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**MADE IN AUSTRALIA**

# **FORCE PLATE**

## **400 Series**

### **Performance Force**

### **Plate**

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## FORCE PLATE 1000 Kg Capacity

### Introduction:

The 1000Kg Rated Force Plate specifications

1. 795mm x 795mm x 60mm High Aluminium Framed Platform & non slip Carbon Fibre Top.
2. 4 x Load Cells complete with adjustable height feet assemblies that can adjust the height of the Plate to approx 120mm
3. Maximum Sampling Rate – adjustable in software from 1 – 600Hz on all 4 Load Cell channels via BMS software program.
4. 400S Force Plate + BMS Linear Position Transducer (LPT )is calibrated by users on site via the BMS software via Tools\Configure\Calibration (tab window)
5. Only Performance Force Plate on the market capable of running the BMS LPT & auto saving all data files + outputting to Excel via the BMS software program.
6. Only Performance Force Plate on the market capable of running on our new Inner-Balance software tracking used to measure & record all Anterior Posterior & Medial Linear movements
7. 400S Weight 20.6 Kg (45.3 lbs)
8. 1 x PCB Module operates 4 Load Cells + LPT powered via 5 V DC Computer USB Port only
9. 1 x USB 2.0 communications Cable provides 100% of power required to run the 400S from any PC or laptop USB Port.
10. 1 x USB 2.0 Extension Cable 1.8 M Long provided with all 400S units
11. 1 x RJ 45 Connection (located under the Force Plate) with connection lead supplied going to 1K Ohm Potentiometer on the BMS PT5A LPT
12. The PCB shown on Page 4 is self contained in the 400S Platform Assembly.
13. To operate the 400S Platform simply installs the software onto your Hard Drive and then connects the USB Cable plug into your Computer.
14. With the 400S no other power supply or charging of batteries is required.



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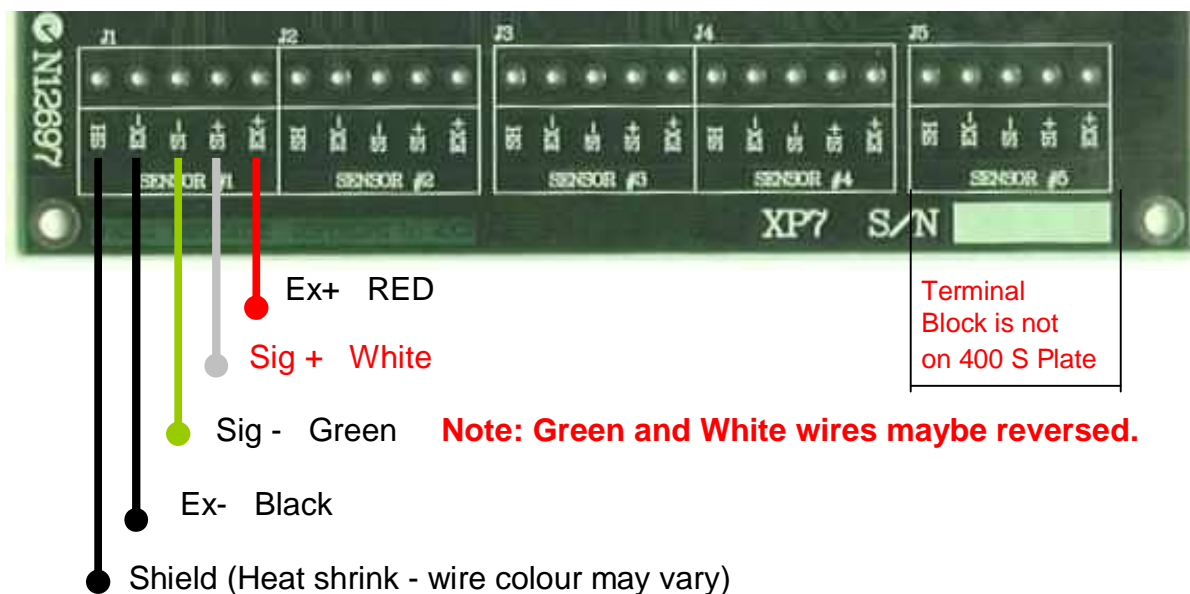
## FRONT OF PLATFORM

### Load Cell Wiring

The four Load Cells connect into the XPV7 Electronics Module are colour coded on the load cell cables at the terminal blocks for ease of wiring, they are as follows

Load Cell	1.	Blue	Heat - Shrink shroud as per next page
Load Cell	2.	Green	Heat - Shrink shroud as per next page
Load Cell	3.	Red	Heat - Shrink shroud as per next page
Load Cell	4.	Yellow	Heat - Shrink shroud as per next page

The wiring connection for each individual load cell is as follows.



### Installation:

1. Carefully unpack the platform by lifting it out the end of the transport carton. Make sure all items are present. (Report any discrepancies immediately.)
2. Place the platform onto a flat stable surface.
3. Install each foot into the load cell holes on the four corners of the platform by rotating the feet to the right. (right hand thread) Adjust height as show below.
4. Connect the USB communication cable as shown below by removing the plug allowing access to the communications port. (See photos below)
5. The Platform is now ready for use.
6. Install the communications software and the processing software following the instruction for each module
7. The XPV7 PCB Electronics Module will automatically identify any cable faults. Should this happen make sure the communication cables are properly installed. If communication failure continues, then replace the USB cable.
8. For any other problems contact our office for further instructions.

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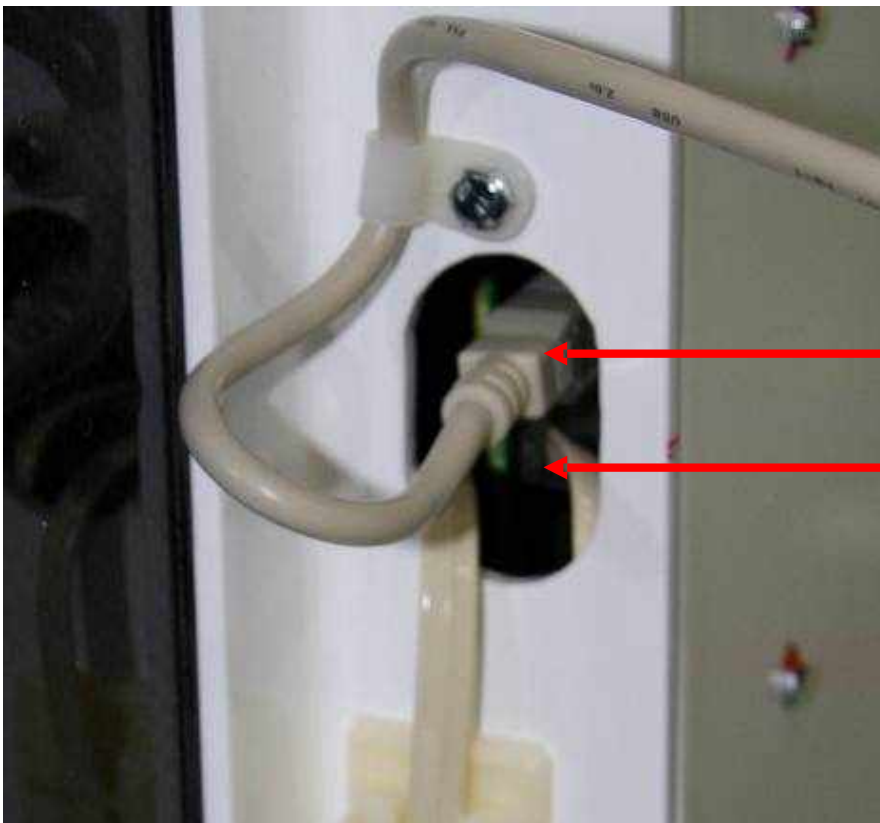
# FORCE PLATE 1000 Kg Capacity

## USB Cable Connections



USB Connector

US8/8 Plug w lead to RJ45 Skt  
Pin 2 = PT5A IK Pot V Signal  
Pin 4 = USB +5V  
Pin 6 = USB Gnd.  
Pin 7 = MBU V Signal.



USB Connector

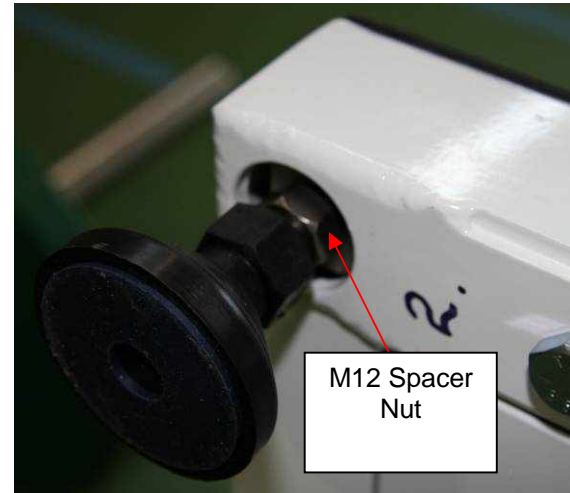
Lead to RJ45  
Connector to  
External RJ45  
Socket for LPT  
cable connection

## FORCE PLATE 1000 Kg Capacity

### Installation of 4 x Platform Feet

The Platform cannot be used until the 4 x feet with M12 1.75 pitch threads are installed in each of the four corners. They screw into the Platform with standard a right-hand thread

Stainless Steel M12 spacer Nuts are used for levelling and adjusting the height of the Platform. If required the M12 spacer nuts can be removed but if this is done never thread the 4 x feet threads thru all the way - back off 5mm. Refer Trouble shooting Note 5 on Page 7. **The Platform should also always be level when in use.**



## FORCE PLATE 1000 Kg Capacity

1 of the 4 x low profile shear beams bolted in position.



### Care and Maintenance of Force Plate

To clean the Force Plate we recommend the use of standard household detergent to wipe down the external surface area.

Note:

**Do not place or allow any water to ingress into the Platform via the load cell holes or the penetration used for the USB communication port underneath the Platform.**

## **FORCE PLATE 1000 Kg Capacity**

### **PRECAUTIONS**

**Before the Force Platform is used for any purpose, checks must be carried out to ensure the safety of the individuals using the Platform. Appropriate footwear must always be worn when using the Platform.**

**All operators must ensure themselves that the Platform is suitable and safe for the application or testing purpose, by carrying out a series of tests prior to using the system.**

**The Testing Officer or Force Plate Operator acknowledges the decision to use the Force Plate and it's suitability for the purpose rests solely with their deliberate decision to use the device.**

### **Warranty.**

The Company warrants that the products are thoroughly examined before shipment and agrees to make good any part that is proved to be defective due to faulty workmanship. Defects or failures in equipment which, under proper use, appear therein and arise solely from faulty materials or workmanship will be remedied by us free of charge provided the equipment is returned to our Workshop within a period of twelve (12) months from date of delivery, freight paid both ways. In the case of warranty service to equipment "on site" or at the purchaser's premises, all traveling and accommodation costs shall be to the purchaser's account. Damage to product including broken or damaged cabling caused by maliciousness, negligence or through changes to electrical configuration of equipment or voltage in excess of rating is specifically excluded from this warranty (the Proof to the contrary being the onus of the purchaser). Where this occurs then such warranty real or implied offered by The Company shall immediately come to an end.

The Company extends such warranties as are offered by the original manufacturer of material. Liability under this warranty applies only to repair or replacement (at the discretion of the Company) of the original goods supplied. The Company will not be liable for any damages or delay (general or consequential) whether directly or indirectly caused by the said defect, and shall not be responsible for any work done, or alterations, or addition, made to the products by any other party.

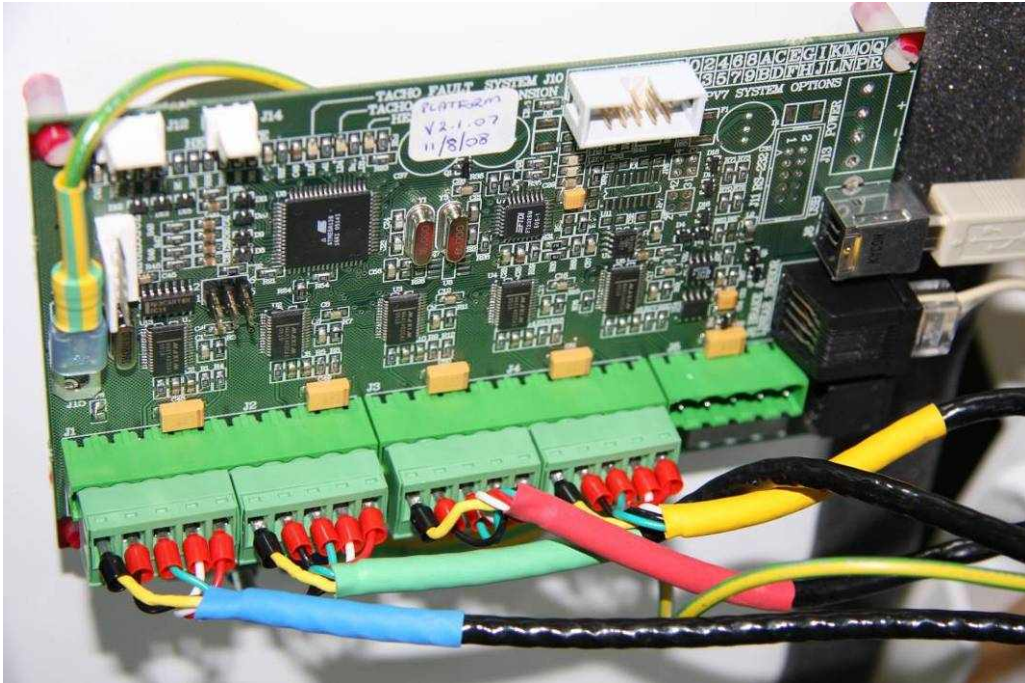
## FORCE PLATE 1000 Kg Capacity

### Trouble shooting the 400S Force Plate

If you are unable to receive data from the 400S Force Plate there are a number of simple causes. For technical reasons not all are detailed in this document:

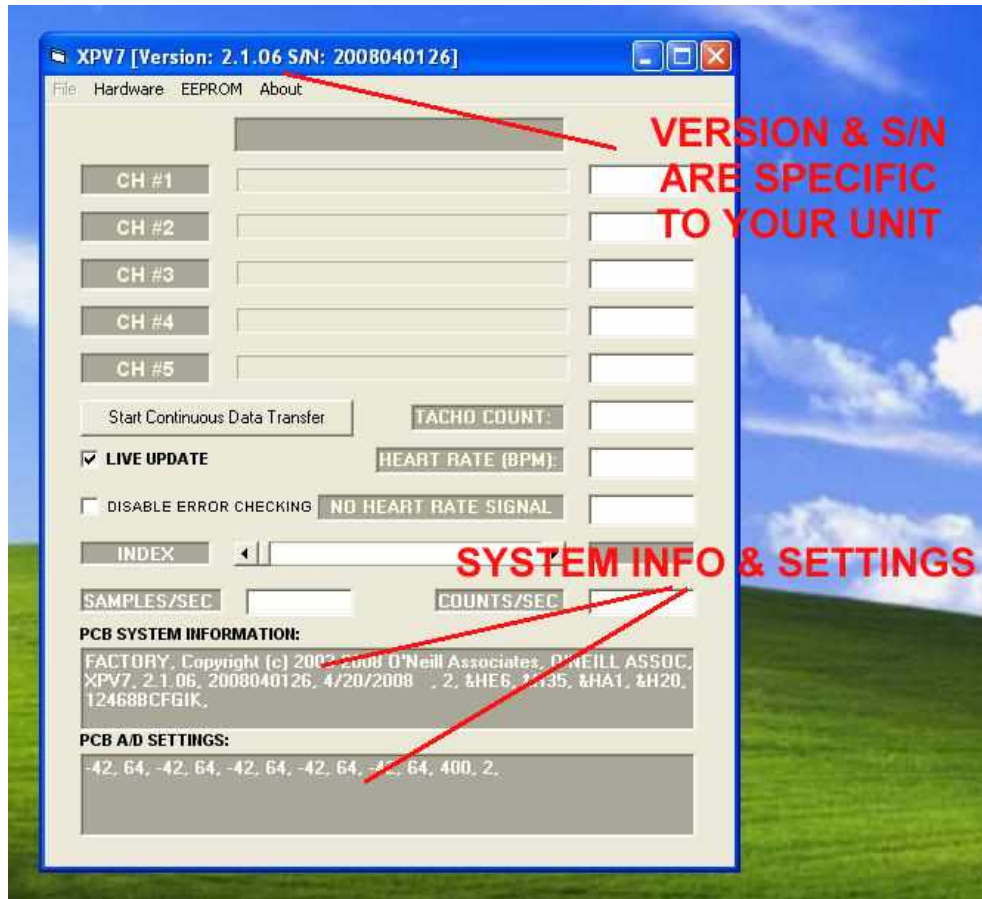
1. Our system requires you have the correct and latest USB Driver. You may have an older version of the USB driver which sometimes may not work if your PC also has a virtual COM Port driver loaded. To fix the you can download new drivers from:  
<http://www.ftdichip.com/Drivers/CDM/CDM%202.04.06.exe>
2. Some PCs have USB ports that are not to the full specification. If you suspect this may be an issue then a USB hub can be added between the 400S Force Plate and your PC. When adding a USB 2.0 high quality extension lead **must connect this Lead before you connect the 400S to the PC** . Then open our BMS software program with the 400S connected and then the PC will register the presence of the 400S.
3. Are you using a USB extension lead? See 2 above. Until the trouble shooting is complete we recommend that you disconnect any USB extension leads.
4. Now if the 400S is still not communicating with your PC we have made available a test program which allows the XPV7 circuit board inside the 400S to be tested. When performing these tests it is best to remove the cover plate from the underside of the platform to expose the XPV7 circuit board. The test program is available from  
<http://www.innervations.com/downloads/TESTXPV7%20Install.exe>
5. **Fluctuating Force Plate Kg Mass values in the BMS software program** - This problem normally occurs when the 4 x M12 Feet are fully screwed thru into the 4 x Load Cells (Shear Beams).  
(a) If the 4 x M12 spacer nuts are used it will not be possible to screw these 4 x Feet in too far.  
(b) If these 4 spacer nuts are not used do not screw these 4 feet thru all the way back off the 4 x Platform feet approximately 5 mm refer Page 5. Only when (a) or (b) has been done proceed to -  
**Step 1** Now calibrate the plate as per our web site Instructional Footage for Media Player instructions [http://www.fittech.com.au/en/products/4\\_force/2\\_5\\_instructional/force\\_2\\_5.htm](http://www.fittech.com.au/en/products/4_force/2_5_instructional/force_2_5.htm) then once calibrations have been completed proceed to  
**Step 2** - (now when step 1 has followed,) next you should be able in the in the BMS program to set a 5 sec time test span - then in Collect & Analyse window Zero out the plate then hit then Collect Data button put a know Mass on the Plate & it should read the correct value of the Mass.  
Within 0.1 Kg is a typical acceptable Mass reading,

## FORCE PLATE 1000 Kg Capacity



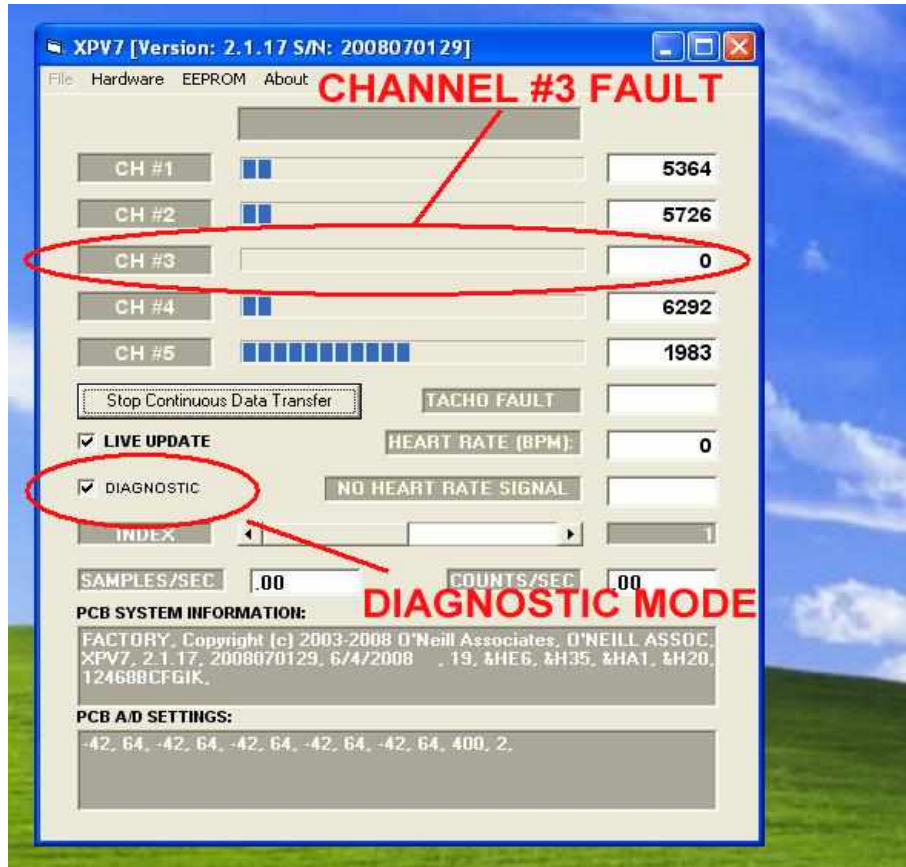
6. With the 400S connected to the PC you can now run TEST\_XPV7.exe. If the XPV7 circuit board inside the 400S has initialized correctly you should see the version and serial numbers for the XPV7 in the title line of the test program. Further confirmation that the XPV7 is communicating with your PC is the **PCB System Information** and **PCB A/D Settings** which are shown at the bottom of the test program dialogue box. If this information is not displayed then there is either still a problem with your PC or the XPV7 is not running. Note the "HEARTBEAT" light at the top of XPV7 should be flashing when the test program is running. Allow a period of 15 seconds to pass before pressing the "Start Continuous Data Transfer" Key.

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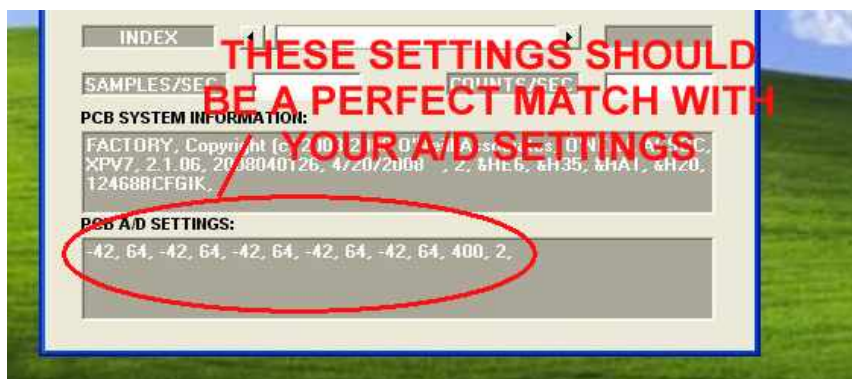


7. To start receiving data from the 400S press the “**Start Continuous Data Transfer**” button. If the equipment is operating correctly you will see “analogue” bars next to each channel and a digital value on the right hand side. If nothing is displayed this is because the internal error checking in the XPV7 has detected a fault and is not sending faulty data.
8. If you are not receiving data then press the “**Stop Continuous Data Transfer**” button.
9. So that you can determine which channel has caused the fault you must click on the “**DISABLE ERROR CHECKING**” checkbox then press the “**Start Continuous Data Transfer**” button. Note, with a tick the checkbox the caption changes to “**DIAGNOSTIC**”. Now you should see one or more channels reading zero.

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- To determine the cause of the fault close the test program, disconnect the USB cable, and swap over the pluggable terminal blocks so that the channel 1 & 2 pair is plugged into channel 3 & 4 and 3 & 4 go into 1 & 2. Now reconnect the USB cable and run the test program and repeat step 8. If the faulty channel moves (in this case to CH #1) then there is a connection, cable, or load cell fault. If on the other hand the fault doesn't move then the XPV7 circuit board is faulty.
- Next you should compare the A/D Settings at the bottom of the dialogue box, these numbers should match exactly with what you have on screen. If these numbers do match then there is a hardware fault on the XPV7 circuit board.



If these numbers don't match then contact our repair centre for further instructions on resetting these values.