CALIBRATION CERTIFICATE

SOFTWARE

OPERATORS HANDBOOK (PART NO.34304)

Issue 1

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FEATURES

This easy to use software allows data from a Norbar torque measuring instrument to be downloaded onto a PC and formatted as a torque wrench calibration certificate.

- Certificate can be customised with your laboratory or workshop's own name and contact details.
- The certificate format complies with the requirements of ISO 6789.
- The software steps the operator through the calibration process making it very simple to use.
- A certification number is automatically generated.
- Certificates are filed and can be easily retrieved.

ITEMS REQUIRED

1. Torque wrench to be calibrated.

2. Norbar torque measuring instrument
(Pro-Test, TTT, TST, TruCheck Plus, etc.).

3. Serial data lead.

4. PC with serial (COM) port & Windows™ 95 to XP.
(If the PC only has a USB port, a “USB to serial adaptor” is needed.
If certificates are to be printed, a printer will be required).

5. Norbar Calibration Certificate Software.

OBTAINING THE SOFTWARE

The software is available to download from www.norbar.com, follow ‘Torque Measurement’ from home page. Then select ‘Computer Software’ and follow the on screen instructions.

INSTALLING THE SOFTWARE

With the software saved on your computer, open the file to install the software.

CONNECTING NORBAR TORQUE MEASURING INSTRUMENT TO PC

All new Norbar instruments have a serial data lead included (these are identified by having a ‘SERIAL PORT’ with 9 way pins).

Before 2005 instruments that were not supplied with a serial data lead will require a ‘Serial Data Lead Kit’ Part number 60248.

Connect instrument to PC.

USING THE SOFTWARE

To load software follow ‘start / Programs / Calibration System’ or click on desktop icon.

The initial User Code is ‘ADM’ and Password as ‘norbar’.

The main window has 5 pull down menus.

1. Configuring the Software prior to Calibrating

From the ‘File’ pull down menu:

Option	
Testers	Maintain tester(s). Refer to calibration certificate for all information required.
Transducers	Maintain transducer(s). Refer to calibration certificate for all information required.
Standard	Entry of the standard being followed.
Percentages	Maintains: “A” Percentage; this is usually set to 20 “B” Percentage; this is usually set to 60 “C” Percentage; this is usually set to 100 Test Tolerance; the allowable % error from set value. Filter Rate; the allowable tolerance to ignore / accept a reading.
Company	Maintains: Company name, address, Phone, Facsimile, web, Head of lab, Certificate label (The certificate number of the transducer used) & Allow humidity values.
Staff	Maintain the inspectors.
Com Port	Port (1, 2, 3 or 4), Baud (the data rate), Parity (N = None, E = Even & O = Odd), Data (7 or 8 bits), Stop (1 or 2 bits), Parameter 1 (the buffer size of the RS232, keep as 72).
Exit	

TIP: The uncertainty value shown on the certificate is taken from the uncertainty of the TESTER and TRANSDUCER; this is calculated with a root mean square calculation.

For a combined TESTER with TRANDUCER, set TESTER uncertainty to 0.0 & TRANSDUCER uncertainty to the value from the certificate.

2. Calibrating a Wrench

From the 'Calibrate' pull down page:

The **Certificate** number is automatically set.

Enter **Tool Model**, **Tool Serial No**, **Maximum Capacity** & **Units**.

Choose the **Inspector**.

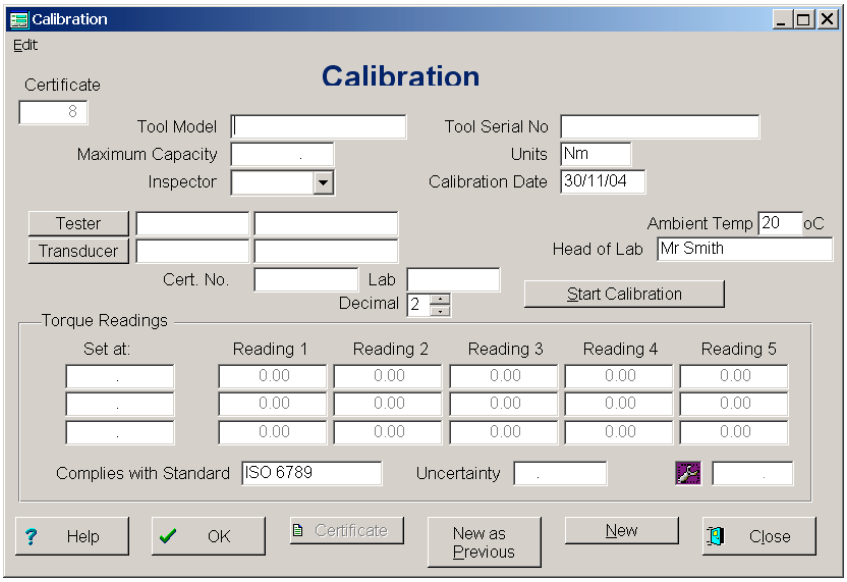
The **Calibration Date** is automatically set.

Alter **Ambient Temp** if necessary.

Click **Tester** and **Transducer** to select calibration equipment.

The **Cert. No.** & **Lab** relates to the transducer selected.

Alter the **Decimal** option to set the resolution of the reading.



Press **Start Calibration**.

The **Uncertainty** value is automatically calculated as the total of the tester & transducer uncertainties; these are summed in a root mean square calculation.

The software is now ready to take torque readings from the wrench.

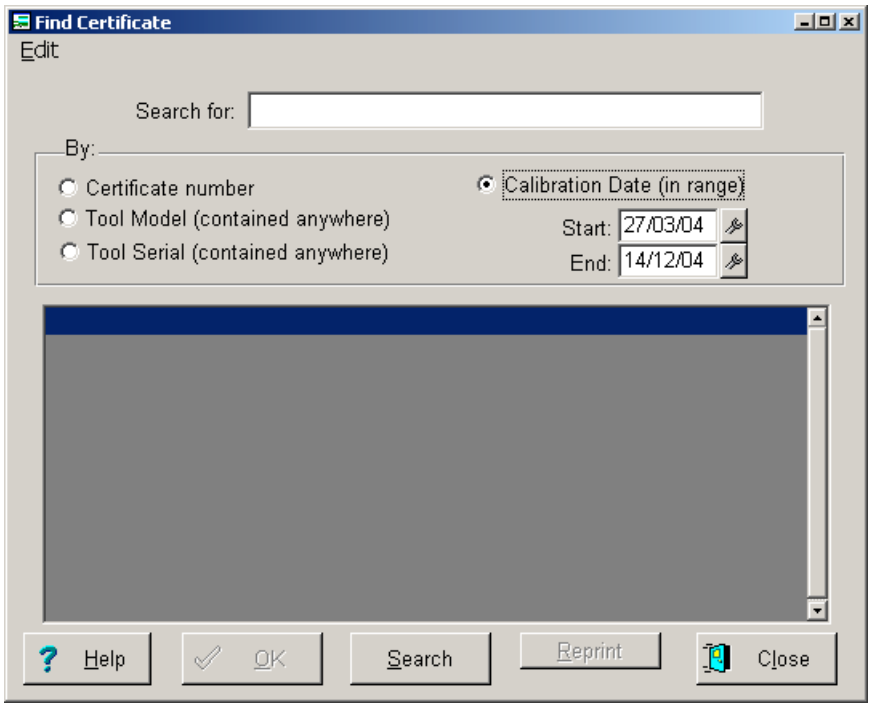
Ensure the procedures of the relevant standard are followed.

The last torque reading is shown in the 'wrench' window: 

TIP:	**Most Norbar instruments have a Print / No Print feature.** **Set to 'No Print' to exercise & set the wrench.** **Set to 'Print' for generating the calibration certificate.**

3. Retrieving a Certificate

From the 'Print Certificate' pull down page:



4. Supervisory Tasks

From the 'Supervisor' pull down menu:

Options	
Users	Allows addition, modification & deletion of users. (The user code & password are needed every time the software is opened).
Reindex and work file cleanup	Reindex data files – A house keeping function to recreate the index files. Pack data files – Removes logically deleted records.

TIP: The user 'access level': **Level 0 = No access to software.**
Level 1 = Full access to supervisory tasks.
Level 2 to 9 = No access to supervisory tasks.

5. On Screen Help

From the 'Help' pull down menu:

Options	
Getting Started	This is an introduction to the calibration software help files.
Menus	Access to the help files on the software menus.
Contents / index	Shows the contents of the help files.
About	Shows version

TROUBLESHOOTING

There are many parts & settings that must all be correct for the system to work.
If any one of these is not correct then communications will not take place. Troubles can include:

1. The Torque Wrench

Is the wrench operating?	Ensure the wrench operates to cause the instrument to detect a first peak in torque.

2. The Norbar Measurement Instrument

Is a torque signal being sent?	Ensure the instrument is in the correct mode. For a 'click' wrench, use 'FIRST PEAK MEMORY WITH AUTO RESET' or 'CLICK & CAM'. An RS232 signal is sent when the wrench clicks.
	Ensure the print signal happens. If a 'Print Inhibit Controller' is used, ensure it is set to PRINT. If the instrument has PRINT / NO PRINT, ensure it is set to PRINT. If the instrument has √ / X PRINT, ensure set to √ PRINT.
	Ensure the serial port settings are the same as the calibration software. The recommended settings are: BAUD RATE – 9600, but some instruments (ETS / DTS / TWA) are fixed at 1200. PARITY – NONE or OFF. DATA BITS – 8. STOP BITS – 1.
	Recommended settings for other serial port settings (where available) are: FIRST (LEADING) CHARACTER – NONE or BLANK. OUTPUT UNITS – YES. OUTPUT TIME & DATE – NO. OUTPUT LINE FEED – NO. OUTPUT LIMITS – NO. HANDSHAKE – NONE. LINE DELAY – 0.5 seconds.
	Ensure the limit detector LO/OK/HI status is not sent. The calibration software cannot accept the LO/OK/HI sent by the limit detector. Either turn the limit detector off or refer to the instrument handbook for limit detector settings that do not send RS232 characters.

3. The Serial Data Lead

Are the instrument & PC connected correctly?	Norbar instruments with a 'SERIAL PORT' of 9 way pins have a serial data lead included. Use this lead for all PC's with a 9 way COM port. For a PC with a 25 way COM port a lead included in the 'Serial Data Lead Kit' Part number 60248 is needed.
	Norbar instruments with a 'SERIAL PORT' of 9 way sockets will need a serial lead with a NULL MODEM & a gender changer; these are included in the 'Serial Data Lead Kit' Part number 60248. For a PC with a 25 way COM port a lead included in the 'Serial Data Lead Kit' Part number 60248 is needed.
	For old Norbar instruments without a CE mark (before 1996), a special lead may be required, see instrument handbook for wiring details.
	Ensure the lead is securely connected at both ends. Use the thumb screws to maintain a reliable connection.

4. The PC COM port

Is the COM port set up & working correctly?	Prove the COM port works by getting another RS232 device to communicate. In a few cases the COM port will need to be configured from Microsoft Windows™.
	If no COM port is available, a 'Serial to USB converter' is needed; these are available from a local PC shop. Connect the serial lead into the 'Serial to USB converter', and plug this into the USB port on the PC.

5. The Calibration Software Settings

Are the Com Port settings correct?	Ensure the serial port settings are the same as the Norbar instrument. The recommended settings are: Port – COM1 Baud – 9600, but some instruments (ETS / DTS / TWA) are fixed at 1200. Parity – Set to 'N' for NONE or OFF. Data – 8. Stop – 1.
	Change Port setting to COM2, then COM3 then COM5 until it works
	To prove the PC is accepting serial data use HyperTerminal software, this is available with Microsoft Windows™. Before use close the Norbar Calibration software. Follow Start / Programs / Accessories / Communications / HyperTerminal Create a new connection with the same settings as the Norbar instrument. Connect using COM1 or COM2. Bits per second is the 'baud rate' = 9600 (or 1200 for ETS / DTS / TWA). Data Bits = 8 Parity = None Stop Bits = 1 Flow Control = None Press 'Call' to receive data. If no data is received, 'Disconnect' & change to other COM port. Repeat test.

6. Something Else

Which part is at fault? If the system is still not working:	Try to substitute a different instrument, serial data lead, PC or software.
	If another serial communication system works on the PC, start with the working system and substitute the Norbar instrument, serial data lead and software to find the fault.
	Refer to the help file within the Calibration Certification Software.
	Refer to "Guidebook for Norbar Data Transmission" on the web site: http://www.norbar.com/faqs.php scroll down to Transmiitting Data from Norbar Instruments.