ENGINEERING BULLETIN FOR MODEL HT-46 TRANSMITTER

Hallicrafters

PURPOSE

The following modification instructions have been prepared for owners of Hallicrafters Model HT-46 Transmitter. The modification serves to rectify a small frequency shift noted on the 40M, 15M, and 10M bands when switching from stand-by to transmit, and to correct the calibrate switching function for CW operation.

TOOLS REQUIRED

Straight blade screwdriver
Philips Screwdriver
Wire Cutters
Long Noise Pliers
Soldering Iron and Rosin Core Solder

COMPONENTS REQUIRED

1 ea Single terminal tie lug. (6-32 mounting hole)

1 ea 3300 ohm 1/2 W composition resistor

2 inches No. 22 AWG Tinned copper wire

10 inches No. 22 AWG stranded wire (Gray)

MODIFICATION PROCEDURE

1. Remove cabinet cover (6 screws at cabinet sides).

2. Remove bottom cover (7 screws).

3. At the VFO switch (S-5), clip the white-black lead 3 inches from the switch terminal. Strip the insulation back about 3/8 inch and solder the lead to the ground buss on the heterodyning crystal socket.

4. Carefully pull the remainder of the white-black lead out of the wiring harness. The white-black lead terminates at the center terminal of the CAL switch (S-3). Clip off this white-black lead only at the switch terminal. (Leave the remaining white-black lead connected to the switch.)

5. At the CAL switch (S-3), clip the ground jumper wire connected between the switch lugs at the CAL ON side of the switch. Also disconnect the green-black lead from the switch arm terminal.

6. Connect a No. 22 tinned wire jumper from the switch lug with the two black ground leads to the switch arm terminal left vacant when the green-black lead was disconnected in step 5.

7. Connect the green-black lead to the switch lug left vacant when the jumper wire was removed in step 5.

8. Add a gray No. 22 stranded wire lead to the unused terminal on the CAL switch (S-3), lay it along the wiring harness and bring it up to the OPERATION switch (S-1).

9. At the OPERATION switch (S-1) clip off the ground wire jumper running from contact 4 on the rear wafer (S-1B) to contact 4 on the front wafer (S-1A). Do not disturb the wiring on the front switch wafer.

10. Mount a single terminal tie lug to the chassis using one of the VFO capacitor mounting screws as shown.

11. Disconnect the green-black lead from its terminal on switch wafer S-1B and connect it to the tie lug.

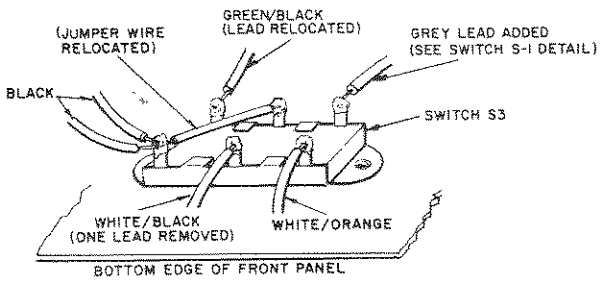
12. Connect the gray lead from the CAL switch (S-3) to the switch terminal left vacant when the green-black lead was removed in step 11.

13. Connect the 3300-ohm 1/2 watt resistor between the tie lug and the switch contact left vacant when the jumper wire was removed in step 9.

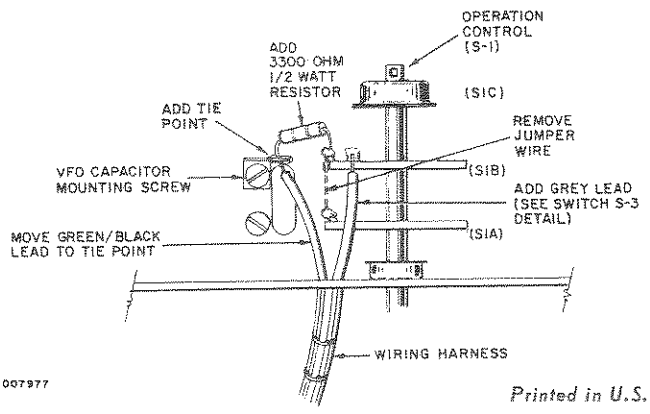
14. Replace the bottom cabinet cover and top cabinet cover. Make sure the long sheet metal screw is driven into the shield foot to ground the bottom cover.

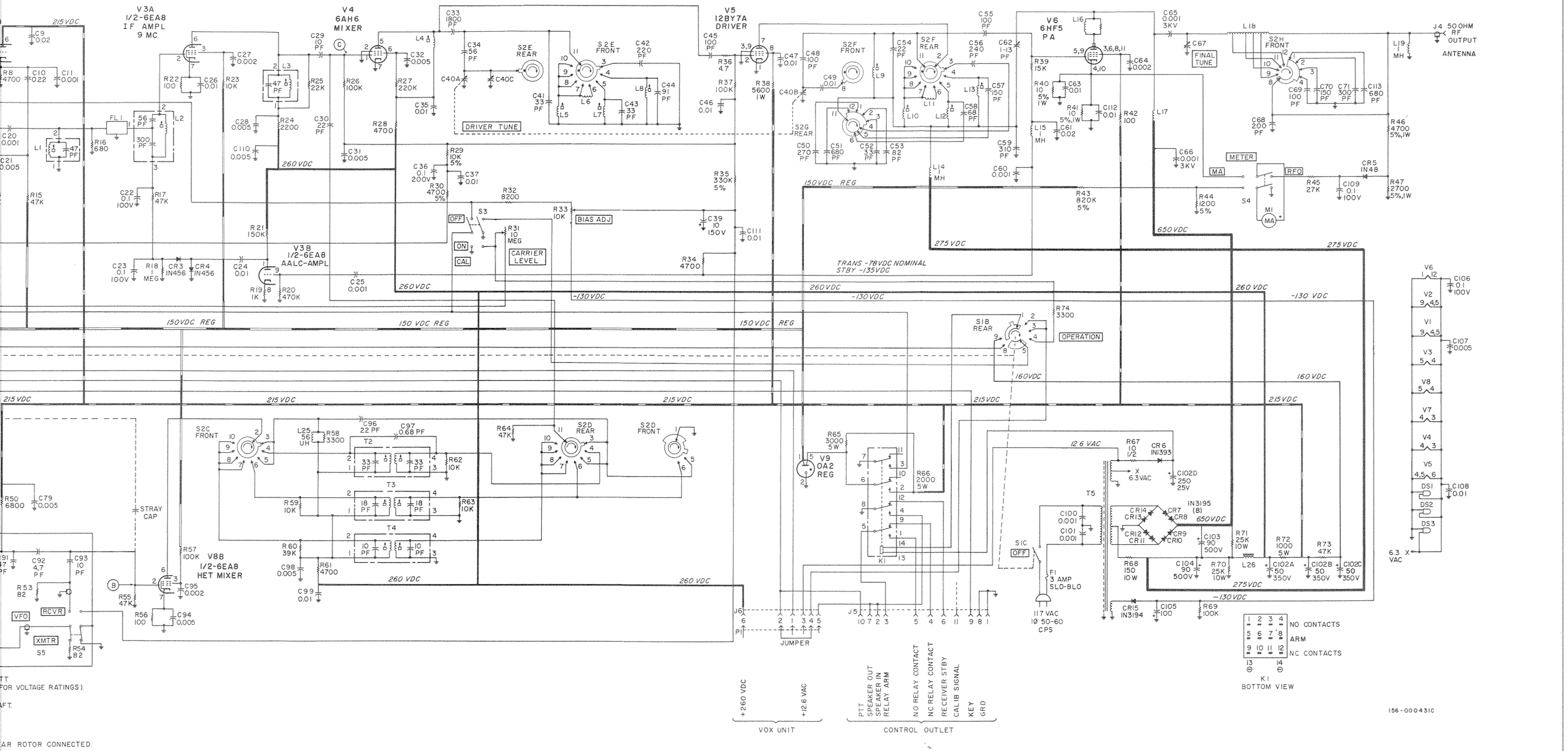
A schematic diagram and parts list incorporating these changes is enclosed.

CAL SWITCH WIRING



OPERATION SWITCH WIRING



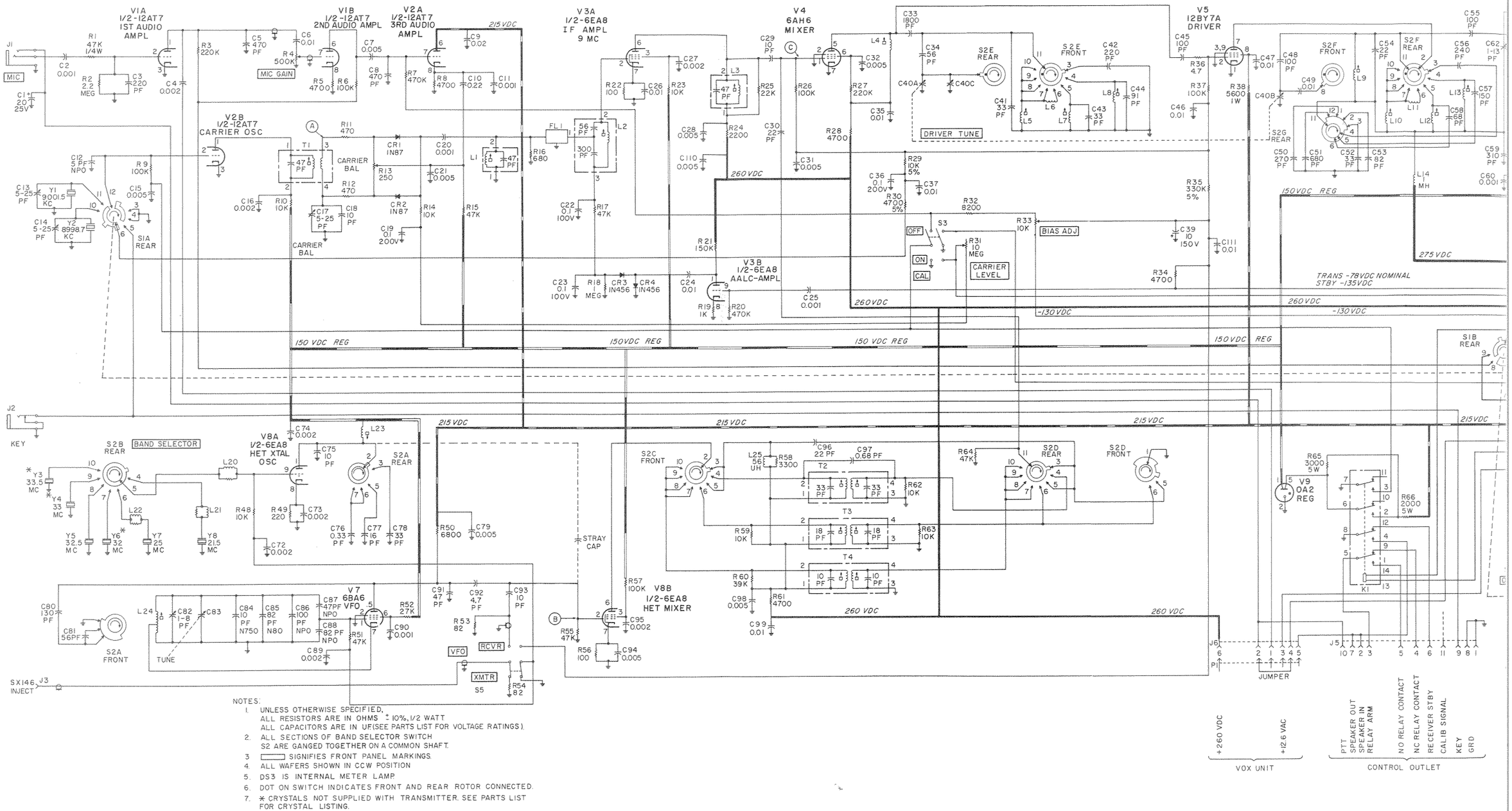


TT
FOR VOLTAGE RATINGS).

AFT.

AR ROTOR CONNECTED.
TTER. SEE PARTS LIST

Figure 15. Model HT-46 Schematic Diagram.



NOTES:

1. UNLESS OTHERWISE SPECIFIED, ALL RESISTORS ARE IN OHMS ± 10%, 1/2 WATT ALL CAPACITORS ARE IN UF(SEE PARTS LIST FOR VOLTAGE RATINGS).
2. ALL SECTIONS OF BAND SELECTOR SWITCH S2 ARE GANGED TOGETHER ON A COMMON SHAFT.
3. ▭ SIGNIFIES FRONT PANEL MARKINGS.
4. ALL WAFERS SHOWN IN CCW POSITION
5. DS3 IS INTERNAL METER LAMP
6. DOT ON SWITCH INDICATES FRONT AND REAR ROTOR CONNECTED.
7. * CRYSTALS NOT SUPPLIED WITH TRANSMITTER. SEE PARTS LIST FOR CRYSTAL LISTING.

Figure 15. Model HT-46 Schematic Diagram.

SERVICE REPAIR PARTS LIST

Schematic Symbol	Description	Hallicrafters Part Number
	CAPACITORS	
C1	20 μF, 25V, Electrolytic	045-001147
C2,11,20, 25,60,90	0.001 μF, ±20%, 500V Ceramic	047-001671
C3,42	220 PF, ±2%, 500V, Mica	493-110221-334
C4,16,27, 64,72,73, 74,89,95	0.002 μF, ±20%, 500V, Ceramic	047-100395
C5,8	470 PF, ±5%, 500V, Mica	493-110471-234
C6,24,26, 35,37, 46,47,49, 63,99,108, 111,112	0.01 μF, ±20%, 500V, Ceramic	047-100354
C7,15,21, 28,31,32, 79,94,98, 107,110	0.005 μF, ±20%, 500V, Ceramic	047-100442
C9,61	0.02 μF, ±20%, 500V, Ceramic	047-100471
C10	0.22 μF, ±10%, 200V, Paper	046-001298-004
C12	5 PF, ±0.25 PF, 500V, NPO, Ceramic	491-001050-022
C13,14,17	Variable, 5-25 PF, Trimmer	044-200545
C18,29, 75,93	10 PF, ±2%, 500V, Mica	493-110100-331
C19,36	0.1 μF, ±10%, 200V, Paper	046-001294-004
C22,23, 106,109	0.1 μF, +80%, -20%, 100V, Ceramic	047-001428
C30,54,96	22 PF, 2%, 500V, Mica	493-110220-333
C33	1800 PF, ±5%, 500V, Mica	493-310182-234
C34,81	56 PF, ±2%, 500V, Mica	493-110560-334
C39	10 μF, 150V, Electrolytic	045-200307
C40A,B, C	Variable, DRIVER TUNE	048-000609
C41,43, 52,78	33 PF, ±2%, 500V, Mica	493-110330-333
C44	91 PF, ±2%, 500V, Mica	493-110910-334
C45,48, 55,69	100 PF, ±2%, 500V, Mica	493-110101-334
C50	270 PF, ±2%, 500V, Mica	493-110271-334
C53	82 PF, ±2%, 500V, Mica	493-110820-333
C56	240 PF, ±2%, 500V, Mica	493-110241-334
C57,70	150 PF, ±2%, 500V, Mica	493-110151-334
C58	68 PF, ±2%, 500V, Mica	493-110680-334
C59	310 PF, ±2%, 500V, Mica	493-110311-334
C62	Variable, 1-13 PF, Trimmer	044-000520
C65,66	0.001 μF, ±20%, 3 KV, Ceramic	047-100397
C67	Variable, FINAL TUNE	048-000610
C68	200 PF, ±2%, 500V, Mica	493-210201-334
C71	300 PF, ±2%, 500V, Mica	493-110301-334
C76	0.33 PF, ±10%, 500V, Ceramic	047-000403-016
C77	16 PF, ±2%, 500V, Mica	493-110160-331
C80	130 PF, ±2%, 500V, Mica	493-210131-334
C82	Variable, 1-8 PF, Trimmer	044-000593
C83	Variable, VFO	048-000595
C51	680 PF, 5%, 500V, Mica	493-210681-234

Schematic Symbol	Description	Hallicrafters Part Number
	CAPACITORS (CONT)	
C84	10 PF, ±0.25 PF, 500V, N750, Ceramic	491-001100-093
C85	82 PF, ±2%, 500V, N80, Ceramic	491-054820-042
C86	100 PF, ±2%, 500V, NPO, Ceramic	491-054101-022
C87	47 PF, ±2%, 500V, NPO, Ceramic	491-024470-022
C88	82 PF, ±2%, 500V, NPO, Ceramic	491-054820-022
C91	47 PF, ±2%, 500V, Mica	493-110470-333
C92	4.7 PF, ±2%, 500V, Mica	493-240470-331
C97	0.68 PF, ±10%, 500V, Ceramic	047-000403-001
C100,101	0.001 μF, -0%, +100%, 1400V, Ceramic	047-002217
C102A,B, C,D	3 x 50 μF, 350V; 250 μF, 25V, Electrolytic	045-001370
C103	90 μF, 500V, Electrolytic	045-001337
C104	90 μF, 500V, Electrolytic	045-001338
C105	100 μF, 150 VDC, Electrolytic	045-001371
C113	680 PF, 2%, 300V, Mica	493-110681-324
	*RESISTORS	
R1	47K ohm, 1/4 Watt	451-152473
R2	2.2 Megohm, 1/4 Watt	451-152225
R3,27	220K Ohm	451-252224
R4	Variable, 500K Ohm, ±30%, 1/8 Watt, MIC GAIN	025-002528
R5,8,28, 34,61	4700 Ohm	451-252473
R6,9,26, 37,57,69	100K Ohm	451-252104
R7,20	470K Ohm	451-252474
R10,14, 23,48,59, 62,63	10K Ohm	451-252103
R11,12	470 Ohm	451-252471
R13	250 Ohm, ±20%, 1/4 Watt CARRIER BAL.	025-002527
R15,17, 51,55,64, 73	47K Ohm	451-252473
R16	680 Ohm	451-252681
R18	1 Megohm	451-252105
R19	1000 Ohm	451-252102
R21	150K Ohm	451-252154
R22,42, 56	100 Ohm	451-252101
R24	2200 Ohm	451-252222
R25	22K Ohm	451-252223
R29	10K Ohm, 5%	451-251103
R30	4700 Ohm, 5%	451-251472
R31	10 Megohm, -20%, +40%, 1/8 Watt, CARRIER LEVEL	025-002531
R32	8200 Ohm	451-252822
R33	10K Ohm, ±20%, 3/4 Watt, BIAS ADJ	025-002330
R35	330K Ohm, 5%	451-251334
R36	4.7 Ohm	451-252047
R38	5600 Ohm, 1 Watt	451-352562
R39	15K Ohm	451-252153
R40,41	10 Ohm, 5%, 1 Watt	451-351100
R43	820K Ohm, 5%	451-251824
R44	1200 Ohm, 5%	451-251122
R45,52	27K Ohm	451-252273
R46	4700 Ohm, 5%, 1 Watt	451-351472
R47	2700 Ohm, 5%, 1 Watt	451-351272
R49	220 Ohm	451-252221
R50	6800 Ohm	451-252682
R53,54	82 Ohm	451-252820
R58,74	3300 Ohm	451-252332
R60	39K Ohm	451-252393
R65	3000 Ohm, 5 Watt	445-012302
R66	2000 Ohm, 5%, 5 Watt	445-011202

Schematic Symbol	Description	Hallicrafters Part Number
	*RESISTORS (CONT)	
R67	10 Ohm	451-252100
R68	150 Ohm, 5%, 10 Watt	024-001607
R70,71	25K Ohm, 10 Watt	445-032253
R72	1000 Ohm, 5%, 5 Watt	445-011102

*ALL RESISTORS are carbon type, 10%, 1/2 watt, unless otherwise specified.

	COILS AND TRANSFORMERS	
L1,3	Coil, IF	050-002159
L2	Coil, Filter Termination	050-002161
L4	Coil, Mixer, 80 Meter	050-002114
L5	Coil, Mixer, 10 Meter	050-002110
L6	Coil, Mixer, 15 Meter	050-002111
L7	Coil, Mixer, 20 Meter	050-002112
L8	Coil, Mixer, 40 Meter	050-002113
L9	Coil, Driver, 80 Meter	050-002119
L10	Coil, Driver, 10 Meter	050-002115
L11	Coil, Driver, 15 Meter	050-002116
L12	Coil, Driver, 20 Meter	050-002117
L13	Coil, Driver, 40 Meter	050-002118
L14,15,19	Choke, 1.0 MH	050-001044-005
L16	Choke, Parasitic	050-002103
L17	Choke, RF	050-002106
L18	Coil, PI Output	050-002105
L20	Coil, Warping	051-002892
L21,22	Coil, Warping	051-002893
L23	Coil, Het. Xtal. Oscillator	050-002120
L24	Coil, VFO	050-002109
L25	Choke, RF, 15 μH	050-002311
L26	Choke, Filter	056-000786
T1	Transformer, Carrier Oscillator Plate	050-002158
T2	Transformer, Bandpass, 40 Meter	050-002145
T3	Transformer, Bandpass, 15 Meter	050-002146
T4	Transformer, Bandpass, 10 Meter	050-002147
T5	Transformer, Power	050-002104

	ELECTRON TUBES AND DIODES	
V1,2	Tube, Type 12AT7	090-900034
V3,8	Tube, Type 6EA8	090-901350
V4	Tube, Type 6AH6	090-900793
V5	Tube, Type 12BY7A	090-901192
V6	Tube, Type 6HF5	090-901653
V7	Tube, Type 6BA6	090-901112
V9	Tube, Type OA2	090-900001
CR1,2	Diode, Type 1N87	019-002941
CR3,4	Diode, Type 1N456	019-002964
CR5	Diode, Type 1N48	019-101877
CR6	Diode, Type 1N3193	019-002768
CR7 thru CR14	Diode, Type 1N3195	019-002770
CR15	Diode, Type 1N3194	019-002769

	SWITCHES	
S1	Switch, Rotary, OPERATION	060-002802
S2	Switch, Rotary, BAND SELECTOR	060-002803
S3,4,5	Switch, Slide, DPDT	060-000544

	CRYSTALS	
Y1	9001.5 KC	019-003653
Y2	8998.7 KC	019-003652
Y3	33.5 MC (Not Supplied)	019-201966
Y4	33 MC (Not Supplied)	019-201965
Y5	32.5 MC	019-201964
Y6	32 MC (Not Supplied)	019-201963
Y7	25.0 MC	019-201961
Y8	21.5 MC	019-201960

Schematic Symbol	Description	Hallicrafters Part Number
	CONNECTORS	
J1	Jack, Three circuit, MIC	036-000391
J2	Jack, Two circuit, KEY	036-000390
J3	Jack, Phono, SX-146 INJECT	036-000396
J4	Jack, Phono, ANTENNA	036-100041
J5	Socket, 11-pin	005-200707
J6	Socket, 6-pin	006-001096
P1	Plug, 6-pin	035-000088
	Plug, 11-pin	035-100043
	Plug, Phono (SX-146 INJECT and ANTENNA)	010-000221
	MISCELLANEOUS	
	Angle, Window Mounting	067-012996
	Bracket, Piston Capacitor Mounting	067-012948
	Bracket, Socket Mounting	067-012946
	Cabinet, Bottom	066-004622
	Cabinet, Bottom Rivet Assembly	150-009410
	Cabinet, Cover	066-004621
	Chassis Rivet Assembly	150-008752
	Coupler, Driver Tune	029-000564
	Coupler, Shaft	029-001061
	Cover, Final Tank	066-004557
	Escutcheon, Meter	007-000922
	Escutcheon, Panel	007-000861
FL1	Filter, Crystal, 2.1 KC	049-000320
	Flywheel	071-000210
	Foot, Front	016-001469
	Foot, Rear	016-002446
	Front Panel Assembly	150-009409
F1	Fuse, 3 ampere, SLO-BLO	039-100390
	Fuseholder (F1)	006-200837
	Knob; OPERATION, MIC GAIN, DRIVER TUNE, CARRIER LEVEL, BAND SELECTOR, FINAL TUNE	015-001844
	Knob, MAIN TUNING	015-001751-003
DS1,2	Lamp, Dial, NO. 47	039-100004
	Lock, Line Cord	076-004546-005
M1	Meter	082-000676
	Pointer, Dial	082-000667
	Pulley, Brass	028-200052-011
	Pulley, Nylon	028-000530-002
	Rectifier Board Assembly	150-008756
K1	Relay	021-000831
	Shaft, BAND SELECTOR	074-003074
	Shaft, DRIVER TUNE	074-003075
	Shaft, FINAL TUNE	074-003076
	Shaft, TUNING	074-003055
	Shield, Final Tank	067-012945
	Shield, Heat Insert Tube	069-101020
	Shield, Switch	067-012947
	Shield, Tube (V2,3,8)	069-000855
	Shield, Tube (V4)	069-000097
	Shield, Tube (V5)	069-000863
	Socket, Pilot Light (Left Side)	086-000735
	Socket, Pilot Light (Right Side)	086-000734
	Socket, Tube, 9-pin (V1)	006-001112
	Socket, Tube, 9-pin (V2,3,5,8)	006-000395
	Socket, Tube, 7-pin (V4)	006-200633
	Socket, Tube, 12-pin (V6)	006-001131
	Socket, Tube, 7-pin (V7,9)	006-001094
	Spring, Dial Cord	075-000893
	Spring, Dial Plate	075-001011
	Window, Dial	022-000745
	Shield, Fiber	069-002123
	Shield, RF	069-002633

ERRATA SHEET

MODEL HT-46

Prior to production, but after the Instruction Manual was printed, certain wiring and component changes were made in the Model HT-46 Transmitter.

These changes are contained in the schematic diagram and parts list herein enclosed. Please discard the schematic diagram and parts list contained in the Instruction Manual and refer to those contained within this sheet whenever necessary.

Part Number 094-904440
Pack with Instruction Manual
Part Number 094-904161