MSF5000 DIGITAL ERROR CODES

When the station detects an error, an error code appears in the Status display. This code is used to aid in the troubleshooting of the MSF5000. Error codes are differentiated from other MSF codes by illuminating all three decimal points of the Status display.

There are five different categories of error codes. The category is displayed in the left-most digit of the Status display. The type of error is represented in hexadecimal format in the two right-most digits of the Status display. Hexadecimal coding permits up to 256 possible error codes per category.

The figure below illustrates the error code format and how it is presented within the Status display.

The “Chan” digit displays the type of error:
A = AUDIO ERROR
d = DIGITAL ERROR
E = OPERATIONAL ERROR
o = TEST MODE ERROR
U = UNDEFINED ERROR

The “Mode” and “Key” digits display the error code. Refer to the following tables for specific error code definitions.

Operational Error Codes

Operational error codes represent failures of a specific function of the station.

Error	Description	Probable Cause	Corrective Action
E00	Push-To-Talk Type HSR image mismatch	• An HSR data packet was corrupted (i.e. via electrostatic discharge) • The High Speed Ring data in / data out continuity is severed	• If this error occurs only once, an HSR data packet is probably corrupted. This usually self-corrects within 125 us. • If this error continuously occurs during key-ups, the HSR data I/O ring is no longer continuous. Reset the station. A digital error code (d.9.A) should show up. Follow the Corrective Action for d.9.A.
E10	No RX1 band designated	The RF Band definition field in the code plug(s) is undefined	Reprogram the station code plug(s). Refer to the RSS manual
E11	No RX2 band designated	The RF Band definition field in the code plug(s) is undefined	Reprogram the station code plug(s). Refer to the RSS manual
E20	EEPOT 0 lower limit out-of-bounds (coded RX level)	Alignment procedure attempted to adjust EEPOT below minimum setting	Adjust EEPOT 0. Refer to Chapter 4, Alignment

MSF5000 DIGITAL ERROR CODES

Error	Description	Probable Cause	Corrective Action
E21	EEPOT 1 lower limit out-of-bounds (flutter fighter level) - 896 MHz only	Alignment procedure attempted to adjust EEPOT below minimum setting	Adjust EEPOT 1. Refer to Chapter 4, Alignment
E22	EEPOT 2 lower limit out-of-bounds (repeater squelch level)	Alignment procedure attempted to adjust EEPOT below minimum setting	Adjust EEPOT 2. Refer to Chapter 4, Alignment
E23	EEPOT 3 lower limit out-of-bounds (receiver squelch level)	Alignment procedure attempted to adjust EEPOT below minimum setting	Adjust EEPOT 3. Refer to Chapter 4, Alignment
E24	EEPOT 4 lower limit out-of-bounds (maximum deviation level)	Alignment procedure attempted to adjust EEPOT below minimum setting	Adjust EEPOT 4. Refer to Chapter 4, Alignment
E25	EEPOT 5 lower limit out-of-bounds (RX level)	Alignment procedure attempted to adjust EEPOT below minimum setting	Adjust EEPOT 5. Refer to Chapter 4, Alignment
E26	EEPOT 6 lower limit out-of-bounds (coded deviation level)	Alignment procedure attempted to adjust EEPOT below minimum setting	Adjust EEPOT 6. Refer to Chapter 4, Alignment
E28	EEPOT 0 upper limit out-of-bounds (coded RX level)	Alignment procedure attempted to adjust EEPOT beyond maximum setting	Adjust EEPOT 0. Refer to Chapter 4, Alignment
E29	EEPOT 1 upper limit out-of-bounds (flutter fighter level) - 896 MHz only	Alignment procedure attempted to adjust EEPOT beyond maximum setting	Adjust EEPOT 1. Refer to Chapter 4, Alignment
E2A	EEPOT 2 upper limit out-of-bounds (repeater squelch level)	Alignment procedure attempted to adjust EEPOT below minimum setting	Adjust EEPOT 2. Refer to Chapter 4, Alignment
E2b	EEPOT 3 upper limit out-of-bounds (receiver squelch level)	Alignment procedure attempted to adjust EEPOT below minimum setting	Adjust EEPOT 3. Refer to Chapter 4, Alignment
E2C	EEPOT 4 upper limit out-of-bounds (maximum deviation level)	Alignment procedure attempted to adjust EEPOT below minimum setting	Adjust EEPOT 4. Refer to Chapter 4, Alignment
E2d	EEPOT 5 upper limit out-of-bounds (RX level)	Alignment procedure attempted to adjust EEPOT below minimum setting	Adjust EEPOT 5. Refer to Chapter 4, Alignment
E2E	EEPOT 6 upper limit out-of-bounds (coded deviation level)	Alignment procedure attempted to adjust EEPOT below minimum setting	Adjust EEPOT 6. Refer to Chapter 4, Alignment
E30	EEPOT 7 lower limit out-of-bounds (transmit audio level)	Alignment procedure attempted to adjust EEPOT below minimum setting	Adjust EEPOT 7. Refer to Chapter 4, Alignment
E31	EEPOT 8 lower limit out-of-bounds (status tone level)	Alignment procedure attempted to adjust EEPOT below minimum setting	Adjust EEPOT 8. Refer to Chapter 4, Alignment
E32	EEPOT 9 lower limit out-of-bounds (high end equalization level)	Alignment procedure attempted to adjust EEPOT below minimum setting	Adjust EEPOT 9. Refer to Chapter 4, Alignment
E33	EEPOT A lower limit out-of-bounds (low end equalization level)	Alignment procedure attempted to adjust EEPOT below minimum setting	Adjust EEPOT A. Refer to Chapter 4, Alignment
E34	EEPOT b lower limit out-of-bounds (trunking data level)	Alignment procedure attempted to adjust EEPOT below minimum setting	Adjust EEPOT b. Refer to Chapter 4, Alignment
E35	EEPOT C lower limit out-of-bounds (line 2 output level)	Alignment procedure attempted to adjust EEPOT below minimum setting	Adjust EEPOT C. Refer to Chapter 4, Alignment
E36	EEPOT d lower limit out-of-bounds (line 4 output level)	Alignment procedure attempted to adjust EEPOT below minimum setting	Adjust EEPOT d. Refer to Chapter 4, Alignment
E37	EEPOT F lower limit out-of-bounds (SAM encode level)	Alignment procedure attempted to adjust EEPOT below minimum setting	Adjust EEPOT F. Refer to Chapter 4, Alignment
E38	EEPOT 7 upper limit out-of-bounds (transmit audio level)	Alignment procedure attempted to adjust EEPOT below minimum setting	Adjust EEPOT 7. Refer to Chapter 4, Alignment
E39	EEPOT 8 upper limit out-of-bounds (status tone level)	Alignment procedure attempted to adjust EEPOT below minimum setting	Adjust EEPOT 8. Refer to Chapter 4, Alignment
E3A	EEPOT 9 upper limit out-of-bounds (high end equalization level)	Alignment procedure attempted to adjust EEPOT below minimum setting	Adjust EEPOT 9. Refer to Chapter 4, Alignment

MSF5000 DIGITAL ERROR CODES

Error	Description	Probable Cause	Corrective Action
E3b	EEPOT A upper limit out-of-bounds (low end equalization level)	Alignment procedure attempted to adjust EEPOT below minimum setting	Adjust EEPOT A. Refer to Chapter 4, Alignment
E3C	EEPOT b upper limit out-of-bounds (trunking data level)	Alignment procedure attempted to adjust EEPOT below minimum setting	Adjust EEPOT b. Refer to Chapter 4, Alignment
E3d	EEPOT C upper limit out-of-bounds (line 2 output level)	Alignment procedure attempted to adjust EEPOT below minimum setting	Adjust EEPOT C. Refer to Chapter 4, Alignment
E3E	EEPOT d upper limit out-of-bounds (line 4 output level)	Alignment procedure attempted to adjust EEPOT below minimum setting	Adjust EEPOT d. Refer to Chapter 4, Alignment
E3F	EEPOT F upper limit out-of-bounds (SAM encode level)	Alignment procedure attempted to adjust EEPOT below minimum setting.	Adjust EEPOT F. Refer to Chapter 4, Alignment
E40	RX_Loop_Ctrl line not changing states	The RX1 Loop signal is not toggling as expected, indicating a bad receiver synthesizer	Replace Uniboard
E41	TX_Loop_Ctrl line not changing states	The TX Loop signal is not toggling as expected, indicating a bad transmitter synthesizer	Replace Uniboard
E42	Multi-Coded Squelch (MCS) update time in CP < 1 hour	MCS airtime accumulator update time in the code plug is less than one hour. A value of one hour is assumed by the firmware	Reprogram the SSCB code plug to set the update time value to at least one hour. Refer to the RSS manual
E43	Error while copying user table to MCS board	MCS board is not accepting the user table serial data transfer due to one of the following conditions: • No power to MCS board • JU1 configured incorrectly • Defective EEPROM on MCS board	• Verify power to MCS board. • Verify JU1 is configured to enable EEPROM writes • Replace defective EEPROM • Replace MCS board
E44	Error in update_MCS while converting ASCII to hex	The IPCB signal was temporarily corrupted while transferring user table data between the SSCB and MCS modules, resulting in non-ASCII data being received by the SSCB	No action required, this error should self-correct
E45	Cannot adjust receiver to saved level	Corrupted SSCB	Reprogram. Refer to the RSS manual
E46	Transmit synthesizer failed to unlock after “Change_Freq” pulse	Faulty SSCB Faulty VCO	Replace SSCB Replace VCO
E47	Transmit synthesizer failed to lock after three program attempts	Recent frequency change or bad VCO	Reprogram SSCB or retune Tx VCO
E48	RX synthesizer failed to unlock after “Change_Freq” pulse	Station was mis-programmed Faulty SSCB	Reprogram Replace SSCB
E49	RX synthesizer failed to lock after three program attempts	Recent frequency change or bad VCO	Reprogram SSCB or retune Tx VCO
E4A	RX2 synthesizer failed to unlock after “Change_Freq” pulse	Station was mis-programmed Faulty SSCB	Reprogram Replace SSCB/Uniboard
E4b	RX2 synthesizer failed to lock after three program attempts	Faulty SSCB	Replace SSCB/Uniboard
E4C	Invalid number of scan channels	There is either less than one, or more than 15, channels programmed into the station	The station should have between 1 and 15 channels programmed. At least two channels must be scan enabled for proper scan operation
E4d	RX1 tuning channel is programmed to 0	Station was not set back to a normal operating channel after maintenance or alignment	Set channel to a programmed channel. Refer to Chapter 2, Operation
E4E	RX2 tuning channel is programmed to 0	Station was not set back to a normal operating channel after maintenance or alignment	Set channel to a programmed channel. Refer to Chapter 2, Operation

MSF5000 DIGITAL ERROR CODES

Error	Description	Probable Cause	Corrective Action
E4F	Transmit tuning channel is programmed to 0	Station was not set back to a normal operating channel after maintenance or alignment	Set channel to a programmed channel. Refer to Chapter 2, Operation
E50	ALC Xmit EEPOT code plug value invalid	EEPOT 7 invalid value Faulty TTRC logic board Faulty TTRC audio board	Reset station Realign EEPOT 7 Replace TTRC board Replace TTRC audio board
E51	Un-ALC Xmit EEPOT code plug value invalid	EEPOT 7 invalid value Faulty TTRC logic board Faulty TTRC audio board	Reset station Realign EEPOT 7 Replace TTRC board Replace TTRC audio board
E52	HSR address specified in Ext_PTT_Ctrl_Tbl invalid	Mis-programmed Faulty TTRC logic board	Reprogram Replace TTRC logic board
E53	HSR bit specified in Ext_PTT_Ctrl_Tbl invalid	EEPOT 7 invalid value Faulty TTRC logic board Faulty TTRC audio board	Reset station Realign EEPOT 7 Replace TTRC board Replace TTRC audio board
E54	Encode_echo request already active (TTRC)	Faulty TTRC board	Reset station Replace TTRC logic board
E55	TRC_Encode request active too long	Faulty TTRC board	Reset station Replace TTRC board Replace TTRC audio board
E56	Bad echo non_fatal_error_code (TTRC)	Faulty tone request	Reset station and retry
E57	Invalid DC current present	Invalid DC Faulty TTRC audio board Faulty TTRC logic board	Faulty external equipment Replace TTRC audio board Replace TTRC logic board
E58	HSR address specified in Spare_Ctrl_Tbl invalid	Faulty TTRC logic board	Replace TTRC logic board
E60	Call-sign (station ID) is too long	Long call-sign specified	Use shorter call-sign; reprogram via RSS
E70	RAC/SAM invalid audio source selected for tone decoder	Invalid audio source selected for tone decoder	Reselect source and reprogram. Refer to RSS manual
E71	RAC/SAM invalid audio source selected for binary decoder	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs
E72	RAC/SAM invalid audio source selected for DTMF decoder	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs
E73	RAC/SAM invalid data requested by EEPOT routine	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs
E74	RAC/SAM input specified with no associated line number	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs
E75	RAC/SAM IO_Assignments not input/alarm/logic conditions	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs
E76	RAC/SAM input number exceeds largest allowed value	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs
E77	RAC/SAM AND function with no addresses specified	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs
E78	RAC/SAM OR function with no addresses specified	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs
E80	Invalid common timer number (SSCB)	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
E81	Invalid EEPOT update requested	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
E82	Current PTT_Type is undefined	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
E83	Invalid PTT Arbitration State	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
E84	Bad State in transmitter manager	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
E85	MCS board not present when required	• MCS IPCB interface circuitry defective • MCS module has catastrophic failure (processor won't run, firmware missing, etc.)	• Verify that MCS module is properly installed • Check MCS TEST LED for flashing fatal error indication
E86	Bad State in EEPOT adjustment module	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs

MSF5000 DIGITAL ERROR CODES

Error	Description	Probable Cause	Corrective Action
E87	Bad State in ring display module	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
E88	PTT_Priority_Lost pointer is null	Improper SSCB code plug programming	Reprogram SSCB code plug, Refer to RSS manual.
E89	Too many channels and modes defined	The total number of Primary Receiver Channels, Second Receiver Channels, and modes exceeds 255	Reduce the number of channels and/ or modes by reprogramming the SSCB code plug
E8A	Bad State in SSCB I/O service module	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
E8b	Bad Command_State in IPCB Command_y (SSCB)	Device connected to IPCB used incorrect command format Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
E8C	Bad State in wattmeter trip-point set module	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs
E8d	SSCB SP address table missing address needed for SP function	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs
E8E	Bad State in Channel Scan Master	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
E90	Invalid common timer number (TTRC)	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
E91	Invalid EEPOT update requested	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
E92	Invalid tone #, bad case call	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
E93	Invalid command #, bad case call	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
E94	Invalid ALC state #, bad case call	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
E95	Invalid DC current number error	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
E9b	Bad Command_State in IPCB Command_y (TTRC)	Device connected to IPCB used incorrect command format Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
E9d	TTRC sp address table missing address needed for SP function	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
EA0	Invalid common timer number (Secure)	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs
EA1	Bad State in coded takeover module	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
EA2	RAC/SAM output response number out of range	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs
EAA	RAC/SAM output line number out of range	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs
EAb	Bad Command_State in IPCB Command_y (Secure)	Device connected to IPCB used incorrect command format Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
EAC	Invalid RAC/SAM EEPOT update requested	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs
EAd	Secure sp address missing address needed for SP function	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs
EAE	Bad Command_State in IPCB Command_y (Secure)	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs

MSF5000 DIGITAL ERROR CODES

Error	Description	Probable Cause	Corrective Action
EAF	Too many IO_Assignments programmed into code plug	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs
Eb0	Undefined SSCB Reserved Interrupt	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
Eb1	Undefined SSCB SPI Interrupt	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
Eb2	Undefined SSCB Pulse Accumulator Edge Interrupt	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
Eb3	Undefined SSCB Pulse Accumulator Overflow Interrupt	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
Eb4	Undefined SSCB Timer Overflow Interrupt	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
Eb5	Undefined SSCB Timer Output Compare 5 Interrupt	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
Eb6	Undefined SSCB Timer Output Compare 3 Interrupt	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
Eb7	Undefined SSCB Timer Output Compare 1 Interrupt	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
Eb8	Undefined SSCB Timer Input Capture 3 Interrupt	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
Eb9	Undefined SSCB Timer Input Capture 2 Interrupt	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
EbC	Undefined SSCB Xinterrupt Interrupt	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
Ebd	Undefined SSCB Software Interrupt Interrupt	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
EbE	Undefined SSCB Opcode Trap Interrupt	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
EbF	Undefined SSCB Clock Monitor Failure Interrupt	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
EC0	Undefined TTRC Reserved Interrupt	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
EC1	Undefined TTRC SPI Interrupt	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
EC2	Undefined TTRC Pulse Accumulator Edge Interrupt	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
EC3	Undefined TTRC Pulse Accumulator Overflow Interrupt	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
EC4	Undefined TTRC Timer Overflow Interrupt	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
EC5	Undefined TTRC Timer Output Compare 4 Interrupt	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
EC6	Undefined TTRC Timer Output Compare 1 Interrupt	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
EC7	Undefined TTRC Timer Input Capture 3 Interrupt	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
EC8	Undefined TTRC Real_Time Interrupt Interrupt	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
EC9	Undefined TTRC Xinterrupt Interrupt	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
ECA	Undefined TTRC Software Interrupt Interrupt	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
ECb	Undefined TTRC Op-code Trap Interrupt	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
ECC	Undefined TTRC Clock Monitor Failure Interrupt	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
ECd	Undefined TTRC Computer Operating Properly (COP) Watchdog Failure Interrupt	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs

MSF5000 DIGITAL ERROR CODES

Error	Description	Probable Cause	Corrective Action
ECE	Undefined TTRC Timer Output Compare 5 Interrupt	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
ECF	Undefined TTRC Timer Output Compare 4 Interrupt	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
Ed0	Undefined Secure Reserved Interrupt	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
Ed1	Undefined Secure Serial Comm Intfc Interrupt	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
Ed2	Undefined Secure SPI Interrupt	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
Ed3	Undefined Secure Pulse Accumulator Edge Interrupt	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
Ed4	Undefined Secure Pulse Accumulator Overflow Interrupt	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
Ed5	Undefined Secure Timer Overflow Interrupt	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
Ed6	Undefined Secure Timer Output Compare 5 Interrupt	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
Ed7	Undefined Secure Timer Output Compare 4 Interrupt	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
Ed8	Undefined Secure Timer Output Compare 3 Interrupt	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
Ed9	Undefined Secure Timer Output Compare 2 Interrupt	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
EdA	Undefined Secure Timer Output Compare 1 Interrupt	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
Edb	Undefined Secure Timer Input Capture 3 Interrupt	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
EdC	Undefined Secure Real_Time Interrupt	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
Edd	Undefined Secure Interrupt	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
Edb	Undefined Secure Xinterrupt	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
EdF	Undefined Secure Software Interrupt	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
EE0	Undefined Secure Op-code Trap Interrupt	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
EE1	Undefined Secure Clock Monitor Failure Interrupt	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
EFF	Computer Operating Properly (COP) failure	One of the MC68HC11-based modules COP timer is defective	Reset the station. If the COP Failure error recurs, replace the defective microprocessor

Audio Error Codes

Error	Description	Probable Cause	Corrective Action
A00	Private Line (PL) encoder failure	The following circuits on the SSCB may be faulty: • PL 1R-2R DAC/low pass filter • PL audio sample signal • SSCB processor A/D converter	Replace SSCB
A01	Alert Tone encoder failure	The following circuits on the SSCB may be faulty: • Alert tone 1R-2R DAC/low pass filter • Alert tone sample signal • SSCB processor A/D converter	Replace SSCB

MSF5000 DIGITAL ERROR CODES

Error	Description	Probable Cause	Corrective Action
A02	PL encoder-to-TP4 path failure	The following circuits on the SSCB may be faulty: • PL encoder-to-TP4 path • Mod audio sample • EEPOT 4 (maximum deviation adjust) adjusted incorrectly	Perform the alignment procedure; refer to Chapter 4 - Alignment. If failure still occurs, replace SSCB
A03	Alert tone encoder-thru-splatter filter or maximum deviation adjust EEPOT failure	The following circuits on the SSCB may be faulty: • Defective transmit alert tone gate • Limiter/splatter filter • EEPOT 4 adjusted incorrectly (maximum deviation adjust)	Perform the alignment procedure; refer to Chapter 4 - Alignment. If failure still occurs, replace SSCB
A04	Alert tone encoder-to-RX1 audio path or RX level EEPOT failure	A problem between the quad audio buffer and the RX1 audio signal, indicating the following circuits of the SSCB may be faulty: • Alert tone loop-back gates • Flutter fighter bypass gate • RX PL high pass filter • EEPOT 5 (RX level) adjusted incorrectly • De-emphasis circuitry • Expandor bypass gate • RX1 audio sample	Perform the alignment procedure; refer to Chapter 4 - Alignment. If failure still occurs, replace SSCB
A05	Alert tone encoder-to-RX1 squelch detector failure	The receiver was not fully quieted during power-up diagnostics, indicating the following circuits of the SSCB may be faulty: • Defective EEPOT 3 (receiver squelch level) • Defective squelch noise amp • Defective receiver squelch detector	Perform the alignment procedure; refer to Chapter 4 - Alignment. If failure still occurs, replace SSCB
A06	Alert tone encoder-to-repeater squelch detector failure	The receiver was not fully quieted during power-up diagnostics, indicating the following circuits of the SSCB may be faulty: • EEPOT 2 (repeater squelch level) adjusted incorrectly • Defective squelch noise amp • Defective repeater squelch detector	Perform the alignment procedure; refer to Chapter 4 - Alignment. If failure still occurs, replace SSCB
A07	Alert tone encoder-to-TP1 failure	The following circuits on the SSCB may be faulty: • Select audio summer defective • System audio sample circuitry defective	Replace SSCB
A08	Alert tone encoder-to-line audio failure	The following circuits on the SSCB may be faulty: • Defective line audio summer • Line audio alert tone gate • Line audio sample circuitry	Replace SSCB
A09	RX audio gate-thru-repeater audio gate-to-transmit limiter	The following circuits on the SSCB may be faulty: • Defective repeat audio gate • Transmit summer • Compandor gate	Replace SSCB
A0A	A/D converter failure on SSCB processor	The A/D converter system on the SSCB processor is defective	Replace processor on the SSCB. If failure still occurs, replace SSCB
A0b	Bad alert tone TX gate (no mute)	Alert tone transmit gate/driver circuitry	Replace SSCB
A0C	RX1 Audio Gate failure	Receive audio gate/driver circuitry	Replace SSCB

MSF5000 DIGITAL ERROR CODES

Error	Description	Probable Cause	Corrective Action
A0d	Faulty PL filter/limiter circuitry	The following circuits on the SSCB may be faulty: • PL/DPL filter/limiter circuits • Input capture system on SSCB microprocessor	Replace processor on the SSCB. If failure still occurs, replace SSCB
A20	A/D converter failure on TTRC processor	The A/D converter system on the TTRC processor is defective	Replace processor on the TTRC. If failure still occurs, replace TTRC
A21	TRC encoder failure	TRC encoder	Replace TTRC
A22	TRC encoder-to-line 2 path failure or Line 2 EEPOT failure	The following circuits on the TTRC may be faulty: • EEPOT C (line 2 output level) adjust incorrectly • Bad TRC encoder to line 2 path	Perform the alignment procedure; refer to Chapter 4 - Alignment. If failure still occurs, replace TTRC
A23	TRC encoder-to-line 4 path failure	The following circuits on the TTRC may be faulty: • TRC encoder-to-line 4 path • TRC encoder	Replace TTRC
A24	TRC encoder-to-line 2 path failure (STAC filter path)	The following circuits on the TTRC may be faulty: • TRC encoder-to-line 2 path • TRC encoder • STAC filter	Replace TTRC
A25	Bad line 2 gate (no mute)	Line 2 gate (no mute) on the TTRC	Replace TTRC
A26	TRC encoder-to-line 4 path failure or line EEPOT failure	The following circuits on the TTRC may be faulty: • EEPOT d (line 4 output level) adjusted incorrectly • TRC encoder-to-line 4 path	Perform the alignment procedure; refer to Chapter 4 - Alignment. If failure still occurs, replace TTRC
A27	Bad line 4 gate (no mute)	Line 4 gate (no mute)	Replace TTRC
A28	STAC encoder failure or STAC EEPOT failure	The following circuits on the TTRC may be faulty: • EEPOT 8, 9, A adjusted incorrectly • STAC encoder failure	Perform the alignment procedure; refer to Chapter 4 - Alignment. If failure still occurs, replace TTRC
A29	STAC encoder-to-line 2 path failure or line 2 EEPOT failure	The following circuits on the TTRC may be faulty: • EEPOT C (line 2 output level) adjusted incorrectly • STAC encoder-to-line 2 path failure	Perform the alignment procedure; refer to Chapter 4 - Alignment. If failure still occurs, replace TTRC. TTRC hardware/firmware slightly incompatible
A2A	ALC audio circuitry failure	ALC audio circuit	Replace TTRC
A2b	Function tone decode circuitry failure	Replace TTRC	
A2C	Guard tone decode circuitry failure	Replace TTRC	
A2d	Wire-line activity circuitry failure	Replace TTRC	
A2E	ALC audio-to-transmit audio line 4 path failure or transmit audio level EEPOT failure	The following circuits on the TTRC may be faulty: • EEPOT 7 (transmit audio level) adjusted incorrectly • ALC audio to transmit audio line 4 path	Perform the alignment procedure; refer to Chapter 4 - Alignment. If failure still occurs, replace TTRC
A2F	ALC audio-to-transmit audio line 2 path failure or transmit audio level EEPOT failure	The following circuits on the TTRC may be faulty: • EEPOT 7 (transmit audio level) adjusted incorrectly • ALC audio to transmit audio line 2 path	Perform the alignment procedure; refer to Chapter 4 - Alignment. If failure still occurs, replace TTRC

MSF5000 DIGITAL ERROR CODES

Error	Description	Probable Cause	Corrective Action
A30	Non-ALC audio-to-transmit audio path failure	The following circuits on the TTRC may be faulty: • EEPOT 7 (transmit audio level) adjusted incorrectly • ALC audio to transmit audio line 2 path • Non-ALC audio to transmit path	Replace TTRC board. TTRC hardware/firmware are slightly incompatible
A40	Processor A/D converter failure on Secure board	The A/D converter system on the Secure processor is defective	Replace processor on the Secure board. If failure still occurs, replace Secure board
A41	Secure alert tone encoder/filter error	The following circuits on the Secure board may be faulty: • Secure alert tone low pass filter circuit • Alert tone sample circuit • Secure processor A/D converter	Replace Secure board
A42	Coded Mod Splatter Filter error	The following circuits on the Secure board may be faulty: • The Secure modulation filter • Modulation audio gate is defective • SCF_CLK signal inoperable	Replace Secure board
A43	Coded Mod Gate failure	The coded modulation audio gate on the Secure board is not muting the 1 kHz test tone	Replace Secure board
A44	Coded RX Audio Line Filter error	• Secure ASIC Coded RX output driver • Line filter/gate inoperable • RX audio sampling circuit	Replace Secure board
A45	RX Coded Gate failure	Line coded gate/driver is defective	Replace Secure board

Digital Error Codes

Error	Description	Probable Cause	Corrective Action
d01	Primary user area has bad check byte (SSCB)	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs
d02	Secondary user area has bad check byte (SSCB)	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs
d03	PTT priority table is programmed incorrectly	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs
d04	Skip SSCB audio diagnostics (invalid EEPOT value in user area)	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs
d10	TTRC did not receive wakeup command	The TTRC board was reset while SSCB remained operational (i.e. IPCB reset command or ESD reset)	
d11	Primary user area has bad check byte (TTRC)	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs
d12	Secondary user area has bad check byte (TTRC)	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs
d13	Invalid guard tone frequency code plug value	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs
d14	Incompatible DC threshold table & analog board version	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs

MSF5000 DIGITAL ERROR CODES

Error	Description	Probable Cause	Corrective Action
d15	Invalid DC threshold table	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs
d16	Skip TTRC audio diagnostics (invalid EEPOT value in user area)	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs
d20	Secure did not receive wake-up command	The Secure board was reset while the SSCB remained operational (i.e. IPCB reset command or ESD reset)	
d21	Primary user area has bad check byte (Secure)	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs
d22	Secondary user area has bad check byte (Secure)	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs
d30	RAC/SAM did not receive wakeup command	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs
d31	RAC/SAM primary user area has bad check byte	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs
d32	RAC/SAM secondary user area has bad check byte	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs
d40	MCS did not receive wakeup command	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs
d80	Non-zero user area check byte of SSCB	Station reset during user area EEPROM update	Reprogram the SSCB code plug. Refer to the SSCB manual
d81	Non-zero EEPROM_check byte of SSCB	Station reset during code plug EEPROM update	Reprogram the SSCB code plug. Refer to the SSCB manual
d82	Serial EEPROM_Check byte of SSCB	• Missing or defective SSCB serial EEPROM device • Code plug programmed to expect serial EEPROM when it is not required or present	Install & program serial EEPROM, if required. If not, reprogram SSCB code plug to ignore serial EEPROM Refer to the RSS manual
d83	Code plug on SSCB not SSCB type	The SSCB processor/code plug device recently replaced	Reprogram the SSCB code plug. Refer to the SSCB manual
d84	Bad code plug version number on SSCB	SSCB code plug version number incompatible with SSCB firmware version	Upgrade SSCB firmware to latest version or reprogram SSCB code plug
d85	Bad code plug checksum on SSCB	SSCB code plug corrupt	Reprogram SSCB code plug
d86	Incorrect firmware checksum on SSCB	SSCB firmware EPROM incorrect or defective	Replace SSCB firmware EPROM
d87	EEPOTs failed to synchronize on SSCB	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs
d88	EEPROM failed to program on SSCB	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs
d89	Multi-Coded Squelch (MCS) board did not respond to power-up enable	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs
d8A	MCS DPL external RAM faulty	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs
d8b	MCS MUXbus bad	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs
d8C	MCS board enabled but did not return version number	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs

MSF5000 DIGITAL ERROR CODES

Error	Description	Probable Cause	Corrective Action
d8d	Incorrect firmware checksum	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs
d8E	EEPROM failed to program in expected time period	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs
d8F	MCS table pointer is out of range	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs
d90	SSCB HC11 internal RAM faulty	The SSCB internal processor RAM is defective	Replace processor on the SSCB
d91	SSCB MUXbus data strobe bad (internal loop-back)	The SSCB standard mode ASIC is defective	Replace the Standard Mode ASIC on the SSCB
d92	SSCB MUXbus data strobe bad (normal operating mode)	• Data strobe signal (DS, U801-47) shorted • One of the following MUXbus address lines (BA0-BA3, U801-42 thru U801-45) shorted to ground • DS or BA0-BA3 pin drivers on standard ASIC (U801) defective	Replace the standard mode ASIC on the SSCB. If failure still occurs, replace SSCB
d93	SSCB MUXbus bad (internal loop-back)	The SSCB standard mode ASIC is defective	Replace the standard mode ASIC on the SSCB. If failure still occurs, replace SSCB
d94	SSCB MUXbus bad (normal operating mode)	• One of the following MUXbus address lines (BA0-BA3, U801-42 thru U801-45) shorted high • One of the following MUXbus address lines (BA0-BA3, U801-38 thru U801-41) shorted to ground • BA0-BA3 or BD0-BD3 pin drivers on standard ASIC defective	Replace the standard mode ASIC on the SSCB. If failure still occurs, replace SSCB
d95	SSCB standard mode ASIC latch/buffer bad (loop-back)	• Delayed reset circuitry is defective • SSCB standard mode ASIC IOA signal is shorted • The SSCB standard mode ASIC is defective	Replace the standard mode ASIC on the SSCB. If failure still occurs, replace SSCB
d96	SSCB I/O mode ASIC latch/buffer bad (loop-back)	The SSCB I/O mode ASIC is defective	Replace the I/O mode ASIC on the SSCB
d97	SSCB HSR Clk/Sync bad (internal loop-back)	The SSCB standard mode ASIC is defective	Replace the standard mode ASIC on the SSCB
d98	SSCB HSR Clk/Sync bad (normal operating mode)	The HSR Clock or the HSR Sync is not operating properly	Replace the standard mode ASIC on the SSCB. If failure still occurs, replace SSCB
d99	SSCB HSR data I/O bad (internal loop-back)	The SSCB standard mode ASIC is defective	Replace the standard mode ASIC on the SSCB. If failure still occurs, replace SSCB

MSF5000 DIGITAL ERROR CODES

Error	Description	Probable Cause	Corrective Action
d9A	SSCB HSR data I/O bad (normal operating mode)	• The HSR out-to-HSR in signal path is open (not continuous) - this condition is often caused by improper positions of SSCB jumpers JU1 and JU2 • The HSR Out or HSR In pin drivers are defective	Verify proper positions of SSCB jumpers JU1 and JU2. JU1 and JU2 positions are set as follows: (N=Normal, A=Alternate position) JU1 JU2 configuration ---------- • N -- N TTRC board present, Secure board absent • N -- A Both TTRC and Secure boards present • A -- N Both TTRC and Secure boards absent • A -- A TTRC board absent, Secure board present • Remove TTRC board and Secure board while moving JU1 and JU2 to the alternate and normal positions, respectively (to isolate open HSR data paths to the SSCB). If problem still exists, replace the standard mode ASIC on the SSCB Otherwise, problem resides on either the TTRC or Secure board(s)
d9b	SSCB IPCB faulty	• IPCB signal (J800-11) grounded • SSCB IPCB interface circuitry • SSCB microprocessor	Replace SSCB processor. If failure still occurs, replace SSCB
d9E	Config register reprogrammed	A new un-initialized processor was installed on the SSCB	No actions required except to program/verify SSCB code plug data. Refer to the SSCB manual
d9F	SSCB Config register reprogrammed and code plug erased	An un-initialized processor was installed	Reprogram SSCB code plug. Refer to RSS manual
dA0	Non-zero user area check byte of TTRC	Station reset occurred during user area EEPROM update	Reprogram the TTRC code plug. Refer to the RSS manual
dA1	Non-zero EEPROM_Check byte of TTRC	Station reset occurred during code plug EEPROM update	Reprogram the TTRC code plug. Refer to the RSS manual
dA2	Serial EEPROM has not responded on TTRC	• Missing or defective TTRC serial EEPROM device • Code plug programmed to expect serial EEPROM when it is not required or present	Install & program serial EEPROM, if required. If not, reprogram TTRC code plug to ignore serial EEPROM. Refer to the RSS manual
dA3	Code plug on TTRC not TTRC type	The TTRC processor/code plug device recently replaced	Reprogram the TTRC code plug. Refer to the RSS manual
dA4	Bad code plug version number on TTRC	TTRC code plug version number incompatible with TTRC firmware version	Upgrade the TTRC firmware to latest version or reprogram TTRC code plug. Refer to the RSS manual if necessary
dA5	Bad code plug checksum on TTRC	TTRC code plug is corrupt	Reprogram TTRC code plug
dA6	Incorrect firmware checksum on TTRC	TTRC firmware EPROM incorrect or defective	Replace TTRC firmware EPROM
dA7	TTRC board not responding to power-up enable	• TTRC board not present when it should be • TTRC IPCB interface circuitry • TTRC board has catastrophic failure (processor won't run, firmware missing, etc.)	• Verify TTRC board is properly installed • Check TTRC FAIL LED for flashing fatal error indication • Replace TTRC board, if necessary
dA8	TTRC board enabled but did not return version number	TTRC board failed IPCB tests, indicating a failure in one of the following circuits: • TTRC IPCB interface circuitry defective • TTRC processor • Open IPCB runner from TTRC IPCB interface to SSCB IPCB interface	Check TTRC FAIL LED for flashing fatal error indication If no error indication, replace TTRC board

MSF5000 DIGITAL ERROR CODES

Error	Description	Probable Cause	Corrective Action
dA9	TTRC board station type does not match SSCBs	TTRC code plug recently replaced / programmed incorrectly	Reprogram the TTRC code plug. Refer to the RSS manual
dAA	TTRC board system version number is incompatible with SSCBs	The TTRC firmware or the SSCB firmware was replaced with an incompatible firmware version	Change the TTRC or SSCB firmware to a compatible version, or replace both TTRC and SSCB firmware with the latest version
dAb	EEPOTs failed to synchronize on TTRC	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs
dAC	EEPROM failed to program on TTRC	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs
db0	TTRC HC11 internal RAM faulty	The TTRC internal processor RAM is defective	Replace processor on the TTRC
db1	TTRC MUXbus data strobe bad (internal loop-back)	The TTRC standard mode ASIC	Replace standard mode ASIC on the TTRC
db2	TTRC MUXbus data strobe bad (normal operating mode)	• Data strobe signal (DS, U423347) shorted • One of the following MUXbus address lines (BA0-BA3, U4233-42 thru U4233-45) shorted to ground • DS or BA0-BA3 pin drivers on standard mode ASIC (U4233) defective	Replace standard mode ASIC on the TTRC
db3	TTRC MUXbus bad (internal loop-back)	The TTRC standard mode ASIC is defective	Replace standard mode ASIC on the TTRC
db4	TTRC MUXbus bad (normal operating mode)	• One of the following MUXbus address lines (BA0-BA3, U4233-42 thru U4233-45) shorted high • One of the following MUXbus address lines (BD0-BD3, U4233-38 thru U4233-41) shorted to ground • BA0-BA3 or BD0-BD3 pin drivers on standard mode ASIC defective	Replace standard mode ASIC on the TTRC
db5	TTRC standard mode ASIC latch / buffer bad (loop-back)	The TTRC internal processor RAM is defective	Replace standard mode ASIC on the TTRC
db6	TTRC I/O mode ASIC latch / buffer bad (loop-back)	The TTRC I/O mode ASIC is defective	Replace the I/O mode ASIC on the TTRC
db7	TTRC HSR Clk / Sync bad (internal loop-back)	The TTRC internal processor RAM is defective	Replace standard mode ASIC on the TTRC
db8	TTRC HSR Clk / Sync bad (normal operating mode)	The HSR Clock or the HSR Sync is not operating properly	Check for shorts on HSR Clk and HSR Sync. If no shorts are found and the proper signals are not observed, replace the standard mode ASIC on the TTRC
db9	TTRC HSR data I/O bad (internal loop-back)	The TTRC internal processor RAM is defective	Replace standard mode ASIC on the TTRC
dbA	TTRC HSR data I/O bad (normal operating mode)	• The HSR out-to-HSR in signal path is open (not continuous) • TTRC standard mode ASIC defective	Verify that the HSR Out signal (U4233-55) is identical to the HSR In signal (U4233-48). Also both of these signals should occasionally toggle. If these conditions are observed, then replace U4233 (standard mode ASIC) on the TTRC
dC0	Non-zero user area check byte on Secure board	Station reset during user area EEPROM update	Reprogram the Secure code plug Refer to the RSS manual
dC1	Non-zero EEPROM_Check byte on Secure board	Station reset during code plug EEPROM update	Reprogram the Secure code plug Refer to the RSS manual

MSF5000 DIGITAL ERROR CODES

Error	Description	Probable Cause	Corrective Action
dC3	Code plug on Secure board not secure type	The Secure processor / code plug device recently replaced	Reprogram the Secure code plug Refer to the RSS manual
dC4	Bad code plug version number on Secure board	Secure code plug version number incompatible with Secure firmware version	Upgrade Secure firmware to latest version or reprogram Secure code plug. Refer to the RSS manual
dC5	Bad code plug checksum on Secure board	Secure code plug is corrupt	Reprogram the Secure code plug Refer to the RSS manual
dC6	Incorrect firmware checksum on Secure board	Secure firmware EPROM incorrect or defective	Replace Secure firmware EPROM
dC7	Secure board not responding to power-up enable	Secure board not present, indicating one of the following failures: • Secure IPCB interface circuitry • Secure board has catastrophic failure (processor won't run, firmware missing, etc.)	• Verify that Secure board is properly installed • Check Secure FAIL LED for flashing fatal error indication
dC8	Secure board enabled but did not return version number	Secure board failed IPCB tests - Secure IPCB interface circuitry faulty Secure processor U4013 faulty Open IPCB runner from Secure IPCB interface to SSCB IPCB interface	Check Secure FAIL LED for flashing fatal error indication. If no error indication, check continuity of IPCB signal from SSCB Q805-Collector to Secure Q4009-Collector
dC9	Secure board station type does not match SSCBs	Secure code plug recently replaced/ incorrectly programmed	Reprogram the Secure code plug Refer to the RSS manual
dCA	Secure board System version number is incompatible with SSCBs	The Secure firmware or the SSCB firmware was replaced with an incompatible firmware version	Change either Secure or SSCB firmware to a compatible version, or replace both Secure and SSCB firmware with latest version
dCb	EEPROM failed to program in expected time period	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs
dd0	Secure HC11 internal RAM faulty	The Secure internal processor RAM is defective	Replace processor on the Secure board
dd1	Secure MUXbus data strobe bad (internal loop-back)	The Secure standard mode ASIC is defective	Replace standard mode ASIC on the Secure board
dd2	Secure MUXbus data strobe bad (normal operating mode)	• Data strobe signal (DS, U4014-47) shorted • One of the following MUXbus address lines (BA0-BA3, U4014-42 thru U4014-45) shorted to ground • DS or BA0-BA3 pin drivers on standard mode ASIC (U4014) defective	Replace the standard mode ASIC on the Secure board
dd3	Secure MUXbus bad (internal loop-back)	The Secure standard mode ASIC is defective	Replace the standard mode ASIC on the Secure board
dd4	Secure MUXbus bad (normal operating mode)	• One of the following MUXbus address lines (BA0-BA3, U4014-42 thru U4014-45) shorted high • One of the following MUXbus address lines (BD0-BD3, U4014-38 thru U4014-41) shorted to ground • BA0-BA3 or BD0-BD3 pin drivers on standard mode ASIC defective	Replace the standard mode ASIC on the Secure board
dd5	Secure standard mode ASIC latch/ buffer bad (loop-back)	The Secure standard mode ASIC is defective	Replace the standard mode ASIC on the Secure board

MSF5000 DIGITAL ERROR CODES

Error	Description	Probable Cause	Corrective Action
dd7	Secure HSR Clk / Sync bad (internal loop-back)	The Secure standard mode ASIC is defective	Replace the standard mode ASIC on the Secure board
dd8	Secure HSR Clk / Sync bad (normal operating mode)	The HSR Clock or the HSR Sync is not operating properly	Check for shorts on HSR Clk and HSR Sync If no shorts are found, replace standard mode ASIC on the Secure board
dd9	Secure HSR data I/O bad (internal loop-back)	The Secure standard mode ASIC is defective	Replace the standard mode ASIC on the Secure board
ddA	Secure HSR data I/O bad (normal operating mode)	The HSR out-to-HSR In signal path is open (not continuous). Secure standard mode ASIC defective	Replace the standard mode ASIC on the Secure board
ddb	Bad transmit phase lock detector in ASIC	The Secure ASIC is defective	Replace the standard mode ASIC on the Secure board
ddC	Bad RX phase lock detector in Secure ASIC	The Secure ASIC is defective	Replace the standard mode ASIC on the Secure board
ddE	Bad transmit P-S or S-P converter in Secure ASIC	The Secure ASIC is defective	Replace the standard mode ASIC on the Secure board
ddF	Bad RX P-S or S-P converter in Secure ASIC	The Secure ASIC is defective	Replace the standard mode ASIC on the Secure board
dE0	Non-zero user area check byte on RAC/SAM	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs
dE1	Non-zero EEPROM check byte on RAC/SAM	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs
dE2	Code plug on RAC/SAM nor RAC/SAM	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs
dE3	Bad RAC/SAM code plug version number	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs
dE4	Bad RAC/SAM internal code plug checksum	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs
dE5	Bad RAC/SAM external code plug checksum	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs
dE6	Incorrect RAC/SAM firmware checksum	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs
dE7	RAC/SAM board not responding to power-up ‘enable’ com	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs
dE8	RAC/SAM board ‘enabled’ but did not return version number	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs
dE9	RAC/SAM board station type does not match SSCBs	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs
dEA	RAC/SAM board system version number is incompatible with SSCB	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs
dEb	RAC/SAM EEPOT failed to synchronize	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs
dEC	RAC/SAM EEPROM failed to program	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs
dF0	RAC/SAM HC11 internal RAM faulty	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs
dF1	RAC/SAM MUXbus data strobe bad (normal operating)	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs

MSF5000 DIGITAL ERROR CODES

Error	Description	Probable Cause	Corrective Action
dF2	RAC/SAM MUXbus data strobe bad (normal operation)	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs
dF3	RAC/SAM MUXbus bad (internal loop-back)	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs
dF4	RAC/SAM MUXbus bad (normal operation)	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs
dF5	RAC/SAM standard mode ASIC latch / buffer bad (loop-back)	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs
dF6	RAC/SAM IO mode ASIC latch / buffer bad (loop-back)	Contact Motorola System Support Center if the error recurs	Contact Motorola System Support Center if the error recurs

Special Test Mode Error Codes

Special Test Mode error codes are displayed when a problem occurs during the station power-up / reset diagnostics.

Error	Description	Probable Cause	Corrective Action
o80-o89, o8A-o8F	Undefined SSCB interrupt vector fetched	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
oA0-ob2	Undefined TTRC interrupt vector fetched	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
obE	TTRC processor configuration register altered	A new un-initialized processor was installed on the TTRC	No actions required except to program / verify TTRC code plug data
obF	TTRC EEPROM code plug erased	An un-initialized processor was installed on the TTRC	Reprogram TTRC code plug
oC0-od1	Undefined secure interrupt vector fetched	Random RAM error or software programming error	Contact Motorola System Support Center if the error recurs
odE	Secure processor configuration register altered	A new un-initialized processor was installed on the Secure board	No actions required except to program / verify TTRC code plug data
odF	Secure EEPROM code plug erased	An un-initialized processor was installed on the Secure board	Reprogram Secure code plug

Undefined Error Codes

Whenever an undefined error code is displayed within the Status display, contact Motorola System Support Center for help. Undefined error codes usually represent software programming errors and are displayed in the format of U.x.x.