



DA-ST512
(Suspension Calibration Application)
User's Manual

Suspension Calibration Application

This application allows the operator to perform calibration procedures on the vehicle's suspension system as is currently available on IDS/SDD under the Height calibration option.

Suspension Calibration Process

On starting the application the first menu displays Five main options described below -

Suspension calibration - Calibrates height suspension

Help - Important Information.

Restore vehicle - Will remove the vehicle from calibration and tight tolerances if application fails .

Write RLM pids - Allows the rewriting of original values to RLM or CHCM (if previously noted)

Write SUMB pids - Allows the rewriting of original pid values to CHCM (if previously noted)

Select one of the above options to perform the calibration procedure required. Further details of each option are given below.

Suspension calibration



It is recommended that the correct tool is used for measurement to calibrate the suspension height sensors on Jaguar and Land Rover vehicles.

Vehicle height calibration should not be attempted if there are any current or historic fault codes in the suspension module, Read and clear fault codes before commencing calibration.

Make sure that the vehicle is completely empty of any occupants or belongings and isn't touched before and during the calibration process.

The suspension height tolerances are small , therefore it is imperative that the height values entered are accurate.

Failure to achieve a successful calibration is likely to be caused by measurement error, incorrect measuring conditions, or a vehicle fault.

Make sure the wheels, tires, tie rod ends, suspension joints and wheel bearings are free from damage, wear and free play.

Make sure that the steering is in the straight ahead position.

Make sure all doors including tailgate are closed.

Open drivers window for routing the ST512.

Height Measurements

It is recommended that tool 204-484 is used for measurement on Jaguar vehicles and tool 204-557B on Land Rover vehicles.

The application will also not accept measurement entries if they show that the measurement conditions are incorrect.

The application will not accept measurement entries if they are too high or too low.

Make sure tyre pressures are within specification.

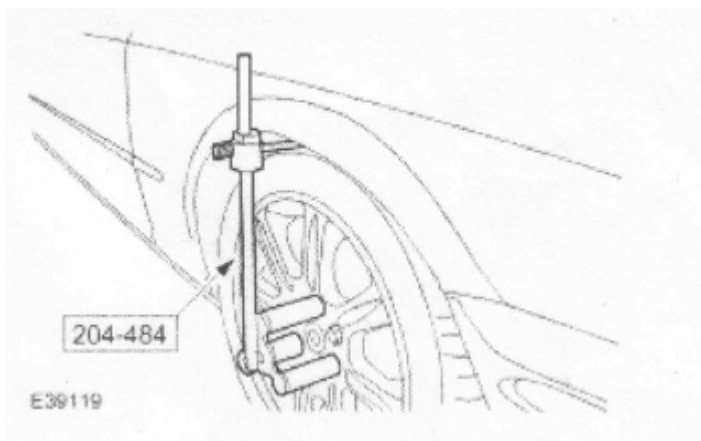
Make sure that vehicle suspension has settled at the correct track position.

The ride height must be measured with the vehicle supported by suspension.

The calibration floor must be a flat level smooth surface.

The calibration floor area must be in a plane with less than 3 degrees slope when viewed left to right or front to rear .

Measurements are from Hub centre to wheel arch, as illustrated below.



Entering measurements

The nominal height for each Hub to wheel arch is shown for each wheel. The up and down arrow will increment or decrement each character, you may move to the next character by pressing the OK button or the left arrow, a flashing cursor will be shown on the character to be entered.

On entry to the measurement screen a list of four dampers will be displayed

Front Left

Front Right

Rear Left

Rear Right

Selecting one of the dampers and pressing OK button will bring up the nominal value for that damper, the measured height may then be entered. By moving on to the next damper the measured value may be entered until all four corners have been entered.

All measurements shown are in mm no other characters in the string may be altered except the measured value.

Front Right 462 mm

The amount of error for each corner will be displayed,

Front 8 –4 mm

Rear 0 –6 mm

If all measured entered are in range a further menu item will be displayed to allow the data to be written to the module.

Front Left 461mm

Front Right 462 mm

Rear Left 462 mm

Rear Right 463 mm

Write new offsets

It will be necessary to rerun this application until the suspension is calibrated this is when the error is less than $\pm 3\text{mm}$ on each damper and the overall error is less than $\pm 12\text{mm}$.

Temporary fault codes are logged when the suspension is out of calibration.

It is recommended prior to running calibration to check and record the original PID values in case difficulties are encountered by using an inappropriate tool to measure suspension height.



Please ensure the vehicle is in a safe working mode prior to exercising the following procedure.

- The trigger is for the operator to switch on the vehicle ignition. If this is not currently on, then you will be asked to turn it on and to press '**OK**' when this has been done.
 - On detecting the ignition state, the process starts to run and the message '**Please wait**' is displayed on the screen. The process will commence in approximately 10 seconds.
 - Once the application has successfully completed and all instructions followed correctly a message "**PROCEDURE COMPLETE**" will be displayed. Pressing the '**OK**' button to return to the main application menu. This will be when no fault codes are logged in the RLM or CHCM
- Note:** If the process fails for whatever reason, a failure message will be displayed. At this time the process should be repeated ensuring that all conditions for the process have been met.
- To abort the procedure press the '**X**' button on the keypad at any time. This will restore the vehicle to its original state

Vehicles fitted with air suspension will be driven from normal to off road height and back during the calibration procedure.

Restore vehicle

This menu item will restore the vehicle to its normal operational state, not in tight tolerances mode and not in calibration mode to allow the vehicle to be driven if calibration has been stopped prematurely. Fault codes are likely to be logged on the vehicle.

Write RLM pids

This menu item will read the RLM or CHCM pids that are written to during the calibration process. It is recommended that these values be recorded before attempting height calibration, this will allow the vehicle to be restored to its original configuration, the values may be changed in the same manner as the height values, the values are in hexadecimal.

Write SUMB pids

This menu item will read the SUMB pids that are written to during the calibration process. It is recommended that these values be recorded before attempting height calibration, this will allow the vehicle to be restored to its original configuration, the values may be changed in the same manner as the height values, the values are in hexadecimal.

SUMB is for vehicles fitted with adaptive damping

Suspension Calibration Model Year Updates

The software associated with the Suspension Calibration application is updated periodically to increase its coverage for new and existing JLR vehicles and model year updates. You can check for these updates by connecting your device to a PC via the supplied USB cable, and launching the DA App Hub. This tool will connect to the Diagnostic Associates file server and check to see if a newer version of the Suspension Calibration application is available to download.

Suspension Calibration Supported JLR Vehicles

The following JLR vehicles and associated model years are supported by the Suspension Calibration application at the time this user manual was produced. To obtain an up-to-date version of this table you should visit the Diagnostic Associates website.

Jaguar & Land Rover Vehicle Coverage											
Suspension Calibration											
Vehicle / Model Year	MY06	MY07	MY08	MY09	MY10	MY11	MY12	MY13	MY14	MY15	MY16
Defender	-	-	-	-	-	-	-	-	-	-	-
Discovery/LR3/LR4	-	-	-	-	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Range Rover Sport	-	-	-	-	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Range Rover	-	-	-	-	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Freelander/LR2	-	-	-	-	-	-	-	-	-	-	-
Evoque	-	-	-	-	-	-	Yes	Yes	Yes	Yes	Yes
Discovery Sport	-	-	-	-	-	-	-	-	-	Yes	Yes
XJ - New	-	-	-	-	Yes	Yes	Yes	Yes	Yes	Yes	Yes
XJ - Old	-	-	-	-	-	-	-	-	-	-	-
XK - New	-	-	-	-	Yes	Yes	Yes	Yes	Yes	Yes	-
XK - Old	-	-	-	-	-	-	-	-	-	-	-
XF	-	-	-	-	Yes	Yes	Yes	Yes*	Yes*	Yes*	Yes
XE	-	-	-	-	-	-	-	-	-	-	Yes
F-Pace	-	-	-	-	-	-	-	-	-	-	Yes
F-Type	-	-	-	-	-	-	-	-	-	-	Yes
S-Type	-	-	-	-	-	-	-	-	-	-	-
X-Type	-	-	-	-	-	-	-	-	-	-	-

(Yes) - Covered for MY : (Yes*) - XFRS Sport Brake not supported : (-) - N/A