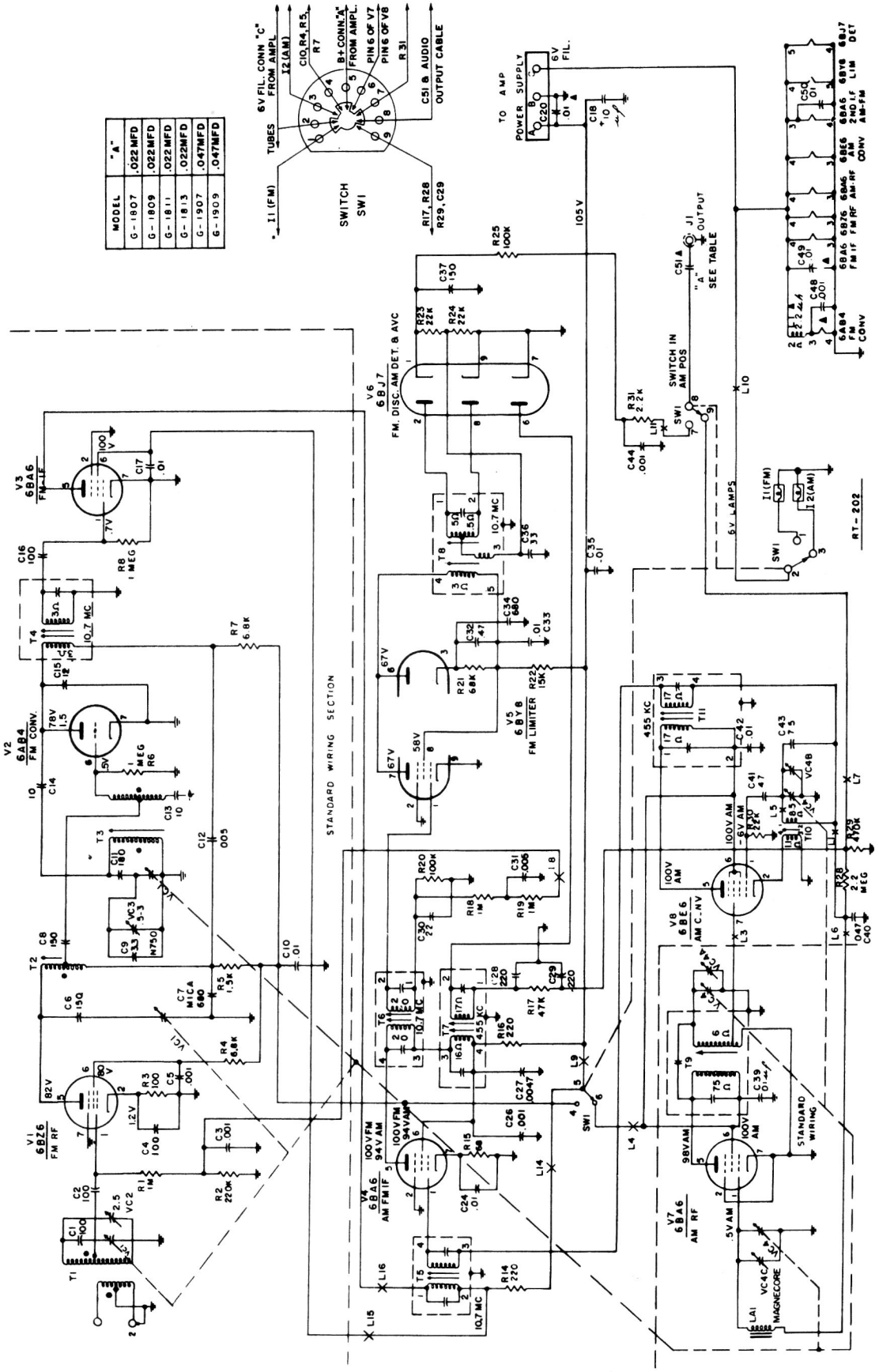

MODEL "A"
G-1807 .022 MFD
G-1809 .022 MFD
G-1811 .022 MFD
G-1813 .022 MFD
G-1907 .047 MFD
G-1909 .047 MFD
SWITCH SW1
TUBES
6V FIL. CONN "C" FROM AMPL.
B+ CONN "A" FROM AMPL.
PIN 6 OF V7
PIN 6 OF V8
C51 B AUDIO OUTPUT CABLE
R17, R28 R29, C29
TO AMP POWER SUPPLY
6V FIL.
105 V
R25 100K
C37 150
R23 22K
R24 22K
V6 6BJ7 FM. DISC. AM DET. & AVC
C36 33
C35 .01
R31 2.2K
C44 .001
SWITCH IN AM POS
C51 A
J1 OUTPUT
"A" SEE TABLE
6V LAMPS
RT-202
V3 6BA6 FM I.F.
V2 6AB4 FM CONV.
V5 6BY8 FM LIMITER
V1 6BZ6 FM RF
V4 6BA6 AM FM I.F.
V8 6BE6 AM C. NV
V7 6BA6 AM RF
STANDARD WIRING SECTION
STANDARD WIRING
MAGNECORE
6AB4 FM CONV
6BE6 AM CONV
6BA6 2ND I.F. AM-FM
6BY8 LIM DET
6BJ7 DET
6BA6 FM I.F.
6BA6 6BZ6 AM-RF
6BA6 FM RF

SPECIFICATIONS

AM/FM Tuner Type RT-202 is used in the "G" line Philco High-Fidelity Radio-Phonographs.

Circuit—Eight-tube superheterodyne circuit.

Frequency Range—Broadcast (AM) 540KC-1620KC, FM 88MC-108MC.

Tuning Drive Ratio—10:1.

Operating Voltage—B+ and filament voltages are supplied by its associated amplifier.

Intermediate Frequencies—AM-455KC. FM-10.7MC.

Philco Tubes—6BZ6, FM r-f amplifier; 6AB4, FM converter; 6BA6, 1st FM i-f; 6BA6, AM r-f; 6BE6, AM converter; 6BA6, AM/FM i-f; 6BY8, FM i-f and limiter; 6BJ7, Armstrong type FM detector, AM detector and AVC.

Antennas—AM-built-in magnecor or loop.
FM-Line cord with provisions for connecting external antenna.

AM ALIGNMENT PROCEDURE

The AM alignment should be completed before the FM alignment is performed. Before beginning the alignment, allow the receiver and test equipment to warm up for fifteen minutes.

DIAL POINTER—With the gang fully closed, adjust the pointer to coincide with the first small index mark before the "5" (540 kc.) on the scale.

TUNER CONTROLS—Set the function switch to the AM band, and the tuning control as indicated.

OUTPUT INDICATOR—Place a scope across the audio output, J1 to ground.

SIGNAL GENERATOR—Use an AM r-f signal generator with modulated output. Connect generator, through a .05-ufd condenser, to grid, pin 7 of AM converter, V8 (6BE6). Connect ground lead to chassis.

PROCEDURE—

1. Set generator to 455 kc. (tuning gang fully open) and adjust, in order given, top of T7, bottom of T11, bottom of T7, and top of T11, for maximum output. Repeat until no further gain is indicated.
2. Connect generator to radiating loop. Set generator to 1600 kc. Set receiver to 1600 kc. as indicated by pointer. Adjust VC4B (osc. trimmer) for maximum output.
3. Set generator to 1400 kc. Tune receiver to signal and adjust VC4A and VC4C for maximum output.
4. Set generator to 580 kc. and tune receiver to signal; adjust core in r-f transformer T9 for maximum output.
5. Repeat steps 4 and 5 for maximum output.

FM ALIGNMENT PROCEDURE

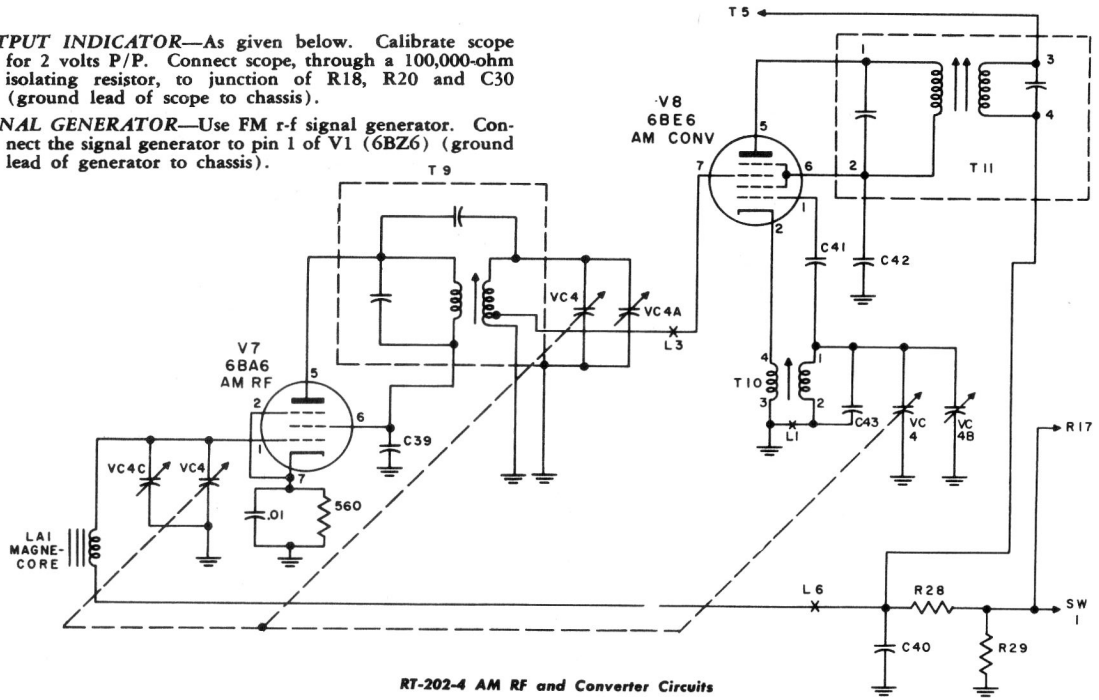
The AM alignment should be completed before the FM alignment is performed.

DIAL POINTER—With the gang fully closed, adjust the pointer to coincide with the first small index mark before the "88" (88MC) on the scale.

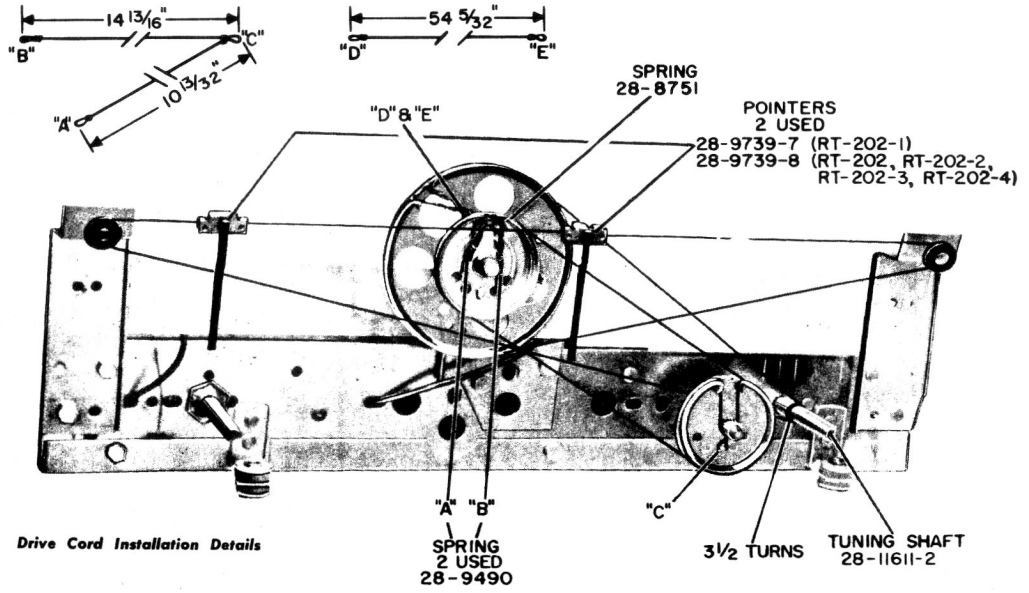
TUNER CONTROLS—Set the function switch to the FM position, and the tuning control as indicated.

OUTPUT INDICATOR—As given below. Calibrate scope for 2 volts P/P. Connect scope, through a 100,000-ohm isolating resistor, to junction of R18, R20 and C30 (ground lead of scope to chassis).

SIGNAL GENERATOR—Use FM r-f signal generator. Connect the signal generator to pin 1 of V1 (6BZ6) (ground lead of generator to chassis).



RT-202-4 AM RF and Converter Circuits



Drive Cord Installation Details

PROCEDURE—

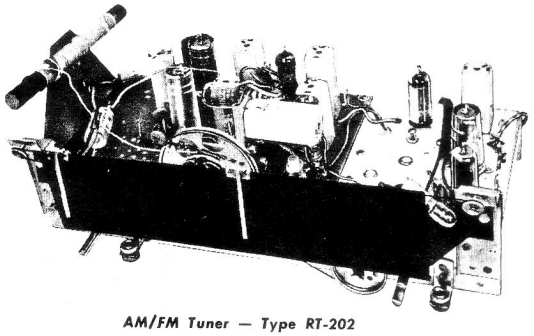
1. Inject 10.7 mc. (unmodulated) marker signal.
2. Inject 10.7 mc. sweep signal, approximately 150 kc. total deviation (do not over sweep).
3. Adjust cores at top and bottom of T6, top and bottom T5, and top and bottom of T4 for maximum-amplitude, symmetrical curve with the 10.7 mc. marker at top of curve. Adjust input signal to maintain output as shown on scope, below 2 volts peak during alignment. Repeat this step until no further gain is obtained.
4. Calibrate scope for 5 volts P/P.
5. Change scope connections to J1 (output cable).
6. Remove sweep signal. Inject 10.7 mc. 30% AM modulated, signal to pin 1 of 6BY8. Adjust top of T8 for minimum indication between peaks. See NOTE below.
7. Inject 10.7 sweep signal, and adjust bottom of T8 for maximum-amplitude, symmetrical output.
8. Inject 108.5 mc. sweep signal (approximately 150 KC. total deviation) through an antenna matching network, to receiver antenna terminals.
9. Open tuning condenser. Insert a 6 mil, non-metallic shim between stator and rotor of FM gang, and close gang against shim. Adjust VC3 for maximum output.
10. With tuning condenser fully closed, inject 87.75 mc. sweep (as in step 8) and adjust T3 for maximum output. See NOTE below.
11. Inject 91 mc. sweep signal (as in step 8) and with tuning gang tuned to 91 mc., adjust T2 for maximum output. See NOTE below.
12. Inject 105 mc. sweep signal (as in step 8), and with tuning gang tuned to 105 mc., adjust VC2 for maximum output. See NOTE below.

NOTE: The signal input must be as low as possible in order to obtain a sharp indication. In some cases it may be necessary to set the signal generator to the first sub harmonic.

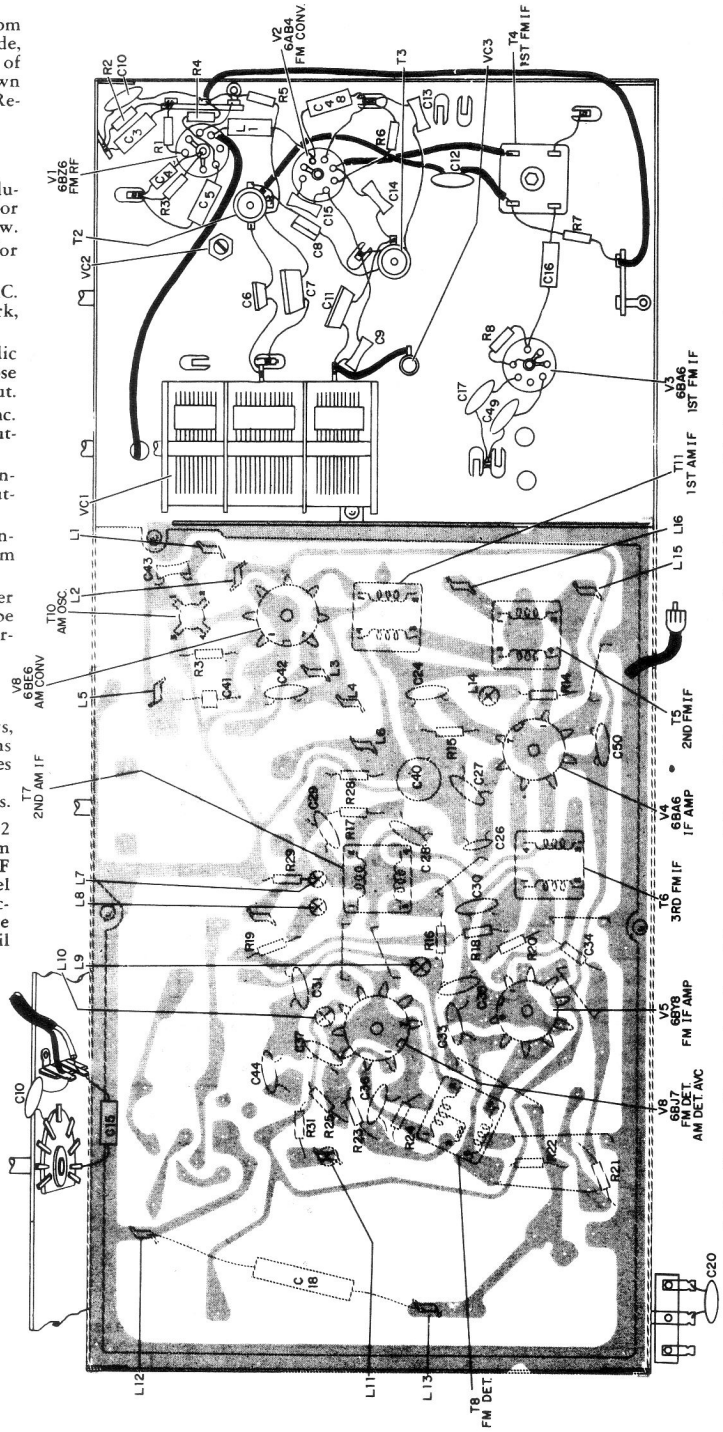
CHASSIS VARIATIONS

Variations of the RT-202 chassis will be found as follows, RT-202-1, RT-202-2, RT-202-3, RT-202-4. The variations consist primarily of varying lengths of the connecting cables and leads, different dial pointers and AM antennas used and varying methods of mounting the pilot lights.

Electrically all chassis are identical except the RT-202-2 and the RT-202-4. The RT-202-4 chassis contains a 560 ohm resistor and .01 mfd capacitor from the cathode of the AM-RF amplifier (V7) to ground. Lug L1 on the printed wire panel of the RT-202-4 chassis is grounded, thus returning the secondary of T10 and condenser C43 to ground instead of the AVC circuit. The RT-202-2 chassis uses an AM antenna coil while the remaining chassis use a magnecore antenna

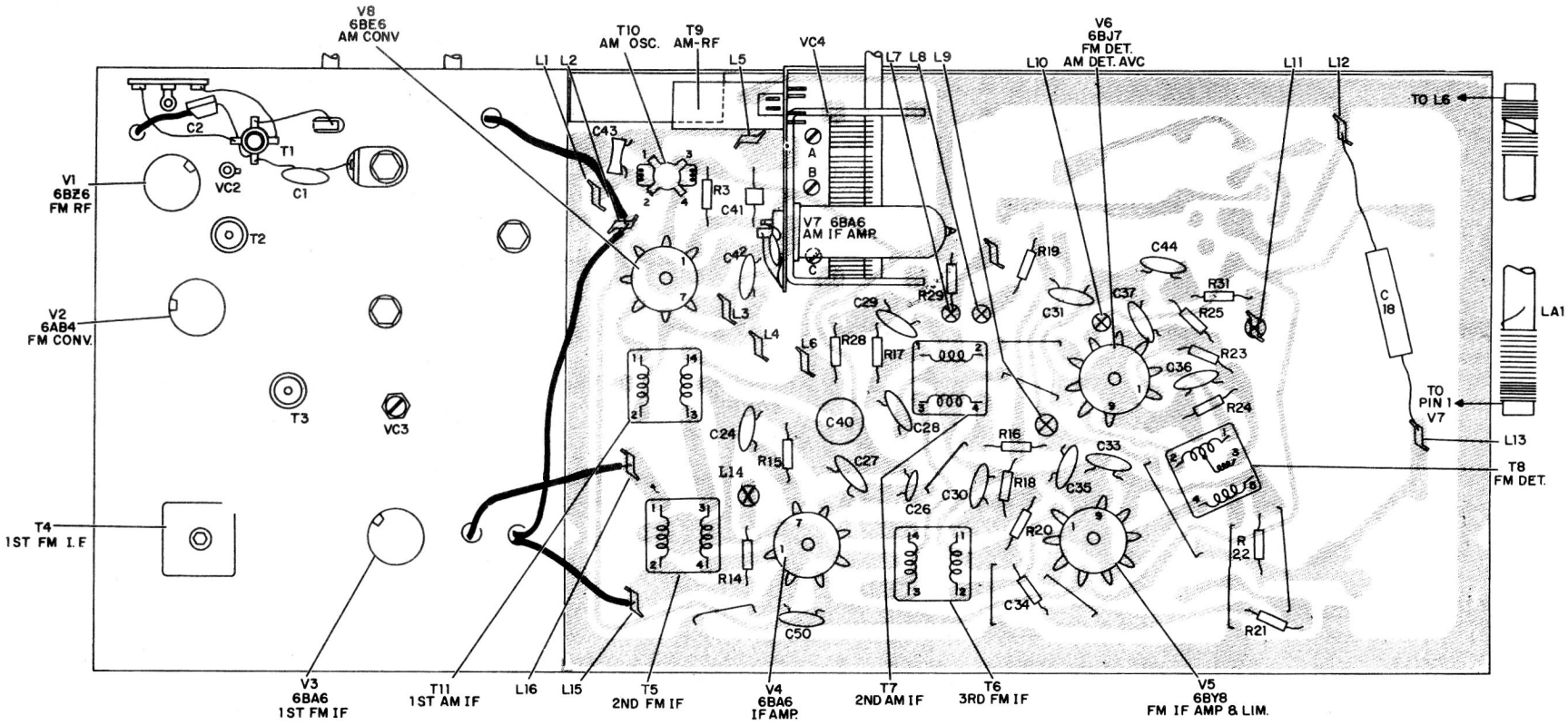


AM/FM Tuner — Type RT-202



Bottom View — Showing Location of Components, Tubes and Tie Lugs

⊕ on above panel indicates connection on printed-wire side



Top View — Showing Alignment Points, Tube Locations and Tie Lugs

IDENTIFICATION OF PRINTED PANEL TIE LUGS

⊗ on above panel indicates connection on printed-wire side

L1 Black lead from L6.

L2 Brown leads (fil.) from pin 4, 6BA6 (V7), pin 4, 6BZ6 (V1) and pin 4, 6BA6 (V3).

L3 Green lead from transformer T9 to pin 7, 6BE6 (V8).

L4 Red leads from pin 6, 6BA6 (V7) and terminal 6 on switch-SW1.

L5 Green lead from VC4B.

L6 Antenna return—avc lead.

L7⊗ Black lead (AM audio) from terminal 9 of switch SW1.

L8⊗ Yellow lead from R19 to R1, R2 and C3.

L9⊗ Red lead from terminal 5 of switch SW1 to R16 and C35.

L10⊗ Brown lead (fil.) from terminal 2 of switch SW1 to pin 5 6B57 (V6).

L11⊗ Orange lead from terminal 7 of switch SW1 to R31.

L12 Lead from panel ground to chassis ground, pilot light and C18 ground connection.

L13 Orange lead (B+) from amplifier power supply connection terminal "A", C18.

L14⊗ Red lead (B+) from terminal 5 of switch SW1 to R14.

L15 Black lead (B+) to pin 6 of 6BA6 (V3) and C17.

L16 Blue lead (B+) to pin 5 of 6BA6 (V3).