

VernonFire Department

Motorola Astro

XTS 5000

Handheld Radio

**New Radio Introduction
User Operational Training**



The Motorola Astro XTS 5000R VHF Radio

*This presentation is
intended to be
utilized with the radio
of subject in hand.*



**Associated
Sounds.**
When you see
a  icon,
You can 'Click'
on it to hear
the sounds.
Use this icon
to adjust your
volume level.

Start of graphic explanations



XTS5000

Number of channels: 512

Transmitter: 5 Watts

Frequency Range: 136-162 MHz

Channel Freq Spread: 12.5 MHz

Audio output: 500mW

Audio Distortion: <3%

Battery Voltage: 7.5V DC 1525mA

Battery Life: 8 Hours at 5 W

Operating Temp: -30°C ~ +60°C

Dimensions: 8.58 x 2.44 x 1.65 inches

Weight: 390 grams

Meets Mil Spec/MIL-STD as follows:
Mil 810C, Mil 810D, Mil 810E, Mil 810F

Ruggedized Model

Low pressure

High Temperature

Low Temperature

Temperature Shock

Solar Radiation

Rain

Humidity

Salt Fog

Blowing Dust

Immersion

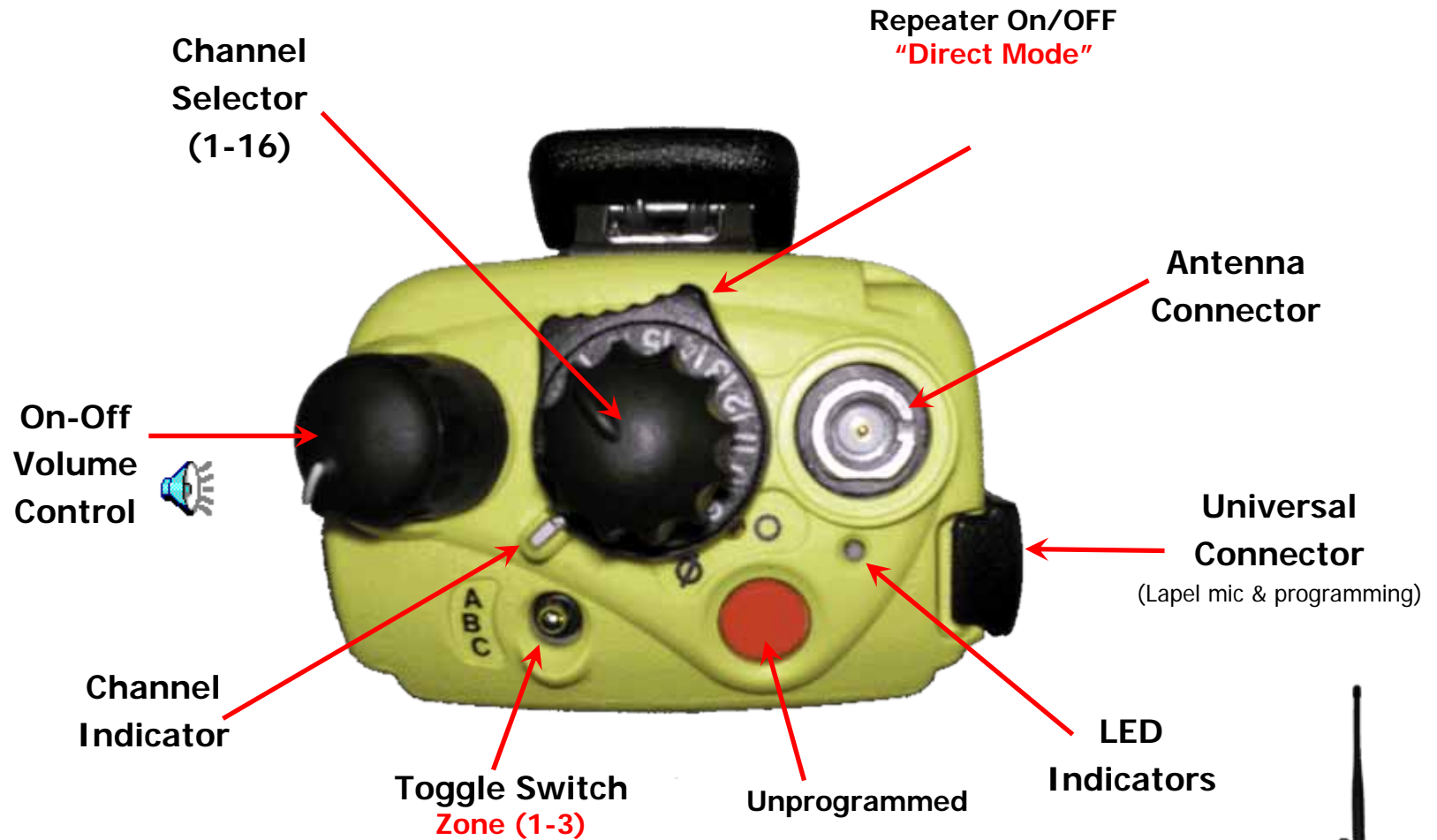
Vibration

Shock

Motorola XTS5000 Specification's



XTS5000



Orientation - Top





Light

Monitor

(hold button down to lock-on)

Unprogrammed

PTT





Universal Connector

*Lapel mic
and
Programming
Connection*



Orientation - Sides

Keypad Sounds:
 Option Selected
Selection not available in this particular menu




Display

Menu Select Buttons (1 2 3)

4-way Navigation Button

Home Button (ENTER)

Alpha button 
(for future use)

Keypad

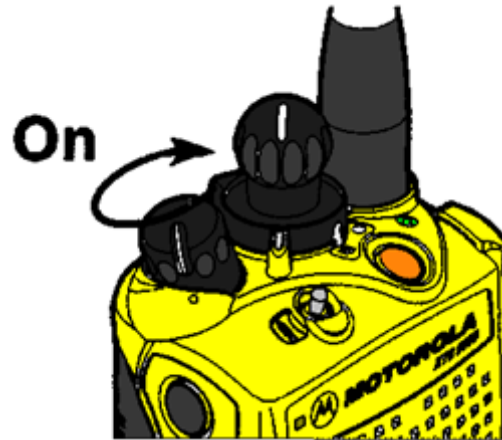
Front






Microphone

Speaker



1. Rotate the knob to the right from the OFF position.
You should hear a start up tone.

 When the radio is turned on it should make this sound (notice the 5 sec. delay from the ON (click) to READY' tone)

2. Adjust volume to satisfaction.

On / Off / Volume



The LED Indicator
indicates the radio's
operating status:



Red = Transmitting

Blinking Red = Channel Busy
or Low Battery
(while transmitting)

Blinking Green = Receipt of
Individual Call

Multifunction LED Indicators



XTS5000

Keypad Sounds:

 Option Selected

 Option Not Available



Display

46x96 pixel LCD shows status, text, and menu entries. Backlight is activated by pressing the Orange button on top of the radio.

Sub-menu
Buttons (1 2 3)

Home Button
(Enter)

Keypad

4-way Navigation
Button

Alpha button

(for future use)

Arrow keys and Keypad





Display

46x96 pixel LCD shows status, text, and menu entries. The Backlight is activated by pressing the Purple button on the side of the Radio.



This backlight will remain on for 10 seconds and then automatically turn off
or
you can turn backlight off immediately by pressing the light button (purple)

Display



XTS5000

Z Scan The radio is scanning a scan list.

Z Dot Flashing - Priority-One Channel Scan
One channel is assigned as the priority channel during scan operation.

Z Dot Steady - Priority-Two Channel Scan
Two channels are assigned as the priority channels during scan operation.

[> Monitor (Carrier Squelch)
The selected channel is being monitored during conventional operation only.

View/Program Mode
The radio is in the view or program mode.

On steady = view mode
 Flashing = program mode

[+| Talkaround

Displayed = you are talking directly to another radio, not through a repeater, during conventional operation only

NOT Displayed = you are talking through a repeater



+ [Battery Icon] **Battery**
flashes when battery is low

Icon Display



XTS5000

Zone/Group

This display is showing Zone/Group 2



Channel Alpha

This display is showing LACoFD Tac-20

Alpha Display



XTS5000

Menu Select Buttons (3)

Access features that have been programmed. Select an entry by pressing the Softkey below the alpha on the menu.

Only the Softkeys with text above are active.



Menu Entry (Softkeys)

The bottom row of the display contains one to three menu entries (softkeys). The menu entries allow you to select one of several menus to access the radio's features.

The menu entries are accessed through the **Menu Select Buttons**.

Menu Softkeys



Home Button

- The Home button always returns you to the home (default) display. In most cases, this is the current mode.
- Some radio features that you can edit require saving information in memory. Pressing the Home button after editing those features causes information to be saved before going to the home display.



4-Way Navigation Button

- This button is used to scroll through the radio's lists or items in the display, or both.

Alpha Button

- Reserved for future use.

Arrow keys and Keypad



XTS5000

These are the 2 main Softkey Menu Screens



Menu Screen 1



- This is the Default Screen. Here you may select 1 of 3 radio functions to control.

ZONE SCAN VIEW



Pressing Left or Right will scroll these two screens.



Menu Screen 2

- This is the Settings Screen. Here you may select 1 of 2 menu items that allow you to change a user entered memory function.

CLCK PROG



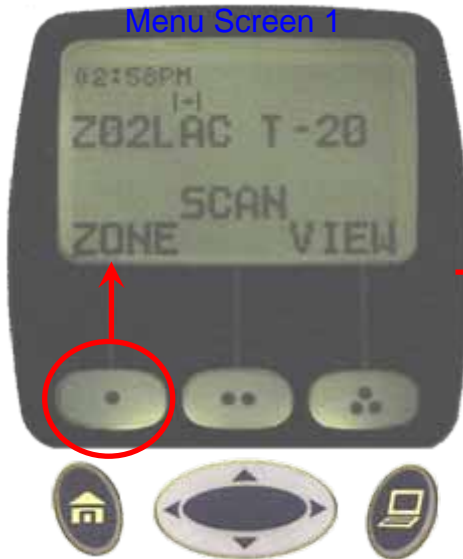
Settings Display's




XTS5000

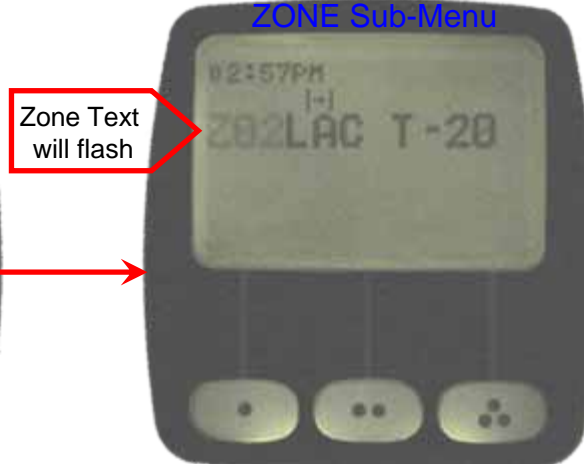
Selecting and/or Changing Zones/Groups




Default Display



1. Pressing Softkey  will select Zone Selection Mode.

Display during Selection



2. Scroll through Zones using the  key & press 
Or
Select a number 1-9 from the keypad & then press 

After Entry



3. Zone Selection Complete
The display reverts back to default.
Now, select the desired channel within this zone.

Changing Zones/Groups



This XTS5000 is set to 'Zone02' & Channel 5. This would be 'TAC-21'.



Channel Selection

1. Once you have a desired zone, rotate the 16-Position Select Knob to the desired channel.

Note: *If the selected channel is unprogrammed, you will hear a continuous, low-pitched tone (invalid-mode tone) until a valid programmed channel is selected. This does not mean your radio is unprogrammed, only that the channel you selected is unprogrammed.*



2. To transmit on the selected zone/channel combination, press the PTT Switch.

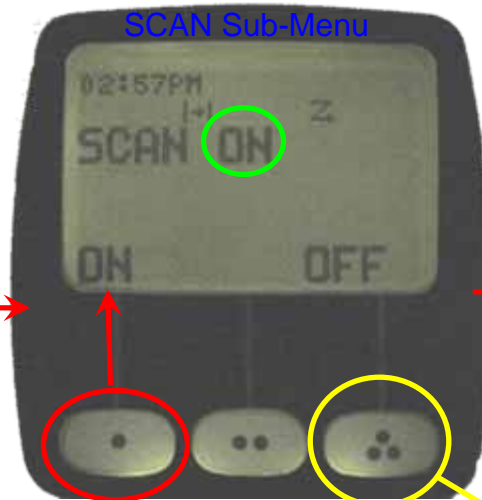
Channel Selection



XTS5000

Turning the SCAN feature On - Off

When scan has been selected, the scan Icon will be displayed



SCAN – Press the  Softmenu key.


Choice: ON or OFF
ON – Activates Scanning of the user-selected scan list.
OFF – Deactivates the Scan feature & returns the radio to normal ops.
(user must select the Zone/Channel)




Scan On – Scan Off

To VIEW Channels within the Scanlist



Choose: SCAN
Selecting  allows the 4-way navigation button L/R to scroll through the display of channels contained within the scanlist. Only the channels in Scanlist will be displayed.

Press the  Softkey

 returns to the main screen
(or back one screen)

View Channels in Scanlist



This Selection allows the user to change the XTS5000 displayed Date & Time.

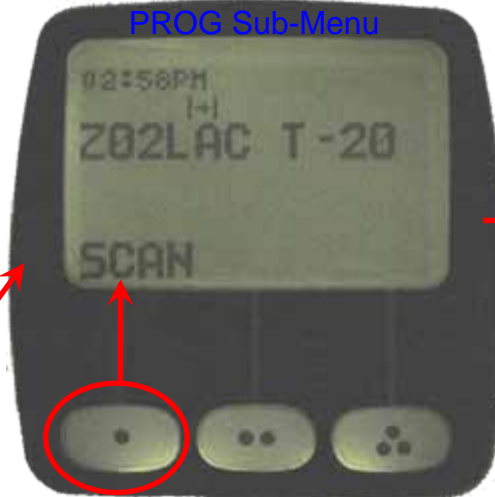





Editing Clock Settings




XTS5000

The Scanlist is a user entered selection of up to 32 channels to scan when the scan feature is activated.



<p>Scrolls Zone(s)</p>	<ul style="list-style-type: none">  SEL – Adds a channel to the scanlist.  DEL – Deletes a channel from scanlist.  RCL – will allow the 4-way nav button to scroll through & Add/Del channels currently in the scanlist.
<p>Scrolls Channels</p>	

 *To return to std ops*

Add/Del from the Scanlist



The Scanlist is a user entered selection of up to 32 channels to scan when the scan feature is activated.



To Activate Scanning:

From the main screen, select SCAN
Select ON or Off

When scan is active the
Z icon is displayed

Upon selecting Scan ON or OFF, the display
will return to the main screen

Activating the Scan list




 **Light (on/off)**


On/Off/Volume
When the radio is turned on it should make this sound
(notice the 5 sec. delay before the 'Ready' tone)

Channel Selector
If a channel is not programmed into the selected channel, you'll hear this continuous tone
Select a programmed channel to correct this!

 **Monitor**
Simply opens the squelch while depressing

Emergency trigger
"currently not programmed"

Low Battery Warning Sound


An unprogrammed button or an invalid option will make this sound.




Beeps and Tones



Currently there are 2 lengths available.

Long – 5 feet
and

Short – 3 feet

Lapel mic





The Lapel mic is held onto the radio by a channeled clip at the bottom, a metal spring clip and a screw on top for secure mounting.

How the Lapel mic Mounts





- Remove the cover by gently prying outward on the bottom with a flat blade screwdriver. Once free, then unhook the top. Store in a safe place as this plate must be mounted if the radio is to be used without the Lapel mic.
- Hook the bottom and rotate the connector upward, keeping the clip attached. Press the top toward the radio. The black metal clip will click into a receiver.
- There is a small screw on a rubber retainer on top of the Lapel mic mounting plate. Insert it into the hole and tighten until snug – *not wrench tight!*



Installing the Lapel mic





- To remove the mic, remove the small screw on the top. It has a rubber retainer to avoid loss.
- Press the black metal spring clip on top away from the center of the radio. The top will separate for about 1/2" before the bottom clip will release.
- Replace the protective cover that you stored in a safe place.



Removing the Lapel mic

Standard XTS5000 Battery

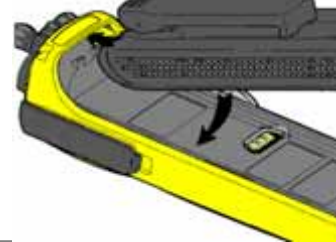
Motorola #NTN8279A
7.5v 1525mA – NiCad



Battery Release
(press to release)



Install



Low Battery
Warning Sound

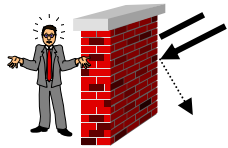


Battery

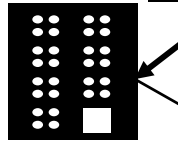
VHF Radios are classified as 'LINE OF SIGHT' (LOS) This includes LOS to a repeater.



diffraction



shadowing



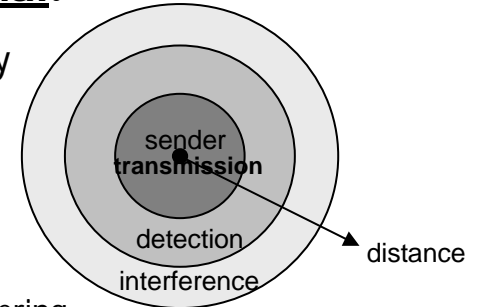
reflection



scattering

Things that may effect VHF radio's signal:

- **Terrestrial Interference** – Topography (below or underground)
- **Buildings** – level of signal absorption depends on type of construction.
- **Electrical noise** generating equipment
- **Physical** – Solar, Ion, Weather
- **LOS** – Diffraction, shadowing, reflection, scattering



(please see the [Interference Presentation](#) for further information on environmental conditions that may effect VHF radios signal)

If you suspect a radio problem, check the following items before requesting service.

- * Be sure the radio is turned on and channel selector is in the proper position.
- * Replace or recharge the battery. New batteries must be charged a minimum of 14 hours initially.
- * Antenna must be screwed on properly, base flush against radio top.
- * Be sure the Mode Select Switch is in the proper position.
- * Could your radio(s) problem be caused by accessories improperly connected?

Environment or Situation Dependent:

If your radios' problems are exhibited on only a portion of your units, is this condition due to any unique operating condition (for example, 6 of 10 radios exhibit poor range and are used indoors with remote speaker microphones).

Operational Considerations



XTS5000

Please reference Vernon Fire Department
TMAC for Channel lists

Channel PLAN



XTS5000

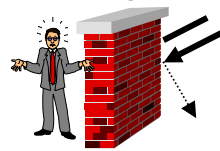


Remember

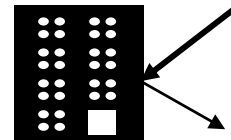
- VHF radios are '**Line of Sight**' (LOS) systems. (This includes a good LOS to a repeater) Buildings, underground locations, metal enclosures, EMI, etc. could interfere with transmission.
 - Move locations *OR* use a mobile radio (40+ watt) compared to handheld radio's (5 watt).
 - Use aircraft to relay (if available/necessary).



diffraction



shadowing



reflection



scattering

- Use only intrinsically safe batteries in explosive environments.
- During transmit, keep the transmitter away from your body as much as possible.
- Hold the microphone 2" – 3" away from your lips.



Summary

Vernon Fire Department

Motorola Astro XTS 5000 Handheld Radio



End of Presentation