

ALIGNMENT I-F SECTION

Alignment of the I-F system consists of optimizing the input and output networks and balancing the detector output. The bandpass and center frequency are established by quartz crystal filters and "peaking" the coils can result in bandpass ripple or poor sensitivity. Field alignment should not be necessary but the procedure is given for general information.

EQUIPMENT NEEDED

Oscilloscope

Sweep generator with 10.79, 10.80 and 10.81MHz markers

1. Connect sweep generator to TP-1 through a 1pF capacitor.
2. Connect oscilloscope to TP-3.
3. Maintain output of 10.80MHz sweep generator at a low level to prevent distortion from overloading.
4. Detune T5 for maximum 1F output display. See Fig. 2.
5. Adjust T3 for maximum output, and T4 for minimum ripple.
6. Adjust T5 so that 10.80MHz is in center of discriminator curve and for best linearity. See Figure 3.

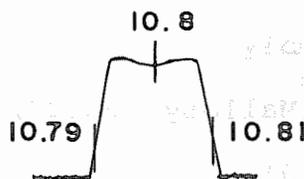


Figure 2

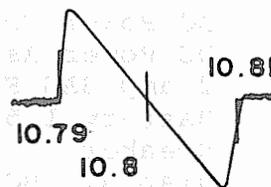


Figure 3

ALTERNATE METHOD: I-F alignment may be checked using a Measurements Model 800 Generator or equivalent tuned to an operating frequency and swept ± 25 kc. Markers are not essential since center is determined by the filter.

R-F SECTION

DO NOT ATTEMPT ALIGNMENT
OR "PEAKING" OF R-F SECTION

The R-F alignment points are adjusted and sealed at the factory and should not be disturbed. Factory alignment involves multi-frequency signal generation systems, add-on test modules, output indicators and training beyond the scope of normal service activities.

The unique R-F system includes electronic tracking of R-F and oscillator circuits for maximum performance over a wide range of frequencies. THIS PERFORMANCE CAN BE DESTROYED BY AN ATTEMPT TO "PEAK UP" OR "TWEAK" OR "OPTIMIZE," ETC.

USER HINTS

Radio equipment usually operates in an environment of man-made electromagnetic noise which radiates from power lines, fluorescent lights, motors, appliances, ignition systems, etc. Modern radios are designed to minimize interference from such sources but operation may be affected under conditions of unusually strong noise.

Distant weak, "skip" or noise signals may be received by this receiver because of its high sensitivity. Whenever such conditions interrupt scanning or whenever a very busy channel prevents reception of other desired signals, the affected channel may be by-passed by means of its individual panel switch.

The BC-8 has high noise immunity because of the quieting squelch system. However, in cases of strong interfering noise or signals, it may be desirable to reduce the length of the antenna to reduce noise pickup below a critical level. This may be very effective in medium and strong signal areas.

Single-channel operation may be obtained as described under Operating Instruction. It may also be accomplished with "MANUAL-SCAN" switch in either position by locking out all but the desired channel. This assures that the radio will always be on that channel even when turned OFF and ON. Continuous-carrier signals such as the NOAA weather broadcasts on 162.55MHz or 162.400, which are available in many areas, may be received when desired by use of the individual channel switches.

When moving or shipping the radio, remove the telescoping antenna to avoid damage to it or to the internal circuit assemblies.

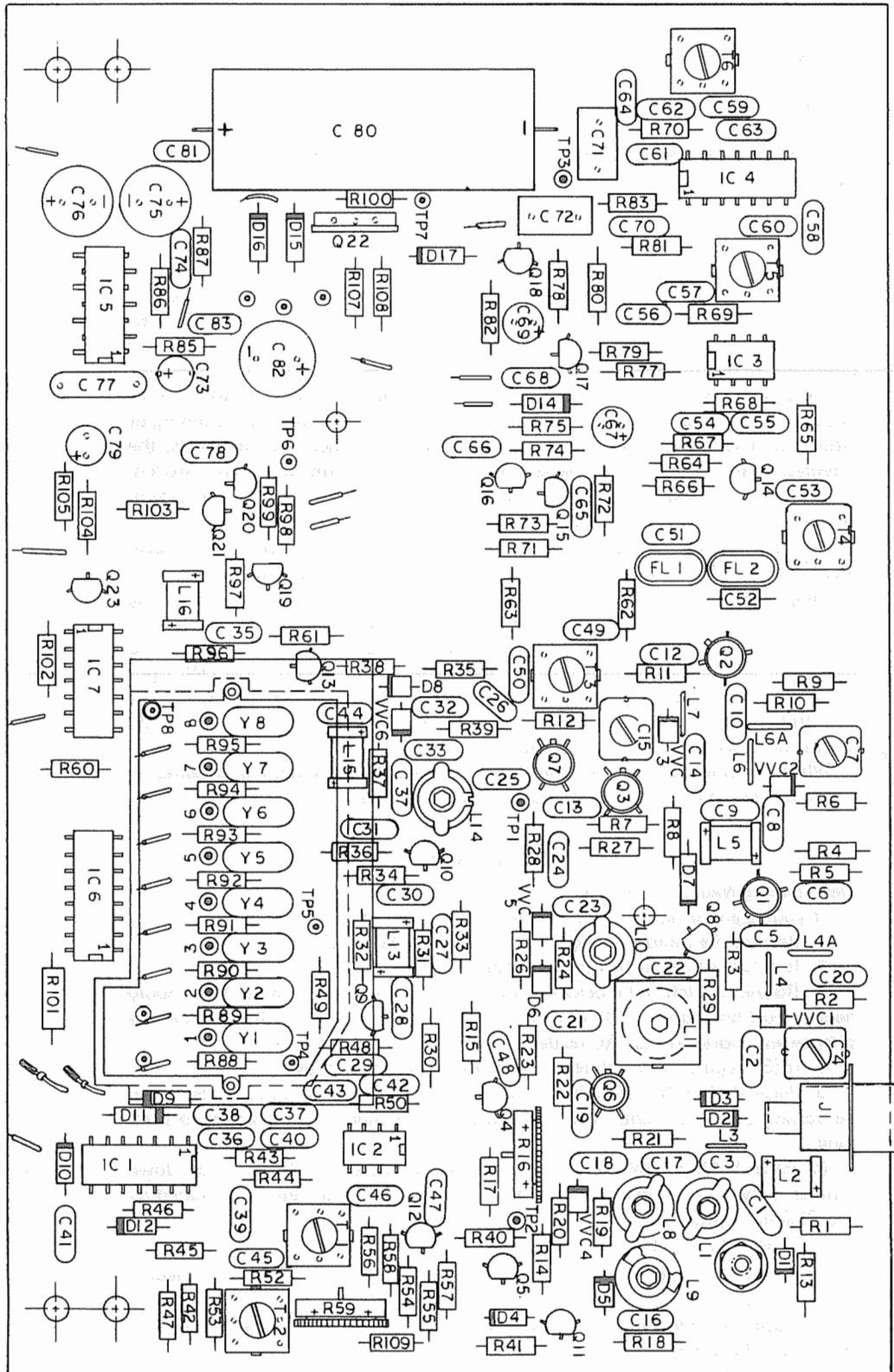
SERVICE

Determining Need for Service:

If your scanner doesn't seem to be functioning properly:

1. Be sure the radio is plugged into a working AC outlet.
2. Is it turned ON at Volume control?
3. Rotate squelch full clockwise and turn volume full clockwise. You should hear a loud hissing noise. If not, do not go to Step 4. Verify that another appliance will work on that AC outlet.
4. If (3) occurs, rotate squelch clockwise until noise stops.
5. Place MAN/SCAN switch into SCAN position. The 8 Channel lights should be scanning left to right. If a signal occurs on a channel it should stop scanning.
6. Place MAN/SCAN switch into MANUAL position. Press switch down momentarily several times and verify the stepping of channels as indicated by the Channel lights.
7. Check that the telescoping antenna is properly installed.
8. Check the probe/crystal locations again to verify that you have selected the proper crystals for your area.
9. Place the radio near a window (usually signals are stronger near windows). Be certain there are signals in your area.
10. Leave the radio scanning 10 to 30 minutes. If nothing is heard by that time, then something is probably wrong with the radio and you should contact Electra Customer Service.
11. When moving or shipping the radio, remove the telescoping antenna to avoid damage to it or to the internal circuit assemblies.

PARTS PLACEMENT DIAGRAM



SERVICE PARTS LIST

Ref. No.	Resistors	List Price
ALL resistors	1/4W 10%	\$.25
R-16, 59	10K 20% pot.	.75
R-76	10K pot. sq.	1.50
R-84	10K pot. Vol. Con./On-Off	2.00

Ref. No.	Capacitors	List Price
ALL	Disc Ceramic	.50
C-67, 69, 79	2.2uf - 10% to +100% electrolytic	1.00
C-73	22uf -10% to +100% 10v electrolytic	1.00
C-75	100uf 6.3v electrolytic	1.00
C-76, 82	220uf 16v electrolytic	1.00
C-80	2,000uf 20v electrolytic	1.50

Ref. No.	Semi-Conductors	List Price
Q-1, 2, 3	2N5179	.75
Q-4, 15, 16, 17, 18, 21, 23	MPS3393	.75
Q-5	2N4126	.75
Q-6, 7	3N201	2.50
Q-8, 11, 12, 13, 19, 20	MPS3640	.75
Q-9, 10, 14	2SC684 or 2N3563	.75
Q-22	TIP 29 or equiv.	1.50

Ref. No.	Semi-Conductors	List Price
D-1, 5, 6, 8	MPN3401	1.00
D-2, 3, 4, 13	IN4148	.50
D-7, 9, 10, 11, 12, 14	IN34A	.50
VVC-1, 2, 3	BB105A	2.00
VVC-4, 5, 6	BB209	2.00
D-15, 16	IN4002	.50
D-17	H212B, 1N5243A or B 13v 10% 400mw Zener	1.00

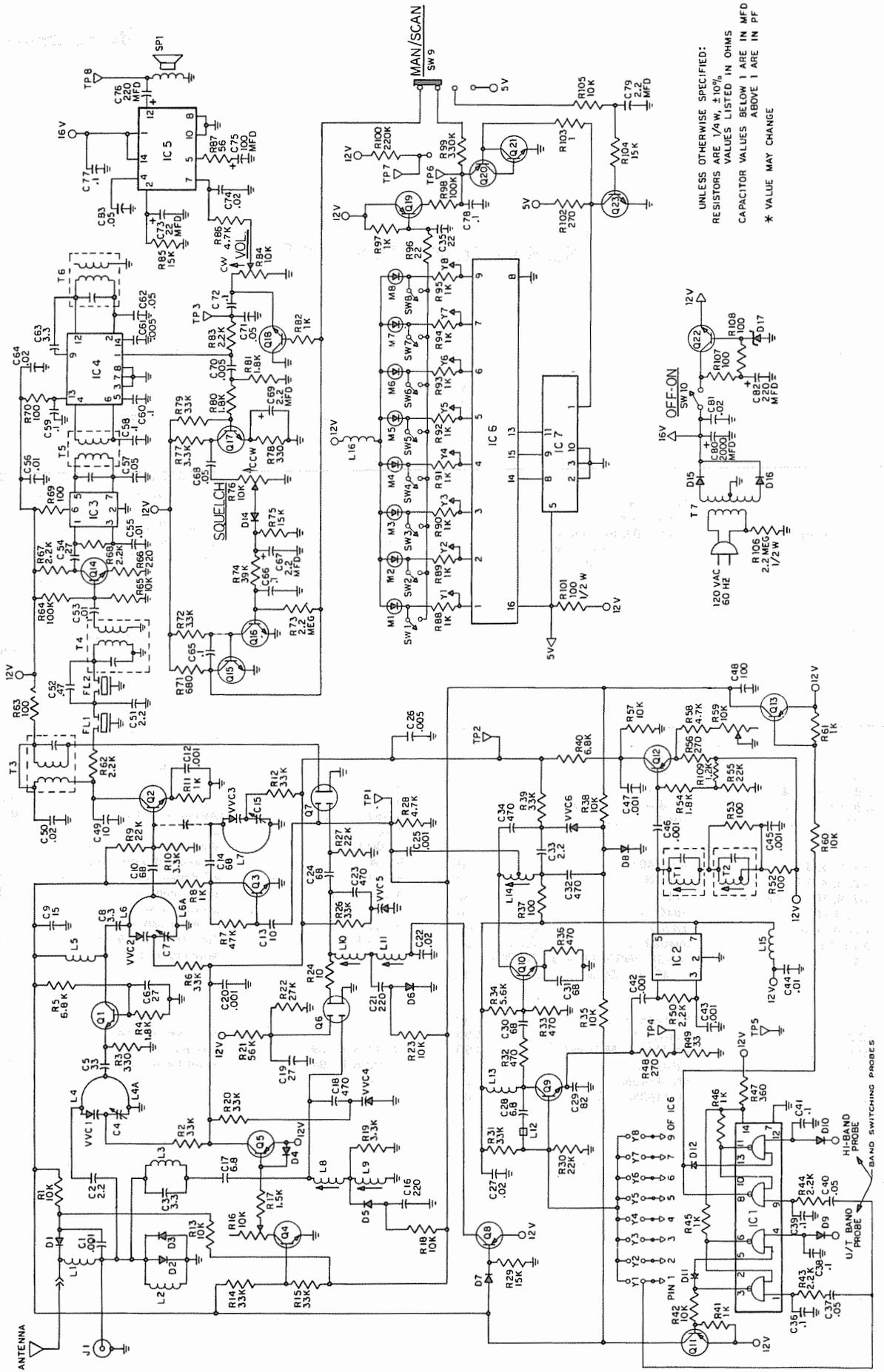
Ref. No.	Semi-Conductors	List Price
IC-1	SN7426 or equiv.	1.50
IC-2, 3	SC8187P	1.50
IC-4	LM2111 or MC1357	3.50
IC-5	TBA820	4.00
IC-6	SN74145N	2.00
IC-7	SN7493N	2.00

Ref. No.	Inductors	List Price
L-1	Antenna Loading Coil A-219-1	\$ 1.00
L-2, 15	Choke A-218-1	.50
L-3	U/T Choke A-509-1	.50
L-4, 4A, 6, 6A	U/T Coil A-508-2	.50
L-5	Choke A-218-4	.50
L-7	U/T Coil A-508-1	.50
L-8, 10	RF Coil B-501-2	.50
L-9, 11	RF Coil B-511-2	.50
L-12	Ferrite bead A-142-1 Stack pole 57-0199	.25
L-13	Choke A-218-3	.50
L-14	Coil (Tripler) B-501-1	.50
L-16	Choke A-218-2	.50

Ref. No.	Inductors	List Price
T-1	Tracking Coil B-502-1	1.50
T-2	Tracking Coil B-502-2	1.50
T-3, 4	I.F. transformer B-502-1	1.50
T-5, 6	I.F. transformer B-502-2	1.50
T-7	Power transformer B-297	5.00

Ref. No.	Misc. Electrical	List Price
A-138-2	Telescoping antenna	1.50
A-237	Antenna bushing & hardware	.75
A-215	Antenna insulator	.25
A-135	Crystal -Y1-8	5.00
A-559-1	Crystal filter FL1 & FL2	10.00
A-287	LED M1-8	1.00
A-300-1	Slide Switch SPDT - S1-8	.50
B-264	Speaker - 8 ohm 3"x5"	3.00
B-443-2	AC Power cord	1.50
A-270-1	Strain relief	.25
A-574	Crystal socket	.25
A-523	Antenna connector	.75
A-319-1	Can - IF choke & RF coil	.50
A-127	Antenna plug	.75

Ref. No.	Misc. Mechanical	List Price
D-111 & B-339	Cabinet incl. back	7.50
D-102 & B-294	Front Panel - assembly	3.50
A-454	Knob	.75
B-270	Crystal door	.50



UNLESS OTHERWISE SPECIFIED:
 RESISTORS ARE 1/4 W. ±10%
 VALUES LISTED IN OHMS
 CAPACITOR VALUES BELOW 1 ARE IN MFD
 ABOVE 1 ARE IN PF
 * VALUE MAY CHANGE

TRANSISTOR VOLTAGE CHART

Q No.	Test Condition	E	B	C	Q No.	Test Condition	E	B	C	
Q1	Low	0	0	0	Q13	Low	12	11.8	0	
	High	0	0	0		High	12	11.2	12	
	U/T	.8	1.54	11.9		U	12	11.8	0	
Q2	Low	0	0	11.7	Q14	Low	.31	1	8.9	
	High	0	0	11.7		High	.31	1	8.9	
	U/T	1	1.5	11.7		U	.31	1	8.9	
Q3	Low	GND	0	0	Q15	Sq. CCW	GND	.04	6.25	
	High	GND	0	0		Sq. CW	GND	.74	.08	
	U	GND	.6	5.8		Q16	Sq. CCW	GND	.61	.04
Q4	Low	GND	0	11.7	Sq. CW		GND	.01	.74	
	High	GND	.7	.2	Q17		Sq. CCW	.51	1.14	6.9
	U	GND	.7	.2		Q18	Sq. CCW	0	.08	GND
Q5	Low	12	11.3	*			Sq. CW	0	.79	GND
	High	12	11.3	*	Q19		Man.	12	12	0.5
	U	12	11.3	*		Auto	.12	12	5.0	
Q8	Low	12	11.3	12		Q20	Man.	.5	5.3	0
	High	12	11.3	12	Auto		4.6	5.36	0.2	
	U/T	12	11.3	.2	Q21		Man.	0	0	5.3
Q9	Low	3.2	3.9	12		Auto	0	.2	5.36	
	High	3.2	3.9	12		Q22	12	12.68	16	
	U/T	3.2	3.9	12	Q23		GND	.45	5.3	
Q10	W/O Xtal	.25	.9	12			S	G ₁	G ₂	D
	W/Xtal	1	.9	11.8		Q6	Low	0	3.5	0
Q11	Low	12	11.7	0	High		0	3.5	0	12
	High	12	11.7	0	U		0	3.5	0	0
	U/T	12	11.7	12	Q7	Low	0	0	0	12
Q12	Low	11.5	*	*		High	0	0	0	12
	High	11.5	*	*		U	0	0	0	12
	U/T	11.5	*	*						

* Changes with receive frequency

LOGIC CHART

(Red and white probes NOT CONNECTED TO CHANNEL PINS)

PIN	IC 1	IC 6								IC 7									
		COUNT	1	2	3	4	5	6	7	8	COUNT	1	2	3	4	5	6	7	8
1	0		0	1	1	1	1	1	1	1	+VCC	1	1	1	1	1	1	1	1
2	0		1	0	1	1	1	1	1	1		0	0	0	0	0	0	0	0
3	1		1	1	0	1	1	1	1	1		0	0	0	0	0	0	0	0
4	0		1	1	1	0	1	1	1	1		0	0	0	0	0	0	0	0
5	1		1	1	1	1	0	1	1	1		1	1	1	1	1	1	1	1
6	0		1	1	1	1	1	0	1	1		0	0	0	0	0	0	0	0
7	0		1	1	1	1	1	1	0	1		0	0	0	0	0	0	0	0
8	1	GND	0	0	0	0	0	0	0	0		0	0	1	1	0	0	1	1
9	0		1	1	1	1	1	1	1	0		0	1	0	1	0	1	0	1
10	0		0	0	0	0	0	0	0	0	GND	0	0	0	0	0	0	0	0
11	0		0	0	0	0	0	0	0	0		0	0	0	0	1	1	1	1
12	1		0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0
13	1		0	0	0	0	1	1	1	1		0	0	0	0	0	1	0	0
14	1		0	0	1	1	0	0	1	1		1	1	1	1	0	1	1	1
15			0	1	0	1	0	1	0	1									
16		+VCC	1	1	1	1	1	1	1	1									