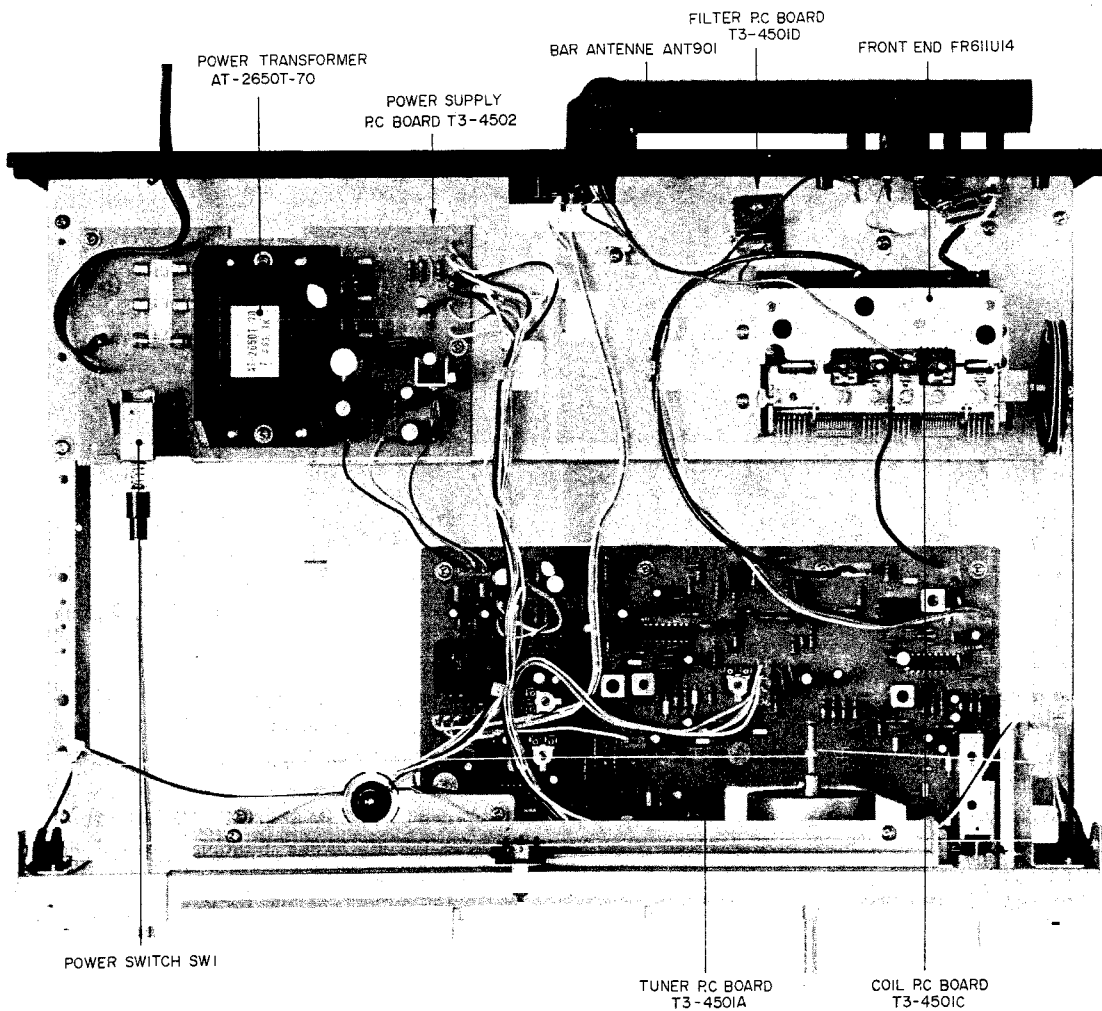


Fig. 4 Top View

2. MODEL AM-2450

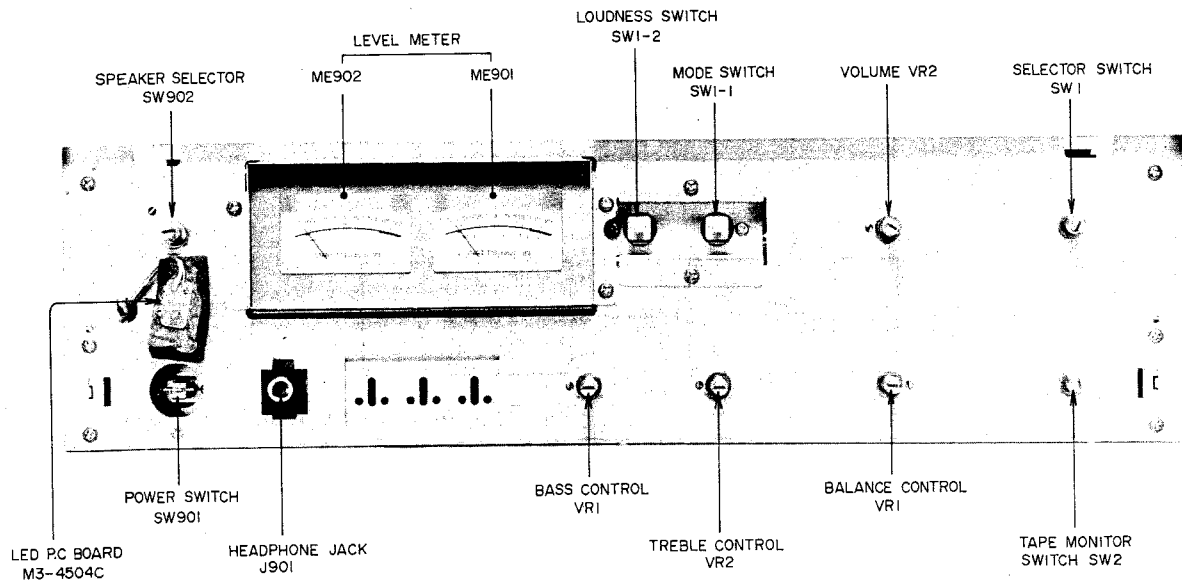


Fig. 5 Front View

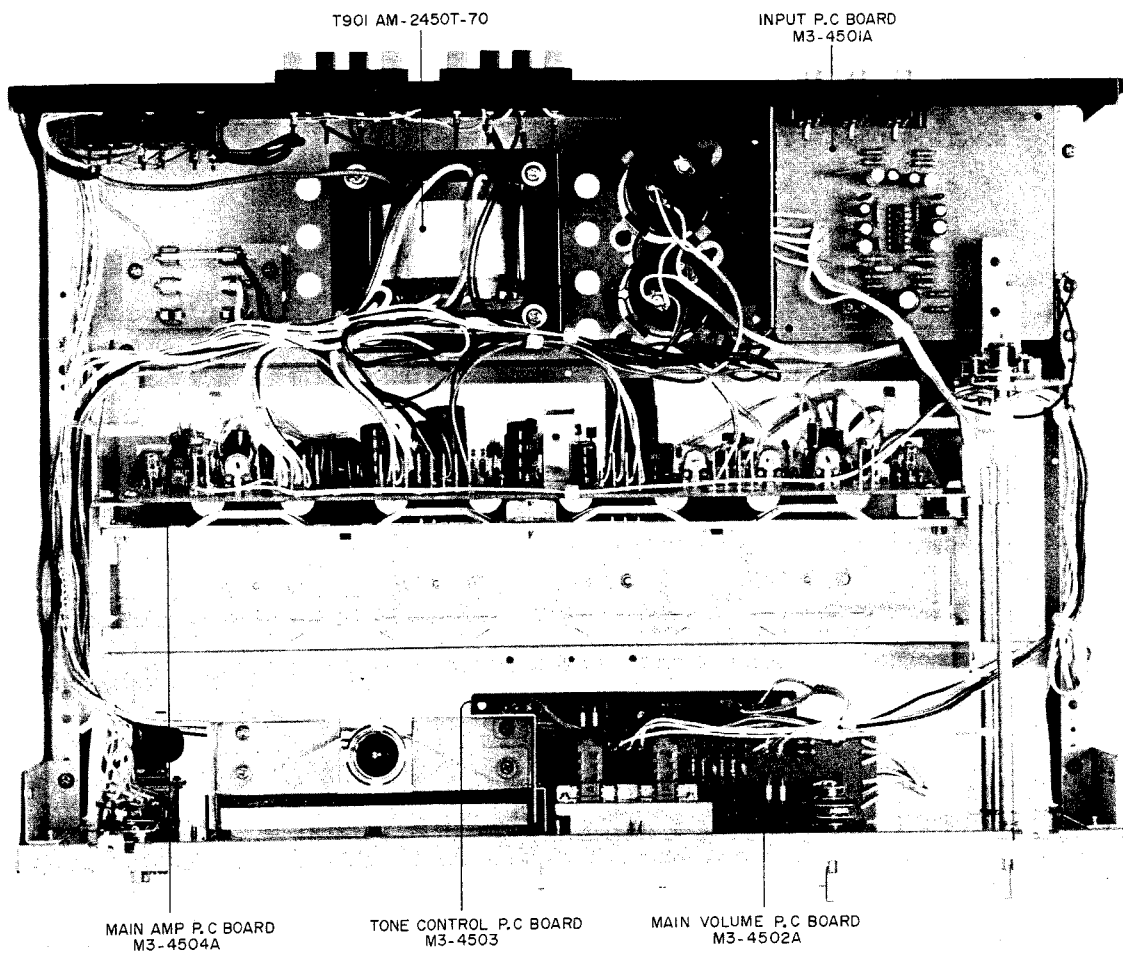


Fig. 6 Top View

V. OPERATING PRINCIPLES OF QUADRATURE SYSTEM

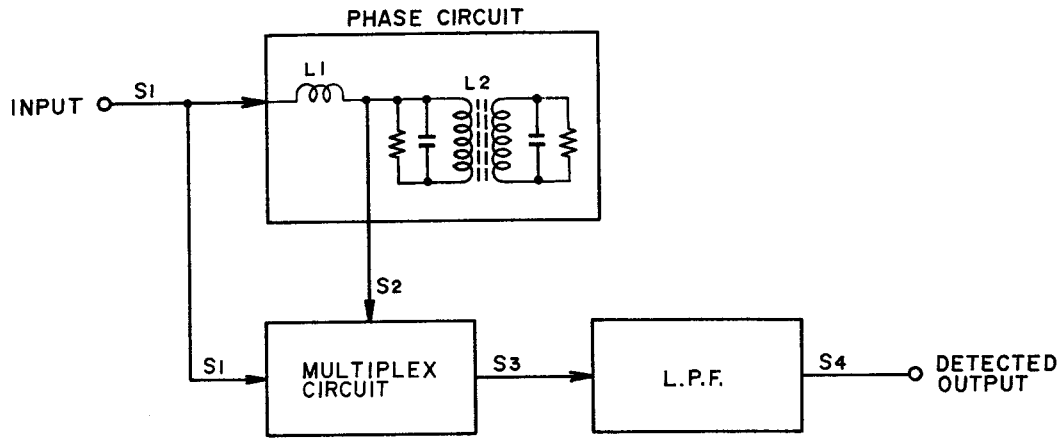


Fig. 7 Quadrature Detection Block Diagram

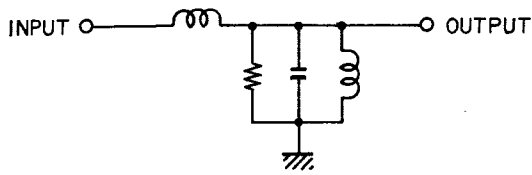


Fig. 8 Single Tuning Type

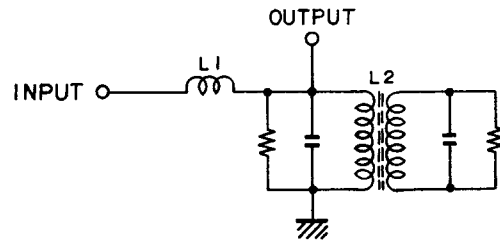


Fig. 9 Double Tuning Type

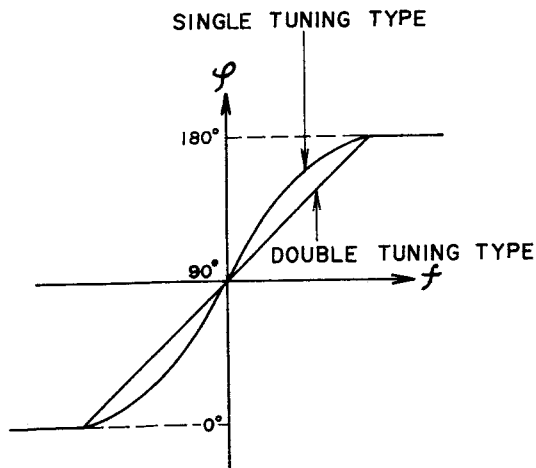


Fig. 10 Tuning Curve

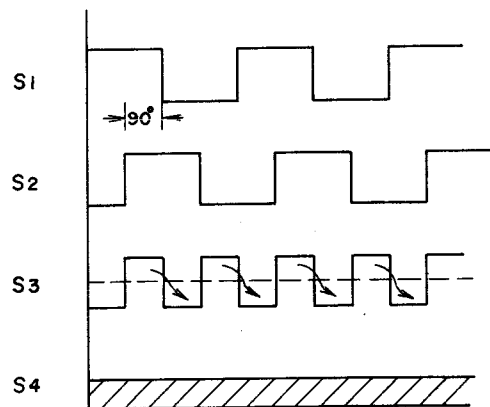


Fig. 11 Output at Non-modulation

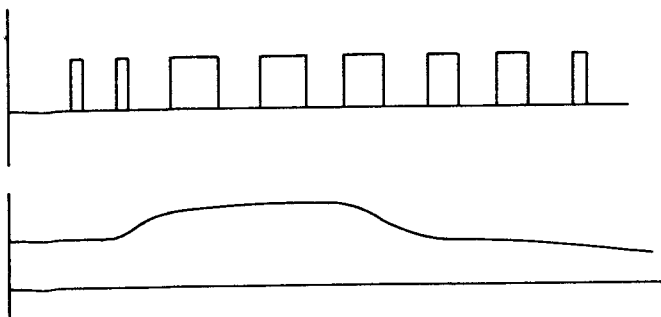


Fig. 12 Output at Modulation Time

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 of phase circuit is employed in the AT-2450.

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 change part and this becomes S2 signal which is delayed in relation to S1.

At Non-modulation, because as shown in Fig. 11, the 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 pas 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 lowe 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

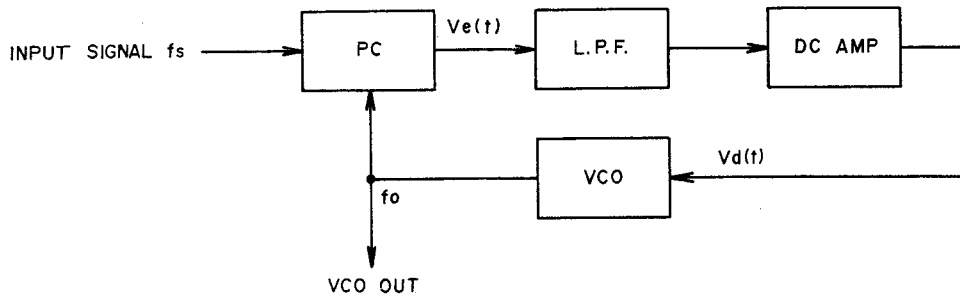


Fig. 13 PLL Circuit

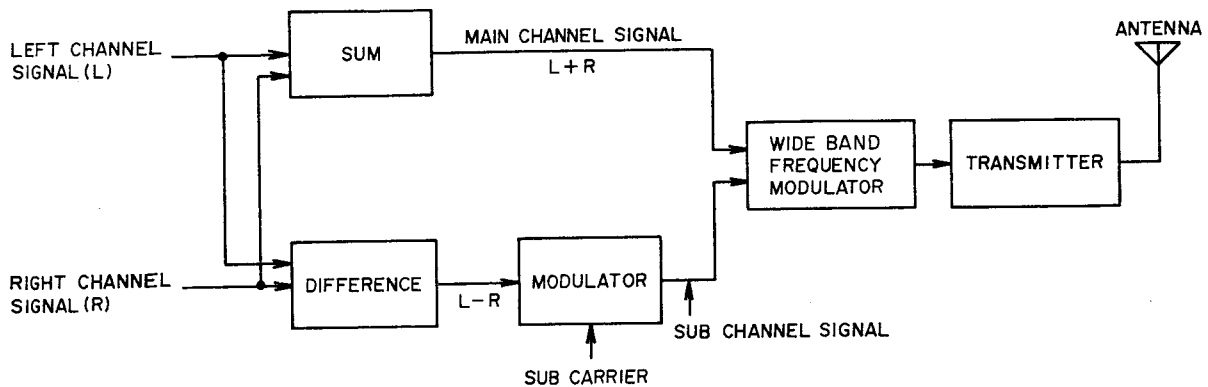


Fig. 14 FM Broadcasting System Diagram

To separate the FM stereo broadcast signal received to date 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. (When 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 when 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.

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. 15 first a 76 kHz signal is oscillated and when this passes the divider, a symmetrical 38 kHz signal is obtained.

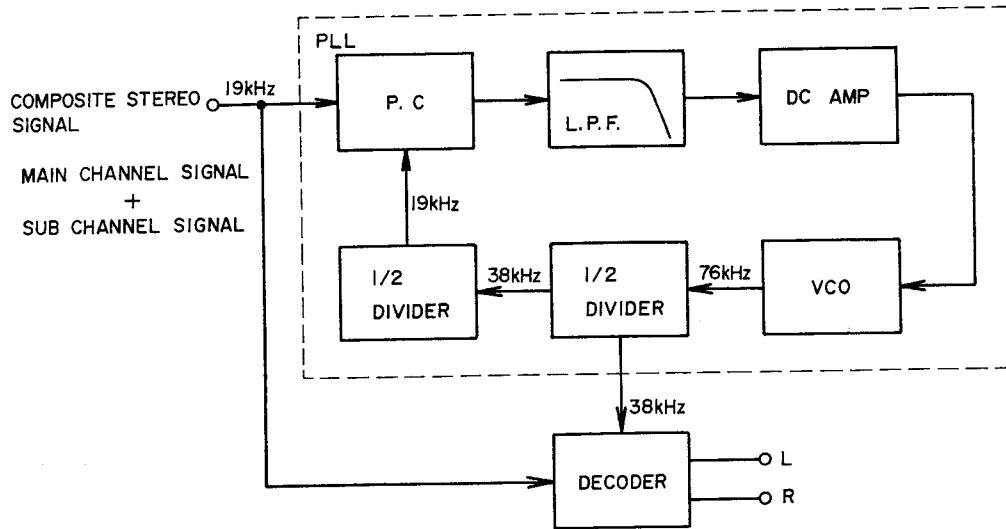


Fig. 15 MPX IC Function

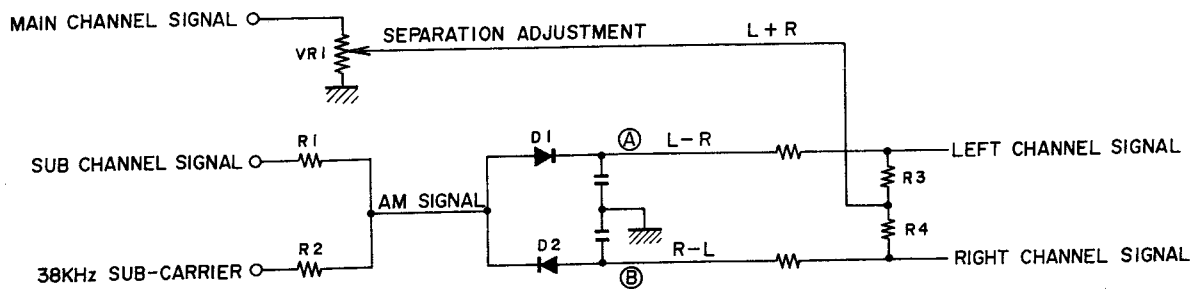


Fig. 16 Multiplex Decoder

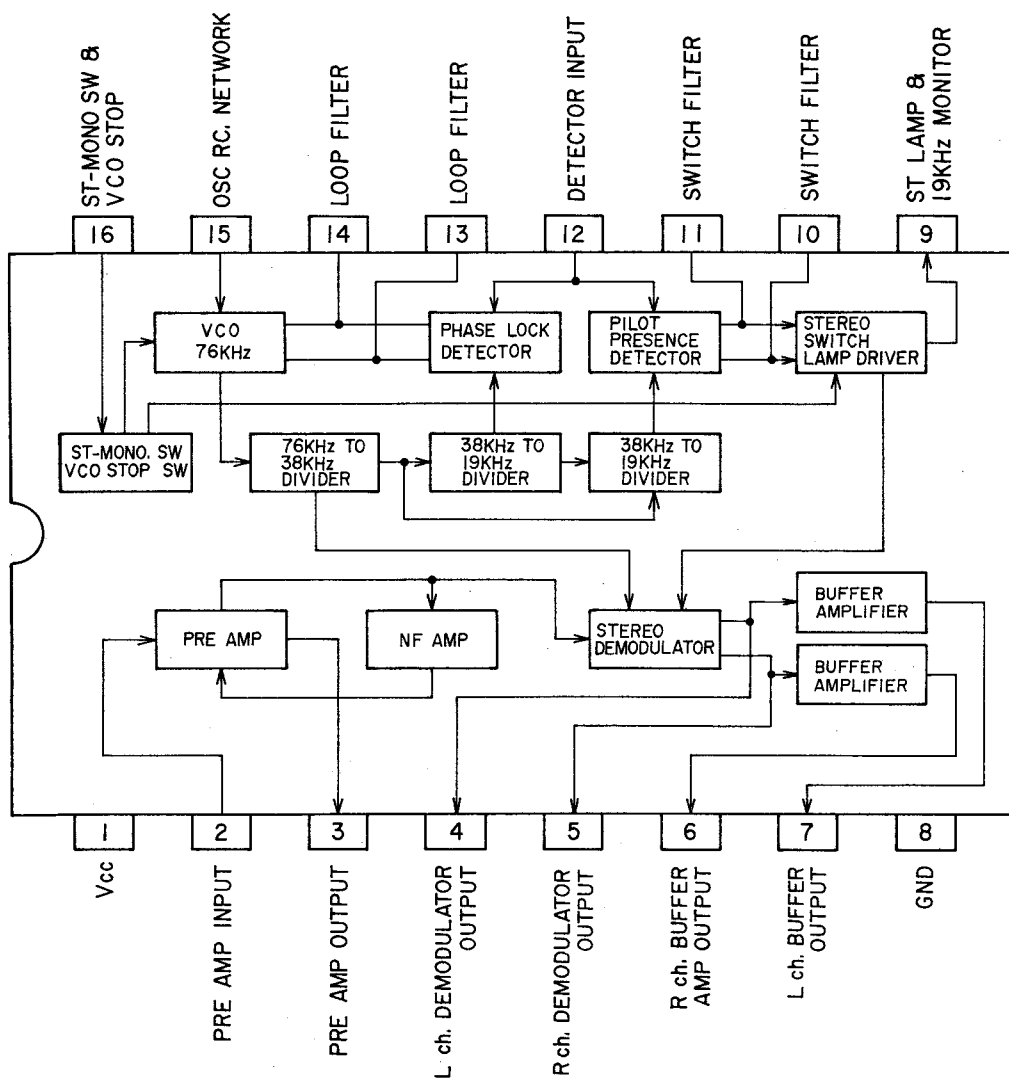


Fig. 17 μ PC1173C Function System Diagram

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 envelop 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 the 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 the variable resistor VR (VR1) for optimum separation.

Thus, the function of the PLL IC μ PC1173C actually employed is as shown in Fig. 17.

VII. LEVEL DIAGRAM

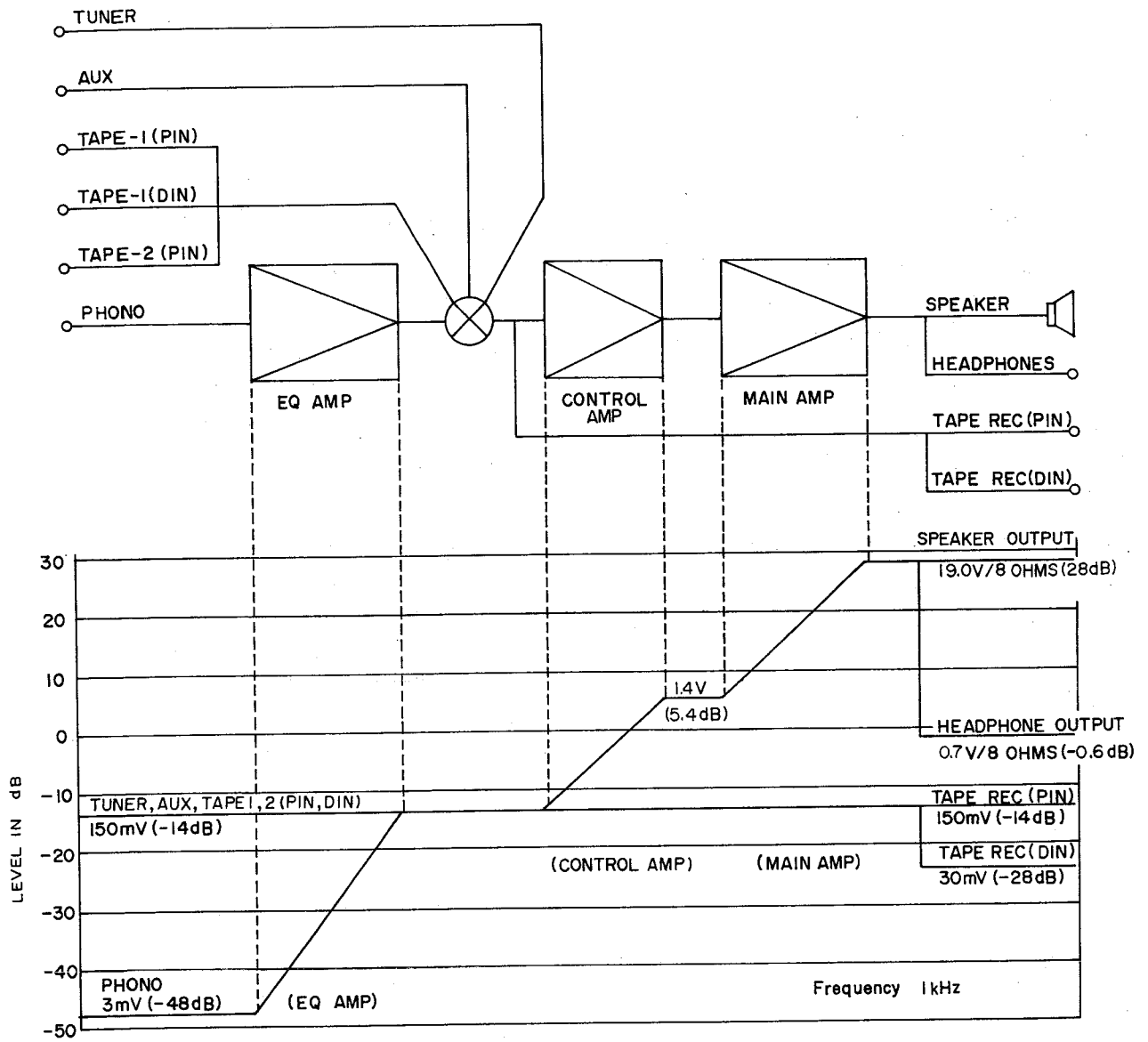


Fig. 18 Level Diagram AM-2450

VIII. TUNER ADJUSTMENT (AT-2450)

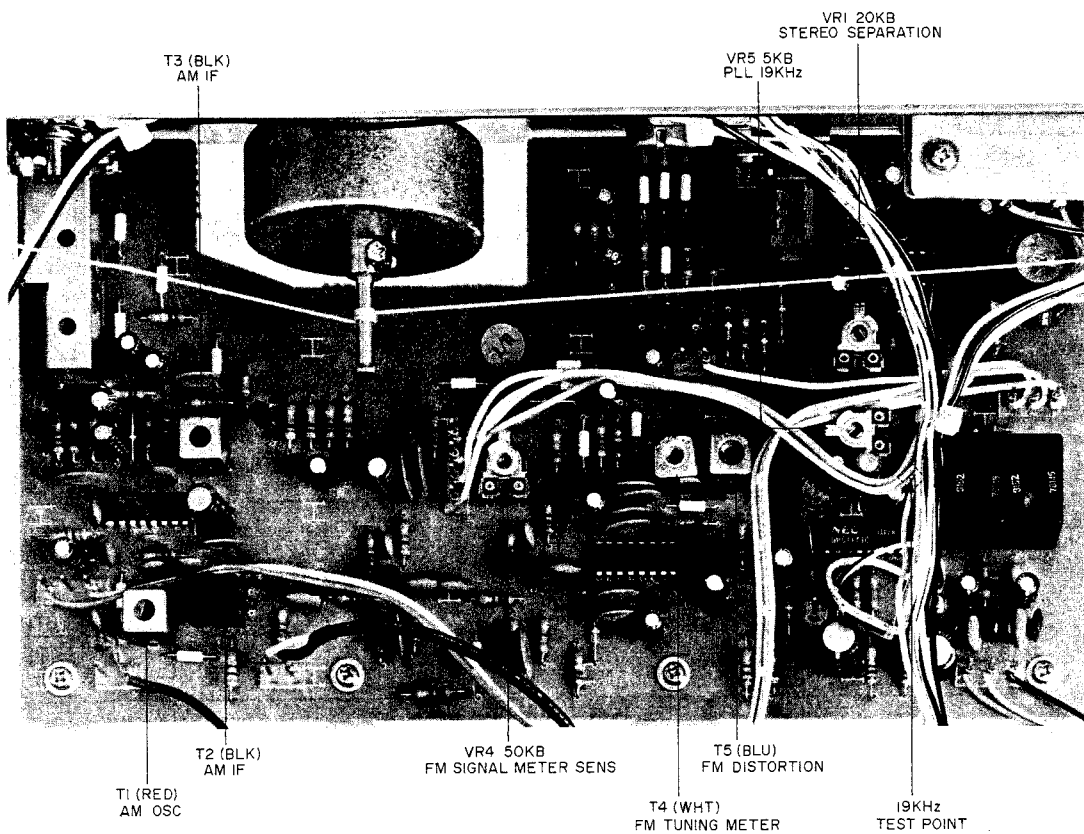


Fig. 19 Tuner P.C Board T3-4501A

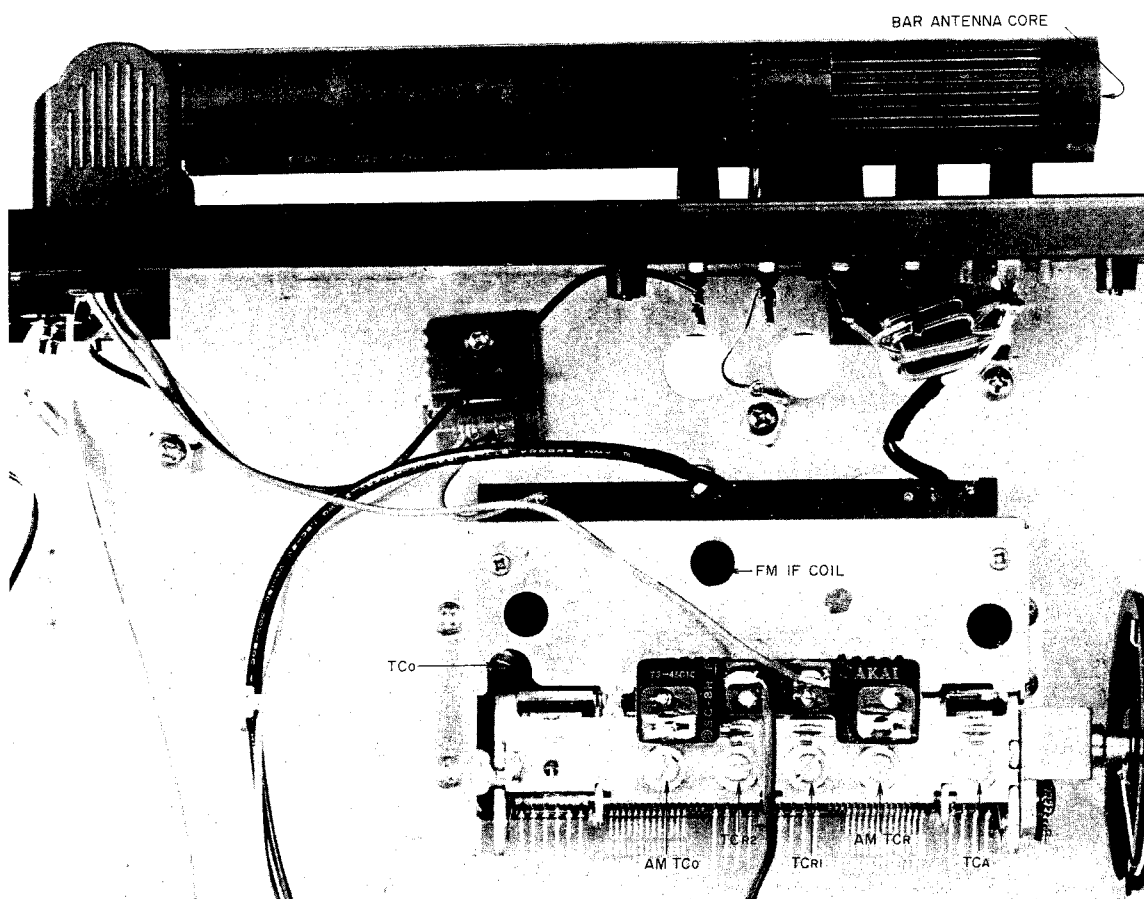


Fig. 20 Front End and Bar Antenna

1. FM TUNER SECTION ADJUSTMENT (Refer to Figs. 19, 20)

| Step | Adjustment Item | Adjustment Point | Result | Remarks |
|------|--|--------------------------------|---|---|
| 1 | Tuning Meter Centering | T4 (WHT) (Tuner P.C Board) | Centered Tuning Meter Indication | SELECTOR to FM MONO. FM Mute to OFF. Tunes only noise without interference from broadcasting. |
| 2 | Distortion Factor | T5 (BLU) (Tuner P.C. Board) | Less than 0.15% Distortion Factor | 98 MHz, 60 dB (mono) input. Less than 0.15% on both channels. See NOTE 1. |
| 3 | Confirmation of Tuning Meter Indication | | | If Tuning Meter Indication is not centered re-adjust Step 1 and 2 above. |
| 4 | High Range Scale Indication | TCo (Front End) | Maximum Output | 108 MHz, 60dB (mono) input. TUNING INDICATOR to 108 MHz. Error: Within ± 250 kHz. |
| 5 | Confirmation of Low Range Scale Indication | | Maximum Output | 88 MHz, 60 dB (mono) input. TUNING INDICATOR to 88 MHz. Error: Within ± 250 kHz. |
| 6 | High Range Sensitivity | TCA, TCR1, TCR2 (Front End) | Less than 3% Distortion Factor | 108 MHz, Less than 5 dB (mono) input. |
| 7 | Confirmation of Low Range Sensitivity | | Less than 3% Distortion Factor | 88 MHz, Less than 5 dB (mono) input. See NOTE 2. |
| 8 | Confirmation of Mid Range Sensitivity | | Less than 3% Distortion Factor | 98 MHz, Less than 5 dB (mono) input. See NOTE 2. |
| 9 | PLL IC Free Running Frequency | VR5 5 kB (Tuner P.C Board) | 19.00 kHz | Frequency Counter to Test Point. (Tuner P.C Board) See NOTE 3. |
| 10 | Confirmation of Stereo Indicator Lighting | | | 98 MHz, 60 dB (stereo) input. Unlit stereo indicator indicates no stereo separation. |
| 11 | Stereo Separation (Left→Right) | VR1 20 kB (Tuner P.C Board) | More than 45 dB | 98 MHz, 60 dB (stereo), L ch input. Minimum output of R ch. |
| 12 | Stereo Separation (Right→Left) | VR1 20 kB (Tuner P.C Board) | More than 45 dB | 98 MHz, 60 dB (stereo), R ch input. Minimum output of L ch. |
| 13 | Signal Meter Sensitivity | VR4 50 kB (Tuner P.C Board) | Indicator at "4.5" | 98 MHz, 100 dB (mono) input. |

Chart-1

NOTES: 1. When the distortion factor is not less than 0.15% in Step 2, adjust by turning the Front End IF Coil core but not more than one turn.

2. In the event that distortion factors in Steps 7 and 8 are not less than 3%, readjust Front End Trimmer Condensers TCA, TCR1 and TCR2 to obtain a minimum average distortion factor at 88, 98 and 108 MHz (same distortion factor at all three points).

3. PLL IC free running frequency must be an exact 19.00 kHz.

2. AM TUNER SECTION ADJUSTMENT (Refer to Figs. 19, 20)

| Step | Adjustment Item | Adjustment Point | Result | Remarks |
|------|-----------------------------|---|---|---|
| 1 | Low Range Scale Indication | T1 (RED) (Tuner P.C Board) | Maximum Output | SELECTOR to AM. 520 kHz 50 dB input. TUNING INDICATOR to 520 kHz. Error: Within 2%. |
| 2 | 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%. |
| 3 | Low Range Sensitivity | Bar Antenna core T2, T3 (BLK) (Tuner P.C Board) | Maximum Output Minimum Distortion Factor | 520 kHz 50 dB input. Less than 10% Distortion Factor |
| 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

NOTE: For best results, repeat Steps 1 through 4 two or three times.

IX. AMPLIFIER ADJUSTMENT (AM-2450)

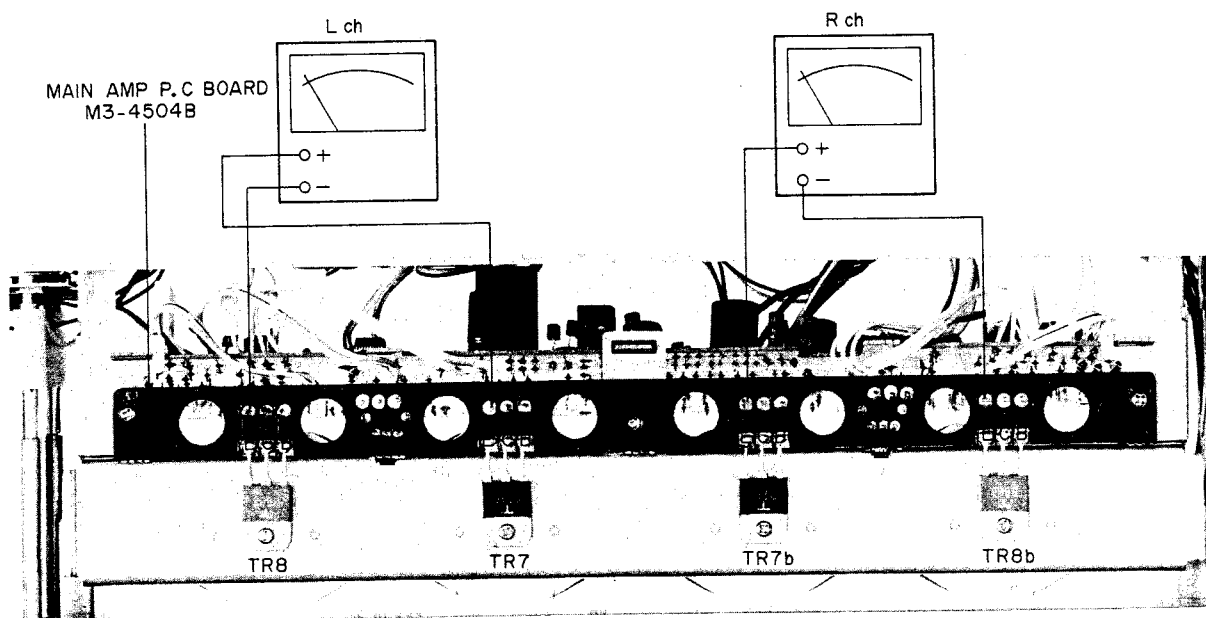


Fig. 21 Instrument Connection

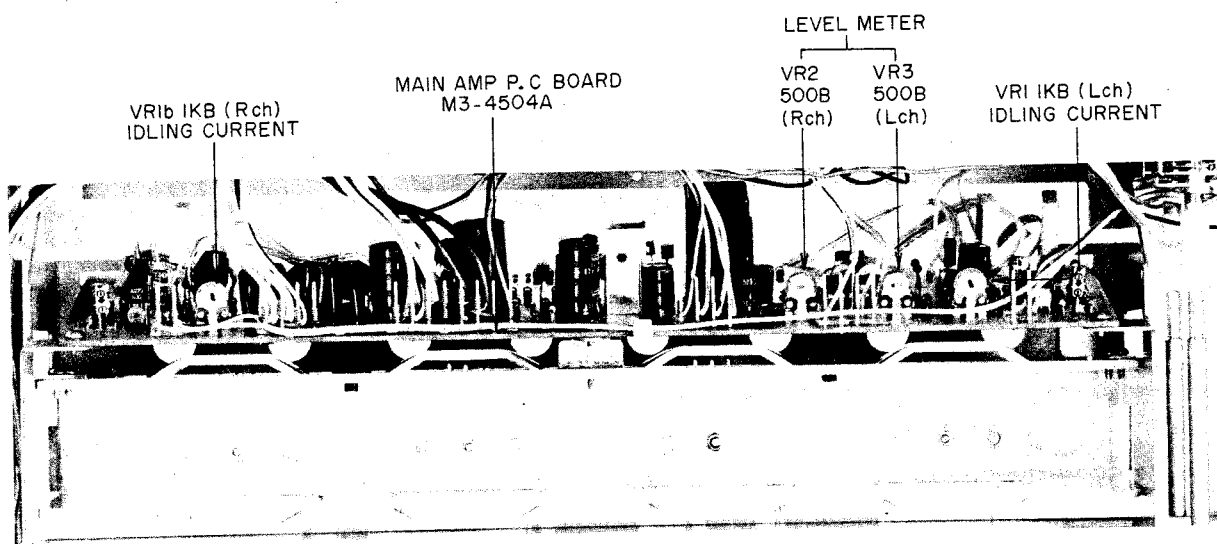


Fig. 22 Adjustment Points

1. IDLING CURRENT ADJUSTMENT (Refer to Figs. 21, 22)

| Step | Adjustment Item | Adjustment Point | Result | Remarks |
|------|--------------------------------|-------------------------------|--------|---|
| 1 | Idling Current (Left channel) | VR1 1 kΩ (Main Amp P.C Board) | 20 mV | Use a Voltmeter or Tester with DC 50 mV range. (Idling Current is 20 mA). |
| 2 | Idling Current (Right channel) | VR1b 1kΩ (Main Amp P.C Board) | 20 mV | |

Chart-3

* Be careful not to damage the Power Transistors.

MC-Service

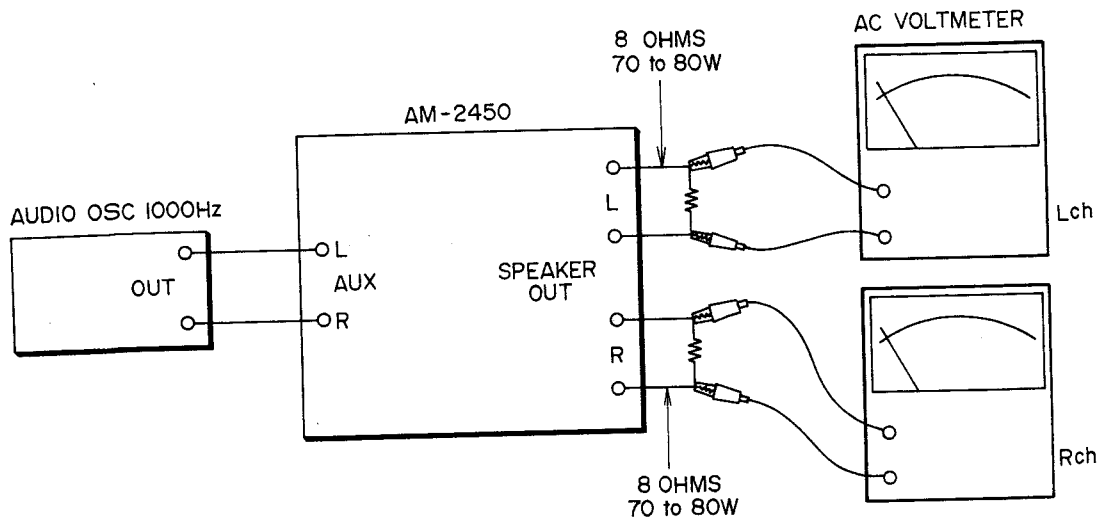


Fig. 23 Instrument Connection

2. LEVEL METER INDICATION ADJUSTMENT (Refer to Fig. 23)

- 1) Connect a load of 8 ohms and AC Voltmeter (approx. 50V range) to the speaker terminals in parallel.
 - 2) Supply a signal of 1,000 Hz to the AUX terminal.
 - 3) Adjust main volume so that 19V is indicated by the AC Voltmeter.
 - 4) Adjust semi-fixed volumes VR3 500B (L ch), and VR2 500B (R ch) on the Main Amp P.C Board.
- Level meter indication should be "45" with the above condition.

X. TUNING CORD THREADING

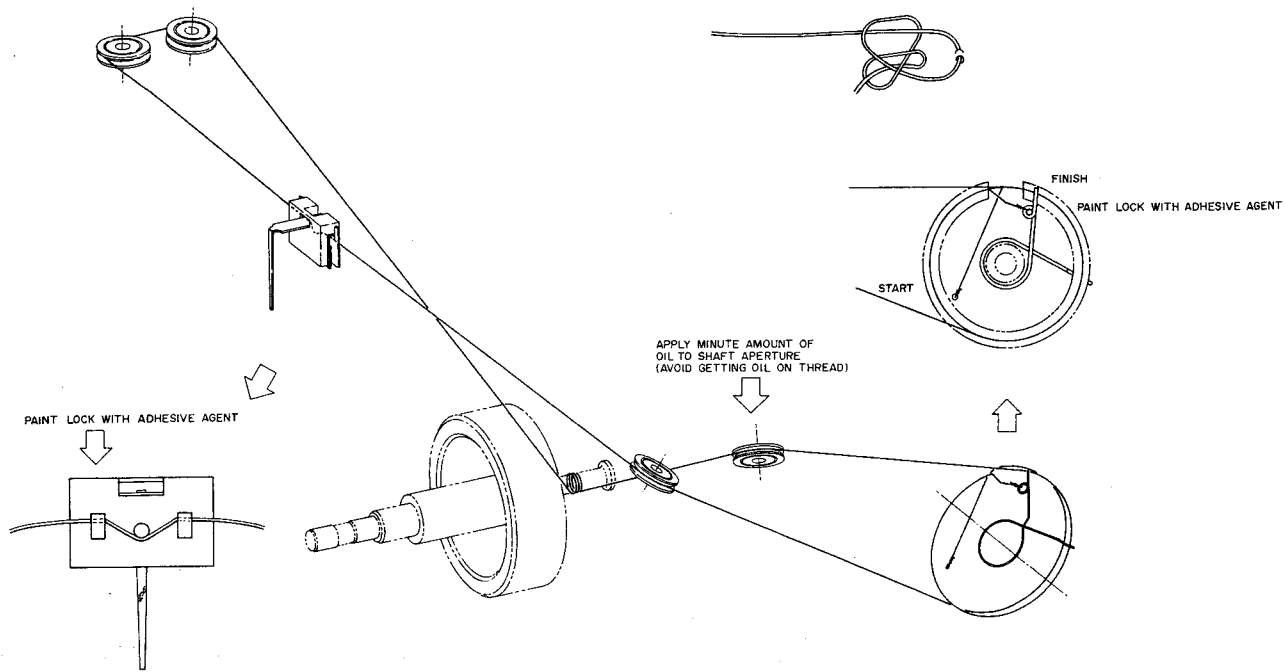


Fig. 24 Tuning Cord Threading

XI. CLASSIFICATION OF VARIOUS P.C BOARDS

1. P.C BOARD TITLE AND IDENTIFICATION NUMBER

1) Model AT-2450

| P.C Board Title | P.C Board Number |
|------------------------|------------------|
| Tuner P.C Board | T3-4501A |
| Power Supply P.C Board | T3-4502 |
| LED P.C Board | T3-4501B |
| Coil P.C Board | T3-4501C |
| Filter P.C Board | T3-4501D |

Chart-4

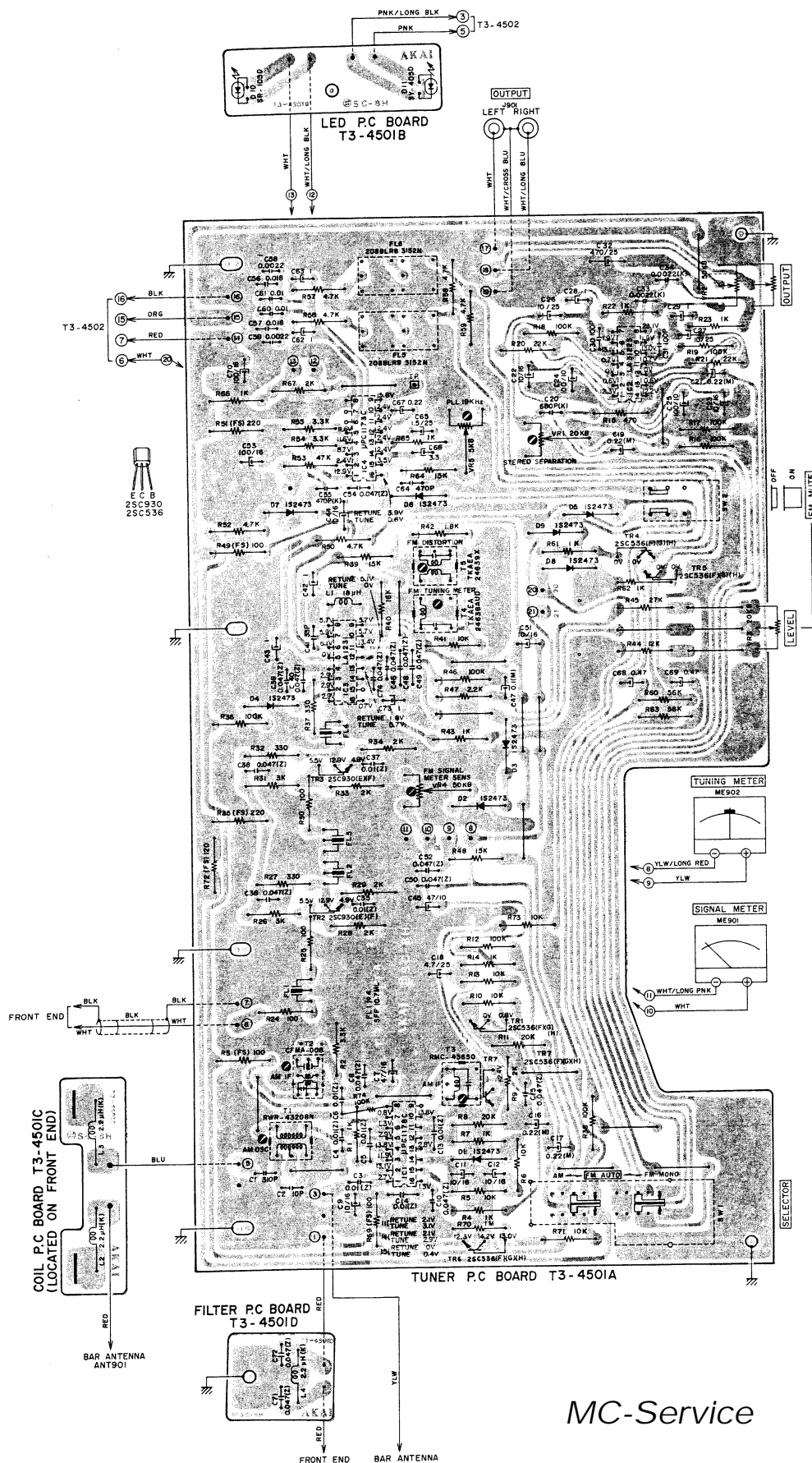
2) Model AM-2450

| P.C Board Title | P.C Board Number |
|-------------------------------|------------------|
| Main Amp P.C Board | M3-4504A/B |
| Tone Control P.C Board | M3-4503 |
| Main Vol. & Balance P.C Board | M3-4502A/B |
| Input P.C Board | M3-4501A |
| Tape P.C Board | M3-4501B |
| LED P.C Board | M3-4504C |

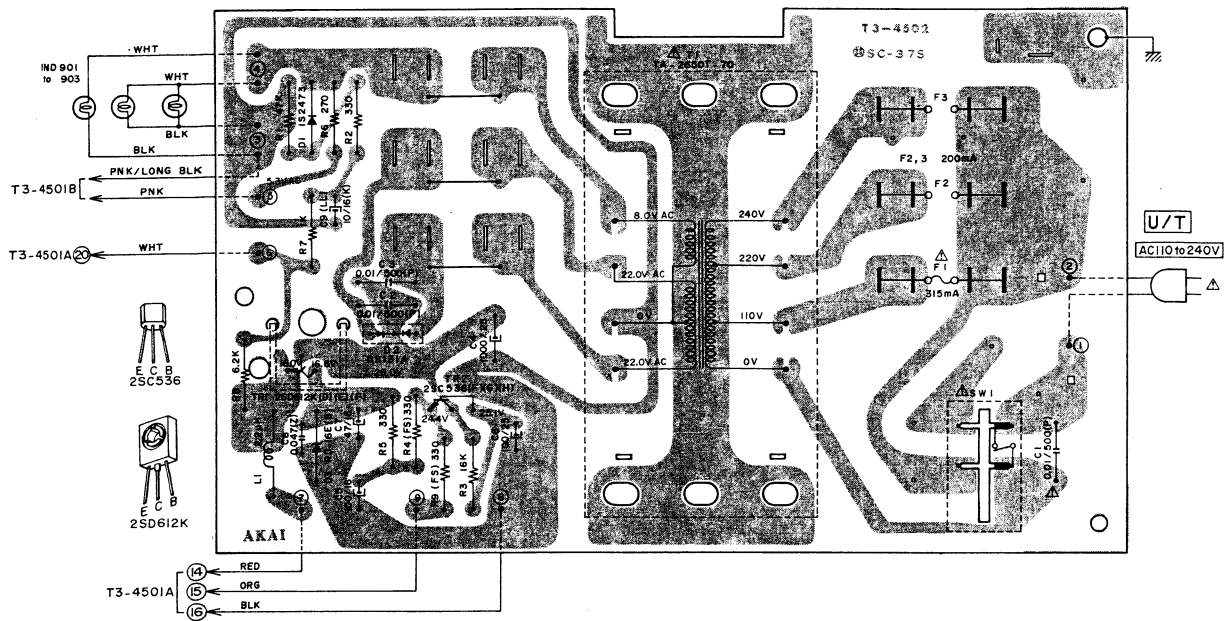
Chart-5

2. MODEL AT-2450 COMPOSITION OF VARIOUS P.C BOARDS

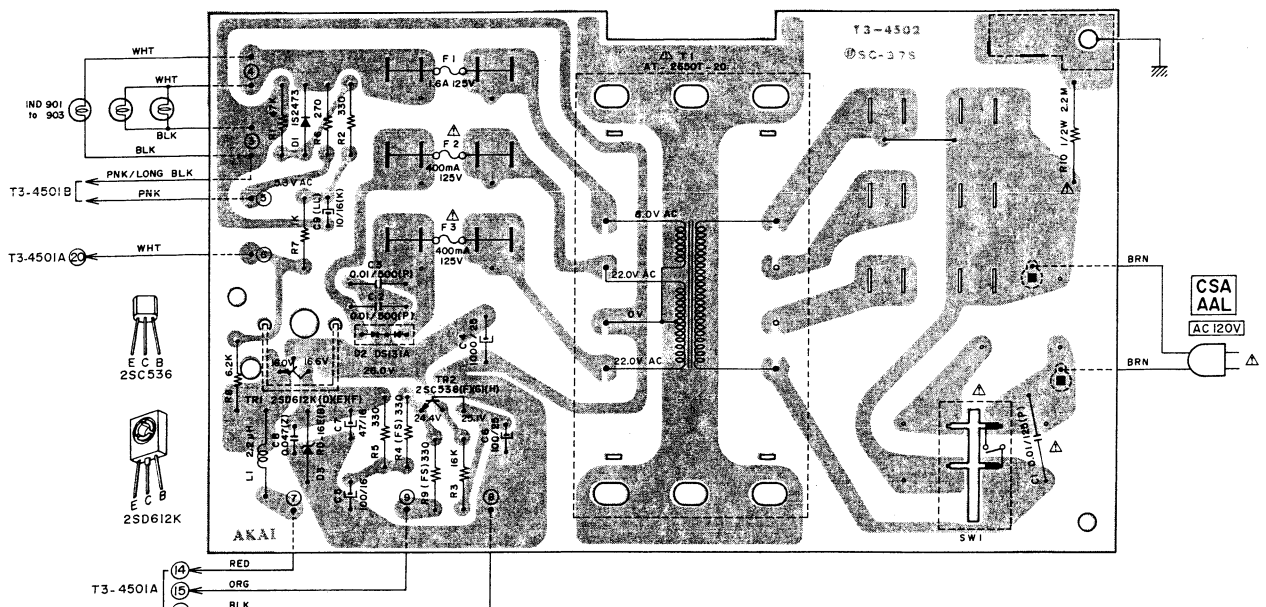
- 1) TUNER P.C BOARD T3-4501A (2ED), LED P.C BOARD T3-4501B, COIL P.C BOARD T3-4501C & FILTER P.C BOARD T3-4501D



2) POWER SUPPLY P.C BOARD T3-4502 (U/T)



3) POWER SUPPLY P.C BOARD T3-4502 (CSA, AAL)

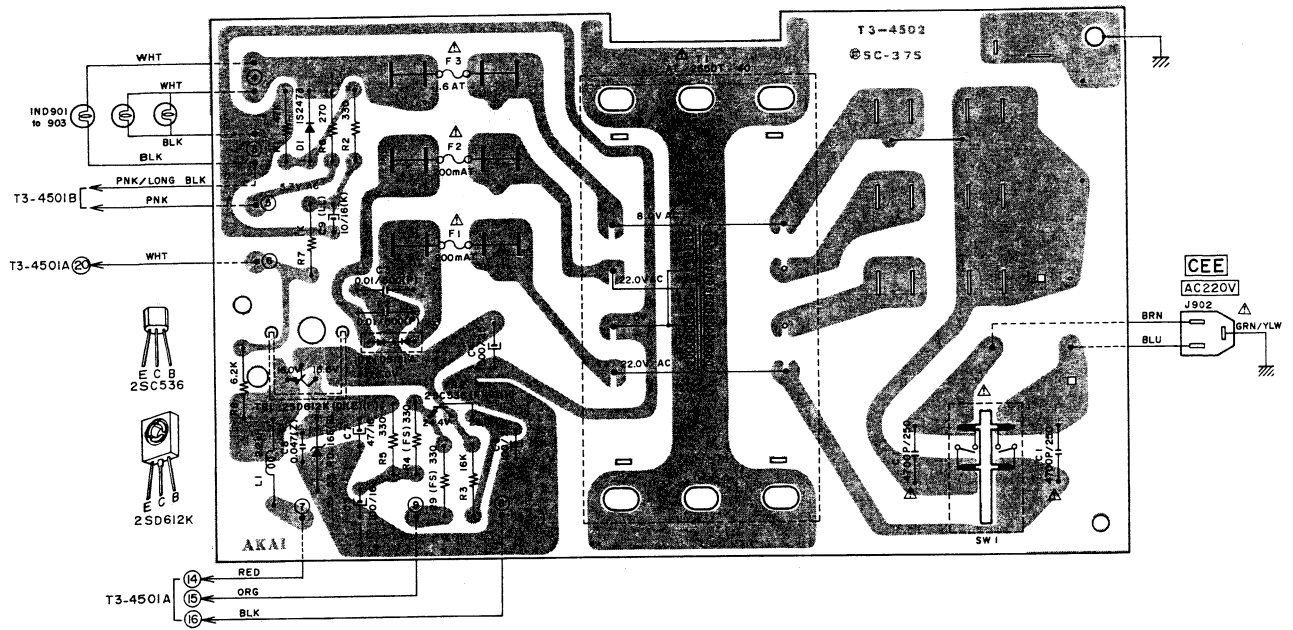


MC-Service

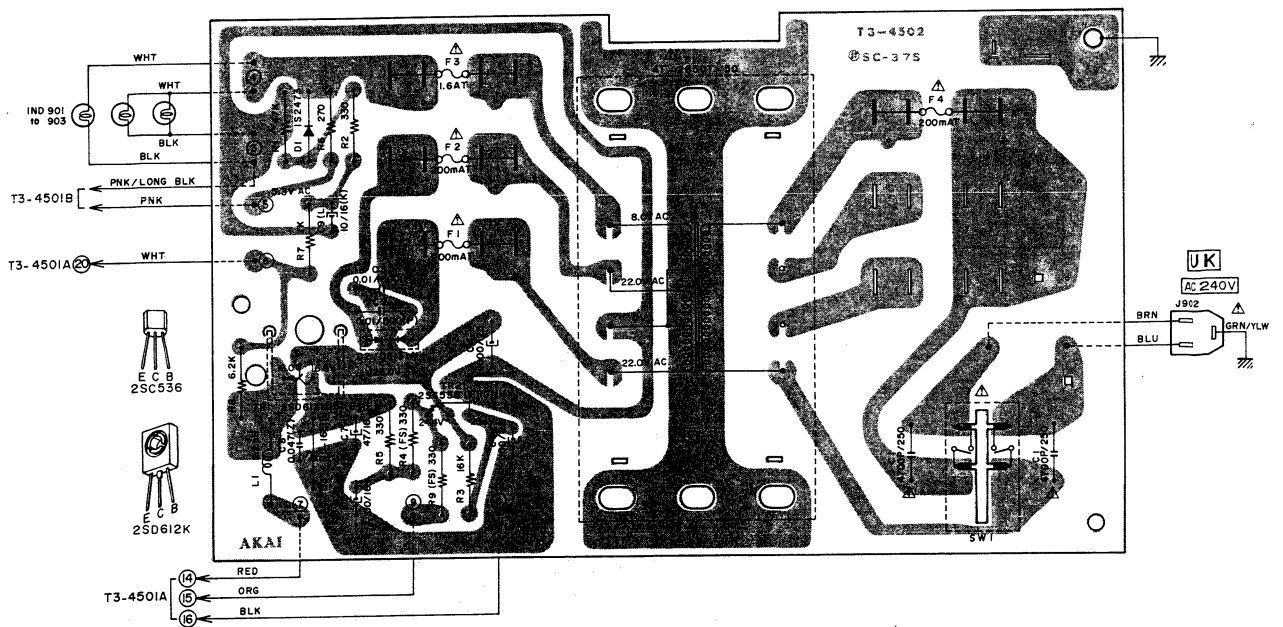
WARNING: Δ INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

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

4) POWER SUPPLY P.C BOARD T3-4502 (CEE)



5) POWER SUPPLY P.C BOARD T3-4502 (UK)



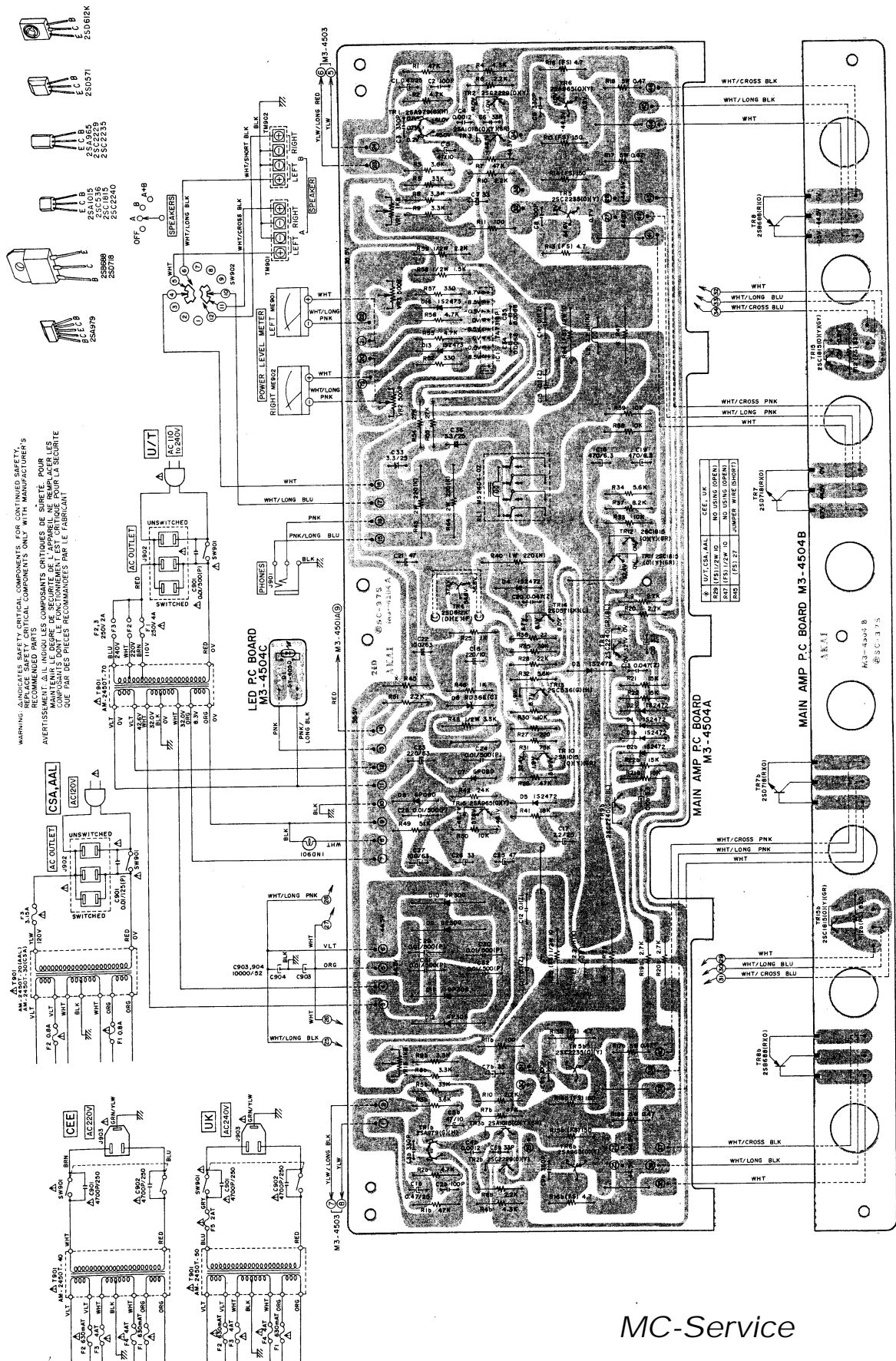
WARNING: Δ INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

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

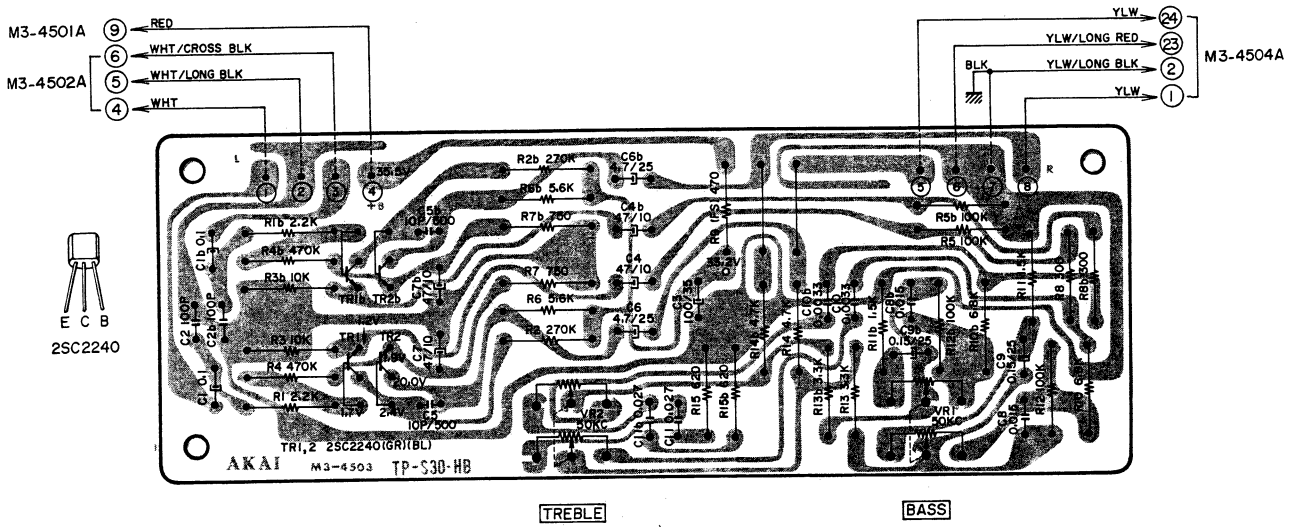
MC-Service

3. MODEL AM-2450 COMPOSITION OF VARIOUS P.C BOARDS

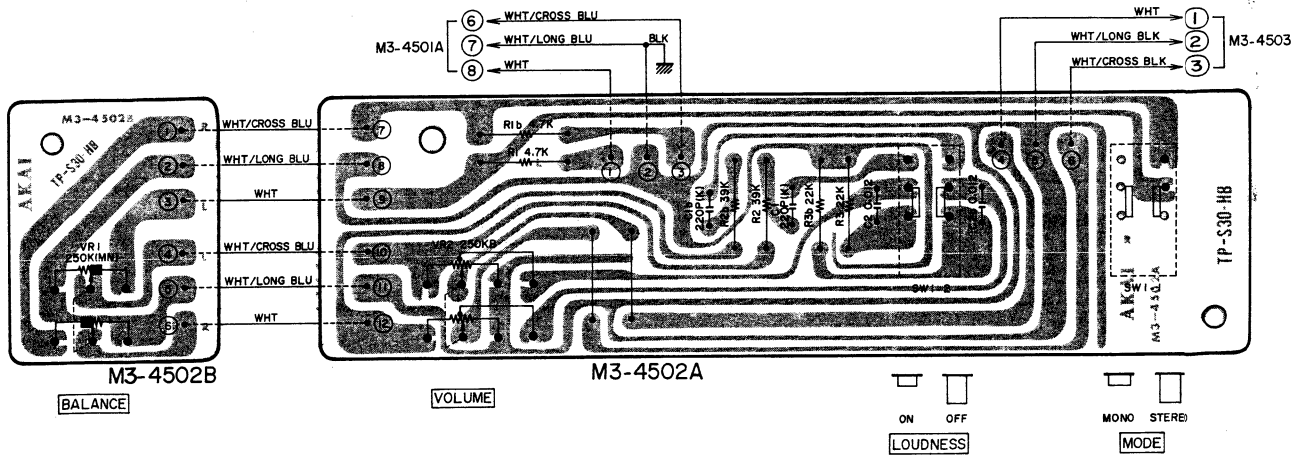
1) MAIN AMP P.C BOARD M3-4504A/B (2ED) & LED P.C BOARD M3-4504C



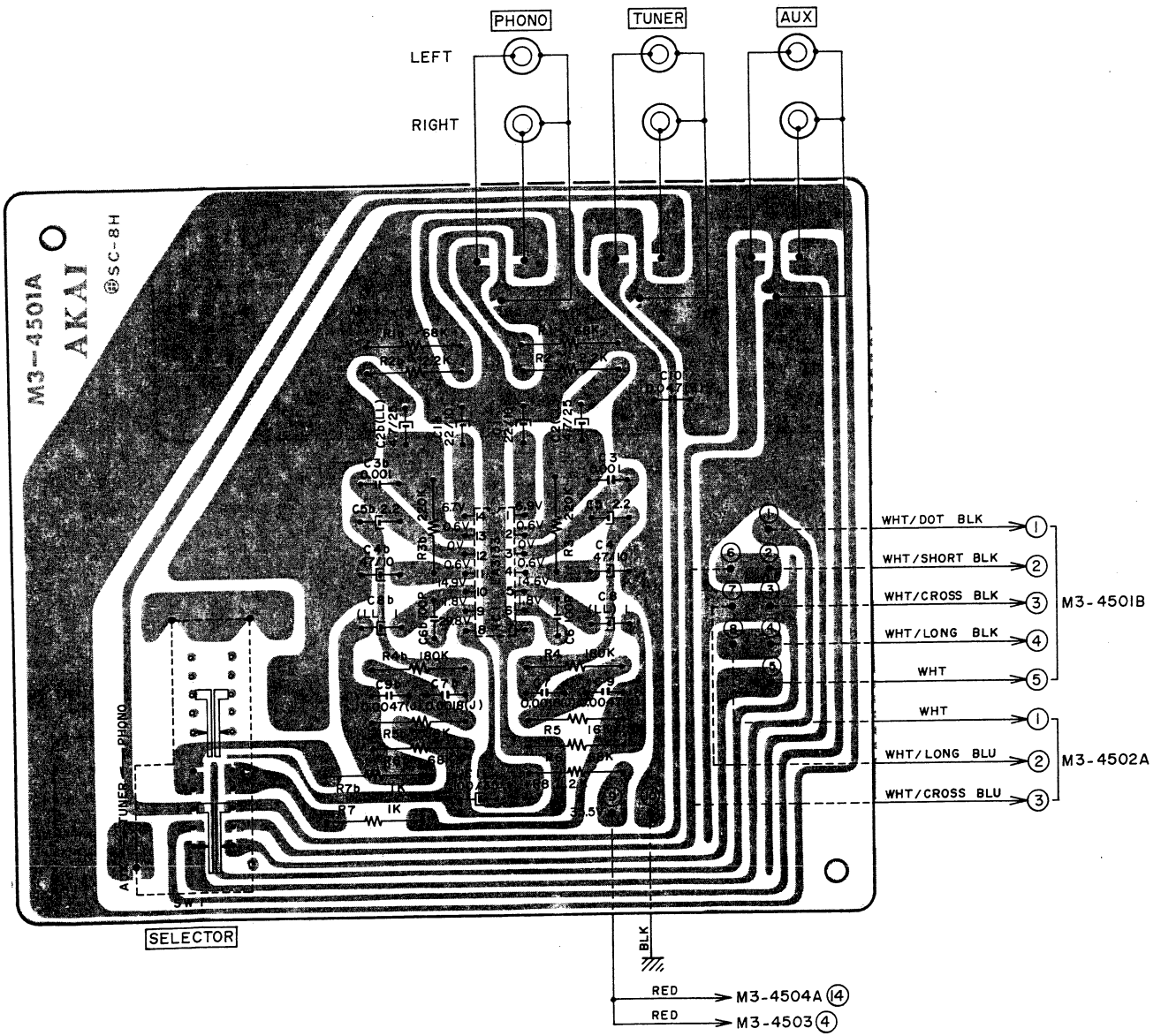
2) TONE CONTROL P.C BOARD M3-4503



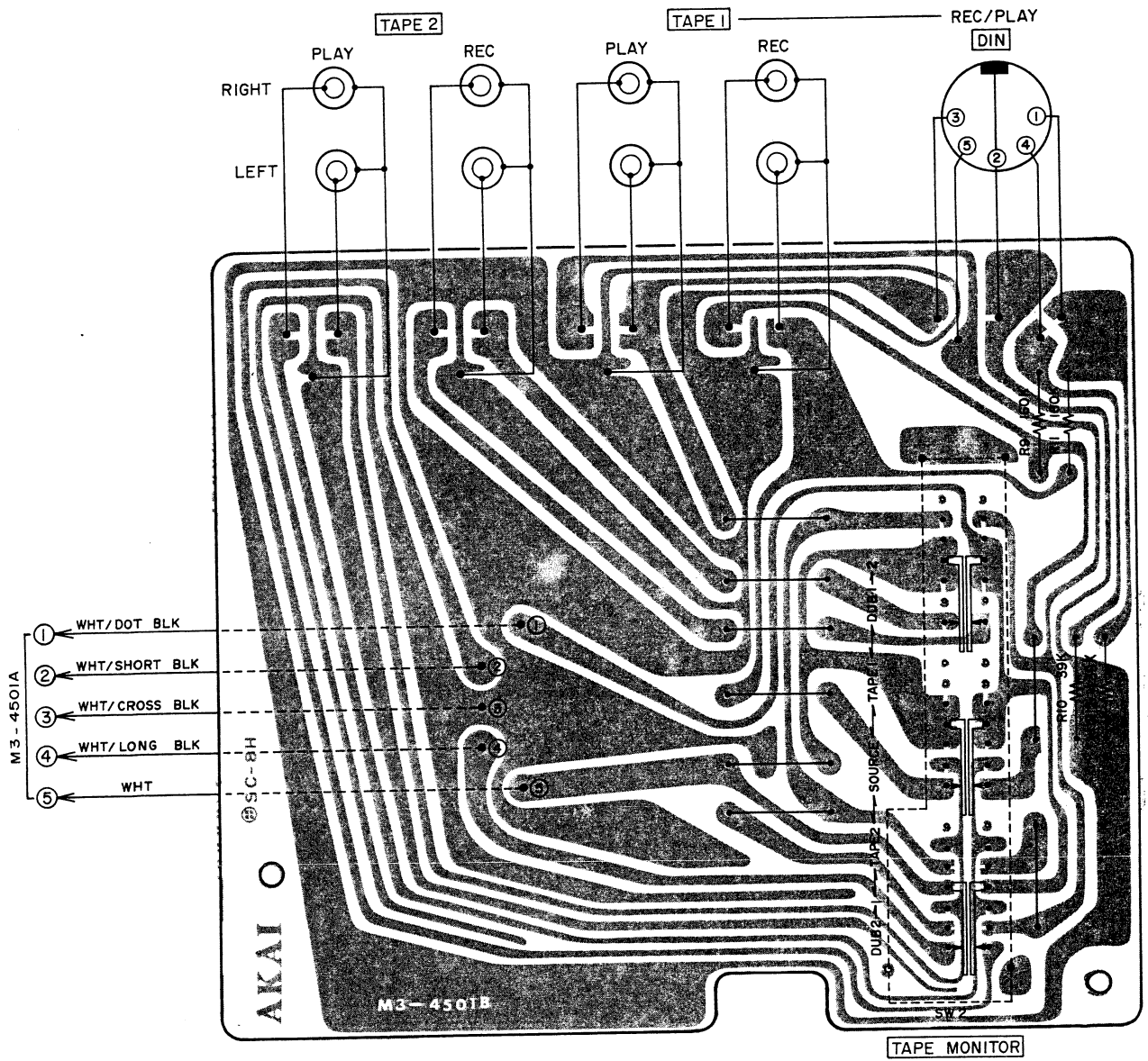
3) MAIN VOL. & BALANCE P.C BOARD M3-4502A/B



4) INPUT P.C BOARD M3-4501A



5) TAPE P.C BOARD M3-4501B



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-MEMO-

MC-Service

30 ~ 32 feet

MC-Service

SECTION 2

PARTS LIST

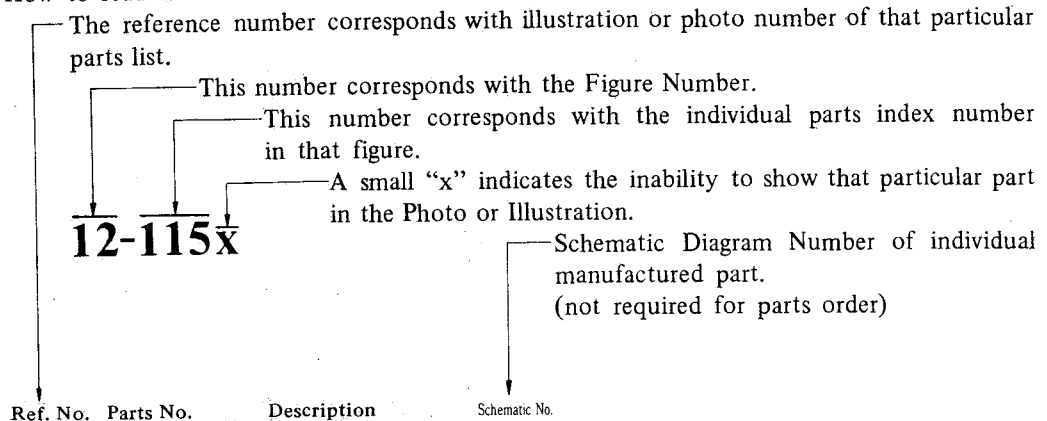
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| 3. POWER SUPPLY P.C BOARD (T3-4502) BLOCK | 39 |
| 4. ASSEMBLY BLOCK | 40 |
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| MODEL AM-2450 | |
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| 7. MAIN VOL. & BALANCE P.C BOARD (M3-4502A/B) BLOCK | 43 |
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Resistor 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 RECOMEMNDED PARTS.

AVERTISSEMENT: Δ IL INDIQU 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.

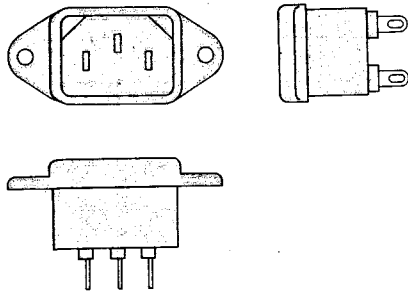
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AC INLET SYSTEM

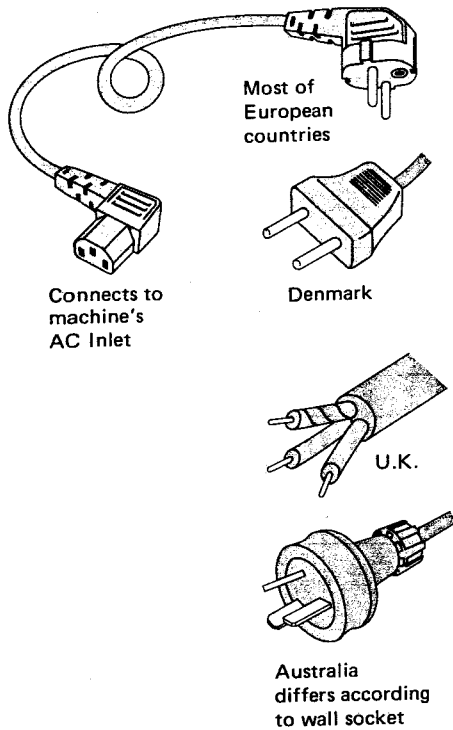
This model is equipped with an AC INLET SYSTEM. Please refer to the AC INLET SYSTEM CHART below for the specific type. By the AC INLET SYSTEM, AC (mains) cord can be connected to and disconnected from the model because the model is provided with socket exclusively for AC (mains) cord on its main body. 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

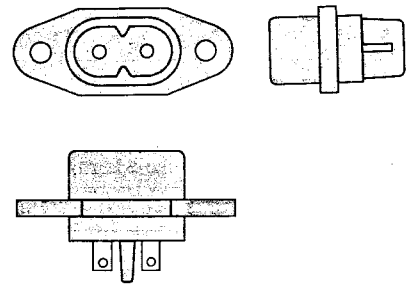


Picture 1
AC INLET
to be
installed
on machines

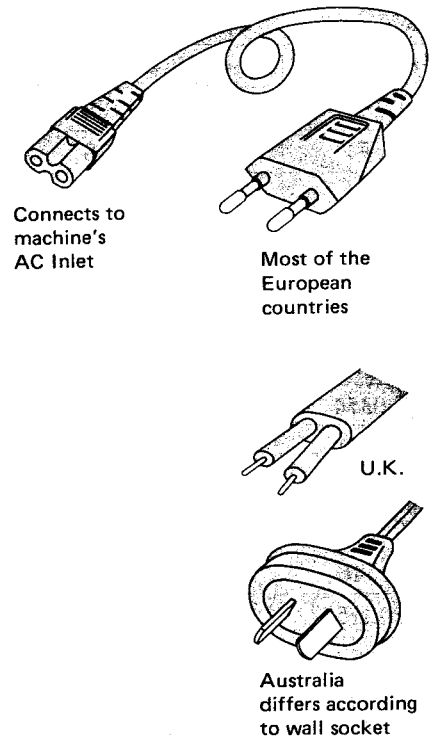


CLASS II

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



Connects to
machine's
AC Inlet



Picture 2
AC (mains)
cord

Parts List for AC (mains) Cord Set

| Standard | | Description | Type of AC Inlet | Parts No. |
|----------|------|-------------------------|------------------|-----------|
| Class I | CEE | Cord Set CEE (3 cores) | 3P | EW302993 |
| | BEAB | Cord Set BEAB (3 cores) | 3P | EW302994 |
| | SAA | Cord Set SAA (3 cores) | 3P | EW302996 |
| | U/T | Cord Set U/T (3 cores) | 3P | EW302646 |
| Class II | CEE | Cord Set CEE (2 cores) | 2P | EW638144 |
| | BEAB | Cord Set BEAB (2 cores) | 2P | EW302995 |
| | SAA | Cord Set SAA (2 cores) | 2P | EW302991 |
| | U/T | Cord Set U/T (2 cores) | 2P | EW302899 |

1. 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.

MODEL AT-2450/BL

| Parts No. | Description | Note |
|-----------|--------------------------------|----------|
| BA308077 | Tuner P.C Board Comp. AT-2450 | |
| BT308859 | △ Power Trans. AT-2650T-70 | U/T |
| BT308829 | △ Power Trans. AT-2650T-20 | CSA, AAL |
| BT308830 | △ Power Trans. AT-2650T-40 | CEE |
| BT308831 | △ Power Trans. AT-2650T-50 | UK |
| ED308860 | Zener Diode RD-16E(B) | |
| ED698826 | LED SR-105D | |
| ED308592 | LED SY-405D | |
| EF306125 | △ Fuse 315mA 250V | U/T |
| EF308933 | △ Fuse 200mA 250V | U/T |
| EF308847 | △ Fuse 1.6A 125V | CSA, AAL |
| EF308848 | △ Fuse 400mA 125V | CSA, AAL |
| EF300596 | △ Fuse (FST) 200mA T | CEE, UK |
| EF601964 | △ Fuse (SEMKO T Type) 1.6AT | CEE, UK |
| EI307199 | IC μ PC1178C | |
| EI697871 | IC LA-3122S | |
| EI307198 | IC LA1231 | |
| EI308850 | IC μ PC1173C | |
| EM308844 | Signal Meter KL-243X-35 | |
| EM300355 | Signal Meter KL-243X-26 | BL |
| EM308843 | Tuning Meter KL-243X-36 | |
| EM300354 | Tuning Meter KL-243X-27 | BL |
| ES308852 | Rotary SW. SRZK-043S | |
| ES308858 | △ Push SW. JP29, w/o label | U/T |
| ES308863 | △ Push SW. JP29, w/label | CSA, AAL |
| ES242346 | △ Push SW. JP17 | CEE, UK |
| ET632215 | Transistor 2SC536 (F) (G) (H) | |
| ET618873 | Transistor 2SC930 (E) (F) | |
| ET307193 | Transistor 2SD612K (D) (E) (F) | |

MODEL AM-2450/BL

| Parts No. | Description | Note |
|-----------|---|----------|
| BA308025 | Main Amp P.C Board Comp. AM-2450 | U/T, CSA |
| BA308026 | Main Amp P.C Board Comp. AM-2450 | CEE, UK |
| BT308591 | △ Power Trans. AM-2450T-70 | U/T |
| BT308588 | △ Power Trans. AM-2450T-30 | CSA |
| BT308587 | △ Power Trans. AM-2450T-20 | AAL |
| BT308589 | △ Power Trans. AM-2450T-40 | CEE |
| BT308590 | △ Power Trans. AM-2450T-50 | UK |
| ED240377 | Zener Diode RD36E (C) | |
| EF563703 | △ Fuse 2A 250V | U/T |
| EF575212 | △ Fuse 4A 250V | U/T |
| EF277424 | △ Fuse ST-4 0.8A | CSA, AAL |
| EF304303 | △ Fuse ST-6 3.15A | CSA, AAL |
| EF601942 | △ Fuse (SEMKO T Type) 630mAT | CEE, UK |
| EF690996 | △ Fuse (SEMKO T Type) 4AT | CEE, UK |
| EF601301 | △ Fuse (SEMKO T Type) 2AT | UK |
| EI305696 | IC LA3133 | |
| EI308865 | IC TA7318P | |
| EP245305 | Relay MA24D4-0Z | |
| ES308883 | Rotary SW. SRZ-K043N (18) | |
| ES308884 | Rotary SW. SRZ-K065T | |
| ES224436 | △ Push SW. JP01 | |
| ES280258 | △ Push SW. SDV1P TV-5 (w/label) | CSA, AAL |
| ES242346 | △ Push SW. JP17 | CEE, UK |
| ET307195 | Transistor 2SC2240 (GR) (BL) | |
| ET308866 | Transistor 2SA979 (G) (H) | |
| ET310168 | Transistor 2SC2229 (O) (Y) | |
| ET308867 | Transistor 2SA1015 (O) (Y) (GR) | |
| ET308870 | Transistor 2SC2235 (O) (Y) | |
| ET308868 | Transistor 2SA965 (O) (Y) | |
| ET307195 | Transistor 2SC2240 (GR) (BL) | |
| ET305221 | Transistor 2SC1815 (O) (Y) (GR) | |
| ET403391 | Transistor 2SC536 (G) (H) | |
| ET666404 | Transistor 2SD571 (K) (L) | |
| ET307193 | Transistor 2SD612K (D) (E) (F) | |
| ET308879 | Transistor 2SD718 (R) (O) | |
| ET308880 | Transistor 2SB688 (R) (O) | |
| EV307189 | Single Axial 2 Throw Vol. GM70E-250kMN | |
| EV307188 | Single Axial 2 Throw Vol. GM80E-250kBx2 | |
| EV308596 | Single Axial 2 Throw Vol. GM70E-C50kx2 | |

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MODEL AT-2450

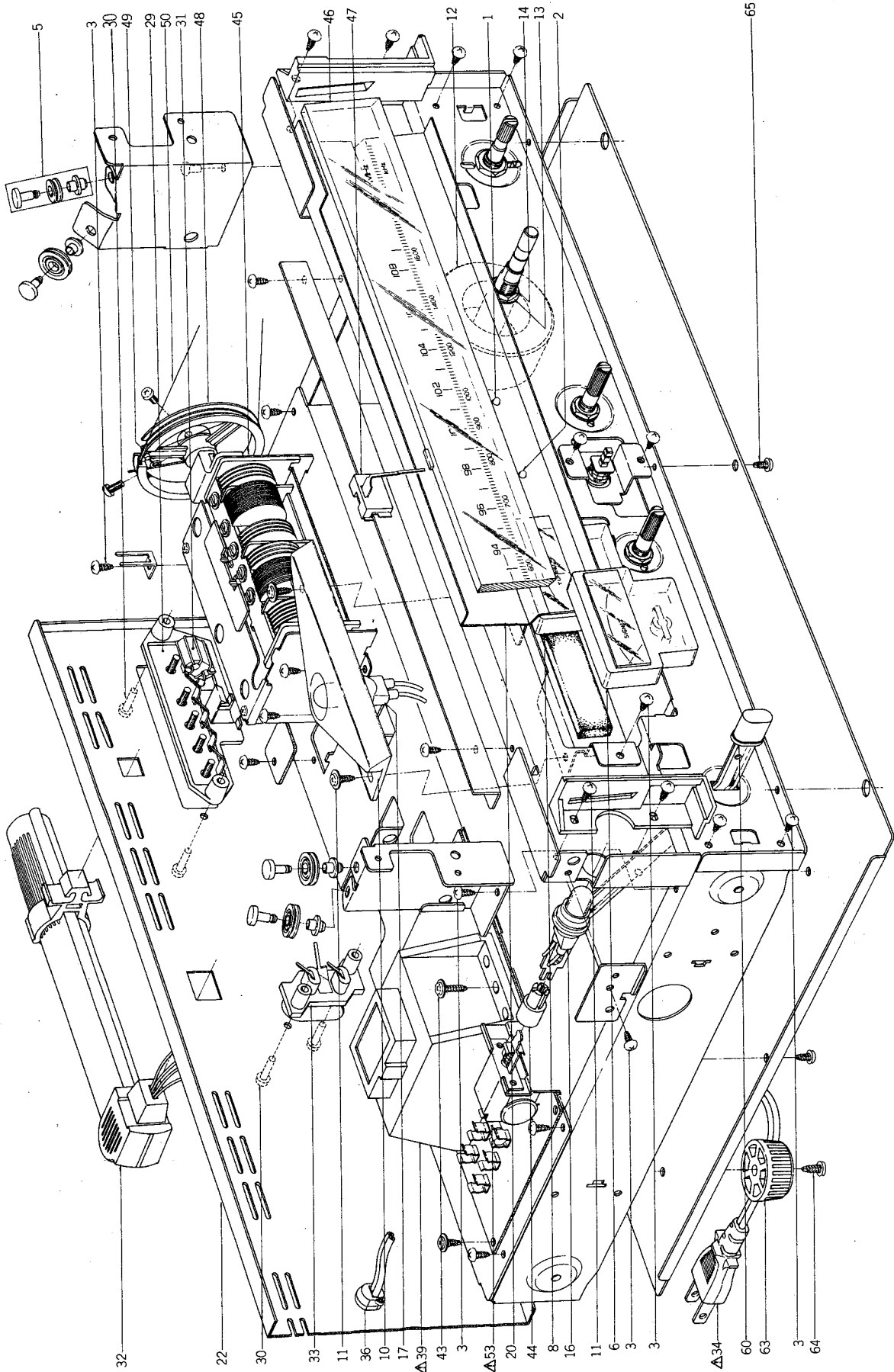
2. TUNER P.C BOARD (T3-4501A) BLOCK

| Symbol No. | Parts No. | Description | Schematic No. |
|-------------------------------|-----------|---|---------------|
| 2-1 | BA308077 | Tuner P.C Board Comp. AT-2450 | T3-4546 |
| 2-IC1 | EI3 07199 | IC μ PC1178C | 45-8-268 |
| 2-IC2 | EI6 97871 | IC LA-3122S | 45-8-185 |
| 2-IC3 | EI3 07198 | IC LA1231 | 45-8-267 |
| 2-IC4 | EI3 08850 | IC μ PC1173C | 45-8-318 |
| 2-TR1 | ET632215 | Transistor 2SC536(F)(G)(H) | 45-1-55 |
| 2-TR2,3 | ET618873 | Transistor 2SC930(E)(F) | 45-1-185 |
| 2-TR4to7 | ET632215 | Transistor 2SC536(F)(G)(H) | 45-1-55 |
| 2-D1to9 | ED624903 | Silicon Diode 1S2473 | 45-3-28 |
| 2-SW1 | ES308852 | Rotary SW. SRZK-043S | 25-6-160 |
| 2-SW2 | ES308851 | Push SW. 12M-7S231 | 25-5-298 |
| 2-VR1 | EV560136 | Semi-fixed/Vol. V10K8-4-2 20 k Ω | 36-10-250 |
| 2-VR2 | EV308854 | Single Axial 2 Throw Vol. GM70R871C 50 k Ω x2 | 36-22-40 |
| 2-VR3 | EV308853 | Vol. VM10R907C 100 k Ω | 36-6-35 |
| 2-VR4 | EV650891 | Semi-fixed/Vol. V10K8-4-2 50 k Ω | 36-10-250 |
| 2-VR5 | EV307246 | Semi-fixed/Vol. D10 Axial Type 5 k Ω | 36-10-274 |
| 2-T1 | EO307186 | OSC Coil RWR-43208N | 23-4-47 |
| 2-T2 | BT307204 | AM-IF Trans. CFMA-008 | 53-1-131 |
| 2-T3 | EO307205 | AM-IF Coil RMC-43650C | 23-1-292 |
| 2-T4 | EO307202 | Detection Coil TKAEA-24638AUO | 23-1-290 |
| 2-T5 | EO307203 | Detection Coil TKAEA-24639X | 23-1-291 |
| 2-L1 | EO650610 | Inductor 144LZ 18 μ H (J) | 23-1-240 |
| 2-FL1to4 | ER308617 | Ceramic Filter SFE10.7ML-Z | 53-1-139 |
| 2-FL5,6 | ER308855 | Low Pass Filter 208BLRB-3251N | 53-1-140 |
| 2-C1 | EC307257 | Styrol/C. (Homing Type) 310PF(J) 50WV | 24-11-14 |
| 2-C64 | EC306987 | Styrol/C. (Homing Type) 470PF(J) 50WV | 24-11-14 |
| 2-C65 | EC638188 | Solid Aluminum/C. (Vert. Type) 1.5 μ F(M) 25WV | 24-19-2 |
| COIL P.C BOARD BLOCK | | | |
| 2-L2,3 | EO539820 | Peaking Coil 2.2 μ H(K) | 23-1-187 |
| FILTER P.C BOARD BLOCK | | | |
| 2-L4 | EO539820 | Peaking Coil 2.2 μ H(K) | 23-1-187 |

3. POWER SUPPLY P.C BOARD (T3-4502) BLOCK

| Symbol No. | Parts No. | Description | Schematic No. |
|------------|-----------|--|---------------|
| 3-1 | BA308069 | Power Supply P.C Board Comp. AT-2450(U/T) | T3-4550 |
| 3-2 | BA308067 | Power Supply P.C Board Comp. AT-2450(CSA,AAL) | T3-4550 |
| 3-3 | BA308066 | Power Supply P.C Board Comp. AT-2450(CEE) | T3-4550 |
| 3-4 | BA311178 | Power Supply P.C Board Comp. AT-2450(UK) | T3-4550 |
| 3-TR1 | ET307193 | Transistor 2SD612K (D)(E)(F) | 45-1-308 |
| 3-TR2 | ET632215 | Transistor 2SC536(F)(G)(H) | 45-1-55 |
| 3-D1 | ED624903 | Silicon Diode 1S2473 | 45-3-28 |
| 3-D2 | ED223547 | Silicon Diode DS131A | 45-2-67 |
| 3-D3 | ED308860 | Zener Diode RD-16E(B) | 45-6-72 |
| 3-SW1 | ES308858 | Δ Push SW. JP29, w/o label (U/T) | 25-5-299 |
| 3-SW1 | ES308863 | Δ Push SW. JP29, w/label (CSA, AAL) | 25-5-300 |
| 3-SW1 | ES242346 | Δ Push SW. JP17 (CEE, UK) | 25-5-224 |
| 3-L1 | EO539820 | Peaking Coi. 2.2 μ H(K) | 23-1-187 |
| 3-C1 | EC204671 | Δ Ceramic/C. DD31-6E 0.01 μ F(P) 500WV(U/T) | 24-5-66 |
| 3-C1 | EC294118 | Δ Ceramic/C. DPN6600YM 0.01 μ F(P) 125WV (CSA, AAL) | 24-5-70 |
| 3-C1 | EC301320 | Δ MP/C. 4700PF(M) 250WV (CEE, UK) | 24-9-122 |
| 3-C2 | EC204671 | Δ Ceramic/C. DD31-6E 0.01 μ F(P) 500WV | 24-5-66 |
| 3-C3 | EC204671 | Δ Ceramic/C. DD31-6E 0.01 μ F(P) 500WV | 24-5-66 |
| 3-2 | ZS325495 | Tapping Screw #2, 3x6 (BR) | |

4. ILLUSTRATION OF ASSEMBLY BLOCK

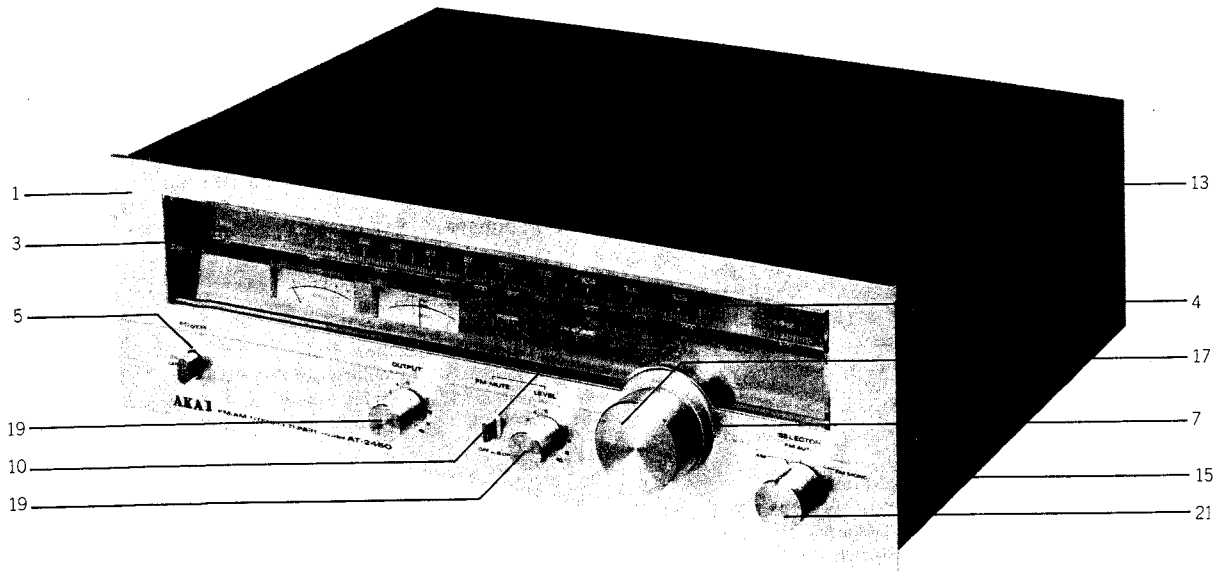


4) ASSEMBLY BLOCK

| Ref. No. | Parts No. | Description | Schematic No. | Ref. No. | Parts No. | Description | Schematic No. |
|----------------------------|-----------|---|---------------|----------|-----------|---------------------------------------|---------------|
| LED P.C BOARD BLOCK | | | | | | | |
| 4-1 | ED698826 | LED SR-105D | 45-15-16 | 4-55x | EF308847 | △ Fuse 1.6A 125V (CSA, AAL) | 39-1-65 |
| 4-2 | ED308592 | LED SY-405D | 45-15-20 | 4-56x | EF308848 | △ Fuse 400mA 125V (CSA, AAL) | 39-1-65 |
| ASSEMBLY BLOCK | | | | | | | |
| 4-3 | ZS325495 | Tapping Screw #2, 3x6(BR) | | 4-57x | EF300596 | △ Fuse (FST) 200mAT (CEE, UK) | 39-1-61 |
| 4-4x | ZS297641 | Tapping Screw #2, 3x8(Bind) W=10 | | 4-58x | EF601964 | △ Fuse (SEMKO T Type) 1.6AT (CEE, UK) | 39-1-53 |
| 4-5 | MZ307170 | Pulley | 13-2-39 | 4-59x | EF300596 | △ Fuse (FST) 200mAT (UK) | 39-1-61 |
| 4-6 | EM308844 | Signal Meter KL-243X-35 | 46-1-214 | 4-60 | SK305674 | Power SW. Cap | CN-6338 |
| 4-7x | EM300355 | Signal Meter KL-243X-26(BL) | 46-1-165 | 4-61x | SK306130 | Power SW. Cap (BL) | CN-6338 |
| 4-8 | EM308843 | Tuning Meter KL-243X-36 | 46-1-213 | 4-62 | SP308634 | Bottom Plate | T3-4523 |
| 4-9x | EM300354 | Tuning Meter KL-243X-27(BL) | 46-1-163 | 4-63 | EA312465 | Circular Foot (A) Part CA | CA-6014 |
| 4-10 | TA308638 | Meter Illumination Plate | T3-4526 | 4-64 | ZS565942 | Tapping Screw #2, 4x8(Pan) | |
| 4-11 | ZS498273 | Tapping Screw #2, 3x8(BR) W=8 | | 4-65 | ZS447840 | Tapping Screw #2, 3x8(BR) | |
| 4-12 | TA308837 | Flywheel | 13-2-46 | | | | |
| 4-13 | ZW308889 | Washer | 25-6-160 | | | | |
| 4-14 | ZW308890 | Nut | 25-6-160 | | | | |
| 4-15x | ZS379350 | Screw, pan head 3x6 | | | | | |
| 4-16 | EL307157 | Lamp (Cord Type) 8V 300mA (300mmx2) | 28-2-71 | | | | |
| 4-17 | EL308839 | Lamp (Cord Type) 8V 300mA (500mmx2) | 28-2-71 | | | | |
| 4-18x | EL308840 | Lamp (Cord Type) 8V 300mA (600mmx2) | 28-2-71 | | | | |
| 4-19x | ZW231030 | Nylon Rivet (FNRP) 3x4.5 (Black) | 2-7-54 | | | | |
| 4-20 | SP308606 | Meter Panel | T3-4503 | | | | |
| 4-21x | SP308607 | Meter Panel (BL) | T3-4503 | | | | |
| 4-22 | SP308619 | Rear Panel (A) (U)(U/T) | T3-4510 | | | | |
| 4-23x | SP308620 | Rear Panel (B) (C)(CSA) | T3-4511 | | | | |
| 4-24x | SP308621 | Rear Panel (C) (A)(AAL) | T3-4511 | | | | |
| 4-25x | SP308622 | Rear Panel (D) (E)(CEE) | T3-4512 | | | | |
| 4-26x | SP308623 | Rear Panel (E) (B)(UK) | T3-4512 | | | | |
| 4-27x | ZS447761 | Tapping Screw #2, 3x6(BR) (Black) | | | | | |
| 4-28x | ZS308673 | Tapping Screw 3x20 (Pan), w/guide (CSA, AAL, CEE, UK) | 7-1-68 | | | | |
| 4-29 | EJ308832 | 5P Antenna Terminal Plate UD-0059 | 32-1-92 | | | | |
| 4-30 | ZS522865 | Tapping Screw #2, 3x12 (BR) (Black) | | | | | |
| 4-31 | BT444137 | Balum Trans. 75 ohms-300 ohms | 23-1-129 | | | | |
| 4-32 | EE308833 | Bar Antenna | 55-1-55 | | | | |
| 4-33 | EJ308834 | 2P PIN Jack T5511 | 31-5-143 | | | | |
| 4-34 | EW306428 | △ AC Cord (U/T) | 26-3-64 | | | | |
| 4-35x | EW305691 | △ AC Cord CUL (CSA, AAL) | 26-3-65 | | | | |
| 4-36 | EZ631945 | Strain Relief SR-4N-4 (U/T, CSA, AAL) | 2-7-49 | | | | |
| 4-37x | EJ296853 | △ 3P In-Let CM-3 (CEE, UK) | 31-1-199 | | | | |
| 4-38x | ZS463353 | Tapping Screw #2, 3x8(BR) (Black) (CEE, UK) | | | | | |
| 4-39 | BT308859 | △ Power Trans. AT-2650T-70 (U/T) | 38-4-666 | | | | |
| 4-40x | BT308829 | △ Power Trans. AT-2650T-20 (CSA, AAL) | 38-4-663 | | | | |
| 4-41x | BT308830 | △ Power Trans. AT-2650T-40 (CEE) | 38-4-664 | | | | |
| 4-42x | BT308831 | △ Power Trans. AT-2650T-50 (UK) | 38-4-665 | | | | |
| 4-43 | ZS308513 | Tapping Screw #2, 3x12(BR) W=8 | | | | | |
| 4-44 | TC289484 | SW. Joint | CM-6015 | | | | |
| 4-45 | EE308838 | Front End FR611U14 | 57-2-47 | | | | |
| 4-46 | TA308609 | Scale Plate (A) | T3-4504 | | | | |
| 4-47 | TA308109 | Pointer Part AT-2450 | T3-4535 | | | | |
| 4-48 | MI301149 | Dial Wheel | 2-15-17 | | | | |
| 4-49 | ZG300891 | Dial Wheel Spring | AB-3533 | | | | |
| 4-50 | TA307160 | Dial String TK-1064 D0.5 | 8-2-1 | | | | |
| 4-51x | ZS434250 | Screw, pan head 4x8, w/washer (CEE, UK) | | | | | |
| 4-52x | ZW413188 | Nut M4, #1 (CEE, UK) | | | | | |
| 4-53 | EF306125 | △ Fuse 315mA 250V (U/T) | 39-1-64 | | | | |
| 4-54x | EF308933 | △ Fuse 200mA 250V (U/T) | 39-1-64 | | | | |

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

5. PHOTO OF FINAL ASSEMBLY BLOCK



5) FINAL ASSEMBLY BLOCK

| Ref. No. | Parts No. | Description | Schematic No. |
|-----------------------------|-----------|--|---------------|
| FRONT PANEL BLOCK | | | |
| 5-1 | BD308062 | Front Panel Block Comp. AT-2450 | T3-4554 |
| 5-2x | BD308061 | Front Panel Block Comp. AT-2450-BL | T3-4554 |
| 5-3 | TA308613 | Front Plate | T3-4507 |
| 5-4 | SE305651 | Button Escutcheon (B) | CN-6352 |
| 5-5 | SE308529 | Button Escutcheon (A) | CY-6013 |
| 5-6x | SE306936 | Button Escutcheon (B-BL) | CN-6352 |
| 5-7 | SK308641 | Tuning Knob Stand | T3-4529 |
| 5-8x | SK308642 | Tuning Knob Stand (BL) | T3-4529 |
| 5-9x | ZS497878 | Tapping Screw #2, 3x10(BR) W=8 | |
| 5-10 | SK305653 | Push Button (A) | CN-6309 |
| 5-11x | SK305656 | Push Button (D) (BL) | CN-6309 |
| 5-12x | ZG305657 | Button Spring | CN-6310 |
| FINAL ASSEMBLY BLOCK | | | |
| 5-13 | BC308635 | Upper Cover (A) (U/T, CSA, CEE, UK) | T3-4524 |
| 5-14x | BC308636 | Upper Cover (B) (AAL) | T3-4524 |
| 5-15 | ZS537006 | Screw, binding head 4x8 (Black) | |
| 5-16x | ZS308846 | Tapping Screw #2, 3x8(BR) (Oval Neck) | 7-1-69 |
| 5-17 | SK308643 | Tuning Knob | T3-4530 |
| 5-18x | SK308644 | Tuning Knob (BL) | T3-4530 |
| 5-19 | SK308565 | Knob (A) | M3-4531 |
| 5-20x | SK308566 | Knob (A-BL) | M3-4531 |
| 5-21 | SK308567 | Knob (B) | M3-4532 |
| 5-22x | SK308568 | Knob (B-BL) | M3-4532 |

MC-Service

MODEL AM-2450

6. INPUT & TAPE P.C BOARD (M3-4501A/B) BLOCK

| Symbol No. | Parts No. | Description | Schematic No. |
|---|-----------|---|---------------|
| INPUT P.C BOARD (M3-4501A) BLOCK | | | |
| 6-1 | BA308020 | Input P.C Board Comp. AM-2450 | M3-4540 |
| 6-IC1 | EI305696 | IC LA3133 | 45-8-270 |
| 6-SW1 | ES308883 | Rotary SW. SRZ-K043N(18) | 25-6-157 |
| 6-J1 | EJ293376 | 6P PIN Jack | 31-1-198 |
| 6-C2 | EC308593 | Elect./C. (LL, Homing Type) 4.7 μ F 25WV | 24-20-18 |
| TAPE P.C BOARD (M3-4501B) BLOCK | | | |
| 6-2 | BA308022 | Tape P.C Board Comp. AM-2450 | M3-4540 |
| 6-SW2 | ES308884 | Rotary SW. SRZ-K065T | 25-6-158 |
| 6-J2 | EJ293365 | 4P PIN Jack | 31-1-197 |
| 6-J3 | EJ293365 | 4P PIN Jack | 31-1-197 |
| 6-J4 | EJ698051 | DIN Jack | 31-1-158 |

7. MAIN VOL. & BALANCE P.C BOARD (M3-4502A/B) BLOCK

| Symbol No. | Parts No. | Description | Schematic No. |
|------------|-----------|---|---------------|
| 7-1 | BA308017 | Main Vol. & Balance P.C Board Comp. AM-2450 | M3-4541 |
| 7-VR1 | EV307189 | Single Axial 2 Throw Vol. GM70E-250kMN | 36-22-36 |
| 7-VR2 | EV307188 | Single Axial 2 Throw Vol. GM80E-250kBx2 | 36-22-35 |
| 7-SW1 | ES308595 | 2 throw Push SW. J-P7291#01 | 25-5-296 |

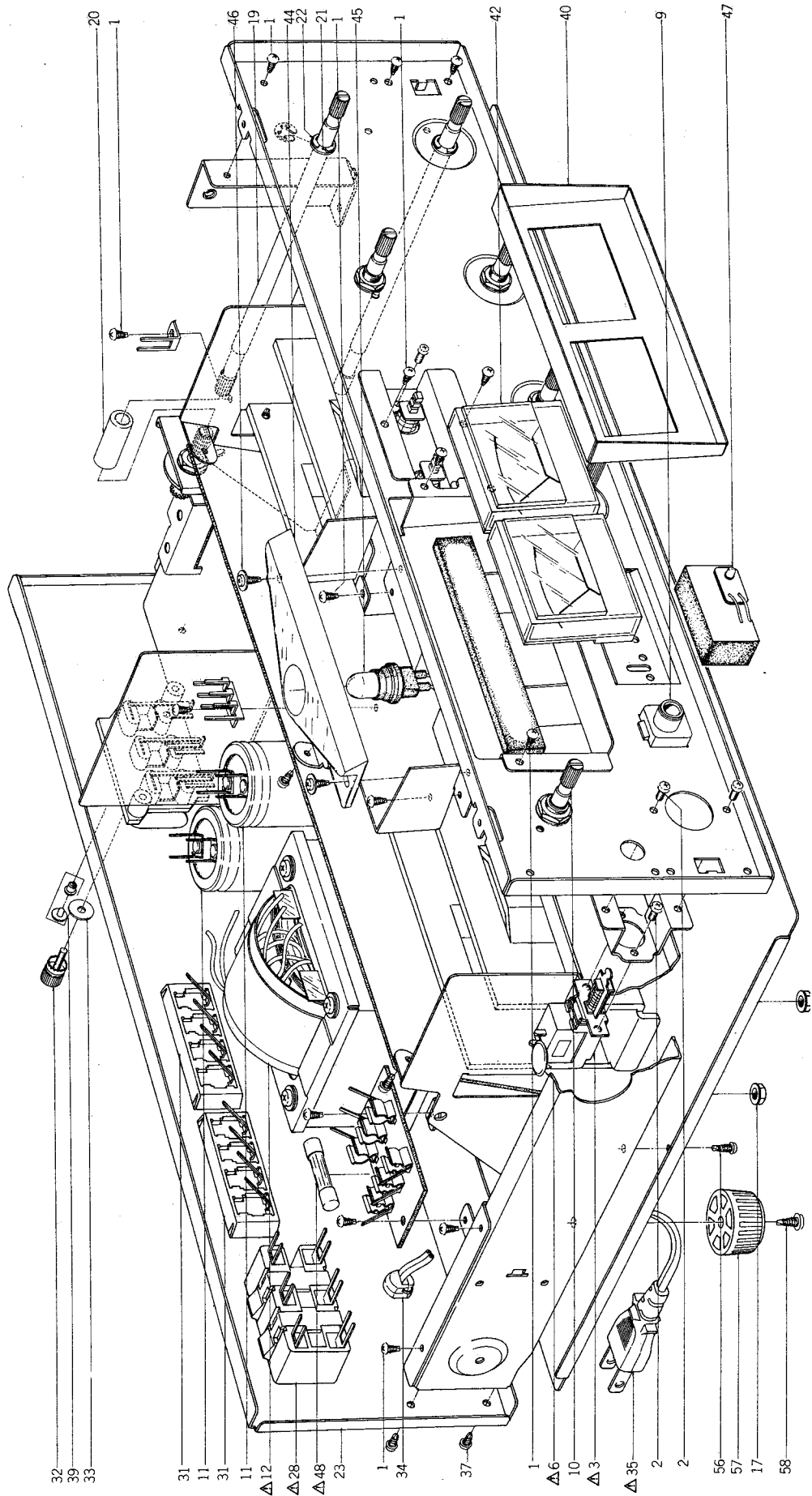
8. TONE CONTROL P.C BOARD (M3-4503) BLOCK

| Symbol No. | Parts No. | Description | Schematic No. |
|------------|-----------|---|---------------|
| 8-1 | BA308012 | Tone Control P.C Board Comp. AM-2450 | M3-4539 |
| 8-TR1,2 | ET307195 | Transistor 2SC2240(GR)(BL) | 45-1-302 |
| 8-VR1,2 | EV308596 | Single Axial 2 Throw Vol. GM70E-C50kx2 | 36-22-39 |
| 8-C9 | EC662308 | Solid Aluminum/C. (Vert. Type) 0.15 μ F(K) 25WV | 24-19-2 |

9. MAIN AMP P.C BOARD (M3-4504A/B) BLOCK

| Symbol No. | Parts No. | Description | Schematic No. |
|------------------------|-----------|---|---------------|
| 9-1 | BA308025 | Main Amp P.C Board Comp. AM-2450(U/T)(CSA) | M3-4537 |
| 9-2 | BA308026 | Main Amp P.C Board Comp. AM-2450(CEE)(UK) | M3-4537 |
| 9-IC1 | EI308865 | IC TA7318P | 45-8-306 |
| 9-TR1 | ET308866 | Transistor 2SA979(G)(H) | 45-1-324 |
| 9-TR2 | ET310168 | Transistor 2SC2229(O)(Y) | 45-1-305 |
| 9-TR3 | ET308867 | Transistor 2SA1015(O)(Y)(GR) | 45-1-328 |
| 9-TR5 | ET308870 | Transistor 2SC2235(O)(Y) | 45-1-331 |
| 9-TR6 | ET308868 | Transistor 2SA965(O)(Y) | 45-1-329 |
| 9-TR9 | ET307195 | Transistor 2SC2240(GR)(BL) | 45-1-302 |
| 9-TR10 | ET308867 | Transistor 2SA1015(O)(Y)(GR) | 45-1-328 |
| 9-TR11,12 | ET305221 | Transistor 2SC1815(O)(Y)(GR) | 45-1-299 |
| 9-TR13 | ET403391 | Transistor 2SC536(G)(H) | 45-1-55 |
| 9-TR14 | ET666404 | Transistor 2SD571(K)(L) | 45-1-218 |
| 9-TR15 | ET305221 | Transistor 2SC1815(O)(Y)(GR) | 45-1-299 |
| 9-TR16 | ET308868 | Transistor 2SA965(O)(Y) | 45-1-329 |
| 9-TR17 | ET307193 | Transistor 2SD612K(D)(E)(F) | 45-1-308 |
| 9-D1to5 | ED214457 | Silicon Diode 1S2472 | 45-3-41 |
| 9-D6 | ED240377 | Zener Diode RD36E(C) | 45-6-72 |
| 9-D7,8 | ED300924 | Silicon Diode GP08D | 45-2-68 |
| 9-D9to12 | ED245428 | Silicon Diode GP30G | 45-2-69 |
| 9-D13,14 | ED624903 | Silicon Diode 1S2473 | 45-3-28 |
| 9-L1,2 | EO650823 | Phase Compensation Coil 2.2 μ H(K) | 23-1-239 |
| 9-RL1 | EP245305 | Relay MS24D4-0Z | 47-1-28 |
| 9-VR1 | EV300921 | Semi-fixed/Vol. V10K8-1-2 1kB | 36-10-255 |
| 9-VR2,3 | EV301637 | Semi-fixed/Vol. V10K8-1-2 500 ohms(B) | 36-10-255 |
| 9-R17,18 | ER622978 | Metal Plate/R. MPC71F1 5W 0.47 ohm (K) | 35-16-48 |
| 9-R40 | ER389687 | Metal Oxide Film/R. 1W 220 ohms (K) | 35-15-10 |
| 9-R43,44 | ER409814 | Metal Oxide Film/R. 2W 220 ohms (K) | 35-15-8 |
| 9-C1 | EC621257 | Solid Aluminum/C. (Vert. Type) 0.47 μ F(M) 25WV | 24-19-2 |
| 9-C17 | EC662128 | Solid Aluminum/C. (Vert. Type) 2.2 μ F(M) 25WV | 24-19-2 |
| 9-C33 | EC308877 | NP Elect./C. (Homing Type) 3.3 μ F(M) 25WV | 24-17-31 |
| 9-C36 | EC308877 | NP Elect./C. (Homing Type) 3.3 μ F(M) 25WV | 24-17-31 |
| 9-3 | ZS325495 | Tapping Screw #2, 3x6 (BR) | |
| 9-4 | ZS447840 | Tapping Screw #2, 3x8 (BR) | |
| HEAT-SINK BLOCK | | | |
| 9-TR7 | ET308879 | Transistor 2SD718(R)(O) | 45-1-322 |
| 9-TR8 | ET308880 | Transistor 2SB688(R)(O) | 45-1-323 |
| 9-5 | ZW310167 | Insulator Washer AC331 | 45-16-35 |
| 9-6 | ZS421806 | Screw, pan head 3x8 | |

10. ILLUSTRATION OF ASSEMBLY BLOCK

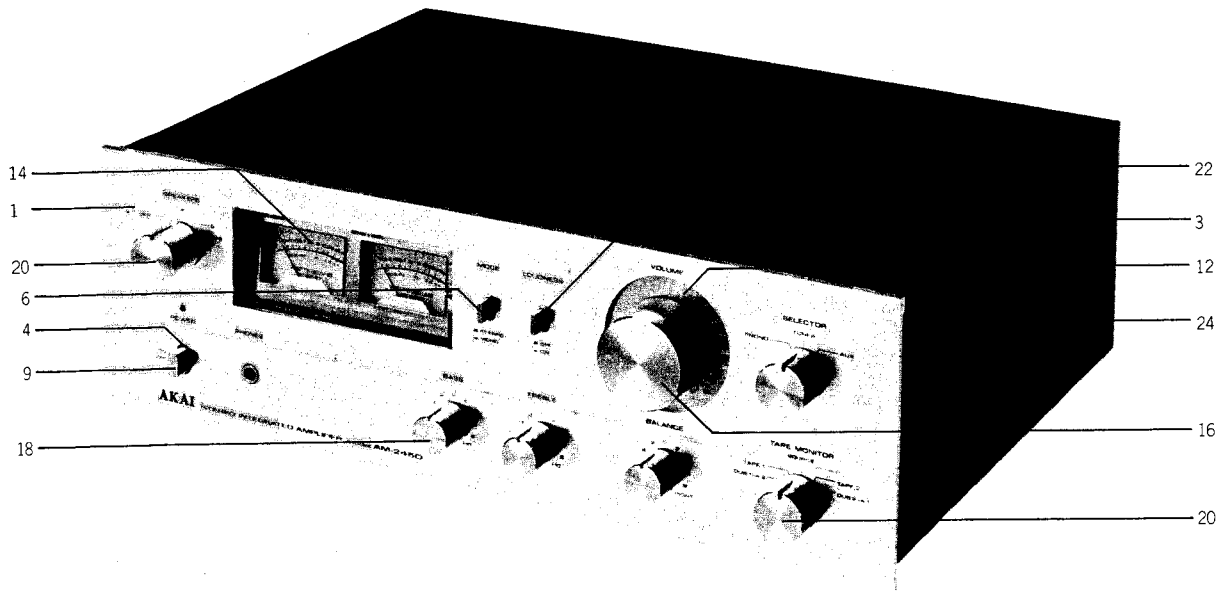


10) ASSEMBLY BLOCK

| Ref. No. | Parts No. | Description | Schematic No. | Ref. No. | Parts No. | Description | Schematic No. |
|----------|-----------|---|---------------|----------|-----------|----------------------------|---------------|
| 10-1 | ZS325495 | Tapping Screw #2, 3x6 (BR) | | 10-55 | SP308560 | Bottom Plate | M3-4528 |
| 10-2 | ZS379350 | Screw, pan head 3x6 | | 10-56 | ZS447840 | Tapping Screw #2, 3x8(BR) | |
| 10-3 | ES224436 | △ Push SW. JP01 | 25-5-221 | 10-57 | EA312465 | Circular Foot (A) Part CA | CA-6014 |
| 10-4x | ES280258 | △ Push SW. SDV1P TV-5 (w/label)(CSA, AAL) | 25-5-243 | 10-58 | ZS565942 | Tapping Screw #2, 4x8(Pan) | |
| 10-5x | ES242346 | △ Push SW. JP17 (CEE, UK) | 25-5-224 | | | | |
| 10-6 | EC204671 | △ Ceramic/C. DD31-6E 0.01μF(P) 500WV(U/T) | 24-5-66 | | | | |
| 10-7x | EC294118 | △ Ceramic/C. DPN6600 YM 0.01μF(P) 125WV(CSA,AAL) | 24-5-70 | | | | |
| 10-8x | EC301320 | △ MP/C. 4700PF(M) 250WV (CEE, UK) | 24-9-122 | | | | |
| 10-9 | EJ301199 | Headphone Jack 3P64M | 31-2-83 | | | | |
| 10-10 | ES308581 | Rotary SW. SR321N 1-2-4 | 25-7-51 | | | | |
| 10-11 | EC308585 | Elect./C. 10000μF 52WV | 24-10-129 | | | | |
| 10-12 | BT308591 | △ Power Trans. AM-2450T-70 (U/T) | 38-4-653 | | | | |
| 10-13x | BT308588 | △ Power Trans. AM-2450T-30 (CSA) | 38-4-650 | | | | |
| 10-14x | BT308587 | △ Power Trans. AM-2450T-20 (AAL) | 38-4-649 | | | | |
| 10-15x | BT308589 | △ Power Trans. AM-2450T-40 (CEE) | 38-4-651 | | | | |
| 10-16x | BT308590 | △ Power Trans. AM-2450T-50 (UK) | 38-4-652 | | | | |
| 10-17 | ZW413267 | Flange Nut M4 | | | | | |
| 10-18x | ZS434250 | Screw, pan head 4x8, w/washer (CEE, UK) | | | | | |
| 10-19 | MS308569 | Relay Shaft | M3-4533 | | | | |
| 10-20 | TA646773 | Joint | AA-5240 | | | | |
| 10-21 | ZW322110 | Washer (Nylon) D6.1x10x1t | | | | | |
| 10-22 | ZW270123 | 'E' Ring 4M | 6-1-9 | | | | |
| 10-23 | SP308546 | Rear Panel (A) (U)(U/T) | M3-4518 | | | | |
| 10-24x | SP308547 | Rear Panel (B) (C)(CSA) | M3-4519 | | | | |
| 10-25x | SP308548 | Rear Panel (C) (A) (AAL) | M3-4519 | | | | |
| 10-26x | SP308549 | Rear Panel (D) (E)(CEE) | M 3-4520 | | | | |
| 10-27x | SP308550 | Rear Panel (E) (B)(UK) | M3-4520 | | | | |
| 10-28 | EJ240535 | △ 3-throw AC Outlet (U/T, CSA, AAL) | 31-1-173 | | | | |
| 10-29x | EJ296853 | △ 3P In-let CM-3 (CEE, UK) | 31-1-199 | | | | |
| 10-30x | ZS463353 | Tapping Screw #2, 3x8 (BR) (Black) (CEE, UK) | | | | | |
| 10-31 | EJ306942 | 4P Push Terminal S-Q2361 | 32-1-86 | | | | |
| 10-32 | EJ306940 | Earth Terminal | 32-1-87 | | | | |
| 10-33 | ZW651082 | Washer (SPC) D3.2x10x1t | | | | | |
| 10-34 | EZ631945 | Strain Relief SR-4N-4 | 2-7-49 | | | | |
| 10-35 | EW306428 | △ AC Cord (U/T) | 26-3-64 | | | | |
| 10-36x | EW305691 | △ AC Cord CUL (CSA, AAL) | 26-3-65 | | | | |
| 10-37 | ZS447761 | Tapping Screw #2, 3x6(BR) (Black) | | | | | |
| 10-38x | ZS522865 | Tapping Screw #2, 3x12(BR) (Black) | | | | | |
| 10-39 | ZW698308 | Nylon Rivet (FNRP) 3x5.5 (Black) | 2-7-54 | | | | |
| 10-40 | SP308535 | Meter Panel | M3-4510, 4511 | | | | |
| 10-41x | SP308536 | Meter Panel (BL) | M3-4510, 4511 | | | | |
| 10-42 | EM308881 | Level Meter D18C54R | 46-1-205 | | | | |
| 10-43x | EM308882 | Level Meter D18C55R (BL) | 46-1-206 | | | | |
| 10-44 | TA308638 | Meter Illumination Plate | T3-4526 | | | | |
| 10-45 | EL308840 | Lamp (Cord Type) 8V 300mA (600mmx2) | 28-2-71 | | | | |
| 10-46 | ZS498273 | Tapping Screw #2, 3x8(BR) W=8 | | | | | |
| 10-47 | ED308592 | LED SY-405D | 45-15-20 | | | | |
| 10-48 | EF563703 | △ Fuse 2A 250V (U/T) | 39-1-50 | | | | |
| 10-49x | EF575212 | △ Fuse 4A 250V (U/T) | 39-1-50 | | | | |
| 10-50x | EF277424 | △ Fuse ST-4 0.8A (CSA,AAL) | 39-1-28 | | | | |
| 10-51x | EF304303 | △ Fuse ST-6 3.15A (CSA, AAL) | 39-1-63 | | | | |
| 10-52x | EF601942 | △ Fuse (SEMKO T Type) 630mAT (CEE, UK) | 39-1-53 | | | | |
| 10-53x | EF690996 | △ Fuse (SEMKO T Type) 4AT (CEE, UK) | 39-1-53 | | | | |
| 10-54x | EF601301 | △ Fuse (SEMKO T Type) 2AT (UK) | 39-1-53 | | | | |

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

11. PHOTO OF FINAL ASSEMBLY BLOCK



11) FINAL ASSEMBLY BLOCK

| Ref. No. | Parts No. | Description | Schematic No. |
|-----------------------------|-----------|--|---------------|
| FRONT PANEL BLOCK | | | |
| 11-1 | BD308010 | Front Panel Block Comp. AM-2450 | M3-4534 |
| 11-2x | BD308011 | Front Panel Block Comp. AM-2450-BL | M3-4534 |
| 11-3 | SE305651 | Button Escutcheon (B) | CN-6352 |
| 11-4 | SE306863 | Button Escutcheon | M3-2522 |
| 11-5x | SE306936 | Button Escutcheon (B-BL) | CN-6352 |
| 11-6 | SK305653 | Push Button (A) | CN-6309 |
| 11-7x | SK305656 | Push Button (D) (BL) | CN-6309 |
| 11-8x | ZG305657 | Button Spring | CN-6310 |
| 11-9 | SK306864 | Push Button | M3-2523 |
| 11-10x | SK306866 | Push Button (BL) | M3-2523 |
| 11-11x | ZG306867 | Taper Spring | M3-2524 |
| 11-12 | TA308532 | Vol. Plate | M3-4507, 4508 |
| 11-13x | TA308998 | Vol. Plate (BL) | M3-4507, 4508 |
| 11-14 | TA308534 | Meter Plate | M3-4509 |
| FINAL ASSEMBLY BLOCK | | | |
| 11-15x | ZS447840 | Tapping Screw #2, 3x8(BR) | |
| 11-16 | SK308562 | Vol. Knob | M3-4530 |
| 11-17x | SK308563 | Vol. Knob (BL) | M3-4530 |
| 11-18 | SK308565 | Knob (A) | M3-4531 |
| 11-19x | SK308566 | Knob (A-BL) | M3-4531 |
| 11-20 | SK308567 | Knob (B) | M3-4532 |
| 11-21x | SK308568 | Knob (B-BL) | M3-4532 |
| 11-22 | BC308561 | Upper Cover (A) (U/T, CSA, CEE, UK) | M3-4529 |
| 11-23x | BC308571 | Upper Cover (B) (AAL) | M3-4529 |
| 11-24 | ZS537006 | Screw, binding head 4x8 | |
| 11-25x | ZS447761 | Tapping Screw #2, 3x6(BR) (Black) | |

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

INDEX

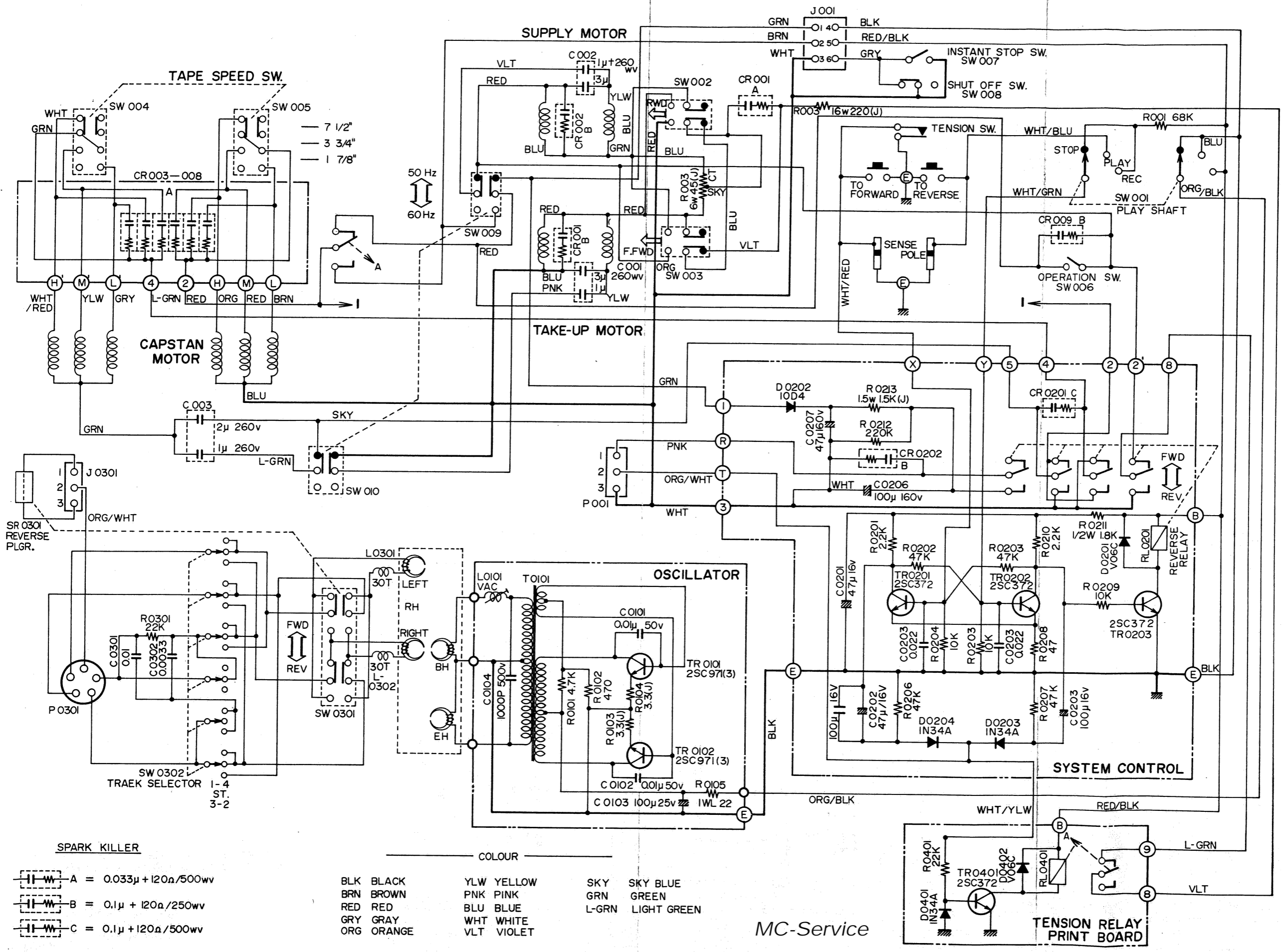
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|-----------|-----------------------|-----------|-----------------------|-----------|-----------------------|-----------|-----------------------|-----------|-----------------------|
| BA308012 | 8-1 | EI307199 | 2-IC1 | EV308853 | 2-VR3 | ZS325495 | 10-1 | | |
| BA308017 | 7-1 | EI308850 | 2-IC4 | EV308854 | 2-VR2 | ZS379350 | 4-15x | | |
| BA308020 | 6-1 | EI308865 | 9-IC1 | EV560136 | 2-VR1 | ZS379350 | 10-2 | | |
| BA308022 | 6-2 | EI697871 | 2-IC2 | EV650891 | 2-VR4 | ZS421806 | 9-6 | | |
| BA308025 | 9-1 | EJ240535 | 10-28 | EW305691 | 4-35x | ZS434250 | 4-51x | | |
| BA308026 | 9-2 | EJ293365 | 6-J2 | EW305691 | 10-36x | ZS434250 | 10-18x | | |
| BA308066 | 3-3 | EJ293365 | 6-J3 | EW306428 | 4-34 | ZS447761 | 4-27x | | |
| BA308067 | 3-2 | EJ293376 | 6-J1 | EW306428 | 10-35 | ZS447761 | 10-37 | | |
| BA308069 | 3-1 | EJ296853 | 4-37x | EZ631945 | 4-36 | ZS447761 | 11-25x | | |
| BA308077 | 2-1 | EJ296853 | 10-29x | EZ631945 | 10-34 | ZS447840 | 4-65 | | |
| BA311178 | 3-4 | EJ301199 | 10-9 | MI301149 | 4-48 | ZS447840 | 9-4 | | |
| BC308561 | 11-22 | EJ306940 | 10-32 | MS308569 | 10-19 | ZS447840 | 10-56 | | |
| BC308571 | 11-23x | EJ306942 | 10-31 | MZ307170 | 4-5 | ZS447840 | 11-15x | | |
| BC308635 | 5-13 | EJ308832 | 4-29 | SE305651 | 5-4 | ZS463353 | 4-38x | | |
| BC308636 | 5-14x | EJ308834 | 4-33 | SE305651 | 11-3 | ZS463353 | 10-30x | | |
| BD308010 | 11-1 | EJ698051 | 6-J4 | SE306863 | 11-4 | ZS497878 | 5-9x | | |
| BD308011 | 11-2x | EL307157 | 4-16 | SE306936 | 5-6x | ZS498273 | 4-11 | | |
| BD308061 | 5-2x | EL308839 | 4-17 | SE306936 | 11-5x | ZS498273 | 10-46 | | |
| BD308062 | 5-1 | EL308840 | 4-18x | SE308529 | 5-5 | ZS522865 | 4-30 | | |
| BT307204 | 2-T2 | EL308840 | 10-45 | SK305653 | 5-10 | ZS522865 | 10-38x | | |
| BT308587 | 10-14x | EM300354 | 4-9x | SK305653 | 11-6 | ZS537006 | 5-15 | | |
| BT308588 | 10-13x | EM300355 | 4-7x | SK305656 | 5-11x | ZS537006 | 11-24 | | |
| BT308589 | 10-15x | EM308843 | 4-8 | SK305656 | 11-7x | ZS565942 | 4-64 | | |
| BT308590 | 10-16x | EM308844 | 4-6 | SK305674 | 4-60 | ZS565942 | 10-58 | | |
| BT308591 | 10-12 | EM308881 | 10-42 | SK306130 | 4-61x | ZW231030 | 4-19x | | |
| BT308829 | 4-40x | EM308882 | 10-43x | SK306864 | 11-9 | ZW270123 | 10-22 | | |
| BT308830 | 4-41x | EO307186 | 2-T1 | SK306866 | 11-10x | ZW308889 | 4-13 | | |
| BT308831 | 4-42x | EO307202 | 2-T4 | SK308562 | 11-16 | ZW308890 | 4-14 | | |
| BT308859 | 4-39 | EO307203 | 2-T5 | SK308563 | 11-17x | ZW310167 | 9-5 | | |
| BT444137 | 4-31 | EO307205 | 2-T3 | SK308565 | 5-19 | ZW322110 | 10-21 | | |
| EA312465 | 4-63 | EO539820 | 2-L2,3 | SK308565 | 11-18 | ZW413188 | 4-52x | | |
| EA312465 | 10-57 | EO539820 | 2-L4 | SK308566 | 5-20x | ZW413267 | 10-17 | | |
| EC204671 | 3-C1 | EO539820 | 3-L1 | SK308566 | 11-19x | ZW651082 | 10-33 | | |
| EC204671 | 3-C2 | EO650610 | 2-L1 | SK308567 | 5-21 | ZW698308 | 10-39 | | |
| EC204671 | 3-C3 | EO650823 | 9-L1,2 | SK308567 | 11-20 | | | | |
| EC204671 | 10-6 | EP245305 | 9-RL1 | SK308568 | 5-22x | | | | |
| EC294118 | 3-C1 | ER308617 | 2-FL1to4 | SK308568 | 11-21x | | | | |
| EC294118 | 10-7x | ER308855 | 2-FL5,6 | SK308641 | 5-7 | | | | |
| EC301320 | 3-C1 | ER389687 | 9-R40 | SK308642 | 5-8x | | | | |
| EC301320 | 10-8x | ER409814 | 9-R43,44 | SK308643 | 5-17 | | | | |
| EC306987 | 2-C64 | ER622978 | 9-R17,18 | SK308644 | 5-18x | | | | |
| EC307257 | 2-C1 | ES224436 | 10-3 | SP308535 | 10-40 | | | | |
| EC308585 | 10-11 | ES242346 | 3-SW1 | SP308536 | 10-41x | | | | |
| EC308593 | 6-C2 | ES242346 | 10-5x | SP308546 | 10-23 | | | | |
| EC308877 | 9-C33 | ES280258 | 10-4x | SP308547 | 10-24x | | | | |
| EC308877 | 9-C36 | ES308581 | 10-10 | SP308548 | 10-25x | | | | |
| EC621257 | 9-C1 | ES308595 | 7-SW1 | SP308549 | 10-26x | | | | |
| EC638188 | 2-C65 | ES308851 | 2-SW2 | SP308550 | 10-27x | | | | |
| EC662128 | 9-C17 | ES308852 | 2-SW1 | SP308560 | 10-55 | | | | |
| EC662308 | 8-C9 | ES308858 | 3-SW1 | SP308606 | 4-20 | | | | |
| ED214457 | 9-D1to5 | ES308863 | 3-SW1 | SP308607 | 4-21x | | | | |
| ED223547 | 3-D2 | ES308883 | 6-SW1 | SP308619 | 4-22 | | | | |
| ED240377 | 9-D6 | ES308884 | 6-SW2 | SP308620 | 4-23x | | | | |
| ED245428 | 9-D9to12 | ET305221 | 9-TR11,12 | SP308621 | 4-24x | | | | |
| ED300924 | 9-D7,8 | ET305221 | 9-TR15 | SP308622 | 4-25x | | | | |
| ED308592 | 4-2 | ET307193 | 3-TR1 | SP308623 | 4-26x | | | | |
| ED308592 | 10-47 | ET307193 | 9-TR17 | SP308634 | 4-62 | | | | |
| ED308860 | 3-D3 | ET307195 | 8-TR1,2 | TA307160 | 4-50 | | | | |
| ED624903 | 2-D1to9 | ET307195 | 9-TR9 | TA308109 | 4-47 | | | | |
| ED624903 | 3-D1 | ET308866 | 9-TR1 | TA308532 | 11-12 | | | | |
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| EF277424 | 10-50x | ET308870 | 9-TR5 | TA308638 | 10-44 | | | | |
| EF300596 | 4-57x | ET308879 | 9-TR7 | TA308837 | 4-12 | | | | |
| EF300596 | 4-59x | ET308880 | 9-TR8 | TA308998 | 11-13x | | | | |
| EF304303 | 10-51x | ET310168 | 9-TR2 | TA646773 | 10-20 | | | | |
| EF306125 | 4-53 | ET403391 | 9-TR13 | TC289484 | 4-44 | | | | |
| EF308847 | 4-55x | ET618873 | 2-TR2,3 | ZG300891 | 4-49 | | | | |
| EF308848 | 4-56x | ET632215 | 2-TR1 | ZG305657 | 5-12x | | | | |
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| EF563703 | 10-48 | ET632215 | 3-TR2 | ZG306867 | 11-11x | | | | |
| EF575212 | 10-49x | ET666404 | 9-TR14 | ZS297641 | 4-4x | | | | |
| EF601301 | 10-54x | EV300921 | 9-VR1 | ZS308513 | 4-43 | | | | |
| EF601942 | 10-52x | EV301637 | 9-VR2,3 | ZS308673 | 4-28x | | | | |
| EF601964 | 4-58x | EV307188 | 7-VR2 | ZS308846 | 5-16x | | | | |
| EF690996 | 10-53x | EV307189 | 7-VR1 | ZS325495 | 3-2 | | | | |
| EI305696 | 6-IC1 | EV307246 | 2-VR5 | ZS325495 | 4-3 | | | | |
| EI307198 | 2-IC3 | EV308596 | 8-VR1,2 | ZS325495 | 9-3 | | | | |

SECTION 3

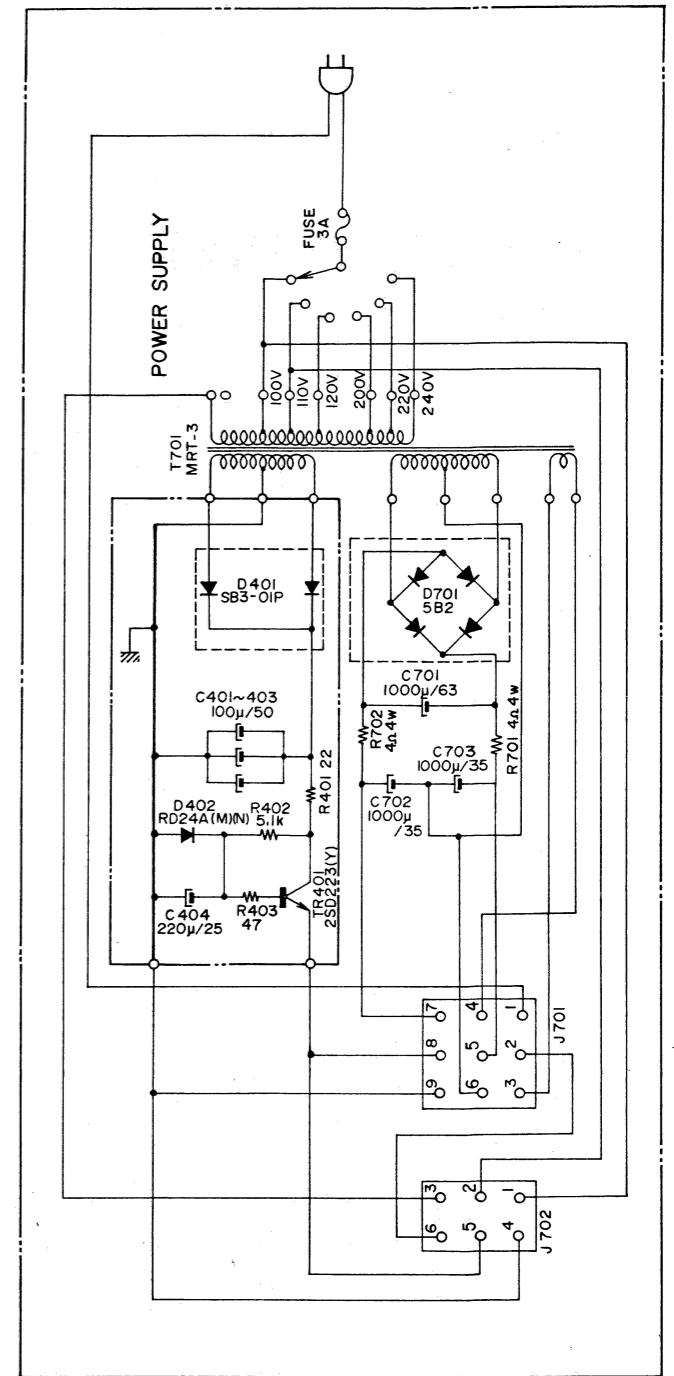
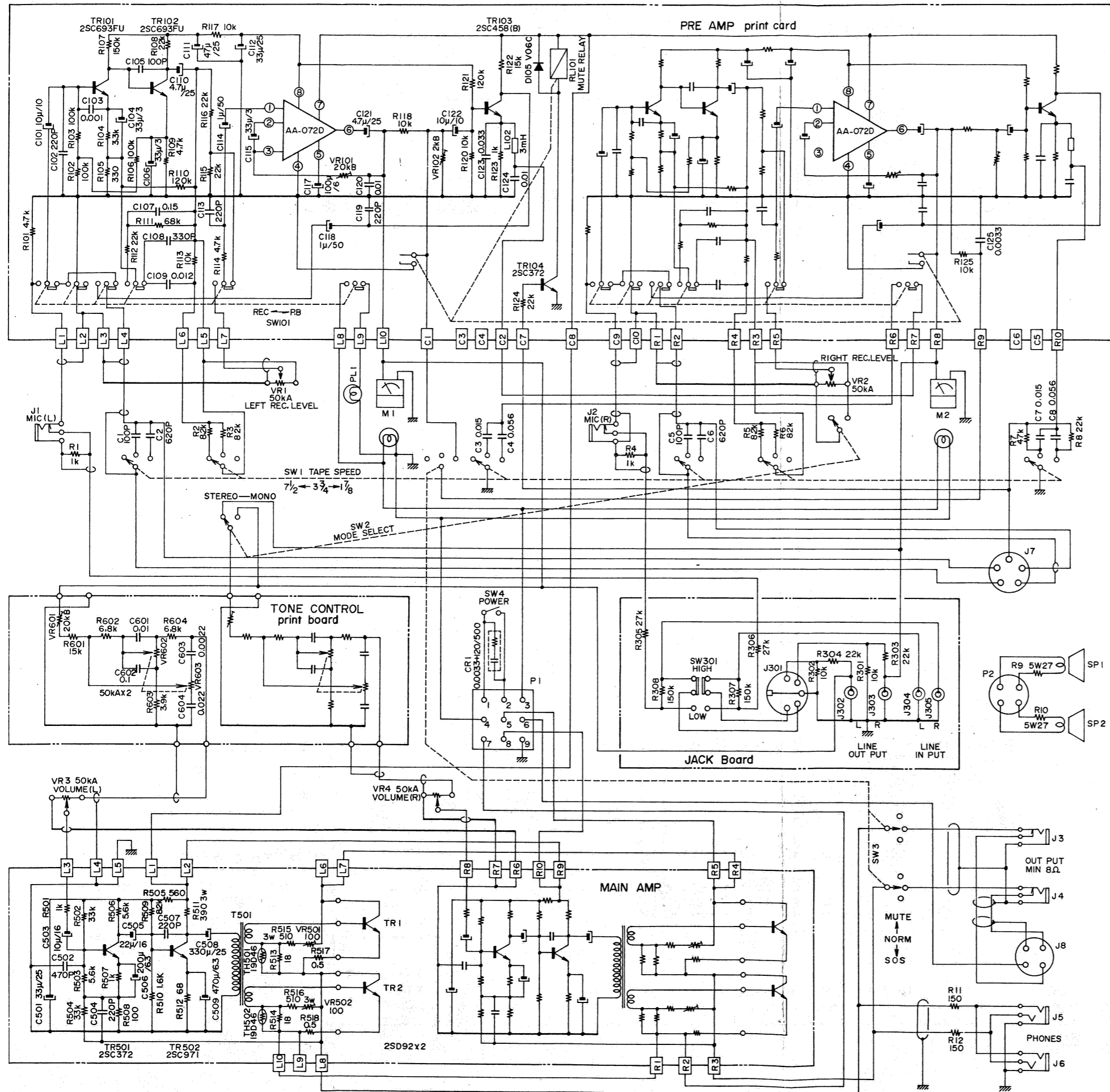
SCHEMATIC DIAGRAM

1. AT-2450 No. 2-1 1562040A SCHEMATIC DIAGRAM
2. AM-2450 No. 2-2 1562041A SCHEMATIC DIAGRAM

MC-Service



MC-Service

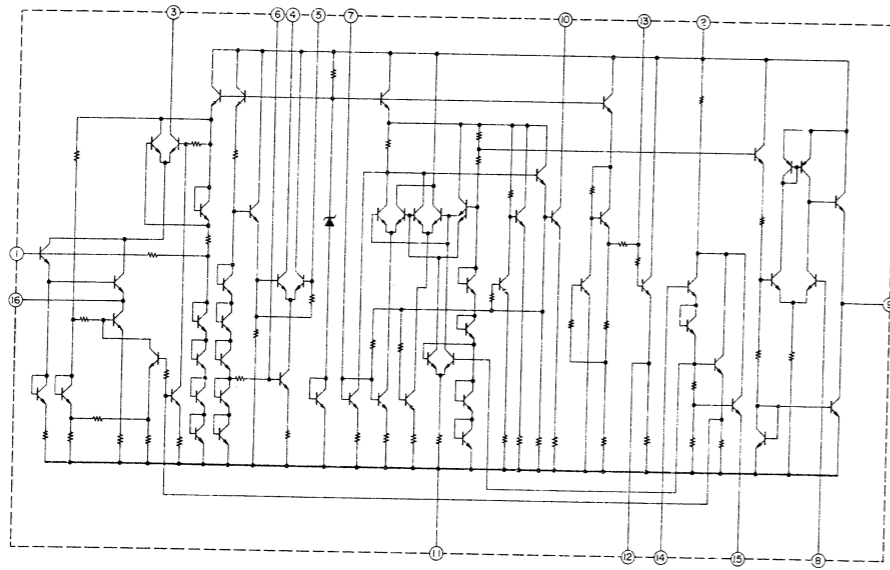


ALL RESISTOR 1/4 WATT UNLESS OTHERWISE NOTED.
ALL CAPACITY μ F UNLESS OTHERWISE NOTED.

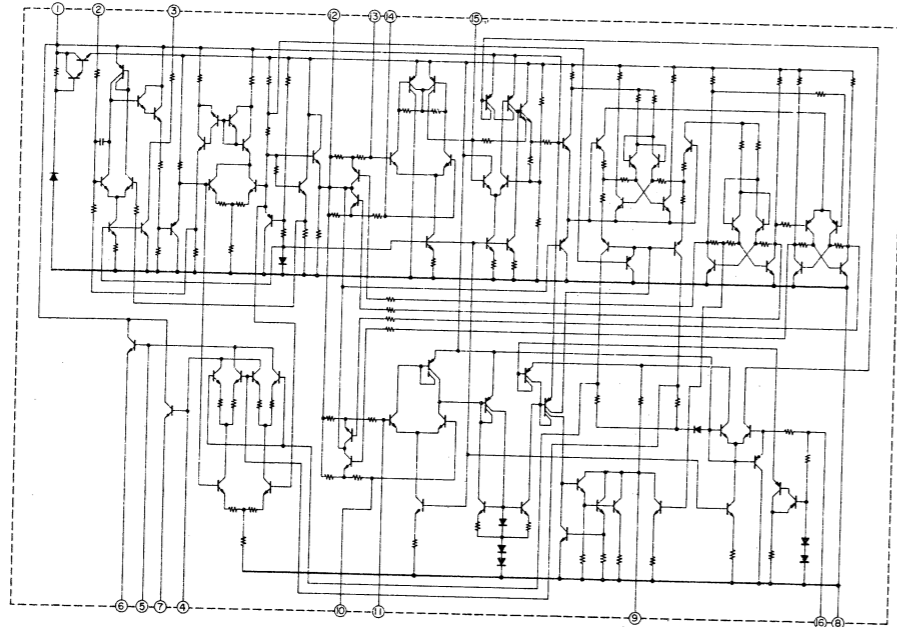
**M-10 AMPLIFIER
SCHEMATIC DIAGRAM**
NO.2-2 13816560

MC-Service

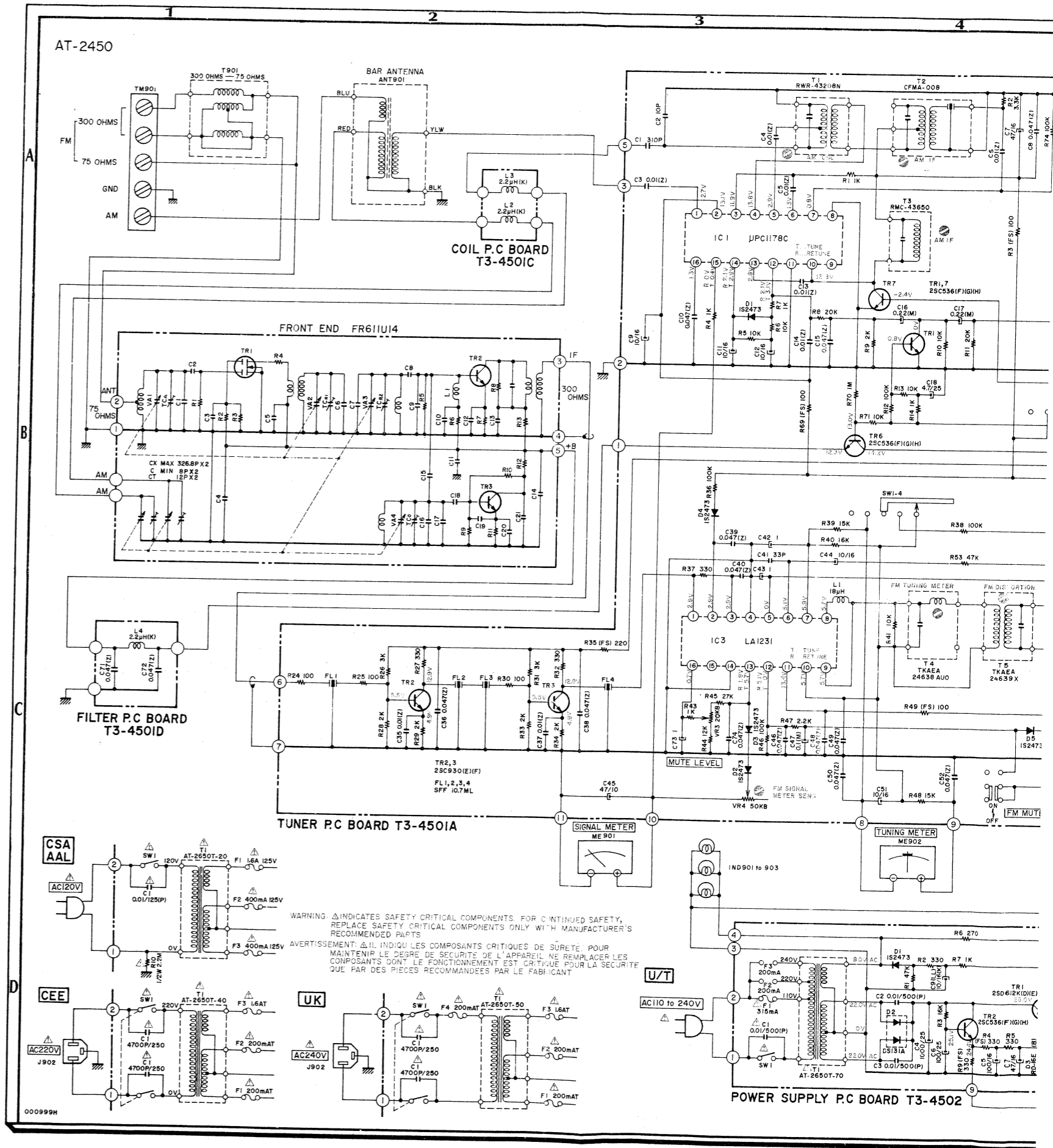
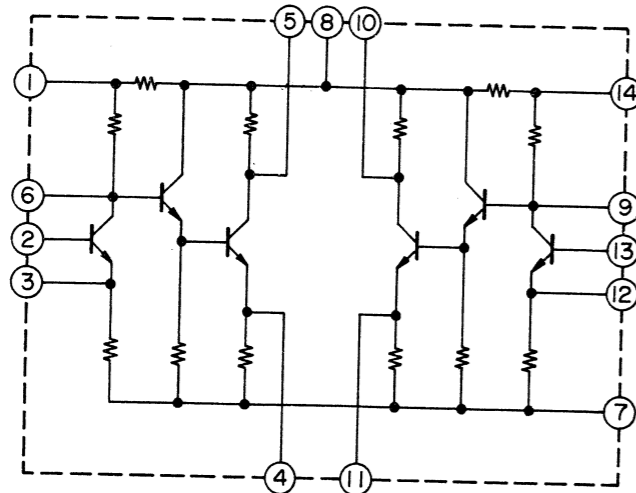
μPC1178C

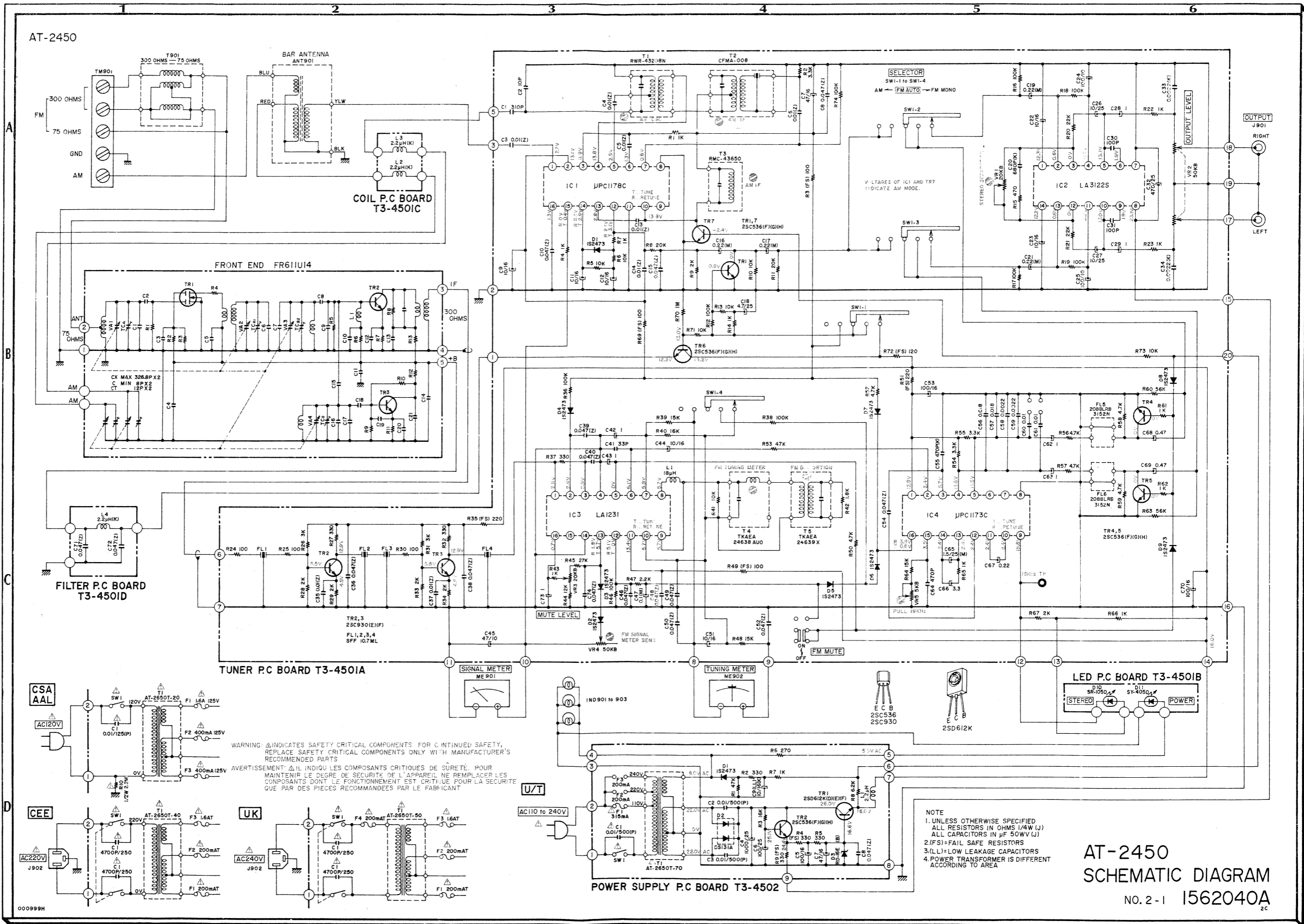


μPC1173C



LA-3122S





AT-2450

COIL P.C. BOARD
T3-450IC

FRONT END FR61IU4

FILTER P.C. BOARD
T3-450ID

TUNER P.C. BOARD
T3-450IA

POWER SUPPLY P.C. BOARD
T3-4502

LED P.C. BOARD
T3-450IB

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
1. UNLESS OTHERWISE SPECIFIED ALL RESISTORS IN OHMS (Ω), ALL CAPACITORS IN μF (μF).
 2. (FS) = FAIL SAFE RESISTORS
 3. (LL) = LOW LEAKAGE CAPACITORS
 4. POWER TRANSFORMER IS DIFFERENT ACCORDING TO AREA

AT-2450
SCHEMATIC DIAGRAM
NO. 2-1 1562040A

