

0715 ADVANCED DIGITAL SCANNER WITH OBJECT ORIENTED USER INTERFACE

OWNER'S MANUAL - Please read before using this equipment.

IMPORTANT:

This manual uses the following symbols to emphasize Warnings, Notes and Usage Hints



WARNING

A WARNING symbol is used to indicate possible risk of personal injury or damage to equipment



NOTE

A NOTE symbol is used to indicate an operational note that relates to the current paragraph of the manual



HINT

A HINT symbol is used to indicate an usage hint that relates to the current paragraph of the manual



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FCC ID ADV0715

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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Introduction

Welcome to an exciting new world of radio scanning! Recognizing that contemporary scanning receivers are too hard to program and use, GRE's engineers conducted extensive research to determine the functional requirements for an entirely new scanning receiver user interface. We call this new user interface the Object Oriented User Interface (OOUI), and it is based on the premise that, to a hobbyist, a scanner is easiest to use if all of the things that can be scanned are handled using common conventions for interaction between the user and the radio, at least to the extent that this is possible given that the "things" that can be scanned are different from one another in either subtle or major ways.

In this new user interface design, we call "things" that can be scanned **Scannable Objects**. Simply put, a Scannable Object is defined as **something that can be scanned or monitored**. Scannable Objects include the following:

- Conventional, non-trunked radio channels
- Trunked talkgroups used on a trunked radio system
- Service searches to search for a specific radio service
- Search ranges with upper and lower limits
- Spectrum Sweeper setups with band segments that can be enabled or disabled by the user

One of the goals of the Object Oriented User Interface is to make the scanner as easy to use as possible. The OOUI does this by treating all Scannable Objects the same in terms of how they are created, edited, manipulated and grouped. Once you have learned how to create and store a conventional channel, you know most of what you need to know to create a trunking talkgroup, and so on.

While we have designed this radio to be the easiest scanning receiver in its class to program and use, we encourage you to read this manual in its entirety so that you will fully understand all of the radio's capabilities. However, if you consider yourself to be an experienced scanning hobbyist and are feeling adventurous, we invite you to dive right in and get started programming your favorite "objects" into the radio.

Features

Upgradeable CPU and DSP Firmware - keep your radio current with enhancements as they become available with free upgrades from www.greamerica.com!

Intuitive "Object Oriented" User Interface Design is designed for ease of use, yet powerful enough to satisfy the most sophisticated experts. Common data entry, browsing and control methods are used for non-trunked conventional channels, trunking talkgroups, search configurations and Spectrum Sweeper setups. The radio grows with you – you can start out with a small, easy to manage configuration, then expand it whenever you need to.

Menu Driven Programming With Context Sensitive Help - Each menu item provides a few lines of help text that provide assistance with programming and using the scanner.

Powerful and flexible Scan List functionality allows you to arrange, group and scan objects according to your preference.

Flexible Free-Form Memory Organization - memory is assigned as objects are created using a sophisticated internal file management system. You are not constrained to traditional bank/channel scanner memory layouts. No memory is wasted as a result of bank/channel programming constraints. The scanner has sufficient main memory capacity to store over 1,800 conventional channels, trunking talkgroups, search configurations and Spectrum Sweeper objects in any combination, providing ample capacity for more sophisticated hobbyists and professionals while keeping the database size manageable for beginners.

GRE's Exclusive V-Scanner Technology - Allows you to save complete radio configurations within the radio, for recall into main memory as needed in the field. This is similar to having a laptop computer and programming software available anytime. You can use V-Scanners to store configurations for different geographical areas or usage styles. Twenty one V-Scanner Folders are provided, each capable of storing over 1,800 objects. Total memory capacity of main memory combined with V-Scanners is over 37,800 objects!

SKYWARN Storm Spotter Functionality - Instant, one button access to frequencies used by storm spotter networks. You can monitor storm conditions as they occur, and become aware of

dangerous conditions before the media or emergency management officials are able to announce them to the general public.

SAME and All Hazards Weather Alerting - Your scanner can operate in dedicated SAME weather alerting mode, and alert you to severe weather and other hazards in the specific area(s) that you select, or, your scanner can check your local NOAA weather frequency periodically, even while scanning and alert you when an All Hazards alert occurs.

Multi-System Trunking - Scans most common trunked radio system signaling formats, including Motorola, EDACS, LTR and P25 trunked radio networks. Talkgroup and individual call monitoring is supported.

GRE's Exclusive Automatic Adaptive Digital Tracking - When monitoring P25 digital systems, instantly adapts the digital decoder to the digital modulation format of the transmitted signal, then analyzes the signal over 50 times each second and adapts to any subtle changes caused by multipath or fading. No cumbersome manual adjustments are required.

GRE's Exclusive Digital AGC - instantly compensates for low user audio levels that are very common on digital systems. The radio is easier to listen to, and provides you with a more enjoyable scanning experience.

The Best Subaudible Squelch Decoder in the Scanning Industry - CTCSS and DCS subaudible squelch coding is processed by the same powerful DSP chip that is used for P25 digital decoding. Provides fast and reliable decoding of subaudible squelch signaling with squelch tail elimination.

Powerful Spectrum Sweeper - Quickly sweeps the scanner's frequency ranges for transmissions from nearby transmitters.

P25 NAC Functionality - Much like CTCSS and DCS with analog signals, P25 Network Access Code (NAC) is used to provide selective squelch operation on conventional digital channels. Your 0715 will detect the NAC that is being used on a P25 conventional digital channel, and allow you to program NAC codes to block transmissions that do not have a matching NAC, including analog traffic on the same frequency!

Exclusive ALERT LED - Programmable tri-color LED can be configured to illuminate or flash when certain objects are active.

Eight user-defined colors and brightness levels can be specified from thousands of possible combinations. Provides visual alerts when certain channels are active, e.g., blue can be used to signal activity on your primary police channel, red for fire, etc.

Audible alarms - Programmable audible alarms can be configured to sound when certain objects are active. Can be used in conjunction with, or separately from, the ALERT LED described above.

High Speed PC Interface - uses GRE's 30-3290 USB cable in full duplex mode at 6 times the speed of previous scanner models for PC transfer and 8 times the speed of previous models for radio to radio cloning.

Real-time Signal Strength Indicator – shows relative strength of received signals.

Sleek, compact case design with large speaker is designed for one-handed operation and ease of use.

Overview of the Object Oriented User Interface

Background

Scanner hobbyists who have been involved in the hobby long enough probably remember the days before microprocessor technology reached the point where it feasible for use in everyday consumer devices. Back then, scanners were relatively limited in what they were able to do. A typical scanner was able to scan between 2 and 10 frequencies. The frequencies were selected using plug-in crystal elements, and a custom crystal had to be purchased for each frequency that a user wished to scan. Scanning activity was typically shown using a row of incandescent or LED indicators. These indicators would show scanning operation in progress as the scanner moved from one channel to the next, looking for activity, and would indicate the active channel when activity was found. Pushbuttons or switches were used to skip or lock out undesired channels. The scanning row of LED or incandescent indicators seemed to personify the hobby at the time, and it was quite an experience to see the light show from multiple radios in a well-equipped scanner shack

Early microprocessor controlled scanners eliminated the need for crystals and increased the number of channels that could be scanned. Without keypads and numeric or alphanumeric displays these early microprocessor controlled radios still relied on the

traditional row of lights to show scanning activity. A row of switches was used to enter binary code to store individual frequencies. In some later models a punch card or metal comb was used to load the binary code.

The true predecessors of today's modern scanning receivers are those first radios to use a numeric keypad to store frequency information and control the radio, and numeric LCDs to show the programmed information and display the status of the radio. The row of lights was replaced with a row of zeroes or other display elements in the LCD to show scanning activity.

As it became possible to increase the memory capacity of these microprocessor controlled scanners, designers started looking for ways to organize this expanded memory to make operation easier for users. This led to the typical bank/channel memory organization that is still used in many scanning receivers today. This design works well when scanning conventional, non-trunked frequencies.

Trunking presented new challenges for designers. Early designs operated in trunking or conventional mode, but not both at the same time. Because programming for trunked systems includes many parameters not normally used in conventional radio scanning, it was necessary to design a completely separate user interface for entering trunking parameters and scanning trunked systems. Soon after the first early models were released, new "multi-scanning" receivers appeared that allowed users to scan different combinations of trunked systems or conventional channels simultaneously.

Trunking scanners soon earned a reputation for being complex and difficult to program. Even experienced expert users were frustrated when confronted with the challenges of programming and operating a trunked scanning receiver. Part of the problem with trunking scanners was the way that trunking functionality was added to the radio. Until recently, trunking functionality was forced into the traditional bank/channel scanner design. This created confusion and frustration for users, who had to learn two different methods for programming and controlling their scanners – one for conventional, non-trunked channels, and another for trunked systems and talkgroups.

GRE's engineers have studied the challenges of programming and operating today's current crop of trunked scanning receivers. We have also carefully studied how scanning hobbyists like to use their radios, and the role the Internet plays in the scanning

hobby. We have studied the scanning hobby itself, which has changed dramatically over the years as radio systems, scanning receivers and scanner hobbyists have all become more sophisticated. Sophistication is a generally good thing, but in this case it can have the effect of locking out newcomers to the hobby.

Our engineers decided that an entirely new method of programming and controlling scanning receivers was needed – essentially, a new user interface. Several design objectives were defined. These included the following:

- There should be a strong focus on ease-of-use. The radio should do as much work as possible for the user. A brand new hobbyist should be able to begin using the radio quickly with minimal frustration. There should also be enough advanced features and functionalities to satisfy the most sophisticated expert users.
- The user interface should be intuitive. Interactions with the radio should be standardized to the extent possible. For example, the same basic methods should be used whether adding a new conventional channel or adding a trunked talkgroup.
- The scanner should include efficient memory usage. Bank/channel designs result in much wasted memory. Memory should be allocated as it is needed for new objects.

Our engineers realize that our scanners are used by a wide variety of users with varying levels of experience and expertise. These include amateur radio operators, scanner hobbyists, fire buffs, railfans, public safety professionals, volunteer firefighters, news and media organizations, and most importantly, everyday people who just want to know what is going on around them.

All of these users have a few things in common about the way they use scanning receivers. First, they all follow the same basic process when configuring and programming the radio for use. Second, all have one or more collections of frequencies, talkgroups, or other things they listen to.

As our engineers studied the scanning hobby and those who use scanners, they began to realize that the scanning hobby had much in common with hobbies that involve collections, like stamp collecting, coin collecting, and so on.

Hobbies of collection all have some things in common:

- Typically, a collector starts off small, and adds to the collection
- A collector groups items in the collection according to their type
- A collector looks for new things to add to the collection
- A collector removes items from the collection that they no longer desire
- A collector enjoys the collection

Specifically, with regard to scanning:

- At first, the typical scannist starts off small, and expands. This is especially true with beginners and newcomers to the hobby.
- The scannist groups channels and talkgroups according to area or type of use
- The scannist searches or tunes to find new things to scan
- A scannist removes channels and talkgroups they no longer need
- A scannist enjoys the collection of channels and talkgroups they have programmed into the scanner

Our engineers determined that a new scanner design would be most useful if it could be used as a tool by the scanning hobbyist to build and enjoy the collection of channels and trunked talkgroups they have programmed into the scanner.

Much of what you see in the design of your new GRE scanner with Object Oriented User Interface is intended to meet the objectives we describe above, and serve as a tool to help you manage and enjoy your collection of “Scannable Objects”.

What is Object Oriented Scanning?

To put it simply, Object Oriented Scanning describes a new user interface design for scanning receivers (the Object Oriented User Interface, or OOUI). In Object Oriented Scanning, we introduce

the concept of the Scannable Object. A Scannable Object is defined as “something that can be scanned”.

The Scannable Object concept is very important in the OOUI design. Recall that one of the more frustrating things about current trunking scanners is that entirely different methods of programming and interacting with the radio are used depending on whether the user is working with trunking talkgroups or conventional channels. A method that works with one does not work with the other. The user must learn two entirely different “languages” for “talking to” the radio – one for trunking and one for conventional, non-trunked frequencies.

What if it was possible to use the same basic “language” regardless of whether a user is working with trunked talkgroups or conventional channels, such that once a user has learned how to enter a conventional channel into memory, they already know most of what they need to know to enter a trunked talkgroup? Or, a search range, or other “Scannable Objects”? This is how the OOUI works – the two primary Scannable Objects, talkgroups on trunked radio systems and conventional non-trunked frequencies use the same user interface elements.

Additionally, we include limit and service search configurations and Spectrum Sweeper configurations as Scannable Objects. This means that it is possible to create, edit, group, scan and delete service and limit searches, and SWPR configurations using the same methods that are used when working with trunked talkgroups and conventional channels.

Object Oriented Scanning also lends itself quite well to the “collector hobbyist model” we describe above. Object Oriented Scanning makes it very easy for newcomers to the hobby or the radio to start off with a small collection Scannable Objects and expand their collection as needed later. Object Oriented Scanning makes it easy to group Scannable Objects in Scan Lists, a powerful and flexible grouping system. Object Oriented Scanning makes it easy to search for new frequencies or talkgroups to monitor, and add them to existing or new Scan List groups. Object Oriented Scanning makes it very easy to delete or deactivate objects and Scan Lists that you do not want to listen to, including a powerful temporary lockout mode that allows you to zero in on activity associated with a specific incident, then restore your desired configuration when the incident is over. Finally, Object Oriented Scanning makes it exceedingly easy for

the scannist to enjoy the collection of channels and talkgroups they have programmed into the scanner.

About this manual

Object abbreviations used in this document

We described how your new GRE scanner utilizes an Object Oriented User Interface in the Introduction and Overview sections of this manual. You learned that the key components of this new user interface are the Scannable Objects, which are, of course, “things that can be scanned”. As you begin to use your new scanner, you will notice that the object names are abbreviated so that they can easily fit into the 16 character LCD. (Imagine what the radio’s display would look like if “Trunking Talkgroup Object” was spelled out in its entirety every time it was necessary to show it in the display.)

You should take a moment and become familiar with these abbreviations now. For consistency, the same abbreviations for the different object types are used in the radio and here in the manual.

TGRP

TGRP is used to represent a Trunking Talkgroup Object. Trunking Talkgroups are “virtual” channels that exist on a trunked radio system. A trunked radio system is a radio system where a small group of radio channels are automatically shared between a larger number of users and user groups. This of sharing of channels is managed automatically by a special computer, called a **controller**, or by other specialized hardware. For now, all you need to know is this; if you want to monitor a talkgroup on a trunked radio system, you must store that talkgroup’s parameters in a TGRP object.

TSYS

TSYS is used to represent a Trunking System Object. A TSYS is a special object type that is used when creating TGRP objects. A trunking talkgroup must be associated with a specific trunked radio system in order for it to operate. There are parameters that are associated with trunking systems, such as the type of trunked radio system technology is used, the frequencies that the system uses to broadcast control data, etc. Instead of entering these parameters over and over again every time you create a new TGRP on the same trunked radio system, you create a

TSYS object with all of the system parameters, then specify that TSYS object for each TGRP you create on the same trunked radio system. A TSYS cannot be scanned by itself and is not considered a Scannable Object. It is a “configuration object” that can be used over and over again when adding talkgroups for a specified trunked radio system.

CONV

CONV is used to represent a Conventional Channel Object. A Conventional Channel Object is a regular, non-trunked frequency used for radio communications. CONV objects are used to store the parameters for any radio channel that is not a part of a trunked system. For example, if you want to monitor specific VHF marine channels, they should be programmed as CONV objects. If you want to monitor your favorite amateur radio repeater, it should be stored as a CONV object. If your police or fire department uses a channel, or channels that are not trunked, but part of a “plain old radio system”, they should be stored as CONV objects.

LMIT

LMIT is used to represent a Search Range, or Limit Search Object. LMIT objects contain the parameters necessary for the radio to search a range of individual frequencies between a lower and upper limit frequency.

SRVC

SRVC is used to represent a Service Search Object. SRVC objects are further divided into Public Safety, Aircraft, Amateur, CB, Marine, and FRS/GM/MURS/DOT. SRVC objects are similar to LMIT objects, but are preprogrammed to search all frequencies associated with the selected service. For example, selecting the Amateur SRVC search will search selected amateur radio frequency ranges frequencies in the VHF and UHF portions of the radio spectrum.

SWPR

SWPR is used to represent a Spectrum Sweeper Object. SWPR objects contain the parameters necessary for the radio to rapidly sweep a range of radio spectrum for strong signals from nearby transmitters.

The FCC Wants You To Know

This equipment has been tested and found to comply with the limits for a scanning receiver, pursuant to Part 15 of the FCC

Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

Scanning Legally

Your scanner covers frequencies used by many different groups including police and fire departments, ambulance services, government agencies, private companies, amateur radio services, military operations, pager services, and wireline (telephone and telegraph) service providers. It is legal to listen to almost every transmission your scanner can receive. However, there are some transmissions you should never intentionally listen to. These include:

- Telephone conversations (cellular, cordless, or other means of private telephone signal transmission)
- Paging transmissions
- Any intentionally decoded scrambled or encrypted transmissions

According to the Electronic Communications Privacy Act (ECPA), you are subject to fines and possible imprisonment for intentionally listening to, using, or divulging the contents of such a transmission unless you have the consent of a party to the communication (unless such activity is otherwise illegal).

This scanner has been designed to prevent reception of illegal transmissions. This is done to comply with the legal requirement that scanners be manufactured so as to not be easily modifiable to pick up those transmissions. Do not open your scanner's case to make any modifications that could allow it to pick up transmissions that are illegal to monitor. Doing so could subject you to legal penalties.

We encourage responsible, legal scanner use.

In some areas, mobile use of this scanner is unlawful or requires a permit. Check the laws in your area. It is also illegal in many areas to interfere with the duties of public safety officials by traveling to the scene of an incident without authorization.

Getting Familiar With Your 0715

The following illustrations are provided to help you get familiar with your 0715's controls and accessories.

0715 Front View



Figure 1 - 0715 front view

0715 Rear View



Figure 2 - 0715 rear view

0715 Accessories

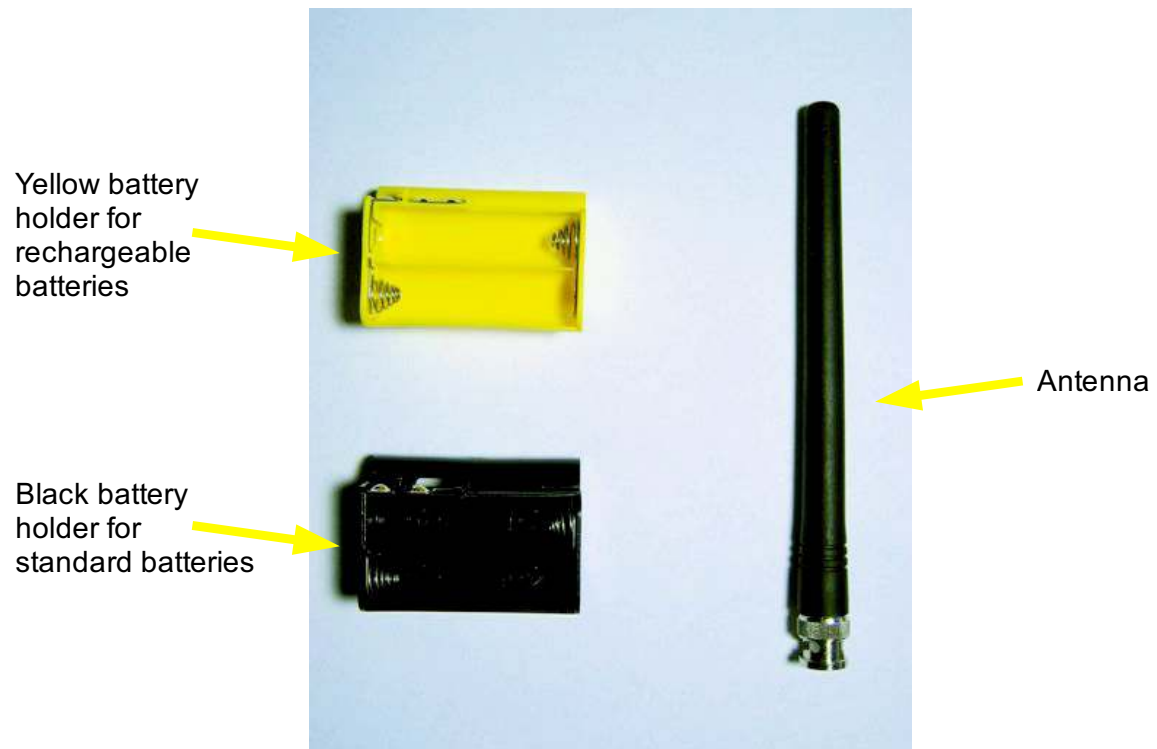


Figure 3 - 0715 Accessories

Understanding the Display Icons

Your 0715 features a high contrast, backlit Liquid Crystal Display (LCD) to provide important information about the status of the radio while you are programming and using it. The LCD includes a row of icons at the top that provides information about the status of the scanner while it is operating. Beneath this row of icons, there are 4 rows of 16 characters each that provide alphanumeric information for frequencies, object names, Scan List status and menu information. Figure 4 provides an example of the display that is shown while the radio is scanning.

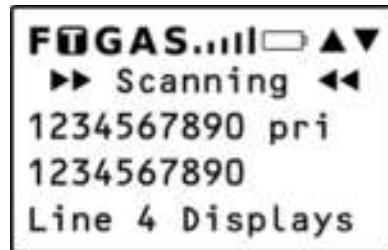


Figure 4 - Scanning Display

The top row of icons are defined as follows:

- F** The Function Key (FUNC) has been pressed. FUNC acts as a “shift” key and typically enhances in some way the action of the button that follows it. When using FUNC, press the FUNC key first and release it, then press the next key.
- T** The scanner is currently receiving trunking control channel data.
- G** The attenuator is set for Global mode.
- A** The attenuator is currently active.
- S** The radio’s squelch circuit is open.
-  Signal meter indicating strength of the received signal.
-  Battery status indicator. Comes on solid when battery is weak, and flashes when battery failure is imminent.
-  Menu position and search direction indicators.

Understanding the Keypad

Your 0715 features an easy-to understand backlit keypad with 34 keys that are used to control and program the radio. Figure 5 highlights the various keys and their basic functions. For more information on key functions see the Detailed Menu Reference.



Figure 5 - Keypad layout

Softkeys

F1, F2, F3 - activate function shown in the display, immediately above the softkey.

Five Way Pushbutton Pad

◀ ▶ ▲ ▼ keys are used for navigation while browsing objects and menus. **SEL** key activates data entry fields and toggles Scan List selection in object menus. **FUNC SEL** activates context sensitive help in menus.

Numeric Keypad

Used for data entry of frequencies, talkgroup IDs and alphanumeric labels. Used while scanning, **1-9** and **0** toggle Scan Lists 1-10 on and off. **FUNC 1-9** and **0** toggle Scan Lists 11-20 on and off.

Operation Keys

FUNC - activates alternate key functions. **FUNC** key operation is very intuitive - typically it "amplifies" the keypress that follows it.

☼ - activates backlight, **FUNC** ☼ locks keypad.

MAN - Places scanner in Manual Mode for monitoring single objects.

SCAN - Places scanner in Scan Mode for scanning enabled objects, **FUNC SCAN** launches Spectrum Sweeper.

TUNE - Allows direct tuning of any valid frequency, **FUNC TUNE** loads the current or most recently scanned frequency into TUNE

SRCH - Dedicated Search mode for service and frequency searches

ATT - Toggles Attenuator on and off, **FUNC ATT** toggles Global Attenuator mode

PRI - Toggles the Priority setting for selected or active object, **FUNC PRI** toggles Priority Mode on or off for the scanner

FAV - Activates Favorites Scan Mode, **FUNC FAV** adds the current object to the Favorites scan list

WX - Activates Weather scan, **FUNC WX** activates Skywarn mode

PGM - Places scanner in Program Mode for editing radio-wide options, adding new objects or editing existing objects, **FUNC PGM** accesses V-Scanner mode

L/OUT - Toggles Temporary Lockout on active or selected object, **FUNC L/OUT** applies permanent lockout (can be changed in the GLOB menu)

ENT - Enter key

PSE - Pauses scan or search operation on active object

Getting Started

First Time Startup

We believe that your new 0715 is so easy to use that scannists with at least some experience in the hobby should be able to get up and running in a matter of just a few minutes. If you already know the difference between a conventional channel and a talkgroup, or a search range and a Spectrum Sweeper, we invite you to dive right in and set the radio up to begin scanning your first objects. If you get stuck, you can refer to this Getting Started section, or see the relevant sections in the Detailed Menu Reference. Otherwise, please read on and allow us to help you get acquainted to your new scanner!

Unpack the radio

Unpack your radio carefully. Save all documentation and packing materials in case it is necessary to return your scanner for repair.

Insert the batteries

Remove the door covering the battery compartment by pressing gently where the door is marked **OPEN** and sliding the door downwards until it stops, approximately 1/4". Lift the door away from the radio. Remove the supplied battery holder. Insert four AA batteries into the holder, taking care to ensure that the batteries are inserted according to the diagram shown inside of the holder assembly. Insert the holder into the battery compartment, then replace the battery compartment door by placing it back over the batteries and sliding it upward gently until it locks in place.



NOTE: Two battery holders are included with your 0715. The black battery holder should be used with non-rechargeable alkaline batteries. The yellow battery holder should be used with rechargeable NiMH or NiCAD batteries. The radio will charge the batteries when the yellow holder is used in conjunction with an approved AC adapter.



WARNING: Never place non-rechargeable batteries in the yellow holder. Intentionally or accidentally recharging non-rechargeable batteries will cause them to leak or explode.

Attach the antenna

Remove the antenna from its protective plastic wrapper. Align the slots on the antenna's BNC male connector with the posts on the radio's BNC female connector and slide the antenna in place, then rotate the antenna's BNC connector 1/4 turn clockwise until it snaps in place.

Turn the radio on

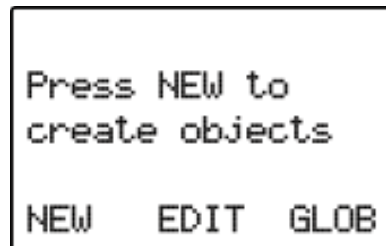
Rotate the top knob of the VOLUME/SQUELCH control clockwise to turn the radio on. Set both the VOLUME and SQUELCH knobs at their mid-point (12 o'clock) position.



NOTE: While 12 o'clock is a good squelch setting to start with, it may cause your radio to miss some calls with weak signals. You will probably want to optimize the squelch setting to set it close to threshold. To optimize the squelch setting to be close to the best threshold, press **TUNE**, then rotate the squelch control counterclockwise until a rushing sound is heard from the speaker. Rotate the squelch control clockwise just past the point where the rushing sound stops. The squelch is now set to the optimum point. Please note the position of the squelch control for future reference. Once the squelch setting is complete, you may press **PGM** to exit TUNE mode.

Creating Your First New Objects

When the scanner is first turned on after it is unpacked, you are working with a clean slate. You will notice that your scanner tells you this:



The scanner is in program mode and is ready for you to enter the first Objects into the memory. The scanner prompts you to Press NEW to create objects.

You will also notice that there are three pushbutton keys beneath the display, and above each button in the display, a label that indicates the current function of these three keys. These keys are called **softkeys**, and they function much like the softkeys on

many Automatic Teller Machines. Their meaning can change depending on the operational state that the radio is in. Right now, the softkeys on your radio should read as follows:

NEW EDIT GLOB

Let's focus on the **NEW** softkey for a few minutes. As you might have guessed, **NEW** is an invitation for you to create a new Scannable Object (CONV, TGRP, LMIT, SRVC, or SWPR). So, what would you like to create first? We suggest that you start with a Conventional Channel Object (CONV) first, to get familiar with the radio's user interface and display.

Conventional Channel Object (CONV)

A Conventional Channel Object (CONV) is a record that stores the parameters for a regular, non-trunked conventional AM or FM channel. When you create a CONV object, you are creating an object that will allow you to scan and monitor a "plain old radio channel", that is, a single frequency and the associated parameters that are necessary for you to receive traffic on that frequency.

Essential Conventional Channel parameters

CONV objects are the simplest objects supported by the radio. By this we mean that there really isn't that much for you to do if you want to create one. There are only a few essential parameters in the CONV object fields that must be set correctly for a CONV object to work. The Frequency must be set to match the frequency of the transmitter you want to scan or monitor, and the MODE should be set to AU, or, if desired, AM, FM or NFM. Note that the scanner will automatically select the default mode based on the frequency you enter when MODE is set for AUto. In most cases it will not be necessary to change this.

We also recommend that you label your CONV object by giving it a name in the TAG field. This will make it easier for you to find the CONV object later, and identify it when the scanner stops to monitor activity. Enter your CONV object by following these steps.

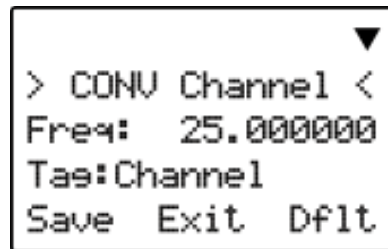
As we mentioned above, a brand new radio will launch into Program Mode when it is first turned on, which allows for creation and editing of Scannable Objects. If this is the first time you have turned on your radio, you should see these softkey labels at the bottom of your screen:

NEW EDIT GLOB

If not, press the **PGM** (Program) key now.

Press the **NEW** softkey to begin entry of a new object.

Press the **CONV** softkey to begin entry of a **CONV**entional Channel object. Your scanner's display should read as follows:



The image shows a monochrome LCD display with a black border. Inside the border, the text is as follows: a right-pointing chevron followed by 'CONV Channel' followed by a left-pointing chevron; 'Freq: 25.000000'; 'Tas: Channel'; and 'Save Exit Dflt'. In the top right corner of the display area, there is a small, solid black downward-pointing triangle.

```
> CONV Channel <
Freq: 25.000000
Tas: Channel
Save Exit Dflt
```

Now, take a moment and study the display. You will notice that the ▼ icon is active. Its purpose is to indicate that you are at the very top position of the menu for a conventional channel object, and there are more parameters that can be accessed if you scroll down. We also see three new softkeys:

Save Exit Dflt

The **Save** softkey will save your new **CONV** object to the file system when pressed (but don't press it yet!). The **Exit** softkey aborts the creation of the new **CONV** object, and the **Dflt** softkey restores the selected **CONV** menu parameter to its default setting.

If you press the ▼ key on the bottom of the 5-way pushbutton pad, you can scroll down and see all of the parameters that can be specified for a **CONV** object. Go ahead and take a peek - then scroll back to the very top of the display so you can begin entering information for your first **CONV** object.



*HINT: Pressing **FUNC** ▲ or **FUNC** ▼ will jump to the top or bottom of a menu, respectively.*

Note that as you scroll both the upward and downward scroll indicators will illuminate to indicate that there are parameters above and below the current cursor position, until you get to the very end of the menu, where only the upward scroll indicator will be on to indicate that there are no more parameters below the current cursor position. Also note that a few lines of context sensitive help are available for each menu item. To see the help

text for a menu item, press **FUNC** then press **SEL** on the 5-way pushbutton pad. To exit help, press **SEL** again.

With the scrollable window position so that the flashing cursor appears next to the Freq: label, key in a known local frequency and press the **ENT** key, or press the **DONE** softkey - either one will do the same thing. There! You just entered the frequency for your first CONV object.

By default, your new CONV object will be tagged "Channel". If you'd like to change this, just scroll the screen until the flashing cursor highlights the **Tag:** field, then press **SEL** to edit the tag. You can move the cursor around using the **◀ ▶** keys on the 5-way pushbutton pad, use the **CL** key to clear the old text, or press **FUNC CL** to erase the entire field. To enter text, find the letter you want to enter on the front panel of the radio, press the numeric key beneath it, then press 1, 2, 3, or 4 depending on the position of the letter in the group for that number. For example, to enter FIRE, press:

3 3 F
4 3 I
7 3 R
3 2 E

Press the **ENT** key or **DONE** softkey to store the new tag information for your CONV object.

Now you are ready to store your first CONV object. There are other parameters that you can change, and we invite you to scroll through the CONV menu to see the other settings that are available. You can experiment with the different settings. If you make a change that you aren't certain about, press the **Dflt** softkey to restore the setting to its original values.

When you're ready, simply press the **Save** softkey to save your new conventional object. Once the object is saved, you can continue to enter other new objects, or press **MAN** to listen to the CONV object you just entered, or **SCAN** to start scanning!



NOTE: Your scanner uses Scan Lists as a way to group objects together according to your preferences for scanning. By default, all new objects are placed in Scan List 01. There are a total of twenty regular Scan Lists in your radio, a special Favorites Scan List, and a scan list to hold Skywarn objects. Scan List membership for an object is

assigned in the individual object menus. For now, just let your new objects go to the default Scan List 01. Later in this section we will show you how you can group your objects into Scan Lists.

Talkgroup Object (TGRP)

A Trunking Talkgroup Object (TGRP) is a record that stores the parameters for a trunked talkgroup on a trunked radio system. When you create a TGRP object, you are creating an object that will allow you to scan and monitor a talkgroup on a particular trunked radio system.

Essential Trunking Talkgroup parameters

As a standalone object, a TRGP object is really no more complicated than a CONV object. The trunking system (TSYS) that the TGRP is a member of must be specified. Each talkgroup has a digital “address” on the trunking system, which is called the talkgroup ID, and this must be provided. We also recommend that you label your TGRP object by giving it a name in the TAG field. This will make it easier for you to find the TGRP object later, and identify it when the scanner stops to monitor activity.

Setting up and using a Trunking System (TSYS) object

We just mentioned that the TSYS is an essential parameter needed in order for a TGRP object to function properly and receive radio traffic. The TSYS object has its own set of essential parameters, and these parameters vary depending on the type of trunked radio system you plan to monitor. If you are a reasonably experienced user you probably already know what the essential parameters are for the system you wish to monitor. For example, each TSYS must correctly specify the type of system being monitored, the control channel or LCN frequencies used by the system, and so on. A detailed description of each type of system supported by this radio and the essential parameters required to make the different types of trunked radio systems work properly is provided in the Detailed Menu Reference. So, if all of this makes sense to you then you should proceed and enter the required data for the system you wish to monitor to make a new TSYS as you create your TGRP. If not, please refer to the TGRP section of the Detailed Menu Reference so that you will understand which TSYS parameters are required for the type of trunked radio system you wish to monitor.

The first time you make a TGRP, you must also create a TSYS that contains the system parameters associated with the trunked radio system itself. Once you create a TSYS object for a particular trunked radio system, you can use the TSYS object

over and over again without having to re-enter all of the system data.

Assuming that you have already entered one or more CONV objects (which we recommend you do prior to attempting the entry of the slightly more complicated TGRP object), you should press the **PGM** key to place your scanner into Program Mode, then press the **NEW** softkey, then press the **TGRP** softkey. Your radio display should appear as follows:

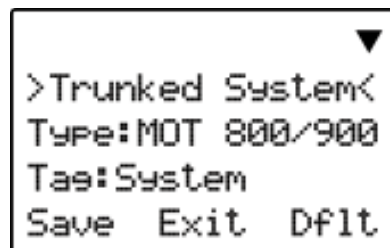
A screenshot of a radio's monochrome LCD display. The screen shows a menu for 'Talkeroup' with a right arrow on the left and a left arrow on the right. Below the title, it says 'TSYS:New', 'ID:Wildcard', and at the bottom, 'Save Exit Dflt'. A small downward-pointing arrow is in the top right corner of the display area.

```
> Talkeroup <
TSYS:New
ID:Wildcard
Save Exit Dflt
```

In the same way as with the CONV object, this menu of TGRP parameters can be scrolled up and down to access and enter or change the various parameters associated with a trunking talkgroup.

For the purpose of this example, we will assume that you wish to create a TGRP object for a Motorola Type II 800 MHz trunked radio system, which is one of the more common types of trunked radio systems in use. (If this is not the case, we encourage you to refer to the Detailed Menu Reference section of this manual for instructions that apply to the type of TSYS you wish to monitor.)

If necessary, scroll the display so that the flashing cursor is highlighting the TSYS field, then press the **SEL** key in the center of the 5-way pushbutton pad. Your radio's display should appear as follows:

A screenshot of a radio's monochrome LCD display. The screen shows a menu for 'Trunked System' with a right arrow on the left and a left arrow on the right. Below the title, it says 'Type:MOT 800/900', 'Tas:System', and at the bottom, 'Save Exit Dflt'. A small downward-pointing arrow is in the top right corner of the display area.

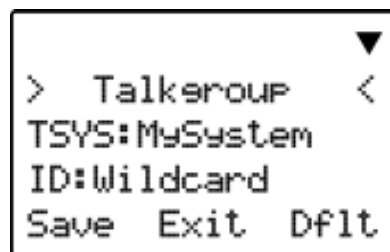
```
>Trunked System<
Type:MOT 800/900
Tas:System
Save Exit Dflt
```

We are entering a new Motorola Type II 800 MHz system, so we can leave the **TYPE:** field as-is. It's a good idea (in fact, a REALLY good idea, for reasons you will see as you proceed) to

scroll to the **Tag:** field and enter a name for the system using the methods previously described for naming your CONV object. We will use the tag **MySystem** for this particular example in the documentation.

Next, scroll to the **Frequencies:** field to begin entering the control channel frequencies for the **MySystem** trunked radio system. Press the **SEL** key, and at the **Ch01:** field you should enter the first control channel frequency for your Motorola trunked radio system. Simply key in the frequency including the decimal point, and press the **ENT** key or the **DONE** softkey to store the control channel frequency. Repeat this step to add any other control channels used by the system. Typically, a Motorola trunked radio site or system will have one active control channel and three backup control channels. You need only enter the active control channel for the scanner to track the system, but if the system switches to a backup control channel the scanner will not receive traffic unless the frequency for the backup control channel has been entered.

Once you have finished entering the control channels, press the **SAVE** softkey. This will store the new **TSYS** into memory and return you to the **TGRP** parameter entry. Your display will now appear as follows:



Notice that the system name has changed to reflect the name you chose when you were entering the parameters for the trunking system. As you enter this **TGRP** and other **TGRP** objects for this system, you will just specify the system name here. So, the **TSYS** parameters for a system need only be entered once. You simply specify the already-entered **TSYS** as needed when building more **TGRP** objects for the same system.

Scroll down one click to the **ID:** field. Note that by default, the trunking talkgroup ID is set to **Wildcard**. Wildcard is a special type of **TGRP** object that allows you to monitor all talkgroup call traffic on the associated trunked radio system. Wildcard **TGRP** objects allow you to quickly find and store new or unknown talkgroups on a trunked radio system. When a Wildcard **TGRP**

object is mapped to an active Scan List and scanned, all talkgroup traffic on the system is monitored, and you have the option to save or lock out new talkgroups as they appear. You may wish to save your TGRP object as a Wildcard with no further changes. If so, just press the **SAVE** softkey to store your new TGRP as a wildcard. By default it will take the tag name of **ID: Wildcard**.



HINT: *Wildcard objects are easier to find and change later if you include an abbreviated name for the system in the tag field.*

If you would rather store a TGRP object for a specific talkgroup ID on MySystem, just press the number keys to enter the talkgroup ID of the desired talkgroup, then press the **ENT** key or the **DONE** softkey to store the ID.



HINT: *TGRP objects are also used to receive Private/Individual Calls on trunking systems that support these call types. Simply change the **Type:** field from Group to Private. A Wildcard TGRP object with the **Type:** field set to Private will monitor all Private/Individual Calls seen on the system, or you can specify a radio ID to watch for in the **ID:** field.*

You'll want to scroll down one more click to the **Tag:** field and enter an easy to remember name for your talkgroup that corresponds with its purpose on the trunked radio system. For this example, let's assume that this is a police dispatch talkgroup, and we would like to use the name "POLICE DISPATCH" for the tag. Scroll to the **Tag:** field and press the **SEL** key on the 5-way pushbutton pad. Using the text entry methods that you have previously employed for naming your CONV and TSYS objects, name your new talkgroup "POLICE DISPATCH":

```

7 1 P
6 3 O
5 3 L
4 3 I
2 3 C
3 2 E
.      <space>
3 1 D
4 3 I
7 4 S
7 1 P

```

2 1 A
8 1 T
2 3 C
4 2 H

Press **ENT** or **DONE** to store the name, then press **SAVE** to store the TGRP as a new object. As with the other object types, there are many other parameters you can edit for the TGRP, but for now, that's all you have to do to start monitoring traffic on that TGRP!



NOTE: Remember, by default all new objects are placed in Scan List 01. For now, just let your new objects go to the default Scan List 01. Later in this section we will show you how you can group your objects into Scan Lists.

Using DUPE to speed up object entry

DUPE is a powerful feature that will help you when entering multiple objects that have similar characteristics. DUPE is especially useful when entering multiple TGRP objects that are hosted on the same trunked radio system, or multiple CONV objects that have similar parameters or tag names. To use DUPE, press the **PGM** key, then scroll to the object that you wish to duplicate using the ◀ ▶ ▲ ▼ keys on the 5-way pushbutton pad. Press the **EDIT** softkey, then press the **DUPE** softkey. An exact copy of the object you selected is created, and the scanner displays the newly created object menu so you can change the parameters that need to be changed prior to saving. Be sure to change the tag name before saving your new object. When finished, press the **SAVE** softkey to save the new object.

Try using the DUPE feature now to enter a few more CONV and TGRP objects before continuing. You might consider using DUPE on your wildcard TGRP object to make a duplicate, then set the **Type** to **Private**, so you'll have a TGRP wildcard for talkgroup calls, and another for private calls.

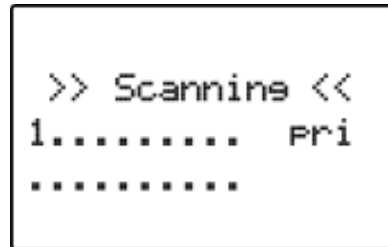
Basic Scanning Operation

Now that you have entered a few CONV or TGRP objects you can experiment with Scan and Manual operation.

Activating Scan Mode will cause your scanner to scan through all Scannable Objects that are members of enabled Scan Lists and are not locked out. Manual Mode allows you to browse the

Scannable Objects you have created so you can select just one to monitor.

To activate Scan Mode, just press the **SCAN** key on the keypad. Unless you have explicitly changed Scan List membership, all of the objects you have entered so far should be in Scan List 01, and your scanner should begin scanning these objects immediately when you press the **SCAN** key. The scanner display indicates Scan Mode as follows:



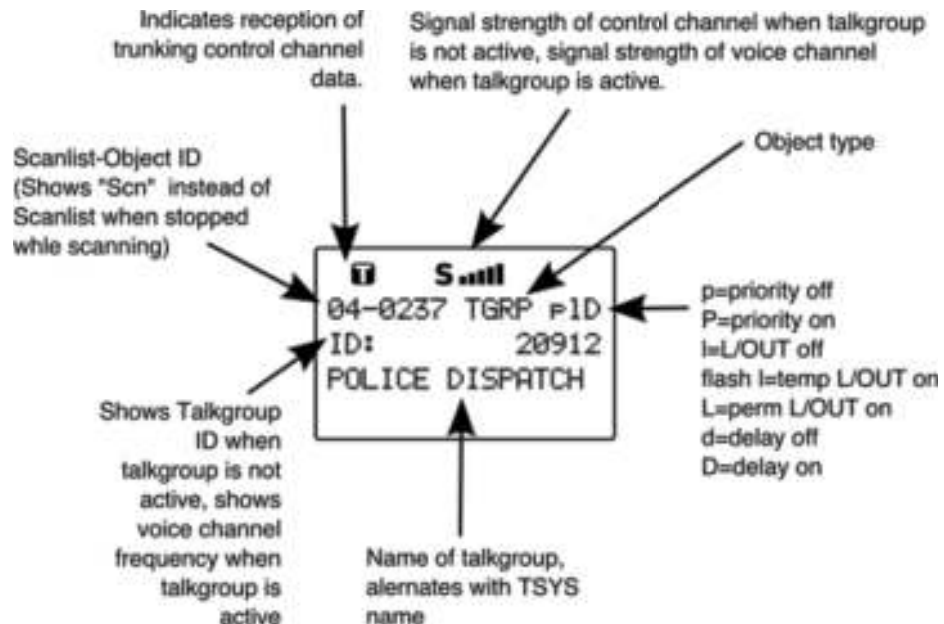
Study the two rows under the “Scanning” display. Each space represents the status of a Scan List in your radio. The top row of numbers represents Scan Lists 1 through 10, and the bottom row represents Scan Lists 11 through 20. Unless you have already enabled other scan lists in your radio, you will only see the number “1” in the top row. All of the other spaces contain “.” symbols, which indicates that these other Scan Lists are currently not enabled.

If you have included one or more TGRP objects in your programming, and are within range of the trunked radio system for those TGRPs, you will see the  icon flash periodically while the radio is scanning. The  icon indicates that the scanner is receiving control channel data from a trunked radio system.

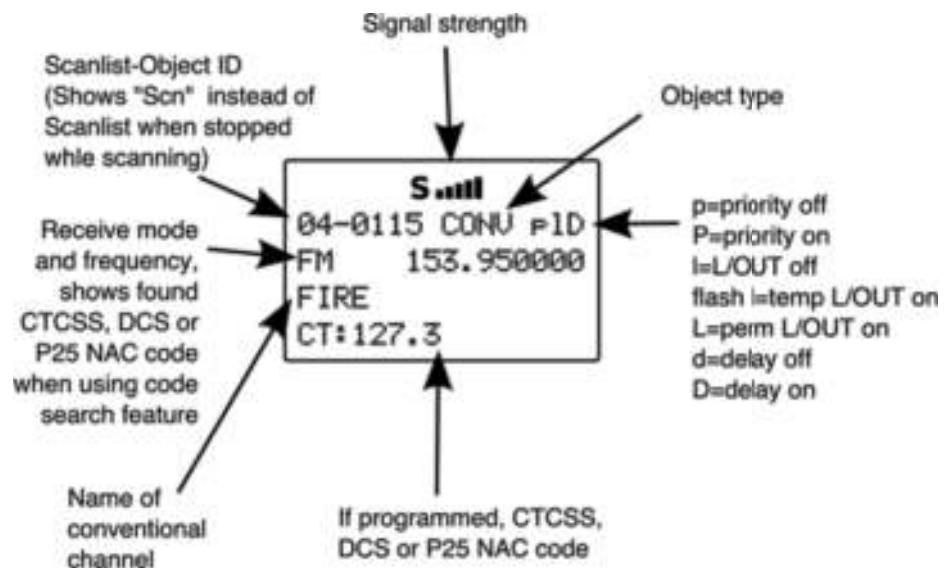
To pause the scanner on an active object so that the scanner does not resume scanning, press the **PSE** (Pause) key while the scanner is stopped on that object, and press **SCAN** to resume scanning.

While the scanner is Manual Mode, you can browse through the stored objects in your scanner and select one object to monitor. Use the **▲** and **▼** keys on the 5-way pushbutton pad to scroll through the objects assigned to the current Scan List. The **►** and **◄** keys on the 5-way pushbutton pad are used to browse up and down through the Scan Lists, respectively. Only Scan Lists that contain objects are shown when browsing. A quick low-high wrap beep is played when the scanner reaches the last occupied Scan List and wraps back to the beginning.

When the scanner is stopped on a TGRP while scanning, or paused in Manual Mode, the display will appear as follows:



When the scanner is stopped on a conventional channel while scanning, or while paused in Manual Mode, the display will appear as follows:



Advanced Startup Topics

Congratulations! Now that you have mastered the creation of Scannable Objects and how to monitor them using Scan and Manual Mode, you can move on to some more advanced startup topics.

This Advanced Startup Topics section of the manual will provide you with more basic information about how you can create other types of Scannable Objects, and how you can group your Scannable Objects into different Scan Lists and work with the Scan Lists to quickly enable or disable groups of objects that you want to monitor. You can also read the Detailed Menu Reference section of this manual to learn more about the different object types and their parameters, and how to perform more advanced operations with your scanner.

About Object Numbering

Your 0715 is different from other types of scanners in how it stores your scannable objects in memory. Instead of fixed channels and banks, objects are stored in the first available block of free memory and assigned an Object ID. The Object ID is the “address” where the object is stored in memory. You can use this address to quickly access your stored objects when in the Manual Mode and PGM modes. Press **MAN** or **PGM**, then key the Object ID using the numeric keypad, then press ENT to go to that object.

The Object ID is displayed as a four digit number in the upper right-hand corner of the display whenever an object is selected in Manual Mode and PGM modes, and when the scanner stops on an active object while scanning. Additionally, the current Scan List number is displayed prior to the Object ID when an object is selected in Manual Mode or PGM mode, i.e.,

10-0348

indicates Object ID 0348 in Scan List 10.

Search Object Types

A very powerful feature of your 0715 is the ability to define different types frequency searches and process them while scanning. Frequency searches are just another type of Scannable Object in the hierarchy of the radio's memory organization, so they can be manipulated and scanned in the same manner as conventional channels and trunking talkgroups.

There are several different types of frequency searches available in your scanner.

Limit Search Object (LMIT)

A Limit Search Object (LMIT) is a search object that stores the parameters necessary for the radio to search each frequency within a lower and an upper limit for activity. A LMIT object can be used for standalone searching – the radio just searches and stops when activity is detected on a frequency, or for searching that is performed while the radio is scanning. The radio treats LMIT objects just like any other Scannable Object when in Scan Mode. If you create a LMIT object, assign it to a Scan List and press the SCAN key, the radio will check for activity on all the Scannable Objects – TGRP objects, CONV objects, and even LMIT objects. An example of when this might be handy would be when you want to scan for activity on a collection of TGRP and CONV objects, then run through a range of frequencies to look for activity there, such as the entire 2 meter amateur radio band or the entire VHF marine radio band. When used in Scan Mode, this capability is best suited for small ranges of frequencies that contain more frequencies than practical to program as individual channels. Any size range can be used, but larger ranges that take more time to search will increase the chances of missed activity on other object types.

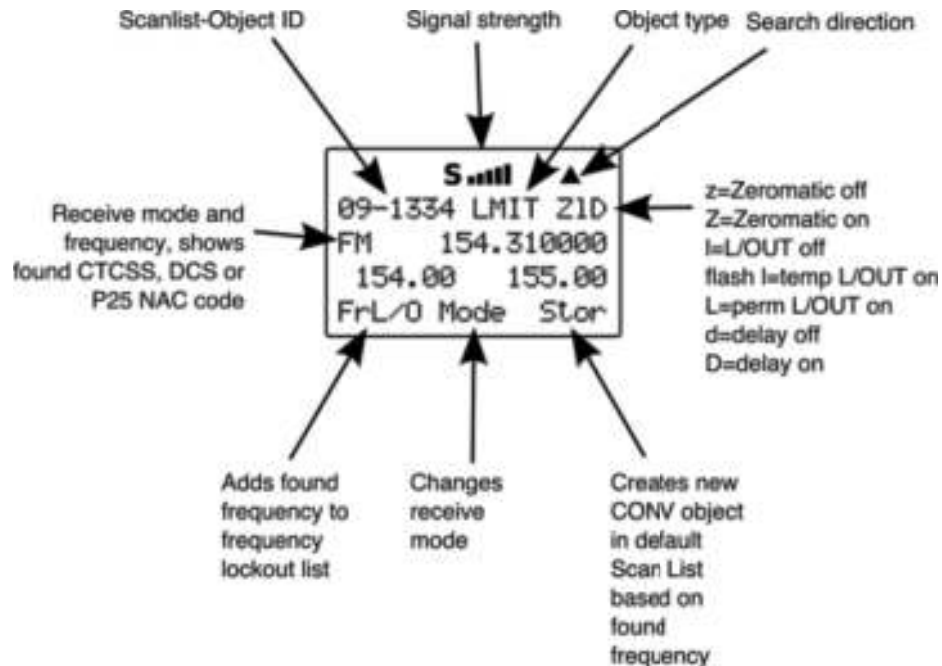
Essential Limit Search parameters

Much like the other object types, there are only a few parameters that are essential in order for a search range to function correctly. The **FrLO:** and **FrHi:** lower and upper frequency limits must be specified, so the scanner will know where to begin the search, and where to end the search and start again. The **Mode:** must be set properly, although by default the scanner will automatically choose the receive mode that most likely applies to the active frequency as the search proceeds. And again, we recommend that you give the LMIT object a name in the **Tas:** field so that you can easily find or identify it later.

To create a new LMIT object, press **PGM** to place your scanner into Program Mode, then press the **SRCH** softkey to view the available Search types, then press the **LMIT** softkey. Use the data entry methods you have already learned for CONV and TGRP object setup to specify the **FrLO:** and **FrHi:** limits, and provide a name for your search in the **Tas:** field. When finished, press the **Save** softkey to store your LMIT search as a new object.

Once your LMIT object is saved, you can use it while scanning, or launch the LMIT search by itself by pressing the **SRCH** softkey after navigating to the LMIT object in Manual Mode.

When the LMIT search stops on an active frequency, the display will appear as follows:



HINT: It can take some time for the 0715 to process all of the frequencies in a LMIT search. You can experiment with different size frequency ranges to find a LMIT search setup that does not interfere excessively with scanning of other object types.

Spectrum Sweeper Object (SWPR)

A Spectrum Sweeper Object (SWPR) is a record that stores the parameters necessary for the radio to rapidly sweep a range of frequencies for strong signals from nearby transmitters. A SWPR object can be used for standalone operation – the radio just sweeps and stops when activity is detected, or for sweeping that is performed while the radio is scanning. The radio treats SWPR objects just like any other Scannable Object when in Scan Mode. If you create a SWPR object, assign it to a Scan List and press the **SCAN** key, the radio will check for activity on all the enabled Scannable Objects – TGRP objects, CONV objects, LMIT objects and SWPR objects. An example of when this might be handy

would be when you want to scan for activity on a collection of TGRP and CONV objects, then do a quick sweep for transmissions from nearby transmitters.

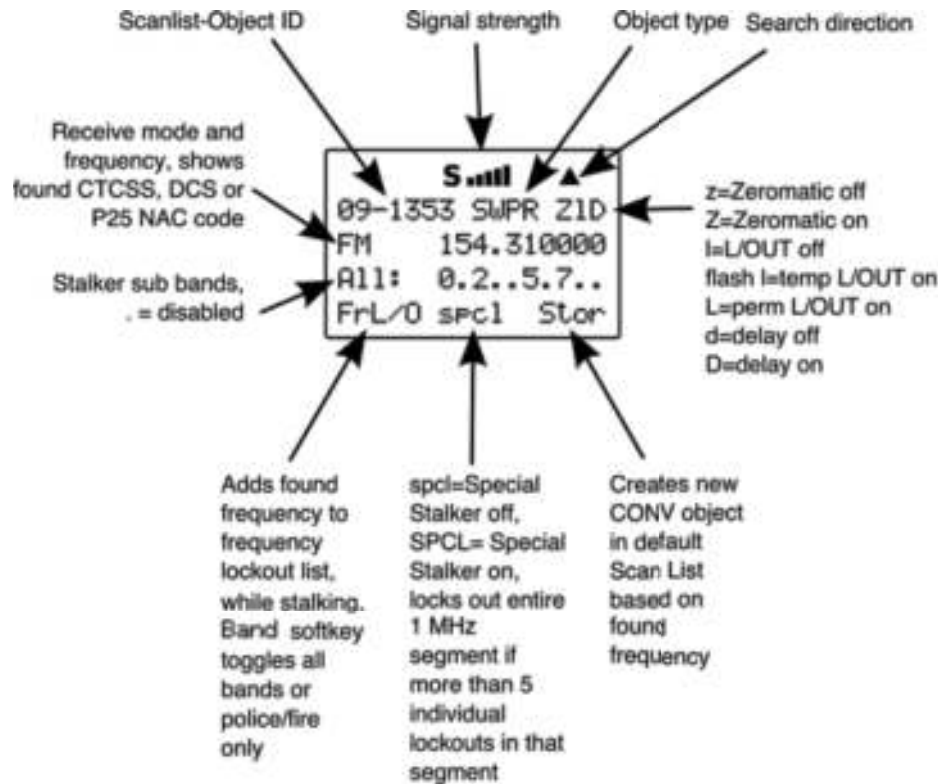
Essential Spectrum Sweeper parameters

Like every other object type, there are certain parameters in a SWPR record that are essential in order for the SWPR object to function correctly. By default, a newly created SWPR object is ready to go without any changes. In its default configuration, the SWPR object will sweep through all of the important land mobile radio bands and look for strong signal activity from nearby transmitters. As you become more familiar with SWPR operation, you may wish to include or exclude some bands in your sweeps to check other frequency ranges or to limit the amount of time the scanner spends sweeping frequency ranges where local transmitter activity is less likely. This will speed up operation, and when used while scanning, will allow the radio to return to scanning for activity on CONV, TGRP and other enabled objects.

To create a new SWPR object, press **PGM** to place your scanner into Program Mode, then press the **SRCH** softkey to view the available Search types, then press the **SWPR** softkey. By default the SWPR parameters are set for a general purpose sweep of all important land mobile radio bands. Optionally, you may wish to toggle the **TYPE** field from All Bands to Public Safety by pressing **►** on the 5-way pushbutton pad. When Public Safety is selected, the frequency sweep will be limited to those frequency ranges typically used for Public Safety communications. Note that other radio services also use these ranges, so don't be surprised if you occasionally hear activity that is not Public Safety related. Be sure to provide a name for your SWPR object in the **NAME** field. When finished, press the **Save** softkey to store your SWPR search as a new object.

Once your SWPR object is saved, you can use it while scanning, or launch the the Spectrum Sweeper object by itself by pressing the **SWPR** softkey after navigating to the SWPR object in Manual Mode.

When the SWPR object stops on an active frequency, the display will appear as follows:



Service Search Object (SRVC)

A Service Search Object (SRVC) is similar to a LMIT search but is optimized for a specific radio service, and can search for activity associated with a type of service across multiple frequency bands.

Essential Service Search parameters

The only critical parameter needed for a Service Search to function is the service type. When you set up a Service Search, you will want to specify the type of service that you wish to search.

To create a new SRVC object, press **PGM** to place your scanner into Program Mode, then press the **SRCH** softkey to view the available Search types, then press the **SRVC** softkey. Scroll to the **Srvc:** field and select the type of search you want to define using the **◀ ▶** keys on the 5-way pushbutton pad. Service types include Public Safety, Aircraft, Amateur, CB, Marine, FRS/GMRS/MURS/DOT and Railroad, and provide frequency coverage as follows:

Public Safety (PubSafety) - Searches commonly used public safety frequencies. Groups are as follows:

0: 33.4-46.5 MHz	VHF Low Band
1: 151-170 MHz	VHF High Band
2: 453-467 MHz	UHF Band
3: 764-806 MHz	700 MHz Band
4: 851-869 MHz	800 MHz Band

Aircraft - Searches civilian and military air frequencies. Groups are as follows:

- 0: 108-118 MHz Navigation
- 1: 118-137 MHz Civilian Voice
- 2: 138-150 MHz Military Voice (excludes 2m Amateur)
- 3: 225-400 MHz Military Voice

Ham - Searches amateur radio frequencies. Groups are as follows:

0: 28.0-29.7 MHz	10m Band
1: 50-54 MHz	6m Band
2: 144-148 MHz	2m Band
3: 222-225 MHz	1.25cm Band
4: 420-450 MHz	70cm Band
5: 902-928 MHz	33cm Band
6: 1240-1300 MHz	23cm Band

CB - Searches the Citizens Band radio frequencies

Marine - Searches the VHF-FM marine radio band

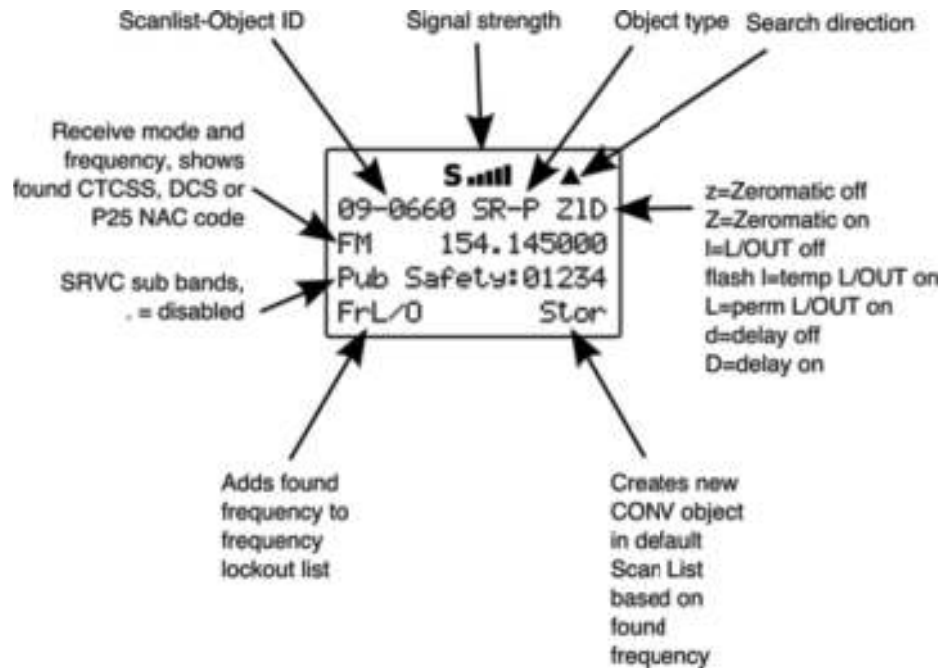
FRS/GMRS/MURS/DOT/STAR (F/G/MURS) - Searches the FRS, GMRS, MURS, DOT and STAR radio frequencies

Railroad - searches the Association of American Railroads (AAR) VHF railroad frequencies used in the US and Canada

When finished, press the **Save** softkey to store your SRVC search as a new object.

Once your SRVC object is saved, you can use it while scanning, or launch the SRVC search by itself by pressing the **SRCH** softkey after navigating to the SRVC object in Manual Mode.

When the SRVC search stops on an active frequency, the display will appear as follows:



Now, take a few moments to practice setting up each of the different search object types by experimenting and creating some SRVC, LMIT and SWPR objects. Remember that there is context sensitive help available for each menu item in the object menus. Just press **FUNC**, then **SEL** to view the help, and **SEL** again to exit the help screen.

These are just a few of the many ways you can incorporate different types of search objects in your Scan List configurations. and, just a few of the many ways that each of the individual search types can be configured to your preferences and needs. Be sure to refer to the Detailed Menu Reference section of the manual for detailed information for each of the search object types.

Grouping Objects in Scan Lists

By default, new objects are automatically assigned to Scan List 01. Now that you have entered a variety of new objects that are, by default, members of Scan List 01, you may want to separate these objects into separate Scan Lists so that you can easily enable or disable groups of objects as needed depending on what you want to scan. There are 20 regular Scan Lists available, a special "FAV" Scan List for one-button access to your favorite Scannable Objects, and a Skywarn Scan List.

Although Scan Lists are similar to the “banks” that are used in older bank/channel scanner designs, you will find that they are much more powerful and flexible than “banks”. The number of objects that can be grouped in a Scan List is limited only by the scanner’s memory, and single objects can be members of multiple Scan Lists without creating duplicate versions of those objects and manually placing them in each Scan List where you want them included.

You can also mix and match different object types in scan lists as you see fit. Feel free to group your objects in the manner that best suits your listening style. If you choose to group your objects by geographical area, and find that the best set of Scannable Objects for your area includes a mix of trunked talkgroups and conventional channels, go right ahead and put them all in the same scan list. There are no limitations as to the type of objects that can exist together in the same scan list.

How you group objects in Scan Lists is entirely up to you! Here are some examples of how objects can be grouped:

Geographically

You may wish to group your Scannable Objects according to the areas where they are used. For example, assume that you routinely travel to another town to visit family. You can assign the channels and talkgroups for fire and police services around your home to one Scan List, and those that are located where your family lives in another. When you travel to visit your family, you can no longer hear the Scannable Objects assigned to your home Scan List, so you disable that Scan List and enable the Scan List that contains the channels and talkgroups that are in use in your family’s town.

By trunking system

It is possible to assign any combination of object types to any Scan List. However, you may wish to assign TGRP objects associated with specific trunked radio systems to specific Scan Lists, so you can easily enable or disable monitoring of each system by enabling or disabling the associated Scan List.

By object type

It may be desirable to segregate object types by assigning them to specific Scan Lists. For example, you can assign a group of LMIT or SRVC searches to a single Scan List, and easily activate or deactivate searching on those objects by enabling or disabling

the associated Scan List. You may wish to place your wildcard TGRP group call or private call objects in a separate Scan List.

By application

You can group objects by their application. For example, you may wish to place all law enforcement related objects for your area in one Scan List, all fire and rescue objects in another, and all business related objects in yet another Scan List. Racing fans may wish to group objects for different cars, drivers, teams and tracks into separate scan lists.

Mapping Objects to Scan Lists

By default, every new object you create is mapped to be a member of Scan List 01. Scan List membership is defined in an object's parameters menu and is typically found at the end of the menu.

To change Scan List membership when creating a new object, scroll down to the **Scan Lists:** parameter in the object's menu before saving the object. With the **Scan Lists:** field highlighted, use the **▶** on the 5-way pushbutton pad to scroll through the Scan Lists, and use the **SEL** button to toggle membership for a Scan List on or off. The asterisk (*) next to the Scan List number indicates that the object is a member of that Scan List. Press the **Save** softkey to save the modified object.

To change Scan List membership for an existing object, press the **PGM** key. Use the **◀ ▶ ▲ ▼** keys on the 5-way pushbutton pad to scroll to the existing object that you wish to change, then press the **EDIT** softkey. Press the **CURR** softkey to edit the current object.



NOTE: Remember, when browsing objects in Manual or Program Mode, the arrow keys on the 5-way pushbutton pad operate as follows:

- ▲ :** navigates "up" through the objects assigned to the current Scan List
- ▼ :** navigates "down" through the objects assigned to the current Scan List
- ◀ :** navigates "up" through the active Scan Lists in the radio
- ▶ :** navigates "down" through the active Scan Lists in the radio

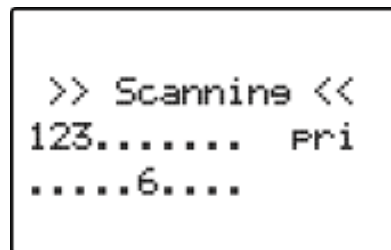
Scroll down in the object's parameters menu to the **Scan Lists:** field. With the **Scan Lists:** field highlighted, use the **►** on the 5-way pushbutton pad to scroll through the Scan Lists, and use the **SEL** button to toggle membership for a Scan List on or off. The asterisk (*) next to the Scan List number indicates that the object is a member of that Scan List. Press the **Save** softkey to save the modified object.

Enabling and disabling Scan Lists

Scan Lists may be enabled or disabled while actively scanning, or by accessing the individual Scan List in the Global Settings (**GLOB**) menu.

To toggle a Scan List's enabled/disabled status while scanning, press the numeric key that corresponds with the Scan List you wish to toggle. For example, pressing **4** while scanning will toggle the state of Scan List 04 from enabled to disabled, or vice versa if the Scan List is already disabled. To toggle the enabled/disabled status for Scan Lists 11-20, press **FUNC**, then press a number key, i.e., press **FUNC 3** to toggle the status of Scan List 13. If you enable a Scan List that has no assigned objects, the number for that scan list will flash in the display while the scanner is scanning.

For example, when Scan Lists 1, 2, 3 and 16 are enabled, the display will appear as follows while scanning:



To toggle a Scan List's status from the Global Settings menu, press **PGM** to enter Program Mode, then press the **GLOB** softkey. Scroll down to the **Scan Lists:** item and press the **SEL** key on the 5-way pushbutton pad. Scroll to the Scan List you wish to change and press the **SEL** key again, then at the Enabled: setting press the **◀** or **▶** on the 5-way pushbutton pad to toggle the Scan List on or off. Press the **SAVE** softkey to save settings for that Scan List, then press **SAVE** again to confirm your global changes and exit the **GLOB** menu.



HINT: You can also change the name of your Scan Lists in the GLOB menu. Use the text entry techniques previously discussed for entering object tag names.

If you inadvertently store an object with no Scan List mappings, the object will be placed in a special “NS” Scan List that can be accessed using the ◀ ▶ keys while in Manual Mode or PGM mode. Once you scroll to the NS scan list, you can use the ▲ ▼ keys to scroll to the objects found there and edit the Scan List setting by pressing the **PGM** key, then the **EDIT** and **CURR** softkeys to see the object’s menu.

Other Startup Topics

Here are some more startup topics that will help you get more enjoyment out of your 0715 as you become more experienced with its operation.

Finding Stored Objects Easily

The 0715’s browse feature makes it easy to scroll to the Scan Lists and Scannable Objects you have created, using the ◀ ▶ ▲ ▼ keys on the 5-way pushbutton pad while the scanner is in PGM or Manual Mode. Here are some more methods you can use to find stored objects quickly.

Searching For Objects Using FIND

Your 0715 provides a very useful FIND feature that allows you to search all objects for a text string that you specify. FIND searches for your specified text in the following places:

- In TGRP objects, the ID field and the Tag field
- In CONV objects, the Frequency field and the Tag field
- In TSYS, LMIT, SRVC and SWPR objects, the Tag field

To use FIND, press the **PGM** key, then press the **EDIT** softkey. Press the **FIND** softkey, then enter the text string you wish to search for.

Filtering By Object Type

When browsing objects in PGM mode, you can filter the objects that are displayed by their type.

Press the **PGM** key on the keypad, then press the **EDIT** softkey. Press the ◀ or ▶ keys on the 5-way pushbutton pad to scroll the Edit softkeys to display the filter softkeys. The filter softkeys are as follows:

CONU
TGRP
TSYS
SRCH
SWPR

To filter browse for a specific type of object, press the softkey that corresponds with that object type. For example, press the CONU softkey, then use the ◀ ▶ ▲ ▼ keys on the 5-way pushbutton pad to browse only conventional objects.

Object Lockout

The **L/OUT** key is used to lock out objects. When an object is locked out, traffic is not received on that object until it is unlocked.

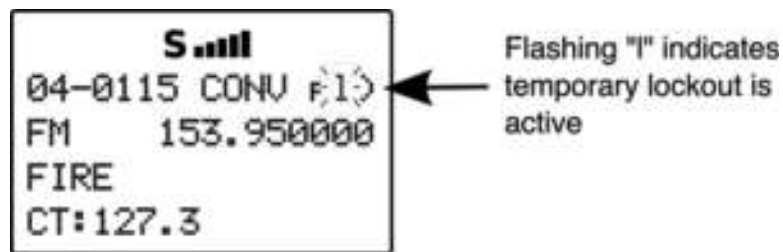
Four types of lockout functions are available in the 0715, temporary lockout, permanent lockout, search lockout and talkgroup lockout.

Temporary Lockout

Temporary lockout locks out an object until the scanner is turned off. When the scanner is powered on again, all objects that have been temporarily locked out are restored.

By default, the **L/OUT** key activates temporary lockout when pressed. If desired, you can change the function of the **L/OUT** key in the GLOB radio wide settings by pressing **PGM**, then the GLOB softkey. Scroll to the TLO=FUNC L/O setting and press the 6 key to toggle the setting to YES to have the L/OUT key function as a permanent lockout instead of temporary lockout.

To apply temporary lockout to an object, press the **L/OUT** key while the scanner is stopped on that object during scan operation, or navigate to an object using the 5-way pushbutton pad while in Manual Mode or PGM mode and press the **L/OUT** key. The lowercase "l" in the display flashes to indicate that temporary lockout is applied to the object:

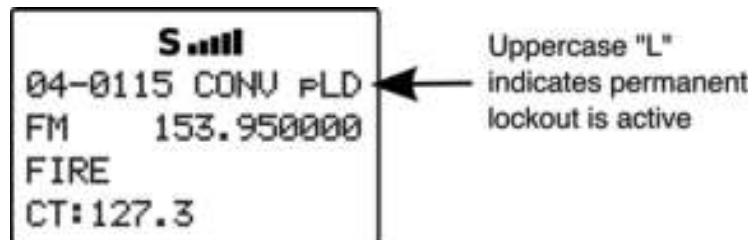


If you wish to remove temporary lockout from a single object, navigate to the object using the 5-way pushbutton pad while in Manual Mode or PGM mode and press the **L/OUT** key again.

Permanent Lockout

Permanent lockout locks out an object until it is explicitly unlocked by you. No traffic will be received on the locked out object while permanent lockout is active.

To apply permanent lockout to an object, press **FUNC**, then the **L/OUT** key while the scanner is stopped on that object during scan operation, or navigate to an object using the 5-way pushbutton pad while in Manual Mode or PGM mode and press **FUNC**, then the **L/OUT** key. The lowercase "l" in the display changes to uppercase to indicate that permanent lockout is applied to the object:



If you wish to remove permanent lockout from an object, navigate to the object using the 5-way pushbutton pad while in Manual Mode or PGM mode and press **FUNC**, then **L/OUT** again.

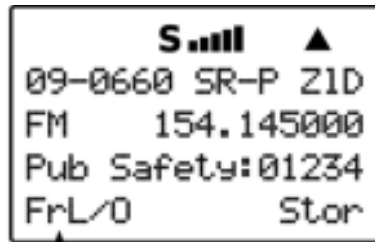


HINT: You can also toggle lockout anytime you are viewing an object menu in Program mode by pressing L/OUT.

Search Lockout

Search lockout works with certain search objects, including LMIT searches, some SRVC searches, and SWPR objects. Frequency lockout is used to lock out undesired frequencies that are found during searches.

To apply search lockout during a search, press the **FrL/O** softkey while the scanner is stopped on the undesired frequency:



Press **FrL/O** to lockout
an undesired
frequency

Applying search lockout to an undesired frequency adds that frequency to the Search Lockout List, a list of frequencies that the scanner ignores when performing searches or during Spectrum Sweeper operations. You can edit or clear the Search Lockout List by following these steps:

Press **PGM**

Press the **GLOB** softkey

Scroll down to the **SRCH L/Outs:** item and press **SEL**

Scroll to the frequencies you wish to remove from the lockout list and press the **Del** softkey to remove them from the list.

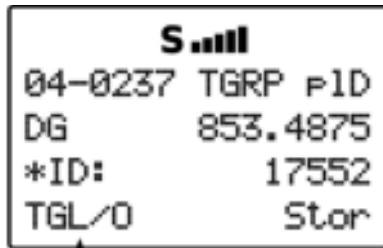
Scroll to an empty spot and enter any frequency you wish to manually add to the list.

Press **FUNC**, then the **Del** softkey to clear the entire list.

Talkgroup Lockout

Talkgroup lockout is similar to search lockout, as it allows you to lockout undesired talkgroups while searching for new talkgroup activity with wildcard TGRP objects.

To apply lockout on an undesired wildcard hit, press the lockout during a search, press the **TGL/O** softkey while the scanner is stopped on the undesired talkgroup:



Press TGL/O to
lockout an undesired
wildcard talkgroup hit

Applying wildcard lockout to an undesired talkgroup creates a new TGRP object in the same scan list as the wildcard TGRP, then applies permanent lockout to the new TGRP object, so that will be ignored in the future by the scanner when scanning the wildcard talkgroup. To unlock or edit talkgroups locked out using the wildcard lockout feature, press **PGM**, then navigate to the object using the 5-way pushbutton pad. Press **FUNC**, then **L/OUT** to remove permanent lockout from the talkgroup. Press **FUNC**, then **CL** to delete the TGRP object from the scanner. Press the **EDIT**, then the **CURR** softkey to edit and save the TGRP object.

Deleting Objects

Objects that you know longer need to use can easily be deleted from the 0715's memory, making room for new objects.

To delete an object, press **PGM**, then use the **◀ ▶ ▲ ▼** keys to navigate to the object you wish to delete. Press **FUNC CL** to delete the object. The scanner will ask you to confirm the delete command before removing the object from the scanner's memory.

Priority Scan

Your 0715 scanner features Priority Scan operation for CONV and TGRP objects. When Priority Scan is active, increased priority is given to objects that have their **Priority** mode set to **ON**.

Turning Object Priority On or Off

Priority for CONV and TGRP objects can be toggled on or off using the following methods:

Press the **PRI** key when the scanner stops on the object while it is active. The **PID** indicator in the object display will show **P** for Object Priority Off, and **P** for Object Priority On.

Browse to an object in Manual Mode or PGM mode, then press the **PRI** key to toggle Object Priority on or off. The **PID** indicator in the object display will show **P** for Object Priority Off, and **P** for Object Priority On.

Browse to an object in PGM mode. Press the **EDIT**, then **CURR** softkeys. Use the **▼** key to scroll to the **Priority** setting. Use the **◀** or **▶** keys to toggle **Priority On** or **Off**.

When creating a new object, before saving the object scroll to the **Priority** setting. Use the **◀** or **▶** keys to toggle **Priority On** or **Off**.

Turning Priority Scan Mode On or Off

While the radio is scanning, press **FUNC**, then **PRI** to toggle Priority Scan On or Off. Priority Scan status is shown in the main Scanning status display. **PRI** indicates that Priority Scan mode is on, and **pri** indicates that Priority Scan mode is off.

CONV Priority Scan

When Object Priority is set to Yes for one or more CONV objects, the scanner will sample the CONV objects for activity periodically while scanning and monitoring other objects.

This sampling will cause a brief muting of received audio when it occurs while another object is active.

The more CONV objects are set for Priority, the longer this audio muting will be, since it takes a certain amount of time to sample each Priority CONV object for activity.

TGRP Priority Scan

When Object Priority is set to Yes for one or more TGRP objects, the scanner will give those TGRPs priority over other TGRPs while checking a particular trunking system for activity. TGRPs configured for Priority are checked for activity before any other TGRPs are checked, and during the reply delay time after non-priority TGRP calls.

Additionally, your 0715 decodes the subaudible priority data that is present on analog Motorola talkgroup calls, and will switch to a

priority talkgroup when the data for that talkgroup is found in the subaudible priority data.

Audible Alarms and the ALERT LED

Your 0715 features a very powerful ALERT LED with Audible Alarm capability that allows you to set different types of visual and audible notifications for the different types of objects you create.

You may have noticed that the menus for each object you create include various settings for LED, Backlight and Alarm. You can use these settings to design custom visual and/or audible alarms that are triggered when activity is detected on the specified Scannable Object.

Audible Alarm and ALERT LED Settings

Each object you create has the following ALERT LED and Audible Alarm settings:

LED Mode: *Solid or Flash* controls whether the LED remains on solid or flashes when the object is active.

LED Color: *0-7* sets the color of the LED. By default, color 0 is used for LED off. You can change the LED colors in the Global Settings menu.

Latch LED keeps the LED on after activity on the object is finished. This is useful in cases where you need to know if an object was active while you were away from the scanner.

Backlight: *Off, On, Flash* controls whether the backlight remains off, comes on solid or flashes when the object is active.

Alarm: *None, Chirp, Hi-Lo, Alert, Ring, 2-Chirp, Fast Hi-Lo, DTMF #* are used to set audible alarms that play each time activity is found on the object.

ALERT LED with Audible Alarm Examples

Here are some examples of when you may wish to use the ALERT LED with Audible Alarm capability:

- You have programmed a Talkgroup Wildcard in for a trunked radio system you monitor in order to find new talkgroups. You can use an Audible Alarm to alert you when the radio receives a wildcard hit, and turn on the backlight so that you can read the display and operate the keypad to save or lock out the new talkgroup.

- You have programmed your favorite amateur radio repeater in and wish to be alerted when a QSO begins. You can use an Audible Alarm with one of the shorter alarms (Chirp, 2-Chirp, Fast Hi-Lo or DTMF #) to provide this indication without covering the traffic in the QSO.
- You have included a Spectrum Sweeper object in your scan configuration so that you can find nearby strong transmitters while you are scanning. You can use an Audible Alarm to alert you when the radio receives a Spectrum Sweeper hit, and turn on the backlight so that you can read the display and operate the keypad to save or lock out the new frequency. This technique is also useful for TGRP wildcards.
- You wish to assign different LED colors to different types of public safety agencies, i.e., red for fire, rescue and EMS, blue for law enforcement, yellow for emergency management, and so on. When there is activity you can tell if it is related to law enforcement, fire/rescue and EMS or emergency management at a glance, even if the transmission is short or difficult to copy.

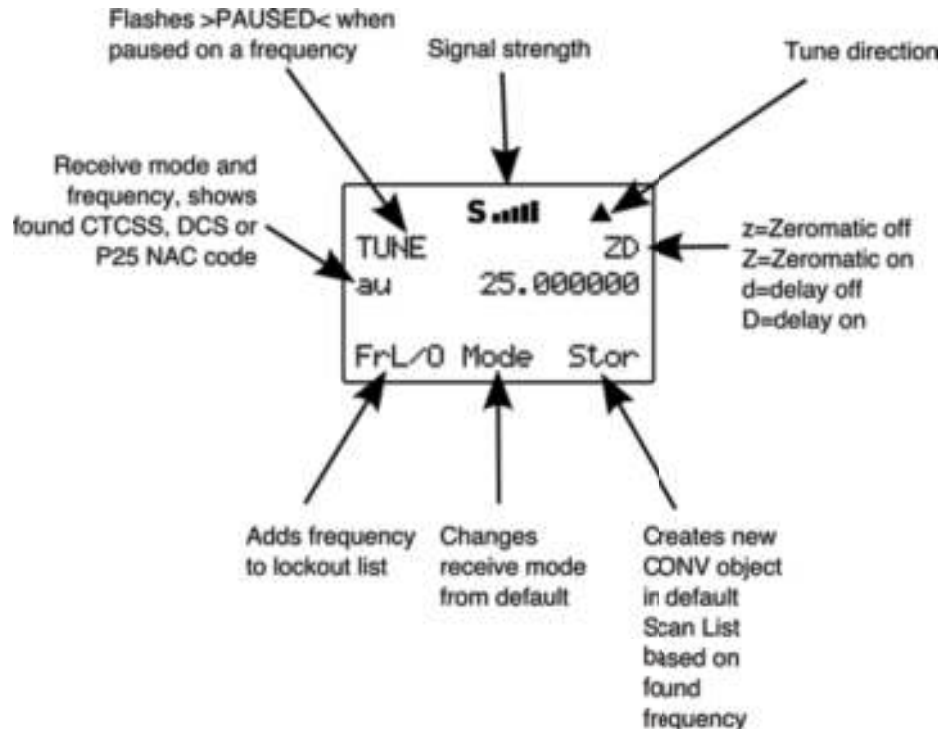
The possibilities for the ALERT LED with Audible Alarm capability are limited only by your imagination.

Dedicated search modes

In addition to its powerful ability to store different types of frequency searches as objects, your scanner provides fast access to dedicated frequency search modes that allow you to execute searches or run the Spectrum Sweeper without having to go through the process of setting up and saving a search object. This is handy for those times where you need to run a search quickly. Dedicated search modes do not create new search objects or use previously created search objects.

Using Dedicated Spectrum Sweeper (SWPR) Mode

Dedicated SWPR mode lets you access and run the Spectrum Sweeper easily and quickly. Press **FUNC SCAN** while in the Manual, Program or Scan Modes to access the Spectrum Sweeper dedicated mode.



Operation of the dedicated Spectrum Sweeper mode is almost identical to that of the object mode, with one exception. When running the Spectrum Sweeper as a scannable object, you must use the object menu to enable or disable the Spectrum Sweeper sub-bands when operating in Scan Mode. When dedicated Spectrum Sweeper mode is used, you may press the numeric key on the keypad that corresponds with the sub-band you wish to enable or disable. Disabling a sub-band will cause the Spectrum Sweeper system to skip the frequencies within that sub-band as it performs its sweeps. The sub-bands are defined as follows:

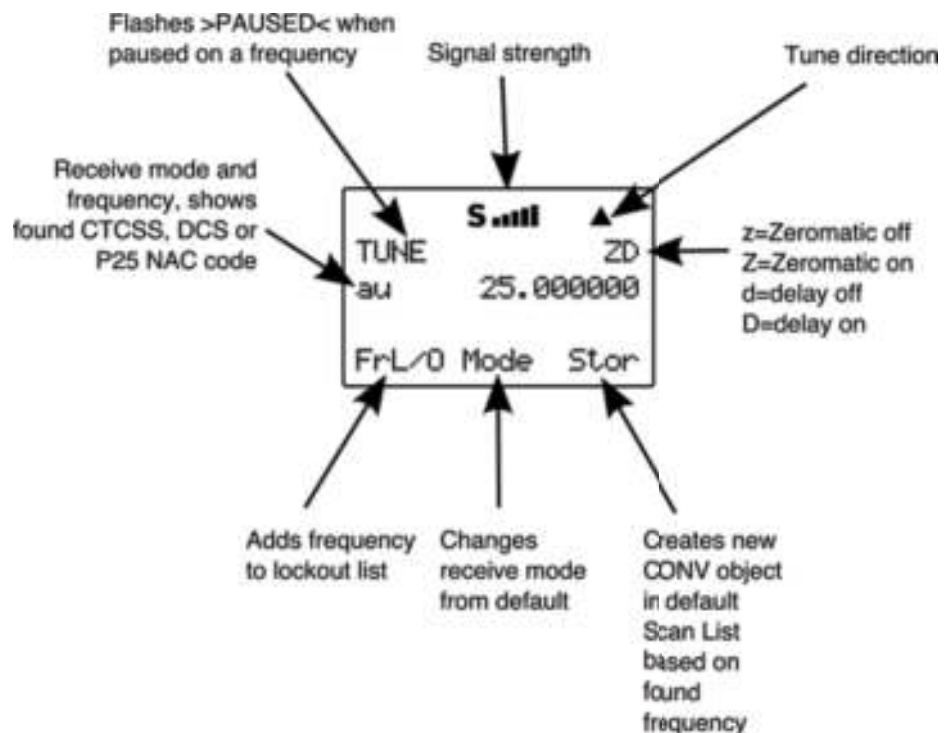
0: 25-54 MHz	VHF Low Band
1: 108-137 MHz	VHF Aircraft Band
2: 137-174 MHz	VHF High Band
3: 216-300 MHz	220 MHz Commercial/Amateur Band
4: 300-406 MHz	UHF Military Air Band
5: 406-470 MHz	UHF Band
6: 470-512 MHz	UHF-T Band
7: 764-806 MHz	700 MHz Band
8: 806-869 MHz	800 MHz Band
9: 896-1300 MHz	900 MHz Band, 23 cm Amateur Band

In Public Safety, the sub bands are defined as follows:

0: 33.4-46.5 MHz	VHF Low Band
1: 151-170 MHz	VHF High Band
2: 453-467 MHz	UHF Band
3: 764-806 MHz	700 MHz Band
4: 851-869 MHz	800 MHz Band

Using dedicated TUNE mode

Your scanner's dedicated TUNE mode provides you with the ability to quickly enter any frequency and monitor that frequency for transmissions, or search up or down from that frequency for activity.



To enter TUNE mode, press the **TUNE** key on the keypad. The scanner displays the TUNE screen.

By default, TUNE mode is paused when first activated. Press **PSE** to begin searching from the current frequency.

Press the ▲ or ▼ keys on the 5-way pushbutton pad to change the search direction.

Press the FrL/O softkey to add a found frequency to the lockout list.

Press the **MODE** softkey to change the receive mode (AM, FM, NFM) from the default for the current frequency range (au).

Press **STOR** to create a new CONV object using the found frequency.

Use the keypad to enter a new frequency, and press **ENT** to make that the TUNE frequency.

Using **FUNC TUNE** from any other mode will load the last active frequency from the other mode into TUNE. For example, pressing **FUNC TUNE** while parked on a trunked radio system will load the control channel frequency into the TUNE mode if the control channel frequency is the last frequency that the scanner checked while scanning.

Dedicated TUNE mode will always check for the presence of encoded squelch and digital modulation each time it finds an active frequency. If a valid encoded squelch code is found, it will be stored automatically when you press **STOR** to create a new CONV object.

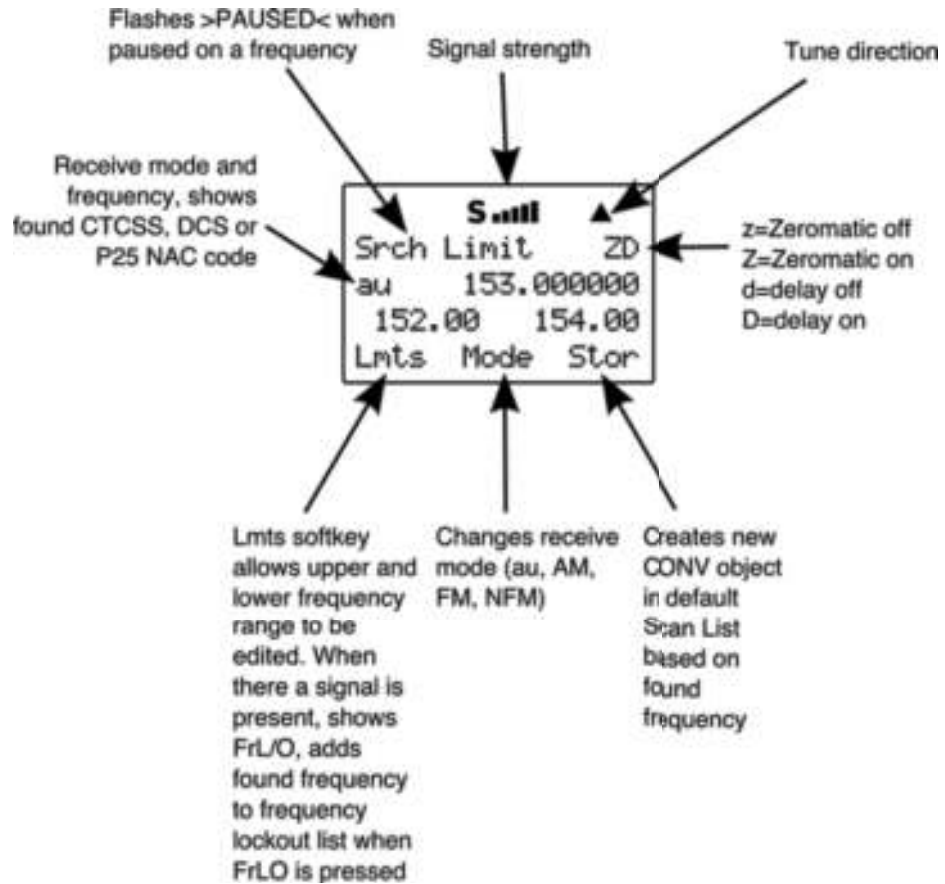
Using dedicated Limit and Service search modes

The **SRCH** key provides immediate access to the dedicated search modes of your 0715. Pressing the **SRCH** key cycles through each search mode in this order: Limit, Railroad, Public Safety, Aircraft, Ham, CB, Marine, and FRS/GMRS/MURS/DOT.

LMIT Search Mode

Your scanner's dedicated LMIT search mode provides you with the ability to create a limit search with a search frequency range between upper and lower limit frequencies that you specify and perform the limit search directly without creating a new LMIT object. You can then monitor that frequency range for transmissions.

To enter LMIT mode, press the **SRCH** key on the keypad repeatedly until the display indicates LMIT search as follows:



Use the **Lmts** softkey to set the lower and upper frequency limits for your limit search.

Press the **▲** or **▼** keys on the 5-way pushbutton pad to change the search direction.

Press the **MODE** softkey to change the receive mode (AM, FM, NFM) from the default for the current frequency range (au).

Press the **FrL/O** softkey to add a found frequency to the lockout list.

Press the **STOR** softkey to create a new CONV object using the found frequency.

Using dedicated SRVC mode

Your scanner's dedicated SRVC search modes provide you with the ability to instantly access each of the scanner's service search ranges without creating a new SRVC object.

To activate dedicated SRVC search mode, press the **SRCH** key on the keypad repeatedly until the desired service search is indicated on the display. The following service searches are available:

Railroad - searches the Association of American Railroads (AAR) VHF railroad frequencies used in the US and Canada

Public Safety (PubSafety) - Searches commonly used public safety frequencies. Groups are as follows:

0: 33.4-46.5 MHz	VHF Low Band
1: 151-170 MHz	VHF High Band
2: 453-467 MHz	UHF Band
3: 764-806 MHz	700 MHz Band
4: 851-869 MHz	800 MHz Band

Aircraft - Searches civilian and military air frequencies. Groups are as follows:

0: 108-118 MHz	Navigation
1: 118-137 MHz	Civilian Voice
2: 138-150 MHz	Military Voice (excludes 2m Amateur)
3: 225-400 MHz	Military Voice

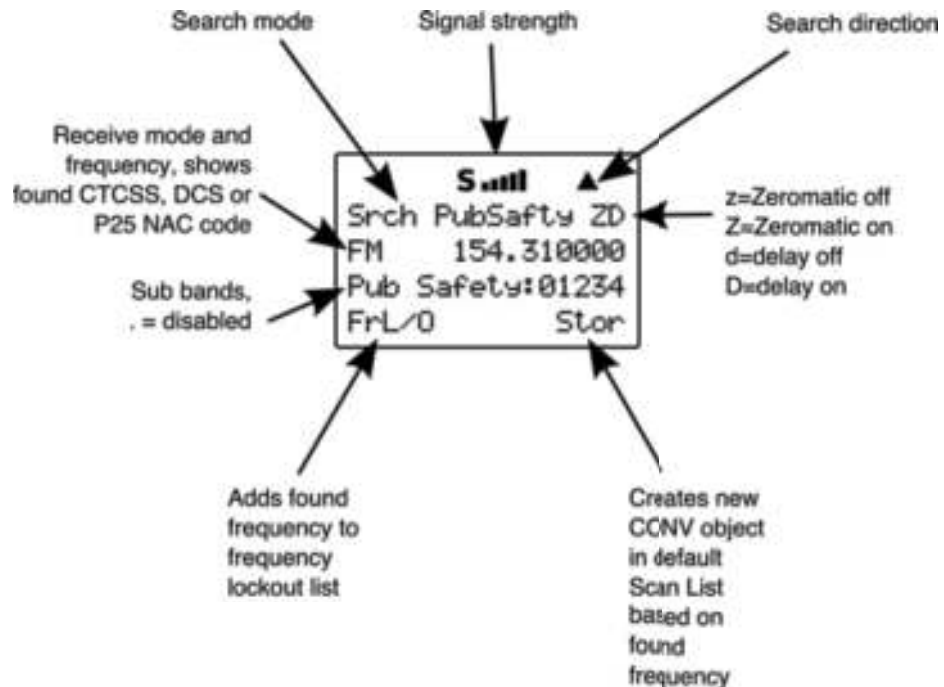
Ham - Searches amateur radio frequencies. Groups are as follows:

0: 28.0-29.7 MHz	10m Band
1: 50-54 MHz	6m Band
2: 144-148 MHz	2m Band
3: 222-225 MHz	1.25cm Band
4: 420-450 MHz	70cm Band
5: 902-928 MHz	33cm Band
6: 1240-1300 MHz	23cm Band

CB - Searches the citizen's band radio frequencies

Marine - Searches the VHF-FM marine radio band

FRS/GMRS/MURS/DOT/STAR (F/G/MURS) - Searches the FRS, GMRS, MURS, DOT and STAR radio frequencies



Use the numeric keypad to toggle the sub bands on and off while searching.

Press the ▲ or ▼ keys on the 5-way pushbutton pad to change the search direction.

Press the **FrL/O** softkey to add a found frequency to the lockout list.

Press the **STOR** softkey to create a new CONV object using the found frequency.

Using Weather Modes

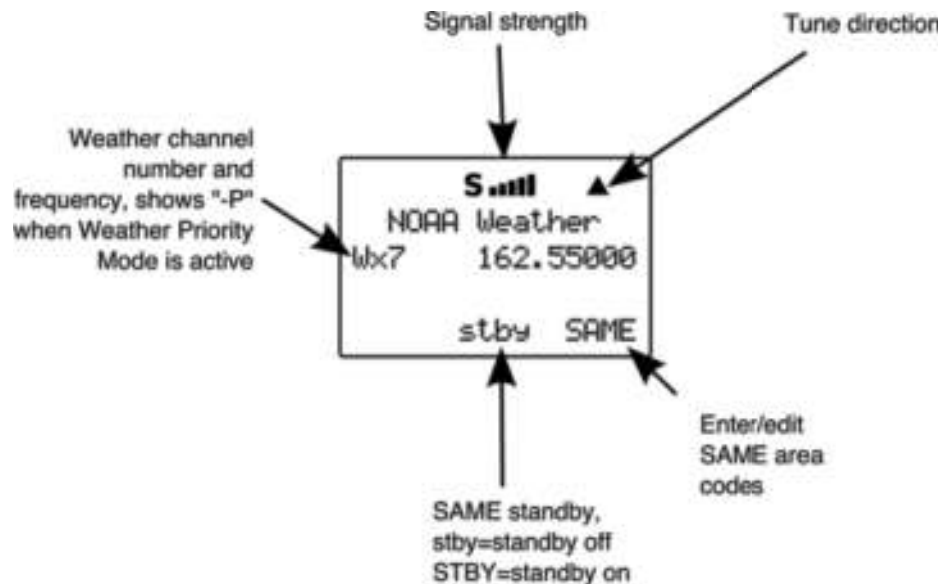
Your 0715 also functions as a powerful weather alert receiver. There are three modes of weather alert operation available to you.

Weather Radio Mode

Weather radio mode allows you to receive weather broadcasts from your local weather service anytime of the day.

To use weather radio mode, simply press the **WX** button on the keypad. The scanner will quickly scan and lock on to the first active weather radio frequency it receives. You can use the ▲ or ▼ keys on the 5-way pushbutton pad to force the radio to look for other weather radio transmitters. It is generally best to select

the weather radio transmitter that provides you with the strongest signal. You can use the signal meter to help you choose the best weather radio transmitter for your area. While operating in Weather Radio Mode, your scanner will alert on SAME messages that match the SAME location codes you have entered, or all SAME messages if you do not enter any SAME location codes.



Weather Priority Mode

Weather Priority mode samples the specified weather frequency periodically while scanning to see if the All Hazards Warning Alert Tone (WAT) is present. If the WAT is present, the scanner will sound an alarm and tune to the specified weather frequency to monitor the nature of the alert.

To activate Weather Priority Mode, follow the steps above listed above in Weather Radio Mode to find the strongest weather radio transmitter for your area. Once the radio is tuned to the strongest weather radio transmitter for your location, press the **PRI** key on the keypad. When in Scan Mode, the radio will check the specified weather frequency periodically for the Warning Alert Tone (WAT). If WAT is found, the radio will sound an alarm and monitor the weather alert audio.

SAME Standby Mode

SAME Standby Mode locks the radio on the specified weather frequency, where it waits to receive a Specific Area Message

Encoding (SAME) alert that corresponds with a SAME location code that you have previously entered. If there is a match between a sent SAME location code and one that you have previously stored, the scanner will sound an alarm, display the alert type, and monitor the nature of the alert.

To activate SAME Standby Mode, first you should provide at least one SAME location code for your city, county or state. By default, SAME mode will alert on any SAME message received if no SAME location codes are entered. A list of SAME location codes can be found online at this web site:

<http://www.nws.noaa.gov/nwr/indexnw.htm#sametable>

In addition to the code for your location, you may wish to enter additional codes for surrounding areas and any other areas of interest so that you can receive advance warning of adverse or dangerous weather that may be headed in your direction.

Unlike other weather alert radios, your scanner features a powerful SAME wildcard feature that allows you to set the radio to alarm on partial matches of the location code. For example, the SAME location code for Dallas, TX is 048113, which can be broken down as follows:

0 represents a subdivision within a county, and is typically not used.

48 is the State code for Texas

113 is the County code for Dallas County

Entering the entire 048113 code will cause the radio to receive all SAME alerts that match the code for Dallas County.

Suppose you wanted to receive any alert for any county in the entire state (provided that the alert is sent by your local NWS transmitter). Using the wildcard feature you can enter a SAME area code as follows:

*48***

This tells the radio to alert on any SAME message with a location code that matches 48 for the state of Texas.

Your scanner also allows you to specify the event code. The default alert code is “***”, which is best for most general purpose

weather alert monitoring purposes. A list of event codes can be found at this web site:

http://www.weather.gov/os/eas_codes.shtml

Each SAME location/event code storage location can be configured for Entry ON/OFF and Lockout ON/OFF.

When a SAME location/event code storage location is set for Entry ON, the radio will process the SAME location/event code that is stored there. When a SAME location/event code storage location is set for Entry OFF, that SAME location and event code will be ignored.

When a SAME location/event code storage location is set for Entry ON *and* Lockout ON, the radio will process the SAME location/event code that is stored there, *and will lock out the specified event code*. A SAME location/event code storage location set for Entry: OFF and Lockout: ON will *not* be processed, because Entry is set to OFF. In case of a conflict (i.e., two identical codes and events are entered, and one is locked out), the *locked out entry will take precedence*.

SAME Entry Examples

Using the Dallas County, TX example above:

SAME Entry 1:
Code: 048113
Event: ***
Entry: ON
Lockout: OFF

SAME Entries 2-10:
Code: *****
Event: ***
Entry: OFF
Lockout: OFF

The above entry for 048113 will receive all SAME messages for 048113.

SAME Entry 1:
Code: 048113
Event: ***
Entry: ON
Lockout: OFF

SAME Entry 2:
Code: 048113
Event: RWT
Entry: ON
Lockout: ON

The above combination of entries for 048113 will receive all SAME messages for 048113, except the Required Weekly Test (RWT) message, since the second entry is ON, with lockout ON, and with RWT in the event field.

SAME Entry 1:
Code: 048113
Event: ***
Entry: ON
Lockout: OFF

SAME Entry 2:
Code: 048113
Event: ***
Entry: ON
Lockout: ON

*The above combination of entries for 048113 will not receive any SAME messages for 048113, since the second entry is ON, with lockout ON, and with *** (all events wildcard) in the event field.*

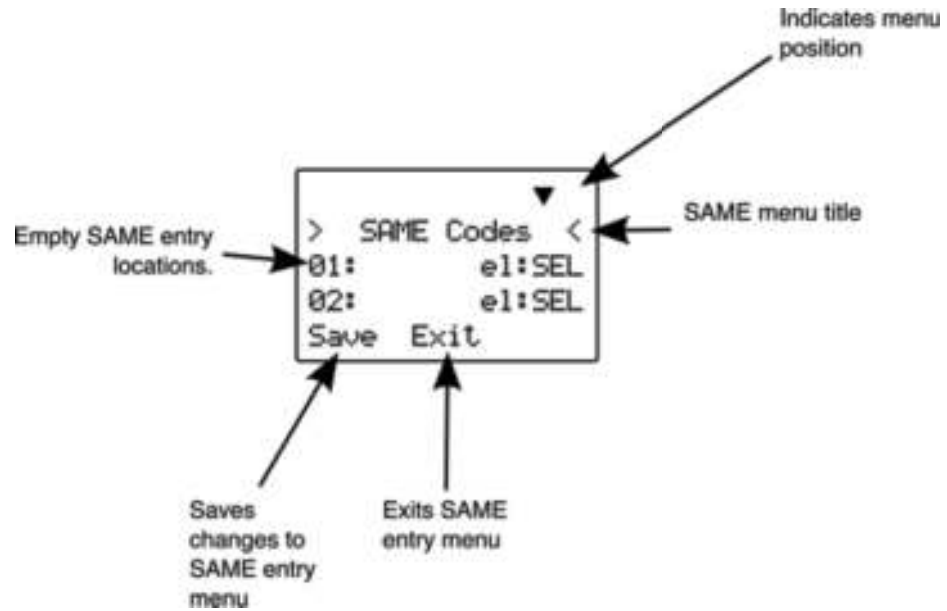
The entry lockout feature should be used with caution such as not to inadvertently lock out desired SAME location or event codes.

Entering SAME Location and Event Codes

The following steps are used to create a SAME entry that provides all weather alerts for a given location.

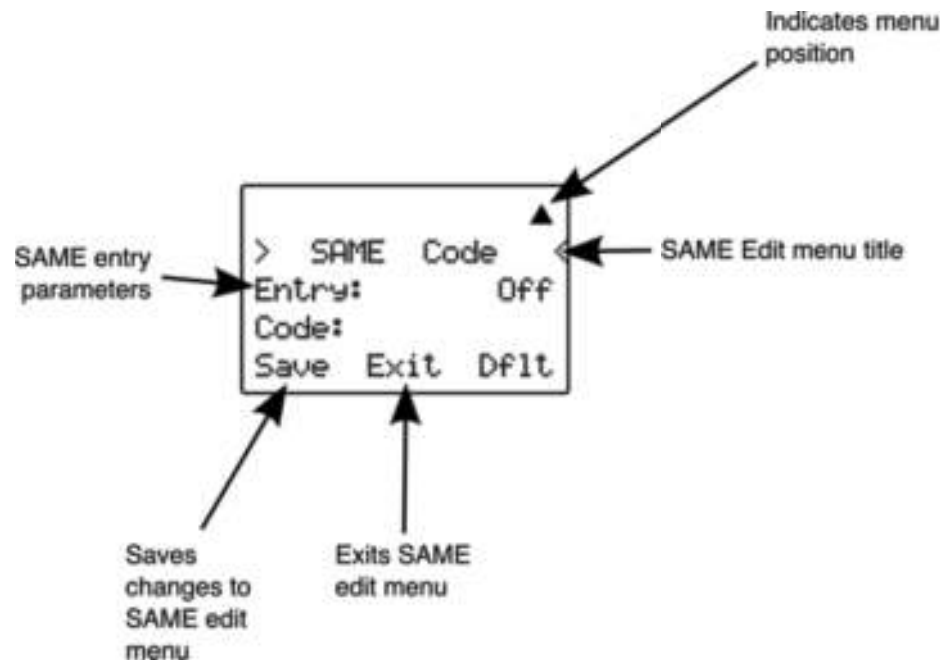
Press the **WX** key to enter Weather mode.

Press the **SAME** softkey to add or edit SAME entries. The scanner display will show the following:



Use the ▲ or ▼ keys on the 5-way pushbutton pad to scroll to the desired SAME code entry.

Press the **SEL** key on the 5-way pushbutton pad to edit the selected SAME entry. The scanner display will appear as follows:



With the **Entry:** field selected, press ► on the 5-way pushbutton pad to turn the entry on.

Scroll to the **Code:** field and press **►** on the 5-way pushbutton pad to enter a SAME location code. Use the keypad to enter a SAME code.



NOTE: *The 0715 supports entry of Extended SAME codes, which can include numbers and letters. The text entry mode is used to enter both numerical SAME codes and extended SAME codes. To enter a numerical SAME code, simply precede each number in the SAME code with "1". For example, to enter SAME code 048113, press 10 14 18 11 11 13.*

Scroll to the **Event:** field. Note the current default of ********, which will allow all messages for the specified SAME location code. We recommend that you leave the event code with ******** to receive all alerts.

Scroll to the **Tag:** field. We suggest that you enter a tag name here that corresponds with the SAME location code that you have entered. Press **►** on the 5-way pushbutton pad to edit the tag name, and use the standard text entry method to enter your tag. Using our Dallas County example, you would enter the following:

```
31 D
21 A
53 L
53 L
21 A
74 S
. <space>
23 C
63 O
82 U
62 N
81 T
93 Y
```

Scroll to the **Alarm:** field. Note that you can specify different alarm sounds for this SAME entry. We recommend that you use the default setting here for general purpose weather alerting.

Scroll to the **Lockout:** field. Note that Lockout is currently set to off. Lockout is a special purpose parameter that can be used to lock out individual event or area codes. We recommend that you leave Lockout set to off for general purpose weather alerting.

When you have finished editing your SAME entry, press the **Save** softkey to store the data, then press the **Save** softkey to save all SAME changes and return to the Weather mode.

Activating SAME Standby Mode

After you have entered your desired SAME codes, you can activate the SAME Standby Mode to begin standby operation. The radio will remain silent until a SAME transmission is received with a code that matches one that you have stored. When a matching SAME message is received, your radio will sound a siren alarm, then will play the audio message that follows the Warning Alert Tone (WAT).

To activate SAME standby mode, press the **WX** key, use the **▲** or **▼** keys to find the best weather radio transmitter for your location, then press the **stby** softkey. The softkey will change to **STBY** to indicate that SAME Standby Mode is active, and the scanner will alert when a matching SAME message is received.

Press the **STBY** softkey again to exit SAME Standby Mode, or press **MAN**, **SCAN** or **PGM**.

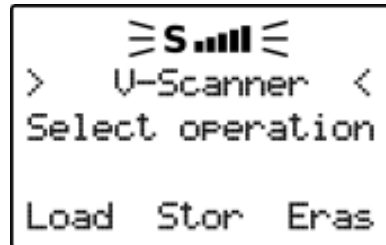
Using V-Scanner Storage

Your 0715 features two types of memory storage. *Main memory* is used to store your programming that is used for everyday monitoring and scanning. *V-Scanner memory* is used to store complete copies of your scanner's main memory for later recall, including objects, global settings and dedicated search configurations. We call this feature *V-Scanner*, for "Virtual Scanner". Your 0715 features 21 V-Scanner storage locations, each capable of storing a copy of your scanner's main memory.

Having 21 Virtual Scanners is like having 21 scanners in one. You can custom tailor a main memory configuration to suit your needs for the type of scanning you do in different situations, then store that configuration for later use. If you travel frequently, you may want to create V-Scanners for the areas where you travel.

V-Scanners are also useful for backing up your configurations. Once you have main memory configured the way you like it, you can save it to a V-Scanner where it will remain untouched until you delete, overwrite or recall it. Then, if you happen to make a mistake while using your main memory that you cannot fix, you can recall the backup data and start again.

V-Scanners provide a capability that is similar to having a computer with scanner programming software available all of the time. Instead of connecting the computer and transferring configuration files to and from main memory, you use V-Scanners to save or load main memory configurations in the field. Each V-Scanner storage location is called a *V-Scanner folder*. To begin V-Scanner operations, press **FUNC PGM**. The scanner display will appear as follows:



Saving Main Memory To A V-Scanner Folder

To save the current contents of your scanner's main memory to a V-Scanner folder, press **FUNC**, then **PGM** to enter V-Scanner mode, then press the **Stor** softkey. Use the **▲ ▼** keys on the 5-way pushbutton pad to scroll to the desired V-Scanner folder, then press the **Stor** softkey.

If the selected V-Scanner folder already contains data, you will be asked if you wish to overwrite the existing data with new data from your current version of main memory. Press the **YES** softkey to proceed, or the **NO** softkey to cancel. If you decide the overwrite existing data, or if the selected V-Scanner folder is already empty, the scanner will prompt you to enter a name for the stored V-Scanner. The scanner uses the text from Line 4 of the Welcome Screen as a default name if the folder is empty, or the current name if the folder contains data. You can provide your own text here without overwriting the Line 4 Welcome Screen text. Use the standard text entry method to type the name you wish to use, then press the **OK** softkey. The scanner will write the contents of main memory to the V-Scanner folder. This will take approximately four seconds to complete.

Loading A Stored V-Scanner Folder To Main Memory

To load the contents of a previously saved V-Scanner folder into your scanner's main memory, press **FUNC**, then **PGM** to enter V-Scanner mode, then press the **Load** softkey. Use the **▲ ▼** keys

on the 5-way pushbutton pad to scroll to the desired V-Scanner folder, then press the **Load** softkey. The scanner will ask you to confirm that you wish to overwrite the current contents of main memory. Press the **YES** softkey to proceed, or the **NO** softkey to abort. The data transfer takes approximately 4 seconds to complete.

Erasing V-Scanner Folders

You can erase V-Scanner folders when you no longer need them and wish to make the folder storage location available for other data.

To erase the contents of a previously saved V-Scanner folder, press **FUNC**, then **PGM** to enter V-Scanner mode, then press the **Erase** softkey. Use the **▲ ▼** keys on the 5-way pushbutton pad to scroll to the desired V-Scanner folder, then press the **Erase** softkey. The scanner will ask you to confirm that you wish to overwrite the current contents of the selected V-Scanner folder. Press the **YES** softkey to proceed, or the **NO** softkey to abort.

Standard Text Entry Method and QuickText

Your 0715 features a high-contrast, backlit alphanumeric display that provides constant feedback about what the radio is doing while scanning and monitoring your “scannable objects”. To get the most out of your scanner and this display, you will want to name your objects as you program them into the radio. This allows for easy identification of active objects while the radio is scanning, and makes it easier than ever to find objects that you wish to monitor, edit or delete using the powerful FIND feature.

Your scanner uses a simple text entry method that allows entry of all uppercase and lowercase letters of the alphabet, numbers, and punctuation symbols. Your scanner also features GRE’s exclusive QuickText feature, which allows you to store up to 10 commonly used text items for instant recall while editing alphanumeric fields.

Entering and Editing Alphanumeric Information

A Standard Text Entry Method is used for entering alphanumeric information into the radio. This method allows easy access to each letter in the alphabet by pressing two keys that represent the letter.

Take a moment to study the numeric keys on the keypad and you will notice that keys 2-9 each have three or four letters silk

screened on the front panel just above each key. To enter a letter in an alphanumeric text field, simply press the the number key below the letter you wish to type first, then press the number key that corresponds with the position of the letter in the silk screen group. For example, the number 2 is used to access the letters A, B and C. To type the letter A, press 2 to select the ABC group, then 1 to select the first letter in the group, A. Likewise, to type the letter B, press 2 to select the ABC group, then press 2 again to select the second letter in the group. And, to type the letter C, simply press 2, then 3 to select the third letter in the “ABC” group.

To enter numbers in alphanumeric text fields, press 1 first, then the number you wish to type.

To enter punctuation, press 0 first to see the first set of punctuation, then press the number key that corresponds with the position of the desired punctuation mark in the set.

Press the . (period) key to enter a SPACE.

While using Standard Text Entry, the FUNC key serves as a shift key. For letters, uppercase text is typed by default, and you can shift to lowercase by pressing the FUNC key while entering text. For punctuation, the FUNC key accesses a second set of punctuation marks.

The 0715 character set and corresponding entry codes are provided below for reference.

Char	Code	Char	Code	Char	Code	Char	Code
A	21	O	63	3	13	?	07
B	22	P	71	4	14	→	08
C	23	Q	72	5	15	‘	09
D	31	R	73	6	16	←	00
E	32	S	74	7	17	.	0F1
F	33	T	81	8	18	-	0F2
G	41	U	82	9	19	#	0F3
H	42	V	83	0	10	_	0F4
I	43	W	91	\$	01	@	0F5
J	51	X	92	%	02	+	0F6
K	52	Y	93	!	03	*	0F7
L	53	Z	94	^	04	&	0F8
M	61	1	11	(	05	/	0F9
N	62	2	12	)	06	,	0F0

Using QuickText

QuickText allows you to store up to 10 commonly used text items for instant recall while editing alphanumeric fields. For example, as you search for, store and name new CONV or TGRP objects, you may find that you type the same words over and over, such as POLICE, FIRE, SHERIFF, STATE, CITY, COUNTY, etc.

A few common QuickText words are provided for your convenience. You can keep these, edit them to your preferences, or replace them with your own custom QuickText words.

QuickText can be used while editing any alphanumeric text field. To insert a stored QuickText item, while editing an alphanumeric text field use the ◀ ▶ keys to position the cursor where you want the QuickText inserted, then press the QTXT softkey. The top row of the display will show the available QuickText phrases. Use the ▲ ▼ keys to scroll through the stored QuickText phrases, and press SEL to insert the QuickText phrase at the cursor location. As a shortcut, you may press the number key on the numeric keypad that corresponds with the QuickText item you wish to use, instead of scrolling and pressing SEL.

Customizing QuickText

To edit the QuickText words, press **PGM**, then the **GLOB** softkey. Scroll down to the **QTX**T section using the **▼** key on the 5-way pushbutton pad and find the QTXT storage location that you wish to change. Press the **►** key to edit the QTXT entry. Use the standard text entry method to enter your desired text. When you use your QTXT entry in a text field, any unused spaces will be filled with space characters. If you want to leave room for additional text after the QTXT is loaded into a text field, include a space after your text, then a dollar sign (\$). This will place one space after your QTXT when you use your QTXT in a text field, and the edit cursor will be positioned just after that space where you can continue appending text in the text field before you save it. For example, if you use the entry **SHERIFF** in the QTXT storage location, your text entry field will look like this after you load the QTXT “**SHERIFF**”:

SHERIFF  ← note that cursor is positioned at end of text field

if you use the entry **SHERIFF \$** in the QTXT storage location, your text entry field will look like this after you load the QTXT “**SHERIFF**”:

SHERIFF  ← note that cursor is positioned at end of the word

Once you are finished editing your QTXT storage location, press the **SAVE** softkey to save the QTXT, then press the **SAVE** softkey again to save the changes you made to the **GLOB** menu.

Detailed Menu Reference

Your 0715 scanner uses GRE's exclusive Object Oriented User Interface, which features a powerful menu system that is used to configure the various scannable objects that your scanner is capable of receiving. The 0715 design also includes a Global Settings (**GLOB**) menu that provides unprecedented control over the radio wide settings used throughout your scanner. This section of the manual provides detailed information all of the menus and menu parameters.

Each menu parameter features a **Dflt.** softkey that can be used to restore that can be used to restore the value to the factory defaults. This can be very useful if you make a change to a parameter but do not like the result.



HINT: Remember that context sensitive help is available for every menu parameter. Press **FUNC SEL** to view help for the selected parameter. Press **SEL** to exit help.



HINT: It's easy to fix things if you inadvertently change a parameter and then can't remember how to make it right again. Each parameter includes a **Dflt** softkey, which, when pressed, restores the factory default setting for that parameter.

GLOB Menu Reference

The GLOB menu stores all of the radio-wide settings used by the scanner. The GLOB menu allows you to “tweak” these settings to your liking. The default settings will work fine for most users, but most users will want to use the GLOB menu to personalize the radio to suit their individual tastes. The active parameter is always the middle parameter and is indicated by a flashing “:”. The entire GLOB menu is shown below. Note that some GLOB parameter changes do not take effect until the GLOB menu is saved.



HINT: You can restore all GLOB settings to their defaults without affecting your programmed objects or V-Scanners. Power cycle the radio, then press 0, then 2 during the welcome message display. Press ENT to confirm the GLOB parameter reset.

GLOB Parameter	Options	Description
ATTEN	Global or Normal	The attenuator reduces the amount of signal at the receiver input. This helps reduce interference from strong nearby transmitters. Global attenuator mode applies attenuation radio-wide, regardless of individual object settings. In Normal attenuator mode, the attenuator follows the individual object attenuator setting.
Global ATTEN	On or off	When the ATTEN mode is set to Global, this controls whether the Global attenuator is on or off.
BATTERY	NiMH, Alkaline or NiCad	Loads low battery profile for each different battery type.
SOUND MODE	Key or Stlth	Controls the key beeps. Selecting Key will provide a short beep with each keypress. Selecting Stlth (Stealth) will mute the key beep sounds.
ALERT MODE	Both, Tone, Light, Off	Controls the ALERT LED and Audible Alarm behavior. Both allows the LED and Tone. Tone allows the audible alarm only. Light allows the LED only. Off deactivates the ALERT LED and Audible Alarm feature.

GLOB Parameter	Options	Description
LIGHT MODE	Norml, Key, Ignre, On, Stlth	Controls the backlight operation. Norml (Normal) uses the backlight key on the keypad. Key activates the backlight when any key is pressed. Ignore activates the backlight when a key is pressed, and that key's normal function is ignored if the backlight is off when it is pressed. On causes the backlight to remain on all the time. Stlth (Steath) disables the backlight.
LIGHT SECS	1-99 seconds	Controls the amount of time the backlight remains on for Normal, Key and Ignore light modes
LIGHT AREA	Both, LCD, Keybd	Controls what area is illuminated when the backlight is on. Both illuminates the LCD and the keypad, LCD illuminates the display only. Keybd (Keyboard) illuminates the keypad only.
SCAN LISTS	SEL	Enters sub menu for scan list settings and status
Dflt ScanList	1-20	Sets default destination scan lists for CONV Stor from Searches, Spectrum Sweeper and Tune
EDACS Format	AFS or DEC	Sets EDACS talkgroup ID data entry mode. AFS uses Agency-Fleet-Subfleet notation. DEC uses Decimal notation.
SRCH L/Outs	SEL	Enters sub menu for review, editing or deletion of search lockout frequencies
WxPri	On or Off	Toggles Weather Priority Mode on or of. Also accessed by pressing WX→PRI
WX Alm Time	0-600 seconds	Sets amount of time for weather siren to sound after receiving matching SAME code in SAME Standby Mode. Use 0 to stop alarm upon receipt of 1050 Hz WAT.
DIG AGC	On or Off	Sets digital AGC mode on or off. Useful to compensate for low or high digital audio levels caused at the system.
Supertrack	On or Off	Alternative DSP decoding algorithm. May help reception on some systems.
CONTRAST	1-7	Sets LCD contrast. Use ◀ ▶ keys on 5-way pushbutton pad.
OWNER	SEL	Enters sub menu to set Welcome Message text display.
QTX0-9	Text value	Sets QTX (Quick Text) 0-9 text. Use "\$" to indicate end of text.

GLOB Parameter	Options	Description
Color 0-7	RGB value	Sets intensity of red, green and blue LEDs. Press SEL to edit colors. Use ◀ ▶ keys to scroll to R, G or B LED settings. Use numeric keys to activate preset intensity levels for each LED, or use ▲ ▼ keys to fine scroll intensity.
Search Delay	1-100 x 100 mS	Sets wait for reply delay for all search modes
LCD BlinkOn	1-250 x 10 mS	For alternating text displays, sets the display time for the primary display element.
LCD BlinkOff	1-250 x 10 mS	For alternating text displays, sets the display time for the secondary display element.
LED BlinkOn	1-250 x 10 mS	When the ALERT LED setting for an object is set to Flash, this is the amount of time the LED stays turned on.
LED BlinkOff	1-250 x 10 mS	When the ALERT LED setting for an object is set to Flash, this is the amount of time the LED stays turned off.
Battery Info	SEL	Displays current battery voltage, DAC value and charge time remaining if battery is charging.
Charge Time	0-99	Battery charge time in hours. 0=charger off. The battery charger is timer based and charges at a current rate of 150 mA. The charger is disabled when BATTERY is set to Alkaline. A default charge time of 9 hours is used for NiCAD batteries, and 16 hours for NiMH batteries.
PC/IF Send	SEL	Press SEL to send contents of main memory to a PC connected to the PC/IF port.
Clone Send	SEL	Press SEL to send data using clone mode
Clone Recv	SEL	Press SEL to receive data using clone mode
Clear Hits	SEL	Press SEL to clear all hit counters.
Clear FAV	SEL	Press SEL to clear the Favorites scan list.
Memory Info	SEL	Press SEL to see the current memory usage.

CONV Menu Reference

The CONV menu is used when creating new Conventional Channel objects, or editing existing Conventional Channel objects. All menus are shown in the scanner's display as a three line window that can be scrolled up or down to access the various different parameters. The active parameter is always the middle parameter and is indicated by a flashing "█". The entire CONV menu is shown below:

CONV Parameter	Options	Description
Freq	Any supported frequency in MHz	The frequency that the CONV object will use.
Tas	Alpha-numeric text	The alphanumeric display name for the CONV channel. Use the standard text entry method or QTXT to name the object.
Modulation	AM, FM, NFM, AU	Modulation setting for the CONV channel. In most cases AU will work fine. Use AM to override and force AM modulation, FM to force FM modulation, NFM to force narrow FM modulation.
Sq Mode	Search, None, CTCSS, DCS, P25	Sets subaudible squelch mode or Project 25 conventional digital modulation. Use Search to automatically analyze signals to determine squelch mode and code. Use None to ignore subaudible squelch. Use CTCSS for tone coded squelch, DCS for digital coded squelch, or P25 for Project 25 conventional digital operation. Used in conjunction with Squelch Code parameter below.
Squelch Code	CTCSS Hz, DCS Code, P25 NAC	Sets CTCSS tone, DCS code, or P25 NAC depending on Sq Mode setting. Use Search to detect tone or code value for selected squelch type.
Scan Lists	On or Off for Scan Lists 1-20	Sets membership in Scan Lists. Use ◀ ▶ keys to scroll through scan lists. Use SEL key to toggle Scan List membership.
Delay	On or Off	Controls whether a Delay is used to wait for reply traffic after a transmission on the CONV channel.
Delay Time	1-200	Sets the amount of time (in 100 millisecond intervals) for the wait for reply delay if Delay is On, e.g., 20=2 seconds.

CONV Parameter	Options	Description
L/Out	On or Off	Permanent lockout for the CONV channel. Also accessed by pressing FUNC L/OUT while the scanner is stopped on the CONV object.
Priority	On or Off	Turns Priority Mode on or off for the CONV object.
Atten	On or Off	When on, applies 20 dB of attenuation to all transmissions on the CONV channel. Useful in areas where interference from nearby strong signals is present.
LED Flash	Solid or Flash	Controls whether the ALERT LED flashes or remains on solid when the ALERT LED is used.
LED Color	0-7	Sets LED color to 0-7 as defined in the GLOB menu. By default, 0=LED Off, 1=Red, 2=Yellow, 3=Green, 4=Cyan, 5=Blue, 6=Magenta, 7=White.
Latch LED	On or Off	Normally the ALERT LED is active only while the object is receiving a transmission. When Latch is on, the ALERT LED will remain lit after the transmission is complete, unless overridden by a subsequent object that is also using the ALERT LED.
Backlight	On, Off or Flash	Controls whether the backlight should be on, off or flashing while the object is active.
Alarm	None, Chirp, Hi-Lo, Alert, Ring, 2-Chirp, Fast Hi-Lo, DTMF#	Sets the Audible Alarm for the CONV object. When an Audible Alarm is selected, the selected alarm will play at the beginning of each transmission on the CONV object, or anytime the scanner stops for activity on the CONV object while scanning.
Fav	On or Off	When On, the CONV object is a member of the Favorites scan list.
Skywarn	On or Off	When On, the CONV object is a member of the Skywarn scan list.
Hit Count	Numeric value	Increments each time a transmission is received on the CONV object. Press the Dflt softkey to reset to 0.

TGRP Menu Reference

The TGRP menu is used when creating new Trunking Talkgroup objects, or editing existing Trunking Talkgroup objects. All menus are shown in the scanner's display as a three line window that can be scrolled up or down to access the various different parameters. The active parameter is always the middle parameter and is indicated by a flashing "⌄". The entire TGRP menu is shown below:

TGRP Parameter	Options	Description
TSYS	New or previously stored trunking system object (TSYS)	To enter a new trunking system, use the ◀ ▶ keys to scroll through the stored systems until NEW appears, then press SEL to enter the parameters for the new TSYS. To use a trunking system that you have previously entered, use the ◀ ▶ keys to scroll to the desired system.
ID	Decimal, hex or AFS depending on TSYS type	The digital address of the talkgroup or individual radio ID on the trunked radio system.
Type	Group or Private	Use Group for talkgroup ID, Private for individual radio ID.
Tas	Alpha-numeric text	The alphanumeric display name for the TGRP. Use the standard text entry method or QTXT to name the object.
Scan Lists	On or Off for Scan Lists 1-20	Sets membership in Scan Lists. Use ◀ ▶ keys to scroll through scan lists. Use SEL key to toggle Scan List membership.
Delay	On or Off	Controls whether a Delay is used to wait for reply traffic after a transmission on the TGRP.
Delay Time	1-200 x 100 mS	Sets the amount of time (in 100 millisecond intervals) for the wait for reply delay if Delay is On, e.g., 20=2 seconds.
L/Out	On or Off	Permanent lockout for the TGRP. Also accessed by pressing FUNC L/OUT while the scanner is stopped on the TGRP object.
Priority	On or Off	Turns Priority Mode on or off for the TGRP object.
LED Flash	Solid or Flash	Controls whether the ALERT LED flashes or remains on solid when the ALERT LED is used.

TGRP Parameter	Options	Description
LED Color	0-7	Sets LED color to 0-7 as defined in the GLOB menu. By default, 0=LED Off, 1=Red, 2=Yellow, 3=Green, 4=Cyan, 5=Blue, 6=Magenta, 7=White.
Latch LED	On or Off	Normally the ALERT LED is active only while the object is receiving a transmission. When Latch is on, the ALERT LED will remain lit after the transmission is complete, unless overridden by a subsequent object that is also using the ALERT LED.
Backlight	On, Off or Flash	Controls whether the backlight should be on, off or flashing while the object is active.
Alarm	None, Chirp, Hi-Lo, Alert, Ring, 2-Chirp, Fast Hi-Lo, DTMF#	Sets the Audible Alarm for the TGRP object. When an Audible Alarm is selected, the selected alarm will play at the beginning of each transmission on the TGRP object, or anytime the scanner stops for activity on the TGRP object while scanning.
Fav	On or Off	When On, the TGRP object is a member of the Favorites scan list.
Hit Count	Numeric value	Increments each time a transmission is received on the TGRP object. Press the Deflt softkey to reset to 0.

TSYS Menu Reference

The TSYS menu is used when creating new Trunking System objects, or editing existing Trunking System objects. All menus are shown in the scanner's display as a three line window that can be scrolled up or down to access the various different parameters. The active parameter is always the middle parameter and is indicated by a flashing "█". The entire TSYS menu is shown below:

TSYS Parameter	Options	Description
Type	MOT 800/900, MOT VHF/UHF, P25 7/8/900, P25 AUTO, EDACS STD, EDACS NAROW, LTR	Sets the trunking system type. Choose MOT800/900 if the system is a Motorola 800 or 900 MHz analog or digital trunked radio system that uses the 3600 baud control channel. Use P25 7/8/900 if the system is a Project 25 trunked radio system operating on 700, 800 or 900 MHz frequencies. Use P25 AUTO if the system is a Project 25 trunked radio system operating on VHF or UHF frequencies. Use EDACS STD for most 800 MHz EDACS systems using the 9600 BPS EDACS control channel. Use EDACS NAROW for most 900 MHz and some VHF/UHF EDACS systems using the 4800 BPS EDACS control channel. Use LTR for Logic Trunked Radio (LTR) systems.
Tas	Alpha-numeric text	The alphanumeric display name for the TSYS. Use the standard text entry method or QTX to name the object.
Frequencies	SEL	Press SEL to enter trunked radio system frequencies. Enter control channel frequencies in any order for all Motorola and Project 25 trunking systems. Enter system frequencies in LCN order for all EDACS trunking systems. Enter system frequencies in Home Repeater order for LTR systems.
Dwell	0-200 x 100 mS	Sets the amount of time the scanner dwells on a Motorola, P25 or EDACS system control channel for activity on programmed talkgroups. Use 0 for automatic mode, which uses control channel information to determine when all current talkgroup information has been broadcast by the system.
Narrow FM	Yes or No	Use Yes when the system is known to use Narrow FM modulation. Most 900 MHz analog trunked radio systems utilize NFM modulation. This setting has no effect on digital trunked radio system performance.

TSYS Parameter	Options	Description
Atten	On or Off	When on, applies 20 dB of attenuation to all transmissions on this TSYS. Useful in areas where interference from nearby strong signals is present.
L/Out	On or Off	Permanent lockout for the TSYS. When On, no traffic will be received on any programmed TGRPs for this TSYS.
Multi-Site	On or Off	When On, performance is optimized for multi-site networked trunked radio systems. The radio will use the Threshold Hi and Threshold Lo parameters to automatically select the best networked site for your location. Used with Motorola and P25 multi-site networked systems.
Threshold Hi	1-99	Available When Multi-Site is set to On. Sets the control channel decode % threshold for a site to be considered good when looking for a new site.
Threshold Lo	1-99	Available When Multi-Site is set to On. Sets the control channel decode % threshold for a site to be considered out of range, which will begin the process of looking for a new site.
T Tables	Normal, Splinter, Custom	For Motorola and P25 systems only - sets custom channel tables. Use ◀ ▶, to select option, press SEL on Custom to enter custom table information
Fleet Map	SEL	For Motorola Type I systems only - sets fleet map

LMIT Menu Reference

The LMIT menu is used when creating new Limit Search objects, or editing existing Limit Search objects. All menus are shown in the scanner's display as a three line window that can be scrolled up or down to access the various different parameters. The active parameter is always the middle parameter and is indicated by a flashing "⏏". The entire LMIT menu is shown below:

LMIT Parameter	Options	Description
FrLO	Any supported frequency in MHz	A frequency that will be used as the lower limit for the limit search range
FrHi	Any supported frequency in MHz	A frequency that will be used as the upper limit for the limit search range
Tas	Alpha-numeric text	The alphanumeric display name for the LMIT search. Use the standard text entry method or QTXT to name the object.
Modulation	AM, FM, NFM, AU	Modulation setting for the LMIT search. In most cases AU will work fine. Use AM to override and force AM modulation, FM to force FM modulation, NFM to force narrow FM modulation.
Scan Lists	On or Off for Scan Lists 1-20	Sets membership in Scan Lists. Use ◀ ▶ keys to scroll through scan lists. Use SEL key to toggle Scan List membership.
Delay	On or Off	Controls whether a Delay is used to wait for reply traffic after a transmission is received during the LMIT search.
Delay Time	1-200	Sets the amount of time (in 100 millisecond intervals) for the wait for reply delay if Delay is On, e.g., 20=2 seconds.
L/Out	On or Off	Permanent lockout for the LMIT channel. Also accessed by pressing FUNC L/OUT while the scanner is stopped on the LMIT object.
Zeromatic	On or Off	When on, enhances the scanner's ability to lock on to the actual center frequency of a search hit instead of an adjacent frequency.
Atten	On or Off	When on, applies 20 dB of attenuation to all hits received on the LMIT search. Useful in areas where interference from nearby strong signals is present.

LMIT Parameter	Options	Description
Search Dir	▲ ▼	Sets search direction used when LMIT object is active.
LED Flash	Solid or Flash	Controls whether the ALERT LED flashes or remains on solid when the ALERT LED is used.
LED Color	0-7	Sets LED color to 0-7 as defined in the GLOB menu. By default, 0=LED Off, 1=Red, 2=Yellow, 3=Green, 4=Cyan, 5=Blue, 6=Magenta, 7=White.
Latch LED	On or Off	Normally the ALERT LED is active only while the object is receiving a transmission. When Latch is on, the ALERT LED will remain lit after the transmission is complete, unless overridden by a subsequent object that is also using the ALERT LED.
Backlight	On, Off or Flash	Controls whether the backlight should be on, off or flashing while the object is active.
Alarm	None, Chirp, Hi-Lo, Alert, Ring, 2-Chirp, Fast Hi-Lo, DTMF#	Sets the Audible Alarm for the LMIT object. When an Audible Alarm is selected, the selected alarm will play anytime the scanner stops for activity on the LMIT object while scanning.
Fav	On or Off	When On, the LMIT object is a member of the Favorites scan list.
Hit Count	Numeric value	Increments each time a transmission is received on the LMIT object. Press the Dflt softkey to reset to 0.

SRVC Menu Reference

The SRVC menu is used when creating new Service Search objects, or editing existing Service Search objects. All menus are shown in the scanner's display as a three line window that can be scrolled up or down to access the various different parameters. The active parameter is always the middle parameter and is indicated by a flashing "▣". The entire SRVC menu is shown below:

SRVC Parameter	Options	Description
Srvc	Pub Safety, Aircraft, Amateur, CB, Marine, FRS/GM/ MURS, Railroad	Public Safety (Pub Safety) - Searches commonly used public safety frequencies. Groups are as follows: 0: 33.4-46.5 MHz 1: 151-170 MHz 2: 453-467 MHz 3: 764-806 MHz 4: 851-869 MHz Aircraft - Searches civilian and military air frequencies. Groups are as follows: 0: 108-118 MHz 1: 118-137 MHz 2: 138-150 MHz 3: 225-400 MHz Amateur - Searches amateur radio frequencies. Groups are as follows: 0: 28.0-29.7 MHz 1: 50-54 MHz 2: 144-148 MHz 3: 222-225 MHz 4: 420-450 MHz 5: 902-928 MHz 6: 1240-1300 MHz CB - Searches the citizen's band radio frequencies Marine - Searches the VHF-FM marine radio band FRS/GMRS/MURS/DOT/STAR (F/G/MURS) - Searches the FRS, GMRS, MURS, DOT and STAR radio frequencies Railroad - searches the Association of American Railroads (AAR) VHF railroad frequencies used in the US and Canada

SRVC Parameter	Options	Description
Groups	◀ ▶ to scroll, SEL to toggle on/off	Toggle search groups when Pub Safety, Aircraft and Amateur service searches are used.
Tas	Alpha-numeric text	The alphanumeric display name for the SRVC search. Use the standard text entry method or QTXT to name the object.
Modulation	AM, FM, NFM, AU	Modulation setting for the SRVC search. In most cases AU will work fine. Use AM to override and force AM modulation, FM to force FM modulation, NFM to force narrow FM modulation.
Scan Lists	On or Off for Scan Lists 1-20	Sets membership in Scan Lists. Use ◀ ▶ keys to scroll through scan lists. Use SEL key to toggle Scan List membership.
Delay	On or Off	Controls whether a Delay is used to wait for reply traffic after a transmission on the SRVC search.
Delay Time	1-200	Sets the amount of time (in 100 millisecond intervals) for the wait for reply delay if Delay is On, e.g., 20=2 seconds.
L/Out	On or Off	Permanent lockout for the SRVC object. Also accessed by pressing FUNC L/OUT while the scanner is stopped on the SRVC object.
Zeromatic	On or Off	When on, enhances the scanner's ability to lock on to the actual center frequency of a search hit instead of an adjacent frequency.
Atten	On or Off	When on, applies 20 dB of attenuation to all hits received on the SRVC search. Useful in areas where interference from nearby strong signals is present.
Search Dir	▲ ▼	Sets search direction used when SRVC object is active.
LED Flash	Solid or Flash	Controls whether the ALERT LED flashes or remains on solid when the ALERT LED is used.
LED Color	0-7	Sets LED color to 0-7 as defined in the GLOB menu. By default, 0=LED Off, 1=Red, 2=Yellow, 3=Green, 4=Cyan, 5=Blue, 6=Magenta, 7=White.
Latch LED	On or Off	Normally the ALERT LED is active only while the object is receiving a transmission. When Latch is on, the ALERT LED will remain lit after the transmission is complete, unless overridden by a subsequent object that is also using the ALERT LED.

SRVC Parameter	Options	Description
Backlight	On, Off or Flash	Controls whether the backlight should be on, off or flashing while the object is active.
Alarm	None, Chirp, Hi- Lo, Alert, Ring, 2- Chirp, Fast Hi-Lo, DTMF#	Sets the Audible Alarm for the SRVC object. When an Audible Alarm is selected, the selected alarm will play anytime the scanner stops for activity on the SRVC object while scanning.
Fav	On or Off	When On, the SRVC object is a member of the Favorites scan list.
Hit Count	Numeric value	Increments each time a transmission is received on the SRVC object. Press the Deflt softkey to reset to 0.

SWPR Menu Reference

The SWPR menu is used when creating new Spectrum Sweeper objects, or editing existing Spectrum Sweeper objects. All menus are shown in the scanner's display as a three line window that can be scrolled up or down to access the various different parameters. The active parameter is always the middle parameter and is indicated by a flashing "█". The entire SWPR menu is shown below:

SWPR Parameter	Options	Description
Tag	Alpha-numeric text	The alphanumeric display name for the SWPR search. Use the standard text entry method or QTX to name the object.
Type	All Bands or Pub Safety	Use ◀ ▶ to select All Bands or Public Safety. All Bands covers the entire frequency range of the scanner. Public Safety covers frequency ranges commonly used for public safety communications.
Sub-bands	◀ ▶, SEL	Sub bands are available when using SWPR in All Bands or Public Safety mode. In All Bands, the sub bands are defined as follows: 0: 25-54 MHz 1: 108-137 MHz 2: 137-174 MHz 3: 216-300 MHz 4: 300-406 MHz 5: 406-470 MHz 6: 470-512 MHz 7: 806-869 MHz 8: 896-960 MHz 9: 1240-1300 MHz In Public Safety, the sub bands are defined as follows: 0: 33.4-46.5 MHz 1: 151-170 MHz 2: 453-467 MHz 3: 764-806 MHz 4: 851-869 MHz
Scan Lists	On or Off for Scan Lists 1-20	Sets membership in Scan Lists. Use ◀ ▶ keys to scroll through scan lists. Use SEL key to toggle Scan List membership.
Delay	On or Off	Controls whether a Delay is used to wait for reply traffic after a transmission on the SWPR search.

SWPR Parameter	Options	Description
Delay Time	1-200	Sets the amount of time (in 100 millisecond intervals) for the wait for reply delay if Delay is On, e.g., 20=2 seconds.
L/Out	On or Off	Permanent lockout for the SWPR search. Also accessed by pressing FUNC L/OUT while the scanner is stopped on the SWPR object.
Zeromatic	On or Off	When on, enhances the scanner's ability to lock on to the actual center frequency of a search hit instead of an adjacent frequency.
Atten	On or Off	When on, applies 20 dB of attenuation to all hits received on the SWPR search. Useful in areas where interference from nearby strong signals is present.
Special	On or Off	SWPR works by quickly sweeping the RF spectrum in 1 MHz increments to find nearby strong signals. If the 1 MHz sweep indicates that activity is present in the 1 MHz range, SWPR sweeps that range to find the source. Special Spectrum Sweeper mode helps improve Spectrum Sweeper speed in locations where numerous strong RF sources are present and in close proximity to each other spectrally. An example would be an area where there are many VHF paging transmitters nearby operating in the 152 MHz range. When Special mode is on, SWPR will skip any 1 MHz segment where 5 or more hits have been locked out using the FrL/O key.
Search Dir	▲ ▼	Sets search direction used when SWPR object is active.
LED Flash	Solid or Flash	Controls whether the ALERT LED flashes or remains on solid when the ALERT LED is used.
LED Color	0-7	Sets LED color to 0-7 as defined in the GLOB menu. By default, 0=LED Off, 1=Red, 2=Yellow, 3=Green, 4=Cyan, 5=Blue, 6=Magenta, 7=White.
Latch LED	On or Off	Normally the ALERT LED is active only while the object is receiving a transmission. When Latch is on, the ALERT LED will remain lit after the transmission is complete, unless overridden by a subsequent object that is also using the ALERT LED.
Backlight	On, Off or Flash	Controls whether the backlight should be on, off or flashing while the object is active.

SWPR Parameter	Options	Description
Alarm	None, Chirp, Hi- Lo, Alert, Ring, 2- Chirp, Fast Hi-Lo, DTMF#	Sets the Audible Alarm for the SWPR object. When an Audible Alarm is selected, the selected alarm will play anytime the scanner stops for activity on the SWPR object while scanning.
Fav	On or Off	When On, the SWPR object is a member of the Favorites scan list.
Hit Count	Numeric value	Increments each time a transmission is received on the SWPR object. Press the Dflt softkey to reset to 0.

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Appendix A - Remote Control Protocol Version 0.01

The 0715 includes a simple remote control interface protocol that is suitable for use with a PC application designed to provide a remote control and display capability. The ideal PC application should provide a means by which a user can interact with a visual representation of the scanner's keypad and display.

Remote Control Mode is active at all times, and does not require that the radio be placed in any special remote mode in order for it to be used.

The basic remote control command/response format is as follows:

`<STX><msgCode><msgData><ETX><sum>`

where:

`<STX>` is an ASCII "Start of Text" symbol (0x02)

`<msgCode>` is the code that represents the command or response message type

`<msgData>` is the data that accompanies a command or a response

`<ETX>` is an ASCII "End of Text" symbol (0x03)

`<sum>` is the sum of all bytes before sum but not including `<STX>`, and is sent with every command and response for error checking.

The following commands are currently supported in RCP Version 0.01:

Get Status

Command:

`STX A ETX <sum>`

Response:

`STX A <mode> <sq> <battL> <battH> <rssiL>
<rssiH> <zmL> <zmH> <ledR> <ledG> <ledB> ETX
<sum>`

NOTE: <battH> is ORed with 0x80 when on external power

Get LCD

Command:

STX L ETX <sum>

Response:

STX L <lcd0> <lcd1> ... <lcd63> <icons1>
<icons2> ETX <sum>

NOTE: <icons1> and <icons2> are bitmapped representations of display icon status, as follows:

icons1:

bits 0-2: RSSI bars level, 0-5
bit 3: S icon
bit 4: Batt icon ON
bit 5: Batt icon BLINKING

icons2:

bit 0: 'F' icon
bit 1: 'G' icon
bit 2: 'A' icon
bit 3: 'T' icon
bit 4: up arrow icon
bit 5: down arrow icon
bit 6: LCD backlight status

Send Key

Command:

STX K <keycode> ETX <sum>

Response:

(no response)

Key codes for the Send Key command are as follows:

Key	Code	Key	Code	Key	Code	Key	Code
SCAN	15	2	27	PSE	6	.	24
FUNC	1	3	21	^	7	CLR	36
MAN	3	4	14	7	35	F2	25
WX	17	TEXT	13	8	29		32
SEL	8	ATT	26	9	23	SRCH	10
FAV	4	4	34	F3	19	L/OUT	5
PRI	11	5	28	MODE	25	PGM	12
TUNE	16	6	22	▼	9	ENT	18
1	33	7	2	0	30	F1	31

NOTE: To initiate the “press and hold” action for the Light key, send code 32 ORed with 0x80 (value is 0xA0)

Appendix B - Frequency, Step and Mode Specifications

<u>Frequency Range</u>	<u>Step Size</u>	<u>Default Mode</u>
25.0000 - 26.9600 MHz	10 kHz	AM
26.9650 - 27.4050 MHz	10 kHz	AM
27.4100 - 29.5050 MHz	5 kHz	AM
29.5100 - 29.7000 MHz	5 kHz	FM
29.7100 - 49.8300 MHz	10 kHz	FM
49.8350 - 54.0000 MHz	5 kHz	FM
108.000 - 136.9916 MHz	8.33 kHz	AM
137.000 - 137.995 MHz	5 kHz	FM
138.000 - 143.9875 MHz	12.5 kHz	FM
144.000 - 147.9950 MHz	5 kHz	FM
148.000 - 150.7875 MHz	12.5 kHz	FM
150.800 - 150.8450 MHz	5 kHz	FM
150.8525 - 154.4975 MHz	7.5 kHz	FM
154.5150 - 154.6400 MHz	5 kHz	FM
154.6500 - 156.2550 MHz	7.5 kHz	FM
156.2750 - 157.4500 MHz	25 kHz	FM
157.4700 - 161.5725 MHz	7.5 kHz	FM
161.6000 - 161.9750 MHz	5 kHz	FM
162.0000 - 174.0000 MHz	12.5 kHz	FM
216.0025 - 219.9975 MHz	5 kHz	FM
220.0000 - 224.9950 MHz	5 kHz	FM
225.0000 - 379.99375 MHz	6.25 kHz	AM
380.0000 - 419.987500 MHz	12.5 kHz	FM
420.0000 - 450.000000 MHz	5 kHz	FM
450.00625 - 469.99375 MHz	6.25 kHz	FM
470.00000 - 512.00000 MHz	12.5 kHz	FM
76400000 - 775.996875 MHz	3.125 kHz	FM
794.00000 - 805.996875 MHz	3.125 kHz	FM
806.00000 - 823.987500 MHz	12.5 kHz	FM
851.00000 - 868.987500 MHz	12.5 kHz	FM
896.00000 - 901.987500 MHz	12.5 kHz	FM
902.00000 - 928.000000 MHz	5 kHz	FM
928.00125 - 939.987500 MHz	12.5 kHz	FM
940.00000 - 960.000000 MHz	6.25 kHz	FM
1240.0000 - 1300.00000 MHz	6.25 kHz	FM

*Excludes frequencies utilized by the Cellular Mobile Radiotelephone Service: 824-848.9875 MHz and 869-893.9875 MHz

Appendix C - General Specifications (Preliminary)

Item	Specification																
Working Memory	1800 programmed objects using flexible "scannable object" system. Program and scan conventional channels, trunking talkgroups, limit searches, service searches, and Spectrum Sweeper configurations as "scannable objects" that are created, edited, grouped and scanned using common user interface conventions.																
Virtual Scanners	21 Virtual Scanner (V-Scanner) folders, each capable of holding the entire contents of working memory, for a total storage capacity of over 37,800 objects.																
Searches	8 preprogrammed dedicated service searches, 1 dedicated limit search. Any service or limit search can be programmed and scanned as an object alongside conventional channels and trunking talkgroups																
Priority	Talkgroup and conventional channel priority, selectable priority sample rate and priority sample during trunking talkgroup call																
Conventional Receiver Modes	AM, FM, NFM, CTCSS, DCS, P25 NAC																
Trunking Receiver Modes	Motorola Type I/II/III Analog and Digital, GE/Ericsson/MA-COM EDACS Narrowband and Wideband, EF Johnson LTR																
Receiver System	Triple conversion PLL super-heterodyne																
1st IF	380.8 MHz (The 1st LO uses high side of receive frequency range for VHF and UHF Low/T, and low side of receive frequency range for >512 MHz)																
2nd IF	21.4 MHz (The second LO uses low side of 1st IF)																
3rd IF	455 kHz (The 3rd LO uses the low side of the 2nd IF)																
Frequency Range	<table> <tr> <td>VHF Low</td><td>25.00000 - 54.00000 MHz</td></tr> <tr> <td>VHF Aircraft</td><td>108.00000 - 136.99166 MHz</td></tr> <tr> <td>VHF High</td><td>137.00000 - 174.00000 MHz</td></tr> <tr> <td></td><td>216.00250 – 224.9950 MHz</td></tr> <tr> <td></td><td>225.00000 – 299.93750 MHz</td></tr> <tr> <td>UHF Low/T</td><td>300.00000 – 512.00000 MHz</td></tr> <tr> <td>UHF High</td><td>764.00000 – 960.00000 MHz*</td></tr> <tr> <td></td><td>1240 .00000 – 1300.0000 MHz</td></tr> </table> *Excludes frequencies utilized by the Cellular Mobile Radiotelephone Service	VHF Low	25.00000 - 54.00000 MHz	VHF Aircraft	108.00000 - 136.99166 MHz	VHF High	137.00000 - 174.00000 MHz		216.00250 – 224.9950 MHz		225.00000 – 299.93750 MHz	UHF Low/T	300.00000 – 512.00000 MHz	UHF High	764.00000 – 960.00000 MHz*		1240 .00000 – 1300.0000 MHz
VHF Low	25.00000 - 54.00000 MHz																
VHF Aircraft	108.00000 - 136.99166 MHz																
VHF High	137.00000 - 174.00000 MHz																
	216.00250 – 224.9950 MHz																
	225.00000 – 299.93750 MHz																
UHF Low/T	300.00000 – 512.00000 MHz																
UHF High	764.00000 – 960.00000 MHz*																
	1240 .00000 – 1300.0000 MHz																

Item	Specification
Preprogrammed Service Searches	Marine Aircraft CB FRS/GMRS/MURS/DOT-STAR Public Safety Aircraft Amateur Radio Railroad
Weather frequencies	162.400, 162.425, 162.450, 162.475, 162.500, 162.525, 162.550 MHz
Scanning Rate	Approximately 55 channels per second
Search Rate	Approximately 90 steps per second
Display	LCD with amber LED backlight, 4 lines of 16 characters each, plus 13 display icons
Zeromatic	Automatically zeroes receiver on correct frequency during searches
Audio Output	250 mW
Spectrum Sweeper Band Groups	All Bands: Group 0 (25 – 54 MHz) Group 1 (108 – 136.99166 MHz) Group 2 (137 – 174 MHz) Group 3 (216.0025 – 299.9750 MHz) Group 4 (300 – 405.9875 MHz) Group 5 (406 – 470 MHz) Group 6 (470.0125 – 512 MHz) Group 7 (764-767, 773-776, 794-797, 803-806 MHz) Group 8 (806 – 868.9875 MHz)* Group 9 (896 – 960, 1240 – 1300 MHz) Public Safety Bands: Group 0 (33.4-46.5 MHz) Group 1 (151 – 170 MHz) Group 2 (453 – 467 MHz) Group 3 (764-767, 773-776, 794-797, 803-806 MHz) Group 4 (806-869 MHz)* *Excludes frequencies utilized by the Cellular Mobile Radiotelephone Service
Internal Speaker	36 mm 8 ohms dynamic
Operating Voltage	6 VDC (4 ea. "AA" alkaline, NiCAD or NiMH)
External Power and Charge Voltage	9 VDC 500 mA regulated power supply
Dimensions	Approximately 2.56(w) x 1.65(d) x 5.71(h) inches, 65 (w) x 42 (d) x 145 (h) mm

Item	Specification
Weight	Approximately 8.5 ounces, 240 grams (not including batteries and antenna)
Included accessories	GRE compact helical antenna, owners manual, alkaline battery holder, NiCAD/NiMH battery holder, belt clip
Memory backup	No backup battery required, utilizes non-volatile EEPROM memory