Getting The Most From The New Uniden Scanners

by Paul Opitz

U

den’s current crop of scanners uses a radically new pro-
gramming method. The Dynamic Memory system used
in the BC246T, SC230, BCD396T, and BR330T is very
different from the banked scanners we’ve been using for decades.

To get the most out of these scanners, you need to unlearn a few

old concepts, then learn a couple of new ones. Over the next cou-

ple of articles, we’re going to look at how to use the latest scan-

er technology in use today, and give us some much-needed insight

into making this new breed of scanner more user friendly over the

coming months.

I cannot emphasize enough the need to do a little homework
before you sit down to program the scanner. Programming is
pretty straightforward, if you know in advance what you need
to do. I use several major internet resources to collect my
planning information.

For conventional systems, there are many resources includ-
ing www. scannermaster.com, (home of Police Call), and the
FCC’s website at www.fcc.gov.

To keep our example simple, let’s program a system with
channels full of stuff we’re all familiar with. We’ll make a sys-
tem called “Common Channels,” assign it to QK 0 and set up
4 channel groups: FRS as GQK 1, GMRS as GQK 1, MURS
as GQK 2, and CB as GQK 3.

See the “Planning” sidebar for all the information we col-
clected to accomplish our task. To keep things a little easier, I’ve
only listed the first 5 channels for each group.

I’m going to assume that you have the Owner’s Manual for
your scanner. So, refer to the manual for such things as how
to set alpha tags, and the specific menu sequence to change
settings (each scanner is slightly different). I’m also assuming
that you delete all other information from the scanner before
you start. You can make a backup, first, using a free utility
from Butel (www.butel.nl), if you want to be able to restore
settings, later.

Power the scanner, and press MENU. The very first option,
“Program Systems” is the one we want, so give the scroll con-


vocabulary

First, let’s purge a word from our vocabulary: “Bank.” Instead, we
will use System which is a group of channels and settings that are
related by function, geography, or type. All channels in a system must
be of the same type.

Channels are settings that define a specific user. For conventional
systems, a channel consists of frequencies, alpha tags, CTCSS/DCS
tones, and other associated settings. For trunked systems, a channel
consists of Talk Group ID’s, alpha tags, and other associated settings.

Quick Keys (QK) are keys that let you quickly select a system or
group of systems. You can assign multiple systems to the same key,
giving you the same functionality of combining trunked and con-


conventional systems into one bank on banked scanners.

Group Quick Keys (GQK) are keys that let you quickly select a

group or groups of channels within a system.

Scroll Control is the rotary encoder knob on the top of the radio used
to access many features and settings.
**Planning Worksheet**

<table>
<thead>
<tr>
<th>System:</th>
<th>&quot;Common Channels&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quick Key:</td>
<td>0</td>
</tr>
<tr>
<td>Delay:</td>
<td>2 Seconds</td>
</tr>
<tr>
<td>Hold Time:</td>
<td>1 Second</td>
</tr>
<tr>
<td>Group:</td>
<td>&quot;FRS&quot;</td>
</tr>
<tr>
<td>Quick Key Channels:</td>
<td>Alpha</td>
</tr>
<tr>
<td>Frequency:</td>
<td>1</td>
</tr>
<tr>
<td>FRS 1</td>
<td>462.5625</td>
</tr>
<tr>
<td>FRS 2</td>
<td>462.5875</td>
</tr>
<tr>
<td>FRS 3</td>
<td>462.6125</td>
</tr>
<tr>
<td>FRS 4</td>
<td>462.6375</td>
</tr>
<tr>
<td>FRS 5</td>
<td>462.6625</td>
</tr>
<tr>
<td>Group:</td>
<td>GMRS</td>
</tr>
<tr>
<td>Quick Key Channels:</td>
<td>2</td>
</tr>
<tr>
<td>GMRS 1</td>
<td>462.5500</td>
</tr>
<tr>
<td>GMRS 2</td>
<td>462.5750</td>
</tr>
<tr>
<td>GMRS 3</td>
<td>462.6000</td>
</tr>
<tr>
<td>GMRS 4</td>
<td>462.6250</td>
</tr>
<tr>
<td>GMRS 5</td>
<td>462.6500</td>
</tr>
<tr>
<td>Group:</td>
<td>MURS</td>
</tr>
<tr>
<td>Quick Key Channels:</td>
<td>3</td>
</tr>
<tr>
<td>MURS 1</td>
<td>151.8200</td>
</tr>
<tr>
<td>MURS 2</td>
<td>151.8800</td>
</tr>
<tr>
<td>MURS 3</td>
<td>151.9400</td>
</tr>
<tr>
<td>MURS 4</td>
<td>154.5700</td>
</tr>
<tr>
<td>MURS 5</td>
<td>154.6000</td>
</tr>
<tr>
<td>Group:</td>
<td>CB</td>
</tr>
<tr>
<td>Quick Key Channels:</td>
<td>4</td>
</tr>
<tr>
<td>CB 1</td>
<td>26.9650</td>
</tr>
<tr>
<td>CB 2</td>
<td>26.9750</td>
</tr>
<tr>
<td>CB 3</td>
<td>26.9850</td>
</tr>
<tr>
<td>CB 4</td>
<td>27.0050</td>
</tr>
<tr>
<td>CB 5</td>
<td>27.0150</td>
</tr>
</tbody>
</table>

the frequency for the channel (start with 462.5625, which corresponds to FRS Channel 1). Then, use the next menu selections to set the channel Name ("FRS 1"), Lockout (we’ll leave all the channels unlocked), Alert (which you can turn on if you want the scanner to alert you with beeps when the channel becomes active), Modulation (which you can leave at AUTO for FRS, which will select NFM for this band), Attenuation (turn on only if you get strong-signal interference in your area), CTCSS/DCS (leave turned off), Step (which you can leave at the default), and Priority.

Repeat the above for all the FRS channels, then create the groups for GMRS, MURS, and CB and populate those channels, as well.

Of course you could have done all of this much faster and easier using software in your PC, but we’ll leave that for a future time.

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**Scanning The Results**

Let’s see how the scanner behaves with this programming. Press SCAN. The scanner should start scanning through the channels you programmed in. “0” appears on the “SYS” line at the bottom of the scanner (indicating that Quick Key 0 is enabled), and 1, 2, and 3, appear on the “GRP” line (indicating that channel groups 1, 2, and 3 in the current system are enabled). Press 0 – the scanner displays “All Locked” because you’ve turned off all the programmed systems.

Press 0 again to turn the system back on, then hold F and press 1, 2, and 3, in turn. As you press each button, the corresponding channel group number turns off. When you press 3, the scanner again displays “All Locked” because there are no channels enabled for scanning. Press F+1, 2, 3 again to turn the groups back on.

If you have multiple systems stored in the scanner, operation is a little less straightforward. Enabling/disabling systems works about the same, but to enable/disable a channel group, you must first be sure that the scanner is scanning that group. If it is not, after you press F, you need to scroll to select that system before pressing the channel group quick keys.

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**Programming For Trunked Systems**

Previously we’ve looked at how to plan and program conventional channels into one of Uniden’s latest scanners using Dynamic Memory. Now, we’ll take it a step further and look at what you need to do to set up a Trunked Radio system in the BC246T, BR330T, BCD996T, or BCT15. Note that these last two models are still in development, so there could be some differences when they finally get in our hands, but the basic idea will remain the same.

As with a conventional scanner, a trunked scanner contains system information (things like the system name, system hold time, and, very important, the system frequencies). The system also has channel groups that hold the information about channels you want to listen to.

Unlike conventional scanners, where a channel contains frequency information, a trunked system’s channels contain information about the Talk Groups on the system you want to listen to. If you don’t know how a trunked radio works, take a moment to read the sidebar “A Quick Trunking Tutorial.”

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**Planning Our Approach**

Again, even more important than with conventional systems, planning is critical when setting up a trunked system. There are several Internet resources for finding information about trunked radio systems, but by far the most extensive is found in the Database area of http://www.RadioReference.com. I’ll use information from this site to create an example of programming frequencies from the Arlington, Texas area into my scanner.

Here’s what you need to find out about your target area:

- **System Type:** The main types of Trunking systems are Motorola, EDACS, and LTR. There are subtypes; for example, Motorola 800 MHz, 900 MHz, VHF, UHF, and P25 are all possible system types. You can find the system type by looking at the top part of the system’s webpage shown in Figure 1. The system type identified here is Motorola Type II and, since all the frequencies are in the 800-MHz band, we can tell that this is an 800-MHz Type II system.

- **System Frequencies:** These are clearly listed, as shown in Figure 1. For Motorola systems, you only really need the frequencies in red or blue (the possible control channels). For other systems, you will need all the frequencies and their LCN (logical channel numbers); these are indicated on the website by a small number preceding the system frequency as shown below for the Irving, Texas EDACS system. (See Figure 2.)

- **Talk Group IDs (TGIDs):** Identify which groups you want to listen to. It isn’t necessary to program in every ID (unless your interest includes listening to the water department and dogcatcher). Each system type uses a different format for TGIDs. For Motorola systems, you need the decimal format for...
whatever “flavor” of Motorola you’re monitoring. Figure 3 shows the data for Arlington FD and PD.

That’s it for collecting information, now let’s organize for our scanning needs. Say I want to be able to independently turn on/off scanning for FD/EMS and for each PD district, I would then create six channel groups as follows:

FD/EMS
Group Quick Key: 1
Channel Tag
53520 FD Dispatch
53552 EMS 1

PD North
Group Quick Key: 2
Channel Tag
53968 North PD Dispatch
54128 North PD T/A

PD West
Group Quick Key: 3
Channel Tag
54000 West PD Dispatch
54160 West PD T/A

PD East
Group Quick Key: 4
Channel Tag
54032 East PD Dispatch
54192 East PD T/A

PD South
Group Quick Key: 5
Channel Tag
54064 South PD Dispatch
54224 South PD T/A

Putting It All Together
Okay, we’ve collected, planned, and organized, so now it’s time to turn on the scanner and load up the system. Again, some details could vary by model, so make liberal use of the Owner’s Manual to find out how to enter alpha tags, the specific menu sequence, and so on.

Power the scanner and press MENU. The very first option, “Program Systems,” is the one we want, so give the scroll control a tap or press E. The scanner now displays the name of a system programmed into your scanner. Scroll back one to “New System” and press scroll or E to select it.

The scanner asks what type of system you want to program. From our planning above, we know that this is a Motorola 800 Standard system, so select that option and tap the scroll control.

Now, you need to program in the system-level settings. These settings are the system name (“Arlington TRS”), System Options (such as the Quick Key, Hold Time, etc. we learned about last time), and most importantly for a trunked system, the System Frequencies. Scroll to “Set Frequencies” and follow the prompts to enter all the frequencies for the system.

Put that for Motorola systems you only have to enter the Control Channels, but if you opt to enter only these you need to turn on the “Control Channel Only system option.

Now, use the same method we used last month for conventional systems to create channel groups and enter channel information for this system (select “Edit Group,” create a new group, and create channels in that group).

While tedious (entering alpha tags does take some time), since we prepared by learning about our target system and organizing our data before we started programming, this was pretty simple. It also shows off some of the big advantages of Dynamic Memory.

With a banked scanner, even though a bank might have 100 channels for frequencies, since you could only enter one
A Quick Trunking Tutorial

So-called conventional systems are easy to set up and scan, because each frequency in the system typically carries traffic for a single agency or group within an agency. But, while simple, using a discrete frequency for every user group results in either many frequencies to cover all agencies in an area, or the lumping together of agencies onto single frequencies, which could mean that the radio frequency resource is in use by Agency A when Agency B also needs the frequency.

Trunking solves this problem by using a pool of frequencies that is shared by many agencies. The basic concept that lets this work is that any particular agency is typically using a frequency less than 10 percent of the time. With a trunked system, one channel acts as a control channel to assign a frequency to an agency (or, in trunking parlance, a Talk Group) when it needs one, then returns the frequency to the open pool when the agency no longer needs it.

Here’s how it works for a typical call. A user in Talk Group A presses PTT on his or her radio. This sends a request to the control channel to assign a frequency. The channel grant for that talk group is then transmitted out on the control channel. This grant tells all the other radios assigned to Talk Group A to tune to the assigned frequency for the duration of the call. The original caller’s radio then beeps, and the user can begin the transmission. While it sounds complicated, this all usually happens in a fraction of a second.

For a scanner to follow the traffic for a particular Talk Group, it needs to know the Talk Group ID (a number that identifies the talk group) and the system frequencies. You program in the Talk Group ID (TGID) and system frequencies. The scanner then listens to the control channel data until the TGID you’re interested in is granted a channel. The scanner follows that channel grant to the appropriate frequency and you hear the conversation.

Figure 3. In this example, the data is for the Arlington FD and PD.

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Well, we’ve reached the end of this tutorial, look for future articles where I’ll discuss some enhancements to the basic Dynamic Memory scheme that is being implemented on future models, which will make some advanced programming issues easier.

If you’ve got questions, please send them to me in care of Popular Communications, 25 Newbridge Road, Hicksville, NY 11801 or directly to popitz@uniden.com.

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