

BRITPART

IIDTOOL



FOR
RANGE ROVER L322
2002-2005

BY

GAP-DIAGNOSTIC

USER MANUAL

DOCUMENT VERSION: 2.17.12
FOR FIRMWARE: V2.17.03



Warning

*The IIDTool allows changes to vehicle settings to a state outside of the original manufacturer specification. **It is the sole responsibility of the user** to choose secure settings for the applicable use of the vehicle.*

The IIDTool is not designed to be left in place for long periods. Please unplug after use!

Disclaimers

Neither the distributor (Britpart-Border Holdings (UK) Ltd- and its resellers) nor the manufacturer (GAP Diagnostic, Inc.) accept any responsibility or liability for damages incurred through use of the IIDTool. This includes all damages to the vehicle itself, vehicle systems or property. This also includes injuries to the user or other persons. The warranty is limited to the functionality of the IIDTool itself (for further warranty details, please consult the last page of this document). This includes especially:

- Damages incurred through improper use of the IIDTool
- Damages incurred through the use of the IIDTool to change vehicle configuration and / or settings
- Damages incurred by changing the height settings of the electronic air suspension. Changing the height settings either up or down can make the vehicle less stable. **Do not drive vehicles in an unstable condition!**
- Damages incurred through clearing faults without effecting proper repairs

The IIDTool is a powerful diagnostic device that allows the reading and clearing of logged faults as well as changing vehicle configuration and / or settings. It is designed for use by very well-informed individuals or professional automotive technicians. **It is the sole responsibility of the user** to make sure that he has the necessary skills and training required to use the IIDTool.

Read this instruction manual carefully!

Terms and conditions

Do not copy or reverse engineer

While considerable effort has been made to make the information provided in this section as complete and accurate as possible, it does not and cannot cover all possible situations. The authors cannot accept any responsibility for any damages which may occur from the use or misuse of these procedures, nor can the authors accept any responsibility for any damages which may result from personal injury or property damage which allegedly may be caused by the use or misuse of these procedures. No responsibility is accepted for missing or incorrect information. Those who use these procedures shall accept all responsibility for performing the work which may be described below.

Table of content

| | |
|-----------------------------------|-----------|
| I. Getting Started | 6 |
| II. Using the IIDTool | 11 |
| III. Menu tree | 12 |
| IV. Top Level Menu Options | 13 |
| V. Limited Warranty | 32 |

Glossary

ECU : Electronic Control Unit. An ECU is an embedded system that controls one or more systems or subsystems present in a motor vehicle.

EAS : Electronic Air Suspension. This defines all the components of the air suspension system.

CAN : For Controller Area Network, is a communication protocol which connects ECUs via a two wires interface.

I. Getting Started

1. Introduction

IIDTool stands for **I**ntegrated **I**nterface **D**iagnostic **T**ool. In using this diagnostic system, the vehicle's controls and display are used to interface with the tool.

When the firmware is completed* the IIDTool will allow complete diagnostic functionality (aside from flashing ECUs): fault reading and clearing, viewing live data and manually activating components, and programming / new component initialization.

* Full functionality on all vehicle systems should be available by autumn 2012. Firmware upgrades are done via the internet and USB. Full functionality in the end version may not include all functions of the OEM T4/IDS unit; re-flashing firmware to ECU's will not be supported.

With the firmware version 2.17 the IIDTool has full diagnostic functionality for the EAS as well as the ability to read fault codes of all other diagnosable modules connected on the communications busses. Live values viewing and car configuration (personalization) capabilities are included.

2. Controls

Your IIDTool needs no additional cables or power supply. The USB connector is only used when updating the tool's firmware.

The IIDTool is controlled with the vehicle's cruise control switchgear.

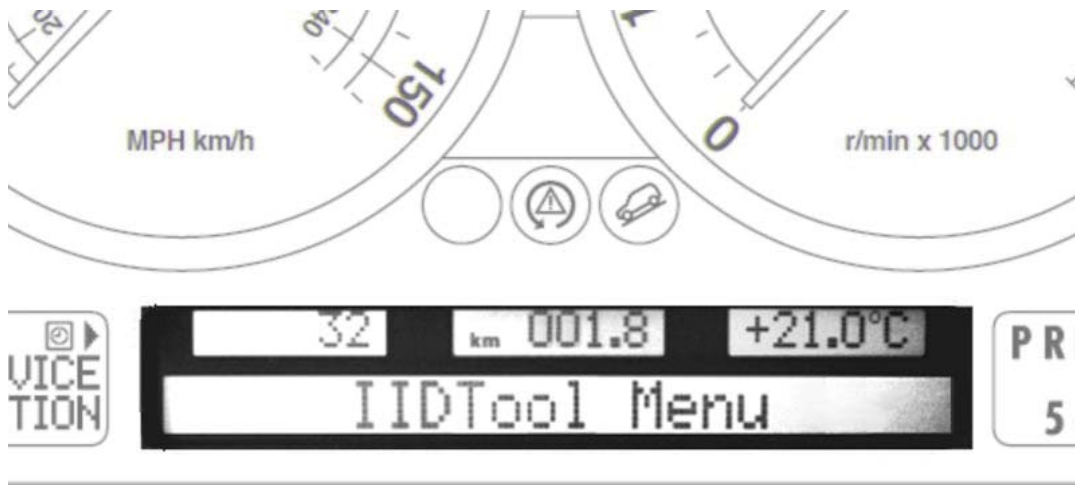
The functions are:

1. Resume = Enter*
2. Speed + = Menu up / increase value
3. Speed - = Menu down / decrease value
4. On/Off = Back one level / Exit

*When viewing a configuration in the car configuration menu, pressing the resume button will show the next available option for this configuration.



Information is displayed in the instrument cluster message center. Due to limited space, longer messages such as error codes are scrolled through automatically.



3. Activating the IIDTool

The IIDTool is VIN locked and must be activated for each vehicle it is used on. To activate the IIDTool, you will need access to the exact vehicle it will be used on. Once your activation code is noted, you will need an internet connection to get your unlock code.

1. Ensure that the vehicle is in Park and in a safe environment.
 - If the vehicle is **outside**, start the engine.
 - If in a garage, turn the key to the ON position.
 - If you plan to use the device for more than 10 minutes with the engine not running, connect a power supply (Midtronic's PSC-550 or equivalent) to the vehicle battery.

Note: Battery chargers are not suitable due to poor line regulation.

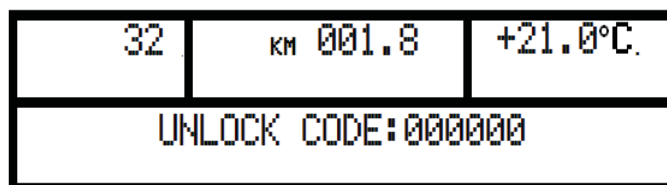
The OBD connector is located at the top of the cubby box in the lower dash finisher on the driver's side of the vehicle. Hinged cover must be opened for access.



2. Connect the IIDTool and wait until the message «IIDTool Ready» appears on your instrument display. You can now call up the IIDTool by pressing the resume button for 2 seconds.
3. A message indicating that the tool is not activated will appear. Press resume again for the activation code.
4. Take note of the 10 characters code, go to our website and follow the instructions to retrieve your unlock code.

<http://www.GAP-diagnostic.com/support/unlock.html>

5. Go back to the vehicle and follow steps 1. to 4. Press *resume* once more and enter the unlock code using the + and – buttons to change characters and *resume* to go to the next character. If you make a mistake, exit the IIDTool menu with the cruise control *on/off* button and re-enter the menu with a 2 sec. press/hold of the *resume* button.



Once the unlock code is entered correctly, the IIDTool will backup the original suspension calibration and the CCF content (2005 only). Confirmation messages will appear and the unit will enter the menu.

- You can use your IIDTool on more than one up to 10 vehicles by purchasing additional VIN licenses from a Britpart dealer. Once you have your new license(s), connect the IIDTool to a new vehicle and follow the procedure above to activate the IIDTool for the new VIN. When you access the GAP Diagnostic website to receive your unlock code you will be asked to enter your new VIN license as well.
- The IIDTool does an automatic backup of the vehicle's height settings when first used. For details about the backup procedure, please consult the Save/Restore section of this manual.
- You can also unlock your IIDTool for future vehicles before connecting the unit to these particular vehicles. Please consult the Save/Restore section of this manual.
- When adding other vehicles, please refer to the Re-Scan procedure in this manual before reading or clearing faults.

II. Using the IIDTool

Use

1. Ensure that the vehicle is in Park and in a safe environment.
 - If the vehicle is **outside**, start the engine.
 - If in a garage, turn the key to the ON position.
 - If you plan to use the device for more than 10 minutes with the engine not running, connect a power supply (Midtronic's PSC-550 or equivalent) to the vehicle battery.

Note: Battery chargers are not suitable due to poor line regulation.

2. Connect the IIDTool and wait until the message «IIDTool Ready» appears on your instrument display. You can now call up the IIDTool by pressing the resume button for 2 seconds.
3. Navigate the menu by using the resume button to enter, the cruise control On/Off button to exit or go back, and the + and – buttons to navigate up or down or change values.
4. To exit the IIDTool menu use the On/Off button to navigate to the top level menu and press On/Off again or move the vehicle*. The message “Exiting Menu” confirms that the session is terminated.

*Except while viewing a live value. Please read **Section 6 Live Values** for more details.

If the transmission is engaged with the tool connected, it will need to be disconnected before re-using.

Remove the IIDTool from the OBD connector when done!

Additional Information's

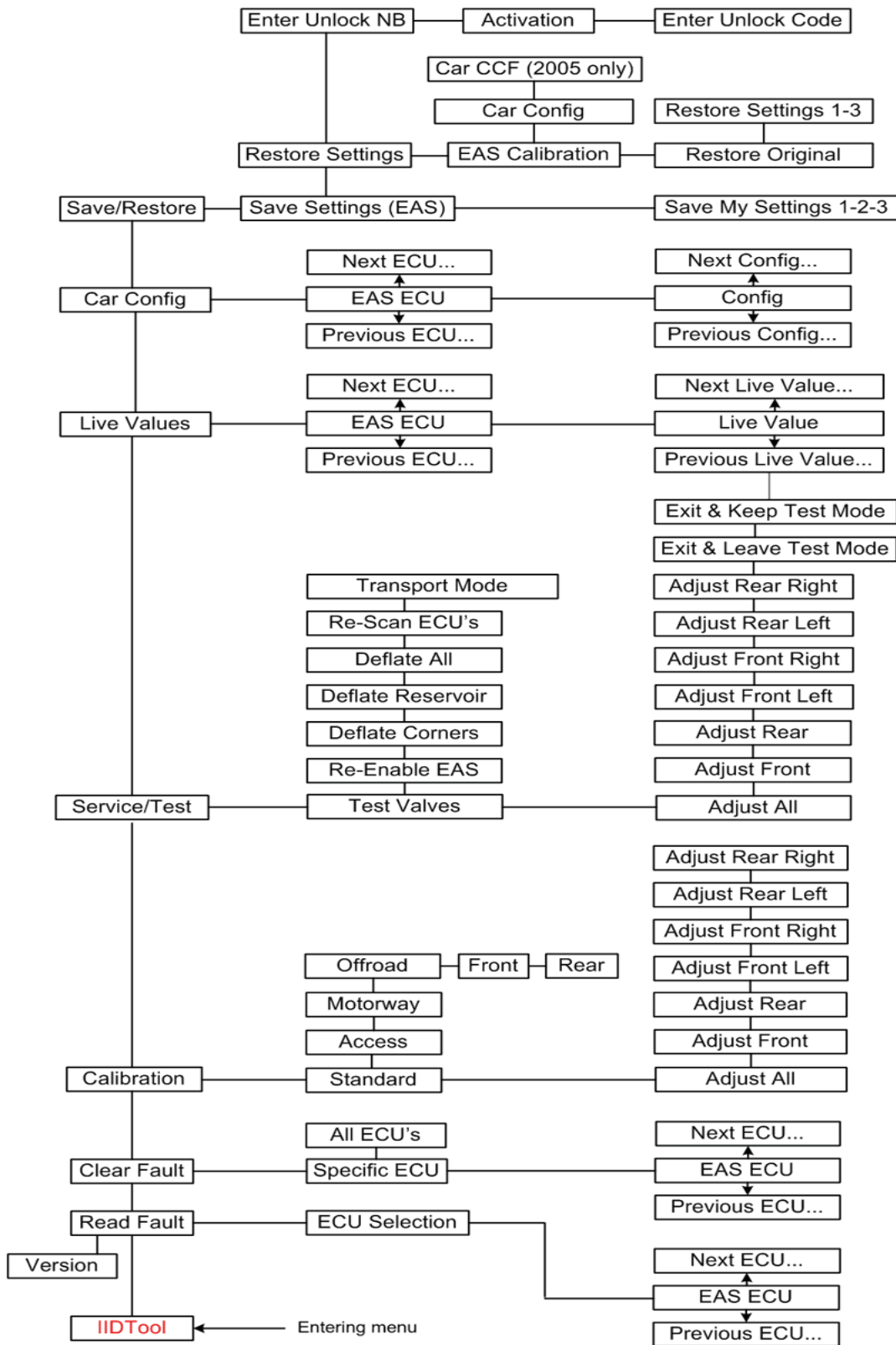


WARNING

Upon first use, some functions will display warning messages. The first time these functions are used, the warnings messages will be displayed 3 times and cannot be skipped. When these functions are used again later, a press of the resume button cancels the warning message.

By pressing the resume button, the user confirms that he has read and understood the warnings.

III. Menu tree Range Rover L322 2002-2005



IV. Top Level Menu Options

1. Read fault

To view faults currently stored in any ECU, select the Read Fault option in the top level menu and press the resume button to enter.

| | | |
|------------|----------|----------|
| 32 | KM 001.8 | +21.0°C. |
| READ FAULT | | |

First use ECU scan

Upon first use (read or clear fault), the IIDTool will scan the vehicle and note the presence of all ECU's on the communications busses. When the scan is complete it will display the number of ECUs found, for example, 12 in the following screenshot.

| | | |
|-----------------------|----------|----------|
| 32 | KM 001.8 | +21.0°C. |
| SCANNING.....12 FOUND | | |

Checking for faults

The ECU list will now be displayed. The menu is navigated up and down with the + / - buttons.

Note: the IIDTool does not enter the ECU list at the bottom – you can scroll both up AND down from the starting point. The list is not in alphabetical order.

Choose the ECU to be checked and press resume to enter. If there are no faults, the message 'No Fault Stored' will appear and the IIDTool will automatically go back to the ECU selection menu.

| | | |
|--------------------|----------|----------|
| 32 | KM 001.8 | +21.0°C. |
| TBOX-TRANSFER CASE | | |

Faults (DTC – Diagnostic Trouble Codes) will be displayed in the standard format if available. If not available, it will be displayed in hexadecimal format. Fault code descriptors are in plain English. Should a fault be displayed without the plain English descriptor, please contact us at: support@GAP-Diagnostic.com .

We will provide the corresponding descriptor.

Reading the fault output

| | | |
|------------------|----------|----------|
| 32 | KM 001.8 | +21.0°C. |
| 2/5 A COMPRESSOR | | |

| | | |
|-------------|----------|----------|
| 32 | KM 001.8 | +21.0°C. |
| RELAY FAULT | | |

Displayed fault in the example above: **2/5 A Compressor relay fault**

As the display does not have enough characters, the message is scrolled through.

2/5: Faults are displayed with the prefix showing the fault number of the total number of faults stored in the ECU. In the example the display is showing fault number two of five total faults stored in the EAS ECU. If the third character is a +, there are more than 10 faults stored. Scroll through the fault list using the +/- buttons.

A: Numeric DTC diagnostic trouble code designation.

Compressor relay fault: Plain English fault descriptor. This particular fault indicates a possible defect in the electric circuit supplying the EAS compressor.

2. Version

The IIDTool enters the top level menu at 'Read Fault' and displays the firmware version of the IIDTool when the minus button is pressed.

3. Clear Fault

Specific ECU

Displays the ECU list and allows the clearing faults in one specific ECU. Scroll to the desired ECU and press 'Resume' to enter. All faults stored in this specific ECU will be cleared. The IIDTool automatically exits the menu afterwards.

Clear All

Clears all faults stored in all ECU's and exits the IIDTool. The number displayed when clearing all is not related to the number of fault cleared but to the number of ECUs on which the faults where cleared.

4. Calibration



WARNING

*The IIDTool allows changes to vehicle settings to a state outside of the original manufacturer specification. **It is the sole responsibility of the user** to choose secure settings for the applicable use of the vehicle.*

| | | |
|-------------|----------|----------|
| 32 | KM 001.8 | +21.0°C. |
| CALIBRATION | | |

Notes:

- **Different calibration values for each corner are normal** – they do NOT need to be set to the same value! These values represent arbitrary electrical values provided by the height sensors. Correlating these values to the measured height of each corner is part of the calibration procedure.
- If the values for the standard height are set too low (without raising the values for access and motorway heights) the vehicle may reach the bump stops in access mode. If the height indicator light continues blinking after the vehicle has been switched off, this can cause a battery drain.
- The height values are given in millimeters . This does NOT correspond exactly to changes in height at the wheel, though. Measure all values to be sure.

- If the values for standard height are set too high (without lowering the offroad height or with increased offroad heights) the suspension can reach a fully extended condition in off road mode. In this condition, there is no suspension travel. **There is severe risk of damage and the vehicle can become uncontrollable in this state!** GAP Diagnostic assumes no liability for damages occurred in using the IIDTool.
- Changes in height are instantaneous in the EAS ECU but the ECU won't apply these changes immediately. The EAS ECU will adjust a corner when it's +/- 10 mm or higher than the desired height. For example if the corner is at +9 mm, it will not correct the height.

The calibration menu provides access to the height settings of the 4 suspension modes: standard, access, motorway, and off-road.

For baseline calibration, the standard function allows height changes to each corner individually; for height changes it allows changes to either front, rear, or all.

The access and motorway functions allow height changes for all corners simultaneously. The offroad function allows separate height changes to front and rear.

Adjust All

This allows changes to the height of the whole vehicle from its current calibration - all four corners simultaneously - at standard height. It also affects the other modes as the standard mode is the reference point. For example, if standard mode is lowered by 10mm, access mode, motorway, and off-road height will also be 10mm lower.

| | | |
|------------|----------|----------|
| 32 | KM 001.8 | +21.0°C. |
| ADJUST ALL | | |

Values are changed up or down with the + / - buttons.

If two subsequent changes of -10mm are made, the vehicle will be -20mm (20mm lower) than the original height.

| | | |
|-------------|----------|----------|
| 32 | KM 001.8 | +21.0°C. |
| ALL: -10 MM | | |

Front

Changes height of only the front axle in all modes. +10mm means the front will be 10mm higher in all modes.

Rear

Changes height of only the rear axle in all modes. -10mm means the rear will be 10mm lower in all modes.

Limits

The EAS ECU has internal absolute limits that limit the extent of possible height changes.

For example, if the current calibration is

| Sensor | Calibration height value (mm) |
|-------------|-------------------------------|
| Front Left | 157 |
| Front Right | 138 |
| Rear Left | 180 |
| Rear Right | 166 |

And the limits of the EAS ECU are

| Sensor | Limit Value (mm) |
|-------------|------------------|
| Upper Front | 200 |
| Upper Rear | 200 |
| Lower | No Limits |

The front can be raised by a maximum of $200 - 157 = 43$ mm. The front can be lowered without a maximum limit.

The rear can be raised by a maximum of $200 - 180 = 20$ mm. The rear can be lowered without a maximum limit.

The IIDTool automatically calculates these values and allows only changes within these parameters.

Note: The maximum values for **lowering** and **raising** are found by trial and error. They will not be the same on every vehicle.

Front Left, Front Right, Rear Left and Rear Right.



WARNING

Calibration of individual sensors should only be attempted by experienced users. Read this section very carefully and only undertake a calibration when the procedure is fully understood.

Serious damage can result if the procedure is performed improperly! GAP Diagnostic assumes no liability for damages incurred through use of the IIDTool.

Note: The values entered into the ECU vary according to sensor tolerances and settings. It is highly unlikely that all 4 corner values will be the same. This is normal!

The settings and changes are given in millimeters but this does not correspond exactly to changes at the wheel. Each change in height must be measured from the bottom of the wheel arch to the center of the wheel. (as explained on the next page).

These menu items allow the calibration of the absolute value (in mm) of each height sensor. This is necessary when height sensors or linkages are replaced or reinstalled. At a minimum, calibration can be done on either axle, front or rear, but it is recommended that all four corners be calibrated simultaneously.

Steps:

1. **Preparation:** go to <http://gap-diagnostic.com/support/downloads.html>, download and print the **EAS Calibration Aid** and **Sample EAS Calibration Calculation**. Place the vehicle **on a flat, level surface** in standard mode. While small surface irregularities may not reduce the accuracy of a calibration significantly, large irregularities can make the calibration harder to verify. The calibration must be done outside with the engine running as the air suspension will not rise when the engine is not running. Study these instructions and the **Sample EAS Calibration Calculation**.
2. Use the IIDTool to take note of the actual calibration. Go to menu item 'Live Value > Suspension ECU > View Calibration'. Note down the values in the **EAS Calibration Aid**.

| | | |
|-------------------------|----------|----------|
| 32 | KM 001.8 | +21.0°C. |
| FL157 FR138 RL180 RR166 | | |

- To prepare the vehicle for height measurements, the vehicle must first be brought to a steady state in standard height mode. To do this, change the height to off-road using the switch on the console. Once at off-road height (off-road LED has stopped flashing), return to standard height and again wait for the LED to stop flashing. Move the vehicle forward 5 meters and back to its original position.
- Navigate the IIDTool to 'Live Values > Suspension ECU > View Current Height'. As the driver's weight affects the current height, the current height must be noted from outside the vehicle. Open the driver's window, exit the vehicle and leave the door open slightly. This will prevent the EAS ECU from making adjustments while measuring. Leave the IIDTool in 'Live Values > Suspension ECU > View Current Height' mode for the following steps.

| | | |
|-------------------------|----------|----------|
| 32 | KM 001.8 | +21.0°C. |
| FL -6 FR 12 RL -6 RR -2 | | |

- Measure the height in millimeters of each corner from the bottom of the wheel arch to the center of the wheel. For each corner take note of the current height displayed on the cluster LCD (from outside) just before or after taking the measurement.

Make sure the measurement of each corner is noted at the corresponding spot.



Option 1 : Calibrating the left sensor and using the right sensor as reference.

6. The correct calibration is achieved by adjusting only the left side of the vehicle to match the right. Calculate the new calibration value for the left side using the formula below. To do the calculation, fill in the table below or on the **EAS Calibration Aid** with the values noted for front corners and repeat for rear corners.

All values are in millimeters

Front

| | Current Calibration Values | Current Height Values | Measured Heights |
|-------------|----------------------------|-----------------------|------------------|
| Front Left | X= | A= | C= |
| Front Right | | B= | D= |

Rear

| | | | |
|------------|-----------|-----------|-----------|
| Rear Left | X= | A= | C= |
| Rear Right | | B= | D= |

**Calibration Formula
for left hand adjustment**

All values are in millimeters

$$\begin{array}{r}
 \text{New Calibration Value Left Front} = \text{Old Calibration Value Left} + \text{Current Height A} - \text{Current Height B} - \text{Measured height C} + \text{Measured height D} \\
 \hline
 \text{New Calibration Value Left Rear} = \text{Old Calibration Value Left} + \text{Current Height A} - \text{Current Height B} - \text{Measured height C} + \text{Measured height D} \\
 \hline
 \end{array}$$

*Please remember: when a value minus a negative value, the minus in the equation becomes a plus (subtracting a negative number = adding a positive number). For example, 3 - -3 = 6

Option 2 : Calibrating the right sensor and using the left sensor as reference.

6. The correct calibration is achieved by adjusting only the right side of the vehicle to match the left. Calculate the new calibration value for the right side using the formula below. To do the calculation, fill in the table below or on the **EAS Calibration Aid** with the values noted for front corners and repeat for rear corners.

All values are in millimeters

Front

| | Current Calibration Values | Current Height Values | Measured Heights |
|-------------|----------------------------|-----------------------|------------------|
| Front Right | X= | A= | C= |
| Front Left | | B= | D= |

Rear

| | | | |
|------------|-----------|-----------|-----------|
| Rear Right | X= | A= | C= |
| Rear Left | | B= | D= |

**Calibration Formula
for right hand adjustment**

All values are in millimeters

$$\begin{array}{r}
 \text{New Calibration Value Right Front} = \text{Old Calibration Value Right} + \text{Current Height A} - \text{Current Height B} - \text{Measured height C} + \text{Measured height D} \\
 \hline
 \text{New Calibration Value Right Rear} = \text{Old Calibration Value Right} + \text{Current Height A} - \text{Current Height B} - \text{Measured height C} + \text{Measured height D} \\
 \hline
 \end{array}$$

*Please remember: when a value minus a negative value, the minus in the equation becomes a plus (subtracting a negative number = adding a positive number). For example, 3 - -3 = 6

Step 7 is an example for a left side (option 1) adjustment. If a right side adjustment is performed, simply replace the left for right in the following text and picture.

- If the 'new calibration value left' varies less than 3mm from the old calibration value it can be considered good. Otherwise navigate the IIDTool to 'Calibration > Standard > Adjust Front Left' or 'Calibration > Standard > Adjust Rear Left' and use the + / - buttons to adjust the value to the 'new calibration value left'.

Repeat the process to verify the calibration.

| | | |
|-----------------|----------|----------|
| 32 | KM 001.8 | +21.0°C. |
| FRONT LEFT: 152 | | |

- Once the calibration is done, the vehicle baseline height can be adjusted to the user requirements. Navigate to 'Calibration' > Standard > Adjust Front' or 'Calibration > Standard > Adjust Rear' and use the + / - buttons to adjust the value.

These are the original baseline heights for your vehicle

| Original Standard height values | Front (mm) | Rear (mm) |
|--|------------|-----------|
| Wheel Center to lower edge of wheel arch | 493 | 483 |

5. Service/Test

Test Valve

This menu item allows manual control over valves in the EAS to raise or lower one vehicle corner or section at a time in order to diagnose problems with the suspension.



WARNING

Care should be taken when using the test valves functions. Make sure no objects or person are under the vehicle or near any suspension components. Keep all the doors closed. Do not try to raise the suspension higher than its maximum travel.

Serious damage or injurie can result if the procedure is performed improperly! GAP Diagnostic assumes no liability for damages incurred through use of the IIDTool.

Options for manual inflation (+) or deflation (-) are:

- All four corners together.
- Front, both sides together.
- Rear, both sides together.
- Front left corner.
- Front right corner.
- Rear left corner.
- Rear right corner.

When a section is inflated, the appropriate corner valve(s) are opened along with the reservoir valve. The suspension starts rising from the reservoir and automatically switches to the compressor after a few seconds. There should be a noticeable decrease in the rate at which the suspension rises at this point.

When a section is deflated, the appropriate corner valve(s) are opened along with the exhaust valve.

The inflation / deflation continue as long as the button is held. The display shows the current height (relative to the standard height) while valves are activated in order to help see the height change and also confirm the behavior of height sensors.

The suspension can be returned to normal operation by choosing 'EXIT&LEAVE TEST MODE' or pressing the on / off button on the cruise control. If the option 'EXIT&KEEP TEST MODE' was chosen, normal EAS operation must be re-enabled using the 'Re-Enable EAS' function (see below)..

Re-Enable EAS

This allows normal operation of the EAS to be resumed following a Deflate process.

This also allows normal operation of the EAS to be resumed following the use of the 'Test Valves' function if this was exited using 'EXIT&KEEP TEST MODE'.

Deflate modes

This deflates the entire air suspension system, air springs, or the reservoir completely.



WARNING

Be sure deflation can be safely performed before starting the procedure! Make sure no objects or person are under the vehicle or near any suspension components. Keep all the doors closed

Deflation allows the safe removal of air suspension components. Three deflation modes are available.

- Deflate Corners (all 4 air springs)
- Deflate Reservoir
- Deflate All



WARNING

*Care should be taken when attempting to remove any air suspension parts as there may be some residual pressure left in the system. When removing a hose or a component, open connectors slowly and wait until the sound of escaping air ceases. **Defective parts can prevent deflation resulting in damage or personal injury.***

Re-Scan ECU's

Upon first use (read or clear fault), the IIDTool will scan the vehicle and note the presence of all ECU's on the communications busses. When the scan is complete it will display the number of ECUs found (see 'First use ECU scan' above p.13).

When the IIDTool is used on another vehicle this procedure will not be performed automatically. If a vehicle has more ECU's, options or different configurations than any of the previous vehicle on which the Re-Scan procedure was performed, the user should do a Re-Scan for this vehicle. This will add the new ECU's to the list.

Build / Transport Mode

This deactivates or re-activates the air suspension.

When an EAS equipped vehicle is transported on a trailer, entering build/transport modes keeps the EAS from lowering. This prevents a loosening of the tie down straps.

Note: Activating the Build Mode / Transport may cause an error to appear on the instrument cluster. The EAS ECU is deactivated and this may affect other vehicle systems. Upon exiting the Build/Transport mode, the error will disappear.

6. Live Values

This function allows viewing the current value or state of a sensor or actuator.

To allow viewing of live values by the **passenger**, the value selected prior to moving the vehicle will stay displayed while the vehicle is on the move. For safety reasons, the IIDTool will not respond to any commands while on the move. The user will not be able to navigate the menu. When the vehicle comes to a complete stop, the commands will become operative and navigation can resume.



WARNING

The driver should never observe a live value while driving. For safety reasons, only the passenger should read the live value while the vehicle is on the move.

Before viewing lives values, please read the notes at the end of this page.

When entering this menu, the ECU list will now be displayed. The menu is navigated up and down with the + / - buttons. Choose the ECU and press resume to enter. The first live value for this ECU is now displayed. Scroll up and down to select other values.

As the display does not have enough characters, the description (i.e. Battery Voltage) is scrolled through. The value displayed (11.520V) is not scrolled.

| | | |
|-----------------|----------|----------|
| 32 | KM 001.8 | +21.0°C. |
| BATTERY 11.520V | | |

| | | |
|-----------------|----------|----------|
| 32 | KM 001.8 | +21.0°C. |
| VOLTAGE 11.520V | | |

Notes:

- The IIDTool enters the ECU list at the bottom – The list is not in alphabetical order.
- While viewing a live value, selecting another will require the plus (+) or minus (-) buttons to be pressed a little longer than usual. Only the name of the live value will first be displayed and scrolled if necessary. After a few seconds, the value or status will appear on the right with its associated unit in the metric system.
- On certain ECUs, it is normal to see warning light(s) turning on when viewing live values.
- When broadcasting live values, some ECUs will stop sending messages on the networks. As a result, other ECUs will interpret this as a communication error. While not mandatory, we strongly suggest performing a clear fault of all ECUs after viewing live values. If you have faults currently stored that you would like to note, perform a read fault prior to viewing live values and clearing.

7. Car Configuration



WARNING

*The IIDTool allows changes to vehicle settings to a state outside of the original manufacturer specification. **It is the sole responsibility of the user** to choose secure settings for the applicable use of the vehicle.*

Definition

The car configuration menu allows users to make changes, improve or upgrade software functions supported by the vehicle. For example:

- Someone who installs a rear view camera will need to change the configuration to make it work in the navigation display.
- Someone can activate the day time running light options (DRL) on their vehicle.

Note: Only a limited number of ECUs allow configuration changes. For a complete list of available car configuration options, please consult the functionality list on the product page of our website.

<http://www.gap-diagnostic.com/products/iidtool.html>

On Range Rover 2005, the ECUs configurations are stored using two different methods (CCF and individual ECU configuration). On Range Rover 2002-2004, the CCF method is not used.

The **Car Configuration File**, or CCF, contains the configuration information needed by all systems or ECUs present in the vehicle connected on the CAN networks. The Instrument Pack broadcasts the content of the CCF at regular intervals on the CAN networks. Each ECU knows its configuration and the configuration of other ECUs if needed. Other ECUs have a backup of the CCF stored in their memory and may be used by the vehicle when one copy is corrupted.

Some configuration are stored inside an individual ECU. When a configuration is changed, it is programmed into the corresponding ECU.

Notes:

Changing a configuration may not be sufficient for a feature to work or be disabled:

- If the required hardware is not or still present in the vehicle.
- If the software or hardware version of a particular system does not support the functionality.
- If the feature cannot be changed.

Some features may not work immediately after they are changed. On diesel equipped vehicle, the park heating function may take up to one week before it becomes available on your monitor when activated.

Changes should only be made when needed and with the full knowledge of risks and consequences these changes may imply.



WARNING

When using the IIDTool, It is considered good practice to connect a power supply (Midtronic's PSC-550 or equivalent) to the battery, especially in the Car Configuration menu. This will ensure that the battery voltage is sufficient when updating the CCF or any ECU configuration.

Note: Battery chargers are not suitable due to poor line regulation.

Use

When entering this menu, the IIDTool will proceed with reading the CCF (2005 only). The ECU list will be displayed next. The menu is navigated up and down with the + / - buttons.

Choose the ECU and press resume to enter. The first of possible configurations for this ECU is now displayed. Navigate up and down to see available configurations for this ECU. Press the resume button to scroll through all available option for the current configuration. Once finished with this particular ECU, press the ON/OFF button to get back to the ECU list.



WARNING

*User should not alter any safety feature or other feature required or prohibited by law in their respective area. **User should inform himself of the applicable regulations or laws** before making any changes susceptible of being part of a law or regulation.*

Note: When viewing a configuration, you will first see the configuration name scrolling on the left (if necessary). For example «Rear seat entertainment DVD» with the current status shown in its short form on the right «None».

| | | |
|--------------------|----------|----------|
| 32 | KM 001.8 | +21.0°C. |
| REAR SEAT ENT NONE | | |

| | | |
|---------------------|----------|----------|
| 32 | KM 001.8 | +21.0°C. |
| ERTAINMENT DVD NONE | | |

Some configuration have a more complete status definition, simply wait a few seconds and it will be shown on the display.

| | | |
|--------------------------|----------|----------|
| 32 | KM 001.8 | +21.0°C. |
| DVD PLAYER IS NOT FITTED | | |

Change confirmation for configuration stored inside an individual ECU.

If a change to an individual ECU configuration was made, it will take effect when the user returns to the ECU list or when the configuration is changed. When the ON/OFF button is pressed or when certain configuration are changed, the following message will be displayed: «*Config have changed, upload to vehicle? Plus to continue, minus to cancel*». If no changes were made, the IIDTool will return to the ECU list without updating the current ECU.

Change confirmation and CCF updating (2005 only)

If a change to the CCF has been made, it will be written to the vehicle when the user exits the Car Configuration menu. Upon pressing the ON/OFF button when in the ECU list, the user will be asked if he wants to update the CCF with the changes made. The following message will be displayed: «*Config have changed, upload to vehicle? Plus to continue, minus to cancel*». If no changes were made, the IIDTool will return to the menu without updating the CCF.

When updating the CCF, the IIDTool will prompt you with instructions to follow:

- If your engine is running, the following message will be displayed: «*Engine running. Turn OFF engine return key to ON*».
- The IIDTool will verify that the voltage is higher than 11.5 V. If not, the operation will be aborted.
- The message «*Display will turn off 30 seconds, keep key ON all time, press the resume button to continue.*» will be displayed. Pressing the resume button will start the CCF programming while pressing the ON/OFF button will cancel. **During this phase, do not turn the key to the OFF position or disconnect the IIDTool.**
- Once the display turns on again, you will be asked to turn the key to the OFF position and back to the ON position, once done, press the resume button.
- The «clearing fault upload success» messages will appear, press the resume button to quit.
- If the vehicle is **outside** and you want to continue using your IIDTool, start the engine. If the vehicle is not outside connect the battery to a power supply.

Notes: During or after a configuration programming you may experience one or more of the following:

It is normal to see warning lights appear on the display.

(2005 only) The navigation screen will turn off during CCF programming. The radio memory may be erased.

You may hear a chime coming from the instrument cluster.

Changing a configuration using a T4, IDS or any other diagnostic tool may alter previous changes made to configurations using the IIDTool.

Configuration Backups

When connected for the first time, the IIDTool does a backup of the Car Configuration File (2005 only) and of configurations stored inside the BPM (Body Processor) and LCM (Light Control).

If a backup was not successful, you won't be able to enter the configuration menu.

8. Save Restore

Upon activation, the IIDTool makes a backup of the original EAS calibrations and ECU configurations. There are also 3 memory slots to save EAS calibration settings for a vehicle. These can be used, for example to save the calibration settings for larger tires, normal tires, etc.

The IIDTool can save and restore these values for a maximum of 20 vehicles.

Save Settings (EAS)

The IIDTool allows you to save three height settings that may be recalled when needed. Simply set the height required in the calibration menu and then go to the select save settings (EAS) and choose to save it to MySettings 1 to 3.

Restore Settings

EAS Calibration

Restore Original - will allow you to recall your original settings (the original back-up values). The back-up values are the calibration values that were stored in the ECU when the IIDTool was activated (if the vehicles calibration was not accurate prior to activating the IIDTool, these values will not be good).

Restore Settings 1 to 3 - will allow an immediate restore to the settings saved in memory slots 1 to 3. This option only appears if settings have been saved.

Car CCF (2005 only)

Will allow recall of the original configuration setting on all supported ECUs on the CAN networks except the EAS ECU. The IIDTool will proceed with writing the CCF when the resume button is pressed. Please consult the «**Change confirmation and CCF updating**» in the Car Configuration section of this manual for more details.

Car Config

Will allow recall of the original configurations of the BPM (Body Processor) and LCM (Light Control) ECU's. Please consult the Car Configuration section of this manual for more details on back-up information.

Enter unlock code

You can unlock your IIDTool for future uses on other vehicles by entering an unlock code here. First, enter the unlock code menu. You will see a ten hexadecimal characters activation code. If you already have an unlock code for more than one vehicle, press resume and enter your code.

If you don't have an unlock code or need a new one for adding one or more vehicle, please contact your Britpart dealer to buy additional VIN's license(s). With your activation code and VIN license(s), you will be able to retrieve your unlock code on our website at:

<http://www.GAP-diagnostic.com/support/unlock.html>

After entering your unlock code, when connecting to another vehicle that's never been unlocked, you will be asked if you want your IIDTool to be unlocked for this particular vehicle.

Limited Warranty

GAP Diagnostic warrants this product for 2 full years after the date of purchase. The warranty covers only the IIDTool of the original purchaser (non transferable). It covers manufacturing and workmanship defects for the duration defined above. The warranty is limited to the functionality of the system and the system itself. It is the user's responsibility to use the IIDTool safely.

The user must return the IIDTool to Britpart to have the warranty honored. The user must provide a proof of purchase.

The warranty is void if:

- The product has been damaged or altered in any way
- The product is damaged by water, fire, accident or other condition beyond the control of GAP Diagnostic
- The product has been improperly installed or misused

The warranty does not cover:

- Shipping and handling.
- Any material damages other than the IIDTool itself.

Under no circumstances will GAP Diagnostic be liable whatsoever for incidental or consequential damages. The warranty is limited to the value of the product.

Contact:

GAP Diagnostic

support@GAP-Diagnostic.com