



DUAL CONTROL OF GATED ACCESS VIA TRC AND SAM

For *Quantar* and *Quantro* Stations
Servicing MCS Users

1 OVERVIEW

This section describes how to program the station (*Quantar* or *Quantro*) and the Station Access Module (SAM) to allow two functions (repeater setup/knockdown and “gated access” to be controlled (toggled on and off) by both of the following methods:

- Console Operator using TRC tones
- Subscriber Unit using DTMF or MDC 1200 signaling transmitted over the air

By utilizing the MCS Feature and controlling the repeater setup/knockdown and “gated access” functions, an effective “Mutual Aid” talk group configuration can be created. In this configuration, subscribers within a specific coverage area (local subscribers) are assigned a “primary” PL and have their MCS User Access field set to ENABLED. These subscribers will repeat as normal (assuming station is toggled to “repeater setup” mode). Should emergency conditions require other subscribers outside of the local area to enter the communications area, these subscribers will be able to communicate with each other (as well as local users) via the same local repeater if they have been assigned with a “secondary” PL and have their MCS User Access set to GATED. Additionally, the repeat mode (setup or knocked down) and gated access mode (enabled or disabled) may be controlled by both a console operator or a subscriber unit. (Note that Gated User Access is disabled upon station reset. Gated Access must be enabled via over-the-air transmissions to the SAM module, or via TRC tones from the console.)

The following table shows how the repeater access and “gated access” functions may be controlled to provide access to local and visiting subscribers. Refer also to Figure 1 (showing a typical repeater access call flow chart **before** Gated Access is employed), and Figure 2 (showing a repeater access call flow chart **after** Gated Access is incorporated).

Gated Access	Repeater Up/Down	Subscriber Operation
Enabled	Up	<ul style="list-style-type: none">• Local subscribers (primary PL) will repeat.• Emergency subscribers (secondary PL and MCS User Access set to GATED) will repeat.
Enabled	Down	<ul style="list-style-type: none">• No subscribers will repeat.
Disabled	Up	<ul style="list-style-type: none">• Only local subscribers (primary PL) will repeat.
Disabled	Down	<ul style="list-style-type: none">• No subscribers will repeat.

In order to perform the procedures in this section, you must program certain parameters in the *Quantar* or *Quantro* station and the Station Access Module (SAM). In order to do this, you will need the following software programs:

- RVN5002 *Quantar/Quantro* Radio Service Software (RSS) Version R09.05.00 or higher)
- RVN4110 Station Access Module (SAM) Radio Service Software (RSS) Version R01.01 or higher)

Call Flow Prerequisites

- MCS User Access is Enabled (but not Gated)
- Analog Rptr Activation RSS Parameter set to SC
- Local Subscribers are using "Primary" PL

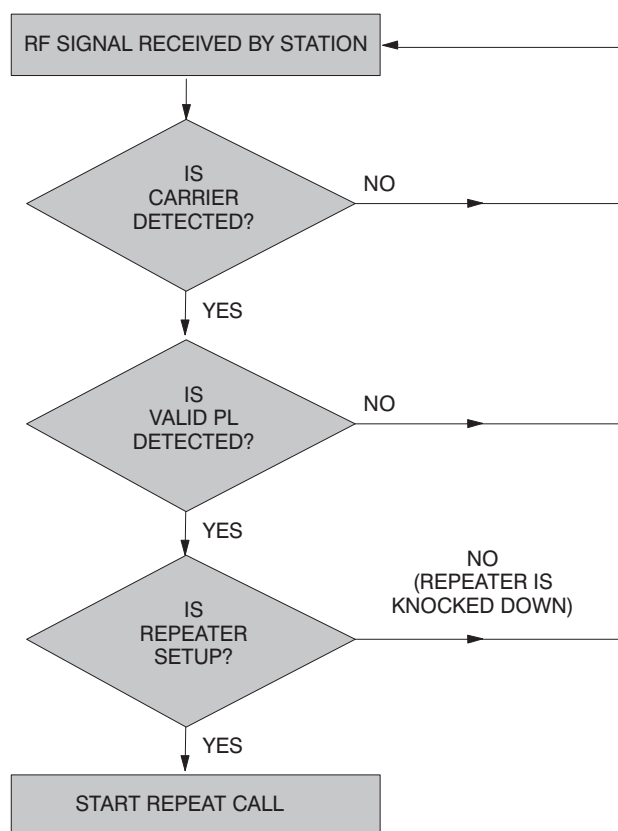


Figure 1. Typical Call Flow Chart Without Gated Access Incorporated

Call Flow Prerequisites

- MCS User Access is set to “Gated”
- Analog Rptr Activation RSS Parameter set to SC
- Emergency conditions exist, in which non-Local Subscribers are using “Secondary” PL

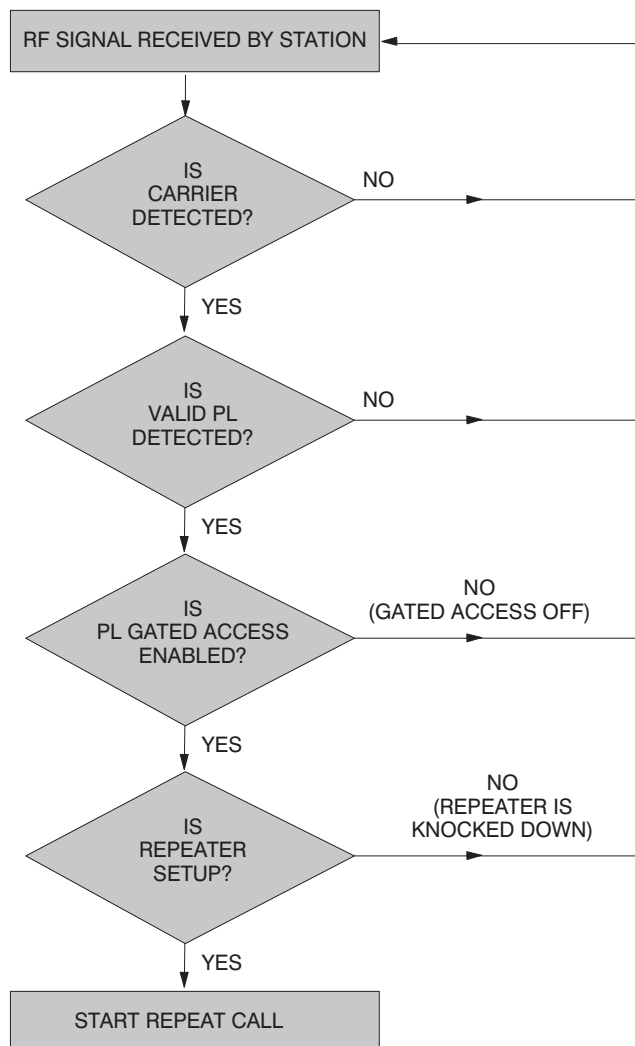


Figure 2. Typical Call Flow Chart With Gated Access Incorporated

2 STATION RSS PROGRAMMING

In order to support dual control of gated access by TRC and SAM, certain station parameters must be programmed using the *Quantar/Quantro* Radio Service Software (RSS) program (Version R09.05.00 or higher). (Refer to the *RSS User's Guide 68P81085E35* for details on making these settings.)

- Step 1.** Connect a PC running the Station RSS program to one of the two stations and read the station codeplug.
- Step 2.** Access the *Hardware Configuration* screen and set the *Multi-Coded Squelch* field to **MULTI-PL ONLY** to enable the Multi-Coded Squelch feature (as shown in Figure 3).

MOTOROLA RADIO SERVICE SOFTWARE BASE STATION PRODUCTS VER:XX.XX.XX MAIN:SERVICE:HARDWARE CONFIGURATION		Please Enter The Serial Number Type Alphanumeric/Punctuation Chars.							
Serial Number: Hardware Platform: QUANTAR		Station Name:							
System Type: CONVENTIONAL Rx Freq Band 1: UHF_R2 438-470 MHz Rx Freq Band 2: NONE		Station Type: ANALOG ONLY Tx Freq Band: UHF_R2 438-470 MHz IR Freq Band: NONE							
PA Power Rating: 25 Watts Power Supply: AC LOW		Output limited to xxx Watts Battery Type: NONE							
OPTIONS: Wireline: 8-WIRE Freq Ref: INTERNAL - STD Multi-Coded Squelch: MULTI-PL ONLY Scanning Receiver		WildCard: ENHANCED Simulcast Operation: DISABLED MRTI Interface: DISABLED Site Number: 1 Main/Standby: MAIN							
F1 HELP	F2	F3	F4	F5	F6	F7	F8 VALIDATE CONFIG	F9	F10 EXIT

Set to MULTI-PL ONLY

Figure 3. Making *Multi-Coded Squelch* RSS Setting

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Step 3. Access Page 1 of the *Channel Information* screen and set the *Analog Rptr Access* field to **MDC/TONE** (as shown in Figure 4) to enable the Station Access Module (SAM).

MOTOROLA RADIO SERVICE SOFTWARE
BASE STATION PRODUCTS
Page 1 of 2 VER:XX.XX.XX
MAIN:CHANGE/VIEW:CHANNEL INFORMATION

Please Enter A Channel Number.
Valid Range Is 1 to 1

Channel Number 1 CHANNEL# 1 OF 1

Rx1 Frequency 0.000000 MHz Tx Frequency 0.000000 MHz
Rx2 Frequency 0.000000 MHz Tx Idle Frequency 0.000000 MHz

Modulation Type ANALOG
Tx Rated Deviation 5.00 kHz
Receive Channel BW WIDE 25–30 kHz Channel Spacing

Call Sign
Call Sign Over Wireline DISABLED
Access Code Table 1
Analog Rx Activation OFF
Analog Rptr Activation OFF
Analog Rptr Hold–In OFF
Analog Rptr Access **MDC/TONE**

F1 F2 F3 F4 F5 F6 F7 F8 F9 F10
HELP ADD CHN PREV CHN NEXT CHN DELETE CHN EXIT

Set to MDC/TONE

Figure 4. Making *Analog Rptr Access* RSS Setting

Step 4. Access the *RF Configuration Data* screen and set the *Repeater Operation* field for **REPEATER** (as shown in Figure 5).

MOTOROLA RADIO SERVICE SOFTWARE
BASE STATION PRODUCTS
VER:XX.XX.XX
:CHANGE/VIEW:RF CONFIGURATION

Use Up/Dn Arrow Keys To Select
Repeater Operation

Repeater Operation **REPEATER** Fast Key–Up DISABLED
Max Deviation 92 %
Low Speed Deviation 17.0 %
Antenna Relay ENABLED
Antenna Relay Delay 30 msec
Call Sign Interval 15 min
Startup On Last Active Channel DISABLED
Startup Channel 1
ASTRO Fade Tolerance 3 FRAMES
ASTRO RDLAP: Repeat DISABLED
Wireline Drop Out Delay 0 sec
ASTRO TX Filter WIDE PULSE
ANALOG Simulcast Reverse Burst INTERNAL
Securenet: Rx Code Detect Fade Timer 80 msec
Fade EOM Timer 80 msec

F1 F2 F3 F4 F5 F6 F7 F8 F9 F10
HELP ADD CHN PREV CHN NEXT CHN DELETE CHN EXIT

Set to REPEATER

Figure 5. Making *Repeater Operation* RSS Setting

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Step 5. Access the *Multi-Coded Squelch* screen, enter the desired number of users, then set the “secondary” PL’s *User Access* field to **GATED** (as shown in Figure 6). Refer to the *RSS User’s Guide 68P81085E35* for details on setting up users in the *Multi-Coded Squelch* screen.

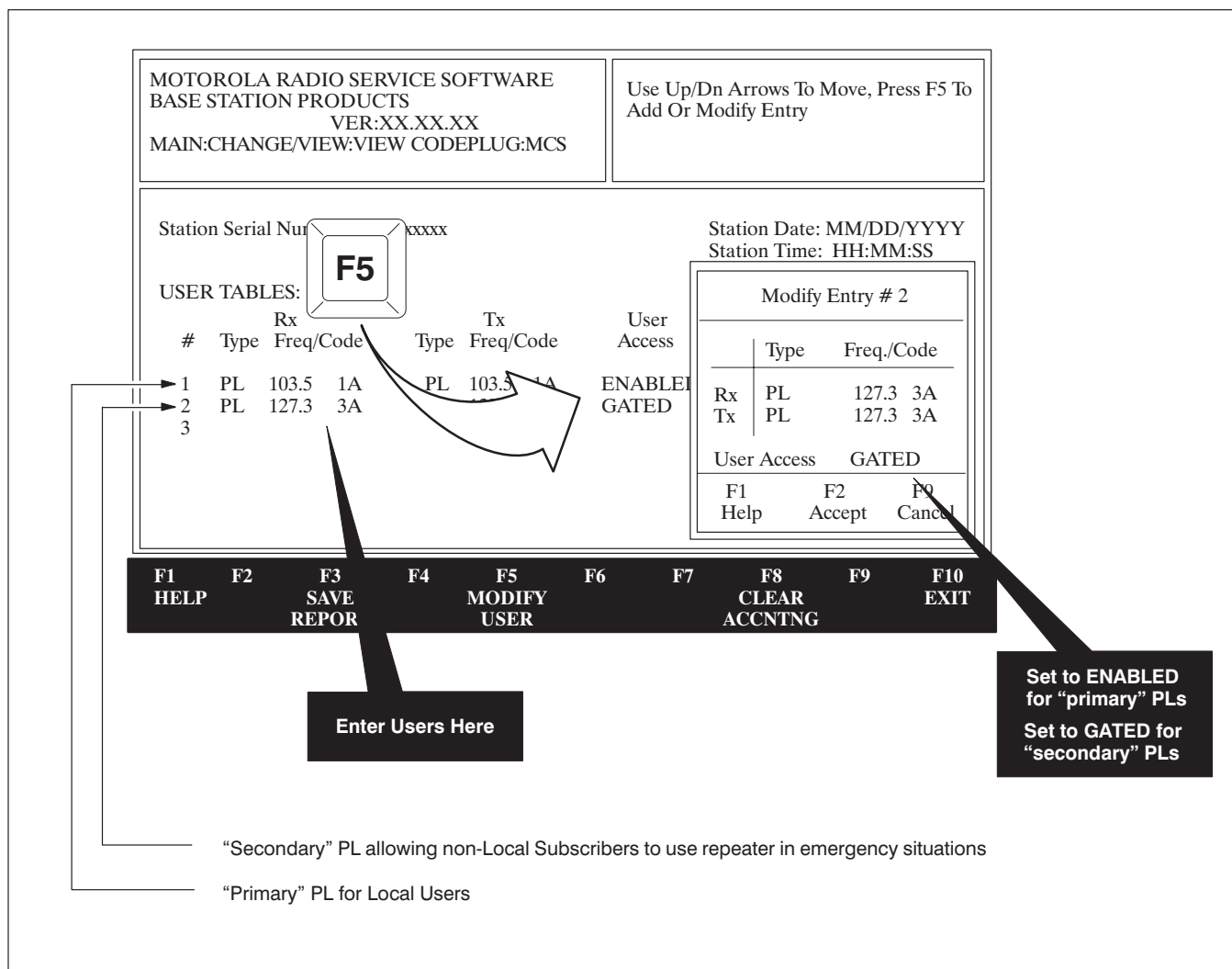


Figure 6. Entering Users and Setting to *Gated*

Step 6. Access the *TRC Commands* screen and program tones FT3–FT6 (as shown in Figure 7). Refer to the *RSS User's Guide 68P81085E35* for details on programming the tones.

MOTOROLA RADIO SERVICE SOFTWARE BASE STATION PRODUCTS Page 1 of 3 VER:XX.XX.XX MAIN:CHANGE/VIEW:TRC COMMANDS		Enter Command or Use Tab/Shift Tab and Enter To Move Between Fields										
Guard Tone 2175 Hz	MORE											
FT1 — 2050 Hz	MONITOR											
FT2 — 1950 Hz	CHN 001 KEY											
FT3 — 1850 Hz	RPT ON											
FT4 — 1750 Hz	RPT OFF											
FT5 — 1650 Hz	GATEACC ON											
<table border="1"> <tr> <td>F1 HELP</td> <td>F2</td> <td>F3</td> <td>F4</td> <td>F5</td> <td>F6</td> <td>F7</td> <td>F8</td> <td>F9</td> <td>F10 EXIT</td> </tr> </table>			F1 HELP	F2	F3	F4	F5	F6	F7	F8	F9	F10 EXIT
F1 HELP	F2	F3	F4	F5	F6	F7	F8	F9	F10 EXIT			

MOTOROLA RADIO SERVICE SOFTWARE BASE STATION PRODUCTS Page 2 of 3 VER:XX.XX.XX MAIN:CHANGE/VIEW:TRC COMMANDS		Enter Command or Use Tab/Shift Tab and Enter To Move Between Fields										
FT6 — 1550 Hz	GATEACC OFF											
FT7 — 1450 Hz												
FT8 — 1350 Hz												
FT9 — 1250 Hz												
FT10 — 1150 Hz												
<table border="1"> <tr> <td>F1 HELP</td> <td>F2</td> <td>F3</td> <td>F4</td> <td>F5</td> <td>F6</td> <td>F7</td> <td>F8</td> <td>F9</td> <td>F10 EXIT</td> </tr> </table>			F1 HELP	F2	F3	F4	F5	F6	F7	F8	F9	F10 EXIT
F1 HELP	F2	F3	F4	F5	F6	F7	F8	F9	F10 EXIT			

Figure 7. Programming TRC Tones FT3–FT6

◆ End of This Procedure ◆

3 SAM RSS PROGRAMMING

In order to support dual control of repeater access by TRC and SAM, certain SAM parameters must be programmed using the Station Access Module (SAM) Radio Service Software (RSS) program. (Refer to the *SAM RSS User's Guide 68P80309E35* for details on performing the following tasks.)

- Step 1.** Connect a PC running the RSS program to the RSS port on the front panel of the SAM module and read the SAM codeplug.
- Step 2.** For **DTMF operation**, access *Page 03* of the *SAM Decoder Selection* screen and program the **TARGET** and **ACT TBL** settings as shown in Figure 1. These settings establish the keypad sequences and corresponding Action Tables for Repeater Setup, Repeater Knockdown, Gated Access Enable and Gated Access Disable. Note that if there is default data already entered when opening the screen, overwrite the data with the data shown below.

MOTOROLA RADIO SERVICE SOFTWARE
SAM with QUANTAR/QUANTRO
Page = 03 of 03
SAM DECODER SELECTION

Enter DTMF Target, Valid input is:
0-9, A-D, #, *, or X

Set to ENABLED..

DTMF DECODER
DTMF INPUT

ENABLED
RECEIVER 1

SAM MODE# 00 of 01

DTMF DECODER TARGET#	TARGET	ACT TBL
01	123*	03
02	456#	04
03	147*	06
04	369#	07
05		
06		
07		
08		
09		
10		
11		

F1 F2 F3 F4 F5 F6 F7 F8 F9 F10
HELP PRINT ADD DELETE ACTION EXIT
PAGE MODE MODE EDIT

Enter Action Table numbers to correspond to keypad sequences 01 thru 04. Use 03, 04, 06, and 07 as shown. (Note that if a table does not exist, the RSS will prompt you to create one.)

Enter desired keypad sequences for:
Gated Access Enable – 123*
Gated Access Disable – 456#
Repeater Setup – 147*
Repeater Knockdown – 369#
(Keypad sequences are shown here as examples. You may choose other sequences as desired.)

Figure 1. Making DTMF SAM Decoder Selection RSS Settings

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For MDC 1200 operation, access *Page 02* of the *SAM Decoder Selection* screen and program the *OPCODE*, *ID*, and *ACT TBL* settings as shown in Figure 2. These settings establish the IDs and corresponding Action Tables for Repeater Setup, Repeater Knockdown, Gated Access Enable and Gated Access Disable. Note that if there is default data already entered when opening the screen, overwrite the data with the data shown below.

MOTOROLA RADIO SERVICE SOFTWARE
SAM with QUANTAR/QUANTRO
Page = 02 of 03
SAM DECODER SELECTION

Use UP/DOWN Arrows to Change Fields

BINARY DECODER
BINARY INPUT

MDC1200
RECEIVER 1

SAM MODE# 00 of 01

BINARY DECODER TARGET#	OPCODE	ID	ACT TBL
01	REPEAT ACC	0001	03
02	REPEAT ACC	0002	04
03	REPEAT ACC	0003	06
04	REPEAT ACC	0004	07
05			
06			
07			
08			
09			
10			
11			

F1
HELP
F2
F3
F4
F5
PRINT
PAGE
F6
ADD
MODE
F7
DELETE
MODE
F8
ACTION
EDIT
F9
F10
EXIT

Set to ENABLED..

Enter Action Table numbers to correspond to IDs 0001 thru 0004. Use 03, 04, 06, and 07 as shown.

The ID column reflects the MDC 1200 ID transmitted by the subscriber unit. IDs 0001 thru 0004 are shown here as examples. You may choose other IDs as desired.

Select REPEAT ACC for IDs 01 thru 04. (You MUST select REPEAT ACC. Do not use the Repeater Setup or Repeater Knockdown selections.)

Figure 2. Making MDC 1200 SAM Decoder Selection RSS Settings

continued on next page

- Step 3.** Access the *SAM Action Tables* screen and program Tables 03 and 04 as shown in Figure 3. These Action Tables control the Gated Access functions (enabled and disabled). Note that if there is default data already entered when opening the tables, overwrite the data with the data shown on the facing page.

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Setting Action Table 03 (Enable Gated Access)

MOTOROLA RADIO SERVICE SOFTWARE
SAM with QUANTAR/QUANTRO
Page = 01 of 04
ACTION TABLES

Use UP/DOWN Arrows to Change Fields

ACTION TABLE

03

ACTION TABLE# 03 of xx

#	ACTION	ADDRESS	TARG BIT	POLARITY
01	MANIBIT	004C	1	DISABLED
#	ACTION	WAIT TIME		
02	WAIT	100		
#	ACTION	ADDRESS	TARG BIT	POLARITY
03	MANIBIT	004C	1	ENABLED
#	ACTION			
04				
#	ACTION			
04				

F1 HELP
F2
F3
F4
F5 PRINT PAGE
F6
F7 CLEAR TABLE
F8
F9
F10 EXIT

Use arrow keys to toggle to 03.

Program Actions 01 – 03 as shown.

Setting Action Table 04 (Disable Gated Access)

MOTOROLA RADIO SERVICE SOFTWARE
SAM with QUANTAR/QUANTRO
Page = 01 of 04
ACTION TABLES

Use UP/DOWN Arrows to Change Fields

ACTION TABLE

04

ACTION TABLE# 04 of xx

#	ACTION	ADDRESS	TARG BIT	POLARITY
01	MANIBIT	004C	1	ENABLED
#	ACTION	ADDRESS	TARG BIT	POLARITY
02	MANIBIT	004C	0	DISABLED
#	ACTION	WAIT TIME		
03	WAIT	100		
#	ACTION	ADDRESS	TARG BIT	POLARITY
04	MANIBIT	004C	1	DISABLED
#	ACTION			
05				

F1 HELP
F2
F3
F4
F5 PRINT PAGE
F6
F7 CLEAR TABLE
F8
F9
F10 EXIT

Use arrow keys to toggle to 04.

Program Actions 01 – 04 as shown.

Figure 3. Programming the Action Tables for Gated Access Enable/Disable

- Step 4.** Access the *SAM Action Tables* screen and program Tables 06 and 07 as shown in Figure 4. These Action Tables control the Repeater Setup and Knockdown functions. Note that if there is default data already entered when opening the tables, overwrite the data with the data shown on the facing page.

◆ End of This Procedure ◆

Setting Action Table 06 (Repeater Setup)

MOTOROLA RADIO SERVICE SOFTWARE
SAM with QUANTAR/QUANTRO
Page = 01 of 04
ACTION TABLES

Use UP/DOWN Arrows to Change Fields

ACTION TABLE

06

ACTION TABLE# 06 of xx

#	ACTION	ADDRESS	TARG BIT	POLARITY
01	MANIBIT	004C	3	ENABLED
#	ACTION	WAIT TIME		
02	WAIT	100		
#	ACTION	ADDRESS	TARG BIT	POLARITY
03	MANIBIT	004C	3	DISABLED
#	ACTION			
04				
#	ACTION			
04				

F1 HELP
F2
F3
F4
F5 PRINT PAGE
F6
F7 CLEAR TABLE
F8
F9
F10 EXIT

Use arrow keys to toggle to 06.

Program Actions 01 – 03 as shown.

Setting Action Table 07 (Repeater Knockdown)

MOTOROLA RADIO SERVICE SOFTWARE
SAM with QUANTAR/QUANTRO
Page = 01 of 04
ACTION TABLES

Use UP/DOWN Arrows to Change Fields

ACTION TABLE

07

ACTION TABLE# 07 of xx

#	ACTION	ADDRESS	TARG BIT	POLARITY
01	MANIBIT	004C	3	DISABLED
#	ACTION	WAIT TIME		
02	WAIT	100		
#	ACTION	ADDRESS	TARG BIT	POLARITY
03	MANIBIT	004C	3	ENABLED
#	ACTION			
04				
#	ACTION			
04				

F1 HELP
F2
F3
F4
F5 PRINT PAGE
F6
F7 CLEAR TABLE
F8
F9
F10 EXIT

Use arrow keys to toggle to 07.

Program Actions 01 – 03 as shown.

Figure 4. Programming the Action Tables for Repeater Setup/Knockdown

Notes...