

# Service Manual

Radio Cassette  
**RX-5220LS**

FM/LW/MW/SW Stereo Radio Cassette



## RX-1750LS MECHANISM SERIES

### ■ SPECIFICATIONS

Power Requirement:	AC; 100~110/115~127/200~220/ 230~250V, 50/60Hz Battery, 12V (eight D size dry batteries) for radio. Battery 3V (two AA size penlight Batteries) for clock Car/boat battery; with optional car/ boat adaptor RP-952	Output:	EXT SP; 3~8Ω HEADPHONES; 8Ω
Power consumption;	27W	REC/PB Connection:	5P DIN type IN; 0.32mV (2.7kΩ over) OUT; 0.36V (4.7kΩ under)
Power Output:	12W (6W×2) ... (DC max.)	Speaker:	Woofer; 12cm (4 <sup>23</sup> / <sub>32</sub> " ) PM Dynamic speaker (3Ω) Tweeter; 3cm (1 <sup>17</sup> / <sub>32</sub> " ) PM Dynamic speaker (4Ω)
Frequency Range:	70~11,000Hz (with normal tape) 70~13,000Hz (with CrO <sub>2</sub> tape) 70~13,000Hz (with FeCr tape)	Radio Frequency Range:	FM; 87.5~108MHz LW; 145~285kHz (2060~1060m) MW; 520~1610kHz (577~186m) SW; 5.9~18MHz (50.8~16.7m)
Recording System:	AC bias, MAGNET erase	Intermediate Frequency:	FM; 10.7MHz AM; (LW/MW/SW); 455kHz
Tape Speed:	4.8cm/s, (1 <sup>7</sup> / <sub>8</sub> ips)	Sensitivity:	FM; 5μV/50mW output LW; 160μV/m/50mW output MW; 75μV/m/50mW output SW; 6μV/50mW output
Wow and Flutter:	0.35% (RMS)	Dimensions:	467 mm(W)×267 mm(H)×150 mm(D) [18 <sup>3</sup> / <sub>8</sub> "(W)×10 <sup>1</sup> / <sub>2</sub> "(H)×5 <sup>1</sup> / <sub>16</sub> "(D)]
Program Time:	1 hour with C-60 cassette tape	Weight:	5.4 kg (11 lb. 14 oz.) without batteries
Track System:	4-track stereo recording and playback		
Input:	MIC; sensitivity 0.32mV/applicable microphone impedance 200~600Ω (recommended microphone RP-8135) DC IN; 13.2V		

Specifications are subject to change without notice.

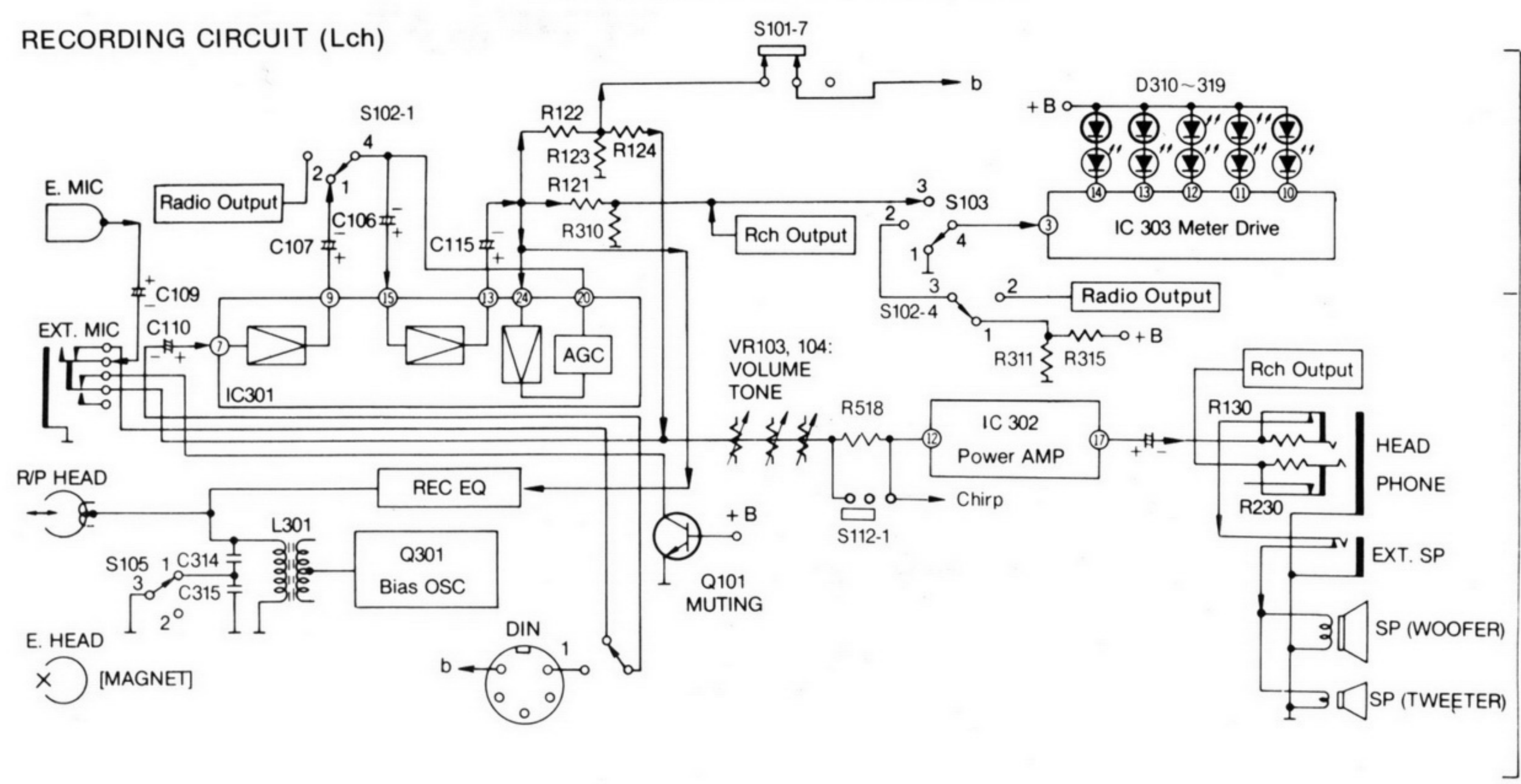
 **Panasonic**

**Matsushita Electric Trading Co., Ltd.**  
P.O. Box 288, Central Osaka Japan

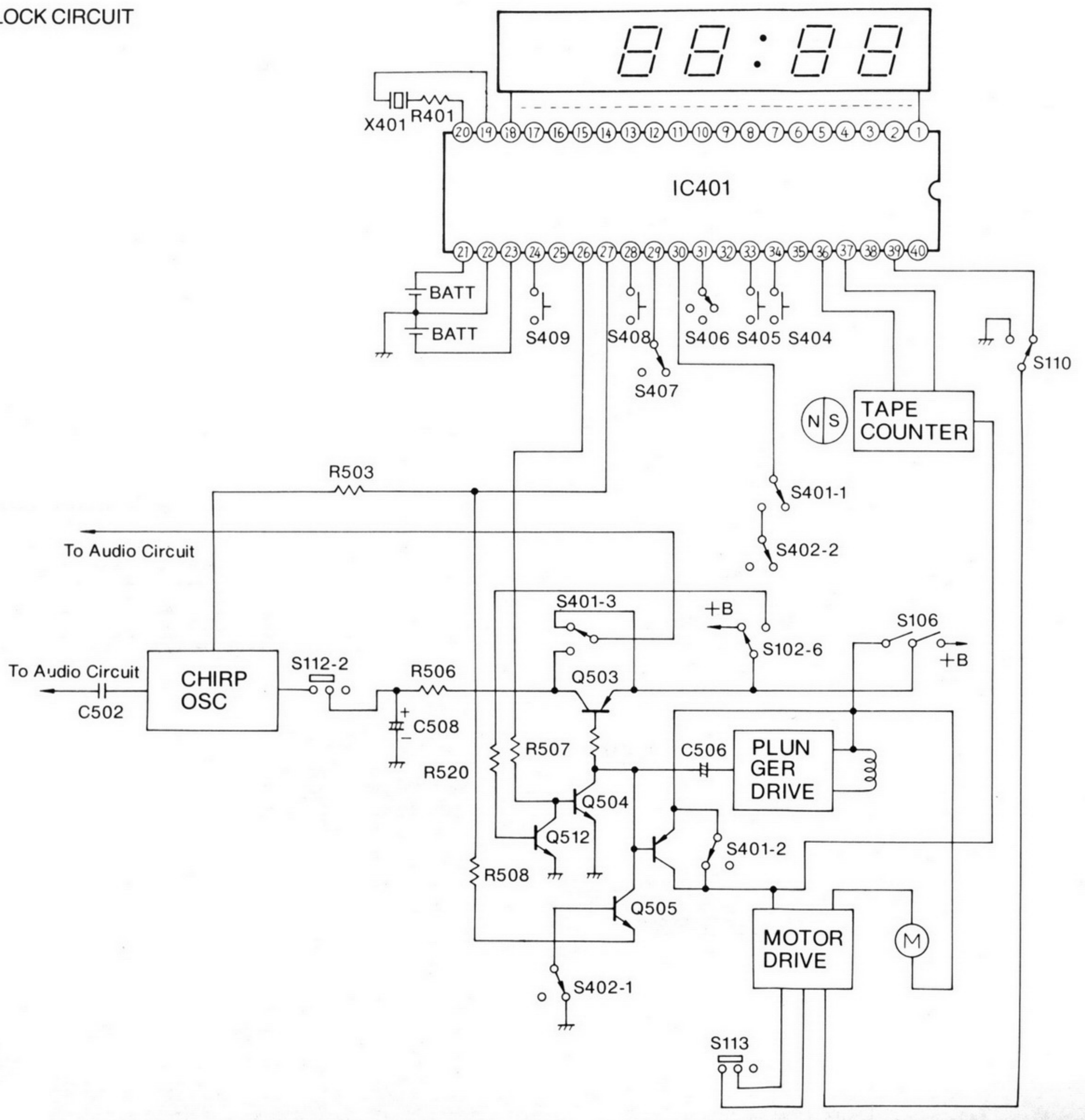


# BLOCK DIAGRAM

## RECORDING CIRCUIT (Lch)

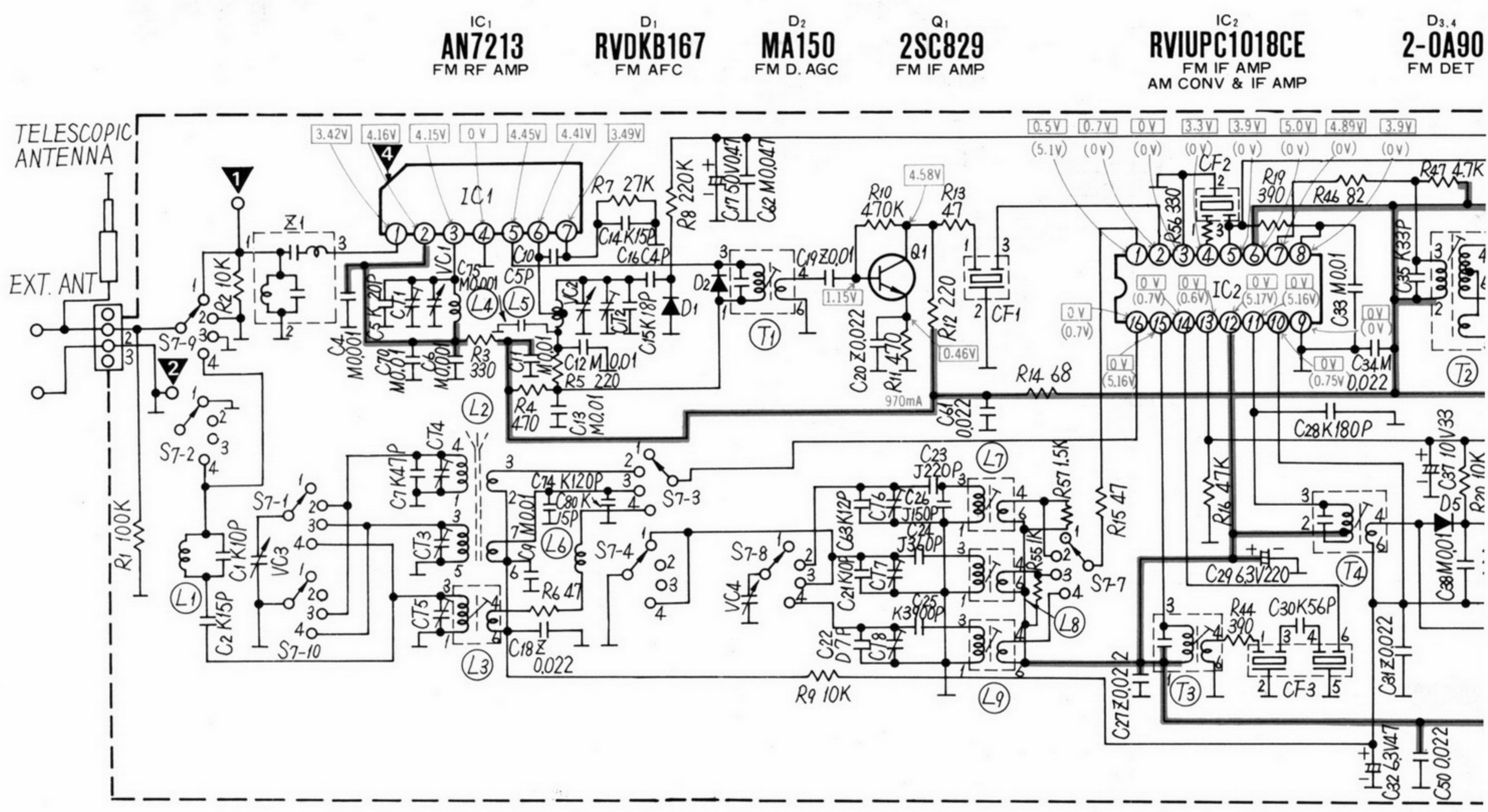


## CLOCK CIRCUIT



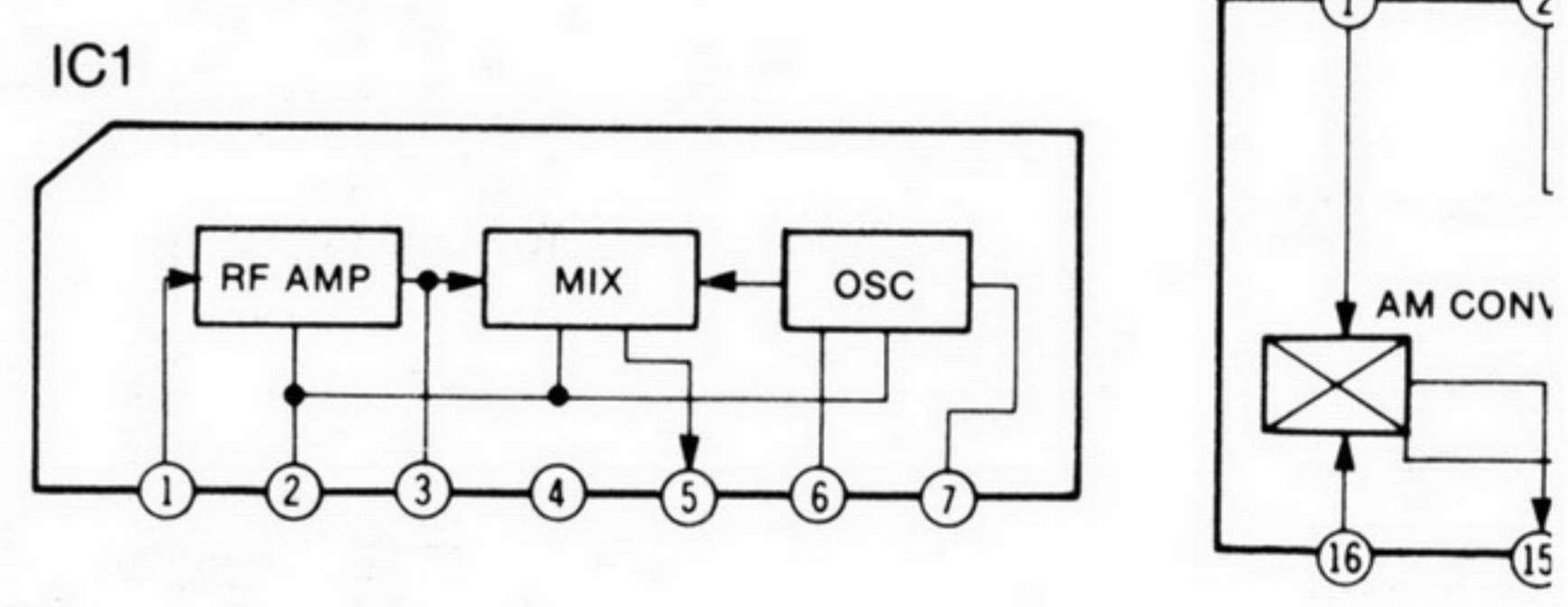


# SCHEMATIC DIAGRAM (RADIO CIRCUIT)

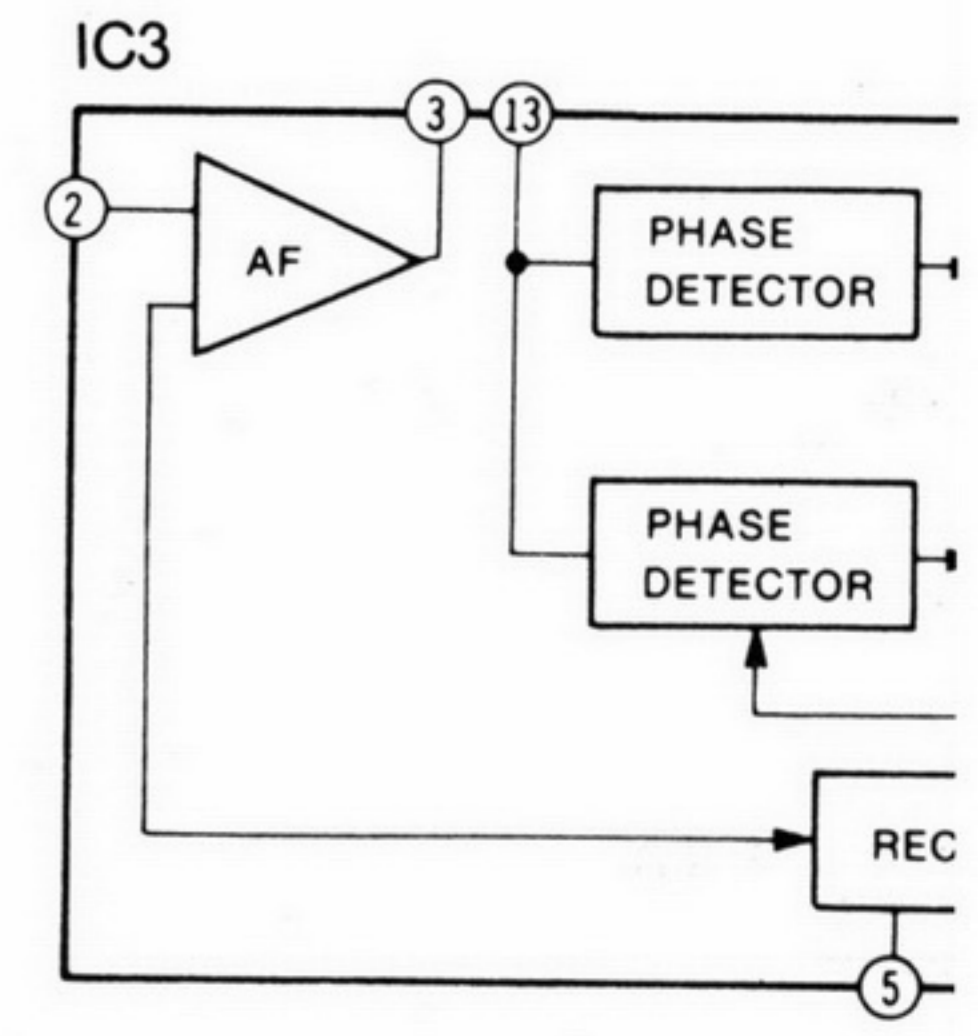
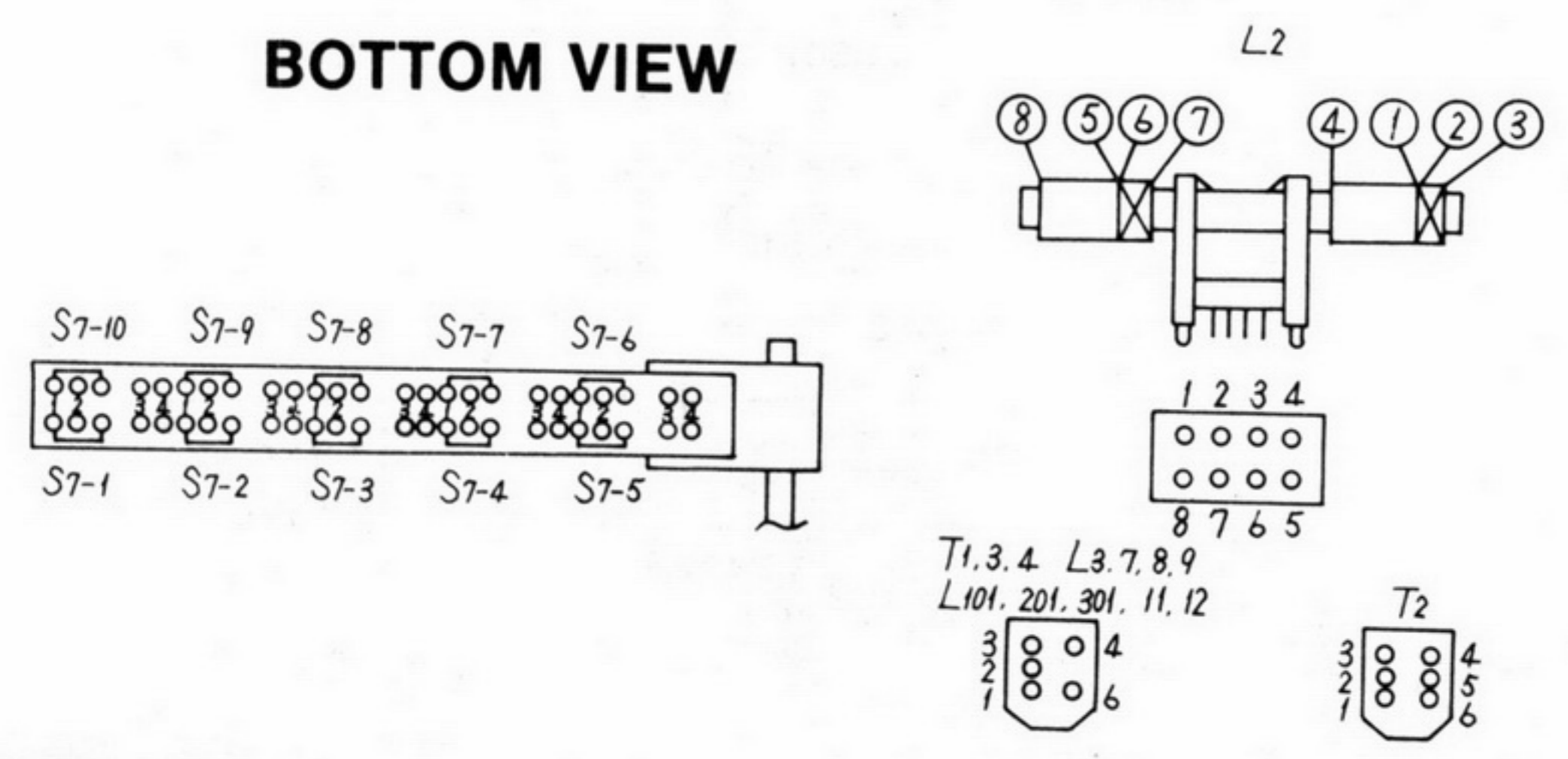


- Notes:**
- S7-1~S7-10: Band selector switch in "FM" position.  
(1...FM, 2...LW, 3...MW, 4...SW)
  - S107: FM mode switch (shown in stereo position).  
1...STEREO, 3...MONAURAL
  - DC voltage measurements are taken with electronics voltmeter from negative terminal of battery.  
□...FM Position, ( )...AM Position < >...FM stereo position
  - Battery current: No signal .....120mA  
Maximum output (Radio) .....1.1A
  - VR1.....VCO Oscillator Frequency Adjust.
  - The mark (▼) shows test point. e.g. ▼ = test point 1.

## IC BLOCK DIAGRAM

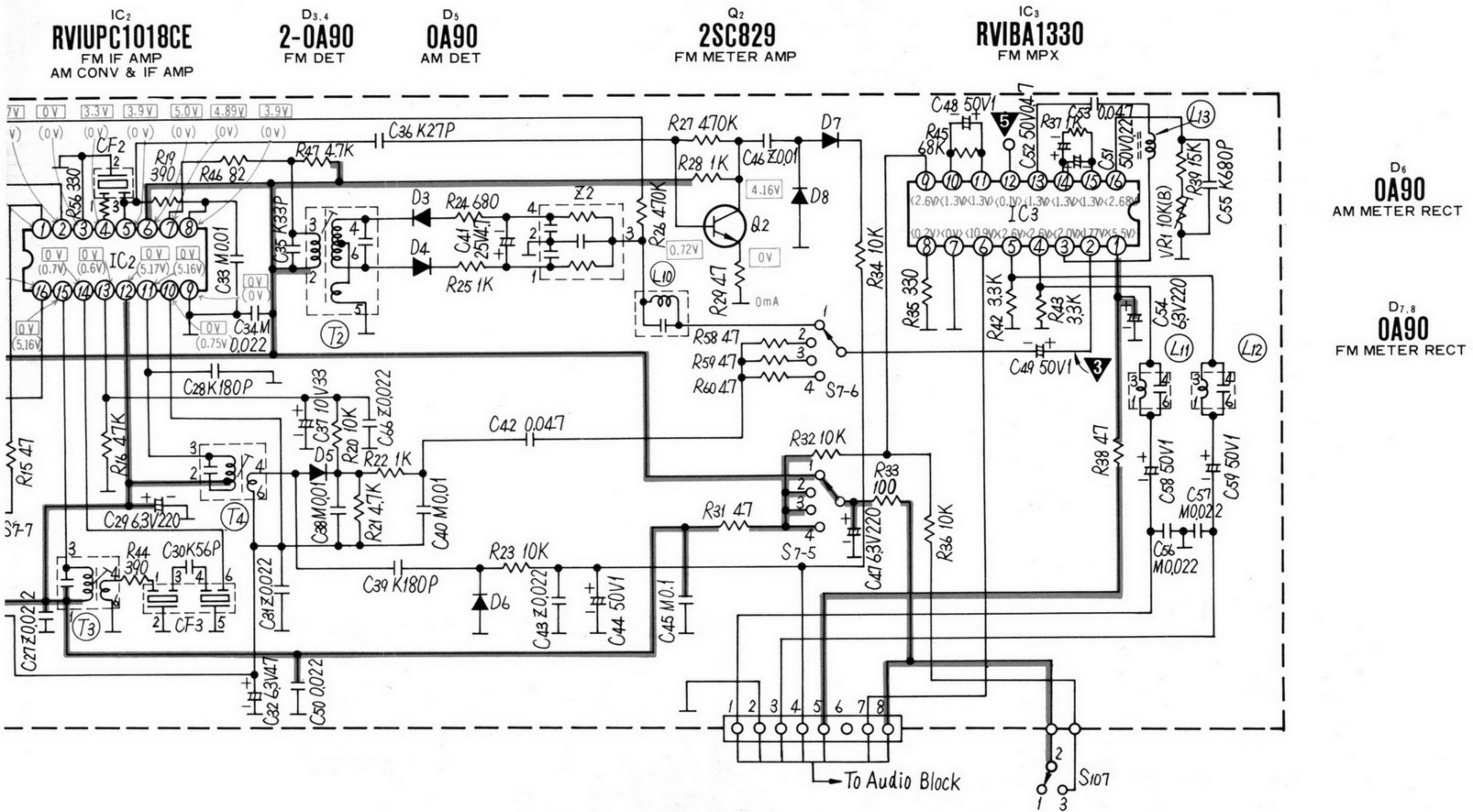


## BOTTOM VIEW

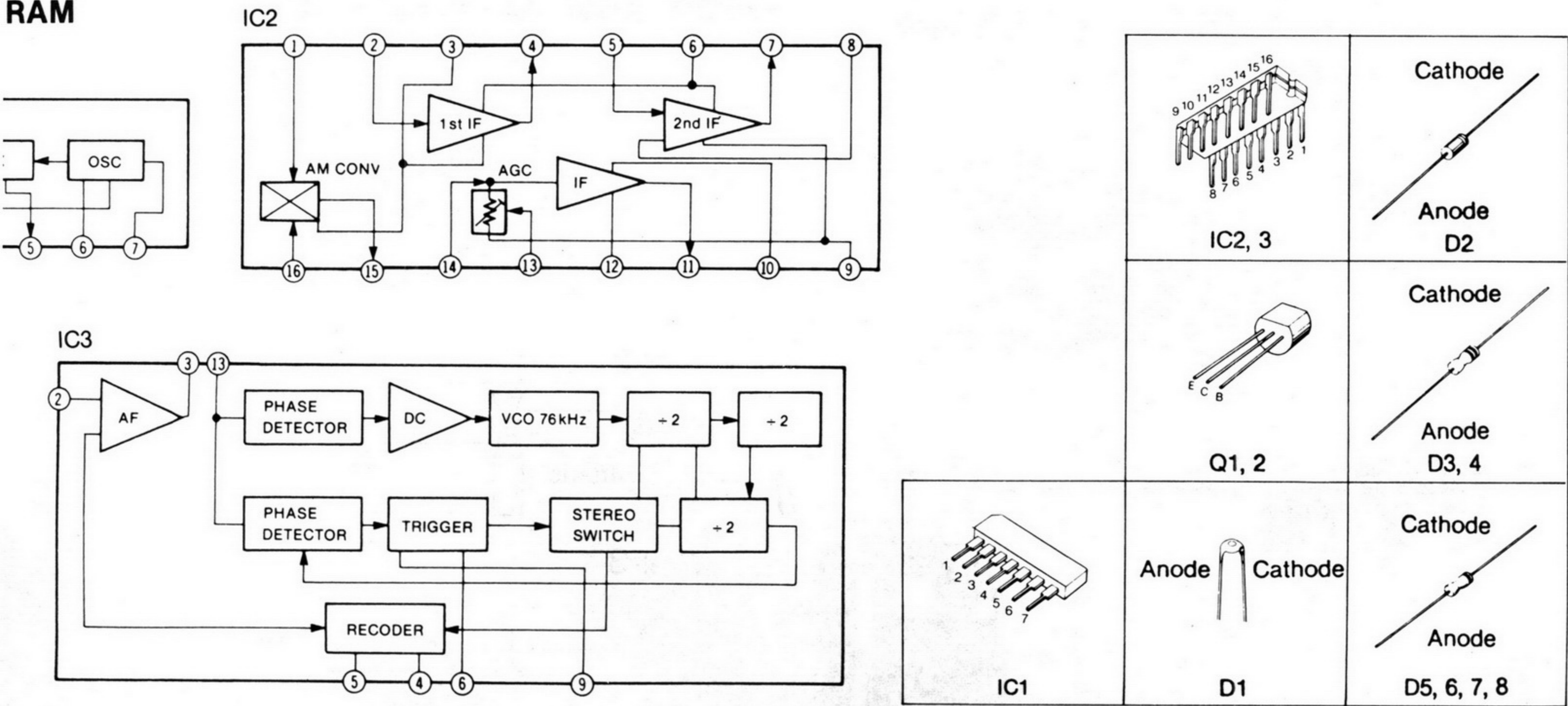




# RAM (RADIO CIRCUIT) MODEL RX-5220LS



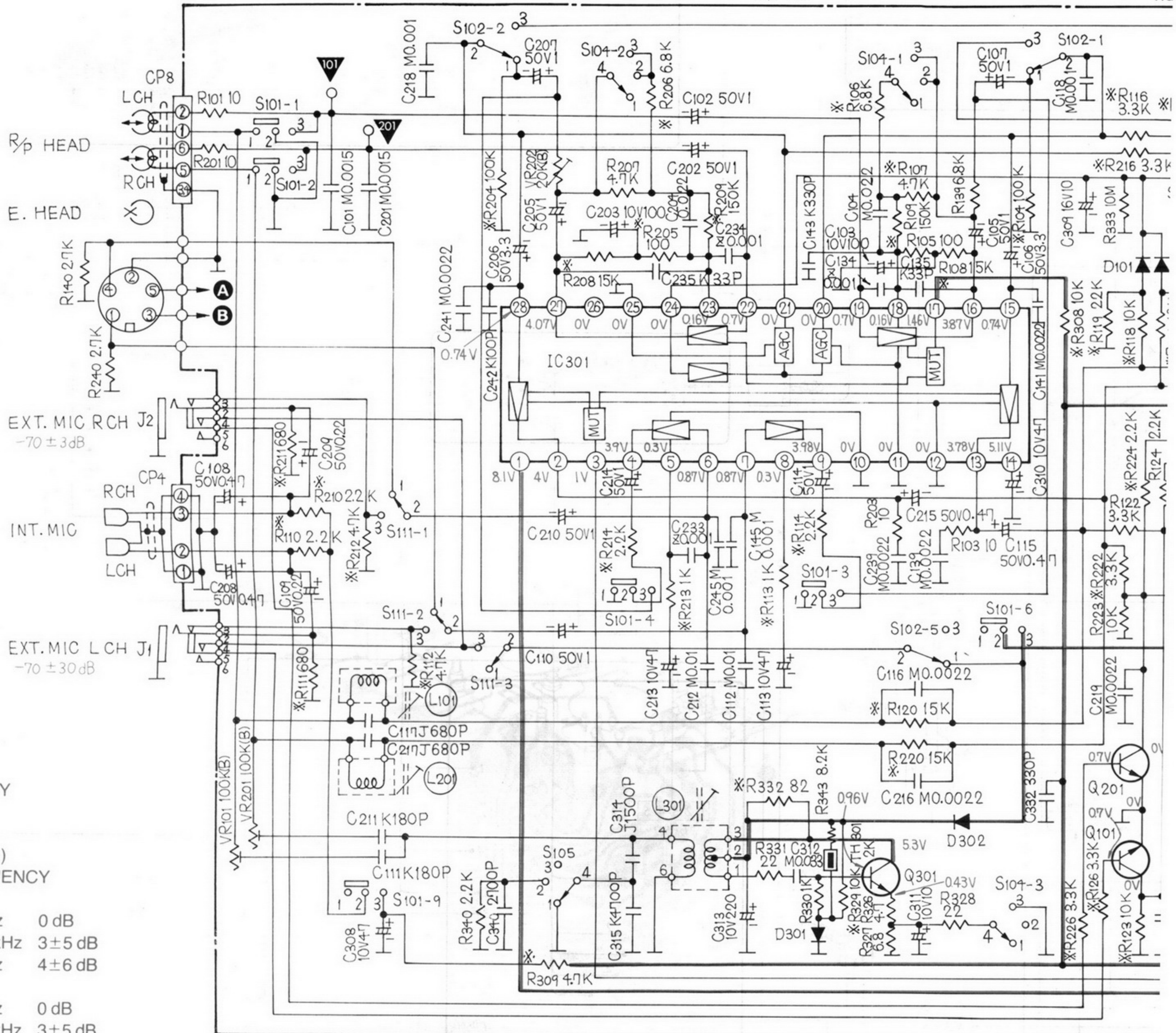
## RAM





IC301  
**AN6210**  
R/P AMP

D101  
**1S24**  
AG



BIAS FREQUENCY  
54±1 kHz

BIAS VOLTAGE  
4±0.2 mV (CrO<sub>2</sub>)

OVERALL FREQUENCY RESPONSE

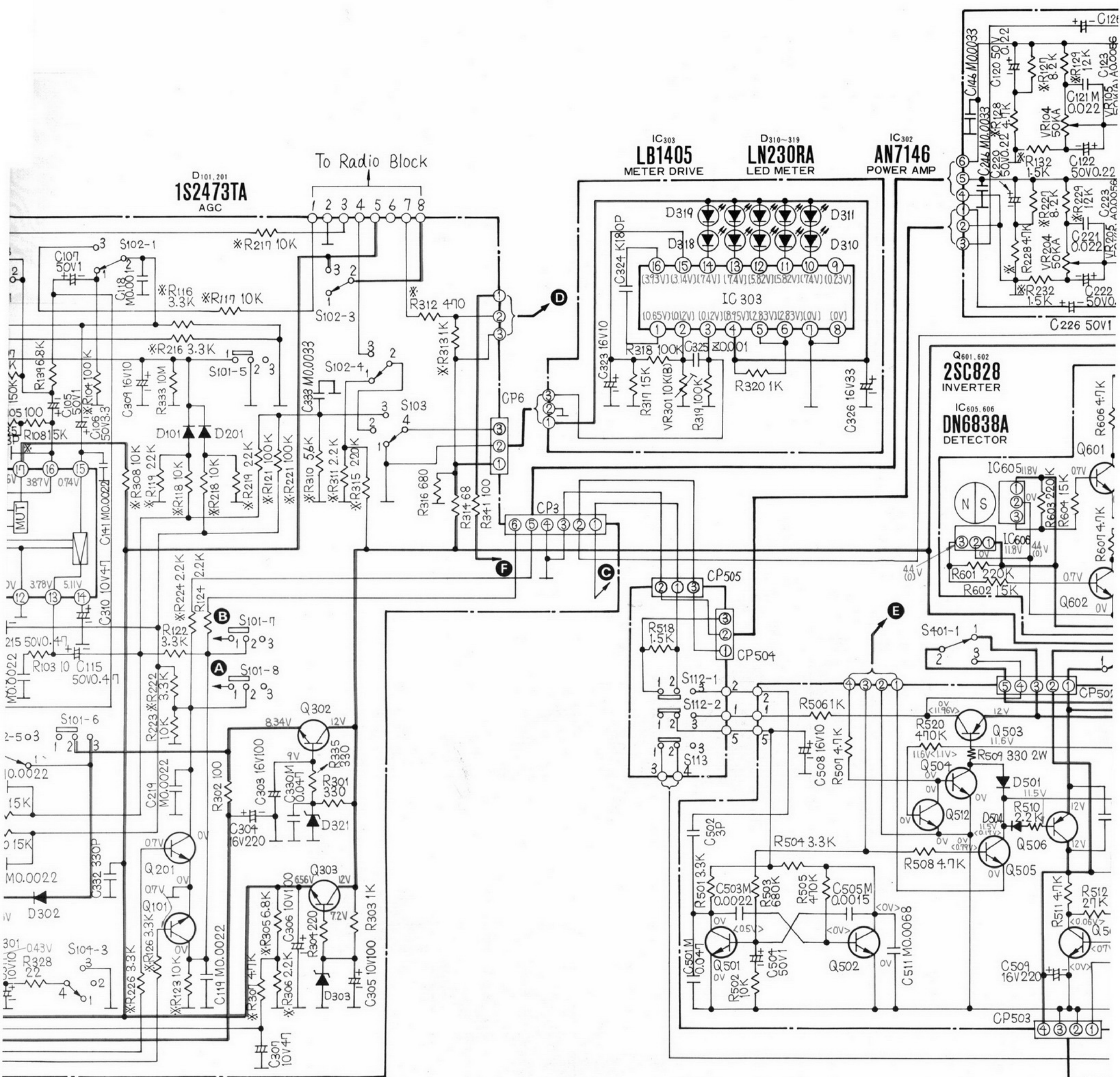
Normal	1 kHz	0 dB
	125 kHz	3±5 dB
	6 kHz	4±6 dB
CrO <sub>2</sub>	1 kHz	0 dB
	125 kHz	3±5 dB
	6 kHz	4±6 dB

D301 **RVDKB262D** AOC  
Q301 **2SC2001** BIAS OSC  
D302 **SM102LF** SWITCHING  
Q101, 201 **2SC945** INT MIC MUT  
D321 **MA1110TA** REGULATOR

- Notes:**
- |                   |  |                    |                           |
|-------------------|--|--------------------|---------------------------|
| 1. S101-1~S101-9  | Record/playback switch in "playback" position. | 8. S109            | Voltage select switch.    |
| 2. S102-1~S102-6  | Function switch in "TAPE" position.            | 9. S110            | FF, play/rewind switch in |
| 3. S103           | Meter switch in "OFF" position.                | 10. S111-1~S111-3  | DIN/MIC switch in "DIN"   |
| 4. S104-1~S104-3  | Tape select switch in "NORMAL" position.       | 11. S112-1, S112-2 | Chirp ON/OFF switch in "  |
| 5. S105           | Beat proof switch in "I" position.             | 12. S113           | Memory rewind switch in " |
| 6. S106-1, S106-2 | Motor ON/OFF switch in "OFF" position.         | 13. VR101, 201     | Bias current adjustment V |
| 7. S108           | AC/DC select switch in "DC" position.          |                    |                           |



# SCHEMATIC DIAGRAM (AUDIO CIRCUIT) MODEL RX-5220LS



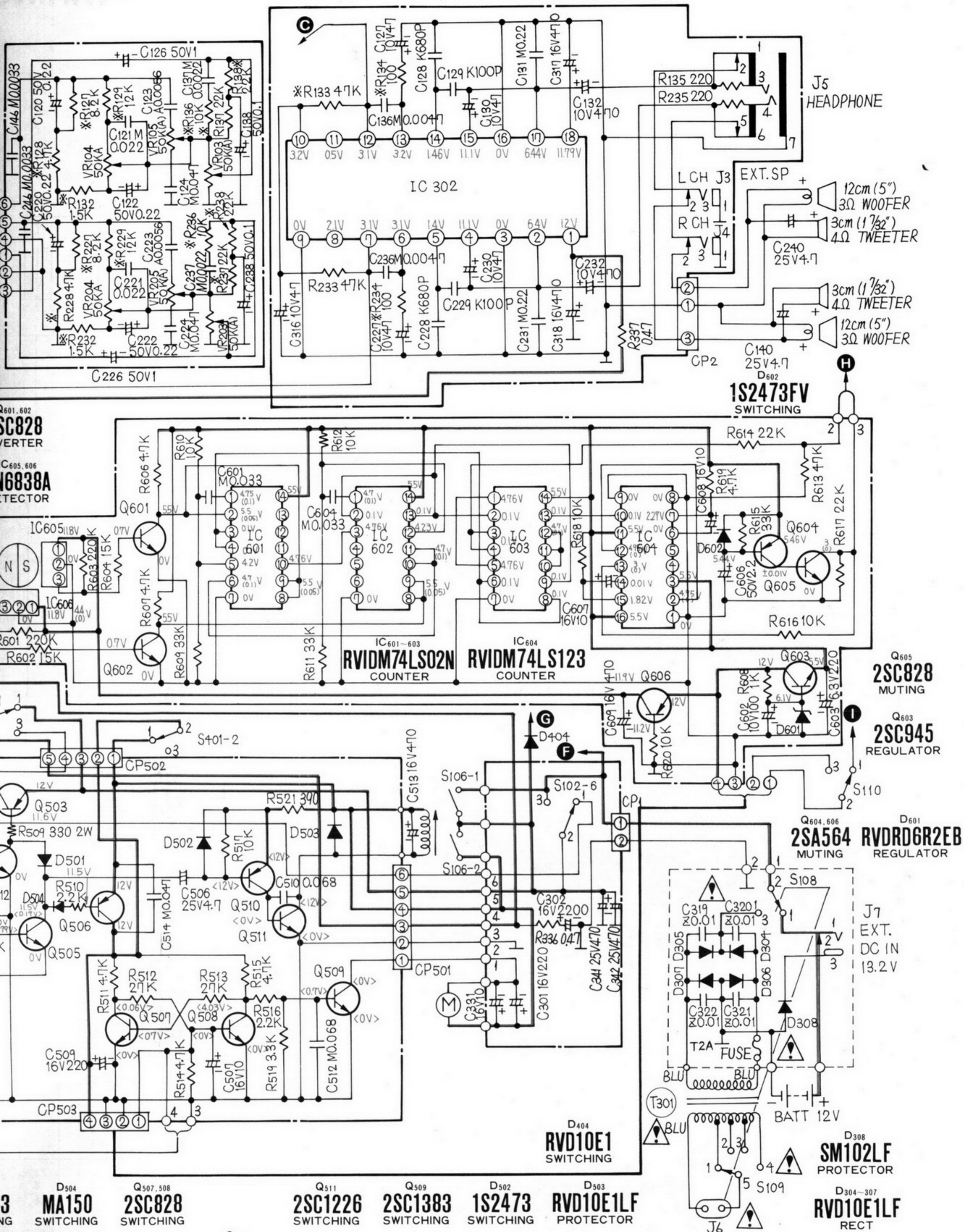
- |   |                                      |                                      |  |  |   |   |                                    |                                   |                             |
|---|--------------------------------------|--------------------------------------|--|--|---|---|------------------------------------|-----------------------------------|-----------------------------|
| Q101, 201<br><b>2SC945</b><br>INT MIC MUT | D321<br><b>MA1110TA</b><br>REGULATOR | D303<br><b>MA1075TA</b><br>REGULATOR | Q302, 303<br><b>2SC2001</b><br>REGULATOR | Q504, 505, 512<br><b>2SC828</b><br>CONTROL | Q501, 502<br><b>2SC828</b><br>CHIRP OSC | Q506, 510<br><b>2SA564</b><br>SWITCHING | D501<br><b>1S2473</b><br>SWITCHING | D504<br><b>MA150</b><br>SWITCHING | Q507<br><b>2SC</b><br>SWITC |
|---|--------------------------------------|--------------------------------------|--|--|---|---|------------------------------------|-----------------------------------|-----------------------------|

- ..... Voltage select switch.
- ..... FF, play/rewind switch in "rewind" position.
- ..... DIN/MIC switch in "DIN" position. (1 ... DIN, 3 ... MIC)
- ..... Chirp ON/OFF switch in "OFF" position.
- ..... Memory rewind switch in "OFF" position.
- ..... Bias current adjustment VR.

- VR202 ..... Playback level adjustment VR.
- VR103, 203 ..... Volume control.
- VR104, 204, 105, 205 ... Tone control.
- VR301 ..... Meter level adjustment VR.
- 14. The mark (▼) shows test point. e.g. ▼ = Test point 1.
- 15. DC voltage measurements are taken with electronics voltmeter from negative to



RX-5220LS



- ... Low    ▭ ... High  
 ▭ ... Low
16. Battery current: No signal ..... 120 mA  
                           Maximum (Radio) ..... 1.1A  
                           Maximum (Tape) ..... 1.3A
17. ⚠ indicates that only parts specified by the manufacture be used for safety.

multimeter from negative terminal of battery.

01, 201, 301 ... Record position.