Technical Note TN-SYS005

STA6682-1H T2000 Multi-Control Head Interface PCB Regulator Failures

7 September 2001

Applicability.

This technical note TN-SYS005 applies to all STA6682-1H (PCB IPN 220-01679-01) T2000 Multi-Control Head Interface PCB's delivered before 31/07/2001. All STA6682-1H Control Head Interface PCB's shipped after this date have been modified.

Introduction.

There have been some instances where STA6682 systems have failed in the field. These have been caused by the LM2931CM regulator fitted to the Interface Board (the board fitted to the front of the T2000 radio) breaking down. Only those radios fitted to T2008 power supplies have exhibited this type of failure.

A high voltage, short duration pulse of energy (up to 60V/30µS) is presented to the ON/OFF terminal of the LM2931CM regulator when the T2008 power supply is switched off (the voltage is higher when the T2008 is switched off at the wall). This can damage the regulator if the STA6682 system has more than one common ground (i.e. the microphone clip is connected to building ground etc).

A 5.6 volt zener diode fitted between this ON/OFF terminal and ground limits this peak voltage, and protects the device.

It is recommended that all STA6682-1H Interface PCB's have this modification. Where Interface boards are fitted to radio's which are powered by T2008 power supplies, the LM2931CM regulator should be changed as a matter of course, even if the device appears to be functioning correctly.

Parts Required.

Component	IPN	Description	Quantity
5V6 leaded Zener Diode	001-00015-12	Diode Zen 5V6 0.4W	1
Switchable Voltage Reg	002-10029-31	IC LM2931CM Vol Reg	1

The LM2931CM regulator is not available from Tait Electronics. These parts can be sourced locally, or contact Tait Communication Systems Division. Parts supplied by Tait Communications will be free of charge.

Method.

1. Remove the plate cover from the front of the radio, and unplug the RJ45 to Micromatch lead from the connector labelled To Heads.

2. Remove the four screws securing the claytons head panel to radio.

3. Unplug the micromatch lead from the connector labelled To Radio.

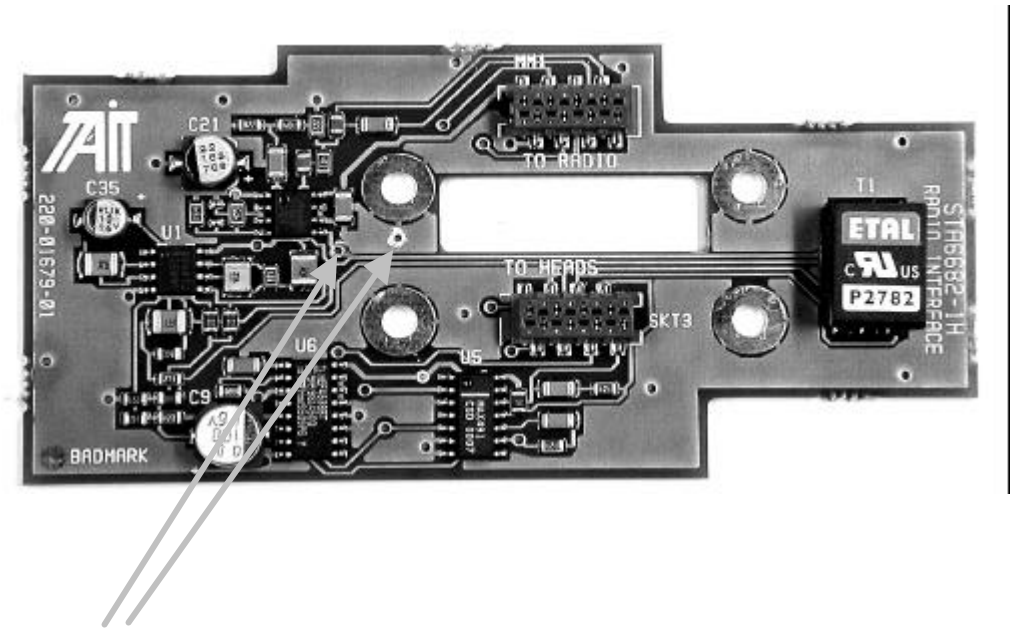
4. Unscrew the four taptite screws holding the PCB to the radio chassis. Undo each screw two turns at a time to avoid distorting the PCB.

5. Referring to Figure 1, scrape the solder resist away from each indicated via using a scalpel or similar tool.

6. Fit the 5V6 zener diode as shown in Figure 2. Note the cathode of the zener goes to pin 5 of U2 (LM2931CM). Replace the LM2931CM regulator as indicated.

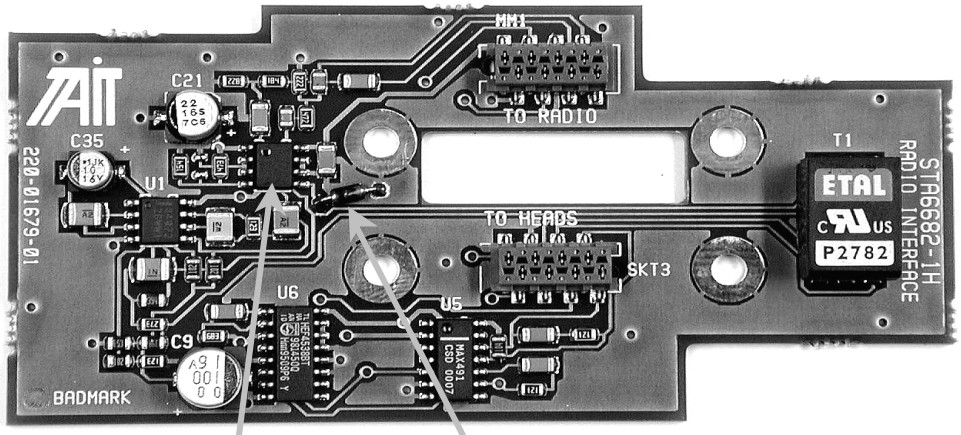
7. Refit the PCB to the radio and test.

Figure 1.



Scrape back resist
using scalpel
from these vias

Figure 2.



Replace U2 (LM2931CM)

Fit 5V6 zener diode through via holes and solder. Ensure leads do not protrude below the bottom of the PCB.

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