

CERT Field
Communications
Handbook
Cupertino Citizens Corps

16 February 2020

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Rev: 200216

Notes

1 Contact Information

Telephone Numbers

Fire, Ambulance, other Emergency	9-1-1, or 408-299-3233
Cupertino City Office:	408-777-3200
Citizens Corp Coordinator:	408-215-8459
CCC Department	
CARES Emergency Coordinator	408-839-8798
MRC Emergency Coordinator	
Cupertino Public Works Support	
Cupertino Public Works Support (After Hours)	408-299-2507
Union Pacific Railroad, Gate Crossing problems	800-848-8715

2 Channels and Frequencies

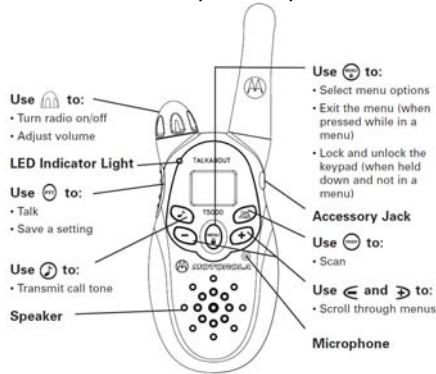
Location	Channel/Tone	Notes
Monta Vista ARK	1 / 1	2W, Zone 1 CERT Net
Regnart ARK	2 / 2	2W, Zone 2 CERT Net
Garden Gate ARK	3 / 3	2W, Zone 3 CERT Net
Lawson ARK	4 / 4	2W, Zone 4 CERT Net
DeAnza ARK	5 / 5	2W, Zone 5 CERT Net
Creekside ARK	6 / 6	2W, Zone 6 CERT Net
EOC/Comm 469	7 / 7	2W, Zone 7 City Access
CERT TAC 1	8 / 8	0.5W
CERT TAC 2	9 / 9	0.5W
CERT TAC 3	10 / 10	0.5W
CERT TAC 4	11 / 11	0.5W
CERT TAC 5	12 / 12	0.5W
CERT TAC 6	13 / 13	0.5W
CERT TAC 7	14 / 14	0.5W

3 Emergency Alert System, stations of interest

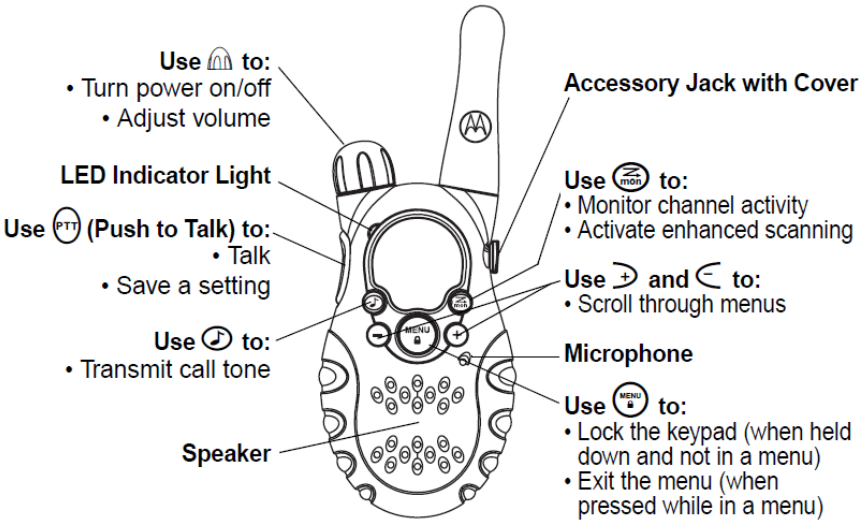
KCBS	740 KHz	LP1, National Primary EAS Station
KFBK	1530 KHz	CA State Primary EAS Station
KLIV	1590 KHz	Public AM Station, a CNN affiliate
WQGH344	1670 KHz	Cupertino Community Radio

4 FRS Radios

4.1 Motorola Talkabout T5000, T5500, T5550



4.2 Motorola Talkabout T5900, T5920, T5950



4.3 Common T5000 FRS Radio Controls

Almost all FRS/GMRS hand-held radios have the same basic operating controls. The following describe how to operate these radios:

Turning the radio on and off

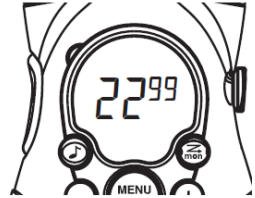
1. Turn top-left knob clockwise to turn the radio on and counter-clockwise to turn the radio off.
2. The radio chirps and the display briefly shows all feature icons available on your radio.
3. **For T600 FRS radios:** Press and hold the ^{MODE} button (top-left) to turn the radio On and Off.

Set the Volume

4. Press and hold (MON) (monitor button) while rotating top-left volume control until you reach a comfortable listening level.

Selecting the Channel

5. With the radio on, press the (MENU) button. The current channel flashes (larger number on the display, 22 in this example).
6. Press the (-) or (+) buttons to select the channel.
7. Press (PTT) to save the channel setting.



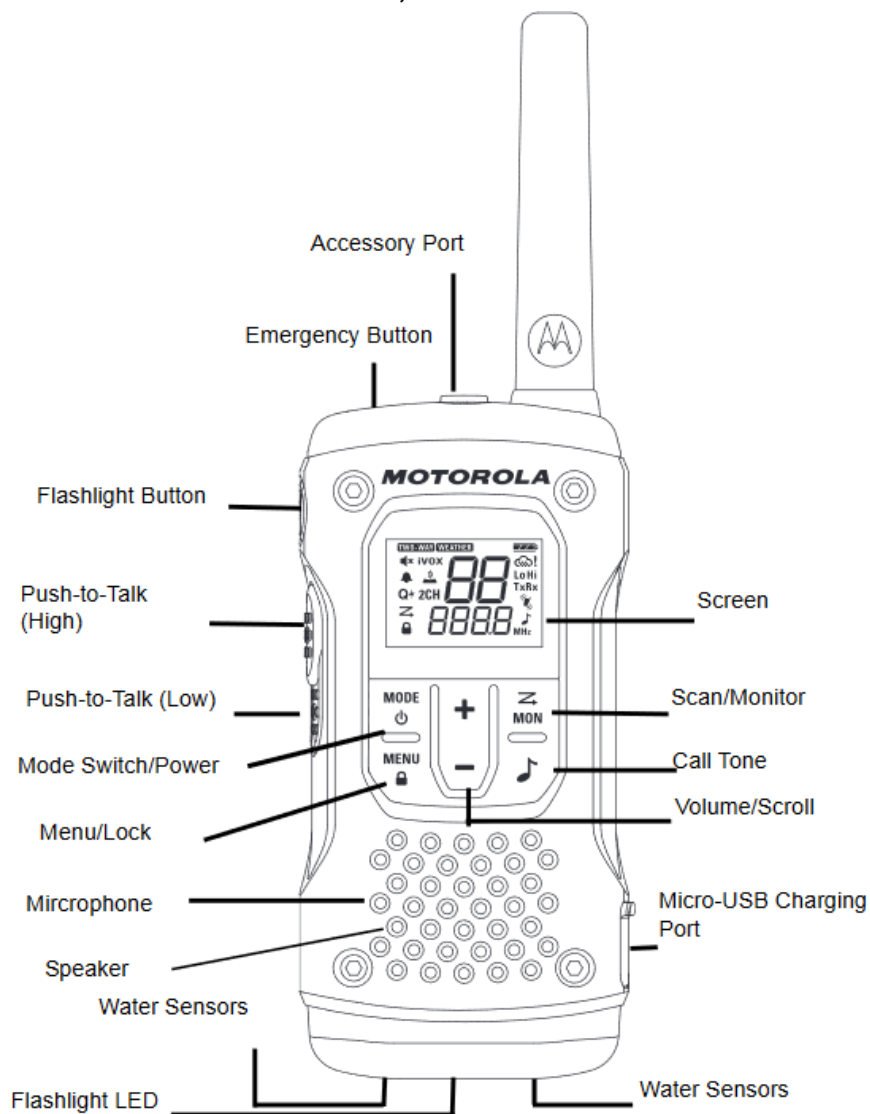
Selecting the Tone Code

8. With the radio on, press (MENU) button until the tone code flashes (smaller number on the display, 99 in this example). The current tone code flashes.
9. Press (-) or (+) buttons to select the tone code.
10. Press (PTT) to save the tone code with this channel.

Talking and Listening

11. To talk, press and hold (PTT). Take a breath. Hold the radio 2 to 3 inches away from your mouth when talking.
12. When you finish talking, release (PTT) (press to talk, release to listen).


4.4 Motorola Talkabout T600, T605



4.5 Common T600 FRS Radio Controls

The Motorola T600 and T605 have identical radios, the only difference is more accessories come with the T605. The following describe how to operate these radios:


Turning the radio on and off

1. Press and hold the ^{MODE}  button (top-left) to turn the radio On or Off.
2. The radio chirps and the display briefly show all feature icons available on your radio.

Set the Volume


3. In the middle of the radio, find the **+** and **-** buttons. Pressing the **+** button raises the volume. The volume number will show and increment every time you press the **+**.
4. Press the **-** button to lower the volume. The volume number will show and decrement every time you press the **-**.

Selecting the Channel

5. With the radio on, press the ^{MENU}  button once. The current channel flashes (larger upper number on the display, 4 in this example).
6. Press the **(-)** or **(+)** buttons to select the channel.
7. Press (PTT) to save the channel setting.



Selecting the Tone Code

8. With the radio on, press ^{MENU}  button twice or until the tone code flashes (smaller lower number on the display, 9 in this example). The current tone code flashes.
9. Press **(-)** or **(+)** buttons to select the tone code.
10. Press (PTT) to save the tone code with this channel.

Talking and Listening

11. To talk, press and hold (PTT). Take a breath. Hold the radio 2 to 3 inches away from your mouth when talking.
12. When you finish talking, release (PTT) (press to talk, release to listen).

5 GMRS Mobile Radio

5.1 The ARK / GMRS Radio System

This radio system includes a 5ah battery thereby allowing the radio to be self-contained.



Setup

1. Retrieve the Radio System and Radio Parts Bag (Green) from the ARK.
2. Open the radio lid. Remove the top and set aside.
3. Set up the GMRS Antenna – most ARKs
 - a. Retrieve the GMRS Mag mount from inside the ARK.
 - b. Make sure the antenna is screwed to the mag mount base.
 - c. Using a step ladder, carefully place the mag mount antenna on top of the ARK close to where you will be operating. Make sure the space where you want to put it is clear of debris.
4. Set up the GMRS Antenna – Monta Vista ARK
 - a. TBD
5. Connect the Antenna coax to the Radio Kit.
 - a. Remove the antenna connector plastic cap from the Radio Kit if present.
 - b. Attach the antenna coax to the radio.
6. Press the “1” side of the rocker switch (between the AMPS and VOLTS display) to check the state of the Radio Kit battery. If it reads less than 12.0 volts, charge the battery (see below).

Charging the Radio Kit

If the Radio Kit battery indicates less than 12.0 volts, proceed as follows:

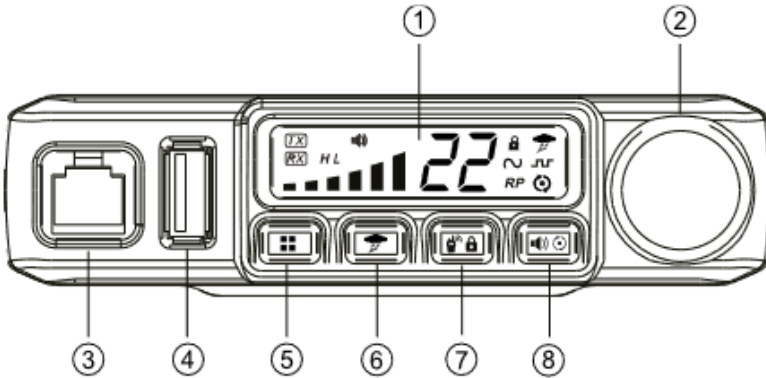
1. Start a generator.
2. Open the Radio Kit parts bag (Green) and retrieve the 12vdc power adaptor.
3. Plug in the Power Adaptor to a power strip connected to the generator.
4. Connect the 12vdc barrel connector to the Radio Kit plug marked SOLAR 50 WATTS MAX.
5. Verify that the VOLTS display now shows a voltage greater than 13 vdc. The Radio Kit battery is now charging.

Shutdown



1. Unplug the Power Adaptor (if plugged in) and put it back in the Radio Kit parts bag.
2. Turn off the radio.
3. Disconnect the coax cable from the Radio Kit.
4. For most ARKs
 - a. Using a step ladder, remove the mag mount antenna from the top of the ARK.
 - b. Return the GMRS Mag Mount to the ARK.
5. For Monta Vista ARK – TBD
6. Reattach the Radio Kit top.
7. Leave the microphone attached. Coil the microphone cable as shown so that it is not pinched when you close the lid.
8. Close and lock the Radio Kit lid. Return to the ARK.

5.2 Midland GMRS Radio MXT115



1. LCD Display
2. On/Off Volume
3. Microphone Jack
4. USB Charging Jack
5. Menu - Press to access menu
6. Weather - Press to access weather mode
7. Call / Lock - Press to send a call signal, or long press (2 sec) to lock the keypad
8. Monitor / Scan - Press to enter scan mode, or long press (2 sec) to enter monitor mode

5.3 Radio Controls

MXT115 Microphone controls

1. Channel Up ▲
2. Channel Down ▼



Power on/off

To turn the radio on and off:

1. With the radio off, turn the **On/Off Volume** knob ② clockwise. You will hear a tone when the radio is on.
 - The LCD display will show all icons for one second and then display the most recently selected channel.
2. With the radio on, turn the knob ② counter clockwise.
 - The LCD display will go blank when the radio turns off

Selecting the Active Channel

1. Be sure the radio is turned on (See **Power On/Off**).
2. Press and release the microphone **Channel Up ▲** button to scroll forward through the available channels.
3. Press and release the microphone **Channel Down ▼** button to scroll backward through the available channels.
 - The Channel icon on the LCD display will show the active channel.



Transmitting and Receiving a Call

1. Be sure the radio is turned on (see Power On/Off)

NOTE: For maximum clarity, hold the microphone 2 to 3 inches from your mouth when speaking.

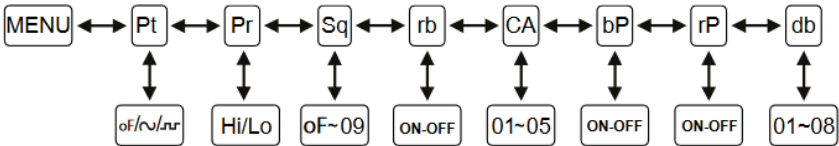
2. To transmit a call, press and hold the PTT button on the microphone, and speak into the microphone in a normal voice.
 - The **TX** icon will show continuously on the LCD display while transmitting.
3. To receive a call, release the PTT button on the microphone.
 - The **RX** icon will show on the LCD display when your radio is receiving a transmission.
4. If necessary, turn the volume knob clockwise or counter clockwise to increase or decrease the radio volume.

Locking the Keypad

1. Press and hold the **Call/Lock**  button for three seconds.
 - The Keypad Lock icon  will show on the LCD display when the keypad is “locked.”
2. Repeat to unlock the keypad.






5.4 Menu Options

The MXT115 radio has a “Menu” mode that provides access to the features and functions shown in the chart below.












Pt	Privacy Tones - Use this option to set the privacy code.
Pr	Transmit Power Level - Use this option to change the transmit power level to Hi or Lo.
Sq	Squelch Sensitivity - Use this option to adjust squelch sensitivity.
Rb	Roger Beep - Use this option to set the option for the Roger Beep.
CA	Call Alert Tone - Use this option to select the Call Alert tone.
bP	Silent Operation - Use this option to set the option for the keypad audible “beep” tones.
rP	Repeater Channels - Use this option to set the option to allow for Repeater channels.
Db	Display Background - Use this option to select the color of the display background.

Basic Menu Controls

- **Menu**  button: Puts the radio in “Menu” mode.
- Microphone **Channel Up**  or **Channel Down**  button: Scroll through the menus or selected options.
- **Monitor/Scan**  : Selects a menu or confirms a submenu choice.
- **PTT**: Briefly pushing the Push to Talk button will take the radio out menu mode.

The following is an example of how the menu system works. All other menu choices work identically using the **Menu**, **Channel Up/Down**, and **Monitor/Scan** controls.

To select a Privacy Code

1. Press and release the Menu  button to place the radio in "Menu" mode.
2. Use the Microphone **Channel Up** ▲ or **Channel Down** ▼ button to scroll through the menu options until the LCD display shows **Pt**, then press the **Monitor/Scan**  \  button.
3. Use the Channel Up ▲ or Channel Down ▼ button to select the privacy tone type you would like to use: **oF** for OFF, **~** for CTCSS, or  for DCS
4. Press the **Monitor/Scan**  \  button to confirm your selection.
 - The **~** (for CTCSS) or  (for DCS) icon will show on the LCD display, according to your selection
5. Use the Channel Up ▲ or Channel Down ▼ button to scroll forward or backward through the available Privacy Codes until the desired Privacy Code is shown on the LCD display.
6. When the desired Privacy Code is shown on the LCD display, press the Monitor/Scan  \  to confirm your selection.

NOTE: you must press Monitor/Scan to save your choice.

6 Radio Operations Basics

6.1 In General

1. Operating a radio is about 90% listening and 10% talking.
2. If you are too busy to pay attention to what is happening on the radio, then assign this task to someone else.
3. When transmitting:
 - i. Press and hold the radio's PTT button
 - ii. Take a breath. This ensures your radio transmitter is on and receiving stations detect your signal.
 - iii. Speak slowly and clearly.
 - iv. Keep your messages as short and succinct as possible.

6.2 Operating on the CERT Radio Net

4. We always want to know who is on the channel, where you are, what you are doing, and if you are OK. We do this by choosing a radio channel for this ARK on which we all will operate. See the channel assignments earlier in this guide.
5. Every station on the channel will use a name. Some names are usually assigned by the ARK and you could have a name like **TEAM 3**, **FIRST AID**, **SEARCH 4**, etc. If you or your team was not assigned a name, then use your own name.
6. **CHECK IN** to the local ARK Radio Net if you are at home and have a radio, or if you are assigned a task at the ARK. This does a few things:
 - i. let's the ARK's Net Control know who is on the Net
 - ii. confirms you have your radio set correctly with the correct Channel and Tone for your ARK. Make sure this is correct before leaving for your assignment.

CHECKING IN

If you are...	You would say...
Bob	Creekside ARK, this is Bob at Stelling and Rainbow, checking in.
Creekside ARK:	OK Bob, acknowledged.
Angie	Creekside ARK, this is Angie at Bubb and Regnart, checking in

Creekside ARK: Hi Angie, acknowledged.

7. **CHECK OUT** of the local ARK Radio Net when you are done with your assignment and back at the ARK. This does a few things:
 - i. let's the ARK's Net Control know you are leaving the Net
 - ii. We won't worry about you anymore!
 - iii. Checking out does not mean that you may be done with your participation, just that Net Control will no longer look for you on the Net.

CHECKING OUT

If you are...	You would say...
Bob	Creekside ARK, this is Bob, I am back home. Checking out.
Creekside ARK:	OK Bob, acknowledged.
Angie	Creekside ARK, this is Angie back at the ARK. I am checking out.
Creekside ARK:	Hi Angie, acknowledged.
TEAM 3	Creekside ARK, this is TEAM 3. We are back at the ARK.
Creekside ARK:	TEAM 3, acknowledged. Are you checking out of the Net?

6.3 Passing Messages

Preparing the Message

1. Before transmitting, think of the message you want to send.
 - v. Organize your thoughts.
 - vi. If necessary, write down the message you want to send.
 - vii. Keep your message brief; there could be others on the channel with messages as well.
2. Do not pass victim or patient names over the radio unless asked for the name; these are public airwaves.

NOTE: There may be exceptions to this policy, such as matching up lost children with parents. Make sure the CERT Coordinator or Incident Commander approves any exceptions before starting.

3. If necessary, use the ICS 213 Message Short Form, phone message pad, or something similar when creating your message.

Passing a Message

2. Listen: Make sure the frequency is clear or Net Control is not talking to someone else who you might not hear.
3. Notify the ARK Net Control Operator that you have a message to pass. The Net Control Operator will tell when to pass the message.
4. To pass very short, simple messages, You send the entire text, and the receiving station may simply say "copied" or they may say the text back to you.
5. For longer messages, say the message in logical phrases of about 4 to 7 words, without repetitions. Talk slowly.
6. Say Break when pausing and release the PTT key while you wait for the receiving station to write down your message and acknowledge you. Always release the PTT key if you stop talking.
7. Do not resume transmitting until the receiving station acknowledges the last transmission with something like "OK" or "continue" or something similar.
8. Speak clearly and slowly. As a pacing guide, *ghost write* the message as you say it (not necessary to actually write it down again).
9. Use the message passing prowords and the phonetic alphabet to spell items that cannot be understood reliably by pronouncing them.
10. End the message with "End of Message".

If you are...	You would say...
Team 3	Creekside ARK, this is TEAM 3 with a message for you.
Creekside ARK	Team 3, what is your message?
Team 3	Creekside ARK, this is Team 3. Large tree blocking the road in front of 1236 Bubb Road, just south of Rainbow Drive. Traffic is blocked both directions. End of Message.
Creekside ARK	Team 3, Acknowledge.

7 Phonetic Alphabet & Numbers

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
0	zero (ZEE-row)	5	five (Fife)
1	one (Wun)	6	six (Sicks)
2	two (Too)	7	seven (SEV-vin)
3	three (Tree)	8	eight (Ate)
4	Four (FOH-wer)	9	nine (NINE-er)

8 Modified Mercalli Intensity Scale (MMI)

I	Not felt	Not felt except by a very few under especially favorable conditions.
II	Weak	Felt only by a few persons at rest, especially on upper floors of buildings.
III	Weak	Felt quite noticeably by persons indoors, especially on upper floors of buildings. Many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibrations similar to the passing of a truck. Duration estimated.
IV	Light	Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably.
V	Moderate	Felt by nearly everyone; many awakened. Some dishes, windows broken. Unstable objects overturned. Pendulum clocks may stop.
VI	Strong	Felt by all, many frightened. Some heavy furniture moved or overturned. Dishes, glassware, knickknacks, and books fall off shelves. Weak plaster, adobe buildings, and some poorly built masonry buildings cracked. Damage slight.
VII	Very Strong	Negligible damage in buildings of good design and construction. Slight to moderate damage in well-built ordinary structures. Considerable damage in poorly built or badly designed structures. Some chimneys broken. Fall of plaster, loose bricks, stones, tiles, cornices, unbraced parapets and porches. Some cracks in better masonry buildings.
VIII	Severe	Considerable damage in ordinary substantial buildings with partial collapse. Damage great in poorly built structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy

		furniture overturned. Wood-frame houses moved on foundations if not bolted; loose partition walls thrown out. Tree branches broken.
IX	Violent	General panic. Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb. Damage great in substantial buildings, with partial collapse. Buildings shifted off foundations. Wood-frame structures rack, and, if not bolted, shifted off foundations. Underground pipes broken.
X	Extreme	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations. Rail bent. Water thrown on banks of canals, rivers, lakes, etc.
XI	Extreme	Few, if any, (masonry) structures remain standing. Bridges destroyed. Broad fissures in ground. Underground pipe lines completely out of service. Earth slumps and land slips in soft ground. Rails bent greatly.
XII	Extreme	Damage total. Lines of sight and level are distorted. Objects thrown into the air.

Ref: <https://pubs.usgs.gov/gip/earthq4/severitygip.html>

