

### **CAN BUS vehicle coverage and functions:**

Currently covered CAN-BUS models:

L319 Discovery 3/LR3 2005 to 2009 L320 Range Rover Sport 2005 to 2009 L319 Discovery 4/LR4 2010 to 2014 L320 Range Rover Sport 2010 to 2013 L322 Range Rover 2010 to 2012 L316 Defender 2.2 Puma 2010 to 2013 L316 Defender 2.4 Puma 2007 to 2010 (partial CAN-BUS) L359 Freelander 2 2007 to 2012



IMPORTANT: Unlike traditional multimodel vehicle diagnostic equipment, for CANBUS vehicles, the Nanocom has NO vehicle model or ECUmenus to select from, instead, under the CANBUS VEHICLE option, the Nanocom initiates a "VIN detection" function, which tells the unit exactly which vehicle is currently connected. After the VIN detection process, there is a list of diagnostic and service functions. These are currently (V1.24 onwards):

Fault Codes - reading, saving and clearing. ECU Information (full ECU specifications) ECU Programming/Modified CCF uploading Service Functions- Service and Oil light reset Air Suspension (EAS) Park Brake Adaptive Values Reset Read/Save CCF CAN Instrument Mode (Live Data on the Move) Clutch Calibration (Transfer Case Control Module) CCF Sync (Body Control Module synchronisation)



PARK BRAKE	((
ADAPTIVE RESET	
READ CCF	The second



With the release of the Nanocom firmware V1.24 (May 20th, 2014) the method for building the CAN-BUS menu when first connecting to a CAN-BUS vehicle has changed. The Nanocom will run it's smart vehicle detection process, upon doing so, you will only be given the functions supported by the Nanocom that are relevent to the connected vehicle.

The reason behind this is to avoid having applications and functions in your menu that do not or should not be applied to your vehicle. You can track the latest added features and functions via the Master Change Log, which you can download from your Members Restricted Area.

This Manual also contains all the Can-Bus functions and some might or might not apply to your vehicle. The different functions that do not apply to all the Can-Bus vehicles are contented in separate labeled sections.

#### **Contents:**

- 1-2. Introduction, vehicle coverage and Dynamic CAN-BUS Menu
- 3. VIN detection function and Fault Codes
- 4. Fault codes (continued) and ECU Information
- 5. ECU Programming and Flash File Download
- 6-8. Flash File Download (continued)
- 9-12. CCF (Car Configuration File) Editing
- 12. CAN BUS Functionality Service Functions, Air Suspension and Height Calibration
- 13. How to use the height calibration function
- 14. EAS Inputs
- 15. EAS "Other" Functions and Park Brake
- 16. Adaptive Reset, Read Save CCF Function and CAN-BUS Instrument Mode
- 17. Clutch Calibration, CCF Sync and Puma 2.2 Inputs and the VIN tool
- 18. Steering Angle Sensor Calibration Application 11 and 29 CAN-BUS vehicles, Fuel Pump Lift
- 19. Fuel Burning Heater for Diesel engines, Transit mode and Trip Computer for Freelander 2
- 20. Rear Differential self test, ABS Bleed, Water in fuel reset
- 21. Additional support information and links

#### **VIN Detection function:**

When any option is selected, the Nanocom Evolution will first run the short VIN detection function through which it will communicate with the vehicle and identify the precise model, year, engine and transmission type, as well as any other information the Nanocom might require to proceed.

Dynamic Menu System: From firmware version 1.24 and onwards, the Nanocom Evolution will now compile the CAN-BUS menu functions specific to the connected vehicle.

CAR INFO	
SALLSAA535A123456 RANGE ROVER SPORT L320 EU and ROW Automatic 6 Spd 448PN - AJ V8 4.4 Petrol 2005	Vehicle detection
PROCEED	

### **Fault Codes:**

The diagnostic functions provided under this option are identical for all CAN-BUS based Land Rover Vehicles, as they all follow the ISO 14229 standard as defined by the International Standards Organisation. This standard is independently documented on the Internet for more detailed reference and information, but it's main feature is in its additionally categorising of Fault Codes as "Tested" or "Not Tested"



As such, this diagnostic function provides six sub-function options which are:



The first three functions simply read the **tested**, **not tested** or **permanent** fault codes, depending on selection, from the vehicle system ECU's that are selected in the **ECU's CONFIG** option. All of these functions will then produce a list of Faults and their definitions in plain text, that can be scrolled through one fault per screen.

The *read custom* option is provided for those who have read and understood the ISO 14229 standard and want to apply their own masking and filtering to limit the Fault Codes that are displayed to their masks sepcifications. The ECU's that will be read or not are still dictated by those selcted in the *ECU's Config* section.



The *ECU's Config* sub-function provides a list of all of the vehicle system ECU's fitted to the currently connected vehicle. This allows for the selection and de-selection of any ECU that the first four fault reading functions will read the fault codes for.

By touching the  $\bowtie$  next to the ECU listing, the box will change to a  $\bowtie$  indicating that the ECU has been selected. There is also the option to Select All  $\checkmark$  if you wish to read all ECU's in the vehicle or indeed clear all  $\bowtie$ .

You will then need to exit this screen when all of the desired ECU's have been selected, by pressing the located in the bottom right corner.

After selecting the Read Faults option, you will be presented with a screen showing the faults that have been read. If there is more than one fault displayed, it will show Fault "**1 of X**" (**X** being the total amount of faults found). You can scroll through to read the full list of faults. In the display, you will see the actual ECU where the fault has been detected, a short description of the fault code and its full official definition:

CODE:P0585 Speed control multi-function input A/B correlation (INTERMITTENT)				
	Speed con A/B corre (INTERMIT	5 itrol mult lation TENT)	i-functior	input

We have also included the ability to save the fault codes read to the SD card, which can then be viewed as a text file through any PC or laptop. This may be useful when seeking advice about fault codes through our forums for example.



The CLEAR function is used to clear the detected fault codes, but provides two options. The first is to clear Fault codes from all of the vehicle system ECU's that are selected in the ECUs CONFIG option, and the second allows the possibility to clear fault codes by individual listed ECU's.

## ECU Information (required for programming/flashing):

This diagnostic function produces a list of all the vehicle system ECU's fitted to the currently connected vehicle, which can then be individually selected. On selecting a system's ECU, the Nanocom Evolution will then read and display all of the information specific to that ECU, including VIN numbers, serial numbers, hardware numbers,

software numbers, assembly numbers and other information. This information can be saved to a text file on an SD/SDHC card, if inserted, and can be used to select the correct set of files from the Flash File Database on the Genesis web site.

After the vehicle information has been read, you then need to have in mind which ECU you wish to program/flash with the Nanocom Evolution and then read the required information from that ECU.

By selecting "Read" next to the ECU name, this will then present the

information related to that ECU. As an example, here is an ECU's information being displayed from a Discovery 3 (image below)

Instrument Pack	READ
Engine Management	READ
Transfer Case	READ
Parking Brake	READ
Ride Level	READ

Using the scroll bar at the bottom, you can obtain all the information related to the ECU. The full list of available information can be as follows:

Hardware Number, Serial Number, Software Number, Calibration Data 2, VIN Number, Assembly Core Number, Assembly Part Number, Delivery Assembly Number, Software Number 2, Boot Software I.D, Active Network Configuration, Calibration Part No, Calibration Data 3, Software Number 3 and Legacy Assembly Number.



Some of this information will need to be noted if you intend to flash/program the software on any ECU. You need to make a note of the Hardware number as this will be required for the next stage of the process.

## **ECU Programming:**

This diagnostic function provides the capability to flash any files that have been downloaded from the Genesis web site into its corresponding vehicle system ECU. This could be either a set of files to flash an ECU or a standard/ modified CCF file, as the Genesis website provides both capabilities via its Flash File database and CCF Editor function.



IMPORTANT: Your Nanocom site login details are the same for the Genesis website, which is located here: http://vbf2.blackbox-solutions.com/FaultmateGenesis-Server/genesis.action

## **Flash File Download:**

Welcome to the Genesis Website by Blackbox Solutions. This is a step by step guide to Downloading and using Flash Files for individual ECU's, this is done to enable certain features and to update software. Once you have logged in with your member details, you will be presented with this screen:



Click on this option and you will be presented with a screen to enter your VIN number:

	Help Logist
Flash File Download	
Enter Vin Number:	

#### HINT:

Locating your VIN: The VIN is stored in some ECU's, such as the Instrument pack, Body Control and ABS. It can also be obtained from the vehicle itself and can be found in various locations such on the passenger side lower corner of the Windscreen, or you can check your vehicles documents or handbook for further information.

Once the VIN has been entered, press **Submit** to be taken to the next screen where you will be presented with the vehicle model based on the VIN entered. A drop down box allows you to select the ECU that you intend to flash and require files for:

	[ HUW ] Cases			
NAMES OF THE PARTY OF THE OWNER OF THE OWNER		Flash File Dov	wnload - Range Rover	Sport 2005 to 2009
Flash File Download - Range Rover Sport 2005 to 2009		Enter Vo.Number.	MUSALINARISIS Baberal	
Enter Vin Number: IAU SAASSANDER Baterit		Select linu:	Parking Drate	g Land House Part Nambers
Select Ecz. Process Interfine		Assentibly Number: Hardware Number	Present Assembly Inc. Article Scales All Article Scales ALL Article Scales ALL Article Scales ALL Article Scales ALL	
		Line al al an anne	Construction of the Art	
		Assembly	Hardeare	Barfforgeta
		A102-00494-A0	An22-140201-420	Ande-Takinika AR, Ande-Takinik AP
		A102 2046 40	Art22-140201-A0	Arts2-140168-KE, Arts2-140188-AP
		AHER 20 KIM AD	A1122-140201-A8	ANDEAR AND AND AND AND AND AND
		Ar02-30464-Ag	AH22-14000+-A8	AH22-140168-AE
		Ar02-20(486.AF	A/(22-140261-A0	Art225.14(1168-AE

In this example we are looking at a Range Rover Sport 2005 to 2009 Model and the ECU selected is the Ride Level Control Module (RLM). You now have a further two drop down boxes that can filter the information based on the Assembly number or Hardware number, which you will have taken from the Nanocom Evolution ECU information section for reference in this situation.

You will notice that to the right of the Select ECU dropdown box, there's an option that says **Display Land Rover Part Numbers,** If you click on this it will change the information listed in the main window, shown below, and the option will now read **Display Ford part Numbers:** 

ADACK	and same an	ns/en/naminae/aenes/is	BUTCK	anxisotumon	IS/FAULTIMATIE (AFTESIS)
		New Local			[ Net ] [ Liga
Flash File Down	load - Range Rover	Sport 2005 to 2009	Flash File Dow	vnload - Range Rover :	Sport 2005 to 2009
Select Ecu: Ris Assembly Number: Fix	e Lavel 🕞 Displu	y Land Rover Part Nambara	Select Ecu: Assembly Number:	Rice Lavel  Titler on Assembly	Ford Port Neurlbers
Select Ecu: Fig Assembly Number: Fig Hardware Number: Fig Racing State	n Lavel T Displa	y Land Rover Part Nambers	Select Ecu: Assembly Number: Hardware Number:	Roo Lovel • Display	Ford Part Sectors
elect Ecu: Fig ssembly Number: Fig ardware Number: Fig 8 - Casembly Assembly	a Lavel T Displa o on Assembly T o or Planess (a) Handmare	y Land Rover Part Nambers Sufficience	Select Ecu: Assembly Number: Hardware Number:	Roo Lovel	Ford Part Nembers
elect Ecu: Fig ssembly Number: Fig ardware Numbar: Fig Bisenbly Bisenbly Exception	In Lawel The Display	912ard Rover Part Nembers	Belect Ecu: Assembly Number: Hardware Number: 201	Ros Level I Display There is A scattley (in) Fiber on Nanthame (in) I manifestime I manifestime REGISSO160	Ford Part Hernberrs Staffware NetSoccool, SH22 H2004-CG
elect Ecu: Fig seembly Number: Fig ardwars Number: Fig basenbly basenbly - 902250019-CA 902250019-CB	In Land I Disph	Stitteste           5421           5422	Select Ecs: Assembly Number: Handware Number: 301- Casembly GrospArgs oc: ProspArgs oc:	Ron Lever Ta' Display Tribu en Assentitiu (n) Tribu en franchisaria Randhastra Randhastra Randhastra Randhastra Randhastra	Ford Part Handwars  Ford Part Handware  Settingen  Nt0000000, 91:22 + 10204 + 02  Ht0000000, 71:83 + 10204
elect Eca: Fac assembly Number: Fac ardware Number: Fac Essently HICE SAMPS CA BIO2 64/PS - CB BIO2 64/PS - CB BIO2 64/PS - CB	Class     C	y Lad Rever Part Nambers 5012-14096 AA, 902-14094 CA 5122-14096 AA, 902-14094 CA 5122-54096 AA, 902-14094 CB 5122-54096 AA, 902-14094 CB	Select Ecu: Assembly Number: Hardware Number: Selection: GR2+64/19-0C Proto-Add19-0C Proto-Add19-0C Proto-Add19-0C	Rot Level in Display	Ford Part Nembers  Ford Part Nembers  Software  N0000000, 1420-1400014-60  N00000000, 1420-1400014-40  N00000000, 1420-1400014-40  N0000000, 1420-1400014-40
elect Ecu: ardware Numbar: Basentoly Numbar: Basentoly Basentoly (925.500-50.6 (922.500-50.6 (925.500-50.6 (925.500-50.6 (925.500-50.6 (925.500-50.6 (925.500-50.6) (925.500-50.6 (925.500-50.6)	In Local I Diego or Accordin I I Diego or definitionen III Herdinare Diego - MODE AA Belo - MODE AA Belo - SEDIRCAA Belo - SEDIRCAA	Stiftware           512         5010 AG, 6923 AG, 9923 AG, 9943 AG, 9923 AG, 994 AG, 9923 AG, 994 AG, 9923 AG, 994 AG, 9923 AG, 994	Select Ecs: Assembly Number: Hardware Number: 20 - Assembly 90255491942 90255491942 90255491942	Roctured in Dispeter The endexteeling in Proceeding in a Comparison of the second seco	Food Part Hanniews  Sethware  N0500000, FH22 + H2004-CG  N05000000, FH23 + H2004-CG  N05000000, FH23 + H2004-AG  N0500000, FH23 + H2004-AA  N0500000, FH23 + H2004-AA  N0500000, FH23 + H2004-AA
elect Ecc: Figs assembly Number: Fig tardware Number: Fig Basenbly PR2530919-CA 9022-M019-CB 9025-M019-CB 9025-M019-CB 9025-M019-AC	In Level III Closed In Closed V. III IIII IIIII IIIIIIIIIIIIIIIIIIII	State         State           9122-14036A, HIG2-16034-08         5021-6034-08	Select Ecu:           Assembly Number:           Hardware Number:           Select Ecu:           Assembly Number:           Select Ecu:           Assembly Number:           Select Ecu:           Select Ecu:           Assembly Number:           Select Ecu:           Selecu: <tr< td=""><td>Rockwell in Dispetion The end Assemble in Take on Hardwell in Rockberger Ro</td><td>Find Part Nembers           Sethere           NINDODDDD, 5422-10204-0C           NINDODDDD, 7423-10204-0C           NINDODDDD, 7423-10204-0C           NINDODDDD, 7423-10204-0C           NINDODDDD, 7423-10204-0C           NINDODDDD, 7423-10204-0C           NINDODDDD, 7423-10204-0C</td></tr<>	Rockwell in Dispetion The end Assemble in Take on Hardwell in Rockberger Ro	Find Part Nembers           Sethere           NINDODDDD, 5422-10204-0C           NINDODDDD, 7423-10204-0C           NINDODDDD, 7423-10204-0C           NINDODDDD, 7423-10204-0C           NINDODDDD, 7423-10204-0C           NINDODDDD, 7423-10204-0C           NINDODDDD, 7423-10204-0C
Interct Ecc:         Fig.           Assembly Number:         Fig.           Internet/Number:         Fig.           Statembly         Fig. <td>Comparing a second second</td> <td>Staff Rever Park Numbers           Staffware           9122-140396 AX, 9022-140396 CA           9122-140396 AX, 9022-140396 AX           9122-140396 AX, 9022-140306 AX           9122-140396 AX, 9022-140306 AX           9122-140396 AX, 9022-140306 AX           9122-140396 AX, 9022-140306 AX</td> <td>Select Ecu: Assembly Number: Hardware Number: CELS-May Comment CELS-May Comment Market Comment M</td> <td>Roctevel</td> <td>Ford Part Handwars  Software  N05000305, 0422-14020-4-05  N05000305, 0422-14020-4-0  N06000305, 0422-14030-4-0  N0600305, 0422-14030-4-0  N0600305, 0422-14030-4-0  N0600305, 0422-14030-4-0  N0600305, 0422-1400-4-0  N06000305, 0422-1400-4-0  N0600305, 0422-1400-4-0  N0600305, 0422-1400-4-0  N0600305, 0422-1400-4-0  N0600305, 0422-1400-4-0  N0600305, 0422-1400-4-0  N0600305, 0422-1400-4-0  N06005, 0420-4-0  N06005, 0422-1400-4-0  N06005,</td>	Comparing a second	Staff Rever Park Numbers           Staffware           9122-140396 AX, 9022-140396 CA           9122-140396 AX, 9022-140396 AX           9122-140396 AX, 9022-140306 AX           9122-140396 AX, 9022-140306 AX           9122-140396 AX, 9022-140306 AX           9122-140396 AX, 9022-140306 AX	Select Ecu: Assembly Number: Hardware Number: CELS-May Comment CELS-May Comment Market Comment M	Roctevel	Ford Part Handwars  Software  N05000305, 0422-14020-4-05  N05000305, 0422-14020-4-0  N06000305, 0422-14030-4-0  N0600305, 0422-14030-4-0  N0600305, 0422-14030-4-0  N0600305, 0422-14030-4-0  N0600305, 0422-1400-4-0  N06000305, 0422-1400-4-0  N0600305, 0422-1400-4-0  N0600305, 0422-1400-4-0  N0600305, 0422-1400-4-0  N0600305, 0422-1400-4-0  N0600305, 0422-1400-4-0  N0600305, 0422-1400-4-0  N06005, 0420-4-0  N06005, 0422-1400-4-0  N06005,

The reason for the dual numbering is that Land Rover have changed the way the part numbers were issued during its history of vehicle production, mainly due to changes in the company ownership, so you may need to change this option in order to help find the part number obtained from your ECU information page.

There are also two filter options that allow you to find the file more easily:

		Filter o	n Assembly		Filter on I	Hardware
	(FCTC)	KBORSOLUMIO	SETULATION BEFESTS	GITT	KBDXQSDIUMID	nskauttmägektenesis
Network         Print Prist         Description         <	Flash File Do	ownload - Range Rover	Sport 2005 to 2009	Flash File Do	wnload - Range Rove	r Sport 2005 to 2009
Assembly         Marine Manufactory         Marine Manufactor	Belect Ecu:	Parking Blake	y Land Player Part Manhorn	Rebert Front	Ends as a control models	The state from the state of
Network         <	Assembly Number:	Filter to Assembly	and the second se	Senet ECU.	Pride invo commitmentaria	Contract Long and Lon
Assession         Number         Building	11 ma 2014 ann an	Ardo Hecali AB Ardo Hecali AB		Hardware Number:	Film p Hadware	
Access displayed         Macro Access displayed         Macro Control Access displayed         Macro ControLon Access displayed         Macro Control Access displa		Haldwaie	BOTTWATE	20 w	N Hanimutaria	2001 ( P. 1
Auto: Stati Hall         Auto: Notaria         Auto:	A7201017			-	a michair	Dutterre
AND 20169-00 / MIC2 AND 14 (2014 AL) AND 14 (2014 AL AND 14 COLD AL) AND 20169-00 / MIC2 AND 14 (2014 AL)	Anteresta	20072 1.00700 1.00	BANTS SATTRA DR. ANTO SATTRA AF	69402.545/mil.0/2	RQT50019D	NNE500000, 6H22-140354-00
Arica Societi Aric Arica Societi Aric Arica Societi Aric Arica Societi Aric Arica Societi Aric Arica Societi Arica Arica Societi Arica Arica Societi Arica Arica Arica Arica Arica Arica Arica Arica Arica Arica Arica Arica Arica	Assembly Artop portes Ad Artop 20/486 Ad	AH22 14C251-AB AH22 14C251-AB	AP22.14C165.AE, AP22.14C165.AF 8H22.14C165.AE, AH22.14C165.AF			HARMOOCO THESE INTERNAL
Area Section         Area Section         Med Section	Antaz 201496 Adi Antaz 201496 Adi Antaz 201496 Adi	AH22-14C261-AB AH22-14C261-AB AH22-14C261-AB	Art22 (41C108-AE, Art22 (41C108-AF Art22 (41C108-AE, Art22 (41C108-AF Art22 (41C108-AE, Art22 (41C108-AF	THEP-SAPIS-AC	RQ1500160	
Noveleticities         Noveleticities         Noveleticities           Noveleticities         Rail         Rail         Noveleticities           Noveleticities         Rail         Rail         Noveleticities           Noveleticities         Rail         Rail         Noveleticities           Noveleticities         Rail         Rail         Noveleticities	Assembly Arizz 20:486-468 Arizz-20:486-400 Arizz-20:486-400 Arizz-20:486-400	AH22-14C251-AB AH22-14C251-AB AH22-14C251-AB AH22-14C251-AB	Art22.1401663-AR_ARC2.1401683-AP Art22.1402663-AR_ARC2.140168-AF Art22.1402663-AR_ARC2.140168-AF Art23.140663-AR_ARC2.140168-AF	THEP SAPES AC SHEELSACTHAA	RQ150050 RQ150050	NHE500000 9492 140394 AA
1 MAXEC (2) 10 (1) (2) (1) (2) (2) (2) (2) (2) (2) (2) (2) (2) (2	Assembly Artizz Sci 485 Ads Artizz Sci 485 Ads	AH2214C36148 AH2214C36148 AH2214C36148 AH2214C36148 AH2214C36148 AH2214C36146	Area Archiela Az, Araba Archiela Ar Area Archiela Araba Araba Araba Araba Area Araba Araba Araba Araba Area Araba Araba Araba Area Araba Araba	1462-540-15-44 9452-540-15-44 9452-340-15-64	RG1500HD RG1600HD RG1600HD	194850000 9402 14094-6A 194850000 9402 140194-6A
MARKET JAH RUTSONS MEDICAL MARKET JA	Anton by Artico Screek Ad Artico Screek Ad Artico Screek Ad Artico Screek Ad Artico Screek Ad Artico Screek Ad Artico Screek Ad	AH52114C261A8 AH52114C261A8 AH5214C261A8 AH5214C261A8 AH5214C261A6 AH5214C261A6	Are2 - 141588-84, Are2 - 141588-Are Are2 - 141588-84, Are2 - 141588-Are	THEO-PACTE AC 9482 SACTE AA 9482 SACTE BA 9492 SACTE BA NAMEDICE00	RG1500160 RG1600160 RG1600160 RG1600160 RG1600160	1946500000 9492-140394-AA 1946500300 9492-140394-AA 1946500300 1949214039-46A
	Arbonolity Arbo oc.496.40 Arbo oc.496.40 Arbo oc.496.40 Arbo oc.496.40 Arbo oc.496.40 Arbo oc.496.40	AH22-14C251-AB AH22-14C251-AB AH22-14C251-AB AH22-14C251-AB AH22-14C251-AB AH22-14C251-AB	Areas Audites/audites/audites/areas Areas Audites/audites/audites/areas Areas Audites/audites/areas Areas-Audites/audites/areas Areas-Audites/audites/audites/areas Areas-Audites/audi	1460-54015-AG 9452-34015-AA 9452-34015-BA 1453-54015-BA	RG150080 R0160960 RG160960 RG150060 RG150060 RG150060	Nesista0000 SHI2: 42054-4A Nesista0000 SHI2: 42054-6A Nesista0000 Nexist: 4405440 Nesista0000 Nexist440 Nesista0000 Nexist440
	Apparently Avi22 SC496-Ad Avi22 SC496-Ad Avi22 SC496-Ad Avi22 SC496-Ad Avi22 SC496-Ad Avi22 SC496-Ad	ARC2-14C201-AB ARC2-14C201-AB ARC2-14C201-AB ARC2-14C201-AB ARC2-14C201-AB ARC2-14C201-AC	AND 34 425 442 AND 34 42 AND 34 44 A	TRED PARTIE AC 1962 JANUTE AC 1962 JANUTE BA NAVECTORISE HAVECTORISE HAVECTORISE	RG1500H0 RG1500H0 RG1500H0 RG1500H0 RG1500H0 RG1500H0 RG1500H0	NeGLIGIOCO SERTE 42012-64 Telescolo secto 14010-64 NeGLIGIOLE Involtetel NegLIGIOLE Invo

We have chosen the Ride Level Control Module and selected to view by *Assembly Number* for this example.

In this example, we have selected the Assembly number 9H32-5A919-BA, shown circled in red below. If you then double click anywhere on the files pale gray line to open it, you will receive the following information screen:

You will notice that not only do you have the Ford part number listed, but also its Land Rover alias (A.K.A). This will aid in confirming the correct software to flash your desired ECU.

					Help
Flash File D	ownload	- Range Rove	r Sport 200	5 to 2009	
Enter Vin Number:					×
Salact Ecu:	Assembly	$\sim$			
Assembly Number: Hardware Number:	Assembly: Successor: Notes:	9H32-5A919-BA	A.K.A: Predecessor:		
	Hardware				
Show 20 v entries	Hardware: Successor:	5H32-14D392-AA	A.K.A: Predecessor:	RQT500160	
Asser	Software Lis	t			
6H22-5A919-CC 7H32-5A919-AC 9H32-5A919-AA	Software: Successor: File Name	5H22-14D396-AA 5H22-14D396-AA	A.K.A: Predecessor: File Type	NNB500300 SBL	
9H32-5A919-BA NNW506690	Software: Successor:	9H32-14D394-BA	A.K.A Predecessor.	EVE	1

In each of the sections in the example above are also details regarding Successor and Predecessor software versions. These are simply the previous older and succeeding newer versions of the same software. This is useful for helping to narrow down the most recent files available. Note that more recent files may have features and functions that earlier software may not have, like the famous Discovery 3's "clock on Dash".

Once you have located the appropriate file, you need to click *Download* to be able to save the file to your laptop/PC.

#### Please do take notice of the Disclaimer before proceeding, the information shown is important.



Click Accept if you wish to continue and then the system will prompt you to Save or Open the file.

Enter Vin Number:         Suttantial         Suttantial           Select Ecx:         Not Low!         Display Land Borer PartNetbore           Assembly Number:         Proc on Assembly I         Image: Control on Control Control on Control Control on Cont	Vin Number:         SALISANSINCESE         South           Exer:         Display Land Rover Parchenbers           Big Namice:         Trave on Assence 7           Big Namice:         Trave on Assence 7           State Number:         Trave on Number:           State Number:         State Number:           State State:         State Number:           State State:         State Number:           State:         State State:           State:         State:	Number:         SkillsAMSM2322         Skime           Nr:         Rose Lond         Objekter Land Rover ParchNembers           V Mutber:         Tore on Anamby:         Display Land Rover ParchNembers           V Mutber:         Tore on Anamby:         Display Land Rover ParchNembers           Image: Number:         Tore on Anamby:         Display Land Rover ParchNembers           Image: Number:         Tore on Anamby:         Display Land Rover ParchNembers           Image: Number:         Tore on Anamby:         Display Land Rover ParchNembers           Image: Number:         Tore on Anamby:         Hardholf*           Image: Number: Nu	Ner Vin Number:         Substantion           Second Vin Number:         Proc.ord           Proc.ord         Proc.ord           Second Vin Number:         Proc.ord           Proc.ord         Proc.ord           Second Vin Number:	Entry Number:         Buttisstores:         Display Land Rever Park Numbers           ext Els:         Not tool         Display Land Rever Park Numbers           ext Els:         Not tool         Display Land Rever Park Numbers           ext Els:         Not tool         Display Land Rever Park Numbers           ext Els:         Not tool         Not tool	eff Thumber:         But LAMISSING Submit (1)         Display: Land Rover Parthenbors           end Example:         Proc. realization (2)         Display: Land Rover Parthenbors           end With Munde:         Proc. realization (2)         Proc. realization (2)         Display: Land Rover Parthenbors           end With Munde:         Proc. realization (2)         Proc. realization (2)         Proc. realization (2)         Proc. realization (2)           end With Cample:         Proc. realization (2)         Marchare         Body Rover R		inoud - itunge itore	1 Sport 2005 to 2008		
Select Exx:         Role Level         Display Land Rover PartHetters           Assembly Mambel:         Provo Asamby Ia         Display Land Rover PartHetters           Raindbare Number:         Provo Asamby Ia         Biological Land Rover PartHetters           Provide State Number:         Provo Asamby Ia         Biological Land Rover PartHetters           Science State Number:         Provide State Number:         Scheare           Science State State Number:         Note Land Rover Address Number:         Scheare           Science State Number:         Note Land Rover Address Number:         Scheare           Science State Number:         Note Land Rover Address Number:         Scheare           Science State Number:         Science State Number:         Science Number:           Science State Number:         Note Land Rover Address Number:         Science Number:           Science State Number:         Note Land Rover Address Number:         Science Number:           Science State Number:         Note Land Rover Address Number:         Science Number:           Science State Number:         Note Land Rover Address Number:         Science Number:           Science Address	Eter:         Rox Lout         Object Land Rover PertNetebore           bbj / Namber         Row on Non-Barrellon         Row on Non-Barrellon           are Number         Row on Non-Barrellon         Row on Non-Barrellon           statistic Are Non-Are Non-Barrellon         Row on Non-Barrellon         Non-Row on Non-Barrellon           statistic Are Non-Are Non-Are Non-Area         Row of Non-Area         Non-Row on Non-Barrellon           statistic Area         Row of Non-Area         Row of Non-Area         Non-Row on Non-Barrellon           statistic Area         Row of Non-Area         Row of Non-Area         Non-Row on Non-Barrellon           statistic Area         Row of Non-Area	ne:            Rode Loval         Display Land Rover Past Hambors           V Hambler:         Provin Acauthyr (=)           Status         Provin Acauthyr (=)           Anwenbler:         Provin Acauthyr (=)           Status         Provin Acauthyr (=)	Hetel Exa:         Proc Lucol         Display Land Rever Part Nembers           Second V Muthetic:         Proc on Second V III         Proc on Second V IIII           Assection V Muthetic:         Proc on Second V IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	Ret Erz:         Fox Loval         Display Land Renor P ast Nembers           sembly Number:         The no float range         The no float range           advants Number:         The no float range         Schwarts           advants Number:         The no float range         Schwarts           advants Number:         The no float range         Schwarts           advants Number:         Schwarts         Schwarts           advants Number:         Schwarts         Schwarts           advants Number:         Schwarts         Schwarts           advants Number:         Schwarts         Schwarts           advants         Schwarts         Schwarts           advants         Schwarts         Schwarts           advants         Schwarts         Schwarts           Schwarts         Schwarts         S	Production         Production         DisplayLand Rever PartNettions           Search Number:         Procentations         Procentations         Procentations           Procentations         Procentat	Inter Vin Number:	SALLSAASSLARCERS Submit			
Assemble/Number:         The or Assemption           Randback Number:         The or Assemption           Backback Number:         Name           Backback Number:         Name           Backback Number:         Name           Backback Number:         Name         Schlassin           Backback Number:         Schlassin         Schlassin           Backback Number:         Schlassin         Schlassin           Backback Number:         Schlassin         Schlassin           Backback Number:         Schlassin </th <th>Addr. Maximize:         Table on Kamando V. I</th> <th>Wandber:         Process/Accuracy Infl           8 Rember:         Februaritimizers           Personalization         Hardware         Bestinare           Assemble:         Februaritimizers         Februaritimizers           Print Sch         Hardware         Bestinare           Window         Std2-4008-AA, Std2-14008-CA, Std</th> <th>Secendly Munder:         Procession:         <th colspan:<<="" th=""><th>Setted / Number:         Proc. v. (samo) [1]           Class / Number:         Not (samo) [1]           Class / Number:         Not (samo) [1]           Class / Number:         Not (samo) [2]           Class / Number:         Not (samo) [2]           Not (samo) [2]         Not (samo) [2]           No</th><th>Semithy Number:         The relationship:         The relatis is is is is is in relationship is is is is in relatio</th><th>lelect Ecu:</th><th>Play Loval</th><th>Jay Land Rover Part Nembers</th><th></th></th></th>	Addr. Maximize:         Table on Kamando V. I	Wandber:         Process/Accuracy Infl           8 Rember:         Februaritimizers           Personalization         Hardware         Bestinare           Assemble:         Februaritimizers         Februaritimizers           Print Sch         Hardware         Bestinare           Window         Std2-4008-AA, Std2-14008-CA, Std	Secendly Munder:         Procession:         Procession: <th colspan:<<="" th=""><th>Setted / Number:         Proc. v. (samo) [1]           Class / Number:         Not (samo) [1]           Class / Number:         Not (samo) [1]           Class / Number:         Not (samo) [2]           Class / Number:         Not (samo) [2]           Not (samo) [2]         Not (samo) [2]           No</th><th>Semithy Number:         The relationship:         The relatis is is is is is in relationship is is is is in relatio</th><th>lelect Ecu:</th><th>Play Loval</th><th>Jay Land Rover Part Nembers</th><th></th></th>	<th>Setted / Number:         Proc. v. (samo) [1]           Class / Number:         Not (samo) [1]           Class / Number:         Not (samo) [1]           Class / Number:         Not (samo) [2]           Class / Number:         Not (samo) [2]           Not (samo) [2]         Not (samo) [2]           No</th> <th>Semithy Number:         The relationship:         The relatis is is is is is in relationship is is is is in relatio</th> <th>lelect Ecu:</th> <th>Play Loval</th> <th>Jay Land Rover Part Nembers</th> <th></th>	Setted / Number:         Proc. v. (samo) [1]           Class / Number:         Not (samo) [1]           Class / Number:         Not (samo) [1]           Class / Number:         Not (samo) [2]           Class / Number:         Not (samo) [2]           Not (samo) [2]         Not (samo) [2]           No	Semithy Number:         The relationship:         The relatis is is is is is in relationship is is is is in relatio	lelect Ecu:	Play Loval	Jay Land Rover Part Nembers	
Reindexee Number:         Frère on Hendennie III           Other         20 million           Assemblig         Marchevere         Software           Glicz 90019 CA         Statistica         Software           Glicz 90019 CA         Statistica         Software         Software           Glicz 90019 CA         Software         Software         Software </th <th>Annumber:         File existendem           201         Initial           Annumber:         Schlaste           2019/CA         Stock 40002-AA         Stock 40006-AA         Stock 40006-AA           2019/CA         Stock 40002-AA         Stock 40006-AA         Stock 40006-AA           2019/CA         Stock 40006-AA         Stock 40006-AA         Stock 40006-AA           2019/CA         Stock 40006-AA         Stock 40006-AA         Stock 40006-AA           2019/SA         Stock 40006-AA         Stock 40006-AA         Stock 40006-AA</th> <th></th> <th>Statuse Number:         Frierwontweeter:         Frierwontweeter:         Statuseter:           2010// Statuseter:         Marthurse         Statuseter:         Statuseter:           2010// Statuseter:         Marthurse         Statuseter:         Statuseter:           2010// Statuseter:         Statuseter:         Statuseter:         Statuseter:           2012// Statuseter:         Statuseter:         Statuseter:         Statuseter:         Statuseter:           2012// Statuseter:         Statuseter:         Statuseter:         Statuseter:         Statuseter:         Statuseter:         Statuseter:         Statuseter:         Statuseter:         Statuseter:</th> <th>Classes Number         Televolutions         Image: State Sta</th> <th>Species Number:         Televention           102         Assembly         Institute           202         Assembly         Institute           102         Assembly         Institute           103         Assembly         Institute           103         Assembly         Institute</th> <th>Assembly Number:</th> <th>Piller on Assembly</th> <th></th> <th></th>	Annumber:         File existendem           201         Initial           Annumber:         Schlaste           2019/CA         Stock 40002-AA         Stock 40006-AA         Stock 40006-AA           2019/CA         Stock 40002-AA         Stock 40006-AA         Stock 40006-AA           2019/CA         Stock 40006-AA         Stock 40006-AA         Stock 40006-AA           2019/CA         Stock 40006-AA         Stock 40006-AA         Stock 40006-AA           2019/SA         Stock 40006-AA         Stock 40006-AA         Stock 40006-AA		Statuse Number:         Frierwontweeter:         Frierwontweeter:         Statuseter:           2010// Statuseter:         Marthurse         Statuseter:         Statuseter:           2010// Statuseter:         Marthurse         Statuseter:         Statuseter:           2010// Statuseter:         Statuseter:         Statuseter:         Statuseter:           2012// Statuseter:         Statuseter:         Statuseter:         Statuseter:         Statuseter:           2012// Statuseter:	Classes Number         Televolutions         Image: State Sta	Species Number:         Televention           102         Assembly         Institute           202         Assembly         Institute           102         Assembly         Institute           103         Assembly         Institute           103         Assembly         Institute	Assembly Number:	Piller on Assembly			
Description         Marchane         Balance           Answering         Marchane         Balance           Gridz Symmodia         Statut Model         Statut Model           Gridz Symmodia         Statut Model	Diff         Marching         Marching         Schware           Assembly         Marching         Schware           2019/5/20         Static H0000: AA         S622140006: AA         S622140006: AC           5009/5/20         S1000: AD         S622140006: AA         S62140006: AC           5009/5/20         S1000: AD         S622140006: AA         S62140006: AC           5009/5/20         S1000: AD         S622140006: AA         S62140006: AC           5009/5/20         S1000: AD         S62140006: AA         S62140006: AC           5009/5/20         S1000: AD         S62140006: AC         S62140006: AC           5000/5	Americal         Hardware         Software         Software           99/9 CA         542/14/2006 AA, 5422/14/2006 CA         Software         Software           99/9 CA         542/14/2006 AA, 5422/14/2006 CB         Software         Software           99/9 CA         542/14/2006 AA, 5422/14/2006 AA         Software         Software           99/9 CA         542/14/2006 AA, 5422/14/2006 AA         Software         Software           99/9 CA         562/14/2006 AA, 562/14/2006 AA         Software         Software           90/9 CA	Display         Martinare         Software           Assembly         Martinare         Software           Glid2 0099/CA         Sel2+40392-MA         Software           Glid2 0099/CA         Sel2+40392-MA         Software           Glid2 0099/CA         Sel2+40392-MA         Software           Glid2 0099/CA         Sel2+40392-MA         Software           Sel2-40392-MA         Software-AR (Software)         Software           Sel2-40	Direction         Marchines           2010         Particles	Diff         Control         Scheme           262         Control         Scheme         Scheme           262         Scheme         Scheme         Scheme           263         Scheme         Scheme         Scheme           263         Scheme         Scheme         Scheme         Scheme           263         Scheme         Scheme         Scheme         Scheme         Scheme           263         Scheme         Scheme         Scheme         Scheme         Scheme         Scheme         Scheme	landware Number:	Filter on Handwine			
Chancelling         Herchname         Springer           Billio 2019/FCA         SH22140006 AA         SH22140006 AA         SH22140006 AA           Billio 2019/FCA         SH22140006 AA         SH22140006 AA         SH22140006 AA           Billio 2019/FCA         SH22140006 AA         SH22140006 AA         SH22140006 AA           Billio 2019/FCB         SH12140006 AA         SH22140006 AA         SH22140006 AA           Fillio 2019/FCB         SH12140006 AA         SH22140006 AA         SH22140006 AA           Fillio 2019/FCB         SH12140006 AA         SH22140006 AA         SH22140006 AA           Fillio 2019/FCB         SH12140006 AA         SH22140006 AA         SH2140006 AA           Fillio 2019/FCB         SH12140006 AA         SH2140006 AA         SH2140006 AA           Fillio 2019/FCB         SH12140006 AA         SH2140006 AA         SH2140006 AA           Fillio 2019/FCB         SH1214006 AA         SH2140006 AA         SH114006 AA           Fillio 2019/FCB         SH114006 AA         SH114006 AA         SH114006 AA	Software         Mandowski         Software           Jamma         Mandowski         Software           Software         Software         Software	Instruct         Averaging         Hardware         Software         Software           9/19-CA         SH22-140382-AA         SH22-140384-CA         SH22-140384-CA           9/19-CA         SH22-140382-AA         SH22-140384-CA         SH22-140384-CB           9/19-CA         SH22-140384-CA         SH22-140384-CB         SH22-140384-CB           9/19-CA         SH22-140384-CB         SH22-140384-CB         SH22-140384-CB           9/19-CA         SH22-140384-CB         SH22-140384-CB         SH22-140384-CB           9/19-CA         SH22-140384-CB         SH22-140384-CB         Yes be of water to get to get the second	State         Harthware         Schlauss           Assessibly         Harthware         Schlauss           Glid2 MMPPGA         Slid2-14008-AA         Schlauss           Glid2 MMPGG         Slid2-14008-AA         Schlauss-Clid008-CA           Slid2-14008-AA         Schlauss-AB         Schlauss-Clid008-CA           Slid2-14008-AA         Schlauss-AB         Schlauss-AB           Schlauss-AB         Schlauss-AB         Schlauss-AB	International         Enternation         Enternation           International         International         Software           International         International         Software           International         Software         Software           Intenal         Software         Software	Image: Control in the Contro					
Jackwindty         Histowe         Schwindty           Sid2 0999-CA         Sid2140005-AK         392140006-CA         Sid2140006-CA           Sid2 0999-CA         Sid2140006-AK         392140006-CA         Sid204006-CA           Sid2 0999-CA         Sid2140006-AK         392140006-CA         Sid204006-CA           Sid2 0999-CA         Sid2140006-AK         392140006-CA         Sid204006-CA           Sid2 0999-CA         Sid2140006-AK         392140006-AK         Sid204006-CA           Sid2 0999-CA         Sid2140006-AK         392140006-AK         Sid204006-AK           Sid2 0999-CA         Sid2140006-AK         392140006-AK         Sid204006-AK           Sid2 0999-CA         Sid2140006-AK         392140006-AK         Sid204006-AK	Assembly         Hotbare         Schemen           SXMP1CD         S022-140302-AA         S022-140302-AC         S022-140302-AC           SXMP1CD         S022-140302-AA         S022-140302-AC         S022-140302-AC           SXMP1ACD         S022-140302-AA         S022-140304-AC         S022-140304-AC           SXMP1ACD         S022-140304-AC         S022-140304-AC         S022-140304-AC           SXMP1ACD         S022-140304-AC         S022-140304-AC         S022-140304-AC           SXMP1AC         S022-140304-AC         S022-140304-AC         S022-140304-AC           SXMP1AC         S022-140304-AC         S022-140304-AC         S022-140304-AC           SXMP1AC         S022-140304-AC         S022-140304-AC         S022-140304-AC           SXMP1AD         S022-140304-AC         S022-140304-AC         S022-140304-AC </th <th>Jackwindly         Hardware         Software           WHP GA         Stock HDD22-AV.         Stock HDD22-AV.         Stock HDD22-AV.           WHP GA         Stock HDD22-AV.         Stock HDD22-AV.         Stock HDD22-AV.           WHP GA         Stock HDD22-AV.         Stock HDD22-AV.         Stock HDD22-AV.           WHP GC         Stock HDD22-AV.         Stock HDD22-AV.         Stock HDD22-AV.           WHP GAL         Filled HD22-AV.         Stock HDD22-AV.         The foreight HD22-AV.           WHP GAL         Filled HD22-AV.         Stock HDD22-AV.         The foreight HD22-AV.         The foreight HD22-AV.           WHP GAL         Filled HD22-AV.         Stock HDD22-AV.         Stock HDD22-AV.         The foreight HD22-AV.           WHP GAL         Filled HD22-AV.         Stock HDD22-AV.         Stock HD22-AV.         The</th> <th>Assembly         Hardware         Bothsate           GR22 00976/G         SND2-140026/A         SR22-140026/A         SR22-140026/A           GR22 00976/G         SR22-140026/A         SR22-140026/A</th> <th>Assessing         Handware (2005/00196/A)         Sochaste (2005/00196/A)         Sochaste (2005/00196/A)</th> <th>Assembly         Hermony         Software           G20-M019CA         S024-162026-AA         S024-162036-AA         S024-162036-AA           S02-M019CA         S024-162026-AA         S024-162036-AA         S024-162036-AA           S02-M019CA         S024-162026-AA         S024-162036-AA         S024-162036-AA           S02-M019CA         S024-162026-AA         S024-162036-AA         S024-162036-AA           S02-M019CA         S024-162036-AA         S024-162036-AA         S024-162036-AA           S02-M019CA         S024-162036-AA         S024-162036-AA         S024-162036-AA           S02-M019CA         S024-16206-AA         S024-16206-AA         S024-16206-AA           S02-M019CA         S024-16206-AA         S024-16206-AA         S024-16206-AA           S02-M019CA         S024-16206-AA         S024-16206-AA         S024-16206-AA           S02-M019CA         S024-16206-AA         S024-16206-AA</th> <th>tinne 20(m) attitues</th> <th></th> <th></th> <th></th>	Jackwindly         Hardware         Software           WHP GA         Stock HDD22-AV.         Stock HDD22-AV.         Stock HDD22-AV.           WHP GA         Stock HDD22-AV.         Stock HDD22-AV.         Stock HDD22-AV.           WHP GA         Stock HDD22-AV.         Stock HDD22-AV.         Stock HDD22-AV.           WHP GC         Stock HDD22-AV.         Stock HDD22-AV.         Stock HDD22-AV.           WHP GAL         Filled HD22-AV.         Stock HDD22-AV.         The foreight HD22-AV.           WHP GAL         Filled HD22-AV.         Stock HDD22-AV.         The foreight HD22-AV.         The foreight HD22-AV.           WHP GAL         Filled HD22-AV.         Stock HDD22-AV.         Stock HDD22-AV.         The foreight HD22-AV.           WHP GAL         Filled HD22-AV.         Stock HDD22-AV.         Stock HD22-AV.         The	Assembly         Hardware         Bothsate           GR22 00976/G         SND2-140026/A         SR22-140026/A         SR22-140026/A           GR22 00976/G         SR22-140026/A         SR22-140026/A	Assessing         Handware (2005/00196/A)         Sochaste (2005/00196/A)	Assembly         Hermony         Software           G20-M019CA         S024-162026-AA         S024-162036-AA         S024-162036-AA           S02-M019CA         S024-162026-AA         S024-162036-AA         S024-162036-AA           S02-M019CA         S024-162026-AA         S024-162036-AA         S024-162036-AA           S02-M019CA         S024-162026-AA         S024-162036-AA         S024-162036-AA           S02-M019CA         S024-162036-AA         S024-162036-AA         S024-162036-AA           S02-M019CA         S024-162036-AA         S024-162036-AA         S024-162036-AA           S02-M019CA         S024-16206-AA         S024-16206-AA         S024-16206-AA           S02-M019CA         S024-16206-AA         S024-16206-AA         S024-16206-AA           S02-M019CA         S024-16206-AA         S024-16206-AA         S024-16206-AA           S02-M019CA         S024-16206-AA         S024-16206-AA	tinne 20(m) attitues				
Grid2-2019/GA         Std2-140382-AA         Std2-140382-AA         Std2-140382-AA         Grid2-240393-CA           Grid2-2019/GB         Std2-140382-AA         Std2-140382-CA         Std2-140382-CA         Std2-140382-CA           Grid2-2019/GB         Std2-140382-CA         Std2-140382-CA         Std2-140382-CC         Std2-140382-CC           T/302-2019/GB         Std2-140382-CA         Std2-140382-CA         Std2-140382-CC         Std2-140382-CC           T/302-2019/GB         Std2-140382-CA         Std2-140382-CA         Std2-140382-CC         Std2-140382-CC           T/302-2019/GB         Std2-140382-CA         Std2-140382-CA         Std2-140382-CC         Std2-140382-CC           Std2-14039-AA         Std2-140382-CA         Std2-140382-CC         Std2-140382-CC         Std2-140382-CC           Std2-14039-AA         Std2-140382-AA         Std2-140382-AC         Std2-140382-AC         Std2-140382-AC           Std2-14039-AA         Std2-140382-AA         Std2-140382-AA         Std2-140382-AC         Std2-140382-AC	EXAMPLECA SEC2-142382-AA 8222-142382-AA 8222-142382-CA SAMPLECB SIG2-1420282-AA 8222-142382-CA SAMPLECB SIG2-1420282-AA 822-142382-CA SAMPLECB SIG2-1420282-AA 822-142382-CA SAMPLECB SIG2-1420282-AA 822-142382-AA 822-142382-AA 1429-14292-142382-AA 822-142382-AA 822-142382-AA 1429-14292-142382-AA 922-142382-AA 922-142382-AA 1429-14292-142382-AA 922-142382-AA 922-142382-AA 1429-14292-142382-AA 922-142382-AA 922-142382-AA 1429-14292-142382-AA 922-142382-AA 922-142382-AA 1429-14292-142382-AA 922-142382-AA 922-142382-AA 1429-14292-142382-AA 922-142382-AA 922-142382-AA	NH9 CA         SH2 H005E AA         SH2 H005E AA         SH2 H005E AA         SH2 H005E AA           NH9 CA         SH2 H005E AA         SH2 H005E AB         SH2 H005E AB         SH2 H005E AB           NH9 CA         SH2 H005E AB         SH2 H005E AB         SH2 H005E AB         SH2 H005E AB           NH9 CA         SH2 H005E AB         SH2 H005E AB         SH2 H005E AB         SH2 H005E AB           NH9 CA         SH2 H005E AB         SH2 H005E AB         SH2 H005E AB         SH2 H005E AB           NH9 SAC         SH2 H005E AB         SH2 H005E AB         SH2 H005E AB         SH2 H005E AB           NH9 SAL         SH2 H005E AB         SH2 H005E AB         SH2 H005E AB         SH2 H005E AB           NH9 SAL         SH2 H005E AB         SH2 H005E AB         SH2 H005E AB         SH2 H005E AB           NH9 SAL         SH2 H105E AB         SH2 H105E AB         SH2 H005E AB         SH2 H005E AB           NH9 SAL         SH2 H105E AB         SH2 H105E AB         SH2 H005E AB         SH2 H005E AB         SH2 H005E AB	Select 2009 CA         Select 2009 AA         2022 1400 BA         2022 1400	H22-54919-CA 542: 43302-34 522: 44336-34 522: 44336-34 542: 44336-342: 44336-	Bits Mark         Bits Mark <t< th=""><th>Assembly</th><th>Harstware</th><th>Software</th><th></th></t<>	Assembly	Harstware	Software		
Bittle With Coll         Setze House AA         Setze House Coll         Setzee Hous	SetUPISOL         Stock-LODIE-AA         Set2-MODIE-AC         Set2-MODIE-CA         Set2-MODIE-CA           SEGPISOL         MEXE-MODIE-AA         Set2-MODIE-AC         Set2-MODIE-CA         <	MINI-GIS         SHO-VALUER-AA         REQUINIDE-AA         REQUINIDE-AA <td>Bit2 SWIP GE         5402 - 40016 - A         9242 - 40016 - A         9242 - 40016 - CE           SU22 SWIP GE         5402 - 40016 - A         9242 - 40016 - A         924 - 40016 - CE           SU22 SWIP GE         5402 - 40020 - AA         924 - 40036 - AA         924 - 40036 - AB           SU22 SWIP GE         5402 - 40020 - AA         1425 - 40036 - AB         924 - 40036 - AB           SU22 SWIP GE         5402 - 40020 - AA         1425 - 40036 - AB         924 - 40036 - AB           SU22 SWIP SGE         5402 - 40020 - AA         1425 - 40036 - AB         924 - 40036 - AB           SU22 SWIP SGE         5402 - 40020 - AA         1925 - 40036 - AB         924 - 40036 - AB           SU22 SWIP SGE         5402 - 40020 - AA         1925 - 40036 - AA         926 - 40036 - AB           SU22 SWIP SGE         5402 - 40020 - AA         1925 - 40036 - AA         926 - 40036 - AA           SU22 SWIP SGE         5402 - 40020 - AA         1925 - 10036 - AA         926 - 10036 - AA           SU22 SWIP SGE         5402 - 40030 - AA         1925 - 10036 - AA         926 - 10036 - AA           SU22 SWIP SGE         5402 - 40030 - AA         1925 - 10036 - AA         926 - 10036 - AA           SU22 SWIP SGE         5402 - 40030 - AA         1926 - 10036 - AA         926 - 10036 - AA           SU22 SWIP SGE         <t< td=""><td>NIDS_MMIPLER         SID2-140016-AA         SID2-140016-CA         SID2-140016-CA           NID2_MMIPLEC         SID2-140016-CA         SID2-140016-CA         SID2-140016-CA           NID2_MMIPLEC         SID2-140016-CA         SID2-140016-CA         SID2-140016-CA           NID2_MMIPLEC         SID2-140016-CA         SID2-140016-CA         SID2-140016-CA           NID2_MMIPLEC         SID2-140016-CA         SID2-140016-CA         SID2-140016-CA           NID2_MMIPLEA         SID2-140016-CA         SID2-140016-CA         SID2-140016-CA         SID2-140016-CA           NID2_MMIPLEA         SID2-140016-CA         SID2-140016-CA         SID2-140016-CA         SID2-140016-CA           NID2_MMIPLEA         SID2-140016-CA         SID2-140016-CA         SID2-140016-CA         SID2-140016-CA           NID2_MMIPLEA         SID2-140016-</td><td>1025-MMTH-EDIC 90502-1420026-AA 9022-1420086-AB 6022-142096-205 1025-MMTH-EDIC 90502 -1420026-AA 9022-142096-AB 8022-142096-205 1025-MMTH-AB 9050-1420026-AA 9022-142096-AB 8022-142096-AB 8022-142096-2BA 1025-MMTH-AB 9022-1420026-AA 9022-142096-AB 9022-142096-AB 9022-142096-2BA 1025-MMTH-AB 9022-142096-AB 9022-142096-AB 9022-142096-AB 9022-142096-2BA 1025-MMTH-AB 9022-142096-AB 9022-142006-AB 9022-142006-AB 9022-142006-AB 902-14006-AB 902-14006-AB 902-14006-AB 902-14006-AB 902-14006-AB 902-14006-AB 902-14006-AB 902-14006</td><td>6H22-0A019-CA</td><td>SH32-140362-AA</td><td>5H22-140386-AA, EH22-140384-CA</td><td></td></t<></td>	Bit2 SWIP GE         5402 - 40016 - A         9242 - 40016 - A         9242 - 40016 - CE           SU22 SWIP GE         5402 - 40016 - A         9242 - 40016 - A         924 - 40016 - CE           SU22 SWIP GE         5402 - 40020 - AA         924 - 40036 - AA         924 - 40036 - AB           SU22 SWIP GE         5402 - 40020 - AA         1425 - 40036 - AB         924 - 40036 - AB           SU22 SWIP GE         5402 - 40020 - AA         1425 - 40036 - AB         924 - 40036 - AB           SU22 SWIP SGE         5402 - 40020 - AA         1425 - 40036 - AB         924 - 40036 - AB           SU22 SWIP SGE         5402 - 40020 - AA         1925 - 40036 - AB         924 - 40036 - AB           SU22 SWIP SGE         5402 - 40020 - AA         1925 - 40036 - AA         926 - 40036 - AB           SU22 SWIP SGE         5402 - 40020 - AA         1925 - 40036 - AA         926 - 40036 - AA           SU22 SWIP SGE         5402 - 40020 - AA         1925 - 10036 - AA         926 - 10036 - AA           SU22 SWIP SGE         5402 - 40030 - AA         1925 - 10036 - AA         926 - 10036 - AA           SU22 SWIP SGE         5402 - 40030 - AA         1925 - 10036 - AA         926 - 10036 - AA           SU22 SWIP SGE         5402 - 40030 - AA         1926 - 10036 - AA         926 - 10036 - AA           SU22 SWIP SGE <t< td=""><td>NIDS_MMIPLER         SID2-140016-AA         SID2-140016-CA         SID2-140016-CA           NID2_MMIPLEC         SID2-140016-CA         SID2-140016-CA         SID2-140016-CA           NID2_MMIPLEC         SID2-140016-CA         SID2-140016-CA         SID2-140016-CA           NID2_MMIPLEC         SID2-140016-CA         SID2-140016-CA         SID2-140016-CA           NID2_MMIPLEC         SID2-140016-CA         SID2-140016-CA         SID2-140016-CA           NID2_MMIPLEA         SID2-140016-CA         SID2-140016-CA         SID2-140016-CA         SID2-140016-CA           NID2_MMIPLEA         SID2-140016-CA         SID2-140016-CA         SID2-140016-CA         SID2-140016-CA           NID2_MMIPLEA         SID2-140016-CA         SID2-140016-CA         SID2-140016-CA         SID2-140016-CA           NID2_MMIPLEA         SID2-140016-</td><td>1025-MMTH-EDIC 90502-1420026-AA 9022-1420086-AB 6022-142096-205 1025-MMTH-EDIC 90502 -1420026-AA 9022-142096-AB 8022-142096-205 1025-MMTH-AB 9050-1420026-AA 9022-142096-AB 8022-142096-AB 8022-142096-2BA 1025-MMTH-AB 9022-1420026-AA 9022-142096-AB 9022-142096-AB 9022-142096-2BA 1025-MMTH-AB 9022-142096-AB 9022-142096-AB 9022-142096-AB 9022-142096-2BA 1025-MMTH-AB 9022-142096-AB 9022-142006-AB 9022-142006-AB 9022-142006-AB 902-14006-AB 902-14006-AB 902-14006-AB 902-14006-AB 902-14006-AB 902-14006-AB 902-14006-AB 902-14006</td><td>6H22-0A019-CA</td><td>SH32-140362-AA</td><td>5H22-140386-AA, EH22-140384-CA</td><td></td></t<>	NIDS_MMIPLER         SID2-140016-AA         SID2-140016-CA         SID2-140016-CA           NID2_MMIPLEC         SID2-140016-CA         SID2-140016-CA         SID2-140016-CA           NID2_MMIPLEC         SID2-140016-CA         SID2-140016-CA         SID2-140016-CA           NID2_MMIPLEC         SID2-140016-CA         SID2-140016-CA         SID2-140016-CA           NID2_MMIPLEC         SID2-140016-CA         SID2-140016-CA         SID2-140016-CA           NID2_MMIPLEA         SID2-140016-CA         SID2-140016-CA         SID2-140016-CA         SID2-140016-CA           NID2_MMIPLEA         SID2-140016-CA         SID2-140016-CA         SID2-140016-CA         SID2-140016-CA           NID2_MMIPLEA         SID2-140016-CA         SID2-140016-CA         SID2-140016-CA         SID2-140016-CA           NID2_MMIPLEA         SID2-140016-	1025-MMTH-EDIC 90502-1420026-AA 9022-1420086-AB 6022-142096-205 1025-MMTH-EDIC 90502 -1420026-AA 9022-142096-AB 8022-142096-205 1025-MMTH-AB 9050-1420026-AA 9022-142096-AB 8022-142096-AB 8022-142096-2BA 1025-MMTH-AB 9022-1420026-AA 9022-142096-AB 9022-142096-AB 9022-142096-2BA 1025-MMTH-AB 9022-142096-AB 9022-142096-AB 9022-142096-AB 9022-142096-2BA 1025-MMTH-AB 9022-142096-AB 9022-142006-AB 9022-142006-AB 9022-142006-AB 902-14006-AB 902-14006-AB 902-14006-AB 902-14006-AB 902-14006-AB 902-14006-AB 902-14006-AB 902-14006	6H22-0A019-CA	SH32-140362-AA	5H22-140386-AA, EH22-140384-CA		
Bit2:540794-CG         9102-140382-AA         9122-140386-AC (902-140384-CC         Permitting           7102:540794-BC         5102-140382-AA         9622-140386-AA (902-140384-AC         Permitting         Permitting           7102:540794-BC         5102-140382-AA         9622-140386-AA (902-140384-AC         Permitting         Permitting         Permitting           6102:04794-AC         5102-140384-AA         9822-140386-AA (902-140384-AC         Permitting         Permitting         Permitting           6102:04794-AC         5102-140384-AA (902-140384-AA         9822-140386-AA (902-140384-AC         Permitting         Permitting           6102:04794-AK         5102-140382-AA         5102-140384-AA (902-140384-AC         Permitting         Permitting	2-24919-GC 9102-14002-24A 922-140396-24A 1922-140396-25C 2-24919-429 625-140322-24A 922-140396-34A 1922-140396-34A 1922-1402-34A 1922-1402-34A 1922-1402-34A 1922-1402-34A 1922-1402-34A 1922-1402-34A 1922-1402-34A 1922-14	WH GCC         MICE - 440002-AA         MICE - 100006-AA         MICE - 100006-AC           MICE - 400002-AA         MICE - 100006-AA         MICE - 100006-AA         MICE - 100006-AA           MICE - 400002-AA         MICE - 100006-AA         MICE - 100006-AA         MICE - 100006-AA           MICE - 400002-AA         MICE - 100006-AA         MICE - 100006-AA         MICE - 100006-AA           MICE - 400002-AA         MICE - 100006-AA         MICE - 100006-AA         MICE - 100006-AA           MICE - 400002-AA         MICE - 100006-AA         MICE - 100006-AA         MICE - 100006-AA           MICE - 400002-AA         MICE - 100006-AA         MICE - 100006-AA         MICE - 100006-AA           MICE - 400002-AA         MICE - 100006-AA         MICE - 100006-AA         MICE - 100006-AA           MICE - 400002-AA         MICE - 100006-AA         MICE - 100006-AA         MICE - 100006-AA           MICE - 400002-AA         MICE - 100006-AA         MICE - 100006-AA         MICE - 100006-AA           MICE - 400002-AA         MICE - 100006-AA         MICE - 100006-AA         MICE - 100006-AA           MICE - 400002-AA         MICE - 100006-AA         MICE - 100006-AA         MICE - 100006-AA           MICE - 400002-AA         MICE - 100006-AA         MICE - 100006-AA         MICE - 100006-AA           MICE - 400002-AA </td <td>ENC2 SMIPSOC 9102-44002AA 922-44002A 922-44002AA 922-44006-AC 920-44006-CC 94006-CC 94006-CC</td> <td>nic2 Anima GC 99 Ct-100000 A 99 Ct-100000 A 99 Ct-100000 A 99 Ct-100000 CC INSCAMPS AC 99 Ct-100000 A 99 Ct-100000 A 99 Ct-100000 A 90 Ct-100000 A INSCAMPS AC 90 Ct-100000 A 99 Ct-100000 A 90 Ct-100000 A INSCAMPS AC 90 Ct-100000 A 90 Ct-100000 A 90 Ct-100000 A INSCAMPS AC 90 Ct-100000 A 90 Ct-100000 A 90 Ct-100000 A INSCAMPS AC 90 Ct-10000 A INSCAMPS AC 90 Ct-100000 A INSCAMPS AC 90</td> <td>No.2.449/HPGC         94/02-440/02-AA         92/02-440/03-AA         92/02-440/03-40/04         92/02-440/03-40/04         92/02-440/03-40/04         92/02-440/03-40/04         92/02-440/03-40/04         92/02-440/03-40/04         92/02-440/03-40/04         92/02-440/03-40/04         92/02-440/03-40/04         92/02-440/03-40/04         92/02-440/03-40/04         92/02-440/03-40/04         92/02-440/03-40/04         92/02-440/03-40/04         92/02-440/03-40/04         92/02-440/03-40/04         92/02-440/03-40/04         92/04/04/04         <t< td=""><td>6H22-5A919-CB</td><td>5H32-140382-AA</td><td>(HQ2-14D396-AA, 6HQ2-14D394-C8</td><td></td></t<></td>	ENC2 SMIPSOC 9102-44002AA 922-44002A 922-44002AA 922-44006-AC 920-44006-CC 94006-CC	nic2 Anima GC 99 Ct-100000 A 99 Ct-100000 A 99 Ct-100000 A 99 Ct-100000 CC INSCAMPS AC 99 Ct-100000 A 99 Ct-100000 A 99 Ct-100000 A 90 Ct-100000 A INSCAMPS AC 90 Ct-100000 A 99 Ct-100000 A 90 Ct-100000 A INSCAMPS AC 90 Ct-100000 A 90 Ct-100000 A 90 Ct-100000 A INSCAMPS AC 90 Ct-100000 A 90 Ct-100000 A 90 Ct-100000 A INSCAMPS AC 90 Ct-10000 A INSCAMPS AC 90 Ct-100000 A INSCAMPS AC 90	No.2.449/HPGC         94/02-440/02-AA         92/02-440/03-AA         92/02-440/03-40/04         92/02-440/03-40/04         92/02-440/03-40/04         92/02-440/03-40/04         92/02-440/03-40/04         92/02-440/03-40/04         92/02-440/03-40/04         92/02-440/03-40/04         92/02-440/03-40/04         92/02-440/03-40/04         92/02-440/03-40/04         92/02-440/03-40/04         92/02-440/03-40/04         92/02-440/03-40/04         92/02-440/03-40/04         92/02-440/03-40/04         92/02-440/03-40/04         92/04/04/04 <t< td=""><td>6H22-5A919-CB</td><td>5H32-140382-AA</td><td>(HQ2-14D396-AA, 6HQ2-14D394-C8</td><td></td></t<>	6H22-5A919-CB	5H32-140382-AA	(HQ2-14D396-AA, 6HQ2-14D394-C8		
TYD:SARTSAC         SIGE-LODIZAA         SIGE-LODIZAA </td <td>CAUPINAL         D021-40302-AA         P022-40302-AA         P022-40302-AA</td> <td>M974A2         905-40032-AA         8205-40064-AA         R02-410964-AB           M975A2         9025-40032-AA         5202-40084-AA         7002-40084-AC           M975A2         9025-40032-AA         5202-40084-AB         Web actions to april M975AC           M975A4         5022-40082-AA         5202-40084-AB         Web actions to april M975AC           M975A5         5025-40082-AA         5202-40084-AB         Web actions to april M975AC           M975A6         5025-40082-AB         5025-40084-AB         Web actions to april M975AC           M975A6         5025-40084-AB         5025-40084-AB         600-60004-AB           M975A6         5025-40084-AB         5025-40084-AB         600-60004-AB           M975A7         5025-40084-AB         5025-40084-AB         600-60004-AB           M975A84         5025-40084-AB         5025-40084-AB         600-60004-AB           M975A84         5025-40084-AB         5025-40084-AB         600-60004-AB           M975A84         5025-40084-AB         5025-40084-AB         600-60004-AB           M975A94         5025-40084-AB         5025-40084-AB         600-60004-AB           M975A94         5025-40084-AB         5025-40084-AB         600-60004-AB           M975A94         5025-40084-AB         5025-4008</td> <td>7/10/2.407948/a         96/25-40/09/2.4A         96/25-40/09/2.4A         96/25-40/09/2.4A           7/10/2.407948/a         96/25-40/09/2.4A         96/25-40/09/2.4A         96/25-40/09/2.4A           7/10/2.40794.4A         96/25-40/09/2.4A         96/25-40/09/2.4A         96/25-40/09/2.4A           6/10/2.40794.4A         96/25-40/09/2.4A         96/25-40/09/2.4A         96/25-40/09/2.4A           6/10/2.40794.4A         96/25-40/09/2.4A         96/25-40/09/2.4A         96/25-80/09/2.4A           6/10/2.40794.4A</td> <td>MICS_M0194AF         BIOS_M0196AF         BIOS_M0196AF         BIOS_M0196AF         Operating CCT #EL Intervención           MICS_M0194AF         BIOS_M0196AF         BIOS_M0196AF         BIOS_M0196AF         Destructure         Destr</td> <td>102-Jen 1943 ISIC-141002-AA ISIC-140036-AA ISIC-1008-AA ISIC-1008-AA ISIC-1008-AA ISIC-1008-AA ISIC-1008-AA ISIC-140036-AA ISIC-140036-AA</td> <td>6022-6A019-CC</td> <td>5H32-140322-AA</td> <td>5H22-140396-AA, 0H22-140394-CC</td> <td></td>	CAUPINAL         D021-40302-AA         P022-40302-AA	M974A2         905-40032-AA         8205-40064-AA         R02-410964-AB           M975A2         9025-40032-AA         5202-40084-AA         7002-40084-AC           M975A2         9025-40032-AA         5202-40084-AB         Web actions to april M975AC           M975A4         5022-40082-AA         5202-40084-AB         Web actions to april M975AC           M975A5         5025-40082-AA         5202-40084-AB         Web actions to april M975AC           M975A6         5025-40082-AB         5025-40084-AB         Web actions to april M975AC           M975A6         5025-40084-AB         5025-40084-AB         600-60004-AB           M975A6         5025-40084-AB         5025-40084-AB         600-60004-AB           M975A7         5025-40084-AB         5025-40084-AB         600-60004-AB           M975A84         5025-40084-AB         5025-40084-AB         600-60004-AB           M975A84         5025-40084-AB         5025-40084-AB         600-60004-AB           M975A84         5025-40084-AB         5025-40084-AB         600-60004-AB           M975A94         5025-40084-AB         5025-40084-AB         600-60004-AB           M975A94         5025-40084-AB         5025-40084-AB         600-60004-AB           M975A94         5025-40084-AB         5025-4008	7/10/2.407948/a         96/25-40/09/2.4A         96/25-40/09/2.4A         96/25-40/09/2.4A           7/10/2.407948/a         96/25-40/09/2.4A         96/25-40/09/2.4A         96/25-40/09/2.4A           7/10/2.40794.4A         96/25-40/09/2.4A         96/25-40/09/2.4A         96/25-40/09/2.4A           6/10/2.40794.4A         96/25-40/09/2.4A         96/25-40/09/2.4A         96/25-40/09/2.4A           6/10/2.40794.4A         96/25-40/09/2.4A         96/25-40/09/2.4A         96/25-80/09/2.4A           6/10/2.40794.4A	MICS_M0194AF         BIOS_M0196AF         BIOS_M0196AF         BIOS_M0196AF         Operating CCT #EL Intervención           MICS_M0194AF         BIOS_M0196AF         BIOS_M0196AF         BIOS_M0196AF         Destructure         Destr	102-Jen 1943 ISIC-141002-AA ISIC-140036-AA ISIC-1008-AA ISIC-1008-AA ISIC-1008-AA ISIC-1008-AA ISIC-1008-AA ISIC-140036-AA	6022-6A019-CC	5H32-140322-AA	5H22-140396-AA, 0H22-140394-CC		
THSP:54/1942         End:14/032.4A         End:14/036.4A         THSP:54/036.4A         You have chosen to get the chosen to get           91/32.54/919.4A         91/32.54/0362.4A         92/2.54/0362.4A         92/2.54/0362.4A         92/2.54/0362.4A	Kalenski:         Britz ALD/02/AA         Britz ALD/02/AA<	MRT-ALC         RedS-MD02AA         3822-MD06AA         The Second Seco	TripSJAMPSAL         Re20-440093-AA         1920-44093-AA         TripSJAMPSAL           Re20-44093-AA         Re20-44093-AA         Re20-44093-AA         TripSJAMPSAL           Re20-44093-AA         Re20-44093-AA         Re20-44093-AA         TripSJAMPSAL           Re20-44093-AA         Sector-1400-54-AG         Re20-44093-AA         TripSJAMPSAL         TripSJAMPSAL           Re20-44093-AB         Re20-44093-AB         Re20-44093-AB         TripSJAMPSAL         TripSJAMP	NIGS-64193-64         PEOS-140086-AA         PEOS-140	1002-64794AC         1002-44704AC         1002-44704AC         Tool tool tool tool         Tool tool tool tool tool tool tool tool	7H32-5A919-AB	9/32-140392-AA	5H22-140396-AA, 7H32-140994-AB	Covers CCF. MS Nameron Ap	
01/32-04019-444 51-03-02-4A 51-02-140395-AA 51-02-140394-AA 51-02-140394-AA	XA0193A.4. 1902-40302-A.4. 922-14332-A.6. 9902-14338-A.6. 9902-1438-A.6. 9902-1438-A.6. 9902-14338-A.6. 9902-1438-A.6. 9902-14328-A.6. 9902-1428-A.6. 9902-1402-1428-A.6. 9902-14028-A.	1973.4. 562 4002 AA 925 4008 AA 965 4008	6/10/2049/64         5/02/40302/64         5/02/40302/64         6/02/40306/64         6/02/40306/64           6/10/2049/64         5/02/40306/64         6/02/40306/64         6/02/40306/64         6/02/40306/64           6/10/2049/64         5/02/40306/64         5/02/40306/64         6/02/40306/64         6/02/40306/64           6/10/2049/64         5/02/40306/64         5/02/40306/64         6/02/40306/64         6/02/40306/64           6/10/2049/64         5/02/40306/64         5/02/40306/64         6/02/40306/64         6/02/40306/64           6/10/2049/64         5/02/40306/64         5/02/40306/64         6/02/40306/64         6/02/40306/64         6/02/40306/64           6/10/2040/64         5/02/4006/64         5/02/4006/64         6/02/4006/64         6/02/4006/64         6/02/4006/64           6/10/2040/64         5/02/4006/64         5/02/4006/64         6/02/4006/64         6/02/4006/64         6/02/4006/64           6/10/2040/64         5/02/4006/64         5/02/4006/64         6/02/4006/64         6/02/4006/64         6/02/4006/64         6/02/4006/64         6/02/4006/64         6/02/4006/64         6/02/4006/64         6/02/4006/64         6/02/4006/64         6/02/4006/64         6/02/4006/64         6/02/4006/64         6/02/4006/64         6/02/4006/64         6/02/4006/64         6/02/4006/64 <td>Company         France - 4000000-AA         2002-1400000-AA         2002-1400000-AA           Second State - State</td> <td>102-04919AA 1022-142030-AA 2022-142030-AA 2022-1420-AA 202-1420-AA 2022-1420-AA 2022-1420-AA 2022-1420-AA 2022-1420-</td> <td>7HS2-5A919-AL</td> <td>6H32-140092-AA</td> <td>3H22-140396-AA, 7H32-140394-AC</td> <td>Number of States of States</td>	Company         France - 4000000-AA         2002-1400000-AA         2002-1400000-AA           Second State - State	102-04919AA 1022-142030-AA 2022-142030-AA 2022-1420-AA 202-1420-AA 2022-1420-AA 2022-1420-AA 2022-1420-AA 2022-1420-	7HS2-5A919-AL	6H32-140092-AA	3H22-140396-AA, 7H32-140394-AC	Number of States	
	1548/1948A 9102-140382-8A 9102-140-140-140-140-140-140-140-140-140-140	A916-BA 9102-140362-AA 9102-140362-AA 0102-140362-BA 0102-140362-BA 0101 0100 0100 0100 0100 0100 0100 01	BIO2.049F88A         9102-10030-AA         9102-10030-AA         9102-10030-AA         9102-10030-AA           BIO2.040F88A         9102-10030-AA         9102-10030-AA         9102-10030-AA         <	International Sector Accession and Accession	100.384/68A 9102-10302-AA 9122-10362-AA 6102-10362-BA 6102 10362-BA 61020-BA 6102-BA 6102-BA 6102-BA 6102-BA 6102-BA 6102-BA 610	0H32-5A919-AA	5H32-14D392-AA	5H22-14D39E-AA, 9H32-14D394-AA	THE OT AND INCOMES	
9122-34919-84 9122-140382-4A 9122-140382-4A 9122-140382-8A	to Tay	The Ford Campos	tioning 1 to 7 of 7 entropy	nerg The Exif Califies	energ Tab Tof Features (1) Ministry (2010) Ministry (2010) Min	9H32-5A919-8A	9/02-140382-AA	5H23-140385-AA, 9H32-1403945-BA	which is winkly 28 action 0.21 SR	
Enancing 1 to 7 of 7 antress			What Meeted Firefacids with Monter	West straid index as with those	Wind sendel finder de with Tholife				fere krgs//20188.035	
Whet Version Barriers and Traditional Street St	Whet sheed if reductor with the file 1	The second s			E gen web Weblikarber Mehren	Transford T to T of 2 antropy				
				Characteria and a second se	C gen with WithAll archiver Identities	Non-restored and the			Whet shapped Parents dis with this file?	
What she wild Finalize do with this file?	What shands frietist do with this fait!	What steaded Frederic do with this fee!		E Chan with Mindfull and an and a second sec	E gen with Weld-Lastew Matuli	one set to the first families				

You now need to save the file to the PC and then extract the contents of the zipped file locally to your PC/Laptop, it is important to note that unzipping files directly to the SD card may leave them non-functional. Once that is done, you need to move/copy the files to the SD Card you will use with the Nanocom Evolution. This file can be stored either in a new folder of your own creation (maximum of 8 characters long), in the root of the SD card itself or in the folder already on the card called **BBS**.

Insert the SD card into the Nanocom before powering on the unit then go though the following menus, **CAN-BUS VEHICLE > ECU Programming**; after the Nanocom Evolution has done its vehicle detection process, you will have this screen:

FILE SELE	CTION
OPEN FILE	

Click **Open File** and then from the files/folders displayed, navigate through and find the "**Info.enc**" file you have downloaded, select it and observe that it is now highlighted in yellow, and click **OK**.

Now follow any on screen prompts until you find the *Start Flashing* button. Click *OK* to proceed and the file will be loaded. Follow any further on screen prompts.

### **CCF (Car Configuration File) Editing:**

As with the ECU programming, this function is used in conjunction with the Genesis online system and is only for CAN-BUS vehicles. Using your Nanocom-diagnostics login details, which is also your Genesis website login, provided you have purchased a CAN-BUS unlocked Nanocom Evolution, you will be presented with this screen:



Select the Edit CCF button

You are now presented with several options:



- 1. Upload Nanocom File: This would be a file already saved from a Nanocom session. It can be uploaded and edited as shown below and saved to be input using either a Nanocom or the SDD system.
- 2. Upload IDS Session file: A section for uploading any IDS or SDD session files.
- **3.** Upload "As-Is" from the Nanocom: Allowing you to upload the CCF captured from your vehicle directly into the Genesis system for editing etc.
- **4.** Use "As-Is" history: This function allows you to reference and re-use all of your previously uploaded "As-is" files, in case you'd like to reload a past CCF.
- 5. Use a Copy of "As-Built" from Blackbox Solutions: This uses the vehicles VIN to confirm the precise model and give you the factory standard file used at the time of the vehicles build from Land Rover.
- 6. All Vehicles, As-Built Comparison: This section of the site allows you to compare percentages of features and functions activated across all the As-Built files in our system.
- 7. Back: Takes you back to the main menu with Edit CCF or Flash File Download options.

**Important:** If you have previously had your Car Configuration File (CCF) changed by another diagnostic system or the dealer's diagnostic tool to have features enabled, these changes **will not be reflected in the as-built file.** So, unless you change the settings to match any functions already enabled in your current CCF, this file would overwrite any previous changes as the 'As-built' file is the factory standard for your vehicle.

So, based on a vehicle that has had no enhancements enabled, we will now show you how to enable 4x4 info screen on a Range Rover Sport 2005 to 2009 model:

Click on Use a Copy of As-Built from Blackbox Solutions and you will have the following screen open...

	Help Logist
Flash File Download	
Enter Vin Number:	

Enter your Vehicle VIN and click *Submit*...

Locating your VIN: The VIN is stored in some ECU's, such as the Instrument pack, Body Control and ABS. It can also be obtained from the vehicle itself and can be found in various locations such on the passenger side lower corner of the Windscreen, or you can check your vehicles documents or handbook for further information.

The system now displays the vehicle model and build year range (if applicable) at the top of the following screen, shown to the lower left:

Dotting QGF for: Range Rover Spor	2005 to 2009 BALL SAASOS	4010825			(mm){
CF Editor BASIC					
Complete - Downlast CCF   Sertick	CODEF MODE BACK				
date Vehicle Configuration	Heating and Ventilias	ion in Indocatometer	ė –	Interior & R	aterior Uphting
Miscellanios and transpil	Power Trans.	Safeta/herae	Hy and Locking	Vehicle Inte	etar.
Warmings and Messagas	washers and wigers	Interit/Tyre	s and makes [	Indefined	
Display As Built Assemblies		- St		6	1
Description		Current Settile	i d	As Bull S	
Coll Springs	N	is hited / Disabled		1485	(Later)
Delivery Hode - Reserved		in filling / Disabling		100%	E.M.
Dynamic Response Module (D	RMARCH N	pr firmed / Doublied		4.9%	(de
<b>Your Cornel All Suppresson</b>		torner all suspension is	Next.	100%	(Kdec)
Left ar flight Hand Drive	1.00	gitt hand direk		11.24%	1.44
Model Inut		305 model year		-	Edit
Stiding Koof Fitted	19	or fitted / Driabled		34%	8.494
Fertain Optimisation Fridd	1	intelli opsimilitation in http:	64	100%	6.0%
Towing Ball Femane charge		st fisted / Disabled		918	Edit
whitche Armourt		in ethiciand setticle		100%	Kale
the second statement of the second statement of	10000	LUSANSSANDERDS			(Edit)

Search Coff Teic Hange Never Sport and be 12444 SAAASI's CEF Editor ADVANCED Stateware - Searchard Coff Search Kannel Personal Coff Search Kannel Stateware - Searchard Coff Search Kannel Raise Valid in Configuration Raise Valid in Raise Valid in Raise Valid in Configuration Raise Valid in Raise Valid in Raise Valid in Raise Raise Valid in Raise Valid in Raise Valid in Raise Valid in Raise Raise Valid in Raise Raise Valid in						
CEREDITOR ADVANCED           Structure Control Linear Material Structure Control Linear Structure Control Linear Material Linear Structur	idring CCF for: Range Rever Sport 2006 to 2565 KALL GAA625					mp Logor
Interfational Series Configurations Network Vession V	CF Editor ADVAN	ICED				
Eale Veldkie Configuration Heraring and Vesitilation Introduced Soli RhiseRemons and Busned Power Train Safexy/Security and Locking Vehicle Interi Wardings and Messages WatherS and Wijers. WhereKs/Tyres and Brakes Under/Inder Thispity As mith Accentration Solid Configuration (Safety Type Configuration) (Safety Configuration) (Safety Type Configuration) (Safety Configuration) (Safety Type Configuration) (Safety Configu	replate - Downlose CCF   Switch I	ianor Mode   9	lagit			
Miseeflances and University         Power Train         Subry, Hernity and Locking         Vehicle Interior           Wirning and Pessage         Washers and Wirns         Wirelex/Tyres and Brakes         Underland           Ubgebary As multi Assemble         Vehicle Interior         Wirelex/Tyres and Brakes         Underland           Accentations instrument         Charler         Orabled         No         No           Accentations instrument         Charler         Orabled         100%         No           Accentations instrument         Orabled         Orabled         100%         100%           Accentation instrument         Orabled         Orabled         100%         100%           Brit Medie         Orabled         Orabled         100%         100%         100%         100%         100%         100%         1	case Vehicle Configuration	Heating at	d Venillation	infolation ent	Unterior & Exter	tor Lighting
Watchers and Messages         Watchers and Wijers         Wherehs/Tyrers and Binakis         Under/Inder           Linksby As mit Assemblies         Description         No         No         No           Description         Orisalined         Current Selting         No         No           Accomatic Speed Limiter Origination         Orisalined         Orisalined         Orisalined         Orisalined           Accomatic Speed Limiter Origination         Orisalined         Disability         Orisalined         Orisalined         Orisalined           Accomatic Speed Limiter Origination         Orisalined         Disability         Orisalined         Orisalined         Orisalined           Bash Politik Watting In thortunent         Disability         Disability         Orisalined         Orisalined           Takis River Disale Watting In thortunent         Disability         Disability         Orisalined         Orisalined           Takis River Disale Type / Configuration         Orisalined         Orisalined within and Traffic information(Originalize in 50%)         Basis	Hisceflanous and Unused	Former Trai	<u> </u>	Salecy/Security and Locking	Vehicle Interior	1
Display As with Accentibles         Current Setting         As Built           Description         Current Setting         As Built           ACC Enditionen in Nonsement Chairing         Oscilled         100x           Automatics Speed Limment         Oscilled         100x           Automatics Speed Limment         Oscilled         100x           Automatics Speed Limment         Oscilled         100x           Battery Isocht Natrong         Oscilled         100x           Battery Isocht Natrong         Oscilled         100x           Battery Socht Natrong         Oscilled         100x           Bast Monde         Disabled         100x           Faster Socht Natrong         Oscilled         100x           Bast Add Natri Marting in Instrument         Oscilled         100x           Faster Dougler Type / Configureeinn         Circled Natrong tradit raffits information/UseAg as 81d         26x	Valuings and Messages	Washers and Wipers		Wheels/Tyres and Brakes	tradefined	
Description         Current Setting         A Relia N           ACC Indicioni in Instrumentel Chalter         Disabled         100%           Accentratic Systel: Limitor Oxplay's Type         Accentratic Systel: Limitor Oxplay's Type         100%           Accentratic Systel: Limitor Oxplay's Type         Oxslabled         100%           Accentratic Systel: Limitor Oxplay's Type         Oxslabled         100%           Bitt Mondet         Disabled         100%           Bitt Mondet         Citabled         100%           Bitt Mondet         Disabled         100%           Bitter Disabler         Citabled         100%           Bitter Disabler         Citabled         20%	display As mall: Assemblies					
Accentencies in sourcement Chatter Disabled (0000 Accentencies Seek Limmer Osciellary Type Acutations speed time full display (0000 Accentencies Seek Limmer) Oscielled (0000 Accentencies Seek Limmer) Oscielled (0000 Accentencies Seek Limmer) Oscielled (0000 Pasie Robert Accentencies Seek Limmer) Pasie Robert Accentencies Seek Limmer (0000 Enclosed Seek Limmer) Oscielled (0000 Enclosed Seek Limmer) Accentencies Seek Limmer (0000 Accentencies Seek Limmer) Not Robert Accentencies Seek Limmer (0000 Accentencies Seek Limmer) Accentencies Seek Limmer (0000 Accentencies Seek Limmer)	Description			Current Setting	As Built	
Automatis Speel, Umar Grupping Page. Automatis Speel, Umar Grupping Page. 0005 Automatis Speel, Umaris Umaria Disabileg. 01005 Batt selade. 2014 Selade. 01005 Batt selade. 2014 Selade. 01005 Batt selade. 2014 Selade. 01005 Batt Selade. 2014 Selade. 01005 Disabiled. 2014 Selade. 01005 Disabiled. 2014 Selade. 01005 Disabiled. 2014 Selade. 01005	ACC Indication in Instrument	Challer	Disatilied		100%	Edit
Appendiet Spirel Umiting         Disabled         100%           Attray inschilt Narving         Oksibled         00%           attray inschilt Narving         Disabled         00%           bit Narving         Disabled         00%           Fash Fash diven Warsing in Instrument         Disabled         10%           Fash Revel Disableg Type / Configureeins         Onabled         10%           Titleb Revel Disableg Type / Configureeins         Onthe edit read traffic information/UtipAg on this         86%	Automatic speed Limiter Dup	alay Type	Automatic spee	ed timet full display	10.0%	Edit
Eartry Houth Warning         Outside         Deside           Ball Mandel         Datable         Deside         Deside           Bala Add Warning in Industry         Onsabled         Deside         Deside           Charde         Deside         Deside         Deside         Deside           Taski Raved Deside Type / Configuration         Not finder war productive information/Used as this         april	Automatic Speed Limiting		Disabled		100%	Edit
Bith Monder Drubble Drubble (1905 Bask Pak Warning in thorpment Drubble) Pack Each Brand Drubble Yeger / Configuration With Refer with yead traffic information/UlipAg on the entert extration.	Battery Health Warning	(Warning		Disabled		Edit
Back Pack         Bisabled         Float         Float           Back Bisard Display Typic / Configuration         Not filled with Hoad traffic information/thisplay on the gets         Bes	Buit Mander		citabled		1005	Edit
flash Board Doplay Type / Configuration Not Fined with road traffic information/display on the ans	Brake Pad wear Warning in in Pack	trismutte	Disabled		1005	Edit
	flash Brand Display Type / Co	affgaration	Not fitted with road traffic information/display on the center console		hu nas	Edit
Devid Particulate Filter Service Interval Annuncer 955	Diesel Particulate Filter Servic	e Interval	Disabled		955	Edit
Distance Units Miles 40%	Distance Units		Miles		40%	Edit
Fault Economy Units Miles/gables IUX2 205	Faiel Economy Units		Miles/games to	Miles/gallen tuxi		Edit
Callos Type Imperial 100%	Callon Type		imperial		100%	Edit

You can change from the Basic screen to the Advanced by selecting *Switch Editor Mode*. The Advanced mode as you can see from the Right hand screen is more complex and has more features and functions available to edit.

We now need to select the *Infotainment* tab which opens all options for this section. In the picture you will note that it shows a percentage of 'As-Built', this is in all sections. It shows us the percentage of models with CCF Files on record that have the 4x4 info feature enabled is currently 92% (circled in the image below to the right) within this vehicles models category. So, we can assume that this vehicle is one of the 8% without.

Same an	Beauteraa	chief autor manage	Rear	210
BIJIABD.	goulunn.	507-20-10,111 20,2	10 2112	3/3/
eiting CCF far: Range Rover Spor	1 2008 to 2009 SALL BARBIBABO2828	•		-mm 1.m
CF Editor BASIC				
molete - Download CCF Switch	Editor Mode Back			
Rain Valida Confidentia	Heating and translation	Later Street	Interior & Cate	ther Liefsting
Miscellannus and Unused	Power Train	Safety/Security and Locking	Vehicle Interio	-
Manual and Manual Street	ACCOUNTS AND A	and the second second second second	Indefined	
entrongs and extended	waters and wights	source, synce and sources	Conditioned.	_
Display As Bullt Assemblies				
Description		Current Setting	As Built	
CONDUCTIVIC STOLEY CONC.	1000			(2000)
Audio Amplifier Type Fitted	AUDIC		415	Edit
Audio System Country / Regi Confinantion	Europe		32%	8 chil
Andio Visual Assellary mout	installed		1005	8 min
Audio Visual Fitment	undefined		195	Entit
Autho visual lotten Input	Fitted		195	8 dit
Buetoods	Elastooth enal	bled	165	Edit
cu bridet skle	Motti CD mesh	Sandare in Teleco	045	ROIL

Click *Edit* in the final column and you will see this window appear...

Media Player 3		Parameter not i	used.	100%	Edit
Media Player 4		Parameter not i	ised.	3.00%	Edit
Microphone		Fitted with a mi	icrophone.	94%	Edit
MiniDisc	A minidisc is not fit		ot fitted.	100%	Edit
Mobile Office	Not fitted with mol		mobile office.	100%	Edit
Mode for Navigation Int Move)	erface (Nav on	Disabled		52%	Edit
Multi Media Module (HL	DF) Country	Rest of world		50%	Edit
Multi Media Module (Hi Mechanism	Edit Parameter			E 100%	Edit
Multi Media Module (Hl (eg 4x4 Info)	Muiti Media I	Module (HLDF) Feat Level (eg 4x4 in	ure fo) High multi-media module fitted	92%	Edit
Multi Media Module (Hi	The raw data at this location is 0x2A The raw data at this location is 0x2A As Built Analysis Error Error		Low multi-media module fitted.	92%	Edit
Multi Media Module (HI			Fron multi-media module fitted	0.2%	Edit
Nutti Media Module (HI Mode	AS BUIL Analysis 214332 vehicles and	dysed		3.8%	Edit
My Connected World				100%	Edit
Navigation System Fitm	Undefined	on Per	centage	92%	Edit
Navigation System Reg	Low multi-media	module fitted. 0		62%	Edit
Parking Camera Fitmer	High multi-media	module fitted. 92		100%	Edit
Rear Screens Fitment	ELLOL	0		1.9%	Edit
Rear Seat Entertainmer 3			Continue Cance	100%	Edit
Rear Seat Entertainmen.		Not fitted / Dis	abled	100%	Edit

Using the drop down menu, you should change the selection from **Undefined** to **High multi-media module fitted** and then click **Continue**:

Media Player 3	Parameter not used.	100%	Edit	
Media Player 4	Parameter not used.	100%	Edit	
Microphone	Fitted with a microphone	94%	Edit	
MiniDisc	A minidisc is not fitted	100%	Edit	
Mobile Office	Not fitted with mobile office.	100%	Edit	
Mode for Navigation Interface (Nav on Move)	Disabled	52%	Edit	
Multi Media Module (HLDF) Country	Rest of world	50%	Edit	
Multi Media Module (HLDF) DVD Mechanism	Horizontal DVD mechanism	100%	Edit	
Multi Media Module (HLDF) Feature Level (eg 4x4 info)	High multi-media module fitted	92%	Edit	Undo
Multi Media Module (HLDF) Fitment	Undefined	92%	Edit	
Multi Media Module (HLDF) Japan Spec	Multi-media module for non-japanese market is fitted.	92%	Edit	
Multi Media Module (HLDF) Manufacturer Mode	DENSO mode	38%	Edit	
My Connected World	Parameter not used.	100%	Edit	
Navigation System Fitment	Navigation is fitted	92%	Edit	
Navigation System Region	Europe	62%	Edit	
Parking Camera Fitment	No parking camera fitted	100%	Edit	
Rear Screens Fitment	No	19%	Edit	
Rear Seat Entertainment Additional Display 3	Not fitted / Disabled	100%	Edit	
Rear Seat Entertainment Additional	Not fitted / Disabled	100%	Edit	

The change is now highlighted in Red and you have the option to **Undo** the change before saving should it be necessary.

Click the *Complete – Download CCF button*. Then select *Download for Nanocom*.

CF Editor ADVA	NCED				
omplete - Download CCF Switc	h Editor Mode   Back				
Rase Vehicle Configuration	Heating and Ventilation	mforabunent .	Inter	lor & Exter	lor Lighti
Miscellanous and Unused	Power Train .	Safety/Security and Locking	Vehicle Interlior		
Warnings and Messages	Washers and Winers	Wheels /Tyres and Reakers	Isstefined		
Display As Bailt Assem					
Descrip	ase select save option required,		-	As Built	as - 270
AM / FM	Download for Nanocom			100%	Edit
Accessory Phone	Cancel Download		- 71	100%	Edit
Audio Amplifier Type Faces	MOLINE			43%	Edit
Audio System Country / Re Configuration	gion Europe			52%	Edit
Audio Visual Audio Input	Eitted			19%	Edit
Audio Visual Audio Ouput	Not fitted / D	isabled		100%	Edin
Audro Visual Austilary Input	t installed	Installed		100%	Edit
Audio Visual Fitment	Undefined	ndefined		1.9%	£dit
Audio Visual ISO1 394 (Firm	ine) No	No -		100%	Edit
Audio Visual US8 1	No			100%	Edit
Audio Visual US8-2	Not fitted / D	isabled		100%	Edit
Audio Visual Video Input	Fined			19%	Edu
Aurlin Visial Vales Output	Not fitted / D	Nabled		TODA	Edia

You now need to save the file to your PC/Laptop and then extract the zipped file also onto your hard Drive. Once unzipped, copy the file/s onto an SD-Card to insert into the Nanocom Evolution.

Insert the SD card into the Nanocom Evolution before powering on the unit and then go through the following menus, **CAN-BUS VEHICLE > ECU Programming**. After the Nanocom Evolution has completed its vehicle detection process, you will see the left image on screen:





Click **Open File** and then, from the File window (right image), navigate through the folders or files and find your recently added "**Info.enc**" file and click to select it. Follow any on screen options, prompts and please be mindful to read any warning or error messages properly. At the final screen, you will confirm the process by pressing **Start** *Flashing*.

## **CAN BUS Functions-Continued:**

## **SERVICE FUNCTIONS:**

This diagnostic function provides the ability to reset the Service interval announcer/reminder where applicable and covers both the annual and bi-annual services to the European standards for the 29-bit CAN Network vehicles, which is all vehicles from 2005 to 2009/10.

For the 11-bit vehicles, 2010 onwards, this function will contain a single button that covers the annual service reset only and conforms to all international specifications for service light resetting.



## **AIR SUSPENSION (EAS):**

The diagnostic functions provided under this section are identical for all CAN-BUS based Land/Range Rover Vehicles with Electronic Air Suspension. There are three sections currently available (V1.24 onwards and shown in the image).

These functions are explained in detail in the following sections.

## **HEIGHT CALIBRATION:**

This function provides the ability to manually increase or decrease the current height *calibration* values of the vehicles Electronic Air Suspension. Press on the birds eye view image of the vehicle and you will be taken to the height calibration section (shown in the lower right image).

This section incorporates the current "*Actual*" calibration value for each corner of the vehicle and all of the individual corresponding "*Target*" value fields where the user can enter their intended values, one pair of each field for each wheel of the vehicle.

Upon entering this section, you will be presented with the current height calibration values being read and displayed, which can then be changed by pressing either the + or – increment buttons, which shift the value in increments of 5. You can also manually enter new figures using the on-screen keyboard, which appears when you press on any of the white "*target*" fields, allowing you to set individual values to each corner.

## How to use the height calibration function:

The height calibration function is designed to communicate values in the same fashion as the ECU that controls the Air Suspension. There is a range governed by the ECU of actionable values, this range is from (negative) -50 to 50, attempting to write values outside of this range will prompt an error message from the ECU and the values will not be written. However, if you have, for example, three of the corner values at 43 and the remaining one at 48, pressing the + increment button once would add 5 to all values, three of the corners will now show 48 and the reminaing would be 53. If you then press *write*, the three values of 48 will be written but, you will receive an error message stating that the value for the corner at 53 is *out of limits* and will remain unchanged.

The values that you would see for the first time when using the Calibration function are the *current off-set* values the vehicle has stored in it's memory. These values are used to keep the ride level even in all height modes, which are *off-set* against variables such as a single/multiple height sensors being fitted or replaced since the vehicles construction, general vehicle use, age factor and faulty sensors to name a few.

The structure of the values are as follows, each single point of value in the 100-wide range available represent 5mm, so a value of 2 will give roughly 1 centimeter of height offset. Bearing in mind that the function is solely affecting the off-set calibration, not the actual height of the vehicle directly, although of course, the calibrations have an effect on the actual heights and you will see the vehicle physically adjusting heights while using this function.







It is very important to note, that as being an off-set, the values are reversed in their affect, so to physically *raise* the vehicle by means of off-set calibration, you must *lower* the value itself. For example, if you wish to *raise* the height of your vehicle by 3cm, you will need to *lower* the calibration value by 6 points, equally on all 4 corners.

When attempting to alter the calibration of a single corner, it will have a knock-on effect on the other three corners as the vehicle is physically a flat platform that is only supported by its own four wheels, changing the height of one corner will effect the rest of the vehicles height. It is advisable to roughly calculate some small changes in values for the other three corners in contrast to any single large change for one corner.

To achieve the best results when using this application, use a traditional tape measure or other similar measuring device and take measurements as shown in the picture to the right, from wheel centre, vertically to the highest <u>inner edge</u> point of the wheel arch, as shown opposite  $\rightarrow$ 



IMPORTANT: Make a written note of these 4 measurements as well as the 4 calibration off-set values displayed by the Nanocom upon first entering the application and store them in a safe place, you may need them at a later date!



Each off-set value, as previously stated, can be affected in increments of 5 using the + and - buttons, be sure to calculate the actual heights of each wheel in millimteres against the level of adjustment you wish to make. You should now be able to adjust to how much height off-set you'd like, which will remain a constant across all of the different height modes, in effect, setting the calibration off-set to make the vehicle 5cm lower, will do the same in all height modes (unless reaching that height is beyond the capabilities of the Air Suspension travel length).



**IMPORTANT:** It is advisable to use the "End EAS Enable" function, from the "other" section after making any calibration changes or using any of the "other" functions.

# EAS INPUTS:

This sub-function displays live data from various inputs for the EAS system, they display in real time across three pages...

Front Left Actual Height	Front Right Corner Valve %	Front Cross Link Valve %
Front Right Actual Height	Rear Left Corner Valve %	Rear Cross Link Valve %
Rear Left Actual Height	Rear Right Corner Valve %	Gallery Pressure (Kpa)
Rear Right Actual Height	Reservoir Valve % Open	Compressor Temperature (°C)
Front Left Corner Valve %	Exhaust Valve % Open	Motor Temperature (°C)

This function is extremely useful in all aspects of dianostics. For example, being able to monitor individual corner height valve activity while attempting to diagnose a fault in the EAS or to perhaps monitor the condition and functionality of the compressor, the reservoir and the motor can lead to finding the cause of malfunctions quickly.

#### **EAS "OTHER" functions:**



- **Deflate all air springs:** This function is used to expel the air pressure in all four suspension springs into the surrounding atmosphere. Use of this function will lower the vehicle to the lowest limits of suspension travel and will enter the vehicle into "manufacturer mode".
- **Deplete reservoir pressure:** This function performs a complete pressure depletion of the air reservoir by opening its exhaust valve, again this expels the air into the surrounding environment. After the process is complete, the internal reservoir pressure should match that of the atmospheric pressure outside the vehicle.
- Start EAS Enable and End EAS Enable: The EAS enable is a calibration mode that allows the ECU to fully accept changes in calibration and settings. It is advisable, although not necessary, that before performing any changes to the EAS, that the "Start EAS enable mode" is activated and then subsequently ended after any calibrations or changes in EAS settings. Ending the EAS enable will return the vehicle to "normal" mode. The second advisable use for the "End EAS enable mode" is after flashing or editing the EAS, or any other related ECU that works in direct conjunction with the air suspension, such as the Transfer Case Control Module, that this function is used to return the air suspension back to "normal" mode.
- Set tight/normal Tolerance: The tight tolerance mode is used primarily for wheel alignment/tracking and may also be used in some cases for calibrating the Adaptive Front Lighting system. This mode is not to be used as part of the Air Suspension Calibration process.

### PARK BRAKE:

- Longitudinal accelerometer calibration: This function is used to recalibrate the accelerometer, the vehicle performs this function independently, however, you must make sure that the vehicle is on a <u>level surface</u> and that it <u>remains stationary</u> throughout the whole procedure. Make sure the parking brake module is correctly secured to the vehicle and that the parking brake is applied.
- Drive to mounting position: the following operation will drive the parking brakes to the mounting position, allowing the brake cables to be connected to the brakes. This may be necessary if the park brake is operated without the cables being connected to the brakes. This can lead to a condition where not enough cable is available to connect the brakes.
- Drive to latching position: This function will drive the Park Brake to the latching position, which might be necessary if the 'park brake emergency manual release' has been used.
- **Unjam:** This will drive the Park Brake to be un-jammed by first driving it into the release position and then into the mounted position. The engine must be running at idle speed. After completing this procedure, check the condition of the rear brake shoes and drums as well as the brake cables, to be sure they are correctly attached.

#### **ADAPTIVE RESET:**

The adaptive reset function gives the user the ability to reset any adaptive values stored by any and all ECU's that store them. For example, the Gearbox and Transfer Case Control Module both store constantly changing values such as the mileage driven in High and Low ranges as well as mileage covered in each individual gear. A particular purpose of this could be to restart a mileage count for a certain ECU as part of diagnosing a fault.

### **CCF Read:**

This function can be used by those who cannot locate their "As-built CCF" from our Genesis website because their VIN number may not be recognised at first. This allows the user to take a copy of the CCF "As is" that is currently on the vehicle and save it to the SD card. The file can then be uploaded through a PC/Laptop to the Genesis website, where it can then be edited to the users' specifications.

#### Here is a step by step on how to use this function:

- > Plug the Nanocom, with an SD card inserted, into the vehicle
- ➢ Go to the CAN-BUS section of the menu and select the *read CCF* function.
- > Once VIN detection has completed, you can select *read and save*
- Enter a name for the CCF file and press ok
- > Once saved, power down the Nanocom and remove the SD card
- > Put SD card into a PC or Laptop and save the CCF file somewhere accessible
- > Login to Genesis, select edit CCF, from the next page select Upload As-is from Nanocom
- Use the *browse* button to locate the CCF file from your PC/Laptop
- Once located, press the *upload* button, this will load the CCF and automatically take you to the CCF editor section of the site.
- > From here, you can edit your CCF with basic or advanced editor modes
- > Once editing is complete, press the *complete-download CCF* button in the top left
- Save the file to your PC or Laptop, then place that file back on the SD card.
- Insert the SD card into the Nanocom and connect it to the vehicle
- > Enter the CAN-BUS menu and enter *ECU programming*
- The Nanocom will ask you to open file, press this and on the following screen, select the new CCF file and press ok
- ➢ Follow all on screen prompts and this will load the CCF to the vehicle.

#### **CAN Instrument mode:**

The Instrument mode function is designed to display live "on the move" data (inputs) which are taken from the engine management ECU. At present (V1.24), there are two pages of 6 useful and informative inputs for each of the CAN-BUS vehicles, such as engine oil temperature and RPM. More individual pages of different inputs are currently being developed for the CAN-BUS vehicles and they will be added to future releases, as well as the "peak detection" function from the Legacy Systems.

The legacy vehicles have multiple pages for each of model as well. This function can be used in conjunction with the dash/window mount kit

753	Intake t.(C)
Coolant t.(C)	Mass air flow
Oil temp(C)	Fuel level %

(NCOM30) for the Nanocom, allowing the user to observe live data while driving the vehicle safely and hands-free.

### **Clutch Calibration (Transfer Case Control Module):**

This function is to calibrate the Transfer Case Control Clutch (TCCM) for any occasion after the user may have flashed the Transfer Case Control Module. The function is completely self sufficient and does not require any additional actions on behalf of the user.

#### **CCF (Car Configuration File) Sync:**

This function is used after flashing the Body Control Module, the BCM. It will re-sync the BCM with the Instrument Pack. It does this by reading the data from the Instrument Pack and re-writing it to the Body Control Module. This can also be used when recovering a 'downed' BCM.

#### **Puma 2.2 Inputs:**

This section is a live data inputs function provided for the recently produced Land Rover Defender with the 2.2 Liter 4 Cylinder ZSD-422 Ford Duratorq Diesel Engine.

The section contains several groups of engine related inputs taken directly from various sources around the vehicle that are already being sent to the Engine Management system. The sections are available as follows:

- 1. Pedals and Positions
- 2. Engine components and Status
- 3. Engine Sensors and Lamps
- 4. Turbo and Boost
- 5. EGR (Exhaust gas recirculation) and DPF (Diesel particulate filter)
- 6. Fuelling
- 7. Air and Manifold

With a combined total of 50 live data inputs available, this facility is excellent for diagnosing engine or related running faults while on the move.

### VIN Tool:

This tool contains two specific functions, the VIN Check and Clear Cache. The Nanocom Evolution performs a VIN Detect whenever it is plugged into a CAN-BUS Vehicle. Upon doing this VIN Detect, the Nanocom will store the full list of detected ECU's on the vehicle and attach it to a memory of the VIN Number.

Given that sometimes an error can occur with the Nanocom or the vehicle, such as allowing the VIN Detect to operate while plugged into a car that does not have it's ignition turned on. This can then log the VIN Number as having no ECU's present and will possibly prompt an error, even when plugging the Nanocom in a second time and allowing the VIN Detect to function with the ignition on. These tools are designed to help overcome these issues and similar ones.

<u>The purpose of these functions are as follows:</u> VIN Check: This function will perform a full VIN check, by asking for the VIN number stored in multiple ECU's on the vehicle and displaying them accordingly. This tool can be used to confirm that upto six ECU's on the vehicle all have the same VIN numbers programmed to them, assisting in

overcoming mismatched VIN numbers when a vehicle has a new ECU fitted/swapped for example, which is not being recognised by Nanocom applications such as the ECU Information section or causing an issue with recognising license codes etc.

**Clear Cache:** This function will clear the memory cache of any VIN Numbers stored and the lists of ECU's for each one, effectively allowing the Nanocom to run a full VIN Detect the next time a CAN-BUS car is plugged in, so it can recompile the list of ECU's on the vehicle and store them accordingly.

### **Steering Angle Sensor Calibration Application:**

This specialist function is to calibrate the steering angle sensor found as standard on all CAN-BUS Land and Range Rovers. The application is presented the same for both the 29-Bit and 11-Bit vehicles but please note, it is not available on either of the CAN-BUS Defender Puma model vehicles.

This application will be drawn into the dynamic menu for the following CAN-BUS vehicles:

- 2005-09 Discovery 3 and Range Rover Sport
- 2010+ Discovery 4 and Range Rover Sport
- 2010+ Range Rover L322

The Function is a single button press application and requires the vehicle to only be stationary, with the steering wheel as perfectly centered as possible. To assist the user in calibrating the steering wheel angle sensor, we have included some live data inputs from the steering wheel sensor, they are:

- Steering wheel angle- displayed as 3 digits with 2 decimal points, such as 255.20.
- Steering wheel calibration status: Which can display Initial, Fault or Calibrated.

### Fuel Pump Lift: (Diesel vehicles only)

The fuel pump application is available only on diesel vehicles and is designed to command the Fuel Lift Pump to extend to it's maximum stroke. This action is performed as a standard command and lasts for a single "pulse" of the lift pump. It can be repeated as needed.

This application is a single button press application and completes automatically. The intended purpose of this can be to purge the fuel system for refit or repairing purposes, to test for faults in the fuel delivery system or to test the functionality of a fuel lift pump itself.

#### **Fuel Burning Heater:**

The Fuel burning heater is a system of various component fitted to provide auxiliary heating of the engine coolant during cold weather. This is largely to aid emissions and to speed up cabin warm up. Notably those vehicle sold from new in warm climates are not equipped with this system. The function of the heater is to assist the vehicle to warm up on cold starts, by burning fuel to directly heat the coolant in the engine. One problem with modern vehicles is

that they are so efficient that they don't produce enough heat to warm the coolant enough to ensure efficient running.

There are few steps to be followed in order to succesfuly use the FBH functions:

- 1. When running the "Prime System" the ingnition should be in stage II.
- 2. When running the "Test Routine" the engine must be running.
- 3. Always clear the faults prior to and after the test.



## Transit Mode or Transport Mode (Freelander 2):

The transit mode feature is to minimise battery usage when the vehicle is being stored or transported prior to sale. When the CCU is programmed in the transit mode, the following functions are disabled:

- 1. RF receiver
- 2. Tail door actuator
- 3. Tail door window
- 4. Central Door Locking (CDL)
- 5. Interior lamps

If the ignition is switched to position II, the CCU buzzer will sound an alarm to warn that the vehicle is in transit mode. The Nanocom Evolution can remove the transit mode feature and program the CCU to the market specifications.

## **Trip Computer (Freelander 2):**

The computer memory stores data for a journey, or a series of journeys, until it is reset to zero. The displayed information is for guidance only, as it can be affected by traffic, road and weather conditions.

There are 3 trip memories available, A, B and Auto. The viewable trip memory can be selected through the Instrument panel menu. The trip computer function allows the user to change the fuel consumption display for the vehicle .

For the Freelander 2, there are 3 options available:

- 1. Set to liters/kms
- 2. Set to UK mpg
- 3. Set to US mpg

#### **Rear Differential on demand self test**

The "Rear Differential on demand self test" is available for all Can-Bus vehicles except the Freelander 2. The demand self test on execution will cause the associated control module to run a pre-defined test which will cause any associated trouble codes to be logged if present. On some vehicles the rear differential motor can be heard when performing the test.

### **ABS Bleed**

The ABS Bleed function is available for all Can-Bus vehicles except the Freelander 2. The "ABS Bleed" function will power bleed the ABS hydraulic system for each of the four corners. The user needs to open the bleed nipple, run the function which pumps the pedal until all air is expelled. Once there is no air left in the system, the user needs to close the nipple and end the running function.

### Water in Fuel reset

The "Water in Fuel reset" is available for the Discovery 4 and Range Rover Sport 2010+ models. The water in fuel warning appears when the fuel filter water trap sensor (which is screwed in the bottom of the fuel filter) detects water. This routine will reset the water in fuel detection warning.

#### Injector Cylinder Balancing for the Discovery 3 & RR Sport 05-09 2.7 Diesel



The cylinder balancing function will indicate if there is an issue with a particular injector or cylinder. A diagnostic message will be logged if 1 of the values (or all but 1) reaches a certain limit. The problematic cylinder is the one whose value is either much higher or lower than the others, bearing in mind that they will always have a small amount of variation.

If an injector has been replaced these values will re-adapt in a few seconds with the engine idling, if they do not, this indicates a compression problem with the cylinder. Only one injector can be detected to have an error at a time, so if 2 were faulty, the second would show up after the first had been rectified. The values are read back from the control module are multiplied by 1000. Cylinders 1 to 3

are known as Bank A and 4 to 6 are known as Bank B.

The minimum and maximum limits are around 400 and 1600 respectively. The optimal values are around 900. Most of the time if the ECU detects an issue with a cylinder or injector, it will increase/decrease the value for the next injectors to compensate for the inbalance.

Injector 1 - Cylinder 1 Injector 2 - Cylinder 4 Injector 3 - Cylinder 2 Injector 4 - Cylinder 5 Injector 5 - Cylinder 3 Injector 6 - Cylinder 6

#### Battery Reset for Discovery 4, RR Sport 2010+ & Freelander 2

This function will reset the values stored in the vehicle monitoring system. This function must be run only after a brand new battery has been fitted otherwise the monitoring system will log wrong data.

#### Adaptive Cruise Control Calibration for Discovery 4 & RR Sport 2010+

This function needs to be performed only on brand new Adaptive Cruise Controls modules. It is not required to be performed if the Adaptive Cruise Control module has been previously used on another vehicle. If the Adaptive Cruise Control is brand new then please follow the below steps:

**Before running the function:** Make sure the vehicle is on level ground and that the forward looking sensor (front distance range sensor) levelling procedure has been carried out as detailed in the Workshop manual. This application should not be carried out until the forward looking sensor (front distance range sensor) is known to be correctly levelled.

After running the function: Make sure that the 'follow symbol' on the instrument pack is now flashing. The 'follow symbol' should now be flashing, this indicates that the vehicle is in 'service alignment' and now requires a driving cycle. The service alignment process measures the path of stationary targets such as street lights, railings, traffic signs, parked vehicles etc, and uses this data to correct for radar misalignment. Alignment will complete more quickly when more suitable targets are seen. The following recommendations will help: - The speed must be above 30mph (50kph). - Choose a road with plenty of metallic items to the sides. - Following vehicles too closely will obscure the stationary targets from the radar, so leave a time gap of at least 2 seconds. - A straighter road will produce a quicker and better result, although the process will still operate on curved roads. The time the module takes to align will vary, depending on the route, speed, number of targets, and individual module. When the flashing 'follow symbol' lamp extinguishes, the system is correctly aligned.

To be fully functional the following still needs to be carried out:

- Stop the vehicle at the next available opportunity.
- Turn the ignition off and wait 15 seconds.
- Start the engine, once 15 seconds have elapsed.

#### Windows Calibration for Discovery 4 & RR Sport 2010+

This allows the calibration of the "one touch up and down" and of the "pinch protection" functions. Make sure the driver's door and window are closed prior to running these calibration sequences.

### Key Learning for Discovery 4 & RR Sport 2010+

For security reasons, although the nanocom is not VIN locked, we have introduced these key learning functions in a responsible manner and have ensured that none of them are accessible on a Nanocom unless the vehicle has previously been detected with the Ignition on, meaning that there must be or have been an existing key present at some point. In order to run any of the following functions, the ignition must be off.

When the vehicle is fitted with an older version of the Keyless module the process is straight forward, all instructions and prompts will be displayed on the Nanocom.

For the newer Keyless Modules the Nanocom will prompt you with some extra messages dependant on the need for two files to be flashed to the Keyless Module prior starting the key learning procedure. Please note that the information below will only apply to the newer Keyless Modules and are needed only when the Nanocom will display one or both of the following messages:

Please ensure that you downloaded and flashed the "CA" firmware file to the vehicle, refer to the manual for more information.

Please ensure that you downloaded and flashed the "LA" software file to the vehicle, refer to the manual for more information.

The "CA" represents the Keyless Module Firmware required to enable the key learning session while the "LA" represents a secondary file required to program a new key. If your Keyless Module already has the "CA" firmware then the Nanocom will ask only for the "LA" file. In case that your Keyless Module has a different version than the "CA" firmware then it will ask for both "CA" and "LA" in sequence.

If you have 2 extra new keys that must be learned to the same vehicle then the "LA" file must be flashed twice between the two key learning procedures.

The following steps show how to proceed and what is required in order to find the flash files for the correct software regarding the newer BJ32 and DPLA hardware types and how to succesfully learn a new key on the newer Keyless Modules:

**Step no. 1:** Go to the "ECU INFORMATION" function and get the "ASSEMBLY CORE NO." which should be one of the following:

DPLA-14C250-AA

DPLA-14C250-BA

BJ32-14C250-AC

BJ32-14C250-BC

**Step no. 2:** Login to GENESIS using your account details: <u>www.nanocom-diagnostics.com/genesis</u> and download and copy the relevant flash files based on the following details on the BBS folder of the SD Card (see step 3.):

\* The "CA" firmware (if needed Nanocom will prompt this in a message):

a) Find the corresponding group of ASSEMBLY CORE NO. from the Hardware row.

b) Each item in the group has four Software items. Download the one which the last item ends with "DPLA-14C104-CA"

For DPLA-14C250-AA you need to download:

AH32-19G481-CF \* PLA-14C250-AA \*AH32-14C105-AL, CPLA-14C107-AA, CPLA-14C430-AC, DPLA-14C104-CA **For DPLA-14C250-BA you need to download:** 

AH32-19G481-DF \* DPLA-14C250-BA \*AH32-14C105-AL, CPLA-14C107-AA, CPLA-14C430-AC, DPLA-14C104-CA **For BJ32-14C250-AC you need to download:** 

AH32-19G481-EF \* BJ32-14C250-AC \* AH32-14C105-AL, AH42-14C107-AB, CPLA-14C430-AC, DPLA-14C104-CA **For BJ32-14C250-BC you need to download:** 

AH32-19G481-FF \* BJ32-14C250-BC \* AH32-14C105-AL, AH42-14C107-AB, CPLA-14C430-AC, DPLA-14C104-CA

\* **The "LA" Secondary file**, if you have the newer BJ32 or DPLA hardware and the "CA" firmware new loaded this is needed for every new key that is to be learned:

a) Find the corresponding group of ASSEMBLY CORE NO. from the Hardware row.

b) Each item in the group has two Software items. Download the one which the last item ends with "DPLA-14C104-LA"

 For DPLA-14C250-AA you need to download:

 DPLA-19G481-JE \* DPLA-14C250-AA \*CPLA-14C107-AA, DPLA-14C104-LA

 For DPLA-14C250-BA you need to download:

 DPLA-19G481-KE \*DPLA-14C250-BA \* CPLA-14C107-AA, DPLA-14C104-LA

 For BJ32-14C250-AC you need to download:

 BJ32-19G481-LE \* BJ32-14C250-AC \* AH42-14C107-AB, DPLA-14C104-LA

 For BJ32-14C250-BC you need to download:

 BJ32-19G481-ME \* BJ32-14C250-AC \* AH42-14C107-AB, DPLA-14C104-LA

**Step no. 3:** Now that we have located and downloaded the required flash files these will need to be transfered on a SD Card specially prepared with the last SD Card App or Files, in the folder BBS. Once we have these files on the card we can proceed with the key learning task. The "SD Card App" and "SD Card Files" can be found on the restricted area at the link: <u>http://www.nanocom-diagnostics.com/restricted</u> where you are required to login with your account details. The instructions on how to prepare the SD Card can be found on the documentation section at the following link: <u>http://www.nanocom-diagnostics.com/support</u> under the name: "<u>SD Card Formatting</u>".

**Step no. 4:** Start the Key Learning sequence from the Nanocom menu. If prompted to flash the "CA" firmware, then exit the Key Learning menu and proceed with this from the Flash Programming menu using the "CA" flash file freshly downloaded from Genesis. Once successfully flashed please return to the Key Learning menu and repeat the procedure. For more information on how to flash files to various ECU's please refer to the documentation section <a href="http://www.nanocom-diagnostics.com/support">http://www.nanocom-diagnostics.com/support</a> for the flashing guide named "ECU Flashing Guide" and the video guide named "Flashing an ECU - 4X4 info".

**Step no. 5:** If the Nanocom does not prompt any message regarding the "CA" firmware and skips to the "LA" firmware message then exit the Key Learning menu and proceed with this from the "Flash Programming" menu using the "LA" flash file downloaded from Genesis. Once successfully flashed please return to the Key Learning menu and repeat the procedure.

**Step no. 6:** At this stage, after the successful flashing of the "CA" and /or "LA" files, the Nanocom will not require any other files and you will need to follow the simple tasks displayed on screen. Once the new key has been successfully learned to the vehicle the Nanocom will display a confirmation message.

#### **Key Learning Application Functions:**

#### Function no.1: <u>Read Key(s) Status</u>

This function shows the number of keys that are currently learned to the Keyless Vehicle Module (KVM) and the number of those keys currently present, for which you will need to place all available keys inside the vehicle. The number of non present keys can be deduced by deducting the number of "present keys" from the "number of programmed keys".

#### Function no.2: Add a new key

This function exclusively learns a brand new key to the Keyless Vehicle Module (KVM) adding it to those already learned. It cannot learn previously learned or used keys.

### **Additional support information and links:**

At Blackbox Solutions, we strive to provide as much documentation about our products as possible, as well as member support forums and video demonstrations for all of our diagnostic equipment.

There is a documentation section available here:

#### http://www.nanocom-diagnostics.com/support

This page hosts a vast number of support documents from individual ECU guides to Nanocom Firmware upgrade guides through to complete Nanocom user guides.

Also, we have the Nanocom Support Forum which can be registered for here:

http://nanocom.blackbox-solutions.com/index.php/contact-us/forum-membership-form

The forum contains a huge amount of accumulated knowledge, hints and tips. Aswell as the constant and powerful support offered by other Nanocom owners and of course, the full BBS support team. This is our most powerful support tool.

You can also find many useful Tutorial and Demonstration Videos on our YouTube Channel, found here:

https://www.youtube.com/user/BBSP38/featured

We hope you enjoy your Nanocom Evolution!!!

V.1.30.