# 7 ZR330 Controller Programming

## 7.1 Overview

This section contains information and procedures that allow the technician to program the ZR330 controller.

You can program the ZR330 controller in the following ways:

- ❏ with a Motorola RIB compatible interface, using a computer running Motorola GM300/GR300 Radio Service Software (RSS)

- ❏ locally, using an attached telephone

- ❏ remotely, through the ZR320 controller.

## 7.2 Programming via Radio Service Software (RSS)

We recommend that you program the ZR330 controller using a PC that runs the Motorola Radio Service Software (RSS), because it is the easiest programming method. Using this software allows you to access the programmable features of the ZR330 controller from user-friendly screens on the PC. You can archive the final configuration for safekeeping or later examination. The **Programming** port is hardware compatible with the Motorola RIB. The RSS prompts the system installer to plug into the ZR330 controller, and when to read or write its configuration.

## 7.3 Configuring the System

The configuration of the ZR330 controller is similar to that of the ZR320 controller.

### 7.3.1 Set Repeater Type and Radio Parameters

**From the Main Menu:**

1. Press **F4** (Change/View).

2. Press **F5** (Mode Configuration).

The screen that appears will vary, depending on the type of ZR330 Remote Telephone System you have read (refer to Figure 7-1 and Figure 7-2).

You may choose between two types of ZR330 systems:

- ❏ Phone Remote RMT (with tone or dc remote)
- ❏ Phone Remote PA (with public address)

```
┌──────────────────────────────────────┬─────────────────────────────────┐
│MOTOROLA Radio Service Software        │Enter Frequency In MHz.  Ex:  159.4200│
│Radius GM300   Model: M03GMC09C2__     │                                 │
│                                       │                                 │
│CHANGE/VIEW:MODE                       │                                 │
├──────────────────────────────────────┴─────────────────────────────────┤
│                                                                          │
│   Repeater Type...........Phone Remote RMT                               │
│                                                                          │
│   Rx Frequency............150.10000                                      │
│   Tx Frequency............151.00000                                      │
│                                                                          │
│   Rx Squelch Type.........TPL                                            │
│   Rx Squelch Code.........67.0   XZ                                      │
│                                                                          │
│   Tx Squelch Type.........TPL                                            │
│   Tx Squelch Code.........69.3   WZ                                      │
│                                                                          │
│   Tx Inhibit on Busy......N                                              │
│   Local/Distance..........DX                                             │
│                                                                          │
├──────────────────────────────────────────────────────────────────────────┤
│ F1      F2      F3      F4      F5      F6      F7      F8      F9     F10 │
│ HELP                            PRINT                                 EXIT│
│                                 SCREEN                                    │
└──────────────────────────────────────────────────────────────────────────┘
```
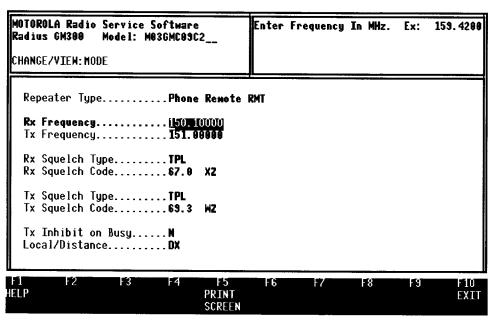
*Figure 7-1.    Change/View: Phone Remote RMT*

```
┌──────────────────────────────────────┬─────────────────────────────────┐
│MOTOROLA Radio Service Software        │Enter Frequency In MHz.  Ex:  159.4200│
│Radius GM300   Model: M03GMC09C2__     │                                 │
│                                       │                                 │
│CHANGE/VIEW:MODE                       │                                 │
├──────────────────────────────────────┴─────────────────────────────────┤
│                                                                          │
│   Repeater Type...........Phone Remote PA                                │
│                                                                          │
│   Rx Frequency............150.10000                                      │
│   Tx Frequency............151.00000                                      │
│                                                                          │
│   Rx Squelch Type.........CSQ                                            │
│                                                                          │
│                                                                          │
│   Tx Squelch Type.........CSQ                                            │
│                                                                          │
│                                                                          │
│   Tx Inhibit on Busy......N                                              │
│   Local/Distance..........DX                                             │
│                                                                          │
├──────────────────────────────────────────────────────────────────────────┤
│ F1      F2      F3      F4      F5      F6      F7      F8      F9     F10 │
│ HELP                            PRINT                                 EXIT│
│                                 SCREEN                                    │
└──────────────────────────────────────────────────────────────────────────┘
```
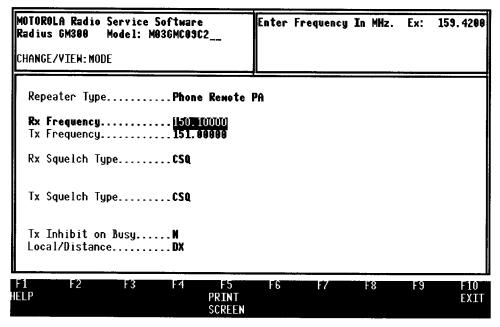
*Figure 7-2.    Change/View: Phone Remote PA*

*NOTE:  If you have read only the option board, the screens in Figure 7-1 and Figure 7-2 will not appear. If you have read only the transmit or the receive radio, not all fields will be shown.*

When the cursor is positioned on the line titled **Repeater Type**, although the ZR330 controller is not a repeater, use the up/down arrow keys to toggle between the different ZR330 controller types.

For information about Rx and Tx frequencies, Rx squelch types and codes, Tx inhibit on busy, and local/distance, refer to the GM300 Radio Service Software Manual (6880902Z36).

## 7.3.2  ZR330 Programmable Features

Four programmable features can be set for the ZR330 controller. They all fall into the category of System-Programmable Fields.

### 7.3.2.1  System-Programmable Fields

The information in these fields affects all users.

From the Main Menu:

1.  Press **F4** (Change/View).

2.  Press **F2** (Radio/Wide).

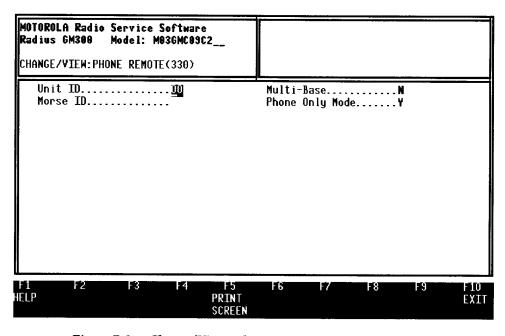The ZR330 Controller System Configuration Screen in Figure 7-3 should appear.

```
┌─────────────────────────────────────────┬─────────────────────────────┐
│MOTOROLA Radio Service Software           │                             │
│Radius GM300    Model: M03GMC03C2__       │                             │
│                                          │                             │
│CHANGE/VIEW:PHONE REMOTE(330)             │                             │
├─────────────────────────────────────────┴─────────────────────────────┤
│    Unit ID...............00              Multi-Base............N        │
│    Morse ID..............                Phone Only Mode.......Y        │
│                                                                         │
│                                                                         │
│                                                                         │
│                                                                         │
│                                                                         │
│                                                                         │
│                                                                         │
│                                                                         │
│                                                                         │
└─────────────────────────────────────────────────────────────────────────┘
 F1      F2      F3      F4      F5      F6      F7      F8      F9     F10
 HELP                            PRINT                                  EXIT
                                 SCREEN
```

*Figure 7-3.    Change/View: Phone Remote (ZR330 Controller)*

### Unit ID

The ZR330 controller must be used in conjunction with a ZR320 controller (or multiple ZR320 controllers). The unit ID for the ZR330 controller corresponds with a user number on the ZR320 controller (or ZR320 controllers).

The range for the unit ID is 00-99. The default is 00.

### Morse (Station) ID

If set, the ZR330 controller transmits the call sign of the station at the end of each phone call. The station ID option sets the station's Morse code ID. The ID is sent at the end of each call at 30% deviation and 25 words per minute. The ID tone frequency is 1 kHz.

The Morse ID can be up to eight characters long. These characters can be digits from 0-9, or the letters A-Z. The default is a blank field.

IMPORTANT: *The ID will be sent even if the radio does not answer a call.*

*Local Programming*

### Multi-Base

The multi-base option allows the ZR330 controller to address multiple ZR320 controllers.

The multi-base can be set to:

- ❑ Y—address multiple ZR320 controllers
- ❑ N—address only a single ZR320 controller **(default)**

### Phone Only Mode

The phone only mode restricts the ZR330 controller to telephone use only. If this mode is set to Y (Yes), mobile "like" operation is disabled. For telephone line extender (rural telephone) operation, use phone only mode (Y).

The phone only mode can be set to:

- ❑ Y—telephone use only **(default)**
- ❑ N—mobile or telephone use possible

## 7.4  Local Programming

## 7.4.1  Entering a Command

To execute a program command, a DTMF number is entered followed by the "#" key. Each time a command is completed, the ZR330 controller responds with five "go ahead" beeps indicating that it is waiting for another command. If an error is detected while programming, the ZR330 controller sends an error "bedo" signal over the transmit audio.

> NOTE: *While entering a command, the '\*' key functions as a "clear entry" key.*

All numbers can be entered with or without leading zeros except when programming the Morse code identification (CWID). For example, a 1 may be entered as 0001#, 001#, 01#, or 1#.

Some commands require additional numbers, as in the case of the program access mode (refer to explanation below). These commands will send two "further information needed" beeps while programming. Although you do not have to wait for each prompt tone before entering the next command (because all commands are internally buffered), we recommend that you listen for the corresponding tones.

> NOTE: *At any time while programming the unit, if no DTMF key is pressed during a 60-second period, the ZR330 controller will exit program mode automatically.*

## 7.4.2  Entering the Program Mode

To enter the program mode:

1. Press the "\*" key on the telephone set, then lift the handset from the cradle.

2. Listen for five beeps, indicating that you have accessed the programming mode.

## 7.4.3  Exiting the Program Mode

To exit the program mode:

1. Enter 99#.

2. Listen for a ringing prompt tone, which confirms that you have exited the programming mode.

> NOTE: *At any time while programming the unit, if no DTMF key is pressed during a period of 60 seconds, the ZR330 controller will exit program mode automatically.*

## 7.4.4  DTMF Command Descriptions

The DTMF commands are entered from the DTMF telephone set connected to the ZR330 controller "Telephone" jack or remotely from a ZR320 controller.

### 7.4.4.1  System Commands

The following DTMF system commands can be used in the same way as for the ZR320 controller (refer to the explanations and examples for the ZR320 controller):

25#        Morse ID (default = blank).

63#        Unit ID (default = 00).

> IMPORTANT: *Any system commands not listed here or explained below are not valid programming commands for the ZR330 controller.*

#### Single-/Multi-ZR320 Controller Operation (81#, 82#)

These commands tell the ZR330 controller whether or not to prompt the user to enter the unit ID of a ZR320 controller. For single-ZR320 controller operation, no prompt is given; for multi-ZR320 controller operation, there is a prompt tone.

81#        Single-ZR320 controller operation **(default)**.

82#        Multi-ZR320 controller operation.

#### Telco Link Enable/Disable (83#, 84#)

These commands enable or disable the ZR330 controller to make mobile to mobile calls.

83#        Telco link enable Phone Only mode; (disable mobile calling).

84#        Telco link disable (enable mobile calling) **(default)**.

### 7.4.4.2  Diagnostic Commands

The following DTMF diagnostic commands can be used in the same way as for the ZR320 controller (refer to the explanations and examples for the ZR320 controller):

#### Reset (91#)

91#        Reset to defaults.

#### Setup and Testing (92#,93#, 95#)

92#        Transmit level test.

93#        TPL/DPL level test.

95#        Hybrid test.

#### Remote Programming (97#)

97#        Remote programming.

> IMPORTANT: *Any diagnostic commands not listed here are not valid programming commands for the ZR330 controller.*

## 7.5 Programming the ZR330 Controller Through the ZR320 Controller

1. Using a telephone, enter the programming mode on the ZR320 controller.

2. Enter command code 97# to enter remote programming for programming the ZR330 controller. A double beep will sound.

3. Enter the two-digit unit ID of the ZR330 controller.

4. Wait until a "bedo" tone sounds, confirming that the link is established. You are ready to program.

   *NOTE: If you hear three error tones, the link could not be established.*

5. Wait for the accessed ZR330 controller to respond with five programming beeps.

6. Program the ZR330 controller.

   *NOTE: At any time while programming the unit, if no DTMF key is pressed during a period of 60 seconds, the ZR320 controller will exit program mode automatically.*

7. To exit the remote programming mode, enter 99# (both units will exit programming mode).