

Hallicrafters SX-42

This model appears on pages 17-6 through 17-13 of Rider's Volume XVII. The following service hints apply to the S-Meter operation.

SYMPTOM NO. 1:

Meter fails to zero on AM.

ANALYSIS:

Assuming that all connections and other circuits, including AVC, are normal...

- 1) The line voltage is low, or
- 2) The first RF tube is weak

SYMPTOM NO. 2:

Zero adjustment appears too critical. Does not hold.

ANALYSIS:

The leads to the outside terminals of the "Zero Set" potentiometer should be disconnected, reversed, and reconnected.

SYMPTOM NO. 3:

Meter fails to zero on FM

ANALYSIS:

- 1) Adjust meter indicator mechanically with zero set on the meter.
- 2) Replace 7A4 tube
- 3) Replace R-68 with lower resistance if indicator remains on right side of FM zero
- 4) Replace R-68 with higher resistance if indicator remains on left side of FM zero

REMARKS:

The internal resistance of the meters is not specified, and depends on the supplier. The resistance ranges from 12 to 50 ohms.

The meter has a range of 5 ma. on a linear scale. The FM zero is arbitrarily calibrated at 1.4 ma.

An arbitrary figure of 60 m.v. to the antenna terminal was used for S-9 on the 20 meter band. Each S-unit represents 6 db variation.

60 m.v. to the antenna terminal of the receiver represents roughly a field strength of 15 m.v. per meter.

Hoffman C504, C514

These models are the same as model B504 appearing on pages 17-1 and pages 17-3,4 through 17-7 of Rider's Volume XVII, except for the following. Push-pull parallel 6K6 tubes are used in the output instead of push-pull 6V6 tubes. See Fig. 1.

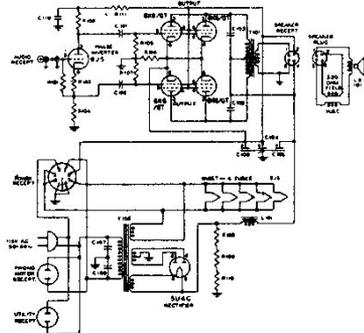


Fig. 1. Changes in the output stages of the Hoffman Models C504 and C514.

A resistance-capacitance filter (R-111 and C110) has been inserted in the B-plus line feeding the phase inverter stage in order to reduce the inherent hum level of the receiver to a satisfactory level. See Fig. 1.

An "entertainment panel" has been wired into the tuner chassis to provide microphone input, a speaker on-off switch, a pillow speaker plug, and an auxiliary phono input to be used either for television sound or wire recorder input. See Fig. 2.

On the recorder amplifier, the screen-dropping resistor (R11) has been changed from 0.1 megohm to 2.2 megohms and the cathode resistor (R2) changed from 2200

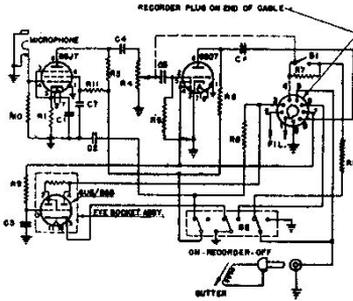


Fig. 2. Changes made to accommodate the "entertainment panel" of the Hoffman C504.

ohms to 4700 ohms. This change allows the screen current of the 6SJ7 to be self-regulating to eliminate variations in gain between various 6SJ7 tubes.

Several changes were made in the late production. A 270,000-ohm resistor was added across the phono input jack of the radio chassis. This resistor was on the record changer (960260-2) in the early production (Serial Nos. B-1001 to B-6000 and B-28,500 to B-30,000).

The location of the resistor may be checked by measuring the shunt resistance across the phono input jack of the radio chassis and across the phono output cable of the changer mechanism.

Hoffman C502 and C512. Chassis 113

These models are the same as Model B502, Chassis 113, appearing on pages 17-1 to 17-8 of Rider's Volume XVII, except for the following changes. Four 6K6-GT tubes are used in push-pull parallel in the output stage instead of the 6V6 tubes in push-pull.

An "entertainment panel" has been wired into the tuner chassis to provide microphone input, a speaker on-off switch, a pillow speaker plug, and an auxiliary phono input to be used either for television sound or wire recorder input. See Fig. 1.

A resistance-capacity filter R111 and C110, has been inserted in the B-plus line of the phase inverter stage in order to reduce the inherent hum level of the receiver, as shown in Fig. 2.

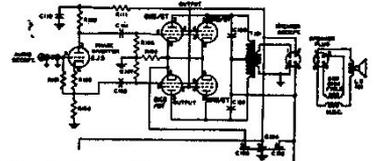


Fig. 2. The resistance-capacity filter in the Hoffman models C502 and C512.

The following changes should be made in the parts list:

Symbol	Description	Hoff. No.
C60	0.005 μ f, 600 V, tubular, paper	4102
R16, R20, R50	100,000 ohms \pm 20%, $\frac{1}{2}$ watt	4511
R21, R48	47,000 ohms, \pm 20%, $\frac{1}{2}$ watt	4504
R49	10 megohms, \pm 20%, $\frac{1}{2}$ watt	4506
R27, R46	0.22 megohm, \pm 20%, $\frac{1}{2}$ watt	4500
R47, R51	0.47 megohm, \pm 20%, $\frac{1}{2}$ watt	4506
C110	10 μ f, 450 V, electrolytic	4203
R111	10,000 ohms, \pm 20%, $\frac{1}{2}$ watt	4515

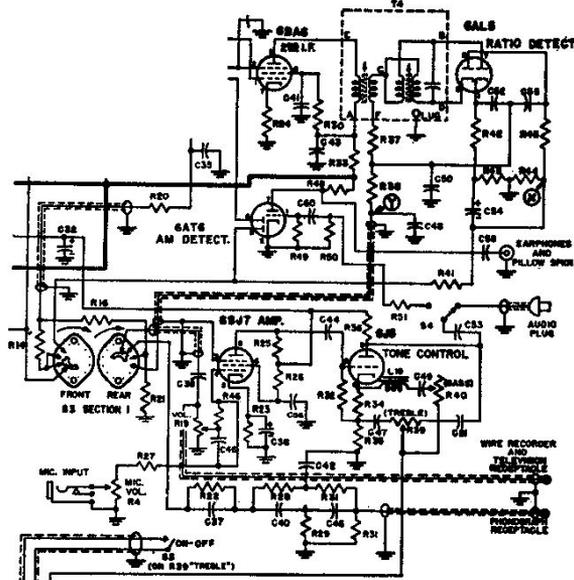


Fig. 1. The entertainment panel that is wired into the Hoffman models C502 and C512.

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-kc 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-a-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 65 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	65 μ f, \pm 10%, 500 vdcw; neg. temp. coeff.	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

be connected to the No. 1 grounded pin of the 6AC7 tube, going around the choke coil and connecting to the right side of the chassis. The braid should be insulated with a piece of spaghetti and should lie parallel to the front panel. Two pieces of braid 1/4 inch wide, or a copper strap may also be used.

A piece of copper or steel sheet about 2 1/2 inches wide may be screwed or soldered across the bottom so that it is attached to both edges of the chassis. This plate should be centered over the bottom of the 6AC7 tube.

Hallicrafters SX-42

This model appears on pages 17-6 to 17-16 of *Rider's Volume XVII*. It has been found that there is unsatisfactory image ratio on the 10-meter band. This can be corrected in two ways, one of which provides for the change or replacement of four parts and the other provides for no change in the oscillator coil.

The first method is as follows:

1. The band 4 oscillator coil should be removed and replaced with a new coil, part number 50-837D.
2. Resistor R24, now 56 ohms, should be removed and replaced with a 22-ohm resistor, part number RC20AE22OM.
3. Remove the main tuning dial scale, part number 83C265, and replace with new scale, part number 83C325.
4. Remove antenna coil, part number 51B827-C, and replace it with antenna coil, part number 51B827-D.
5. Align the receiver in the normal manner, making certain that the image falls on the high-frequency side of the signal frequency.

The second method is as follows:

1. Remove the oscillator trimmer capacitor C-42.
2. Calibrate the main tuning dial at 28 megacycles, with slug S-33, making certain that the image falls on the high-frequency side of the fundamental.
3. Calibrate the bandsread as outlined on page 17-16 of *Rider's Volume 17*, except that slug S-33 should be used instead of trimmer C-42.

It will be noticed that in this method the calibration of the low-frequency end of the number 4 band has been neglected entirely, since this cannot be accomplished without the use of trimmer C-42. The oscillator coil would have to be replaced to allow the use of this trimmer.

International Detrola 339, 340, 340-1

These models appear on page 12-4 of *Rider's Volume XII*. The 30-ohm resistor used in these models is the resistor with 5% tolerance, part number 8158.

International Detrola 2744

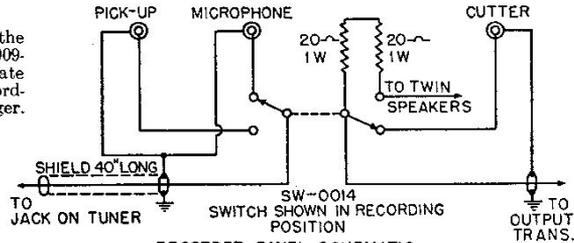
This model is the same as Model 274 appearing on page 10-9 of *Rider's Volume X*.

Howard 909MR

This model is similar to Model 909M appearing on pages 17-34 to 17-37 of *Rider's Volume XVII*, except that recording units were added. The General Industries Model

GI-RC130 recorder and record changer combination was used to make this change. The recorder unit was added without disturbing the wiring of the radio chassis. The wiring necessary for the addition is shown in the accompanying diagram.

The wiring in the Howard Model 909-MR to accommodate the GI-RC130 recorder and record changer.



RECORDER PANEL SCHEMATIC MODEL 909-R

Majestic 8FM783, Chassis 8B07D

This model is the same as Model 8FM776, Chassis 8B07D, appearing on pages 17-17 to 17-23 of *Rider's Volume XVII*, except that "solid doors" are used instead of metal gridded frame doors. The parts list should be changed to read as follows:

Part No.	Description
115-48	Cabinet, console combination, mahogany or walnut (state color)

Montgomery Ward 04BR-420B

This model is the same as Model 93BR-420A appearing on pages 11-25 and 11-26 of *Rider's Volume XI*.

Montgomery Ward 14WG-635B

This model is the same as Model 14WG-624A appearing on pages 13-53 and 13-54 of *Rider's Volume XIII*.

Montgomery Ward 64WG-1050D, 74WG-1050B

These models are similar to the 64WG-1050A shown on pages 15-75 to 15-77 of *Rider's Volume XV* with the following changes. The 0.1-µf capacitor (C-11) is connected to B— from pin 1 of the 1R5 socket instead of to chassis ground. A 1000-ohm resistor (R-13) is connected from pin 7 of the 354 output tube to B—.

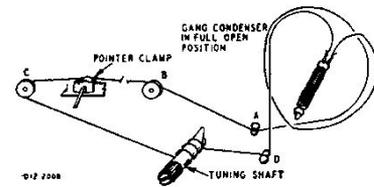
Montgomery Ward 64WG-1804B, 74WG-1804B

These two models are similar to Model 64WG-1804A shown on pages 15-88 to 15-90 of *Rider's Volume XV*, except for the following changes.

The frequency range has been slightly contracted to 540-1600 kc. A 47-ohm dropping resistor (R-20) has been inserted between B+ and the junction of the primary winding of the first i-f transformer (T-3), the screen grids of the 12SA7 mixer, the screen-grid of the 12SK7 r-f amplifier, and resistor R-1. A 0.05-µf bypass capacitor is connected from this junction to the point marked "X" in the filament line of the schematic shown on page 15-88 of *Rider's Volume XV*.

The drive cord length has been increased for these models and the fol-

lowing drive cord replacement instruc-



Winding for the new longer drive cord for Models 64WG-1804B and 74WG-1804B.

tions should be observed. Turn the gang capacitor to the fully open position. Use a new drive cord 42 inches long and tie one end to the tension spring. Hook the other end of the tension spring over the tab on the drive pulley rim and continue around pulley 1/2 turn counterclockwise. Pass cord around stud D and wind three turns clockwise (from front of chassis) around the turning shaft. Turns must progress away from chassis. Pass cord around pulleys C and B and stud A. Pass cord under drive pulley and wind 1 1/2 turns counterclockwise around drive pulley. Stretch tension spring and tie free end of cord to spring. Cut off any excess string. Attach the dial pointer to the cord and position as instructed on page 15-89 of *Rider's Volume XV*.

The components used in the Models 64WG-1804B and 74WG-1804B are the same as those enumerated on page 15-90 of *Rider's Volume XV*, except for the following.

Ref. No.	Part No.	Description
C-1	D67102	0.001µf, 400 v. tubular
C-14	B67403	0.04µf, 200 v. tubular
C-15	B67602	0.006µf, 200 v. tubular
C-19	B67253	0.025µf, 200 v. tubular
C-22	B67204	0.2µf, 200 v. tubular
C-24	17A123	1.5-12µf, trimmer
C-28	B67503	0.05µf, 200 v. tubular
R-14	B84274	270,000Ω, 0.5 watt, carbon L L
R-20	B85471	470Ω, 0.5 watt, carbon
	20X329	Capacitor cushion stud in gang capacitor mounting
	28X95	Drive cord tension spring

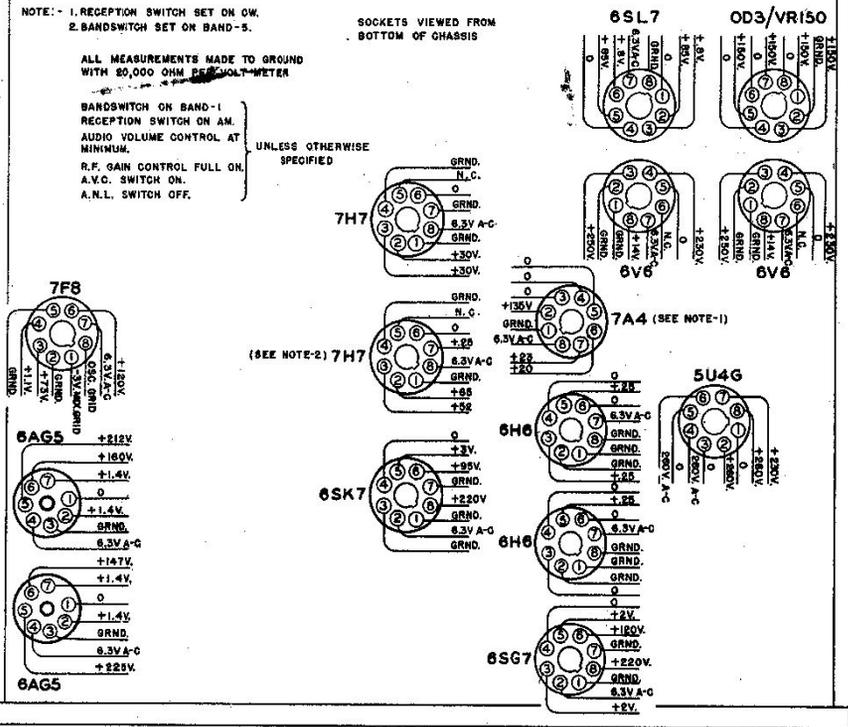
NOTE: 1. RECEPTION SWITCH SET ON CW.
 2. BANDSWITCH SET ON BAND-5.

ALL MEASUREMENTS MADE TO GROUND
 WITH 50,000 OHM PER VOLT-METER

BANDSWITCH ON BAND-1
 RECEPTION SWITCH ON AM
 AUDIO VOLUME CONTROL AT
 MINIMUM.
 R.F. GAIN CONTROL FULL ON.
 A.V.C. SWITCH ON.
 A.N.L. SWITCH OFF.

UNLESS OTHERWISE
 SPECIFIED

SOCKETS VIEWED FROM
 BOTTOM OF CHASSIS

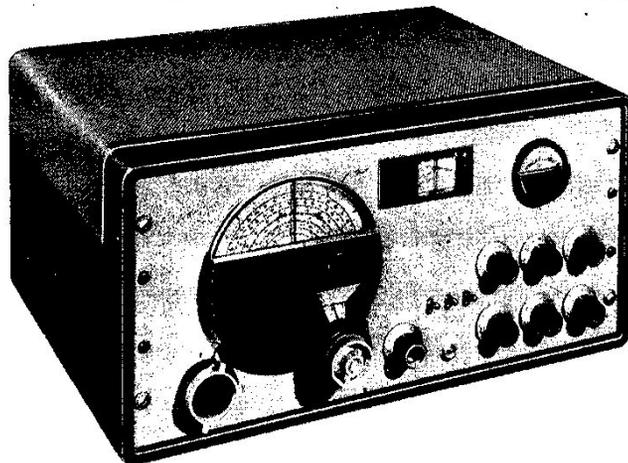


VOLTAGE CHART

FREQUENCY COVERAGE:

BAND	COVERAGE	TYPE OF RECEPTION
1	540 to 1620 kilocycles	AM/CW
2	1.62 to 5 megacycles	AM/CW
3	5 to 15 megacycles	AM/CW
4	15 to 30 megacycles	AM/CW
5	27 to 55 megacycles	AM/FM/CW
6	55 to 110 megacycles	AM/FM/CW

Adequate overlap is provided at ends of all bands.



HOW TO RESTRING DIAL CORD

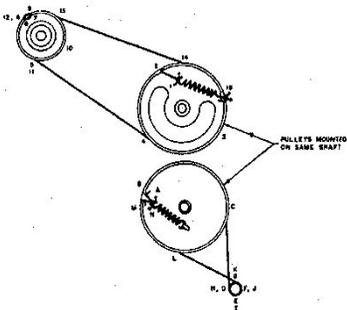
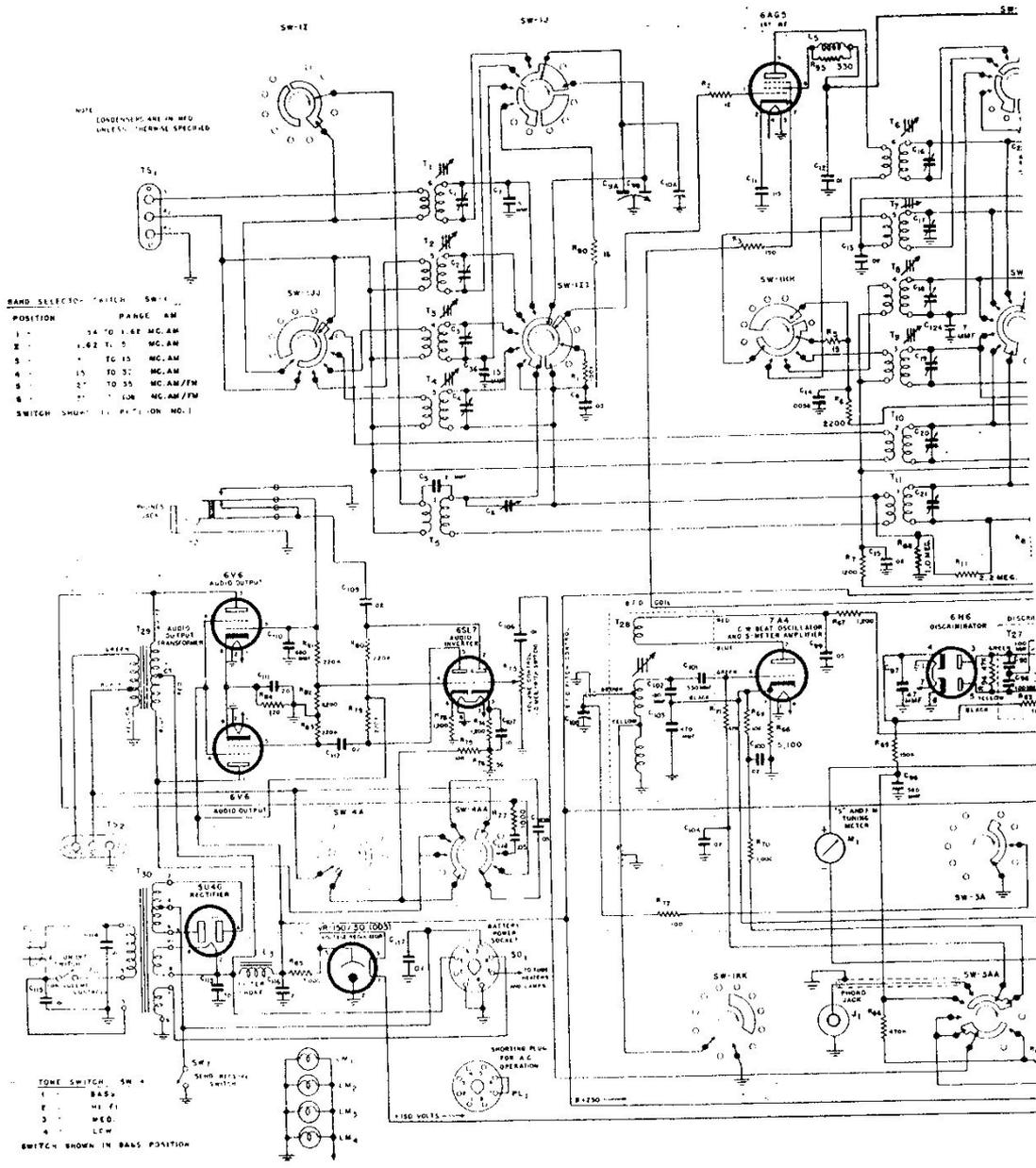


FIG. 2. DIAL CABLE
 STRINGING PROCEDURE

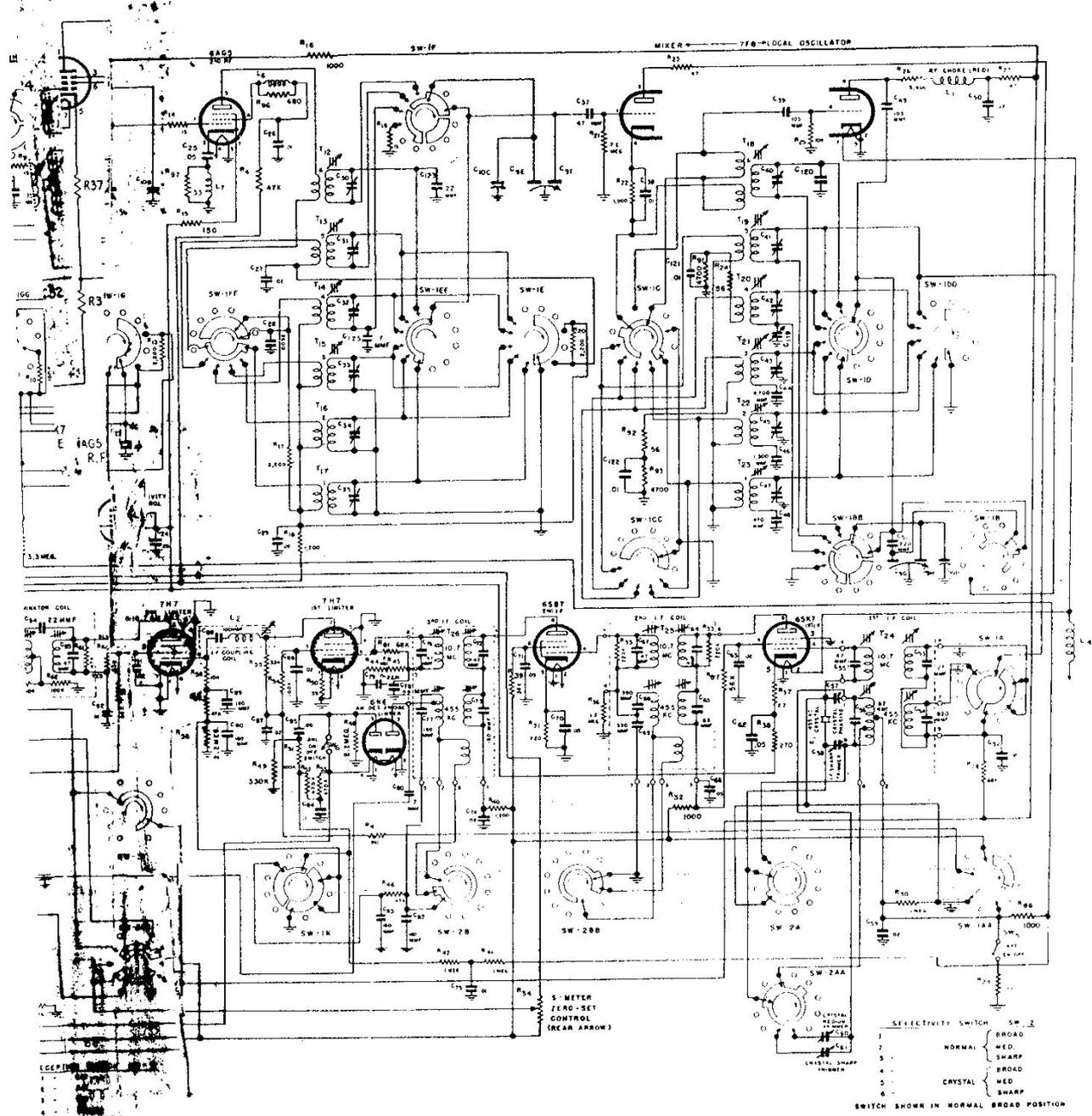
To restring the main tuning dial cord, cut a 25" length of 18 lb. test dial cord and tie one end to the tension spring of the main tuning capacitor drive pulley at position "1", Fig. #2. Follow the numbers "1" through "14", wind the cord on the pulley and knob drive shaft. At position "14", stretch the tension spring and tie cord securely. Cut off excess cord. To restring the bandspread tuning dial cord, follow the same procedure as explained above except start at position "A" and proceed through position "N" on tension spring.

17-7.8



DC operation - filament 6.3 volts at 5 amperes; "B" supply 270 volts at 150 ma. (The 6 v drain for vibrator type supply for "B" voltage will run about 16 amperes.)

POWER SUPPLY DATA: AC operation - 105 to 125 volts, 50/60 cycles single phase source. (Also 150/220/250 volt, 25 to 60 cycles single phase source with special power transformer available from crafters part no. 52C131.) Power consumption is 110 watts at 117 volts a-c.



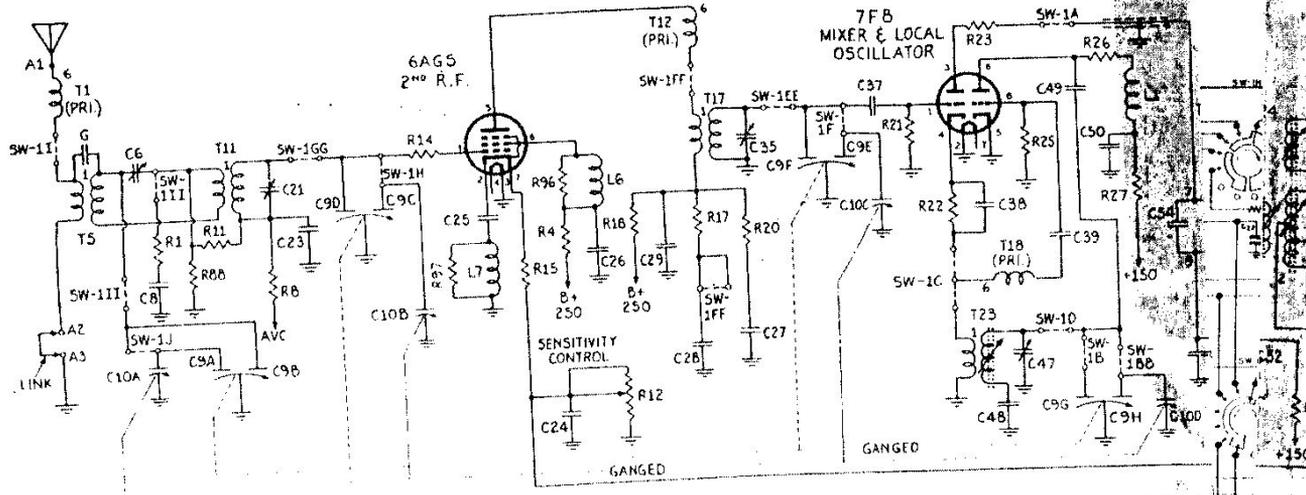
SELECTIVITY SWITCH SW-2

1	NORMAL	BROAD
2		MED
3		SHARP
4		BROAD
5		MED
6		SHARP

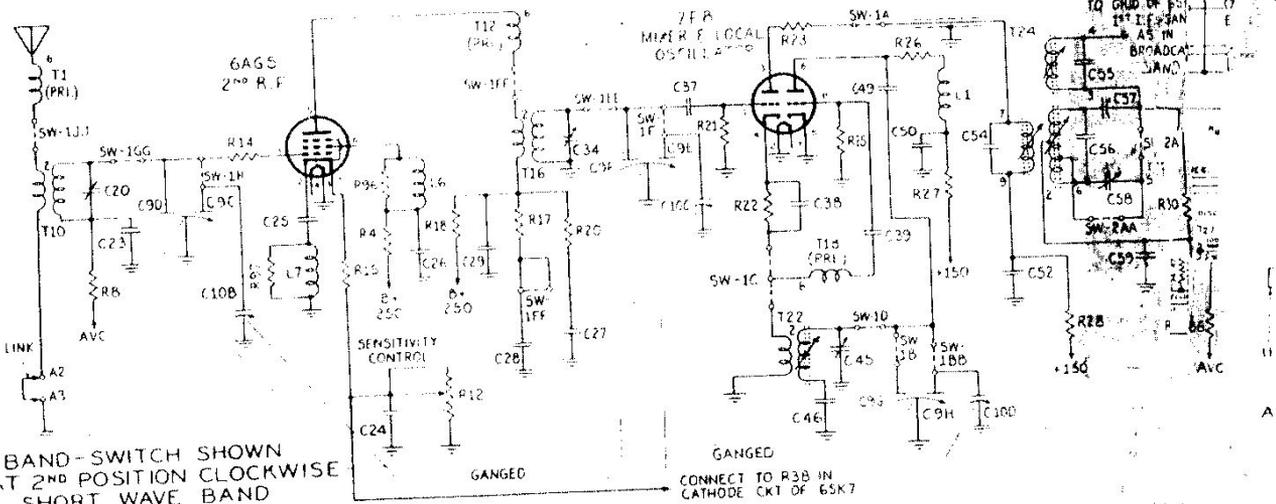
SWITCH SHOWN IN NORMAL BROAD POSITION

o 1 PANEL CONNECTIONS: Consists of AC line cord with plug, antenna and ground connector strip, speaker connector strip, phono input jack, and d-c power input socket.

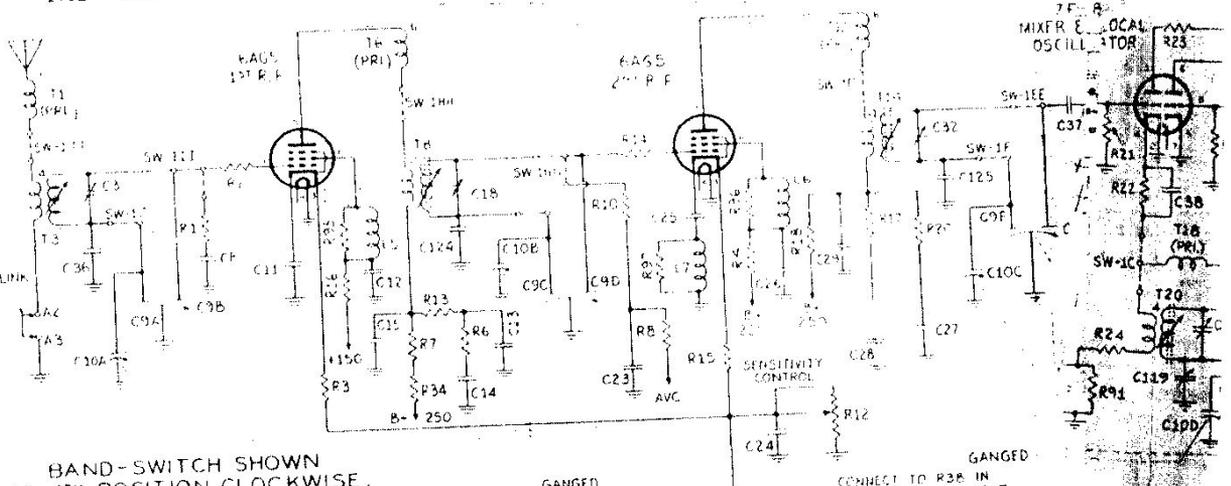
MODEL SX-42

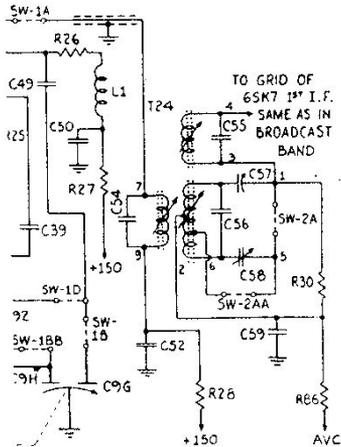
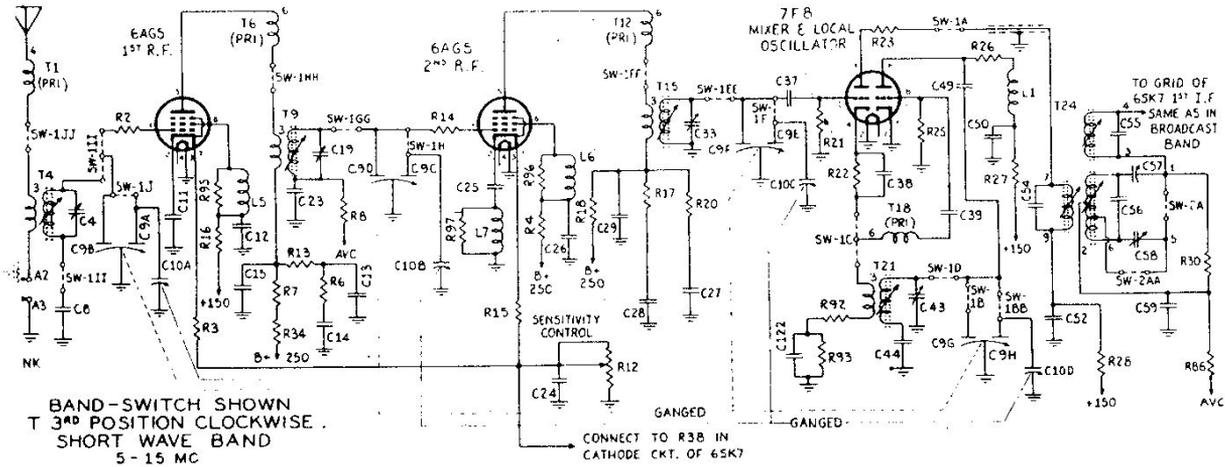
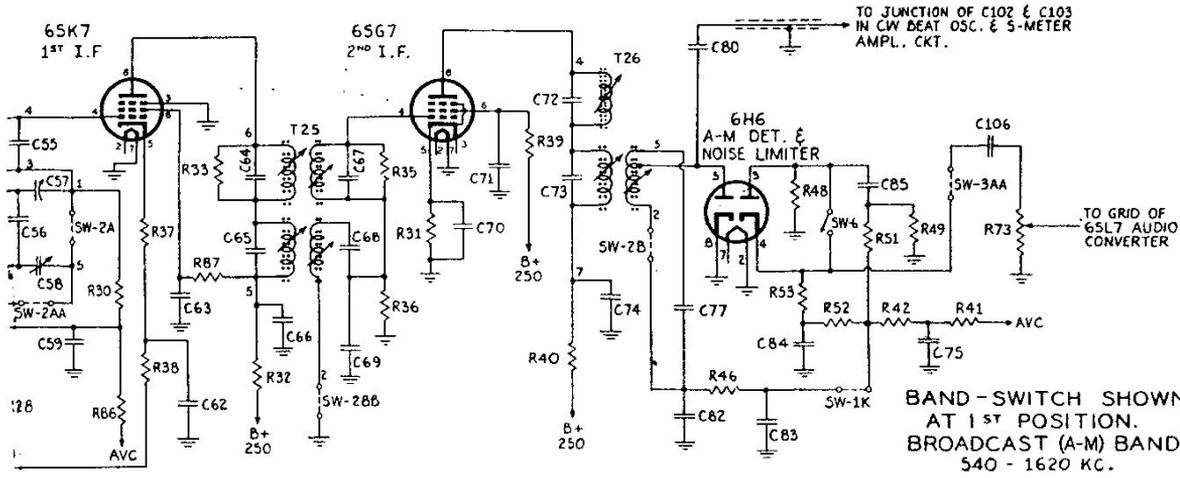


BAND-SWITCH SHOWN AT 2ND POSITION CLOCKWISE
SHORT WAVE BAND
1.62 - 5 MC.



BAND-SWITCH SHOWN AT 4TH POSITION CLOCKWISE.
SHORT WAVE BAND
15 - 30 MC.





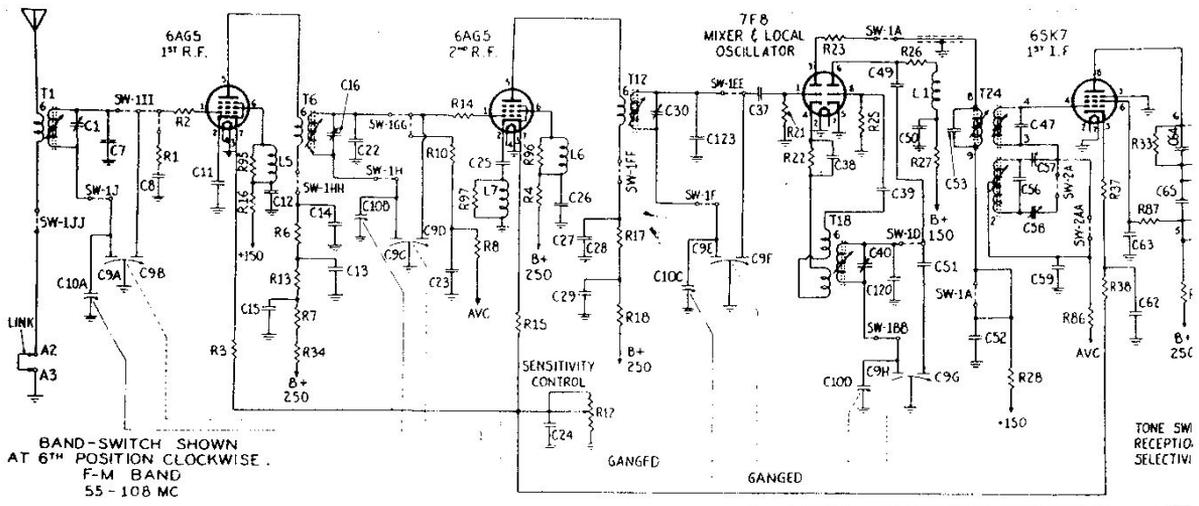
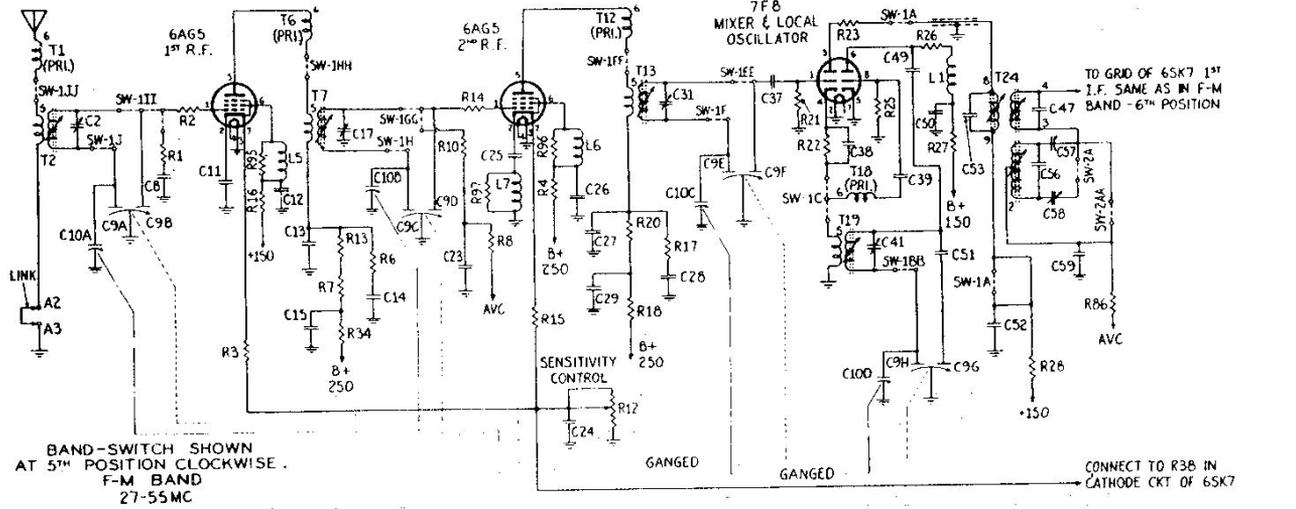
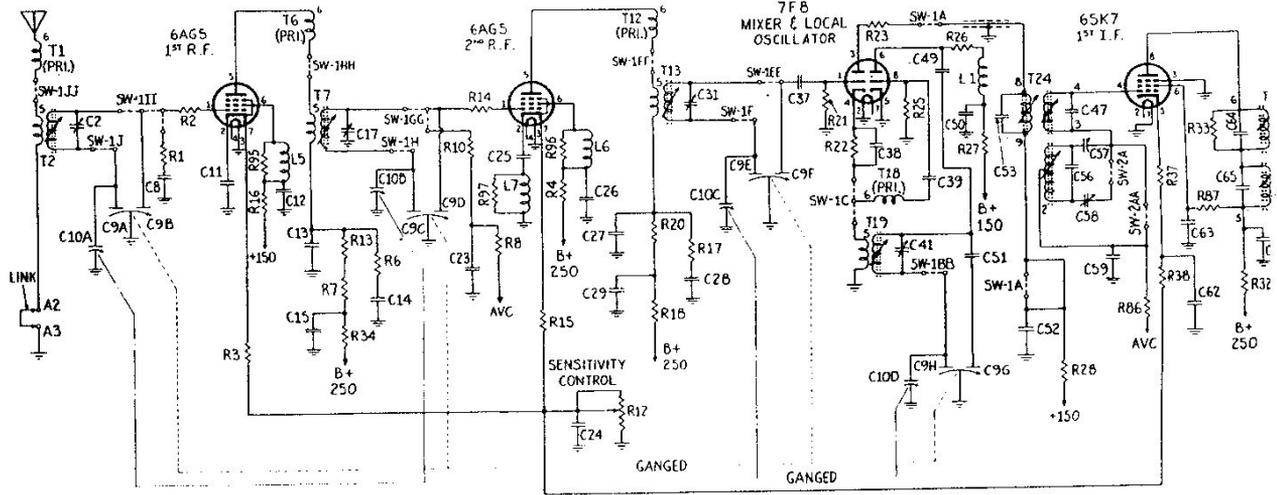
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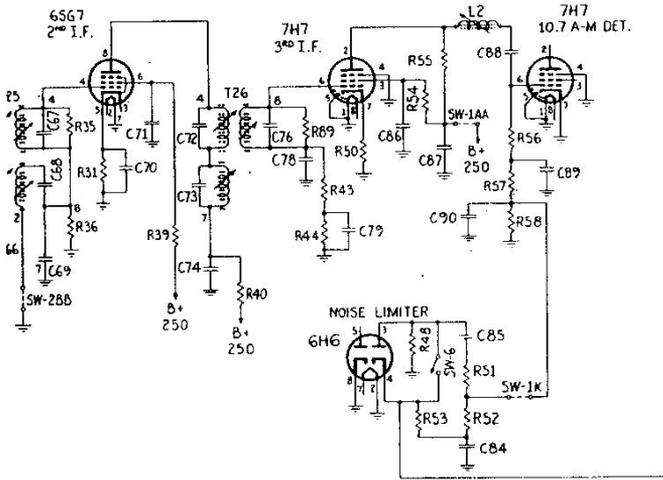
- 1. TONE SWITCH (SW-4) IS SHOWN IN POSITION 2 (HI FI)
- 2. RECEPTION SWITCH (SW-3) IS SHOWN IN POSITION 2 (A.M.)
- 3. SELECTIVITY SWITCH (SW-2) IS SHOWN IN POSITION 3 (NORMAL SHARP)

17-11, 12

"clarified sc

THE HALLIC



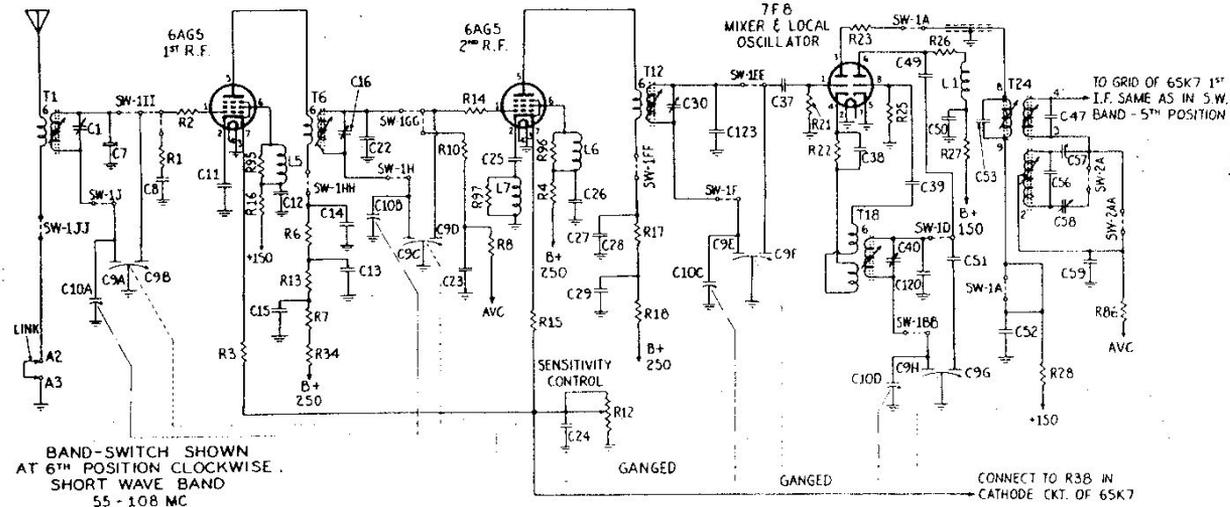


(FOR 5th & 6th S.W. POSITIONS)

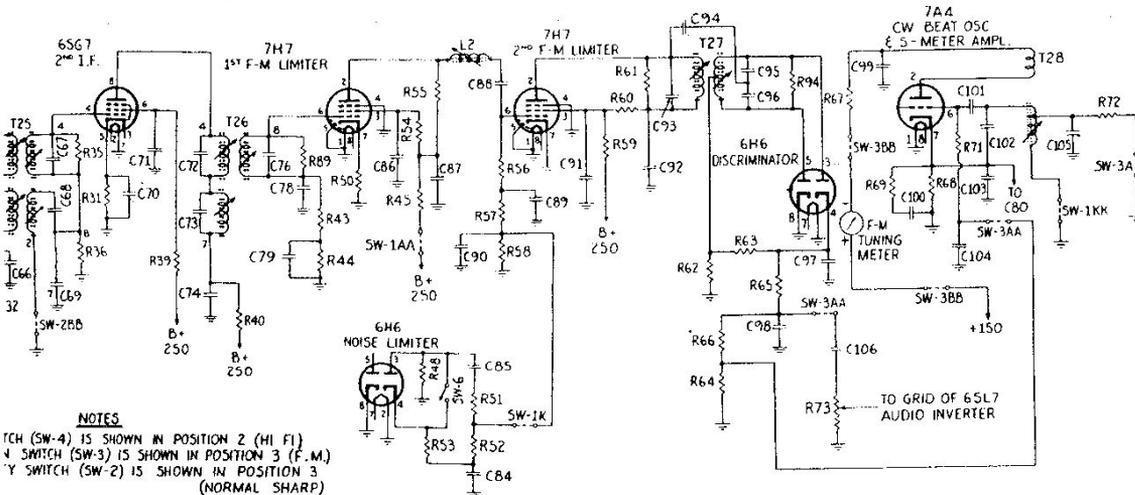
NOTES

TONE SWITCH (SW-4) IS SHOWN IN POSITION 2 (HI F1)
 RECEPTION SWITCH (SW-3) IS SHOWN IN POSITION 2 (A.M.)
 SELECTIVITY SWITCH (SW-2) IS SHOWN IN POSITION 3 (NORMAL SHARP)

BAND-SWITCH SHOWN AT 5th POSITION CLOCKWISE .
 SHORT WAVE BAND - 27 - 55 MC



BAND-SWITCH SHOWN AT 6th POSITION CLOCKWISE .
 SHORT WAVE BAND 55 - 108 MC

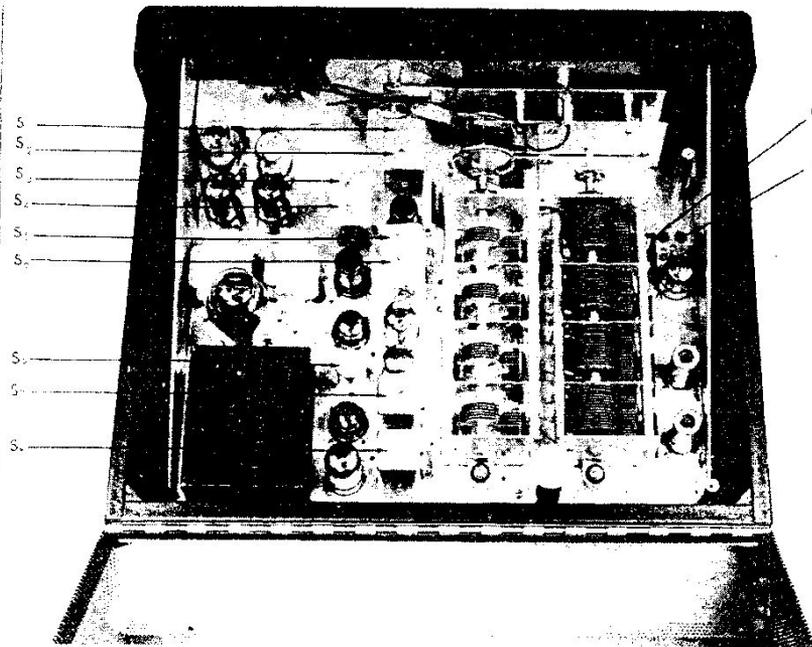


NOTES

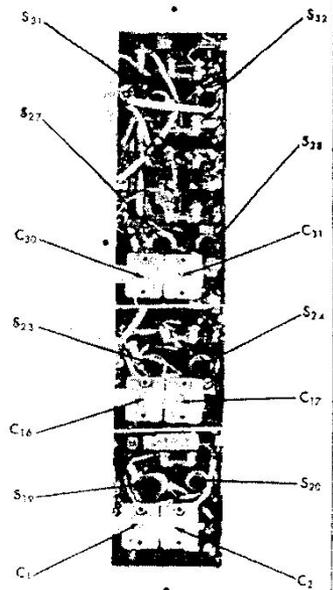
TCH (SW-4) IS SHOWN IN POSITION 2 (HI F1)
 V SWITCH (SW-3) IS SHOWN IN POSITION 3 (F.M.)
 Y SWITCH (SW-2) IS SHOWN IN POSITION 3 (NORMAL SHARP)

THE HALLICRAFTERS CO.

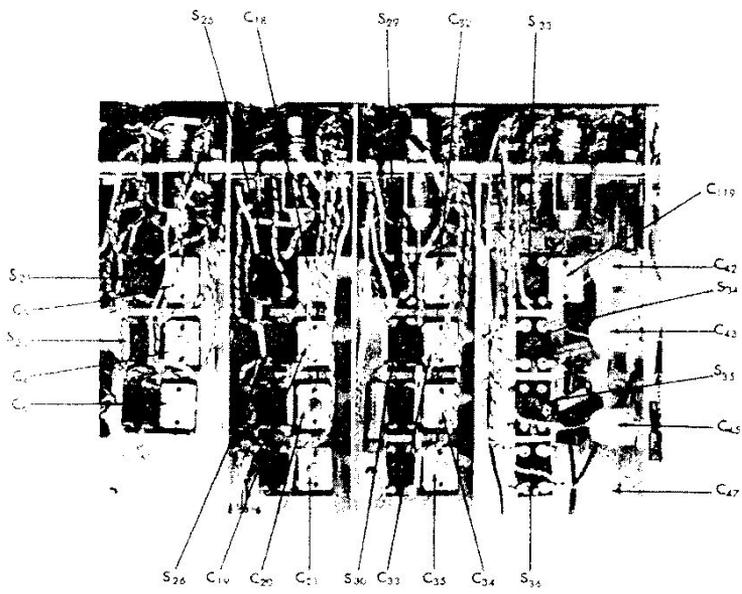
MODEL SX-42



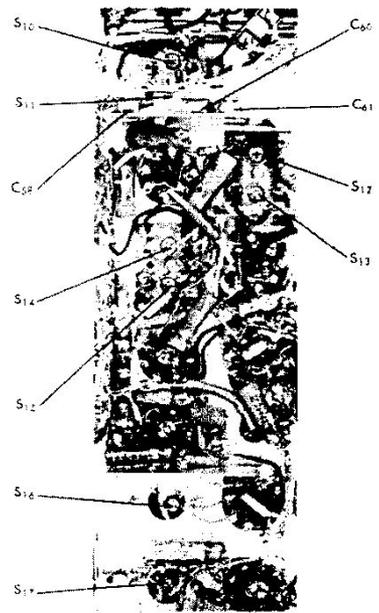
TOP VIEW



SIDE VIEW



BOTTOM VIEW



BOTTOM VIEW

TOP, BOTTOM AND SIDE VIEWS SHOWING ADJUSTMENT POINTS

REF. NO.	DESCRIPTION	HALLICRAFTERS PART NUMBER
TERMINAL STRIPS		
TS-1	Antenna-ground connections	98A567
TS-2	Same as TS-1; speaker connections	

METER		
M-1	Carrier level; tuning meter	82B100

CRYSTALS		
X-2	455 kc crystal assembly	19A123

JACKS		
J-1	PHONO jack	95A029
J-2	PHONES jack	95B030

CHOKES AND COILS		
L-1	R-f choke; oscillator	53B008
L-2	1-f coupling coil	53B104
L-3	Filter choke	56B067
L-4	R-f choke; filament	53B009
L-5	Screen choke	53A117
L-6	Screen choke	53A116
L-7	Cathode Choke	53A118

LINE CORD		
	A-c line cord with two prong plug	87A078

SOCKETS		
	Tube sockets; octal type; plain	6A035
	Tube sockets; midjet ceramic	6A199
	Tube sockets; loktal type; bakelite	6A213
	Tube sockets; loktal type; mica	6A223
	Pilot light socket; main tuning	6A258
	Pilot light socket; logging	6A259
	Pilot light socket; bandspread	6A260
	Pilot light socket; tuning meter	6A262

KNOBS		
	VOLUME control knob assembly	15A060
	PITCH CONTROL and CRYSTAL PHASING knob assembly	15A061
	RECEPTION control knob assembly	15A045
	SELECTIVITY control knob assembly	15A063
	tone control knob assembly	15A062
	SENSITIVITY control knob assembly	15A064
	BAND SELECTOR control knob assembly	15A057
	MAIN TUNING knob and dial assembly 0-100 Div.	41X8403
	BANDSPREAD knob	15A354

MISCELLANEOUS COMPONENTS		
	Tube shield (miniature tube)	69A065
	Adjustable tuning core	77A068
	Gear drive assembly	71C177
	Main tuning dial	83C266
	Bandspread dial	83B267
	Bandspread dial escutcheon less window	78010
	Bandspread escutcheon window	22A160
	Main tuning dial escutcheon less pointer	7D020
	Main tuning pointer	82A11C
	Main tuning escutcheon fastener clip	75A364
	Bandspread escutcheon fastener clip	75A300

ALIGNMENT INSTRUCTIONS

EQUIPMENT:

- Signal generator capable of the ranges indicated in the alignment chart, including a 400 cycle audio modulator.
- Output meter capable of handling 1.5 watts of audio power.
- Standard RFA dummy antenna—Consisting of a 200 pMF cond in series with a 20 oh R.F. choke shunted by a 400 pMF condenser in series with 300 OHM resistor.
- Non-metallic screw driver.
- One 300 ohm carbon resistor (Dummy ant for bands #5 and 6.)

CONNECTIONS: Connect the generator "cold" lead

to the receiver chassis; the "hot" lead is connected as indicated in the chart.

Connect the output meter across the 500 ohm speaker terminals.

CONTROL SETTINGS: Turn VOLUME control clockwise and allow about 15 minutes for tubes to heat up; then set the receiver controls as follows:

VOLUME	maximum	BANDSPREAD	zero
SENSITIVITY	maximum	RECEPTION	AM
AVC	off	CRYSTAL PHASING	0
NOISE LIMITER	noise limiter, off	CW PITCH	0
*SELECTIVITY	crystal sharp	TONE	optional
		RECEIVE-STANDBY	receive

* For fm alignment set RECEPTION control at FM and SELECTIVITY switch at normal broad.

**RADIO RECEIVER MODEL SX-42
I-F ALIGNMENT INSTRUCTIONS**

455 K.C. I-F ALIGNMENT:

- Set Controls as follows:
 - Bandswitch on w; Band.
 - M.F. Dial set to approximately 1 m.c.
 - R. F. gain full on.
 - ARK off, AVC off, Standby on.
 - FM-AM switch on AM.
 - Tone control on HiFi.
 - I.F. Selectivity switch on sharp I.F.
 - Connect output meter to 500 ohm speaker terminal.
- Unsolder small mica capacitor C39, only, from #1 Pin of 7F8 mixer, OSC. stage and connect hot side of signal generator thru a .1 capacitor to the #3 pin. Connect cold side of generator to the receiver chassis.
- Increase generator output until a signal is heard and then align slugs S₇, S₈, S₉, S₁₀, S₁₂, and S₁₄ for maximum output.
- Turn on BFO and adjust pitch control knob to zero and then adjust slug S₉ until the beat note is heard. Continue turning S₉ until the beat note is zero beat with the generator signal.
- Next adjust pitch control knob until the BFO note is about 1000 cycles off zero beat.
- Turn selectivity knob to broad crystal and

while slowly adjusting S₁₀, "rock" the signal generator until the output, as observed on the output meter, decreases and then slowly increases. Tune signal generator to the other side of zero beat and adjust crystal phasing knob for the null point.

Crystal phasing is left now in this position for this and following adjustments. At the point of minimum output, the slug S₁₀ is correctly set. This occurs between two maximum outputs, one with slug turned further in, and one with slug turned further out.

G. Next turn to sharp crystal and with C₆₁ at near minimum capacity, slowly turn trimmer in (increase capacity) while "rocking" the signal generator and adjust for maximum output meter reading. It may be necessary to reduce the set gain to prevent needle on output meter from hitting right hand stop. This is done by turning the R.F. sensitivity control down as well as reducing generator output to prevent overload. Volume control is left full on. After maximum output has been reached from the sharp crystal adjustment, turn trimmer further inward until a drop of about 2 DB occurs. At this point the sharp crystal will have very good selectivity without sacrificing too much gain.

H. Next, tune I-F generator to exact crystal frequency and by using the R.F. sensitivity control, adjust for an output meter reading of about 3/4 of full scale reading. Now turn to broad crystal and note the drop and its reading on the output meter. Then switch to medium crystal and with C₆₁ at near minimum capacity, slowly adjust trimmer for increase in capacity, while rocking generator. When the output meter reaches the point that is

about midway between the output reading in sharp crystal and in broad crystal, the medium crystal adjustment is complete.

J. Return to sharp crystal and rock signal

10.7 M.C. I-F ALIGNMENT:

A. Set controls as follows: Bandswitch on #5 Band, M.T. Dial about center scale. FM-AM switch on AM-AML off, AVC off, Tone Control on Hi Fi- AF gain at maximum, R.F. gain at maximum.

B. Same as "B" in 455 K.C. I-F alignment.

C. Increase generator output (set at 10.7 mc) until a signal is heard and adjust slugs S₄, S₅, S₉, S₁₃, S₁₅ for maximum output. As the signal increases, reduce generator output to prevent overloading. After S₄, S₅, S₉, S₁₃, S₁₅ are set for maximum output then set slugs S₂, S₁₁ for maximum output. Do not readjust the slugs S₄, S₅, S₉, S₁₃, S₁₅.

D. With a moderately loud signal now being re-

ceived, switch over to CW on and adjust Slug S₁₇ (after having set the pitch control knob to zero on dial) for zero beat. The BFO adjustment is now complete.

E. Switch to FM position on AM-FM switch and adjust slug S₁₆ for maximum output. Then adjust slug S₇ for null, or minimum output, as indicated on output meter. Next, slowly rock signal generator either side of 10.7 mc. and observe the maximum output readings obtained. If the outputs, either side of center are unequal, they may be equalized by adjusting slug S₁₆. When the balance has been obtained the FM adjustment is complete. Note: Make sure that the output meter is not off full scale when checking balance. Control this by reducing R-F sensitivity.

R. F. ALIGNMENT

DUMMY ANT. IN SERIES WITH SIG. GENERATOR	CONNECTION OF SIG. GENERATOR OUTPUT TO RECEIVER	SIGNAL GEN. FREQUENCY SETTING	BAND SWITCH SETTING	RECEIVER DIAL SETTING	ADJUST SLUG, FADDER, OR TRIMMER NO.	TYPE OF ADJUSTMENT	ADJUSTMENT FOR:	BAND SPREAD SETTING
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BAND #1 ADJUSTMENT

RMA	A-1 ON ANT. STRIP	1.4 MC	.54-1.62	1.4 MC	C47	osc.	Calibration	At zero
RMA	AND GROUND	.6 MC	.54-1.62	.6 MC	S36	osc.	Calibration	At zero
RMA	"	1.4 MC	.54-1.62	1.4 MC	C6	ant.	Max. Output	At zero
RMA	"	1.4 MC	.54-1.62	1.4 MC	C21	band pass	Max. Output	At zero
RMA	"	1.4 MC	.54-1.62	1.4 MC	C35	mixer	Max. Output	At zero

BAND #2 ADJUSTMENT

RMA	A-1 ON ANT. STRIP	4.0 MC	1.62-5.0	4.0 MC	C45	osc.	Calibration	At zero
RMA	AND GROUND	2.0 MC	1.62-5.0	2.0 MC	S35	osc.	Calibration	At zero
RMA	"	4.0 MC	1.62-5.0	4.0 MC	C20	ant.	Max. Output	At zero
RMA	"	4.0 MC	1.62-5.0	4.0 MC	C34	mixer	Max. Output	At zero

BAND #3 ADJUSTMENT

RMA	A-1 ON ANT. STRIP	14.0 MC	5-15	14.0 MC	C43	osc.	Calibration	At zero
RMA	AND GROUND	7.0 MC	5-15	7.0 MC	S34	osc.	Calibration	At zero
RMA	"	14.0 MC	5-15	14.0 MC	C4	ant.	Max. Output	At zero
RMA	"	14.0 MC	5-15	14.0 MC	C19	r-f	Max. Output	At zero
RMA	"	14.0 MC	5-15	14.0 MC	C33	mixer	Max. Output	At zero
RMA	"	7.0 MC	5-15	7.0 MC	S22	ant.	Max. Output	At zero
RMA	"	7.0 MC	5-15	7.0 MC	S26	r-f	Max. Output	At zero
RMA	"	7.0 MC	5-15	7.0 MC	S30	mixer	Max. Output	At zero

DUMMY ANT. IN SERIES WITH SIG. GENERATOR	CONNECTION OF SIG. GENERATOR OUTPUT TO RECEIVER	SIGNAL GEN. FREQUENCY SETTING	BAND SWITCH SETTING	RECEIVER DIAL SETTING	ADJUST SLUG, FADDER, OR TRIMMER NO.	TYPE OF ADJUSTMENT	ADJUSTMENT FOR:	BAND SPREAD SETTING
BAND #4 ADJUSTMENT								
RMA	A-1 ON ANT. STRIP	28 MC	15-30	10 Meter	C42	osc.	Calibration	28 MC
RMA	AND GROUND	18 MC	15-30	BS dot	S33	osc.	Calibration	Zero
RMA	"	18 MC	15-30	18 MC	S28	ant.	Max. Output	Zero
RMA	"	28 MC	15-30	28 MC	C18	r-f	Max. Output	Zero
RMA	"	28 MC	15-30	28 MC	C32	mixer	Max. Output	Zero
RMA	"	18 MC	15-30	18 MC	S21	ant.	Max. Output	Zero
RMA	"	18 MC	15-30	18 MC	S25	r-f	Max. Output	Zero
RMA	"	18 MC	15-30	18 MC	S29	mixer	Max. Output	Zero

NOTE: If the above two adjustments have been made correctly, it will be found that 28 MC on the band-spread dial will be exactly on calibration when the main tuning dial is set on the 10 meter band-spread dot. Now turn the band-spread dial to 29 MC and note if 29 MC falls high or low in calibration. If 29 MC is high in calibration trimmer C119 must be set at a higher capacity, after which the above two calibration adjustments must be repeated. If 29 MC is low in calibration trimmer C119 must be decreased in capacity, after which the above two calibration adjustments must be repeated.

BAND #5 ADJUSTMENT

300 ohms	A-1 ON ANT. STRIP	50 MC	28-55	6 Meter	C41	osc.	Calibration	50 MC
300 ohms	AND GROUND	30 MC	28-55	BS dot	S32	osc.	Calibration	Zero
300 ohms	"	50 MC	28-55	50 MC	C2	ant.	Max. Output	Zero
300 ohms	"	50 MC	28-55	50 MC	C17	r-f	Max. Output	Zero
300 ohms	"	50 MC	28-55	50 MC	C31	mixer	Max. Output	Zero
300 ohms	"	30 MC	28-55	30 MC	S20	ant.	Max. Output	Zero
300 ohms	"	30 MC	28-55	30 MC	S24	r-f	Max. Output	Zero
300 ohms	"	30 MC	28-55	30 MC	S28	mixer	Max. Output	Zero

NOTE: Remove plate from left side of chassis for Band #5 and #6 R.F. adjustment.

BAND #6 ADJUSTMENT

300 ohms	A-1 ON ANT. STRIP	105 MC	55-108	105 MC	C40	osc.	Calibration	Zero
300 ohms	AND GROUND	60 MC	55-108	60 MC	S31	osc.	Calibration	Zero
300 ohms	"	105 MC	55-108	105 MC	C1	ant.	Max. Output	Zero
300 ohms	"	105 MC	55-108	105 MC	C16	r-f	Max. Output	Zero
300 ohms	"	105 MC	55-108	105 MC	C30	mixer	Max. Output	Zero
300 ohms	"	60 MC	55-108	60 MC	S19	ant.	Max. Output	Zero
300 ohms	"	60 MC	55-108	60 MC	S23	r-f	Max. Output	Zero
300 ohms	"	60 MC	55-108	60 MC	S27	mixer	Max. Output	Zero

REF. NO.	DESCRIPTION	HALLCRAFTER'S PART NUMBER
CAPACITORS		
C-1,2,16,17,30,31	Trimmer, dual mounting assembly	44B165
C-3,4,6,18,19, 20,21,26,38, 34 & 35	R-F Trimmer (2-5 mfd) Ceramic	44B179
C-5	Capacitor (2 mfd 10% Molded Bakelite	49A002
C-7	Capacitor (5 mfd ± 5 m% .00075 T.C.) Ceramic	CC20UR150K
C-8,11,23,25	Capacitor (.05 mfd 150V) Paper	46A094
C-9	Capacitor, Main Tuning	48C188
C-10	Capacitor, Bandsread	49C189
C-12,26	Capacitor (.01 mfd +40-15% 400V) Paper	45AB103J
C-13,15,27,29, 30,32,33,74, 86,87,91,100, 104,106 & 112	Capacitor (.02 mfd +40-15% 400V) Paper	46A203J
C-14,28	Capacitor (5800 mfd 20% 500V) mica	CM25A662M
C-22,36	Capacitor (15 mfd 10% .00075 T.C.) Ceramic	CC20UR150K
C-24	Capacitor (.25 mfd +40-15% 200V) paper	46AT254J
C-27,97	Capacitor (47 mfd 10% 500V) Mica	CM20A70K
C-38	Capacitor (.01 mfd 150V) Paper	46A095
C-39,49	Capacitor (110 mfd 5% .00075 T.C.) Ceramic	CC25U111J
C-40,41	Trimmer (4-20 mfd) Ceramic	44A078
C-42,43,9	Trimmer (6-8 mfd) Mica	44A075
C-43,45	Trimmer (2-6 mfd) Ceramic	44A077
C-44	Capacitor (4700 mfd 2% 500V) Mica	CM25C472G
C-46	Capacitor (1500 mfd 2% 500V) Mica	CM20C150G
C-47	Trimmer (4-20 mfd) Ceramic	44A076
C-48	Capacitor (470 mfd 2% 500V) Mica	CM20A471G
C-51	Capacitor (220 mfd 2% 500V) Mica	CM25A221G
C-52,66,71,99, 108 & 118	Capacitor (.05 mfd +40-15% 400V) Paper	46AW303J
C-57,105	Capacitor, Variable (CW Pitch & Crystal Phasing)	48A064
C-58,60,61	Trimmer Assembly (Triple, 1.5 mfd to 25 mfd, 1.3 mfd to 15 mfd, 1.5 mfd to 25 mfd)	44B164
C-62,70,85	Capacitor (.05 mfd +40-15% 200V) Paper	46AN533J
C-75,79,81,92, 122,105,121	Capacitor (.01 mfd +40-15% 400V) Paper	46AW103J
C-78	Capacitor (22 mfd 10% 500V) Mica	CM20A220K
C-80,120,124,125	Capacitor (7 mfd 10% .00075 T.C.) Ceramic	CC20UR070K
C-82,83,89,90	Capacitor (180 mfd 10% 500V) Mica	CM20A180K
C-84	Capacitor (.1 mfd +40-15% 200V) Paper	46AU104J
C-98	Capacitor (680 mfd 10% 500V) Paper	CM25A681K
C-107	Capacitor (10 mfd +75-10% 25V) Electrolytic	45A064
C-110	Capacitor (680 mfd 10% 500V) Mica	CM25A681K
C-111,113,116	Capacitor, Electrolytic	45AC41
C-114,115,117	Capacitor (.01 mfd 40-15% vdcw) Paper	46AG103J
C-123	Capacitor (22 mfd 10% .00075) Ceramic	CC20UR220K

RESISTORS

R-1,10,51	Resistor (1,000,000 ohm 20% 1/2 watt) Carbon	RC20A1004K
R-2	Resistor (12 ohm 10% 1/2 watt) Carbon	RC20A120K
R-3,15	Resistor (150 ohm 10% 1/2 watt) Carbon	RC20A151K
R-4	Resistor (47,000 ohm 10% 1 watt) Carbon	RC20A473K
R-5,9,14,19	Resistor (15 ohm 20% 1/2 watt) Carbon	RC20A150K
R-6,13,17,20	Resistor (2200 ohm 20% 1/2 watt) Carbon	RC20A222K
R-7,15,40,67, 74 & 78	Resistor (1200 ohm 10% 1/2 watt) Carbon	RC20A122K
R-12	Sensitivity Control (10,000 ohm Pot. 1/2 watt)	25A549
R-16,22,32,70,86	Resistor (1000 ohm 20% 1/2 watt) Carbon	RC20A102M
R-21,43,58	Resistor (2.2 megohm 20% 1/2 watt) Carbon	RC20A222M
R-23	Resistor (47 ohm 20% 1/2 watt) Carbon	RC20A470M
R-25,56,75,69	Resistor (10,000 ohm 10% 1/2 watt) Carbon	RC20A105K
R-26	Resistor (5600 ohm 10% 1/2 watt) Carbon	RC20A562K
R-27	Resistor (470 ohm 20% 1/2 watt) Carbon	RC20A471M
R-28	Resistor (68,000 ohm 10% 1 watt) Carbon	RC20A683K
R-29	Resistor (120 ohm 10% 1/2 watt) Carbon	RC20A121K
R-30,41,42,64,88	Resistor (1 megohm 20% 1/2 watt) Carbon	RC20A105M
R-31	Resistor (220 ohm 10% 1/2 watt) Carbon	RC20A221K
R-34	Variable resistor (500 ohm) "S" type	25C022
R-36	Resistor (1.2 megohm 10% 1/2 watt) Carbon	RC20A125K
R-37	Resistor (27 ohm 10% 1/2 watt) Carbon	RC20A270K
R-38	Resistor (270 ohm 10% 1/2 watt) Carbon	RC20A271K
R-39,59,87	Resistor (56,000 ohm 10% 1/2 watt) Carbon	RC20A562K
R-43	Resistor (22,000 ohm 10% 1/2 watt) Carbon	RC20A221K
R-44	Resistor (2 megohm 20% 1/2 watt) Carbon	RC20A205M
R-45,95	Resistor (350 ohm 20% 1 watt) Carbon	RC20A351K
R-46,57,71,94	Resistor (47,000 ohm 10% 1/2 watt) Carbon	RC20A473K
R-49	Resistor (580,000 ohm 10% 1/2 watt) Carbon	RC20A584K
R-50,97	Resistor (33 ohm 10% 1/2 watt) Carbon	RC20A330K

R-52,53,66	Resistor (470,000 ohm 20% 1/2 watt) Carbon	RC20A474K
R-54	Resistor (100,000 ohm 10% 1 watt) Carbon	RC20A104K
R-55	Resistor (33,000 ohm 10% 1/2 watt) Carbon	RC20A332K
R-60	Resistor (390 ohm 10% 1/2 watt) Carbon	RC20A391K
R-65	Resistor (150,000 ohm 10% 1/2 watt) Carbon	RC20A154K
R-68	Resistor (5100 ohm 5% 1/2 watt) Carbon	RC20A512J
R-72	Resistor (100 ohm 10% 1/2 watt) Carbon	RC20A101K
R-73	Volume Control (2 meg. pot. 1/2 watt) includes power switch SW-8	25A549
R-76,24,92	Resistor (56 ohm 10% 1/2 watt) Carbon	RC20A562K
R-77	Resistor (1000 ohm 10% 2 watt) Carbon	RC20A102K
R-79,90,81,83	Resistor (220,000 ohm 10% 1/2 watt) Carbon	RC20A224K
R-82	Resistor (3200 ohm 10% 1/2 watt) Carbon	RC20A322K
R-84	Resistor (220 ohm 10% 2 watt) Carbon	RC20A221K
R-85	Resistor (2000 ohm 5% 10 watt) Wirewound	24B222D
R-89	Resistor (68,000 ohm 10% 1/2 watt) Carbon	RC20A683K
R-90	Resistor (15 ohm, 20% 1/2 watt) Carbon	RC20A150M
R-91,93	Resistor (4700 ohm 10% 1/2 watt) Carbon	RC20A472K
R-96	Resistor (680 ohm, 20% 1/2 watt) Carbon	RC20A681M

REF. NO.	DESCRIPTION	HALLCRAFTER'S PART NUMBER
PILOT LAMP		
LM-1,2,3	6-8 volt; 250 ma; bayonet type	39A018
LM-4	6-8 volt; 150 ma; bayonet type	39A019

PLUG

PL-1	Shorting plug; octal	35A015
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SWITCHES

SW-1	Band Selector	60D941
SW-2	Selectivity	60A234
SW-3	Reception	60C285
SW-4	Tone	60C296
SW-5,6,7	AVC, Noise Limiter, Receiver-Standby toggle with bat handle; SPST	60A138
SW-8	Power-off; not a replaceable part; shown for reference only; part of volume control R-73	

TRANSFORMERS

T-1	Antenna Coil; Band #6	51B839
T-2	Antenna Coil; Band #5	51B837
T-3	Antenna Coil; Band #4	51B826
T-4	Antenna Coil; Band #3	51B828
T-5	Antenna Coil; Band #1	51B833
T-6	R-F Coil; Band #6	51B832
T-7	R-F Coil; Band #5	51B831
T-8	R-F Coil; Band #4	51B830
T-9	R-F Coil; Band #3	51B825
T-10	R-F Coil; Band #2	51B824
T-11	R-F Coil; Band #1	51B844
T-13	Converter Coil; Band #5	51B843
T-14	Converter Coil; Band #4	51B842
T-15	Converter Coil; Band #3	51B841
T-16	Converter Coil; Band #2	51B840
T-17	Converter Coil; Band #1	51B839
T-18	Oscillator Coil; Band #6	51B838
T-19	Oscillator Coil; Band #5	51B837
T-20	Oscillator Coil; Band #4	51B836
T-21	Oscillator Coil; Band #3	51B834
T-22	Oscillator Coil; Band #2	50C198
T-23	Oscillator Coil; Band #1	50C199
T-24	1st I-F Transformer	50C197
T-25	2nd I-F Transformer	50C191
T-26	3rd I-F Transformer	54C092
T-27	Discriminator Transformer	56B777
T-28	BFO Transformer	56C141
T-29	Audio Output Transformer	
T-30	Power Transformer	