RLC-2 Software Version 4.00 Beta
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Please Read

This is a beta release of the RLC-2/RLC-2a software 4.00. This software most likely has bugs and non-documented features. In order for a polished version of the software to be released, we need your feedback on problems and bugs encountered. When problems are reported a fixed version will be available on Link Communications Inc. FTP site within 1 day of the report. Once we are satisified with the software's operation, we will "Officially" release the software to the general users.

Thank you for your help in testing the new software. We value your input and always listen to your ideas.

Link Communications Inc.
Technical Support

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000: Connect one Port to another Port

This command allows you to connect one radio port to another radio port. It is also used to put a port into "repeater mode", by connecting that port to itself. "Connecting a port" means that the audio in and keying source from each port become the audio out and PTT source for the other port. Connecting a port to itself makes the audio that comes in your repeater's receiver go out your repeater's transmitter, making it into a repeater. If you connect two different ports together, they will hear the activity from the other port.

<000> *x y*

Parameters:

- X is the first port to connect
- Y is the second port to connect

Ports range from 1..5

1 - Port 1
2 - Port 2
3 - Port 3
4 - Autopatch Port
5 - Control Receiver Port

Defaults:

- All ports default as links

Error Codes:

E1 - Invalid port requested

(System wide errors are listed in front of the manual)

Example 1:

Connect Port 1 to Port 3

000 14 * or unkey

Voice response "1 3 Connect On"

Want port 1 as a repeater port

000 11 * or unkey

Response:

"X Y Connect On"

001: Connect one Port to another Port

This command allows you to monitor one radio port from another radio port.

<001> *x y*

Parameters:

- X is the doing the monitoring of port Y
- Y is the port being monitored

Ports range from 1..5

1 - Port 1
2 - Port 2
3 - Port 3
4 - Autopatch Port
5 - Control Receiver Port

Defaults:

- All port default as links

Error Codes:

E1 - Invalid port requested

(System wide errors are listed in front of the manual)

Example 1:

Monitor Port 3 by Port 1

001 13 * or unkey

Response:

"X Y Connect Monitor"

002: Disconnect one Port from another Port

This command allows you to disconnect one radio port from another radio port.

<002> *x y*

Parameters:

- X is the first port to disconnect
- Y is the second port to disconnect

Ports range from 1..5

1 - Port 1
2 - Port 2
3 - Port 3
4 - Autopatch Port
5 - Control Receiver Port

Defaults:

- All port default as links

Error Codes:

E1 - Invalid port requested

(System wide errors are listed in front of the manual)

Example 1:

Disconnect Port 1 from Port 3

002 13 * or unkey

Voice response "1 3 Connect Off"

Port 1 is currently a repeater port and you want the port configured as a link port.

002 11 * or unkey

Response:

"X Y Connect Off"

003: Not Yet Assigned

<003> *x y*

Parameters:

Defaults:

Error Codes:

Example 1:

003

Response:

004: Setting Up the Master System Unlock Codes

This command allows the user to enter 16 unique digits for accessing the master unlock codes. When the user requests access to certain commands, and the controller speaks "Error 7", this indicates the need to unlock the controller before execution of the command is allowed. The user must execute Command 005 which will prompt the user to enter 4 codes that range from 0..15. These codes are programmed with this command.

<004> *(See Below)*

Parameters:

The user must enter 16 digits from the DTMF pad. The digits can be any valid DTMF digit. It is very important to remember these codes for they access the master unlock command. If you forget the digits, and try to access a locked command, then re-initialization of the controller is the only way to access the command.

Requested Digits	Default Digits	User Entered Digits
0	1	
1	2	
2	3	
3	4	
4	5	
5	6	
6	7	
7	8	
8	9	
9	#	
10	#	
11	1	
12	2	
13	3	
14	4	
15	5	

Error Codes:

(System wide errors are listed in front of the manual)

Example 1:
I want to change the access codes to my own codes

```
004 ABCD1234###94123
```

Response:
The controller will not speak back the codes for security.
"System Lock Codes O K"

005: Unlocking the Controller

This command allows the user to unlock the controller for accessing locked commands. The user will execute Command 005 and the controller will request unlock codes. These codes can be embedded with garbage codes for added security. The controller only requires the 4 requested codes to be entered in the requested sequence. Refer to Command 004 to program the access password.

User: Request password

<005>

Controllers voice: " Please enter code # # # #"

User enters the password to unlock the controller

<005>...PPPP...

Controllers voice: "System Lock On" If the wrong password entered
or
Controllers voice: "System Lock Off" If the correct password entered

Parameters:
...PPPP... is the password information. The '...' indicate garbage data can be entered before and after the group of password data is entered.

Defaults:
The password defaults are listed in Command 004's table.

Notes:
C Please note the password if you change it. Serial can bypass the unlock sequence if specified. If you do not note the password table, the serial may be able to change the table if Command 004 is not locked on the serial port.

Error Codes:
(System wide errors are listed in front of the manual)

Example 1:
The user enters Command 005 to get a password and the controller states codes 1,3,5,9 are needed. The user enters the following.

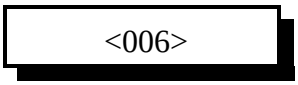
005 34512 1 3 5 9 #AB1239

The data '34512' and '#AB1239' is garbage data. The codes '1 3 5 9' is the correct password. The controller responds 'Controller Lock Off' indicating the lock is now disabled.

Response:
"Controller Lock Off" or "Controller Lock On" or "Please enter Code # # # #"

006: Locking the Controller

This command locks the controllers access. Once the controller is locked the unlock sequence must be re-entered in order to gain access to locked commands.



Parameters:
There are no parameters for this command.

Defaults:
the controller defaults locked

Error Codes:
(System wide errors are listed in front of the manual)

Example 1:
The user is finished with programming and wants to re-lock the controller.

Response:
"Controller Lock On"

007: Set Up the System's Default Audio Routing Variables

This command allows the user to set-up the system audio routing variables. These variables tell the controller where to route messages when commands are executed. This allows the user to totally control where CW and Voice messages are routed.

<007> *xx yy*

Parameters:
XX is the audio routing slots
YY is the audio routing variable calculated below

Device that Executed the Commands (XX)	Audio Routing Variable
00: Reset Just Occurred	01: Route to Port 1
01: RS-232 port	01: Route to Port 1
02: Event Scheduler	01: Route to Port 1
03: Port 1	01: Route to Port 1
04: Port 2	02: Route to Port 2
05: Port 3	04: Route to Port 3
06: Autopatch	08: Route to Port 4
07: Control Receiver	01: Route to Port 1
08: Event Table	00: Use the routing variable in the event

Calculation of the audio routing variable:

The audio routing variable is calculated by adding up a number that corresponds to the port you want the response to be routed to. This number ranges from 00..31.

DTMF Executing the Command	Number that corresponds to the device
Port 1	+1
Port 2	+2
Port 3	+4
Autopatch	+8
Control Receiver	+16

(YY) Audio routing variable = (port1)+(port2)+(port3)+(autopatch)+(control rx)

Error Codes:
E1 - Invalid audio routing source
E2 - Audio routing variable to big. Must range from 00..31
(System wide errors are listed in front of the manual)

Example 1:
I want all commands executed from Port 3 to be routed out both Port 3 and Port 1.

1) Look-up port 3's audio routing slot.
Slot 05 is port 3
2) Develop an audio routing variable that includes port 1,3
Audio Routing Variable = 1(Port 1)+0(Port 2)+4(Port 3)+0(Autopatch)+0(Control)
= 05
3) Execute Command 007

```
007 05 05 * or unkey
```

Response:
'Port' is 'Audio Routing Variable'

008: Recall the System's Default Audio Routing Variables

This command recalls the settings programmed in Command 007.

<008> *xx*

Parameters:

There are no parameters for this command

Defaults:

There are no defaults for this command

Error Codes:

E1 - Invalid audio routing source

(System wide errors are listed in front of the manual)

Example 1:

I want to see what the audio routing variable is for the autopatch port

008 06 * or unkey

Response:

"Slot is ARV"

009: Checking Cross-Point Connections

This command allows you check the audio crosspoint conditions on all radio ports on the controller. This command will check the connected conditions and both show the crosspoint map on the RS-232 serial port if executed from the RS-232 port, and will speak the conditions out the port that DTMF requested the conditions.

<009>

Parameters:
There are no parameters for this command

Defaults:
There are no defaults for this command

Error Codes:
(System wide errors are listed in front of the manual)

Response:
Voice Format:

1 Connect <TX1> <TX2> <TX3> <TX4> <TX5>
2 Connect <TX1> <TX2> <TX3> <TX4> <TX5>
3 Connect <TX1> <TX2> <TX3> <TX4> <TX5>
4 Connect <TX1> <TX2> <TX3> <TX4> <TX5>
5 Connect <TX1> <TX2> <TX3> <TX4> <TX5>

Serial Format:

			TX				
			1	2	3	4	5
		1	.	.	.	.	.
		2	.	.	.	.	.
RX	3	.	.	.	.	.	
	4	.	.	.	.	.	
		5	.	.	.	.	.

An 'x' indicates connection and a '.' indicates no connection.

010: Time-Out Timer Enabled\Disabled

This command allows the user to enable\disable the time-out timer port a selected port.

<010> *x y*

Parameters:
X is the port. This number ranges from 1..5
Y is the control information.
1 - Enable Time-out timer
0 - Disable Time-out timer

Defaults:
Port 1 time-out timer is enabled
Port2,3,4,5 time-out timers are disabled

Notes:
C The FCC requires a 3 minute time-out timer on all repeater channels

Error Codes:
E1 - Invalid port. Port must range from 1..5
(System wide errors are listed in front of the manual)

Example 1:
I want to enable the time-out timer on Port 2's repeater

010 2 1 * or unkey

Response:
"Port <ON\OFF>"

011: Check Time-Out Timer Status

This command checks the status of the time-out timers.

<011> *x*

Parameters:
X is the port. This number ranges from 1..5

Defaults:
Port 1 time-out timer is enabled
Port2,3,4,5 time-out timers are disabled

Notes:
C The FCC requires a 3 minute time-out timer on all repeater channels

Error Codes:
E1 - Invalid port. Port must range from 1..5
(System wide errors are listed in front of the manual)

Example 1:
I want to make sure the time-out timer is enable for port 3.

011 3 * or unkey

Response:
"Port <ON\OFF>"

012: Program a Receivers Access Mode

This command allows the user to set the receivers access mode.

<012> *x*

Parameters:
X is the access mode

Access Modes Number	Access Mode Description
0	No Access from the receiver
1	COR Access
2	PL Access
3	COR and PL Access
4	COR or PL Access

Defaults:
All ports default to COR (1) access

Error Codes:
E1 - Invalid port. Port must range from 1..5
E2 - Invalid access mode. Modes are listed above.
(System wide errors are listed in front of the manual)

Example 1:
I want port 1 to require both COR and PL for access.

012 1 3 * or unkey

Response:
"Port is <Access Mode>"

013: Checking Access Modes

This command checks the settings of the ports access modes.

<013> *x*

Parameters:
X is the access mode

Access Modes Number	Access Mode Description
0	No Access from the receiver
1	COR Access
2	PL Access
3	COR and PL Access
4	COR or PL Access

Defaults:
All ports default to COR (1) access

Error Codes:
E1 - Invalid port. Port must range from 1..5
(System wide errors are listed in front of the manual)

Example 1:
I am getting noise on my port 3. I need to see if it is still in COR and PL mode.

013 3 * or unkey

Response:
"Port is <Access Mode>"

014: Port Supervisory PTT Control

This command allows the user to command off the system PTT for a selective port. Only the transmitter PTT is controlled. To control receiver access see Command 12

<014> *x y*

Parameters:
X is the port. This number ranges from 1..5
Y is the control information.
1 - Enable Supervisory PTT control (Kills Transmitter)
0 - Disable Supervisory PTT control (Enables Transmitter)

Defaults:
All ports transmitter enabled

Error Codes:
E1 - Invalid port. Port must range from 1..5
E2 - Invalid access mode. Modes are listed above.
(System wide errors are listed in front of the manual)

Example 1:
I need to shut off port 1's transmitter PTT because of some noise

014 1 1 * or unkey

Response:
"Port is <ON\OFF>"

015: Check Port Supervisory Control Settings

This command checks the settings of Command 014

<015> *x*

Parameters:
X is the port. This number ranges from 1..5

Defaults:
All ports are enabled to transmit

Error Codes:
E1 - Invalid port. Port must range from 1..5
(System wide errors are listed in front of the manual)

Example 1:
My port 2 transmitter will not activate. I need to see if it is enabled

015 2 * or unkey

Response:
"Port is <ON\OFF>"

016: Not yet in software

<016> *x y*

Parameters:

Defaults:

Notes:
C

Error Codes:

Example 1:

016

Response:

017: Not in Software Yet

<017> *x y*

Parameters:

Defaults:

Notes:
C

Error Codes:

Example 1:

017

Response:

018: Receiver Active - Inactive Control Command Execution

This command allows the user to enable\disable the execution of commands when the receiver goes from inactive. If this command is disabled for a port, the user must force the execution of the command in order for it to be accepted. When this command is enabled on a port, simply the receiver drop can execute a command

<018> *x y*

Parameters:
X is the port. This number ranges from 1..5
Y is the control information.

1 - Enables Receiver drop to execute a command
0 - Disables Receiver drop to execute a command

Defaults:
All ports allow receiver drop to execute a command sequence

Error Codes:
E1 - Invalid port. Port must range from 1..5
E2 - Invalid access mode. Modes are listed above.
(System wide errors are listed in front of the manual)

Example 1:
I need to keep users on the repeater from executing commands when they DTMF page other users.

018 1 0 * or unkey

Response:
"Port is <ON\OFF>"

019: Check Receiver Active - Inactive Command Execution

This command checks the settings of Command 018.

<018> *x*

Parameters:
X is the port. This number ranges from 1..5

Defaults:
All ports allow receiver drop to execute a command sequence

Error Codes:
E1 - Invalid port. Port must range from 1..5
(System wide errors are listed in front of the manual)

Example 1:
I want to make sure port 1 does not execute commands with a receiver drop

019 1 * or unkey

Response:
"Port is <ON\OFF>"

020: Port DTMF Mute Control

This command allows the user to control the DTMF mute function on a ports transmitter. When the mute is enabled for a transmitter, no DTMF tones will be re-broadcasted out the transmitter.

<020> *x y*

Parameters:
X is the port. This number ranges from 1..5
Y is the control information.
1 - Enables DTMF mute on the transmitter
0 - Disables DTMF mute on the transmitter

Defaults:
All ports DTMF mute is off.

Error Codes:
E1 - Invalid port. Port must range from 1..5
E2 - Invalid access mode. Modes are listed above.
(System wide errors are listed in front of the manual)

Example 1:
I want DTMF mute enabled on port 1 transmitter.

020 1 1 * or unkey

Response:
"Port <ON\OFF>'

021: Check Port Mute Controls

This command check the settings of Command 020.

<021> *x*

Parameters:
X is the port. This number ranges from 1..5

Defaults:
All ports DTMF mute is off.

Error Codes:
E1 - Invalid port. Port must range from 1..5
(System wide errors are listed in front of the manual)

Example 1:
Receivers seem to be muting when they talk loud. I need to see if DTMF mute is enable for port 2's receiver.

021 2 * or unkey

Response:
"Port <ON\OFF>'

022: Set-up DTMF Cover Tone Variables

This command allows the user to set-up the DTMF cover tone frequencies and if a cover tone is used when muting the DTMF tones

Setting up the Cover tone enable\disable

<022> *x*

Setting up to Cover tone frequencies

<022> *xxxx yyyy*

Parameters:
X is the control variable (When setting up Cover tone enable\disable)

1 - enables cover tone when DTMF mute active
0 - disables cover tone when DTMF mute active

XXXX and YYYY is the cover tone frequency counts (See Appendix B)

Defaults:
- Cover tone is enabled
- Cover tone frequency is 1000Hz

Error Codes:
E1 - Invalid tone frequency
E2 - Invalid Cover tone mode

(System wide errors are listed in front of the manual)

Example 1:
I want a cover frequency of 1000 Hz and 1500 Hz.

022 1000 0665 * or unkey

Response:
Either "ON\OFF" when controlling cover tone or "Frequency is XXXX and YYYY"

023: Check the DTMF Cover Tone Variables

This command checks the settings of Command 022.

<023>

Parameters:
There are no parameters for this command

Defaults:
There are no defaults for this command

Error Codes:
(System wide errors are listed in front of the manual)

Example 1:
I want to know what the DTMF cover tone frequencies are.

023 * or unkey

Response:
"Cover <ON\OFF> Frequency <Tone 1> and <Tone 2>"

024: Controls a Port's COR/PL Polarity

This command allows the user to customize the COR and PL levels. Every radio differs in how the COR and PL levels are present when the receiver is active. This command allows either active high or active low COR and PL signals to be accepted.

<024> *x yy*

Parameters:
X is the port. This number ranges from 1..5
Y is the COR and PL mode

COR and PL Mode	COR and PL Levels
0	Both COR and PL active Low
1	COR Active High, PL active Low
2	COR Active Low, PL active High
3	COR and PL active High

Defaults:
Both COR and PL are active Low

Notes:
C When a receiver is not connected to the controller, the COR and PL levels on that port must be set to active low (Mode 0)

Error Codes:
E1 - Invalid port selected
(System wide errors are listed in front of the manual)

Example 1:
I want to connect a GE Master II receiver to my repeater port. This receiver has an active high COR output.

024 1 1 * or unkey

Response:
"Port is <Mode>"

025: Interrogates a Port's COR/PL Polarity

This command checks the setting of Command 025

<025> *x*

Parameters:
X is the port. This number ranges from 1..5

COR and PL Mode	COR and PL Levels
0	Both COR and PL active Low
1	COR Active High, PL active Low
2	COR Active Low, PL active High
3	COR and PL active High

Defaults:
Both COR and PL are active Low

Notes:
C When a receiver is not connected to the controller, the COR and PL levels on that port must be set to active low (Mode 0)

Error Codes:
E1 - Invalid port selected
(System wide errors are listed in front of the manual)

Example 1:
I want to check port 3's COR and PL polarity before I connect a new receiver.

025 3 * or unkey

Response:
"Port is <Mode>"

026: Command Not Used

<026> *x y*

Parameters:

Defaults:

Notes:
C

Error Codes:

Example 1:

026

Response:

027: Rename DTMF Command Name

This command allows the user to rename commands using the 3 digit command number as the look-up indicator.

<027> *xxx y..y*

Parameters:
XXX is the command number that ranges from 000..225
Y..Y is the 1-6 digit command name
The command name can contain any of the 16 DTMF digits.
The command names can be up to 6 digits in length

Defaults:
The command names correspond to the command numbers.

Notes:
C It is important not to name 2 different command names the same name. If you do this the first command name matched will be executed. The controller scans from command number 000 to find a matching command name. If you rename 2 command names the same simply rename the later command name to a different name.

C The controller scans for name matches beginning with 6 digits down to single digit matches. When the controller finds a possible name match it compares the additional data that is present with the command name to what the controller expects that command names additional data needs. This matching sequence allows command names that are similar to be executed separately.

For example: A command name '#' and '#12 with data 13 14' will be executed differently. The controller will match '#' because it does not need additional data and will match'#12' with its command name because it needs 4 digits of additional data.

Error Codes:
E1 - Invalid command number. Number ranges from 000..225
E2 - Not enough data present
(System wide errors are listed in front of the manual)

Example 1:
I want to rename my autopatch hangup to '#'

027 146 # * or unkey

Response:
"Command Number is <Command Name>"

028: Command Read Back by Command Number

This command allows the user to recall a command name using the command number as the look-up source. This is handy when the command name is not know. The command number never changes so it is therefore a constant that can always be used as a reference.

<028> *xxx*

Parameters:
XXX is the command number that ranges from 000..225

Defaults:
The command names correspond to the command numbers.

Error Codes:
E1 - Invalid command number. Number ranges from 000..225
E2 - Not enough data present
(System wide errors are listed in front of the manual)

Example 1:
I need to recall what I named my autopatch hang-up code. The command number is 146.

028 146 * or unkey

Response:
"Command Number is <Command Name>"

029: Command Name Compare to Find Command Number

This command allows the user to recall a command number using the command name as the look-up source. This is handy when the command number is not know. The command number never changes so it is therefore a constant that can always be used as a reference.

<029> *x..x*

Parameters:
X..X is the command name

Defaults:
The command names correspond to the command numbers.

Error Codes:
E1 - Invalid command name.
(System wide errors are listed in front of the manual)

Example 1:
I need to recall what the command number is for my autopatch hang-up.

029 # * or unkey

Response:
"Command Number is <Command Name>"

030:Change First,Second,Third Command Name Digits

This command allows the user to change the first, second, and third digits of a group of command names. This command is used when a group of commands names needs a common part of the command name changed. This will not effect the command numbers (first 3 digits of the command name).

<030> *xxx yyy z..z*

Parameters:
XXX is the beginning command number that ranges from 000..225
YYY is the ending command number that ranges from 000..225
Z..Z is the digits to assigned to the group of commands.

Defaults:
The first 3 digits of these command names are not defined. All command names are 3 digits in length referenced by the command number.

Error Codes:

(System wide errors are listed in front of the manual)

Example 1:
I want to make all my commands begin with the DTMF digit 'C'

030 000 225 C

Response:
"First command number is <Command Addition>, Second command number is <Command Addition>"

031: Group Assign DTMF Command Mask Assign

This command allows the user to assign a DTMF execution mask to a group of commands. Use of this command allows the control operator the ability to keep certain ports from executing certain commands and\or all commands.

<031> *xxx yyy zz*

Parameters:
XXX is the beginning command number ranging from 000..225
YYY is the ending command number ranging from 000..225

ZZ is the audio routing variable used to allow access to certain commands

DTMF Allowed Execution of the Command	Number that corresponds to the device
Port 1	+1
Port 2	+2
Port 3	+4
Autopatch	+8
Control Receiver	+16

(ZZ) Audio routing variable = (port1)+(port2)+(port3)+(autopatch)+(control rx)

Defaults:
All ports can execute all commands (ZZ=31)

Error Codes:
E1 -
E2 - Invalid command number. Command numbers range from 000..225
E3 - Invalid audio routing variable. Variables range from 00..31
(System wide errors are listed in front of the manual)

Example 1:
I have a remote base on port 3..I do not want this radio to execute any DTMF commands.
(ZZ) Audio routing variable = 1(port1)+2(port2)+0(port3)+8(autopatch)+16(control rx)

031 000 225 27

Response:
"First command number is <DTMF Mask>, Second command number is <DTMF Mask>"

032: Command Checks Value of DTMF Execution Register

This command checks the results of Command 31 on individual command numbers.

<032> *xxx*

Parameters:
XXX is the command number ranging from 000..225

Defaults:
All ports can execute all commands (ZZ=31)

Error Codes:
E1 - Invalid command number. Command numbers range from 000..225
(System wide errors are listed in front of the manual)

Example 1:
I can not execute the "Check cross-point" command 009. I need to see if I am enabled to execute that command.

032 009

Response:

DTMF Allowed Execution of the Command	Number that corresponds to the device
Port 1	+1
Port 2	+2
Port 3	+4
Autopatch	+8
Control Receiver	+16

(ZZ) Audio routing variable = (port1)+(port2)+(port3)+(autopatch)+(control rx)

033: Group Assign Master Unlock Requirement for DTMF

This command allows the user to assign lock code requirements for a group of commands. This only effects the DTMF lock\unlock assignment. Serial lock assignments are programmed starting with Command 036.
To gain access to a locked command the controller must be unlocked. See Command 004,005, and 006 for unlock control.

<033> *xxx yyy z*

Parameters:
XXX is the beginning command number ranging from 000..225
YYY is the ending command number ranging from 000..225
Z is the control function
1 - requires an unlock before execution
0 - does not require an unlock before execution

Defaults:
All commands are unlocked

Notes:
C Command 005, the unlock command can never be locked. If it could be locked access to the controller could never be possible.

Error Codes:
E1 - Invalid command number. Command numbers range from 000..225
E2 - Invalid control variable. Variables range from 0..1
(System wide errors are listed in front of the manual)

Example 1:
I want all programming commands except macros, to require the unlock code entered.

033 000 170 1

Response:
"First command number is <ON\OFF>, Second command number is <ON\OFF>"

034: Individually Assign Unlock Requirement for DTMF

This command allows the user to assign lock code requirements for individual commands. This only effects the DTMF lock\unlock assignment. Serial lock assignments are programmed starting with Command 036.

To gain access to a locked command the controller must be unlocked. See Command 004,005, and 006 for unlock control.

<034> *xxx y*

Parameters:
XXX is the command number ranging from 000..225
Z is the control function
1 - requires an unlock before execution
0 - does not require an unlock before execution

Defaults:
All commands are unlocked

Notes:
C Command 005, the unlock command can never be locked. If it could be locked access to the controller could never be possible.

Error Codes:
E1 - Invalid command number. Command numbers range from 000..225
E2 - Invalid control variable. Variables range from 0..1
(System wide errors are listed in front of the manual)

Example 1:
I want to allow execution of 'Time-of-Day Reading'

034 055 0

Response:
"Command number is <ON\OFF>"

035: Recall DTMF Unlock Requirements on a Command

This command checks the results of Commands 33,34.

<035> *xxx*

Parameters:
XXX is the command number ranging from 000..225

Defaults:
All commands are unlocked

Notes:
C Command 005, the unlock command can never be locked. If it could be locked access to the controller could never be possible.

Error Codes:
E1 - Invalid command number. Command numbers range from 000..225
(System wide errors are listed in front of the manual)

Example 1:
I keep getting an Error 7 when I try to read the time-of-day clock, Command 055. Why??

035 055

The lock is enabled for this command. Execute Command 005 to unlock the controller then try to execute the command.

Response:
"Command number is <ON\OFF>"

036: Group Assign Master Unlock Requirement for Serial

This command allows the user to assign lock code requirements for a group of commands. This only effects the Serial lock\unlock assignment. DTMF lock assignments are programmed starting with Command 033.

To gain access to a locked command the controller must be unlocked. See Command 004,005, and 006 for unlock control.

<036> *xxx yyy z*

Parameters:
XXX is the beginning command number ranging from 000..225
YYY is the ending command number ranging from 000..225
Z is the control function

1 - requires an unlock before execution
0 - does not require an unlock before execution

Defaults:
All commands are unlocked

Notes:
C Command 005, the unlock command can never be locked. If it could be locked access to the controller could never be possible.

Error Codes:
E1 - Invalid command number. Command numbers range from 000..225
E2 - Invalid control variable. Variables range from 0..1
(System wide errors are listed in front of the manual)

Example 1:
I want all programming commands except macros, to require the unlock code entered.

036 000 170 1

Response:
"First command number is <ON\OFF>, Second command number is <ON\OFF>"

037: Individually Assign Unlock Requirement for Serial

This command allows the user to assign lock code requirements for individual commands. This only effects the Serial lock\unlock assignment. DTMF lock assignments are programmed starting with Command 036.

To gain access to a locked command the controller must be unlocked. See Command 004,005, and 006 for unlock control.

<037> *xxx y*

Parameters:
XXX is the command number ranging from 000..225
Z is the control function
1 - requires an unlock before execution
0 - does not require an unlock before execution

Defaults:
All commands are unlocked

Notes:
C Command 005, the unlock command can never be locked. If it could be locked access to the controller could never be possible.

Error Codes:
E1 - Invalid command number. Command numbers range from 000..225
E2 - Invalid control variable. Variables range from 0..1
(System wide errors are listed in front of the manual)

Example 1:
I want to allow execution of 'Time-of-Day Reading'

037 055 0

Response:
"Command number is <ON\OFF>"

038: Recall Serial Unlock Requirements on a Command

This command checks the results of Commands 33,34.

<038> *xxx*

Parameters:
XXX is the command number ranging from 000..225

Defaults:
All commands are unlocked

Notes:
C Command 005, the unlock command can never be locked. If it could be locked access to the controller could never be possible.

Error Codes:
E1 - Invalid command number. Command numbers range from 000..225
(System wide errors are listed in front of the manual)

Example 1:
I keep getting an Error 7 when I try to read the time-of-day clock, Command 055. Why??

037 055

The lock is enabled for this command. Execute Command 005 to unlock the controller then try to execute the command.

Response:
"Command number is <ON\OFF>"

039: Change the Internal Audio Routing Variable

This command allows the user to change where messages are routed that are called from internal execution sources. Internal execution sources include macros and internal generated messages and errors.

<039> *xx*

Parameters:
XX is the audio routing variable

DTMF Allowed Execution of the Command	Number that corresponds to the device
Port 1	+1
Port 2	+2
Port 3	+4
Autopatch	+8
Control Receiver	+16

(XX) Audio routing variable = (port1)+(port2)+(port3)+(autopatch)+(control rx)

Defaults:
Internal audio routing variable is port 1 (XX=01)

Error Codes:
E1 - Invalid audio routing variable

Example 1:
I want all internal responses to be routed to port 2, not port 1.

039 02 * or unkey

Response:
There is no response for this command.
- To check your programming execute Command 008 00.

040: User Forced Execution Digit Change

This command allows the changing of the forced execution digit. This digit forces the execution of the commands entered before the receiver drops. Uses of this digit is the shut-off a receiver when the COR is stuck open, a jammer needs to be shut-off, quicker access to commands, and the list goes on.

<040> *x*

Parameters:
X is the new DTMF forced execution digit

Defaults:
The forced execution digit is the '*'

Notes:
C It is important not to define the forced execution digit to a commonly used DTMF digit. Once the DTMF digit is defined as being the forced execution digit, it can no longer be used for system wide applications. Typical DTMF digits used are '* A B C D'.

Error Codes:
(System wide errors are listed in front of the manual)

Example 1:
I need the EOF digit to be a 'D' so I can use the '*' in command names.

040 D * or unkey

Response:
"Condition Entered With A <Forced Execution Digit>'

041: Check the Forced Execution Digit

This command checks the current setting of the forced execution digit.

<041>

Parameters:
There are no parameters for this command

Defaults:
The forced execution digit defaults to a '*'

Error Codes:
(System wide errors are listed in front of the manual)

Example 1:
I need to check the forced execution digit before I begin programming

041 * or unkey

* Note: The '*' in the above example is the forced execution digit. If the digit is actually a 'D' then the command entry would look like.

041 D or unkey

Response:
"Condition Entered With A <Forced Execution Digit>'

042: Generate a Tone Sequence Out Selected Ports

This command is what generates tone sequences for courtesy beeps, paging tones, DTMF regeneration and any function that uses a tone generated tone sequence.

Custom developed tones

<042> *xxxx yyyy ddd ppp*

Parameters:
XXXX is the tone counts for frequency 1 (See Appendix B)
YYYY is the tone counts for frequency 2 (See Appendix B)
DDD is the length of the tone sequence in 10mS increments
PPP is the length of the delay between the next tone sequence in 10mS increments

Pre-Programmed tones

<042> *xx*

Parameters:
XX is the pre-programmed tone sequence (See Below)

Tone Name	Number	Tone 1	Tone 2	Length	Pause
Bumble Bee	00	3029	0000	100mS	0mS
	00 cont.	1999	0000	100mS	0mS
	00 cont.	1514	0000	100mS	0mS
Yellow Jacket	01	3029	0000	50mS	0mS
	01 cont.	1999	0000	50mS	0mS
	01 cont.	1514	0000	50mS	0mS
Shooting Star	02	1135	0000	100mS	0mS
	02 cont.	1135	0000	100mS	0mS
	02 cont.	1850	0000	100mS	0mS
Comet	03	1999	0000	100mS	0mS
	03 cont.	1999	0000	100mS	0mS
	03 cont.	1332	0000	100mS	0mS
Stardust	04	1332	0000	120mS	0mS

	04 cont.	1135	0000	80mS	0mS
	04 cont.	0832	1135	80mS	0mS
Duncecap	05	2271	1999	200mS	0mS
	05 cont.	2271	2856	200mS	0mS
Dial Tone	06	2856	2271	100mS	100mS
Low-High Beep	07	2000	0000	100mS	0mS
	07 cont.	1500	0000	100mS	0mS
High-Low Beep	08	1500	0000	100mS	0mS
	08 cont.	2000	0000	100mS	0mS
Cover Tone	09	1000	0000	200mS	300mS
Audible Ring Tone	10	2271	2082	400mS	400mS

Notes:

C The tones are routed to the port that executed them. When a courtesy beep is requested from the event table (See Commands 63,64,65) the controller knows where to route the tones.

Error Codes:

E1 - Not enough data entered

E2 - Invalid pre-programmed tone slot

(System wide errors are listed in front of the manual)

Example 1:

I want to generate a pre-programmed beep #10

```
042 10 * or unkey
```

Response:

There is no voice response for this command

043: Generate a CW Message Out Selected Ports

This command generates the CW messages used by the controller.

<043> *xx..xx*

Parameters:
XX..XX is the CW code table

CW	XX	CW	XX	CW	XX	CW	XX	CW	XX
0	00	A	10	K	20	U	30	SPACE	40
1	01	B	11	L	21	V	31	PAUSE	41
2	02	C	12	M	22	W	32		
3	03	D	13	N	23	X	33		
4	04	E	14	O	24	Y	34		
5	05	F	15	P	25	Z	35		
6	06	G	16	Q	26	/	36		
7	07	H	17	R	27	.	37		
8	08	I	18	S	28	?	38		
9	09	J	19	T	29	AR	39		

Defaults:
CW speed defaults to 20 WPM
CW Frequency defaults to 1000HZ and 1500HZ

Error Codes:
E1 - To much CW data
E2 - Invalid CW Character
(System wide errors are listed in front of the manual)

Example 1:
I want to generate a CW message 'KF7FW/R'

043 20 15 07 15 32 36 27 * or unkey

Response:
There is no voice response for this command

044: Generate a DTMF Sequence Out a Selected Port

This command allows the re-generation of DTMF tones down selected ports. With this command the user can send a DTMF data burst of up to 20 digits down any of the ports.

<044> *xx yy..yy*

Parameters:
XX is the audio routing variable

DTMF Allowed Execution of the Command	Number that corresponds to the device
Port 1	+1
Port 2	+2
Port 3	+4
Autopatch	+8
Control Receiver	+16

(XX) Audio routing variable = (port1)+(port2)+(port3)+(autopatch)+(control rx)

YY is the DTMF digits

DTMF Digit	Number Entered	DTMF Digit	Number Entered
0	00	9	09
1	01	A	10
2	02	B	11
3	03	C	12
4	04	D	13
5	05	*	14
6	06	#	15
7	07	Pause	16
8	08		

Defaults:
DTMF length = 100mS
DTMF pause = 100mS

Notes:

C When re-generating DTMF the controllers tone 1 and tone 2 need to adjusted correctly to provide to correct 'twist'. Most DTMF decoders are not picky about the twist factor. It is a good idea to adjust both tones to about the same level.

C DTMF re-generation length and pause is programmed with the timer commands (See Commands 50,51,52) for timer numbers.

Error Codes:

E1 - To many DTMF digits requested
E2 - Invalid DTMF digit. Digits must be between 00..16
(System wide errors are listed in front of the manual)

Example 1:

I want to send a DTMF string 'pause, pause, pause 96 C000 * ' down port 3

```
044 04 16 16 16 09 06 12 00 00 00 14 * or unkey
```

Response:

DTMF digits is the only response

045: Generate a Voice Message

This command allows the generation of voice messages. These messages can be either impolite (Can not be interrupted), polite (Can be interrupted and the message is canceled) or polite with a message sent (Can be interrupted and the message is canceled, when the message is canceled an event in the event table is requested. This event can then generate a CW message or another voice message if needed). See Appendix C for the voice word table.

<045> *xxx..xxx*

Parameters:
XXX..XXX are the voice words for speaking.

Notes:
There two special words that effect how a voice message is spoken.

- Word 733: Indicates a polite message that when interrupted will cancel the voice message
- Word 734: Is the same as word 733 except when it is interrupted it requests an event from the event table. The user could send a CW message when the voice is interrupted.

Error Codes:
E1 - ????
E2 - Incorrect voice word. See Appendix C for voice words
(System wide errors are listed in front of the manual)

Example 1:
I want to speak the message
"At <Male Time> You Are On The Repeater, <Good MAE>"

AT	077
<Male Time>	701
You	480
Are	047
On	310
The	421
Repeater	361
Pause	528
<Good MAF>	700

045 077 701 480 047 310 421 361 528 700

Response:
Response is what you typed in.

046: Delete a Message Slot

This command allows the deletion of certain message slots. This is useful when a message is no longer needed. When the message is deleted, there will be no key-ups or delays when the controller requests that message.

<046> *xx*

Parameters:
XX is the message slot number. This number ranges from 01..58

Notes:
C Once a message is deleted you must re-program the message. There is no way to undelete the message slot once it is deleted.

Error Codes:
E1 - Invalid message slot
(System wide errors are listed in front of the manual)

Example 1:
I need to delete message slot 15. It is no longer used

046 15 * or unkey

Response:
"Cancel <Message slot number>"

047: Not Currently Used

<047> *x y*

Parameters:

Defaults:

Notes:
C

Error Codes:

Example 1:

047

Response:

048: Recall a Message Slot 00..58

This command allows the recalling of pre-programmed voice or cw messages. If the slot is empty you will get an error.

<048> *xx*

Parameters:
XX is the message slot number. This number ranges from 01..58

Defaults:
All message slots are empty

Error Codes:
E1 - Invalid message slot
E2 - Message slot is empty
(System wide errors are listed in front of the manual)

Example 1:
I want to check message slot 14 for its contents

048 14 * or unkey

Response:
"Voice or CW data if the message is programmed otherwise Error 2"

049: Program a Message Slot

This command allows you to program the message slots with voice or cw messages. Slots 51..58 are special analog faceplate slots but can be used for small messages if not used in the analog application.

<049> *xx y zzz..zzz*

Parameters:
XX is the message slot number. This number ranges from 01..58

Message Slot	Length	Description
00	...	Software Version
01..50	20 words	User Message Slots
51..58	4 words	Analog Faceplate Slots

Y is the message type variable:
0 - CW Message
1 - Voice Message
2 - DVR Message

ZZZ are the voice words from the Word Table (See Appendix C)
or
ZZ are the CW characters from the Code Table (See Appendix D)

Defaults:
All message slots are empty

Error Codes:
E1 - Too much or to little data
E2 - ???
E3 - Invalid message slot
(System wide errors are listed in front of the manual)

Example 1:
I want to store the voice message in slot 01
"At <Male Time> You Are On The Repeater, <Good MAE>"

AT	077	<Time>	701	You	480	Are	047	
On	310							
The	421	Repeater	361	Pause	528	<Good MAF>		700

049 01 1 077 701 480 047 310 421 361 528 700

Response:
Response is what you typed in.

050: Recall a Timer Slot

This command allows the user to recall the contents of each timer slot.

<050> *xx*

Parameters:
XX is the timer slot number

Timer #	Resolution	Default	Definition
00	10mS	200 (2 seconds)	Port 1 Hang Timer
01	10mS	200 (2 seconds)	Port 2 Hang Timer
02	10mS	200 (2 seconds)	Port 3 Hang Timer
03	10mS	200 (2 seconds)	Port 4 Hang Timer
04	10mS	200 (2 seconds)	Port 5 Hang Timer
05	10 Sec.	018 (3 Minute)	Port 1 Time-Out Timer
06	10 Sec.	018 (3 Minute)	Port 2 Time-Out Timer
07	10 Sec.	018 (3 Minute)	Port 3 Time-Out Timer
08	10 Sec.	018 (3 Minute)	Port 4 Time-Out Timer
09	10 Sec.	018 (3 Minute)	Port 5 Time-Out Timer
10	10 Sec.	060 (10 Minute)	Port 1 Initial ID Timer
11	10 Sec.	060 (10 Minute)	Port 2 Initial ID Timer
12	10 Sec.	060 (10 Minute)	Port 3 Initial ID Timer
13	10 Sec.	060 (10 Minute)	Port 4 Initial ID Timer
14	10 Sec.	060 (10 Minute)	Port 5 Initial ID Timer
15	10 Sec.	059 (9.90 Minute)	Port 1 Pending ID Timer
16	10 Sec.	059 (9.90 Minute)	Port 2 Pending ID Timer
17	10 Sec.	059 (9.90 Minute)	Port 3 Pending ID Timer
18	10 Sec.	059 (9.90 Minute)	Port 4 Pending ID Timer
19	10 Sec.	059 (9.90 Minute)	Port 5 Pending ID Timer

Timer #	Resolution	Default	Definition

20	10 Sec.	003 (30 Seconds)	Port 1 ID Wait Timer
21	10 Sec.	003 (30 Seconds)	Port 2 ID Wait Timer
22	10 Sec.	003 (30 Seconds)	Port 3 ID Wait Timer
23	10 Sec.	003 (30 Seconds)	Port 4 ID Wait Timer
24	10 Sec.	003 (30 Seconds)	Port 5 ID Wait Timer
25	10mS	100 (1 Second)	Port 1 Courtesy Beep Timer
26	10mS	100 (1 Second)	Port 2 Courtesy Beep Timer
27	10mS	100 (1 Second)	Port 3 Courtesy Beep Timer
28	10mS	100 (1 Second)	Port 4 Courtesy Beep Timer
29	10mS	100 (1 Second)	Port 5 Courtesy Beep Timer
30	10mS	100 (1 Second)	Port 1 Kerchunk Filter Timer
31	10mS	100 (1 Second)	Port 2 Kerchunk Filter Timer
32	10mS	100 (1 Second)	Port 3 Kerchunk Filter Timer
33	10mS	100 (1 Second)	Port 4 Kerchunk Filter Timer
34	10mS	100 (1 Second)	Port 5 Kerchunk Filter Timer
35	1 Sec.	300 (5 minutes)	User 1 Timer
36	1 Sec.	300 (5 minutes)	User 2 Timer
37	1 Sec.	300 (5 minutes)	User 3 Timer
38	1 Sec.	300 (5 minutes)	User 4 Timer
39	1 Sec.	300 (5 minutes)	User 5 Timer
40	10mS	010 (100mS)	DTMF Generate Length
41	10mS	010 (100mS)	DTMF Pause Length
42	10mS	500 (5 Seconds)	DTMF Scanner Timer
43	10mS	200 (2 Seconds)	DTMF Mute Timer
44	10 Sec.	030 (5 Minutes)	System Unlock Timer
45	10mS	100 (1 Second)	RBI-1 Send Timer
46	10mS	300 (3 Seconds)	Pre-Access Tone Length Timer
47	10mS	800 (8 Seconds)	Pre-Access Timer

Timer #	Resolution	Default	Definition
48	10mS	500 (5 Seconds)	Internal Autopatch Timer

49	10 Sec.	050 (8.33 Minutes)	Internal Autopatch Timer
50	10 Sec.	002 (20 Seconds)	Autopatch Log-on Timer
51	10 Sec.	006 (1 Minute)	Reverse Autopatch User Timer
52	10 Sec.	018 (3 Minute)	Reverse Autopatch Program Timer
53	10mS	100 (1 Second)	Over-the Air Ring Tone Length
54	10mS	040 (400mS)	Tone Delay Start Timer
55	10mS	050 (500mS)	Voice Delay Start Timer
56	10mS	050 (500mS)	CW Delay Start Timer

Error Codes:
E1 - Invalid timer number

(System wide errors are listed in front of the manual)

Example 1:
I need to check the value of the voice delay start timer.

```
050 55 * or unkey
```

Response:
Voice '<Slot Number> is <Time in the slot>'

051: Start a Timer Slot

This command re-starts a timer that is accessed from the timer table listed in Command 050.

<051> *xx*

Parameters:
XX is the timer slot number listed in Command 050.

Defaults:
Defaults are listed in Command 050.

Error Codes:
E1 - Invalid timer slot

(System wide errors are listed in front of the manual)

Example 1:
I just programmed the time-out timer on Port 1 to 3 minutes from 10 minutes. I need to restart it to take the new value.

051 05 * or unkey

Response:
Voice '<Slot Number> is <Time in the slot>'

052: Program a Timer Slot

This command allows the programming of the system timer slots. Each timer slot can accept 3 digits of user input ranging from 000..999. Each timer has its own resolution which is listed in the timer table in Command 050.

<052> *xx yyy*

Parameters:
XX is the timer slot number listed in Command 050.
YYY is the timer value that ranges from 000..999.
- Timer resolution is listed in Command 050.

Defaults:
Defaults are listed in Command 050.

Error Codes:
E1 - Invalid timer slot
(System wide errors are listed in front of the manual)

Notes:
C After you program a timer slot the old value is still in the timer system. You need to re-start the timer using Command 051 in order for the new value to take place.

Example 1:
I need to program the time-out timer on Port 1 to 3 minutes from 10 minutes.

052 05 018 * or unkey

Response:
Voice '<Slot Number> is <Time in the slot>'

053: Speak Good Morning, Afternoon, or Evening

This command simply speaks the part of the day it is. If the time is between 12:00AM and 11:59AM the female voice message is 'Good Morning'. If the time is between 12:00PM and 4:59PM the female voice message is 'Good Afternoon'. If the time is between 5:00PM and 11:59PM the female voice message is 'Good Evening'.

<053>

Parameters:
There are no parameters for this command

Defaults:
There are no defaults for this command

Notes:
C Special voice word 700 speaks Good Morning, Afternoon, or Evening. To add these phrases to any voice message simply include word 700.

Error Codes:
(System wide errors are listed in front of the manual)

Example 1:
I want to know the part of the day it is

053 * or unkey

Response:
Voice: 'Good <Morning><Afternoon><Evening>'

054: Recall Time-of-Day Clock (Male)

This command reads the time-of-day clock in male speech.

<054>

Parameters:
There are no parameters for this command

Defaults:
There are no defaults for this command

Notes:
C Special voice word 701 speaks Male time-of-day. To add these phrases to any voice message simply include word 701.

Error Codes:
(System wide errors are listed in front of the manual)

Example 1:
I want to know the time-of-day

054 * or unkey

Response:
Voice: '<Time>'

055: Recall Time-of-Day Clock (Female)

This command reads the time-of-day clock in female speech.

<055>

Parameters:
There are no parameters for this command

Defaults:
There are no defaults for this command

Notes:
C Special voice word 702 speaks Female time-of-day. To add these phrases to any voice message simply include word 702.

Error Codes:
(System wide errors are listed in front of the manual)

Example 1:
I want to know the time-of-day

055 * or unkey

Response:
Voice: 'The Time Is<Time>'

056: Recall Date (Male)

This command reads the date in male speech.

<056>

Parameters:
There are no parameters for this command

Defaults:
There are no defaults for this command

Notes:
C Special voice word 703 speaks Male date. To add these phrases to any voice message simply include word 703.

Error Codes:
(System wide errors are listed in front of the manual)

Example 1:
I want to know what the date is.

056 * or unkey

Response:
Voice: '<Month> <Day> <Year> <Day>'

057: Recall the Day (Male)

This command reads the day in male speech.

<057>

Parameters:
There are no parameters for this command

Defaults:
There are no defaults for this command

Notes:
C Special voice word 704 speaks Male day. To add these phrases to any voice message simply include word 704.

Error Codes:
(System wide errors are listed in front of the manual)

Example 1:
I want to know what day it is.

057 * or unkey

Response:
Voice: '<Day>'

058: Setting the Time

This command sets the internal clocks time-of-day. Setting the time is in 12 hour format with an AM\PM digit.

<058> *hh mm a\p*

Parameters:
HH are the hours that range from 01..12
MM are the minutes that range from 00..59
A\P indicate what part of the day it is
0 - AM
1 - PM

Defaults:
There are no defaults for this command

Error Codes:
E1 - Invalid hour setting. Number must be between 01..12
E2 - Invalid minute setting. Number must be between 00..59
E3 - Invalid AM\PM setting. Number must be between 0..1
(System wide errors are listed in front of the manual)

Example 1:
I want to set the time to 3:35 PM

058 03 35 1 * or unkey

Response:
Voice: 'Good <Morning,Afternoon,Evening> The Time Is <Time>'

059: Setting the Date

This command sets the internal clocks date function.

<059> *mm dd yy z*

Parameters:
MM is the month indication that range from 01..12
DD is the day indication that ranges from 01..31
YY is the year indication that ranges from 00..99

Z is the day of the week

Number	Day of the Week
1	Sunday
2	Monday
3	Tuesday
4	Wednesday
5	Thursday
6	Friday
7	Saturday

Defaults:
There are no defaults for this command

Error Codes:
E1 - Invalid month setting. Number must be between 01..12
E2 - Invalid day setting. Number must be between 00..31
E3 - Invalid year setting. Number must be between 00..99
E4 - Invalid day of the week setting. Number must be between 1..7
(System wide errors are listed in front of the manual)

Example 1:
I want to set the date to November 28, 1995 Tuesday

059 11 28 95 3

Response:
"<Month> <Day> <Year> <Day of the week>"

060: Scheduler Event Recall

This command recalls a scheduler slot. There are 20 slots that can be programmed from hourly to yearly events. The commands that are executed with the scheduler are located in the event table (See Command 063,064,065).

<060> *xx*

Parameters:
XX is the scheduler slot that ranges from 01..20.

Defaults:
All scheduler slots are off

Error Codes:
E1 - Invalid scheduler slot
(System wide errors are listed in front of the manual)

Example 1:
I want to see what if anything is in scheduler slot 05

060 05 * or unkey

Response:
"<ON\OFF>" or
"Scheduler contents (See Command 061 for definitions)"

061: Scheduler Event Program

This command programs the scheduler events. Pay special attention to the format of the hourly information.

C **Hourly Event**

<061> *ss mm*

Parameters:
SS is the scheduler slot that ranges from 01..20.
MM is the minute that an event is requested. This number ranges from 01..59

C **Daily Event**

<061> *ss hh a\p mm*

Parameters:
SS is the scheduler slot that ranges from 01..20.
HH is the hour that an event is requested. This number ranges from 01..12
A\P is the hour AM\PM the that an event is requested. This number ranges from 0..1
0 - AM
1 - PM
MM is the minute that an event is requested. This number ranges from 01..59

C **Weekly Event**

<061> *ss dd hh a\p mm*

Parameters:
SS is the scheduler slot that ranges from 01..20.
DD is the day of that an event is requested. This number ranges from 01..07
Z is the day of the week

Number	Day of the Week
01	Sunday
02	Monday
03	Tuesday
04	Wednesday
05	Thursday
06	Friday
07	Saturday

HH is the hour that an event is requested. This number ranges from 01..12
A\P is the hour AM\PM that an event is requested. This number ranges from 0..1
0 - AM
1 - PM
MM is the minute that an event is requested. This number ranges from 01..59

C **Monthly Event**

<061> *ss nn dd hh a\p mm*

Parameters:
SS is the scheduler slot that ranges from 01..20.
NN is the month that an event is requested. This number ranges from 01..12
DD is the day that an event is requested. This number ranges from 01..31
HH is the hour that an event is requested. This number ranges from 01..12
A\P is the hour AM\PM the that an event is requested. This number ranges from 0..1
0 - AM
1 - PM
MM is the minute that an event is requested. This number ranges from 01..59

C **Yearly Event**

<061> *ss yy nn dd hh a\p mm*

Parameters:
SS is the scheduler slot that ranges from 01..20.
YY is the year that an event is requested. This number ranges from 00..99
NN is the month that an event is requested. This number ranges from 01..12
DD is the day that an event is requested. This number ranges from 01..31
HH is the hour that an event is requested. This number ranges from 01..12
A\P is the hour AM\PM the that an event is requested. This number ranges from 0..1
0 - AM
1 - PM
MM is the minute that an event is requested. This number ranges from 01..59

Defaults:
All scheduler slots are off

Error Codes:
E1 - Invalid scheduler slot
E2 - Error in converting one of the entry segments (Year,Month,Day etc...)
(System wide errors are listed in front of the manual)

Voice Response:
Hourly: <ON> <Minute>
Daily:<ON> <Hour> <AM\PM> <Minute>
Weekly:<ON> <Day> <Hour> <AM\PM> <Minute>
Monthly:<ON> <Month><Day> <Hour> <AM\PM> <Minute>
Yearly:<ON> <Year><Month><Day> <Hour> <AM\PM> <Minute>

062: Scheduler Event Enable/Disable

This command allows the enable\disable control of a scheduler event.

<062> *xx y*

Parameters:
XX is the scheduler slot that ranges from 01..20.
Y is the control variable

1 - Enable the scheduler event
0 - Disables the scheduler event

Defaults:
All scheduler slots are off

Error Codes:
E1 - Invalid scheduler slot
(System wide errors are listed in front of the manual)

Example 1:
I want to disable scheduler slot #14

062 14 0 * or unkey

Response:
"<Scheduler slot> <ON\OFF>"

063: Recall an Event

This command allows the user to recall an event entry. These events are the most important function of the RLC-2 controller. With the events most functions of the controller can be controlled, handled, or spoken.

<063> *xxx*

Parameters:
XXX is the event table slot. This number ranges from 000..105

Defaults:
All event are off

Error Codes:
E1 - Invalid event slot

(System wide errors are listed in front of the manual)

Example 1:
I want to see if my courtesy beep event is enabled for Port 1

063 016 * or unkey

Response:
"<Slot Number> is <Message Type>, <Slot Number> is <ON\OFF>, Route is <Audio Routing Variable>"

064: Program an Event

This command program an event table entry. These events are the most important function of the RLC-2 controller. With the events most functions of the controller can be controlled, handled, or spoken.

<064> *sss t xxx rr*

Parameters:

SSS is the event table slot. This number ranges from 000..105

Slot Number	Description
000	Controller Reset just occurred
001	Port 1 Initial ID
002	Port 1 Rotating ID 1
003	Port 1 Rotating ID 2
004	Port 1 Rotating ID 3
005	Port 1 Forced ID
006	Port 2 Initial ID
007	Port 2 Rotating ID 1
008	Port 2 Rotating ID 2
009	Port 2 Rotating ID 3
010	Port 2 Forced ID
011	Port 3 Initial ID
012	Port 3 Rotating ID 1
013	Port 3 Rotating ID 2
014	Port 3 Rotating ID 3
015	Port 3 Forced ID
016	Port 1 Courtesy Beep Requested
017	Port 2 Courtesy Beep Requested
018	Port 3 Courtesy Beep Requested
019	Port 4 Courtesy Beep Requested (Autopatch)
020	Port 5 Courtesy Beep Requested (Control Receiver)

Slot Number	Description
021	Port 1 Drop-out Message 1
022	Port 1 Drop-out Message 2
023	Port 2 Drop-out Message 1
024	Port 2 Drop-out Message 2
025	Port 3 Drop-out Message 1
026	Port 3 Drop-out Message 2
027	Port 1 Time-Out Message
028	Port 2 Time-Out Message
029	Port 3 Time-Out Message
030	Scheduler Event 01
031	Scheduler Event 02
032	Scheduler Event 03
033	Scheduler Event 04
034	Scheduler Event 05
035	Scheduler Event 06
036	Scheduler Event 07
037	Scheduler Event 08
038	Scheduler Event 09
039	Scheduler Event 10
040	Scheduler Event 11
041	Scheduler Event 12
042	Scheduler Event 13
043	Scheduler Event 14
044	Scheduler Event 15
045	Scheduler Event 16
046	Scheduler Event 17
047	Scheduler Event 18
048	Scheduler Event 19

Slot Number	Description
049	Scheduler Event 20
050	Port 1 PTT Just Went Active
051	Port 2 PTT Just Went Active
052	Port 3 PTT Just Went Active
053	Not Yet Defined
054	Port 1 Receiver just went Active
055	Port 2 Receiver just went Active
056	Port 3 Receiver just went Active
057	Port 4 Receiver just went Active
058	Port 5 Receiver just went Active
059	Port 1 Receiver just went Inactive
060	Port 2 Receiver just went Inactive
061	Port 3 Receiver just went Inactive
062	Port 4 Receiver just went Inactive
063	Port 5 Receiver just went Inactive
064	Analog 1 just went into High Alarm
065	Analog 2 just went into High Alarm
066	Analog 3 just went into High Alarm
067	Analog 4 just went into High Alarm
068	Analog 1 just went into Low Alarm
069	Analog 2 just went into Low Alarm
070	Analog 3 just went into Low Alarm
071	Analog 4 just went into Low Alarm
072	Analog 1 just came out of Alarm
073	Analog 2 just came out of Alarm
074	Analog 3 just came out of Alarm
075	Analog 4 just came out of Alarm
076	Input 1 just went Low

Slot Number	Description
077	Input 2 just went Low
078	Input 3 just went Low
079	Input 4 just went Low
080	Input 1 just went High
081	Input 2 just went High
082	Input 3 just went High
083	Input 4 just went High
084	DTMF Decoder just went Active
085	DTMF Decoder just went Inactive
086	Port 1 PTT just went Inactive
087	Port 2 PTT just went Inactive
088	Port 3 PTT just went Inactive
089	User Timer 1 just Expired
090	User Timer 2 just Expired
091	User Timer 3 just Expired
092	User Timer 4 just Expired
093	User Timer 5 just Expired
094	Autopatch just went Active before Dialing
095	Autopatch just Started Dialing
096	Autopatch just went On-Hook (Hung-up)
097	Manual Autopatch just went Active
098	Reverse Autopatch just Answered
099	Reverse Autopatch is just about to Hang-up
100	Voice message was interrupted (See Command 045)
101	Not yet defined
102	Not yet defined
103	Not yet defined
104	Not yet defined

T is the event type

Event Number	Event Type
0	No Event, Same as Disabling the Event
1	Request a message from the Message Slot Storage (Command 048 and 049)
2	Request a Command be executed. Commands can not contain any additional data
3	Request a Pre-Programmed Courtesy Beep Slot (Command 042)
4	Request an internal, pre-programmed message

XXX is the message number

If your event type (T) is 1	XXX = Message Slot Number Slot 01 = 001
If your event type (T) is 2	XXX = Command Number to be Executed Command 055 = 055
If your event type (T) is 3	XXX = Pre-Programmed Courtesy Beep Beep 04 = 004 (See Command 042)
If your event type (T) is 4	XXX = Pre-Programmed internal message Message 03 = 003 (See Below)

RR is the audio routing variable

DTMF Allowed Execution of the Command	Number that corresponds to the device
Port 1	+1
Port 2	+2
Port 3	+4
Autopatch	+8
Control Receiver	+16

(RR) Audio routing variable = (port1)+(port2)+(port3)+(autopatch)+(control rx)

Defaults:

Event #	Message Definition
000	Reset Message: Defaults to Internal Message 00
001	Port 1, Initial ID: Defaults to Internal Message 06
002	Port 1, Rotating ID 1: Defaults to Internal Message 07
003	Port 1, Rotating ID 2: Defaults to Internal Message 08
004	Port 1, Rotating ID 3: Defaults to Internal Message 09
005	Port 1, Forced ID: Defaults to Internal Message 10
016	Port 1 Courtesy Beep: Defaults to Preset beep 06
017	Port 2 Courtesy Beep: Defaults to Preset beep 07
018	Port 3 Courtesy Beep: Defaults to Preset beep 08
027	Port 1 Time-Out Message: Defaults to Internal Message 02
096	Autopatch Hang-up Message: Defaults to Internal Message 04
098	Reverse Autopatch Just Answered: Defaults to Internal Message 05

Internal Messages:

Message #	Message Contents:
00	Controller Ready
01	Autopatch
02	Repeater Time-Out
03	Link Time-Out
04	Autopatch Off At <Male Time>, Good <Morning, Afternoon, Evening>
05	Welcome To The Repeater, Please Enter Code Immediately
06	Welcome To The Repeater identify 1
07	Welcome To The Repeater Intentify 2
08	Welcome To The Repeater Intentify 3
09	Welcome To The Repeater Intentify 4
10	Welcome To The Repeater Intentify 5

Error Codes:
E1 - Invalid event slot number. Number must range from 000..104
E2 - Invalid event type. Number must range from 0..4
(System wide errors are listed in front of the manual)

Example 1:
Yet to come....

Response:
"<Slot Number> is <Message Type>, <Slot Number> is <ON\OFF>, Route is <Audio Routing Variable>"

065: Enable/Disable an Event

This command enables and disables an event slot. This does the same as setting the event to a '0' type, but does not require the complete re-programming of that event. Therefore other events can enable\disable events without affecting their contents.

<065> *xxx y*

Parameters:
XXX is the event table slot. This number ranges from 000..105
Y is the control variable
1 - Enables the event
0 - Disables the event

Defaults:
All event are off

Error Codes:
E1 - Invalid event slot
(System wide errors are listed in front of the manual)

Example 1:
I want to disable Port 1's courtesy beep.

065 016 0 * or unkey

Response:
"<Event Number> is <ON\OFF>"

066: Start a User Timer

This command allows the user to start a user timer when an event occurs. This command is usually used in conjunction with the event tables. This user timer value is programmed using Command 050,051,052.

<066> *x..x*

Parameters:
X..X are the user timers. These numbers must be between 1..5
- You can start several timers at once by entering all the timers in 1 sequence

Defaults:
All timers are off

Notes:
C Refer to the event table for user timer events to be executed when the timers expire

Error Codes:
E1 - Invalid user timer slot
(System wide errors are listed in front of the manual)

Example 1:
I want to start user timer 1,3,5.

066 1 3 5 * or unkey

Response:
"Timer <Timer Number> Start"

067: Stop a User Timer

This command allows the user to stop a user timer when an event occurs. This command is usually used in conjunction with the event tables. This user timer value is programmed using Command 050,051,052.

<067> *x..x*

Parameters:
X..X are the user timers. These numbers must be between 1..5
- You can stop several timers at once by entering all the timers in 1 sequence

Defaults:
All timers are off

Notes:
C Refer to the event table for user timer events to be executed when the timers expire

Error Codes:
E1 - Invalid user timer slot
(System wide errors are listed in front of the manual)

Example 1:
I want to stop user timer 2,4.

067 2 4 * or unkey

Response:
"Timer <Timer Number> Stop"

068: Command Not Used

<068> *x y*

Parameters:

Defaults:

Notes:
C

Error Codes:

Example 1:

068

Response:

069: Command Not Used

<069> *x y*

Parameters:

Defaults:

Notes:
C

Error Codes:

Example 1:

069

Response:

070: Analog Line Faceplate Assignment

This command allows the assignment of an analog conversion faceplate to any of the analog input lines. These conversion faceplates take the analog input voltage and convert it to a number that corresponds to the analog inputs voltage. This command only converts the input, Command 072 will handle the actual calibration of the converted number.

<070> *x yy*

Parameters:
X is the analog input to assign the faceplate. This number ranges from 1..4

YY is the requested analog conversion faceplate

Faceplate #	Switch On	Switch Off	Conversion from volts to words
00	0.00-25.00 Volts	0.00-5.00 Volts	0<point>00 - 5<point>00
01	0.0-25.0 Volts	0.00-5.00 Volts	00<point>0 - 16<point>0
02	0.00-25.00 Volts	0.00-5.00 Volts	00<point>0 - 32<point>0
03	0.00-25.00 Volts	0.00-5.00 Volts	00<point>0 - 64<point>0
04	0.00-25.00 Volts	0.00-5.00 Volts	00<point>0 - 128<point>0
05	0.00-25.00 Volts	0.00-5.00 Volts	000 - 255
06	-----	Kelvin Temperature	Low Resolution Fahrenheit
07	-----	Kelvin Temperature	Low Resolution Celsius
08	-----	Special Circuit EF	High Resolution Fahrenheit
09	-----	Special Circuit EC	High Resolution Fahrenheit
10	0.00-25.00 Volts	0.00-5.00 Volts	000 - 100 (Percent)
11	0.00-25.00 Volts	0.00-5.00 Volts	000 - 360 (Wind direction)
12	0.00-25.00 Volts	0.00-5.00 Volts	00<point>0 - 25<point>0
13	0.00-25.00 Volts	0.00-5.00 Volts	S0..S9<plus>60 (Signal Level)
14	0.00-25.00 Volts	0.00-5.00 Volts	Special Faceplate (See Below)

Special Faceplate:
This faceplate is provided to allow custom responses for input voltages. Applications for this faceplate is special wind directions, 8-quadrant conversion results etc...

Analog Input Value	Special Message Slot	Analog Input Value	Special Message Slot
Vinput ÷ 8	51	Vinput ÷ 4	55
Vinput ÷ 7	52	Vinput ÷ 3	56
Vinput ÷ 6	53	Vinput ÷ 2	57
Vinput ÷ 5	54	Vinput ÷ 1	58

Voltage input limitations:
In order for the RLC-2 to allow higher that 5.00 volts input, on-board voltage dividers are provided on all controllers. When higher input voltages are used, the (Resistor in Rev. A, Jumper in Rev. B, or the Switch in Rev. C) must be in line. When voltages below 5.00 volts are used (like temperature sensors), the (Resistor in Rev. A, Jumper in Rev. B, or the Switch in Rev. C) must be out of line or off. When a temperature sensor is used, an external +12 volt power supply (With a 10K series resistor between the sensor and +12v) is needed. On Revision C boards, the power switch simply needs to be on.

Resistor Definition, Revision A

Resistor Number	Clip the Resistor Function
R3	Voltage Divider, Analog 1
R4	Voltage Divider, Analog 2
R5	Voltage Divider, Analog 3
R6	Voltage Divider, Analog 4

Jumper Definition, Revision B

Jumper Number	Jumper Function
J13	Voltage Divider, Analog 1
J14	Voltage Divider, Analog 2
J15	Voltage Divider, Analog 3
J16	Voltage Divider, Analog 4

Switch Definition Revision C

Switch Number	Switch Function
1	Voltage Divider, Analog 1
2	Voltage Divider, Analog 2
3	Voltage Divider, Analog 3
4	Voltage Divider, Analog 4
5	Temperature power, Analog 1
6	Temperature power, Analog 2
7	Temperature power, Analog 3
8	Temperature power, Analog 4

Defaults:
All faceplates set to 00

Notes:
C Check your board before connecting any voltage input.

Error Codes:
E1 - Invalid analog input line. Number must be between 1..4
E2 - Invalid analog faceplate. Number must be between 00..11
(System wide errors are listed in front of the manual)

Example 1:
I need to monitor my 12 battery voltage on analog #2
(Assume the analog input is set-up to handle the voltage)

070 2 01 * or unkey

Response:
"<Analog Line> is <Faceplate>"

071: Recall Analog Faceplate

This command allows the user to recall what conversion faceplate is assigned to a specific analog input line. If a conversion result is not converting as expected, then first check the conversion faceplate to make sure it is correct.

<071> *x*

Parameters:
X is the analog input to assign the faceplate. This number ranges from 1..4

Defaults:
All faceplates set to 00

Error Codes:
E1 - Invalid analog input line. Number must be between 1..4
(System wide errors are listed in front of the manual)

Example 1:
I am getting a wrong analog readback from analog 4. I need to check the faceplate.

071 4 * or unkey

Response:
"Analog Line> is <Faceplate>"

072: Analog Line Calibration

This command allows the user to calibrate an analog input. This feature is required to make an input translate the input voltage to a voice number correctly.

To determine if an input needs to be calibrated:
1) Assign the appropriate conversion face
2) Read the analog input using Command 075
   If the number read differs from the number at the analog input, you need to calibrate

<072> *x y* zz

Parameters:
X is the analog input line. This number is between 1..4
Y is control variable
    1 - Add the offset
    0 - Subtract the offset
ZZ is the calibration number. This number is between 00..99

Defaults:
All analog calibration is plus 00

Notes:
C If you can not calibrate an input, check your switch settings and faceplates

Error Codes:
E1 - Invalid analog line. This number must be between 1..4
(System wide errors are listed in front of the manual)

Example 1:
My temperature sensor on analog input 2 reads high. I need to calibrate is down

072 2 0 03 * or unkey

Response:
"<Analog Line> is <Calibration Number>"

073: Recall Analog Line Calibration

This command allows the user to recall the calibration variables. These variables are explained in Command 072

<073> *x*

Parameters:
X is the analog input line. This number is between 1..4

Defaults:
All analog calibration is plus 00

Error Codes:
E1 - Invalid analog line. This number must be between 1..4
(System wide errors are listed in front of the manual)

Example 1:
I want to check the calibration value for analog input 4

073 4 * or unkey

Response:
"<Analog Line> is <Calibration Value>"

074: Reset Analog 1-4 High/Low Values

This command allows the user to reset the analog input high-low variations to the current reading. This feature must be used when monitoring the maximum-minimum extremes that your analog inputs take. Once a high level is reached, any lower readings will not be stored for the high reading. The same procedure is true for the lower extremes. This command also resets the high\low times and the high\low dates.

<074> *x*

Parameters:
X is an analog input. This number must be between 1..4

Defaults:
Analog high\lows are cleared on reset

Error Codes:
E1 - Invalid analog line. This number must be between 1..4
(System wide errors are listed in front of the manual)

Example 1:
I want to reset my temperature sensors on analog 1,2.

074 1 2 * or unkey

Response:
"<Analog Line> is 0"

075: Read an Analog Line

This command allows the user to read selected analog inputs. The user would normally not use this command for day-to-day operation. Because of the analog reading special words (Words 705..708), the user would normally include these words for message readback. This command is mainly used for setting up the analog system.

<075> *x*

Parameters:
X is the analog input. This number must be between 1..4

Defaults:
There are no defaults for this command

Error Codes:
E1 - Invalid analog line. This number must be between 1..4
(System wide errors are listed in front of the manual)

Example 1:
I want to read analog 3 input line

075 3 * or unkey

Response:
"<Analog Line>"

076: Read an Analog High Value

This command allow the user to recall the analog high extreme readings. The user would normally not use this command for day-to-day operation. Because of the analog high reading special words (Words 709..712), the user would normally include these words for message readback. This command is mainly used for setting up the analog system.

<076> *x*

Parameters:
X is the analog inputs. This number must be between 1..4

Defaults:
Analog high\lows are cleared on reset

Error Codes:
E1 - Invalid analog line. This number must be between 1..4
(System wide errors are listed in front of the manual)

Example 1:
I want to check analog 1 high value

076 1 * or unkey

Response:
"High of <Analog High Value>"

077: Read an Analog Low Value

This command allow the user to recall the analog low extreme readings. The user would normally not use this command for day-to-day operation. Because of the analog low reading special words (Words 713..716), the user would normally include these words for message readback. This command is mainly used for setting up the analog system.

<077> *x*

Parameters:
X is the analog inputs. This number must be between 1..4

Defaults:
Analog high\lows are cleared on reset

Error Codes:
E1 - Invalid analog line. This number must be between 1..4
(System wide errors are listed in front of the manual)

Example 1:
I want to check analog 4 low value

077 4 * or unkey

Response:
"Low of <Analog High Value>"

078: Read an Analog High Line Time

This command allow the user to recall the time an analog high extreme occurred. The user would normally not use this command for day-to-day operation. Because of the analog high time special words (Words 717..720), the user would normally include these words for message readback. This command is mainly used for setting up the analog system.

<078> *x*

Parameters:
X is the analog inputs. This number must be between 1..4

Defaults:
Analog high\lows are cleared on reset

Error Codes:
E1 - Invalid analog line. This number must be between 1..4
(System wide errors are listed in front of the manual)

Example 1:
I want to check the time analog 1 reached its high value

078 1 * or unkey

Response:
"<Time>"

079: Read an Analog Low Line Time

This command allow the user to recall the time an analog low extreme occurred. The user would normally not use this command for day-to-day operation. Because of the analog low time special words (Words 721..724), the user would normally include these words for message readback. This command is mainly used for setting up the analog system.

<079> *x*

Parameters:
X is the analog inputs. This number must be between 1..4

Defaults:
Analog high\lows are cleared on reset

Error Codes:
E1 - Invalid analog line. This number must be between 1..4
(System wide errors are listed in front of the manual)

Example 1:
I want to check the time analog 1 reached its low value

079 1 * or unkey

Response:
"<Time>"

080: Read an Analog High Date

This command allow the user to recall the date an analog high extreme occurred. The user would normally not use this command for day-to-day operation. Because of the analog date special words (Words 725..728), the user would normally include these words for message readback. This command is mainly used for setting up the analog system.

<080> *x*

Parameters:
X is the analog inputs. This number must be between 1..4

Defaults:
Analog high\lows are cleared on reset

Error Codes:
E1 - Invalid analog line. This number must be between 1..4
(System wide errors are listed in front of the manual)

Example 1:
I want to check the day analog 1 reached its high value

080 1 * or unkey

Response:
"<Date> <Day>"

081: Read an Analog Low Date

This command allow the user to recall the date an analog low extreme occurred. The user would normally not use this command for day-to-day operation. Because of the analog date special words (Words 729..732), the user would normally include these words for message readback. This command is mainly used for setting up the analog system.

<081> *x*

Parameters:
X is the analog inputs. This number must be between 1..4

Defaults:
Analog high\lows are cleared on reset

Error Codes:
E1 - Invalid analog line. This number must be between 1..4
(System wide errors are listed in front of the manual)

Example 1:
I want to check the day analog 1 reached its low value

081 1 * or unkey

Response:
"<Date> <Day>"

082: Analog Line Alarm Value Program

This command allows the user to assign both high and low alarm points to the analog inputs. The applications for this command are for monitoring high and low points like temperature, voltage, door alarms, contact closures, and any analog or contact closure condition.

<082> *w x yyy*

Parameters:
W is the analog inputs. This number must be between 1..4
X is the alarm indicate programming variable
1 - High alarm programming
0 - Low alarm programming
YYY is the alarm point. This number must be between 000..255
The alarm tables are on the following 2 pages

How to use the tables for alarming:
When choosing an alarm point locate the faceplate that is assigned to the line being alarmed. Follow the numbers and locate a position that most closely defines the desired alarm point. Select the number that averages closest to the desired alarm point and enter it for the 'YYY' variable in the command name.

Defaults:
All alarms are disabled

Notes:
C The tables only provide a rough approximation of the alarm point. Once the 3 digit number is entered into the alarm function a formatted number will be spoken for the actual alarm point. If you want your alarm point to be closer simply re-enter a new alarm point number that is slightly different than the previous point. Do this until you achieve the desired alarm point.

Error Codes:
E1 - invalid analog line
E2 - Invalid analog alarm value
(System wide errors are listed in front of the manual)

Example 1:
I want to alarm analog 1 for a high alarm at 135EF. My faceplate is 06
(I located 121EF (205) and 149EF (215). I found the mid-point of 135EF to be 210)

082 1 1 210 * or unkey

Response:
"<Voltage the alarm point is at>"

YYY is the alarm point

Number	FC00	FC01	FC02	FC03	FC04	FC05	FC06	FC07	FC08
255	4.00	16.0	32.0	64.0	128.0	255			
245	3.84	15.4	30.7	61.5	123.0	245			
235	3.69	14.7	29.5	59.0	118.0	235			
225	3.53	14.1	28.2	56.5	112.9	225			
215	3.37	13.5	27.0	54.0	107.9	215			
205	3.22	12.9	25.7	51.5	102.9	205			
195	3.06	12.2	24.5	48.9	097.9	195			
185	2.90	11.6	23.2	46.4	092.9	185			
175	2.75	11.0	22.0	43.9	087.8	175			
165	2.59	10.4	20.7	41.4	082.8	165			
155	2.43	09.7	19.5	38.9	077.8	155			
145	2.27	09.1	18.2	36.4	072.8	145			
135	2.12	08.5	16.9	33.9	067.8	135			
125	1.96	07.8	15.7	31.4	062.7	125	....	....	
115	1.80	07.2	14.4	28.9	057.7	115	....	....	
105	1.65	06.6	13.2	26.4	052.7	105	....	....	
095	1.49	06.0	11.9	23.8	047.7	095	....	....	
085	1.33	05.3	10.7	21.3	042.7	085	....	....	
075	1.18	04.7	09.4	18.8	037.6	075	....	....	
065	1.02	04.1	08.2	16.3	032.6	065	....	....	
055	0.86	03.5	06.9	13.8	027.6	055	....	....	
045	0.71	02.8	05.6	11.3	022.6	045	....	....	
035	0.55	02.2	04.4	08.8	017.6	035	....	....	
025	0.39	01.6	03.1	06.3	012.5	025	....	....	
015	0.24	00.9	01.9	03.8	007.5	015	....	....	
005	0.08	00.3	00.6	01.3	002.5	005	....	....	
000	0.00	00.0	00.0	00.03	000.0	000	....	....	

YYY is the alarm point

Number	FC09	FC10	FC11	FC12	FC13	FC14
255		100	360			S9+60
245		96	346			S9+60
235		92	332			S9+50
225		88	317			S9+50
215		84	304			S9+40
205		80	289			S9+30
195		77	275			S9+30
185		73	261			S9+20
175		69	247			S9+20
165		65	233			S9+10
155		61	219			S9
145		57	205			S9
135		53	191			S8
125		49	177			S7
115		45	162			S7
105		41	148			S6
95		37	134			S5
85		33	120			S5
75		29	106			S4
65		26	92			S4
55		22	78			S3
45		18	64			S2
35		14	49			S2
25		10	35			S1
15		6	21			S0
5		2	7			S0
0		0	0			S0

083: Check Analog Alarm Points

This command allows the checking of the alarm points set in the previous command.

<083> *x y*

Parameters:
X is the analog inputs. This number must be between 1..4
Y is the alarm indicate programming variable
1 - High alarm programming
0 - Low alarm programming

How to use the tables for alarming:
When choosing an alarm point locate the faceplate that is assigned to the line being alarmed. Follow the numbers and locate a position that most closely defines the desired alarm point. Select the number that averages closest to the desired alarm point and enter it for the 'YYY' variable in the command name.

Defaults:
All alarms are disabled

Notes:
C The tables only provide a rough approximation of the alarm point. Once the 3 digit number is entered into the alarm function a formatted number will be spoken for the actual alarm point. If you want your alarm point to be closer simply re-enter a new alarm point number that is slightly different than the previous point. Do this until you achieve the desired alarm point.

Error Codes:
E1 - Invalid analog line
(System wide errors are listed in front of the manual)

Example 1:
I want to check the high alarm setting for analog 1. My faceplate is 06

083 1 1 * or unkey

Response:
"<Formatted Analog Alarm Point>"

084: Check Analog Active Alarms

This command check if an analog line is in alarm. If the line is in alarm it will indicate what alarm condition the line is in.

<084> *x*

Parameters:
X is the analog inputs. This number must be between 1..4

Defaults:
All analog alarms are disabled

Error Codes:
E1 - Invalid analog line
(System wide errors are listed in front of the manual)

Example 1:
I need to check if my analog 4 is in alarm.

082 1 * or unkey

Response:
Either "<High Alarm>, <Low Alarm> or <Not in Alarm>"

085: Read Input Lines

This command allows the user to read any of the input lines. The line is either High or Low. A low indicates the input line is at ground or 0V state. A high indicates the input line is a an open or above 4V.

<085> *x..x*

Parameters:
X..X are the input lines. These numbers can vary between 1..4
- You can read several input lines at once by entering all the lines in 1 sequence

Defaults:
Input lines are high (open)

Error Codes:
E1 - Invalid input line
(System wide errors are listed in front of the manual)

Example 1:
Input 1 is the door alarm. I need to check if it is high or low for the event table programming.

085 1 * or unkey

Response:
"<Input Line> is <High> or <Low>"

086: Output Line 1 On
087: Output Line 1 Off
088: Output Line 2 On
089: Output Line 2 Off
090: Output Line 3 On
091: Output Line 3 Off

These commands provide a short-cut to access the lower 3 output lines. They are provided so the user does not need a macro to turn on an output line with an event table change. Because these commands do not contain any additional data following the command name, the user can simply call any of these 6 commands when output line control is needed.

<086..091>

Parameters:
There are no parameters for these commands

Defaults:
All output lines default off

Notes:
C When an output line is Off, the line becomes a high impedance state. When the output line is turned on, it becomes a very low impedance. Use a ohm meter when checking the lines, not a voltage meter.

Error Codes:
(System wide errors are listed in front of the manual)

Response:
There are no responses for these commands

092: Output Line #..# On

This command allows the user to turn on any one of the 8 output lines. This command requires additional data to indicate what lines need to be turned on. The previous output line commands did not require any additional data.

<092> *x..x*

Parameters:
X..X are the output lines. These numbers can vary between 1..8
- You can turn on several output lines at once by entering all the lines in 1 sequence

Defaults:
All output lines default off

Error Codes:
E1 - Invalid output line. The number must range between 1..8
(System wide errors are listed in front of the manual)

Example 1:
I want to turn on outputs 1 3 5 7 in 1 command

092 1 3 5 7 * or unkey

Response:
"<Output Line> ON"

093: Output Line #..# Off

This command allows the user to turn off any one of the 8 output lines. This command requires additional data to indicate what lines need to be turned on. The previous output line commands did not require any additional data.

<093> *x..x*

Parameters:
X..X are the output lines. These numbers can vary between 1..8
- You can turn off several output lines at once by entering all the lines in 1 sequence

Defaults:
All output lines default off

Error Codes:
E1 - Invalid output line. The number must range between 1..8
(System wide errors are listed in front of the manual)

Example 1:
I want to turn off outputs 1 3 5 7 in 1 command

093 1 3 5 7 * or unkey

Response:
"<Output Line> OFF"

094: Check Output Lines

This command allows the user check the current condition of any output line. This command requires additional data to indicate what lines need to be turned on. The previous output line commands did not require any additional data.

<094> *x..x*

Parameters:
X..X are the output lines. These numbers can vary between 1..8
- You can turn check several output lines at once by entering all the lines in 1 sequence

Defaults:
All output lines default off

Error Codes:
E1 - Invalid output line. The number must range between 1..8
(System wide errors are listed in front of the manual)

Example 1:
I need to check what condition outputs 1 3 5 7 are currently in.

094 1 3 5 7 * or unkey

Response:
"<Output Line> <ON\OFF>"

095: Enter Frequency Plus Offset for RBI-1, RLC-ICM

This command allows the entry of frequency plus offset data for the RBI-1 and the RLC-ICM remotes. Other features like power, memory, PL are entered in separate commands.

<095> *xxxxxx y*

Parameters:

XXXXXX is the actual frequency

- 29.600 simplex is entered as 296002 (Voice: 29<point>60 S)
- 147.380 plus is entered as 1473801 (Voice: 147<point>38 plus)
- 1290.00 minus is entered as 12900000 (Voice:1290<point>00 minus)

Y is the offset

Offset Number	Offset
0	Minus
1	Plus
2	Simplex
3	Minus 20 Mhz in 1200mhz frequency

Defaults:

There are no defaults for this command

Notes:

C After the frequency data is entered the controller waits the RBI-1 timer (See Command 50,51,52) before sending the data. This allows several items to be changed before the controller sends the batch to the remotes.

Error Codes:

E1 - To much data is present
E2 - Invalid frequency band. Bands can only be 28,29,50,51,52,53,54,140,150,160,220,430,440,1240,1250,1260,1270,1280,1290
E3 - Invalid frequency. Frequency needs to be 3,4,5 digits followed by 3 digits of frequency data followed by the offset data.

(System wide errors are listed in front of the manual)

Example 1:

I want the remote to go to 145.250 - repeater.

095 1452500 * or unkey

Response:

"<Frequency> <Offset>"

096: Set PL Frequency, Encode On-Off, Decode On-Off

This command controls the setting of the PL information, Encode and Decode controls. Other features like power, memory, frequency are entered in separate commands.

<096> *xx y* z

Parameters:
XX is the PL frequency information
(XX) TS-64 PL Frequency Table (RLC-ICM Only)

Tone #	Frequency	Tone #	Frequency	Tone #	Frequency
00	250.3	22	157.7	44	177.3
01	233.6	23	146.2	45	183.5
02	218.1	24	136.5	46	189.9
03	203.5	25	127.3	47	196.6
04	186.2	26	118.8	48	199.5
05	173.8	27	110.9	49	206.5
06	162.2	28	103.5	50	229.1
07	151.4	29	94.8	51	254.1
08	141.3	30	82.5	52	44.4
09	131.8	31	71.9	53	39.6
10	123.0	32	63.0	54	37.9
11	114.8	33	58.8	55	36.6
12	107.2	34	56.8	56	35.4
13	100.0	35	54.9	57	33.0
14	88.5	36	53.0	58	97.4
15	77.0	37	51.2	59	91.5
16	241.8	38	49.2	60	85.4
17	225.7	39	47.5	61	79.7
18	210.7	40	69.4	62	74.4
19	192.8	41	159.8	63	67.0
20	179.9	42	165.5	....	....
21	167.9	43	171.3	....	....

(XX) RBI-1 Kenwood Frequency Table (RBI-1 Only)

Tone #	Frequency	Tone #	Frequency	Tone #	Frequency
00	67.0	14	110.9	28	179.9
01	71.9	15	114.8	29	186.2
02	74.4	16	118.8	30	192.8
03	77.0	17	123.0	31	203.5
04	79.7	18	127.3	32	210.7
05	82.5	19	131.8	33	218.1
06	85.4	20	136.5	34	225.7
07	88.5	21	141.3	35	233.6
08	91.5	22	146.2	36	241.8
09	94.8	23	151.4	37	250.3
10	97.4	24	156.7	....	....
11	100.0	25	162.2	....	.....
12	103.5	26	167.9	....	....
13	107.2	27	173.8	....	....

Y is the PL Encode (Generate) control
1 - Encode PL on Transmit
0 - Cancel PL Encode

Z is the PL Decode (Receive) control
1 - Require PL on Receive
0 - Cancel PL Decode requirement

Defaults:
PL tone set to 00, encode and decode are off.

Error Codes:
E1 - Invalid PL frequency (See Tables above)
E2 - Invalid PL encode mode
E3 - Invalid PL decode mode
(System wide errors are listed in front of the manual)

Example 1:
I want PL encode and decode enabled with a PL of 100.0Hz. I am using an RBI-1 interface

```
096 11 1 1 * or unkey
```

Response:
"PL <PL number> Transmit <ON> Receive <ON>"

097: Recall Memory Channels on RBI-1

This command only is available on the RBI-1 interface running version 3.XX RBI-1 software. This command will recall memory channels 01..20.

<097> *xx*

Parameters:
XX is the memory channel number 01..20

Defaults:
There are no defaults for this command

Notes:
C Only RBI-1's running version 3.XX software support this feature. The RLC-ICM does not support this feature.

Error Codes:
E1 - Invalid memory channel
(System wide errors are listed in front of the manual)

Example 1:
I want to recall the weather channel on my Kenwood TH-241. I pre-programmed the memory into number 08.

097 08 * or unkey

Response:
"Radio Look-Up <Memory Channel>"

098: Set Power on the RBI-1

This command allows the user to change the power levels on the RBI-1. This command is not supported on the RLC-ICM interface. The power on the RLC-ICM is set using a jumper block on the radio interface module.

<098> *x*

Parameters:
X is the power control function
- 0 - Low Power
- 1 - High Power
- 2 - Medium Power

Defaults:
Power defaults to low

Notes:
C The RLC-ICM does not support this feature.

Error Codes:
E1 - Invalid power level
(System wide errors are listed in front of the manual)

Example 1:
I need to increase my remote to high power to get into a distance repeater

098 1 * or unkey

Response:
"Power at <Power Level>"

099: Turn RBI-1 Radio Band Power On-Off

This feature allows an unused module to be turned off. The module selected is the last module that frequency data was sent to. This feature is not supported on the RLC-ICM interface.

<099> *x*

Parameters:
X is the power control function
1 - Turn the radio module power ON
0 - Turn the radio module power OFF

Defaults:
All modules power is ON

Notes:
C The RLC-ICM does not support this feature.

Error Codes:
E1 - Invalid power control level
(System wide errors are listed in front of the manual)

Example 1:
I want to shut off my 2 meter module that I just finished using.

099 0 * or unkey

Response:
"Radio Power <ON\OFF>"

100: Reset External Interface

This command allows an external reset of the remote base interface. When the controller resets it automatically resets the external interface. This command is used when control is lost with the external interface.

<100>

Parameters:
There are no parameters for this command

Defaults:
There are no defaults for this command

Error Codes:

(System wide errors are listed in front of the manual)

Example 1:
I seem to have lost communications with my RBI-1. I need to remotely reset is to regain control.

100 * or unkey

Response:
"Radio Start"

101: Configure the RLC-ICM Module

This command pertains only to the RLC-ICM interface. Because there are so many radio modules that the RLC-ICM supports with different modes, offsets, and functions a special set-up command is needed to simplify the configuration of this interface.

<101> *x ss*

Parameters:

X is the band module requested

1 - Module is plugged into connection 1
2 - Module is plugged into connection 2
3 - Module is plugged into connection 3
4 - Module is plugged into connection 4

SS is the set-up code to assign to the requested module
(It may be necessary to assign several set-up codes to each module)

C First you need to assign what frequency module is plugged into what slot

SS (the setup code)	Description
00	28 Mhz Module
05	50 Mhz Module
10	140..160 Mhz Module
15	220 Mhz Module
20	430..440 Mhz Module
25	1200 Mhz Module (not currently active)

C Second, you must tell each band module what size of offset to use when you select a plus or minus offset with Command 095.

SS (the setup code)	Description
30	100 Khz Offset
35	500 Khz Offset
40	600 Khz Offset
45	1 Mhz Offset
50	1.6 Mhz Offset
55	1.7 Mhz Offset
60	5 Mhz Offset
65	12 Mhz Offset

70	20 Mhz Offset

C Setup codes 75 and 80 are reserved for special offset memories, which are not yet supported.

C Once you have a frequency into the module you use the below setup codes disable and enable transmitting on individual modules:

SS (the setup code)	Description
85	Transmit and Receive Enabled
90	Transmit Disabled (receive only)
95	Transmit and Receive Disabled (module turned off)

C If you have properly entered the above commands, the RLC-Icom is set up and ready to use. To enter frequencies, turn PL on and off, etc., use the RBI-1 commands in this section of the manual.

Defaults:
Refer to your RLC-ICM manual for defaults

Error Codes:
E1 - Invalid module requested
(System wide errors are listed in front of the manual)

Example 1:
I want to assign 140 module to slot 3, then assign a 600 khz offset used on that module.

```
101 3 10 * or unkey
```

Then

```
101 3 40 * or unkey
```

Response:
"Radio Set-up Complete"

102: Recall Frequency

This command recalls the frequency last entered into the controller.

<102>

Parameters:
There are no parameters for this command

Defaults:
There are no defaults for this command

Notes:
C This command only **currently** recalls the last frequency entered into the controller. A future release will allow you to recall the frequency of a specific band.

Error Codes:
(System wide errors are listed in front of the manual)

Example 1:
I want to recall what the last frequency entered was

102 * or unkey

Response:
"<Frequency> <Offset>"

103: Recall All Remote Variables

This command allows all set-up features to be recalled.

<103>

Parameters:
There are no parameters for this command

Defaults:
There are no defaults for this command

Notes:
C This command only **currently** recalls the last features entered into the controller. A future release will allow you to recall the features of a specific band.

Error Codes:
(System wide errors are listed in front of the manual)

Example 1:
I want to recall what is entered for the remote

103 * or unkey

Response:
1) "<Frequency> <Offset>"
2) "PL <PL Tone> Transmit <ON\OFF> Receive <ON\OFF>"
3) "Radio Look-Up <Memory Channel>"
4) Power At <Power Level>"
5) Radio Power <ON\OFF>"

104: External Serial Data Send - Parallel BCD Controller

This command serially sends data out 2 output lines for support of external serial --> parallel controllers. This command is used to expand the output lines, external BCD controller support, and any function that requires serial data.

<104> *x..x*

Parameters:
X..X are the BCD digits to be sent serially
Output 7 is the serial data
Output 8 is the serial clock
Output 6 can be used as a serial enable\disable function

Defaults:
There are no defaults for this command

Notes:
C This command uses the same output lines as the RBI-1 and RLC-ICM.

Error Codes:
E1 - To much data. This command can handle up to 20 digits of BCD data
(System wide errors are listed in front of the manual)

Example 1:
I want to send 4 digits to my external controller. The data is 5250

104 5 2 5 0 * or unkey

Response:
"Frequency is <Entered Data>"

105: HF Mode Configure

This command configures what port the HF remote base is on along with assigning the first digit of the remote prefix.

<105> *x y*

Parameters:
X is the port the HF remote base is connected to

1 - Port 1
2 - Port 2
3 - Port 3

Y is the remote prefix used when in remote base mode

Defaults:
(X) is Port 3
(Y) is '1'

Error Codes:
E1 - Invalid radio port

(System wide errors are listed in front of the manual)

Example 1:
I want the remote base assigned to port 2 with the remote prefix being a '1'

105 2 1 * or unkey

Response:
"Remote is on <Port> with input <Prefix>"

106: HF Mode Enable

This command enables the HFH remote base mode. This mode re-defines the DTMF keyboard into a quick HF remote access pad. When this mode is enabled, only HF commands can be entered. In order to execute any system wide commands the user must get-out of the HF mode.

<106>

Parameters:
There are no parameters for this command

Defaults:
HF mode is disabled

Notes:
C Once HF mode is enabled the calling ports DTMF data is re-defined for HF operation

Error Codes:
(System wide errors are listed in front of the manual)

Example 1:
I want to enable HF mode

106 * or unkey

Response:
"Remote Base On"

HF Remote Base Keypad

Keypad Definition

1 Remote in **receive only** mode or Select **HF Mode #**	**2** Remote in **receive and transmit on** mode	**3** **Receive and transmit off**. Cancels HF mode	**A** Bump **Up** Remote 20HZ
4 Bump **Down** Remote 100HZ	**5** **Recall Memory** Channel ## ## (00..99)	**6** Bump **Up** Remote 100HZ	**B** Bump **Down** Remote 20HZ
7 Bump **Down** Remote 500 HZ or **Start Scan #**	**8** **Recall Frequency** of current VFO or **Select Offset**	**9** Bump **Up** Remote 500HZ	**C** Not Defined
*** Frequency <Point> Key **.**	**0** **Recall Memory** Channel ## or Select **VFO B**	**#** Force Execution Digit **Enter**	**D** Not Defined

Special Definitions:

HF Mode (See Keypad 1):

HF Mode Number	Definition
1	Selects USB Mode
2	Selects LSB Mode
3	Selects AM Mode
4	Selects FM Mode

Start Scan (See Keypad 7)

Scan Number Entered	Scan Mode Requested
1	Scan Down Slow (20HZ Steps)
3	Scan Up Slow (20HZ Steps)
4	Scan Down Medium (100HZ Steps)
6	Scan Up Slow (100HZ Steps)
7	Scan Down Slow (500HZ Steps)
9	Scan Up Slow (500HZ Steps)

HF Prefix:

The HF prefix is a single digit that is configured with Command 105. This digit is

always the first digit entered when any HF mode is executed. The reason for the prefix digit is to keep single digit entries from accidentally being entered.

Example: I am in HF mode and need to start the scan function for fast up scanning
Enter: 1 79 '#' or unkey Response: 'Scan 9'

Example: I am in HF mode and need to enter a frequency
Enter: 1 29*600 '#' or unkey Response: '2 9 point 6 0 0 0 0'

Example: I am in HF mode and need to recall memory 15
Enter: 1 515 '#' or unkey Response: 'Look-up 15'

In all these example the format for data entry was:
<HF Prefix> <Command> <Addition Data if Needed> <# or unkey>

HF Frequency Entry:

The frequency is entered immediately following the HF prefix. There is no command to tell the controller to take frequency, simply no command means frequency. The controller will take frequency input from 1 mhz (1*00000) up to 999.99999 mhz (999*99999).

Typical HF remote base session:

HF Prefix is '1'

1) 106 * or unkey ; Enable HF remote mode
2) 1 29*68 # or unkey ; Move the HF remote to 29.680 mhz, VFO 'A'
3) 1 0 # or unkey ; Select VFO 'B'
4) 1 29*58 # or unkey ; Move the HF remote to 29.580 mhz, VFO 'B'
5) 1 5 # or unkey ; Select VFO 'A'
6) 1 8 1 # or unkey ; Select Split (Repeater Mode)
7) 1 2 # or unkey ; Go into transmit and receive mode
.
.
.
1 3 # or unkey ; Cancel HF mode after communications are complete

107: HF Mode Disable

This mode turns off the HF remote. The only real use for this command is giving other ports the ability to cancel the HF remote on the port that is currently using the remote functions. Because the command <HF Prefix> <3> cancels the remote function on the port that is using the remote, this command is for control only.

<107>

Parameters:
There are no parameters for this command

Defaults:
There are no defaults for this command

Error Codes:
(System wide errors are listed in front of the manual)

Example 1:
The user on port 1 did not cancel the HF remote. I can not reach port 1 but do have access to port 2. I need to cancel the remote function so control is returned to normal.

107 * or unkey

Response:
"Remote Off"

108: Enter Icom's HF Radio Address

This command is required when using ICOM HF radios. Because the Icom radios can co-exist on a common serial bus (CI-V) a radio address is needed to select what radio gets the serial data. The list below shows the radios address table.

<108> *xx*

Parameters:
XX is the radios address. This number must be between 00..52

Defaults:
Address (XX) set to 00

Radio Address	Radio Type	Radio Address	Radio Type
04	IC-735	34	IC-471 A\E\H
08	IC-R7000	36	IC-1271 A\E
16	IC-275 A\E\H	38	IC-781
18	IC-375 A	40	IC-725
20	IC-475 A\E\H	42	IC-R9000
22	IC-575 A\H	44	IC-765
24	IC-1275 A\E	46	IC-970 A\E\H
26	IC-R71 A\E\D	48	IC-726
28	IC-751 A	50	IC-R72
30	IC-761	52	IC-R7100
32	IC-271 A\E\H	....	Other ...

Error Codes:
E1 - Invalid remote address

(System wide errors are listed in front of the manual)

Example 1:
I want to set my radios address for the IC-725

108 40 * or unkey

Response:
"Radio Is <Radio Address>"

109: Command Line Control of the HF Routines

This command has the same function as Command 106 except you do not need to be in HF mode to access the HF commands. This command allows macros and scheduler events to access, set-up and function the remotes features. The format of this command is the same as Command 106.

<109> *x y..y*

Parameters:
X is the HF prefix
Y..Y are the functions that can be accessed using Command 106

Defaults:
There are no defaults for this command

Notes:
C Refer to Command 106 for the keystroke definitions.
C The 'point' key (*) in Command 106 is redefined to the 'pound' (#) key. This change is needed so the 'point' in the frequency will not interfere with other controller functions.

Error Codes:
(System wide errors are listed in front of the manual)

Example 1:
I want to set the remotes frequency to 14.250. My HF prefix is '1'

109 1 14#250 * or unkey

Response:
Refer to Command 106

110: Command Not Used

<110> *x y*

Parameters:

Defaults:

Notes:
C

Error Codes:

Example 1:

110

Response:

111: Set Up the CW Speed

This command allows the setting of the CW frequency speed. The speed is entered in words-per-minute. The speed can range from 01..35.

<111> *xx*

Parameters:
XX is the CW speed. This number ranges from 01..35

Defaults:
The CW speed defaults to 20 WPM

Notes:
C The FCC states the CW speed must be 20 WPM or less

Error Codes:
E1 - Invalid speed.

(System wide errors are listed in front of the manual)

Example 1:
I want to slow my CW down to 13 WPM.

111 13 * or unkey

Response:
"Code Speed At <Speed>"

112: Set Up the CW Tone Frequency

This command sets up the CW's 2-tone frequencies. There are 2 tone frequencies available for CW tones. If the user wants a louder CW tone than normal courtesy beeps simply set both tones to the same CW frequency. This will give you a louder CW tone.

<112> *xxxx yyyy*

Parameters:
XXXX is the tone counts for frequency 1 (See Appendix B)
YYYY is the tone counts for frequency 2 (See Appendix B)

Defaults:
XXXX is 1064HZ
YYYY is 0000HZ

Error Codes:

(System wide errors are listed in front of the manual)

Example 1:
I want a louder CW tone. The tone needs to be 1064HZ. (0937 counts)

112 0937 0937 * or unkey

Response:
"Code Frequency Is <Tone1> and <Tone2>"

113: Program a 2-Tone Pager Slot

This command programs the controllers 2-tone paging slots. These tones are standard tone pairs used with common pagers.

<113> *ss aabb ccdd e rr*

Parameters:
SS is the pager slot. This number ranges from 01..20
AA is the column offset for the first tone (Refer to Tone group offset tables)
BB is the row offset for the first tone (Refer to Tone group offset tables)
CC is the column offset for the second tone (Refer to Tone group offset tables)
DD is the row offset for the second tone (Refer to Tone group offset tables)
E is the delay parameters for this tone sequence

Tone Groups for Column and Row Offset

Group->	TONE #	MOTO1	MOTO2	MOTO3	MOTO4	MOTO5	MOTO6	MOTOA
ROW	COL . -->	01	02	03	04	05	06	07
00	0	330.5	569.1	1092.4	321.7	553.9	1122.5	358.9
01	1	349.0	600.9	288.5	339.6	584.8	1153.4	398.1
02	2	368.5	634.5	296.5	358.6	617.4	1185.2	441.6
03	3	389.0	669.9	304.7	378.6	651.9	1217.8	489.8
04	4	410.8	707.3	313.0	399.8	688.3	1251.4	543.3
05	5	433.7	746.8	953.7	422.1	726.8	1285.8	602.6
06	6	457.9	788.5	979.9	445.7	767.4	1321.1	668.3
07	7	483.5	832.5	1006.9	470.5	810.2	1357.6	741.3
08	8	510.5	879.0	1034.7	496.8	855.5	1395.0	822.2
09	9	539.0	928.1	1063.2	524.6	903.2	1433.4	912.0
10	A	569.1	979.9	569.1	569.1	979.9	979.9	979.9

Tone Groups for Column and Row Offset cont...

Group->	TONE #	MOTOB	MOTOZ	GE A'	GE B'	GE C'	MOTO10	MOTO11
ROW	COL . -->	08	09	10	11	12	13	14
00	0	371.5	346.0	682.5	652.5	667.5	1472.9	1930.2
01	1	412.1	384.6	592.5	607.5	712.5	1513.5	1989.0
02	2	457.1	426.6	757.5	787.5	772.5	1555.2	2043.8
03	3	507.0	473.2	802.5	832.5	817.5	1598.0	2094.5
04	4	562.3	524.8	847.5	877.5	862.5	1642.0	2155.6
05	5	623.7	582.1	892.5	922.5	907.5	1687.2	2212.2
06	6	691.8	645.7	937.5	967.5	952.5	1733.7	2271.7
07	7	767.4	716.1	547.5	517.5	532.5	1781.5	2334.6
08	8	851.1	794.3	727.5	562.5	577.5	1830.5	2401.0
09	9	944.1	881.0	637.5	697.5	622.5	1881.0	2468.2
10	A	979.9	979.9	742.5	742.5	742.5	.....	.....

E is the delay parameters for this tone sequence

Sequence	1st Tone	Gap	2nd Tone	Pager Group
1	1.0 Sec	0.0 Sec	3.0 Sec	GE\MOT TN&VC
2	0.4 Sec	0.0 Sec	0.8 Sec	Moto Tone Only
3	1.0 Sec	0.0 Sec	3.0 Sec	NEC-B
4	1.0 Sec	0.25 Sec	3.0 Sec	NEC-A
5	1.0 Sec	0.0 Sec	1.0 Sec	NEC-C
6	0.4 Sec	0.0 Sec	0.8 Sec	NEC-M
7	0.5 Sec	0.0 Sec	0.5 Sec	NEC-L
8	0.4 Sec	0.0 Sec	0.4 Sec	NEC-D

RR is the audio routing variable

DTMF Allowed Execution of the Command	Number that corresponds to the device
Port 1	+1
Port 2	+2
Port 3	+4
Autopatch	+8
Control Receiver	+16

(RR) Audio routing variable = (port1)+(port2)+(port3)+(autopatch)+(control rx)

Defaults:
All slots are off or undefined

Error Codes:
E1 - Number input is to large
E2 - Number input is to small
E3 - Invalid pager slot. Number must be between 01..20
(System wide errors are listed in front of the manual)

Example 1:
I need to store a tone sequence slot 01, col. 01, row 08, col. 05, row 10, delay 1, route port 1

```
113 01 01 08 05 10 1 01 * or unkey
```

Response:
"Select <slot number> Programming"

114: Recall the 2-Tone Paging Slot 01..20

This command recalls the 2-tone slots programmed in Command 113.

<114> ss

Parameters:
SS is the pager slot. This number ranges from 01..20

Defaults:
All pager slots are disabled or unto defined

Error Codes:
E1 - Invalid pager slot. Number must be between 01..20
(System wide errors are listed in front of the manual)

Example 1:
I stored a tone sequence slot 01, col. 01, row 08, col. 05, row 10, delay 1, route port 1

114 01 * or unkey

Response:
"Tone sequence sent"

115: Assign the DTMF Decoder Priority

This command gives the controller the ability to assign highest priority to the DTMF decoder. When a port is assigned as highest priority, its activity determines where the DTMF decoder will be located for code input. Normally this port is "Port 5" the control receiver. This command is not discriminate. When the priority port is active, the decoder is changed to this port, regardless of data entry on the currently active port

<115> *x*

Parameters:
X is the radio port priority

DTMF Allowed Execution of the Command	Number that corresponds to the device
Port 1	1
Port 2	2
Port 3	3
Autopatch	4
Control Receiver	5

Defaults:
(X) is set for the control receiver

Error Codes:
E1 - Invalid radio port. Number must range between 1..5
(System wide errors are listed in front of the manual)

Example 1:
I want Port 3 to become DTMF priority.

115 3 * or unkey

Response:
"Radio Select <Radio Port>"

116: Resistor #1,#2 Send Routine

This command allows the user to change the on-board 50KΩ software resistors. The user enters a number that ranges from 000..255. This gives a 192Ω\step resistance change. Applications for the resistors include remote control of the repeaters squelch and volume circuits. When using an HF remote base these are useful for remote HF squelch adjustment.

<116> *x yyy*

Parameters:
X is the resistor needing changes
1 - Resistor 1
2 - Resistor 2
YYY is the resistance number selected

Resistance Ω = 50KΩ ÷ (YYY)

Defaults:
Both the resistors are set to 25KΩ or 128

Notes:
C The resistors are AC coupled. For the protection of the resistor chip bypassing the coupling is not recommended. The resistors can take -5V to +5V worth of audio (10V). Do not exceed these limits. Exceeding will damage the resistor chip.

Error Codes:
E1 - Invalid resistor. this number must be either 1 or 2
E2 - Invalid resistance number. This number must be between 000..255
(System wide errors are listed in front of the manual)

Example 1:
I want to loosen my external squelch adjustment which is on resistor 1 to 055.

116 1 055 * or unkey

Response:
"Number <Resistor Number> Ohms Of <Number>"

117: Recall Software Resistor Settings

This command recalls the settings of the internal software resistors.

<117> *x*

Parameters:
X is the resistor needing changes
1 - Resistor 1
2 - Resistor 2

Defaults:
Both the resistors are set to 25KS or 128

Notes:
C The resistors are AC coupled. For the protection of the resistor chip bypassing the coupling is not recommended. The resistors can take -5V to +5V worth of audio (10V). Do not exceed these limits. Exceeding will damage the resistor chip.

Error Codes:
E1 - Invalid resistor. this number must be either 1 or 2
(System wide errors are listed in front of the manual)

Example 1:
I want to check my external squelch adjustment which is on resistor 1.

117 1 * or unkey

Response:
"Number <Resistor Number> Ohms Of <Number>"

118: Command Not Used

<118> *x y*

Parameters:

Defaults:

Notes:
C

Error Codes:

Example 1:

118

Response:

119: Command Not Used

<119> *x y*

Parameters:

Defaults:

Notes:
C

Error Codes:

Example 1:

119

Response:

120: Assign the 3 Ports Link Prefixes

This command assigns the link port prefix codes. These prefix codes are only used when the controller is in pre-access mode. The repeater prefix code is always '*'

<120> *x yyy*

Parameters:
X is the port to assign the prefix digits.

Pre-Access Number	Port Name
1	Port 1
2	Port 2
3	Port 3

YYY is the new prefix code. This code can be any of the DTMF digits except the 'Forced Execution Digit'.

Defaults:
Port 1 defaults to '#97'
Port 2 defaults to '#98'
Port 3 defaults to '#99'

Notes:
C Refer to the timer commands 050,051,052 to control the pre-access timer and dial tone generation length.

Error Codes:
E1 - Invalid radio port
(System wide errors are listed in front of the manual)

Example 1:
I want to change port 1's code to 93#

120 1 93# * or unkey

Response:
"<Port> Code is <New Prefix Code>"

121: Configure Pre-Access on a Port (Not Currently Active)

This command configures how pre-access works on each port. This command controls whether the port is half\full duplex and the generation of dial tone.

<121> *x y* z

Parameters:
X is the port number. This number must range from 1..3
Y is the Half\Full duplex switch
    0 - Half Duplex
    1 - Full Duplex
Z is the dial tone response control
    0 - No dial tone generated
    1 - Dial tone generated on valid pre-access code receipt

Defaults:
Port is full duplex with tone generation enabled

Error Codes:
E1 - Invalid port. Number must range between 1..3
E2 - Invalid mode. Mode must be either a 0,1
(System wide errors are listed in front of the manual)

Example 1:
I want my port 3 to operate as full duplex. This means the dial tone will begin when the correct pre-access code is received.

121 3 1 1 * or unkey

Response:
"Code Set Up <Full\Half Duplex> And <Tone on\off>"

122: Enable/Disable Pre-Access on a Port

This command enables or disabled pre-access on a specific port. When pre-access is enabled the port requires the pre-access code be received before any commands can be executed.

<122> *x y*

Parameters:
X is the port number. This number must range from 1..3
Y is the control variable
0 - Disables pre-access
1 - Enables pre-access

Defaults:
All ports pre-access default off

Notes:
C When a repeater is in pre-access the code for access is '*' not the pre-access code. This code only applies when the port is in a link mode. Repeaters will not generate the dial tone.

Error Codes:
E1 - Invalid port. Number must range between 1..3
E2 - Invalid mode. Mode must be either a 0,1
(System wide errors are listed in front of the manual)

Example 1:
I need to enable pre-access on port 2

122 2 1 * or unkey

Response:
"Code Input <ON\OFF>"

123: Pre-Access Configure for the Stop Access Mode

This command configures how the pre-access condition is controlled. In order to stop access into the controller certain link groups use different conditions. We have incorporated 3 into the controller.

<123> *x y* z

Parameters:
X is the stop access condition when a command is executed correctly
- 0 - Disables this feature
- 1 - Enables this feature

Y is the stop access condition when a command is executed and an error is received
- 0 - Disables this feature
- 1 - Enables this feature

Z is the stop access condition when the commanding receiver drops
- 0 - Disables this feature
- 1 - Enables this feature

Defaults:
X,Y,Z default to disabled

Error Codes:
E1 - Invalid port. Number must be from 1..3
(System wide errors are listed in front of the manual)

Example 1:
I want to enable command execution to stop access.

123 100 * or unkey

Response:
"Code set as <X Variable> <Y Variable> <Z Variable>"

124: Command Not Used

<124> *x y*

Parameters:

Defaults:

Notes:
C

Error Codes:

Example 1:

124

Response:

125: Reverse Autopatch Answer on the Repeater

This command answers the reverse autopatch when it is ringing over the air. In order for this command to function first the reverse patch must be enabled, and there must be rings from the reverse patch in the controller.

<125>

Parameters:
There are no parameters for this command

Defaults:
The reverse patch is disabled

Error Codes:
(System wide errors are listed in front of the manual)

Notes:
C Refer to Command 007 to configure where the autopatch rings. The audio routing variable that is programmed for the autopatch determines where the autopatch rings when the reverse patch is in mode 1.

Example 1:
The reverse patch is ringing over the air and I need to answer it.

125 * or unkey

Response:
There is no response for this command

126: Configure the Reverse Autopatch

This command allows the configuration of the reverse autopatch system. Mode 1 configures the reverse autopatch to directly ring over the air. Mode 2 configures the reverse autopatch to answer after (RR) number of rings. At this point the users can then execute controller commands.

<126> *m rr hh xxxx yyyy*

Parameters:
M is the mode the reverse patch is in

Mode	Description
0	Reverse patch disabled
1	Over-the-air ringing enabled
2	Auto-answer enabled

RR is the ring mask counter. The phone must ring (RR) times before the controller will cause an over the airing.

HH is the maximum allowed rings. Once the (RR) ring counter is reached the controller will allow ringing over the air until the (HH) ring counter is reached. At this point ringing over the air will stop. This keeps a ringing phone from locking up the repeater ringing.

XXXX is the tone counts for the over-the-air ring tone frequency 1 (See Appendix B)
YYYY is the tone counts for the over-the-air ring tone frequency 2 (See Appendix B)

Defaults:
The reverse autopatch is disabled (M) is 0
(RR) is 04 rings for the in counter
(HH) is 08 rings for the maximum counter
XXXX is 2271 (440 HZ)
YYYY is 2082 (480 HZ)

Error Codes:
E1 - Invalid reverse patch mode
(System wide errors are listed in front of the manual)

Example 1:
I want to configure the reverse patch mode for over-the-air ringing, ring counter of 02, max ring counter of 20, 440 and 480 HZ ring tone.

126 1 02 20 2271 2082 * or unkey

Response:
"Autopatch In Is <Mode>and<In Ring>and<Max Ring>and<Tone 1>and<Tone 2>"

Mode 1 Definitions

When the reverse patch is in this configuration the phone is never answered automatically by the controller. This mode causes a ringing sequence to be send out the configured ports.

Ringing configuration:

- Number of rings before over-the-air ringing
  Command 126
- Number of rings allowed before canceling over-the-air ringing Command 126
- Ring port routing (Controls where the ringing is sent) Command 007
- Ringing tones (Controls the user ring tone setup)

Command 126

Mode 2 Definitions

When the reverse patch is in this configuration the phone is answered automatically by the controller after the ring counter is reached. The ring counter defaults to 4 rings. When the phone has been answered by the controller, the user has certain time provisions that must be met. If these provisions are not met the controller will hand up the phone. This mode is to control programming and personal call sign paging over the configured radio ports.

Configurations:

- Number of rings before over-the-air ringing
  Command 126
- Over-the-air port routing (Controls where the audio\PTT are sent) Command 007
- Definition of Call sign usage (Top 100 dial slots used for call signs) Command 137
- Programs Call sign data (Used when reverse patch user calling) Command 135

Timers:

- From autopatch answer to valid executed command Command 052 slot 50
- From executed command to executed command Command 052 slot 51
- Control operator execution

Command 052 slot 52

In this mode the user must correctly execute Command 005, the user log-on. After correct execution of the un-lock command the control operator timer is started.

127: Configure the Forward Autopatch

This command configures the forward autopatch system. This command only configures patch operation. Dialing tables are configured later.

<127> *a b c d e*

Parameters:
A is Full\Half duplex control
- 0 is half duplex
- 1 is full duplex

B controls the readback in direct dial mode
- 0 disables readback of the number
- 1 enables readback of the number

C controls the readback in memory dial mode
- 0 disables readback of the memory dial information
- 1 enables readback of the memory dial information

D controls the readback type in memory dial mode
- 0 read back of memory dial slot number
- 1 read back of call sign contents if configured using Command 137

E control port isolation mode (Not Currently Active)
- 0
- 1

Defaults:
(A) is half duplex
(BCD) are enabled
(E) is not yet supported

Error Codes:
E1 - Invalid mode. Data must be either a (1) or a (0)
(System wide errors are listed in front of the manual)

Example 1:
I want to enable all readback styles on the forward patch, but keep the half duplex mode.

127 01110 * or unkey

Response:
"Autopatch Out Is <A><B><C><D><E>"

128: Program Dialing Number Allow Table

This command allows the programming of the dialing allow table. This is the sole table for controlling long distance and prefix dialing control. This table supports 45 number sequences of 7 digits per entry. If there are no numbers programmed into this table, the forward autopatch that does dialing checking (Command 143) will not function. Only number styles found in this table will be allowed to dial.

<128> *ss yyyyyyy*

Parameters:
SS is the allow tables slot number. This number ranges from 01..45
YYYYYYY is the 7 digit allow number

The allow table allows 'wildcards' in the entry sequence. The 'wildcard' digit is the '#' digit. When the controller compares user entered digits and comes upon a '#' in the table, that digit is a don't care.

Examples: (All examples will store in slot 01)
1) Allow all 1-800 numbers

The entry would look like: <128> 01 1800 ### * or unkey. This sequence tells the autopatch to allow the digits '1800' and to ignore the 3 digit prefix.

2) Allow local 7 digit dialing in prefix area 480..489

The entry would look like: <128> 01 48##### * or unkey. This sequence tells the autopatch to allow the digits all digits that begin 48 and ignore the rest of the number.

3) Allow local 7 digit dialing in prefix are 482 only

The entry would look like: <128> 01 482#### * or unkey. This sequence tells the autopatch to allow the digits all digits that begin 482 and ignore the rest of the number.

Defaults:
All allow slots are off

Error Codes:
E1 - Invalid dialer slot. Number must be between 01..45
(System wide errors are listed in front of the manual)

Example 1:
I want to allow 1-800 numbers and store the result in slot 43

128 43 1800### * or unkey

Response:
"<Slot> is <Number>"

129: Recall Dialing Number Allow Table

This command recalls the results of the dialing table programmed in Command 128.

<129> *ss*

Parameters:
SS is the allow tables slot number. This number ranges from 01..45

Defaults:
All allow slots are off

Error Codes:
E1 - Invalid dialer slot. Number must be between 01..45
(System wide errors are listed in front of the manual)

Example 1:
I want to check what is in allow slot 43.

129 43 * or unkey

Response:
"<Slot> is <ON\OFF> Number is <Result>"

130: Enable/Disable Number Allow Table Entry

This command enables\disables an allow table entry.

<130> *ss y*

Parameters:
SS is the allow tables slot number. This number ranges from 01..45
Y is the control variable
- 0 - disables allow table entry
- 1 - enables allow table entry

Defaults:
All allow slots are off

Error Codes:
E1 - Invalid dialer slot. Number must be between 01..45
(System wide errors are listed in front of the manual)

Example 1:
I want to disable allow slot 43.

130 43 0 * or unkey

Response:
"<Slot> is <ON\OFF>"

131: Command Not Used

<131> *x y*

Parameters:

Defaults:

Notes:
C

Error Codes:

Example 1:

131

Response:

132: Program Memory Dial

This command programs the memory dial tables. This table holds either 100 or 200 16 digit phone numbers. The phone numbers bypass the pre-dial data thus allowing custom programming sequences. Memory dial numbers are not checked for long distance and are dialed without controller interference.

<132> *sss y..y*

Parameters:
SSS is the memory dial slot number. This number ranges between 000..199 and 911 if all 200 numbers are enabled without callsigns. If the autopatch memory dial is configured to contain callsigns, then this number ranges between 000..099 and 911.

Y..Y is the phone number to be dialed

Defaults:
All memory dial slots are disabled

Notes:
C Refer to Command 137 for memory dial selection types

Error Codes:
E1 - To much or to little data
E2 - Invalid dialer slot
(System wide errors are listed in front of the manual)

Example 1:
I want to set-up my 911 emergency dial slot to contain '911'

132 911 911 * or unkey

Response:
"<Slot> is <Number>"

133: Recall Memory Dial Slot

This command recalls a memory dial slots contents. This table holds either 100 or 200 16 digit phone numbers. The phone numbers bypass the pre-dial data thus allowing custom programming sequences. Memory dial numbers are not checked for long distance and are dialed without controller interference.

<133> *sss*

Parameters:
SSS is the memory dial slot number. This number ranges between 000..199 and 911 if all 200 numbers are enabled without callsigns. If the autopatch memory dial is configured to contain callsigns, then this number ranges between 000..099 and 911.

Defaults:
All memory dial slots are disabled

Notes:
C Refer to Command 137 for memory dial selection types

Error Codes:
E1 - Invalid dialer slot
(System wide errors are listed in front of the manual)

Example 1:
I check what my 911 memory dial slot contains

133 911 * or unkey

Response:
"<Slot> is <ON\OFF> Number is <Number>"

134: Enable/Disable Dialing Slot

This command enables\disables a memory dialing slot. When a slot is disabled, the contents are still kept, the slot just can not be dialed.

<134> *sss x*

Parameters:
SSS is the memory dial slot number. This number ranges between 000..199 and 911 if all 200 numbers are enabled without callsigns. If the autopatch memory dial is configured to contain callsigns, then this number ranges between 000..099 and 911.

X is the control variable
0 - Disables memory dial slot
1 - Enables memory dial slot

Defaults:
All memory dial slots are disabled

Notes:
C Refer to Command 137 for memory dial selection types

Error Codes:
E1 - Invalid dialer slot
(System wide errors are listed in front of the manual)

Example 1:
I want to disable my 911 memory dial slot because of misuse

134 911 0 * or unkey

Response:
"<Slot> is <ON\OFF>"

135: Program Call Sign Assignment

This command programs the call sign portion of the memory dial slots. In order to have call signs assigned, the user must configure Command 137. When configured the top 100 memory dial slots are erased and configured for call sign readback.

<135> *ss y..y*

Parameters:
SS is the memory dial slot number. This number ranges between 00..99
Y..Y is the call sign data. The word data must be between 000..255. This includes all the alphabet and some other controller words.

Defaults:
Call sign mode is disabled

Notes:
C The user must execute Command 137 to enable\disable call sign mode. When this command is executed, the controller erases the top 100 memory dial slots, or call signs, and re-configures the slots for the selected option. Care must be taken when executing Command 137.

Error Codes:
E1 - Call sign mode not enabled
E2 - To much data entered. Up to 8 words can be programmed per call sign position
E3 - Invalid call sign slot. The call sign numbers are the same as the memory slot number. This number ranges from 00..99
E4 - Invalid word number. The words must be between 000..255
(System wide errors are listed in front of the manual)

Example 1:
I want assign the call sign "KF7FW Home" to memory slot 01

135 01 040 035 007 035 052 215 * or unkey

Response:
"Call is <Entered Call Sign>"

136: Recall Call Sign Assignment

This command recalls the contents of a call sign slot. If the response only speaks "Call Is" then the call sign slot is not programmed.

<136> *ss*

Parameters:
SS is the call sign slot. This number must range between 00..99

Defaults:
Call sign mode is disabled

Notes:
C The user must execute Command 137 to enable\disable call sign mode. When this command is executed, the controller erases the top 100 memory dial slots, or call signs, and re-configures the slots for the selected option. Care must be taken when executing Command 137.

Error Codes:
E1 - Call sign mode not enabled
E2 - Invalid call sign slot. The call sign numbers are the same as the memory slot number. This number ranges from 00..99
(System wide errors are listed in front of the manual)

Example 1:
I check what is assigned to memory slot 01

136 01 * or unkey

Response:
"Call is <Entered Call Sign>"

137: Set Up Autodial Mode

This command configures call sign mode. When this mode is enabled, the top 100 dialing slots are converted to call sign slots. When this mode is disabled, the top 100 dialing slots are converted for 100 more memory dial positions.

<137> *x*

Parameters:
X is the control variable
0 - Disables call sign mode
1 - Enables call sign mode

Defaults:
Call sign mode is disabled

Notes:
C When executing this command, the user must take care when changing the configuration. By enable\disabling call sign mode, the controller erases the top 100 memory positions and configures the memory for either call signs or memory dial numbers. **All information will be erased in the top 100 positions when executed.**

Error Codes:
E1 - Invalid mode. This mode must be either a 0 or a 1.
(System wide errors are listed in front of the manual)

Example 1:
I want to set-up the memory in the autopatch to support call signs. I understand it will erase any information that is currently stored in the upper 100 block of numbers.

137 1 * or unkey

Response:
"Autopatch Call Route <ON\OFF>"

138: Program a Nusiance Number Slot

This command functions in the opposite of the allow tables operation. When a number is received and passes the allow table it must also pass through the nusiance table without a number match. If a match occurs, the number is discarded and dialing will not take place. The nusiance table supports the wildcard digit '#' but also supports the complete 11 digit number. This allows users the ability to lock-out numbers and near matches.

<138> *ss yyyyyyyyyyy*

Parameters:
SS is the nusiance slot. This number must be between 01..10
YYYYYYYYYYY is the 11 digit nusiance number

The allow table allows 'wildcards' in the entry sequence. The 'wildcard' digit is the '#' digit. When the controller compares user entered digits and comes upon a '#' in the table, that digit is a don't care.

Examples: (All examples will store in slot 01)
1) Do not allow the dialing of my home number 1-406-482-7515
The entry would look like: <138> 01 14064827515 * or unkey. This sequence tells the autopatch to dis-allow the number '1-406-482-7515'.

2) I allowed the number block 480..489 in Command 128. I need to disallow 483.
The entry would look like: <138> 01 483######## * or unkey. This sequence tells the autopatch to dis-allow all digits that begin 483 and ignore the rest of the number.

Defaults:
All allow slots are off

Error Codes:
E1 - Invalid slot. This number must be between 01..10
(System wide errors are listed in front of the manual)

Response:
"<Slot> is <Number>"

139: Recall a Nusiance Number Slot

This command recalls a nusiance slot.

<139> *ss*

Parameters:
SS is the allow tables slot number. This number ranges from 01..10

Defaults:
All dis-allow slots are off

Error Codes:
E1 - Invalid dialer slot. Number must be between 01..10
(System wide errors are listed in front of the manual)

Example 1:
I want to check what is in dis-allow slot 01.

139 01 * or unkey

Response:
"<Slot> is <ON\OFF> Number is <Result>"

140: Enable/Disable a Nusiance Slot

This command enables\disables an allow table entry.

<140> *ss y*

Parameters:
SS is the dis-allow tables slot number. This number ranges from 01..10
Y is the control variable
0 - disables allow table entry
1 - enables allow table entry

Defaults:
All dis-allow slots are off

Error Codes:
E1 - Invalid dialer slot. Number must be between 01..10
(System wide errors are listed in front of the manual)

Example 1:
I want to disable allow slot 01.

140 10 0 * or unkey

Response:
"<Slot> is <ON\OFF>"

141: Programs Pre-Dial Digits and Controls Dialing

This command programs the system pre-dial digits. These pre-dial digits are used when call block is needed and\or a PBX outside line is requested. The controller can dial upto 5 pre-dial digits. If a special delay is needed in the dialing string the DTMF digit 'B' can be inserted and no digit will be dialed. The controller already inserts 3 'B' digit delays between pre-dial dialing and the number dialing. Memory dialed numbers do not use the pre-dial routines.

<141> *y..y*

Parameters:
Y..Y are the pre-dial digits needed. You can enter upto 5 pre-dial digits.
If you do not enter and 'Y' digits, the pre-dial data will be erased thus canceling the pre-dial feature.

Defaults:
There are no pre-dial data

Notes:
C Caller ID's can be suppressed by inserting a predial sequence of '*67'. In order to enter this sequence the user must do the following.
1) Change the Forced Execution Digit to a '#'
2) Execute Command 141 with data *67. <141>*67 unkey or '#'
3) Change the Forced Execution Digit back to a '*'
4) Now when calls are made, the sequence *67 will be sent first, followed by the number

Error Codes:
E1 - To much data. This command can take from 1..5 digits of additional data
(System wide errors are listed in front of the manual)

Example 1:
I want a pre-dial of 9 to get an outside PBX line

141 9 * or unkey

Response:
"<Pre-Dial Data>" or "Autopatch Dial Clear"

142: Recalls Pre-Dial Digits

This command recalls the pre-dial digits programmed in Command 141.

<142>

Parameters:
There are no parameters for this command

Defaults:
There are no pre-dial data

Error Codes:
(System wide errors are listed in front of the manual)

Example 1:
I need to see if there are pre-dial digits programmed

142 * or unkey

Response:
"<Pre-Dial Data>" or "Autopatch Dial Clear"

143: Patch On-Line with Error Checking

This command dials an autopatch number with allow and nusiance table checking. From this command all autopatch dialing takes place.

Memory dial recall 0..9

<143> *x*

Memory dial recall 00..99

<143> *xx*

Memory dial recall 000..199 and\or 911
External dialing 200..999

<143> *xxx*

External dialing

<143> *xxx..x*

Parameters:
X..X are the digits to cause dialing

Defaults:
There are no defaults for this command

Error Codes:
E1 - Number failed the allow table. See Command 128
E2 - Number failed to pass the nusiance number test. See Command 138
E3 - Invalid dialed memory number when call-sign mode active. This number must be between 00..99 when dialing a memory dialed number and in call sign mode.
E4 - Memory dialed number requested is either not programmed or enabled.
(System wide errors are listed in front of the manual)

Example 1:
I want to dial the number 1-800-555-1212. I have allowed all '800 number to dial in Command 128.

143 18005551212 * or unkey

Response:
"Autopatch <Number if enabled (See Command 127 for readback set-up)>"
If the autopatch is being used on another port the response is: "Autopatch is Busy"

144: Patch On-Line without Error Checking

This command dials an autopatch number with-out allow and nusiance table checking. From this command all autopatch dialing takes place.

Memory dial recall 0..9

<144> *x*

Memory dial recall 00..99

<144> *xx*

Memory dial recall 000..199 and\or 911
External dialing 200..999

<144> *xxx*

External dialing

<144> *xxx..x*

Parameters:
X..X are the digits to cause dialing

Defaults:
There are no defaults for this command

Notes:
C This command should not be made available to normal users. This command opens the autopatch to non-supervised long distance dialing.

Error Codes:
E3 - Invalid dialed memory number when call-sign mode active. This number must be between 00..99 when dialing a memory dialed number and in call sign mode.
E4 - Memory dialed number requested is either not programmed or enabled.
(System wide errors are listed in front of the manual)

Example 1:
I want to dial the number 1-800-555-1212.

144 18005551212 * or unkey

Response:
"Autopatch <Number if enabled (See Command 127 for readback set-up)>"
If the autopatch is being used on another port the response is: "Autopatch is Busy"

145: Manual Patch On-Line

This command manually takes the autopatch off-hook and presents dial tone to the calling port. No DTMF regeneration, allow or nusiance checks are functional in this command.

<145>

Parameters:
There are no parameters for this command

Defaults:
There are no defaults for this command

Notes:
C This command should not be made available to normal users. This command opens the autopatch to non-supervised long distance dialing.

Error Codes:
(System wide errors are listed in front of the manual)

Example 1:
I need to adjust the autopatch. By taking the patch off-hook manually I can set-up the patch easier.

145 * or unkey

Response:
No response is directly assigned to this command. See event table programming to customize a response.

146: Hanging Up the Patch

This command places the patch on-hook after either a forward patch or reverse patch session.

<146>

Parameters:
There are no parameters for this command

Defaults:
There are no defaults for this command

Error Codes:
(System wide errors are listed in front of the manual)

Example 1:
I need to hang-up the patch

146 * or unkey

Response:
No response is directly assigned to this command. See event table programming to customize a response.

147: Call Sign Request and Enter Programming Mode

This command allows a user to request a call-sign be spoken over the selected port. This command is useful when reverse autopatch user paging is needed. By re-naming the call sign request command to a shorter command, the user can page users over-the-air by there dialing slot number.

<147> *ss*

Parameters:
SS is the call sign slot number. This number must be between 00..99

Defaults:
Call sign mode is disabled

Notes:
- Refer to Commands 135,136,137 for call sign configurations
- Refer to Command 007 for autopatch audio routing programming. The autopatch variable sets were the reverse autopatchs audio is routed.

Error Codes:
E1 - Invalid call sign slot
(System wide errors are listed in front of the manual)

Example 1:
I need to page user 55

147 55 * or unkey

Response:
"Call For <Call sign in slot SS>"

148: Command Not Used

<148> *x y*

Parameters:

Defaults:

Notes:
C

Error Codes:

Example 1:

148

Response:

149: Command Not Used

<149> *x y*

Parameters:

Defaults:

Notes:
C

Error Codes:

Example 1:

149

Response:

150: Reserved for the DVR

<150> *x y*

Parameters:

Defaults:

Notes:
C

Error Codes:

Example 1:

150

Response:

151: Reserved for the DVR

<151> *x y*

Parameters:

Defaults:

Notes:
C

Error Codes:

Example 1:

151

Response:

152: Reserved for the DVR

<152> *x y*

Parameters:

Defaults:

Notes:
C

Error Codes:

Example 1:

152

Response:

153: Reserved for the DVR

<153> *x y*

Parameters:

Defaults:

Notes:
C

Error Codes:

Example 1:

153

Response:

154: Reserved for the DVR

<154> *x y*

Parameters:

Defaults:

Notes:
C

Error Codes:

Example 1:

154

Response:

155: Reserved for the DVR

<155> *x y*

Parameters:

Defaults:

Notes:
C

Error Codes:

Example 1:

155

Response:

156: Reserved for the DVR

<156> *x y*

Parameters:

Defaults:

Notes:
C

Error Codes:

Example 1:

156

Response:

157: Reserved for the DVR

<157> *x y*

Parameters:

Defaults:

Notes:
C

Error Codes:

Example 1:

157

Response:

158: Reserved for the DVR

<158> *x y*

Parameters:

Defaults:

Notes:
C

Error Codes:

Example 1:

158

Response:

159: Reserved for the DVR

<159> *x y*

Parameters:

Defaults:

Notes:
C

Error Codes:

Example 1:

159

Response:

160: Reserved for the DVR

<160> *x y*

Parameters:

Defaults:

Notes:
C

Error Codes:

Example 1:

160

Response:

161: Reserved for the DVR

<161> *x y*

Parameters:

Defaults:

Notes:
C

Error Codes:

Example 1:

161

Response:

162: Reserved for the DVR

<162> *x y*

Parameters:

Defaults:

Notes:
C

Error Codes:

Example 1:

162

Response:

163: Reserved for the DVR

<163> *x y*

Parameters:

Defaults:

Notes:
C

Error Codes:

Example 1:

163

Response:

164: Reserved for the DVR

<164> *x y*

Parameters:

Defaults:

Notes:
C

Error Codes:

Example 1:

164

Response:

165: Erase a Macro Position

This command erases a macro position. When a position is erased, the macro need to be re-programmed. To just enable\disable the macro, refer to Command 166.

<165> *ss*

Parameters:
SS is the macro number. This number must be between 01..50

Defaults:
All macros are erased

Error Codes:
E1 - Invalid macro slot.
(System wide errors are listed in front of the manual)

Example 1:
I need to erase macro 15 before I reprogram it with new data

165 15 * or unkey

Response:
"Position <Slot Number> Clear"

166: Enable/Disable a Macro Position

This command controls if a macro can be executed. Once a macro is programmed, the user can enable\disable a macro without effecting its contents.

<166> *ss y*

Parameters:
SS is the macro number. This number must be between 01..50
Y is the control variable
0 - Disables the macro
1 - Enables the macro

Defaults:
All macros are erased and disabled

Error Codes:
E1 - Invalid macro slot. Number must be between 01..50
E2 - Invalid mode. Mode must be either a 1 or a 0
(System wide errors are listed in front of the manual)

Example 1:
I need to disable macro 15

166 15 0 * or unkey

Response:
"Position <Slot Number> <ON\OFF>"

167: Recall a Macro Position

This command recalls the programming positions of a macro. Because there can be several commands in a macro with variable lengths of additional data, the user needs to be able to read back the macro position to find what is in the macro.

<167> *ss*

Parameters:
SS is the macro number. This number must be between 01..50

Defaults:
All macros are erased and disabled

Error Codes:
E1 - Invalid macro slot. Number must be between 01..50
E2 - Invalid mode. Mode must be either a 1 or a 0
(System wide errors are listed in front of the manual)

Example 1:
I need to recall macro 15

167 15 * or unkey

Response:
If the macro is erased the response is:
"<Slot Number> is Off, Input is Clear"

If the macro is programmed the response is:
"<Slot Number> is ON,
"Input is <Command Number> With <Additional Data>
"Next input is" ...

168: Program\Append a Macro Position

This command allows the user to program a macro position and append new commands into a macros. The macro positions can take up to 50 keystrokes per macro. Macros can call other macros up to 5 levels of calling.

<168> *ss xxx y..y*

Parameters:
SS is the macro number. This number must be between 01..50
XXX is the command number. This number must be between 000..225
Y..Y is the additional data for the command if the command requires additional data

Defaults:
All macros are clear and disabled

Notes:
C When counting keystrokes for a macro position
1) Command numbers (XXX) count as 2 keystrokes, not 3
2) Additional data digits count as 1 digit per entered digit
3) Do not have macros call themselves. If this occurs a macro depth limit error will occur.

Error Codes:
E1 - Not enough data entered. Minimum data entered is 5 digits. 2 for the macro number and 3 for the command name.
E2 - Invalid macro position. Number must be between 01..50
E3 - Macro overfull occurred. When this error is requested, the data you are appending onto a macro is more than the macro can hold. Try putting the next data in another macro and calling the second macro from the first.
E4 - Invalid Command name programmed in. Command names must be between 000..225
(System wide errors are listed in front of the manual)

Example 1:
I want to program macro 01 to speak a voice message
"Welcome to the Repeater, <Female Time>"

168 01 045 468 002 421 361 528 702 * or unkey

Response:
"Number <Macro> Programming <Command Name> With <Additional Data if any>"

169: Cancel all Responses Following This Command
170: Re-enables all Responses Following This Command

These commands cancel and re-enable all responses following these command execution. The user would put this in a macro when programming to keep the command responses that are spoken when a macro executes from being spoken and to re-enable voice responses after execution. For example, I need to turn outputs 4,5,6,7,8 on using Command 092. I also want to speak the response PL 100 hertz ON. If I executed this command from the macro without using Command 169 before Command 092 I would get the following response: "PL 100 Hertz ON" "4 ON, 5 ON, 6 ON, 7 ON, 8 ON". If I place command 169 between the Speak voice message and turn Output Line ON command my response would be "PL 100 Hertz ON" and nothing more. At the end of the macro you will need to execute Command 170 to re-enable the voice response.

Cancel responses following this command

<169>

Enable responses following this command

<170>

Parameters:
There are no parameters for this command

Error Codes:
(System wide errors are listed in front of the manual)

Example 1:
From the above mentioned example placed in macro 02
1) 165 02 * or unkey ;
Clears macro #02
2) 168 02 045 045 041 001 028 212 310 * or unkey ; Programs the voice response
3) 168 02 169 * or unkey ; Cancels
voice responses
4) 168 02 092 4 5 6 7 8 * or unkey ; Turn Outputs
4,5,6,7,8 ON
5) 168 02 170 * or unkey ; Re-enable
voice responses

By executing macro 02, Command 172, outputs 4,5,6,7,8 are turned on and the response spoken is 'PL 100 Hertz On'

Response:
There are no responses for these commands

171..220: Execute Macro #01..#50

These commands execute macro positions 01..50. Programming of the macros is accomplished using Command 168.

Name	Number	Name	Number	Name	Number
Macro 01	171	Macro 18	188	Macro 35	205
Macro 02	172	Macro 19	189	Macro 36	206
Macro 03	173	Macro 20	190	Macro 37	207
Macro 04	174	Macro 21	191	Macro 38	208
Macro 05	175	Macro 22	192	Macro 39	209
Macro 06	176	Macro 23	193	Macro 40	210
Macro 07	177	Macro 24	194	Macro 41	211
Macro 08	178	Macro 25	195	Macro 42	212
Macro 09	179	Macro 26	196	Macro 43	213
Macro 10	180	Macro 27	197	Macro 44	214
Macro 11	181	Macro 28	198	Macro 45	215
Macro 12	182	Macro 29	199	Macro 46	216
Macro 13	183	Macro 30	200	Macro 47	217
Macro 14	184	Macro 31	201	Macro 48	218
Macro 15	185	Macro 32	202	Macro 49	219
Macro 16	186	Macro 33	203	Macro 50	220
Macro 17	187	Macro 34	204	....	....

Error Codes:
There are no errors for a macro execution
(System wide errors are listed in front of the manual)

Example 1:
I need to execute macro 01

```
171 * or unkey
```

Response:
The response depends on what commands are inside the macros

221: Serial Upload Data File

This command uploads a serial data file that was generated by the RLC-2 controller. This file will only upload V4.XX software blocks. Do not edit the upload file without using the Link Communications Inc. editor.

<221>

Execution Source:
This command can only be executed from the RS-232 port

Parameters:
There are no parameters for this command

Notes:

C Once you enter command 221, the controller will prompt you to begin the upload. All functions on the controller will cease to operate except the serial system. Data files have been successfully uploaded at 9600 baud without errors. Once the upload is complete the controller will prompt you with a checksum match message. if the checksums do not match try a slower baud rate, or change your ASCII upload requirements character pacing timing. This may slow the upload but it will guarantee a successful transfer.

Error Codes:

(System wide errors are listed in front of the manual)

Example 1:
I need to re-upload my hex file after I re-initialized the controller

221 * or unkey

Response:
There is no response for this command

222: Serial Download Data File

This command downloads the controllers memory contents from the controller to your computer. This will only currently download the main RAM block, not the autopatch RAM. Before executing this command set-up your computer for ASCII download. Once the computers file has been opened, execute Command 222. When the download has stopped and given you a file checksum, you can close the file.

<222>

Parameters:
There are no parameters for this command

Defaults:
There are no defaults for this command

Notes:
C Do not edit the downloaded file without using the Link Communications Inc. editor.

Error Codes:
(System wide errors are listed in front of the manual)

Example 1:
I have completely set-up my controller. Now I need to save the contents on my computer incase of any problems.

222 * or unkey

Response:
Serial download data on your screen

223: Serial Command Name List

This command lists all the controllers command names including execution sources, DTMF and serial locking.

<223>

Parameters:
There are no parameters for this command

Defaults:
There are no defaults for this command

Error Codes:
(System wide errors are listed in front of the manual)

Example 1:
I need a list of all the controllers command names.

223 * or unkey

Response:
Serial command name lists

224: Change the Serial Baud Rate

This command changes the serial baud rate for the RS-232 port.

<224> *x*

Parameters:
X is the serial baud rate

Baud Number	Baud Rate
0	9600
1	4800
2	2400
3	1200
4	600
5	300

Defaults:
Baud rate defaults to 9600

Error Codes:
E1 - Invalid baud rate

Example 1:
I need to change my baud rate from 9600 to 2400 baud

224 2 * or unkey

Response:
"Computer Programming Rate Is <X>"

225: Remotely Reset the Controller

This command remotely resets the RLC-2 controller. This will not change any of the system variables, only provide a reset function.

<225>

Parameters:
There are no parameters for this command

Defaults:
There are no defaults for this command

Error Codes:
(System wide errors are listed in front of the manual)

Example 1:
I need to reset my controller to clear a condition

225 * or unkey

Response:
"Controller Ready"

Appendix A

Appendix B
Tone Frequency Conversion Table

Freq	Cnt
100	9999
105	9522
110	9089
115	8694
120	8332
125	7999
130	7691
135	7406
140	7141
145	6895
150	6665
155	6450
160	6249
165	6059
170	5881
175	5713
180	5554
185	5404
190	5262
195	5127
200	4999
205	4877
210	4760
215	4650
220	4544
225	4443
230	4346

235	4254
240	4165
245	4080
250	3999
255	3920
260	3845
265	3772
270	3702
275	3635
280	3570
285	3507
290	3447
295	3388
300	3332
305	3277
310	3224
315	3173
320	3124
325	3075
330	3029
335	2984
340	2940
345	2897
350	2856
355	2815
360	2776
365	2738
370	2701

375	2665
380	2630
385	2596
390	2563
395	2530
400	2499
405	2468
410	2438
415	2408
420	2379
425	2351
430	2324
435	2297
440	2271
445	2246
450	2221
455	2196
460	2172
465	2149
470	2126
475	2104
480	2082
485	2060
490	2039
495	2019
500	1999
505	1979
510	1959

515	1940
520	1922
525	1903
530	1885
535	1868
540	1850
545	1833
550	1817
555	1800
560	1784
565	1768
570	1753
575	1738
580	1723
585	1708
590	1693
595	1679
600	1665
605	1651
610	1638
615	1625
620	1611
625	1599
630	1586
635	1573
640	1561
645	1549
650	1537

655	1525
660	1514
665	1502
670	1491
675	1480
680	1469
685	1458
690	1448
695	1437
700	1427
705	1417
710	1407
715	1397
720	1387
725	1378
730	1368
735	1359
740	1350
745	1341
750	1332
755	1323
760	1314
765	1306
770	1297
775	1289
780	1281
785	1272
790	1264

795	1256
800	1249
805	1241
810	1233
815	1225
820	1218
825	1211
830	1203
835	1196
840	1189
845	1182
850	1175
855	1168
860	1161
865	1155
870	1148
875	1141
880	1135
885	1128
890	1122
895	1116
900	1110
905	1103
910	1097
915	1091
920	1085
925	1080
930	1074
935	1068
940	1062

945	1057
950	1051
955	1046
960	1040
965	1035
970	1029
975	1024
980	1019
985	1014
990	1009
995	1004
1000	999
1005	994
1010	989
1015	984
1020	979
1025	974
1030	969
1035	965
1040	960
1045	955
1050	951
1055	946
1060	942
1065	937
1070	933
1075	929
1080	924
1085	920
1090	916

1095	912
1100	908
1105	903
1110	899
1115	895
1120	891
1125	887
1130	883
1135	880
1140	876
1145	872
1150	868
1155	864
1160	861
1165	857
1170	853
1175	850
1180	846
1185	842
1190	839
1195	835
1200	832
1205	828
1210	825
1215	822
1220	818
1225	815
1230	812
1235	808
1240	805

1245	802
1250	799
1255	795
1260	792
1265	789
1270	786
1275	783
1280	780
1285	777
1290	774
1295	771
1300	768
1305	765
1310	762
1315	759
1320	756
1325	753
1330	750
1335	748
1340	745
1345	742
1350	739
1355	737
1360	734
1365	731
1370	728
1375	726
1380	723
1385	721
1390	718

1395	715
1400	713
1405	710
1410	708
1415	705
1420	703
1425	700
1430	698
1435	695
1440	693
1445	691
1450	688
1455	686
1460	683
1465	681
1470	679
1475	676
1480	674
1485	672
1490	670
1495	667
1500	665
1505	663
1510	661
1515	659
1520	656
1525	654
1530	652
1535	650
1540	648

1545	646
1550	644
1555	642
1560	640
1565	637
1570	635
1575	633
1580	631
1585	629
1590	627
1595	625
1600	624
1605	622
1610	620
1615	618
1620	616
1625	614
1630	612
1635	610
1640	608
1645	606
1650	605
1655	603
1660	601
1665	599
1670	597
1675	596
1680	594
1685	592
1690	590

1695	588
1700	587
1705	585
1710	583
1715	582
1720	580
1725	578
1730	577
1735	575
1740	573
1745	572
1750	570
1755	568
1760	567
1765	565
1770	563
1775	562
1780	560
1785	559
1790	557
1795	556
1800	554
1805	553
1810	551
1815	549
1820	548
1825	546
1830	545
1835	543
1840	542

1845	541
1850	539
1855	538
1860	536
1865	535
1870	533
1875	532
1880	530
1885	529
1890	528
1895	526
1900	525
1905	523
1910	522
1915	521
1920	519
1925	518
1930	517
1935	515
1940	514
1945	513
1950	511
1955	510
1960	509
1965	507
1970	506
1975	505
1980	504
1985	502
1990	501

1995	500
2000	499
2005	497
2010	496
2015	495
2020	494
2025	492
2030	491
2035	490
2040	489
2045	487
2050	486
2055	485
2060	484
2065	483
2070	482
2075	480
2080	479
2085	478
2090	477
2095	476
2100	475
2105	474
2110	472
2115	471
2120	470
2125	469
2130	468
2135	467
2140	466

2145	465
2150	464
2155	463
2160	461
2165	460
2170	459
2175	458
2180	457
2185	456
2190	455
2195	454
2200	453
2205	452
2210	451
2215	450
2220	449
2225	448
2230	447
2235	446
2240	445
2245	444
2250	443
2255	442
2260	441
2265	440
2270	439
2275	438
2280	437
2285	436
2290	435

2295	434
2300	433
2305	432
2310	431
2315	430
2320	430
2325	429
2330	428
2335	427
2340	426
2345	425
2350	424
2355	423
2360	422
2365	421
2370	420
2375	420
2380	419
2385	418
2390	417
2395	416
2400	415
2405	414
2410	413
2415	413
2420	412
2425	411
2430	410
2435	409
2440	408

2445	407
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2465	404
2470	403
2475	403
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2485	401
2490	400
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2500	399
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2510	397
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2540	392
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2555	390
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2565	388
2570	388
2575	387
2580	386
2585	385
2590	385

2595	384
2600	383
2605	382
2610	382
2615	381
2620	380
2625	379
2630	379
2635	378
2640	377
2645	377
2650	376
2655	375
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2665	374
2670	373
2675	372
2680	372
2685	371
2690	370
2695	370
2700	369
2705	368
2710	368
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2740	363

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2765	360
2770	360
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2785	358
2790	357
2795	356
2800	356
2805	355
2810	354
2815	354
2820	353
2825	352
2830	352
2835	351
2840	351
2845	350
2850	349
2855	349
2860	348
2865	348
2870	347
2875	346
2880	346
2885	345
2890	345

2895	344
2900	343
2905	343
2910	342
2915	342
2920	341
2925	340
2930	340
2935	339
2940	339

Appendix C
Voice Word Look-up Table

ZERO 000
ONE 001
TWO 002
THREE 003
FOUR 004
FIVE 005
SIX 006
SEVEN 007
EIGHT 008
NINE 009
TEN 010
ELEVEN 011
TWELVE 012
THIRTEEN 013
FOURTEEN 014
FIFTEEN 015
SIXTEEN 016
SEVENTEEN 017
EIGHTEEN 018
NINETEEN 019
TWENTY 020
THIRTY 021
FORTY 022
FIFTY 023
SIXTY 024
SEVENTY 025
EIGHTY 026
NINETY 027
HUNDRED 028
THOUSAND 029
A 030
B 031
C 032
D 033
E 034
F 035
G 036
H 037
I 038
J 039
K 040
L 041
M 042
N 043
O 044
P 045
Q 046
R 047
S 048
T 049
U 050
V 051
W 052
X 053
Y 054
Z 055
ABOUT 056
ABOVE 057
ACKNOWLEDGE . . 058
ACTION 059
ADJUST 060
ADVANCED 061
ADVISE 062
AIR 063
AIRPORT 064
AKRON 065
ALERT 066
ALL 067
ALPHA 068
AMATEUR 069
AMPS 070
AND 071
ANSWER 072
APRIL 073
AREA 074
AS 075
ASSOCIATION 076
AT 077
AUGUST 078
AUTO 079
AUTOMATIC 080
AUXILIARY 081
AVON 082
A_M 083
BAND 084
BANK 085
BASE 086
BATTERY 087
BELOW 088
BETWEEN 089
BLOWING 090
BOARD 091
BOZO 092
BRAVO 093
BREAK 094
BROKEN 095
BUSY 096
BUTTON 097
BY 098
CALIBRATE 099
CALL 100
CALLING 101
CALM 102
CANCEL 103
CAUTION 104
CELSIUS 105
CENTER 106
CHANGE 107
CHARLIE 108
CHECK 109
CIRCUIT 110
CLEAR 111
CLOCK 112
CLOSED 113
CLUB 114
CODE 115
COLUMBUS 116
COME 117
COMPLETE 118
COMPUTER 119
CONDITION 120
CONGRATULATN . 121
CONNECT 122
CONNECTICUT . . . 123
CONTACT 124
CONTROL 125
COUNT 126
COURSE 127
CRANE 128
CURRENT 129
CYCLE 130
DALLAS 131
DANGER 132
DATE 133
DAY 134

OUTSIDE 576
PEAK 577
POUND 578
PUMP 579
PYRAMID 580
RACES 581
RATTLESNAKE . . . 582
RIDGE 583
SANDRA 584
SCAN 585
SIDNEY 586
SKYWARN 587
SOCIETY 588
SPOKANE 589
STAR 590
STATE 591
SUNDANCE 592
TACOMA 593
TIGER 594
VALUE 595
VOLTAGE 596
WASHINGTON 597
WATER 598
YAKIMA 599
YELLOWHEAD 600
YELLOWKNIFE . . . 601

Special Words:
GOOD M\A\E 700
MALE TIME 701
FEMALE TIME 702
MALE DATE 703
MALE DAY 704
ANALOG 1 705
ANALOG 2 706
ANALOG 3 707
ANALOG 4 708
ANALOG 1 HIGH . . 709
ANALOG 2 HIGH . . 710
ANALOG 3 HIGH . . 711
ANALOG 4 HIGH . . 712
ANALOG 1 LOW . . . 713
ANALOG 2 LOW . . . 714
ANALOG 3 LOW . . . 715
ANALOG 4 LOW . . . 716
ANG 1 HIGH TIME . 717
ANG 2 HIGH TIME . 718
ANG 3 HIGH TIME . 719
ANG 4 HIGH TIME . 720
ANG 1 LOW TIME . 721
ANG 2 LOW TIME . 722
ANG 3 LOW TIME . 723
ANG 4 LOW TIME . 724
ANG 1 HIGH DATE 725
ANG 2 HIGH DATE 726
ANG 3 HIGH DATE 727
ANG 4 HIGH DATE 728
ANG 1 LOW DATE . 729
ANG 2 LOW DATE . 730
ANG 3 LOW DATE . 731
ANG 4 LOW DATE . 732
VOICE POLITE 733
VOICE POLITE 1 . . 734

Special Voice Words

Special voice words begin at 700. These words do special functions like read the time, day, date, analog channels with high/lows. Special words 733 and 734 control how a voice message is handled. When the voice encounters either of these 2 words it will watch the calling channel and quit speaking if interrupted. When interrupted the voice will either quit speaking, or it will quit speaking and fetch an event (See command 063,064,065). This fetched event can contain a special CW message for ID's, voice interruption messages, and alike. This word can be located anywhere in the voice message.

Appendix D