

ETher NDE Vantage; A basic pencil probe set up procedure:-

The pencil probe is utilised pre weld inspection to x-check material compatability & coating thickness on ferritic weldments to be tested.

Add. Equipment required:- (a) Lemo 00 to BNC conn. Lead. (b) Pencil point probe. Ref GE Insp. 130P3 35-250kHz (c) 50D carbon steel calibration block, with 0.5, 1.0 & 2.0mm spark eroded slots & 4 x 0.5mm . plastic shims.

Pencil probe lead connection selection:-

- 1) Turn on unit. 
- 2) Toggle down  on menu at left of screen to  & press 
Toggle down to 'Input' & select 'Lemo 00' by using   functions.

Note: In this setting you must initiate the automatic probe balance. This is done by pressing  followed by  to return to the main screen menu. This must also be done when frequency is altered.

Initial screen settings:

-  40kHz
-  -3.0dB
-  20.0dB
-  1V
-  281.9
-  LP
-  x1
-  x1
-  x1
-  Spot position (lower centre)

Mandatory x-check

- 1) Ensure spot is located in the lower centre of the screen. If it is not then change position in the  icon by using   until in the  position. (This allows greater vertical screen height for coating thickness evaluation).
- 2) Using the above 'initial screen settings' balance the probe on the calibration block material by pressing  (F1)
These settings are set to give a vertical / 12 o'clock lift off signal & can be altered to any preferred screen orientation, ie 3 o'clock by selecting the  & using   to alter the phase angle.

(Increment step values can be altered by pressing  until the desired figure is highlighted for a given field)

- (i) Lift off signal from the cal. block bare 50D material set to 100% f.s.h (full screen height)
- (ii) Lift off signal from the cal. block 50D material through 1 x 0.5mm shim (approx 50% f.s.h)
- (iii) Lift off signal from the cal. block 50D material through 2 x 0.5mm shim (1mm total) (approx 30% f.s.h)
- (iv) Lift off signal from the cal. block 50D material through 3 x 0.5mm shim (1.5mm total) (approx 20% f.s.h)
- (v) Lift off signal from the cal. block 50D material through 4 x 0.5mm shim (2mm total) (approx 15% f.s.h)

- 3) Using unchanged settings, the lift off signal obtained from the test sample can then be compared to those previously recorded on the cal. block.
- (i) This will give a rough indication of the coating thickness on the sample being inspected, thus providing a baseline for further inspection.
- (ii) It will also reveal (given the angle/orientation of the lift off), whether the test material is of **similar material composition** to the 50D steel block.
- NB 5° deviation either side of the initial setting ie 12 o'clock outwith test/spec parameters.
- 4) The signal may be centred on the screen by pressing  (F3). This is quicker than the balancing operation; however balancing should always be used when the unit is powered up or when a new probe is fitted.
- 5) Full screen / split screen modes can be accessed by pressing  (F2) until desired mode is displayed.

(COMPILED BY D. McGRATH - AXIOM NDT)