Holset VGT™ Electronic Actuator

Calibration Instructions

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Calibration Instructions

To help Melett customers calibrate our VGT actuators, we have prepared step by step instructions for use on popular aftermarket calibration devices.

- Holset eTool
- ATS tester
- CIMAT Turbotest

Please note, Melett Holset VGT actuators have been confirmed to be compatible with the following calibration tools:

- Holset eTool
- ATS Tester
- CIMAT Turbotest
- Turboclinic – Turboscope.

Holset eTool

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Holset eTool

The following slides are typical of the process of using a Holset eTool to perform installation and calibration of the Melett VGT actuator.

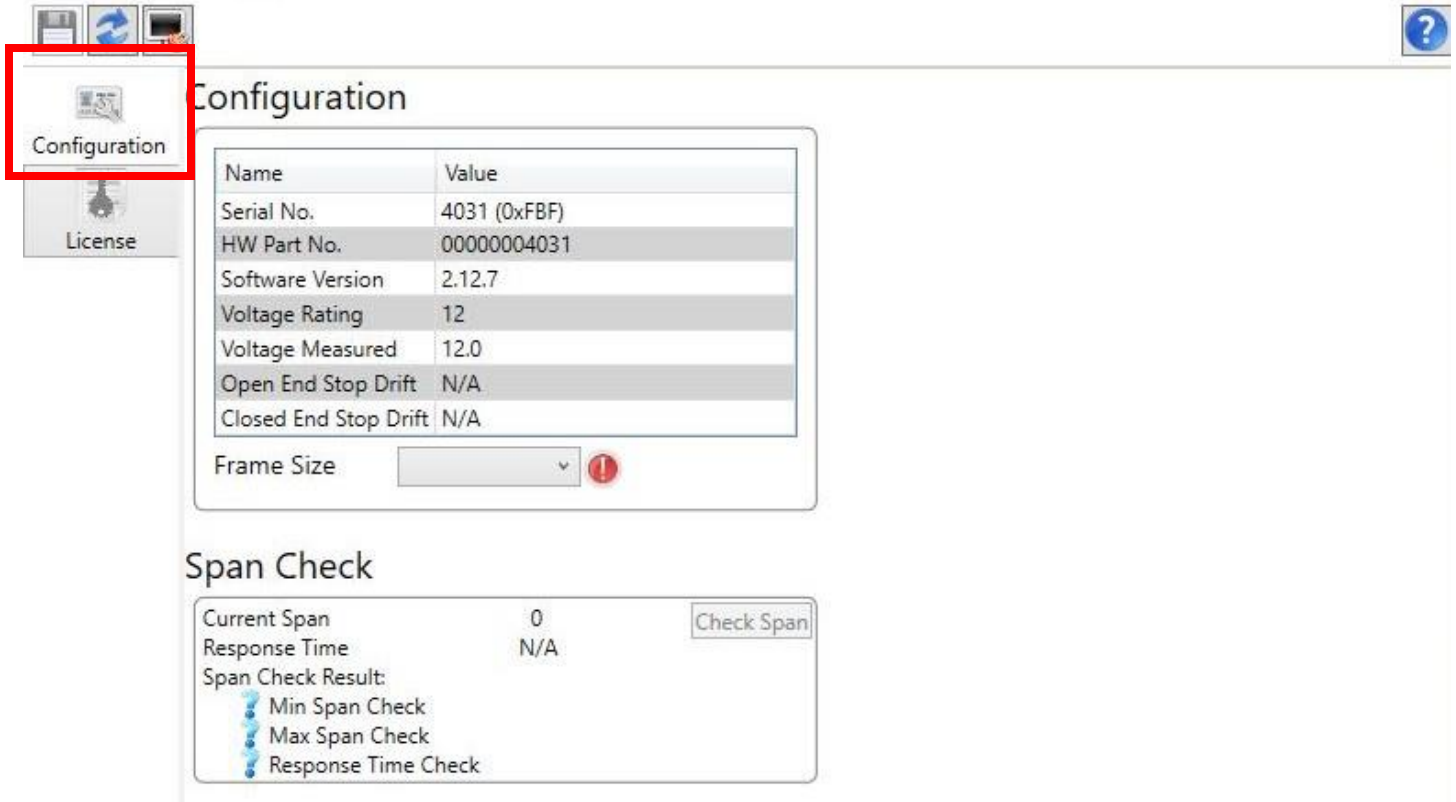
Please note, some of Melett VGT actuator features differ from the OE actuator. These are as follows;

- A Span Check test cannot be performed until the actuator has been calibrated and installed.
- No time or temperature histography is recorded or reported with the eTool.
- The Hysteresis test can be performed successfully.
- The Learn test cannot be performed until after the actuator has been calibrated and installed.
- The Melett VGT actuator can be reconfigured for different physical stops settings (turbo frame sizes), which differs from OE actuators.

Holset eTool

Initial connection and configuration

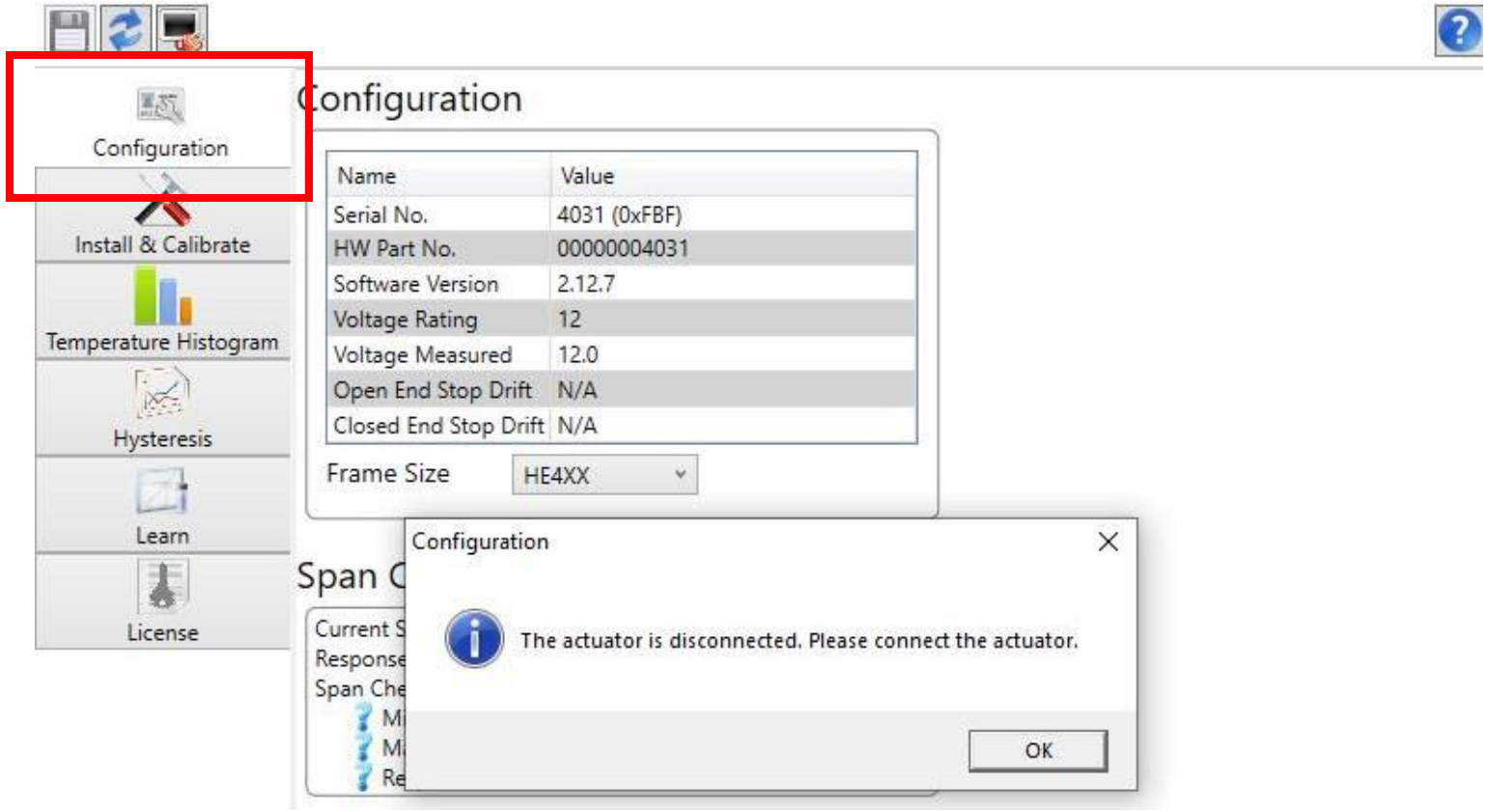
Note that the Serial and Hardware part numbers are unique to the Melett actuator, as is the software version. Note that no stops data has been programmed, and that a Span Check test cannot be performed. The stops data will be set during the Calibration phase.



Holset eTool

Potential communication dialogue

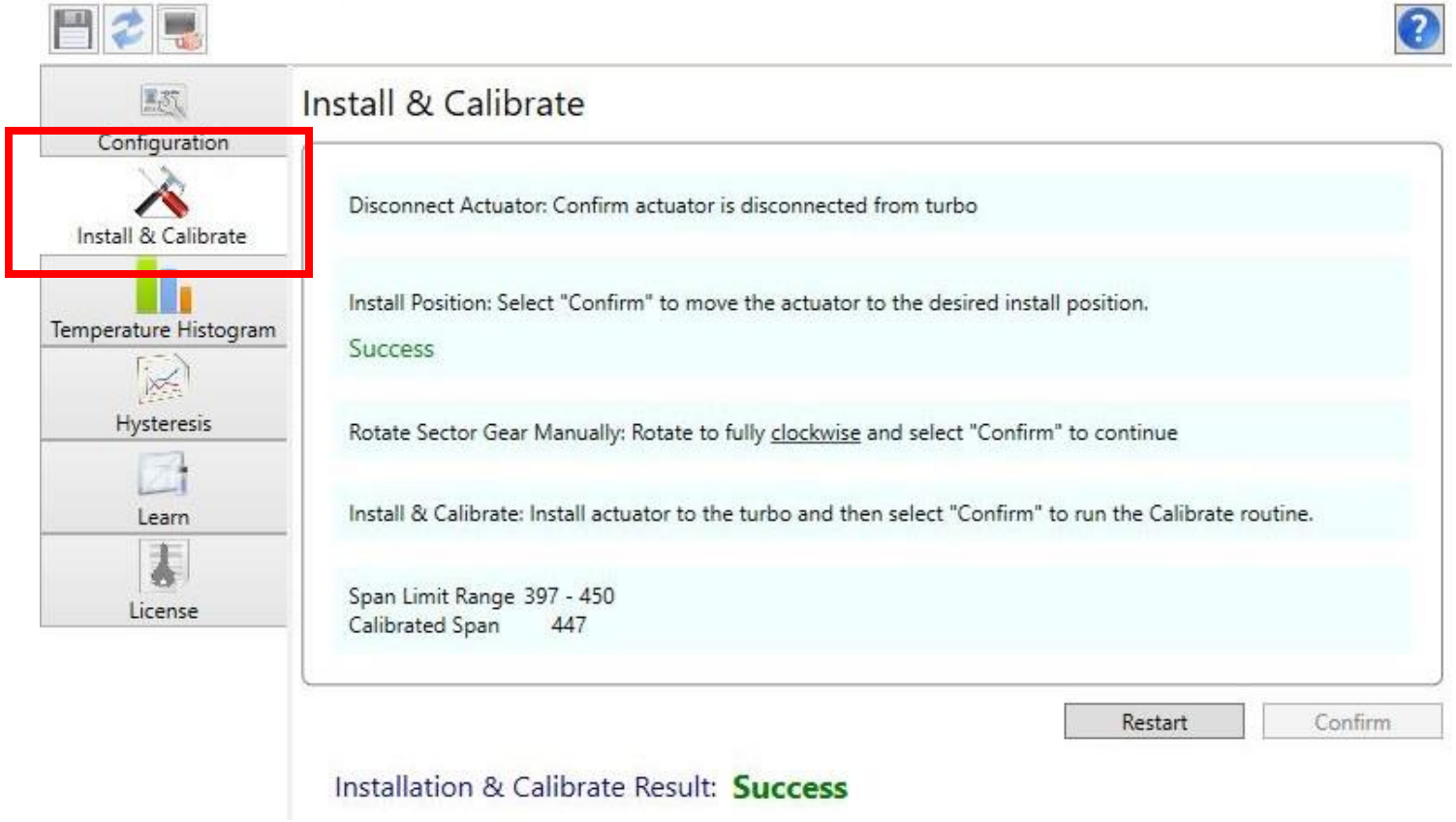
In some cases, the error message below may appear. If it does, disconnect and reconnect the actuator and tick ‘ok’ to return to Configuration.



Holset eTool

Installation and Calibration

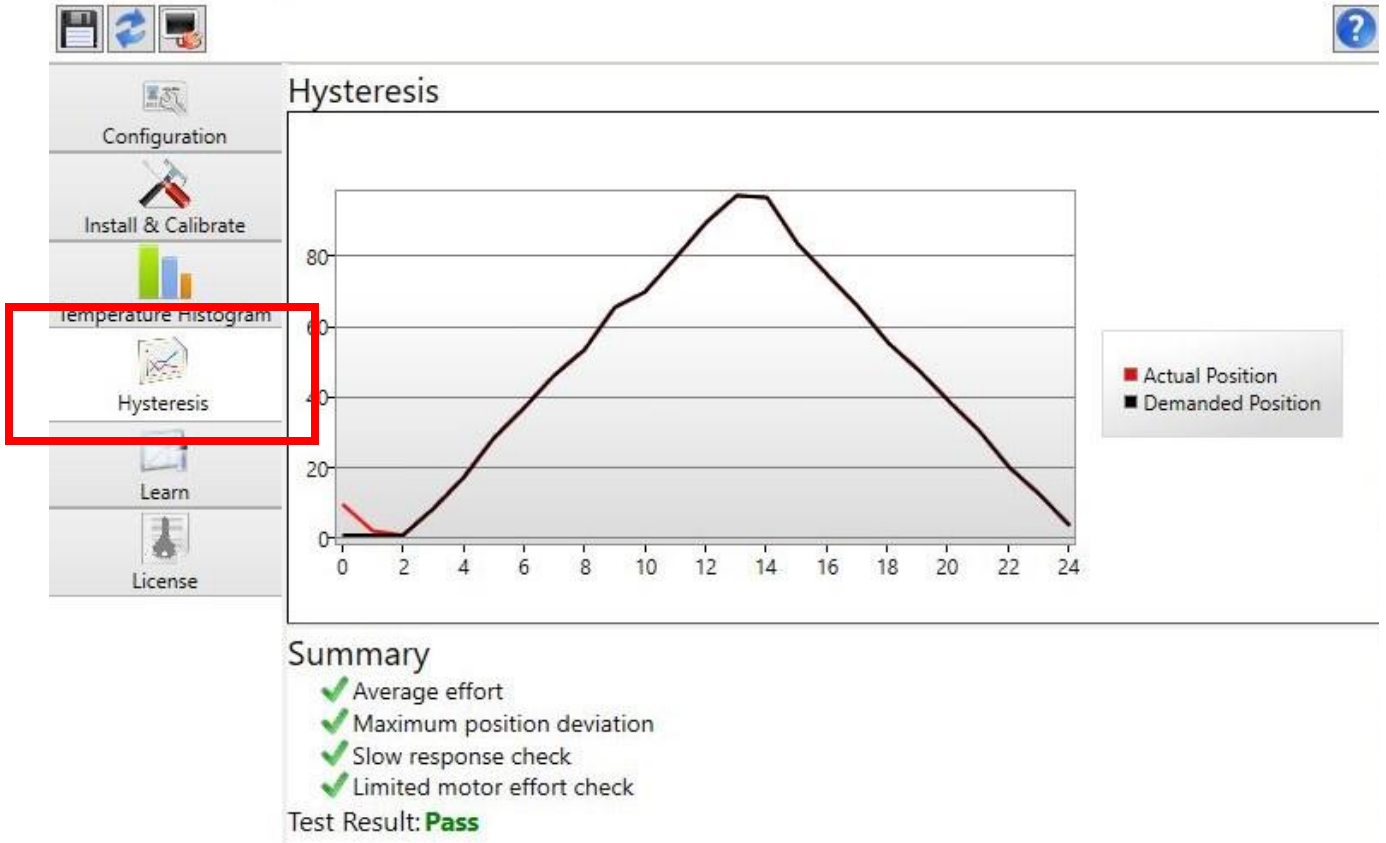
Proceed to and complete the installation and calibration, confirming a successful calibrated span value. The Turbocharger and installed actuator is now ready for use on the engine, but further testing is possible as highlighted further.



Holset eTool

Hysteresis Test

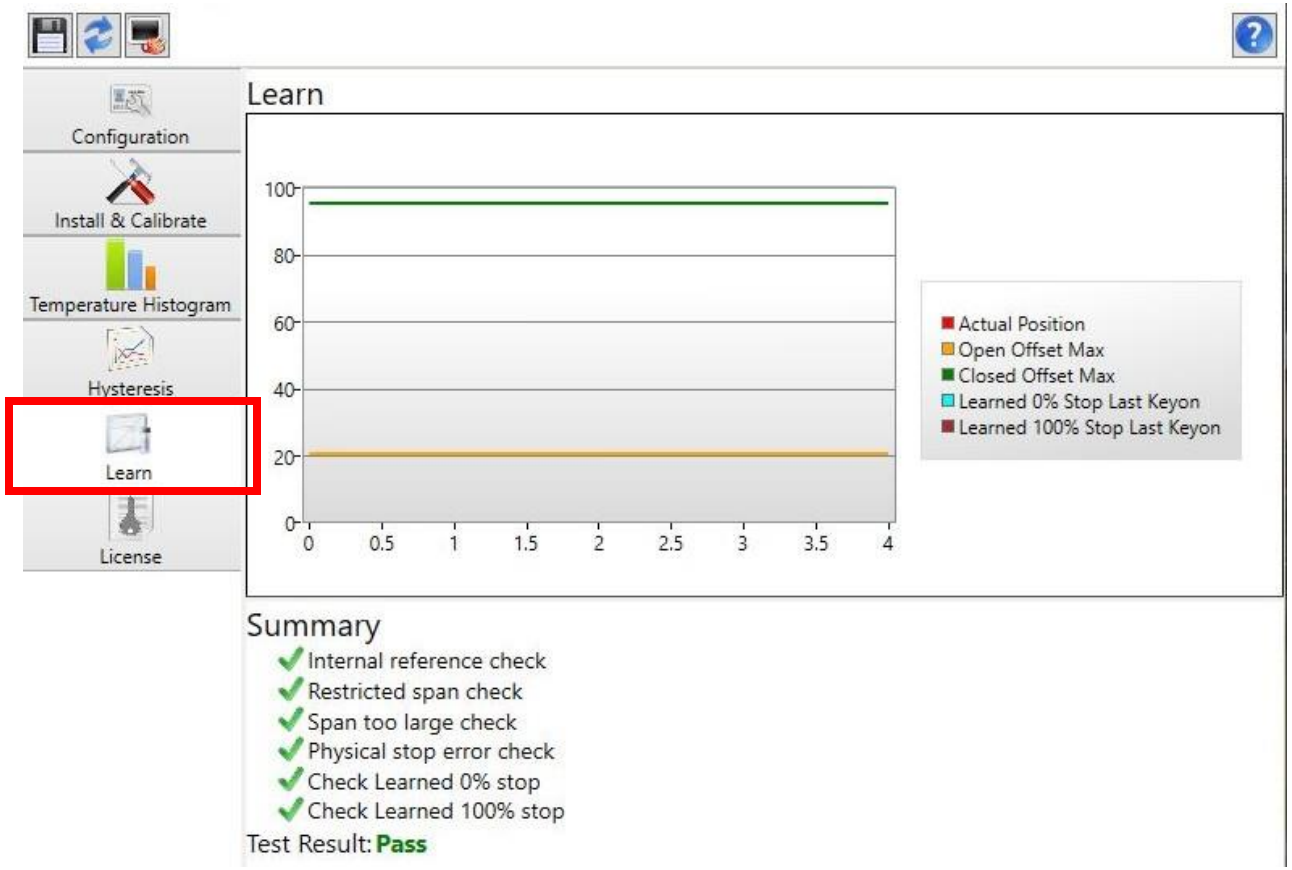
Test results will be typical of an OE actuator. Due to motor design updates, the graphed lines may appear to have less resolution.



Holset eTool

Learn Test

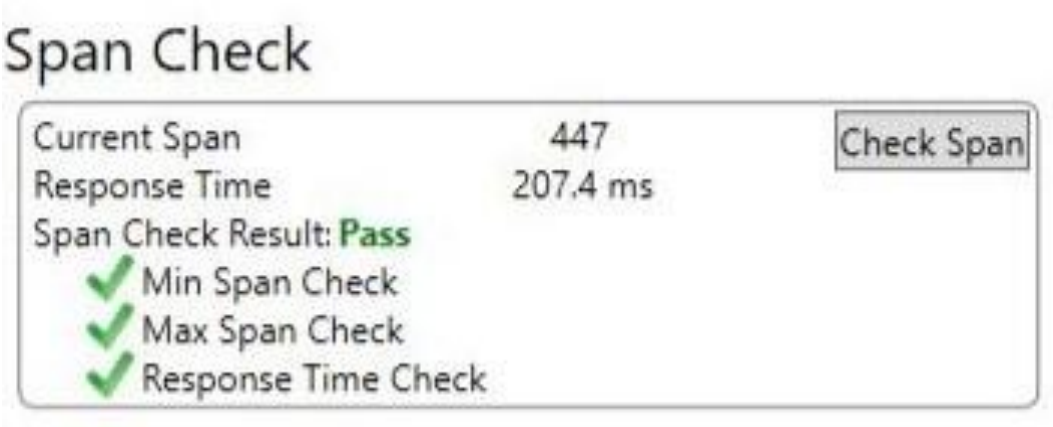
This test must be performed after installation and calibration ONLY and will not provide a graphic representation typical of an OE actuator, but it will report the Summary data accurately and it will confirm PASS or FAIL.



Holset eTool

Span Check Test

As with Learn testing, this must be done ONLY after the actuator is calibrated, otherwise an error message may occur, indicating that no stops setting data has been recorded. However, after calibration, the Span Check Test can be performed and with success, it will show Span and Response Time data.



ATS Benchtop Tester

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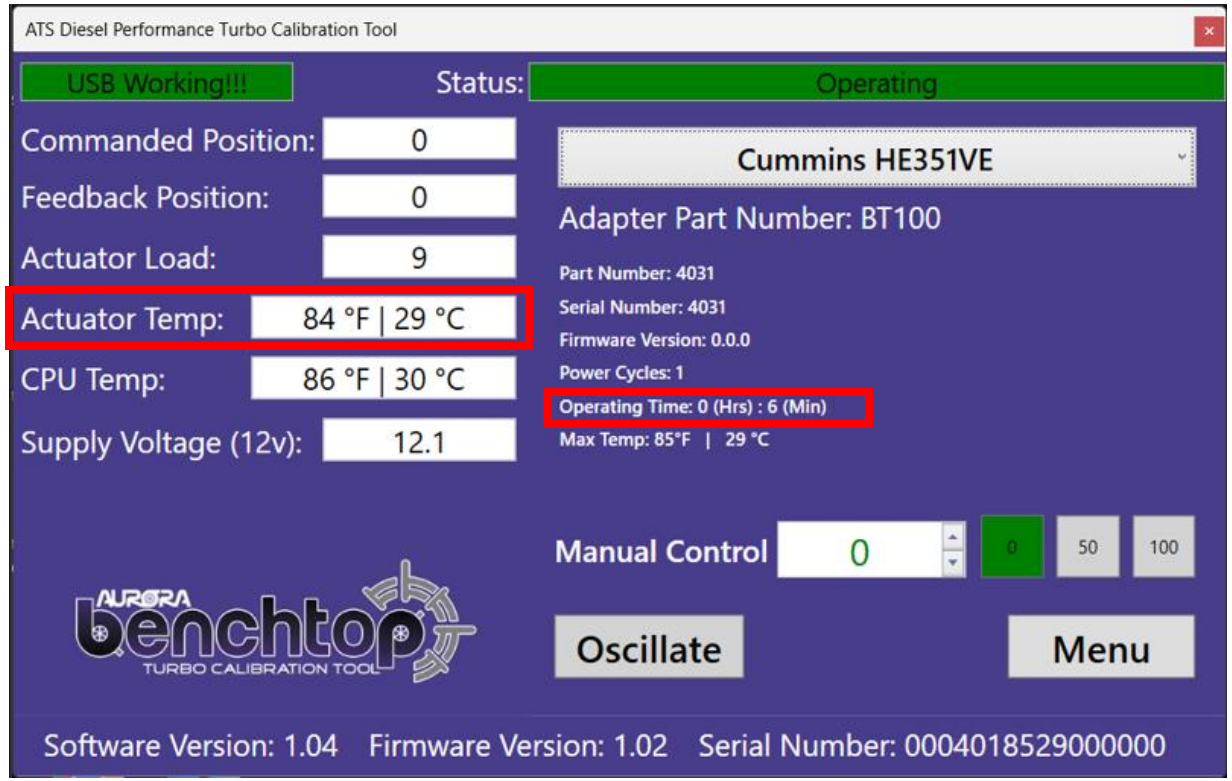
ATS Benchtop Tester

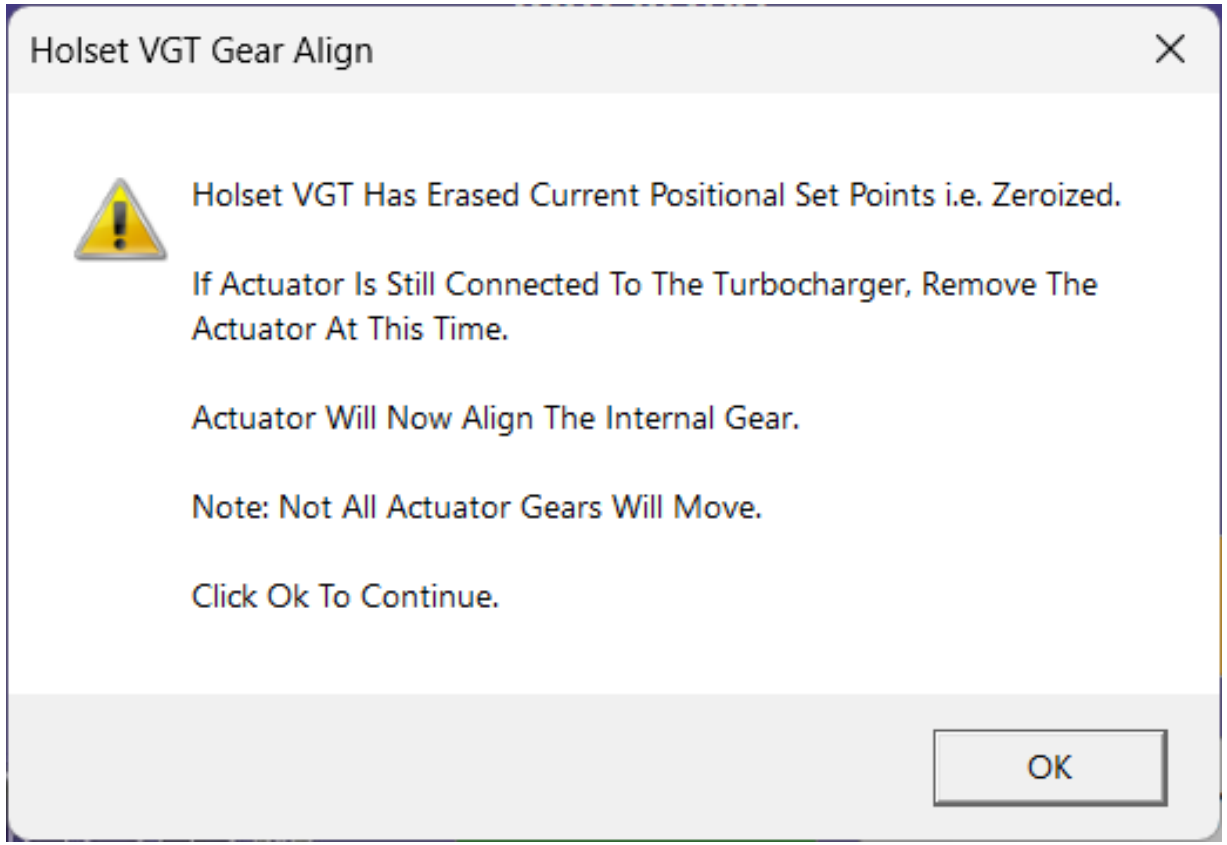
The process is identical to that of the OE Actuator, except that the ATS tester will report time and temperature histography data.



ATS Benchtop Tester

Set point calibration

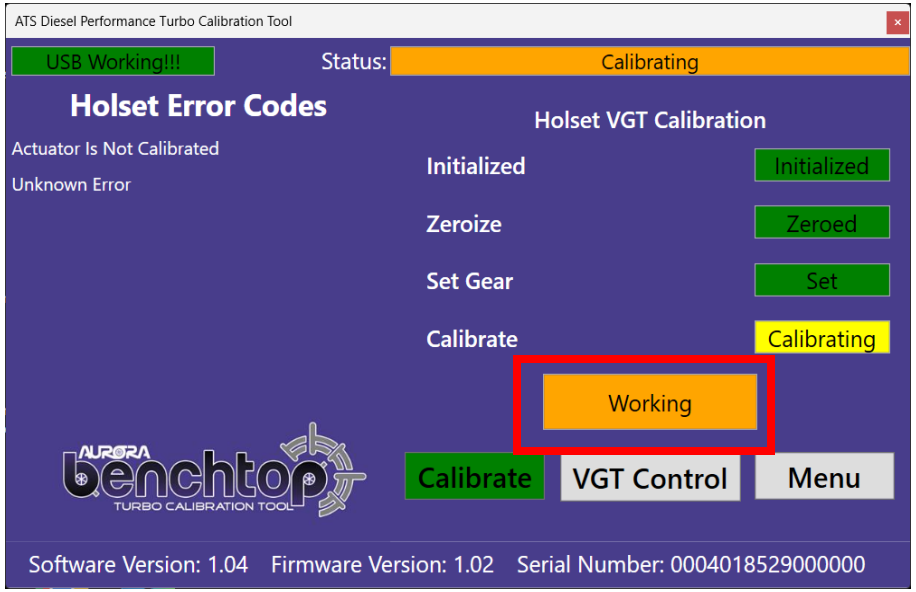
The ATS tester will always erase existing set point data, prior to installation and calibration.

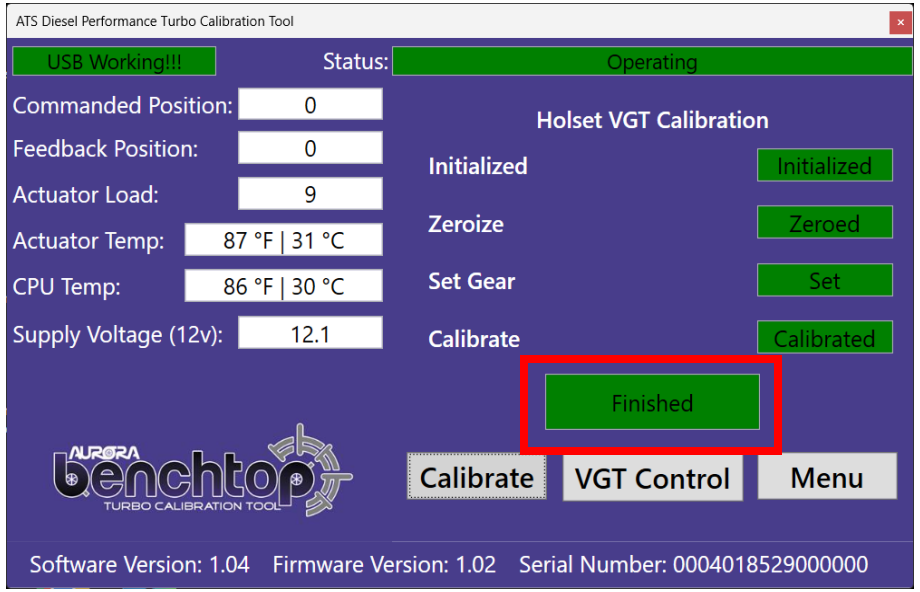


ATS Benchtop Tester

Installation and calibration

The calibration process is similar to that of the eTool and status is reported throughout the process. No further action is required after this process is complete, but further testing is possible, noted in the following slide.

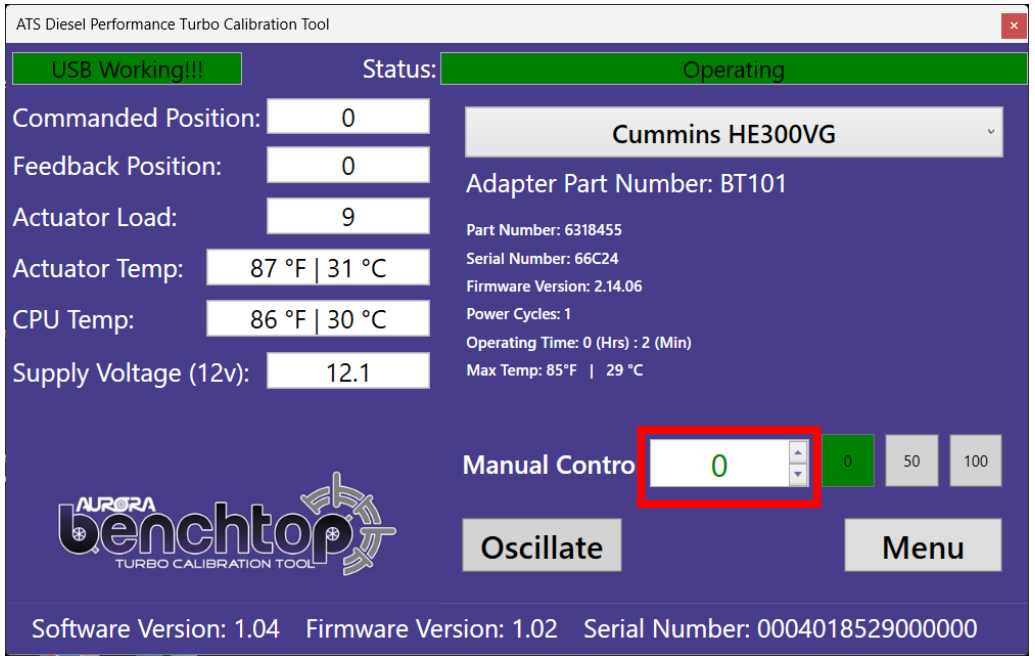


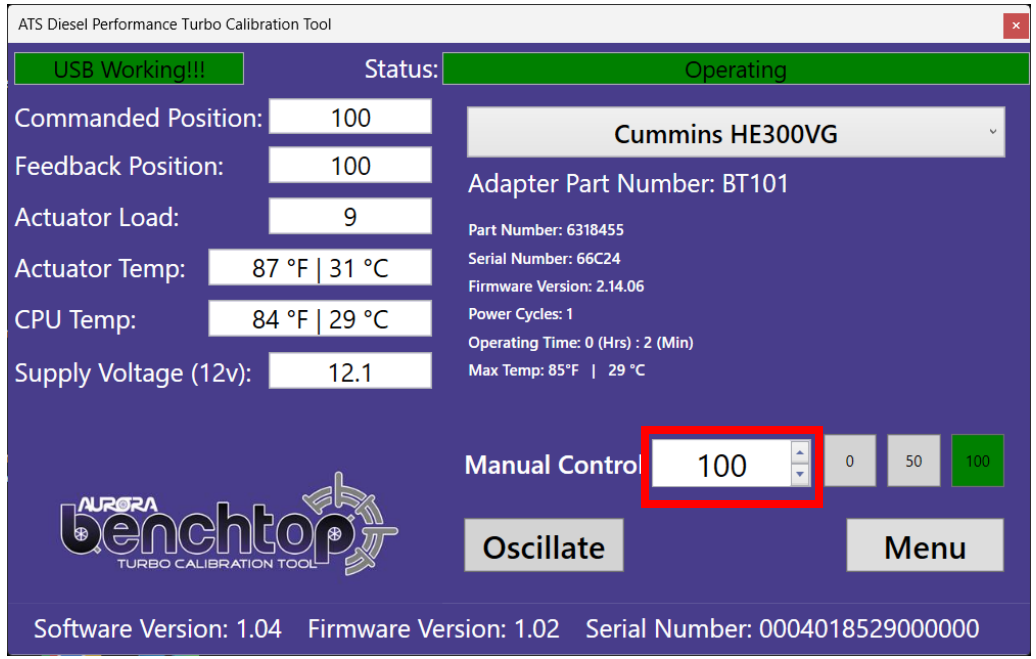


ATS Benchtop Tester

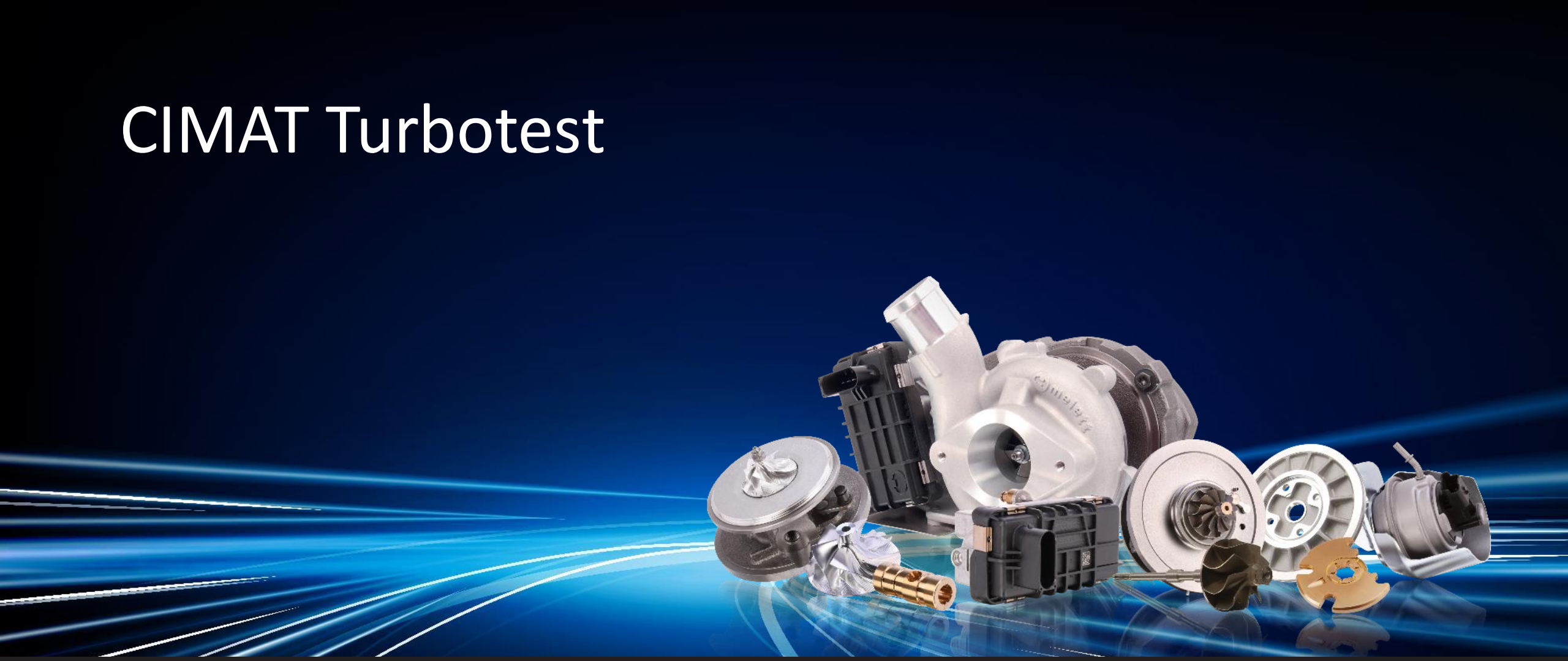
Manual control

This would be similar to the eTool ‘span check’ or ‘hysteresis’ testing. Other than that, the ATS Tester allows full manual control. The screenshots below indicate manual testing of 0-100% and continued ‘oscillation’ testing.





CIMAT Turbotest



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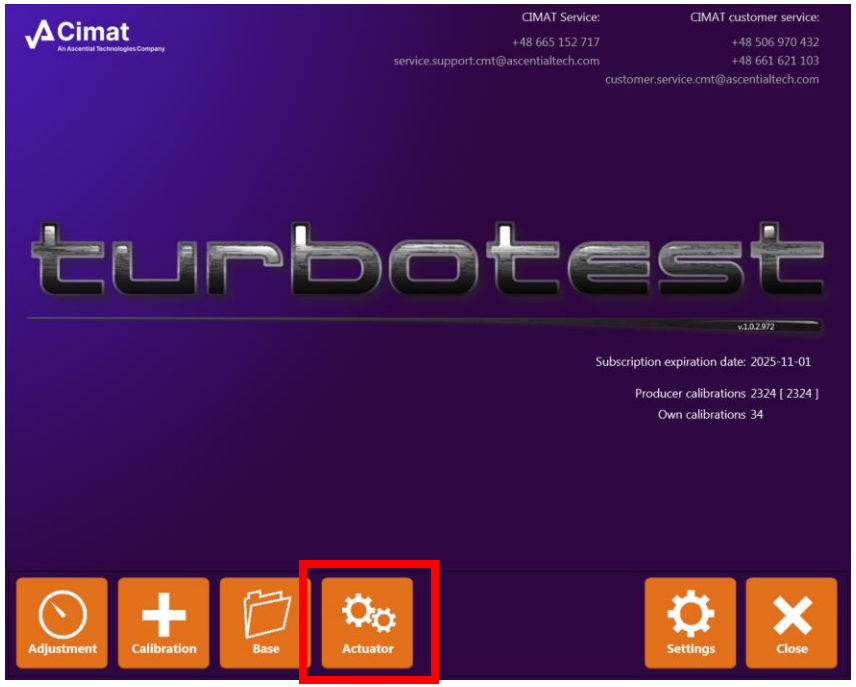
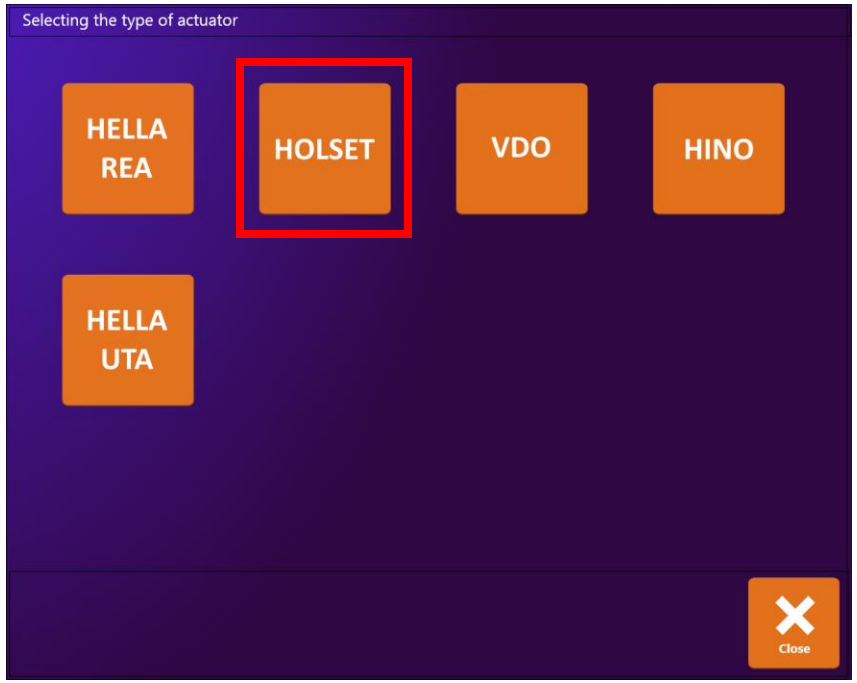
CIMAT Turbotest

This process is similar to both the eTool and ATS tester, with similar reporting capabilities. The initial screen requires the operator to select the actuator type (in this case, “Holset”) to proceed.





CIMAT Turbotest

Initial connection and configuration

The correct cable is chosen, voltage selected, then the initial parameters can be confirmed, including internal part and serial numbers, software, average temperature and time in operation. From there, the command to initialize the actuator can be made, with the actuator removed from the turbocharger. Completion of the initialization process can then be followed by installation of the actuator to the turbocharger.

CIMAT Turbotest

Installation and Calibration

Once the actuator is installed, the final calibration can be made, at which point the turbocharger is ready for installation on the engine.