

HelpFILE DSS II

ACCESS	55
ACK Time	16
ACK Word.....	16
ACT TBL (Action Table)	70
ACTION TABLE	83
Active Action Table.....	74
ACTIVE ACTION TABLE.....	80
ADDING CHANNELS	29
ALARM SCREEN.....	112
ALARM TONES ROUTING	59
Alarm Tone Frequency.....	7
Alarm Tone Duration.....	7
Alarm Tone Gap	7
Alarm Word Gap	7
Audio Diagnostics	18
AUDIO	125
Auto Id Delay	8
Auto Id Interval.....	8
Auto Id Rate.....	8
Auto Id Tone Frequency.....	7
BANDWIDTH.....	86
BAUD RATE:	120
Beep Delay.....	20
Binary Decoder.....	71
Binary DOS Mute	81
Binary Encoder	71
Binary Input	71
BREAK DURATION:.....	121
Bypass RX Notch.....	17
CALL SIGN.....	31
CHANGE MUXBUS DISPLAY UPDATE INTERVAL.....	118
CHANGE TO (version).....	45
CHANGE/VIEW COMMAND DATA MENU	125
CHANGE/VIEW REMOTE CONTROL INFORMATION.....	37
CHANGING FORGOTTEN PASSWORD	118
Channel Control.....	8
CHANNEL MARKING	124
Clear Receiver	19
Clear Transmit	19
CODED DEVIATION LEVEL.....	106
CODEPLUG TO BE READ>	46
CONFIGURE COMPUTER SCREEN	121
CONNECT TONES	57
Cross Mode Receiver.....	19
DC Decode.....	14
DECRYPTED RX LEVEL.....	108
DEFAULT MODE NUMBER	32
DELETING CHANNELS	29

DELETING MODES	61
DIRECTORY CONFIGURATION SCREEN	122
Disable Delay.....	10
Disable Source	9
Diversity Equipped	27
DTMF DECODER TARGETS	94
DTMF DECODER TOT.....	88
DTMF DECODER	94
DTMF Input	81
DTMF Inter-Tone Gap	88
DTMF SEQUENCE	86
DUPLEX OPERATION.....	35
DURATION	87
ECHO MODE.....	66
EDIT CHANNEL INFORMATION	29
EDIT MODE INFORMATION	61
ELAPSED TIME.....	57
ENCODE/DECODE TABLE.....	85
ENCODER SEQUENCES	85
EOM Time	25
Erase	20
Extended Buffer Delay	20
External PTT.....	18
External SSCB EEPROM.....	18
External TTRC EEPROM	18
Fail Test Delay.....	21
Failsoft Carrier Squelch.....	24
Failsoft Line	13
Failsoft Time Out Time	13
Failsoft Tone Duration.....	12
Failsoft Tone Frequency.....	12
Failsoft Tone Interval	12
Failsoft	12
FIRST DUR	86
FIRST TONE TOT	86
FLOATING PRIORITY	124
FLUTTER FIGHTER LEVEL.....	109
FOLLOWING DUR.....	94
FORWARD POWER ALARM SET	111
FREQUENCY RANGE R2 TRAY	33
FT Mute Time	26
Full Rx Inhibit.....	28
FUNCTION KEY DEFINITIONS	56
Fwd & Refl on MUXbus	26
Gate Data Always	27
Gate Tx Always	24
GCC-480 Equipped	27
GENIPCB	92
GET/SAVE/PROGRAM MENU	39
GR ACT TBL (Group Action Table)	71
GR TAR (Group Target)	70

GROUP TONE.....	87
GROUP	70
Guard Tone Frequency	14
HLGT Duration	14
Holdoff Delay with PL	26
ID (for binary encoder schemes)	94
ID OVER-THE-WIRELINE	62
ID	82
Inactive Action Table	75
INACTIVE ACTION TABLE	81
Inactivity Delay	28
INDIVIDUAL STATION ADJUSTMENTS	95
Input Response.....	73
IPCB COMMANDS	47
Key Control	9
Key Up Delay	9
Konfigurationsprogramm einstellen.....	122
LINE 2 LEVEL.....	101
Line 2 TX Mix	13
LINE 4 LEVEL.....	104
Line 4 TX Mix	14
LLGT Dropout Time	28
LPTT Delay	26
MAIN MENU	48
MANIBIT	89
Max Code Detect DT Delay	21
MAX DEVIATION	97
MCS EQUIPPED.....	36
MCS Resolution Time	12
MCS TABLE NUMBER.....	61
MCS TABLE	56
MCS Timer Period.....	11
MCS Update Time	11
MDC Pretime Bit Sync	27
Memory Station	9
Mode Control.....	8
MODE LOCKED	30
Mode Power Level.....	60
MODE SLAVING	30
MODEM SPEAKER STATUS:.....	120
MODEM SPEAKER VOLUME:.....	120
MRTI Enable/Disable	17
MRTI PP Mode.....	61
MSF 5000/10000 DIGITAL "d" ERROR CODES	51
MSF 5000/10000 DIGITAL "E" ERROR CODES	50
MSF 5000/10000 DIGITAL "OTHER" ERROR CODES	53
Mute Delay	17
Mute TX Audio	15
MUXBus Seize	17
Non-Priority Scan Delay.....	22
NUMBER OF CHANNELS	7

OPCODE	81
OUTPUT ENABLE CONDITIONS	77
PA Cutback Allowed	60
PA Turn On Delay.....	9
PASSWORD EQUIPPED	36
PASSWORD EQUIPPED	36
PASSWORD.....	118
PATHNAMES AND FILENAMES	44
PAUSE BETWEEN CALLS:.....	120
PL/DPL CODES	55
PL/DPL CODES	57
Power Lvl Chk in Batt Rvrt	17
PRE-EMPHASIS DE-EMPHASIS	60
PRETIME	85
PRIORITY CHANNEL	124
Priority Recheck Time	23
Priority Scan Delay.....	23
PRIORITY	55
Proper Code	20
PTT PRIORITY	58
QUICKKEY	91
RECEIVER CONTROL.....	58
RECEIVER SQUELCH LEVEL.....	105
REFLECTED POWER ALARM SET	112
Relay Idle Delay	9
REMOTE CALLUP	62
REMOTE CALLUP	64
REPEAT ACC -.....	82
REPEAT TONE.....	87
REPEATER CONTROL.....	59
Repeater Knockdown:	68
REPEATER OPERATION	34
REPEATER SQUELCH LEVEL	106
RESLOCMODE	89
Rpt TOT DOD Rset	60
RPTR DROP-OUT DELAY.....	59
Rptr Gate Holdoff Delay	10
RSTAT Mode	24
RX 2 TRAY TUNING FREQUENCY.....	32
Rx Code Detect DOD	21
Rx Code on Line	20
Rx DC End of Message Delay.....	22
Rx Fail	20
RX FREQUENCY.....	31
RX LEVEL	100
Rx Loopback Frequency.....	24
Rx Qualify Time	23
SAM (Station Access Module) Menu.....	67
SAM (Station Access Module) Wildcard Inputs	72
SAM (Station Access Module) Wildcard Outputs	75
SAM Decoder Input.....	22

SAM ENCODER LEVEL	110
SAM EQUIPPED	36
SAM Mode Number	68
Scan Sample Time	23
SCAN.....	125
SCANNING REPEATER	126
SECURE EQUIPPED.....	36
SECURE OPERATION	34
SELECT CHANNEL.....	117
SELMODE	89
SERIAL PORT CONFIGURATION	119
SERIAL PORT:.....	120
SERVICE AND ALIGNMENT.....	95
SETMUXMOM.....	88
SETTING/CLEARING BITS ON THE MUXBUS	113
SETTING/CLEARING BITS ON THE MUXBUS	114
SETTING/CLEARING BITS ON THE MUXBUS	115
SETUP	118
SIMULCAST OPERATION	35
Site Failsoft Mode.....	13
SMARTZONE OPERATION	37
SP NUMBER.....	37
Spare Output	19
SPECTRA TAC OPERATION	34
SPECTRA-TAC/DIGITAC ADJUSTMENTS	102
S-TAC Clear Rptr Delay	10
S-TAC Coded Rptr Delay.....	10
S-TAC Mute Time	11
S-TAC Tone Frequency.....	11
Standby Failure Counter	17
STATION INFORMATION MENU	123
Status Tone	11
SUCCEEDING TONES TOT	87
Switch On LPTT.....	13
SYNTHESIZER FOR R1 TRAY	33
SYNTHESIZER FOR R2 TRAY	33
Takeover EOM Delay.....	22
TIME-OUT-TIMERS	58
Tone Decoder Targets.....	69
Tone Decoder.....	69
TONE FREQUENCY.....	86
Tone Input.....	69
TONE SEQUENCE.....	86
TRC CONSOLE FEEDBACK	124
TRC Decode	14
TRC Tone Mix.....	14
TRIGGER CONDITIONS.....	79
TRUNKING DATA DEVIATION LEVEL.....	96
TRUNKING OPERATION	34
Trunking Tickle Source	12
TSTAT DOD	28

TSTAT on MUXbus	25
TTRC EQUIPPED	35
TUNEEPOT.....	91
TX AUDIO/EXTERNAL DATA MIXING.....	59
Tx Code Detect DOD	21
Tx Code Line Qualifier.....	60
Tx DC End of Message Delay.....	22
Tx Fail.....	20
TX FREQ/RX FREQ	125
TX FREQUENCY	31
TX IDLE CALCULATION	31
TX IDLE FREQUENCY	30
TX LINE LEVEL	98
Tx Loopback Frequency.....	25
TX SLAVE	125
TX Source	14
Un ALC Source	15
Upgrade Codeplug Version.....	45
VALID DPL CODES:.....	16
VALID DPL CODES:.....	16
WAIT FOR DIALTONE/CARRIER:	120
WAITSET, WAITCLEAR	90
Wireline Activity Source	15
XL DECRYPTION OPERATION	35

HelpFILE DSS II

The advanced information screen contains all editable fields from the fixed user area of the SSCB, TTRC, SAM and SECURE codeplugs.

NUMBER OF CHANNELS

The NUMBER OF CHANNELS field indicates the number of operating channels currently enabled in the codeplug, not including the Tuning Channel (channel 0). All stations must have at least Channel 1 enabled. The NUMBER OF CHANNELS field is non-editable.

To INSERT or DELETE channels, go to the Channel Information Screen (F4 on the CHANGE/VIEW CODEPLUG DATA MENU).

Alarm Tone Frequency

The Alarm Tone Frequency field indicates the frequency of the alarm tone beep. The frequency must be an integer number between 750 and 1600 Hz. Default value is 1200 Hz.

Alarm Tone Duration

The Alarm Tone Duration field indicates the length of a station alarm tone. The duration must be an integer value between 0 and 495 milliseconds. Default value is 125 msec.

Alarm Tone Gap

The Alarm Tone Gap field indicates the amount of quiet time between alarm tones during a given alarm. The tone gap must be an integer value between 0 and 495 milliseconds. Default value is 125 msec.

Alarm Word Gap

The Alarm Word Gap field indicates the amount of quiet time between consecutive alarms. The word gap must be an integer between 0 and 9998 milliseconds. The default is 2000 msec.

Auto Id Tone Frequency

The Auto ID Tone Frequency field indicates the frequency at which Auto Id callsigns are transmitted. The frequency must be an integer value between 750 and 1600 Hz. Default value is 800 Hz.

Auto Id Delay

The Auto Id Delay field indicates the delay period from after a station dekeys until an Id Callsign is transmitted. The delay must be an integer value between 0 and 495 seconds. Default value is 5 seconds.

Auto Id Interval

The Auto Id Interval field indicates the delay period between Id Callsign transmissions. The delay must be an integer value between 0 and 495 minutes. The default is 15 minutes.

Auto Id Rate

The Auto ID Rate field indicates the transmission rate of an ID Callsign. The rate must be an integer value between 5 and 40 words per minute. Default value is 20 minutes.

Channel Control

The Channel Control field indicates which board drives the channel number on the MUXbus. The three choices, STATION, REMOTE, EXTERNAL, are selected via the arrow up and arrow down keys. STATION indicates that the station control board drives channel number on the MUXbus. STATION is typically used in repeater application in which there is no dispatch console. It is not compatible with trunking models. If this field is set to STATION, the TTRC boards should not be present, and JU1 on the station control board should be in its alternate position. REMOTE indicates that the TTRC board drives channel number on the MUXbus, and EXTERNAL indicates Wildcard channel control(option C974). The default value is REMOTE.

NOTE: If no TTRC board is present REMOTE will not be a choice for the Channel Control field.

Mode Control

The Mode Control field indicates which board drives the mode number on the MUXbus. The three choices, STATION, REMOTE, EXTERNAL, are selected via the arrow up and arrow down keys. STATION indicates that the station control board drives mode number on the MUXbus. REMOTE indicates that the TTRC board drives mode number on the MUXbus, and EXTERNAL indicates Wildcard mode control. The default value is STATION.

NOTE: If no TTRC board is present REMOTE will not be a choice for the Mode Control field.

Key Control

The Key Control field indicates which board controls the key number for the station. The choices STATION and REMOTE are selected via the Up/Down arrow keys. STATION indicates that the station control board controls the key number. REMOTE indicates that the TTRC module controls the key number. The default is REMOTE.

NOTE: This field is set to STATION and is non-editable if no TTRC board is present.

Memory Station

The Memory Station field indicates whether or not the channel, mode, and key return to their previous values upon reset or power-up. When DISABLED, the channel, mode and key each revert to "1" after reset or power-up. The default is ENABLED.

PA Turn On Delay

The PA Turn On Delay field indicates the time to wait between antenna relay switching and keying up the PA. This delay time must be an integer number between 0 and 495 msec. The default is 31 msec.

WARNING!!! CHANGING THIS FIELD MAY SEVERELY AFFECT STATION OPERATION !!!

Key Up Delay

The Key Up Delay field indicates the time to wait before checking for errors while the PA attempts to reach full power. This delay time must be an integer between 0 and 495 msec. The default is 39 msec.

WARNING!!! CHANGING THIS FIELD MAY SEVERELY AFFECT STATION OPERATION !!!

Relay Idle Delay

The Relay Idle Delay field indicates the delay time period between the PA shutdown and switching to the antenna relay. The delay must be an integer value between 0 and 495 milliseconds. Default value is 31 milliseconds.

WARNING!!! CHANGING THIS FIELD MAY SEVERELY AFFECT STATION OPERATION !!!

Disable Source

The Disable Source field can have one of the three following fields:

DISABLE, UNSQUELCH or MUTE REQ. DISABLE allows the Receiver Activity to be enabled after a CT (connect tone) or PL is decoded/detected. UNSQUELCH enables the Receiver Activity for the Disable Delay while searching for a PL code (conventional station). MUTE REQ enables the Receiver Activity for the Disable Delay while searching for a CT (trunking station). The default value for Disable Source is MUTE REQ.

Disable Delay

The Disable Delay field indicates the amount of time that the Disable Source is kept active. This delay must be an integer number between 0 and 997 msec. The default is 703 msec.

NOTE: If Scanning Receiver is ENABLED, this field must be less than the Priority Recheck Time. If the Priority Recheck Time is set to its default of 300 msec, then the Disable Delay field should be set to 280 msec.

Rptr Gate Holdoff Delay

The Rptr Gate Holdoff Delay field indicates the delay time period between the transmitter(repeater) key-up and when the receiver audio is gated to the modulator for Repeater PTTs (option C587). This option is not compatible with trunking models or base station models. This delay can be used to prevent repeating data. Note that the station does key up during the delay time, but the audio is not gated to the modulator (it is gated to the wireline as usual). The delay must be an integer value between 0 and 9998 msec in 8 millisecond increments. Default value is 0 milliseconds.

S-TAC Clear Rptr Delay

The S-TAC Clear Rptr Delay field indicates the delay between satisfying the repeater qualifiers and a clear repeater PTT request. This delay must be an integer number between 0 and 9998 msec. The default is 750 ms for all Simulcast and Spectra-TAC stations, and 0 ms for all others.

S-TAC Coded Rptr Delay

The S-TAC Coded Rptr Delay field indicates the delay between satisfying the repeater qualifiers and a coded repeater PTT request. This delay must be an integer number between 0 and 9998 msec. The default is 750 ms for all Simulcast and Spectra-TAC stations, and 0 ms for all others.

S-TAC Mute Time

The S-TAC Mute Time field indicates the initial length of time for the system timer mute. Values for this field can range from 0 to 10553 msec. The default value is 20 msec for conventional stations, and 0 msec for trunked.

S-TAC Tone Frequency

The S-TAC Tone Frequency field indicates the frequency at which a Spectra-TAC tone is generated. Values for this field can range from 300 to 2500 Hz. The default value is 2175 Hz. This field should contain the same frequency as the Guard Tone Frequency. The default value is 2175 Hz.

Status Tone

The Status Tone field indicates whether or not the TTRC generates the status tone during receiver inactivity. Status Tone is a continuous 2175 Hz tone generated down the wireline, usually in Spectra-TAC and Simulcast stations. The default value is ENABLED. If either Spectra-TAC or Simulcast Operation is ENABLED in the Station Model/Options Screen, Status Tone, in most cases, MUST be ENABLED.

NOTE: This field will not have any affect in stations operating in Spectra-TAC or Simulcast systems if the TTRC firmware version is less than 5.29. Version 5.29 and higher TTRC firmware allows the user to DISABLE Status Tone in Spectra-TAC and Simulcast systems. Previous firmware automatically generated Status Tone when the station had Spectra-TAC or Simulcast ENABLED.

MCS Timer Period

The MCS Timer Period field indicates the amount of post-dekey time, in 8 millisecond increments. This period must be an integer between 0 and 495 msec. The default value is 0 msec.

MCS Update Time

The MCS Update Time field indicates how often the station updates the EEPROM with respect to the Air Usage Time and the Hit Accumulator. This time must be an integer between 60 and 1280 minutes. The default value is 60 minutes.

MCS Resolution Time

The MCS Resolution Time field indicates the resolution of air-time accumulators. This time must be an integer between 0 and 495 seconds. The default value is 1 second.

Failsoft

The Failsoft field indicates whether or not the TTRC activates failsoft. The default value is ENABLED, except for trunked, Simulcast stations which have the Failsoft field DISABLED..

Failsoft Tone Duration

The Failsoft Tone Duration field indicates the length of time a failsoft tone is generated. Values for this field can range from 0 to 10553 msec. The default value is 280 msec.

NOTE: Failsoft Tone Duration is NON-EDITABLE if TTRC is version 5.00 or greater.

Failsoft Tone Interval

The Failsoft Tone Interval field indicates the length of quiet time between each failsoft tone generation. Values for this field can range from 0 to 10553 msec. The default value is 9700 msec.

NOTE: Failsoft Tone Interval is NON-EDITABLE if TTRC is version 5.00 or greater.

Failsoft Tone Frequency

The Failsoft Tone Frequency field indicates the frequency at which a failsoft tone is generated. Values for this field can range from 300 to 2000 Hz. The default value is 900 Hz.

NOTE: Failsoft Tone Frequency is NON-EDITABLE if TTRC is version 5.00 or greater.

Trunking Tickle Source

The Trunking Tickle Source field determines whether the input to Trunking Tickle Source is from TX Data Line or Mute Line. If it comes from the Mute Line, Trunking Tickle Source is MUTE, and if it comes

from the Tx Data Line, The Trunking Tickle Source is TX DATA.

The default value for Trunking Tickle Source is TX DATA.

Failsoft Time Out Time

The Failsoft Time Out Time field indicates the length of time before initiating a tickle. Values for this field can range from 0 to 5400 sec. The default value is 1 sec.

Failsoft Line

The Failsoft Line field indicates whether or not the TTRC generates Guard Tone on the line during failsoft. The default is DISABLED.

Site Failsoft Mode

The Site Failsoft Mode field toggles between the Failsoft mode (FS), Trunking and Failsoft mode (TR & FS) and Simulcast Site Failsoft mode (SIMUL FS). The Site Failsoft Mode of operation is used for repeater in-cabinet-repeat in a trunked voting system. When FS is chosen, the repeater mutes the audio lines to and from the comparator and in-cabinet repeats when failsoft occurs and the site failsoft input on the system connector is active. When TR & FS is selected, the station in-cabinet repeats as described above in both failsoft and trunking modes. When SIMUL FS is selected, the station is forced into Failsoft when the site failsoft input is activated. It in-cabinet repeats as described above. This selection is normally used for simulcast trunking systems with manual or automatic Site Failsoft.

Note: SIMUL FS is only available with version 5.00 or later TTRC firmware. The default for Site Failsoft Mode is FS.

Switch On LPTT

The Switch On LPTT field indicates whether or not the Tx Source, Line2 Tx Mix and Line4 Tx Mix audio gates change state during a Line Push To Talk(LPTT). The default value is DISABLED.

Line 2 TX Mix

The Line 2 TX Mix field indicates whether or not the TTRC allows

audio transmission out line 2. The default value is DISABLED.

Line 4 TX Mix

The Line 4 TX Mix field indicates whether or not the TTRC allows audio transmission out line 4. The default value is DISABLED.

DC Decode

The DC Decode field indicates whether or not the TTRC activates DC Remote decode. The default value is DISABLED.

TRC Decode

The TRC Decode field indicates whether or not the TTRC activates TRC decode. The default value is ENABLED.

TRC Tone Mix

The TRC Tone Mix field determines whether the encoded TRC tones should be routed to Line 2 or Line 4. The default is Line 2.

Guard Tone Frequency

The Guard Tone Frequency field indicates the frequency at which a Guard Tone is generated. Values for this field can be toggled to 2175, 2100, 2325 or 2432 Hz. The default value is 2175 Hz. The Status Tone Frequency, which is also editable from this screen, should be set to the same frequency.

The default Guard Tone Frequency value is 2175 Hz.

HLGT Duration

The HLGT Duration field indicates the length of time a High Level Guard Tone is generated. This field can be toggled between 60 and 120 msec. The default value is 120 msec.

TX Source

The TX Source field determines whether the input to TX Source is from ALC audio or UN ALC audio. The default Tx Source value is ALC for conventional, and UN ALC for trunked stations.

Un ALC Source

The Un ALC Source field determines whether the input to UN_ALC Source is from LINE 1 or LINE 3.

The default Un ALC Source value is LINE 1.

Wireline Activity Source

The Wireline Activity Source field determines if the input is from Line 1 or Line 3. Default is LINE 1 for both Conventional and Trunked Systems.

Option C-115, Console Priority Interface, requires this field to be LINE 3.

Mute TX Audio

When ENABLED, allows muting of TX audio when no activity is present on the wireline. Default is DISABLED.

Automatic Access is a trunking software option (C816). In the event Trunking Central is non-operational, trunking subscriber units will scan conventional repeaters until an Automatic Access Repeater is found. Automatic Access allows conventional repeaters to react to Automatic Access interrogations by trunking subscriber units. An interrogation is a 300 msec DPL burst called the Decode Word. The station responds to the interrogation with a 700 msec DPL burst called the ACK Word. Once the trunking subscriber unit has decoded the acknowledge, it uses the current station mode PL for voice conversations. An Out of Range condition is generated when trunking subscriber units drive out of range of their home system. At this time the operator can utilize the Automatic Access feature by pressing the Auto button on the control head. This causes the radio to enter the Automatic Access mode.

NOTE : ONLY DPL codes are allowed for the Decode and ACK Words
Decode Word

The DECODE WORD defines the DPL code that the station will accept to allow for automatic access. This field accepts all valid DPL codes and NO ACC. NO ACC means Automatic Access is not enabled on this station. If the Decode Word is changed from NO ACC to a valid DPL code the ACK Word is set to the same DPL code and the ACK Time is set to 703 msec.

(cont.)

VALID DPL CODES:

023 025 026 031 032 043 047 051 053 054 065 071 072 073 074 114
115 116 122 125 131 132 134 143 152 155 156 162 165 172 174 205
212 223 225 226 243 244 245 246 251 252 261 263 265 266 271 306
311 315 325 331 343 346 351 364 365 371 411 412 413 423 425 431
432 445 446 452 455 464 465 466 503 506 516 521 525 532 546 552
564 565 606 612 624 627 631 632 645 652 654 662 664 703 712 723
725 726 731 732 734 743 754

Note: Automatic Access is only available on station control
firmware 4.00 or greater.

ACK Word

The ACK Word is the DPL code that the station transmits after receiving and decoding a valid decode word. This field accepts all valid DPL codes. It displays NO ACC if Automatic Access is not enabled on this station.

Note: Automatic Access is only available on station control
firmware 4.00 or greater.

VALID DPL CODES:

023 025 026 031 032 043 047 051 053 054 065 071 072 073 074 114
115 116 122 125 131 132 134 143 152 155 156 162 165 172 174 205
212 223 225 226 243 244 245 246 251 252 261 263 265 266 271 306
311 315 325 331 343 346 351 364 365 371 411 412 413 423 425 431
432 445 446 452 455 464 465 466 503 506 516 521 525 532 546 552
564 565 606 612 624 627 631 632 645 652 654 662 664 703 712 723
725 726 731 732 734 743 754

ACK Time

The ACK Time defines the length of time that the station transmits the ACK Word after receiving and decoding a valid DPL code. The range of this field is from 0 to 9998 msec. This field displays NO ACC if Automatic Access is not enabled on this station.

When the Decode Word is changed from NO ACC to a valid DPL code, the ACK Time field is set to 703 msec by default.

Note: Automatic Access is only available on station control
firmware 4.00 or greater.

Mute Delay

The Mute Delay field indicates the minimum MUTE active time required to activate arbitrated MUTE. Values for this field can range from 0 to 10553 msec. The default value is 100 msec.

Standby Failure Counter

The Standby Failure Counter field indicates the number of failures before the station becomes the main station. Values for this field can range from 1 to 255. The default value is 1.

Bypass RX Notch

The Bypass RX Notch field indicates whether or not the TTRC bypasses the receiver notch filter. The receiver notch filter is used to filter out audio around 2175 Hz (Status Tone). The filter is located on the TTRC board on the Line Audio path from the Station Control Board. The default value is DISABLED (not bypassed).

In most cases, whenever the Status Tone field is ENABLED, the Bypass RX Notch field should be DISABLED.

MRTI Enable/Disable

The MRTI Enable/Disable field indicates if the station is equipped with a phone patch interface, option C719. Option C719 is not compatible with trunking models. It allows the MRTI phone patch to be accessed via its connector (J802) on the station control board. The default value is DISABLED.

MUXBus Seize

When ENABLED, the MUXBus Seize field allows the station to use address 10, bit 0 on the MUXBus as a seize/release input. This input comes from a GCC interface wildcard in a trunking data system. The default for this field is DISABLED.

Power Lvl Chk in Batt Rvrt

This feature is used in trunking or trunking capable (C765) stations. When DISABLED, power level check is NOT performed if station goes into battery revert. When ENABLED, power level check is performed regardless. The default value is ENABLED.

Audio Diagnostics

This field indicates whether or not audio diagnostics will be performed. If **ENABLED**, audio diagnostics are performed upon station reset. If **DISABLED** they are not performed. Audio Diagnostics generate multi-pitched audible tones that are sent down the wireline.

NOTE: The Audio Diagnostics field is only editable if a version 4.00 or greater SSCB codeplug is loaded.

External SSCB EEPROM

The External SSCB EEPROM field indicates if the station is equipped with an external serial EEPROM. The default value is **DISABLED**.

External TTRC EEPROM

The External TTRC EEPROM field indicates if the TTRC control board is equipped with an external serial EEPROM. The default value is **DISABLED**.

External PTT

The External PTT field indicates which bit on the MUXbus will be activated when the External PTT input to the station is activated. The External PTT input is pin 12 of the System Connector (J2 on the Junction Box), and is active low.

To set a MUXbus bit in response to the External PTT Input, enter **MUX**, followed by **A** (indicating the address), followed by the MUXbus address (0-F), followed by **B** (indicating the bit), followed by the bit number to set (0-3).

For example, **MUXA2B3** sets bit 3 of MUXbus address 2 (TX PL DS) when the External PTT Input is active, and clears it when it is inactive. Also, the External PTT following inputs are valid: **LINE** (sets bit 2 of MUXbus address 2), **TRNK** (sets the Trunking PTT bit on the High Speed ring), and **NULL** (sets nothing).

Only one command may be entered via the RSS field. Some SP stations may use more than one command, in order to set multiple bits on the MUXbus in response to the External PTT Input. When reading a codeplug that contains more than one command, the External PTT field will show **MULTIPLE** and will be non-editable.

The default for this field is **TRNK** for trunking stations, and **LINE** for all others.

Spare Output

The Spare Output field indicates which bit on the MUXbus or High Speed Ring (HSR) will be used to activate the Spare Output on the station's Junction Box. The Spare Output is pin 9 of the System Connector (J2 on the Junction Box), and is active low.

To activate the Spare Output in response to a MUXbus bit being active, enter MUX, followed by A (indicating the address), followed by the MUXbus address (0-F, where A through F represent 10 through 15 on the DMP), followed by B (indicating the bit), followed by the bit number to read (0-3).

For example, MUXA2B3 activates the Spare Output when bit 3 of MUXbus address 2 (TX PL DS) is active, and clears the Spare Output when it is inactive.

To activate the Spare Output in response to a High Speed Ring (HSR) bit being active, enter HSR, followed by A (indicating the address), followed by the HSR address (0-4), followed by B (indicating the bit), followed by the bit number to read (0-7).

For example, HSRA0B5 activates the Spare Output when bit 5 of HSR address 0 (TSTAT) is active, and clears the Spare Output when it is inactive.

Also, NULL is a valid input, and it leaves the Spare Output always inactive.

Only one command may be entered via the RSS field. Some SP stations may use more than one command, in order to set the Spare Output when a combination of MUXbus and/or HSR bits are active. When reading a codeplug that contains more than one command, the Spare Output field will show MULTIPLE and will be non-editable.

The default for this field is NULL.

Clear Receiver

The Clear Receiver field indicates whether or not an 87 msec beep is enabled when receiving clear. The default is DISABLED.

Clear Transmit

The Clear Transmit field indicates whether or not an 87 msec beep is enabled when transmitting clear. The default is ENABLED.

Cross Mode Receiver

The Cross Mode Receiver field indicates whether or not an 87 msec beep is enabled when receiving clear and tx wireline mode is coded. Default is ENABLED.

Erase

The Erase field indicates whether or not a continuous tone is enabled when the key reset line is active. Default is ENABLED.

Rx Fail

The Rx Fail field enables/disables modulated tone if current key has failed and station is receiving a coded signal. Default is ENABLED.

Tx Fail

The Tx Fail field enables/disables modulated tone if current key has failed and user is attempting to transmit a coded signal. Default is ENABLED.

Proper Code

The Proper Code field indicates whether or not Proper Code Detect is enabled in an Encode/Decode station. Proper Code Detect must be active before gating received audio to the wireline (option C304). Default is DISABLED.

Rx Code on Line

The Rx Code on Line allows received code to be routed to the wirelines when the field is ENABLED. This field is DISABLED with option C415. The default for this field is ENABLED.

Beep Delay

The Beep Delay field indicates the length of time to unmute a 750 Hz tone. The time must be an integer number between 0 and 9998 msec. Default value is 87 msec.

**NOTE: CHANGES ARE NOT RECOMMENDED !!!
WARNING!!! CHANGING THIS FIELD MAY SEVERELY AFFECT STATION
OPERATION !!!**

Extended Buffer Delay

The Extended Buffer Delay field indicates the length of the extended buffer. The delay must be an integer between 0 and 9998 msec. The

default value is 80 msec.

NOTE: CHANGES ARE NOT RECOMMENDED !!!
WARNING!!! CHANGING THIS FIELD MAY SEVERELY AFFECT STATION OPERATION !!!

Fail Test Delay

The Fail Test Delay field indicates the length of time to wait for hybrid failure indication. The delay must be an integer between 0 and 9998 msec. The default value is 25 msec.

NOTE: CHANGES ARE NOT RECOMMENDED !
WARNING!!! CHANGING THIS FIELD MAY SEVERELY AFFECT STATION OPERATION !!!

Max Code Detect DT Delay

The Max Code Detect DT Delay field indicates the maximum time to achieve a code detect. The delay must be an integer between 0 and 9998 msec. The default value is 80 msec.

NOTE: CHANGES ARE NOT RECOMMENDED !
WARNING!!! CHANGING THIS FIELD MAY SEVERELY AFFECT STATION OPERATION !!!

Rx Code Detect DOD

The Rx Code Detect DOD field indicates the delay while waiting for the Rx_Code_Detect to re-activate. The delay must be an integer value between 0 and 2720 msec. The default value is 320 msec.

NOTE: CHANGES ARE NOT RECOMMENDED !!!
WARNING!!! CHANGING THIS FIELD MAY SEVERELY AFFECT STATION OPERATION !!!

Tx Code Detect DOD

The Tx Code Detect DOD field indicates the delay while waiting for the Tx_Code_Detect to re-activate. The delay must be an integer value between 0 and 2720 msec. The default value is 320 msec.

NOTE: CHANGES ARE NOT RECOMMENDED !!!

WARNING!!! CHANGING THIS FIELD MAY SEVERELY AFFECT STATION OPERATION !!!

Rx DC End of Message Delay

The Rx DC EOM field indicates the length of time to generate EOM for receiver DC glitch. The time must be an integer between 0 and 170 msec. The default value is 40 msec.

NOTE: CHANGES ARE NOT RECOMMENDED !!!
WARNING!!! CHANGING THIS FIELD MAY SEVERELY AFFECT STATION OPERATION !!!

Tx DC End of Message Delay

The Tx DC EOM field indicates the length of time to generate EOM for wireline DC glitch. The time must be an integer between 0 and 170 msec. The default value is 40 msec.

NOTE: CHANGES ARE NOT RECOMMENDED !!!
WARNING!!! CHANGING THIS FIELD MAY SEVERELY AFFECT STATION OPERATION !!!

Takeover EOM Delay

The Takeover EOM Delay field indicates the length of time to generate EOM coded takeover. The delay must be an integer between 0 and 9998 msec. The default value is 80 msec.

NOTE: CHANGES ARE NOT RECOMMENDED !!!
WARNING!!! CHANGING THIS FIELD MAY SEVERELY AFFECT STATION OPERATION !!!

SAM Decoder Input

The SAM Decoder Input field indicates if LINE or RECEIVER 2 is the second input choice for the Tone Input & Binary Input field on the SAM Mode screen. The first choice is RECEIVER 1. This is necessary since both LINE and RECEIVER 2 cannot be used on the same SAM board. If this field is changed then any SAM Mode Tone Input or Binary Input fields that used LINE or RECEIVER 2 will also be updated to reflect the new value.

Non-Priority Scan Delay

If the SSCB codeplug is less than 5.00, this field displays NO SCAN and

is NON-EDITABLE. Scanning is only available in stations equipped with version 5.00 or greater SSCB firmware.

This field indicates the amount of time that the scan waits after losing non-priority channel activity before resuming the scan. If channel activity resumes before the timer expires, the timer will reset. The valid range is from 0 to 9998 msec. The default value is 2999 msec by default.

Priority Scan Delay

This field indicates the amount of time that the scan waits after losing priority channel activity before resuming the scan. The valid range is from 0 to 9998 msec. The field is NON-EDITABLE and set to NO SCAN if the SSCB codeplug version is less than 5.00, and is set to 2999 msec by default.

Scan Sample Time

If the SSCB codeplug is less than 5.00, this field displays NO SCAN and is NON-EDITABLE. Scanning is only available in stations equipped with version 5.00 or greater SSCB firmware.

This field indicates the length of time that a channel is checked for activity. The valid range is from 0 to 9998 msec. The default for a non-secure station is 30 msec. The default for a secure station is 90 msec.

Priority Recheck Time

If the SSCB codeplug is less than 5.00, this field displays NO SCAN and is NON-EDITABLE. Scanning is only available in stations equipped with version 5.00 or greater SSCB firmware.

This field indicates the interval for which a priority channel is checked while a non-priority channel is active. The valid range for this field is 0 to 9998 msec. The default is 301 msec.

NOTE: The Priority Recheck Time must be greater than the Disable Delay. If the Priority Recheck Time is set to its default of 300 msec, then the Disable Delay field should be set to 280 msec.

Rx Qualify Time

If the SSCB codeplug is less than 5.00, this field displays NO SCAN and is NON-EDITABLE. Scanning is only available in stations equipped with version 5.00 or greater SSCB firmware.

This field indicates the time allowed for PL or code detect after a carrier is detected. The valid range for this field is 0 to 9998 msec. The default is 348 msec.

Failsoft Carrier Squelch

The Failsoft Carrier Squelch field indicates whether or not the station is forced to go Carrier Squelch during failsoft operation. The default is DISABLED.

NOTE: Failsoft Carrier Squelch only available on Station Control Firmware 5.00 or greater.

Gate Tx Always

The Gate Tx Always field allows line audio to always be gated to the modulator when ENABLED. This feature is usually used in trunked systems that do not contain a CIU (Console Interface Unit). It is ENABLED with option C415 (Omit Status Tone with Transparent Station). The default is DISABLED.

NOTE: Gate Tx Always is only available on Station Control Firmware 5.00 or greater.

RSTAT Mode

The RSTAT Mode field can be toggled between NORMAL and DUAL CT. NORMAL indicates that RSTAT will go active upon receiver unsquelch. DUAL CT (Dual Connect Tone) indicates that RSTAT will go active upon connect tone detect. Dual Connect Tone is used in trunked systems that contain more than one connect tone. The default is NORMAL.

NOTE: RSTAT Mode is only available on Station Control Firmware 5.00 or greater. The RSTAT Mode field is DISABLED if the Station Control Firmware is not 5.00 or greater.

Rx Loopback Frequency

If an RF Loopback test is desired, the Rx and Tx Loopback Frequency fields must contain the appropriate frequencies. If the Rx Loopback Frequency field contains NO SAM and is non-editable, the required version 2.00 or greater SAM firmware is not present. If the field contains DISABLED and is non-editable, the required version 5.00 or greater SSCB firmware is not present.

The Rx Loopback Frequency is entered in MHz. When an entered frequency is out of the specified range, an error occurs. Frequency ranges are:

VHF_Range_1 132-158 MHz UHF_Range_1 403-435 MHz
VHF_Range_2 146-174 MHz UHF_Range_2 435-475 MHz
800 MHz (Rx) 806-824 MHz and 800 MHz (Tx) 851-869 MHz
896 MHz (Rx) 896-902 MHz and 896 MHz (Tx) 935-941 MHz

The Rx Loopback Frequency must be set to one half channel below the Channel 1 Rx Frequency and MUST NOT be a multiple of 4.8 MHz.

Tx Loopback Frequency

If an RF Loopback test is desired, the Rx and Tx Loopback Frequency fields must contain the appropriate frequencies. If the Tx Loopback Frequency field contains NO SAM and is non-editable, the required version 2.00 or greater SAM firmware is not present. If the field contains DISABLED and is non-editable, the required version 5.00 or greater SSCB firmware is not present.

The Tx Loopback Frequency is entered in MHz. When an entered frequency is out of the specified range, an error occurs. Frequency ranges are:

VHF_Range_1 132-158 MHz UHF_Range_1 403-435 MHz
VHF_Range_2 146-174 MHz UHF_Range_2 435-475 MHz
800 MHz (Rx) 806-824 MHz and 800 MHz (Tx) 851-869 MHz
896 MHz (Rx) 896-902 MHz and 896 MHz (Tx) 935-941 MHz

The Tx Loopback Frequency must be set as follows for:

800 MHz -- Tx Loopback Freq=Rx Loopback Freq+43.200 MHz.

UHF (5 MHz Tx to Rx spacing)--Tx Loopback Freq=Rx Loopback Freq+4.8 MHz.

Others -- Tx Loopback Freq = Rx Loopback Freq.

NOTE: This version of the field programmer does not calculate Loopback Frequencies automatically.

EOM Time

The EOM Time field contains the time, in milliseconds, to keep the station keyed and generate an EOM signal after a coded PTT goes away. The default is 193 msec.

NOTE: The EOM Time field is set to 000 msec and is non-editable in SSCB firmware versions below 5.00.

TSTAT on MUXbus

The TSTAT on MUXbus field indicates whether or not the RWC5 on the MUXbus will indicate a TSTAT failure. TSTAT on MUXbus is ENABLED if the firmware version is greater than 5.00, and DISABLED for versions below 5.00. When ENABLED, RWC5 will indicate a TSTAT failure, should

one occur. This field is non-editable.

Fwd & Refl on MUXbus

The Fwd & Refl (Forward and Reflected) on MUXbus field controls whether RWC7 and RWC6 will indicate forward and reflected power alarms (respectively) on the MUXbus. If ENABLED alarms will be indicated on the MUXbus. A watt meter element must be present in the station in order for this feature to function properly. The default is DISABLED.

NOTE: The Fwd & Refl on MUXbus field is set to DISABLED and is non-editable if the SSCB firmware version is below 5.00.

LPTT Delay

The LPTT (Line Push-To-Talk) Delay field defines the length of time the station will wait for a Tx Code detect before keying the station after a wireline key command has been issued. This is used to prevent a secure station from keying in the clear mode when code follows the TRC keyup sequence. The range for this field is 0 to 9998 milliseconds. The default is 0.

NOTE: The LPTT Delay field is set to DISABLED and is non-editable if the TTRC firmware version is below 5.00.

Holdoff Delay with PL

When the Holdoff Delay with PL field is ENABLED, the station transmits PL/DPL during the Holdoff Delay. When DISABLED, no PL/DPL is transmitted during the delay. The default is ENABLED.

NOTE: The Holdoff Delay with PL field is set to ENABLED and is non-editable if the SSCB firmware version is below 5.00.

FT Mute Time

The FT (Function Tone) Mute Time is the amount of time that TX audio is muted after a TRC key command. This is used to prevent guard tone or function tone from being transmitted over the air. The range for this field is 0 to 9998 milliseconds. The default is 30.

Diversity Equipped

When ENABLED the Diversity Equipped field indicates that an RLC board is present and diagnostics will be performed for two receivers. When DISABLED diagnostics will only be performed for one receiver. The default is DISABLED.

NOTE: If the SAM codeplug version is less than 2.00, this field displays NO SAM and is non-editable.

GCC-480 Equipped

When ENABLED, SAM is factory programmed to operate with a GCC-480, General Communications Controller. If a GCC-480 is present in the station, special non-editable I/O functions are found in the SAM Action Table Conditions screen. When DISABLED, SAM will not operate properly with a GCC-480.

NOTE: If the SAM codeplug version is less than 2.00, this field displays NO SAM and is non-editable.

Gate Data Always

When ENABLED the Gate Data Always field indicates that the SAM board will always gate transmit data to the station's modulator. When DISABLED the SAM board will only gate transmit data to the station's modulator when Data PTT is active. The default is ENABLED.

NOTE: If the SAM codeplug version is less than 2.00, this field displays NO SAM and is non-editable.

MDC Pretime Bit Sync

When ENABLED the MDC Pretime Bit Sync field indicates that during the pretime of an encoded MDC message from SAM, the MDC bit sync pattern will be repeatedly transmitted. This bit sync transmission is in addition to the bit sync which is sent at the beginning of the MDC message, as part of that message, and is intended to cover the time which is needed for the transmitter to come to full power. When DISABLED no bit sync will be sent during the encode pretime. However, bit sync will be sent at the beginning of the MDC message, as part of that message. The default is DISABLED.

NOTE: If the SAM codeplug version is less than 2.00, this field displays

NO SAM and is non-editable.

Inactivity Delay

The valid range is from 0 to 357913 minutes (approximately 247 days). A value of 0 in the Inactivity Delay field indicates an infinite delay. This delay determines the amount of time that a receiver can be inactive before SAM performs a loopback test to verify that the receiver has not failed.

NOTE: If the SAM codeplug version is less than 2.00, this field displays NO SAM and is non-editable.

LLGT Dropout Time

The LLGT dropout time defines the time that the station must lose detection of low-level guard tone before it de-keys. Values for this field can range from 0 to 9998 msec. The default is 150 msec.

Full Rx Inhibit

The Full Rx Inhibit field determines where Receiver Wireline is muted when MUXBus RX_INH is active. The default is DISABLED.

When Full Rx Inhibit is DISABLED, the MUXBus RX_INH bit mutes Receiver Audio to the Receiver Wireline, but Status Tone, encoded tones, and alarms are NOT muted.

When Full Rx Inhibit is ENABLED, the MUXBus RX_INH bit mutes ALL audio to the Receiver Wireline.

NOTE: The Full Rx Inhibit feature is only present in TTRC firmware version 5.00 or greater. If the TTRC version is less than 5.00 the Full Rx Inhibit field is DISABLED and non-editable.

TSTAT DOD

This field will only be used by the station if the TTRC firmware is version R5.29 or greater. The TSTAT DOD field is NON-EDITABLE if the TTRC version is less than 5.00.

The TSTAT DOD (Drop-Out-Delay) determines the amount of time that the TSTAT signal on the Trunking Connector (Pin 10 on J2901) remains active after TX Data (Transmitter Data) ceases (for any reason). This

gives the Central Controller an indication that the station is not operating properly, so that it will not assign the particular station. For example: The TSTAT DOD field is set to 300 msec. If for some reason TX Data ceased, but resumed within 300 msec (before the TSTAT DOD time expired), no change in the TSTAT signal would occur (assuming that forward/reflected power levels are OK). The TSTAT signal would still be ACTIVE. If TX Data ceases for more than 300 msec (ie. a line became disconnected), the TSTAT signal would become INACTIVE, and remain there until TX Data resumes.

The TSTAT on the Trunking Connector is not the same as the TSTAT on the MUXBus (Address 13, D0). It is possible for the TSTAT signal to fail even though the MUXBus is NOT indicating a problem.

The default for the TSTAT DOD is 300 milliseconds.

EDIT CHANNEL INFORMATION

The EDIT CHANNEL INFORMATION function allows the user to change channel data. The Tab/ShiftTab keys are used to move the cursor between data fields. The PgUp/PgDn keys are used to move the cursor between pages.

Upon entering the routine, the user selects the desired channel by pressing the UP/DOWN Arrow Keys. The user can quickly view each of the enabled channels by repeatedly pressing the UP or DOWN Arrow Key. To edit any of the channel information, press the TAB or ENTER Key to advance to the desired field.

*MODE INFORMATION is only displayed with channels that have MODE SLAVING ENABLED.

DELETING CHANNELS

Pressing F7 causes the current channel to be deleted as long as it is not channel 00, or channel 01 in a one channel station. (The codeplug must always have channels 00 and 01).

Example: You have a 5 channel station and want to delete channel 3. Select 03 in the EDIT CHANNEL NUMBER field. Press F7 to delete channel 3. As a result channel 4 will now be numbered 3 (while still retaining channel 4 information) and channel 5 will be numbered 4.

ADDING CHANNELS

Press F8 to insert a duplicate of the currently displayed channel. The new channel is placed immediately after the channel selected. Any channels that have higher channel numbers than the

displayed channel will have their channel numbers increased to make room for the new channel.

Example: Suppose you have 4 channels enabled, and want to add a 5th. If you want the channel placed between channels 1 and 2, select 1 in the CHANNEL NUMBER field, then press F8. Channels 2, 3, and 4 will become 3, 4, and 5, respectively. Channels 0 and 1 will remain unchanged, and channel 2 will be an exact duplicate of channel 1.

BEFORE: 0 1 2 3 4

 | | \ \ \ \
AFTER: 0 1 N 3 4 5 {N--new channel (channel 2 in example)}

MODE SLAVING

When ENABLED, MODE SLAVING forces the DEFAULT MODE NUMBER to be used with this channel. The MODE SLAVING parameter is ENABLED/DISABLED by using the Up/Down arrow keys.

If MODE SLAVING is ENABLED, the default mode's information is below the DEFAULT MODE NUMBER field. This information may be edited, or a new default mode can be selected by changing the DEFAULT MODE NUMBER field.

MODE LOCKED

When DISABLED, MODE LOCKED allows the mode to be changed from the default mode via remote control or by using the front panel switch. If MODE SLAVING is disabled, then the MODE LOCKED parameter is automatically DISABLED and is not accessible. The parameter is ENABLED/DISABLED by using the Up/Down arrow keys.

TX IDLE FREQUENCY

The Tx Idle Frequency is equal to the Tx Frequency unless the Tx Frequency is equal to the Rx Frequency. Frequency ranges are:

VHF_Range_1	132-158 MHz	UHF_Range_1	403-435 MHz
VHF_Range_2	146-174 MHz	UHF_Range_2	435-475 MHz
800 MHz (Rx)	806-824 MHz	and	800 MHz (Tx) 851-869 MHz
896 MHz (Rx)	896-902 MHz	and	896 MHz (Tx) 935-941 MHz

The RX TRAY field indicates which receiver tray is being utilized. All TX and TX IDLE frequencies are located in R1. The RX frequency may be in either R1 or R2.

TX FREQUENCY

The transmit frequency is entered in MHz. When an entered frequency is out of the specified range, an error occurs. Frequency ranges are:

VHF_Range_1	132-158 MHz	UHF_Range_1	403-435 MHz
VHF_Range_2	146-174 MHz	UHF_Range_2	435-475 MHz
800 MHz (Rx)	806-824 MHz and	800 MHz (Tx)	851-869 MHz
896 MHz (Rx)	896-902 MHz and	896 MHz (Tx)	935-941 MHz

The RX TRAY field indicates which receiver tray is being utilized. All TX and TX IDLE frequencies are located in R1. The RX frequency may be in either R1 or R2.

RX FREQUENCY

The receive frequency is entered in MHz. A range error is detected when an out of range frequency is entered. Frequency ranges are :

VHF_Range_1	132-158 MHz	UHF_Range_1	403-435 MHz
VHF_Range_2	146-174 MHz	UHF_Range_2	435-475 MHz
800 MHz (Rx)	806-824 MHz and	800 MHz (Tx)	851-869 MHz
896 MHz (Rx)	896-902 MHz and	896 MHz (Tx)	935-941 MHz

The RX TRAY field indicates which receiver tray is being utilized. All TX and TX IDLE frequencies are located in R1. The RX frequency may be in either R1 or R2.

CALL SIGN

The CALL SIGN field determines the Morse Code sequence to be generated by the station. If the CALL SIGN field is left blank, no CALL SIGN will be generated for the particular channel. If a CALL SIGN is entered, the station will key and generate the call sign in Morse Code, at user selectable intervals and frequencies, while operating on that particular channel. See the Advanced Information Screen ID CALL SIGN fields for customizing the generation of the call sign.

The data entered can be up to 10 characters in length and can be any combination of alpha-numeric characters, and '/'.

TX IDLE CALCULATION

This field may be toggled between AUTO and MANUAL. If AUTO is selected, the tx idle frequency will automatically be set to the tx frequency unless the tx frequency is equal to the rx frequency. If the tx frequency is equal to the rx frequency then the tx idle is offset by a predetermined amount. If MANUAL is selected, the user must enter the tx idle frequency.

RX 2 TRAY TUNING FREQUENCY

The range for this field is determined by the range of the second receiver tray on the model/options screen. Its value is the median frequency of all R2 tray Rx frequencies. A range error is detected when an out of range frequency is entered. Frequency ranges are :

VHF_Range_1	132-158 MHz	UHF_Range_1	403-435 MHz
VHF_Range_2	146-174 MHz	UHF_Range_2	435-475 MHz
800 MHz (Rx)	806-824 MHz	and	800 MHz (Tx) 851-869 MHz
896 MHz (Rx)	896-902 MHz	and	896 MHz (Tx) 935-941 MHz

If no R2 range has been set on the model/options screen, then this field shows NO RANGE and is non-editable.

DEFAULT MODE NUMBER

The DEFAULT MODE NUMBER field displays the default mode to use with the current channel. If MODE SLAVING is ENABLED, whenever the channel is changed the mode will change to the DEFAULT MODE NUMBER. The DEFAULT MODE's information is displayed below the DEFAULT MODE NUMBER only if MODE SLAVING is ENABLED.

The DEFAULT MODE NUMBER field can be toggled to any existing mode. If any of the mode information fields are changed by the user, and the current mode is slaved to a different channel (other than the displayed channel), upon leaving the current channel screen, a new mode will be created.

NOTE: If you desire to change common mode information in a mode slaved by more than one channel, without creating a new mode, press F10 to return to the View/Edit Screen, then press F3 to change to the Mode Information Screen.

Upon exiting the Channel Information Screen, the RSS consolidates all identical modes into a single mode to save codeplug space. The mode numbers may change, but the information will remain the same.

The following choices of frequency range can be selected via ARROW UP/ARROW DOWN keys:

VHF_Range_1	132-158 MHz	[5 Khz or 6.25 Khz steps]
VHF_Range_2	146-174 MHz	[5 KHz or 6.25 KHz steps]
UHF_Range_1	403-435 MHz	[5 KHz or 6.25 KHz steps]
UHF_Range_2	435-475 MHz	[5 KHz or 6.25 KHz steps]
800 (RX)	806-824	(TX) 851-869 MHz [12.5 kHz steps]
896 (RX)	896-902	(TX) 935-941 MHz [12.5 kHz steps]

R1 tray contains all Tx frequencies and may contain Rx frequencies if those Rx frequencies are in the same frequency band as the Tx frequencies. **WARNING!!!!**

ALL CHANNEL FREQUENCIES WILL CONTAIN ZEROS AFTER CHANGING THIS FIELD!

SYNTHESIZER FOR R1 TRAY

The synthesizer field indicates whether or not a MOSAIC chip is used in the frequency synthesizer. This field is not written to the codeplug. The parameter is toggled between MOSAIC and NON-MOSAIC by using the Up/Down arrow keys. Frequencies will remain the same, but they will be coded to the codeplug differently if the value of this field is changed. NON-MOSAIC refers to a synthesizer that has a prescaler chip and a divider chip. MOSAIC synthesizers do not have the prescaler synthesizer chip (Prescaler is located in the divider chip).

The Defaults for the various bands are:

MOSAIC -- 800 MHz, 896 MHz

NON-MOSAIC -- UHF, VHF

FREQUENCY RANGE R2 TRAY

The following choices of frequency range can be selected:

VHF_Range_1 132-158 MHz [5 Khz or 6.25 Khz steps]

VHF_Range_2 146-174 MHz [5 KHz or 6.25 KHz steps]

UHF_Range_1 403-435 MHz [5 KHz or 6.25 KHz steps]

UHF_Range_2 435-475 MHz [5 KHz or 6.25 KHz steps]

800 (RX) 806-824 (TX) 851-869 MHz [12.5 kHz steps]

896 (RX) 896-902 (TX) 935-941 MHz [12.5 kHz steps]

DISABLED

The R2 tray contains only Rx frequencies. DISABLED indicates that the R2 tray does not exist. This field must be set to a valid frequency range, not DISABLED, before setting channels to R2 on the Scanning Receiver screen. **WARNING!!!!**

ALL CHANNEL FREQUENCIES WILL CONTAIN ZEROS AFTER CHANGING THIS FIELD!

SYNTHESIZER FOR R2 TRAY

The synthesizer field indicates whether or not a MOSAIC chip is used in the frequency synthesizer. This field is not written to the codeplug. The parameter is toggled between MOSAIC and NON-MOSAIC by using the Up/Down arrow keys. If an R2 tray is not present, this field will show DISABLED. The frequency values will remain the same, but they will be coded to the codeplug differently if the value of this field is changed. NON-MOSAIC refers to a synthesizer that has a prescaler chip and a divider chip. MOSAIC synthesizers do not have the prescaler synthesizer

chip (Prescaler is located in the divider chip).

The Defaults for the various bands are:

MOSAIC -- 800 MHz, 896 MHz

NON-MOSAIC -- UHF, VHF

REPEATER OPERATION

This option if ENABLED allows in-cabinet repeat. If changed to DISABLED, the station will change from a REPEATER station to a BASE station.

TRUNKING OPERATION

This option is non-editable. If necessary to change this option, three trunking codeplugs exist on your original program disks: TRNK.DEF, TRNKSTAC.DEF and TRNKSIMU.DEF that will enable the user to change this station type. Return to GET/SAVE/PROGRAM Codeplug Data Menu and read the desired file from disk.

WARNING!!! The channel frequencies will be zero. It will be necessary to enter the proper frequencies via the Channel Information screen. Re-reading the codeplug data will overwrite the present codeplug. To preserve the present codeplug, save to disk prior to reading any codeplug.

SPECTRA TAC OPERATION

This is a non-editable field. If ENABLED this option generates a 2175 Hz tone onto Line 2 (only) during time of no receiver activity and no Rx Code Detect. Also, clear receiver audio is routed through the SpectraTAC equalizer filter before being sent to Line 2. If necessary to change this field, two SpectraTAC codeplugs exist on the original program disks: CONVSTAC.DEF and TRNKSTAC.DEF. These enable the user to change the station type. Return to GET/SAVE/PROGRAM Codeplug Data Menu and read the desired file from disk.

SECURE OPERATION

This field indicates if the station will operate as a transparent station or an encode/decode station. A secure board is necessary (option C514) to toggle this field. For proper station operation for an encode/decode station, at least one of the following options is also necessary:
C388 - DES Encryption

C794 - DVP Encryption
C795 - DES-XL Encryption
C797 - DVP-XL Encryption

If a secure board is not present this field will contain DISABLED and be non-editable. If a TTRC board is present, the Status Tone field in the Advanced Information Screen will be ENABLED when SECURE OPERATION is TRANSPARNT, and DISABLED when ENC/DECODE.

XL DECRYPTION OPERATION

This field indicates the mode of secure operation. When disabled, the station operates in a secure Cipher Feedback (CFB) mode. CFB is used with asynchronous communications and does not require the station to buffer the incoming secure data. When enabled, the station operates in a secure XL mode. XL is used with synchronous communications and uses the station's 80 msec buffer so that no portion of the received data is lost.

Options C388(DES Encryption) or C794 (DVP Encryption) will DISABLE this field.

DUPLEX OPERATION

Option C332 enables FULL DUPLEX operation. The option moves JU4202 to its normal position and JU4205 to its alternate position on the TTRC board. The other toggle choice is HALF DUPLEX.

If TRUNKING OPERATION is ENABLED this field is not editable and will be FULL DUPLEX.

SIMULCAST OPERATION

This field is non-editable. If necessary to change this field, two codeplug files exist on the original program disks: CONVSIMU.DEF and TRNKSIMU.DEF. These will enable the user to change the station to a simulcast type. Return to GET/SAVE/PROGRAM Codeplug Data Menu and read desired file from disk.

TTRC EQUIPPED

When ENABLED, this field indicates a TTRC board is present. The other choice is DISABLED. If this field is changed from ENABLED to DISABLED, all TTRC information is removed and cannot be recovered. If DISABLED, all associated fields on the Advanced Information Screen will display NO TTRC.

SECURE EQUIPPED

When ENABLED, this field indicates a Secure board is present. The other choice is DISABLED. If this field is changed from DISABLED to ENABLED, a temporary screen will appear while the program reads in the default Secure codeplug. The default codeplug is configured for transparent operation. If this is changed from ENABLED to DISABLED, all Secure board information is removed and cannot be recovered. If DISABLED, all associated fields on the Advanced Information Screen will display NO SECURE.

MCS EQUIPPED

When ENABLED, this field indicates an MCS board is present. The other choice is DISABLED. If this field is changed from ENABLED to DISABLED, all MCS information is removed and cannot be recovered. If this field is changed from DISABLED to ENABLED, a default MCS table is created and slaved to mode zero to match factory programming.

SAM EQUIPPED

When ENABLED, this field indicates a SAM board is present. The other choice is DISABLED. If this field is changed from DISABLED to ENABLED, a temporary screen will appear while the program reads in the default SAM codeplug. If this field is changed from ENABLED to DISABLED, all SAM information is removed and cannot be recovered. If DISABLED, all associated fields on the Advanced Information Screen will display NO SAM.

PASSWORD EQUIPPED

When ENABLED, the PASSWORD EQUIPPED field indicates that the station is password protected. If the station is password protected, the RSS user will be required to enter a password before any communication with the station is allowed. If the SSCB firmware is version 5.XX or greater, the PASSWORD Equipped field can be toggled between DISABLED and ENABLED by using the Up/Down Arrow keys. The PASSWORD EQUIPPED field reads DISABLED and is non-editable, if the SSCB firmware version is less than 5.XX.

NOTE: PASSWORD PROTECTION IS A FEATURE PRESENT ONLY IN VERSION 5.XX
OR GREATER STATION CONTROL FIRMWARE.

PASSWORD EQUIPPED

If the PASSWORD EQUIPPED field is changed from DISABLED to ENABLED, the user will be prompted to enter a password when an attempt to program the station is made. The station WILL NOT be password protected UNTIL the station is successfully programmed with the PASSWORD EQUIPPED field set

to ENABLED.

If the PASSWORD EQUIPPED field is changed from ENABLED to DISABLED, the station remains password protected until the station is programmed. The user will be required to enter the current password when an attempt to program the station is made. When the data is successfully programmed to the codeplug, the station is no longer password protected, and any subsequent communication with the station will not be password protected.

SP NUMBER

If Special Product (SP) code is loaded in the current codeplug image, the SP NUMBER field displays the SP number. This field contains NO SP if an SP is not loaded. The SP NUMBER field is always non-editable. SP code is loaded via the GET/Save Menu.

SMARTZONE OPERATION

SmartZone is a complex wide-area, trunked system configuration.

At the time of the release of this RSS, SmartZone Operation is only available by ordering the X235ADSP option, which includes special SSCB and TTRC firmware, and special codeplug files. The current shipping MSF firmware (SSCB R5.45, TTRC R5.29, SECURE R4.22) DOES NOT SUPPORT SMARTZONE OPERATION. There are plans to include SmartZone Operation in the standard shipping firmware. When this is done, the SMARTZONE OPERATION field will control the firmware. CURRENTLY THIS FIELD HAS NO AFFECT ON STATION OPERATION. When the SmartZone Operation is available in standard MSF firmware, the field (FTR's) will be notified via MSIN (Motorola Servicers Information Network).

CHANGE/VIEW REMOTE CONTROL INFORMATION

The Change/View Remote Control Information screen contains all of the editable fields concerning tone remote control commands. This screen allows configuration of the station's remote control capabilities by entering various commands. Invalid commands are flagged with a warning message.

Defined function keys provide the following functions:

F1 - HELP

F3 - RESET COMMANDS TO ORIGINAL VALUE

F5 - PRINT PAGE

F10 - EXITS THE CHANGE/VIEW REMOTE CONTROL INFORMATION SCREEN

CHANGE/VIEW REMOTE CONTROL INFORMATION (cont.)

There are 16 function tones, FT0 (Guard Tone) through FT15, and 12 DC functions which can contain a maximum of 8 executable commands per function. Commands may be edited by using TAB and ShiftTAB to position the cursor at the desired field and typing the new command.

Valid commands are listed in the COMMAND DESCRIPTIONS table.

COMMAND DESCRIPTIONS

- ACK Send acknowledge handshake for this function.
- ALM ON Enable station alarms.
- ALM OFF Disable station alarms.
- CHN xx Select Channel xx (xx: 0-15).
- CONT xx CONTINUE executing commands at tone xx, (xx: 0-15).
- DVP1 Select DVP Code 0.
- DVP2 Select DVP Code 1.
- CHANGE/VIEW REMOTE CONTROL INFORMATION (cont.)
- ECHO Send back function and Guard tones.
- ECHOLLGT Send back function and Guard tones followed by a Low Level Guard Tone (LLGT).
- ENCRYPT ON Enable voice encryption.
- ENCRYPT OFF Disable voice encryption.
- FNCON x,y Activate a FuNction bit on MUXbus address x bit y (x:0-15, y:0-3).
- FNCOFF x,y Deactivate FuNction bit on MUXbus address x bit y (x:0-15, y:0-3).
- KEY Keys transmitter until low-level guard tone is removed.
- KEY ON Manually KEY station. Used for timed operations.
- KEY OFF Manually DEKEY station. Used for timed operations.
- KEYNUM xx Select a secure key xx (xx = 1 to 8). This applies to Secure Equipped radios only.
- KEYRST Clears all encryption keys. This applies to Digital Equipped (Secure Equipped) radios only.
- LLT Perform phone line loop test sequence.
- MODE xx Select Mode xx (xx: 0-15).
- MON Monitor channel. Disables receiver PL until next key.
- MORE Reset function tone buffer and look for more tones.
- NIB x,y Set data NIBble on MUXbus address x to value y. (x:0-15, y:0-15).
- NULL No further action.
- R2M ON Auxillary receiver audio mute on.
- R2M OFF Auxillary receiver audio mute off.
- RCV2 xx Select Receiver 2 channel xx (xx: 0-15).
- RES Resets the TTRC Board.
- RPL ON Enable receiver PL.
- RPL OFF Disable receiver PL.
- RPT ON Set-up repeater operation.
- RPT OFF Sets-up Knock down and disables repeater operation.
- RXINH ON Receiver Inhibit On.
- RXINH OFF Receiver Inhibit Off.
- SALA ON Turn On Continuous Selective Alarm feature.
- SALB ON Turn On Selective Alarm feature for 100 msec.
- SAL OFF Turn Off Continuous Selective Alarm feature.

SCAN ON Enable channel scan feature.
 SCAN OFF Disable channel scan feature.
 STBY ON Enable Hot Standby operation.
 STBY OFF Disable Hot Standby operation.
 TPL ON Enable transmitter PL.
 TPL OFF Disable transmitter PL.
 TXINH ON Transmitter Inhibit On.
 TXINH OFF Transmitter Inhibit Off.
 UNECHO Terminate Low Level Guard Tone (LLGT) initiated by ECHOLLGT.
 WAIT xxxx WAIT for xxxx milliseconds (xxxx: 5-21100).
 WC1 ON Turn On Wild Card 1 function.
 WC1 OFF Turn Off Wild Card 1 function.
 WC2 ON Turn On Wild Card 2 function.
 WC2 OFF Turn Off Wild Card 2 function.
 WC3 ON Turn On Wild Card 3 function.
 WC3 OFF Turn Off Wild Card 3 function.
 WC4 ON Turn On Wild Card 4 function.
 WC4 OFF Turn Off Wild Card 4 function.

GET/SAVE/PROGRAM MENU

The Function Keys in the GET/SAVE/PROGRAM Menu have the following meanings:

- F1 - Displays this screen.
- F2 - Read Codeplug Data from the Station into the program's memory.
- F3 - Read Codeplug Data from a DOS file into the program's memory.
- F4 - Read SP (Special Product) Code from a DOS file and Install into current codeplug.
- F5 - Read Codeplug Data from the Base Station into the program's memory.
This key will interrupt normal Base Station operation and will also reset the Base Station upon completion of the read.
- F7 - Write the codeplug data from memory to a DOS file. This will overwrite the DOS file if it already exists.
- F8 - Program the codeplug data from memory into the Station.
- F9 - Convert current Codeplug to a newer version.
- F10 - Exit to the previous menu.

For the manual conversion of codeplugs, first read the station or file that contains the "old" codeplug. Next, perform the necessary conversion(s) via the F9 from this menu. Then disconnect the station's power to insert the "new" firmware into the proper board(s) using the proper static protection. After power-up of the station, error code(s) will be appearing on the front panel. Temporarily ignore these as they are due to a codeplug and firmware mismatch. Program the station via F8 from this menu. The station should now be operating properly with its "new" firmware and "new" codeplug information.

WARNING! CODEPLUG DATA HAS BEEN CORRUPTED!

Channel Dev Pointer is out of range.

Check SSCB Codeplug.

Press F10 to continue.

WARNING! CODEPLUG DATA HAS BEEN CORRUPTED!

MCS Tables Pointer is out of range.
Check SSCB Codeplug.

Press F10 to continue.

WARNING! CODEPLUG DATA HAS BEEN CORRUPTED!

Station Control Codeplug Last Address Pointer is out of range.
Check SSCB Codeplug.

Press F10 to continue.

WARNING! CODEPLUG DATA HAS BEEN CORRUPTED!

Begin Variable User Area Pointer is out of range.
Check SSCB Codeplug.

Press F10 to continue.

WARNING! CODEPLUG DATA HAS BEEN CORRUPTED!

End Variable User Area Pointer is out of range.
Check SSCB Codeplug.

Press F10 to continue.

WARNING! CODEPLUG DATA HAS BEEN CORRUPTED!

Station Control Background Mailbox Pointer is out of range.
Check SSCB Codeplug.

Press F10 to continue.

WARNING! CODEPLUG DATA HAS BEEN CORRUPTED!

Station Control IPCB Mailbox Pointer is out of range.
Check SSCB.

Press F10 to continue.

WARNING! CODEPLUG DATA HAS BEEN CORRUPTED!

Channel Table Pointer is out of range.
Check SSCB Codeplug.

Press F10 to continue.

WARNING! CODEPLUG DATA HAS BEEN CORRUPTED!

ID Callsign Pointer in Channel Table is out of range.
Check SSCB.

Press F10 to continue.

WARNING! CODEPLUG DATA HAS BEEN CORRUPTED!

Mode Table Pointer is out of range.
Check SSCB Codeplug.

Press F10 to continue.

WARNING! CODEPLUG DATA HAS BEEN CORRUPTED!

Push-To-Talk Pointer in Mode Table is out of range.
Check SSCB Codeplug.

Press F10 to continue.

WARNING! CODEPLUG DATA HAS BEEN CORRUPTED!

Time Out Timer Pointer in Mode Table is out of range.
Check SSCB Codeplug.

Press F10 to continue.

WARNING! CODEPLUG DATA HAS BEEN CORRUPTED!

TTRC Spare Control Pointer is out of range.
Check TTRC Codeplug.

Press F10 to continue.

WARNING! CODEPLUG DATA HAS BEEN CORRUPTED!

TTRC External PTT Control Pointer is out of range.
Check TTRC Codeplug.

Press F10 to continue.

WARNING! CODEPLUG DATA HAS BEEN CORRUPTED!

TTRC Codeplug Last Address is out of range.
Check TTRC Codeplug.

Press F10 to continue.

WARNING! CODEPLUG DATA HAS BEEN CORRUPTED!

TTRC Begin Variable User Area is out of range.
Check TTRC Codeplug.

Press F10 to continue.

WARNING! CODEPLUG DATA HAS BEEN CORRUPTED!

TTRC End Variable User Area is out of range.
Check TTRC Codeplug.

Press F10 to continue.

WARNING! CODEPLUG DATA HAS BEEN CORRUPTED!

TTRC Background Mailbox Pointer is out of range.
Check TTRC Codeplug.

Press F10 to continue.

WARNING! CODEPLUG DATA HAS BEEN CORRUPTED!

TTRC IPCB Mailbox Pointer is out of range.
Check TTRC Codeplug.

Press F10 to continue.

WARNING! CODEPLUG DATA HAS BEEN CORRUPTED!

Response Table Pointer(s) is out of range.

Check TTRC Codeplug.

Press F10 to continue.

WARNING! CODEPLUG DATA HAS BEEN CORRUPTED!

DC Response Table Pointer(s) is out of range.
Check TTRC Codeplug.

Press F10 to continue.

WARNING! CODEPLUG DATA HAS BEEN CORRUPTED!

Secure Last Address Pointer is out of range.
Check Secure Codeplug.

Press F10 to continue.

WARNING! CODEPLUG DATA HAS BEEN CORRUPTED!

Secure Begin Variable User Area Pointer is out of range.
Check Secure Codeplug.

Press F10 to continue.

WARNING! CODEPLUG DATA HAS BEEN CORRUPTED!

Secure End Variable User Area Pointer is out of range.
Check Secure Codeplug.

Press F10 to continue.

WARNING! CODEPLUG DATA HAS BEEN CORRUPTED!

Pointer Secure Background Mailbox is out of range.
Check Secure Codeplug.

Press F10 to continue.

WARNING! CODEPLUG DATA HAS BEEN CORRUPTED!

Pointer Secure IPCB Mailbox is out of range.
Check Secure Codeplug.

Press F10 to continue.

PATHNAMES AND FILENAMES

This Screen consists of 6 fields.

The four CODEPLUGS TO READ fields allow the user to create a station codeplug configuration using modules from several files. For example, a user can read the SSCB and SECURE codeplugs from one file, and a TTRC codeplug from another file. For more information on these fields, move the cursor to one of the four CODEPLUGS TO READ fields and press F1.

The ENTER DIRECTORY NAME field contains the directory path that is searched for codeplug files. The valid disk drive letters are A-G. The directory may be changed by entering in a new directory pathname. Once a valid directory pathname has been entered the files contained in that directory will be displayed below and on subsequent pages, if necessary.

The ENTER FILE NAME consists of the filename. It may be entered in one of two fashions. The first is to directly enter in the filename. The second is to navigate through the files using the following keys:

PgUp/PgDn: Display more files if all of the directory's files can not fit on one page.

Up/Dn Arrow: These keys will move cursor up or down to the next file.

Tab: Moves cursor to filename in the same row in the next column.
If cursor is in last column the cursor will move to the last filename.

ShiftTab: Moves cursor to filename in the same row in the previous column. If cursor is in first column on first page then cursor will move up to the directory pathname field so that a new directory pathname may be entered.

Enter: Will read or save using the filename that is displayed on the 'Enter Filename' line.

The following function keys are valid on this screen:

F1: Display help information for this screen.

F5: Print out the current screen to the printer.

F10,Esc: Leave the current screen without reading or saving to a file.

ALT-F9: Used to read only desired board's codeplug from a file. For example, it allows reading TTRC from one file, and SSCB from another. ALT-F9 will only work in the Enter Pathname field. For more information on the ALT-F9 functionality, press ALT-F9 then navigate to the CODEPLUGS TO READ line, then press F1.

Upgrade Codeplug Version

The purpose of the Upgrade Codeplug Version screen is to enable the RSS user to upgrade a codeplug to a newer version. All programmed settings are retained in the conversion. This allows the user to upgrade the station to newer firmware without losing current settings.

SYSTEM VERSION

The SYSTEM VERSION refers to groupings of shipping firmware that are able to operate together in the station. The SYSTEM VERSION field can be toggled between 1, 2, or 3. As the SYSTEM VERSION field is changed the numbers in the CHANGE TO column will change if an upgrade is possible. For example if the SSCB version is currently 4 and the SYSTEM

VERSION is changed to 3, the SSCB CHANGE TO column will change to 5. But, if the SYSTEM VERSION is changed to 1 the SSCB CHANGE TO column will remain at 4, because downgrading of codeplugs is not supported. If a board is not present (ie. NO SAM), the CHANGE TO column will be blank and remain blank regardless of the system chosen. Press F3 to perform the upgrade(s).

SYSTEM VERSION	SSCB	TTRC	SECURE	SAM
1	3	4	3	1
2	4	5	4	1
3	5	5	4	2

CHANGE TO (version)

This is an entry field in which the user can enter the new desired individual codeplug version. The range of new version numbers can be selected using the UP/DOWN Arrow Keys. If the CHANGE TO field fails to toggle, the CURRENT codeplug version is upgraded to the most recent version and cannot be upgraded further. If no conversion is allowed, or the codeplug is not loaded, the upper right-hand window displays the message 'NON-EDITABLE FIELD'.

The user toggles to the new desired version number(s) and then initiates the conversion by pressing F3. The program performs all conversions selected and redisplay the screen with the new versions in the CURRENT column.

The following is the procedure to be followed when performing a firmware upgrade:

- 1) Read the station with old firmware installed.
- 2) Save the old codeplug to a disk file.
- 3) Remove power from the station. While taking precautions against electrostatic discharge, replace the old firmware with the new (in all boards).
- 4) Re-connect the power to the station. At this point you can program the station directly* or upgrade the codeplug manually (using Upgrade Codeplug

screen) and then program the station.
5) Save the new codeplug information to a disk file.

* If you program directly without manually upgrading the codeplugs, the RSS will automatically detect a mismatch in codeplug and firmware versions and prompt the user on whether or not to perform the necessary upgrade during the programming operation.
This Screen consists of 2 editable fields.

The first field is the directory that contains the SP (Special Product) code files. It may be changed by entering in a new directory pathname. Once a valid directory pathname has been entered the files contained in that directory will be displayed.

The second field consists of the filename. It may be entered in one of two fashions.

The first is to directly enter in the filename.

The second is to navigate through the files using the following keys:

PgUp/PgDn: Display more files if all of the directories files can not fit on one page.

Up/Dn Arrow: These keys will move cursor up or down to the next file.

Tab: Moves cursor to filename in the same row in the next column.
If cursor is in last column the cursor will move to the last filename.

ShiftTab: Moves cursor to filename in the same row in the previous column. If cursor is in first column on first page then cursor will move up to the directory pathname field so that a new directory pathname may be entered.

Enter: Will install the SP from the file whose name is displayed on the 'Enter Filename' line.

The following function keys are valid on this screen:

F1: Display help information for this screen.

F3: Display information about the SP contained in the file.

F5: Print out the current screen to the printer.

F10,Esc: Leave the current screen without reading or saving to a file.

CODEPLUG TO BE READ>

The four fields on this line indicate which codeplug(s) the RSS should attempt to find and read from the file displayed in the ENTER FILE NAME field. If a codeplug type contains a YES next to it, the RSS will attempt to read that particular codeplug data from the file.

Use the UP/DOWN Keys to toggle between YES and NO. By default, all codeplugs are set to YES. The YES in this field indicates that an attempt to read the particular codeplug from a file will be made.

If there is no codeplug information currently read in the RSS, the SSCB field will be set to YES and NON-EDITABLE (All stations must contain SSCB codeplug information).

Caution should be used when combining codeplug information from more than one file. It is possible to read incompatible codeplug versions (ie. SSCB 5.xx and TTRC 4.xx). If you are uncertain of the compatibility of codeplugs, enter the Upgrade Codeplug Version screen after reading the codeplugs. The Upgrade Codeplug Version screen will list compatible versions, and, if necessary, allow upgrading of specific codeplugs to make the versions compatible.

IPCB COMMANDS

IPCB command structure is as follow:

Start of

Message - Module - Command - Data

Character ID

("/")

Module ID List

module #	ASCII Character	Board Name
1	1	Station Control, SSCB
2	2	TRC,TTRC
3	3	MCS
4	4	Second Receiver
5	5	PURC Control
6	6	DTMF
7	7	DRC
8	8	VOX
9	9	GCC
10	A	Secure

COMMAND LIST

Command Description	Command #	Command Format
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Read Address	A	/idAa3a2a1a0
Read Next	B	/idB
Read Current	C	/idC
Read Previous	D	/idD
Read String	E	/idEa3a2a1a0b3b2b1b0
Read MUXbus	F	/idF
Read EEPROM into RAM	G	/idG
Seize Data for Operation	H	/idH
Read EEPOT Setting	I	/idIpid(pot id #)
Solicited BSW Transfer	S	/idS
Test IPCB	T	/idTd1d0
Unsolicited BSW Transfer	U	/idU
Add error	Z	/idZ
Write Address	a	/idaa3a2a1a0d1d0
Write Next	b	/idbd1d0
Write Current	c	/idcd1d0
Write Previous	d	/iddd1d0
Write String	e	/idea3a2a1a0b3b2b1b0dn..d0
Write MUXbus	f	/1fd15..d0
Write EEPROM from RAM	g	/idg
Release from Data Operation	h	/idh
Write EEPOT Setting	i	/idipidd1d0

MAIN MENU

The MAIN Menu is the top level of the program from which you select the type of function that you wish to perform. All selections are made via the "Function Keys", labeled F1 thru F10 on your keyboard.

After making a selection, you will be directed to similar menus and/or data entry screens for codeplug data.

Function Key Descriptions:

- F1 - Additional information is available for every menu via the F1(HELP) key. Specific help is also available for each field on all data entry screens. Keyboard help is available within any HELP screen via the F2 key. Version and RVN numbers for this version are available via the F9 key. Various Front Panel Error Message definitions are available by pressing F6, F7, or F9 from any help screen.
- F2 - SERVICE AND ALIGNMENT section allows the user to adjust the Soft Pots in order to set-up the station for proper operation.
- F3 - GET/SAVE/PROGRAM Codeplug Data routine gives the user the capability retrieve data for modification. After modifying the data the user can program the information into the station or save it for future reference.
- F4 - CHANGE/VIEW Codeplug Data function allows the user to modify all editable information in the codeplug.
- F5 - PRINT Codeplug Data routine makes a paper copy of the codeplug information.
- F6 - Not used at this time.
- F7 - Not Used At This Time.
- F8 - Not Used At This Time.
- F9 - SETUP COMPUTER CONFIGURATION is used to configure your BASE STATION Radio Service Software to your particular application. Communication ports and even screen colors may be customized to your specific needs.
- F10 - Select EXIT to quit the program and return to DOS. Be sure all desired codeplug changes have been programmed back into the radio and that an archive copy has been made. Otherwise all changes will be lost since returning to DOS erases this data from the computer's memory.

KEYBOARD OPERATION

TAB:	Advance Cursor to Next Data Field
ENTER:	Advance Cursor to Next Row
Shift TAB:	Backup Cursor to Last Data Field
UP / DOWN Arrow Keys:	Increment / Decrement Value or Selection
LEFT / RIGHT Arrow:	Move Cursor Within Data Field
INSERT:	Insert Space at Current Cursor Position
BACKSPACE:	Erase Data Within Field & Move Cursor Left
DELETE:	Erase Current Character
PAGE UP / PAGE DN:	Scroll Displayed Data UP or DOWN
HOME:	Move Cursor To Upper Left Data Field

F1: Help
F2 - F8: Execute Labeled Function
F10: Return to the PREVIOUS Menu
ESC: Return to the MAIN Menu

MSF 5000/10000 DIGITAL "E" ERROR CODES

Below is a list of brief explanations of Operational error codes that may be displayed on the digital LED display on the front panel of the MSF 5K/10K Digital Base Stations.

Operational Error Codes:

E00: Push-to-Talk Type HSR Image Mismatch
E10: RF Band not Designated
E20: Secure Module Coded Rx Level EEPOT lower limit out-of-bounds
E21: SSCB Flutter-Fighter Clip Level EEPOT lower limit out-of-bounds
E22 - 2E: SSCB EEPOT Value out-of-bounds
E30 - 3E: TTRC EEPOT Value out-of-bounds
E3F: RAC/SAM EEPOT limit out-of-bounds
E40: Receive Loop Control Signal Error
E41: Transmit Loop Control Signal Error
E42: Bad MCS Update Time value in SSCB codeplug.
E43: MCS Transfer Error
E44: MCS ASCII Data Transfer Error
E45: Rx Level Adjust Error
E46: Tx Synthesizer Failed To Unlock
E47: Tx Synthesizer Failed To Lock
E48: Rx Synthesizer Failed To Unlock
E49: Rx Synthesizer Failed To Lock
E4A: Rx2 Synthesizer Failed To Unlock
E4b: Rx2 Synthesizer Failed To Lock
E4C: Illegal Number of Scan Channels
E4d: Rx1 Tuning Channel Is Zeroed
E4E: Rx2 Tuning Channel Is Zeroed
E4F: Tx Tuning Channel Is Zeroed
E50: TTRC ALC Xmit EEPot Codeplug Value Invalid
E51: TTRC Un-ALC Xmit EEPot Codeplug Value Invalid
E52: Invalid HSR Address In External PTT Control Table
E53: Invalid HSR bit IN External PTT Control Table
E54: TTRC Encode Echo Busy
E55: TTRC Encoder Active Too Long
E56: Bad TTRC Tone Request
E57: Invalid DC Current Present (TTRC)
E58: Invalid HSR Address Specified in Spare Control Table
E60: Callsign Too Long (SSCB)
E70-78: RAC/SAM Errors
E80: Invalid SSCB Timer Usage
E81: Invalid SSCB EEPOT Operation Requested
E82: Invalid Push-To-Talk Request

E83: Invalid Push-To-Talk Arbitration State
 E84: Invalid Transmitter Operations State Detected
 E85: Missing MCS Module
 E86: Invalid EEPOT Adjustment State Detected
 E87: Invalid High Speed Ring Display State Detected
 E88: Invalid Push-To-Talk Priority List Detected
 E89: Too Many Channels and Modes Defined
 E8A: Invalid SSCB I/O State Detected
 E8b: Invalid SSCB IPCB Command State Detected
 E8C: Invalid Power Level Trip Display State Detected
 E8d: SSCB Sp Address Table Error
 E8E: Invalid Scan Operation State Detected
 E90: Invalid TTRC Timer Usage
 E91: Invalid TTRC EEPOT Operation Requested
 E92: Invalid TTRC Tone Requested
 E93: Invalid TTRC Command Requested
 E94: Invalid TTRC ALC State Detected
 E95: Invalid TTRC DC Current Number Detected
 E9b: Invalid TTRC IPCB Command State Detected
 E9D: TTRC SP Address Error
 EA0: Invalid Secure Timer Usage
 EA1: Invalid Secure Takeover State Detected
 EA2: RAC/SAM Output Response Number Out-of-Range
 EAA: RAC/SAM Output Line Number Out-of-Range
 EAb: Invalid Secure IPCB Command State Detected
 EAD: Secure SP Address Error
 Eb0 through EE1: Undefined Interrupt Vector Fetched
 EFF: COP Failure

MSF 5000/10000 DIGITAL "d" ERROR CODES

Below is a list of brief explanations of Digital Diagnostic error codes that may be displayed on the digital LED display on the front panel of the MSF 5K/10K Digital Base Stations.

Digital Diagnostic Error Codes

d01: SSCB Primary User Area Has Bad Check Byte
 d10: TTRC Module did not receive IPCB Wakeup Command from SSCB
 d11: TTRC Primary User Area Has Bad Check Byte
 d13: Bad Guard Tone Frequency
 d20: Secure Module did not receive IPCB Wakeup Command from SSCB
 d40: MCS did not receive IPCB Wakeup Command from SSCB
 d80: Corrupted User Area of SSCB Codeplug
 d81: Corrupted SSCB Codeplug
 d82: Bad SSCB Serial EEPROM
 d83: SSCB Codeplug Type Mismatch
 d84: Incorrect SSCB Codeplug Version Number
 d85: Incorrect SSCB Codeplug Checksum
 d86: Incorrect SSCB Firmware Checksum

d90: Faulty SSCB Internal RAM:
d91: No SSCB MUXbus Data Strobe (internal loopback mode)
d92: No SSCB MUXbus Data Strobe (normal operating mode)
d93: Improper SSCB MUXbus Operation (internal loopback mode)
d94: Improper SSCB MUXbus Operation (normal operating mode)
d97: No SSCB High Speed Ring Clock/Sync Signal (internal loopback mode)
d98: No SSCB High Speed Ring Clock/Sync Signal (normal operating mode)
d99: Improper SSCB High Speed Ring Operation (internal loopback mode)
d9A: Improper SSCB High Speed Ring Operation (normal operating mode)
d9b: Defective SSCB IPCB Interface
d9E: SSCB Processor Configuration Register Altered
d9F: SSCB EEPROM Codeplug Erased
dA0: Corrupted User Area of TTRC Codeplug
dA1: Corrupted TTRC Codeplug
dA2: Bad TTRC Serial EEPROM
dA3: TTRC Codeplug Type Mismatch
dA4: Incorrect TTRC Codeplug Version Number
dA5: Incorrect TTRC Codeplug Checksum
dA6: Incorrect TTRC Firmware Checksum
dA7: Missing TTRC Module
dA8: TTRC Module Present But Not Responsive
dA9: TTRC Codeplug Station_Type Mismatch
dAA: TTRC System Version Number Mismatch
dAC: TTRC EEPROM Programming Timeout Error
dB0: Faulty TTRC Internal RAM:
dB1: No TTRC MUXbus Data Strobe (internal loopback mode)
dB2: No TTRC MUXbus Data Strobe (normal operating mode)
dB3: Improper TTRC MUXbus Operation (internal loopback mode)
dB4: Improper TTRC MUXbus Operation (normal operating mode)
dB7: No TTRC High Speed Ring Clock/Sync Signal (internal loopback mode)
dB8: No TTRC High Speed Ring Clock/Sync Signal (normal operating mode)
dB9: Improper TTRC High Speed Ring Operation (internal loopback mode)
dB A: Improper TTRC High Speed Ring Operation (normal operating mode)
dC0: Corrupted User Area of Secure Codeplug
dC1: Corrupted Secure Codeplug
dC3: Secure Codeplug Type Mismatch
dC4: Incorrect Secure Codeplug Version Number
dC5: Incorrect Secure Codeplug Checksum
dC6: Incorrect Secure Firmware Checksum
dC7: Missing Secure Module
dC8: Secure Module Present But Not Responsive
dC9: Secure Codeplug Station Type Mismatch
dCA: Secure System Version Number Mismatch
dCC: Secure EEPROM Programming Timeout Error
dD0: Faulty Secure Internal RAM:
dD1: No Secure MUXbus Data Strobe (internal loopback mode)
dD2: No Secure MUXbus Data Strobe (normal operating mode)
dD3: Improper Secure MUXbus Operation (internal loopback mode)
dD4: Improper Secure MUXbus Operation (normal operating mode)
dD5: Secure Standard Mode ASIC Output Latch/Input Buffer Error (internal loopback mode)

dd7: No Secure High Speed Ring Clock/Sync Signal (internal loopback mode)
 dd8: No Secure High Speed Ring Clock/Sync Signal (normal operating mode)
 dd9: Improper Secure High Speed Ring Operation (internal loopback mode)
 ddA: Improper Secure High Speed Ring Operation (normal operating mode)
 ddb: Faulty Secure Module Transmit Phase Lock Detector Circuits
 ddC: Faulty Secure Module Receive Phase Lock Detector Circuits
 dE0 - dF6 : RAC/SAM Error Codes
 dEA: RAC/SAM Board System Version # is incompatible with SSCB's

MSF 5000/10000 DIGITAL "OTHER" ERROR CODES

Below is a list of brief explanations of error codes which are not Digital Diagnostic or Operational. These error codes may be displayed on the digital LED display on the front panel of the MSF Digital Base Stations.

Diagnostic Error Indications:

=====

Entire Status Display Flashes Twice: Faulty SSCB Display Driver or No Interrupt Request Interrupt.

Entire Status Display Flashes Four Times: Faulty SSCB External RAM

TTRC FAIL LED Flashes Two Times: No Interrupt Request interrupt to the TTRC microprocessor.

TTRC FAIL LED Flashes Four Times: Faulty TTRC External RAM

TTRC FAIL LED Flashes Six Times: Faulty IPCB operation on the TTRC module.

Secure FAIL LED Flashes Two Times: No RX_Interrupt Request or TX_Interrupt Request signal (should be pulses every 667 uS)

Secure FAIL LED Flashes Four Times: Faulty Secure Module External RAM

Secure FAIL LED Flashes Six Times: Faulty IPCB operation on the Secure module.

Audio Diagnostic Errors:

A00: PL Encoder Error

A01: Alert Tone Encoder Error

A02: PL Modulation Path Error

A03: Limiter/Splatter Filter/MAX DEV EEPOT Error

A04: Receive Audio Path Error

A05: Receive Squelch Detector Error

A06: Repeater Squelch Detector Error

A07: Select Audio (TP1) Error

A08: Line Audio Path Error

A09: Repeater Path Error

A0A: SSCB MC68HC11 Analog-to-Digital Converter system failure

A0b: Alert Tone Transmit Gate Failure

A0C: Defective Receive Audio Gate

A0d: PL Decoder Error

A20: TTRC MC68HC11 Analog-to-Digital Converter system failure

A21: TRC Encoder Failure

A22: TRC Encoder to Line 2 Path Failure

A23: TRC Encoder to Line 4 Path Failure

- A24: TRC Encoder to Line 2 Path Failure
- A25: Bad Line 2 Gate (No Mute)
- A26: TRC Encoder to Line 2 Path Failure or Line 4 EEpot Failure
- A27: Bad Line 4 Gate (No Mute)
- A28: STAC Encoder Failure or STAC EEpot Failure
- A29: STAC Encoder to Line 2 Path Failure
- A2A: ALC Audio Circuitry Failure
- A2b: Function Tone Decode Circuitry Failure
- A2E: ALC Audio to Tx Audio 4 Path Failure or Tx Level EEpot Failure
- A2F: ALC Audio to TX Audio 2 Path Failure or Tx Level EEpot Failure
- A30: Un-ALC Audio to Tx Audio Path Failure
- A31: Failsoft Tone Trunking Mod Audio Path Failure
- A32: Failsoft Codeword Trunking Mod Audio Path Failure or Trunking Dev EEpot Failure
- A33: Bad Data/Failsoft Gate
- A40: Secure MC68HC11 Analog-to-Digital Converter system failure
- A41: Secure Alert Tone Encoder/Filter failure
- A42: Secure Coded Modulation Splatter Filter Failure
- A43: Secure Coded Modulation Audio Gate Failure
- A44: Secure Coded Receive Audio Line Filter Failure
- A45: Secure Rx Coded Audio Gate Failure

Special Test Mode Errors:

-
- o80-o89, o8C-o8F: Undefined SSCB Interrupt Vector Fetched
 - oA0-ob2: Undefined TTRC Interrupt Vector Fetched
 - obE: TTRC Processor Configuration Register Altered
 - obF: TTRC EEPROM Codeplug Erased
 - oC0-od1: Undefined Secure Interrupt Vector Fetched
 - odE: Secure Processor Configuration Register Altered
 - odF: Secure EEPROM Codeplug Erased

Undefined Error Codes:

U00 through UFF: Unrecognized Error Code Class

STATUS HELP

RSS Software Version....R05.19.00

Release Date.....26-Feb-1993

Part Number.....RVN-4077F

Manual Number.....68P81125E68-E

Firmware Upgrade Kit...QVN-1000A

PL/DPL CODES

The Rx & Tx Code (PL/DPL) information can be entered by using code or frequency representation. After entering the PL/DPL data, its associated representation is displayed beside it. When an invalid code is entered, the user is prompted and forced to make corrections. There is a Maximum of 61 users per table. The Rx Code for each user must be a unique PL/DPL code and there are a maximum of 24 DPL Rx codes allowed for each MCS table. The Tx Code determines what PL or DPL code will be repeated when the user (Rx Code) is decoded. The Tx Code may be set to any PL, DPL, or CSQ code and duplicate transmit codes are permitted. The following page contains a listing of valid PL and DPL codes.

VALID PL CODES:

XZ - 67.0 XA - 71.9 WA - 74.4 XB - 77.0 WB - 79.7 YZ - 82.5
YA - 85.4 YB - 88.5 ZZ - 91.5 ZA - 94.8 1Z -100.0 1A -103.5
1B -107.2 2Z -110.9 2A -114.8 2B -118.8 3Z -123.0 3A -127.3
3B -131.8 4Z -136.5 4A -141.3 4B -146.2 5Z -151.4 5A -156.7
5B -162.2 6Z -167.9 6A -173.8 6B -179.9 7Z -186.2 7A -192.8
M1 -203.5 M2 -210.7 M3 -218.1 M4 -225.7 M5 -223.6 M6 -241.8
M7 -250.3 (CSQ-Only valid for the Tx code)

VALID DPL CODES:

023 025 026 031 032 043 047 051 054 065 071 072 073 074 114
115 116 125 131 132 134 143 152 155 156 162 165 172 174 205
223 226 243 244 245 251 261 263 265 271 306 311 315 331 343
346 351 364 365 371 411 412 413 423 431 432 445 464 465 466
503 506 516 532 546 565 606 612 624 627 631 632 654 662 664
703 712 723 731 732 734 743 754

ACCESS

The MCS user is granted access to the station if this field is ENABLED. The Up/Dn Arrow keys will toggle this option. If DISABLED, the user is 'turned off' and the user's Rx Code will not be decoded.

PRIORITY

The MCS module can operate in two modes, Normal Decode Mode and Priority Decode Mode. Upon power up, reset or after reprogramming, the MCS board enters the Normal Decode Mode.

In this mode, the state of the priority status parameter is not checked when decoding a PL or DPL code. As a result, any

access enabled user (regardless of priority status) can access the station; however, pressing F2 will place the MCS module in the priority decode mode. While in the priority mode, the MCS module will not decode non-priority users. This feature can be used to restrict station access during special or emergency situations. The default for this field is NO. The Up/Dn Arrow keys will toggle this field.

MCS TABLE

The MCS table field allows for entry of an MCS table for editing. To edit an MCS table enter the number of the MCS table in the MCS table field. To add an MCS table enter in a number one greater than the total number of MCS tables, this will provide a default MCS table. If an invalid number is entered the user will be flagged and forced to enter a correct MCS table number.

The Slaved To Mode(s) field indicates which modes this MCS table is slaved to. If the MCS table is slaved to more than 10 modes the individual modes are not listed, only a message indicating that the table is slaved to more than 10 modes.

(cont.)

FUNCTION KEY DEFINITIONS

F1 - Provides HELP associated with the MCS table.

F2 - Places the MCS module in the priority decode mode. While in the priority mode, the MCS module will not decode non-priority users. This feature can be used to restrict station access during special or emergency situations.

F3 - Removes the MCS module from the priority decode mode so that all users have access to the station.

F4 - Deletes the current MCS table. This key only works on the MCS table field. The MCS table cannot be deleted if it is slaved to a mode or if it is the only MCS table.

F5 - Prints the current page.

F6 - Adds a user to the end of the user list. There is a maximum of 61 users.

F7 - Delete the user that the cursor is on. This will move the remaining users up.

F8 - Resets the Elapsed Time and Number of Accesses of the user that the cursor is on.

F9 - Resets the Elapsed Time and Number Of Accesses for all of the users in the MCS table.

F10- Exits the MCS table.

ELAPSED TIME

This field indicates the amount of time a user has accumulated for billing purposes. This field may be reset to zero by either F8 or F9 function keys.

NUMBER OF ACCESSES

This field indicates how many times a user has accessed this station. This field may be reset to zero by either F8 or F9 function keys. The maximum NUMBER OF ACCESSES is 65535. After the maximum has been reached, subsequent accesses do not increment the NUMBER OF ACCESSES field.

PL/DPL CODES

The PL/DPL information can be entered by using code or frequency representation. After entering the PL/DPL data, its associated representation is displayed beside it. When an invalid code is entered, the user is prompted and forced to make corrections. If the RX PL/DPL displays MCS, this indicates that the RX PL/DPL is slaved to an MCS table (MCS Table Number field contains an MCS Table Number) and the RX PL/DPL field is non-editable.

VALID PL CODES:

XZ - 67.0 WZ - 69.3 XA - 71.9 WA - 74.4 XB - 77.0 WB - 79.7
YZ - 82.5 YA - 85.4 YB - 88.5 ZZ - 91.5 ZA - 94.8 ZB - 97.4
1Z -100.0 1A -103.5 1B -107.2 2Z -110.9 2A -114.8 2B -118.8
3Z -123.0 3A -127.3 3B -131.8 4Z -136.5 4A -141.3 4B -146.2
5Z -151.4 5A -156.7 5B -162.2 6Z -167.9 6A -173.8 6B -179.9
7Z -186.2 7A -192.8 M1 -203.5 8Z -206.5 M2 -210.7 M3 -218.1
M4 -225.7 9Z -229.1 M5 -223.6 M6 -241.8 M7 -250.3 CSQ - 0.0

VALID DPL CODES:

023 025 026 031 032 043 047 051 053 054 065 071 072 073 074 114
115 116 122 125 131 132 134 143 152 155 156 162 165 172 174 205
212 223 225 226 243 244 245 246 251 252 261 263 265 266 271 306
311 315 325 331 343 346 351 364 365 371 411 412 413 423 425 431
432 445 446 452 455 464 465 466 503 506 516 521 525 532 546 552
564 565 606 612 624 627 631 632 645 652 654 662 664 703 712 723
725 726 731 732 734 743 754

CONNECT TONES

The connect tone is a sub-audible tone transmitted with the mobile's

clear audio for detection by the station and Central Controller. One or two connect tones may be decoded simultaneously by the station. Connect Tone 1 is also encoded to the Central Controller during coded transmissions from the mobile to allow the Central to detect a connect tone. Connect Tone 2 will not be encoded to the Central under any circumstances. The valid Connect Tone list is show below.

Connect Tones:

CT#0 = 105.9 Hz CT#1 = 76.6 Hz CT#2 = 83.7 Hz CT#3 = 90.0 Hz
CT#4 = 97.3 Hz CT#5 = 116.1 Hz CT#6 = 128.6 Hz CT#7 = 138.5 Hz
CSQ = 0 Hz

PTT PRIORITY

Five editable types of Push-To-Talk's (PTT's) can be prioritized in the PTT PRIORITY field: Wireline(W), Local(L), Repeater(R), MRTI(M), and Data(D). The PTT's are entered, by the user, in priority order. Whenever two or more PTT's are active at the same time, only the PTT with the highest priority will be recognized by the station. Only the letters W, L, R, M, and D, may be entered. The default configuration is DWRLM (DATA>WIRELINE>REPEATER>LOCAL>MRTI).

If a PTT is left out of the PTT PRIORITY field the station will NEVER key as a result of that PTT type going active. For example, if DWR is entered, the station will not key as a result of a Local or MRTI PTT. In this example, Data PTT has higher priority than Wireline PTT, and Wireline PTT has higher priority than Repeater PTT.

TIME-OUT-TIMERS

There are five types of TIME-OUT-TIMERS: LINE, LOCAL, REPEATER, DATA AND MRTI. Each dictates the amount of time the station may be keyed up by that particular method(Line PTT, Local PTT, Repeater PTT, Data PTT or MRTI PTT) before the station dekeys. The time-out-timer prevents a particular user from dominating the station's transmitter. The time-out-time is entered in seconds. The time-out-time must be an integer between 0 and 495. If any other time-out-time is entered, the user will be forced to change it.

RECEIVER CONTROL

This parameter dictates the audio qualifiers needed to unscquelch the receiver. The three kinds of audio qualifiers are S(audio squelch), C(PL detect) and A(auxillary detect). The user toggles to any combination of the three audio qualifiers. After toggling to an audio qualifier, its description will appear next to it. For example if CA is entered, then PL Detect, AUX. Detect will be shown

next to it. This means that a PL Detect and an AUX. Detect are required before the receiver unsquelches. ON and OFF are also valid choices. If ON, the receiver will always unsquelch; if OFF the receiver will never unsquelch.

REPEATER CONTROL

There are two parameters in this category REPEATER ACTIVATE and REPEATER HOLDIN. These dictate the audio qualifiers needed to activate and hold repeater PTT. There are three kinds of audio qualifiers that may be used S(audio squech), C(PL detect) and A(auxillary detect). After toggling to an audio qualifier, its description will appear next to it. For example,if CA is entered, then PL Detect, AUX. Detect will be shown next to it. ON and OFF are also valid choices. ON needs no further qualifiers to activate or hold repeater PTT. OFF disallows any qualifiers.

RPTR DROP-OUT DELAY

This parameter dictates the amount of time the repeater stays keyed after the loss of the repeat audio signal. The drop-out delay is entered in seconds. The delay must be an integer between 0 and 495. All other entries will result in an error and force the user to make corrections.

ALARM TONES ROUTING

Alarm tones are generated when any of the Reverse Wildcard (RWC) Bits are active on the MUXBus. Alarms may be routed in two ways: OVER-THE-AIR and OVER-THE-WIRELINE. Each method may be ENABLED/DISABLED independently by using the Up/Down arrow keys. The defaults for both OVER-THE-AIR and OVER-THE-WIRELINE are ENABLED. The alarms are recognized by a number of consecutive beeps. For example, 6 beeps followed by a brief pause, followed by 5 more beeps signals that RWC6 (Reflected Power) and RWC5 (TSTAT Failure) are both active.

ALARMS

RWC1 Battery Backup	RWC5 TSTAT Failure
RWC2 PA Alarm	RWC6 High Reflected Power
RWC3 Synthesizer Out of Lock	RWC7 Low Forward Power
RWC4 Battery Overvoltage	RWC8 --not defined--

TX AUDIO/EXTERNAL DATA MIXING

This parameter determines whether a particular kind of transmit audio will be mixed with data audio. Five kinds of transmit audio may be mixed with data LINE, LOCAL, REPEAT, MRTI and ID ALARM. Each audio can be set to mix with data YES/NO independently by using the Up/Down

arrow keys.

PRE-EMPHASIS DE-EMPHASIS

When ENABLED, clear receive audio is de-emphasized and clear transmit audio is pre-emphasized. This is the default configuration for most clear voice applications.

When DISABLED, clear receive and transmit audio signals are not emphasized. This allows the station to have a flat repeater frequency response.

Note:

It is not possible to selectively disable either pre-emphasis or de-emphasis only. They are simultaneously enabled or disabled.

PA Cutback Allowed

When ENABLED, the station's RF power output will be decreased by 3 dB when operating on battery backup. When DISABLED, full power will be supplied from the station during battery operation. The default for this field is ENABLED.

Mode Power Level

When ENABLED, the power supply, whether from a battery or a.c. source, will supply 3 dB less than full power when the station is operating in the mode this field is enabled in. When DISABLED, full power will be supplied from the power source. The Default for this field is DISABLED.

Rpt TOT DOD Rset

When ENABLED, the stations time-out-timer resets after a drop-out-delay has been cleared. This allows for a longer user time with key-rekey operation. If DISABLED, the station's time-out-timer does not reset after a drop-out-delay has been cleared. This allows for a shorter station user time limited by the time-out-timer period. The default for this field is ENABLED.

Tx Code Line Qualifier

When ENABLED, the station does not key on code detect and requires a guard tone/function tone sequence to key the station during coded and clear transmission. When DISABLED, the station will key on code detect. The default for this field is DISABLED.

MRTI PP Mode

This field sets the tx audio type to a MRTI phone patch. There are four possible settings:

- CLEAR (always transmits out clear audio)
- CODED (always transmits out coded audio)
- RX SLAVED (transmits out the type of audio that was received)
- LATCHED (Once coded information is received code is always sent for the duration of the phone call)

The default for this field is CLEAR.

MCS TABLE NUMBER

This field indicates which MCS table this mode uses. If the table number is set to OFF, then this mode is not slaved to any MCS table but MCS tables do exist. If the field shows 'NO MCS' then MCS is not enabled for this station. MCS may be enabled via STATION MODEL OPTIONS SCREEN. The valid range for this field is 1 - 9.

EDIT MODE INFORMATION

The MODE INFORMATION can be edited via the EDIT MODE INFORMATION screen. MODE INFORMATION can also be edited in the EDIT CHANNEL INFORMATION screen, if the mode is slaved to any channel. The Tab/ShiftTab keys are used to move the cursor between data fields. The PgUp/PgDn keys are used to move the cursor between pages.

EDIT MODE NUMBER

To VIEW/EDIT a specific mode, use the Up/Down Arrow keys to select the mode. As the mode number is changed, the screen information is changed to reflect the newly selected mode.

DELETING MODES

To delete a specific mode, select the desired mode in the EDIT MODE NUMBER field, then press the F7 key. The mode will be deleted if the following criteria are met:

- 1) The selected mode is not MODE 00.
- 2) The selected mode is not MODE 01 in a 1 mode codeplug. The codeplug must always contain MODES 00 and 01.
- 3) The selected mode is not slaved to any channels.

Once the mode is deleted, all higher-numbered modes will have their mode numbers decremented by 1.

Example: Suppose you have a 4-mode station (station contains modes 0,1,2,3,4) and want to delete mode 2. If mode 2 is not slaved to any channels, select mode 2 in the EDIT MODE NUMBER field, then press F7.

Mode 2 will be deleted, and the old mode 3 will become the new mode 2, and the old mode 4 will become the new mode 3. Any channels slaved to old modes 3 or 4, will now be slaved to modes 2 or 3, respectively.

INSERTING MODES

A new mode is created by pressing the F8 key. The positioning of the new mode is determined by the mode selected in the EDIT MODE NUMBER field. The new mode is always an exact duplicate of the currently selected mode, and is placed directly after the currently selected mode. All higher-numbered modes will have their mode numbers increased by 1, and any slaved channels will be correctly adjusted.

Example: Suppose you have a 4-mode station (station contains modes 0,1,2,3,4) and you want to create a new mode #4. Select mode 3 in the

EDIT MODE NUMBER field, then press F8. A duplicate of mode 3 will be created after mode 3, and the old mode 4 will become mode 5. If Channel 4 was slaved to the old mode 4, it will now be slaved to mode 5.

BEFORE: 0 1 2 3 4 EDIT MODE NUMBER: 03
 | | | \\
AFTER: 0 1 2 3 4 5

****NOTE: ANY TWO OR MORE MODES THAT MATCH EXACTLY WILL BE CONSOLIDATED INTO A SINGLE MODE, WHEN LEAVING THE MODE SCREEN. THIS IS DONE TO CONSERVE CODEPLUG SPACE.**

ID OVER-THE-WIRELINE

When ENABLED, the ID OVER-THE-WIRELINE allows the Auto ID Callsign to be sent down the wireline. If a CALLSIGN is entered for the particular channel then it will always be sent over the air. The ID OVER-THE-WIRELINE field is ENABLED/DISABLED by using the Up/Down arrow keys.

The Default is set to DISABLED.

REMOTE CALLUP

The Remote Callup Screen contains up to 100 users that may be dialed and connected to the RSS. A maximum of 10 users are displayed on each page. Each user entry consists of the following fields: Number,

Name, Baud Rate, Parity, Data, Stop Bits and Tone/Pulse. This screen also contains a status line which indicates parameters of the current call-in-progress. The <TAB> and <BACKTAB> keys are used to move the cursor through the fields of each user. The <ENTER> key is used to advance the cursor to the next user. The <PgUp> and <PgDn> keys are used to move the cursor between pages. Users may be added or deleted via the function keys. Remember to press F8 to save the file after adding or deleting users. The above mentioned fields are described further in the following pages.

Pressing the F9-Auto Answer key gives the user the ability to configure a modem for operation at a remote station. It also gives the ability to re-configure the modem for normal operation. Once the F9 key is pressed, the user presses F2 to set the modem for auto-answer (Auto-answer after 1 ring, turn off echo mode, save to non-volatile modem memory), or F5, To return the modem to it's normal operating mode (Disable auto-answer, re-enable echo mode, and save the configuration to non-volatile modem memory).

NOTE: If you have a non-Hayes Compatible modem or a modem with configuration switches, this procedure will need to be performed manually by toggling the correct switches (See your modem owner's for the correct procedure). IT IS EXTREMELY IMPORTANT THAT THE MODEM CONNECTED TO THE STATION HAS ECHO MODE DISABLED!!

Function Key Definitions:

- F1 - Provide HELP associated with the Remote Callup screen.
- F2 - Dial the number of the user that the cursor is located on.
- F3 - Hang up the line connection if the system is currently 'On-Line'.
- F4 - Indicates the amount of 'On-Line' usage time of current call-in-progress. If there is no call-in-progress then the last completed call usage time is displayed.
- F5 - Print the current page.
- F6 - Add a user to the end of the user list. There is a maximum of 100 users.
- F7 - Delete the user that is currently being highlighted.
- F8 - Save the current Remote Callup user list to the 'Phone.cfg' file.
- F9 - Setup MODEM for Auto-Answer (Remote) or Normal (Local) operation.
- F10 -Exit the Remote Callup Screen.
- ALT-F5 -Terminal Mode: Allows user to type commands to the modem.

Status Line:

The Status Line is a display only line to indicate information about the current communication session. The Status Line indicates current dialing status (Off-Line, Busy, Dialing, No-Carrier or On-Line), communication port parameters (Serial Port, Baud Rate, Parity, Data Bits and Stop Bits), start of call, current time and pass number (current attempt to establish connection). The Serial Port may be changed via the Computer Configuration Menu which is F9 from the Main Menu. The other port parameters may be changed on a per user basis

from this screen.

Number:

The Number field is the telephone number that is to be dialed. A 1-30 character field must be entered. The digit/characters 0-9 # * A B C D - , ! are used to specify the number to dial. The characters A B C D # * represent specific tone pairs and therefore can be used only when tone dialing is selected. These symbols are ignored when pulse dialing is used. The hookflash dial modifier `!' issues a flash (hook-flash) signal, which causes the modem to hang up for 1/2 second, then reconnect. This feature can be used to access such PBX features as call transfer. The `,' modifier in the Number field causes the modem to pause for 2 seconds before processing the next character symbol in the Number field. The comma is frequently inserted after the `9' (digit generally used to gain outside access from a PBX) to allow sufficient time for the dial tone to occur before the modem dials the telephone number. Multiple commas can be used to produce longer pauses. a dash `-' can be used to separate sections of the number, however it is ignored when the number is dialed. The following is an example of a valid number: 9,255-2368 !,#71234

This number instructs the modem to use 9 to access a number outside a PBX, pause before dialing, dial the number 555-2368, enter a hook-flash, pause and issue the PBX transfer code #7 before dialing extension number 1234.

REMOTE CALLUP

Name:

The Name field is a descriptor for the number that is to be dialed. This field may be left BLANK or up to 10 characters may be entered. If an embedded blank is encountered, it will be replaced with an underscore character.

Baud Rate:

The Baud Rate field is based on the rate of transmission between the modem and the local computer and the rate from the modem across the telephone link to the remote system. Baud Rate is expressed in bits-per-second (bps). The four choices 1200, 2400, 4800 and 9600 are selected by use of the Up/Dn arrow keys. The default is 1200 bps.

Parity:

The Parity field indicates the type of Parity to be used in sending data. The three choices NONE, EVEN and ODD are selected by use of the Up/Dn arrow keys. The default is NONE.

Data Bits:

The Data Bits field indicates the number of Data Bits to be sent with each character. The two choices 7 and 8 are selected by use of the Up/Dn arrow keys. The default is 8.

Stop Bits:

The Stop Bits field indicates the number of Stop Bits to be sent with each character. The two choices 1 and 2 are selected by use of the Up/Dn arrow keys. The default is 1.

Tone / Pulse:

The Tone / Pulse field indicates whether TONE or PULSE dialing should be used. This field is dependent upon the type of phone line being used. The two choices TONE and PULSE are selected by use of the Up/Dn arrow keys. The default is TONE.

Network Controller:

The Network Controller allows the RSS to connect to different types of network access systems. The five choices are BLACKBOX, HEATHKIT, BAYTECH, GENERIC and NONE. If NONE is entered then no network may be accessed. GENERIC is any network controller that is not in the list.

Function Key Definitions:

- F1 - Provide HELP associated with the Remote Callup screen.
- F3 - Sends the entered network password or command to the controller specified in the Network Controller field.
- F5 - Print the current page.
- F8 - Save the current Network Controller settings to the 'MSF.CFG' file.
- F10 - Exit the Network Controller Screen.

REMOTE CALLUP

Password / Command:

This field is for the RSS user to enter in a network access password or command to send to the specified Network Controller. To send the Password / Command to the Network Controller it is necessary to press the <F3> key. The Network Controllers' response to the Password / Command will then be displayed.

TERMINAL MODE

This screen is used to converse directly with the modem. All characters are transmitted to the modem as they are typed. Printable characters are printed to the screen as they are received from the modem.

BREAK KEY

The F8 Key is used to send a break signal to the modem. When the F8 key is pressed the modem holds the Transmit Data (TD) signal active (SPACE) for the user-defined BREAK Duration.

This command is used for various purposes, depending on the equipment being addressed. For example: some network controllers use the sequence BREAK QQQ in order to signal to the controller that you are ready to switch to a different station (or port on the controller).

The BREAK Duration can be changed in the SERIAL PORT CONFIGURATION SCREEN.

ECHO MODE

The F8 Key is used to toggle the terminal echo mode.

Normally, the ECHO MODE is disabled so that the keys pressed only appear on the screen after they are repeated by the modem. If the modem you are using has the echo mode turned off, you will be unable to see your keystrokes with the ECHO MODE disabled. In this case press F8, and your keystrokes will be echoed to the screen as they are typed.

IPCB/MODEM MODE

The terminal mode screen is capable of sending characters in two formats : IPCB or MODEM.

The IPCB Mode is used to converse with the MSF station. In this mode all characters are not transmitted until the ENTER key is pressed. The MSF requires IPCB commands to be tightly packed together in order to be recognized.

In the MODEM Mode all characters are transmitted as they are typed.

PRINT CODEPLUG DATA

The PRINT function is used to produce permanent records of the station configuration. A printer is required and should be connected to your computer per your computer user's manual. Graphics capability is NOT required.

The printer must be hooked to the parallel port output of your computer. Before printing make sure the computer paper is aligned properly. When you are ready for printing Press the F9 function key.

SAM (Station Access Module) Menu

F1- This key in any menu will bring up a help screen for the current screen or for the current editable field on a working screen.

F3- This key will display one SAM Mode or Local SAM Mode.

F4- This key will display one SAM Action Table.

F5- This key will display the SAM Action Table Conditions.

F6- This key will display the SAM Encoder Sequences.

F7- This key will display SAM Wildcard Inputs.

F8- This key will display the SAM Encoder/Decoder Schemes.

F9- This key will display SAM Wildcard Outputs.

F10- This key will return the program to the View / Edit Menu.

The following is an example on how to configure SAM for Automatic Repeater Access.

Repeater operation of the station is disabled by default - the Repeater Knockdown bit on the MUXbus is active. In order to allow repeater operation, i.e. access the repeater, subscriber radios and/or dispatch equipment automatically send a signalling sequence at the beginning of every transmission. The signalling sequence can be an MDC1200 sequence, a Select V sequence, or a DTMF sequence. The following is an example of how the SAM board would be programmed to do Automatic Repeater Access in Mode 1 using a ZVEI Select V sequence received via the station receiver.

SAM Mode Tables Programming (F3 from SAM MENU):

```
SAM MODE NUMBER      1
REPEATER KNOCKDOWN  ENABLED
TONE DECODER         ZVEI
TONE INPUT           RECEIVER 1
TONE DECODER TARGET  1
TARGET               12345
ACT TBL              1
```

SAM Action Tables Programming (F4 from SAM MENU):

```
ACTION TABLE NUMBER  1

ACTION #1
CLRMUXQUAL
MUXADDR                5
MUXDATA                2
QUALADDR               1
QUALMASK               8
TIME                   10
```

This action will deactivate RPT_KD (MUXbus Address 5, Data 2) as long as RPT_PTT (MUXbus Address 1, Data 8) is active, plus 10ms (TIME field).

OPERATION SEQUENCE:

1. The station is in Mode 1 and RPT_KD is active. The mobile keys up, automatically sending ZVEI sequence 12345.
2. The SAM board decodes ZVEI sequence 12345, compares it to its Mode 1 tone decoder target(s) and finds a match with Tone Decoder Target 1.
3. Since Action Table 1 is "tied to" Target 1, the SAM board executes Action Table 1. Action Table 1, as shown programmed above, will make RPT_KD go inactive, allowing repeater operation, as long as RPT_PTT is present. NOTE: RPT_PTT will be active as long as the station has the conditions required for Repeater Unsilence.
4. The mobile dekeys removing the conditions needed for Repeater Unsilence, thereby causing RPT_PTT to go inactive. The SAM board sees RPT_PTT go inactive and activates RPT_KD 10ms later, disabling repeater operation.

(See Appendix F in the FIELD PROGRAMMER MANUAL for more examples of SAM usage.)

SAM Mode Number

This field allows SAM Mode & Local SAM Mode numbers to be entered.

A SAM Mode can only be created when a new Station Mode is added. The SAM Mode created will be the same number as the Station Mode that was created. Any references to Local SAM Modes or SAM Modes in the SAM Action Tables will be updated if a SAM Mode or Local SAM Mode is created/deleted.

If two or more Station Modes are found to be identical then the user will be asked if the duplicate Station Mode should be deleted. This will cause deletion of the corresponding SAM Mode. If the SAM Mode to be deleted is referenced in a SAM Action Table then the Station & SAM Mode deletion is cancelled.

If a SAM Mode number is entered that is greater than the number of Station Modes then that SAM Mode is considered to be a Local SAM Mode. The only Modes that may be created or deleted from this screen are Local SAM Modes. This is done by use of the F6 & F7 function keys. A Local SAM Mode can only be deleted from this field and only if a new SAM Mode number has not been entered.

The F8 function key is used to edit the SAM Action Table. This key is only valid on an Action Table field.

Repeater Knockdown:

This toggle field indicates what the initial status of the Repeater Knockdown bit (RPT KD) on the MUXbus will be set to upon switching to a SAM Mode or a Local SAM Mode. This field is changed by use of

the Up/Down arrow keys. If ENABLED, the Repeater Knockdown bit is initially set and no repeater operation is allowed. If DISABLED, the Repeater Knockdown bit is cleared and repeater operation is allowed.

Tone Decoder

Indicates which Tone Decoder scheme is used in this Mode.

This field allows the Tone Decoder to be toggled between the following values:

ZVEI - ZVEI standard tone decoding scheme
ZVEIFR - ZVEI french tone decoding scheme
ZVEIMOD - ZVEI modified tone decoding scheme
CCIR - CCIR standard tone decoding scheme
CCIRMOD - CCIR modified tone decoding scheme
EEA - EEA tone decoding scheme

See the SAM Encode/Decode screen for setting the parameters of each decoding scheme.

If DISABLED is selected then all of the Targets associated with the Tone Decoder will be cleared along with the Receiver.

If a valid Tone Decoder scheme is entered then when the SAM's Tone Decoder has decoded a message, it will compare this message against a list of words which are called 'Targets'. If a match is found, the SAM board will execute a sequence of actions specified by the matching Targets corresponding SAM Action Table number.

Tone Input

This field specifies which input the SAM Tone Decoder will monitor. The choices are RECEIVER 1, RECEIVER 2, or LINE. A fourth choice, DIVERSITY, is given if the SAM board is version 2.xx or greater. These may be selected by use of the UP/DOWN arrow keys.

Tone Decoder Targets

TARGET:

This field defines the sequence of tones that must be matched to execute the action table. Each tone in the sequence is specified as a hex number (0 - E) which corresponds to a particular frequency for the current tone decoder signalling scheme. This correspondence is defined in the SAM Encode/Decode screen. Each Target is allowed a maximum of seven tones. Wildcards are allowed and are indicated by an 'X'. The SAM Tone Decoder

will interpret an 'X' as a match for any tone number. For example, the sequences '12345' and '12045' will both match the Target '12X45'.

Note: The order of the Targets in the list is important to the SAM'S tone decoder and will be adjusted automatically by the field programmer.
i.e. Longer Targets must be listed before shorter Targets.

ACT TBL (Action Table)

The Action Table field describes which SAM Action Table will be executed when the Decoder Target matches the tones sent on the wireline.

A current Action Table number or an Action Table number that is one greater than the current number of existing Action Tables may be entered (valid entries for this field are displayed in the message window).

If an Action Table number is entered that does not exist then the user will get a prompt to create an empty Action Table or a duplicate Action Table. After the Action Table number is entered the user will be taken to the Action Table screen to edit the Action Table.

GROUP

The group scheme defines what group scheme has to be used with the Target. The SAM board supports two group calling methods. Selection of the group calling method is done via the UP/DOWN arrow keys. The field may be toggled between the following values: N = NONE, S = STANDARD, E = EXPANDED. If 'S' is selected then the Group Target requires the following standard rule: Once the 'Group Tone' (defined in the SAM Encode/Decode tables for each valid scheme) is detected, all following tones in the Target must also be Group Tones for a Group Target match to occur. The start of a Group Tone sequence can be detected in any position defined by the Group Target (see help for GR TAR field). If 'E' is selected (expanded group call), then the Group Target requires that Group Tones are allowed only in marked positions and the rest of the tones must match the Target. If 'N' is selected then no group calling method will be used.

GR TAR (Group Target)

This field specifies the Group Target. The letter 'G' indicates where a Group Tone is to be present in the Target. A '-' indicates that no Group Tone is to be present at the corresponding location in the Target. If Group is set to 'N' then no Group Tones are allowed to be entered. If Group is set to 'S' then the first Group Tone encountered in the Group Target MUST be followed by Group Tones. If Group is set to 'E' then Group Tones may occur anywhere in the Group Target.

The length of the Group Target must match the length of the Target.

GR ACT TBL (Group Action Table)

The Group Action Table field describes which SAM Action Table will be executed when the Group Target matches the message sent on the wireline. If the Action Table field is set to BLANK then no Action Table will be executed. A current Action Table number or an Action Table number that is one greater than the current number of existing Action Tables may be entered (valid entries for this field are displayed in the message window). If an Action Table number is entered that does not exist then the user will get a prompt to create an empty Action Table or a duplicate Action Table. After the Action Table number is entered the user will be taken to the Action Table screen to edit the Action Table. If the Group Scheme is set to 'N' then this field should be set to '--'.

Binary Encoder

This field allows the Binary Encoder to be toggled between ENABLED or DISABLED by use of the Up/Down arrow keys.

If ENABLED is selected then the assigned encoder can be used by the SAM otherwise the encoder will be deactivated.

Binary Decoder

This field allows the Binary Decoder to be toggled between DISABLED and MDC1200 by use of the Up/Down arrow keys.

If the field is toggled to DISABLED then all of the Targets and the Binary Input field are cleared and are no longer editable.

If the field is toggled to MDC1200 then the MDC1200 binary signalling scheme will be used for decoding in the current mode. When the SAM's binary signalling decoder has decoded a message, it will compare this message against a list of binary signalling words which are called 'Targets'. If a match is found, the SAM board will execute a sequence of actions specified by the matching Targets corresponding SAM Action Table number.

Binary Input

This field specifies which input the SAM Binary Decoder will monitor. The choices are RECEIVER 1, RECEIVER 2, or LINE. If the SAM board is version 2.xx or greater a fourth choice, DIVERSITY, is given. These may be selected by use of the UP/DOWN arrow keys.

SAM (Station Access Module) Wildcard Inputs

The SAM Wildcard Inputs screen defines 16 Wildcard Inputs and 2 Front Panel Inputs (Function A and Function B). Each Wildcard Input and Front Panel Input contain the following fields: Active, Input Type, Input Response, Active Action Table and Inactive Action Table.

I/O Configuration

This is a non-editable field that indicates how the Wildcard Inputs and Front Panel Inputs of the Station Access Module are configured. There are four possible choices: EXP_DATA, DATA, DIAGNOSTIC or WILDCARD. This field is changed whenever function keys F2, F3, F4 or F6 are invoked to change to a new setup. The status of this field determines which fields of the Wildcard Inputs and Front Panel Inputs are available for editing.

Input Type

The Input Type field describes how the Wildcard Input or Front Panel Input has been configured. This field is edited by use of the Up/Down arrow keys. The two Front Panel Inputs may be toggled between the following choices: SWITCH or BLANK. SWITCH indicates that the Front Panel Input is connected to an input. Valid Wildcard Inputs are as follows: If the I/O Configuration field is EXP_DATA then the Input Type field is non-editable. If the I/O Configuration field is DATA and the Input Type field is set to DATA then the Input Type field is non-editable, if the Input Type field is not set to DATA then the Input Type field may be toggled between WILDCARD and BLANK. If the I/O Configuration field is DIAGNOSTIC or WILDCARD then the Input Type field may be toggled between the following values: EXP_DATA (only on Wildcard Inputs 0, 1, 3, 4, 5, 10, 11, 12, 13), DATA (only on Wildcard Inputs 0, 1, 3, 4, 5, 10, 11, 12, 13), DIAGNOSTIC

(only on Wildcard Inputs 1, 11, 12, 13), WILDCARD or BLANK. If the Input Type field is set to BLANK then the following fields are non-editable: Active, Input Response, Active Action Table and Inactive Action Table. If the Input Type field is set to BLANK then that input is never monitored by the SAM board.

Definition of function keys:

Note: Pressing F2, F3, F4, F6 to change setups will also change the SAM Wildcard Outputs screen to the same setup. This will delete all Action Tables referenced in the SAM Wildcard Input screen provided the Action Table is not referenced in any of the SAM Mode Tables. All references to Action Tables in the SAM Mode Tables will be updated to account for any Action Tables that are deleted.

F1 - Provide Help

F2 - Set the I/O Configuration to WILDCARD. The Input Type field is set to BLANK for all of the Wildcard Inputs and the Front Panel Input.

F3 - Set the I/O Configuration to DATA. The Input Type field is set to DATA for the following Wildcard Inputs: 0, 1, 3, 4, 5, 10, 11,12 and 13. The remaining Input Type fields are set to BLANK.

F4 - Set the I/O Configuration to EXP_DATA. The Input Type field is set to EXP_DATA for the following Wildcard Inputs: 0, 1, 3, 4, 5, 10, 11,12 and 13. The remaining Input Type fields are set to BLANK.

F5 - Print the current page.

F6 - Set the I/O Configuration to DIAGNOSTIC. The Input Type field is set to DIAGNOSTIC for the following Wildcard Inputs: 1, 11,12 and 13. The remaining Input Type fields are set to BLANK.

F8 - If in the Active or Inactive Action Table field and a valid Action Table is entered then that Action Table will be displayed and available for editing. When in the Action Table it is possible to switch to the alternate state by pressing the F8 function key.

F10 Exit the SAM Wildcard Input screen and return to the SAM menu.

ACTIVE

The Active field determines if the Wildcard Input or Front Panel Input is active high or active low. This field is non-editable if the Input Type field = EXP_DATA, Input Type = DATA or if on a Front Panel Input line. This field may be toggled between the following values: HIGH and LOW. If the Wildcard Input or Front Panel Input makes a transition to its Active state then the Input Response and Active Action Table fields will be executed if they are defined (not BLANK). If the Wildcard Input or Front Panel Input makes a transition to its Inactive state then the Input Response will be cancelled and the Inactive Action Table will be executed if it is not BLANK.

Input Response

The Input Response field describes a specific event that is to be executed when the Wildcard Input or Front Panel Input makes a transition to the Active State. If the Input Type field is set to EXP_DATA, DATA or DIAGNOSTIC then this field is set to a unique Input Response which is dependent on the Wildcard Input and is non-editable. If the Input Type field is set to WILDCARD then this field may be set to any valid Input Response. If the Input Response field is set to BLANK then this field is non-editable. The following is a list of Input Responses that may be toggled through if the Input Type field is set to WILDCARD:

Input Response Description

TX PL INH	Send current transmission without PL.
RFLOOP EN1	Indicate to the MSF that the GCC / BSC needs to perform an RF Loopback test of the base station transmitter and receiver combination.
RFLOOP EN2	Sets up the base station in loopback mode.
SEIZE/REL	Indicate to the MSF that the GCC / BSC has taken control of base station upon command from the trunking central controller.
DATA PTT	Indicate to the MSF base station that the GCC/ BSC desires to key up the base station transmitter.
RX MUTE	Mute receive audio to the console. Used by GCC / BSC in data / voice applications only.
MAJORFAULT	Indicates a major fault exists in the BSC. The MSF will ignore all other request from the BSC.
ALARM RES	Used to test each alarm output for proper operation.
STN RESET	Force the MSF base station into a full reset.
BLANK	No input response is executed.

Active Action Table

The Active Action Table field describes which Action Table will be executed whenever a Wildcard Input or Front Panel Input makes a transition to its Active state. If the Action Table field is set to BLANK then no Action Table will be executed. If the Input Type field is set to BLANK then this field is non-editable. A current Action Table number or an Action Table number that is one greater than the current number of existing Action Tables may be entered (valid entries for this field are displayed in the message window). If an Action Table number is entered that does not exist and the Inactive Action Table is set to BLANK then the user will get a prompt to create an empty Action Table or a duplicate Action Table. After the Action Table number is entered the user will be taken to the Action Table screen to edit the Action Table. If an Action Table number is entered that does not exist and the Inactive Action Table is not set to BLANK then the user will get a prompt to create an empty Action Table or duplicate an existing Action Table. After the Action Table number is entered the user will be taken to the Action Table screen to edit the Action Table. When in the action table screen, it is possible to toggle between the alternate states' Action Table (if it exists) by pressing the F8 function key.

Note: If an Active Action Table is entered it is recommended that an Inactive Action Table also be entered to cancel the actions executed by the Active Action Table.

Inactive Action Table

The Inactive Action Table field describes which Action Table will be executed whenever a Wildcard Input or Front Panel Input makes a transition to its Inactive state. If the Action Table field is set to BLANK then no Action Table will be executed. If the Input Type field is set to BLANK then this field is non-editable. A current Action Table number or an Action Table number that is one greater than the current number of existing Action Tables may be entered (valid entries for this field are displayed in the message window). If an Action Table number is entered that does not exist and the Active Action Table is set to BLANK then the user will get a prompt to create an empty Action Table or a duplicate Action Table. After the Action Table number is entered the user will be taken to the Action Table screen to edit the Action Table. If an Action Table number is entered that does not exist and the Active Action Table is not set to BLANK then the user will get a prompt to create an empty Action Table, or duplicate an existing Action Table. After the Action Table number is entered the user will be taken to the Action Table screen to edit the Action Table. When in the action table it is possible to toggle between the alternate states' Action Table (if it exists) by pressing the F8 function key.

Note: If an Inactive Action Table is entered it is recommended that an Active Action Table also be entered to cancel the actions executed by the Inactive Action Table.

SAM (Station Access Module) Wildcard Outputs

The SAM Wildcard Outputs screen defines 24 Wildcard Outputs (0 - 23). For each Wildcard Output there are 3 fields that describe it. They are OUTPUT TYPE, ACTIVE and OUTPUT ENABLE CONDITIONS.

I/O CONFIGURATION

This is a non-editable field that indicates how the Wildcard Outputs of the Station Access Module are configured. There are four possible values: EXP_DATA, DATA, DIAGNOSTIC or WILDCARD. This field is changed whenever function keys F2, F3, F4 or F6 are pressed to change to a new setup. The status of this field determines how the 24 Wildcard Outputs are configured and which fields are available for editing.

OUTPUT TYPE

The Output Type field describes how the Wildcard Output has been configured. This field is edited by use of the Up/Down arrow keys. If I/O Configuration is EXP_DATA, this field is not editable. Also, if I/O Configuration is DATA, this field is not editable for Outputs 15, 17, 18, 19 and 20. Otherwise, the following describes what values this field may be set to.

Wildcard Output	Output Type (allowed Values)
0 - 15, 17, 19	WILDCARD, DATA, EXP_DATA*, DIAGNOSTIC, blank

16, 21, 22, 23	WILDCARD, DATA, DIAGNOSTIC, blank
18	WILDCARD, DIAGNOSTIC, blank
20	WILDCARD, DATA, EXP_DATA, blank

* Changing one of outputs 0-14 to EXP_DATA changes all of 0-14 to EXP_DATA

Only if the Output Type field is set to WILDCARD are the Active and Output Enable Conditions fields made accessible and editable. Otherwise, the user cannot change them. If the Output Type field is made blank then the SAM board doesn't switch that output.

Definition of function keys:

Note: Pressing F2, F3, F4, F6 to change setup will also change the SAM Wildcard Inputs to the same setup. This will delete all Action Tables referenced in the SAM Wildcard Input screen provided the Action Table is not referenced in any of the SAM Mode Tables. All references to Action Tables in the SAM Mode Tables will be updated to account for any Action Tables that are deleted.

F1 - Provide Help

F2 - Set the I/O Configuration to WILDCARD. All fields are cleared. The Output Type field for Wildcard Output 0 is set to WILDCARD.

F3 - Set the I/O Configuration to DATA. All Wildcard Outputs are changed to their default DATA configuration values (described below).

F4 - Set the I/O Configuration to EXP_DATA. All Wildcard Outputs are changed to their default EXP_DATA configuration values (described below).

F5 - Print the current page.

F6 - Set the I/O Configuration to DIAGNOSTIC. All Wildcard Outputs are changed to their default DIAGNOSTIC configuration values (described below).

F10- Exit the SAM Wildcard Output screen and return to the SAM menu.

DEFAULT CONFIGURATIONS

	EXP_DATA	DATA	DIAGNOSTIC
Wildcard Output	Output Enable	Output Enable	Output Enable
Output Active	Conditions	Active Conditions	Active Conditions
0.	HIGH ALM BIT 0	HIGH DC PWR ALM	HIGH DC PWR ALM
1.	LOW ALM BIT 1	LOW R1 SYN ALM	LOW R1 SYN ALM
2.	LOW ALM BIT 2	LOW RCVR1 ALM	LOW RCVR1 ALM
3.	LOW ALM BIT 3	LOW AC MN FAIL	LOW AC MN FAIL

EXP_DATA	DATA	DIAGNOSTIC
----------	------	------------

- | | | | | | | |
|-----|-------------|------------|-----------|------------|-----------|------------|
| 4. | LOW | ALM BIT 4 | LOW | IPA RF ALM | LOW | IPA RF ALM |
| 5. | LOW | ALM BIT 5 | LOW | RSSI/DIV | LOW | RSSI/DIV |
| 6. | LOW | ALM BIT 6 | LOW | FIN PA RF | LOW | FIN PA RF |
| 7. | LOW | ALM BIT 7 | LOW | SSCB ALM | LOW | SSCB ALM |
| 8. | LOW | ALM BIT 8 | LOW | LOOPB CIRC | LOW | LOOPB CIRC |
| 9. | LOW | ALM BIT 9 | LOW | RCVR2 ALM | LOW | RCVR2 ALM |
| 10. | LOW | ALM BIT 10 | LOW | ALM INT F | LOW | ALM INT F |
| 11. | LOW | ALM BIT 11 | LOW | R2 SYN ALM | LOW | R2 SYN ALM |
| 12. | LOW | ALM BIT 12 | LOW | RV PWR ALM | LOW | RV PWR ALM |
| 13. | LOW | ALM BIT 13 | LOW | BATT OVOLT | LOW | BATT OVOLT |
| 14. | LOW | ALM BIT 14 | LOW | TX SYN ALM | LOW | TX SYN ALM |
| 15. | LOW | LN PTT SEN | LOW | LN PTT SEN | LOW | SEC BD ALM |
| 16. | not defined | LOW | PTT DEKEY | LOW | PTT DEKEY | |
| 17. | LOW | RX PL DET | LOW | RX PL DET | LOW | DR RF PWR |

- | | EXP_DATA | DATA | DIAGNOSTIC |
|-----|-------------|-------------|-----------------------------|
| 18. | not defined | not defined | LOW TTRC ALM |
| 19. | LOW | CARR DET | LOW CARR DET LOW RED RF PWR |
| 20. | LOW | RPTR PTT | LOW RPTR PTT not defined |
| 21. | not defined | LOW | RPGM STN LOW RPGM STN |
| 22. | not defined | LOW | DOOR ALM LOW DOOR ALM |
| 23. | not defined | LOW | ACC DIS LOW ACC DIS |

ACTIVE

The Active field determines if the Wildcard Output is active high or active low. This field is editable only if the Output Type is WILDCARD. If editable, it may be toggled between the following values: HIGH and LOW. This field must be HIGH if Output Enable Conditions is set to DC PWR ALM (DC POWER ALARM). It must be LOW if Output Enable Conditions is set to ALM INT F (ALARM INTERFACE FAULT).

OUTPUT ENABLE CONDITIONS

The Output Enable Conditions field specifies an alarm, control or MUXbus condition (up to 3 allowed). When the condition(s) is met, the SAM board causes the Wildcard Output to switch to its Active state. This field is only editable if the Output Type field is set to WILDCARD.

MUXbus conditions have the following format: Mux Address, Compare Criteria

Where: Mux Address : a decimal number between 0 and 15

Compare Criteria : four characters, where each character can be 0, 1 or X (ie. don't care).

Example: 14,XX10

This means the output goes active when MUXbus address 14, b0 = 0 and b1 = 1. If more than one MUXbus condition is present for this output, an additional field containing AND or OR is required, which describes the combining logic

for these conditions.

Example: 14,XXX1 2,1XXX OR

This means the output goes active when MUXbus address 14, b0 = 1 OR
MUXbus address 2, b3 = 1.

The following is a list of the alarms and controls along with their abbreviations. Their descriptions may be found in the manual.

Alarm/Control	Abbreviation
DC POWER ALARM	DC PWR ALM
RX1 SYNTHESIZER ALARM	R1 SYN ALM
RECEIVER 1 ALARM	RCVR1 ALM
AC MAINS FAILURE ALARM	AC MN FAIL
IPA RF ALARM	IPA RF ALM
RSSI/DIVERSITY ALARM	RSSI/DIV
FINAL PA RF ALARM	FIN PA RF
STATION CONTROL BD ALARM	SSCB ALM
LOOPBACK CIRCUIT ALARM	LOOPB CIRC
RECEIVER 2 ALARM	RCVR2 ALM
REVERSE POWER ALARM	RV PWR ALM
RX2 SYNTHESIZER ALARM	R2 SYN ALM
ALARM INTERFACE FAULT	ALM INT F
BATTERY OVERVOLTAGE ALARM	BATT OVOLT
TX SYNTHESIZER ALARM	TX SYN ALM
LINE PTT SENSE	LN PTT SEN
PTT DEKEY ALARM	PTT DEKEY
RX PL DETECT	RX PL DET
CARRIER DETECT	CARR DET
REPEATER PTT	RPTR PTT
REPROGRAM STATION	RPGM STN
DOOR ALARM	DOOR ALM
ACCESS DISABLE	ACC DIS
REDUCED RF POWER ALARM	RED RF PWR
DRIVER RF POWER ALARM	DR RF PWR
SECURE BOARD ALARM	SEC BD ALM
TTRC BOARD ALARM	TTRC ALM
ALARM WORD BIT n	ALM BIT n (where n = 0..14)

Note: If one of outputs 0 - 14 is made an ALARM WORD BIT, then outputs 0 - 14 are all changed to ALM BIT n (where n = 0..14). Conversely, if an output is changed from an ALARM WORD BIT to something else, then all remaining outputs in 0 - 14 range revert to their default values, depending on current I/O CONFIGURATION.

TRIGGER CONDITIONS

The Trigger Conditions fields specify an alarm, control or MUXbus condition (up to 3 allowed). When the condition(s) is met, the SAM board causes the specified Action Table to be executed.

If the Trigger Condition field contains UNKNOWN, this signifies that a section of the SAM codeplug has been programmed with an undefined Action Table Condition. For example, if a GCC-480, General Communications Controller, is present in the station, special factory programming was required to ensure proper function. The UNKNOWN Condition may be deleted, but may not be added with the present RSS.

MUXbus conditions have the following format: Mux Address, Compare Criteria

Where: Mux Address : a decimal number between 0 and 15
Compare Criteria : four characters, where each character can be 0, 1 or X (ie. don't care).

Example: 14,XX10

This means the Active Action Table gets executed when
MUXbus address 14, b0 = 0 and b1 = 1.

If more than one MUXbus condition is present on this line, an additional field containing AND or OR is required, which describes the combining logic for these conditions.

Example: 14,XXX1 2,1XXX OR

This means the Active Action Table gets executed when
MUXbus address 14, b0 = 1 OR
MUXbus address 2, b3 = 1.

The following is a list of the alarms and controls along with their abbreviations. Their descriptions may be found in the manual.

Alarm/Control	Abbreviation
DC POWER ALARM	DC PWR ALM
RX1 SYNTHESIZER ALARM	R1 SYN ALM
RECEIVER 1 ALARM	RCVR1 ALM
AC MAINS FAILURE ALARM	AC MN FAIL
IPA RF ALARM	IPA RF ALM
RSSI/DIVERSITY ALARM	RSSI/DIV
FINAL PA RF ALARM	FIN PA RF
STATION CONTROL BD ALARM	SSCB ALM
LOOPBACK CIRCUIT ALARM	LOOPB CIRC
RECEIVER 2 ALARM	RCVR2 ALM
REVERSE POWER ALARM	RV PWR ALM

(cont.)

RX2 SYNTHESIZER ALARM	R2 SYN ALM
ALARM INTERFACE FAULT	ALM INT F
BATTERY OVERVOLTAGE ALARM	BATT OVOLT
TX SYNTHESIZER ALARM	TX SYN ALM
LINE PTT SENSE	LN PTT SEN
PTT DEKEY ALARM	PTT DEKEY
RX PL DETECT	RX PL DET
CARRIER DETECT	CARR DET
REPEATER PTT	RPTR PTT
REPROGRAM STATION	RPGM STN
DOOR ALARM	DOOR ALM
ACCESS DISABLE	ACC DIS
REDUCED RF POWER ALARM	RED RF PWR
DRIVER RF POWER ALARM	DR RF PWR
SECURE BOARD ALARM	SEC BD ALM
TTRC BOARD ALARM	TTRC ALM

ACTIVE ACTION TABLE

The Active Action Table field describes which Action Table will be executed whenever the specified Trigger Conditions become true. If the Action Table field is set to BLANK then no Action Table will be executed. A current Action Table number or an Action Table number that is one greater than the current number of existing Action Tables may be entered (valid entries for this field are displayed in the message window). If an Action Table number is entered that does not exist and the Inactive Action Table is set to BLANK then the user will get a prompt to create an empty Action Table or a duplicate Action Table. After the Action Table number is entered the user will be taken to the Action Table screen to edit the Action Table. If an Action Table number is entered that does not exist and the Inactive Action Table is not set to BLANK then the user will get a prompt to create an empty Action Table, copy of the Inactive Action Table or a duplicate Action Table. After the Action Table number is entered the user will be taken to the Action Table screen to edit the Action Table. When in the action table it is possible to toggle between the alternate states Action Table (if it exists) by pressing the F8 function key.

Note: If an Active Action Table is entered it is recommended that an Inactive Action Table also be entered to cancel the actions executed by the Active Action Table.

INACTIVE ACTION TABLE

The Inactive Action Table field describes which Action Table will be executed whenever the specified Trigger Conditions go away. If the Action Table field is set to BLANK then no Action Table will be executed. A current Action Table number or an Action Table number that is one greater than the current number of existing Action Tables may be entered (valid entries for this field are displayed in the message window). If an Action Table number is entered that does not exist and the Active Action Table is set to BLANK then the user will get a prompt to create an empty Action Table or a duplicate Action Table. After the Action Table number is entered the user will be taken to the Action Table screen to edit the Action Table. If an Action Table number is entered that does not exist and the Active Action Table is not set to BLANK then the user will get a prompt to create an empty Action Table, copy of the Active Action Table or a duplicate Action Table. After the Action Table number is entered the user will be taken to the Action Table screen to edit the Action Table. When in the action table it is possible to toggle between the alternate states Action Table (if it exists) by pressing the F8 function key.

Note: If an Active Action Table is entered it is recommended that an Inactive Action Table also be entered to cancel the actions executed by the Active Action Table.

DTMF Input

This field specifies which input the SAM Binary Decoder will monitor. The choices are RECEIVER 1, RECEIVER 2, DIVERSITY, or LINE. These may be selected by use of the UP/DOWN arrow keys.

Binary DOS Mute

This toggle field specifies whether or not the SAM board will activate the Data Operated Squelch (DOS) MUXbit when it detects the presence of a binary signalling word. Use the UP/DOWN arrow keys to select between ENABLED/DISABLED.

OPCODE

The following fields may be entered by use of the Up/Down arrow keys: SETUP, KNOCKDOWN, PTT (Push-To-Talk) OR REPEAT ACC (Repeater Access). These fields are known as Opcodes and are sent as signalling packets.

REPEAT ACC -

Allows for detection of both Automatic and Manual Repeater Access. In an Automatic Repeater Access system the Repeater Access codeword is sent on voice transmissions and other user initiated data transactions. The Repeater Access codeword is decoded by the repeater, and not transmitted to the ultimate destination of the message. In a Manual Repeater Access system the user is willing to send the Repeater Access codeword separately in exchange for a faster access time for subsequent voice messages. This "dialing up" of the repeater is usually accomplished by a separate "Repeater" button on the unit. In both Automatic and Manual Repeater Access systems the repeater address can either be operator selectable or Mode slaved.

PTT -

If a mobile keys up and sends a Push-To-Talk (PTT) opcode followed by the matching ID then the station will pass the transmission.

SETUP -

Clears the Repeater Knockdown bit (RPT KD) on the MUXbus if the matching repeater ID is also sent. This enables the repeater operation of the station.

KNOCKDOWN -

Sets the Repeater Knockdown bit (RPT KD) on the MUXbus if the matching repeater ID is also sent. This disables the repeater operation of the station.

ACK - Acknowledge Opcode.

MSG1..MSG4 -

Miscellaneous opcodes with no current definitions. Added to allow for future expansion. (MDC codes 4701 through 4704)

A Target may be cleared by deleting the entry in the Opcode field or by deleting all of the entries for a Target. If there are any blank Targets between Targets with data then the program will remove the blank Targets. It is not necessary to manually move Targets up.

ID

This field contains the ID of the Repeater that is to be accessed. Every Repeater has its own unique four digit ID. The ID is set by the system designer or the customer. The ID is usually the last four digits of the serial number. The valid range is 0000 - FFFF.

ACTION TABLE

The Action Table field describes which SAM Action Table will be executed when the current Binary Decoder Opcode is decoded. A current Action Table number or an Action Table number that is one greater than the current number of existing Action Tables may be entered (valid entries for this field are displayed in the message window). If an Action Table number is entered that does not exist then the user will get a prompt to create an empty Action Table or a duplicate Action Table. After the Action Table number is entered the user will be taken to the Action Table screen to edit the Action Table.

A limit of 30 Action Tables may be programmed with the RSS, with a total of 20 Actions per Action Table.

ACTION TABLE

This field displays the SAM Action Table number of the Table displayed on the screen. If the Action Table Screen was entered through the SAM MENU, the Up/Down Arrows may be used to toggle through all existing SAM Action Tables.

This screen may also be entered via the SAM Mode, SAM Action Table Conditions, or SAM Wildcard Inputs Screens. If entered through one of these screens the ACTION TABLE field is NON-EDITABLE.

NOTE: SAM Action Tables cannot be added in this screen. Action Tables may be added in the Action Table fields of the SAM Wildcard Input, SAM Mode, or SAM Action Table Conditions Screens, by entering an Action Table number that is 1 larger than the largest existing SAM Action Table.

The F7-CLEAR TABLE key can only be used on the ACTION TABLE field. This key will delete all of the actions in the current SAM Action Table. Once a SAM Action Table has been created it is not possible to delete the SAM Action Table.

The F8-CHANGE STATE key is only valid if the SAM Action Table was entered via the SAM Wildcard Input or SAM Action Table Conditions Screens. It allows a user to toggle between the Active Action Table and Inactive Action Table.

A limit of 30 Action Tables may be programmed with the RSS, with a total of 20 Actions per Action Table.

The following is a list of valid actions that may be entered in the SAM Action Table. A brief explanation of each action follows. For more detailed information, enter the action in the field, then press F1 for help.

CLEARMUX MANIBIT SELLOCMODE TUNEOPOT
CLRMUXQUAL QUICKKEY SELMODE WAIT

GENENSEQ RESLOCMODE SETMUX WAITSET
GENID SELCHAN SETMUXMOM WAITCLEAR
GENIPCB SELCHAN2 SETMUXQUAL

CLEARMUX - This action will clear a bit(s) on the MUXbus.

CLRMUXQUAL - Clear MUXbus qualifier.

GENENSEQ - Generate Encode Sequence.

GENID - Generate Station ID.

These actions will generate a SAM Encode Sequence. The difference between the two, is if at the time when GENID has to be executed the transmitter is already active (MUXbus signal TX_ACT) the reduced modulation level will be used.

GENIPCB - This action will generate an IPCB (Inter-Processor Communications Bus) command. IPCB commands are actions that allow access of off-board devices using the IPCB.

MANIBIT - Change the state of any writeable bits at a user-defined address on the SAM board.

QUICKKEY - This action allows the next action in SAM Action Table to be executed if data at user-defined MUXbus address matches the Mask within the specified amount of time, otherwise the next action in SAM Action Table is skipped.

RESLOCMODE - Returns SAM board to previous station mode immediately.

SELCHAN - This action allows selection of the station channel on the MUXbus. IMPORTANT! The Local Channel Control field in the Advanced Information screens MUST be set to EXTERNAL when SELCHAN is selected.

SELCHAN2 - This action allows selection of the 2nd receiver channel on the MUXbus. IMPORTANT! The Local Channel Control field in the Advanced Information screens MUST be set to EXTERNAL when SELCHAN2 is selected.

SELLOCMODE - This action allows selection of a Local SAM Mode for a user-defined amount of time.

SELMODE - This action allows selection of the station mode on the MUXbus. IMPORTANT! The Local Mode Control field in the Advanced Information screens MUST be set to EXTERNAL when SELMODE is selected..

SETMUX - This action will set a bit(s) on the MUXbus.

SETMUXMOM - This action will set a bit(s) on the MUXbus for a specified amount of time.

SETMUXQUAL - Set MUXbus qualifier.

TUNEEPOT - This action will change the setting of the EEPot on the SAM board by a user-defined amount.

WAIT - Hold execution of the following actions within the same SAM Action Table for a user-defined amount of time.

WAITSET, WAITCLEAR - Allow SAM Action Table to continue if the data at a user-defined Address matches a Mask within a specified amount of time, otherwise the SAM Action Table will abort. If Waitset then a 1 in the Mask indicates bit to be set at user-defined Address for a match, if Waitclear then 1 indicates bit to be clear at user-defined Address for a match.

ENCODER SEQUENCES

This table contains the various Encode Sequences that may be generated. To clear an Encode Sequence simply clear the SCHEME field.

SCHEME

This toggle field defines which signalling scheme will be used for the current encoder sequence. Use the UP/DOWN arrow keys to select the scheme. The choices are:

ZVEI - ZVEI standard tone encoding scheme
ZVEIFR - ZVEI french tone encoding scheme
ZVEIMOD - ZVEI modified tone encoding scheme
CCIR - CCIR standard tone encoding scheme
CCIRMOD - CCIR modified tone encoding scheme
EEA - EEA tone encoding scheme
CUSTOM - Customized tone encoding scheme
MDC1200 - MDC1200 binary encoder signalling scheme
DTMF - DTMF encoding scheme (if SAM version 2.xx or greater)

PRETIME

The Pretime field specifies the time the Tone or DTMF Encoder delays the generation of the Sequence after Push-To-Talk (PTT). The range for this field is 10 - 2550 milliseconds.

ENCODE/DECODE TABLE

This screen displays the encoder/decoder schemes. The scheme choices are highlighted via the Up/Dn arrow keys or Tab/Shift Tab keys. Upon pressing the Enter key, editable and non-editable information will be displayed for that scheme. CUSTOM is the only scheme that is completely editable.

If the SAM Version is 2.xx or greater, the screen will display DTMF as an additional encoder/decoder scheme.

TONE SEQUENCE

Tone frequencies and durations for each of these signalling schemes are specified in the SAM Encode/Decode screen. Enter the tone numbers in the order they are to be encoded. The valid range is 0 - E. The number corresponds to the frequencies on the SAM Encode/Decode screen. A maximum of seven tones may be entered to be encoded. i.e. 0 = tone#0, 1 = tone#1 ...

DTMF SEQUENCE

DTMF Tone frequency pairs and time-out-times for each of these signalling schemes are specified in the SAM Encode/Decode screen. Enter the tone numbers in the order they are to be encoded. The valid characters are 0 - 9, A - D, *, and #. The character corresponds to the frequency pairs on the SAM Encode/Decode screen. A maximum of ten characters may be entered in the SEQUENCE field.

BANDWIDTH

The valid range is 0 to 9.99 percent. The value of this field is not stored in the codeplug. It is the percent bandwidth allowed for the the CUSTOM scheme. The center frequencies are entered on the screen.

TONE FREQUENCY

The valid range is 280 - 3300 Hz. This is the center frequency for the tone decoder. These are only editable for the CUSTOM scheme.

FIRST DUR

This field indicates the duration in milliseconds of the first tone in a tone encoder sequence. The valid range is 10 to 21100 msec.

FIRST TONE TOT

The valid range is 70 - 290 msec for ZVEI, ZVEIMOD, ZVEIFR, CCIR, EEA, and CCIRMOD schemes, and 0 - 655350 for the CUSTOM scheme. Default for CCIRMOD, ZVEI, ZVEIMOD and ZVEIFR is 120 msec. Default for CCIR is 170 msec. Default for EEA is 100 msec. This field defines the maximum

duration between detection of the first tone in a sequence and the detection of a second tone.

SUCCEEDING TONES TOT

The valid range is 0 - 655350 msec for CUSTOM and 70 - 290 msec for all other schemes. Default for CCIRMOD, ZVEI, ZVEIMOD and ZVEIFR is 120 msec. Default for CCIR is 170 msec. Default for EEA is 100 msec. This field defines the maximum duration between detection of a tone (except first) in a sequence and the detection of the following tone.

This field is only editable if the CUSTOM scheme is displayed.

REPEAT TONE

The valid range is 0 - E. This field defines which tone is used for the repeat tone.

A Repeat Tone is a tone used when identical tones are to be encoded/decoded that are immediately following each other.

Example: If tone sequence to be sent is 2115 and the Repeat Tone is tone #E then the sequence sent is 21E5.

GROUP TONE

This is the tone that is used by the Group Target field on the SAM Mode Tables. The target must be matched as defined on the SAM Mode Table for a Group Action Table to be executed. The valid range is 0 - E.

First Tone Duration: (for tone encoder schemes)

This is the duration of the first tone in the Target field that is to be encoded. The valid range is 10 - 21100 msecs.

DURATION

This field indicates the length in msec of all DTMF tones for the particular scheme. The default value for the DTMF DURATION field is 50 msec with a range from 50 to 21100 msecs.

DTMF Inter-Tone Gap

This field defines the duration of the pause between two DTMF tones. The valid range is 50 - 21100 msec. The default is 50 msec.

DTMF DECODER TOT

The DTMF Decoder TOT field defines the maximum amount of time that the DTMF Decoder will wait from the detection of a DTMF tone and the detection of the following tone in a sequence. The valid range is 10 - 655350 msec. The default is 3000 msec.

SETMUX - This action will set a bit(s) on the MUXbus.
CLEARMUX - This action will clear a bit(s) on the MUXbus.

MUXAddr- Address of bit(s) on the MUXbus to set(Setmux) / clear (Clearmux). Valid range is 0 - 15.

MUXData- Data to be stored at MUXAddr. The following is a table of bit(s) which are set (Setmux) or cleared (Clearmux) for each possible MUXData value (0 - F). The bit(s) marked with an 'x' are the only bit(s) affected.

		MUXData															
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
	b0	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
MUXbus	b1			x	x			x	x			x	x			x	x
bits	b2			x	x	x	x					x	x	x	x		
	b3					x	x	x	x	x	x	x	x	x	x	x	x

SETMUXMOM

This action will set a bit(s) on the MUXbus for a specified amount of time.

MUXADDR- Address of bit(s) on the MUXbus to set. Valid range is 0 - 15.

MUXDATA- Data to be stored at MUXAddr for a user-defined amount of time. Valid range is 0 - F.

TIME - The amount of time to set the bit(s) for. Valid range is 10 - 655350 milli-seconds.

The following is a table of bit(s) which are set for the specified amount of time for each MUXData value (0 - F). The 'x' indicates the only MUXbus

bit(s) at MUXAddr which are affected.

```

                MUXData
            0 1 2 3 4 5 6 7 8 9 A B C D E F
-----
b0|  x x x x x x x x
MUXbus b1|  x x  x x  x x  x x
bits  b2|    x x x x    x x x x
      b3|          x x x x x x x x
```

SELCHAN - This action allows selection of the station channel on the MUXbus.

SELCHAN2- This action allows selection the 2nd receiver channel on the MUXbus.

CHANNEL#- Channel or 2nd Receiver Channel to select.
Valid range is 0 to highest station channel number.

SELMODE

This action allows selection of the station mode on the MUXbus.

SAM MODE# - Station mode to select. Valid range is 0 to highest station mode.

SELLOCMODE

This action allows selection of a Local SAM Mode for a user-defined amount of time.

LOCAL MODE - Local SAM Mode to select. Valid range is lowest Local SAM Mode to highest Local SAM Mode.

TIME - Amount of time the SAM board should stay in the Local SAM Mode. Valid range is 0 - 2550 milli-seconds.
A value less than 10 will be interpreted as 0 msec.
If the Time field is 0, there will be no time limit for the SAM board to stay in Local SAM Mode.

RESLOCMODE

Return SAM board to previous station mode immediately.

MANIBIT

Change the state of any writeable bits at a user-defined address on the SAM board.

ADDRESS - Address on the SAM board that contains bit to change.

Valid range is 0000 - FFFF.

TARG BIT - Bit at the Address to be ENABLED/DISABLED. Valid range is 0 - 7.

POLARITY - Indicates if the bit at the Address and Bit position is to be ENABLED or DISABLED. This field may be changed by use of the Up/Down arrow keys.

WAIT

Hold execution of the following actions within the same SAM Action Table for a user-defined amount of time.

WAIT TIME - Amount of time to suspend execution of the following actions in the SAM Action Table. Valid range is 10 - 2550 milli-seconds.

WAITSET, WAITCLEAR

Allow SAM Action Table to continue if the data at a user-defined Address matches a Mask within a specified amount of time, otherwise the SAM Action Table will abort. If Waitset then a 1 in the Mask indicates bit to be set at user-defined Address for a match, if Waitclear then 1 indicates bit to be clear at user-defined Address for a match.

ADDRESS- Address on the SAM board that contains data to compare to the Mask. Valid range is 0000 - FFFF.

MASK - Eight bit mask that must match data at Address. Example: 7F means bits 0-6 must be set (Waitset) or clear (Waitclear) at Address location within the time allowed for the SAM Action Table to continue.

TIME - Time to wait for Mask to match data at Address. Valid range is 0 - 655350 milli-seconds. Values less than 10 will be interpreted as 0. If the Time field is 0, there will be no time limit to wait for Mask to match data at Address.

SETMUXQUAL-Set MUXbus qualifier.

CLRMUXQUAL-Clear MUXbus qualifier.

These actions will set(Setmuxqual) or clear(Clrmuxqual) a bit(s) on the MUXbus as long as the qualifier bit(s) match the qualifier mask and the timer has not expired. Timer is reset if the qualifier bit(s) is set.

MUXADDR- Address of the bit(s) on the MUXbus to set/clear. Valid range is 0 - 15.

MUXDATA- Data to be stored at MUXAddr. Valid range is 0 - F.

QUALADDR(Qualifier Address) - Address on the MUXbus for the bit(s) that qualify the timing function. Valid range is 0 - 15.

QUALMASK(Qualifier Mask) - Mask of bit(s) at Qualaddr that qualify the timing function. Valid range is 0 - F.

TIME - Duration of how long the bit(s) at MUXAddr will be set(Setmuxqual) / clear(Clrmuxqual) after qualifier bit(s) at Qualaddr is cleared. Range is 10 - 655350 milli-seconds.

The table below indicates bit(s) which are set (Setmuxqual) or clear (Clrmuxqual) for the MUXData field at the specified MUXAddr. These bit(s) are only affected for the duration specified in the Time field.

		MUXData																		
		0 1 2 3 4 5 6 7 8 9 A B C D E F																		

b0	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
MUXbus	b1	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
bits	b2	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	b3	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

TUNEPPOT

This action will change the setting of the EEpot on the SAM board by a user-defined amount.

STEP SIZE - The number of steps that the EEpot will be incremented or decremented. Valid range is -99 to +99.

QUICKKEY

This actions allows the next action in SAM Action Table to be executed if data at user-defined MUXbus address matches the Mask within the specified amount of time, otherwise the next action in SAM Action Table is skipped.

MUXADDR- MUXbus address of data to compare to Mask. Valid range is 0 - 15.

MASK - Mask compared to data at MUXAddr. Valid range is 0 - F.

QUICK KEY TIME- Time to wait for data at MUXAddr to match the Mask.

Valid range is 10 - 655350 seconds.

GENENSEQ-Generate Encode Sequence.

GENID -Generate Station ID.

These actions will generate a SAM Encode Sequence. The difference between the two, is if at the time when GENID has to be executed the transmitter is already active (MUXbus signal TX_ACT) the reduced modulation level will be used.

ENC DEST(Encode Destination) - Defines the destination that the generated SAM Encode Sequence should be sent to. Valid choices are LINE, TRANS(Transmitter) or TRANS+LINE(Transmitter and Line).

ENC SEQ#(Encode Sequence) - Defines which SAM Encode Sequence should be generated. These sequences are defined on the SAM Encode Sequence screen. Valid range is 1 - 10.

GENIPCB

This action will generate an IPCB (Inter-Processor Communications Bus) command. IPCB commands are actions that allow access of off-board devices using the IPCB.

DEVICE# - Board that the IPCB command will be sent to. Valid choices:
1 = SSCB 2 = TTRC A = Secure B = SAM

COMMAND - IPCB command to be sent to Device#. Each command can have an associated address, data or other subcommand parameters. The following is a list of valid commands and the parameters that go with each command:

Definition of parameters for IPCB command:

bbbb = beginning address eeee = ending address
aaaa = Target address
d = one byte of data
p = EEpot number
s = subcommand

NOTE: All letters are expressed in hexadecimal format (0-F).

Command	Addr / Data
a = write address	aaaadd
A = read address	aaaa
i = change eepot value	ptt
I = read eepot value	d

(table cont.)

Command	Addr / Data
y = execute subcommand	see table below for valid subcommands.
1 = reset host	no argument
T = test IPCB	dd
E = read string	bbbbeeee

Subcommand Name	Argument Format
0F	Set forward power trip point, SSCB no argument
0R	Set reflected power trip point, SSCB no argument
1	Set station config. d
2	Save Xmit deviation current channel no argument
7	Read system version and station type no argument
30	EEProm programming ended, SSCB no argument
31	EEProm programming started, SSCB no argument
50	Wake up/begin diagnostics, SSCB no argument
51	Enter background, SSCB no argument
52	Shut up/ don't begin diagnostics,SSCB no argument

FOLLOWING DUR

This is the duration of the all tones except the first tone in the Target field that is to be encoded. This field is only editable when the tone encoder scheme is 'CUSTOM'. The valid range is 10 - 21100 seconds.

ID (for binary encoder schemes)

This field contains the ID of the Repeater that is to be accessed. Every Repeater has its own unique four digit ID. The ID is set by the system designer or the customer. The ID is usually the last four digits of the serial number. The valid range is 0000 - FFFF.

DTMF DECODER TARGETS

This field defines the sequence of DTMF tones that must be matched to execute the action table. Each DTMF tone in the sequence is specified by the characters on a standard telephone keypad, plus the letters 'A' through 'D'. Each Target is allowed a maximum of ten DTMF tones. Wildcards are allowed and are indicated by an 'X'. The SAM DTMF Decoder will interpret an 'X' as a match for any tone number. For example, the sequences '12345' and '12045' will both match the Target '12X45'.

Note: The order of the Targets in the list is important to the SAM'S DTMF Decoder and will be adjusted automatically by the field programmer. i.e. Longer Targets must be listed before shorter Targets.

DTMF DECODER

This field allows the DTMF Decoder to be toggled between DISABLED and ENABLED by use of the Up/Down arrow keys.

If the field is toggled to DISABLED then all of the Targets and the DTMF Input field are cleared and are no longer editable.

If the field is toggled to ENABLED then the DTMF signalling scheme will be used for decoding in the current mode. When the SAM's DTMF decoder has decoded a message, it will compare this message against a list of DTMF strings, which are

called 'Targets'. If a match is found, the SAM board will execute a sequence of actions specified by the matching Targets corresponding SAM Action Table number.

SERVICE AND ALIGNMENT

The SERVICE AND ALIGNMENT section allows the user to align the Base Station's EEPROMs or to add a Secure Board or SAM Board to the Station.

- F3 - The Individual Station Adjustment function prompts the user with a list of possible station adjustments. The user selects the adjustment by using the Tab/ShiftTab or Up/Down arrow keys to place the cursor on the adjustment he wishes to perform. Then, to make the adjustment the user must press the ENTER key. The user will only be allowed to access adjustments existing on the station being serviced.
- F4 - The SAM Upgrade screen allows a user to upgrade a station with a SAM board. This screen prompts the user to set up their system before the upgrade. When ready, the F3 key can be hit to begin the upgrade. When done, the screen will display Installation Complete!
- F5 - The Secure Transparent Upgrade screen allows a user to upgrade a station to a secure station. This screen prompts the user to set up their system before the upgrade. When ready, the F3 key can be hit to begin the upgrade. When done, the screen will display Installation Complete!
- F6 - The Change Password screen is used to change a current password in a password protected station. This screen is also used to change forgotten passwords.
- F7 - The Alarm screen displays the status of all alarms.
- F8 - The MUXbus Diagnostics screen displays the current status of the MUXbus and current channel number. It also allows the user to set and clear MUXbus bits and change channel.
- F9 - Used to change current password on a password protected station.
- F10 - Returns to the previous menu.

INDIVIDUAL STATION ADJUSTMENTS

In this section the user is given a list of possible station adjustments. Current station settings are displayed to the right of each EEPROM adjustment. The user selects the adjustment he wishes to perform by using the Tab/ShiftTab or Up/Down Arrow keys to move the cursor onto the adjustment, then presses the ENTER key to make the adjustment. The list of possible adjustments and their availability based on station model/options

is shown below. The number to the left of each adjustment corresponds to the EEPOT number displayed when adjusting the station through the front panel. EEPOTS #0 through #6 are physically located on the SSCB board; #7 through #D on the TTRC board; #F on the SAM (Station Access Module) board.

ADJUSTMENT	USAGE
#0 DECRYPTED RX LEVEL	Stations w/Option C794 or C797
#1 FLUTTER FIGHTER LEVEL	896 MHz Stations ONLY
#2 REPEATER SQUELCH LEVEL	All Repeater Stations
#3 RECEIVER SQUELCH LEVEL	All Stations
#4 MAX DEVIATION LEVEL	All Stations
#5 RX LEVEL	All Stations
#6 CODED DEVIATION LEVEL	Stations w/Option C514
#7 TX LINE LEVEL	Stations Equipped w/TTRC
#8 STATUS TONE LEVEL	Stations w/Option C269
#9 HIGH END EQUALIZATION LEVEL	Stations w/Option C269
#A LOW END EQUALIZATION LEVEL	Stations w/Option C269

ADJUSTMENT	USAGE
#B TRUNKING DATA DEVIATION LEVEL	Trunking Stations Only
#C LINE 2 OUTPUT LEVEL	Stations Equipped w/TTRC
#D LINE 4 OUTPUT LEVEL	Stations Equipped w/TTRC
#F SAM ENCODER LEVEL	Stations Equipped w/SAM
FORWARD POWER ALARM SET	
REFLECTED POWER ALARM SET	

TRUNKING DATA DEVIATION LEVEL

Note: The deviations settings given are for 25 kHz channel spaced systems. Deviation settings for 12.5 kHz channel spaced systems are given in brackets "{ }".

To properly set the Trunking Data Deviation Level EEPOT the following equipment is required: Audio Generator and Communication Systems or Modulation Analyzer

The adjustment is made as follows:

1. Connect the station to an operational trunking central controller. Insure that the station is not the voice channel.
2. Key the station by using the <F7> key of the Field Programmer (sets the LOC PTT MUXbus bit).
3. Adjust the EEPOT by using the Up/Down Arrows to yield 0.85 {0.425} kHz deviation.
4. Dekey the station by using <F2> key of the Field Programmer.

The function keys are defined as follows:

F1 - Provides HELP associated with the particular adjustment being performed.

F2 - Dekeys the station, if the station was keyed via the field programmer.

F3 - Sets EEPOT to the minimum value. The relative value will be set to zero.

F4 - Saves the current EEPOT setting. This becomes the new original value.

F5 - Dumps the information on the screen to a printer connected to your computer.

F6 - Restores the EEPOT setting to its original value. The original value is defined as the value upon entering the adjustment routine or the last saved value.

F7 - Keys the station by issuing a LOC PTT.

F8 - Returns the user to the preceding adjustment as shown in the Individual Adjustments Screen.

F9 - Advances the user to the next adjustment as shown in the Individual Adjustments Screen.

F10 - EXITs the adjustment screen and returns the user to the Individual Adjustment Screen.

MAX DEVIATION

Note: The deviations settings given are for 25 kHz channel spaced systems. Deviation settings for 12.5 kHz channel spaced systems are given in brackets "{ }".

To properly set the Max Deviation EEPOT the following equipment is required:

Communications Systems Analyzer or Modulation Analyzer
Audio Generator

The Adjustment is made as follows:

1. Input a 1Vrms 1.0 kHz tone at MIC AUDIO (J812-3) input on the front panel Control jack or via TP8 on the SSCB.
2. Select channel 1.
3. Key Station by using the <F7> key of the Field Programmer.
4. Set to 4.6 {2.3} kHz deviation (w/PL).
5. Dekey the station by using the <F2> key of the Field Programmer.

Note: If the station has multiple channels (excluding the tuning channel), repeat the above procedure for each channel.

The function keys are defined as follows:

- F1 - Provides HELP associated with the particular adjustment being performed.
- F2 - Dekeys the station, if the station was keyed via the field programmer.
- F3 - Sets EEPOT to the minimum value. The relative value will be set to zero.
- F4 - Saves the current EEPOT setting. This becomes the new original value.
- F5 - Dumps the information on the screen to a printer connected to your computer.
- F6 - Restores the EEPOT setting to its original value. The original value is defined as the value upon entering the adjustment routine or the last saved value.
- F7 - Keys the station by issuing a LOC PTT and ACC DIS.
- F8 - Returns the user to the preceding adjustment as shown in the Individual Adjustments Screen.
- F9 - Advances the user to the next adjustment as shown in the Individual Adjustments Screen.
- F10 - EXITS the adjustment screen and returns the user to the Individual Adjustment Screen.

TX LINE LEVEL

Note: The deviations settings given are for 25 kHz channel spaced systems. Deviation settings for 12.5 kHz channel spaced systems are given in brackets "{ }".

To properly set the Tx Line Level EEPOT the following equipment is required:

Communications Systems Analyzer or Modulation Analyzer
Audio Generator

The adjustment is made as follows:

1. Input a 1 kHz tone at the desired level (typically 0 dBm to -10 dBm) into the station transmit wireline interface (Line 1,

4 wire, or Line 2, 2 wire).

2. Key the station by using the <F7> key of the Field Programmer.
This will set the LIN PTT and TX PL DIS MUXbus bits. If this is a trunking station, create a Trunking PTT by disconnecting the station from the central controller.
3. Adjust the Tx Line Level EEPOT by using the Up/Down arrows to yield 3 {1.5} kHz deviation. If option C101 or trunking without options C514 or C115 exist in the station then it may necessary to adjust the Tx Coarse Level EEPOT. The Coarse Level EEPOT is toggled thru different ranges by pressing the ALT-F1 key. The ranges are 0 (gain of -10 dB), 1 (gain of 0 dB), 2 (gain of 10 dB) and 3 (gain of 20 dB). If adjusting the Tx Line Level EEPOT causes the deviation to exceed the threshold value it is necessary to decrease the gain of the Coarse Level EEPOT.
4. Dekey the station by using the <F2> key of the Field Programmer.
5. When option C115, Console Priority, is included inject the 1 kHz tone into Line 3. Leave and re-enter, adjust for 3 {1.5} kHz deviation using the Coarse Level EEPOT adjustment if necessary (adjustment described in step 3 above).
6. Reconnect the station to the central controller if disconnected.

The function keys are defined as follows:

- F1 - Provides HELP associated with the particular adjustment being performed.
- F2 - Dekeys the station, if the station was keyed via the field programmer.
- F3 - Sets EEPOT to the minimum value. The relative value will be set to zero.
- F4 - Saves the current EEPOT setting. This becomes the new original value.
- F5 - Dumps the information on the screen to a printer connected to your computer.
- F6 - Restores the EEPOT setting to its original value. The original value is defined as the value upon entering the adjustment routine or the last saved value.
- F7 - Keys the station by issuing a LIN PTT and TX PL DIS.
- F8 - Returns the user to the preceding adjustment as shown in the Individual Adjustments Screen.

F9 - Advances the user to the next adjustment as shown in the Individual Adjustments Screen.

F10 - EXITS the adjustment screen and returns the user to the Individual Adjustment Screen.

RX LEVEL

Note: The deviations settings given are for 25 kHz channel spaced systems. Deviation settings for 12.5 kHz channel spaced systems are given in brackets "{ }".

To properly set the Rx Level EEPOT the following equipment is required:

RF Signal Generator
AC Millivolt Meter

The adjustment is made as follows:

1. Inject an on-channel 1 mV RF carrier modulated with a 1 kHz tone at 2 {1} kHz deviation into the receiver.
2. Set the PL DIS switch for PL stations.
3. Adjust the Pot by using Up/Down Arrows so that:
For a station without an antenna relay or for a trunking station with option C269, the voltage test point 1 is 400 mV.
Otherwise, adjust the EEPOT for 3 {1.5} kHz deviation with RPT PTT for in-cabinet repeat stations.

The function keys are defined as follows:

F1 - Provides HELP associated with the particular adjustment being performed.

F2 - Dekeys the station, if the station was keyed via the field programmer.

F3 - Sets EEPOT to the minimum value. The relative value will be set to zero.

F4 - Saves the current EEPOT setting. This becomes the new original value.

F5 - Dumps the information on the screen to a printer connected to your computer.

F6 - Restores the EEPOT setting to its original value. The original value is defined as the value upon entering the adjustment routine or the last saved value.

F7 - Keys the station by issuing a LOC PTT.

F8 - Returns the user to the preceding adjustment as shown in the Individual Adjustments Screen.

F9 - Advances the user to the next adjustment as shown in the Individual Adjustments Screen.

F10 - EXITS the adjustment screen and returns the user to the Individual Adjustment Screen.

LINE 2 LEVEL

Note: The deviations settings given are for 25 kHz channel spaced systems. Deviation settings for 12.5 kHz channel spaced systems are given in brackets "{ }".

To properly set the Line 2 Level EEPOT the following equipment is required: RF Signal Generator
AC Millivolt Meter

NOTE: If this is a Spectra Tac/DigiTAC system, use the procedure outlined in that section.

The adjustment is made as follows:

1. Inject an on-channel 1 mV RF carrier modulated with a 1 kHz tone at 3 {1.5} kHz deviation into the receiver.
2. Set the PL disable switch.
3. Adjust the Pot by using the Up/Down Arrows for desired level (typically 0 dBm to -10 dBm) on line 2. Measure levels with 600 ohms across line 2. If the station is equipped with option C514 and not options C388, C793, C794 or C797 then the status tone level should be set up using steps 14 and 15 of the Spectra-Tac/DigiTAC Adjustment section.

The function keys are defined as follows:

F1 - Provides HELP associated with the particular adjustment being performed.

F2 - Dekeys the station, if the station was keyed via the field programmer.

F3 - Sets EEPOT to the minimum value. The relative value will be set to zero.

F4 - Saves the current EEPOT setting. This becomes the new original value.

F5 - Dumps the information on the screen to a printer connected to your computer.

F6 - Restores the EEPOT setting to its original value. The original value is defined as the value upon entering the adjustment routine or the last saved value.

F7 - Keys the station by issuing a LOC PTT.

F8 - Returns the user to the preceding adjustment as shown in the Individual Adjustments Screen.

F9 - Advances the user to the next adjustment as shown in the Individual Adjustments Screen.

F10 - EXITs the adjustment screen and returns the user to the Individual Adjustment Screen.

SPECTRA-TAC/DIGITAC ADJUSTMENTS

High End Equalization Level

Low End Equalization Level

Status Tone Level

Note: The deviations settings given are for 25 kHz channel spaced systems. Deviation settings for 12.5 kHz channel spaced systems are given in brackets "{ }".

Note: If the station is not equipped with Spectra-Tac, option C269, but is equipped with option C514 and not options C388, C793, C794, C795 or C797 then skip steps 1 - 13.

Note: Rx Level must be set before this adjustment is made.

The following equipment is required:

RF Signal Generator

Audio Generator

AC Millivolt Meter.

The adjustments are made as follows:

1. Set the Spectra-Tac/DigiTAC Encode Level EEPOT to zero.
2. Using an Audio Generator, input a 100 mV 1000 Hz signal into the Local Mic input (TP8) on the Station Control Board.
3. Set the Front Panel Intercom switch to on and activate the Loc PTT MUXbus bit by using the <F7> key of the field programmer.
4. Use the Up/Down Arrow keys to set the Line 2 Level EEPOT, so that the station line 2 output is - 10 dBm. Record the level at the SQM input.
5. Adjust the input frequency at the Station Control Board to

- 3 kHz.
6. Use the Up/Down Arrow keys to set the Spectra-Tac/DigiTAC High End Adjust EEPOT to yield the same level at the SQM input as was recorded in step 4.
 7. Adjust the input frequency at the Station Control Board to 3 kHz.
 8. Adjust the input frequency at the Station Control Board to 400 Hz.
 9. Use the Up/Down Arrow keys to set the Spectra-Tac/DigiTAC Low End Adjust EEPOT to yield the same level at the SQM input as was recorded in step 4.
 10. Remove the audio generator from the Station Control Board. Set the Front Panel Intercom switch to off and clear the Loc PTT by using the <F2> key of the field programmer.
 11. Set the PL DISABLE Switch.
 12. Inject an on-channel 1 mV RF carrier modulated with a 1 kHz tone at 5 {2.5} kHz deviation into the receiver (use 3 {1.5} kHz deviation for trunked stations).
 13. Using the Up/Down Arrow Keys, adjust the Line 2 Level EEPOT for desired level (typically 0 dBm to -10dBm) at the station Line 2 output. Record the at the SQM input.
 14. Disconnect the RF input into the receiver and set the PL Disable switch to its center (off) position.
 15. Using the Up/Down arrow keys, adjust the Spectra-Tac/DigiTAC Encode Level EEPOT until the level at the SQM input is 13 dB below the level recorded in step 13.

The function keys are defined as follows:

- F1 - Provides HELP associated with the particular adjustment being performed.
- F2 - Dekeys the station, if the station was keyed via the field programmer.
- F3 - Sets EEPOT to the minimum value. The relative value will be set to zero.
- F4 - Saves the current EEPOT setting. This becomes the new original value.
- F5 - Dumps the information on the screen to a printer connected to your computer.
- F6 - Restores the EEPOT setting to its original value. The original value is defined as the value upon entering the adjustment routine or the last saved value.
- F7 - Keys the station by issuing a LOC PTT.
- F8 - Returns the user to the preceding adjustment as shown in the

Individual Adjustments Screen.

F9 - Advances the user to the next adjustment as shown in the Individual Adjustments Screen.

F10 - EXITS the adjustment screen and returns the user to the Individual Adjustment Screen.

LINE 4 LEVEL

Note: The deviations settings given are for 25 kHz channel spaced systems. Deviation settings for 12.5 kHz channel spaced systems are given in brackets "{ }".

To properly set the Line 4 Level EEPOT the following equipment is required:

RF Signal Generator
AC Millivolt Meter

The adjustment is made as follows:

1. Inject an on-channel 1 mV RF carrier modulated with a 1 kHz tone at 3 {1.5} kHz deviation into the receiver.
2. Set PL disable switch.
3. Adjust the EEPOT by using the Up/Down Arrow keys to yield desired level (typically 0 to -10 dBm) on Line 4. Measure levels with 600 ohms across Line 4.

The function keys are defined as follows:

F1 - Provides HELP associated with the particular adjustment being performed.

F2 - Dekeys the station, if the station was keyed via the field programmer.

F3 - Sets EEPOT to the minimum value. The relative value will be set to zero.

F4 - Saves the current EEPOT setting. This becomes the new original value.

F5 - Dumps the information on the screen to a printer connected to your computer.

F6 - Restores the EEPOT setting to its original value. The original value is defined as the value upon entering the adjustment routine or the last saved value.

F7 - Keys the station by issuing a LOC PTT.

F8 - Returns the user to the preceding adjustment as shown in the Individual Adjustments Screen.

F9 - Advances the user to the next adjustment as shown in the Individual Adjustments Screen.

F10 - EXITs the adjustment screen and returns the user to the Individual Adjustment Screen.

RECEIVER SQUELCH LEVEL

To properly set the Receiver Squelch Level EEPOT the following equipment is required:

RF Signal Generator.

The adjustment is made as follows:

1. Inject an on-channel RF signal at the desired RF level into the receiver.
2. Adjust the EEPOT by using the Up/Down Arrow keys until the receiver squelches (R1 UN SQ bit on DMP goes off).

The function keys are defined as follows:

F1 - Provides HELP associated with the particular adjustment being performed.

F2 - Dekeys the station, if the station was keyed via the field programmer.

F3 - Sets EEPOT to the minimum value. The relative value will be set to zero.

F4 - Saves the current EEPOT setting. This becomes the new original value.

F5 - Dumps the information on the screen to a printer connected to your computer.

F6 - Restores the EEPOT setting to its original value. The original value is defined as the value upon entering the adjustment routine or the last saved value.

F7 - Keys the station by issuing a LOC PTT.

F8 - Returns the user to the preceding adjustment.

F9 - Advances the user to the next adjustment.

F10 - EXITs the adjustment screen and returns the user to the Individual Adjustment Screen.

REPEATER SQUELCH LEVEL

To properly set the Repeater Squelch Level EEPOT the following equipment is required:

RF Signal Generator.

The adjustment is made as follows:

1. Inject an on-channel RF signal at the desired RF level into the receiver.
2. Adjust the Pot by using the Up/Down Arrows until the repeater squelches(RPT USQ bit on DMP goes off).

The function keys are defined as follows:

F1 - Provides HELP associated with the particular adjustment being performed.

F2 - Dekeys the station, if the station was keyed via the field programmer.

F3 - Sets EEPOT to the minimum value. The relative value will be set to zero.

F4 - Save the current EEPOT setting. This becomes the new original value.

F5 - Dumps the information on the screen to a printer.

F6 - Restores the EEPOT setting to its original value. The original value is defined as the value upon entering the adjustment routine or the last saved value.

F7 - Keys the station by issuing a LOC PTT.

F8 - Returns the user to the preceding adjustment as shown in the Individual Adjustments Screen.

F9 - Advances the user to the next adjustment as shown in the Individual Adjustments Screen.

F10 - EXITs the adjustment screen and returns the user to the Individual Adjustment Screen.

CODED DEVIATION LEVEL

Note: The deviations settings given are for 25 kHz channel spaced systems. Deviation settings for 12.5 kHz channel spaced

systems are given in brackets "{ }".

To properly set the Coded Deviation Level EEPOT the following equipment is required:

Communications Systems or Modulation Analyzer

The adjustment is made as follows:

1. The Secure Board will automatically generate a 1 kHz test tone. Pressing ALT-F1 allows this tone to be generated at any time.
2. Key the station using the F7 function key (sets TX CD DT bit).
3. Adjust the EEPOT by using the Up/Down Arrow keys to yield 3.9 {1.95} kHz deviation. (Make sure the Analyzer is set for wide (>15 kHz) for this measurement).
4. Dekey the station using the F2 function key.
5. The 1 kHz tone is automatically turned off upon exiting this screen. ALT-F2 allows this tone to be turned off at any time.

The function keys are defined as follows:

F1 - Provides HELP associated with the particular adjustment being performed.

F2 - Dekeys the station, if the station was keyed via the field programmer.

F3 - Sets EEPOT to the minimum value. The relative value will be set to zero.

F4 - Saves the current EEPOT setting. This becomes the new original value.

F5 - Dumps the information on the screen to a printer connected to your computer.

F6 - Restores the EEPOT setting to its original value. The original value is defined as the value upon entering the adjustment routine or the last saved value.

F7 - Keys the station by issuing a TX CD DT.

F8 - Returns the user to the preceding adjustment as shown in the Individual Adjustments Screen.

F9 - Advances the user to the next adjustment as shown in the Individual Adjustments Screen.

F10 - EXITS the adjustment screen and returns the user to the Individual Adjustment Screen.

ALT-F1 - Turns on 1 kHz Test Tone.

ALT-F2 - Turns off 1 kHz Test Tone.

DECRYPTED RX LEVEL

Note: The deviations settings given are for 25 kHz channel spaced systems. Deviation settings for 12.5 kHz channel spaced systems are given in brackets "{ }".

To properly set the Decrypted Rx Level EEPOT the following equipment is required:

RF Signal Generator
DVP Test Set
AC Millivolt Meter

The adjustment is made as follows:

1. Set the PL DISABLE switch.
2. Connect the coded output of a DVP test set to the modulation input of the RF Signal Generator. The test set and the station must be programmed to the same code.
3. Inject an on-channel 1 mV RF carrier modulated with an encoded (scrambled) 1 kHz tone at 4 {2} kHz deviation.
4. Adjust the EEPOT by using the Up/Down Arrow keys to yield desired clear level + 3 dB on line 2. Measure levels with 600 ohms across line 2.

The function keys are defined as follows:

F1 - Provides HELP associated with the particular adjustment being performed.

F2 - Dekeys the station, if the station was keyed via the field programmer.

F3 - Sets EEPOT to the minimum value. The relative value will be set to zero.

F4 - Saves the current EEPOT setting. This becomes the new original value.

F5 - Dumps the information on the screen to a printer connected to your computer.

F6 - Restores the EEPOT setting to its original value. The original value is defined as the value upon entering the adjustment routine or the last saved value.

F7 - Keys the station by issuing a LOC PTT.

F8 - Returns the user to the preceding adjustment as shown in the Individual Adjustments Screen.

F9 - Advances the user to the next adjustment as shown in the Individual Adjustments Screen.

F10 - EXITS the adjustment screen and returns the user to the Individual Adjustment Screen.

FLUTTER FIGHTER LEVEL

Note: The Flutter Fighter Level EEPOT should only be adjusted in Analog Plus stations.

To properly set the Flutter Fighter Level EEPOT the following equipment is required:

Communications Systems Analyzer or Modulation Analyzer

The Adjustment is made as follows:

1. Inject an on-channel 1 mV RF carrier modulated with a 1 kHz tone at 1.5 kHz deviation into the receiver.
2. Set the PL DIS switch for PL stations.
3. Press ALT-F1. This will disable the compandor circuit.
4. Press F7 to Key the station using RPT PTT.
5. Adjust the Pot by using the Up/Down Arrows to yield 1.5 kHz deviation.
6. Press F2 to dekey the station.
7. Press ALT-F2 to re-enable the compandor circuit.

The function keys are defined as follows:

F1 - Provides HELP associated with the particular adjustment being performed.

F2 - Dekeys the station, if the station was keyed via the field programmer.

F3 - Sets EEPOT to the minimum value. The relative value will be set to zero.

F4 - Saves the current EEPOT setting. This becomes the new original value.

F5 - Dumps the information on the screen to a printer connected to your computer.

F6 - Restores the EEPOT setting to its original value. The original value is defined as the value upon entering the adjustment routine or the last saved value.

F7 - Keys the station by issuing a RPT PTT.

F8 - Returns the user to the preceding adjustment as shown in the Individual Adjustments Screen.

F9 - Advances the user to the next adjustment as shown in the Individual Adjustments Screen.

F10 - EXITS the adjustment screen and returns the user to the Individual Adjustment Screen.

SAM ENCODER LEVEL

Note: The deviations settings given are for 25 kHz channel spaced systems. Deviation settings for 12.5 kHz channel spaced systems are given in brackets "{ }".

To properly set the SAM Encoder Level EEPOT the following equipment is required:

Communications Systems or Modulation Analyzer

The adjustment is made as follows:

1. A 1.2 kHz tone is automatically generated by the SAM board upon entering this screen. Pressing ALT-F1 allows this tone to be generated at any time.
2. Key the station using the F7 function key(sets DAT PTT).
3. Adjust the Pot by using the Up/Down Arrows to yield 3.9 {1.95} kHz deviation. (Make sure the Analyzer is set for wide (>15 kHz) for this measurement).
4. Dekey the station using the F2 function key.
5. The 1.2 kHz tone is automatically turned off upon exiting this screen. ALT-F2 allows this tone to be turned off at any time.

The function keys are defined as follows:

F1 - Provides HELP associated with the particular adjustment being performed.

F2 - Dekeys the station, if the station was keyed via the field programmer.

F3 - Sets EEPOT to the minimum value. The relative value will be set to zero.

F4 - Saves the current EEPOT setting. This becomes the new original value.

F5 - Dumps the information on the screen to a printer connected to your computer.

F6 - Restores the EEPOT setting to its original value. The original value is defined as the value upon entering the adjustment routine or the last saved value.

F7 - Keys the station by issuing a DAT PTT.

F8 - Returns the user to the preceding adjustment as shown in the Individual Adjustments Screen.

F9 - Advances the user to the next adjustment as shown in the Individual Adjustments Screen.

F10 - EXITs the adjustment screen and returns the user to the Individual Adjustment Screen.

ALT-F1 - Turns on 1.2 kHz Test Tone.

ALT-F2 - Turns off 1.2 kHz Test Tone.

FORWARD POWER ALARM SET

To properly set the FORWARD POWER ALARM SET EEPot the following equipment is required: Wattmeter.

The adjustment is made as follows:

1. Key the station by pressing the F7 key(LOC PTT).
2. Adjust the station output power, using Pot R426 on the Uniboard, to your desired trip point level.
3. Press the F4 key to set the alarm trip point.
4. Reset Forward Power Output to the Rated Power of the station.
5. Dekey the station by pressing the F2 key.

The function keys are defined as follows:

F1 - Provides HELP associated with the particular adjustment being performed.

F2 - Dekeys the station, if the station was keyed via the field programmer.

F4 - Save current EEPOT setting. This becomes the new original value.

F5 - Dumps the information on the screen to a printer connected to your computer.

F7 - Keys the station by issuing a LOC PTT.

F8 - Returns the user to the preceding adjustment.

F9 - Advances the user to the next adjustment.

F10 - EXITs the adjustment screen and returns the user to the Individual Adjustment Screen.

REFLECTED POWER ALARM SET

To properly set the REFLECTED POWER ALARM SET EEPot the following equipment is required: Wattmeter.

The adjustment is made as follows:

1. Key the station by pressing the F7 key(LOC PTT).
2. Adjust the station output power, using Pot R426 on the Uniboard, to your desired trip point level.
3. Press the F4 key to set the alarm trip point.
4. Reset Forward Power Output to the Rated Power of the station.
5. Dekey the station by pressing the F2 key.

The function keys are defined as follows:

F1 - Provides HELP associated with the particular adjustment being performed.

F2 - Dekeys the station, if the station was keyed via the field programmer.

F4 - Save current EEPOT setting. This becomes the new original value.

F5 - Dumps the information on the screen to a printer.

F7 - Keys the station by issuing a LOC PTT.

F8 - Returns the user to the preceding adjustment as shown in the Individual Adjustments Screen.

F9 - Advances the user to the next adjustment as shown in the Individual Adjustments Screen.

F10 - EXITs the adjustment screen and returns the user to the Individual Adjustment Screen.

ALARM SCREEN

This screen contains all 23 alarms. An asterisk to the left of the alarm name indicates that the alarm output has been enabled for the particular system setup. The setup can be viewed and changed from the SAM Wildcard Outputs screen on the SAM Menu. There are four basic setups: EXP_DATA, DATA, DIAGNOSTICS or WILDCARD. The word ALARM to the left of the alarm name indicates that the alarm is active. The status

of all alarms is displayed in real time, provided the station is properly connected. The F8 key will reset all control boards in the station.

SETTING/CLEARING BITS ON THE MUXBUS

To set bits on the MUXbus, use Up/Down/Right/Left Arrow, Tab, BackTab and Enter keys to move the cursor to the desired bit name and press F3. The bit name should become highlighted, indicating that the bit is indeed set. If not, there may be a problem with the station or the interface.

If the cursor is moved to the desired bit name and the bit has already been set by this program, pressing F3 will request the station to clear this bit.

Note: Any MUXbus bits set by something other than this program cannot be cleared via this screen.

The function keys are defined as follows:

- F1 - Displays help text.
- F2 - Enables user to change display update interval.
- F3 - Causes the MUXbus bit at the current cursor position to change states.
- F4 - Requests station to clear all MUXbus bits that were set by this program.
- F5 - Print current screen.
- F8 - Causes the station to be reset.
- F10 - Exit the DMP screen.

Brief definitions of each of the 16 MUXbus bits located at bit 0 of addresses 0 thru 15 are located on the following help pages.

S ALM DS (Selective Alarm Disable) - Mutes repetitive alarm tones generated in response to active RWC bits on addresses 12 and 13.

INTCOM (Intercom) - Allows LOC PTT without keying the station, which enables a serviceman at the station to communicate with the console site via the wirelines.

RX1 ACT (Rx 1 Activity) - Indicates that Receiver 1 has met the qualifiers set for it on the current mode.

R1 UN SQ (Rx 1 Unsquench) - Active when the Receiver 1 audio carrier squelch circuit on the SSCB detects on-channel rf activity.

R2 UN SQ (Receiver 2 Unsquench) - Active when the Receiver 2 audio carrier squelch circuit detect on-channel rf activity.

RPT USQ (Repeater Unsquench) - Receiver 1 repeater carrier squelch circuit, located on the SSCB, detects activity.

ENCRYPT (Digital Voice Encryption) - When active, enables the encryption function of the optional Encrypt/Decrypt Secure module (voice is transmitted coded). When inactive voice is transmitted clear.

BAUD (IPCB Baud Rate) - Indicates that the IPCB serial baud rate is not the default speed (1200 baud). When active, the alternate speed is 300.

TX RX C8, TX RX C4, TX RX C2, TX RX C1 (Transmitter/Receiver 1 Channel) - These four bits are used to control the channel of the transmitter and

Receiver 1.

AUX C8, AUX C4, AUX C2, AUX C1 (Auxiliary Channel) - Four overflow bits used for indicating channel, mode, or receiver 2 channel.

RX2 C8, RX2 C4, RX2 C2, RX2 C1 (Second Receiver Channel) - These four bits are used to control the channel of Receiver 2.

DOS (Data Operated Squelch) - In MCS stations, this bit is used to indicate the second most significant bit of the active MCS user number.

RW1 BAT (Battery Revert) - Indicates that the AC main to the station has been lost and that the station is operating on battery power.

RW5 TSTAT - Indicates a TSTAT (Transmitter Status) failure.

FW 1 - (Forward Wild Card 1) - Indicates that a forward wildcard is active. These bits are usually driven by the TTRC module, in response to a TRC command from a console.

MODE 8 - MODE 1 (Station Mode) - These four bits are used to control the mode of the station.

SETTING/CLEARING BITS ON THE MUXBUS

To set bits on the MUXbus, use Up/Down/Right/Left Arrow, Tab, BackTab and Enter keys to move the cursor to the desired bit name and press F3. The bit name should become highlighted, indicating that the bit is indeed set. If not, there may be a problem with the station or the interface.

If the cursor is moved to the desired bit name and the bit has already been set by this program, pressing F3 will request the station to clear this bit.

Note: Any MUXbus bits set by something other than this program cannot be cleared via this screen.

The function keys are defined as follows:

F1 - Displays help text.

F2 - Enables user to change display update interval.

F3 - Causes the MUXbus bit at the current cursor position to change states.

F4 - Requests station to clear all MUXbus bits that were set by this program.

F5 - Print current screen.

F8 - Causes the station to be reset.

F10 - Exit the DMP screen.

Brief definitions of each of the 16 MUXbus bits located at bit 1 of addresses 0 thru 15 are located on the following help pages.

T ALM DS (Total Alarm Disable) - Unconditionally mutes all alarm tones generated in response to active reverse wildcard bits on addresses 12 & 13.

LOC PTT (Local PTT)- Keys transmitter, modulating with Local Audio if no higher priority PTT is active.

RX2 ACT (Rx 2 Activity) - Indicates that the second receiver audio has met the qualifiers set for it on the current mode.

RX CD DT (Rx 1 Code Detect) - Indicates a Receiver Code Detect due to receipt

of Secure data on Receiver 1.

R2 CD DT (Receiver 2 Code Detect) - Indicates a Receiver Code Detect due to receipt of Secure data on Receiver 2.

RPT KD (Repeater Knock-Down) - Disallows a Repeater PTT when active.

TX CD DT (Transmit Code Detect) - Indicates Wireline Code Detect is active due to receipt of Secure (12 Kbit) data on the wireline.

SP3, SP2, SP1 (Special Purpose 3 - 1)-Bits Reserved for future applications.

TX RX C8, TX RX C4, TX RX C2, TX RX C1 (Transmitter/Receiver 1 Channel) - These four bits are used to control the channel of the transmitter and Receiver 1.

AUX C8, AUX C4, AUX C2, AUX C1 (Auxiliary Channel) - Four overflow bits used for indicating channel, mode, or receiver 2 channel.

RX2 C8, RX2 C4, RX2 C2, RX2 C1 (Second Receiver Channel) - These four bits are used to control the channel of Receiver 2.

RW2 PA (PA FAIL) - This bit is the rf power amplifier fail internal station alarm parameter, activated by the SSCB.

RW6 REFL - Indicates that Reflected Power is too high.

FW 2 - (Forward Wild Card 2) - Indicates that a forward wildcard is active. These bits are usually driven by the TTRC module, in response to a TRC command from a console.

MODE 8 - MODE 1 (Station Mode) - These four bits are used to control the mode of the station.

SETTING/CLEARING BITS ON THE MUXBUS

To set bits on the MUXbus, use Up/Down/Right/Left Arrow, Tab, BackTab and Enter keys to move the cursor to the desired bit name and press F3.

The bit name should become highlighted, indicating that the bit is indeed set. If not, there may be a problem with the station or the interface.

If the cursor is moved to the desired bit name and the bit has already been set by this program, pressing F3 will request the station to clear this bit.

Note: Any MUXbus bits set by something other than this program cannot be cleared via this screen.

The function keys are defined as follows:

F1 - Displays help text.

F2 - Enables user to change display update interval.

F3 - Causes the MUXbus bit at the current cursor position to change states.

F4 - Requests station to clear all MUXbus bits that were set by this program.

F5 - Print current screen.

F8 - Causes the station to be reset.

F10 - Exit the DMP screen.

Brief definitions of each of the 16 MUXbus bits located at bit 2 of addresses 0 thru 15 are located on the following help pages.

SCAN (SCAN ENABLE) - Indicates that the station is in Scanning Receiver mode.

LIN PTT (Line PTT) - Keys transmitter, modulating with TX Audio if no higher priority PTT is active.

TX ACT (Transmitter Activity) - Indicates that the transmitter is on.

R1 PL DT (Rx 1 PL/DPL Detect) - Active when PL, DPL, or CT coded squelch is being detected on Receiver 1.

R2 PL DT (Receiver 2 PL/DPL Detect) - Active when PL, DPL, or CT coded squelch is being detected on Receiver 2.

AUX DET (Auxiliary Detect) - An optional decoder is detecting on Receiver 1.

EX DA DT (External Data Detect) - When active, the SSCB mutes Tx, Local, RX1 (Repeater), and MRTI audio from the transmitter unless specifically enabled for the current mode.

SP3, SP2, SP1 (Special Purpose 3 - 1)-Bits Reserved for future applications.

TX RX C8, TX RX C4, TX RX C2, TX RX C1 (Transmitter/Receiver 1 Channel) - These four bits are used to control the channel of the transmitter and Receiver 1.

AUX C8, AUX C4, AUX C2, AUX C1 (Auxiliary Channel) - Four overflow bits used for indicating channel, mode, or receiver 2 channel.

RX2 C8, RX2 C4, RX2 C2, RX2 C1 (Second Receiver Channel) - These four bits are used to control the channel of Receiver 2.

RX INHB (Receiver 1 Inhibit) - Indicates that the receiver audio is inhibited from reaching the wireline.

RW3 SYN (Synthesizer Unlock)-Transmitter or receiver synthesizer unlocked.

RW7 FWRD - Indicates that Forward Power is too low.

FW 3 - (Forward Wild Card 3) - Indicates that a forward wildcard is active. These bits are usually driven by the TTRC module, in response to a TRC command from a console.

MODE 8 - MODE 1 (Station Mode) - These four bits are used to control the mode of the station.

SETTING/CLEARING BITS ON THE MUXBUS

To set bits on the MUXbus, use Up/Down/Right/Left Arrow, Tab, BackTab and Enter keys to move the cursor to the desired bit name and press F3.

The bit name should become highlighted, indicating that the bit is indeed set. If not, there may be a problem with the station or the interface.

If the cursor is moved to the desired bit name and the bit has already been set by this program, pressing F3 will request the station to clear this bit.

Note: Any MUXbus bits set by something other than this program cannot be cleared via this screen.

The function keys are defined as follows:

F1 - Displays help text.

F2 - Enables user to change display update interval.

F3 - Causes the MUXbus bit at the current cursor position to change states.

F4 - Requests station to clear all MUXbus bits that were set by this program.

F5 - Print current screen.
F8 - Causes the station to be reset.
F10 - Exit the DMP screen.

Brief definitions of each of the 16 MUXbus bits located at bit 3 of addresses 0 thru 15 are located on the following help pages.

DAT PTT (Data Push-to-Talk) - Indicates if a Data PTT request is active.
RPT PTT (Repeater PTT) - A Repeater PTT or Trunking PTT is active.
TX PL DS (Tx PL/DPL Disable)-Disables PL, DPL, or Trunking Data from being added onto the transmitted signal.
RX PL DS (Rx PL/DPL Disable) - Indicates that the station has reverted to carrier squelch only receiver operation for purposes of determining the status of RX1 ACT and RX2 ACT.
R2 MUTE (Receiver 2 Mute) - Causes the second receiver audio to be muted or attenuated.
GD TN DT (Guard Tone Detect) - High Level Guard Tone is being detected.
ACC DIS (Access Disable) - Station is in the Access Disable mode.
SP3, SP2, SP1 (Special Purpose 3 - 1)-Bits Reserved for future applications.
TX RX C8, TX RX C4, TX RX C2, TX RX C1 (Transmitter/Receiver 1 Channel) - These four bits are used to control the channel of the transmitter and Receiver 1.
AUX C8, AUX C4, AUX C2, AUX C1 (Auxiliary Channel) - Four overflow bits used for indicating channel, mode, or receiver 2 channel.
RX2 C8, RX2 C4, RX2 C2, RX2 C1 (Second Receiver Channel) - These four bits are used to control the channel of Receiver 2.
TX INHB (Transmit Inhibit) - Indicates that the transmitter is inhibited.
RW4 OVG (Reverse Wild Card 4 - Battery Overvoltage) - Indicates that the battery overvoltage internal station alarm is active.
RW8 (Reverse Wildcard 8 - Main Standby) - Indicates that a problem exists with the main / standby system.
FW 4 - (Forward Wild Card 4) - Indicates that a forward wildcard is active. These bits are usually driven by the TTRC module, in response to a TRC command from a console.
MODE 8 - MODE 1 (Station Mode) - These four bits are used to control the mode of the station.

SELECT CHANNEL

To change the channel of the station, move cursor into the channel number field. Enter the new channel and move cursor to the next field by pressing Enter, Tab, BackTab or any of the other cursor keys. If a new channel number was entered, the program prompts the user that the channel is about to be changed and asks for confirmation. Pressing F2 confirms this and the station changes channels. Otherwise, nothing is changed.

CHANGE MUXBUS DISPLAY UPDATE INTERVAL

The MUXbus Display screen periodically requests the station to tell it its current MUXbus status. To modify the time interval at which this is done enter the new interval and press Enter. The range is 5 - 299 seconds. The default value is every 60 seconds.

The function keys are defined as follows:

F1 - Displays help text.

F8 - Save the value to the configuration file and return to the DMP screen.

F10 - Exit and return to the DMP screen.

PASSWORD

The password must be at least 4, but no more than 8 characters in length. The set of valid keys for the password are: 0-9, a-z, A-Z and the characters on the numeric keys (i.e. a shift 5 is % which is a valid character). The password does not appear on the screen. The password protection may be disabled via the Model Options screen, provided the user knows the current password.

CHANGING FORGOTTEN PASSWORD

To change a forgotten password, the user must have access to the front panel of the station while executing the RSS. Enter any characters when prompted for the CURRENT PASSWORD. Enter the NEW PASSWORD. Type the NEW PASSWORD again--before pressing the <Enter> key, hold the SELECT/SET switch, located on the far right side of the front panel of the station, in the SELECT position. Press the <Enter> key. A message should appear on the screen stating that the password has been successfully changed.

SETUP

The SETUP functions are used to configure your Radio Service Software to your particular application and computer environment.

Function Key Descriptions:

F3 - PC CONFIGURATION is used to select the Asynchronous Communications Port (COM 1,COM 2,COM 3,COM 4) to be used for Programming purposes.

Please refer to your computer owner's manual for a complete description of path names and Asynchronous Communication Ports.

F4 - ARCHIVE DIRECTORY CONFIGURATION is used to set up default directories for the archive files, help file and data file.

F7 - SCREEN COLORS is used to enable the Color display option.

F10 - Exit to Main Menu

SERIAL PORT CONFIGURATION

The SERIAL PORT CONFIGURATION screen contains editable fields for both the Station Port and the Modem Port. There may be from 1-4 (COM1 - COM4) Serial Ports on a PC. The Serial Port is used to transmit data back and forth to the station or it can be used to connect a modem to the PC. The Station Port is the Serial Port that the RIB is connect to. The Modem Port is the Serial Port that the modem is connected to. The Station Port contains the following fields: Serial Port and Baud Rate. The Modem Port contains the following fields: Serial Port, Modem Speaker Status, Modem Speaker Volume, Wait For Dialtone/Carrier, Pause Between Calls and Number Of Redials. It is possible for both the Station Port and the Modem Port to be set to the same Serial Port, i.e. an external modem is connected to the serial port and the station is also connected to the same Serial Port. The <BACKTAB> key is used to move the cursor to the previous field. The <ENTER> and <TAB> keys are used to advance the cursor to the next field.

If the Serial Port field is not set correctly, you will get a "Station Does Not Respond" error message when trying to communicate with the station.

Definition Of Function Keys:

F1 - Provide HELP associated with the Serial Port Configuration screen.

F2 - Change the active Serial Port to the Station Port. Any data transmitted by the RSS will be sent to the station.

F3 - Change the active Serial Port to the Modem Port. Any data transmitted by the RSS will be sent to the modem. This function key is only valid if the modem is 'On-Line'.

F5 - Print the current page.

F8 - Save the current Serial Port Configuration to the 'MSF.cfg' file.

F10 -Exit the Serial Port Configuration screen.

SERIAL PORT:

The Serial Port field indicates which Serial Port on the PC that the station is connected to. The four choices COM1, COM2, COM3 and COM4 are selected by use of the Up/Dn arrow keys. The default is COM1.

BAUD RATE:

The Baud Rate field is the rate of transmission between the station and the computer. Baud Rate is expressed in bits-per-second (bps). The five choices 0300, 1200, 2400,4800 and 9600 are selected by use of the Up/Dn arrow keys. The default is 1200 bps.

SERIAL PORT:

The Serial Port field indicates which Serial Port on the PC that the modem is connected to. The four choices COM1, COM2, COM3 and COM4 are selected by use of the Up/Dn arrow keys. The default is COM1.

MODEM SPEAKER STATUS:

The Modem Speaker Status field indicates when the modem speaker is active. The four choices ALWAYS OFF, ALWAYS ON, CARRIER (the speaker is ON until a carrier is detected) and DIAL/CARR (the speaker is ON after dialing until a carrier is detected) are selected by use of the Up/Dn arrow keys. The default is CARRIER.

MODEM SPEAKER VOLUME:

The Modem Speaker Volume field indicates the range of the modem's speaker. The three choices LOW, MEDIUM and HIGH are selected by use of the Up/Dn arrow keys. The default is MEDIUM.

WAIT FOR DIALTONE/CARRIER:

The Wait For Dialtone/Carrier field instructs the modem how long to wait for dial tone after issuing the dial command and also how long to wait for a connection after dialing the number. If no dial tone is detected or connection is not established then the modem will hang up. The valid range for this field is 1 to 255 seconds. The default is 30 seconds.

PAUSE BETWEEN CALLS:

The Pause Between Calls field indicates how long the RSS will pause before dialing redialing the same number if no connection was made in the previous attempt. The valid range for this field is 1 to 30 seconds. The default is 30 seconds.

NUMBER OF REDIALS:

The Number Of Redials field indicates how many times the modem should attempt to redial a number until a connection is established. The valid range for this field is 1 to 10. The default is 3.

BREAK DURATION:

The length of time to send a BREAK signal when the ALT-b key sequence is pressed in the MODEM TERMINAL MODE Screen (ALT-F5 in MODEM SCREEN). The default for this duration is 350 milliseconds.

CONFIGURE COMPUTER SCREEN

SCREEN COLORS is used to select the type of display monitor that you are using with your computer, i.e. MONOCHROME or COLOR.

For proper color operation, you must have a color monitor and the appropriate color display interface card installed in your computer. Please refer to your computer owner's manual and/or your computer dealer if you have questions regarding the color capability of your computer.

You may also further customize your screen by selecting colors for the screen TEXT, STATUS LINE, MESSAGE LINE, TEXT HIGHLIGHT, BACKGROUND, and SCREEN OUTLINE.

Function Key Descriptions:

F8 - SAVE is used to save the configuration information to a file on your program disk. Every time you use the Radio Service Software, the configuration that you SAVED last will be used. At anytime the configuration may be changed and SAVED.

F9 - RESET DEFAULT is used to reset the parameters on this screen to a default value. However, RESET DEFAULT does NOT save the configuration. If the default values are desired, you must save them via the SAVE (F8) function.

MONITOR TYPE (Default = Mono)

Use the UP/DOWN arrow keys to select a MONOCHROME or COLOR display monitor.

TEXT (Default = Yellow)

Use the UP/DOWN arrow keys to select the desired color for screen TEXT.

STATUS LINE (Default = White)

Use the UP/DOWN arrow keys to select the desired color for the STATUS LINE located in the lower portion of the top right-side window.

MESSAGE LINE (Default = White)

Use the UP/DOWN arrow keys to select the desired color for the MESSAGE LINE

located in the upper portion of the top right-side window.

HIGHLIGHT (Default = White)

Use the UP/DOWN arrow keys to select the desired color for the HIGHLIGHTED screen text.

BACKGROUND (Default = Blue)

Use the UP/DOWN arrow keys to select the desired color for the screen BACKGROUND.

SCREEN OUTLINE (Default = Lt Red)

Use the UP/DOWN arrow keys to select the desired color of the screen OUTLINE.

Konfigurationsprogramm einstellen

DIRECTORY CONFIGURATION SCREEN

ARCHIVE FILE DIRECTORY - This is the directory on the pc which contains the codeplug files. If an invalid drive or pathname is entered the program will prompt for a valid drive and pathname.

HELP FILE DIRECTORY - This is the directory on the pc which contains the help file. If an invalid drive or pathname is entered the program will prompt for a valid drive and pathname.

ENGLISH.DAT FILE DIRECTORY - This is the directory on the pc which contains the textual data file. This file is loaded in at the beginning of the program and contains messages that the program uses during runtime. If an invalid drive or pathname is entered the program will prompt for a valid drive and pathname.

SP FILE DIRECTORY - This is the directory on the PC which contains SP (Special Product) update files. If an invalid drive or pathname is entered the program will prompt for a valid drive and pathname.

Function Key Descriptions:

F8 - SAVE is used to save the directory configuration information to a file (MSF.CFG) on your program disk. Every time you use the Radio Service Software, the configuration that you SAVED last will be used. At anytime the configuration may be changed and SAVED.

Note: If during runtime the files for the pathnames that have been specified cannot be found then the program will also search the directory from which the msf.exe program was started.

*****WARNING*****

This screen should only be edited by advanced users as inserting the wrong data into the codeplug can dangerously affect the

station operation and affect the field programmer.

A 2-digit value must be entered. The valid range is 00 - FF.

<ENTER> takes user to next line

<TAB> takes user to next byte in same line

<SHIFT TAB> takes user to previous byte in same line

STATION INFORMATION MENU

The Station Information Menu is the level of the program from which you select the type of station information that you wish to edit. All selections are made via the "Function Keys", labeled F1 thru F10 on your keyboard.

After making a selection, you will be directed to routines that will edit the type of data you selected.

Function Key Descriptions:

- F1 - Specific help is available for each field on all data entry screens. Keyboard help is available within any HELP screen by pressing F2.
- F2 - Menu that Contains Tone Remote Control Table and DC Remote Control Table.
- F3 - Mode Information section allows the user to edit all Mode Type data.
- F4 - Channel Information section allows the user to edit all Channel Type data.
- F5 - Scan Receiver section allows the user to edit channel frequencies and scanning information.
- F6 - Advanced Information allows the user to edit information that does not fall into the Channel, Mode or Remote Control categories.
- F7 - SAM Menu allows the user to program information for the Station Access Module.
- F8 - Station Model/Options displays station operations and allows the user to edit Frequency Range, Repeater Operation, Spectra TAC Operation, and Full Duplex Operation.

F9 - MCS Information screen. This option may be enabled via Station/Model Options screen.

F10 - Select EXIT to return to MAIN MENU.

FLOATING PRIORITY

The valid toggle choices are OFF, RX, TX or RX & TX. RX sets the priority channel to the most recently active receive channel. TX sets the priority channel to the most recently active transmit channel. Selecting RX & TX allows the priority channel to be assigned to the most recent transmit or receive channel. If the Floating Priority field does not contain OFF then the Priority Channel field will be set to FLOAT and become non-editable. The Floating Priority field cannot be set to a choice other than OFF unless two or more channels are enabled for scan. The default for Floating Priority is OFF.

PRIORITY CHANNEL

The Priority Channel field indicates which channel has priority. The only valid numbers for this field are those channels on which scan is enabled. The Priority Channel is scanned between all non-priority channels. The Priority Channel is also scanned during periods of non-priority channel activity. If a non-priority channel is active with a coded signal and the XL Decryption Operation is enabled on the Station Model Options Screen, then the priority channel is not scanned until the current channel activity stops. The default for the Priority Channel field is OFF.

TRC CONSOLE FEEDBACK

At this time, TRC Console Feedback is a non-editable field. The default value is DISABLED.

CHANNEL MARKING

The valid toggle choices are OFF, NORM, PRIORITY or N & P. This feature allows the station to ignore scan channels that have activity but not the correct coded squelch qualifier. This speeds up the scan by not waiting the full RX Qualify Time (shown on the Advanced Information Screen) for a coded squelch detect if the channel has already been marked. Selecting NORM will only enable non-priority channel marking. Selecting PRIORITY will only enable priority channel marking. Selecting N & P will enable both. The

mark is removed as soon as the channel loses a carrier detect or when another scan channel becomes active and the scan stops. The mark on the priority channel can only be removed by loss of activity on the priority channel. The default for Channel Marking is OFF.

TX FREQ/RX FREQ

This screen shows a composite listing of all channel frequencies.

AUDIO

The valid toggle choices are R1 or R2. This field indicates which RF tray's receiver audio is used for each channel. This field may only be toggled if the Model Options Screen has a valid frequency selection for the R2 tray. The value selected for the Audio field will also appear on the channel screen as a non-editable field.

SCAN

The valid toggle choices are ENABLED or DISABLED. This field indicates whether or not each channel should be included in the scan. There must be at least two channels enabled in order to assure proper scan operation.

TX SLAVE

The valid toggle choices are ENABLED or DISABLED. When the scan stops on a channel with TX Slave enabled, the transmitter channel number is immediately changed to the scan channel. If TX Slave is disabled on any given channel, the station uses the previously active transmit frequency or the previously selected transmit channel frequency from the console. If disabled, the transmit and receive frequencies are no longer slaved to the same station channel. The default for the TX Slave field is DISABLED.

CHANGE/VIEW COMMAND DATA MENU

The Change/View Command Data Menu is the level of the program from which you select the Tone or DC Commands to edit. All selections are made via the "Function Keys", labeled F1 thru F10 on your keyboard. After making a selection, you will be directed to routines that will edit the type of data you selected.

F1 - HELP

F2 - Tone Remote Control Table allows the user to edit tone remote control commands.

F5 - DC Remote Control Table allows user to edit the
DC remote commands AND the RESET commands.
F10 - Exit to CHANGE/VIEW CODEPLUG DATA MENU.

SCANNING REPEATER

At the time of the release of this RSS (January 1993), there were plans to add the ability of the station to repeat while scanning. Currently, this field has no affect on station operation. The current released version of SSCB firmware (R5.45, part number 5191012H75) DOES NOT repeat while scanning.

Once the Scanning Repeater option is added to the SSCB firmware (no approximate release date at this point), this field will work as follows:

The SCANNING REPEATER field can only be ENABLED if the station is configured as a REPEATER (REPEATER OPERATION field in STATION/MODEL OPTIONS Screen is set to ENABLED). If ENABLED, the station will keyup during SCAN when a received signal on one of the scan enabled channels is detected. If DISABLED, the station will scan as normal, but will not key.