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# Technical Note TN-NSC013

## Tait Radio Error Codes

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“Commercial Information in Strictest confidence. Not for information of persons other than direct Employees of Tait Dealers”

### Applicability

This technical note applies to all Tait Trunked Mobile and Portable Products including T2000, T3000 and Tait Orca Series.

### Information

Tait Trunked radios have an inbuilt software diagnostic tool that will indicate error codes, if there is a failure in the software or hardware platforms. When a system error occurs, normal operation of the radio ceases, and the software then enters an error mode to display the error number on the front panel, and on the serial interface if appropriate. The radio is put into “safe state” by being forced into Receive mode, and all user inputs are ignored. There are generally only two ways to recover from a system error:

- Switch the radio off and on again.
- Reset the radio via the serial interface by sending the reset character “^”.

Often software errors occur because validation of the software is not carried out prior to programming the radio. If errors are occurring, it would be advantageous to ensure that the software was validated before the radio was programmed.

Tait recommend that the field ‘reset on error’ be enabled in all trunked radio programming files. This ensures the radio does a hard reset on error that allows the radio to mask the error and results in less disruption to the end user.

Error codes are generally used by development engineers for testing and investigation of errors in the radio code.

Outlined in the following pages is a list of the service relevant error codes.

## Operating system or general errors

**Dynamic Memory Allocation**                      **02**                      A request for a block of dynamic memory from the heap cannot be satisfied, as there is insufficient memory remaining.

**Causes:**

1. User pressing / releasing the PTT much too frequently on a traffic channel.
2. Software failure.

**Eprom Read**    **13**                      The Microprocessor has detected an invalid Eprom Value.

- Cause**
1. Control board hardware failure.
  2. Eprom corruption.
  3. Software Failure.

**Hardware Interrupt**                                      **14**                      The microprocessor has detected a logic low level on its XIRQ pin.  
This line should always stay high.

- Solution:**
1. Check pull up resistor connected to this pin is intact, and soldered correctly.
  2. Check that 5V is present on the supply side of the resistor.

## Core Processor Errors

**FFSK Modem**    **22**                      The Microprocessor is not receiving proper synchronisation signals from the FFSK modem during transmit mode.

- Solution:**
1. Check the connection of the modem Tx Synch pin to the microprocessor.
  2. Check the transmit enable signal from the microprocessor is reaching the Modem (txe)

## MSK Rx and Tx Errors

**Codeword Tx Timing**                                      **31**                      The Microprocessor could not reply to an Incoming codeword within the required time

- Solution:** This error is generally not fatal, and its reporting may be suppressed by programming.

**Tx VCO Unlocked**                                      **34**                      The transmit vco is out of lock, on the current channel, or did not achieve lockup fast enough - transmission has failed. The most common cause of this error is a lack of earthing, mostly at the Antenna. This can also occur if the power supply volts are too low.

**Solution:** Check the installation for poor or lack of earthing, particularly at the Antenna. Check power supply and also microphone PTT switch.

## Input / Output Module Errors

**Invalid Channel Number**                      **68**                      The radio has tried to tune to an invalid channel number.

**Causes:** 1. Inconsistent programmed channel data (lowest/highest channel in network, normal hunt channels, trunked channel blocks).  
2. Software failure.

## Trunked Data Base Module Errors

**Unprogrammed Database Item**                      **75**                      The software has attempted to access Unprogrammed dynamic database items.

**Cause:** Trunked channel blocks and/or the preset call strings have not been programmed.

## Other Error Messages

The following apply to error messages that indicate the status of a particular Radio, system or user.

**U1 / ESN - ERR**                      The radios ESN has become corrupted. The radio will have to be returned to Tait to be reformatted.

**U2 / DATA - ERR**                      Radio programmed, but the programming has been lost, or corrupted. Reprogramming of the radio should clear this error.

**U3 / ECC - ERR**                      Either the wrong software has been fitted to the Logic Board, in which case, fitting the right software should clear this error. Or the ECC has been corrupted, so the radio should be returned to Tait.

**UA1**                      "Out of range", no communication with the network.

**UA2**                      Called unit out of range, or switched off.

**UA3**                      Invalid selection.

**UA4**                      Called unit engaged, try again later.

## T3000 specific errors

**"Programming mode - Program database":**                      The radio database needs to be reprogrammed. Try reprogramming, and if this is not successful, return the radio to Tait.

**"Programming mode - Program ESN":**                      The ESN has become corrupted. Return the radio to Tait.

**"Auto Testmode - Calibrate Radio":**                      Recalibrating the radio should clear this error.

The following are internal systems errors intended for debugging purposes. It is not possible to explain the reason for their occurrence, without further investigation by design staff. If any of these errors occur, please contact the National Support Centre.

## Operating syst & general errors   Trk Personality module errors

(These are generally programming errors associated with incorrect settings in Network Parameters)

Heap overlap	<b>01</b>	Invalid Logper Pwrup Message	<b>45</b>
Invalid Heap Address	<b>03</b>	Invalid Logpers Next State	<b>46</b>
Invalid Task Number	<b>04</b>	Invalid Logpers Next State	<b>46</b>
Invalid Timer Number	<b>05</b>	Invalid BCD Data	<b>50</b>
Invalid Timer	<b>06</b>	Message Data	<b>51</b>
Invalid Message Category	<b>07</b>	Stack Overflow	<b>52</b>
Invalid Message Path	<b>07</b>	Input String Store Overflow	<b>53</b>
Invalid Message Code	<b>08</b>	Invalid Queue Button	<b>54</b>
Invalid Message type	<b>08</b>	Invalid Queue Timeout	<b>55</b>
Software Interrupt	<b>09</b>	Display Mode	<b>56</b>
Invalid Queue Number	<b>10</b>	Language Pointer Uninitialise	<b>57</b>
Invalid User Character	<b>11</b>	Invalid Queue Display	<b>58</b>
Inappropriate Task Type	<b>12</b>	Invalid Queued	<b>59</b>
Can't Create Any More Timers	<b>15</b>	Invalid Trunkpers Mode	<b>60</b>
Can't Create Any Timers	<b>16</b>	SDM Queue Full	<b>61</b>
Timer Does Not Exist	<b>17</b>	SDM Rx	<b>62</b>
Timer Already Exists	<b>18</b>	Flash Personality Invalid	<b>63</b>
Invalid Timer Vector	<b>19</b>	Channel Block calculation	<b>69</b>

### Core Processor Errors

(These are generally hardware related)

Invalid Codeword Rx'd indication	<b>20</b>
Indicator Byte	<b>21</b>
Codeword Field Parameter	<b>23</b>
Invalid Call Request	<b>24</b>
Test Mode Reset Vector	<b>25</b>
Task Suspension Call	<b>26</b>
Task Queue	<b>27</b>

### Interface System Errors

(These are generally Data Interface Errors)

Synth Freq Number too big	<b>70</b>
Illegal Transmitter Power level	<b>71</b>
Rx Overrun	<b>80</b>
Audio Tone Function	<b>81</b>
Invalid Audio Tone Number	<b>82</b>
CCI Rx Buffer Overflow	<b>83</b>
Invalid Call Type	<b>84</b>

### MSK Rx and Tx Errors

(These are generally hardware related)

MSK Rx CRC Not Ready	<b>30</b>
MSK Tx Interrupt	<b>32</b>
MSK Tx CRC Not Ready	<b>33</b>

### Trunked Data Base Module Errors

(These are generally programming errors)

Inappropriate D/base Item type	<b>72</b>
Invalid ANN Numbering	<b>73</b>
Invalid Group Address No	<b>76</b>

### Trk Personality module errors

Invalid preset call string	<b>77</b>
Invalid Message	<b>40</b>
Invalid dialling scheme	<b>78</b>
Invalid Personality	<b>41</b>
Invalid Preset Label	<b>79</b>
Invalid Data	<b>42</b>
Logon Character	<b>43</b>
Invalid Logpers Status	<b>44</b>

**Please contact National Support Centre if you require further information.**

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