RADIO HI-FI TV
Techni-talk
COMPLETE ELECTRONIC SERVICING INFORMATION
Vol. 19, No. 3 Fall, 1967

COLOR TELEVISION - COLORIMETRY - III

In the last issue the Chromaticity Diagram was described. In this issue the description and use of this diagram will continue.

USE OF CHROMATICITY DIAGRAM

The next step is to make use of the chromaticity diagram. First, consider the effect of adding two colors together as in Figure 8. Green and red mixed together result in yellow. What would happen if more red than green were mixed? The yellow would give way to a more orange color. With that in mind, observe the chromaticity diagram with the two initial colors marked. Notice that a straight line joins these two colors. The yellow resulting from equal mixing of red and green lies along the line about half way between the two primaries. In the second case where more red was added, the resulting orange lies along the line but closer to the red primary. To carry it out further, any color along the line connecting the two primaries can be matched by mixing different proportions of those two primaries. This holds true for any two primaries anywhere within the boundaries of the chromaticity diagram. This can be seen by checking the results of adding green and blue primaries,

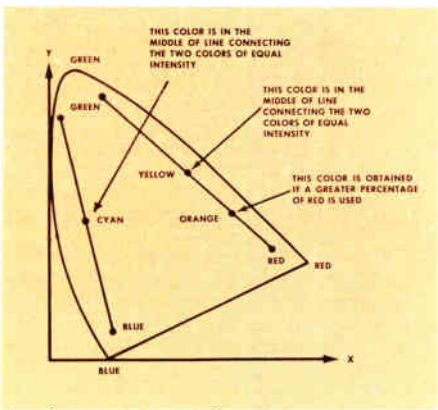


Fig. 8 — Mixing of Two Colors: Green and Red, Green and Blue.

again as shown in Figure 8. It becomes apparent immediately that when two primary colors are mixed regardless of the hue or saturation, the result will appear somewhere along a straight line connecting the two primary colors.

The effect of a third primary can best be seen by adding it to a mixture of the other two primaries. What is the effect of adding blue to yellow? Looking at the chromaticity diagram, Figure 9, notice that a line connecting yellow and blue passes through white. Therefore, if the proper amount of blue is added to yellow (red plus green), white will be the result. This is logical since it was already known that white light is made up of all wavelengths of light viewed simultaneously. If the same amount of blue were added to orange instead of yellow, the result would be a low saturation magenta.

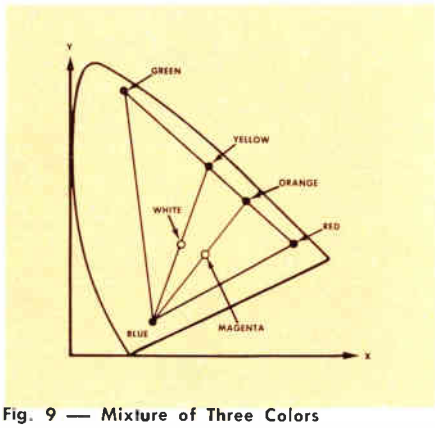


Fig. 9 — Mixture of Three Colors

Given three primaries, such as show in Figure 10, it would seem that any color within the triangle formed could be reproduced if the proper relative proportions of the primaries are used, and such is the case.

The three primaries shown are, in fact, the primaries specified in the approved color television standards. Keeping in mind the fact that the triangle determines the color fidelity,

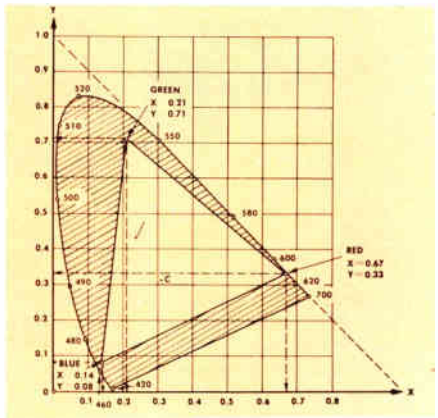


Fig. 10 — C1 Chromaticity Diagram

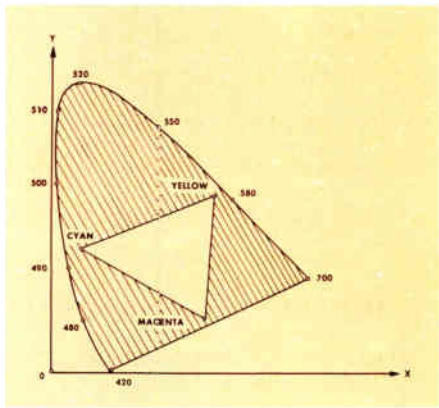


Fig. 11 — Color Triangle Substractive Primaries

the choice of additive primaries becomes logical.

For example, what would be the result if, instead of red, green and blue primaries, the subtractive primaries were used. Figure 11 shows the results most emphatically. Although all the hues are still represented, notice the low saturation limit on reds, greens and blues.

Even the choice of the green primary is logical although it is not evident immediately. The importance of the green primary is the limit its value puts on flesh tone saturation. Flesh tones are between yellow and red. If the green primary were moved as shown by the dotted line in Figure 12, the area of the triangle would be larger, thus a more complete gamut of color could be reproduced. However, observe the decrease in saturation in the flesh tone area. This would be most undesirable since flesh tones are of paramount importance in television.

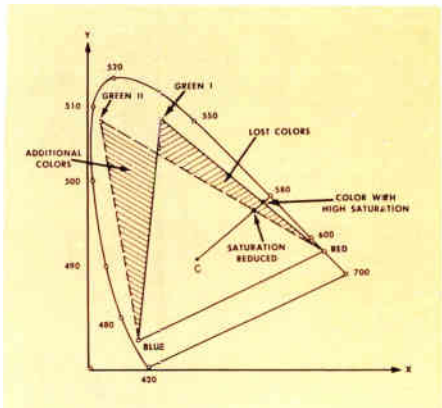
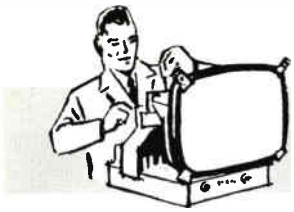


Fig. 12 — Desaturation of Flesh Tones by Green Saturation Shift



BENCH NOTES

PROTECT AUTO FINISH

When drilling a hole for an auto antenna, especially on later model cars, drilling, reaming or filing the hole to ¾" to 1" diameter poses danger of scratching adjacent painted surfaces should the hole-making tool skid.

Prevent this by placing an 8" by 8" square of cardboard with a precut center-hole-over the panel where the antenna is to be located. Anchor the cardboard with tape while drilling, so the cardboard will protect the painted areas from being marred.

Henry Josephs, Sr.
Joseph's Auto Service
Box 22
Gardenville, Penna.

NEW GRIP FOR OLD SOCKETS

Tube sockets sometimes become so worn from age and usage that arcing, interaction and even fallout may occur. Some new sets may even have a loose pin holder or two. Normally, socket replacement is the proper course of action or at least, chassis removal to tighten pin holders with pliers. Either way eats up precious time so try this.

Simply insert receiving tubes in to the pin straightener sockets that are provided on most tube testers. Then, with a firm grip, slowly remove the tube while giving it a continuous clock-wise twist. This procedure will insure you of the best possible contacts being made on any socket for all pins.

Don Barnett
Premiere TV
906 Port Republic
Beaufort, So. Car.

OIL SAVER

The oil can our men carry in their toolboxes invariably tips over to spill oil all over everything. Avoid this problem by using lighter-fluid cans having a spout that pours when pointed straight up and is sealed when tipped to either side. Just pry off the spout; fill with oil and replace spout.

Harry J. Miller
Advance Television-Radio
991 Forty-Second St.
Sarasota, Florida

HANDY SOLDER

You won't waste time hunting solder if you wrap an extra supply of the wire solder around the cord of the soldering gun, just behind the plug. It's handy and doesn't interfere with use of the gun.

Stan Clark
Box 2162
East Bradenton, Fla. 33507

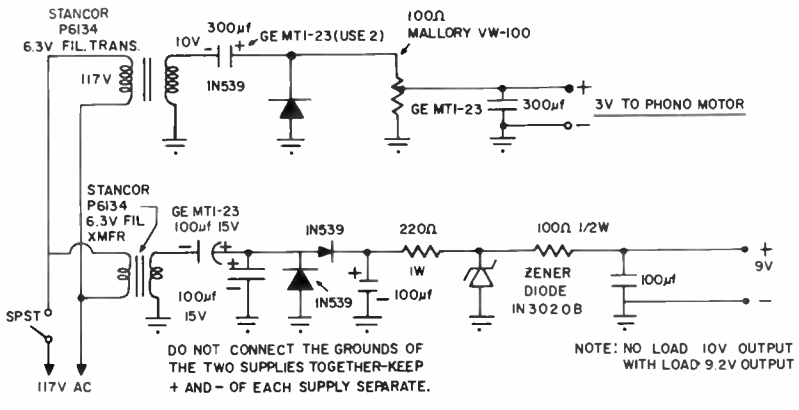
USES FOR ETR-2089

When using control cleaner and lubricant, there are times when some controls are inaccessible. You can usually reach all the controls by bending the plastic extension in a "U" shape, etc.

I find GE rear control extension, ETR-2089, just the thing for replacing those 1X2 tubes. I also use it to start nuts and bolts.

Richard McKinney
4802 Abbott
Dallas, Texas

TAPE RECORDER REPAIR



Trouble: Units record but fail to play back. Normal checkout revealed that in "play" position no current was being drawn from the 9V battery (nominal current is 8MA).

It was found that the master selector switch assembly bolts had loosened causing a twisting offset that created failure of contacts in "play" position. Bolts were securely tightened and then the nut and bolt were spot soldered to prevent reoccurence.

Also while repairing these units it was found expeditious to have power supplies to replace batteries to ascertain 1) weak batteries and 2) wow in playback-record motor. The drawing illustrates two independent power supplies for bench work. The 3-volt supply is made variable to check motors at specified operating voltages.

Leonard Chioma
Electronic Model Engineering
2020 Natalen Rd.
Winter Park, Fla.

TUBE REPLACEMENT

Avoid time waste and trouble trying to restore multi-prong tubes in some far corner of a component-packed chassis by marking the side of the tube at its bottom, and making a matching mark on the chassis at the socket with a piece of crayon before removing the tube. To replace, just line up the two marks.

H. Muller
Box 6
Danboro, Penna.

PARTS HOLDER

I had a problem keeping knobs, screws etc. from disassembled sets together. Small boxes were not too good for they were always getting knocked over and parts spilled and hence lost parts.

I have found plastic sandwich bags ideal for keeping these small things together. I insert a slip of paper in the bag with the customer's name. I hang the bags up high over the bench on a board with nails. They are secure until needed. They are transparent making ready identification possible. The bags are re-usable and inexpensive to use. I also carry them in the tube caddy.

Robert H. Cornish
Robert H. Cornish Television Service
324 Lowry Lane
Lexington, Ky.

SAFETY TEST

After repairing a portable television use neon tester to check for a "hot" case. Plug television to 115 volt AC line and touch neon lamp to all exposed metal parts and to ground (water pipe or metal conduit) and then reverse plug in outlet and perform check again. If neon lamp glows there is a ground or insulation failure and defect should be corrected, before returning set to owner.

Bernard H. Serota
2502 S. Philip St.
Philadelphia, Pa. 19148

ANOTHER INEXPENSIVE HEAT SINK

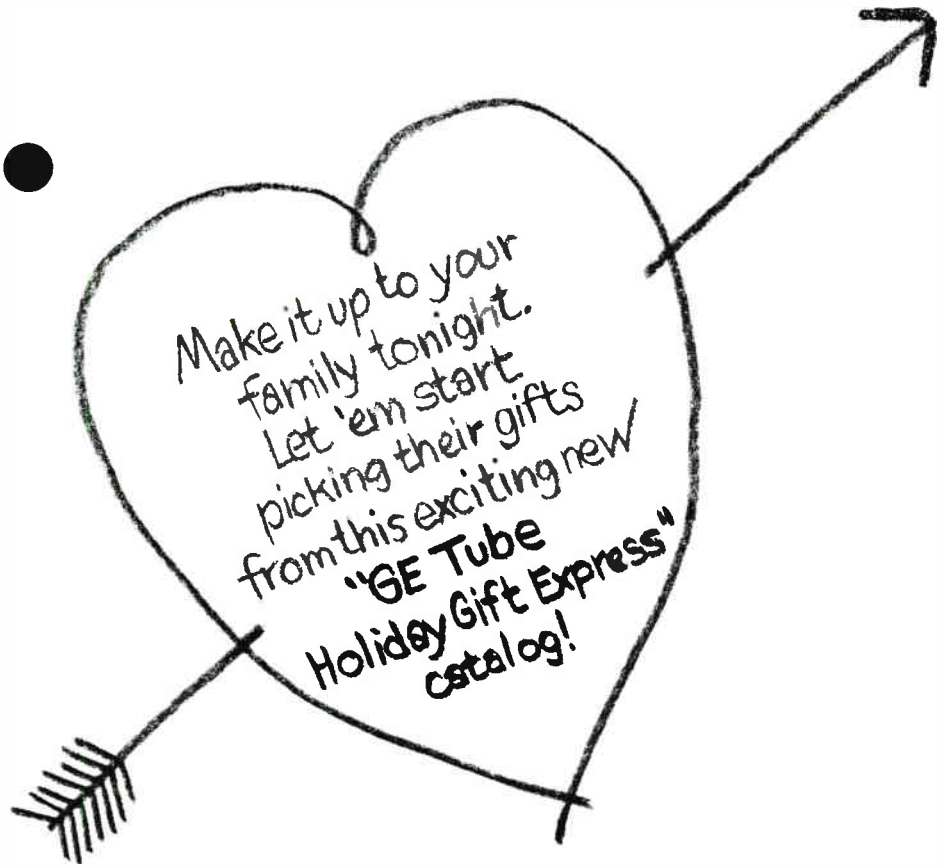
To avoid heat damage to small electronic components while you are soldering, just slip ordinary paper clips over the leads. The clips will serve as a heat sink, protecting these easily damaged parts.

Russell V. Book
6803 Navaree Road, SW
Massillon, Ohio 44646

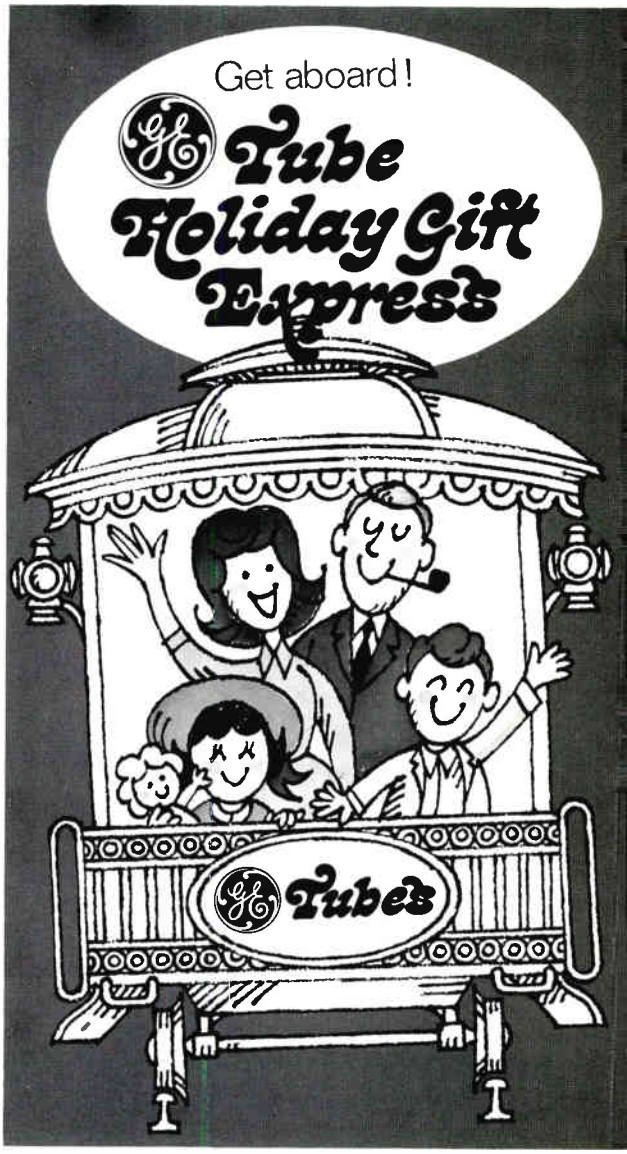
Note:

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.

Last week you worked 71 hours. The week before it was 82.



Stir up some big family excitement!



Buy General Electric Entertainment Receiving Tubes and earn valuable gifts for the whole family. *See your participating GE Tube Distributor today for complete information.* 288-12

GENERAL ELECTRIC

...to attract attention
...create a favorable impression
...direct customers into your store

outdoor signs

SIGN

This deluxe outdoor illuminated sign can be seen blocks away. Six flashing lamps with 6500 lumens output give you dealer identification that stands out from all others in your business neighborhood. Your dealership name and all necessary hardware included. Size — 24″ x 48″. Colors — red-orange, black, grey, and white.

ETR-1290, SIGN (double face)
Cost **$168.75**

ETR-1290-1, SIGN (single face)
Cost **$106.25**

PROJECTING SIGN

A big, bright, double-faced sign, ideal for the store front. Baked enamel on 18-gauge metal. All hanging hardware included. Size—48″ x 36″. Colors—red-orange, black, grey, and white.

ETR-1566, PROJECTING SIGN
Cost **$27.00**

PROJECTING SIGN NAMEPLATE

Your dealership name individually applied in baked enamel on 18-gauge metal. Attaches to hanging hardware provided with ETR-1566.

ETR-1566-1, PROJECTING SIGN NAMEPLATE
Cost **$7.50**

TWO-WAY LIGHT SET

Bright illumination for your outdoor sign and store front. Attaches to hanging hardware provided with ETR-1566.

ETR-1566-2, TWO-WAY LIGHT SET
Cost **$20.75**

COLOR-TV *Service*

TUBES

WINDOW DECAL

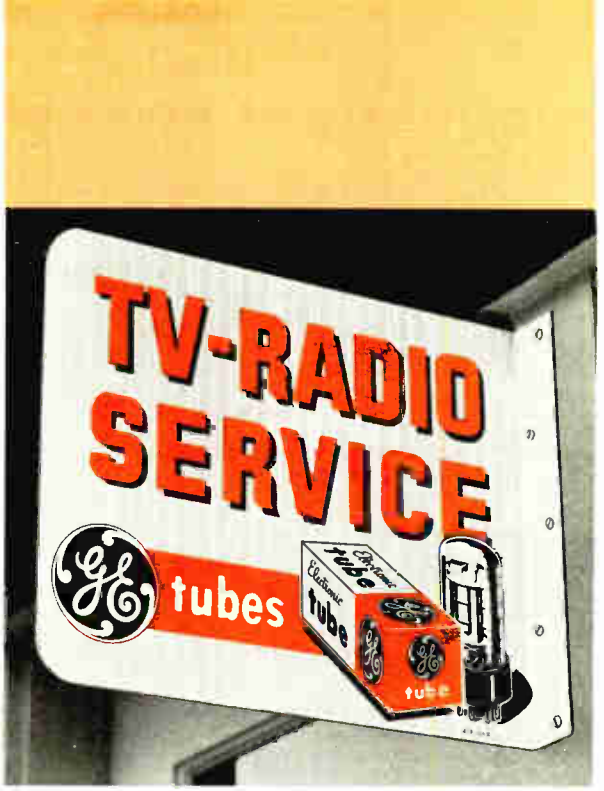
Use these decals as a reminder that you offer complete color service with genuine GE color components. The colorful, eye-catching decals are easily mounted on wall or window.

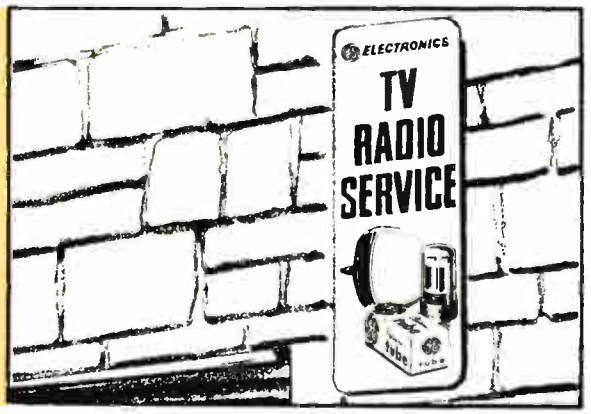
ETR-4620, WINDOW DECAL
Cost ..... **$ .35**

METAL FLANGE SIGN

A smaller, double-faced sign with dozens of uses. Can be mounted on side of store, counter, door jamb, any flat surface, including masonry. Baked enamel on 20-gauge metal. Size—15″ x 12″ x 1½″. Colors—red-orange, black, grey, and white.

ETR-1565, METAL FLANGE SIGN
Cost **$2.25**

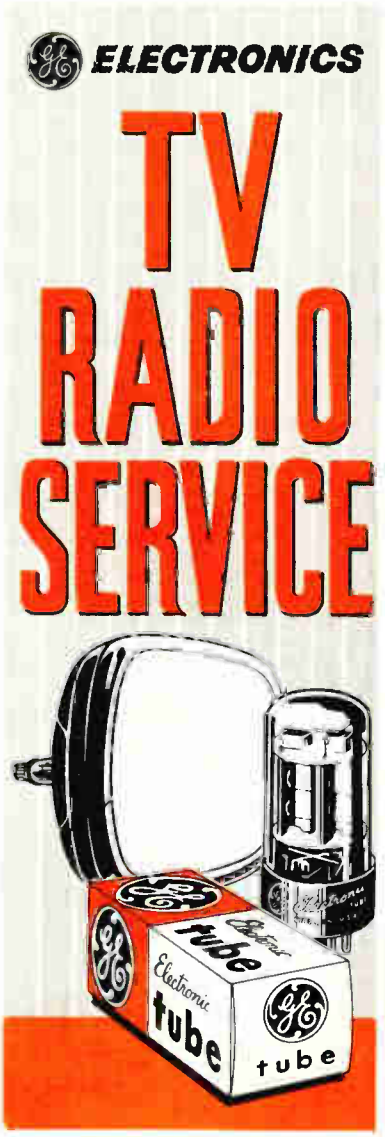




GIANT TACK-ON SIGN

An all-purpose, all-weather advertising sign that can be mounted on the side of a building or attached to a wood backdrop as a free-standing post sign. Baked enamel on 26-gauge metal. Size—14″ x 42″. Red-orange, black, grey, and white.

ETR-1564, GIANT TACK-ON SIGN
Cost **$2.70**



ILLUMINATED SIGN

Double-faced, 24″ diameter monogram, with removable wire "stand-up legs", and wire loop at top for hanging. Uses one 100 W incandescent lamp. Easily assembled with split rivets packed with sign. White plastic with red-orange background and "TUBES". Makes excellent night light in store or in window. NOT for outside use.

ETR-4622, ILLUMINATED SIGN
Cost **$8.69**

SINGLE-FACED PLAQUE

Single-faced plaque similar to above, mounts easily on any smooth clean surface by four attached self-stick pads. May be used indoors or outdoors. Mount one outside on store window and one in same position inside window to gain two-way exposure.

ETR-4623, SINGLE-FACED PLAQUE
Cost **$2.44**

Order items by Title and ETR Number through your AUTHORIZED GE DISTRIBUTOR or use order coupon on page 7.

GE PUBLICATIONS FOR SERVICE TECHNICIANS

PUBLICATION NUMBER

ETR-4340 Service-Designed Capacitors — Catalog and Interchangeability Guide
Price $ .25

ETR-4311 Entertainment Semiconductor Almanac — Description and Ratings of Entertainment Semiconductor Components, Replacement Guide and Experimenter/Hobbyist Electronic Components with Applications and Parts List.
Price $ .25

ETR-3378 Auto Radio Capacitor Replacement Guide.
See your GE Distributor

ESSENTIAL CHARACTERISTICS

ETR-15M Contains data on every receiving, television picture, five-star and special-purpose tube. Classification and cross-reference charts are also included.
Price $2.00

MANUALS

ETR-3960 Hobby Manual — Every engineer, experimenter, hobbyist, student, and technician can learn new applications for electronic components with the simple but interesting and useful circuits in this manual.
Price $1.50

ETR-3710 Glow Lamp Manual — Contains (1) theory, (2) circuits such as Relaxation Oscillators, logic and computer and other general applications, (3) specifications and ratings.
Price $1.00

ETR-3296 Transistor Manual — Nineteen fact-filled chapters containing transistor theory; interesting transistor circuits for radios, amplifiers, oscillators, specifications, etc.; valuable information needed by every engineer, hobbyist and experimenter.
Price $2.00

ETR-4423 Transistor Circuit Trouble-Shooting Course — Contains three volumns with over 80 pages in each volumn. This course is designed especially to meet the on-the-job needs of the electronic service technician who will be servicing transistorized radios, stereos, TV, and other home entertainment products yet to come.
Price $14.25

ETR-2162 Tube Inventory and Order Guide — This new 24-page book will help you control your inventory, thereby increasing profits and improving your efficiency. Permits you to check turnover of each tube type, keep up to date stock records and list stock orders and shipments received.
Price $ .25

ETR-3875-A SCR Manual — Unquestionably, the most authoritative and well-received manual on SCR's from the originator of the Silicon Controlled Rectifier . . . General Electric.
Chapters on phase control, inverters, static switches, the gate turn-off switch and light activated SCR's.
Amply illustrated with schematics, outline drawings, design curves and useful circuits.
Price $3.00

SERVICE GUIDES — RADIO

Provide single source of reference for GE radio schematics and parts lists.

ETR-2975	Radio Service Guide (1946-1961)	$1.95
ETR-3733	Radio Service Guide (1961-1962)	$1.45
ETR-4406	Radio Service Guide (1963-1965)	$2.95
ETR-4529	Radio Service Guide (1965-1967)	$3.95

SERVICE GUIDES — TV

Include such feotures as a photo index for quick set identification; schematic diagrams of chassis; VHF and UHF tuners; a complete replacement parts list; electrical components and main chassis diogroms.

ETR-4800 TV Service Manual on GE "B" Line 1966 Receivers
Price $4.75

PUBLICATION NUMBER

ETR-4491 TV Service Manual on GE "A" Line 1965 Receivers
Price $4.50

ETR-4411 TV Service Manual on GE "Y" Line 1964 Receivers
Price $4.50

ETR-3907 TV Service Manual on GE "X" Line 1963 Receivers
Price $4.50

ETR-3906 TV Service Manual on GE "W" Line 1961-1962 Receivers
Price $3.00

ETR-2892 Vol. 4, years 1958-1960 TV Service Manual
Price $3.00

ETR-1767 Vol. 3, years 1955-1957 TV Service Manual
Price $2.50

ETR-1766 Vol. 2, years 1953-1955 TV Service Manual
Price $2.50

ETR-1765 Vol. 1, years 1946-1953 TV Service Manual
Price $2.50

SUBSCRIPTION PLAN — GE RADIO/TV

ETR-3845 Subscription Plan "A" Price $6.50
Radio and Portable Phonograph Manual Subscription — Parts list, schematics, location diagrams, other data . . . plus up-to-date mailings. Subscription period is 12 months from date of receipt.

ETR-3846 Subscription Plan "B" Price $14.50
Includes Plan "A" plus Radio Service Guides.

ETR-3790 TV & Phono Subscription Plan "E" — Factory Service Manual coverage for one year. Subscription period is 12 months from January 1 through December 31. Includes color and monochrome TV, console phonographs, AM-FM tuners, record changers, FM stereo adapter, home music distribution system, plus binder for TV service manuals.
Price $10.50

ETR-3791 TV & Phono Subscription Plan "F" — Includes Plan "E" for current year, plus full TV service manual and all console phonograph, tuner and record changer coverage for previous year, plus vinyl covered binder.
Price $14.50

TECHNI-TALK

Quarterly publication containing service information, helps and short cuts.

ETR-2579 Techni-Talk Back Issues (Vol. 1 No. 1 through latest issue) and binder. (Includes all Tele-Clues) Price $6.25

ETR-2000 Techni-Talk Binder Price $2.25

TELE-CLUES

ETR-1095 Tele-Clues in three-ring binder — Visual trouble-shooting guide.
Price $4.35

ETR-3700 101 Tele-Clues Price $1.00

WALL CHARTS AND POCKET LISTS

ETR-702 Picture Tube Replacement Guide — Wall-type chart lists electrical and physical characteristics of picture tubes.
Price $ .10

ETR-1916 Receiving Tube Interchangeability Wall Chart — Lists GE replacements for American and foreign types. Handy 11" x 28" chart.
Price $ .10

ETR-1749 Receiving Tube Pocket Interchangeobility List — Gives you the information you want at a moments notice . . . whereever you are.
See your GE Distributor

TELEVISION

KC CHASSIS RECEIVERS-SERVICING H. V. POWER SUPPLY

The reliability and performance of color television receivers is greatly affected by any adjustment of the High Voltage Regulator Circuit which results in excessive high voltage. On the other hand, if high voltage is low, poor brightness and performance will result.

To assure your customers of maximum reliability and performance, you should follow the specific instructions for adjusting the horizontal deflection system including the H. V. regulator, as given below.

Although it is not necessary to perform all of these steps to adjust the H. V. regulator, you should remember that the receiver must be locked in on a station signal as stated.

HORIZONTAL DEFLECTION ALIGNMENT

Test Equipment Connections:

GENERAL — Tune receiver to signal and synchronize the picture.

MILLIAMMETER — Open the jumper and insert a 0-500 ma. meter between pin 2 (cathode) of V14 (Horizontal Output) and ground, see Fig. 1. By-pass meter with .47 uf. capacitor at the tube socket.

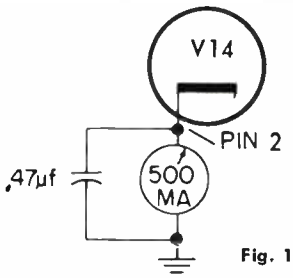


Fig. 1

VACUUM TUBE VOLTMETER — Connect to high voltage anode lead through high voltage probe at picture tube.

ADJUST — Adjust focus control T105 to the mechanical center of range.

STEP 1: Adjust horizontal hold control R110 in Fig. 2. Short jumper from TP IV to ground. Adjust horizontal hold control R110 to the center of its range.

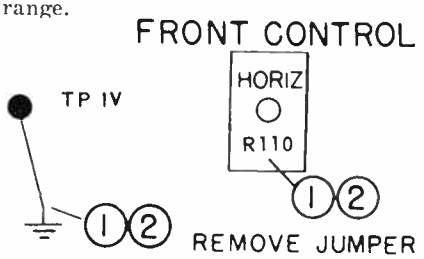


Fig. 2

STEP 2: Adjust horizontal sine coil L501. Adjust L501 slug until picture drifts very slowly and sides are vertical. Remove TP IV jumper. Check R110 at both ends. Must pull in from a minimum of 4 bars.

STEP 3: Adjust horizontal efficiency coil L502 in Fig. 3. With the tuning core of L502 at the top of the coil (away from the chassis) adjust L502 critically for minimum V14 cathode current. Then rotate the core one turn clockwise towards the chassis.

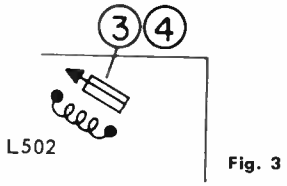


Fig. 3

STEP 4A: Adjust to the High Voltage in this step for all chassis WITH HIGH VOLTAGE SHIELD MARKED EITHER 18" or 22KV AND ALL CHASSIS WITH PICTURE TUBE TYPE 19GLP22. (See STEP 4B for unmarked shields). With the Brightness Control fully counterclockwise (minimum brightness), adjust R140 for the high voltage in the following chart. When the AC Line Voltage reads in between two AC Voltages in the chart, adjust for the high voltage opposite the lower of the two AC voltages. (For instance, 114 volts AC — adjust for 20.5KV).

If AC Line Voltage with set turned on is:	Adjust High Voltage to:
110 volts	20.5KV
115 volts	21.4KV
120 volts	22.0KV
125 volts	22.8KV

If the line voltage is consistently high — 128 volts or more — rewire the AC line input to the power transformer using the 128 volt tap. Then adjust the high voltage to 22.0KV.

STEP 4B: Adjust to the High Voltage in this step for all chassis WITHOUT 18" OR 22KV marked on the High Voltage shield. (See STEP 4A for marked shields). With the Brightness Control fully counterclockwise (Minimum brightness) adjust R140 for the high voltage in the following chart. When the AC Line Voltage reads in between two AC voltages in the chart, adjust for the high voltage opposite the lower of the two AC voltages. (For instance, 114 volts AC — adjust for 22.4KV.

If AC Line Voltage with set turned on is:	Adjust High Voltage to:
110 volts	22.4KV
115 volts	23.4KV
120 volts	24.5KV
125 volts	25.4KV

If the line voltage is consistently high — 128 volts or more — rewire the AC line input to the power transformer using the 128 volt tap. Then adjust the high voltage to 24.5KV.

Be certain to replace jumper and remove milliameter. Readjust focus.

Use Order Coupon Below

ORDER COUPON

Order from your local G E electronic components distributor or mail this form to:

General Electric Company
Department "B"
3800 N. Milwaukee Ave.
Chicago, Ill. 60641

Enclosed is money order or check payable to General Electric Company for:

Quantity		Price
	ETR-15 Essential Characteristics — Receiving Tubes, Picture Tubes, Reed Switches, Photocells and Capacitors	$ 2.00
	ETR-702 Picture Tube Replacement Guide	.10
	ETR-1095 Tele-Clues in Three-Ring Binder	4.35
	ETR-1765 TV Service Manual, Vol. 1, Years 1946-1953	2.50
	ETR-1766 TV Service Manual, Vol. 2, Years 1953-1955	2.50
	ETR-1767 TV Service Manual, Vol. 3, Years 1955-1957	2.50
	ETR-1916 Receiving Tube Interchangeability Wall Chart	.10
	ETR-2000 Techni-Talk Binder	2.25
	ETR-2162 Tube Inventory and Order Guide	.25
	ETR-2579 Techni-Talk Back Issues (Vol. 1 No. 1 thru Latest Issue) and binder	6.25
	ETR-2892 TV Service Manual, Vol. 4, Years 1958-1960	3.00
	ETR-2975 Radio Service Guide (1946-1961)	1.95
	ETR-3296 Transistor Manual	2.00
	ETR-3700 101 Tele-Clues	1.00
	ETR-3710 Glow Lamp Manual	1.00
	ETR-3733 Radio Service Guide (1961-1962)	1.45
	ETR-3790 TV & Phono Subscription Plan "E" for 1967	10.50
	ETR-3791 TV & Phono Subscription Plan "F" — Includes Plan "E" for 1967 and previous year	14.50
	ETR-3845 Subscription Plan "A" for Radio and Portable Phonograph Manual Subscription for 1967	6.50
	ETR-3846 Subscription Plan "B" — Includes Plan "A" plus Radio Service Guides	14.50
	ETR-3875 SCR Manual	3.00
	ETR-3906 TV Service Manual on GE "W" Line 1961-1962 Receivers	3.00
	ETR-3907 TV Service Manual on GE "X" Line 1963 Receivers	4.50
	ETR-3960 Hobby Manual	1.50
	ETR-4311 Entertainment Semiconductor Almanac	.25
	ETR-4340 Catalog and Interchangeability Guide for Service-Designed Capacitors	.25
	ETR-4406 Radio Service Guide (1963-1965)	2.95
	ETR-4411 TV Service Manual on GE "Y" Line 1964 Receivers	4.50
	ETR-4423 Transistor Circuit Trouble-Shooting Course	14.25
	ETR-4491 TV Service Manual on GE "A" Line 1965 Receivers	4.50
	ETR-4529 Radio Service Guide (1965-1967)	3.95
	ETR-4530 Color Dot Magnifier	.75
	ETR-4800 TV Service Manual on GE "B" Line 1966 Receivers	4.75

NAME.....

STREET ADDRESS.....

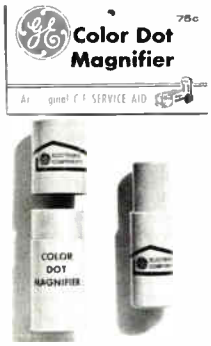
CITY, STATE and ZIP CODE.....

(Please Print)

ELECTRONIC COMPONENTS

LEADERSHIP IN ELECTRONICS!
LEADERSHIP IN SERVICE AIDS . . . *and here is another*

COLOR DOT MAGNIFIER, ETR-4530



- Adequate magnification makes individual color dots visible on Color Picture Tube.
- Dot visibility makes more accurate "purity" adjustments possible.
- Focus adjustable for complete screen coverage. Inner tube may be removed whenever necessary.
- Compact and easy to use. Two color protective storage cylinder assures long life.
- Can also be used to check phono needles for wear.
- Use to check and locate minute cracks in printed circuit boards.

Ask your distributor for the new Color Dot Magnifier, ETR-4530. If he is unable to supply you use order coupon on page 7. The price is only $.75 each.

NEW "B" LINE CONSOLIDATED TV SERVICE MANUAL, ETR-4800

Here is the new "B" line TV service manual containing complete service information on all 1966 General Electric Television Receivers. This 345-page manual covers both Monochrore and Color Receivers — Tube and Solid State.

The information on each chassis type includes:

1. General Information such as:
   a. Picture Tube Types
   b. VHF Tuner Numbers
   c. UHF Tuner Numbers
   d. Features such as automatic brightness control, automatic fine tuning, remote control, automatic "on-off" function etc.
2. Disassembly Procedure for removing chassis and picture tube.
3. Line drawings of each cabinet style.
4. Parts List.
5. Alignment Instructions on both receivers and tuners.
6. Schematic diagrams for Chassis, Tuners, Remote Transmitters and Receivers, Auto-Marine Antenna, Portable Battery Pack, Power Tuning Assembly, Radio Clock-Timer and Syncro-Lite Tuning Assembly.
7. Production Changes.
8. Features, schematics and additional parts list for Educational TV and Contract Sales (Motel-Hospital) types.

Ask your distributor for a copy of ETR-4800 — the price is only $4.75 — or use order coupon on page 7.

RADIO HI-FI TV
Techni-talk
COMPLETE ELECTRONIC SERVICING INFORMATION

Vol. 19, No. 3 Fall, 1967

In this issue:

Techni-talk on AM, FM, TV Servicing, published quarterly by ELECTRONIC COMPONENTS DIVISION, GENERAL ELECTRIC COMPANY, OWENSBORO, KY. In Canada: Canadian General Electric Co., Ltd., 189 Dufferin St., Toronto 3, Ontario. R. G. Kempton, Editor.

ELECTRONIC COMPONENTS

Form 3547 Requested

This copy of Techni-talk comes to you through the courtesy of your General Electric tube distributor.