

ALINCO

VHF FM MOBILE TRANSCEIVER

DR-130

UHF FM MOBILE TRANSCEIVER

DR-330

UHF FM MOBILE TRANSCEIVER

DR-430

INSTRUCTION MANUAL

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INTRODUCTION

Thank you for purchasing the **ALINCO** DR-130 VHF FM Mobile Transceiver and DR-330/DR-430 UHF FM Mobile Transceiver.

ALINCO radios and other products are ranked as some of the finest in the world. Your DR-130/DR-330/DR-430 has been manufactured with "State of the Art" technology, and tested carefully at the factory. The DR-130/DR-330/DR-430 will give you satisfactory operation for many years.

INNOVATIVE AND NEW FEATURES

The DR-130/DR-330/DR-430 features some of the most advanced features and reliable engineering available anywhere. Our design philosophy at **ALINCO** is focused on developing innovative usable features, including the following:

- * The DR-130/DR-330/DR-430 comes equipped with **50 CTCSS Tone encoders**, and with the optional EJ-20U Tone Squelch Decoder Unit, the CTCSS Tones can be decoded for selective receiving.
- * **Tone Burst** (1750 Hz) feature comes built into the DR-130/DR-330/DR-430E.
- * 100 Memory Channels Optional with the EJ-19U Memory Expansion Unit.
- * Programmed Memory Scan, passes over any empty memory channel. In the scan mode, the scan cycle will by-pass any un-programmed channels. That considerably speeds up memory scan especially when the optional memory expansion unit is installed.
- * Time Out Timer can be set to a Duty Cycle most accommodating to the users requirements.

ACCESSORIES

Carefully unpack your transceiver and you will find the Standard Accessories included:

■ Standard Accessories

1. Hand Microphone (Condenser Type).
2. Mobile Mounting Bracket.
3. Installation Hardware. (4 Black screws 4 Screws 1 Spanner)
(4 Sets Bolt/Nut 2 Fuse)
4. DC Power Cord.
5. Key Cover. (To mask TOT, VFO/M, CALL keys. Not adhesive)

Optional accessories are available, as listed below, at your Authorized **ALINCO** Dealer. We strongly recommend that you purchase the appropriate accessories to get full features and performance from your radio.

■ Optional Accessories

1. EJ-19U Memory Expansion Unit (100 Channels)
2. EJ-20U Tone Squelch Decoder Unit

INSTALLATION

Mobile Antenna Installation:

50 Ohm coaxial cable is required for all antenna installations. Mobile antennas require an appropriate mounting base for proper installation and operation. Please refer to the antenna manufacturer's manual for the proper installation and mounting information. After installing your antenna, insure that you have the proper matching and best possible SWR reading. High SWR or improper matching can cause severe damage to your unit.

Caution:

High RF environments can cause severe damage to your unit. Ensure that you are not in a High RF environment when operating the DR-130/DR-430.

MOBILE INSTALLATION

1. Location

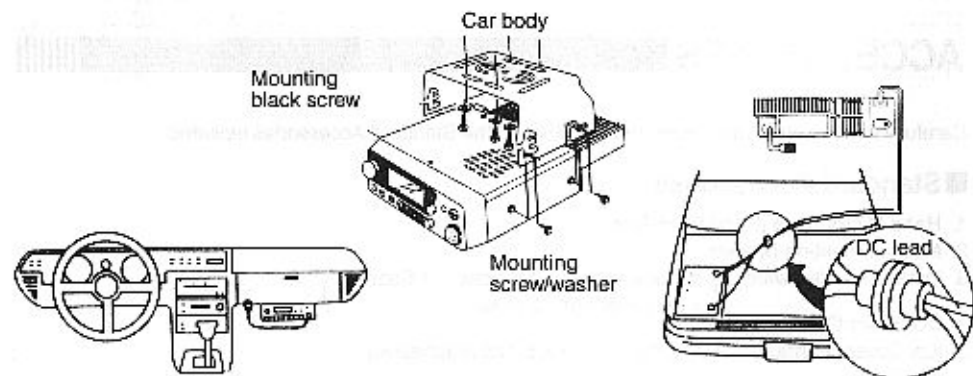
The transceiver can be mounted in any position in your car, where the controls and microphone are easily accessible and safe operation of the vehicle or the performance of the set will not be interfered with.

Refer to the diagrams for installation of the Mounting Bracket:

2. Power Requirements

The transceiver can be operated from any regulated 12 or 13.8 V negative ground source.

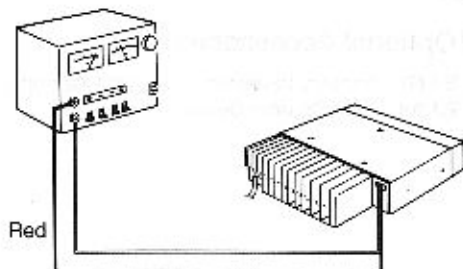
For mobile use, power connections should be made directly to the battery to minimize the possible ignition noise pickup.



BASE STATION INSTALLATION

For fixed base operation, a 13.8 V D.C. Power Supply capable of providing at least 15 A continuously is required.

Connect the red lead of the power cable to the Positive (+) terminal, and the black lead to the Negative (-) terminal of the D.C. Power Supply.



SPECIFICATIONS



All Specifications are for Ham Bands ONLY. No guarantee or warranty, either specific or implied, will apply to any function, feature, or specification outside the Ham Bands. Any modification which causes operation of this unit outside of the Ham Band will result in voiding any warranties associated with this Transceiver.

< DR-130 >

■ GENERAL

Frequency
Coverage:

	(TX)	(RX)
DR-130T	144.000-148.000 MHz	136.000-174.000 MHz
DR-130E	144.000-146.000 MHz	144.000-146.000 MHz
DR-130EZ	144.000-146.000 MHz	144.000-146.000 MHz
DR-130TE1	136.000-155.000 MHz	136.000-155.000 MHz
DR-130TE2	150.000-174.000 MHz	150.000-174.000 MHz

Frequency Resolution:
Antenna Impedance:
Power Supply Requirements:
Current Drain at 13.8V:

5, 10, 12.5, 15, 20 & 25 kHz Steps
50 Ohms Unbalanced
13.8 Volts DC \pm 10%
Receiving: Squelched less than 800 mA
Transmitting: VHF High/10.5A (approx.) Low/3.5A (approx.)
140mm(W) \times 40mm(H) \times 154mm(D)
Approx. 0.86 kgs

Dimension:
Weight:

■ TRANSMITTER

Output Power:
Emission Mode:
Modulation System:
Max. Frequency Deviation:
Spurious Emission:
Microphone:
Operation Mode:
Offset:

High: 50W (DR-130T/E/EZ); 35W (DR-130TE1/2); Low: 5W (approx.)
F3E (FM)
Variable Reactance Frequency Modulation
 \pm 5 kHz
- 60dB or under below carrier
Electret Condenser Microphone
Simplex/Semi-Duplex
Offset from 0 to 15.995 MHz

■ RECEIVER

Receiving System:
Intermediate Frequency:
Sensitivity:
Selectivity:

Superhetrodyne Dual Conversion
1st 17.2 MHz & 2nd 455 kHz
12dB SINAD - 16dB μ (typ. at band centre)
More than \pm 6 kHz at - 6dB
Less than \pm 15 kHz at - 60dB

Audio Power Output:
Speaker Impedance:

More than 2.5W at 10% Dist.
8 Ohms

Specifications are subject to change without notice or obligation.

■ FEATURES < DR-130/DR-330/DR-430 >

Memory Capacity: 20 Memory Channels
(100 Memory Channels Optional)
Reverse: REV
Time Out Timer: TOT
Priority: PRI
Repeater Shift: SHIFT
Channel Step: CH.SP
Scanning: (Mic) UP/DOWN
Sub audible Tone: CTCSS Encoder
67 Hz ~ 250 Hz with 50 Selections
(Decoder optional)

Tone Burst: 1750 Hz TONE
(DR-130E only)
Power Selection: H/L
MHz Selection: MHz
Function: F
VFO/Memory: VFO/M
Call Channel: CALL
Key Lock: LOCK

< DR-330/DR-430 >

■ GENERAL

Frequency Coverage:

	(TX)	(RX)
DR-330TE1	335.000-360.000 MHz	335.000-360.000 MHz
DR-330TE2	350.000-370.000 MHz	350.000-370.000 MHz
DR-430T	440.000-450.000 MHz	430.000-460.000 MHz
DR-430E	430.000-440.000 MHz	430.000-440.000 MHz
DR-430TE1	400.000-420.000 MHz	400.000-425.000 MHz
DR-430TE2	450.000-470.000 MHz	445.000-475.000 MHz
DR-430TE3	430.000-450.000 MHz	425.000-455.000 MHz
DR-430TE4	470.000-490.000 MHz	465.000-495.000 MHz
DR-430TE5	490.000-512.000 MHz	485.000-512.000 MHz

Frequency Resolution:

5, 10, 12.5, 15, 20 & 25 kHz Steps

Antenna Impedance:

50 Ohms Unbalanced

Power Supply Requirements:

13.8 Volts DC $\pm 10\%$

Current Drain at 13.8V:

Receiving: Squelched less than 800 mA
Transmitting: High/10.0A (approx.) TX UHF
Low/3.5A (approx.) TX UHF

Dimension:

140mm(W) \times 40mm(H) \times 154mm(D)

Weight:

Approx. 0.86 kgs

■ TRANSMITTER

Output Power:

High: 25W (DR-330TE1/2)
35W (DR-430TE); 35W (DR-430TE1/2/3/4)
Low: 5W (approx.)

Emission Mode:

F3E (FM)

Modulation System:

Variable Reactance Frequency Modulation

Max. Frequency Deviation:

± 5 kHz

Spurious Emission:

-60dB or under below carrier

Microphone:

Electret Condenser Microphone

Operation Mode:

Simplex/Semi-Duplex

Offset:

Offset from 0 to 15.995 MHz

■ RECEIVER

Receiving System:

Superhetrodyne Dual Conversion

Intermediate Frequency:

1st 30.85 MHz & 2nd 455 kHz

Sensitivity:

12dB SINAD -16dB μ

Selectivity:

More than ± 6 kHz at -6dB
Less than ± 15 kHz at -60dB

Audio Power Output:

More than 2.5W at 10% Dist.

Speaker Impedance:

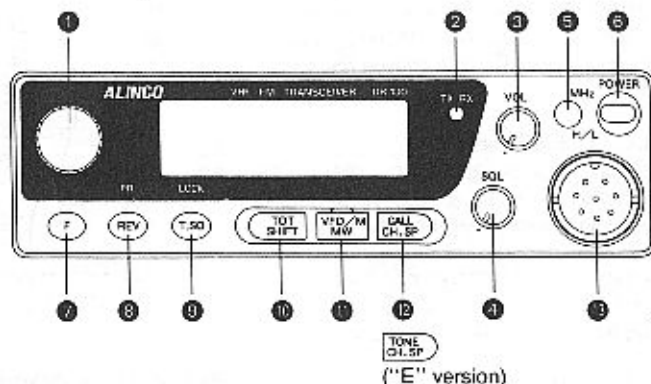
8 Ohms

Specifications are subject to change without notice or obligation.

OPERATIONS

Controls and Functions

■ Front Panel



1 MAIN TUNING DIAL

The main tuning dial/knob may be rotated in either direction to select transmit/receive frequencies, memory channels, transmit frequency offsets, and sub-audible tones.

2 TRANSMIT/RECEIVE INDICATOR LAMP

When the PTT is held in the red light goes on. When a signal is received the green light goes on.

3 VOLUME CONTROL

Turn the control knob clockwise to increase the volume, and counterclockwise to decrease the volume.

4 SQUELCH CONTROL

The squelch control knob is used to eliminate noise when no signal is present. Normally this control is adjusted clockwise to the noise threshold level.

5 MHz KEY / H-L KEY

The MHz key is used to change the frequency Up or Down in one MHz steps.
With the Func. Key, Output power can be selected.

6 POWER SWITCH

Press to turn On. Press again to turn Off.

7 F KEY / MONI KEY

Func. Key is used to access secondary controlling functions (shown in italics in this manual).

Holding this key for over 0.5 sec. MONI is used to open squelch and monitor weak signals.

8 REV / PRI KEY

Reverse is used to invert the TX and RX frequency in Duplex (Repeater) Mode. This is useful for determining whether Duplex Mode is required or not.

With the Func. Key, PRI Key selects priority mode, allowing your Priority Channel to be periodically monitored.

9 T.SQ / LOCK KEY

Selects Sub audible Tone.

With the Func. Key, Lock Key turns the Lock Function On & Off.

10 TOT / SHIFT KEY

TOT indicates "Time Out Timer". After a set number of minutes in the Transmit Mode the DJ-130 will time out followed by BEEP. (The TOT is disabled while CTCSS tone is encoded unless equipped with the optional EJ-20U.)

With the Func. Key, press the Shift Key to select the Repeater Off Set Step and Direction (+ or -).

11 VFO/M / MW KEY

VFO/M Key toggles between VFO (Variable Frequency Oscillator) and Memory Modes. With the Func. Key, MW (Memory Write) stores your selections to a chosen memory channel.

12 CALL / CH.SP KEY

(E version: TONE BURST)

This button is used to access a pre-programmed frequency (memory channel "CALL") with the push of one key.

With the Func. Key, CH.SP Key is used to select the desired incremental changes of the receive/transmit frequencies in steps.

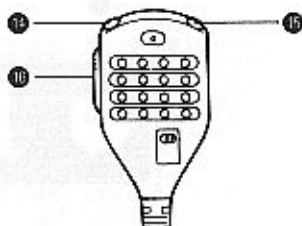
While holding this Key down, turn the unit on with the Power Switch. Now the unit has been programmed to encode a 1750 Hz tone burst with a push of the CALL Key.

"E" version is made contrary. This key primarily functions as Tone Burst Key, secondarily as CALL Key.

13 MIC CONNECTOR

Connect the supplied microphone to this connector.

Microphone:



("E" version is supplied with microphone without DTMF key-pad)

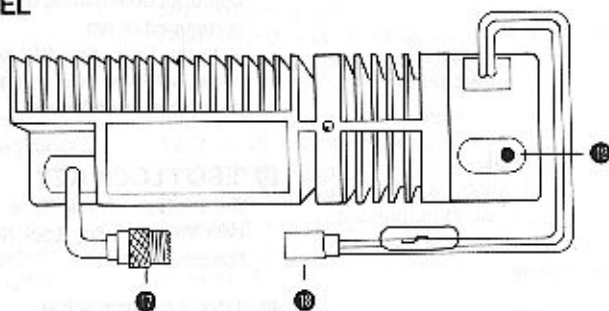
14 & 15 UP & DOWN KEYS

Used to step the VFO, Memory Channels, Off Set Shifts, Tone Selections and, Channel Step Selections Up or Down. Holding one of these keys for 0.5-3 seconds will activate the timer scan.

16 PTT KEY

The unit transmits when Push To Talk is depressed.

REAR PANEL



17 Antenna Connector

Used to connect the antenna to the set. Use a PL259 antenna-plug with 50 Ohms impedance.

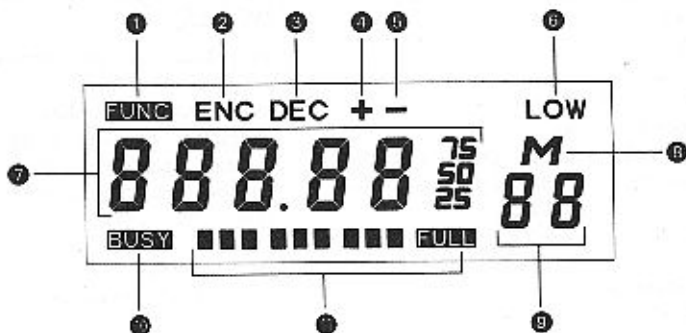
18 Power Connector

Connect the supplied power cable to this connector.

19 External Speaker Jack

When an external speaker (Imp.: 8 Ohms) is used, connect it to this jack.

■ LCD Display



1 FUNC

Function is on and Secondary function keys may be activated.

2 ENC

CTCSS tone encoded. The selected tone will be transmitted with the main carrier.

3 DEC

CTCSS tone decoded. For selective listening. Incoming CTCSS tones will be received and decoded.

(Tone Decode is an Optional Feature for the DR-130/DR-430.)

4 "+"

Indicates Up transmitter offset in the Duplex mode.

5 "-"

Indicates Down transmitter offset in the Duplex mode.

6 LOW

Indicates Low Power transmission. With the display off, transmission is in High Power.

7 88888

Displays the selected transmit/receive frequencies, channel step, Time Out Timer, Offset, or sub audible tone frequencies. Commercial models only; Also can be programmed to display the selected Memory Channel.

8 M

Indicates activation of the Memory Mode.

9 88

Indicates the selected Memory Channel. ("EE" will appear during a transmission with CTCSS encoded.)

10 BUSY

Indicates signal being received, and open squelch.

11 Indicates relative received or transmitted signal strength. (This is for reference purposes only and is not a True indicator of the units sensitivity or received signal strength.)



PROGRAMMING FUNCTIONS AND FEATURES

RECEIVE

1. Power On

Connect to DC (13.8V) Power Supply, and push the POWER Switch.

2. Squelch

Set the squelch control knob to the noise threshold. The BUSY indicator will turn off.

3. Frequency Selection

Turn the Main Dial left or right to select the VFO frequency in kHz, according to the selected channel step value.

Use the MHz Key to select one MHz Up or Down.

4. Volume Control

Use the Volume Control Knob to set the desired audio volume.

TRANSMIT

1. Select the desired transmit frequency.

2. Hold in the PTT switch and the Transmit Lamp turns on. Speak into the Mic.

3. Release the PTT switch and the unit reverts to monitoring mode.

4. If the LCD displays "OFF", the transmit frequency has exceeded the transmit range of this unit. No transmit is possible.

RECEIVE AND TRANSMIT MODES

A. VFO Mode (Variable Frequency Oscillator)

Press the VFO/M key. The transceiver will toggle from Memory Mode to VFO Mode. The character "M" and a Memory Channel number disappear. This mode is used to change frequency using the Main Tuning Dial.

B. Memory Mode

Press the VFO/M key. If you are in the VFO Mode the unit will go to Memory Mode. In the Memory Mode, the character "M" and a Memory Channel number are displayed at the right on the LCD. Turning the Main Tuning Dial or pushing the Up/Down Keys on the Mic changes the memory channel. In the Memory Mode you can select a desired memory channel.

Free (empty) memory channels are indicated by the blinking "M" on the LCD.

C. Call Mode

From the VFO Mode or the Memory Mode, you can access your Call Channel by pushing the CALL Key.

A blinking "M" indicates the Call Channel is blank. You can write your chosen frequency, Shift, Tone, etc. to the Call Channel with the same procedures used for Memory Write.

CTCSS TONE SELECTION

(Sub-Audible Tone)

Push the "T.SQ" key and the sub-audible tone frequency will display (in kHz) on the LCD. To select a tone, turn the Main Dial or use the Up/Down keys on the Mic. Push the VFO/M Key to return to VFO Mode and, to activate Tone Decode, press the "T.SQ" Key before returning to VFO Mode (Optional EJ-20U Tone Squelch Unit required).



Encode/Decode Tones

(Hz)

67.0	69.3	71.9	74.4	77.0
79.7	82.5	85.4	88.5	91.5
94.8	97.4	100.0	103.5	107.2
110.9	114.8	118.8	123.0	127.3
131.8	136.5	141.3	146.2	151.4
156.7	159.8	162.2	165.5	167.9
171.3	173.8	177.3	179.9	183.5
186.2	189.9	192.8	196.6	199.5
203.5	206.5	210.7	218.1	225.7
229.1	233.6	241.8	250.3	254.1

Note: CTCSS Tones 69.3, 159.8, 165.5, 171.3, 177.3, 183.5, 189.9, 196.6, 199.5, 206.5, 229.1, 254.1 are new tones available in the DR-130 and DR-430.

■ SCAN

The DR-130/DR-430 has 2 scanning modes. Both scan modes employ Timer Scan system, that is: Scan stops maximum of 5 seconds if a signal is received, and resumes scanning immediately if the signal disappears.

A. VFO Scan

This scan option will scan over the entire tuning range of the band.

1. Press the VFO/M Key to select the VFO mode.
2. Hold the Up/Down keys on the Mic for 0.5 ~ 3.0 seconds to start scanning.
3. To change scan direction, turn the Main Dial opposite to the direction of scan.
4. To stop scanning, press the PTT key or the VFO/M key.

B. Memory Scan

This scan option will scan all programmed memory channels.

1. Press the VFO/M key to select the memory mode.
2. Hold the Up/Down keys on the Mic for 0.5 ~ 3.0 seconds to start scanning.
3. To change scan direction, turn the Main Dial opposite to the direction of scan.
4. To stop scanning, press the PTT key or the VFO/M key.

■ PRIORITY

The Priority feature of the DR-130/DR-430 will monitor the primary channel for 5 seconds, and then cycle automatically to the secondary channel for 0.5 seconds. Then returns to primary channel, while remains receiving for 2 seconds if signal exists. This convenient feature will allow the user to effectively monitor a secondary channel for activity, almost as if they were monitoring two radios. Press the Func Key and then press the PRI Key to select the Priority feature. When VFO is selected, a "P" will be displayed on the LCD.

A. VFO Priority

VFO Priority sets up VFO as the primary channel. The last selected memory channel is the secondary channel.

B. Memory Priority

Memory Priority sets up your last selected Memory Channel as the primary channel. VFO frequency becomes the secondary channel.

C. Call Priority

Call Priority sets up your programmed Call Channel as the primary channel. The VFO frequency becomes the secondary channel.

■ KEY LOCK FUNCTION

The Key Lock Function locks off most of the features and functions accessible from the touch tone pad and dials.

Push the Func. Key and the Lock Key to activate Key Lock. The LCD will display "FL" to indicate Key Lock function is on. When Key Lock function is on, only PTT, Power Selection, Monitor, and Key Unlock functions are available. (N.B. "PL" will be displayed if key-locked during the Priority monitor.)

■ SHIFT/REPEATER OFFSET

To select the Shift direction (+ or -) and Off-Set for Repeater operation, press the Func key and then press the TOT Key. The LCD will display a "--" mark and show the Off-Set value (in MHz).

A. Selecting and Changing Off-Set Value

Turn the Main Dial or use the Up/Down keys on the Mic to change the Off-Set value. Off-Set can be set from 0 ~ 15.995 MHz, and programmed in each memory channel.

B. Setting Shift Direction

By pressing the FUNC Key and then pressing the TOT Key, the "--" will change to a "+";

To return to VFO, press the VFO/M Key or the PTT Key.

■ MEMORY PROGRAMMING AND OPERATION

To select the Memory Mode, press the VFO/M Key. If you are in VFO the DR-130/DR-430 will go to Memory Mode, if you are in Memory Mode, the DR-130/DR-430 will go to VFO Mode.

A. Memory Recall

From the VFO Mode select the Memory Mode by pushing the VFO/M Key. The LCD will display a "M" and Channel number when the DR-130/DR-430 is in the Memory Mode.

B. Memory Write

1. In the VFO Mode, select the desired Frequency, Shift, Off-Set, Tone, etc.
2. Press the Func Key. A "FUNC" will be displayed on the LCD.

3. Use the Main Dial or the Up/Down Keys on the Mic to select the desired Memory Channel number.
4. Press the MW Key to write to memory.

C. Memory Clear

1. In Memory Mode, press the Func. Key, a "FUNC" is displayed.
2. Select the desired Memory Channel with the Main Dial or Up/Down keys on the Mic.
3. Press the MW Key and the data is cleared from that Memory Channel.

■ CHANNEL STEP

The DR-130/DR-430 has six selectable channel steps for VFO programmed in the unit (5k, 10k, 12.5k, 15k, 20k, 25k). The factory setting is 5 kHz. (E version: 12.5 kHz)

1. Press the Func Key, and then press CH.SP Key. The display will show the current Channel Step setting.
2. Turn the Main Dial or use the Up/Down Keys on the Mic to change the Channel Step to one of the six programmed selections.
3. Push the VFO/M Key or the PTT Key to return to VFO.

** Channel Steps are displayed on the LCD as follows:

- 5 kHz is shown as
- 10 kHz is shown as
- 12.5 kHz is shown as
- 15 kHz is shown as
- 20 kHz is shown as
- 25 kHz is shown as

■ SELECTING TRANSMIT POWER

The DR-130/DR-430 has two transmit power levels High (no display) and Low (LOW displayed). High Power is factory set at 50 Watts (for "T" and "E" versions). Low Power is factory set at 5 watts.

To change the Transmit Power selection, press the Func Key and then the MHz Key.

■ TONE BURST

To select 1750 Hz Tone Burst for triggering European type repeaters.

A. Enable Tone Burst

Firstly, turn the unit off.

While holding the CALL Key down, turn the unit on with the Power Switch.

This operation is not required for "E" version, as initially TONE Key activates Tone Burst function.

B. Transmit Tone Burst

Push the CALL Key and a 1750 Hz Tone Burst will be encoded on the main carrier frequency. With 1750 Hz Tone Burst activated, the CALL Key acts as a Tone Burst Key.

C. Disable Tone Burst

Turn the unit off.

While holding the CALL Key down, turn the unit on with the Power Switch.

(CTCSS encoder momentarily disengages during the transmission of Tone Burst without EJ-20U)

■ OTHER FUNCTIONS AND FEATURES

1. TOT Time Out Timer

To protect the DR-130/DR-430 from excessive transmit, a Time Out Timer has been installed. This can be programmed to activate from 0 seconds to 450 seconds (7.5 Minutes).

Select the Time Out Timer function by pressing the TOT Key, the LCD will display the selected Time Out Time in seconds. Use the Main Dial or the Up/Down Keys on the Mic to change the Time Out setting. Push the VFO/M Key to return to VFO or Memory Mode.

2. REV Reverse

Activating this Function, reverses the selected Off-Set transmit and receive frequencies. This is useful for determining whether to transmit in Semi-Duplex (utilizing a Repeater) or Simplex.

3. Open Squelch

Press and hold the Func key for more than 0.5 seconds and Squelch will open to monitor weak signals. Release Func key to return to Squelch system.

4. Beep

To disable the Beep Tone, turn the unit off. While holding the VFO/M key turn the unit on from the Power Switch.

To enable the Beep Tone, repeat the above.

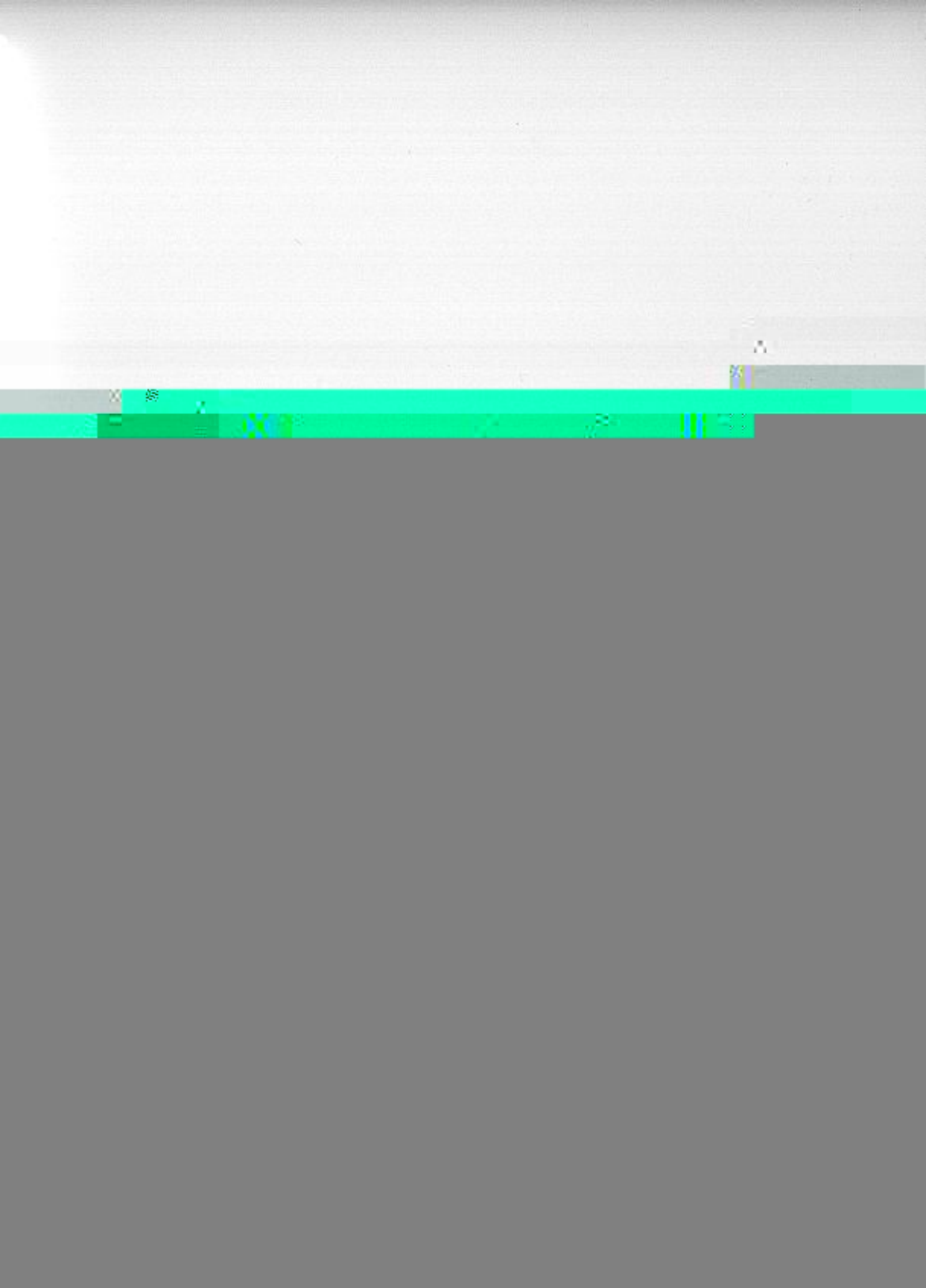
5. Re-Set

To re-set the DR-130/DR-430, turn the unit off. While holding the Func Key, turn the unit on from the Power Switch.

Re-setting the unit puts all features and functions back to the original factory settings, and erases all memory channels.



Factory Setting*	DR-130	DR-330	DR-430
VFO	145.000 MHz	350.000 MHz	445.000 MHz
CALL	145.000 MHz	350.000 MHz	445.000 MHz
Memory Channels	Empty		
Shift	None		
Off Set	0.6 MHz	5.0 MHz	5.0 MHz
Tone Encode/Decode	Disabled		
Tone Frequency	88.5 Hz		
Channel Step	5 kHz (E version: 12.5 kHz)		
Power	High		
Key Lock	Off		
Beep	On		
TOT	Zero		



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