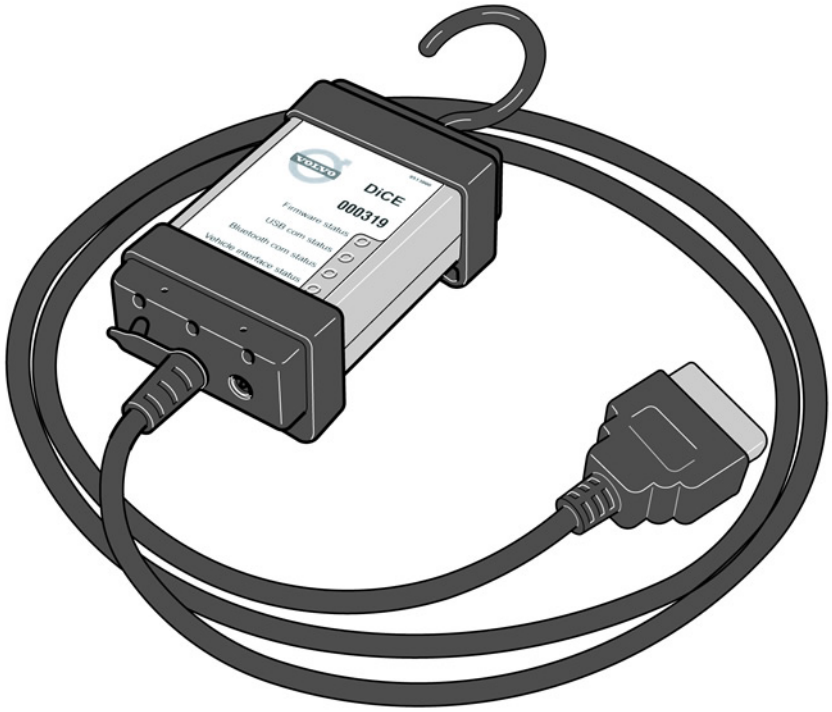
volvo vida dice User Manual

Contents

1 Introduction

DiCE – Diagnostic Communication Equipment, is a tool that is used together with VIDA All-in-one to communicate with the vehicle. Communication makes diagnosing and troubleshooting the vehicle possible, as well as the downloading of software.

DiCE uses Bluetooth to transfer information wirelessly between the vehicle and VIDA All-in-one. This gives the mechanics more flexibility. An USB cable can be used as an alternative to Bluetooth.



1.1 Support

For support, use TIE template, DiCE under VIDA/Communication Tools in Service Product Report or contact your local VCC Helpdesk.

1.2 Components

DiCE has an integrated CARB cable, which is connected to the vehicle's diagnostic socket. When connecting to the vehicle, DiCE is powered as long as the battery is charged.

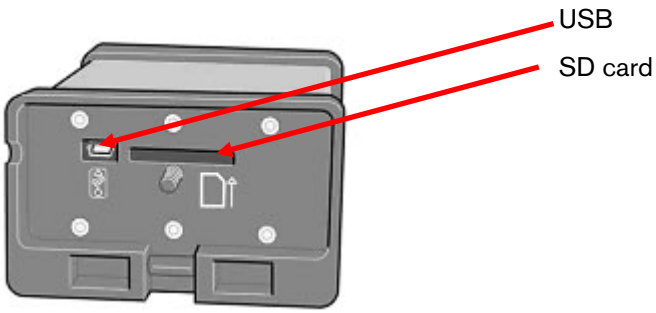
DiCE has a folding hook that is designed for hanging the unit from one of the grab handles in the vehicle for example. When DiCE hangs visibly, Bluetooth reception is optimized and it is also visible to the mechanic.

DiCE is equipped with four status LEDs (Light Emission Diode) that indicate the status of the software, the USB and Bluetooth communication and the interface to the car.

At one end of the unit, there is a DC input where a battery cable or adapter (12 V) can be connected. The adapter is used when upgrading and troubleshooting the DiCE.

In the other end of the unit there is a removable cover that could be removed by turning the screw on the cover, se picture below.

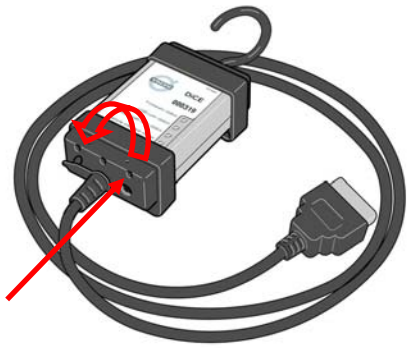
The inputs for USB and memory card[1] are located here.



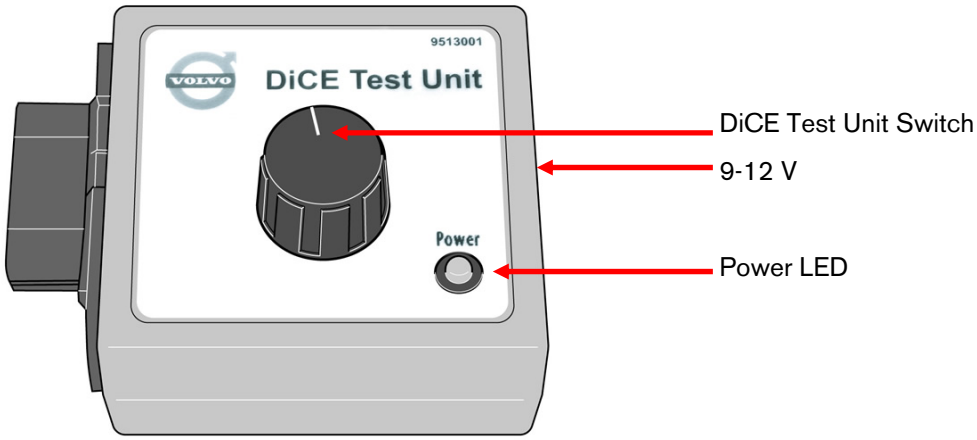
In order to communicate with DiCE wirelessly, the VIDA client must also be equipped with Bluetooth. Supported adapter for DiCE is Ezurios USB-to-Bluetooth-adapter, which is connected via the computer's USB port.

When upgrading DiCE, a USB cable must be used. DiCE supports USB 2.0.

12 V DC



[1] Memory card (Secure Digital) will be used with Volvo Can Recorder, which will be launched in 2007.



DiCE Test Unit is used when performing DiCE Full Test.

1.3 Range

1.3.1 Product

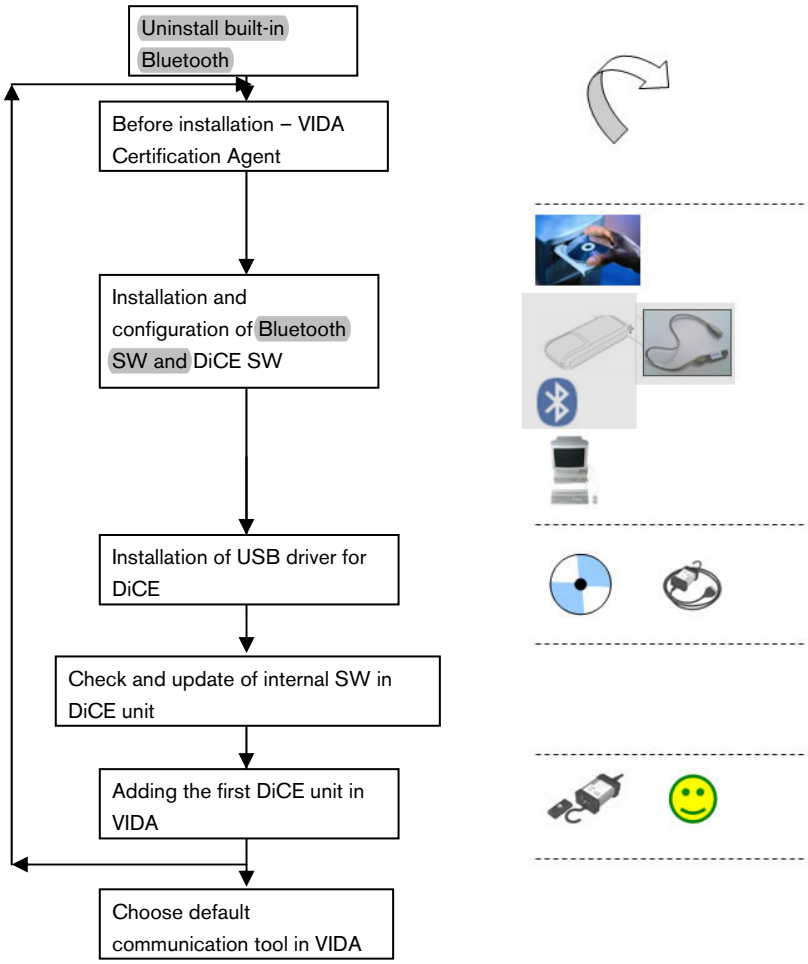
Name	Purpose
DiCE, with integrated OBD cable	
DiCE Test Unit	Used for troubleshooting DiCE.
USB cable, 5 meters (16 feet)	Used for Vehicle communication, if Bluetooth is not used.
USB cable, 1 meter (3 feet)	Used when installing and updating DiCE software.
Battery cable	Used for troubleshooting and updating software for DiCE.
Bluetooth adapter	Used for wireless Vehicle communication.
USB extension cable 2 meters (7 feet)	Used as an extension for Bluetooth adapter.
USB extension cable 0.5 meter (2 feet)	Used as an extension for Bluetooth adapter.

1.3.2 Replacement parts

Name	Purpose
DiCE, with integrated OBD cable	

2 Getting started

2.1 Procedure Flowchart



2.2 Uninstall built-in Bluetooth

If you have built-in Bluetooth in your PC or Toughbook it has to be uninstalled first. For more information, contact your Sales Company regarding Panasonic 28 or 29. Otherwise contact your retailer.

2.3 Before installation – VIDA Certification Agent

Before installing DICE or Bluetooth the VIDA Certification Agent program should be run. This program checks that the computer meets the required specifications for VIDA All-in-one.

To run VIDA Certification Agent you must be logged in as administrator.

VIDA Certification Agent reports if the specifications are met, gives warnings for anything between the minimum and recommended specification and an error message for anything that does not meet the specifications.

Faults must be remedied or computers changed before installation, because VIDA All-in-one cannot be installed on a computer which does not meet the specifications.

The VIDA Certification Agent can be downloaded from TIE. The program can also be obtained from the local sales company.

VIDA Certification Agent is also run automatically as a part of the VIDA installation program. By running the program before installation it is easier to determine whether the computer can be used for VIDA or not.

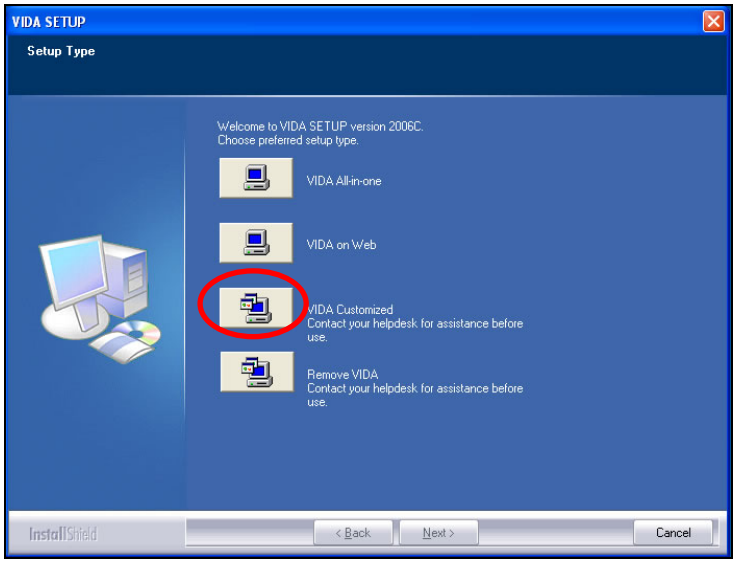
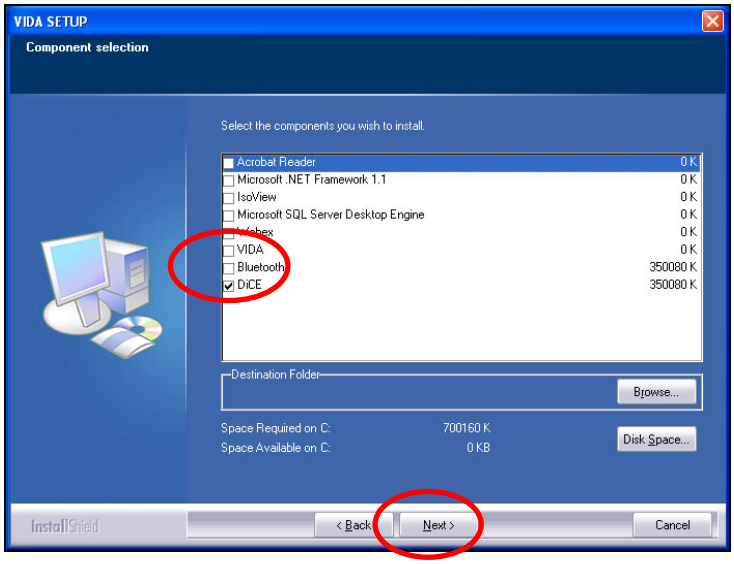
2.4 Installation and configuration of Bluetooth software and DiCE software

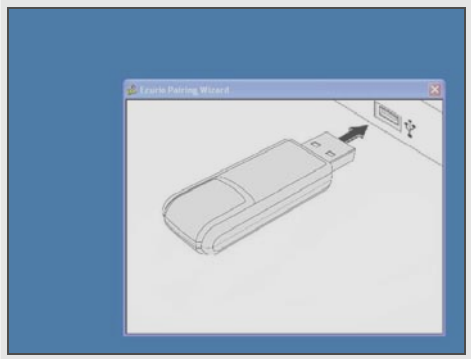
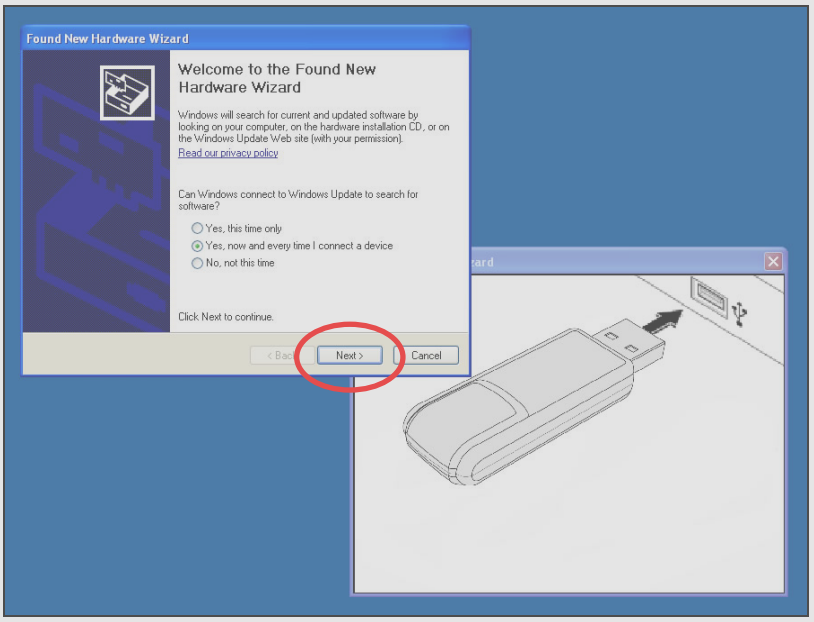
VIDA All-in-one has to be correctly installed before starting installation of DiCE and software for Bluetooth. Installation of software for DiCE and Bluetooth is carried out from a VIDA DVD.

Follow the instructions carefully.

NOTE! Do not insert the Bluetooth USB adapter until the installation program requests it.

NOTE! Close all other programmes before starting.

Step	Description	Illustration
1	**Insert VIDA 2006C+ installation disc.** Click on VIDA CUSTOMIZED.	
2	**Select installation of Bluetooth and DiCE** Only tick the Bluetooth and DiCE check boxes. Click on NEXT. **NOTE!** Only Ezurios Bluetooth adapter is supported during the pilot phase.	
		Continued in next page

Step	Description	Illustration
3	**The installation starts** This might take up to 5 minutes.	
4	**Insert the Bluetooth USB adapter in a USB port** in your computer when a moving imiage tells so. **NOTE!** The Bluetooth adapter which is included within the DiCE installation kit will be displayed by a different type of picture during installation, as shown in the pictures.	 
5	**If the computer is connected to a network, a dialog will appear.** Choose “Yes, now and every time I connect a device”. Click on NEXT.	
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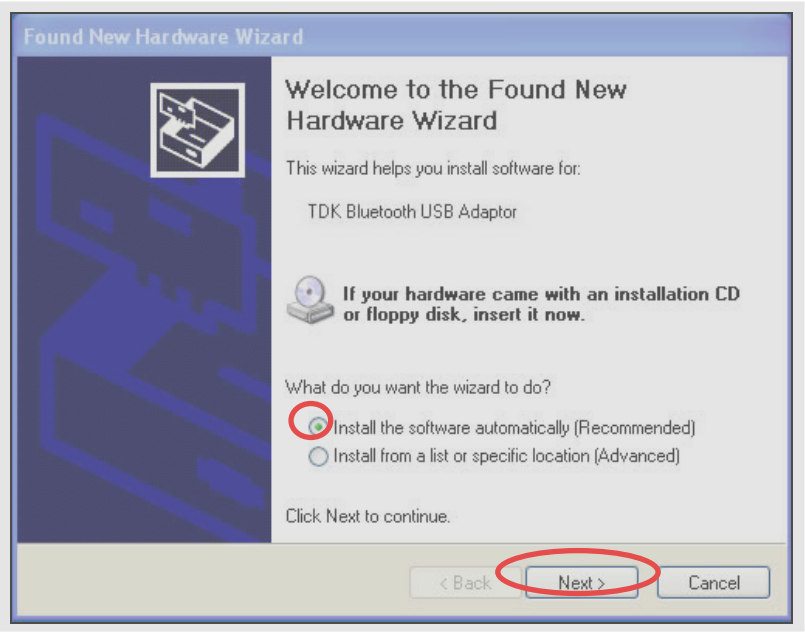
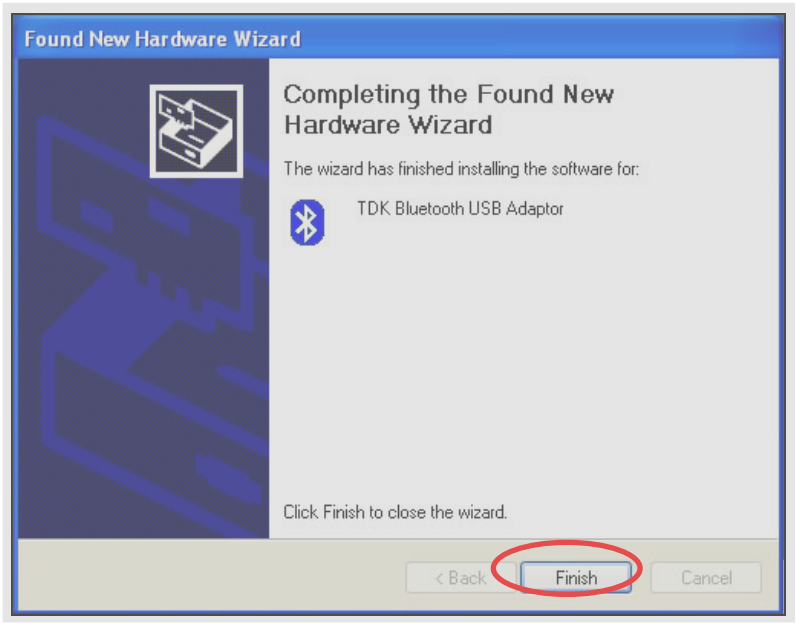
Step	Description	Illustration
6	**Install the software in the adapter.** In the next window, select to install software automatically. Click on NEXT.	
7	**Finish the installation.** Click on FINISH to finish the installation.	
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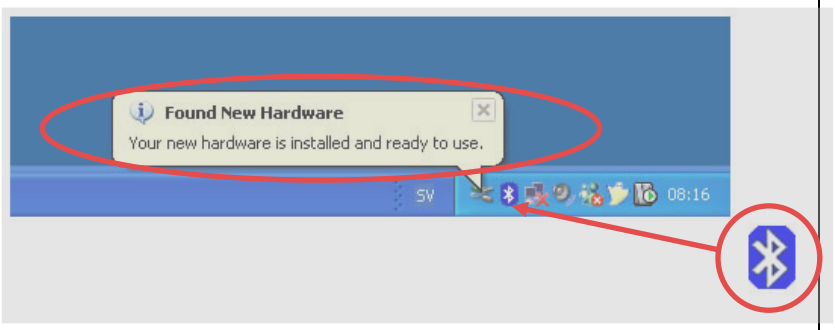
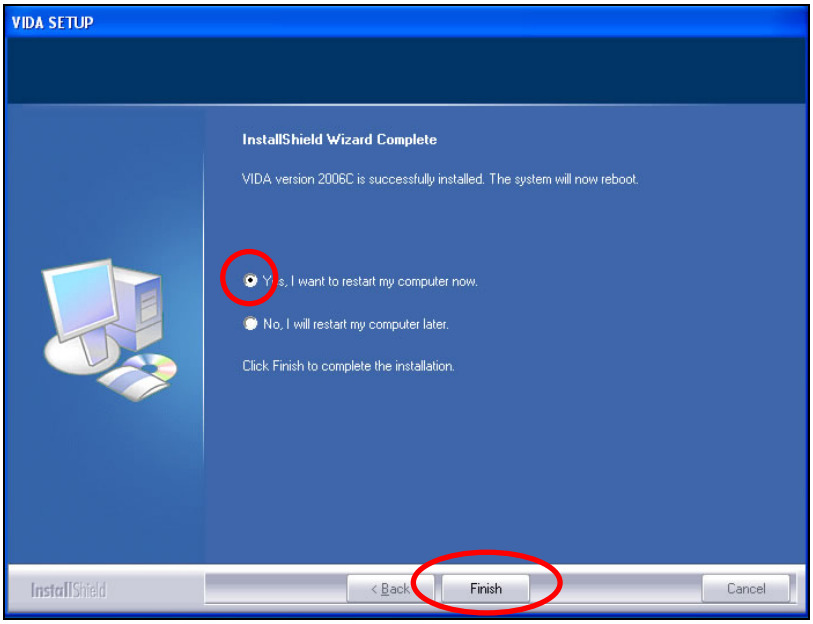
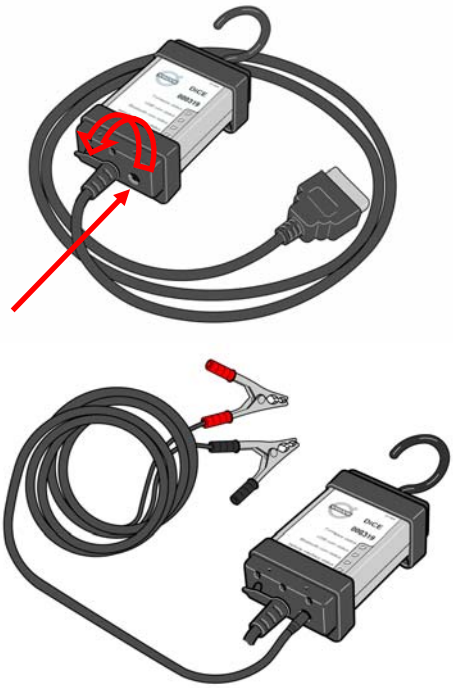
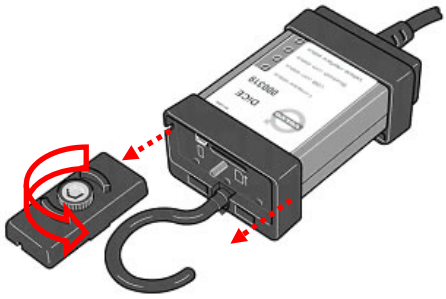
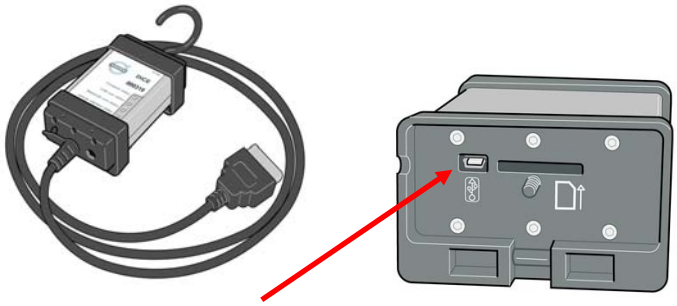
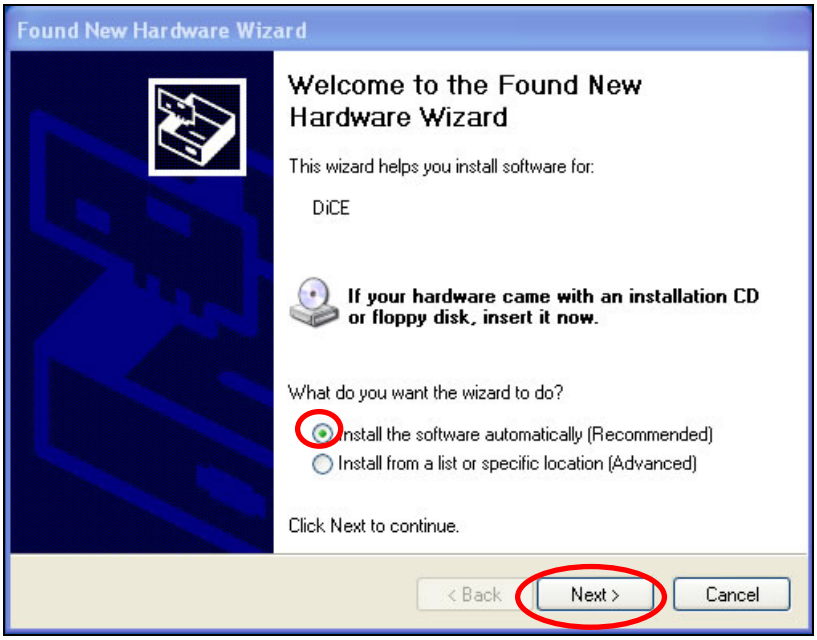
Step	Description	Illustration
8	**Complete the installation** The icon for Bluetooth, shown in the status bar, changes color from red on blue to white on blue as illustrated in the picture. The Bluetooth icon will be blue on white as long as the Bluetooth interface is active. **NOTE!** It is very important that the icon changes color to white on blue before next step. The color change might take several minutes. Some PC configurations e.g. Ford Global Client need to be reboted before this icon is shown.	
9	**Restart the computer**	

2.5 Installation of USB driver for DiCE

For each new or additional DiCE unit that is going to be used in VIDA, the USB driver must be installed separately. This is done automatically in Windows when the DiCE unit is inserted into an USB port. Carry out the instructions below.

Step	Description	Illustration
1	**Power up and connect DiCE to a PC via USB** 1. Power up the DiCE unit by connecting 12 V DC to the AD input on the DiCE unit, se picture to the right. Use a cable with part number 9513004 connected to the vehicle battery.	
	2. Remove the cover of the DiCE unit by turning the screw on the cover.	
	3. Connect the short USB cable to the DiCE unit. This cable is included in the DiCE Pilot Kit.	
		Continued in next page

Step	Description	Illustration
	4. Connect the USB cable to a free USB port in the computer. **NOTE!** Pull out the Bluetooth adapter cable temporarily if there is only one USB port in the computer.	
	5. The window shown in the picture opens automatically in Windows. **NOTE!** This might take several minutes. 6. Choose “Install the software automatically”. 7. Click on NEXT.	
2	**Finish the DiCE installation of USB driver.** Click on FINISH. The installation of the USB driver for this DiCE unit is completed.	

2.6 Check and update of internal software in DiCE unit

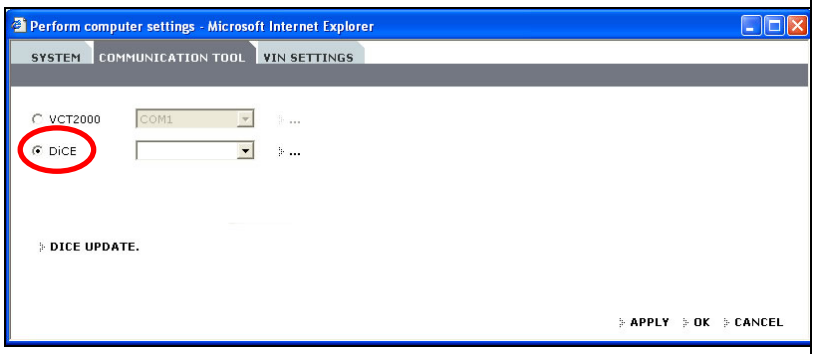
Check if there is a new version of the Firmware available.

Update software in DiCE.

Update of the internal software (also called Firmware) in a DiCE unit is done via VIDA All-in-one. This assumes that step 2.5 installation of USB driver for DiCE has been performed for the DiCE unit.

The DiCE unit shall be connected with a USB cable and 12 V feed. Ensure that the Firmware status LED is flashing green.

USB is a safer data transmission than Bluetooth. Safe transmission is important when updating software. The user interface for updating software is available in English only.

Step	Description	Illustration
1	**Connecting DiCE** 1. Connect 12 V voltage feed via the 12 V DC, p/n 9513004. 2. Connect the DiCE unit via a USB cable to the computer, see section 2.5.	 
2	**Choose DiCE unit in VIDA** 1. Click on PERFORM COMPUTER SETTINGS in VIDA and then on the COMMUNICATION TOOL tab. **NOTE!** Do NOT click on the dots. 2. Click on DiCE UPDATE. The Firmware Update window is opened.	
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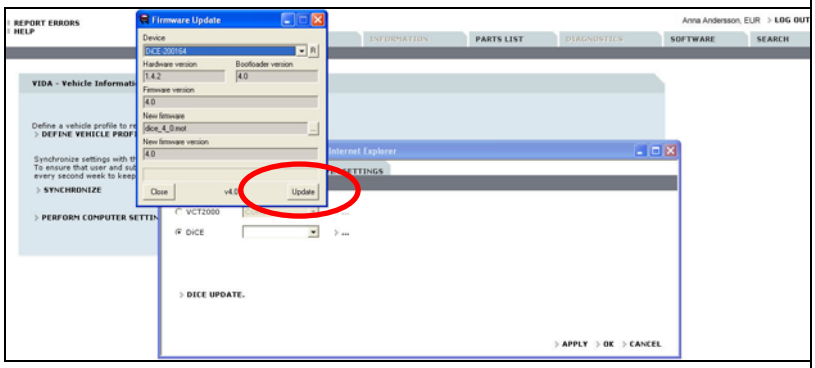
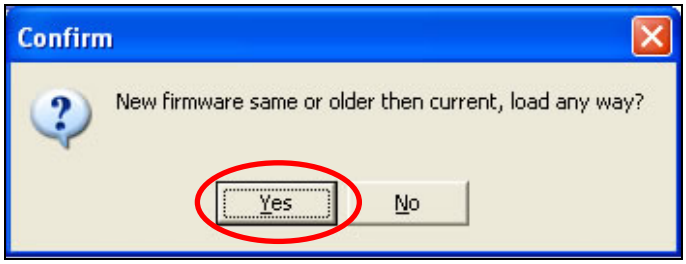
Step	Description	Illustration
3	**Updating the DiCE unit software** 1. Ensure that the correct DiCE unit and software, "New Firmware file", are chosen in the Firmware Update window. The required Firmware file will be communicated separately. The first time DiCE are installed on a computer, the Firmware file must be found.It is located at C:\Program Files\DiCE\Tools\DiCE_x_x.mot 2. Click on UPDATE. 3. The update takes about one minute. The question to the right might be shown if the DiCE unit already has the latest version of the software. In this case the unit could be updated anyway by answering YES to the question. 4. Close the Firmware Update application tool by clicking on CLOSE. 5. If this fails, please power off and power on the DiCE again and retry. 6. When the update is finished, the text “Device update OK” is viewed.	 
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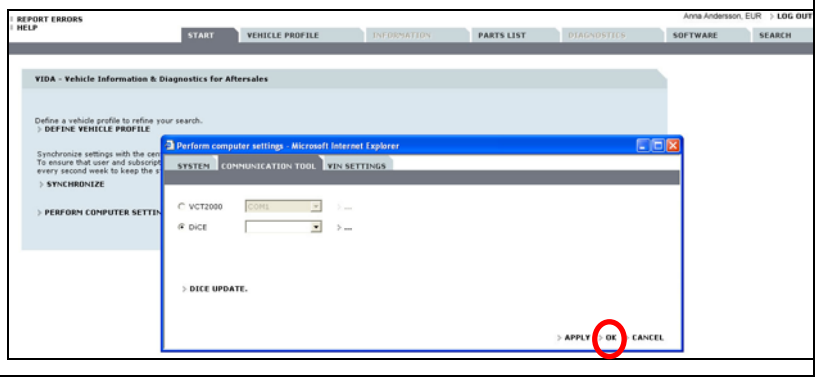
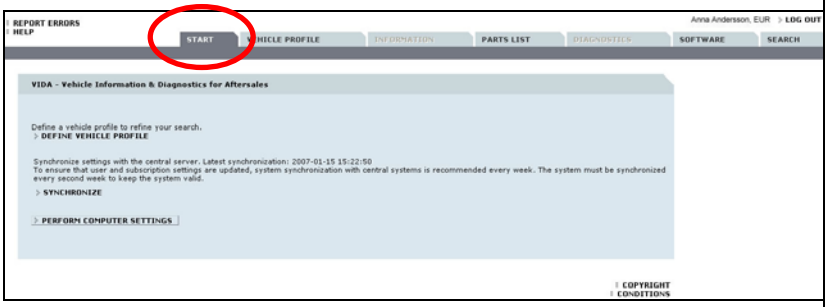
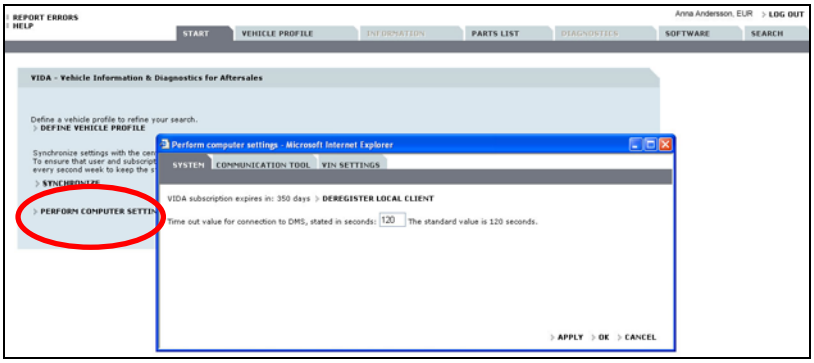
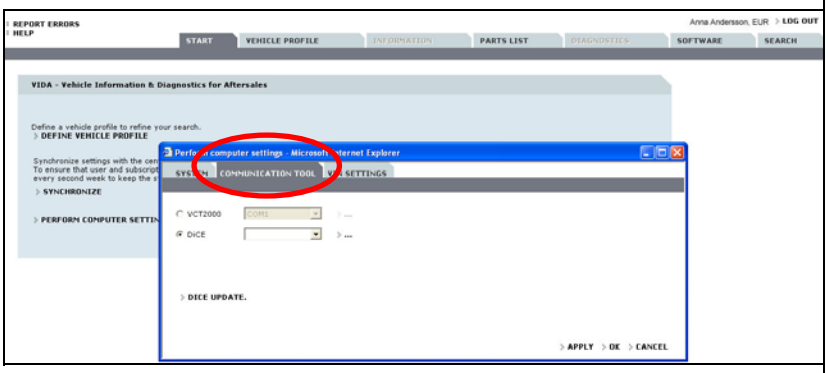
Step	Description	Illustration
4	Close the PERFORM COMPUTER SETTINGS window by clicking on OK.	

2.7 Adding the First DiCE Unit in VIDA

NOTE! Sections 2.4 and 2.5 will be repeated each time a new or additional DiCE unit will be added.

To add a DiCE, carry out the following:

Step	Description	Illustration
1	Start VIDA All-in-one. Choose the START tab.	
2	Click on PERFORM COMPUTER SETTINGS and then the COMMUNICATION TOOL tab.	 
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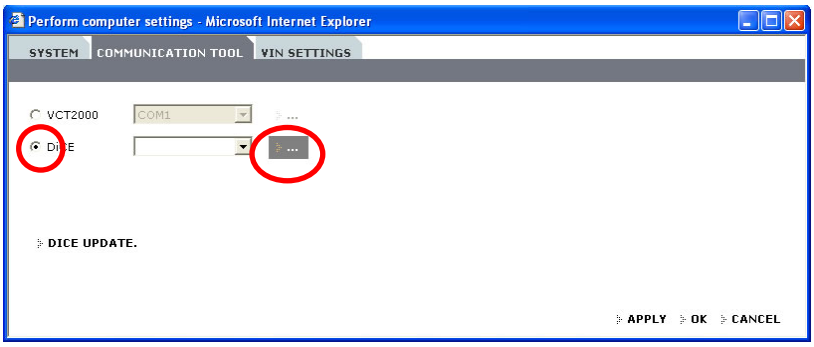
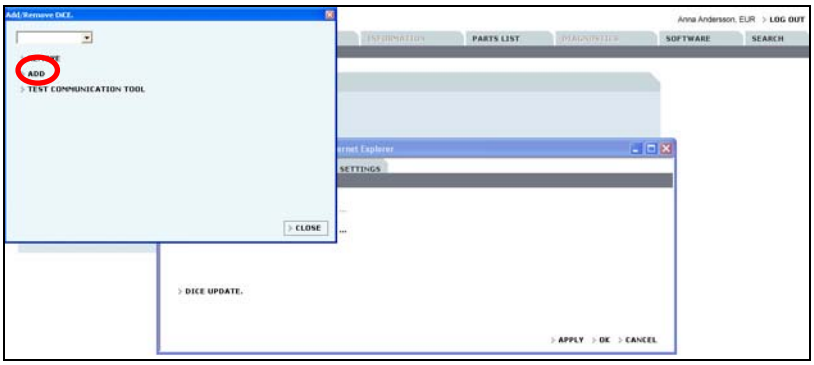
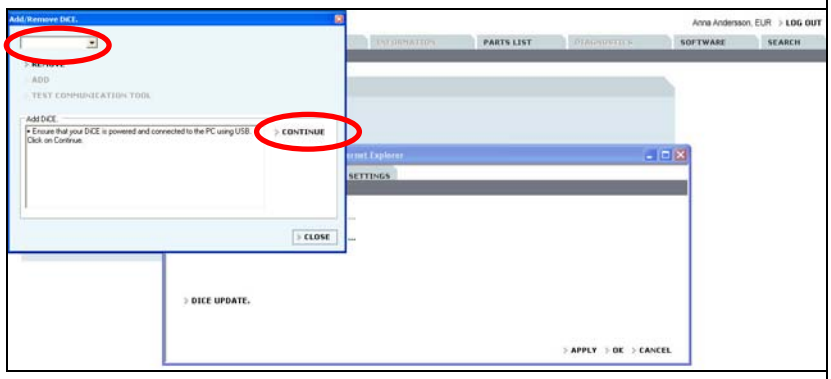
Step	Description	Illustration
3	Click on the DiCE radio button. To add a DiCE, click on the button with three dots (…) to the right of the DiCE drop-down list.	
4	Click on ADD. If a DiCE is already installed, the window looks different. **NOTE!** If one or more DiCE:s are already configured, this will be shown.	
5	Follow the instructions and click on CONTINUE. VIDA will search for a new DiCE. This will take about 10 seconds. The DiCE ID will be shown in the drop down menu.	
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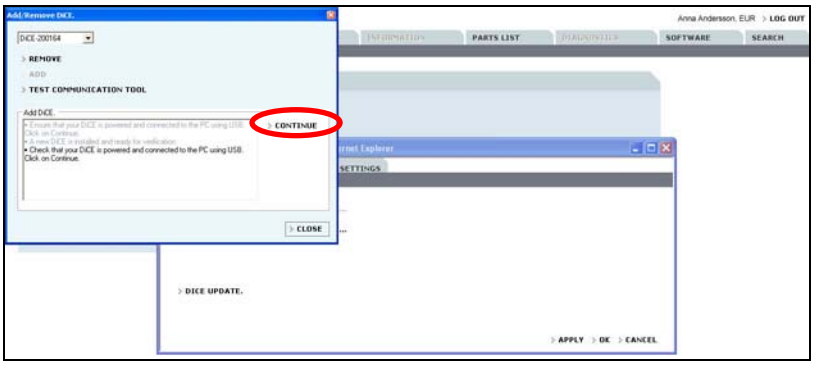
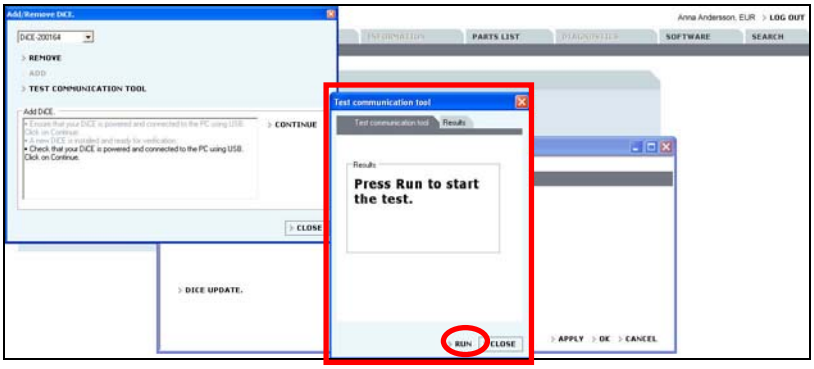
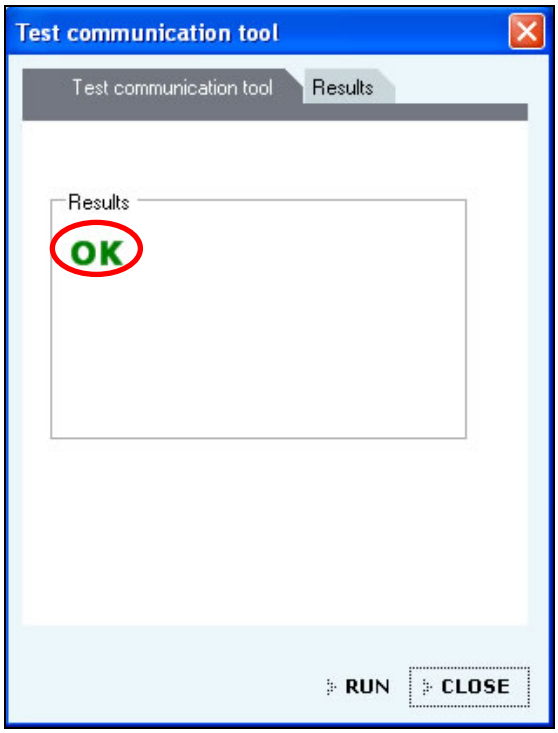
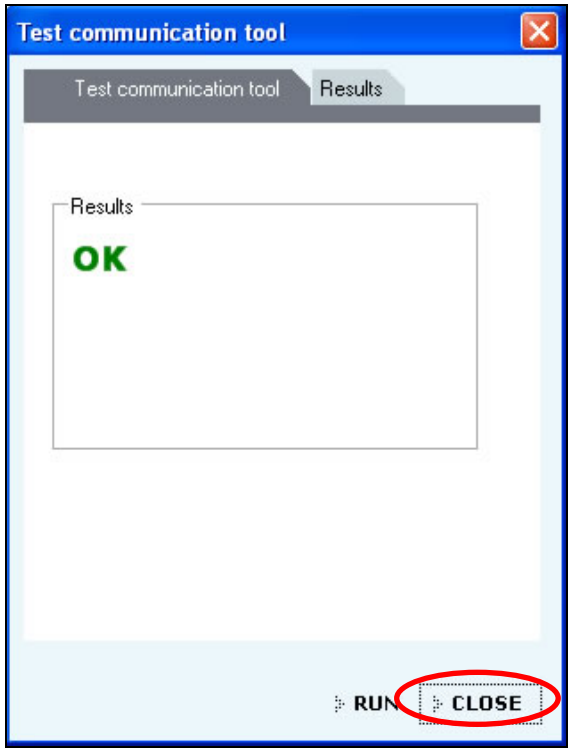
Step	Description	Illustration
6	Only click on CONTINUE to start the test of the USB connection. **NOTE!** Step 7 to and including step 20 are performed to ensure, verify and initiate communication between VIDA and the DiCE unit.	
7	The "Test communication tool" window is opened. Click on RUN to start the test.	
		Continued in next page

Step	Description	Illustration
8	The test result should show OK with green text as shown in the pict.	
9	Click on CLOSE in the "Test communication tool" window. **Note!** Do NOT close the "Add/Remove DICE" window.	
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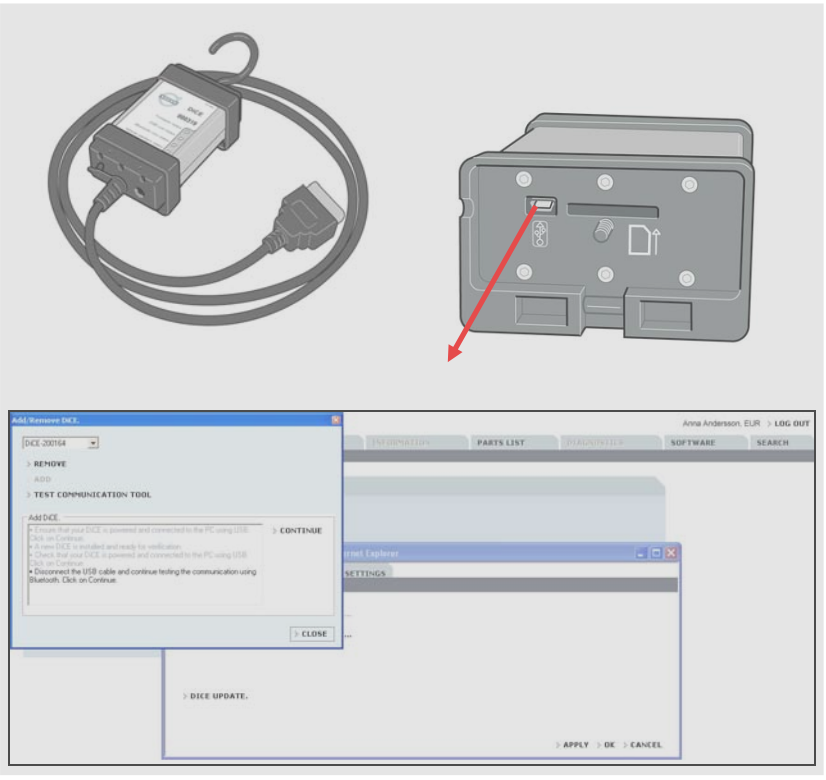
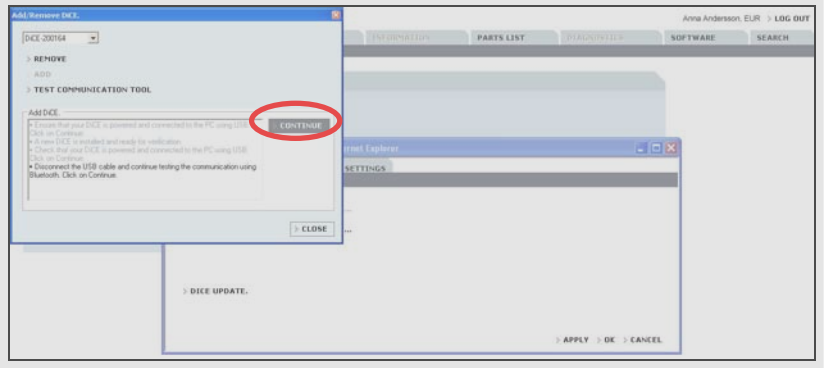
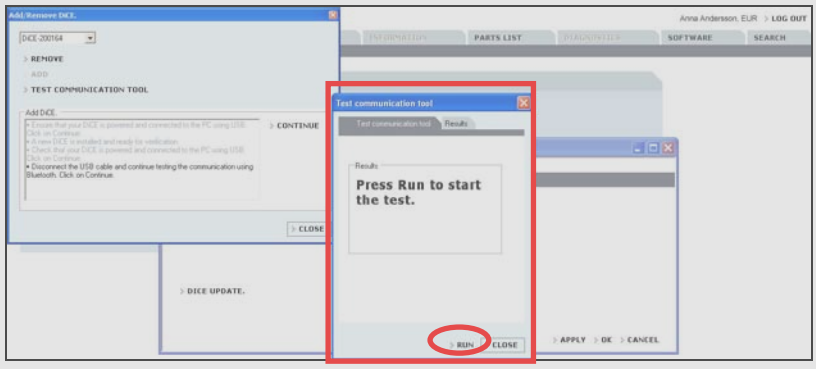
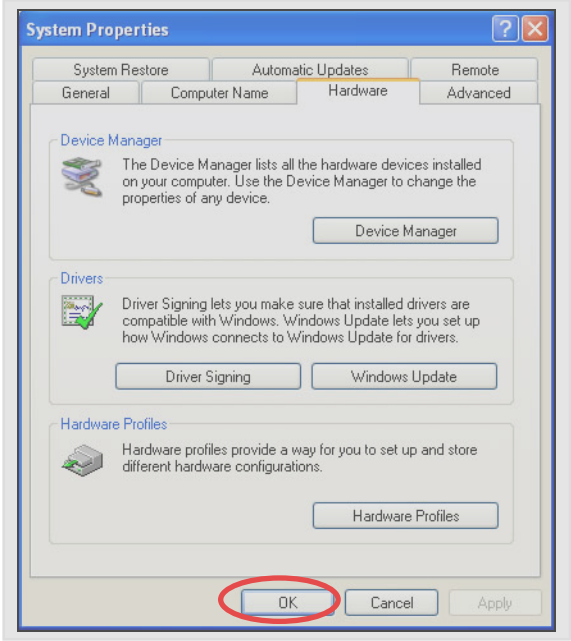
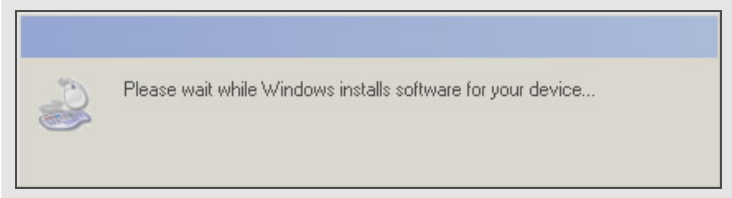
Step	Description	Illustration
10	Remove the USB-cable from the DiCE-unit. Replace the cover. **NOTE** the positioning.	
11	Connect the Bluetooth adapter in a free USB port in the computer, if it is not connected already.	
12	Click on CONTINUE to start the next test, (the Bluetooth connection).	
		Continued in next page

Step	Description	Illustration
13	Click on RUN in the "Test communication tool" window. The Bluetooth connection will be initiated and configured. This will take about one minute.	
14	When DiCE communicates via Bluetooth for the first time, a configuration window is shown for a couple of seconds. If the "System Properties" window is shown, click on OK.	
15	While the configuration of Bluetooth is going on, some windows may flash and a configuration window appears for a few seconds, see picture. These windows will close automatically when the installation is finished.	
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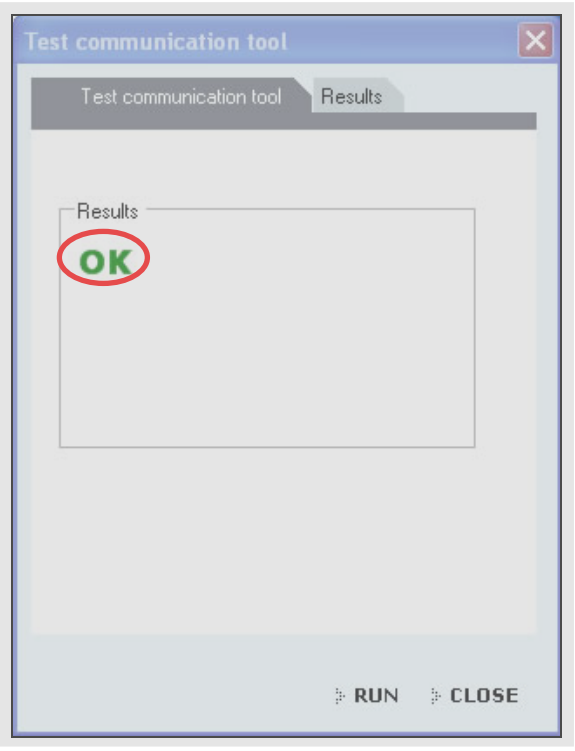
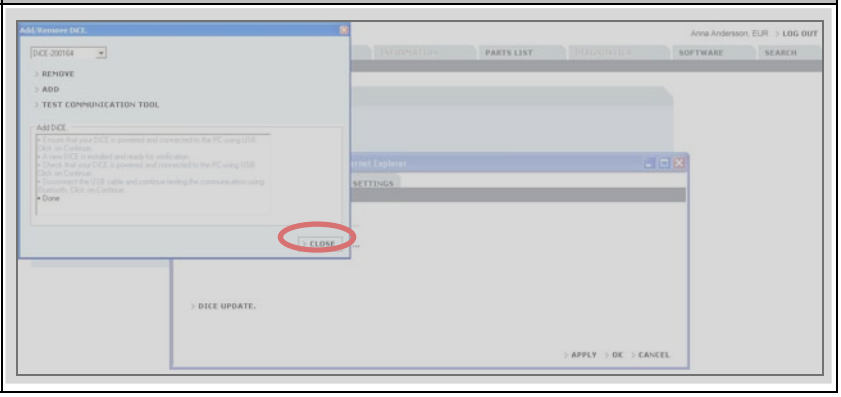
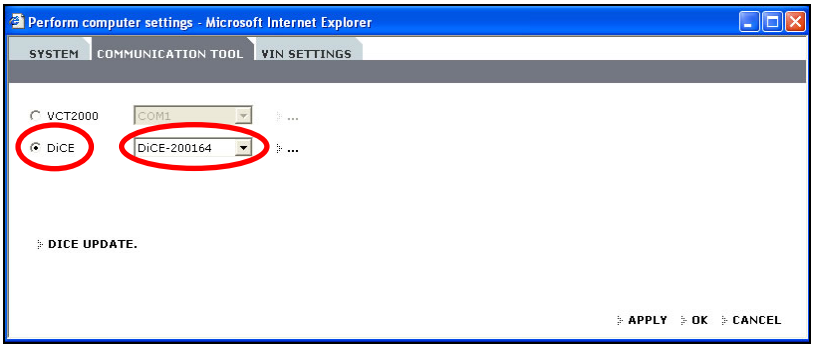
Step	Description	Illustration
16	When the test of the Bluetooth connection is finished, OK is shown with green text as in the picture.	
17	Click on CLOSE in the “Test communication tool” window.	
		Continued in next page

Step	Description	Illustration
18 	Close the window “Add/Remove DiCE” by clicking CLOSE. CONGRATULATIONS! You have successfully managed to install and configure the DiCE.	

The DiCE unit is now configured for both USB and Bluetooth connection at the VIDA client. To use DiCE as default communication tool, see section 2.8.

NOTE! If DiCE is connected with a USB cable, the communication will always go through USB.

2.8 Choose default communication tool in VIDA

Step	Description	Illustration
1	Start VIDA and select the START tab and the COMMUNICATION TOOL tab, if you are not already there.	
2	Select DiCE radio button. Select the DiCE unit you want to use as the default unit from the drop-down list under the COMMUNICATION TOOL tab.	
3	Click on APPLY.	
4	Click on OK.	

2.9 Connecting DiCE to a vehicle

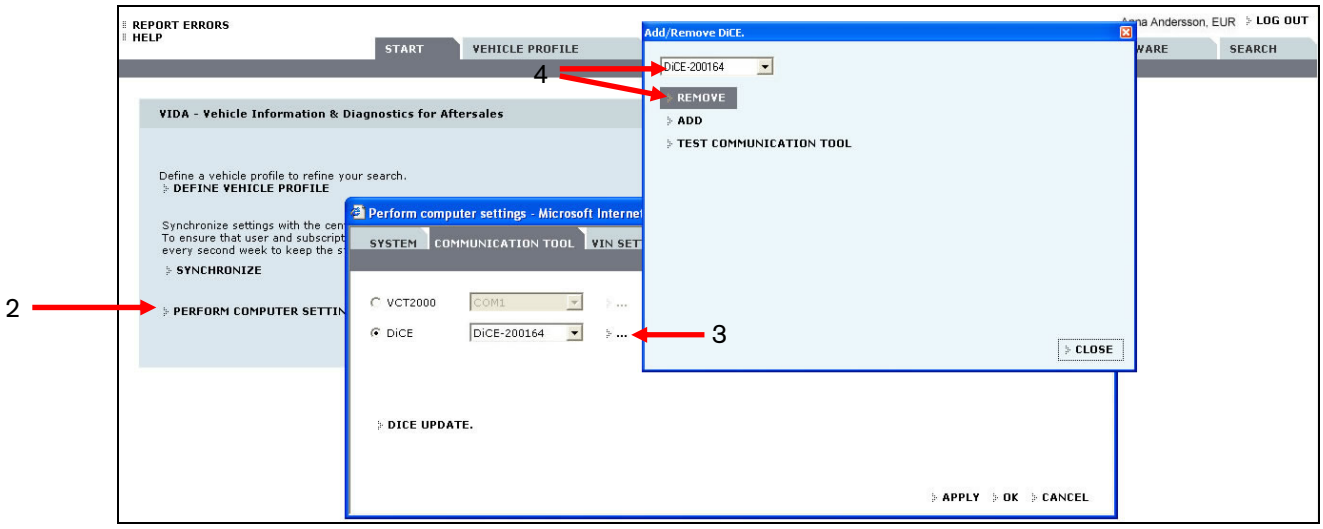
Connecting DiCE to a vehicle is quickly done. Carry out the following:

1. Ensure that the Bluetooth adapter/USB cable is connected to the VIDA client.
2. Always ensure that the vehicle is connected to a battery charger before DiCE is connected to the vehicle. DiCE is powered by the vehicle, not via USB.
3. Connect DiCE to the diagnostic socket in the vehicle. Hang it up visible. Put the ignition key in position II.
4. Start VIDA All-in-one.
5. Ensure that the correct DiCE is chosen in VIDA as in section 2.8 Choose default communication tool in VIDA.
6. Choose the VEHICLE PROFILE tab in VIDA.
7. Click on READ VEHICLE to read the VIN number of the vehicle.

2.10 Removing a DiCE unit

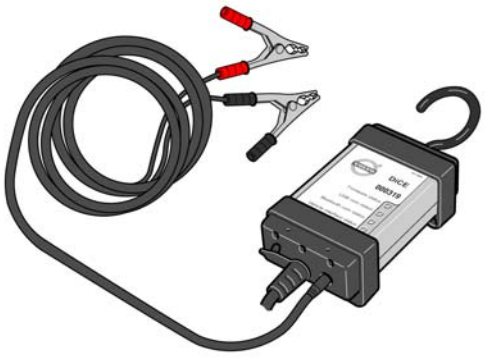
All DiCE units that are installed and added to a VIDA client will become Communication tools that can be selected. To remove a DiCE unit, carry out the following:

1. Start VIDA All-in-one. Select the START tab.
2. Click on PERFORM COMPUTER SETTINGS and then the COMMUNICATION TOOL tab.
3. Click on the dots beside the DiCE option in the drop-down list for communication tool.
4. In the DiCE unit drop-down list, select a DiCE unit to be removed and click on REMOVE.

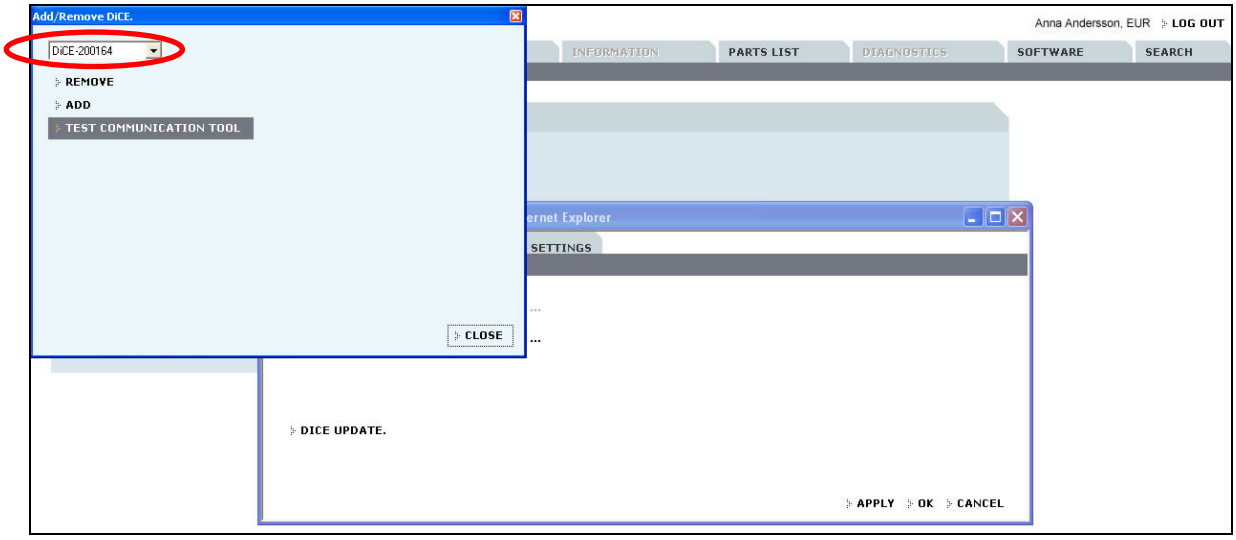


2.11 DiCE Full Test by means of DiCE Test Unit

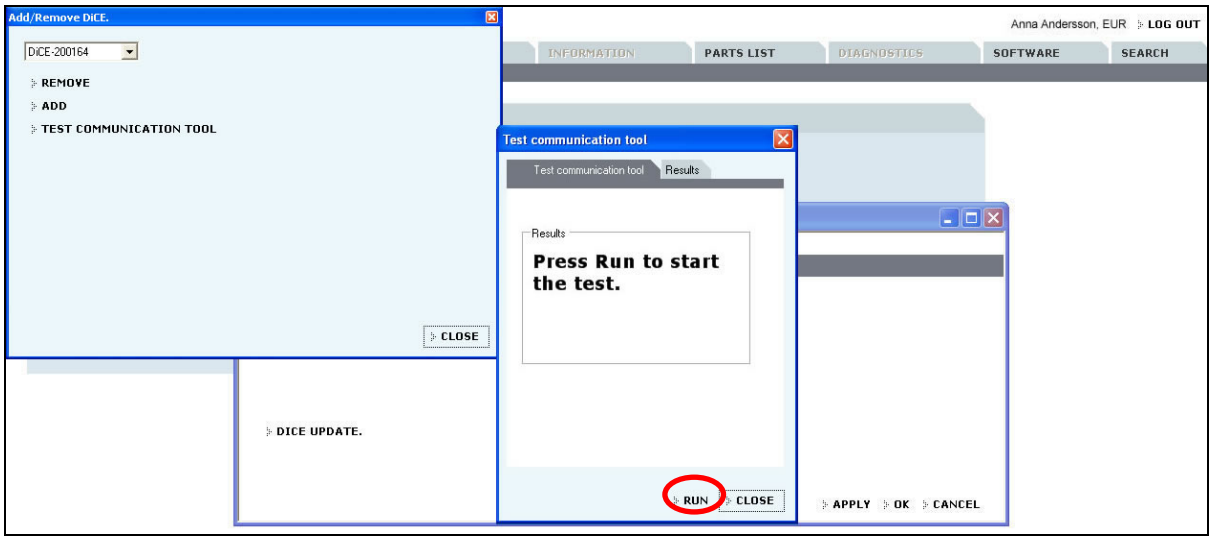
1. Find the DiCE Test Unit
2. Power up the DiCE by connecting 12 V DC, part number 9513004, to the DiCE Test Unit. **NOTE!** The power LED should now be lit.



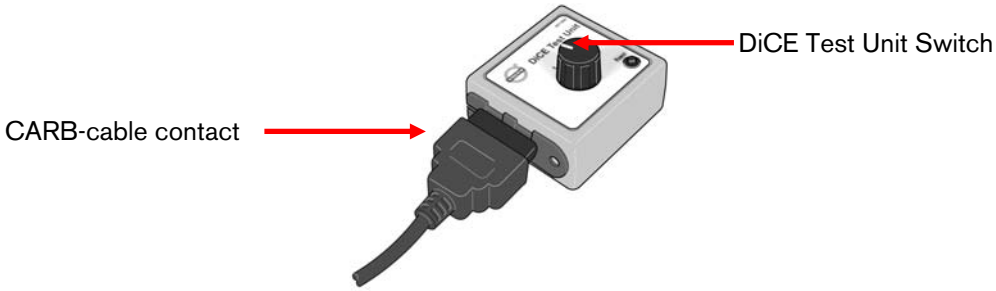
3. Connect the DiCE to the DiCE Test Unit. **NOTE!** The vehicle interface status LED is now lit (firm red light).
4. Start VIDA All-in-one. Select the START tab.
5. Click on PERFORM COMPUTER SETTINGS and then the COMMUNICATION TOOL tab.
6. Click on the dots beside the DiCE option in the drop-down list for the COMMUNICATION TOOL.
7. In the DiCE unit drop-down list, select the appropriate DiCE and click the Test communication tool.

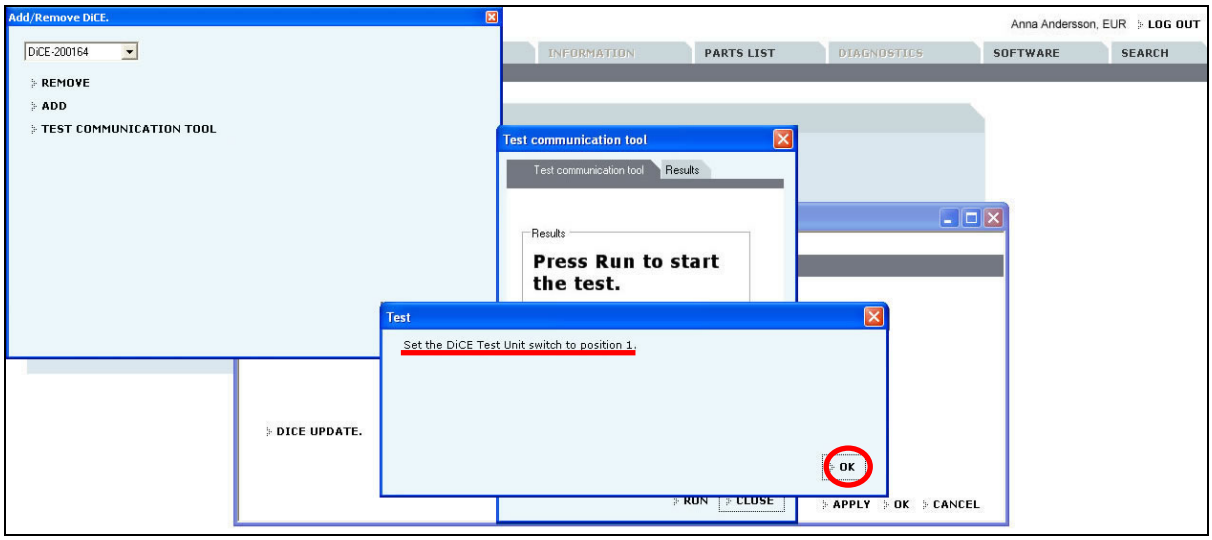


8. Click on RUN

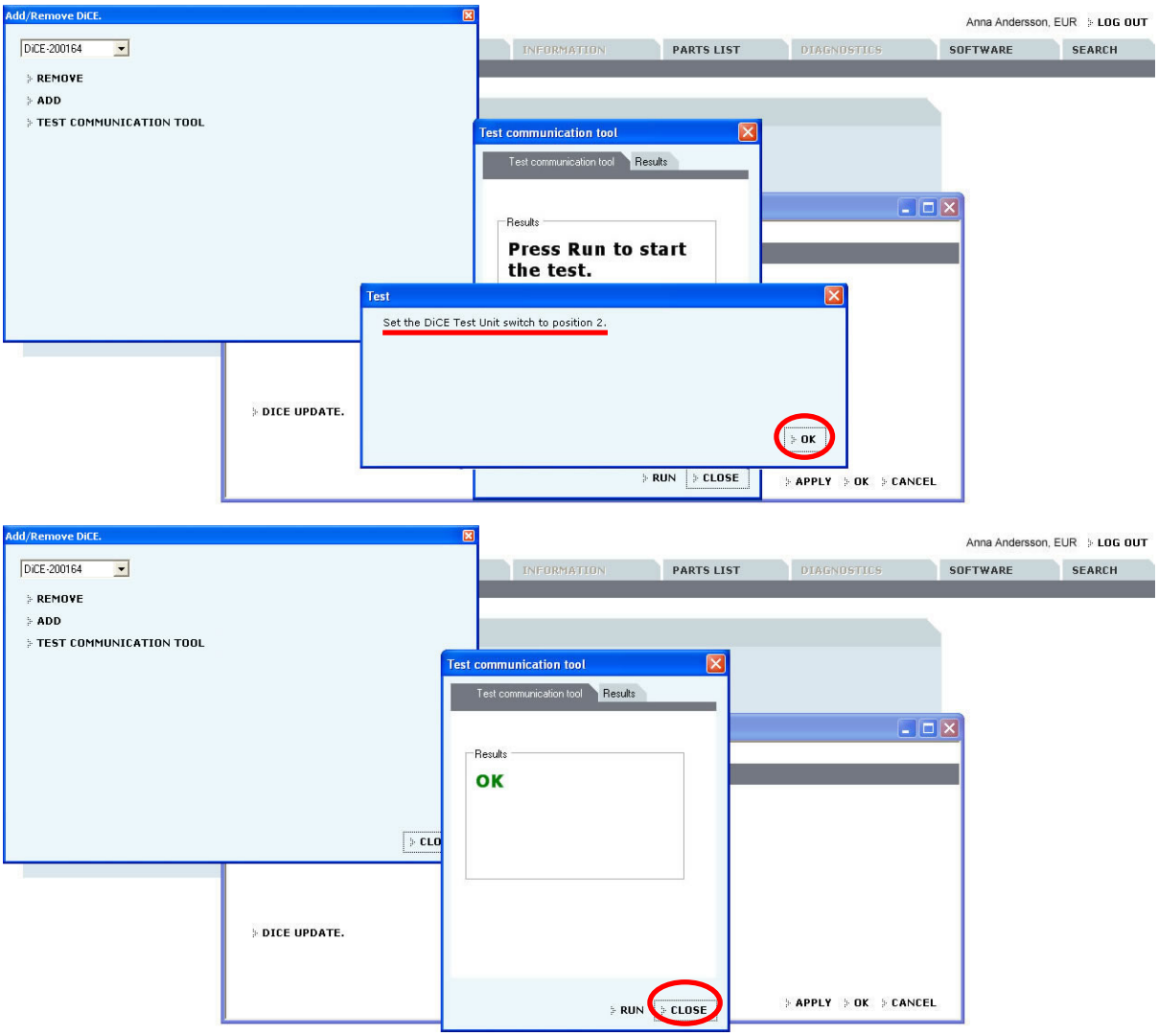


9. Set the DiCE Test Unit Switch to position 1. Click on OK.





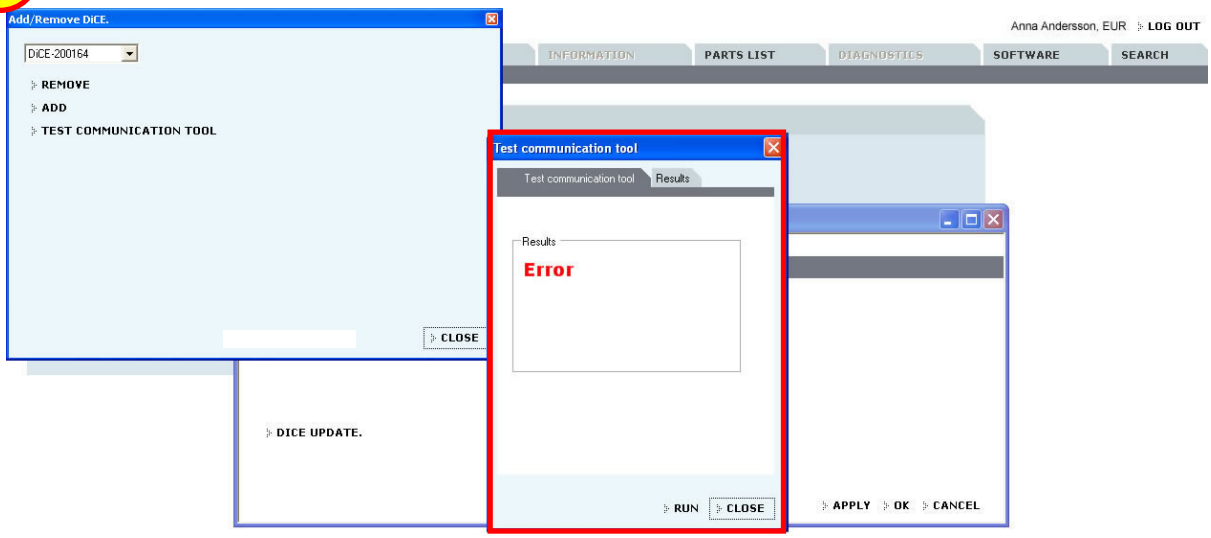
10. Set the DiCE Unit Switch to position 2. Click on OK. Click on CLOSE.



11. CONGRATULATIONS!

You have successfully managed to perform a DiCE Full Test by means of DiCE Test Unit.

12. If this will not work, the following will be shown:



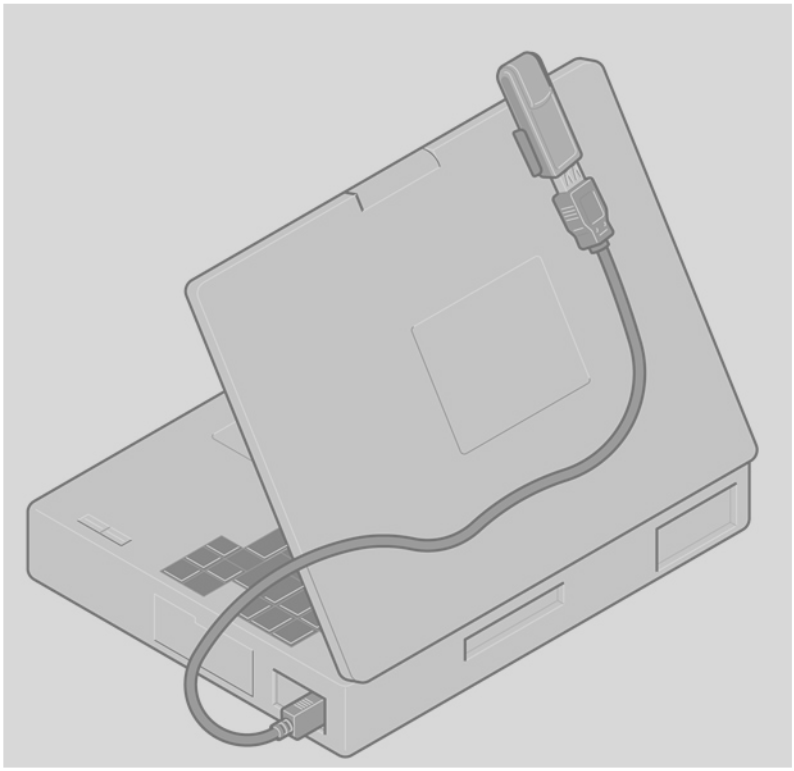
Please check thouroughly the switch positions and try again. If it still does not work, the DiCE Unit is out of order and has to be replaced.

Repeat this section for both DiCE connected via USB and Bluetooth.

3 Vehicle communication

3.1 Bluetooth

Bluetooth is used to transfer information wirelessly between the vehicle and VIDA All-in-one.

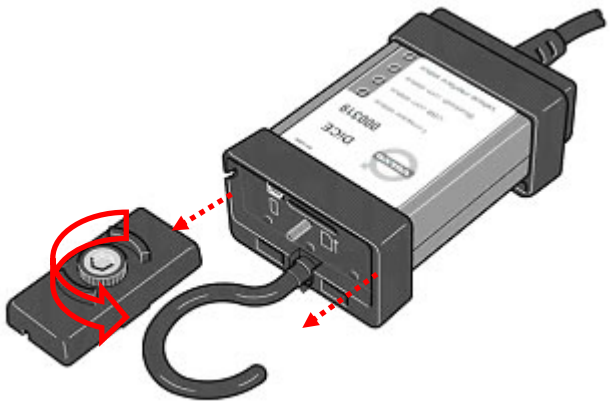


3.2 USB

A USB cable can be used as an alternative to Bluetooth. The USB cable is connected to the DiCE.

The cover of the DiCE unit could be removed by turning the screw, as shown below.

USB has priority to Bluetooth.



4 Bluetooth – note

4.1 Performance

To optimize the performance for wireless transfer, it is important to remember that some electronic appliances compete for the same frequency band. WLAN, DECT telephones, mobile telephones and other Bluetooth units are a few examples of equipment that limit the performance if they are used at the same time as DiCE in a workshop environment. The signals can be weakened by walls, furniture, panels, people etc.

DiCE has a wireless range of 100 meters with clear visibility. To achieve stable communication with the vehicle, the distance should be limited to approximately 50 meters. Hang the DiCE up in the vehicle using the hook and point the Bluetooth adapter towards the DiCE.

Make sure that no obstacles are positioned between the DiCE and the Bluetooth.

4.2 Safety and reliability

Bluetooth technology guarantees interference protection and increases data security in many ways. The technology uses 128 bit encryption to prevent data being read by another party in the event of the signal being hijacked. This is rare.

To guarantee a high level of reliability, the signal can be transmitted over 70 different frequencies (on the 2.4 GHz frequency band). DiCE shifts between different intervals up to 1600 times per second to find the most reliable frequency.

5 Description of Bluetooth icons

Icon	Description
	White on Blue - Bluetooth USB adapter operational
	Red on Blue - Bluetooth USB adapter not operational
	Green on Blue – Established connection to Bluetooth USB

6 Description of status LEDs

6.1 Firmware status (red/green)

Firmware status	Description
Flashing green	DiCE is powered and operational.
Flashing red	Corrupt software or no software. Upgrading of internal software (Firmware) is necessary.
Flashing red and green alternately	DiCE is being programmed.
Continuous red	Serious fault in the DiCE unit.
Off	Standby.

6.2 USB com status (yellow)

USB com status	Description
Continuous yellow	USB connection connected.
Flashing yellow	USB communication in progress.
Off	Standby.

When connecting USB when DiCE is powered, the status LED for USB flashes quickly for approximately three seconds.

The status LED for USB communication has nothing to do with the USB standard.

6.3 Bluetooth com status (blue)

Bluetooth com status	Description
Continuous blue	Bluetooth connection connected.
Flashing blue	Bluetooth communication in progress.
Off	Standby.

When DiCE is powered, the status LED for Bluetooth communication flashes quickly for approximately three seconds. If initiation fails, the status LED continues to flash. If no Bluetooth module is mounted on the DiCE unit or if the module is broken, the status LED never lights.

The status LED for Bluetooth communication has nothing to do with the Bluetooth standard.

6.4 Vehicle interface status (orange)

Vehicle interface status	Description
Flashing orange	Communication on one more of the vehicle's interfaces in progress.
Continuous orange	DiCE Test Unit connected.
Off	Standby.

Flashing orange indicates communication in progress. It is not possible to differentiate between:

- Internal communication (DiCE transmits something or loop back test is performed).
- Vehicle activity (DiCE not involved).
- Communication between DiCE and ECU in the vehicle. The status does not flash if DiCE transmits data without being connected to the vehicle or DiCE Test Unit.

6.5 Adding an additional DiCE unit in VIDA

To connect DiCE and communicate with the vehicle, the unit must be added to the VIDA client.

Every DiCE that is to be used by a VIDA client must be configured separately.

HINT! As a suggestion, install all DiCE units when configuring the VIDA application.

Repeat the procedure in section 2.4 to and including section 2.5.

7 History log

This is the first edition of the DiCE manual and has no history log.

Changes and additions to the manual will be noted here.

8 Alphabetic register