

# **S-COM Model 7330 Repeater Controller Command Changes**

## **(Compared to Model 7K)**

4 February 2007

### **1 INTRODUCTION**

A major goal in designing the 7330 was to make it more flexible than any other multiport controller. That goal required us to come up with a better port philosophy than the competition and a good set of programming commands to configure those ports.

We started with the powerful 7K command set and improved it by expanding the existing commands and adding new ones.

For example, we expanded the datatypes (Software Switches, Programmable Messages, Event-Triggered Macros, and Timers) well beyond the previous limitation of 100 of each, and we added a new datatype (Counters).

We added some brand-new commands, including ones that help you troubleshoot your system by simulating COR and CTCSS input activity.

And we improved the path functionality so you could conveniently control any arrangement of three receivers and three transmitters.

(A note to 7K owners: Nearly all of the command codes have been rearranged, so be sure to look up the new codes rather than use the old codes in your 7K scripts.)

#### ***Note***

Commands described are subject to change before release, though not likely. Timer minimum/maximum values are very likely to change before release.

## **2 DESCRIPTION OF PORT CONTROL PHILOSOPHY**

### **2.1 Flexible Port Control**

The 7330 is called a three-port controller because it can be interfaced to three pairs of receivers and transmitters. But there's a lot more to the 7330 than that.

Internally, the 7330 handles the three receivers and three transmitters as six individual devices. No receiver is hardwired to any transmitter, thus the 7330 doesn't require you to use certain ports for repeaters and certain other ports for links and remote bases. In fact, there's no advantage or disadvantage at all in using a given port for a given task. Instead, the 7330 lets you remotely choose (and rearrange later) any receiver or any transmitter for any application. You can use the 7330 to control any combination of repeaters, links, crossband repeaters, remote bases, control receivers, and so on.

Furthermore, when multiple receivers feed a transmitter, you can either prioritize or mix each receiver to the transmitter.

### **2.2 Paths**

To make 7K programming easier to understand, we used the word "path" to mean the hardware and software resources inside the controller that connect one receiver to one transmitter. You set up and knock down receiver-transmitter configurations by programming these paths.

We've now expanded the path software to take on more tasks previously done in receiver and transmitter software, and we've found real benefits in doing so.

For example, the 7K's Transmitter Timeout Timer shuts down the transmitter on excessively long transmissions – unfortunately, with no regard to which receiver caused the offense. Moving the Timeout Timer to the receiver wouldn't help much because the receiver can't feed any of its transmitters when it's timed out. So, in the 7330 we put separate Timeout Timers on each path so that only one particular path is shut down by a too-long transmission.

Likewise, we moved Courtesy Messages from the receiver software to the path software. That means each path can have a unique Courtesy Message.

Not all functions got moved to paths. The Dropout Message, for example, stays associated with its transmitter.

The path numbering system is as follows:

Path 1 = RX1-DTMF1  
Path 2 = RX2-DTMF2  
Path 3 = RX3-DTMF3

Path 11 = RX1-TX1  
Path 21 = RX2-TX1  
Path 31 = RX3-TX1

Path 12 = RX1-TX2  
Path 22 = RX2-TX2  
Path 32 = RX3-TX2

Path 13 = RX1-TX3  
Path 23 = RX2-TX3  
Path 33 = RX3-TX3

### **3 DATATYPE COMMAND CHANGES**

Software Switches, Programmable Messages, Event-Triggered Macros, and Timers have all been expanded, and we've introduced Counters as a new datatype.

This section discusses the changes in general.

#### **3.1 Software Switches**

All Software Switch commands now require the Switch Number to be four digits instead of two.

The old format,

(PW) 63 xx y \*, where xx = Switch Number 00-99 and y = 0 (off) or 1 (on),

has been replaced with:

(PW) 63 xxxx y \*, where xxxx = Switch Number 0000-9999 and y = 0 (off) or 1 (on).

## **3.2 Programmable Messages**

All Programmable Message commands now require the Message Number to be four digits instead of two.

### **3.2.1 Writing a Message to Memory**

The old format,

(PW) 31 xx (message) \*, where xx = Message Number 00-99,

has been replaced with:

(PW) 31 xxxx (message) \*, where xxxx = Message Number 0000-9999.

### **3.2.2 Reviewing a Message in Memory**

The old format,

(PW) 34 xx \*, where xx = Message Number 00-99,

has been replaced with:

(PW) 34 xxxx \*, where xxxx = Message Number 0000-9999.

### **3.3 Event-Triggered Macros**

All Event-Triggered Macro commands now require the Event Code to be four digits instead of two.

#### **3.3.1 Assigning an ETM**

The old format,

(PW) 26 xx yyyy \*, where xx = Event Code and yyyy = Macro Name,

has been replaced with:

(PW) 26 xxxx yyyy \*, where xxxx = Event Code and yyyy = Macro Name.

#### **3.3.2 Deleting an ETM**

The old format,

(PW) 26 xx \*, where xx = Event Code,

has been replaced with:

(PW) 26 xxxx \*, where xxxx = Event Code.

### 3.4 Timers

Previous software contained both 8-bit and 16-bit timers in an assortment of resolutions.

The new software contains only 16-bit timers in three resolutions:

- 0.01 seconds (10 milliseconds) for high resolution, short timing jobs;
- 0.1 seconds (100 milliseconds) for medium resolution, medium timing jobs; and
- 1 second for low resolution, long timing jobs.

#### 3.4.1 Writing a Time Value

There were several old formats. They have been replaced with:

(PW) 09 xxxx (time value) \*,

where xxxx is a four-digit Timer Number.

Here's an example of a new timer command:

(PW) 09 0045 (.00-655.35 sec.) \*.

All timer commands now use Root Number 09.

The four-digit Timer Number (0045, in this example) follows the Root Number.

The Time Value follows the Timer Number. It's a whole number (no fractions) indicating how many time increments we want.

We see that this timer has 0.01-second (10 millisecond) increments because it shows two digits to the right of the decimal point.

We can figure out the number of increments we need by dividing the desired time value by the size of the increment. For example, if we want 2.5 seconds, we can divide 2.5 seconds by the increment (0.01 seconds) to get 250 increments. Or, we can move the decimal point two places to the right so that 2.5 seconds becomes 250 increments. The command would be (PW) 09 0045 250 \*. There is no need for a DTMF "decimal point" character.

Besides looking for the decimal point, you can also tell the increment size of the timer from the first digit of its Timer Number.

Timer numbers beginning with **0** have increments of 0.01 seconds (10 milliseconds). They're for short jobs, like timing DTMF digits. Their range is 0 to 655.35 seconds (65535 counts x 0.01 seconds/count). That's a maximum of 10 minutes and 55.35 seconds.

Timer numbers beginning with **1** have increments of 0.1 seconds (100 milliseconds). They're for medium jobs, like User Timers. Their range is 0 to 6553.5 seconds (65535 counts x 0.1 seconds/count). That's a maximum of 109 minutes and 13.5 seconds.

Timer numbers beginning with **2** have increments of 1 second (1000 milliseconds). They're for long jobs, like repeater timeout. Their range is 0 to 65535 seconds (65535 counts x 1 second/count). That's a maximum of 1,092 minutes and 15 seconds, or a bit over 18 hours.

Since it's possible to create serious system problems by entering values that are too large or too small into certain timers, some timer commands have upper and/or lower limits.

For example, you might accidentally enter a value of "1" into a timer that has 10-ms increments, perhaps thinking it had 1-second increments. That won't be much of a problem if it's a courtesy delay timer.

But if it's a DTMF Decoder Interdigit Timer (which sets the maximum allowable time between digits), then setting it to "1" (only 10 milliseconds) would make it impossible for the DTMF decoder to work.

For this reason, the timer command won't accept values above or below specific limits for some timers and will send an error message instead. If a timer has these limits, they will be indicated in the timer's description in the manual.

### **3.5 Counters**

The 7K software had only a few counters, and they were used in very specific areas. The new software introduces counters as a new datatype, joining software switches, timers, event macros, and so on.

#### **3.5.1 Assigning a Counter Reload Value**

The format is:

(PW) 45 (Counter Number, Counter Reload Value) \*,

where the Counter Number identifies the specific counter and is a four-digit number in the range of 0000 through 9999, and the Counter Reload Value is a one- to five-digit number in the range of 0 through 65535 (entering no value is the same as entering zero).

Root number 45 formerly belonged to the Select Repeater Activity Counter/Timer command. That command has been changed as described later.

## **4 PATH COMMANDS**

### **4.1 Enable/Disable Path Software Switches**

These commands have been deleted:

(PW) 63 81 (0/1) \*, Enable/Disable Path 1  
(PW) 63 82 (0/1) \*, Enable/Disable Path 2  
(PW) 63 83 (0/1) \*, Enable/Disable Path 3  
(PW) 63 84 (0/1) \*, Enable/Disable Path 4  
(PW) 63 85 (0/1) \*, Enable/Disable Path 5  
(PW) 63 86 (0/1) \*, Enable/Disable Path 6

We've deleted these commands because we can do the same job with the Path Mode commands.

To disable a path, set its mode to 0 (No Access). To enable a path, choose a mode other than 0.

## 4.2 A New Path Mode

We've added a new mode to the Path Mode command, Mode 6 (Always On). This gives us a "path simulate" command because it sends receiver audio to the transmitter and keeps the transmitter keyed regardless of the actual status of the COR and CTCSS inputs.

Mode 6 can be used as a troubleshooting tool and as a way to selectively feed an external audio source to a TX, and in that regard it works like the RX COR and RX CTCSS Simulate commands. But while the COR and CTCSS Simulate commands will key multiple transmitters if the paths allow it, the Path Mode command affects only one receiver-transmitter path (or receiver-DTMF decoder path).

This mode is handy, for example, when you want to use a scanner receiver as a control receiver. By choosing the Always On mode for the scanner-to-DTMF decoder path, the scanner wouldn't need a COR output and you wouldn't need to ground the controller's COR input.

(PW) 57 x y \*, Select Path Mode for RXn-DTMFn

(PW) 57 xx y \*, Select Path Mode for RXn-TXn

where:            x = Path Number (1 digit for RXn-DTMFn)  
                   xx = Path Number (2 digits for RXn-TXn)  
                   y = Mode Number (1 digit)

### Path Numbers:

For RXn-DTMFn, the Path Number is the receiver number.

For RXn-TXn, the Path Number is the receiver number followed by the transmitter number.

For 3 ports, the valid RX-TX Path Numbers are:

1,2,3	(RXn-DTMFn)
11,21,31	(RXn-TX1)
12,22,32	(RXn-TX2)
13,23,33	(RXn-TX3)

### Mode Numbers:

Mode 0 = No Access

Mode 1 = Carrier Access

Mode 2 = CTCSS Access

Mode 3 = Carrier-AND-CTCSS Access

Mode 4 = Carrier-OR-CTCSS Access

Mode 5 = Carrier-AND-NOT-CTCSS (Anti-CTCSS) Access

Mode 6 = Always On

### 4.3 Select Path Priority

The old Select RX Priority command,

(PW) 90 xx yyy \*,

has been replaced with:

(PW) 90 t *	No priority; mix all receivers to this transmitter
(PW) 90 t a *	Priority: a, then remaining two receivers mixed
(PW) 90 t a b *	Priority: a, then b, then c
(PW) 90 t a b c *	Priority: a, then b, then c

where: t = transmitter number (1-3 = TX1-TX3)  
a b c = receiver numbers (1-3 = RX1-RX3), in order of priority

List the receivers, left to right, in the order of their priority. Listing a receiver more than once will result in an error.

Receivers that are not listed will be considered mixed. Mixed receivers have the lowest priority.

Every receiver will appear to the controller as either a priority receiver or a mixed receiver, but that doesn't mean every receiver must be allowed to feed the transmitter. The Path Mode command is used to select which receivers actually feed the transmitter.

Example 1: To mix all three receivers to TX1, enter:

(PW) 90 1 \*,

where "1" is the transmitter number. Since the receiver numbers are not listed, they will all be mixed.

Example 2: If RX3 should have priority to TX1, with RX1 and RX2 mixed, enter:

(PW) 90 1 3 \*.

Example 3: If RX1 should have priority over RX2, and RX2 should have priority over RX3, enter:

(PW) 90 1 1 2 3 \*.

#### 4.4 Courtesy Messages

Courtesy Messages are now associated with paths instead of receivers.

The old commands,

(PW) 31 10 (message) \* Select Courtesy Message for RX1,  
(PW) 31 11 (message) \* Select Courtesy Message for RX2, and  
(PW) 31 12 (message) \* Select Courtesy Message for RX3,

have been replaced with these:

(PW) 31 0100 (message) \*, Select Path 11 (RX1-TX1) Courtesy Message,  
(PW) 31 0101 (message) \*, Select Path 21 (RX2-TX1) Courtesy Message,  
(PW) 31 0102 (message) \*, Select Path 31 (RX3-TX1) Courtesy Message,  
  
(PW) 31 0200 (message) \*, Select Path 12 (RX1-TX2) Courtesy Message,  
(PW) 31 0201 (message) \*, Select Path 22 (RX2-TX2) Courtesy Message,  
(PW) 31 0202 (message) \*, Select Path 32 (RX3-TX2) Courtesy Message,  
  
(PW) 31 0300 (message) \*, Select Path 13 (RX1-TX3) Courtesy Message,  
(PW) 31 0301 (message) \*, Select Path 23 (RX2-TX3) Courtesy Message, and  
(PW) 31 0302 (message) \*, Select Path 33 (RX3-TX3) Courtesy Message.

Likewise, the old Review Courtesy Message commands,

(PW) 34 10 \* Review Courtesy Message for RX1,  
(PW) 34 11 \* Review Courtesy Message for for RX2, and  
(PW) 34 12 \* Review Courtesy Message for RX3,

have been replaced with these:

(PW) 34 0100 (message) \*, Review Path 11 (RX1-TX1) Courtesy Message,  
(PW) 34 0101 (message) \*, Review Path 21 (RX2-TX1) Courtesy Message,  
(PW) 34 0102 (message) \*, Review Path 31 (RX3-TX1) Courtesy Message,  
  
(PW) 34 0200 (message) \*, Review Path 12 (RX1-TX2) Courtesy Message,  
(PW) 34 0201 (message) \*, Review Path 22 (RX2-TX2) Courtesy Message,  
(PW) 34 0202 (message) \*, Review Path 32 (RX3-TX2) Courtesy Message,  
  
(PW) 34 0300 (message) \*, Review Path 13 (RX1-TX3) Courtesy Message,  
(PW) 34 0301 (message) \*, Review Path 23 (RX2-TX3) Courtesy Message,  
(PW) 34 0302 (message) \*, Review Path 33 (RX3-TX3) Courtesy Message.

#### **4.5 Courtesy Macros**

The old Select Courtesy Macro command,

(PW) 26 10 (macro name) \*,

has been replaced with these:

(PW) 26 0122 (macro name) \*, Assign Path 11 (RX1-TX1) Courtesy Macro,

(PW) 26 0123 (macro name) \*, Assign Path 21 (RX2-TX1) Courtesy Macro,

(PW) 26 0124 (macro name) \*, Assign Path 31 (RX3-TX1) Courtesy Macro,

(PW) 26 0222 (macro name) \*, Assign Path 12 (RX1-TX2) Courtesy Macro,

(PW) 26 0223 (macro name) \*, Assign Path 22 (RX2-TX2) Courtesy Macro,

(PW) 26 0224 (macro name) \*, Assign Path 32 (RX3-TX2) Courtesy Macro,

(PW) 26 0322 (macro name) \*, Assign Path 13 (RX1-TX3) Courtesy Macro,

(PW) 26 0323 (macro name) \*, Assign Path 23 (RX2-TX3) Courtesy Macro,

(PW) 26 0324 (macro name) \*, Assign Path 33 (RX3-TX3) Courtesy Macro.

#### **4.6 Activity Macros**

Because a receiver may drive several transmitters in different modes (for example, RX1 can be in carrier mode to TX1 but AND-CTCSS mode to TX2), it's difficult to decide what is meant by 'activity' when looking at the receiver alone. So, the old commands,

(PW) 26 67 (macro name) \*, Assign RX1 Start-of-Activity Macro,

(PW) 26 69 (macro name) \*, Assign RX2 Start-of-Activity Macro,

(PW) 26 71 (macro name) \*, Assign RX3 Start-of-Activity Macro,

(PW) 26 68 (macro name) \*, Assign RX1 End-of-Activity Macro,

(PW) 26 70 (macro name) \*, Assign RX2 End-of-Activity Macro, and

(PW) 26 72 (macro name) \*, Assign RX3 End-of-Activity Macro,

have been replaced with these:

(PW) 26 0146 (macro name) \*, Assign Path 11 Start-of-Activity Macro,  
(PW) 26 0147 (macro name) \*, Assign Path 21 Start-of-Activity Macro,  
(PW) 26 0148 (macro name) \*, Assign Path 31 Start-of-Activity Macro,

(PW) 26 0246 (macro name) \*, Assign Path 12 Start-of-Activity Macro,  
(PW) 26 0247 (macro name) \*, Assign Path 22 Start-of-Activity Macro,  
(PW) 26 0248 (macro name) \*, Assign Path 32 Start-of-Activity Macro,

(PW) 26 0346 (macro name) \*, Assign Path 13 Start-of-Activity Macro,  
(PW) 26 0347 (macro name) \*, Assign Path 23 Start-of-Activity Macro,  
(PW) 26 0348 (macro name) \*, Assign Path 33 Start-of-Activity Macro,

(PW) 26 0154 (macro name) \*, Assign Path 11 End-of-Activity Macro,  
(PW) 26 0155 (macro name) \*, Assign Path 21 End-of-Activity Macro,  
(PW) 26 0156 (macro name) \*, Assign Path 31 End-of-Activity Macro,

(PW) 26 0254 (macro name) \*, Assign Path 12 End-of-Activity Macro,  
(PW) 26 0255 (macro name) \*, Assign Path 22 End-of-Activity Macro,  
(PW) 26 0256 (macro name) \*, Assign Path 32 End-of-Activity Macro,

(PW) 26 0354 (macro name) \*, Assign Path 13 End-of-Activity Macro,  
(PW) 26 0355 (macro name) \*, Assign Path 23 End-of-Activity Macro, and  
(PW) 26 0356 (macro name) \*, Assign Path 33 End-of-Activity Macro.

In addition, the old Select Repeater Start-of-Activity Macro command,

(PW) 26 14 (macro name) \*

has been replaced with these:

(PW) 26 0113 (macro name) \*, Assign Tx 1 Start-of-Activity Macro,  
(PW) 26 0213 (macro name) \*, Assign Tx 2 Start-of-Activity Macro,  
(PW) 26 0313 (macro name) \*, Assign Tx 3 Start-of-Activity Macro,

(PW) 26 0114 (macro name) \*, Assign Tx 1 End-of-Activity Macro,  
(PW) 26 0214 (macro name) \*, Assign Tx 2 End-of-Activity Macro,  
(PW) 26 0314 (macro name) \*, Assign Tx 3 End-of-Activity Macro,

#### **4.7 End-of-Activity Timer**

The old Select RX End-of-Activity Timer commands,

(PW) 99 00 (0.0-9.9 min.) \*, Select RX1 End-of-Activity Timer,  
(PW) 99 01 (0.0-9.9 min.) \*, Select RX2 End-of-Activity Timer, and  
(PW) 99 02 (0.0-9.9 min.) \*, Select RX3 End-of-Activity Timer,

have been replaced with Select Path End-of-Activity Timer commands:

(PW) 09 2103 (0-65535 sec.) \*, Select Path 11 End-of-Activity Timer  
(PW) 09 2104 (0-65535 sec.) \*, Select Path 21 End-of-Activity Timer  
(PW) 09 2105 (0-65535 sec.) \*, Select Path 31 End-of-Activity Timer

(PW) 09 2203 (0-65535 sec.) \*, Select Path 12 End-of-Activity Timer  
(PW) 09 2204 (0-65535 sec.) \*, Select Path 22 End-of-Activity Timer  
(PW) 09 2205 (0-65535 sec.) \*, Select Path 32 End-of-Activity Timer

(PW) 09 2303 (0-65535 sec.) \*, Select Path 13 End-of-Activity Timer  
(PW) 09 2304 (0-65535 sec.) \*, Select Path 23 End-of-Activity Timer  
(PW) 09 2305 (0-65535 sec.) \*, Select Path 33 End-of-Activity Timer

The old RX End-of-Activity Timers used to default to 1.0 minute. The new Path End-of-Activity Timers also default to 1.0 minute.

The old Select Repeater End-of-Activity Timer/Counter commands,

(PW) 45 x yy \*

have been replaced with Select Transmitter End-of-Activity Timer commands:

(PW) 09 2110 (0-65535 sec.) \*, Select TX1 End-of-Activity Timer  
(PW) 09 2210 (0-65535 sec.) \*, Select TX2 End-of-Activity Timer  
(PW) 09 2310 (0-65535 sec.) \*, Select TX3 End-of-Activity Timer

#### **4.8 Timeout Timers**

The 7K's one Transmitter Timeout Timer has been replaced with separate timeout timers for each path.

Each Path Timeout Timer can be programmed for duration as well as enabled, disabled, and reset at any time.

How it works: If a signal exceeds the Path Timeout Timer value, the path is turned off and the Timeout Message and Timeout Macro are queued. When the offending signal finally disappears, a programmable penalty period follows. (The Penalty Timer starts over each time the signal reappears during the Penalty Time.) When the signal disappears long enough for the Penalty Timer to expire, the End Timeout Message and End Timeout Macro are queued.

#### **4.8.1 Enable/Disable Timeout Timer**

In the old Transmitter Timeout Timer command,

(PW) 40 xxx \*,

the timer was disabled by entering 000 and enabled by entering a nonzero time value.

We now use Software Switches to enable and disable the Timeout Timers.

All Timeout Timers default to enabled.

The new commands are:

(PW) 63 0161 (0/1) \*, Enable/Disable Path 11 Timeout Timer

(PW) 63 0162 (0/1) \*, Enable/Disable Path 21 Timeout Timer

(PW) 63 0163 (0/1) \*, Enable/Disable Path 31 Timeout Timer

(PW) 63 0261 (0/1) \*, Enable/Disable Path 12 Timeout Timer

(PW) 63 0262 (0/1) \*, Enable/Disable Path 22 Timeout Timer

(PW) 63 0263 (0/1) \*, Enable/Disable Path 32 Timeout Timer

(PW) 63 0361 (0/1) \*, Enable/Disable Path 13 Timeout Timer

(PW) 63 0362 (0/1) \*, Enable/Disable Path 23 Timeout Timer

(PW) 63 0363 (0/1) \*, Enable/Disable Path 33 Timeout Timer

#### **4.8.2 Select Timeout Value**

The old command,

(PW) 40 (00.1-54.6 min.) \*,

which was changed in V2.04 to

(PW) 40 (RX 1-3, 00.1-54.6 min.) \*,

has been replaced with:

(PW) 09 2100 (0-65535 sec.) \*, Select Path 11 Timeout Value

(PW) 09 2101 (0-65535 sec.) \*, Select Path 21 Timeout Value

(PW) 09 2102 (0-65535 sec.) \*, Select Path 31 Timeout Value

(PW) 09 2200 (0-65535 sec.) \*, Select Path 12 Timeout Value

(PW) 09 2201 (0-65535 sec.) \*, Select Path 22 Timeout Value

(PW) 09 2202 (0-65535 sec.) \*, Select Path 32 Timeout Value

(PW) 09 2300 (0-65535 sec.) \*, Select Path 13 Timeout Value

(PW) 09 2301 (0-65535 sec.) \*, Select Path 23 Timeout Value

(PW) 09 2302 (0-65535 sec.) \*, Select Path 33 Timeout Value

The Timeout Value defaults to 3.0 minutes.

### **4.8.3 Adjustable Timeout Penalty**

The old Timeout Penalty was fixed at 10.0 seconds.

These new commands allow you to choose the penalty time for each Path Timeout Timer (they all default to 10.0 seconds):

(PW) 09 1100 (.0-6553.5 sec.) \*, Select Path 11 Timeout Penalty Value  
(PW) 09 1101 (.0-6553.5 sec.) \*, Select Path 21 Timeout Penalty Value  
(PW) 09 1102 (.0-6553.5 sec.) \*, Select Path 31 Timeout Penalty Value

(PW) 09 1200 (.0-6553.5 sec.) \*, Select Path 12 Timeout Penalty Value  
(PW) 09 1201 (.0-6553.5 sec.) \*, Select Path 22 Timeout Penalty Value  
(PW) 09 1202 (.0-6553.5 sec.) \*, Select Path 32 Timeout Penalty Value

(PW) 09 1300 (.0-6553.5 sec.) \*, Select Path 13 Timeout Penalty Value  
(PW) 09 1301 (.0-6553.5 sec.) \*, Select Path 23 Timeout Penalty Value  
(PW) 09 1302 (.0-6553.5 sec.) \*, Select Path 33 Timeout Penalty Value

The Timeout Penalty Value defaults to 10.0 seconds.

### **4.8.4 Reset Timeout**

The old Reset Transmitter Timeout Timer command,

(PW) 10 \*,

has been replaced with these individual switches:

(PW) 63 0171 (0/1) \*, Reset Path 11 Timeout Timer  
(PW) 63 0172 (0/1) \*, Reset Path 21 Timeout Timer  
(PW) 63 0173 (0/1) \*, Reset Path 31 Timeout Timer

(PW) 63 0271 (0/1) \*, Reset Path 12 Timeout Timer  
(PW) 63 0272 (0/1) \*, Reset Path 22 Timeout Timer  
(PW) 63 0273 (0/1) \*, Reset Path 32 Timeout Timer

(PW) 63 0371 (0/1) \*, Reset Path 13 Timeout Timer  
(PW) 63 0372 (0/1) \*, Reset Path 23 Timeout Timer  
(PW) 63 0373 (0/1) \*, Reset Path 33 Timeout Timer

#### 4.8.5 Timeout Message

The old Select Timeout Message command,

(PW) 31 16 (message) \*,

has been replaced with these:

(PW) 31 0103 (message) \*, Select Path 11 (RX1-TX1) Timeout Message

(PW) 31 0104 (message) \*, Select Path 21 (RX2-TX1) Timeout Message

(PW) 31 0105 (message) \*, Select Path 31 (RX3-TX1) Timeout Message

(PW) 31 0203 (message) \*, Select Path 12 (RX1-TX2) Timeout Message

(PW) 31 0204 (message) \*, Select Path 22 (RX2-TX2) Timeout Message

(PW) 31 0205 (message) \*, Select Path 32 (RX3-TX2) Timeout Message

(PW) 31 0303 (message) \*, Select Path 13 (RX1-TX3) Timeout Message

(PW) 31 0304 (message) \*, Select Path 23 (RX2-TX3) Timeout Message

(PW) 31 0305 (message) \*, Select Path 33 (RX3-TX3) Timeout Message

The old Review Timeout Message command,

(PW) 34 16 \*,

has been replaced with these:

(PW) 34 0103 (message) \*, Review Path 11 (RX1-TX1) Timeout Message

(PW) 34 0104 (message) \*, Review Path 21 (RX2-TX1) Timeout Message

(PW) 34 0105 (message) \*, Review Path 31 (RX3-TX1) Timeout Message

(PW) 34 0203 (message) \*, Review Path 12 (RX1-TX2) Timeout Message

(PW) 34 0204 (message) \*, Review Path 22 (RX2-TX2) Timeout Message

(PW) 34 0205 (message) \*, Review Path 32 (RX3-TX2) Timeout Message

(PW) 34 0303 (message) \*, Review Path 13 (RX1-TX3) Timeout Message

(PW) 34 0304 (message) \*, Review Path 23 (RX2-TX3) Timeout Message

(PW) 34 0305 (message) \*, Review Path 33 (RX3-TX3) Timeout Message

#### **4.8.6 Timeout Macro**

The old Assign Macro to Repeater Timeout command,

(PW) 26 18 (macro name) \*,

has been replaced with these:

(PW) 26 0130 (macro name) \*, Select Path 11 (RX1-TX1) Timeout Macro

(PW) 26 0131 (macro name) \*, Select Path 21 (RX2-TX1) Timeout Macro

(PW) 26 0132 (macro name) \*, Select Path 31 (RX3-TX1) Timeout Macro

(PW) 26 0230 (macro name) \*, Select Path 12 (RX1-TX2) Timeout Macro

(PW) 26 0231 (macro name) \*, Select Path 22 (RX2-TX2) Timeout Macro

(PW) 26 0232 (macro name) \*, Select Path 32 (RX3-TX2) Timeout Macro

(PW) 26 0330 (macro name) \*, Select Path 13 (RX1-TX3) Timeout Macro

(PW) 26 0331 (macro name) \*, Select Path 23 (RX2-TX3) Timeout Macro

(PW) 26 0332 (macro name) \*, Select Path 33 (RX3-TX3) Timeout Macro

#### **4.8.7 Timeout End Message**

The old Select Timeout End Message command,

(PW) 31 19 (message) \*,

has been replaced with these:

(PW) 31 0106 (message) \*, Select Path 11 (RX1-TX1) Timeout End Message

(PW) 31 0107 (message) \*, Select Path 21 (RX2-TX1) Timeout End Message

(PW) 31 0108 (message) \*, Select Path 31 (RX3-TX1) Timeout End Message

(PW) 31 0206 (message) \*, Select Path 12 (RX1-TX2) Timeout End Message

(PW) 31 0207 (message) \*, Select Path 22 (RX2-TX2) Timeout End Message

(PW) 31 0208 (message) \*, Select Path 32 (RX3-TX2) Timeout End Message

(PW) 31 0306 (message) \*, Select Path 13 (RX1-TX3) Timeout End Message

(PW) 31 0307 (message) \*, Select Path 23 (RX2-TX3) Timeout End Message

(PW) 31 0308 (message) \*, Select Path 33 (RX3-TX3) Timeout End Message

The old Review Timeout End Message command,

(PW) 34 19 \*,

has been replaced with these:

(PW) 34 0106 (message) \*, Review Path 11 (RX1-TX1) Timeout End Message

(PW) 34 0107 (message) \*, Review Path 21 (RX2-TX1) Timeout End Message

(PW) 34 0108 (message) \*, Review Path 31 (RX3-TX1) Timeout End Message

(PW) 34 0206 (message) \*, Review Path 12 (RX1-TX2) Timeout End Message

(PW) 34 0207 (message) \*, Review Path 22 (RX2-TX2) Timeout End Message

(PW) 34 0208 (message) \*, Review Path 32 (RX3-TX2) Timeout End Message

(PW) 34 0306 (message) \*, Review Path 13 (RX1-TX3) Timeout End Message

(PW) 34 0307 (message) \*, Review Path 23 (RX2-TX3) Timeout End Message

(PW) 34 0308 (message) \*, Review Path 33 (RX3-TX3) Timeout End Message

#### **4.8.8 Timeout End Macro**

The old Assign Macro to Return-From-Repeater-Timeout command,

(PW) 26 19 (macro name) \*,

has been replaced with these:

(PW) 26 0138 (macro name) \* for Path 11 (RX1-TX1) Timeout End Macro

(PW) 26 0139 (macro name) \* for Path 21 (RX2-TX1) Timeout End Macro

(PW) 26 0140 (macro name) \* for Path 31 (RX3-TX1) Timeout End Macro

(PW) 26 0238 (macro name) \* for Path 12 (RX1-TX2) Timeout End Macro

(PW) 26 0239 (macro name) \* for Path 22 (RX2-TX2) Timeout End Macro

(PW) 26 0240 (macro name) \* for Path 32 (RX3-TX2) Timeout End Macro

(PW) 26 0338 (macro name) \* for Path 13 (RX1-TX3) Timeout End Macro

(PW) 26 0339 (macro name) \* for Path 23 (RX2-TX3) Timeout End Macro

(PW) 26 0340 (macro name) \* for Path 33 (RX3-TX3) Timeout End Macro

## 5 RECEIVER COMMANDS

### 5.1 Simulate Switches

New **RX COR Simulate** and **RX CTCSS Simulate** Software Switches have been added to assist the owner in troubleshooting the system.

These commands force the selected COR and/or CTCSS inputs to appear active to the controller and allow you to study the system's operation without generating local COR and CTCSS signals.

But these commands don't do anything beyond simulating the inputs. In other words, they don't override the antikerchunkers, the path modes, any higher-priority receivers, and so on. That way, the results are exactly the same as if local signals were being received. [If you need to override these conditions, see the "Always On" Path Mode.]

You can use these commands for other things besides troubleshooting. For example, you can connect an audio device that lacks a COR output (such as a weather receiver or Space Shuttle audio feed) to one of the controller's receiver audio inputs and use the COR Simulate command to feed the audio to one or more transmitters.

The RX COR Simulate commands are:

(PW) 63 0108 (0/1) \*, Simulate RX1 COR Active  
(PW) 63 0208 (0/1) \*, Simulate RX2 COR Active  
(PW) 63 0308 (0/1) \*, Simulate RX3 COR Active

The RX CTCSS Simulate commands are:

(PW) 63 0109 (0/1) \*, Simulate RX1 CTCSS Active  
(PW) 63 0209 (0/1) \*, Simulate RX2 CTCSS Active  
(PW) 63 0309 (0/1) \*, Simulate RX3 CTCSS Active

### 5.2 COR Filtering

New commands have been added that delay the controller's response to the leading edge of COR signals. The delay is imposed on all transmissions and is programmable. Setting it to zero disables the delay. It defaults to zero upon a Cold Start.

Besides helping remove noise spikes, the delay makes the Anti-CTCSS access mode more useful. If you set the COR delay equal to (or greater than) the CTCSS decoder's turn-on delay, the controller won't respond to a COR signal until after the CTCSS decoder determines that there is no unwanted CTCSS tone accompanying it.

(PW) 09 0112 (.00-655.35 sec.) \*, COR1 Filter Delay  
(PW) 09 0212 (.00-655.35 sec.) \*, COR2 Filter Delay  
(PW) 09 0312 (.00-655.35 sec.) \*, COR3 Filter Delay

## **5.2 CTCSS Filtering**

New commands have been added that delay the controller's response to the leading edge of CTCSS signals. The delay is imposed on all transmissions and is programmable. Setting it to zero disables the delay. It defaults to zero upon a Cold Start.

This filter helps to remove noise spikes.

(PW) 09 0113 (.00-655.35 sec.) \*, CTCSS #1 Filter Delay  
(PW) 09 0213 (.00-655.35 sec.) \*, CTCSS #2 Filter Delay  
(PW) 09 0313 (.00-655.35 sec.) \*, CTCSS #3 Filter Delay

## **5.3 Antikerchunker**

The 7K's single Antikerchunker has been replaced with three antikerchunkers, one for each COR.

### **5.3.1 Key-Up Delay**

The old command,

(PW) 80 (0.0-9.9 sec.) \*,

has been replaced by these:

(PW) 09 0109 (.00-655.35 sec.) \*, Select COR1 Antikerchunk Key-Up Delay  
(PW) 09 0209 (.00-655.35 sec.) \*, Select COR2 Antikerchunk Key-Up Delay  
(PW) 09 0309 (.00-655.35 sec.) \*, Select COR3 Antikerchunk Key-Up Delay

The default is 1.0 seconds in all three cases.

### **5.3.2 Re-Arm Delay**

The old command,

(PW) 99 10 (0.0-9.9 min.) \*,

has been replaced by these:

(PW) 09 2109 (0-65535 sec.) \*, Select COR1 Antikerchunk Re-Arm Delay  
(PW) 09 2209 (0-65535 sec.) \*, Select COR2 Antikerchunk Re-Arm Delay  
(PW) 09 2309 (0-65535 sec.) \*, Select COR3 Antikerchunk Re-Arm Delay

The default is 1.0 minutes in all three cases.

Also, note that the operation of the Re-Arm Delay has been changed.

In the new software, each time COR drops, the Re-Arm Delay is started. If no transmission occurs and the delay timer expires, the Antikerchunker becomes

rearmed; in other words, the Key-Up Delay goes back into effect. A user who wants to avoid the Key-Up Delay must begin his transmission during the Re-Arm Delay.

Formerly, there was only one Re-Arm Delay, and it started when the repeater transmitter unkeyed. This was convenient for repeater owners who left the Re-Arm Delay at its default value of zero; once the repeater was brought up, subsequent transmissions weren't subject to the Key-Up Delay. If the repeater dropped, the next user had to observe the Key-Up Delay.

But the 7330 allows each receiver to drive multiple transmitters, and the transmitters can drop at different times. For that reason, the Re-Arm Delay has been changed so it starts upon loss of receiver COR instead of loss of transmitter PTT. For that reason, you may want to set the Re-Arm Delay for at least the length of the repeater tail plus the ID so that users won't be subject to the delay while the repeater is up.

Each Antikerchunker can be enabled and disabled with these commands:

(PW) 63 0110 (0/1) \*, AK1 Enable/Disable (0=Off, 1=On)

(PW) 63 0210 (0/1) \*, AK2 Enable/Disable (0=Off, 1=On)

(PW) 63 0310 (0/1) \*, AK3 Enable/Disable (0=Off, 1=On)

The Antikerchunker defaults to Off.

### **5.3.3 Mode**

The Antikerchunker can be operated in one of two modes:

- Do not key the transmitter during the Key-Up Delay.
- Key the transmitter during the Key-Up Delay. No tail is generated if the input signal drops before the Key-Up Delay time is exceeded.

To set the Antikerchunker mode, enter one of the following commands:

(PW) 63 0111 (0/1) \*, AK1 Mode (0=No Key During Delay, 1=Key/No Tail)

(PW) 63 0211 (0/1) \*, AK2 Mode (0=No Key During Delay, 1=Key/No Tail)

(PW) 63 0311 (0/1) \*, AK3 Mode (0=No Key During Delay, 1=Key/No Tail)

The Antikerchunker Mode defaults to 0 (No Key During Delay).

## **6 Transmitter Commands**

The 7330 adds one more transmitter to the 7K's two. Since the 7330 supports full tail features for each TX, you can program separate Courtesy Delays, Dropout Delays, Dropout Messages, and other features for each transmitter. (Note that Courtesy Messages and Courtesy Macros are assigned to paths rather than transmitters.)

### **6.1 Enable/Disable Transmitter**

The old software switches,

(PW) 63 00 x \*, TX1 Enable/Disable, and

(PW) 63 22 x \*, TX2 Enable/Disable,

have been replaced with these:

(PW) 63 0112 (0/1) \*, TX1 PTT 1 = Enable/0 = Disable,

(PW) 63 0212 (0/1) \*, TX2 PTT 1 = Enable/0 = Disable, and

(PW) 63 0312 (0/1) \*, TX3 PTT 1 = Enable/0 = Disable.

The PTT Enable defaults to 1 (On).

(We added "PTT" to the switch names to reinforce the idea that disabling a transmitter with one of these commands is exactly like cutting its PTT wire – the controller won't key the transmitter, but it'll continue to run all of the other transmitter functions. So, receiver audio, IDs, Courtesy Messages, and other audio will continue to appear on the transmitter audio line. Likewise, activity macros, key/unkey macros, and other related functions will continue to operate normally.)

## 6.2 Select TX Minimum Unkey Delay

The old commands,

(PW) 49 98 (0-655.3 sec.) \*, Select TX1 Minimum Unkey Delay, and  
(PW) 49 99 (0-655.3 sec.) \*, Select TX2 Minimum Unkey Delay,

have been replaced with these:

(PW) 09 0102 (.00-655.35 sec.) \*, Select TX1 Minimum Unkey Delay,  
(PW) 09 0202 (.00-655.35 sec.) \*, Select TX2 Minimum Unkey Delay, and  
(PW) 09 0302 (.00-655.35 sec.) \*, Select TX3 Minimum Unkey Delay.

The default is 0.10 sec.

## 6.3 Enable/Disable TX Minimum Unkey Delay

The old commands,

(PW) 63 31 (0/1) \*, Enable/Disable TX1 Minimum Unkey Delay, and  
(PW) 63 32 (0/1) \*, Enable/Disable TX2 Minimum Unkey Delay,

have been deleted.

The same functions can be done with the **Select TX Minimum Unkey Delay** command (described above), because setting the delay to zero is the same as disabling the delay.

## 6.4 Key Transmitter Timed

The old command,

(PW) 00 (TX, 00.1-54.6 min.) \*,

has been replaced with these:

(PW) 09 2108 (0-65535 sec.) \*, Key TX1 Timed,  
(PW) 09 2208 (0-65535 sec.) \*, Key TX2 Timed, and  
(PW) 09 2308 (0-65535 sec.) \*, Key TX3 Timed.

Entering zero for the time value to cancel the command. Entering the Disable TX command also cancels the command. Entering a command with a new time value will reload the timer with the new value.

## **6.5 Select Courtesy Delay**

The old command,

(PW) 32 (0.0-5.0 sec.) \*,

has been replaced with these:

(PW) 09 0100 (.00-655.35 sec.) \*, Select TX1 Courtesy Delay

(PW) 09 0200 (.00-655.35 sec.) \*, Select TX2 Courtesy Delay

(PW) 09 0300 (.00-655.35 sec.) \*, Select TX3 Courtesy Delay

The default is 0.50 sec.

## **6.6 Select Dropout Delay**

The old command,

(PW) 30 (0.0-5.0 sec.) \*,

has been replaced with these:

(PW) 09 0101 (.00-655.35 sec.) \*, Select TX1 Dropout Delay

(PW) 09 0201 (.00-655.35 sec.) \*, Select TX2 Dropout Delay

(PW) 09 0301 (.00-655.35 sec.) \*, Select TX3 Dropout Delay

The default is 3.00 sec.

## **6.7 Select Dropout Message**

The old command,

(PW) 31 13 (message) \*,

has been replaced with these:

(PW) 31 0112 (message) \*, Select TX1 Dropout Message

(PW) 31 0212 (message) \*, Select TX2 Dropout Message

(PW) 31 0312 (message) \*, Select TX3 Dropout Message

(PW) 34 0112 (message) \*, Review TX1 Dropout Message

(PW) 34 0212 (message) \*, Review TX2 Dropout Message

(PW) 34 0312 (message) \*, Review TX3 Dropout Message

The default is no message.

## **6.8 Select Dropout Macro**

The old command,

(PW) 26 08 (macro name) \*,

has been replaced with these:

(PW) 26 0104 (macro name) \*, Select TX1 Dropout Macro

(PW) 26 0204 (macro name) \*, Select TX2 Dropout Macro

(PW) 26 0304 (macro name) \*, Select TX3 Dropout Macro

The default is no macro.

## **6.9 Assign Macro to Any RX Active**

The old commands,

(PW) 26 11 (macro name) \*, Assign Macro to Any RX Active to TX1 and

(PW) 26 73 (macro name) \*, Assign Macro to Any RX Active to TX2,

have been replaced with these:

(PW) 26 0102 (macro name) \*, Assign Macro to Any RX Active to TX1,

(PW) 26 0202 (macro name) \*, Assign Macro to Any RX Active to TX2, and

(PW) 26 0302 (macro name) \*, Assign Macro to Any RX Active to TX3.

The default is no macro.

## **6.10 Assign Macro to All-RX-Inactive**

The old commands,

(PW) 26 09 (macro name) \*, Assign Macro to All RX Inactive to TX1 and

(PW) 26 74 (macro name) \*, Assign Macro to All RX Inactive to TX2,

have been replaced with these:

(PW) 26 0103 (macro name) \*, Assign Macro to All RX Inactive to TX1,

(PW) 26 0203 (macro name) \*, Assign Macro to All RX Inactive to TX2, and

(PW) 26 0303 (macro name) \*, Assign Macro to All RX Inactive to TX3.

The default is no macro.

### **6.11 Assign Macro to TX PTT Inactive-to-Active**

The old commands,

(PW) 26 82 (macro name) \*, Assign Macro to TX1 PTT Inactive-to-Active, and  
(PW) 26 85 (macro name) \*, Assign Macro to TX2 PTT Inactive-to-Active,

have been replaced with these:

(PW) 26 0105 (macro name) \*, Assign Macro to TX1 PTT Active,  
(PW) 26 0205 (macro name) \*, Assign Macro to TX2 PTT Active, and  
(PW) 26 0305 (macro name) \*, Assign Macro to TX3 PTT Active.

The default is no macro.

### **6.12 Assign Macro to TX PTT Active-to-Inactive Before Unkey Delay**

The old commands,

(PW) 26 83 (macro name) \*, Assign Macro to TX1 PTT Active-to-Inactive Before Unkey Delay, and

(PW) 26 86 (macro name) \*, Assign Macro to TX2 PTT Active-to-Inactive Before Unkey Delay,

have been replaced with these:

(PW) 26 0106 (macro name) \*, Assign Macro to TX1 PTT Inactive (Before Unkey Delay),

(PW) 26 0206 (macro name) \*, Assign Macro to TX2 PTT Inactive (Before Unkey Delay), and

(PW) 26 0306 (macro name) \*, Assign Macro to TX3 PTT Inactive (Before Unkey Delay).

The default is no macro.

### **6.13 Assign Macro to TX PTT Active-to-Inactive After Unkey Delay**

The old commands,

(PW) 26 84 (macro name) \*, Assign Macro to TX1 PTT Active-to-Inactive After Unkey Delay, and

(PW) 26 87 (macro name) \*, Assign Macro to TX2 PTT Active-to-Inactive After Unkey Delay,

have been replaced with these:

(PW) 26 0107 (macro name) \*, Assign Macro to TX1 PTT Inactive (After Unkey Delay),

(PW) 26 0207 (macro name) \*, Assign Macro to TX2 PTT Inactive (After Unkey Delay), and

(PW) 26 0307 (macro name) \*, Assign Macro to TX3 PTT Inactive (After Unkey Delay).

The default is no macro.

## **7 DTMF DECODER COMMANDS**

### **7.1 DTMF Decoder Priority/Scan Select**

The old command,

(PW) 89 (list) \*,

has been eliminated because the 7330 has individual DTMF decoders for each receiver. No scanning is necessary.

### **7.2 Execute Command on Nth Digit**

A customer may wish to operate a DTMF decoder under very simple (or highly-restricted) conditions such that only four-digit commands (macros) are accepted and no "\*" character is needed. To do this, you can instruct a DTMF decoder to execute commands upon receiving the fourth digit:

(PW) 63 0107 (0/1) \*, DTMF Decoder #1 Execute Command On 4<sup>th</sup> Digit,  
(PW) 63 0207 (0/1) \*, DTMF Decoder #2 Execute Command On 4<sup>th</sup> Digit, and  
(PW) 63 0307 (0/1) \*, DTMF Decoder #3 Execute Command On 4<sup>th</sup> Digit.

The default is 0 (Disabled).

### **7.3 DTMF Decoder Disconnect Timer**

The 7K From-Start-of-Transmission Timer is now called the DTMF Decoder Disconnect Timer. The original timer was fixed at 5 seconds; the new timer is programmable:

(PW) 09 0107 (.00-655.35 sec.) \*, DTMF Decoder #1 Disconnect Timer  
(PW) 09 0207 (.00-655.35 sec.) \*, DTMF Decoder #2 Disconnect Timer  
(PW) 09 0307 (.00-655.35 sec.) \*, DTMF Decoder #3 Disconnect Timer

and defaults to 5 seconds.

Enable/disable software switches remain for this feature and have been changed to:

(PW) 63 0105 (0/1) \*, Enable/Disable DTMF Decoder #1 Disconnect Timer  
(PW) 63 0205 (0/1) \*, Enable/Disable DTMF Decoder #2 Disconnect Timer  
(PW) 63 0305 (0/1) \*, Enable/Disable DTMF Decoder #3 Disconnect Timer

and defaults to 0 (Disabled).

#### **7.4 DTMF Decoder Anti-Falsing Timer**

A new Anti-Falsing Timer command has been added:

(PW) 09 0108 (.00-655.35 sec.) \*, DTMF Decoder #1 Anti-Falsing Timer  
(PW) 09 0208 (.00-655.35 sec.) \*, DTMF Decoder #2 Anti-Falsing Timer  
(PW) 09 0308 (.00-655.35 sec.) \*, DTMF Decoder #3 Anti-Falsing Timer

The default is zero.

#### **7.5 DTMF Long Tones**

##### **7.5.1 Long Tone Enable/Disable**

The old software switch,

(PW) 63 68 (0/1) \*),

has been replaced with these:

(PW) 63 0106 (0/1) \*, Enable/Disable DTMF Decoder #1 Long Tone Macros  
(PW) 63 0206 (0/1) \*, Enable/Disable DTMF Decoder #2 Long Tone Macros  
(PW) 63 0306 (0/1) \*, Enable/Disable DTMF Decoder #3 Long Tone Macros

All default to Disabled.

##### **7.5.2 Long Tone Timer**

The old Long Tone Timer, previously fixed at 3.0 seconds, is now programmable:

(PW) 09 1103 (.0-6553.5 sec.) \*, DTMF Decoder #1 Long Tone Timer  
(PW) 09 1203 (.0-6553.5 sec.) \*, DTMF Decoder #2 Long Tone Timer  
(PW) 09 1303 (.0-6553.5 sec.) \*, DTMF Decoder #3 Long Tone Timer

The default value is 3.0 seconds.

### **7.5.3 Assign Macro to Long Tone**

The old commands,

(PW) 26 (50 to 65 for DTMF 0 through #) \*,

have been replaced with these:

(PW) 26 (0184-0199 for DTMF 0-#)(macro name) \*, Assign Macro to DTMF Decoder #1 Long Tone (0-#),

(PW) 26 (0284-0299 for DTMF 0-#)(macro name) \*, Assign Macro to DTMF Decoder #2 Long Tone (0-#), and

(PW) 26 (0384-0399 for DTMF 0-#)(macro name) \*, Assign Macro to DTMF Decoder #3 Long Tone (0-#).

### **7.5.4 Assign Macro to Any DTMF Long Tone**

These are new commands:

(PW) 26 0100 (macro name) \*, Assign Macro to Any DTMF Decoder #1 Long Tone

(PW) 26 0200 (macro name) \*, Assign Macro to Any DTMF Decoder #2 Long Tone

(PW) 26 0300 (macro name) \*, Assign Macro to Any DTMF Decoder #3 Long Tone

### **7.6 Select DTMF Interdigit Timer**

The old command,

(PW) 82 (0.1-9.9 sec.) \*,

has been replaced with these:

(PW) 09 0104 (.00-655.35 sec.) \*, DTMF Decoder #1 Interdigit Time

(PW) 09 0204 (.00-655.35 sec.) \*, DTMF Decoder #2 Interdigit Time

(PW) 09 0304 (.00-655.35 sec.) \*, DTMF Decoder #3 Interdigit Time

The default is 5.00 seconds.

## **7.7 Select DTMF Decoder Mute Hang Time**

The old command (V2.04),

(PW) 96 (t, .0-.9 sec.) \*,

has been replaced with:

(PW) 09 0105 (.00-655.35 sec.) \* for first digit, \*, and #, DTMF Decoder #1

(PW) 09 0106 (.00-655.35 sec.) \* for other digits, DTMF Decoder #1

(PW) 09 0205 (.00-655.35 sec.) \* for first digit, \*, and #, DTMF Decoder #2

(PW) 09 0206 (.00-655.35 sec.) \* for other digits, DTMF Decoder #2

(PW) 09 0305 (.00-655.35 sec.) \* for first digit, \*, and #, DTMF Decoder #3

(PW) 09 0306 (.00-655.35 sec.) \* for other digits, DTMF Decoder #3

The default is 0.50 second for the first digit and for other digits.

## **7.8 Assign Macro to DTMF Decoder Data Valid**

The old command,

(PW) 26 49 (macro name) \*,

has been changed to:

(PW) 26 0101 (macro name) \*, Assign Macro to DTMF Decoder #1 Data Valid

(PW) 26 0201 (macro name) \*, Assign Macro to DTMF Decoder #2 Data Valid

(PW) 26 0301 (macro name) \*, Assign Macro to DTMF Decoder #3 Data Valid

(We changed the names of the switches to include "Data Valid" to reinforce the idea that the macros are triggered at the leading edge of the digit.)

## **7.9 Command Response Enable**

There are now three Command Response Enable switches instead of one. All default to ON and are not changed during a warm start.

(PW) 63 0100 (0/1) \*, for Enable/Disable DTMF #1 Command Response Messages

(PW) 63 0200 (0/1) \*, for Enable/Disable DTMF #2 Command Response Messages

(PW) 63 0300 (0/1) \*, for Enable/Disable DTMF #3 Command Response Messages

## **7.10 OK Response Enable**

There are now three OK Response Enable switches instead of one. All default to ON and are not changed during a warm start.

(PW) 63 0101 (0/1) \*, for Enable/Disable DTMF #1 OK Response Messages

(PW) 63 0201 (0/1) \*, for Enable/Disable DTMF #2 OK Response Messages

(PW) 63 0301 (0/1) \*, for Enable/Disable DTMF #3 OK Response Messages

### **7.11 Error Response Enable**

There are now three Error Response Enable switches instead of one. All default to ON and are not changed during a warm start.

The original was:

(PW) 63 0034 (0/1) \*, for Enable/Disable DTMF Error Response Messages.

It has been moved and two more added as follows:

(PW) 63 0102 (0/1) \*, for Enable/Disable DTMF #1 Error Response Messages

(PW) 63 0202 (0/1) \*, for Enable/Disable DTMF #2 Error Response Messages

(PW) 63 0302 (0/1) \*, for Enable/Disable DTMF #3 Error Response Messages

### **7.12 Other DTMF Notes**

Note that much of the same software that's used in the RX-TX paths is also used in the RX-DTMF decoder paths. While it may seem strange to turn on the antikerchunker in an RX-DTMF path, doing that means the user must hold down the mic PTT switch for a while before entering the first command, which may help to discourage troublemakers.

All the same modes apply for RX-DTMF paths as for RX-TX paths, but there is no timeout timer on RX-DTMF paths.

## **8           COMMAND EXECUTION COMMANDS**

### **8.1        Pause in Command Execution**

The old command,

(PW) 98 (1-255 sec.) \*,

has been replaced with these:

(PW) 09 0000 (.00-655.35 sec.) \*.

## **9 IDENTIFIER COMMANDS**

### **9.1 Select ID Macro**

The old commands,

(PW) 26 03 (macro name) \*, Select TX1 Initial ID Macro,  
(PW) 26 04 (macro name) \*, Select TX1 Polite ID Macro,  
(PW) 26 05 (macro name) \*, Select TX1 Impolite ID Macro,

(PW) 26 46 (macro name) \*, Select TX2 Initial ID Macro,  
(PW) 26 47 (macro name) \*, Select TX2 Polite ID Macro, and  
(PW) 26 48 (macro name) \*, Select TX2 Impolite ID Macro,

have been changed to these:

(PW) 26 0108 (macro name) \*, Select TX1 Initial ID Macro,  
(PW) 26 0109 (macro name) \*, Select TX1 Polite ID Macro,  
(PW) 26 0110 (macro name) \*, Select TX1 Impolite ID Macro,

(PW) 26 0208 (macro name) \*, Select TX2 Initial ID Macro,  
(PW) 26 0209 (macro name) \*, Select TX2 Polite ID Macro,  
(PW) 26 0210 (macro name) \*, Select TX2 Impolite ID Macro,

(PW) 26 0308 (macro name) \*, Select TX3 Initial ID Macro,  
(PW) 26 0309 (macro name) \*, Select TX3 Polite ID Macro, and  
(PW) 26 0310 (macro name) \*, Select TX3 Impolite ID Macro.

### **9.2 Select Initial ID Message**

The old command,

(PW) 31 28 (message) \*,

has been replaced with these:

(PW) 31 0109 (message) \*, Select TX1 Initial ID Message  
(PW) 31 0209 (message) \*, Select TX2 Initial ID Message  
(PW) 31 0309 (message) \*, Select TX3 Initial ID Message

(PW) 34 0109 (message) \*, Review TX1 Initial ID Message  
(PW) 34 0209 (message) \*, Review TX2 Initial ID Message  
(PW) 34 0309 (message) \*, Review TX3 Initial ID Message

The default is no message. If not defined, the Normal ID Message is sent.

### **9.3 Select Normal ID Message**

The old command,

(PW) 31 29 (message) \*,

has been replaced with these:

(PW) 31 0110 (message) \*, Select TX1 Normal ID Message

(PW) 31 0210 (message) \*, Select TX2 Normal ID Message

(PW) 31 0310 (message) \*, Select TX3 Normal ID Message

(PW) 34 0110 (message) \*, Review TX1 Normal ID Message

(PW) 34 0210 (message) \*, Review TX2 Normal ID Message

(PW) 34 0310 (message) \*, Review TX3 Normal ID Message

The default is "ID" in CW.

### **9.4 Select Impolite ID Message**

The old command,

(PW) 31 ?? (message) \*,

has been replaced with these:

(PW) 31 0111 (message) \*, Select TX1 Impolite ID Message

(PW) 31 0211 (message) \*, Select TX2 Impolite ID Message

(PW) 31 0311 (message) \*, Select TX3 Impolite ID Message

(PW) 34 0111 (message) \*, Review TX1 Impolite ID Message

(PW) 34 0211 (message) \*, Review TX2 Impolite ID Message

(PW) 34 0311 (message) \*, Review TX3 Impolite ID Message

The default is no message. If not defined, the Normal ID Message is sent.

### **9.5 Send Initial ID Message**

The old command,

(PW) 55 \*, Send TX1 Initial ID Message,

has been replaced with these:

(PW) 63 0114 1 \*, Send TX1 Initial ID and Tail Message,

(PW) 63 0214 1 \*, Send TX2 Initial ID and Tail Message,

(PW) 63 0314 1 \*, Send TX3 Initial ID and Tail Message,

(PW) 63 0115 1 \*, Send TX1 Normal ID and Tail Message,

(PW) 63 0215 1 \*, Send TX2 Normal ID and Tail Message,

(PW) 63 0315 1 \*, Send TX3 Normal ID and Tail Message.

## **9.6 Reset Initial ID Message to Normal**

The old command,

(PW) 54 \*, Reset Initial ID Message to Normal (TX1),

has been deleted.

## **9.7 Select ID Interval**

The old command,

(PW) 51 (00.5-30.0 min.) \*,

has been replaced with these:

(PW) 09 2106 (0-65535 sec.) \*, TX1 ID Interval,

(PW) 09 2206 (0-65535 sec.) \*, TX2 ID Interval, and

(PW) 09 2306 (0-65535 sec.) \*, TX3 ID Interval.

## **9.8 Select ID Pending Time**

The old command,

(PW) 49 97 (30.0-180.0 sec.) \*, Select ID Pending Time,

has been replaced with these:

(PW) 09 2107 (0-65535 sec.) \*, TX1 ID Pending Time,

(PW) 09 2207 (0-65535 sec.) \*, TX2 ID Pending Time, and

(PW) 09 2307 (0-65535 sec.) \*, TX3 ID Pending Time.

## **9.9 Tail Messages**

We changed the 7K Programmable Tail Message scheme. These commands have been deleted:

(PW) 31 28 (message) \*, Select Initial ID Programmable Tail Message for TX1

(PW) 31 29 (message) \*, Select Normal ID Programmable Tail Message for TX1

(PW) 34 28 \*, Review Initial ID Programmable Tail Message for TX1

(PW) 34 29 \*, Review Normal ID Programmable Tail Message for TX1

Instead, User Messages can be used for Programmable Tail Messages. The **Select ID Tail Message** command has been changed slightly. These are the new commands:

(PW) 50 xx \*,

(PW) 50 xx yyyy \*, where:

xx = 00 for TX1 Initial ID Tail Message  
xx = 01 for TX1 Normal ID Tail Message  
xx = 02 for TX2 Initial ID Tail Message  
xx = 03 for TX2 Normal ID Tail Message  
xx = 04 for TX3 Initial ID Tail Message  
xx = 05 for TX3 Normal ID Tail Message

y = (nothing) if no Tail Message is desired  
yyyy = 4-digit Message Number for User Messages

All tail messages default to (none).

Since there are commands for programming and reviewing User Messages (see User Message Changes above), we deleted the commands for **reviewing the tail messages**:

(PW) 50 0 99 \*, Review Initial ID Tail Message for TX1, and

(PW) 50 1 99 \*, Review Normal ID Tail Message for TX1.

## 10 LOGIC OUTPUT COMMANDS

We've changed the way the logic output timers operate.

As before, there are commands for ON, OFF, Momentary ON, and Momentary OFF.

But instead of a single, fixed 0.5-second timer for the Momentary modes, each Logic Output now has its own programmable Momentary timer.

The Momentary commands behave as follows:

ON Delay: If the Logic Output is OFF when a Momentary-OFF command is entered, the output will remain OFF for the duration of the timer and then go ON when it expires.

OFF Delay: If the Logic Output is ON when a Momentary-ON command is entered, the output will remain ON for the duration of the timer and then go OFF when it expires.

ON Interval: If the Logic Output is OFF when a Momentary-ON command is entered, the output will go ON, wait for the timer to expire, then go OFF.

OFF Interval: If the Logic Output is ON when a Momentary-OFF command is entered, the output will go OFF, wait for the timer to expire, then go ON.

The Momentary timers are retriggerable, which means that entering a Momentary ON command while a Momentary-ON timer is running restarts the timer. Likewise, entering a Momentary-OFF command while a Momentary-OFF timer is running restarts the timer.

If you enter a Momentary-ON command while a Momentary-OFF timer is running, the Momentary-OFF function will stop and the Momentary-ON function will start. If you enter a Momentary-OFF command while a Momentary-ON timer is running, the Momentary-ON function will stop and the Momentary-OFF function will start.

A Momentary timer can be canceled by entering an ON or OFF command, which causes the output to latch.

To sum up, the Logic Outputs always obey the last command entered.

The Select Logic Output Momentary Timer commands are:

(PW) 09 1000 (.0-6553.5 sec.) \*, Select Logic Output #1 Momentary Timer  
(PW) 09 1001 (.0-6553.5 sec.) \*, Select Logic Output #2 Momentary Timer  
(PW) 09 1002 (.0-6553.5 sec.) \*, Select Logic Output #3 Momentary Timer  
(PW) 09 1003 (.0-6553.5 sec.) \*, Select Logic Output #4 Momentary Timer  
(PW) 09 1004 (.0-6553.5 sec.) \*, Select Logic Output #5 Momentary Timer  
(PW) 09 1005 (.0-6553.5 sec.) \*, Select Logic Output #6 Momentary Timer  
(PW) 09 1006 (.0-6553.5 sec.) \*, Select Logic Output #7 Momentary Timer  
(PW) 09 1007 (.0-6553.5 sec.) \*, Select Logic Output #8 Momentary Timer

All default to 0.5 seconds.

## **11 COR Pulse-Triggered Macro Commands**

### **11.1 Triggering**

The COR Pulse-Triggered Macro is now triggered only by activity on the RX COR input. It's no longer affected by the RX CTCSS input or any other programming.

### **11.2 Select COR Pulse-Triggered Macro**

Multiple Macros are now supported, one for each count of one through 9.

The old command,

(PW) 26 17 (macro name) \*,

has been changed to:

(PW) 26 (0171-0179 for Counts 1-9) (macro name) \*, Select COR1 Pulse-Triggered Macro

(PW) 26 (0271-0279 for Counts 1-9) (macro name) \*, Select COR2 Pulse Triggered Macro

(PW) 26 (0371-0379 for Counts 1-9) (macro name) \*, Select COR3 Pulse Triggered Macro

### **11.2 Select COR Pulse-Triggered Macro Timers**

The timers set by the old command,

(PW) 47 0 x yyyy zzzz \*, Select Pulse Parameters

has been separated into two timer commands,

(PW) 09 0110 (.00-655.35 sec.) \*, COR #1 PTM Minimum Duration

(PW) 09 0111 (.00-655.35 sec.) \*, COR #1 PTM Maximum Gap

(PW) 09 0210 (.00-655.35 sec.) \*, COR #2 PTM Minimum Duration

(PW) 09 0211 (.00-655.35 sec.) \*, COR #2 PTM Maximum Gap

(PW) 09 0310 (.00-655.35 sec.) \*, COR #3 PTM Minimum Duration

(PW) 09 0311 (.00-655.35 sec.) \*, COR #3 PTM Maximum Gap

Minimum Duration (sometimes called Width) is defined as it was in the 7K and defaults to 0.25 second.

Maximum Gap replaces the old command's Window Time. Maximum Gap is the maximum amount of time, measured in 10ms counts, between pulses and defaults to 2.00 seconds.

## **12 CLOCK/CALENDAR COMMANDS**

### **12.1 Set Clock and Calendar Command**

An optional **Seconds** parameter has been added to the existing **Set Clock and Calendar** command:

(PW) 25 yy mm dd w hh mm ss \*

### **12.2 Cold Init**

In previous controllers, at **Cold Init**, the Clock/Calendar was cleared.

In the 7330, the Clock/Calendar is not cleared unless it has never been started. When initially started, the clock is set to *Sunday, January 1, 2006, at 00:00 (24 Hour Time)* and starts the oscillator.

## **13 SCHEDULER COMMANDS**

### **13.1 Enable/Disable Scheduler**

The old software switch,

(PW) 63 15 x \*, Scheduler Enable/Disable

has been replaced with:

(PW) 63 0001 x \*, Scheduler Enable/Disable,

### **13.2 Scheduler Day Code Table**

We've added "Last Day-of-Week in Month" (with Leap Year correction) to the Day Codes.

The additional codes are:

- 76 = Last Sunday in Month
- 77 = Last Monday in Month
- 78 = Last Tuesday in Month
- 79 = Last Wednesday in Month
- 80 = Last Thursday in Month
- 81 = Last Friday in Month
- 82 = Last Saturday in Month

## **14 MESSAGE HANDLER COMMANDS**

### **14.1 Send Next CW Message Slowly**

The old command,

(PW) 11 \*, Send Next CW Message Slowly,

has been eliminated.

The job can be done better by the new Change CW Sending Rate Control Code, described below.

### **14.2 Select Slow CW Speed**

Because the Send Next CW Message Slowly command has been eliminated, the old command,

(PW) 13 x \*, Select Slow CW Speed,

was no longer needed and has been eliminated.

### **14.3 Enable/Disable CW**

The old command,

(PW) 63 01 (0/1) \*, Enable/Disable CW,

has been eliminated.

### **14.4 SELCAL Paging**

We've added SELCAL Paging to the Message Handler. This is a tone paging format of two simultaneous tones, a gap, and another two simultaneous tones.

Enter Control Code 9955, followed by wwxyyzz (two digits per SELCAL character).

## 14.5 Control Codes

These Message Handler Control Codes have been added:

**9903xx** = Change the CW Sending Rate, xx = 00-09 (same rates as codes 60-69 in CW library)

**9904xxxx** = Change the CW Pitch, xxxx = tone code (same as code 59xxxx in CW library)

**9993xx** = Key the TX and pause for x.x seconds

You can put the 9903xx and 9904xxxx codes ahead of a CW message to change the frequency and sending rate. They work the same as the CW codes numbered 60-69 (Sending Rate) and 59xxxx (Pitch), but they don't have to be embedded within the CW message itself. For example, you can put the new codes ahead of a CW Clock/Calendar Run-Time Variable to change its sending rate or pitch (something you couldn't do with the original codes). The original codes are still valid and may be used exactly as before.

## 14.6 Changes to Message Buffer Operation

### 14.6.1 CW Freq Change/Sending Rate Change Codes

Any CW Frequency Change codes and CW Sending Rate codes that appear in a CW message stay in effect until the CW message ends, at which point the default values take over. Previously, those codes stayed in effect until the buffer emptied, which could affect the following queued CW messages.

### 14.6.2 Beep Duration Change/Beep Gap Change Codes

Any beep duration change codes (70-79) and beep gap change codes (60-69) that appear in a beep message stay in effect until the beep message ends, at which point the default values take over. Previously, the changes stayed in effect until changed by similar codes in a subsequent beep message.

Also, Gap Change Codes 60-69 only change the gap duration. Previously, they also caused a gap to be sent.

### 14.6.3 DTMF Duration Change/DTMF Gap Change Codes

Any DTMF duration change codes (20-29) and gap change codes (30-30) that appear in a DTMF message stay in effect until the DTMF message ends, at which point the default values take over. Previously, the changes stayed in effect until changed in a subsequent message.

## 14.7 Beep Gap On/Off Defaults

Previously, the gaps in a beep message were either on or off depending on the previous message. New commands have been added to select the default status for beep gaps:

(PW) 63 0116 (0/1) \* = Message Handler #1 Beep Gap On/Off Default  
(PW) 63 0216 (0/1) \* = Message Handler #2 Beep Gap On/Off Default  
(PW) 63 0316 (0/1) \* = Message Handler #2 Beep Gap On/Off Default

All switches default to OFF on a cold start.

## 14.8 Select Default Durations/Gap Durations

New commands have been added to select the default durations for beeps and DTMF characters:

(PW) 08 00 (duration x 10 ms) \* = Message Handler #1 Default Beep Duration  
(PW) 08 01 (duration x 10 ms) \* = Message Handler #1 Default Beep Gap Duration  
(PW) 08 02 (duration x 10 ms) \* = Message Handler #1 Default DTMF Duration  
(PW) 08 03 (duration x 10 ms) \* = Message Handler #1 Default DTMF Gap Duration  
(PW) 08 04 (duration x 10 ms) \* = Message Handler #2 Default Beep Duration  
(PW) 08 05 (duration x 10 ms) \* = Message Handler #2 Default Beep Gap Duration  
(PW) 08 06 (duration x 10 ms) \* = Message Handler #2 Default DTMF Duration  
(PW) 08 07 (duration x 10 ms) \* = Message Handler #2 Default DTMF Gap Duration

The duration can be one digit (1 to 9) or two digits (01 to 99).

The Default Beep Gap has been changed from 10 ms to 20 ms so that its effect is more obvious when comparing 'beeps on' to 'beeps off'. The default can be easily changed with the command listed above.

## 14.9 Pre-Message Delays

We've changed the way pre-message delays are implemented.

There were four previous pre-message delay schemes:

### First scheme

In 7K V2.03 and before, the controller observed a 1-second delay before sending the first tone page in a sequence. This delay is now gone.

### Second scheme

A user could insert the code "54" ahead of CW and beep messages to introduce a 1-second delay. This use of "54" is now gone for both CW and beep messages.

The "54" code is now the new CW "commat" symbol ("@"), di-dah-dah-di-dah-dit.

Third scheme

In 7K V2.04, these Message Handler Initial Message Delay commands were added:

(PW) 49 90/91/92/93 (0-5.0 sec.) \*.

They are now gone.

Fourth scheme

A user could insert a word code of "0000" ahead of speech messages to introduce a 1-second delay. This delay code is now gone. Code "0000" is now the word "zero".

We now have two new ways of creating a pre-message delay.

In the first method, the user inserts a "9993 xx" Pause Control Code (described earlier) ahead of his message. (We changed all the "54" codes to "9993 10" in the default messages. Losing code 54 wasn't a big loss, as the code 54 delay was only allowed once per message, at the beginning. Code 54 didn't solve the problem of the user's TX>RX turnaround time.)

The second method makes use of a new timer called the **TX Turn-On Delay**. The timer starts when the PTT is activated, and when it expires, the Message Handler is allowed to proceed. The purpose of the delay is to hold off sending messages until the transmitter comes up to full power and any user's CTCSS decoder has unmuted his local audio. If a transmitter has been keyed beyond the turn-on delay when a message is queued, the message will be sent with no delay (unless the user has programmed one into the message). There are separate Turn-On Delay commands for each transmitter, so the controller can handle slow or fast transmitters individually.

The commands are:

(PW) 09 0103 (.00-655.35 sec.) \* for TX1, and

(PW) 09 0203 (.00-655.35 sec.) \* for TX2.

(PW) 09 0303 (.00-655.35 sec.) \* for TX3.

The delays are programmed in 10 ms increments and default to 0.25 seconds.

**14.10 Inter-Page Delays**

The 1-second delay that the 7K observed after all tone pages is now programmable:

(PW) 09 0114 (.00-655.35 sec.) \*, MH1 Inter-Page Delay

(PW) 09 0214 (.00-655.35 sec.) \*, MH2 Inter-Page Delay

(PW) 09 0314 (.00-655.35 sec.) \*, MH3 Inter-Page Delay

Defaults to 1.0 second.

## **15 USER MESSAGE COMMANDS**

(User Messages are programmed into memory the same way as any other message. The Review Message command is then used whenever it is desired to transmit the message.)

We increased the number of User Messages from four to ten. And, like all other programmable messages, the Message Numbers are now four digits.

The **Select User Message** command is:

(PW) 31 (xxxx) (message) \*, where xx is the message number (0015 through 0024).

The **Review User Message** command is:

(PW) 34 (xxxx) \*, where xx is the message number (0015 through 0024).

## **16 CTCSS ENCODER COMMANDS**

### **16.1 MX-315-Formatted CTCSS Encode**

The MX-315-Formatted CTCSS Encode command,

(PW) 05 (code) \*,

has been deleted. It was not described in the manual. The 7330 has built-in encoders.

### **16.2 CTCSS Encode**

The CTCSS Encoder command has changed. The new command format is:

(PW) 02 w x y z \*, where:

w = transmitter, 1, 2, or 3

x = mode:

- 0 CTCSS encoder is off
- 1 CTCSS encoder is on whenever selected TX is keyed. Encoder is off during the unkey delay period.
- 2 CTCSS encode is on whenever selected TX is keyed, and off when TX is unkeyed.
- 3 CTCSS encode is on whenever selected TX is keyed, and off when CTCSS timer expires.
- 4 CTCSS encode is on whenever selected TX is keyed, and off after Tx is unkeyed then CTCSS timer expires.
- 5 CTCSS encode is turned on and off under macro control

y = reverse burst enable. A non-zero value enables reverse burst when unkeying transmitter

- 0 = no reverse burst
- 1 = 120 degree reverse burst
- 2 = 180 degree reverse burst

z = invert logic output (only applies when jumper J37/J38/J39 is in the CTCSS Logic position).

- 0 = output is low-true (default)
- 1 = output is high-true

## **17 Changes from V2.04**

### **17.1 Roots 16**

Command root 16, added by Vyex in 7K V2.04A has been changed. The old command:

(PW) 16 \*

stopped the Message Handler Speech word in progress.

The new command accepts a transmitter number:

(PW) 16 x \*, where:

x is 1, 2, or 3, for transmitters 1, 2 or 3.

### **17.2 Roots 95 and 97**

Command roots 95 and 97, added by Vyex in 7K V2.04A as patches, have been deleted.

### **17.3 Root 76**

The IF-THEN-ELSE command (root 76), introduced in V2.04, was changed to:

(PW) 76 ww xxxx yyyy zzzz \*, where:

ww = Type of item to test (00 = Timer, 03 = Software Switch, others to follow)

xxxx = Item Number

yyyy = Macro to execute if On/Nonzero/True

zzzz = (optional) Macro to Execute if Off/Zero/False

Note: "User Switches" exist solely for use with the If-Then-Else command. As it happens, any switch with a legal switch number can be used as a User Switch if it's not used by any other function – it's simply set or reset via command and read by the If-Then-Else command. We've set aside a specific group of User Switches only so that we'll know which switch numbers are available for User Switches, which are undefined, and which are used elsewhere.

### **17.4 CTCSS Encoder**

This command has changed. See section 16.2 for details.

## **18 AUTOPATCH AND CONTROL LINE COMMANDS**

### **18.1 Select Autopatch Timeout Timer**

The old command,

(PW) 65 (00.1-54.6 min.) \*, Select Autopatch Timeout Timer,  
has been replaced with

(PW) 09 2000 (0-65535 sec.) \*.

Also, the ability to enter "000" for infinity has been eliminated.

### **18.2 Select Control Line Timer**

The old command,

(PW) 79 (00.1-54.6 min.) \*, Select Control Line Timer,  
has been replaced with

(PW) 09 2001 (0-65535 sec.) \*.

### **18.3 Autopatch Pause ("B") Digit Time**

The old command,

(PW) 49 96 (.1-10.0 sec.) \*, Autopatch Pause ("B") Digit Time,  
has been replaced with

(PW) 09 0001 (.00-655.35 sec.) \*.

### **18.4 Enable/Disable Mixed-Mode Dialing**

The old command,

(PW) 63 04 x \*, Enable/Disable Mixed-Mode Dialing,

has been deleted. Mixed DTMF and rotary dialing is now always allowed.

### **18.5 Star/Pound Talkout**

The feature is gone, and along with it, Software Switch 29 (enable/disable).