

TECHNICAL NOTE TN-1237
TB7100 Quick Repair Guide

TAIT ONLY

11th December 2006

Applicability

This guide applies to the TB7100 series basestations

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.

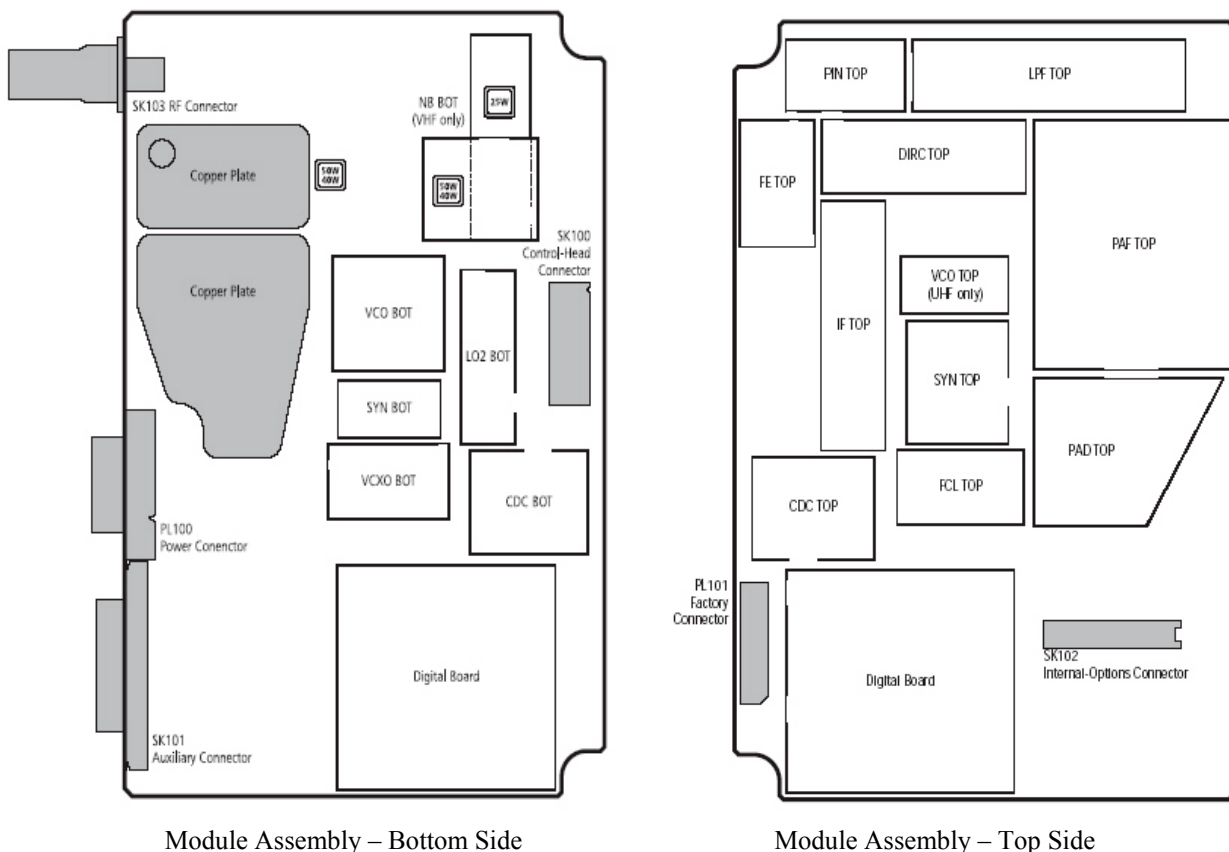
Further faultfinding and PCB information can be found in the TB7100 Service manual and the PCB Information packs. Both are available on the Taitworld Support website.

This guide also contains a section where you will find information with helpful commands for CCTM mode.

Note: This is an internal Tait document only

2. Module Repairs

RF Shield (can) identification.



Symptom	Common Faulty Component(s)	Comments
Won't Power Up	L602 U405 D606 <i>Defect Code – C16</i>	<ul style="list-style-type: none"> Check the basestation power supply has not been reversed. Typically D600, IC202 and multiple components on the bottom side of the PCB near Skt101 will be visibly damaged. Check 3v3 is present at R199. If not, the Postage Stamp is the likely cause, which is not repairable. Check pin 8 of IC602. 3v3 should be present. If not check that 13.8v is present at pin 7. Check L602 is not open circuit. Check D606 is not shorting the 3v3 to ground. Check the 9v regulator is working by checking the voltage is 9v on pin 4 of IC601. If 9v not present check that pin 2 is switching when power is applied. If not, the Postage Stamp is the likely cause, which is not repairable.
OL / E2 Out Of Lock / System Error 0x 17100012	L502 C531 C585 <i>Defect Code – C16</i>	<ul style="list-style-type: none"> Check 14v at the junction of C531 and R530. If 14v is not present remove C531 and check voltage again. Replace C531 if the 14v returns and check L502 if the 14v does not return. Use CCTM command "204" to check if the error "2001" is indicated. If it does, recalibrate the Sanity Check values by using the CCTM commands "301 0 10" (VCXO) and then "302 0 10" (TX VCO). After <u>each</u> command is entered the module will return some numbers that ends with "Passed Sanity Check". Turn the module off and on. Check that it powers up correctly. Check 5v at pin 8 of IC502. If not 5v lift C535, and if the 5v returns, replace C535. If the module still has a problem refer to the Frequency Synthesiser section of the TB7100 Service manual.
Module in Programming Mode	TB7100 – PR <i>Defect Code – C10</i>	<ul style="list-style-type: none"> Re-program with known good datafile. Program the module with a saved Calibration file for that module or carry out a complete re-calibration. If the module is still in Programming Mode then it's likely the FLASH (IC5) is corrupted. If this is the case then the module will need to be returned to the International Repair Centre as J-Tag is required to revive the module.
Low / No Sensitivity	Q401 (FE TOP can) IC400 (IF TOP can) <i>Defect Code – C16</i>	<ul style="list-style-type: none"> Remove the PIN TOP can. Check for a short to ground at the junction of C400 and D400. If a short is detected remove/replace D400. Remove FE TOP can. Check there is 3v at the collector of Q401. If 3v is not present then replace Q301. If the module still has a problem refer to the Receiver section of the TB7100 Service manual.
No Tx Power	Q309 / Q310 <i>Defect Code – C16</i>	<ul style="list-style-type: none"> Remove the PAF TOP can. Check for damage to Q309 and Q310. These devices may be ruptured. If faulty the module will need to be returned to the International Repair Centre (IRC) to replace the TX transistors using a replacement technique to protect the module from further damage.

Symptom	Common Faulty Component(s)	Comments
No speaker audio (Rx audio or Confidence beeps)	IC202 <i>Defect Code – C16</i>	<ul style="list-style-type: none"> Check for audio on TP200 (IC202 pins 19 or 12). Check IC202 pin 11 is greater than 8.5V, if not check module programming and AUD_PA enable circuit (TB7100 service manual). Replace IC202 if nil audio out on pins 3 and 8 of IC202.

3. SIF Repairs

Symptom	Common Faulty Component(s)	Comments
No/low Tx audio	C519, C581, C502, C549, C510, C504, C533	<ul style="list-style-type: none"> Check capacitors are passing audio. If not replace.
No Rx audio	C507, C534, C550, C582, C583, C585, C586	<ul style="list-style-type: none"> Check capacitors are passing audio. If not replace.
No tone on idle	C402	<ul style="list-style-type: none"> Check capacitor is passing audio. If not replace.
No DC supply to Modules	C101, C102, C103, C104, C200, C611, C601	<ul style="list-style-type: none"> Measure resistance of these parts and if low replace.
No 3V3 SIF supply	C204, C609	<ul style="list-style-type: none"> Measure resistance of C204 and if low replace.
No 4V5 SIF supply	C602, C607	<ul style="list-style-type: none"> Measure resistance of these parts and if low replace.
No 9V SIF supply	C605	<ul style="list-style-type: none"> Measure resistance of C605 and if low replace.
No 9V_OSC SIF Supply	C406	<ul style="list-style-type: none"> Measure resistance of C406 and if low replace.
No 4V5_OSC SIF supply	C407	<ul style="list-style-type: none"> Measure resistance of C407 and if low replace.

All parts above Defect Code – C16

4. AC Supply repairs

Symptom	Common Faulty Component(s)	Comments
No DC output	C108, C112, C120, C122, C123, C127, C128	<ul style="list-style-type: none"> Measure resistance of these parts and if low replace.

All parts above Defect Code – C16

5. Computer Controlled Test Mode (CCTM)

Terminal Mode Set-up

Bits Per Second = 19200

Data Bits = 8

Parity = None

Stop Bits = 1

Flow Control – None

Command	Result
^% (Shift6, Shift5)	Enter CCTM (% (Shift5) may need to be repeated several times quickly).
204	Display last error.
203	Clear error.
205	Clear persistent data (effectively resets the module back to the state it is in after programming).
72	Lock Status. 111 means that the module is in Lock (returns "xyz" where x is the RF PLL, y is the FCL and z is the LO2 lock status. 0 = not in lock, 1 = in lock).
^ (Shift6)	Reset module (module will restart as normal).

Compliance Issues	None.
CSO Instruction	Internal document only. Do not distribute outside of Tait.

6. Issuing Authority

Name and Position of Issuing Officer	Mike Dawson Senior Technician
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