SERVICE NOTES RHMS-185-1

# GENERAL ELECTRIC

## TELEVISION RECEIVERS

# MODELS HM-171 AND HM-185

## (REVISED FOR NEW STANDARDS)

Model HM-171

Model HM-185

## CAUTIONARY INSTRUCTIONS

Extremely high voltages (2500 volts or more) are used in the operation of this receiver; therefore, every precaution must be exercised to insure safety to the service engineer and to the customer.

The back cover, while in place, protects the user and should never be removed except by a qualified television service engineer.

The power-cord plug should not be inserted in a power-supply outlet until a good, solid ground connection has been properly made to the receiver chassis.

For safety, the following operations must be performed with the power plug disconnected before working on the receiver with the back cover removed:

1. Locate the 879/2X2 high-voltage rectifier tube socket.
2. Unsolder the lead (color-coded brown and yellow and measuring 42,000 ohms to chassis) which is connected to the 879/2X2 tube socket.
3. Thoroughly insulate the exposed end of this lead.

All adjustments not accessible with the back cover in place can be made without energizing the high-voltage circuits.

Servicing of the high-voltage circuits can be satisfactorily performed with the power cord removed from any power-supply outlet. A resistance check of the circuit components will indicate any trouble existing. (HIGH VOLTAGES SHOULD NEVER BE MEASURED.)

The "picture tube" is highly evacuated and is consequently subject to a very great air pressure. If it is broken, glass fragments will be violently expelled. Handle with care, using safety goggles and gloves.

The large end of the "picture tube," particularly that part at the rim of the viewing surface, must not be struck, scratched, or subjected to more than moderate pressure. DO NOT FORCE THE SOCKET ONTO THE TUBE OR STRAIN ANY EXTERNAL CONNECTIONS. If it fails to slip into place smoothly, investigate and remove the cause of the trouble.

## SERVICE DATA

### *Over-all Dimensions*

| Model | HM-171 | HM-185 |
|---|---|---|
| Height | 14 1/4 inches | 38 7/8 inches |
| Width | 20 3/8 inches | 27 1/2 inches |
| Depth | 18 3/8 inches | 18 5/8 inches |

### *Electrical Rating*

115–125 volts, 60 cycles, AC, 170 watts.

### *Tuning Frequency Range*

| | |
|---|---|
| Key No. 1 | 50–56 MC |
| Key No. 2 | 60–66 MC |
| * Key No. 3 | 66–72 MC |

** This key is aligned in certain localities to the No. 4 band which has a frequency of 78–84 MC.*

### *Intermediate Frequencies*

| | |
|---|---|
| Television Video (Picture) | 12.75 MC |
| Television Audio | 8.25 MC |

### *Maximum Electrical Output*

Model HM-185 ..... 5 watts

### *Loud-speaker—PM Dynamic—Model HM-185*

| | |
|---|---|
| Cone Diameter | 12 inches |
| Voice Coil Impedance (400 cycles) | 3.5 ohms |

### *Picture Size*

| | |
|---|---|
| Height | 3 1/4 inches |
| Width | 4 1/4 inches |

### *Tubes*

| | |
|---|---|
| Converter-Oscillator | GE-6F8G |
| Audio and Video I.F. Amplifier | GE-6AB7 |
| 2nd and 3rd Audio I.F. Amplifiers (2) | GE-6SK7 |
| Det., Audio, AVC (HM-185) | GE-6SQ7 |
| Det. and AVC (HM-171) | GE-6H6 |
| Audio Output (HM-185) | GE-6F6G |
| 2nd and 3rd Video I.F. Amplifiers (2) | GE-6AB7 |
| 4th Video I.F. Amplifier | GE-6AC7 |
| Video Det. and 1st Video Amplifier | GE-6F8G |
| Video Output and Sync. Clipper | GE-6F8G |
| Vertical Oscillator | GE-6F8G |
| Vertical Output | GE-6N7G |
| Horizontal Oscillator | GE-6N7G |
| Horizontal Output | GE-6F8G |
| High-voltage Rectifier | GE-879/2X2 |
| Low-voltage Rectifier | GE-5U4G |
| Picture Tube | GE-5BP4 |

## GENERAL INFORMATION

General Electric Picture Receiver and Sound Converter, Model HM-171, is a table-type, 17-tube, superheterodyne receiver equipped with a 5-inch, electrostatic-deflected picture tube. The receiver works in conjunction with any radio receiver, which is designed for phonograph reproduction, to reproduce the sound portion of the television broadcast.

General Electric Television Receiver, Model HM-185, is a console-type, 18-tube, superheterodyne receiver with a complete sound channel and uses a 5-inch, electrostatic-deflected picture tube.

## INSTALLATION AND OPERATING INSTRUCTIONS

Installation and operating instructions on the above receivers are supplied in separate pamphlets as listed below:

1. Installation Notes
   - Model HM-171.....RHMJ-171
   - Model HM-185.....RHMJ-185
2. Operating Instructions
   - Model HM-171.....RHMI-171
   - Model HM-185.....RHMI-185

### *Loud-speaker*

The voice coil is accurately and permanently centered at the factory and should seldom give trouble. In case a voice coil needs recentering it will be necessary to replace the entire cone and voice coil assembly.

NOTE: In no case should the magnet be removed from the assembled position without remagnetizing after replacing it.

## RECEIVER CIRCUIT DESCRIPTION

### *R.F. Unit*

Starting at the antenna terminal posts, there follows a single-stage high-pass filter in the antenna primary to reduce video I.F. interference, a shunt capacity coupled secondary (C-78), and a video I.F. wave trap (C-95, L-20). The wave trap is broadly tuned at 11.75 MC. Any one of the three tuned circuits for each of the three television transmission bands can be connected into the secondary circuit by pressing the appropriate button. The secondary circuit when properly tuned gives a broad, flat response curve.

### *Converter-oscillator and Amplifier*

The 6F8G converter employs one half as the oscillator and the other half as the biased first detector. The oscillator is plate-tuned with vernier tuning permitted from the front control panel through trimmer (C-3). The resultant video I.F. signal of 12.75 MC and the audio I.F. signal of 8.25 MC developed in the converter-oscillator tube circuit are coupled through transformer T-7 to the 6AB7 amplifier tube.

### *Audio Unit*

The audio I.F. signal is taken off the suppressor of this first 6AB7 tube. Two stages of 8.25 MC audio I.F. using 6SK7's follow. In the case of the HM-171 the audio I.F. signal is then detected and the resultant audio signal is made available at terminals for insertion into a radio output circuit In Model HM-185 the 6SK7 stages are followed by a 6S7Q detector and driver, and a 6P6G output stage.

### *Video Unit*

Four stages of video I.F. follow the converter stage. The third stage incorporates a wave trap for the adjacent audio channel at 14.25 MC. The nominal pass band for these amplifiers is 12.75 to 10.75 MC. The second detector uses one half of a 6F8G connected as a diode. The other half of the 6F8G is used as the first video amplifier. The video output is coupled to the picture tube grid.

### *Sync-pulse Clipper*

Sync-pulses are taken off the plate of the clipper section of the clipper and video output tube. The video signals are separated by tube cut-off since the plate voltage is only about 12 volts.

### *Horizontal Oscillator-output*

The clipper feeds the horizontal multivibrator 6N7G directly with needle-point, negative sync-pulses. C-46 blocks the flow of vertical sync-pulses, into the horizontal multivibrator since they are of a low order of frequency. The horizontal sync-pulses which are amplified by the first section of the 6N7G are coupled to the grid of the second section and drive the circuit into violent oscillation. Resulting plate and grid current flow sends the tube to cut-off. The sawtooth wave so generated is applied to the horizontal sweep amplifier one section of which is a phase inverter. This push-pull sweep is coupled to the horizontal deflecting plates of the picture tube. Horizontal hold is controlled by varying the charging rate of the generator circuit, through R-138. Compensating for high frequency loss adds a means of controlling horizontal linearity which is done through R-189. Width is varied by regulating the magnitude of the charge through R-140.

### *Vertical Oscillator-output*

The sync-pulses are also coupled into the vertical oscillator 6F8G where the circuits composed of C-73 and R-165 bypass the horizontal sync-pulses. The vertical sync-pulses are coupled into the vertical sweep generator circuit having violent oscillatory swings which result in sawtooth waves. The height control (R-143) determines the magnitude of the charge before the next oscillation thus governing the height of the picture. R-146, the vertical hold control, governs the rate of charging. The vertical linearity control (R-159) accomplishes results similar to the horizontal linearity control. The vertical sweep amplifier produces push-pull output by phase inversion and this output is applied to the vertical deflecting plates of the picture tube.

### *Low-voltage Rectifier*

Low-voltage power is obtained from a 5U4G using one stage of choke filtering and the remaining of the resistance filter type.

### *High-voltage Rectifier*

The anode voltage of the picture tube is obtained from a single half-wave rectifier with a protective resistor in series with the transformer plate lead.

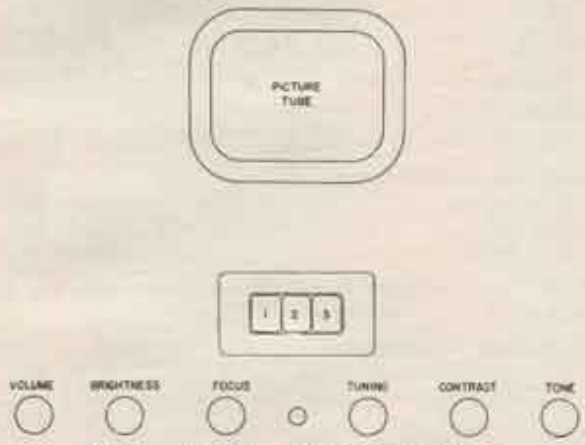
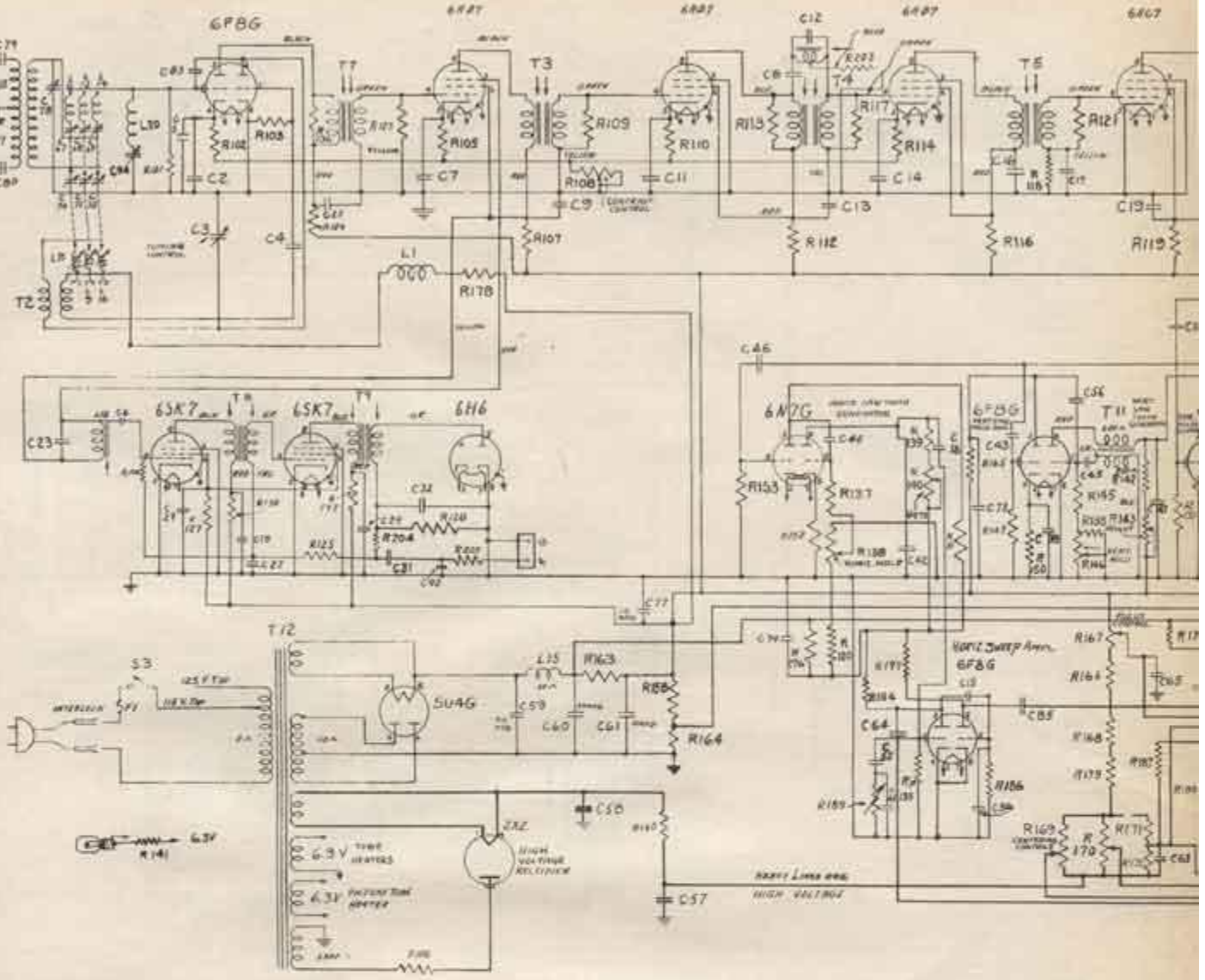



**Fig. 1. Front Panel Control Location Model HM-185**

**(Note—Model HM-171 Control Location is same as above with Volume and Tone Controls removed.)**




Resistance of Video and Audio I.F. Transformer Windings Approximately Equal to One Ohm

**Fig. 3. Schematic Diagram Model HM-171**

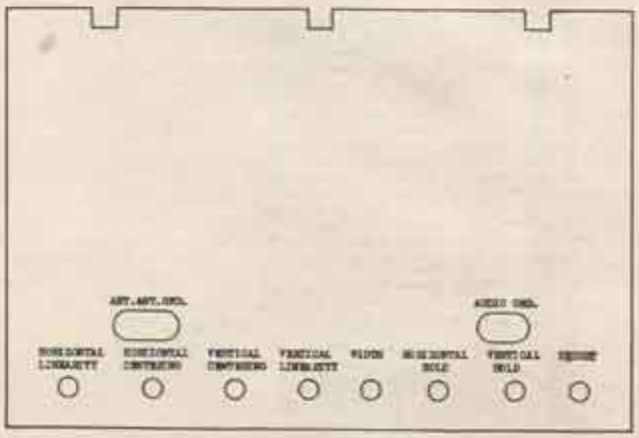
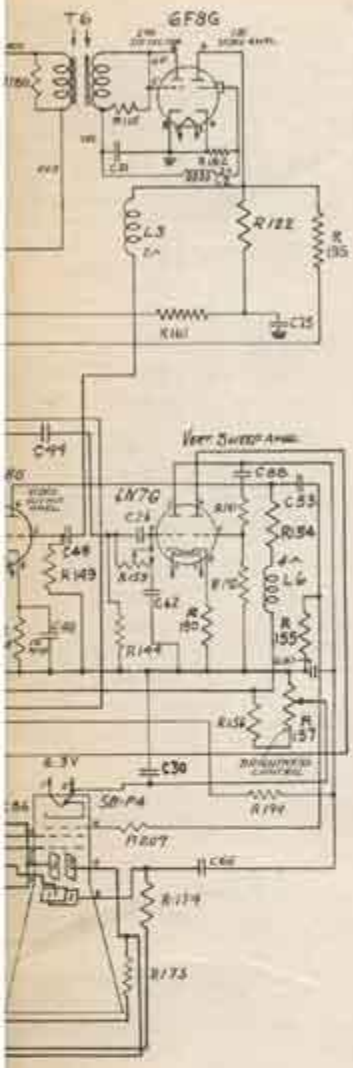



**Fig. 2. Rear Cover Control Location Models HM-171 and HM-185**

## PARTS DESCRIPTI

### Model HM-1

| Symbol | Description | Symbo |
|---|---|---|
| C-2 | .05 mfd. Paper Capacitor | C-12 |
| C-3 | 3-20 mmf. Vernier Tuning Control | C-13 |
| C-4 | 22 mmf. Mica Capacitor | C-14 |
| C-5 | 330 mmf Mica Capacitor | C-15 |
| C-6 | 100 mmf. Mica Capacitor (In 1st Audio I.F.) | C-16 C-17 |
| C-7 | .05 mfd. Paper Capacitor | C-18 |
| C-8 | 330 mmf. Mica Capacitor (In 3rd Video I. F.) | C-19 C-21 |
| C-9 | .02 mfd. Paper Capacitor | C-22 |
| C-11 | .05 mfd. Paper Capacitor | |




ON LIST

1

| Description |
|---|
| 27 mmf. Mica Capacitor (In 3rd Video I. F.) |
| .02 mfd. Paper Capacitor |
| .05 mfd. Paper Capacitor |
| .12 mmf. Mica Capacitor |
| .02 mfd. Paper Capacitor |
| .05 mfd. Paper Capacitor |
| .02 mfd. Paper Capacitor |
| .02 mfd. Paper Capacitor |
| 22 mmf. Mica Capacitor |
| 150 mmf. Mica Capacitor (In 1st Audio I.F.) |

| Symbol | Description |
|---|---|
| C-24 | .02 mfd. Paper Capacitor |
| C-25 | .02 mfd. Paper Capacitor |
| C-26 | .006 mfd. Paper Capacitor |
| C-27 | .05 mfd. Paper Capacitor |
| C-29 | .02 mfd. Paper Capacitor |
| C-30 | 0.1 mfd. Paper Capacitor |
| C-31 | .02 mfd. Paper Capacitor |
| C-32 | 47 mmf. Mica Capacitor |
| C-38 | .01 mfd. Paper Capacitor |
| C-39 | .02 mfd. Paper Capacitor |
| C-40 | 180 mmf. Mica Capacitor |
| C-41 | .001 mfd. Paper Capacitor |
| C-42 | .0015 mfd. Paper Capacitor |
| C-43 | 0.1 mfd. Paper Capacitor |
| C-44 | 0.1 mfd. Paper Capacitor |
| C-45 | .02 mfd. Paper Capacitor |
| C-46 | 100 mmf. Mica Capacitor |
| C-47 | .25 mfd. Paper Capacitor |
| C-48 | 10 mfd. 300 V. Peak, Section of Dry Electrolytic (see C-61, 75) |
| C-49 | 0.1 mfd. Paper Capacitor |
| C-50 | .02 mfd. Paper Capacitor |
| C-52 | .001 mfd. Paper Capacitor |
| C-53 | 0.1 mfd. Paper Capacitor |
| C-54 | 68 mmf. Mica Capacitor |
| C-56 | .002 mfd. Paper Capacitor |
| C-57 | .06 mfd. 2000 V. Paper Capacitor |
| C-58 | 0.1 mfd. 2000 V. Paper Capacitor |
| C-59 | 30 mfd. 500 V. Peak Wet Electrolytic |
| C-60 | 30 mfd. 500 V. Peak Wet Electrolytic |
| C-61 | 10 mfd. 450 V. Peak, Section of Dry Electrolytic (see C-48, 75) |
| C-62 | .01 mfd. Paper Capacitor |
| C-63 | 0.5 mfd. Paper Capacitor |
| C-64 | .003 mfd. 2000 V. Paper Capacitor |
| C-65 | 0.1 mfd. 1000 V. Paper Capacitor |
| C-66 | .003 mfd. 2000 V. Paper Capacitor |
| C-67 | 20-200 mmf. Trimmer |
| C-68 | 20-200 mmf. Trimmer |
| C-69 | 20-200 mmf. Trimmer |
| C-70 | 20-200 mmf. Trimmer |
| C-71 | 20-200 mmf. Trimmer |
| C-72 | 20-200 mmf. Trimmer |
| C-73 | .04 mfd. Paper Capacitor |
| C-74 | 10 mfd. 450 V. Dry Electrolytic |
| C-75 | 10 mfd. 450 V. Peak, Section of Dry Electrolytic (see C-48, 61) |
| C-77 | 10 mfd. 450 V. Peak, Dry Electrolytic |
| C-78 | Coupling Padder |
| C-79 | 82 mmf. Mica Capacitor |
| C-80 | 82 mmf. Mica Capacitor |
| C-83 | 6 mmf. Mica Capacitor |
| C-85 | .003 mfd. 2000 V. Paper Capacitor |
| C-86 | .003 mfd. 2000 V. Capacitor |
| C-87 | 330 mmf. Mica Capacitor |
| C-88 | 0.1 mfd. Paper Capacitor |
| C-90 | 39 mmf. Mica Capacitor |
| C-91 | 39 mmf. Mica Capacitor |
| C-92 | 470 mmf. Mica Capacitor |
| C-94 | 20-200 mmf. Trimmer (see L-20) |
| L-1 | Oscillator Plus B Choke |
| L-2 | Video Diode Choke |
| L-3 | 1st Video Choke |
| L-6 | Video Output Choke |
| L-8 | Oscillator Tuning Coil (Band No. 1) |
| L-9 | Oscillator Tuning Coil (Band No. 2) |
| L-10 | Oscillator Tuning Coil (Band No. 3) |
| L-11 | R.F. Coil (Band No. 1) |
| L-12 | 1st Audio I.F. Transformer |
| L-13 | R.F. Coil (Band No. 2) |
| L-14 | R.F. Coil (Band No. 3) |
| L-15 | Plus B Reactor |
| L-16 | Wave Trap Coil |
| L-17 | Wave Trap Coil |
| L-18 | Wave Trap Coil |
| L-19 | Wave Trap Coil |
| L-20 | Wave Trap Assembly (see C-94) |
| P-1 | Dial Lamp Mazda No. 44 |
| R-101 | 18,000 Ohms Carbon Resistor |
| R-102 | 1,000 Ohms Carbon Resistor |
| R-103 | 27,000 Ohms Carbon Resistor |
| R-104 | 220,000 Ohms Carbon Resistor |
| R-105 | 220 Ohms Carbon Resistor |
| R-106 | 39,000 Ohms Carbon Resistor |
| R-107 | 4,700 Ohms 1 W. Carbon Resistor |
| R-108 | 2,000 Ohms Contrast Control |
| R-109 | 2,700 Ohms Carbon Resistor (In 2nd Video I.F.) |
| R-110 | 220 Ohms Carbon Resistor |
| R-111 | 100,000 Ohms Carbon Resistor |
| R-112 | 4,700 Ohms 1 W. Carbon Resistor |
| R-113 | 3,300 Ohms Carbon Resistor (In 3rd Video I.F.) |

| Symbol | Description |
|---|---|
| R-114 | 220 Ohms Carbon Resistor |
| R-115 | 12,000 Ohms Carbon Resistor (In 5th Video I.F.) |
| R-116 | 4,700 Ohms 1 W. Carbon Resistor |
| R-117 | 3,900 Ohms Carbon Resistor (In 3rd Video I.F.) |
| R-118 | 220,000 Ohms Carbon Resistor |
| R-119 | 12,000 Ohms 3 W. Carbon Resistor |
| R-120 | 1.0 Megohm Carbon Resistor |
| R-121 | 2,200 Ohms Carbon Resistor (In 4th Video I.F.) |
| R-122 | 1,200 Ohms 1 W. Carbon Resistor |
| R-123 | 4,700 Ohms Carbon Resistor (In 1st Video I.F.) |
| R-124 | 2,200 Ohms Carbon Resistor |
| R-125 | 2.2 Megohms Carbon Resistor |
| R-127 | 39,000 Ohms 2 W. Carbon Resistor |
| R-128 | 220,000 Ohms Carbon Resistor |
| R-130 | 2,200 Ohms Carbon Resistor |
| R-135 | 1.0 Megohm Carbon Resistor |
| R-136 | 4,700 Ohms Carbon Resistor |
| R-137 | 150,000 Ohms Carbon Resistor |
| R-138 | 50,000 Ohms Horizontal Speed Control |
| R-139 | 470,000 Ohms Carbon Resistor |
| R-140 | 0.5 Megohm Horizontal Size Control |
| R-141 | 33 Ohms 1 W. Carbon Resistor |
| R-142 | 220,000 Ohms Carbon Resistor |
| R-143 | 2.0 Megohms Vertical Size Control |
| R-144 | 1.0 Megohm Carbon Resistor |
| R-145 | 150,000 Ohms Carbon Resistor |
| R-146 | 2.0 Megohms Vertical Speed Control |
| R-147 | 2.7 Megohms Carbon Resistor |
| R-148 | 470 Ohms Carbon Resistor |
| R-149 | 2.2 Megohms Carbon Resistor |
| R-150 | 1,000 Ohms Carbon Resistor |
| R-151 | 1.0 Megohm Carbon Resistor |
| R-152 | 1,000 Ohms Carbon Resistor |
| R-153 | 2,200 Ohms Carbon Resistor |
| R-154 | 3,300 Ohms 1 W. Carbon Resistor |
| R-155 | 2.2 Megohms Carbon Resistor |
| R-156 | 680,000 Ohms Carbon Resistor |
| R-157 | .25 Megohm Brightness Control |
| R-158 | 150,000 Ohms 1 W. Carbon Resistor |
| R-159 | 2.0 Megohms Vertical Linearity Control |
| R-160 | 270,000 Ohms Carbon Resistor |
| R-161 | 3,300 Ohms 2 W. Carbon Resistor |
| R-163 | 1,300 Ohms 16 W. Wire Wound Resistor |
| R-164 | 10,000 Ohms Carbon Resistor |
| R-165 | 33,000 Ohms Carbon Resistor |
| R-166 | 2.2 Megohms Carbon Resistor |
| R-167 | 2.0 Megohms Focus Control |
| R-168 | 1.0 Megohms Carbon Resistor |
| R-169 | 2.0 Megohms Vertical Centering Control |
| R-170 | 2.0 Megohms Horizontal Centering Control |
| R-171 | 220,000 Ohms Carbon Resistor |
| R-172 | 220,000 Ohms Carbon Resistor |
| R-173 | 5.6 Megohms Carbon Resistor |
| R-174 | 5.6 Megohms Carbon Resistor |
| R-175 | 330,000 Ohms Carbon Resistor |
| R-176 | 1,500 Ohms 1 W. Carbon Resistor |
| R-178 | 18,000 Ohms 1 W. Carbon Resistor |
| R-179 | 1.0 Megohm Carbon Resistor |
| R-180 | 4,700 Ohms Carbon Resistor |
| R-182 | 2,200 Ohms Carbon Resistor |
| R-184 | 47,000 Ohms Carbon Resistor |
| R-186 | 2.2 Megohms Carbon Resistor |
| R-187 | 5.6 Megohms Carbon Resistor |
| R-188 | 5.6 Megohms Carbon Resistor |
| R-189 | 100,000 Ohms Horizontal Linearity Control |
| R-190 | 3,900 Ohms Carbon Resistor |
| R-191 | 1.5 Megohms Carbon Resistor |
| R-192 | 47,000 Ohms Carbon Resistor |
| R-193 | 220,000 Ohms Carbon Resistor |
| R-194 | 390,000 Ohms Carbon Resistor |
| R-195 | 18,000 Ohms Carbon Resistor |
| R-197 | 2,200 Ohms Carbon Resistor |
| R-199 | 47,000 Ohms 1 W. Carbon Resistor |
| R-203 | 3,900 Ohms Carbon Resistor |
| R-204 | 82,000 Ohms Carbon Resistor |
| R-205 | 56,000 Ohms Carbon Resistor |
| R-207 | 330 Ohms Carbon Resistor |
| T-1 | Antenna Transformer |
| T-2 | Oscillator Transformer |
| T-3 | 2nd Video I.F. Transformer |
| T-4 | 3rd Video I.F. Transformer |
| T-5 | 4th Video I.F. Transformer |
| T-6 | 5th Video I.F. Transformer |
| T-7 | 1st Video I.F. Transformer |
| T-8 | 2nd Audio I.F. Transformer |
| T-9 | 3rd Audio I.F. Transformer |
| T-11 | Vertical Osc. Transformer |
| T-12 | Power Transformer |

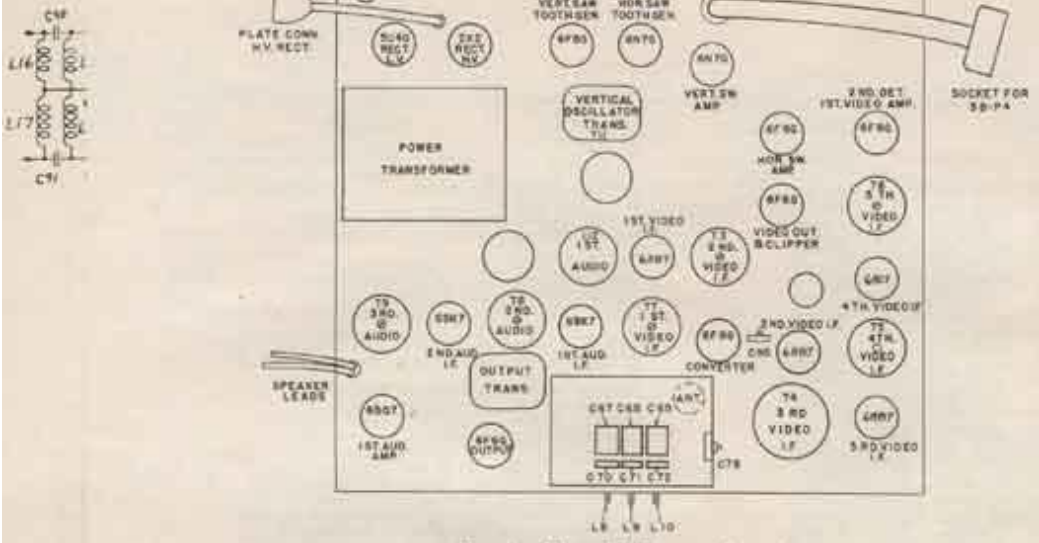
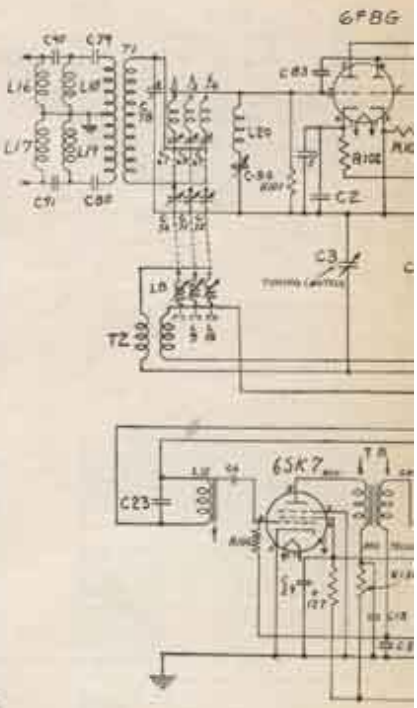


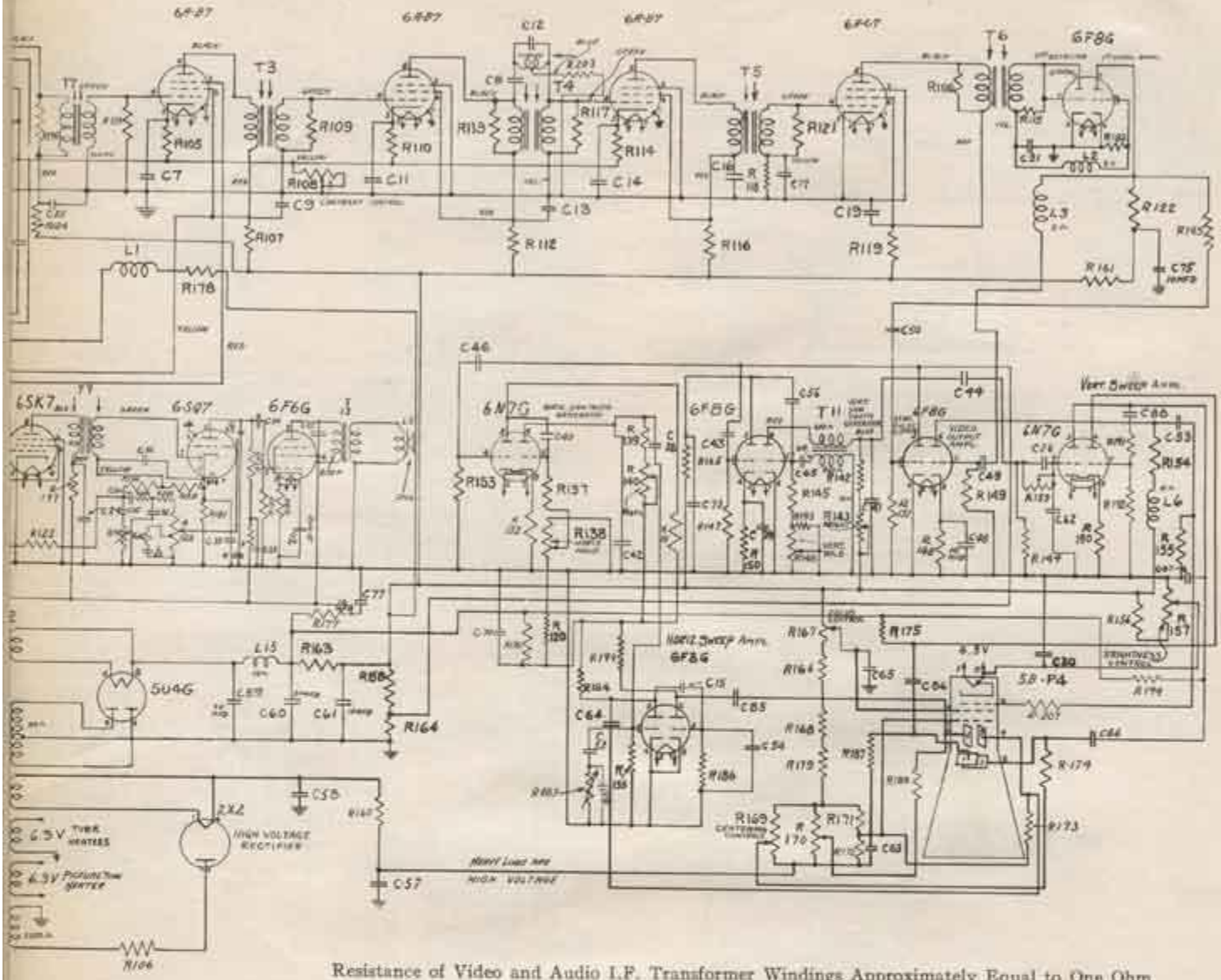

**Fig. 4. Chassis Trimmer Location**
**Models HM-171 and HM-185**




## PARTS DESCRIPTION LIST
### Model HM-185

| Symbol | Description |
|---|---|
| C-2 | .05 mfd. Paper Capacitor |
| C-3 | 3-20 mmf. Vernier Tuning Control |
| C-4 | 22 mmf. Mica Capacitor |
| C-5 | 330 mmf. Mica Capacitor |
| C-6 | 100 mmf. Mica Capacitor (In 1st Audio I.F.) |
| C-7 | .05 mfd. Paper Capacitor |
| C-8 | 330 mmf. Mica Capacitor (In 3rd Video I.F.) |
| C-9 | .02 mfd. Paper Capacitor |
| C-11 | .05 mfd. Paper Capacitor |
| C-12 | 27 mmf. Mica Capacitor (In 3rd Video I.F.) |
| C-13 | .02 mfd. Paper Capacitor |
| C-14 | .05 mfd. Paper Capacitor |
| C-15 | 12 mmf. Mica Capacitor |
| C-16 | .02 mfd. Paper Capacitor |
| C-17 | .05 mfd. Paper Capacitor |
| C-18 | .02 mfd. Paper Capacitor |
| C-19 | .02 mfd. Paper Capacitor |
| C-21 | 22 mmf. Mica Capacitor |
| C-22 | .005 mfd. Paper Capacitor |
| C-23 | 150 mmf. Mica Capacitor (In 1st Audio I.F.) |
| C-24 | .02 mfd. Paper Capacitor |
| C-25 | .02 mfd. Paper Capacitor |
| C-26 | .006 mfd. Paper Capacitor |
| C-27 | .05 mfd. Paper Capacitor |
| C-29 | .02 mfd. Paper Capacitor |
| C-30 | 0.1 mfd. Paper Capacitor |
| C-31 | .02 mfd. Paper Capacitor |
| C-32 | 47 mmf. Mica Capacitor |
| C-33 | 0.1 mfd. Paper Capacitor |
| C-34 | .02 mfd. Paper Capacitor |
| C-35 | .004 mfd. Paper Capacitor |
| C-36 | 20 mfd. 25 V. Peak, Section of Dry Electrolytic (see C-77) |
| C-37 | .006 mfd. Paper Capacitor |
| C-38 | .01 mfd. Paper Capacitor |
| C-39 | .02 mfd. Paper Capacitor |
| C-40 | 180 mmf. Mica Capacitor |
| C-41 | .001 mfd. Paper Capacitor |
| C-42 | .0015 mfd. Paper Capacitor |
| C-43 | 0.1 mfd. Paper Capacitor |
| C-44 | 0.1 mfd. Paper Capacitor |
| C-45 | .02 mfd. Paper Capacitor |
| C-46 | 100 mmf. Mica Capacitor |
| C-47 | .25 mfd. Paper Capacitor |
| C-48 | 10 mfd. 300 V. Peak, Section of Dry Electrolytic (see C-61, 75) |
| C-49 | .1 mfd. Paper Capacitor |
| C-50 | .02 mfd. Paper Capacitor |
| C-52 | .001 mfd. Paper Capacitor |
| C-53 | 0.1 mfd. Paper Capacitor |
| C-54 | 68 mmf. Mica Capacitor |
| C-56 | .002 mfd. Paper Capacitor |
| C-57 | .06 mfd. 2000 V. Paper Capacitor |
| C-58 | 0.1 mfd. 2000 V. Paper Capacitor |
| C-59 | 30 mfd. 500 V. Peak Wet Electrolytic |
| C-60 | 30 mfd. 500 V. Peak Wet Electrolytic |
| C-61 | 10 mfd. 450 V. Peak, Section of Dry Electrolytic (see C-48, 75) |
| C-62 | .01 mfd. Paper Capacitor |
| C-63 | 0.5 mfd. Paper Capacitor |
| C-64 | .003 mfd. 2000 V. Paper Capacitor |
| C-65 | 0.1 mfd. 1000 V. Paper Capacitor |
| C-66 | .003 mfd. 2000 V. Paper Capacitor |
| C-67 | 20-200 mmf. Trimmer |
| C-68 | 20-200 mmf. Trimmer |
| C-69 | 20-200 mmf. Trimmer |
| C-70 | 20-200 mmf. Trimmer |
| C-71 | 20-200 mmf. Trimmer |
| C-72 | 20-200 mmf. Trimmer |
| C-73 | .04 mfd. Paper Capacitor |
| C-74 | 10 mfd. 450 V. Dry Electrolytic |
| C-75 | 10 mfd. 450 V. Peak, Section of Dry Electrolytic (see C-48, 61) |
| C-77 | 10 mfd. 450 V. Peak, Section of Dry Electrolytic (see C-36) |
| C-78 | Coupling Padder |
| C-79 | 82 mmf. Mica Capacitor |
| C-80 | 82 mmf. Mica Capacitor |
| C-83 | 6 mmf. Mica Capacitor |
| C-85 | .003 mfd. 2000 V. Paper Capacitor |
| C-86 | .003 mfd. 2000 V. Paper Capacitor |
| C-87 | 330 mmf. Mica Capacitor |
| C-88 | 0.1 mfd. Paper Capacitor |
| C-90 | 39 mmf. Mica Capacitor |
| C-91 | 39 mmf. Mica Capacitor |
| C-92 | 470 mmf. Mica Capacitor |
| C-93 | 0.1 mfd. 400 V. Paper Capacitor |
| C-94 | 20-200 mmf. Trimmer (see L-20) |
| C-95 | 47 mmf. Mica Capacitor |
| L-1 | Oscillator Plus B Choke |
| L-2 | Video Diode Choke |
| L-3 | 1st Video Choke |
| L-6 | Video Output Choke |
| L-8 | Oscillator Tuning Coil (Band No. 1) |
| L-9 | Oscillator Tuning Coil (Band No. 2) |
| L-10 | Oscillator Tuning Coil (Band No. 3) |
| L-11 | R.F. Coil (Band No. 1) |
| L-12 | 1st Audio I.F. Transformer |
| L-13 | R.F. Coil (Band No. 2) |
| L-14 | R.F. Coil (Band No. 3) |
| L-15 | Plus B Reactor |
| L-16 | Wave Trap Coil |
| L-17 | Wave Trap Coil |
| L-18 | Wave Trap Coil |
| L-19 | Wave Trap Coil |
| L-20 | Wave Trap Assembly (see C-94) |
| R-101 | 18,000 Ohms Carbon Resistor |
| R-102 | 1,001 Ohms Carbon Resistor |
| R-103 | 27,000 Ohms Carbon Resistor |
| R-104 | 220,000 Ohms Carbon Resistor |
| R-105 | 220 Ohms Carbon Resistor |
| R-106 | 39,000 Ohms Carbon Resistor |
| R-107 | 4,700 Ohms 1 W. Carbon Resistor |
| R-108 | 2,000 Ohms Contrast Control |
| R-109 | 2,700 Ohms Carbon Resistor (In 2nd Video I.F.) |
| R-110 | 220 Ohms Carbon Resistor |
| R-111 | 100,000 Ohms Carbon Resistor |
| R-112 | 4,700 Ohms 1 W. Carbon Resistor |
| R-113 | 3,300 Ohms Carbon Resistor (In 3rd Video I.F.) |
| R-114 | 220 Ohms Carbon Resistor |
| R-115 | 12,000 Ohms Carbon Resistor (In 5th Video I.F.) |
| R-116 | 4,700 Ohms 1 W. Carbon Resistor |
| R-117 | 3,900 Ohms Carbon Resistor (In 3rd Video I.F.) |
| R-118 | 220,000 Ohms Carbon Resistor |
| R-119 | 12,000 Ohms 3 W. Carbon Resistor |

| Symbol | De |
|---|---|
| R-120 | 1.0 Megohm Carb |
| R-121 | 2,200 Ohms Carbo I.F.) |
| R-122 | 1,200 Ohms 1 W. |
| R-123 | 4,700 Ohms Carbo I.F.) |
| R-124 | 2,200 Ohms Carbo |
| R-125 | 2.2 Megohms Carb |
| R-126 | 2 Megohms, Volu |
| R-127 | 39,000 Ohms 2 W. |
| R-128 | 220,000 Ohms Car |
| R-129 | 270 Ohms Carbon |
| R-130 | 5,600 Ohms 1 Car |
| R-131 | 150,000 Ohms Car |
| R-132 | 500,000 Ohms Tor |
| R-133 | 1.0 Megohm Carb |
| R-134 | 680 Ohms 2 W. Ca |
| R-135 | 1.0 Megohm Carb |
| R-136 | 4,700 Ohms Carbo |
| R-137 | 150,000 Ohms Car |
| R-138 | 50,000 Ohms Hori |
| R-139 | 470,000 Ohms Car |
| R-140 | 0.5 Megohm Hori |
| R-141 | 33 Ohms 1 W. Ca |
| R-142 | 220,000 Ohms Car |
| R-143 | 2.0 Megohms Vert |
| R-144 | 1.0 Megohm Carb |
| R-145 | 150,000 Ohms Car |
| R-146 | 2.0 Megohms Vert |
| R-147 | 2.7 Megohms Carb |
| R-148 | 470 Ohms Carbon |
| R-149 | 2.2 Megohms Carb |




Resistance of Video and Audio I.F. Transformer Windings Approximately Equal to One Ohm

**Fig. 5. Schematic Diagram**
**Model HM-185**

| Symbol | Description |
|---|---|
| R-150 | 1,000 Ohms Carbon Resistor |
| R-151 | 1.0 Megohm Carbon Resistor |
| R-152 | 1,000 Ohms Carbon Resistor |
| R-153 | 2,200 Ohms Carbon Resistor |
| R-154 | 3,300 Ohms 1 W. Carbon Resistor |
| R-155 | 2.2 Megohms Carbon Resistor |
| R-156 | 680,000 Ohms Carbon Resistor |
| R-157 | .25 Megohms Brightness Control |
| R-158 | 150,000 Ohms 1 W. Carbon Resistor |
| R-159 | 2.0 Megohms Vertical Linearity Control |
| R-160 | 270,000 Ohms Carbon Resistor |
| R-161 | 3,300 Ohms 2 W. Carbon Resistor |
| R-162 | 180,000 Ohms Carbon Resistor |
| R-163 | 1,100 Ohms 16 W. Wire Wound Resistor |
| R-164 | 10,000 Ohms Carbon Resistor |
| R-165 | 33,000 Ohms Carbon Resistor |
| R-166 | 2.2 Megohms Carbon Resistor |
| R-167 | 2.0 Megohms Focus Control |
| R-168 | 1.0 Megohm Carbon Resistor |
| R-169 | 2.0 Megohms Vertical Centering Control |
| R-170 | 2.0 Megohms Horizontal Centering Control |
| R-171 | 220,000 Ohms Carbon Resistor |
| R-172 | 220,000 Ohms Carbon Resistor |
| R-173 | 5.6 Megohms Carbon Resistor |
| R-174 | 5.6 Megohms Carbon Resistor |
| R-175 | 330,000 Ohms Carbon Resistor |
| R-176 | 1,500 Ohms 1 W. Carbon Resistor |
| R-177 | 350 Ohms 10 W. Wire Wound Resistor |
| R-178 | 18,000 Ohms 1 W. Carbon Resistor |
| R-179 | 1.0 Megohm Carbon Resistor |
| R-180 | 4,700 Ohms Carbon Resistor |
| R-181 | 470 Ohms Carbon Resistor |

| Symbol | Description |
|---|---|
| R-182 | 2,200 Ohms Carbon Resistor |
| R-184 | 47,000 Ohms 1 W. Carbon Resistor |
| R-186 | 2.2 Megohms Carbon Resistor |
| R-187 | 5.6 Megohms Carbon Resistor |
| R-188 | 5.6 Megohms Carbon Resistor |
| R-189 | 100,000 Ohms Horizontal Linearity Control |
| R-190 | 3,900 Ohms Carbon Resistor |
| R-191 | 1.5 Megohms Carbon Resistor |
| R-192 | 47,000 Ohms Carbon Resistor |
| R-193 | 220,000 Ohms Carbon Resistor |
| R-194 | 390,000 Ohms Carbon Resistor |
| R-195 | 18,000 Ohms Carbon Resistor |
| R-196 | 47,000 Ohms Carbon Resistor |
| R-197 | 5,600 Ohms 1 W. Carbon Resistor |
| R-199 | 47,000 Ohms 1 W. Carbon Resistor |
| R-203 | 3,900 Ohms Carbon Resistor |
| R-204 | 82,000 Ohms Carbon Resistor |
| R-205 | 56,000 Ohms Carbon Resistor |
| R-206 | 68,000 Ohms Carbon Resistor |
| R-207 | 330 Ohms Carbon Resistor |
| T-1 | Antenna Transformer |
| T-2 | Oscillator Transformer |
| T-3 | 2nd Video I.F. Transformer |
| T-4 | 3rd Video I.F. Transformer |
| T-5 | 4th Video I.F. Transformer |
| T-6 | 5th Video I.F. Transformer |
| T-7 | 1st Video I.F. Transformer |
| T-8 | 2nd Audio I.F. Transformer |
| T-9 | 3rd Audio I.F. Transformer |
| T-11 | Vertical Osc. Transformer |
| T-12 | Power Transformer |
| T-13 | Output Transformer |

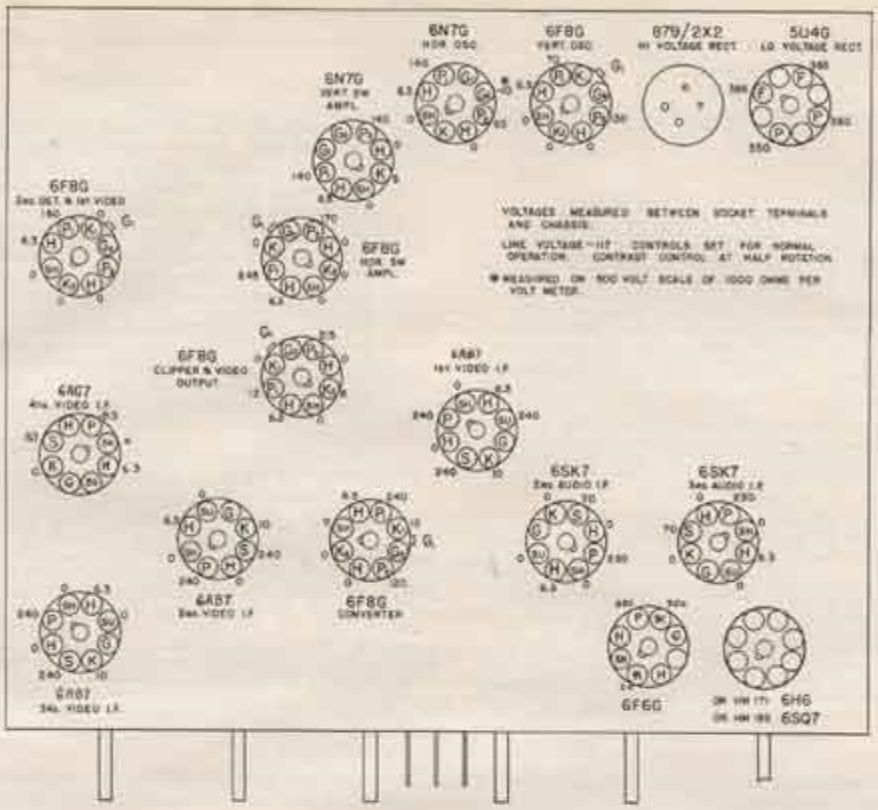



**Fig. 6. Socket Voltages**
**Models HM-171 and HM-185**

## TELEVISION ALIGNMENT PROCEDURE

The problem of aligning the several circuits in a television receiver is much more involved and requires more specialized equipment than the alignment of conventional radio receivers. Fortunately, the use of stable components in carefully engineered circuits of wide-band characteristic reduces to a minimum the necessity for alignment under normal operating conditions. Should alignment become necessary the following equipment will be needed:

(A) For Video I. F. Alignment
  (1) Cathode ray oscilloscope.
  (2) Wide-band sweep oscillator capable of sweeping from 7.5 to 15 MC.
  (3) Marker system either provided in sweep oscillator or from separate signal generator for locating 12.75 and 10.75 MC points.

(B) Sound I.F. Alignment
  (1) Cathode ray oscilloscope.
  (2) Wide-band sweep oscillator capable of sweeping from 7.75 to 8.75 MC.
  (3) Marker system either provided in sweep oscillator or from separate signal generator for locating 8.15 and 8.35 MC points.

(C) R.F. Alignment
  (1) Cathode ray oscilloscope
  (2) Wide-band sweep oscillator capable of sweeping the following bands:
    (a) 50 to 56 MC
    (b) 60 to 66 MC
    (c) 66 to 72 MC
    * (d) 78 to 84 MC

* Those receivers which were aligned at the factory for Band No. 4 must use this r-f sweep frequency.

### VIDEO I.F. ALIGNMENT

| Input Freq. | Point of Input | Adjustments | Comments |
|---|---|---|---|
| 1. | | | Connect vertical input cable of cathode ray oscilloscope across resistor R-182 of 6F8G video detector. |
| 2. 7.5–15 MC Sweep | Control grid of 6AB7 (2nd video I.F.) | | Connect output tap of video I.F. sweep oscillator to control grid of 6AB7 (2nd video I.F.). Connect ground lead to chassis. Turn contrast control (R-108) to about half of maximum or to a point which gives satisfactory vertical deflection without overloading. Set horizontal centering and gain controls on oscilloscope to give suitable horizontal deflection. Adjust sweep phase to give curve similar to Fig. 7, curve 1. |

NOTE: If sweep oscillator has marker points internally supplied, steps 3 and 4 may be omitted.

**(Continued on next page)**

## VIDEO I.F. ALIGNMENT (Continued)

| | Signal Input | Point of Input | Adjustments | Comments |
|---|---|---|---|---|
| 3. | Same as in No. 2 plus 12.75 MC | Same as in No. 2 | | Superimpose an accurately calibrated 12.75 MC signal in parallel with sweep signal. Signal will appear on sweep curve in oscilloscope as a wiggle, the center of which is a thin black line. With a pen or crayon mark this point on the screen of the oscilloscope. (NOTE: Hereafter the horizontal controls on the oscilloscope must not be touched.) |
| 4. | Same as in No. 2 plus 10.75 MC | Same as in No. 2 | | Superimpose an accurately calibrated 10.75 MC signal in parallel with sweep signal. Mark screen at point where signal appears on curve as in No. 3 above. |
| 5. | 7.5–15 MC Sweep | Control grid 6AC7 (4th video IF) | Iron cores of detector transformer T-6 | Do not touch horizontal controls of oscilloscope. Adjust iron cores of T-6 until curve appears similar to Fig. 7, curve 1, with relatively flat top, 12.75 MC mark at corner of one side and 10.75 MC mark at corner of other side. These conditions plus maximum amplitude insure correct alignment. |
| 6. | 7.5–15 MC Sweep | Control grid 6AB7-3rd video IF | Iron cores of 4th video transformer T-5 | Adjust iron cores for maximum gain, flatness and proper centering between markers as described in step No. 5 and illustrated in Fig. 7, curve 1. |
| 7. | 7.5–15 MC Sweep | Control grid 6AB7 (2nd video IF) | Iron cores of 3rd video transformer T-4 | Adjust primary and secondary iron cores for maximum gain, flatness and proper centering. See Fig. 7, curve 1. |
| 8. | 7.5–15 MC Sweep | Converter grid, 6F8G | Iron cores of 2nd video transformer T-3 & 1st video transformer T-4 | Connect low tap to grid (on top of tube). Adjust primary and secondary iron cores for maximum gain, flatness and proper centering. See Fig. 7, curve 1. |
| 9. | 14.25 MC | Converter grid, 6F8G | Series iron core of 3rd video transformer T-4 | Connect low tap to grid. Reduce horizontal gain to minimum. Adjust iron core for minimum line length. |

## AUDIO I.F. ALIGNMENT

NOTE: In order to obtain frequency modulation detection in the sound channel with good fidelity, the audio I.F. amplifiers must be aligned to give a satisfactory selectivity curve for slope detection. For this reason a sweep generator and oscilloscope are necessary to obtain the resultant curve shown in Fig. 7, curve 3.

| | Signal Input | Point of Input | Adjustments | Comments |
|---|---|---|---|---|
| 1. | 8.25 MC with 30% tone modulation | 6F8G converter grid | Tune all audio I.F. iron cores | Use an oscilloscope or high resistance voltmeter across —audio output terminals of HM171 or volume control, R126, of the Model HM185. Set tone control for maximum high frequency response. Peak all trimmers for a maximum output. |
| 2. | 7.75 to 8.75 MC sweep | Grid of 2nd audio I.F., 6SK7 | | Connect oscilloscope input to chassis ground and junction of resistors (R204 and R125 in HM-171) (R125 and R196 in HM185) at diode load. Superimpose an accurately calibrated 8.15 MC signal in parallel with sweep signal. This signal will appear on sweep curve in oscilloscope as a wiggle at the center of which a mark should be made with pen or crayon on oscilloscope screen. (Hereafter the horizontal controls on the oscilloscope must not be adjusted.) Next an 8.35 MC signal mark should similarly be made. |

NOTE: If sweep oscillator has marker points internally supplied, omit step 2.

| | | | | |
|---|---|---|---|---|
| 3. | 7.75 to 8.75 MC sweep | Converter grid 6F8G | Adjust iron cores of 1st audio I.F. coil L12 and the 2nd audio I.F. transformer T-9 | With oscilloscope connected as in step 2, adjust cores until curve appears as in Fig. 7, curve 3 being sure that the steep side of curve lies between the 8.15 and 8.35 MC markers as indicated. NOTE: The shape of the curve between 8.15 and 8.35 MC must be straight, otherwise distortion will result in FM reception. |

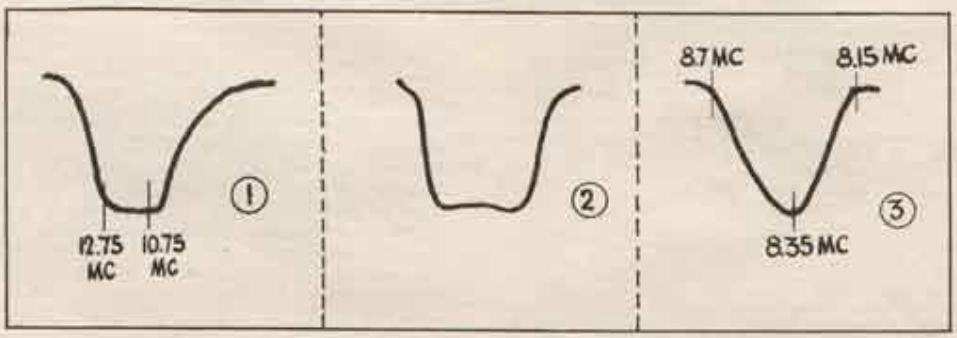



**Fig. 7. Television Alignment Curves**

## TELEVISION ALIGNMENT PROCEDURE

### R.F. ALIGNMENT

| | Signal Input | Point of Input | Adjustments | Comments |
|---|---|---|---|---|
| 1. | | | Band width adjustment coupling condenser | Turn C-78 in until tight, then open approximately 1/16 of a turn. |
| 2. | 50 to 56 MC Sweep | Antenna terminals | (L-8), (C-70), (C-67) | Connect oscilloscope to junction R124 and C25; open circuit R178, short R102 to ground. Depress No. 1 push button. Set tuning control to mid-rotation. Adjust L-8 until curve is centered between maximum horizontal sweep points. Adjust C-70 and C-67 for maximum amplitude. See Fig. 7, curve 2. |
| 3. | 60 to 66 MC Sweep | Antenna terminals | (L-9), (C-71), (C-68) | Depress No. 2 push button. Leave tuning control at mid-rotation point. Adjust L-9 for centering; C-71 and C-68 for maximum amplitude. See Fig. 7, curve 2. |
| 4. | 66 to 72 MC Sweep* | Antenna terminals | (L-10), (C-72), (C-69) | Depress No. 3 push button. Adjust L-10 for centering; C-72, C-69 for maximum amplitude. See Fig. 7, curve 2. |
| 5. | Calibrated signal generator 55.75 MC, 65.75 MC, 71.75 MC** with 30% tone modulation. | Antenna terminals | (L8), (L9), (L10) | To align oscillator for various bands, set tuning control (C-3) at mid-rotation; then set brass slugs of coils L8, L9, L10 until maximum audio tone is heard. |

* In some localities this sweep will be 78 to 84 megacycles. ** 83.75 Megacycles when Band No. 4 is set up on the No. 3 key.

### WAVE TRAP ALIGNMENT

| | | | | |
|---|---|---|---|---|
| 1. | 11.75 MC with 400 cycle modulation | Antenna terminals | Wave trap trimmer, C-95 | Adjust for minimum signal response as seen on oscilloscope after connections made in Step 2 are re-established; then connect oscilloscope across R182. |

## REPLACEMENT PARTS LIST—Model HM-171 and HM-185

**Parts Common to Both Radio and Television**

**Insist on Genuine Factory-tested Parts, Available from Authorized Dealers**

| Stock No. | Description | List Price |
|---|---|---|
| *RB-008 | BOARD—Terminal board (2 lug) | $0.10 |
| *RB-009 | BOARD—Terminal board (1 lug) | .15 |
| *RB-058 | BOARD—Terminal board (8 lug) | .10 |
| *RB-060 | BOARD—Antenna terminal board | .10 |
| *RB-096 | BOARD—Terminal board (3 lug) | .10 |
| *RB-621 | BEZEL—Molded indicator bezel | .20 |
| *RC-006 | CAPACITOR—.0015 mfd. 600 V paper (C-42) | .25 |
| *RC-009 | CAPACITOR—.001 mfd. 600 V. paper (C-41, 52) | .30 |
| *RC-011 | CAPACITOR—.002 mfd. 600 V. paper (C-56) | .25 |
| *RC-023 | CAPACITOR—.005 mfd. 600 V. paper (C-22) | .25 |
| *RC-028 | CAPACITOR—.006 mfd. 600 V. paper (C-26, 37) | .30 |
| *RC-039 | CAPACITOR—.01 mfd. 600 V. paper (C-38, 62) | .25 |
| *RC-048 | CAPACITOR—.02 mfd. 600 V. paper (C-9, 13, 16, 18, 19, 24, 25, 29, 31, 34, 39, 45, 50) | .30 |
| *RC-049 | CAPACITOR—.004 mfd. 600 V. paper (C-35) | .35 |
| *RC-072 | CAPACITOR—.05 mfd. 200 V. paper (C-2, 7, 11, 14, 17, 27) | .25 |
| *RC-090 | CAPACITOR—.04 mfd. 600 V. paper (C-73) | .30 |
| *RC-096 | CAPACITOR—0.1 mfd. 200 V. paper (C-30, 33) | .30 |
| *RC-123 | CAPACITOR—0.1 mfd. 400 V. paper (C-43, 44, 49, 53, 88, 93) | .35 |
| *RC-132 | CAPACITOR—0.1 mfd. 2000 V. paper (C-58) | 1.80 |
| *RC-133 | CAPACITOR—.06 mfd. 2000 V. paper (C-57) | 1.60 |
| *RC-134 | CAPACITOR—0.1 mfd. 1000 V. paper (C-65) | .30 |
| *RC-147 | CAPACITOR—.25 mfd. 400 V. paper (C-47) | .20 |
| *RC-157 | CAPACITOR—0.5 mfd. 200 V. paper (C-63) | .40 |
| *RC-192 | CAPACITOR—.003 mfd. 2000 V. paper (C-64, 66, 85, 86) | 1.85 |
| *RC-203 | CAPACITOR—12 mmf. mica (C-15) | .35 |
| *RC-220 | CAPACITOR—6 mmf. mica (C-83) | .25 |
| *RC-224 | CAPACITOR—23 mmf. mica (C-4, 21) | .25 |
| *RC-227 | CAPACITOR—82 mmf. mica (C-79, 80) | .25 |
| *RC-232 | CAPACITOR—47 mmf. mica (C-32, 95) | .25 |
| *RC-235 | CAPACITOR—100 mmf. mica (C-6, 46) | .25 |
| *RC-238 | CAPACITOR—68 mmf. mica (C-54) | .10 |
| *RC-242 | CAPACITOR—150 mmf. mica (C-23) | .25 |
| *RC-246 | CAPACITOR—180 mmf. mica (C-40) | .15 |
| *RC-274 | CAPACITOR—330 mmf. mica (C-5, 8, 87) | .30 |
| *RC-293 | CAPACITOR—470 mmf. mica (C92) | .30 |
| *RC-429 | CAPACITOR—30 mfd. 500 V. wet electrolytic (C-59, 60) | 1.35 |
| *RC-698 | CAPACITOR—R.F. padder (C-78) | .40 |
| *RC-1995 | CLAMP—Ant. coil mounting clamp (Pkg. 5) | .10 |
| *RC-5138 | CAPACITOR—20 mfd. 25 V., 10 mfd. 450 V., dry electrolytic (C-36, 77) | .90 |
| *RC-5139 | CAPACITOR—10 mfd. 300 V., 10 mfd. 450 V., 10 mfd. 450 V., dry electrolytic (C-48, 61, 75) | 1.50 |
| *RC-5140 | CAPACITOR—10 mfd. 450 V. dry electrolytic (C-74) (Also C-77 on HM-171) | .85 |
| *RG-016 | GRID CLIP—6FS8 grid clip (Pkg. 5) | .10 |
| *RK-014 | KNOB—Control knob (Pkg. 2) | .40 |
| *RQ-525 | RESISTOR—150,000 ohms 1 W. carbon (R-158) | .20 |
| *RQ-645 | RESISTOR—680 ohms 2 W. carbon (R-134) | .20 |
| *RQ-670 | RESISTOR—3300 ohms 2 W. carbon (R-161) (Pkg. 5) | .70 |
| *RQ-695 | RESISTOR—39,000 ohms 2 W. carbon (R-127) | .20 |
| *RQ-774 | RESISTOR—12,000 ohms 3 W. carbon (R-119) | .25 |
| *RQ-1243 | RESISTOR—220 ohms ½ W. carbon (R-105, 110, 114) (Pkg. 5) | .70 |
| *RQ-1245 | RESISTOR—270 ohms ½ W. carbon (R-129) (Pkg. 5) | .70 |
| *RQ-1247 | RESISTOR—330 ohms ½ W. carbon (R-207) (Pkg. 5) | .70 |
| *RQ-1251 | RESISTOR—470 ohms ½ W. carbon (R-148, 181) (Pkg. 5) | .70 |
| *RQ-1259 | RESISTOR—1000 ohms ½ W. carbon (R-102, 150, 152) (Pkg. 5) | .70 |
| *RQ-1267 | RESISTOR—2200 ohms ½ W. carbon (R-124, 130 on HM-171, 153, 182) (Pkg. 5) | $0.70 |
| *RQ-1269 | RESISTOR—2700 ohms ½ W. carbon (R-109) (Pkg. 5) | .70 |
| *RQ-1271 | RESISTOR—3300 ohms, ½ W. carbon (R-113) (Pkg. 5) | .70 |
| *RQ-1273 | RESISTOR—3900 ohms ½ W. carbon (R-117, 123, 190, 203) (Pkg. 5) | .70 |
| *RQ-1275 | RESISTOR—4700 ohms, ½ W. carbon (R-123, 136, 180) (Pkg. 5) | .70 |
| *RQ-1283 | RESISTOR—10,000 ohms ½ W. carbon (R-164) (Pkg. 5) | .70 |
| *RQ-1285 | RESISTOR—12,000 ohms ½ W. carbon (R-115) (Pkg. 5) | .70 |
| *RQ-1289 | RESISTOR—18,000 ohms ½ W. carbon (R-101, 195) (Pkg. 5) | .70 |
| *RQ-1293 | RESISTOR—27,000 ohms ½ W. carbon (R-103) (Pkg. 5) | .70 |
| *RQ-1295 | RESISTOR—33,000 ohms ½ W. carbon (R-165) (Pkg. 5) | .70 |
| *RQ-1297 | RESISTOR—39,000 ohms ½ W. carbon (R-106) (Pkg. 5) | .70 |
| *RQ-1299 | RESISTOR—47,000 ohms ½ W. carbon (R-192, 196) (Pkg. 5) | .70 |
| *RQ-1301 | RESISTOR—56,000 ohms ½ W. carbon (R-205) (Pkg. 5) | .70 |
| *RQ-1303 | RESISTOR—68,000 ohms ½ W. carbon (R-206) (Pkg. 5) | .70 |
| *RQ-1305 | RESISTOR—82,000 ohms ½ W. carbon (R-204) (Pkg. 5) | .70 |
| *RQ-1307 | RESISTOR—100,000 ohms ½ W. carbon (R-111) (Pkg. 5) | .70 |
| *RQ-1311 | RESISTOR—150,000 ohms ½ W. carbon (R-131, 137, 145) (Pkg. 5) | .70 |
| *RQ-1313 | RESISTOR—180,000 ohms ½ W. carbon (R-162) (Pkg. 5) | .70 |
| *RQ-1315 | RESISTOR—220,000 ohms ½ W. carbon (R-104, 118, 128, 142, 171, 173, 193) (Pkg. 5) | .70 |
| *RQ-1317 | RESISTOR—270,000 ohms ½ W. carbon (R-160) (Pkg. 5) | .70 |
| *RQ-1319 | RESISTOR—330,000 ohms ½ W. carbon (R-175) (Pkg. 5) | .70 |
| *RQ-1321 | RESISTOR—390,000 ohms ½ W. carbon (R-194) (Pkg. 5) | .70 |
| *RQ-1323 | RESISTOR—470,000 ohms ½ W. carbon (R-139) (Pkg. 5) | .70 |
| *RQ-1327 | RESISTOR—680,000 ohms ½ W. carbon (R-156) (Pkg. 5) | .70 |
| *RQ-1331 | RESISTOR—1.0 megohm ½ W. carbon (R-120, 133, 135, 144, 151, 168, 179) (Pkg. 5) | .70 |
| *RQ-1335 | RESISTOR—1.5 megohms ½ W. carbon (R-191) (Pkg. 5) | .70 |
| *RQ-1339 | RESISTOR—2.2 megohms ½ W. carbon (R-125, 149, 155, 166, 186) (Pkg. 5) | .70 |
| *RQ-1341 | RESISTOR—2.7 megohms ½ W. carbon (R-147) (Pkg. 5) | .70 |
| *RQ-1349 | RESISTOR—5.6 megohms ½ W. carbon (R-173, 174, 187, 188) (Pkg. 5) | .70 |
| RQ-1420 | RESISTOR—33 ohms 1 W. carbon (R-141) | .20 |
| RQ-1460 | RESISTOR—1200 ohms 1 W. carbon (R-122) | .20 |
| *RQ-1461 | RESISTOR—1500 ohms 1 W. carbon (R-176) | .20 |
| *RQ-1471 | RESISTOR—3300 ohms 1 W. carbon (R-154) | .20 |
| RQ-1475 | RESISTOR—4700 ohms 1 W. carbon (R-107, 112, 116) | .20 |
| RQ-1476 | RESISTOR—5600 ohms 1 W. carbon (R-130 on HM-185, 197) | .20 |
| *RQ-1485 | RESISTOR—12,000 ohms 1 W. carbon (R-119) | .20 |
| *RQ-1489 | RESISTOR—18,000 ohms 1 W. carbon (R-178) | .20 |
| *RQ-1499 | RESISTOR—47,000 ohms 1 W. carbon (R-184, 199) | .20 |
| *RS-179 | SHIELD—6F8G tube shield | .15 |
| RS-252 | SOCKET—Octal tube socket | .15 |
| RS-257 | SOCKET—Electrolytic mounting socket | .05 |
| RS-265 | SOCKET—Light socket assembly | .15 |
| RS-1011 | SPEAKER—12-inch permanent magnet | 4.80 |
| RS-1803 | SHIELD—6N7G tube shield and clip | .40 |
| RT-471 | TRANSFORMER—Output transformer (T-13) | 1.70 |
| RT-954 | TERMINAL—Speaker lead contact clip (Pkg. 10) | .10 |
| *RW-101 | WASHER—Felt washer for control shafts (Pkg. 10) | .05 |
| RW-112 | WASHER—Transformer shaft tension washer (Pkg. 10) | .10 |
| RX-063 | ASSEMBLY—Speaker mounting assembly | .10 |

* Used on previous receivers.

**(Continued on next page)**

## REPLACEMENT PARTS LIST (Continued)

| Stock No. | Description | List Price |
|---|---|---|
| | **Parts Used in Television Only** | |
| RTB-500 | PUSH BUTTON—Station selector push button | $0.15 |
| RTB-1000 | BOARD—Focus control insulator mounting board | .80 |
| RTB-1001 | BOARD—Centering control insulator mounting board | .40 |
| RTB-1002 | BOARD—I.F. terminal board (8-hole-square) | 1.40 |
| RTB-1500 | BACK COVER—Cabinet back cover (HM-185) | .45 |
| RTB-1501 | BACK COVER—Cabinet back cover (HM-171) | .35 |
| RTB-2000 | BUSHING—Insulating bushing for mounting (R-163) | .05 |
| RTB-2001 | BUSHING—Station trimmer shaft bushing | .10 |
| RTC-1000 | TRIMMER STRIP—20-200 mmf. trimmers (C-70, 71, 72) | .55 |
| RTC-1001 | TRIMMER STRIP—20-200 mmf. trimmers (C-67, 68, 69) | .55 |
| RTC-5000 | CONTROL—.25 megohm brightness control and power switch (R-157) | .80 |
| RTC-5001 | CONTROL—2.0 megohm centering control (R-169, 170) | .60 |
| RTC-5002 | CONTROL—2000 ohm tapered contrast control (R-108) | .60 |
| RTC-5003 | CONTROL—2.0 megohm focus control (R-167) | .60 |
| RTC-5004 | CONTROL—50,000 ohm horizontal speed control (R-138) | .60 |
| RTC-5005 | CONTROL—100,000 ohms hor. linearity control (R-189) | .60 |
| RTC-5006 | CONTROL—500,000 ohm tone control (R-132) | .65 |
| RTC-5007 | CONTROL—2.0 megohm variable control (R-143, 146, 159) | .75 |
| RTC-5008 | CONTROL—2.0 megohm volume control (R-126) | .75 |
| RTC-5009 | CONTROL—0.5 megohm width control (R-140) | .60 |
| RTC-5010 | CONTROL—3-20 mmf. tuning control (C-3) | 1.30 |
| RTC-6000 | CARD—Television station tab No. 1 (Pkg. 10) | .05 |
| RTC-6001 | CARD—Television station tab No. 2 (Pkg. 10) | .05 |
| RTC-6002 | CARD—Television station tab No. 3 (Pkg. 10) | .05 |
| RTC-7000 | CABLE—Power cable with plugs | 1.80 |
| RTC-7001 | CABLE—Picture tube cable and 11-prong socket | 3.00 |
| RTC-8000 | CLAMP—Picture tube clamp (upper section) | .90 |
| RTC-8001 | CUSHION—Picture tube face cushion | 1.30 |
| RTE-100 | ESCUTCHEON—Push-button escutcheon | .80 |
| RTF-100 | FUSE HOLDER—Power line fuse holder | .65 |
| RTG-100 | GRID CLIP—Insulated 2 x 2 grid clip | 2.00 |
| RTG-200 | GROMMET—Rubber bumper on picture tube shield funnel (Pkg. 5) | .10 |
| RTG-201 | GROMMET—Rubber grommet for insulating chassis hole from picture tube cable | .05 |
| RTL-1000 | COIL—R.F. coil (Band No. 1) (L-11) | .35 |
| RTL-1001 | COIL—R.F. coil (Band No. 2) (L-13) | .35 |
| RTL-1002 | COIL—R.F. coil (Band No. 3) (L-14) | $0.35 |
| RTL-2000 | COIL—Converter grid oscillator coil (T-2) | .30 |
| RTL-2001 | COIL—Converter plate oscillator coil (T-2) | .30 |
| RTL-3000 | COIL—Oscillator tuning coil (Band No. 1) (L-8) | .30 |
| RTL-3001 | COIL—Oscillator tuning coil (Band No. 2) (L-9) | .30 |
| RTL-3002 | COIL—Oscillator tuning coil (Band No. 3) (L-10) | .30 |
| RTL-4000 | CHOKE—Oscillator Plus B choke (L-1) | 1.00 |
| RTL-4001 | CHOKE—1st Video choke (L-3) | .45 |
| RTL-4002 | CHOKE—Video diode choke (L-2) | .50 |
| RTL-4003 | CHOKE—Video output choke (L-6) | .50 |
| RTL-5000 | REACTOR—Plus B reactor (L-15) | 1.60 |
| RTM-1000 | MASK—Picture tube mask | .35 |
| RTQ-1000 | RESISTOR—350 ohms 10 W. wire wound (R-177) | 1.00 |
| RTQ-1001 | RESISTOR—1100 ohms 10 W. wire wound (R-163 on HM-185) | 1.40 |
| RTQ-1002 | RESISTOR—1300 ohms 10 W. wire wound (R-163 on HM-171) | 1.40 |
| RTS-100 | SOCKET—Chassis power receptacle | 1.00 |
| RTS-101 | SOCKET—2 x 2 tube socket (4-prong) | .95 |
| RTS-300 | SHAFT—Focus control insulated shaft | .90 |
| RTS-301 | SHAFT—Coil tuning core shaft | .15 |
| RTS-500 | SWITCH—Station selector switch (S-1) | 2.80 |
| RTS-700 | STUD—4¾-in. lg. stud for mounting R-163 | .10 |
| RTS-701 | SETSCREW—Headless setscrew for focus control shaft assembly (Pkg. 5) | .10 |
| RTT-0010 | TRANSFORMER—Power transformer (T-12) | 14.50 |
| RTT-2000 | TRANSFORMER—Antenna transformer (T-1) | 1.00 |
| RTT-3000 | TRANSFORMER—1st Video I.F. transformer (T-7) | 3.80 |
| RTT-3500 | TRANSFORMER—2nd Video I.F. transformer T-3) | 3.80 |
| RTT-4000 | TRANSFORMER—3rd Video I.F. transformer (T-4) | 6.00 |
| RTT-4500 | TRANSFORMER—4th Video I.F. transformer (T-5) | 3.80 |
| RTT-5000 | TRANSFORMER—5th Video I.F. transformer (T-6) | 3.80 |
| RTT-7000 | TRANSFORMER—1st Audio I.F. transformer (L-12) | 2.25 |
| RTT-7500 | TRANSFORMER—2nd Audio I.F. transformer (T-8) | 3.80 |
| RTT-8000 | TRANSFORMER—3rd Audio I.F. transformer (T-9) | 3.80 |
| RTT-9000 | TRANSFORMER—Vert. oscillator transformer (T-11) | 2.80 |
| RTW-100 | WASHER—Picture tube rear support washer (rubber) | .80 |
| RTW-500 | WINDOW—Picture tube safety window (HM-185) | 2.05 |
| RTW-501 | WINDOW—Celluloid station letter window (Pkg. 5) | .05 |
| RTW-502 | WINDOW—Picture tube safety window (HM-171) | 1.60 |
| RTX-1000 | ASSEMBLY—Wave trap assembly (L-16, 17, 18, 19) | 3.10 |
| RTX-1003 | ASSEMBLY—Wave trap assembly (L-20, C-94) | .80 |

GENERAL ELECTRIC COMPANY

RADIO AND TELEVISION DEPARTMENT

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