

**800MHz Rebanding Project
Radio Reprogramming
Training Session
for
BEXAR COUNTY**



March 22, 2011

Agenda

- Rebanding Overview
- The Reconfiguration Process
- What have we done?
- What are we doing now?
- What is yet to come?
- Radio System Design
- General Programming Guidelines
- New Public Safety Radio Template
- Radio Usage
- Questions

Rebanding Overview

- Problem = Public safety radio systems operating in the 800 MHz Band have been experiencing interference problems.
- Cause = FCC's original 800 MHz Band plan did not anticipate the extent of development and growth of cellular-type (Sprint Nextel) systems.
- Solution = FCC Report & Order **is designed to provide an effective and equitable solution with minimal disruption to users in the 800 MHz Band.**

The Reconfiguration Process

- A Physical Rebanding Process
- A Commercial / Legal Process to determine the costs of rebanding to be borne by Sprint Nextel.
- Evaluate the current 800 MHz system configuration & frequencies.
- The licensees reconfigure their radio systems.
- Sprint Nextel pays the costs of reconfiguration.

What have we done?

- Been working on this since 2007.
- Secured \$3,003,230 from Sprint-Nextel to cover Rebanding costs
 - Bexar County's internal costs are \$63,608.
- Retuned...
 - 12 Repeater Sites
 - 62 Frequencies
 - 4 Bi-Directional Antennas
 - 7,300+ radios
- Coordinated with more than 44 governmental entities
- Added the ability to reprogram radios Over-the-Air.

What are we doing now?

- Created a new Public Safety Radio Template that enhances day-to-day operations while maximizing interoperability with other agencies on our system and elsewhere.
- Collaborated with SAPD and SAFD to adopt certain talkgroup naming conventions to better standardize the look and feel of the radios.
- Starting an aggressive reprogramming effort (2nd Touch) to remove the duplicate systems in your radios that were necessary to support the actual rebanding of the system infrastructure.

What is yet to come?

- Weekly Mutual Aid exercises (May 2011)
 - The PSCC will move day-to-day operations to a Mutual Aid group on a weekly basis to reinforce the ability of field users to navigate within the new Public Safety Radio Template.
- Annual Preventative Maintenance Directive (June 2011)
 - Bexar County users who have issued Portable radios and/or issued vehicles with Mobile radios will be required to take the radios to Dailey-Wells Communications annually for a PM.
- 3rd Touch Reprogramming (Who the heck knows)

Radio System Design

- 95% countywide coverage.
- Two Simulcast Systems.
 - One is used primarily by SAPD while the other is used by everyone else.
- Six Remote Tower Sites (Level 1 Sites) that provide coverage in the unincorporated areas of the County.
 - Cagnon (**CN**)
 - Grey Forest (**GF**)
 - Hill Country (**HC**)
 - South Breeze (**SB**)
 - Topperwein (**TW**)
 - Hallmark (**HM**)

General Programming Overview

- Radios are programmed using Systems and Group Sets.
 - Systems = Tower Sites.
 - System = Simulcast, name of the System (BEXAR, MUTUAL, etc.) displayed on Line 1 of the radio.
 - System = Remote Site, the name of the System combined with the abbreviation of the Remote Site (BEXAR CN, MUTL GF) displayed on Line 1 of the radio.
 - Group Sets = Collection of up to 64 groups, divided into 4 banks of 16, available via the Group Selector knob and displayed on Line 2 of the radio.

Local Government Radio Template



Public Safety Radio Templates



With very few exceptions, All PUBLIC SAFETY radios for Bexar County and those agencies sponsored by Bexar County are programmed identically.

Public Safety Radio Template

New or Changed Items

- Attempted to minimize abbreviations. KISS Principle.
- SO J SVC group created; SO S OPS to be used for Special Operation assignments.
- SO INFO realigned to be in the first three banks in the 15th position for easy access.
- COMMON group in the last position in every bank in every System (except NATIONAL, OLD NATL, and LIVE OAK) to support immediate interoperability.
 - Not a bulls**t group.
 - Monitored by BCSO, SAPD, and SAFD.

Public Safety Radio Template

New or Changed Items

- Created a single LE ADMIN group for Supervisors.
- Renamed ALL Interoperability groups to better align with National Naming conventions.
- Added SAPD and SAFD groups.
- Created a set of TASKFRCE groups.
- Added LCRA groups to support interoperability with LCRA System users
 - Fair Oaks Ranch, Boerne, Kendall County SO
 - New Braunfels

Public Safety Radio Template

New or Changed Items

- Added a set of OUTSIDE groups to support system-wide interoperability with outside agencies.
- Added two new Systems (SCATFIRE / SCATMUTL) that can be used when a specific piece of equipment (SCAT) is deployed by the SAFD in support of heavy loss structures or severe coverage issue areas. WILL NEVER MANUALLY GO HERE.
- Renamed the 800MHz National Interoperability groups to be aligned with State and Federal standards.
- Added the LIVE OAK System to support law enforcement and fire service interoperability with the agencies using the Live Oak Radio System.

BEXAR System

- Primary System used to support Bexar County Law Enforcement operations.
- Comprised of 64 groups, divided into 4 banks of 16.
 - Bank 1 = Primary BCSO groups
 - Bank 2 = Secondary BCSO groups
 - Bank 3 = Fire Marshal / Constable groups
 - Bank 4 = BCFA groups
- SO INFO realigned to be in the first three banks in the 15th position for easy access.
- SO J SVC group created; SO S OPS to be used for Special Operation assignments.

MUTUAL System

- All Radio System users share a common set of 60 MUTUAL AID groups to provide better coordination between agencies when working together during critical incidents or other large events.
 - AID 1 – 45 are DIGITAL.
 - AID 46 – 60 are ANALOG.
- In the event of a SIMULCAST System failure, all BACKUP communications will operate on designated MUTUAL AID groups.
- **These groups are assigned by the PSCC.**

SAPD System

- After more than 20 years, we have been successful in negotiating an arrangement with SAPD to have their primary Patrol, Traffic, and Special Event groups added to all Bexar County LE radios. SAPD radios have also been programmed with BCSO groups.
- If you are authorized to use them, you will identify as “BEXAR COUNTY” + Badge Number or Unit Number.
- **Simple rule of thumb...if you have never had SAPD groups before, STAY OFF OF THEM.**
- SEVERE DISCIPLINARY ACTION will be taken against any person who uses these groups for anything other than an authorized purpose.

FIRE System

- All FIRE SERVICE groups for the County and CoSA have been grouped together to form a System called FIRE.
- The first bank consists of BCFA groups; the remaining three banks consist of SAFD primary groups.
- If you are authorized to use them, you will identify as “BEXAR COUNTY” + Badge Number or Unit Number.
- **Simple rule of thumb...if you have never had SAFD groups before, STAY OFF OF THEM.**
- SEVERE DISCIPLINARY ACTION will be taken against any person who uses these groups for anything other than an authorized purpose.

TASKFRCE System

- To better support taskforces between different agencies, a new set of TASKFRCE groups have been created.
- Only those persons assigned to one of these special circumstance operations will have this System in their radio template.

LCRA System

- The Lower Colorado River Authority (LCRA) has a radio system that covers approximately 33,000 square miles.
- Several local agencies such as Fair Oaks Ranch, Boerne, Kendall County, and New Braunfels use the LCRA System for day-to-day operations.
- The LCRA System is interconnected to the San Antonio / Bexar County Radio System; six groups are allocated to support system-to-system interoperability.
 - LCRA SAC
 - LCRA SA1 – SA6

OUTSIDE System

- The San Antonio / Bexar County Radio System supports more than 44 agencies to include Alamo Heights, UTSA, Castle Hills, Windcrest, Kirby, and Helotes.
- Outside Agency Roaming Dispatch Groups (OA RDG 1 – 6) have been added (only OA RDG 1 is currently active) to support the other Dispatch Centers being able to communicate with their officers as they roam throughout the County.
- In addition, all of the generic Calling groups and the two VHF interconnected groups (TEX LAW1 and TEX LAW2) have been provided.

SCATFIRE / SCATMUTL Systems

- SAFD has a Self-Contained Autonomous Trunking (SCAT) System.
- Supports tactical communications in areas where radio coverage would be impossible such as in very heavy buildings or in areas like Government Canyon.
- When activated at a scene, radios will automatically roam to either SCATFIRE or SCATMUTL and will have a single group to communicate on but will have communications.
- SCATFIRE and SCATMUTL are in the radios just in case we ever deploy to an area served by the SCAT. **YOU SHOULD NEVER NEED TO MANUALLY SWITCH TO THESE SYSTEMS.**

NATIONAL System

- National 800MHz Interoperability groups for Radio Systems that **HAVE BEEN** Rebanded.
- Updated to reflect State & Federal Naming conventions.
- Two types
 - Repeater Enabled
 - 8CALL90 (Hailing / Calling group)
 - 8TAC91, 8TAC92, 8TAC93, 8TAC94
 - Direct (Walkie Talkie with limited range)
 - 8CALL90D, 8TAC91D, 8TAC92D, 8TAC93D, 8TAC94D, 8TAC95D, 8TAC96D, 8TAC97D
- BC T/A, FIRE T/A, and PD T/A

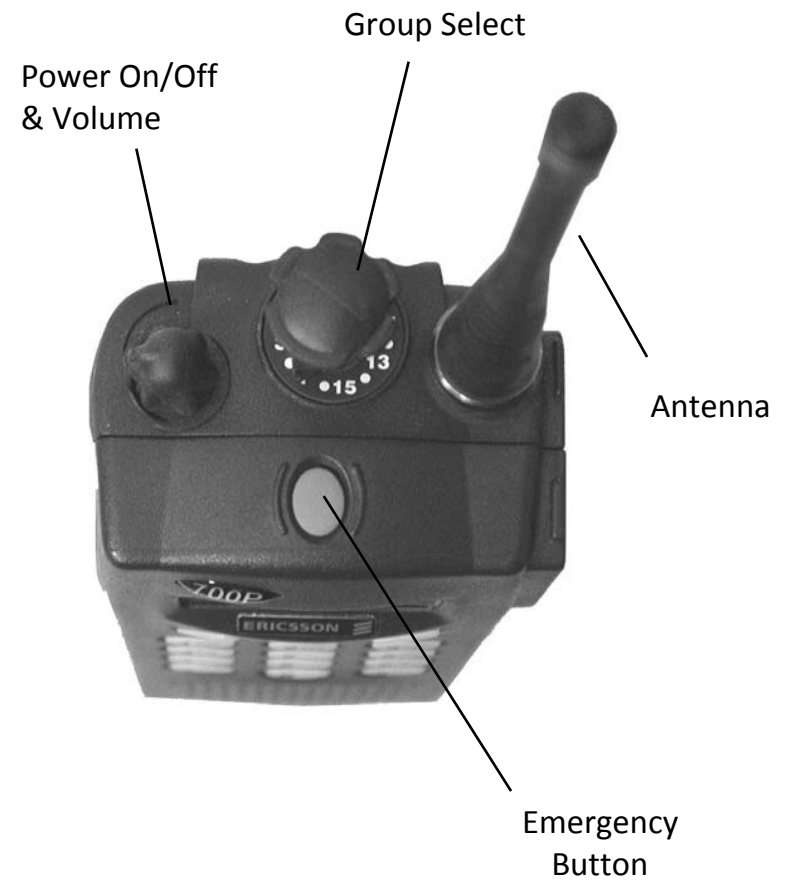
OLD NATL System

- National 800MHz Interoperability groups for Radio Systems that **HAVE NOT BEEN** Rebanded.
- Updated to reflect State & Federal Naming conventions.
- Two types
 - Repeater Enabled
 - 8CALL90 (Hailing / Calling group)
 - 8TAC91, 8TAC92, 8TAC93, 8TAC94
 - Direct (Walkie Talkie with limited range)
 - 8CALL90D, 8TAC91D, 8TAC92D, 8TAC93D, 8TAC94D, 8TAC95D, 8TAC96D, 8TAC97D
- BC T/A, FIRE T/A, and PD T/A

LIVE OAK System

- The Live Oak Radio System supports several agencies including Live Oak, Selma, Schertz, Universal City, Converse, and the Judson ISD PD.
- Fire, Police, and system-wide Event groups from the Live Oak Radio System have been added to better support interoperability.
- When communicating on this System, you will identify as “BEXAR COUNTY” + Badge Number or Unit Number.
- This is the last System in your radio. To quickly navigate here, switch to NATIONAL using the “8” key and then press the RAMP UP ARROW twice.

Portable Front and Top Views



Display Indicators

(Refer to Previous Page for Display Position)

LINE 1:

Current System Name	(BEXAR, SAPD, etc.)
Volume Level	(VOL = 10)
Caller Identification	(GR 1234)
Low Battery	(LOW BATT)
'Who Has Called'	(* WHC *)

LINE 2:

Current Talkgroup Name	(SO EAST)
Call Queued	(QUEUED)
System Busy	(SYS BUSY)
Call Denied	(DENIED)
Individual Call	(*INDV*)
Control Channel Scan	(CC SCAN)
Wide Area Scan	(WA SCAN)
Receive Emergency	(*RX EMER*)
Transmit Emergency	(*TX EMER*)

LINE 3:

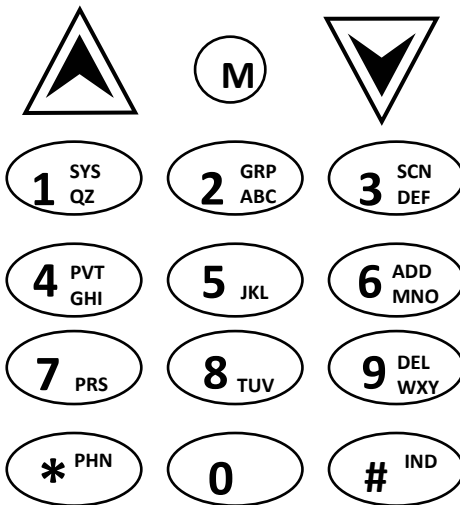
Radio Status Icons	
--------------------	--

Keypad Functions



Change SYSTEMS (Horizontal Navigation)

M Menu List



GRP (2) Change Group Banks (Vertical Navigation)

SCN (3) Scan On/Off

(5) Switch to MUTUAL

ADD (6) Add Group to Scan List

(8) Switch to NATIONAL

DEL (9) Delete Group from Scan List

(0) Switch to LIVE OAK

IND (#) Individual Call Reset

Locking/Unlocking the Keypad



- 1 Press M then the OPTION button, within two seconds, to LOCK / UNLOCK the keypad.
- 2 All keys EXCEPT the PTT, Emergency, and M are locked.

Knobs function normally.

Changing Group Banks




The radio can store up to 64 groups, divided into four (4) banks of 16 groups.


(1-16, 17-32, 33-48, 49-64)

- 1 Press GRP (2).
- 2 Rotate the Group Select Knob to select the desired Group within the bank.

Changing Systems



- 1 Press  to select the next SYSTEM.
(Horizontal Left-to-Right Navigation)

Press  to select the previous SYSTEM.
(Horizontal Right-to-Left Navigation)

- 2 SYSTEM names appear on Line 1 of the display.

Backlight Control



- 1 Press the OPTION button.
- 2 The BACKLIGHT will toggle ON or OFF.

Note:

Every time you rotate a knob, press a button or receive a transmission, the backlight will turn on. It will remain on for approximately 2 seconds.

Turning the BACKLIGHT off will help conserve battery life.

Missing an Individual Call

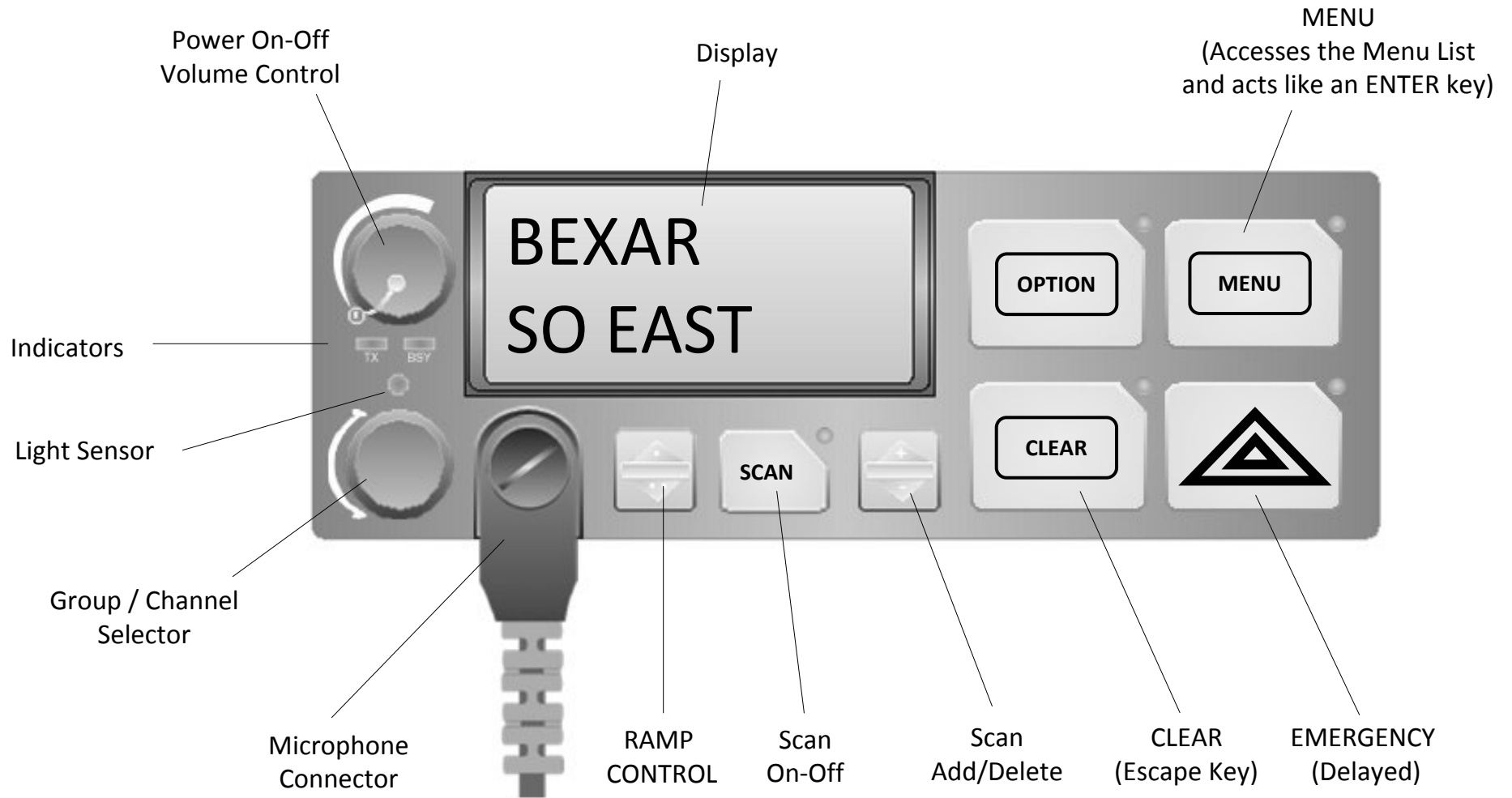


- 1 Line 1 will display *WHC* and the radio will begin ringing.
- 2 To stop the ringing, press the CLEAR button.

Note:

If your radio receives an Individual Call and exhibits the behavior listed above, IDENTIFY on your primary Dispatch group. The PSCC will sometimes use this capability to find “wayward” units.

ORION Front View

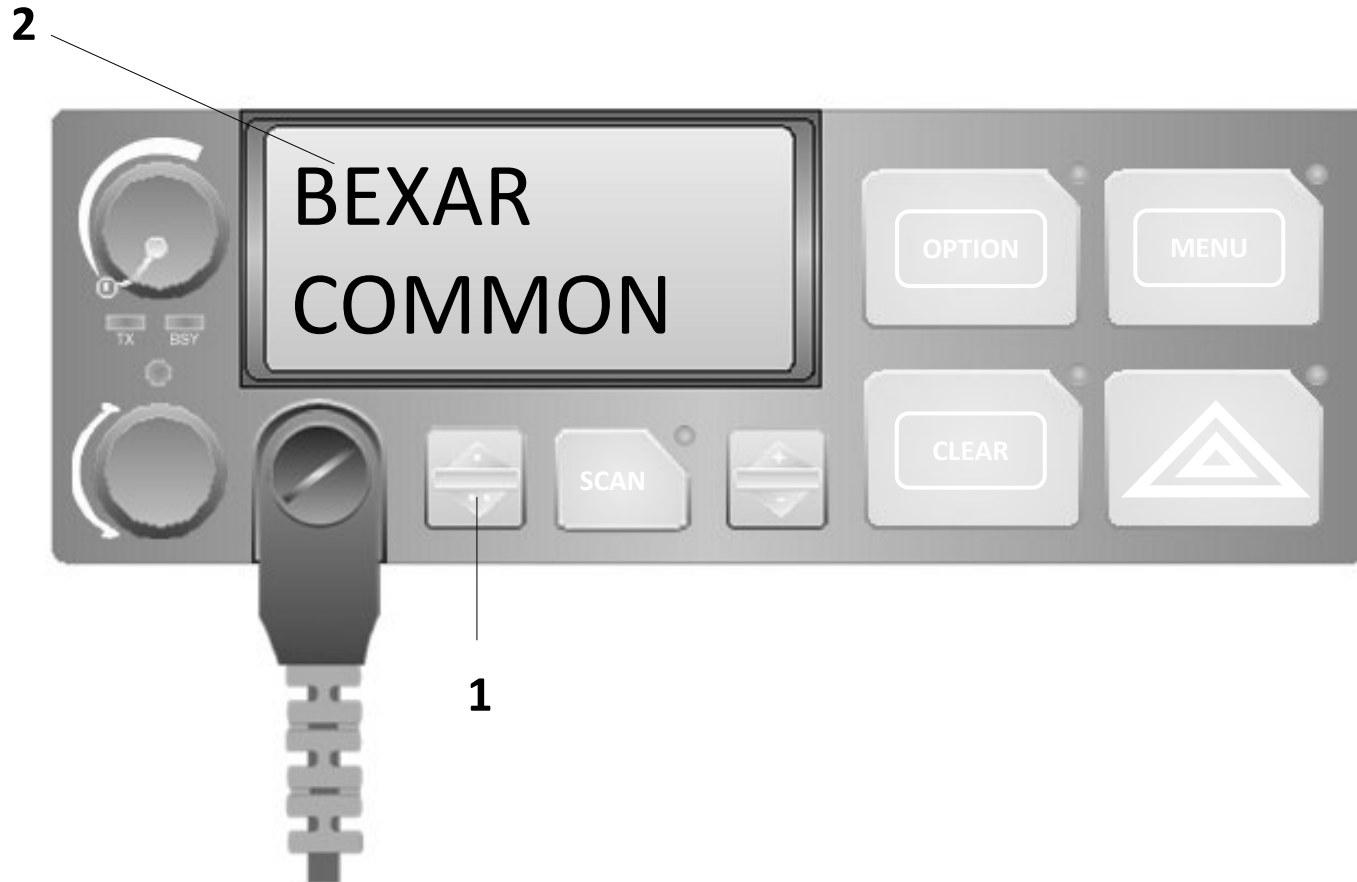


Changing Groups



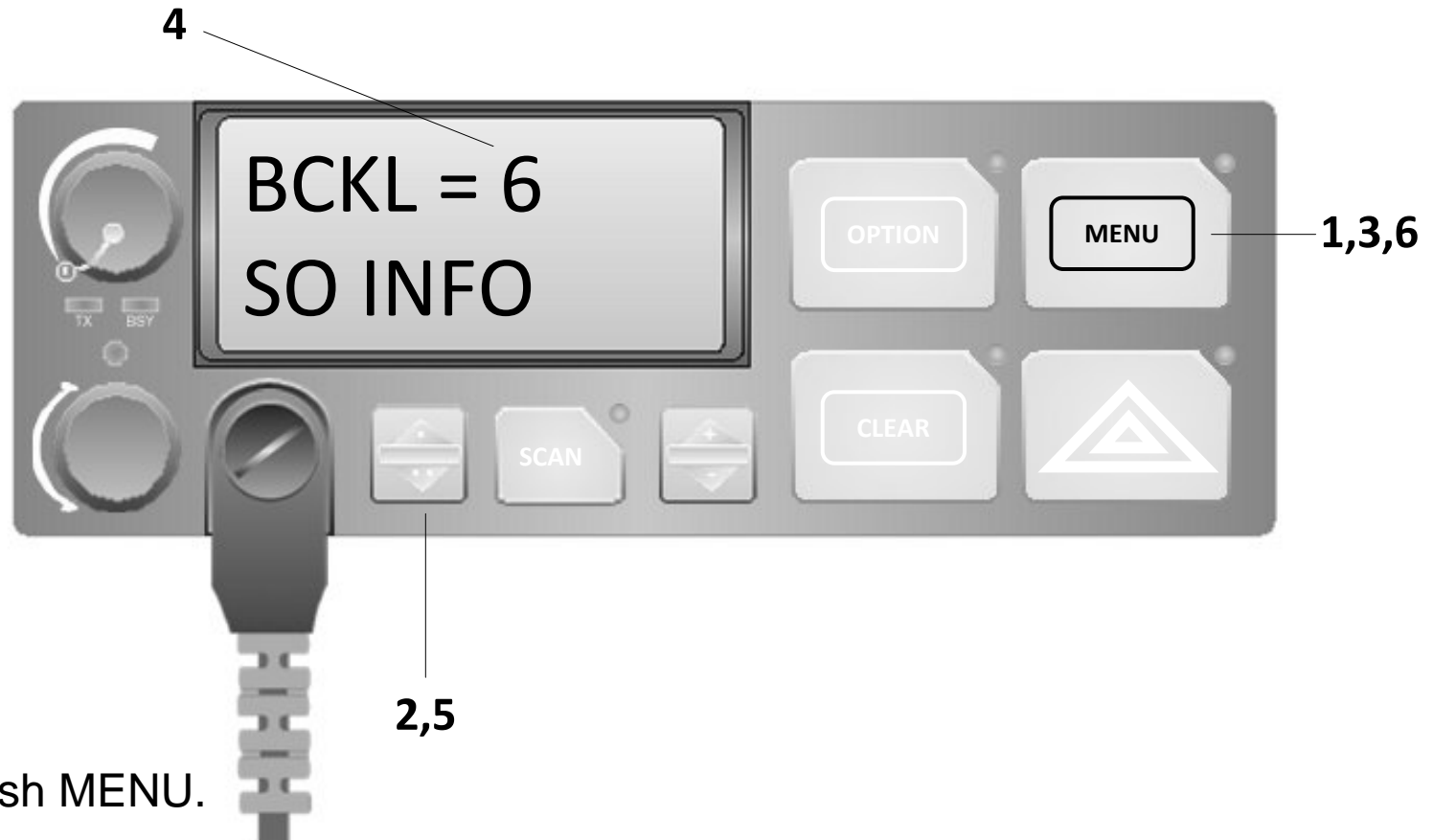
- 1 Use the GROUP SELECTOR knob to select the desired group.
Because the Mobile has a perpetual rotating knob, Group Banks are not used. However, for uniformity, the groups are ordered in the same way as they are displayed in the Portable radios.
- 2 Group names appear on Line 2 of the display.

Changing Systems



- 1 Toggle the RAMP CONTROL Toggle to change SYSTEMS.
Functions just like the UP and DOWN keys on the Portable radios. Controls Horizontal navigation.
- 2 SYSTEM names appear on Line 1 of the display.

Changing the Display Brightness



- 1 Push MENU.
- 2 Use the RAMP CONTROL Toggle to find BCKLGHT.
- 3 Push MENU.
- 4 BCKL = 1, 2, 3, 4, 5, 6 will appear in the display with the current setting.
- 5 Use the RAMP CONTROL Toggle to change the brightness increasing in intensity from 1 to 6.
- 6 Press MENU.

Questions?