operation, the squelch circuit will operate only during the receive mode of operation. When AGC voltage lowers with a weak received signal, transistor Q19 turn ON, controlling the bias voltage to the AF AMP (IC4) and disabling the amplifier. On the other hand when the transistor Q19 is turned OFF, the amplifier will start to operate.

SCAN LOCK CIRCUIT

On the assumption that the operation mode is A channel and B channel is monitor, the output pulse generated at Q28 makes Q33 operate ON within detection time, and the detect output from D11 makes Q34, Q35 operate ON. While the Q33, Q34 & Q35 operate ON, both transistor Q36 and Q37 also operate ON. Thus scan lock circuit will be locked by the hold time dependent upon R143 and C164 if reception signal appears on B channel (monitor).

4.3 TRANSMITTER

GENERAL

IC1 (PLL), IC2 (Reference OSC/Mixer) and IC3 (VCO) operate in both receive and transmit modes. When the transceiver is set to the transmit mode, IC3 (Doubler), Q8, Q9, Q10, Q1, Q16, Q17 and IC4 are powered and operate.

The channel selector determines the "N" code corresponding to the channel which is selected. The "N" code is applied to the appropriate IC terminal (pins 9 — 15) and presets the programmable divider to divide the input frequency from IC3.

The oscillator of IC2 operates at 10.240 MHz and is mixed with the VCO signal inside IC3.

The mixed and converted output difference frequency (3.2425 to 3.4625 MHz), is fed to the buffer circuit in IC1. The buffer output is fed to the programmable divider and divided to a low frequency predetermined by the "N" code. Finally, the lower frequency is fed to the Phase Comparator and compared with the reference frequency obtained from IC2 (Reference frequency oscillator), — 1/4096 Divider in IC1.

The Phase Comparator generates a DC error signal corresponding to the phase difference between the two signals. The error signal is applied to the VCO circuit inside IC3 through a Low Pass Filter. The VCO is corrected so that the divided VCO frequency exactly coincides with the reference frequency. The VCO circuit provides a signal of stable frequency over the band of 13.4825 to 13.7025 MHz (depending upon "N" code/"channel" selected).

This signal is fed to the mixer inside IC2 and mixed with the 10.240 MHz signal from the reference oscillator inside IC2.

In the TX mode, this produces two frequency bands:

3.2425 to 3.4625 MHz and 13.4825 to 13.7025 MHz.

The lower band is fed to the programmable divider for comparison with the reference oscillator, The higher band is doubled to produce all transmit frequencies over the range of 26.965 to 27.405 MHz.

In RX mode, two different frequency bands are produced:

6.03 to 6.47 MHz and 16.27 to 16.71 MHz.

The higher band is used as a local oscillator signal and the lower band is fed to the programmable divider for comparison with the reference oscillator.

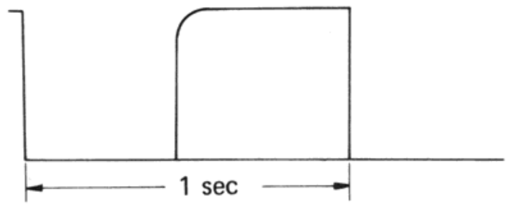
The 27 MHz transmit signal is fed to the 27 MHz amplifiers, Q8, Q9 and Q10 and amplified for transmitting.

The microphone signal is applied to the audio amplifier (pin 6 of IC4) and the output is then fed to the collectors of Q9 and Q10 through the secondary coil of output transformer T17, thus modulating the carrier signal.

SCAN CIRCUIT [WAVE FORMS]

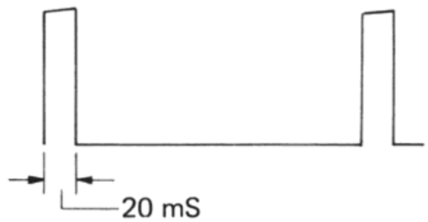
Pulse Generator Circuit: Transistors Q26 and Q27 comprise a multi vibrator circuit. The signal generated by Q26 and Q27 is shown below.

a)



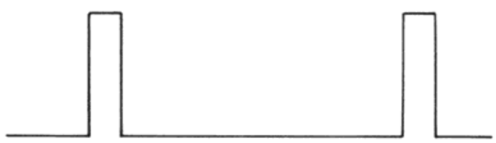
Next, the time constant of C157 and R127, will generate the timing signal generated at Q28 shown below.

b)

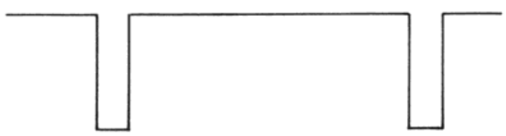


Finally, the pulse shaped at Q29, Q30, and Q31 shown below. Refer to the these waveforms shown on the scan logic schematic diagram. (SECTION 7)

c)



d)



PLL CODE SWITCHING CIRCUIT

The pulse signal generated at switching transistors Q30 & Q31 are used for operation of the channel rotary switch which changes the channel mode A or B. To switch the channel mode to A or B and operate the PLL synthesizer in accordance with the selected channel mode, switching transistor Q3 & Q4 are also provided in this circuit. Q3 and Q4 are provided to speed up the lock time for the PLL synthesizer circuit.

AUTOMATIC LEVEL CONTROL CIRCUIT

The ALC regulates the gain of the audio amplifier so as to accommodate a wide range of voice levels. The audio output signal is fed from the bottom secondary of T17, the audio output transformer, through D14, RV2 (Mod Adj), C131. D13 rectifies the signal, and C131, R92, C130 & R83 filter it producing an average DC level which is fed to the base of Q17 – the ALC amp. The base voltage of Q17, supplied through the time constant – C131, R92, C130 & R83 controls the modulation depth and thus the ALC circuit provides maximum legal modulation level.

4.4 PLL SYNTHESIZER CIRCUIT

A Phase Locked Loop (PLL) circuit compares and continuously synchronlzes the frequency of a variable oscillator to the output of a stable reference source.

The reference source, a Reference Oscillator (RO) provided inside IC2, oscillates at a constant 10.240 MHz. The output of the (RO) is fed to a fixed frequency divider network of 1 : 4096 (TX mode). In receive mode, the output of the (RO) is fed to a fixed frequency divider network of 1 : 2048 (RX mode).

TX mode: 10.240 MHz ÷ 4096 = 2.5 kHz (fixed reference)
RX mode: 10.240 MHz ÷ 2048 = 5 kHz (fixed reference)

The voltage controlled oscillator (VCO) is used as the primary signal source for both transmit and receive frequencies. The frequency of the VCO and the divisor of the programmable frequency divider are varied by the channel selector so that the resultant frequency is maintained at a constant 2.5 kHz for transmit mode operation and 5 kHz for receive mode operation.

TX mode: Frequency of VCO ÷ N = 2.5 kHz
RX mode: Frequency of VCO ÷ N = 5 kHz

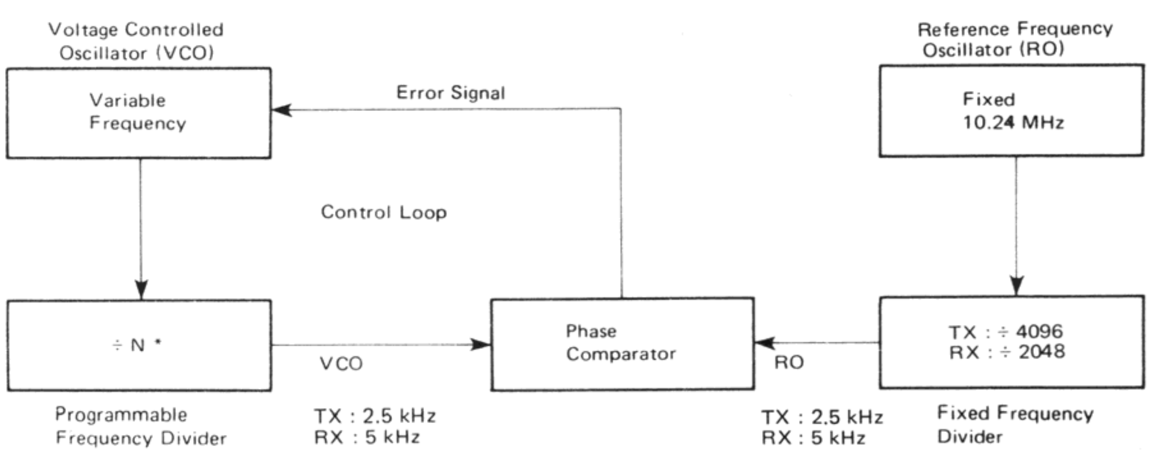
In transmit mode, the VCO 2.5 kHz frequency is continuously compared to the (RO) 2.5 kHz frequency in a Phase Comparator and both sources remain synchronized (locked together).

In receive mode, the VCO 5 kHz frequency is also continuously compared to the (RO) 5 kHz frequency in a Phase Comparator and both sources remain synchronized (locked together).

If the frequency of the VCO attempts to drift, a phase-error signal is generated in the phase comparator.

This error signel corrects the frequency of the VCO to maintain synchronization. Employing the PLL system in a CB transceiver requires additional stages which are used to convert the output of the VCO into the frequencies necessary for the transmit and receive mode of operation.

Fundamental Theory of PLL Circuits



*RX mode : Divider N = frequency of VCO ÷ 5 kHz
*TX mode : Divider N = frequency of VCO ÷ 2.5 kHz

Figure 13.

Frequency Determining Digital Codes and Preset Selector Switch Connections.

— Example at CH13 —

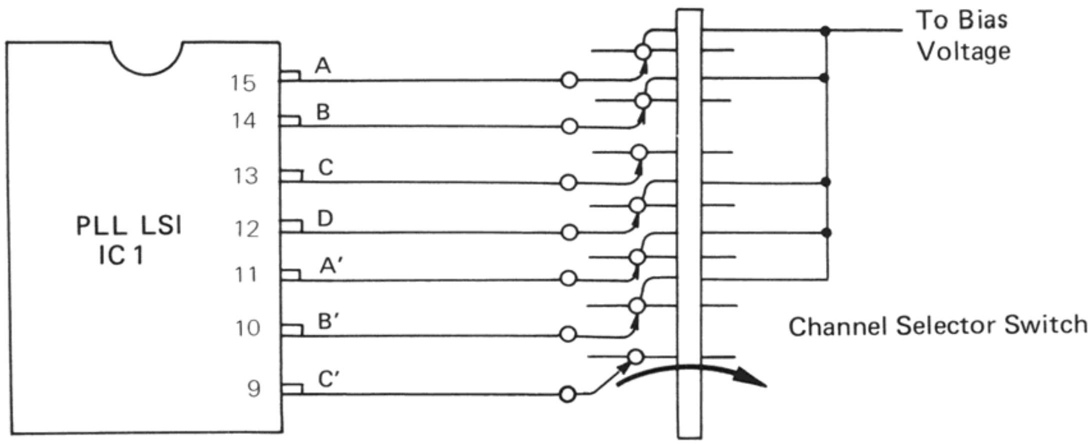


Figure 14.

Refer to the Channel Selector/Divisor-Code Chart.

SECTION 5
SERVICING

5.1 INTRODUCTION

Read this section carefully before attempting any repair of the LCM-8. Refer to the circuit description, PLL circuit block diagram, entire circuit block diagram, PC Board component parts layout, Exploded view and schematic diagram. The transistor and IC case diagram are shown on the schematic diagram. Refer to these diagrams before checking transistors or ICs. Component layout are provided to aid troubleshooting and alignment. Use only recommended replacement parts. Refer to the parts list in the back of this book. Never replace blown fuses with higher rated ones or fast acting with slow blow. To check operation of the unit, refer to Figure 5-2, Performance Verification Procedure, Figure 5-3, 5-4, Transmitter Test Connection and Receiver Test Connection respectively, show the proper manner to connect the unit to test instruments for performance verification or alignment. Figure 5-1 lists Recommended Test Instruments. Figure 5-6, 5-9 show proper Transmitter Alignment Procedure respectively. Figure 5-10, Alignment Layout is placed next to the alignment procedures to show alignment adjustments at a glance.

5.2 TEST SIGNALS

Oscilloscope Waveforms are shown which were taken at various points in the LCM-8 during normal operation into a dummy load. Check test Point numbers next to the waveform pictures correspond to numbers in boxes on both the schematic diagram and component layout drawing. Some waveform are shown on the schematic diagram. Figure 5-7 shows RF amplification through a properly aligned transmitter. Figure 5-8 shows 50%, 100% and overmodulation respectively. Notice that the waveform at the base of Q8 — the TX predriver through the Mixer provided inside IC3 — contains several frequency components. Also notice that the waveforms at each collectors of Q8 TX predriver and Q9 TX RF driver, and notice that the waveform at the collector of Q10 — the TX Final — is unsymmetrical. This is proper since the TX final operates class C for greater efficiency.

Figure 5-7F shows how the output should look at the collector of Q10.

Voltage Measurements are shown on the schematic diagram for normal operation. All voltage were measured with a VTVM. Voltage measurements on high impedance RF points should be taken through an RF probe.

Mini-test clips are very useful for making voltage measurements in hard to reach places.

Receiver Injection Voltage are given in Figure 5-11 together with Check Point numbers which correspond to numbers in boxes on both the schematic diagram and component layout drawing. This specifies the voltage level, carrier frequency and particular points in the receiver string at which a 30% — 1 kHz modulated signal injected through a .01 μF capacitor should produce at least 2V AC of audio across the speaker or 8 ohm load plugged into the speaker jack, EXT SP. While the value of this capacitor is not critical, capacitive coupling of the signal generator to the circuit is necessary to prevent grounding out the transistor biases.

Before setting up to measure Receiver Injection Voltages, small hand-held "all purpose signal generators" may be used to provide a quick check of the receiver string. Basically, these devices generate pulses rich in harmonics from AF to RF to test whether a stage is working.

Figure 5-12, PLL Synthesizer Troubleshooting Procedure, should be used as a guide to locating problems in the PLL Frequency Synthesizer.

Figure 5-5, Channel Selector/Divisor-Code Chart shows a string reference of PLL frequency synthesizer, namely, channel No., channel frequency, selector sw. output ("N" code), TX VCO frequency & divisor and RX VCO frequency & divisor which are assigned and selected by "N" code (preset) of channel selector.

ICs equivalent circuit provided inside Integrated Circuits in this model LCM-8 show in Figure 5-13. The Exploded view shows in Figure 5-14 and Component Layout (PC Board) shows in Figure 5-15.

FIG. 5-1 RECOMMENDED TEST INSTRUMENTS

TEST INSTRUMENT	REQUIRED SPECIFICATIONS	USE	RECOMMENDED INSTRUMENT TYPE
R.F. Signal Generator	Output frequency: 26.965 to 27.405 MHz. Output level calibrated from .1 microvolts to 500,000 microvolts. Internal modulation capability of 30% minimum at 1 kHz. (Calibrated)	Receiver service and alignment.	Hewlett-Packard Model 606A or B. Wavetek Model 3000.
Oscilloscope	Vertical bandwidth of 25 MHz or greater at 3 dB point. Triggered sweep capability.	Transmitter and receiver test and alignment.	Tektronics Model T932. Tektronics Model 465. Hewlett-Packard Model 180. Phillips Model RM3260E.
Frequency Counter	Frequency range DC to 30 MHz. Sensitivity: 10 mV R.M.S. at 30 MHz. Overall timebase accuracy ±.002%, 6 digit resolution.	Transmitter frequency check and synthesizer troubleshooting.	Heath-Schlumburger Model SM128A
Wattmeter	5 watts full scale into 50 ohm load ±5% accuracy.	Measure power output and S.W.R.	Bird Model 43 with type 5A element. (May be terminated with antenna load.
AC VTVM	−40 to +20 dB range.	Measure audio output.	Heath Model IM-21.
Audio Oscillator	400 Hz to 4000 Hz output: Adjustable level, 0-1 volt output impedance 600 ohm.	Audio and modulator tests.	Hewlett-Packard Model 204C. Heath Model SG18A.
DC Power Supply	13.8 volt DC ±10% at 2 amperes.	Primary supply voltage for servicing.	Heath Model SP2720 (SBE Model SBE-1AC may be used if available.)
Logic Probe	TTL: High, low and pulse.	Troubleshooting logic.	Hewlett-Packard Model 10525T.

FIG. 5-2 PERFORMANCE VERIFICATION PROCEDURE

RECEIVER

STEP 1 Connect a Regulated DC Power Supply (DC 13.8 volts) to the unit.
STEP 2 Place the A-SCAN-B switch in the "A" position (channel A receiver operation) and set the A channel selector to CH 19 position. Also set the Noise Limiter switch in NL position and rotate the squelch control in minimum, but is no PA position, Volume control to its maximum position.
STEP 3 Connect a signal generator to the antenna terminal on rear panel and tune the signal generator to 27.185 MHz with 30% modulation at 1 kHz.
STEP 4 Adjust signal generator output level to 1 μV and verify that 5 volts AC audio output appears across external speaker jack using 8 ohm dummy resistive load.
STEP 5 Turn off signal generator modulation and verify a 10 dB or greater reduction in audio output.
STEP 6 Increase signal generator output level by 40 dB. Check for "S" meter indication of approximately "S9".
STEP 7 Observe the meter lamp, RX mode lamp and channel LED to insure that each is operational.
STEP 8 Increase signal generator output level to 500 μV. Rotate squelch control fully clockwise and verify squelch of the receiver with input of 500 μV.
STEP 9 Decrease signal generator output level to 1 μV, adjust squelch control to the point that the receiver is just muted. Increase signal generator output level by 0.7 μV and verify that the squelch opens. **(continued)**

STEP 10

Adjust each control in the same manner as above steps with exception below.
Set the A-Scan-B switch to B position and then set the channel B selector to CH1 position, the Lamp-Monitor switch to the Lamp position.
Set the signal generator frequency to 26.965 MHz with 30% modulation at 1 kHz.
Temporarily set the Scan sensitivity control to fully counterclockwise, the A-Scan-B switch to scan position.
Repeat above STEP 4 and verify that the channel B lamp flickers.
NOTE: Adjust the Scan sensitivity control. Find a setting for the control which causes the lamp to flicker with an incoming signal which you consider to be of a suitable listening level.
Next, Set the A-Scan-B switch to B position and repeat steps from STEP 4 through STEP 9.
CHANNEL B/CHANNEL B LAMP FLICKERING OPERATION CHECK

STEP 11

Set PA/Squelch control to its PA (fully counterclockwise) position. Insert the PTT-microphone plug into the microphone jack and connect an external speaker or 8 ohm dummy load across PA jack, then observe the audio output while speaking into the microphone.

TRANSMITTER

STEP 1

Connect regulated power supply (DC 13.8V) to the unit. Set the A-Scan-B switch to A, Channel A selector to CH19, PA/Squelch control to desired squelch sensitivity position.
Connect wattmeter and dummy load to the antenna connector. Key the transmitter and check that the TX lamp comes on. Observe an output of 3.8 watts – 4 watts on the wattmeter. Observe that the S-RF meter provided on the front panel indicates the same wattage as the reading obtained on the watt meter. (RF meter may be adjusted by RV4).

STEP 2

Whistle into the microphone with transmitter keyed and verify that 100% modulation is obtained. (Modulation sensitivity may be adjusted by RV2).

STEP 3

Couple the frequency counter through the coupling coil to the dummy load and check the transmit frequencies on all channels.
The frequency should be within ±800 Hz of center channel frequency on all channels.

SYNTHESIZER

STEP 1

Connect a frequency counter between C6 (Mylar Capacitor 1000 pF) and chassis ground. Frequency should be 10.240000 MHz ± 50 Hz. [10.240 MHz X'tal reference oscillator check].

(continued)

STEP 2

Place the channel selector to CH1. Set the unit to receive mode and connect a digital voltmeter (DC 12V range) between R8 and ground. Verify that the meter reading obtain is 2V ± 0.1V. Next, set the channel selector to CH40 and verify that the reading is 3.3 – 4.6V [VCO circuit check].

FIG. 5-3 TRANSMITTER TEST CONNECTION

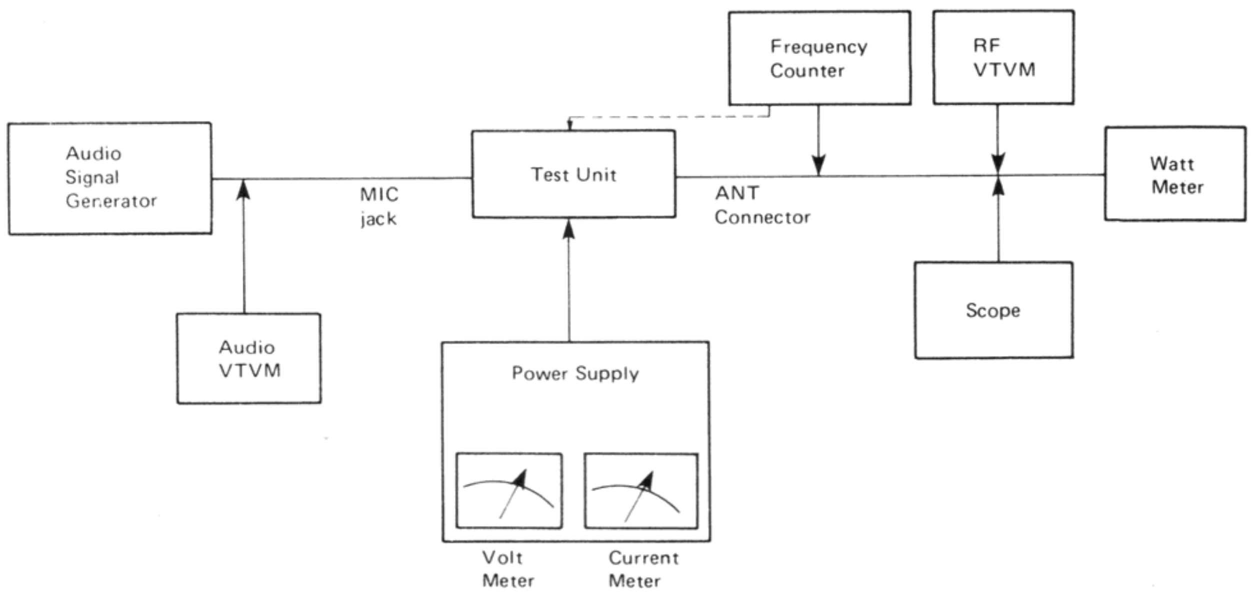
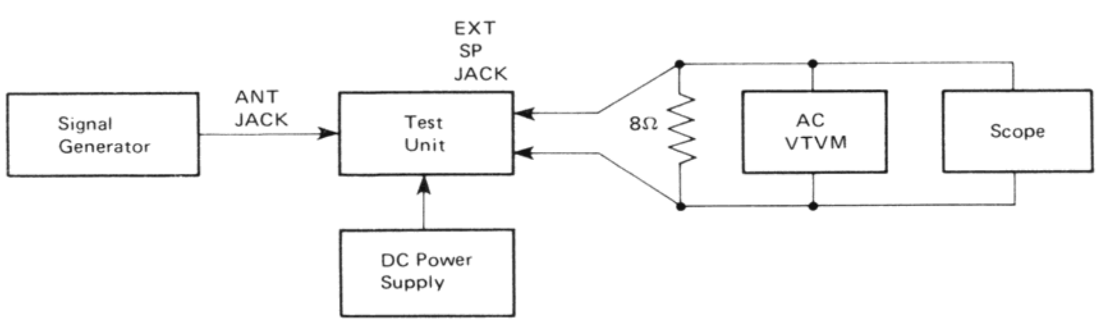


FIG. 5-4 RECEIVER TEST CONNECTION



CHANNEL SELECTOR/DIVISOR-CODE CHART

Channel No.	Channel Freq. (MHz)	Selecter Sw. Output (N Code)							TX		RX	
		A	B	C	D	A'	B'	C'	Divisor	VCO Freq. (MHz)	Divisor	VCO Freq. (MHz)
1	26.965	0	1	0	1	0	0	1	1297	13.4825	1206	16.27
2	26.975	1	0	0	1	0	0	1	1299	13.4875	1208	16.28
3	26.985	0	0	0	1	0	0	1	1301	13.4925	1210	16.29
4	27.005	0	1	1	0	0	0	1	1305	13.5025	1214	16.31
5	27.015	1	0	1	0	0	0	1	1307	13.5075	1216	16.32
6	27.025	0	0	1	0	0	0	1	1309	13.5125	1218	16.33
7	27.035	1	1	0	0	0	0	1	1311	13.5175	1220	16.34
8	27.055	1	0	0	0	0	0	1	1315	13.5275	1224	16.36
9	27.065	0	0	0	0	0	0	1	1317	13.5325	1226	16.37
10	27.075	1	1	1	1	1	1	0	1319	13.5375	1228	16.38
11	27.085	0	1	1	1	1	1	0	1321	13.5425	1230	16.39
12	27.105	0	0	1	1	1	1	0	1325	13.5525	1234	16.41
13	27.115	1	1	0	1	1	1	0	1327	13.5575	1236	16.42
14	27.125	0	1	0	1	1	1	0	1329	13.5625	1238	16.43
15	27.135	1	0	0	1	1	1	0	1331	13.5675	1240	16.44
16	27.155	1	1	1	0	1	1	0	1335	13.5775	1244	16.46
17	27.165	0	1	1	0	1	1	0	1337	13.5825	1246	16.47
18	27.175	1	0	1	0	1	1	0	1339	13.5875	1248	16.48
19	27.185	0	0	1	0	1	1	0	1341	13.5925	1250	16.49
20	27.205	0	1	0	0	1	1	0	1343	13.6025	1254	16.51
21	27.215	1	0	0	0	1	1	0	1347	13.6075	1256	16.52
22	27.225	0	0	0	0	1	1	0	1349	13.6125	1258	16.53
23	27.255	1	0	1	1	0	1	0	1355	13.6275	1264	16.56
24	27.235	1	1	1	1	0	1	0	1351	13.6175	1260	16.54
25	27.245	0	1	1	1	0	1	0	1353	13.6225	1262	16.55
26	27.265	0	0	1	1	0	1	0	1357	13.6325	1266	16.57
27	27.275	1	1	0	1	0	1	0	1359	13.6375	1268	16.58
28	27.285	0	1	0	1	0	1	0	1361	13.6425	1270	16.59
29	27.295	1	0	0	1	0	1	0	1363	13.6475	1272	16.60
30	27.305	0	0	0	1	0	1	0	1365	13.6525	1274	16.61
31	27.315	1	1	1	0	0	1	0	1367	13.6575	1276	16.62
32	27.325	0	1	1	0	0	1	0	1369	13.6625	1278	16.63
33	27.335	1	0	1	0	0	1	0	1371	13.6675	1280	16.64
34	27.345	0	0	1	0	0	1	0	1373	13.6725	1282	16.65
35	27.355	1	1	0	0	0	1	0	1375	13.6775	1284	16.66
36	27.365	0	1	0	0	0	1	0	1377	13.6825	1286	16.67
37	27.375	1	0	0	0	0	1	0	1379	13.6875	1288	16.68
38	27.385	0	0	0	0	0	1	0	1381	13.6925	1290	16.69
39	27.395	1	1	1	1	1	0	0	1383	13.6975	1292	16.70
40	27.405	0	1	1	1	1	0	0	1385	13.7025	1294	16.71

Note: 1: H Level 4.5 to 5.5 V
0: L Level 0.05 to 0.4 V

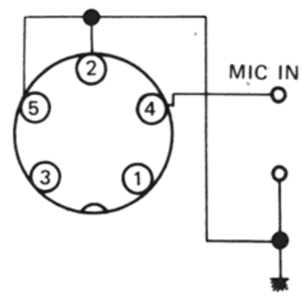
FIG. 5-5

REFERENCE OSCILLATOR IC2
Both TX and RX = 10.240 MHz
TX: TX VCO (Frequency) x 2 = [Channel Frequency]
RX: [Channel Frequency] – VCO (frequency) – 10.240 = 455 kHz IF

FIG. 5-6 TRANSMITTER ALIGNMENT PROCEDURES

INITIAL SET-UP

Connect the test equipment to the unit as shown in Figure 5-3. Place the transceiver into transmit mode without the microphone. Insert the plug wired as shown below into the MIC jack on the transceiver. When applying audio modulation to the transmitter, use the microphone input circuit shown below.



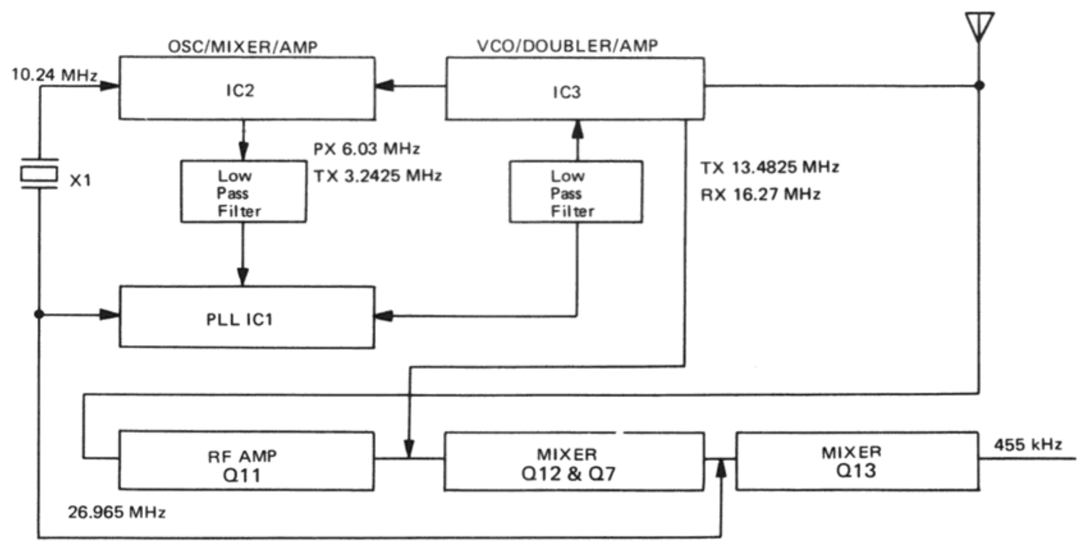
Set the channel selector to CH 19 position.

STEP 1 : PLL Circuit Alignment

Connect a frequency counter to C6 (1000 pF Mylar capacitor) and adjust trimmer capacitor CT1 to obtain frequency reading of:

10.240000 MHz ± 50 Hz

Example of frequency distribution chart for channel 1 selected.



STEP 3 : VCO Circuit Alignment

1. Place the unit into receive mode. Do not connect microphone.
2. Connect a digital voltmeter (DC 12V range) between R8 and ground.
3. Adjust T1 to obtain 2V ± 0.1V. Start T1 core at the top and turn into Transformer T1.
4. Set the channel selector to CH 40 and verify that the reading is 3.3 – 4.6V.

(continued)

5. Place the unit into transmit mode, no modulation.
6. Repeat steps 2 and 4, adjusting CT2.
7. Perform above alignment for Channel B mode operation.

STEP 4 : RF Driver stage alignment

1. Set power supply voltage to 7.5V.
2. Set the channel selector to CH19.
3. Connect oscilloscope to ANT. connector.
4. Adjust T2 and T8 for maximum amplitude of scope display (27.185 MHz signal).

STEP 5 : RF Power amplifier alignment

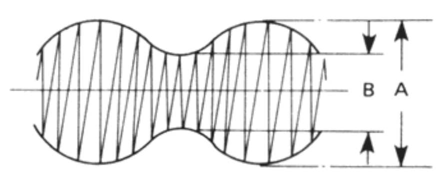
1. Set the power supply voltage to 13.8V.
2. Connect wattmeter to the transceiver's ANT. connector.
3. Adjust L7 for maximum reading on the RF wattmeter.
4. Adjust L11 for maximum RF output.
5. Adjust L12 for maximum RF output.
   Readjust L11 for maximum RF output.
6. Turn L7 core clockwise so that RF wattmeter indicates 4.4W.
7. Turn L12 core counterclockwise for a power reading of 3.8W.

STEP 6 : Transmit Frequency check

1. Place the transceiver into transmit mode, no modulation.
2. Connect a frequency counter to the ANT. connector.
   Read the frequency at each channel. Verify that each channel is within ±800 Hz of nominal channel frequency as specified in Channel Selector/Divisor-Code Chart.

STEP 7 : Modulation Limiter alignment

1. Place the unit into transmit mode and apply 15 mV, 1 kHz signal to the MIC input jack.
2. Adjust RV2 to obtain 90% modulation.



$$\text{Modulation ratio} = \frac{A - B}{A + B} \times 100\ (\%)$$

3. Next, Decrease signal input to 2 mV and verify that the modulation is greater than 50%.

STEP 8 : RF Meter alignment

1. Adjust RV4 so that it indicates the same reading as obtained on the external wattmeter.

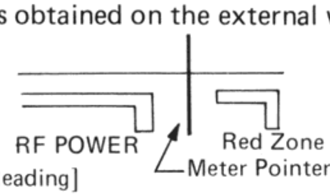
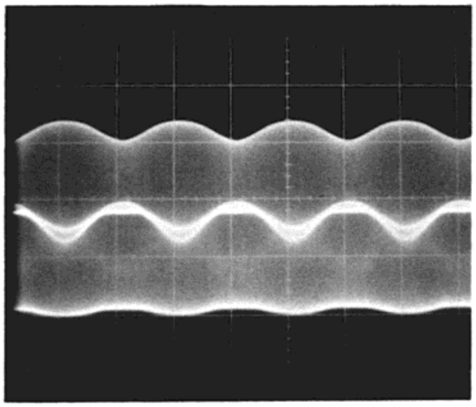


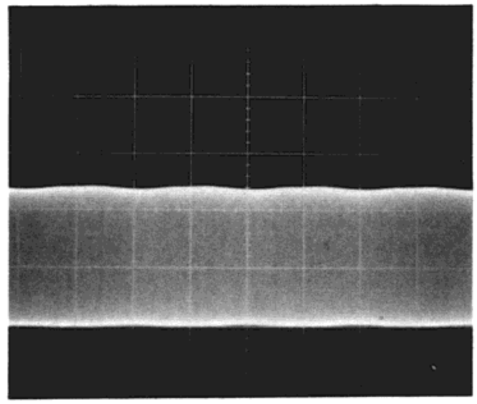
FIG. 5-7 TRANSMITTER ALIGNMENT WAVEFORMS

500 mV
0.5 ms



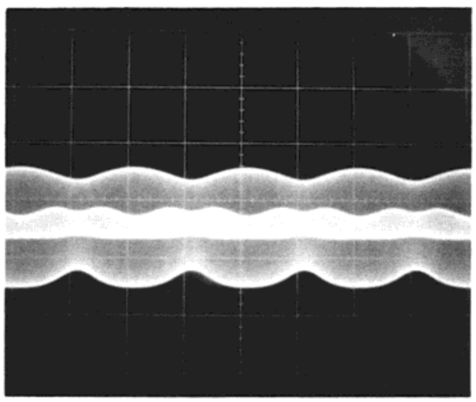
[A] TX RF PRE DRIVER BASE

10V
0.5 ms



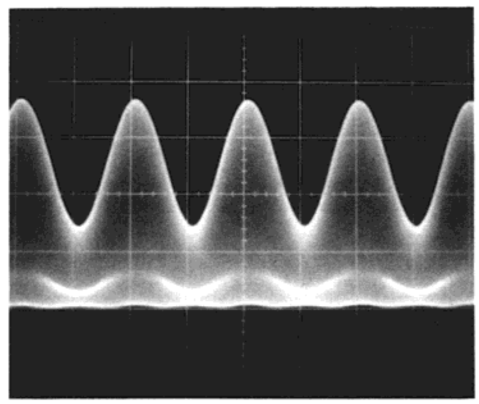
[B] PRE DRIVER COLLECTOR

2V
0.5 ms



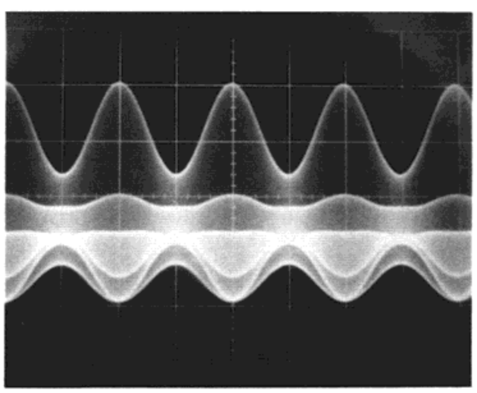
[C] RF DRIVER BASE

10V
0.5 ms



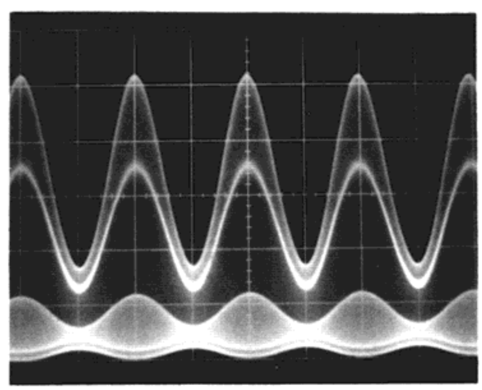
[D] RF DRIVER COLLECTOR

2V
0.5 ms



[E] TX FINAL BASE

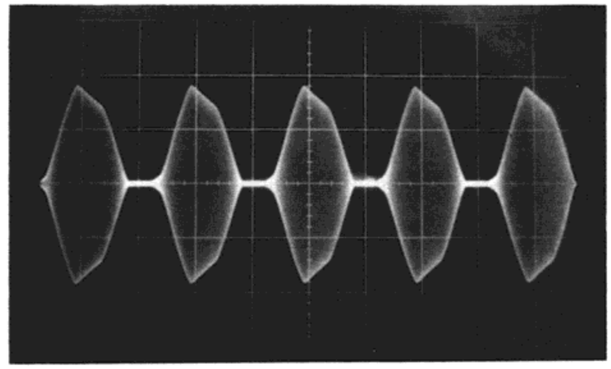
10V
0.5 ms



[F] TX FINAL COLLECTOR

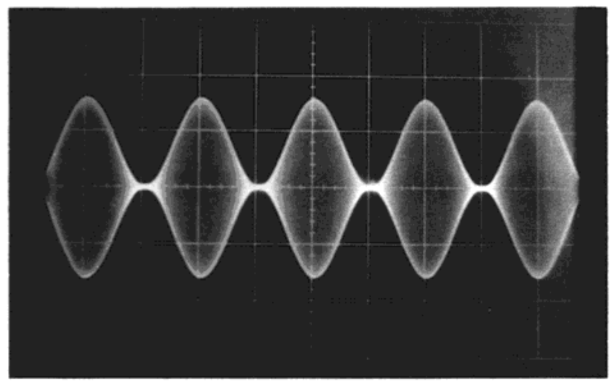
FIG. 5-8 MODULATION WAVEFORMS

20V
0.5 ms



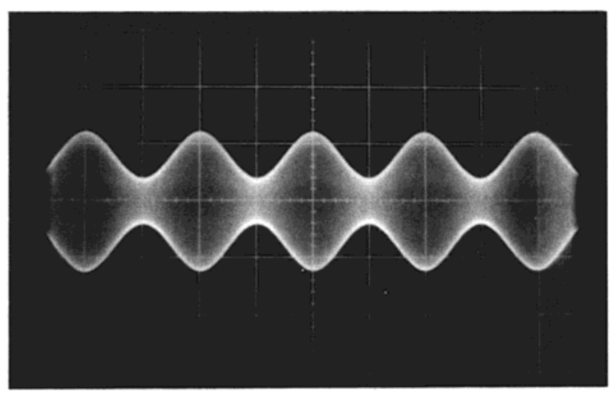
[1] OVERMODULATION

20V
0.5 ms



[2] 100% MODULATION

20V
0.5 ms

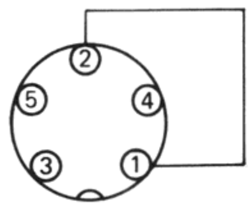


[3] 50% MODULATION

FIG. 5-9 RECEIVER ALIGNMENT PROCEDURE

INITIAL SET-UP

Connect the test equipment to the unit as shown in Figure 5-4. Rotate the Volume control to maximum, fully clockwise. Set the Noise Limiter switch (NL) in the off position and turn the Squelch control fully counterclockwise, but not to the PA position.
Set the channel selector to CH19 position.
Set the A-Scan-B switch to A position (Channel A Receiver Operation).
Place the transceiver into the receive mode by inserting the plug wired as shown below into the MIC jack on the side panel.



STEP 1 : Receiver alignment

1. Set the signal generator to 27.185 MHz, 1 kHz 30% modulation.
   Set the unit to channel 19.
2. Adjust T9, T10, T11, T12, T13, T14, T15 & T16 for maximum audio output across the 8 ohm dummy load resistor.
   Perform alignment with very low signal input to avoid inaccurate alignment due to AGC action.

STEP 2 : Squelch Circuit alignment

1. Increase the signal generator output 60 dB (1 kHz, 30% modulation).
2. Rotate the squelch control fully clockwise.
3. Temporarily adjust RV1 for maximum audio output, and note the audio output level.
   Then, adjust RV1 so that the audio output level decreases by 6 dB (one-half the signal).

STEP 3 : Signal Meter alignment

1. Set the signal generator output to 40 dB (100 μV).
2. Adjust RV3 so that the S-meter pointer indicates "9".