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## Technical Note TN-723

# Modifying the Transmit deviation of the T3000-4500 Plug-in CTCSS board

1<sup>st</sup> July 2002

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### Applicability

This Technical Note applies to the T3000-4500, which is a plug-in CTCSS option board for the T3030, T3035 and T3040 MPT1327 Trunked Dispatch portable radios.

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## 1. Introduction

### What is at issue

The issue found with the T3000-4500 CTCSS board was that the Transmit CTCSS deviation, which is a fixed value, is lower than some repeater user requirements.

**NOTE:** The CTCSS boards in receive mode will gate open with less than 100 Hz of deviation, therefore simplex operation is not at issue here.

## 2. Information

### Solution

The T3000-4500 CTCSS option board fitted to MPT1327 Trunked T3000 model radios only generates about 150 and 180 Hz deviation of CTCSS sub-audible tone.

The specification for CTCSS Transmit level is 15% of full system deviation. On Narrow Band systems ( $\pm 2.5$  kHz) the CTCSS level should be between 280 and 380 Hz.

The CTCSS level on the option board is fixed by component value and cannot be altered by software.

To increase the output level, change two parallel resistors on the option board, **R51** and **R54**, to the values 100 k $\Omega$  and 1 M $\Omega$  respectively.

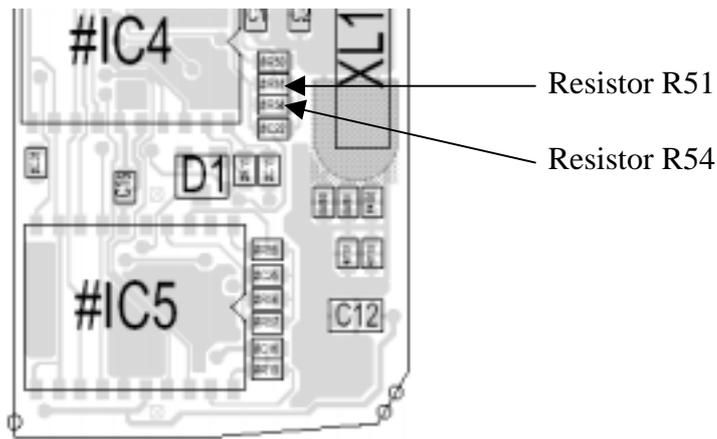
These values should give an output of about 340 Hz deviation.

If a more specific output level is required, some fine adjustment can be made by altering the 1 M $\Omega$  resistor value.

For example increasing R54 to 2M2  $\Omega$  will produce about 380Hz.

Resistors R51 and R54 are found on the top of the printed circuit board next to IC4. See the circuit board enlargement on the next page.

## Top view of the CTCSS board



## Related Information

The T3000-4500 is also available for use by the T2000 MPT1327 Trunked dispatch mobile radios T2030, T2032, T2033, T2035 and T2040.

Part number T2000-A4500.

There is no requirement to modify the boards in this application as the fixed output level is routed through, and can be adjusted by, **RV 906** CTCSS Transmit deviation preset found on the TCXO circuit board.

## Compliance



If the T3000-4500 CTCSS board requires rework and the T3000 is an Intrinsically Safe model then the service work **MUST** be carried out by a Factory Mutual (FM) compliant Tait service organisation.

## CSO Instruction

Inform all Technical staff and Tait accredited dealers of this Technical Note should the issue arise with customer's requirements.

## 3. Issuing authority

### Name and position of issuing officer

Graham Brenchley  
Customer Support Engineer

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