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RECEIVER PERFORMANCE OBSERVATIONS

After service has been performed on the receiver section of the transceiver, the following performance observations should be made to assure that the receiver operates within the manufacturers specifications. The transceiver should be completely assembled with the top and bottom covers attached. Connect a DC power supply adjusted to 13.8 ± volts and to the required test equipment as indicated for the particular test 0.2.

1. SSB SENSITIVITY

   A. Set the transceiver front panel controls as follows:

POWER	to	OFF
CHANNEL	to	13
RF GAIN	to	MACIMUM (CW)
VOLUME	to	MAXIMUM (CW)
SQUELCH	to	MINIMUM (CCW)
MODE	to	USB
BLANKER	to	ON
PA/CB	to	CB
CLARIFIER	to	Center position

   B. Connect a 50 ohm RF generator to the antenna connector and set the frequency to 27.116 MHz (1 KHz above channel 13). DO NOT MODULATE!

   C. Connect an 8 ohm non-inductive load across the EXT SPK jack (use an H. H. Smith #480 phono plug, or equivalent). Connect across the 8 ohm load an AC VTVM and set to measure 2.0 volts at center scale.

   D. Turn the POWER switch ON and observe that the CHANNEL INDICATOR, S-METER and green RECEIVE lights all glow.

   E. Adjust the signal generator output to obtain 2.0 volts on the AC VTVM. The signal generator output should be approximately 0.15 microvolts (-10db).

   F. Set the MODE switch to LSB and the signal generator frequency to 27.114 MHz (1 KHz below channel 13). Repeat the same observation as in (E) above.

   G. Perform the same observation for each of the other 22 channels, as in (E) and (F). The difference in sensitivity between the highest and the lowest reading for all 23 channels should not be greater than 3db.

2. SSB SIGNAL TO NOISE RATIO.

   A. Set the signal generator frequency to 27.116 MHz (1 KHz above channel 13) and adjust the output voltage to 0.15 microvolts (-10db).

   B. Adjust the transceiver VOLUME control to obtain 2.0 volts on the AC VTVM.

   C. Change the signal generator frequency to 27.125 MHz (channel 14). The reading on the AC VTVM should be approximately 0.8 volts (-2db).

3. SSB AUDIO/POWER OUTPUT.

A. Set the signal generator to 27.116 MHz and the output voltage to 1000 microvolts (66 db).

B. Turn the MODE switch to USB and the VOLUME control full CW position. The audio output voltage should be approximately 6.9 volts (6 watts).

4. SSB S-METER

A. Set the S-Meter switch to S/RF. Adjust the signal generator output to obtain a S-9 reading on the S-Meter. The generator output voltage should be 150 to 300 microvolts (50 +6/-0).

5. SSB RF GAIN

A. Set the signal generator output to 0.5 microvolts (0 db) and the frequency to 27.116 MHz.

B. Turn the transceiver BLANKER switch to ON and the RF GAIN to full CW position. Rotate the VOLUME control to obtain 2.0 volts on the AC VTVM.

C. Turn the RF GAIN control full CCW position and readjust the signal generator output to obtain 2.0 volts on the AC VTVM.

D. The signal generator output should be 30 to 75 microvolts (40 $\pm$ 4 db).

6. AM SENSITIVITY OBSERVATION.

A. Set the transceiver front panel controls as follows:

MODE	to	AM
CHANNEL	to	13
VOLUME	to	MAXIMUM (CW)
SQUELCH	to	MINIMUM (CCW)
RF GAIN	to	MAXIMUM (CW)
POWER	to	ON

B. Adjust the signal generator frequency to 27.115 MHz (channel 13) and modulate 30% at 1 KHz.

C. Adjust the signal generator output voltage to obtain 2.0 volts on the AC VTVM. The signal generator output voltage should be approximately 0.4 microvolts (-2 db).

7. AM SIGNAL TO NOISE RATIO

A. Adjust the signal generator output voltage to 0.5 microvolts (0 db). Turn the transceiver VOLUME control CCW to obtain 2.0 volts on the AC VTVM.

B. Turn the signal generator modulation OFF and observe that the audio output voltage as read on the AC VTVM decreased 10 db (0.63 volts).

C. Modulate the signal generator 30% at 1 KHz and adjust the output to 10,000 microvolts (86 db).

D. Adjust the transceiver VOLUME control to obtain 3.0 volts (10db) on the AC VTVM.

E. Decrease the signal generator output to obtain 1.0 volt (0db) on the AC VTVM. The signal generator output voltage should be approximately 3.0 microvolts (16db).

8. AM AUDIO OUTPUT

A. Adjust the signal generator output to 1000 microvolts (66db) and the transceiver VOLUME control to maximum (CW). The audio output should be 6.8 volts or more.

9. AM S-METER

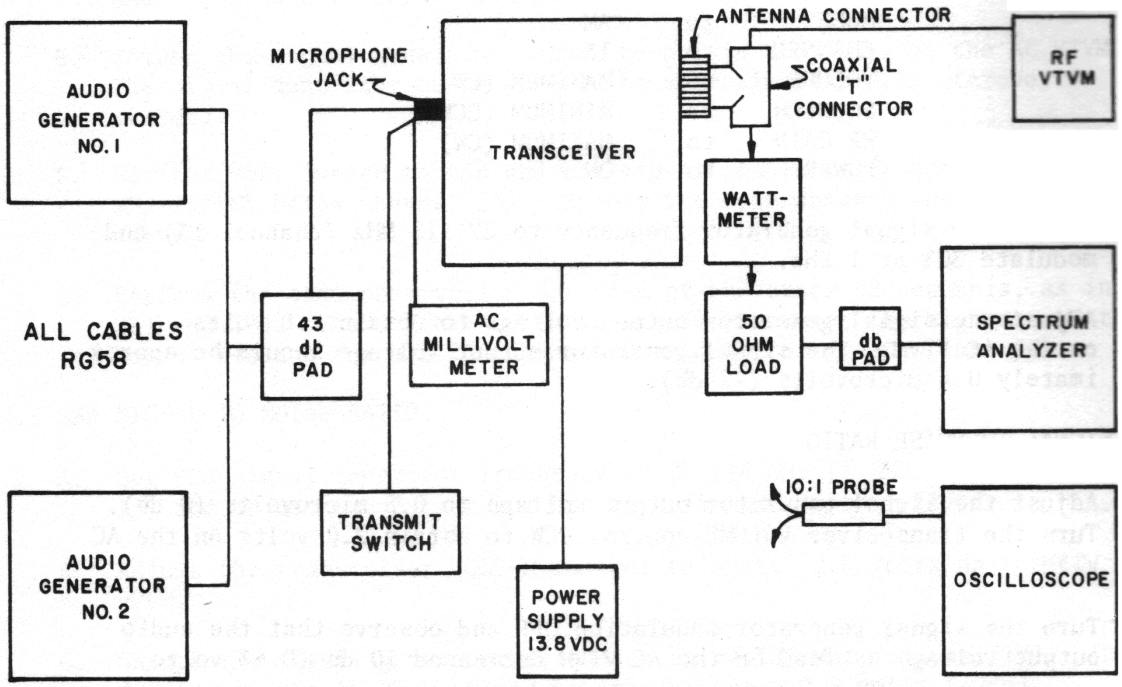
A. Set the transceiver METER switch to S/RF position. Adjust the signal generator voltage output to obtain a reading on the S-Meter of S-9.

B. The generator output should be 150 to 325 microvolts (50 +6/-0db).

TRANSMITTER SECTION ADJUSTMENTS

WARNING

PERSONNEL POSSESSING A FIRST OR SECOND CLASS RADIO TELEPHONE OPERATOR'S LICENSE ONLY ARE ALLOWED TO PERFORM ADJUSTMENTS IN THE TRANSMITTING SECTION OF THIS TRANSCEIVER.



TEST EQUIPMENT SETUP

1. RF SECTION ALIGNMENT.

A. Turn the transceiver POWER switch to the OFF position. Remove the TOP cover of the transceiver ONLY for the following tests. Connect the transceiver to the test equipment as shown in the diagram above.

B. Set the transceiver front panel controls as follows:

CLARIFIER	to	Center position
PA/CB	to	CB
CHANNEL	to	13
POWER	to	ON
MODE	to	AM

C. Adjust the oscilloscope vertical gain to 0.5 volts/cm and the horizontal sweep to 0.2 microseconds/cm. Turn both audio signal generator outputs to ZERO (assure that the carrier is not being modulated). Turn the TEST TRANSMIT switch ON.

D. Adjust T18, T19, T20, T21, L12, L14 and CT20 for maximum power output as observed on the RF wattmeter. Repeat this adjustment several times to obtain the absolute maximum power output.

E. The UNMODULATED POWER OUTPUT should be 3 to 4 watts. Turn the POWER OFF. If the output is greater than 4 watts, adjust VR17 to obtain 4 watts MAXIMUM.

2. SSB MODE ADJUSTMENT

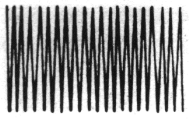
A. Set the MODE switch to the LSB position. Turn the transmit switch ON.

B. Adjust the frequency of audio generator No. 1 to 900 Hz and generator No. 2 to 1900 Hz. Set the output of both generators to ZERO.

C. Connect the oscilloscope probe to the center conductor of the antenna connector (from inside the chassis). Adjust the vertical gain to 0.5 volts/cm, and the horizontal sweep to 0.2 milliseconds/cm.

D. Observe the oscilloscope wave pattern shown below and if necessary, adjust VR13 and CT19 alternately, to improve carrier suppression.

CORRECT ADJUSTMENT

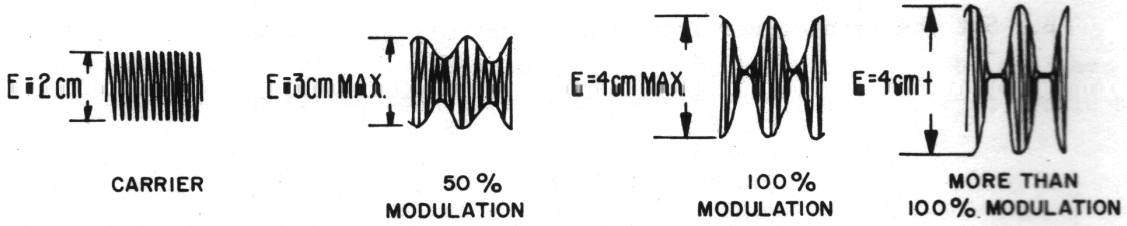


INCORRECT ADJUSTMENT

E. Adjust the output voltage of audio generator No. 1 (900 Hz) to produce the carrier wave pattern on the oscilloscope. Increase the output until the full amplitude is reached without limiting (780 mV at the input of the 43 db pad).

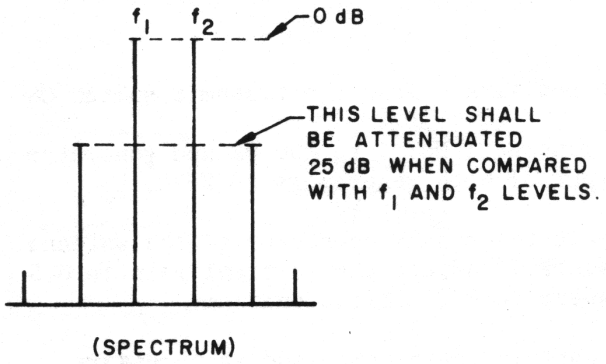
F. Adjust the output of audio generator No. 2 (2400 Hz) to obtain 100% modulation of the carrier (780 mV at the input of the 43 db pad).

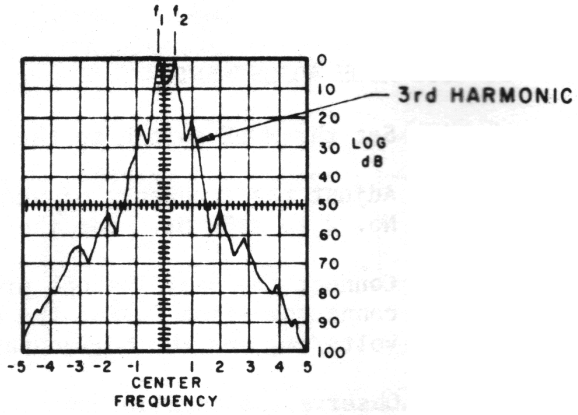
NOTE: Adjust the outputs of both generators alternately very carefully to obtain the 100% modulated pattern shown below:



G. To obtain the maximum amplitude of a symmetrical wave pattern as above, it may be necessary to adjust L15. Observe the reading on the RF voltmeter, which should be approximately 23 volts RMS. If this voltage is not achieved, readjustment of T18, T19, T20, T21 and L12 may be necessary. If these readjustments are required, recheck the AM power output as in step 1.E.

H. Observe the spectrum analyzer for harmonic distortion. The third and fifth harmonic should be -25 db from the carrier as shown in the diagram below:



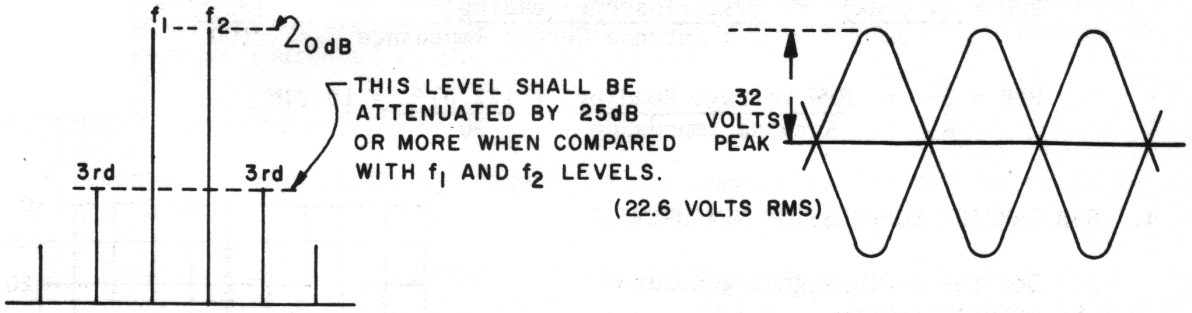


I. Set the MODE switch to the USB position. Adjust the output of each audio generator to obtain 5 mV on the millivolt meter at the microphone jack. (Output of each generator must be the same voltage).

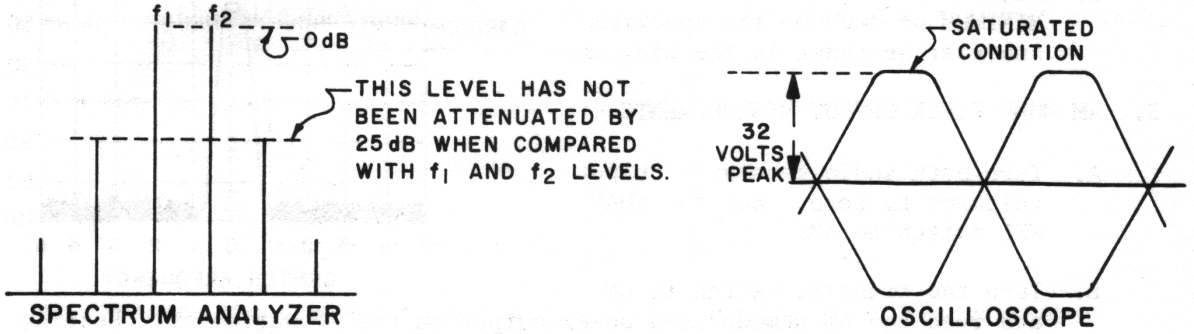
J. Adjust VR15 (MIC GAIN ADJUST) to obtain 22.5 volts RMS on the RF voltmeter.

K. Observe the following wave forms and patterns on the oscilloscope and the spectrum analyzer for correct adjustment of VR15, VR14, VR13 and CT19.

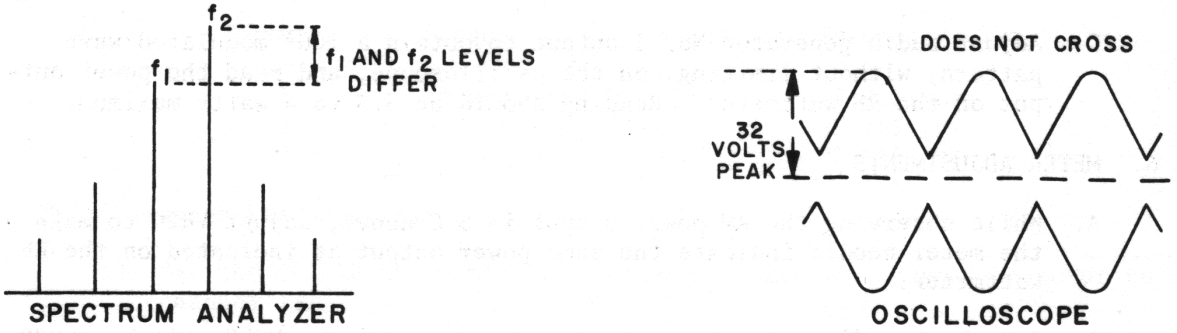
L. Adjust VR18 to obtain a symmetrical wave pattern as shown below.



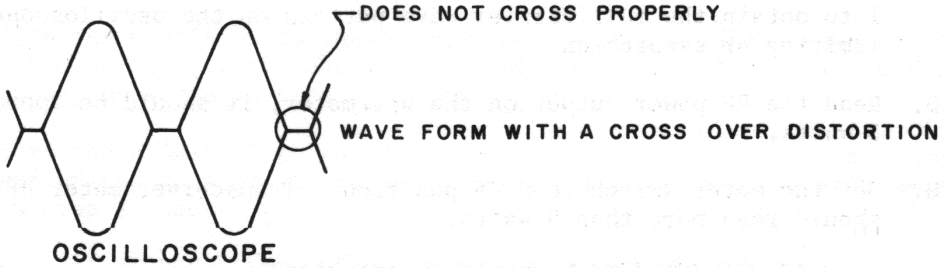
NORMAL SPECTRUM ANALYZER AND OSCILLOSCOPE WAVE PATTERNS



INCORRECT ADJUSTMENT OF VR15



AUDIO GENERATOR OUTPUTS ARE NOT EQUAL



VR18 INCORRECTLY ADJUSTED

3. SSB POWER OUTPUT MEASUREMENTS

A. After the SSB Mode Adjustments have been made, the Peak Envelope Power (PEP) may be calculated from the following formula:

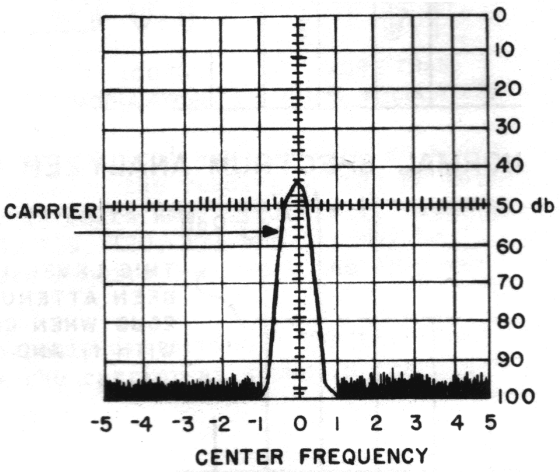
$$PEP = \frac{(V\ peak)^2}{2R} = \frac{(Oscilloscope\ Reading)^2}{2 \times Antenna\ Output\ Impedance} = \frac{(32)^2}{100} = 10.24W$$

$$PEP = \frac{E^2}{R} = \frac{RMS\ Voltage\ Reading}{Antenna\ Impedance} = \frac{(22.6)^2}{50} = 10.24W$$

4. SSB CARRIER SUPPRESSION MEASUREMENT

A. Set the audio signal generator output to zero.

B. Adjust VR13 and CT19 to obtain a MINIMUM of 40db on the spectrum analyzer as shown in the diagram.



5. AM MODE POWER OUTPUT MEASUREMENTS

A. Turn both audio generator output voltages to zero. Set the CHANNEL switch to AM.

B. Turn the transmit switch to ON and read the AM unmodulated power output on the RF wattmeter. Reading should be 3+ watts.

C. Adjust audio generator No. 1 output to obtain a 100% modulated wave pattern, without limiting, on the oscilloscope, and read the power output on the RF wattmeter. Reading should be 3.5 to 4 watts maximum.

6. METER ADJUSTMENTS

A. While observing the AM power output in 5.C above, adjust VR20 to make the meter needle indicate the same power output as indicated on the RF wattmeter.

B. Turn both audio generator outputs to zero. Set the MODE switch to USB.

C. Turn the transmit switch ON and adjust the output of audio generator No. 1 to obtain the full carrier wave pattern on the oscilloscope, without limiting or saturation.

D. Read the RF power output on the wattmeter, it should be approximately 3 watts.

E. Set the meter switch to S/RF position. Transceiver meter RF Power scale should read more than 5 watts.

7. TVI TRAP ADJUSTMENT (2nd harmonic suppression)

Measure the 2nd harmonic (54 MHz) suppression on the spectrum analyzer. Adjust the TVI Trap to obtain -50db down or more, from the carrier frequency.

TRANSMITTER PERFORMANCE TESTS

After Service has been performed on the transmitter section of the transceiver, the following check-out procedure should be performed to assure the transmitter functions in compliance with the manufacturers specifications. The transceiver should be completely assembled (top and bottom covers attached) and connected to test equipment as indicated in the particular test.

1. FREQUENCY TOLERANCE MEASUREMENT

A. Connect a regulated power supply to the transceiver and adjust to 13.8 ±0.2 VDC.

B. Connect a coaxial T connector to the antenna connector. Connect the T connector to a 50 ohm non-inductive load and a frequency counter through a 60db pad.

C. Plug the microphone plug into the MIC jack and press the transmit switch, DO NOT talk into the microphone.

D. Set the transceiver front panel controls as follows:

CHANNEL SELECTOR	to	1 through 23
MODE	to	AM
CLARIFIER	to	Center position
POWER	to	ON

E. Measure the frequency transmitted by each of the following channels, frequency should be the assigned channel frequency ±1 KHz.

Channel	Frequency	Channel	Frequency
1	26.965 MHz	13	27.115 MHz
5	27.015 "	17	27.165 "
9	27.065 "	21	27.215 "

F. Clarifier Frequency Range

1) Set the CLARIFIER to the center position and the channel Selector to channel 13.

2) Press the transmit switch and record the frequency reading observed on the frequency counter. Should be 27.115 MHz ±1 KHz.

3) Turn the CLARIFIER to the maximum (+) position. The frequency indicated on the counter should be 400 Hz ±100 Hz higher than the frequency measured in step 2) above.

4) Turn the CLARIFIER to the minium (-) position. The frequency indicated on the counter should be 400 Hz lower than the frequency measured in step 2) above.

5) The difference between the frequencies measured in steps 3) and 4) should be within 100 Hz.

6) Perform the above measurements on channels 1,5,9,17 and 21.

2. POWER OUTPUT MEASUREMENT (WITHOUT MODULATION)

A. Connect a 50 ohm RF wattmeter to the antenna connector. Set the front panel controls as in 1.D.

B. Press the transmit switch, DO NOT talk into the microphone and read the power output on the RF wattmeter. Should be approximately 3+ watts.

C. Change the MODE switch to the USB position. Press the transmit switch, DO NOT talk into the microphone. The reading on the wattmeter should not be greater than 1 milliwatt (-40 db). (See page 27, item 4).

D. Change the MODE switch to the LSB position. Press the transmit switch, DO NOT talk into the microphone. The reading on the wattmeter should not be greater than 1 milliwatt (-40 db).

3. POWER OUTPUT MEASUREMENT (WITH MODULATION).

A. Connect an audio signal generator and a simulated transmit switch to the MIC jack. Connect a coaxial "T" connector to the antenna connector.

B. Connect an oscilloscope through a 10:1 probe to the "T" connector and a 50 ohm RF wattmeter. Set the transceiver MODE switch to AM.

C. Adjust the audio generator frequency to 1 KHz and the output to zero. Adjust the oscilloscope vertical gain to 0.5 volts/cm and the sweep to 0.2 mS/cm.

D. Turn the transmit switch ON and observe on the oscilloscope the transmitted carrier wave pattern. Adjust the audio generator output to obtain 100% symmetrically modulated pattern on the oscilloscope. (see page 26)

E. The power output wattage should be between 3.5 and 4 watts.

4. SSB POWER OUTPUT MEASUREMENT

A. Connect the audio generator as in 3A above. Set the MODE switch to USB, and the signal generator frequency to 27.116 MHz.

B. Turn the transmit switch ON and observe that there is NO RF pattern on the oscilloscope.

C. Adjust the generator output to obtain the full amplitude of the RF carrier without limiting.

D. The audio generator output voltage should be approximately 5 mV.

E. Set the MODE switch to LSB and change the signal generator frequency to 27.114 MHz. Turn the audio generator output to zero and observe that there is NO RF wave pattern on the oscilloscope.

F. Increase the audio generator output to obtain the full RF carrier amplitude on the oscilloscope, without limiting.

G. The audio generator output voltage should be approximately 5 mV.

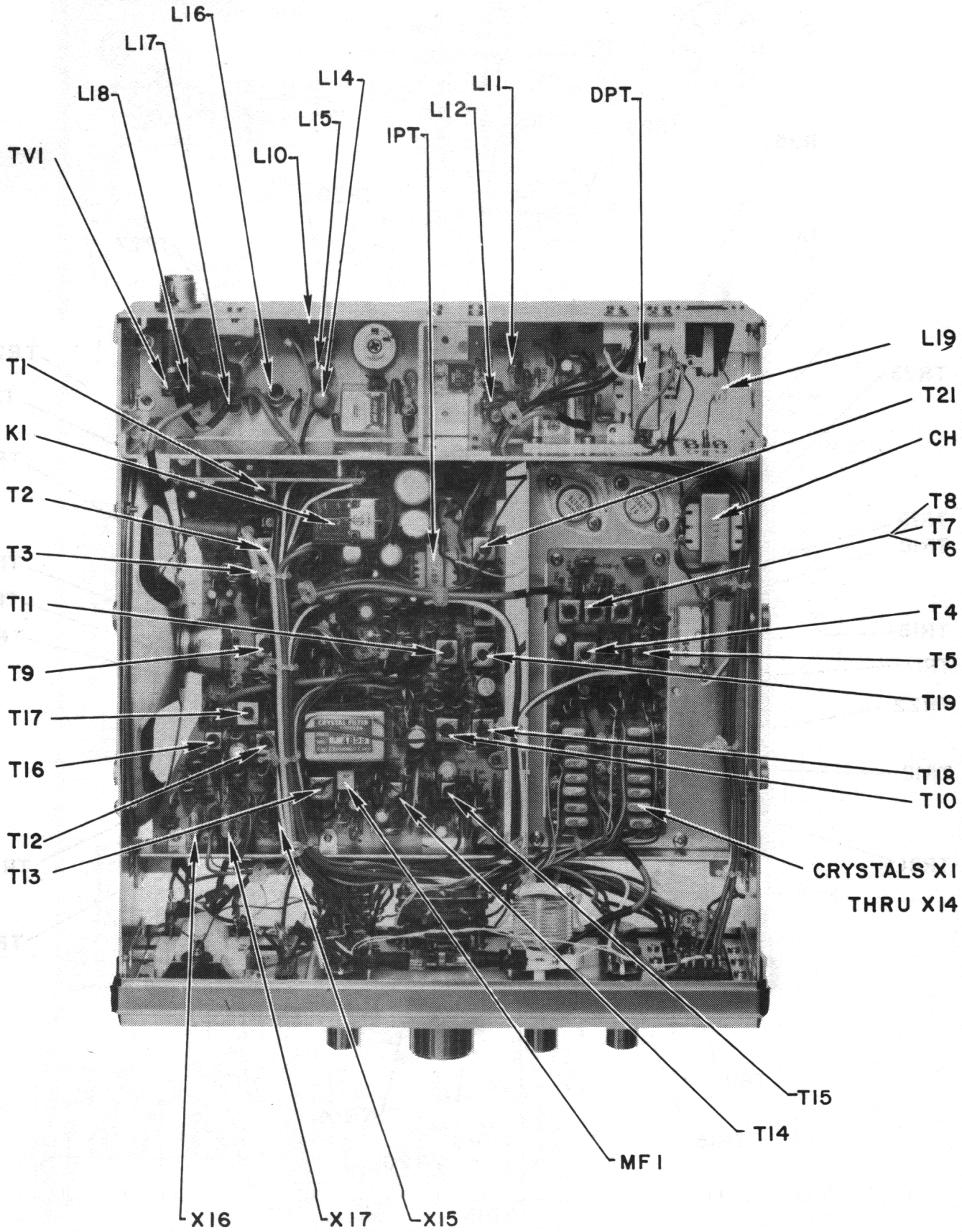


FIGURE 4, RF COILS, TRANSFORMERS AND CRYSTALS LOCATION DIAGRAM

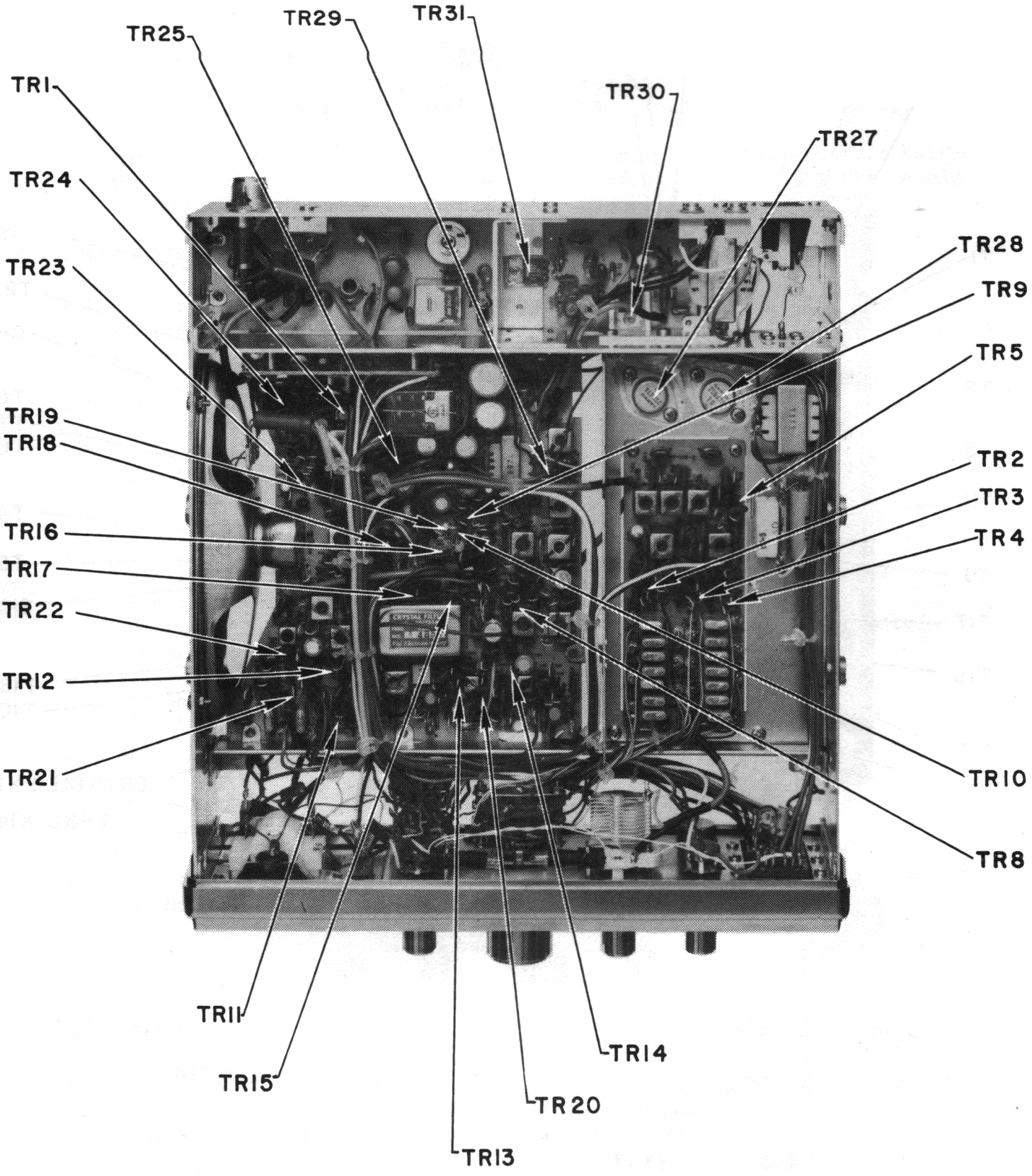


FIGURE 5. TRANSISTORS LOCATION DIAGRAM

TABLE I

Transistor and IC Voltage Chart

TRANSISTOR TR		RECEIVER (NO SIGNAL) [B	C	E]	TRANSMITTER WITHOUT MODULATION) [B	C	E]	APPLICATION
1	3SK22(Y)	G1= 1.97						
		G2= 2.05	(D)=6.35	(S)=1.51	0	0	0	RF Amplifier
2	2SC839(H)	3.39	9.12	2.75	3.39	9.12	2.75	Oscillator
3	"	3.50	9.12	2.83	3.50	9.12	2.83	"
4	"	3.46	9.12	2.80	3.46	9.12	2.80	"
5	"	1.45	8.37	0.75	1.45	8.37	0.75	Mixer
6	"	1.80	8.44	1.15	0	0	0	1st Mixer
7	2SK30(Y)	(G)= 0	(D)=3.87	(S)=0.16	0	0	0	Blanker Amp.
8	2SC839(H)	1.69	8.47	1.02	0	0	0	SSB IF AMP.
9	2SC945(QL)	1.14	4.45	0.54	0	0	0	AF AMP
10	2SC372(M)	1.10	5.45	0.46	0	0	0	SSB AGC AMP
11	2SC839(H)	1.22	8.54	0.56	0	0	0	OSC AM 2nd
12	"	1.43	8.55	0.78	0	0	0	Mixer AM 2nd
13	"	1.29	0.64	8.58	0	0	0	IF AMP 455 KHz
14	"	1.90	8.49	1.03	0	0	0	IF AMP 455 KHz
15	2SC372(Y)	0.53	5.15	0.03	0	0	0	SSB AGC AMP
16	2SA495(Y)	5.15	0	5.14	0	0	0	SSB AGC AMP
17	"	5.14	0	5.63	0	0	0	SSB AGC AMP
18	2SC372(Y)	(0.60)	(0.07)	0	0	0	0	SQ AMP
		0	2.12					
19	"	0.69	0.09	0	0	0	0	SQ AMP
		0.07	2.07					
20	"	0.07	4.82	0	0	0	0	AGC AMP (AM)
21	2SC839(H)	1.82	9.18	1.18	1.82	9.21	1.18	CARRIER OSC
22	"	1.17	9.18	0.51	1.17	9.18	0.51	BUFFER AMP
23	2SC372(Y)	0	0	0	1.15	5.49	0.51	MIC AMP
24	"	0	0	0	1.15	6.24	0.52	" "
25	"	1.11	6.42	0.47	1.11	6.42	0.47	AF AMP
26	2SC735(Y)	1.91	9.93	1.28	1.91	9.93	1.28	AF AMP
27	2SB474	13.62	0	13.72	13.62	0	13.72	AF POWER AMP
28	"	13.62	0	13.72	13.62	0	13.72	" "
29	2SC710(C)	0	0	0	0.78	8.89	0.11	RF AMP (T)
30	2SC1306	0	0	0	0.80	13.55	0.11	DRIVER AMP (TX)
31	2SC1307	0	0	0	0.68	13.56	0	POWER AMP (TX)

RECEIVER VOLTAGES, () = No Signal

IC Number	1	2	3	4	5	6	7	8
1 TA-7045(M)	1.63	1.65	0	0.67	1.63	9.12	9.12	9.12
2 TA-7045(M)	0	0	0	0	0	0	0	0

TRANSMITTER VOLTAGES, () = AM MODE

IC Number								
1 TA-7045(M)	3.47	3.1	0	2.34	3.50	9.10	9.10	9.1
	(9.26)	(3.1)		(2.37)	(9.26)			
2 TA-7045(M)	3.43	2.73	0	1.99	3.43	7.90	8.19	7.80

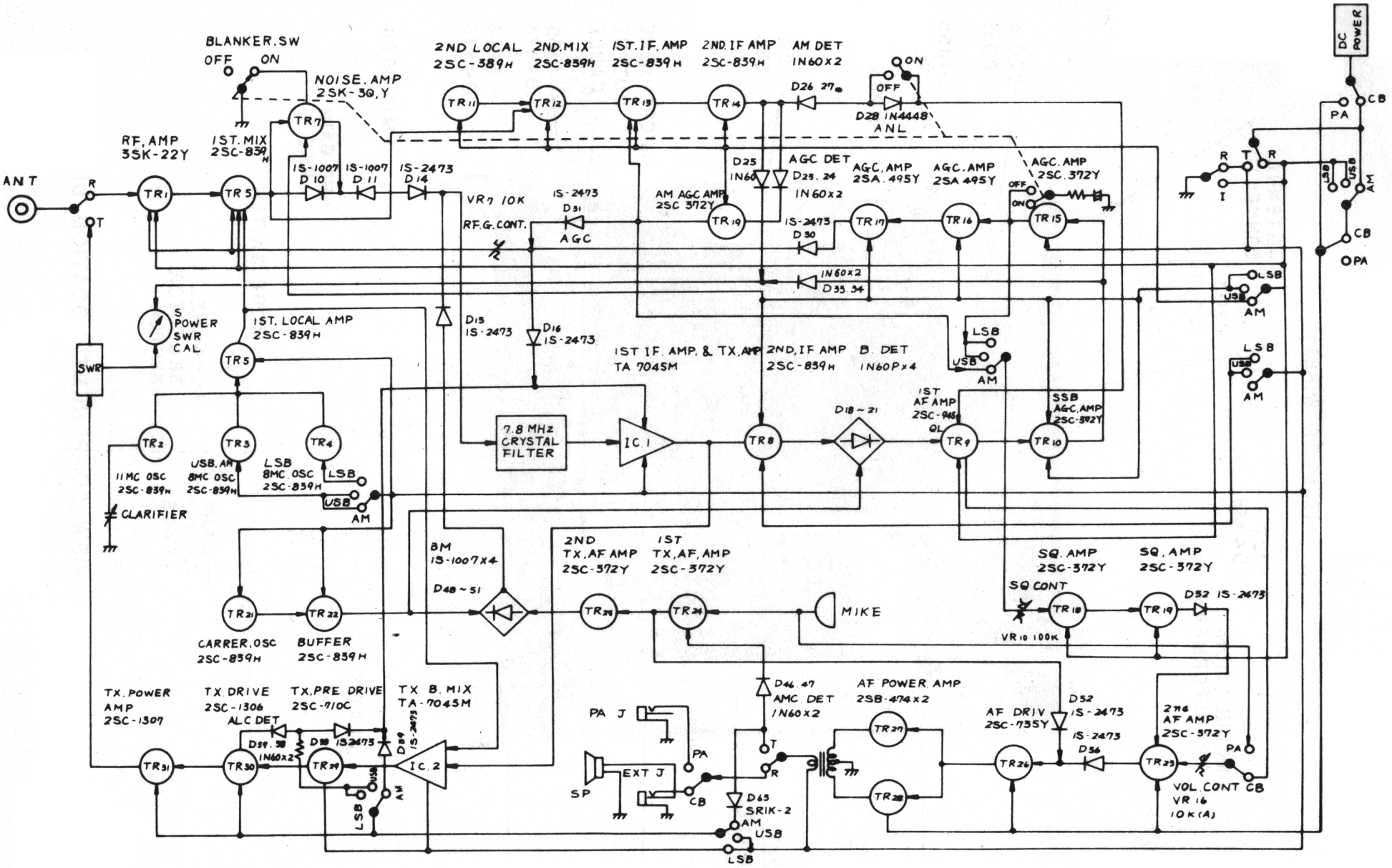


FIGURE 8 FUNCTIONAL BLOCK DIAGRAM

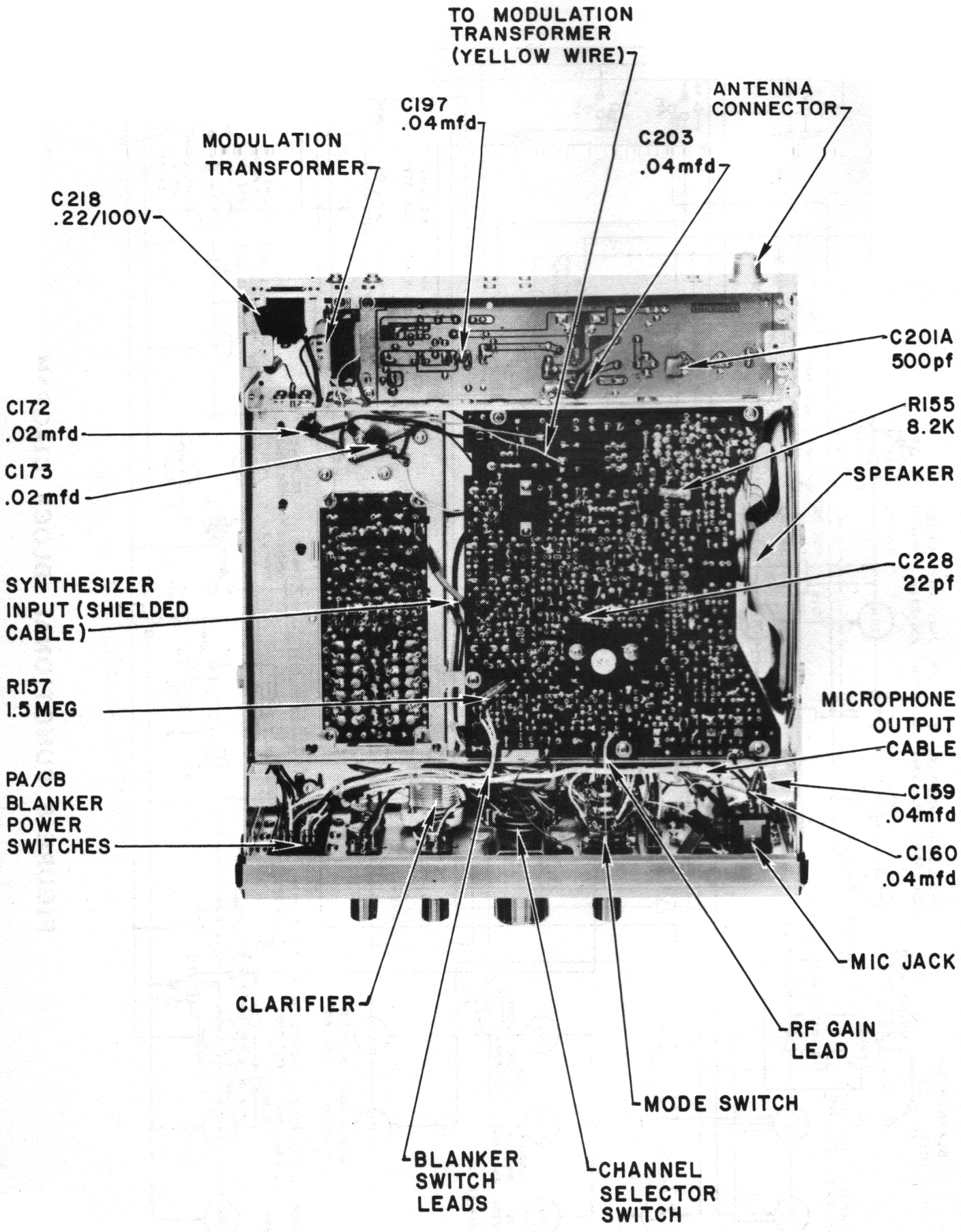


FIGURE 9, BOTTOM VIEW, COMPONENT LOCATION DIAGRAM

SPECIAL REPLACEMENT PARTS LIST

SYMBOL	DESCRIPTION	PART NUMBER
	TRANSISTORS	
TR1	3SK22(Y) FET	1042-01
TR7	2SK30(Y) "	1042-02
TR9,10,15,18,19 20,23,24,25	2SC372(Y) or	1042-03
TR9,10,15,18,19, 20,23,24,25	2SC945(R)	1080-21
TR2,3,4,5,6,8,11, 12,13,14,21,22	2SC839(H)	1042-04
TR26	2SC735(Y)	1042-05
TR16,17	2SA495(Y)	1042-06
TR29	2SC710(C)	1042-07
TR30	2SC1306	1042-08
TR31	2SC1307	1042-09
TR27,28	2SB474 (Yellow)	296-62-9
	INTEGRATED CIRCUITS	
IC1,2	TA-7045M	1042-11
	DIODES	
D3,4,5,6,7,8,23,24, 25,26,27,29,33,34, 46,47,58,59,63	IN60	294-42-9
D10,11,48,49,50,51	IS1007	1042-14
D1,18,19,20,21,60, 61,62	IN60(P)	1042-13
D12,13,14,15,16,17, 30,31,38,39,40,42, 43,45,52,56,57	IS2473	1042-15
D9,28	IN4448	1042-16
D64,65	SR1K2	1042-17
D36,37,44	ZW09.1, Zener	1042-18
D35	ZF8.2, "	1042-19
D2	ZE1.5, "	1042-20
D22,53,54,55	KB262, Silicon Varistor	1042-23
	THERMISTORS	
TH1	TD5C263	1042-21
TH2	TD8A040	1042-22
	RF COILS AND TRANSFORMERS	
T1	LA072, 3N3L, Receiving Antenna Coil	1042-290
T2	TKXC22017AO, " RF Coil	1042-25
T3	LA025, 3N35, RF Coil	1042-291
T4	TKXN21017ZVI, 19 MHz Coil	1042-26
T5	KXN6711BM, " "	1042-27
T6,7,8	KXN6711BM, 19 MHz Filter	1042-28
T9	TKAC22526N, 1st IF Coil	1042-29
T12	TKAC22015A, AM 1st IF Coil	1042-30
T10,11	KAC22015A, 7.8 MHz SSB IF	1042-31

SPECIAL REPLACEMENT PARTS LIST (Continued)

SYMBOL	DESCRIPTION	PART NUMBER
	RF COILS AND TRANSFORMERS (Continued)	
T17	TKAN-21016AO, Balanced Modulator Coil	1042-32
T16	113CC-2804AC, Carrier Oscillator Coil	1042-33
T14	LLC-3657, AM 2nd IF Coil	1042-34
T15	LLC-4990A2, AM 2nd IF Coil	1042-35
T18	TKXN-21012ZVI, Transmitting Coil A	1042-36
T19	TKXN-21379UH, " " B	1042-37
T20	TKXN-21014AO, " " C	1042-38
T21	TKXN-22018GN, " " D	1042-39
L1	3-1/2TVT-84, TVI Trap Coil	1042-40
L10,11,13	NS-1503, w/core, Transmitting RFC Coil	1042-42
L19	NS-1516, Power Choke Coil	1042-44
L16,17,18	NS-1503, w/o core, Transmitting RFC Coil	1042-43
L3	3.9uH, LF-3R9, Micro Inductor	1042-45
L4	8.2uH, LF4-8R2, " "	1042-46
L5	10uH, LF4-100, " "	1042-47
L6,7,8,9	100uH, LF-101, " "	1042-48
L2	NS-1531, Peaking Coil	1042-41
T13	MFH-53S, Mechanical Filter	1042-49
MF1	LF-B8, Ceramic Filter	1042-50
IPT	N24A-7258A, Audio Input Transformer	1042-51
OPT	N35-7274, " Output Transformer	1042-52
	CAPACITORS	
C84,155	33ufd, 6.3V, Tantalum	1042-117
C151	10ufd, 6.3V, "	1042-118
C89,152,153,154	4.7ufd, 10V, "	1042-119
C82,87,149,158 162,166	1ufd, 10V, "	1042-120
C86,168	0.1ufd, 16V, "	1042-121
C7,112	0.1ufd, 25V, Electrolytic	1042-122
C212	1,000ufd, 25V, " "	1042-123
C171	470ufd, 16V, " "	1042-124
C124,165,170	220ufd, 16V, " "	1042-125
C164,169	220ufd, 6.3V, " "	1042-126
C156	100ufd, 16V, " "	1042-127
C85,125,140,90	47ufd, 16V, " "	1042-128
C51,62,107,118 120,121,122,146	10ufd, 16V, " "	1042-129
C117, 143,223	4.7ufd, 25V, " "	1042-130
C116	2.2ufd, 16V, " "	1042-131
C66	1ufd, 25V, " "	1042-132
C101	0.47ufd, 50V, " "	1042-133
C174	220ufd, 25V, " " Tubular	1042-134
C111	500pfd, 50V, Silver Mica	1042-135
C39,199,200	400pfd, 50V, " "	1042-136
C201	300pfd, 50V, " "	1042-137
C198	250pfd, 50V, " "	1042-138
C188	200pfd, 50V, " "	1042-139

SPECIAL REPLACEMENT PARTS LIST (Continued)

SYMBOL	DESCRIPTION	PART NUMBER
	CAPACITORS (Continued)	
C5,93,32	150pfd, 50V, Silver Mica	1042-140
C202	120pfd, 50V, " "	1042-141
C29,34,35,38,45 136	100pfd, 50V, " "	1042-142
C43,47,50,175	60pfd, 50V, " "	1042-144
C1,28,36,40,194	40pfd, 50V, " "	1042-145
C182	30pfd, 50V, " "	1042-146
C108,224	25pfd, 50V, " "	1042-147
C20,21,22,23,24 25,26,27	20pfd, 50V, " "	1042-148
C187	15pfd, 50V, " "	1042-149
C12,137,138,144 179,219	10pfd, 50V, " "	1042-150
C58,96	5pfd, 50V, " "	1042-151
C142	3pfd, 50V, " "	1042-152
C190	4pfd, 50V, " "	1042-153
C8,46,49	2pfd, 50V, " "	1042-154
C181	1pfd, 50V, " "	1042-155
C31	150pfd, 50V, Ceramic	1042-156
C208,209	0.01ufd, 50V, "	1042-157
C98	500pfd, 50V, Styrole	1042-158
C59	0.02ufd, 50V, Ceramic	1042-159
C61,63	0.01ufd, 50V, "	1042-160
C64	0.001ufd, 50V, "	1042-161
C2,218	0.22ufd, 100V, Mylar	1042-162
C9,33,41,52,53 54,55,56,57,73, 79,88,94,100,102, 103,104,105,106, 115,119,128,131, 139,141,150,159, 160,161,163,176,177, 180,183,184,185,186, 189,191,192,193,195, 196,197,203,215,216, 217,222,225,226	0.04ufd, 50V, "	1042-163
C6,178	0.022ufd, 50V, Mylar	1042-164
C172,173	0.02ufd, 50V, "	1042-165
C3,60,65,67,68,80, 81,110,114,123, 126,127,145,148, 157,167,210,220	0.01ufd, 50V, "	1042-166
C11	0.005ufd, 50V, Mylar	1042-167
C113	0.002ufd, 50V, "	1042-168
C4,10,37,44,69,70, 71,72,83,92,130, 133,134,135	0.001ufd, 50V, "	1042-289
C14,15,16,17,18,19	20pfd, N-1500	1042-215
C91,129,132	20pfd, N-750	1042-216
C13	3pfd, N-470	1042-217
C213	1000pfd, Feedthrough	1042-214
CT1	Air Variable Capacitor, 50pfd Maximum	1042-101

SPECIAL REPLACEMENT PARTS LIST (Continued)

SYMBOL	DESCRIPTION	PART NUMBER
	CAPACITORS (Continued)	
CT20	Semi-fixed Trimmer, 150pfd, Maximum	1042-102
CT2 through CT19	Ceramic Trimmer, 20pfd, Maximum	1042-53
	CRYSTALS	
X1	11.000 MHz, HC25/U	1042-67
X2	11.050 " "	1042-68
X3	11.100 " "	1042-69
X4	11.150 " "	1042-70
X5	11.200 " "	1042-71
X6	11.250 " "	1042-72
X7	8.1665 " "	1042-73
X8	8.1765 " "	1042-74
X9	8.1865 " "	1042-75
X10	8.2065 " "	1042-76
X11	8.1635 " "	1042-77
X12	8.1735 " "	1042-78
X13	8.1835 " "	1042-79
X14	8.2035 " "	1042-80
X15	7.3435 " "	1042-81
X16	7.7985 " "	1042-82
X17	7.8015 " "	1042-83
	7.8 MHz Crystal Filter, KF07F22F	1042-84
	SWITCHES	
	Channel Selector	1042-64
S1	Relay, TT-12R, 2-2	1042-105
S2	Mode Selector, AM/USB/LSB	1042-65
S3,4,5	Power, Blanker and PA/CB	1042-85
S6	Meter Control, S/RF, CAL, SWR	1042-86
	HARDWARE	
	Front Panel	1042-221
	Heat Sink, M4-01514	1042-231
	Bracket, M3-01518	1042-235
	Channel Switch Knob	1042-236
	Knob, Volume, CAL RF GAIN, SQUELCH, CLARIFIER and MODE	1042-237
	Washer, Fiber for channel switch	1042-245
	Heat Sink, M4-00620	1042-251
	Insulating Bushing, Mic-jack	1042-256
	Binder Head Screws	
	M2 x 4	1042-262
	M2.6 x 5	1042-263
	M3 x 4	1042-264
	M3 x 5	1042-265
	M3 x 6	1042-266
	M3 x 8	1042-267
	M3 x 10	1042-268

SPECIAL REPLACEMENT PARTS LIST (Continued)

SYMBOL	DESCRIPTION	PART NUMBER
	HARDWARE (Continued)	
	Screws, Round Head	
	M3 x 5	1042-269
	Binder Head Self-tapping	
	M2.6 x 6	1042-270
	M3 x 6	1042-271
	Flat Head Painted	
	M3 x 5	1042-272
	M3 x 12	1042-273
	Nuts, Hexagon	
	M3 x (JIS)	1042-274
	M3 x (ISO)	1042-275
	Washer, Spring - 3Ø	1042-276
	Washer, Flat - 2.6Ø	1042-277
	RESISTORS	
R136	5 ohm, 5 watt Cermet	1042-169
R135	1 ohm, 1/2 watt, Metalized	1042-170
VR13	Volume, 10K ohms, SR19R-155	1042-87
VR17	Wire-Wound, Semi-fixed, WK19R-60 ohm 2W	1042-88
VR16	Control, Volume, 10K ohm A	1042-89
VR10	Control, Squelch, 100K ohm B	1042-90
VR8	Control, RF Gain, 10K ohm B	1042-91
VR19	Control, Calibration, 5K ohm B	1042-92
VR6	Semi-fixed, 500K ohms	1042-93
VR9	" " 300K ohms	1042-94
VR1	" " 100K ohms	1042-95
VR5	" " 100K ohms	1042-96
VR4	" " 20K ohms	1042-97
VR2,3,7,11,14,20	" " 10K ohms	1042-98
VR15	" " 5K ohms	1042-99
VR18	" " 200K ohms	1042-100
	MISCELLANEOUS	
	Holder, Fuse, RF-104	1042-103
	Fuse, 2A	1042-104
	Lamp, Pilot, 5Ø, 14V, 30mA, Channel Selector	1042-112
	" " " " " ON THE AIR INDICATOR	1042-113
	" " " " " RECEIVING INDICATOR	1042-114
	" " " " " Meter	1042-115
ANT	Connector, Antenna	1042-54
MIC	Jack, Microphone	1042-55
	Socket, Crystal	1042-56
SPK	Speaker, 163-01, 8 ohm	1042-57
	Microphone with hanger, 22-115-31	1042-58
	Relay, AE-3144 4P2P	1042-59
	Socket, relay	1042-60
	DC Power Connector (KIT)	1042-61
	DC Power Cord Assembly	1074-114
	Meter, S/RF/SWR	1042-292

STANDARD WARRANTY

Adopted and Recommended by Electronic Industries Association

FANON/COURIER CORPORATION warrants each new electronic product manufactured by it to be free from defective material and workmanship and agrees to remedy any such defect or to furnish a new part (at the Company's option) in exchange for any part of any unit of its manufacture which under normal installation, use and service disclosed such defect; provided the unit is delivered by the owner to us or to our authorized distributor from whom purchased, or authorized service station, intact, for our examination, with all transportation charges prepaid to our factory, within 90 days from the date of sale to original purchaser and provided that such examination discloses, in our judgment, that it is thus defective.

Written authorization must be obtained before any merchandise is returned to the factory.

This warranty does not extend to any of our electronic products which have been subjected to misuse, neglect, accident, incorrect wiring not our own, improper installation, unauthorized modifications, or to use in violation of instructions furnished by us, nor units which have been repaired or altered outside of our factory, nor to cases where the serial number thereof has been removed, defaced or changed, nor to accessories used therewith not of our own manufacture.

This warranty is in lieu of all warranties expressed or implied and no representative or person is authorized to assume for us any other liability in connection with the sale of our electronic products.

FANON/COURIER CORPORATION

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