

CONCORD

AM-FM STEREO RECEIVER

MODEL : CR-200

SERVICE DATA



CONCORD DIVISION
BENJAMIN ELECTRONIC SOUND COMPANY
Farmingdale, New York 11735

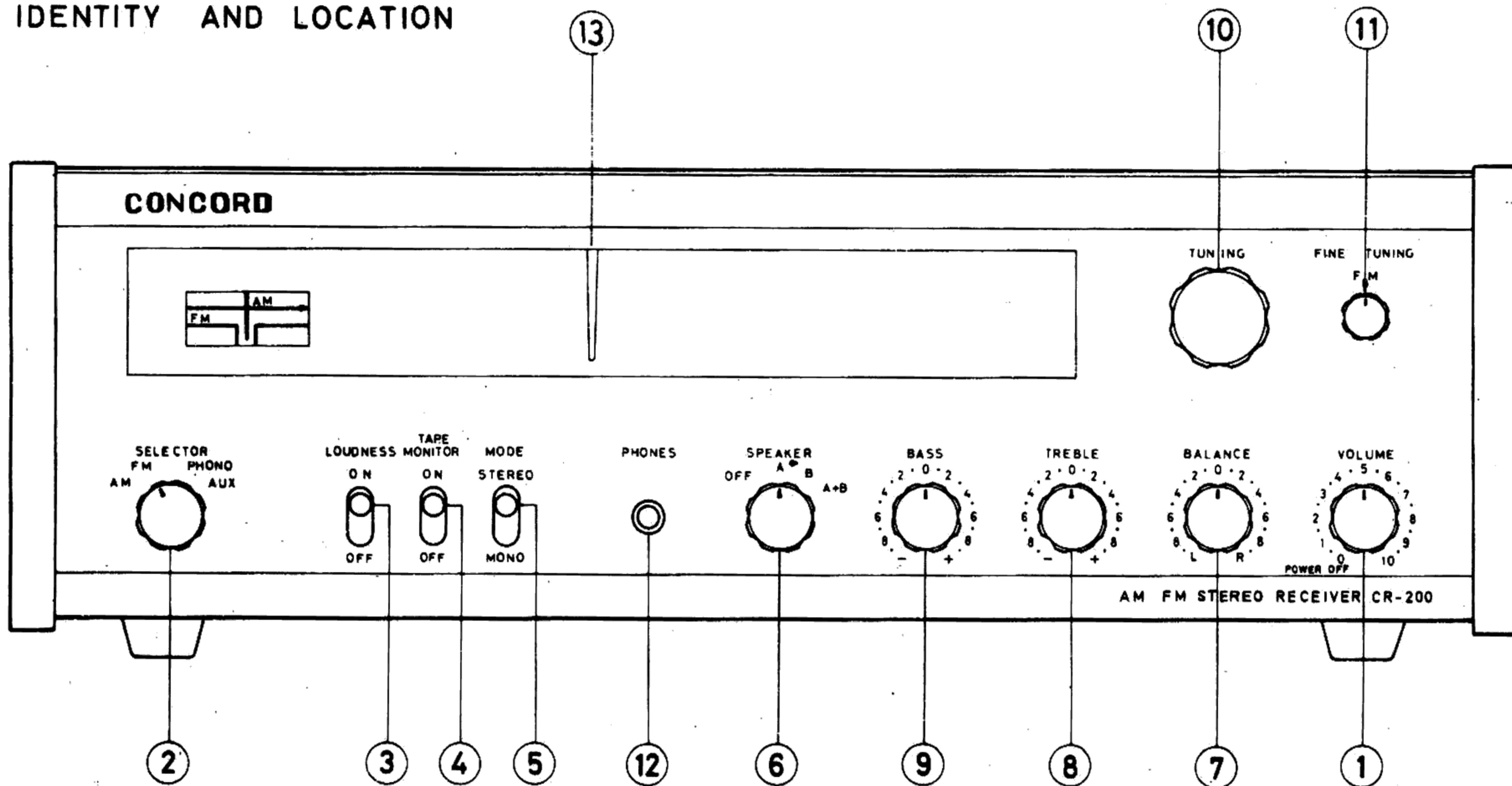
SUPPLEMENTAL SERVICE DATA FOR
SERIAL NOS. 3301 THROUGH 7300

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CR-200 FRONT LAYOUT

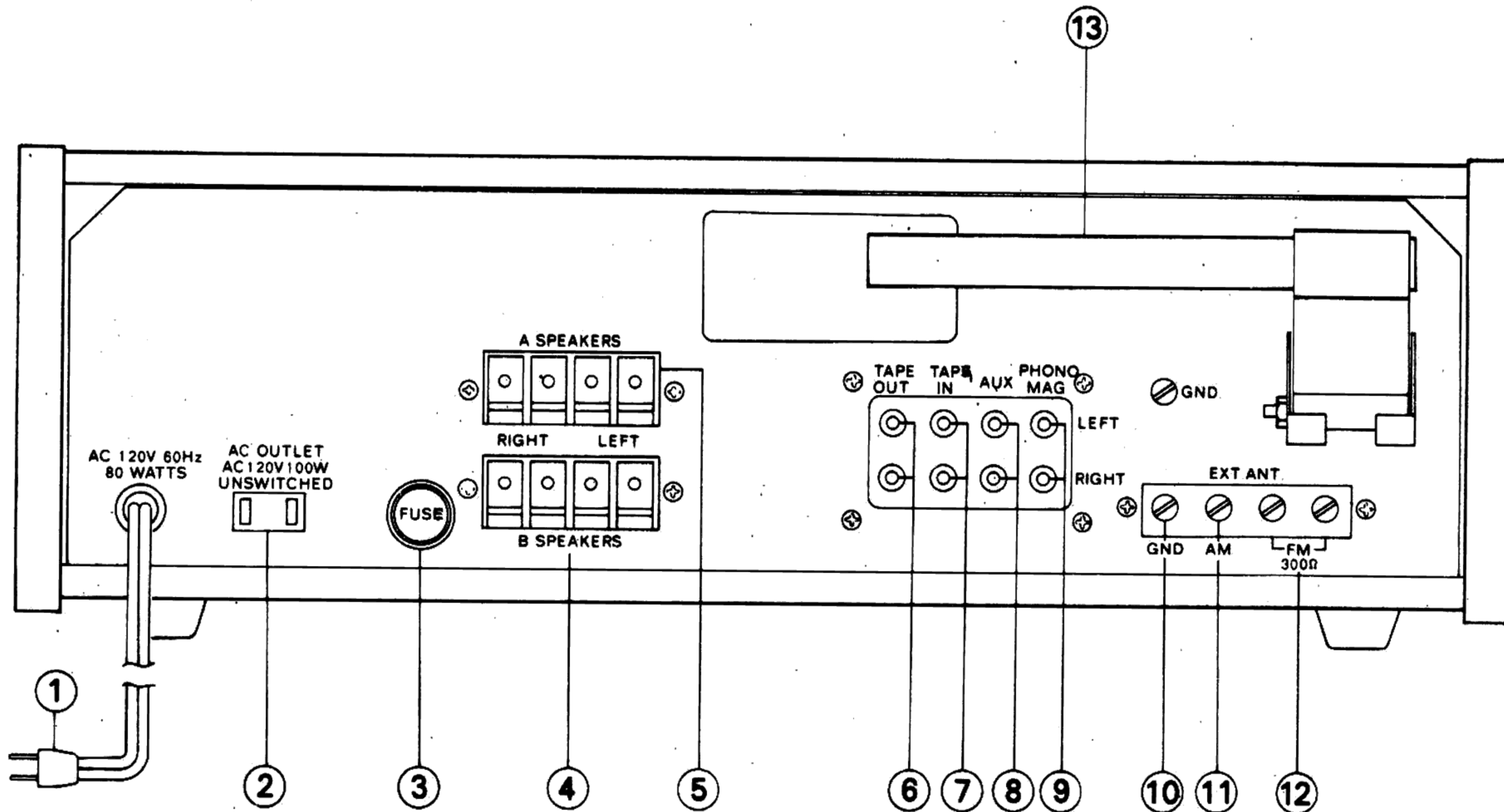
FRONT PANEL CONTROLS:
IDENTITY AND LOCATION



- | | |
|--|-------------------------------------|
| ① POWER SWITCH with VOLUME CONTROL | ⑦ BALANCE CONTROL |
| ② SELECTOR SWITCH: AM, FM, PHONO and AUX. | ⑧ TREBLE CONTROL |
| ③ LOUDNESS SWITCH. | ⑨ BASS CONTROL |
| ④ TAPE MONITOR SWITCH | ⑩ TUNING |
| ⑤ MODE SWITCH: STEREO - MONO. | ⑪ FINE TUNING |
| ⑥ SPEAKER SELECTOR SWITCH: OFF, A, B, and A + B. | ⑫ PHONE JACK |
| | ⑬ DIAL POINTER AND STEREO INDICATOR |

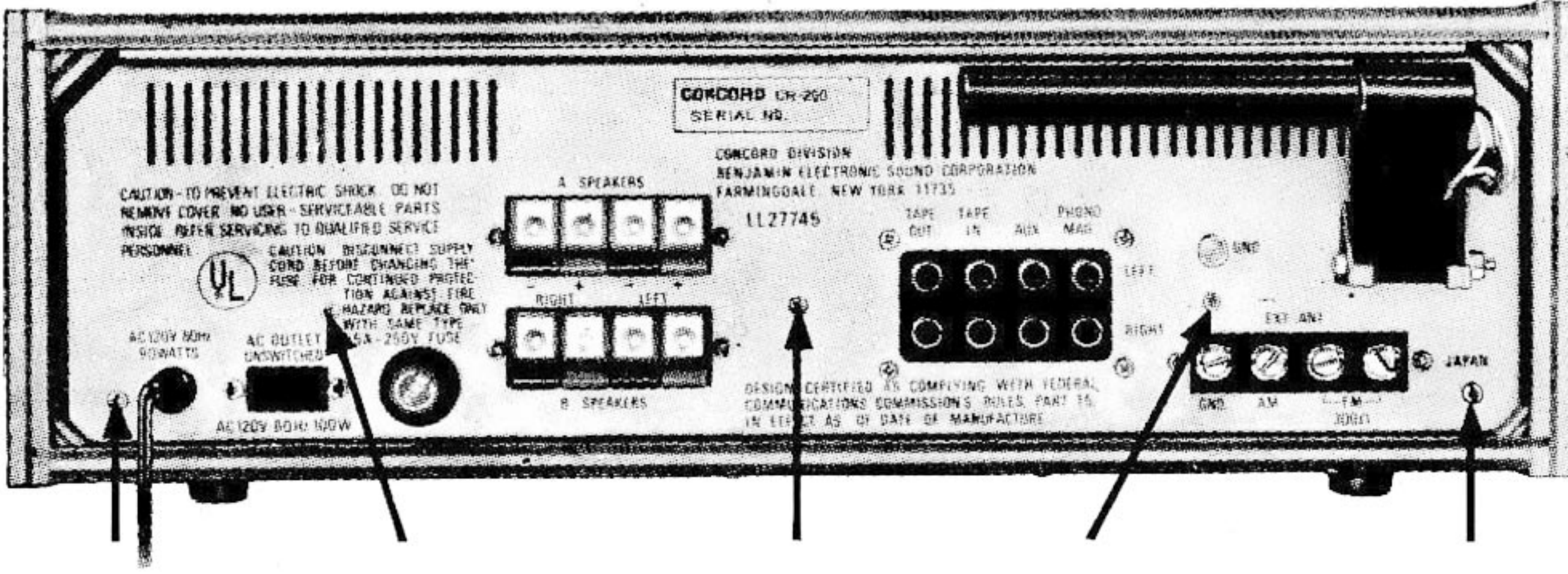
CR-200 REAR PANEL

REAR PANEL LOCATION: TERMINALS

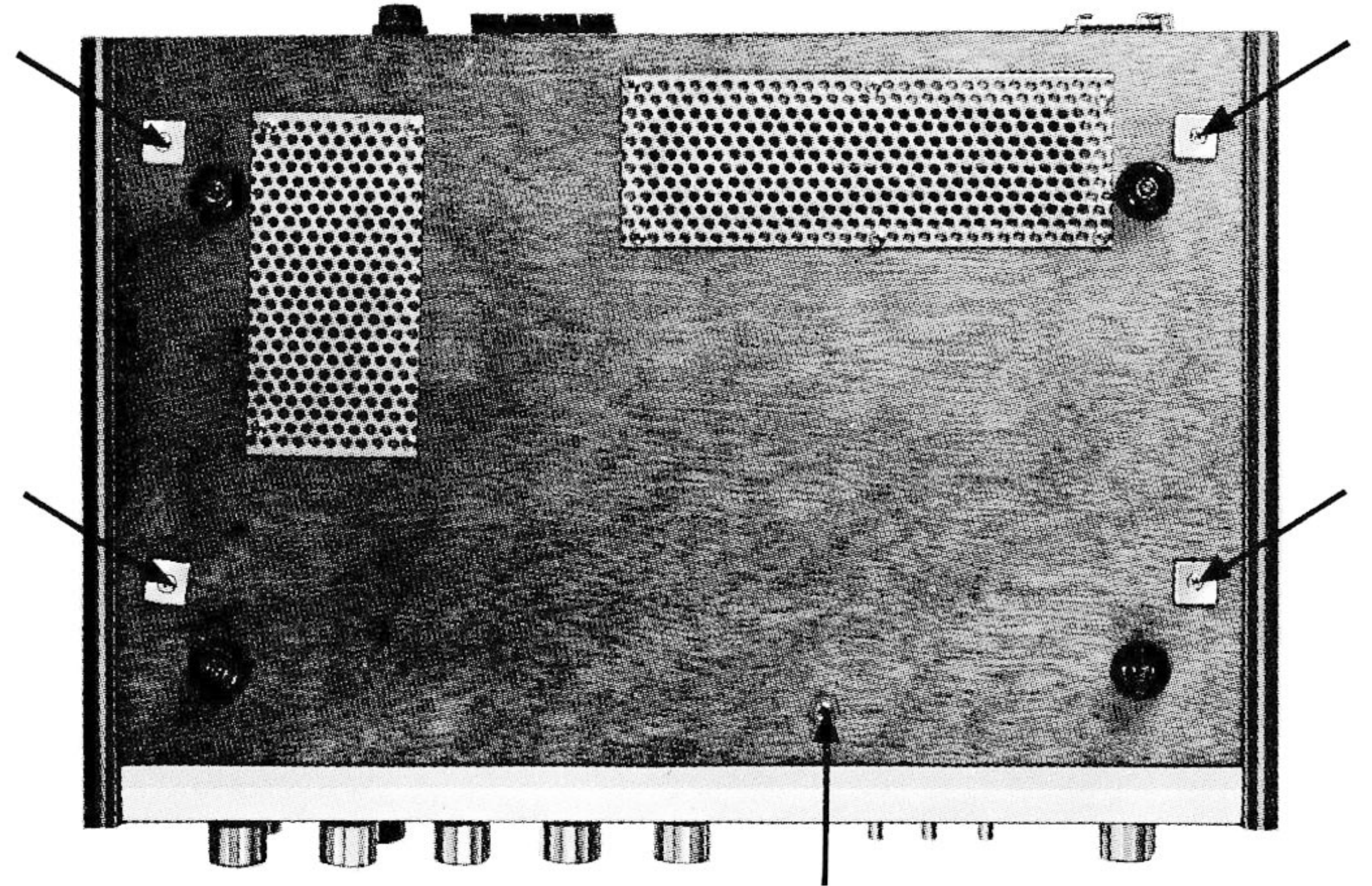


- | | |
|---------------------------------------|---|
| ① PLUG AC 120V 60Hz. | ⑧ AUXILIARY INPUT. |
| ② UNSWITCHED AC OUTLET (AC 120V 100W) | ⑨ PHONOGRAPH INPUT (MAG. type CARTRIDGE). |
| ③ FUSE HOLDER. | ⑩ GND. |
| ④ OUTPUT RIGHT and LEFT A SPEAKERS. | ⑪ EXTERNAL ANTENNA INPUT AM. |
| ⑤ OUTPUT RIGHT and LEFT B SPEAKERS. | ⑫ EXTERNAL ANTENNA INPUT FM (IMPEDANCE 300 OHM.). |
| ⑥ TAPE OUT. | ⑬ AM BAR ANTENNA. |
| ⑦ TAPE IN. | |

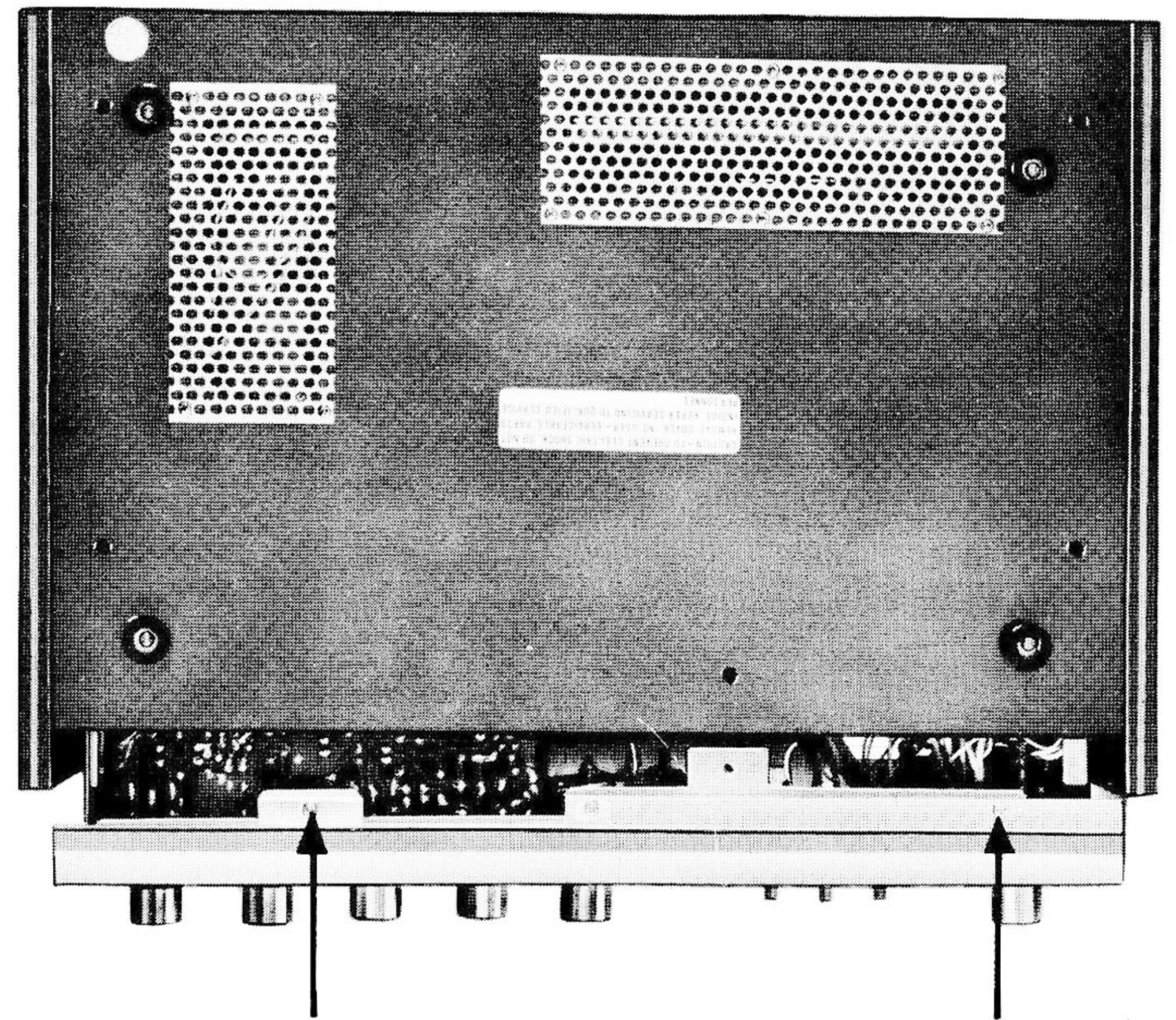
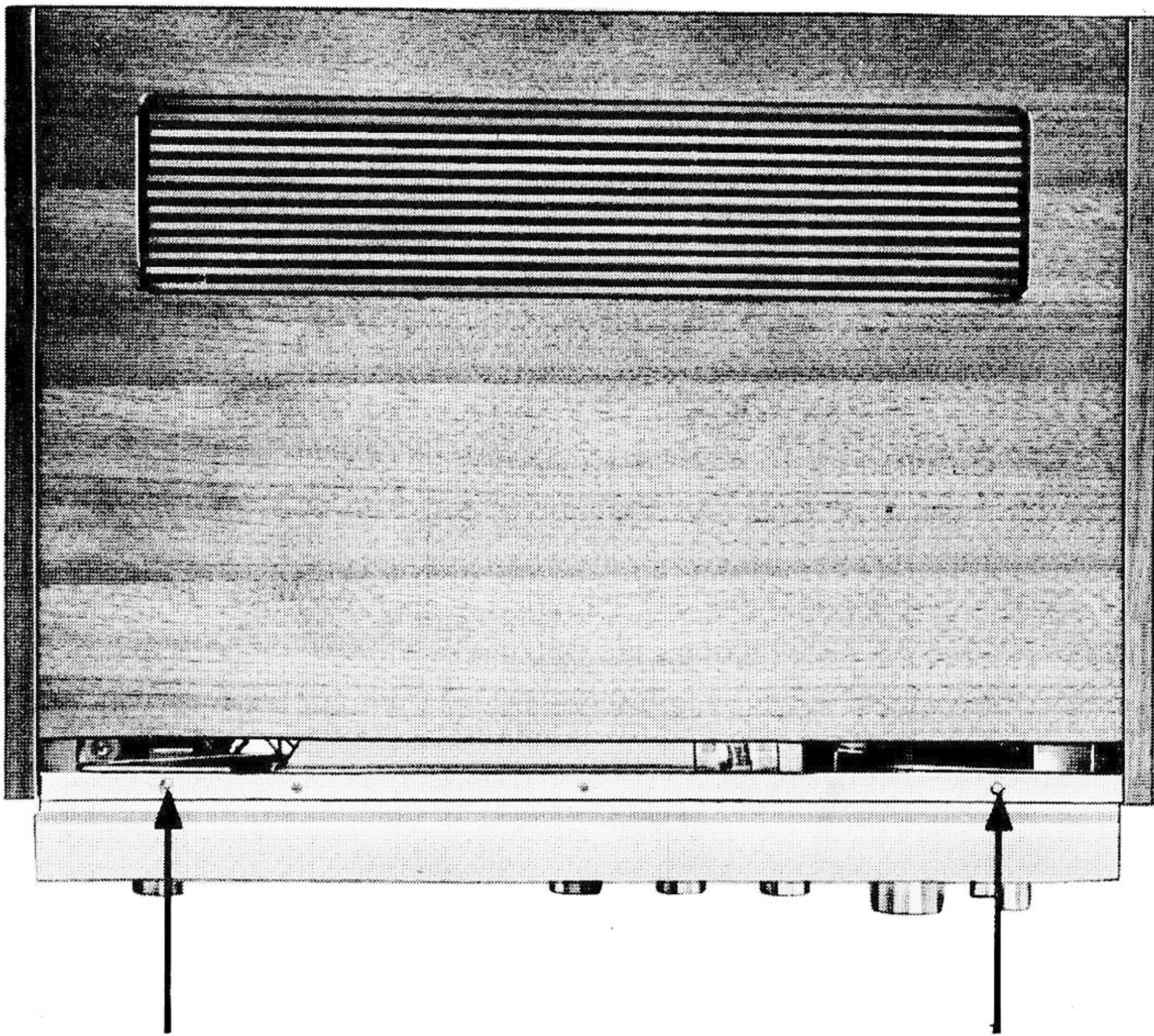
DISASSEMBLY INSTRUCTIONS



- 1) To remove rear panel from chassis.
Remove the five Phillips head screws on the rear panel which are indicated by arrow marks.



- 2) To remove chassis from wooden cabinet.
Turn the cabinet upside down and remove the five Phillips head screws on the bottom cabinet which are marked by arrow marks.



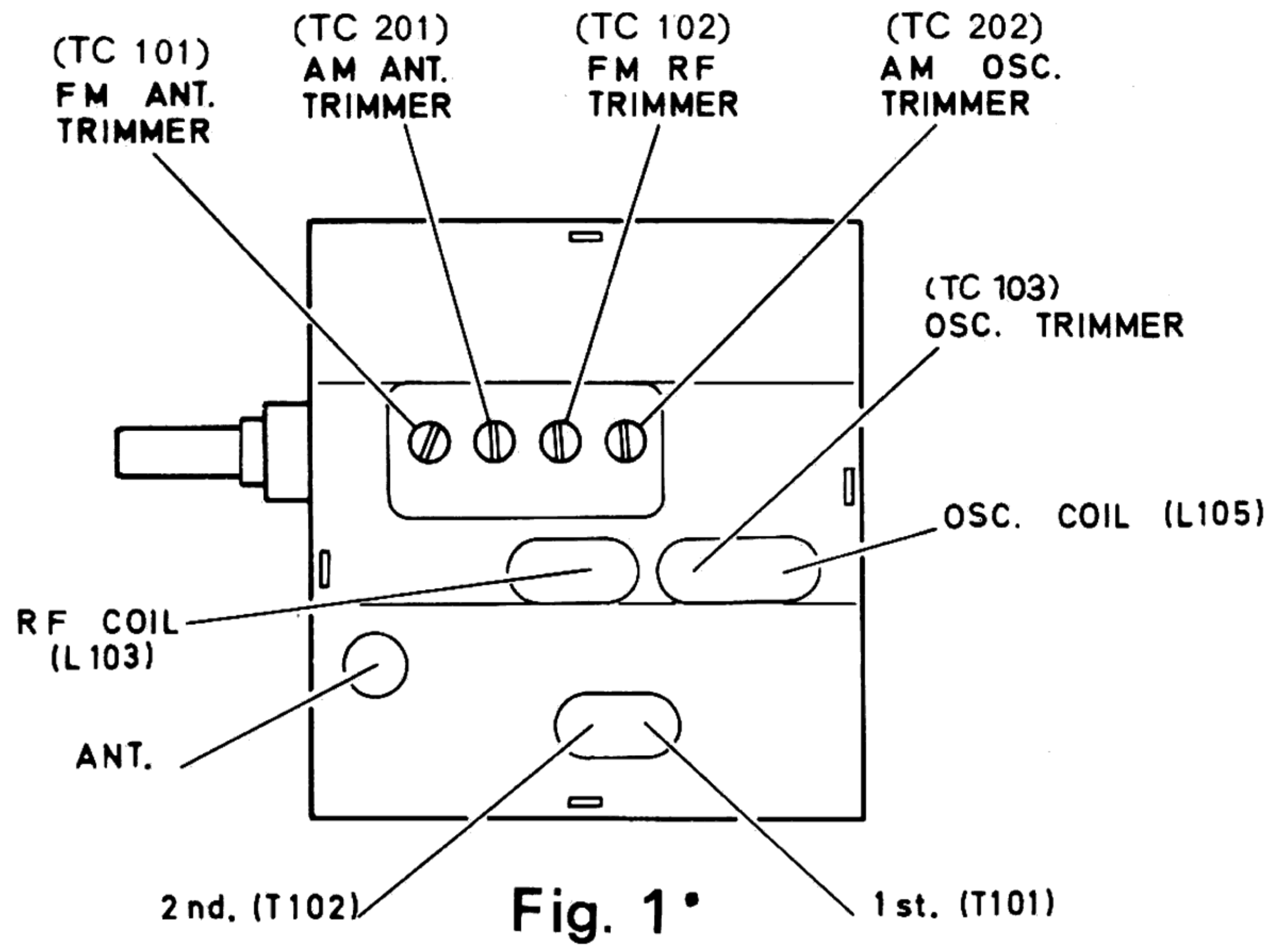
- 3) Removal of front panel (Aluminum panel)
 - a) Remove the chassis from wooden cabinet as described in 2)
 - b) Pull out the front panel with the main chassis.
 - c) Remove the two Phillips head screws which are marked by arrow marks.
Also remove the two Phillips head screws from the bottom of this front panel.

ALIGNMENT INSTRUCTIONS

EQUIPMENT REQUIRED

1. AM Signal Generator
2. AC Voltmeter
3. Oscilloscope

TUNER FRONT END COIL & TRIMMER LOCATIONS



AM IF & RF ALIGNMENT

- NOTES: • Signal generator output should be no higher than necessary to obtain an output reading.
 • Maintain line voltage at 120 volts.
 • Set SELECTOR Switch to AM.

STEP	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	DIAL SETTING	INDICATOR	ADJUSTMENT	REMARKS
1	Fashion loop of several turns of wire and radiate signal into the loop antenna.	455 KHz (400 Hz, 30% MOD)	Point of non interference (near 600 KHz)	AC Voltmeter to TAPE OUT JACK	T202 (1st IFT) T203 (2nd IFT) T205 (3rd IFT)	Adjust for maximum reading
2	Same as above	600 KHz (400 Hz, 30% MOD)	600 KHz	Same as above	T201 (OSC Coil) AM ANT Coil	Adjust for maximum reading
3	Same	1400 KHz (400 Hz, 30% MOD)	1400 KHz	Same	TC202 (OSC Trimmer) TC201 (ANT Trimmer)	Adjust for maximum reading
4	Repeat steps 2 and 3 until no further change is noticed.					
5			Point of non-interference and no broadcasting	AM strength Meter	R232 (AM Meter Level)	Adjust the Meter pointer to "Zero" point on Meter

AM ALIGNMENT SET-UP

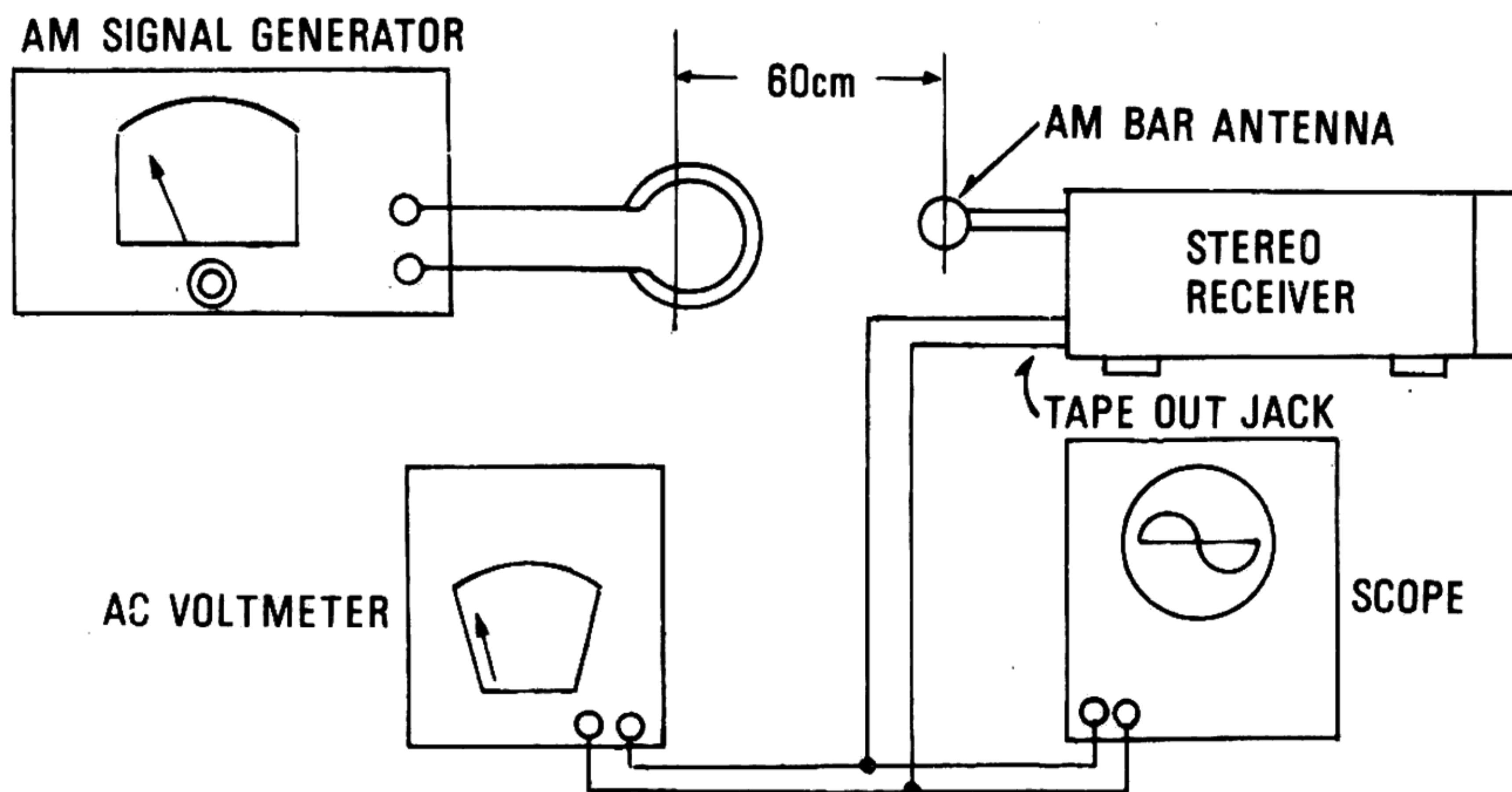


Fig. 2

FM RF & IF ALIGNMENT

EQUIPMENT REQUIRED

1. FM Signal Generator Output Level: 60 dB (1mV)
2. Sweep Generator
3. AC Voltmeter
4. Oscilloscope
5. Distortion Meter

NOTE: • Signal generator output should be no higher than necessary to obtain an output reading.
 • Set SELECTOR Switch to FM.
 • Maintain line voltage at 120 volts.

STEP	GENERATOR COUPLING	GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUSTMENT	REMARKS
1	Sweep Generator to "IN" terminal on FM Front end board	10.7 MHz (1400 KHz sweep)	Any dial setting where no noise or interference exists	Scope to R-260 (MPX input) AM/FM/IF 8 MPX Board	T204, T206 T207, T208 FM IFT	Adjust for maximum amplitude and proper linearity between ± 150 KHz markers Refer to Fig. 3A
2	Sweep Generator to FM Antenna Terminal thru FM Dummy antenna (300 Ω)				T101 T102 FM IFT	
3	Same as above				T208 Primary and secondary	
4	Signal Generator to FM Antenna Terminal thru FM Dummy antenna (300 Ω)	90 MHz	90 MHz	AC Voltmeter and Scope to TAPE REC Jack	L105 (FM OSC) L103 (FM RF) L101 (FM ANT)	Adjust for maximum reading on meter
5	Same as above	106 MHz	106 MHz		TC103 (FM OSC Trimmer) TC102 (FM RF Trimmer) TC101 (FM ANT Trimmer)	
6	Same	98 MHz (400 Hz, 100% MOD.)	Tune for maximum reading on meter	Distortion Meter to TAPE OUT Jack	T208 IFT Secondary	Adjust for minimum distortion
7	Same	Same as above	Same as above	Same as above	R245 20KB Semi-fixed Resistor	Adjust to center point of Tuning Meter
8	Repeat steps 5 and 6 until no further improvement is noticed					

FM ALIGNMENT SET-UP

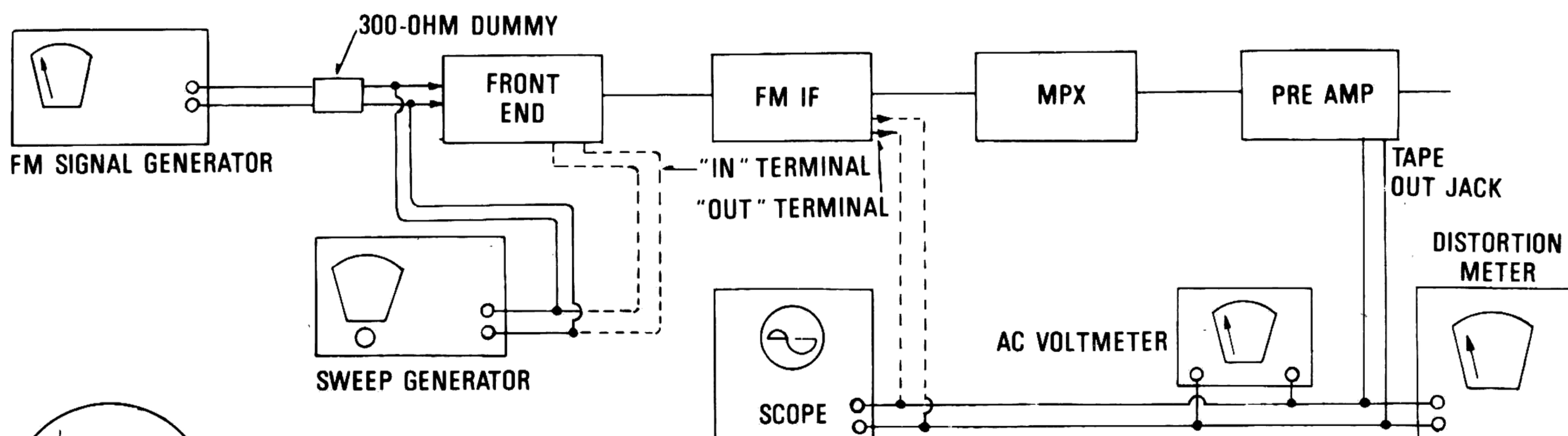


Fig. 3

FM STEREO ALIGNMENT

EQUIPMENT REQUIRED

1. Stereo Modulator.....Connect Stereo Modulator to EXT. Mod. terminal of FM signal generator.
Modulation Rate of 19 KHz Pilot Signal.....8 ~10%
2. FM Signal Generator.....Output Level60 dB (1 mV)
Frequency.....Approximately 98 MHz.
Deviation75 KHz at 100% modulation of composite signal.
3. Audio Generator
4. AC Voltmeter
5. Oscilloscope
6. Distortion Meter

PRELIMINARIES

- Set SELECTOR Switch to "FM". Dial setting at approximately 98 MHz.

MULTIPLEX & SEPARATION ALIGNMENT

STEP	SIGNAL GENERATOR COUPLING	STEREO MODULATOR	INDICATOR	ADJUSTMENT	REMARKS
1	Connect to FM Antenna Terminal thru FM Dummy antenna (300Ω).	Composite MPX signal 1 KHz on left channel ONLY.	AC Voltmeter and scope connected to IC2 NO. 1 pin	T209 (19 KHz trans)	Adjust for maximum reading.
2	Same as above	Same as above	Distortion Meter connected to TAPE OUT jack of left channel	T210 (38 KHz trans)	Adjust for minimum distortion reading.
3	Same	Same	AC Voltmeter connected to TAPE OUT jack of right channel	R-250 (Separation control)	Adjust for minimum reading – at least 30 dB below the reading obtained in step 1.
4	Same	Composite MPX signal 1 KHz on right channel ONLY	AC Voltmeter connected to TAPE OUT jack of left channel	R-250 (Separation Control)	Same as above

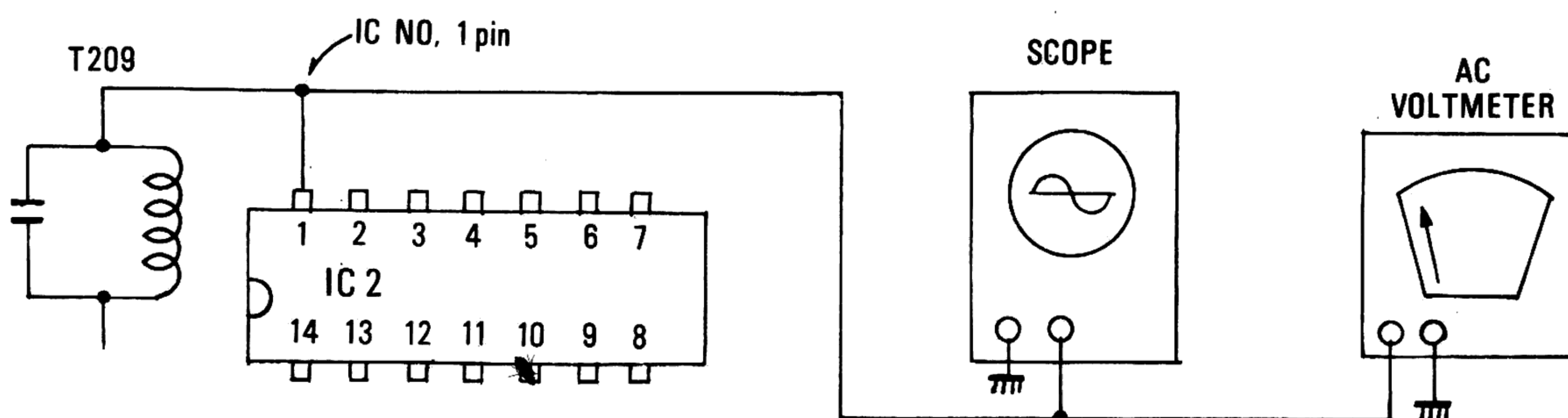


Fig. 4

MULTIPLEX & SEPARATION ALIGNMENT

STEP	SIGNAL GENERATOR COUPLING	STEREO MODULATOR	INDICATOR	ADJUSTMENT	REMARKS
5	Connect to FM Antenna Terminal thru FM Dummy antenna as shown below.	Composite MPX signal 1 KHz on right channel ONLY	AC Voltmeter connected to TAPE OUT jack of right channel.		Same AC Voltmeter reading as obtained in Step 1. The reading may vary 30 dB.
6	Same as above	Composite MPX signal 1 KHz on left channel ONLY	Same as above.		Minimum AC Voltmeter reading – at least 30 dB below the reading obtained in Step 1.

MPX ALIGNMENT SET-UP

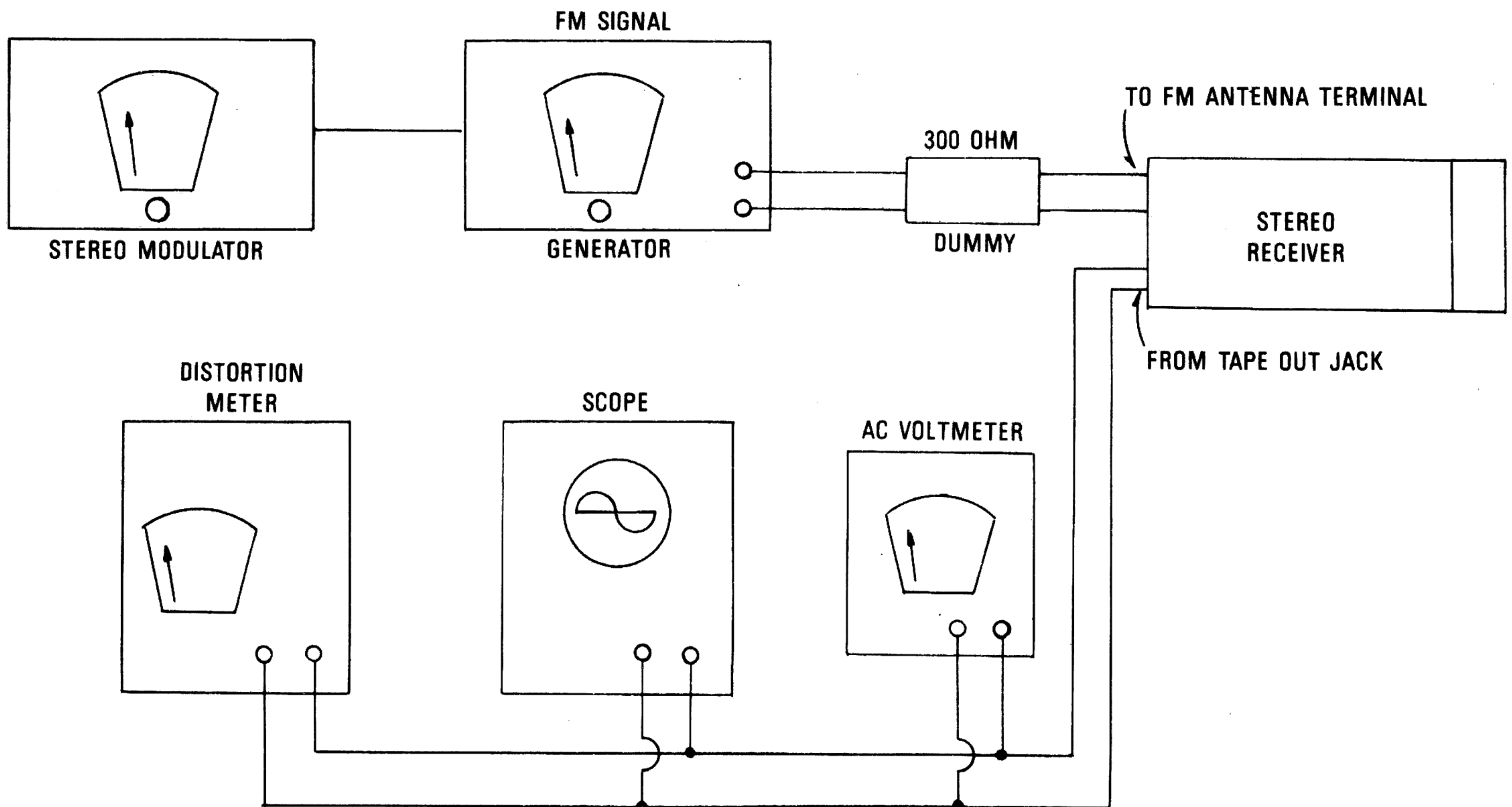
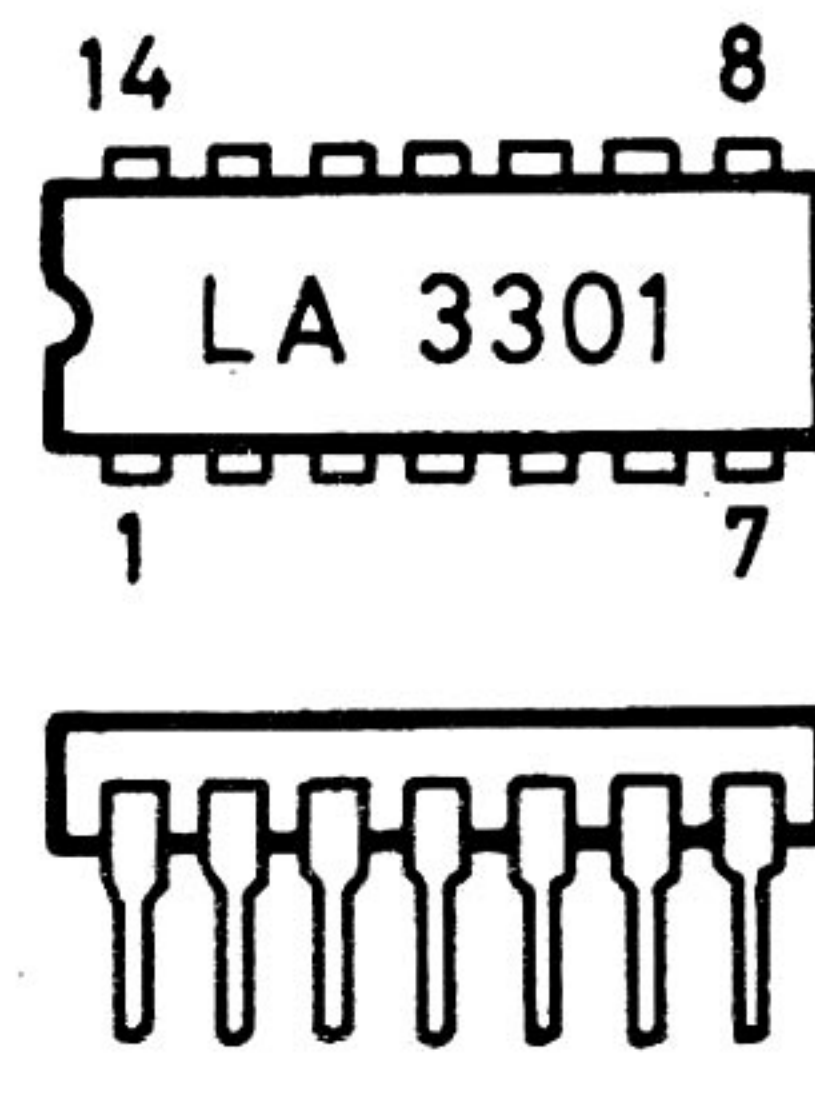
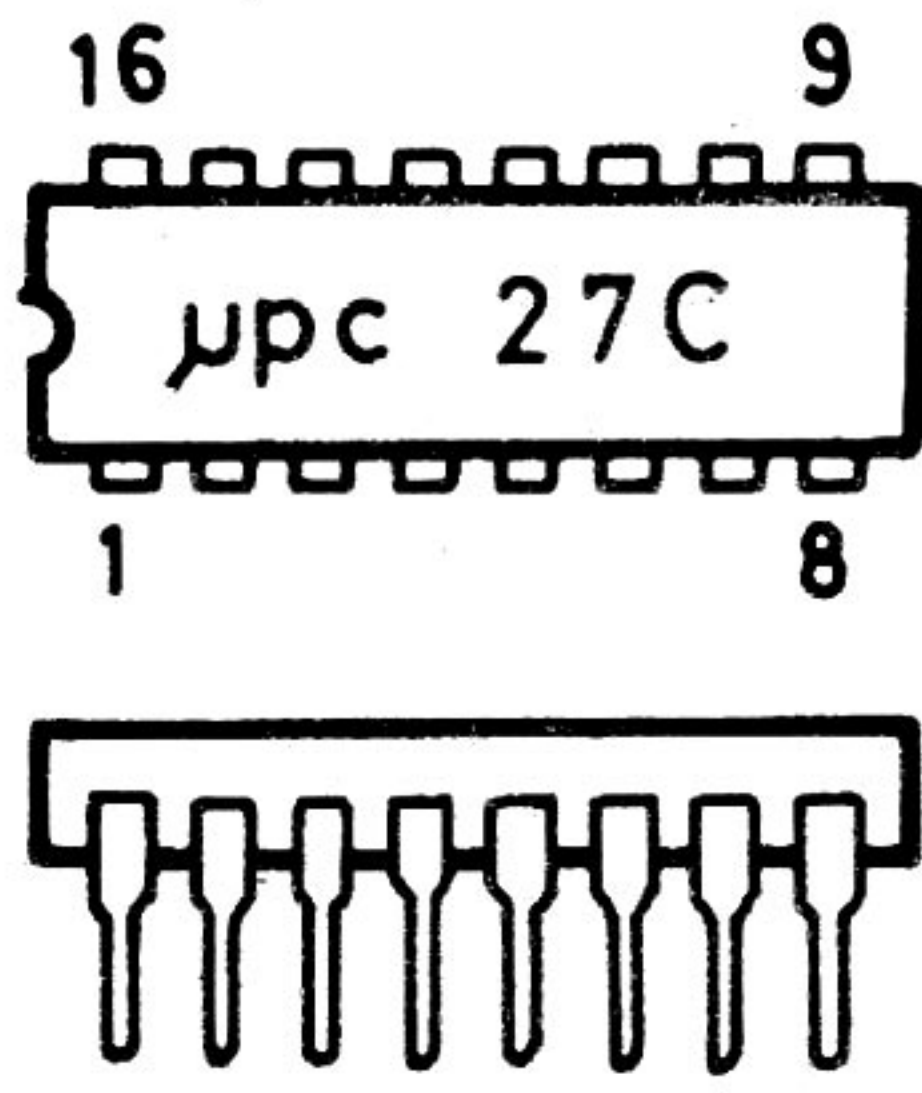
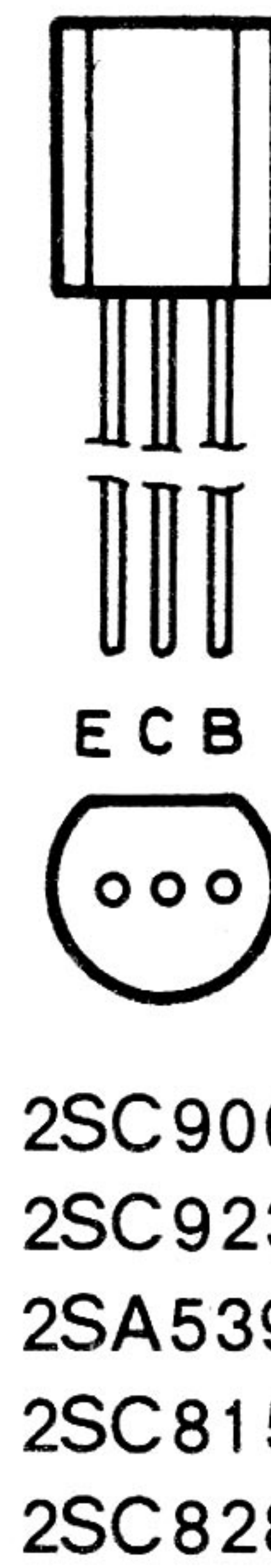
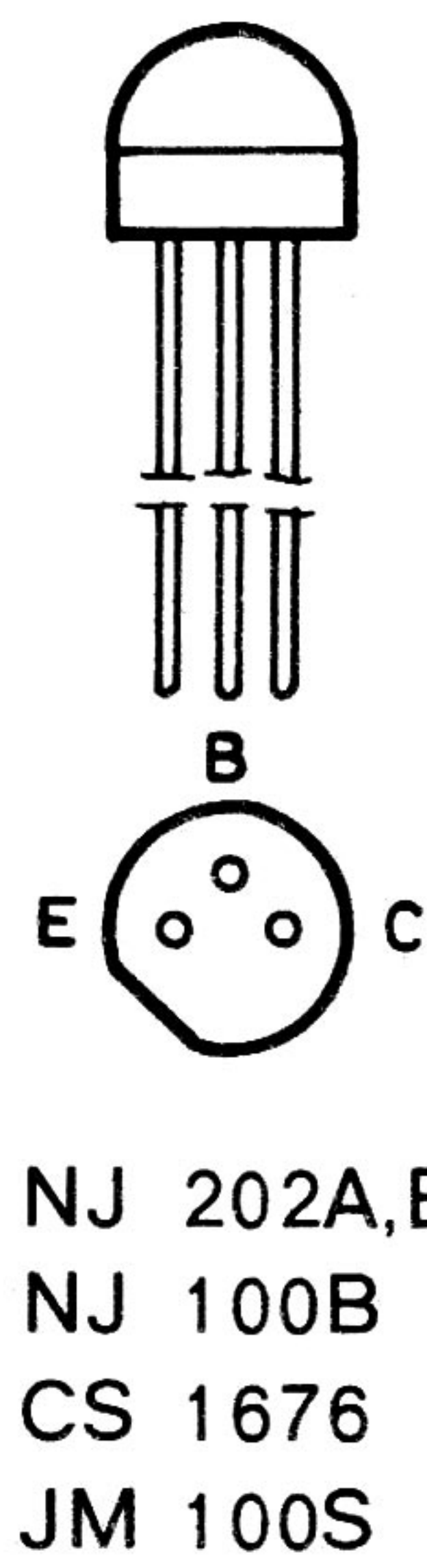
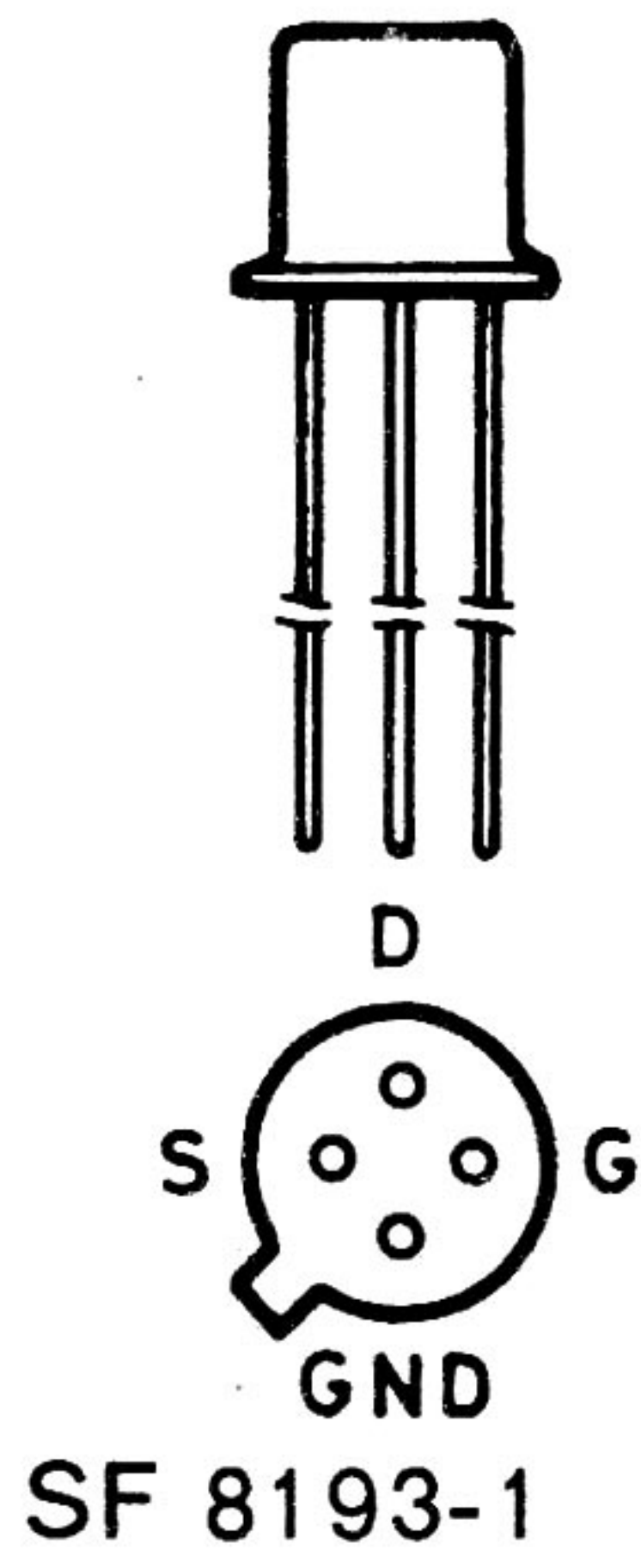


Fig. 5

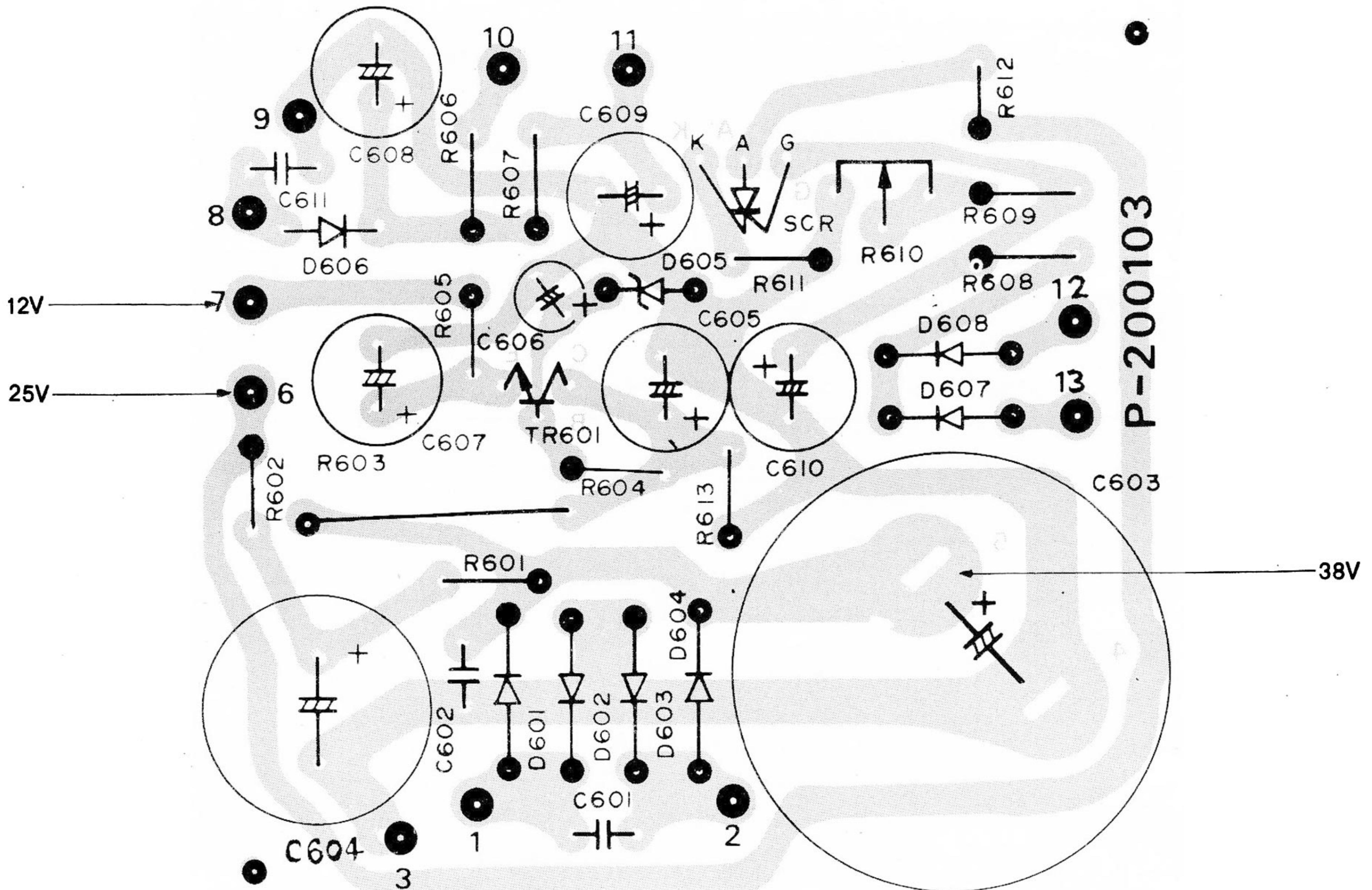
INTEGRATED CIRCUIT CONNECTIONS



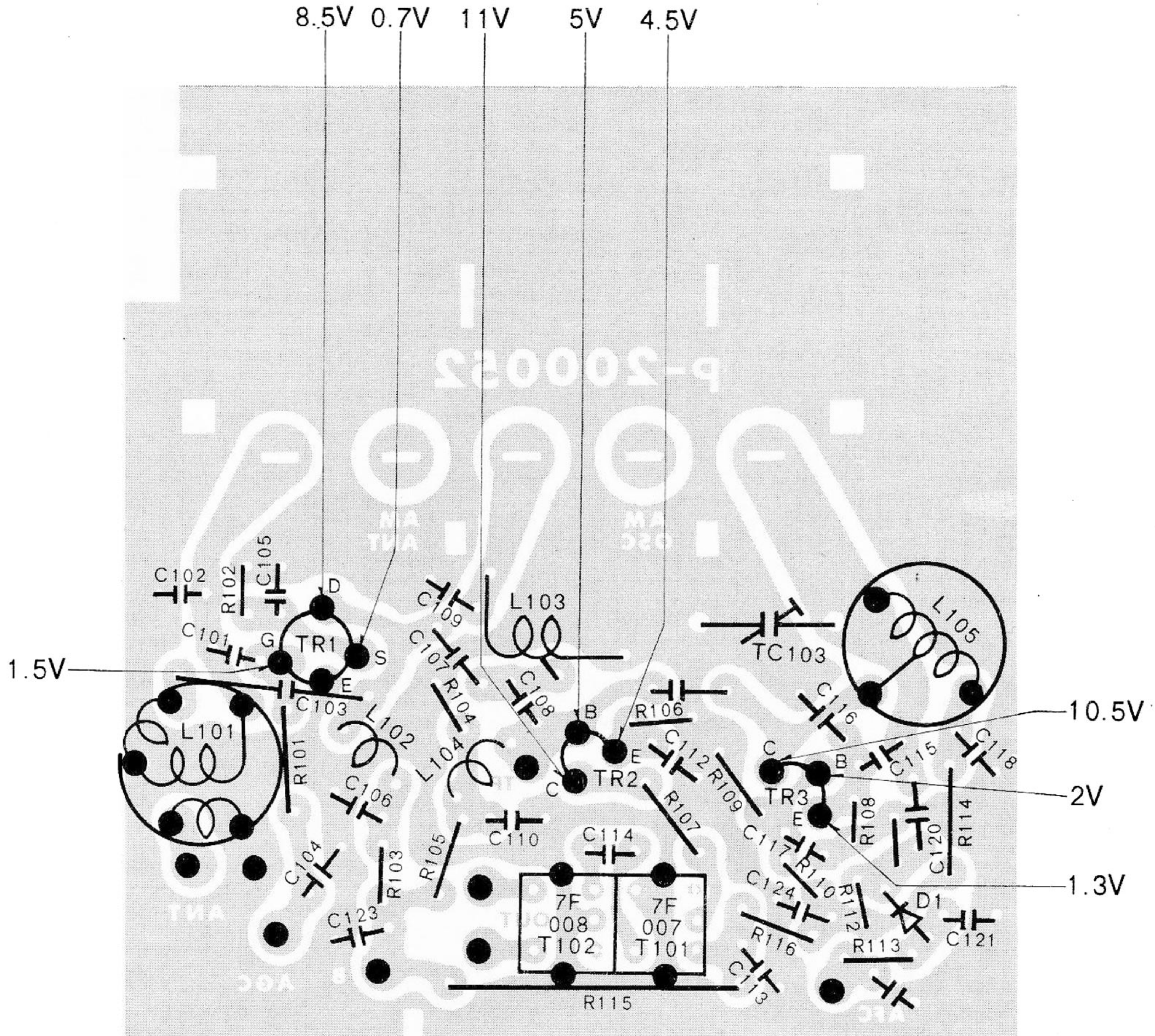
TRANSISTOR CONNECTIONS



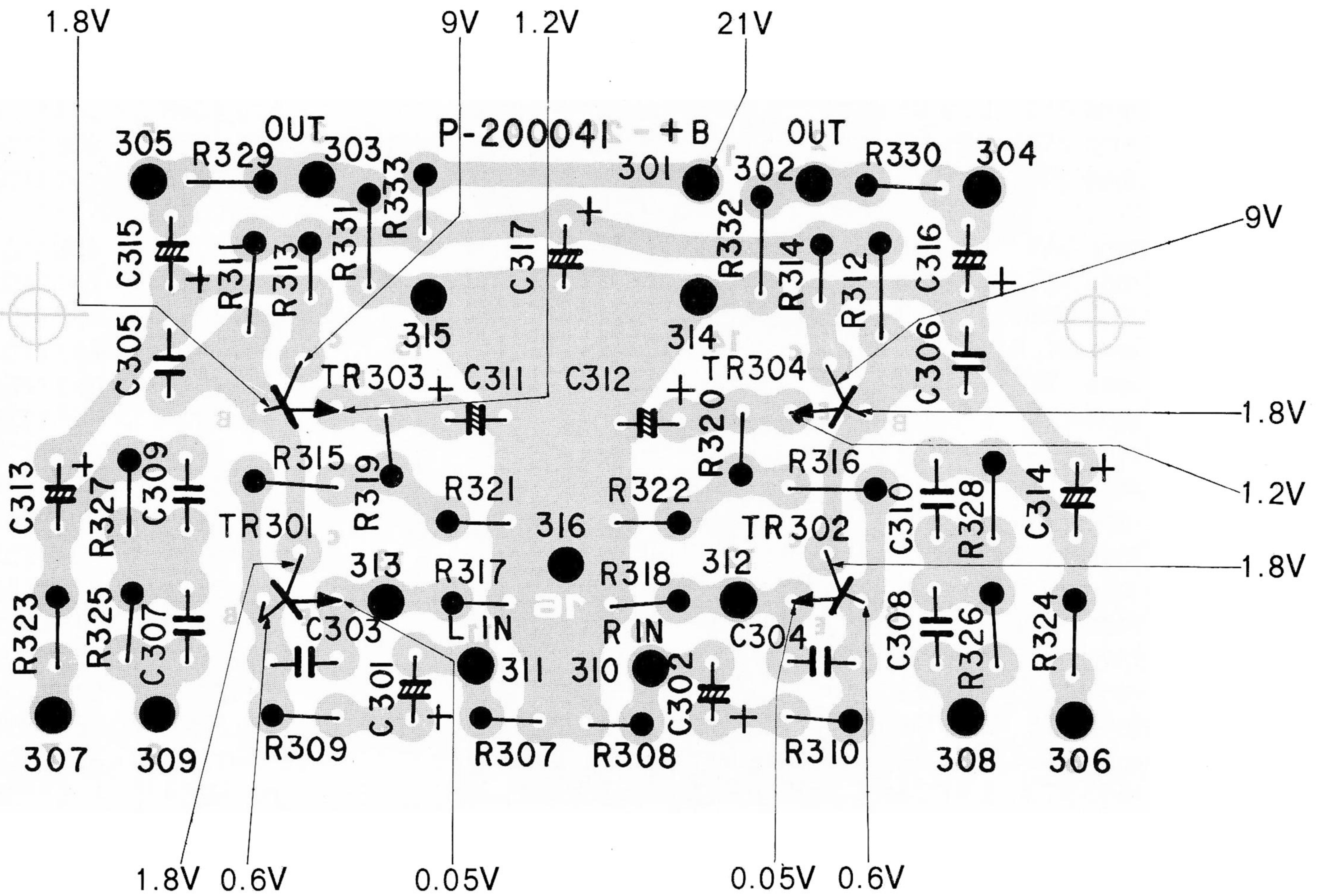
POWER SUPPLY BOARD



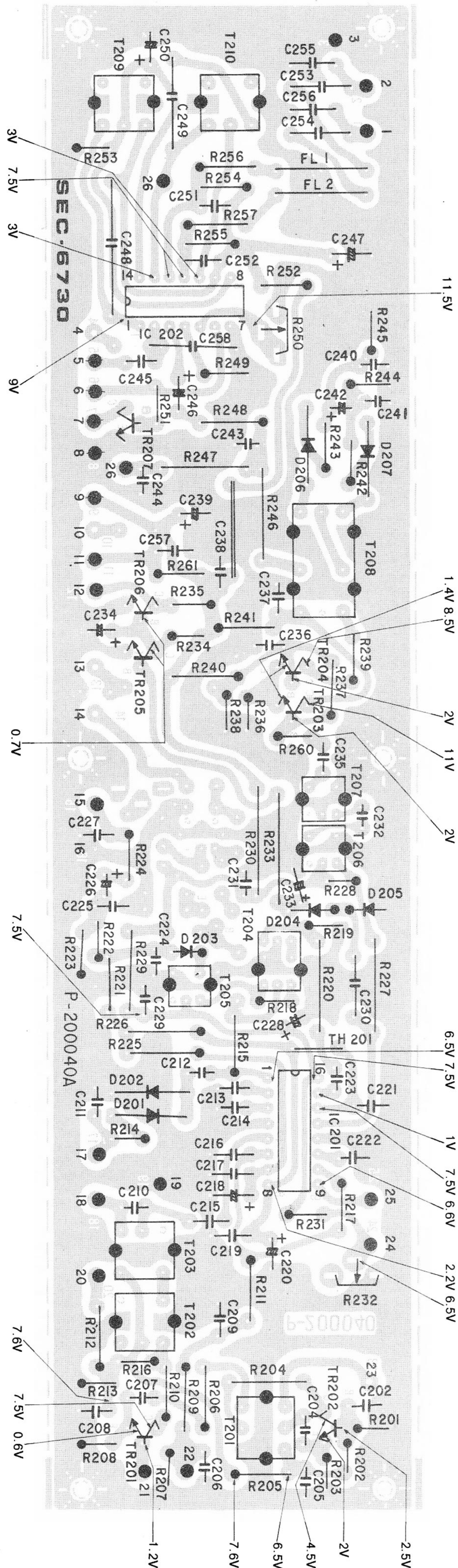
AM/FM FRONT END



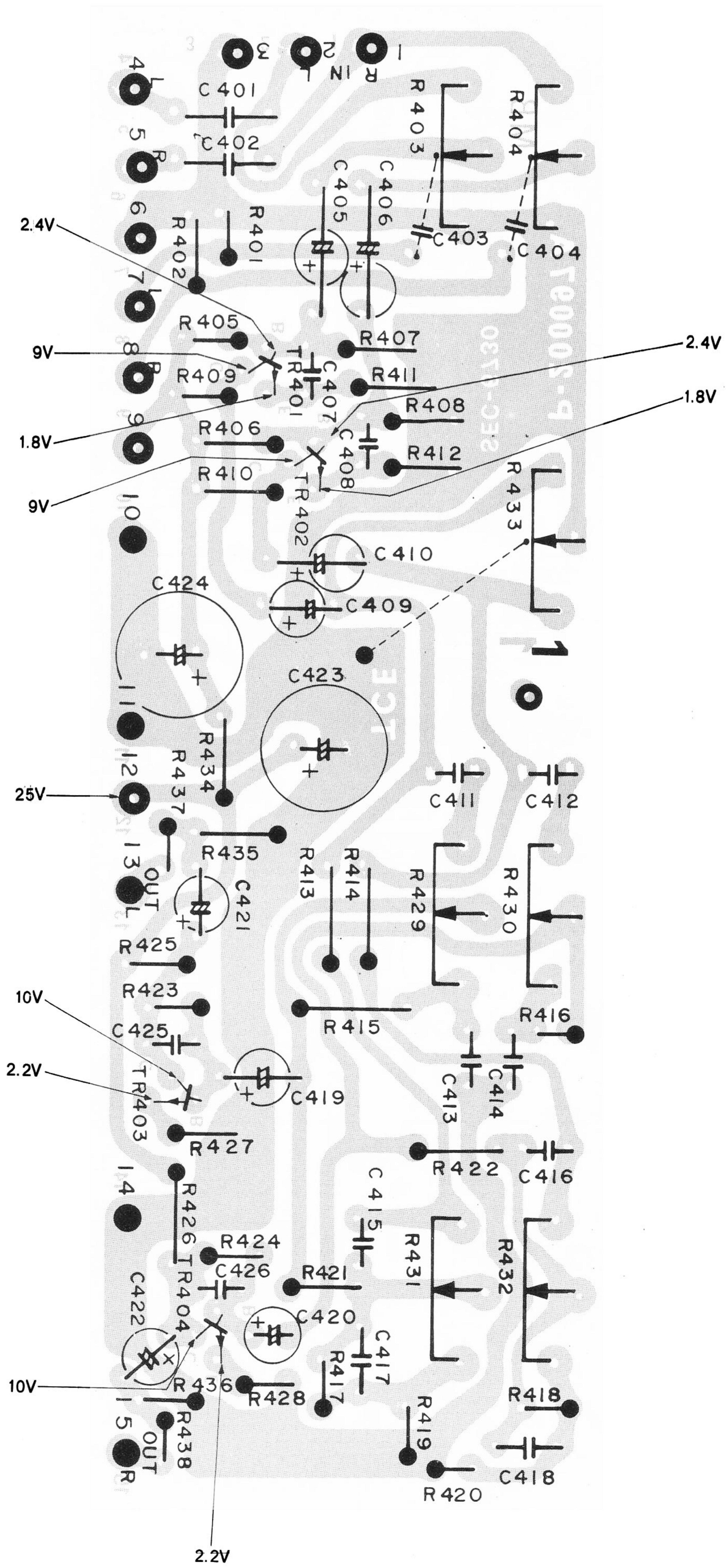
PRE-AMP BOARD



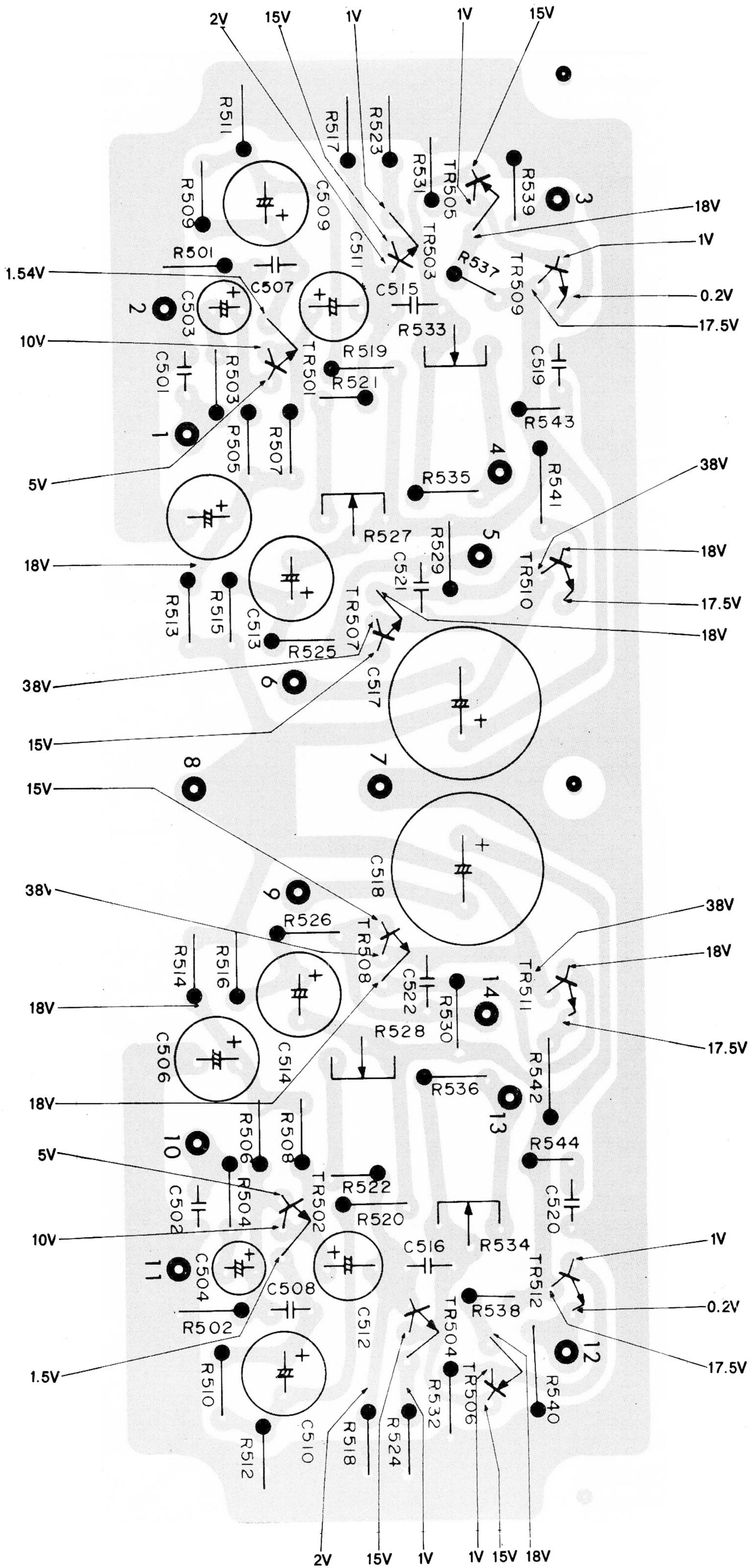
AM/FM-IF and MPX BOARD



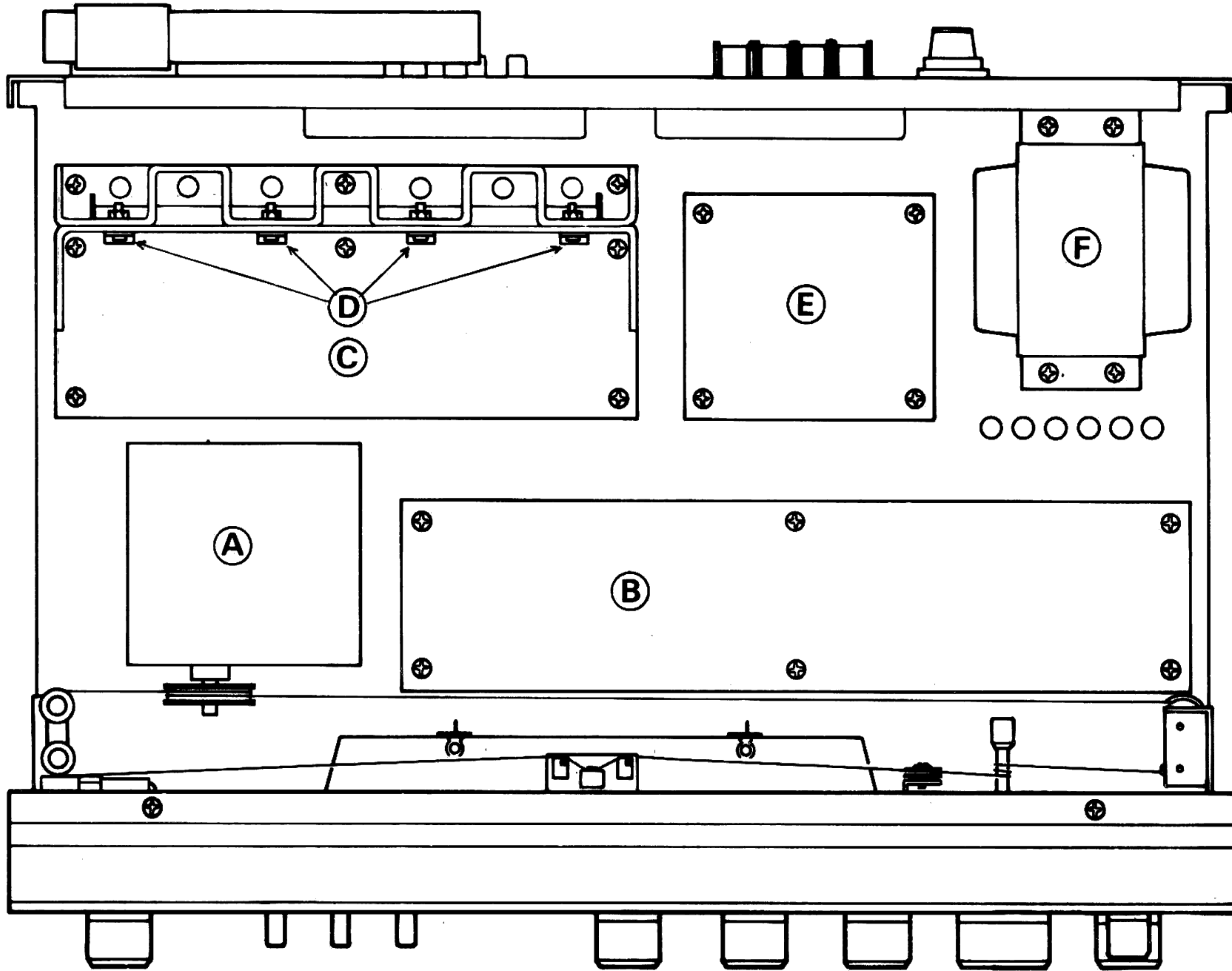
TONE CONTROL BOARD



MAIN AMP. BOARD

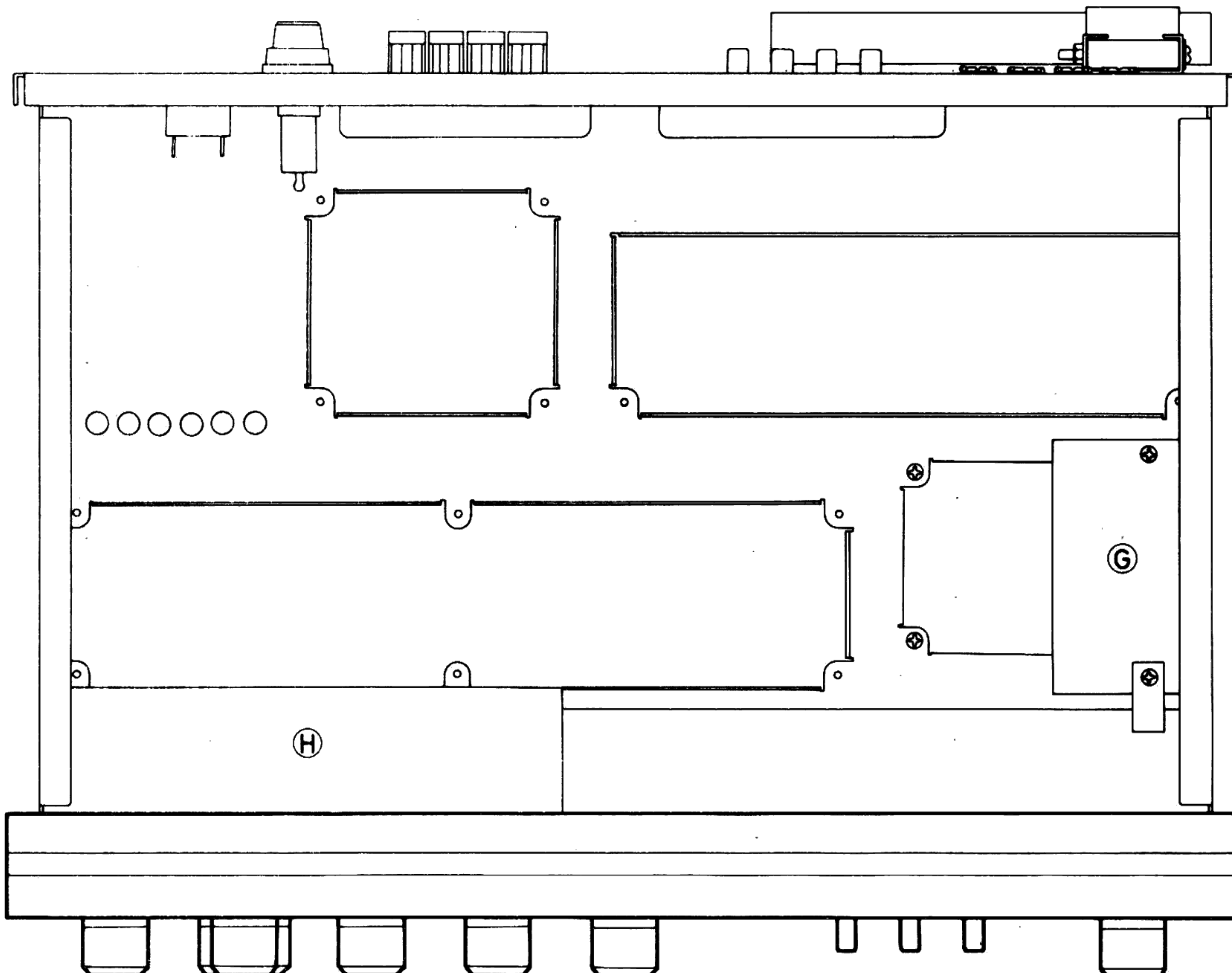


CHASSIS TOP VIEW



- A. FM TUNER.
- B. AM TUNER, AM FM IF & MULTIPLEX BOARD.
- C. MAIN AMP BOARD.
- D. POWER TRANSISTOR
- E. POWER SUPPLY BOARD.
- F. POWER TRANSFORMER.

CHASSIS BOTTOM VIEW



- G. PRE AMP BOARD.
- H. TONE CONTROL BOARD.

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ELECTRICAL PARTS LIST

PART NO.	REF. NO.	DESCRIPTION	Qty	
TRANSISTORS				
BC11228	TR-1	Transistor	FET SF8193-1	1
BC11229	TR2,3	Transistor	NJ-202B	2
BC11233	TR201,202,203,204	Transistor	NJ-202A (NJ100B)	4
BC11232	TR207	Transistor	CS-1676 (R.W)	2
BC11439	TR301,302,403,404	Transistor	2SC900 (E)	4
BC11440	TR303,304,401,402,501,502	Transistor	2SC923 (E)	6
BC11441	TR503,504,507,508	Transistor	2SC815	4
BC11442	TR505,506	Transistor	2SA539	2
BC11443	TR509,510,511,512	Transistor	2SD288	4
BC11444	TR205,206	Transistor	JM100S	2
DIODES				
BC11450	D1	Varicap Diode	ITT410	1
BC11236	D605	Zener Diode	ZPD13	1
BC11451	D601,602,603,604,606,607 608	Silicon Rectifier	SR-1K-2	7
BC11238	D206,207	Diode	1S188 (FM)	2
BC11239	D201,202,203,204,205	Diode	1S188 (AM)	5
BC11445	D501,502	Varister	MV-13	2
BC11446	TH1	Thermistor	TD5-A110	1
BC11447	D609	Thyristor	2SF657	1
INTEGRATED CIRCUITS				
BC11241	IC201	IC	μ PC 27C	1
BC11242	IC202	IC	LA3301	1
RESISTORS				
BC11101	R116,261	Carbon Resistor	RD $\frac{1}{4}$ UZ 22 ohm K	1
BC11102	R256,257	Carbon Resistor	RD $\frac{1}{4}$ UZ 47 ohm K	2
BC11103	R206	Carbon Resistor	RD $\frac{1}{4}$ UZ 68 ohm K	1
BC11104	R102,114,260	Carbon Resistor	RD $\frac{1}{4}$ UZ 100 ohm K	3
BC11105	R107,249	Carbon Resistor	RD $\frac{1}{4}$ UZ 270 ohm K	2
BC11106	R103,210,241,252	Carbon Resistor	RD $\frac{1}{4}$ UZ 330 ohm K	4
BC11107	R215,236	Carbon Resistor	RD $\frac{1}{4}$ UZ 470 ohm K	2
BC11108	R205,239,242,243	Carbon Resistor	RD $\frac{1}{4}$ UZ 1K ohm K	4
BC11109	R106,208,219,237,248	Carbon Resistor	RD $\frac{1}{4}$ UZ 1.5K ohm K	5
BC11110	R212	Carbon Resistor	RD $\frac{1}{4}$ UZ 1.8K ohm K	1
BC11111	R203,211,217,222	Carbon Resistor	RD $\frac{1}{4}$ UZ 2.2K ohm K	4
BC11112	R209,231,254,255	Carbon Resistor	RD $\frac{1}{4}$ UZ 3.3K ohm K	4
BC11113	R224,238,253	Carbon Resistor	RD $\frac{1}{4}$ UZ 4.7K ohm K	3
BC11114	R223	Carbon Resistor	RD $\frac{1}{4}$ UZ 5.6K ohm K	1
BC11115	R104,108,251	Carbon Resistor	RD $\frac{1}{4}$ UZ 6.8K ohm K	3
BC11116	R109	Carbon Resistor	RD $\frac{1}{4}$ UZ 8.2K ohm K	1
BC11117	R110,111,201,202,213,225, 234,235,244	Carbon Resistor	RD $\frac{1}{4}$ UZ 10K ohm K	9
BC11118	R218	Carbon Resistor	RD $\frac{1}{4}$ UZ 15K ohm K	1
BC11452	R240	Carbon Resistor	RD $\frac{1}{4}$ UZ 22K ohm K	1
BC11120	R207,216	Carbon Resistor	RD $\frac{1}{4}$ UZ 27K ohm K	2

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ELECTRICAL PARTS LIST

PART NO.	REF. NO.	DESCRIPTION	Q'ty
BC11121	R105,214	Carbon Resistor RD¼UZ 33K ohm K	2
BC11122	R112	Carbon Resistor RD¼UZ 82K ohm K	1
BC11123	R101,113,228	Carbon Resistor RD¼UZ 100K ohm K	3
BC11124	R226	Carbon Resistor RD¼UZ 220K ohm K	1
BC11301	R537,538	Carbon Resistor RD¼UZ 22 ohm J	2
BC11302	R511,512	Carbon Resistor RD¼UZ 100 ohm J	2
BC11303	R523,524	Carbon Resistor RD¼UZ 150 ohm J	2
BC11304	R529,530,531,532	Carbon Resistor RD¼UZ 220 ohm J	4
BC11305	R535,536	Carbon Resistor RD¼UZ 330 ohm J	2
BC11306	R317,318	Carbon Resistor RD¼UZ 390 ohm J	2
BC11126	R319,320	Carbon Resistor RD¼UZ 470 ohm J	2
BC11127	R321,322	Carbon Resistor RD¼UZ 560 ohm J	2
BC11128	R434	Carbon Resistor RD¼UZ 680 ohm J	1
BC11129	R411,412,427,428,437,438, 503,504	Carbon Resistor RD¼UZ 1K ohm J	8
BC11131	R333	Carbon Resistor RD¼UZ 1.5K ohm J	1
BC11130	R309,310,419,420,509,510, 525,526	Carbon Resistor RD¼UZ 2.2K ohm J	8
BC11132	R401,402,515,516,	Carbon Resistor RD¼UZ 3.3K ohm J	4
BC11307	R517,518	Carbon Resistor RD¼UZ 4.7K ohm J	2
BC11133	R421,422,507,508,513,519, 520	Carbon Resistor RD¼UZ 5.6K ohm J	7
BC11134	R409,410,425,426	Carbon Resistor RD¼UZ 6.8K ohm J	4
BC11135	R313,314,323,324	Carbon Resistor RD¼UZ 8.2K ohm J	4
BC11136	R329,330	Carbon Resistor RD¼UZ 10K ohm J	2
BC11137	R417,418	Carbon Resistor RD¼UZ 12K ohm J	2
BC11138	R325,326	Carbon Resistor RD¼UZ 15K ohm J	2
BC11139	R413,414	Carbon Resistor RD¼UZ 22K ohm J	2
BC11140	R415,416	Carbon Resistor RD¼UZ 27K ohm J	2
BC11308	R501,502,521,522	Carbon Resistor RD¼UZ 47K ohm J	4
BC11141	R307,308,311,312,315,316, 407,408,435,436	Carbon Resistor RD¼UZ 100K ohm J	10
BC11309	R505,506	Carbon Resistor RD¼UZ 150K ohm J	2
BC11142	R327,328,331,332	Carbon Resistor RD¼UZ 220K ohm J	4
BC11143	R405,406	Carbon Resistor RD¼UZ 680K ohm J	2
BC11144	R423,424	Carbon Resistor RD¼UZ 1.2Mohm J	2
BC11145	R229	Carbon Resistor RD¼PZ 22 ohm K	1
BC11146	R220	Carbon Resistor RD¼PZ 33 ohm K	1
BC11147	R246	Carbon Resistor RD¼PZ 47 ohm K	1
BC11148	R115	Carbon Resistor RD¼PZ 330 ohm K	1
BC11149	R227,230	Carbon Resistor RD¼PZ 470 ohm K	2
BC11150	R204	Carbon Resistor RD¼PZ 2.2K ohm K	1
BC11310	R263	Carbon Resistor RD¼PZ 5.6K ohm K	1
BC11311	R262	Carbon Resistor RD¼PZ 8.2K ohm K	1
BC11153	R233,247	Carbon Resistor RD¼PZ 10K ohm K	2
BC11312	R117	Carbon Resistor RD¼PZ 18K ohm K	1
BC11154	R258,259	Carbon Resistor RD¼PZ 82K ohm K	2
BC11155	R221	Carbon Resistor RD¼PZ 100K ohm K	1
BC11313	R334,335	Carbon Resistor RD¼PZ 4.7K ohm J	2
BC11156	R305,306	Carbon Resistor RD¼PZ 10K ohm J	2
BC11314	R614	Carbon Resistor RD¼PZ 15K ohm J	1

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ELECTRICAL PARTS LIST

PART NO.	REF. NO.	DESCRIPTION	Qty
BC11157	R303,304	Carbon Resistor RD ¼PZ 100K ohm J	2
BC11158	R301,302	Carbon Resistor RD ¼PZ 560K ohm J	2
BC11315	R543,544	Carbon Resistor RD ½UZ 10 ohm J	2
BC11316	R611	Carbon Resistor RD ½UZ 15 ohm J	1
BC11317	R605	Carbon Resistor RD ½UZ 22 ohm J	1
BC11318	R607	Carbon Resistor RD ½UZ 39 ohm J	1
BC11319	R606	Carbon Resistor RD ½UZ 47 ohm J	1
BC11161	R602	Carbon Resistor RD ½UZ 330 ohm J	1
BC11320	R608,609	Carbon Resistor RD ½UZ 470 ohm J	2
BC11321	R601	Carbon Resistor RD ½UZ 680 ohm J	1
BC11322	R604	Carbon Resistor RD ½UZ 1.5K ohm J	1
BC11162	R545,546	Carbon Resistor RD ½PZ 330 ohm K	2
BC11323	R615	Carbon Resistor RD ½PZ 2.2Mohm K	1
BC11326	R603	Meterized Film Resistor PS-4B 150 ohm K	1
BC11327	R613	Meterized Film Resistor RS-3B 150 ohm K	1
BC11328	R539,540,541,542	Meterized Film Resistor RN1-1 0.5 ohm J	4
VARIABLE RESISTORS			
BC11168	R250,610	Semi-fixed Resistor 1K B	2
BC11324	R245	Semi-fixed Resistor 20K B	1
BC11169	R232,527,528	Semi-fixed Resistor 50K B	3
BC11325	R533,534	Semi-fixed Resistor 500 ohm B	2
BC11259	R403 (404)	Variable Resistor 50K BS ×2 CT	1
BC11260	R433	Variable Resistor 100K W ×1 CTC	1
BC11261	R429 (430), 431 (432)	Variable Resistor 100K A ×2	2
BC11262	R118	Variable Resistor 100K A ×2 Fine	1
CAPACITORS			
BC11179	C210,214,244	Mylar Capacitor CQ92MIH 472 M	3
BC11180	C224,225	Mylar Capacitor CQ92MIH 103 M	2
BC11182	C251,252	Mylar Capacitor CQ92MIH 203 M	2
BC11183	C204,207,227,519,520	Mylar Capacitor CQ92MIH 223 M	5
BC11170	C245	Mylar Capacitor CQ92MIH 473 M	1
BC11171	C253,254	Mylar Capacitor CQ92MIH 104 M	2
BC11172	C307,308	Mylar Capacitor CQ92MIH 472 K	2
BC11174	C411,412	Mylar Capacitor CQ92MIH 102 K	2
BC11329	C401,402	Mylar Capacitor CQ92MIH 122 K	2
BC11330	C413,414	Mylar Capacitor CQ92MIH 123 K	2
BC11176	C415,416	Mylar Capacitor CQ92MIH 153 K	2
BC11173	C309,310	Mylar Capacitor CQ92MIH 223 K	2
BC11177	C403,404,417,418	Mylar Capacitor CQ92MIH 154 K	4
BC11331	C258	Polystyrene Capacitor CQSIH 152 J	1
BC11184	C249	Polystyrene Capacitor CQSIH 252 J	1
BC11332	C248	Polystyrene Capacitor CQSIH 103 J	1
BC11333	C315,316	Tantalum Capacitor 1 µF/25V	2
BC11227	C301,302	Tantalum Capacitor 2.2 µF/10V	2
BC11334	C226	Solid Aluminium Capacitor 0.22 µF/15V	1
BC11195	C125	Electrolytic Capacitor CE04W 1 µF/16V	1
BC11335	C503,504	Electrolytic Capacitor CE04W 1 µF/25V	2
BC11336	C218	Electrolytic Capacitor CE04W 3.3 µF/16V	1

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ELECTRICAL PARTS LIST

PART NO.	REF. NO.	DESCRIPTION	Qty
BC11192	C405,406,409,410,419,420, 421,422	Electrolytic Capacitor CE04W 3.3 μ F/25V	8
BC11337	C246,250	Electrolytic Capacitor CE04W 4.7 μ F/16V	2
BC11199	C313,314	Electrolytic Capacitor CE04W 4.7 μ F/25V	2
BC11338	C220,228,233,234,242,606	Electrolytic Capacitor CE04W 10 μ F/16V	6
BC11421	C511,512	Electrolytic Capacitor CE04W 33 μ F/16V	2
BC11422	C607	Electrolytic Capacitor CE04W 47 μ F/16V	1
BC11203	C513,514,605	Electrolytic Capacitor CE04W 47 μ F/25V	3
BC11200	C311,312	Electrolytic Capacitor CE04W 100 μ F/10V	2
BC11423	C509,510,608,609,610	Electrolytic Capacitor CE04W 220 μ F/10V	5
BC11190	C239	Electrolytic Capacitor CE04W 220 μ F/16V	1
BC11193	C317,423,424,505	Electrolytic Capacitor CE04W 220 μ F/25V	4
BC11191	C247	Electrolytic Capacitor CE04W 470 μ F/10V	1
BC11204	C517,518	Electrolytic Capacitor CE04W 1000 μ F/25V	2
BC11206	C604	Electrolytic Capacitor CE04W 1000 μ F/35V	1
BC11205	C603	Electrolytic Capacitor (Lug Type)2200 μ F/50V	1
BC11210	C103	Ceramic Capacitor CC 45- 25V 010 D	1
BC11211	C111	Ceramic Capacitor CC 45- 25V 020 D	1
BC11424	C108	Ceramic Capacitor CC 45- 25V 100 D	1
BC11214	C212,230,203	Ceramic Capacitor CC 45- 25V 100 J	3
BC11425	C232	Ceramic Capacitor CC 45- 25V 250 J	1
BC11219	C101,107,114	Ceramic Capacitor CC 45- 25V 300 J	3
BC11215	C240,241	Ceramic Capacitor CC 45- 25V 101 J	2
BC11217	C110,243	Ceramic Capacitor CC 45- 25V 151 J	2
BC11427	C255,256	Ceramic Capacitor CC 45- 25V 201 J	2
BC11428	C425,426	Ceramic Capacitor CC 45- 25V 500 K	2
BC11429	C303,304,305,306,318,515, 516	Ceramic Capacitor CC 45- 25V 101 K	7
BC11430	C501,502,507,508	Ceramic Capacitor CC 45- 25V 221 K	4
BC11431	C521,522	Ceramic Capacitor CC 45- 25V 331 K	2
BC11432	C407,408	Ceramic Capacitor CC 45- 25V 471 K	2
BC11222	C104,105,106,113,121,123, 124,126,217,221,222	Ceramic Capacitor CK 45- 25V 103 Z	12
BC11223	C112,117,211,215,216,223, 231,237,238,257,519,520, 523	Ceramic Capacitor CK 45- 25V 203 Z	12
BC11224	C202,205,206,208,209,210, 219,229,235	Ceramic Capacitor CK 45- 25V 403 Z	8
BC11433	C118,117	Ceramic Capacitor CK 45- 25V 472 ZYP	2
BC11434	C601,602,611	Ceramic Capacitor CK 45- 50V 103 Z	3
BC11435	C120	Ceramic Capacitor CM45- 25V 050 D NPO	1
BC11436	C115,116	Ceramic Capacitor CM45- 25V 100 J NPO	2
BC11437	C118	Ceramic Capacitor CM45- 25V 140 J NPO	1
BC11438	C102,109	Ceramic Capacitor CM45- 25V 150 J NPO	2
TRIMMER AND VARIABLE CAPACITORS			
BC11265		Variable Capacitor C751 J116	1
BC11263		Trimmer Capacitor IT-8	1
TRANSFORMERS AND COILS			
BC11244	T101	Balum Coil	1

CR-200 ELECTRICAL PARTS LIST

PART NO.	REF. NO.	DESCRIPTION	Qty
BC11249	L101	FM Antenna Coil	1
BC11250	L103	FM RF Coil	1
BC11264	L102,104	FM Choke Coil	2
BC11251	L105	FM OSC Coil	1
BC11262	T101,206	FM IFT 7F-007	2
BC11453	T102,207	FM IFT 7F-008	2
BC11254	T208	FM IFT 10F-014	1
BC11256	T209	FM MPX Coil OM-008 38KHz	1
BC11257	T210	FM MPX Coil OM-009 19KHz	1
BC11245	T201	AM OSC Coil OC-012	1
BC11246	T203	AM IFT OA-010	1
BC11247	T202	AM IFT OA-011	1
BC11248	T205	AM IFT 7A-014	1
BC11255	T204	Ceramic Filter CF-015	1
BC11051		Power Supply Transformer	1
SWITCHES			
BC11028	35	Rotary Switch A (Selector)	1
BC11029A	38	Rotary Switch B (Speaker)	1
BC11030	36	Lever Switch	3
PILOT LAMPS			
BC11024A	51	Lamp 8V 300mA (Fuse type)	2
BC11025A	45	Lamp 8V 150mA (Swan type)	1
METER			
BC11027A	47	Tuning meter (100 μ A Center, Blue)	1
MOUNTED CIRCUIT BOARDS			
BC11034	60	FM Tuner Unit	1
BC11035	59	IF Mounted Board	1
BC11036	58	Pre-Amp. Mounted Board	1
BC11037A	63	Main Amp. Mounted Board	1
BC11038A	57	Tone Control Mounted Board	1
BC11039A	62	Power Supply Mounted Board	1
PRINTED CIRCUIT BOARDS			
BC11054		Tuner P.C.B.	1
BC11055		I.F. P.C.B.	1
BC11056		Tone P.C.B.	1
BC11057		Pre-Amp. P.C.B.	1
BC11058A		Main Amp. P.C.B.	1
BC11059A		Power P.C.B.	1
COMBINATION COMPONENTS			
BC11258		Twin Filter B3EN-0102	2

CR-200 MECHANICAL PARTS LIST

PART NO.	REF. NO.	DESCRIPTION	Q'ty
BC11001A		Cabinet Ass'y	1
BC11002	1	Cabinet	1
BC11003	2	Ventilation Board (plastic)	1
BC11004	3	Ventilation Board (Metal) A	1
BC11005	4	Ventilation Board (Metal) B	1
BC11006	7	Foot	4
BC11007		Shield Plate A	1
BC11008		Shield Plate B	1
BC11009		Front Panel Ass'y	1
BC11010	8	Front Panel	1
BC11011	12	Dial Window	1
BC11012	10	Tuning Knob	1
BC11013	11	Fine Tuning Knob	1
BC11014	9	Control Knob	6
BC11015	15	Knob Sheet	2
BC11016	16	Front Chassis Ass'y	1
BC11017	46	Sub Pulley	5
BC11018	F8	Shaft for Sub Pulley SWRM3	5
BC11019A	13	Dial Plate	1
BC11020	48	Tuning Shaft Ass'y	1
BC11021		Main Pulley	1
BC11088		Dial Strings	1
BC11023	53	Dial Pointer Ass'y	1
BC11026	44	Lamp Holder (Swan type)	1
BC11095	50	Lamp Holder (Fuse type)	2
BC11031	37	Headphone Jack	1
BC11032	21	Main Chassis	1
BC11033	22	Back Panel	1
BC11040	28	Jack Ass'y	1
BC11041	29	Speaker Connector	2
BC11042	26	Antenna Terminal	1
BC11043	42	AC Cord	1
BC11044	32	Cord Stopper	2
BC11045	30	AC Outlet	1
BC11046	33	Fuse Holder	1
BC11047		Fuse 1.5A A	1
BC11049	24	AM Antenna	1
BC11050		FM Dipole Antenna	1
BC11051	52	Power Supply Transformer	1
BC11096	67	Radiator A	1
BC11097	68	Radiator B	1
BC11053		Tuner Case	1
BC11095		Name Plate	1
BC11271	23	Antenna Holder (Metal)	1
BC11272	25	Antenna Holder (Plastic)	1

CR-200 MECHANICAL PART LIST

PART NO.	REF. NO.	DESCRIPTION	Q'ty
BC11098	49	Lug terminal 101P	1
BC11266	5	Cabinet Holder	1
BC11267	17	Lamp Angle	1
BC11268	19	Reflector (B)	1
BC11269	20	Guide Wheel Bracket	1
BC11414	6	Sq. Washer 4m/m	5
BC11415	18	Reflector (A)	1
BC11416	14	Light Shatter (Soft Tape)	1
BC11417		Meter Holder	1
BC11448	31	AC Outlet Bracket	1

CR-200 MECHANICAL HARDWARE

PART NO.	REF. NO.	DESCRIPTION	Q'ty
BC11064	F7	Screw 3 × 8 P. TPII	44
BC11065	F6	Screw 3 × 8 P.S.	8
BC11068	F9	Screw 3 × 5 P.S.	14
BC11069	F10	Screw 3 × 5 T. TPII	1
BC11072	F12	Screw 4 × 10 P.S.	4
BC11073	F13	Screw 4 × 40 P.S.	1
BC11099	F4	Screw 4 × 20 P.S.	5
BC11413	F26	Screw 3 × 8 P (SEMS A)	4
BC11075	F11	Screw for GND BSBM	1
BC11401	F5	Wooden Screw 3.1 × 10 P.W.	4
BC11402	F3	Wooden Screw 2.7 × 8 P.W.	10
BC11403	F2	Wooden Screw 3.1 × 6.3 F.W.	3
BC11404	F1	Wooden Screw 3.1 × 10 F.W.	10
BC11076	F16	Nut 3m/m	10
BC11077	F17	Nut 4m/m	10
BC11084	F18	Washer 3m/m	1
BC11409	F21	Washer 4m/m	4
BC11082	F20	Spring Washer 4m/m	4
BC11408	F19	Fiber Washer	1
BC11405	F15	Rivet YB-429	4
BC11406	F25	Rivet YB-329	2
BC11087	F14	E-ring 2m/m	1
BC11410	F22	Egg lug 3m/m	
BC11412	F24	Egg lug 4m/m	1
BC11411	F23	Cord Holder	1

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EXPLODED VIEW PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	Qty
1	BC11002	Cabinet	1
2	BC11003	Ventilation Board (Plastic)	1
3	BC11004	Ventilation Plate (Metal) A	1
4	BC11005	Ventilation Plate (Metal) B	1
5	BC11266	Cabinet Holder	1
6	BC11080	Sq. Washer	5
7	BC11006	Foot	4
8	BC11010	Front Panel	1
9	BC11014	Control Knob	6
10	BC11012	Tuning Knob	1
11	BC11013	Fine Tuning Knob	1
12	BC11011	Dial Window Panel	1
13	BC11019A	Dial Plate	1
14	BC11416	Soft Tape	1
15	BC11015	Knob Sheet	1
16	BC11016	Front Chassis Ass'y	1
17	BC11267	Lamp Angle	1
18	BC11415	Reflector (A)	1
19	BC11268	Reflector (B)	1
20	BC11269	Sub-Pulley for L metal (Guide Wheel Bracket)	1
21	BC11032	Main Chassis	1
22	BC11033	Back Panel	1
23	BC11271	Antenna Holder (metal)	1
24	BC11049	AM Antenna	1
25	BC11272	Antenna Holder (plastic)	1
26	BC11042	Antenna Terminal	1
27	BC11500	Balum Coil Unit	1
28	BC11040	Jack Ass'y	1
29	BC11041	Speaker connector	1
30	BC11045	AC Outlet	1
31	BC11448	AC Outlet Bracket	1
32	BC11044	Cord Stopper	2
33	BC11046	Fuse Holder	2
34	BC11273	Cord Stopper	1
35	BC11028	Rotary Switch A (Selector)	3
36	BC11030	Lever Switch	1
37	BC11031	Headphone Jack	1
38	BC11029A	Rotary Switch B (Speaker)	2
39	BC11261	Variable Resistor 100KA 2-Gang	2
40	BC11260	Variable Resistor 100KW 2-Gang	2
41	BC11259	Variable Resistor 50KB 2-Gang	2
42	BC11043	AC Cord	2
43	BC11262	Variable Resistor 100KA (Fine Tuning)	2
44	BC11026	Lamp Socket	2
45	BC11025A	Lamp 8V 150 mA	5
46	BC11017	Sub-Pulley	1
47	BC11027A	Tuning Meter	1
48	BC11020	Tuning Shaft Ass'y	1
49	BC11274	Lug Board 1LIP	1
50	BC11095	Lamp Socket (Fuse Type)	2

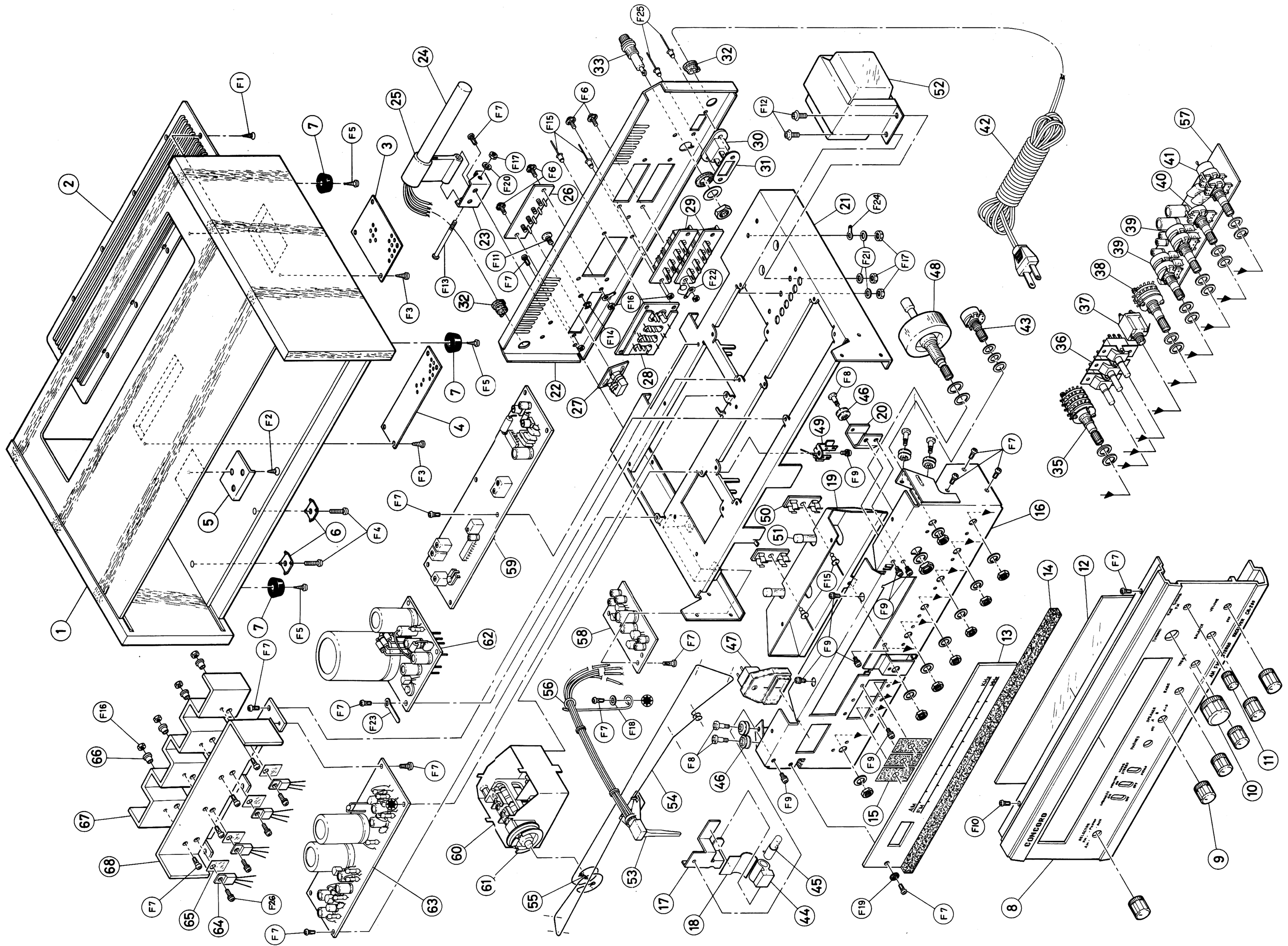
CR-200 EXPLODED VIEW PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	Q'ty
51	BC11024A	Lamp 8V 300mA (Fuse Type)	2
52	BC11051	Power Supply Transformer	1
53	BC11023	Pointer Ass'y	1
54	BC11088	Dial String	1
55	BC11088	Dial Spring	1
56	BC11275	Wire Stay	1
57	BC11038A	Tone Control Mounted Board	1
58	BC11036	Pre-Amp Mounted Board	1
59	BC11035	IF Mounted Board	1
60	BC11034	FM TUNER UNIT	1
61	BC11021	Main Pulley	
62	BC11039	Power Supply Mounted Board	1
63	BC11037	Main Amp.	1
64	BC11443	Power Transistor	4
65	BC11501	Mylar Sheet	4
66	BC11502	Bush	4

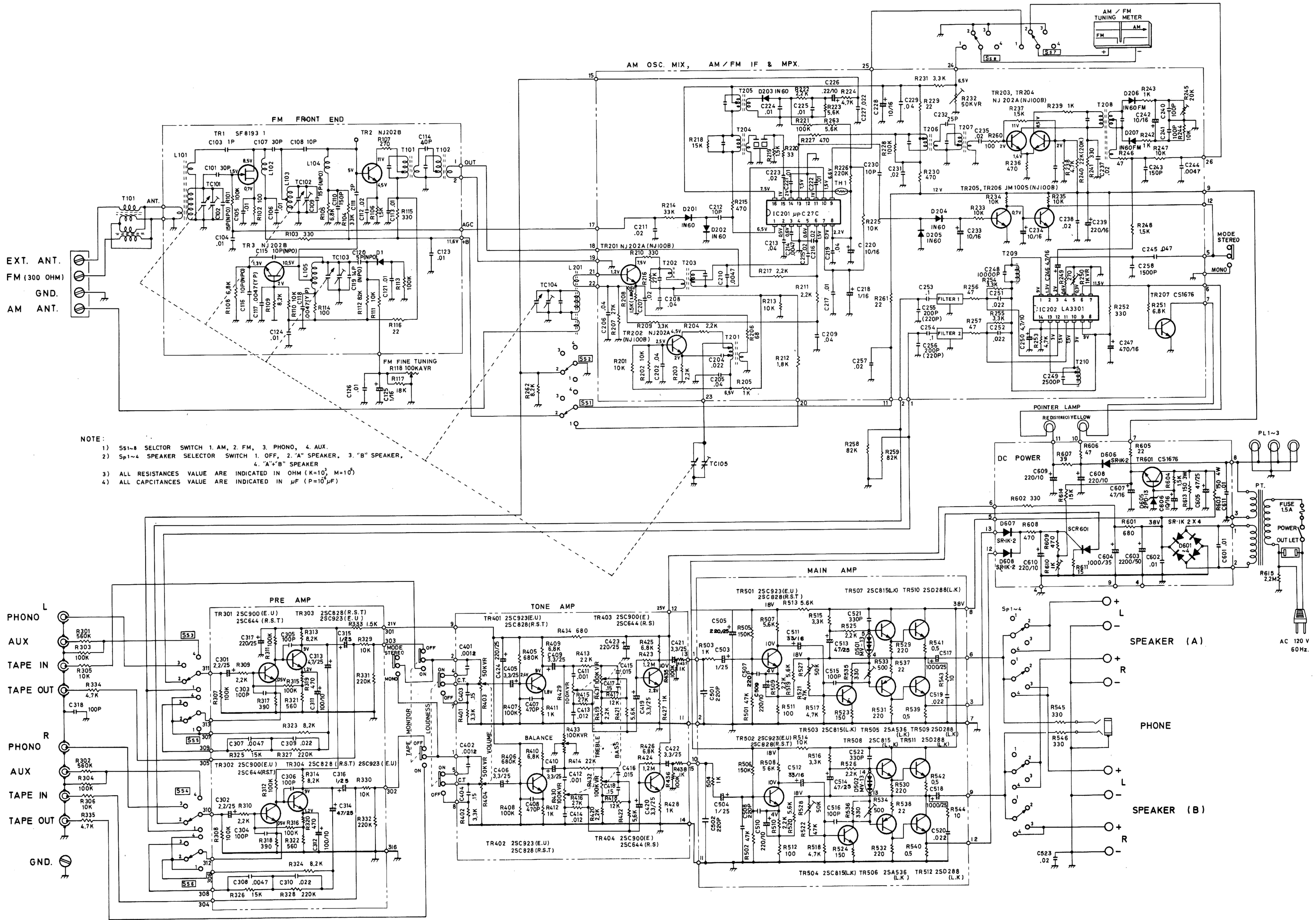
CR-200 EXPLODED VIEW MECHANICAL HARD WARE PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	Q'ty
F1	BC11404	Wooden Screw 3.1 × 10 FW	10
F2	BC11403	Wooden Screw 3.1 × 6.3 FW	3
F3	BC11402	Wooden Screw 2.7 × 8 PW	10
F4	BC11099	Screw 4 × 20 P.S.	5
F5	BC11401	Wooden Screw 3.1 × 10 PW	4
F6	BC11065	Screw 3 × 8 P.S.	8
F7	BC11064	Screw 3 × 8 P.TPII	44
F8	BC11018	Shaft for Sub Pulley SWRM3	5
F9	BC11068	Screw 3 × 5 P.S.	14
F10	BC11069	Screw 3 × 5 T. TPII	1
F11	BC11075	Screw for GND BSBM	1
F12	BC11072	Screw 4 × 10 P.S.	4
F13	BC11073	Screw 4 × 40 P.S.	1
F14	BC11087	E-ring 2m/m	1
F15	BC11405	Rivet YB-429	4
F16	BC11076	Nut 3m/m	10
F17	BC11077	Nut 4m/m	5
F18	BC11084	Washer 3m/m	1
F19	BC11408	Fiver Washer	1
F20	BC11082	Spring Washer 4m/m	4
F21	BC11409	Washer 4m/m	4
F22	BC11410	Egg lug 3m/m	
F23	BC11411	Lug terminal	1
F24	BC11412	Egg lug 4m/m	1
F25	BC11406	Rivet YB-329	2
F26	BC11413	3 × 8 P (SEMS A.)	4

**CR-200
EXPLODED VIEW**



CR-200 SCHEMATIC DIAGRAM



NOTE:

- 1) S51-8 SELECTOR SWITCH 1. AM, 2. FM, 3. PHONO, 4. AUX.
- 2) Sp1-4 SPEAKER SELECTOR SWITCH 1. OFF, 2. "A" SPEAKER, 3. "B" SPEAKER, 4. "A+B" SPEAKER
- 3) ALL RESISTANCES VALUE ARE INDICATED IN OHM (K=10³, M=10⁶)
- 4) ALL CAPACITANCES VALUE ARE INDICATED IN μ F (P=10⁻¹ μ F)

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