TECHNICAL BULLETIN

No: SB034-SB036
Issue: **4**
Date: 17 Jul 2006

CIRCULATE: TO	Service Mgr	Warranty	Workshop	Body Shop	Parts
	X	X	X	X	X

ISSUE "4" CHANGES ARE HIGHLIGHTED WITH GREY BACKGROUND:
EARLY EAS COMPRESSOR PART NUMBERS CORRECTED. VIN ADJUSTMENTS

SERVICE ACTION: Vehicle Enhancement Program

AFFECTED VEHICLE RANGE:

Land Rover LR3 (LA) **VIN: 5A000259 to 6A390949**

Range Rover Sport (LS) **VIN: 6A900129 to 6A956539**

CONDITION SUMMARY:

COMBINED REPAIR PROCESS TO ENHANCE ALL VEHICLES

NOTE: This Service Action supersedes Service Actions B024, B025 and B027. Refer to Service Alert SA06WA04 regarding the closing procedure where claim submission parameters were specified for these three Service Actions. This Service Action is valid for two years only. Repairs must be complete and Warranty Claims accepted for payment prior to the expiry date of this Service Action on 05 June 2008.

Situation: Land Rover is conducting a vehicle enhancement program on LR3 and Range Rover Sport vehicles. At elevated temperatures the spring return force on the air suspension compressor exhaust valve is insufficient to overcome the friction forces, which can lead to the exhaust valve not closing properly. This results in a leak path in the air suspension system and result in an 'Air Suspension fault' message. LR3 and Range Rover Sport vehicles will also have an air suspension warning lamp illuminated. Other vehicle and software enhancements will be performed as part of this combined Service Action.

Action: The Service action covers the following areas:

- Upgrade the air suspension compressor:
- Performing a number of software and body fitting enhancements to the affected vehicles.

The updates are detailed below along with the relevant vehicle information.

Vehicle Enhancement Actions	Model	VIN Range
Electronic Air Suspension Compressor Upgrade (includes upgrade ride level control module software)	LR3	5A000259 to 6A374589
	Range Rover Sport	6A900109 to 6A937698
Upgrade Engine Control Module Software	LR3	5A000259 to 6A390949
	Range Rover Sport	6A900109 to 6A956539
Upgrade Transfer Case Control Module Software	LR3	5A000259 to 6A390949
	Range Rover Sport	6A900109 to 6A956539
Upgrade Heating Ventilation and Air Conditioning Control Module Software	LR3	5A000259 to 6A390949
	Range Rover Sport	6A900109 to 6A956539
Upgrade Instrument Pack Control Module Software	LR3	5A000259 to 6A390949
	Range Rover Sport	6A900109 to 6A956539
Environmental Box (E-Box) Sealing Grommet Check	LR3	5A000259 to 6A390949
Upper Tailgate Support Fixing torque, rattle repair	LR3	5A000259 to 6A374589

NOTE: In order to monitor the vehicles repaired it will be necessary to follow two unique campaign procedures and to make two separate warranty claims for the required repairs:

- **B034 is to be used to claim for the air suspension compressor upgrade.**
- **B036 is to be used for all of the other enhancement actions required.**

Refer to the specific procedure section below for relevant warranty details for each campaign element. Warranty claims should be submitted in accordance with the current Land Rover Warranty Policy and Procedures Manual and its amendments, unless stated otherwise in this Service Action.

B034 - Air Suspension Compressor Repair

AFFECTED VEHICLE RANGE:

Land Rover LR3 (LA)	**VIN:**	**5A000259 to 6A374589**
Range Rover Sport (LS)	**VIN:**	**6A900109 to 6A937698**

CONDITION SUMMARY

Situation: Air compressors for the Electronic Air Suspension systems have undergone continual improvement. To ensure that compressors are updated to the latest configuration an inspection and repair process is being undertaken as part of this Service Action.

Action: At the earliest Service opportunity check and note the part number located on the compressor crank case end plate of the air suspension compressor. Determine what repair action is required from the part number and the information in the Repair Procedure.

NOTE: At the time of confirming a booking for vehicle repair, please ensure that all outstanding Field Service Actions are identified to ensure the correct parts are available and adequate workshop time is allocated for repairs to be completed at one visit.

TOOLS:

303-D121 .....Puller (modified to two leg condition)
303-588.....Protective button from this tool

PARTS:

JPO500010.....	**Compressor kit – includes delivery valve and exhaust valve kit**	**Qty 1**

WARRANTY:

NOTE: Repair procedures are under constant review, and therefore times are subject to change; those quoted here must be taken as guidance only. Always refer to DDW to obtain the latest repair time.

NOTE: In the unlikely event that compressor replacement is necessary, make a separate warranty claim for the replacement PART ONLY using the normal process. The labor cost to renew the compressor will be covered under the terms of this Service Action. Claim Option E.

Warranty claims should be submitted quoting program code **B034** together with the relevant option code from the table below. This will result in payment of the stated time. As option codes are used, there is no requirement for you to enter SRO or relevant parts information; they are repeated here for information only. The option that allows for the drive in/drive out allowance can only be claimed if the vehicle is brought back into the workshop for this action alone to be undertaken

Program Code	Option	Description	SRO	Time	Parts	Qty
B034	**A**	Check compressor – no further action required	60.50.89/45	0.2	N/A	N/A
B034	**K**	Check compressor – no further action required Drive in/drive out	60.50.89/45 02.02.02	0.2 0.2	N/A	N/A
B034	**B**	Check delivery valve. Renew delivery valve and install exhaust valve kit. Reconfigure air suspension control module	60.50.89/44	1.0	JPO500010	1
B034	**C**	Check delivery valve. Renew delivery valve and install exhaust valve kit. Reconfigure air suspension control module. Drive in/drive out	60.50.89/44 02.02.02	1.0 0.2	JPO500010	1
B034	**D**	Check delivery valve where necessary. Replace compressor. Reconfigure air suspension control module.	60.50.89/43	0.8	N/A	N/A
B034	**E**	Check delivery valve where necessary. Renew compressor. Reconfigure air suspension control module. Drive in/drive out	60.50.89/43 02.02.02	0.8 0.2	N/A	N/A

Normal warranty policy and procedures apply.

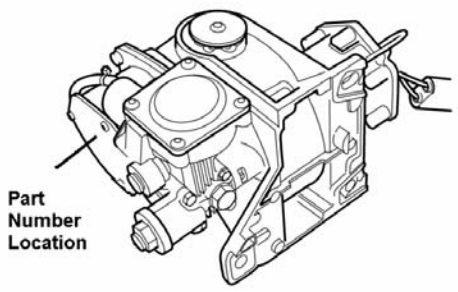
REPAIR PROCEDURE

INSPECT AIR COMPRESSOR

NOTE: The part number can be a stamped number, a self-adhesive label carrying the new part number or it may be written with a paint-pen.

1. Locate the air suspension compressor mounted on the left side frame rail and inspect the crank case end plate for the part number. (Figure 1)
2. Refer to the table below and determine the action required from the observed compressor part number.

Figure 1



Part Number	Action Required
RQG500080 RQG500090	Latest level compressor. No further action is required.
RQG000017	Check delivery valve. If delivery valve is damaged, replace the air suspension compressor. If delivery valve is ***not*** damaged, install a new delivery valve and install the exhaust valve kit.
RQG000018	
RQG000019	
RQG500060	
RQG500061	
RQG500070	
RQG500071	
RQG500062	Install a new delivery valve and install the exhaust valve kit.
RQG500072	

NOTE: GTR lookup sequence is as follows:
GTR Home > NAS > Service Information/ LS – Range Rover Sport/2006 or LA – LR3/2005 > Workshop Manuals > Bookmark "Suspension/ 204-05: " Link "Air Suspension Compressor (60.50.10)"

3. If the compressor part number is anything **other than** RQG500080 or RQG500090, remove the air suspension compressor from the vehicle.

⚠ **CAUTION: Plugs installed in the open connection locations are required to prevent contamination.**

4. Install plugs to the open connections of the inlet and outlet pipes of the compressor being inspected and clean the compressor assembly. (Figure 2)
5. Undo and remove the delivery valve-retaining plug: (Figure 3)
   - Remove and discard the retaining plug O-ring seal.
   - Remove the return spring and the delivery valve and discard the spring.
   - Inspect the delivery valve for damage (Figure 4)
6. If the compressor has part number RQG000017, RQG000018, RQG000019, RQG500060, RQG500061, RQG500070 or RQG500071 select the proper repair as follows:
   - If the delivery valve is damaged (left image in Figure 4) replace the air compressor with a new unit following GTR section 60.50.10 procedures.
   - If the delivery valve is ***not*** damaged, (right image in Figure 4) perform the Compressor Repair Procedure that follows.
7. If the compressor part number is RQG500062 or RQG500072 or if the delivery valve is ***not*** damaged in the above inspection, perform the Compressor Repair Procedure that follows.

Figure 2

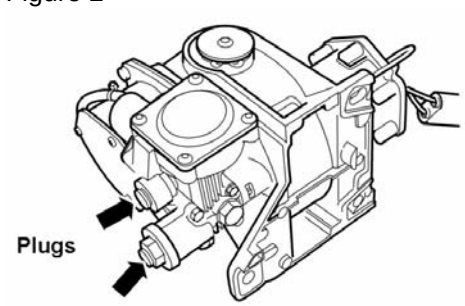


Figure 3

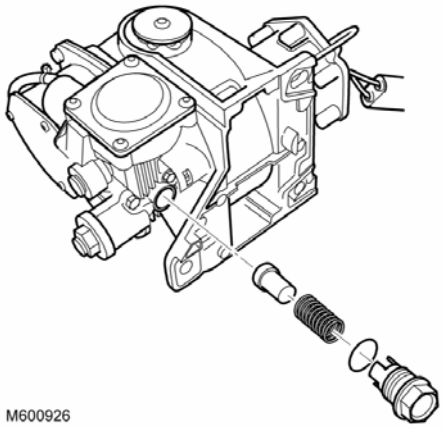


Figure 4

DAMAGED **UNDAMAGED**

COMPRESSOR REPAIR PROCEDURE

NOTE: This repair procedure only applies to a compressor that meets the following criteria:

- **Part number RQG000017, RQG000018, RQG000019, RQG500060 RQG500061 RQG500070 or RQG500071 that upon inspection have an undamaged delivery valve.**
- **Part number RQG500062 or RQG500072.**

1. Install new delivery valve assembly from kit JPO500010 as follows: (Figure 5)
   - Install a new O-ring seal to the delivery valve-retaining plug.
   - Assemble the new spring and new delivery valve.
   - Install new spring and new delivery valve into the compressor.
   - Tighten the delivery valve-retaining plug to **12.5Nm (9.2 lbf.ft)**.
2. Undo, remove and discard two diagonally opposed exhaust valve plunger cover securing screws to permit puller installation. (Figure 6)
3. Configure special tool 303-D121 to two-leg mode or alternatively, use a suitable two-leg puller. (Figure 7)
4. Install and align special tool 303-D121 and the protective button from tool 303-588 to the exhaust valve plunger cover. (Figure 8)
5. Hand tighten the tool only enough to hold the plate in position.
6. Undo, remove and discard the two remaining plunger cover securing screws. (Figure 8)
7. Clean area around each screw hole using a vacuum cleaner to prevent debris from entering the plunger chamber.
8. Carefully **back off** the puller, allowing even reduction in the cover spring pressure.

Figure 5

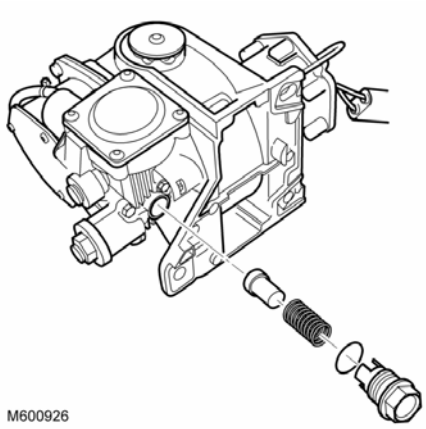


Figure 6

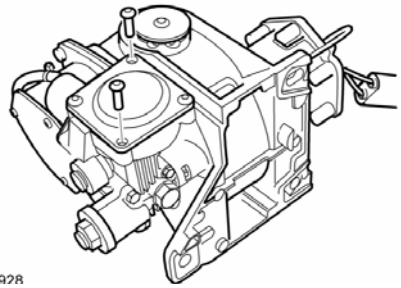


Figure 7

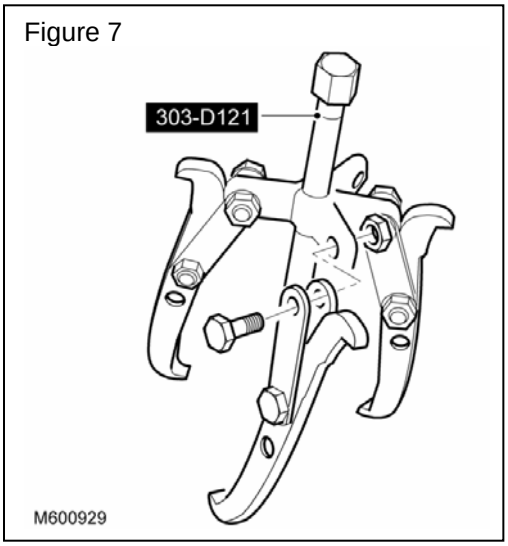
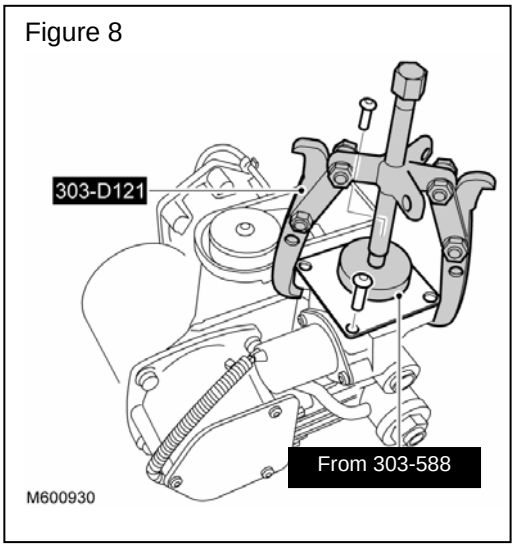


Figure 8



9. Remove the cover when spring tension is relaxed.
10. Remove and discard the orange O-ring seal. (Arrowed in Figure 9)
11. Install the new inner spring and spacer from kit JPO500010 at the center of the original outer spring. (Figure 9)
12. Install and fully seat the new orange O-ring seal from kit JPO500010.
13. Install and align the plunger cover.

⚠ **CAUTION: The cover must be positioned and clamped evenly during the following step.**

14. Install the puller and the "button" special tool and carefully tighten the puller to compress the springs to a snug seated condition. (Figure 10)

⚠ **CAUTION: Care must be exercised to avoid cross-threading the new screws being installed. Proper installation is best performed by positioning the screw in the hole, rotating the screw counter-clockwise until a 'click' is heard and then rotating the screw clockwise by hand a minimum of two turns to engage the threads.**

15. Install and finger tighten the two exposed cover screws to secure the cover. (Figure 10)
16. Undo and remove special tool 303-D121.
17. Install the two remaining new plunger cover screws. (Figure 11)
18. Tighten the final two screws to **5Nm (3.6 lbf.ft).**
19. Tighten the first two screws installed to **5Nm (3.6 lbf.ft)**.
20. Using a suitable paint marker, strike through the original part number on the compressor to identify that the unit has been repaired.
21. Refer to GTR section 60.50.10 and install the repaired compressor unit to the vehicle.

Figure 9

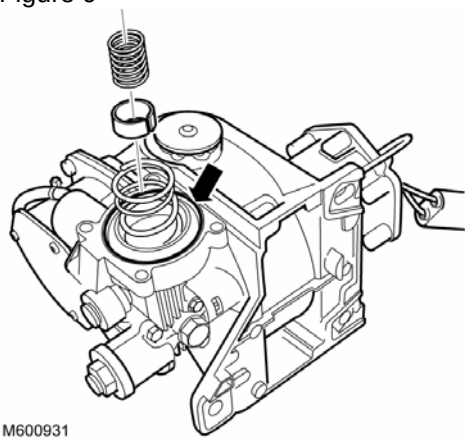


Figure 10

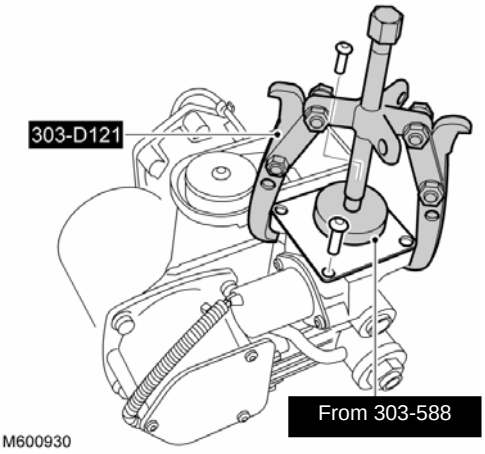
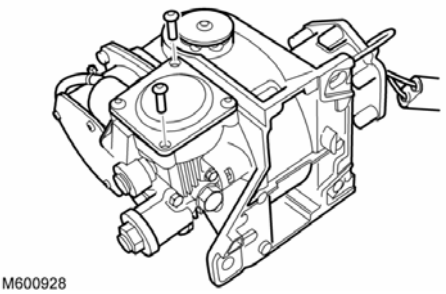


Figure 11



B036 – Tune Updates and Enhancement Repairs

AFFECTED VEHICLE RANGE:

Land Rover LR3 (LA)	**VIN range specific to each Repair**
Range Rover Sport (LS)	**VIN range specific to each Repair**

CONDITION SUMMARY:

Situation: Software enhancements have been introduced during the early production stages of affected vehicles. Installation of these updated software programs will enhance and stabilize the systems operation of the vehicles. Other areas of the vehicle where problems have been encountered will be enhanced also at this service opportunity.

Action: You are requested to re-configure affected vehicles using an updated WDS Software Disc 13 with patch file 5 or later. During re-configuration, it is also necessary that additional actions take place to improve customer satisfaction.

PARTS:

STC50552.....Loctite Thread Locker 242 Fluid (Shop supply)

WARRANTY:

△ **NOTE: Repair procedures are under constant review, and therefore times are subject to change; those quoted here must be taken as guidance only. Always refer to DDW to obtain the latest repair time.**

Warranty claims should be submitted quoting program code **B036** together with the relevant option code from the table 7. This will result in payment of the stated time and payment for the parts included. As option codes are used, there is no requirement for you to enter SROs; these are repeated here for information only. The option that allows for the drive in/drive out allowance can only be claimed if the vehicle is brought back into the workshop for this action alone to be undertaken.

Program Code	Option	Description	SRO	Time	Part Number	Qty
LR3 Vehicles – VIN Range 5A000259 to 6A374589						
B036	**F**	E-Box Sealing Grommet Check & Module upgrades Upper Tailgate Support Stud torque/rattle repair	86.90.89/31 76.40.89/42	0.7 0.1	N/A	N/A
B036	**G**	E-Box Sealing Grommet Check & Module upgrades Upper Tailgate Support Stud torque/rattle repair Drive in/drive out	86.90.89/31 76.40.89/42 02.02.02	0.7 0.1 0.2	N/A	N/A
LR3 Vehicles – VIN Range 6A374590 to 6A390949						
B036	**H**	E-Box Sealing Grommet Check & Module upgrades	86.90.89/31	0.7	N/A	N/A
B036	**J**	E-Box Sealing Grommet Check & Module upgrades Drive in/drive out	86.90.89/31 02.02.02	0.7 0.2	N/A	N/A
Range Rover Sport Vehicles – VIN Range 6A900109 to 6A956539						
B036	**Q**	Module upgrades	86.90.89/31	0.7	N/A	N/A
B036	**R**	Module upgrades Drive in/drive out	86.90.89/31 02.02.02	0.7 0.2	N/A	N/A

Normal warranty policy and procedures apply.

REPAIR PROCEDURE

CONTROL MODULE TECHNOLOGY UPGRADE PROCESS

LR3 (LA)	**VIN 5A000259 to 6A390949**
Range Rover Sport (LS)	**VIN 6A900109 to 6A956539**

NOTE: When updating the transmission control module software, the transmission oil temperature should be within the recommended value between -55°C (-67°F) and 80°C (176°F).

NOTE: Previous patch file versions should be installed in sequence one at a time before the latest version.

1. If WDS has previously had the patch file (WDS CD13 - Patch File 5 or later) installed, go to step 6.

NOTE: The software patch installation help file provides instructions for the patch file installation process and could take up to 6 minutes to download dependent on connection speed.

2. If the correct Patch Files has not been installed or is unknown, download the WDS/IDS software patch installation help file from GTR as follows:
   - Logon to GTR
   - Select 'Home' from the menu at the top of the main page.
   - From the menus on the left of the page, select 'Diagnostics' as the 'Information Type' and select the relevant model and model year.
   - From the 'All Information' results, select 'Patch Files'.
   - Click the file link 'Patch Process Help File'.

NOTE: The patch file download process could take up to 20 minutes to download dependent on connection speed.

3. Using the help file, follow the instructions to download and install the software patch file into WDS/IDS and ensure WDS/IDS successfully restarts.

CAUTION: Midtronics PSC550 vehicle power supply must be connected to the vehicle battery during diagnosis/module configuration.

CAUTION: The diagnostic lead must be correctly secured and cannot be accidentally disconnected during software update.

4. Connect the Midtronics PSC550 vehicle power supply device and the diagnostic equipment to the vehicle.
5. Begin a WDS/IDS session.
6. Follow the on-screen prompts and enter the vehicle VIN.
7. Wait while the vehicle configuration file (CCF) uploads.
8. Select the 'Vehicle Configuration' tab and select 'Module Programming' from the menu.
9. Select 'Configure Existing Modules'.
10. Navigate to the bottom of the existing module list and select "Reassurance Programme" to display the submenu of specific modules for this campaign.

NOTE: When "Reassurance Programme" is selected, a list of control units will appear that are to be programmed as part of this procedure. Each of these control units must be programmed in sequence to complete the requirements of Service Action B036.

11. Refer to the attached "**Reassurance Programme Form**". Select and program the modules in the order shown on the Reassurance Program sub-menu.
12. While waiting for the software upgrade processes to complete, perform the following:
    - Inspect E-Box sealing grommet on LR3 vehicles between VIN 5A000259 and 6A390949:
        - Open the hood and install fender protection covers.
        - Inspect the E-Box grommet for proper location and seal. (Figure 2)
        - If located correctly, no further action is required.
        - If repair is required **wait** until downloads are complete.
    - Perform "**Upper Tailgate Support Ball Stud Rattle Repair**" below on LR3 vehicles between VIN 5A000259 and 6A374836.
13. When downloads are complete, exit the WDS/IDS session and disconnect the diagnostic equipment from the vehicle.

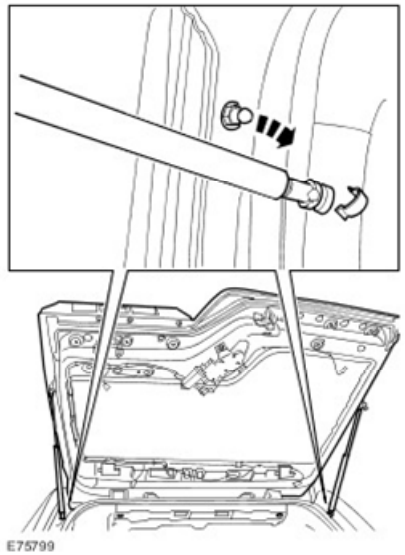
UPPER TAILGATE SUPPORT BALL STUD RATTLE REPAIR

LR3 (LA) **VIN: 5A000259 to 6A374589**

WARNING: Support the upper tailgate before removing the tailgate support.

1. Release the upper tailgate support strut from the D-pillar ball stud. (Figure 1)
2. Remove the ball stud assembly from the body.
3. Apply liquid thread-lock (STC50552/Loctite 242) to the ball spigot thread.
4. Install the ball spigot.
5. Tighten to **23Nm (17 lbf.ft)**.
6. Install the upper tailgate support.

Figure 1



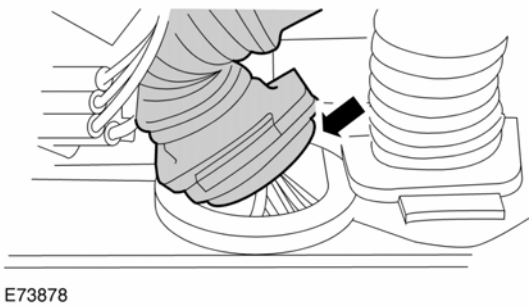
ENVIRONMENTAL BOX (E-BOX) SEALING GROMMET

LR3 (LA) **VIN: 5A000259 to 6A390949**

CAUTION: the software download must be completed and WDS/IDS disconnected before undertaking this repair. Always observe Workshop Manual precautions when disconnecting the battery.

1. If the E-box grommet was determined to not be located correctly during the inspection above, perform the following:
    - Disconnect and remove the battery for access.
    - Install the grommet. (Figure 2)
    - Install the battery and connect battery leads.
2. Remove fender protection covers, and close the hood.

Figure 2



SOFTWARE UPDATE INSTRUCTIONS

CAUTION: The CCF must be uploaded from the vehicle successfully at session start to avoid problems during programming. If this is not possible, programming the vehicle SHOULD NOT CONTINUE until the CCF issue has been resolved.

NOTE: When each module is selected for programming from within this reassurance menu, the tester WILL NOT read the vehicle CCF just prior to the module software selection and download as it now does for all other programming procedures.

1. Verify that the CCF data was successfully read from the vehicle.
2. Select the Control Modules to be programmed in sequence:
   - Engine Control Module: (Petrol PCM)
   - Heating and Ventilation Control Module: (HVAC)
   - Instrument Pack: (IPK)
   - Ride Level Control Module: (RLM)
   - Transfer Case Control Module: (TCCM)
   - Transmission Control Module: (TCM)
3. When each module has completed its program cycle, record the programming in the appropriate box on the **record keeping page**.

NOTE: After successfully programming the Ride Level Control Module, the Reassurance Program sequence DOES *NOT* request a ride height calibration. This unique behavior is not an error but a time saving feature. The software is functioning correctly for this specific programming condition.

4. Return to the "Reassurance Program" menu and select the next listed control unit in turn and complete the programming of each one in sequence.
5. When the download of software to each module is completed, follow the WDS routine process to clear all fault codes.

NOTE: Two module programming messages may appear during the tune download processes associated with the Reassurance Programme. WDS may fail to complete the task and displays generic error messages: "application failed" and "software not available".

6. If the failure messages "application failed" or "software not available" appear, use the WDS debug monitor trace. (Refer to **Trace Procedure** attachment)
7. Send the completed monitor trace to the Land Rover Technical HelpLine (**lrhelp@landrover.com**) and contact the HelpLine for assistance.

RECORD KEEPING

DATE: _____

VIN: _____

CUSTOMER: _____

Control Unit to be Programmed	LA/LS
Engine Control Module: (Petrol PCM)	☐
Heating and Ventilation Control Module: (HVAC)	☐
Instrument Pack: (IPK)	☐
Ride Level Control Module: (RLM)	☐
Transfer Case Control Module: (TCCM)	☐
Transmission Control Module: (TCM)	☐

NOTES: _____

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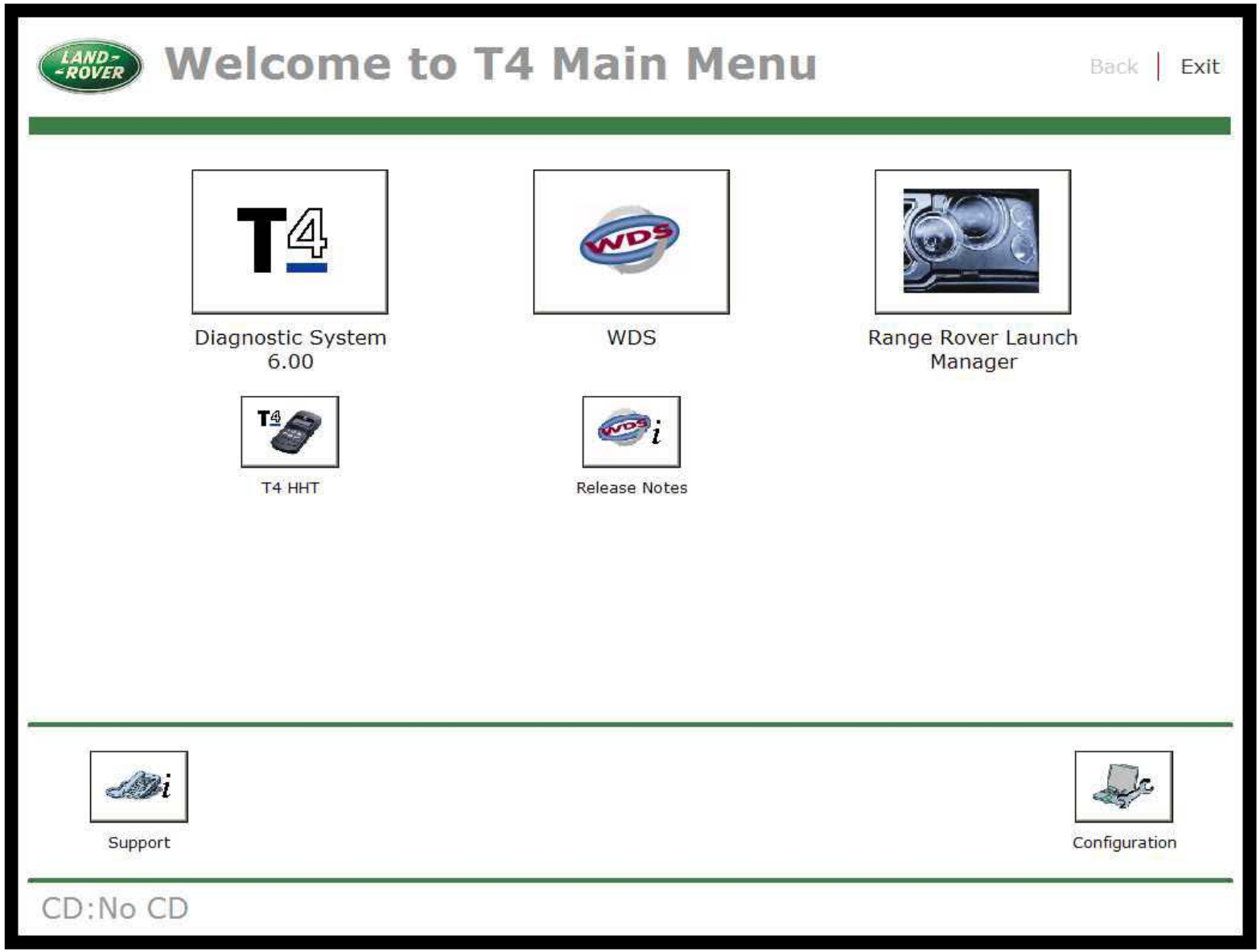
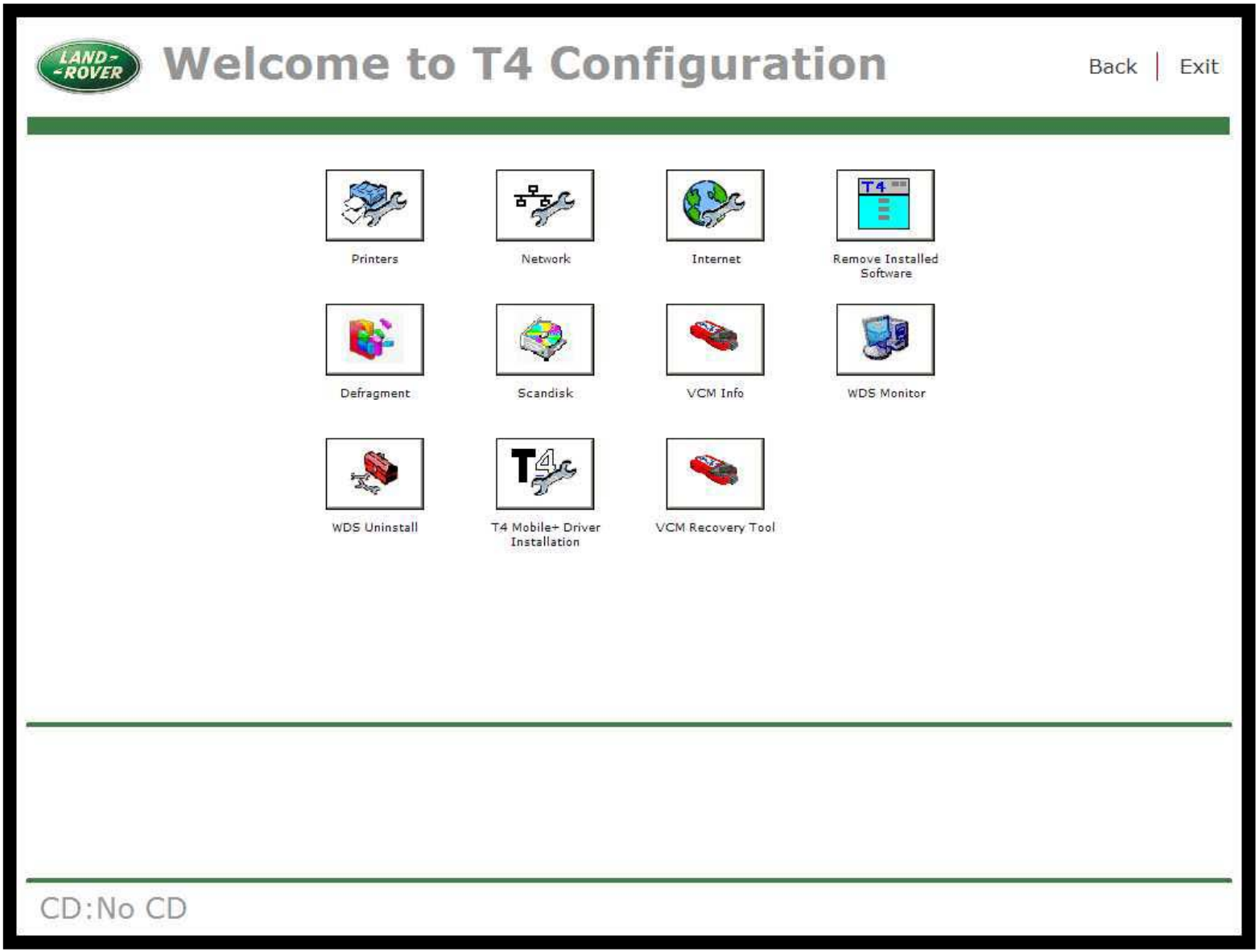
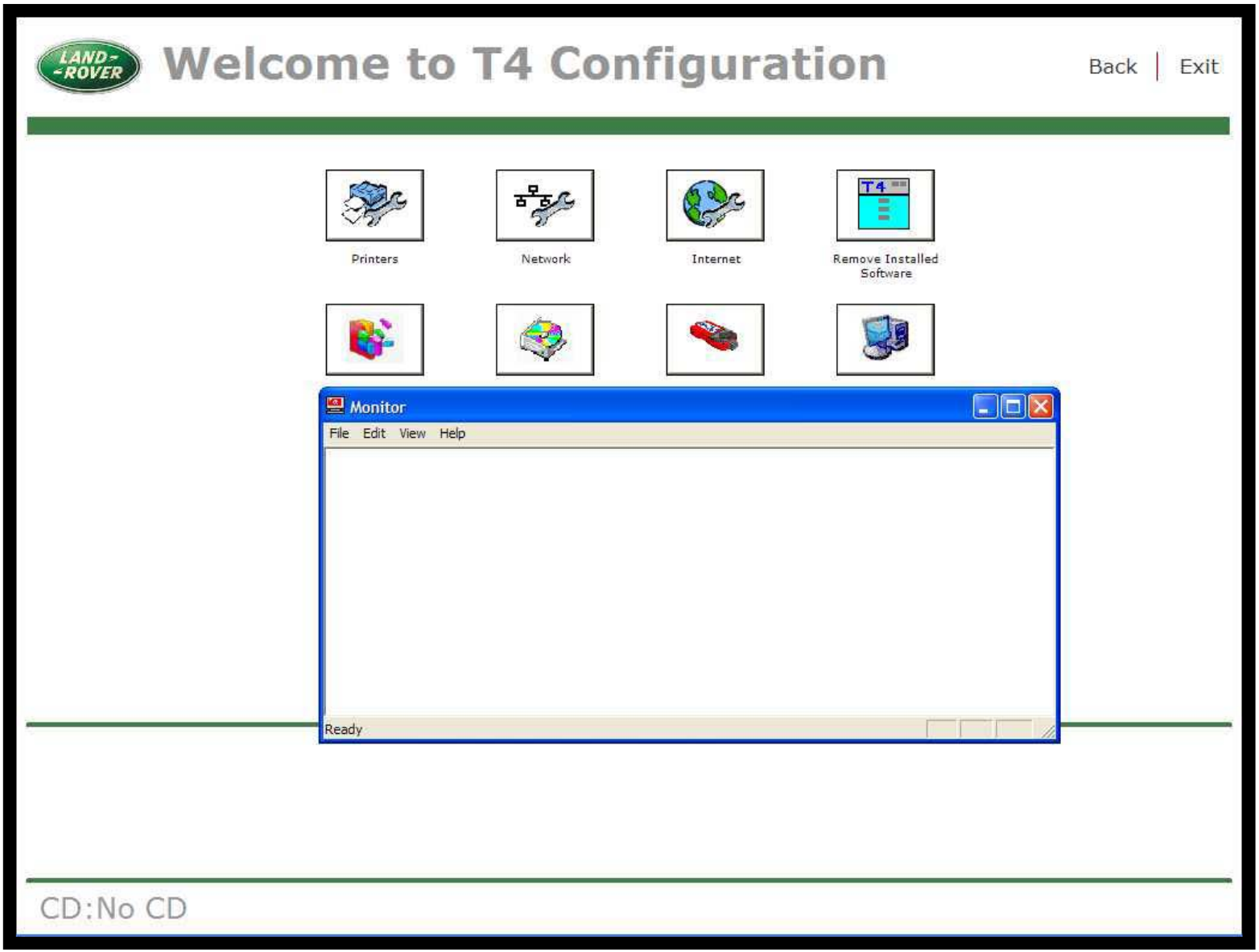
HOW TO RUN...
"MONITOR TRACE"



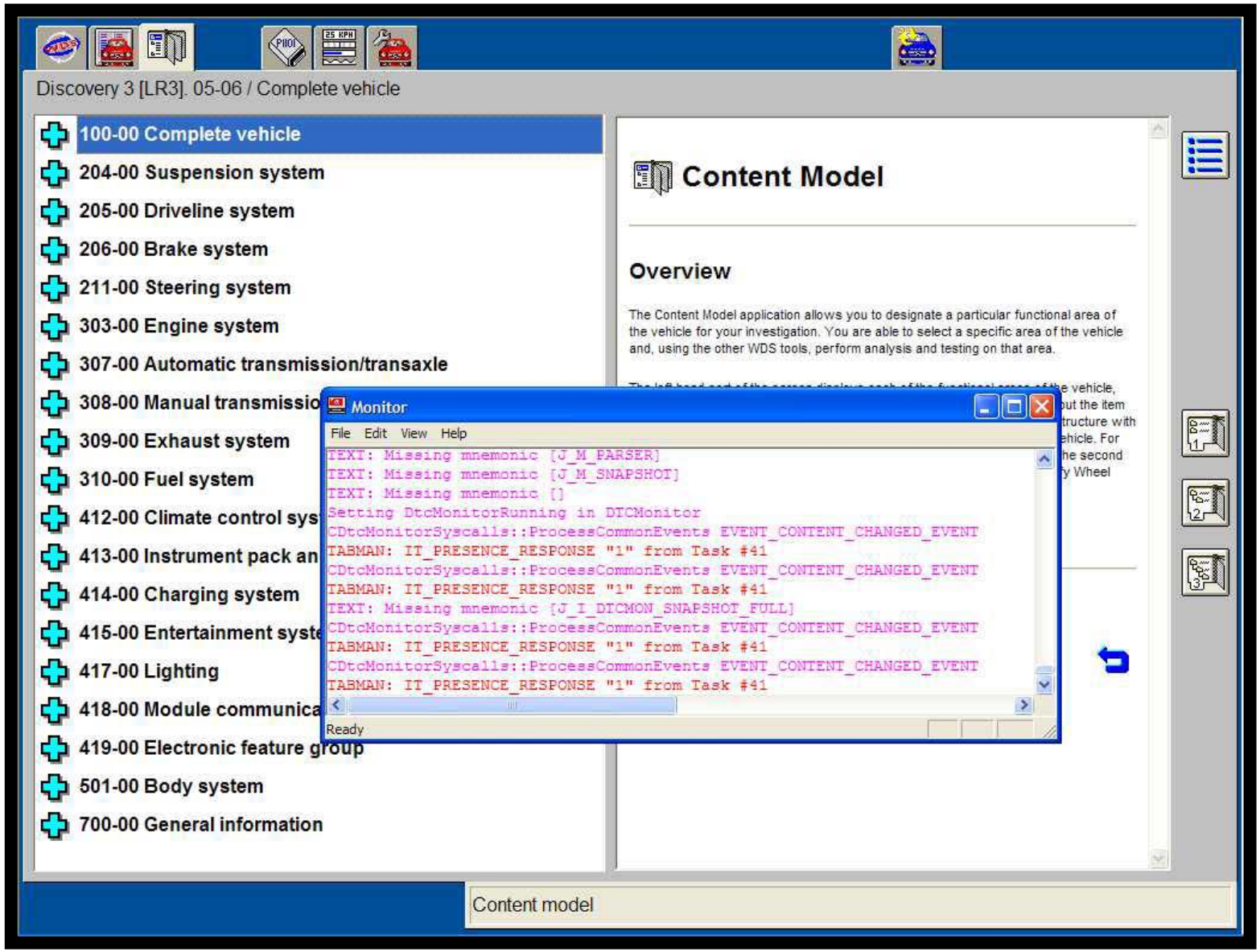
Select ‘Configuration’ from the bottom RH side of the screen



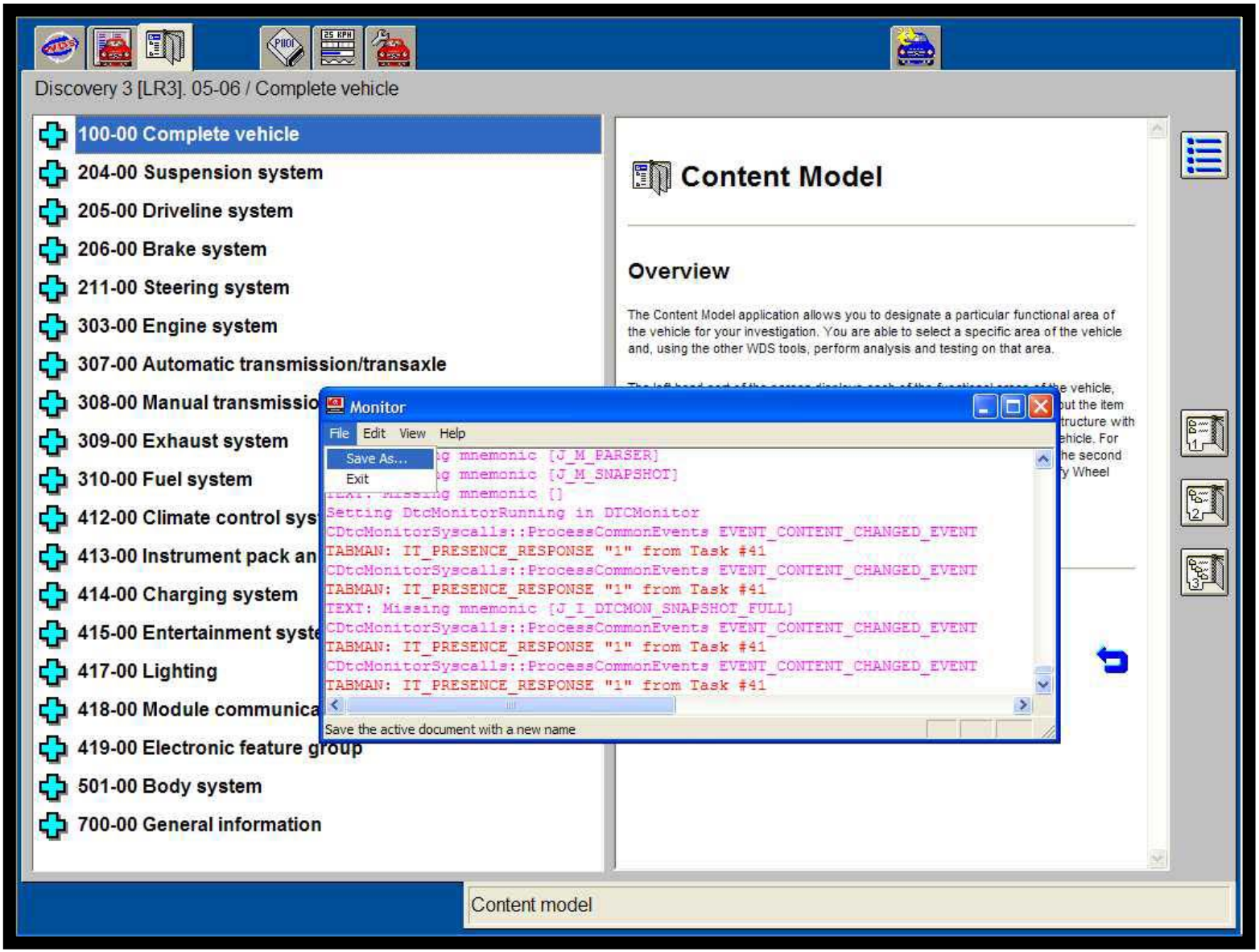
Select ‘WDS Monitor’ this will launch Monitor Trace



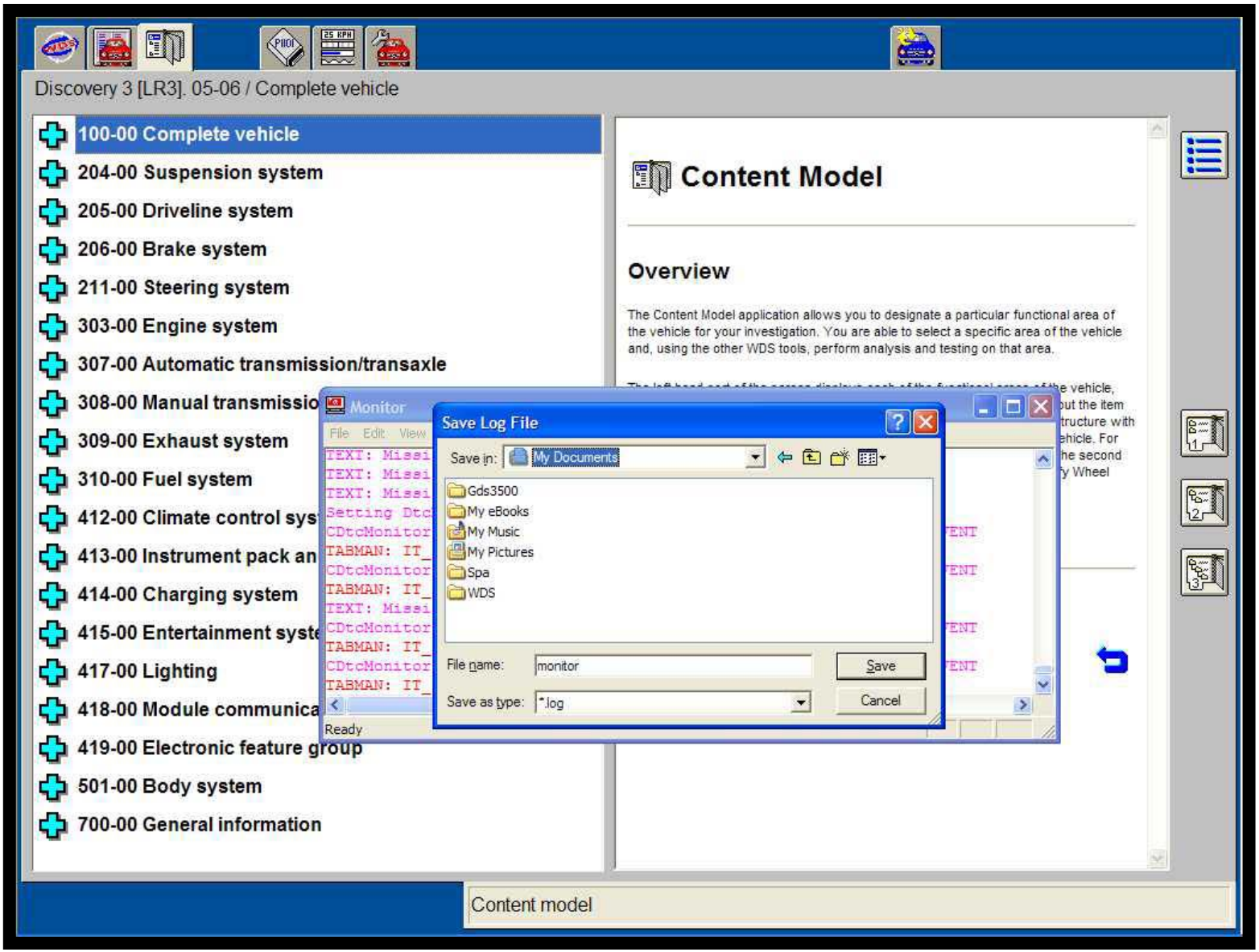
Monitor Trace has now been launched. Run the procedure in WDS.



Press ‘Alt + Tab’ until Monitor Trace is displayed



Select ‘File’ and then ‘Save as’



Select the location and file name to save the trace. Email the file to the Technical HelpLine (lrhelp@ford.com)