



# Portable Radio Fundamentals

How to use a portable, hand-held radio effectively in an emergency



# Objectives:

*After completing this unit, you will be able to:*

- **Use a portable radio effectively in an emergency**
- **Identify Radio features and controls**
- **Using correct operating procedures**
- **Including standard procedural words and phonetics**

# *How do I USE a 2-way Radio?*

- **DIFFERENT MAKES** and models of radios vary, so...
- **READ the INSTRUCTIONS**
- **BECOME FAMILIAR** with the controls on YOUR radio!



# *Portable Radio “Anatomy”*

## Power On-Off, Switch

- Is combined with volume control on some models
- Or “push-button on others
- First of all, make sure the radio is “turned on”



# Portable Radio “Anatomy”



## Channel Selector

(If your radio has one)

- Select your “channel”
  - Develop a plan ahead !
- “Up-Down” arrows
- Or a rotating “knob”



# *Portable Radio “Anatomy”*

## Volume control

- Adjust the volume control until you can “hear” other users.



# Portable Radio “Anatomy”

## “Squelch” control



- Either a concentric ring
  - under the Volume control
- Or a separate knob of its own
- “Open” until you hear “white noise”
- “Close” just until noise disappears



# *Portable Radio “Anatomy”*

## “Push-To-Talk”

### (PTT) Switch

- **PUSH to TALK**
- **Let go to LISTEN**
- **LISTEN more than you talk!**
- **If somebody seems in control of things, LISTEN to them!**





# *Portable Radio “Anatomy”*

## Speaker-Microphone

- To SPEAK, Push-To-Talk
- SPEAK in a NORMAL tone
- To LISTEN, Just LET GO
- LISTEN more than you talk!



# Portable Radio “Anatomy”

## Batteries or Battery Pack

- Use AA or AAA alkaline



- Or a rechargeable pack
  - If supplied with the radio
  - Make sure the pack is charged
- Carry spare batteries!



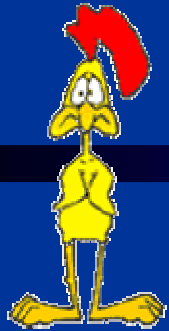
Maha MH-C204F  
AA battery charger

# Portable Radio “Anatomy”

## Antenna (flexible or telescoping)

- Extend fully
- Hold vertical (best reception)
- Replace or repair
  - If visibly damaged





*A 2-way radio is not  
“Like a telephone...”*

## BECAUSE:

- You can't hear anyone if YOU are talking!
- So, no one else can speak when YOU talk!
- If EVERYONE talks, NOBODY understands!
- Which results in CHAOS %^~#&\*!
- SO...

# *When Do You Speak?*

- **Speak ONLY if you have to**
  - Then **KEEP IT SHORT**
- **The MOST important in using 2-way radio effectively is...**
- **LISTENING, Not TALKING!**
- **If someone seems in control of things, LISTEN to them!**

# What is a “Controlled Net?”

- Some one “takes command” to control / manage what is going on
  - Radio users must call “Control” to get permission before calling anyone else.
- Use a Controlled Net when more than four people are “on the air”.

# Why?



It enables “Control”  
(the person in charge) to:

- **PRIORITIZE** resource requests
- **QUICKLY** handle multiple situations
- **RECORD** what happens

# WHO is “Control?”

It could be ANYONE, even you!





# “CONTROL’S” JOB IS TO:

- **MAINTAIN radio discipline by:**
  - Setting the example
  - Prioritizing messages and requests
  - Handling all radio traffic efficiently
- **TRACK what’s going on...**
  - Write down everything that happens...
- **REPORT to the Emergency Response Team Coordinator or Incident Commander**

# You MUST write things down!

- Because it's likely that you won't remember everything in your head.
- Especially *when it gets really busy!*
- Nor can you effectively brief the Incident Commander from memory
- Or accurately reconstruct what happened some time days later...

## ***“CONTROL” LOG***

- **WRITE** down names of staff or officials for whom you send messages
- **Make a line entry for each item on a log.**
  - **This is absolutely necessary**
    - In case person wanders off before you get a reply or you need to get more information
  - **Helps eliminate duplicate requests for the same resources or information**

## *List in chronological order...*

- **Who has a problem or information**
- **Situation update / tasks assigned**
  - Problem identification and location
  - Progress of evacuation,
  - Resources available, assigned, out of service or in transition
  - **Personnel safety / accountability**
    - Brief Team Leader and Incident Commander
    - Becomes part of official incident record.

# Your “Job” as a volunteer who is an occasional radio user

- **PARTICIPATE** in training exercises
- **LEARN** and use correct procedure
- **LISTEN** to the radio all the time
- **PAY ATTENTION** to instructions
- **Be BRIEF** when you talk on the radio

# Participating in a Controlled “Net”

- **Respond ONLY to “Control”**
  - Get permission before contacting anyone
- **Answer PROMPTLY**
  - Monitor the radio continuously
  - Answer immediately if called
- **Don’t leave “air” without checking out!**
  - Otherwise, “Control” wastes time trying to call or locate you when you are not there

## User Names - “Unit IDs”

### Identify yourself by your:

- LOCATION and ASSIGNMENT such as:  
“Stairwell Ten, Evac Chair”
- This enables “Control” to manage resources or tasks without regard to WHO is at any location, so that events can be logged easily
  - Use your Unit ID **CONSISTENTLY**
  - Contact “Control” or others by **THEIRS**
  - Listen for **YOURS**

## Call Correctly:

- **LISTEN! before transmitting**
  - Do not interfere with radio traffic in progress
- **Contact “Control” by saying:**  
**“Control, THIS IS <your unit ID>, Over.”**
- **Control acknowledges**  
**“<your ID> GO AHEAD”**
- **Then you can speak... Please keep it brief**



## *To call someone else*

- **SAY** the unit ID of the person you want to call,
- Then say **'THIS IS'** . . . .
- Followed by “<your ID>
- Then say, **“OVER>”**

**Example: “P2 Garage, this is P2 North Elevator, Over”**

# Acknowledge Calls Correctly:

When you hear a call to you reply:

- **“THIS IS”** followed by “<your ID>”
- Then tell the unit calling you that it is OK to proceed with their message by saying:
- **‘GO AHEAD’**

**“THIS IS P2 GARAGE, GO AHEAD”**

# RADIO OPERATING PRACTICE

Practice the “ABCs:

” **ACCURACY+ BREVITY= CLARITY!**

- **Idle chatter has no place in a controlled net!**
- **Establish initial contact with ‘Control’ by stating your unit ID only**
- **Wait for ‘Control’ to recognize you before transmitting any further**
  - *If you speak further without being recognized, you may “double” over someone who then must repeat their message*

# RADIO OPERATING PRACTICE

(continued)

- **THINK BEFORE you speak**
  - **Keep your transmissions short**



## **STOP transmitting if you stop talking**

- **Release Push-to-Talk, otherwise you make “dead air” so that no one else can speak**
- **DON'T call repeatedly**
  - **If Net Control doesn't answer you, wait for pending traffic to finish before trying again**
- **If truly urgent, disregard**

# **RADIO OPERATING PRACTICE**

(continued)

- **WAIT a few seconds** before pushing to “talk” and between phrases so others can break in
- **It is OK** to interrupt, IF you have important info
  - That's why you leave gaps between transmissions
- **When necessary to interrupt, speak only long enough to “IDENTIFY AND SAY WHY”**

**Example: “North Team Leader, info.”**

# ***RADIO OPERATING PRACTICE***

(continued)

- **Use no 10-codes or jargon !**
- **Use PLAIN LANGUAGE ONLY**
  - Avoid jargon or technical terminology unless it is deemed **OPERATIONALLY NECESSARY!**
- **USE short simple phrases**
  - Keeping transmissions “short” helps the listener who is recording the log

# ***RADIO OPERATING PRACTICE***

(continued)

- **CLARIFY**
- **REPEAT Critical Information**
- **CONFIRM correct**

# ***RADIO OPERATING PRACTICE***

(continued)

- **WAIT** for acknowledgement before speaking, don't take up air time with a long transmission until you are certain that you have the other operator's attention
- **ACKNOWLEDGE** transmissions to you
  - This avoids having to repeat the message. 'Control' then knows you are ready to continue with your assignment, releasing the frequency



# ***RADIO OPERATING PRACTICE***

(continued)

- **Answer questions directly; do not explain**
- **If amplifying information is vital to ensure that traffic is fully understood, be brief**
- **Let 'Control' or the requestor ask for details**
- **ASK who a message is for if you don't know**
- **Let third parties speak directly to each other**

# RADIO OPERATING PRACTICE

(continued)

- **Wait a fraction of a second after pushing the “talk” button and before speaking**
- **This avoids “clipping” off first syllable as radio changes over from its receive state to transmit**

# Don't speak louder in a noisy environment

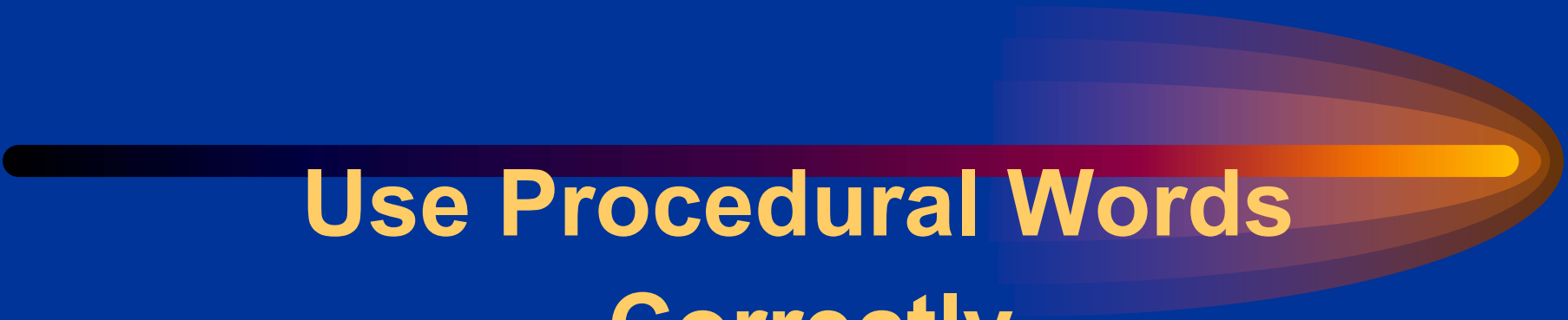


If you speak louder than is needed for normal speech, the radio will distort your voice, *reducing* intelligibility.

# In Noisy Environments

## Preventive Steps:

- Use earphone or headset (if you have one)
- Turn down volume - don't add to noise level!
- Shield microphone from the wind
- Speak **ACROSS** the microphone
  - Use a normal speaking voice



# Use Procedural Words Correctly

- **“Prowords” help expedite radio messages and reduce copying errors**
- **They are effective ONLY if everyone understands and uses them correctly**

# The “Basic Four”

*Everyone who uses a 2-way radio should learn and use these:*

- **“THIS IS”** - Used to identify who is calling
- **“OVER”** - Means *“I have finished speaking and it’s now your turn”*
- **“GO AHEAD”** - Means *“I’m ready to copy”*
- **“OUT”** - Means - *“I am finished and expect no reply”*

The station who initiates the contact always **TERMINATES** it.

# Proword Recap

- “OVER”
  - Leaves no doubt whose turn it is...
- “OUT”
  - Tells everyone the contact has ended.

*Using “Over and Out” together is unnecessary,  
use either one, or the other.*

## *Some More Prowords....)*

- **"COPY"** - Means OK, received and understood
- **"AFFIRMATIVE"** or **"NEGATIVE"** Use instead of "yes" or "no" because its sound is distinctive and meaning clear, even under noisy operating conditions.
- **"SAY AGAIN"** Used to request a word or phrase be repeated from the last known word preceding or referenced, for example:

**'SAY AGAIN ALL AFTER...<known word>'**



# More Prowords....)

- **“CORRECTION”** - I made an error and am transmitting again from after the last correct word...
- **“CORRECT?”** - Am I Correct?
- **“CORRECT (AFFIRMATIVE)”** - You are correct.
- **“WAIT”**
  - Cease transmission until told to **“Go Ahead”** by ‘Control’
  - Example: **“Fourth floor acknowledged, WAIT,... Evac Chair make your call”**

# Yes, more useful Prowords...

But, thank goodness we are almost done!

- **“I SPELL”** - Copy as I spell phonetically
- **“FIGURE(S)”** - Copy numbers following
- **“INITIAL”** - Single letter follows
- **“MIXED GROUP”** - following Group contains both numbers and letters
- **Speak SLOWLY and DISTINCTLY!**

# International Telecommunication Union (ITU) Standard Phonetics

A - Alpha

B - Bravo

C - Charlie

D - Delta

E - Echo

F - Foxtrot

G - Golf

H - Hotel

I - India

J - Juliet

K - Kilo

L - Lima

M - Mike

N - November

O - Oscar

P - Papa

Q - Quebec

R - Romeo

S - Sierra

T - Tango

U - Uniform

V - Victor

W - Whiskey

X - Xray

Y - Yankee

Z - Zulu

# TIME FOR QUESTIONS

