

MODEL SP-44
Skyrider Panoramic

THE HALLICRAFTERS CO.

VOLTAGE CHART.
Voltmeter 1,000 ohms per volt.
Line voltage 115V

Circuit Symbol	Type	Function	PIN NUMBER												
			1	2	3	4	5	6	7	8	9	10	11		
V1	6SG7	R. F. Amplifier	0	0	17	0	17	115	6.3AC	390					
V2	6SK7	Converter	0	0	380	0	380	0	6.3AC	-3.0					
V3	6SG7	I. F. Amplifier	0	0	0	0	0	115	6.3AC	380					
V4	6S07	Det. Video Amp.	0	0	0	0	0	125	6.3AC	0					
V5	6AC7	Reactor	0	0	0	0	0	3.3	105	6.3AC	360				
V6	6RN7	Voltage Reg.	0	0	380	0	380	105	380						
V7	6SN7	Sawtooth Gen. and Am- plifier	0	60	5	0	2	0	6.3AC	0					
V8	2AP1-A	CRT Indicator	-430	-420	140	-100	325AC	325AC	390	155	-490	-420			
V9	6X5	L. V. Rectifier	0	0	0	0	0	0	6.3AC	390					
V10	6X5	H. V. Rectifier	0	0	0	0	0	0	6.3AC	325AC					

Notes.—GAIN at minimum, SWEEPWIDTH at maximum, all other controls at normal position. SL indicates slight movement.

VOLTAGE CHART.
Voltmeter 25,000 ohms per volt.
Line voltage 115V.

Circuit Symbol	Type	Function	PIN NUMBER												
			1	2	3	4	5	6	7	8	9	10	11		
V1	6SG7	R. F. Amplifier	0	0	20	0	20	120	6.3AC	380					
V2	6SK7	Converter	0	0	380	105	0	0	6.3AC	-3.0					
V3	6SG7	I. F. Amplifier	0	0	2.7	0	2.7	120	6.3AC	380					
V4	6S07	Det. Video Amp.	0	0	0	0	0	150	6.3AC	0					
V5	6AC7	Reactor	0	0	0	0	0	3.4	105	6.3AC	360				
V6	6RN7	Voltage Reg.	0	0	380	0	380	105	380						
V7	6SN7	Sawtooth Gen. and Am- plifier	0	150	8.2	-7.3	50	0	6.3AC	0					
V8	2AP1-A	CRT Indicator	-600	-600	165	-380	325AC	325AC	390	185	-650	-600			
V9	6X5	L. V. Rectifier	0	0	0	0	0	0	6.3AC	390					
V10	6X5	H. V. Rectifier	0	0	0	0	0	0	6.3AC	325AC					

Notes.—GAIN at minimum, SWEEPWIDTH at maximum, all other controls at normal position. *Voltage reading varies according to scale used.

RESISTANCE CHART.

Circuit Symbol	Type	Function	PIN NUMBER												
			1	2	3	4	5	6	7	8	9	10	11		
V1	6SG7	R. F. Amplifier	0	0	200	30	200	40K	0	50K					
V2	6SK7	Converter	0	0	50K	70K	20K	5	0	15K					
V3	6SG7	I. F. Amplifier	0	0	500	1 Meg.	500	40K	0	50K					
V4	6S07	Det. Video Amp.	0	500K	0	300K	1K	70K	0	53K					
V5	6AC7	Reactor	0	0	0	0	0	70K	50K						
V6	6RN7	Voltage Reg. and Am- plifier	2 Meg.	550K	20K	1.3 Meg.	3.5 Meg.	3 Meg.	0	0					
V7	6SN7	Sawtooth Gen. and Am- plifier	2.5 Meg.	2.5 Meg.	2.5 Meg.	2.5 Meg.	2.5 Meg.	2.5 Meg.	250	250					
V8	2AP1-A	CRT Indicator	0	0	270	2.5 Meg.	2.5 Meg.	2.5 Meg.	0	75K	2.5 Meg.	2.5 Meg.			
V9	6X5	L. V. Rectifier	0	0	0	0	0	0	50K	50K					
V10	6X5	H. V. Rectifier	0	0	0	0	0	0	250	250					

Notes.—GAIN and SWEEPWIDTH at maximum, all other controls at normal position. K=1,000 ohms, Meg.=megohms, all other resistances are in ohms.

TROUBLE SHOOTING CHART.

Symptom

Causes and Cures

- No illumination of the cathode ray tube, V8.
- AC power is off.
 - See if tubes are lit.
 - See if tube sockets are properly seated.
 - Check if FOCUS control is set at maximum.
 - Check if video tube, or rectifiers V9, V10, are properly seated.
 - Check if high voltage power supply is properly seated.
 - Tubes not seated properly in sockets.
 - Shorted filter condensers C17, C18.
 - Open resistors R16, R24.
- Baseline trace cannot be made sharp and bright.
- AC power input below 115V.
 - Check if high voltage power supply (V10) is properly seated.
 - Check condition of INTENSITY control.
 - Check FOCUS controls for possible opens.
 - Check resistance of R16, R24, R25, R27 and R29.
- Baseline trace cannot be made to coincide with screen baseline.
- Check high voltage power supply (V10).
 - Check V4 if unable to get vertical position.
 - Check R31.
 - Check the voltage on the cathode ray tube deflection plates against the voltages specified on the Voltage Chart.
- Stationary spot on the screen.
- Check V7.
 - Trace the sweep voltage with an oscilloscope.
 - Check R16, R20.

Symptom

Causes and Cures

4. Test PANADAPTOR for center deflection with a signal generator set at 350KC (or of center frequency) (disconnect from receiver).
5. Increase SWEEPWIDTH control to maximum sweep.
7. Whole baseline moves when center is tuned.
- F.M. sweep is not operating, and center is not moving when center is tuned.
 - SWEEPWIDTH control is set at zero. Check V5.
 - Use an oscilloscope to check sweep at pin #4 of V5.
 - Strong local stations coming through the receiver and beating against one major PANADAPTOR station. PANADAPTOR control to produce 250KC. Remedy would be to align receiver or install wave traps.
8. Baseline remains at top of the screen regardless of tuning.
- I.F. amplifier may be oscillating. Check V3, V4.
 - Compare V3 voltage against voltage chart.
9. Low gain. Able to hear weak signals but screen is blank.
- Check all valves. Most likely to be weak V3, V4.
 - Check voltages especially screen voltage of V3.
 - Misaligned I.F. transformers. Note: Do not attempt alignment until after the "check" that alignment is at fault.

Symptom

Causes and Cures

10. Symptoms of misalignment.
- Low gain.
 - "Pop" too wide.
 - The double peaked response of the video tube is not peaked at points 10KC from each end of the scale.
 - Frequency range of two stationary peaks appear on screen when SWEEPWIDTH at maximum sweep-width.
 - Range of the CENTER FREQ. control is less than 200KC.
 - Pip generated by an unbalanced signal is non-symmetrical.
1. Check connection to receiver.
2. Turn up GAIN control.
3. Check operation of the receiver.

DeWald 418

This model is the same as model 414 appearing on page 11-2 of *Rider's Volume XI*.

Electronic Laboratories 2811

This model, shown on page 16-8 of *Rider's Volume XVI*, uses the Webster model 56 record changer, which is shown on page RCD.CH.15-10 of *Rider's Volume XV*.

Emerson BF-169, BF-204, And BF-207

These models are the same as Model BF-191 appearing on pages 9-1 and 9-2 of *Rider's Volume IX*.

Emerson 567, Chassis 120016

This model is the same as Model 560, Chassis 120016, appearing on pages 17-30 to 17-32 of *Rider's Volume XVII*.

FM Specialties Model Fidelotuner

This model is shown on pages 17-1 to 17-4 of *Rider's Volume XVII*. Three terminals are shown in Fig. 5, page 17-4; the first labelled 3, and the third terminal (not labelled in this figure) should be labelled 4. The ground from the phonograph connection to the receiver should be made to this third terminal (terminal 4).

Farnsworth AC-55, Chassis C2-3

This model is the same as model ACL-55, Chassis C 2-3, shown on pages 11-7 and 11-10 in *Rider's Volume XI*.

Farnsworth ACL 55, ACL56, AKL58, AKL 59

These models shown on pages 11-7 and 11-10 of *Rider's Volume XI* are erroneously listed as ATL.

Farnsworth GK-140

Slippage of the dial-drive cable on the early production sets can be corrected by replacing the cable with part number 05096. This cord is softer and smaller than the one used previously.

If the push buttons bind on the front panel of the cabinet, the ganged capacitor may not be properly positioned. This may be corrected by installing a flat metal washer under each of the mounting grommets. This may be done without removing the gang from the chassis.

Oscillation or low sensitivity on f.m. may be due to poor ground connections from the gang to the r-f shelf. When aligning the f-m band, oscillation may occur with certain signal generators. Changing the value of the resistor in series between the generator and the chassis will prevent oscillation. With some generators more than 400 ohms are required, with others less.

In some preliminary sets a 200- μ f capacitor was placed in series with the short-wave converter-trimmer. If

for any reason this trimmer requires replacement, removal of the capacitor is suggested. This capacitor is not shown on the schematic.

In some of the preliminary 14-tube sets, Belden braid was used to ground the ganged capacitor to the r-f shelf. In certain instances too much solder flowed into the braid and as a result some joints break loose or the set becomes microphonic. This braid should be replaced with soft copper strips.

General Electric A51, A56

These models are the same as model A54 shown on pages 7-4 to 7-6 of *Rider's Volume VII*.

General Electric H639AC-DC

The r-f alignment instructions of these models found on page 11-80 of *Rider's Volume XI*, should read as follows: With gang condenser plates completely meshed, set dial to the first mark at the left end of scale. Then set dial to 1500 kc. Apply a 1500-ke signal either through a standard I.R.E. dummy to the antenna terminal or through an additional loop connected to the generator output which can be magnetically coupled to the receiver Beam-Scope. Align C2 and C1 at 1500 kc for maximum output. Set dial to 580 kc and peak C3 on 580 kc while rocking the gang condenser. Retrim at 1500 kc.

GE YRB 60-12

This receiver is the same electrically as the YRB 60-2 appearing on page 15-5 of *Rider's Volume XV* but the cabinet is different.

GE YRB 92-2 and 81-3

These models are the same electrically as the YRB 82-1 appearing on pages 15-53 to 15-54 of *Rider's Volume XV*, but they have different cabinets.

General Electric L604

This model is the same as Model L600 appearing on page 13-40 of *Rider's Volume XIII*.

General Electric 202

This receiver is the same electrically as the model 200 as shown on pages 15-54 to 15-56 in *Rider's Volume XV*, except that it has a different cabinet.

General Electric 219, 220, 221

A few cases of hum which cannot be reduced in the normal manner from these models shown on pages 15-28 to 15-31 of *Rider's Volume XV*, may be corrected by cathode degeneration in the output tube, 35L6GT/G, cathode circuit. Remove R17 and C29-C from the circuit. This can be done by disconnecting one end of R17.

General Electric 260

This model appears on pages 16-7 to 16-12 of *Rider's Volume XVI*. It has been found that late production 1LC6 tubes, coded H7E, will oscillate at another frequency in addition to the desired frequency, causing unsatisfactory operation. To remedy this condition, the oscillator grid capacitor, C17, should be changed from 100 μ f to 56 μ f.

GE 254

This model is illustrated on pages 16-3 to 16-5 of *Rider's Volume XVI*. The suffix letters after 254 indicate only the cabinet styling. All versions are electrically identical.

Firestone 7402-4

This model is the same as model S7426-6 shown on page 10-5 of *Rider's Volume X*.

Firestone 7423-5

This model is the same as model S7402-5 shown on page 13-38 of *Rider's Volume XIII*.

Goodrich R655W

This model uses the Admiral record-changer model RC161 or RC161A, which are to be found on Admiral RCD. CH. pages 17-1 to 17-7 of Volume XVII.

Hallicrafters S-40A

This model is the same as Model S-40, second revision, on pages 16-67 to 16-86 of *Rider's Volume XV*, except for the following changes. C18 has been changed in value from 100 μ f to 68 μ f. A 10-ohm resistor (R30) has been connected between the center tap of oscillator coil T10 and terminal C. R30 has been removed from its previous position between C16 and the junction of C26, C6C, C7C, and switch S1F. C55 has been changed in value from 100 μ f to 47 μ f, and is now connected to the top of the 470- μ f capacitor (C54). The coil T17 is connected directly across C54, with one end going to ground. The center tap of this coil is connected to the cathode of the 6J8 tube. The 0.01- μ f capacitor (C53) is connected from the plate of the 6J8 tube directly to ground.

The parts list should be changed to read as follows:

Ref. No.	Description	Hallicrafter's Part No.
C18	68 μ f, \pm 10%, 500 vdcw; neg. temp. coeff. 0.0075 μ f/ μ f/deg.C;	CC25UK680K ceramic
C55	47 μ f, \pm 20%, 500VDC, Mica	CM20A470M
T17	BF0 coil; 455 kc; shielded	54B033-2

Hallicrafters SP-44 AND SX-42

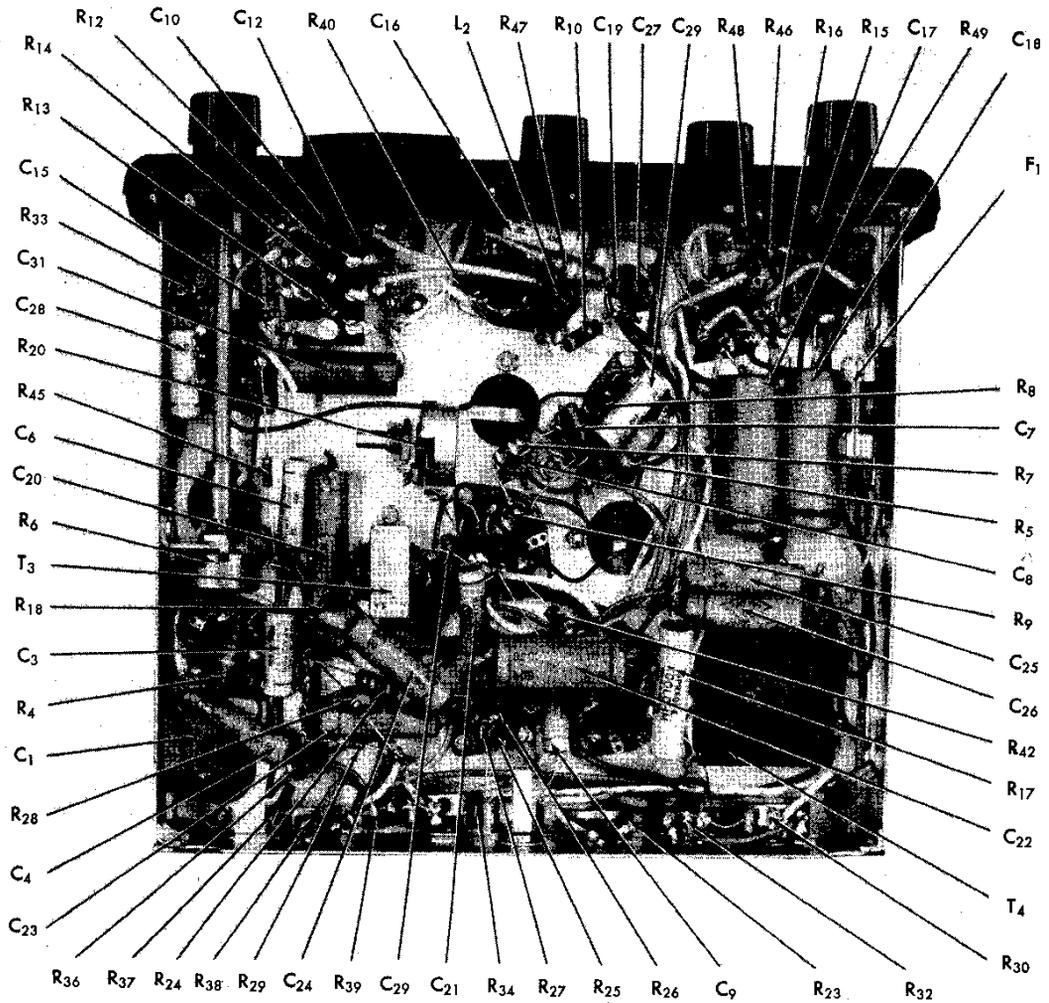
These models appear on pages 17-1 to 17-5 and 17-6 to 17-16 respectively of *Rider's Volume XVII*. When the SX-42 is used with the SP-44 Panadaptor on the low-frequency band, it appears to motor boat. To correct this condition, do the following.

The connecting cable between the SP-44 and the SX-42 is shielded and the shield is connected to the SX-42 ground. Disconnect the shield from the SX-42 ground and place a 50- μ f capacitor between the shield and the SX-42 chassis. Be sure that the SX-42 chassis is well grounded. A shielded antenna lead, or a balanced antenna, on the SX-42 may also help.

The following modifications should be made on the SP-44 unit. A strip of bonding braid, $\frac{3}{8}$ inch wide, may

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Bottom view of chassis showing components location

REAR PANEL CONNECTIONS: Consists of a line cord with plug, phone jack for monitoring purposes, and R-F coupling cable to companion receiver.

POWER SUPPLY DATA: 105-125 volts AC, 50-60 cycles, power drain is approximately 55 watts.

TUBE TYPES AND FUNCTIONS: 6SG7 R-F amplifier, 6SA7 converter, 6SG7 I-F amplifier, 6SQ7 detector-video amplifier, 6AC7 reactor, VR-105 voltage regulator, 6SN7 saw tooth generator and amplifier, 2AP1 cathode ray tube, 6X5 low voltage rectifier, 6X5 high voltage rectifier.



Compensates for varying preselector characteristics of receiver.

Controls bandwidth coverage from 200 kc down to zero.

Controls height of cathode ray tube deflections and audio output level.

Maintains "pip" of signal heard through receiver over center zero mark also tunes adapter through 200 kc.

Skyrider Panoramic Model SP-44, view showing operating controls.

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MODEL SP-44
Skyrider Panoramic

Alignment of	Signal Generator Output	Position of Controls	Procedure
I.F. Amplifier	226KC unmodulated to pin #8 of V2.	SWEEPWIDTH at zero position. CENTER FREQ. turned extreme counter-clockwise.	Entire baseline deflects upward. Adjust the trimmers in the I.F. transformers (Z2-12, Z3-12) for maximum deflection.
F.M. Oscillator	455KC (or I.F. of the receiver) unmodulated to pin #8 of V2.	SWEEPWIDTH at maximum. SWEEP PAD set half way. CENTER FREQ. at center or zero position.	A "pip" will appear on the screen. Adjust the trimmer in the oscillator transformer Z1-12, to bring "pip" to the center of the screen. Turn the SWEEPWIDTH control to almost zero for more accurate indications of proper trimmer adjustment. Return the SWEEPWIDTH control to maximum and adjust the HORIZONTAL POSITION control so that the "pip" is directly over the zero mark on the screen.
Linearity of Sweep	355KC - 555KC (or I.F. of the receiver ± 100 KC) unmodulated to pin #8 of V2.	SWEEPWIDTH at maximum. CENTER FREQ. at center or zero position.	Set the signal generator for 555KC (or receiver I.F. +100KC) and bring the "pip" to the -100KC mark by means of the SWEEP PAD. Shift the signal generator frequency to 355KC (or receiver I.F. -100KC). The "pip" should be at the +100KC mark. If the linearity is incorrect, the deflections appear more than 10KC or $\frac{1}{2}$ division from each end with 455KC or I.F. deflection in the center of the screen. Some correction is possible by trial and error adjustment of the oscillator trimmer (Z1-12) and the CENTER FREQ. control. If after the adjustment is made the CENTER FREQ. control knob is off center for a 455KC (or receiver I.F.) deflection at the zero mark on the screen, unscrew and reset the knob to the center position.
R.F. Bandpass Amplifier	365KC - 545KC (or I.F. of receiver) ± 90 KC) unmodulated to a 50K resistor in series with the full length of input cable to the PANADAPTOR.	Set GAIN to maximum. Turn EQUALIZER fully clockwise. Set CENTER FREQ. control to zero.	Set the signal generator at 545KC (or receiver I.F. +90). Back off the side side trimmers on both R.F. transformers (T1-12, T2-12) and align the top trimmers for maximum deflection. Shift signal generator to 365KC (or receiver I.F. -90) and tune the two side trimmers for maximum deflection. Repeat both adjustments. The ratio of the peak to center heights (peak to valley) should be greater than 20:1.