General Electric Co.

	Model: L-650	Chassis:	Year: Pre March 1942
	Power:	Circuit:	IF:
	Tubes:		
	Bands:		

Resources
Riders Volume 13 - GE 13-53
Riders Volume 13 - GE 13-54

GENERAL ELECTRIC CO.

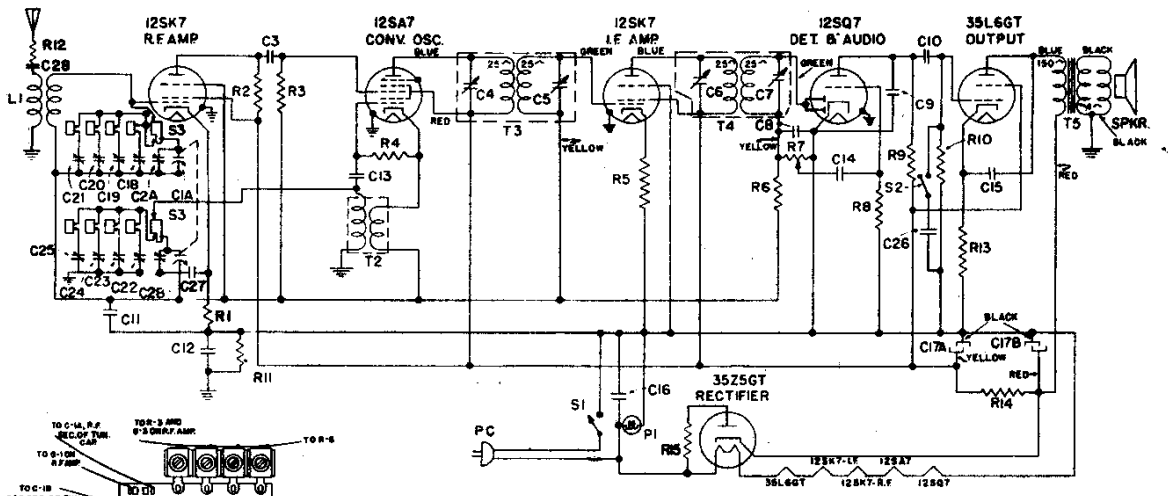


Fig. 2. Schematic Diagram

Selector Switch Wiring

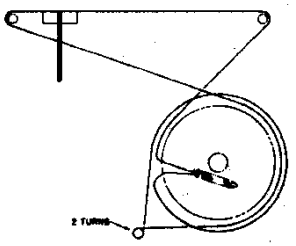
IF PEAK 455 KC

FOR OTHER DATA SEE INDEX

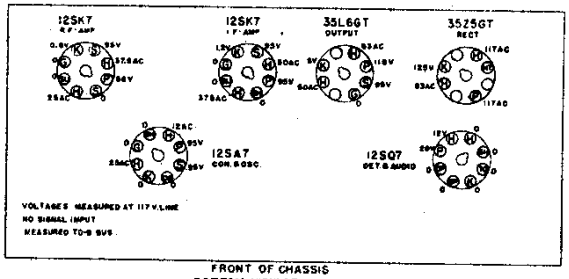
REPLACEMENT PARTS LIST

Cat. No.	Symbol	Description	List Price
RC-7059	C1A, 1B	CONDENSER—Tuning condenser (with trimmers 2A, 2B mounted)	$2.05
*RC-235	C3	CAPACITOR—100 mmf., mica	.25
*RC-274	C8	CAPACITOR—330 mmf., mica	.30
*RC-242	C9	CAPACITOR—150 mmf., mica	.25
*RC-039	C10	CAPACITOR—.01 mfd., 600 V., paper	.25
*RC-072	C11	CAPACITOR—.05 mfd., 200 V., paper	.25
*RC-092	C12	CAPACITOR—.05 mfd., 600 V., paper	.30
*RC-216	C13	CAPACITOR—47 mmf., mica	.25
*RC-039	C14	CAPACITOR—.01 mfd., 600 V., paper	.25
*RC-048	C15	CAPACITOR—.02 mfd., 600 V., paper	.30
*RC-092	C16	CAPACITOR—.05 mfd., 600 V., paper	.30
RC-5194	C17A	CAPACITOR—60 mfd., 150 V., dry electrolytic	.70
	C17B	CAPACITOR—50 mfd., 150 V., dry electrolytic	
*RT-881	C18–C21	TRIMMER STRIP—Station key adjustments (RF section)	.70
*RT-882	C22–C25	TRIMMER STRIP—Station key adjustments (Osc. section)	.60
*RC-016	C26	CAPACITOR—.002 mfd., 600 V. paper	.25
*RC-048	C27	CAPACITOR—.02 mfd., 600 V., paper	.30
*RC-039	C28	CAPACITOR—.01 mfd., 600 V., paper	.25
*RQ-1231	R1	RESISTOR—68 ohm, ½-W carbon	.70-5
*RQ-1279	R2	RESISTOR—6800 ohm, ½-W carbon	.70-5
*RQ-1299	R3	RESISTOR—47,000 ohm, ½-W carbon	.70-5
*RQ-1295	R4	RESISTOR—33,000 ohm, ½-W carbon	.70-5
*RQ-1227	R5	RESISTOR—47 ohm, ½-W carbon	.70-5
*RQ-1339	R6	RESISTOR—2.2 meg., ½-W carbon	.70-5
*RV-123	R7, S1	VOLUME CONTROL—0.5 meg. control and power switch (Model L-652)	1.45
RV-132	R7, S1	VOLUME CONTROL—0.5 meg. control and power switch (Model L-650)	1.45
*RQ-1349	R8	RESISTOR—5.6 meg., ½-W carbon	.70-5
*RQ-1323	R9, 10, 11	RESISTOR—470,000 ohm, ½-W carbon	.70-5
*RQ-1259	R12	RESISTOR—1000 ohm, ½-W, carbon	.70-5
*RQ-1239	R13	RESISTOR—150 ohm, ½-W, carbon	.70-5
*RQ-651	R14	RESISTOR—1000 ohm, 2-W carbon	.20
*RQ-1227	R15	RESISTOR—47 ohm, 2-watt carbon	.70-5
*RS-3108	S2	SWITCH—Tone control switch	.20
*RS-3114	S3	SWITCH—Automatic tuning switch (less trimmers) (Model L-652 only)	1.25
RS-3125	S3	SWITCH—Automatic tuning switch (less trimmers) (Model L-650)	1.25
RL-575	L1	BEAM-A-SCOPE—Cabinet back and loop assembly (Model L-650 only)	1.00
RL-576	L1	BEAM-A-SCOPE—Cabinet back and loop assembly (Model L-652 only)	1.00
*RL-2053	T2	COIL—Oscillator coil and clip	.35
RT-3002	T3	TRANSFORMER—1st I.F. transformer	.80
RT-3003	T4	TRANSFORMER—2nd I.F. transformer	.80
*RT-4008	T5	TRANSFORMER—Output transformer	.70

*Used on previous receivers. (Prices Subject to Change without Notice)



Dial Stringing Diagram



FRONT OF CHASSIS
BOTTOM VIEW OF CHASSIS

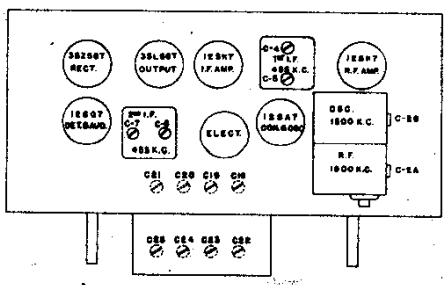


Fig. 1. Trimmer Location

MODELS L-650,L-652
MODELS X-108,X-118

GENERAL ELECTRIC CO.

MODELS L-650,L-652

Alignment Frequencies

RF ..... 1500 KC
IF ..... 455 KC

The chassis must be removed from the cabinet as described above to make the following alignments. The locations of all trimmers are shown in Fig. 1.

IF Alignment

Connect an output meter across the voice coil. Turn the volume control to maximum. Set test oscillator to 455 KC and keep the oscillator output as low as a readable meter reading will permit.

Apply signal to the 12SA7 converter grid through a .05 mfd. capacitor and align progressively the trimmers in the 2nd and 1st IF transformers.

RF Alignment

When making the following alignment the loop antenna must be bolted to the chassis by the two mounting screws. Since the glass dial scale is fastened to the cabinet, it cannot be used for reference during the alignment of the chassis outside the cabinet. Use must be made therefore of the four calibration marks at the bottom flange of the dial scale reflector plate (immediately below end of dial scale pointer). These marks referring from left to right are as follows: Reference point, 580 KC, 1000 KC, and 1500 KC.

The RF signal should be capacity coupled to the receiver loop by placing a two foot piece of wire for an antenna on the test oscillator output post (high side). Keeping this antenna two feet or more from the receiver loop will generally insure freedom from too much coupling. Metal objects such as meters, tools, etc. should not be placed in close proximity to the loop when making the alignment.

With the gang condenser plates completely closed, the end of the pointer should line up with the first mark to the left of the dial reflector plate. If it doesn't the pointer can be moved on the dial cord until it does. Set the signal generator to 1500 KC. Set pointer to the 1500 KC mark (extreme right flange mark) and align (C2B) to the signal. Peak (C2A) for maximum output.

Special Service Information

The following information will be useful to servicemen equipped with vacuum tube voltmeters or similar voltage measuring instruments. When making the Stage Gain measurements in (1), the AVC bus should be shorted to B—.

(1) Stage Gains
- Antenna post to converter grid ..... 26 at 1000 KC
- RF grid to converter grid ..... 5.6 at 1000 KC
- Converter grid to IF grid ..... 25 at 455 KC
- IF grid to 12SQ7 diode plate ..... 53 at 455 KC

(2) Audio Gain
0.14 volts, 400 cycle signal across volume control with control set at maximum, will give approximately ½-watt speaker output.

(3) DC voltage developed across oscillator grid resistor (R4) averages 5.0 volts at 1000 KC.

Variations of 20 per cent permissible. All readings obtained with enough signal input to give ½-watt speaker output.

Alignment Procedure MODELS X-108,X-118

The alignment procedure shown in table form is made either with the chassis in or removed from the cabinet.

If the chassis is removed from the cabinet to make the RF alignment, the dial which is fastened to the cabinet cannot be used for calibration reference. Use must be made, therefore, of the paper scale fastened on the rear of the dial reflector plate. With the gang condenser completely closed, one of the edges of the pointer rider should be lined up with the first marking to the right of the scale on the rear of the dial reflector plate. This can be accomplished by sliding the pointer on the cord until it does. The selected edge of the pointer rider may now serve as a pointer for the RF alignment. There are two 17.8 reference points on the paper scale on the rear of the dial reflector plate. The one towards the lower frequency end of the dial is the proper one to use for the 16-meter spread-band alignment; while the other is used for a reference point on the SW2 band.

The SW2 band does not require alignment. This band is taken care of when the 16 meter spread-band is aligned.

Since accuracy in frequency calibration is very essential for proper alignment of the spread-bands, it is impractical to use the standard test oscillator for this purpose unless a special calibration is first made.

The actual reception of short-wave stations of known frequency in the band to be checked is probably the most satisfactory method or determining the proper setting of the oscillator trimmers in these bands. The oscillator trimmer should be adjusted so that the station appears at the correct position on the dial. R.F. alignment can be made with the test oscillator.

The calibration of the test oscillator may be checked by zero beating the test oscillator with a short-wave station of known frequency. By taking several of these calibration points, it will afford a calibration of a high degree of accuracy in case you wish to use the test oscillator for alignment in these bands.

ALIGNMENT CHART MODELS X-108,X-118

Step	Test Osc. Connected to	Test-osc. Setting	Band and Pointer Setting	Tune Trimmer for Max. Output
1	6SG7 I.F. grid in series with .05 mfd. cap.	455 KC	"BC" BAND 550 KC	C26 and C27
2	7Q7 CONV. grid in series with .05 mfd. cap.	455 KC	"BC" BAND 550 KC	C24 and C25
3	ANT. POST in series with 200 mmf. and 400 ohms	580 KC	"BC" BAND 580 KC	C16**
4	ANT. POST in series with 200 mmf and 400 ohms	1500 KC	"BC" BAND 1500 KC	C17 (osc.) C3 (ant.)
5	REPEAT STEP 3			
6	ANT. POST in series with 200 mmf. and 400 ohms	6.1 MC	"SW-1" BAND 6.1 MC	C15 (osc.) C4 (ant.)
7	ANT. POST in series with 200 mmf. and 400 ohms	17.8 MC	16 METER 17.8 MC	C14* (osc.)
8	ANT. POST in series with 200 mmf. and 400 ohms	21.6 MC	16 METER 21.6 MC	C9*** (ant.)
9	ANT. POST in series with 200 mmf. and 400 ohms	15.22 MC	19 METER 15.22 MC	C10* (osc.) C6*** (ant.)
10	ANT. POST in series with 200 mmf. and 400 ohms	11.8 MC	25 METER 11.8 MC	C11* (osc.) C7*** (ant.)
11	ANT. POST in series with 200 mmf. and 400 ohms	9.6 MC	31 METER 9.6 MC	C12* (osc.) C8*** (ant.)

*Use minimum capacity peak if two are obtainable.
**Rock gang condenser for optimum peak.
***Use maximum capacity peak if two are obtainable.

Electrical Rating

Model	Rating	Power Supply: Tap	Power Supply: Voltage Range	Frequency Cycles AC	Power Consumption (Watts)
	C	110 125	103–117 117–133	25–60	70
X-108	V	110 125 200 230	103–117 117–133 185–215 215–250	50–60	70
X-118			200–240V AC or DC	25–100	100

Tuning Frequency Range

"BC" Band ..... 540–1700 KC
"SW1" Band ..... 2.2–6.8 MC
"SW2" Band ..... 6.8–21.0 MC
31 Meter Band ..... 9.36–9.8 MC
25 Meter Band ..... 11.6–12.5 MC
19 Meter Band ..... 14.9–17.3 MC
16 and 13 Meter Band ..... 17.7–22.2 MC

Electrical Power Output

Undistorted with proper voltage at tap on power transformer—6 watts.

Maximum with proper voltage at tap on power transformer—6.5 watts.

Loud-speaker—PM Dynamic

Cone Diameter ..... 8 inches
Voice Coil Impedance (400 cycles) ..... 3.5 ohms