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MICOM-2ES/2RS/2TS ALE
HF-SSB TRANSCEIVERS

Supplement to Owner's Guide

micom

best radio for worst events

6886872J01

COMMERCIAL WARRANTY (STANDARD)

Motorola radio communications products are warranted to be free from defects in material and workmanship for a period of ONE (1) YEAR, (except for crystals and channel elements which are warranted for a period of ten (10) years) from the date of shipment. Parts, including crystals and channel elements, will be replaced free of charge for the full warranty period but the labor to replace detective parts will only be provided for One Hundred-Twenty (120) days from the date of shipment. Thereafter purchaser must pay for the labor involved in repairing the product or replacing the parts at the prevailing rates together with any transportation charges to or from the place where warranty service is provided. This express warranty is extended by Motorola Communications and Electronics Inc., 1301 E. Algonquin Road, Schaumburg, Illinois 60196, to the original purchaser only, and only to those purchasing for purpose of leasing or solely for commercial, industrial, or governmental use.

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In the event of a defect, malfunction or failure to conform to specifications established by Seller, or if appropriate, to specifications accepted by Seller in writing, during the period shown. Motorola, at its option, will either repair or replace the product or refund the purchase price thereof, and such action on the part of Motorola shall be the full extent of Motorola's liability hereunder.

This warranty is void if:

a. The product is used in other than its normal and customary manner.

b. The product has been subject to misuse, accident, neglect or damage.

c. Unauthorized alterations or repairs have been made, or unapproved parts used in the equipment.

This warranty extends only to individual products, batteries are excluded, but carry their own separate limited warranty. Because each radio system is unique, Motorola disclaims liability for range, coverage, or operation of the system as a whole under this warranty except by a separate written agreement signed by an officer of Motorola.

Non-Motorola manufactured products are excluded from this warranty, but subject to the warranty provided by their manufacturers, a copy of which will be supplied to you on specific written request.

To obtain performance of this warranty, purchaser must contact
mobat_support@mobatUSA.com.

This warranty applies only within the United States.

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MICOM-2ES/2RS/2TS ALE HF-SSB TRANSCEIVER

Motorola
1720 West Paul Dirac Drive,
Tallahassee 32310 FL, USA

Supplement to Owner's Guide

Cat. No. 6886872J01

Warnings, Cautions and Notes

The following notations are used to place special emphasis on procedures, or to call attention to precautionary measures.

Warning

An operating procedure, practice and so forth, which if not followed correctly, could result in personal injury, or loss of life.

Important

An operating procedure, practice and so forth, which if not followed correctly, could result in damage to, or destruction of equipment.

Note

An operating procedure, condition and so forth, to which special attention should be paid.

General Safety Precautions

The following are general safety precautions that are not related to any specific procedures and therefore do not appear elsewhere in this publication. These are recommended precautions that personnel must understand and apply, in addition to the precautions listed in the Information for Safe, Efficient Operation section.

Warning
High
Voltage

Do not touch the antenna and the RF connectors when the transceiver operates.

During transmission, high RF voltages appear at the RF connectors, the antenna cables, and on the antenna itself. These voltages may cause severe injury or even death on contact.

Operating and maintenance personnel must be familiar with the applicable safety requirements before attempting to install or operate the transceiver. Severe injury or death could result from failure to comply with the safety practices.

Information for Safe, Efficient Operation

MOTOROLA

Product Safety and RF Exposure for Mobile Two-Way Radios Installed in Vehicles or as Fixed Site Control Stations

Caution

BEFORE USING THIS RADIO, READ THIS BOOKLET WHICH CONTAINS IMPORTANT OPERATING INSTRUCTIONS FOR SAFE USAGE AND RF ENERGY AWARENESS AND CONTROL INFORMATION FOR COMPLIANCE WITH RF ENERGY EXPOSURE LIMITS IN APPLICABLE NATIONAL AND INTERNATIONAL STANDARDS.

The information provided in this document supersedes the general safety information contained in user guides published prior to February 2002.

Compliance with RF Energy Exposure Standards

NOTICE **This radio is intended for use in occupational/controlled applications where users have been made aware of the potential for exposure and can exercise control over their exposure. This radio device is NOT authorized for general population, consumer or similar use.**

Motorola, Inc. 2003
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Federal Communication Commission Regulations

The FCC has established limits for safe exposure to radio frequency (RF) emissions from mobile two-way radios. The FCC requires manufacturers to demonstrate compliance with RF exposure limits before mobile two-way radios can be marketed In the U.S. When two-way radios are approved for occupational/controlled environment exposure limits, the FCC requires users to be fully aware of, and exercise control over, their exposure. Awareness and control of RF exposure can be accomplished by education or training through appropriate means such as information and instructions in user manuals or safety booklets, or other appropriate means. This user safety booklet includes useful information about RF exposure and helpful instructions on how to control your RF exposure.

Your Motorola two-way radio is designed and tested to comply with a number of national and international standards and guidelines (listed below) regarding human exposure to radio frequency electromagnetic energy. **This radio complies with the IEEE (FCC) and ICNIRP exposure limits for occupational/controlled RF exposure environments at usage factors of up to 50% talk-50% listen.** In terms of measuring RF energy for compliance with FCC exposure guidelines, **your radio radiates measurable RF energy only while it is transmitting (during talking), not when it is receiving (listening) or in standby mode.**

Your Motorola two-way radio complies with the following RF energy exposure standards and guidelines:

- United States Federal Communications Commission, Code of Federal Regulations; 47CFR part 2 sub-part J
- American National Standards Institute (ANSI) / Institute of Electrical and Electronic Engineers (IEEE) C95.1-1992
- Institute of Electrical and Electronic Engineers (IEEE) C95.1-1999 Edition
- International Commission on Non-Ionizing Radiation Protection (ICNIRP) 1998
- Ministry of Health (Canada) Safety Code 6: Limits of Human Exposure to Radiofrequency Electromagnetic Fields in the Frequency Range from 3 kHz to 300 GHz, 1999
- Australian Communications Authority Radiocommunications (Electromagnetic Radiation – Human Exposure) Standard, 2001
- ANATEL, Brasil Regulatory Authority, Resolution 256 (April 11, 2001). Additional Requirements for SMR, Cellular and PCS Product Certification.

Compliance and Control Guidelines and Operating Instructions for Mobile Two-Way Radios Installed in Vehicles

To control your exposure and ensure compliance with the occupational/controlled environment exposure limits, always adhere to the following procedures:

- **To transmit (talk), push the Push-To-Talk (PTT) button; to receive, release the PTT button. Transmit only when people outside the vehicle are at least 7 feet from a properly installed, externally-mounted antenna.**
- **Install mobile antennas at the center of the roof or the center of the trunk deck per specific guidelines and instructions in the Radio Installation Manual. These mobile antenna installation guidelines are limited to metal body vehicles.**

  Use only the Motorola-approved, supplied antenna or a Motorola-approved replacement antenna. Use of non-Motorola-approved antennas, modifications, or attachments could damage the radio and may violate FCC regulations.

Compliance and Control Guidelines and Operating Instructions for Mobile Two-Way Radios Installed as Fixed Site Control Stations

If mobile radio equipment is installed at a fixed location and operated as a control station or as a fixed unit, the antenna installation must comply with the following requirements in order to ensure optimal performance and compliance with the RF energy exposure limits in the standards and guidelines listed in the Federal Communication Commission Regulations section.

- The antenna should be mounted outside the building on the roof or a tower if at all possible.
- As with all fixed site antenna installations, it is the responsibility of the licensee to manage the site in accordance with applicable regulatory requirements and may require additional compliance actions such as site survey measurements, signage, and site access restrictions in order to ensure that exposure limits are not exceeded.

Electromagnetic Interference/Compatibility

Note

Nearly every electronic device is susceptible to electromagnetic interference (EMI) if inadequately shielded, designed, or otherwise configured for electromagnetic compatibility. It may be necessary to conduct compatibility testing to determine if any electronic equipment used in or around vehicles or near fixed site antenna is sensitive to external RF energy or if any procedures need to be followed to eliminate or mitigate the potential for interaction between the radio transmitter and the equipment or device.

Facilities

To avoid electromagnetic interference and/or compatibility conflicts, **turn off your radio in any facility where posted notices instruct you to do so.** Hospitals or health care facilities may be using equipment that is sensitive to external RF energy.

Vehicles

To avoid possible interaction between the radio transmitter and any vehicle electronic control modules, for example, ABS, engine, or transmission controls, the radio should be installed only by an experienced installer and that the following precautions be used when installing the radio:

1. Refer to the manufacturer's instructions or other technical bulletins for recommendations on radio installation.
2. Before installing the radio, determine the location of the electronic control modules and their harnesses in the vehicle.
3. Route all radio wiring, including the antenna transmission line, as far away as possible from the electronic control units and associated wiring.

Driver Safety

Check the laws and regulations on the use of radios in the area where you drive. Always obey them.

When using your radio while driving, please:

- Give full attention to driving and to the road.
- Pull off the road and park before making or answering a call if driving conditions so require.

Operational Warnings

For Vehicles with an Air Bag

Do not mount or place a mobile radio in the area over an air bag deployment area. Air bags inflate with great force. If a radio Is placed in the air bag deployment area and the air bag inflates, the radio may be propelled with great force and cause serious injury to occupants of the vehicle.

Potentially Explosive Atmospheres

Turn off your radio prior to entering any area with a potentially explosive atmosphere. Sparks in a potentially explosive atmosphere can cause an explosion or fire resulting in bodily injury or even death.

The areas with potentially explosive atmospheres include fueling areas such as below decks on boats, fuel or chemical transfer or storage facilities, and areas where the air contains chemicals or particles such as grain, dust or metal powders. Areas with potentially explosive atmospheres are often, but not always, posted.

Blasting Caps and Blasting Areas

To avoid possible interference with blasting operations, turn off warning your radio when you are near electrical blasting caps, in a blasting area, or in areas posted: "Turn off two-way radio". Obey all signs and instructions.

For radios installed in vehicles fueled by liquefied petroleum gas, refer to the (U.S.) National Fire Protection Association standard, NFPA 58, for storage, handling, and/or container information. For a copy of the LP-gas standard, NFPA 58, contact the National Fire Protection Association, One Battery Park, Quincy, MA.

Table of Contents

Introduction

This Supplement to the "MICOM-2E/2R ALE HF-SSB Transceiver Owner's Guide", Publication 68P02952C60-A, provides you with information on additional features, options and MICOM-2 models, which are not documented in the Owner's Guide.

The information presented in this Supplement covers the new versions (Version CK) of the MICOM-2E/2RS/2TS ALE HF-SSB transceivers. The new versions use enhanced hardware and provide additional ALE capabilities.

Externally, the new versions are similar to the previous MICOM-2. However, changes have been made in the wiring of the 44-pin accessories connector located on the rear panel, relative to the 44-pin connector used by the previous versions.

The information appearing in this Supplement is intended for use with the Owner's Guide, MICOM-2E/2RS/2TS ALE HF-SSB Transceivers, Publication 68P02952C60-A.

New Model Information

The new transceiver versions have been assigned new model numbers, as follows:

MICOM-2ES	**Model M80AMNOKV5CK**
MICOM-2ETS	**Model M81AMNOKV5CK**
MICOM-2RS	**Model M85AMNOKV5CK**

44-Pin Accessories Connector

Table 1 lists the current functions of the 44-pin accessories connector, J5.

Asterisks * appear in the **Designation** column next to the pins whose function has changed, relative to previous equipment versions.

Notes

1. *The information appearing in Table 1 supersedes any previous information provided in the Owner's Guide (Publication 68P02952C60-A).*
2. *You can continue using the fixed adapter accessory for MICOM-2ES, MICOM-2ETS and MICOM-2RS (Part No. 09MB000011). This accessory interfaces between the 44-pin connector and older 25-pin accessories.*

Table 1. 44-Pin Accessories Connector, Pin Functions

Pin	Designation	Description
1	SPKR-	Differential output to the external 8Ω, 8W speaker
2	STOP SCAN	Digital control input for stop scan function
3	SPKR+	Differential output to the external 8Ω, 8W speaker
4	EXT RX AUDIO+	Differential received audio output (0 dBm; 600Ω; not controlled by volume, but affected by squelch)
5	EXT RX AUDIO-	
6	EXT TX AUDIO+	Differential transmit audio input (600Ω input impedance, 0 dBm is required for full power)
7	EXT TX AUDIO-	
8	PTT IN VOICE	Transmission command (short to ground) for voice signals
9	PTT IN DATA	Transmission command (short to ground) for data signals
10	PTT IN CW	Transmission command (short to ground) for CW (Morse) signals
11	SW A+	Primary DC voltage current limited output (max 1A)
12	DSI/KW C C	BDM – Data serial in/kW amplifier channel change
13	KW ON/OFF	kW amplifier power on/off output
14	REV CLOSE LOOP *	Close the loop of ALC radio (input)
15	RXA	Receive input (point-to-point protocol to host/HLC)
16	TXA	Transmit output (point-to-point protocol to host/HLC)
17	EX RESET	External RESET input (for BDM)
18	GND	Ground
19	KW PTT	PTT output to kW amplifier
20	EXT ALARM	External alarm output (open collector, pulled to ground when external alarm is activated
21	VPP	Flash programming voltage, input to BDM
22	DSC/KW_ALC	BDM – Data serial clock/kW amplifier ALC
23	SQ GATE	Squelch open/closed indication output
24	DSO/FAN ON/OFF	BDM – Data serial out/Fan control
25	FREEZE/KW TU	BDM – Freeze/kW amplifier tune
26	GND	Ground

Table 1. 44-Pin Accessories Connector, Pin Functions (Cont'd)

Pin	Designation	Description
27	FWD CLOSE LOOP *	ALC radio loop closure input
28	RXC *	Receive input (point-to-point protocol to host/HLC)
29	TXB	RS-232 transmit output to VP-116, PPS, 500W, ASTIC
30	AMP REV *	Maintain constant power at 500W transceiver output
31	RXD *	Receive input (point-to-point protocol to host/HLC)
32	TX AUDIO OUT	Input to baseband TX path
33	RXB	RS-232 protocol receive input to VP-116, PPS, 500W, ASTIC
34	RX AUDIO OUT	Input to baseband RX path
35	RX AUDIO IN	Output from baseband RX path
36	AMP FWD *	Maintain constant power at 500W transceiver output
37	VP PTT *	PTT output (active low)
38	TXD *	Transmit output (point-to-point protocol to host/HLC)
39	TXC *	Transmit output (point-to-point protocol to host/HLC)
40	TX AUDIO IN	Output from baseband TX path
41	EXT RX AUDIO(2)+	Audio out from ISB hybrid
42	EXT TX AUDIO(2)–	Audio out from ISB hybrid
43	EXT RX DATA– *	Baseband output (0 dBm, 600 Ω)
44	EXT RX DATA+ *	Baseband output (0 dBm, 600 Ω)

Functional Enhancements

Figure 1 through Figure 5 present the menus of the new MICOM-2 CK transceiver versions. The main enhancements are described below.

Note

MICOM-2 transceivers with internal GPS receiver (optional) have extended FREQ and CH menus. See Figure 7 for a description of the GPS menus.

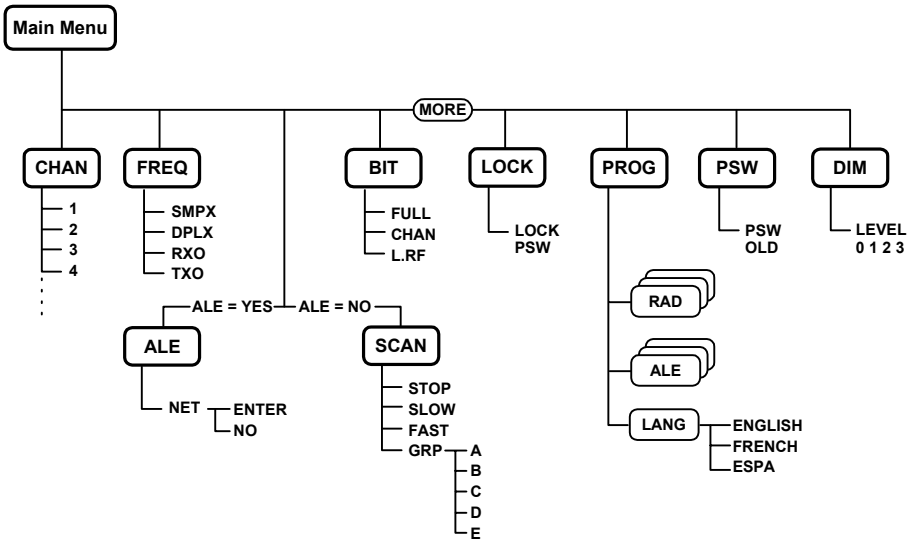


Figure 1. Main Menu

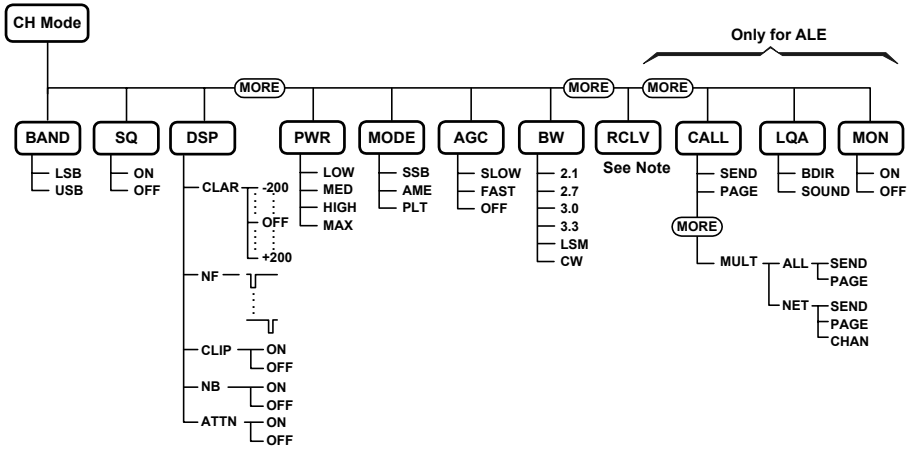


Figure 2. Channel (CH) Menu

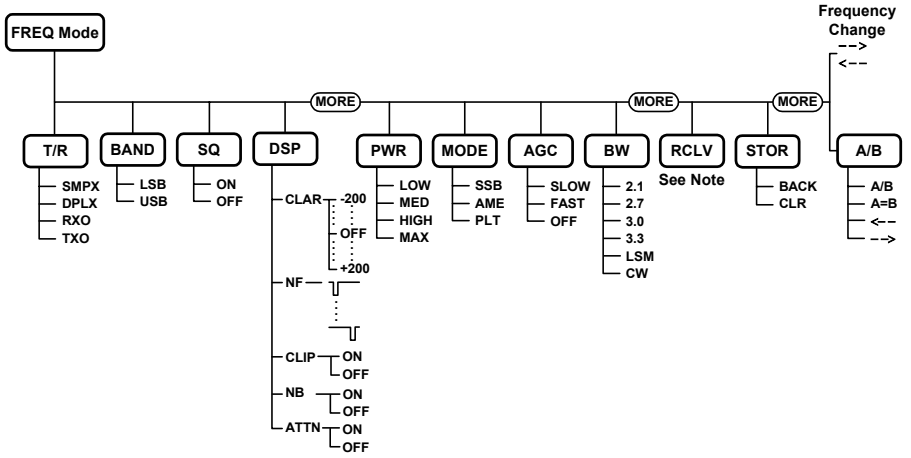


Figure 3. Frequency (FREQ) Menu

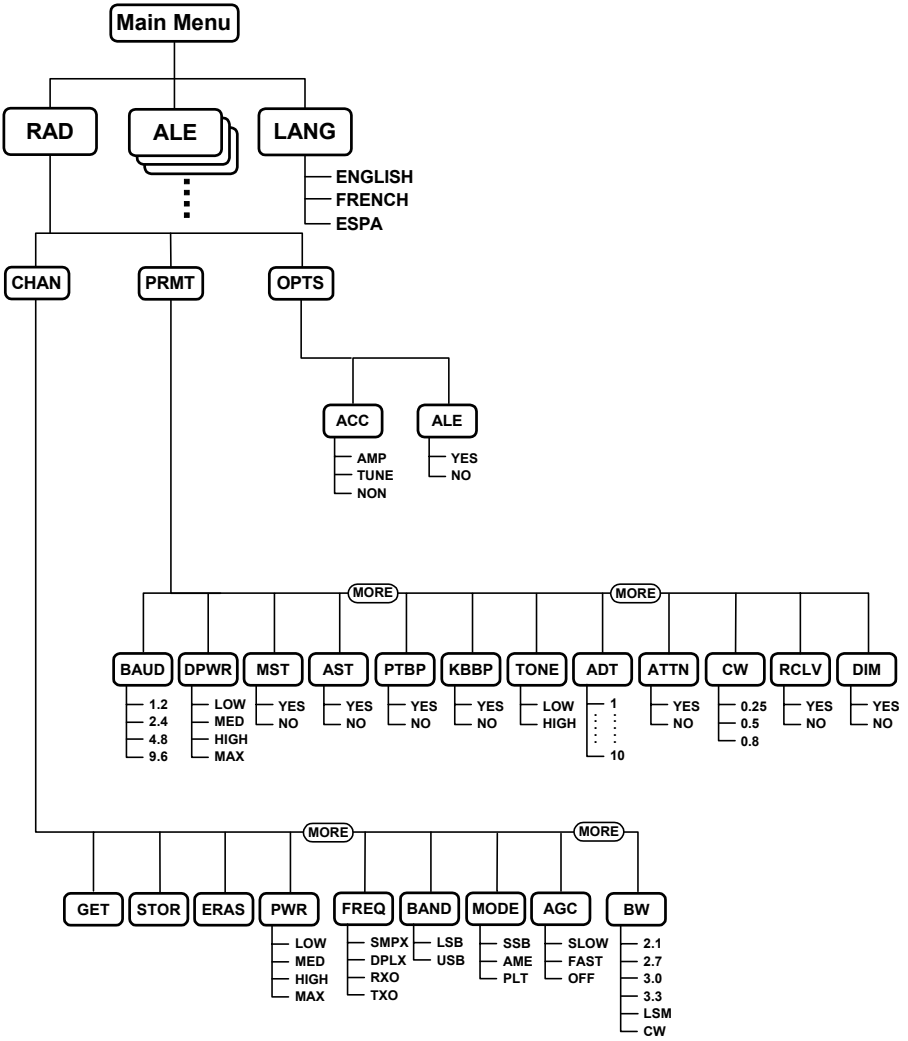


Figure 4. PROG Menu – Radio Parameters Programming

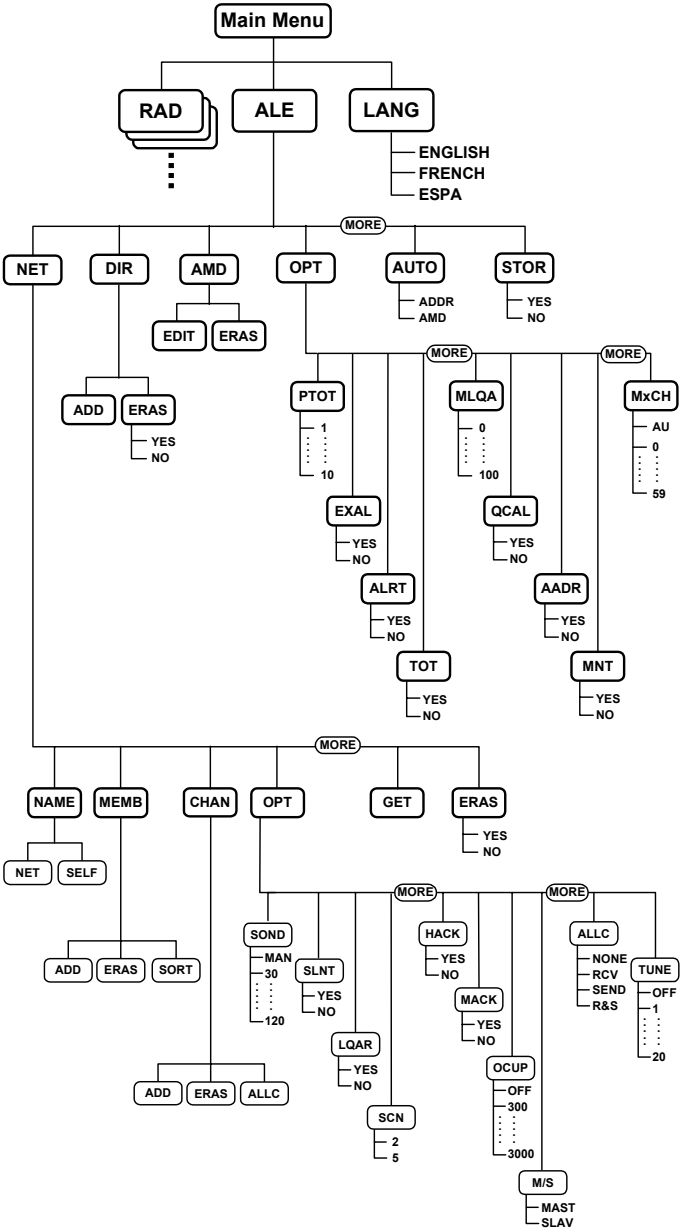


Figure 5. PROG Menu – ALE Parameters Programming

Additional MICOM-2 Features

Display Modes

The display brightness can be programmed to either Dimming or Alternate modes.

Dimming mode enables you to select one of four constant display light levels.
See page 38 of the Owner's Guide for instructions on setting the display brightness level.

In **Alternate mode** the display is normally turned off, and automatically turns on at a predetermined level when the transceiver detects any type of activity (keypad, PTT, incoming call, etc.).

To select the Dimming or Fixed display modes:

1. Access the Radio Parameters Programming menu:
   MENU > **MORE** > **PROG** (F2) > **RAD** (F1) > **PRMT** (F2).
   Press **MORE** *twice* to scroll to the third menu screen.

2. Press **DIM** (F4) to select the display mode.

3. Press **YES** (F1) for Alternate mode or **NO** (F2) for Dimming mode.
4. Press **ENTER** to confirm.

Receive Level Bar

You can program the transceiver to display an Rx bar similar to the Tx bar described on page 22 of the Owner's Guide.

To enable/disable the receive level bar:

1. Access the Radio Parameters Programming menu:
   MENU > **MORE** > **PROG** (F2) > **RAD** (F1) > **PRMT** (F2).
   Press **MORE** *twice* to scroll to the third menu screen.

2. Press **RCLV** (F3) to change the Rx bar status.

3. Press **YES** (F1) to enable or **NO** (F2) to disable the Rx bar.
4. Press **ENTER** to confirm.

VFO Operation

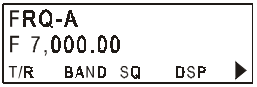
VFO (Variation Frequency Offset) is a new feature available in Simplex mode, that enables you to operate the transceiver simultaneously on two different channels (A and B).

Using the A/B function, you can "freeze" the frequency of channel A, switch to channel B and return to channel A again.

Using the A=B option, you can copy the frequency in the current channel to the alternate channel.

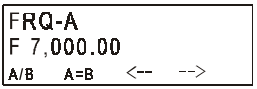
To operate the VFO function:

1. If you are not in frequency mode, enter Frequency mode and verify that the frequency type is Simplex, as follows:
   MENU > **FREQ** (F2) > **SMPX** (F1) > **ENTER**
   For more information, see page 27 of the Owner's Guide.
2. Select the required frequency and press **ENTER** to confirm your choice.
3. Press **MORE** until the **A/B** function appears above the F1 function key.



4. Press **A/B** (F1) to alternate between the two channels.

   The **A=B** function appears above the F2 function key.



5. Press **A=B** (F2) to copy the frequency of the displayed channel to the alternate channel.
6. You can adjust the frequency of either A or B at any time.
   Press **<--** (F3) and **-->** (F4) to move the cursor backwards and forwards, depending on the digit you wish to change.

   When these arrows are used in conjunction with the **UP/DOWN** scroll keys, the frequency scrolls according to the location of the cursor, enabling you to change the frequency with greater ease.

   For instance, if the frequency is 7,500.54 and the cursor is at the hundreds location (7,_00.54), pressing the **UP/DOWN** scroll keys will scroll the hundreds values to 7,400.54; 7,600.54; 7,700.54 and so on.

BandWidth Filters

Replaces the information on Bandwidth Filters on page 23 of the Owner's Guide

Bandwidth set to:	**Filter changes after:**
LSM (data modem)	first data PTT
2.1 K (data)	data PTT
2.7 K (voice)	microphone or voice PTT
3.0 K (data)	data PTT
3.3 K data)	data PTT
CW (Morse)	first CW PTT

When the bandwidth filter is set to CW, the following CW bandwidths can be set in the transceiver's Programming mode, as described in *To set the channel bandwidth*, on page 6 of this supplement.

- 0.25 K
- 0.5 K
- 0.8 K


Note

Note that bandwidths are now represented as 2.7, 3.3 etc. and not as 2700, 3300 etc. as was the case in the previous version of the transceiver.

To set the channel bandwidth:


Note

These instructions replace the instructions on page 49 of the Owner's Guide.

1. Access the Channel Programming menu:
   MENU> **MORE**> **PROG** (F2) > **RAD** (F1) > **CHAN**(F1).

2. Press **MORE** *twice* to scroll to the third menu screen.

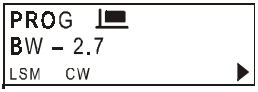
3. Press **BW** (F1) to access the bandwidth options.

4. Press the function key below the bandwidth of your choice:
2.1 (F1), **2.7** (F2), **3.0** (F3) or **3.3** (F4).

Note

If you have purchased the additional 3.3K Filter, the text above the (F4) function key will be **3.3BB**, *and not* **3.3**.

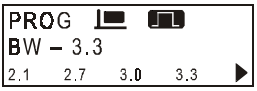
5. If you want to set the transceiver to **LSM** or **CW**, press the **MORE** key.
Select **LSM** (F1) or **CW** (F2).



6. Press **ENTER** to confirm.

Note

The standard bandwidth is 2. If you choose any other bandwidth, the Non-Standard bandwidth icon will be visible.

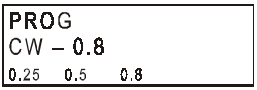


To select a CW (Continuous Wave) frequency filter:

1. Access the Radio Parameters Programming menu:
MENU > **MORE** > **PROG** (F2) > **RAD** (F1) > **PRMT** (F2).

2. Press **MORE** *twice* to scroll to the third menu screen.

3. Press **CW** (F2) to access the CW filters.



4. Press **0.25** (F1), **0.5** (F2) or **0.8** (F3) as required.

5. Press **ENTER** to confirm.

New Channel/Frequency/Scan/Link Mode Features

This section describes new features added to those described the Owner's Guide, as follows: in Channel Mode Options on page 25, Frequency Mode Options on page 29, Scan Mode Options on page 33 and Link Mode Options on page 81.

Noise Blanker (NB)

The Noise Blanker (NB) is a standard feature is supplied with the MICOM-2TS and MICOM-2RS transceivers.

Note

If you own a MICOM-2ES transceiver, this option must be purchased separately.

3300 Hz Filter (3.3BB) (Optional)

Option #G848

An advanced filter for data transfer at a rate of 9600 bps or higher.

The filter transfers data at 3 dB (audio bandwidth ripple ± 0.5 dB), at a frequency of between 300 Hz and 3300 Hz.

Note

This option is not supplied with the transceiver, and must be purchased separately.

BandWidth (BW)

The Bandwidth selection option has been expanded and now includes 2.1 K, 2.7 K, 3.0 K, 3.3 K, LSM or CW(0.25 K, 0.5 K or 0.8 K).
See *To set the channel bandwidth*, on page 6 for instructions on setting the Bandwidth, and *To select a CW (Continuous Wave) frequency filter*, on page 7 for instructions on setting the CW filter.

Automatic Gain Control (AGC)

AGC mode can now be set to **OFF**, as well as the previously available settings of **FAST** and **SLOW**.

This is done as described on page 48 of the Owner's Guide, with the addition of a third function key **OFF** (F3), which sets the AGC to OFF.

Reception Level Display (RCLV)

The Reception Level can now be programmed to display permanently. If this is the case, the RCLV option will not appear in the Mode Options. For further instructions, see *To enable/disable the receive level bar*, on page 8 of this supplement.

New ALE Features

This section includes three new ALE features:

- Multi-Net, described on page 14
- Wildcard, described on page 18
- Multiple calls, described on page 19

Multi-Net (Optional)

Option #G147

The MICOM-2ES/2RS/2TS transceiver can operate on up to 20 multiple nets. When the transceiver scans, it scans one net after the other, until all nets have been scanned.

Note

This option is not supplied with the transceiver, and must be purchased separately.

For more information about defining nets, see Programming Nets, on page 90 of the MICOM-2E/2R ALE Owner's Guide.

Each net includes the following elements:

- A group of receiving and associated transmitting frequencies.
- The self-address and the net address used when responding to calls.
  The transceiver responds according to the selected net self-address (total 20 self-addresses).
- Sounding is per net. All channels in the net are scanned, one by one.
  Sounding is started 10 minutes after the unit is switched on. The sounding group interval is determined according to the programmed Sounding Auto Time.

During operation, the MICOM transceiver scans all frequencies included in the defined nets.

When the transceiver receives a call, it responds with the self-address that is programmed in the transceiver for that net.

When initiating a call, the transceiver looks up the frequencies that are associated with the station being called and uses only those frequencies to call that station.

LQA exchanges and sounding use only frequencies associated with the currently selected net.

Operating the Multi-Net Option

To operate the Multi-Net option:

1. Program the net numbers, members and other parameters, as described in the Programming Nets section, on page 90 of the MICOM-2E/2R ALE Owner's Guide.
   Take into account that once you have defined multiple nets, members will only be able to contact each other if they share the same net. You must plan the nets accordingly.


Note

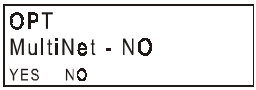
The nets can also be defined using the RSS ALE, as described in the RSS ALE User's Guide, publication 68P02952C25-O

Scanning will begin from the first net you programmed, and will run through all programmed nets.

2. Access the ALE Options menu
   MENU > **MORE** > **PROG** (F2) > **ALE** (F2) > **OPT** (F4).

3. Press **MORE** to scroll to the second menu screen.

4. Press **Mnt** (F4) to access the Multi-Net mode.



5. Press **YES** (F1) to operate the Multi-Net function.
   Press **NO** (F2) to revert to regular ALE operation.
6. Press **ENTER** to confirm.

Once you have operated the Multi-Net option, the transceiver works in Multi-Net mode until you revert back to regular ALE operation.

To increase the Multi-Net default calling signal length:

In Multi-Net operation, a longer scanning time is required so that communication is not disrupted while the transceiver scans all nets. This is defined using the Maximum Scan Channel parameter, which automatically calculates the required calling signal length according to the number of channels at the station you are calling.

Note

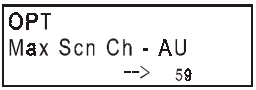
This function can be useful whenever there is a discrepancy between the number of channels used by the sender and the receiver of a call, even when the Multi-Net function is not used.

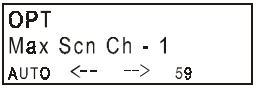
1. Access the ALE Options menu:
   MENU > **MORE** > **PROG** (F2) > **ALE** (F2) > **OPT** (F4).

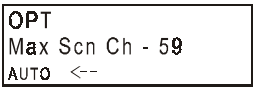
2. Press **MORE** to scroll to the second menu screen.

3. Press **MORE** to scroll to the third menu screen.

4. Press **MxCh** (F1) to access the Maximum Scan Channel mode.
   - Press **<--** (F2) or **-->** (F3) to increase or reduce the calling signal length.
   - Press **AUTO** (F3) to revert to the default ALE calling signal length.
   - Press **59** (F4) for the maximum calling signal length.







5. Press **ENTER** to confirm the option you selected.

To send a call in Multi-Net mode:

1. Set the transceiver to Multi-Net mode, as described in *To operate the Multi-Net option*, on page 11.

2. Enter ALE mode **MENU** > **ALE** (F3), and press **ENTER**.
   The transceiver begins to scan.

3. Press **CALL** (F1).
   The net number flashes.

4. Use the keypad to enter the net number, or press the **UP**/**DOWN** keys to scroll to the network you wish to define.
   Press **BACK** (F3) to revert to the initial ALE screen
   Press **CLR** (F4) to erase the right-hand digit.

5. Press the **ENTER** key to confirm.

   You can press the **UP**/**DOWN** keys to scroll through the members of the net you selected.


Note

The screen displays the names of all members in all nets. Remember that you can only contact members in the net you selected previously.

6. Press **SEND** (F1) to initiate the call.
   Press **PAGE** (F2) to attach a message to the call.
   Press **CHAN** (F3) to select a specific channel for transmission.

   The call goes out in Multi-net mode.
   The text "TO -->" alternates with the number of the channel on which the call is currently being sent.

Wildcard

When you are operating in ALE mode, you can use the Wildcard character ("?") to address multiple stations with a single wildcard address. Responses to a call containing an address with wildcard characters are generated in pseudo random slots in order to avoid collisions. With the Wildcard option, the link process takes more time.

Note

To use the Wildcard option, you must first define the members in the members list.

You can plan the member names so that groups have different identification codes, for example add a code such as 00, 01, AA at the end of the member name, so that you can contact all members with that code at one time.

The length of the member names must be identical if you want to use the wildcard function in this manner.

To set a Wildcard call:

1. Access ALE NET searching:
   MENU > **ALE** (F3), and press **ENTER**.

2. Press **CALL** (F1).

   The most recently called station is displayed.

   Press * on the alphanumeric keyboard in order to type in a question mark. The "?" character replaces any character in the display text.

3. Set up the "?" character in the order of the member's names.

   For example, if you want to contact all members whose name ends with MB, and which are five characters long, type ???MB. The Wildcard function locates all members which match this specification and creates a link to all members.

4. When you have completed editing, press **SAVE** (F1) or **ENTER**.

   - Press **PAGE** (F2) to attach a message to the call.
   - Press **CHAN** (F3) to execute the call on a specific channel.

5. Press **SEND** (F1) or **ENTER** to initiate the Wildcard call.

6. Press **STOP** (F1) or **ESC** to abort the entire process.

The Wildcard setting is not saved and must be entered every time you use this option.

Multiple Calls

When using the ALE function, you can select between making an individual call and making calls to multiple (MULT) destinations.

To reach the multiple call options:

1. Press the **MORE** key to display the **MULT** (F1) option.
2. Press **MULT** (F1) to display a screen with the following options:
   - **ALL** (F1) – all-call (broadcast) to all the stations
   - **NET** (F2) – call to all the stations in a selected net.

ALE Enhancement – Occupancy Check Intervals

The new MICOM-2 versions add the option to select the time interval for occupancy checking: the range is 300 to 3000 msec, in 300-msec steps.

Other Enhancements

For your convenience, under **PROG>LANG**, the new MICOM-2 versions always show the language icons in their proper (native) language, irrespective of the currently selected language.

VP-116 Mini Voice Privacy Unit Interface (Optional)

Option #G849AB

If you have a VP-116 unit (Voice Privacy), which provides voice privacy and voice quality, this additional MICOM option enables the transceiver to support the VP software, so that you can program the VP-116 unit directly from the transceiver.

The VP menu appears on your MICOM transceiver only if the transceiver is connected to the VP-116 hardware before the transceiver is turned on.

Transceiver performance may be reduced when a VP unit is connected.

For more information on the VP-116 unit, read the manual supplied with the unit.

The VP option is supported by means of the **G849AB** option, that replaces the previous VP option, G849. The **G849AB** option includes two new items:

FKN8149A **Cable, VP to MICOM-2, MICOM-3.** New cable, used for connecting the VP-116 to the MICOM-2 (the cable offered with the G849 option cannot be used with the new MICOM-2 transceivers).

FKN8148A **Cable Suitcase with VP, MICOM-2, MICOM-3.**

VP and MICOM Constant Parameters

When the VP-116 is physically connected to the MICOM transceiver, the transceiver activates the constant parameters automatically. When you turn the transceiver off and disconnect the VP-116, or when you set the transceiver to Clear mode, the transceiver reverts to normal operation, with a constant BW3.3K setting.

VP Default Settings

- Volume: Level 6
- Squelch: Level 0
- Sidetone: Level 0

MICOM Default Settings (in Private Mode)

- Squelch: OFF
- BW: 3.3K filter

Connecting and Disconnecting the VP-116 Unit

Connecting the VP-116 to your MICOM transceiver:

1. Turn the transceiver off.
2. Connect the VP-116 to the 44-pin connector at the back panel of your MICOM transceiver, using the supplied cable.
3. Turn the transceiver on.

Disconnecting the VP-116 from your MICOM transceiver:

1. Turn the transceiver off.
2. Disconnect the VP-116 from the back panel of your MICOM transceiver.
3. Turn the transceiver on.

If you do not turn the transceiver off before disconnecting the VP-116, the transceiver will continue working in VP-116 mode even though the unit is disconnected.

VP Unit Operation

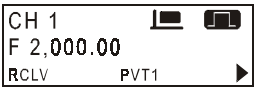
When operating the transceiver with the VP-116 unit in Channel, Frequency or ALE modes, you can choose between CLR and PVT modes:

- **PVT** mode activates the VP-116 automatic functions
- **CLR** reverts to regular transceiver activity

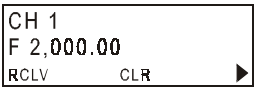
The PVT option is accessed differently in Frequency, Channel and ALE modes, as described in the following sections.

To operate VP-116 unit in Frequency mode:

1. Press **MENU** > **FREQ** (F2) to access Frequency mode.
2. Press **MORE** twice to access the third screen.



3. Press **PVT#** (F3) to toggle between PVT (Private) and CLR (Clear) modes.



Note

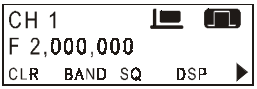
There are eight pre-programmed PVT keys. You program the currently used key, as described in Programming the VP-116 Unit from the MICOM Transceiver, on page 24. This key number appears next to **PVT** *on the screen.*

To operate VP-116 unit in Channel mode:

1. Press **MENU** > **CHAN** (F1) to access Channel mode.

2. Press **PVT#** (F1) to toggle between PVT (Private) and CLR (Clear) modes.

   The Squelch option (F3) appears only in Clear mode



Note

There are eight pre-programmed PVT keys. You program the currently used key, as described in Programming the VP-116 Unit from the MICOM Transceiver, on page 20. This key number appears next to **PVT** *on the screen.*

To operate VP-116 unit in ALE mode:

1. Access ALE mode, as described in "Activating/ Disactivating the ALE, on page 57 of the MICOM-2E/ 2R ALE HF-SSB Transceiver Owner's Guide.

2. After a link has been initiated, press **PVT#** (F1) to toggle between PVT (Private) and CLR (Clear) modes.

   The Squelch option (F3) appears only in Clear mode

Note

There are eight pre-programmed PVT keys. You program the currently used key, as described in Programming the VP-116 Unit from the MICOM Transceiver, on page 24. This key number appears next to **PVT** *on the screen.*

Programming the VP-116 Unit from the MICOM Transceiver

The MICOM transceiver enables programming of the following VP-116 unit parameters:

- PVT (Private)
- LLB (Local Loop Back)
- BIT (Built - In Test)
- PK (Public Key)

To access the VP-116 unit programming menu:

1. Press **MENU** to display the menu screen.

2. Press **MORE** to scroll to the second menu screen.

3. Press **PROG** (F2) to scroll to enter the Programming menu screen.

4. Press **VP** (F4) to enter the VP-116 menu.

5. Press the relevant key to access the VP-116 modes:
   - **PVT** (Private mode)
   - **PK** (Public Key mode)
   - **LLB** (Local Loop Back mode)
   - **BIT** (Built - In Test mode)

   The programming options for each of these modes is described in the following sections.

VP-116 Private Mode

In Private (PVT) mode, transmit and receive signals are routed though the voice privacy circuits. Private reception and transmission are possible only when a valid key variable is selected. If the selected key is not valid a tone will be heard.

Note

When the Push-to-talk is activated, a hold-off tone sounds initially. You must wait until the hold-off tone ends before talking.

To set the VP-116 Private Mode (PVT Key):

1. Access the VP-116 Unit Programming Menu: **MENU** > **MORE** > **PROG** > **VP** (F4).

2. Press **PVT** (F1) to enter the Private mode menu.

3. Use the **UP**/**DOWN** buttons to scroll through Private Keys 1 to 8.

Note

The display text "PRIVATE X" flashes until the selected key is confirmed.

4. Press **ENTER** to confirm the selection.
   Press **ESC** to revert to the previous setting.

VP-116 LLB (Local Loop Back) Mode

The Local Loop Back (LLB) mode tests the audio circuitry from microphone to speaker. Audio transmission is repeated continuously until the **ESC** button is pressed.

.


Note

No audio signal is actually transmitted, but you can hears an audio signal during the test.

To set the VP-116 Local Loop Back mode (LLB Key):

1. Access the VP-116 Unit Programming Menu: **MENU** > **MORE** > **PROG** > **VP** (F4).

2. Press **LLB** (F2) to enter the LLB mode menu.

3. Initiate a PTT call and talk.
4. Press **ESC** to exit the LLB test process.

VP-116 BIT (Built-In-Test) Mode

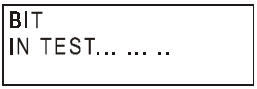
The BIT mode is a built-in test for the VP-116 unit.

To set the VP-116 Built-In-Test mode (BIT Key):

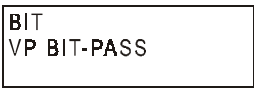
1. Access the VP-116 Unit Programming Menu:
   MENU > **MORE** > **PROG** > **VP** (F4).

2. Press **BIT** (F3) to enter the BIT mode menu.

   During the test, the message "IN TEST..." is displayed. The number of periods indicates the progress of the test.



   If the test is successful, the text "VP BIT-PASS" is displayed.



   If the test detects a malfunction in the VP-116, the text "VP BIT-ERR" is displayed.
   Repeat the BIT test. If the test fails again, contact your VP-116 dealer.

3. Press **ESC** to exit the BIT test process.

VP-116 PK (Public Key) Mode

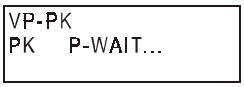
In public key mode, two VP-116 units can communicate in private without having to use pre-arranged keys. A public key is established between two units, and cannot be used for a group of units. The key is temporary and is destroyed when you exit VP-116 PK mode, or when you turn the transceiver off.

To Initiate VP-116 Public Key Mode (PK Key):

1. Access the VP-116 Unit Programming Menu: **MENU** > **MORE** > **PROG** > **VP** (F4).

2. Press **PK** (F3) to initiate a Public Key exchange with another unit.

   The text "PK P-WAIT..." is displayed.



Note

To cancel the pending exchange, turn off the transceiver.

When other unit responds, the text "PVTP" is displayed. This takes approximately 60 seconds.

3. Press PTT to start talking in PK mode.

   In order to cancel the exchange, both parties must press **ESC**.

   If after 120 seconds there is no response from the other station, or the transceiver identifies a communication error, the text "ERR RESPONSE" is displayed. Press **STOP** (F1) to cancel the exchange.

To respond to a VP-116 Public Key call:

When a Public Key call is sent to you, the text "PK P-WAIT" is displayed on your unit.

- Press **RESP** (F2) to answer the PK request.
- Press **STOP** (F1) to cancel the PK request.

After approximately 60 seconds, the text "PVTP" is displayed. Press PTT to start talking in PK mode.

Press **ESC** to cancel the exchange.

PPS-100 Pre-Post Selector (Optional)

Option #G65 + Option #G638

The PPS-100 Pre-Post Selector provides ease of operation of co-site receivers and transmitters communicating on frequencies separated by as little as 10 percent.

When changing a channel on the transceiver, the transceiver tunes the frequency using the PPS-100. The text "….PPS…." is displayed on the display for 200ms.

Note

This option is not supplied with the transceiver, and must be purchased separately.

When purchased, the PPS-100 Pre-Post Selector contains installation and MICOM connection instructions.