

SAR VHF Radio Training

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VHF

VHF or Very High Frequency is a part of the radio spectrum that uses much shorter wavelengths than do the HF or SSB radios. As such they behave in different ways, and normally you can only communicate between VHF radios if you have "line of sight" between them. VHF is more convenient than HF because the radios are smaller and lighter, but they do not have the same coverage range as HF does.

You can extend your range by getting up higher, or by working through a repeater (see later).

Sometimes the "line of sight" rule can be improved upon during special atmospheric or geographic conditions, however these are very rare. It can be reduced in some cases, due to limitations of handheld radios, but mainly by various forms of obstruction. Signals can be improved by using higher power equipment and better antennas, but these are not so convenient.

Operation

Normal radio operating procedures apply:

- ◆ You should always speak slowly and clearly
- ◆ You should always use correct callsigns
- ◆ You should be especially careful that you are not transmitting accidentally
- ◆ You should have thought about your message before transmitting
- ◆ You check that the channel is clear before transmitting

Repeaters

Repeaters extend the line of sight range of VHF communications by "repeating" the signal from one radio to another, usually from an elevated location, giving the benefit of "line of sight" from that location. To be able to use a repeater you still need to have line of sight to the repeater, so if there is some feature that may be blocking this "line of sight" then you will not be able to communicate.

There are a number of types of repeaters that operate in slightly different ways.

Full Duplex

A Full Duplex repeater actually uses two radio frequencies instead of just one, in this case the sending radio transmits on one frequency which the repeater receives, and then retransmits on another frequency. The radios need to have a channel that is setup to handle this method of sending on one frequency and receiving on another frequency. With this type of repeater all parties and the base will be able to talk to all other parties and the base. The new SAR ES Band Repeater is a Full Duplex repeater. This is the same as many commercial radiotelephone type repeater systems.

Cross Band

A Cross Band repeater receives the signal from the radio on its channel, and then transmits it on a channel in a completely different band. This type of repeater is smaller and cheaper than a full duplex repeater, but requires special circuitry and two different bands to operate in. With this type of repeater the radios in the field can talk to base through the repeater and base can talk back to the field, but field parties will only be able to talk to each other if they are in line of sight of each other. Many of the AREC Portable repeaters are Cross Band repeaters.

Simplex

A Simplex repeater is a special device that stores your transmission and then repeats it "Parrot" style a very short time later. These repeaters have not been used for SAR as yet, but they may be in the future, as they are simple and low cost. However they can be disconcerting to use, and can take some getting used to. We may make use of this technique in future training sessions, as it allows you to hear how you sound on the radio.

Batteries

In general terms you get what you pay for. A good quality Alkaline battery is the best type to use, however there are some new Lithium batteries that work even better, but they are harder to get, and are much more expensive. The better quality the battery the longer they will last, and the better they will perform in cold conditions.

You should always try and use fresh batteries, as they can deteriorate quite a bit while on the shelf.

- ◆ You should always use fresh batteries for operations
- ◆ You should not leave batteries in the radios for any length of time
- ◆ You should try and keep batteries warm in cold conditions (keep them close to your body)

ICF3S Operation

Basic Operation:

- ◆ Fit Antenna
- ◆ Fit Batteries
- ◆ Power on and set Volume with Volume Control knob.
- ◆ To Unlock if locked (key symbol appears in upper left of display) Press P0 for 2 seconds
- ◆ Select Channel with Up and Down Arrows (See Channel Chart attached)
- ◆ To Select Bank Press P2 - Bank 1 contains Channels 1 - 12, and
Bank 2 contains Channels 17,18 and 22.
- ◆ To Select Low Power to conserve Battery Life Press P1 (Low appears in lower left of display)
- ◆ To lock channel press P0 for 2 seconds.

External Aerial:

To connect the external aerial for "base" operations:

- ◆ Remove the rubber duck antenna
- ◆ Insert the adapter (Be careful not to loose the adapter)
- ◆ Install whip on mag mount base
- ◆ Place mag mount antenna in highest position possible within limitations of cable
- ◆ Connect cable to adapter

ICOM F3 Handheld Operating Instructions

- 1 VOLUME CONTROL AND ON/OFF SWITCH
- 2 PUSH TO TALK SWITCH [PTT]
- 3 UP/DOWN KEYS CHANNEL SELECT [SEE NOTES]
- 4 PROGRAMMABLE BUTTONS [SEE NOTES]
- 6 ANTENNA CONNECTOR
- 7 SPEAKER/MIC SOCKETS
- 8 TRANSMIT LED
- 9 FUNCTION DISPLAY [SEE NOTES]

ICOM F3 Operations

Push Button and Display Description

UP/DOWN CHANNEL BUTTONS (3) are used to change to a channel as shown in the frequency location chart. The channel number and channel description will show in the display.

PTT (push to talk) (2) Press this before you are about to send your message and release to receive. The red transmit light (8) will light while you are transmitting.

Mute over-ride (4)

When this button is pressed and held down the mute is over ridden and noise will radiate from the speaker. This function is used to listen for very weak stations, which will not open or hold open the mute. A BUSY sign will show in the display.

PROGRAMMABLE BUTTONS (4 at bottom) are used for the following:

P0 LOCK

When this button is pressed for more than one second a KEY symbol will be displayed in the display and the keyboard will be locked i.e. front panel push buttons will not function when pressed.

To unlock press and hold P0 button for more than one second and the KEY symbol will disappear.

P1 high/low power.

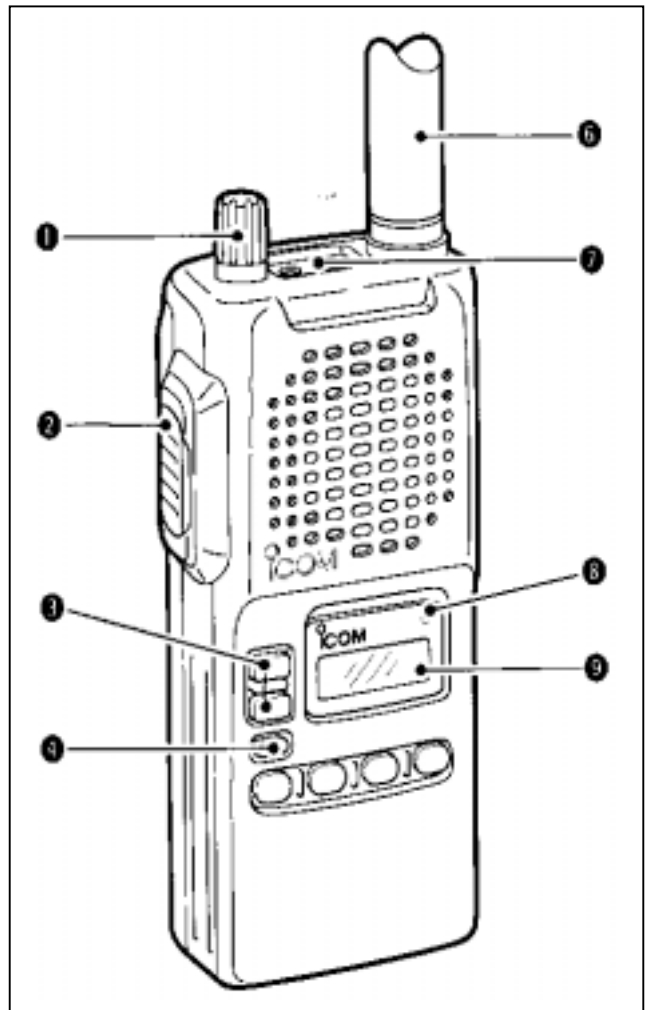
Press this button to change the transmit power setting. Press once and LOW will be displayed in the display press again and the LOW disappears.

P2 bank change

The ICOM F3 has two banks of sixteen channels.

Press this button once swap to the other bank; press again to swap back.

P3 Not Used



SAR Icom ICF3S VHF Handheld Radios

National Channel Allocations

Bank - 1

Channel	Type	Description
1	Simplex	ES Band SAR Simplex 1 (ESX53)
2	Simplex	ES Band SAR Simplex 2 (ESX07)
3	Repeater	ES Band SAR Repeater 2 (ES58)
4	Repeater	ES Band SAR Repeater 1 (ES57)
5	Simplex	Simplex MS08
6	Simplex	Simplex MS17
7	Repeater	Repeater MS08
8	Repeater	Repeater MS17
9	Repeater	CD13
10	Simplex	SAR Simplex (CD12A)
11	Repeater	SAR Repeater (CD12)
12	Simplex	SAR Simplex (CD12B)
13	Simplex	Marine MM6
14	Simplex	Marine MM16 (Emergency)
15	Simplex	Marine MM68
16	Simplex	Marine MM71

Bank – 2

For Local requirements

NOTES: