



TECHNICAL NOTE TN-1218a

TB8100 Quick Repair Guide

TAIT ONLY

11th December 2006

Applicability

This guide applies to Tait TB8100 Base Station Equipment.

1. Introduction

Field Failure Data gathered from the Baan Service and RWMS databases has shown there are a number of common issues encountered by technicians in Tait repair centres. This is a summary of those issues and their root cause in an attempt to help the technician find and rectify faults quickly.

Note: This is an internal Tait document only

2. Reciter

Configuration Issues

Some faults may not be due to hardware. Base station configurations can cause the base station to appear to have a fault. It is worthwhile saving the customer's configuration and programming the default template. Use File > New and choose default.t8t. Edit the frequencies in the channel table if required.

Service Manual

The TB8100 service manual (MBA-0016-02) has fault finding information in section 3 for various reciter faults such as not being able to connect with the Service Kit. See section 3.5 - initial checks.

Symptom	Defect	Comments
Unable to Communicate with Service Kit	Nil. Reciter in CCI Mode. <i>Defect Code – C10</i>	<ul style="list-style-type: none"> Using the Service Kit, try all baud rates in <i>Connect > Connections > Edit > Connection tab</i> to see if one is successful. The lower baud rates can take some time to connect. If the <i>Enter CCI On Entering Run-Mode</i> field on the <i>Configure > Base Station > Miscellaneous</i> page is enabled the base station will only communicate at the specified Baud rate. Disable CCI if this feature is not required.
	C300 <i>Defect Code – C16</i>	<ul style="list-style-type: none"> Locate C300 on the digital board. For boards with IPN 220-02024-20 it is located on page 2 of the schematic at location J2 and on the PCB layout at location D5. Measure C300 in circuit with an ohmmeter. If this is resistive replace and check if base station powers up.
Reciter Out Of Lock Alarms	<i>Defect Code – C14</i>	<ul style="list-style-type: none"> Check the lock status of the reciter. If actually in lock then replace R1021 and R1124 with 47 Ohm resistors as per TN-1189.
	<i>Defect Code – C10</i>	<ul style="list-style-type: none"> Check the reciter frequency range is correct for the frequency programmed. For further information refer to section 2 of the service manual.
Green and Red LEDs on Steady State.	C300 <i>Defect Code – C16</i>	<ul style="list-style-type: none"> Connect a terminal application eg HyperTerminal to the base station or reciter. Select 115,200 baud, no parity, 8 data bits, 1 stop bit in communications parameters. Power up the base station or reciter. Within the first 2 seconds after power up a 'b' should be displayed indicating that the

		<p>bootloader has started. If not use the steps below to check if C300 is holding the processor reset input low.</p> <ul style="list-style-type: none"> • Locate C300 on the digital board. For boards with IPN 220-02024-20 it is located on page 2 of the schematic at location J2 and on the PCB layout at location D5. • Measure C300 in circuit with an ohmmeter. If this is resistive, replace and check if base station powers up.
Low or No Receiver Sensitivity	C850, C852, C855 and C847 <i>Defect Code – C16</i>	<ul style="list-style-type: none"> • See section 3.7 of the service manual for details on frequencies and levels in the digital IF. • Check sensitivity when a signal is injected into the IF connector of the digital board. If sensitivity is low, check if C850, C852, C855 and C847 on the digital board are resistive. On PC board IPN 220-02024-20, these are located around 2F (near IC800) on the schematic and 13M on the primary PCB layout. Replace any faulty capacitors and re-check sensitivity.
Reciter will not power up.	L1607 <i>Defect code - C12</i>	<ul style="list-style-type: none"> • TCL reports L1607 on the control board may be have dry joints if the reciter fails to power up. On PC board IPN 220-02024-20, L1607 is C5 on the schematic and F & G 13 & 14 on the primary PCB layout, one of the larger components..

3. Power Amplifier

Service Manual

The TB8100 service manual (MBA-0016-02) has PA fault finding information in section 8.

Symptom	Defect	Comments
No, Or Low, Tx Power. Current imbalance alarm in 100W PA.	Q103 <i>Defect Code – C16</i>	<ul style="list-style-type: none"> • Check for physical damage (Section 8.7 of the service manual). • Check the resistance (in circuit) between the Gate and the Source of the PA transistor (section 8.11 of the service manual). If it is found to be less than 5kΩ then replace the PA transistor. • In a few cases, the current imbalance alarm can indicate the power combiner board has a fault. If both 60W boards pass the test above, the power combiner board may be the problem. See section 8.10 of the service manual for fault finding information. Table 11.1 has part numbers for spare boards.

4. Power Management Unit

Service Manual

The TB8100 service manual (MBA-0016-02) has fault finding information for the PMU in section 13.

Symptom	Defect	Comments
Aux power supply will not switch on.	Configuration Error <i>Defect Code – C10</i>	<ul style="list-style-type: none"> • The default operation of the Auxiliary Power Supply is active when AC Mains is powering the PMU. If the PMU is AC/DC or DC only or the Auxiliary Power Supply is required to be active at all times, Task Manager has to control the Auxiliary Power Supply. In <i>Configure > Base Station > Miscellaneous</i> in the Service Kit, set <i>Auxiliary power control</i> to <i>Task Manager</i>. In task manager set up a task such as <i>IF Base Station in run mode then Enable auxiliary supply</i>.

PMU will not change over from AC to DC. Ticking sound may be heard	IC101 <i>Defect code C16</i>	<ul style="list-style-type: none"> Replace IC101 (UC2846 IPN 002-10028-46) on the DC-DC control board, see figure 12.6 in the Service Manual for the location of this board. Spare DC-DC control boards are not available as they are sold with DC-DC converter boards (TBA-SP-WD10 for the 12V variant.)
DC PMU will not function or PMU will not work on DC.	User	<ul style="list-style-type: none"> Check the DC power switch on the PMU is switched on. This is a small recessed slide switch in the upper right corner on the back on the PMU.

CSO Instruction

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5. Issuing Authority

Name and Position of Issuing OfficerPaul Anderson
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