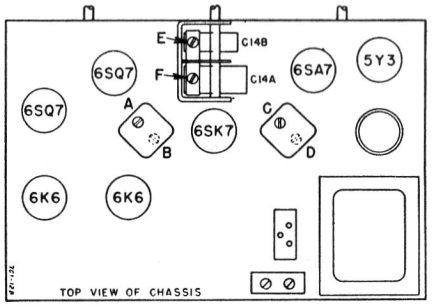
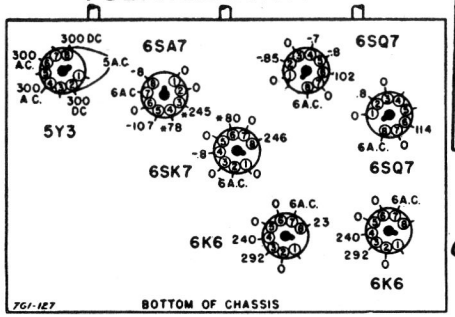
TUBE AND TRIMMER LOCATIONS

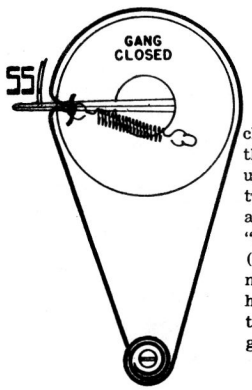


VOLTAGE DATA



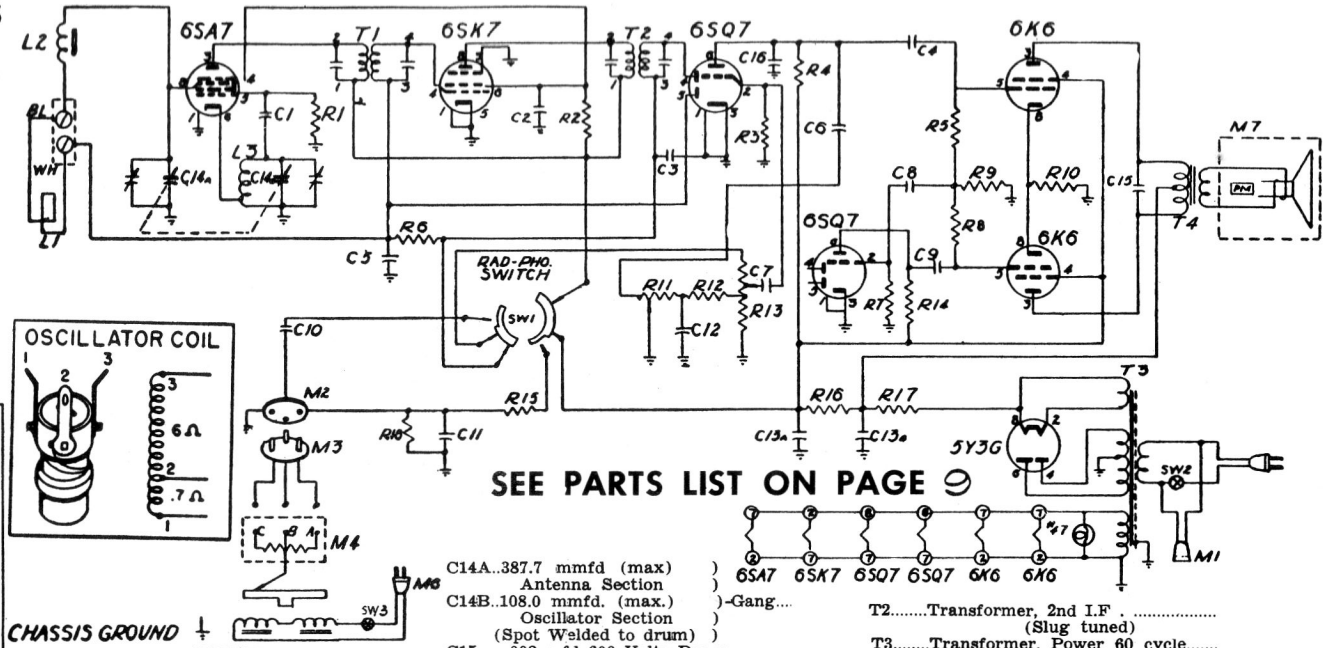
- Switch in "Radio" position.
- Measured on 117 Volt A.C. Line.
- Dial set at low frequency end. Volume control at minimum.
- Voltages measured with a vacuum-tube voltmeter.
- Reading made between point indicated and chassis.

*If taken in "Phono" position, these readings will be zero and plate voltages slightly higher.



POINTER ADJUSTMENT

With the gang fully closed, the centre line of the pointer should line up with the ends of the two parallel lines that are inside of and below "55" on the dial scale (see diagram). If it does not, move the pointer by hand to the proper position while keeping the gang closed.



SEE PARTS LIST ON PAGE 9

RESISTORS

Symbol	Description
R1	22,000 Ohms ½ watt 10%
R2	15,000 Ohms 2 watt 10%
R3	4.7 Meg Ohms ½ watt 10%
R4	270,000 Ohms ½ watt 10%
R5	270,000 Ohms ½ watt 10%
R6	1 Meg Ohms ½ watt 10%
R7	4.7 Meg Ohms ½ watt 10%
R8	270,000 Ohms ½ watt 10%
R9	270,000 Ohms ½ watt 10%
R10	680 Ohms 2 watt
R11	2 Meg Ohms Tone Control (Includes Switch SW2)
R12	47,000 Ohms ½ watt 10%
R13	1 Meg Ohms Volume Control (Tapped at ½ Meg Ohm)
R14	270,000 ½ watt 10%
R15	100,000 Ohms ½ watt 10%
R16	1,800 Ohms 2 watt
R17	100 Ohms 2 watt wire
R18	120,000 Ohms ½ watt 10%
R19	100 Ohms 2 watt 10%

CONDENSERS

C1	50 mmfd Ceramic
C2	1 mfd 400 Volt Paper
C3	250 mmfd Ceramic
C4	.02 mfd 400 Volts Paper
C5	.1 mfd 200 Volts Paper
C6	.005 mfd 600 Volts Paper
C7	.002 mfd 600 Volts Paper
C8	.02 mfd 400 Volts Paper
C9	.02 mfd 400 Volts Paper
C10	.001 mfd 600 Volts Paper
C11	.25 mfd 200 Volts Paper
C12	.01 mfd 400 Volts Paper
C13A..30 mfd 350 Volts)-Electrolytic...	
C13B..50 mfd 350 Volts)	
C14A..387.7 mmfd (max.) Antenna Section	
C14B..108.0 mmfd. (max.) Oscillator Section (Spot Welded to drum)	)-Gang...
C15	.002 mfd 600 Volts Paper
C16	500 mmfd Ceramic

COILS, TRANSFORMERS, ETC.

L1	Loop Antenna (10 ft.)
L2	Coil, Loop Loading
L3	Coil, Oscillator
T1	Transformer, 1st I.F. (Slug tuned)
T2	Transformer, 2nd I.F. (Slug tuned)
T3	Transformer, Power 60 cycle
"OR"	Transformer, Power 25 cycle
T4	Transformer, Output (Speaker)
M7	Speaker, 10" P.M.
SW1	Switch, Radio-Phono
SW2	Swtich, On-Off
SW3	Switch, Phono-Motor On-Off. (See RC180 Changer Manual)

ALIGNMENT PROCEDURE

Connect a low range output meter across terminals of speaker and voice coil.

Turn receiver volume control to maximum; tone control to full treble.

Align dial pointer for proper setting, as illustrated in dial cord stringing and pointer setting diagram.

Allow 10 or 15 minutes for both signal generator and receiver to warm up.

Use lowest generator input signal, capable of procuring an adequate output meter indication. Proceed with alignment as outlined, being sure to use an alignment tool or screwdriver, having the proper size blade, so as to avoid damage to IF tuning slugs.

Repeat adjustments to insure good results.

Step	Dummy Antenna in Series with Signal Generator	Connection of Signal Generator (High Side)	Signal Generator Frequency	Receiver Gang Setting	Trimmer Description	Trimmer Designation	Type of Adjustment
1	.1 mfd. condenser	Stator lug, antenna section of tuning condenser	455 KC	Gang fully open	2nd IF and 1st IF	A, B, C & D	Peak for maximum output
2	.1 mfd. condenser	Stator lug, antenna section of tuning condenser	1600 KC	Gang set at 1600 KC	Oscillator (on gang)	E	Peak for maximum output
	Set Receiver Chassis on table next to back of cabinet. Connect Loop Antenna to Receiver.						
	Place generator lead close to loop of set to obtain adequate signal	No physical connection (signal by radiation)	1400 KC	Tune in generator signal	Antenna (on gang)	F	Peak for maximum output

Note: The B and D adjustments must be made from the underside of the chassis.

NOTE: Instructions on this page apply only to models with Radio Tilt-Out.

CHASSIS REMOVAL (For Servicing)

Due to the type of chassis mounting used, removal of the entire tilt-out door assembly (with receiver chassis attached) simplifies removal of the receiver chassis. The receiver chassis can then be easily removed from its shock mountings. Removal is a little "tricky," but can be done most readily as described below:

Disconnect all cables and leads to the chassis.

Remove the screw and washer (No. 1 in figure) from both tilt-out spring studs (2), one on each side of the tilt-out assembly. Slip the tilt-out springs (3) off their respective studs. Unscrew the ends of the tie-bar (4). The tie-bar then hangs free on the copper braid used to bond it to the chassis. Remove hairpin spring from stud (6).

Stand at the end of the cabinet (adjacent to the radio compartment) with left hand on the door handle at the front and with right hand in the radio compartment near the back of the chassis and grasping a long screwdriver as shown in Fig. 2.

With the left hand, pull the assembly out to one half of its full tilt-out position. With the screwdriver, pry both tilt-out arms (No. 5 in Fig. 2) off their studs (No. 6.) **Using the screwdriver blade, push the tilt-out arms toward the front of the cabinet (against bracket No. 7).** The assembly will move downward a slight amount from its original mounting position. The tilt-out assembly can now be removed from the front of the cabinet by tipping it forward and then pulling it straight out. CAUTION: In models having record storage compartments below the receiver, the record storage compartment door MUST be closed during removal of the radio tilt-out door assembly.

CHASSIS REPLACEMENT

Install chassis on the tilt-out assembly, making sure the chassis shock mounting is assembled exactly as shown in Fig. 3. Be sure that the grommets shown in Fig. 3 are in place on the chassis-bracket and that the chassis bracket does not touch the tilt-out arm.

Make sure the rubber strips (No. 8) are in place.

To replace the assembly, grasp it with both hands and move it into place in the cabinet, in the tilted or open position.

Then continue to hold the assembly in place by grasping the door handle with the left hand. Now pull the assembly slowly toward its closed position. **At the same time,** with the screwdriver in the right hand, spring the tilt-out arms (No. 5) inwardly until they clear the studs. The assembly will move downward and into the cabinet with the tilt-out arms in the position shown in Fig. 2.

Then lift the assembly by lifting the handle with the left hand and the tilt-out arms with the right hand. Slip each tilt-out arm into place on its stud.

Replace the tie-bar (No. 4), tilt-out springs (No. 3), and hairpin spring. Reconnect leads and cables to chassis.

NOTE: A hairpin spring (not shown in Fig. 1) has been added to keep Door Arm No. 5, from slipping off stud No. 6.

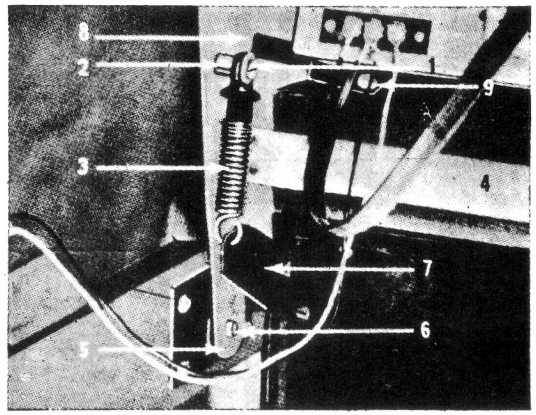


Fig. 1. Receiver Tilt-Out Mounting

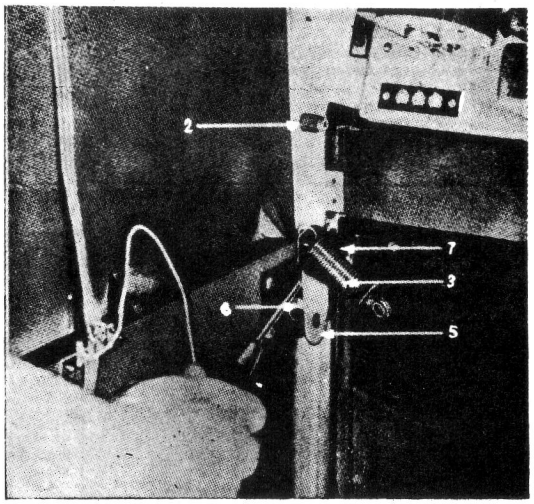


Fig. 2 Receiver Tilt-Out Mounting

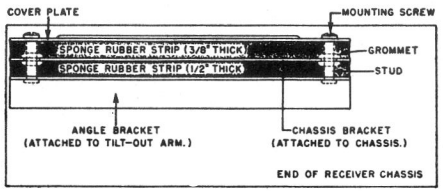


Fig. 3. Chassis Shock-Mounting

RECORD CHANGER SERVICE DATA

In case of distortion or low volume on photo operation only, check as follows:

1. Replace cartridge and check operation. Cartridge resistance should be from 0.1 to 2 megohms.
2. With the volume control at maximum, touch the needle wtih the finger. If a loud hum is heard, then the circuit from the needle to the grid of the audio amplifier tube is not open or shorted. If hum is not heard, check the circuit from "B" to the grid.
3. If a hum is heard, check the voltage across outer terminals "A" and "C" on the bottom of cartridge. Generally it should measure from 80 to 100 volts D.C. If it does not, check the circuit for fault.
4. If the needle is bent, it can be straightened by bending it so that it projects 1/16 inch below the cartridge. It should then be pressed back several times with a flat object.

Do not attempt to repair cartridges or remove the cap on the cartridge assembly as this will void the warranty.

RECORD CHANGER DOOR ADJUSTMENT

If the door on the record tilt-out assembly is shifted to one side, open the tilt-out door and spring the door arms in the opposite direction. This can be done by exerting pressure against the side of the door.

RADIO TILT-OUT DOOR ADJUSTMENT

(For radio tilt-out models only)

If the door on the radio tilt-out assembly is shifted to one side, readjustment of the tilt-out arm will correct the difficulty. If the tilt-out door is too far to the right, the right-hand tilt-out arm can be sprung. If the door is too far to the left, the left-hand arm can be sprung. The tilt-out arms are sprung by holding the lower end of the arm against its bracket and prying the arm toward the chassis with a screwdriver. The screwdriver is used as a lever between the tilt-out arm and the side of the radio compartment.

In the event that the bottom edge of the radio tilt-out door rubs, it can be planed off slightly. Care must be exercised in doing this in order that the door is not marred. Hold the plane flat against the beveled bottom edge of the door while planing off a small amount.

Ref. No.	Description	Part No.
1	No. 6—32x¼" Screw	
2	Stud	Pt. of No. 5
3	Spring Adjusting (for chassis mtg.)	19A 15-2
4	Tie-Bar (for receiver chassis mtg.)	15B 160
5	Door Arm, left (near centre of cab.)	A1440
	Door Arm, right (near centre of cab.)	A1441
6	Stud	Pt. of No. 7
7	Door Bracket, left (near centre of cab.)	A1438
	Door Bracket, right (nearest side of cab.)	A1439
8	Rubber Channel (⅜x11-64x2⅜" over-all)	12A 9-1
9	Bumper, Rubber—For radio chassis (some models only)	12A 3-6
	Hairpin Springs	19A 2-5