CONCORD

AM-FM STEREO RECEIVER
MODEL: CR-210

SERVICE DATA

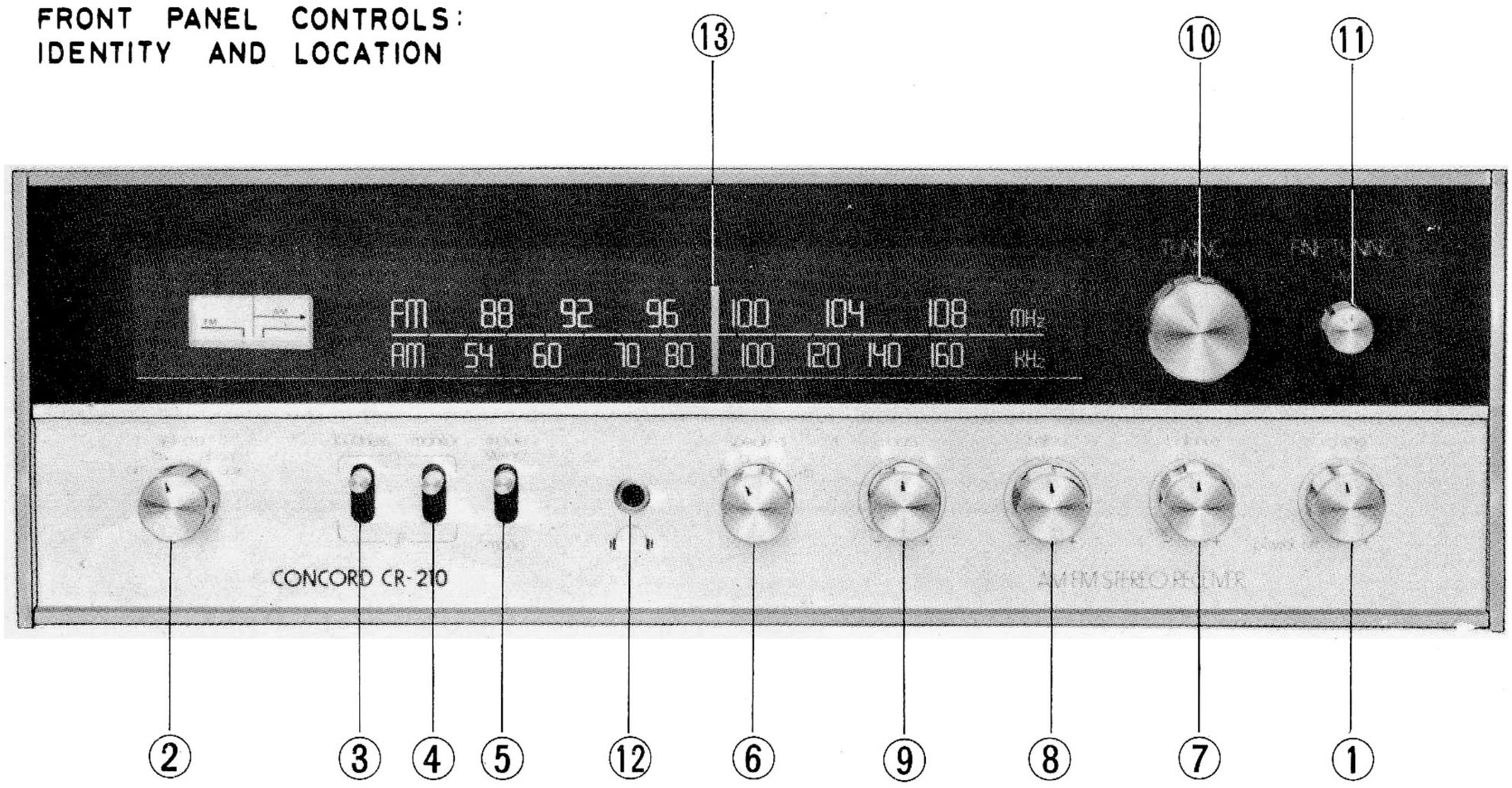
CONCORD DIVISION
BENJAMIN ELECTRONIC SOUND COMPANY
Farmingdale, New York 11735

SUPPLEMENTAL SERVICE DATA FOR
SERIAL NOS. 0001 THROUGH 2500

CONTENTS

CR-210 FRONT LAYOUT

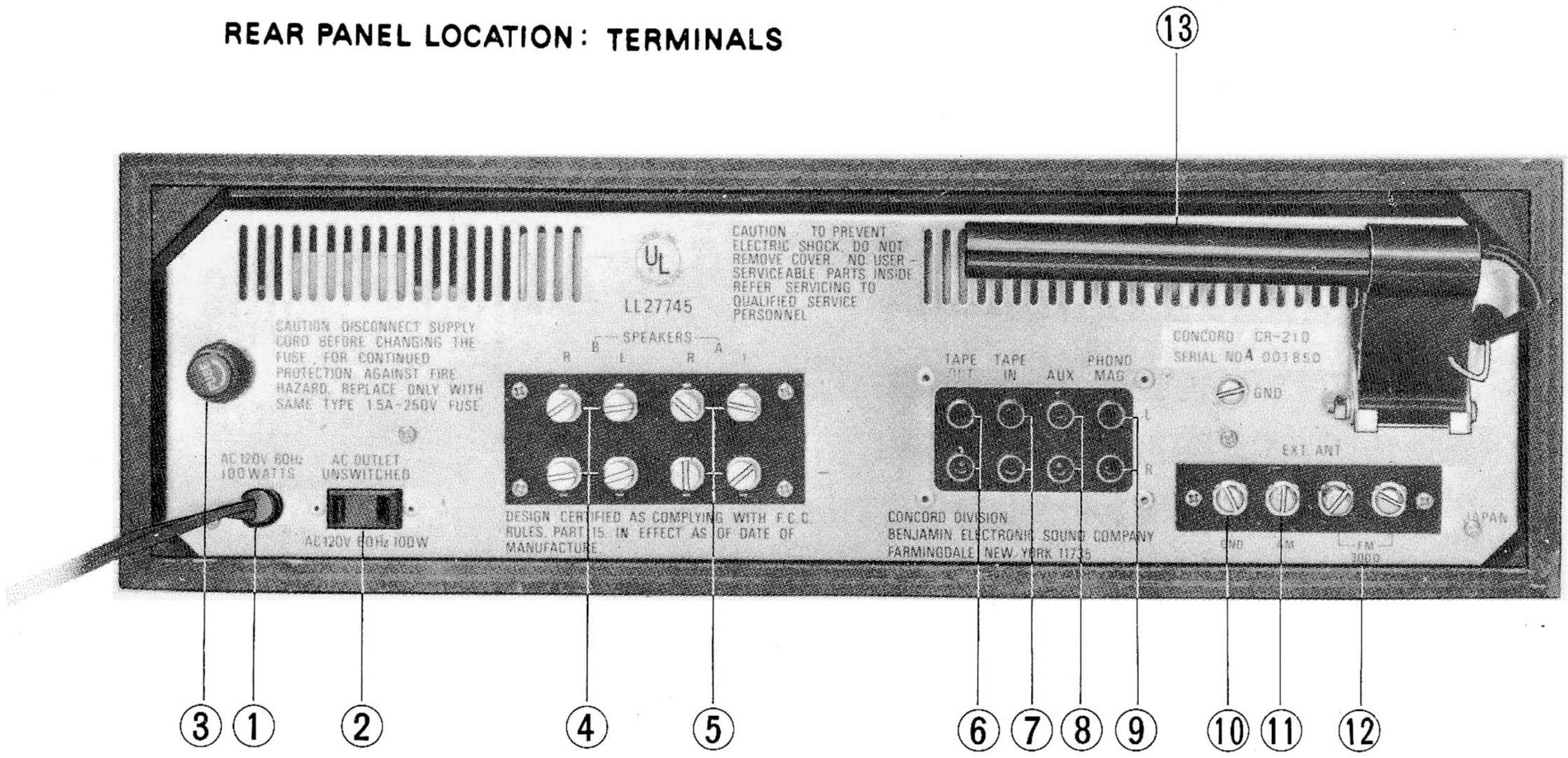
FRONT PANEL CONTROLS:
IDENTITY AND LOCATION



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

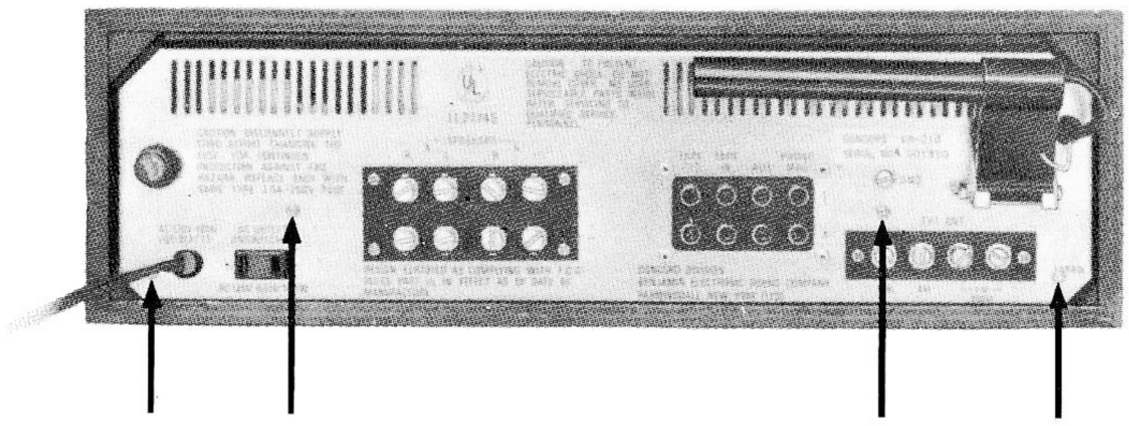
CR-210 REAR PANEL

REAR PANEL LOCATION: TERMINALS

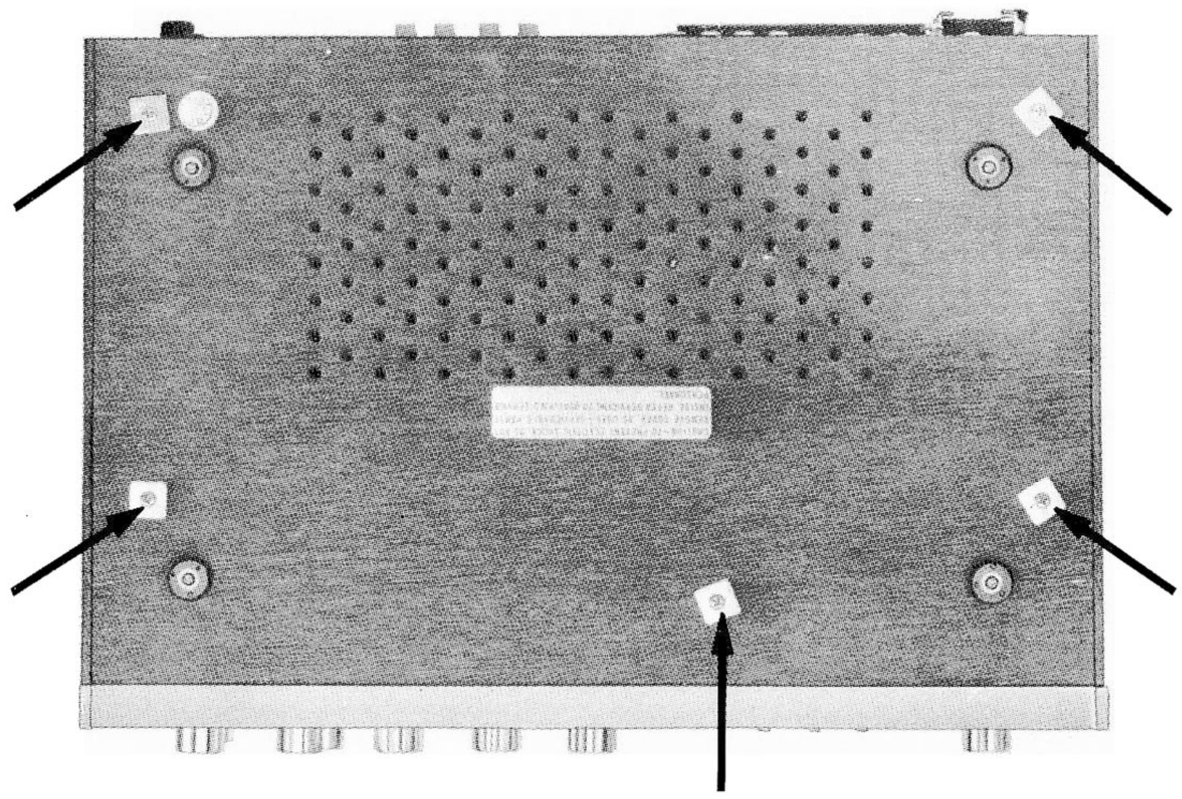


① AC CORD (AC 120V 100W).
② UNSWITCHED AC OUTLET (AC 120V 100W).
③ FUSE HOLDER.
④ OUTPUT RIGHT and LEFT B SPEAKERS.
⑤ OUTPUT RIGHT and LEFT A SPEAKERS.
⑥ TAPE OUT.
⑦ TAPE IN.
⑧ AUXILIARY INPUT.
⑨ PHONOGRAPH INPUT (MAG. type CARTRIDGE).
⑩ GND.
⑪ EXTERNAL ANTENNA INPUT AM.
⑫ EXTERNAL ANTENNA INPUT FM (IMPEDANCE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

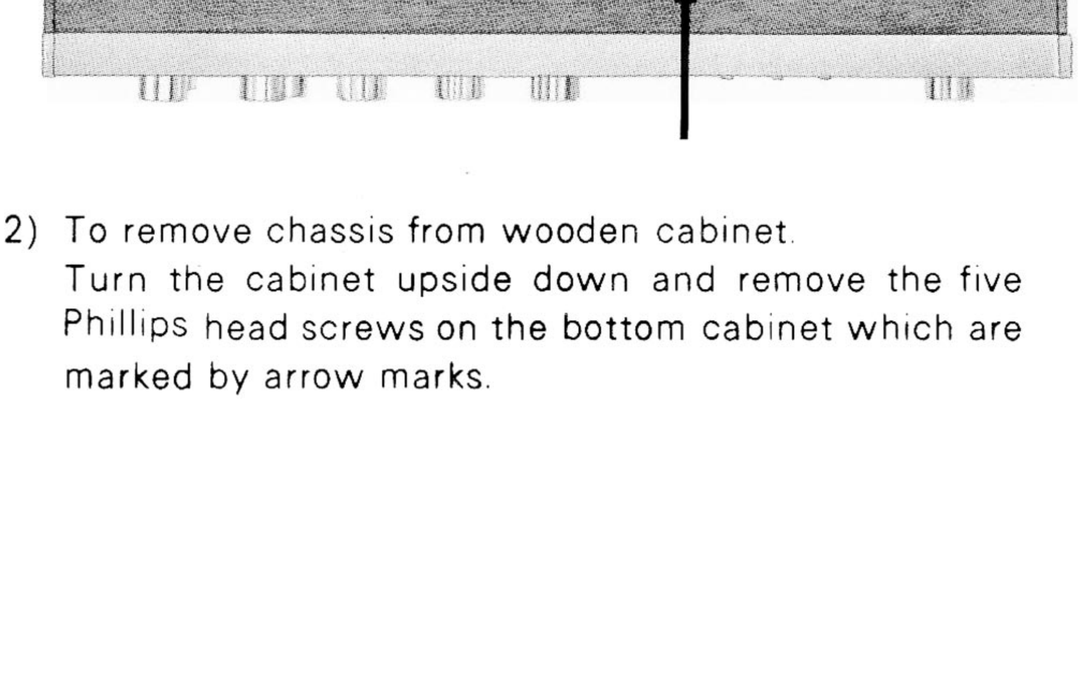
DISASSEMBLY INSTRUCTIONS



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.



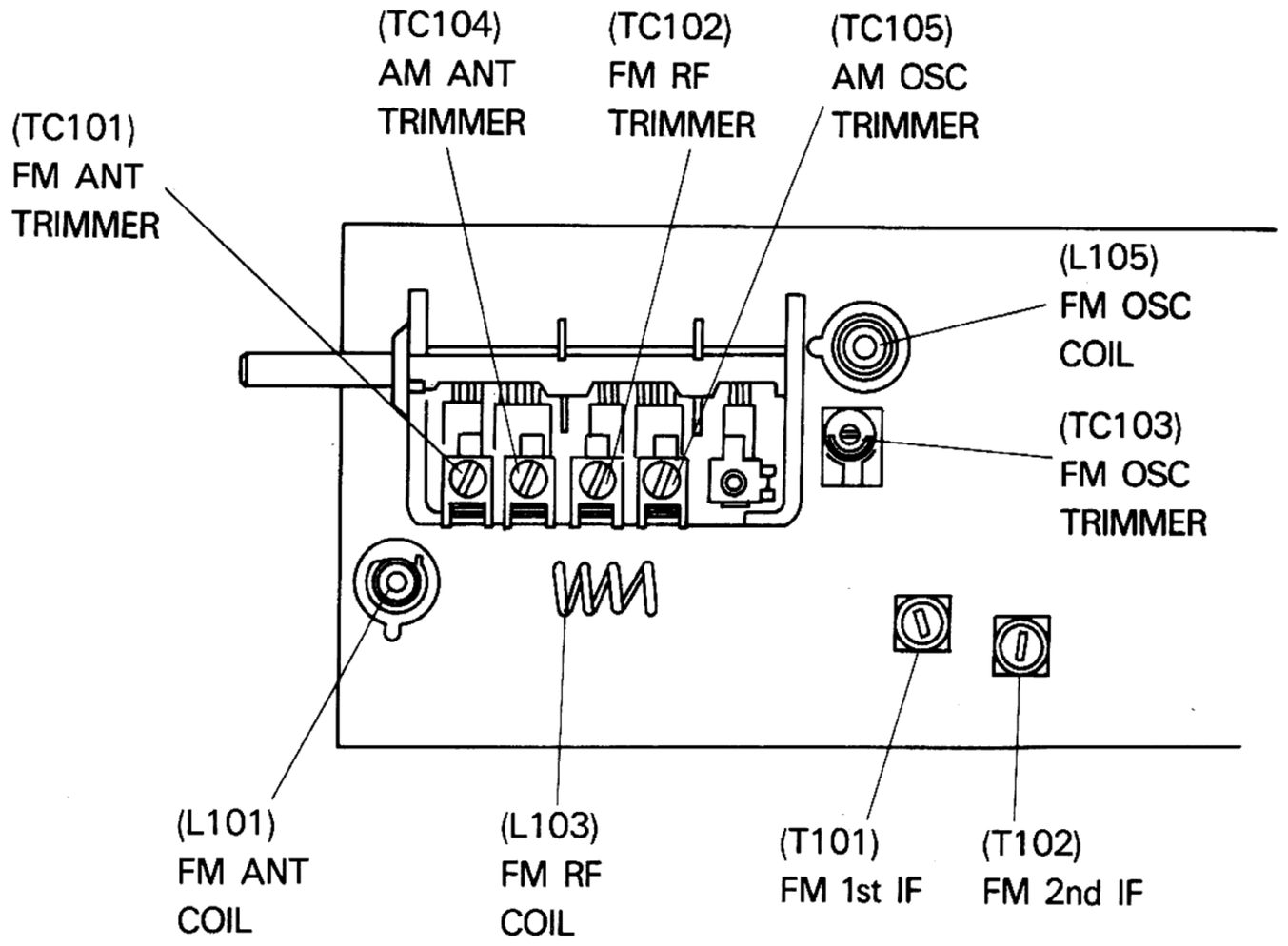
3) Removal of front panel (Aluminum panel)
   a) Remove the chassis from wooden cabinet as described in 2)
   b) Pull out the front panel with the main chassis.
   c) Remove the two Phillips head screws which are marked by arrow marks.
   Also remove the two Phillips head screws from the bottom of this 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	T106 (1st IFT) T107 (2nd IFT) T108 (3rd IFT)	Adjust for maximum reading
2	Same as above	600 KHz (400 Hz, 30% MOD)	600 KHz	Same as above	T105 (OSC Coil) AM ANT Coil	Adjust for maximum reading
3	Same	1400 KHz (400 Hz, 30% MOD)	1400 KHz	Same	TC105 (OSC Trimmer) TC104 (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	R152 (AM Meter Level)	Adjust the Meter pointer to "Zero" point on Meter

AM ALIGNMENT SET-UP

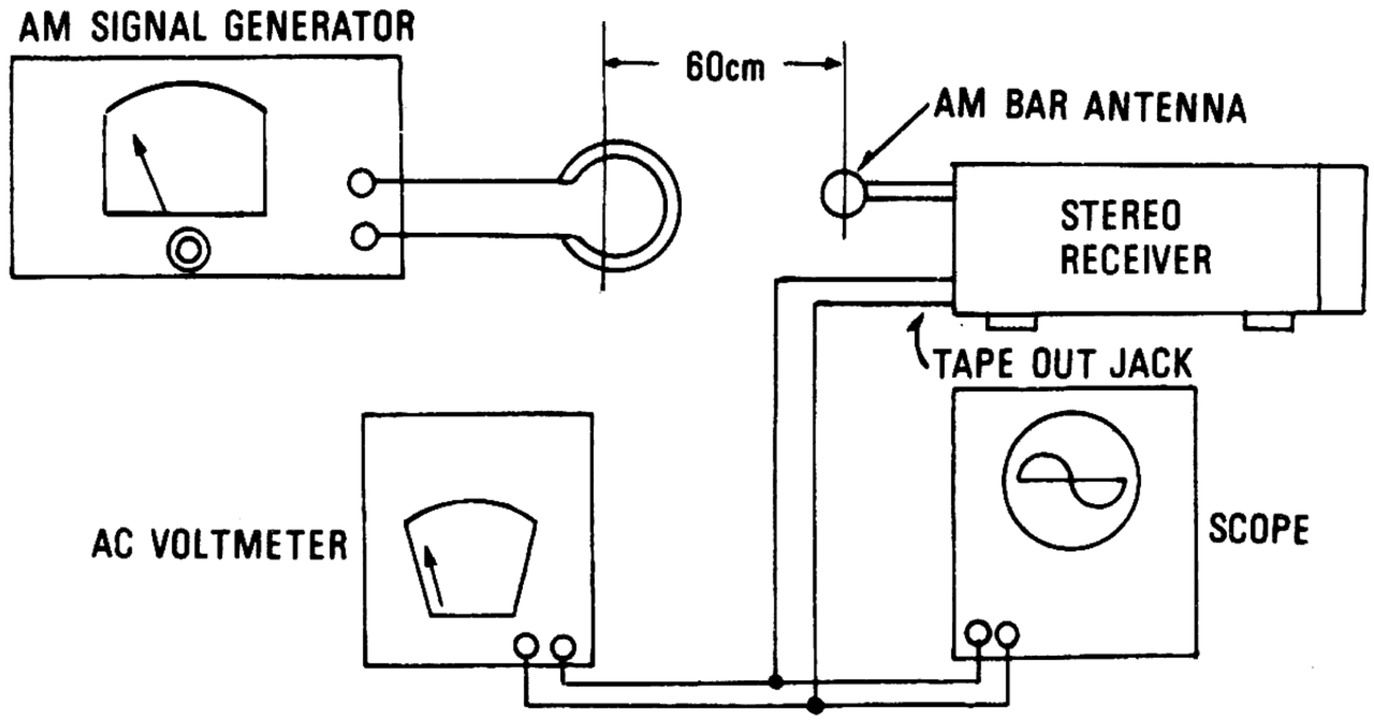


Fig. 2

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	T101, T102 T103, T104 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 (300Ω)				T101 T102 FM IFT	
3	Same as above				T104 Primary and secondary	Adjust for symmetrical "S" curve as shown in Fig. 3A
4	Signal Generator to FM Antenna Terminal thru FM Dummy antenna (300Ω)	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	T104 IFT Secondary	Adjust for minimum distortion
7	Same	Same as above	Same as above	Same as above	R157 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

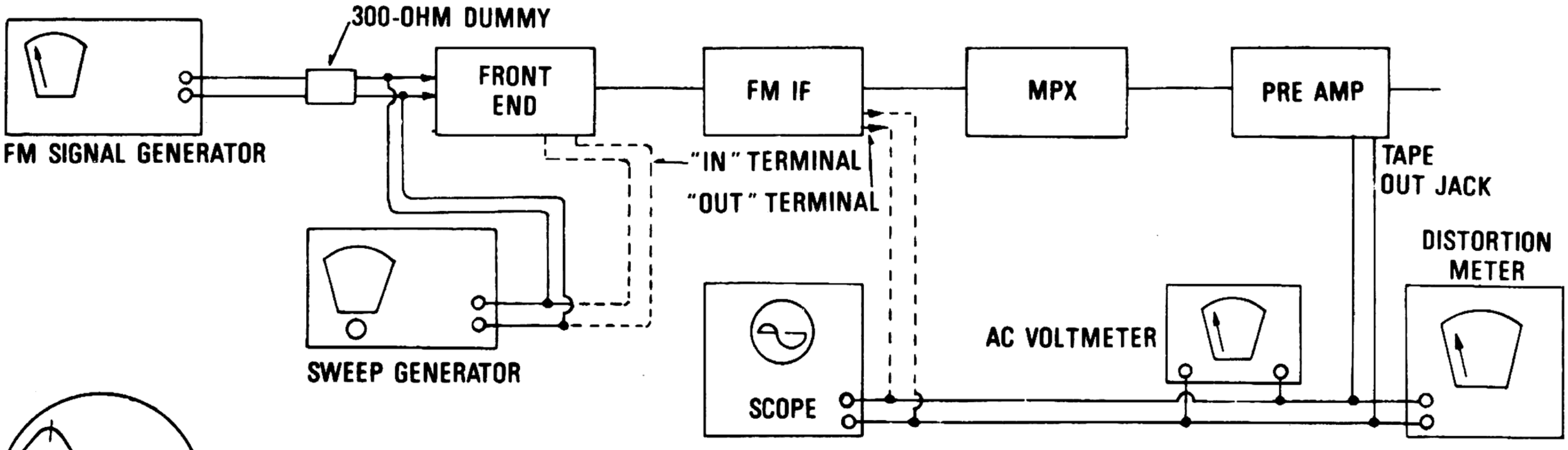
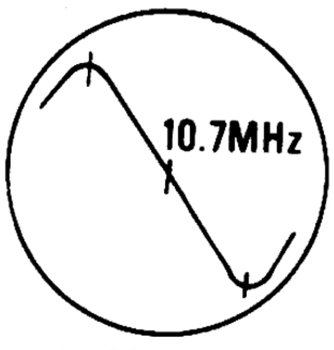


Fig. 3



SCOPE PATTERN
FIG. 3A

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 Level .....60 dB (1 mV)
   Frequency.....Approximately 98 MHz.
   Deviation .....75 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	T110 (19 KHz trans)	Adjust for maximum reading.
2	Same as above	Same as above	Distortion Meter connected to TAPE OUT jack of left channel	T111 (38 KHz trans)	Adjust for minimum distortion reading.
3	Same	Same	AC Voltmeter connected to TAPE OUT jack of right channel	R166 (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	R166 (Separation Control)	Same as above

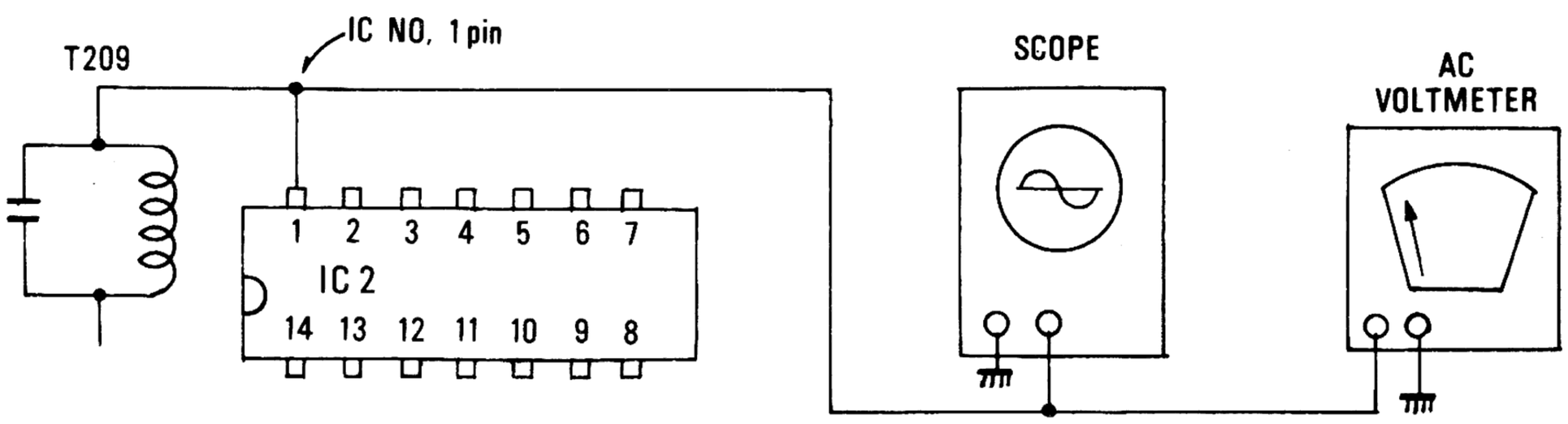


Fig. 4

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

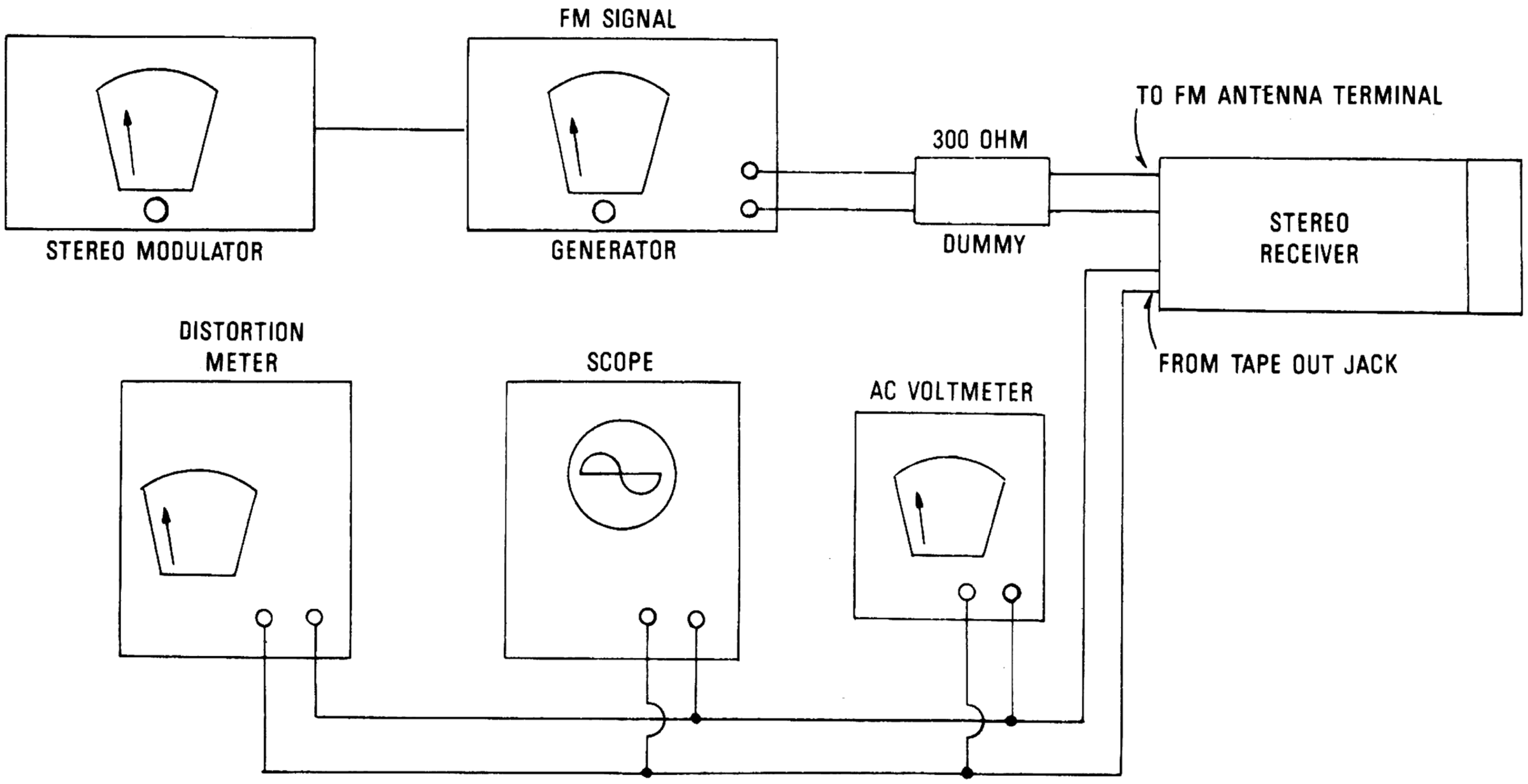
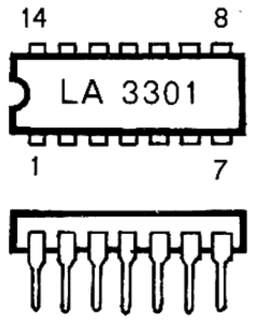
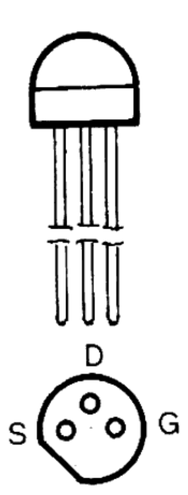


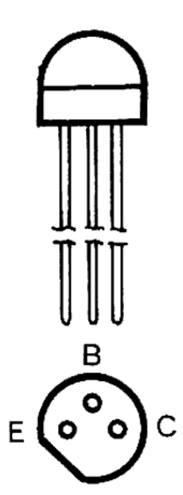
Fig. 5

INTEGRATED CIRCUIT CONNECTION & TRANSISTOR CONNECTIONS

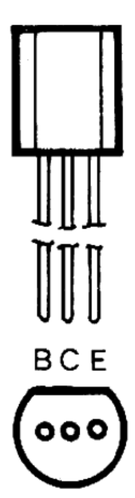




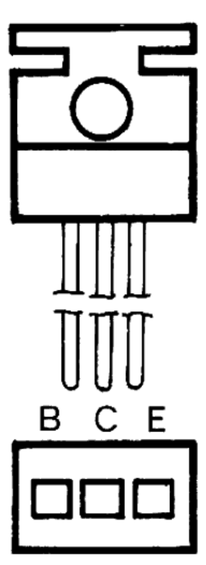
TE 500-3



NJ 202A,B
NJ 100 B
CS 1676
JM 100S

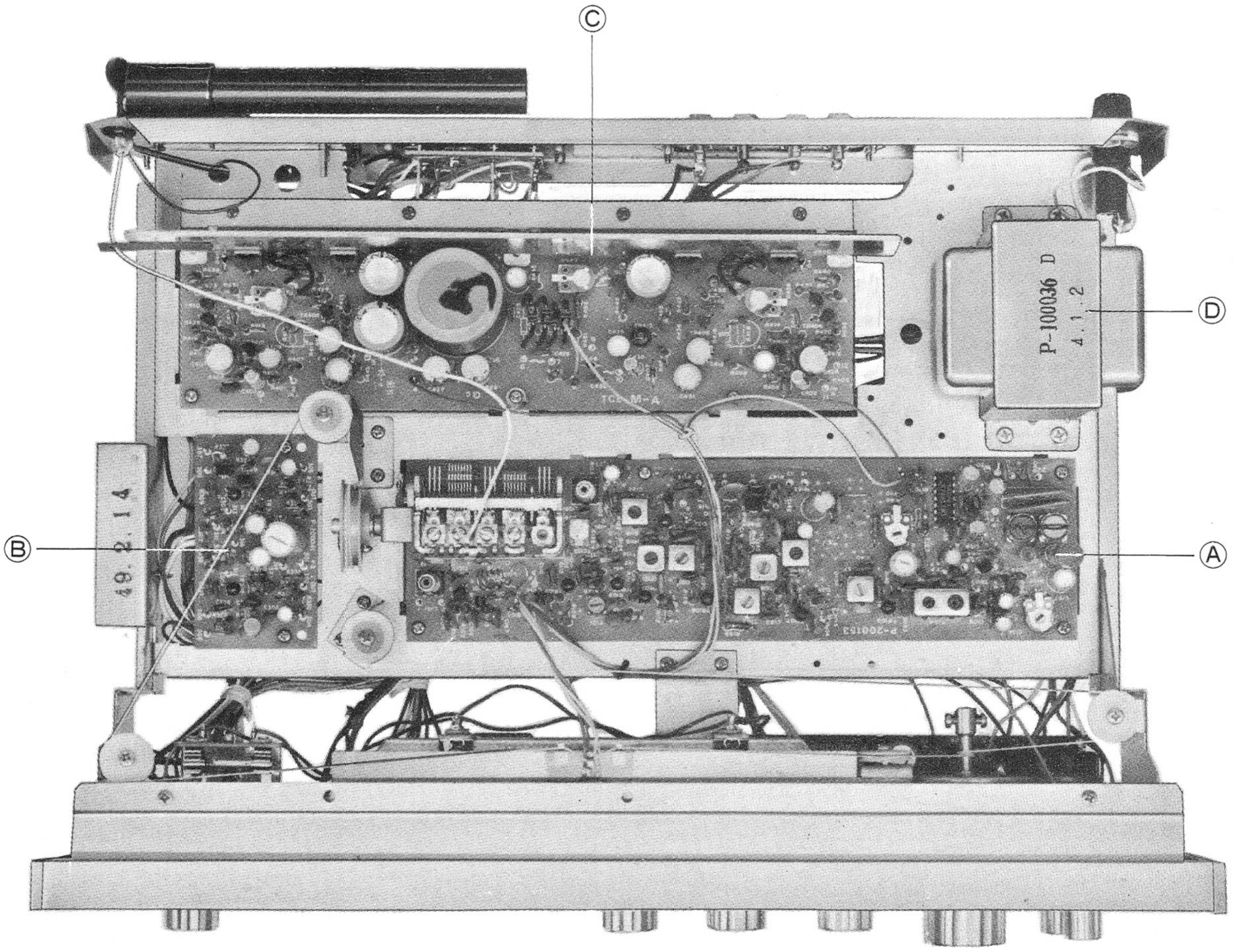


2SC900
2SC923
2SA539
2SC815
2SC828

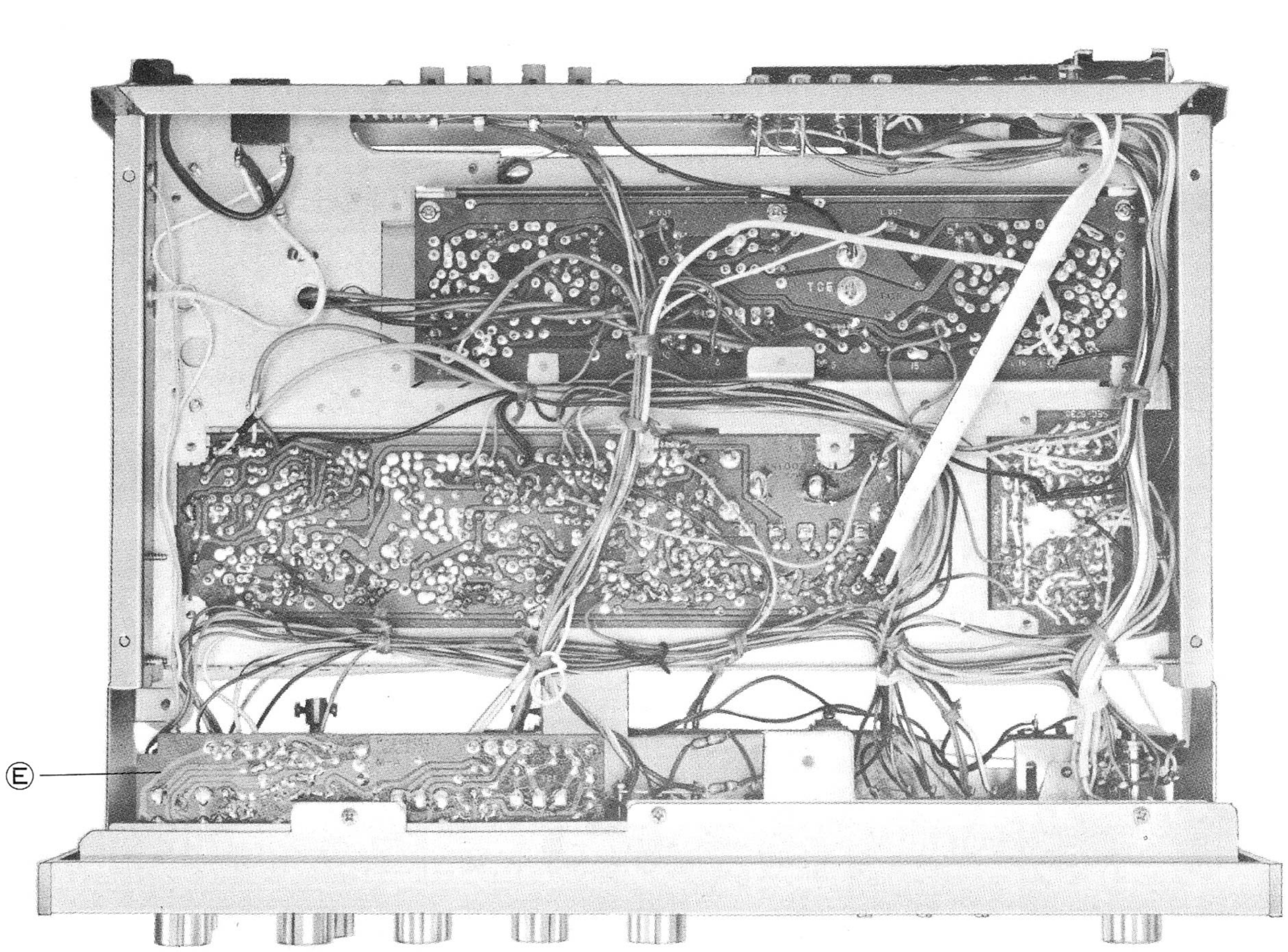


2SD330

CHASSIS TOP VIEW



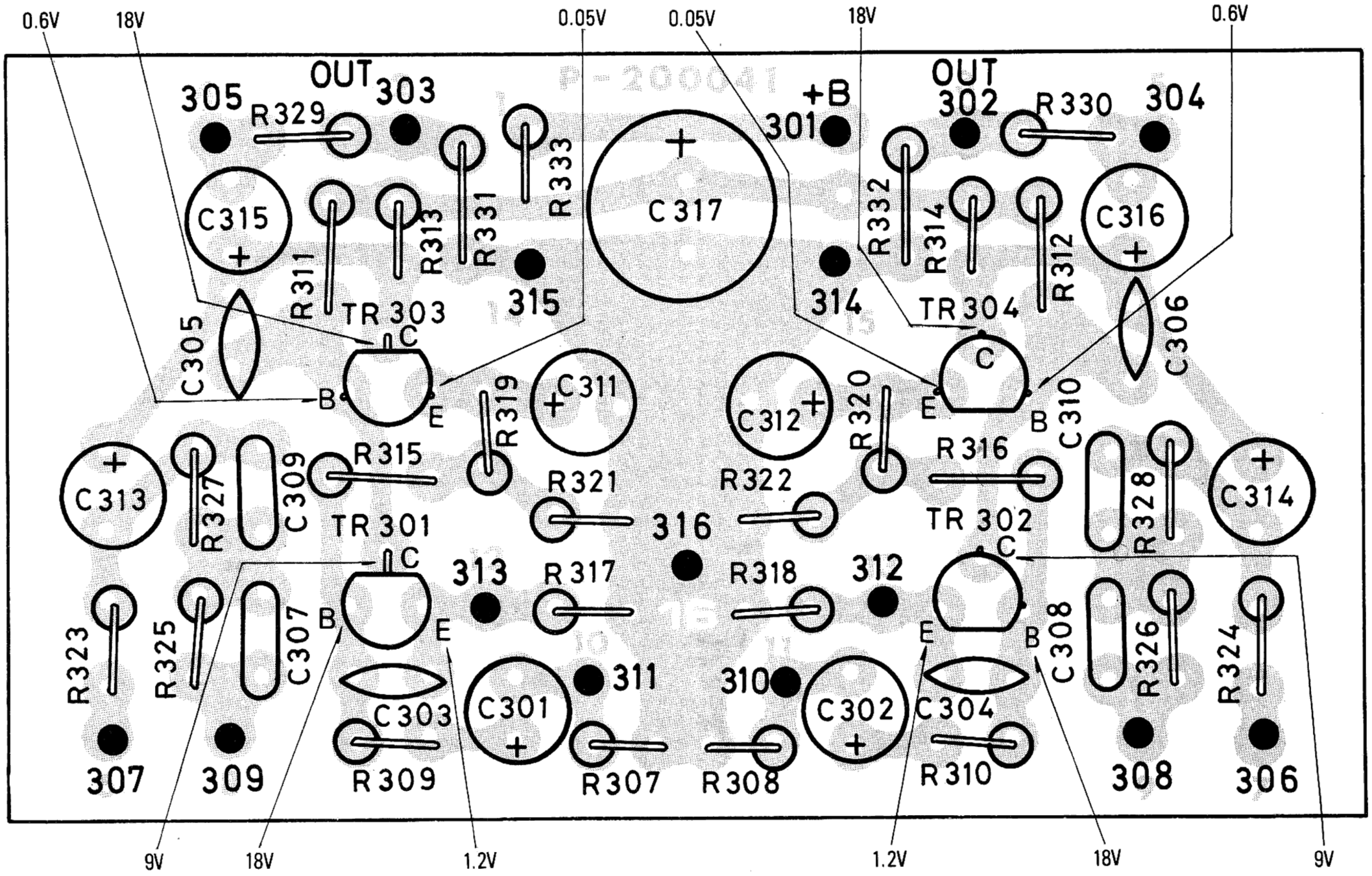
CHASSIS BOTTOM VIEW



Ⓐ FM/AM TUNER, IF & MULTIPLEX BOARD.
Ⓑ PRE AMP BOARD.
Ⓒ POWER SUPPLY & MAIN AMP BOARD.
Ⓓ POWER TRANSFORMER.
Ⓔ TONE CONTROL AMP BOARD.

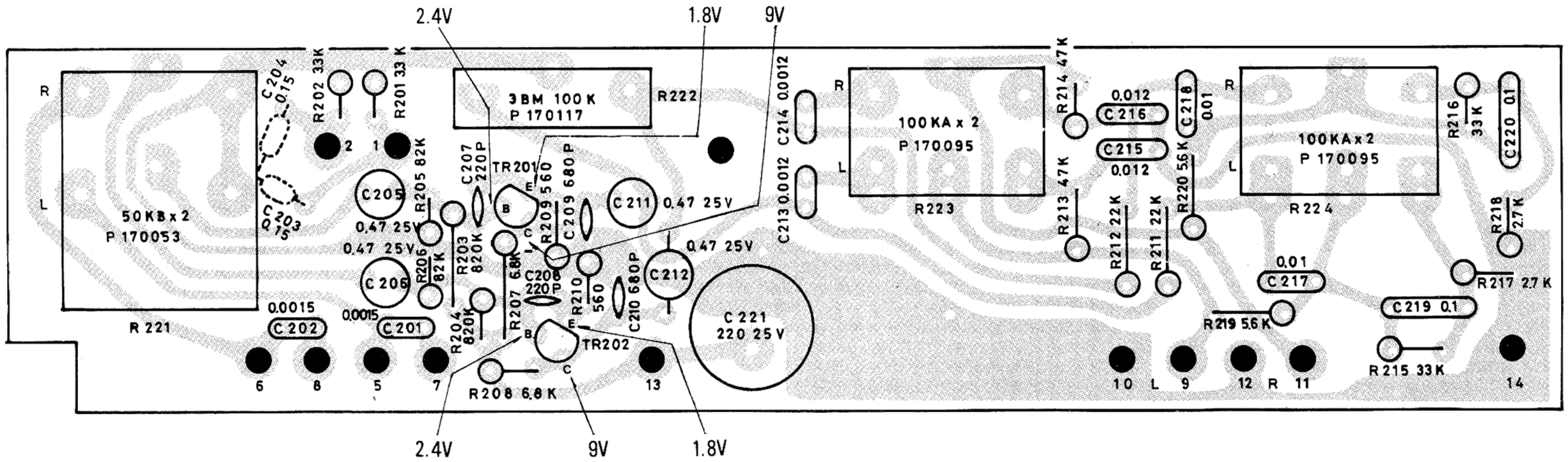
PRE AMP. BOARD

TOP VIEW



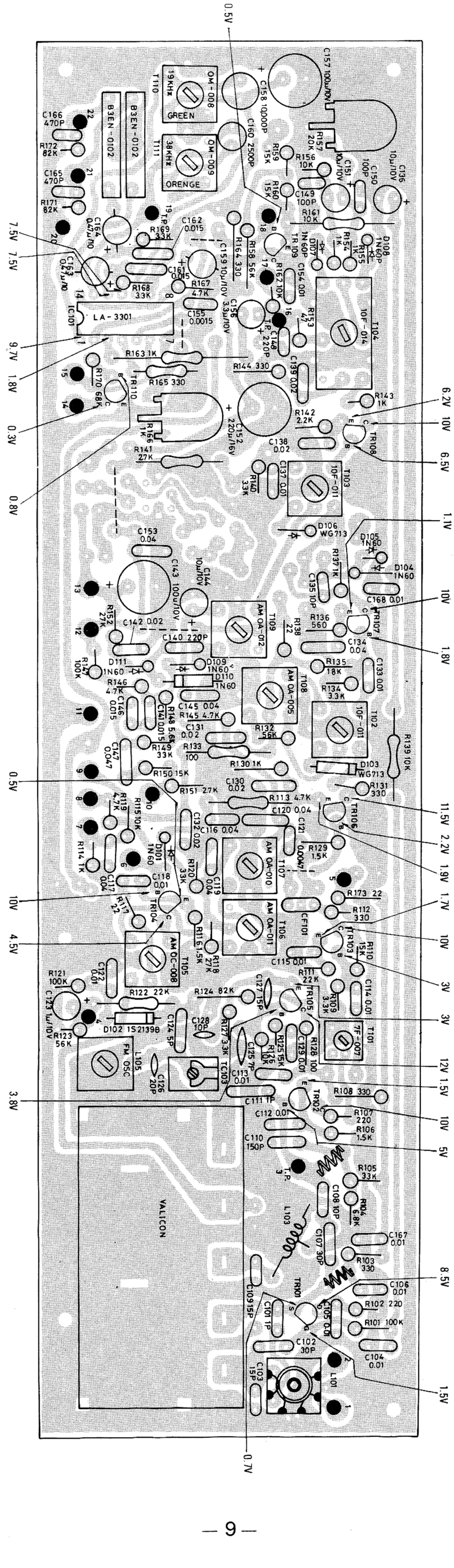
TONE CONTROL BOARD

TOP VIEW



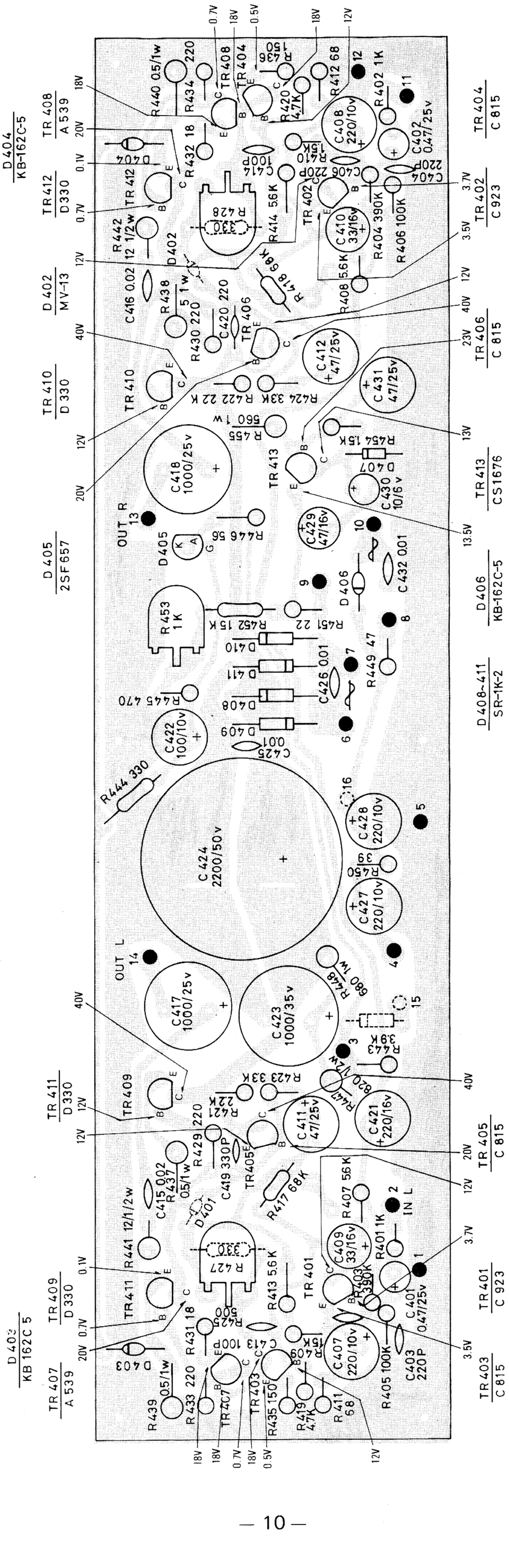
AM/FM TUNER, IF AND MPX. BOARD

TOP VIEW



MAIN AMP. AND POWER SUPPLY BOARD

TOP VIEW



CR-210
ELECTRICAL PARTS LIST

PART NO.	REF. NO.	DESCRIPTION	Q'ty
		TRANSISTORS	
BC16094	TR101	Transistor FET TE-500-2 or TE-500-3	1
BC11229	TR102,105	Transistor NJ202B	2
BC16095	TR103,104,106,107,108	Transistor NJ100B	5
BC16096	TR109,110	Transistor 2SC945 (Q,P) or 2SC828 (R,S)	2
BC16098	TR201,202,303,304,401,402	Transistor 2SC923 (F,E,G) or 2SC828 (R,S,T)	6
BC16097	TR301,302	Transistor 2SC900 (EU) or 2SC644 (R,S,T)	2
BC16099	TR403,404,405,406	Transistor 2SC815 (L,K) or 2SC828A (P,Q,R,S)	4
BC16100	TR407,408	Transistor 2SA539 (L,K) or 2SA564A (P,Q,R,S)	2
BC16101	TR409,410,411,412	Transistor 2SD317 (P,Q) or 2SD330 (D,E)	4
BC11232	TR413	Transistor CS1676 (R,W)	1
		DIODES	
BC11450	D1	Diode ITT210 or ITT410	1
BC16102	D101,104,105,109,110,111	Diode 1N60	6
BC16104	D112	Diode 1S2139B	1
BC16103	D106,103	Diode WG713	2
BC16105	D107,108	Diode 1N60P	2
BC11445	D401,402	Varistor MV-13	2
BC16106	D403,404,406	Diode KB-162C-5	3
BC16108	D405	Thyristor 2SF657 or 02AM-1	1
BC16107	D407	Zener Diode ZPD-13 or WZ-130	1
BC11451	D408,409,411,410	Silicon Rectifier SR-1K-2 or 1N-4001	4
		INTEGRATED CIRCUIT	
BC11242		IC LA3301	1
		RESISTORS	
BC16035	R446	Carbon Resistor RD¼UZ 5.6 ohm K	1
BC16036	R431,432	Carbon Resistor RD¼UZ 18 ohm K	2
BC11101	R117,138,173,451	Carbon Resistor RD¼UZ 22 ohm K	4
BC16037	R450	Carbon Resistor RD¼UZ 39 ohm K	1
BC11102	R153,449	Carbon Resistor RD¼UZ 47 ohm K	2
BC11103	R411,412	Carbon Resistor RD¼UZ 68 ohm K	2
BC11104	R128	Carbon Resistor RD¼UZ 100 ohm K	1
BC16050	R133	Carbon Resistor RD¼PZ 100 ohm K	1
BC16038	R435,436	Carbon Resistor RD¼UZ 150 ohm K	2
BC16039	R102,107,429,430,433,434	Carbon Resistor RD¼UZ 220 ohm K	6
BC11106	R103,108,112,131,144,164,165	Carbon Resistor RD¼UZ 330 ohm K	7
BC11148	R427,428,444	Carbon Resistor RD¼PZ 330 ohm K	3
BC16038	R435,436	Carbon Resistor RD¼UZ 150 ohm K	2
BC16039	R102,107,429,430,433,434	Carbon Resistor RD¼UZ 220 ohm K	6
BC11106	R103,108,112,131,164,165,144	Carbon Resistor RD¼UZ 330 ohm K	7
BC11148	R427,428,444	Carbon Resistor RD¼PZ 330 ohm K	3
BC16040	R317,318	Carbon Resistor RD¼UZ 390 ohm K	2
BC11107	R319,320,445	Carbon Resistor RD¼UZ 470 ohm K	3
BC16041	R136,209,210,321,322	Carbon Resistor RD¼UZ 560 ohm K	5
BC11108	R155,114,130,137,143,154,401,402	Carbon Resistor RD¼UZ 1K ohm K	8
BC16051	R163	Carbon Resistor RD¼PZ 1K ohm K	1
BC11109	R106,116,129,333,409,410,454	Carbon Resistor RD¼UZ 1.5K ohm K	7
BC11111	R111,142,309,310,421,422	Carbon Resistor RD¼UZ 2.2K ohm K	6

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ELECTRICAL PARTS LIST

PART NO.	REF. NO.	DESCRIPTION	Q'ty
BC16042	R151,217,218	Carbon Resistor RD¼UZ 2.7K ohm K	3
BC16052	R141	Carbon Resistor RD¼PZ 2.7K ohm K	1
BC11112	R109,120,127,134,140,168,169,201, 202,423,424	Carbon Resistor RD¼UZ 3.3K ohm K	11
BC16043	R443	Carbon Resistor RD¼UZ 3.9K ohm K	1
BC11113	R119,145,146,167,419,420	Carbon Resistor RD¼UZ 4.7K ohm K	6
BC16053	R113	Carbon Resistor RD¼PZ 4.7K ohm K	1
BC11313	R334,335	Carbon Resistor RD¼PZ 4.7K ohm J	2
BC11114	R148,219,220,407,408	Carbon Resistor RD¼UZ 5.6K ohm K	5
BC11115	R104,170,207,208,329,330	Carbon Resistor RD¼UZ 6.8K ohm K	6
BC11116	R313,314	Carbon Resistor RD¼UZ 8.2K ohm K	2
BC11117	R115,126,156,162,323,324	Carbon Resistor RD¼UZ 10K ohm K	6
BC11153	R139,161,305,306	Carbon Resistor RD¼PZ 10K ohm K	4
BC11118	R110,125,150,159,160	Carbon Resistor RD¼UZ 15K ohm K	5
BC16054	R452	Carbon Resistor RD¼PZ 15K ohm K	1
BC16044	R135	Carbon Resistor RD¼UZ 18K ohm K	1
BC11452	R211,212,325,326	Carbon Resistor RD¼UZ 22K ohm K	4
BC16055	R122	Carbon Resistor RD¼PZ 22K ohm K	1
BC11120	R118,152	Carbon Resistor RD¼UZ 27K ohm K	2
BC11121	R105,149,215,216	Carbon Resistor RD¼UZ 33K ohm K	4
BC16045	R213,214	Carbon Resistor RD¼UZ 47K ohm K	2
BC16056	R417,418	Carbon Resistor RD¼PZ 47K ohm K	2
BC16046	R123,132,158	Carbon Resistor RD¼UZ 56K ohm K	3
BC11122	R124,171,172,205,206	Carbon Resistor RD¼UZ 82K ohm K	5
BC11123	R101,121,147,307,308,311,312,315, 316,331,332,405,406	Carbon Resistor RD¼UZ 100K ohm K	13
BC11155	R303,304	Carbon Resistor RD¼PZ 100K ohm K	2
BC16047	R327,328	Carbon Resistor RD¼PZ 330K ohm K	2
BC16048	R403,404	Carbon Resistor RD¼PZ 390K ohm K	2
BC16057	R301,302	Carbon Resistor RD¼PZ 560K ohm K	2
BC16049	R203,204	Carbon Resistor RD¼UZ 820K ohm K	2
BC16058	R441,442	Carbon Resistor RD½PZ 12 ohm M	2
BC16059	R502,503	Carbon Resistor RD½PZ 390 ohm M	2
BC16060	R447	Carbon Resistor RD½PZ 820 ohm M	1
BC16061	R501	Carbon Resistor RD½PZ 2.2M ohm M	1
BC16062	R455	Carbon Resistor RD1PZ 560 ohm M	1
BC16063	R448	Carbon Resistor RD1PZ 680 ohm M	1
BC11328	R437,438,439,440	Carbon Resistor RN1-1 0.5 ohm J	4
	VARIABLE RESISTORS		
BC11325	R425,426	Semi-fixed Resistor 500 ohm B	2
BC11168	R166,453	Semi-fixed Resistor 1K ohm B	2
BC11324	R157	Semi-fixed Resistor 20K ohm B	1
BC11169	R415,416	Semi-fixed Resistor 50K ohm B	2
BC11259	R221	Variable Resistor 50 K BS X 2CT (TV-1)	1
BC11261	R223,224	Variable Resistor 100 KA × 2	2
BC16046	R222	Variable Resistor 3BM 100 K CTC	1
BC11262	R504	Variable Resistor 100 KA × 2 Fine	1
	CAPACITORS		
BC16076	C155	Mylar Capacitor CQ92MIH 152M	1
BC11179	C121	Mylar Capacitor CQ92MIH 472M	1
BC11180	C118	Mylar Capacitor CQ92MIH 103M	1

CR-210
ELECTRICAL PARTS LIST

PART NO.	REF. NO.	DESCRIPTION	Q'ty
BC16077	C141,146,161,162,309,310	Mylar Capacitor CQ92MIH 153M	6
BC11329	C213,214	Mylar Capacitor CQ92MIH 122K	2
BC16078	C201,202	Mylar Capacitor CQ92MIH 152K	2
BC16070	C217,218	Mylar Capacitor CQ92MIH 103K	2
BC11330	C215,216	Mylar Capacitor CQ92MIH 123K	2
BC16080	C219,220	Mylar Capacitor CQ92MIH 104K	2
BC11177	C203,204	Mylar Capacitor CQ92MIH 154K	2
BC16081	C307,308	Mylar Capacitor CQ92MIH 332K	2
BC16082	C301,302	Solid Aluminum Capacitor 2.2/10V	2
BC16083	C163,164	Electrolytic Capacitor CE04 0.47/10V	2
BC16084	C123	Electrolytic Capacitor CE04 1/10V	1
BC16085	C156	Electrolytic Capacitor CE04 3.3/10V	1
BC16086	C136,144,151,159	Electrolytic Capacitor CE04 10/10V	4
BC11200	C143,157,311,312,422	Electrolytic Capacitor CE04 100/10V	5
BC11423	C47,408,427,428	Electrolytic Capacitor CE04 220/10V	4
BC11338	C430	Electrolytic Capacitor CE04 10/16V	1
BC11421	C409,410	Electrolytic Capacitor CE04 33/16V	2
BC11422	C429	Electrolytic Capacitor CE04 47/16V	1
BC11190	C152,421	Electrolytic Capacitor CE04 220/16V	2
BC16087	C205,206,211,212,401,402	Electrolytic Capacitor CE04 0.47/25V	6
BC11335	C315,316	Electrolytic Capacitor CE04 1/25V	2
BC11199	C313,314	Electrolytic Capacitor CE04 4.7/25V	2
BC11203	C411,412,431	Electrolytic Capacitor CE04 47/25V	3
BC11193	C221,317	Electrolytic Capacitor CE04 220/25V	2
BC11204	C417,418	Electrolytic Capacitor CE04 1000/25V	2
BC11206	C423	Electrolytic Capacitor CE04 1000/35V	1
BC11205	C424	Electrolytic Capacitor (Lug-type) 2200/50V	1
BC11210	C101,111	Ceramic Capacitor CC45-25VF 010D	2
BC16065	C124	Ceramic Capacitor CC45-25VF 050D	1
BC11214	C108,135	Ceramic Capacitor CC45-25VF 100J	2
BC16066	C103,109	Ceramic Capacitor CC45-25VF 150J	2
BC11219	C102,107	Ceramic Capacitor CC45-25VF 300J	2
BC11215	C149,150,303,304,305,306,413,414	Ceramic Capacitor CC45-25VF 101J	8
BC11217	C110	Ceramic Capacitor CC45-25VF 151J	1
BC16067	C140,148,207,208,403,404,405,406	Ceramic Capacitor CC45-25VF 221J	8
BC16068	C419,420	Ceramic Capacitor CC45-25VF 331J	2
BC16069	C165,166	Ceramic Capacitor CC45-25VF 471J	2
BC11222	C104,105,112,113,114,122,115,129, 133,137,154,167,168	Ceramic Capacitor CK45-25VF 103Z	14
BC11223	C130,131,132,138,139,142,318,415, 416,501,	Ceramic Capacitor CK45-25VF 203Z	10
BC11224	C116,117,119,120,134,145,153	Ceramic Capacitor CK45-25VF 403Z	7
BC16070	C147	Ceramic Capacitor CK45-25VF 473Z	1
BC16071	C209,210	Ceramic Capacitor CK45-25VF 681 (YP)	2
BC11434	C425,426,432	Ceramic Capacitor CK45-50VF 103Z	3
BC16072	C125	Ceramic Capacitor CH45-25V 070D (NPO)	1
BC16073	C128	Ceramic Capacitor CH45-25V 100J (NPO)	1
BC16074	C127	Ceramic Capacitor CH45-25V 150J (NPO)	1
BC16075	C126	Ceramic Capacitor CH45-25V 200J (NPO)	1
TRIMMER AND VARIABLE CAPACITORS			
BC16088		Variable Capacitor	1
BC11263		Trimmer Capacitor	1

CR-210
ELECTRICAL PARTS LIST

PART NO.	REF. NO.	DESCRIPTION	Q'ty
TRANSFORMER AND COILS			
BC11249	L101	FM Antenna Coil	1
BC11264	L102,104	FM Choke Coil	2
BC11250	L103	FM RF Coil	1
BC11251	L105	FM OSC Coil	1
BC11262	T101	FM IFT 7F-007	1
BC16089	T102,103	FM IFT 10F-011	2
BC11254	T104	FM IFT 10F-014	1
BC16091	T105	AM OSC Coil OC-008	1
BC11247	T106	AM IFT OA-011	1
BC11246	T107	AM IFT OA-010	1
BC16092	T108	AM IFT OA-005	1
BC16093	T109	AM IFT OA-012	1
BC11256	T110	FM MPX Coil OM-008 38kHz	1
BC11257	T111	FM MPX Coil OM-009 19kHz	1
BC16094		Power Supply Transformer	1
SWITCHES			
BC16013	34	Rotary Switch	1
BC16014	34	Rotary Switch	1
BC11030	35	Lever Switch	1
PILOT LAMP			
BC11024A	47	Lamp 8V 300mA (F)	3
METER			
BC16009	45	Tuning Meter	1
MOUNTED CIRCUIT BOARD			
BC16017	59	Tuner and IF (MPX)	1
BC16018	58	Pre-Amp. Unit	1
BC16019	57	Main and Power Supply Unit	1
BC16020	60	Tone Control Unit	1
PRINTED CIRCUIT BOARDS			
BC16031		Tuner, IF MPX, P.C.B.	1
BC16032		Tone P.C.B.	1
BC11057		Pre-Amp. P.C.B.	1
BC16033		Main and Power Supply P.C.B.	1
BC16034		Jack P.C.B.	1
COMBINATION COMPONENTS			
BC11258		Twin T Filter B3EN-0102	2

CR-210
MECHANICAL PARTS LIST

PART NO.	REF. NO.	DESCRIPTION	Q'ty
BC17001	1	Cabinet Ass'y	1
BC11006	4	Foot	4
BC17002	6	Front Panel Ass'y	1
BC17003	9	Tuning Knob	1
BC17004	8	Fine Tuning Knob	1
BC17005	7	Control Knob	6
BC16003	48	Knob Seat	3
BC16004	15	Front Chassis Ass'y	1
BC16005	18	Guide Wheel Bracket	1
BC16006	22	Sub-pulley	4
BC17006	11	Dial Plate	1
BC11020	44	Tuning Shaft Ass'y	1
BC11416		Light Shatter	1
BC11268		Lamp Cover	1
BC11024A	47	Lamp 8V 30mA (F)	3
BC16008	46	Lamp Holder	3
BC11026	16	Lamp Holder	1
BC16009	45	Meter (T)	1
BC16010		Seat for Meter	1
BC16011	17	Lamp Cover	1
BC16012	13	Soft Tape	1
BC16013	34	Rotary Switch	1
BC16014	37	Rotary Switch	1
BC17007	35	Lever Switch	1
BC11031	36	Headphone Jack	1
BC17008	50	Dial Pointer Ass'y	1
BC11275	56	Wire Stay	1
BC16016	19	Main Chassis	1
BC16017	59	Tuner and IF (MPX) Unit	1
BC16018	58	Pre-Amp. Unit	1
BC16019	57	Main and Power Supply Unit	1
BC16020	60	Tone Control Unit	1
BC11040	27	Jack Ass'y Unit	1
BC16021	63	Back Panel	1
BC11018	F9	Shaft for Sub-pulley	4
BC11021	53	Main Pulley	1
BC11088	52	Dial Spring	1
BC11047		Fuse 1.5A 250V	1
BC16022	32	Fuse Holder	1
BC11044	31	Cord Stopper	1
BC11043	42	AC Cord	1
BC16023	29	AC Outlet	1
BC11448	30	AC Outlet Bracket	1
BC16024	28	Speaker Terminal	1
BC16025	26	Antenna Terminal	1
BC16026	24	AM Antenna	1
BC11271	25	Antenna Holder	1
BC11414	5	Sq. Washer	5
BC16027	12	Shatter Tape	1
BC16028	20	Roller Guide	1
BC16029	21	Roller Guide	1
BC11502	33	Bush	1
BC17009	10	Knob Ring	1
BC17010		Dial Window	1
BC17011	62	Heat Sink	1

CR-210
MECHANICAL PARTS LIST

PART NO.	REF. NO.	DESCRIPTION	Q'ty
BC16030		Heat Sink	
BC17020	14	Nylon Rivet	6
BC17021	23	AM Antenna Bracket	1
BC17022	61	Fiver Sheet	1

CR-210
EXPLODED VIEW PARTS LIST

PART NO.	REF. NO.	DESCRIPTION	Q'ty
BC11006	1	Cabinet Ass'y	1
BC11414	4	Foot	4
BC17002	5	Sq. Washer	5
BC17005	6	Front Panel Ass'y	1
BC17004	7	Control Knob	6
BC17003	8	Fine Tuning Knob	1
BC17009	9	Tuning Knob	1
BC17006	10	Knob Ring	1
BC16027	11	Dial Plate	1
BC16012	12	Shatter Tape	1
BC17020	13	Soft Tape	1
BC16004	14	Nylon Rivet	6
BC11026	15	Front Chassis Ass'y	1
BC16011	16	Lamp Holder	1
BC16005	17	Lamp Cover	1
BC16016	18	Guide Wheel Bracket	1
BC16028	19	Main Chassis	1
BC16029	20	Roller Guide	1
BC16006	21	Roller Guide	1
BC17021	22	Sub-pulley	4
BC16026	23	AM Antenna Bracket	1
BC11271	24	AM Antenna	1
BC16025	25	AM Antenna Holder	1
BC11040	26	Antenna Terminal	1
BC16024	27	Jack Ass'y Unit	1
BC16023	28	Speaker Terminal	1
BC11448	29	AC Outlet	1
BC11044	30	AC Outlet Bracket	1
BC16022	31	Cord Stopper	1
BC11502	32	Fuse Holder	1
BC16013	33	Bush	1
BC17007	34	Rotary Switch	1
BC11031	35	Lever Switch	1
BC16014	36	Headphone Jack	1
BC11261	37	Rotary Switch	1

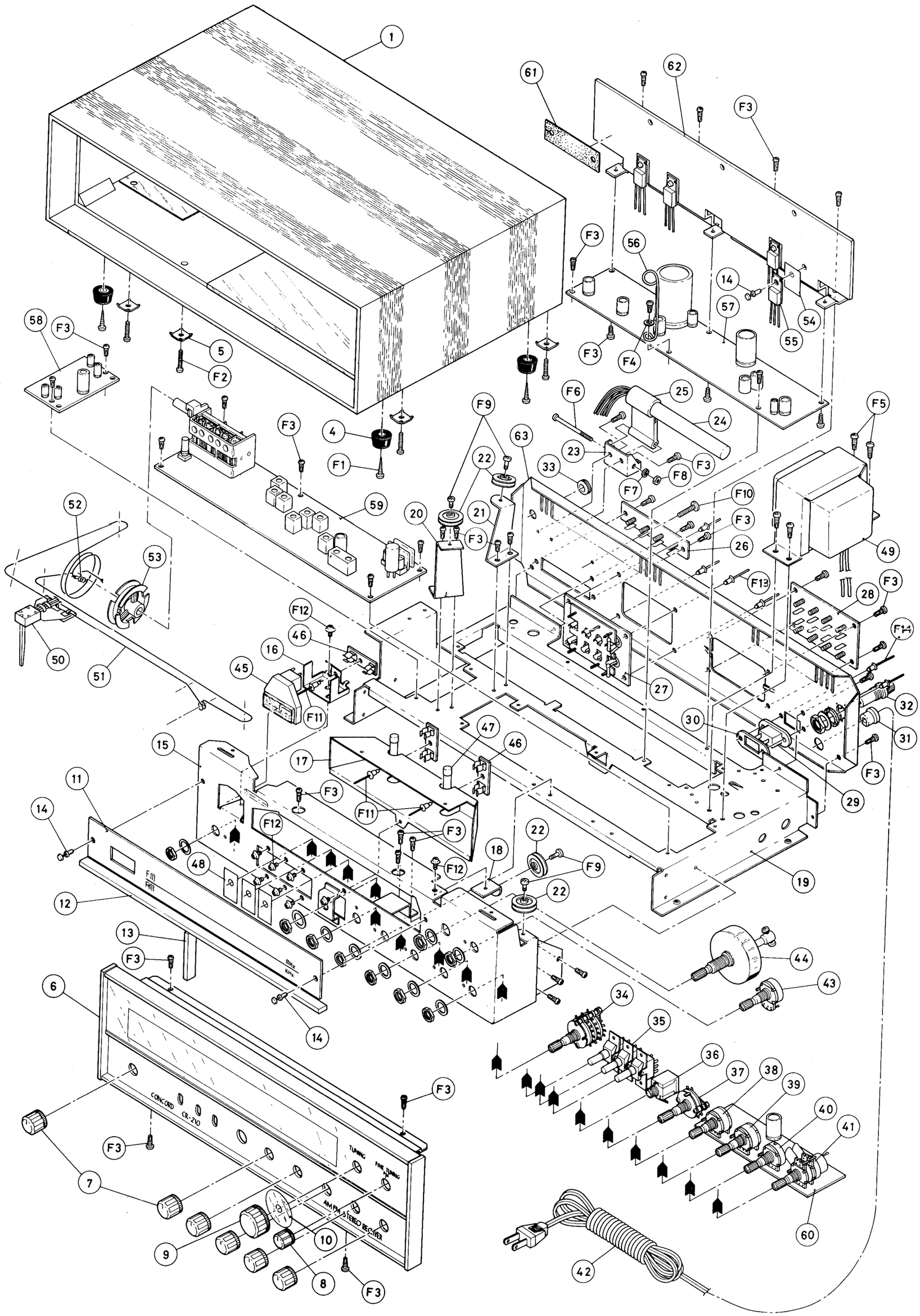
CR-210
EXPLODED VIEW PARTS LIST

PART NO.	REF. NO.	DESCRIPTION	Q'ty
BC11261	38,39	Variable Resistor	2
BC16046	40	Variable Resistor	1
BC11262	41	Variable Resistor	1
BC11043	42	AC Cord	1
BC11259	43	Variable Resistor	1
BC11020	44	Tuning Shaft Ass'y	1
BC16009	45	Meter (T)	1
BC16008	46	Lamp Holder	3
BC11024A	47	Lamp 8V 30 mA (F)	3
BC16003	48	Knob Seat	3
BC16004	49	Power Supply Transformer	1
BC17008	50	Dial Pointer Ass'y	1
BC11088	51	Dial String	1
BC11088	52	Dial Spring	1
BC11021	53	Main Pulley	1
BC16101	54	Mylar Sheet for Power Transistor	4
BC16101	55	Power Transistor	4
BC11275	56	Wire Stay	1
BC16019	57	Main and Power Supply Unit	1
BC16018	58	Pre-Amp. Unit	1
BC16017	59	Tuner and IF (MPX) Unit	1
BC16020	60	Tone Control Unit	1
BC17022	61	Fiver Sheet	1
BC17011	62	Heat Sink	1
BC16021	63	Back Panel	1

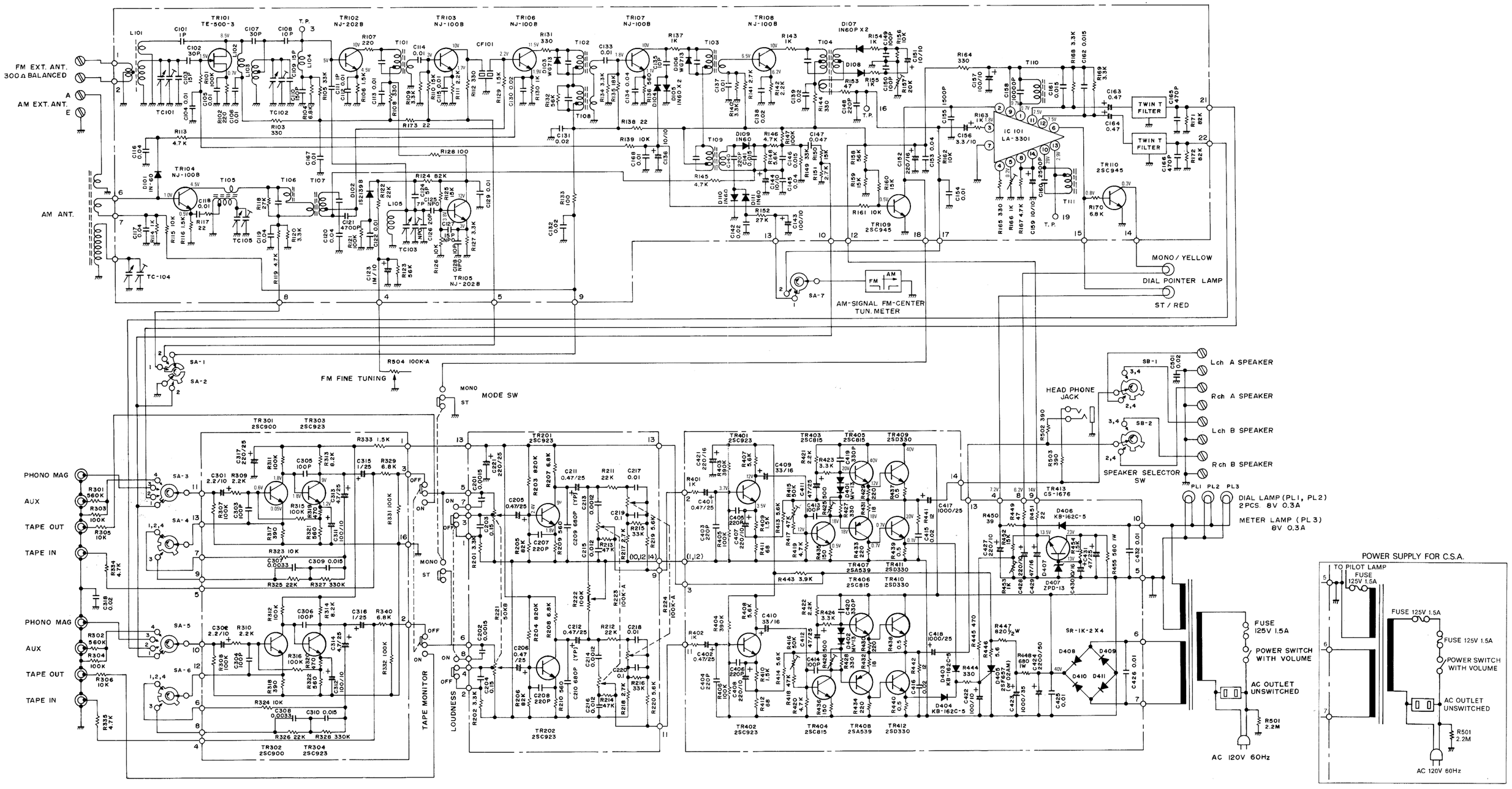
CR-210
EXPLODED VIEW MECHANICAL HARDWARE

PART NO.	REF. NO.	DESCRIPTION	Q'ty
BC17013	F 1	Screw 3.1 × 10 PWS	4
BC17014	F 2	Screw 4 × 20 P	5
BC17015	F 3	Screw 3 × 8 PT-2	54
BC11409	F 4	Washer 4 m/m	1
BC17016	F 5	Screw 4 × 10 PT-2	4
BC11073	F 6	Screw 4 × 40 P	1
BC11082	F 7	Spring Washer 4 m/m	1
BC11077	F 8	Nut 4 m/m	1
BC17016	F 9	Shaft for Sub Pulley	5
BC17017	F10	G N D Screw 4 × 12 B	1
BC17018	F11	Rivet YB-423 3.2 × 5.84	3
BC17019	F12	Screw with Washer 3 × 6	10
BC11405	F13	Rivet YB-429 3.2 × 7.37	4
BC11406	F14	Rivet YB-329 2.4 × 7.37	2

EXPLODED VIEW



SCHEMATIC DIAGRAM



NOTE (1) SA-1 ~ SA-7 : FUNCTION SWITCH 1-AM, 2-FM, 3-PHONO, 4-AUX
(2) SB-1 ~ SB-2 : SPEAKER SELECTOR SWITCH 1-OFF, 2-A, 3-B, 4-A+B
(3) ALL RESISTORS VALUE ARE INDICATED IN "OHM" (K=10^3OHM, M=10^6OHM)
(4) ALL CAPACITORS VALUE ARE INDICATED IN "MF" (P=10^{-6}uF)

RECEIVER CR-210 DATA LIMITS

TEST	LIMIT	UNIT
A. AM SECTION		
FREQUENCY RANGE	<540, >1600	KHz
CALIBRATION AT 1400 KHz	±50	KHz
SENSITIVITY FOR S/N 20dB AT 1000KHz	<500	μV/M
S/N RATIO AT 1mV/M AT 1000KHz	>26	dB
DISTORTION 30% MOD. AT 5mV	<3	%
B. FM SECTION		
FREQUENCY RANGE	<88, >108	MHz
CALIBRATION AT 104MHz	±500	KHz
SENSITIVITY FOR 30dB S/N, 22.5KHz DEV. AT 98MHz	<10	μV
MUTING SENSITIVITY AT 98MHz	<20	μV
FINE TUNE	150-250	KHz
SEPARATION AT 1mV. 1KHz MOD	>27	dB
BEACON SENSITIVITY	<30	μV
DISTORTION, STEREO 1mV, 1KHz	<3	%
C. AUDIO		
1 KHz T.H.D. AT 10W INTO 8 OHM LOAD	<1.0	%
SENSITIVITY, PHONO FOR 8W, 8 OHM LOAD AT 1KHz	<5.0	mV
SENSITIVITY, AUX FOR 8W, 8 OHM LOAD AT 1KHz	<200	mV
SENSITIVITY, TAPE IN FOR 8W, 8 OHM LOAD AT 1KHz	<400	mV
S/N RATIO, PHONO (INPUT SHORT), 5mV INPUT	>50	dB
S/N RATIO, AUX (INPUT SHORT), 200mV INPUT	>55	dB
RESIDUAL NOISE	<3	mV
HI FILTER AT 10KHz	>−7	dB
LO FILTER AT 100Hz	>−5	dB

THIS MODEL INCORPORATES
BLUE BACK LIGHTED PANEL.

Printed in Japan