

MIL-STD-1553B Tester Type 080509

Hardware Information

1. INTRODUCTION

This document sets out details of the hardware of Airflair Limited's 080509 MIL-STD-1553B Tester.

The 080509 connects to a standard PC (which provides the user interface) via a standard USB 1 interface. It provides a dual redundant interface to the databus and can operate simultaneously as a Bus Controller, Bus Monitor and Emulator of any combination of RTs.

The 080509 takes its power entirely from the USB interface which connects it to its Host PC. It is powered whenever the Host PC is powered and the USB cable is connected.

For brevity, the device will be referred to throughout the rest of this document as the '080509' and the MIL-STD-1553 standard as '1553'.

2. PHYSICAL

The 080509 is supplied in two enclosure types, as follows:

A compact aluminium alloy enclosure, ideally suited to field use, measuring approximately 125 x 55 x 25mm.

A 1U high 19" rack mountable module. This in turn may be ordered with connectors located to best suit the application.

In either form the 080509 is provided with three connectors:

Two Trompeter Electronics BJ77 jacks, one for each half of the dual redundant bus

A standard USB connector for the link to the Host PC.

3. CONNECTORS AND PIN ALLOCATIONS

USB Connector

The USB connector is an industry standard item, for use wither with the supplied USB cable or with an equivalent cable sourced separately.

BJ77 jacks

The BJ77 connectors are wired, in accordance with standard practice, as follows:

Inner	1553 Data Hi
Outer	1553 Data Lo
Shell	Screen

4. INTERFACE TO THE DATA BUS

The interface to the 1553 databus may be configured for operation with either transformer or directly coupled stubs. The standard 'as shipped' setting is for transformer coupling.

To change the settings for use with direct coupled stubs, proceed as follows:

***** CAUTION *** Anti-static protection procedures MUST be observed during the work described below.**

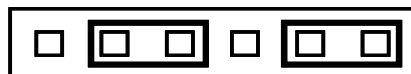
Remove the two screws securing the 'front' panel to the unit (i.e. the panel which carries the BJ77 connectors).

Carefully withdraw the unit from its enclosure by gripping the black plastic panel moulding and pulling it steadily away from the case.

With the BJ77 connectors on the left, locate the two link blocks at the top and bottom of the board and at the left hand side. Each of these has six pins and is fitted with two removable links. The positioning of these determines the transformer/direct coupling selection, as follows:



Transformer Coupled (as shipped)



Direct Coupled

Position the two links on each of the two jumper blocks as required.

Carefully refit the unit in its case. Ensure that the edges of the circuit board engage in the correct 'slots' in the case extrusion (the ones nearest the bottom of the case) and that the USB connector fits correctly in the hole provided for it in the other end panel. (If it does not, then you are trying to fit the board into the case upside down.) The final 5 mm or so of movement into the case is slightly complicated by the tight fit between case extrusion, the outer lip of the front panel and the two screws which hold the circuit board onto the front panel brackets. Make sure that the outer face of the USB connector is flush with the rear end panel, indicating that board has been fully inserted in the extrusion.

Refit the front panel screws.

5. DATABUS CONFIGURATION

The 080509 is designed (as is all 1553 equipment) for use with a correctly terminated data bus. At a minimum (for a transformer coupled arrangement) this will involve the use of a two port coupler and two termination resistors, making up a 'mini bus' suitable for test purposes.

The 080509 is **not** designed for use without a databus attached, or when wired directly to another piece of 1553 equipment. Use of the 080509 in either of these configurations will result in significant distortion of the 1553 signals, which will disturb its operation (and, most probably, the operation of any attached equipment). Similar effects will occur if a 'proper' databus is used but it is not correctly terminated.

Please contact Airflair (see contact details below) if you have any queries relating to the configuration of the 1553 physical network.

6. OPERATION

The operation of the 080509 is controlled entirely by the software running on the PC to which it is connected. The unit is powered up when connected to the PC.

Details of software operation, both for **ZEUS for Windows** (Airflair's turnkey test suite) and user code using the supplied API, are provided elsewhere.

The following general points regarding use are worth noting:

Power saving on many PCs can disable normal the USB ports. Recovery from this condition may cause the attached equipment to malfunction. We recommend that power saving be disabled on PCs running this equipment.

The two 1553 interfaces provided by the 080509 are designed strictly for use on dual redundant systems. They should **NOT** be connected to entirely independent databuses (unless it is certain that only one of these will be active at any time).

Since the 080509 can operate as both (or either) Bus Controller and RT Emulator(s) it is important to ensure that it is not 'standing in for' any equipment which really exists, and is active, on the bus. Any such operation will give rise to bus clashes, resulting in unpredictable (but almost certainly incorrect) bus operation. (The resulting 'battle of the transceivers' is also very unkind to these devices in both the 080509 and the 'other' equipment). **Make sure that Bus Control and RT Emulation are only active when no other equipment is performing the associated functions.**

7. SUPPORT

For technical support please contact Airflair Limited or your local supplier.

Support contact details for Airflair are:

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Please also visit our website (www.airflair.co.uk) for more product information and to visit the `downloads' section, which makes enhancements and (a few :-) bug fixes available for free download.

We have extensive experience of putting our equipment to work in all sorts of ways and will be only too pleased to help you get the very best from it.