The Jersey Broadcaster

NEWSLETTER OF THE NEW JERSEY ANTIQUE RADIO CLUB

October 2024 Volume 30 Issue 10

The *Jersey Broadcaster* is distributed to members of the New Jersey Antique Radio Club via email as a PDF file. Back issues of many of our newsletters are available on the club's website: www.njarc.org/broadcaster/

Meeting Notice

Our October meeting will take place on Friday, 10/11 at Bowen Hall in Princeton. Mike Molnar's presentation "The Invention of a Classic Circuit: Automatic Volume Control" promises to another of his exceptionally well-researched and informative Tech Talks. We also plan to livestream the meeting on YouTube at youtube.com/user/NJARC. Directions to Bowen Hall can be found on Google Maps (https://bit.ly/4eBPXeJ) or What3Words.com: w3w.co/formal.rents.play

Meeting Review

At our September meeting, we learned why John Stoll titled his presentation "The Tube Tester: The P.T. Barnum of Electronics." John discussed what various types of tube testers can — and cannot — be expected to do. The chief takeways were that no two tube testers will provide the same reading, that even the most sophisticated units cannot test everything about a tube, and that all readings require interpretation on the part of the operator. John also brought along examples of a number of different types of testers to help illustrate his points.

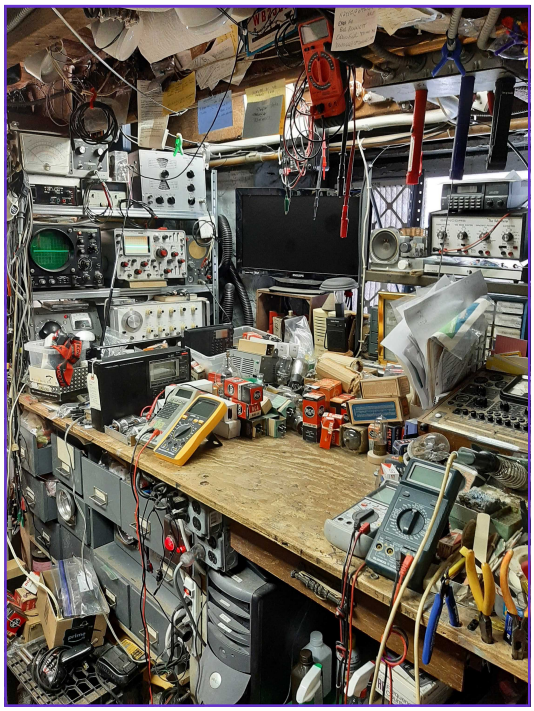
A recording of this and other meeting presentations is available on YouTube at https://bit.ly/3yZ5yoR.

Calendar of Events

October 11: NJARC monthly meeting, Princeton
October 12: JD Vintage Electronics auction, Jackson NJ
October 18: HARPS monthly meeting, Suffern NY
October 26: Fall Repair Clinic, InfoAge
November 8: NJARC monthly meeting, Princeton
November 15: HARPS monthly meeting, Suffern NY
Nov. 16: NJARC Fall Hamfest/Swapmeet, Parsippany
December 14: NJARC Holiday Party, Jackson
December 20: HARPS Holiday Party, Suffern NY
January 10: NJARC monthly meeting, InfoAge
February 14: NJARC monthly meeting, Princeton
March 14: NJARC monthly meeting, InfoAge
March 22: NJARC Spring Swapmeet (preliminary date)
April 11: NJARC monthly meeting, Princeton
April 25-27: International Marconi Day, InfoAge
April 26: NJARC Spring Repair Clinic, InfoAge

From the President's Workbench

Greetings Fellow Enthusiasts!



The President's Workbench.

At our September 13th meeting we had a special event occur before the start of the meeting. Our museum curator, Ray Chase (turning 92 this month, by the way!) invited all club members to a "Grab & Go" of radios and test equipment surplus to the RTM's needs located in "storage locker No. 12" out back.

Surprisingly… no, not surprisingly!, a few club members I had not seen in years, and some I had never seen, showed up early to participate in the cleanout. After that, our membership was treated to an amazing presentation and exhibition by member John Stoll, about the significance of Tube Testers. If you missed the meeting, we can't help you with the 'Grab & Go" stuff, but you can catch a recording of John's presentation on the club's YouTube channel.

– Richard Lee, President, NJARC

Continued on next page.

THE JERSEY BROADCASTER is the newsletter of the New Jersey Antique Radio Club (NJARC) which is dedicated to preserving the history and enhancing the knowledge of radio and related disciplines. Dues are $25 per year and meetings are held on the second Friday of each month either at InfoAge or at Princeton University. Neither the editor nor NJARC is liable for any other use of the contents of this publication other than for information.

President's Workbench
(Continued)

Just before the Grab & Go

The cleanout starts!

Continued on next page.

President's Workbench
(Continued)

Two very happy Grab & Goers!

Slim pickin's at the end of the Grab & Go!

Rosin Flux Chemical Activity

We all know we're supposed to use only rosin flux when soldering electronic components. But why? Rosin flux is derived from the sap of pine trees, and its primary function is to remove any oxidation or contaminants from the surfaces being soldered, allowing for a strong and reliable bond to be formed. In this article, we will explore the chemical activity of rosin flux and how it helps to improve the quality of solder joints.

Firstly, let's examine the composition of rosin flux. Rosin is a complex mixture of resin acids, esters, and other compounds, all of which contribute to its chemical activity. When heated, rosin flux begins to decompose, and the resin acids present in the flux are converted into a range of chemical species, including rosin acids, abietic acid, and pimaric acid. These acids are highly effective at removing oxide layers from metal surfaces, which is crucial for successful soldering. The oxide layers can be formed on metal surfaces due to exposure to air or during the manufacturing process, and if not removed, they can interfere with the formation of a strong bond between the metal and the solder.

The rosin acids in the flux work by reacting with the oxide layer on the metal surface, forming a soap-like substance called a metal rosin salt. This salt is highly soluble in the flux, allowing it to be easily removed, along with any other contaminants on the surface of the metal. In addition to removing oxides and contaminants, rosin flux also has a secondary function: to protect the metal from further oxidation during the soldering process. This is achieved through the formation of a thin layer of rosin residue on the surface of the metal. This layer acts as a barrier, preventing oxygen from reacting with the metal and forming more oxide layers.

It is important to note that not all rosin fluxes are created equal. The chemical activity of rosin flux depends on the type and concentration of the resin acids present in the flux. Some rosin fluxes contain additional additives, such as activators or solvents, which can further enhance their chemical activity.

Rosin flux is an essential component in electronics soldering applications. Its chemical activity allows it to remove oxides and contaminants from metal surfaces and protect them from further oxidation during the soldering process. The composition of rosin flux, specifically the resin acids present, plays a crucial role in its effectiveness. As such, it's important to use rosin flux for electronics soldering applications to ensure a reliable and strong bond is formed.

Restoration of General Electric Model GD-63

By Ray Chase and Bruce Ingraham

General Electric Model GD-63

In 1889, Thomas Edison (1847-1931) had business interests in many electricity-related companies, including the Edison Electric Light Company, backed by J.P.Morgan and the Vanderbilt family.

In 1892, General Electric was formed through the merger of the Edison General Electric Company and Thomas-Houston Electric Company, with the support of Drexel Morgan & Company. General Electric built the high-speed alternators for Reginald Fessenden, and the Alexanderson alternator-transmitters for international radio communications.

The General Electric business was incorporated in New York, with the Schenectady plant used as a headquarters for many years.

In 1893, General Electric bought the business of Rudolf Eickemeyer, a firm that had developed transformers for use in the transmission of electrical power.

In 1912, General Electric's improvements in the vacuum tube helped make possible modern electronics and the home radio.

In 1919, General Electric began manufacturing radios through RCA until 1930, when they began to use their own trademark.

(Continued on next page)

Restoration of General Electric Model GD-63
(Continued)

GD-63 (with pilot lamp)

General Electric Co. (GE); Bridgeport CT, Syracuse NY

DATA | FORUM | PICTURES | COLLECTIONS

country	USA
Manufacturer brand	General Electric Co. (GE); Bridgeport CT, Syracuse NY
Year	1939
category	Radio receiver (radio or tuner after WW2)
Radiomuseum.org ID	302948

- Brand: Musaphonic

PICTURES | CIRCUIT DIAGRAMS

General Electric Co. GD-63 (1)

Dials and buttons not original.

Click on the circuit diagram excerpt to request it as a document free of charge.

^ Technical data

Number of tubes	5
Tubes	6A8G, 6K7, 6Q7G, 25L6G, 25Z5, 1498
Main principle	Superhet general; IF/IF 455 kHz; 2 NF stage(s)
Number of circles	6 Circle(s) AM
Wavebands	Medium wave, no others.
Operating mode / Volt	All-current device / 110-120 volts
speaker	Dynamic speaker, no excitation coil (permanent dynamic) / Ø 5 inch = 12.7 cm
material	Device with wooden housing
from Radiomuseum.org	Model: **GD-63** - General Electric Co. GE;
shape	Table top unit, slanted desk shape.
Dimensions (W x H x D)	13.5 x 8.75 x 7 inches / 343 x 222 x 178 mm
author	Model page created by Jay Kinnard . See "Proposal for changes" for further collaboration.
Other models	Here you will find 2909 models, of which 2133 with pictures and 2034 with circuit diagrams.

ALL LISTED RADIOS ETC. FROM GENERAL ELECTRIC CO. (GE); BRIDGEPORT CT, SYRACUSE NY

(Continued on next page)

Restoration of General Electric Model GD-63
(Continued)

This example of the radio turned up in a donation to the museum and I thought it had a rather unique design. It was not in too bad condition when we got it so I asked Bruce to make it look nice.

The front panel of this example of the GE GD-63 radio was in fair condition and required only sanding, re-staining and six coats of semi-gloss varnish. The band attached to the large volume control knob had come loose, and had to be reattached with two screws, as the small tab on the end of the band had broken off.

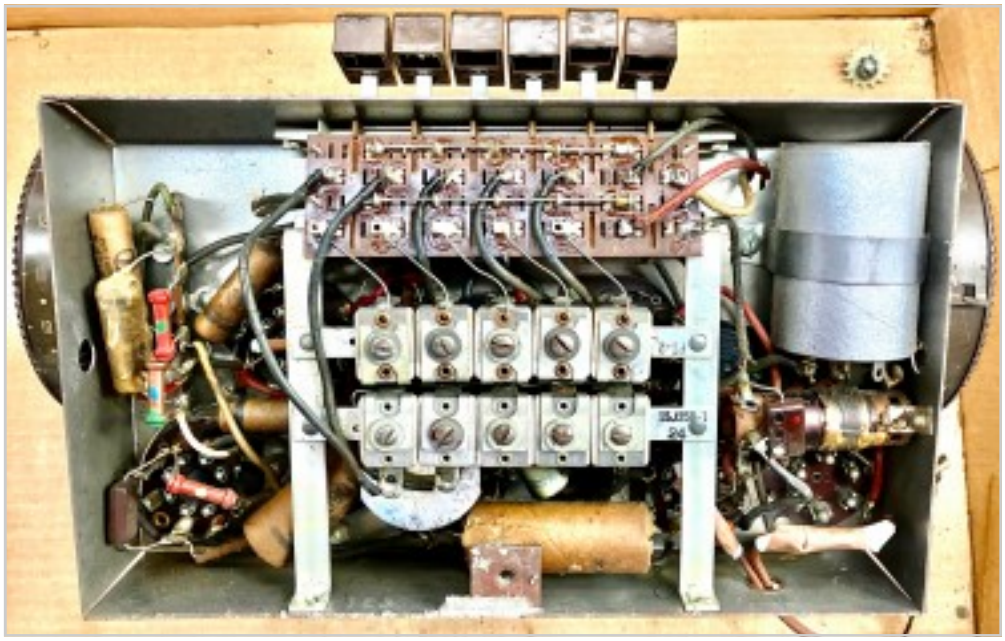
.

Bruce Ingraham during the re-capping.

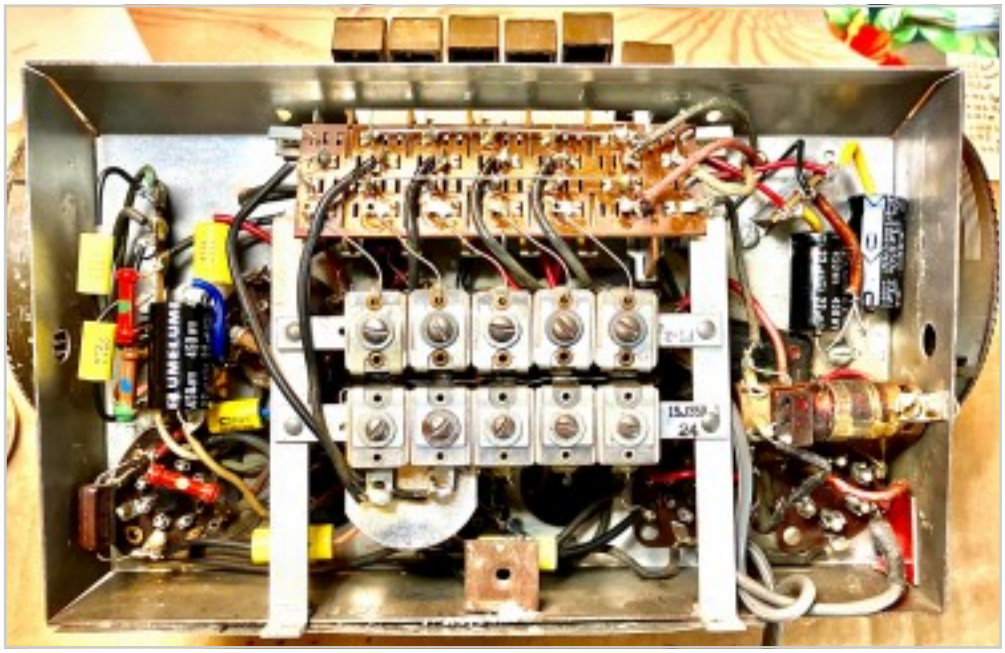
(Continued on next page)

Restoration of General Electric Model GD-63
(Continued)

An under-chassis view of the wiring for this radio is shown below before and after re-capping.



Before re-capping



After re-capping

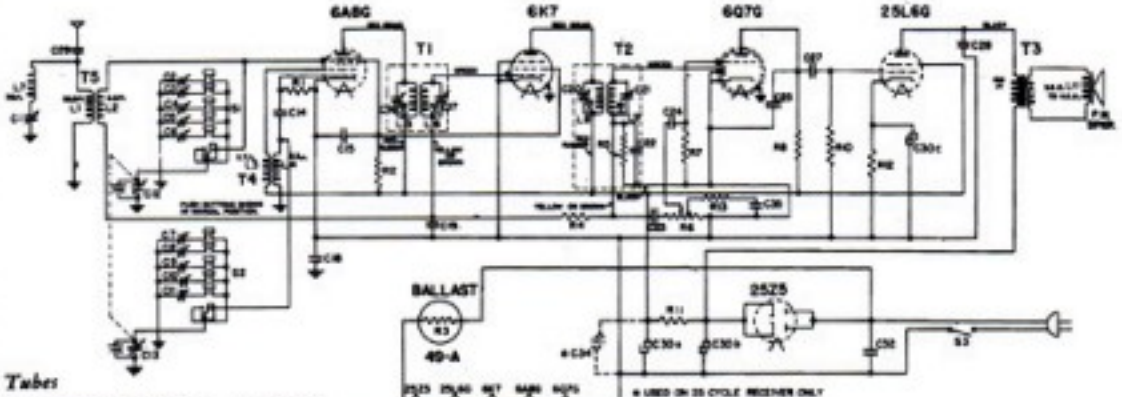
(Continued on next page)

Restoration of General Electric Model GD-63

(Continued)

MODEL GD63
Schematic, Voltage, Socket
Trimmers, Alignment

GENERAL ELECTRIC CO.



Tubes

Converter and Oscillator....GE-6A8G
I.F. Amplifier.....CE-6K7
Detector, AVC and Amplifier.....GE-6Q7G
Power Amplifier.....GE-25L6G
Rectifier.....GE-25Z5
Ballast Tube.....49-A

Tuning Frequency Range.....540-1750 K.C.

Intermediate Frequency.....455 K.C.

Symbol	Description
C1	Wave trap trimmer
C2—C6	Antenna trimmer strip
C7—C11	Oscillator trimmer strip
C12 C13	Tuning condenser
C14	47 mmf., mica capacitor
C15	.25 mfd., paper capacitor
C16	.25 mfd., paper capacitor
C17	.05 mfd., paper capacitor
C22	470 mmf., mica capacitor
C23 24	.002 mfd., paper capacitor
C25	330 mmf., mica capacitor
C27	.006 mfd., paper capacitor
C28	.01 mfd., paper capacitor
C29	.001 mfd., paper capacitor
C30a	20 mfd., dry electrolytic
C30b	40 mfd., dry electrolytic
C30c	20 mfd., dry electrolytic
C32	.02 mfd., molded capacitor
C34	15 mfd., dry electrolytic
C35	.005 mfd., paper capacitor
R1	47,000 ohm, carbon resistor
R2	10,000 ohm, carbon resistor
R3	Ballast resistance, 49A
R4	2.2 megohm, carbon resistor
R5	470,000 ohm, carbon resistor
R6	2.2 megohm, volume control
R7	15.0 megohm, carbon resistor
R8	220,000 ohm, carbon resistor
R10	1.0 megohm, carbon resistor
R11	2200 ohm, carbon resistor
R12	180 ohm, carbon resistor
R13	68,000 ohm, carbon resistor
T1	1st I.F. transformer
T2	2nd I.F. transformer
T3	Output transformer
T4	Osc. transformer
T5	Antenna transformer

ALIGNMENT PROCEDURE

Alignment Frequencies

I.F.—455 K.C. Broadcast—1500 K.C.
The location of all trimmers is shown in Fig. 1.

I.F. Alignment

Connect an output meter across the voice coil. Set the volume control for maximum.

Set test oscillator to 455 and apply signal to the control grid of the 6A8G tube through a .05 mfd. capacitor. Do not remove the grid lead from the 6A8G. Keep the test oscillator output as low as possible to give a readable output. Adjust all four I.F. trimmers for maximum output.

Wave Trap Alignment

Leave the test oscillator set to 455 K.C. and connect one output lead to the receiver chassis and the other through a 250 mmf. capacitor in series with 200 ohms to the receiver antenna lead. Adjust (C-1) for minimum output.

R.F. Alignment

Use the same dummy antenna (250 mmf. and 200 ohms) with 1500 K.C. input, adjust the oscillator trimmer (C-13) and antenna trimmer (C-12) for a maximum output.

Precaution—One side of the power supply is connected to the chassis through a .25 mfd. capacitor. If signal generator is AC operated, connect a .05 mfd. capacitor in the ground side before connecting it to the receiver chassis.

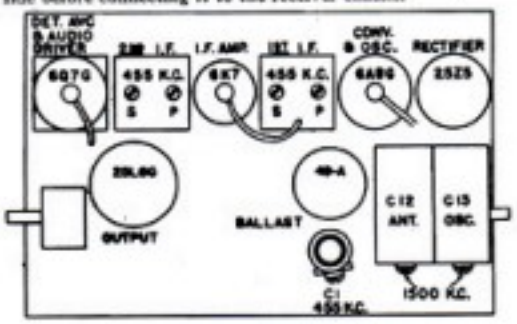


Fig. 1. Trimmer Location

GENERAL INFORMATION

Model GD-63 is a compact, six-tube AC-DC superheterodyne receiver, employing six General Electric Pre-tested Tubes as described above, in a superheterodyne circuit. It incorporates a simplified trimmer tuned "Touch-Tuning" system, allowing a set up of five stations for automatic tuning. Other features of design include I.F. wave trap, automatic volume control and an improved dustproof speaker.

Electrical Specifications

Power Supply (Volts)	Frequency (Cycles on AC)	Power Consumption (Watts)
110-125 Volts AC or DC	40-100	50

Electrical Power Output (120—line volts)

	AC	DC
Undistorted	1.2	1.0
Maximum	2.5	2.0

Loud-speaker—Permanent Magnet

Outside Cone Diameter.....5-inch
Voice Coil Impedance.....4.0 ohms at 400 cycles

VOLTAGE CHART

Tube No.	6A8G	6K7	6Q7G	25L6G	25Z5
Plate to —B volts	112	112	55*	130	..
Screen to —B volts	75	75	..	115	..
Cathode to —B volts	0	0	0	7.5	136
Cathode Current MA	6.6	1.4	0.5	40	50
Filament Volts	6.0	6.0	6.1	24.5	24.0

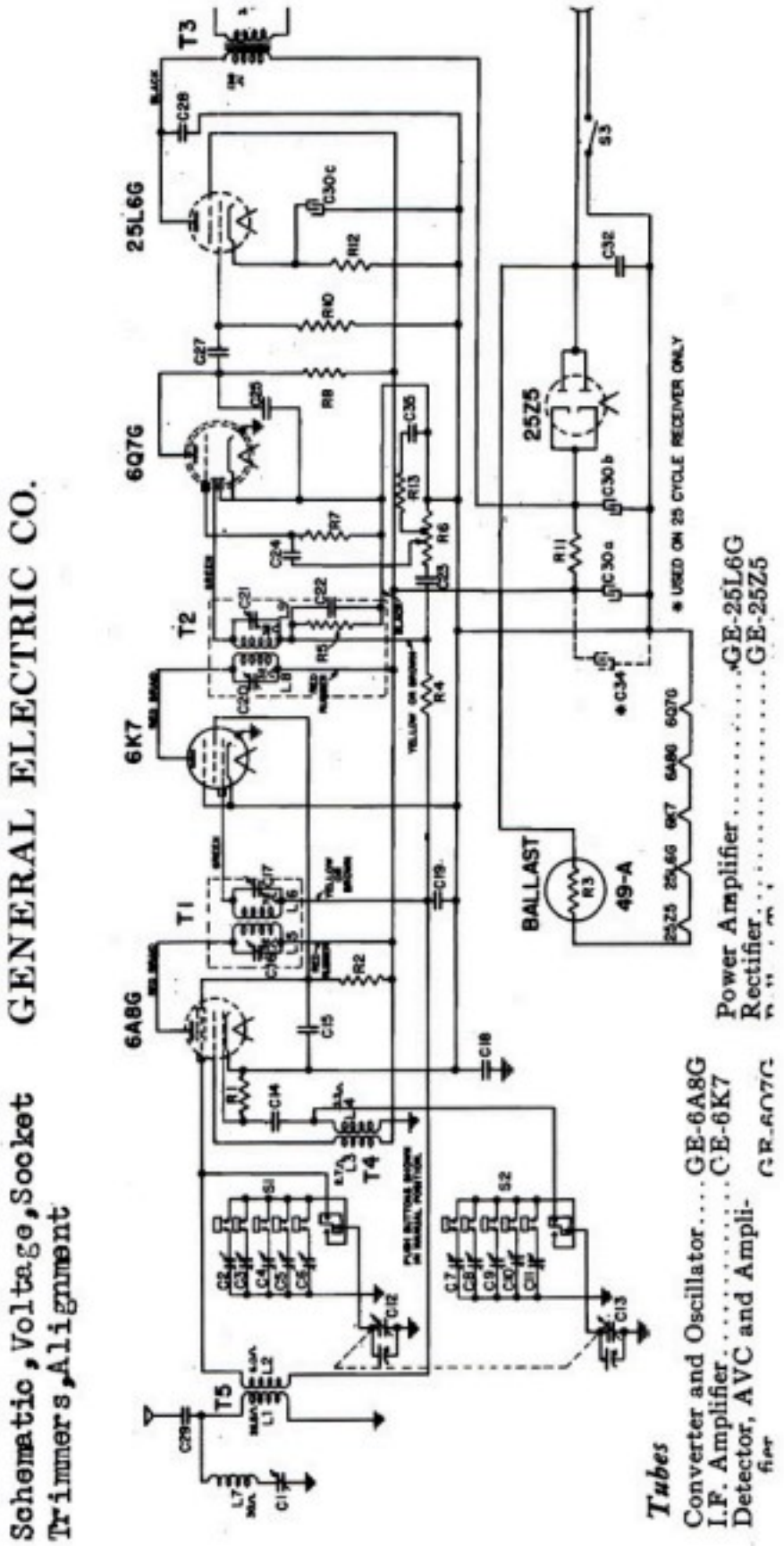
Line Voltage—120 AC. No signal input
* Measured on 250-volt scale.
On DC, voltages are about 15 per cent lower.

When operating from a DC source of power, it is necessary to insert the power plug with proper polarity; otherwise, the receiver will fail to function. If excessive hum is noticed when the receiver is used on AC, reverse the power plug in the receptacle.

(Continued on next page)

Restoration of General Electric Model GD-63

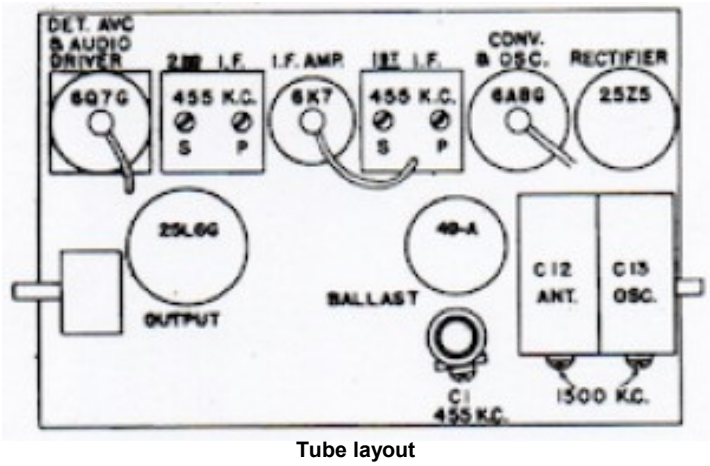
(Continued)



(Continued on next page)

Restoration of General Electric Model GD-63

(Continued)



Tube layout

C1	Wave trap trimmer	R1	47,000 ohm, carbon resistor
C2–C6	Antenna trimmer strip	R2	10,000 ohm, carbon resistor
C7–C11	Oscillator trimmer strip	R3	Ballast resistance, 49A
C12 C13	Tuning condenser	R4	2.2 megohm, carbon resistor
C14	47 mmf., mica capacitor	R5	470,000 ohm, carbon resistor
C15	.25 mfd., paper capacitor	R6	2.2 megohm, volume control
C18	.25 mfd., paper capacitor	R7	15.0 megohm, carbon resistor
C19	.05 mfd., paper capacitor	R8	220,000 ohm, carbon resistor
C22	470 mmf., mica capacitor	R10	1.0 megohm, carbon resistor
C23 24	.002 mfd., paper capacitor	R11	2200 ohm, carbon resistor
C25	330 mmf., mica capacitor	R12	180 ohm, carbon resistor
C27	.005 mfd., paper capacitor	R13	68,000 ohm, carbon resistor
C28	.01 mfd., paper capacitor	T1	1st I.F. transformer
C29	.001 mfd., paper capacitor	T2	2nd I.F. transformer
C30a	20 mfd., dry electrolytic	T3	Output transformer
C30b	40 mfd., dry electrolytic	T4	Osc. transformer
C30c	20 mfd., dry electrolytic	T5	Antenna transformer
C32	.02 mfd., molded capacitor		

Parts list

The restored radio

New Jersey Antique Radio Club's

Fall Swap Meet and Ham Fest

Parsippany PAL Building
33 Baldwin Road
Parsippany, NJ 07054
Just off Route 46,
Adjacent to Smith Field

Saturday November 16, 2024

Refreshments Available

(40) 8 Foot Tables

$30.00 for members

$35.00 for non-members

Reserve Additional tables $25.00

At the door $30.00

Open to the Public

8am to 12 noon

Vendor setup at 7:15am

$7.00 Entrance Fee

Club Donation

For Directions

Visit our website:www.njarc.org

or use your favorite phone app

33 Baldwin Road

Parsippany NJ 07054

Vendors Make Your Reservations Now!
Contacts:

President
Richard Lee
(914) 589-3751
radiorich@prodigy.net

Vice President
Paul Mondok
908-334-8099
aa2pm@earthlink.