MCECST

2401-COMM-1003/4 MCT-COMM-1003/4 Radio Communications

TERMINAL LEARNING OBJECITVES:

1. Given a SL-3 complete filled VHF radio, pre-programed net I.D., and a distant station, while wearing a fighting load, operate a VHF field radio to establish communication with the distant station.
(2401-COMM-1003)

2. Given a situation and formats, while wearing a fighting load, submit a message to report any activity in the assigned area.
(2401-COMM-1004)

ENABLING LEARNING OBJECTIVES:

1. Given a list of choices and a diagram, identify the nomenclature of the AN/PRC 152 Multiband handheld radio set in accordance with reference TM 11496A-OI/2.
(2401-COMM-1003a)

2. Given a list of choices, identify the operating capabilities for the AN/PRC 152 Multiband handheld radio set in accordance with reference TM 11496A-OI/2.   (2401-COMM-1003b)

3. Given a list of choices, identify the modes of operation for the AN/PRC 152 Multiband handled radio set in accordance with reference TM 10515-0283-4200.   (2401-COMM-1003c)

4. Given a scenario, an SL-3 complete filled VHF radio, pre-programed net I.D., and a distant station, while wearing a fighting load, operate a VHF field radio to establish communication with the distant station in accordance with reference TM 10515-0283-4200.
(2401-COMM-1003d)

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5. Given a scenario, maps, reports formats, and while wearing a fighting load, submit a Contact Report (CONTACTREP) to a distant station with 100% accuracy in accordance with references TM 10515-0283-4200 AN/PRC-152(C) Multiband Handheld Radio Operation Manual, MCRP 3-30B.3 Multiservice Communications Procedures for Tactical Radios in a Joint Environment (Tactical Radios) and MCRP 2-10A.7 Reconnaissance Reports Guide.   (2401-COMM-1004a)

6. Given a scenario, maps, reports formats, and while wearing a fighting load, submit an Enemy Sighting Report (SPOTREP) to a distant station with 100% accuracy in accordance with references TM 10515-0283-4200 AN/PRC-152(C) Multiband Handheld Radio Operation Manual, MCRP 3-30B.3 Multiservice Communications Procedures for Tactical Radios in a Joint Environment (Tactical Radios) and MCRP 2-10A.7 Reconnaissance Reports Guide. (2401-COMM-1004b)

7. **RADIO COMMUNICATIONS PRIMARY FUNCTIONS**.

    a. **Communications and information systems (CIS)** are any systems whose primary functions are to collect, process, or exchange information.

    b. **The fundamental requirement** is to provide the Marine Air-Ground Task Force (MAGTF) commander with a reliable, secure, fast, and flexible communications network.

8. **THE PHONETIC ALPHABET & NUMBERS**. The phonetic alphabet identifies spoken letters through a set of easily understood words in order to prevent the miscommunication of letters. Each of these words begins with the letter being identified. **The purpose of the NATO Phonetic Alphabet and Number system**, is to ensure the clarity of communications during a wartime situation. It is also used for quicker and faster communication due to the fact that things are not said in full form.

    a. **The Phonetic Alphabet is Used to**:

        (1) Transmit isolated letters such as "E7C", which is transmitted "ECHO 7 CHARLIE".

        (2) Transmit each letter of an abbreviation such as "MCT", which is transmitted "MIKE, CHARLIE, TANGO".

        (3) Spell unusual or difficult words such as "HOSE", which is transmitted "HOTEL OSCAR SIERRA ECHO".

    b. Each letter of the alphabet has the following corresponding pronunciation:

        (1) A = ALPHA.

        (2) B = BRAVO.

        (3) C = CHARLIE.

        (4) D = DELTA.

        (5) E = ECHO.

        (6) F = FOXTROT.

        (7) G = GOLF.

[Type here]

(8) H = HOTEL.

(9) I = INDIA.

(10) J = JULIET.

(11) K = KILO.

(12) L = LIMA.

(13) M = MIKE.

(14) N = NOVEMBER.

(15) O = OSCAR.

(16) P = PAPA.

(17) Q = QUEBEC.

(18) R = ROMEO.
(19) S = SIERRA.

(20) T = TANGO.

(21) U = UNIFORM.

(22) V = VICTOR.

(23) W = WHISKEY.

(24) X = XRAY.

(25) Y = YANKEE.

(26) Z = ZULU.

   C. A specific pronunciation for numerals has also been
established in order to avoid miscommunication. Numbers, such
as those that make up the six-digit grid coordinates you used in
your land navigation training are critical communication
elements that must be clearly understood. The following are the
pronunciations of the phonetic numerals 0 through 9:

       (1) 1 = WUN.

       (2) 2 = TOO.

       (3) 3 = TREE.

       (4) 4 = FOW-er.

       (5) 5 = FIFE.

       (6) 6 = SIX.

       (7) 7 = SEV-en.

       (8) 8 = AIT.

       (9) 9 = NIN-er.

       (0) 0 = ZERO.

9. **RADIO COMMUNICATIONS PROCEDURAL WORDS**.

    a. The term **Proword** is a contraction of the phrase Procedural Words, and are the set piece portions of language intended to enhance speed of communication and aid in clarity of meaning. Procedural words are words or phrases that have been assigned a meaning for the purpose of expediting tactical communication. Proper utilization of procedural words reduces the time required to communicate a message and helps to ensure concise communications.

    b. Listed below are the current **NATO Prowords,** as set out in the unclassified Allied Communications Publications document:

      (1) **ALL AFTER** - I refer to I refer to the portion of the message that follows.

      (2) **ALL BEFORE** - I refer to the portion of the message that precedes.

      (3) **BREAK** - I hereby indicate the separation of the text from other portions of the message. Or: I have completed the text of the message, signature follows, etc. (When break-in is permitted, receiving operator may interrupt the transmitting operator to request retransmission of a portion of a message. Used as an interruption sign.).

      (4) **CORRECTION** - An error has been made in this transmission (or message indicated). The correct version is

_____. That which follows is a corrected version in answer to your request for verification.

     (5) **DISREGARD THIS TRANSMISSION** - This transmission is in error. Disregard it. (This proword shall not be used to cancel any message that has been completely transmitted and for which receipt or acknowledgment has been received.).

     (6) **DO NOT ANSWER** - Stations called are not to answer this call receipt for this message, or otherwise to transmit in connection with this transmission. When this proword is employed, the transmission shall be ended with the proword OUT.

     (7) **EXECUTE** - Carry out the purpose of the message or signal to which this applies. To be used only with the executive method.

     (8) **EXECUTE TO FOLLOW** - Action on the message or signal which follows is to be carried out upon receipt of the proword EXECUTE. To be used only with a executive method.

     (9) **EXEMPT** - The addressee designations immediately following are exempted from the collective net call.

     (10) **FIGURES** - Numerals or numbers follow.

     (11) **FLASH** - Precedence *FLASH*.

     (12) **FROM** - The originator of this message is indicated by the address designation immediately following.

     (13) **IMMEDIATE** - Precedence *IMMEDIATE*.

     (14) **INFO** - The addressee designations immediately following are addressed for information.

     (15) **I READ BACK** - The following is my response to your instructions to read back.

     (16) **I SAY AGAIN** - I am repeating transmission (or portion) indicated.

     (17) **I SPELL** - I shall spell the next word phonetically.

     (18) **I VERIFY** - The following message (or portion) has been verified at your request and is repeated. To be used only as a reply to verify.

(19) **MESSAGE FOLLOWS** - A message which requires recording is about to follow. Transmit immediately.

(20) **NUMBER** – Station serial number.

(21) **OUT** - This is the end of my transmission to you. No response is necessary.

(22) **OVER** - This is the end of my transmission to you and a response is necessary. Go ahead and transmit.

(23) **PRIORITY** - Precedence *PRIORITY*.

(24) **READ BACK** - Repeat this entire transmission back to me exactly as received.

(25) **RELAY TO** - Transmit this message to all addressees or to the address designations immediately following.

(26) **ROGER** - I have received your last transmission satisfactorily.

(27) **ROUTINE** - Precedence *ROUTINE*.

(28) **SAY AGAIN** - Repeat all of your last transmission. Followed by identification data means: "Say again (portion indicated)." "Repeat" is not used because it is the signal for naval gunfire and artillery to fire.).

(29) **SIGNALS FOLLOW** - The groups which follow are taken from signal book. (This proword need not be used on nets primarily employed for conveying signals. It is intended for use when tactical signals are passed on non-tactical nets.).

(30) **SILENCE, SILENCE, SILENCE** - Cease transmission immediately. (Silence will be maintained until instructed to resume. When an authentication system is in force, transmissions imposing silence are to be authenticated.).

(31) **SILENCE LIFTED** - Resume normal transmissions. (Silence can be lifted only by the station imposing it or by higher authority. When an authentication system is in force, transmissions lifting silence are to be authenticated.).

(32) **SPEAK SLOWER** - Your transmission is too fast. Reduce speed of transmission.

(33) **THAT IS CORRECT** - You are correct, or what you have transmitted is correct.

(34) **THIS IS** - This transmission is from the station whose designation immediately follows.

(35) **TIME** - That which immediately follows is the time or date-time group of the message.

(36) **TO** - The addressees whose designations immediately follow are to take action on this message.

(37) **UNKNOWN STATION** - The identity of the station with whom I am attempting to establish communications is unknown.

(38) **VERIFY** - Verify entire message (or portion indicated) with the originator and send correct version.

(39) **WAIT** - I must pause for a few seconds.

(40) **WAIT OUT** - I must pause longer than a few seconds.

(41) **WILCO** - I have received your message, understand it, and will comply. (To be used only by the addressee. Since the meaning of ROGER is included in that of WILCO, the two prowords are never used together.).

(42) **WORD AFTER** - I refer to the word that follows.

(43) **WORD BEFORE** - I refer to the word that precedes.

(42) **WORDS TWICE** - Communication is difficult. Transmit (ting) each phrase (or each code group) twice. This proword may be used as an order, request, or as information.

(43) **WRONG** - Your last transmission was incorrect. The correct version is.

10. **COMMUNICATING MAP COORDINATES & TIME ZONES**. The world is divided into 24 time zones. Each Time Zone bearing a unique phonetic letter name (ROMEO, UNIFORM, etc.) or time zone number.
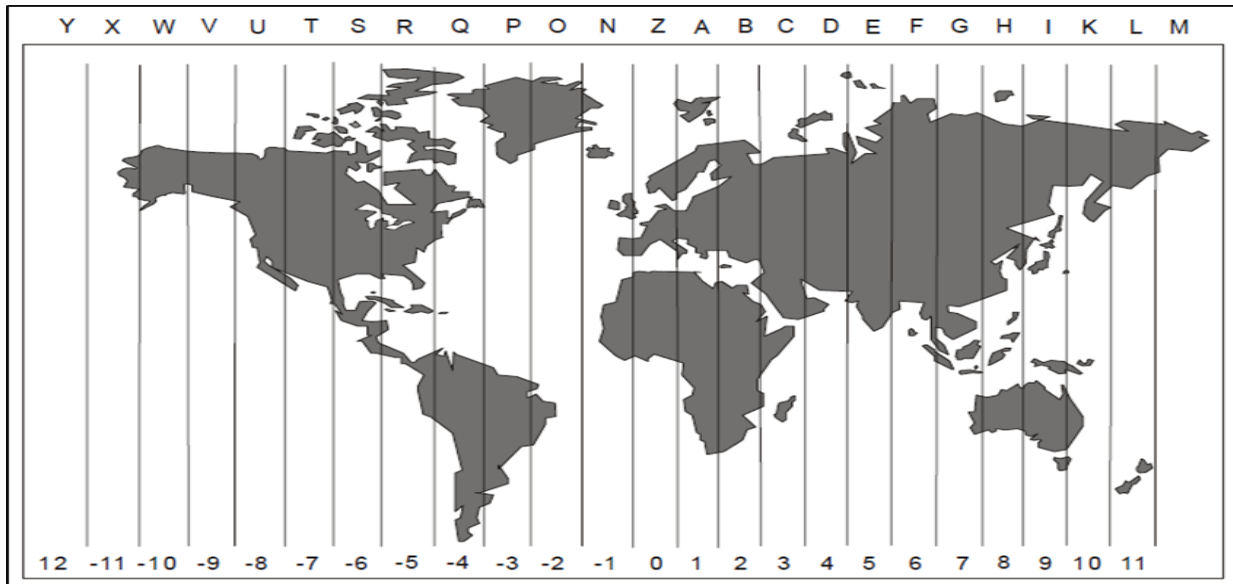
a. The Time Zone number must be applied to local time to arrive at the world standard time which is Coordinated Universal Time (UTC).

     (1) ZULU TIME = Local Time - Time Zone Number.

     (2) LOCAL TIME = Zulu Time + Time Zone Number.

b. If a radio operator is in the UNIFORM time zone, (also referred to as the PLUS 8 zone), 8 hours must be added to the local time to get ZULU time.

c. During the summer, however, if a radio operator is located in an area where daylight savings time is observed, one hour must be subtracted from the time zone number.

d. To avoid radio confusion, the time zone should always be stated (e.g., 1100 LOCAL or 1900 ZULU).

11. **SECURITY CHALLENGE AND REPLY AUTHENTICATION**. Challenge and reply authentication will be used whenever possible. The called party will always make the first challenge. Besides validating the authenticity of the calling station, this practice prevents an enemy operator from entering a net to obtain correct authentication responses for use in another net. The party making the call may counterchallenge the called party using a different challenge.

a. When a caller desires authentication, he must invite a challenge by stating; "Prepared to Authenticate".

      (1) Another challenge should be made if an incorrect reply is received, if a standby is requested, or if an unusual delay occurs between challenge and reply.

      (2) Users will occasionally mis-authenticate because of such problems as having the wrong system, misreading the table, etc. The challenging station should attempt to pinpoint the difficulty and then re-challenge.

    b.   Never give the challenge and reply in the same transmission (this is called self authentication).

12.   **INTERNATIONAL MORSE CODE**.

    a.   Dots and dashes are used in various combinations to represent the alphabet letters and numbers 0 to 9.

```
a. Letters
   A • —              J • — — —         S • • •
   B — • • •          K — • —           T —
   C — • — •          L • — • •         U • • —
   D — • •            M — —             V • • • —
   E •                N — •             W • — —
   F • • — •          O — — —           X — • • —
   G — — •            P • — — •         Y — • — —
   H • • • •          Q — — • —         Z — — • •
   I • •              R • — •
```

    b.   The dots and dashes of the Morse Code are produced by keying a transmitter and causing it to transmit short and long signals. The dash is 3 times the length of the dot.

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b. Figures
   1 • — — — —        5 • • • • •        9 — — — — •
   2 • • — — —        6 — • • • •        0 — — — — —
   3 • • • — —        7 — — • • •
   4 • • • • —        8 — — — • •
```

c. The dots and dashes used for a letter are spaced from each other by a period of time equal in length to one dot. Letters are spaced from each other by a period of time equal to three dots. Words are spaced by a period of time equal to seven dots.

13. **RADIO REPORT FORMATS**. There are numerous radio report formats to cover the various situations an operator may encounter in the combat environment. **The purpose of report formats is to provide information in a standardized format within or between units.** Standardized formats simplify and speed the accurate, timely flow of reports from information collectors to information analysts. Formats help to minimize confusion and assist the generation of operation tempo. The most commonly used radio reports are as follows:

   a. The **S.A.L.U.T.E. Report (AKA-Spot Report)** provides a detailed description of enemy activity in your area;

      (1) **SIZE** - gives the number of enemy & type using the following letter codes:

            (a) **A** – Infantry (number of troops)

            (b) **B** – Armored personnel carriers (type)

            (c) **C** – Tanks (type or describe)

            (d) **D** – Field artillery (type or describe)

            (e) **E** – Antitank weapons (type or describe)

            (f) **F** – Antiaircraft weapons (type or describe)

            (g) **G** – Military trucks (type or describe)

            (h) **H** – Light military vehicles (type)

            (i) **J** – Helicopters (type or describe)

            (j) **K** – Aircraft (type or describe)

            (k) **L** – Radars (type or describe)

            (l) **M** – Command post (describe)

            (m) **N** – Minefield (dimensions)

(n) **P** - Other tank obstacles (describe)

(o) **Q** - Other (followed by description)

(2) **ACTIVITY** - describes the enemy activity using the following numerical codes:

(a) **1** - On the move followed by direction & speed

(b) **2** - Stationary, but not dug in

(c) **3** - In prepared positions (describe)

(d) **4** - Other (describe)

(3) **LOCATION** - describes the position of the enemy is provided by using the grid reference or another agreed-on system of position reference.

(3) **UNIT** - An identification of the enemy unit is provided if it can be determined. If not, a description is given that might be helpful to the tasking agency. If a positive identification is made, indication is required as to how this was achieved.

(3) **TIME** - The DTG of the sighting is reported.

(3) **EQUIPMENT** - describes the identity or description of any weapons or equipment observed is provided.

b. The **<u>SITUATION Report</u> (AKA-Sit Rep)** provides a detailed description of your unit's current activity;

(1) **YOUR UNIT CODE NAME**

(2) **DATE/TIME GROUP** (DTG)

(3) **FRIENDLY POSITION** (encrypted)

(4) **ACTIVITIED CONDUCTED** (since last report)

(5) **ACTIONS PLANNED** (next 12-hour period)

(6) **LOGISTICAL REQUIREMENTS** (food, ammunition, water)

(7) **PERSONNEL CASUALTIES** (since last CASREP)

(8) **REMARKS**

c.   The **CONTACT Report (CONTACREP)** provides a brief and concise report of enemy contact or engagement;

(1) **C - Call sign.** "(Receiver's call sign) this is (originator's call sign)."

(2) **O - Occurrence.** Describes the type of contact/what has happened.

(3) **N - Needs.** States medical evacuation, emergency extraction, immediate suppression, reinforcement, resupply, and other needs.

(4) **T - Time/Location.** Indicates at what time the contact took place and where.

(5) **A - Actions Taken.** Describes what has done since the contact was made.

(6) **C - Casualties.** Reports friendly KIAs/WIAs and medical evacuation needs.

d.   The **9-line Z-MIST Report (MEDEVAC Report)** is a standard NATO format used by the Armed Forces for coordinating the evacuation of casualties. Evacuation request transmissions should be by the most direct communications means available to the unit controlling evacuation assets. The information must be clear, concise, and easily transmitted. This is done by use of the following numerical brevity codes:

(1) **Line-1 (Location) -** location of the Landing Zone (LZ) where the casualties are to be picked up. This information will be transmitted in the form of an eight digit grid coordinate.

(2) **Line-2 (Radio Frequency & Call Sign) -** radio frequency and call sign that will be used by the ground unit at the LZ. You should know this information before every operation.

(3) **Line-3 (Precedence -** Urgent, Urgent Surgical, Priority, and Routine) - number of casualties by precedence. Use the following codes:

(a) Alpha   =   Urgent

          (b) Bravo   =   Urgent Surgical

          (c) Charlie =   Priority

          (d) Delta   =   Routine

          (e) Echo   =   Convenience

        (4) **Line-4 (Special Equipment) -** identifies any special
equipment that will be needed, such as a hoist in the case where
a helicopter cannot land. Use the following codes:

          (a) Alpha   =   None

          (b) Bravo   =   Hoist

          (c) Charlie =   Extraction Equipment

          (d) Delta   =   Ventilator

        (5) **Line-5 (Number of Patients by Type) -** number of
patients who are ambulatory and the number of litter patients.
This determines whether or not the helicopter should be
configured to carry litters. Use the following codes:

          (a) Lima   =   Litter Patients

          (b) Alpha   =   Ambulatory Patients

        (6) **Line-6 (Security of Pickup Site) -** whether or not
the enemy is near the LZ. If all of your casualties are routine
and the LZ is not secured, then you may not get your requested
CASEVAC approved. Use the following codes:

          (a) November =   No enemy troops in area

          (b) Papa   =   Possible enemy troops (caution)

          (c) Echo   =   Enemy troops in area (caution)

          (d) X-Ray   =   Enemy troops in area (armed escort
                             required)

(7) **Line-7 (Method of Marking Pickup Site)** - methods that you will use to mark your LZ and then ask the pilot to identify. Use the following codes:

> (a) Alpha   =   Panels
>
> (b) Bravo   =   Pyrotechnic Signal
>
> (c) Charlie =   Smoke Signal
>
> (d) Delta   =   None
>
> (e) Echo   =   Other

(8) **Line-8 (Patient's Nationality and Status)** - patients' nationality and status. Use the following codes:

> (a) Alpha   =   US Military
> (b) Bravo   =   US Civilian
>
> (c) Charlie =   Non US Military
>
> (d) Delta   =   Non US Civilian
>
> (e) Echo   =   Enemy Prisoner of War

(9) **Line-9 (NBC Contamination)** - whether the LZ has been contaminated with NBC agents. Use the following codes:

> (a) November =   Nuclear
>
> (b) Bravo   =   Biological
>
> (c) Charlie =   Chemical

(10) **Z-MIST Report Format** - provides injury details. Use the following codes:

> (a)   **Z**   =   Zap Number (Unit Initials / Blood Type / Last 4 / Service Member's Initials - SOP dictated)
>
> (b)   **M**   =   Mechanism of Injury (Weapon Type)
>
> (c)   **I**   =   Injury (Location on Body/Severity)
>
> (d)   **S**   =   Symptoms / Vital Signs (BP/HR)

       (e)   **T**   =   Treatment Given (Fluids/Meds)

14. **THE AN/PRC-152C FIELD RADIO**.

    a. **Characteristics.** The AN/PRC-152 Multiband Handheld Radio is a tactical transceiver designed for use by military/agency personnel requiring Type-I National Security Agency (NSA) - certified secure voice and data communications. The AN/PRC-152 is a member of the Harris Falcon III family of products, which provides highly reliable communications for the severe conditions of tactical operations.

       (1) The AN/PRC-152 provides multi-band, multi-mode operation. This enables a wide variety of applications for the user, including ground-to-ground, ground-to-air and tactical satellite communications. Over these links the type of communication traffic includes voice and data for command and control application. Since much of this information is highly sensitive, encryption is critical.

       (2) The AN/PRC-152 frequency range is continuous from 30.0000 MHz to 511.9999 MHz. In addition, some models offer High Band (HB) operation for VHF/UHF line of sight (VULOS) and project 25 over the range of 512 MHz to 520 MHz and 762 MHz to 870 MHz. The radio supports AM, FM and various data waveforms.

       (3) The AN/PRC-152 is fully Joint Tactical Radio System (JTRS) Compliant. Key JTRS compliance elements are as follows:

         (a) Software Communications Architecture (SCA). The JTRS open standard software radio operating environment, Version 2.2.

         (b) Programmable Crypto. The ability to load different encryption algorithms into the radio in an NSA certified method

    b. **Safety Precautions**. All personnel must observe Radio Operator Manual identified safety precautions during assembly, operation and maintenance of field radio equipment. Specific warnings and cautions are provided throughout radio equipment manuals. These manual warnings and cautions appear in the following manner;

(1) WARNING - Used when injury or death to personnel and damage to equipment is possible.

(2) CAUTION - Used when there is a possible of damage to equipment.

(3) NOTE - Used to alert personnel to a condition that requires emphasis.

c. **Modes of Operation**.

(1) VHF/UHF Line-of-Sight (VULOS). Provides fixed frequency communications over the VHF and UHR frequency bands. NULOS is also operable over dedicated UHF Satellite Communications (SATCOM) Channels.

(2) SINCGARS FH & SC. Single Channel Ground and Airborne Radio System (SINCGARS) Frequency Hopping operates in the VHF-LOW frequency range (30.0000 MHz to 87.9750 MHz), Consists of two operating modes, Frequency Hopping and Single Channel.

(a) SINCGARS Frequency Hopping Net. Uses a MASTER SINCGARS radio as the Net Control Station to maintain Time of Day synchronization and control SINCGARS net operational Procedures. All other radios in the net are normally MEMBER stations. All AN/PRC-152 radios in a SINCGARS Frequency Hopping net must have the same VINSON Traffic Encryption Key and SINCGARS Eset programmed to the system preset.

(b) SINCGARS Single Channel Net. Operates on a single fixed frequency in the VHF-LOW frequency range (30.0000 MHz to 87.9750 MHz). This net can be used for Analog FM voice operations in Plain Text (PT), and Cipher Text (CT) voice operations.

e. **Frequency Range**. The Frequency Range of the AN/PRC-152 is 30.0000 MHz to 511.9999 MHz with 1 Hz Spacing per Channel.

(1) VHF Low Band- 30.0000 MHz to 89.9999 MHz.

(2) VHF High Band- 90.0000 MHz to 224.9999 MHz.

(3) UHF Band- 225.0000 MHz to 511.9999 MHz.

f. **Program Features**.

(1) Up to 99 programmable system presets (numbered 01-99) containing user-specified frequencies and operating parameters.

(2) Built-In Test (BIT) for operational test, battery check, display firmware and hardware versions.

(3) Interface to an external Portable Lightweight GPS Receiver (PLGR) or Defense Advanced GPS receiver (DAGR)

(4) Internal Hold-Up Battery (HUB) to maintain programmed information when the AN/PRC-152 main battery is removed.

(5) Automatic Scan Operation of both Cipher Text and Plain Text channels on Line-of-sight (LOS) fixed frequency or dedicated UHF SATCOM channels.

(6) Emergency Beacon Broadcast (90 MHz-511.9999 MHz). Sends out emergency Signal when you use this feature.

(7) Operable with Falcon III vehicular Amplifier Adapter (VAA). This Radio can be hand held or vehicle Mounted.

(8) The AN/PRC-152 is SL-3 to the VRC-110. The VRC-110 is a PRC-152 Vehicle Mounted inserted into a vehicle adapter mount.

(a) <u>Two Types of Mounts</u>.

<u>1</u>. Dual Vehicle Adapter (DVA) holds two radios.

<u>2</u>. Single Vehicle Adapter (SVA) holds one radio.

15. **<u>COMPONENTS OF THE AN/PRC-152</u>**.

a. **<u>AN/PRC-152 Radio Assembly</u>**. This Part of the Radio has the Connectors, switches and buttons for programming the Radio. It is the Receiver-Transmitter Unit (RTU).

b. **<u>Rechargeable Li-Ion Battery</u>**. The lithium-ion battery has a quick twist mount for easy connect and disconnect. Do not expose battery to temperatures above 160 degrees, the battery can explode if it becomes too hot, Lithium-Ion Batteries should not be exposed to acid because this will contaminate the Battery and damage it making it inoperable.

c. **VHF/UHF or VHF Blade Antenna**. All Antennas attach to the radio via the threaded N-Connector (TCN) antenna Connector. The VHF/UHF Blade Antenna is 45 inches in length and operational over VHF/UHF 30 MHz to 512 MHz frequency range. The VHF Blade Antenna is also 45 inches in length and operational over VHF 30 MHz to 108 MHz frequency range.

d. **VHF/UHF/HB Hand Held Antenna**. This antenna attaches to the radio via the threaded N-Connector (TCN) antenna Connector. The VHF/UHF/HB Hand Held Antenna is 13 inches in length and is operational over the 30 MHz to 870 MHz frequency range.

e. **GPS Antenna**. The GPS Antenna is supplied with the GPS versions only, (PRC-152(v)2(C)) and covers 1575.42 MHz, The GPS antenna is an active antenna drawing power form the antenna connector.

f. **Accessory Carrying Bag**. The accessory carrying bag is utilized to store accessories. Modular Straps are sewn to the back to allow attachment to a pack, flak jacket or sapi-plate carrier.

16. **CONTROLS, CONNECTORS, INDICATORS AND THEIR FUNCTIONS**.

RED CABLE ALIGNMENT DOT

PT LD CT

MULTIBAND
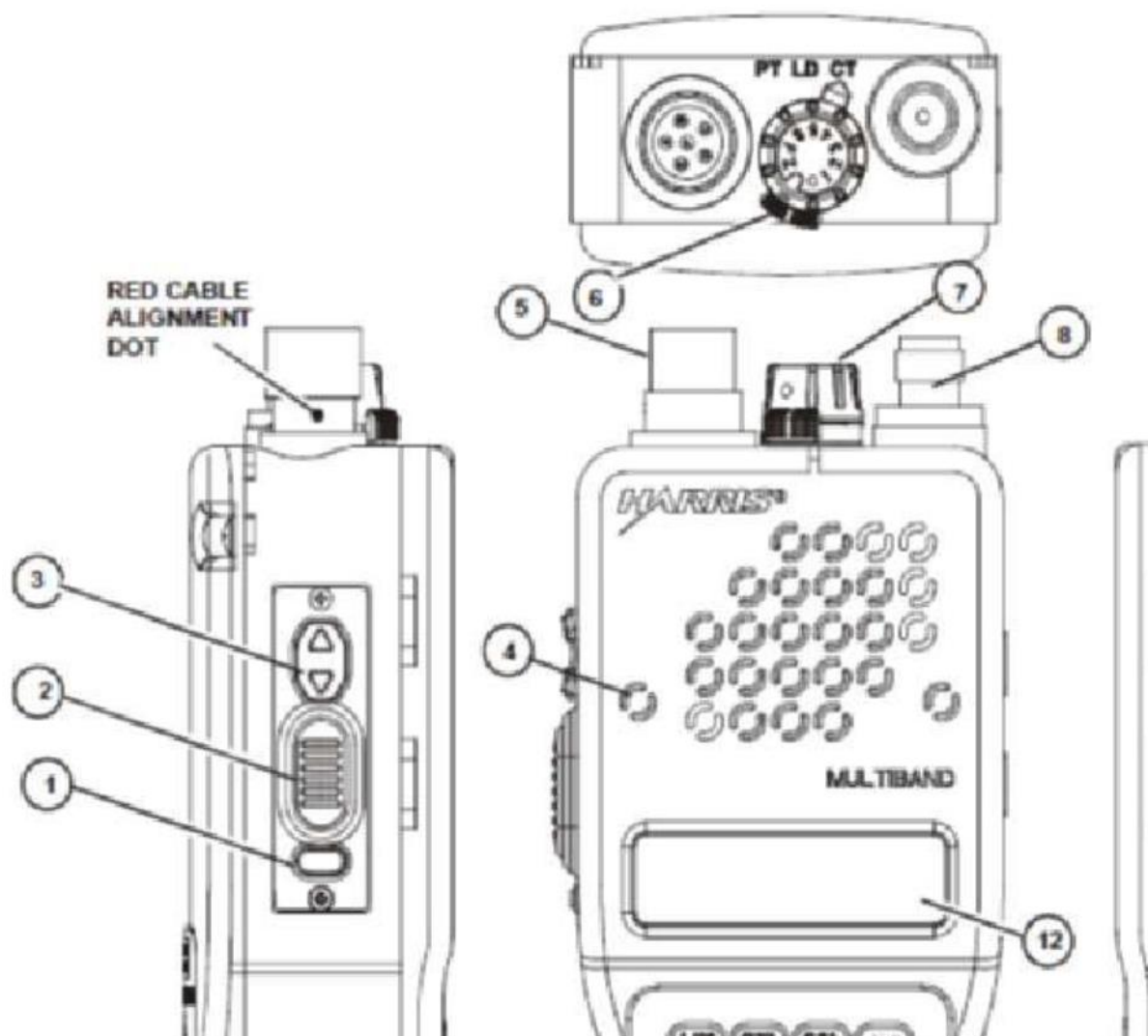
a. **Squelch Button (#1)**. Toggles squelch on and off when pressed and released so the radio operator can listen to traffic or noise that is present on the current frequency.

b. **Push to Talk (PTT) Button (#2)**. This button is used to key a voice transmission for the radio. If the current waveform is configured for voice, the radio will continuously transmit RF over the air while the button is pressed. This button is still functional even if a handset is connected to the radio.

c. **Volume Control (#3)**. Use the "up" arrow to increase the volume. Use the down arrow decrease the volume. This button is not lockable. The volume "up" button will also initiate a zeroize when the function knob is in the [Z] position.

d. **Microphone (#4)**. The AN/PRC-152 has a built in microphone located next to the speaker.

e. **Cipher Switch (#6)**. The Cipher Switch has three options; PT, LD, and CT.

(1) Plain Text (PT). This places the radio in Plain Text, non-encrypted mode.

(2) Load (LD). This places the radio off-line, ready to load COMSEC and Transmission Security (TRANSEC) variables from an external Type-1 fill device.

(3) Cipher Text (CT). This places the radio in the Cipher Text encryption mode.

f. **Functions Knob (#7)**. The Functions Knob has nine selections on it; they are OFF, 1, 2, 3, 4, 5, S, F and Z.

(1) [OFF] turns the radio off.

(2) [1, 2, 3, 4, 5] selects system presets 1 through 5.

(3) [Scan (S)] places the Radio in Scan Operation.

(4) [Front Panel (F) or (FP)]. places the radio in Front Panel Mode, permitting access to all system presets and keypad functions.

(5) [Zeroize (Z)] zeroizes all programmed variables, including encryption variables.

g. **Connectors**.

(1) 6-Pin Audio/Fill Connector. The 6-Pin Audio/Fill Connector provides a connection for an optional H-250 handset or crypto fill device that uses a 6-pin connector.

(2) Antenna Connector. The Antenna connector provides 50-ohm antenna port.

(3) Side Connector. The Side Connector provides an interface for various data devices.

(4) Battery Latch. The Battery Latch slides up to unlock battery for removal from RT.

h. **Display Indicator**. The AN/PRC-152 displays shows
operational and programming screens.

    i. **PROGRAMMING SINGLE CHANNEL PLAIN TEXT**. Programming
menus allow for SINCGARS configuration to be performed from the
radio front panel "F". When in Program mode, the radio is
offline and cannot send or receive communication. Make sure
that your Cipher Switch is on Plain Text (PT). SINCGARS
programming involves two menu structures. **System Presets**.
Configures system presets for SINCGARS operation. SINCGARS
Presets contain radio network parameters such as frequency,
squelch, and data rates that define how the radio will operate.
Use the following procedures to program SINCGARS system presets.

        (1) Press [PGM] and select SYSTEM PRESETS> SYSTEM PRESET
CONFIG to start.

        (2) Enter a system preset number (01-99) for the new
configuration.

        (3) Press [ENT] to continue.

        (4) Enter a text description or name for the system
preset number. Any Alphanumeric entry may be added for the
description.

        (5) Press [ENT] to continue.

        (6) Choose SINCGARS as the waveform type that will be
associated with the selected system preset.

        (7) Press [ENT] to continue.

        (8) Choose the SINCGARS operating mode. Choices are
FREQUENCY HOPPING (FH) or SINGLE CHANNEL (SC). A user can
toggle between FH and SC as needed during normal operations.

        (9) Press [ENT] to continue.

        (10) Enter/edit a name associated with the current
SINCGARS preset. Preset Name can be up to nine alphanumeric
characters.

        (11) Press [ENT] to continue.

        (12) Select an Available key from the selected Crypto
type. Choose TEK01.

(13) Press [ENT] to continue.

(14) Select the power level for the preset. Choices are LOW, MED, HIGH, and USER. In the [USER] specified level. Power levels will be different if used in a Vehicular Amplifier Adapter (VAA) this setting is used to set the transmit power level as a function of decibels dB below full power (HIGH). Choices are 0 to 13 dB.

(15) Press [ENT] to Continue.

(16) Select data or voice function on the ports. Choices are DATA, VOICE, or DATA/VOICE. No Voice is possible when radios are configured for data. Choose Voice.

(17) Press [ENT] to continue.

(18) Select the Hopset compartment to be associated with the current preset. Compartment numbers are 01 to 25. After a Loadset is loaded, positions 1-6 will display the net ID for that Compartment. Use the Hopset copy if it needs changing or use the front panel keypad.

(19) Press [ENT] to continue.

(20) Set the Single Channel frequency used for the current preset. Select a frequency from 30.0000 MHz to 87.9750 MHz. This frequency will be used whenever the preset is toggled to SC from FH.

(21) Press [ENT] to continue.

(22) Select the squelch type. Choices are TONE, NOISE, or OFF. Select Tone.

(23) Put Functions knob on Preset 1, the radio is ready for Single Channel-Plain Text Operations.

   j. **SINCGARS CONFIG**. This configures specific net properties for SINCGARS operation.

   k. **Submit a Communications Check**. For any Communications Asset – Follow the detailed operator manual instructions to prepare the equipment for operation. Once the Field Radio Asset is ready for operation, submit a Communications Check following all protocols within the NATO approved Basic Radio Principles.

If any technical concerns are identified while conducting the Communications Check, retrace the preparation steps within the operator manual then perform a communications check again.

    l. **Preventive Maintenance**. The Performance of the AN/PRC-152 is dependent on equipment that performs optimally. Preventative Maintenance is of primary importance in order to avoid equipment Failures. **Preventive maintenance** is the systematic, scheduled care and inspection of equipment to prevent equipment failure and to reduce downtime. Preventative Maintenance consists of keeping the equipment clean, dry and dust-free. Use a soft brush, a moist sponge, and a cloth to keep equipment clean.

      (1) **Types**. There are three types of Preventative Maintenance Checks and Services Daily, Weekly and Monthly.

        (a) Daily. A Daily Preventative Maintenance Check should be done when the equipment is in use. You should make sure that the Radio is operational and perform a self-test to check communications using system presets.

        (b) Weekly. A weekly Preventative Maintenance Check should be done when the equipment is in standby condition, or when the equipment is in use. A weekly PM check you will check the following.

- Antenna. Check for breaks or strains; repair or replace as required.

- Connectors. Inspect for dirt, corrosion or damage. If dirty clean with a soft brush.

- Protective Caps. Ensure Protective Caps are in place if connectors are not in use.

        (c) Monthly. A Monthly Preventative Maintenance check should be done when the equipment is in use. Check the Hold Up Battery (HUB) on a monthly basis. While checking the HUB capacity, ensure remaining HUB life is sufficient for mission duration. If it needs to be replaced, replace it.

    m. **Corrective Maintenance**. For any radio equipment malfunction or damage which is above and beyond the scope of Operator's capability, the asset will be submitted to a maintenance facility for repair. **Corrective Maintenance** is a task performed to identify, isolate, and rectify a fault so that the failed equipment, machine, or system can be restored to an

operational condition within the tolerances or limits
established for in-service operations.

REFERENCE(S):
MCRP 3-40-3_ Multi-Service Communications Procedures and
Tactical Radio Procedures in Joint Environments
TM 11-5820-890-10-6 Operator's Pocket Guide for SINGARS Ground
1COM Radios
MCRP 3-40.B Radios Operator's Handbook
MCRP 2-25A Reconnaissance Reports Guide
MCWP 3-11.3 Scouting and Patrolling