

RADIO COMMUNICATIONS



OVERVIEW

- Phonetic Alphabet and Numerals
- Procedural Words
- Characteristics and Components of the AN/PRC-152
- Controls, Connectors, Indicators and their Functions

LEARNING OBJECTIVES

Please Read Your

Terminal Learning Objectives

And

Enabling Learning Objectives



PHONETIC ALPHABET AND NUMERALS

- **Phonetic Alphabet Uses and Purpose**
 - Identifies spoken letters through a set of easily understood words in order to help prevent miscommunication.
 - Begins with the letter being identified.
 - Transmit isolated letters (“E7C”).
 - Transmit letters of an abbreviation (MCT).
 - Spell unusual or difficult words (hose).

PHONETIC ALPHABET AND NUMERALS

- Phonetic Alphabet

- A = alpha “AL FAH”
- B = bravo “BRAH VOH”
- C = charlie “CHAR LEE”
- D = delta “DELL TAH”
- E = echo “ECK OH”
- F = foxtrot “FOKS TROT”
- G = golf “GOLF”
- H = hotel “HOH TELL”

PHONETIC ALPHABET AND NUMERALS

- Phonetic Alphabet cont.
 - I = india “IN DEE AH”
 - J = juliet “JEW LEE ETT”
 - K = kilo “KEY LOH”
 - L = lima “LEE MAH”
 - M = mike “MIKE”
 - N = november “NOVEMBER”
 - O = oscar “OSS CUR”
 - P = papa “PAH PAH”

PHONETIC ALPHABET AND NUMERALS

- Phonetic Alphabet cont.

- Q = quebec “KEH BECK”
- R = romeo “ROH MEE OH”
- S = sierra “SEE AIR RAH”
- T = tango “TANG GO”
- U = uniform “YOU NEE FORM”
- V = victor “VIK TAH”
- W = whiskey “WISS KEY”
- X = x-ray “ECKS RAY”

PHONETIC ALPHABET AND NUMERALS

- Phonetic Alphabet cont'd

- Y = yankee “YANG KEY”
- Z = zulu “ZOO LOO”

- Phonetic Numerals

- Also has specific pronunciation to avoid miscommunication.
- Critical to communication (land navigation grids).

PHONETIC ALPHABET AND NUMERALS

- Phonetic Numerals

1 = "WUN"

2 = "TOO"

3 = "TREE"

4 = "FOW-ER"

5 = "FIFE"

6 = "SIX"

7 = "SEV-EN"

8 = "ATE"

9 = "NINER"

0 = "ZE-RO"

QUESTIONS?



PROCEDURAL WORDS

- Words or phrases that have assigned meanings for tactical communication.
- Reduces the time required to send a message.
- Helps ensure concise communication.
 - “TO...” Indicates who the message is intended for (receiver).
 - “THIS IS...” Indicates who is transmitting the message (sender).

PROCEDURAL WORDS

- “OVER...” Sender has ended transmission and needs a response.
- “OUT...” Sender has ended transmission and needs no response.
 - OVER and OUT have two different meanings and are **NEVER** used together.
- “ROGER...” Receiver hears and understands message/question.

PROCEDURAL WORDS

- **“SAY AGAIN...”** Receiver did not receive or understand last transmission and requests transmission be repeated.
 - May be used with **“ALL AFTER...”** or **“ALL BEFORE...”**
 - **DO NOT** substitute with **“Repeat”** which is used in fire missions.
- **“I SAY AGAIN...”** Sender is repeating transmission or portion requested.

PROCEDURAL WORDS

- “WAIT, OVER...” There will be a pause; wait for a few seconds.
- “WAIT OUT...” There will be a longer pause; stand by.
- “READ BACK...” Receiver should repeat entire transmission back to sender.
- “I READ BACK...” Receiver is reading back transmission previously sent.
- “CORRECTION...” Sender has made an error in his transmission.

PROCEDURAL WORDS

- **RADIO CHECK** – Requests a response indicating the strength and readability of transmission.
 - “E2B, this is E5H, radio check, over”
 - “Roger”
 - “Weak but readable”
 - “Weak and garbled”
 - “Strong but garbled”
 - “Roger, out”

QUESTIONS??



CHARACTERISTICS/COMPONENTS OF THE AN/PRC-152

- **Description**

- The AN/PRC-152 is an advanced multi-band Tactical Handheld Radio (THHR).
- It operates from 30.0000 MHz to 511.9999 MHz using Amplitude Modulation (AM) and Frequency Modulation (FM) and various waveforms.
- The AN/PRC-152 is Joint Tactical Radio System (JTRS) compliant with waivers.

CHARACTERISTICS/COMPONENTS OF THE AN/PRC-152

- Modes of Operation

- **VHF/UHF Line of Sight (VULOS)** – Dedicated UHF Satellite Communications (SATCOM) Channel

- **SINCGARS**

- **Frequency Hopping (FH)** – Must have the same VINSON Traffic Encryption Key and SINCGARS Eset programmed to the system preset.
 - **Single Channel (SC)** – Used for Analog FM voice operations in Plain Text (PT), and Cipher Text (CT) voice operations.

CHARACTERISTICS/COMPONENTS OF THE AN/PRC-152

- Frequency Range – 30.0 MHz to 511.9999 MHz. Transmission ranges vary due to multiple factors.
 - VHF Low Band – 30.0 MHz to 89.9999 MHz.
 - VHF High Band – 90.0 MHz to 224.9999 MHz.
 - UHF Band – 225.0 MHz to 511.9999 MHz.



CHARACTERISTICS/COMPONENTS OF THE AN/PRC-152

- **Features**

- Up to 99 programmable system presets (numbered 01-99).
- Built-In Test (BIT) for operational test, battery check, and displaying firmware and hardware versions.

CHARACTERISTICS/COMPONENTS OF THE AN/PRC-152

- **Features cont.**

- Internal Hold-Up Battery maintains programmed information.
- Automatic scan operation.
- Emergency beacon broadcast (90 MHz – 511.99999 MHz).

CHARACTERISTICS/COMPONENTS OF THE AN/PRC-152

- Components of the PRC-152
 - Receiver-Transmitter Unit (RTU)
 - **Battery** – Rechargeable Lithium-Ion Battery.



CHARACTERISTICS/COMPONENTS OF THE AN/PRC-152

- Components of the PRC-152 cont.

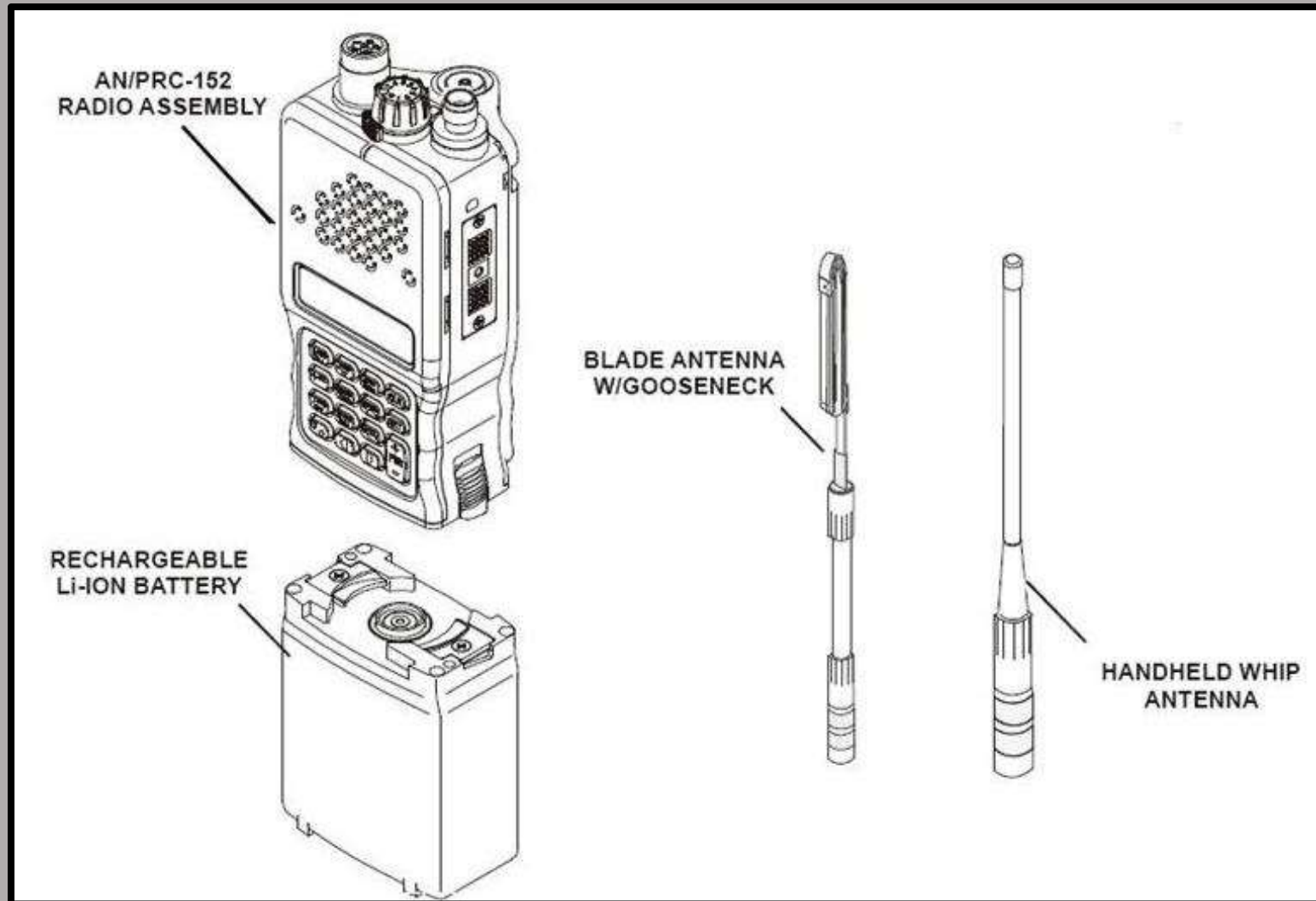
- The VHF Blade Antenna is 45 inches long and is used with a gooseneck flex adapter for operation from 30.0000 MHz to 108.000 MHz.



- The VHF/UHF/HB Hand Held Antenna is 13 inches long and used for operation from 30.000 MHz - 870.0000 MHz.



CHARACTERISTICS/COMPONENTS OF THE AN/PRC-152



CHARACTERISTICS/COMPONENTS OF THE AN/PRC-152

- **Accessory Carrying Bag**
 - Utilized to store accessories.
Modular straps are sewn to the back to allow attachment to a pack or flak jacket.



QUESTIONS?

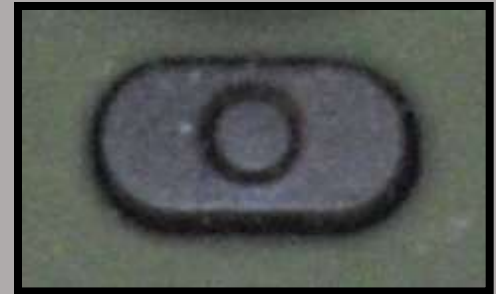


CONTROLS, CONNECTORS, INDICATORS AND FUNCTIONS

- Controls

- Squelch Button

- The Squelch Button is used to toggle squelch on and off, and change the squelch level.



- Push To Talk (PTT)

- The PTT Button is used to initiate a transmission.



CONTROLS, CONNECTORS, INDICATORS AND FUNCTIONS

- Controls cont.

- Volume Control

- On the volume control the up arrow increases the volume, down arrow decreases the volume (not lockable).



- Built-in Microphone



CONTROLS, CONNECTORS, INDICATORS AND FUNCTIONS

- Controls cont.

- Cipher Switch

- Turning the Cipher Switch to PT places the RT in PT non-encrypted mode.
 - Turning the cipher switch to LD places the radio off-line, ready to load COMSEC and transmission security variables from an external Type-1 fill device.
 - Turning the cipher switch to CT places the radio in the Cipher Text (CT) crypto mode.



CONTROLS, CONNECTORS, INDICATORS AND FUNCTIONS

- Controls cont.

- Functions Knob – has nine selections; OFF, 1, 2, 3, 4, 5, S, F and Z.
 - The **OFF** position turns the RT off. The position is marked with a white dot.
 - The **1, 2, 3, 4,** and **5** positions select system presets 1 through 5.
 - **S** places the radio in scan operation.



CONTROLS, CONNECTORS, INDICATORS AND FUNCTIONS

- Controls cont.

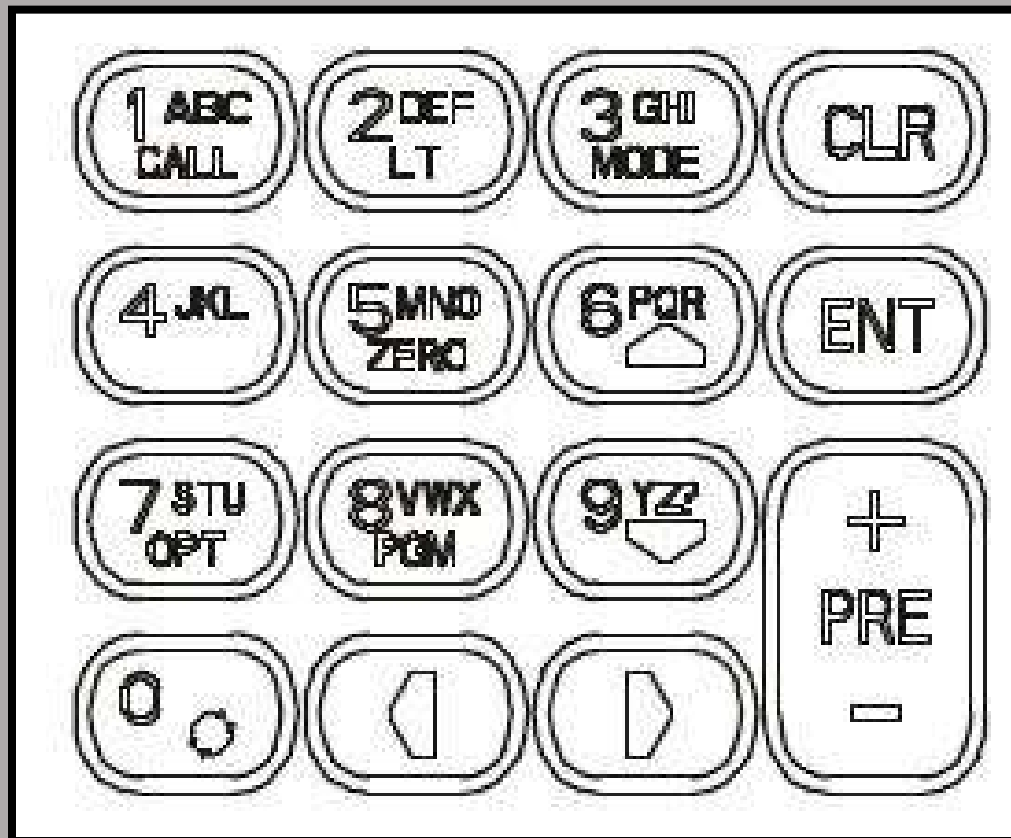
- Functions Knob cont.

- The **F** places the radio in front panel mode, permitting access to all system presets and keypad functions.
 - The **Z** position zeroizes all programmed variables, including all encryption variables (requires additionally pressing the volume up button).



CONTROLS, CONNECTORS, INDICATORS AND FUNCTIONS

- Controls cont.
 - Keypad Layout

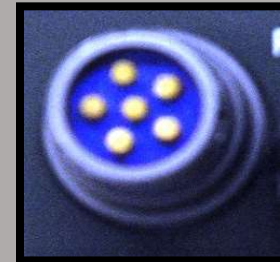


CONTROLS, CONNECTORS, INDICATORS AND FUNCTIONS

- Connectors

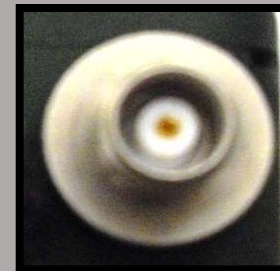
- 6-Pin Audio/Keyfill Connector

- Provides a connection for an optional H-250 handset or crypto fill device that uses a 6-pin connector.



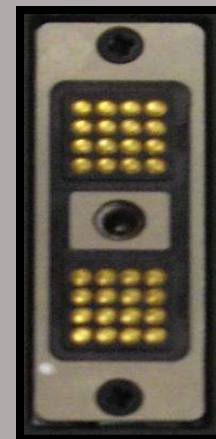
- Antenna Connector

- Provides a 50-ohm antenna port.



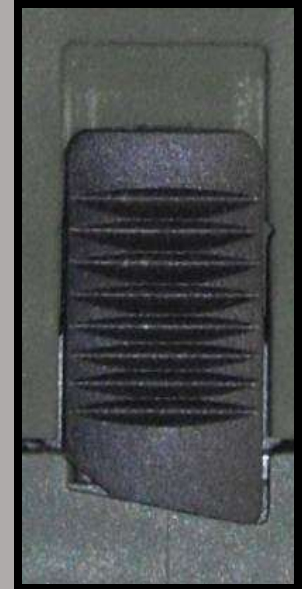
- Side Connector

- Provides an interface for various data devices.



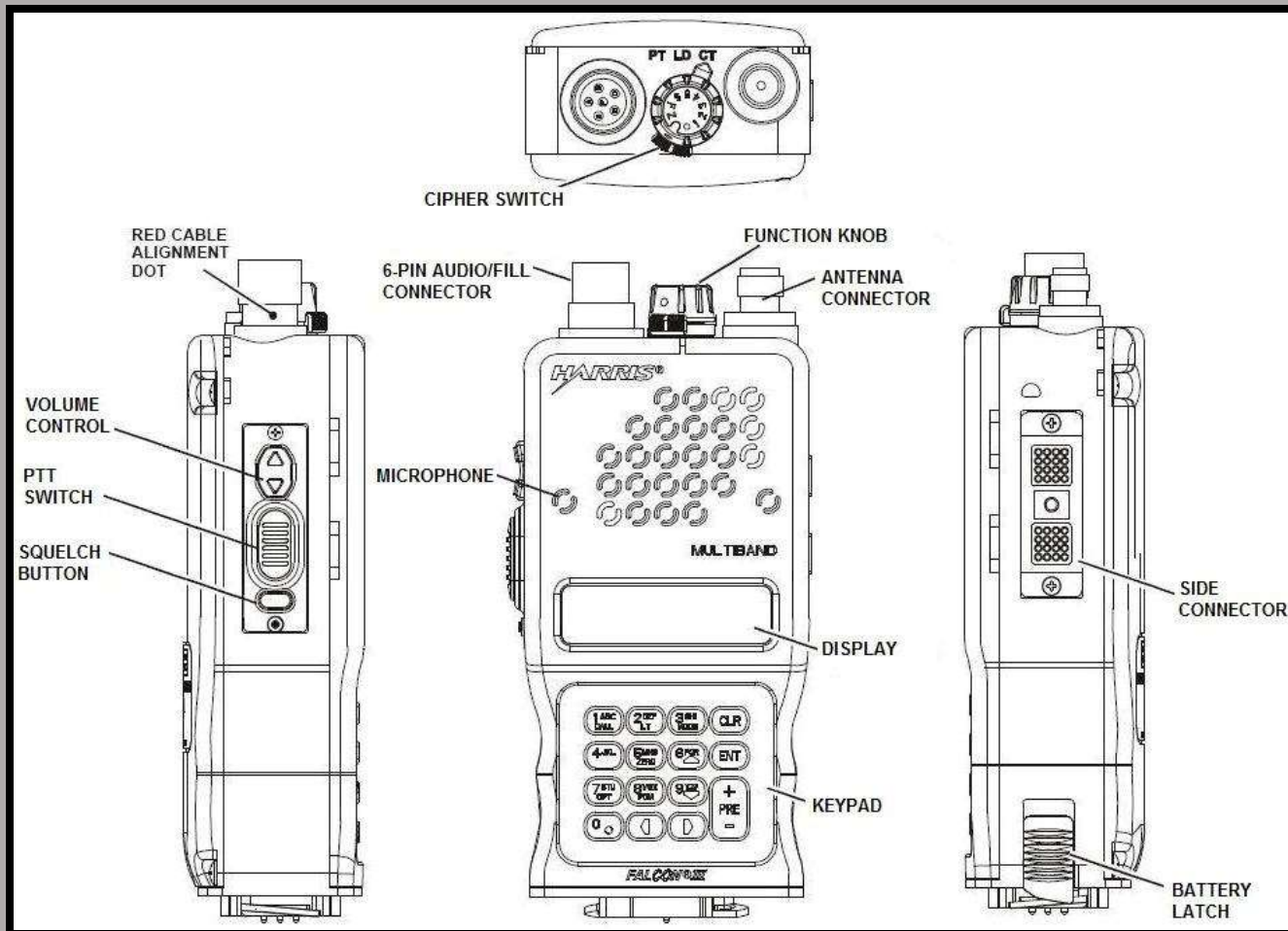
CONTROLS, CONNECTORS, INDICATORS AND FUNCTIONS

- Connectors cont.
 - Battery Latch – Slides up to unlock the battery for removal.
- Display Indicator – shows operational and programming screens.



CONTROLS, CONNECTORS, INDICATORS AND FUNCTIONS

- Controls cont.



QUESTIONS?

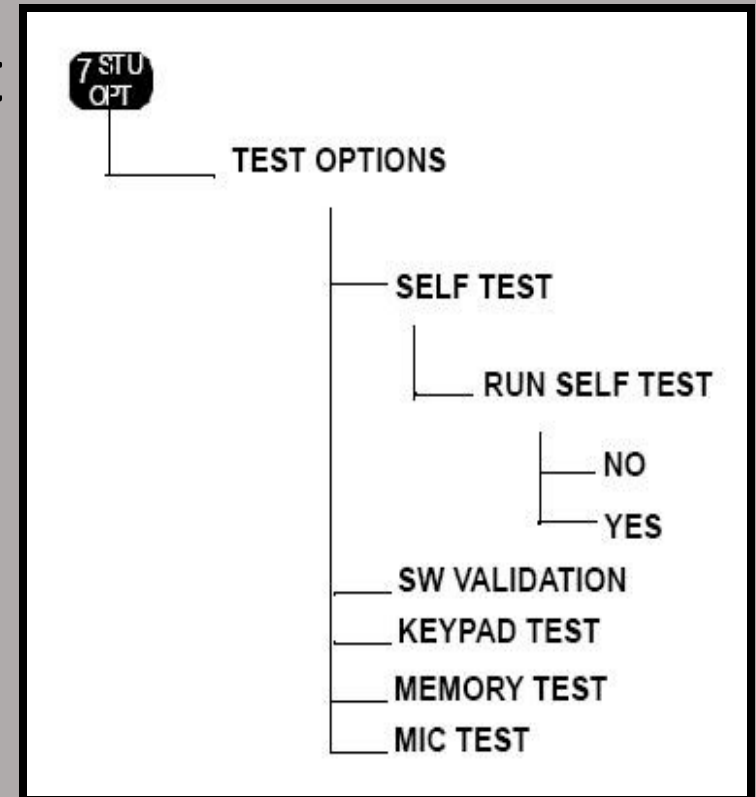


INSTALLATION PROCEDURES

- **Lithium-ion Battery** – Twist the battery into position in a clockwise direction.
- **Antenna** – Connect the antenna.
- **Cipher Switch** – Rotate the switch to PT or CT.
- **Power On Self Test (Post)**
 - Once the RT has been turned on it will automatically run a Power On Self Test (POST).
 - If the POST Fails, the user will be instructed to run a Self Test.

INSTALLATION PROCEDURES

- **Self Test** – To run a self test through the test options menu, begin by pressing the (7) key.
 - Navigate to TEST OPTIONS, then SELF TEST.
 - Select YES to begin the self test.



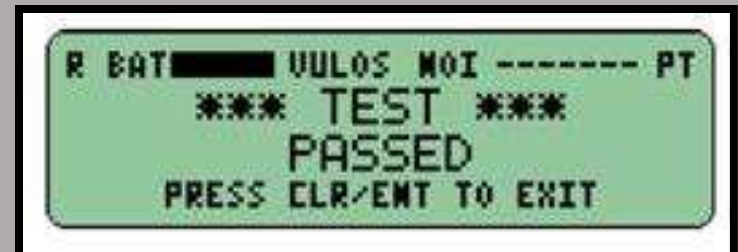
INSTALLATION PROCEDURES

- Self Test cont.

- Once the test has begun the RT will display 'TEST IN PROGRESS'. The test may take up to one minute.



- The radio will respond with 'TEST PASSED PRESS CLR/ENT TO EXIT' or the various BIT fault codes.



SUMMARY

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- Procedural Words
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- Controls, Connectors, Indicators and their Functions