NOVEMBER 1947
94X317
Run No. 2

the hallicrafters co.

SERVICE BULLETIN FOR MODEL SX-42

GENERAL:

Tubes. . . . . .Fourteen plus rectifier
Speaker Output .500/5000 Ohms
Headset Output .High Impedance
Antenna Input. .For 72 to 600-ohm line or single wire lead-in
Phono Input. . .High Impedance
External Power Connector . . .Std. Octal Socket
Tuning Range . .Band 1. 540 kc - 1620 kc AM/CW
2. 1.6 mc - 5 mc AM/CW
3. 5 mc - 15 mc AM/CW
4. 15 mc - 30 mc AM/CW
5. 27 mc - 55 mc AM/FM/CW
6. 55 mc - 110 mc AM/FM/CW
Intermediate Frequency . . .455 kc/10.7 mc.
Power Supply . .105-125 V. 50/60 cycles AC.
Power Consumption. . . . . .110 Watts

CARRIER LEVEL METER ADJUSTMENT:

1. Before turning on the receiver, set the pointer adjustment screw on the face of the meter for the right hand rest position. (Line up the pointer with the last division on the scale.)

2. Connect a jumper between the two antenna terminals (A1 and A2) and ground. (GND.)

3. Set front panel controls as follows:

   SENSITIVITY - Maximum
   RECEPTION - AM
   SELECTIVITY - Normal/Sharp
   AVC SWITCH - AVC
   RECEIVE-STANDBY SWITCH - Receive
   BAND SELECTOR - 15/30
   VOLUME - Maximum (No signal should be heard.)

4. Set S METER ADJ. control located on rear chassis apron for the "S" unit zero on the CARRIER LEVEL meter.

POSITIONING CONTROL KNOBS:

BAND SELECTOR - As required by markings
VOLUME - Zero at full counter clockwise rotation.
CRYSTAL PHASING - Zero with plates half meshed.
RECEPTION - As required by markings.
CW PITCH - Zero with plates half meshed.
SELECTIVITY - As required by markings.
TONE - As required by markings.
SENSITIVITY - Zero at full counter clockwise rotation.

RESTRINGING DIAL CORD:

Two dial drive cords are used on the bandspread dial drive mechanism. To restring the upper dial cord, use a length of 18 lb. test cord and tie one end to the tension spring in the large pulley at position 1. in the diagram. Follow the numbers 1 through 15., stretch the tension spring and tie the cord securely. To restring the lower dial cord, tie the cord at A and follow the lettered route A through N as illustrated.

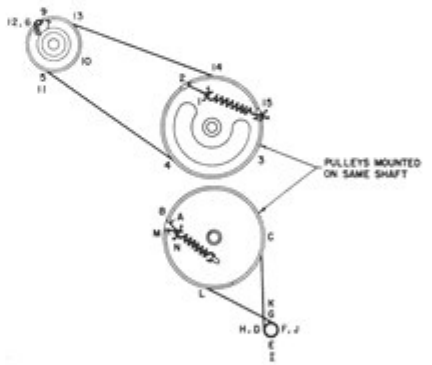


Fig. 1. Dial cable stringing procedure.

REPLACING LAMPS:

There are three dial lamps and one meter lamp. To replace the lamps, it is necessary to remove the receiver chassis from the cabinet and remove the light shield across the top of the dial drive mechanism. The chassis is fastened to the cabinet by four front panel screws and three chassis screws at the bottom rear of the cabinet. The light shield is held down by four screws, two at each end of the channel. Replace the dial lamps with 6-8 V. 250 MA. G.E. #44 (Blue bead) lamps or equivalent. The meter lamp is removed by pulling the socket straight out of the grommet. Replace this lamp with 6-8 V. 150 MA. G.E. #47 (Brown bead) or equivalent. *Do not use a 250 MA. lamp in the meter housing as the excessive heat will discolor the meter scale.* Refer to the SERVICE PARTS LIST for recommended lamps with a green tint.

ALIGNMENT PROCEDURE

The standard RMA dummy antenna mentioned in the alignment chart consists of a 200 mmf condenser in series with a 20 uh r-f choke which is shunted by a 400 ohm carbon resistor.

Throughout the alignment of the receiver, the bandspread dial must be set at zero to obtain exact calibration on the general coverage dial.

I.F. ALIGNMENT (455 kc) - Set the controls as follows:

BAND SELECTOR - .54/1.62
AVC - OFF.
NOISE LIMITER - Off.
RECEIVE-STANDBY - RECEIVE
RECEPTION - AM
SELECTIVITY - NORMAL/SHARP.
SENSITIVITY - Near maximum
VOLUME - Near maximum
General coverage dial set at approx. 1000 kc.

Connect signal generator through an 0.1 mfd capacitor to pin #1. of the 7F8 converter stage.

With signal generator set at approx. 455 kc. align slugs S-1,3,5,10,12 and 14 for maximum output.

Set RECEPTION control at CW and CW PITCH knob at zero and adjust slug S-8 for zero beat. Reset the CW PITCH control for a 1000 cycle note.

Turn SELECTIVITY control to CRYSTAL/BROAD and while slowly turning slug S-10 in one direction, "rock" the signal generator and observe that the signal output decreases, then slowly increases. Set signal generator at weaker of two signals on each side of zero beat and adjust CRYSTAL PHASING control for a complete null. This setting is left untouched for following adjustments.

Turn SELECTIVITY control to CRYSTAL/SHARP and with C-61 set near minimum capacity, slowly increase its capacity while "rocking" the signal generator and adjust for maximum output. It may be necessary at this point to reduce the signal generator input and the receiver sensitivity to prevent overloading. After peaking the adjustment, turn the trimmer in until a drop in output of about 2 db occurs. At this point the sharp crystal will have very good selectivity without sacrificing too much gain.

Tune the signal generator to exact crystal frequency and note output meter reading. Set SELECTIVITY control at CRYSTAL/BROAD and note drop and output meter reading. Now switch to CRYSTAL/MEDIUM and with C-60 near minimum capacity, slowly increase its capacity, while "rocking" the signal generator, until the output meter indicates about midway between the output reading in sharp crystal and broad crystal position.

Set the SELECTIVITY control at CRYSTAL/SHARP and reset signal generator for the exact crystal frequency, then switch to NORMAL/SHARP and reset slugs S-4, 3,5,12,14 and trimmer C-58 for maximum output.

Now repeat the adjustment of the BFO slug S-8 for zero beat with the CW PITCH control set at zero.

IF ALIGNMENT (10.7 mc) - Set the controls as follows:

BAND SELECTOR - 28/55
AVC - OFF
NOISE LIMITER - Off
RECEIVE-STANDBY - RECEIVE
RECEPTION - AM
SELECTIVITY - NORMAL/SHARP
SENSITIVITY - Near maximum
VOLUME - Near maximum.
General coverage dial set about midscale.

Connect signal generator through an 0.1 capacitor to pin #1 of the 7F8 converter stage.

Set signal generator for 10.7 mc and adjust slugs S-4, 6, 9, 13, 15 for maximum output. Now set slugs S-2 and S-11 for maximum output, but do not readjust slugs S-4, 6, 9, 13 and 15.

Set RECEPTION control at CW and adjust slug S-17 for zero beat with the CW PITCH control set at zero.

Set RECEPTION control at FM and adjust slug S-16 for maximum output. Now set slug S-7 for the null or minimum output as indicated on the output meter. Check the discriminator by slowly tuning the signal generator through 10.7 mc and observe the two maximum audio level readings on the output meter. If the two peaks are equal, the job is done; if not, it may be necessary to reset slug S-16 until balance is obtained.

RF ALIGNMENT - After completing the alignment of the IF stages, the RF stages may be aligned according to the following alignment chart. Connect the signal generator to terminal A-1 through the dummy antenna specified and connect a jumper between antenna terminal A-2 and GND,

ALIGNMENT PROCEDURE

Dummy Antenna	Signal Generator Frequency	Band Selector Pos.	Radio Dial Setting	Adjust	Remarks
RMA	1500 kc	.54/1.62	1500 kc	C-47*, 6, 21, 35	Adjust for max. output.
	600 kc		600 kc	S-36*	
RMA	4.5 mc	1.62/5.0	4.5 mc	C-45*, 20, 34	Adjust for max. output
	2.0 mc		2.0 mc	S-35*	
RMA	14.0 mc	5/15	14.0 mc	C-43*, 4, 19, 33	Adjust for max. output
	7.0 mc		7.0 mc	S-34*, 22, 26, 30	
RMA	28 mc	15/30	28 mc	C-42*, 3, 18, 32	Adjust for max. output
300-ohm non inductive resistor	50 mc	28/55	50 mc	C-41*, 2, 17, 31	Adjust for max. output
	30 mc		30 mc	S-32*, 20, 24, 28	
300-ohm non inductive resistor	105 mc	55/108	105 mc	C-40*, 1, 16, 30	Adjust for max. output
	60 mc		60 mc	S-31*, 19, 23, 27	

* Note - Calibration adjustment

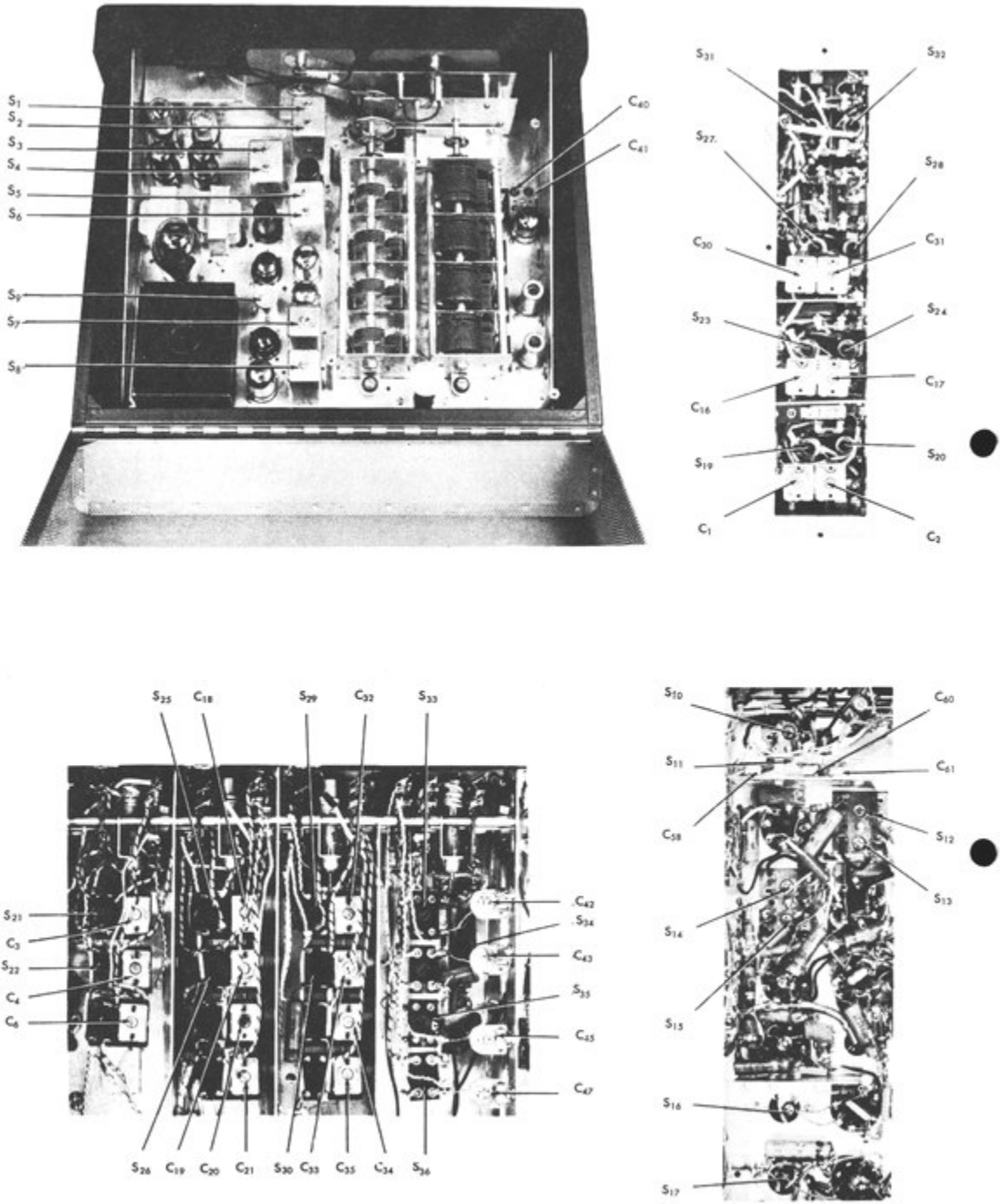


Fig. 2. Top, bottom and side views showing alignment adjustments.

SERVICE PARTS LIST

CAPACITORS

REF. NO.	DESCRIPTION	HALLICRAFTER'S PART NUMBER
C-1, 2, 16, 17, 30, 31	Capacitor, trimmer, dual mounting ass'y	44B165
C-3, 4, 6, 18, 19, 20, 21, 32, 33, 34, 35,	Capacitor, trimmer. Part of transformers T-3, 4, 5, 8, 9, 10, 11, 14, 15, 16 & 17 respectively.	
C-5, 129, 130	2 mmf. 500 V., molded bakelite.	49A002
C-7	5 mmf. 500 V. T.C., ceramic	CC20UK050D
C-8, 11, 25	.05 mfd. 200 V., tubular paper	46A091
C-9	Capacitor, tuning, general coverage	48C158
C-10	Capacitor, tuning, bandspread	48C159
C-12, 26	.01 mfd. 400 V., tubular paper	46AB103J
C-13, 15, 27, 29, 50, 59, 63, 74, 86, 87, 91, 100, 104, 109, 112, 132	.02 mfd. 400 V., tubular paper	46AW203J
C-14, 28	5600 mmf. 500 V., mica	CM35A562M
C-22	15 mmf. 500 V. T.C., ceramic	CC20UK150K
C-23, 62, 70, 84, 85	.05 mfd. 200 V. tubular paper	46AU503J
C-24	.25 mfd. 200 V., tubular paper	46AT254J
C-37, 97	47 mmf. 500 V., mica	CM20A470K
C-38, 75, 92, 106, 121, 122, 131	.01 mfd. 400 V., tubular paper	46AW103J
C-39, 49	110 mmf. 500 V. T.C., ceramic	CC25UK111J
C-40, 41	Capacitor, trimmer 4-20 mmf	44A078
C-42	Capacitor, trimmer 55-75 mmf	44A347
C-43, 45	Capacitor, trimmer 2-6 mmf	44A077
C-44	4700 mmf. 500 V., mica	CM35C472G
C-46	1500 mmf. 500 V., mica	CM30C152G
C-47	Capacitor, trimmer 4-20 mmf	44A076
C-48	470 mmf. 500 V., mica	CM20A471G
C-51	220 mmf. 500 V., mica	CM25E221G
C-52, 66, 71, 99,	.05 mfd. 400 V., tubular paper	46AW503J
C-57, 105	Capacitor, variable, CW PITCH & CRYSTAL PHASING	48A064
C-58, 60, 61	Capacitor, trimmer ass'y	44B164
C-89, 90	180 mmf. 500 V., mica	CM20A181K
C-98	560 mmf. 500 V., mica	CM25A561K
C-107	10 mfd. 25 V., electrolytic	45A064
C-108, 118	.05 mfd. 600 V., tubular paper	46AY503J
C-110	680 mmf. 500 V., mica	CM25A681K
C-111, 113, 116	20 mfd. 25 V.: 30-20 mfd. 450 V. electrolytic	45A041
C-114, 115, 117	.01 mfd. 600 V., tubular paper	46AG103J
C-120	7 mmf. 500 V. T.C., ceramic	CC20UK070K
C-123	15 mmf. 500 V. T.C., ceramic	CC20UK150K
C-127	100 mfd. 25 V., electrolytic	45A116
C-133, 134, 135	.01 mfd. 600 V., tubular paper	46AY103J

SERVICE PARTS LIST (Continued)

RESISTORS

REF. NO.	DESCRIPTION	HALLICRAFTER'S PART NUMBER
R-1, 10, 51	100,000 ohms ½ watt, carbon	RC20AE104M
R-2	12 ohms ½ watt, carbon	RC20AE120K
R-3, 15	150 ohms ½ watt, carbon	RC20AE151K
R-4, 54	47,000 ohms 1 watt, carbon	RC30AE473K
R-5, 9, 14, 19, 90, 103, 104	15 ohms ½ watt, carbon	RC20AE150M
R-6, 13, 17, 20	2200 ohms ½ watt, carbon	RC20AE222M
R-7, 18, 40, 67, 74, 78	1200 ohms ½ watt, carbon	RC20AE122K
R-8, 53, 66	470,000 ohms ½ watt, carbon	RC20AE474M
R-11	5.6 megohms ½ watt, carbon	RC20AE565K
R-12	Resistor, variable, SENSITIVITY control	25A548
R-16, 22, 32, 45, 70, 86, 106	1000 ohms ½ watt, carbon	RC20AE102M
R-21, 48, 107	2.2 megohms ½ watt, carbon	RC20AE225M
R-23	47 ohms ½ watt, carbon	RC20AE470M
R-24	33 ohms ½ watt. carbon	RC20AE330M
R-25, 69, 75	10,000 ohms ½ watt, carbon	RC20AE103K
R-26	5600 ohms 1 watt, carbon	RC20AE562K
R-27	470 ohms ½ watt, carbon	RC20AE471M
R-28	68,000 ohms 1 watt, carbon	RC30AE683K
R-29	120 ohms ½ watt, carbon	RC20AE121K
R-30, 42, 52, 64	1 megohm ½ watt, carbon	RC20AE105M
R-31, 60	330 ohms ½ watt, carbon	RC20AE331K
R-34	Resistor, variable, carrier level meter adjustment	25C022
R-36	1.2 megohms ½ watt, carbon	RC20AE125K
R-37	100,000 ohms 1 watt, carbon	RC30AE104K
R-38	270 ohms ½ watt, carbon	RC20AE271K
R-39, 59, 87	56,000 ohms ½ watt, carbon	RC20AE563K
R-41, 58, 79, 80, 81, 83	220,000 ohms ½ watt, carbon	RC20AE224K
R-49	330,000 ohms ½ watt, carbon	RC20AE334K
R-50	1800 ohms ½ watt, carbon	RC20AE182K
R-55	10,000 ohms 1 watt, carbon	RC30AE103K
R-56, 57, 71 94	47,000 ohms ½ watt, carbon	RC20AE473K
R-65	150,000 ohms ½ watt, carbon	RC20AE154K
R-68	5100 ohms ½ watt, carbon	RC20AE512J
R-72, 105	100 ohms ½ watt, carbon	RC20AE101K
R-73	Resistor, variable VOLUME control	25A549
R-76, 92	56 ohms ½ watt, carbon	RC20AE560K
R-77	100 ohms 2 watts, carbon	RC40AE102K
R-82	8200 ohms ½ watt, carbon	RC20AE822K
R-84	220 ohms 2 watts, carbon	RC40AE221K
R-85	2000 ohms 10 watts, wire wound	24BG202D
R-88	2.2 megohms ½ watt, carbon	RC20AE225K
R-89	68,000 ohms ½ watt, carbon	RC20AE683K
R-91, 93	4700 ohms ½ watt, carbon	RC20AE472K
R-101, 102	330 ohms ½ watt, carbon	RC20AE331M

TRANSFORMERS AND COILS

T-1	Transformer, antenna, band 6	51B829
T-2	Transformer, antenna, band 5	51B828
T-3	Transformer, antenna, band 4	51B990

SERVICE PARTS LIST

REF. NO.	DESCRIPTION	HALLICRAFTER'S PART NUMBER
T-4	Transformer, antenna, band 3	51B826
T-5	Transformer, antenna, band 1	51B823
T-6	Transformer, r-f stage, band 6	51B833
T-7	Transformer, r-f stage, band 5	51B832
T-8	Transformer, r-f stage, band 4	51B989
T-9	Transformer, r-f stage, band 3	51B987
T-10	Transformer, r-f stage, band 2	51B825
T-11	Transformer, r-f stage, band 1	51B824
T-12	Transformer, converter, band 6	51B833
T-13	Transformer, converter, band 5	51B844
T-14	Transformer, converter, band 4	51B989
T-15	Transformer, converter, band 3	51B988
T-16	Transformer, converter, band 2	51B986
T-17	Transformer, converter, band 1	51B985
T-18	Transformer, oscillator, band 6	51B839
T-19	Transformer, oscillator, band 5	51B838
T-20	Transformer, oscillator, band 4	51B991
T-21	Transformer, oscillator, band 3	51B836
T-22	Transformer, oscillator, band 2	51B835
T-23	Transformer, oscillator, band 1	51B834
T-24	Transformer, 1st I-F	50C198
T-25	Transformer, 2nd I-F	50C190
T-26	Transformer, 3rd I-F	50C373
T-27	Transformer, FM detector	50C191
T-28	Transformer, BFO	54C032
T-29	Transformer, audio output	55B077
T-30	Transformer, power (115 V. 50/60 cycles)	52C141
T-30	Transformer, power (115/230 V. 50/60 cycles)	52C131
L-1	R.F. choke, oscillator	53B008
L-2	I-F coupling coil	53B104
L-3	Choke, filter	56B067
L-4	R.F. choke, filament	53B009
L-5	R.F. choke, screen (Wound on R-95)	53A117
L-6	R.F. choke, screen (Wound on R-96)	53A117

SWITCHES

SW-1	Switch, BAND SELECTOR	60D298
SW-2	Switch, SELECTIVITY	60A234
SW-3	Switch, RECEPTION	60C235
SW-4	Switch, TONE	60C236
SW-5, 6, 7	Switch, toggle, SPST	60A138
SW-8	Switch, power, part of VOLUME control R-73	

PLUGS AND SOCKETS

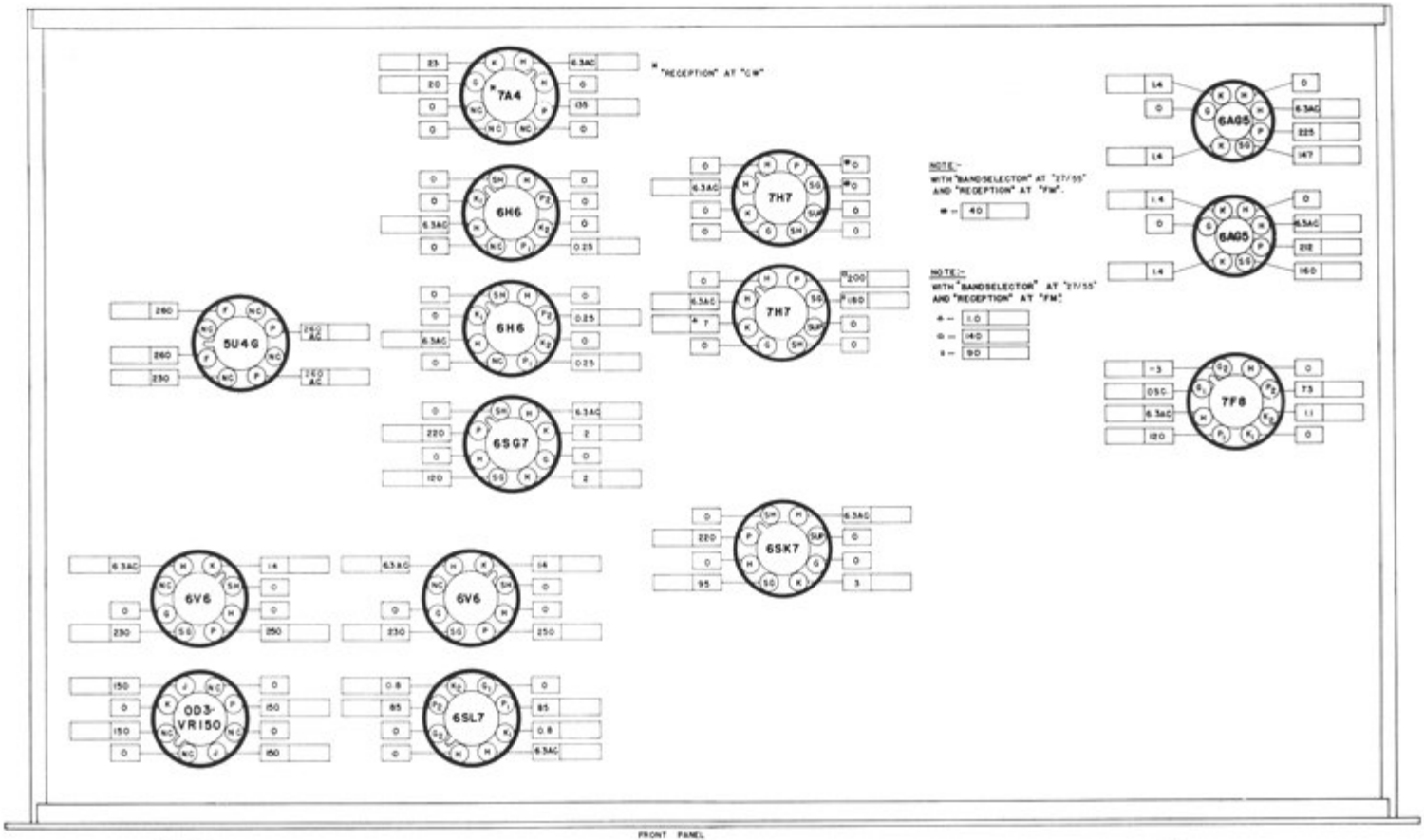
PL-1	Plug, octal, with jumpers	35A015
PL-2	Plug and cord, power	87A078
	Socket, octal (tube) bakelite	6A035
	Socket, miniature (tube) ceramic	6A193
	Socket, loktal (tube) bakelite	6A213
	Socket, loktal (tube) mica filled	6A223
	Socket, dial light, general coverage dial	6A258
	Socket, dial light, logging scale	6A259
	Socket, dial light, bandspread dial	6A260
	Socket, dial light, tuning meter	6A262
J-1	Jack, phono	36A029
J-2	Jack, phones	36B030

TUBES, RECTIFIERS AND LAMPS

	Type 6AG5, antenna	90X6AG5
	Type 6AG5, R-F amplifier	90X6AG5
	Type 7F8, oscillator-converter	90X7F8
	Type 6SK7, 1st I-F amplifier	90X6SK7
	Type 6SG7, 2nd I-F amplifier	90X6SG7
	Type 6H6, noise limiter	90X6H6
	Type 7H7, 3rd I-F amplifier	90X7H7
	Type 7H7, AM detector	90X7H7
	Type 6H6, discriminator	90X6H6
	Type 6SL7, phase inverter	90X6SL7
	Type 6V6, AF power amplifier	90X6V6
	Type 6V6, AF power amplifier	90X6V6
	Type 7A4, BFO and FM tuning meter amplifier	90X7A4
	Type CD3/VR150 Volt Regulator	90XVR150
	Type 5U4G Rectifier	90X5U4G
LM-1, 2, 3,	Lamp, 6-8 V., 250 MA., green tint	39A018
LM-4	Lamp, 6-8 V., 150 MA., green tint	39A019

MISCELLANEOUS COMPONENTS

TS-1, 2	Terminal strip, antenna-ground or speaker	88A567
	Screw, knurled head, for above terminal strip	3A1371
M-1	Meter, CARRIER LEVEL	82B100
X-1	Crystal, 455 kc	19A123
	Knob, VOLUME control	15A060
	Knob, CW PITCH or CRYSTAL PHASING control	15A061
	Knob, RECEPTION control	15A045
	Knob, SELECTIVITY control	15A063
	Knob, TONE control	15A062
	Knob, SENSITIVITY control	15A064
	Knob, BAND SELECTOR control	15A057
	Dial, micro tuning	83B243
	Knob, main tuning	15A055
	Knob, band spread	15A054
	Knob, brake	15A052
	Shield, tube (miniature tube)	69A065
	Core, powdered iron	77A068
	Dial drive assembly	71C177
	Dial, general coverage tuning	83C330
	Dial, bandspread tuning	83B328
	Escutcheon, band spread dial	7B019
	Window, bandspread dial escutcheon	22A160
	Escutcheon, general coverage dial	7D020
	Pointer, general coverage dial escutcheon	82A110
	Clip, general coverage dial escutcheon	76A364
	Clip, bandspread dial escutcheon	76A309



NOTE:-

1. SOCKET VIEWS ARE BOTTOM VIEWS.
2. ALL VOLTAGES MEASURED BETWEEN TUBE SOCKET TERMINALS AND GROUND.
3. LINE VOLTAGE — 117 V. AC.
4. ALL VOLTAGES SHOWN ARE DC UNLESS OTHERWISE SPECIFIED.
5. VOLTAGES SHOWN WERE MEASURED WITH A 20,000 OHM/VOLT METER.
6. "NC" — NO CONNECTION.

7. CONTROL SETTING — UNLESS SPECIFIED.
"BAND SELECTOR" AT BAND 1.
"RECEPTION" AT "AM".
"AVC" AT ON.
"NOISE LIMITER" OFF.
"RECEIVE — STANDBY" AT "RECEIVE".
"SENSITIVITY" AT MAXIMUM GAIN.
"SELECTIVITY" AT "NORMAL / BOARD".

Fig. 3. Tube socket voltage chart.

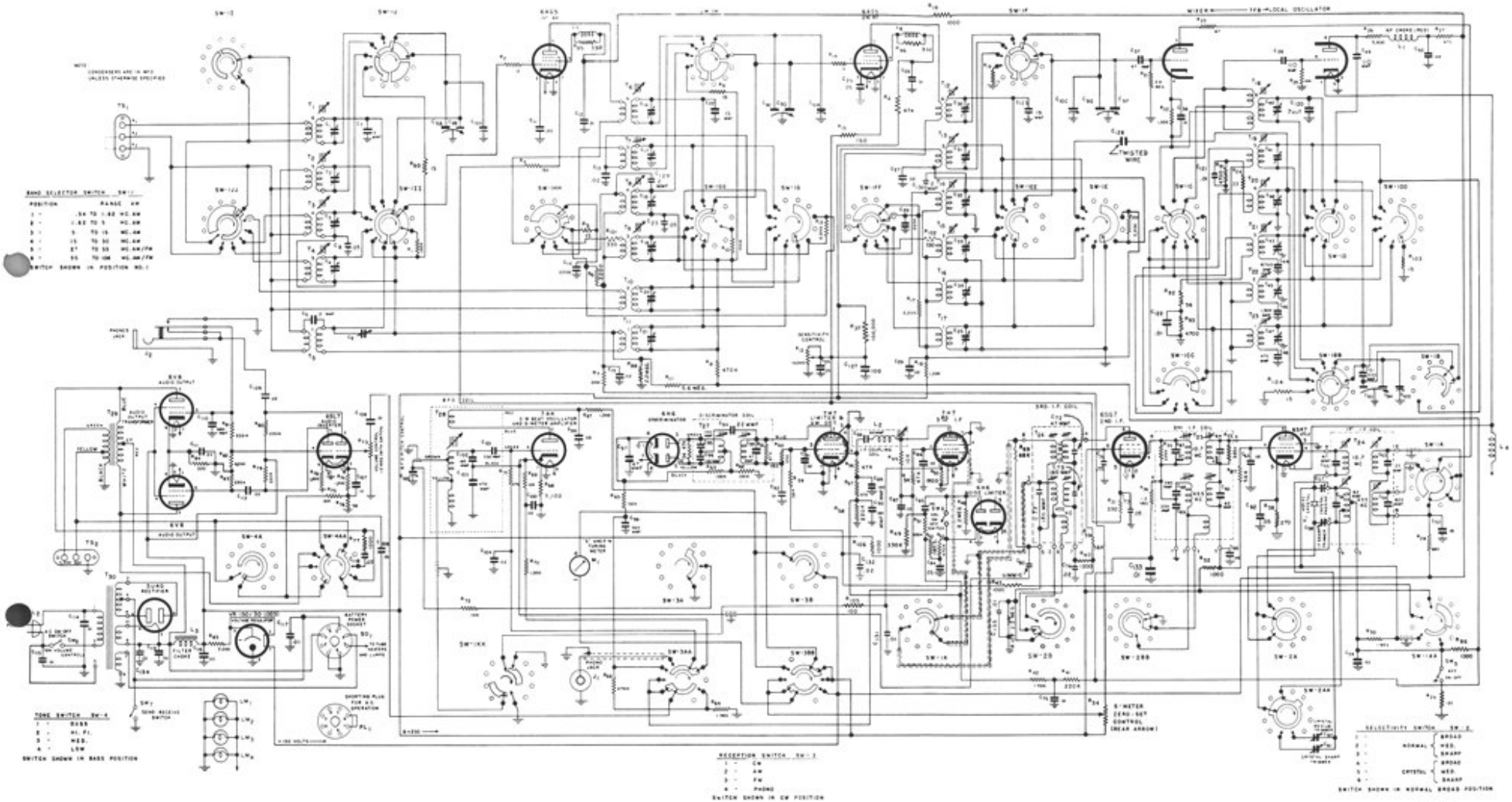


FIG. 4. SCHEMATIC WIRING DIAGRAM