

Rogers Majestic RG8055A - Philips F5C13A

SERVICE MANUAL FOR MODELS F5C13A/RG8055A

DESCRIPTION

Models F5C13A/RG8055A are High Fidelity Stereophonic Radio Phonographs for operation from a 117 volt 60 c/s supply.

| | | |
|---------------------|-------------|--|
| <u>ROGERS TUBES</u> | 12AX7/ECC83 | 1st A. F. Amplifier left and right channels. |
| | 12AX7/ECC83 | 2nd A. F. Amplifier left and right channels. |
| | 6BQ5/EL84 | A. F. Output Amplifier. One tube for each channel. |
| | 6AQ8/ECC85 | F. M. Mixer-Oscillator |
| | 6AJ8/ECH81 | A. M. Mixer-Oscillator/FM. IF Amplifier |
| | 6BA6 | A. M./F. M. I-F Amplifier |
| | 6AM6/EF91 | A. M. Detector/F. M. Limiter |
| | 6AL5/EAA91 | Ratio Detector Diodes |
| | 6CA4/EZ81 | Rectifier |
| | 1N87 | Diode Switch |

AUDIO OUTPUT 4 Watts each channel, 800 ohms impedance each channel. NOTE: When checking the amplifier both channels must be terminated.

RECORD CHANGER AG1024.

A. M. TUNER Frequency range 540-1600 Kc/s. I-F 455 Kc/s.

F. M. TUNER Frequency range 88-108 Mc/s. I-F 10.7 Mc/s.

TO REMOVE THE CHASSIS

Remove the knobs, back cover, metal back plate, all plugs and the retaining screw in the bottom cover of the chassis. It may then be slid out from the channels. The dial glass may be removed separately.

AUDIO TESTING

Terminate both channels with dummy loads as shown on schematic diagram. Connect an a-c audio voltmeter across this load. For 4 watts the voltage across the total load is 56.5V r.m.s.

A. M. ALIGNMENT

Refer to the diagram for tube location and alignment points. Do not exceed 40V (2W) at the audio output during alignment. (Or 70 mV at the take-off point on the panel).

I-F Alignment: Turn the tuning knob until the gang is fully open. Connect a modulated R. F. generator to the antenna section of the gang (C 1) from the direct output via a .05 μ F capacitor. Adjust L11, L10, L7 and L6 in that order for maximum output.

R-F Alignment: Connect the direct output of the R-F generator via a .05 μ F capacitor to the AM antenna terminal. Set its frequency to 600 Kc/s. Tune until the gang is fully closed when pointer should be at START line on alignment scale. Tune to 600 on the scale and adjust the oscillator coil L3 for maximum output. Set generator at 1500 Kc/s tune to 1500 mark and adjust C4 for maximum output. Repeat these two steps until correct adjustment of both frequencies is established. At 1500 Kc/s tune for maximum output and adjust antenna trimmer C3 for maximum output.

F. M. I-F ALIGNMENT

General: The AM section must be in correct alignment before attempting F. M. alignment. For optimum alignment a 10.7 Mc/s sweep frequency oscillator is needed with an oscillographic display of the response. Failing this a DC alignment is given.

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Sweep alignment: The sweep generator must be capable of covering 10.7 Mc/s and have an output impedance of 100 ohms or less. There must be a resistive termination at the probe. Disconnect the AM take-off lead from the function switch.

1. Ratio detector - Connect the sweep generator terminated at the probe to test point number one. (TP1). Connect 2 'scope to the FM take-off lead at the switch. Adjust the ratio detector coils (L12, L14) for max. symmetrical, linear response centred on 10.7 Mc/s.
2. Second IF - Move sweep to TP2 and 'scope to AM take off lead lifted from switch. Adjust the second IF transformer (L8, L9) for maximum "flat-topped" symmetrical response centred on 10.7 Mc/s.
3. First IF - Move sweep to TP3, do not move 'scope. Screw the core of the coupling coil on the panel (L2) until approx. 1/8th. inch protrudes from the top. Adjust the first IF transformer (L4, L5) for maximum output with adjacent 100 Kc/s markers at approx. equal levels. Readjust the secondary of the second I-F (L9) if necessary to obtain a symmetrical response.
4. Overall IF - Move sweep to shield can of tuner tube lifted off ground, and adjacent ground lug. Screw core of coupling coil (L2) in to obtain max. display and adjust it and the output coil (L23, L24) on the tuner to obtain a symmetrical response centred on 10.7 Mc/s with the adjacent 100 Kc/s markers at equal levels approx. half way between the peak and the zero line.
5. Overall detection - Move the 'scope back to the FM take-off lead and replace the AM take-off lead on the switch. Observe the overall detection characteristic and retune the secondary of the ratio detector transformer as necessary to achieve a symmetrical and reasonably linear response at low levels through to higher ones. The primary may also be adjusted if required.

DC Alignment: Connect an unmodulated 10.7 Mc/s RF signal to the points indicated via a 1500 μ F capacitor and a D.C. VTVM across the ratio detector load (10K, R20) except in 1.(b) below. Do not exceed 3 V at VTVM.

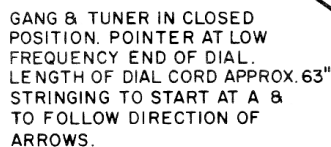
1. a) Inject the signal at TP1 and adjust L12 for maximum reading at VTVM.
b) Connect two 220K resistors in series across R20. Connect the meter between the junction of the two resistors and the FM audio take-off point. Adjust L14 for zero reading.
2. Signal to TP2, adjust L8, L9 for max. reading.
3. Signal to TP3, unscrew the core of the coupling coil on the panel (L2) until about 1/8th. inch protrudes from the top. Adjust L4, L5 for max. reading.
4. Signal to tube shield of the tuner (V5) lifted off ground, screw in L2 and adjust it and the tuner output coil (L23, L24) for max. reading.

F.M. TUNER ALIGNMENT

If a balanced 300 ohm signal source is available connect it to the FM dipole terminals. Otherwise an unbalanced input may be connected between either of the FM dipole terminals and ground.

1. Neutralizing - Connect a VTVM capable of operating at 100 Mc/s to pin 1 of V5 by partly removing it from its socket. Adjust C57 for minimum reading with no signal applied.
2. Replace V5. Set pointer to 100 Mc/s, inject 100 Mc/s and adjust C56 for max. DC VTVM reading across R20.
3. Pointer and signal at 108 Mc/s, adjust C48 for max. reading across R20.
4. Pointer and signal at 88 Mc/s, adjust L16, L17 for max. reading across R20.

RCC Supplement Number 50, Page 56 to 60 - 1960



A diagram of a solenoid, which is a long coil of wire. The wire is represented by a horizontal line with a series of vertical loops in the center, indicating the coil. Two small circles with dots inside are at the ends of the wire, representing the current entering and leaving the solenoid. Below the solenoid, the letter 'I' is written, indicating the current.

PHONO
INPUT

START. PUT STRING END THROUGH HOLE MARKED X. GANG 8. TUNER MUST BE IN CLOSED POSITION. LENGTH OF DIAL CORD APPROX. 12 $\frac{5}{8}$ "

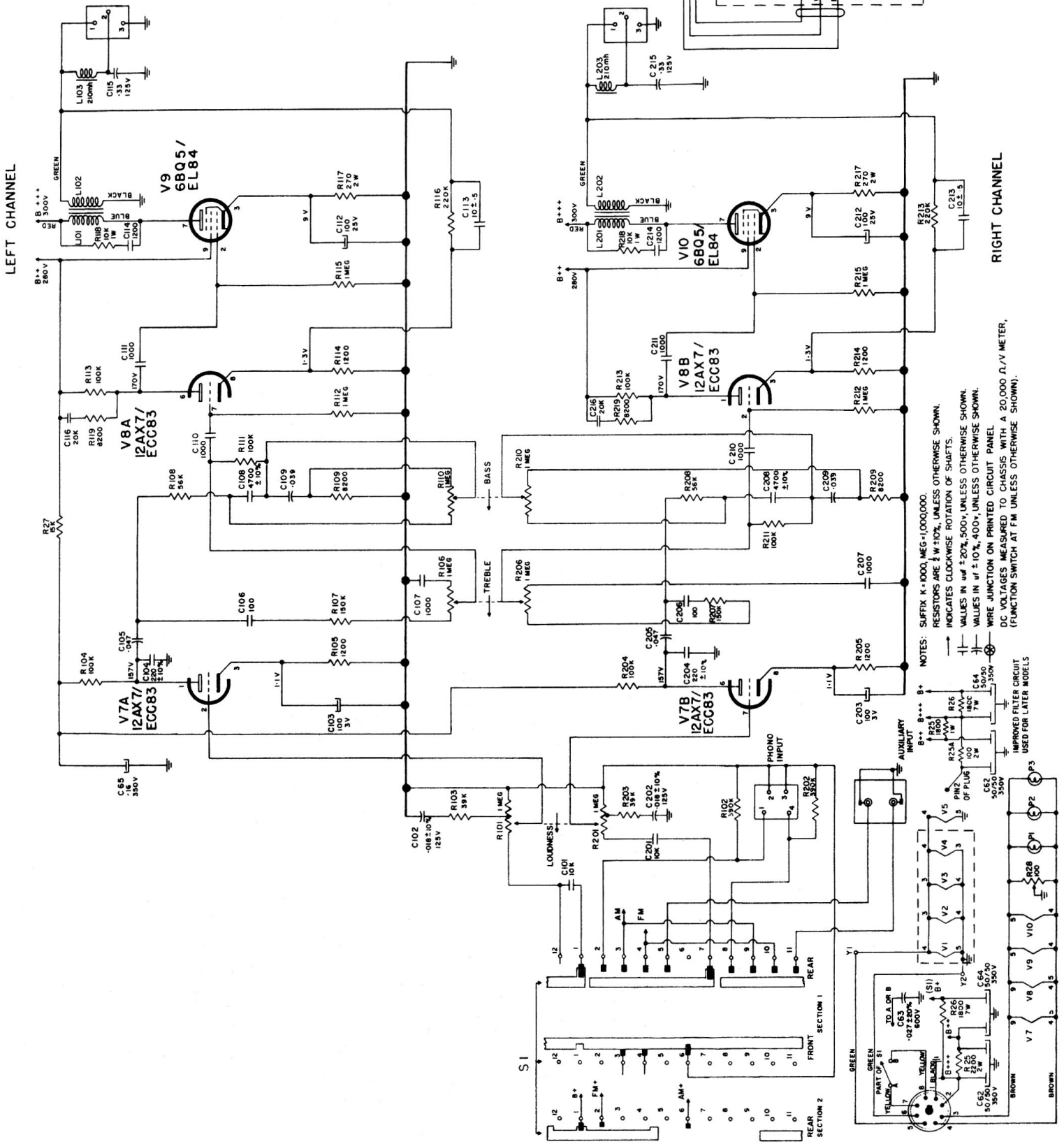
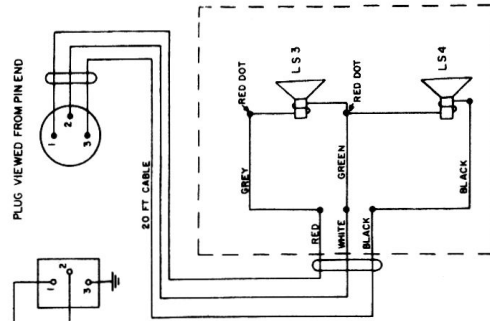
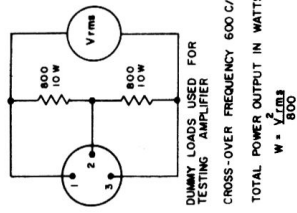
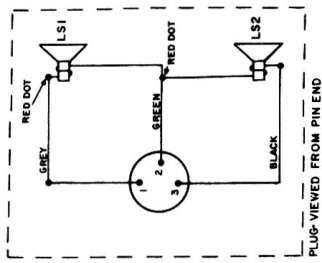
FINISH MUST BE SECURELY FASTENED WITH SCREW AS SHOWN. GANG 8. TUNER MUST BE IN CLOSED POSITION. LENGTH OF DIAL CORD APPROX. 16"

LOUDNESS / BALANCE

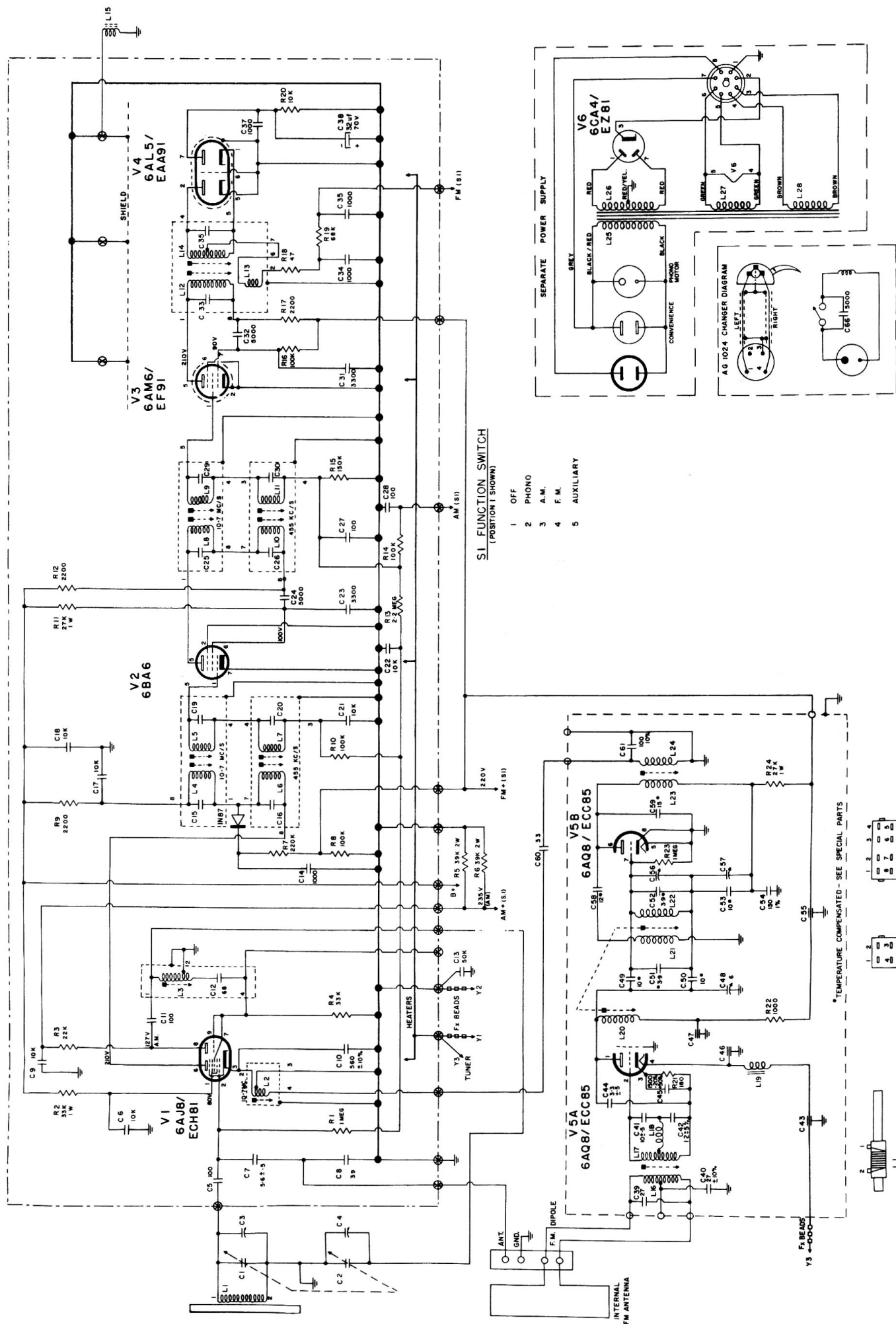
3 TURNS AROUND
TUNING SHAFT

TREBLE

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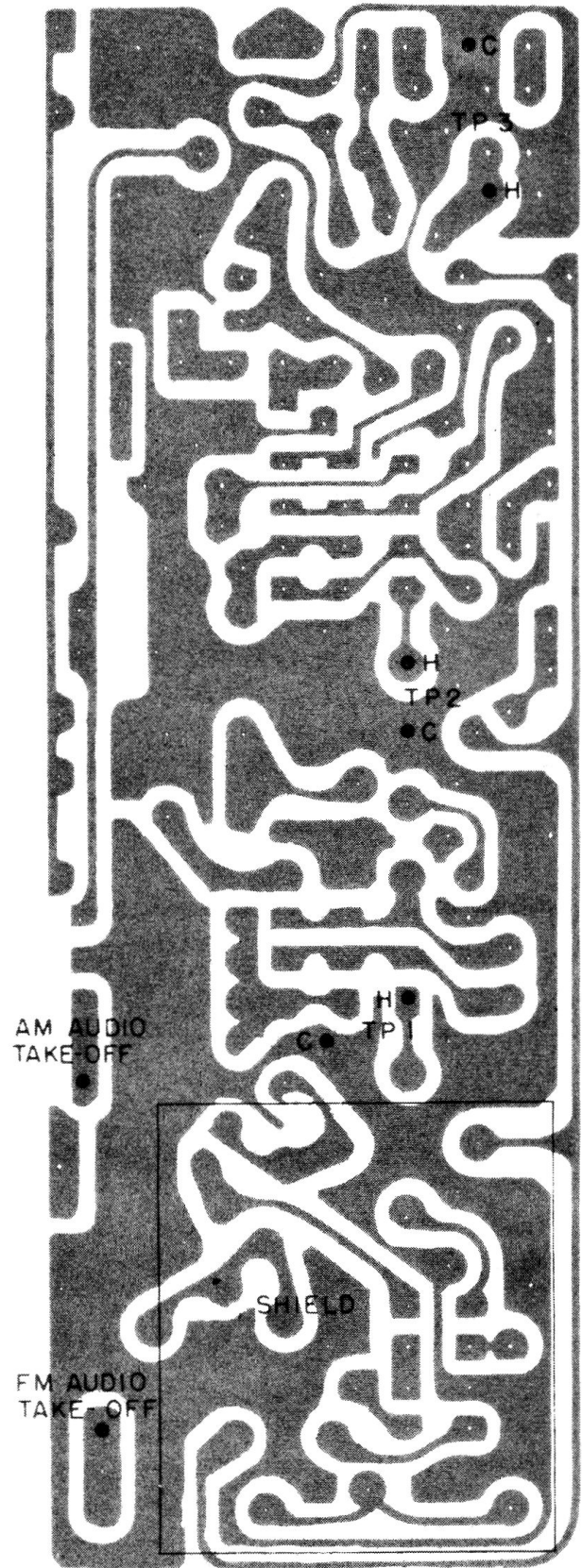
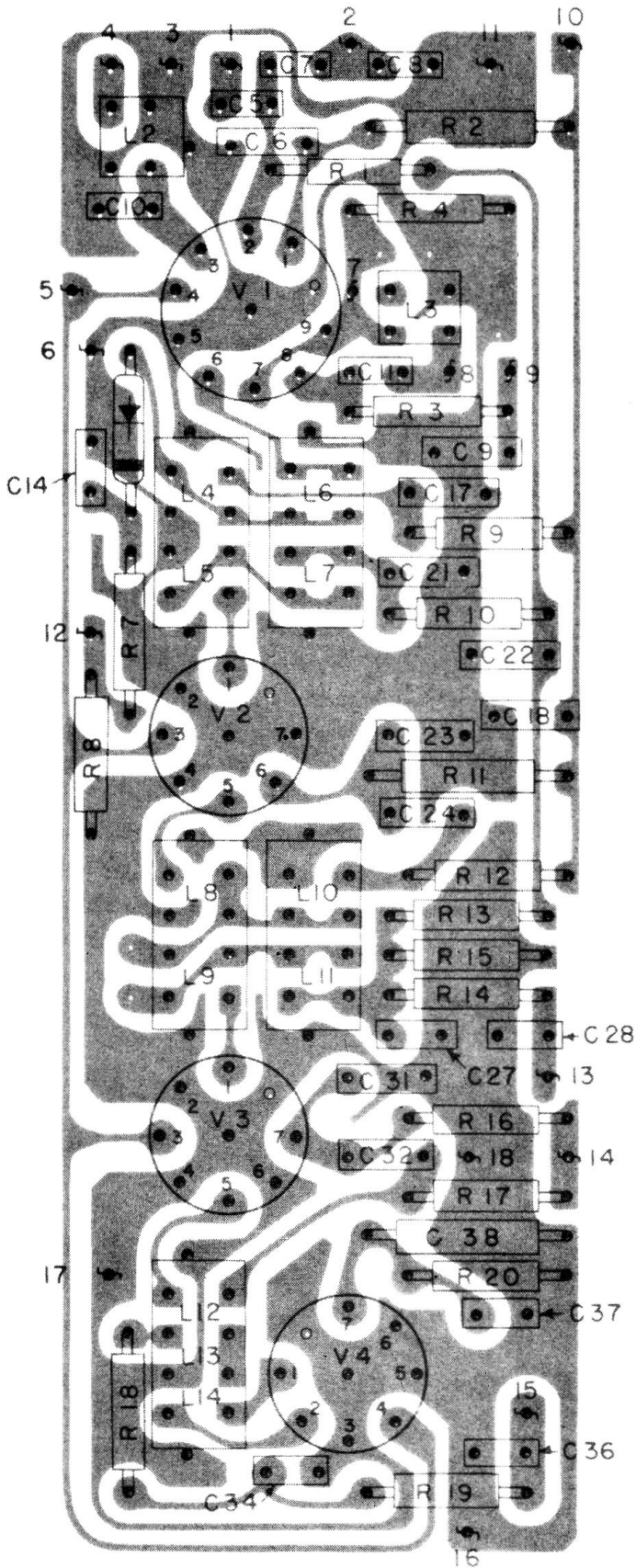
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COMPONENT VIEW

PRINTED WIRING VIEW



AM AUDIO
TAKE OFF

FM AUDIO
TAKE OFF

SHIELD

