

PicoDiagnostics[®]

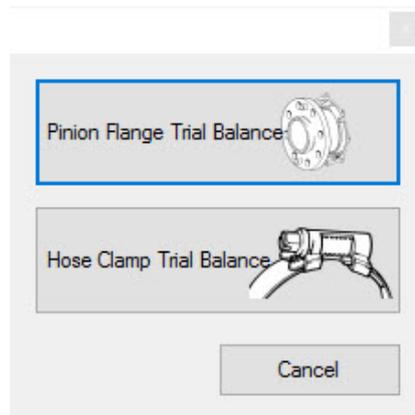
Propshaft balancing – hose clamp method

Step-by-Step Guide

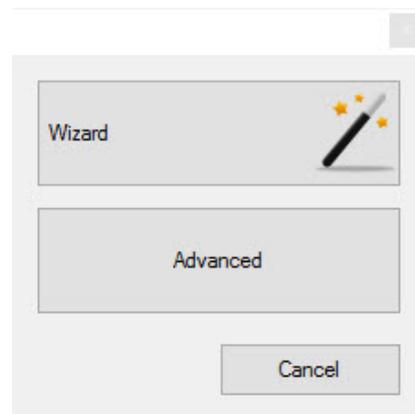


Open PicoDiagnostics and click on the button for the **Propshaft Balancing** test.

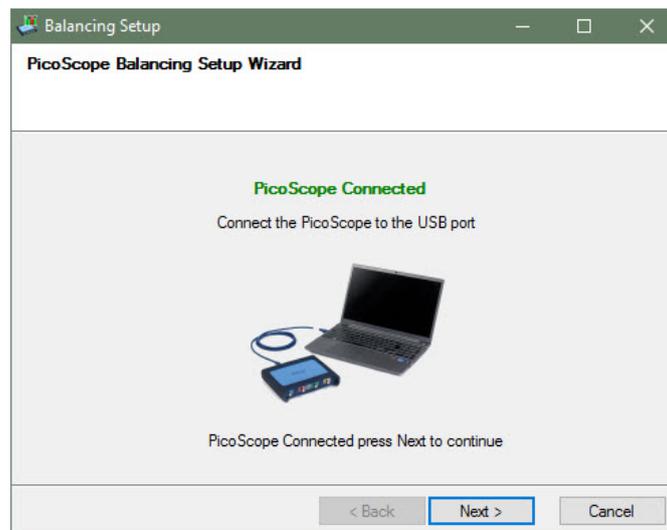
Use the **Hose Clamp Trial Balance** option:



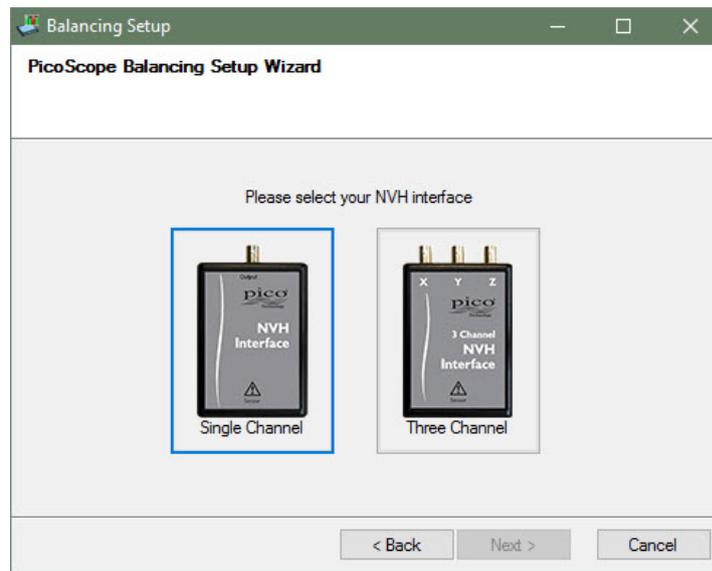
Then click **Wizard**:



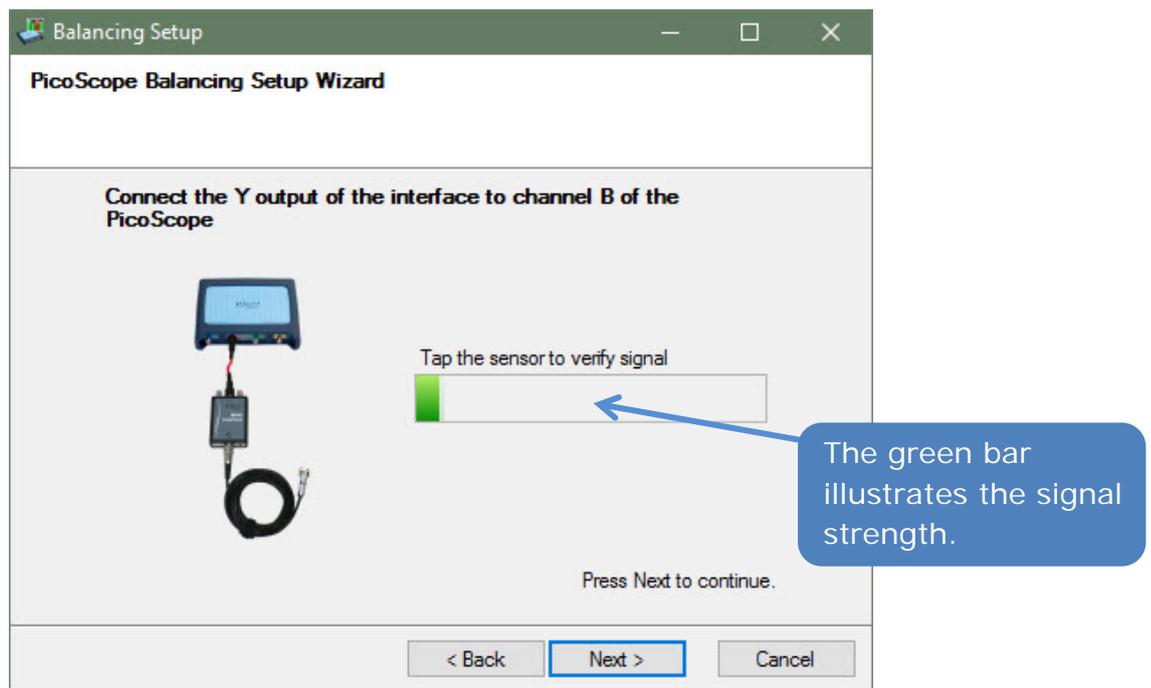
Click **Next >**:



Click the **Three Channel** interface button:

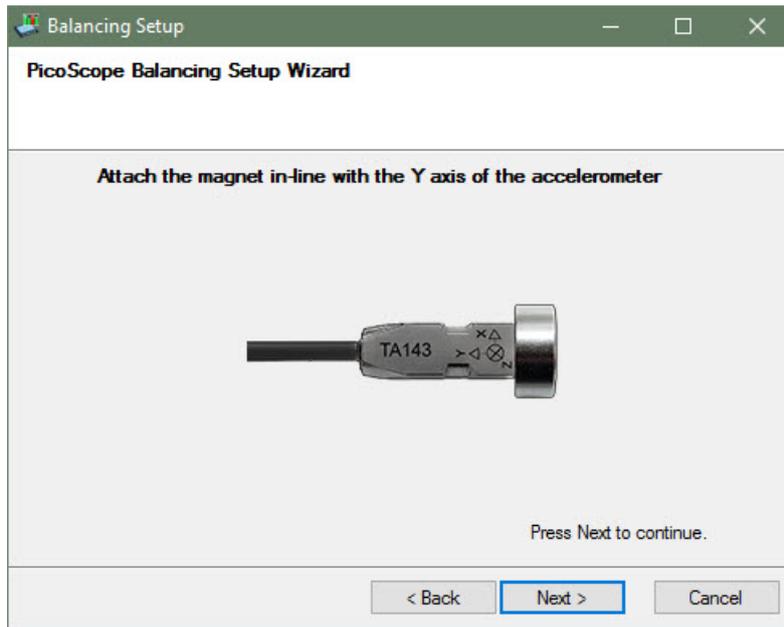


The wizard will display a balancing setup window. Follow the instructions and verify the signal. There should be a significant change in the signal strength:

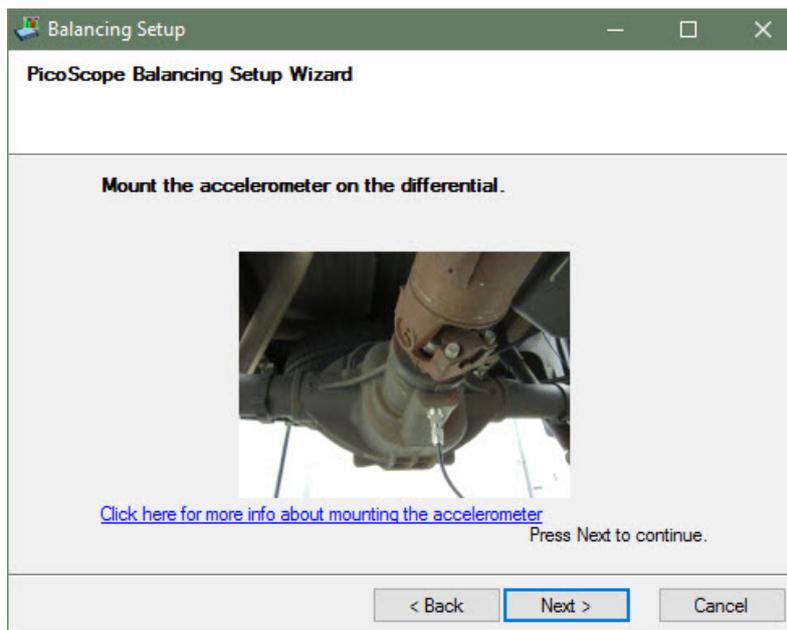


Click **Next >**.

Follow the instructions in the next step and click **Next >**:

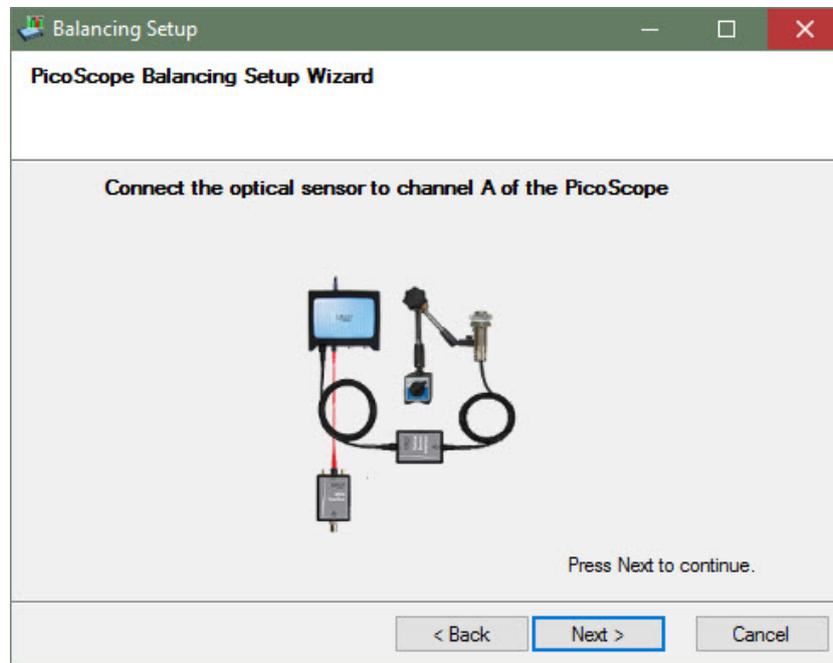


Follow the instructions in the next step and click **Next >**:

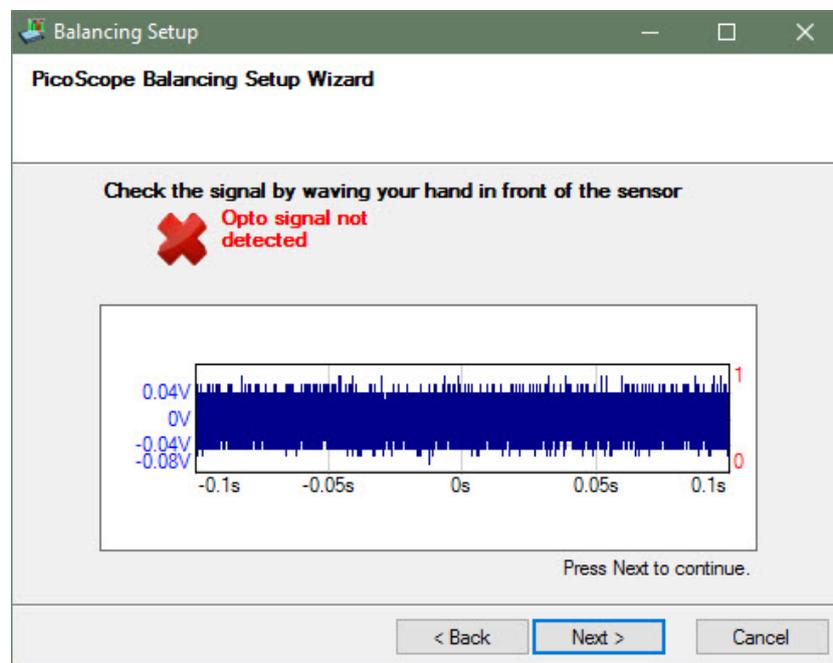


Follow the instructions in the next step. Pay close attention to the diagram as the location of the cables can change depending on the software version and the hardware you use.

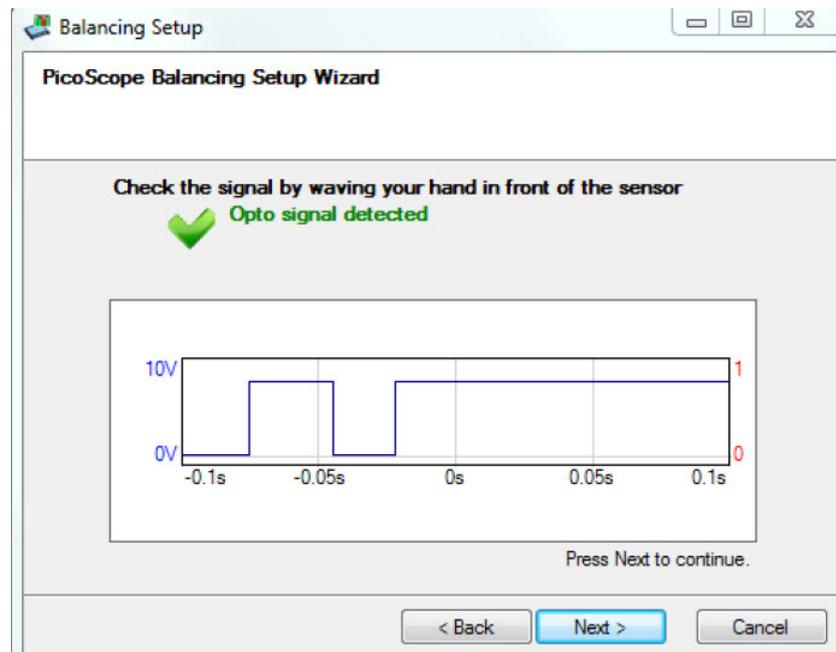
Click **Next >**:



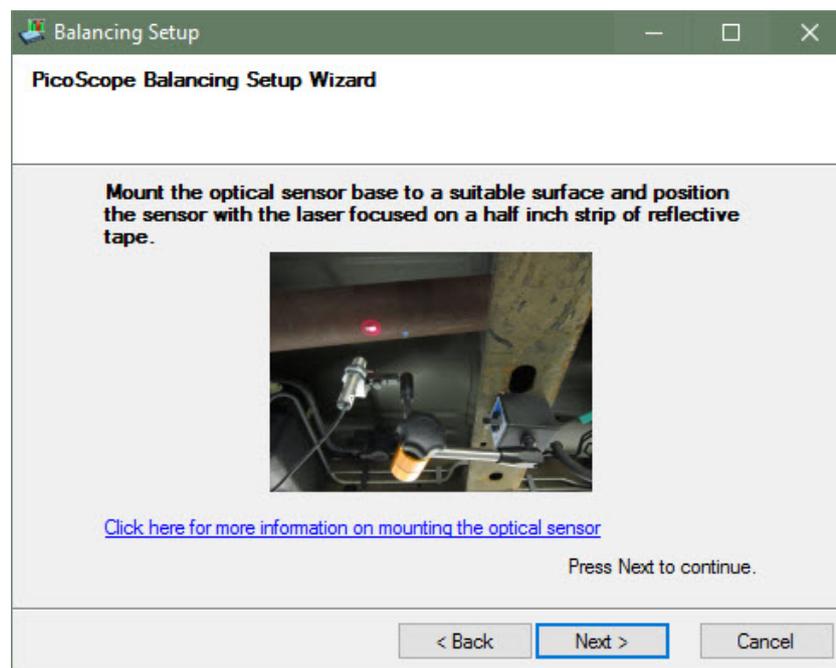
Follow the instructions in the next step.



If the signal wave does not change to the type of pattern shown in the illustration, you may have a problem with the speed pickup. Click **Next >**.



Follow the instructions in the next step and click **Next >**:



Follow the instructions in the step. Check the weight of the hose clamp and click **Next >**:

Balancing Setup

PicoScope Balancing Setup Wizard

Attach two hose clamps around the shaft and mark the band at the end of the adjusting screw. Remove the clamps and cut the excess band at the mark.

Hose Clip Weight (g) 14

[Click here for more info about trimming the hose clamp](#)

[Click here for more info about how to determine the weight of the hose clamp](#)

Press Next to continue.

< Back Next > Cancel

Enter correct information in this step: Either circumference or diameter can be used. The one you choose not to use will automatically populate. Click **Next >**:

Balancing Setup

PicoScope Balancing Setup Wizard

Measure the propshaft circumference

Please enter either the circumference or diameter:

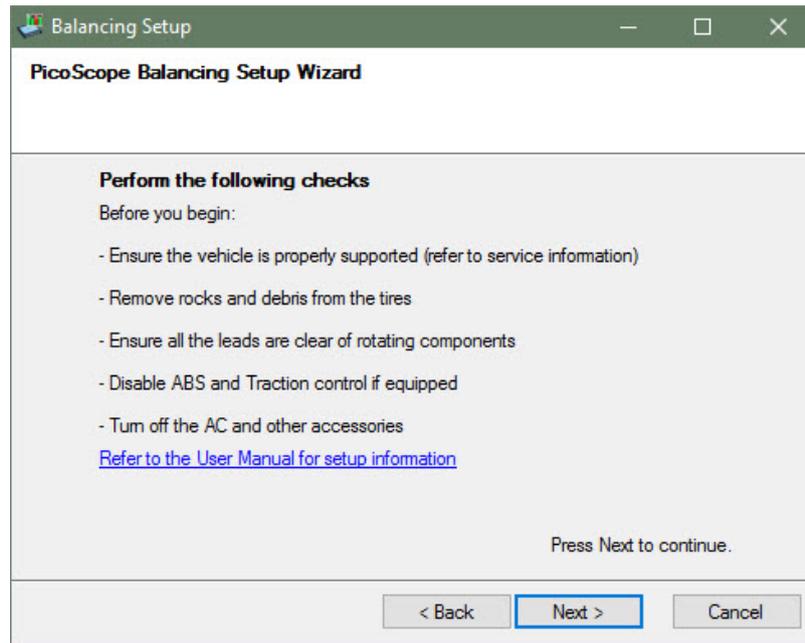
Circumference 31.4mm

Diameter 100mm

Press Next to continue.

< Back Next > Cancel

Perform the checks listed in the following step:

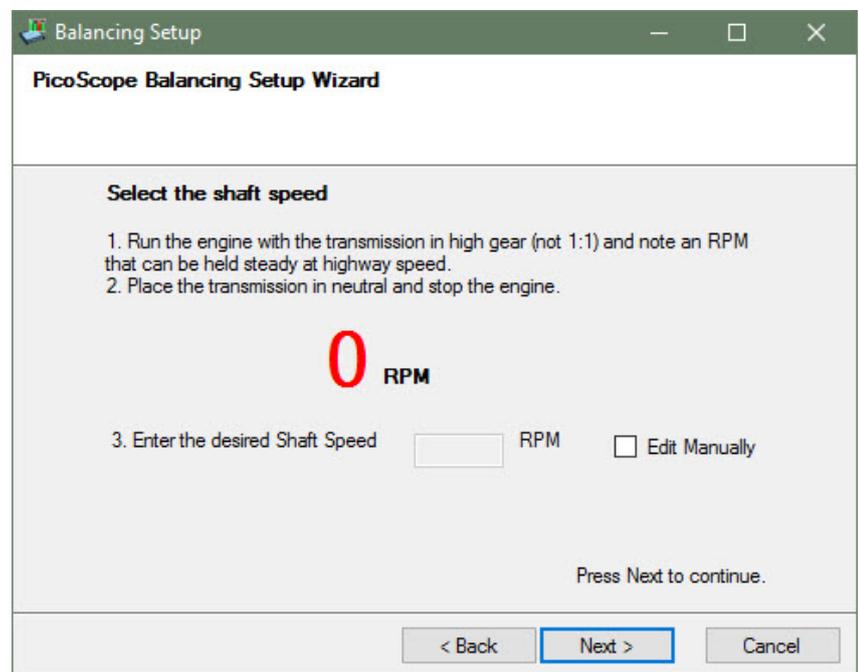


Click **Next >**.

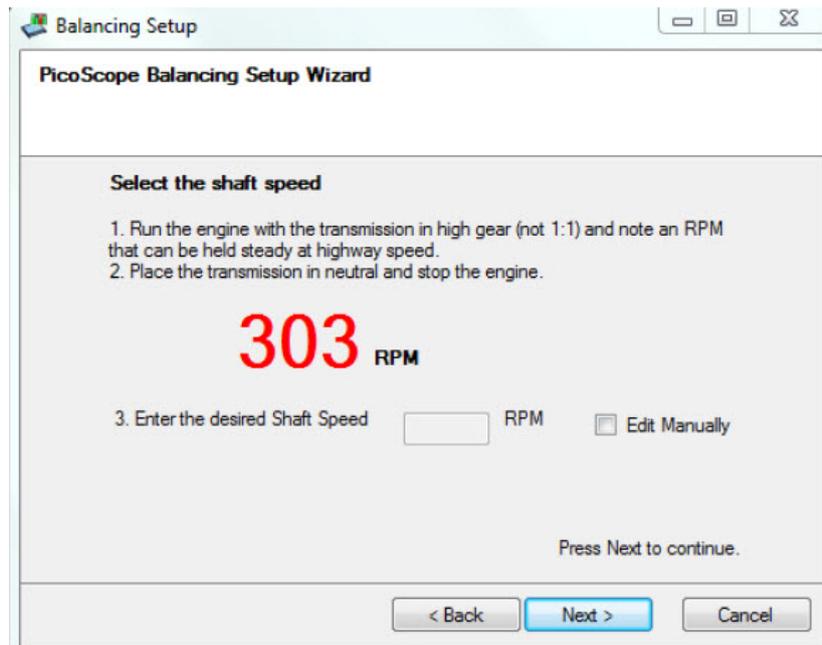
In the following step you enter the desired Shaft Speed:

For Automatic:

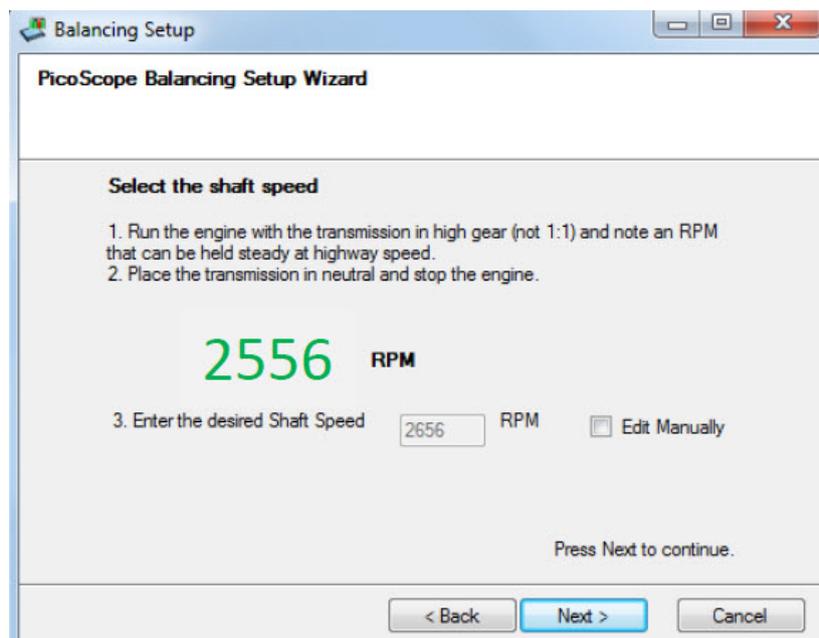
Run the speed up to where you can comfortably hold the vehicle speed and when it is held steady, the RPM will turn green and the "desired" shaft speed will be automatically populated in this field. Best practice is usually between 95 to 105 km/hour. If there is a particular road speed the concern was most noticeable, the vehicle should be driven at that speed on the speedometer and then the RPM should be noted. When the vehicle and the engine are stopped, the RPM can be entered manually in this field. When the RPM value is entered, click **Next >**.



See the RPM increasing:

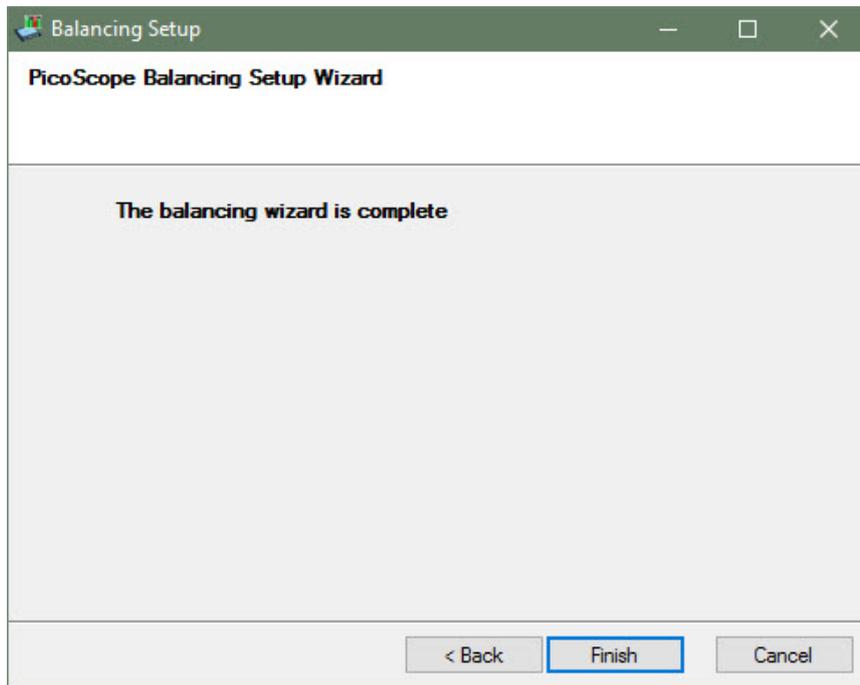


When the vehicle is at a steady speed and the reading is taken, the RPM will turn green and will automatically be populated in the RPM field:



You have now completed the balancing wizard.

Click **Finish**:

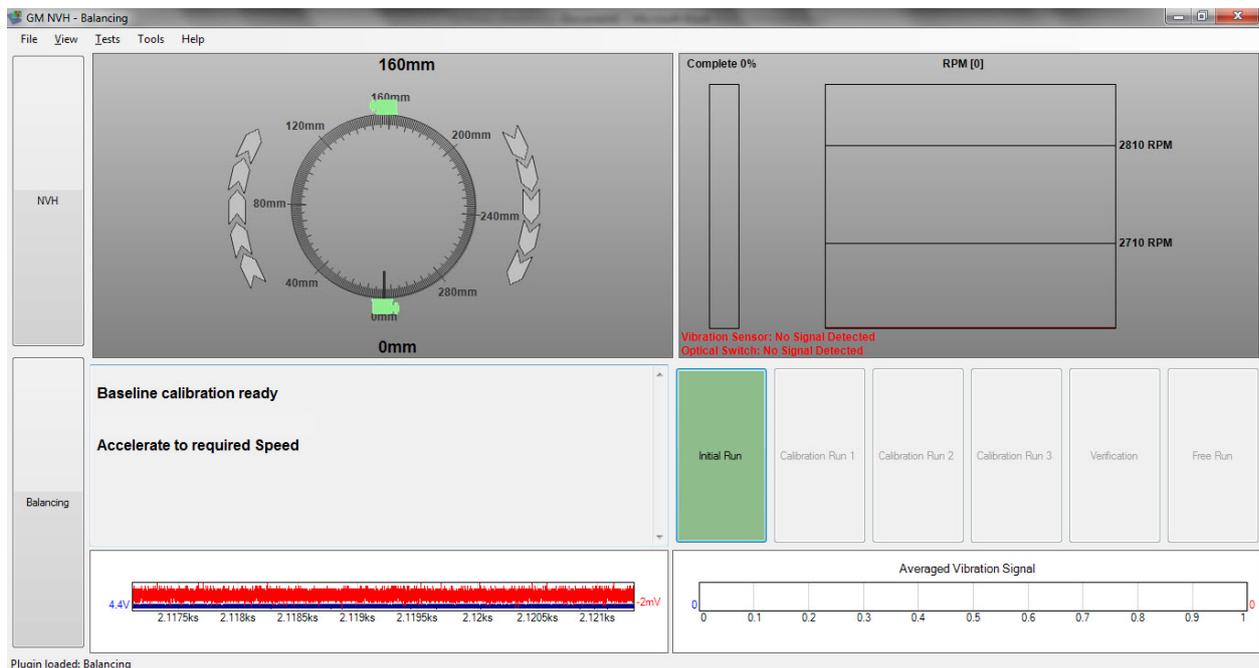
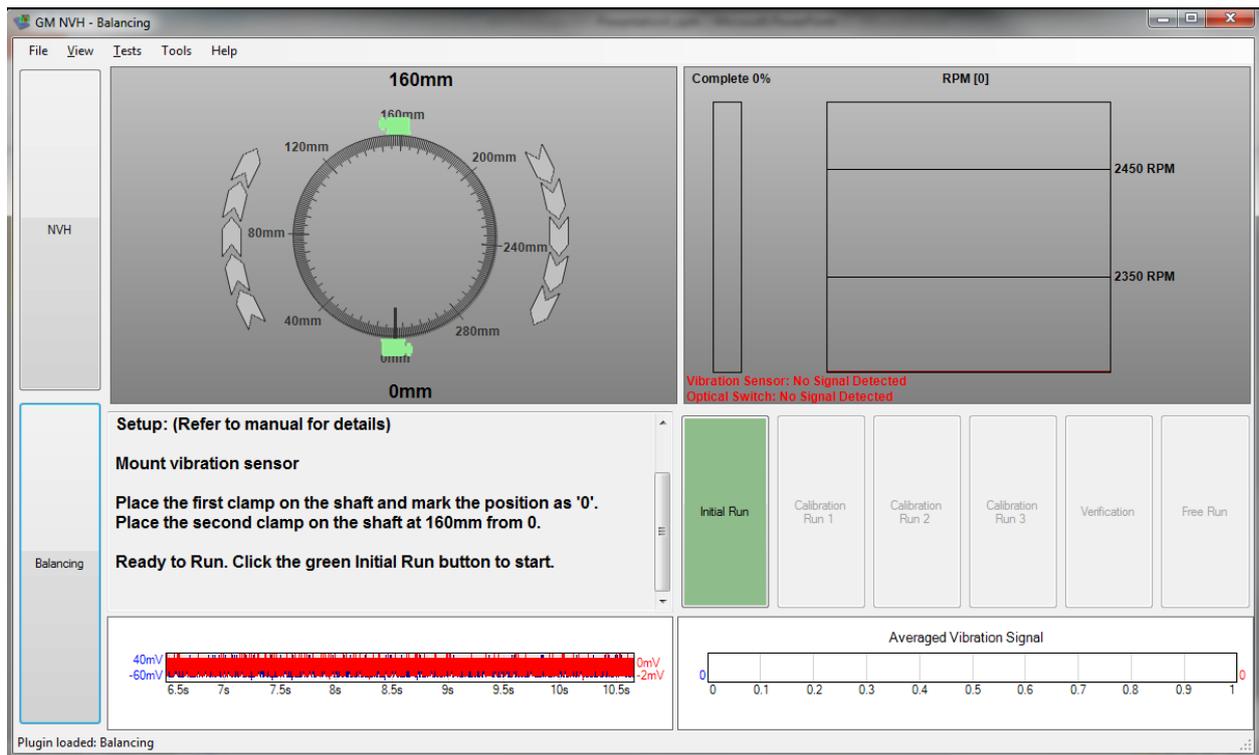


Initial Run

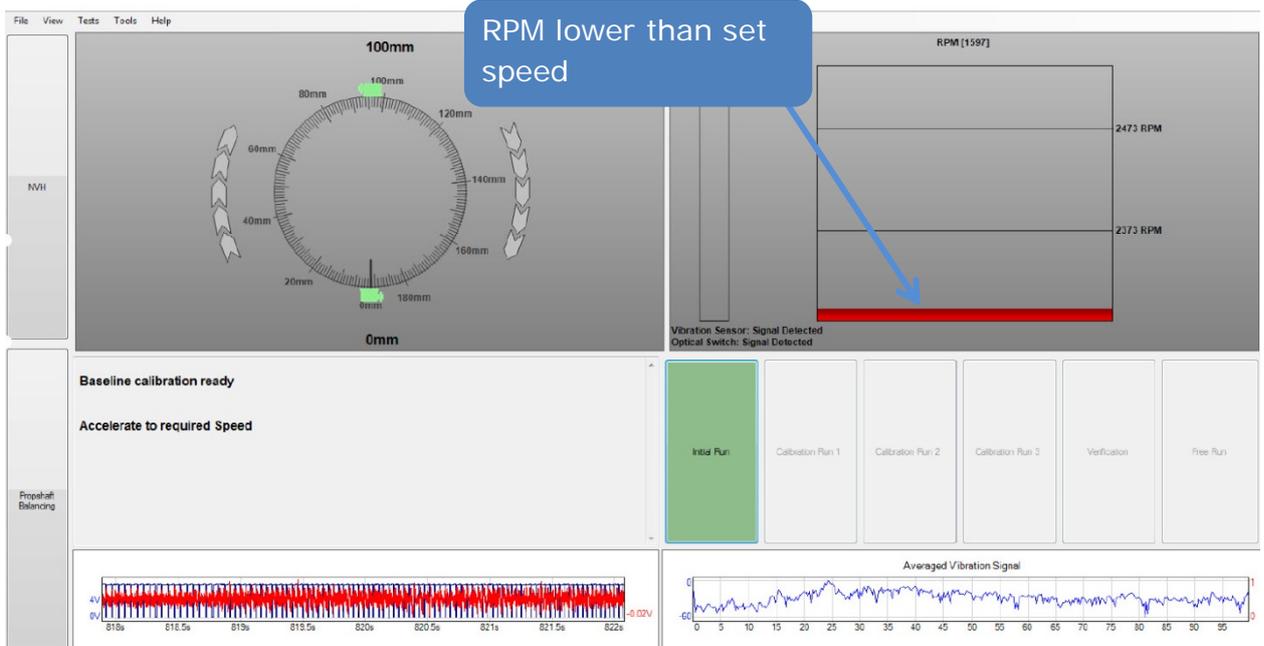
Place the first clamp on the rear of the shaft. Clearly mark its location – this is going to be the reference point for all other measurements. Label the mark as "0mm".

Measure the distance specified by the software to place the second clamp. Place the second clamp next to the first.

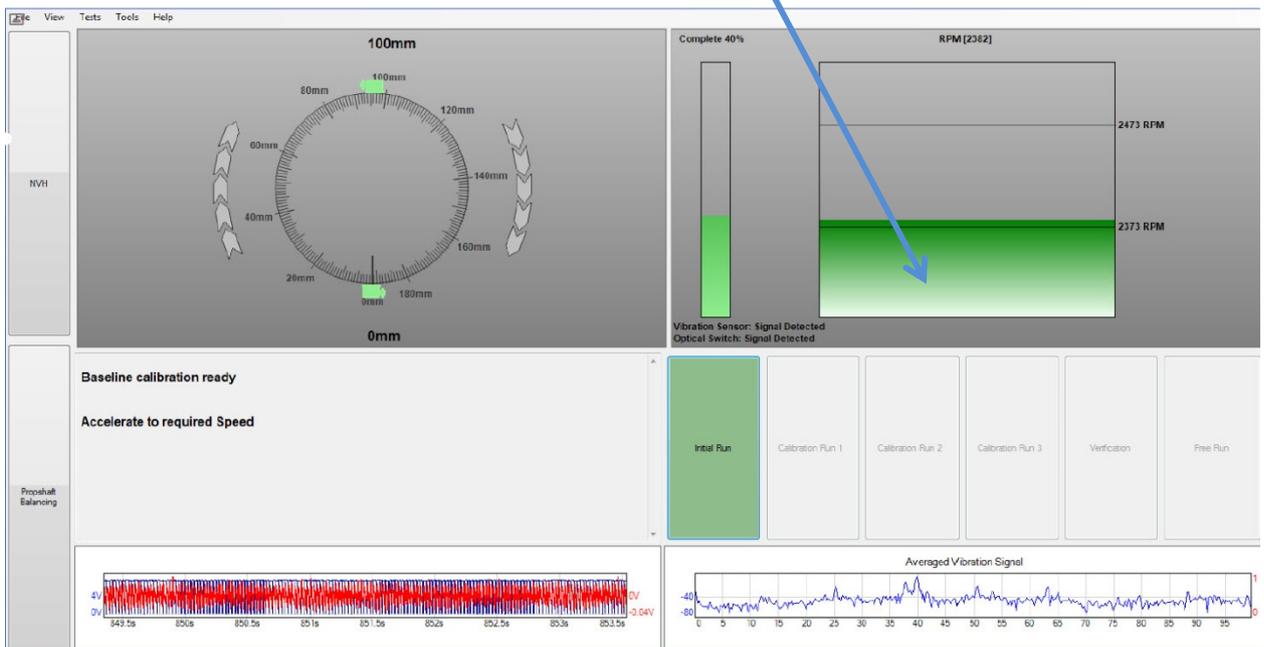
When ready press the green **Initial Run** button in the software.



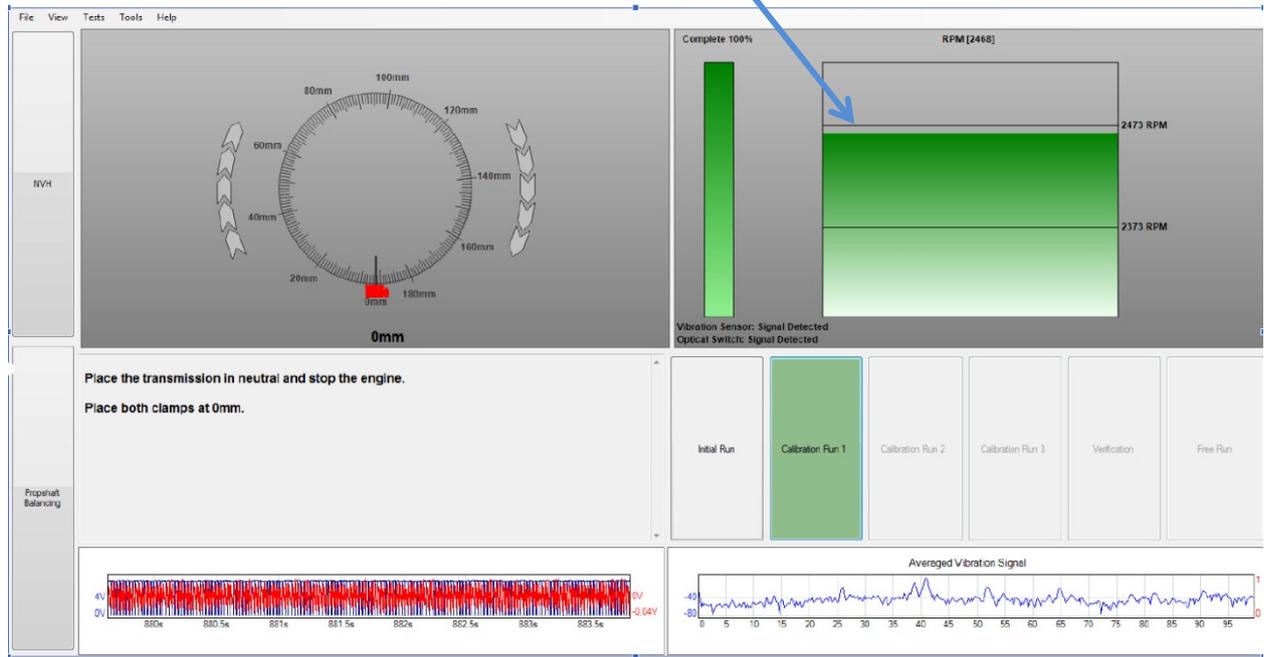
Accelerate to the required speed. The RPM graph will be green when in the specified RPM range. Data will only be gathered while the RPM is in the specified range. As data is collected the % Completed bar will fill.



RPM at set speed and completion rate counting

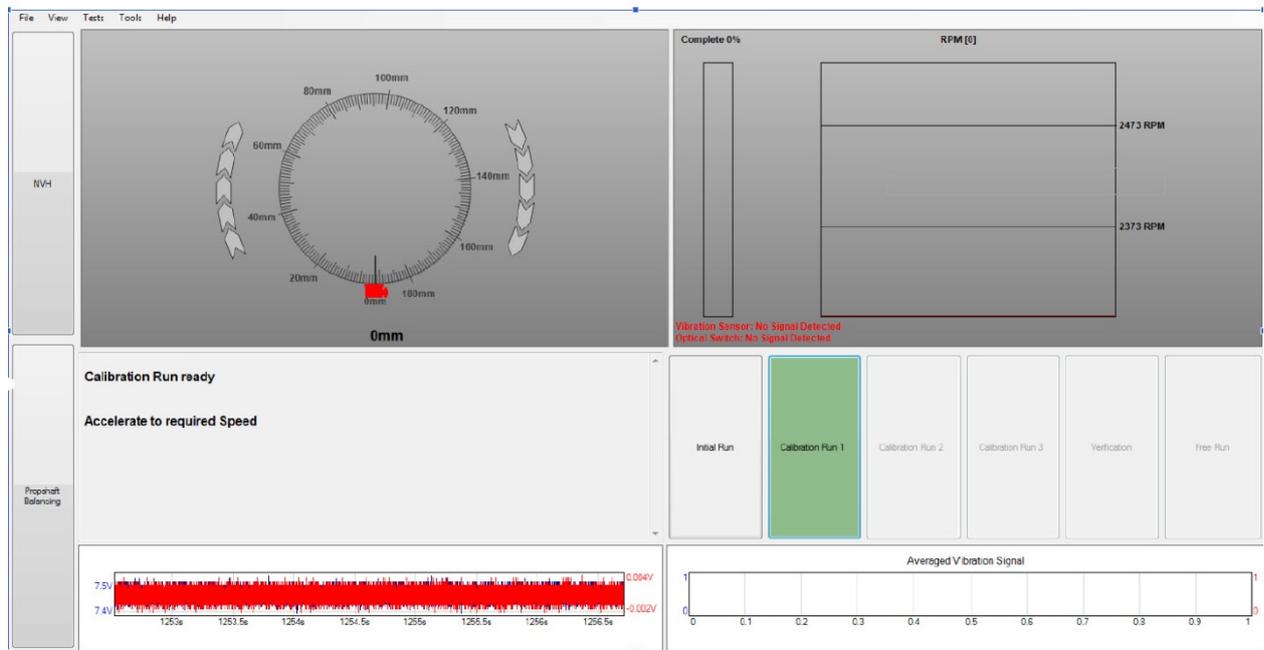


RPM at set speed and completion rate finished. End of test.



Calibration Run 1

Repeat three times following the directions:



File View Tests Tools Help

NVH

0mm

Complete 60%

RPM [2485]

2473 RPM

2373 RPM

Vibration Sensor: Signal Detected
Optical Switch: Signal Detected

Calibration Run ready

Accelerate to required Speed

Initial Run Calibration Run 1 Calibration Run 2 Calibration Run 3 Verification Free Run

Propshaft Balancing

0.11204V

-0.11253V

Averaged Vibration Signal

File View Tests Tools Help

NVH

130mm

Complete 100%

RPM [0]

2473 RPM

2373 RPM

Vibration Sensor: No Signal Detected
Optical Switch: Signal Detected

Place the transmission in neutral and stop the engine.

Place both clamps at 130mm.

Initial Run Calibration Run 1 Calibration Run 2 Calibration Run 3 Verification Free Run

Propshaft Balancing

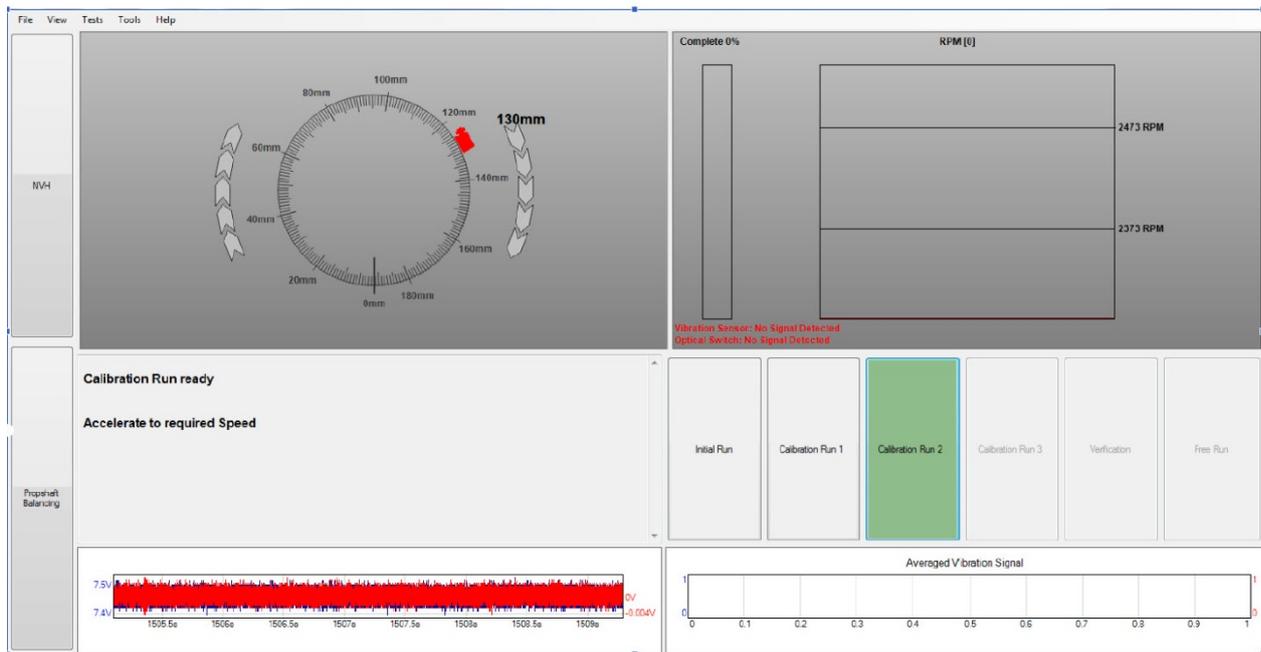
0.004V

-0.004V

Averaged Vibration Signal

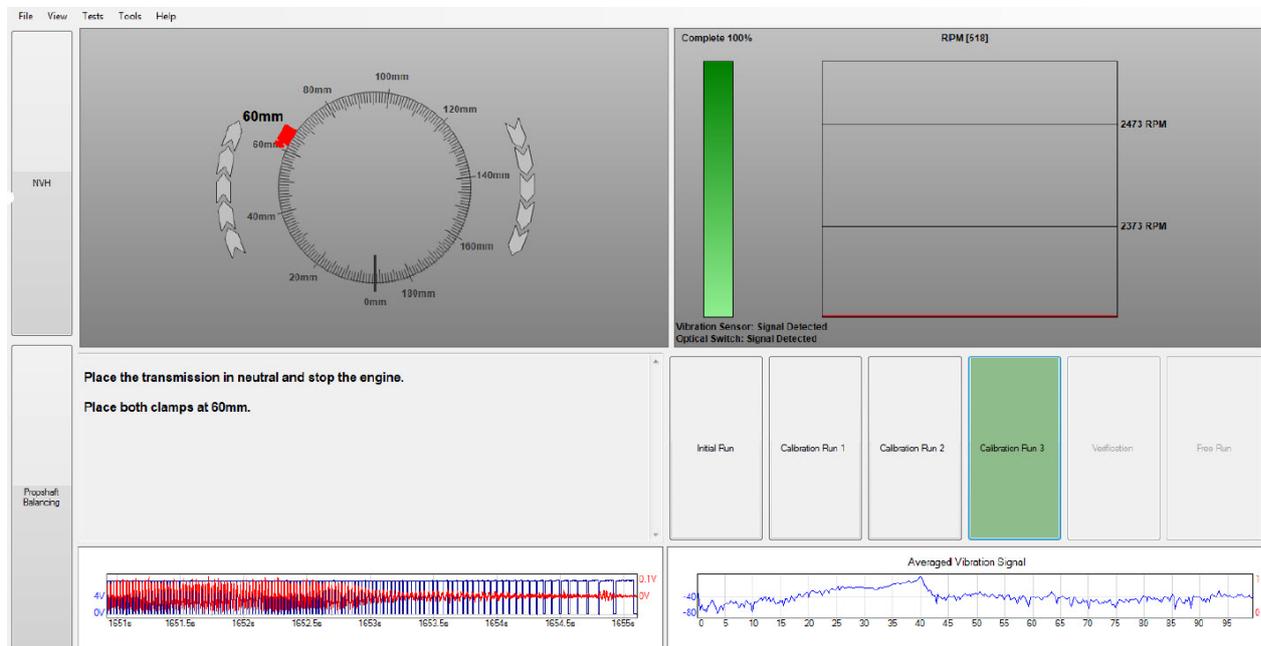
Calibration Run 2

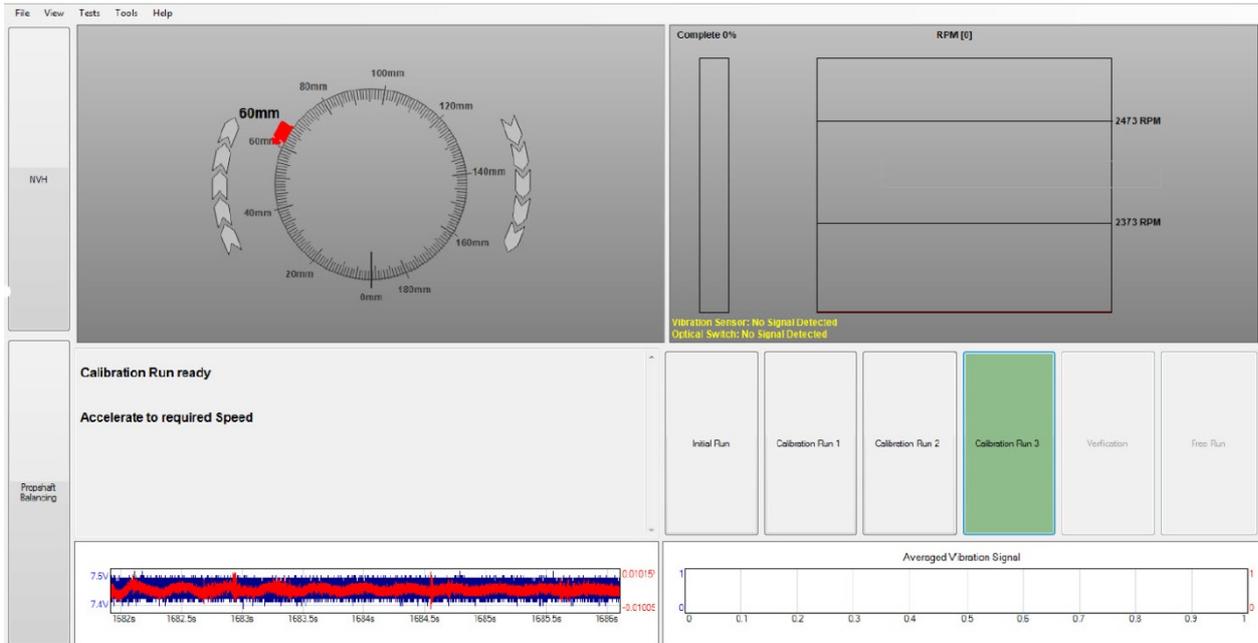
Repeat three times following the directions:



Calibration Run 3

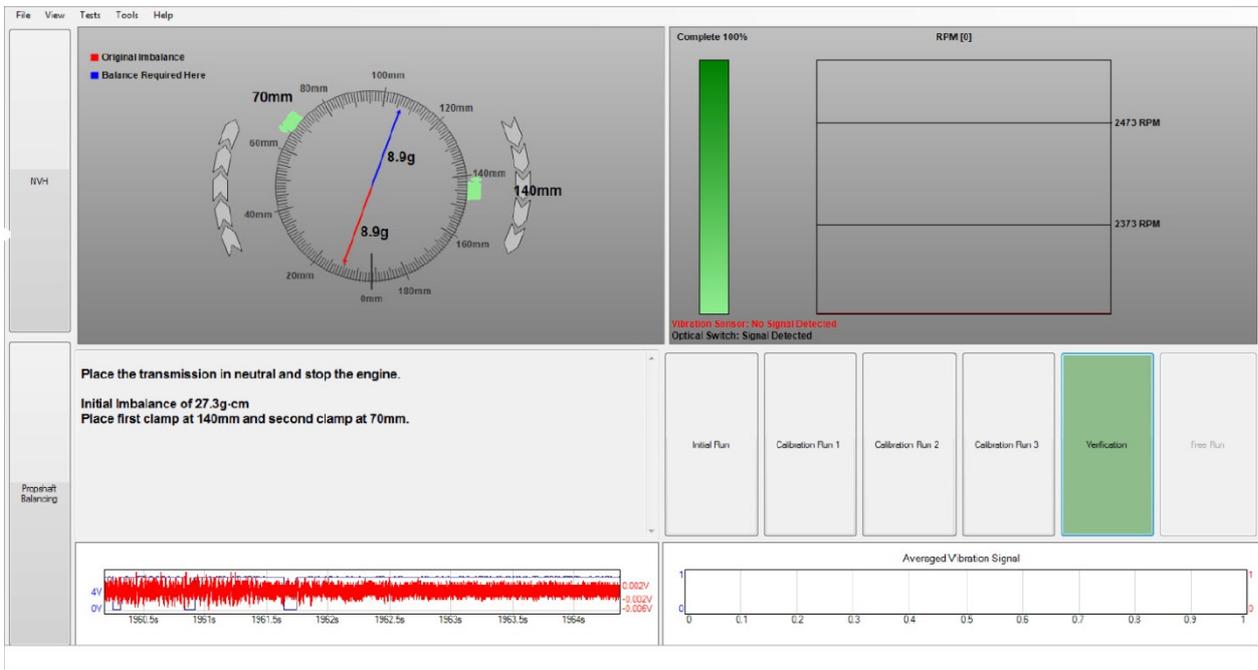
Repeat three times following the directions:



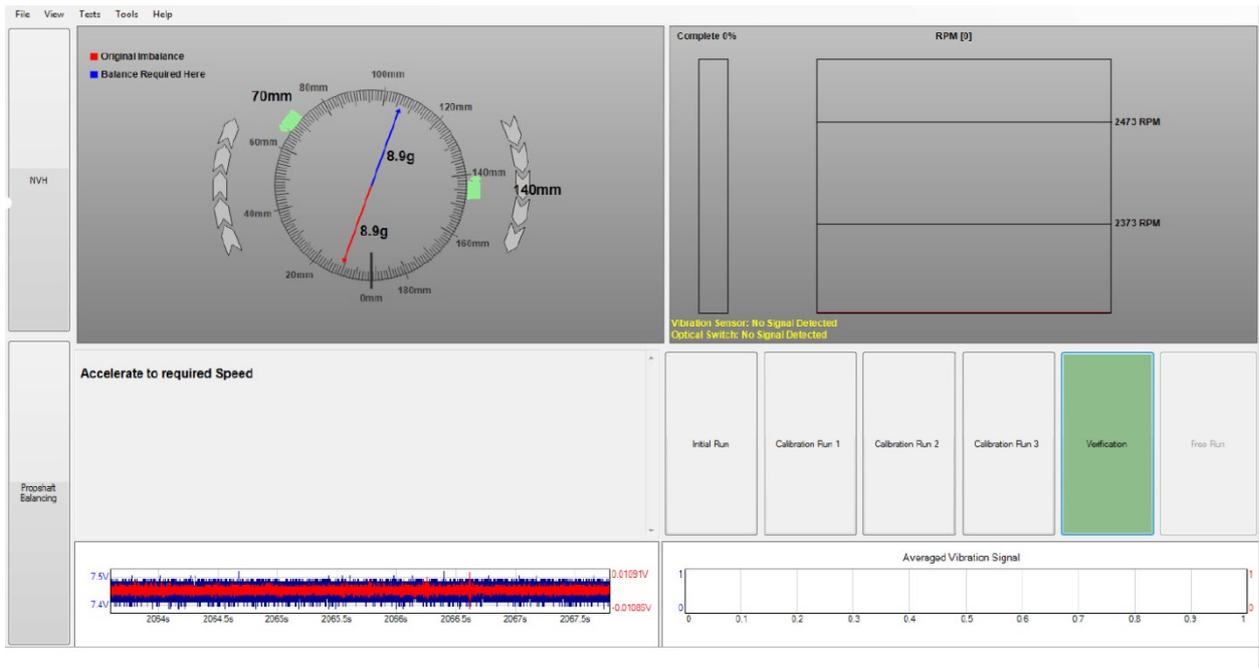


Balance the shaft

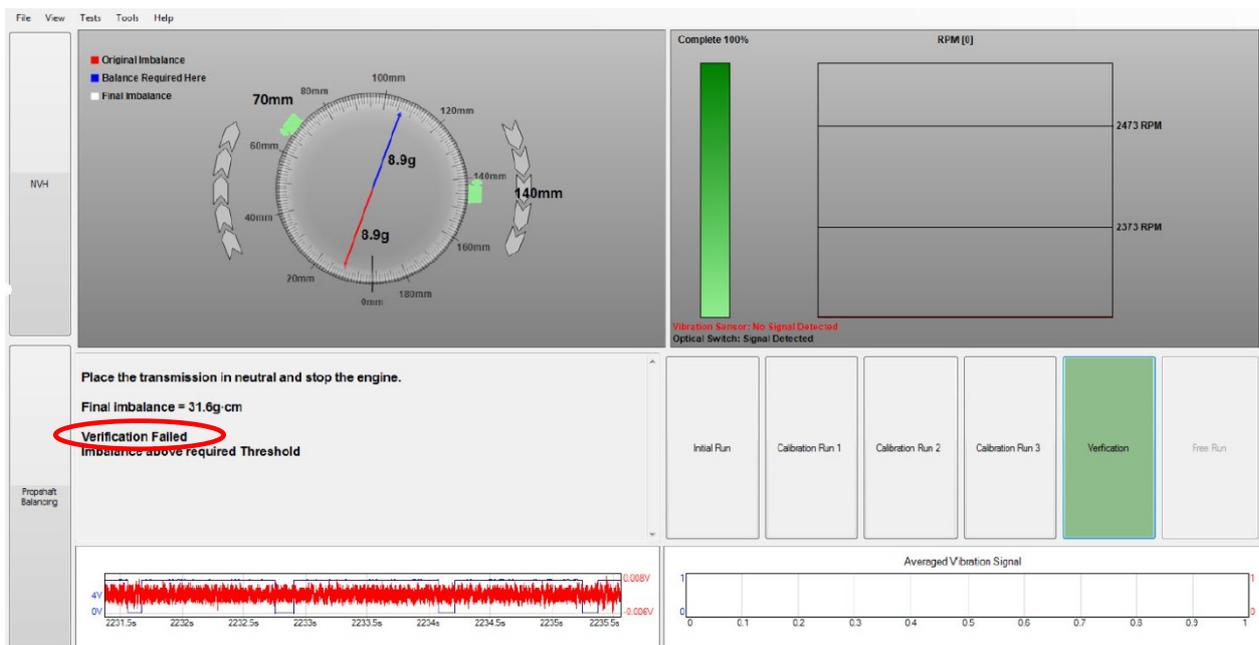
Final test results as to where the clamps should be placed for optimal balance:



Verifying the balance:



Test result from a failed balance:



At this point (whether the balance test failed or passed), you can go to **File > Print**, fill in the customer's information when prompted, and print or save the information for future reference.

Examples of test results:

NVH

Customer

Name:	Mr Customer	Vehicle:	BMW 328xi
Contact number:		Year:	0
Address:		Id:	K501656

Original Imbalance

Angle of Imbalance -19.9°

Mass of Imbalance 27.3g·cm

Result: Fail

Current Imbalance 31.6g·cm is above the minimum threshold of 20.0g·cm

Customer

Name:		Vehicle:	
Contact number:		Year:	0
Address:			

Original Imbalance

Angle of Imbalance -31.2°

Mass of Imbalance 26.5g·cm

Correction Weights

Place first clamp at 150mm and second clamp at 70mm.

Final Imbalance

Mass of Imbalance 11.9g·cm

Result: Pass

Current Imbalance 11.9g·cm is below the minimum threshold of 20.0g·cm

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