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5 . 3 TRANSMITTER ALIGNMENT (cont'd)

13. Final Alignment (cont'd)

a. Set transmitter to Channel 20 and adjust C602(plate tuning) for peak output.

b. Switch to LSB and readjust bias to center of box. See Sect. 3.

c. Open Test Switch 2 and adjust audio oscillator level for about 4W output power.

d. Align T301, 302 and 303 for maximum output.

e. Adjust T301 and 302 to obtain approx, equal power on all channels 1 - 40 should be within 1W at the 3-4W. level. Typical alignment gives 3W. on Ch. 1 and 40 and up to 4W. on channels in between.

f. Increase audio level to obtain max. power, should be 10W. or better (equivalent to 12W PEP). If you cannot reach approx, i0W repeat Step E. attempting to obtain same 3-4W flat response with less audio input.

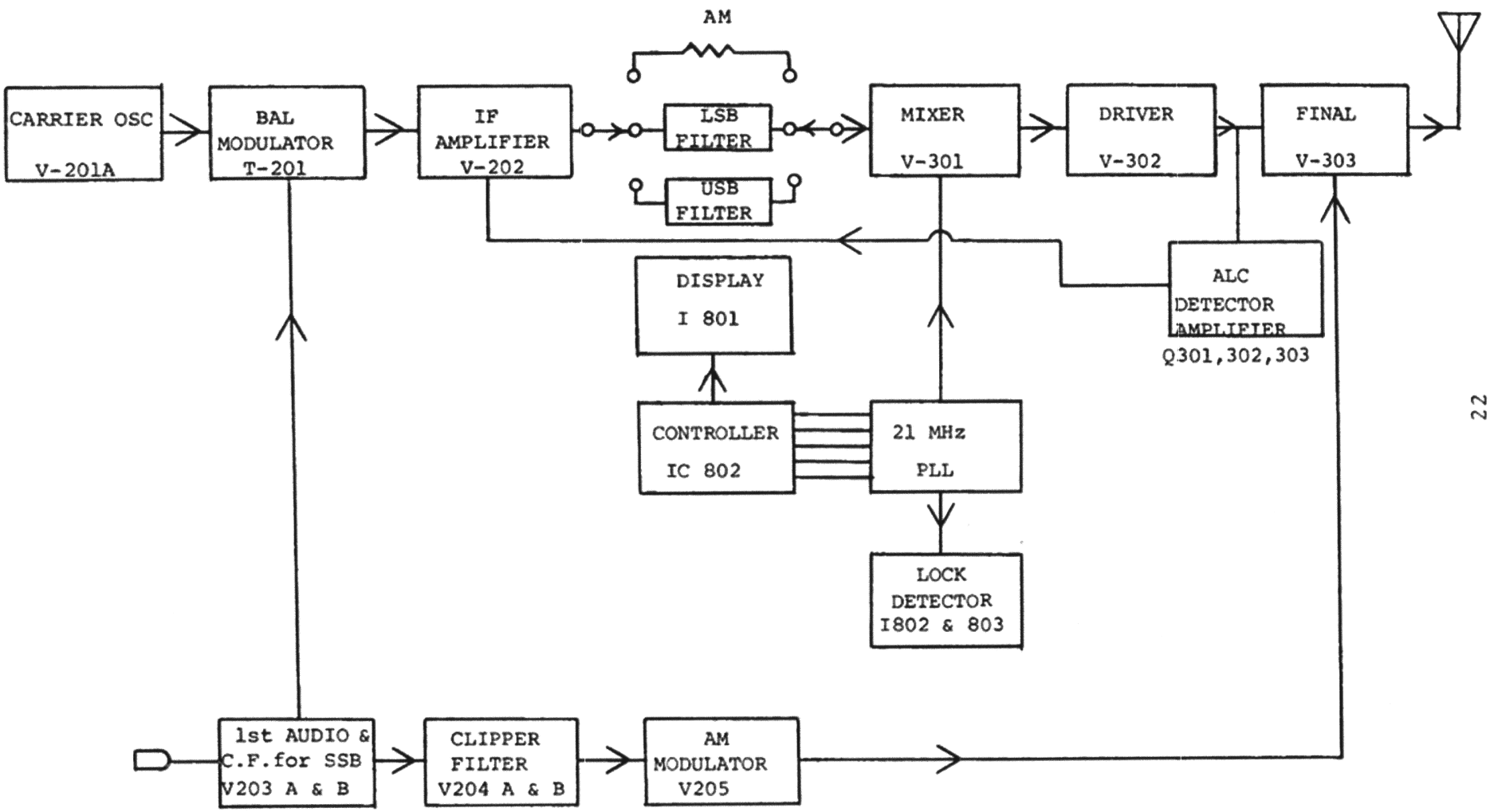
g. Adjust R318 (SSB ALC control) for IOW.

h. Remove. audio and switch to AM. Check for 3.5W min. from Ch. 1 - 40, should not vary.

i. Check output.frequency on all 40-channels. k. 002% tol. Frequency may be adjusted by C705. j. Disconnect test plug and install microphone, Adjust R219 for 100% modulation on monitor scope with a iow voice or whistle.

k. Adjust R603 (audio clipper) so as not to exceed 100% modulation with a loud voice or whistle.

FIGURE 4.2

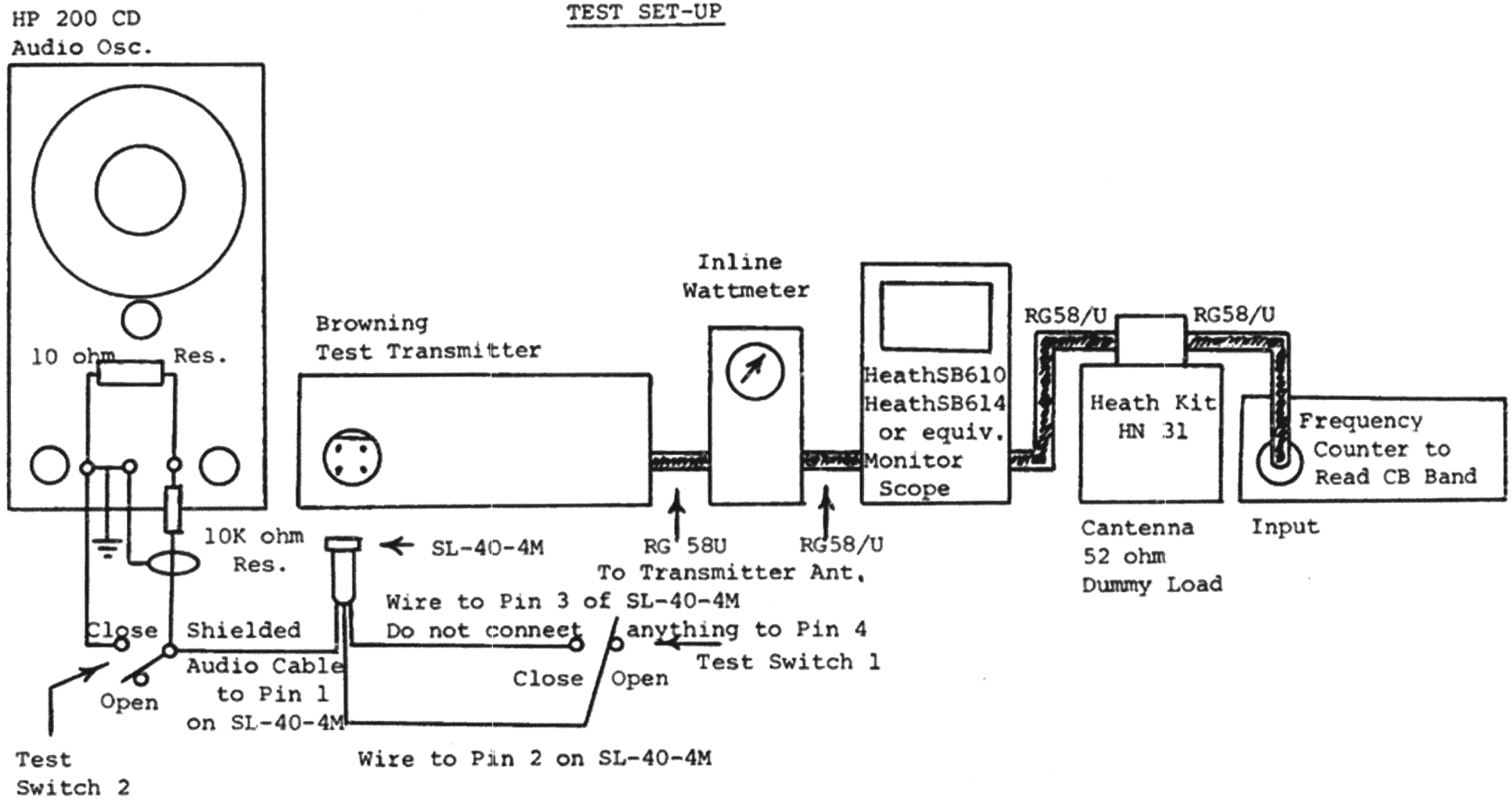


BLOCK DIAGRAM

GE IVA TRANSMITTER

SSB/AM TRANSMITTER

TEST SET-UP



If other than an HP 200 CD Audio Osc. is used, it may not be necessary to attenuate the signal with a 10 ohm and 10K resistor.

FIGURE 5.2

GOLDEN EAGLE MARK IVA

SECTION 6

SERVICING

6 .1 INTEGRATED CIRcuITS

6 . 1 . 1 The I.C.'s used in this unit are a type known as C-MOS. They have many advantages over other types such as low power consumption, a wide range of supply voltage, and good immunity to noise and transients. Care must be exercised however in the servicing of equipment that employs these devices. They can be destroyed by static electricity when they are out of the circuit or being removed or inserted. A number of steps can be taken to prevent this. When out of circuit keep the I. C. 's wrapped in foil or their leads inserted in a conductive foam material. Use grounded soldering irons. Do not use carpets in the shop as these can generate a lot of static. If your workbench is metal connect it to a good earth ground, if not, have a metal plate plate connected to an earth ground to discharge your body and your tools before handling the I. C. 's. Use plastic insertion and removal tools to reduce the need to touch them.

6 . 1 . 2 C-MOS LOGIC LEVELS

There are two Logic Levels used with C-MOS. Logical "0" is equal to 0 V. And Logical"1" is approximately equal to supply voltage, in this case +8V.

6 . 1 . 3

A. IC801 MC14016 is a four section analog switch. We use only one section to supply a pulse a few moments after turning the set on to program IC802 to supply proper coding information for the PLL circuit.

B. IC802 TMS1022 NL is the controller. It is a very complex circuit that performs a number of functions. supplies a multiplexed code to the channel display and supplies binary codes to the synthesizer. It also contains circuitry that allow the channels to be scanned up or down at a variable rate.

6 . 1 . 3 (Cont'd)

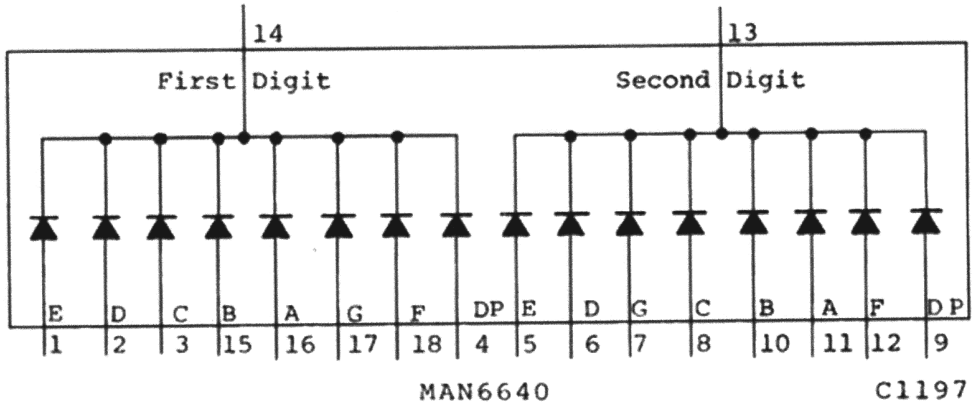
C. IC701 MC145106 is the phase lock loop. It contains circuitry for the 10.24 MHz reference oscillator, a programmable divider, a phase detector which supplies an error voltage to control the VCO and a lock detector output to indicate when the PLL is not on frequency.

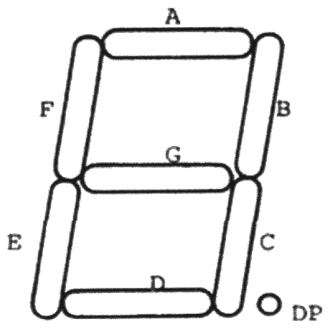
D. IC702 MC14008 is a 4 bit binary adder. It converts some of the codes from the controller into codes needed for PLL.

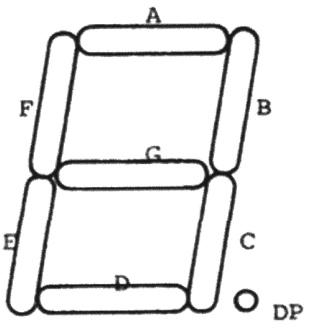
E. IC703 7808 is a Voltage regulator. It is not C-MOS. It supplies +8 +/- .3V. D.C. to the synthesizer and readout boards.

F. 1801 MAN 6640 is a two digit common cathode LED display. Fig. 6.1 shows its schematic and segment layout.

FIG. 6 . 1







GOLDEN EAGLE MARK IVA

SECTION 6

6 . 2 RECEIVER SERVICING

6 . 2 . 1 GENERAL

This section covers receiver trouble isolation procedures. A separate TROUBLE-CAUSE section is included for your assistance.

6 . 2 . 2 RECEIVER DISASSEMBLY

1. Access to the chassis is gained by removing the four brass screws located on the sides of the dust cover and the three hex-head sheet metal screws located where the lower edge of the dust cover grill-work meets the rear of the chassis.
2. Access to the bottom of the receiver is achieved by removing the three hex-head sheet metal screws located where the lip of the bottom plate extends along the lower edge of the chassis rear and then placing the receiver on its side and removing the four bottom plate screws.

6 . 2 . 3 TEST EQUIPMENT REQUIRED

NOTE: EQUIVALENT EQUIPMENT MAY BE SUBSTITUTED

A. VTVM Heathkit IM-11

B. RF Signal Generator - 0.455 to 54 MHz with attenuated output of 0.1 microvolt to 100 mV and capable of modulation at 1000 Hz at 30%. CLEMENS SG-83C.

C. Oscilloscope - Tektronix 561A

D. Audio Oscillator - H.P. Type 200 CD

E. Frequency Counter - Heath Schlumberger SM-128A

F. A. C. VTVM or Audio Wattmeter - Heath Schlumberger SM-5238

6 . 2 . 4 TEST EQUIPMENT CONNECTIONS

SEE FIGURE 5.1 - In some instances, the signal generator output may be placed in series with a 0.01 uF capacitor and this will be indicated where appropriate. Be sure the transmitter control cable is plugged in or the control connector, J2, has Pins # 7 and # 9 shorted together.

6.2.5 PRELIMINARY RECEIVER TEST

A. Connect the AC - VTVM or Audio wattmeter via a 1/4" phone plug into the external speaker jack. if an AC VTVM is used connect a 4 ohm load of at least 3 watts across its input.

B. Connect the test equipment as illustrated in Fig. 5.1.

C. Turn the volume control to minimum (CCW) and the squelch to minimum (CCW).

D. Set the signal generator for 0.3 uV output. Modulate the generator with 1000 Hz at 30%.

E. Short J-2 Pins #7 and 9, if transmitter is not connected to J2.

F. While observing the VTVM, adjust the volume control for a convenient reading say +15 dB.

G. Now remove the 1000 Hz 30% modulation, and the VTVM should read +5 dB. The other specifications should be met as listed in Section 2. If these conditions are not met, follow the recommended receiver checks as outlined in the following text.

6.2.6 AUDIO

A. Connect, an audio generator thru a 25 uF capacitor to the top of the volume control with an output of 0.8 volts RMS +/-10% at 1000 Hz. Be sure the 25 uF capacitor is in series with the positive or hot side of the generator. The generator ground lead is connected to the receiver chassis.

B. Connect the VTVM across the speaker. With the input as in A above, the VTVM should read +15 dB (4.4V AC). Be sure the-squelch is at minimum (CCW) and the Tone Control at Min. (CCW).

6 . 2 . 7 SQUELCH

A. Connect the signal generator to the antenna jack (S0259) and set it for .3 uV with 30% modulation then rum the squelch CW just enough to quiet the audio, Then increase the signal generator output until you hear audio again, it should take no more than 4 DB (to .5 uV). if it does change V205. If this *does* not **correct the problem check the voltages on V205 A & B. An incorrect voltage should point to the problem,**

B. Set the squelch to MAX. CW and increase the signal generator output by more than 40 DB (above 30 uV.). The squelch should not open with less than 40 DB signal increase. If it does change V205. If this does not correct the problem perform the voltage checks in Sect. C. This should point to the problem.

		Squelch	Squelch		Set Squelch
C.	V205	Full CCW	to Threshold		Full
	Pin I	+45V. DC	+ 35-40V	DC	+ 15V DC
	2	+ 13V. DC	+ IOV	DC	OVDC
	3	+26V. DC	+ 13V	DC	OVDC
	6	+ 165V. DC	+225 V	DC	+225V DC
	7	+35V. DC	+ 30 V	DC	+ 13V DC
	8	+52V. DC	+ 43 V	DC	+42V DC

6 . 2 . 8 STAGE GAIN CHECKS (AM RF Gain MAX CW)

In performing stage gain a low reading usually indicates the problems between point where low reading is obtained and the last good reading, Also see Sect, 6 for proper alignment,

The first step in trouble-shooting a weak stage is to change the tube for a known good one,

A tube tester is not recommended as even the best ones often indicate that good tubes are weak and vice versa.

A. With a VTVM connected at the Jct. of T205, C217, R217, R219 and R229 set the VTVM on the .5V .DC range.

B. Set the signal generator for 455 KHz and place a .O I uF capacitor in series with the positive or hot side of the signal generator test cord.

6 . 2 . 8 STAGE GAIN CHECKS (cont'd)

C. Connect the GND side of the signal generator test cord to chassis ground. Connect the .01 uF capacitor end of the test cord to V203, Pin #1. The VTVM should read -3.2V or better with 100 mV from the signal generator.

D. If okay, move the .01 uF capacitor end of the test cord to V202, Pin #1. The VTVM should read -3 volts or better with 6.3 mV from the signal generator.

E. If okay, move the .01 uF capacitor end of the test cord to V201, Pin #1. The VTVM should read -4.8 volts or better with 320 uV from the signal generator.

F. If okay, move the .01 uF capacitor end of the test cord to the junction of RI13 and T201 (at Point A). The VTVM should indicate -3.4v or better with the signal generator at 630 uV.

G. If okay, reset the signal generator for 4.415 MHz and set the channel selector to Channel 01. Move the .01 uF capacitor end of the test cord to V104, Pin 6. CAUTION: High voltage is present on Pin 6. The VTVM should read -3.5v or better with the signal generator at 200 uF. **NOTE:** Readjust channel selector for a peak reading on the VTVM and then make the above reading.

H. If the above reading is not okay, check V104A, the VFO stage for proper operation. A frequency counter connected to the grid of V104B (with V103 removed) will tell you if the VFO is operating and checking the voltages on V104A will check its condition. When this check is finished, be sure to reinstall V103.

I. If Item G above is okay, reset the signal generator to 26.965 MHz and connect the .01 uF capacitor end of the test cord to V102, Pin 2. CAUTION: High voltage is present on Pin 2. The VTVM should indicate-3.5V or better with the signal generator set at 100 uV.

6 . 2 . 8 STAGE GAIN CHECKS (cont'd)

J. If Item I above is okay, connect the signal generator directly to the antenna terminal (be sure to remove the .01 uF). The VTVM should read -3.0 or better with the signal generator set 0.3 uV.

K. If Item I above is not okay, check the first oscillator V103A This may be checked by Connecting a frequency counter to the grid of V103B with V102 removed). After this check, be sure to reinstall V102.

6 . 2 . 9 SSB.CHECKS

A. The SSB product detector and BFO circuits are combined in the V204 circuit. Whenever SSB operation is questioned, make the AM stage gain checks as in 6.2.7 If these prove to be okay, examine V204 circuitry. If the AM checks are not okay, trouble shoot AM first and then examine the SSB V204 circuits.

6 . 2 .10 POWER SUPPLY

A. With the control plug connector, J2, shorted between Pins #7 and 9 make the following voltage checks at J2;

1. Pin #1, check for 6.3v AC to 6.7v AC.
2. Pin #2, Not used.
3. Pin #3, check for +330v DC.
4. Pin #4, check for -40v DC to -45v DC.
5. Pin #5, check for +360v DC.
6. Pin #6, check for +10v DC to +11v DC.
7. Pin #7, check for +210v DC.
8. Pin #8, check for ground by using an ohmmeter.
9. Pin #9, check for +210v DC
10. Pin #10, check for ground by using an ohmmeter

NOTE. Above voltages given at 117v AC line voltage.

GOLDEN EAGLE MARK I VA

SECTION 6

SERVICING

6 . 3 TRANSMITTER

6 . 3 . 1 TEST EQUIPMENT REQUIRED

A Browning Golden Eagle MARK IVA Receiver, for power supply.

B. 50 ohm Transmitter load with a power rating of at least15 watts.

C. Audio Signal Generator H.P. 200 CD or equiv.

D. RF Wattmeter-- Bird 43 or equiv. with 5W & 25W ranges.

E. Frequency Counter Heath Schlumberger SM-128A.

F. Oscilloscope Tektronics T932 or equiv.

G. RF Monitor Scope - Heath SE-610 or equiv.

6 . 3 . 2 TEST-EQUIPMENT CONNECTIONS

A. Connect the equipment as shown-in Figure 5.2. Be sure to connect the 50 ohm Dummy load.

B. Install a microphone or audio cable into the microphone connector. Place the transmitter controls for AM operation.

C. Connect the Receiver line cord to ll7V AC and turn on the Power - allow two minutes for warm up.

6 . 3 . 3 PREIMINARY-TRANSMITTER CHECK

A. When-the power is applied, the transmitter channel display should indicate "01." If not, see Section 6.3.5.

B. If A above is okay, key the transmitter in AM Mode and check for an RF power output - of 3.5 watts minimum.

C. Apply audio and the power output should increase. While observing the RF-monitor scope display, again apply audio and observe a clean modulated RF waveform.

D. If any of the above checks, are not met continue with the following transmitter troubleshooting Procedure. Also see Section5 for Alignment.

	CONTROLER OUTPUT CODES						SYNTHESIZER INPUT CODES AFTER (CONVERSION BY IC702,Q709,&R710								SYNTHESIZER OUTPUT FREQUENCY
CHANNEL	1	2	4	8	16	32	2	4	8	16	32	64	128	256	
1	0	0	0	0	0	0	0	0	1	0	1	0	1	0	21.320
2	1	0	0	0	0	0	1	0	1	0	1	0	1	0	21.330
3	0	1	0	0	0	0	0	1	1	0	1	0	1	0	21.340
4	0	0	1	0	0	0	0	0	0	1	1	0	1	0	21.360
5	1	0	1	0	0	0	1	0	0	1	1	0	1	0	21.370
6	0	1	1	0	0	0	0	1	0	1	1	0	1	0	21.380
7	1	1	1	0	0	0	1	1	0	1	1	0	1	0	21.390
8	1	0	0	1	0	0	1	0	1	1	1	0	1	0	21.410
9	0	1	0	1	0	0	0	1	1	1	1	0	1	0	21.420
10	1	1	0	1	0	0	1	1	1	1	1	0	1	0	21.430
11	0	0	1	1	0	0	0	0	0	0	0	1	1	0	21.440
12	0	1	1	1	0	0	0	1	0	0	0	1	1	0	21.460
13	1	1	1	1	0	0	1	1	0	0	0	1	1	0	21.470
14	0	0	0	0	1	0	0	0	1	0	0	1	1	0	21.480
15	1	0	0	0	1	0	1	0	1	0	0	1	1	0	21.490
16	1	1	0	0	1	0	1	1	1	0	0	1	1	0	21.510
17	0	0	1	0	1	0	0	0	0	1	0	1	1	0	21.520
18	1	0	1	0	1	0	1	0	0	1	0	1	1	0	21.530
19	0	1	1	0	1	0	0	1	0	1	0	1	1	0	21.540
20	0	0	0	1	1	0	0	0	1	1	0	1	1	0	21.560
21	1	0	0	1	1	0	1	0	1	1	0	1	1	0	21.570
22	0	1	0	1	1	0	0	1	1	1	0	1	1	0	21.580
23	1	0	1	1	1	0	1	0	0	0	1	1	1	0	21.610
24	1	1	0	1	1	0	1	1	1	1	0	1	1	0	21.590
25	0	0	1	1	1	0	0	0	0	0	1	1	1	0	21.600
26	0	1	1	1	1	0	0	1	0	0	1	1	1	0	21.620
27	1	1	1	1	1	0	1	1	0	0	1	1	1	0	21.630
28	0	0	0	0	0	1	0	0	1	0	1	1	1	0	21.640
29	1	0	0	0	0	1	1	0	1	0	1	1	1	0	21.650
30	0	1	0	0	0	1	0	1	1	0	1	1	1	0	21.660
31	1	1	0	0	0	1	1	1	1	0	1	1	1	0	21.670
32	0	0	1	0	0	1	0	0	0	1	1	1	1	0	21.680
33	1	0	1	0	0	1	1	0	0	1	1	1	1	0	21.690
34	0	1	1	0	0	1	0	1	0	1	1	1	1	0	21.700
35	1	1	1	0	0	1	1	1	0	1	1	1	1	0	21.710
36	0	0	0	1	0	1	0	0	1	1	1	1	1	0	21.720
37	1	0	0	1	0	1	1	0	1	1	1	1	1	0	21.730
38	0	1	0	1	0	1	0	1	1	1	1	1	1	0	21.740
39	1	1	0	1	0	1	1	1	1	1	1	1	1	0	21.750
40	0	0	1	1	0	1	0	0	0	0	0	0	0	1	21.760

GOLDEN EAGLE MARK IVA

SECTION 6

SERVICING

6 . 3 . 4 SYNTHESIZER SERVICING

A. No synthesizer output,	**1.** Check +8V supply (IC703, +13V supply from Receiver). **2.** Check VCO (Q707) for oscillation. (Q707, D701, L705) (NOTE: Bad IC701 will not prevent oscillation of Q707) **3.** If OK - check for bad Q705, 706, 708 and associated circuitry.
B. Synthesizer has output but on wrong frequency.	**1.** Check for proper codes into IC701, (IC702, Q709, Q7IO, IC802 & IC701) See Code Chart. **2.** Check for 10.24 MHz on base of Q701, (CR701, IC701). **3.** Check for 20.48 MHz on base of Q702, (QYO1). **4.** Check for synthesizer' output frequency on collector of Q704, a very low level use sensitive freq. counter (Q704, Q705). **5.** Check Collector of Q703 for a frequency that is the difference between the synthesizer output frequency and 20.48 MHz (Q702, Q703, IC701). **6.** Check for control voltage at the Junction of C712, C713, C734 and L704. Adjust L705 for 3V. on Channel 1 (IC701, D701, L705 and all other components between IC701, D701, L705 and all other components between IC701 Pin 7 and Q707) .
C. Synthesizer has output on proper frequency but lock detector prevents relay keying.	**1.** Check for 6 - 8V on Collector of Q712 and 713, (Q711, Q712, Q713, IC701).
D. Synthesizer on frequency but output low.	**1.** Check P-P levels per schematic. Repair defective stage.

GOLDEN EAGLE MARK IVA

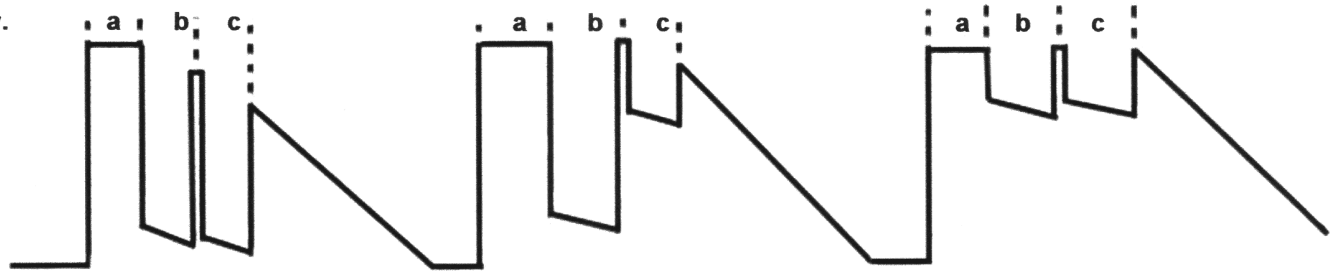
SECTION 6

READOUT BOARD SERVICING

6 . 3 . 5 A MULTIPLEX DISPLAY CODING

The LED display segments are turned on by a series of coded pulses rather than a steady voltage. The corresponding anodes or segments of each digit are connected together and a series of coded pulses are supplied to anodes of both digits. Each coded pulse has 3 sections. Section A. is always high. Section B. is high or low depending on the segment of the digit 1 (left hand) is on or off. Section C. is high or low depending on which segment of digit2 (right hand) is On or Off. The common cathode of digit 1 is grounded through Q801 only during Section B of the coded pulse to light digit 1 segments. The common cathode of digit 2 is grounded through Q802 only during segment C of the coded pulse to turn on segments of digit 2. The digits are actually blinking on and off but. so fast that they appear to stay on.

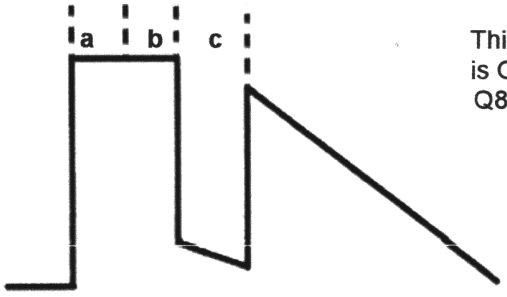
Fig. 2 TYPICAL CODED PULSES FOR ONE SEGMENT



This pulse has both segments Off.

This pulse has segments for digit 1 Off and digit 2 On.

This pulse has segments On for both digits.



This pulse indicates that the segments for Digit 1 is Open or the cathode is not being grounded by Q801

SERVICING

6.3.5 B

A.	No display both digits	**1.** Check +8V. supply (IC703, +13V. supply from receiver, C803, C804, L801) **2.** Check IC802 (see explanation of multiplex display coding), C805, R802, R601.
B.	No display one digit only.	**1.** No left hand digit on channels 1 - 9 is normal **2.** No left hand digit (Q801, IC802). **3.** No right hand digit (Q802, IC802).
C.	One or more display segments not lighting.	**1.** See Fig. 6.1 for segment layout (1801, IC802, R707- 714).
D.	Displays something other than Channel 1 when turned on.	**1.** Check IC802, CR802, C802, C805, shorts between pins on IC802 and open rate control circuits.
E.	Will not scan up, down or both.	**1.** When first turned on will not scan if test switch is in LED position. This is normal. Switch to RESET. **2.** Check HI LO switch (SW605) and wiring, IC802. **3.** Check test switch and wiring(should be in reset position).
F.	Wrong output codes to synthesizer,	**1.** Check for a positive pulse on IC802 Pin 5 a moment after turning power on (IC801, C801, R801, CR801, IC802). **2.** Check IC802. **3.** Check for short on code line, either on Readout or Synthesizer Board.
G.	Scans continuously.	**1.** Check test switch and wiring (should be in reset position). **2.** Check HI-LO switch and wiring. **3.** Check IC802.
H.	Scan rate too fast, too slow, or will not change with rate control.	**1.** Check C805 (430 pF) R802 (10K ohms), R601 (10K ohm rate control) NOTE: Some sets may have a 100K control with 10K resistor in parallel.

6 . 5 . 6 RF POWER -AM

A. If no or low RF power is available, first recheck transmitter tuning and then follow as outlined below.

CAUTION: The scope probe may load some circuits down and greatly affect RF power with modulation.

B. Check at the cathode (Pin # 8) of V201A for a frequency of 5.645 MHz at an amplitude of 1 volt peak-to peak, minimum. This should be a nice clean sine wave.

C. if Item B above is okay, check the plate of V202 (Pin # 5) for 5 volts peak-to-peak, minimum, wave form. This wave form will look like a modulated sine wave.

D. If Item C above is okay, check the plate of V301 (Pin #5) for a 7 volt peak-to-peak, minimum, wave form. Again, this wave form will look like a modulated sine wave and will appear quite "fuzzy".

E. If D above is okay, check the plate of V302 (Pin #7) for a 14 volt pk-pk minimum waveform. This waveform will be a sinewave with "fuzz" on the positive and negative peaks.

F. if E above is okay, check the output at the Antenna terminal. Without modulation, this waveform should be a fairly clean sinewave of 42V pk-pk minimum. With modulation, this wave-form will increase upwards to 82V pk-pk. RF power should be 3.5W.

6 . 3 . 7 RF POWER - SSB

A. With modulation applied at a level of 0.003V RMS at 1 KHz, make the following checks:

B. Check the cathode of V201A (Pin # 3) for a frequency of 5.645 MHz and an amplitude of 4V. pk-pk. This will be a waveform like two signals mixed together and resemble a sinewave with RF "globs" placed on its rising and falling sides.

C. If B above is okay, check the plate of V202 (Pin # 5) for a 3.5V pk-pk minimum waveform. This waveform will appear as blurred sinewave.

6 . 3 . 7 RF POWER - SSB (cont'd)

D. If C above is okay, check the plate of V301 (Pin # 5) for a 7V pk-pk minimum waveform. Again, this waveform will appear as a slightly blurred sinewave.

E. If D above is okay, check the plate of V302 (Pin # 7) for a. 5V. pk-pk minimum waveform. This waveform will appear as a sinewave varying slightly in amplitude.

F. If E above is okay, check the output at the antenna terminal. This should be a 17V pk-pk sinewave that is slightly fluctuating.

6 . 5 . 8 AUDIO - AM

A. With modulation applied at a level of 0.003V R.M.$. at 1 KHz, and the transmitter keyed, make the following checks:

B. Check the plate of V203A (Pin # 1) for a 0.5v pk-pk waveform.

C. Check the plate of V203B (Pin # 6).for a 8.2¥ pk-pk waveform.

D. Check the-cathode of V204A (Pin # 3) for a 2.8v pk-pk waveform.

E. Check the plate of V204B (Pin # 6) for a 21v pk-pk waveform.

F. Check the grid of V205 (Pin # 2) for a 20v pk-pk waveform.

G. Check the plate of V205 (Pin # 7) for a 400v pk-pk waveform.

6 . 5 . 9 AUDIO- SSB

A. With the same modulation level as 5.3.8-A, make the following checks:

B. Check the plate of V203A (Pin # 1) for a 500 mV pk-pk, waveform.

C. Check the cathode of V203B (.Pin # 8) for a 400 mV pk-pk waveform.

6 . 5 . 10 ALC - SSB

A. With modulation applied at I KHz at 0.003v R.M.S. and the transmitter keyed in either SSB mode, make the following checks: Check for 1.8v at the junction of R325, 527 and C325.

B. Increase the modulation to 0.1v R.M.S. and check for -4v at the junction of R325, 327 and C325.

C. If the above readings cannot be obtained check Q303, 302 and Q301, in that order.

GOLDEN EAGLE MARK IVA

SECTION 7

TROUBLE SHOOTING CHART

	TRANSMITTER DIFFICULTIES		POSSIBLE CAUSE
A.	No RF Output Any Mode	1.	Check lock detector LED's, if ON check synthesizer circuit.
		2.	Check that K-601 operates.
		3.	Check all power supply voltages.
B.	No RF Output AM Mode SSB Okay	1.	Check wiring and switches SW603J, 6031. 603H and 603F.
C.	No RF Output - SSB Modes AM Okay	1.	Check wiring and switches as in B above.
		2.	Check balanced modulator and audio stages. (T201 and V203).
D.	Low RF Power - AM Mode SSB Okay	1.	Check L303.
		2.	Check V205 for .gassy condition.
E.	Low RF Power - SSB Modes AM Okay	1.	Check drive levels of' V201, 202, V301, 302 and 303.
		2.	Check bias adjustment.
		3.	Check tuning.
		4.	Check ALC circuit.
F.	No or Low Modulation	1.	Check gain adjustments R219 and R603.
		2.	Check V203, 204 and 205.
		3.	Check microphone.
G.	Readout will not scan up or down.	1.	Check SW605 and wiring.
		2.	Check IC802.
H.	Readout indicates proper Channel but unit is not on correct frequency.	1.	Check wiring of all code lines from Readout P.C. Board to Synthesizer P.C. Board and IC802.
		2.	Check IC702
		3.	Check IC701

GOLDEN EAGLE MARK IVA

SECTION 7

TROUBLE SHOOTING CHART

RECEIVER-DIFFICULTIES	POSSIBLE CAUSE
A. LOW GAIN	**1.** Check V101, 102, 202 and 203 for shorts or gassy condition. **2.** Check power supply voltages at J2. **3.** Check for proper setting of RF gain control. **4.** Recheck tuning. **5.** Check for proper output levels from oscillators. **6.** Do stage gain checks.
B. DRIFTING	**1.** It is normal to have drift for the first 1/2 1 hour after turning on a cold set. **2.** Change C127 and 128. These are temp. compensated so use exact type. **3.** Check for proper regulation of 100V supply. **4.** Change other caps and chokes in the V104A circuit, one may be temperature sensitive.
C. WEAK OR NO AUDIO	**1.** Check C237 and C239. **2.** Check V205 and V206. **3.** Check C235 and C238.
D. HUM ON AUDIO	**1.** Check C3A and C3B **2.** Check V205 and V206
E. NO SSB - AM OKAY	**1.** Check V204 **2.** Check adjustment of C223 and C224.
F. OVERLOADING	**1.** Check that AGC Buss is not shorted to ground. **2.** Check D202.and D203. **3.** Check V201, 202 and 203 for shorts or gassy condition.