

What Is It

Chinese MB STAR Diagnosis System (SDS) C3

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1. Revisions

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2. Acknowledgement

Benz World Members, especially MBSL550, Noodles, eric242340, Ne3M, Okiebenz, bhatt, Mackhack, Diesel_Benz, grinich, robledoch, BenzModz et alia and Taztheman at JCREcordings Software Forum.

<http://www.benzworld.org/forums/r230-sl-class/1573730-chinese-mb-star-scanners.html>

http://www.jcrecordings.com/index.php?option=com_kunena&func=view&catid=3&id=9201&Itemid=571#9201

3. Introduction

This document is part of my SDS quartet of documents which I produced after months of research and experimentation with a Chinese SDS.

- SDS What is it.
- SDS Instructions For Connecting and Using
- SDS Software Installation Instructions
- SDS Transfer From External HDD to Internal HDD

I do not profess to be an expert in SDS, far from it, but I do find that keeping the important information in one or two documents in as simple a form as possible helps me in future when I

have a need to revisit the subject. It may therefore be of use to other BenzWorld members. As always any feedback is much appreciated.

I purchased a Chinese MB STAR Diagnosis System (SDS) Compact3 (C3) on the Internet purely for educational purposes and so that I could experiment with some of the settings in my W220 S500, especially to do with my pet subject, the Automatic Climate Control (ACC).

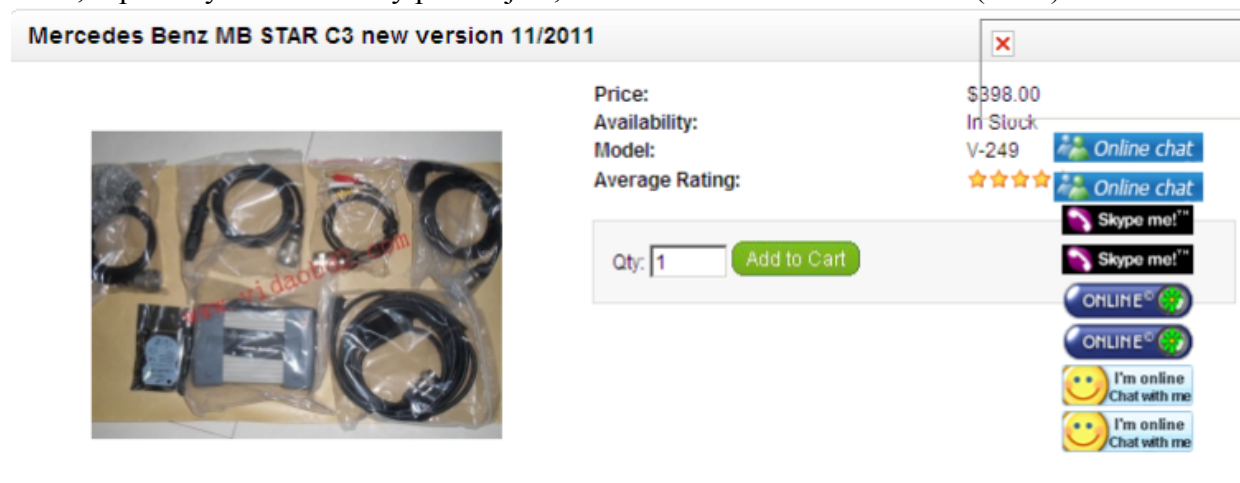


Figure 1 As Purchased MB STAR C3 11/2011

What I received was:

- 1x MULTIPLEXER
- 1x 16pin OBD II cable
- 1x 4pin cable
- 1x 38 pin cable
- 1x 14pin track cable
- 1x COM cable
- 1x RS232 to RS485 Cable
- 1x Serial adapter cable
- 1x PCMCIA RS232 Cardbus Adapter Card and Pamphlet.
- 1x Hard Drive Disc for DAS, EPC and WIS V2011.11, FINDER V2011.11.

Purchasing, owning, setting up and using a SDS has turned out to be an extremely difficult project and one not to be undertaken lightly. There is a plethora of information available on SDS on the Internet but unfortunately it is mostly non constructive, quite often abusive, and fairly often not available without paying a fee to some very enterprising people.

My SDS as supplied **came without any installation instructions** other than a couple of crude videos and an out of date pamphlet for the RS232 Card.

After a lot of assumptions and several emails to the supplier, I eventually got connected and began cautiously testing the various functions and capabilities of SDS. I particularly like the Workshop Information System and the StarFinder and have used them several times to date. I have yet to have a real need to use DAS but began self training just in case, and progressed to the point where I could exercise the cabin lights (easy to watch from outside the vehicle) and got to the stage of opening and closing various flaps on the ACC. I was able to read out the list of fault codes stored in my vehicle and was surprised to find a transmission issue which has been there for several years.

In this document I have tried to summarise in simple terms what a SDS is. It took weeks of research to work this out. If I have got anything terribly wrong please let me know.

4. SDS Outline

Star Diagnosis System (SDS) is the MB specific diagnosis system. In addition to On-Board Diagnosis (OBD) it can perform comprehensive system diagnosis on all vehicle systems (eg engine control, suspension, audio systems, climate control). It also contains detailed fault descriptions and trouble shooting information for all individual fault codes.

5. SDS C3 Functions

1. Car, Bus, Truck, Sprint, Smart 1989~up to 2011
2. All electric system Diagnostic (Does not include flash code)
3. Reading trouble code
4. Erasing trouble code
5. Live-data
6. Adaptation
7. Component testing
8. Maintenance
9. Information consultation
10. Component location diagram
11. Wiring diagram
12. MB Star C3 can perform the coding of Software Calibration Number (SCN) online on ECM program.

6. SDS C3 Terminology

- ASRA: is an electronic catalog of work units and flat rates that facilitates the fast and reliable search for operation items, working hours and damage codes. ASRA also includes additional operations, included work texts, notes and graphics of vehicle parts.
- C3: Version of SDS
- C4: Version of SDS. Has same software as C3 but has better anti electromagnetic interference properties and smaller hardware. Is required for SDConnect (wireless MUX)
- DAS: Diagnosis Assistance System.
- EPC.net: Electronic Parts Catalog: enter part numbers, get prices and information.
- Mux: Electronic Multiplexer used to connect laptop to vehicle via a cable.
- SDConnect: Wireless version of Mux. It is more convenient to use because it does not need a cable between the computer and the Mux as it works over a wireless connection.
- SDMedia: Contains Video and PDF lessons on MB vehicles.
- Smart TAN Code: Opened special function in DAS program with Smart cars.
- STFinder: Part location finder.
- StarUtilities: The movement management system and self-test software.
- TIPS: Media Library and Knowledge Base.
- WIS.net: Workshop Information System.
- Xentry: also called Xentry Diagnostics (XD) is new software released by Benz Company after 04/2009 for diagnosis of new MB vehicles. Xentry gives direct access to four applications; DAS (for newer models), TIPS, WIS/ASRA, EPC. The identity of vehicle is automatically transferred between applications.

7. SDS Hardware

Mostly plagiarised from jcrecordings with a little editing.

Reference:

http://www.jcrecordings.com/index.php?option=com_content&view=article&id=101&Itemid=534

While the hardware used to run a SDS (Star Diagnosis System) has changed over the years, the purpose is the same: ie to run Xentry DAS and connect to a vehicle through a multiplexer.



Figure 2 Laptop & SDS to MUX to W220

7.1. PC or Laptop Version

SDS can also be installed on a normal PC or Laptop running Windows XP. A special conversion cable is required to attach the Multiplexer to the serial port of the Laptop or PC. If a serial port is not available, a PCMCIA to serial converter, or a USB to serial converter must also be used.

7.2. Multiplexer

The Multiplexer or MUX is a box of electronics that is required to connect the PC system to the Vehicle. Its job is to convert PC Language to Car Language and vice versa. There are numerous types of Muxes but only two types really need to be mentioned:

7.2.1. Type D Multiplexer



This type of Multiplexer is the most common type in use outside the Mercedes dealerships. It is wired directly to the car and to the PC. The Chinese manufactured these in masses, of which the bulk were very poor quality and would not last long if they worked at all. Good quality ones are hard to find, even more so now, as the Chinese manufacturers turn their attention to the new Wireless Multiplexer.

7.2.2. SDConnect (Wireless Mux)

The SDConnect Multiplexer broke the need for a cable connection between the car and the PC with its wireless capabilities. It can also be hard wired to the vehicle using a LAN cable (recommended when doing one off programming of ECU's). Chinese Manufacturers have now moved from the Type D Mux to produce SDConnects. However, these units are proving extremely difficult to configure, unreliable (overheating etc) and can be blocked permanently.

7.3. SDS C3

Explained previously.

7.4. SDS C4

The Star Diagnosis System Compact4 (C4) system fits seamlessly into the established SDS product family. The C4 works with the modern wireless multiplexer SDConnect. The built-in WLAN function provides wireless access to the IT network in the workshop.



Figure 3 SDS Compact4

8. SDS C3 Software Applications/Programs

My Chinese SDS C3 as purchased contained these applications/programs:

- SDMedia: Contains Video and PDF lessons on MB vehicles.
- StarFinder: Shows photographic location of vehicle parts using MB part number.
- Xentry: Gives direct access to four applications;
DAS
TIPS
WIS/ASRA
EPC.
- Xentry SIM: Runs Xentry in simulation mode without a vehicle connected and is useful for training purposes.
- EWAnet: Accesses the Electronic Parts Catalogue (EPC) via a local intranet connection.
- Star Utilities: Program containing utility programs for setting up and testing status of SDS.
- PL65: Parts price List in Euros.
- StarBrowser: Opens iDaimler Logon Home Page.
- Team Viewer: Allows access by others via the Internet.



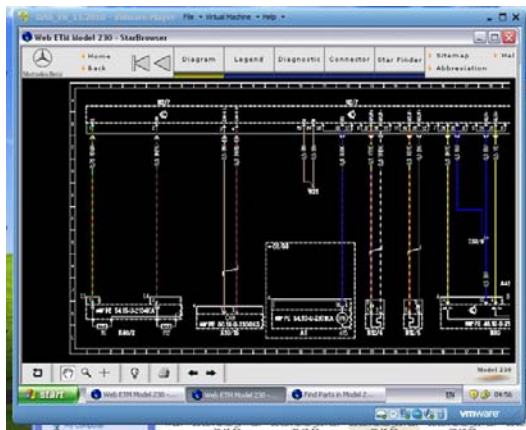
8.1. SDMedia

This program is an add on for Xentry DAS. It includes a mass of videos and PDFs on common Mercedes repairs and faults. Updates for SDMedia are included automatically in the Xentry DAS disc, but you must have the latest SDMedia master disc installed for the update to be successful. SDMedia master discs are released about twice a year.

SDMedia is the Media Library on Star DAS. The SDMedia Media Library is your Knowledge Base on Star Diagnosis systems. Video, animation and audio files support you in the repair, maintenance and service of vehicles. You open SDMedia by clicking on an icon on your SDS desktop, or you can access it directly from the Xentry DAS application/program.

SDMedia is the bridge between the WIS workshop systems, the diagnostic systems on SDS's and the Xentry TIPS media library and knowledge base on the SDS. Video, animation and audio files support you in the repair, maintenance and service of vehicles. This media is designed as a useful addition to the workshop systems, with most of it having been initiated by Service AET, Warranty and Goodwill, and the Fixed First Visit project. Multimedia presentations are intelligently used to illustrate complex procedures or procedures that cannot be demonstrated by conventional media. They serve to sustainably reduce the number of follow-up repairs, and they are a cost-effective way for technicians to refresh and solidify their knowledge of particular topics.

Print products such as Introduction into Service Manuals, System and Function Descriptions, and Technology and Diagnosis Guides are available in SDMedia in electronic form.



8.2. StarFinder

Not an official release from Mercedes, but rather a collection of web pages full of wiring diagrams.



The real bonus of StarFinder is the ability to click on an item or junction in the wiring diagram, and see an actual photo of its location.

(IMHO it is worth having a SDS just for this capability.)

8.3. Xentry

The Xentry application/program in SDS gives direct access to four applications;

- DAS (for newer models),
- TIPS,
- WIS/ASRA, and
- EPC.

The identity of the vehicle is automatically transferred between these applications.

8.3.1. DAS via Xentry

According to jrecorderings, this is where the confusion really begins. DAS (Diagnosis Assistance System) via Xentry is the program used to talk to a vehicle. If you wish to program ECU's, clear fault codes, diagnose electronic faults, clear service lights etc, you would use this program.

Not only can you read and clear error information, Xentry, DAS also give you further steps, to diagnose the cause of the fault.

Originally there was just DAS.



Also included in DAS is the software from the original Hand Held Tester (HHT), which is used on older vehicles. The HHT opens up automatically within DAS when an older vehicle is detected. The HHT is much more limited than DAS.

Around 2007 Mercedes decided to build new software to supersede DAS, the software was called Xentry but was not officially launched until 2009. During this interim period Mercedes changed the opening splash screen of DAS to show the word XENTRY across the screen. This was very confusing, as people thought they must already have Xentry (which they did not). When Xentry was eventually launched in 2009, the new style program was used just for the later models on the market, mainly the 204, 207 and 212. If you selected any other vehicles, Xentry would automatically open DAS.

In 2011, Mercedes removed the desktop icon for DAS, meaning DAS could only be accessed via Xentry.



8.3.2. WIS

WIS stands for "Workshop Information System", and is basically all the Mercedes/Smart workshop manuals in a program. If you want to know how to change a clutch, or replace brake pads etc, this is where you would look.

Its more common name is Wisnet, and it comes in two varieties, 'Wisnet Standalone' and 'Wisnet Ewanet'.

Both are installed from the same discs, and contain the same information.

Wisnet Standalone is the version that would be installed into a PC along with, and linked to DAS/Xentry. Wisnet Ewanet is installed into a PC and linked to the EPC (Electronic Parts Catalogue). So you would normally find Wisnet Standalone in the Workshop and Wisnet Ewanet in the Parts Department. Wisnet Standalone is far easier to install than Wisnet Ewanet, so unless you also wish to install the EPC, the standalone installation is the preferred option.

8.4. EPC



Electronic Parts Catalogue. A large program that can be installed in a server program called Ewanet. This allows it to be directly linked to WIS (Ewanet version). This Program is awkward to install and configure. Mercedes offers the EPC online for less than 30 Euros a year, which is excellent value for money and will save you a lot of installation headaches.

8.5. Star Utilities

The Star Utilities Program contains the following Sub-Programs

- Star Pad
- Version Information
- StartKey manager
- Self Diagnosis
- Printer management

- SDexplorer
- Data transfer

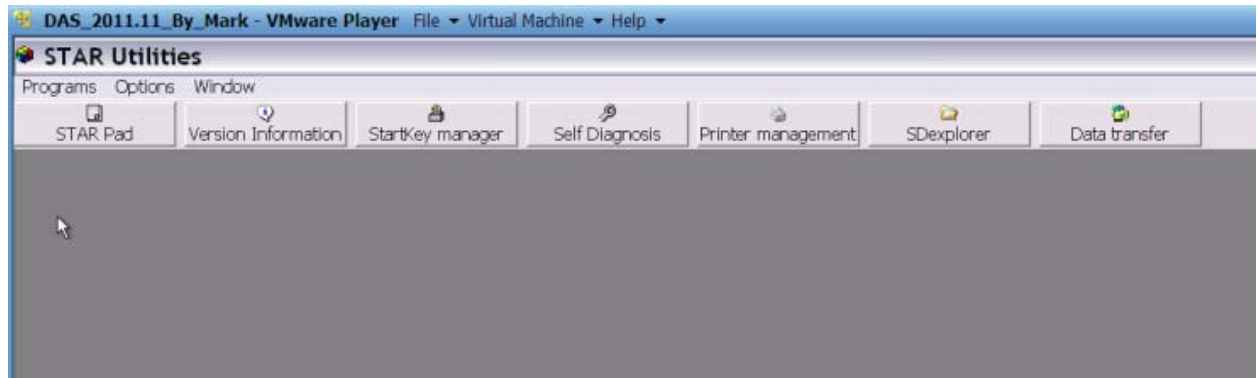


Figure 4 SDS STAR Utilities

9. Quick Overview of SDS In Operation

My Chinese SDS C3 runs in a Virtual Machine on a Dell D820 Laptop with the MUX connected via a RS232 Cardbus Adapter card plugged into the Laptop PCMCIA slot.

My laptop ONLY communicates to my W220. It does this via the RS232 serial data connection and the vehicle On-Board Diagnosis (OBD) connector (X11/4). The link between my laptop and the Internet has been disabled. During my fault finding activities the most important discovery was that the RS232 data link is temperamental if operated at the suggested baud rate of 115,200 bps. My SDS is now very reliable at 9,600 bps.

I am happy to just use the SDS Workshop Information System (WIS), and the Diagnosis Assistance System (DAS) accessed via the SDS Xentry master application. Another favourite application is StarFinder accessed from the Virtual Desktop, but nothing I use now accesses the Internet.

9.1. Virtual Machine Desktop

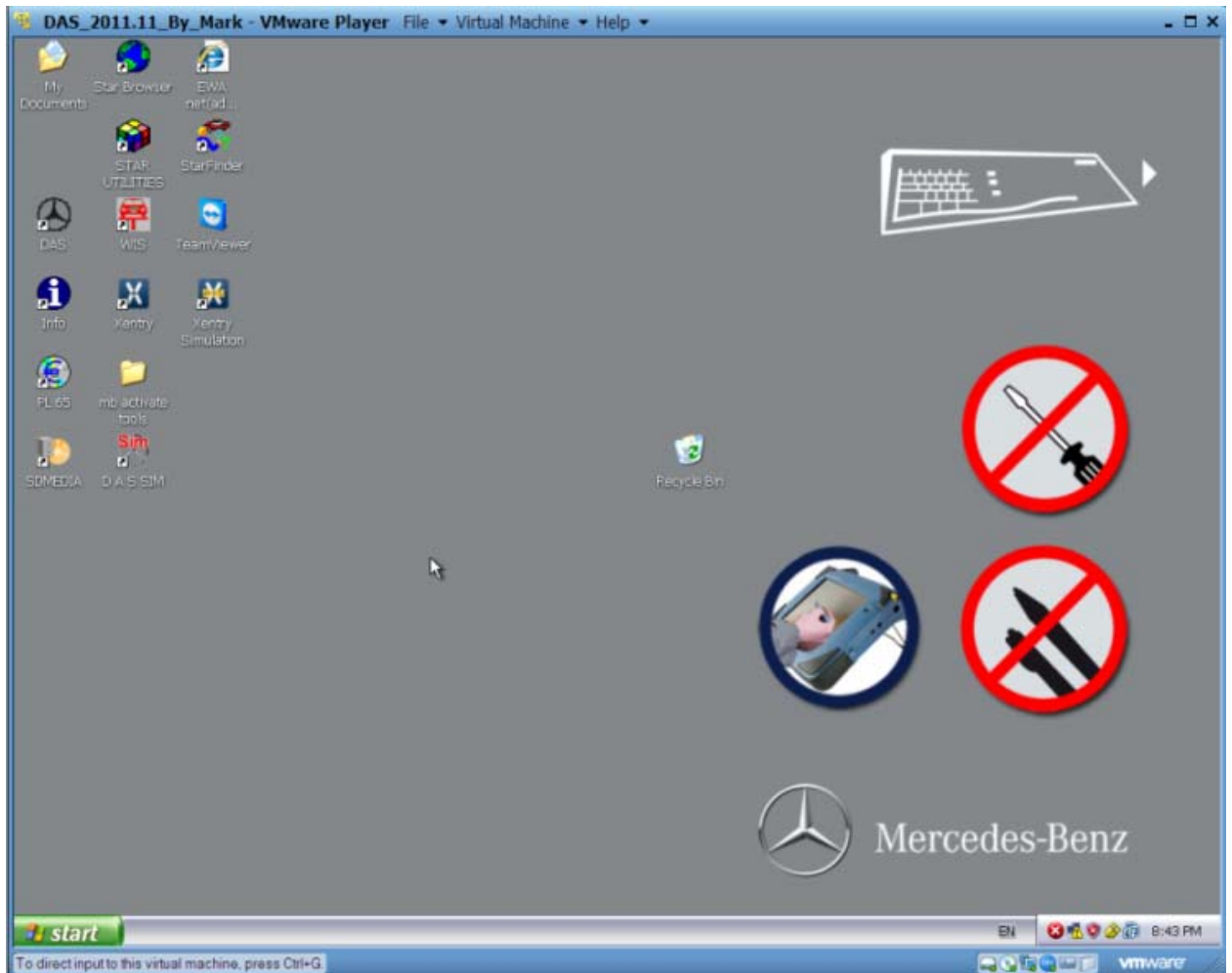


Figure 5 Virtual Machine Desktop

9.2. Xentry

Open Xentry from the SDS Virtual Machine Desktop.



Figure 6 Xentry Icon

Then select your model in the Product Group Menu. Rather than do this you can enter your vehicle VIN by clicking on the 'Car' icon on the left.

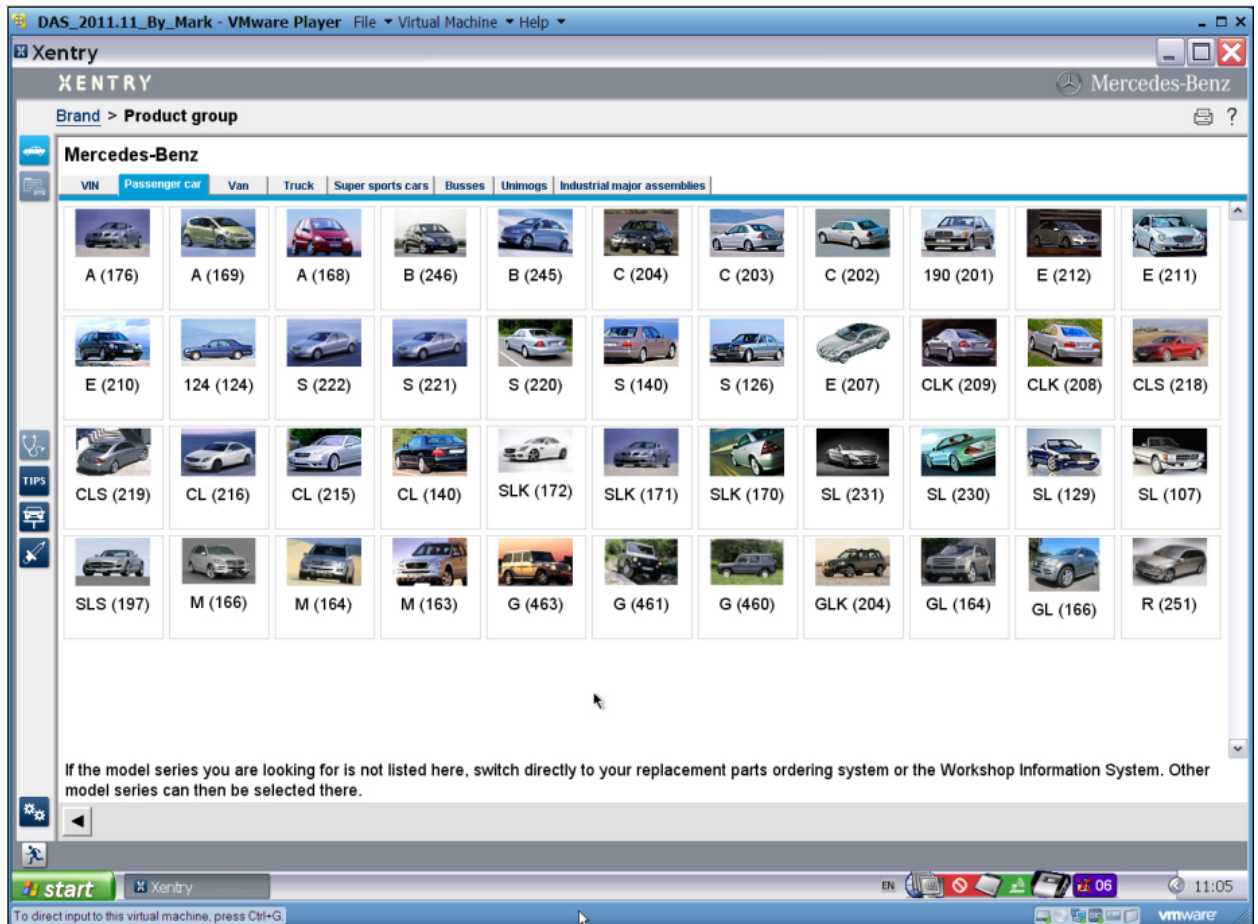


Figure 7 Xentry Product Group

Enter some basic data about your vehicle.

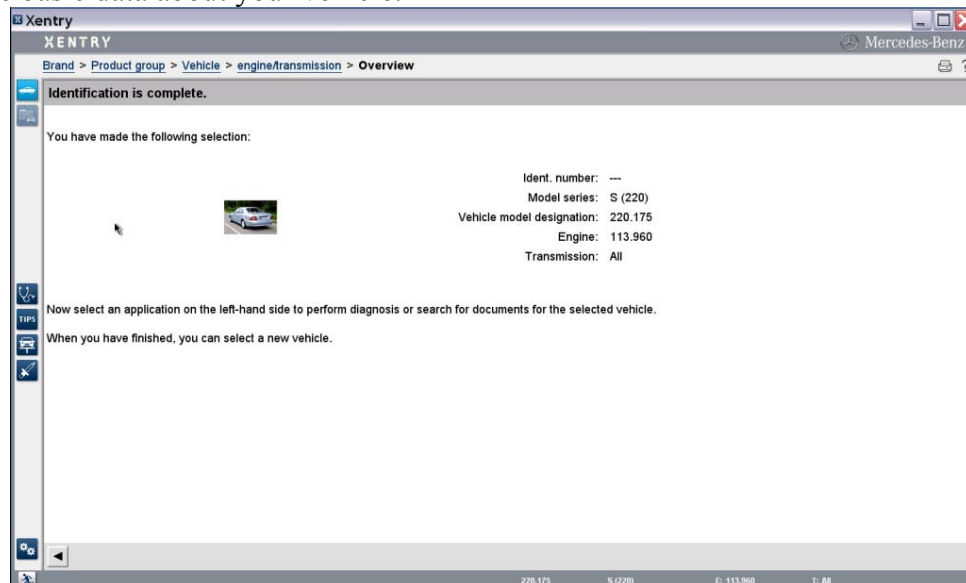


Figure 8 Xentry Vehicle Basic Data

Click Xentry DAS button on left. Starts vehicle determination automatically.



Figure 9 Xentry DAS Icon

This usually takes several minutes as the SDS reads data from the vehicle via the MUX.

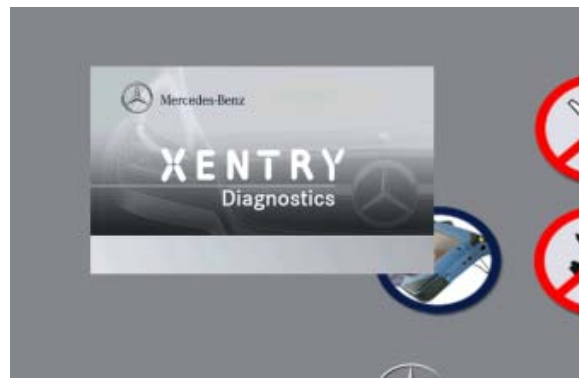


Figure 10 Xentry DAS Application Starting

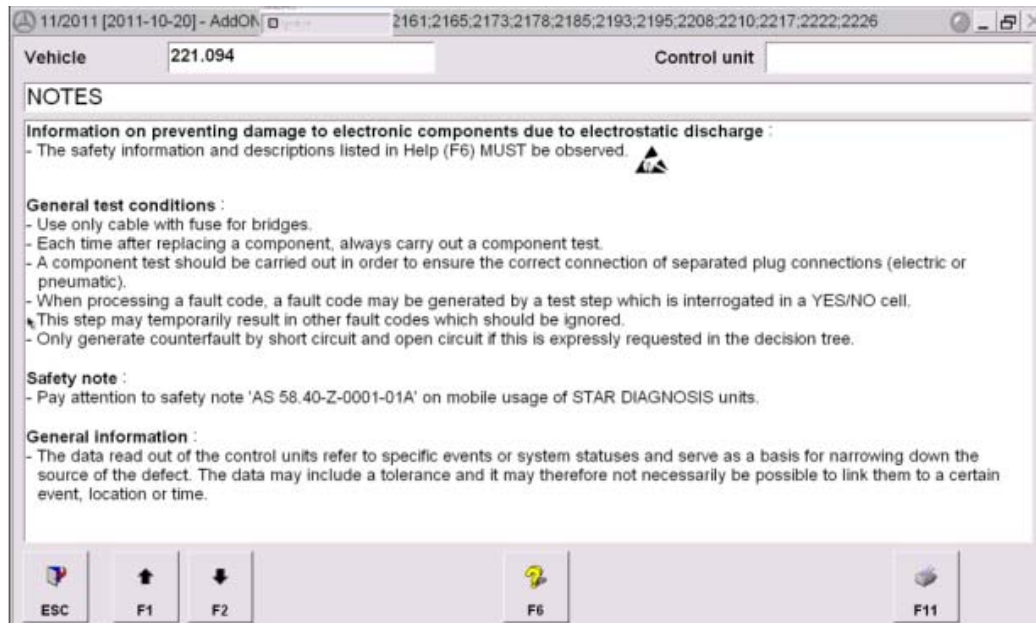


Figure 11 Xentry DAS Application Safety Warning

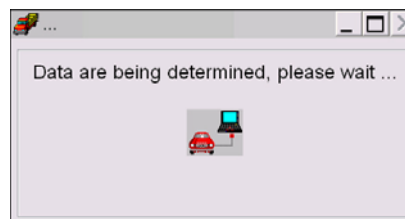


Figure 12 Xentry DAS Application Reading Data

Then always perform a “Quick Test”.

Diagnosis Assistance System		WDB220175		Copyright 1999 Daimler AG	
Initial quick test log					
Model series/Model designation	220.175	Workshop ID			
VIN	WDB220175	Steering	RIGHT		
Total distance driven	km	Version	7.1.4/11/2011 (2011-10-20)		
Battery voltage	12.62 V				
ETC - Electronic transmission control					- F -
MB number	0335456632	HW version	18.2002	SW version	03.2004
		Diagnosis version	0/1		
Pin	101				
Serial number	FW number		FW number (data)	FW number (boot SW)	
Unterfunktion nicht unterstützt oder ungültiges Format	0004483210				
Code	Text				Status
200A	Component Y3/8n4 (Fully integrated transmission control (VGS) control unit) is defective.				Current and stored
ESM - Electronic selector module					- ✓ -
MB number	2205452132	HW version	24.2002	SW version	25.2002
		Diagnosis version	0/11		
Pin	9				
ME-SFI 2.8 - Motor electronics 2.8					- ✓ -
MB number	1131535479	HW version	35.2002	SW version	12.2003
		Diagnosis version	1/9		
Pin	7				
ESP - Electronic stability program					- ✓ -
MB number	2205453532	HW version	16.2003	SW version	16.2003
		Diagnosis version	2/01		
Pin	9				
AIRmatic					- ✓ -
MB number	2205453832	HW version	13.2002	SW version	20.2003
		Diagnosis version	0/00		
Pin	9				
AP - Airbag					- ✓ -

Figure 13 Part of Xentry Quick Test Log

9.2.1. Xentry > DAS Fault and Status Legend

- 'F' means a current fault is present.
- 'f' means a fault that is stored.
- 'i' means that an event is stored.
- '√' means that no faults are present.
- '(-√-)' means a fault code has not been checked.

Another version says.

- ⊖ : The control unit does not have any saved faults or events
- F- : The control unit has at least one current fault
- f- : The control unit has just one saved fault
- i** : The control unit has an event
- !- : No communication can be established with the control unit

9.3. WIS

Select WIS icon.



Figure 14 Xentry WIS Icon

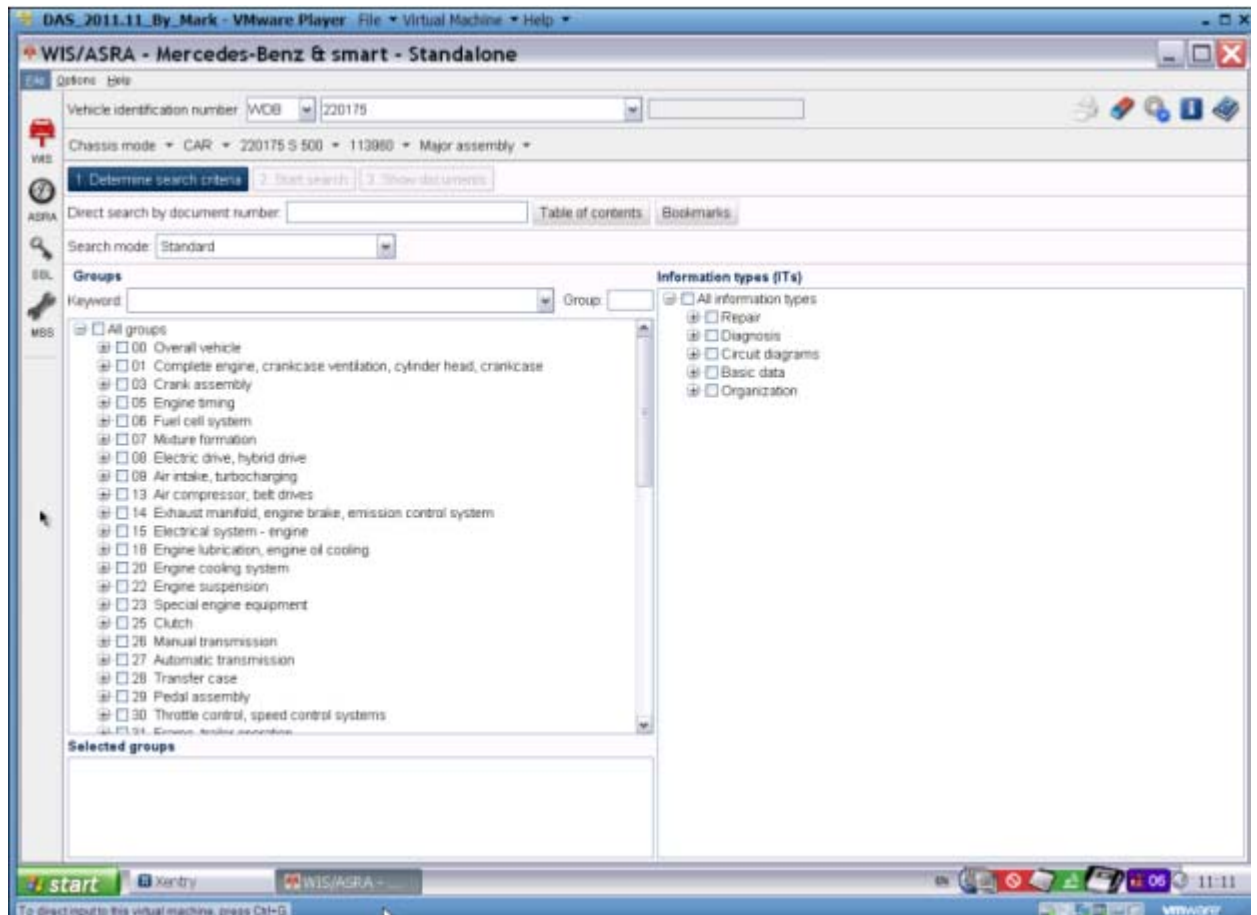


Figure 15 Xentry WIS/ASRA Standalone Main Search Page

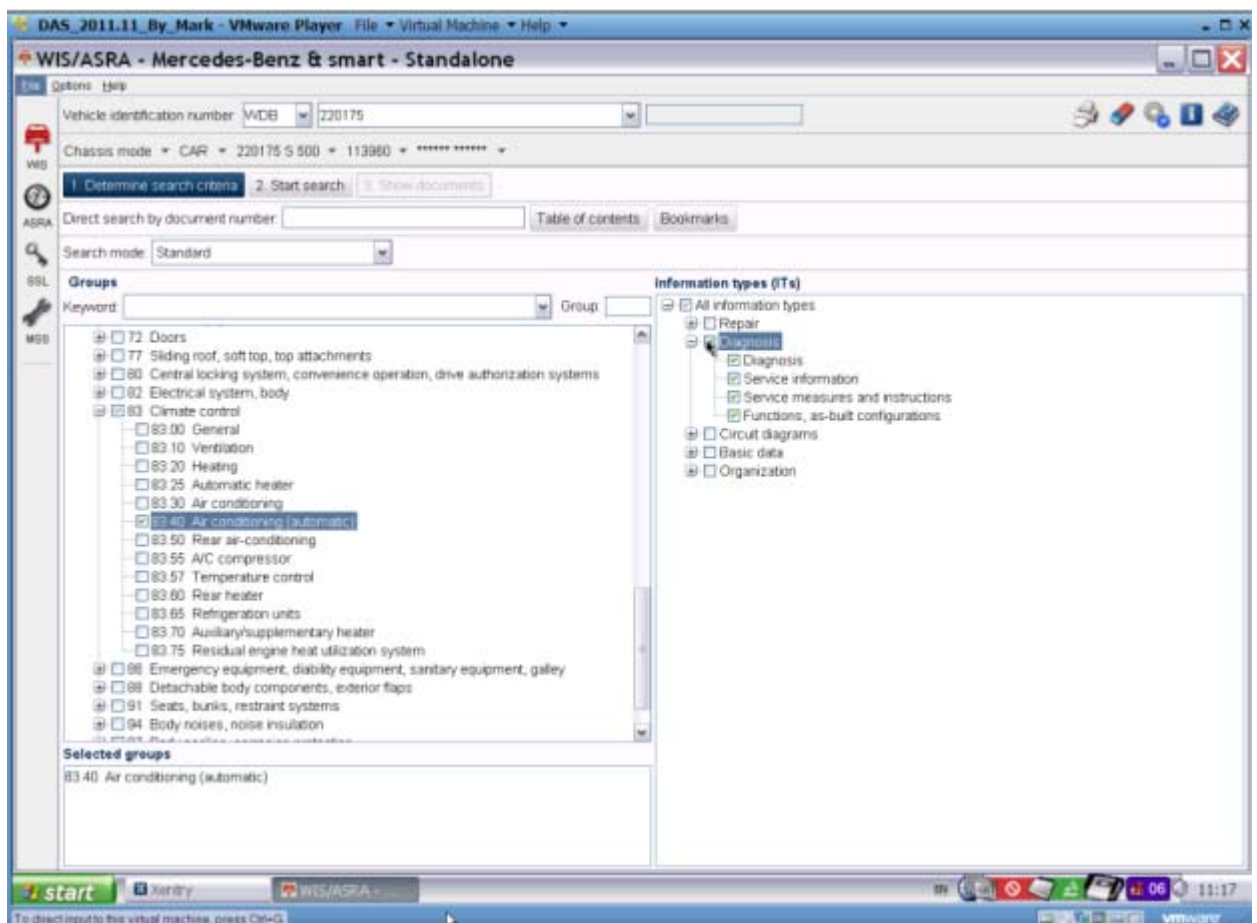


Figure 16 Xentry WIS Search Items and Information Types Selected

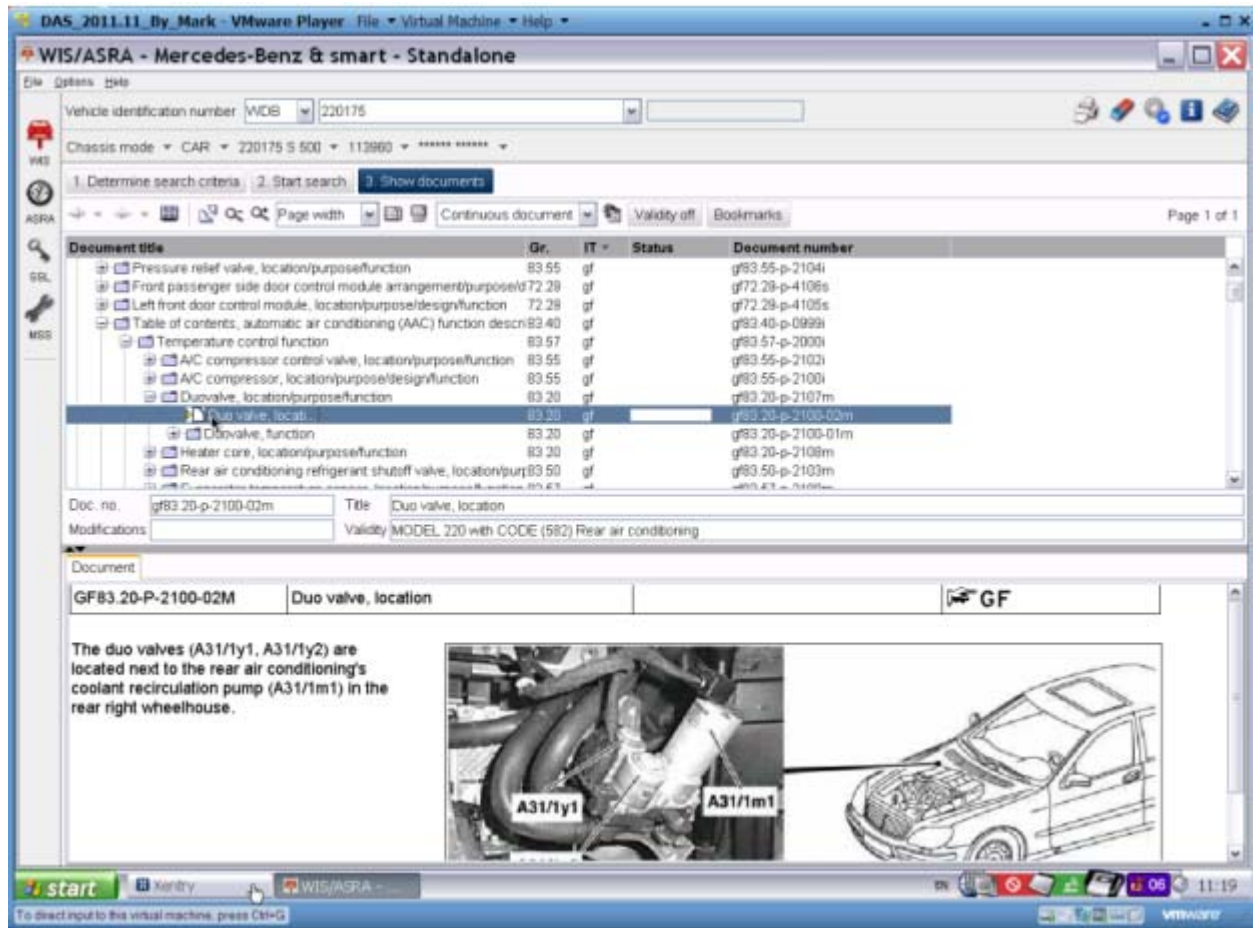


Figure 17 Xentry WIS Showing Duo Valve Location

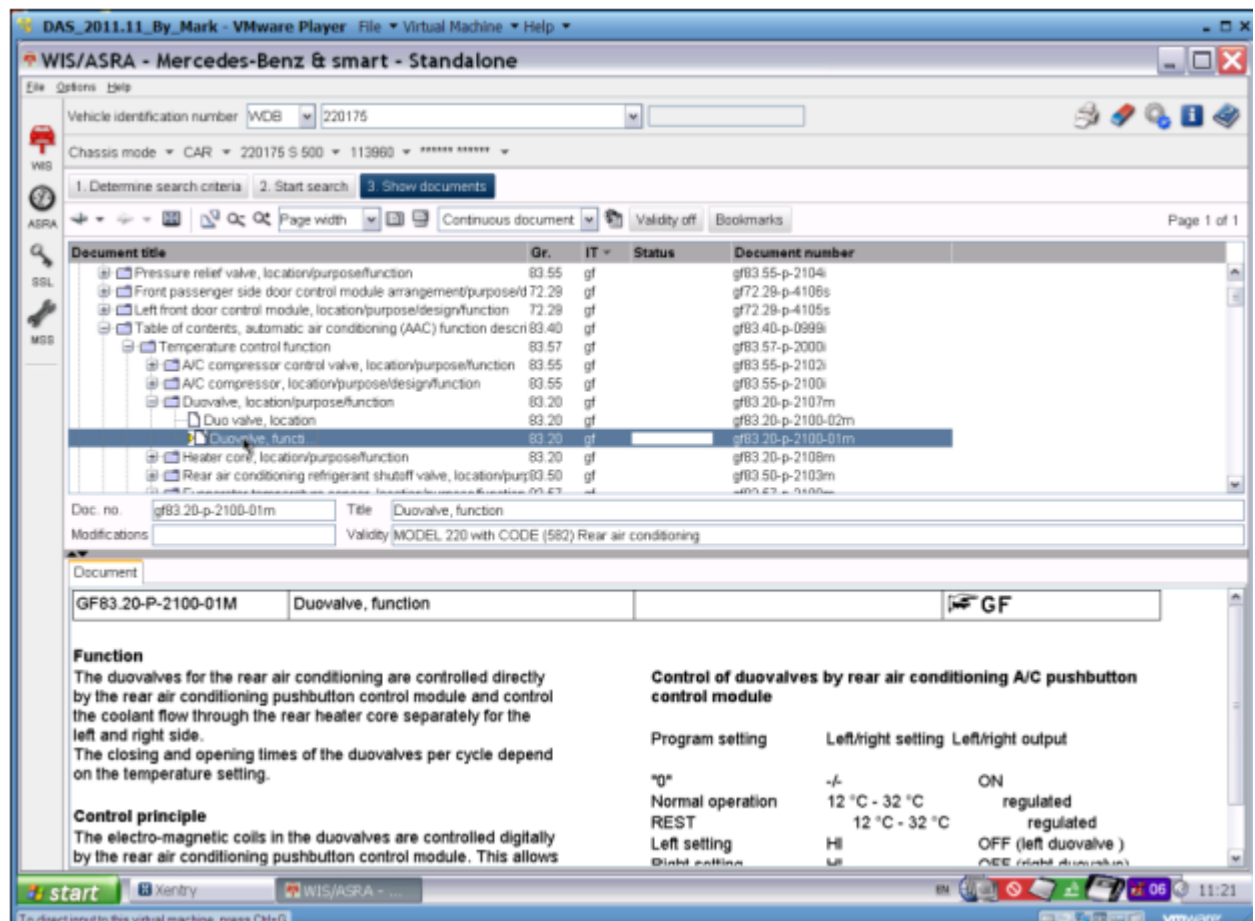


Figure 18 Xentry WIS Showing Duo Valve Function

9.4. **StarFinder**

StarFinder is my favourite application in SDS. Open StarFinder from SDS Virtual Machine Desktop.



Figure 19 SDS StarFinder Icon on Virtual Machine Desktop

After selecting your model it opens Internet Explorer with a local intranet link on the Virtual Machine drive C:



Figure 20 SDS StarFinder Intranet Link to W220 Model Documentation

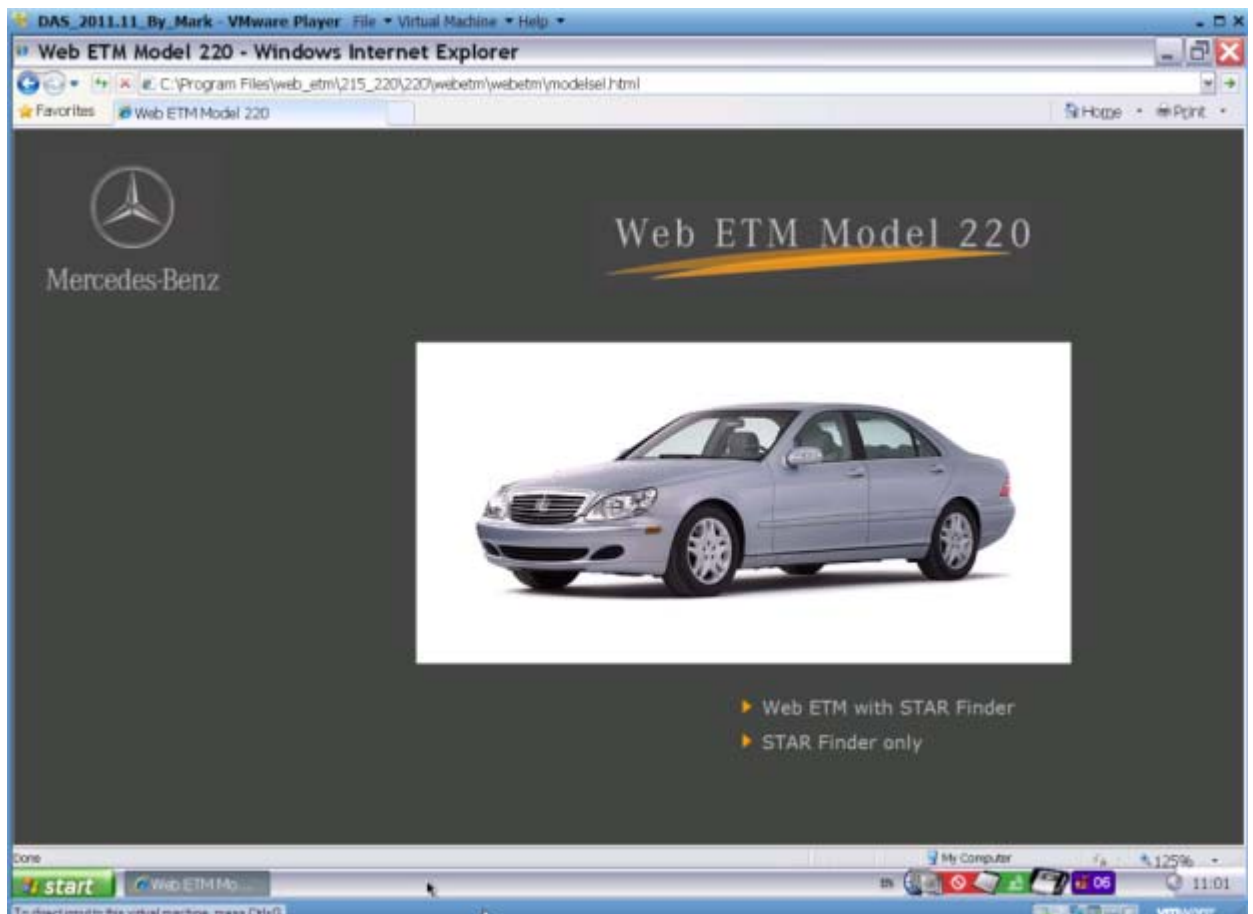


Figure 21 Xentry StarFinder Home Page for W220

Now select “Web ETM with STAR Finder”.

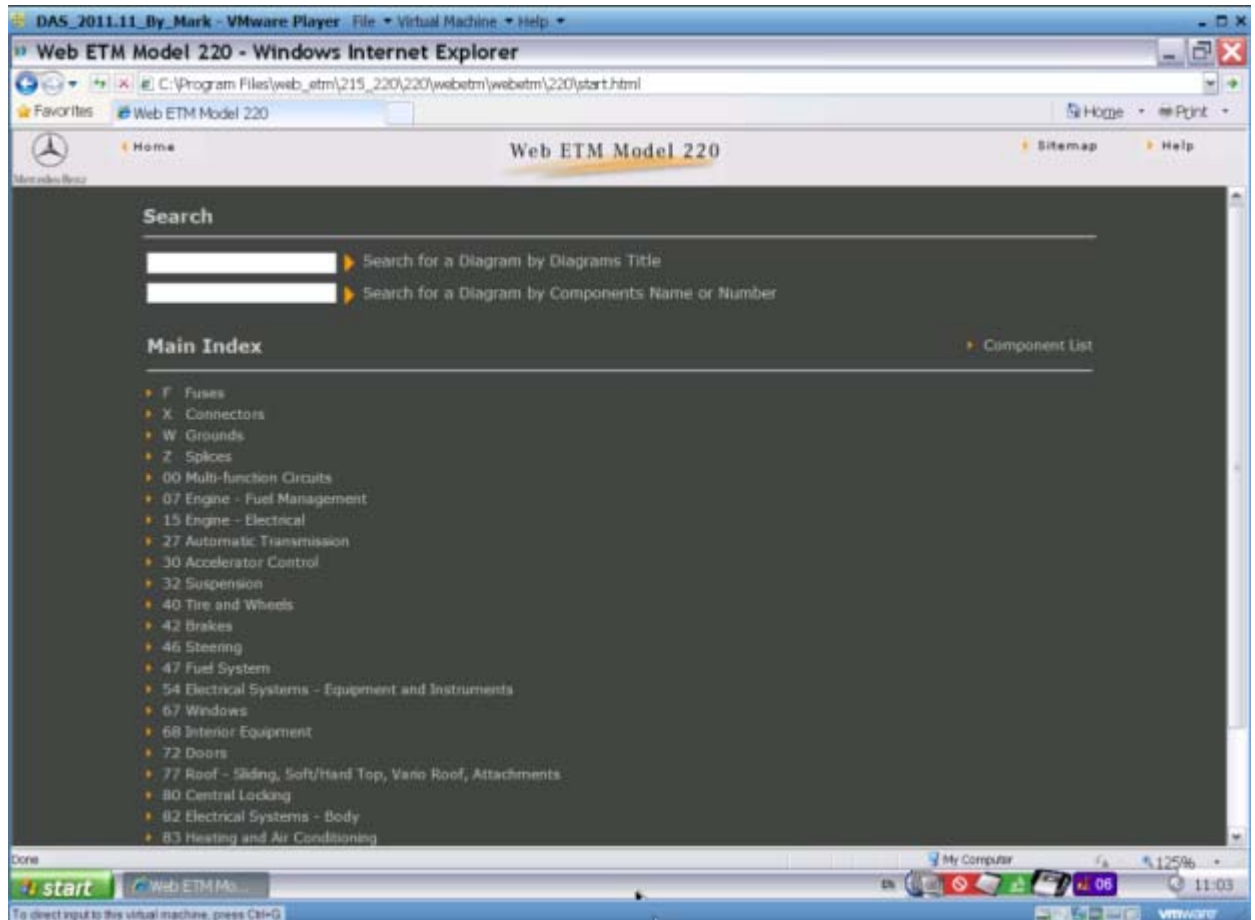


Figure 22 Xentry StarFinder Web ETM Model W220

As an example, select 'F Fuses' from Main Index.

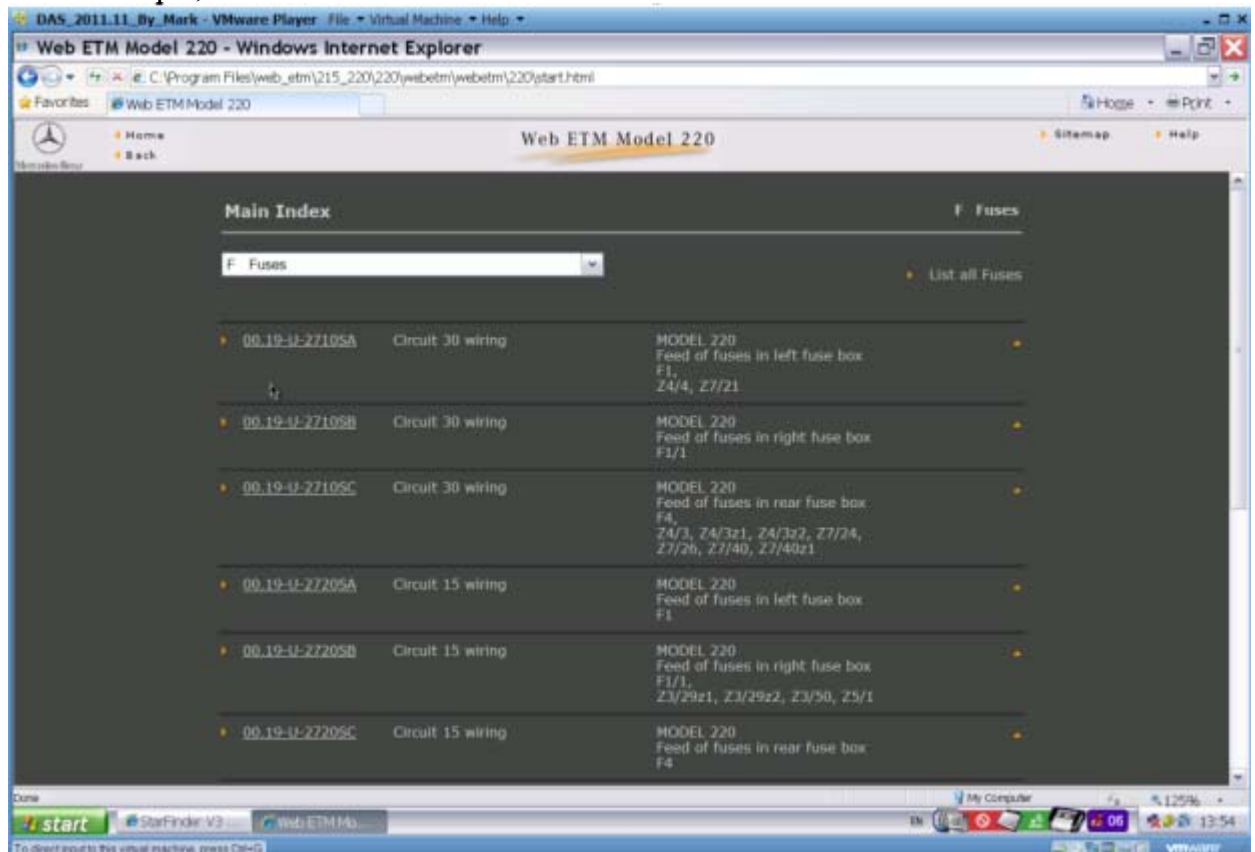


Figure 23 Xentry StarFinder Web ETM Model W220 Main Index Page

Produces Circuit Wiring Diagram of Fuses.

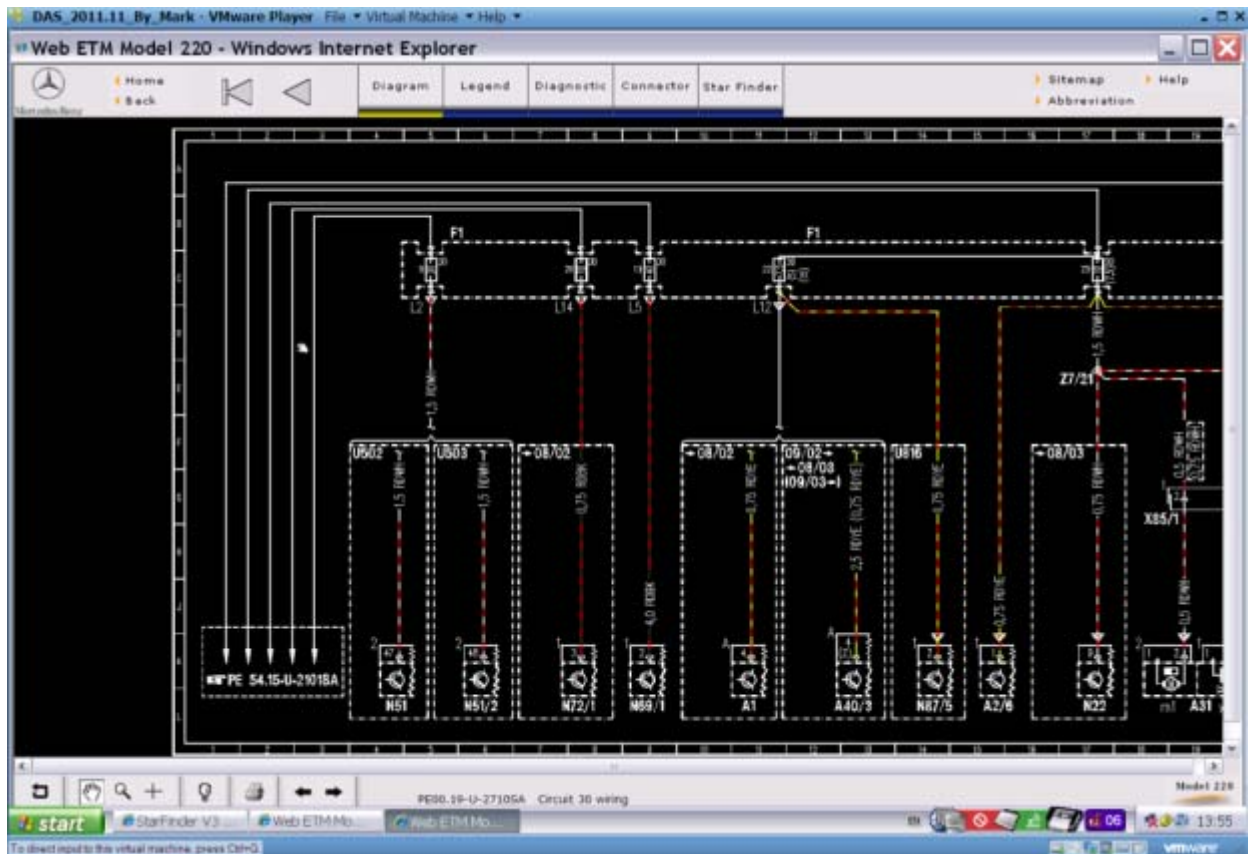


Figure 24 Xentry StarFinder Web ETM Model W220 Fuses Diagram

After clicking on Legend tab at top of screen.

Item	Designation	Coordinates
A1	Instrument cluster	11L
A2/5	CD changer (in trunk)	15L
A2/13	Sound amplifier	27L
A2/42	TV tuner	21L
A3/1	Heating system delivery unit	18L
A3/1m1	Circulating pump	18L
A3/1y1	Left duovalue	20L
A3/1y2	Right duovalue	18L
A40/3	COMMAND operating, display and control unit	12L
F1	Left fuse box	9B 12B 20B 27B
F1/9	Fuse 9	9C
F1/13	Fuse 13	9C
F1/22	Fuse 22	11C
F1/23	Fuse 23	17C
F1/24	Fuse 24	24C
F1/25	Fuse 25	27C
F1/26	Fuse 26	7C
F3	Cockpit fuse box	44L
F3/78	Fuse 78	44K
G1	Battery	38L
H3/1	Alarm signal horn with additional battery	35L
K40/9	Engine fuse and relay box	39L
M3/15	ME-SFI [ME] control module	47L 48L

Figure 25 Xentry StarFinder Web ETM Model W220 Fuses Legend

Say we are interested in locating Fuse F3.

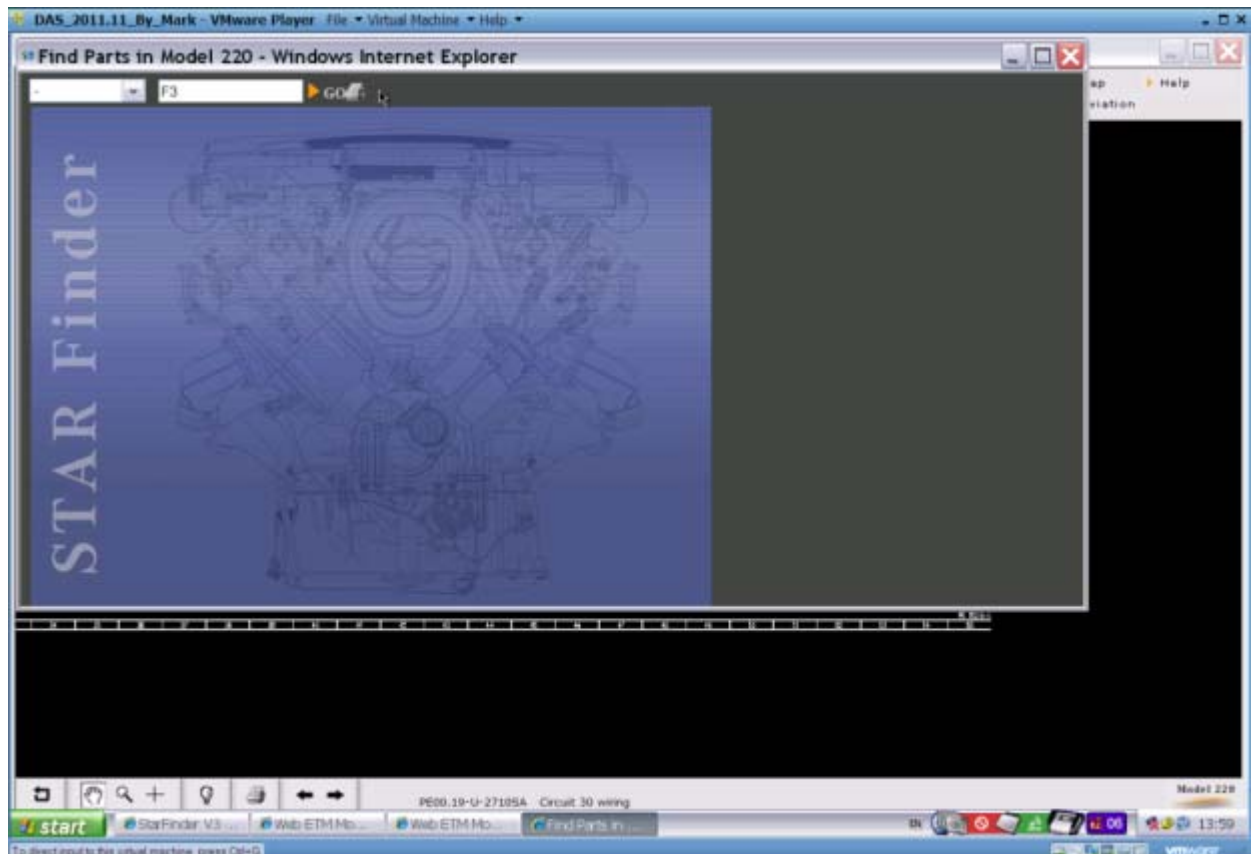


Figure 26 Xentry StarFinder Parts Finder Model W220

Shows the general location of Fuse F3.

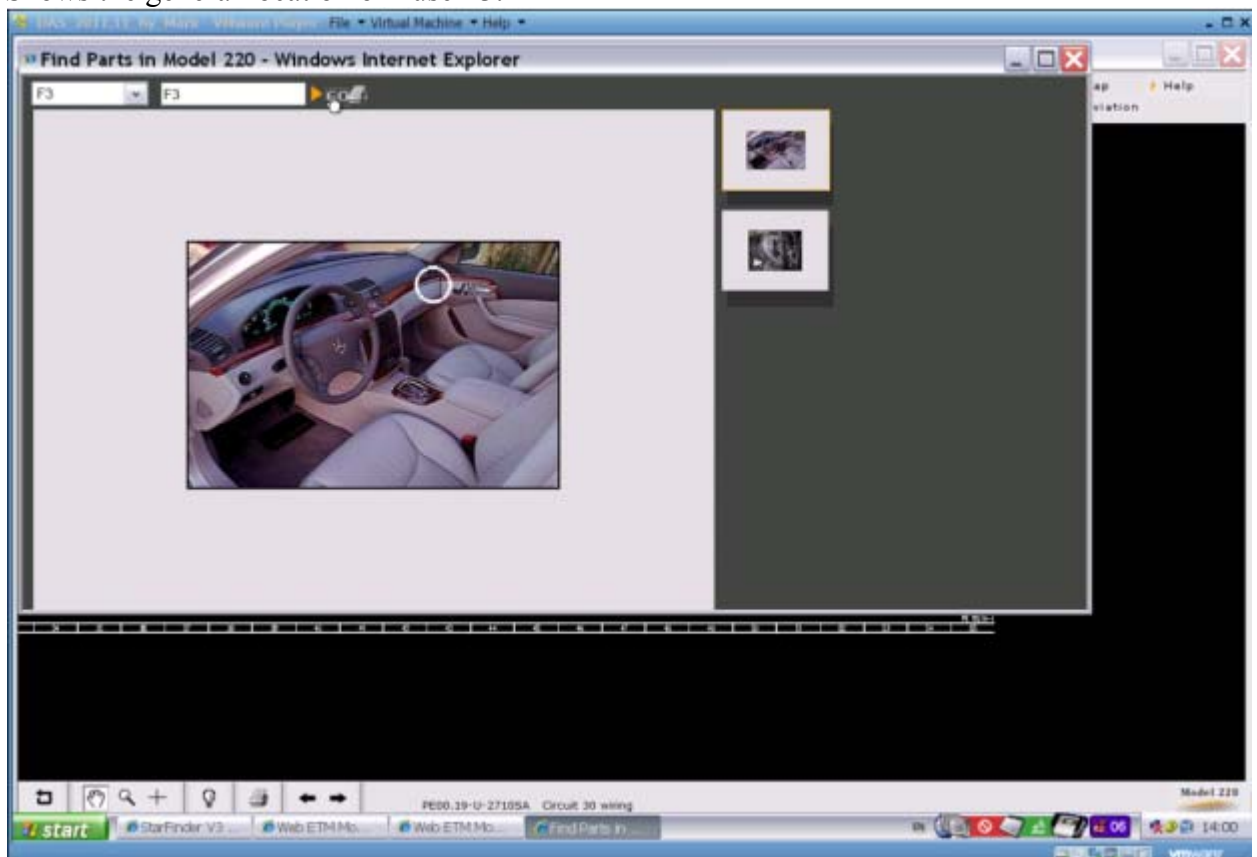


Figure 27 Xentry StarFinder Web ETM Model W220 Fuse F3 General Location

Shows the specific location of Fuse F3.

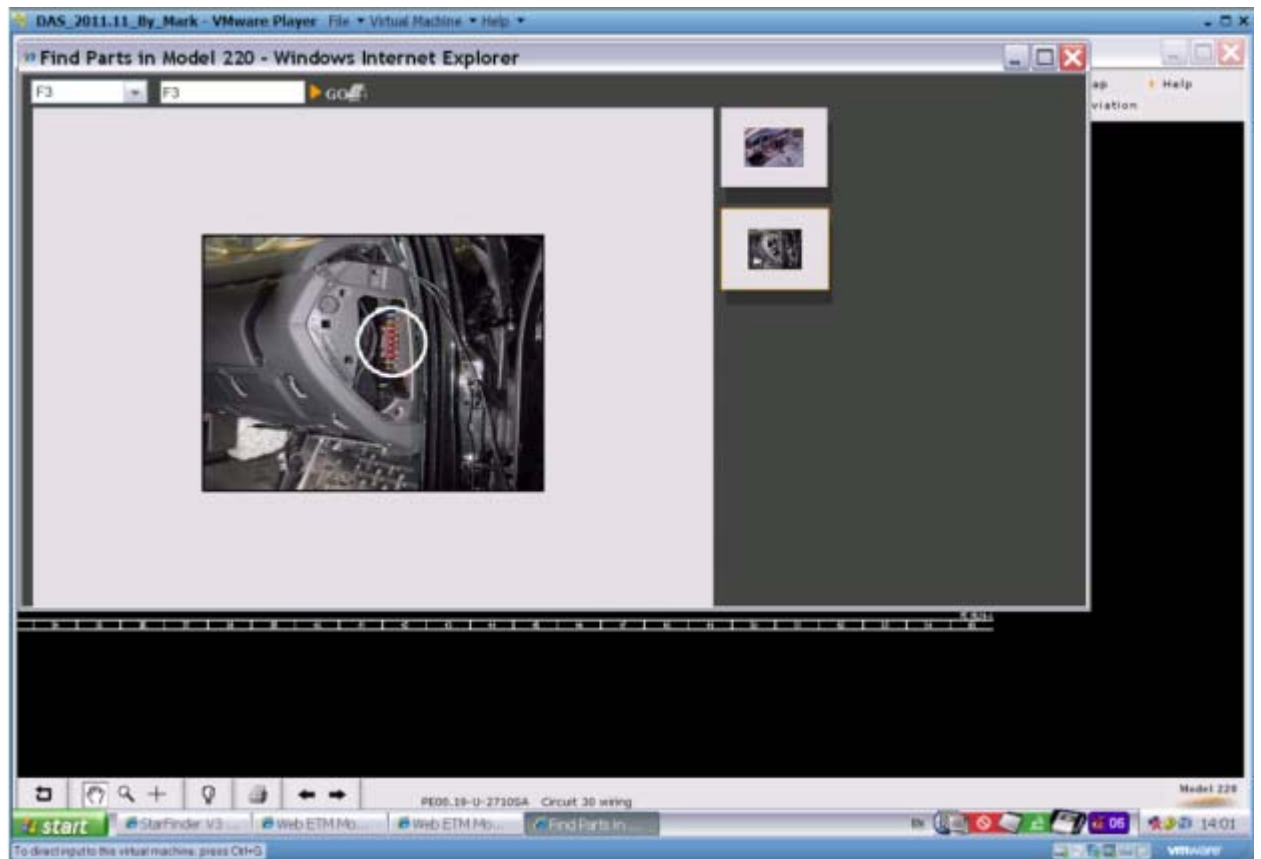


Figure 28 Xentry StarFinder Web ETM Model W220 Fuse F3 Specific Location

Conclusion: It is worth having SDS for the StarFinder functionality alone.