7. Advanced Operations

Your transceiver offers different features for advanced operations.

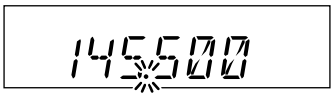
SCANNING FUNCTION

Use this function to automatically search for signals. 6 different scan types are available in the unit. In parameter setting mode, choose Timer mode or Busy mode to determine the desired resuming condition. If the CTCSS(TSQ) squelch or DCS squelch is set, the audio can be heard only when the tone/code matches the incoming signal. Otherwise, scanning stops but no audio will be heard. The direction of scan, upward or downward, can be changed during the scan by rotating the main dial or pressing UP or DOWN keys in the desired direction.

[VFO Scan]

Scans all VFO channels in regard to the preset tuning step.

1. Enter VFO mode.
2. Press UP (to go upward) or Down (to go downward) key for more than 1 second but less than 2 seconds. (To SCAN press for more than 2 seconds and it will auto repeat.)
3. The scan starts. It stops at the frequency where the incoming signal is detected, and resumes the scan according to the resume setting.



4. Press any key (other than UP/DOWN keys) to exit.

[Memory Scan]

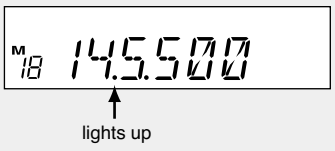
Scans all memory channels unless Memory skip feature is selected for a given memory.

1. Enter Memory mode.
2. Sequence is the same as in VFO scan. Use UP/DOWN keys for commands.

NOTE: Memory Skip feature

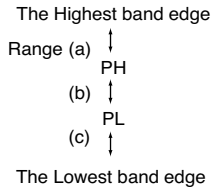
This feature allows determined memory channels to be skipped during the scan. The skip channel can be set even after the memory is programmed.

1. In Memory mode, select the channel to be skipped. Press FUNC key. While F icon is visible on the display, press V/M key. Repeat the sequence to delete the setting.
2. When the memory channel is set to Skip, the 10 MHz order decimal point will be displayed.
3. CALL, PL, PH, and ch.99 are always skipped during Memory scan.



•Program Scan

This is a type of VFO scan, but by setting the frequency range of the VFO into PH and PL channels, it only scans between those frequencies. With setting the PH and PL properly, up to 3 Program scan ranges will be available.



1. Enter the VFO mode and set the PL and PH frequency into the designated memory channels. Refer to Memory setting for the proper sequence.

2. Return to VFO mode by pressing V/M key. Set the VFO to the frequency within the range to be program-scanned.

3. Press MHz key for more than 1 second to start scanning. During this scan mode, "P" flashes after memory channel display.

4. Use main dial or UP/DOWN keys to change the direction. Press any key (other than the UP/DOWN keys) to exit.

•Tone Scan

This function automatically searches for the CTCSS tone an incoming signal might carry. This feature is useful to search the encoding tone of a repeater, or to communicate with a station operating in TSQ (CTCSS squelch) mode.

1. Press TS/DCS key to enter CTCSS decode setting mode.

2. Press UP/DOWN key for more than 1 second but less than 2 seconds to start scanning. It scans 39 tones in order.

3. The decimal point on the tone frequency will flash, and it stops when the matching tone is detected.

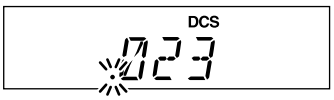
4. The scan won't resume until the operation is repeated.

5. Press any key (other than UP/DOWN keys) to exit.

•DCS scan

Same as previous, but for DCS code search.

1. Press TS/DCS key to enter DCS setting mode.
2. Press UP/DOWN key for more than 1 second but less than 2 seconds to start. It searches the 104 DCS codes in order.
3. The 1 MHz order decimal point will flash.

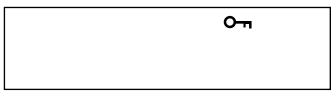


4. The scan stops when the matching code is detected.
5. The scan won't resume until the operation is repeated.
6. Press any key (other than UP/DOWN keys) to exit.

KEY-LOCK FUNCTION

This will lock the keys to avoid unintentional changes.

1. Press FUNC key and press TS/DCS key while F icon is on the display.
2. The [🔑] icon appears.



3. With this function activated, only the following commands can be accessed:
   - PTT
   - FUNC+TS/DCS to cancel this function
   - Monitor function (to release squelch for weak signal reception)
   - Squelch setting
   - UP/DOWN keys

TONE BURST

Press the DOWN key while PTT is pressed. The tone burst will be transmitted as long as both keys are pressed together. Usually just a few seconds of burst is enough to activate the repeater.

Digital voice communication

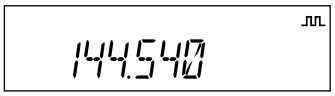
By installing an optional digital unit EJ-47U, digital voice communication becomes possible.

1. Install EJ-47U to the connecter CN105 of the unit.

2. Press the FUNC key, and then press the SQL key while the [F] icon is displayed.
[⎍⎍] is shown on the display.

3. Press the FUNC key or the PTT key to enter the digital communication mode.

4. To cancel the digital communication mode, press the SQL key while the display shows codes in step 2.



When digital setting is made

IMPORTANT: When activating this setting, a code is displayed and switched by rotating the dial, but it does not affect the function of EJ-47U. Please disregard this setting sequence. Digital voice operation on certain amateur radio frequencies may be prohibited, restricted or subject to a special station license. Please be sure to consult with your local authority prior to operating in this mode.

WIDE / NARROW (Reduction of the Mic. Gain / Deviation)

Switching to the NARROW mode:

1. Press MHz key while keeping FUNC key pressed. [Nar] appears on the LCD display and the transceiver enters the NARROW mode.

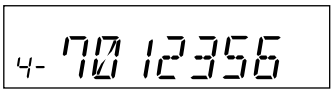
2. Repeat the same sequence to switch between the WIDE / NARROW modes. When the transceiver is in the WIDE mode, which is the normal operation, no indication appears on the LCD display.

3. In the NARROW mode, the microphone gain and modulation during transmission and the demodulation range during reception will be lower.

AUTO-DIALER

This will automatically transmit pre-programmed DTMF tones. DTMF (Dual-Tone-Multi-Frequency) are the same tones used in the telephone system, and they are often used to remote control electronic devices or AUTOPATCH phone systems available on some repeaters.

To program tones in the Auto-dialer memory:



(Ex. Dialer set mode)

1. Press FUNC key and TS/DCS key at the same time to enter the setting mode. Default display is 0 on the right end of the display. Memory channel icon displays which of the ten auto-dial memories (0~9) is in use.

2. Use UP/DOWN keys to select the desired channel.

3. Rotate the main dial to select the first digit, then press TSQ key to enter. The Cursor moves toward right. Repeat sequence to complete.

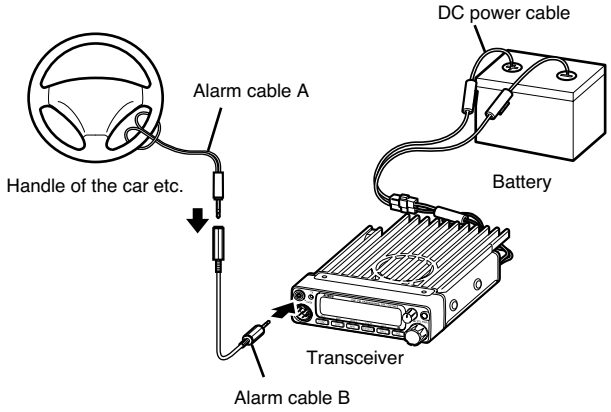
4. Use [-] for pause. The display scrolls when the 7th digit is entered. The numbers 0 to 9, pause, * and # can be stored up to a total of 16 digits.

5. To check the entered digits, press FUNC then rotate the main dial while F icon is on.

6. To delete, press CALL key. Press PTT, V/M, MHz or SQL keys to exit and return to original status.

THEFT ALARM

This alert uses a beep sound when the unit is about to be removed in an improper manner. This function is useful when the unit is installed in a vehicle.



NOTE: Remove wire from steering wheel before attempting to drive vehicle.

[Operation 1]

Setting: Connect the DC cable direct to the battery.

1. Connect the provided alarm cable to the DATA jack on the front panel as shown. Secure the other end of the cable to an object that stays fixed in the vehicle.

2. Enter the Parameter Setting mode by pressing FUNC key for more than 2 seconds. Use SQL or UP/DOWN keys to select menu and rotate the dial to set SCR-ON. Press any key other than SQL/UP/DOWN key to enter the setting and exit.

3. Turn off the unit with main power switch. The TX LED will be lit.

To turn off the alarm function, turn on the unit, enter the Parameter setting mode again, and select SCR-OF. When alarm is activated, the decimal points on 100 MHz and 10 kHz order will flash on display.

NOTE: 1. The alarm functions only when the unit is turned off.
2. When the alarm is activated (SCR-ON or DLY), the Ignition key function does not work.

Function:

1. When the alarm cable is removed from the DATA jack or cut without using the proper sequence, the alarm sounds for 10 minutes. During the alarm, the unit goes to receive on memory channel 99, according to its pre-programmed setting (TSQ/DCS accepted).

2. When a signal is received on ch.99 the alarm stops.

3. Turning on the unit with SQL key pressed also cancels the alarm.

4. Turn the unit off again with the alarm cable connected properly. It returns to the alarm mode.

[Operation 2]

Choose this operation when a delay period is desired.

1. Enter the Parameter setting mode as described previously and select SCR-DLY. Follow the previous instruction to set.

2. Turn off the unit. Display will disappear but the LCD illumination stays on. After 20 seconds TX LED lights up, illumination dims, and alarm functions. The system won't work during the 20 second "DELAY" period.

3. The alarm sounds under the same condition as described previously. There is a 20 second delay until the alarm sounds. During the 20 second period, only the display illumination is lit. Turn ON the unit during "DELAY" period to cancel the alarm function.

   Please set the parameter at SCR-OF during normal operation.

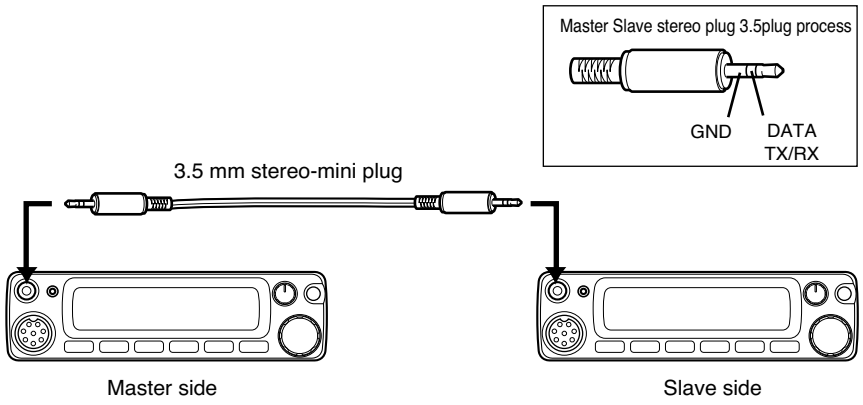
NOTE: The alarm feature on DR-135TA version functions in a slightly different manner.
1. When the alarm starts, the unit alternates between transmit and receive on ch.99 every 5 seconds for 1 minute, then sounds the audio alarm only for 10 minutes.
2. Setting and operation of the function are the same as other versions.
   This feature allows you to monitor and to control the alarm from a remote place by using ch.99 on memory mode.

CABLE CLONE

This feature will copy the programmed data and parameters in the master unit to slave units. It copies the parameters and memory program settings.

Connection

Make a cable using 3.5 mm stereo-mini plugs as shown below. Make a master unit by setting and programming it as desired. Turn off both units. Connect the cable between the DATA jacks on both master and slave. Turn both radios on after the connection is made.



[Setting: Slave side]

1. Go to receive mode (VFO or Memory). Avoid using 9600bps data reception.
2. When it receives the clone data, LD*** shows up on the display.
3. When the transmission is successfully finished, the display will show [PASS].
4. Turn off the power. Disconnect the cable and repeat the sequence to clone the next slave unit.

[Setting: Master side]

1. Press CALL key with FUNC key pressed. CLON.d will be displayed and the radio enters the clone mode.
2. Press PTT. SD*** will be displayed and it starts sending the data into the slave unit.
3. [PASS] will appear on the display when the data is successfully transmitted.
4. The master radio may stay turned on for the next clone. Turn off the unit to exit from the clone mode.

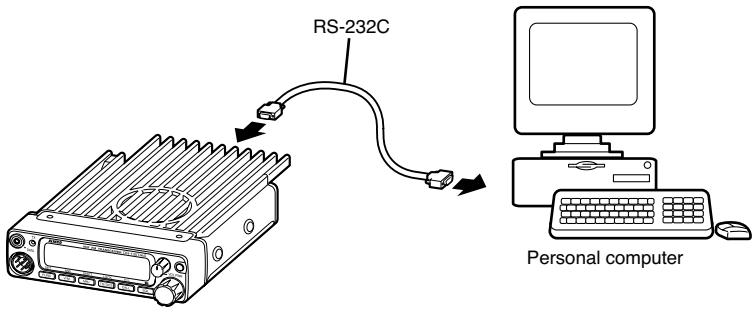
If the data is not successfully transmitted, turn off both units, make sure the cable connection is correct and repeat the entire operation from the beginning.

8. PACKET OPERATION

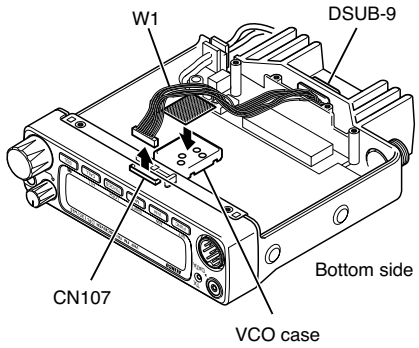
Packet mode is high-speed data communication using a personal computer. The use of a Digital repeater network (Digi-peaters), including satellites, offers communications with distant stations. In order to operate in the packet mode, it is essential that the station is equipped with a personal computer with appropriate packet software, 9 pin RS-232C cable, optional EJ-41U TNC unit or external TNC (terminal node controller). For the operation of the EJ-41U unit or external TNC, please refer to its respective instruction manual.

[To operate packet using EJ-41U]

Configure the radio to a known packet operation frequency.
Install the EJ-41U unit in the transceiver following the instructions below. Use an RS-232C cable and connect it to the DSUB-9 connector on the back of transceiver and the PC.

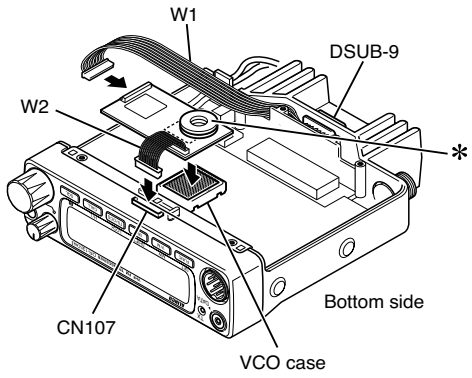


1. Remove the cover. Locate W1 cable on the back of DSUB-9 connector in the unit. Disconnect it and re-connect it to CN1 on the EJ-41U unit.



2. Locate W2 cable on the EJ-41U. Connect it to CN107 on the trasnceiver circuit board.

3. Place the cushion sticker on the VCO shield case (a metal housing on the circuit board).



* To place it on the DR235/435, remove the cushion from the EJ-41U unit and place the cushion that is provided.

Packet Mode Setting

1. Press FUNC key. While F icon is on, press SQL key. [⎍⎍] appears on the LCD display and the transceiver enters packet mode. Repeat the same sequence to exit from packet mode.

2. Use the computer keyboard to send designated commands from your PC to enter the packet network and start operation. Refer to the chart for TNC commands. Use the commands to select between 1200/9600 bps data speed.

Reference:

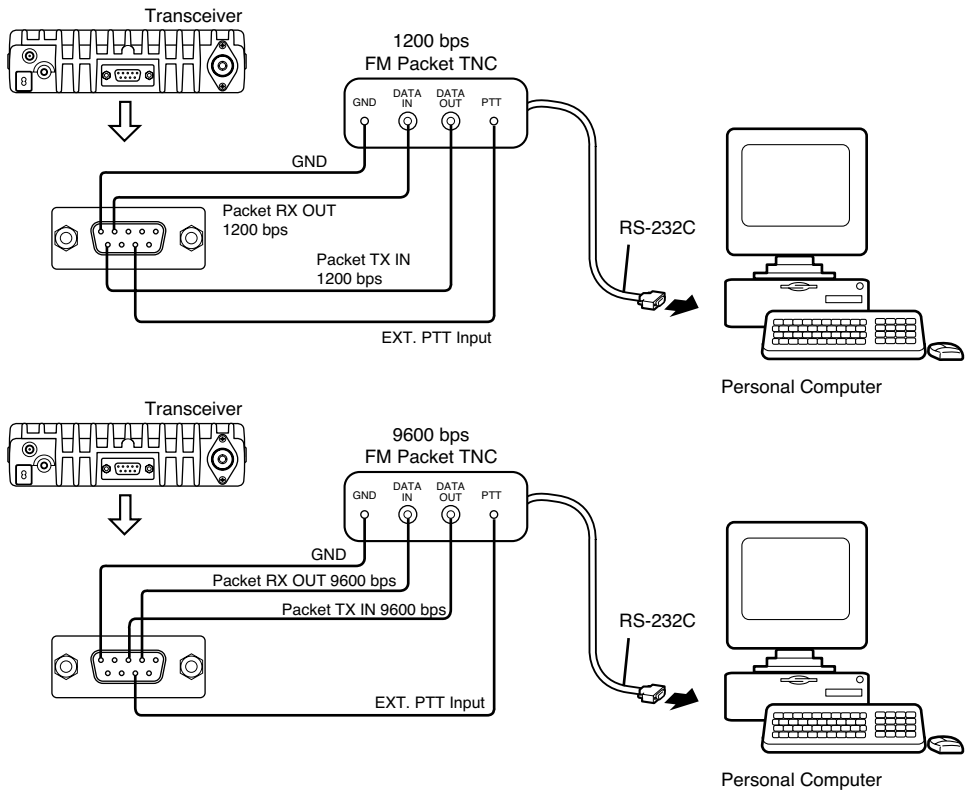
The configuration of EJ-41U is as follows. Please use PC commands to program.

- Data Speed (Transfer Rate) 9600bps (to computer)
- Data Length 8 bit
- Parity Bit none
- Stop bit 1 bit
- Flow Control Xon/Xoff

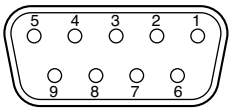
Once the EJ-41U is programmed, the settings are stored in memory even if the unit is removed from the transceiver. Some EJ-41U functions may be limited as compared to those found in an external TNC.

[To operate packet using an external TNC]

Use the DSUB-9 connector to connect the radio and the PC. The pin allocation for the DSUB-9 on the back of the unit is as follows:



1. SQC squelch signal output. Carrier in: closed. Open collector output.
2. Packet reception DATA output (9600bps) output level 500mVrms/10Kohm
3. Packet transmission DATA input (9600bps) input level 300mV/600ohm Max input level 600mV.
4. Packet reception DATA output (1200bps) output level 100mV/600ohm
5. Ground
6. No Connection
7. PTT signal input : Low (GND) : TX, Open: RX
8. 5.0Vdc output: Max current less than 50mA
9. Packet transmission DATA input (1200bps): input level 100mV/600ohm



Pin numbering
looking at rear of radio

•1200bps

Connect Pins 4, 5, 7, 9, and 1 and 8 also depending on the requirement. It enables a conventional 1200bps packet mode.

•9600bps

Connect Pins 2, 3, 5, 7, and 1 and 8 also depending on the requirement.
Press FUNC key, while F icon is on, press SQL. [⎍] appears on LCD and enables 9600bps packet mode.

NOTE:
- **Never connect a PC directly to the DSUB-9 connector if EJ-41U is not installed. It may cause the unit to malfunction.**
- The local system, transmission and reception environment may easily cause troubles in 9600bps packet mode. A connection error may frequently occur unless the communication is established at very high signal strength.
- When the DATA input level is far off from the specification (1200bps=100mVrms/600ohm, 9600bps=400mV/600ohm), it causes poor S/N ratio and distortion, as such the data will not be exchanged properly.
- When the radio is in the data mode (packet/APRS®), selective calling tones such as DCS and CTCSS won't be transmitted.

[To operate APRS®]

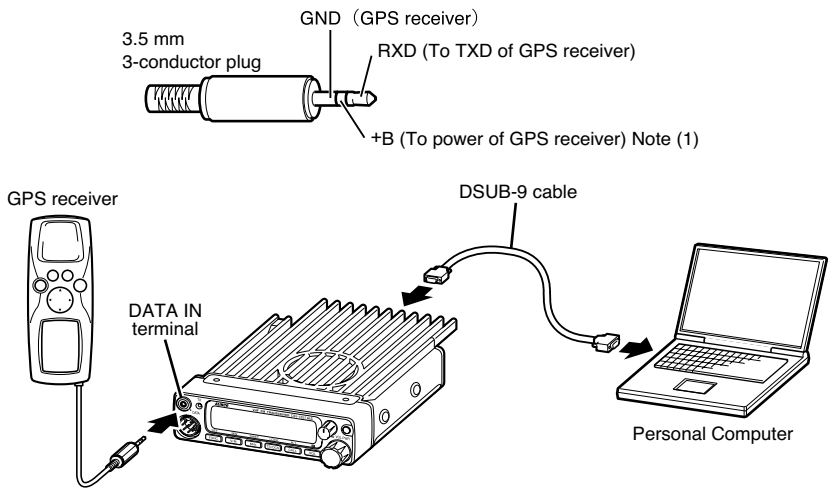
APRS® is a trademark of Mr. Bob Bruninga, WB4APR. Using the designated APRS frequency in your area, and a system composed of the transceiver, EJ-41U (or TNC) a computer and/or a GPS receiver, you may monitor and exchange various geolocating information on the PC and on the internet. Details are available from Internet sites.

The radio is capable of being connected to an EJ-41U (or TNC), PC and GPS receiver. To enjoy APRS operation, a GPS receiver, computer and APRS software are required in addition to the packet (data) operation system previously mentioned. Purchase a NMEA (National Marine Electronics Association) compatible GPS receiver with a data output port.

- Specifications required for the GPS receiver: NMEA-0183, 4800bps/without parity bit/data length 8 bit/ stop bit 1bit

[SET UP]

Please refer to the previous chapter for the set up and installation of the EJ-41U unit, TNC and PC. See below for the connection of a GPS receiver. It requires a 3.5mm stereo plug to connect to the DATA Terminal on the radio's front panel. See the chart for plug connections. Program the EJ-41U by using commands from the PC in the same way as in the packet mode.
The PC can be removed from the transceiver once the EJ-41U is configured. EJ-41U will hold the settings in memory. Repeat configuration only when it is necessary.



Note 1: When the transceiver is set to the PACKET mode, a power output of +4.5V (max. 200mA) is supplied by the transceiver, which can be used to power the GPS receiver.

[APRS Operation]

Boot up the PC and open the APRS software. Tune to the APRS system frequency.
Press FUNC key and while F icon is on press SQL key to enter to the data (APRS) mode. Repeat the same sequence to exit.

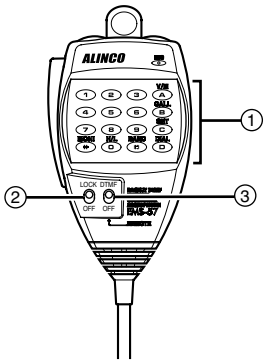
[⎍⎍] appears on the LCD display when the unit is in data (APRS) mode
The PC monitor will display the initial menu of TNC when it enters the APRS mode.

- Set the packet speed in command mode (cmd:). I.e. cmd:HB 1200 and 9600
- Register your call sign cmd:MY xxxxxx
- Set the speed on GPS port cmd:GB4800
- Set the automatic transmission time separation cmd:LOC E 3
- Set the monitoring header option OFF cmd:LTMH OFF
- The transceiver will start transmitting automatically when data is received from the GPS receiver. Refer to the command chart and EJ-41U instruction manual for more details.

Note: Set the transceiver and GPS receiver as far away from each other as possible to minimize possible interference.

9. Remote Control Operation

The transceiver can be controlled remotely by operating the DTMF keys on the microphone. Frequencies can also be entered directly from the microphone.



1. Enter the remote command or the frequency.

2. Press LOCK to prevent the transceiver from accepting remote control inputs from the microphone.

3. To operate remote control, press REMOTE.

[List of Remote Control Keys]

Key	Transceiver corresponding key	Function	Page
0-9	–	Direct frequency input	–
A	V/M	Memory channel access	17
B	CALL	Call channel access	19
C	SET mode	SET mode access (Note 1)	21
D	FUNC+TS / DCS	Auto dialer memory registration (Note 2)	30
*	Press and hold SQL	Monitor function	19
#	–	–	–
0	H/L	Switching transmission output	20

Note 1: To change the set mode menu, press the UP and DOWN keys at the top. To change its contents, press the * and # keys. Press any key other than the * or # key to return to the frequency display.

Note 2: To change the auto dialer memory, press the UP and DOWN keys at the top. The numbers can be entered directly by pressing the numerical keys; the numbers or symbols can also be selected by pressing the * and # keys and entered by pressing the A key. Press C to clear, and the B, D, or PTT key to return to the frequency display.

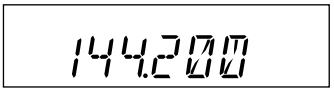
[Entering a frequency directly]

Frequencies can be entered directly by pressing the numerical (1~0) keys.

1. Set the microphone REMOTE / DTMF switch to the REMOTE position.

2. DTMF keys can be used to enter ftom the 100 MHz digit.
(Ex.) When setting 144.20 MHz with the tuning step set to 5 kHz.

Enter ① ④ ④ ② ⓪ ⓪



After entering the sixth digit a slightly longer beep is emitted and the entry is complete.

3. Cancelling an entry before it is completed. Press PTT, or any key other than the numerical keys.

[Entry method depending on tuning step]

Depending on the set tuning step, digit entry may be necessary to the 1 kHz digit. In some cases entry to the 10 kHz digit is sufficient. For cases in which digit entry is only necessary to the 10 kHz digit some digit keys wre not accepted.

The relationshop between the tuning step and input method is as follows.

Tuning step	Entry completion digit	Final digit selection
5.0 kHz 8.33 kHz	1 kHz	Completion after input of the 1 kHz digit.
10.0 kHz	10 kHz	Completion after input of the 10 kHz digit.
12.5 kHz	10 kHz	When you input the 10 kHz digit, the 1 kHz digit set as follows. 0···00.0, 1···12.5, 2···25.0, 3···37.5, 4···invalid 5···50.0, 6···62.5, 7···75.0, 8···87.5, 9···invalid
15.0 kHz	10 kHz	Completion after input of the 10 kHz digit.
20.0 kHz	10 kHz	Completion after input of the 10 kHz digit.
25 kHz	10 kHz	When you input the 10 kHz digit, the 1 kHz digit set as follows. 0···00.0, 2···25.0, 5···50.0, 7···75.0, Other entries are invalid.
30 kHz	10 kHz	When you input the 10 kHz digit, the 1 kHz digit set as follows.
50 kHz	10 kHz	When you input the 10 kHz digit, the 1 kHz digit set as follows. 0···00.0, 5···50.0

10. Maintenance / Reference

Reset

Resetting the transceiver returns all programmed contents to their factory default setting.
If any problems persist, resetting may overcome them and return the transceiver to normal operation.

Reset Procedure

While holding the FUNC key down, turn the power on.
All segments of the LCD will be displayed, then default settings are displayed.

All LCD segments

Note: Take special care when resetting because all settings are initialized.

Factory Default Settings

	DR-135TMKⅡ
VFO frequency	145.00 MHz
CALL frequency	145.00 MHz
Memory channel 0-99	-
Offset direction	-
Offset frequency	600 kHz
Channel step	5 kHz
Tone setting	-
Tone frequency	88.5 Hz
DCS setting	-
DCS code	023
Output power	HI
Keylock setting	OFF
TOT	OFF
APO	OFF
Squelch level	0

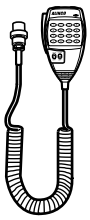
Trouble Shooting

Please check the list below before concluding that the transceiver is faulty.
If a problem persists, reset the transceiver. This can sometimes correct erroneous operation.

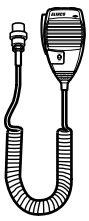
Problem	Possible Causes and Potential Solutions
(a) Power is on nothing appears on Display.	+ and - polarities of power connection are reversed. Connect red lead to plus terminal and black lead to minus terminal of DC power supply.
(b) Fuse is blown.	Check and solve problem resulting in blown fuse and replace fuse with new fuse.
(c) Display is too dim.	Dimmer setting is "LAMP-L". Please make the dimmer setting "LAMP-H".
(d) No sound comes from speaker.	• Squelch is muted. Decrease squelch level. • Tone or DCS squelch is active. Turn CTCSS or DCS squelch off.
(e) Key and Dial do not function.	Key-lock function is activated. Cancel Key-lock function.
(f) Rotating Dial will not change memory channel.	Transceiver is in CALL mode. Press the VFO or memory mode.
(g) PTT key is pressed but transmission does not occur.	• Microphone connection is poor. Connect microphone properly. • Antenna connection is poor. Connect antenna properly.
(h) The unit does not transmit and cannot be reset.	The DSUB-9 port has been connected to a PC without installing the EJ-41U. Disconnect the cable and install EJ-41U properly.
(i) The unit does not work in the packet mode.	• EJ-41U/TNC is not set properly. Make sure the connections and configurations are properly set. • The unit is not in the data mode. Follow the instruction, configure and retry. • The squelch is open. Adjust squelch level properly. • The data transmission speed is not configured. Use command to configure the speed. • The cable is not straight type. Use straight RS-232C cable.
(j) The unit does not work in the APRS mode.	• The unit is not in the data mode. Make sure the connections and parameters are configured properly. • The unit is not configured for automatic transmission. Use PC to configure the TNC. • The squelch is open. Adjust squelch level properly. • GPS receiver is not receiving the data from the satellites. Wait until GPS receiver receives data from satellites.

11. Optional accessories

• EMS-57 DTMF microphone



• EMS-53 Microphone



• EDC-36 Cigar-plug cable with filter

(for Cigar-plug connection. Recommended in case other Alinco handheld transceivers may be used in the vehicle, as this cable can also power the handheld units. See its manual for compatibility)

• EDC-37 DC cable

(for ignition key ON/OFF system: for direct connection to ACC terminal circuit)

• EJ-41U TNC unit

• EJ-47U Digital unit

12. Specifications

General		**DR-135TMKⅡ**
Frequency range		TX144-147.995 MHz RX118-135.995 MHz (AM) 136-173.995 MHz
Operationg mode		16K0F3E (FM) /8K50F3E (Narrow-FM), F1, F2
Frequency resolution		5, 8.33, 10, 12.5, 15, 20, 25, 30, 50 kHz
Memory channel		100 channels + 1call channel
Ant. impedance		50 ohm unbalanced
Frequency stability		+/- 2.5 ppm
Microphone impedance		2 k ohm
Rated voltage		13.8 VDC +/-15% (11.7-15.8V)
Current	Transmit	approx. 11.0 A
	Receive	approx. 600 mA (Max) 400 mA (Squelched)
Operating temperature		-10 ˚C - +60 ˚C (+14 ˚F - +140 ˚F)
Ground		Negative ground
Dimensions		142(W) x 40(H) x 174(D) mm (5.58"(W) x 1.57"(H) x 6.83"(D))
Weight		Approx. 1.0 kg (35.3oz)
Transmitter		
Power output		50W (HI) 10W (MID) Approx. 5W (LOW)
Modulation		Variable reactance
Spurious emission		-60 dB or less
Maximum frequency deviation		+/-5 kHz / +/-2.5 kHz (Narrow mode)
Receiver		
Circuitry		Double-conversion superheterodyne
Sensitivity		-12.0 dBu (0.25 uV) or less (12 dB SINAD)
Intermediate frequency	1st IF	21.7 MHz
	2nd IF	450 kHz
Squelch sensitivity		-16.0 dBu (0.1uV)
Selectivity (-6 dB)		12 kHz or more / 6 kHz or more (Narrow mode)
Selectivity (-60 dB)		28 kHz or less / 16 kHz or less (Narrow mode)
Audio output		2.0 W (8 ohm, 10% distortion)

Note : All specifications are subject to change without notice or obligation.

Appendix

TNC Commands List

The commands supported by the built-in TNC are list below. You must enter a space between a command name (or short-form) and a parameter, or between two parameters; ex.AU OFF.

Command Name	form Short	Default	Parameters	Description
AUTOLF	AU	ON	ON/OFF	When ON, sends a line feed (LF) to the PC after each carriage return (CR).
BEACON	B	EVERY 0	EVERY/ AFTER n (n=0 - 250)	If set to EVERY, sends a beacon packet at intervals of the specified period (n). If set to AFTER, sends a beacon packet only once after the specified period (n). The unit of n is 10 seconds.
BTEXT	BT	-	0 - 159 characters	Specifies the content of the data portion of a beacon packet.
CALIBRAT	CAL	-	-	Sends a space/mark square wave (50/50 ratio). Enter Q to exit Calibrate mode and restore the Command mode.
CHCAK	CH	30	0 - 250	Specifies the interval from signal drop-out until execution of disconnection. The unit of the parameter is 10 seconds.
CONNECT	C	-	Call1 (VIA call1, call3, ...call9)	Sends a connect request. Call 1 is the call sign of the station to be connected to. Calls 2 to call 9 are call signs of stations to be digipeated through.
CONVERSE	CONV or K	-	-	Causes the TNC to enter Converse mode. Press [Ctrl]+[C] to restore the Command mode.
CPACTIME	CP	OFF	ON/OFF	When ON and in Converse mode, sends a packet at intervals of the period determine by PACTIME
CR	CR	ON	ON/OFF	When ON, appends a carriage return (CR) to all packets to be sent.
DISCONNE	D	-	-	Sends a disconnect request.
DISPLAY	DISP	-	-	Causes the TNC to display the current status of all the commands. You can also specify a class identifier A, C, H, I, L, M, or T to display the status of only the desired command class. Enter a space between the command name and a class identifier; ex. DISPLAY H. A (ASYNC): RS-232C port parameters. C (CHAR) : Special TNC characters. H (HEALTH): Counter parameters. I (ID): ID parameters. L (LINK): TNC-to -TNC link status. M (MONITOR): Monitor parameters. T (TIMING): Timing parameters.
DWAIT	DW	30	30	Specifies the interval from no carrier detection until execution of transmission. The unit of the parameter is 10 milliseconds.
ECHO	E	ON	ON/OFF	When ON, causes the TNC to echo received characters to the computer.

Command Name	form Short	Default	Parameters	Description
FIRMRNR	FIR	OFF	ON/OFF	The other station sends a notice (packet) to you if it is not ready to receive data. When ON, receiving such a notice causes the TNC to suspend transmission until it receives a “ready” notice.
FLOW	F	ON	ON/OFF	When ON, starting key entry causes the computer to stop displaying received packets.
FRACK	FR	3	0 - 250	Specifies the interval from one transmission until retry of transmission. The unit of the parameter is 1 second.
GBAUD	GB	4800	4800/9600	Selects 4800 or 9600 bps as the transfer rate between the TNC and the GPS receiver.
GPSSEND	GPSS	-	0 - 159 characters	Specifies the content of the data to be output to the GPS receiver; this data is used to pro gram the default settings on the receiver. The output data is not stored in memory.
GPSTEXT	GPST	$PNTS	0 - 6 characters	Specifies the type of a message to be determined by LTEXT.
HBAUD	HB	1200	1200/9600	Selects 1200 or 9600 bps as the transfer rate between packet stations.
LOCATION	LOC	EVERY 0	EVERY/ AFTER n (n = 0 - 250)	If set to EVERY, sends GPS data at intervals of the specified period (n). If set to AFTER, sends GPS data only once after the specified period (n). The unit of n is 10 seconds.
LPATH	LPA	GPS	Call1 (VIA call2, call3, ... call9)	Specifies calls signs to send GPS data. Call 1 is the call sign of the destination. Call2 to call9 are call signs of stations to be digipeated through.
LTEXT	LT	-	0 - 159 characters	Specifies the content of a message to be included in GPS data.
LTMON	LTM	0	0 - 250	Specifies the interval for displaying a message determined by LTEXT on the screen; a message appears like a received beacon packet. The unit of the parameter is 1 second.
MCOM	MCOM	OFF	ON/OFF	When ON, causes the TNC to also monitor control packets. When OFF, causes it to monitor only information packets.
MCON	MC	OFF	ON/OFF	When ON, causes the TNC to monitor other stations while in connection with the target station.
MONITOR	M	ON	ON/OFF	When ON, causes the TNC to monitor packets.
MRPT	MR	ON	ON/OFF	When ON, causes the TNC to display the entire digipeat list for monitored packets.
MYCALL	MY	NOCALL	6 characters +SSID	Specifies your call sign.
PACLEN	P	128	0 - 255	Specifies the maximum length of the data portion of a packet.
PACTIME	PACT	AFTER 10	EVERY/ AFTER n (n = 0 - 250)	If set to EVERY, sends a packet at intervals of the specified period (n). If set to AFTER, sends a packet only once after the specified period of (n). The unit of n is 100 milliseconds.
PERSIST	PE	128	128	Specifies a parameter to calculate probability for the PERSIST/SLOTTIME method.
PPERSIST	PP	ON	ON	Causes the TNC to use the PERSIST/SLOTTIME method when ON, or the DWAIT method when OFF.

Command Name	form Short	Default	Parameters	Description
RESET	RESET	-	-	Restores the default status for all the commands.
RESPTIME	RES	5	5	Specifies the acknowledgement packet transmission delay. The unit of the parameter is 100 milliseconds.
RESTART	RESTART	-	-	Causes the TNC function as if it is switched OFF then ON.
RETRY	RE	10	10	Specifies the number of transmission retries. If packets are not correctly accepted while connected, a connect request is sent again after the specified number of retries.
SENDPAC	SE	$0D	$0D	Specifies a character that forces a packet to be sent.
SLOTTIME	SL	3	3	Specifies the period of random number generation intervals for the PERSIST/SLOTTIME method. The unit of the parameter is 10 milliseconds.
TRACE	TRAC	OFF	OFF	When ON, causes the TNC to display all received packets in their entirety.
TRIES	TRI	0	0	Specifies the number of transmission retries programmed in the retry counter.
TXDELAY	TX	50	50	Specifies the time delay between PTT ON and start of transmission. The unit of the parameter is 10 milliseconds.
UNPROTO	U	CQ	CQ	Specifies call signs to send a packet in Unprotocol mode. Call 1 is the call sign of the destination. Call2 to call9 are call signs of stations to be digipeated through.
XFLOW	X	ON	ON	Causes the TNC to perform software flow control when ON, or hardware flow control when OFF.

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