

SERVICE MANUAL

STEREO RECEIVER



SANYO

JCX2400KU



SPECIFICATIONS

Amplifier Section

| | |
|---------------------------------|--|
| Total music power | 240 watts (at 4 ohms) |
| Continuous power | 75 watts x 2 (at 4 ohms) 55 watts x 2 (at 8 ohms) |
| Total harmonic distortion | less than 0.1% (-3dB power/1kHz) |
| Power band width | 20Hz/30kHz (-3dB power) |
| Frequency response | 7Hz/50kHz (+0.5dB/-3dB) |
| Input sensitivity and impedance | |
| PHONO | 2.5mV/50k ohms |
| AUX | 150mV/50k ohms |
| TAPE 1 PLAY | 150mV/50k ohms |
| TAPE 1 REC/PB | 150mV/50k ohms |
| MIC | 2mV/10k ohms |
| REC/PB (TAPE 2) | 150mV/50k ohms |
| Output | |
| TAPE 1 REC | 150mV |
| TAPE 1 REC/PB | 0.55mV/k ohm |
| REC/PB (TAPE 2) | 0.55mV/k ohm |
| Tone control response | |
| BASS at 100Hz | ±10dB |
| MID at 1kHz | ±6dB |
| TREBLE at 10kHz | ±10dB |
| Loudness control response | |
| at 100Hz | +10dB |
| at 10kHz | +6dB |
| Hum and noise ratio | |
| PHONO | 70dB |
| AUX | 90dB |
| TAPE 1 PLAY | 90dB |
| Damping factor | more than 25 (20Hz/20kHz at 8 ohms) |

FM Tuner Section

| | |
|-------------------------------|------------------------------------|
| Frequency range | 87.5 - 108MHz |
| Usable sensitivity | 1.6μV (DIN) |
| Signal-to-noise ratio | 70dB (at Mono) 65dB (at Stereo) |
| Harmonic distortion | 0.2% (at Mono) 0.3% (at Stereo) |
| AM suppression | more than 60dB |
| Spurious response | more than 70dB |
| Alternate channel selectivity | more than 55dB (±300kHz DIN) |
| Image rejection | more than 50dB |
| Capture ratio | 1.3dB |
| Stereo separation | 40dB (at 1kHz) |
| Antenna input | 300 ohms balanced |

MW Tuner Section

| | |
|-----------------------|------------------------------|
| Frequency range | 510 - 1605kHz |
| Sensitivity | 300μV/m |
| Signal-to-noise ratio | 50dB |
| Image rejection | 48dB |
| Selectivity | 33dB (10kHz) |
| Antenna | External ferrite bar antenna |

General

| | |
|--------------------|--|
| Power requirements | AC: 125/220V, 50Hz |
| Power consumption | 320W |
| Dimensions | 17-3/8"W x 5-7/8"H x 14-9/16"D (440 x 146 x 370 mm) |
| Weight | Approx. 31 lbs. (14 kg) |

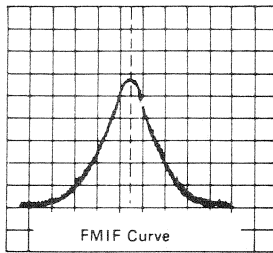
* Specifications subject to change without notice.

FM IF ADJUSTMENT

1. V curve adjustment

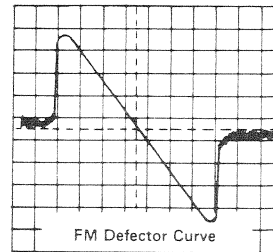
- 1) Connect TP3 (HOT) and TP6 (EARTH) to the output terminal of the sweep generator, and TP4 (H) and TP104 (E) to the input terminal.
- 2) Connect a resistance load of about 10 to 50 K-ohms to the input of the sweep generator and disconnect the tuning meter leadwires from the circuit board.
- 3) Cut off ceramic capacitor C213 (0.022 μ F) at one end.
- 4) Make adjustment while keeping the output from the sweep generator at the low level (where noise appears on the waveform).
- 5) While watching the sweep waveform, adjust the T201 until the sweep waveform presents the pattern as in Fig.1.

* TP6 is a shield plate.



2. S curve adjustment

- 1) Connect TP3 (H) and TP6 (E) to the output the sweep generator. Connect TP201 (H) and TP104 (E) to its input.
NOTE: It is necessary to connect a capacitor (1 μ F/16V) to the input of the sweep generator (H) for cutting DC current.
- 2) Adjust the T202 until the S curve presents the pattern as in Fig. 2. Avoid turning the T203 unless absolutely necessary.



CENTER ADJUSTMENT OF TUNING METER

Set FM SG as follows: modulation frequency 1KHz, frequency deviation 75KHz DIV. (100% modulation).

Connect a balanced dummy of 300 ohms between FM SG and the unit (at the 300 ohm terminal of the external antenna).

- 1) Set the tuning dial of the unit to 98MHz (where no Broadcasting signal is coming in).
- 2) While keeping the FM SG output level to 0 (less than 10dB), adjust the T202 until the tuning meter needle stands at the center point.
- 3) Adjust the frequency output of FM SG so that the tuning meter needle stands at the center point.
- 4) Reduce the distortion factor a minimum by turning the T203. Make this adjustment at the FM SG output level of 60 dB (1mV).

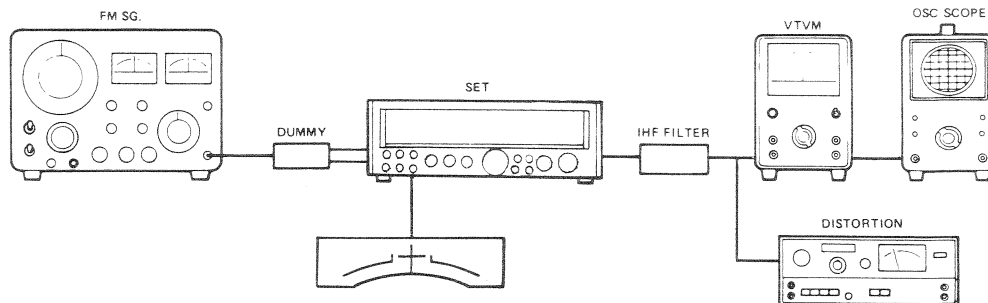
5) Repeat steps 2) and 3) above.

6) Turn the core of T201 only slightly until the distortion factor becomes minimal.

7) Set the FM SG output level to 0. Confirm tuning meter needle stands at the center point. If needle is not at center point, repeat from steps 2).

8) Set the FM SG output level to 60dB. Conform the distortion factor gets minimum when the tuning meter needle is at center point.

NOTE: Use Hum and Sub-carrier Filter to get accurate distortion factor.



FM TRACKING

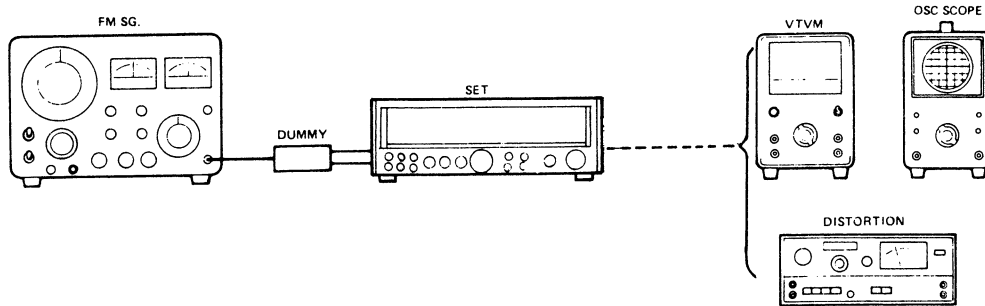
Set FM SG as follows: modulation frequency 1KHz, frequency deviation 75KHz DIV. (100% modulation).

Flip the MODE switch of the unit to "MONO".

- 1) Make LOW TRACKING adjustment by means of L102 and L101. Use 90MHz FM signal for this purpose.
- 2) Make HIGH TRACKING adjustment by means of CT2 and CT1. Use 106MHz FM signal for this purpose.

3) Make complete TRACKING adjustment by repeating steps (1) and (2).

* When properly adjusted, the distortion factor of the output from the unit is reduced to a minimum, provided that the distortion factor of the SG output is about 3%.



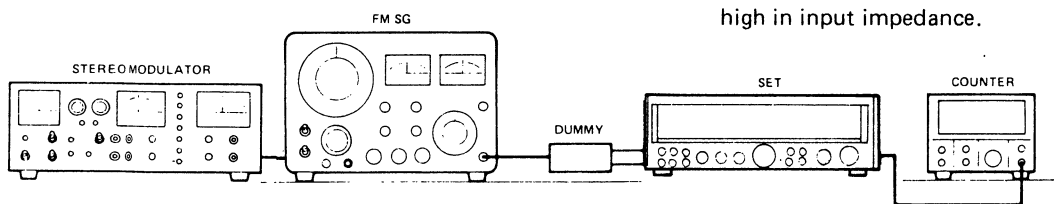
FM VCO ADJUSTMENT

Set the frequency of FM SG to 98MHz (where no broadcasting signal is coming in), the muting switch of the unit to ON and the pilot signal of the stereo modulation to a modulation degree of 9%.

- 1) Increase the output level of FM SG until the stereo pilot lamp of the unit glows. Then, keep the glowing of the stereo pilot lamp for more than 10 seconds).

- 2) Adjust R309(SVR) until the frequency counter reading becomes 19000Hz \pm 19 Hz immediately after cutting off the SG output (viz. after the stereo pilot lamp has gone out).

- * Do not make this adjustment immediately after setting to ON the power switch of the unit.
- * For this adjustment, use a frequency counter relatively high in input impedance.



FM MUTING LEVEL ADJUSTMENT

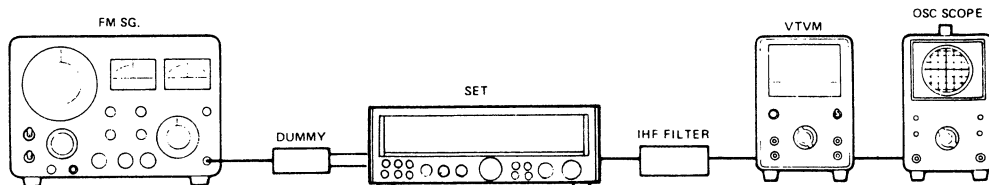
Set FM SG as follows: modulation frequency 1kHz, frequency deviation 75kHz DIV. (100% modulation). Then, set the muting switch of the unit to ON.

- 1) Set FM SG to 98MHz and tune the unit to that frequency level.

- 2) Apply 16dB to the 300 ohm terminal antenna.

- 3) Turn R227(SVR) and set it at the position where the VTVM needle stops swinging or the waveform on the oscilloscope becomes very small.

- * When the muting function is ON, the waveform decreases in size, and weak signals and noise are cut off.



SEPARATION

Set FM SG as follows: modulation frequency 1KHz, frequency 98MHz. Set the pilot signal of the stereo modulator to a modulation degree of 9%.

$$PL + L + R = 75\text{KHz DIV. (9\% + 91\%)}$$

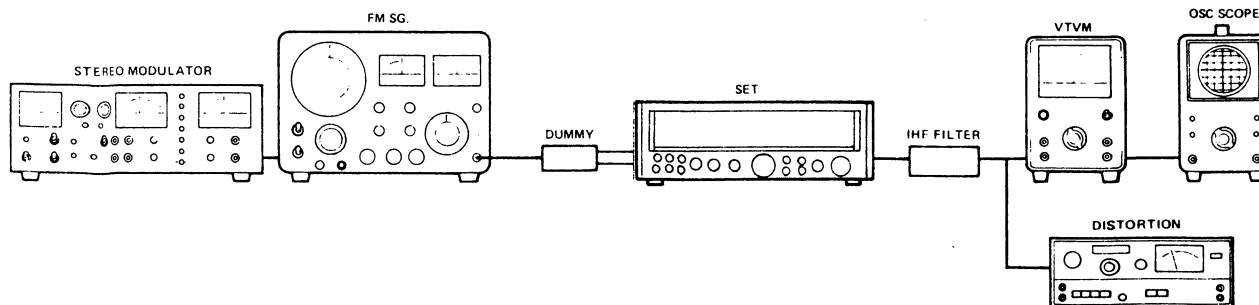
Select the "STEREO" mode by the mode switch of the unit.

- 1) Set the input to the unit (i.e. voltage at the 300 ohm terminal of the external antenna) to 60dB (This corresponds to 66dB-1.995mV in terms of FM SG output).



- 2) Generator L-R signals by the stereo modulator and tune the unit completely to their level. (In this state, the distortion factor is reduced to a minimum.)

- 3) Switch the stereo modulator from R to L channels. Reduce signal output leakage of each channel to a minimum by adjusting R306(SVR).

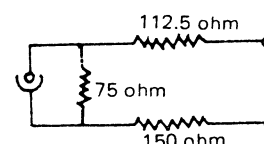
- * When making this adjustment, use a lowpass filter and eliminate 19KHz and 38KHz carrier components.



FM ALIGNMENT

| Step | Adjusting Circuit | Connections | | SG frequency | Position of tuning dial | Adjustment | VTVM Oscilloscope |
|------|--------------------|--|--|-----------------------------------|--|------------|---|
| | | Input | Output | | | | |
| 1 | I.F. | Connect sweep generator to FM TP-3 (H) & TP-6 (E) | Connect oscilloscope to test point TP-4 (H), TP104 (E) | 10.7 MHz (0% modulation) | Near max. capacitance of tuning gang with no station signal. | T201 |  |
| 2 | Ratio Det. | | Connect oscilloscope to test point TP-201 (H), TP104 (E) | | | T202 |  |
| 3 | OSC. | Connect FM SG. to FM ANT. Terminals. TP101 (H) & TP102 (E) | Connect VTVM to TP302 (H) & TP104 TP303 | 87.4 MHz (400 Hz 30% modulation) | Low end of dial scale | L103 | Max. |
| 4 | | | | 109.0 MHz (400 Hz 30% modulation) | High end of dial scale | CT3 | |
| 5 | ANT. | Connect FM SG. to FM ANT. Terminals. TP101 (H) & TP102 (E) | Connect VTVM to TP302 (H) & Ground TP303 | 90.0 MHz (400 Hz 30% modulation) | 90.0 MHz on dial scale | L101, L102 | Max. |
| 6 | | | | 106.0 MHz (400 Hz 30% modulation) | 106.0 MHz on dial scale | CT1, CT2 | |
| 7 | Repeat adjustments | | | | | | |

- PREPARE:**
1. Set the dial pointer to very left line of dial scale.
 2. Connect sweep generator, FM SG, VTVM and oscilloscope. FM ANT input impedance is 300 ohm.
 3. Use a screwdriver with plastic grip for all adjustments.
 4. Use a 300 ohm balanced dummy load.



MW ALIGNMENT

| Step | Adjusting Circuit | Connections | | SG frequency | Position of tuning dial | Adjustment | VTVM Oscilloscope |
|------|---------------------|--------------------------------------|---|----------------------------------|--|------------|-------------------|
| | | Input | Output | | | | |
| 1 | I.F.T. | Connect sweep generator to Test Loop | Connect oscilloscope to TP302 (H) & TP104 TP303 | 460 KHz (400 Hz 30% modulation) | Low end of dial scale. With no station signal. | T204 | Max. |
| 2 | OSC. | Connect AM SG to Test Loop. | Connect VTVM to TP302 (H) & TP104 TP303 | 505 KHz (400 Hz 30% modulation) | Low end of dial scale | L105 | Max. |
| 3 | | | | 1700 KHz (400 Hz 30% modulation) | High end of dial scale | CT5 | |
| 4 | ANT. | Connect AM SG to Test Loop. | Connect VTVM to TP302 (H) & TP104 TP303 | 600 KHz (400 Hz 30% modulation) | 600 KHz on dial scale | L104 | Max. |
| 5 | | | | 1400 KHz (400 Hz 30% modulation) | 1400 KHz on dial scale | CT4 | |
| 6 | Repeat adjustments. | | | | | | |

- PREPARE:**
1. Set the dial pointer to very left line on dial scale.
 2. Use a screwdriver with plastic grip for all adjustments.
 3. Selector switch to "MW".
 4. Connect sweep generator, AM SG, VTVM and oscilloscope.

19KHz TRAP ADJUSTMENT

Set the frequency of FM SG to 98MHz and the pilot signal of the stereo modulator to a modulation degree of 9%.

- 1) Set the tuning dial of the unit to 98MHz.
- 2) Apply 60dB to 300 ohm terminal antenna.
- 3) Turn L301, L302 until the leakage of 19KHz becomes minimum.

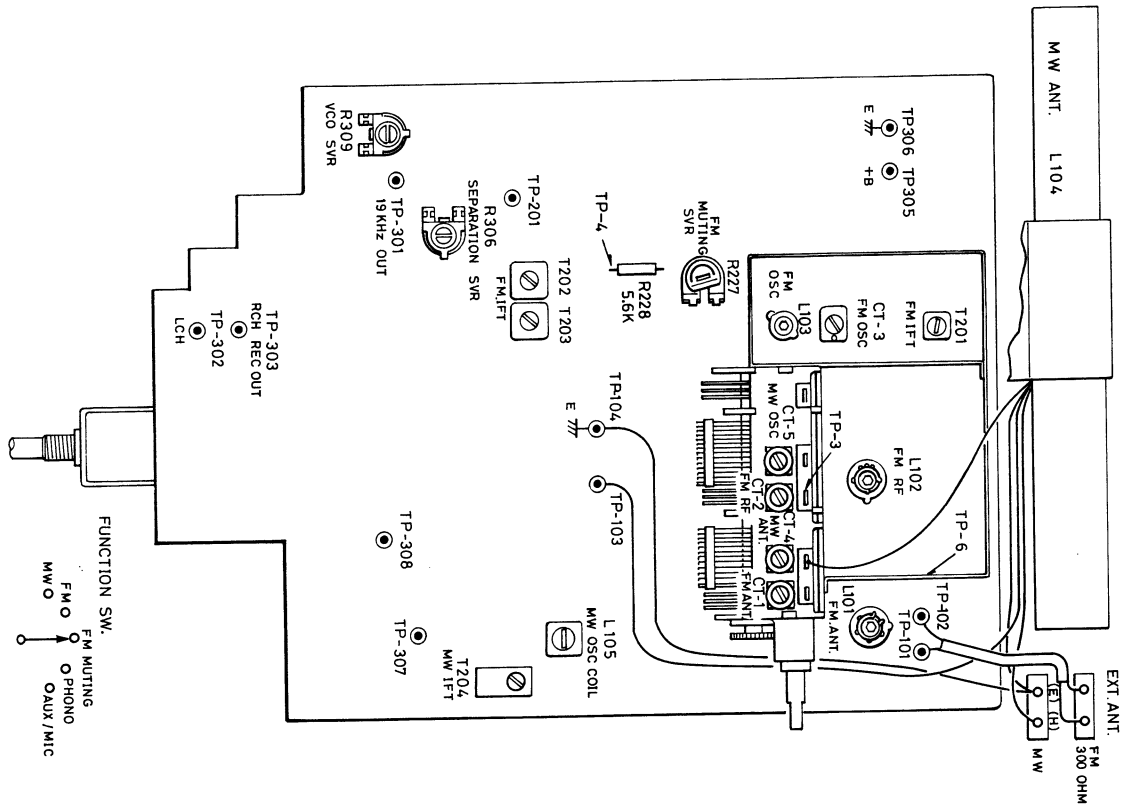
NOTE: Use 200Hz HIGH-PASS FILTER.

MW TRACKING

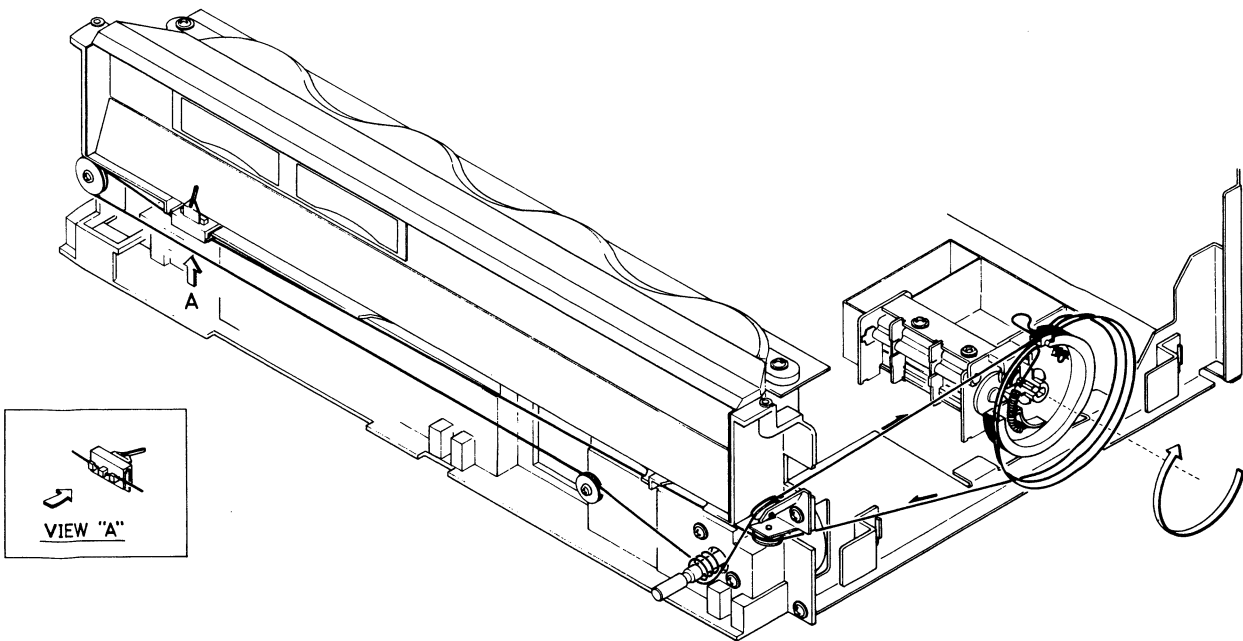
Use same method as usual.

- 1) Set the frequency of AM SG to 600KHz and the tuning dial of the unit to 600KHz.
 - 2) Set the position of BAR ANTENNA as requested and dress the leadwires of BAR ANTENNA before making adjustment.
 - 3) Turn the core of L104 (BAR ANTENNA) until the output of the unit becomes maximum.
 - 4) Set the frequency of AM SG to 1400KHz and the tuning dial of the unit to 1400KHz.
 - 5) Turn CT4 (VC TRIMMER) until the output of the unit becomes maximum.
 - 6) Repeat the above steps from 1). until the output of the unit becomes maximum at both 600KHz and 1400KHz.
- NOTE: Use plastic screw driver for adjustment.

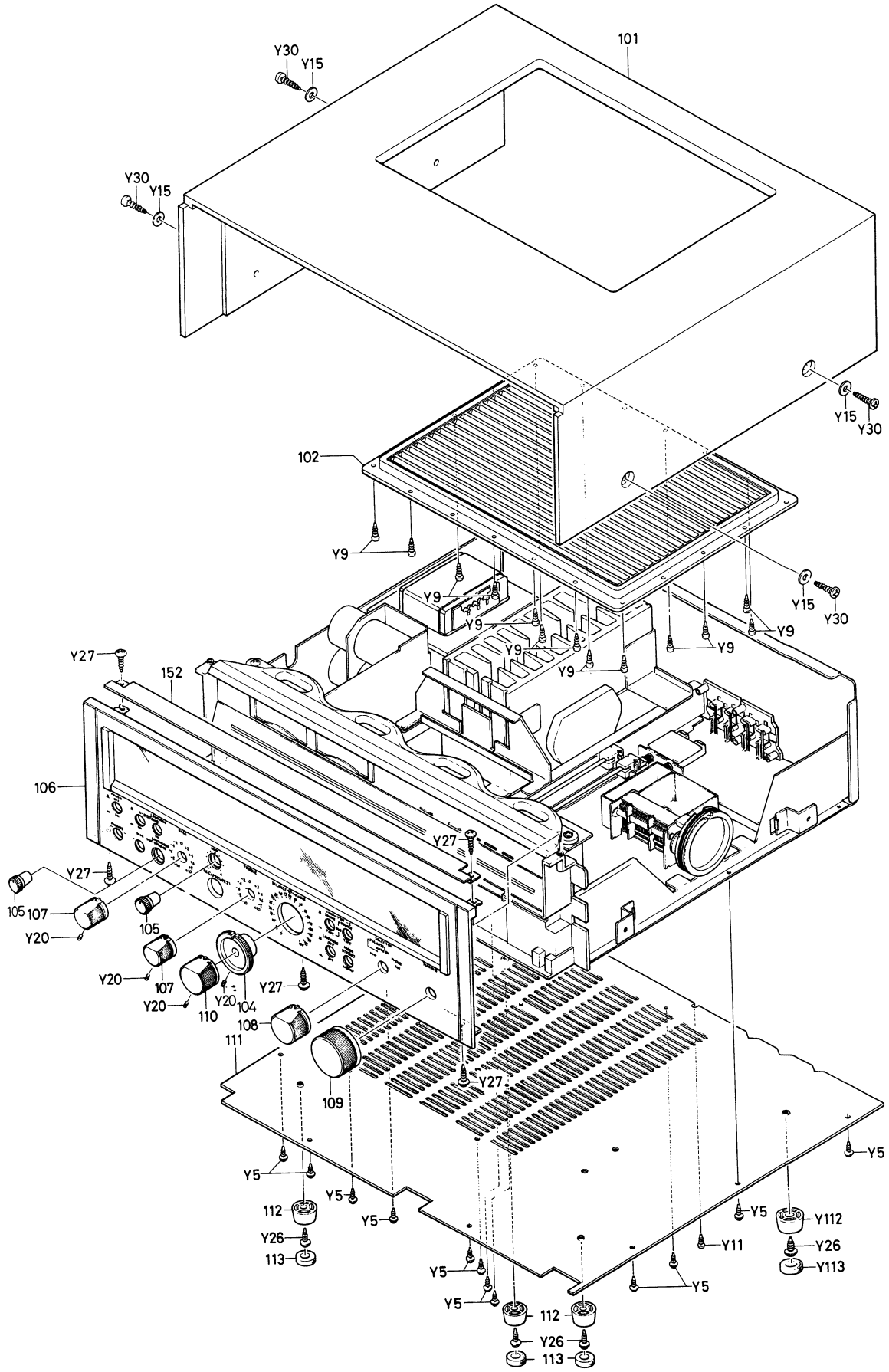
PARTS LOCATION



DIAL CORD STRINGING



CABINET EXPLODED VIEW



PARTS LIST

| Ref. No. | Part No. | Description | Q'ty |
|--------------------|------------------|---|------|
| PACKING | | | |
| | 141-6-132T-82500 | Individual Carton | 1 |
| | 141-6-144T-41600 | Styrol Filler | 2 |
| | 141-6-231T-25450 | Inner Polyethylene Bag, Printed Matter | 1 |
| | 141-6-410T-02500 | Instruction Booklet | 1 |
| | 141-6-231T-60800 | Inner Polyethylene Bag, Set | 1 |
| | 141-6-415T-15600 | Notice, Fuse | 1 |
| | 141-6-231T-06100 | Inner Polyethylene Bag, Fuse Accessories | 1 |
| | 141-6-231T-10250 | Inner Polyethylene Bag, Power Supply Cord | 1 |
| | 123-6-453R-00100 | Inspection Sheet | 1 |
| | 141-6-231T-06100 | Inner Polyethylene Bag, Wrench | 1 |
| | 141-6-421T-32500 | Schematic Diagram | 1 |
| | 141-6-415T-19200 | Notice, SWEDISH | 1 |
| | 141-6-415T-20500 | Notice, HOLLANDER | 1 |
| ACCESSORIES | | | |
| | 4-245T-00100 | Antenna, EXT. FM Antenna | 1 |
| | 4-234T-06371 | Fuse | 2 |
| | 141-2-419T-00200 | Wrench, for Rotary Knob | 1 |
| CABINET | | | |
| 101 | 141-9-111T-12000 | Cabinet Assembly | 1 |
| 102 | 141-9-242T-00100 | Lattice Assembly | 1 |
| 104 | 141-2-163T-44300 | Rotary knob, Balance | 1 |
| 105 | 141-0-163T-14200 | Rotary knob Assembly, Mid Mic. | 2 |
| 106 | 141-9-122T-06400 | Front Panel Assembly | 1 |
| 107 | 141-0-163T-13500 | Rotary Knob Assembly, Bass & Treble | 2 |
| 108 | 141-0-163T-12400 | Rotary Knob Assembly, Selector | 1 |
| 109 | 141-0-163T-12500 | Rotary Knob Assembly, Tuning | 1 |
| 110 | 141-0-163T-13700 | Rotary Knob Assembly, Volume | 1 |
| 111 | 141-2-125T-12400 | Bottom Lid | 1 |
| 112 | 141-2-174T-04700 | Stand | 4 |
| 113 | 141-2-441T-05000 | Cushion | 4 |
| CHASSIS | | | |
| 114 | 141-2-126T-21701 | Back Lid | 1 |
| 115 | 141-2-315T-14300 | Reinforcement, Left Side | 1 |
| 116 | 141-2-315T-14400 | Reinforcement, Right Side | 1 |
| 117 | 141-2-315T-14500 | Reinforcement, Center | 1 |
| 118 | 141-2-310T-05000 | Bracket, Reinforcement (112) Mtg. | 2 |
| 119 | 141-2-310T-06400 | Bracket, PT Mtg. | 1 |
| 120 | 141-2-464T-26000 | Fixer, ANT Lead | 1 |
| 121 | 141-2-315T-15200 | Reinforcement, Center | 1 |
| 122 | 141-2-310T-07200 | Bracket, Bracket (115) Mtg. | 1 |
| 123 | 141-2-214T-02100 | Bracket, Front Frame | 1 |
| 124 | 141-2-421T-20900 | Special Screw, Pulley Mtg. | 4 |
| 125 | 141-2-661T-71200 | Pulley, Large size | 3 |
| 126 | 141-2-661T-71300 | Pulley, Small size | 1 |
| 127 | 141-2-521T-01600 | Flywheel, Tuning | 1 |
| 128 | 141-2-524T-07600 | Bracket, Flywheel Mtg. | 2 |
| 129 | 141-2-210T-05700 | Bracket, Bracket Frame (119) Mtg. | 1 |
| 130 | 141-2-210T-05600 | Bracket, Reinforcement (113) Mtg. | 1 |
| 131 | 141-2-464T-08700 | Fixer, Lead Retainer | 9 |
| 132 | 141-2-464T-20671 | Fixer, Lead Retainer | 8 |
| 133 | 141-2-566T-06600 | Tuning Shaft | 1 |
| 134 | 141-2-310T-04700 | Bracket, Pulley Mtg. | 1 |
| 135 | 141-2-464T-14400 | Fixer, AC Cord | 1 |
| 136 | 141-2-753T-23900 | Shaft, Power Switch Connection Rod | 1 |
| 137 | 141-2-411T-08100 | Plate Nut | 1 |
| 138 | 141-2-453T-30500 | Washer, Graphite Nylon Washer 4.1 x 6.5 x 0.13 mm | 2 |
| 139 | 4-231T-53672 | Switch, Voltage Select | 1 |
| 140 | 141-2-753T-24000 | Shaft, for Tape Monitor Select | 2 |
| 142 | 141-2-753T-31100 | Shaft, Speaker Select | 2 |
| 143 | 141-2-753T-09200 | Joint, Tape Monitor, Speaker Select | 4 |
| 144 | 141-2-852T-43900 | Wire Spring, Joint (137,139) Mtg. | 4 |
| 145 | 141-2-852T-44100 | Wire Spring | 1 |
| 146 | 141-2-472T-01201 | Lug, Reinforcement (117) Mtg. for Lead Retainer | 4 |
| 148 | 123-2-457R-11700 | Special Washer, Selector Switch Mtg. | 1 |

| Ref. No. | Part No. | Description | Q'ty |
|---------------------------|------------------|---|------|
| CHASSIS | | | |
| 149 | 141-2-246T-12900 | Sheet, Pointer (157) | 1 |
| 150 | 141-2-329T-05000 | Reflector, FM Stereo Lamp Cover | 1 |
| 151 | 141-2-153T-31200 | Escutcheon, Bracket Frame (119) Mtg. | 2 |
| 152 | 141-2-328T-05200 | Shield Light, on the Reflector (150) | 1 |
| 153 | 141-9-146T-01200 | Dial Scale Assembly | 1 |
| 154 | 141-2-329T-04500 | Reflector, Dial Illuminate | 1 |
| 155 | 141-0-161T-02800 | Push Button Assembly, Mode/FM Muting/Hi-Filter/Loudness | 4 |
| 156 | 141-0-161T-02900 | Push Button Assembly, Power/ Speaker/Monitor | 5 |
| 157 | 141-2-340T-00200 | Rope 0.5 x 2000 mm | 1 |
| 158 | 141-2-538T-07300 | Drum, V/C | 1 |
| 159 | 141-2-855T-14800 | Coil Spring, Drum Mtg. | 1 |
| 161 | 141-9-511T-00400 | Pointer Assembly | 1 |
| 162 | 141-2-411T-08700 | Plate Nut, DIN socket | 1 |
| 164 | 141-2-310T-08500 | Bracket, Fuse | 1 |
| 166 | 141-2-472T-02000 | Lug, Mic VOL | 1 |
| 167 | 141-2-327T-16900 | Insulator, Fuse Holder | 1 |
| ELECTRICAL PARTS | | | |
| 201 | 4-251T-72200 | Power Transformer | 1 |
| 202 | 141-2-310T-07500 | Bracket, PT Mtg. | 1 |
| 203 | 4-243T-77173 | Power Supply Cord | 1 |
| 205 | 141-2-383T-04800 | Fuse Holder, SP | 1 |
| 206 | 4-234T-06371 | Fuse | 2 |
| 207 | 4-237T-07000 | Terminal Board, SP Terminal | 2 |
| 208 | 141-2-382T-07000 | Terminal, Earth | 2 |
| 209 | 4-511T-08200 | Meter, Signal | 1 |
| 210 | 4-511T-08300 | Meter, Tuning | 1 |
| 211 | 4-235T-43900 | Socket, Meter Connect | 1 |
| 212 | 4-235T-44400 | Socket FM | 1 |
| 213 | 4-235T-44500 | Socket AM | 1 |
| 214 | 141-2-382T-06900 | Terminal, GND. | 1 |
| 215 | 4-257T-24102 | Antenna Coil Assembly, L104 | 1 |
| 216 | 141-2-369T-05400 | Bracket, Antenna Coil (215) Mtg. | 1 |
| 217 | 141-2-243T-02700 | Base, Antenna Coil (215) Mtg. | 2 |
| 220 | 4-231T-37000 | Switch, Power Muting | 1 |
| 221 | 141-2-310T-07600 | Bracket, Power switch PCB (219) Mtg. | 1 |
| 222 | 141-2-253T-07500 | Joint, Shaft (136) Mtg. | 1 |
| 223 | 141-2-464T-08800 | Fixer, Lead Wire Dressing | 4 |
| 225 | 141-2-310T-08300 | Bracket, VR Mtg. | 1 |
| 227 | 141-2-368T-12800 | Heat Sink, IC | 2 |
| 228 | 141-2-310T-07300 | Bracket, Heat Sink & Main AMP P.C.B (226) Mtg. | 1 |
| 229 | 141-2-310T-07400 | Bracket, Heat Sink & Main AMP P.C.B (226) Mtg. | 1 |
| 230 | 141-2-310T-07000 | Bracket, Heat Sink (227) Rear Mtg. | 1 |
| 231 | 141-2-310T-07100 | Bracket, Heat Sink (227) Front Mtg. | 1 |
| 233 | 141-2-310T-06900 | Bracket, Electrolytic (C912, 913) Mtg. | 1 |
| 234 | 141-2-377T-21800 | Bracket, DC Power P.C.B (232) Mtg. | 1 |
| 238 | 4-235T-45900 | Socket, Phone to Tuner | 1 |
| 240 | 4-235T-44000 | Socket 7 Pin, from Indicator PCB (241) | 1 |
| 248 | 141-2-310T-08400 | Bracket | 1 |
| 249 | 4-234T-01101 | Fuse 250V 315mA | 2 |
| 250 | 4-234T-04771 | Fuse 250V 1.4A | 1 |
| 251 | 141-2-246T-19900 | Sheet | 1 |
| 252 | 141-2-327T-16600 | Insulator | 1 |
| 253 | 4-222T-58900 | Variable Resistor 20K-B Mixing (VR721) | 1 |
| HEADPHONE PCB ASSY | | | |
| 218 | 141-9-230T-30503 | Printed Circuit Board Assembly, Headphone | 1 |
| | 4-235T-36771 | Socket, Headphone | 1 |
| | 141-2-382T-07300 | or Terminal, Wire Wrapper Pin | 3 |
| | 4-237T-00100 | Metal Oxide Film Resistor 390 ohm ±5% 2W | 2 |
| R789, 889 | | | |

PARTS LIST

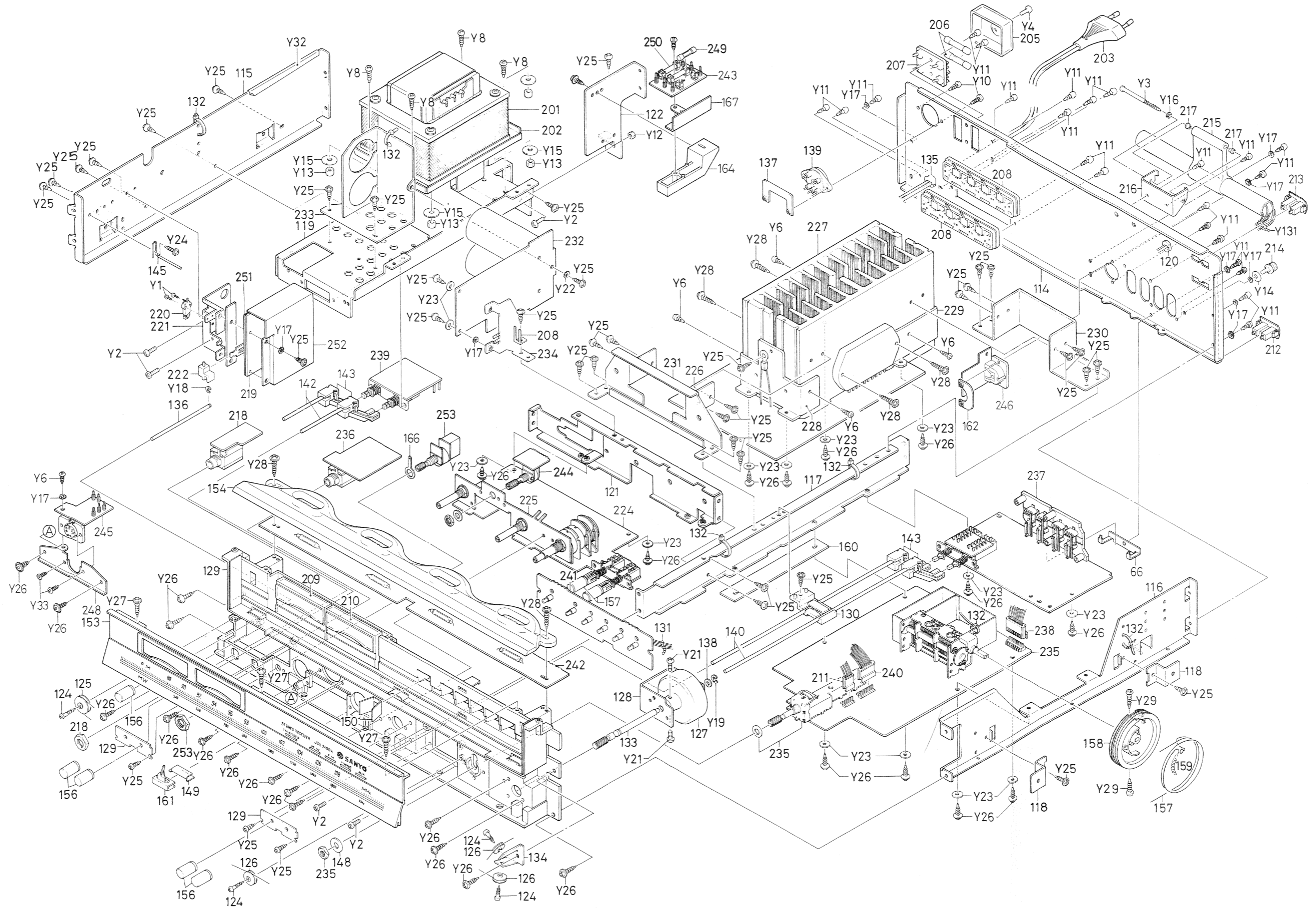
| Ref. No. | Part No. | Description | Q'ty | Ref. No. | Part No. | Description | Q'ty |
|--------------------------|------------------|--|------|--------------------------|------------------|--|------|
| POWER SW PCB ASSY | | | | MAIN AMP PCB ASSY | | | |
| 219 | 140-9-230T-66900 | Printed Circuit Board Assembly, Power Switch | 1 | 226 | 140-9-230T-66700 | Printed Circuit Board Assembly, Main AMP | 1 |
| | 4-231T-60900 | Push Switch, Power | 1 | IC781,881 | 4-206T-01200 | IC STK-084, Power | 2 |
| | 4-234T-03671 | Fuse 250V 2A | 1 | | 4-232T-04900 | Relay | 1 |
| | 4-234T-06271 | Fuse 250V 3.15A | 1 | | 4-209T-01171 | Resistor | 1 |
| | 141-2-382T-07300 | or Terminal, Wire Wrapper Pin | 6 | | 141-2-382T-07300 | Terminal, Wire Wrapper Pin | 14 |
| | 4-237T-00100 | | | L781,881 | 4-265T-04800 | V.H.F. Coil | 2 |
| | 141-6-476T-10000 | Indication Label | 1 | Q401,402 | | Transistor 2SC536G | 2 |
| C901 | 4-223T-04700 | Capacitor | 2 | Q403 | | Transistor 2SD438F | 1 |
| | 141-2-381T-01800 | Fuse Bracket | 4 | D401,402 | | Diode 1S2473 | 4 |
| | | | | 403,404 | | | |
| | | | | D405,406 | | Diode 1S2472 | 2 |
| | | | | D407 | | Diode 1N4002 | 1 |
| TONE PCB ASSY | | | | CAPACITORS | | | |
| 224 | 140-9-230T-67000 | PCB assy, TONE AMP | 1 | C784,884 | | Ceramic 2pF ±20% 50WV | 2 |
| VR751,851 | 4-222T-58700 | Variable resistor, BALANCE, VOL 250K (MN) 100K-B x 2 | 1 | C781,881 | | Mylar 470pF ±10% 50WV | 2 |
| 752,852 | | | | C789,889 | | Mylar 0.047μF ±20% 50WV | 2 |
| VR753,853 | 4-222T-57000 | Variable resistor, BASS, TREBLE | 2 | C782,882 | | Electrolytic 1μF 35WV | 2 |
| 755,855 | | | | C403 | | Electrolytic 4.7μF 35WV | 1 |
| S5,6 | 4-231T-63900 | Switch, LOUDNESS, MODE | 1 | C786,788 | | Electrolytic 10μF 50WV | 4 |
| | 4-237T-00100 | or Terminal | 15 | 886,888 | | | |
| | 141-2-382T-07300 | Transistor 2SC1571 | 4 | C783,883 | | Electrolytic 47μF 16WV | 2 |
| Q751,851, | | Transistor 2SA929 | 2 | C402 | | Electrolytic 10μF 16WV | 1 |
| 753,853 | | | | C401 | | Electrolytic 100μF 25WV, Non Polar | 1 |
| Q752,852 | | | | C785,787 | | Electrolytic 220μF 500WV | 4 |
| | | | | 885,887 | | | |
| CAPACITORS | | | | RESISTORS | | | |
| C751,851 | | Ceramic 680pF ±10% 50V | 2 | R786,886 | | Metal Oxide Film 5.6 ohm ±5% 1W | 2 |
| C762,862 | | Ceramic 22pF ±5% 50V | 2 | R787,887 | | Metal Oxide Film 10 ohm ±5% 1W | 2 |
| C754,854 | | Ceramic 220pF ±10% 50V | 2 | R784,785, | | Metal Oxide Film 100 ohm ±5% 1/2W | 4 |
| C765,865 | | Mylar 470pF ±10% 50V | 2 | 884,885 | | | |
| C756,856, | | Mylar 0.027μF ±5% 50V | 4 | R411 | | Metal Oxide Film 390 ohm ±5% 2W | 1 |
| 757,857 | | | | R401 | | Carbon Resistor 1k ohm ±5% 1/4W | 1 |
| C752,852 | | Mylar 0.033μF ±5% 50V | 2 | R410 | | Carbon Resistor 1.2k ohm ±5% 1/4W | 1 |
| C758,858, | | Mylar 0.0047μF ±5% 50V | 4 | R782,882 | | Carbon Resistor 2.7k ohm ±5% 1/4W | 2 |
| 759,859 | | | | R409,412 | | Carbon Resistor 5.6k ohm ±5% 1/4W | 2 |
| C760,860 | | Mylar 0.0018μF ±5% 50V | 2 | R402 | | Carbon Resistor 15k ohm ±5% 1/4W | 1 |
| C766 | | Electrolytic 330μF 35V | 1 | R406,407 | | Carbon Resistor 18k ohm ±5% 1/4W | 2 |
| C763,863 | | Electrolytic 100μF 6.3V | 2 | R788,888 | | Carbon Resistor 22k ohm ±5% 1/4W | 2 |
| C761,861, | | Electrolytic 1μF 50V | 6 | R405,781, | | Carbon Resistor 56k ohm ±5% 1/4W | 5 |
| 764,864, | | | | 783,881, | | | |
| 791,891 | | | | 883 | | | |
| C753,853 | | Electrolytic 0.47μF 50V | 2 | R403,404, | | Carbon Resistor 120k ohm ±5% 1/4W | 3 |
| C755,855 | | Electrolytic 2.2μF 50V | 2 | 408 | | | |
| RESISTORS | | | | DC POWER PCB ASSY | | | |
| R770,870 | | Carbon 180K ohm ±5% 1/4W | 2 | 232 | 140-9-230T-66800 | Printed Circuit Board Assembly, DC Power | 1 |
| R751,851, | | Carbon 1M ohm ±5% 1/4W | 4 | | 4-237T-00100 | or Terminal, Wire Wrapper Pin | 19 |
| 756,856 | | | | | 141-2-382T-07300 | Heat Sink | 1 |
| R773,873 | | Carbon 470K ohm ±5% 1/4W | 2 | | 141-2-368T-11000 | Tapping Screw 3 x 8 mm | 1 |
| R757,857 | | Carbon 330K ohm ±5% 1/4W | 2 | Q901 | | Transistor 2SD386E | 1 |
| R755,855 | | Carbon 82K ohm ±5% 1/4W | 2 | Q902,903 | | Transistor 2SD438E | 2 |
| R763,864 | | Carbon 27K ohm ±5% 1/4W | 4 | D501,502 | | Diode 3DZ61 | 4 |
| 764,864 | | | | 503,504 | | | |
| R759,859 | | Carbon 22K ohm ±5% 1/4W | 2 | D505 | | Diode DS131B | 1 |
| R761,861, | | Carbon 15K ohm ±5% 1/4W | 4 | D506 | | Diode WZ130 | 1 |
| 762,862 | | | | CAPACITORS | | | |
| R753,853 | | Carbon 8.2K ohm ±5% 1/4W | 2 | C915 | | Ceramic 0.001μF ⁺⁸⁰ / ₋₂₀ % 50WV | 1 |
| R752,852 | | Carbon 6.8K ohm ±5% 1/4W | 6 | C901,902, | | Ceramic 0.01μF 500WV | 6 |
| 765,865, | | | | 903,904, | | | |
| 766,866 | | | | 905,906 | | | |
| R760,860 | | Carbon 4.7K ohm ±5% 1/4W | 2 | C911 | | Electrolytic 220μF ⁺¹⁰⁰ / ₋₁₀ % 16WV | 1 |
| R769,869 | | Carbon 33K ohm ±5% 1/4W | 2 | C909,910 | | Electrolytic 470μF ⁺¹⁰⁰ / ₋₁₀ % 50WV | 2 |
| R754,854, | | Carbon 1K ohm ±5% 1/4W | 6 | C912,913 | | or Electrolytic 10000μF 50WV | 2 |
| 774,874, | | | | | 4-163T-00400, | | |
| 771,871 | | | | | 4-163T-00471) | | |
| R758,858 | | Carbon 560 ohm ±5% 1/4W | 2 | | | | |
| R767,867, | | Carbon 6.8K ohm ±5% 1/4W | 4 | | | | |
| 768,868 | | | | | | | |
| R772,872 | | Carbon 5.6K ohm ±5% 1/4W | 2 | | | | |
| R791,891 | | Carbon 100K ohm ±5% 1/4W | 2 | | | | |
| R792,892 | | Carbon 1.5K ohm ±5% 1/4W | 2 | | | | |

PARTS LIST

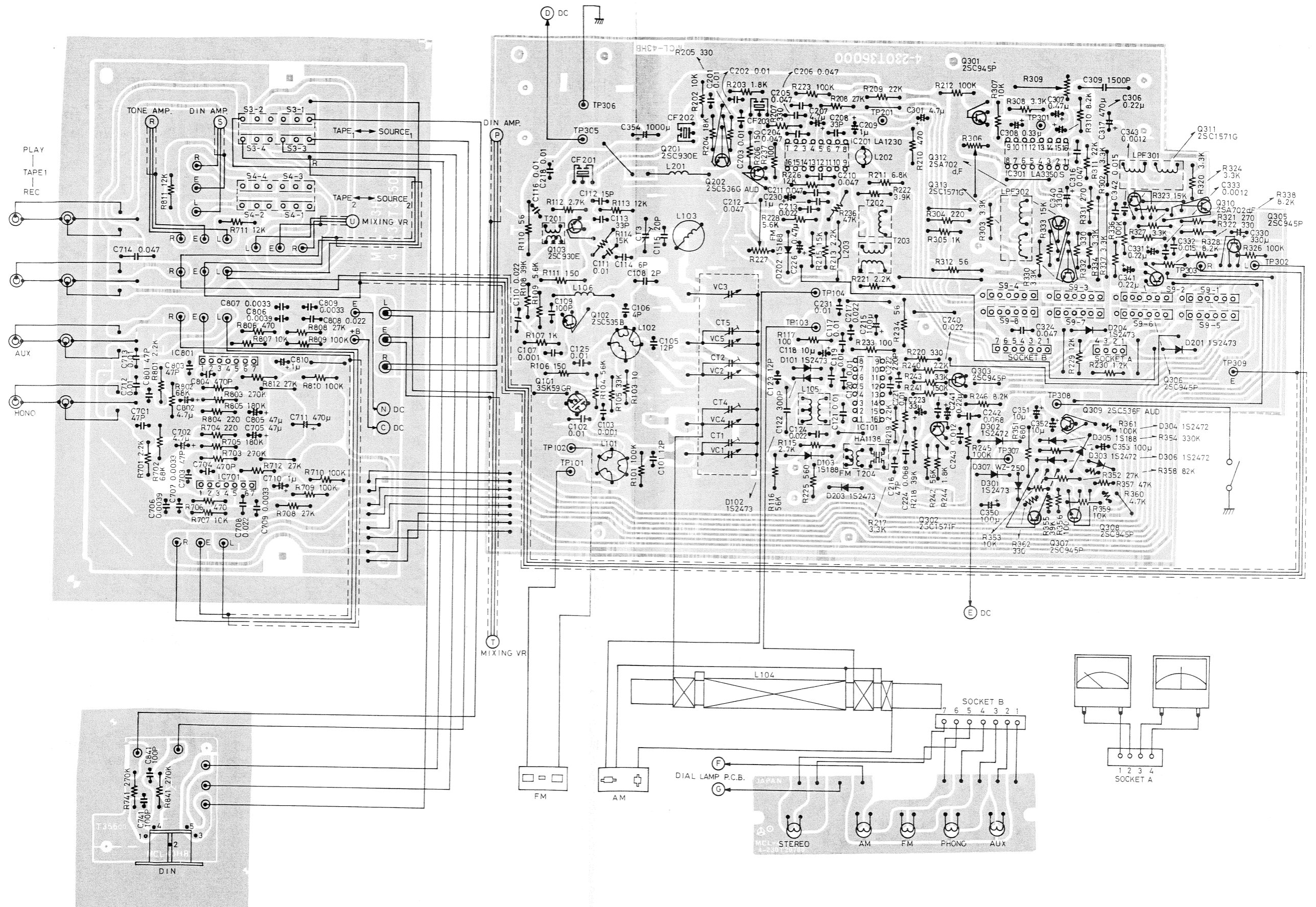
MEMO

| Ref. No. | Part No. | Description | Q'ty |
|---------------------|------------------|--|------|
| DIN SOCKET PCB ASSY | | | |
| 246 | 140-9-230T-74601 | PCB assy, DIN SOCKET | 1 |
| | 4-235T-48300 | Socket, DIN | 1 |
| | 4-237T-00171 | Terminal board | 6 |
| C741,841 | | Ceramic capacitor 100pF 50V ±10% 50V | 2 |
| R741,841 | | Carbon resistor 270k ohm ±5% 1/4W | 2 |
| SCREW MOUNTING | | | |
| Y1 | | Pan Head Screw 2 x 8 mm | 2 |
| Y2 | | Pan Head Screw 3 x 6 mm | 6 |
| Y3 | | Pan Head Screw 3 x 50 mm | 1 |
| Y4 | | Binding Head Pan Head Screw 3 x 8 mm | 2 |
| Y5 | | Tapping Screw 3 x 6 mm | 11 |
| Y6 | | Tapping Screw 3 x 8 mm | 7 |
| Y7 | | Tapping Screw 3 x 12 mm | 1 |
| Y8 | | Tapping Screw 4 x 8 mm | 4 |
| Y9 | | Round Head Wood Screw 3.1 x 10 mm | 12 |
| Y10 | | Binding Head Tapping Screw 3 x 12 mm | 2 |
| Y11 | | Binding Head Tapping Screw 3 x 10 mm | 22 |
| Y12 | | Nut 3 mm | 1 |
| Y13 | | Nut 4 mm | 4 |
| Y14 | | Washer 3.3 x 10 x 1 mm | 1 |
| Y15 | | Washer 4.5 x 13 x 1.2 mm | 8 |
| Y16 | | Spring Washer 3 mm | 1 |
| Y17 | | External Tooth Lock Washer 3 mm | 9 |
| Y18 | | External "E" Ring 2.5 mm | 1 |
| Y19 | | External "E" Ring 3 mm | 1 |
| Y20 | | Headless Screw with Hexagon Hole 3 x 4 mm | 4 |
| Y21 | | Pan Head Screw with Hexagon Hole 3 x 6 mm | 2 |
| Y22 | | Fiber Washer 3 x 10 x 0.8 mm | 1 |
| Y23 | 141-2-435T-01700 | Fiber Washer 3 x 10 x 1 mm | 13 |
| Y24 | | Tapping Screw with Washer 3 x 4 mm | 1 |
| Y25 | | Tapping Screw with Washer 3 x 8 mm | 43 |
| Y26 | | Tapping Screw with Washer 3 x 10 mm | 31 |
| Y27 | | Tapping Screw 3 x 12 mm | 7 |
| Y28 | | Tapping Screw 3 x 16 mm | 6 |
| Y29 | | Thread Rolling Screw 3 x 12 mm | 2 |
| Y30 | | Thread Rolling Screw 4.5 x 16 mm | 4 |
| Y31 | | UL Tape 12 x 40 mm | 1 |
| Y32 | | UL Tape 12 x 70 mm | 1 |
| Y33 | | Tapping Screw 2.3 x 6 mm | 2 |

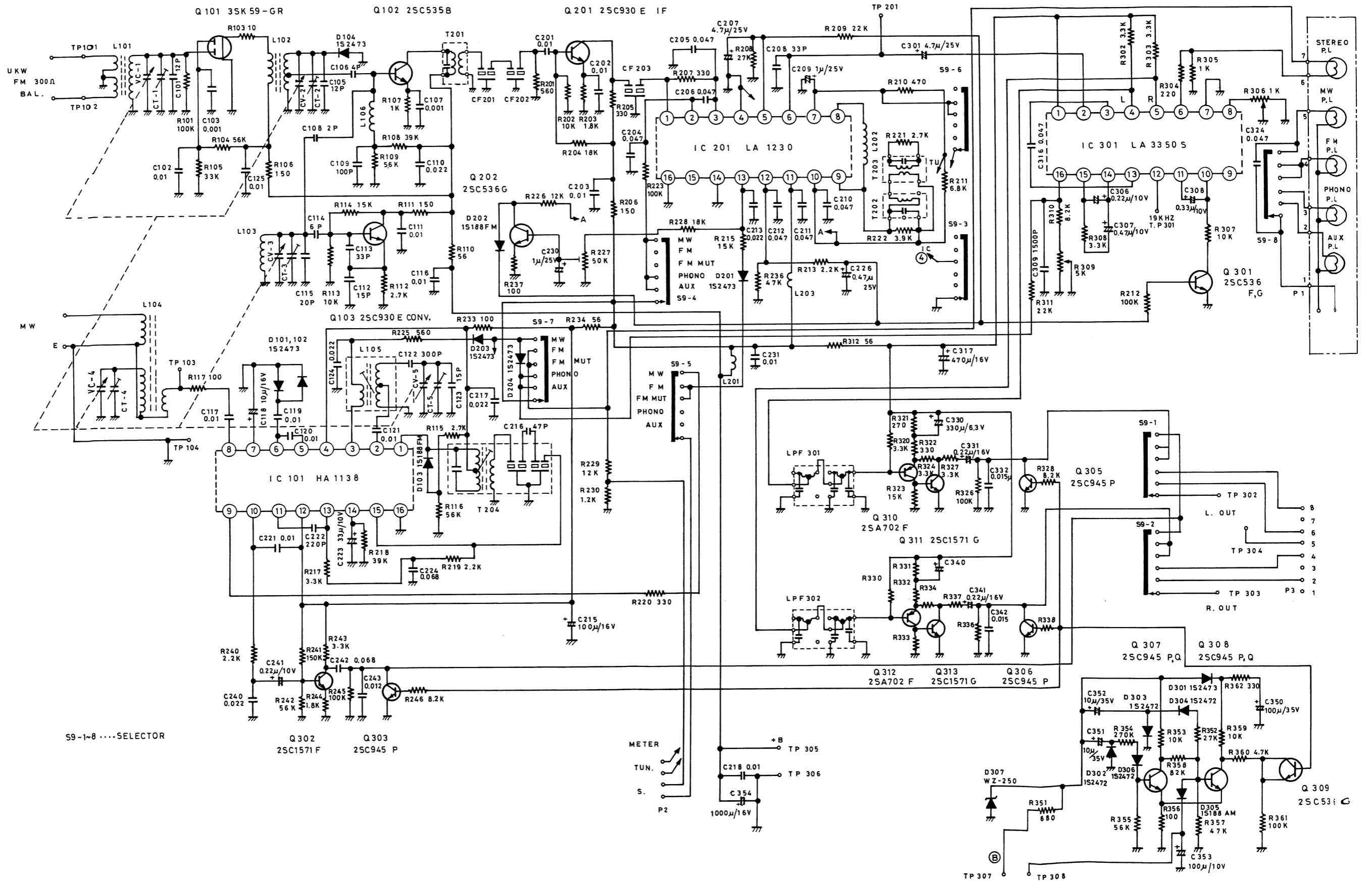
CHASSIS EXPLODED VIEW



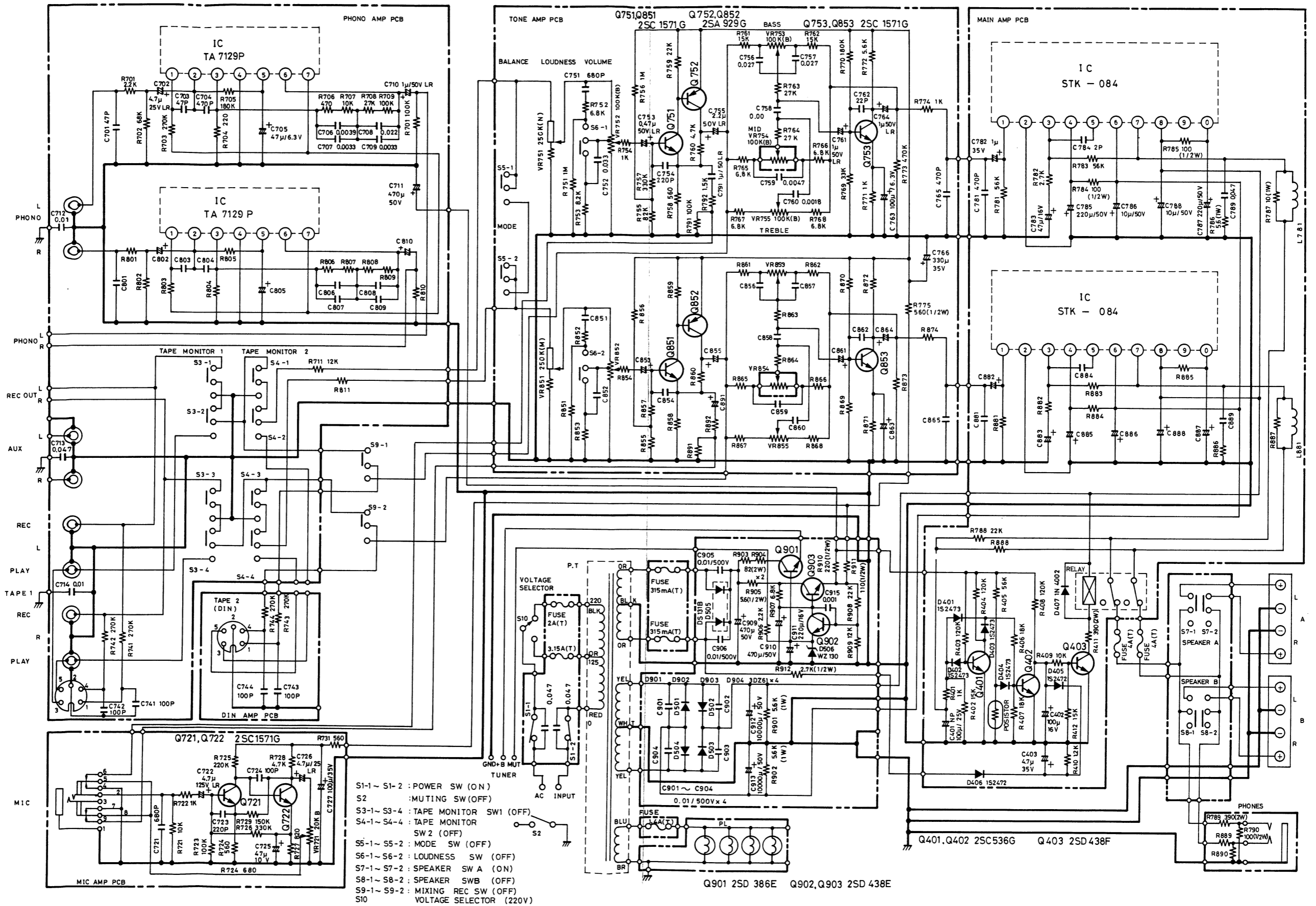
WIRING DIAGRAM (TUNER)



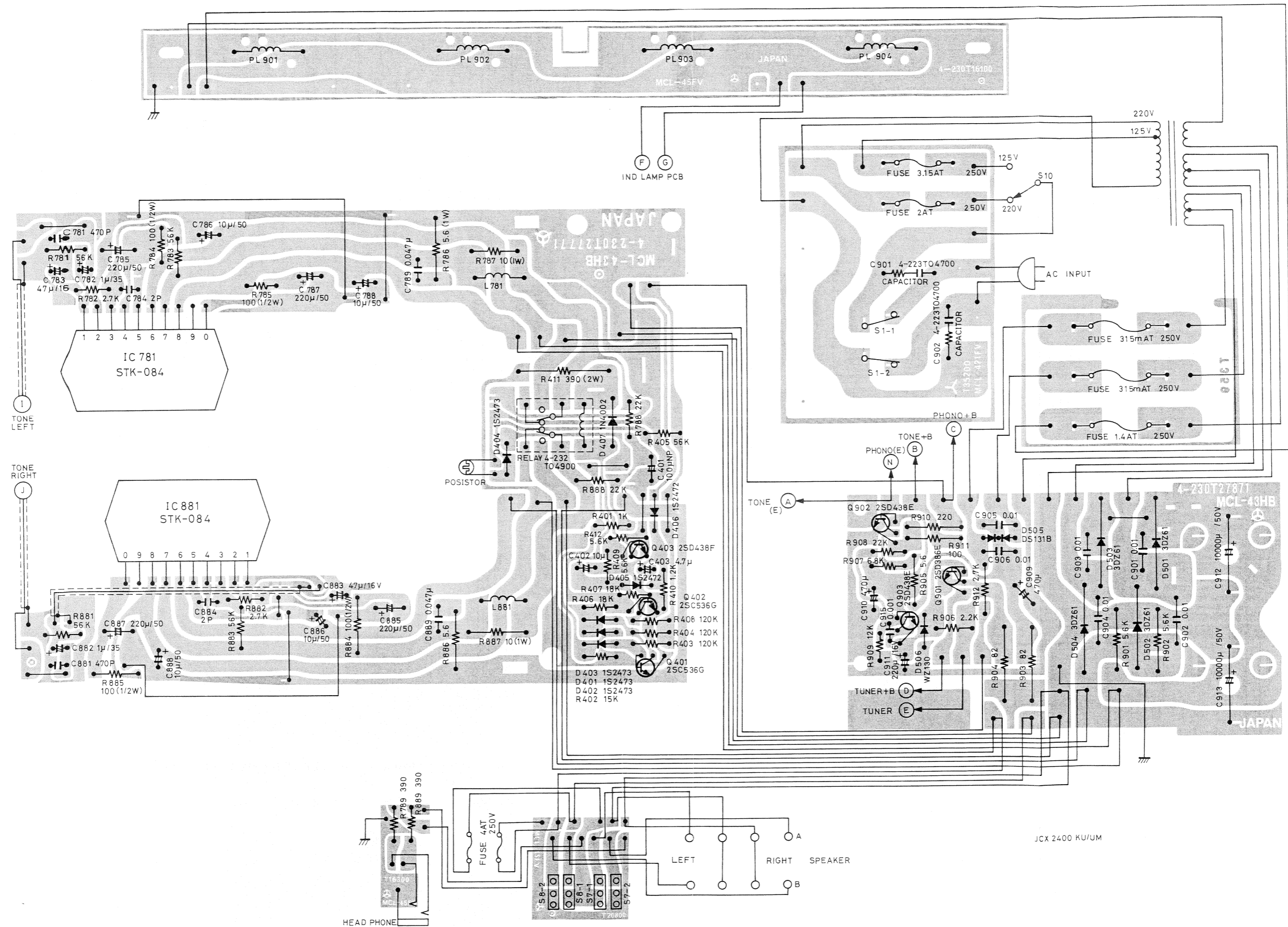
SCHEMATIC DIAGRAM (TUNER)



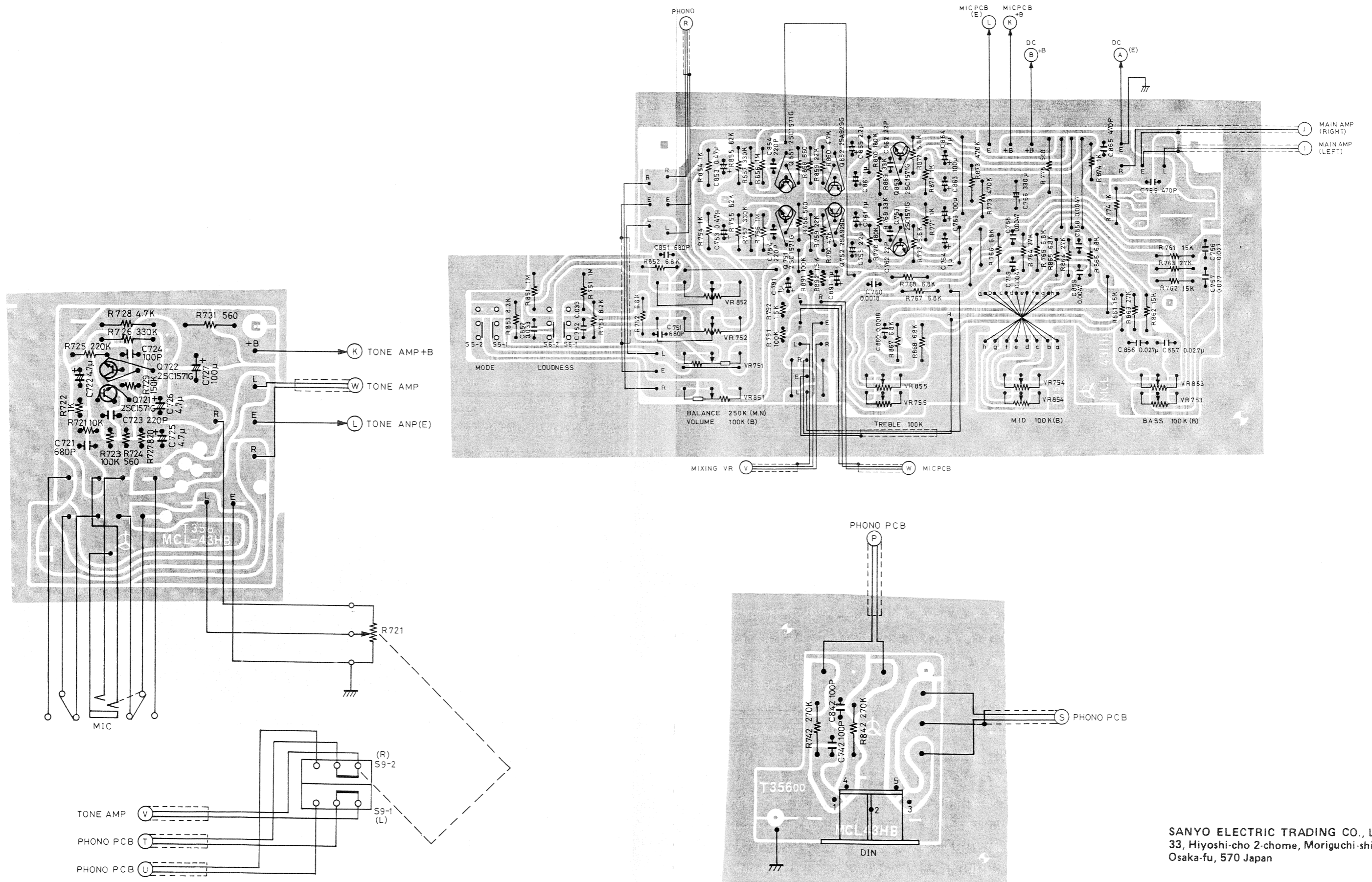
SCHEMATIC DIAGRAM (AMP)



WIRING DIAGRAM (AMP)



WIRING DIAGRAM (PRE AMP.)



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