GENERAL ELECTRIC

TELEVISION RECEIVER
AND
COMBINATION TELEVISION AND RADIO RECEIVER
MODELS HM-225 AND HM-226-7A

Model HM-225

Model HM-226-7A

SERVICE DATA

Over-all Dimensions

Model	HM-225	HM-226-7A
Height	40½ inches	42½ inches
Width	28⅝ inches	35 inches
Depth	17⅛ inches	22⅝ inches

Electrical Specifications

Model	Power Supply (Volts)	Frequency (Cycles per Second)	Power Consumption (Watts)
HM-225	115–125	60	300
HM-226-7A	115–125	60	300 (Television) 75 (Radio)

Tuning Frequency Range

A. Television Receiver (used in both models)

Band No. 1	44–50 M.C.
Band No. 2	50–56 M.C.
Band No. 3	66–72 M.C.
Band No. 4	78–84 M.C.
Band No. 5	84–90 M.C.

B. Radio Receiver (used in HM-226-7A only)

Band "B"	540–1600 K.C.
Band "C"	2.1–6.5 M.C.
Band "D"	6.25–22.5 M.C.

Intermediate Frequencies

Television Video (Picture)	12.75 M.C.
Television Audio	8.25 M.C.
Radio	455 K.C.

Maximum Electrical Output

Television Audio	10 Watts
Radio Audio	5 Watts

Tone Control

Televison Audio	Continuously variable
Radio Audio	4-position

Loud-speaker—"Alnico" Magnetic Dynamic

Type of Cone	Curvilinear
Cone Diameter	12 inches
Voice Coil Impedance (400 cycles)	3.5 ohms

Picture Size

Model	HM-225	HM-226-7A
Height	5¾ inches	7½ inches
Width	7¾ inches	10 inches

Tubes

A. Television

Converter-Oscillator	GE-6F8G
1st Audio I.F. Amplifier	GE-6SK7
2nd Audio I.F. Amplifier	GE-6B8
Audio Amplifier and Phase Inverter	GE-6SC7
Audio Output	(2)GE-6F6
1st and 4th Video I.F. Amplifier	(2)GE-1852/6AC7
2nd and 3rd Video I.F. Amplifier	(2)GE-1853/6AB7
Video Detector and AVC	GE-6H6
1st Video Amplifier and Sync. Clipper	GE-6F8G
2nd Video Amplifier	GE-6F6G
Sync. Amplifier and Vertical Clipper	GE-6F8G
Vertical Oscillator and Amplifier	GE-6F8G
Horizontal Oscillator	GE-6N7G
Vertical Output	GE-6V6G
Horizontal Output	GE-6AL6G
Low Voltage Rectifier	(2)GE-5U4G
High Voltage Rectifier	GE-879/2X2
Picture Tube (HM-225)	GE-MW-22-2
Picture Tube (HM-226-7A)	GE-MW-31-3

B. Radio (used in HM-226-7A only)

Converter-Oscillator	GE-6SA7
I.F. Amplifier	GE-6SK7
Detector and AVC	GE-6H6
1st Audio Amplifier	GE-6SF5
2nd Audio Amplifier	GE-6J5G
Audio Output	GE-6Y6G
Rectifier	GE-5Y3G
Dial Lamps	(3)Mazda No. 44

CAUTIONARY INSTRUCTIONS

Extremely high voltages (4000 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 power plug disconnected before working on the receiver with the back cover removed:

1. **Remove 879/2X2 tube from socket.**
2. **Detach top cap lead of 879/2X2 tube and insulate the contact end of this cap lead.**
3. **Ground the receiver chassis.**

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 plug 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.

GENERAL INFORMATION

General Electric Television Receiver, Model HM-225, is a console type, 22-tube, superheterodyne receiver equipped with a full magnetic, short, 9-inch picture tube. The rectifier-power supply is on a separate chassis mounted in the lower cabinet compartment with the speaker.

General Electric Television and Radio Receiver, Model HM-226-7A, is a console type instrument using the same television receiver as the Model HM-225 with minor alterations for use in conjunction with a 7-tube radio receiver. Model HM-226-7A is equipped with a full magnetic, short, 12-inch picture tube.

Additional design features include iron-core I.F. tuning, automatic contrast control, automatic brightness control, automatic tone compensation, automatic volume control and a constant high-gain antenna coupling circuit.

INSTALLATION AND OPERATING INSTRUCTIONS

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

1. Installation Notes
   - Model HM-225.....Pamphlet No. RHMJ-225
   - Model HM-226-7A....Pamphlet No. RHMJ-226
2. Operating Instructions
   - Model HM-225.....Pamphlet No. RHMI-225
   - Model HM-226-7A....Pamphlet No. RHMI-226-7A

ANTENNA

Antenna installation information is thoroughly covered in the above mentioned installation notes and in Instructions RHTI-8 on the General Electric Television Dipole Antenna, Model HT-8. In general, the television antenna should be of the dipole type located as high as is practical and in an area where the horizon in the direction of the television transmitter is not obstructed by buildings or structures. A noticeable gain in signal strength will be obtained as antenna height is increased. Since television radiation reacts similarly to light waves, reflection problems arise which often modify otherwise ideal installation locations. Consideration must also be given noise sources within buildings, or ignition noises from vehicles on adjacent streets. It is usually best to locate the dipole antenna on the side of the building away from the street thus allowing the building to shield the antenna from ignition noises.

The dipole should be erected with arms parallel to the ground and at right angles to the direction of the television station. If noise or reflection interference exist it may be better to point the dipole arms in the direction of the interference.

Noise interference and poor signal strength may dictate the use of a reflector. A reflector will increase the signal strength appreciably as well as increase the horizontal directivity.

PHONOGRAPH CONNECTIONS

Model HM-226-7A radio receiver is equipped with a phono-terminal (pin jack) to allow the convenient connection of a record player. General Electric plug, Stock No. RP-145, fits the pin jack.

NOTE—A suitable load consisting of a 100,000 ohm resistor in series with a .01 mfd. capacitor should be connected across the pick-up leads when using a crystal-type unit.

LOUD-SPEAKER

To center the voice coil, loosen the two screws which clamp the speaker spider in position. These two screws are available from the rear of the speaker. Shift the spider around until the voice coil is centered, then tighten the screws in position.

TELEVISION RECEIVER CIRCUITS

The television receiver circuits are divided into the following sections:

1. R.F. Unit
2. Converter-Oscillator and Amplifier
3. Audio Unit
4. Video Unit
5. Sync Pulse Clipper—Amplifier
6. Horizontal Oscillator—Output
7. Vertical Oscillator—Output
8. Low Voltage Rectifier
9. High Voltage Rectifier

R. F. Unit

This unit, comprising all circuits between the antenna terminal posts and the converter grid, consists of a high pass filter input, a series tuned antenna coil primary, a shunt capacity coupled secondary (C-2) and a video I.F. wave trap (C-88, L-15). The wave trap is broadly tuned at 11.75 M.C. to prevent I.F. interference. Any one of the five tuned circuits for each of the five television transmission bands can be connected into the secondary circuit by pressing the appropriate button. The secondary circuit trimmers when properly tuned give a broad, flat response curve.

Converter-Oscillator and Amplifier

A plate-tuned oscillator is used with vernier tuning permitted from the front control panel through trimmer C-17. The resultant video I.F. signal of 12.75 M.C. and the audio I.F. signal of 8.25 M.C. developed in the converter-oscillator tube circuit is coupled through transformer T-11 to the 1852 amplifier tube.

Audio Unit

The audio unit is a conventional-type superheterodyne sound receiver with the I.F. stages tuned to 8.25 M.C. The

audio I.F. signal is taken off through the suppressor of the 1st video I.F. tube.

Video Unit

This unit includes all the video I.F. amplifier stages, the video detector, two stages of video amplification and the picture tube input. Three wave traps are provided in this unit; one at T-6 for rejecting the audio I.F. of the adjacent television band, one at T-7 for rejecting the audio I.F. of the band concerned, and one in the cathode circuit of the 1st video, 6F8G, comprising L-18 and C-52, for removing the 12.75 M.C. video I.F. from the detected signal amplifier stages. A sensitivity control, known as contrast control, (R-67), is provided in the AVC circuits of the 6H6 video detector for varying the grid bias on the 2nd and 3rd video I.F. tubes.

D.C. reinsertion (automatic background control) is accomplished in the 2nd video 6F6G tube circuit by using part of the varying screen voltage developed across R-93 to control the picture tube grid voltage. A high impedance voltage divider, R-94 and R-95, is used and the coupling condenser, C-38, is made small to prevent low frequency variations in the plate supply from getting to the picture tube grid.

Sync-pulse Clipper—Amplifier

Sync-pulses are taken off the plate of the right section of the 1st video and clipper tube, 6F8G. The video signals are separated by tube cut-off since the plate voltage is only about 10 volts. The sync-pulses are then amplified in the sync amplifier tube and coupled through a high-pass filter to the grid of the horizontal oscillator.

Horizontal Oscillator—Output

The horizontal oscillator is a multi-vibrator with speed controlled by varying the small positive grid voltage through R-69. The horizontal pulses are passed through proper wave shaping and amplifier circuits to the horizontal deflection coils of the picture tube. Horizontal linearity is adjustable by varying R-91. Horizontal sweep size is controlled by R-60 in the cathode circuit of the 6AL6G. The degeneration resistor R-22 and series circuit across the secondary of the 6AL6G output transformer damp the output transient. Damping is adjustable through R-100.

Vertical Oscillator—Output

Vertical sync-pulses are separated from the horizontal pulses in the vertical clipper right section of 6F8G and are fed to the vertical oscillator. This oscillator is of the blocking type, transformer coupled. The generated sawtooth wave across C-70 is shaped by the vertical linearity control, R-53. The speed of the oscillator is controlled by R-79 and the length of sweep (size) is adjustable through R-65. The output is amplified and coupled to the vertical deflection coils of the picture tube.

Low-voltage Rectifier

Two 5U4G rectifiers are necessary to supply plate current which is over 300 ma. A combination of choke and resistance filters is used so that the audio and oscillator plate supplies will be free from video and sweep signals.

High-voltage Rectifier

The high voltage rectifier uses a resistance filter. The bleeder is connected across the filter input to reduce ripple. R-103 is inserted in the plate lead for protection.

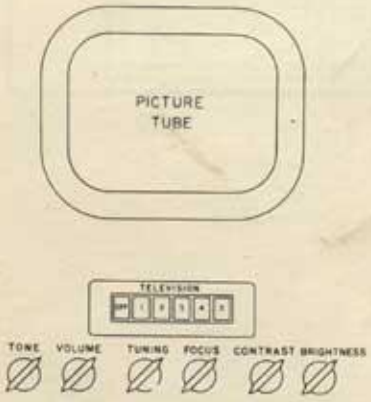


Fig. 1. Front Control Location
Model HM-225

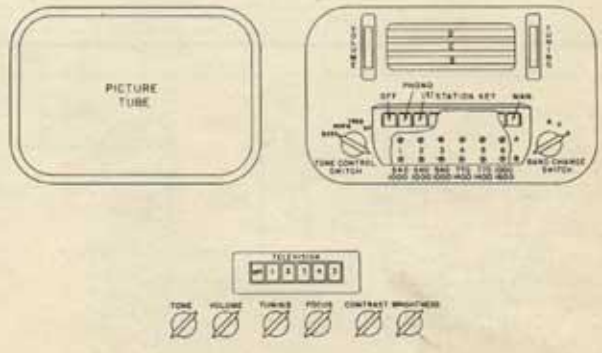
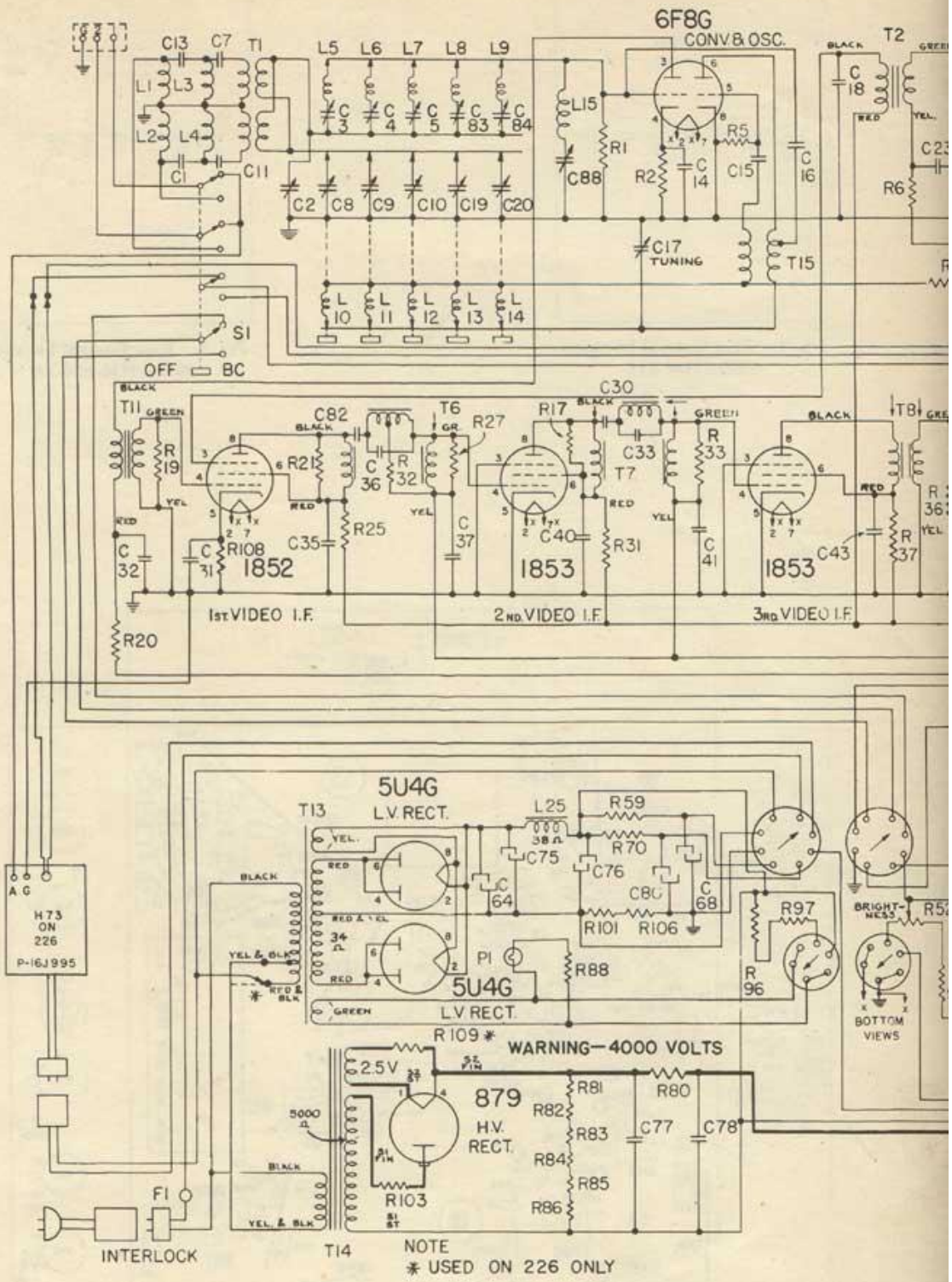
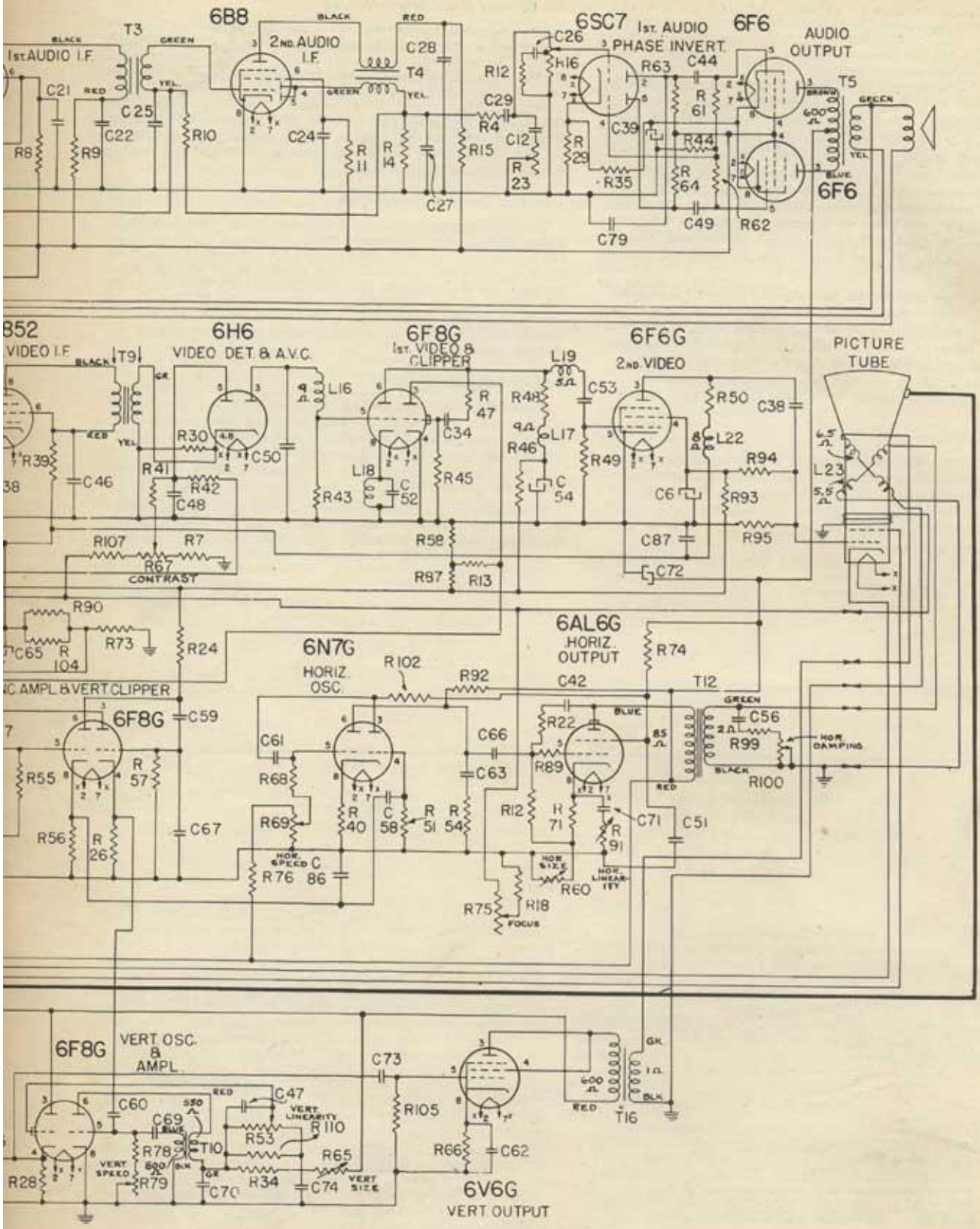


Fig. 2. Front Control Location
Model HM-226-7A



RESISTANCE OF VIDEO AND AUDIO I.F. TRANSFORMER WINDINGS APPROXIMATELY EQUAL TO ONE OHM.

Fig. 6. T
Models


6B8
2ND. AUDIO I.F.
T3
1ST AUDIO I.F.
T4
6SC7
1ST. AUDIO PHASE INVERT.
6F6
AUDIO OUTPUT
T5
6F6
6H6
VIDEO DET. & A.V.C.
6F8G
1ST. VIDEO & CLIPPER
6F6G
2ND. VIDEO
PICTURE TUBE
T9
6AL6G
HORIZ. OUTPUT
T12
6N7G
HORIZ. OSC.
6F8G
VERT. OSC. & AMPL.
T10
T16
6V6G
VERT. OUTPUT
CONTRAST
HOR. DAMPING
HOR. SPEED C
HOR. SIZE
HOR. LINEARITY
FOCUS
VERT. LINEARITY
VERT. SPEED
VERT. SIZE

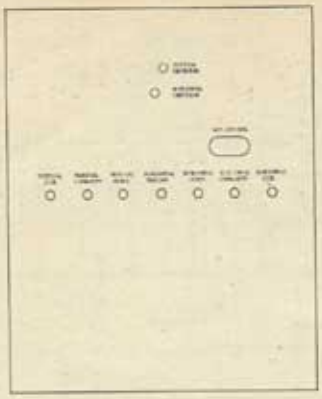


Fig. 3. Rear Control Location
Model HM-225

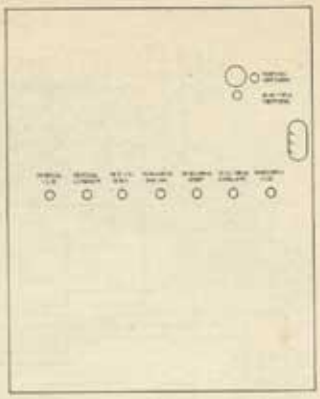


Fig. 4. Rear Control Location
Model HM-226-7A

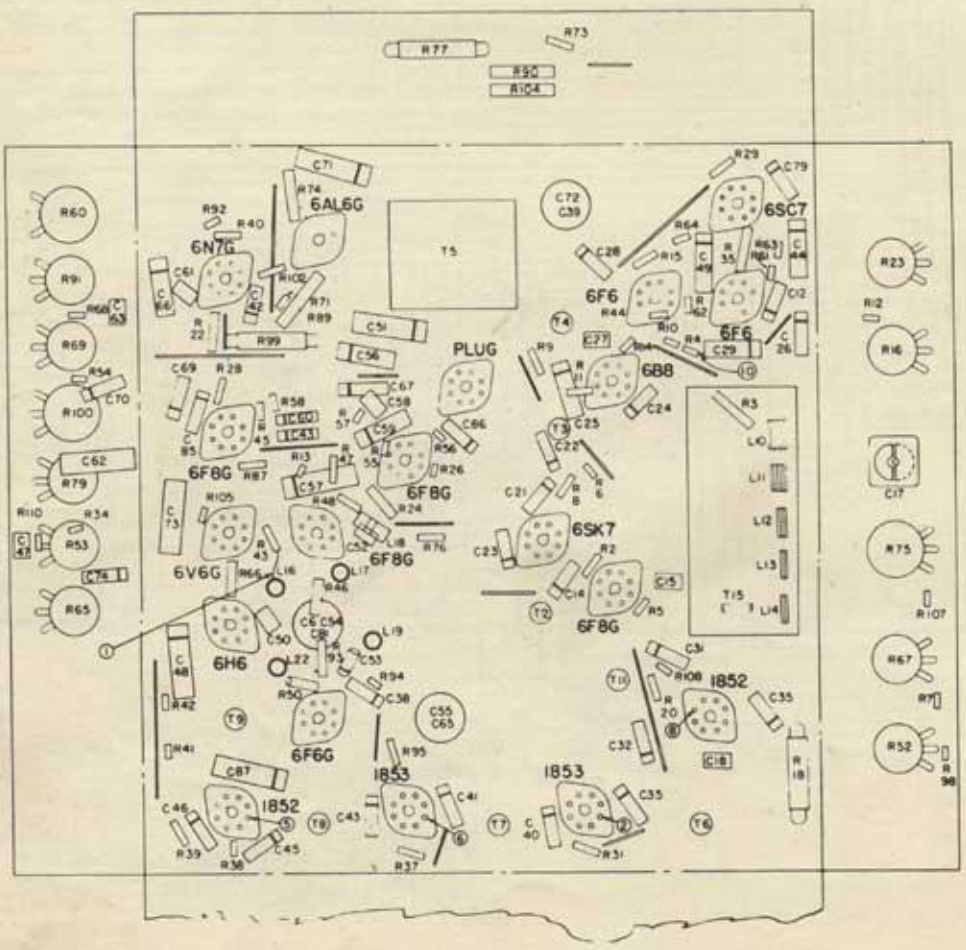


Fig. 5. Television Chassis Parts Layout
Models HM-225 and HM-226-7A

TELEVISION SCHEMATIC DIAGRAM
PARTS DESCRIPTION LIST
Models HM-225 and HM-226-7A

SYMBOL	DESCRIPTION
C-1	47 mmf. mica L.P.F. capacitor
C-2	55–185 mmf. padder
C-3	20–200 mmf. trimmer
C-4	20–200 mmf. trimmer
C-5	20–200 mmf. trimmer
C-6	10 mfd. 450 v. dry electrolytic (See C-54, 81)
C-7	82 mmf. mica L.P.F. capacitor
C-8	20–200 mmf. trimmer
C-9	20–200 mmf. trimmer
C-10	2–12 mmf. trimmer
C-11	82 mmf. mica L.P.F. capacitor
C-12	.005 mfd. paper capacitor
C-13	47 mmf. mica L.P.F. capacitor
C-14	.005 mfd. paper capacitor
C-15	33 mmf. mica capacitor
C-16	4 mmf. mica L.P.F. capacitor
C-17	Air trimmer
C-18	150 mmf. mica capacitor
C-19	2–12 mmf. trimmer
C-20	2–12 mmf. trimmer
C-21	.005 mfd. paper capacitor
C-22	.005 mfd. paper capacitor
C-23	.005 mfd. paper capacitor
C-24	.005 mfd. paper capacitor
C-25	0.1 mfd. paper capacitor
C-26	.005 mfd. paper capacitor
C-27	150 mmf. mica capacitor
C-28	.005 mfd. paper capacitor
C-29	.05 mfd. paper capacitor
C-30	330 mmf. mica capacitor
C-31	.005 mfd. paper capacitor
C-32	.005 mfd. paper capacitor
C-33	56 mmf. mica L.P.F. capacitor
C-34	.02 mfd. paper capacitor
C-35	.005 mfd. paper capacitor
C-36	33 mmf. mica L.P.F. capacitor
C-37	.005 mfd. paper capacitor
C-38	.005 mfd. paper capacitor
C-39	20 mfd. 25 v. dry electrolytic (See C-72)
C-40	.005 mfd. paper capacitor
C-41	.005 mfd. paper capacitor
C-42	.001 mfd. paper capacitor
C-43	.005 mfd. paper capacitor
C-44	.05 mfd. paper capacitor
C-45	.005 mfd. paper capacitor
C-46	.005 mfd. paper capacitor
C-47	150 mmf. mica capacitor
C-48	0.5 mfd. paper capacitor
C-49	.05 mfd. paper capacitor
C-50	10 mmf. mica capacitor
C-51	0.1 mfd. paper capacitor
C-52	22 mmf. mica capacitor
C-53	.05 mfd. paper capacitor
C-54	5 mfd. 450 v. dry electrolytic (See C-6, 81)
C-55	5 mfd. 450 v. dry electrolytic (See C-65)
C-56	.04 mfd. paper capacitor
C-57	0.1 mfd. paper capacitor
C-58	150 mmf. mica capacitor
C-59	.05 mfd. paper capacitor
C-60	.002 mfd. paper capacitor
C-61	470 mmf. mica capacitor
C-62	40 mfd. 25 v. dry electrolytic
C-63	220 mmf. mica capacitor
C-64	30 mfd. 450 v. wet electrolytic
C-65	30 mfd. 450 v. dry electrolytic (See C-55)
C-66	.05 mfd. paper capacitor
C-67	.02 mfd. paper capacitor
C-68	30 mfd. 450 v. wet electrolytic
C-69	.02 mfd. paper capacitor
C-70	.02 mfd. paper capacitor
C-71	0.5 mfd. paper capacitor
C-72	40 mfd. 450 v. dry electrolytic (See C-39)
C-73	0.5 mfd. paper capacitor
C-74	.01 mfd. paper capacitor
C-75	30 mfd. 450 v. wet electrolytic
C-76	30 mfd. 450 v. wet electrolytic
C-77	.06 mfd. 4000 v. paper capacitor
C-78	.06 mfd. 4000 v. paper capacitor
C-79	.005 mfd. paper capacitor
C-80	30 mfd. 450 v. wet electrolytic
C-81	20 mfd. 450 v. dry electrolytic (See C-6, 54)
C-82	330 mmf. mica L.P.F. capacitor
C-83	20–200 mmf. trimmer
C-84	20–200 mmf. trimmer
C-85	.01 mfd. paper capacitor
C-86	.01 mfd. paper capacitor
C-87	.25 mfd. paper capacitor
C-88	20–200 mmf. trimmer
L-1	Wave trap coil
L-2	Wave trap coil
L-3	Wave trap coil
L-4	Wave trap coil
L-5	R.F. coil band No. 1
L-6	R.F. coil band No. 2
L-7	R.F. coil band No. 3
L-8	R.F. coil band No. 4
L-9	R.F. coil band No. 5
L-10	Osc. coil band No. 1
L-11	Osc. coil band No. 2
L-12	Osc. coil band No. 3
L-13	Osc. coil band No. 4
L-14	Osc. coil band No. 5
L-15	Wave trap assembly
L-16	Video diode choke
L-17	Video diode choke
L-18	Video cathode choke
L-19	Video choke
L-22	Video choke
L-23	Deflection yoke coil
L-24	Focus coil
L-25	Filter choke
R-1	1,000 ohms carbon resistor
R-2	2,200 ohms carbon resistor
R-3	10,000 ohms 1 W. carbon resistor
R-4	47,000 ohms carbon resistor
R-5	27,000 ohms carbon resistor
R-6	1.0 megohm carbon resistor
R-7	1,000 onms carbon resistor
R-8	100,000 ohms carbon resistor
R-9	2,200 ohms carbon resistor
R-10	1.0 megohm carbon resistor
R-11	220,000 ohms carbon resistor
R-12	47,000 ohms carbon resistor
R-13	180,000 ohms carbon resistor
R-14	100,000 ohms carbon resistor
R-15	2,200 ohms carbon resistor
R-16	500,000 ohms volume control
R-17	2,200 ohms carbon resistor
R-18	150 ohms 7.4 W. wire wound resistor
R-19	1,500 ohms carbon resistor
R-20	2,200 ohms carbon resistor
R-21	2,700 ohms carbon resistor
R-22	2.2 megohms 1 W. carbon resistor
R-23	500,000 ohms tone control
R-24	10,000 ohms 1 W. carbon resistor
R-25	2,200 ohms carbon resistor
R-26	10,000 ohms carbon resistor
R-27	2,700 ohms carbon resistor
R-28	47,000 ohms carbon resistor
R-29	15 ohms wire wound resistor
R-30	3,300 ohms carbon resistor
R-31	2,200 ohms carbon resistor
R-32	6,800 ohms carbon resistor
R-33	1,500 ohms carbon resistor
R-34	1.0 megohm carbon resistor
R-35	270 ohms 2 W. carbon resistor
R-36	2,200 ohms carbon resistor
R-37	2,200 ohms carbon resistor
R-38	180 ohms carbon resistor
R-39	2,200 ohms carbon resistor
R-40	470 ohms carbon resistor
R-41	27,000 ohms carbon resistor
R-42	10,000 ohms carbon resistor
R-43	3,300 ohms carbon resistor
R-44	220,000 ohms carbon resistor
R-45	1.0 megohm carbon resistor
R-46	15,000 ohms 2 W. carbon resistor
R-47	10,000 ohms carbon resistor
R-48	4,700 ohms carbon resistor
R-49	470,000 ohms carbon resistor
R-50	820 ohms 2 W. carbon resistor
R-51	2,200 ohms carbon resistor
R-52	10,000 ohms brightness control
R-53	2.0 megohms vertical linearity control
R-54	47,000 ohms carbon resistor
R-55	1.0 megohm carbon resistor
R-56	1,000 ohms carbon resistor
R-57	2.2 megohm carbon resistor
R-58	10,000 ohms carbon resistor
R-59	1,500 ohms 6 W. wire wound resistor (See R-101)
R-60	1,000 ohms horizontal size control
R-61	220,000 ohms carbon resistor
R-62	220,000 ohms carbon resistor
R-63	220,000 ohms carbon resistor
R-64	220,000 ohms carbon resistor
R-65	2.0 megohms vertical size control
R-66	820 ohms 1 W. carbon resistor
R-67	10,000 ohms contrast control
R-68	220,000 ohms carbon resistor
R-69	100,000 ohms horizontal speed control
R-70	400 ohms 17.9 W. wire wound resistor
R-71	240 ohms 2 W. carbon resistor
R-72	470,000 ohms carbon resistor
R-73	1,000 ohms carbon resistor
R-74	10,000 ohms 1 W. carbon resistor
R-75	200 ohms 2 W. focus control
R-76	1.0 megohm carbon resistor
R-77	700 ohms 7.4 W. wire wound resistor
R-78	220,000 ohms carbon resistor
R-79	500,000 ohms vertical speed control
R-80	470,000 ohms 1 W. carbon resistor
R-81	2.2 megohms 1 W. carbon resistor
R-82	2.2 megohms 1 W. carbon resistor
R-83	2.2 megohms 1 W. carbon resistor
R-84	2.2 megohms 1 W. carbon resistor
R-85	2.2 megohms 1 W. carbon resistor
R-86	2.2 megohms 1 W. carbon resistor
R-87	220,000 ohms ½ W. carbon resistor
R-88	33 ohms 1 W. wire wound resistor
R-89	330 ohms carbon resistor
R-90	33,000 ohms 2 W. carbon resistor
R-91	1,000 ohms horizontal linearity control
R-92	470,000 ohms carbon resistor
R-93	39,000 ohms 1 W. carbon resistor
R-94	10 megohms carbon resistor
R-95	2.2 megohms carbon resistor
R-96	6,800 ohms carbon resistor
R-97	22,000 ohms 1 W. carbon resistor
R-98	10,000 ohms carbon resistor
R-99	700 ohms 7.4 W. wire wound resistor
R-100	400 ohms damping control
R-101	150 ohms 9 W. wire wound (See R-59)
R-102	100,000 ohms carbon resistor
R-103	100,000 ohms 1 W. carbon resistor
R-104	33,000 ohms 2 W. carbon resistor
R-105	470,000 ohms carbon resistor
R-106	270 ohms 2 W. carbon resistor
R-107	10,000 ohms carbon resistor
R-108	180 ohms carbon resistor
R-109	0.6 ohms carbon (2 in parallel—HM-226 only)
R-110	2.2 ohms carbon resistor
T-1	Antenna transformer
T-2	1st audio I.F. transformer
T-3	2nd audio I.F. transformer
T-4	3rd audio I.F. transformer
T-5	Audio output transformer
T-6	2nd video I.F. transformer
T-7	3rd video I.F. transformer
T-8	4th video I.F. transformer
T-9	5th video I.F. transformer
T-10	Vertical oscillator transformer
T-11	1st video I.F. transformer
T-12	Horizontal output transformer
T-13	Low voltage power transformer
T-14	High voltage power transformer
T-15	Oscillator transformer
T-16	Vertical output transformer

* L.P.F.—Low Power Factor.

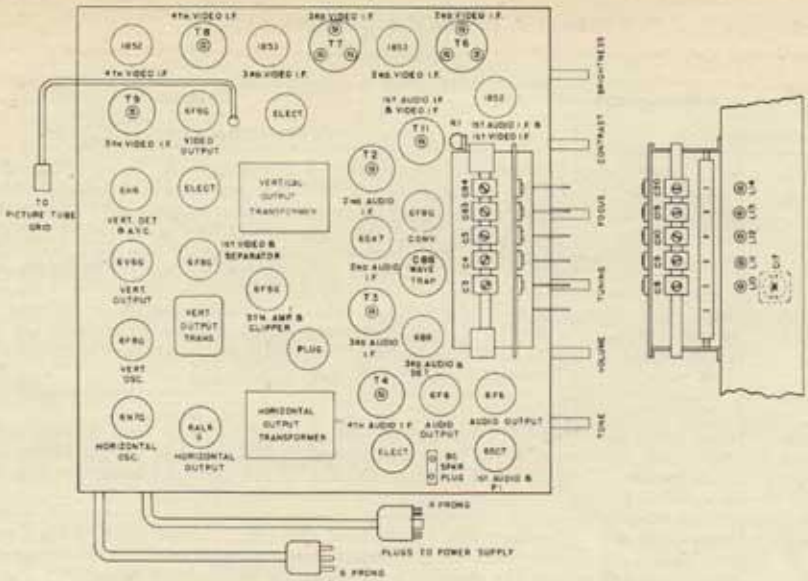


Fig. 7. Television Chassis Trimmer Location
Models HM-225 and HM-226-7A

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 characteristics 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 9.75 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.

(C) R.F. Alignment
  (1) Cathode ray oscilloscope
  (2) Wide-band sweep oscillator capable of sweeping the following bands.
  (a) 44 to 50 (d) 78 to 84
  (b) 50 to 56 (e) 84 to 90
  (c) 66 to 72

VIDEO I. F. ALIGNMENT

Input Freq.	Point of Input	Adjustments	Comments
1.			Connect vertical input cable of cathode ray oscilloscope across resistor R-43 of 6H6 video detector. See Fig. 5, arrow one.
2. 7.5–15MC Sweep	Control grid of 1853 (2nd video I.F.)		Connect low output tap of video I.F. sweep oscillator to control grid of 1853 (2nd video I.F.). See Fig. 5, arrow two. Connect ground lead to chassis. Turn contrast control (R-67) 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. 8, curve 3.
NOTE: If sweep oscillator has marker points internally supplied, steps 3 and 4 may be omitted.			
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 9.75 MC	Same as in No. 2		Superimpose an accurately calibrated 9.75 MC signal in parallel with sweep signal. Mark screen at point where signal appears on curve as jn No. 3 above.

VIDEO I. F. ALIGNMENT (Cont.)

Input Freq.	Point of Input	Adjustments	Comments
5. 7.5–15 MC Sweep	Control grid of 1852 (4th video I.F.)	Iron cores of detector transformer T-9	Connect high tap of video I.F. sweep oscillator to control grid of 1852 (4th video I.F.) See Fig. 5, arrow five. (Do not touch horizontal controls of oscilloscope.) Turn sweep phase to give as near a single curve as possible. Adjust iron cores of T-9 until curve appears similar to Fig. 8, curve 1, with relatively flat top, 12.75 MC mark half-way down one side and 9.75 MC mark at corner of other side. These conditions plus maximum amplitude insure correct alignment.
6. 7.5–15 MC Sweep	Control grid of 1853 (3rd video I.F.)	Iron cores of 4th video transformer T-8.	Connect low tap of video I.F. sweep oscillator to control grid of 1853 (3rd video I.F.). See Fig. 5, arrow six. Adjust iron cores for maximum gain, flatness and proper centering between markers as described in step No. 5 and illustrated in Fig. 8, curve 2.
7. 7.5–15 MC Sweep	Control grid of 1853 (2nd video I.F.)	Iron cores of 3rd video transformer T-7.	Connect low tap to grid. See Fig. 5, arrow two. Adjust primary and secondary iron cores for maximum gain, flatness and proper centering. Adjust series iron core for sharp cut-off on 9.75 MC side of curve. See Fig. 8, curve 3.
8. 7.5–15 MC Sweep	Control grid of 1852 (1st video I.F.)	Iron cores of 2nd video transformer T-6	Connect low tap to grid. See Fig. 5, arrow eight. Adjust primary and secondary iron cores for maximum gain, flatness and proper centering. Adjust series iron core for sharp cut-off on 12.75 MC side of curve. See Fig. 8, curve 4.
9. 7.5–15 MC Sweep	Converter Grid, 6F8G	Iron cores of 1st video transformer T-11	Connect low tap to grid. Adjust iron cores for maximum gain flatness and proper centering.
10. 14.25 MC	Converter Grid, 6F8G	Series iron core of 2nd video transformer T-6	To check alignment of 14.25 MC trap proceed as follows: Connect low tap to grid. Reduce horizontal gain of oscilloscope to minimum. Adjust iron core for minimum line length.
11. 8.25 MC	Converter Grid, 6F8G	Series iron core of 3rd video transformer T-7	To check alignment of 8.25 MC trap proceed as follows: Connect low tap to grid. Reduce horizontal gain of oscilloscope to minimum. Adjust iron core for minimum line length.

R. F. ALIGNMENT

Signal Input	Point of Input	Adjustments	Comments
1.		Band width adjustment coupling condenser	Turn (C-2) in until tight, then open approximately $\frac{1}{8}$ of a turn.
2. 44 to 50 MC sweep	Antenna terminals	(L-10), (C-3), (C-8)	Depress band No. 1 push button. Set tuning control to mid-rotation. Adjust L-10 until curve is centered between maximum horizontal sweep points. Adjust C-3 and C-8 for maximum amplitude. See Fig. 8, curve 5.
3. 50 to 56 MC sweep	Antenna terminals	(L-11), (C-4), (C-9)	Depress band No. 2 push button. Leave tuning control at mid-rotation point. Adjust L-11 for centering; C-4 and C-9 for maximum amplitude. See Fig. 8, curve 5.
4. 66 to 72 MC sweep	Antenna terminals	(L-12, (C-5), (C-10)	Depress band No. 3 push button. Adjust L-12 for centering; C-5 and C-10 for maximum amplitude. See Fig. 8, curve 5.
5. 78 to 84 MC sweep	Antenna terminals	(L-13), (C-83), (C-19)	Depress band No. 4 push button. Adjust L-13 for centering; C-83 and C-19 for maximum amplitude. See Fig. 8, curve 5.
6. 84 to 90 MC sweep	Antenna terminals	(L-14), (C-84), (C-20)	Depress band No. 5 push button. Adjust L-14 for centering; C-84 and C-20 for maximum amplitude. See Fig. 8, curve 5.

WAVE TRAP ALIGNMENT

Signal Input	Point of Input	Adjustments	Comments
1. 11.75 MC	Antenna terminals	Wave trap trimmer, C-88	Adjust for maximum dip in oscilloscope curve.

TELEVISION ALIGNMENT PROCEDURE (Continued)

AUDIO I. F. ALIGNMENT

Input Freq.	Point of Input	Adjustments	Comments
1.			Connect vertical input cable of cathode ray oscilloscope between junction of R-4 and C-29 and chassis. See Fig. 5, arrow ten.
2. 7.75 to 8.75 MC sweep	Control grid of 6B8	Iron cores of 4th audio I.F. transformer T-4	Align for maximum amplitude. See Fig. 8, curve 6.
3. 7.75 to 8.75	Control grid of 6SK7	Iron cores of 3rd audio I.F. transformer T-3	Align for maximum amplitude. See Fig. 8, curve 6.
4. 7.75 to 8.75	Converter grid of 6F8G	Iron cores of 2nd audio I.F. transformer T-2	Align for maximum amplitude. See Fig. 8, curve 7.

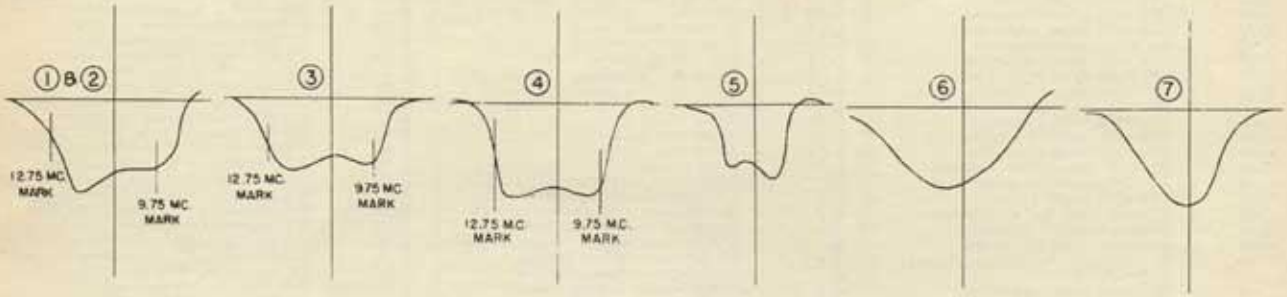


Fig. 8. Television Alignment Curves

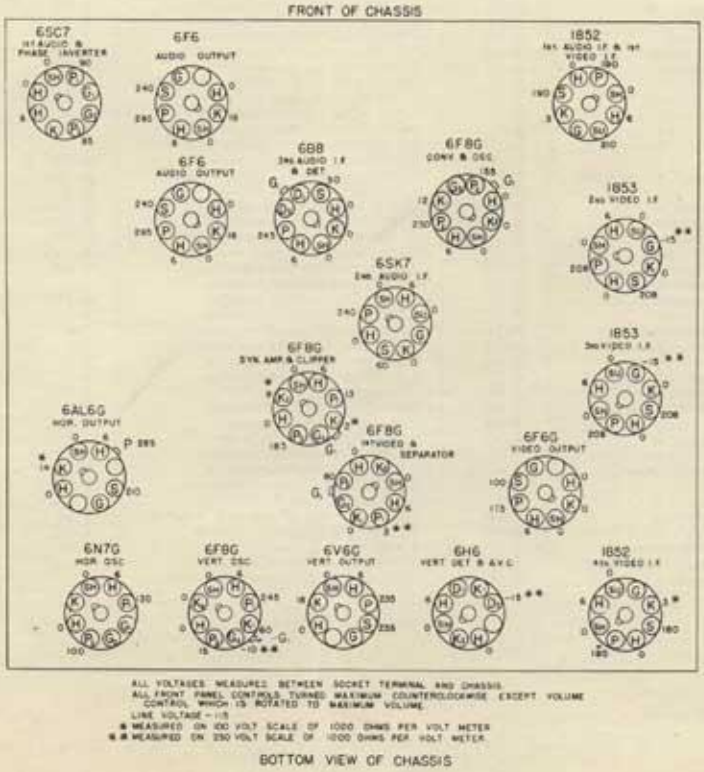


Fig. 9. Television Socket Voltages

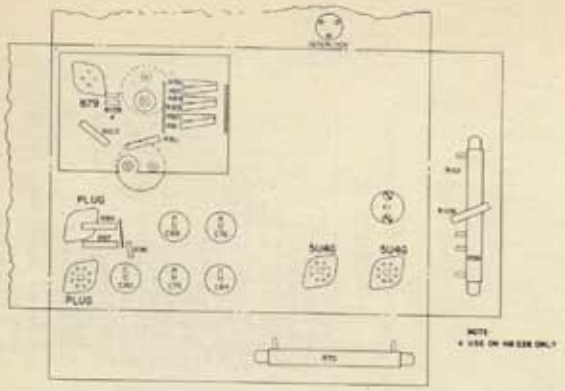


Fig. 10. Power Chassis Parts Layout

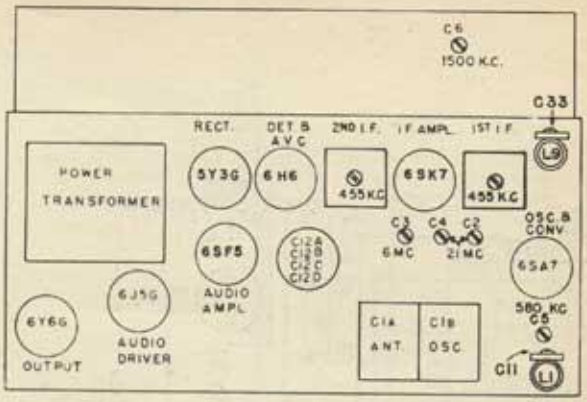


Fig. 11. Radio Chassis Trimmer Location (Model HM-226-7A)

RADIO ALIGNMENT PROCEDURE

(Model HM-226-7A only)

I. F. ALIGNMENT WITH OSCILLOSCOPE

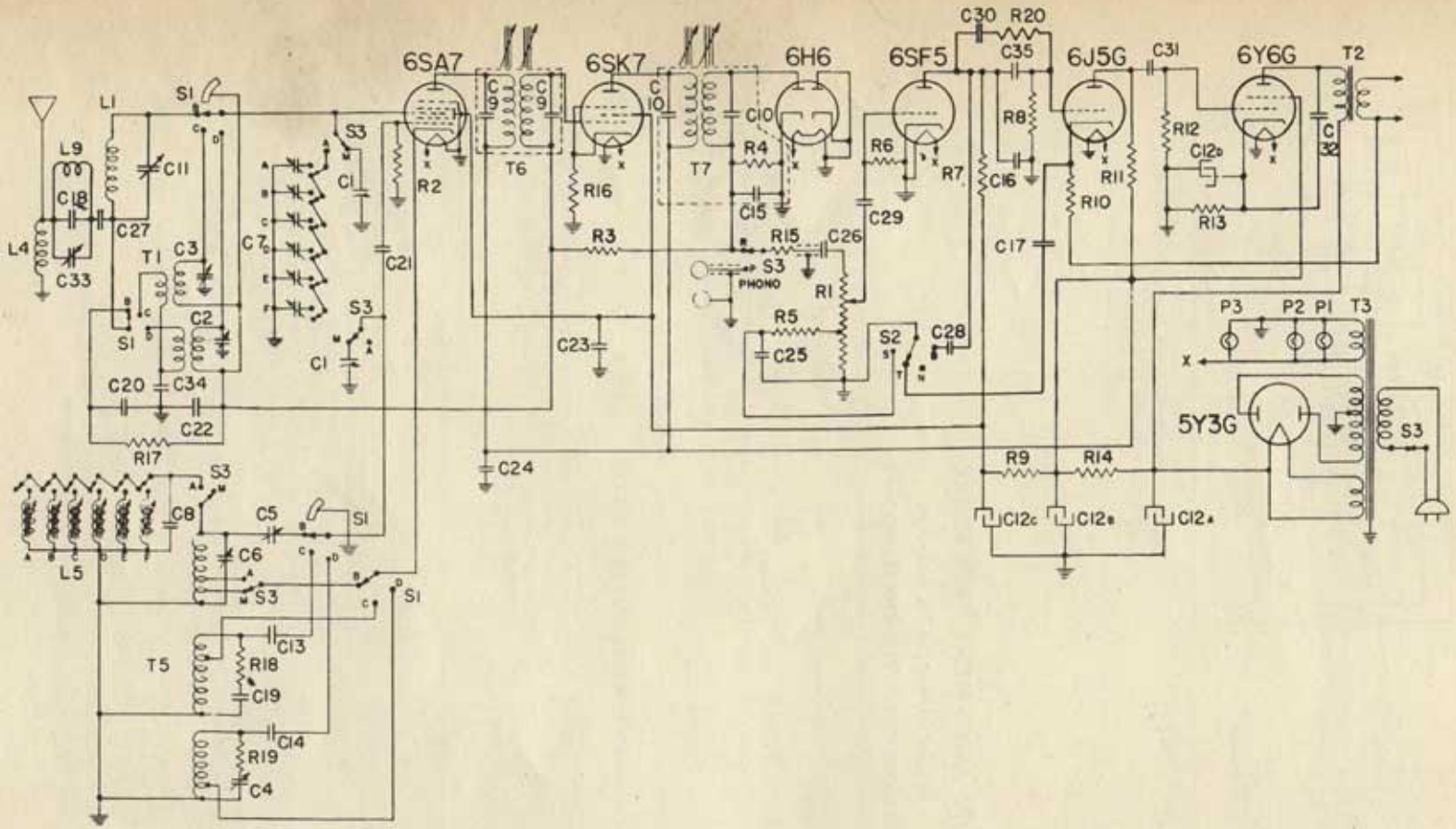
Band Switch Setting	Input Freq.	Point of Input	Dummy Antenna	Trimmer	Comments
1. Band "B"	455 K.C. Sweep	I.F. Grid	.05 Mfd. or Larger	2nd I.F. Sec. 2nd I.F. Pri. (T-7)	Gang condenser plates closed—"Manual" key depressed—connect audio input of oscilloscope to chassis and to junction of R-3 and R-15. Adjust trimmers in order mentioned for a single symmetrical curve of maximum amplitude.
2. Band "B"	455 K.C. Sweep	Converter Grid	.05 Mfd. or Larger	1st I.F. Sec. 1st I.F. Pri. (T-6)	

I. F. ALIGNMENT WITH OUTPUT METER

1. Band "B"	455 K.C. Sweep	I.F. Grid	.05 Mfd. or Larger	2nd I.F. Sec. 2nd I.F. Pri. (T-7)	Gang condenser plates closed—connect output meter across voice coil—keep input signal low and volume control on as far as possible. Adjust all trimmers for maximum output.
2. Band "B"	455 K.C. Sweep	Converter Grid	.05 Mfd. or Larger	1st I.F. Sec. 1st I.F. Pri. (T-6)	

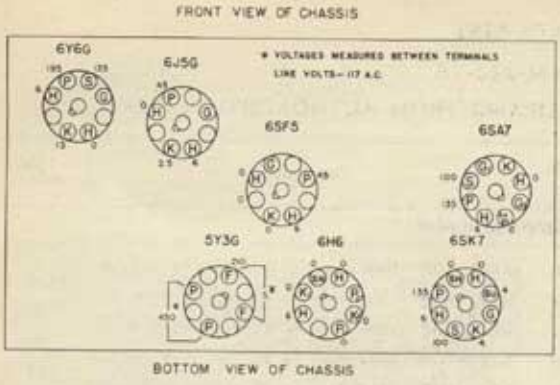
R. F. ALIGNMENT

1. Band "B"					Close gang plates—adjust pointer to first line at left end of tuning scale. Connect output meter across voice coil—tone control on "Bass" position.
2. Band "D"	21 M.C. with Modulation	Antenna Post	I.R.E.	Osc. (C-4) Ant. (C-2)	The image of any "D" band signal should be heard 910 K.C. below signal input when (C-4) is on proper peak. Example: 18 M.C. image, 17.09 M.C. Peak (C-2) while rocking the gang condenser.
3. Band "C"	6 M.C. with Modulation	Antenna Post	I.R.E.	Ant. (C-3)	Peak for maximum output with a low input signal.
4. Band "B"	1500 K.C. with Modulation	Antenna Post	I.R.E.	Osc. (C-6) Ant. (C-11)	Align (C-6) on 1500 K.C. and peak output with (C-11).
5. Band "B"	580 K.C. with Modulation	Antenna Post	I.R.E.	Osc. Padder (C-5)	Align for maximum output with a low input signal, rocking gang condenser.
6. Band "B"	1500 K.C. with Modulation	Antenna Post	I.R.E.	Osc. (C-6) Ant. (C-11)	Retrim at 1500 K.C.



SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
C-1	Tuning condenser	C-16	100 mmf. mica capacitor	L-5A	Touch Tuning trimmer coil (Code—Blue)	R-8	1.0 megohms carbon
C-2	"D" band antenna trimmer	C-17	.02 mfd. paper capacitor	L-5B	Touch Tuning trimmer coil (Code—Blue)	R-9	3,900 ohms carbon
C-3	"C" band antenna trimmer	C-18	1600 mmf. mica capacitor	L-5C	Touch Tuning trimmer coil (Code—Blue)	R-10	3,300 ohms carbon
C-4	"D" band oscillator trimmer	C-19	22 mmf. mica capacitor	L-5D	Touch Tuning trimmer coil (Code—Red)	R-11	100,000 ohms carbon
C-5	"B" band oscillator padder	C-20	4700 mmf. mica capacitor	L-5E	Touch Tuning trimmer coil (Code—Red)	R-12	330,000 ohms carbon
C-6	"B" band oscillator trimmer	C-21	50 mmf. mica capacitor	L-5F	Touch Tuning trimmer coil (Code—None)	R-13	220 ohms, 2 W. carbon
C-7A	100–490 mmf. trimmer	C-22	.05 mfd. paper capacitor			R-14	3,300 ohms, 2 W. carbon
C-7B	100–490 mmf. trimmer	C-23	.05 mfd. paper capacitor	P-1	Pilot lamp, MAZDA No. 44	R-15	47,000 ohms carbon
C-7C	100–490 mmf. trimmer	C-24	.05 mfd. paper capacitor	P-2	Pilot lamp, MAZDA No. 44	R-16	470 ohms carbon
C-7D	20–180 mmf. trimmer	C-25	.02 mfd. paper capacitor	P-3	Pilot lamp, MAZDA No. 44	R-17	47,000 ohms carbon
C-7E	20–180 mmf. trimmer	C-26	.005 mfd. paper capacitor	R-1	Volume Control, 2 megohms	R-18	150 ohms carbon
C-7F	7–65 mmf. trimmer	C-27	0.1 mfd. paper capacitor	R-2	22,000 ohms carbon	R-19	68 ohms carbon
C-8	750 mmf. silvered mica capacitor	C-28	.002 mfd. paper capacitor	R-3	2.2 megohms carbon	R-20	470,000 ohms carbon
C-9	Adjusted silvered mica capacitors	C-29	.01 mfd. paper capacitor	R-4	470,000 ohms carbon	S-1	Band switch
C-10	Adjusted silvered mica capacitors	C-30	.005 mfd. paper capacitor	R-5	56,000 ohms carbon	S-2	Tone switch
C-11	"B" band antenna trimmer	C-31	.02 mfd. paper capacitor	R-6	15 megohms carbon	T-1	"C" and "D" band antenna transformer
C-12a	40 mfd. dry electrolytic	C-32	.03 mfd. paper capacitor	R-7	220,000 ohms carbon	T-2	Output transformer
C-12b	20 mfd. dry electrolytic	C-33	Wave trap trimmer			T-3	Power transformer, 60 cycles
C-12c	20 mfd. dry electrolytic	C-34	.05 mfd. paper capacitor			T-5	Oscillator transformer for all bands
C-12d	20 mfd. dry electrolytic	C-35	.001 mfd. paper capacitor			T-6	1st I.F. transformer
C-13	2000 mmf. mica capacitor	L-1	"B" antenna coil			T-7	2nd I.F. transformer
C-14	5600 mmf. mica capacitor	L-4	Antenna choke				
C-15	100 mmf. mica capacitor						

Fig. 12. Radio Schematic Diagram
(Model HM-226-7A only)



VOLTAGES MEASURED BETWEEN SOCKET TERMINALS AND CHASSIS.
Band "B." No signal input. Max. volume.

Fig. 13. Radio Chassis Socket Voltages

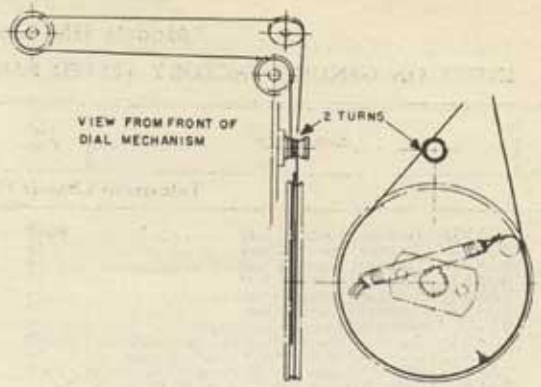


Fig. 14. Dial Drive Stringing Diagram

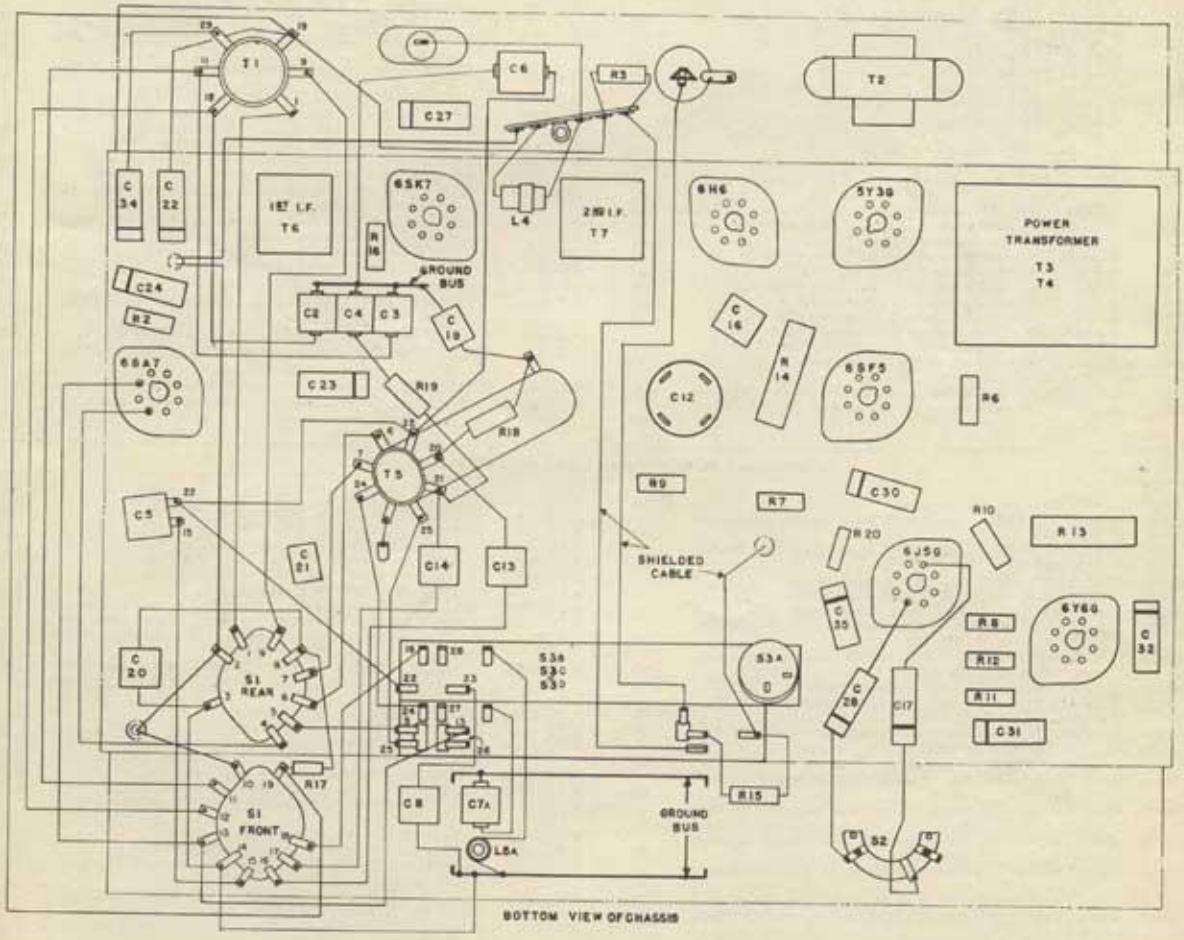


Fig. 15. Radio Chassis Parts Layout
(Model HM-226-7A only)

REPLACEMENT PARTS LIST

Models HM-225 and HM-226-7A

INSIST ON GENUINE FACTORY TESTED PARTS AVAILABLE FROM AUTHORIZED DEALERS

Television Chassis Parts Common to Radio

Stock No.	Description	List Price
*RB-008	BOARD—Terminal board (2 lug)	$0.10
*RB-013	BOARD—Terminal board (2 lug)	.10
RB-023	BOARD—Terminal board (4 lug)	.10
*RB-058	BOARD—Terminal board (8 lug)	.10
*RB-060	BOARD—Ant. gnd. terminal board	.10
*RB-096	BOARD—Terminal board (3 lug)	.10
*RB-621	BEZEL—Pilot light bezel	.20
RB-1026	BOARD—Terminal board (2 lugs and 2 anchor lugs)	.05
RC-007	CAPACITOR—.001 mfd. 1500 V. paper (C-32)	.15
*RC-011	CAPACITOR—.002 mfd. 600 V. paper (C-60)	.25
*RC-023	CAPACITOR—.005 mfd. 600 V. paper (C-12, 14, 21, 22, 23, 24, 26, 28, 31, 32, 35, 37, 38, 40, 41, 43, 45, 46, 79)	.25
*RC-039	CAPACITOR—.01 mfd. 600 V. paper (C-74, 85, 86)	.25
*RC-048	CAPACITOR—.02 mfd. 600 V. paper (C-34, 67, 69, 70)	.30
RC-090	CAPACITOR—.04 mfd. 600 V. paper (C-56)	.30
*RC-092	CAPACITOR—.05 mfd. 600 V. paper (C-29, 44, 49, 53, 59, 66)	.30
*RC-096	CAPACITOR—0.1 mfd. 200 V. paper (C-25)	.30
*RC-123	CAPACITOR—0.1 mfd. 400 V. paper (C-51, 57)	.35
*RC-147	CAPACITOR—.25 mfd. 400 V. paper (C-87)	.20
*RC-156	CAPACITOR—0.5 mfd. 100 V. paper (C-48, 71, 73)	.45
*RC-202	CAPACITOR—4 mmf. mica L.P.F. (C-16)	.25
*RC-226	CAPACITOR—10 mmf. mica (C-50)	.25
RC-233	CAPACITOR—22 mmf. mica (C-52)	.25
RC-241	CAPACITOR—33 mmf. mica L.P.F. (C-15, 36)	.20
*RC-242	CAPACITOR—150 mmf. mica (C-27, 47)	.25
RC-243	CAPACITOR—150 mmf. mica L.P.F. (C-18, 58)	.15
RC-251	CAPACITOR—220 mmf. mica L.P.F. (C-63)	.10
RC-269	CAPACITOR—330 mmf. mica L.P.F. (C-30, 82)	.20
RC-293	CAPACITOR—470 mmf. mica (C-61)	.30
RC-314	CAPACITOR—47 mmf. mica L.P.F. (C-1, 13)	.20
RC-316	CAPACITOR—56 mmf. mica L.P.F. (C-33)	.10
RC-318	CAPACITOR—82 mmf. mica L.P.F. (C-7, 11)	.15
*RC-429	CAPACITOR—30 mfd. 450 V. wet electrolytic (C-64, 68, 75, 76, 80)	1.35
RC-698	CAPACITOR—Coupling padder (C-2)	.40
RC-1995	CLAMP—Ant. transformer clamp (Pkg. 5)	.10
RC-9016	CONE ASSEMBLY—12 inch P.M. speaker cone assembly	2.20
*RG-016	GRID CLIP—6PSG control grid clip (Pkg. 5)	.19
RK-044	KNOB—Control knob and spring assembly (Pkg. 2)	.40
*RL-359	CHOKE—Filter choke (L-25)	1.50
RP-129	BOARD—Speaker plug terminal board (Pkg. 2)	.10
RQ-640	RESISTOR—240 ohms 2 W. carbon ±5% (R-71)	.25
*RQ-643	RESISTOR—270 ohms 2 W. carbon (R-35, 106)	.30
RQ-650	RESISTOR—820 ohms 2 W. carbon (R-50)	.15
*RQ-687	RESISTOR—15,000 ohms 2 W. carbon (R-46)	.35
RQ-694	RESISTOR—33,000 ohms 2 W. carbon (R-90, 104)	.15
*RQ-1215	RESISTOR—15 ohms ½ W. carbon (R-29) (Pkg. 5)	.70
*RQ-1241	RESISTOR—180 ohms ½ W. carbon (R-38, 108) (Pkg. 5)	.70
*RQ-1247	RESISTOR—330 ohms ½ W. carbon (R-89) (Pkg. 5)	.70
*RQ-1251	RESISTOR—470 ohms ½ W. carbon (R-40) (Pkg. 5)	.70
*RQ-1259	RESISTOR—1000 ohms ½ W. carbon (R-1, 7, 56, 73) (Pkg. 5)	$0.70
*RQ-1263	RESISTOR—1500 ohms ½ W. carbon (R-19, 33) (Pkg. 5)	.70
*RQ-1267	RESISTOR—2200 ohms ½ W. carbon (R-2, 9, 15, 17, 20, 25, 31, 36, 37, 39) (Pkg. 5)	.70
*RQ-1269	RESISTOR—2700 ohms ½ W. carbon (R-21, 27) (Pkg. 5)	.70
*RQ-1271	RESISTOR—3300 ohms ½ W. carbon (R-30, 43) (Pkg. 5)	.70
*RQ-1275	RESISTOR—4700 ohms ½ W. carbon (R-48) (Pkg. 5)	.70
*RQ-1279	RESISTOR—6800 ohms ½ W. carbon (R-32, 96) (Pkg. 5)	.70
*RQ-1283	RESISTOR—10,000 ohms ½ W. carbon (R-26, 42, 47, 58, 98, 107) (Pkg. 5)	.70
*RQ-1293	RESISTOR—27,000 ohms ½ W. carbon (R-5, 41) (Pkg. 5)	.70
*RQ-1299	RESISTOR—47,000 ohms ½ W. carbon (R-4, 12, 28, 54) (Pkg. 5)	.70
*RQ-1307	RESISTOR—100,000 ohms ½ W. carbon (R-8, 14, 102) (Pkg. 5)	.70
*RQ-1313	RESISTOR—180,000 ohms ½ W. carbon (R-13) (Pkg. 5)	.70
*RQ-1315	RESISTOR—220,000 ohms ½ W. carbon (R-11, 44, 61, 62, 63, 64, 68, 78, 87) (Pkg. 5)	.70
*RQ-1323	RESISTOR—470,000 ohms ½ W. carbon (R-49, 72, 92, 105) (Pkg. 5)	.70
*RQ-1331	RESISTOR—1.0 megohm ½ W. carbon (R-6, 10, 34, 45, 55) (Pkg. 5)	.70
*RQ-1339	RESISTOR—2.2 megohms ½ W. carbon (R-57, 95) (Pkg. 5)	.70
*RQ-1355	RESISTOR—10 megohms ½ W. carbon (R-94) (Pkg. 5)	.70
RQ-1457	RESISTOR—820 ohms 1 W. carbon (R-66)	.10
*RQ-1483	RESISTOR—10,000 ohms 1 W. carbon (R-3, 24, 74)	.20
*RQ-1491	RESISTOR—22,000 ohms 1 W. carbon (R-97)	.20
*RQ-1497	RESISTOR—39,000 ohms 1 W. carbon (R-93)	.20
RQ-1510	RESISTOR—100,000 ohms 1 W. carbon (R-103)	.10
RQ-1520	RESISTOR—470,000 ohms 1 W. carbon (R-80)	.10
RQ-1530	RESISTOR—2.2 megohms 1 W. carbon (R-22, 81, 82, 83, 84, 85, 86)	.10
*RS-217	SOCKET—879—2 X 2 tube socket (Pkg. 5)	.50
RS-252	SOCKET—Octal tube socket	.15
RS-257	SOCKET—Electrolytic mounting socket	.05
RS-267	SOCKET—Pilot light socket	.30
RS-1023	SPEAKER—12 inch P.M. Speaker	9.10
RT-954	TERMINAL—Speaker lead contact terminal (Pkg. 10)	.10
*RW-101	WASHER—Felt washer for control knob (Pkg. 10)	.05
RW-112	WASHER—I.F. tuning shaft tension washer (Pkg. 10)	.10
*RX-030	ASSEMBLY—Speaker mounting assembly	.10
RX-063	ASSEMBLY—Electrolytic mounting assembly (washers and pal nuts)	.20

Television Chassis Parts Used in Television Only

RTB-500	KEY—Station selector key	$0.15
RTB-1502	BACK COVER—Cardboard back cover for model HM-225	.85
RTB-1503	BACK COVER—Cardboard back cover for model HM-226-7A	.95
RTB-2001	BUSHING—R.F. coil tuning bushing	.10
RTB-2500	BRACKET—Right R.F. unit support assembly	
RTB-2501	BRACKET—Left R.F. unit support assembly	
RTC-1002	TRIMMER STRIP—Front station selector trimmer strip (C-8, 9, 10, 19, 20)	.80
RTC-1003	TRIMMER STRIP—Top station selector trimmer strip (C-3, 4, 5, 83, 84)	.85
RTC-2000	CAPACITOR—.06 mfd. 4000 V. paper (C-77, 78)	2.80
RTC-3000	CAPACITOR—20 mfd. 25 V. 40 mfd. 450 V. dry electrolytic (C-39, 72)	1.75
RTC-3001	CAPACITOR—40 mfd. 25 V. dry electrolytic (C-62)	.60
RTC-3002	CAPACITOR—10 mfd. 450 V., 5 mfd. 450 V., 20 mfd. 450 V. dry electrolytic (C-6, 54, 55, 65, 81)	1.80
RTC-5005	CONTROL—100,000 ohms horizontal speed control (R-69)	.60
RTC-5007	CONTROL—2.0 megohms vertical linearity or size control (R-53, 65)	.75
RTC-5009	CONTROL—500,000 ohms vertical speed control (R-79)	.60
RTC-5011	CONTROL—10,000 ohms brightness or contrast control (R-52, 67)	.70
RTC-5012	CONTROL—200 ohms 2 W. focus control (R-75)	1.00
RTC-5013	CONTROL—1000 ohms horizontal linearity control (R-91)	.70
RTC-5014	CONTROL—0.5 megohm volume or tone control (R-16, 23)	.60
RTC-5015	CONTROL—Tuning control (C-17)	2.10
RTC-5025	CONTROL—1000 ohm horizontal size control (R-60)	.75
RTC-6000	CARD—Station No. 1 tab card (Pkg. 10)	$0.05
RTC-6001	CARD—Station No. 2 tab card (Pkg. 10)	.05
RTC-6002	CARD—Station No. 3 tab card (Pkg. 10)	.05
RTC-6003	CARD—Station No. 4 tab card (Pkg. 10)	.05
RTC-6004	CARD—Station No. 5 tab card (Pkg. 10)	.05
RTC-6005	CARD—Station "Off" tab card (Pkg. 10)	.05
RTC-7000	CORD—Power cord assembly	1.80
RTC-7002	CABLE—Kinescope cable assembly on power chassis	1.25
RTC-7003	CABLE—Interconnecting power cable assembly (First hole from rear on right side of receiver chassis)	1.00
RTC-7004	CABLE—Interconnecting power cable assembly (Second hole from rear on right side of receiver chassis)	1.00
RTC-8002	CLAMP—Picture tube clamp	.20
RTC-8003	CLAMP—Deflection yoke clamp	.20
RTC-8004	CLAMP—Dry electrolytic mounting clamp (.06 mfd. 4,000 V.)	.20
RTC-8005	CUSHION—9-inch picture tube cushion	2.10
RTC-8006	CUSHION—12-inch picture tube cushion	2.40
RTE-101	ESCUTCHEON—Television station selector escutcheon	
RTG-101	GRID CLIP—6AL6G control grid clip	.35
RTG-102	GRID CAP—High voltage rectifier grid cap	2.00
RTG-202	GROMMET—Receiver chassis grommets (¾ inch dia. black)	.05
RTG-203	GROMMET—Power chassis grommet (1 inch dia.)	.05
RTG-300	GUIDE—Screwdriver guide on focus coil assembly	.05
RTI-001	INSULATOR—High voltage rectifier socket mounting board	.90
RTI-002	INSULATOR—Television station trimmer strip mounting insulator board	.05
RTI-003	INSULATOR—Stand off insulator	

* Used on previous radio receivers.

(Prices Subject to Change without Notice)

REPLACEMENT PARTS LIST (Cont.)

Models HM-225 and HM-226-7A

INSIST ON GENUINE FACTORY TESTED PARTS AVAILABLE FROM AUTHORIZED DEALERS

Television Chassis Parts Used in Television Only (Continued)

Stock No.	Description	List Price
RTL-1003	COIL—RF coil band No. 1 (L-5)	$0.30
RTL-1004	COIL—RF coil band No. 2 (L-6)	.30
RTL-1005	COIL—RF coil band No. 3 (L-7)	.30
RTL-1006	COIL—RF coil band No. 4 (L-8)	.30
RTL-1007	COIL—RF coil band No. 5 (L-9)	.30
RTL-2002	COIL—Converter-oscillator plate coil (1⅓ turn) (T-15)	.30
RTL-2003	COIL—Converter-oscillator grid coil (1 turn) (T-15)	.30
RTL-3003	COIL—Oscillator tuning coil band No. 1 (L-10)	.30
RTL-3004	COIL—Oscillator tuning coil band No. 2 (L-11)	.30
RTL-3005	COIL—Oscillator tuning coil band No. 3 (L-12)	.30
RTL-3006	COIL—Oscillator tuning coil band No. 4 (L-13)	.30
RTL-3007	COIL—Oscillator tuning coil band No. 5 (L-14)	.30
RTL-4004	CHOKE—Video choke (L-19)	.75
RTL-4005	CHOKE—Video choke (L-22)	.75
RTL-4006	CHOKE—Video cathode choke (L-18)	.95
RTL-4007	CHOKE—Video diode choke (L-16, 17)	.75
RTL-5500	COIL—Focusing coil (L-24)	5.10
RTL-6000	YOKE—Deflection yoke (L-23)	12.00
RTN-001	NUT—Pal nut for all controls (Pkg. 5)	.10
RTP-001	PLUG—Female single slot plug on television chassis	.20
RTP-002	PLUG—Male plug on deflection yoke and focus cable	.40
RTQ-1003	RESISTOR—400 ohms damping (R-100)	1.00
RTQ-1004	RESISTOR—400 ohms 17.9 W. wire wound (R-70)	.85
RTQ-1005	RESISTOR—150 ohms 7.4 W. wire wound (R-18)	.55
RTQ-1006	RESISTOR—700 ohms 7.4 W. wire wound (R-77, 99)	.55
RTQ-1007	RESISTOR—1,500 ohms, 6 W.; 150 ohms, 9 W. wire wound (R-59, 101)	.85
RTQ-2010	RESISTOR—33 ohms 1 W. wire wound (R-88)	.40
RTR-001	RING—Picture tube support ring	.80
RTS-100	SOCKET—Power chassis power receptacle	1.00
RTS-102	SOCKET—Power fuse socket	
RTS-103	SOCKET—6 prong connector socket	.15
RTS-301	SHAFT—R.F. coil tuning core shaft	.15
RTS-501	SWITCH—Station selector switch	4.65
RTS-702	STUD—Focus coil adjustment stud	.15
RTS-703	SLEEVE—Picture tube rubber sleeve	.20
RTS-704	SCREW—Thumb screw for mounting picture tube bracket (Pkg. 2)	.10
RTS-705	SHIELD—Back cover tube projection shield for model HM-226-7A	$0.40
RTS-800	SPRING—Picture tube support ajustment spring (Pkg. 5)	.10
RTT-0220	TRANSFORMER—High voltage power transformer (T-14)	17.70
RTT-0221	TRANSFORMER—Low voltage power transformer (T-13)	29.95
RTT-2000	TRANSFORMER—Antenna transformer (T-1)	1.00
RTT-3001	TRANSFORMER—1st video I.F. transformer (T-11)	4.15
RTT-3501	TRANSFORMER—2nd video I.F. transformer (T-6)	6.70
RTT-4001	TRANSFORMER—3rd video I.F. transformer (T-7)	6.70
RTT-4501	TRANSFORMER—4th video I.F. transformer (T-8)	4.15
RTT-5001	TRANSFORMER—5th video I.F. transformer (T-9)	4.15
RTT-6500	TRANSFORMER—Horizontal output transformer (T-12)	15.40
RTT-6750	TRANSFORMER—Vertical output transformer (T-16)	6.00
RTT-7001	TRANSFORMER—1st audio I.F. transformer (T-2)	4.15
RTT-7501	TRANSFORMER—2nd audio I.F. transformer (T-3)	4.15
RTT-8001	TRANSFORMER—3rd audio I.F. transformer (T-4)	4.15
RTT-9000	TRANSFORMER—Vertical oscillator transformer (T-10)	2.80
RTT-9500	TRANSFORMER—Audio output transformer (T-5)	3.25
RTW-501	WINDOW—Station letter window (Pkg. 5)	.05
RTW-503	WINDOW—Safety glass window for Model HM-225	4.30
RTW-504	WINDOW—Safety glass window for Model HM-226-7A	3.50
RTX-1001	ASSEMBLY—Wave trap assembly (L-1, 2, 3, 4, C-1, 7, 11, 13)	.80
RTX-1003	ASSEMBLY—Wave trap assembly (L-15, C-88)	.20
RTX-2000	ASSEMBLY—Chassis mounting assembly	

RADIO CHASSIS PARTS
(Model HM-226-7A Radio)

*RB-008	BOARD—Terminal board (2 lug)	$0.10
*RB-009	BOARD—Terminal board (1 lug)	.15
*RB-026	BOARD—Antenna terminal board	.10
*RB-046	BOARD—Terminal board (5 lug)	.15
*RB-096	BOARD—Terminal board (3 lug)	.10
RB-098	BOARD—Ant. gnd. terminal board	.10
RB-625	BUSHING—Tuning control shaft bushing	.10
RB-1009	BOARD—Phono terminal board	.10
*RC-009	CAPACITOR—.001 mfd. 600 V. paper (C-35)	.30
RC-016	CAPACITOR—.002 mfd. 600 V. paper (C-28)	.25
*RC-023	CAPACITOR—.005 mfd. 600 V. paper (C-26, 30)	.25
*RC-039	CAPACITOR—.01 mfd. 600 V. paper (C-29)	.25
*RC-048	CAPACITOR—.02 mfd. 600 V. paper (C-17, 25, 31)	.30
*RC-060	CAPACITOR—.03 mfd. 600 V. paper (C-32)	.25
*RC-092	CAPACITOR—.05 mfd. 600 V. paper (C-22, 23, 24, 34)	.30
*RC-096	CAPACITOR—0.1 mfd. 200 V. paper (C-27)	.30
*RC-206	CAPACITOR—50 mmf. wax treated mica (C-21)	.35
RC-233	CAPACITOR—22 mmf. mica (C-19)	.25
*RC-235	CAPACITOR—100 mmf. mica (C-15, 16)	.25
RC-307	CAPACITOR—750 mmf. silvered mica (C-8)	.40
RC-337	CAPACITOR—1,600 mmf. mica ±5% (C-18)	.25
RC-358	CAPACITOR—2,000 mmf. mica ±5% (C-13)	.30
RC-394	CAPACITOR—4,700 mmf. mica ±5% (C-20)	.40
RC-396	CAPACITOR—5,600 mmf. mica ±5% (C-14)	.45
RC-875	CABLE—Power cable	.40
RC-1987	CLAMP—Oscillator and antenna coil clamp (Pkg. 2)	.05
RC-1989	CUSHION—Condenser cushion (Pkg. 5)	.05
RC-5130	CAPACITOR—40 mfd. 300 V.; 20 mfd. 300 V., 20 mfd. 300 V.; 20 mfd. 25 V. dry electrolytic (C-12a, 12b, 12c, 12d)	2.10
RC-6509	CAPACITOR—B band padder (C-5)	.35
RC-6510	CAPACITOR—B band oscillator trimmer (C-6)	.20
RC-6523	CAPACITOR—B band antenna trimmer (C-11)	.15
RC-6524	CAPACITOR—Wave trap trimmer (C-33)	.20
RC-7011	CONDENSER—Tuning condenser (C-1a, 1b)	2.15
RC-8125	CABLE—Condenser drive cable assembly	.20
RC-8141	CABLE—Power cable to radio (Power chassis end)	.60
RC-8500	CARD—Station letter cards (1 set)	.20
RC-8505	CARD—Key manual tab card (Pkg. 10)	.05
RC-8507	CARD—Key off tab card (Pkg. 10)	.05
RC-8512	CARD—Key phono tab card (Pkg. 10)	.05
RD-135	DIAL—Radio dial	
RD-407	DRUM—Condenser drive drum assembly	.40
RE-204	ESCUTCHEON—Station key escutcheon	2.40
RE-205	ESCUTCHEON—Tuning and volume escutcheon	
RH-006	HAIRPIN COTTER—Tuning drive shaft hairpin cotter (Pkg. 10)	.10
RK-044	KNOB—Radio control knob (Pkg. 2)	$0.40
RK-204	KEY—Station key	.10
RL-083	COIL—C and D band antenna coil (T-1)	.85
RL-096	COIL—B band antenna coil (L-1)	
RL-287	COIL—Oscillator coil (T-5)	1.15
RL-345	CHOKE—Antenna choke (L-4)	.30
RL-606	COIL—Wave trap coil (L-9)	
RL-9510	COIL—Station selector coil assembly (L-5)	1.80
RM-501	MASK—Dial scale mask (Pkg. 10)	.05
RP-127	POINTER—Dial pointer assembly (Pkg. 5)	.25
*RP-303	PULLEY—Pulley and C clip (Pkg. 2)	.10
RQ-642	RESISTOR—220 ohms 2 W. carbon (R-13)	.20
RQ-670	RESISTOR—3,300 ohms 2 W. carbon (R-14)	.35
*RQ-1231	RESISTOR—68 ohms ½ W. carbon (R-19) (Pkg. 5)	.70
*RQ-1239	RESISTOR—150 ohms ½ W. carbon (R-18) (Pkg. 5)	.70
*RQ-1251	RESISTOR—470 ohms ½ W. carbon (R-16) (Pkg. 5)	.70
*RQ-1271	RESISTOR—3,300 ohms ½ W. carbon (R-10) (Pkg. 5)	.70
*RQ-1273	RESISTOR—3,900 ohms ½ W. carbon (R-9) (Pkg. 5)	.70
*RQ-1291	RESISTOR—22,000 ohms ½ W. carbon (R-2) (Pkg. 5)	.70
*RQ-1299	RESISTOR—47,000 ohms ½ W. carbon (R-15, 17) (Pkg. 5)	.70
*RQ-1301	RESISTOR—56,000 ohms ½ W. carbon (R-5) (Pkg. 5)	.70
*RQ-1307	RESISTOR—100,000 ohms ½ W. carbon (R-11) (Pkg. 5)	.70
*RQ-1315	RESISTOR—220,000 ohms ½ W. carbon (R-7) (Pkg. 5)	.70
*RQ-1319	RESISTOR—330,000 ohms ½ W. carbon (R-12) (Pkg. 5)	.70
*RQ-1323	RESISTOR—470,000 ohms ½ W. carbon (R-4, 20) (Pkg. 5)	.70
*RQ-1331	RESISTOR—1.0 megohm ½ W. carbon (R-8) (Pkg. 5)	.70
RQ-1339	RESISTOR—2.2 megohms ½ W. carbon (R-3) (Pkg. 5)	.70
*RQ-1365	RESISTOR—15 megohms ½ W. carbon (R-6) (Pkg. 5)	.70
*RS-236	SOCKET—Radio dial light socket	.10
RS-252	SOCKET—Octal tube socket	.15
RS-253	SOCKET—Electrolytic mounting socket	.10
RS-268	SOCKET—Bezel pilot lamp socket	.35
*RS-401	SPRING—Drive cord spring (Pkg. 2)	.20
RS-924	SHAFT—Tuning control shaft	.10

* Used on previous radio receivers.

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REPLACEMENT PARTS LIST (Cont.)

Models HM-225 and HM-226-7A

INSIST ON GENUINE FACTORY TESTED PARTS AVAILABLE FROM AUTHORIZED DEALERS

Stock No.	Description	List Price	Stock No.	Description	List Price
	RADIO CHASSIS PARTS (Model HM-226-7A Radio) (Continued)				
RS-3022	SWITCH—Station selector switch (S-3)	$7.60	RT-862	TRIMMER STRIP—Station selector trimmer strip (C-7a, 7b, 7c, 7d, 7e, 7f)	$1.20
RS-3047	SWITCH—Tone control switch (S-2)	.40	RT-863	TRIMMER STRIP—D and C antenna trimmers, D oscillator trimmer (C-2, 3, 4)	.45
RS-3048	SWITCH—Band change switch (S-1)	1.00	*RT-952	TERMINAL—Speaker lead terminal (Pkg. 10)	.05
RT-0520	TRANSFORMER—60 cycle power transformer (T-3)	4.35	RV-067	VOLUME CONTROL—2 megohm volume control (R-1)	.65
RT-313	TRANSFORMER—1st I.F. transformer (T-6)	1.70	*RW-101	WASHER—Knob felt washer (Pkg. 10)	.05
RT-314	TRANSFORMER—2nd I.F. transformer (T-7)	1.90	RW-908	WHEEL—Dial tuning volume wheel	.30
RT-462	TRANSFORMER—Output transformer (T-2)	1.40			

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