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## TECHNICAL NOTE TN-1032-AN

### Implementing Channel Increment and Decrement on the TB7100

1 June 2005

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#### Applicability

All TB7100 User Interface (UI) PCB's with IPN 220-02076-04 or earlier

## 1. Introduction

The TB7100 is capable of performing a channel 'Increment' and 'Decrement' functionality via the Function 1 (**F1**) and Function 2 (**F2**) buttons on the front of the base station 'User Interface' (referred to as **UI** for the remainder of this Technical Note).

There is however, an issue with the modification details included in the 'Installation and Operation Manual' Page 106, and performing *only* this modification *will not* enable the Increment and Decrement feature. This is due to a hardware design error on the UI board.

Fitting the resistors R60 and R62 as per the manual does connect the Increment and Decrement function lines as required however this modification does not disconnect the programmed F1 and F2 key functionality. Consequently the TB7100 attempts to action both operations simultaneously. (i.e Function 1 + Channel Decrement, Function 2 + Channel Increment).

As F1 and F2 have priority in the radio firmware, even when these keys are set to not perform any function in the programming application, they cancel the Increment and Decrement operation.

Therefore, further modification is required to electrically disconnect the standard F1 and F2 control lines from the F1 and F2 UI buttons.

This technical note will describe the additional modifications required to implement this feature.

## 2. Modifications

#### Modifications required

There are three steps to the modification required to implement the Channel Increment and Decrement feature.

They can be carried out without the requirement of removal of the UI PCB.

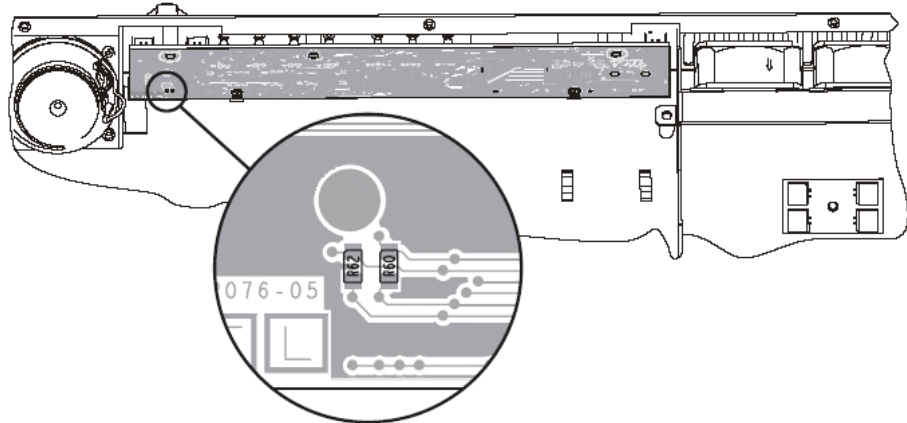
***Note - Due to the nature of these modifications, in particular the track cutting, it may prove difficult to reverse the modifications once they are carried out.***

#### Tools Required

- Soldering Iron
- 2 x Zero Ohm resistors (*IPN 038-10000-00*)
- Thin Linking wire (*~25mm required length*)
- Static Strap
- Scalpel, scribe or other suitable sharp track cutting tool

**Step 1**

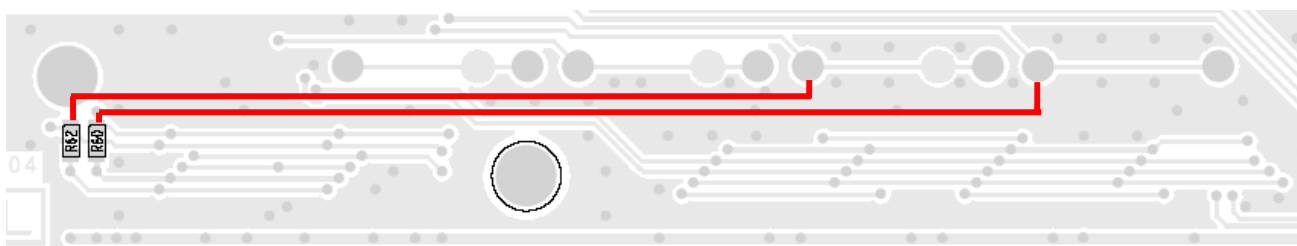
Fit 2 x zero ohm resistors in positions R60 and R62 as shown below. The zero ohm resistors can be substituted with solder shorts if this is found to be easier, however as tracks run between these pads a resistor is recommended.

**Step 2**

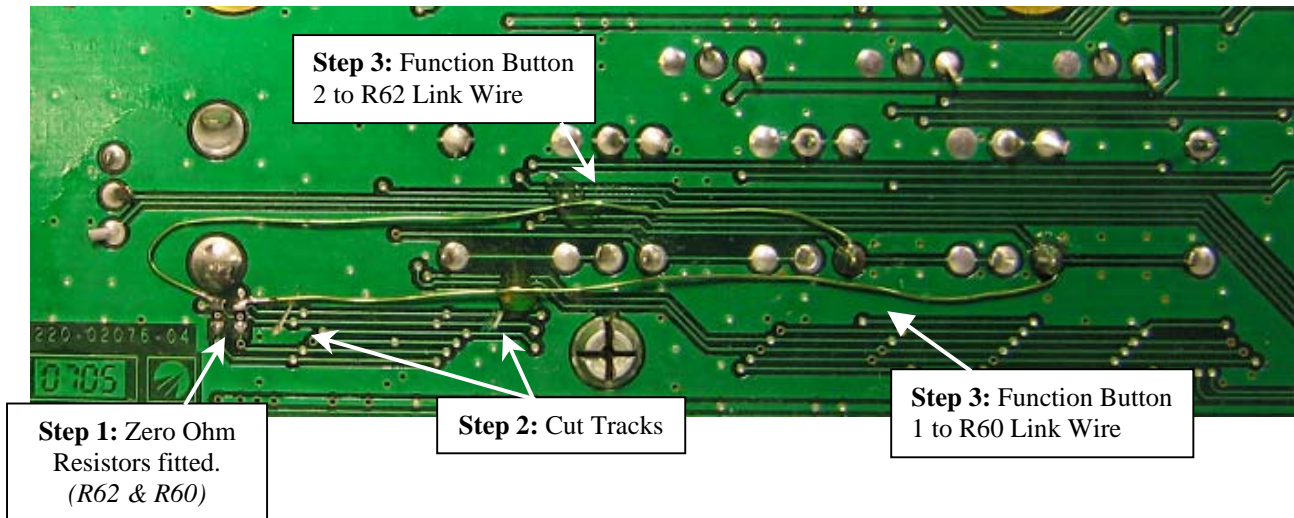
Two tracks require cutting in two locations. This can be achieved using a sharp blade or similar cutting instrument. The locations to make the track cuts are shown below.

**Step 3**

Linking wires need to be fitted to the UI to connect R62 to Function Button 2, and R60 to Function Button 1. This is achieved by soldering one end of the wire to either end of the named resistor, and soldering the other end of the wire to the appropriate leaded button leg on the rear of the UI board. The configuration/layout is shown below.



A photograph of a modified unit is included below that illustrates all the required modifications.



### 3. Additional Information

#### Using Channel Increment & Decrement during transmission.

It is important not to operate the channel increment and decrement while transmitting from the Base Station.

This is because during transmission, the Transmitter module will not respond to a channel change request, however the Receiver Module will. This will cause the channel numbers of the two modules to be out of synchronisation.

To recover from this situation should this occur, perform the following –

- I. Switch the Tx/Rx switch on the UI to monitor the Transmitter. Note the transmitter channel number.
- II. Switch the Tx/Rx switch on the UI to monitor the Receiver.
- III. Key up the transmitter.
- IV. Use the Increment/decrement keys to make the Receiver channel number align with the transmitter channel number.
- V. Return the transmitter to an idle state.

***Note – It is advised the same quantity of channels are programmed into both the Receiver and Transmitter modules with duplicate channel I.D's, as differing quantities of channels per module can also cause channel synchronisation issues when using the channel increment/decrement feature.***

**Compliance Issues**

None

**CSO Instruction**

Please advise technical staff of this additional hardware modification requirement.

## 4. Issuing Authority

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Technical Support Engineer**Confidentiality**

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**Document History**

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