Communications

TRAINING

**Introductory User Communications
Training – Review
(ICUT)**

Available Training Resources

Learning Management System (LMS)

About LMS | Home > **Modules** > Courses

Available Courses

Filter by Functional Area

Communications

✔ **Introductory Communications User Training (ICUT)**
This is the initial training for all CAP personnel using CAP radios.

RDP Transportable HF Radio Set-up and Operation
Course contains three informational slides and an instructional vi

Specialty Track 214 - Communications, Master Rating
For Cadets and Senior Members. This is the Communications Mas

Specialty Track 214 - Communications, Senior Rating
For Cadets and Senior Members. This is the Communications Sen

✔ **Specialty Track 214 - Communications, Technician Rating**
For Cadets and Senior Members. This is the Communications Tec

T-10 Station Authorization Module
T-10 Station Authorization reference material and quiz.

T-11 Intra Squad Radio ISR Module
T-11 Intra Squad Radio reference material and quiz.

T-4A Basic ALE Users Training Module
T-4A Basic ALE Users Training Reference material and Quiz.

Overview

This is a review / overview of the ICUT radio operators requirement and practical evaluation

- Rules and Regulations
- CAP Communications Systems
- Radio Operations
- Radio Procedures
- Message Protocols
- Do's and Don'ts

Rules and Regulations

All CAP Radio Operators shall be familiar with and comply with all applicable CAP Rules and Regulations. The primary CAP Regulations are:

✓ CAPR 100-1, "CAP Communications"
✓ CAPR 100-3, "Radiotelephone Operations"

For Mission Radio Operators, also refer to the appropriate Specialty Qualification Training Records (SQTR).

CAP Radio Operator Authorization

- Communications Orientation Class Requirements

  o Any member can obtain a authorization to use the CAP radio system by completing the

  Introductory Communications User Training – ICUT

  Found At eServices – Learning Mgmt System – ICUT

  Consists of 11 on-line modules plus a required Skills Evaluation by a SET evaluator

- Two Mission Qualifications are available for missions
  o MRO – Mission Radio Operator
  o CUL – Communications Unit Leader

What's The Role?

Get the message through

CAP radio systems are to operate in times when all other methods of communication fail

Dispite --

Disasters, power outages, cell system failures, internet outage, land line phone systems

Civil Air Patrol Communication Systems

Short Range Communications
❖**Ultra-High Frequency (UHF)**
➢**Inter-Squad Radios (ISR)**

Medium Range Communications
❖**Very-High Frequency (VHF)**
➢**Hand-Held VHF-FM Radio**
➢**Hand-Held VHF-AM Radio**
➢**Mobile VHF-FM Radio**
➢**Mobile VHF-AM Radio**
➢**Airborne VHF-FM radio**
➢**Airborne VHF-AM Radio**

4 Systems Utilized today

Plus 1 more

Long Range Communications
❖**Very-High Frequency (VHF)**
❖**High Frequency (HF)**
➢**VHF-FM Airmobile**
➢**VHF-FM Repeaters**
➢**HF-SSB (Single Side Band)**

CAP Communications also includes:

- Telephones - Landline and cellular telephones can be used in addition to radio communications.

- INTERNET - E-mail communications, information web pages, internet phone and other methods of communication over the internet.

- GOAL - To have a readily available and comprehensive communications network using a variety of assets.

Radio Operation

Specific Radio Information will come later.

Common Controls:
- **Power / Volume**
- **Squelch (May or may not be adjustable)**
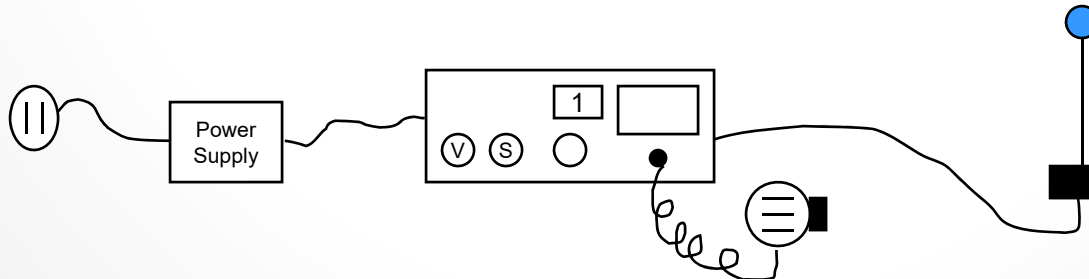- **Channel Selector**
- **Mike with Push to Talk Switch (Release to Listen)**

Radio Setup
- **Radio Transceiver (VHF-FM, HF-SSB, SAR)**
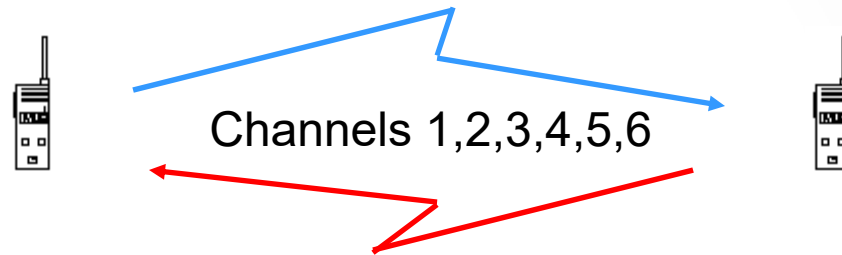- **Power Supply (110 VAC or 12 Volt DC, 24 volt in aircraft)**
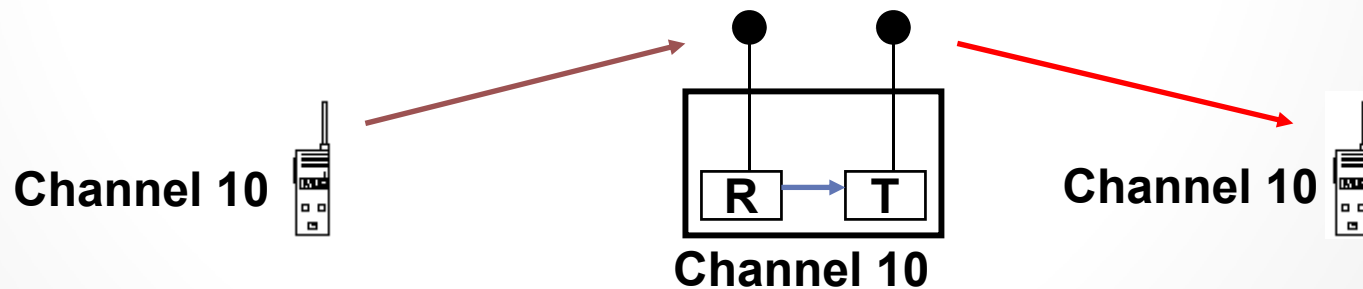- **Antenna (Vertical, Magnetic Mount, Dipole)**

Voice Operating Modes

SIMPLEX

Single Frequency - One Station at a Time

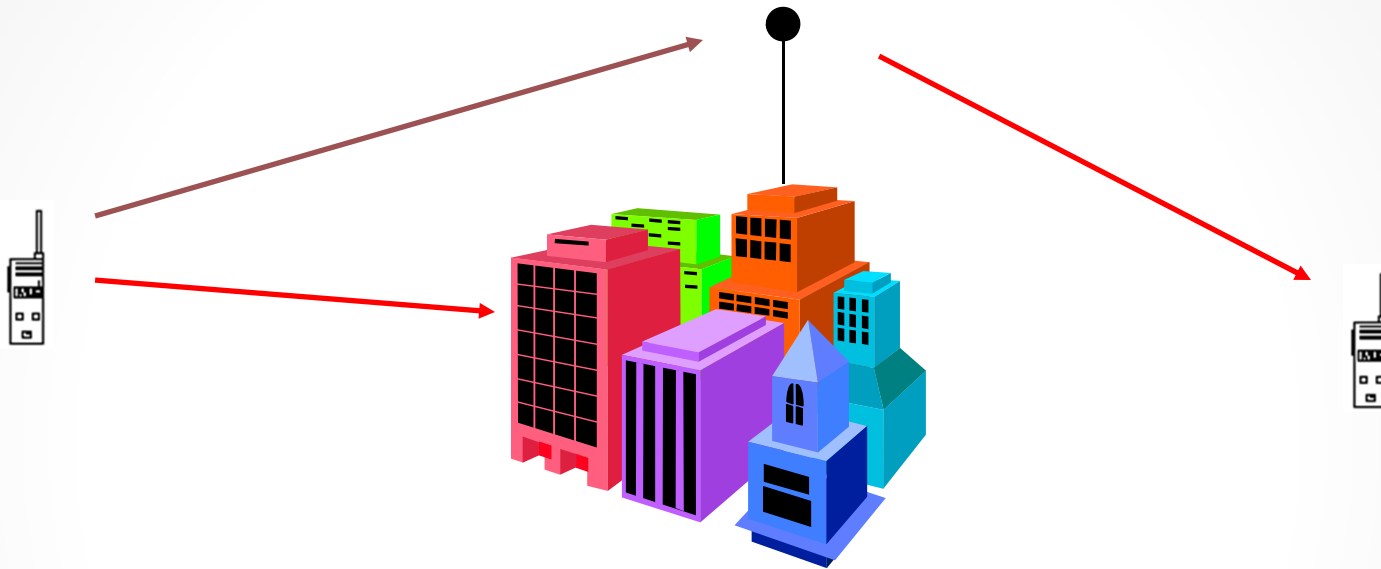Channels 1,2,3,4,5,6

REPEATER

Two Frequencies - One Station at a Time

Channel 10

R → T

Channel 10

Channel 10

A "Channel" consist of a transmit frequency, a receive frequency, and sub-audible tones that are not normally heard.

Repeater Operation

A repeater increases the range of land stations due to its high profile location.

Airborne repeaters function the same way.

Radio Operation

CAP has 6 simplex VHF-FM channels:

➢ **CC-1 (Command Channel)**
➢ **CC-2**
➢ **Air 1**
➢ **Air 2**
➢ **Guard1 or "Guard"**
➢ **TAC 1 or Tactical**

Plus the repeater frequencies.

Types of Functional Call Signs

- ➤ **MISSION BASE.**
  West Houston Mission Base

- ➤**Ground Team 1, UDF Team 1, etc.**

- ➤**Flight Line**

- ➤**IC, Safety, Operations, Com, Medical, etc**

- ➤**HIGHBIRD**

Standard call signs
      CAP0137 (KIWS van)

Radio Operator Responsibilities

For both Send & Receives
- **GET THE MESSAGE THROUGH**

6 Habits of a Good Radio Operator
- Listen
- Speak clearly
- Annunciate your words.
- Speak slowly
- Remain calm no matter what happens - Never Panic
- THINK - "Use Your Head"

Message Protocol

All messages have 4 parts

- Who I Am Calling

- Who I Am

- The Message

- Termination

Message Protocol

Initial Contact Example

- **Who I Am Calling**
  - KIWS Mission base
- **Who I Am**
  - This is CAP0137
- **The Message**

- **Termination**
  - Over

Example with Information

- **Who I Am Calling**
  - KIWS Mission base
- **Who I Am**
  - This is CAP0137
- **The Message**
  - I have located the target, coordinates to follow
- **Termination**
  - Over

Transmission Protocol

Typical Message Transmission

- Listen for "clear" frequency

- Establish Contact

- Wait For Acknowledgement

- Send The Message

- Confirm Message Was Received

- Release the frequency

Transmission Protocol

Typical Message Transmission

- **Listen for "clear" frequency**

- **Establish Contact**
  - KIWS Mission base this is Ground Team 1 "over"

- **Wait For Acknowledgement**
  - GT1 this is Mission Base "over"

- **Send The Message**
  - Mission base this is GT1, we have located the target "over"

- **Confirm Message Was Received**
  - GT1 this is mission base, understood you have located the target "over"

- **Release the frequency**
  - GT1 "out"

    You are not done until the message receipt has been confirmed

PROWORDS

Prowords are a special set of words used for clarity and brevity in communications.

Some of the most commonly used prowords are:

- THIS IS   Preface to your call sign
- ROGER   Last transmission received OK
- OVER   I'm done, go ahead
- OUT   I'm done, bye
- WAIT   I will be back in a few seconds
- SAY AGAIN   Say that again
- CORRECTION   Oops! I really meant to say
- WILCO   ROGER <u>and</u> I will comply
- AFFIRMATIVE   Yes

Distress and Emergency Signals

MAYDAY   Distress

PAN   Urgency   }   **Supercedes all Priority or Routine Traffic**

SECURITE   Safety

Repeat each word 3 times:
"PAN PAN PAN this is …"

Phonetic Alphabet

A	Alpha	N	November
B	Bravo	O	Oscar
C	Charlie	P	Papa
D	Delta	Q	Quebec
E	Echo	R	Romeo
F	Foxtrot	S	Sierra
G	Golf	T	Tango
H	Hotel	U	Uniform
I	India	V	Victor
J	Juliet	W	Whiskey
K	Kilo	X	X-Ray
L	Lima	Y	Yankee
M	Mike	Z	Zulu

Numbers

Pronunciation

1 WUN

2 TOO

3 TREE

4 FO-WER

5 FIFE

6 SIX

7 SEVEN

8 ATE

9 NINER

0 ZERO

When writing the numbers, do not write them down the way they are pronounced.

For example, do not write "one" as "wun" or "five" as "fife." Write them as "one" and "five."

I SPELL / FIGURES / INITIALS

- Use "I SPELL" for pronounceable words
  --- PIZZA "<u>I SPELL</u> PIZZA PAPA INDIA ZULU ZULU ALPHA   PIZZA"

- Use "FIGURE(S)" AND "INITIAL(S)" for non-words
  --- N516F "<u>INITIAL</u> NOVEMBER <u>FIGURES</u> FIVE ONE SIX <u>INTIAL</u> FOXTROT"

CORRECTION

☑ **Use proword "CORRECTION" to correct a mistake**
Example:
   "… Turn right at next corner … <u>CORRECTION</u> Turn left at next corner…"

SENDING NUMBERS

- Prowords "FIGURES", "DECIMAL", "TIME", "INITIALS"

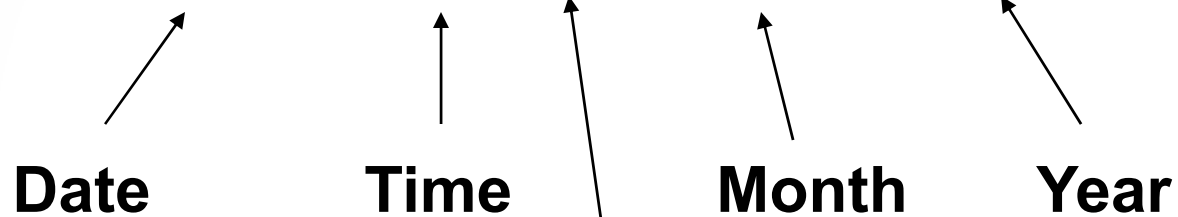|		
Digit-by-Digit Not "Seven Fifty"	750	"FIGURES SEVEN FIVE ZERO"
Niner Not Nine	849	"FIGURES EIGHT FOUR NINER"
Decimal Point	14.5	"FIGURES ONE FOUR DECIMAL FIVE"
Z Time	1635Z	"TIME ONE SIX THREE FIVE ZULU"
Initial And Figures	E21	"INITIAL ECHO FIGURES TWO ONE"
One Figure and Initial	3-A	"FIGURE THREE DASH INITIAL ALPHA"

Date-Time Group

16 0218Z APR 97

Date   Time   Month   Year

Date <u>and</u> Time in ZULU

Prohibited Operating Practices

- Violation of Radio Silence
- Personal Conversation
- Transmitting in a Net without permission of NCS
- Lack of identifying call sign
- Excessive tuning and testing
- Use of Amateur Radio or Citizens Band frequencies for CAP business, and Vice-Versa.
- Use of 10 codes or Amateur Radio Q Signals
- Use of individual's names or release of personal identification information

Floor Demos / Practical

- Person to person relay – simple
  - o "blue dog"
- Person to person relay – not simple
  - o "GT1 is located at the What-A-Burger 789 Jonas road 1.3 miles past Highway 6"
- Message form Team 1
- Message form Team 2

ICUT EVAL REQUIREMENTS

RADIO OFF

- Check AC power cord and antenna cable

- Turn the radio on

- Adjust the volume

- Change channel – at least two different zone and channel combinations

- Adjust Hi/Low power

- Turn scan on and off

- Set squelch to "squelch select"

- Instructor Demo: Accidental "Scan ED", "C/S" or "KY SEL" procedure.

ICUT EVAL REQUIREMENTS

RADIO ON

- Turn off radio

- Connect Microphone (If applicable)

- Demonstrate holding micro- phone 2-3 in. from mouth

ICUT EVAL REQUIREMENTS

OPS

- Send informal tactical message successfully

- Who will the message go to? (Importance of delivery)

- When are MAYDAY SECURITE, and PAN-PAN used?

- Give at least 2 of 10 prohibited practices

- Define tactical call signs, functional designators, & when each are used

- Define "Directed Net" and "Free Net"

Johnson VHF Mobile

https://www.youtube.com/watch?v=sgjs TlwLbZU

Johnson VHF Mobile

Change Zone and Channel

- Zone and Channel are found on the right side of the display
- Zone is the number on left
- Channel is number on right
- Change the Zone and Channel using the Select knob below them

Change Zone and Channel

- Change the Channel by pressing the Select button to position the bar above the channel

Johnson VHF HT

5100 ES 7/800 MHz | VHF | UHF

Featuring AES encryption and the AMBE+2 vocoder which provides loud and clear audio, the 5100 ES portable radio is durable and interoperable.

VHF Freq Designators

ZONE 1 TACTICAL		
Channel	**Title**	**Definition**
1	CC1	Command and control
2	CC2	Command and control
3	AIR 1	Air to Air
4	AIR 2	Air to Air
5	GUARD 1	Emergency/Hailing
6	TAC 1	Tactical Ch 1
7	R65 CAT	Rec Only ODD# Repeaters
8	R66 CAT	Rec Only EVEN# Repeaters
9	R67 ABNCH3	Airborne repeater channel 3
10	R68 ABNCH 4	Airborne repeater channel 4
11	R69 ABNCH5	Airborne repeater channel 5
12	R70 GND CH12	Ground Repeater channel 12
13	R63 GND CH 7	Ground Repeater channel 7
14	R64 GND CH 8	Ground Repeater Channel 8

ZONE 2 LAWGARPTRS		
Channel	**Title**	**Definition**
1	ALEXANDRIA	Alexandria analog repeater
2	Baton Roug	Baton Rouge analog repeater
3	Houma	Houma analog repeater
4	JENNINGS	Jennings analog repeater
5	LACOMBE	Lacombe analog repeater
6	LAFAYETTE	Lafayette analog repeater
7	LAKE CHARL	Lake Charles Analog Repeater
8	MONROE	Monroe analog repeater
9	MORGANCITY	Morgan City analog repeater
10	NEWORLEANS	New Orleans analog repeater
11	SHREVEPORT	Shreveport analog repeater

Other Zones

Zone 3 – Digital Repeaters

Zone 5 – Weather

Zone 7 – Liasion channels

Zone 16 – Digital Tactical

HF Micom3 wALE

Van HF Antenna

Antenna In NVIS Config

WIMA Antenna Tuner

Ground Sortie

Establish a forward communication base in the field with both VHF and HF capability

- **Challenge**
  - o Determine - Suitable location
  - o Determine - Source of power
    - Batteries, generator, power grid
  - o Assemble the comm post
  - o Fly the antennas
  - o Operate the Station

ES Signoffs Covered
L-0001
L-0002
L-0003
L-0005
L-0014

HF RDP
Rapid Deployment Package

Complete HF radio system in a "Go Kit"

Includes

        HF radio – with ALE
        Antenna Tuner
        Antenna
        Cables & Ground rods
        Power supplies – AC or DC

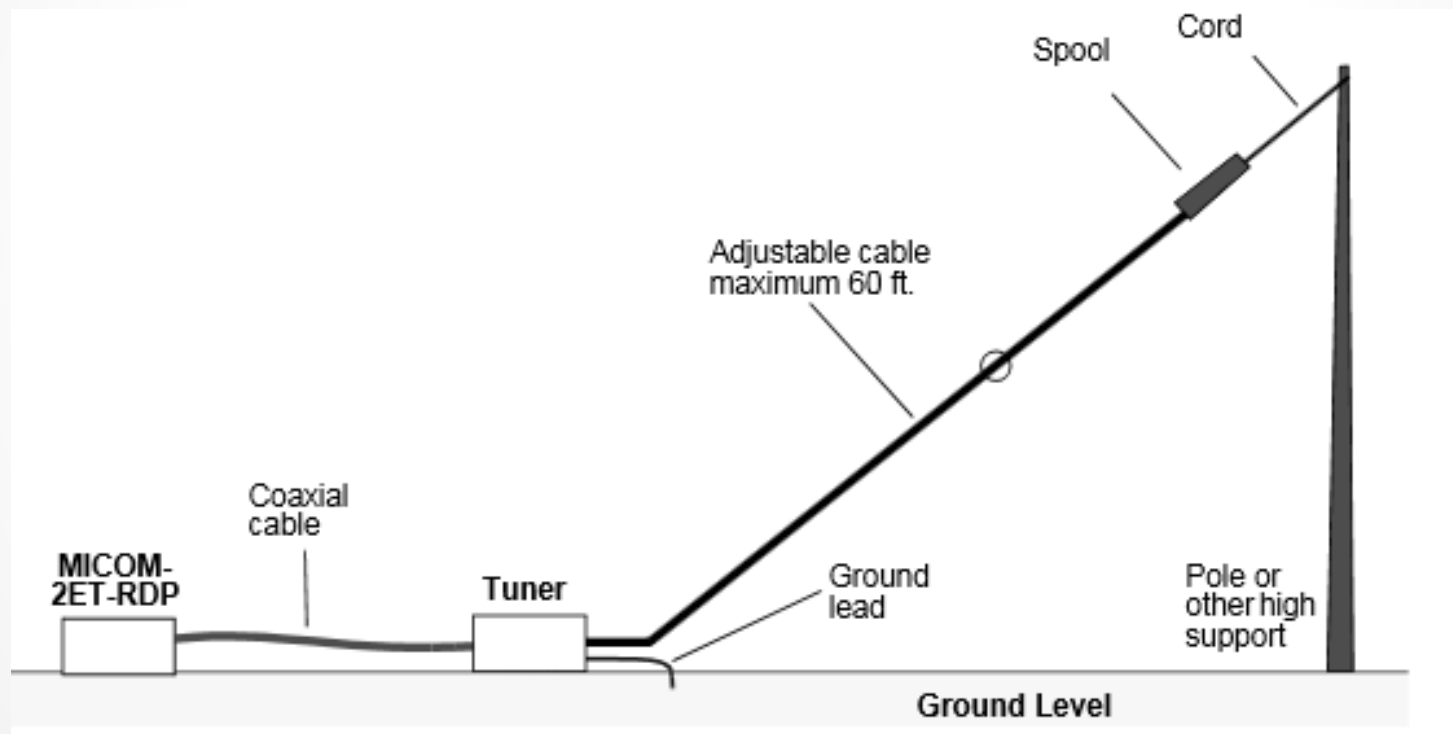**Just set up and add power**

HF RDP - Radio Parts
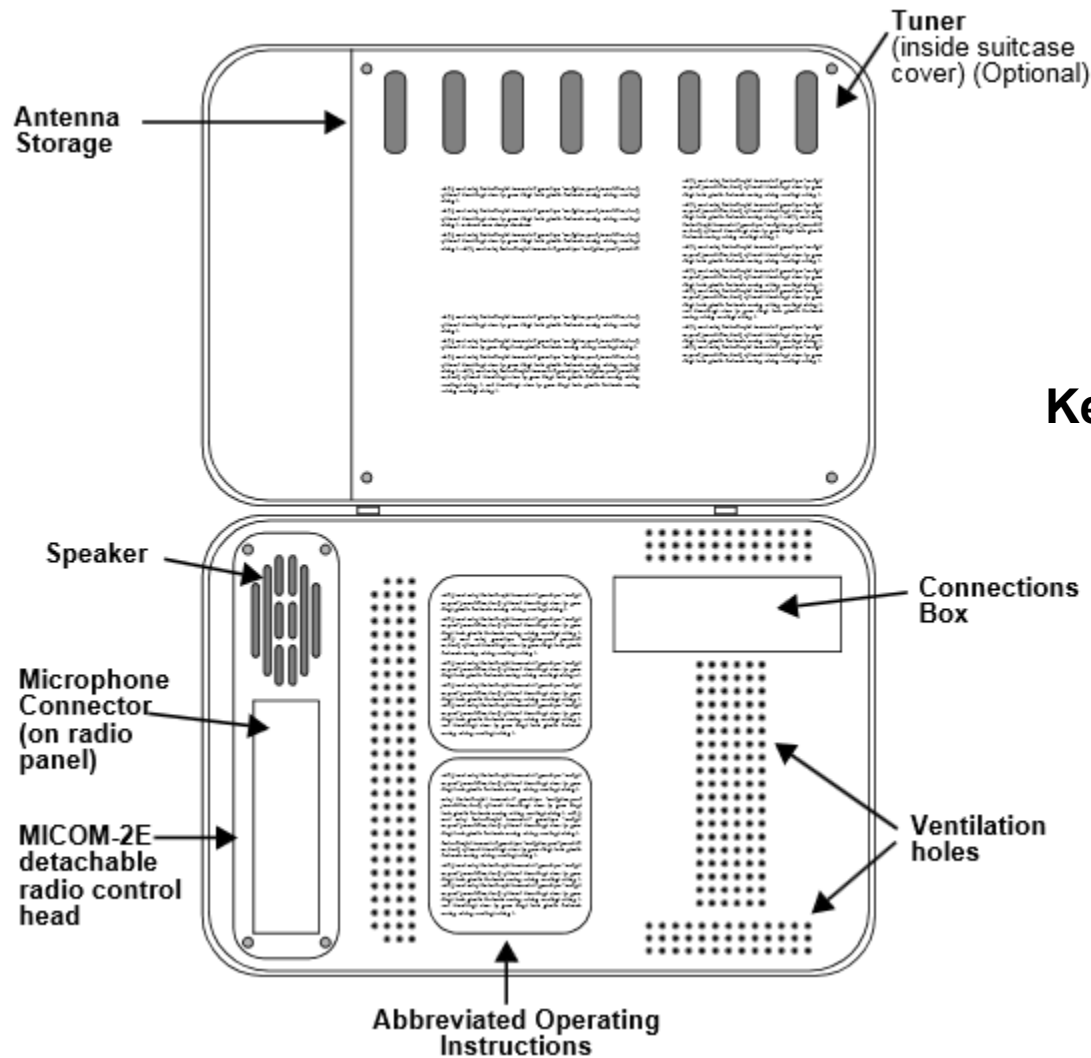
Key Parts
Radio
Antenna Tuner
Antenna
AC/DC power supply

HF RDP - Antenna

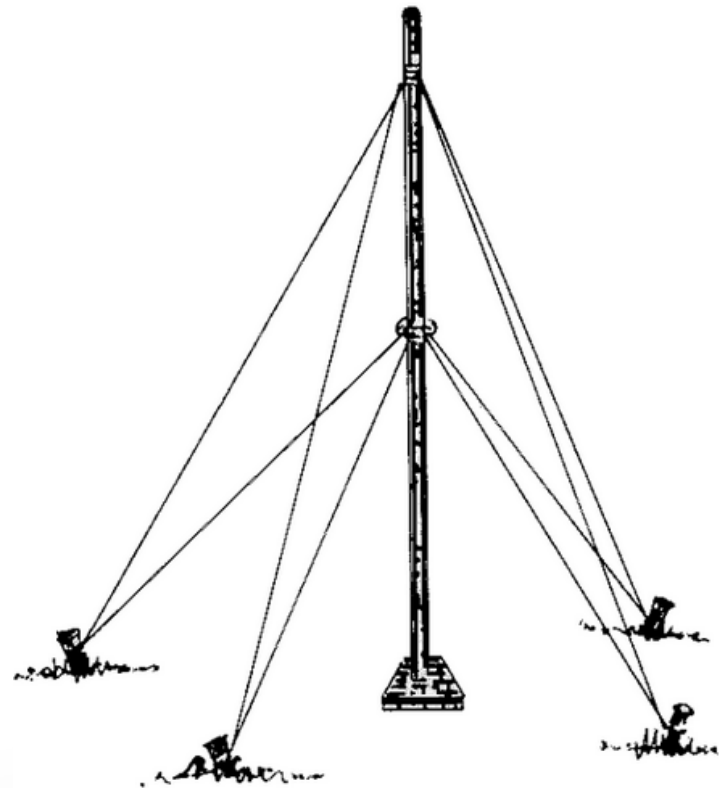**RDP - Sloping Long Wire Antenna configuration**

AB-155 Antenna Mast

40 ft Antenna Mast that assembles on ground and tilt/lifted into vertical position
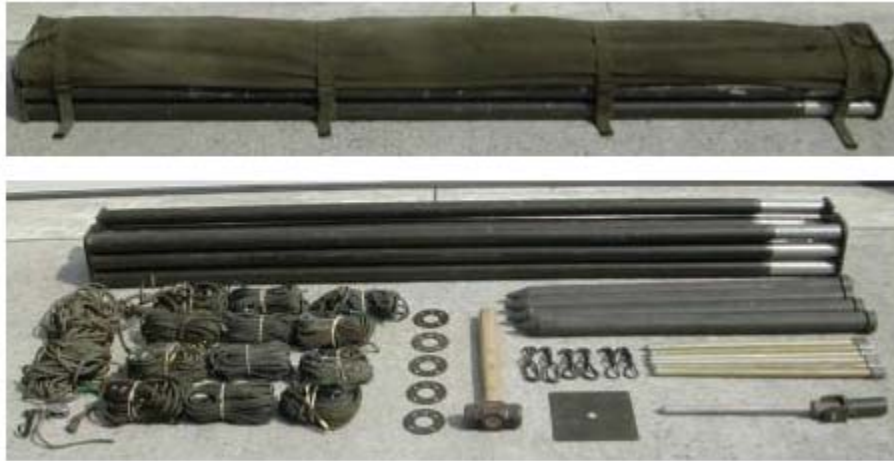
Also referred to as a GRV-4

VHF Antennas

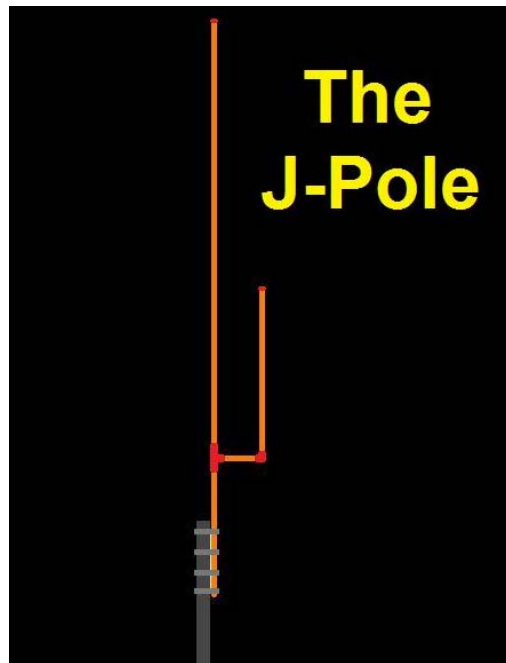**For Comm Base – Get the antenna as high as possible**

Mag Mount

J-Pole Base

J-Pole Flexiable