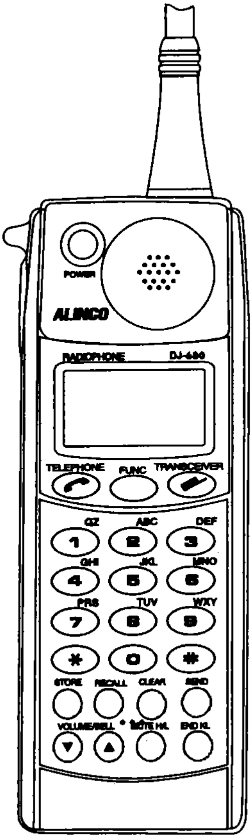
ALINCO

RADIOPHONE

DJ-680

Instruction Manual


POWER
ALINCO
RADIOPHONE
DJ-680
TELEPHONE
FUNC
TRANSCEIVER
QZ
ABC
DEF
1
2
3
GHI
JKL
MNO
4
5
6
PRS
TUV
WXY
7
8
9
*
0
#
STORE
RECALL
CLEAR
SEND
VOLUME/BELL
MUTE HL
END KL

Thank you for buying the ALINCO radiophone. The DJ-680 instruction manual contains important safety and operating instructions. Read this manual carefully before using the product.

Introduction

Alinco's radiophone DJ-680 is a cellular-look radio supporting both full- and half-duplex communications. This is a transceiver, but it can be used to call a telephone as well as a transceiver when so programmed. If your party is using a telephone, you can talk and hear simultaneously as if you were also using a portable telephone.

With the Alinco EJ-27D logic board installed, the radio becomes capable of trunking. That is to say, it automatically selects an available communicating channel for you for a private selective call. Also, it has a capability to change the service area (called *site*) while you are in another city*.

In addition, this radio features:

- Redialing
- Output power change
- Automatic dialing with 100 memories*
- Battery power saving
- Semi-duplex communication for talking with another transceiver*
- Two-way radio mode for operation as a conventional transceiver*

This manual contains information you should know before using the DJ-680, and describes how to setup and maintain the radio. It also explains how to operate the radio when it is equipped with and without the logic board.

⋆ : Note that your radio may not work exactly the same as described in this document, depending on how your dealer has customized it.

KB2LJJ Radio Mods Manuals

Specifications and information found in this document are subject to change without notice.

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Chapters in This Manual

This manual consists of the following chapters and appendices:

Chapter 1 Before Using

Contains general information you should know before using the DJ-680, such as the articles included in the package, precautions, and part names of the product. It also describes how to set up and maintain the radio.

Chapter 2 Basic Operation

Describes basic operations, including how to turn the power ON and OFF, adjust radio and ringing volume, lock keys, change output power level, and program auto-dial memory. These instructions are common to all users.

Chapter 3 Operation with the Logic Board

Describes how to receive calls and dial through the DJ-680 which is equipped with the EJ-27D logic board. Each section covers the operations dedicated to each operation mode: the radio-phone, semi-duplex trunking, or two-way radio mode.

Chapter 4 Operation without the Logic Board

Describes how to operate the radio when not equipped with the EJ-27D logic board. Procedures for dialing, receiving calls, and performing other functions are similar to those described in Chapter 3 "Operation with the Logic Board," but auto-line-hunting (trunking) is not featured.

Appendices

Includes helpful information, such as specifications, troubleshooting, optional accessories list and a flowchart on switching operation modes.

Conventions

The following typographical and graphical conventions are used throughout this manual.

Italic typeface refers to new terms or is used for emphasis.

Bold typeface refers to messages which appear on the display.

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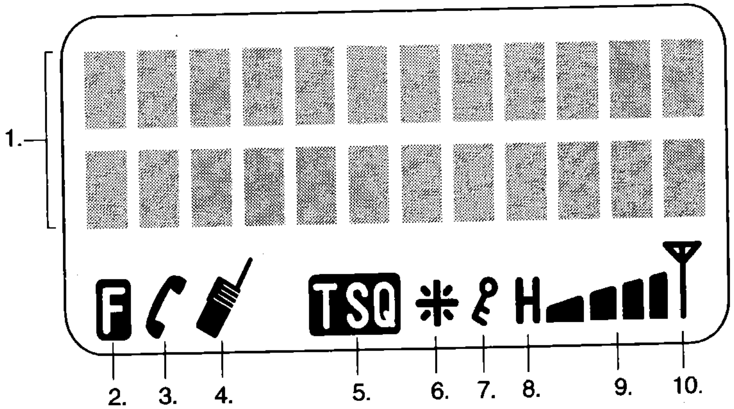
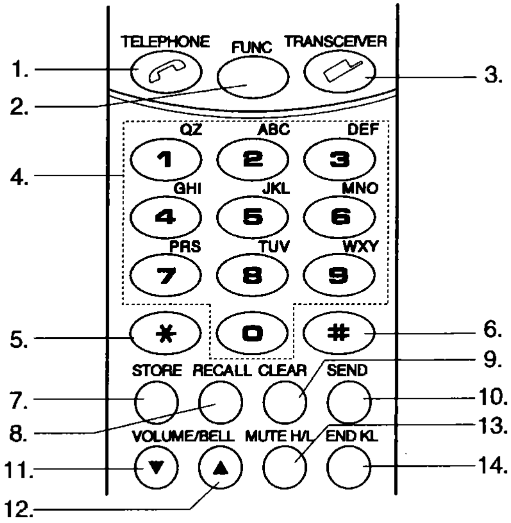
Display



1. Dot-matrix display:	There are two lines for displaying status messages, the current site name (or channel number), and calling phone number.
2. **F** :	When you press the FUNC key, the function icon appears, indicating that you can activate the sub functions of the keys.
3. ☎ :	The telephone icon appears when the radio is in the radio-phone mode or duplex mode.
4. 📱 :	The transceiver icon appears when the radio is in the semi-duplex-trunking, semi-duplex, or two-way radio mode. This icon is displayed along with the telephone icon when the radio is under the power saving mode while in the radio-phone mode.
5. **TSQ** :	The TSQ icon appears when TSQ (tone squelch) is enabled on the current channel (this function does not work in the radio-phone or SD trunking mode).

6. (#) :	Use this key to move the cursor (_) to the right while entering numbers or letters, or to call up higher channel numbers.
7. STORE ○ :	Press this key to memorize telephone numbers for auto-dialing.
8. RECALL ○ :	Press this key to choose an auto-dial number from memories.
9. CLEAR ○ :	Press this key to clear entries.
10. SEND ○ :	Press this key preceded by entering a phone number to initiate a call. To redial the last dialed number in the radio-phone mode, press this key alone. During conversation in the radio-phone mode, pressing this key enables the battery saving function.
11. (▼) :	Use this key to decrease the speaker volume. These keys are also available for ringing tone volume control while you are receiving a call.
12. (▲) :	Use this key to increase the speaker volume. This key is also available for ringing tone volume control while you are receiving a call.
13. MUTE H/L ○ :	Press the FUNC ○ key and press the MUTE H/L ○ key to switch between the high and low output power levels (this function is disabled in the radio-phone mode). If your radio is not equipped with the logic board, you can press this key to monitor the incoming signals.
14. END KL ○ :	Press this key to terminate the conversation. Press the FUNC ○ key, then END KL ○ key to disable the keys (other than the (PTT) key) to prevent from accidental key-operation.

Keys


TELEPHONE
FUNC
TRANSCEIVER
QZ
ABC
DEF
1
2
3
GHI
JKL
MNO
4
5
6
PRS
TUV
WXY
7
8
9
*
0
#
STORE
RECALL
CLEAR
SEND
VOLUME/BELL
MUTE H/L
END KL
1.
2.
3.
4.
5.
6.
7.
8.
9.
10.
11.
12.
13.
14.

1. TELEPHONE: This key is used in combination with the FUNC and/or TRANSCEIVER keys to switch the operation modes. See Appendix D "Switching the Operation Modes."

2. FUNC: Press this key first to activate the sub function of another key. When you press the FUNC key, F will appear on the display.

3. TRANSCEIVER: This key is used in combination with the FUNC and TELEPHONE keys to switch the operation modes. See Appendix D "Switching the Operation Modes."

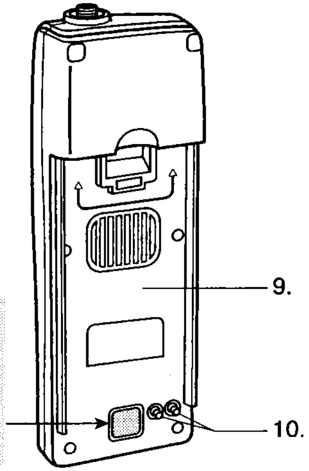
4. 0-9 WXY: The numeric keys are used to enter numbers and alphabetic characters.

5. *: Use this key to move the cursor (_) to the left while entering numbers or letters, or to call up lower channel numbers.

7. Keys:	These keys are used to operate the radio. See "Keys" later in this section.
8. Microphone:	Speak into this microphone when talking with your party.

Rear and Right Side Panels

Caution:
DO NOT OPEN THIS CAP!
Touching the internal components or penetration of foreign matter inside may cause the radio to malfunction.

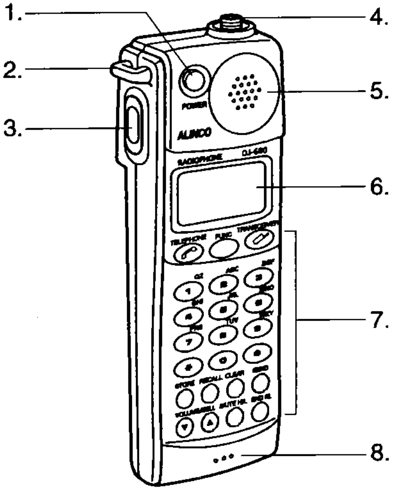


9. Batterypack mount:	Mount the batterypack here.
10. Battery terminals: (power-supply terminals)	Power from batteries is supplied through these terminals to the radio.

1.4 Part Names and Functions

This section describes parts by name and function.

Top, Front, and Left Side Panels



1. POWER switch:	Press this switch to turn the power ON or OFF.
2. Strap hanger:	Attach a hand strap here, if necessary.
3. PTT key:	Push-To-Talk. In the radio-phone mode, press this key to transmit at high power. In other modes, press and hold this key while you are talking.
4. Antenna connector:	Attach the supplied antenna here. See "Attaching the Antenna" in 1.5 "Setting Up the DJ-680."
5. Speaker	
6. Display:	Messages and icons appear in this area, indicating status of the radio. See "Display" later in this section.

Site Configuration

The term *site* in this manual has two different meanings depending on whether or not the trunking function works.

While trunking is activated (that is, in the radio-phone and SD trunking modes), a site means a service area on the trunking network where your radio can work. If you are in another area, you need to change to the site appropriate to that area.

While trunking is NOT activated (that is, in the duplex, semi-duplex, and two-way radio modes), a site refers to a group of channels.

⚠ *Note: A site is sometimes called a bank or a group of channels.*

The radio supports five sites (sites 1 through 5). Your dealer may have configured up to 3 sites for the radio-phone and/or semi-duplex trunking modes (or duplex and/or semi-duplex modes). Sites 4 and 5, if enabled by the dealer, are dedicated for use in the two-way radio mode. This means, when you change the operation mode, the site is also changed.

Sites 1 through 3 contain 20 channels per site, however, not more than 16 channels are networked at any one time (the number of actually usable channels is user transparent). Sites 4 and 5 each contain 10 channels maximum.

The dealer assigns a unique name to each site. You will see the site name, instead of the site number, on the display.

With the logic board

Site		
1	16 channels max.	Radio-phone or semi-duplex trunking mode
2	16 channels max.	
3	16 channels max.	
4	10 channels max.	Two-way radio mode
5	10 channels max.	

Without the logic board

Site		
1	16 channels max.	Duplex or semi-duplex mode
2	16 channels max.	
3	16 channels max.	
4	10 channels max.	Two-way radio mode
5	10 channels max.	

Operation Modes (Not Equipped with the EJ-27D Logic Board)

The radio provides three different operation modes: *duplex*, *semi-duplex*, and *two-way radio* (walkie-talkie) mode. Operation modes are briefly described below. The diagram illustrates the relationship between these modes.

Note that your dealer may have disabled any of the operation modes. Ask the dealer about the modes and functions available on the radio. The trunking function is not available when the logic board is not installed in the radio.

Duplex Mode

Normally, the radio will be in the duplex mode just after power-on. You may dial or receive a call from a party who is using a telephone* (or another full-duplex radio) . You can then hear and talk simultaneously as if you were using a telephone.

Semi-duplex Mode

When you wish to communicate with a transceiver as well as a telephone*, switch the radio to the semi-duplex mode. Note that you cannot hear the party's voice while you are talking because the radio uses half-duplex communication.

Two-way Radio Mode

If you use the DJ-680 as a normal transceiver, select the two-way radio mode. You may communicate with a transceiver, as well as a telephone*. Because the two-way radio mode uses semi-duplex communication, you cannot speak while the other partner is talking.

DJ-680 without the logic board	→	Duplex mode • Communicates with a telephone* and a transceiver in full-duplex (manual operation).	See Chapter 2 "Basic Operation" and Chapter 4 "Operation without the Logic Board"
	→	Semi-duplex mode • Communicates with a transceiver and a telephone* in simplex or semi-duplex (manual operation).	
	→	Two-way radio mode • Communicates with a transceiver and a telephone* in simplex or semi-duplex.	

* : Communication with a telephone is allowed when base stations are equipped with phone-patch.

Radio-phone Mode

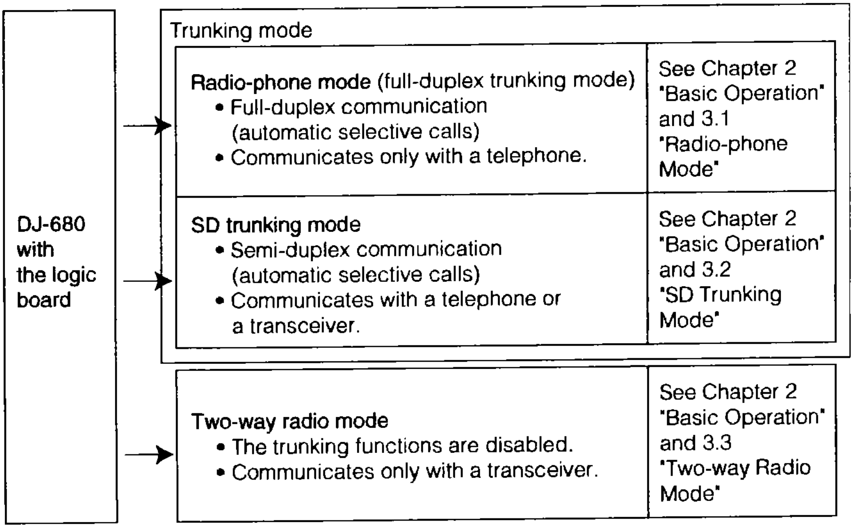
Normally, the radio will be in the radio-phone mode just after power-on, and you will work in this mode in most cases. The radio acts like a cellular phone. You may dial or receive a call from a party who is using a telephone (not a transceiver). You can then hear and talk simultaneously as if you were using a telephone (full-duplex communication). Trunking is activated, so you do not have to manually select the channel. The radio performs selective and private communications.

Semi-duplex Trunking Mode (SD Trunking Mode)

In the semi-duplex trunking (SD trunking) mode, you can communicate with a transceiver as well as a telephone. You cannot hear the party's voice while you are talking because the radio uses half-duplex communication. Trunking is activated, so you do not have to manually select the channel. The radio performs selective and private communications.

Two-way Radio Mode

If you wish to use the DJ-680 as a normal transceiver, select the two-way radio mode. This mode uses simplex or semi-duplex communication. You cannot speak while the other partner is talking. Trunking is completely disabled.



DJ-680 with the logic board

Trunking mode

Radio-phone mode (full-duplex trunking mode)
- Full-duplex communication (automatic selective calls)
- Communicates only with a telephone.

See Chapter 2 "Basic Operation" and 3.1 "Radio-phone Mode"

SD trunking mode
- Semi-duplex communication (automatic selective calls)
- Communicates with a telephone or a transceiver.

See Chapter 2 "Basic Operation" and 3.2 "SD Trunking Mode"

Two-way radio mode
- The trunking functions are disabled.
- Communicates only with a transceiver.

See Chapter 2 "Basic Operation" and 3.3 "Two-way Radio Mode"

1.3 Understanding the Terms Used in Radio Operations

This section describes the trunking, operation modes, and sites. You should be familiar with these terms when using the radio.

Trunking

The radio is capable of *trunking* if your dealer has installed the EJ-27D logic board in it.

Trunking eliminates the need for selecting the channel. The radio automatically skips busy channels and searches for an available channel while calling a party. On the other hand, a party can call you without having to know the channel to be used. Because your radio automatically provides an available channel.

A trunking network consists of trunked radios only. It performs selective and private communications, that is, your conversation cannot be heard or interrupted by other trunked radios.

Without trunking, you have to manually change the channel if it is busy. To receive a call from a telephone, you need to previously inform the party of the channel you are to use.

Operation Modes (When Equipped with the EJ-27D Logic Board)

The radio provides three different operation modes: *radio-phone*, *semi-duplex trunking*, and *two-way radio* (walkie-talkie) mode to serve various purposes of radio operation. Operation modes are briefly described on the next page. The diagram on that page illustrates the relationship between these modes.

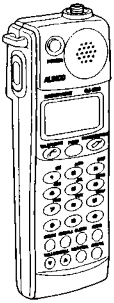
⚠ *Note: In this manual, the radio-phone and semi-duplex trunking modes are inclusively called trunking mode.*

Your dealer may have disabled any of the operation modes. Ask the dealer about the modes and functions available on the radio.

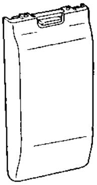
1.1 Unpacking the Radio

The DJ-680 package box should contain the following articles.

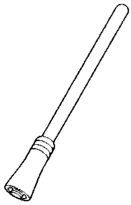
- DJ-680 (radio)



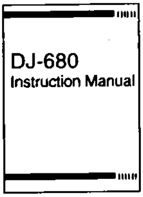
- Drycell case
  (Depending on the version)



- Antenna



- DJ-680 Instruction Manual
  (this manual)



DJ-680
Instruction Manual

1.2 Precautions

- Do not disassemble the radio.
- Install batteries with the correct polarity, if the drycell case is used.
- Ensure the antenna is securely attached to the radio.
- Use the radio in a clean environment between -20°C and +60°C (+4°F to +140°F).

Chapter 1

Before Using

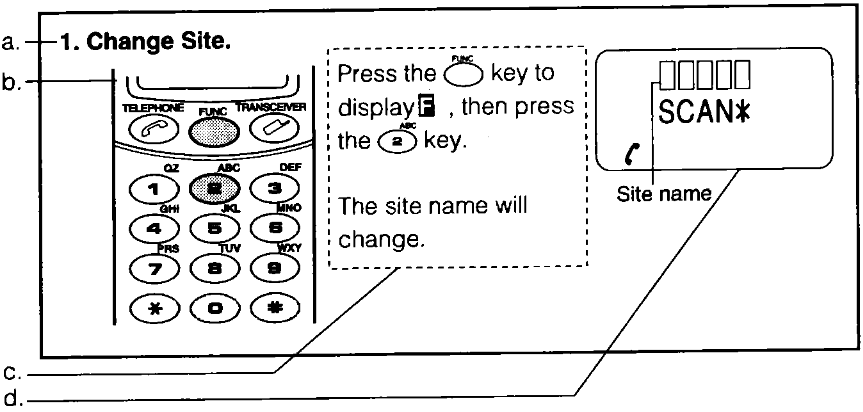
This chapter contains general information you should know before using the DJ-680, such as the articles included in the package, precautions, and part names of the product. It also describes how to set up and maintain the radio.

Normal typeface enclosed in double-quotation marks (" ") refers to the title of the chapter or section you should refer to.

Caution: The caution icon indicates an important procedure which could result in damage to equipment if not followed correctly.

Note: *The note icon indicates additional information which is helpful but is not necessarily known.*

Procedures are described in the following format.


a.
b.
c.
d.
1. Change Site.
TELEPHONE
FUNC
TRANSCEIVER
QZ
ABC
DEF
GHI
JKL
MNO
PRS
TUV
WXY
Press the FUNC ◯ key to display F , then press the ABC ② key.
The site name will change.
□□□□□
SCAN✱
Site name

a. The bold sentence is the instruction in this step. A sequential number appears at the beginning when the procedure contains two or more steps.

b. The shaded parts indicate keys you should (or may) use in this step. Press the FUNC ◯ key, then the ABC ② key in this case.

c. Describes detailed information, including keys you should press, notes, cautions, and alternative methods.

d. A sample image of the display which will appear after you perform the instruction indicated. The boxes □□□□□ should be replaced with the site name pre-programmed to your DJ-680 by your dealer.

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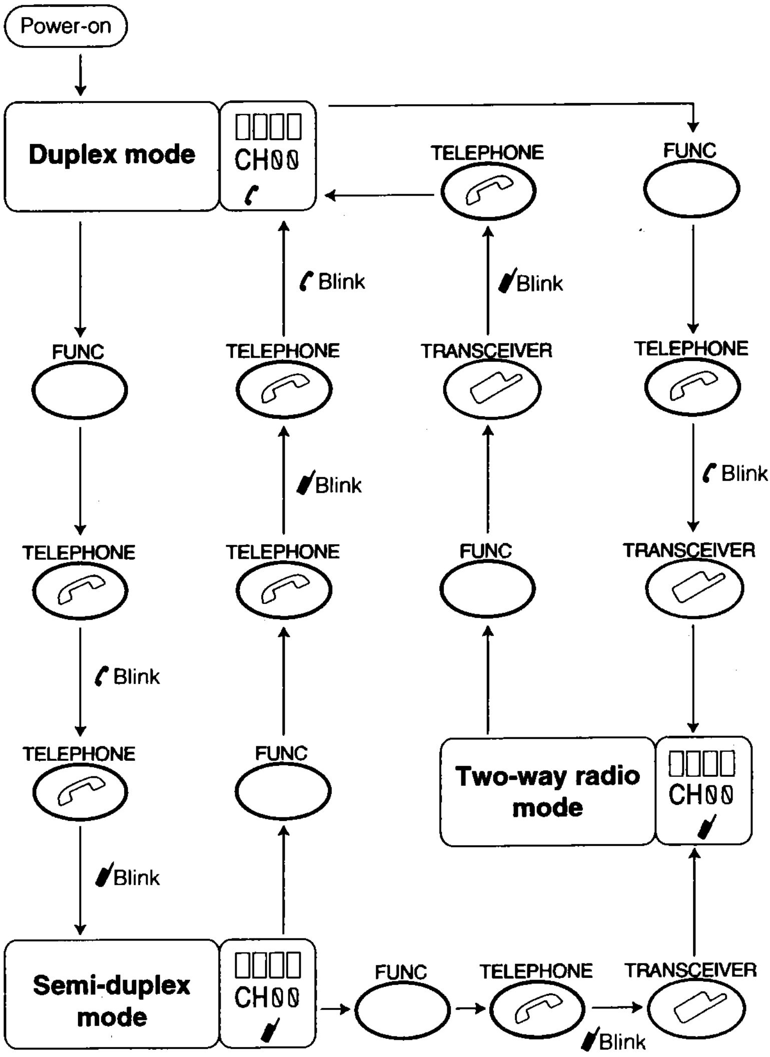
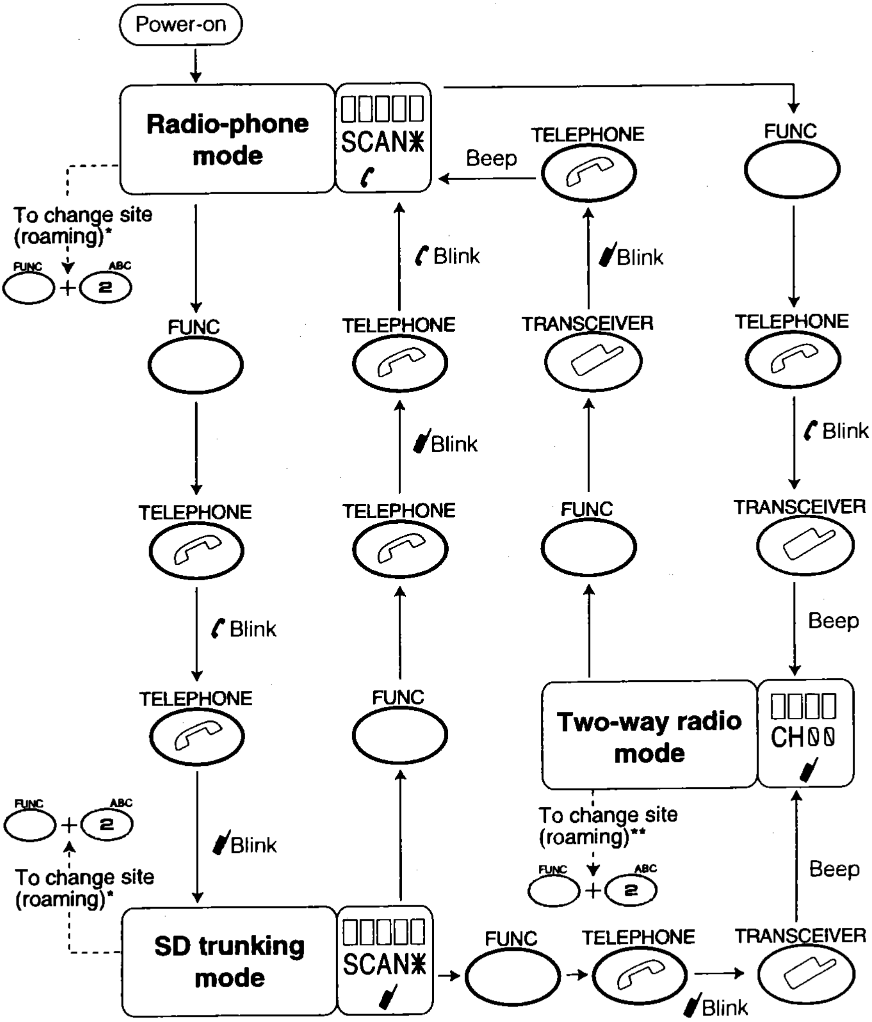

Power-on
Duplex mode
CH00
TELEPHONE
FUNC
Blink
Blink
FUNC
TELEPHONE
TRANSCEIVER
TELEPHONE
Blink
Blink
TELEPHONE
TELEPHONE
FUNC
TRANSCEIVER
Blink
TELEPHONE
FUNC
Two-way radio mode
CH00
Blink
Semi-duplex mode
CH00
FUNC
TELEPHONE
TRANSCEIVER
Blink

D Switching Operation Modes

Use this chart as a quick reference for changing operation mode.

When the logic board is installed in the radio


Power-on
Radio-phone mode
SCAN✱
Beep
TELEPHONE
FUNC
To change site (roaming)*
FUNC
ABC
2
Blink
Blink
FUNC
TELEPHONE
TRANSCEIVER
TELEPHONE
Blink
Blink
TELEPHONE
TELEPHONE
FUNC
TRANSCEIVER
Blink
Beep
TELEPHONE
FUNC
Two-way radio mode
CH00
Blink
To change site (roaming)*
To change site (roaming)**
Beep
SD trunking mode
SCAN✱
FUNC
TELEPHONE
TRANSCEIVER
Blink

★ : This operation switches only to the sites configured for the current operation mode, and is not needed if auto-roaming is enabled on your radio by the dealer.

★★: This operation switches only to the sites configured for the two-way radio mode.

C Optional Accessories List

Names of products used in this manual are for identification purpose only and may be trademarks or registered trademarks of their respective company.

Optional Products

■ EJ-27D	Trunking logic board*
■ EBP-40N	Ni-Cd battery pack 1100 mAH
■ EBP-41N	Ni-Cd battery pack 600 mAH
■ EDC-70	Rapid charger (220 VAC input)
■ ESC-32Z	Soft case with belt clip

*: This may come standard depending on the version of the radio.

Related Products

■ DR-605	Full-duplex VHF/UHF mobile transceiver with a socket for a logic board
■ DR-610	Full-duplex VHF/UHF mobile transceiver with separatable front control
■ EJ-21X	Logic board for DR-605 and DR-610
■ ST-869-07	Radio/Telephone Interface Module (for data communications through trunking) for DR-605/610.

Problem: You have trouble hearing the other party's voice.

Causes:

1. The speaker volume level is too low.
2. The signals from the base station is weak because you are in a shadow area of the base station coverage.

Actions:

1. Press the ▲ key to increase the volume. It is recommended that you set volume to the medium level (VOL->>>) in normal operation.
2. Change to a location in a line-of-sight (perspective place) to the base station.

Problem: You cannot call a telephone through auto-dialing in the SD trunking mode.

Causes: You did not enter the correct transmission command (1 * or 2 *).

Actions: Before dialing, ask the dealer which transmission command you should use, *1 * or 2 ** . In auto-dialing, enter the correct command after pressing the ○ key.

For more information about how to use auto-dialing, see "Auto-dialing by Specifying Memory Numbers" or "Auto-dialing by Specifying Memory Titles" in section 3.2 "Semi-duplex Trunking Mode (SD Trunking Mode)."

B Troubleshooting

This appendix contains information about radio problems, possible causes, and actions you should take in the event of trouble. If the problem still exists after taking the specified remedial action, contact an authorized dealer.

Problem: The radio does not turn ON.

Cause:

1. The battery may be dead.
2. The drycells are loaded backwards.

Action:

1. When using drycells, replace them with new ones. When using a battery pack, recharge it.
2. Load the drycells in the correct direction. The negative pole (-) must contact the metal prong inside the drycell case.

Problem: The radio cannot establish a connection in the radio-phone or semi-duplex trunking mode.

Causes:

1. The antenna is not be attached to the radio.
2. The signals from the base station is weak because you are in a shadow area of the base station coverage.
3. You selected a site out of the service area.
4. The radio's EJ-27D logic board is incorrectly configured.

Actions:

1. Attach the antenna which came with your radio, and make sure it is securely fixed to the radio.
2. Change to a location in a line-of-sight (perspective place) to the base station.
3. Access a base station and change to an appropriate site. Or, operate the radio within the service area.
4. Contact the dealer to configure the radio correctly.

Transmitter Specifications

Output power	High	2 W (Dealer adjustable)
	Low	0.5-2 W (Dealer adjustable)
Modulation system	Variable reactance frequency modulation	
Maximum frequency deviation	±5 kHz	
Spurious suppression	-60 dB	
Harmonic suppression	-60 dB	
Residual noise	-40 dB	
Mod. distortion	Less than 5 %	

Receiver Specifications

Receiving system	Double-conversion superheterodyne
Sensitivity	0.5 μ V at 12 dB SINAD
Selectivity	6 dB at 10 kHz or more
	-70 dB at 25 kHz or less
Adjacent channel selectivity	65 dB at 25 kHz
Inter modulation response	70 dB
Image response	70 dB
Spurious emission	2 nW
Audio output (8Ω load)	More than 50 mW

*: Specifications are subject to change without notice or obligation.

A Specifications

General Specifications

Frequency range	V version(original)	Full-duplex	RX 450 - 470MHz/ TX 155 - 174MHz
		Simplex	RX/TX 155 -174MHz
	V21 Version	Full-duplex	RX 400 - 420MHz/ TX 155 - 174MHz
		Simplex	RX/TX 155 -174MHz
	U11 version	Full-duplex	RX 136 - 155MHz/ TX 400 - 420MHz
		Simplex	RX/TX 400 -420MHz
	U12 version	Full-duplex	RX 155 - 174MHz/ TX 400 - 420MHz
		Simplex	RX/TX 400 -420MHz
Number of channels	Trunking mode	20 ch × 3 sites	
	Two-way radio mode	10 ch × 2 sites	
Antenna	TNC type		
Antenna impedance	50Ω		
Supply voltage	Ni-Cd: 6 V, Drycell: 7.5 V		
Standard drycell case	AA type × 5		
Frequency stability	±3 ppm		
Current drain	Transmission	High 1000 mA/Low 650 mA	
	Reception	Squelched 100 mA	
Battery life time (TYP.)	Continuous reception	11 hours by 1100 mAH Ni-Cd	
	Continuous transmission	2 hours by 1100 mAH Ni-Cd	
Operating temperature	-20°C to +60°C (+4°F to +140°F)		

Appendices

The appendices include helpful information, such as specifications, troubleshooting, optional accessories list and a flowchart on switching operation mode.

When selective calling is enabled

You can transmit when the radio is not receiving any signal, or when it receives a signal along with the correct code. Once the transmission is performed successfully, the radio establishes a connection with the other party. BCLO will then be cancelled temporarily, allowing you to perform transmission anytime, as you want.

If the radio does not transmit or receive a signal for 10 seconds, it automatically breaks the connection and activates BCLO again.

When both the TSQ and selective calling are enabled

You can transmit when the radio is not receiving any signal. Once the transmission starts, the radio establishes the connection and keeps it.

When you are called through selective calling, the radio must receive the correct tone before it can establish the connection with the caller. You will hear ringing tones when the connection is successfully made.

Once the connection is established, you can transmit anytime except when the radio is receiving a signal without any tone or with an incorrect tone.

Time Out Timer (TOT)

The *TOT* expires and shuts down the transmission if you continuously transmit for more than the time specified by the dealer. To restart the transmission, release the (PTT) key and press it again.

ANI (Automatic Number Identification)

When the *ANI* function is enabled by the dealer, the radio automatically sends the pre-programmed ID code at the beginning and/or end of transmission. The base station will identify your radio by the received code.

When the radio receives the correct tone, the squelch is unmuted allowing you to communicate with the caller. If the radio receives a signal without any tone or receives an incorrect tone, you cannot hear the voice of the other party.

Note that the BCLO may prohibit the transmission on a channel where TSQ is enabled.For information about BCLO, see "Busy Channel Lock Out (BCLO)" later in this section.

If both TSQ and selective calling are functioning, voices can be heard only when the radio has established a connection through selective calling *and* has received the correct tone.

Scrambler

Scrambling signals prevents other persons from monitoring your conversation. This function is set up for each channel by the dealer.

When your radio transmits scrambled signals, the receiver will receive and convert them into standard signals to reproduce your voice.

The receiver must be set by the dealer so that it can accept the scrambled signal. When TSQ is enabled, the radio converts scrambled signals only when receiving the correct tone.

Busy Channel Lock Out (BCLO)

BCLO prevents transmission on a channel which is receiving signal with a tone other than the one for your group. This function is contingent on activation of TSQ or selective calling, and is dealer programmable. BCLO permits or prohibits transmission according to the TSQ and selective call settings as described below.

When only TSQ is enabled

BCLO prohibits transmission when the radio receives a signal without any tone or receives a tone different from yours.

Transmission is allowed when the radio is not receiving any signal, or receiving signals with the matching tone.

Calling the other party

To call a specific party:

1. Enter the called radio's code (a three-digit DTMF code), and press the (*) key.
2. Press the (*) and (1) keys.
3. Press the (*) key.

The radio will automatically start the call, and establish a connection with the other party's transceiver. If you do not transmit or receive a signal for 10 seconds, the connection will be automatically terminated, and you will need to go through the above procedure again to re-start the connection.

⚠ *Note:*
- *You can also communicate with the other party by pressing and holding the* (PTT) *key, and entering the other party's three-digit code, instead of performing the above procedure. In this case, the other party is not informed of who is calling him/her.*
- *The radio's code (a three-digit DTMF code) is not the same as the subscriber number used when calling a radio in the SD trunking mode.*

Receiving calls

When your radio receives its own code, it establishes a connection with the caller and blinks the key backlight to inform you of the call. Hold the (PTT) key down and speak into the microphone while the backlight is blinking.

⚠ *Note: You should start speaking while the backlight is still blinking (for 10 seconds). If the backlight goes out, the radio may terminate the connection.*

The number which will appear on the display is the code of the caller. ERR may appear if the radio fails to receive the caller's code, however the connection is established. If the radio does not transmit or receive a signal for 10 seconds, it will automatically terminate the connection.

TSQ (Tone Squelch) (CTCSS)

TSQ (tone squelch) allows you to communicate only with a specific group who has the same tone as your radio. The tones used in TSQ are almost *inaudible* and may be set up for each channel by the dealer. If TSQ has been set, the TSQ icon TSQ appears on the display.

4.6 Monitoring

Even if the radio is not receiving any signal on the current channel, you can temporarily unmute that channel. To do so;

Hold down the MUTE key.

The monitoring operation is cancelled when you release the MUTE key.

4.7 Turning ON/OFF the Beep

The radio generates a beep (or beeps) every time you press a key. If this is inconvenient to you, you can turn it OFF. To do so;

Press the FUNC key to display F, then press the 7 key.

To turn the beep ON, press the FUNC key, then the 7 key again.

4.8 Dealer-configured Parameters

This section describes the function parameters which are configured by the dealer. Your radio operates differently depending on the configuration the dealer has set up.

Selective Calling

Selective calling is to call a specific party by specifying an ID code. This function is set up for each site by the dealer. In selective call communications, each transceiver has been programmed with a code (a three-digit DTMF code), and will unmute when receiving it. Without the correct code, the radio remains muted even if there is a signal present on your channel.

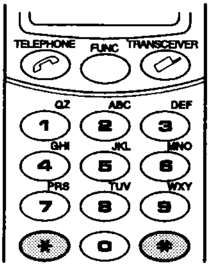
Note that the BCLO may prohibit transmission on a channel where a different muting system is enabled. For information about BCLO, see "Busy Channel Lock Out (BCLO)" later in this section.

With both TSQ and selective calling enabled, voices can be heard only when the radio has established a connection through selective calling *and* has received the correct tone. For more information about TSQ, see "TSQ (Tone Squelch) (CTCSS)" later in this section.

4.5 Scanning Channels

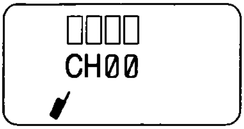
The radio scans the channels to search for one which is receiving a signal. The radio automatically skips the channels which are not programmed by the dealer. The scanning is performed only within the current site.

1. Start scanning.



TELEPHONE
FUNC
TRANSCEIVER
QZ
ABC
DEF
1
2
3
GHI
JKL
MNO
4
5
6
PRS
TUV
WXY
7
8
9
*
0
#

To scan the channels in ascending order, press and hold the (#) key for more than two seconds.

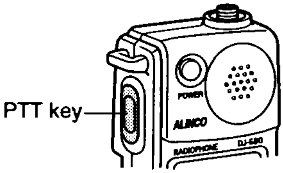


To scan the channels in descending order, press and hold the (*) key for more than two seconds.

The channel number scrolls rapidly while scanning. Scanning stops when the radio receives a signal, and restarts when no signal is picked up for a period of two seconds.

You can change the scanning direction by pressing the (#) or (*) key, whichever opposite to the current direction.

2. Quit scanning.



PTT key
POWER
ALINCO
RADIOPHONE
DJ-680

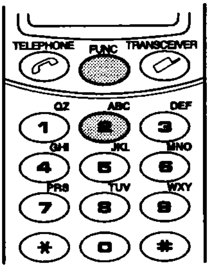
Press the (PTT) key.

Scanning also halts when you press the FUNC ○ and ABC (2) keys to change the site.

4.3 Changing Site

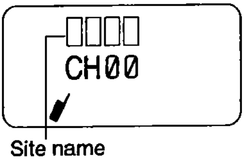
In any mode, when the radio is not equipped with EJ-27D logic board, a *site* means a group of channels. While the radio is in the waiting state, you can manually switch to another site. Note that the following procedure switches only to the sites configured for the current operation mode.

Change site.


TELEPHONE
FUNC
TRANSCEIVER
QZ
ABC
DEF
1
2
3
GHI
JKL
MNO
4
5
6
PRS
TUV
WXY
7
8
9
*
0
#

Press the FUNC key to display F , then press the ABC 2 key.

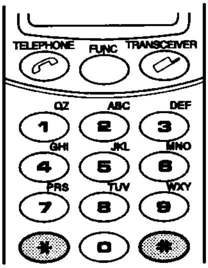
The site name will change.


CH00
Site name

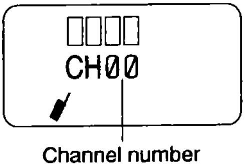
4.4 Selecting a Channel

To change the channel, use the below procedure (this is common to all operation modes). You can select only a channel within the current site.

Change the channel.


TELEPHONE
FUNC
TRANSCEIVER
QZ
ABC
DEF
1
2
3
GHI
JKL
MNO
4
5
6
PRS
TUV
WXY
7
8
9
*
0
#

Press the * key to display one channel number larger, and the * key to display one number smaller. The radio automatically skips the channels which are not programmed by the dealer.


CH00
Channel number

The transceiver icon will blink for about 30 seconds before lighting solidly.

If you press the TELEPHONE key while the transceiver icon is blinking, you will return to the duplex mode.

To return to the duplex mode, press the FUNC, TRANSCEIVER, and TELEPHONE keys in that order.

4.2 Transmitting

To transmit:

Press the (PTT) key and speak into the microphone.

In the duplex mode, the radio can transmit and receive signals simultaneously. But, you must also press the (PTT) key to speak through the radio.

To change output power level, press the FUNC key, then the MUTE H/L key.

To control the speaker volume, use the ▼ and ▲ keys.

⚠ *Note: If the BCLO function is enabled, it may prohibit transmission when the radio is receiving a signal. For information about BCLO, see "Busy Channel Lock Out (BCLO)" later in this section.*

1. Press the FUNC key to display F.

2. Press the TELEPHONE key to blink the telephone icon.

3. Press the TELEPHONE key again to switch from telephone icon to the transceiver icon.

   The transceiver icon will blink for about 30 seconds before lighting solidly.

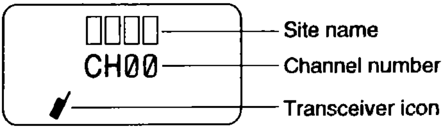
   If you press the TELEPHONE key one more time while the transceiver icon is blinking, you can return to the duplex mode.

To return to the duplex mode, repeat the above key operation.

⚠ *Note: Without the EJ-27D logic board, the available functions are almost the same both in the semi-duplex and two-way radio modes. Consequently, in the semi-duplex mode, a channel may have been configured for simplex communication.*

Entering the Two-way Radio Mode

When the radio is in the two-way radio mode, it displays a transceiver icon and a channel number.



To switch from the duplex mode to the two-way radio mode, follow the instructions below. Note that you cannot enter the two-way radio mode if your dealer has disabled it, or has not configured any sites for that mode.

1. Press the FUNC key to display F.

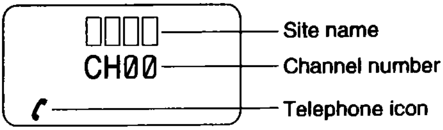
2. Press the TELEPHONE key to blink the telephone icon.

3. Press the TRANSCEIVER key again to switch from the telephone icon to the transceiver icon.

4.1 Changing Operation Modes

There are three operation modes: duplex, semi-duplex, and two-way radio. The radio will be in the duplex mode when the power is turned on, and you can change to another mode by referring to the appropriate part in this section. Settings of these modes are done by the dealer and not all the modes may have been enabled on your radio. Ask your dealer about the available operation modes.

In the *duplex mode*, the radio displays the current site name, channel number, and telephone icon like the following figure.

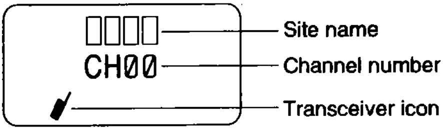


For more information about the operation modes, see "Operation Modes (Not Equipped with the Logic Board)" in section 1.3 "Understanding the Terms Used in Radio Operations."

A quick reference for changing modes is given in Appendix D "Switching Operation Modes."

Entering the Semi-duplex Mode

When the radio is in the semi-duplex mode, it displays the current site name, channel number, and transceiver icon.



To change from the duplex mode to the semi-duplex mode, follow the instructions below. Note that, if no site is configured by the dealer for the semi-duplex mode, the radio does not switch to that mode.

Chapter 4

Operation without the Logic Board

This chapter describes how to operate the radio when not equipped with the EJ-27D logic board. Procedures for dialing, receiving calls, and performing other functions are similar to those described in Chapter 3 "Operation with the Logic Board," but auto-line-hunting (trunking) is not featured.

ANI (Automatic Number Identification)

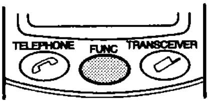
When the *ANI* function is enabled by the dealer, the radio automatically sends the pre-programmed ID code at the beginning and/or end of transmission. The base station will identify your radio by the received code.

Returning to the Trunking Mode

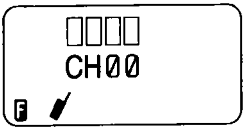
To return to the trunking mode (the radio-phone or SD trunking mode), follow the instructions below. Normally, the radio will return to the radio-phone mode. However, if no site is configured for the radio-phone mode, the radio will enter the SD trunking mode.

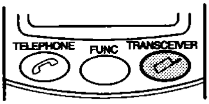
A quick reference for changing modes is given in Appendix D "Switching Operation Modes."

Switch from the two-way radio mode to the trunking mode.



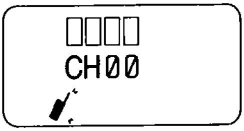
Press the FUNC key.

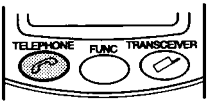




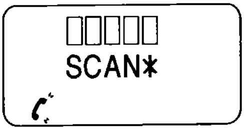
Press the TRANSCEIVER key.

The transceiver icon (📻) blinks.





Press the TELEPHONE key.



You will hear three beeps. The telephone icon (☎) will blink for about 30 seconds, indicating the radio is in the radio-phone mode.

If you press the TRANSCEIVER key while the telephone (☎) icon is blinking, you can return to the two-way radio mode.

Busy Channel Lock Out (BCLO)

BCLO prevents transmission on a channel which is receiving signal with a tone other than the one for your group. This function is contingent on activation of TSQ or selective calling, and is dealer programmable. BCLO permits or prohibits transmission according to the TSQ and selective call settings as described below.

When only TSQ is enabled

BCLO prohibits transmission when the radio receives a signal without any tone or receives a tone different from yours.

Transmission is allowed when the radio is not receiving any signal, or receiving signals with the matching tone.

When selective calling is enabled

You can transmit when the radio is not receiving any signal, or when it receives a signal along with the correct code. Once the transmission is performed successfully, the radio establishes a connection with the other party. BCLO will then be cancelled temporarily, allowing you to perform transmission anytime, as you want.

If the radio does not transmit or receive a signal for 10 seconds, it automatically breaks the connection and activates BCLO again.

When both the TSQ and selective calling are enabled

You can transmit when the radio is not receiving any signal. Once the transmission starts, the radio establishes the connection and keeps it.

When you are called through selective calling, the radio must receive the correct tone before it can establish the connection with the caller. You will hear ringing tones when the connection is successfully made.

Once the connection is established, you can transmit anytime except when the radio is receiving a signal without any tone or with an incorrect tone.

Time Out Timer (TOT)

The *TOT* expires and shuts down the transmission if you continuously transmit for more than the time specified by the dealer. To restart the transmission, release the (PTT) key and press it again.

Receiving calls

When your radio receives its own code, it establishes a connection with the caller and blinks the key backlight to inform you of the call. Hold the (PTT) key down and speak into the microphone while the backlight is blinking.

⚠ *Note: You should start speaking while the backlight is still blinking (for 10 seconds). If the backlight goes out, the radio may terminate the connection.*

The number which will appear on the display is the code of the caller. ERR may appear if the radio fails to receive the caller's code, however the connection is established. If the radio does not transmit or receive a signal for 10 seconds, it will automatically terminate the connection.

TSQ (Tone Squelch) (CTCSS)

TSQ (tone squelch) allows you to communicate only with a specific group who has the same tone as your radio. The tones used in TSQ are almost *inaudible* and may be set up for each channel by the dealer. If TSQ has been set, the TSQ icon TSQ appears on the display.

When the radio receives the correct tone, the squelch is unmuted allowing you to communicate with the caller. If the radio receives a signal without any tone or receives an incorrect tone, you cannot hear the voice of the other party.

Note that the BCLO may prohibit the transmission on a channel where TSQ is enabled.For information about BCLO, see "Busy Channel Lock Out (BCLO)" later in this section.

If both TSQ and selective calling are functioning, voices can be heard only when the radio has established a connection through selective calling *and* has received the correct tone.

Scrambler

Scrambling signals prevents other persons from monitoring your conversation. This function is set up for each channel by the dealer.

When your radio transmits scrambled signals, the receiver will receive and convert them into standard signals to reproduce your voice.

The receiver must be set by the dealer so that it can accept the scrambled signal. When TSQ is enabled, the radio converts scrambled signals only when receiving the correct tone.

Dealer-configured Parameters

This section describes the function parameters which are configured by the dealer. Your radio operates differently depending on the configuration the dealer has set up.

Selective Calling

Selective calling is to call a specific party by specifying an ID code. This function is set up for each site by the dealer. In selective call communications, each transceiver has been programmed with a code (a three-digit DTMF code), and will unmute when receiving it. Without the correct code, the radio remains muted even if there is a signal present on your channel.

Note that the BCLO may prohibit transmission on a channel where a different muting system is enabled. For information about BCLO, see "Busy Channel Lock Out (BCLO)" later in this section.

With both TSQ and selective calling enabled, voices can be heard only when the radio has established a connection through selective calling *and* has received the correct tone. For more information about TSQ, see "TSQ (Tone Squelch) (CTCSS)" later in this section.

Calling the other party

To call a specific party:

1. Enter the called radio's code (a three-digit DTMF code), and press the (*) key.
2. Press the (*) and (1) keys.
3. Press the (*) key.

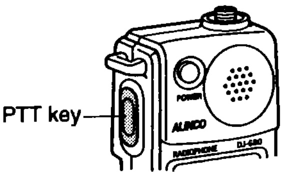
The radio will automatically start the call, and establish a connection with the other party's transceiver. If you do not transmit or receive a signal for 10 seconds, the connection will be automatically terminated, and you will need to go through the above procedure again to re-start the connection.

Note:
- *You can also communicate with the other party by pressing and holding the (PTT) key, and entering the other party's three-digit code, instead of performing the above procedure. In this case, the other party is not informed of who is calling him/her.*
- *The radio's code (a three-digit DTMF code) is not the same as the subscriber number used when calling a radio in the SD trunking mode.*

The channel number changes rapidly while scanning. Scanning stops when the radio receives a signal, and restarts when no signal is picked up for a period of two seconds.

You can change the scanning direction by pressing the (*) or (#) key, whichever opposite to the current direction.

2. Quit scanning.

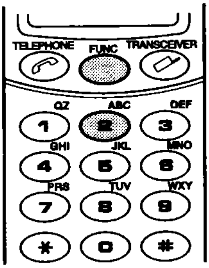

PTT key
POWER
ALINCO
RADIOPHONE
DJ-680

Press the (PTT) key.

Changing Site

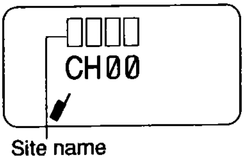
In the two-way radio mode, a *site* means a group of channels. While the radio is in the waiting state, you can manually switch to another site, provided that your dealer programmed the radio for it. Note that the following procedure switches only to the sites configured for the two-way radio mode.

Change Site.

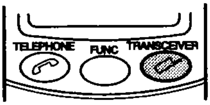

TELEPHONE
FUNC
TRANSCEIVER
QZ
ABC
DEF
1
2
3
GHI
JKL
MNO
4
5
6
PRS
TUV
WXY
7
8
9
*
0
#

Press the (FUNC) key to display F, then press the (ABC 2) key.

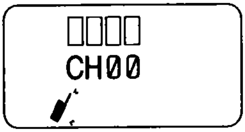
The site name will change.



Site name


TELEPHONE
FUNC
TRANSCEIVER

Press the TRANSCEIVER key again.

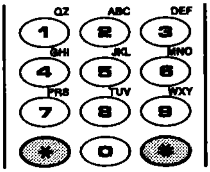


You will hear three beeps. The transceiver icon will blink for about 30 seconds before lighting solidly.

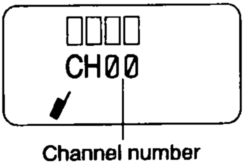
If you press the TELEPHONE key while the transceiver icon is blinking, you will return to the radio-phone mode.

Selecting a Channel

Change the channel.


QZ
ABC
DEF
GHI
JKL
MNO
PRS
TUV
WXY

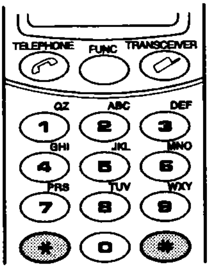
Press the (✱) key to display one channel number larger, and the (*) key to display one number smaller. The radio automatically skips the channels which have been excluded by the dealer.


CH00
Channel number

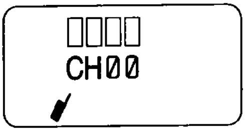
Scanning Channels

The radio can scan the channels to search for one which is receiving a signal. The radio automatically skips the channels which have been excluded by the dealer. The scanning is performed only within the current site (i.e. current group of channels).

1. Start scanning.


TELEPHONE
FUNC
TRANSCEIVER
QZ
ABC
DEF
GHI
JKL
MNO
PRS
TUV
WXY

To scan the channels in ascending order, press and hold the (✱) key for more than two seconds.



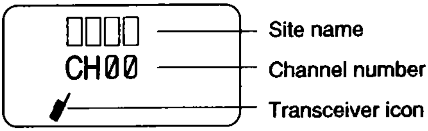
To scan the channels in descending order, press and hold the (*) key for more than two seconds.

(Continued to page 48)

3.3 Two-way Radio Mode

This section describes the operations in the two-way radio mode. If you wish to use your radio as a traditional transceiver, switch the radio to the two-way radio mode. The two-way radio mode uses simplex or half-duplex communication, so you cannot speak while listening. The trunking function (i.e. auto-line hunting) is completely disabled.

In the two-way radio mode, the radio displays the current site name, channel number and transceiver icon like the following figure.



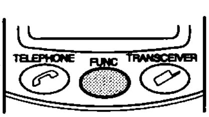
⚠ *Note: The two-way radio mode is available only if your dealer has enabled the sites dedicated for that mode.*

Entering the Two-way Radio Mode

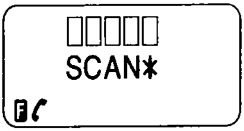
The radio will be in the radio-phone mode at power-on. To enter two-way radio mode, you can use the same procedure whether you are in the radio-phone or SD trunking mode now, although the pictures below are for switching from the radio-phone mode. A quick reference for changing modes is given in Appendix D "Switching Operation Modes."

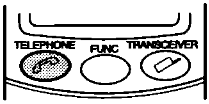
⚠ *Note: As an alternative, you can press the 5 key, then the * key to switch from the semi-duplex trunking mode to the two-way radio mode.*

Switch from the radio-phone mode to the two-way radio mode.

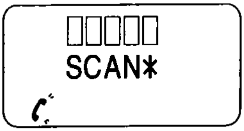


Press the FUNC key.





Press the TELEPHONE key.



(Continued to page 47)

Emergency Calls

In case of an emergency, you can call the telephone number of the liaison office previously specified in the system. To do so:

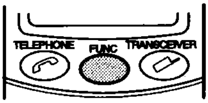
Press the (o) key, then the (*) key.

⚠ *Note: This service may not be available in your network. Ask your dealer about this service.*

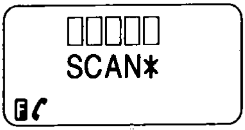
Returning to the Radio-phone Mode

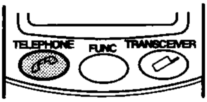
To switch from the SD trunking mode to the radio-phone mode, follow the instructions below. A quick reference for changing modes is given in Appendix D "Switching Operation Modes."

Switch to the radio-phone mode.


TELEPHONE
FUNC
TRANSCEIVER

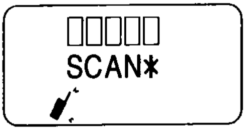
Press the FUNC key.

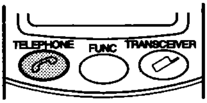



TELEPHONE
FUNC
TRANSCEIVER

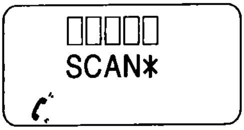
Press the TELEPHONE key.

The transceiver icon (/) blinks.




TELEPHONE
FUNC
TRANSCEIVER

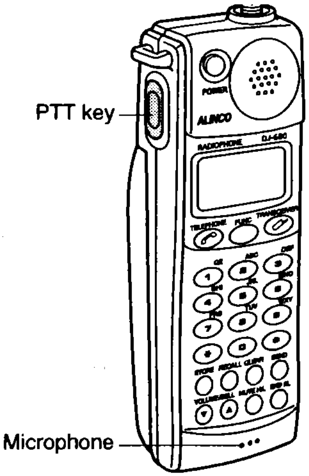
Press the TELEPHONE key again.



The telephone icon will appear and blink for about 30 seconds before lighting solidly.

If you press the TELEPHONE key one more time while the telephone icon is blinking, you can return to the SD trunking mode.

3. Talk with the other party.

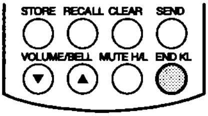

PTT key
POWER
ALINCO
RADIOPHONE
DJ-680
TELEPHONE
FUNC
TRANSCEIVER
Microphone

The radio dials the number immediately and you can hear the ringing tone. When the other party answers the call, you will hear a double-beep.

Hold the PTT key down while you speak, and release it while listening to the other party talking.

To transmit at high power, press the FUNC key, then the MUTE H/L key (see "2.5 Changing Output Power Level").

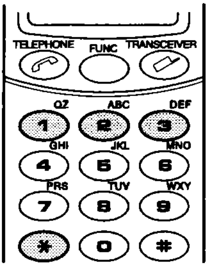
4. Hang up the phone.


STORE
RECALL
CLEAR
SEND
VOLUME/BELL
MUTE H/L
END KL

Release the PTT key, and press the END KL key to disconnect the connection.

Method 2

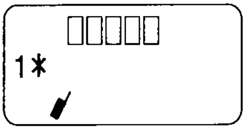
1. Enter the transmission command.


TELEPHONE
FUNC
TRANSCEIVER
QZ
ABC
DEF
1
2
3
GHI
JKL
MNO
4
5
6
PRS
TUV
WXY
7
8
9
✱
0
#

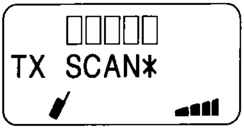
To call a telephone, press the QZ 1 key (or ABC 2 key), then the ✱ key.

To call another trunked radio, press the DEF 3 key, then the ✱ key.

You will hear two beeps when the radio successfully establishes the connection with the base station.



When entering 1✱.



While dialing

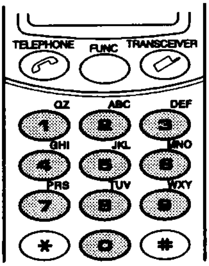
Dialing

The procedures for dialing a telephone or a transceiver are the same, except that they use the different transmission commands. To call a telephone, use the command *1* ✱ , or *2* ✱ (you must ask your dealer which command you should use). To call a transceiver, use *3* ✱ . There are two methods for manual dialing, and you can use whichever is convenient to you.

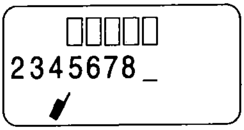
You should quickly go through the procedures below because the radio will abort your entry if no action is taken for about 5 seconds.

Method 1

1. Specify the telephone number or called radio's subscriber number of the other party.

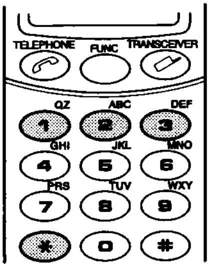

TELEPHONE
FUNC
TRANSCEIVER
QZ
ABC
DEF
GHI
JKL
MNO
PRS
TUV
WXY

Use the numeric keys to enter the desired number.

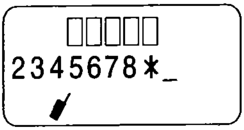


If you enter a wrong number, stop entering numbers and wait until **SCAN ✱** appears again. This clears your entry, allowing you to re-enter numbers. Pressing the CLEAR ○ key does not erase your entry though the radio returns to the **SCAN ✱** display.

2. Enter the transmission command.

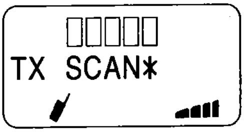

TELEPHONE
FUNC
TRANSCEIVER
QZ
ABC
DEF
GHI
JKL
MNO
PRS
TUV
WXY

To call a telephone, press the 1 key (or 2 key), then the ✱ key.



When entering *1*✱.

e.g.) When dialing 234-5678, your entry must be **23456781 ✱** or **23456782 ✱**.



While dialing

To call a transceiver, press the 3 key, then the ✱ key.

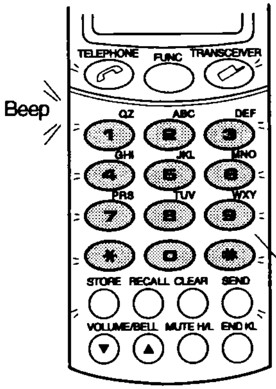
e.g.) When calling a transceiver No.1005, your entry must be **10053 ✱**.

If the call fails or if no one takes your call, you will hear a busy-signal (three low tones).

Receiving Calls

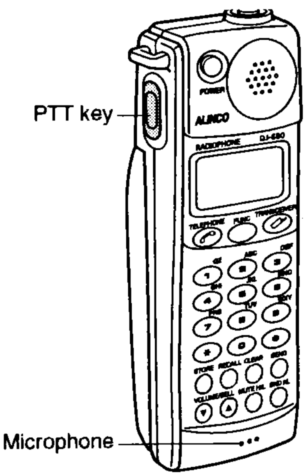
When the radio receives a call from a telephone, it beeps and the backlight of the keys blinks.

1. Answer the call.


Beep
TELEPHONE
FUNC
TRANSCEIVER
QZ
ABC
DEF
GHI
JKL
MNO
PRS
TUV
WXY
STORE
RECALL
CLEAR
SEND
VOLUME/BELL
MUTE H/L
END K/L
Backlight of the keys blinks.

Press any of the numeric, (*), or (#) key to respond the call. Start conversation after a double-beep.

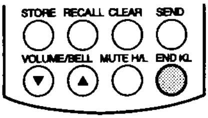
2. Talk with the caller.


PTT key
Microphone
POWER
ALINCO
RADIOPHONE
DJ-680

Hold the (PTT) key down as you speak, and release it while listening to the party talking.

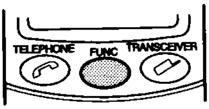
To transmit at the high power, press the (FUNC) key, then the (MUTE H/L) key (see "2.5 Changing Output Power Level").

3. Hang up the phone.

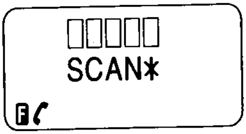

STORE
RECALL
CLEAR
SEND
VOLUME/BELL
MUTE H/L
END K/L

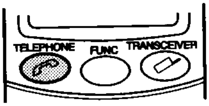
Release the (PTT) key, and press the (END K/L) key to disconnect the connection.

Switch from the radio-phone mode to the SD trunking mode.


TELEPHONE
FUNC
TRANSCEIVER

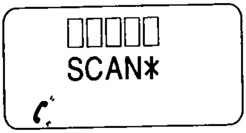
Press the FUNC key.

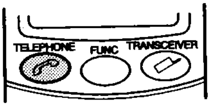



TELEPHONE
FUNC
TRANSCEIVER

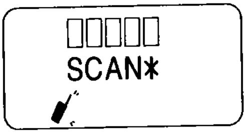
Press the TELEPHONE key.

The telephone icon (☎) blinks.




TELEPHONE
FUNC
TRANSCEIVER

Press the TELEPHONE key again.



The transceiver icon will (📟) appear and blink for about 30 seconds before lighting solidly.

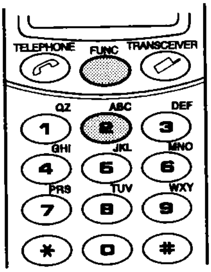
If you press the TELEPHONE key one more time while the transceiver icon (📟) is blinking, you can return to the radio-phone mode.

Changing Site (Roaming)

In the SD trunking mode, a *site* means a service area of the trunking network where your radio can work. If you are in another area, you need to change to the site appropriate to that area. Ask your dealer which sites are available in the SD trunking mode. Note that the following procedure switches only to the sites configured for the current operation mode.

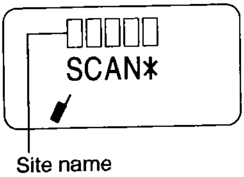
⚠ *Note: The following procedure is not needed if auto-roaming is enabled on your radio by the dealer. The radio then automatically changes the site when initiating a call under another service area.*

Change Site.


TELEPHONE
FUNC
TRANSCEIVER
QZ
ABC
DEF
1
2
3
GHI
JKL
MNO
4
5
6
PRS
TUV
WXY
7
8
9
*
0
#

Press the FUNC key to display **F**, then press the ABC 2 key.

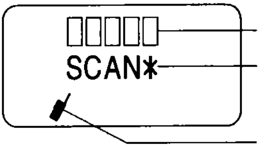
The site name will change.


SCAN*
Site name

3.2 SD Trunking Mode

This section describes operations in the SD trunking (semi-duplex trunking) mode. This mode allows communications with a transceiver as well as a telephone. Note that you cannot hear the party's voice while you are talking.

In the semi-duplex trunking mode, the radio displays the current site name and transceiver icon like the following figure.



Site name

SCAN indicates the radio is in the trunking mode, waiting for an incoming call.

Transceiver icon

The SD trunking mode supports the auto-line-hunting feature. Upon initiating a call, if the base station is busy, the radio automatically skips that channel. If the radio cannot find an available base station (i.e. a channel), a busy-signal sounds and the radio aborts the call.

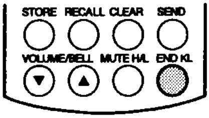
⚠ *Note: In this manual, the radio-phone and semi-duplex trunking modes are inclusively called trunking mode.*

Entering the SD Trunking Mode

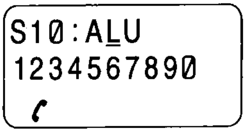
The radio will be in the radio-phone mode at power-on. If necessary, switch it to the SD trunking mode. If no site is configured by the dealer for the SD trunking mode, the radio does not switch to that mode.

A quick reference for changing modes is given in Appendix D "Switching Operation Modes."

3. Search for the specified title.


STORE
RECALL
CLEAR
SEND
VOLUME/BELL
MUTE H/L
END KL

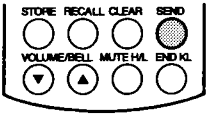
Press the END KL ◯ key.



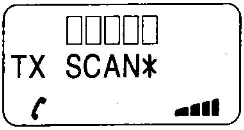
S10:ALU
1234567890

The specified title will appear if it is found. If not found, the closest title will appear.

4. Start dialing.


STORE
RECALL
CLEAR
SEND
VOLUME/BELL
MUTE H/L
END KL

Press the SEND ◯ key.

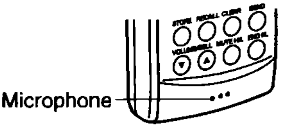


□□□□□
TX SCAN*

You will hear successive tones while the radio is sending the dial number corresponding to the specified memory title. Shortly, the radio calls the number.

If the call fails, you will hear a busy-signal (three low tones). If you get the ringing-tone but no one takes your call, you can abort it by pressing the END KL ◯ key.

5. Talk with the other party.

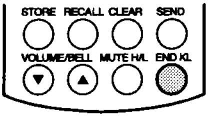

Microphone

When the other party takes the call, speak into the microphone.

If the other party has difficulty in hearing your voice, hold the (PTT) key down to transmit at high power (see "2.5 Changing Output Power Level").

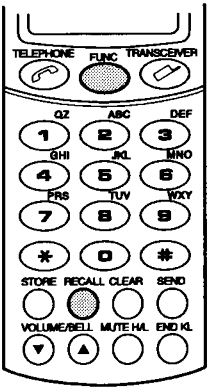
To save battery power, press the SEND ◯ key (see "Saving Battery Power" earlier in this chapter).

6. Hang up the phone.

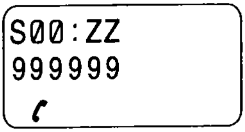

STORE
RECALL
CLEAR
SEND
VOLUME/BELL
MUTE H/L
END KL

Press the END KL ◯ key to disconnect the connection.

1. Enter the auto-dialing mode (for specifying a memory title).


TELEPHONE
FUNC
TRANSCEIVER
QZ
ABC
DEF
1
2
3
GHI
JKL
MNO
4
5
6
PRS
TUV
WXY
7
8
9
*
0
#
STORE
RECALL
CLEAR
SEND
VOLUME/BELL
MUTE HL
END KL

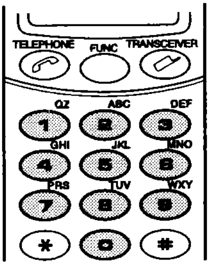
Press the FUNC key to display **F**, then press the RECALL key.



S00:ZZ
999999

The memory number you last used will appear.

2. Specify a memory title.


TELEPHONE
FUNC
TRANSCEIVER
QZ
ABC
DEF
1
2
3
GHI
JKL
MNO
4
5
6
PRS
TUV
WXY
7
8
9
*
0
#

Enter the entire or a part of the memory title.

You only have to enter one or more characters from the beginning of the title, and keep in mind that the character at the cursor (_) and before are used to search for the title. For example, when you have two titles **BASE** and **BANK** and want to find **BASE**, enter **BAS** and place the cursor at the **S**.

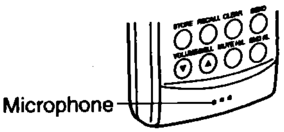
As an alternative, you can display previous titles alphabetically by pressing the FUNC key, then the * key, and subsequent titles by pressing the FUNC key, then the # key.

To enter numbers (0 to 9), use the numeric keys.

To enter letters (A to Z), press the FUNC key to display **F**, then press the QZ 1 key to switch to the letter-entry mode. Use the numeric keys to enter the desired letter.

To delete a character, press the 0 key in the letter-entry mode.

4. Talk with the other party.

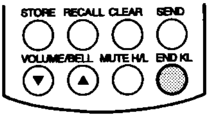


When the other party takes the call, speak into the microphone.

If the other party has difficulty in hearing your voice, hold the PTT key down to transmit at high power (see "2.5 Changing Output Power Level").

To save battery power, press the SEND ○ key (see "Saving Battery Power" earlier in this chapter).

5. Hang up the phone.



Press the END KL ○ key to disconnect the connection.

Auto-dialing by Specifying Memory Titles

Auto-dialing allows you to make a call by entering a few characters from the beginning of the memory title, instead of a telephone number. To use this function, you must previously program the memory (see "Programming the Auto-dial Memory" earlier in this chapter). You should quickly go through the procedures below because the radio will abort your entry if no action is taken for about 10 seconds.

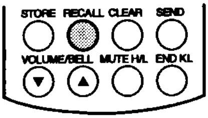
(Continued to page 36)

Auto-dialing by Specifying Memory Numbers

Auto-dialing allows you to make a call by entering a two-digit memory number instead of a long telephone number. To use this function, you must pre-program the memory (see "Programming the Auto-dial Memory").

You should quickly go through the procedures below because the radio will abort your entry if no action is taken for about 10 seconds.

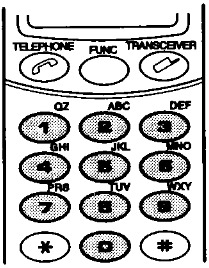
1. Enter the auto-dialing mode (for specifying a memory number).


STORE
RECALL
CLEAR
SEND
VOLUME/BELL
MUTE H/L
END KL

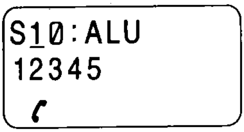
Press the RECALL ○ key.

The memory number you last used will appear.

2. Specify a memory number.


TELEPHONE
FUNC
TRANSCEIVER
QZ
ABC
DEF
1
2
3
GHI
JKL
MNO
4
5
6
PRS
TUV
WXY
7
8
9
*
0
#

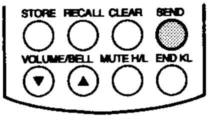
Use the numeric keys to enter a memory number (two digits).


S10:ALU
12345

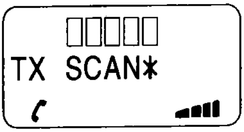
To display one number smaller, press the FUNC ○ key, then the (*) key. To display one number larger, press the FUNC ○ key, then the (#) key.

If you specify a number not in the memory, NOT FOUND will appear. Enter a correct number.

3. Start dialing.


STORE
RECALL
CLEAR
SEND
VOLUME/BELL
MUTE H/L
END KL

Press the SEND ○ key.

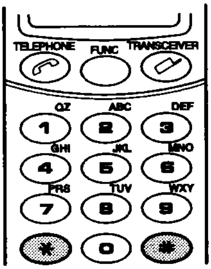

□□□□□
TX SCAN*

You will hear successive tones while the radio is sending the number stored in the memory. Shortly, the radio calls the number.

If the call fails, you will hear a busy-signal (three low tones). If you get the ringing-tone but no one takes your call, you can abort it by pressing the END KL ○ key.

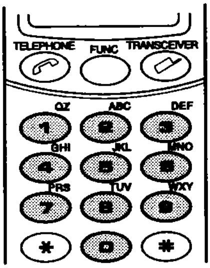
(Continued to page 35)

3. Modify or clear the data.


TELEPHONE
FUNC
TRANSCEIVER
QZ
ABC
DEF
GHI
JKL
MNO
PRS
TUV
WXY

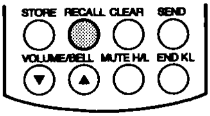
When you want to modify the data, use the (✱) or (#) key to move the cursor to the position you want to change. You can type over the existing characters.

To enter numbers (0 to 9), use the numeric keys.

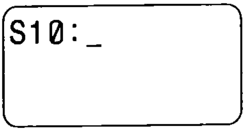

TELEPHONE
FUNC
TRANSCEIVER
QZ
ABC
DEF
GHI
JKL
MNO
PRS
TUV
WXY

To enter letters (A to Z), press the FUNC ○ key to display **F** then press the QZ (1) key to enter the letter-entry mode. Enter the desired letter with the numeric key with the corresponding character marked at the upper-right.

If you want to enter a numeric character after engaging the letter-entry mode, press the FUNC ○ key to display **F**, then press the QZ (1) key again. You will return to the number-entry mode.

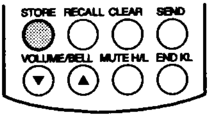

STORE
RECALL
CLEAR
SEND
VOLUME/BELL
MUTE H/L
END KL

When you want to clear the entire data stored in this memory location, press the CLEAR ○ key.



S10:_

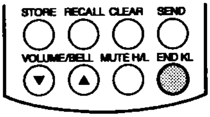
4. Store your changes.


STORE
RECALL
CLEAR
SEND
VOLUME/BELL
MUTE H/L
END KL

Press the STORE ○ key to store the new settings. You must also press the STORE ○ key after you clear the data.

When you want to modify another memory location, repeate steps 2 through 4.

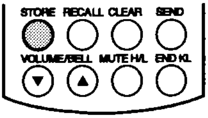
5. Exit the auto-dial programming mode.


STORE
RECALL
CLEAR
SEND
VOLUME/BELL
MUTE H/L
END KL

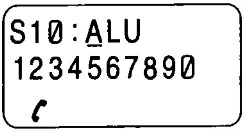
Press the END KL ○ key.

(Continued to page 34)

5. Store your changes.


STORE
RECALL
CLEAR
SEND
VOLUME/BELL
MUTE H/L
END KL

Press the $\overset{\text{STORE}}{\bigcirc}$ key. The cursor will move to the beginning of the title area.

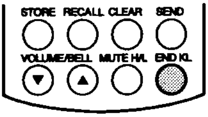


S10:ALU
1234567890

If you want to abort your entry, press the $\overset{\text{END KL}}{\bigcirc}$ key before pressing the $\overset{\text{STORE}}{\bigcirc}$ key.

When you want to program another memory location, repeate steps 2 through 5.

6. Exit the auto-dial programming mode.


STORE
RECALL
CLEAR
SEND
VOLUME/BELL
MUTE H/L
END KL

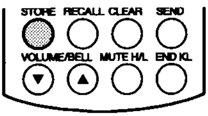
Press the $\overset{\text{END KL}}{\bigcirc}$ key.

Modifying or Clearing Telephone Numbers and Titles

You can change or clear the data in the memory you have programmed already.

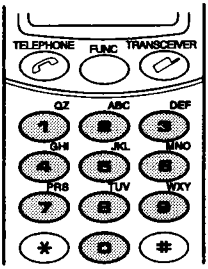
You should quickly go through the procedures below because the radio will abort your entries if no action is taken for about 5 seconds. You can exit the dial-programming mode anytime by pressing the $\overset{\text{END KL}}{\bigcirc}$ key.

1. Enter the auto-dial programming mode.

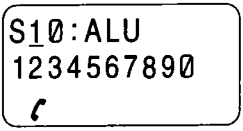

STORE
RECALL
CLEAR
SEND
VOLUME/BELL
MUTE H/L
END KL

Press the $\overset{\text{STORE}}{\bigcirc}$ key. The memory number last used and the corresponding data will appear.

2. Specify the memory number.


TELEPHONE
FUNC
TRANSCEIVER
QZ
ABC
DEF
GHI
JKL
MNO
PRS
TUV
WXY

Use the numeric keys to enter the number of the memory location which you want to modify or clear.



S10:ALU
1234567890

(Continued to page 33)

To move the cursor to the right, press the (#) key, and to the left, press the (*) key.

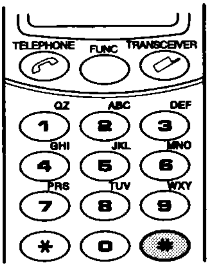
To delete a character, in the letter-entry mode, press the (0) key.

If you want to enter a numeric character after engaging the letter-entry mode, press the (FUNC) key to display **F**, then press the (1) key again. You will return to the number-entry mode.

Example: To enter **ALU**:

a. Press the (FUNC) key, then the (1 QZ) key to enter the character-entry mode.
b. Press the (2 ABC) key once to enter **A**.
c. Press the (#) key to move the cursor to the next column.
d. Press the (5 JKL) key three times to enter **L**.
e. Press the (#) key to move the cursor to the next column.
f. Press the (8 TUV) key twice to enter **U**.

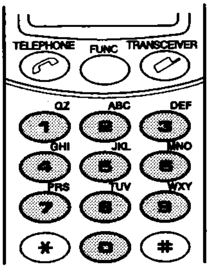
4. Enter the telephone number.


TELEPHONE
FUNC
TRANSCEIVER
QZ
ABC
DEF
1
2
3
GHI
JKL
MNO
4
5
6
PRS
TUV
WXY
7
8
9
*
0
#

Press the (#) key until the cursor is at the beginning of the next line.

```
S10:ALU
```

Telephone number area

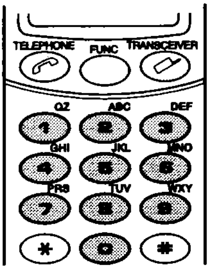

TELEPHONE
FUNC
TRANSCEIVER
QZ
ABC
DEF
1
2
3
GHI
JKL
MNO
4
5
6
PRS
TUV
WXY
7
8
9
*
0
#

Use the numeric keys to enter the telephone number. You can enter up to 16 digits, but only 12 digits are visible at once. When you enter twelfth or later digits, the numbers you have entered will shift to the left.

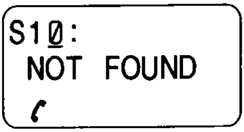
```
S10:ALU
1234567890
```

(Continued to page 32)

2. Select a memory number.


TELEPHONE
FUNC
TRANSCEIVER
QZ
ABC
DEF
GHI
JKL
MNO
PRS
TUV
WXY
1
2
3
4
5
6
7
8
9
*
0
#

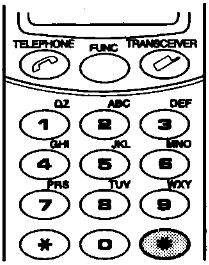
Use the numeric keys to enter a two-digit memory number. The range is from 00 to 99.


S10:
NOT FOUND

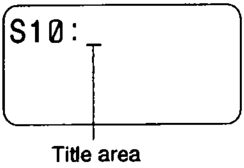
If you specify a memory number you have not programmed, **NOT FOUND** appears, indicating no data is stored in that memory.

To display one number smaller, press the (FUNC) key, then the (*) key. To display one number larger, press the (FUNC) key, then the (#) key.

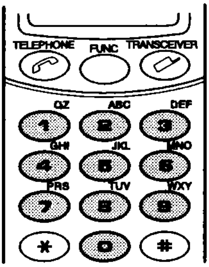
3. Enter a memory title.


TELEPHONE
FUNC
TRANSCEIVER
QZ
ABC
DEF
GHI
JKL
MNO
PRS
TUV
WXY
1
2
3
4
5
6
7
8
9
*
0
#

Use the (#) key to move the cursor (_) to the beginning of the title area.

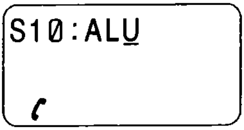

S10:_
Title area

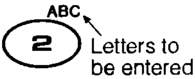
Then, enter a title (up to 8 characters), in the following manner.


TELEPHONE
FUNC
TRANSCEIVER
QZ
ABC
DEF
GHI
JKL
MNO
PRS
TUV
WXY
1
2
3
4
5
6
7
8
9
*
0
#

To enter numbers (0 to 9), use the numeric keys.

To enter letters (A to Z), press the (FUNC) key to display **F**, then press the (1) key to switch to the letter-entry mode. Enter the desired letter with the numeric key with the corresponding character marked at the upper-right. The letter to be entered depends on which key you press and how many times you press it (e.g. to enter "C," press the (2) key three times).




ABC
2
Letters to be entered

(Continued to page 31)

Programming the Auto-dial Memory

The radio can store 100 numbers for auto dialing. Once you load the memory, you can call the desired party just by specifying a two-digit number, or a few characters from the beginning of the title as memorized. You do not have to enter a long redundant telephone number.

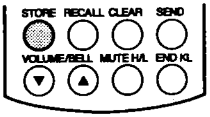
The memory numbers range from S00 to S99. A telephone number can contain up to 16 digits, while a memory title can contain up to 8 alphanumeric characters.

Note that the radio does not receive a call while you are programming or modifying the memory.

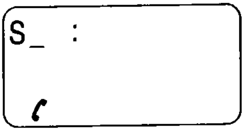
Programming Telephone Numbers and Titles

You should quickly go through the procedures below because the radio will abort your entries if no action is taken for about 10 seconds. You can exit the dial-programming mode anytime by pressing the END KL ○ key.

1. Enter the auto-dial programming mode.



Press the STORE ○ key.



If this is the first time you enter the auto-dial programming mode, the initial memory number will not appear, and only the letter S will be displayed. Otherwise, the memory number last used and the corresponding data will appear.

(Continued to page 30)

Saving Battery Power

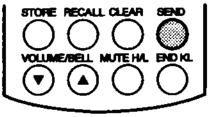
The radio-phone mode has a power saving function which extends battery service life. When battery-saving is enabled, you have to press and hold the PTT key while you are talking. This is because the radio transmits your voice only when the PTT key is pressed.

If you have difficulty in contacting a distant base station while the battery-saving function is on, you can switch to the high power mode.

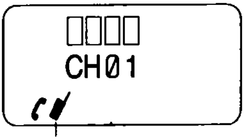
Enable battery saving (low power)	▶	Disable battery saving (low power)	▶	Enable battery saving (high power)	▶	Disable battery saving (high power)

Saves more power ←——→ Consumes more power

Save battery power.



While communicating with a party, press the SEND key.



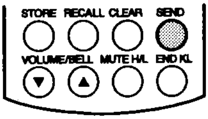
Transceiver icon

The transceiver icon (/) appears next to the telephone icon : now you are in the battery saving mode, and you must press and hold the PTT key while you are speaking.

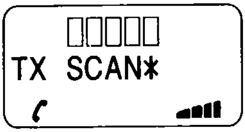
To switch between high and low power:
Press the FUNC key to display F , and press the MUTE H/L key. The high-power mode icon (H) will appear. Pressing these keys again returns you to the low power mode.

To disable battery-saving, press the SEND key again.

2. Start dialing.


STORE
RECALL
CLEAR
SEND
VOLUME/BELL
MUTE H/L
END KL

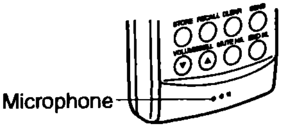
Press the SEND ○ key.



You will hear successive tones while the radio is sending the number.
Shortly, your radio calls the number.

If the call fails, you will hear a busy signal (three low beeps). If no one answers your call, you can abort it by pressing the END KL ○ key.

3. Talk with the other party.

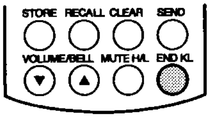

Microphone

When the other party takes the call, speak into the microphone.

If the other party has difficulty in hearing your voice, hold the PTT key down to transmit at high power (see "2.5 Changing Output Power Level").

To save battery power, press the SEND ○ key (see "Saving Battery Power" later in this chapter).

4. Hang up the phone.

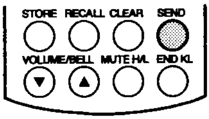

STORE
RECALL
CLEAR
SEND
VOLUME/BELL
MUTE H/L
END KL

Press the END KL ○ key to disconnect the connection.

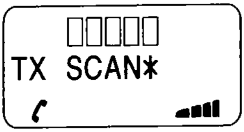
Redialing

You can repeatedly call the most recently dialed number just by pressing a key. Redialing does not function if you have not dialed since power-on.

Call the most recently dialed number.

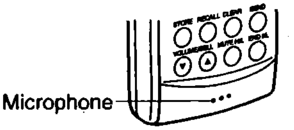

STORE
RECALL
CLEAR
SEND
VOLUME/BELL
MUTE H/L
END KL

Press the SEND ○ key.



The radio will automatically call the number you last dialed.

2. Conversation

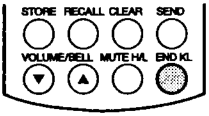

Microphone
STORE
RECALL
CLEAR
SEND
VOLUME/BELL
MUTE HL
END KL

Speak into the microphone and talk as you would do on an ordinary telephone.

To transmit at high power, press and hold the (PTT) key (see "2.5 Changing Output Power Level").

To save battery power, press the SEND ○ key during the conversation (see "Saving Battery Power" later in this chapter).

3. Hang up the phone.

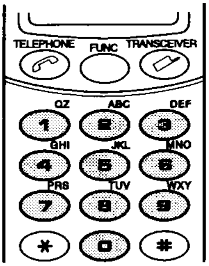

STORE
RECALL
CLEAR
SEND
VOLUME/BELL
MUTE HL
END KL

Press the END KL ○ key to disconnect the connection.

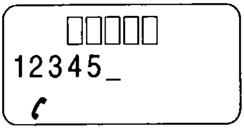
Manual Dialing

Normally, you will use the following procedures to make a call. You should quickly go through the procedures below because the radio will abort your entry if no action is taken for about 5 seconds.

1. Enter the telephone number.


TELEPHONE
FUNC
TRANSCEIVER
QZ
ABC
DEF
1
2
3
GHI
JKL
MNO
4
5
6
PRS
TUV
WXY
7
8
9
*
0
#

Use the numeric keys to enter the telephone number.



If you enter a wrong number, press the CLEAR ○ key to clear your entry and enter the correct number.

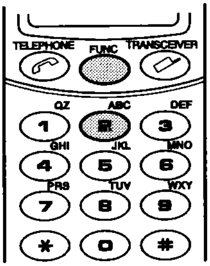
(Continued to page 27)

Changing Site (Roaming)

A *site* in the radio-phone mode means a service area of the trunking network where your radio can work. If you are in another area, you need to change to the site appropriate to that area. Ask your dealer which sites are available in the radio-phone mode. Note that the following procedure switches only to the sites configured for the current operation mode.

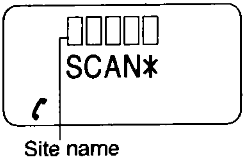
⚠ *Note: The following procedure is not needed if auto-roaming is enabled on your radio by the dealer. The radio then automatically changes the site when initiating a call under another service area.*

Change Site.


TELEPHONE
FUNC
TRANSCEIVER
QZ
ABC
DEF
1
2
3
GHI
JKL
MNO
4
5
6
PRS
TUV
WXY
7
8
9
*
0
#

Press the FUNC key to display **F**, then press the ABC 2 key.

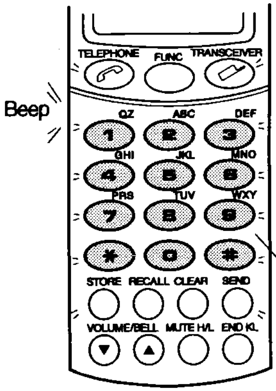
The site name will change.


SCAN*
Site name

Receiving Calls

When the radio receives a call from a telephone, it beeps and the backlight of the keys blinks.

1. Answer the call.


TELEPHONE
FUNC
TRANSCEIVER
Beep
QZ
ABC
DEF
1
2
3
GHI
JKL
MNO
4
5
6
PRS
TUV
WXY
7
8
9
*
0
#
STORE
RECALL
CLEAR
SEND
VOLUME/BELL
MUTE H/L
END KL
Backlight of the keys blinks.

Press any of the numeric, *, or # key to answer the call. Start conversation after a double-beep.

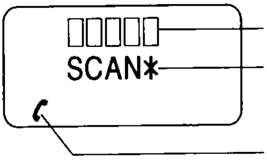
(Continued to page 26)

3.1 Radio-phone Mode

This section describes the operations in the radio-phone mode. Normally, the radio starts up in the radio-phone mode, and you will work in that mode in most cases.

You may dial a party who is using a telephone, not a transceiver, and also receive a call from him/her. Unlike traditional transceivers, you can hear and talk simultaneously as if you were using a telephone.

The radio displays the current site name and telephone icon like the following figure.



Site name

SCAN indicates the radio is in the trunking mode, waiting for an incoming call.

Telephone icon

The radio-phone mode supports *an auto-line-hunting feature.* Upon initiating a call, if the base station is busy, the radio automatically skips that channel. If the radio cannot find an available base station (i.e. a channel), a busy-signal sounds and the radio aborts the call.

Note:
- *The radio will be in a mode other than the radio-phone mode at power-on if the dealer did not configure for that mode.*
- *In this manual, the radio-phone and semi-duplex trunking (SD trunking) modes are inclusively called trunking mode.*

Chapter 3

Operation with the Logic Board

This chapter describes how to receive calls and dial through a radio which is equipped with the EJ-27D logic board. Each section covers the operations dedicated to each operation mode: the radio-phone, semi-duplex trunking, or two-way radio mode.

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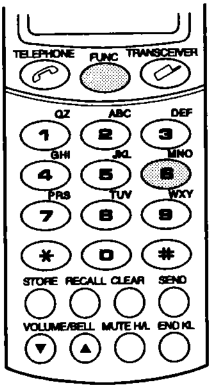
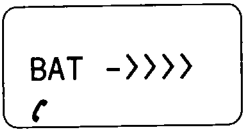
2.6 Checking Battery Level

It is recommended to check the battery level from time to time while operating the radio.

Check battery level.


TELEPHONE
FUNC
TRANSCEIVER
QZ
ABC
DEF
1
2
3
GHI
JKL
MNO
4
5
6
PRS
TUV
WXY
7
8
9
*
0
#
STORE
RECALL
CLEAR
SEND
VOLUME/BELL
MUTE H/L
END K/L

Press the FUNC ◯ key to display F, then press the MNO ⑥ key.



The current battery level will be indicated by greater-than (>) signs.

When you have just installed a fully-charged batterypack (or new drycells), five greater-than signs (>>>>>) will appear. The lower the battery level is, the fewer greater-than signs are displayed.

When only one greater-than sign appears, recharge the battery pack (or replace the drycells with new ones).

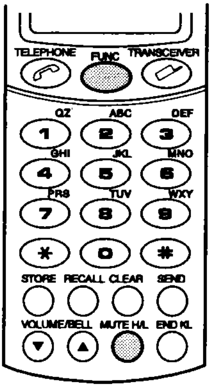
Press the END K/L ◯ key to return to the normal mode.

⚠ *Note:*
If no action is taken for 5 seconds after pressing the FUNC ◯ and MNO ⑥ keys, the radio automatically exits the battery-check mode.

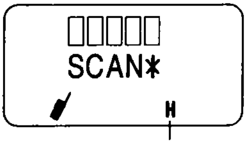
2.5 Changing Output Power Level

The radio starts at high output power. The high power mode is indicated in the display with the "H" icon (see picture below). If you are close to the base station and want to save battery consumption, you may like to switch the radio to the low power mode by following procedures. To secure good communications it is recommended that the radio be normally kept in the high power mode, and change to low power only when you are sure to reach the base station with low power.

Change the output power in other modes


TELEPHONE
FUNC
TRANSCEIVER
QZ
ABC
DEF
1
2
3
GHI
JKL
MNO
4
5
6
PRS
TUV
WXY
7
8
9
*
0
#
STORE
RECALL
CLEAR
SEND
VOLUME/BELL
MUTE H/L
END H/L

Press the FUNC ○ key to display **F** then press the MUTE H/L ○ key.



High-power icon

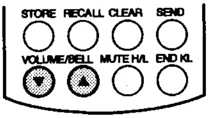
"H" disappears, indicating the transceiver has entered the low power mode.

To return to the high power mode, press the FUNC ○ key, then the MUTE H/L ○ key ("H" re-appears).

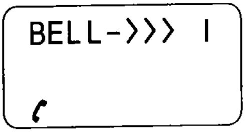
2.3 Adjusting the Ringing Tone Volume

When receiving a call, you can change the volume of the ringing tone.

Adjust the volume.


STORE
RECALL
CLEAR
SEND
VOLUME/BELL
MUTE H/L
END KL

While receiving a ringing tone, use the ▼ key to decrease the volume, and the ▲ key to increase it.



The volume level is indicated by greater-than (>) signs.

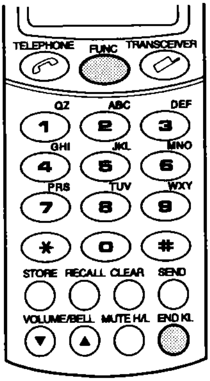
Press the END KL ○ key to return to the normal mode.

⚠ Note: *If no action is taken for about 5 seconds after pressing the* ▼ *or* ▲ *key, the radio automatically returns to the normal mode.*

2.4 Locking the Keys

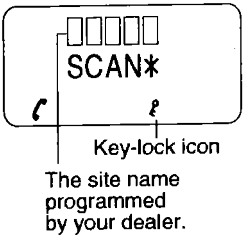
The *keylock* disables all the keys except the (PTT) key. This prevents you from accidentally pressing keys you do not want or need to. In the trunking mode, the keylock is temporarily released when the radio receives a call, and reengaged when the conversation ends. Note that you cannot change the keylock setting during communication.

Lock the keys.


TELEPHONE
FUNC
TRANSCEIVER
QZ
ABC
DEF
1
2
3
GHI
JKL
MNO
4
5
6
PRS
TUV
WXY
7
8
9
*
0
#
STORE
RECALL
CLEAR
SEND
VOLUME/BELL
MUTE H/L
END KL

Press the FUNC ○ key to display **F**, then press the END KL ○ key.

The key symbol appears, indicating the keylock is ON.


SCAN*
Key-lock icon
The site name programmed by your dealer.

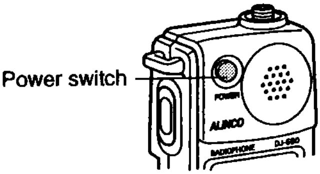
Release the keylock.

Press the FUNC ○ key, then END KL ○ key. The keylock symbol disappears.

2.1 Turning the Power ON/OFF

To turn the power ON or OFF, follow the instructions below.

Turn the radio ON.


Power switch
POWER
ALINCO
RADIOPHONE

Hold the POWER switch down until you hear a beep and a message appears on the display.

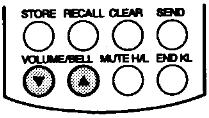
Turn the radio off.

Press and hold the POWER switch until the message disappears.

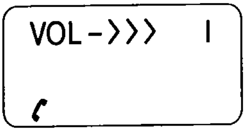
2.2 Adjusting Radio Volume

To control the speaker volume, follow the instructions below.

Adjust the volume.


STORE
RECALL
CLEAR
SEND
VOLUME/BELL
MUTE H/L
END KL

Use the ▼ key to decrease the volume, and the ▲ key to increase it.



The volume level is indicated by greater-than (>) signs.

Press the END KL ○ key to return to the normal mode.

⚠ *Note:*
If no action is taken for about 5 seconds after pressing the ▼ or ▲ key, the radio automatically returns to the normal mode.

Chapter 2

Basic Operation

This chapter describes basic operations, including how to turn the power ON and OFF, adjust radio and ringing volume, lock keys, change output power level, and program auto-dial memory. These instructions are common to all users.

1.6 Daily Maintenance

This section describes radio maintenance and how to remove the battery pack.

Cleaning

Caution:
- *Be sure to turn the power off before cleaning the radio.*
- *Do not use ammonia-based cleaners.*

When the radio becomes dirty, clean the outside with a slightly damp cloth (use water only).

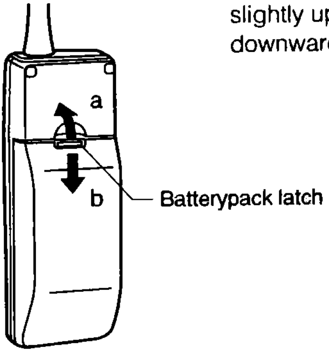
Removing the Batterypack

You will need to remove the batterypack from the radio to clean the unit or to replace (or recharge) the battery.

Caution: Turn the power off before removing the batterypack to avoid damage to the equipment.

Remove the batterypack

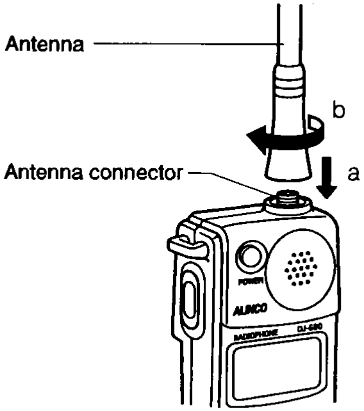
a) While pressing the batterypack latch slightly upward, *b)* slide the batterypack downward.



Attaching the Antenna

Be sure to use the antenna which came with your radio.

Attach the antenna to the radio.



Locate the antenna connector on the top panel of the radio.

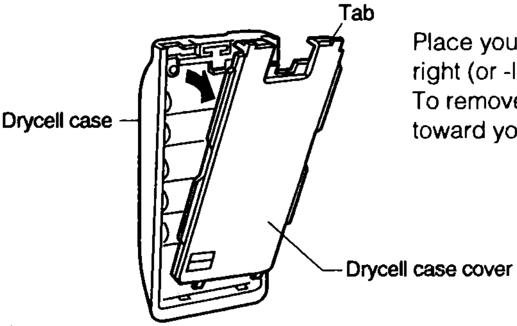
a. Holding the antenna by its base, align the male screw of the antenna with the female screw of the radio's antenna connector.

b. Turn the antenna clockwise until it stops.

To remove the antenna from the radio, turn the antenna counterclockwise.

Depending on the version of the radio, you may have received a telescopic extendable antenna instead of a rubber antenna. When using the telescopic antenna, keep it retracted and extend fully only during a conversation.

1. Open the drycell case.

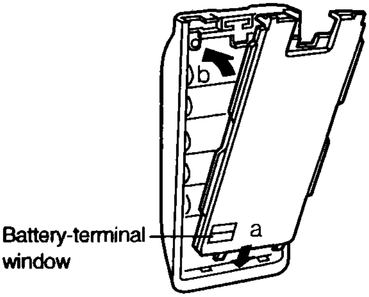


Place your finger on the tab at the upper-right (or -left) of the drycell case cover. To remove, carefully pull the cover toward you.

2. Fill the drycells.

⚠ *Caution: Place the batteries in the correct direction. The negative pole (-) must be connected to a metal prong inside the drycell case.*

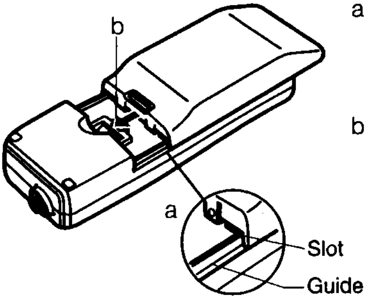
3. Refit the cover on the drycell case.



a. Holding the cover with the battery-terminal window on the lower-left, align the lower edge of the cover with the lower edge of the drycell case.

b. Press the cover until it snaps into place.

4. Mount the drycell case on the radio.



a. Align the two slots on the rear of the drycell case with the guides on the batterypack mount.

b. Slide the drycell case upward until the case snaps into place.

1.5 Setting Up the DJ-680

This section describes the dealer-configured parameters, and the instructions for installing batteries and attaching the antenna.

What You Need to Ask the Dealer

Your dealer will configure the radio before you take it home. To operate the radio successfully, ask the dealer about the items listed below before using it. The radio operates differently depending on the configuration.

- Whether or not the EJ-27D logic board is installed on the radio. If installed, the trunking functions (such as the radio-phone mode) are available.
- The operation mode set for each site (i.e. the radio-phone, SD trunking, and two-way radio modes)

For more information about operation modes and sites, see section 1.3 "Understanding the Terms Used in Radio Operations."

Installing Batteries

Either drycell case (five AA cells) or a Ni-Cd battery pack is available for power supply. This sub-section describes how to install the drycells using the drycell case.

⚠ *Note:*
- *For information about available Ni-Cd battery packs, see Appendix C "Optional Accessories List."*
- *You can check the battery level by pressing the* FUNC ○ *and* ● *keys in that order. See section 2.6 "Checking the Battery Level."*
- *The radio has a battery saving feature which extends battery service life. See "Saving Battery Power" in 3.1 "Radio-phone Mode."*

6. ✱ : The scrambler icon appears when the scrambling function is enabled on the current channel (this function does not work in the radio-phone or SD trunking mode).

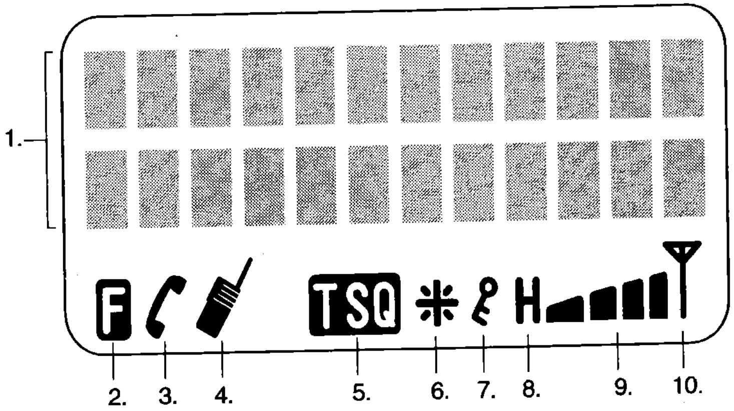
7. 🔑 : The key-lock icon appears while the keys are locked.

8. H : The high-power icon appears when the output power level is set to high. It disappears when output power is set to low.

9. ▂▄▆█: The S-meter indicates the strength of the received signal. The meter shows the output power level during transmission.

10. Y : The busy icon appears when the radio is receiving signals.

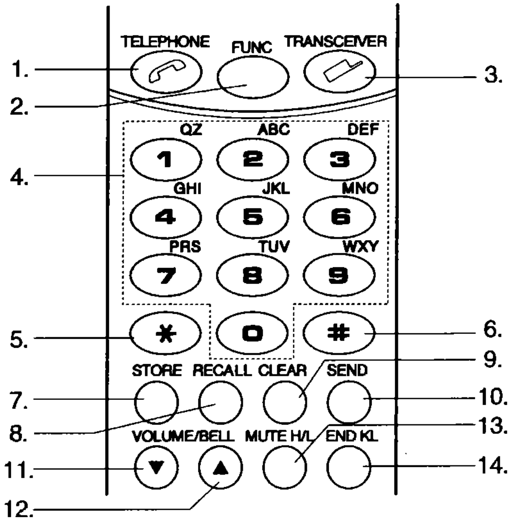
Display



1. Dot-matrix display:	There are two lines for displaying status messages, the current site name (or channel number), and calling phone number.
2. F :	When you press the FUNC key, the function icon appears, indicating that you can activate the sub functions of the keys.
3. ☎ :	The telephone icon appears when the radio is in the radio-phone mode or duplex mode.
4. 📻 :	The transceiver icon appears when the radio is in the semi-duplex-trunking, semi-duplex, or two-way radio mode. This icon is displayed along with the telephone icon when the radio is under the power saving mode while in the radio-phone mode.
5. TSQ :	The TSQ icon appears when TSQ (tone squelch) is enabled on the current channel (this function does not work in the radio-phone or SD trunking mode).

6. (#) :	Use this key to move the cursor (_) to the right while entering numbers or letters, or to call up higher channel numbers.
7. STORE ○ :	Press this key to memorize telephone numbers for auto-dialing.
8. RECALL ○ :	Press this key to choose an auto-dial number from memories.
9. CLEAR ○ :	Press this key to clear entries.
10. SEND ○ :	Press this key preceded by entering a phone number to initiate a call. To redial the last dialed number in the radio-phone mode, press this key alone. During conversation in the radio-phone mode, pressing this key enables the battery saving function.
11. (▼) :	Use this key to decrease the speaker volume. These keys are also available for ringing tone volume control while you are receiving a call.
12. (▲) :	Use this key to increase the speaker volume. This key is also available for ringing tone volume control while you are receiving a call.
13. MUTE H/L ○ :	Press the FUNC ○ key and press the MUTE H/L ○ key to switch between the high and low output power levels (this function is disabled in the radio-phone mode). If your radio is not equipped with the logic board, you can press this key to monitor the incoming signals.
14. END KL ○ :	Press this key to terminate the conversation. Press the FUNC ○ key, then END KL ○ key to disable the keys (other than the (PTT) key) to prevent from accidental key-operation.

Keys


TELEPHONE
FUNC
TRANSCEIVER
QZ
ABC
DEF
1
2
3
GHI
JKL
MNO
4
5
6
PRS
TUV
WXY
7
8
9
*
0
#
STORE
RECALL
CLEAR
SEND
VOLUME/BELL
MUTE H/L
END KL
1.
2.
3.
4.
5.
6.
7.
8.
9.
10.
11.
12.
13.
14.

1. TELEPHONE: This key is used in combination with the FUNC and/or TRANSCEIVER keys to switch the operation modes. See Appendix D "Switching the Operation Modes."

2. FUNC: Press this key first to activate the sub function of another key. When you press the FUNC key, F will appear on the display.

3. TRANSCEIVER: This key is used in combination with the FUNC and TELEPHONE keys to switch the operation modes. See Appendix D "Switching the Operation Modes."

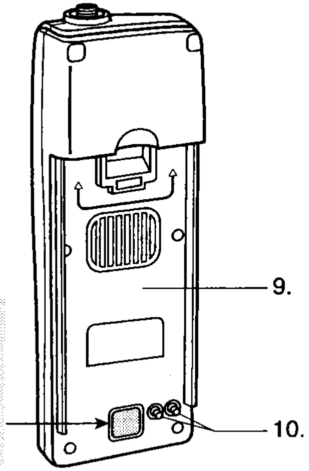
4. 0-9: The numeric keys are used to enter numbers and alphabetic characters.

5. *: Use this key to move the cursor (_) to the left while entering numbers or letters, or to call up lower channel numbers.

7. Keys:	These keys are used to operate the radio. See "Keys" later in this section.
8. Microphone:	Speak into this microphone when talking with your party.

Rear and Right Side Panels

Caution:
DO NOT OPEN THIS CAP!
Touching the internal components or penetration of foreign matter inside may cause the radio to malfunction.

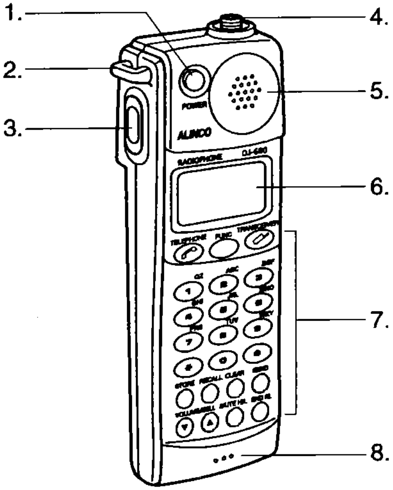


9. Batterypack mount:	Mount the batterypack here.
10. Battery terminals: (power-supply terminals)	Power from batteries is supplied through these terminals to the radio.

1.4 Part Names and Functions

This section describes parts by name and function.

Top, Front, and Left Side Panels


1.
2.
3.
4.
5.
6.
7.
8.
POWER
ALINCO
RADIOPHONE
DJ-680
TELEPHONE
FUNC
TRANSCEIVER
STORE
RECALL
CLEAR
SEND
VOL/MEM/BELL
MUTE/HL
END/RL

1. POWER switch:	Press this switch to turn the power ON or OFF.
2. Strap hanger:	Attach a hand strap here, if necessary.
3. (PTT) key:	Push-To-Talk. In the radio-phone mode, press this key to transmit at high power. In other modes, press and hold this key while you are talking.
4. Antenna connector:	Attach the supplied antenna here. See "Attaching the Antenna" in 1.5 "Setting Up the DJ-680."
5. Speaker	
6. Display:	Messages and icons appear in this area, indicating status of the radio. See "Display" later in this section.

Site Configuration

The term *site* in this manual has two different meanings depending on whether or not the trunking function works.

While trunking is activated (that is, in the radio-phone and SD trunking modes), a site means a service area on the trunking network where your radio can work. If you are in another area, you need to change to the site appropriate to that area.

While trunking is NOT activated (that is, in the duplex, semi-duplex, and two-way radio modes), a site refers to a group of channels.

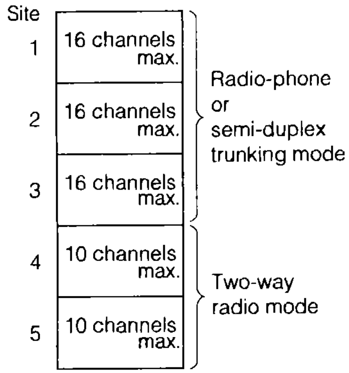
Note: A site is sometimes called a bank or a group of channels.

The radio supports five sites (sites 1 through 5). Your dealer may have configured up to 3 sites for the radio-phone and/or semi-duplex trunking modes (or duplex and/or semi-duplex modes). Sites 4 and 5, if enabled by the dealer, are dedicated for use in the two-way radio mode. This means, when you change the operation mode, the site is also changed.

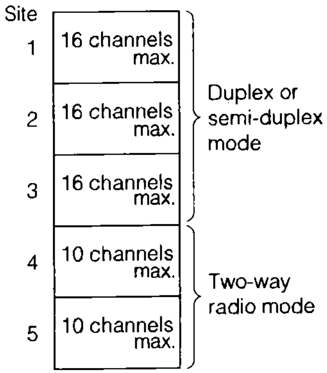
Sites 1 through 3 contain 20 channels per site, however, not more than 16 channels are networked at any one time (the number of actually usable channels is user transparent). Sites 4 and 5 each contain 10 channels maximum.

The dealer assigns a unique name to each site. You will see the site name, instead of the site number, on the display.

With the logic board


Site
1
16 channels max.
2
16 channels max.
3
16 channels max.
4
10 channels max.
5
10 channels max.
Radio-phone or semi-duplex trunking mode
Two-way radio mode

Without the logic board


Site
1
16 channels max.
2
16 channels max.
3
16 channels max.
4
10 channels max.
5
10 channels max.
Duplex or semi-duplex mode
Two-way radio mode

Operation Modes (Not Equipped with the EJ-27D Logic Board)

The radio provides three different operation modes: *duplex*, *semi-duplex*, and *two-way radio* (walkie-talkie) mode. Operation modes are briefly described below. The diagram illustrates the relationship between these modes.

Note that your dealer may have disabled any of the operation modes. Ask the dealer about the modes and functions available on the radio. The trunking function is not available when the logic board is not installed in the radio.

Duplex Mode

Normally, the radio will be in the duplex mode just after power-on. You may dial or receive a call from a party who is using a telephone* (or another full-duplex radio) . You can then hear and talk simultaneously as if you were using a telephone.

Semi-duplex Mode

When you wish to communicate with a transceiver as well as a telephone*, switch the radio to the semi-duplex mode. Note that you cannot hear the party's voice while you are talking because the radio uses half-duplex communication.

Two-way Radio Mode

If you use the DJ-680 as a normal transceiver, select the two-way radio mode. You may communicate with a transceiver, as well as a telephone*. Because the two-way radio mode uses semi-duplex communication, you cannot speak while the other partner is talking.

DJ-680 without the logic board	→	Duplex mode • Communicates with a telephone* and a transceiver in full-duplex (manual operation).	See Chapter 2 "Basic Operation" and Chapter 4 "Operation without the Logic Board"
	→	Semi-duplex mode • Communicates with a transceiver and a telephone* in simplex or semi-duplex (manual operation).	
	→	Two-way radio mode • Communicates with a transceiver and a telephone* in simplex or semi-duplex.	

★ : Communication with a telephone is allowed when base stations are equipped with phone-patch.

Radio-phone Mode

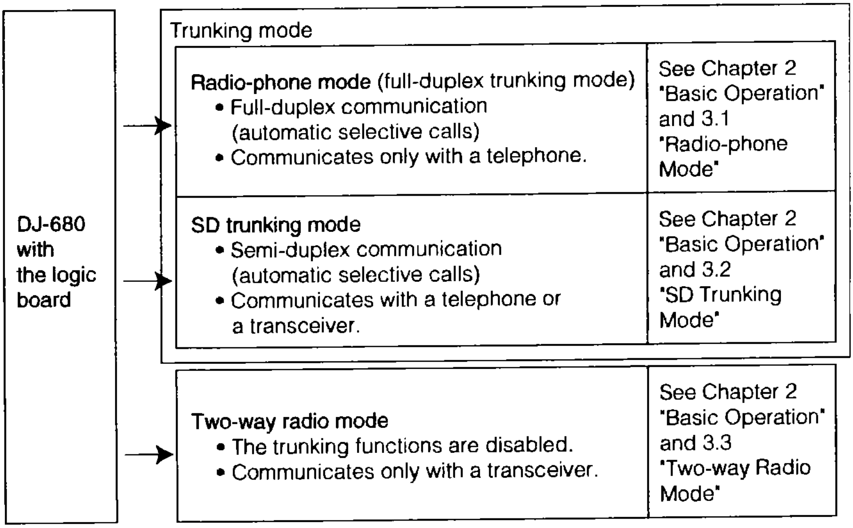
Normally, the radio will be in the radio-phone mode just after power-on, and you will work in this mode in most cases. The radio acts like a cellular phone. You may dial or receive a call from a party who is using a telephone (not a transceiver). You can then hear and talk simultaneously as if you were using a telephone (full-duplex communication). Trunking is activated, so you do not have to manually select the channel. The radio performs selective and private communications.

Semi-duplex Trunking Mode (SD Trunking Mode)

In the semi-duplex trunking (SD trunking) mode, you can communicate with a transceiver as well as a telephone. You cannot hear the party's voice while you are talking because the radio uses half-duplex communication. Trunking is activated, so you do not have to manually select the channel. The radio performs selective and private communications.

Two-way Radio Mode

If you wish to use the DJ-680 as a normal transceiver, select the two-way radio mode. This mode uses simplex or semi-duplex communication. You cannot speak while the other partner is talking. Trunking is completely disabled.



DJ-680 with the logic board

Trunking mode

Radio-phone mode (full-duplex trunking mode)
- Full-duplex communication (automatic selective calls)
- Communicates only with a telephone.

See Chapter 2 "Basic Operation" and 3.1 "Radio-phone Mode"

SD trunking mode
- Semi-duplex communication (automatic selective calls)
- Communicates with a telephone or a transceiver.

See Chapter 2 "Basic Operation" and 3.2 "SD Trunking Mode"

Two-way radio mode
- The trunking functions are disabled.
- Communicates only with a transceiver.

See Chapter 2 "Basic Operation" and 3.3 "Two-way Radio Mode"

Busy Channel Lock Out (BCLO)

BCLO prevents transmission on a channel which is receiving signal with a tone other than the one for your group. This function is contingent on activation of TSQ or selective calling, and is dealer programmable. BCLO permits or prohibits transmission according to the TSQ and selective call settings as described below.

When only TSQ is enabled

BCLO prohibits transmission when the radio receives a signal without any tone or receives a tone different from yours.

Transmission is allowed when the radio is not receiving any signal, or receiving signals with the matching tone.

When selective calling is enabled

You can transmit when the radio is not receiving any signal, or when it receives a signal along with the correct code. Once the transmission is performed successfully, the radio establishes a connection with the other party. BCLO will then be cancelled temporarily, allowing you to perform transmission anytime, as you want.

If the radio does not transmit or receive a signal for 10 seconds, it automatically breaks the connection and activates BCLO again.

When both the TSQ and selective calling are enabled

You can transmit when the radio is not receiving any signal. Once the transmission starts, the radio establishes the connection and keeps it.

When you are called through selective calling, the radio must receive the correct tone before it can establish the connection with the caller. You will hear ringing tones when the connection is successfully made.

Once the connection is established, you can transmit anytime except when the radio is receiving a signal without any tone or with an incorrect tone.

Time Out Timer (TOT)

The *TOT* expires and shuts down the transmission if you continuously transmit for more than the time specified by the dealer. To restart the transmission, release the (PTT) key and press it again.

Receiving calls

When your radio receives its own code, it establishes a connection with the caller and blinks the key backlight to inform you of the call. Hold the (PTT) key down and speak into the microphone while the backlight is blinking.

⚠ *Note: You should start speaking while the backlight is still blinking (for 10 seconds). If the backlight goes out, the radio may terminate the connection.*

The number which will appear on the display is the code of the caller. ERR may appear if the radio fails to receive the caller's code, however the connection is established. If the radio does not transmit or receive a signal for 10 seconds, it will automatically terminate the connection.

TSQ (Tone Squelch) (CTCSS)

TSQ (tone squelch) allows you to communicate only with a specific group who has the same tone as your radio. The tones used in TSQ are almost *inaudible* and may be set up for each channel by the dealer. If TSQ has been set, the TSQ icon TSQ appears on the display.

When the radio receives the correct tone, the squelch is unmuted allowing you to communicate with the caller. If the radio receives a signal without any tone or receives an incorrect tone, you cannot hear the voice of the other party.

Note that the BCLO may prohibit the transmission on a channel where TSQ is enabled.For information about BCLO, see "Busy Channel Lock Out (BCLO)" later in this section.

If both TSQ and selective calling are functioning, voices can be heard only when the radio has established a connection through selective calling *and* has received the correct tone.

Scrambler

Scrambling signals prevents other persons from monitoring your conversation. This function is set up for each channel by the dealer.

When your radio transmits scrambled signals, the receiver will receive and convert them into standard signals to reproduce your voice.

The receiver must be set by the dealer so that it can accept the scrambled signal. When TSQ is enabled, the radio converts scrambled signals only when receiving the correct tone.

Dealer-configured Parameters

This section describes the function parameters which are configured by the dealer. Your radio operates differently depending on the configuration the dealer has set up.

Selective Calling

Selective calling is to call a specific party by specifying an ID code. This function is set up for each site by the dealer. In selective call communications, each transceiver has been programmed with a code (a three-digit DTMF code), and will unmute when receiving it. Without the correct code, the radio remains muted even if there is a signal present on your channel.

Note that the BCLO may prohibit transmission on a channel where a different muting system is enabled. For information about BCLO, see "Busy Channel Lock Out (BCLO)" later in this section.

With both TSQ and selective calling enabled, voices can be heard only when the radio has established a connection through selective calling *and* has received the correct tone. For more information about TSQ, see "TSQ (Tone Squelch) (CTCSS)" later in this section.

Calling the other party

To call a specific party:

1. Enter the called radio's code (a three-digit DTMF code), and press the (*) key.
2. Press the (*) and (1) keys.
3. Press the (*) key.

The radio will automatically start the call, and establish a connection with the other party's transceiver. If you do not transmit or receive a signal for 10 seconds, the connection will be automatically terminated, and you will need to go through the above procedure again to re-start the connection.

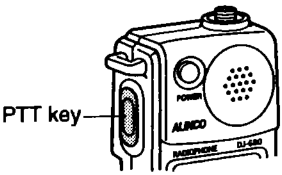
⚠ *Note:*

- *You can also communicate with the other party by pressing and holding the (PTT) key, and entering the other party's three-digit code, instead of performing the above procedure. In this case, the other party is not informed of who is calling him/her.*
- *The radio's code (a three-digit DTMF code) is not the same as the subscriber number used when calling a radio in the SD trunking mode.*

The channel number changes rapidly while scanning. Scanning stops when the radio receives a signal, and restarts when no signal is picked up for a period of two seconds.

You can change the scanning direction by pressing the (*) or (#) key, whichever opposite to the current direction.

2. Quit scanning.

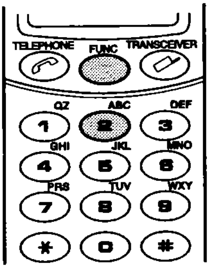

PTT key
POWER
ALINCO
RADIOPHONE
DJ-680

Press the (PTT) key.

Changing Site

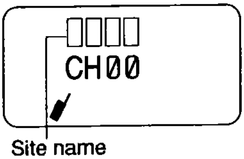
In the two-way radio mode, a *site* means a group of channels. While the radio is in the waiting state, you can manually switch to another site, provided that your dealer programmed the radio for it. Note that the following procedure switches only to the sites configured for the two-way radio mode.

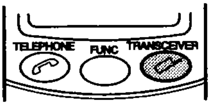
Change Site.


TELEPHONE
FUNC
TRANSCEIVER
QZ
ABC
DEF
1
2
3
GHI
JKL
MNO
4
5
6
PRS
TUV
WXY
7
8
9
*
0
#

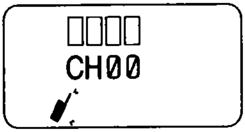
Press the (FUNC) key to display F , then press the (2) key.

The site name will change.


CH00
Site name


TELEPHONE
FUNC
TRANSCEIVER

Press the TRANSCEIVER key again.

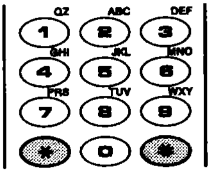


You will hear three beeps. The transceiver icon will blink for about 30 seconds before lighting solidly.

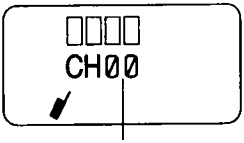
If you press the TELEPHONE key while the transceiver icon is blinking, you will return to the radio-phone mode.

Selecting a Channel

Change the channel.


QZ
ABC
DEF
1
2
3
GHI
JKL
MNO
4
5
6
PRS
TUV
WXY
7
8
9
0

Press the ✱ key to display one channel number larger, and the * key to display one number smaller. The radio automatically skips the channels which have been excluded by the dealer.

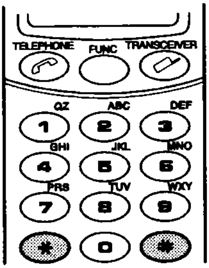


Channel number

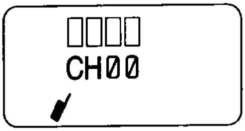
Scanning Channels

The radio can scan the channels to search for one which is receiving a signal. The radio automatically skips the channels which have been excluded by the dealer. The scanning is performed only within the current site (i.e. current group of channels).

1. Start scanning.


TELEPHONE
FUNC
TRANSCEIVER
QZ
ABC
DEF
1
2
3
GHI
JKL
MNO
4
5
6
PRS
TUV
WXY
7
8
9
0

To scan the channels in ascending order, press and hold the ✱ key for more than two seconds.



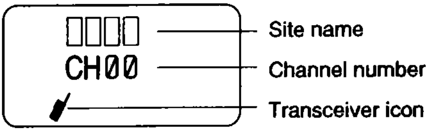
To scan the channels in descending order, press and hold the * key for more than two seconds.

(Continued to page 48)

3.3 Two-way Radio Mode

This section describes the operations in the two-way radio mode. If you wish to use your radio as a traditional transceiver, switch the radio to the two-way radio mode. The two-way radio mode uses simplex or half-duplex communication, so you cannot speak while listening. The trunking function (i.e. auto-line hunting) is completely disabled.

In the two-way radio mode, the radio displays the current site name, channel number and transceiver icon like the following figure.



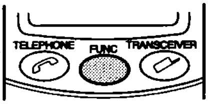
⚠ *Note: The two-way radio mode is available only if your dealer has enabled the sites dedicated for that mode.*

Entering the Two-way Radio Mode

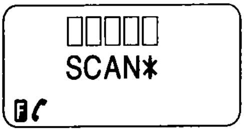
The radio will be in the radio-phone mode at power-on. To enter two-way radio mode, you can use the same procedure whether you are in the radio-phone or SD trunking mode now, although the pictures below are for switching from the radio-phone mode. A quick reference for changing modes is given in Appendix D "Switching Operation Modes."

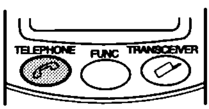
⚠ *Note: As an alternative, you can press the 5 key, then the * key to switch from the semi-duplex trunking mode to the two-way radio mode.*

Switch from the radio-phone mode to the two-way radio mode.

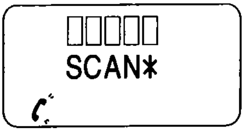


Press the FUNC key.





Press the TELEPHONE key.



(Continued to page 47)

Emergency Calls

In case of an emergency, you can call the telephone number of the liaison office previously specified in the system. To do so:

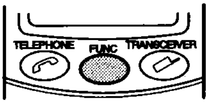
Press the ⓞ key, then the ⊛ key.

⚠ *Note: This service may not be available in your network. Ask your dealer about this service.*

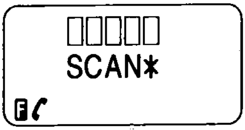
Returning to the Radio-phone Mode

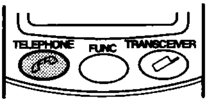
To switch from the SD trunking mode to the radio-phone mode, follow the instructions below. A quick reference for changing modes is given in Appendix D "Switching Operation Modes."

Switch to the radio-phone mode.


TELEPHONE
FUNC
TRANSCEIVER

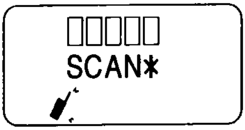
Press the ○ key.

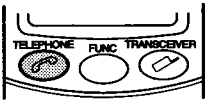



TELEPHONE
FUNC
TRANSCEIVER

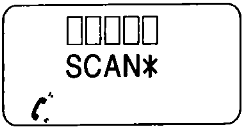
Press the ☎ key.

The transceiver icon (/) blinks.




TELEPHONE
FUNC
TRANSCEIVER

Press the ☎ key again.



The telephone icon will appear and blink for about 30 seconds before lighting solidly.

If you press the ☎ key one more time while the telephone icon is blinking, you can return to the SD trunking mode.

Clear Channel Alerting

If a call is attempted and no trunking channels are available, the user will get a busy signal. The user can try to redial over and over until the call is processed, but this is very frustrating. Clear channel alerting mode eliminates this problem.

If clear channel alerting is enabled and all channels are busy when a call is attempted, a busy signal will be generated by the radio. After the busy signal, the radio will coutinue to scan all trunking channels, looking for a free channel. The radio will chirp every 10 seconds while in this mode. When a channel is freed, the radio will generate a double beep. You can then attempt the call again. The radio will not automatically redial. If other subscribers are using the clear channel alerting mode at the same time, the first user to attempt a call will capture the channel.

To exit the clear channel alerting mode and return to the SD trunking mode, press any numeric key on the radio's key pad.

Calling Other Transceivers in Your Group (Group Call)

If you belong to a group of transceivers defined by your dealer, you can call all the members of that group simultaneously. The procedures are the same as when you call a telephone or a transceiver, except for entering the transmission command *4 ** instead of *1 **, *2 **, or *3 ** after the number dialed.

While calling the group, a short ringing tone is heard and the called transceivers respond automatically because your radio is connected to multiple parties. You can confirm the connection is established by hearing a double-beep.

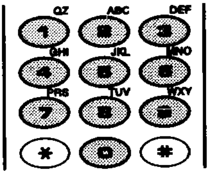
Calling the System Operator

You can call the system operator by using the following procedure.

Press the (9) key, then the (*) key.

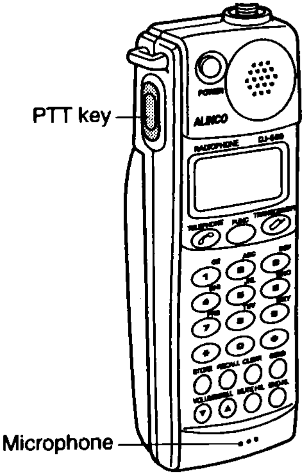
⚠ *Note: This service may not be available in your network. Ask your dealer about this service.*

2. Specify the telephone number or called radio's subscriber number of your party.


QZ
ABC
DEF
GHI
JKL
MNO
PRS
TUV
WXY

Holding the (PTT) key down this time, enter the number with the numeric keys. As you press each key, the radio dials the number in real-time.

3. Talk with the other party.

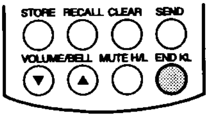

PTT key
Microphone
ALINCO

You will hear a ringing tone, and a double-beep will follow when the other party answers the call.

Hold the (PTT) key down while you speak, and release it while listening to the other party talking.

To transmit at high power, press the FUNC key, then the MUTE H/L key (see "2.5 Changing Output Power Level").

4. Hang up the phone.

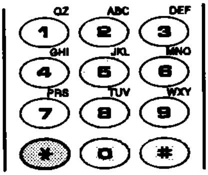

STORE
RECALL
CLEAR
SEND
VOLUME/BELL
MUTE H/L
END H/L

Release the (PTT) key, and press the END H/L key to disconnect the connection.

Redialing

You can redial the most recently dialed number just by pressing a key. Redialing does not function if you have not dialed since power-up.

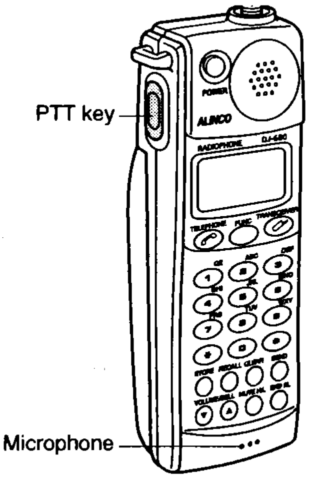
Call the most recently telephone number.


QZ
ABC
DEF
GHI
JKL
MNO
PRS
TUV
WXY

Press the (*) key twice.

The radio will automatically call the number you last used.

3. Talk with the other party.

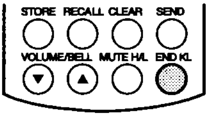

PTT key
Microphone
POWER
ALINCO
RADIOPHONE
DJ-680
TELEPHONE
FUNC
TRANSCEIVER
STORE
RECALL
CLEAR
SEND
VOLUME/BELL
MUTE H/L
END KL

The radio dials the number immediately and you can hear the ringing tone. When the other party answers the call, you will hear a double-beep.

Hold the (PTT) key down while you speak, and release it while listening to the other party talking.

To transmit at high power, press the (FUNC) key, then the (MUTE H/L) key (see "2.5 Changing Output Power Level").

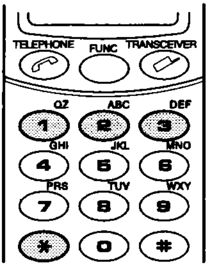
4. Hang up the phone.


STORE
RECALL
CLEAR
SEND
VOLUME/BELL
MUTE H/L
END KL

Release the (PTT) key, and press the (END KL) key to disconnect the connection.

Method 2

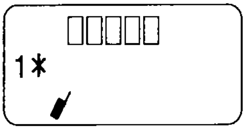
1. Enter the transmission command.


TELEPHONE
FUNC
TRANSCEIVER
QZ
ABC
DEF
GHI
JKL
MNO
PRS
TUV
WXY

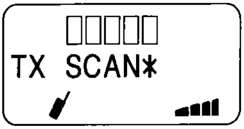
To call a telephone, press the (1 QZ) key (or (2 ABC) key), then the (*) key.

To call another trunked radio, press the (3 DEF) key, then the (*) key.

You will hear two beeps when the radio successfully establishes the connection with the base station.



When entering 1*.



While dialing

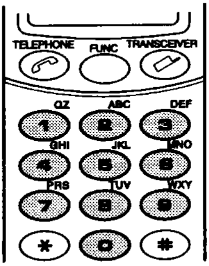
Dialing

The procedures for dialing a telephone or a transceiver are the same, except that they use the different transmission commands. To call a telephone, use the command *1* ✳ , or *2* ✳ (you must ask your dealer which command you should use). To call a transceiver, use *3* ✳ . There are two methods for manual dialing, and you can use whichever is convenient to you.

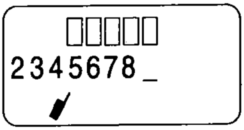
You should quickly go through the procedures below because the radio will abort your entry if no action is taken for about 5 seconds.

Method 1

1. **Specify the telephone number or called radio's subscriber number of the other party.**

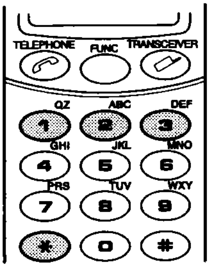

TELEPHONE
FUNC
TRANSCEIVER
QZ
ABC
DEF
1
2
3
GHI
JKL
MNO
4
5
6
PRS
TUV
WXY
7
8
9
*
0
#

Use the numeric keys to enter the desired number.

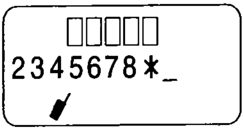

2345678_

If you enter a wrong number, stop entering numbers and wait until SCAN ✳ appears again. This clears your entry, allowing you to re-enter numbers. Pressing the CLEAR ○ key does not erase your entry though the radio returns to the SCAN ✳ display.

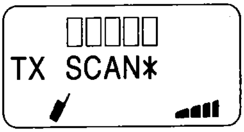
2. **Enter the transmission command.**


TELEPHONE
FUNC
TRANSCEIVER
QZ
ABC
DEF
1
2
3
GHI
JKL
MNO
4
5
6
PRS
TUV
WXY
7
8
9
*
0
#

To call a telephone, press the (1) key (or (2) key), then the (✳) key.


2345678✳_

When entering *1*✳ .


TX SCAN✳

While dialing

e.g.) When dialing 234-5678, your entry must be 23456781 ✳ or 23456782 ✳ .

To call a transceiver, press the (3) key, then the (✳) key.

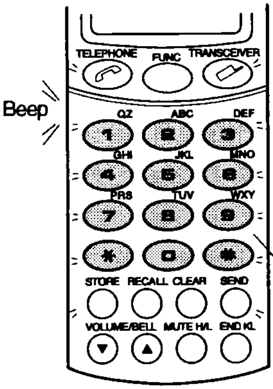
e.g.) When calling a transceiver No.1005, your entry must be 10053 ✳ .

If the call fails or if no one takes your call, you will hear a busy-signal (three low tones).

Receiving Calls

When the radio receives a call from a telephone, it beeps and the backlight of the keys blinks.

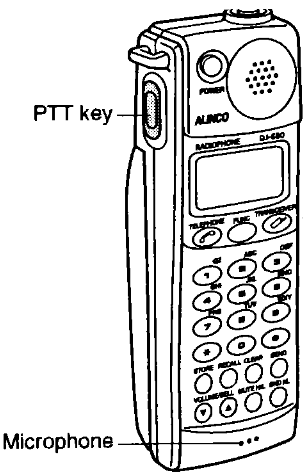
1. Answer the call.


Beep
TELEPHONE
FUNC
TRANSCEIVER
QZ
ABC
DEF
GHI
JKL
MNO
PRS
TUV
WXY
STORE
RECALL
CLEAR
SEND
VOLUME/BELL
MUTE H/L
END KL

Press any of the numeric, (∗), or (#) key to respond the call. Start conversation after a double-beep.

Backlight of the keys blinks.

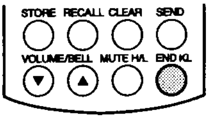
2. Talk with the caller.


PTT key
Microphone
POWER
ALINCO
RADIOPHONE
DJ-680

Hold the (PTT) key down as you speak, and release it while listening to the party talking.

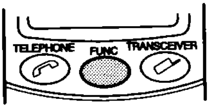
To transmit at the high power, press the FUNC ◯ key, then the MUTE H/L ◯ key (see "2.5 Changing Output Power Level").

3. Hang up the phone.

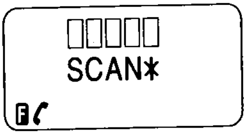

STORE
RECALL
CLEAR
SEND
VOLUME/BELL
MUTE H/L
END KL

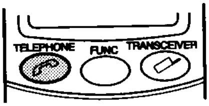
Release the (PTT) key, and press the END KL ◯ key to disconnect the connection.

Switch from the radio-phone mode to the SD trunking mode.


TELEPHONE
FUNC
TRANSCEIVER

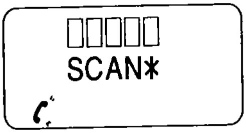
Press the FUNC key.

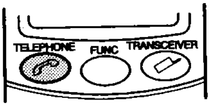



TELEPHONE
FUNC
TRANSCEIVER

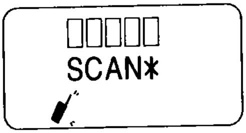
Press the TELEPHONE key.

The telephone icon (✆) blinks.




TELEPHONE
FUNC
TRANSCEIVER

Press the TELEPHONE key again.



The transceiver icon will (📱) appear and blink for about 30 seconds before lighting solidly.

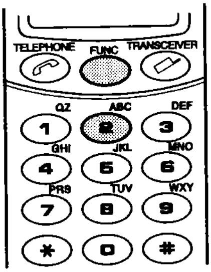
If you press the TELEPHONE key one more time while the transceiver icon (📱) is blinking, you can return to the radio-phone mode.

Changing Site (Roaming)

In the SD trunking mode, a *site* means a service area of the trunking network where your radio can work. If you are in another area, you need to change to the site appropriate to that area. Ask your dealer which sites are available in the SD trunking mode. Note that the following procedure switches only to the sites configured for the current operation mode.

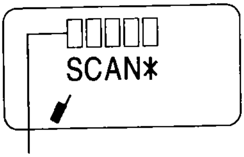
⚠ *Note: The following procedure is not needed if auto-roaming is enabled on your radio by the dealer. The radio then automatically changes the site when initiating a call under another service area.*

Change Site.


TELEPHONE
FUNC
TRANSCEIVER
QZ
ABC
DEF
1
2
3
GHI
JKL
MNO
4
5
6
PRS
TUV
WXY
7
8
9
✱
0
#

Press the FUNC key to display **F**, then press the ABC 2 key.

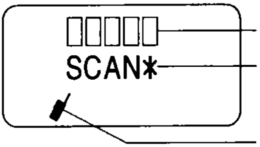
The site name will change.


□□□□□
SCAN✱
Site name

3.2 SD Trunking Mode

This section describes operations in the SD trunking (semi-duplex trunking) mode. This mode allows communications with a transceiver as well as a telephone. Note that you cannot hear the party's voice while you are talking.

In the semi-duplex trunking mode, the radio displays the current site name and transceiver icon like the following figure.



Site name

SCAN indicates the radio is in the trunking mode, waiting for an incoming call.

Transceiver icon

The SD trunking mode supports the auto-line-hunting feature. Upon initiating a call, if the base station is busy, the radio automatically skips that channel. If the radio cannot find an available base station (i.e. a channel), a busy-signal sounds and the radio aborts the call.

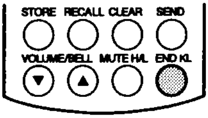
⚠ *Note: In this manual, the radio-phone and semi-duplex trunking modes are inclusively called trunking mode.*

Entering the SD Trunking Mode

The radio will be in the radio-phone mode at power-on. If necessary, switch it to the SD trunking mode. If no site is configured by the dealer for the SD trunking mode, the radio does not switch to that mode.

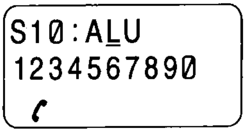
A quick reference for changing modes is given in Appendix D "Switching Operation Modes."

3. Search for the specified title.

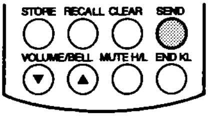

STORE RECALL CLEAR SEND
VOLUME/BELL MUTE H/L END KL

Press the END KL ○ key.

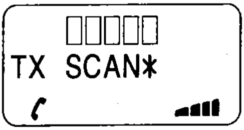
The specified title will appear if it is found. If not found, the closest title will appear.


S10:ALU
1234567890

4. Start dialing.


STORE RECALL CLEAR SEND
VOLUME/BELL MUTE H/L END KL

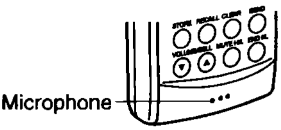
Press the SEND ○ key.


□□□□□
TX SCAN*

You will hear successive tones while the radio is sending the dial number corresponding to the specified memory title. Shortly, the radio calls the number.

If the call fails, you will hear a busy-signal (three low tones). If you get the ringing-tone but no one takes your call, you can abort it by pressing the END KL ○ key.

5. Talk with the other party.

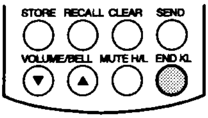

Microphone

When the other party takes the call, speak into the microphone.

If the other party has difficulty in hearing your voice, hold the PTT key down to transmit at high power (see "2.5 Changing Output Power Level").

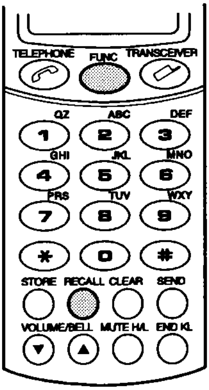
To save battery power, press the SEND ○ key (see "Saving Battery Power" earlier in this chapter).

6. Hang up the phone.

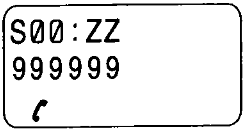

STORE RECALL CLEAR SEND
VOLUME/BELL MUTE H/L END KL

Press the END KL ○ key to disconnect the connection.

1. Enter the auto-dialing mode (for specifying a memory title).

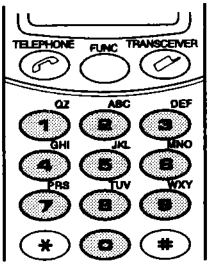

TELEPHONE
FUNC
TRANSCEIVER
QZ
ABC
DEF
1
2
3
GHI
JKL
MNO
4
5
6
PRS
TUV
WXY
7
8
9
*
0
#
STORE
RECALL
CLEAR
SEND
VOLUME/BELL
MUTE HL
END KL

Press the FUNC key to display F , then press the RECALL key.


S00:ZZ
999999

The memory number you last used will appear.

2. Specify a memory title.


TELEPHONE
FUNC
TRANSCEIVER
QZ
ABC
DEF
1
2
3
GHI
JKL
MNO
4
5
6
PRS
TUV
WXY
7
8
9
*
0
#

Enter the entire or a part of the memory title.

You only have to enter one or more characters from the beginning of the title, and keep in mind that the character at the cursor (_) and before are used to search for the title. For example, when you have two titles **BASE** and **BANK** and want to find **BASE**, enter **BAS** and place the cursor at the **S**.

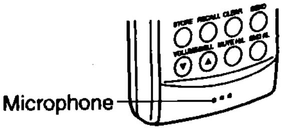
As an alternative, you can display previous titles alphabetically by pressing the FUNC key, then the * key, and subsequent titles by pressing the FUNC key, then the # key.

To enter numbers (0 to 9), use the numeric keys.

To enter letters (A to Z), press the FUNC key to display F, then press the QZ 1 key to switch to the letter-entry mode. Use the numeric keys to enter the desired letter.

To delete a character, press the 0 key in the letter-entry mode.

4. Talk with the other party.

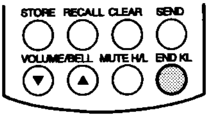

STORE
RECALL
CLEAR
SEND
VOLUME/BELL
MUTE H/L
END KL
Microphone

When the other party takes the call, speak into the microphone.

If the other party has difficulty in hearing your voice, hold the (PTT) key down to transmit at high power (see "2.5 Changing Output Power Level").

To save battery power, press the $\overset{\text{SEND}}{\bigcirc}$ key (see "Saving Battery Power" earlier in this chapter).

5. Hang up the phone.


STORE
RECALL
CLEAR
SEND
VOLUME/BELL
MUTE H/L
END KL

Press the $\overset{\text{END KL}}{\bigcirc}$ key to disconnect the connection.

Auto-dialing by Specifying Memory Titles

Auto-dialing allows you to make a call by entering a few characters from the beginning of the memory title, instead of a telephone number. To use this function, you must previously program the memory (see "Programming the Auto-dial Memory" earlier in this chapter). You should quickly go through the procedures below because the radio will abort your entry if no action is taken for about 10 seconds.

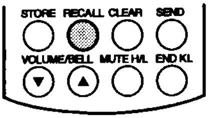
(Continued to page 36)

Auto-dialing by Specifying Memory Numbers

Auto-dialing allows you to make a call by entering a two-digit memory number instead of a long telephone number. To use this function, you must pre-program the memory (see "Programming the Auto-dial Memory").

You should quickly go through the procedures below because the radio will abort your entry if no action is taken for about 10 seconds.

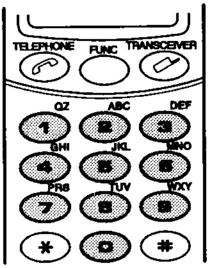
1. Enter the auto-dialing mode (for specifying a memory number).


STORE
RECALL
CLEAR
SEND
VOLUME/BELL
MUTE H/L
END KL

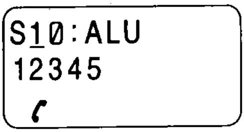
Press the $\overset{\text{RECALL}}{\bigcirc}$ key.

The memory number you last used will appear.

2. Specify a memory number.


TELEPHONE
FUNC
TRANSCEIVER
QZ
ABC
DEF
1
2
3
GHI
JKL
MNO
4
5
6
PRS
TUV
WXY
7
8
9
*
0
#

Use the numeric keys to enter a memory number (two digits).

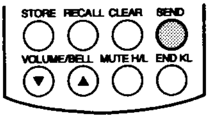


S10:ALU
12345

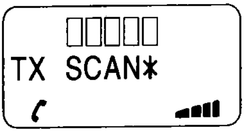
To display one number smaller, press the $\overset{\text{FUNC}}{\bigcirc}$ key, then the (*) key. To display one number larger, press the $\overset{\text{FUNC}}{\bigcirc}$ key, then the (#) key.

If you specify a number not in the memory, NOT FOUND will appear. Enter a correct number.

3. Start dialing.


STORE
RECALL
CLEAR
SEND
VOLUME/BELL
MUTE H/L
END KL

Press the $\overset{\text{SEND}}{\bigcirc}$ key.



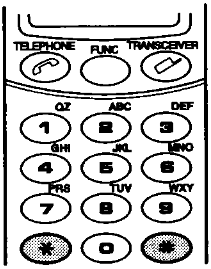
□□□□□
TX SCAN*

You will hear successive tones while the radio is sending the number stored in the memory. Shortly, the radio calls the number.

If the call fails, you will hear a busy-signal (three low tones). If you get the ringing-tone but no one takes your call, you can abort it by pressing the $\overset{\text{END KL}}{\bigcirc}$ key.

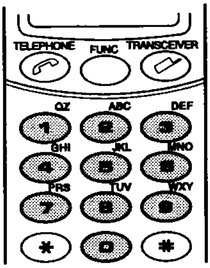
(Continued to page 35)

3. Modify or clear the data.


TELEPHONE
FUNC
TRANSCEIVER
QZ
ABC
DEF
1
2
3
GHI
JKL
MNO
4
5
6
PRS
TUV
WXY
7
8
9
✱
0
#

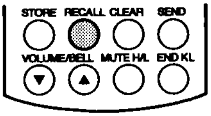
When you want to modify the data, use the (✱) or (#) key to move the cursor to the position you want to change. You can type over the existing characters.

To enter numbers (0 to 9), use the numeric keys.


TELEPHONE
FUNC
TRANSCEIVER
QZ
ABC
DEF
1
2
3
GHI
JKL
MNO
4
5
6
PRS
TUV
WXY
7
8
9
✱
0
#

To enter letters (A to Z), press the FUNC ○ key to display **F** then press the QZ (1) key to enter the letter-entry mode. Enter the desired letter with the numeric key with the corresponding character marked at the upper-right.

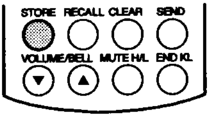
If you want to enter a numeric character after engaging the letter-entry mode, press the FUNC ○ key to display **F**, then press the QZ (1) key again. You will return to the number-entry mode.


STORE
RECALL
CLEAR
SEND
VOLUME/BELL
MUTE H/L
END KL

When you want to clear the entire data stored in this memory location, press the CLEAR ○ key.

```
S10:_
```

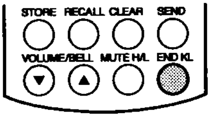
4. Store your changes.


STORE
RECALL
CLEAR
SEND
VOLUME/BELL
MUTE H/L
END KL

Press the STORE ○ key to store the new settings. You must also press the STORE ○ key after you clear the data.

When you want to modify another memory location, repeate steps 2 through 4.

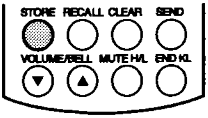
5. Exit the auto-dial programming mode.


STORE
RECALL
CLEAR
SEND
VOLUME/BELL
MUTE H/L
END KL

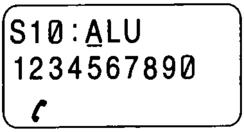
Press the END KL ○ key.

(Continued to page 34)

5. Store your changes.


STORE
RECALL
CLEAR
SEND
VOLUME/BELL
MUTE H/L
END KL

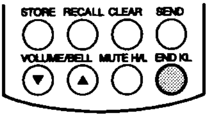
Press the STORE ○ key. The cursor will move to the beginning of the title area.


S10:ALU
1234567890

If you want to abort your entry, press the END KL ○ key before pressing the STORE ○ key.

When you want to program another memory location, repeate steps 2 through 5.

6. Exit the auto-dial programming mode.


STORE
RECALL
CLEAR
SEND
VOLUME/BELL
MUTE H/L
END KL

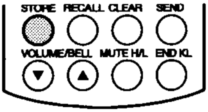
Press the END KL ○ key.

Modifying or Clearing Telephone Numbers and Titles

You can change or clear the data in the memory you have programmed already.

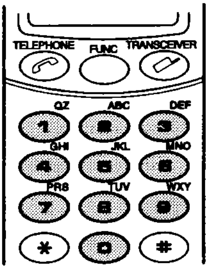
You should quickly go through the procedures below because the radio will abort your entries if no action is taken for about 5 seconds. You can exit the dial-programming mode anytime by pressing the END KL ○ key.

1. Enter the auto-dial programming mode.

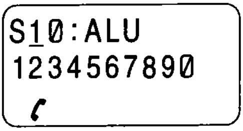

STORE
RECALL
CLEAR
SEND
VOLUME/BELL
MUTE H/L
END KL

Press the STORE ○ key. The memory number last used and the corresponding data will appear.

2. Specify the memory number.


TELEPHONE
FUNC
TRANSCEIVER
QZ
ABC
DEF
GHI
JKL
MNO
PRS
TUV
WXY

Use the numeric keys to enter the number of the memory location which you want to modify or clear.


S10:ALU
1234567890

(Continued to page 33)

To move the cursor to the right, press the (#) key, and to the left, press the (*) key.

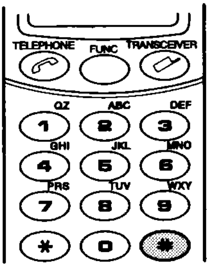
To delete a character, in the letter-entry mode, press the (0) key.

If you want to enter a numeric character after engaging the letter-entry mode, press the (FUNC) key to display **F**, then press the (1) key again. You will return to the number-entry mode.

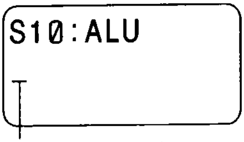
Example: To enter **ALU**:

a. Press the (FUNC) key, then the (1) key to enter the character-entry mode.
b. Press the (2) key once to enter **A**.
c. Press the (#) key to move the cursor to the next column.
d. Press the (5) key three times to enter **L**.
e. Press the (#) key to move the cursor to the next column.
f. Press the (8) key twice to enter **U**.

4. Enter the telephone number.

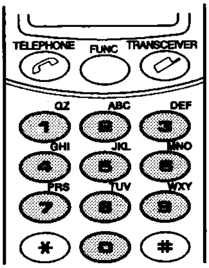

TELEPHONE
FUNC
TRANSCEIVER
QZ
ABC
DEF
GHI
JKL
MNO
PRS
TUV
WXY

Press the (#) key until the cursor is at the beginning of the next line.

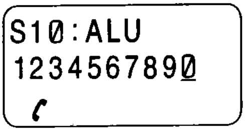


S10:ALU

Telephone number area


TELEPHONE
FUNC
TRANSCEIVER
QZ
ABC
DEF
GHI
JKL
MNO
PRS
TUV
WXY

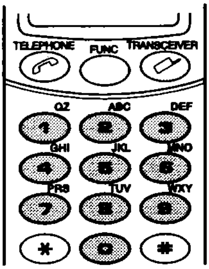
Use the numeric keys to enter the telephone number. You can enter up to 16 digits, but only 12 digits are visible at once. When you enter twelfth or later digits, the numbers you have entered will shift to the left.



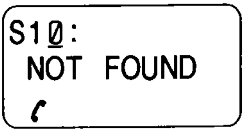
S10:ALU
1234567890

(Continued to page 32)

2. Select a memory number.


TELEPHONE
FUNC
TRANSCEIVER
QZ
ABC
DEF
GHI
JKL
MNO
PRS
TUV
WXY

Use the numeric keys to enter a two-digit memory number. The range is from 00 to 99.

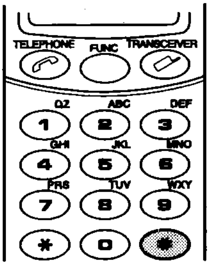


```
S10:
 NOT FOUND
```

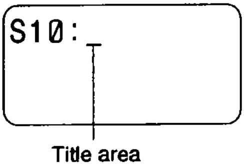
If you specify a memory number you have not programmed, **NOT FOUND** appears, indicating no data is stored in that memory.

To display one number smaller, press the FUNC key, then the ✱ key. To display one number larger, press the FUNC key, then the # key.

3. Enter a memory title.

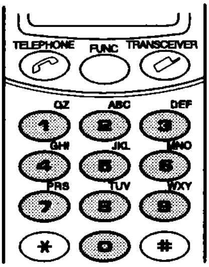

TELEPHONE
FUNC
TRANSCEIVER
QZ
ABC
DEF
GHI
JKL
MNO
PRS
TUV
WXY

Use the # key to move the cursor (_) to the beginning of the title area.

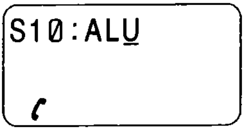


```
S10:_
```

Then, enter a title (up to 8 characters), in the following manner.

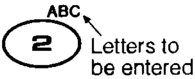

TELEPHONE
FUNC
TRANSCEIVER
QZ
ABC
DEF
GHI
JKL
MNO
PRS
TUV
WXY

To enter numbers (0 to 9), use the numeric keys.



```
S10:ALU
```

To enter letters (A to Z), press the FUNC key to display F, then press the 1 key to switch to the letter-entry mode. Enter the desired letter with the numeric key with the corresponding character marked at the upper-right. The letter to be entered depends on which key you press and how many times you press it (e.g. to enter "C," press the 2 key three times).


ABC
Letters to be entered

(Continued to page 31)

Programming the Auto-dial Memory

The radio can store 100 numbers for auto dialing. Once you load the memory, you can call the desired party just by specifying a two-digit number, or a few characters from the beginning of the title as memorized. You do not have to enter a long redundant telephone number.

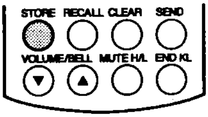
The memory numbers range from S00 to S99. A telephone number can contain up to 16 digits, while a memory title can contain up to 8 alphanumeric characters.

Note that the radio does not receive a call while you are programming or modifying the memory.

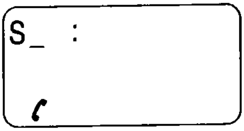
Programming Telephone Numbers and Titles

You should quickly go through the procedures below because the radio will abort your entries if no action is taken for about 10 seconds. You can exit the dial-programming mode anytime by pressing the END KL ○ key.

1. Enter the auto-dial programming mode.



Press the STORE ○ key.



If this is the first time you enter the auto-dial programming mode, the initial memory number will not appear, and only the letter S will be displayed. Otherwise, the memory number last used and the corresponding data will appear.

(Continued to page 30)

Saving Battery Power

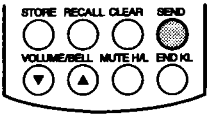
The radio-phone mode has a power saving function which extends battery service life. When battery-saving is enabled, you have to press and hold the PTT key while you are talking. This is because the radio transmits your voice only when the PTT key is pressed.

If you have difficulty in contacting a distant base station while the battery-saving function is on, you can switch to the high power mode.

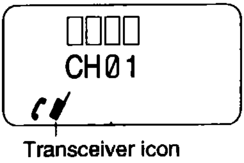
Enable battery saving (low power) ▶ Disable battery saving (low power) ▶ Enable battery saving (high power) ▶ Disable battery saving (high power)

Saves more power ←——→ Consumes more power

Save battery power.



While communicating with a party, press the SEND ○ key.

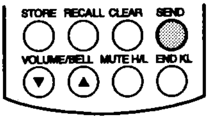


The transceiver icon (/) appears next to the telephone icon : now you are in the battery saving mode, and you must press and hold the PTT key while you are speaking.

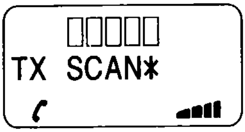
To switch between high and low power:
Press the FUNC ○ key to display F , and press the MUTE H/L ○ key. The high-power mode icon (H) will appear. Pressing these keys again returns you to the low power mode.

To disable battery-saving, press the SEND ○ key again.

2. Start dialing.


STORE
RECALL
CLEAR
SEND
VOLUME/BELL
MUTE H/L
END KL

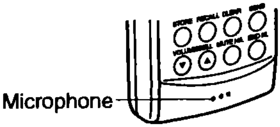
Press the SEND ○ key.



You will hear successive tones while the radio is sending the number.
Shortly, your radio calls the number.

If the call fails, you will hear a busy signal (three low beeps). If no one answers your call, you can abort it by pressing the END KL ○ key.

3. Talk with the other party.

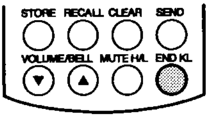

Microphone

When the other party takes the call, speak into the microphone.

If the other party has difficulty in hearing your voice, hold the (PTT) key down to transmit at high power (see “2.5 Changing Output Power Level”).

To save battery power, press the SEND ○ key (see “Saving Battery Power” later in this chapter).

4. Hang up the phone.

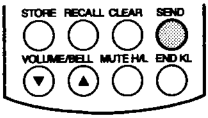

STORE
RECALL
CLEAR
SEND
VOLUME/BELL
MUTE H/L
END KL

Press the END KL ○ key to disconnect the connection.

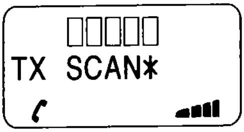
Redialing

You can repeatedly call the most recently dialed number just by pressing a key. Redialing does not function if you have not dialed since power-on.

Call the most recently dialed number.

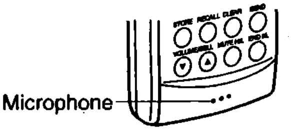

STORE
RECALL
CLEAR
SEND
VOLUME/BELL
MUTE H/L
END KL

Press the SEND ○ key.



The radio will automatically call the number you last dialed.

2. Conversation

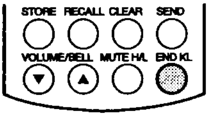

Microphone
STORE
RECALL
CLEAR
SEND
VOLUME/BELL
MUTE H/L
END KL

Speak into the microphone and talk as you would do on an ordinary telephone.

To transmit at high power, press and hold the (PTT) key (see "2.5 Changing Output Power Level").

To save battery power, press the $\overset{\text{SEND}}{\bigcirc}$ key during the conversation (see "Saving Battery Power" later in this chapter).

3. Hang up the phone.

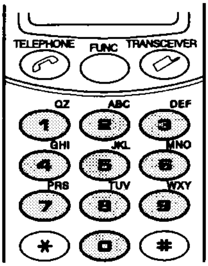

STORE
RECALL
CLEAR
SEND
VOLUME/BELL
MUTE H/L
END KL

Press the $\overset{\text{END KL}}{\bigcirc}$ key to disconnect the connection.

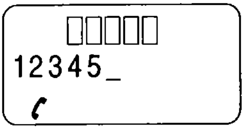
Manual Dialing

Normally, you will use the following procedures to make a call. You should quickly go through the procedures below because the radio will abort your entry if no action is taken for about 5 seconds.

1. Enter the telephone number.


TELEPHONE
FUNC
TRANSCEIVER
QZ
ABC
DEF
1
2
3
GHI
JKL
MNO
4
5
6
PRS
TUV
WXY
7
8
9
*
0
#

Use the numeric keys to enter the telephone number.



If you enter a wrong number, press the $\overset{\text{CLEAR}}{\bigcirc}$ key to clear your entry and enter the correct number.

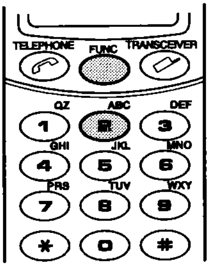
(Continued to page 27)

Changing Site (Roaming)

A *site* in the radio-phone mode means a service area of the trunking network where your radio can work. If you are in another area, you need to change to the site appropriate to that area. Ask your dealer which sites are available in the radio-phone mode. Note that the following procedure switches only to the sites configured for the current operation mode.

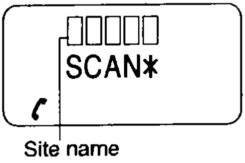
⚠ Note: *The following procedure is not needed if auto-roaming is enabled on your radio by the dealer. The radio then automatically changes the site when initiating a call under another service area.*

Change Site.


TELEPHONE
FUNC
TRANSCEIVER
QZ
ABC
DEF
1
2
3
GHI
JKL
MNO
4
5
6
PRS
TUV
WXY
7
8
9
*
0
#

Press the FUNC key to display F, then press the ABC 2 key.

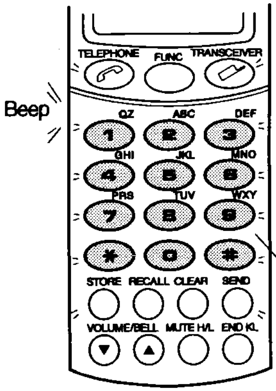
The site name will change.


SCAN✻
Site name

Receiving Calls

When the radio receives a call from a telephone, it beeps and the backlight of the keys blinks.

1. Answer the call.


Beep
TELEPHONE
FUNC
TRANSCEIVER
QZ
ABC
DEF
1
2
3
GHI
JKL
MNO
4
5
6
PRS
TUV
WXY
7
8
9
*
0
#
STORE
RECALL
CLEAR
SEND
VOLUME/BELL
MUTE HL
END KL

Press any of the numeric, ✻, or # key to answer the call. Start conversation after a double-beep.

Backlight of the keys blinks.

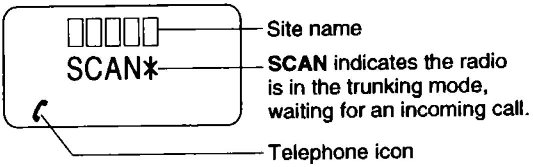
(Continued to page 26)

3.1 Radio-phone Mode

This section describes the operations in the radio-phone mode. Normally, the radio starts up in the radio-phone mode, and you will work in that mode in most cases.

You may dial a party who is using a telephone, not a transceiver, and also receive a call from him/her. Unlike traditional transceivers, you can hear and talk simultaneously as if you were using a telephone.

The radio displays the current site name and telephone icon like the following figure.


□□□□□
SCAN*
Site name
SCAN indicates the radio is in the trunking mode, waiting for an incoming call.
Telephone icon

The radio-phone mode supports *an auto-line-hunting feature.* Upon initiating a call, if the base station is busy, the radio automatically skips that channel. If the radio cannot find an available base station (i.e. a channel), a busy-signal sounds and the radio aborts the call.

⚠ *Note:*
- *The radio will be in a mode other than the radio-phone mode at power-on if the dealer did not configure for that mode.*
- *In this manual, the radio-phone and semi-duplex trunking (SD trunking) modes are inclusively called trunking mode.*

Chapter 3

Operation with the Logic Board

This chapter describes how to receive calls and dial through a radio which is equipped with the EJ-27D logic board. Each section covers the operations dedicated to each operation mode: the radio-phone, semi-duplex trunking, or two-way radio mode.

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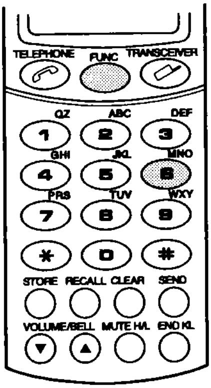
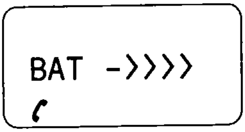
2.6 Checking Battery Level

It is recommended to check the battery level from time to time while operating the radio.

Check battery level.


TELEPHONE
FUNC
TRANSCEIVER
QZ
ABC
DEF
1
2
3
GHI
JKL
MNO
4
5
6
PRS
TUV
WXY
7
8
9
*
0
#
STORE
RECALL
CLEAR
SEND
VOLUME/BELL
MUTE HL
END KL

Press the FUNC ○ key to display F, then press the MNO 6 key.



BAT ->>>>

The current battery level will be indicated by greater-than (>) signs.

When you have just installed a fully-charged batterypack (or new drycells), five greater-than signs (>>>>>) will appear. The lower the battery level is, the fewer greater-than signs are displayed.

When only one greater-than sign appears, recharge the battery pack (or replace the drycells with new ones).

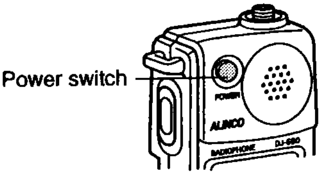
Press the END KL ○ key to return to the normal mode.

⚠ *Note:*
If no action is taken for 5 seconds after pressing the FUNC ○ and MNO 6 keys, the radio automatically exits the battery-check mode.

2.1 Turning the Power ON/OFF

To turn the power ON or OFF, follow the instructions below.

Turn the radio ON.


Power switch
POWER
ALINCO
RADIOPHONE
DJ-580

Hold the POWER switch down until you hear a beep and a message appears on the display.

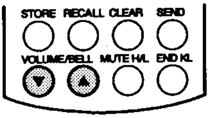
Turn the radio off.

Press and hold the POWER switch until the message disappears.

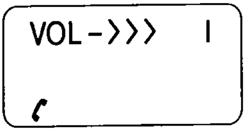
2.2 Adjusting Radio Volume

To control the speaker volume, follow the instructions below.

Adjust the volume.


STORE
RECALL
CLEAR
SEND
VOLUME/BELL
MUTE H/L
END KL

Use the ▼ key to decrease the volume, and the ▲ key to increase it.



The volume level is indicated by greater-than (>) signs.

Press the ○ key to return to the normal mode.

⚠ *Note:*
If no action is taken for about 5 seconds after pressing the ▼ or ▲ key, the radio automatically returns to the normal mode.

Chapter 2

Basic Operation

This chapter describes basic operations, including how to turn the power ON and OFF, adjust radio and ringing volume, lock keys, change output power level, and program auto-dial memory. These instructions are common to all users.

1.6 Daily Maintenance

This section describes radio maintenance and how to remove the battery pack.

Cleaning

⚠ *Caution:*
- *Be sure to turn the power off before cleaning the radio.*
- *Do not use ammonia-based cleaners.*

When the radio becomes dirty, clean the outside with a slightly damp cloth (use water only).

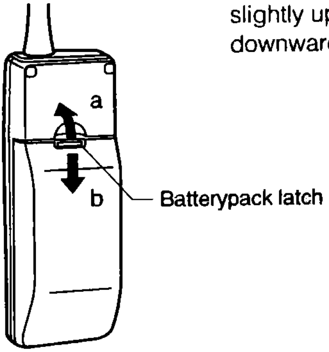
Removing the Batterypack

You will need to remove the batterypack from the radio to clean the unit or to replace (or recharge) the battery.

⚠ *Caution:* *Turn the power off before removing the batterypack to avoid damage to the equipment.*

Remove the batterypack

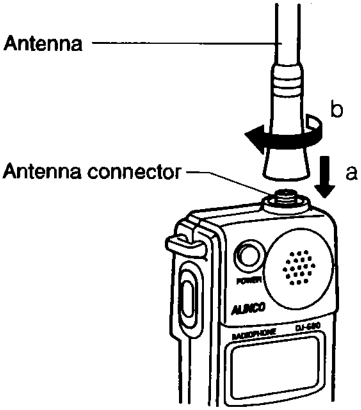
a) While pressing the batterypack latch slightly upward, *b)* slide the batterypack downward.



Attaching the Antenna

Be sure to use the antenna which came with your radio.

Attach the antenna to the radio.



Locate the antenna connector on the top panel of the radio.

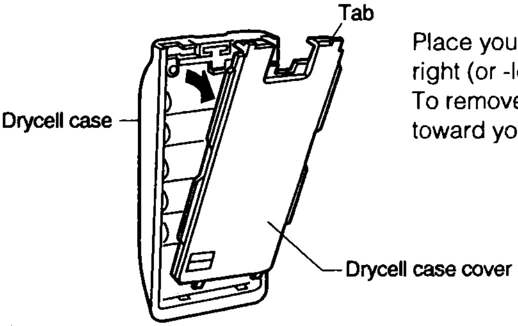
a. Holding the antenna by its base, align the male screw of the antenna with the female screw of the radio's antenna connector.

b. Turn the antenna clockwise until it stops.

To remove the antenna from the radio, turn the antenna counterclockwise.

Depending on the version of the radio, you may have received a telescopic extendable antenna instead of a rubber antenna. When using the telescopic antenna, keep it retracted and extend fully only during a conversation.

1. Open the drycell case.

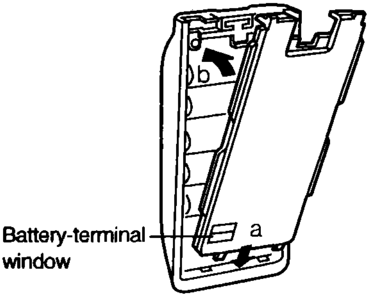


Place your finger on the tab at the upper-right (or -left) of the drycell case cover. To remove, carefully pull the cover toward you.

2. Fill the drycells.

⚠ *Caution: Place the batteries in the correct direction. The negative pole (-) must be connected to a metal prong inside the drycell case.*

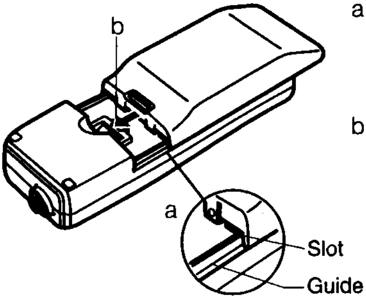
3. Refit the cover on the drycell case.



a. Holding the cover with the battery-terminal window on the lower-left, align the lower edge of the cover with the lower edge of the drycell case.

b. Press the cover until it snaps into place.

4. Mount the drycell case on the radio.



a. Align the two slots on the rear of the drycell case with the guides on the batterypack mount.

b. Slide the drycell case upward until the case snaps into place.

1.5 Setting Up the DJ-680

This section describes the dealer-configured parameters, and the instructions for installing batteries and attaching the antenna.

What You Need to Ask the Dealer

Your dealer will configure the radio before you take it home. To operate the radio successfully, ask the dealer about the items listed below before using it. The radio operates differently depending on the configuration.

- Whether or not the EJ-27D logic board is installed on the radio. If installed, the trunking functions (such as the radio-phone mode) are available.
- The operation mode set for each site (i.e. the radio-phone, SD trunking, and two-way radio modes)

For more information about operation modes and sites, see section 1.3 "Understanding the Terms Used in Radio Operations."

Installing Batteries

Either drycell case (five AA cells) or a Ni-Cd battery pack is available for power supply. This sub-section describes how to install the drycells using the drycell case.

⚠ *Note:*
- *For information about available Ni-Cd battery packs, see Appendix C "Optional Accessories List."*
- *You can check the battery level by pressing the* FUNC *and* ⊙ *keys in that order. See section 2.6 "Checking the Battery Level."*
- *The radio has a battery saving feature which extends battery service life. See "Saving Battery Power" in 3.1 "Radio-phone Mode."*

6. ❋ :	The scrambler icon appears when the scrambling function is enabled on the current channel (this function does not work in the radio-phone or SD trunking mode).
7. 🔑 :	The key-lock icon appears while the keys are locked.
8. H :	The high-power icon appears when the output power level is set to high. It disappears when output power is set to low.
9. ▂▄▆█ :	The S-meter indicates the strength of the received signal. The meter shows the output power level during transmission.
10. Y :	The busy icon appears when the radio is receiving signals.