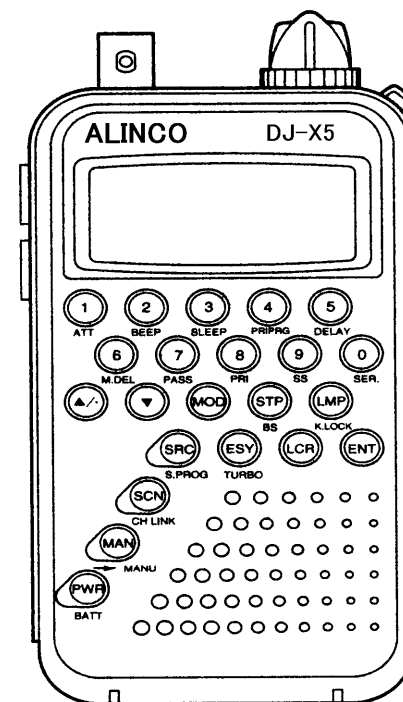


ALINCO

DJ-X5 Palm size wide band RF wave monitor



DJ-X5 Operating Manual

ALINCO, INC

TWIN21 MID Tower building 25F
1-61, 2-Chome, Shiromi, Chuo-ku, Osaka, 540-8580
Phone: 06-6946-8150 Fax: 06-6946-8175

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Thank you for purchasing the Trident Brand DJ-X5 wide band monitoring receiver.

Please read this operating manual carefully to avoid miss operation of the receiver. The DJ-X5 is carefully designed but like all receivers the DJ-X5 can suffer from a degree of self-oscillation known as "birdies". These are from the nature of super heterodyne circuit and do not represent a fault.

NOTE: Where the text is described in [SQUARE BRACKETS] the keys are to be pressed exactly as shown.

For example: [8] [0] [0] [ENT]

This means press the numeric key 8, followed by the 0, key followed by the 0 key, followed by the [ENT] key.

The arrow key to the lower left of the keypad are referred to as [UP] [DOWN] keys.

The function key [FUNC] provides access to additional facilities via the numeric keypad. This key should be momentarily pressed only before another numeric key is pressed. Do not hold the key in while pressing other keys.

[PWR] Power switch: To turn on DJ-X5 press and hold the [PWR] key for more than 1.0 second.

Power requirement: DJ-X5 can be operated from either 1) AA size Ni-Cad. battery x 3, 2) AA size dry cell battery x 3 or 3) external DC supply of 9 to 14 VDC, 300mA or by using the provided DC connecting lead. The DC input socket is 1.3mm, center positive.

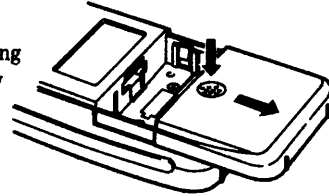
CAUTION: Do not attempt to connect the DJ-X5 directly to the mains supply.

Very carefully note the polarity of the battery cells. Also never attempt to charge the receiver or connect to an external power source when dry batteries are installed. Always remove dry batteries when they have run down. Do not have batteries in the battery compartment when the DJ-X5 is not being used for a long period of time, remove the batteries to avoid leakage.

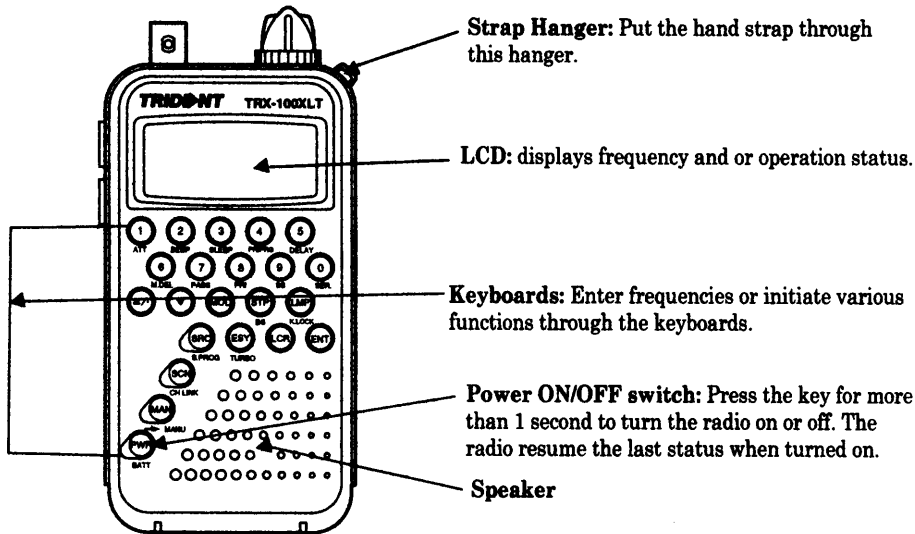
All memory channel data is stored into internal EEPROM which does not require batteries or connection to external supply for memory backup. Always turn off the DJ-X5 whenever radio is not in use. Particularly turn it off while Charging.

HOW TO PUT BATTERIES INTO THE BATTERY COMPARTMENT

1. While pressing the round shaped point as illustrated slide the cover downward to open the compartment.
2. Put AA size batteries (3pcs) into the compartment according to the [+] and [-] markings engraved inside of each battery cradle.
3. Slide the cover back until it closes firmly with "click".



CONTROLS, CONNECTORS AND FUNCTIONS

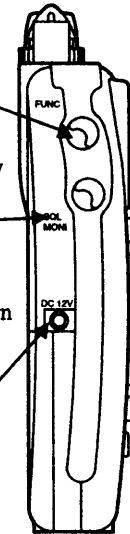


SIDE VIEW OF DJ-X5

Function [FUNC] key: To initiate second function of various keys. When this key is pressed, DJ-X5 goes into function mode and [F] is displayed on LCD and you are ready to press a 2nd function key while this [F] is displayed.

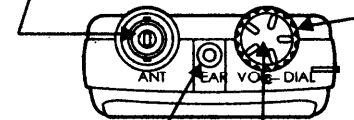
Squelch monitor [SQL MONI] key: To initiate monitor function (receive a signal regardless of squelch level) press a second time to turn the function off. To adjust squelch level, press [FUNC] key and then press [SQL MONI] key while [F] is displayed on the LCD.

DC 12V socket: This is the socket for external DC power supply or to charge Ni-Cad. batteries when these are fitted inside of the battery compartment.



TOP PANEL

Antenna Connector: This is a high quality BNC 50 ohm unbalanced input. The supplied rubber whip antenna should be connected to this input.

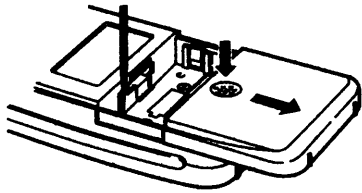


Volume control: When rotated fully clockwise the audio volume is at its maximum and minimum level at fully counter-clockwise.

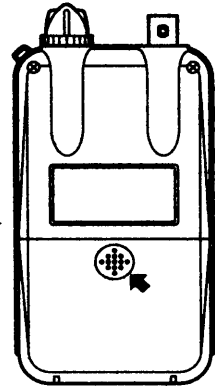
Tuning control/selector: this dial changes the receive frequency up and down in the selected frequency increment and also operates as a "selector" when entering certain data through the LCD menus. Being a mechanical data device, it is not uncommon for operation to be occasionally missed and this does not represent a fault.

Earphone socket/RS232C serial port: this 3.5mm stereo socket permits connection to an external earphone, headset or speaker of 8 ohm impedance or greater. When the earphone socket is used, internal speaker will automatically be muted. This can also be used as RS232C serial data port, making the DJ-X5 capable of being connected to the RS232C serial port of a personal computer. The PC connection serial cable is optional and PC control software is available at our home page.

BACK PANEL

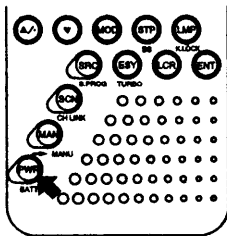


Reset Switch: To restore the DJ-X5 to initial factory set status, press the switch using a needle or similar pointed object as illustrated.



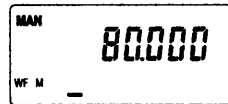
Battery compartment: This is for the AA size batteries (3), slide the cover downward to open the compartment.

BASIC OPERATION



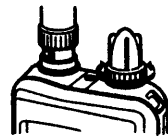
TURNING ON THE DJ-X5

Keep pressing the [PWR] key for more than 1 second. The LCD displays as illustrated when you turn the radio on for the first time.



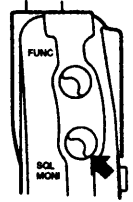
ADJUSTMENT OF AUDIO VOLUME

When you are receiving a signal, rotate the volume control in a clockwise direction to increase the audio volume and rotate counter clockwise to decrease it.



With no signal

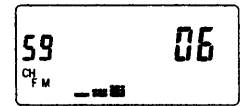
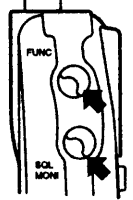
Press [SQL MONI] key to monitor noise, when no signal is received, to adjust audio volume to appropriate level



ADJUSTMENT OF SQUELCH LEVEL

Squelch control is to eliminate unwanted background noise when monitoring a normally inactive frequency.

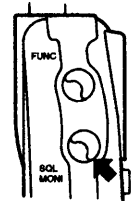
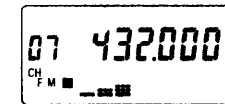
Press [FUNC] key located on the left hand side of the DJ-X5 and then press [SQL MONI] key just beneath the function key to put the DJ-X5 in squelch adjustment mode and rotate the dial clockwise until background noise just disappears (threshold point), this is the most sensitive setting of the control. In practice the control is usually rotated a little further clockwise beyond the threshold point to prevent the receiver from stopping on noise or very weak signals. Squelch level selected is displayed on LCD in 00 to 16 level. 08 is factory set level. Press [ENT] key to save the squelch level setting.



MONITORING FUNCTION

You can monitor weaker signal level than squelch setting by using [SQL MONI] key.

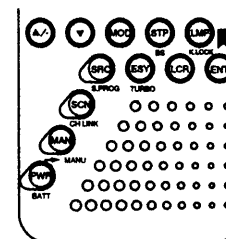
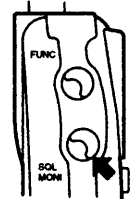
Press [SQL MONI] key to put DJ-X5 into monitoring mode. [S] is displayed on the LCD.



In monitoring mode, the squelch level is virtually 00 and therefore the weakest signal can be monitored. If there is no signal coming in, white noise can be heard. Press [SQL MONI] key again to disable monitoring function

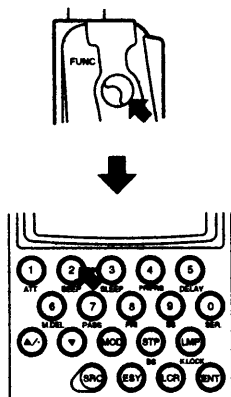
BACK ILLUMINATION FOR NIGHT USE

This key is to toggle the LCD and keypad lamp on and off. If the [LMP] is pressed, LCD lamp and key keypad illumination will be turned on for about 5 seconds.



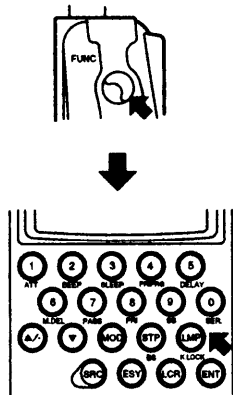
BEEP

The sequence [FUNC]+[2/BEEP] toggle the beep sound ON or OFF.



KEY LOCK

The sequence [FUNC]+[LMP/K.LOCK] puts the DJ-X5 into key lock mode to prevent accidental operation of the keypad.

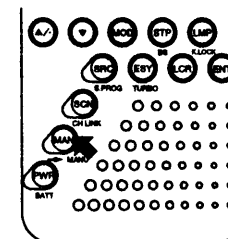
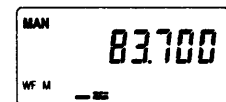


VARIOUS OPERATIONS AND FUNCTIONS

MANUAL FREQUENCY TUNING

This is to receive active signals by changing receiving frequencies manually.

1. Press [MAN] key to place the DJ-X5 in manual mode to display current selected frequency on the LCD. Factory setup is manual mode.



2. Press [MAN] key again to start scanning from the displayed frequency. Press [MAN] key again to stop scanning. While the DJ-X5 is not scanning, you can tune receiving frequencies by either a) rotating the multifunction dial on the top panel or b) pressing [UP] [DOWN] keys.

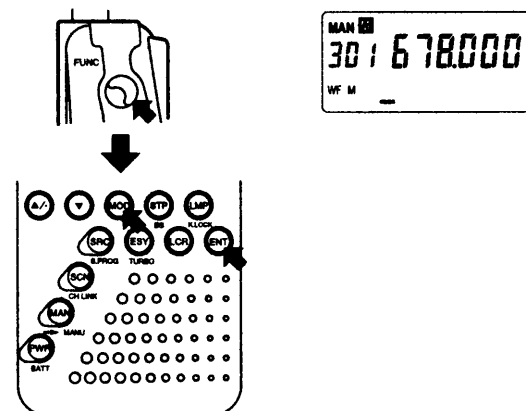
MEMORY SCANNING

Basic function of memory scanning is to store frequencies and scan these stored frequencies to see if these are active or not. First of all, you need to store or memorize commonly known frequencies according to frequency data books available at many of the ham radio shops or new frequencies found during search operation (on which we will discuss later) into memory channels. Each frequency is numbered and can be stored to certain designated bank.

Each bank holds 100 channels and there are 10 banks available for memory scanning, giving a total of 1,000 channels.

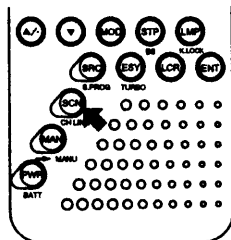
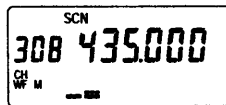
STORE A FREQUENCY

1. Enter a frequency from numeric keys to display the frequency to be stored, on LCD.
2. Press [FUNC]+[MOD/M WRI] key to place the radio into "memory write" mode. Enter a channel number 000 through 999. First digit is the bank number followed by [ENT] key



START SCAN

1. Press the [SCN] key. LCD displays memory scan status.
If there is no channel data stored in the selected memory channel, [no ch] is display on LCD.

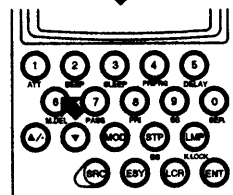
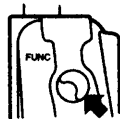
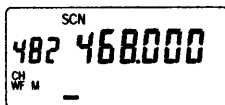


2. Rotate the dial or press [UP] or [DOWN] keys to change channel number. Default factory set up is 0 channel.
3. Press [SCN] key again to start scanning, [SCN] is displayed on the LCD. Press [SCN] key again to stop scanning. While the radio is not scanning, you can tune the channel number by either rotating the dial or pressing [UP] or [DOWN] keys. While scanning, you can change the scanning bank by pressing bank number 0 through 9 from the numeric keypad.

Note: To hold the channel of an active signal being received and move to manual mode, press [FUNC]+[MAN/ MANU] key.

DELETE A STORED FREQUENCY

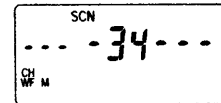
1. Press [SCAN] key and memory scan status is displayed on LCD.
2. Rotate the dial or press [UP] [DOWN] key to change channel number and locate the channel number with frequency you would like to.
3. Press [FUNC] + [6/M DEL] key to delete the frequency of selected channel number.



HOW TO LINK MEMORY SCAN BANKS

You can perform a memory scan of either one particular bank or linked multiple banks.

1. Press [SCN] and memory scan status is displayed on LCD.
2. Press [FUNC] + [SCN/CH LINK] keys and bank link status is displayed on LCD.



Press the bank numbers you would like to link together from numeric keys, 0 through 9. For example, if you would like to link bank numbers 1, 5 and 7, press [1] [5] and [7]. When you want to delete certain linked banks displayed on the LCD, press the bank numbers displayed on LCD. For example, if you would like to delete bank number 3 and 4 from linked scanning schedule, press [3] and [4].

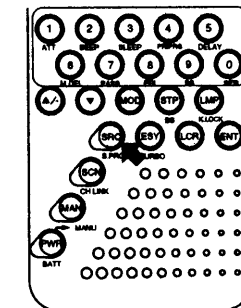
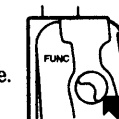
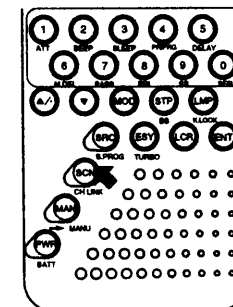
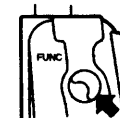
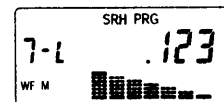
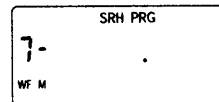
Press [ENT] to confirm the links.

SEARCH

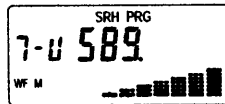
Basic operation for searching is to store a lower limit frequency and an upper limit frequency per one search bank and sweep the programmed frequency range to find unknown active frequencies in that programmed range.

STORE A SEARCH PAIR TO A SEARCH BANK

1. Press [FUNC] + [SRC] key. Search program status is displayed on the LCD.
2. Enter search bank number from numeric keys, 0 through 9 where you wish to store upper and lower frequency limits
3. Press [ENT] key to confirm the selection.
4. Store lower limit frequency from numeric keys [0] through [9] followed by the [ENT] key.



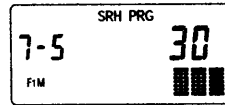
- Store upper limit frequency from the numeric keys through [0] to [9] followed by the [ENT] key.



- Select the receiving mode by rotating the multifunction dial. Receiving mode can be selected in order from WF to A to AM to FM to WF. And press [ENT] key to confirm your receiving mode selection.



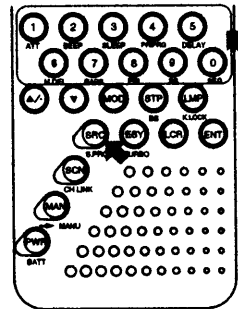
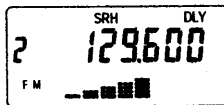
- Select the frequency increment to be used in the search program by rotating multifunction dial or by pressing [UP] or [DOWN] key to confirm your frequency increment selection.



NOTE: Selection of frequency increments may vary according to the receiving mode selected in procedure 6.

TO START SEARCH

- Press [SRC] key. DJ-X5 resume searching in the last bank. Default factory setting is bank 0 if there is no program data in the selected bank [no ch] is displayed on LCD.
- Press numeric keys from [0] to [9] to select the bank. TRX-100XLT starts scanning at the selected bank within the frequency range programmed.



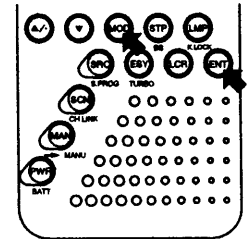
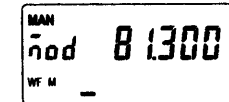
- If selected bank does not have memory data stored, [no ch] is displayed on the LCD and the radio will go to a lower channel number with data stored. While the radio is not scanning, you can tune receiving frequencies by either a) rotating the multifunction dial on the top panel or b) press [UP] [DOWN] key.

NOTE: To hold the channel of active signal being received and move to manual mode, press [FUNC] + [MAN/ MANU] keys.

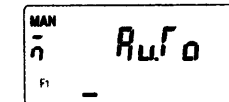
RECEIVING MODE SELECTION

DJ-X5 has 3 receiving modes, i.e. wide band FM (WFM), narrow band FM (FM) and AM (AM). And in manual mode, auto mode is also available, which selects appropriate receiving mode according to the receiving frequency selected.

- Press [MOD] key to put the DJ-X5 into mode selection.



- Rotate the multifunction dial or press [UP] or [DOWN] to display the mode. Receiving modes will be displayed in order of WF - A - AM - FM - WF. A stands for auto mode selection

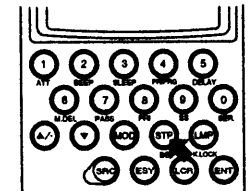


- Press [ENT] key to confirm your selection.

CHANGING FREQUENCY STEPS

Frequency step is an increment used for tuning a receiving frequency by rotating multifunction dial or pressing [UP] or [DOWN] key.

- Press [STP] key and LCD displays currently selected step.
- Rotate the multifunction dial or press [UP] or [DOWN] key to select a step to use.
- Press [ENT] to confirm the selection.



NOTE: Available frequency increments may vary according to the receiving mode you have currently selected.

FREQUENCY BAND SCOPE FUNCTIONS

This function is to display a signal strength of 9 consecutive frequencies in manual and search mode, and 9 consecutive channels in memory scan mode. Center bar is for the frequency displayed on the LCD in manual or search mode and the frequency of the channel displayed on LCD in memory scan mode.

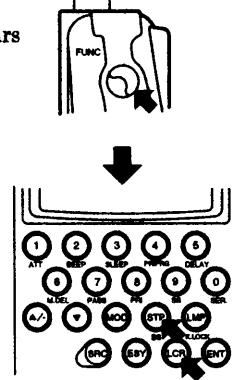
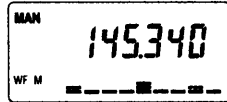
Update duration can be programmed from 1 second to 10 seconds.

1. Press **[FUNC] + [STP/BS]** key to display 9 signal strength bars for band scope function. Center bar is signal strength of the signal currently received.



2. Select band scope update duration of 1 second to 10 seconds by rotating the multifunction dial or by pressing **[UP]** or **[DOWN]** key.

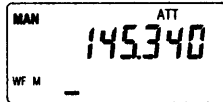
3. Press **[ENT]** key to confirm the selection made and return to receiving mode.



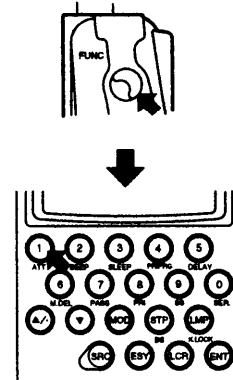
ATTENUATOR FUNCTION

This is to attenuate receiving signals by approximately 10dB to protect the receiver from nearby strong signals.

1. Press **[FUNC] + [1/ATT]** key. 10dB attenuator is turned on and **[ATT]** is displayed on



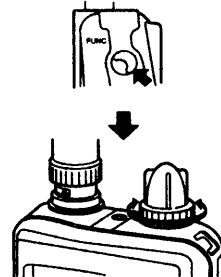
2. Press **[FUNC] + [1/ATT]** key again to turn off the function.



FAST UP AND DOWN

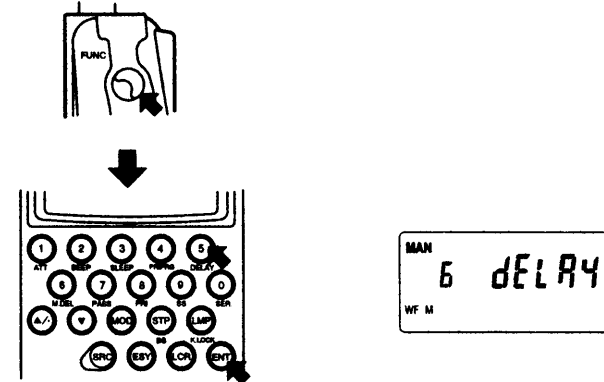
This is to ascend or descend frequencies in 1MHz increment.

1. Press **[FUNC]** key and **[F]** is displayed on the LCD. While **[F]** is displayed, you can ascend or descend frequencies in 1MHz increment. This function is only available in manual mode. You can also ascend or descend frequencies by pressing **[UP]** or **[DOWN]** keys.



DELAY DURATION SET UP

This is to set up the duration of the "DELAY" function. The DELAY is the time between the squelch closing and the start of scanning or searching. The duration can be programmed from 0 (NO DELAY) through 10 seconds.

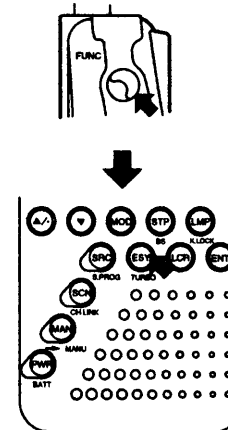


The value may be changed by rotating the multifunction dial or by pressing the **[UP]** or **[DOWN]** keys followed by the **[ENT]** key to confirm your selection

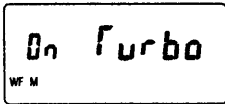
If you do not need the "DELAY" function, select 0 which holds the frequency only when the squelch is opened even after active signal has gone or unless you resume scanning or searching manually.

HIGH SPEED SWEEPING (TURBO)

This is to accelerate scanning or searching sweep speed by up to 2 times faster than normal mode. This is available in manual mode, memory scan mode and search mode.



1. Press **[FUNC] + [ESY/TURBO]** key to turn on this function and **[ON Turbo]** is displayed on LCD for one second.



2. Press same key sequence to go back to normal speed and **[OFF Turbo]** is displayed on LCD for a second.

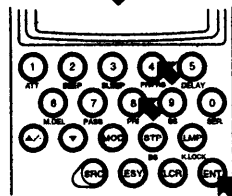
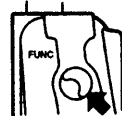
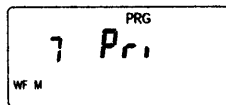
PRIORITY CHANNEL MONITORING

The key is used to set the priority frequency, select sampling duration.

CAUTION: In order to use priority function, band scope function must be turned off. To do this, press [FUNC] + [STP/BS] to display band scope update time setting menu and press the [CLR] key.

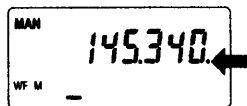
PRIORITY FUNCTION CAN NOT BE USED ALONG WITH BAND SCOPE FUNCTION.

1. In manual mode and search mode, display the frequency you want to use as priority monitoring function and press **[FUNC] + [4/PRI/PRG]** so that priority sample duration setup menu is displayed on the LCD.



2. The sampling duration of 1 second through 20 seconds can be selected by rotating the multifunction dial or by pressing **[UP] [DOWN]** keys, followed by the **[ENT]** key to confirm your selection. If you would like to put priority function on a certain frequency stored in a memory scan channel, display that channel and proceed with the same sequence.

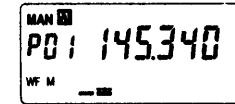
To start priority monitoring press **[FUNC] + [8/PRI]** key. **[Pri]** is displayed on the LCD for one second and disappear. To indicate that the DJ-X5 is in priority monitoring function, last decimal point of KHz is turned on and is always displayed.



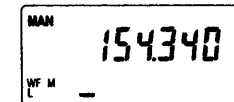
To turn off the priority monitoring, press **[FUNC] + [8/PRI]** key so that last decimal point for KHz is turned off to indicate that DJ-X5 is not in the priority monitoring mode.

FREQUENCY LOCKOUT FUNCTION IN MANUAL AND SEARCH MODE

Up to 50 frequencies not of current interest such as continuous burst of noise, birdies, non-modulated continuous transmission or, for other reason, may be locked out. Display the frequency on the LCD and press **[FUNC] + [7/PASS]**. Frequency lockout menu is displayed on LCD along with the frequency to be locked out.



Press **[ENT]** key to store the frequency, up to a maximum of 50 channels of lockout storage and **[L]** is displayed just beneath receiving mode selection area to indicate that the frequency is locked out. As you increase lockout frequency, storage number advances.



To unlock the locked out frequency, press **[FUNC] + [7/PASS]** key sequence to display the unlock function menu. Press **[CLR]** key so that you can select the frequency to unlock by rotating the multifunction dial or by pressing **[UP]** or **[DOWN]** keys. Select frequency to unlock and press **[0]** key to unlock the frequency.

CHANNEL LOCKOUT FUNCTION IN MEMORY SCAN MODE

All 1000 memory channels (if these are not of current interest) can be locked out. Display the channel number and frequency to lock out on LCD and press **[FUNC] + [7/PASS]**. **[L]** is displayed just beneath receiving mode selection area to indicate that the channel is locked out from the scanning schedule.

CAUTION: DO NOT PRESS [ENT] KEY. AS SOON AS [L] IS DISPLAYED THAT CHANNEL IS ALREADY LOCKED OUT.

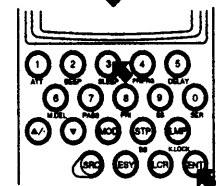
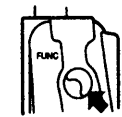
To unlock the locked out channel, stop scanning (make sure **[DLY]** is not displayed on LCD. If **[DLY]** is displayed on LCD, the radio does not display locked out channel) by pressing **[SCN]** if you are currently sweeping. By rotating multifunction dial or pressing **[UP]** or **[DOWN]** keys, find the locked out channel to unlock. **[L]** indicates that the channel is locked out.

Press **[FUNC] + [7/PASS]** key sequence to unlock that channel from locked out status. **[L]** will now disappear to indicate the channel is now in the scanning schedule.

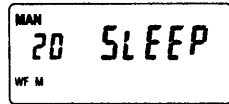
AUTO POWER OFF FUNCTION

DJ-X5 may be turned off after a prescribed time period.

1. To enable the sleep timer, press **[FUNC] + [3/SLEEP]**. Sleep timer menu is displayed on the LCD. The number displayed on LCD is the sleep timer period in "minutes", which can be set from 10 minutes to 120 minutes in 10 minute increments.



2. Rotate the multifunction dial or press [UP] or [DOWN] keys to select time period to go off and press [ENT]

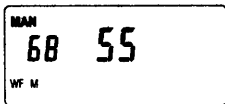


3. To turn off the sleep timer, press [FUNC] + [3/SLEEP] and press [CLR] key.

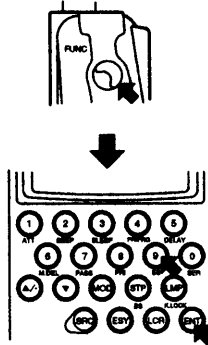
SCRAMBLER FUNCTION

DJ-X5 is equipped with a de-scrambler to decode phase inverted type scrambled audio signals.

1. Press [FUNC] + [9/SS] key sequence to display demodulation menu.
2. Rotate the multifunction dial or press [UP] + [DOWN] keys to select best decoding resolution. 1 - 82 levels of demodulation frequencies are available

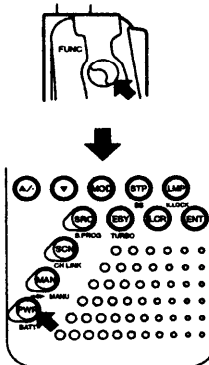
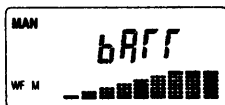


3. Press [ENT] key to store that level setting or press [CLR] to cancel de-scramble function.



BATTERY LEVEL INDICATOR

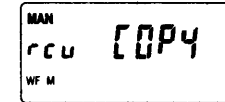
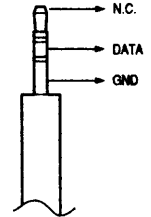
A simple 2 key stroke of [FUNC] + [PWR/BATT] displays current battery discharge level for about 2 seconds and then resumes previous status. Replace dry cell batteries or charge Ni-Cads batteries when the level is low.



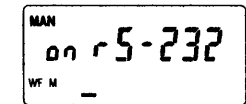
CLONING FUNCTION

It is possible to duplicate all the data from one DJ-X5 to another DJ-X5. The optional interface cable is required. Please refer to the manual of this interface cable for the detailed information.

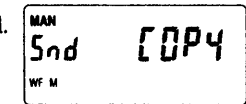
1. Connect 2 DJ-X5 together via the optional cloning cable with 3.5mm stereo plugs both ends.
2. press [FUNC] + [0/SER] keys to display cloning menu on the LCD of both DJ-X5.
3. On the data receiving DJ-X5, rotate multifunction dial or press [UP] or [DOWN] key to select [rcv COPY] as illustrated.



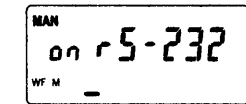
4. Press the [ENT] key on the receiving unit, this is now ready to receive data.



5. On the data sending DJ-X5, rotate multifunction dial or press [UP] or [DOWN] key to select [Snd COPY] as illustrated.



6. Press [ENT] key at data sending unit to start sending data to data receiving unit.

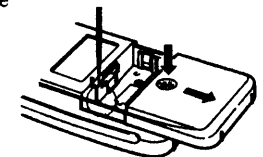


RESET FUNCTION

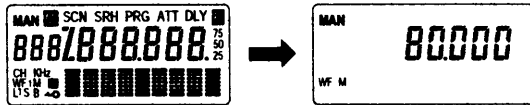
3 different reset functions are available to cure CPU malfunction.

RESET DJ-X5 TO DEFAULT FACTORY SETTING.

1. Connect DJ-X5 to an external DC power supply via the DC 12V socket located antenna side of the DJ-X5 and turn on the DJ-X5.
2. Take all the batteries out from the battery compartment and press the reset button located underneath of the compartment with pointed object as illustrated



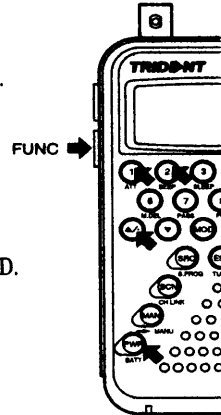
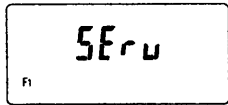
3. When reset is complete, all designation patterns are blinking on the LCD and the DJ-X5 are initialized to default factory setting.



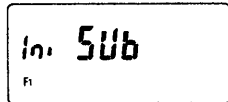
RESET DJ-X5 MAINTAINING ALL STORED MEMORY DATA

1. Turn off the DJ-X5

2. Press [PWR] key while pressing [FUNC] key and [UP] keys simultaneously. RESET menu is displayed on LCD.

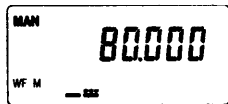


3. Press numeric key [2] and [Ini Sub] is displayed on LCD.



4. Press [ENT] key to start reset sequence and as soon as the reset is done, all designated patterns are displayed on LCD and resume to RESET menu.

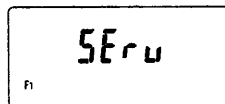
5. Turn off DJ-X5 and turn it on again. DJ-X5 is now initialized to default factory setting except for stored memory data and display default manual mode of default factory setting as illustrated.



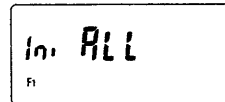
RESET DJ-X5 ERASING ALL STORED MEMORY DATA

1. Turn off DJ-X5.

2. Press [PWR] key while pressing [FUNC] key and [UP] key simultaneously. RESET menu is displayed on LCD.



3. Press numeric key [1] and [Ini ALL] is displayed on LCD.



4. Press [ENT] key to start the reset sequence and as soon as the reset is done, all designated patterns are displayed on LCD and resume to RESET menu.

5. Turn off DJ-X5 and turn it again. DJ-X5 is now initialized to the default factory setting and all the stored memory data is completely erased and display default manual mode.

Specifications

Frequency coverage	100KHz - 2200MHz continuous
Receive modes	NFM, WFM and AM
Sensitivity, 0.5 to 2MHz	NFM : 1.5uV @12dB SINAD AM: 2.5uV @10dB S/N WFM : -
Sensitivity, 2.0 to 1500MHz	NFM : 1.0uV @12dB SINAD AM: 1.5uV @10dB S/N WFM 2uV @ 20dB S/N
Sensitivity, 1500 to 2000MHz	NFM 2.5uV@12dB SINAD AM: - WFM: -
Frequency increment - AM and NFM	1KHz, 2KHz, 3KHz, 5KHz, 6.25KHz, 9KHz, 10KHz, 12.5KHz, 20KHz, 25KHz, 30KHz, 50KHz, 100KHz
Frequency increment - WFM	12.5KHz, 30KHz, 50KHz, 100KHz, 200KHz, 250KHz 500KHz
[FUNC] + [UP],[DOWN]	1MHz
Memory channels	100 channels/bank x 10 banks, total 1000 CH
Scan memory	10 channels
Frequency lockout	50 channels
Easy mode	16 channels
Scanning speed	Approx. 30 CH/sec @normal scanning Approx. 50 CH/sec @turbo scanning
Antenna impedance	50 ohm unbalanced BNC
Other functions	9 channels band scope function RS232C communication port Decoder of audio inverted scrambler
Audio output	90mW(4.5V 10% THD 8 ohm)
Power consumption	95mA @SQ, 135mA @50mW audio out
Weight	160g excluding antenna and batteries
Dimension	62(W) x 116(H) x 29(D) mm
Power supply	3.6VDC from Ni-Cad. batteries(AA x 3) 4.5VDC from dry cell batteries (AA x 3) 9.0 to 14V from EXT. DC power supply