Curriculum Training

Integrated Diagnostic System (IDS)

Integrated Diagnostic System (IDS)

E68235

JAGUAR

Technical Training

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The Integrated Diagnostic System (IDS) is being introduced to improve the diagnostic capability of dealers.

IDS represents a leap forward in diagnostic technology for current vehicles, combining the ease of use and familiarity of the previous Worldwide Diagnostic System (WDS) software with an up to date specification laptop computer.

IDS will replace the current WDS Portable Test Unit (PTU), although WDS PTU may still be used to perform diagnostic routines on earlier vehicles.

This course provides an introduction to IDS.

NOTE: The IDS software is subject to continuous development. Therefore, deviations may occur between the test procedures / scope of testing described in this brochure and the IDS.

The information contained in this Student Guide was correct at the time of printing.

During the course you will be spending time with people from other dealerships that you may not know. Your Program Manager will ask you to introduce yourself to the rest of the delegates to enable you and them to get to know each other. You may like to make a note of their names and details for your reference.

Please remember that our training literature has been prepared for TRAINING PURPOSES only. Repairs and adjustments MUST always be carried out according to the instructions and specifications in the workshop literature. Please make full use of the training offered by Technical Training to gain extensive knowledge of both theory and practice.

Workshop safety

This page highlights the general observations expected whilst attending this training programme, and its continuation upon returning to your place of work.

General

Whilst working on all vehicles, the following items where available should always be used:

- Wing covers
- Seat covers
- Floor protection

Optional items:

- Steering wheel cover
- Park brake lever cover
- Door grab handle protection

Safety

All precautions must be taken and observed at all times, to prevent injury or damage to the following:

- Yourself
- Customer's property
- Workshop equipment
- Work place colleagues

Operating guidelines

Whilst using any piece of workshop equipment:

The manufacturer's guidelines and warning labels must be followed.

This will ensure correct use and application at all times.

Seek the necessary advice or training where equipment usage is unclear.

Chemicals, Oils and Solvents

Follow all manufacturer's warnings and labels, also take into account local disposal regulations when working with chemicals, oils or solvents.

Ensure that all risks are completely minimised.

Make sure that all protective items of clothing are worn where required e.g.

- Eye protection
- Gloves
- Overalls
- Footwear

System capping

Upon disconnecting components from a system, take all precautions necessary to prevent system contamination or environmental leakage.

Fit relevant plugs or caps i.e. to pipes, unions and component orifices etc.

Updates

Keep abreast of all relevant changes that effect your role within the dealership, by monitoring all factory issued documentation.

Driving

Operating vehicle features, such as ICE, mobile phones and CD player equipment etc., can cause a momentary distraction whilst driving.

Follow all road traffic regulations as written in the Highway Code, when operating vehicle systems or using diagnostic equipment whilst on the move.

Mobile diagnostic equipment operation, may require the use of an assistant.

Overall Objectives

At the end of this training course the delegates will be able to:

- Recognize IDS hardware
- Describe the features of IDS
- State the purpose of each cable
- Describe the features of the IDS work station
- Switch on IDS and navigate through the menus
- Dock and undock IDS from the work station
- Use IDS in 'Tablet' mode
- Read and clear Diagnostic Trouble Codes (DTC's)
- Use IDS to carry out Diagnostic procedures
- Install the latest IDS software
- Read and describe Car Configuration Files (CCF)
- Use a USB mass storage device to store and transfer data
- Recognize the procedure for obtaining technical support for IDS

Notes

On completing this lesson, you will be able to:

- State the specifications of the IDS Toughbook Laptop computer
- Describe the features of IDS
- Dock and un-dock IDS from the Work Station
- Demonstrate the use of IDS in laptop mode and tablet mode
- Use IDS to retrieve and read vehicle Diagnostic Trouble Codes (DTC's)
- Calibrate the IDS Touch Screen Display (TSD)
- Recognize the correct procedure for obtaining system support for IDS

Acronyms and Abbreviations

The following acronyms and abbreviation have been used in the workbook

- CCF - Car Configuration File
- CD - Compact Disc
- CDROM - Compact Disc Read Only Memory
- CDRW - Compact Disc ReWritable
- DDR - Double Data Rate
- DTC - Diagnostic Trouble Code
- DVD - Digital Versatile Disc
- GB - Gigabyte
- IDS - Integrated Diagnostic System
- LAN - Local Area Network
- LCD - Liquid Crystal Display
- MB - Megabyte
- OBD - On Board Diagnostics
- PTU - Portable Test Unit
- RAM - Random Access Memory
- SDRAM - Synchronous Data Random Access Memory
- TSD - Touch Screen Display
- USB - Universal Serial Bus
- VCM - Vehicle communication Module
- VMM - Vehicle Measurement Module
- WDS - Worldwide Diagnostic System

IDS SPECIFICATION

IDS

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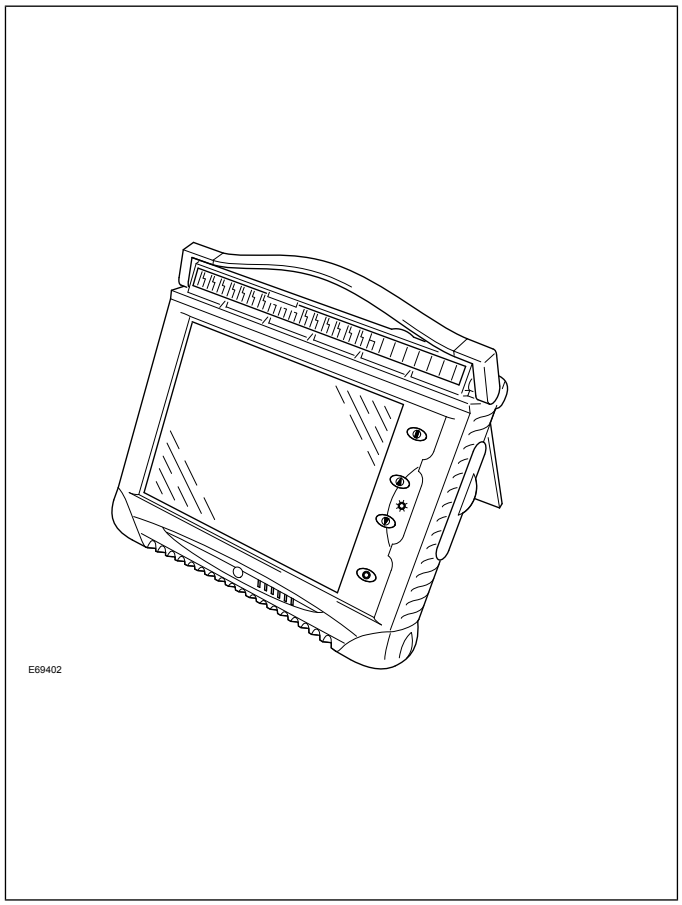
Specification

IDS Component Specification

Component	Specification
Processor	Intel Pentium M 1.2GHz
RAM	512MB (Megabytes)
Screen	13.3" anti reflective Touch Screen Display (TSD) LCD color screen (1024x768 resolution)
Hard Drive	60GB (Gigabytes)

Component	Specification
DVD /CDRW	DVD reader /CD writer
Operating system	Windows XP Professional service pack 2
Other	Supports Bluetooth Wireless connectivity Internal 10/100 Ethernet LAN and 56MB internal Modem 2 x USB ports - Expand to 5 when connected to the work station Tough construction which will withstand a fall from 1.3m at any angle

PTU



PTU Component Specification

Component	Specification
Processor	Intel Pentium
RAM	64 MB
Screen	15" anti reflective Touch Screen Display (TSD) LCD color screen (1024x768 resolution)

Component	Specification
Hard Drive	5.12 GB
CD ROM	24 x speed
Operating system	Windows 98

Comparing IDS to PTU, the IDS computer has a much higher specification with significantly improved performance. IDS will also be used by other vehicle manufacturing brands, although software applications will be specific to the respective vehicle brand.

With the addition of the Vehicle Communications Module (VCM) and the ethernet hub, communication with all future models is assured.

IDS is supported by a portable work station which provides the facility to store IDS and associated hardware.

Diagnostic Capabilities

IDS diagnostic capabilities include:

- EU3 compliant
- OBDII compliant
- Full automotive diagnostics
- Full automotive configuration
- Full automotive tune update capabilities
- IDS diagnostic self test

A training mode is also available which directs the user through a brief training program.

IDS uses existing WDS diagnostic principles, the look and operation of which are very familiar to experienced technicians.

IDS laptops will have the relevant operating system software loaded, prior to being dispatched to the dealerships. This will make sure that all IDS laptop computers will all have the correct operating software and be configured correctly.

The IDS application software will be loaded at the dealership.

NOTE: The IDS software is loaded onto the hard drive of the laptop and therefore it is not necessary to leave the disc in the DVD drive. The DVD should be removed from the DVD drive once the software has been downloaded since it contains an auto run command which may cause the application software to be reloaded each time the IDS is switched on.

Future application software releases will be distributed to dealers when they become available in a similar way to which the WDS application software is distributed whenever a new release is available.

IDS Laptop Computer

IDS Laptop Computer

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IDS represents a leap forward in diagnostic technology for our vehicles. IDS combines the ease of use and familiarity of the previous WDS software with an up to date specification laptop computer.

IDS is being introduced to improve the diagnostic capability of Jaguar dealers and it will supercede the current Portable Test Unit (PTU) / WDS.

The IDS uses a standard MK 4 Panasonic Toughbook laptop computer which has been specifically designed to operate in workshop conditions.

Using a standard laptop computer provides a much higher level of processing power coupled with a substantial reduction in capital costs.

The unit itself has an Intel Pentium M 1.2GHz processor with 512MB DDR SDRAM (Double Data Rate Synchronous Data Random Access Memory) and a 60 GB hard drive.

An external DVD / CDRW drive is provided to allow software updates and storage of data onto disc. The DVD / CDRW drive is connected through a USB port.

IDS is supported by a new portable work station together with additional hardware in order to provide a complete diagnostic system.

All Jaguar dealers will receive the work station, complete with the IDS and other additional hardware. A portable IDS kit will also be available as an option to dealers who require an additional IDS without the work station.

The following items will also be included with the IDS kit:

1 Supplementary test leads
2 Current probe (50 Amp)
3 Adaptor probes
4 Black measurement probe
5 Red measurement probe
6 Battery adaptor lead
7 Mains power supply lead
8 Vehicle diagnostic cable
9 Mains power supply transformer
10 Ether net connection (x 2). One to VCM and one to VMM
11 TSD cleaning cloth

12 LAN connection cable

13 IDS carrying strap

VMM

E71399

VMM Test Adaptor

E68243

VCM

E68232

USB Drive

E68238

NOTE: The IDS software is subject to continuous development. Therefore, deviations may occur between the test procedures/scope of testing described in this brochure and IDS.

The information contained in this Student Guide was correct at the time of printing.

IDS Power Supplies

IDS may be powered from its internal battery or from a mains electrical supply through a DC transformer.

The IDS work station has its own built in transformer to convert mains power to the required voltage for IDS. When the IDS is docked to the work station it is automatically connected to the mains power supply transformer.

If IDS is removed from the work station, a separate mains power supply transformer may be connected to IDS using the power supply socket located at the left hand side of the laptop computer.

When IDS is switched on, the green power Light Emitting Diode (LED) is illuminated on the front panel of the laptop computer.

Internal Battery


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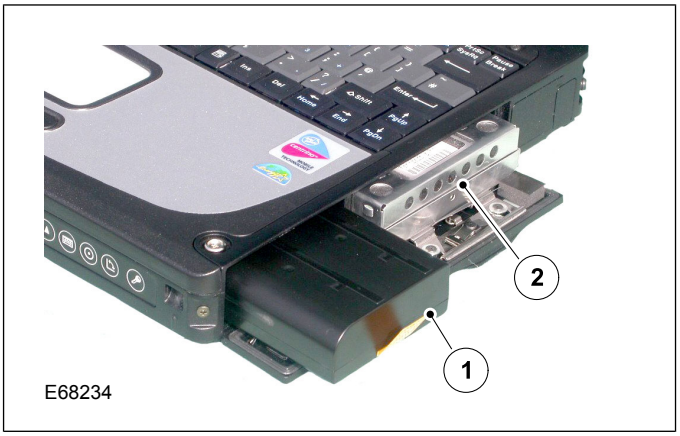
IDS has its own internal lithium battery which is located at the right hand side of the laptop computer.

Battery Location



1 Battery

When IDS is powered from the internal battery, a battery symbol is shown on the task bar. If the curser is positioned on the battery, the condition of the battery is displayed together with the estimated operating time remaining.

An LED located on the front of the laptop computer also provides a visual indication of the battery status. The battery LED will be illuminated amber when the battery condition falls below 95% charged, providing the unit is connected to the mains power supply.

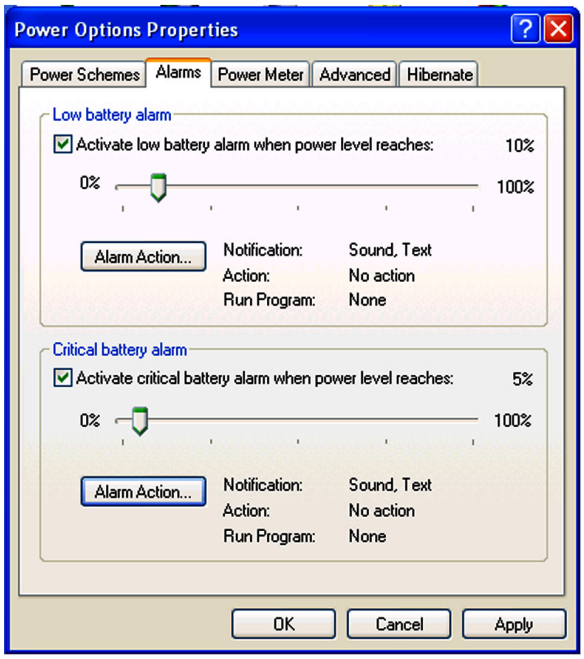
The LED will be green when IDS is powered from the mains power supply, providing the internal battery is greater than 95% fully charged. When IDS is powered from the mains power supply, charging of the internal battery will automatically take place once the battery condition falls below 95% fully charged. When charging of the internal battery is taking place, the LED will be amber.

Charging of the battery will automatically be carried out when connected to the mains power supply, regardless of whether the IDS is switched on or off. The battery will be charged more quickly when IDS is switched off.

The battery LED will be red when the battery condition is approximately 9% or less that of a fully charged condition.

The IDS laptop will operate for approximately four hours from a fully charged battery in good condition.

Power Option Properties



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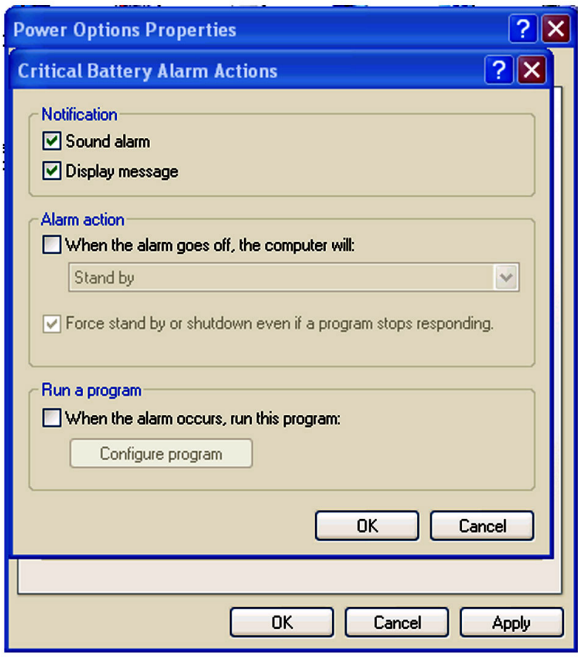
If the battery is low IDS may be configured to display a critical alarm to warn the operator.

Critical Alarms Actions



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NOTE: The power options and critical alarm actions have been set at the factory for optimum performance and should not be changed.

Battery charging

The battery life deteriorates each time it is charged. Charging the battery only when it has become completely discharged will reduce the number of charge cycles and thus extend battery life.

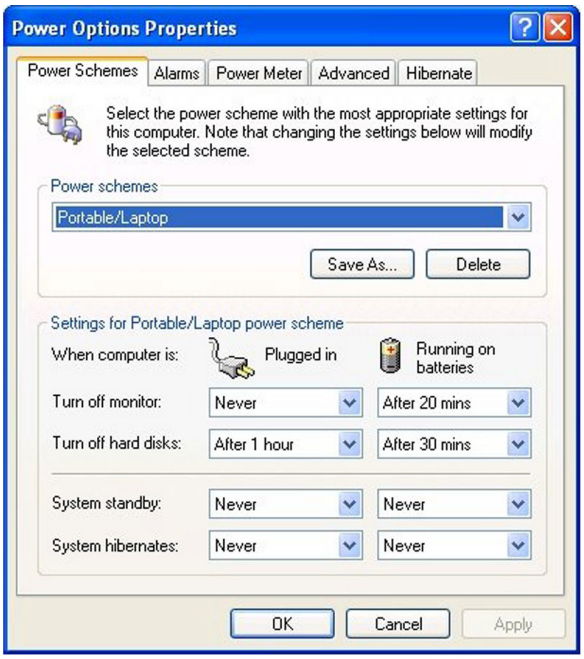
Do not repeatedly charge the battery before it is discharged.

To help reduce the number of charge cycles, the battery can only be recharged when the remaining power is less than 95% of its capacity.

The battery will not charge when it is outside its temperature range of 10°C to 30°C, (50° to 86°F). If the battery is outside of this temperature range, the battery indicator lamp will flash orange and charging will not begin.

To assist in prolonging the operating time of the IDS when running from the internal battery, the power management function of the IDS may be set.

Power Management Options



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The IDS power management is adjusted by selecting the Power Schemes tab, from the power options menu of the control panel. The power saving mode options become active when IDS is running from either its internal battery or the mains power supply after IDS remains inactive for a pre determined time.

Providing the appropriate options have been selected, the following actions may be carried out by the IDS power management function:

- Turn off monitor
- Turn off hard disc
- System standby
- System hibernates

The time period for which IDS must remain inactive before the system carries out the power management action are selectable.

NOTE: The power options properties have been set at the factory for optimum performance and should not be changed.

System Standby and Hibernation

System standby and hibernation will shut down the computer without closing down programs or documents. Restarting the computer from either standby or hibernation mode will return the user to the same programs and documents that were open at the time before the computer entered either standby or hibernation.

When the computer enters standby mode, data is stored in the computer's memory and the recovery time is short. Power must be maintained, from either a mains power supply or the internal battery, in order for the computer to retain this data in the memory. If power is lost, then the data will be lost.

When the computer enters hibernation mode, data is stored on the computer's hard drive. The recovery time is a little longer than when in standby mode. However, power is not required in order to maintain the data.

Power management default settings

Action	Running from mains power supply	Running from internal battery
Turn off monitor	Never	After 20 minutes
Turn off hard disc	After 1 hour	After 30 minutes
System standby	Never	Never
System hibernates	Never	Never

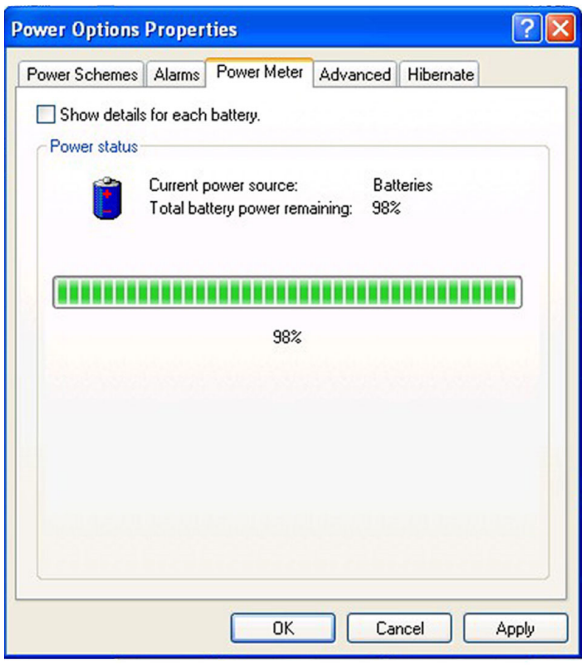
When the power management function has carried out the appropriate action, due to IDS remaining inactive for a pre-determined time, the following action must be carried out in order to activate IDS once more.

Activating IDS following power management actions

Power management action	How to re-activate IDS
Turn off monitor	Touch the TSD or operate the enter key
Hard disc off	Touch the TSD or operate the enter key
System standby	Operate the power switch
System hibernation	Operate the power switch

The condition of the internal battery may be viewed in the power management properties by selecting the power meter tab. The current power source and the percentage of battery power remaining will be displayed.

Battery Power Display



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The battery condition may also be displayed by selecting **Fn + F9**.

Battery Power Display

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Battery Calibration

As the battery deteriorates the remaining battery capacity may not be displayed accurately. In this situation, select the battery recalibration function to recalibrate the battery. the battery will be charged (if not already fully charged), then fully discharged

During battery recalibration, the following actions are carried out:

- Battery will be charged (providing it is not already fully charged)
- Battery will be discharged
- Computer will shut down
- Battery will be charged

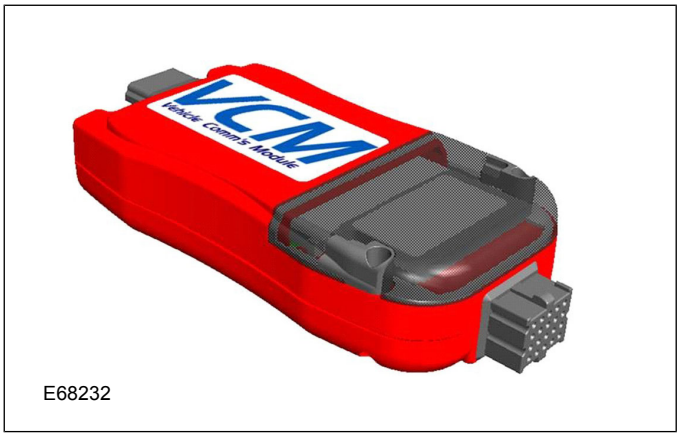
Battery Recalibration

E69044

It is recommended that battery recalibration is carried out weekly. Battery recalibration may take up to 14 hours to complete and so should be carried out overnight when IDS is not required. Battery recalibration may only be carried out when IDS is connected to a mains power supply.

Vehicle Communication Module (VCM)

VCM



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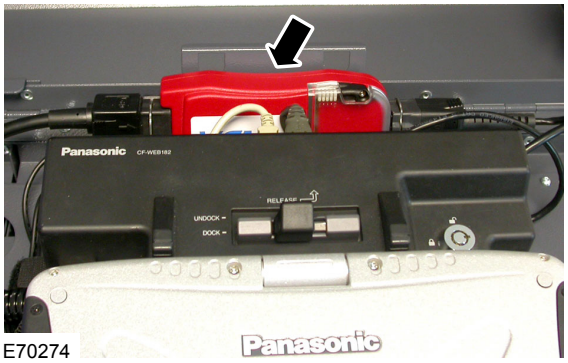
The Vehicle Communication Module (VCM) is a high performance, rugged, vehicle serial communications gateway. This device provides multiple vehicle serial communication interfaces between the vehicle and IDS to meet the future of Jaguar vehicles.

The VCM unit is housed in a magnesium casing which also has a tough protective plastic cover. The VCM is located behind the docking station of the IDS work station. It is attached to the bracket of the IDS work station by locating lugs sliding into 'key holes' of the bracket. The VCM is easily removed from the bracket when required.

VCM Location



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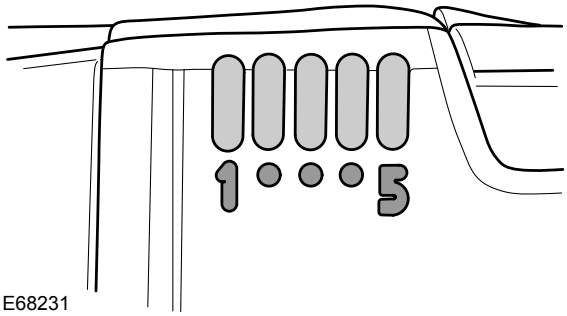
The VCM features five LED's which are used to indicate the status of the VCM. Three sockets are provided for external connections. Two of the sockets allow connection to IDS and to the vehicle. The third socket is to allow for an input from a 12V DC power supply, but this is not used in our applications.

VCM LED Indicators

The five LED indicators are visible through the plastic cover of the VCM and allows the user to visually observe the operation of the VCM.



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VCM LED's

LED	Color	Purpose
1	Amber	Vehicle link
2	Green	VCM operating
3	Red	Power supply
4	Green	Flash memory access
5	Amber	Host Link (To IDS)

VCM Driver Software

In order to make sure that the VCM is able to communicate with IDS, it is necessary to download the latest driver software to the VCM. Each time that the VCM is connected to IDS and the VCM is powered up, IDS will check the software version of the VCM. If the software of the VCM is an earlier version to that which is available from IDS, a message will be displayed stating that a later version is available and asking the

operator if the user wishes to update the VCM now. This action will be carried out whenever a later driver software is available, following an IDS software update.

Downloading the latest VCM driver software will only take a short time, approximately 90 seconds to complete.

Once the software has been downloaded to the VCM, diagnostics with the vehicle may be carried out as normal.

⚠ **CAUTION: Do not switch off IDS or disconnect the VCM during a software download. Failure to follow this instruction may cause damage to the VCM or may cause communication errors when attempting to diagnose vehicle faults.**

NOTE: A VCM software download is only carried out when a later software version is available following an IDS software update. Later software cannot be overwritten by an earlier software version.

Vehicle Measurement Module (VMM)

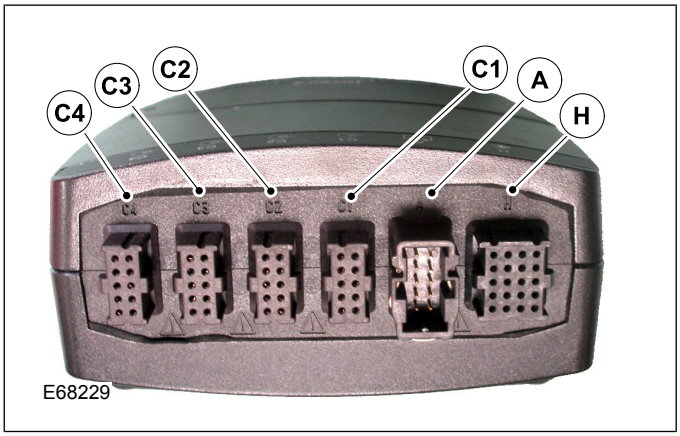
VMM

E71399

The Vehicle Measurement Module (VMM) is located in the first drawer on the side of the IDS work station. One end of the VMM cable is connected to the IDS expansion port using a USB connection, while the other end of the cable is connected to the **H** (Host) connection of the VMM.

The remainder of the connections at the top of the VMM allow connection to the measurement probes etc and are very similar to those already seen on the WDS PTU.

VMM connections



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H Host - Connection to IDS

A Connection to battery reference lead

C1 Connection to red measurement probe

C2 Connection to black measurement probe

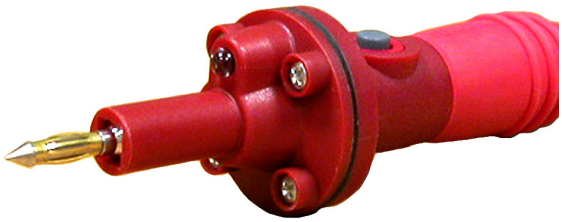
C3 Connection to VVA sensor (black lead)

C4 Connection to propshaft balancer sensor (blue lead)

New measurement probes are provided to fit the connections of the VMM. The red and black probes will operate in the same way as those already used on WDS PTU. However the new red probe features an LED to illuminate the area which is being probed.

The battery reference lead must be connected to the vehicle battery when the VMM is in use, since the VMM is not powered from the IDS laptop computer.

Red measurement probe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The VMM is required in order to allow IDS to carry out electrical measurements on the vehicle. The VMM carries out the electrical measurements and then encodes it into a format which the IDS laptop can understand.

The Vehicle Vibration Analyzer (VVA) connections on the VMM have also changed when compared to those on the PTU. Two adaptor leads are provided to allow connection to the VVA tester leads.

VVA and Propshaft Balancer Adaptor Leads

E71398

VMM Status LED's

E68230

The drawer must be open to allow connection of the leads to the VMM. A bracket is provided to prevent strain on the leads at the connection with the VMM. When the VMM is in use it will become warm, which is quite normal. Connection of the measurement probes etc, prevent the drawer from being closed. This has been specifically designed in this way to assist with cooling of the VMM, reducing the possibility of it from overheating.

The VMM unit has four LED status indicators that are visible through the LED identity label. The LED status indicators allow the user to visually observe the operation of the VMM.

VMM LED's

LED	Color	Purpose
1	Green	Heart beat and under / over temperature
2	Red	Power /Power on self test
3	Green	Critical access
4	Amber	Host Link activity

VMM LED Operation

VMM LED Description

LED	Color	Status	Description
1	Green	Flashes once per second	VMM running normally
1	Green	Flashes regularly every two seconds with all other LED's unlit	VMM is in warm up mode, following storage at temperatures below 0°C (32°F)
1	Green	Flashes rapidly at approxim-ately five times per second	VMM is shut down due to over temperature
2	Red	Flashing	Indicates a boot failure code following a Power On Self Test (POST) The POST is carried out each time the VMM is powered up

LED	Color	Status	Description
2	Red	On permanently	No faults are present following the POST
3	Green	Flashing	Critical VMM activity such as when carrying out a flash memory access. This is when new software is being down-loaded into the VMM
4	Amber	Flashing	Indicates activity between the IDS laptop and the VMM

⚠ **CAUTION: The VMM power lead must not be removed when LED 3 is flashing. Failure to follow this instruction may cause irreversible damage to the VMM.**

The VMM software is on the IDS disc and will only be downloaded to the VMM when a later version to that contained within the VMM is available. It is unlikely that LED 3 will be observed operating. During normal use this LED will be off.

IDS Work Station

The IDS work station provides a secure and safe storage facility for the IDS laptop and associated hardware. It also allows IDS to be charged from a mains power supply.

The docking station is located beneath the lid of the work station.

The front drawers and lower compartments of the work station allow for storage of cables and test lead adaptors. The inside of the front door of the work station allows release notes and IDS software discs to be stored.

The top drawer on the side of the work station provides the facility to hold two standard sized drinking cups and a compartment for storing documents. When the drawer is open and the document compartment lid is closed, it provides a surface to display or write on documents, such as job cards or circuit diagrams etc.

The work station is easily moved on the four castors. The two front castors have a brake facility to prevent the work station from moving when desired.

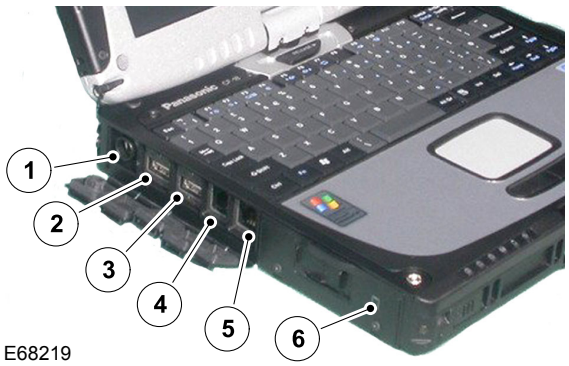
The base of the work station has a hole formed in it which may be used to tether the work station to a suitable anchor point in the workshop if desired.

IDS Laptop features:

IDS features Bluetooth connectivity and also wireless LAN. (This will vary between markets). The Bluetooth and wireless LAN antennas are located in the casing of the lid around the TSD.

A number of connections are provided to allow connection to other devices.

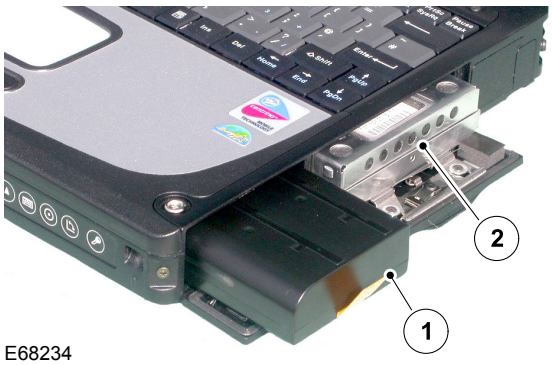
LHS of IDS Laptop Computer



1 DC power supply socket
2 USB port
3 USB port
4 Modem connection socket
5 Local Area Network (LAN) connection socket
6 Secure Digital (SD) card slot

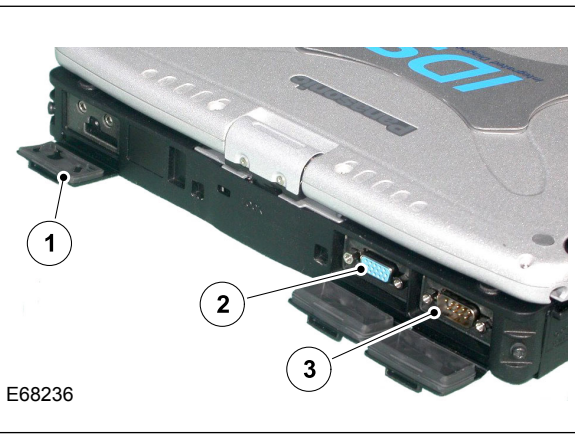
SD card slot

RHS of IDS Laptop Computer



1 Battery
2 Hard Drive

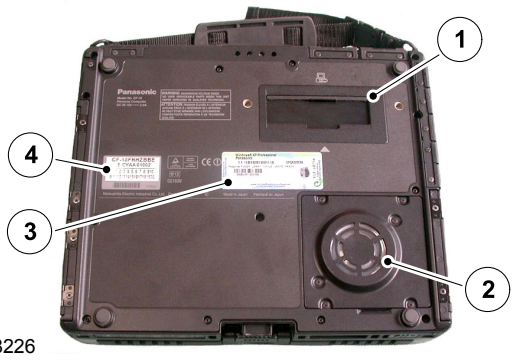
Rear of IDS Laptop Computer



1 Microphone and headphone socket connections
2 External display port
3 Serial port

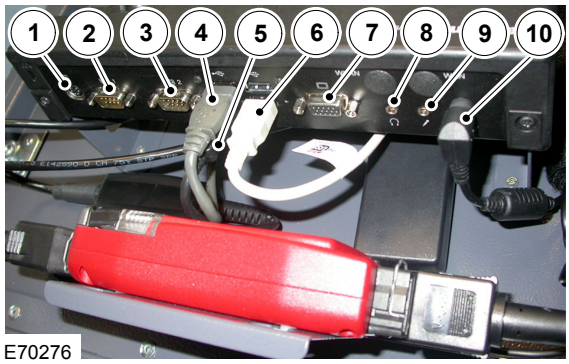
The identification serial numbers, replicator port connection and speaker are located on the underside of IDS.

Underside of IDS Laptop Computer



1 Replicator port and cover
2 Speaker
3 Operating system serial number
4 IDS laptop computer serial number

Connections at Rear of Docking Station



1 Keyboard connection
2 External display port 1
3 External display port 2
4 USB connection (VCM)
5 USB connection (VMM)
6 USB connection (DVD Drive)
7 Serial port
8 Headphone connection
9 Microphone connection
10 12V DC in Connection

The following features are located on the front of the IDS laptop computer:

- Power switch
- LED indicators
- Lid latch
- Tablet buttons

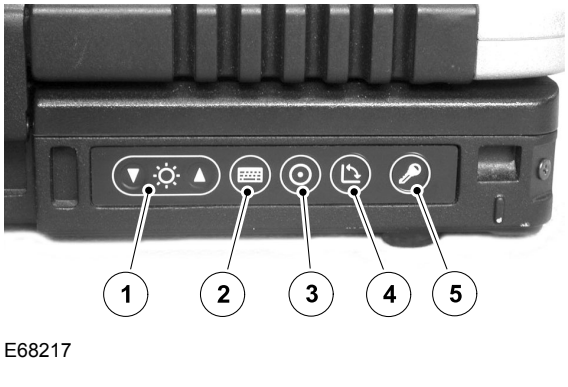
Power Switch

The power switch is located at the front of IDS.

Power switch

Tablet Buttons

The tablet buttons located at the front of IDS are for use when IDS is being used in Tablet Mode.

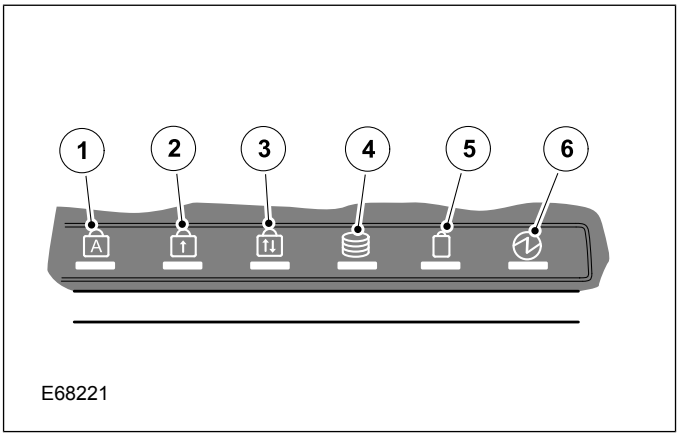


1 TSD brightness control
2 Software keyboard
3 Enter

4 Display rotation

5 Security

LED Indicators



1 Caps lock

2 NumLk

3 ScrLk

4 Hard disc drive status

5 Battery status

6 Power status

The LED indicators are located at the front of IDS.

LED indicator definitions

LED	Function	Definition
1	Caps lock	Green - Indicates when caps lock is active. Non shifted input is capitalized
2	NumLk (Numeric key)	Green - Indicates when numeric key lock is active. Causes some of the keyboard to perform as numeric keys
3	ScrLk (Scroll lock)	Green - Indicates when **Fn + ScrLk** are pressed. Scroll lock functions differently depending upon the application

LED	Function	Definition
4	Hard disc drive status	This illuminates to indicate when the hard drive is being accessed
5	Battery status	Not lit - Battery not connected or charging not being carried out Green - Connected to external power supply with battery over 95% of its full capacity (fully charged) Green (Flashing) - IDS in high temperature mode and battery is discharging to 80% of capacity Amber - Battery charging Amber (Flashing) - Battery cannot be recharged temporarily due to high internal temperature of battery Red - Battery level very low, 9% or less Red (flashing) - Fault with battery or charging not operating correctly Green and Amber (Flashing alternately) Warming up the system to prevent hard disc drive damage
6	Power status	Not lit - Power off or Hibernation mode Flashing once every 3 seconds - Standby mode

DVD ROM Drive

The IDS software is stored on a DVD. The IDS DVD ROM drive is located behind the front upper door of the IDS work station.

The DVD drive lid is opened by pressing the release catch located on the lid. The lid is opened under spring tension allowing a DVD to be located on the drive.

DVD Drive

A power switch is provided on the side of the DVD drive, but the drive will automatically operate without operating the switch following a command from the IDS laptop computer.

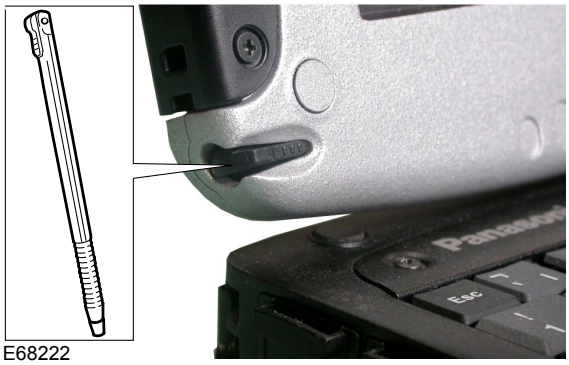
The IDS software from the DVD is loaded onto the hard drive of the IDS laptop allowing IDS to operate without a DVD disc in the DVD drive.

Once the software has been loaded onto IDS, the disc should be removed from the DVD drive and stored for future reference

Stylus

A stylus for operating the TSD is neatly stowed in the lid of IDS and may be tethered to IDS using the tether cord provided.

Stylus Location



E68222

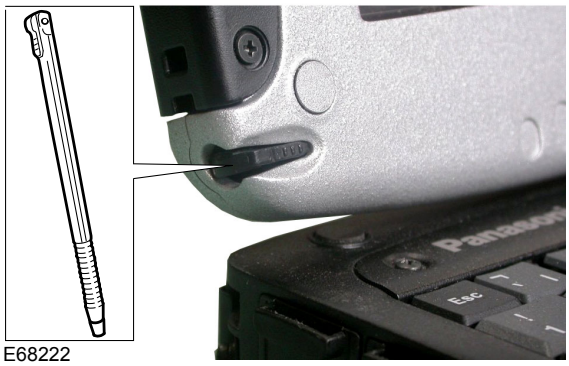
Operating IDS

The IDS unit is based around a standard laptop computer which makes user interface very simple and is familiar to anyone who has used a personal computer. The IDS software has a similar appearance to the WDS software which will already be familiar to Jaguar technicians.

IDS has a Touch Screen Display (TSD) with a protective layer covering the screen to protect the screen from damage during normal use.

The screen only requires light pressure from the stylus or finger tip in order to operate IDS.

Stylus stowage



E68222

⚠ **CAUTION: Do not use excess pressure or sharp implements to operate the screen. Failure to follow this instruction may cause damage to the screen.**

IDS may be operated while it is either docked to the work station or removed from it.

When IDS is used with the TSD open, like a conventional laptop computer, it is referred to as 'Laptop' mode.

Laptop mode

E68241

Tablet mode

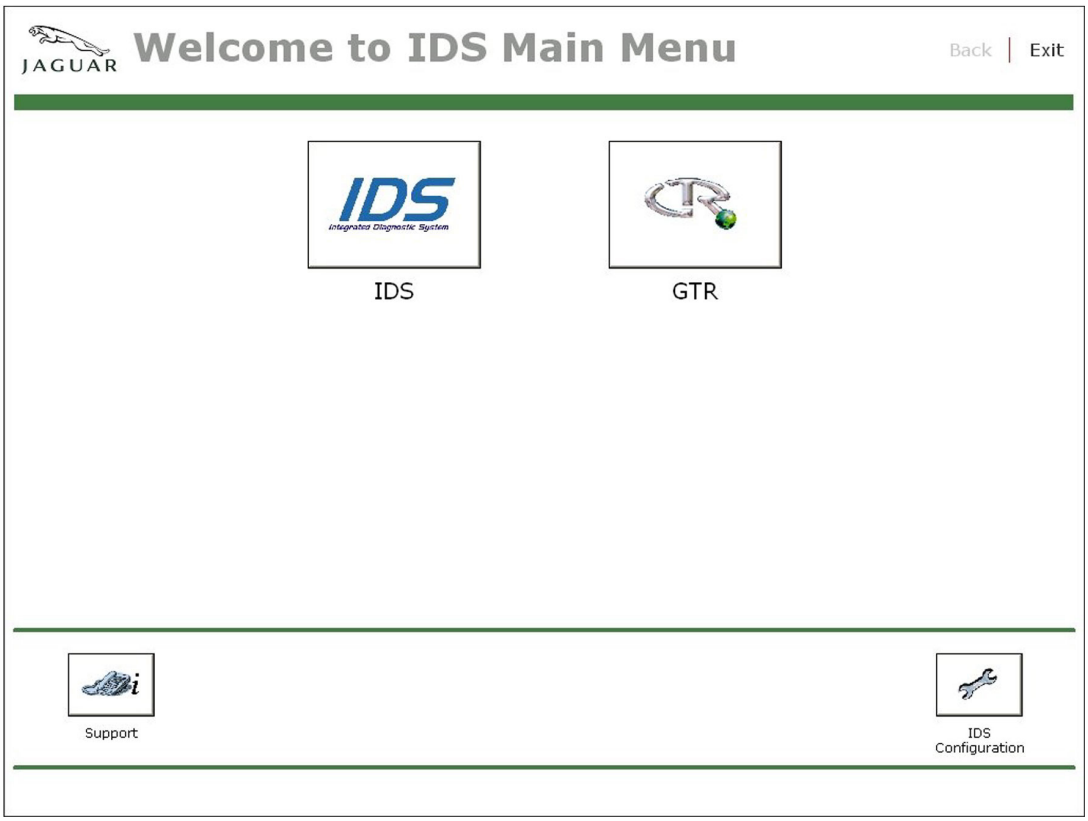
E68225

IDS has the facility to reverse the lid so that the TSD is accessible with the lid in the closed position. When IDS it is used in this manner, it is referred to as **Tablet mode**.

Starting Up and Shutting Down

Open the lid of the IDS, unless it is being used in tablet mode. To switch on IDS, slide the power switch and hold it for approximately one second, until the indicator is illuminated before releasing it. The laptop will power up and will automatically open the 'Welcome to IDS main menu' screen.

IDS Main Menu



E70882

E68220

NOTE: In cold conditions, IDS may display **'Warming up system'** when starting up, or the battery indicator may flash alternately amber and green. This indicates that IDS is warming up and will not start up until a suitable temperature has been reached. This may take up to 25 minutes and is normal and does not indicate a fault.

To shut down IDS, exit the IDS diagnostic software application by selecting the white cross in the red box at the top RH corner of the screen. The 'welcome to IDS main menu' screen will be displayed. Select 'Exit' and IDS will shut down after a short time.

Tablet Mode

To use IDS in tablet mode, release the latch and open the lid. Slide the latch to the right and rotate the TSD in a counter clockwise direction as shown in the illustration below.

TSD rotation release latch

E68240

Rotate the screen 180° before closing it and then securing it in the closed position. The IDS is now in tablet mode.

E68225

When changing to tablet mode, the TSD image will automatically be orientated to display in the same dimension as it was previously. This will prevent the image from now appearing to upside down to the user.

The orientation of the image may also be changed using the tablet rotation button. Each press of the tablet rotation button will rotate the image 180°.

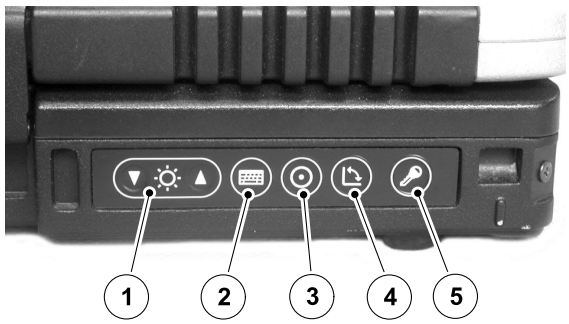
If preferred, a software keyboard can be used if keyboard operation is required when using IDS in tablet mode.

Software keyboard

E68244

To access the keyboard, press the keyboard tablet button.

Tablet Buttons



E68217

Stylus

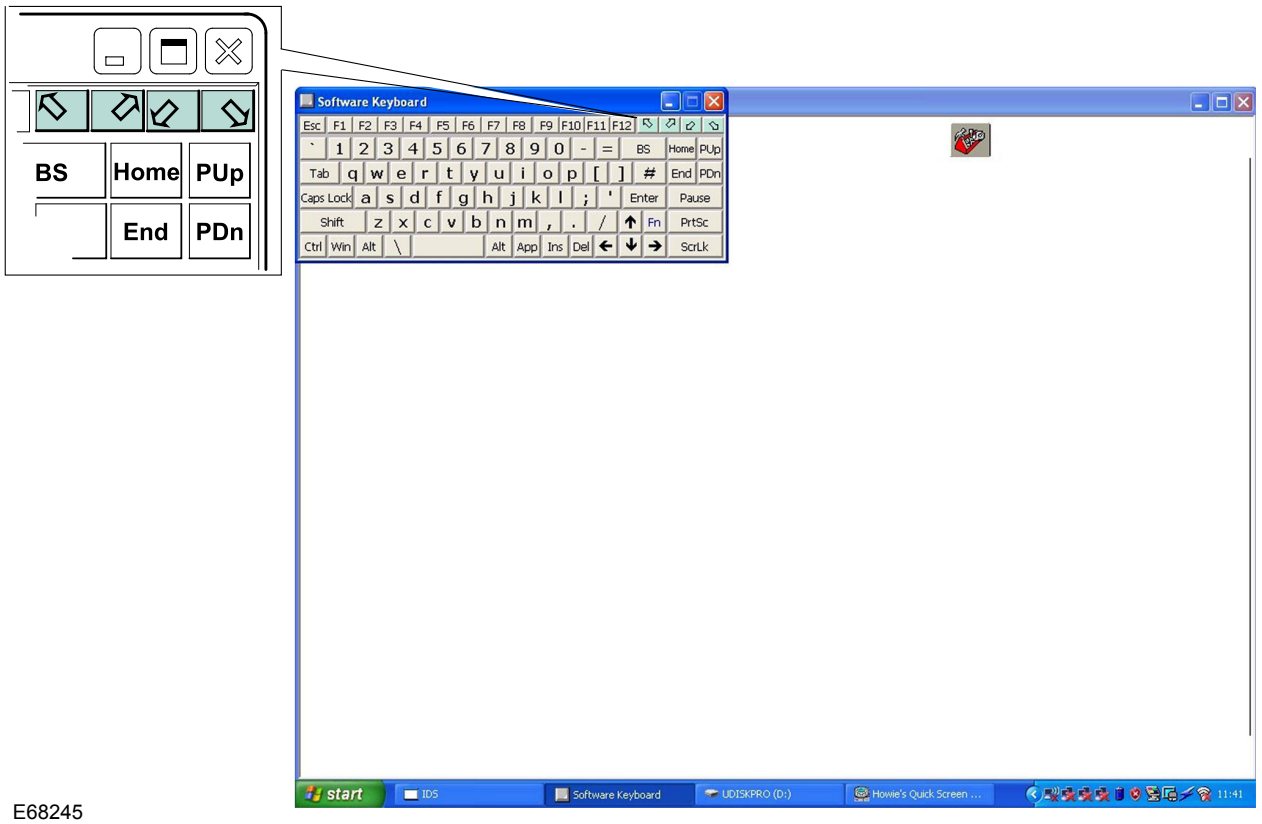
E68223

2 Software keyboard button

When using the software keyboard it is recommended that the stylus is used to operate the keys.

The location of the software keyboard may be displayed in any of the four corners of the screen area using the appropriate arrow keys as shown in the following illustration.

TSD software keyboard location



E68245

The size of the software keyboard may also be changed by using the square key at the top left hand corner of the software keyboard. This will provide access to a drop down menu where the desired size of the software keyboard may be selected.

The orientation of the display may be changed manually using the rotation tablet button at the front of the IDS.

TSD rotated to users preference

E68239

Laptop Mode

When using IDS in laptop mode, the TSD may be rotated and tilted to any angle within the movement limitations to suit the user.

Navigation

Navigating around the screen is normally achieved using the TSD, although a touch pad is located in the center of the IDS laptop. This is a pressure sensitive pad which may be used to navigate around IDS and open program files in the same way as a conventional computer mouse is used. Navigating around IDS may be carried out using the touch pad although when diagnosing faults the TSD is the most convenient method.

Keyboard components

E68224

Item	Description
1	Left mouse button
2	Right mouse button
3	Touch pad
4	TSD swivel release latch

Directly beneath the touch pad are two buttons. These are directly equivalent to the left and right buttons on a conventional computer mouse.

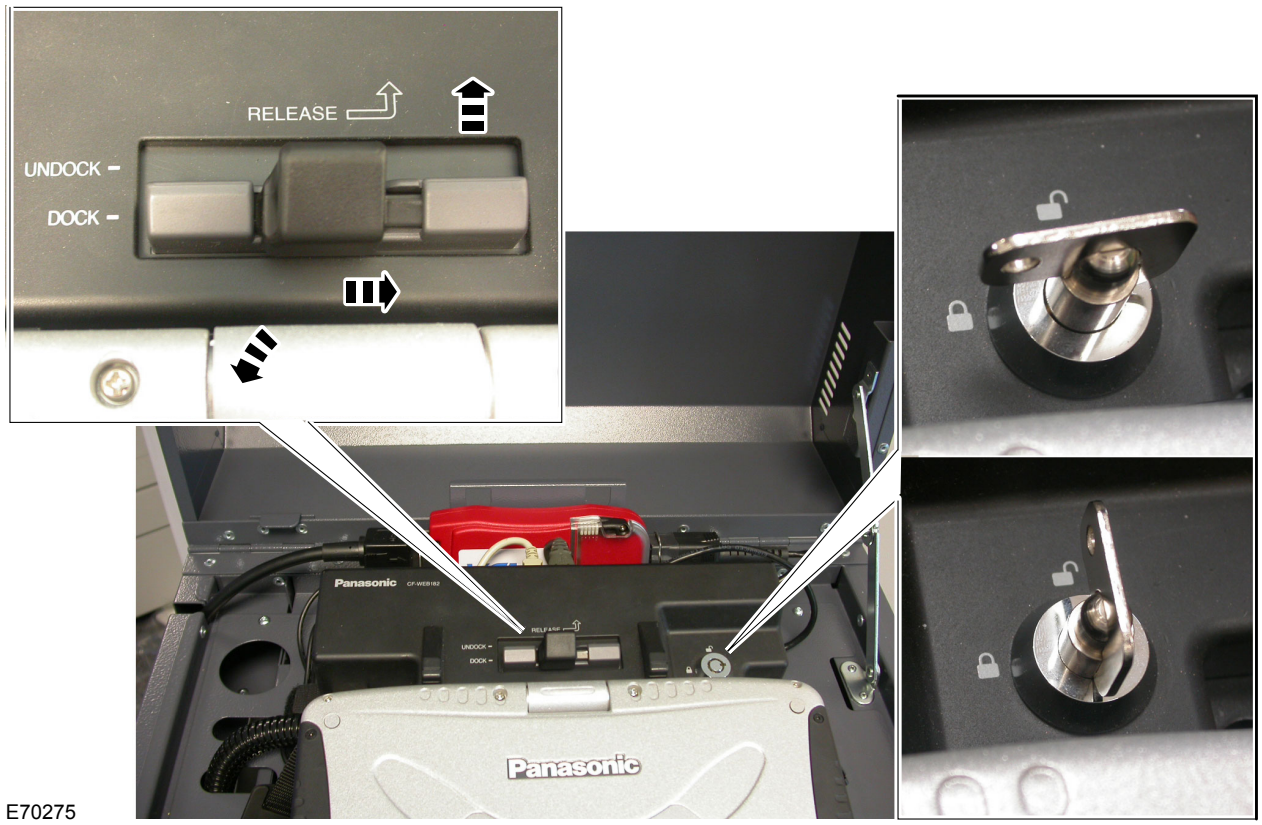
It is also possible to connect a standard computer mouse although this is not necessary with a TSD.

Docking and Undocking IDS

IDS may be docked and undocked from the work station with IDS either switched on or off.

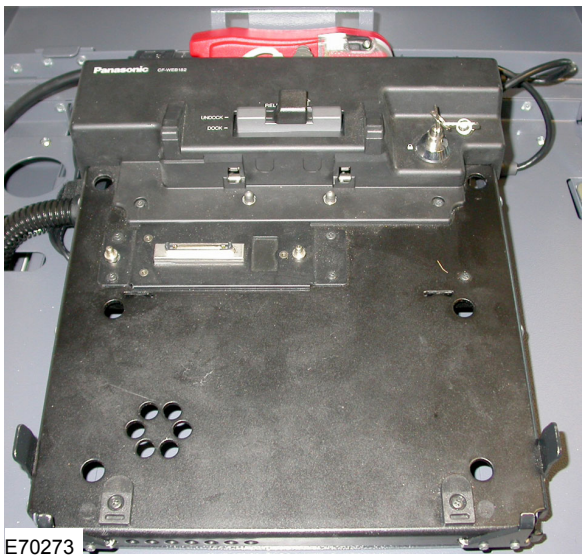
To undock IDS from the work station, simply unlock the release latch using the key provided. Operate the release latch and lift IDS clear of the docking station.

Undocking Procedure



E70275

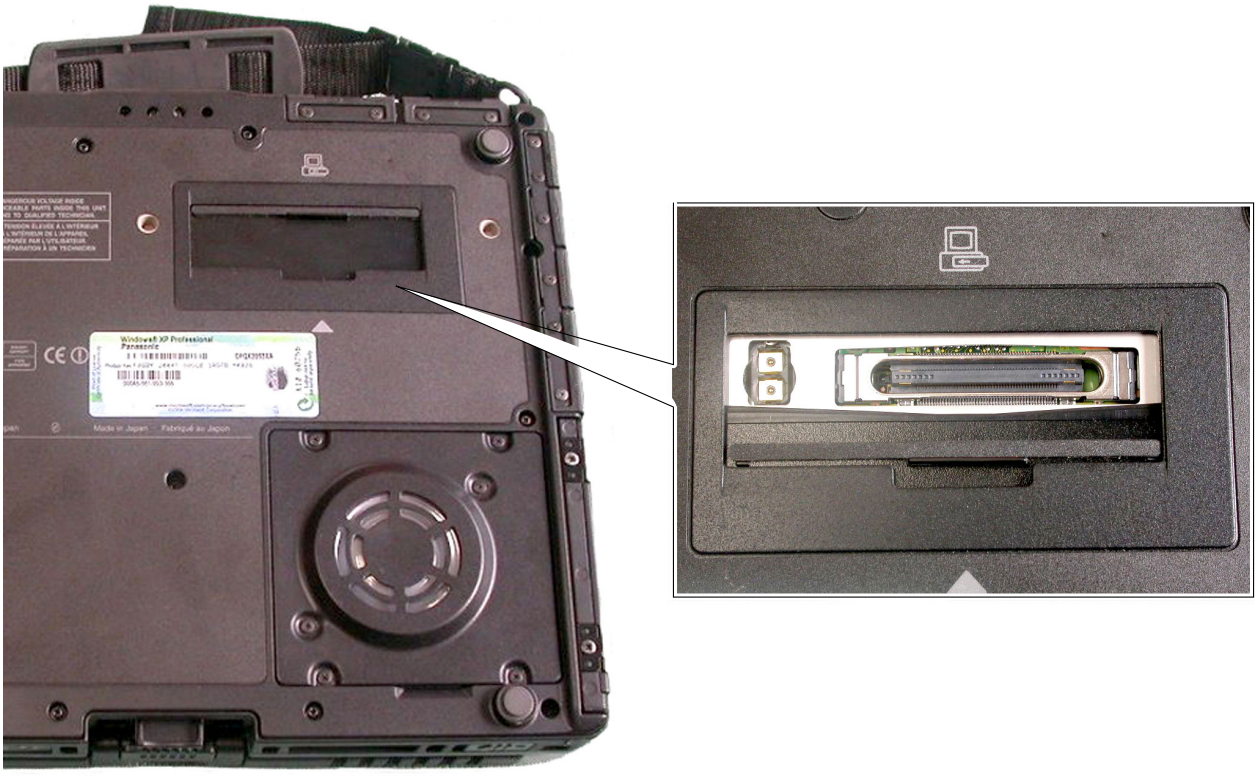
Docking Station



E70273

All connections to IDS will automatically be removed since connection to the work station is done using the single replicator connection located underneath IDS.

Replicator Port



E68228

Once IDS has been removed from the work station, close the access cover of the replicator port to prevent the ingress of dust and moisture.

To dock IDS to the work station simply reverse the undocking procedure.

⚠ **CAUTION: Make sure that the replicator port access cover is open before attempting to dock IDS to the work station.**

Using the USB Drive

USB Drive

E68238

A 128MB USB drive (sometimes referred to as USB mass storage device) is supplied to allow files to be stored or transferred to another computer. If a printer is required to print files, which is not connected to IDS, it may be used to transfer the required files to the printer.

The large capacity of the USB drive will provide the facility to transfer a large amount of data from the IDS laptop computer to another computer.

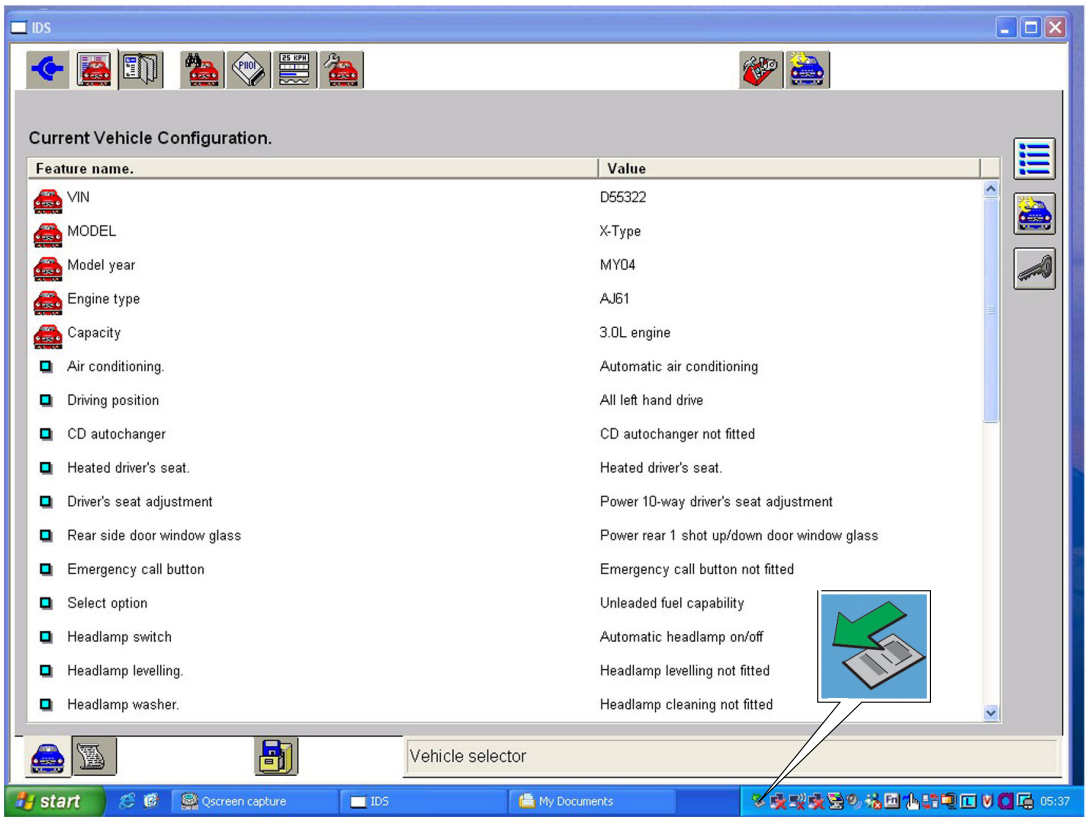
Insert the USB drive into one of the USB ports on IDS. After a short time, IDS will recognize the device and will open and display the contents of the drive. A symbol will appear on the task bar to indicated that a USB device is connected.

USB Symbol

Save the required files to the USB drive and close the drive.

⚠ **CAUTION: Do not remove the USB drive from IDS without first closing the drive and carrying out the disconnection procedure.**

Before removing the USB drive select the USB symbol on the task bar.



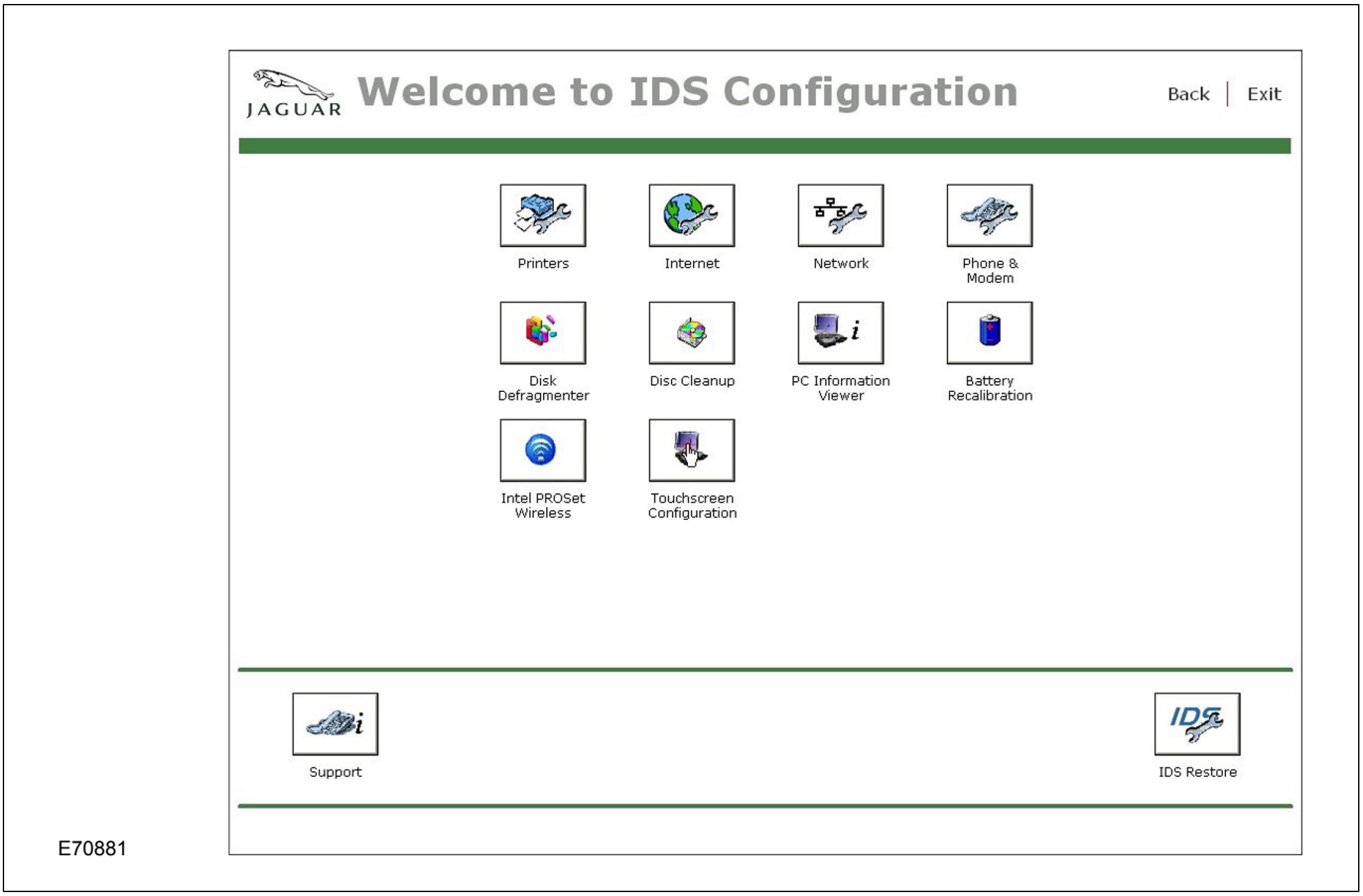
E69026

The following message will be displayed: **'Safely remove USB mass storage device'**. Select the message. A confirmation message will be displayed stating that it is safe to remove the USB drive and the symbol will disappear from the task bar.

Calibrating the TSD

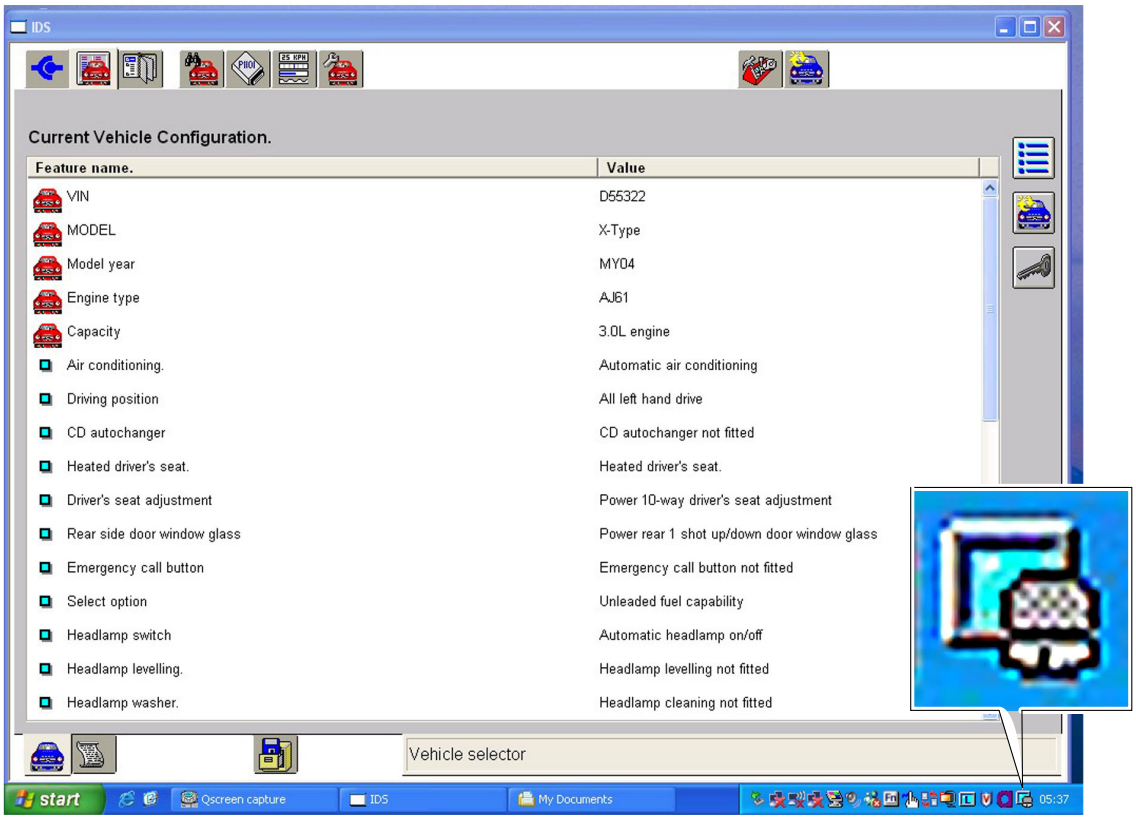
If the accuracy of the TSD has depreciated then it may be recalibrated by selecting the TSD configuration button from the configuration menu of IDS.

TSD Configuration Button



The following symbol may also be selected from the task bar in order to access the TSD calibration menu.

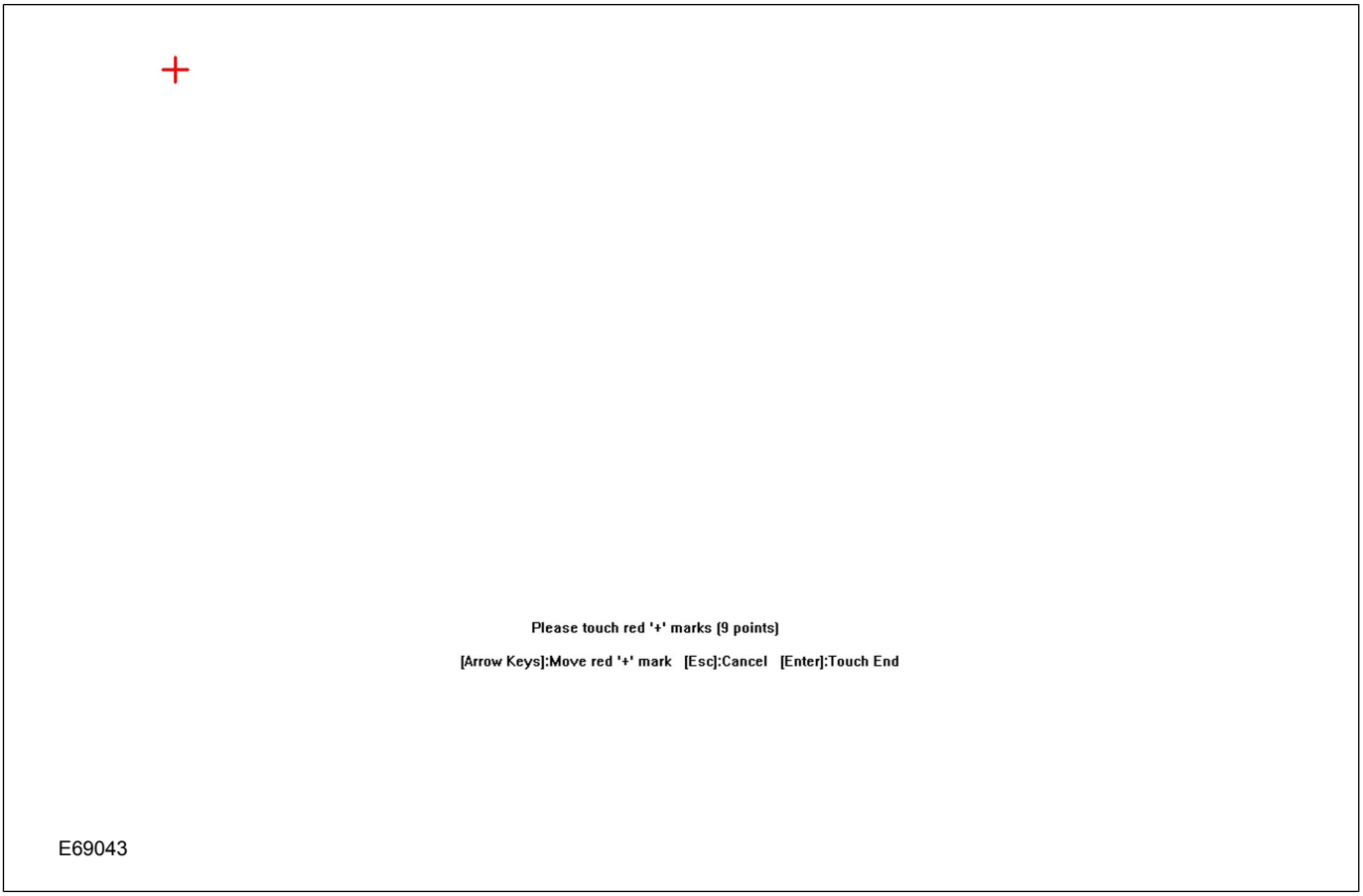
Mouse properties/TSD calibration menu Symbol



E69027

The mouse properties will be displayed. Select the **Touch screen** tab and then **calibration**. The calibration screen will be displayed.

Calibration screen



Using the stylus, touch and hold the + symbol for approximately one second. The symbol will then move to another position where the procedure will be repeated. Repeat the process for each position of the + symbol. The calibration process is complete once all nine + symbols have been touched followed by the enter key.

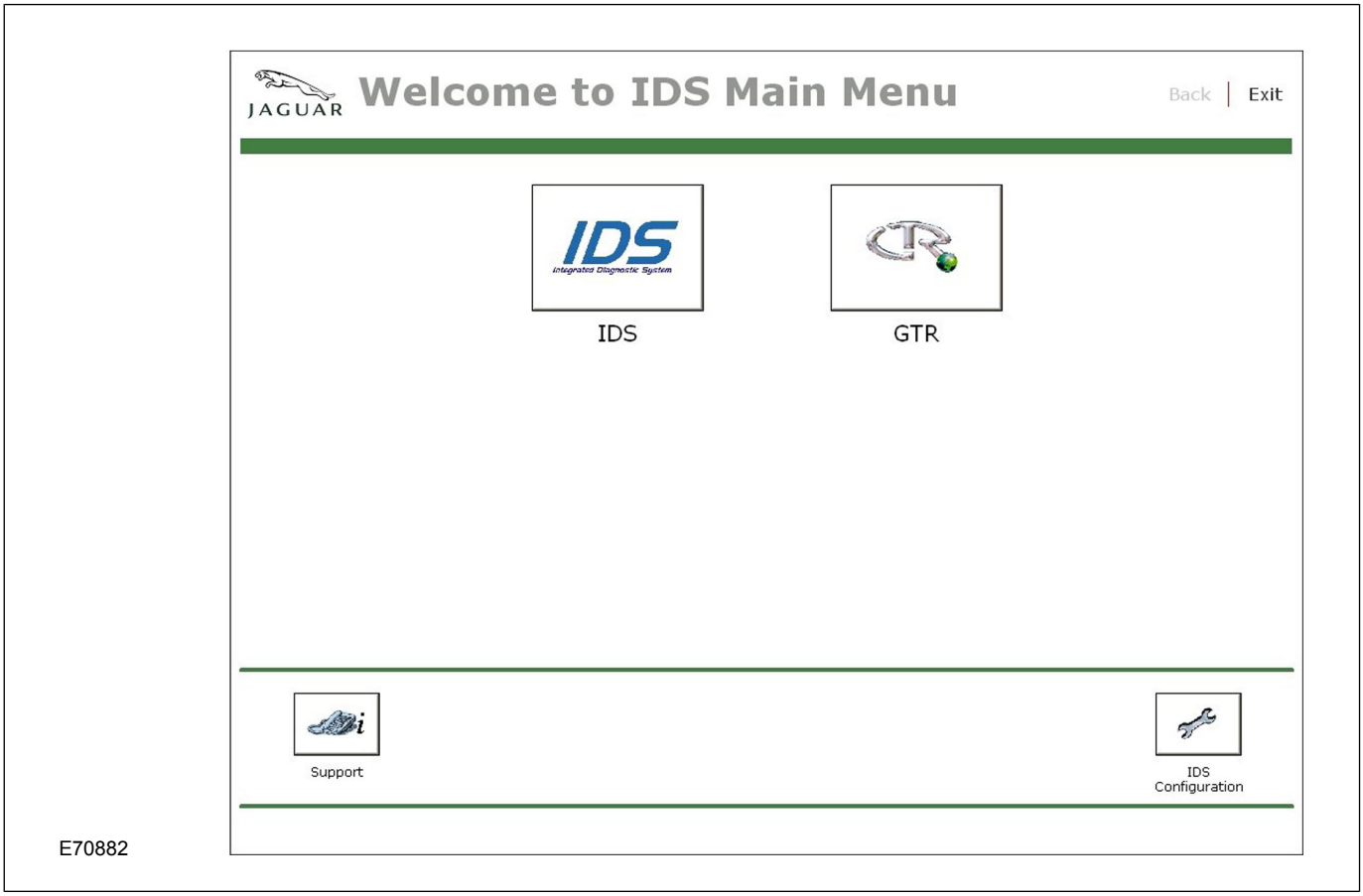
Main Menu

The 'Welcome to IDS main menu' screen will automatically be displayed once IDS has been switched on.

The following options may be selected from the IDS welcome screen

- IDS
- GTR
- Support
- IDS configuration

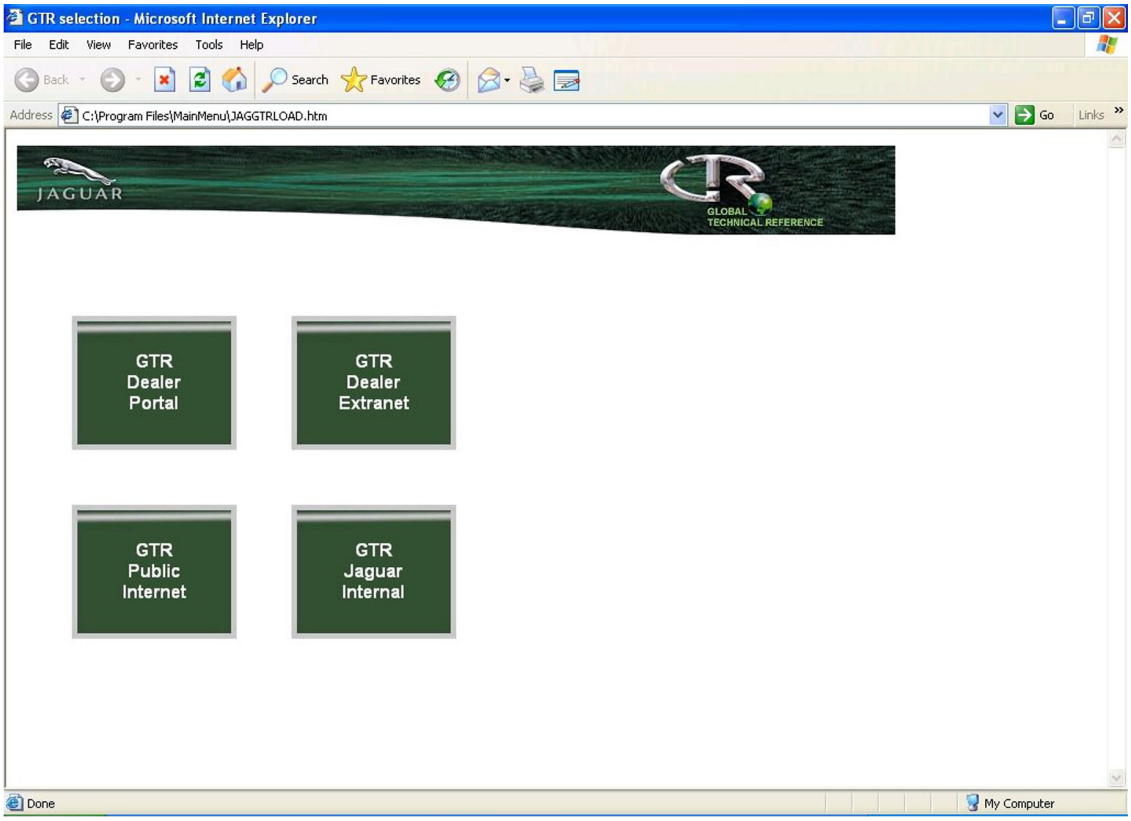
Main Menu



Selecting IDS from the menu will open the IDS application and the user may navigate to the VIN entry screen.

Selecting GTR will open the GTR screen.

GTR Selection Screen



E70880

Content Model

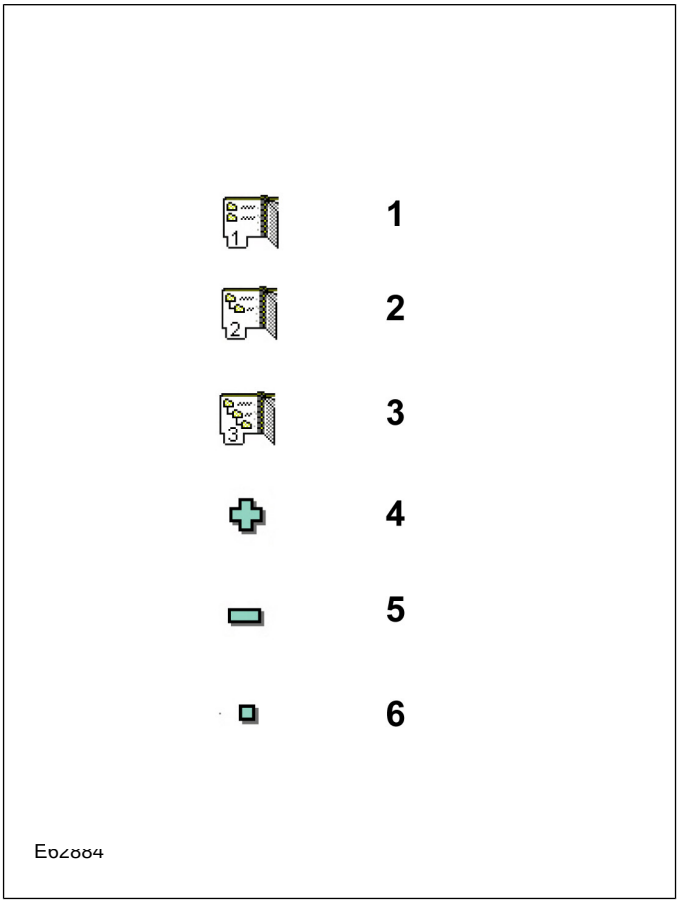
The content model will already be familiar with technicians who are experienced in using PTU / WDS. This section is only included to show that the IDS diagnostic software, has a similar look and feel to that of WDS and is used in the same manner. The diagnostic menus are constructed the same as they were on WDS. Therefore the experienced PTU / WDS Technician will be able to use the IDS diagnostic software without any problem.

Content Model Tab

The content model tab will already be familiar with technicians and operates in the same way as it did on PTU.

To use the content model first select the content model tab.

The Content Model is similar to the workshop manual navigator. The left side of the screen presents the main vehicle systems in the form of an expanding hierarchical tree. The name of the selected system is displayed on the title bar at the top of the screen. As the hierarchical tree expands, sub-system and component names are added to the system name.

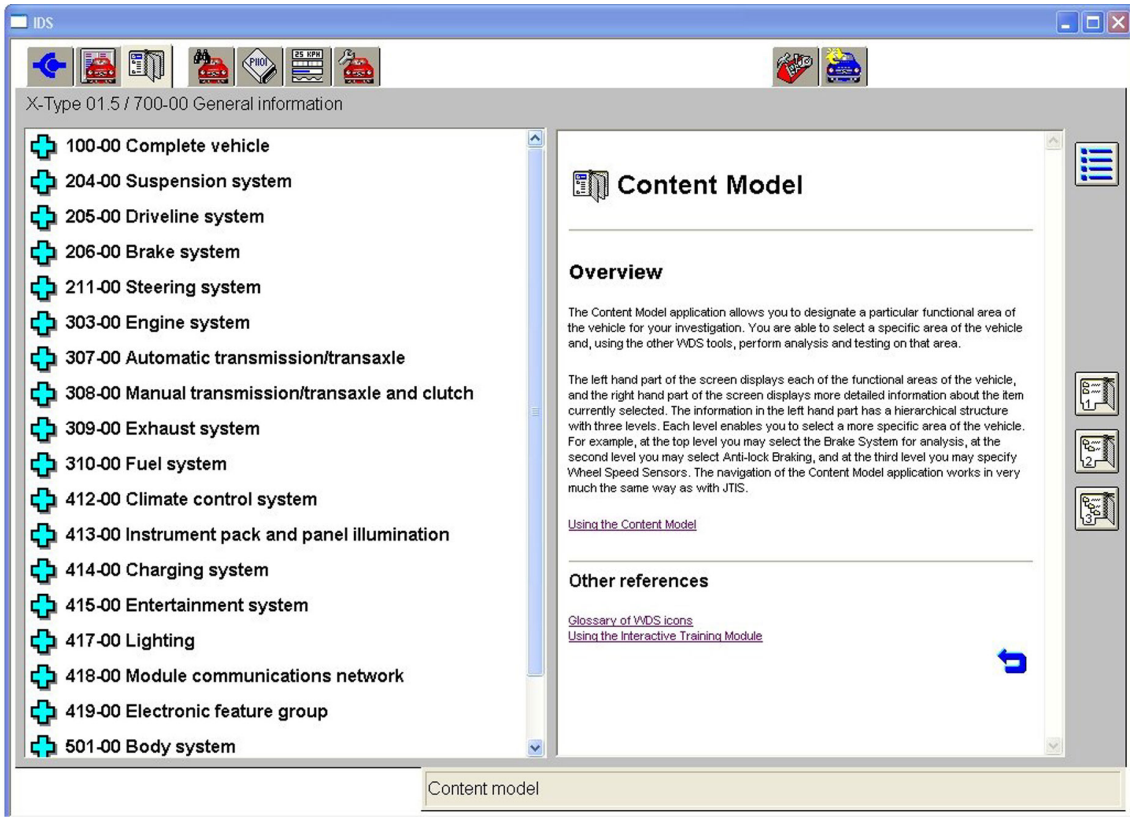


1	Level 1 button: Level 1 only	2	Level 2 button: Expand content Level 2
3	Level 3 button: Expand all content	4	The item may have lower levels
5	It has been expanded	6	It is the lowest level

When a content position is selected this is passed to all of the tools. The current content position is displayed on the title bar.

Level 1 Button

Content Model Screen - Level 1

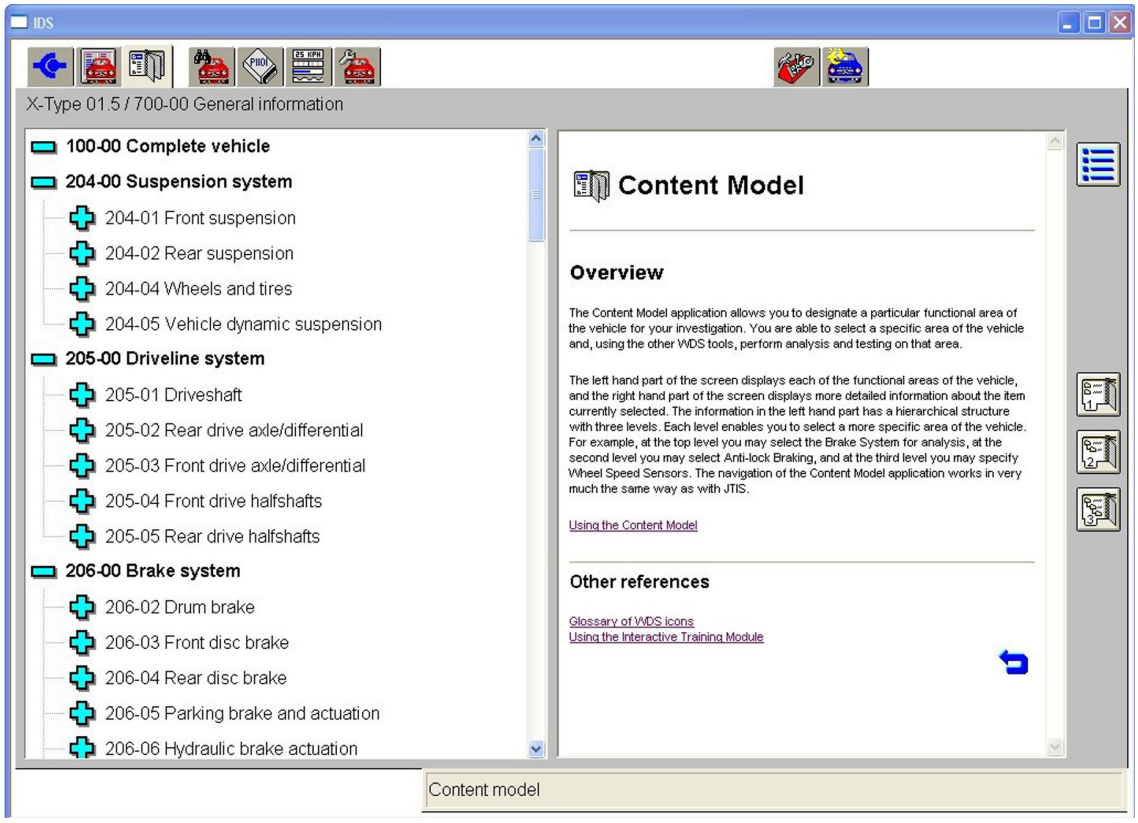


E70893

Level 1 button Select the Level 1 button to display main vehicle systems. At this level, DTC monitor and Datalogger will be configured to the system you have selected.

Level 2 Button

Content Model Screen - Level 2

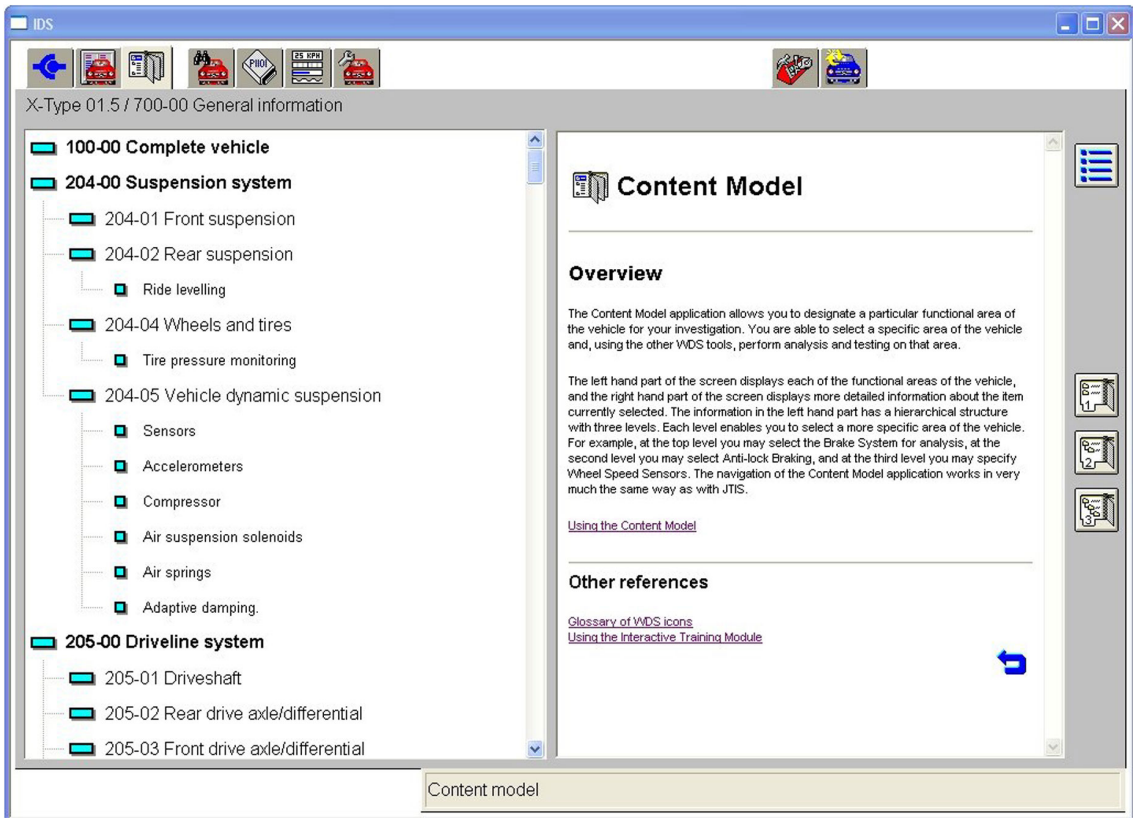


E70894

Level 2 button Select the Level 2 button to reveal the constituent sub-systems. At this level, DTC monitor and Datalogger will be configured to the sub-system you have selected.

Level 3 Button

Content Model Screen - Level 3



E70895

Level 3 button Select the Level 3 button to expand the tree further. At this level, DTC monitor and Datalogger will be configured to the components you have selected.

Task Bar

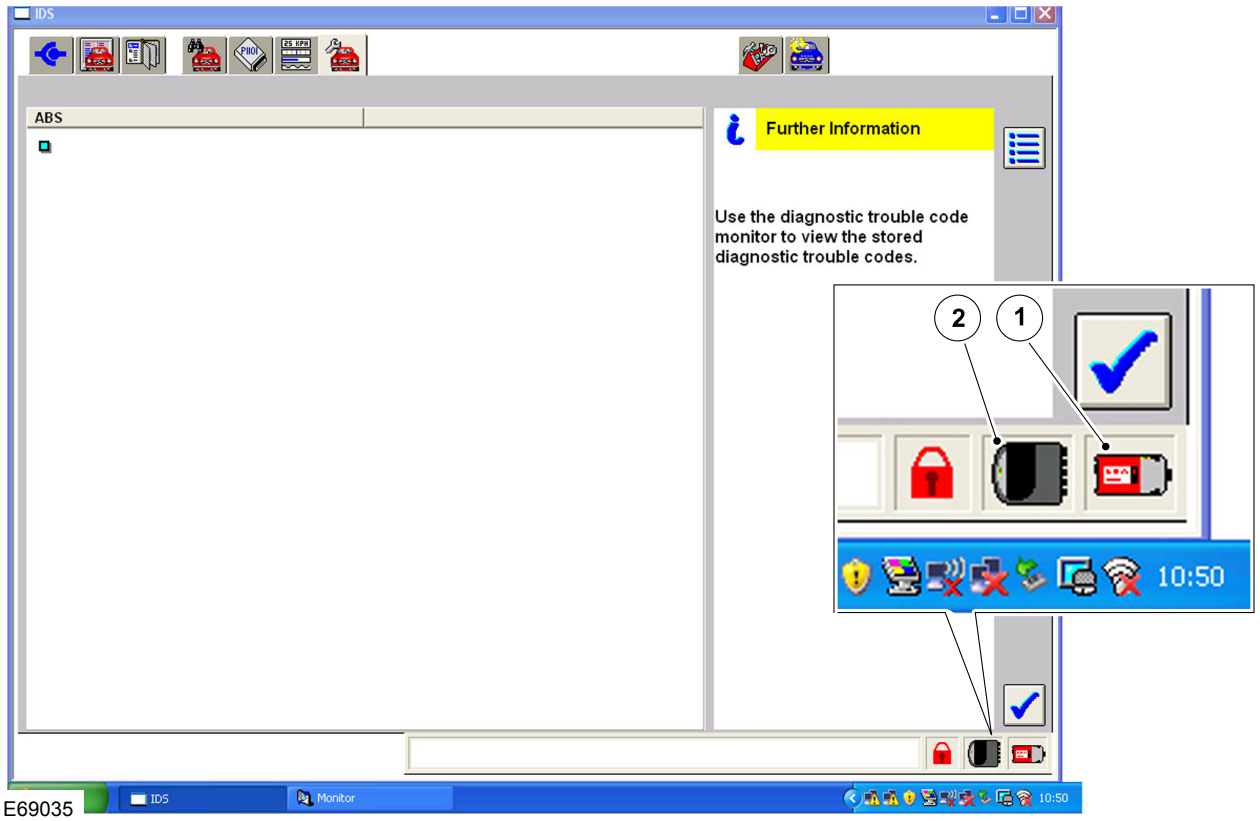
Technicians already experienced with using PTU / WDS, will have noticed that when using the IDS diagnostic software, the task bar is displayed at the bottom of the screen. The right hand corner of the task bar displays information which may be useful to the operator and which may be used to access further menus or features of the computer. The number of symbols displayed will vary depending upon the status of the computer.

Task Bar Symbols

E71397

VCM and VMM Display

When either the VCM or the VMM is connected to IDS and they are powered up, a symbol will be displayed in the information bar confirming their connection.



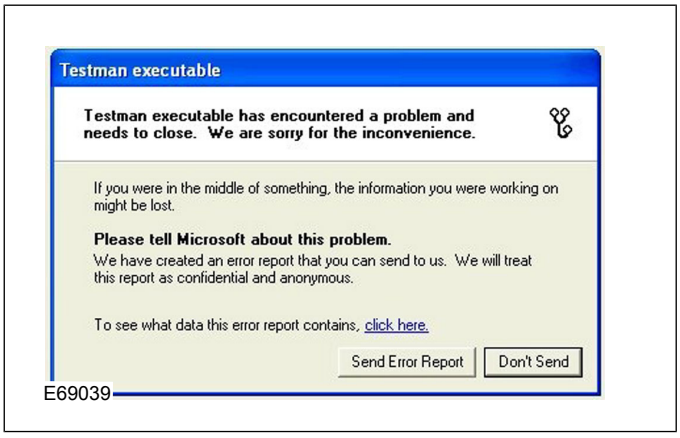
1 VCM connected

2 VMM connected

Testman

If for some reason an error occurs while using IDS, a Testman executable message window may be displayed.

Testman Executable Message



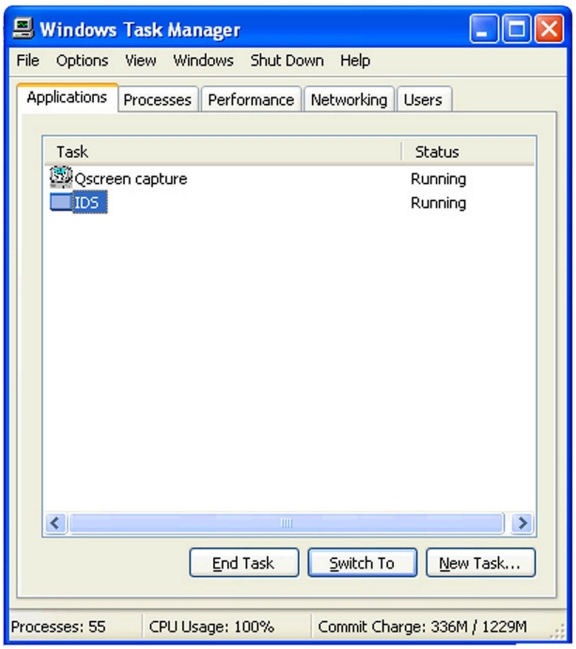
Select the 'Click here' option to display details of the error report. Make a note of the details and select the 'Don't Send' option.

Task Manager

If for some reason IDS 'locks up' and fails to respond to TSD or keyboard commands. It may be necessary to close down the IDS application. To do this when IDS has 'locked up' simultaneously press the Ctrl + Alt + Del keys on the key board.

The task manager will be displayed.

Task Manager

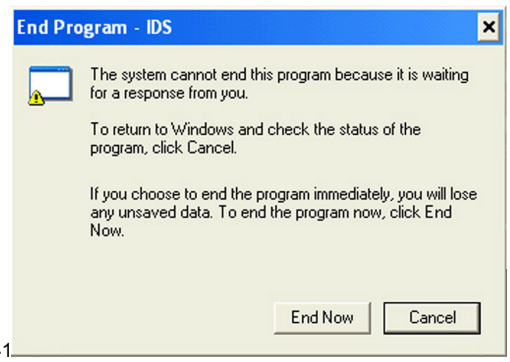


E69050

Select the program which is not responding, (IDS) and select 'End Task'.

A confirmation message will be displayed.

End Program Confirmation



E69041

Selecting 'End Now' will close the application.

If the computer has locked up completely and will not respond to the Ctrl + Alt + Del keys, it may be necessary to shut down the computer by holding the power switch in the 'on' position to force it to shut down.

NOTE: This process should not normally be required and should not be used as a substitute for closing down the computer by exiting from IDS.

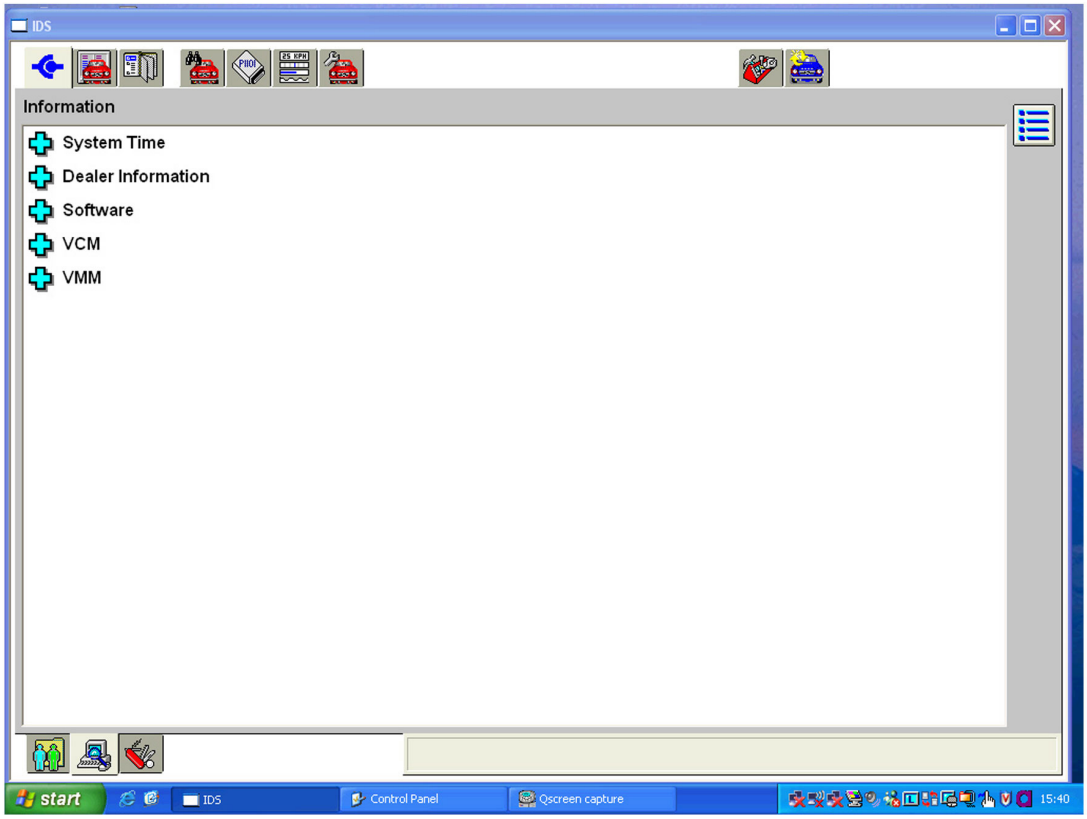
If the above problems persist the IDS support desk should be contacted.

System Information

Selecting system information following selection of the IDS tab reveals the following information

- System time
- Dealer Information
- Software
- VCM
- VMM

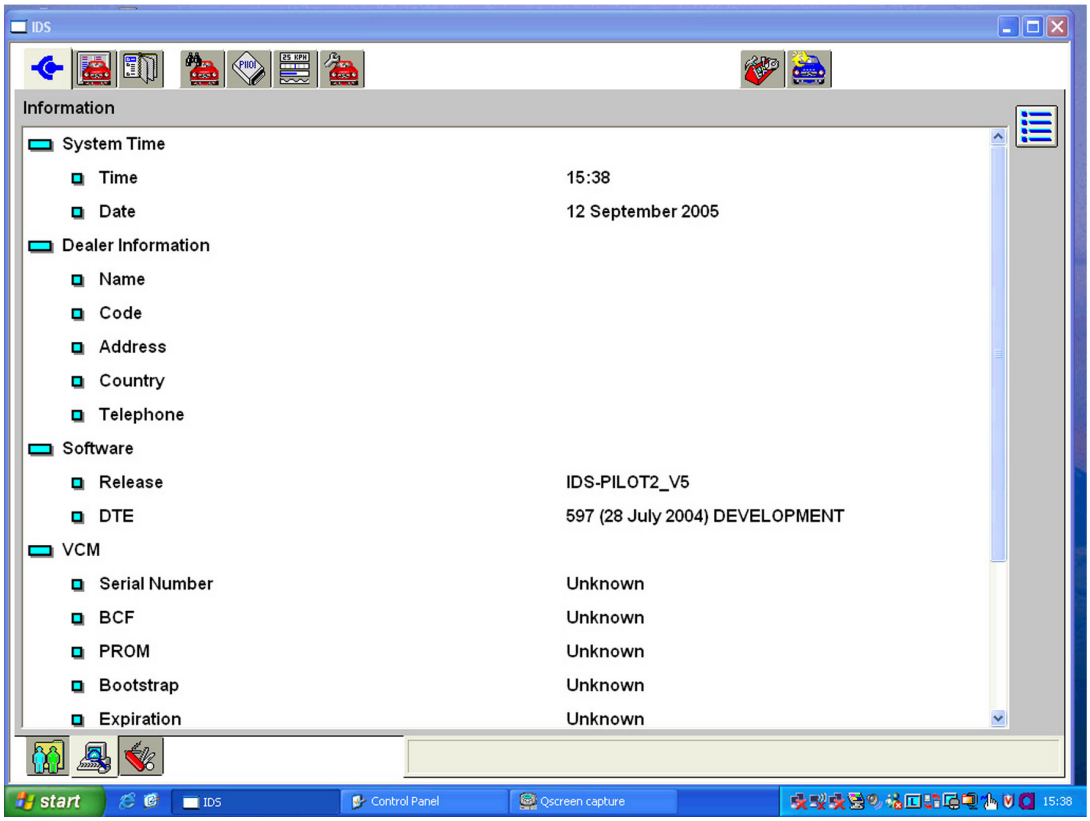
Information Screen



E69031

Information details may be accessed by selecting the relevant menu.

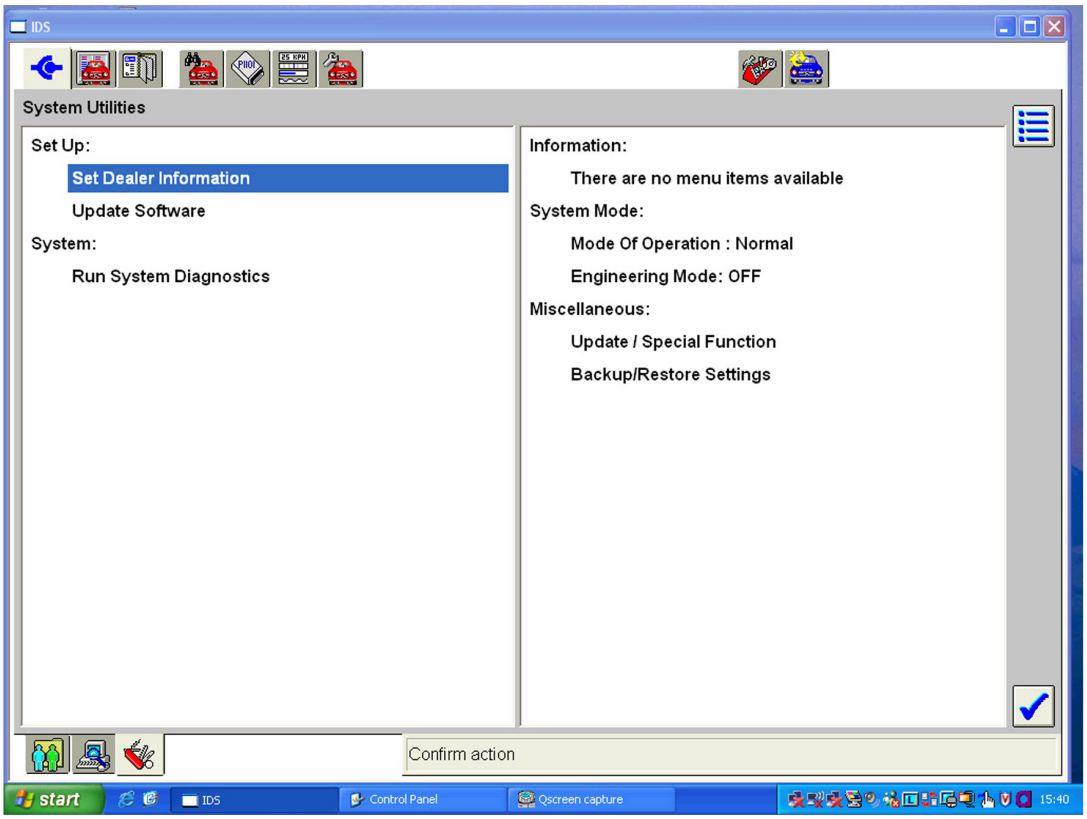
Information Screen



E69058

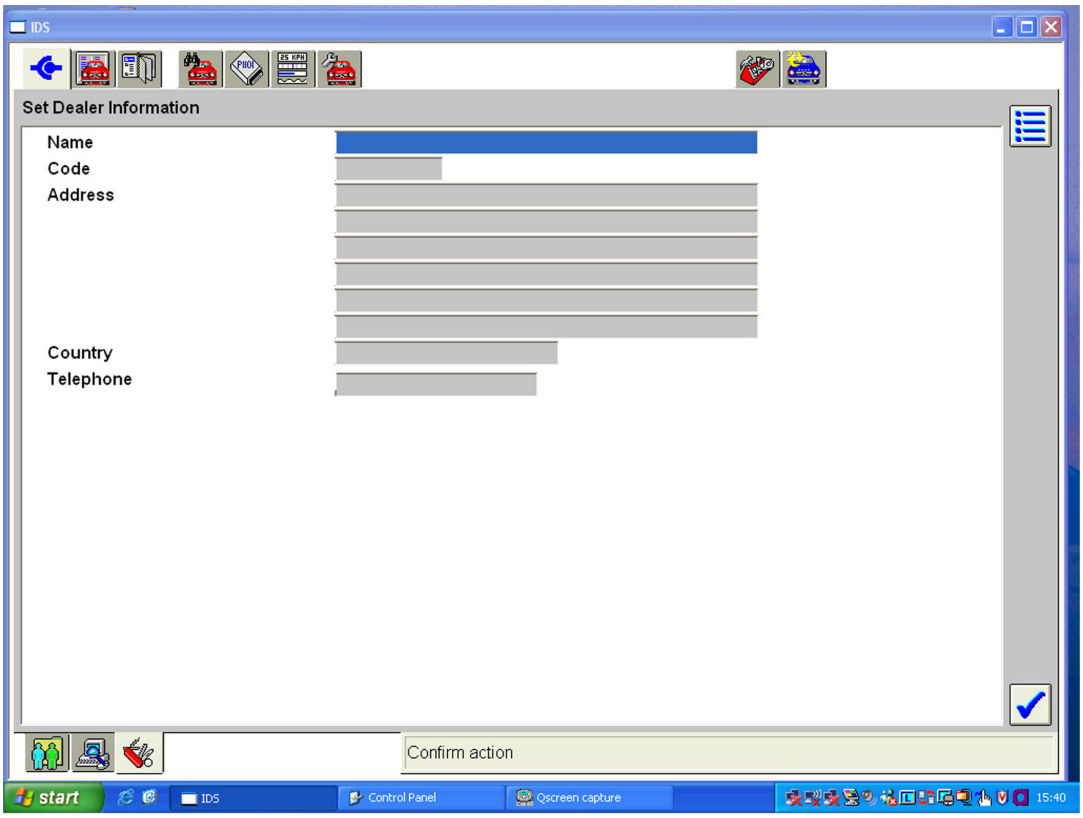
Selecting the system utilities tab will allow access to the dealer information set up menu.

System Utilities Set up



E69033

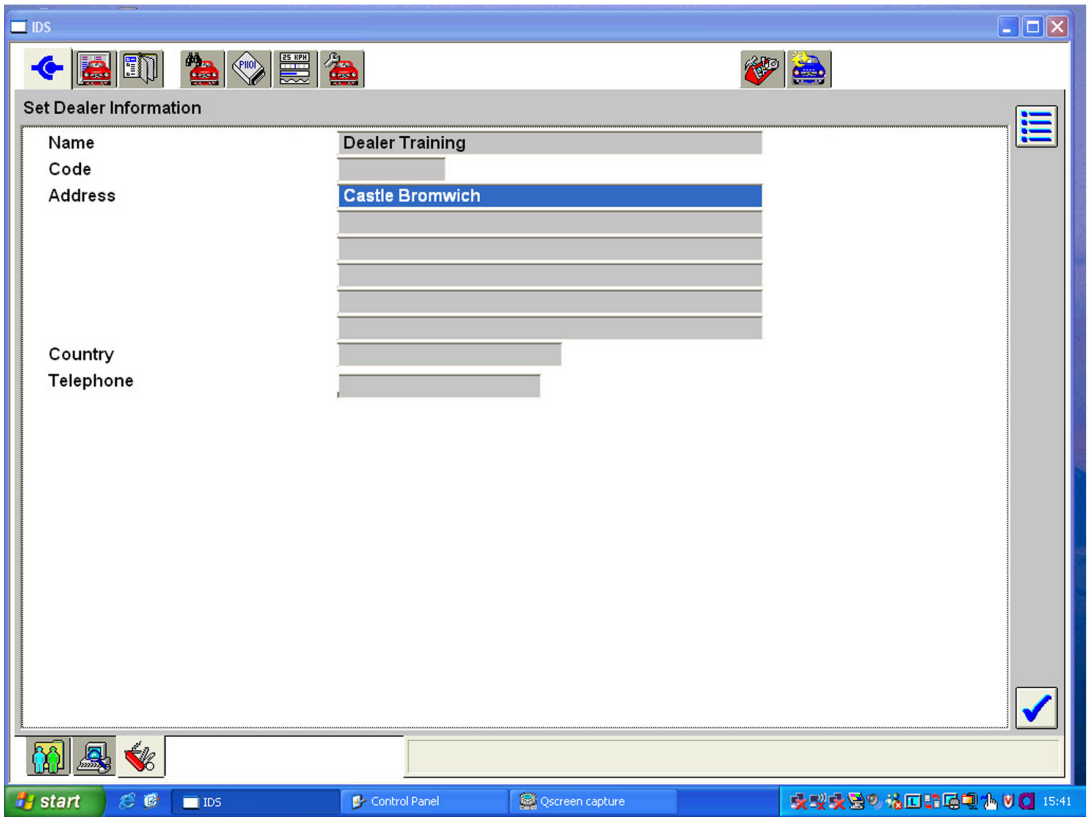
Set Dealer Information



E69052

Enter the information as required

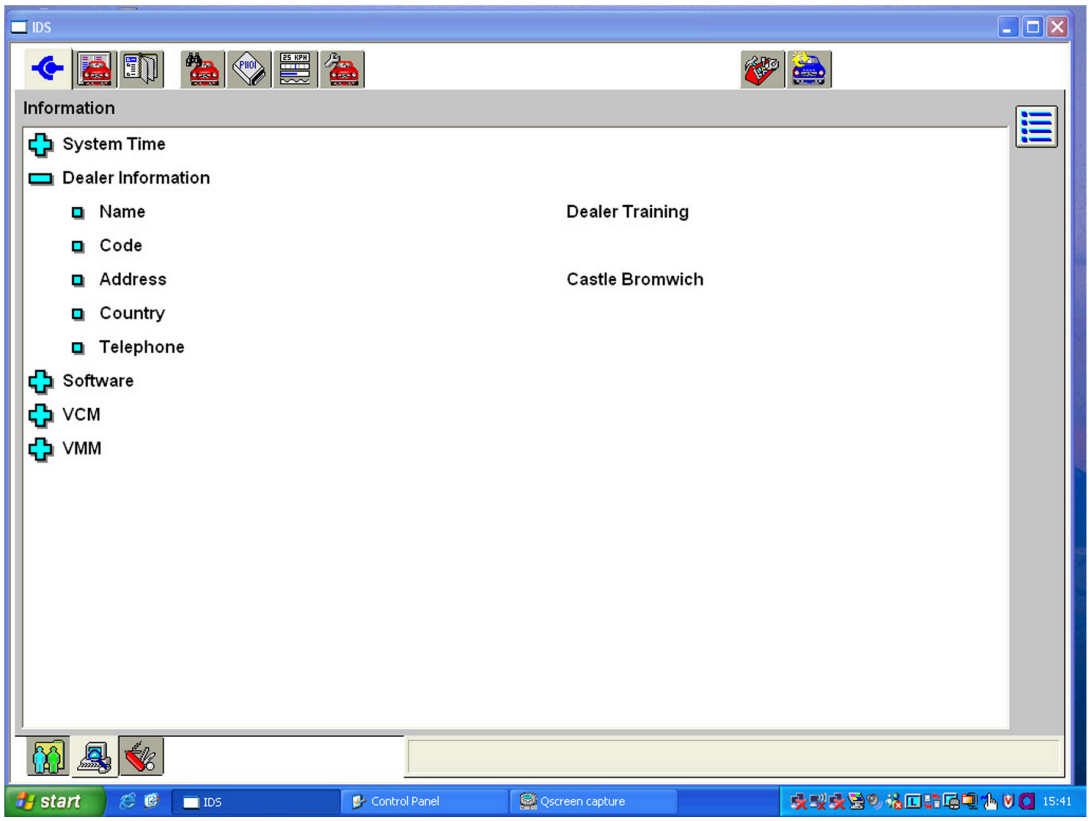
Dealer Information Details



E69053

Once the information has been entered it will be displayed in the system information screen.

Dealer Information Displayed



E69054

IDS Software

The IDS software will be released in DVD format. A DVD has a much larger data storage capacity than a CD. It will also prevent the possibility of the IDS software being inadvertently loaded onto the PTU.

The software discs will have a similar numerical system to that of the WDS discs which is already familiar to experienced Technicians.

To carry out a software update simply insert the latest IDS disc into the DVD drive and follow the on screen instructions. An auto run file will cause the software installation wizard to automatically open.

Alternatively, Software update may be selected from the system utilities menu of IDS.

Phoenix Restore Program

Most computer faults are due to software and configuration issues. A fault rarely occurs due to a hardware failure.

A Phoenix restore program is installed on IDS and may be used to reset the laptop computer to the same configuration as it was on a date when it was known to be operating satisfactory, or to the same configuration as the laptop was when it was first switched on for the first time.

The two options are:

- Incremental restore point
- Static restore point

Incremental Restore Point

The Phoenix restore program will be set to make an Incremental restore point each day.

⚠ **CAUTION: The time that the restore point is created has been set during manufacture and should not be changed.**

The program takes a snap shot of the hard drive and stores it on a partitioned part of the hard drive. The size of this partition will allow the storage of many Incremental files. However, once the partitioned drive becomes full, the later Incremental restore points will still be saved by the program deleting the earlier restore points in order to make room for the new Incremental restore point file.

The Phoenix recovery program is accessed from the IDS Restore button of the IDS configuration menu screen. Selecting the Phoenix FirstWare recovery pro button, will give access to the recovery program.

CAUTIONS:

⚠ **Do not access the Phoenix restore program unless instructed to do so by the IDS support desk.**

⚠ **If instructed by the support desk to use the Phoenix restore program, make sure that their instructions are followed carefully.**

NOTE: Once a restore point action has been carried out, all restore points and data saved since the selected date will have been deleted, since the computer is being set to the condition which it was at on a previous date.

Static Restore Point

There is only one static restore point. This is also allocated a space on the partitioned part of the hard drive. The static restore point will have been created the very first time that the computer is operated. Restoring the computer to the static restore point condition will erase all data and changes made after the static restore point was created. You should also be aware that it is possible to create a new static restore point, but this is not recommended since this action will erase the original static restore point data. This will prevent the computer from being reset to its original condition.

⚠ **CAUTION: Never create a new static restore point. Doing so will erase all original data and may prevent the laptop from being restored to a known good restored condition.**

If 'Windows' fails to operate after switching on IDS, but the computer appears to be working but cannot be used. On the sixth attempt of switching on IDS, the Phoenix restore program will automatically be opened.

Contacting the Support Desk

In the event that you experience any problems with using IDS and you are unable to resolve them by repeating the procedure or by consulting IDS literature, contact the IDS support desk for assistance.

Details of the relevant contact telephone number may be found by selecting the 'support' button from the IDS main menu screen.

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The support desk will carry out a call qualification check, making sure that your dealer code is valid and that your support contract is up to date.

NOTE: IDS support is carried out by SPX and not the Dealer Technical Support Hotline.

NOTE: The Dealer Technical Support Hotline will deal with vehicle concerns.

Before contacting either of the support teams, make sure you have the following details available:

- Dealer Name
- Dealer code
- Telephone Number
- Fax Number
- Contact name
- IDS Serial/Model Number
- VIN number of the vehicle being tested
- Details of the test being carried out
- The details and description of the fault
- Details of any error messages displayed
- The IDS software application details. Example: IDS software release number 2

A support desk information form must be completed before contacting the support desk.

The following items are covered by a five year manufacturers warranty:

- IDS Laptop computer
- VMM
- VCM

The battery and leads are covered by a six month manufacturers warranty.

Replacement components will usually be received by the dealers within 24 hours of contacting the support desk, depending upon the market and the time of day that the support desk was contacted.

An item covered under the manufacturers warranty will be temporarily exchanged with a replacement component being loaned to the dealer. The original component will then be tested and repaired. The component will then be delivered to the dealer. The support desk will then arrange collection of the loaned component from the dealer. If the dealer does not allow the loaned component to be collected within the time period, then the dealer will incur a penalty cost.

It should be noted that computer faults are usually caused by software problems and are rarely due to faulty hardware components.

A replacement component not covered under the manufacturers warranty will incur a cost to the dealer. Example, replacement of a damaged measurement probe.

Vehicle Details And Reported Fault

This should include the exact vehicle model, derivative, model year and VIN, plus any component numbers or codes relevant to the area of the vehicle being worked on. When combined with details of the reported fault that you are trying to diagnose, this may give IDS engineers a short cut to a solution based on previous experience.

An IDS report form should always be completed before contacting Technical support

Details Of Test Being Carried Out

This information is vital to an IDS engineer who is trying to reproduce and solve the problem.

Some diagnostics may be reached using several different routes. It is vital that the IDS engineers follow exactly the same diagnostic route as the technician experiencing the problem. It would help if you made a note of each screen where you made a decision, so the engineer can follow exactly the same route.

Example:

- Select Diagnostic System
- Select Security
- Select Locking/Unlocking
- Select guided diagnostics

Continue the route until you reach the screen where the fault occurred.

Full Details Of Any Difficulties Using IDS

It may be useful to IDS engineers if they are informed of difficulties experienced when using IDS even though you may have resolved the problem yourself. This information may then be used to prevent problems occurring in the future.

Hardware and Connection Details

NOTE: If the IDS screen on which your problem occurred is one of those that can be printed, please print it off and fax it through to the Help Desk with your Information Sheet. The more information you can provide to the Help Desk, the faster they can resolve the problem.

It is essential to use the correct cables for a given test procedure. By providing the details of the cables/connections used will enable the IDS engineers to check that these are correct before looking for other problems.

IDS Support Desk Contact Details

IDS Support Desk Contact Details

Country	Phone	Web address
Europe/ROW	080077977910	www.spxtools.com
ROW	+49 (0) 6182959400	www.spxtools.com
USA	+1 (1) 8005335338	www.spxtools.com
Japan	+81 (0) 455624483	www.spxtools.com
Mexico	+52 (01) 5525951630	www.spxtools.com

PDF995

PDF995 is a program which will allows the user to capture screen images and save them as a portable document format (pdf) file. These files may then be saved to a preferred file destination of the computer, or the USB drive and transferred to another computer for printing or e-mailing etc. When a problem exists it may be most helpful if the screen images are captured and sent to the support desk.

To capture the screen image, select the **Select System Options**button. When the **print screen** confirmation message is displayed, select the tick symbol. A **Pdf995 Save As** window will be displayed. Select file address where the file is to be saved and give the file a name.

Example: Save in: My Documents, IDS screen images. File name: VIN_012345_ DTC1

Select save.

Adobe Reader will be opened displaying an image of the screen you have captured. Close the document.

To locate the document, open the desktop and go to the file where the document has been saved.

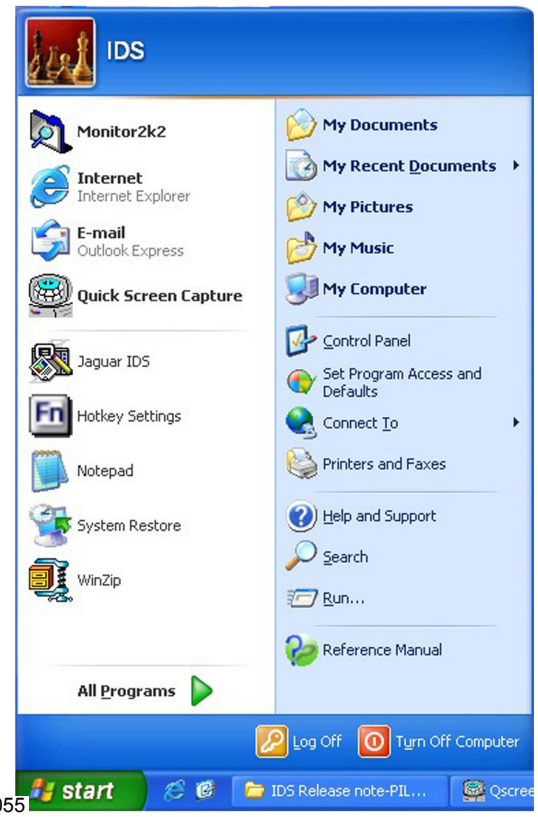
The file may be copied to the USB drive and transferred to another computer or printer if required.

Trace Monitor

It is possible to create a file containing all details of a diagnostic routine carried out. This is especially useful for engineers to locate the cause of a failed diagnostic routine.

Before exiting from the diagnostic routine, select **Monitor2k2** from the start menu of the desktop.

Monitor2k2



The Monitor2k2 program will be opened and a trace of all data relating to the diagnostic routine carried out will be created. Name and save the file to a preferred destination, where it may be retrieved later. It is recommended that the file name contains the VIN, since this will assist in referring to it easily. The file may be transferred to another computer using the USB drive and if required may be sent to engineering for analysis.

The trace file will show all details of the diagnostic routine carried out. This will include the VIN, test being carried out, which answers had been selected from the pop up messages etc.

CCF Files

The Car Configuration File on the vehicle replaces what was previously known as the Vehicle Identification Data (VID) block. Although the VID block system has been replaced by the CCF data the principles of the two are similar.

The CCF consists of two parts:

- Vehicle Module Codes
- Vehicle Parameters

Vehicle module codes are the data used in manufacturing to specify the vehicle and are stored to be used in service.

Vehicle parameters are derived from the vehicle specification and relate to which features are fitted to the vehicle and their market settings.

The CCF is held in three locations on the vehicle:

- Auxiliary Junction Box
- Central Junction Box
- Engine Control Module

The two junction boxes have intelligence built into them.

The Auxiliary Junction Box holds the Master copy of the Car Configuration File and the other two modules hold backup copies.

The Auxiliary Junction Box transmits the Vehicle Parameters part of the Car Configuration File on the MS-CAN bus. This data is transferred through the CAN to CAN gateway in the Instrument Cluster and then onto HS-CAN. When ever the CAN network is active, this data is broadcast onto these networks at regular intervals. The Engine Management Control Module and the Central Junction box, which hold backup copies of this data, do not broadcast onto the network.

The Master Module, in this case the Auxiliary Junction Box, will monitor the integrity of the memory where CCF information is stored. If a fault is detected a DTC will be set.

Within the make up of the Vehicle Parameters code is an area used for the vehicle VIN. This VIN data is implanted and locked into every module, that is capable of accepting it, during the programming process. This has service implications as it is also a vehicle security feature and will prevent the swapping of modules from vehicle to vehicle.

Examples of data held in the vehicle parameters code are:

- Vehicle Type
- Brand
- Model Year
- VIN
- Tire Dynamic Rolling Radius
- Brake System Type
- Brake Rotor size
- Final Drive Ratio
- Transmission Type
- Hand of Drive
- MOST configuration

Some fall into the category of Personalization Mode. These parameters can be changed by the driver using the Touch Screen Display by entering the vehicle menu or the Navigation menu.

Changing the personalization settings does not actually change the CCF but instead overlays it with another instruction.

IDS may be used to configure new and existing modules and also to change personalization settings. There will also be a CCF editing tool built into IDS which will allow certain parameters of the CCF to be changed.

Whenever IDS is used to change the CCF file, the other modules will also be programmed with the CCF data as part of the process. This makes sure that all modules which hold the CCF data all contain the same information.

Replacing a module which contains the CCF data is possible because IDS can retrieve the data from one of the other modules and then download it to the new module. If for some reason the CCF data in the other modules has been wiped from the modules or has been overwritten using incorrect data, then it will also be possible to retrieve the as build CCF data from the IDS software disc. This CCF data will be the same as was originally programmed to the vehicle during manufacture. If any accessories have since been fitted to the vehicle in service which required the CCF data to be modified, then the CCF will then need to be modified to allow these accessories to operate.

The vehicle module codes held in the master and back up modules will also be read by IDS when requested by the diagnostic program. These vehicle module codes are not transmitted cyclically on the CAN bus and are only read by diagnostic communication to IDS.

Accessing CCF Data using IDS

When carrying out diagnostics on the new XK using either IDS or PTU, the CCF data must first be uploaded in order for it to be viewed. Select the Upload, view and modify from the menu. IDS or PTU will then communicate with the vehicle and the CCF data will then be displayed. Certain parameters of the CCF file will have the option of allowing the user to modify it. This option will only be available when it is necessary. Example, the fitting of an accessory may need the CCF to be changed in order for the accessory to operate.

One of the main concerns when carrying out any module programing or uploading / downloading the CCF to a module, is that of a low vehicle battery voltage. If the battery voltage falls to a low level during one of these processes, the module may stop communicating. This may cause the CCF or the module to become corrupt and will prevent the module from operating.

⚠ **CAUTION: Do not allow the vehicle battery voltage to fall low during uploading / downloading of the CCF or module programing.**

To prevent this condition from occurring, make sure that the vehicle battery voltage is above 12.1 Volts. It is recommended that a battery charger is connected to the vehicle when carrying out either uploading / downloading of the CCF or module programing.

Also make sure that the IDS unit is running from a mains power supply to prevent the system shutting down during this process.

During module programing, if the vehicle battery voltage falls to a low level, a low battery warning message will be displayed on IDS.

Connecting IDS to a Vehicle

Connecting IDS to a vehicle is very similar to that in which PTU / WDS is connected. However, when carrying out diagnostics using the diagnostic socket, the VCM must now be used.

The VMM must be connected to the vehicle battery using the battery reference cable when carrying out any electrical measurements.

NOTE: The VMM and the VCM are powered from the vehicle battery. This may cause the vehicle battery voltage to fall to a low level much sooner than expected when carrying out diagnostics.

Using the approved battery charger connected to the vehicle, will prevent the vehicle battery voltage falling to a low level while carrying out diagnostic routines.

Connecting IDS From the Work Station

Connecting IDS without the Work Station