Model 90

SERVICE NOTES RLS-275-1

GENERAL ELECTRIC

Musaphonic

COMBINATION

TELEVISION & RADIO RECEIVER

MODEL 90

IMPORTANT - CAUTIONARY INSTRUCTIONS

Extremely high voltages (6500 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, be sure to remove the high voltage power supply fuse before working on the receiver with the back cover removed. All adjustments not accessible with the back cover in place can be made without energizing the high-voltage circuits.

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

The "picture tube" is highly evacuated and is consequently subject to a very great external 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.

TELEVISION RECEIVER SERVICE INFORMATION

SPECIFICATIONS

OVERALL DIMENSIONS

Height	38-1/2 inches
Width	42 inches
Depth	20-3/8 inches

ELECTRICAL SPECIFICATIONS

Voltage	115-125 volts
Frequency	60 cycles
Power Consumption - Radio	125 watts
Power Consumption - Television	315 watts

TUNING FREQUENCY RANGE

A. Television Receiver

Band No. 1	50-56 MC
Band No. 2	60-66 MC
Band No. 3	66-72 MC
Band No. 4	78-84 MC
Band No. 5	84-90 MC

B. Radio Receiver

"BC" Band	540-1600 KC
"SW1" Band	1,600-5,800 KC
"SW2" Band	5,600-18,000 KC

INTERMEDIATE FREQUENCIES

Television Video	12.75 MC
Television Audio	8.25 MC
Radio	455 KC

MAXIMUM AUDIO OUTPUT ..... 10 watts

LOUDSPEAKER - "ALNICO" MAGNETIC DYNAMIC

Type Cone	Curvilinear
Cone Diameter	12-inches
Voice Coil Impedance (400 Cycles)	3.5 ohms

PICTURE SIZE

Height	7-1/2 inches
Width	10 inches

TUBES

A. Television Chassis

RF Amplifier	GE-6AC7
Converter	GE-6AC7
Oscillator	GE-6J5
1st Video & Audio IF Amplifier	GE-6AB7
2nd Video IF Amplifier	GE-6AB7
3rd & 4th IF Amplifiers (2)	GE-6AC7
Video Detector	GE-6H6
Video Driver	GE-6AC7
Video Output	GE-6L6
Sync. IF Amplifier	GE-6AB7
Sync. Detector	GE-6H6
Vertical Sync. Clipper	GE-6H6
Sync. Clipper Amplifier	GE-6AC7
Vertical Sync. Amplifier	GE-6P8G
Vertical Oscillator & Output	GE-6P8G
Horizontal Oscillator	GE-6P8G
Horizontal Output	GE-6L6
1st Audio IF Amplifier	GE-6SQ7
Audio IF Limiter	GE-6AC7
Discriminator, 1st Audio	GE-7K7
Audio Power Output	GE-6L6G
Low Voltage Rectifiers (2)	GE-5U4G
High Voltage Rectifiers (2)	GE-B79
Picture Tube	GE-12AP4

B. Radio Chassis

Converter - Oscillator	GE-6A8G
IF Amplifier	GE-6SK7
Audio Detector	GE-6R7

INSTALLATION AND OPERATION INSTRUCTIONS

Installation and operation instructions for the Model 90 television receiver are contained in the pamphlet which is included with the receiver.

ANTENNA

Antenna installation information is thoroughly covered in the above mentioned installation notes and in instructions which accompany the antenna. 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.

LOUDSPEAKER

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 CIRCUIT DESCRIPTION

RF AND CONVERTER UNIT

This section includes all of the circuits between the antenna posts and the output side of the 6AC7 converter tube. Starting at the antenna terminals is a balanced input wave trap consisting of two stages of high pass filter. The radio antenna input is tapped off at the center of the first wave trap coil. The RF is coupled from the wave trap to the 6AC7 amplifier through double-tuned circuits (one for each band). The 6AC7 converter tube is coupled to the 6AC7 RF amplifier through individual band-pass filters. Oscillator signals are injected into the converter tube at the same point as the RF signal is injected.

AUDIO CHANNEL

The audio channel is an FM 8.25 MC IF superheterodyne receiver with noise limiter and balanced discriminator. The first stage of the audio IF is included with the video IF amplifier which follows the converter tube. The output circuits are switched over for use with the radio receiver by means of a push button on the television control panel. Audio IF signals are diverted into the audio IF channel from the suppressor of the 6AB7 1st video and audio IF tube.

VIDEO SECTION

Four stages of video IF amplification follow the converter tube, the 1st stage being common to audio IF also. Wave traps are provided in interstage transformers T7 and T8 for attenuating 14.25 MC and 8.25 MC respectively. The video is detected in the 6H6 detector and is amplified and finally applied to the picture tube control grid. Contrast is controlled manually by varying the grid bias voltage of the 6AB7 and 6AC7 2nd and 3rd video IF tubes respectively.

SYNC IF AMPLIFIER

The video IF is amplified in another stage after the video signal has been taken off and is passed to the Type 6H6 sync detector tube.

SYNC PULSE CLIPPER

The Type 6H6 sync detector tube detects the amplified video IF signal and injects it into the 6AC7 Clipper which separates the video signals by tube cut-off.

HORIZONTAL OSCILLATOR-OUTPUT

The negative sync pulses are coupled to the horizontal multivibrator through a very small capacitor (C128) which blocks the vertical sync pulses and leaves only horizontal sync pulses. The sawtooth wave generated in the right hand section of the horizontal multivibrator is coupled to the 6L6 sweep output amplifier which produces a sawtooth current wave in the coils of the deflection yoke.

VERTICAL OSCILLATOR-OUTPUT

The sync pulses from the 6AC7 clipper are coupled into the left section of the 6P8G vertical sync amplifier tube. The tube acts as a low frequency amplifier thus presenting much more gain to vertical than to horizontal pulses. The resultant signal is fed into the 6H6 Clipper tube and the vertical pulses are separated from the horizontal. The vertical pulses are then amplified and injected into the vertical oscillator circuit. The vertical oscillator is of the blocking type transformer coupled. The generated sawtooth waves are amplified and transformer coupled to the vertical deflection coils of the picture tube.

LOW-VOLTAGE RECTIFIER

Two 5U4G rectifiers are necessary to supply plate current for the low voltage supply which includes the radio receiver. 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-46 is inserted in the plate lead for protection.

ALIGNMENT PROCEDURE-TELEVISION CHANNEL

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 9.0 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) 50 to 56 MC
    (b) 60 to 66 MC
    (c) 66 to 72 MC
    (d) 78 to 84 MC
    (e) 84 to 90 MC
  (3) Marker system either provided in sweep oscillator or from separate signal generator for locating R.F. 6 MC bandwidth points.

TABLE I — VIDEO I.F. AND SYNC I.F. ALIGNMENT

Input Freq.	Point of Input	Adjustments	Comments
1.			Connect vertical input cable of cathode ray oscilloscope across resistor R-58 of 6H6 video detector.
2. 7.5-15 MC Sweep	Control grid of 6AB7 (2nd video I.F.)		Connect low output of video IF sweep oscillator to control grid of 6AB7 (2nd video IF). Connect ground lead to chassis. Set horizontal centering and gain controls on oscilloscope to give suitable horizontal deflection. Adjust sweep phase to give curve similar to Fig. 1, curve 3 less markers.
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 9.0 MC	Same as in No. 2		Superimpose an accurately calibrated 9.0 MC signal in parallel with sweep signal. Mark screen at point where signal appears on curve as in No. 3.
5. 7.5-15 MC Sweep	Control grid of 6AC7 (4th video I.F.	Iron cores of detector transformer T-10.	Connect high tap of video I.F. sweep oscillator to control grid of 6AC7 (4th video I F.) (Do not touch horizontal controls of oscilloscope.) Turn sweep phase to give as near a single curve as possible. Adjust iron cores of T-10 until curve appears similar to Fig. 1, curve 1, with relatively flat top, 12.75 MC mark at one corner and 9.0 MC mark at corner of other side. These conditions plus maximum amplitude insure correct alignment.
6. 7.5-15 MC Sweep	Control grid of 6AC7 (3rd video I.F.)	Pri. & Sec. iron cores of 4th video transformer T-9.	Connect low tap of video I.F. sweep oscillator to control grid of 6AC7 (3rd video I.F.). Adjust iron cores for maximum gain, flatness and proper centering between markers as illustrated in fig. 1, curve 2. The response at the 12.75 MC marker point should be down very slightly.
7. 7.5-15 MC Sweep	Control grid of 6AC7 (2nd video I.F.)	Iron cores of 3rd video transformer T-8.	Connect low tap to grid. Adjust primary and secondary iron cores for maximum gain, flatness and proper centering. See Fig. 1, curve 2 The response at the 12.75 MC marker point should be down slightly more than in step #6.

TABLE III — SOUND IF ALIGNMENT

Input Freq.	Point of Input	Adjustments	Comments
1. 7.75 to 8.75 MC Sweep	Converter grid, 6AC7	Iron cores of 3rd audio IF transformer T-3	Superimpose an accurately calibrated 8.25 MC signal in parallel with the sweep signal. Connect the vertical input cable of the oscilloscope across resistor R14. Adjust iron cores of T-3 and T-2 for a maximum output, bandwidth and for the resultant curve shown in Fig. 1, curve 7. The 8.25 marker should appear as a wiggle in the middle of the curve.
2. 7.75 to 8.75 MC Sweep	Converter grid, 6AC7	Iron cores of 2nd audio IF transformer T-2	
3. 7.75 to 8.75 MC Sweep	Converter grid, 6AC7	Iron cores of 4th audio IF transformer T-4	Connect vertical input cable of oscilloscope across C-83, using an 8.25 MC signal for marker, align iron cores of T-4 for maximum gain and bandwidth and for curve shown in Fig. 1, curve 8

RADIO ALIGNMENT PROCEDURE

Depress "Broadcast" key on television control panel and "Manual" key on radio panel. Close gang condenser plates and adjust pointer to first line at front of tuning scale. Connect output meter across voice coil. See Fig. 7.

I.F. ALIGNMENT

Apply 455 KC modulated signal to converter grid through .05 mfd. capacitor. Keep input signal low and volume control on as far as possible. Adjust 2nd and 1st I. F. transformer trimmers for maximum output.

WAVE TRAP ALIGNMENT

Change signal input to antenna terminals and with 455 KC modulated signal input adjust C-704 for minimum output.

R.F. ALIGNMENT

Change signal to 18 MC with modulation. Align C-706 with pointer on 18 MC mark and band switch on "D" band. When C-706 is on proper peak the image of the 18 MC signal will be heard at 17.3 MC on the dial. Peak C-703 while rocking the gang condenser.

With 1500 KC signal input and band switch on "B" band align C-707 at 1500 KC and peak C-702 for maximum output.

Change signal to 580 KC and adjust C-710 for maximum output while rocking the gang condenser. Retrim at 1500 KC.

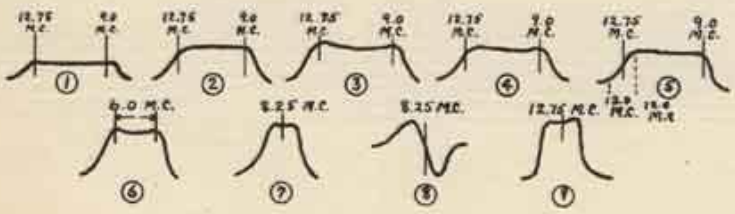


Fig. 1. Alignment Curves

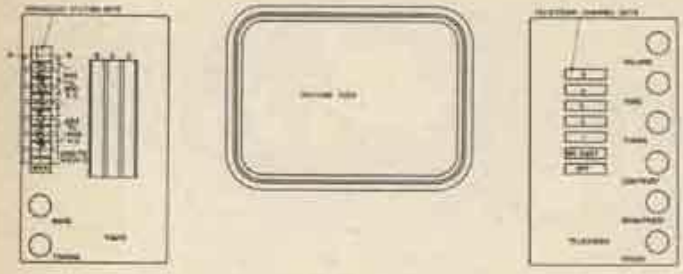


Fig. 2. Control Panel Layout

Fig. 3. Rear Cover Controls

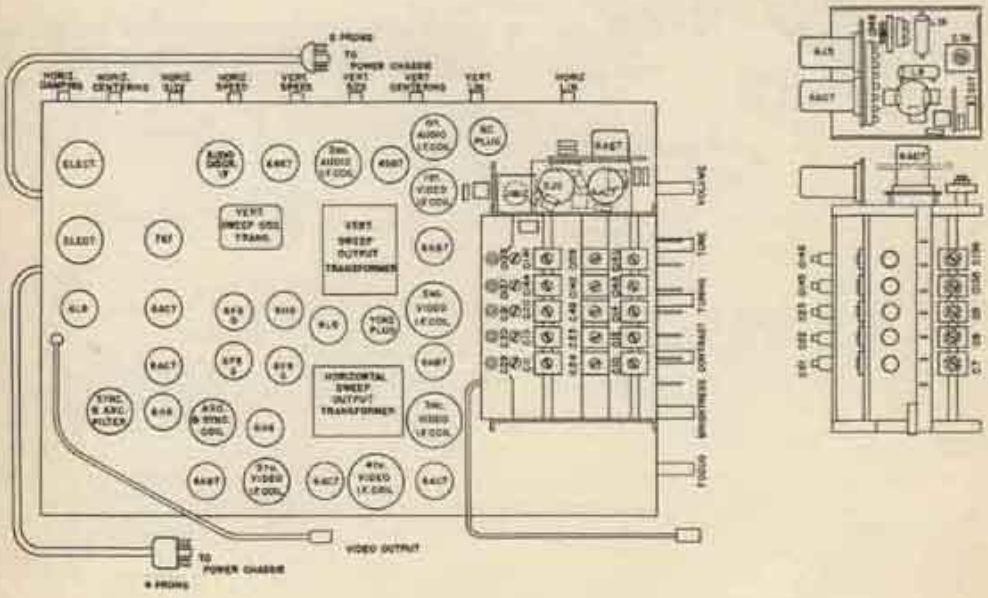


Fig. 4. Trimmer Location (Television Chassis)

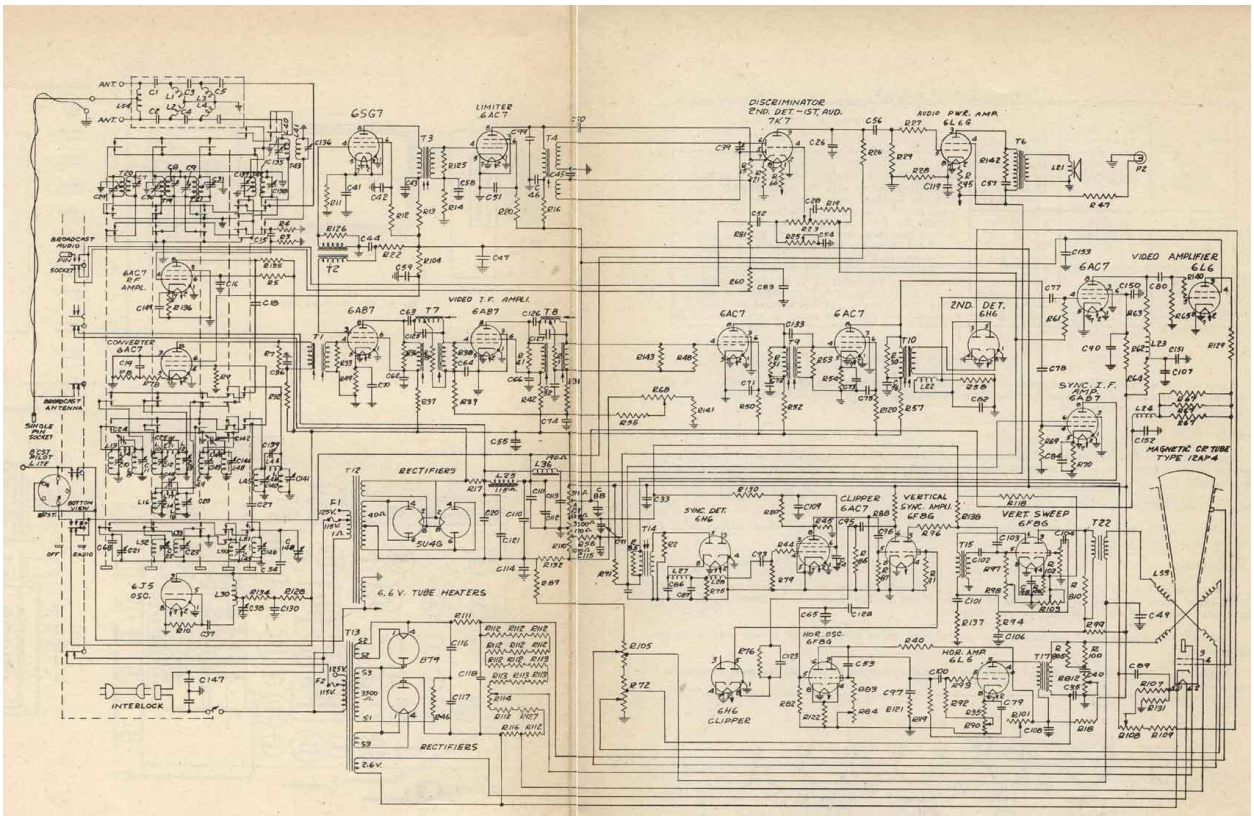


Fig. 5. Schematic Diagram (Television Chassis)

Symbol	Description
C1,2	300 mmf., mica
C3,4	47 mmf., mica
C5,6	100 mmf., mica
C7-C14	9-12 mmf., trimmer
C15,16	2200 mmf., mica
C18	3300 mmf., mica
C19	4700 mmf., mica
C20-C25	9-12 mmf., trimmer
C26	33 mmf., mica
C27	5 mmf., mica
C28	.01 mfd., paper
C29-C33	25-206 mmf., trimmer
C32	.05 mfd., paper
C35	.002 mfd., paper
C34	2200 mmf., mica
C35,36	4700 mmf., mica
C37	15 mmf., mica
C38	50-300 mmf., trimmer
C39	5-25 mmf., trimmer
C40	.05 mfd., paper
C41-C48	.02 mfd., paper
C45	220 mmf., mica
C46	.002 mfd., paper
C47	.01 mfd., paper
C48	9-12 mmf., trimmer
C49	4700 mmf., mica
C50,51	47 mmf., mica
C52	.02 mfd., paper
C53	150 mmf., mica
C54	.002 mfd., paper
C55,56	.05 mfd., paper
C57	.005 mfd., paper
C58	33 mmf., mica
C59	.002 mfd., paper
C62	.002 mfd., paper
C63	330 mmf., mica
C64	.002 mfd., paper
C65	820 mmf., mica
C66	.002 mfd., paper
C67	10 mmf., corsenlon
C68,69	5 mmf., corsenlon
C70-C73	.002 mfd., paper
C74	0.1 mfd., paper
C75,76	.002 mfd., paper
C77	1.0 mfd., paper
C78	47 mmf., mica
C79	.005 mfd., paper
C80	0.1 mfd., paper
C81	5 mfd., electrolytic
C82	10 mmf., mica
C83	220 mmf., mica
C84,85	.002 mfd., paper
C86	27 mmf., mica
C87	47 mmf., mica
C88	10 mfd., electrolytic (Combined with C90,C91)
C89	0.5 mfd., paper
C90,91	10 mfd., electrolytic (Combined with C88)
C92	.02 mfd., paper
C94	0.1 mfd., paper
C95	.001 mfd., paper
C96	470 mmf., mica
C97	150 mmf., mica
C98	10 mfd., electrolytic
C99	10 mmf., mica
C100	.25 mfd., paper
C101	0.1 mfd., paper
C102	.01 mfd., paper
C103	470 mfd., mica
C104	.25 mfd., paper
C106	10 mfd., electrolytic
C107	5 mfd., electrolytic
C108,109	10 mfd., electrolytic
C110-C115	35 mfd., electrolytic
C116,117	.05 mfd., paper
C118	.05 mfd., paper
C119	50 mfd., electrolytic
C120,121	16 mfd., electrolytic
C122	0.5 mfd., paper
C124	100 mmf., mica
C125	15 mmf., mica
C126	330 mmf., mica
C127	82 mmf., mica
C128	47 mmf., mica
C130	2000 mmf., mica
C131	5 mmf., corsenlon
C132	30-100 mmf., trimmer
C136	9-12 mmf., trimmer
C137	30-200 mmf., trimmer
C138-C146	9-12 mmf., trimmer
C147	.01 mfd., line capacitor
C148	RIP trimmer
C149	9700 gmf., mica
C150-C153	.1 mfd., paper
L1-L4	Wave trap coil
L20-L18	RF interstage coil
L20	Screen choke
L22	Video diode choke
L23	Video choke
L25	Filter choke
L27,28	Video choke (Combined with L26)
L30	Oscillator plate coil
L33	Oscillator coil
L36	Audio filter choke
L52	Oscillator coil
R1	5050 ohms, carbon
R2	10,000 ohm, carbon
R3	27,000 ohm, carbon
R4	7,250 ohm, carbon
R5	56,300 ohm, carbon
R6	1,900 ohm, carbon
R8	.180 ohm, carbon
R9	2,200 ohm, carbon
R10	27,000 ohm, carbon
R11	330 ohm, carbon
R12	56,000 ohm, carbon
R13	2,500 ohm, carbon
R14,15	130,000 ohm, carbon
R16	2,200 ohm, carbon
R17	500 ohm, wire wound
R18	290 ohm, carbon
R19	82,000 ohm, carbon
R20	47,000 ohm, carbon
R21	100,000 ohm, carbon
R22	10,000 ohm, carbon
R23	2.0 megohm, volume control
R24	0.5 megohm, tone control
R25	100,000 ohm, carbon
R27	1,000 ohm, carbon
R28	270 ohm, carbon
R29	220,000 ohm, carbon
R30	7,900 ohm, carbon
R32	1,000 ohm, carbon
R33	4,700 ohm, carbon
R34	100,000 ohm, carbon
R35	180 ohm, carbon
R36	1,300 ohm, carbon
R37	10,000 ohm, carbon
R38	3,900 ohm, carbon
R39	100,000 ohm, carbon
R40	120,000 ohm, carbon
R41	5,300 ohm, carbon
R42	10,000 ohm, carbon
R43	10,000 ohm, carbon
R44	100,000 ohm, carbon
R45	56,000 ohm, carbon
R47	33 ohm, carbon
R48	3,900 ohm, carbon
R49	100 ohm,carbon
R50	56,000 ohm, carbon
R51	3,300 ohm, carbon
R52	2,200 ohm, carbon
R53	1,900 ohm, carbon
R54	22 ohm, carbon
R55	470,000 ohm, carbon
R56	22,000 ohm, carbon
R57	2,200 ohm, carbon
R58	1,800 ohm, carbon
R59	56,000 ohm, carbon
R61	470,000 ohm, carbon
R62	56,000 ohm, carbon
R65	1,200 ohm, carbon
R64	4,700 ohm, carbon
R65	100,000 ohm, carbon
R66	1 ohm, wire wound
R67	4,700 ohm, carbon
R68	2,000 ohm contrast control
R69	5,300 ohm, carbon
R70	220 ohm, carbon
R71	5,600 ohm, carbon
R72	6 ohm, horiz. centering control
R73	3,300 ohm, carbon
R74	10,000 ohm, carbon
R75	1.0 megohm, carbon
R76	VT ohm, carbon
R78	3.3 megohm, carbon
R79	10,000 ohm, carbon
R80	68,000 ohm, carbon
R81	1,000 ohm, carbon
R82	56,000 ohm, carbon
R83	100,000 ohm, carbon
R84	15,000 ohm, carbon
R85	4,700 ohm, carbon
R86	100,000 ohm, carbon
R87	470,000 ohm, carbon
R88	100,000 ohm, carbon
R89	.68 ohm, wire wound
R90	400 ohm, horiz. linearity control
R91	1,000 ohm, carbon
R92	470,000 ohm, carbon
R93	470 ohm, carbon
R94	1.0 megohm, carbon
R95	.55 ohm, wire wound
R96	10,000 ohm, carbon
R97	470,000 ohm, carbon
R98	0.5 megohm, vert. sync control
R99	3,900 ohm, carbon
R100	700 ohm, wire wound
R101	0.5 megohm, horiz. size control
R102	2.0 megohm, vert. size control
R103	100,000 ohm, vert. linearity control
R104	56,000 ohm, carbon
R105	6 ohm, vert. centering control
R106	3,300 ohm, carbon
R107,108	130,000 ohm, carbon
R109	47,000 ohm, carbon
R110	1,095 ohm,120 ohm, 300 ohm bleeder resistor
R111	470,000 ohm, carbon
R112	390,000 ohm, carbon
R113	330,000 ohm, carbon
R114	390,000 ohm, carbon
R116	270,000 ohm, carbon
R118	56,000 ohm, carbon
R119	150,000 ohm, carbon
R120	68,000 ohm, carbon
R121	8,200 ohm, carbon
R122	1,000 ohm, carbon
R124	220,000 ohm, carbon
R125,126	82,000 ohm, carbon
R127	330,000 ohm, carbon
R128	1,000 ohm,carbon
R129	150 ohm, carbon
R130	100,000 ohm, carbon
R131	3.3 megohm, carbon
R132	330 ohm, carbon
R133	2,200 ohm, wire wound
R134	16,000 ohm, carbon
R135	2,700 ohm, carbon
R136	180 ohm, carbon
R137	3,900 ohm, carbon
R138	4,700 ohm, carbon
R140	150 ohm, carbon
R141	100 ohm, carbon
R142	8,200 ohm, carbon
R143	5,600 ohm, carbon
R805	3,300 ohm, carbon
R810	100,000 ohm, carbon
R811	400 ohm, horiz. damping control
T1	1st video and audio IF trans.
T2	2nd audio IF transformer
T3	3rd audio IF transformer
T4	Discriminator transformer
T5	Audio output transformer
T7	2nd video IF transformer
T8	3rd video IF transformer
T9	4th video IF transformer
T10	5th video IF transformer
T12	Low voltage power transformer
T13	High voltage power transformer
T14	AVC IF transformer
T15	Vertical oscillator trans.
T17	Horizontal output trans.
T18	Deflection yoke
T19-T21	Antenna transformer
T22	Vertical transformer

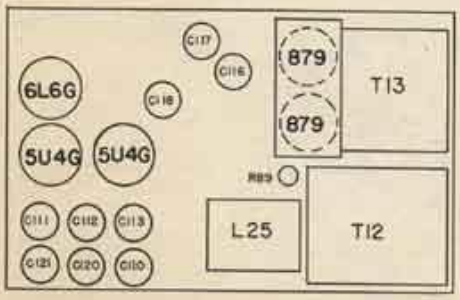


Fig. 6. Power Unit Chassis

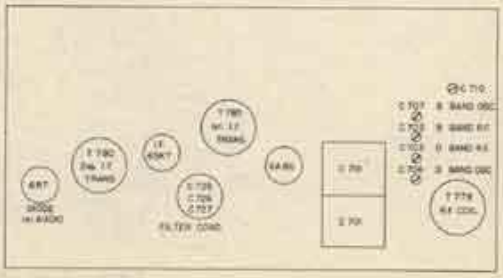
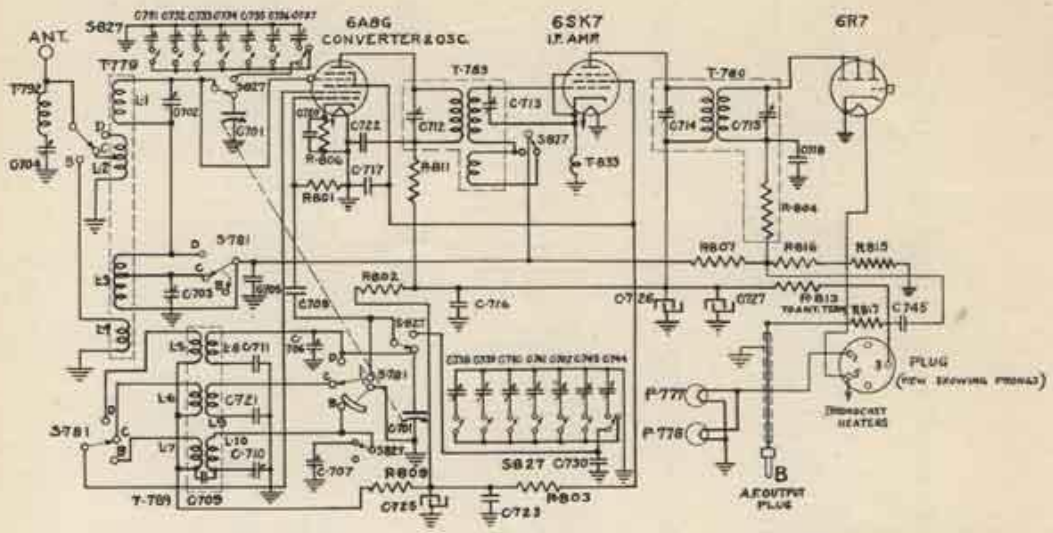


Fig. 7. Trimmer Location (Radio Chassis)



C-701	495 mmf. tuning condenser	C-730	30 mmf. temperature compensating capacitor	R-801	11,000 ohms carbon resistor
C-702	3-20 mmf. "B" antenna trimmer	C-731	100-490 mmf. station antenna trimmer	R-802	47,000 ohms carbon resistor
C-703	3-20 mmf. "D" antenna trimmer	C-732	100-490 mmf. station antenna trimmer	R-803	330 ohms carbon resistor
C-704	30-70 mmf. wave trap trimmer	C-733	100-490 mmf. station antenna trimmer	R-804	2.2 megohms carbon resistor
C-705	0.1 mfd. paper capacitor	C-734	100-490 mmf. station antenna trimmer	R-805	1500 ohms carbon resistor
C-706	3-20 mmf. "D" oscillator trimmer	C-735	20-150 mmf. station antenna trimmer	R-811	6800 ohms carbon resistor
C-707	3-20 mmf. "B" oscillator trimmer	C-736	20-150 mmf. station antenna trimmer	R-812	2200 ohms 2 W. carbon resistor
C-708	50 mmf. mica capacitor	C-737	7-45 mmf. station antenna trimmer	R-813	100,000 ohms carbon resistor
C-709	.002 mfd. paper capacitor	C-738	100-490 mmf. station oscillator trimmer	R-814	150,000 ohms carbon resistor
C-710	200-450 mmf. "B" padder	C-739	100-490 mmf. station oscillator trimmer	R-815	15,000 ohms carbon resistor
C-711	4300 mmf. mica capacitor ± 5%	C-740	100-490 mmf. station oscillator trimmer	S-781	Band change switch
C-712	0.1 mfd. paper capacitor	C-741	100-490 mmf. station oscillator trimmer	S-827	Manual push button switch
C-713	.05 mfd. paper capacitor	C-742	20-150 mmf. station oscillator trimmer	T-779	Antenna coil
C-714	47 mmf. mica capacitor	C-743	20-150 mmf. station oscillator trimmer	T-780	Oscillator coil
C-715	.05 mfd. paper capacitor	C-744	7-45 mmf. station oscillator trimmer	T-783	1st I.F. transformer
C-721	1500 mmf. mica capacitor ± 5%	C-745	.01 mfd. paper capacitor	T-784	2nd I.F. transformer
C-722	.05 mfd. paper capacitor	P-777	Dial lamp, Mazda No. 46	T-799	Wave trap coil
C-723	0.1 mfd. paper capacitor	P-778	Dial lamp, Mazda No. 46	T-833	Neutralizing coil
C-725	8 mfd. 400 V. dry electrolytic	R-801	47,000 ohms carbon resistor		
C-726	8 mfd. 400 V. dry electrolytic	R-802	6800 ohms 1 W. carbon resistor		
C-727	12 mfd. 450 V. dry electrolytic				

Fig. 8. Schematic Diagram (Radio Chassis)

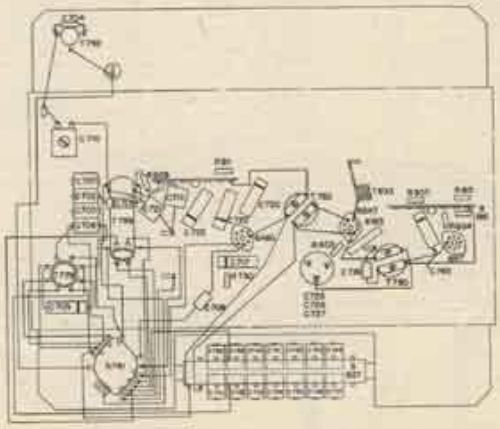


Fig. 9. Radio Chassis Parts Layout