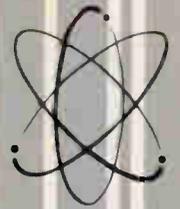




Techni-talk

COMPLETE ELECTRONIC SERVICING INFORMATION

radio • tv • hi-fi



Vol. 14, No. 1

March, 1962

G-E SONIC REMOTE CONTROL SYSTEM III

The ceramic type transducer receiver was partially described in the last issue. In this issue, the balance of this receiver will be discussed plus the electrostatic type transducer receiver.

Sensitivity Control

A sensitivity control R720 at bottom of Fig. 1 in Vol. 13, No. 6 issue, provides adjustment for various tube characteristics and noise levels. There are possible situations where the sensitivity control could be set so high as to keep the voltage amplifiers biased beyond cut off at all times. This could be true where the noise is at sufficient level to produce a high bias voltage in the manner just described.

A simple power supply is all that is required to supply the necessary B+ and bias. A single half wave germanium rectifier is used to produce the +135V. The 6.3 AC filament line also supplies voltage for the pilot lamp used on the main receiver power tuning unit. To promote increased life of this pilot lamp a 1.5 ohm resistor is added in series with the lamp supply. The power supply transformer also has a 24 V AC section which supplies the current for the power tuning drive motor. This 24 V AC tap is also used to obtain the voltage to be rectified for the negative bias supply. A maximum bias of approximately 11 volts, with no signal applied, is possible for this receiver.

Electrostatic Type Receiver

As mentioned in the Vol. 13, No. 5 issue, two versions of sonic remote control were used with the M6 line of television receivers. The first version was designed to use a ceramic type transducer shown in Fig. 1. for both the transmitter and receiver units. During production the circuitry of both the transmitter and receiver was changed to utilize an electrostatic type transducer shown in Fig. 2.

Receivers that incorporate the electrostatic transducer, shown in Fig. 3, can be readily identified by the absence of a bias control potentiometer, or by code 047 and above. The electrostatic transducer used with the receiver is distinguished from the ceramic unit in the method by which the cable is attached to the transducer. The electrostatic transducer has the cable fastened permanently, while the ceramic is connected to the cable by means of a jack on the transducer and a plug on the cable.

Transmitters that are equipped with an electrostatic transducer are identified by a serial number sequence which is 32,000 and above. A

second method of identification of the transmitter is accomplished by externally viewing the transducer opening of the transmitter case. The ceramic transducer is housed in a metal case, and the metal flange of the case is visible as a circular border around the transducer grille. Since the electrostatic transducer is housed in a plastic case, there is no metal flange visible.

An electrostatic transducer cannot be used to replace a ceramic unit, nor can a ceramic transducer be used to replace an electrostatic. The above differences, however, do not affect the compatibility of transmitters and receivers.

(Continued in next issue)

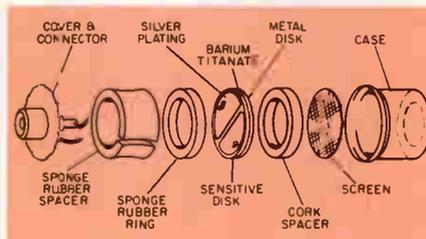


Fig. 1. Exploded drawing of ceramic transducer.

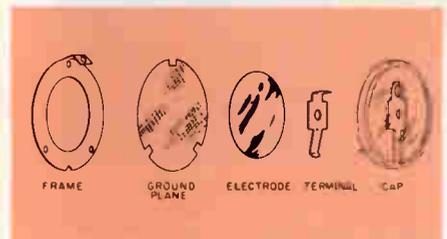


Fig. 2. Exploded drawing of electrostatic transducer.

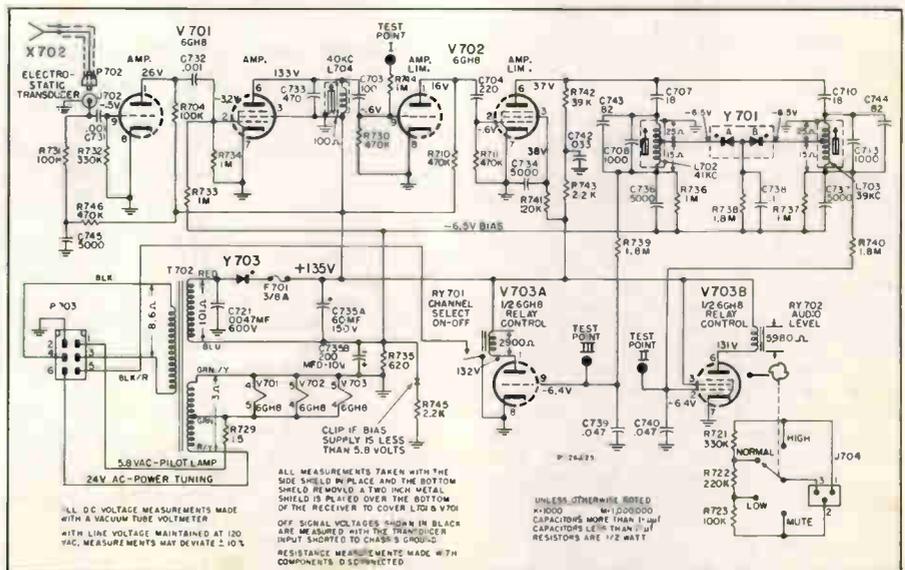


Fig. 3. Schematic diagram of electrostatic type transducer receiver.





BENCH NOTES

TUBES CHECKED IN OPERATING POSITION

In checking radios that are installed upside down, as in a car or plane, when we pull the tubes for checker, we turn the tube checker upside down so the tubes will be in their customary working position.

When we checked tubes in the normal position, we sometimes ran into trouble with call-backs, especially on intermittent faults.

*Henry Mullen
3274 Fulton Road
Cleveland 9, Ohio*

PARTS RACK



A handy parts rack that takes up little space is this unit with shelves sloping downwards towards the rear. Containers are 110 quart cans with the tops cut out, making parts selection and inventorying easy.

*Harry J. Miller
Advance Television Radio Service
991 42nd St.
Sarasota, Florida*

GREASE-STICK MAGNET

More often than not, we have fiddled away our time and nerves, trying to replace that little screw, way back there where it's hard to get at. Then too, we have had long screws and other small parts that were hard to retrieve. A magnet or a magnetic screw-driver has been of great help, but it is useless when encountering items of brass.

As a solution to installing any small screw in a tight spot with a regular screwdriver, we use our so-called "Magnetic Grease Stick." It's nothing more than a small 15¢ stick of Door Ease or Grease used by the local gas station to lubricate our car doors. When used to replace a screw in a tough spot for example, the grease is pressed into the screw head and then the screwdriver is pushed into the screw head and grease. The screw becomes stuck in position on the screwdriver and the job is done in a second. The more grease

you use on the object, the better it will hold.

We use it to retrieve other small items and it will do no harm. It can be used on home service calls to help replace those tight knobs or tubes by coating them lightly before replacement.

*George E. Molson
94 Livingston Ave.
Albany 7, N. Y.*

WEAK SOUND

Here is a service hint that should be helpful especially to the newcomers in TV service. This concerns the old 16" and 17" GE TV sets with tube heaters connected in series. There are still a lot of these sets in use today as second sets. I get a few in every year with the same trouble and always correct it the same way.

The Symptom

Raster and pix normal; very weak or complete loss of sound.

The Cure

Replace .003 capacitor (C70) between pins 4 and 6 of the 6SQ7 AF amp.

*Paul J. Dorunda
2023 Holbrooke Road
Youngstown 14, Ohio*

SOLDERING ALUMINUM

Ordinary solder and a conventional soldering gun or iron can be used when it becomes necessary to solder an aluminum component. First heat the aluminum until the solder melts on contact.

Make a small pool of melted solder and while keeping the aluminum hot enough so the solder remains fluid, scrub it into the surface with steel wool. This acts to tin the aluminum, after which the solder will take as with other metals.

*Stan Clark
Box 2162
East Bradenton, Fla.*

MINIATURE TUBE SOCKETS

These sockets have brought with them the service headache of broken lugs whenever a part is replaced or a circuit is opened for testing purposes. Regardless of the amount of care exercised, the solder lugs will often snap near the base.

If enough of the broken lug protrudes from the slit in the socket and the lug fits rather loosely, a ready-made repair can be cut from an ordinary straight-shanked solder lug. The large round end with the hole is removed. The narrow shank, is wedged and soldered in the socket slit.

If at least $\frac{1}{16}$ " of the old contact protrudes, a short piece of #22 tinned copper wire can be crimped around the joint close to the socket and then soldered with a soldering pencil. The result: a professional looking repair. In replacing the lead or leads to the new lug. Too much heat must of course be avoided.

*William Rittenour
2827 Overlook Drive
Huntington 5, West Virginia*



"Twenty-eight calls today . . . I think that's wonderful!"

TIME SAVER

In the past, I had trouble with tubes getting all mixed up in the service case. As tubes were removed the other tubes would move around loose. Now each time after using a tube, I simply take the tube out of the box and put the empty box back upside down. Now when I get back to the shop I can replace the tubes exactly as they were before. This has saved me considerable time.

*Gutierrez Radio & TV
133 No. Lake Street
Topeka, Kansas*

LIPSTICK MASK

Keep one of your wife's lipsticks in your tool kit and around the shop. It's the ideal "grease" pencil for making a neat solder job on chassis and other areas on audio and video components.

The lipstick provides a mask that keeps the edges of the solder job clean and straight, and confines it to the needed area.

*Henry Josephs
Joseph's Hardwares
Box 22
Gardenville, Penna.*

$\frac{1}{4}$ " SOCKET PLUG

One of the most common reoccurring headaches of mine was the use of the $\frac{1}{4}$ " socket wrench in starting very stubby $\frac{1}{4}$ " bolts. They would be so short the socket couldn't get them started. Now I just drop an extra $\frac{1}{4}$ " bolt thread-first down into the $\frac{1}{4}$ " socket. Saves time and makes it easy.

*Tom Darrah Jr.
Tom's TV & Radio
521 W. 4th
Sedalia, Missouri*

NOTE

Those desiring to have letters published in this column should write the Editor Techni-Talk, Electronic Components Division, General Electric Company, Owensboro, Kentucky. For each such letter selected for publication you will receive \$10.00 worth of General Electric tubes. In the event of duplicate or similar items, selection will be made by the Editor and his decision will be final. The Company shall have the unlimited right without obligation to publish or otherwise use any idea or suggestion sent to this column.

Caution: The ideas and suggestions expressed in this column are those of the individual writers. These ideas and suggestions have not been tried by the General Electric Company and therefore are not endorsed, sponsored or recommended.

TELEVISION

Inoperative Fine Tuning

On G-E M6 And U5 Powered Selector Sets

The Problem: No fine adjustment is observed when turning the fine tuning knob on a powered selector receiver.

The Reason: There is insufficient gripping or clutch action between the fine tuning gear shaft and the butterfly. This loss of drive in the clutch, means the butterfly will not raise the gear shaft to allow the gear to engage the tuning gears.

The Cause: Listed here are four possible causes for this problem. First, the application of the materials used in this assembly requires that no lubricant should be used. Should oil or grease be applied to these particular parts, there is excessive slipping and, therefore, poor clutch action.

Second, when the butterfly compression ring has been weakened or distorted, insufficient pressure is exerted to create good clutch action.

Third, improper assembly of the butterfly compression ring on the butterfly will cause a weak clamping action and associated poor clutching.

Fourth, over-tightening the nut at the front of the gear shaft, securing this assembly in the tubular shaft, will prevent full movement of the shaft within the tubular shaft and restrict the raising action, thus preventing the engagement of the gears.

The Cure: In all cases, remove the

chassis or power selector assembly from the cabinet, and disassemble the gear box for access to the butterfly and gear shaft. Next, remove the gear shaft and butterfly assembly from the tubular shaft, by removing the nut at the front of the assembly. Care should be taken not to destroy the threads on the end of the shaft.

Remove the butterfly from the shaft, by prying off the splined washer at the rear of the shaft. In most cases, this will damage the washer and require a new washer in reassembly. Care must be taken not to damage the shaft when removing the washer. The butterfly may now be removed from the shaft.

Having removed the gear shaft and butterfly assembly from the tubular shaft, and the butterfly from the rear of the gear shaft as outlined, remove the lubricant on the shaft or butterfly. Due to the nature of the material, normal solvents should not be used, but the parts should be wiped clean with a cloth.

In reassembly, a new butterfly compression ring is required in many cases to eliminate weakened or distorted compression rings.

Where practical, it is recommended that the assembly be replaced with the following inexpensive new parts which will greatly improve the operation of the fine tuning and also reduce the service time required.

These new items include:

- 1-WT69X210 Fine tuning gear and shaft
- 1-WT3X323 Butterfly
- 1-WT3X352 Butterfly compression ring
- 1-WT3X42 Retainer washer, splined

To prevent damage to the butterfly or the butterfly compression ring, the simplest method of applying the ring is to lay the ring flat on a hard surface and press the butterfly into the ring with the thumb over the flats of the butterfly, compressing the split shaft section slightly to fit the compression ring.

Care should be taken when forcing the splined washer on the shaft not to gouge the end of the shaft excessively, and when assembling do not over tighten the nut at the front of the assembly.

The shaft should have sufficient play to be able to rise to the extent of the slot in the tubular shaft retainer throughout the 360° rotation of the fine tuning gear shaft.

RADIO

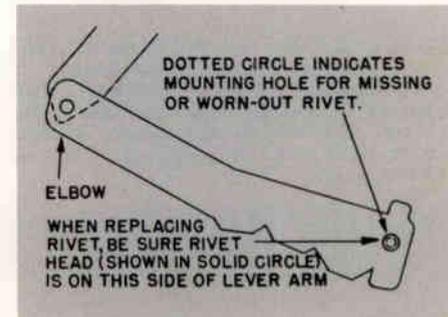
G-E CH10 Record Changers Defective Speed Control

It has been found that defective control of the speeds when turning the 16, 33, 45, 78 RPM speed selector may be caused by a worn-out or missing rivet on the control lever arm. This control lever arm is part of the motor plate assembly.

The rivet can be replaced in the following manner without replacing the motor plate assembly item No. 114:

1. Remove motor plate assembly.
2. File or grind off rivet that is in the elbow joint between speed control selector bar and speed control lever arm (see drawing).
3. Remove lever from slot.
4. Replace the worn-out or missing rivet (see sketch) with replacement rivet, catalog number RS-2116. Mount rivet using a rivet punch to peen over rivet shank, so that it fits tightly to lever arm.
5. Replace lever arm into slot.
6. Connect the speed lever arm and control lever arm at the elbow with another rivet (Catalog No. RS-2116).
7. Mount motor plate assembly back on changer.

This will restore the changer to normal operation.



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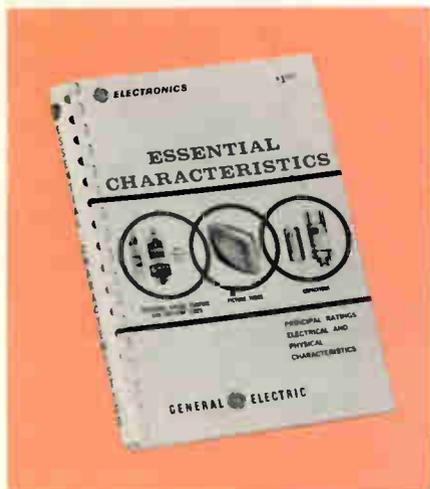
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NEW G-E SERVICE AIDS

1962 Edition Essential Characteristics Booklet ETR-15J Now Available



The ninth edition of "Essential Characteristics", the General Electric handbook on receiving tubes, television picture tubes and replacement capacitors, is now available from your General Electric tube distributor.

The new tube type characteristics added in this edition bring to 1736 the total number of receiving tubes listed. For convenience, Five-Star and special-purpose tubes now are integrated with entertainment type tubes in one alpha-numerical listing section.

As before, the book includes typical characteristics curves, tube outline drawings, circuit diagrams showing typical applications of receiving tubes and capacitors, and construction data for speaker enclosures.

Tube classification charts have been expanded to facilitate reference to similar types. Cross-reference listings of prototypes for Five-Star and other special-purpose types have also been added.

Another innovation is the listing of service aids and technical publications which are available through General Electric tube distributors.

Get the new ETR-15J from your distributor, or if he is unable to supply you, use order coupon on page seven.

Capacitor Tab Adjuster



ETR-2968

Here is a new General Electric service aid to simplify the removal and installation of twist-prong electrolytic capacitors.

The hollow tip fits perfectly over the mounting tab. The old capacitor is removed by placing tab adjuster over each mounting tab and rotating until tab breaks off. A new capacitor is installed by inserting tabs in mounting holes. With tab adjuster in place rotate each tab about 45°.

Ask your General Electric Service-Designed Capacitor distributor for ETR-2968. If he is unable to supply you with this time saving tool, use coupon on page nine.



Techni-talk



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