

New **EMERSON** Color Receivers

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Fig. 1. The Emerson color TV console model C504A is shown here.

*Six models are available ranging from \$678 to \$914.
All have the 21-inch color picture tube, new circuits.*

THE Emerson Radio & Phonograph Corp.'s current and recent color line consists of six different color TV models. Included are consoles, with and without doors, and consolettes. Two of the models are illustrated in Figs. 1 and 3. The least expensive color model carries a list price of \$678 while the most expensive console lists for \$914. The model C506A for \$678 (and the C507A for \$698, the u.h.f.-v.h.f. version) is the latest model in the line and is furnished in mahogany, blonde, or walnut. The models C502C and the C504A at \$894 and \$794 respectively (and C503C and C505A for \$914 and \$814, u.h.f.-v.h.f. versions respectively) are furnished in mahogany or blonde.

Some of the outstanding features of the new Emerson color sets are the provision for removal of the safety glass to allow easy cleaning of the picture tube screen, and the accessibility of the controls and chassis. In these sets, both the top and the rear cover are removable for servicing. All controls required for picture tube set-up are located at the front, so that it is not necessary to use a mirror during adjustments.

A complete operating instruction book for the receiver is included with every set sold. In addition, a service manual is available through the local Emerson distributor.

These sets have only two controls which may be used by the viewer during color TV reception; these are

the "Color Amp." and "Color Shading" controls. They are located behind the hinged panel on the front of the receiver. The "Color Amp." control can be adjusted to provide the color content of the picture from barely perceptible colors to vivid and bright. The "Color Shading" control is used to adjust the color balance to obtain correct skin tones and other familiar shades.

This receiver will automatically reproduce color programs when they are being broadcast without having to switch on any special control. However, the color pictures received may not always be the same because of differences at the studio, or transmitter, or even because of differences in program material. Therefore, it may be necessary to readjust the two viewer color controls from time to time. To do this during a color broadcast, just adjust the fine tuning control until the herringbone pattern disappears and the picture is clear. Then rotate the "Color Amp." control fully counterclockwise so that the picture is black-and-white. Next, adjust the brightness and contrast control for a good black-and-white picture. Rotate

the "Color Amp." control clockwise until the desired amount of color is obtained. Then, adjust the "Color Shading" control slowly so that the desired skin tones, etc., are viewed. It is important to keep the "Color Shading" control in the center of its range until it is used for the final touch up.

The picture tube is mounted directly on the chassis in all except models C506A and C507A, just as in most black-and-white TV receivers, so that the entire assembly can be removed at one time for servicing. A complete chassis of this type is shown in Fig. 2. The high-voltage cage contains a high-voltage safety interlock switch which is closed by an insulator on the rear cover of the cabinet. When the rear cover is removed, the two spring contacts of the switch make contact, shorting the high-voltage circuit to ground. Note the high-voltage cable connected to the picture tube "well."

For the models C506A and C507A, the picture tube is secured to the cabinet-mounted removable assembly.

From an electrical point of view, these color sets are conservatively designed and use circuits which have already had at least a year's field trials. These models do not use printed wiring nor any unconventional components—for color television, that is.

Four video i.f. stages and two stages of amplification for the intercarrier sound are used. Whereas some models use a total of 28 tubes (29 tubes for u.h.f. version) including the picture tube, some have only 27 tubes (28 for u.h.f.). The difference lies in the fact that the sets with 27 tubes use a single high-voltage rectifier tube while the

Edron's Note: We have just been advised as we go to press that there is a change in the Emerson line of color TV receivers. Although some of the models shown here are still in the dealers' hands, please call for the marketing of model C506A at \$678 and model C507A at \$698 only.

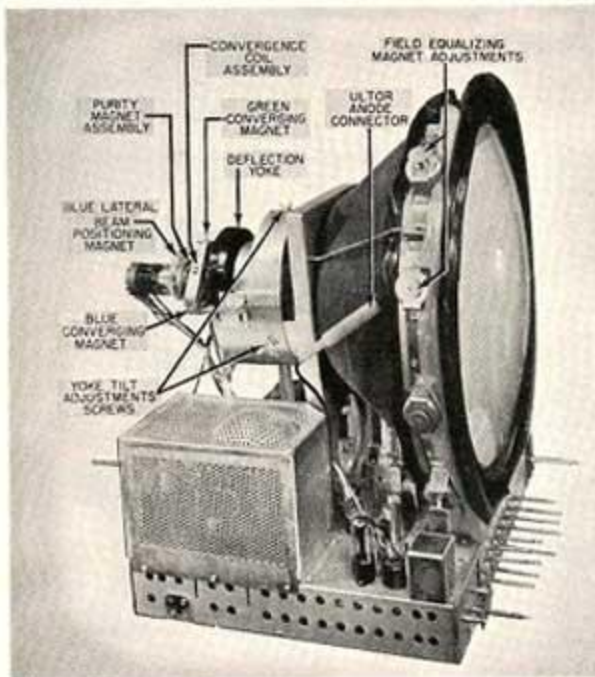


Fig. 3. The full door console is the model C502C. The nameplate covers the necessary color controls.

Fig. 2. Color TV chassis for the models C502C, C503C, C504A, and C505A. Note that the 21-inch color tube is fastened to the chassis and the entire assembly comes out of the cabinet together. All Emerson receivers are shipped completely assembled.

others use two tubes to produce the 25 kilovolts.

Also of interest is the fact that these receivers use a power transformer and four selenium rectifiers. Three crystal diodes and one oscillating crystal are used. The u.h.f. versions have an additional crystal diode. To provide maximum protection, two fuses are used in the "B+" secondary and two loops of No. 26 wire serve as fuses for the heater circuit. In an effort to reduce the disturbance created by motors or other arcing devices on the power line, the sets contain a line filter consisting of two capacitors and a resistor.

The chrominance or color circuits of these receivers resemble those of the RCA 21-CT-660 series, which have, more or less, served as the basic models for the industry. There are modifications of individual component values and even some of the circuitry, but these are minor. The RCA type high-level triode demodulators, tubeless convergence system, color sync, and color killer circuits are followed. However, the Emerson color laboratories have done a great deal of original development work and this is reflected in many of the modifications.

Service and Warranty

The factory guarantees all parts in the color TV sets for 90 days, and the picture tube itself is guaranteed for a full year. It has been Emerson's policy to encourage its dealers and distributors to perform all installations and service work on color as well as black-and-white TV receivers. Emerson has therefore conducted factory schools for its distributors and their key serv-

ice personnel. Attendance at the school is required before any color receivers will be shipped to a given distributor. A staff of area engineers is continuously travelling throughout the country and is giving distributor and dealer technical personnel training in color receiver theory, service, and adjustment.

In the New York metropolitan area, Emerson makes a factory service contract available to those customers who purchase their color sets from dealers who do not offer such a contract. A factory service contract for one full year costs \$98 at present. This includes the installation of the color receiver to an existing and usable antenna and provides all service work and parts for one year. If the antenna needs replacement, or if a two-set coupler is required, there is an extra charge based on labor and material.

If the cost of a one-year service contract seems high, it should be noted that the suggested list price for a three-gun, 21-inch color picture tube is \$160. Also, experience has indicated that color TV receivers require more adjustments and service calls than black-and-white sets do. Because of the circuit complexity and specialized parts used in color sets, it is expected that service costs may be higher for such sets.

Installation

Most of the picture tube components which may require adjustment during installation are indicated in Fig. 2. (It may be necessary to check the connection of the cable to the ultor anode in the picture tube "well" to assure

positive seating.) For most installations, only the purity and field equalizing magnets need adjustment and even these components usually need only be touched-up lightly in most instances.

The field equalizing magnets making up the ring-shaped assembly near the face of the picture tube are intended to offset any slight magnetic variations in the local magnetic field. Their effect may not always be very apparent. Only when purity of color is tested with a single color illuminating the screen, can the action of rotating the magnets be clearly observed. Each magnet interacts with its neighbors and, as a matter of fact, adjustment of the purity magnet may also require readjustment of these magnets.

The convergence coil assembly is adjusted both electrically through the various potentiometers and coils on the chassis, and mechanically at the three d.c. convergence magnets, two of which are identified in Fig. 2.

All 21AXP22 picture tubes require a blue lateral beam positioning magnet which is centered on the neck of the picture tube directly over the special pole pieces adjacent to the blue beam electron gun. The positioning of this magnet as well as the strength of the field it produces at the blue electron gun are critical. To adjust it, a small permanent magnet screw in the center of the lateral beam positioning assembly is turned. More detailed tube setup adjustments and installation procedures are given in the service data.

On the whole, the basic circuitry of the new Emerson receivers is very similar to that of other recently released models.

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