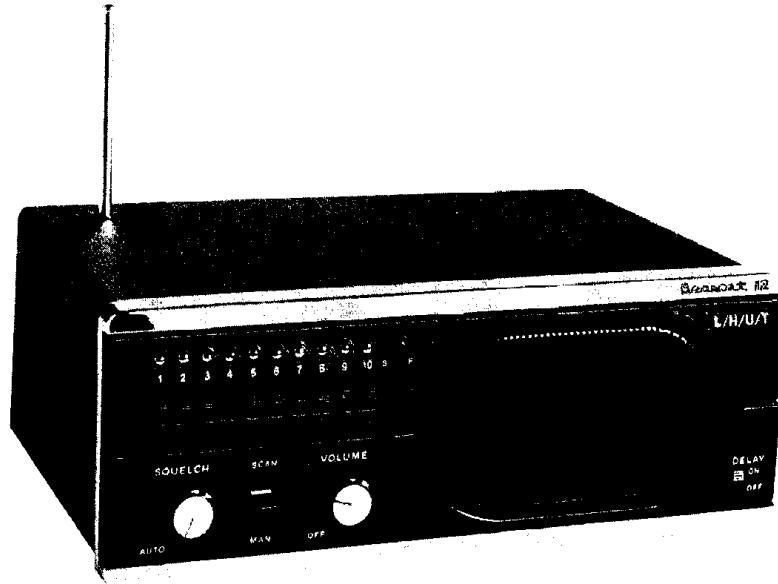


OWNERS MANUAL



Bearcat 12

FIVE BAND FM SCANNING RECEIVER

LOW BAND	30-50 MHz	UHF BAND	450-470 MHz
HI BAND	148-174 MHz	UHF (T) BAND	470-512 MHz
HAM BAND	146-148 MHz		

**RECEIVES POLICE, FIRE, WEATHER,
BUSINESS AND MANY MORE**

MADE IN CUMBERLAND, IND. U.S.A. UNDER ONE OR MORE OF THE FOLLOWING U.S. PATENTS:
3,531,724 3,821,651 3,873,924 3,665,318 3,714,585 3,987,400

MFG. BY -  **Electra COMPANY**

DIVISION OF MASCO CORPORATION OF INDIANA
CUMBERLAND, INDIANA 46229

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RADIO SERVICES

Local Government Highway Maintenance Forestry-Conservation Motion Pictures Special Industrial Telephone Maintenance Automobile Emergency Public Mobile Radio Mobile Telephones	Special Emergency Hospitals Ambulances Physicians Disaster Relief School Buses Power Petroleum Forest Products Rural Radio	Police Fire Press Business Railroad Taxicab Marine Manufacturers Motor Carrier
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**UNDERWRITERS
LABORATORIES
LISTED**

**Certified in accordance with FCC
Rules and Regulations Part 15.63
as of date of manufacture.**

CAUTION
 TO PREVENT FIRE OR SHOCK
 HAZARD, DO NOT EXPOSE THIS
 APPLIANCE TO RAIN
 OR MOISTURE.

For future reference write in the model number and serial number here. You will find them on the back of the unit.

Model No. _____ Serial No. _____

Purchased from: _____ Date _____

GENERAL DESCRIPTION

The police, firemen and other public services in your community perform a tremendously important job. Your need and right to know about these activities will be completely satisfied by your Bearcat Scanning Receiver. This high performance and reliable instrument is designed for convenient and straightforward operation, even though the solid state circuitry to provide this ease of operation is far advanced.

The Bearcat 12 is a five-band FM scanning receiver, providing automatic full band coverage of the Public Safety/Business Bands at 30-50 MHz, 146-148 Ham Band, 148-174, 450-470 MHz, and 470-512 MHz. Its features include:

- A simple bandswitching arrangement
- High speed automatic or manual scanning
- Channel switches to omit scanning of undesired channels.
- Automatic or manual quieting squelch
- External speaker jack
- Tape output jack
- 117Vac operation or dc mobile operation
- 2-second programmable scan delay
- 2KHz mobile telephone tone squelch
- Variable scan rate control
- 10 solid state light emitting diode channel indicators
- Front-mounted 3" x 5" speaker
- Vinyl-clad steel cabinet with die-cast front panel
- Operation from a single telescoping or outside antenna.

The most advanced developments in solid state circuitry are incorporated in this receiver: dual-gate MOS Field-Effect transistors; monolithic quartz crystal I-F filters; Linear integrated circuits; TTL I.C. multi-vibrators and gates. An exclusive track-tuning system using voltage-variable capacitors provides high performance, full-band coverage.

SPECIFICATIONS

Size: 9 5/8"W x 3.7/8"H x 7 5/8"D

Weight: 5 lb.

Cabinet: Vinyl-clad steel

Power Requirements: 117v, AC, 60Hz 11W, 13.8v DC 6W

Antenna: Telescoping antenna electronically tuned for all bands (supplied). Connector provided for outside antenna.

Input Impedance: 50-70 ohms

Sensitivity: H, L, and Ham Bands: Readable at .3 microvolt for +/-5KHz deviation, .5uV for 12 dB SINAD

U/T Band: .8uV for 12dB SINAD

Channels: Up to 10 crystal-controlled channels may be scanned automatically or locked out in any combination.

Frequency Range:

Low Band: 30-50 MHz (Aligned 33-48MHz)

Ham Band: 146-148 MHz

High Band: 148-174 MHz

UHF Band: 450-470, 470-512 MHz

Scan Rate: Variable: 10-20 channels per second

Crystals: Miniature plug-in type A-135 for easy user installation.

Front and Rear Panel Features: Manual and automatic squelch control/Volume On-Off Control/10 Channel Switches/10 Light-Emitting Diode Channel Indicators/Automatic or Manual-Scan Switch/Forward-facing 3"x5" speaker /variable scan rate control/scan delay switch/External speaker jack/tape recorder jack.

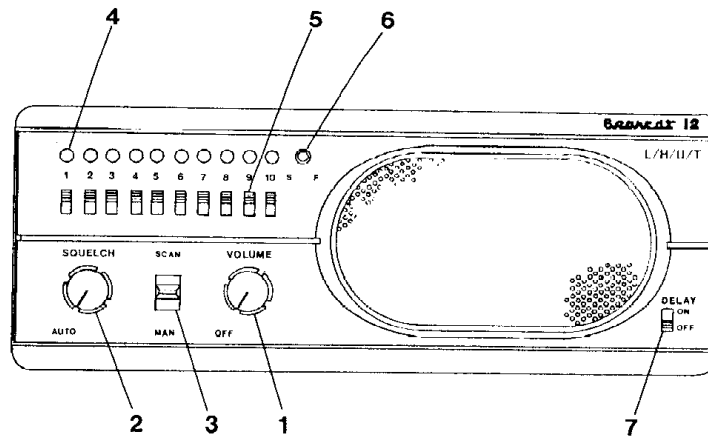


Figure 1

OPERATING CONTROLS

1. **On-Off/Volume:** Turns the receiver power on or off, and also varies the audio output level.
2. **Squelch:** Manual or automatic, eliminates the annoying "rushing" sound that is present between transmissions when no signal is being sent. Proper setting of this control keeps the receiver "quiet" and allows scanning until a signal is received, allows user to manually adjust the sensitivity or set squelch to automatic or "normal" level. See operating instructions.
3. **Channel Selector-Auto/Manual:** This 3-position switch selects either the manual or automatic scan mode of operation and will manually change channels.
4. **Channel Indicator Lights:** The ten indicator lights (light emitting diodes) located on the front panel show which channel is "on" at any particular instant. During the automatic scan operation these lights will flash in sequence from left to right until a signal is received on one of the channels.
5. **Channel Lock-Out Switches:** These ten switches are used to turn each individual channel on or off. When a channel lock-out switch is set to the off position, the corresponding channel is by-passed and will not light or receive signals in either the manual or automatic scan mode.
6. **Scan Rate Control:** Varies scan rate from 10 to 20 channels per second.
7. **Scan Delay Switch:** Activates 2 second scan delay. When on, all channels have scan delay.
8. Your Bearcat 12 is equipped with an external speaker jack that automatically disconnects the internal speaker. Connection should be made to an external speaker with an impedance of 8 ohms or higher.
9. Another feature is the recorder output jack for a source to drive a tape recorder. Access to both jacks can be made through miniature phone plugs.

OPERATING INSTRUCTIONS

The purpose of this section is to allow you to start receiving with your new scanner as soon as possible. Read and carefully follow these instructions.

1. Unpack the unit from the carton. Check your Bearcat 12 for shipping damage. If damage has occurred, contact your dealer immediately.
2. This radio must have the proper crystal installed for each channel you are to receive. Follow "Crystal Installation" and "Band Programming" instructions on the following pages exactly.

NOTE: If your dealer has already installed crystals, proceed to Step #3.

3. After installing crystals and band programming, insert the antenna through the hole located in the top left area of the cabinet and screw into the receptacle.
4. Plug the scanner into the power line (105 to 135Vac, 50 to 60 Hz ONLY).
5. Turn the unit ON by turning the VOLUME (1) (Fig. 1) control clockwise approximately 1/3 of its rotation.
6. Place the 10 channel switches (5) (Fig. 1) in the up (ON) position.
7. Set the "MANUAL-SCAN" switch (3) (Fig. 1) on "MANUAL" (Center Position).
8. Adjust the "Squelch" control (2) (Fig. 1) clockwise until you hear background noise; then turn it back counter clockwise until the noise disappears. For automatic operation, rotate squelch control fully counter-clockwise until a "click" is heard. The squelch system is now set to a predetermined sensitivity level.
9. Press the MANUAL-SCAN switch (3) (Fig. 1) downward and step the indicator light through each channel. If you hear any background noise on any channel, adjust the squelch control counterclockwise again slightly until the noise disappears. The MANUAL-SCAN switch may now be used to select and monitor any desired channel.
10. To sample all channels automatically, return the MANUAL-SCAN switch up to the SCAN position. Any channel may be omitted as desired by moving the individual channel switch (5) (Fig. 1) downward (Off). If an outside antenna is necessary for fringe reception, you may use a 450MHz or a 155MHz antenna, a 40MHz antenna or a two-band antenna depending on brands desired. External antennas should be coupled to the receiver by 50 ohm coaxial cable, such as RG-58 A/U, using the supplied automotive type connector. Suitable antennas are available at most radio dealers.

MOBILE TELEPHONE (2KHz TONE SQUELCH)

When receiving certain broadcasts, a 2KHz modulated tone is also transmitted which is very annoying. Your Bearcat 12 features a built in 2KHz tone squelch system which will automatically squelch the radio when the 2KHz tone is received.

CRYSTAL INSTALLATION

1. Disconnect the power cord from the wall outlet. Keep the set disconnected while installing the crystals.
2. To avoid breakage, remove the antenna.
3. To remove the cabinet, first remove the two phillips screws at the bottom rear edge. Push the rear panel forward through the cabinet.
4. This will reveal the crystal sockets and two bandswitching probes – red and white. These will be used for band programming. The red bandswitching probe is used in programming channels for high frequency reception; white for Ultra-high frequency.
5. Crystals are inserted by aligning the pins with the sockets and pushing straight down. **DO NOT BEND THE SOCKETS. THESE MINIATURE SOCKETS ARE MADE OF SPRING BRONZE AND WILL BREAK IF BENT EXCESSIVELY.**
6. Each crystal is installed in the socket corresponding to its channel. Channel #1 is nearest the left side of the radio, when the radio is positioned so that the crystal sockets are up and the rear of the unit is nearest the observer.
7. **NOTE:** Do not install two crystals of the same frequency. To insure proper operation, a minimum of two crystals should be installed in the scanner. Channels without crystals should be locked out (switches down).

BAND PROGRAMMING

Your Bearcat 12 may be programmed for single band operation (Low, High (and Ham), Ultra High (and U/I), dual band operation (any combination of two band groups) or five band operation. This is done by the proper positioning of the red and/or white bandswitching probes over an appropriate channel. Follow all instructions with the radio on its top and facing away from you.

Single Band Operation (Low, High or Ultra High Groups)

1. **Low Band (30-50MHz):** Leave bandswitch probes connected to their posts (Fig. 2). Then, install crystals in any order desired.
2. **Ham (146-148MHz) and High Band (148-174MHz):** Slide the red bandswitch probe over the post at Channel 1. Install crystals in any order desired. White bandswitch probe is not moved from its original position (Fig. 2).
3. **UHF and "T" Bands (450-512MHz):** Slide the white bandswitch probe over the post at Channel 1. Install crystals in any order desired. Red bandswitch probe is left connected to its post.

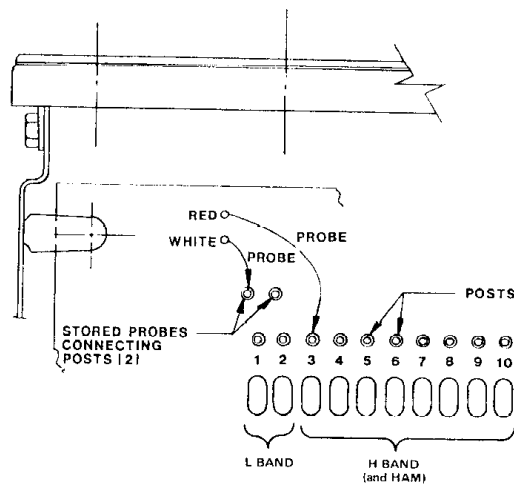


Figure 2

Low/High (and Ham) Band Operation L/H: (Fig. 2)

1. Install low band crystals first, starting with Channel #1, until all low band crystals have been installed.
2. Install high band or ham band crystals in the remaining channels.
3. Slide the red bandswitch probe over the post at the first high band channel. All successive channels will automatically be high band channels. **Example:** You want two crystals in the low-band and eight crystals in the high-band.

Insert the low-band crystals in channels one and two.

Insert the high-band crystals in the eight remaining.

Place the red bandswitching probe over the post adjacent to Channel 3 (where the high-band starts). Leave white probe on its stored post.

High (and Ham)/Ultra High (and "T") Band Operation

1. Slide the red bandswitch probe over the post of Channel 1.
2. Install the high band crystals beginning with Channel 1 until all high band crystals have been installed.
3. Place the white bandswitching probe over the post of the first U-Band Channel. From that point, all successive channels will automatically be U-Band and T-band channels. Insert your UHF crystals in these positions.

Low/Ultra High (and "T") Band Operation

1. Place the white bandswitching probe over the first channel (from left to right) you wish to be UHF. All channels to the left of the white bandswitching probe will be Low band and the channels below and to the right of the white bandswitching probe will be U-Band and T Band. Install Low Band and U-Band crystals accordingly. Leave red probe on its stored post.

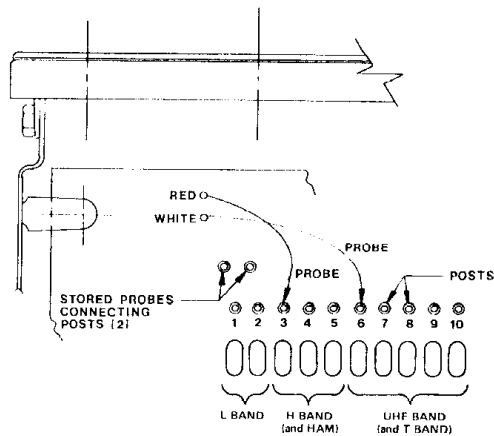


Figure 3

Low/High (and Ham)/Ultra High (and "T") Band Operation L/H/U/T: (Fig. 3)

1. Install low band crystals first, starting with Channel 1.
2. Slide the red bandswitch probe over the first high band channel. (Fig. 3) All successive channels will be in the high band.
3. Install the desired number of high band crystals.
4. Slide the UHF band white bandswitching probe over the post of the first channel you desire to be programmed for UHF. All successive channels will be in the UHF and T bands. Install the desired UHF or T band crystals. For example, in Figure 3, we wish to have two crystals in the high-band, and five crystals in the UHF and T band. Insert the low band crystals in Channels 1 and 2. Place the red bandswitch probe on the post over Channel 3. Install the high band crystals in positions 3, 4 and 5. Place the white bandswitch probe on the post over Channel 6. Install the UHF and T crystals in positions 6, 7, 8, 9 and 10. This completes the installation of crystals for five-band operation.

Correct Crystals

Your Bearcat Receiver will operate only on crystals designed for it. The I-F frequency of your scanning receiver is 10.8MHz. Be sure to specify crystals for a 10.8MHz I-F when purchasing crystals for your scanner.

Rigid quality standards are applied to crystals furnished by Electra Company to assure full performance; therefore, our warranty does not include correcting poor operation caused by crystals from other sources.

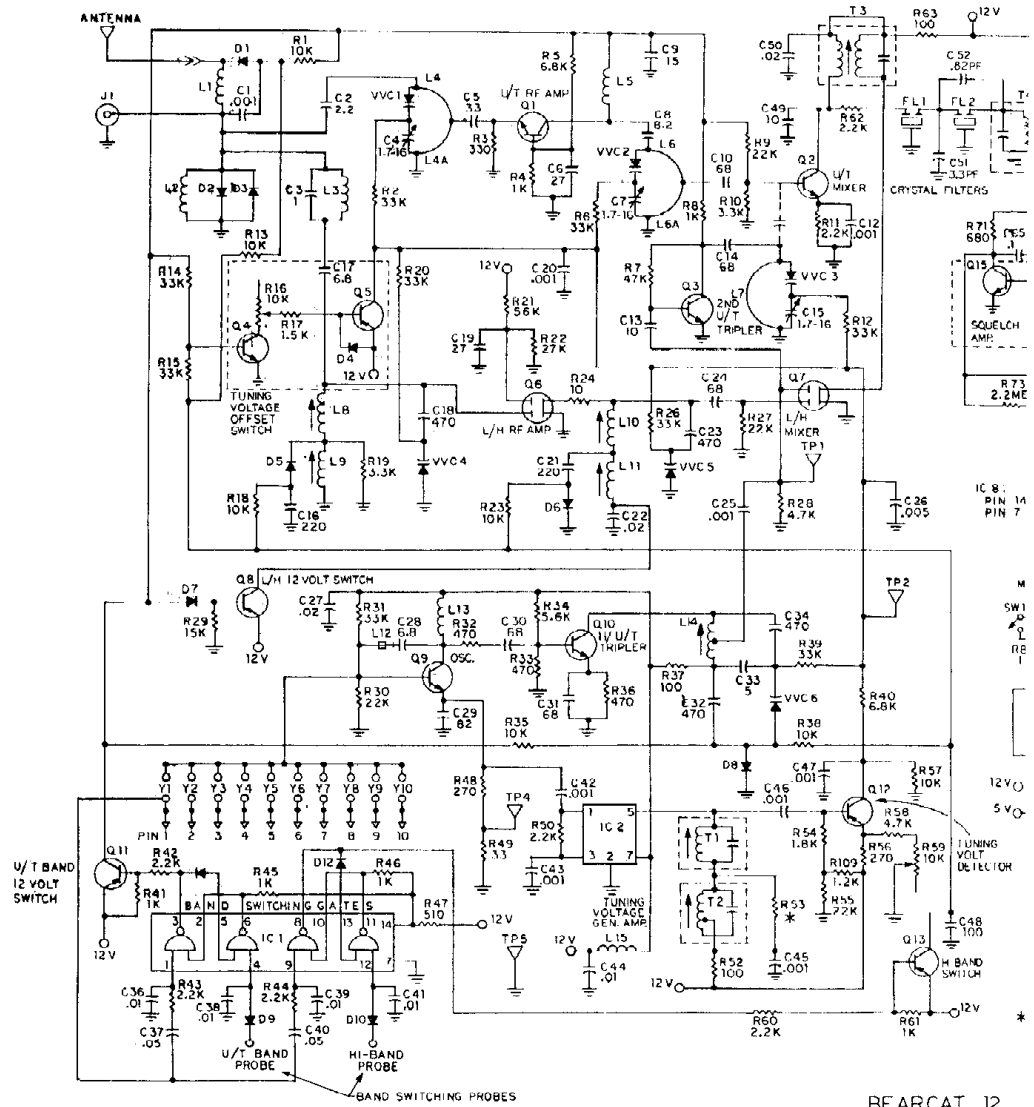
The "H" alignment spread is 146MHz to 174MHz and the "L" 33MHz to 48MHz and the "U" alignment from 450 to 512MHz. New frequencies may be added within these spreads.

CRYSTAL FORMULAS:

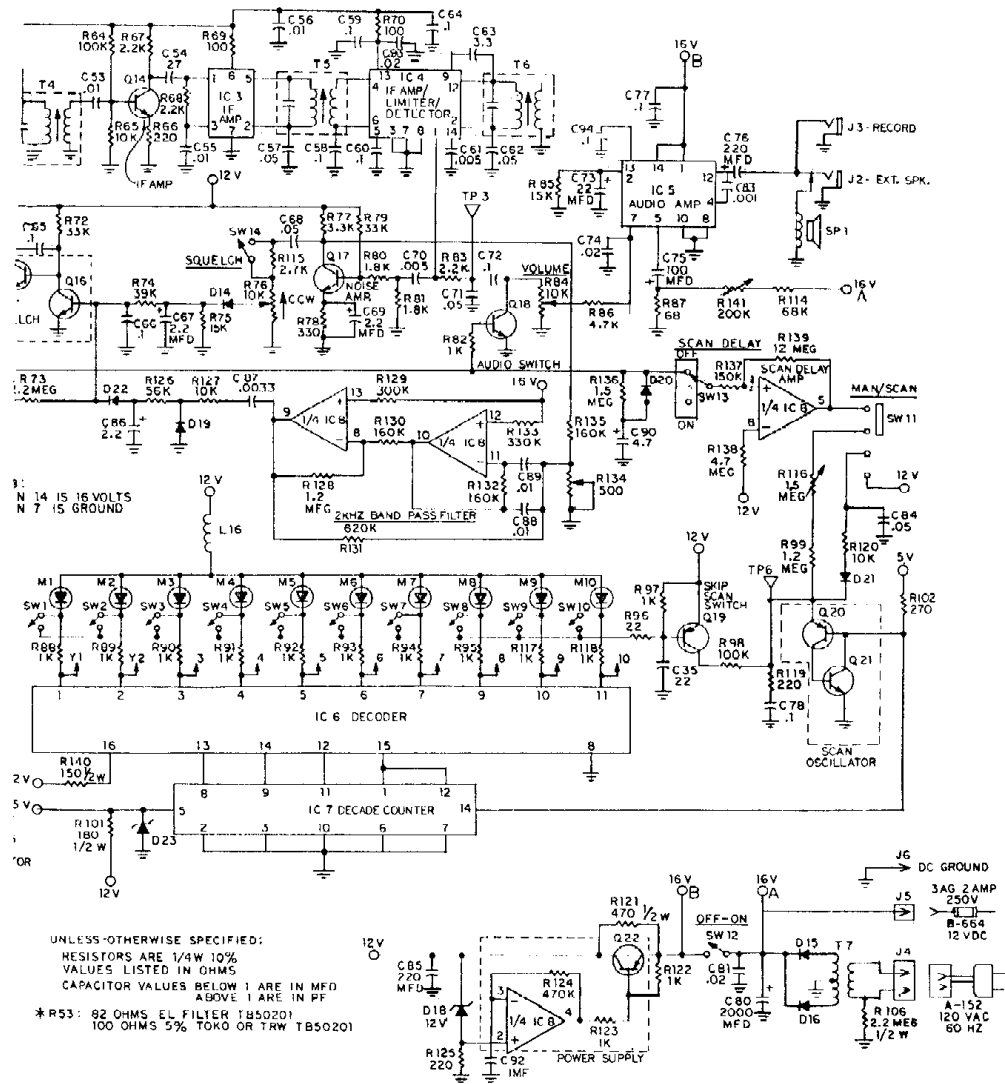
"L" Received frequency + 10.80MHz = crystal frequency
 Example: 35.80 + 10.80 = 46.60000MHz

"H" Received frequency - 10.80MHz = crystal frequency
 Example: 155.01 - 10.80MHz = 144.210MHz

"U" Received frequency - 11.80 = crystal frequency



BEARCAT 12



SCHEMATIC

MOBILE INSTALLATION

This receiver may be installed in any car, truck, boat, etc., having a 12 VOLT NEGATIVE GROUND SYSTEM.

In some areas it is illegal for unauthorized persons to receive police communications on a mobile receiver. The user of this radio is responsible for obtaining any necessary authorization through local agencies and Electra Company cannot be responsible for any illegal installation or usage.

1. Place the mobile mounting bracket under the dash to hold the receiver in the desired position.
2. Mark and drill two holes using a 7/64 drill bit and secure the bracket with the two No. 6 self-tapping screws.
3. Insert the two plastic "step" washers, flanges turned inward, in the desired pair of mounting holes and secure the receiver in place with the two ¼-20 bolts and two ¼" ID x 9/16 OD flat washers.
4. The end opposite the quick connect on the red AC power cord should be fastened to the "accessory" or "radio" terminal on the fuse block. The quick connect containing the fuse holder and 2 amp fuse can now be pushed into the red power connector located at the rear of the chassis. The "ground" is completed through the mounting bracket to the frame of the vehicle. IF THE RADIO IS NOT MOUNTED TO THE VEHICLE CHASSIS, A GROUND LEAD IS FURNISHED WITH THE UNIT. CONNECT FREE END TO VEHICLE CHASSIS AND SECURE TERMINAL AT OTHER END UNDER THE SCREW PROVIDED ON THE REAR OF RADIO.

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 12 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. Continuous-carrier signals such as the NOAA weather broadcasts on 162.55, 162.475 or 162.400 MHz, 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 10 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 20 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.

BC12 INTEGRATED CIRCUIT VOLTAGES

IC No.		1	2	3	4	5	#6	#7	8
Pin 1	Low	.3	4.6	4.5	4.8	14.8	.10	.15	.6+
	High	.3							.15
	U/T	1.7							
2	Low	.15	GND	GND	3.7	7.9	11.7	GND	.6
	High	.15							
	U/T	6.0							
3	Low	11.7	4.65	4.5	GND	NC	10.4	GND	.7
	High	11.7							
	U/T	.16							
4	Low	6.3	NC	NC	1.5	.7	11.7	NC	9.4
	High	5.6							
	U/T	4.4							
5	Low	7.2	* 11.4/	11.1	1.5	.5	11.7	5.3	+
	High	6.7	11.35						14.0/
	U/T	.60							.15
6	Low	.15	11.6	11.1	1.5	NC	11.7	GND	+
	High	.15							0/6
	U/T	6.0							
7	Low	GND	11.6	11.1	GND	0	11.7	GND	0
	High	11.7	0	NC	GND	GND	GND	.1	.50
	U/T	.15							
9	Low	.36			.18	NC	11.7	.1	5.5
	High	1.70							
	U/T	1.70							
10	Low	.16			1.6	GND	11.7	GND	7.4
	High	5.0							
	U/T	6.0							
11	Low	.16			3.0	NC	10.4	.13	.50
	High	5.0							
	U/T	6.0							
12	Low	6.0			3.7	6.2	.10	NC	.6
	High	.40							
	U/T	3.1							
13	Low	8.1			9.7	6.2	.10	5.3	.6
	High	.40							
	U/T	.50							
14	Low	4.2			5.5	14.8	.10		14.7
	High	5.0							
	U/T	6.0							
15	Low						.13		
	High						5.35		

* With/without crystal

Channel 1 selected

† Squelch CCW/CW

BC 12 TRANSISTOR VOLTAGE CHART

Q No.	Test Condition	E	B	C	Q No.	Test Condition	E	B	C	
Q 1	Low	0	0	0	Q12	Low	* 11.1/ 11.4	11.1	+	
	High	0	0	0		High	* 11.3/ 11.4	11.1	+	
	U/T	.74	1.5	11.6			U/T	* 11.3/ 11.4	11.1	+
Q 2	Low	0	0	10.9	Q13	Low		11.7	11.7	0
	High	0	0	10.9		High	11.7	10.9	11.7	
	U/T	1.0	1.5	10.9			U/T	11.7	10.9	11.7
Q 3	Low	GND	0	0	Q14	Sq. CCW		GND	0	7.3
	High	GND	0	0		Sq. CW	GND	.80	.15	
	U/T	GND	.60	4.5			Sq. CCW	GND	.6	0
Q 4	Low	GND	0	11.4	Q15	Sq. CW		GND	.15	.8
	High	GND	.75	0		Sq. CCW	GND	.5	1.1	6.6
	U/T	GND	.75	0			Sq. CW	GND	.8	0
Q 5	Low	11.7	11.5	+	Q16	Auto		11.7	11.7	3.8
	High	11.7	11.0	+		Man.	11.7	11.7	.10	
	U/T	11.7	11.0	+			Auto	3.7	5.3	0
Q 8	Low	11.7	10.9	11.6	Q17	Man.		.15	5.3	0
	High	11.7	10.9	11.6		Auto	GND	0	5.3	
	U/T	11.7	11.35	0			Man.	GND	0	5.3
Q 9	Low	* 2.9/ 3.1	* 3.5/ 3.9	11.5	Q18	Man.		14.8	11.7	14.1
	High	* 2.9/ 3.0	3.8	11.5		Auto	S	G ₁	G ₂	D
	U/T	* 2.9/ 3.1	* 3.8/ 3.9	11.5			Man.	GND	0	3.8
Q10	Low	* 1.1/ .20	.9	* 11.5/ 11.6	Q 6	High		GND	0	3.8
	High	* .9/ .20	.9	11.6		U/T	GND	0	3.8	0
	U/T	* 1.0/ .20	.9	* 11.5/ 11.6			Low	GND	0	0
Q11	Low	11.7	11.7	0	Q 7	High		GND	0	0
	High	11.7	11.7	.30		U/T	GND	0	0	10.9
	U/T	11.7	10.9	11.7			GND	0	0	10.9

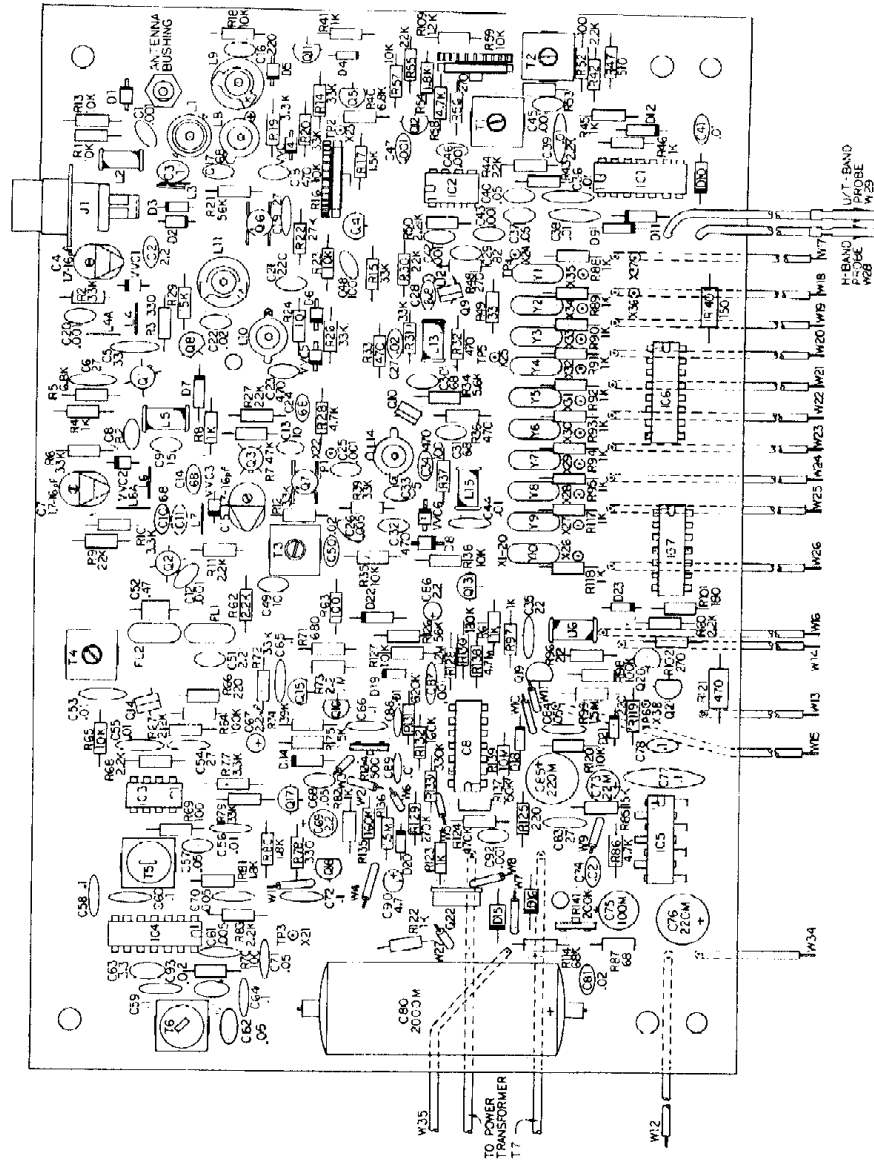
+ Varies with receive frequency
* With/without crystal

LOGIC CHART

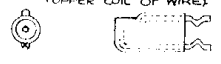
(Red and white probes NOT CONNECTED TO CHANNEL PINS)

PIN	IC6										IC7											
	COUNT	1	2	3	4	5	6	7	8	9	10	COUNT	1	2	3	4	5	6	7	8	9	10
1		0	1	1	1	1	1	1	1	1	1											
2		1	0	1	1	1	1	1	1	1	1											
3		1	1	0	1	1	1	1	1	1	1											
4		1	1	1	0	1	1	1	1	1	1											
5		1	1	1	1	0	1	1	1	1	1											
6		1	1	1	1	1	0	1	1	1	1											
7		1	1	1	1	1	1	0	1	1	1											
8	GND											0	0	0	0	1	1	1	1	0	0	
9		1	1	1	1	1	1	1	0	1	1	0	0	1	1	0	0	1	1	0	0	
10		1	1	1	1	1	1	1	1	0	1	0	0	0	0	0	0	0	1	1		
11		1	1	1	1	1	1	1	1	1	0	0	1	0	1	0	1	0	1	0		
12																						
13																						
14																						
15																						
16																						

The Logic sequence for counting is shown by "0" under .5v and "1" over 4v.



NOTE: X MARKED ON COILS L8, L9, L10,
L11, L14 INDICATES LONG SIDE
(UPPER COIL OF WIRE)



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 T6 for maximum 1F output display. See Fig. 2.
5. Adjust T3 for maximum output, and T4 for minimum ripple.
6. Adjust T6 so that 10.80MHz is in center of discriminator curve and for best linearity. See Figure 3.

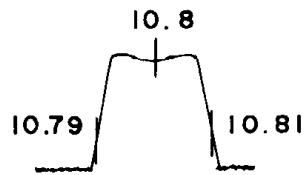


Figure 2

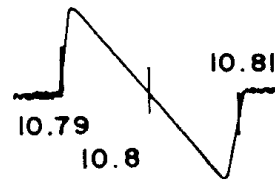


Figure 3

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.

NOTES

CH. 1	_____	6	_____
2	_____	7	_____
3	_____	8	_____
4	_____	9	_____
5	_____	10	_____

LOCAL SERVICES

Service	Frequency
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

LIMITED WARRANTY

This Bearcat® receiver is warranted to the original consumer purchaser to be free from defects in material and workmanship for a period of one (1) year from date of purchase.

Electra will repair or replace, AT ITS OPTION AND FREE OF CHARGE, during the warranty period, any part which proves defective in material or workmanship under normal installation, use and service, provided the receiver is returned to our factory, for our examination, TRANSPORTATION CHARGES PREPAID at the address below. THIS WARRANTY IS LIMITED TO DEFECTIVE PARTS AND/OR REPLACEMENT ONLY AND EXCLUDES ANY INCIDENTAL AND CONSEQUENTIAL DAMAGES CONNECTED THEREWITH.

Some states do not allow the exclusion on limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

Any damage to this receiver as a result of misuse, abuse, neglect, accident, improper installation, repair or alteration outside our factory, or any use violative of instructions furnished by us WILL VOID THE WARRANTY.

In order for this warranty to be effective, the consumer MUST COMPLETE AND SIGN THE WARRANTY REGISTRATION CARD and mail it to Electra at the address below within ten (10) days of purchase.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. In the event of a problem with warranty service or performance, you may be able to go to a small claims court, a state court, or federal district court.

ELECTRA COMPANY
Division of Masco Corporation of Indiana
300 South on East County Line Road
Cumberland, Indiana 46229