

## CALIBRATING A BENCHTOP 2000 DYNO WITH VERSION 5.xx SOFTWARE

During the life of your SPA Dynamometer it may be necessary to recalibrate it if for any reason the configuration file is corrupt or lost.

Firstly arrange the dyno to operate under computer control but without a damper fitted and the stroke set to 2 inch's.

1. Click on configure, click options, click on 'Bench top Dyno'. Ensure that low speed mode is selected, and the gearbox ratio shows '10.00'. Ensure that automatic best fit is selected. Now click finished.
2. Click on configure. You are now ready to calibrate the Dyno by following this Step-by-step guide. Click on calibration. Click on motor speed, the dyno will now start to slowly ramp up its speed. Allow the computer to fully complete this itself, when the calibration is complete the dyno will stop on its own.
3. Return to the configure menu. Click calibration. Click on position. Click on X1 (Note that X4 is not available as the maximum stroke is two inches). A dialogue box appears asking you to set the stroke to 4 inches, move the cursor to the box containing 4 inches and double click on the box. When the colour changes enter 2 which tells the computer the maximum stroke is 2 inches. Click ok. The dyno will accelerate to 1 Hz. A window will appear as before but this time it will have a maximum and minimum reading both of which must settle before confirming the Calibration.
4. Return to the configure menu. Click on calibration. Click on velocity. Click on X0.25. A dialogue box appears asking you to set the stroke to 4 inches move the cursor to the box containing 4 inches and double click on the box. When it changes colour enter 2, which tells the computer that the maximum stroke is 2 inches. Click ok. The dyno will accelerate to 3.1 Hz. A window will appear as before, when the figure is steady click ok. With the dyno at rest set the dyno to one inch and continue.
5. Return to the configure menu. Click on calibration. Click on velocity, click on X5. A dialogue box appears asking you to set the stroke to 1 inch. Click ok. The dyno will accelerate to 0.6Hz. A window will appear showing the calibration taking place. The important thing from the operator's point of view is to allow sufficient time to take place for an accurate calibration. Study the bottom figure in the window, at first it will change rapidly

but eventually it will become fixed and it is at this point that the calibration is complete. You can now click confirm.

6. Return to the configure menu. Click on calibration, click velocity, click X1. A dialogue box appears asking you to set the stroke to 1 inch. Click ok. The dyno will now accelerate to 3.1 Hz. A window will appear as before, when the figure is steady click ok.
  
7. Return to the configure menu. Click on calibration. Click on load cell. A window appears containing the load cell calibration. To calibrate this you must refer to the calibration certificate which is in the handbook supplied with the dyno. Using the mouse click on the button marked KG, when this is done the bottom box will show the full scale of the load cell which is normally 1500Kg. Check this with the information on the certificate (ensure that the certificate applies to the load cell fitted to the dyno by comparing the serial numbers). If this is incorrect you can change this by double clicking the mouse on the box containing the calibration to be changed. When the display area changes colour type in the correct value, check the sensitivity of the load cell in units of mV/V on the certificate this should be entered similarly in the top box displayed. When satisfied confirm the calibration. You will then be asked if you wish to zero the load cell twice, once for each gain. Zero the load cell on both occasions.
  
8. This has completely calibrated the dyno. However, it has not yet been saved. To save the calibration leave the dyno programme. A dialogue box will appear asking if you wish to save the calibration, press confirm. The new calibration will return when you use the Dyno.

