

WARNING:

THE INSTRUMENT WEIGHS 38kg AND IS UNSTABLE WHEN CARRIED.

THEREFORE, IN ORDER TO LIFT IT FROM ITS PALLET AND PLACE IT IN ITS WORKING LOCATION, THE INSTRUMENT SHOULD BE LIFTED VERTICALLY. THE SERVICE ENGINEER MUST DECIDE WHETHER TO USE MANUAL OR MECHANICAL LIFTING DEPENDING UPON THE ENVIRONMENT AND THE DISTANCE TO BE MOVED.

Cautions

Do not use the instrument worktable to lift the base unit out of the shipping crate.

To avoid damage to the precision rotary spindle parts, DO NOT rotate the worktable until the instrument is connected to the air line and the correct air pressure is applied. The weight of the worktable is usually sufficient to prevent rotation when pressurised air is not present.

The workbench must be strong enough to support 140kg (300lbs).

1.1.5 Transit bolts

Note:

The Talyrond 30 is not fitted with column transit bolts or spindle transit bolts.

1.1.6 Setting up the instrument

1.1.6.1 When all of the units are assembled and the TRANSIT BOLT ASSEMBLIES REMOVED, ensure that the equipment does not rock by adjusting the four feet on the base until they are all in solid contact with the worktable surface. The instrument must then be levelled. System interconnections can then be made and the air and mains power connected.

1.1.7 Levelling

1.1.7.1 If high accuracy roundness measurements are to be made, then the instrument must be level. Any roundness measurements taken without proper levelling will contain an elliptical component.

1.1.7.2 Use a spirit level on the homed C&L table surface and check that the instrument is level to within 0.1mm/m in both planes by careful fine adjustment of the four adjustable feet, levelling may need refining after being allowed to settle for 24 hours.

1.1.8 Connecting the Instrument

1.1.8.1 Connect the instrument as per the connection diagram in Fig 2.1 below.

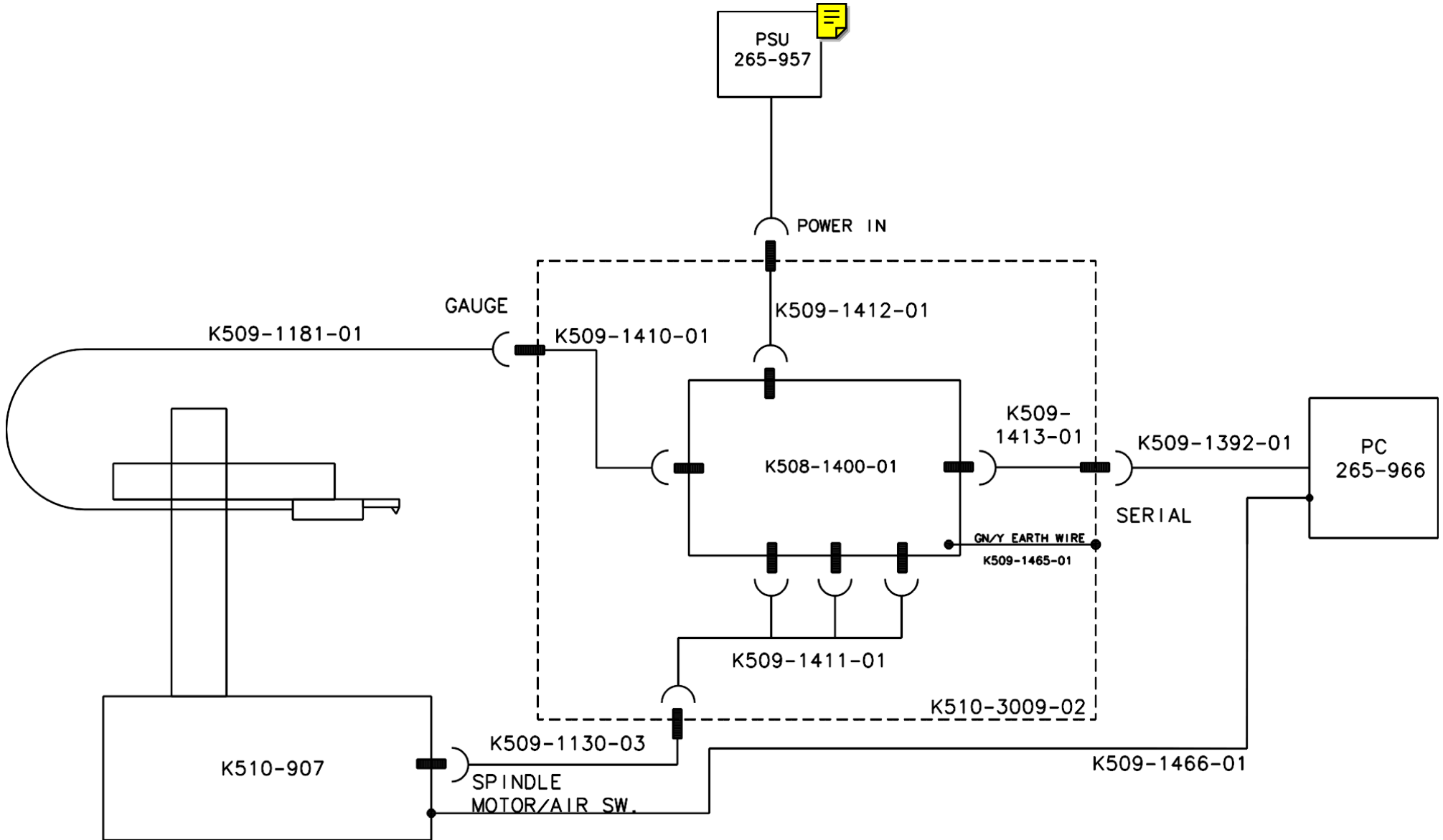


Figure 2.1 Connecting the instrument

1.1.9 Connecting the instrument to a compressed air supply

Warning

Indiscriminate use of compressed air can lead to serious injury. Use extreme caution when connecting or disconnecting compressed air supplies to and within the instrument. Always ensure that the air supply is switched off or is disconnected before attempting any dismantling. Under no circumstances allow air to be blown directly onto the skin.

Note

The main air supply pipe should be angled down in the direction of the airflow and the supply pipe to the instrument rise vertically from it. By this means, the oil and moisture in the air delivered to the instrument will be minimized. In addition, the supply pipe must be free of sharp bends to avoid airflow restriction

In cases where the quality of the air supply is poor, it may be necessary to install filters, air dryers and automatic drains into the supply lines.

It is essential that the air supply is connected before the instrument is switched on. The airline is connected to the rear of the base of the instrument. Ensure that there is no leakage from the connection. Slide the red sleeve valve towards the front of the instrument to switch it on.

1.1.9.1 The regulator should always be left in the 'locked' position. To adjust the regulator, first release the knob by pulling it upwards, set the pressure and then push the knob home to lock it again.

1.1.9.2 On the front panel of the compressed air enclosure, switch on the air supply. Remove the side panel of the compressed air enclosure and, observing the pressure gauge, ensure that the regulator is set to 50-lbf/in² gauge (3.4 bar). If necessary, check and rectify any obvious air leaks and adjust the pressure as described in the note above.

1.1.10 Interconnection of Instrument, Host Computer and Printer

Warning

Do not make any connections to the mains supply yet.

CAUTION

When interconnecting the PC to the VDU and Printer; ensure correct connections are made.

- 1.1.10.1 Follow the manufacturer's interconnection details supplied with the PC, VDU and Printer
- 1.1.10.2 With the exception of the mains inlet, connect the system as shown in the diagram in Connecting the RIM
- 1.1.10.3 Ensure that all connections are made in accordance with the following list.

1.1.11 Switching on

- 1.1.11.1 The power to the instrument is supplied via the external 12V power supply (265-957). The electrical power to the PC is controlled via the mains on/off switch on the front panel of the PC.
- 1.1.11.2 Once the instrument has been fully connected it may be switched on. Switch on the mains power to the instrument and the PC and press the on/off switch on the computer. Once the computer has run its self-check routines, the software can be started using the on-screen Ultra icon.
- 1.1.11.3 To switch off the system, switch off the computer, then switch off the mains power switches to the instrument and the PC.
- 1.1.11.4 The instrument is now ready for operation.

1.2 Positioning the gauge on workpiece

- 1.2.1 The workpiece to be measured is placed on the worktable and the axis of the workpiece aligned with the axis of rotation. A stylus contacts the workpiece which is rotated about the vertical axis.

1.3 Installing/Upgrading Ultra software

- 1.3.1 Ensure that the Ultra Software is completely shut down.
- 1.3.2 Using Windows Explorer, navigate to the directory where Ultra was installed. The default location is; C:\Program Files\Taylor Hobson\Ultra\database.
- 1.3.3 Copy the two files "Licence.txt" (from C:\Program Files\Taylor Hobson\Ultra\config) and "Ultra.mdb" (from C:\Program Files\Taylor Hobson\Ultra\database) to a safe location for example; C:\.
- 1.3.4 Follow these instructions to Uninstall the existing Ultra Software;
 - 1.3.4.1 Click on the Windows START button.
 - 1.3.4.2 Select the 'Settings' option from the menu.

1.3.4.3" Select the 'Control Panel' from the sub-menu.

1.3.4.4" Double click on the 'Add Remove Programs' icon.

1.3.4.5" Select Ultra from the list and click on the "Add/Remove..." button.

1.3.5 Using Windows Explorer, navigate to the ..\Taylor Hobson directory. The default location is; C:\Program Files\Taylor Hobson

1.3.6 Delete the "Taylor Hobson" directory.

1.3.7 Install the new Ultra Software by putting the CD into the CD drive and following the instructions of the auto-run install program.

1.3.8 Using Windows Explorer, navigate to the directory where you stored the files in step 3. Copy the file "Licence.txt" from this backup location to the \config directory and "Ultra.mdb" to the new \database directory. The default location is; C:\Program Files\Taylor Hobson\Ultra.

1.4 Configuring the instrument

Note ...

The software comes with an Off-Line instrument already configured and it is selected by default.

1.4.1 To create and configure a new On – Line Instrument that reflects the hardware carry out the following procedure:

1.4.1.1 From the Main Window menu bar, select 'User' and from the drop down menu select the 'Select Instrument' option. The 'Select Instrument' dialog is displayed.

1.4.1.2 Ensure that the 'Off-Line' check box is unchecked, and select 'New On–Line Instrument'. If an 'On-Line Instrument' has not previously been configured, this will be the only option available. Select OK, the 'New On-Line Instrument' dialog will be displayed.

1.4.1.3 Select the Instrument Type e.g. TR30 from the drop down menu and give the instrument an appropriate name. Select OK, an 'Initial Configure' dialog is displayed.

1.4.1.4 Ensure that the hardware appropriate to the Instrument is selected e.g. Manual or Automatic C & L Table. Select OK, a 'Configure' dialog for the Gauge is displayed. (Currently only the Talymin Inductive gauge is available).

1.4.1.5 Select OK, a 'Configure' dialog for the Stylus is displayed. From the drop down menu select the appropriate stylus.

1.4.1.6 Select OK an 'Initial Configure' dialog is displayed. Enter the scale positions for the Arm [R] and the Column [Z], these are taken from the Fiducial Scales on the Arm and Column.

1.4.1.7 Select OK, the "<Instrument Name>" dialog is displayed, it contains information on the selections made. Select OK, the Ultra software will now be connected to the newly created instrument. Check that the "<Instrument Name>" is now displayed in the bottom RH side on the Status Bar.

1.5 Calibrating the gauge

Note ...

Calibration of the Gauge can be carried out using a Flick Standard or by using Slip Blocks.

1.5.1 Calibration Using Slip Blocks

Note ...

When using slip blocks to calibrate the gauge, it is good practice to lower the stylus from the null position by half the step height e.g. For Range 1, the gauge reading below the gauge icon on the Instrument Status dialog is +250mm). This is to ensure that the Gauge is calibrated symmetrically about the null position

1.5.1.1 Ensure that the table is in the 'Home' position and apply the spindle clamp. Set the attitude and orientation to, Horizontal and Down. Wring the slip blocks (2.8mm, 3mm and 2.5mm) onto the glass flat and place under the gauge, bring the stylus into position just above and towards the edge of the 3mm slip block.

1.5.1.2 From the Talyrond drop down menu, select 'Instrument Status'. The Instrument Status dialog will be displayed, Right mouse click on the top of the gauge icon and from the drop down menu select 'Properties'. Select the appropriate gauge range i.e. 2mm or 0.4mm. Select OK.

1.5.1.3 Using the Device Control dialog for the column, select contact and check that the stylus is in contact with the 3mm slip block. On the Device Control dialog, select Move Relative Z (Negative) the Move Relative Z (Negative) dialog will be displayed. Enter half the step height for the range being calibrated i.e.0.1mm for the 0.4mm range or 0.25mm for the 2mm range. Select OK.

1.5.1.4 In the Instrument Status dialog, right mouse click on the top of the gauge icon and from the drop down menu select 'Calibrate' ? and from the Calibrate drop down menu select 'New', the 'New' dialog is displayed. In the 'New' dialog select the name of the Calibration Standard that is currently in use or select a 'New Standard' if one does not already exist. Select OK. (If a new standard is selected the 'New Standard' dialog is displayed, select the calibration component type and give it an appropriate name. Select OK the Define Standard dialog is displayed, check that the correct standard type is displayed and enter the correct Step Height.) Select OK this will display a Perform Calibration dialog with a Perform Calibration tab, choose the required Gauge Range, and select OK.

Note ...

Do not check the Contact Before Measurement checkbox

1.5.1.5 This will start the calibration, a Confirm dialog is displayed asking the user to 'Move gauge to first step' select OK, a further Confirm dialog is displayed asking the user 'Move gauge to other step', slide the glass so that the stylus drops onto the second surface, select OK. When the calibration is complete another 'Confirm' dialog is displayed follow the instructions on the dialog. Selecting 'Yes' will store the calibration constant.

1.5.1.6 Calibrating the 0.08mm Range. Ensure that the table is in the 'Home' position and apply the spindle clamp. Set the attitude and orientation to Horizontal and Down. Wring the slip blocks (3mm and 2.96mm) onto the glass flat and place under the gauge, bring the stylus into position just above and towards the edge of the 3mm slip block. From the Talyrond drop down menu, select 'Instrument Status'. The Instrument Status dialog will be displayed, Right mouse click on the top of the gauge icon and from the drop down menu select 'Properties'. Select the gauge range 0.4mm. Select OK.

1.5.1.7 Using the Device Control dialog for the column, select contact and check that the stylus is in contact with the 3mm slip block. On the Device Control dialog, select Move Relative Z (Negative) the Move Relative Z (Negative) dialog will be displayed. Enter .1mm and select OK. On the Device Control dialog, select Move Relative Z (Positive) the Move Relative Z (Positive) dialog will be displayed. Enter .08mm.

1.5.1.8 Repeat paras 4 and 5

1.5.1.9 If a previously used standard is selected, Select OK this will display a Perform Calibration dialog with a Perform Calibration tab, choose the required Gauge Range, check the Contact Before Measure box and select OK. This will then start the calibration.

1.5.2 Calibration Using The Flick Standard

1.5.2.1 Centre and Level the Centring and Levelling Table.

Note ...

When using a Flick Standard to calibrate the gauge, ensure that it is the correct one for the Gauge Range in use. i.e. for the 0.4mm and 2.0mm Ranges use the 300mm Flick Standard and for the 0.8mm Range use the 20mm Flick Standard.

1.5.2.2 When the set-up is complete, from the Talyrond drop down menu, select Instrument Status. The Instrument Status dialog will be displayed, right mouse click on the top of the gauge icon and from the drop down menu select 'Calibrate' ? and from the Calibrate drop down menu select 'New'. In the 'New' dialog select the name of the Standard that is currently in use or select a 'New Standard' if one does not already exist. Select OK the 'New Standard' dialog is displayed select, the calibration component type and give it an appropriate name. Select OK the Define Standard dialog is displayed, check that the correct standard type is displayed and enter the correct Flat

Depth. Select OK this will display a Flick Standard dialog with a Perform Calibration tab choose the required Gauge Range, select OK. This will then start the calibration which when complete will display a window showing a Raw Profile view.

1.6 Setting Resistive and Phase Balances

1.6.1 Ensure that the Gauge has been calibrated.

1.6.2 Place a component centrally on the Centring and Levelling table, using the concentric lines on the table as a guide.

1.6.3 From the Talyrond drop down menu select 'Instrument Status' the Instrument Status dialog will be displayed. Right mouse click towards the top of the gauge icon and from the drop down menu select 'Calibrate'. From the drop down menu select Resistive Balance, the Resistive Balance dialog will be displayed follow the instructions on the dialog.

1.6.4 Right mouse click towards the top of the gauge icon and from the drop down menu select 'Calibrate'. From the drop down menu select Phase Balance, the Phase Balance dialog will be displayed follow the instructions on the dialog.