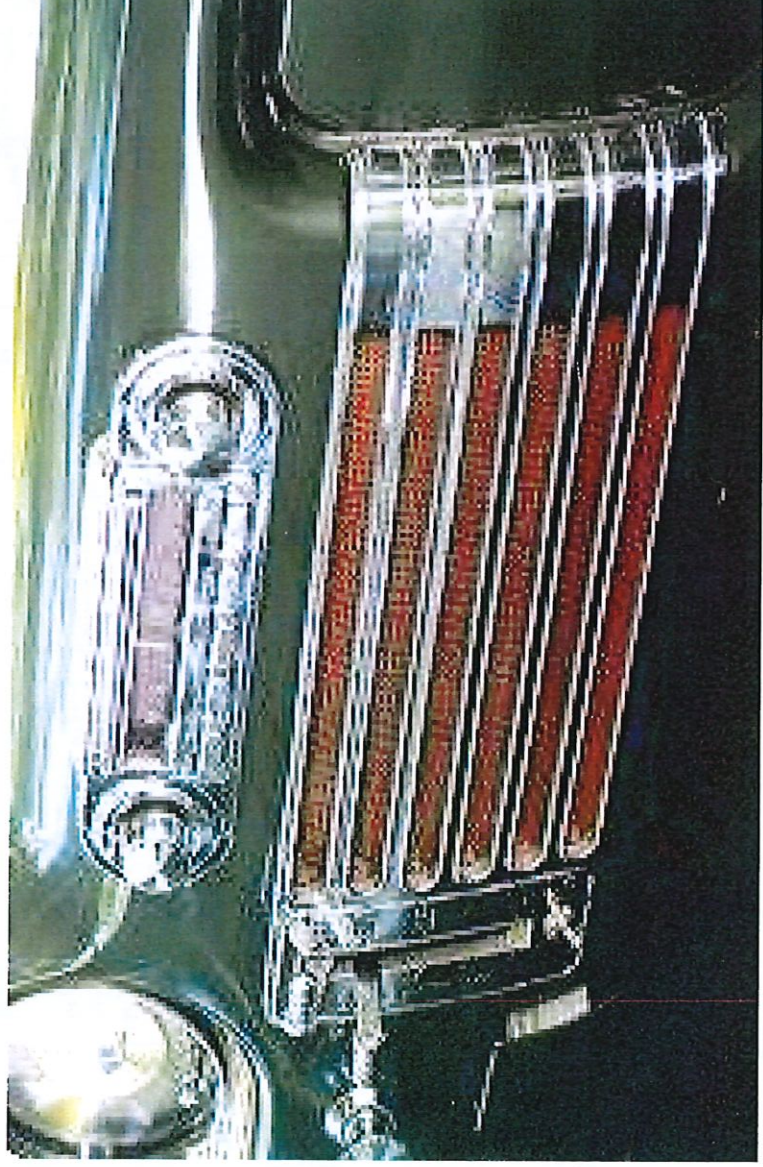


Repairing Antique Car Radios



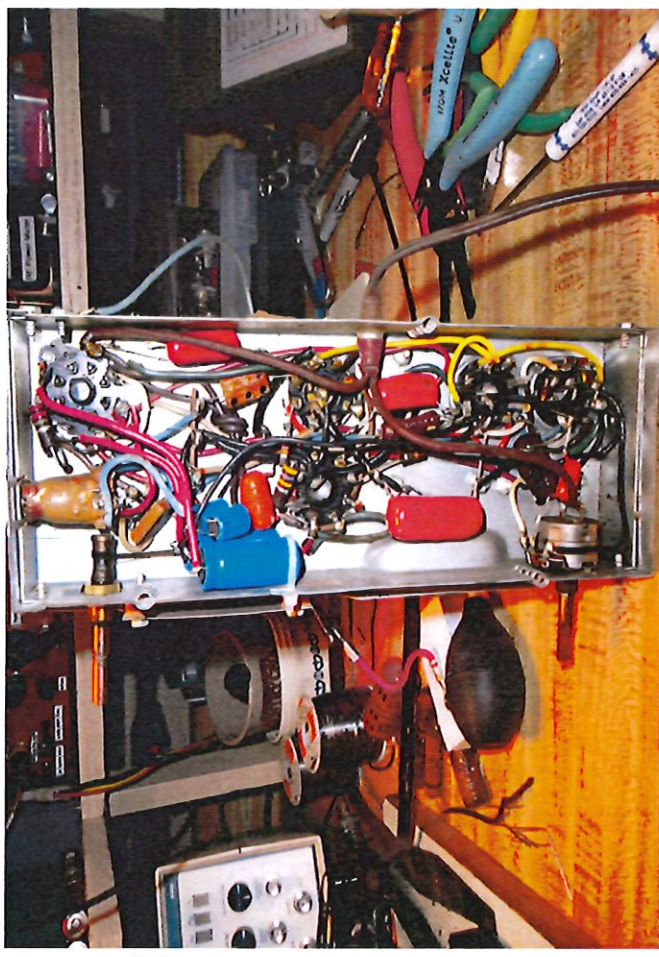
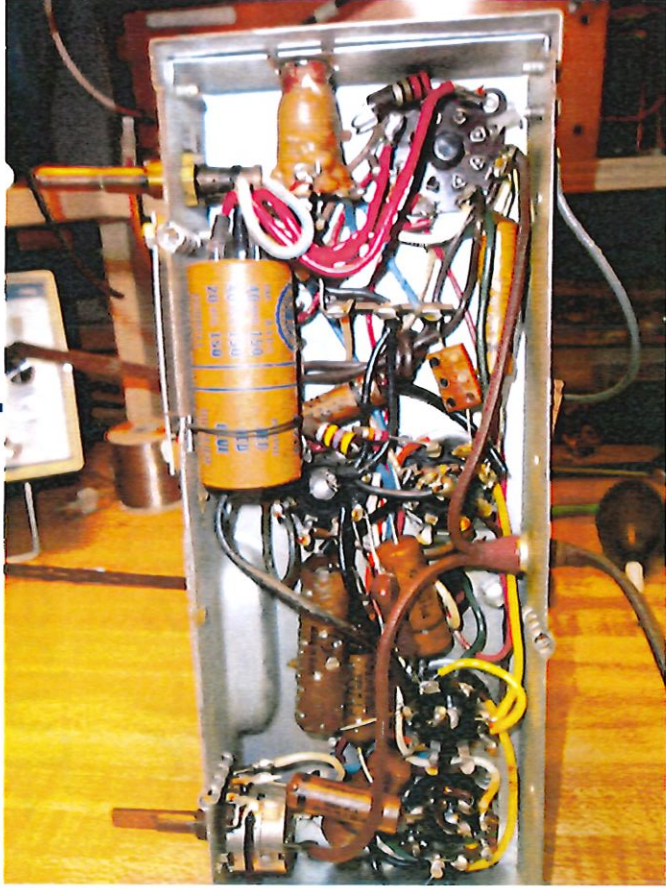
HOW TO REPAIR ANTIQUE CAR RADIOS

Test Equipment

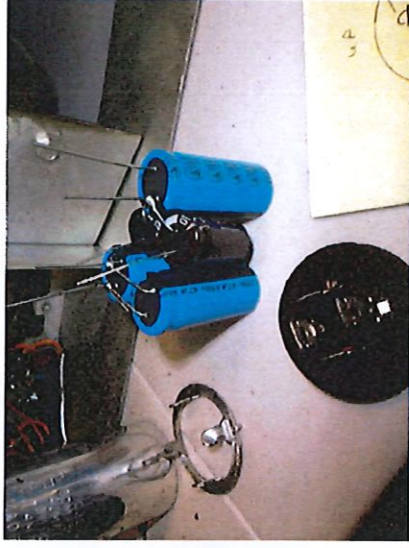
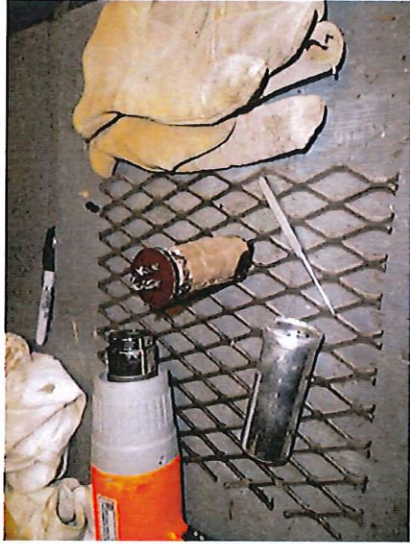
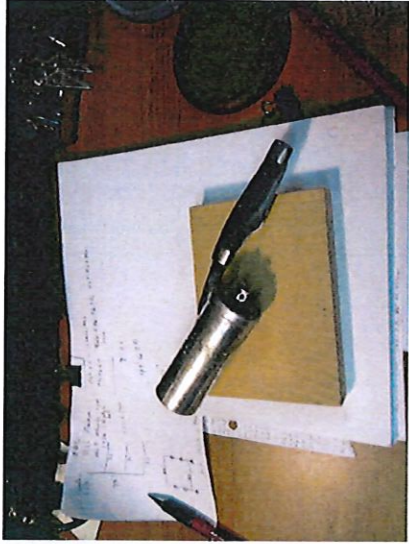
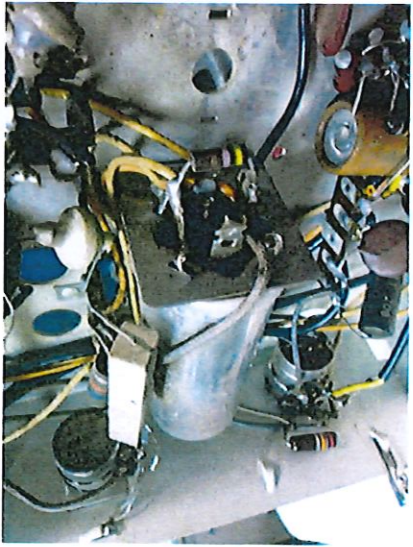
- Meters
- Power Supply
- RF signal generators
- Tube Checkers
- Oscilloscope
- Tools

Repairing and Replacing Capacitors

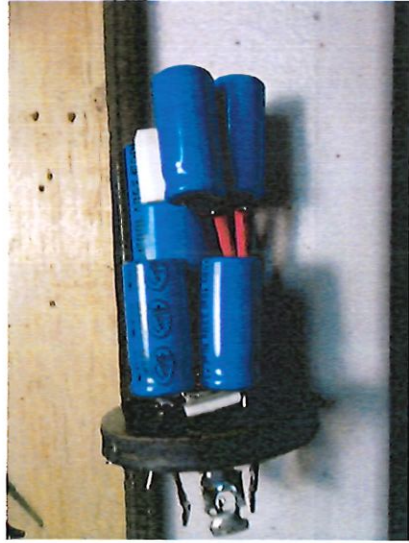
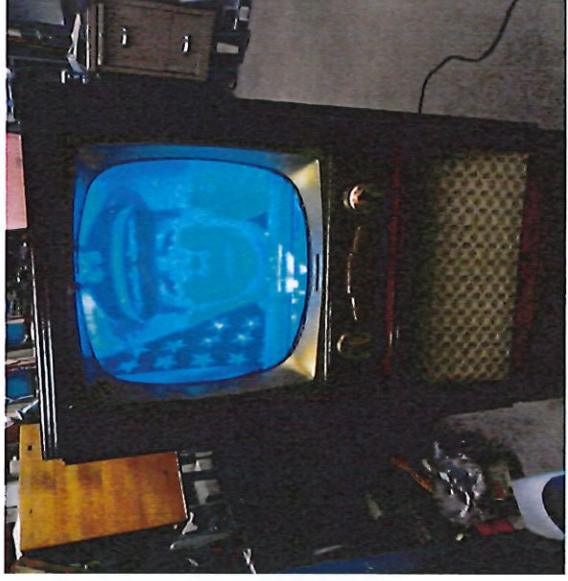
Wax Capacitors



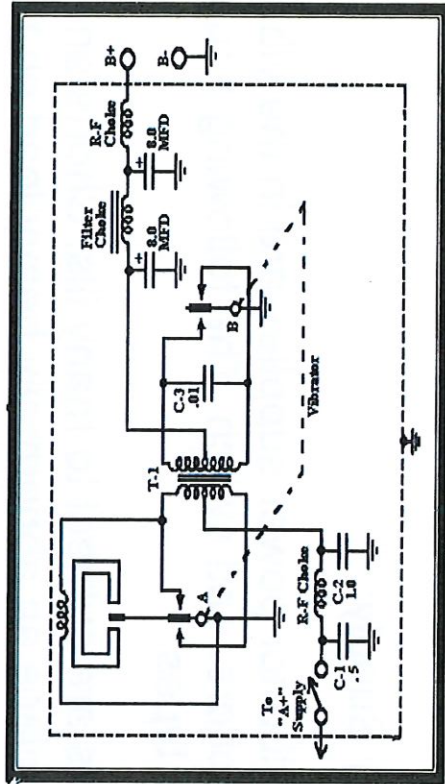
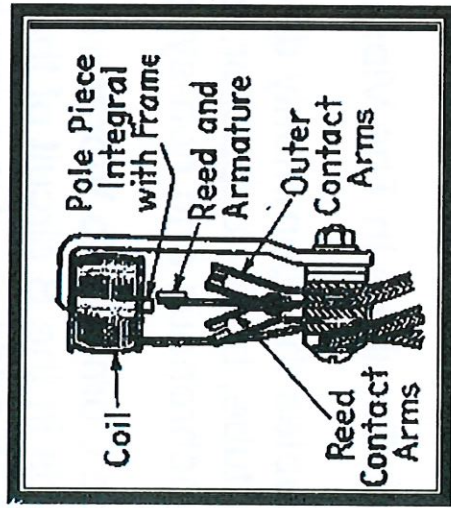
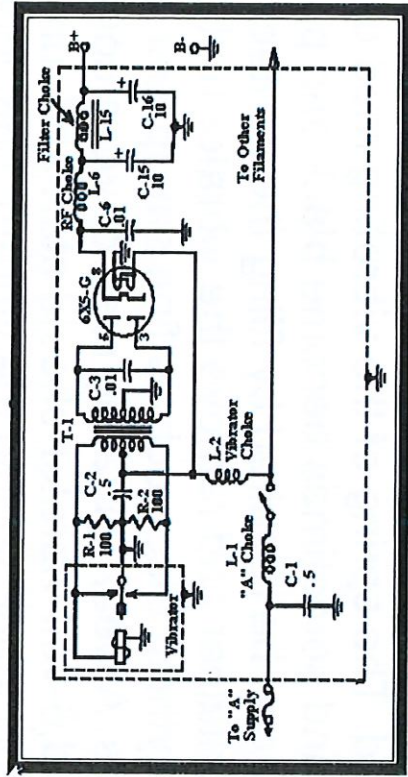
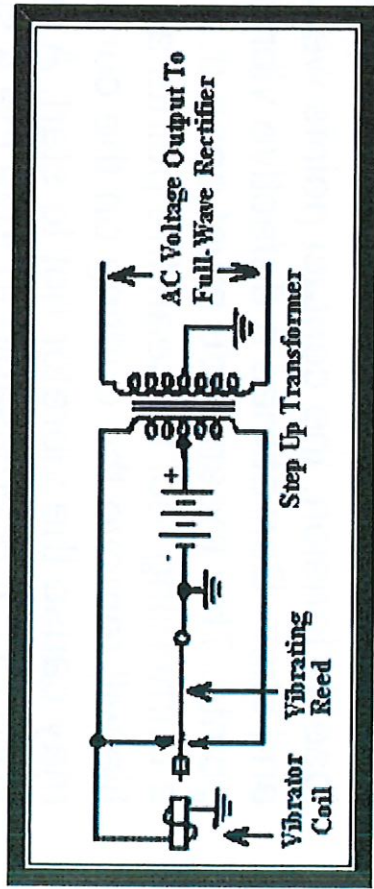
Repairing and Replacing Capacitors



Repairing Capacitors continue



Rebuilding PWR Vibrators



Trouble Shooting

- Common Troubles In The Vibrator Power Supply:
- The troubles that commonly develop in vibrator power supplies are in the vibrator, rectifier tube, buffer capacitor, filter capacitors, and switch. The following applies to both synchronous and non-synchronous types.
- Troubles Common to Vibrators - Vibrators are subject to many ills. Shorts and overloads in the B circuit of the receiver place an abnormally heavy load on the vibrator. In addition, it is a mechanical component that is in constant motion, and deterioration due to wear is to be expected. The spring of the vibrating reed can lose its tension, the contact points wear, and sometimes become black and pitted and stick. Sometimes a defective vibrator can be repaired by filing the contact points. This means you must open the container and remove the vibrator unit. Use a burnishing tool to clean the points as anything else such as fine sandpaper or a file will remove the coating on the contacts. A weak vibrating reed or worn contacts may cause the vibrator not to start. A good 6-volt vibrator should start and run at 4-volts DC. It is advisable to fuse the A supply input; should the vibrator contacts stick, heavy current will be drawn that could cause damage to components.
- There are solid state replacements available for non-synchronous vibrators. Antique Electronics Supply is one source of these units.

Trouble Shooting

Troubles Common To The Buffer Capacitor - The buffer capacitor usually breaks down due to voltage overload. When this happens the radio is inoperative because of the absence of B+ voltage. Heavier than normal current will be drawn because of the short across the transformer secondary. A shorted buffer capacitor will be evident by measuring resistance from plate to plate of the rectifier tube. The capacitor should be replaced with one of the same capacity value and the same or higher voltage rating. The voltage ratings for buffer capacitors are in the 1600 volt range.

- Troubles Common To The Rectifier Tube - Troubles with the rectifier tube are the same as in other AC operated receivers. Weak or no electron emission and open filament are the most common problems with rectifiers.
- Troubles Common To The Filter Circuit - Filter chokes seldom give any problems. The electrolytic capacitors, however, can open, become leaky, or short. When replacing filter capacitors, it is important that the replacement has the same or higher voltage rating.
- Trouble Common To The Power Switch - The power switch in vibrator power supply receivers is prone to give more trouble than in AC operated receivers. This is because the switch must break a heavier current, in the order of 3-6 amps, whereas the AC operated receiver must only break in the order of .3 to 1 amp. In addition, any slight resistance developed in the switch contacts of an AC operated receiver will be overridden by the 115 volts supply without any appreciable heating of the contact. The same circumstance in the low-voltage, high-current of the vibrator supply will cause considerable loss of power, heating and finally burning of the switch contacts.

Vibrator PWR Supply Service

Service Data Chart For The Vibrator Power Supply

Symptom	Incorrect check results	Check for
Receiver does not operate	No buzz from vibrator	Blown or defective fuse Burnt or inoperative switch Defective or worn vibrator
	One or more tubes do not light	Defective tubes Defective filament wiring
	<i>B</i> plus measures low or zero	Shorted buffer capacitor. Worn-out vibrator. Defective rectifier tube. Short-circuited RF hash by-pass capacitor in <i>B</i> plus lead. Shorted filter capacitor. Short in receiver portion of <i>B</i> plus circuit.
	Power supply checks give normal results	Trouble in the receiver stages
Receiver operation is weak	Low or erratic <i>B</i> voltage	Worn out vibrator. Weak rectifier tube. Resistance in switch. Incorrect capacity of buffer capacitor. Component in receiver drawing too much <i>B</i> current.
	Power supply checks give normal results	Trouble in the receiver stages
Excessive hum		Open filter capacitors. Defective tubes. Poor ground connections in receiver

Vibrator PWR Supply Service

Excessive hash		Poor ground connections. Defective vibrator. Defective rectifier tube. Open hash filter. Incorrect buffer capacitor.
Intermittent operation	Power supply checks give normal results	Worn-out vibrator which sometimes fails to start (check at 4 volts).
Fuse blows repeatedly	Power supply checks give normal results	Vibrator with sticking points. Intermittent cathode to heater short in rectifier tube

Normal Voltage Data For The Vibrator Supply

Point to Point	6X5 pin No.	Voltage
Chassis to "A" supply hot lead		6
Chassis to center tap of transformer primary		5.5
Chassis to rectifier plates	3 & 5	150-250 AC
Chassis to rectifier cathode	8	160-260
Chassis to B plus		150-250

