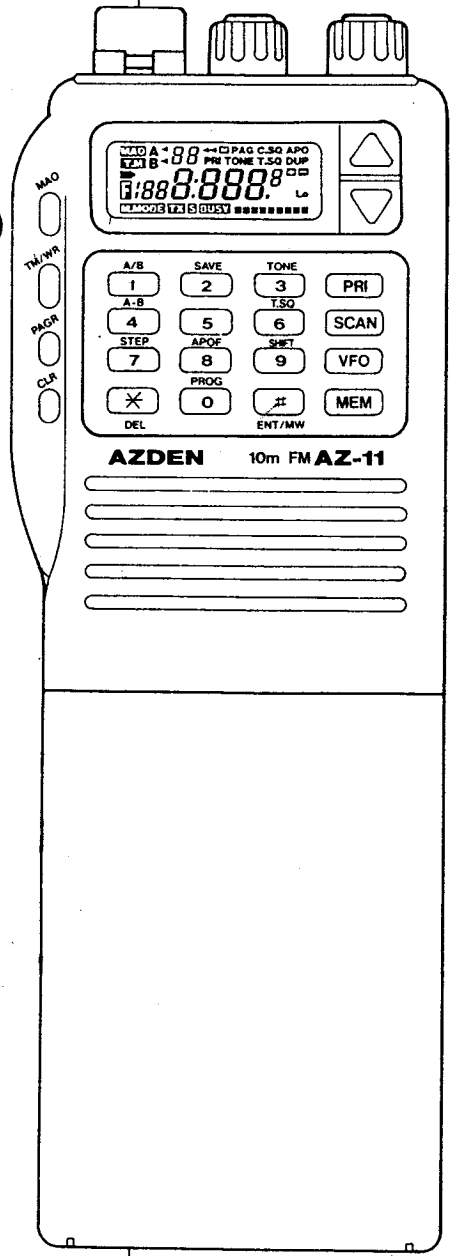




28MHz / 50MHz
AZ-11 / AZ-61(A)
FM TRANSCEIVER

OWNER'S MANUAL



- INTRODUCTION -

Congratulations! You are the owner of one of the advanced state-of-the-art FM transceivers available today. Please read this manual carefully before attempting to operate your transceiver. This will ensure that you obtain the maximum operating convenience and versatility.

Unpack your transceiver carefully and make sure that it is supplied with the standard accessories listed on page 4. Be sure to send in the warranty card. Notify the carrier immediately if there is any evidence of damage to the unit. Keep the original packing materials in the unlikely event it becomes necessary to return the transceiver for servicing.

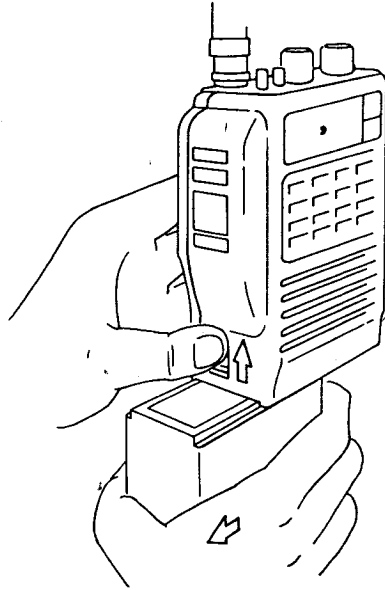
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THIS MANUAL DESCRIBES THE USE AND OPERATION
OF BOTH THE MODEL AZ-11 AND THE MODEL AZ-61(A).

*** BEFORE USING**

1. Charge the battery pack (BP-11) for five (5) hours. The battery pack (BP-11) cannot be charged through the DC input terminal (DCIN) on the radio. Use the battery charger to charge it.
2. Attach the battery pack (BP-11) to the radio as shown.
3. When using an external power source, +3VDC to +16VDC is required.
4. Attach the helical antenna to the antenna terminal and lock it in place.
5. Do not open the case.



HOW TO REMOVE THE BATTERY PACK.

*** SPECIFICATION**

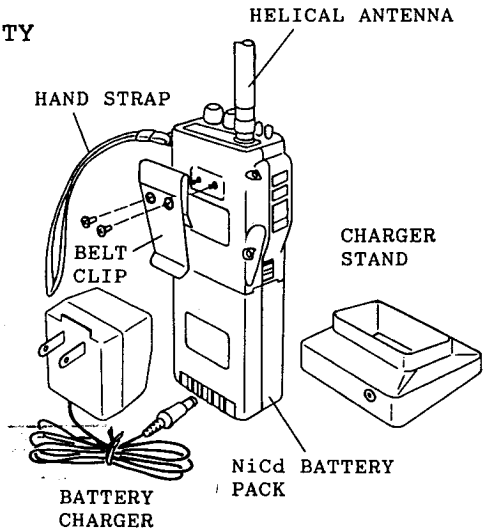
GENERAL

TRANSMISSION/RECEPTION	AZ-11	AZ-61
FREQUENCY RANGES	RX: 28.00-30.000MHz	46.00-54.000MHz
	TX: 28.00-29.695MHz	50.00-53.995MHz
ANTENNA IMPEDANCE	50 ohms	
DC POWER INPUT VOLTAGE	+3 to +16VDC, Negative ground	
CURRENT CONSUMPTION (Receiving)	When receiving a signal: Approx. 150mA When squelched: Approx. 48mA In the SAVE mode: Approx. 28mA In the APO MODE: Approx. 100uA	

CURRENT CONSUMPTION (Transmitting)	High power: Approx. 1.5A Low power: Approx. 500mA
DIMENSIONS	With BP-11 installed: 65mmW x 174mmH x 33mmT 2.6inW x 6.85inH x 1.3inT Including projections: 71.5mmW x 185mmH x 37mmT 2.8inW x 7.3inH x 1.5inT
WEIGHT	Approx. 550g (1.2 lbs.) (BP-11, antenna, hand strap and belt clip included).
OPERATING TEMPERATURE	-20 deg.C (-35 deg. F) to +60 deg.C (+140 deg. F.)
TRANSMITTING SECTION	
POWER OUTPUT	High: 5W Low: 0.5W
MODULATION	Variable Reactance Modulation
MAX.FREQUENCY DEVIATION	\pm 5KHz
SPURIOUS OUTPUT	-60dB or less
BUILT-IN MICROPHONE	Electret capacitor type (Impedance: 2k ohms)
RECEIVING SECTION	
METHOD	Double conversion super- heterodyne type
RF SENSITIVITY	FM: Better than 0.16uV for 12dB SINAD.
FIRST IF FREQUENCY	16.9MHz
SECOND IF FREQUENCY	455KHz
SQUELCH SENSITIVITY	0.1uV or less
SELECTIVITY	\pm 6 KHz min. (-6dB) \pm 15 KHz max. (-60dB)
AUDIO OUTPUT	250mW min. into 8 ohms with 10% distortion.
(NOTE: SPECIFICATIONS OF AZ-61(A) GUARANTEED IN 50.00-54.00MHz.)	

*** ACCESSORIES**

ITEM	QUANTITY
Helical antenna (BNC).....	1
NiCd battery pack (BP-11)...	1
Battery charger (BC-26).....	1
Charger Stand.....	1
Belt clip.....	1
Hand strap.....	1
Warranty Card.....	1
Instruction Manual.....	1



PRECAUTION: Please do not discard the carton. It will be useful for service and transportation.

CAUTION: Dispose of NiCd batteries in accordance with local regulations.

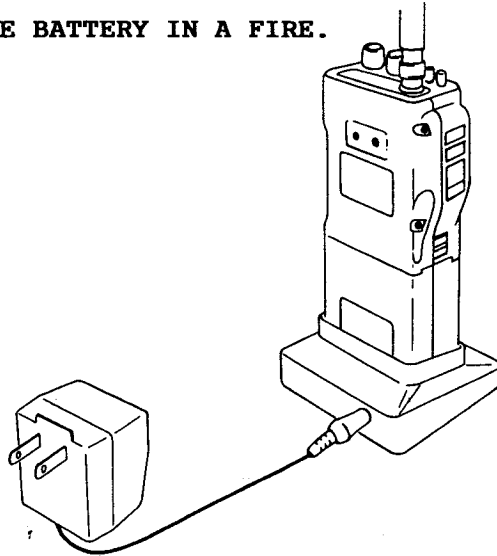
*** NiCd BATTERY**

- 1) This product is equipped with a battery charger model BC-26 (14.5VDC, 150mA) for the 12V, 600mAH NiCd battery pack, BP-11 and a charger stand. Connecting this product to any other equipment is not recommended and could lead to failure.
- 2) The BP-11 is not charged at the time of delivery. Prior to the start of use, use the battery charger and the battery stand to charge it.
- 3) The charge capacity may appear short after the first use or after long-term storage. Charging it two or three times will correct this.
- 4) The ambient temperature range for charging the BP-11 is +10 deg.F to + 75 deg. F.

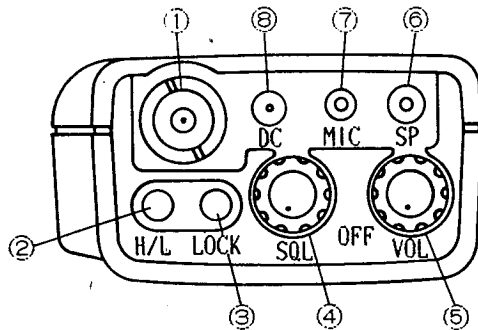
NOTE: Overcharging the BP-11 may cause performance degradation. An external clock timer is recommended.

- 5) The life-time of a NiCd battery is limited. If the operating time becomes short despite sufficient charge, the life-time of the battery is near the end. (The maximum number of charging/discharging cycles is 500.)

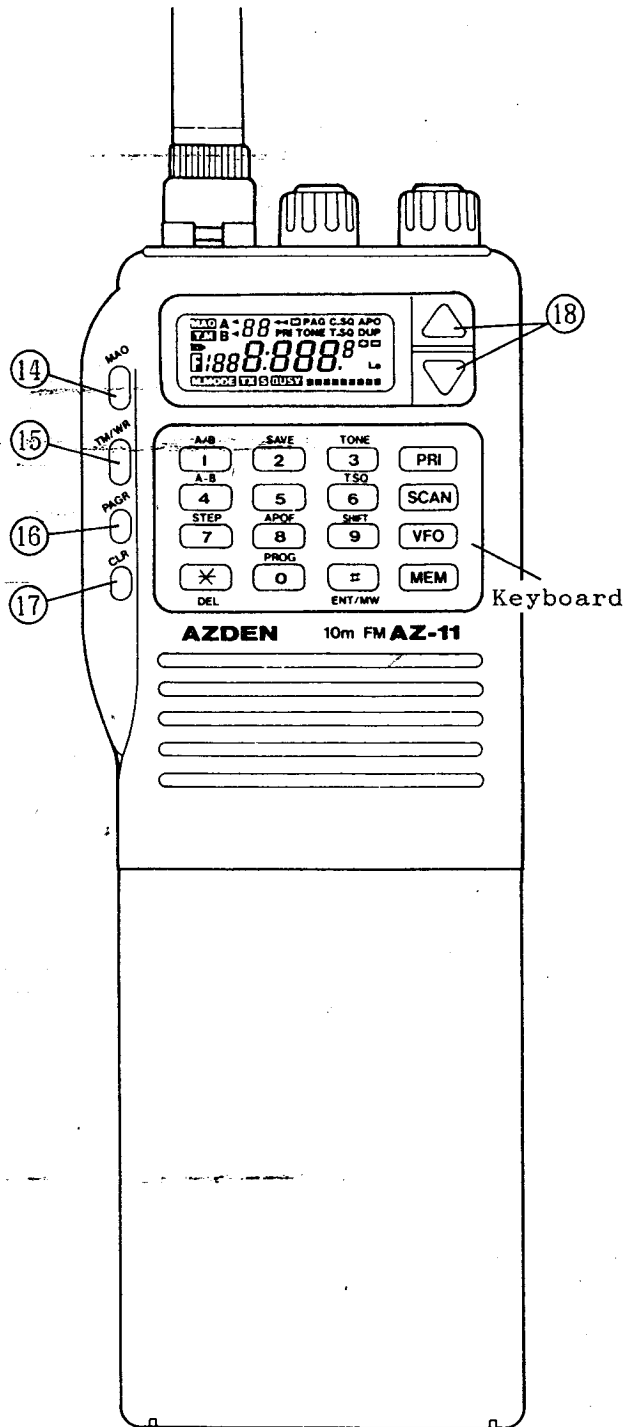
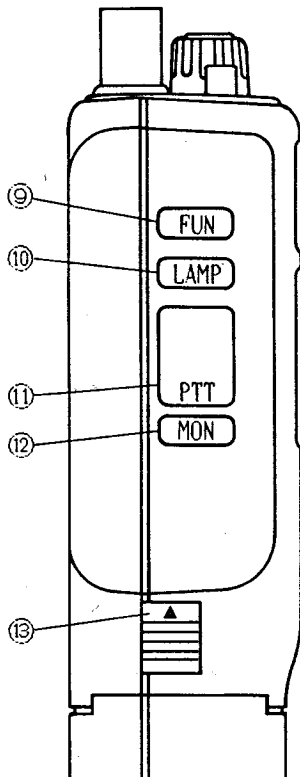
- 6) Remove, charge and store the BP-11 when it will not be used for a long time.
- 7) Charging the BP-11 through the radio's DC input terminal from an external power source is not possible.
- 8) **DO NOT DISPOSE OF THE BATTERY IN A FIRE.**



*** NOMENCLATURE AND FUNCTIONS**



1. **ANTENNA CONNECTOR:** A BNC type connector is used to connect the antenna to the radio. Attach the antenna to the connector and turn it clockwise to lock it.
2. **POWER OUTPUT CHANGEOVER SWITCH:** Changes the transmission output level from H (high) to L (low), or L to H.
3. **KEY LOCK SWITCH:** This switch locks the keyboard preventing accidental entry.
4. **SQUELCH KNOB (SQL):** Quiets the receiver when no received signals are present.



5. POWER/VOL. KNOB: Turns the radio on and off as well as adjusts the volume. Turning it clockwise turns on the power source. Turning it more increases the volume.
6. SPEAKER TERMINAL (SPK): Terminal for an external speaker or earphone. Use a 1/8" monaural plug.
7. MICROPHONE TERMINAL (MIC): Terminal for an external microphone. Use a 3/32" monaural plug.
8. DC INPUT TERMINAL: Terminal for connecting to an external power source.
9. FUNCTION KEY (FUN): Enables the secondary functions of the keyboard.
10. LAMP ON/OFF KEY (LAMP): Turns the LCD display lamp on/off (the LCD backlight). The lamp turns off automatically in ten seconds. While pressing this key, turning the power switch on allows the automatic switch to be turned on.
11. PRESS TO TALK SWITCH (PTT): When pressed and held, the radio is in the transmitting mode. When released, the radio is in the receiving mode.
12. MONITOR SWITCH: Pressing this switch allows monitoring with the squelch open.
13. BATTERY RELEASE BUTTON: Prior to removing the battery pack, press this button in the direction indicated by the arrow and slide the pack towards the button.
14. MA0 KEY: With one touch of this key, the memory A0 channel can be recalled. Usually it is used for your main-channel storage. During scanning, it performs the function of stopping the scanning.
15. TM/WR KEY: Temporarily stores the frequency being used. To store a frequency, press it for more than 1 second. Pressing this key for less than 1 second recalls the stored data. Pressing this key again recalls the previous display.
16. PAGER KEY: Turns the PAGER function on/off as well as the Coded Squelch Function.
17. CLR KEY: Clears the stored frequency, code squelch input and code squelch, tone and tone squelch, and any errors.
18. UP/DOWN KEY: Raises or lowers the operating frequency in KHz steps. Pressing the FUN key at the same time increases or decreases the frequency in MHz steps. When the Memory Mode has been set, pressing the UP/DOWN key steps the radio through the selected channels.

KEYBOARD (TEN KEY)

SWITCH/KEY	SINGLE INPUT	WHILE THE F KEY IS PRESSED
A/B 1	"1" input	Selects A bank or B bank memory.
SAVE 2	"2" input	Turns battery saving function on/off.
STONE 3	"3" input	Turns tone encoding function on/off. (Program mode required)
A-B 4	"4" input	Changes mode of memory scan to A-B sequential.
5	"5" input	N/A
T.SQ. 6	"6" input	Turns tone squelch decoding on/off. (Program mode required)
STEP 7	"7" input	Changes the step width
APOF 8	"8" input	Turns the AUTO POWER function on/off
SHIFT 9	"9" input	Changes the TX/RX shift
PROG 0	"0" input	Starts the program mode (hold for at least one second)
* DEL	Decimal point input.	Skip ON when in memory mode
# ENT/MW	Writing to the memory (hold for 1 sec.)	Skip OFF when in memory mode

PRI

Turns the priority function on/off

SCAN

Turns on the scanning function

VFO

Puts the radio into the VFO mode

MEM

Puts the radio into the memory mode

△

Increases the frequency, the memory address, or cancels scanning

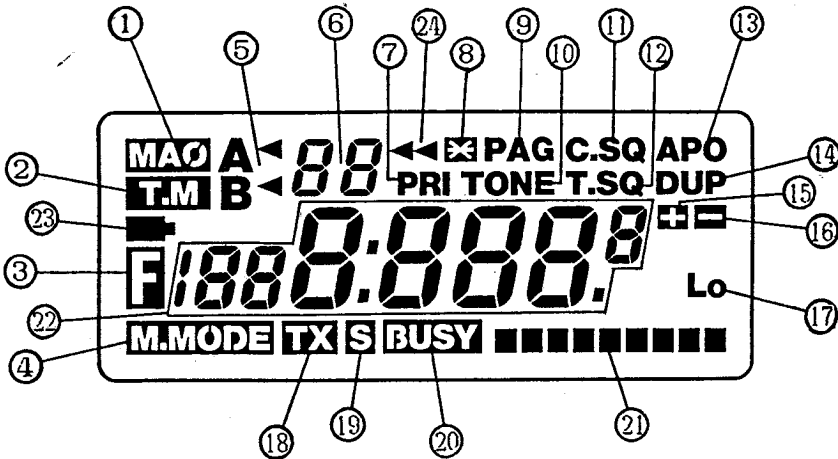
Increase frequency by MHz when the F key is pressed

▽

Decreases frequency, memory address, cancels scanning

Decrease frequency by MHz when the F key is pressed

*** DISPLAY PANEL**



1. **MAO**

Blinks when the MAO channel is activated.

2. **T.M.**

The Temporary Memory (T.M) display blinks when the T.M is activated.

3. **F**
The Secondary-function display blinks when the FUN key is pressed.
4. **M.MODE**
The Memory mode display blinks when the radio is in the memory mode.
5. **A** ←
B
The Memory mode display shows which memory bank the radio is in.
6. **88**
Displays the memory address (01-20) during operation as well as the DCS code address. Also, displays the scanning method (SC) when programming.
7. **PRI**
The priority display lights up during priority operation.
8. *****
When a DCS code address has been received, the * lights.
9. **PAG**
The pager display lights up or blinks during paging operation.
10. **TONE**
The CTCSS Tone encoding display lights up when the tone switch is turned on.
11. **C.SQ**
The Code Squelch display lights during code squelch operation.
12. **T.SQ**
The CTCSS Tone decoding display lights when the T.SQ switch is turned on.
13. **APO**
The Automatic Power-Off display lights up when the automatic power-off function is enabled.

14. DUP

The Duplex display lights up when transmission/reception frequencies are different.

15.

The Plus-shift display lights up when the plus-shift is selected.

16.

The Minus-shift display lights up when the minus-shift is selected.

17. Lo

The Low-power display lights up when the low-power switch is turned on.

18.

The Transmission display lights up when transmitting.

19.

The Priority Busy display lights up when a signal is detected during priority operation.

20.

The Busy display lights up when the squelch is opened.

21. S/RF

The S/RF meter displays signal strength when receiving, or the power output level when transmitting. All segments light with high power, and three segments light with low power.

22. **888.888^B** : RF Frequency Display

(1) Frequency display

53.525

(2) Scanning display

29.300

(3) DCS code display

C345

(4) PLL unlock display (Blinking)

PLL - UL

- | | |
|--------------------------------------|------------------|
| (5) Frequency step width display | $\Delta F: 10.0$ |
| (6) CTCSS code and frequency display | CTCSS: 88.5 |
| (7) Scanning method display | HLD - 2.0 |
| (8) AUTO POWER OFF time display | OFF 60 |
| (9) Battery saver time display | t - 500 |

23. 

The Battery saver display lights up when the battery saver function is on.

24. <-<-

The Skip display lights up on the channel to be skipped.

*** OPERATIONS: KEY OPERATION EXAMPLE**

1) $\boxed{\text{FUN}} + \overset{\text{A/B}}{\boxed{1}}$:

The symbol "+" means that the operator should press the $\overset{\text{A/B}}{1}$ key while pressing the FUN key.

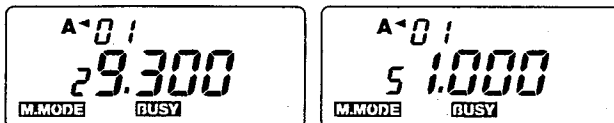
2) $\boxed{\text{MEM}} . \boxed{1} . \boxed{8} \dots$:

The period "." between key symbols means that the operator should press the next key following the previous key.

3) For the symbols on the LCD display, refer to the section, "DISPLAY PANEL."

* HOW TO RECEIVE SIGNALS

Make sure that the VOL (volume) knob is turned counterclockwise all the way to the off position. Then connect the battery pack and attach the antenna. Turn the VOL knob on the top panel clockwise to turn on the power source. Turning the VOL knob more increases the output. NOTE: If the display panel is not set as shown, resetting is required. This is done by turning off the power switch, then turning it on while pressing and holding the CLR key.



Set the SQL knob at the point where noise is not heard. The **BUSY** display disappears when the SQL knob is set correctly.

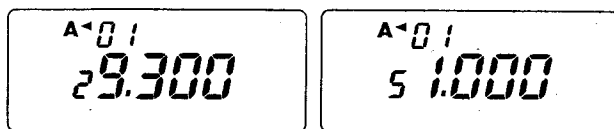
THERE ARE TWO RECEIVING MODES, VFO AND MEMORY.

1. VFO MODE

- 1) To set the VFO mode when the MEMORY mode has been initialized at power up:

Turn on the power source. Then press the following keys to change to the VFO mode.

VFO

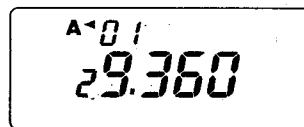


The display will be as shown.

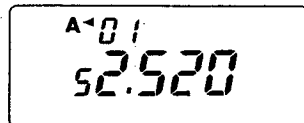
- 2) To change from 29.000MHz to 29.360MHz
or from 51.000MHz to 52.520MHz:

A) Press keys as follows:

2 . 9 . * . 3 . 6



5 . 2 . * . 5 . 2



Now you can receive on 29.360 (or 52.520)

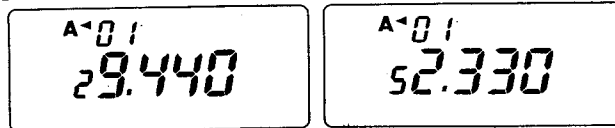
NOTE: If the operator fails to press the next key within 1.5 seconds after pressing the * key, the displayed figure becomes 29.000 (or 52.000)

B) Using the UP key/DOWN key.

To change from 29.360MHz to 29.440MHz
or from 52.250MHz to 52.330MHz:

Press ,

If the 5kHz step has been chosen, press the UP key 16 times. then, 29.440 (or 52.330) will be displayed.



If the frequency difference is large (more than 1 MHz), press

FUN +

The frequency will increase or decrease by 1 MHz each time you press them.

Release the FUN key and

press the key to get the desired frequency.

3) High speed frequency change using the TRIUP, TRIDOWN keys.

,

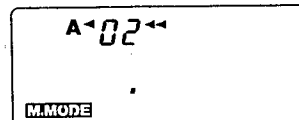
Holding these keys for more than one second changes the frequency quickly. When the frequency nears the desired value, release the key. For fine frequency adjustment, press the key repeatedly for less than one second.

2. MEMORY MODE

1) How to select and store a frequency.

Example: To store 29.700MHz (or 52.700MHz) in A02 (second memory location in the A bank).

Press MEM . 2 successively within 1.5 seconds. The display will blink 2 or 3 times and it will be as shown.

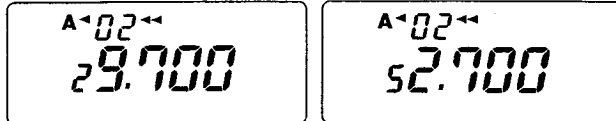


This display shows that the A02 location is empty.

To install a frequency of 29.700MHz (or 52.700MHz) for example, press:

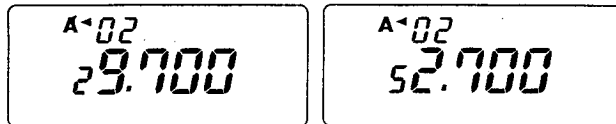
[2] . [9] . [*] . [7] . [0] . [0] + [#]
 ENT/MW
 [5] . [2] . [*] . [7] . [0] . [0] + [#]
 ENT/MW

The figure blinks and the display will be as shown. (When entering, the last 0 can be disregarded).



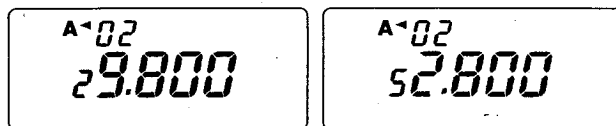
After confirming the frequency, continue to press the # key for more than one second. A beep will sound and the frequency will be stored. The radio is now ready to receive on this frequency.

If there is no signal, sounds will be produced and the symbol <-<- will disappear as shown. The stored contents will remain unchanged unless rewritten or reset.



To store 29.800MHz (52.800MHz) in memory A08 (eighth memory in the A bank):

Press [MEM] . [8] to call up memory channel A08. Enter [2] . [9] . [*] . [8] . [0] (or [5] . [2] . [*] . [8] . [0]) and when it stops blinking, press [#] for 1 second or more. The display now shows:



ANOTHER WAY TO DO THIS :

Using [MEM] [FUN] + [Δ] or [∇], call up memory channel A08 and then press [2] . [9] . [*] . [8] . [0] (or [5] . [2] . [*] . [8]) and # for 1 second or more.

(The last trailing 00 or 000 is automatically added)

NOTE: in order to enter another frequency in memory A02, key in the frequency and press [#]
ENT/MW

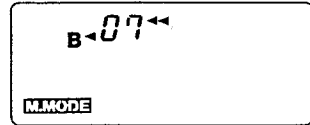
2) Memory bank selection.

There are 40 memory channels that are divided into bank A and bank B. (A: A01-A20, B: B01-B20).

Prior to the selection of bank A or bank B, make sure that there is no blinking display. (Blinking display indicates that another function is ready to be specified.) Then, while pressing the **FUN**, select bank A or bank B by pressing

A/B
1

Example: **FUN** + A/B
1



If the bank B is selected and no data is stored for channel 07, the memory bank and channel display will be as shown.

3) Recalling a Memory channel.

There are two ways to call up a memory channel.

A. Direct Keyboard Entry

For example, to call up channel 17, press

MEM . **1** . **7**.

When pressing **1** and **7**, max. key-in interval is 1.5 seconds. (Unless you press the keys while the display is blinking, the radio will return to channel 01.

B. Manual Entry

Press **MEM** and make sure that **M.MODE** is displayed. Then, press **FUN** + **Δ** OR **∇** several times to step the radio to channel 17.

Pressing **Δ** OR **∇** without pressing the **FUN** key makes the radio skip all channels marked <-<-.

Setting the Skip function:

***** : Skip function...ON <-<- displayed
DEL

: Skip function...OFF <-<- not displayed
ENT

The blank channels for which no data has been stored, have the Skip function ON.

4) Memory storage (backup).

The built-in lithium battery backs up the memory. The life of a battery is, for the most part, 2 years or more. Replace the battery when it has completely discharged and memory storage becomes impossible. The lithium battery is a CR2032 type.

5) Initialized values stored in the memory.

In addition to the values shown under "HOW TO RECEIVE SIGNALS", the following items are initialized:

		AZ-11	AZ-61
MA0 A01 T.M	F RX	29.300MHz	51.000MHz
	F TX	29.300MHz	51.000MHz
VFO MODE	STEP	10KHz	10KHz
SCAN	SCAN	HOLD 2	HOLD 2
	STEP A	10KHz	10KHz
	STEP B	10KHz	10KHz
TIM	APOF	60min	60min
	SAVE	500msec	500msec
TX BAND	Lo	28.000MHz	50.000MHz
	HI	29.695MHz	53.995MHz
DTMF	CO~CP	000	000
MA19 MB19	F RX	28.000MHz	50.000MHz
	F TX	28.000MHz	50.000MHz
MA20 MA20	F RX	29.900MHz	53.990MHz
	F TX	29.000MHz	53.990MHz

6) Use of memory.

When in the VFO mode, memory channels other than MA0 or T.M can not be called up. If other memory channels are required, use the key pad to key in the desired channel within 1.5 seconds.

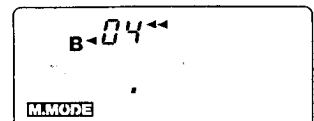
Example: If you wish to call the contents stored in bank B, channel 12, the key-strokes will be as follows:

(It is assumed for this example that A04 is currently displayed).

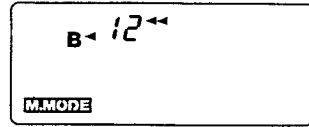
Press **MEM** to set the memory mode. M.MODE will be displayed. After the blinking stops, press

F + **1** to call up bank B. The display will be
A/B

as shown.

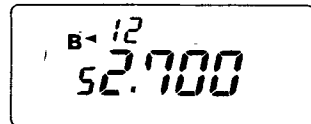
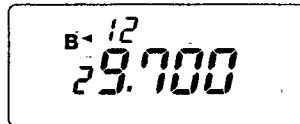


Press **1** . **2**. The display will be as shown.



NOTE: If you fail to press **2** within 1.5 seconds after pressing **1**, only **1** becomes effective and channel 01 will be called up.

To write 29.700MHz (52.700MHz) into the channel, press **2** . **9** . ***** . **7** . **0** . **0** (**5** . **2** . ***** . **7** . **0** . **0**). Then press **#** for one second or more after the blinking stops. Beep sounds will be heard and 29.700MHz (52.700MHz) will be written into bank B, channel 12. The display will be as shown.



It is unnecessary to press the trailing zero. The memory channels can be checked for contents by using **Δ** AND **∇**.

3. Frequency step check.

The initialized frequency step is 5kHz. To change this value to 10kHz, press: **FUN** + **STEP**
DUP

To specify the 5kHz frequency step, repeat the same operation.

Pressing **FUN** + **STEP** causes no display change, only **DUP** a double beep is heard. Use **Δ** or **∇** to change the displayed frequency for confirmation.

The basic frequency steps are 5kHz, 10kHz and 12.5kHz. For further information on how to change a frequency step, refer to "PROGRAM EXECUTION PROCEDURE."

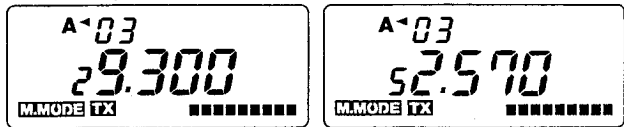
The following frequency steps can be specified:

5kHz]	FUN + DUP ->	[10kHz
10kHz				20kHz
12.5kHz				25kHz

(Refer to "PROGRAMMING PROCEDURE-SCANNING STEPS")

*** TRANSMISSION METHOD**

- 1) When the transmission/reception frequencies are equal to each other (simplex mode),
 - A. Prior to the start of transmission, make sure that an antenna with an SWR of $\leq 1.5:1$, is connected.
 - B. Prior to the start of transmission, make sure that the transmission frequency is not being used by another station. To do this, press **[MON]** or turn the SQL control counterclockwise.
- 2) Press the PTT switch and speak into the microphone with your mouth approximately 5cm (2 in.) from it.
- 3) For example: Transmitting 29.300MHz (52.570MHz) stored in bank A, channel 03 on high power: The LCD display is as shown.



[TX] and the power indicator will light up. With the top-panel H/L switch in the low power position, the power indicator will show three bars.

- 4) When the PTT switch is released, the radio is in receive and the power indicator bar becomes the S meter bar.

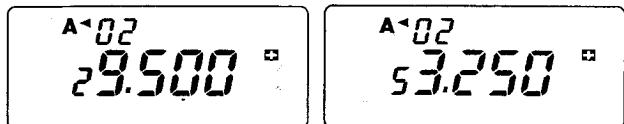
NOTE: Very long transmissions on high power can increase the radio's temperature and cause possible damage.

- 5) Duplex mode.

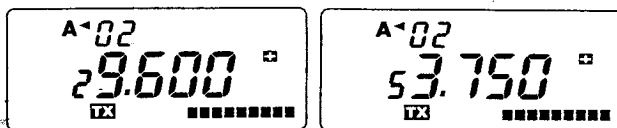
The standard offset frequency of 100KHz is set for the AZ-11 and 500KHz for the AZ-61.

In the VFO mode, pressing **[FUN]** + **SHIFT** causes **[-]**, **[+]** and **[9]** and simplex....to be sequentially set.

For example: With a (+) offset and the H/L switch in H as shown,



pressing the PT automatically displays:



The transmitting frequency is 29.600MHz (53.750MHz).
If the offset transmit frequency is out of the band of
the radio, it will not transmit.

In the memory mode, transmission and reception are
performed on the stored frequencies.

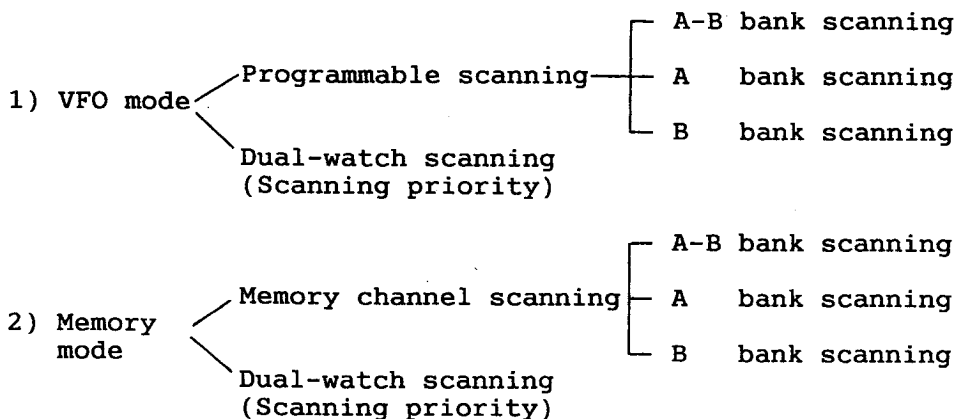
6) Transmitter power output is as follows:

	Hi (high)	Lo (Low)
Battery (12V)	4-5	0.5
External power source (13.8V)	5	0.5

*** SCANNING**

Functions which can be performed in the scanning mode, the VFO mode or the memory mode:

In the VFO mode or the memory mode, the following eight types of scanning can be used.



SCANNING METHOD AND SCANNING STOP/RESTART OPERATIONS

To start scanning, press **SCAN**. If a signal is received, scanning stops. There are four types of scanning operations which can be selected in the program mode.

- a) STOP 4: Scanning restarts after a 4-second pause at the frequency or the memory channel where an effective input signal is detected.
- b) STOP 8: Scanning restarts after an 8-second pause at the frequency or the memory channel where an effective input signal is detected.
- c) HOLD 2: Scanning starts in two seconds at the next frequency or memory channel if an effective signal ceases to be received for two seconds after scanning stops at a frequency or a memory channel where an effective signal is detected.
- d) HOLD 4: Same as (c) except that the delay time is four seconds.

NOTE: The initialized step when the radio is turned on is (c) above. To change the initialization, refer to "PROGRAM EXECUTION PROCEDURE."

To stop scanning, press Δ ∇ or FUN.

Pressing MA0 or T.M stops the scanning and calls up the MA0 or T.M memory channel. During scanning, if an input signal is detected and the PTT switch is pressed, the scanning stops and the transmitter is turned on. But if there is no signal detected, the scanning stops and the transmitter is not turned on. Press the PTT switch again to transmit.

SCANNING MODE SELECTION (Refer to "FREQUENCY SELECTION AND MEMORY STORAGE".)

1) Programmable scanning/VFO mode

- a) A-bank scanning
Scanning is conducted between the receiving frequencies specified by the memory channels A19 and A20, with the specified frequency step.
- b) B-bank scanning
Scanning is conducted between the receiving frequencies specified by the memory channels B19 and B20. (Same as A-bank scanning.)
- c) A-B bank scanning
Alternate scanning of the A-bank and B-bank.

NOTE: These radios scan from low to high frequency. Store the lower frequency in channel 19 and the higher frequency in channel 20.

2) Memory mode scanning

- a) A-bank scanning
Scans the memory channels A01 to A20.
- b) B-bank scanning
Scans the memory channels B01 to B20.
- c) A-B bank scanning
Alternate scanning of the memory channels, A01-A20 and B01-B20.

Memory channel skip:

Scanning skip (lock-out) is possible on all memory channels.

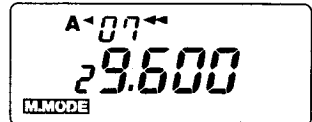
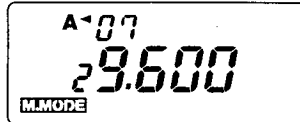
Skip-off.... # Key
 ENT/MW

Skip-on * Key
 DEL

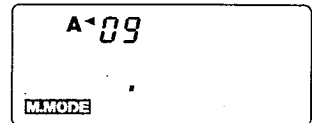
Example:

When a memory channel is to be received and not skipped, call up the desired memory channel and press the **[#]** Key to shut off the skip. The channel display now shows A<07.

When a memory channel is to be skipped, call up the desired memory channel and press the **[*]** Key to turn on the skip function. The channel display now shows A<07<< and it will be skipped when scanning.



If you call up a channel which has nothing stored in it, the frequency part of the display will be blank and pressing the **[#]** Key causes no change.

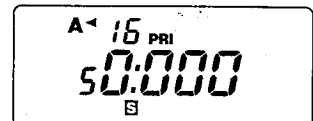
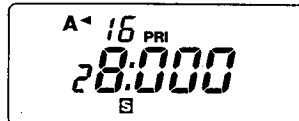


*** PRIORITY OPERATION (DUAL WATCH)**

If priority operation is activated in the VFO mode or the memory mode, Dual Watch of the frequency being received and the MA0 channel can be set. The MA0 channel is checked approximately every four seconds. Receiving a signal on the A0 channel produces beep sounds and "S" is displayed.

Press **[PRI]** to turn the priority operation on/off.

During the dual watch mode, pressing the PTT switch allows immediate transmission of the channel set in the VFO mode or the memory mode.



*** TONE/CTCSS ON/OFF**

Refer to "PROGRAM EXECUTION PROCEDURE" for the CTCSS frequency program. Otherwise, the CTCSS will not operate.

There are two program execution procedures as shown below:

- A. Program execution in the VFO mode.
- B. Program execution in the memory mode.

CTCSS encoding or decoding operation is as follows:

CTCSS encoding (transmission)

[FUN] + TONE
[3]

CTCSS decoding (reception)

[FUN] + T.SQ
[6]

*** HOW TO PROGRAM**

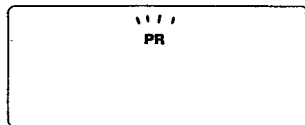
The Programming Mode has two paths. These are the Initialization Mode and the Memory Mode.

In the Initialization Mode, the first two items which can be set are the CTCSS Tone Squelch (receive) and the CTCSS Tone (transmit) that can be used when in the VFO Mode. The rest of the items that can be set are the Scanning Hold Time, A and B bank Scanning Skip, Automatic Power OFF time and the Battery Save Time.

In the Memory Mode, the channel number, receive frequency, receive PLL, transmit frequency, transmit PLL and Scan Skip can be set.

TURNING THE PROGRAM MODE ON/OFF.

ITEM	KEYBOARD OPERATION	LCD DISPLAY (EX.)
Before executing any program, set the radio into the Program Mode.	PROG FUN + 0 (1 sec)	PR display blinks and 2 beeps sound.



The radio is now in the Program Mode.

When finished programming, exit the Program Mode.	PROG FUN + 0	Returns the radio to the pre-program mode.
---	---	--

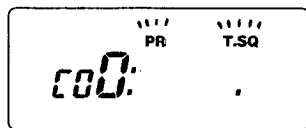
NOTE: The Program Mode is automatically turned off when no information is keyed in for 10 sec. or more.

A) Program execution in the VFO Mode (after setting the radio into the program mode)

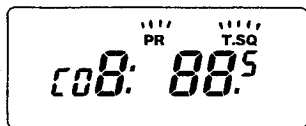
ITEM	KEYBOARD OPERATION	LCD DISPLAY
------	--------------------	-------------

Receiving CTCSS decode.

Press ENT/MW while "PR" is blinking

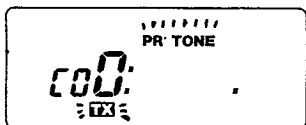


Select the desired tone squelch frequency with Δ or ∇
Example: Set 88.5Hz:



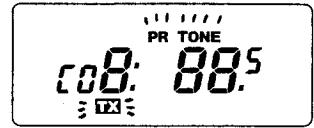
To enter and display next item.

ENT/MW



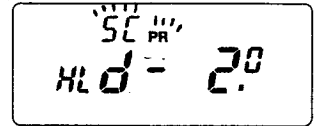
Transmitting CTCSS
encode.

selected with ,
Example: Set 88.5Hz:



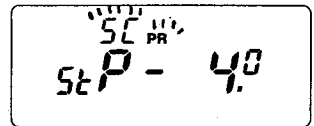
To enter and
display next item.

ENT/MW



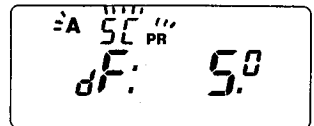
Scanning hold time.

select with and
(STOP4<->STOP8<->HOLD2<->HOLD4<->..)



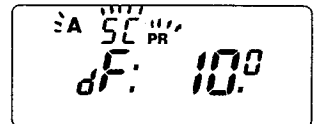
To enter and
display next item.

ENT/MW



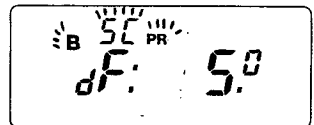
A-bank scanning
step setting.

Selected with ,
(5.0<->10.0<->12.5...)
Example: To set 10KHz steps:



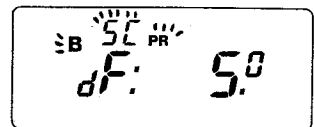
To enter and
display next item.

ENT/MW



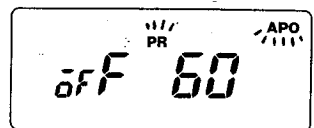
B-bank scanning
step setting

Selected with ,
Example: To set 5kHz steps:



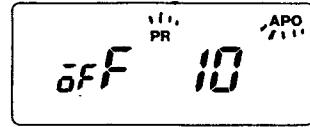
To enter and
display next item.

ENT/MW



Automatic Power
Off Timer setting

Select with ,
(10<->30<->60<->120<->...)
Example: 10 minutes shown



To enter and
display next item.

ENT/MW



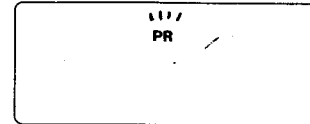
Battery Saver
Timer setting.

Select with ,
(125<->250<->500<->1000<->...)
Example: 1000m specified



To enter and
display next item

ENT/MW



CTCSS frequency (Hz)

C01	67.0
C02	71.9
C03	74.4
C04	77.0
C05	79.7
C06	82.5
C07	85.4
C08	88.5
C09	91.5
C10	94.8
C11	97.4
C12	100.0
C13	103.5

C14	107.2
C15	110.9
C16	114.8
C17	118.8
C18	123.0
C19	127.3
C20	131.8
C21	136.5
C22	141.3
C23	146.2
C24	151.4
C25	156.7
C26	162.2

C27	167.9
C28	173.8
C29	179.9
C30	186.2
C31	192.8
C32	203.5
C33	210.7
C34	218.1
C35	225.7
C36	233.6
C37	241.8
C38	250.3

_____ The initialization and default settings for the
VFO mode have now been set _____

B) Program execution in the Memory Mode (after setting the radio into the Program Mode)

The VFO-mode setting procedure in A) is common to all the frequencies used in the VFO mode. In the Memory Mode, each memory channel can be set separately and all items are independent.

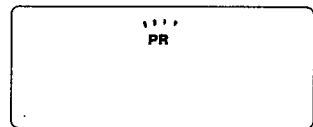
NOTE: Prior to the start of the operations mentioned below, set the radio into the program mode.

MA0 and Memory channel programing:

ITEM	KEYBOARD OPERATION	LCD DISPLAY (EX.)
------	--------------------	-------------------

Setting the Program Mode

FUN + PROG
0

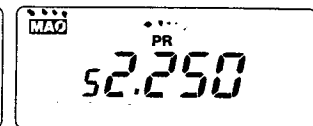
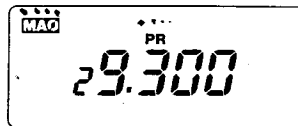


Memory address (MA0, A01-A20, B01-B20)

Δ, ▽

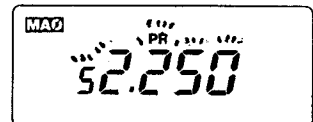
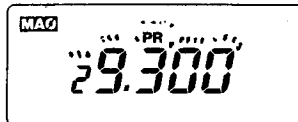
Select the desired memory address
(Ex: To set MA0)

* Note: 29.300(52.250) previously stored.



To enter and display next item

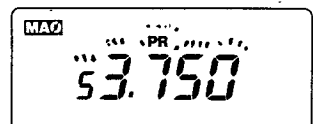
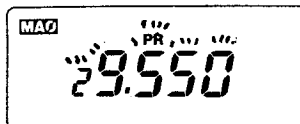
ENT/MW



Enter a receive frequency

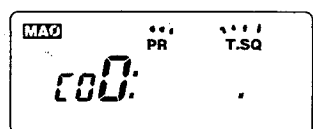
Δ, ▽

keys, or 0-9 and * keys, enter the desired frequency.
(Ex: 29.550 or 53.750)



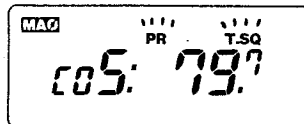
To enter and display next item

ENT/MW



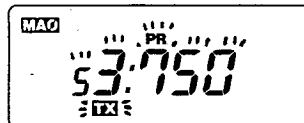
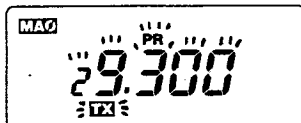
Enter a receive CTCSS frequency

,
(Ex: 79.7Hz)



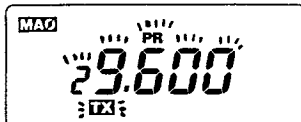
To enter and display next item

ENT/MW



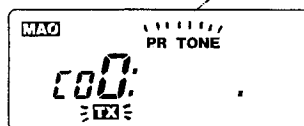
Enter a transmit frequency

,
keys, or 0-9 and *
keys, enter the
desired frequency
(Ex. 29.600 or
53.250)



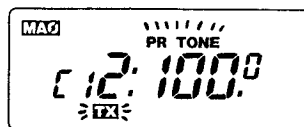
To enter and display next item

ENT/MW



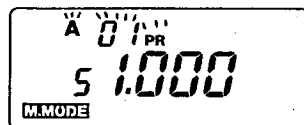
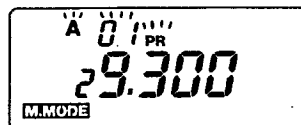
Enter a transmit CTCSS frequency

OR
(Ex:100.0Hz)



To enter and display next item

ENT/MW



* Note: 29.300(51.000) previously stored.

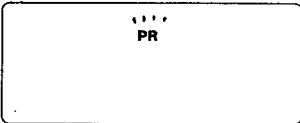
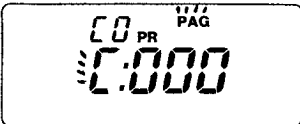
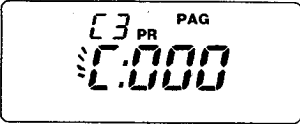
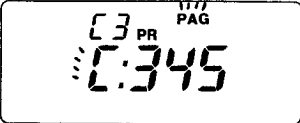
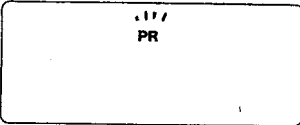

NOTE: In memory mode, the initialized values of the following items are the same as the VFO mode.

Scanning Mode
Scanning Skip
Automatic Power Off
Battery Save Timer

*** DCS OPERATION (DTMF CODE SQUELCH)**

These radios offer two types of DCS operation. One is the **PAGER**, when the receiving radio is paged with a beep. The other is when the receiving radio is squelched on as long as it is receiving a coded signal. Six different 3 digit codes can be stored.

Setting DCS codes for PAGER and Code Squelch

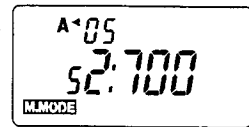
ITEM	KEYBOARD OPERATION	LCD DISPLAY (EX)
Set the radio into the Program Mode	PROG FUN + 0 > than 1 sec.	
Starting DCS code programming	PAGR	
Select the DCS code address	Δ , ∇ (Ex: Location C3)	
Select DCS Program (0 - 9)	To set code 345, press keys 3.4.5	
The code is automatically written to memory 1.5 seconds later.		
The display then shows:		
		
Canceling the DCS	PAGR	

NOTE: Pressing **CLR** changes the operating mode back to the original mode.

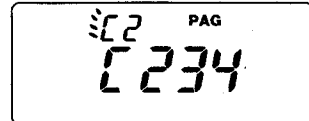
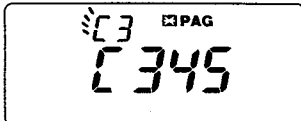
NOTE: The codes that have been set this way are common to both the pager operation and the code squelch operation.

*** PAGER OPERATIONS**

- 1) First set the desired channel and operating frequency. (Ex: 29.100 or 52.700)



- 2) Press **[PAGR]** to select the PAGR mode. When this mode is selected, the last DCS code address and its contents are displayed. Pressing **[Δ]** or **[▽]** allows the address to be changed.



Four seconds after the last key operation, the DCS address and the code cease to be displayed, and then the memory address and the frequency are automatically displayed.

NOTE:

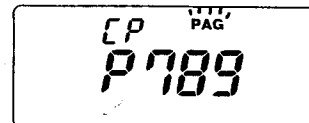
- A) The * symbol shows that this address is ready to receive.
- B) If the * symbol is not displayed, the radio will not operate.
- C) Pressing the **[*]** Key causes the PAGR mode to be turned on/off.

NOTE: The * is always displayed when in channel C0.

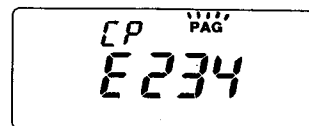
3) Pager reception

After the set up has been completed, you can receive on the selected code of its own station C0 or any of the *-attached group codes.

Receiving the individual code of its own station:
The code of the called party is displayed and "PAG" blinks.



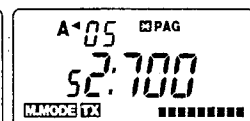
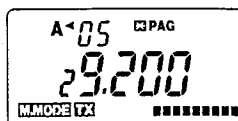
If you fail to receive the individual code of the other party:
CP (individual code of the other party) is displayed as well as E. "PAG" blinks.



NOTE: 1.5 seconds after no signals are detected, the radio is ready to receive again.

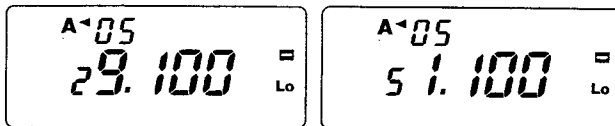
4) Pager transmission

Pressing the PTT switch allows the DTMF codes to be encoded and transmitted.

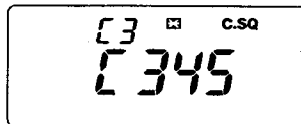


*** CODE SQUELCH OPERATION**

- 1) Set the operating frequency and offset.

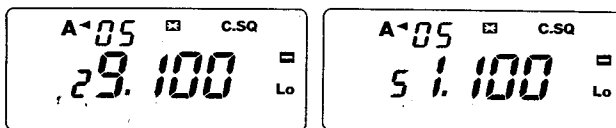


- 2) Select C.SQ by using the PAGR key. (The same as "PAGER OPERATION...2)

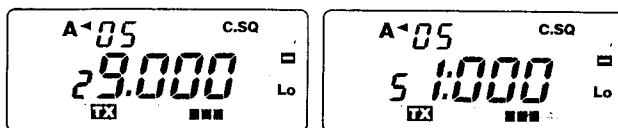


- 3) C.SQ reception

After 1) and 2) above are completed, you can receive on its individual code C0 or the *-attached group code. Receiving 3-digit DTMF signals opens the voice squelch.



- 4) After 1) and 2) above are completed, 3-digit DTMF signals are encoded. Even if switched off, transmission continues until 3 digits are transmitted. The DTMF signals can be monitored by the speaker.



NOTE: Pressing the CLR key turns off PAGR and C.SQ.

*** DTMF OPERATION**

Manual encoding

- a) Set the desired operating frequency.
- b) Press the PTT switch to put the radio into the transmitting mode.
- c) Pressing each of 0-9, * and # keys causes the keyed-in DTMF signals to be encoded and transmitted. Even if the PTT switch is turned off, transmission will continue for 1.5 seconds.
- d) The transmitted DTMF signals can be monitored by the speaker.

* BATTERY SAVER

During normal standby or priority operations, pressing

FUN + **SAVE** activates the battery saving function
2

(**■** displayed) reducing the power consumption. This operation cannot be performed during pager, code squelch and scanning operations. The initialized value is 500ms.

* AUTOMATIC POWER-OFF

Pressing **FUN** + **APOF** allows the automatic power-off function
8

to be activated (APO displayed). After the passage of a preset time from the key-on, the transceiver will be switched off. One minute before the switch-off, an alarm will be given. To cancel the automatic power-off function, press the APOF key again.

After the transceiver is switched off by the automatic power-off operation, the power source can be turned on by switching the radio off and on again. The automatic power-off function remains turned on. Automatic power-off time is adjustable for 10 minutes, 30 minutes, 50 minutes or 120 minutes. The initialized time is 60 minutes.

To turn on the power after the automatic power-off feature has turned off the radio, turn the POWER/VOL knob to OFF and approximately 5 seconds later, turn it ON.

* RESETTING AND CLEARING

Turning on the power source while pressing the CLR key erases all the stored information, returning the radio to the initialized state.

* THE BEEP

Every time a button is pressed, the BEEP sounds. It can be toggled ON/OFF by holding the **FUN** Key while turning the radio ON.

* MAINTENANCE

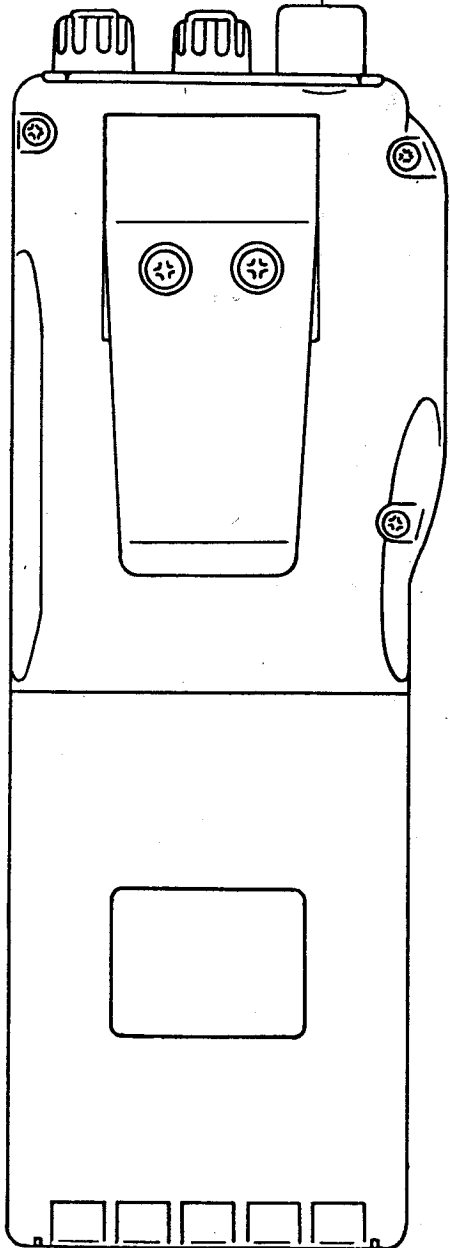
Lithium battery replacement

The built-in lithium battery powers the memory storage. Even if the power switch is turned off, no information will be lost from the memory.

*** OPTIONAL ACCESSORIES**

- o BP-11
(12VDC, 600mh)
NiCd battery pack
- o Soft carrying case
LC-16
- o Waterproof speaker/microphone
SDX-514W
- o DC cord AD-16
- o Rod antenna ARD-6M for AZ-61(A)
- o Rod antenna ARD-10M for AZ-11

2495 595
\$40.90
ARD-6M-



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