

Introduction

CALIBRATION



Gap Calibration

Inclinometer

Monitor Thickness



Gap Calibration



Gap sensor

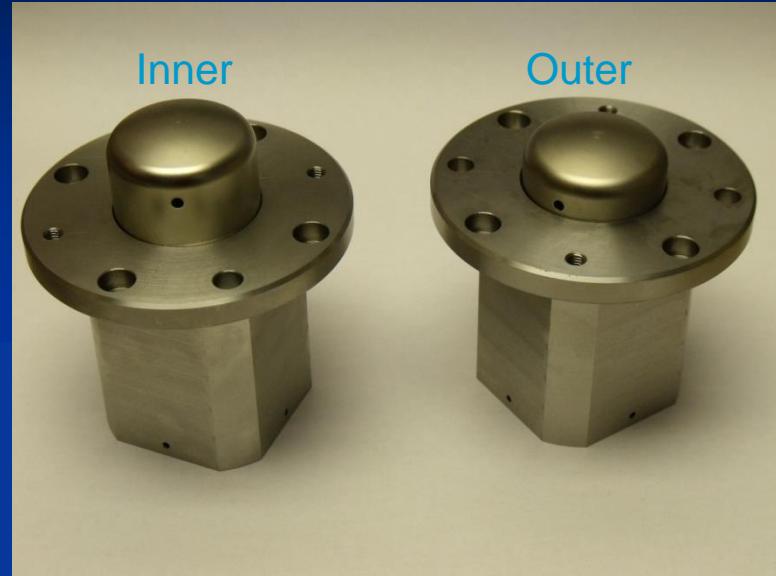


Gap Sensor housings

Here are the gap sensor housings which have been removed from the SCM body.

Notice the difference between the housings.

By removing the 4 screws at the rear of the housing, the gap sensors can be seen as shown below.



Regular maintenance, as explained in the Operator manual, will keep these sensors in good condition and produce accurate results.



Items required for gap calibration



Calibration caps



Laptop Computer

** Also required is the SCM Data Transfer Cable

Connect the Laptop to the SCM



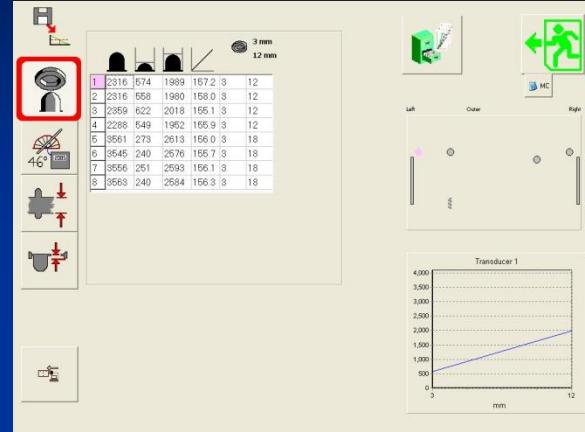
Start the PC
software by clicking
on this icon on the
desktop



Gap calibration laptop screens



Click the calibration button



Choose gap calibration

	1	2316	574	1989	157.2	3	12
2	2316	558	1980	158.0	3	12	
3	2359	622	2018	155.1	3	12	
4	2288	549	1952	155.9	3	12	
5	3561	273	2613	156.0	3	18	
6	3545	240	2576	155.7	3	18	
7	3556	251	2593	156.1	3	18	
8	3563	240	2584	156.3	3	18	

Select gap sensor to calibrate

Fit the gap calibration caps

Gap calibration involves referencing a voltage output from the sensor to a known distance.

In order to do this, 3 reference points are taken along the travel of the sensor, for example 3mm, 12mm and fully extended.

These values create a straight line graph on which we can plot all other voltages to a distance.

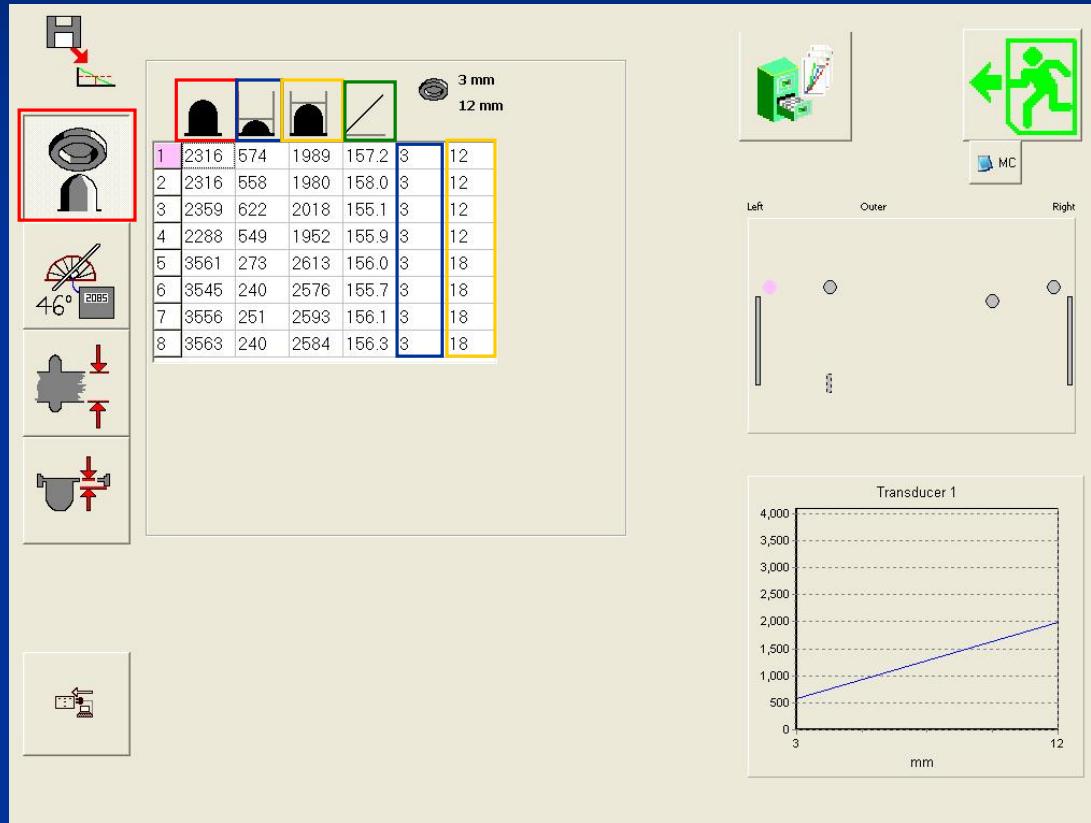


Inner face

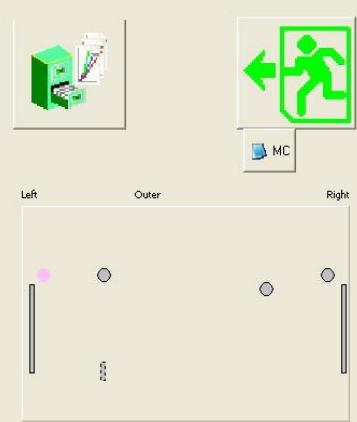


Outer face

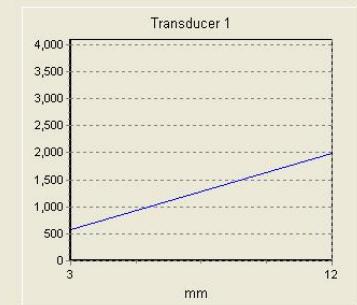
Gap calibration screen



Rest value measurement.
This measurement is carried out with *no* calibration cap fitted



Small gap value. This measurement is carried out with the *shallow* face of the calibration cap



Large gap value. This measurement is carried out with the *deeper* face of the calibration cap

The *slope* value. This value is calculated from the previous three measurements

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Monitor Thickness



SARCLAD



Monitor Thickness



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Set up the Digital Depth Gauge



Fit the battery

When the battery is fitted the DDG should look like this



Press <SET> twice



Press <MODE> to set mm



Press and hold <MODE>. The display will flash



Press <SET> and the display will stop flashing



Press <MODE> to select reverse measurement and <SET> to confirm



Press and hold <MODE>



Preset value set-up

The preset value is as follows:-

Preset value = Gauging sleeve – gauging ring

To set a preset value of 218.00



Press <SET>
P flashes



Press and hold
<SET> until the +
symbol flashes



Press <SET> twice
to select the 2nd
digit



Press <MODE>
twice to change the
0 to 2



Press <SET> to
select next digit

Press <MODE> to
change 0 to 1

Press <SET> to
select next digit and
press <MODE> 8
times to change the
0 to 8



Press and hold <SET> until
the P flashes then release.

Press and release <SET>
and the preset value is now
set to 218.00

Preset value set-up



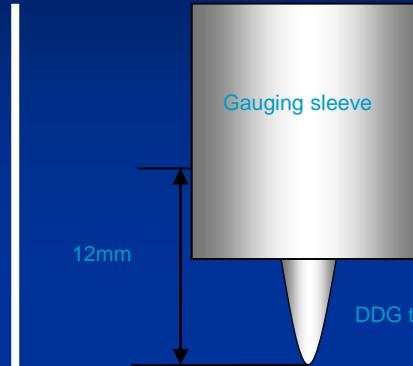
Fit the extension rods to the DDG



Attach the correct extension rods so they are approximately 5mm longer than the gauging sleeve, as shown above



On a clean surface, put the DDG into the gauging sleeve and press the <SET> button twice to confirm the preset value of 218.00



As the DDG only has a 12mm travel the preset value should be set at the mid-point

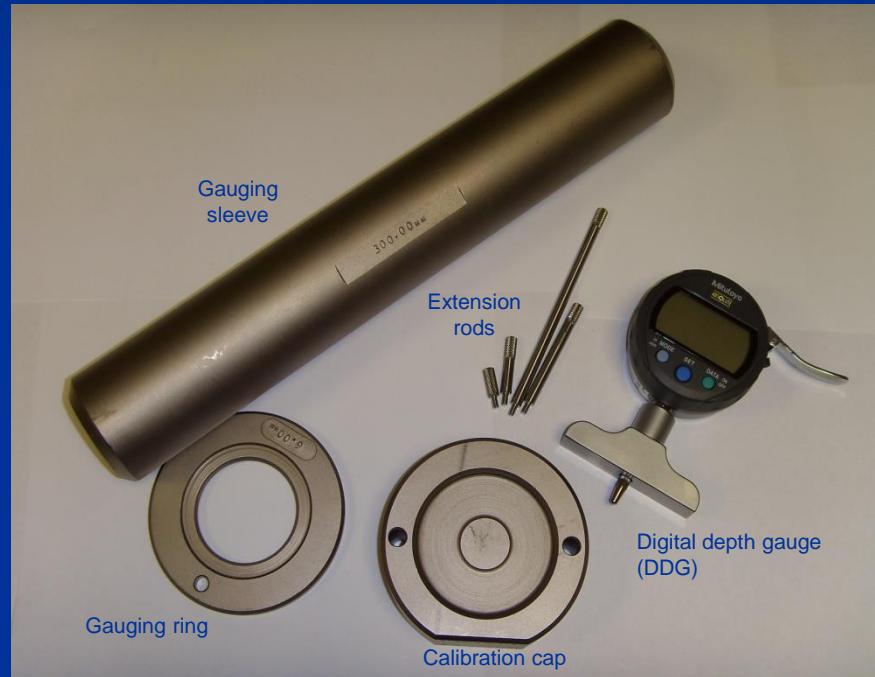
The DDG is now set up to make a monitor thickness measurement



Items required for Monitor thickness



Laptop

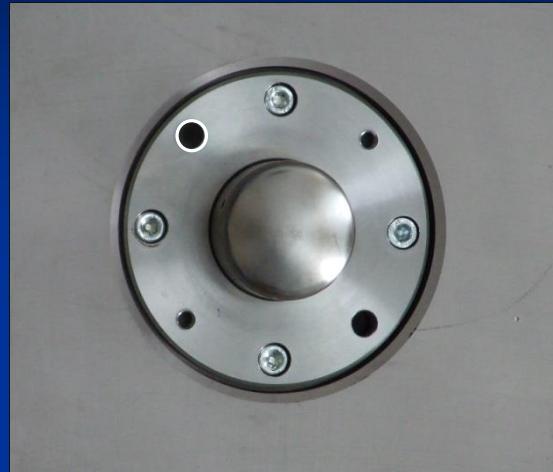


Digital Depth Gauge (DDG), Gauging sleeve, gauging ring, calibration caps (inner and outer), extension rods

Measuring the monitor thickness



Fit the deeper calibration cap to the outer face sensor. Ensure the through hole is completely covered by the calibration cap



This picture highlights the hole through which the DDG is inserted



With the gauging ring between the DDG and the gap sensor flange the gauge displays the monitor thickness value. This value needs to be entered into the laptop computer

This measurement should be carried out for all gap sensor pairs, including bend sensors, if fitted.



Inputting the monitor thickness values



Click the calibration button



Select the monitor thickness
button



Type the value into the
appropriate box. The
example above is for gap
sensor pairs 1-5.

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Monitor Thickness



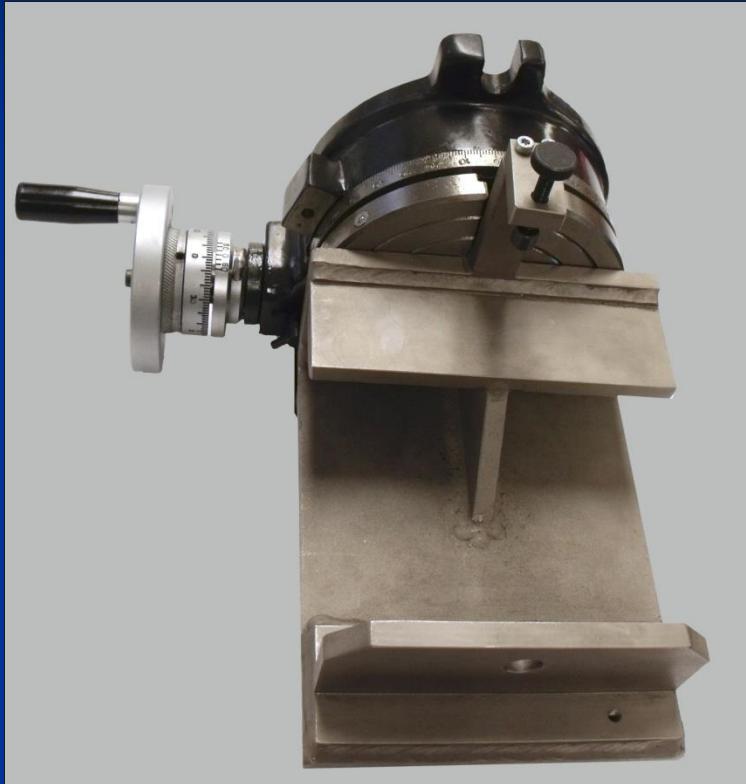
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Inclinometer Calibration



Items required for Inclinometer Calibration



Inclinometer bracket and
Precision Rotary Table



Laptop and
Data Transfer
cable



Digital Level



Setting up the Precision Rotary Table

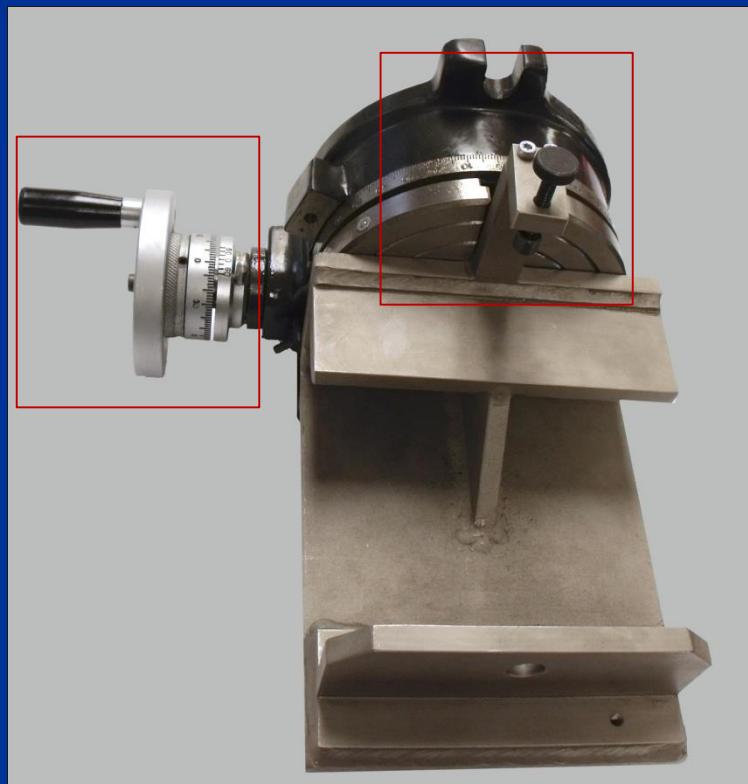
Fit the digital spirit level to the precision rotary table as shown below



Inclinometer bracket

When the spirit level reads zero both the vernier scales should also read zero.

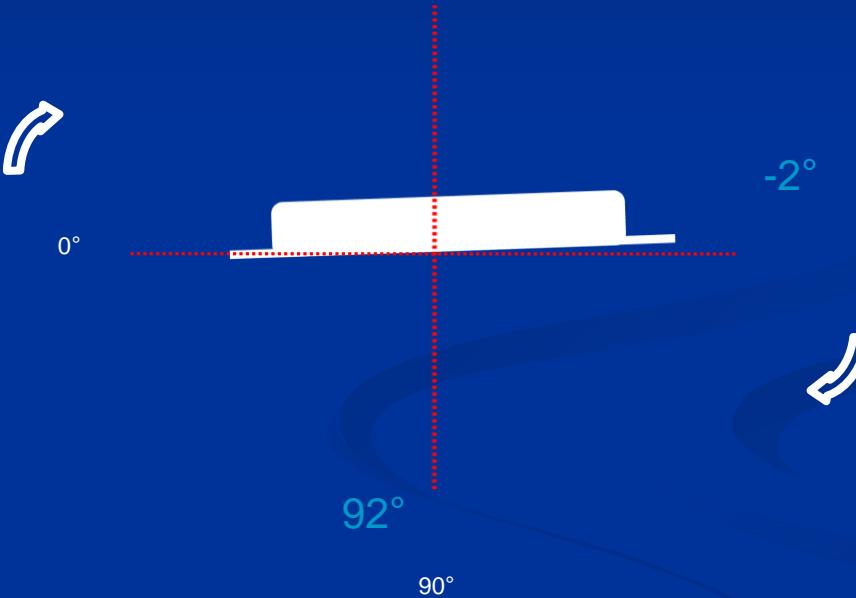
If they don't the allen key grub screw should be loosened and the collar rotated until the zeros line up.



Inclinometer calibration procedure

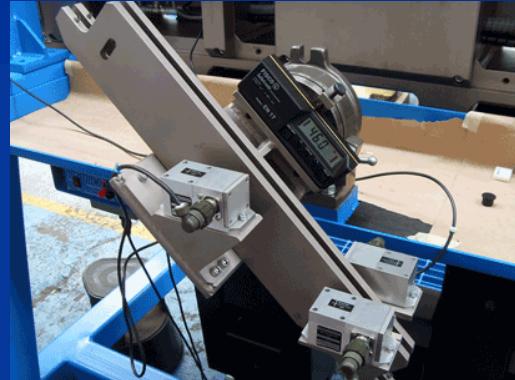


The first measurement is taken at -2° as shown in the graphic below



As the Inclinometers are rotated, measurements are taken every 2° . The last measurement is taken at 92°

Inclinometer calibration



This shows the inclinometer calibration procedure. A reading from each inclinometer is gathered, by the laptop, every 2 degrees.

Inclinometer calibration screen

The screenshot shows a software interface for calibrating inclinometers. On the left, there are four icons representing different calibration positions: horizontal, 46°, 45°, and vertical. The main area contains a table of data for Transducer 44, with rows from -2 to 50 and columns for Angle, Value, and ID. A red box highlights the first three columns of the header row. A yellow box highlights the entire first row. To the right of the table are up/down arrows and a 45° angle indicator. Below the table is a graph titled "Transducer 44" showing a linear relationship between degrees and value. On the right side of the screen, there are icons for a 3D model, a green exit sign, and a "MC" button. At the bottom are three circular buttons with arrows.

Angle	Value	ID
-2	0	3918
0	64	3853
2	130	3786
4	199	3717
6	270	3645
8	344	3571
10	419	3496
12	497	3418
14	576	3338
16	657	3257
18	739	3174
20	823	3090
22	909	3004
24	996	2917
26	1084	2829
28	1173	2740
30	1263	2650
32	1353	2559
34	1445	2467
36	1537	2375
38	1630	2282
40	1723	2189
42	1816	2096
44	1910	2002
46	2003	1909
48	2097	1815
50	2190	1722

This screen shows the inclinometer values for each angle

Here we can select which inclinometer will be calibrated by clicking on the checkbox. Normally all 3 boxes should be checked.

This indicates the calibration angle



Inclinometer sensor



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Monitor Thickness



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SCM Menu structure

Root Menu

CHEC

d IR9

RESET

900d

INC

900d

SAP

E I

1587

INC

E63

89.30

ROLL

E23

d IPO

H2O

E43

33

bATT

13.10



Operator Interface Menu Structure



Remote Control



Power up the SCM



Enter a menu or confirm a selection



Power down the SCM



Start a measurement



Move around menus



Stop a measurement



Energise the hydraulics solenoid



Exit to previous menu



Release the hydraulics solenoid



Gap Sensor Body Fitted



Electrical Training

