Event Data Recorder
Bosch CDR Technician
Non Bosch Tools
SUBARU Data Retrieval

Version Nov 2019

SUBARU

- SUBARU is 3.1% of the US new car Market. EDR began in 2012 Impresza and got into other models at major changes.
- Bosch CDR 18.0 began to covers some 2019/2020 Subaru, 19.1 covers more.
- Other Subaru EDR's must be accessed using their **standard dealer diagnostic tool,** a DLC only tool. Direct to module cables can be built if vehicle side connectors can be snipped out of vehicles. Cables can be purchased at outrageous prices

Subaru EDR Access

CDR900

Hitachi HDS-3000

Denso DSTi Interface

SSM3 Software

SSM4

CDR 19.1 on some

Model / Year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
SUBARU		<----Yellow=Old Hitachi SSM3 or new Denso w SSM4				Blue = SSM4 ONLY New Denso Tool				
Ascent									CDR 835	
BRZ (Scion FRS sister)		Japan	Yes SSM3	Yes	Yes	Yes	SSM4	Yes	Yes	
			For BRZ you can use CDR - select Toyota as Brand but enter Subaru VIN - it will work							
Impreza	No	Yes SSM3	Yes	Yes	Yes	SSM4	Yes	Yes	Yes	
WRX/STI	No	No	No	No	Yes SSM3	SSM4	Yes	Yes	Yes	
Legacy	No	No	Yes SSM3	Yes	CDR 836 Bosch ECU					
Outback	No	No	Yes SSM3	Yes	CDR 836 Bosch ECU					
Forester	No	No	Japan	Yes SSM3	Yes	Yes	SSM4	Yes	CDR 835	
Tribeca	No	No	No	No	Discontinued					
Crosstrek	n/a	n/a	Yes SSM3	Yes	Yes	SSM4	Yes	Yes	Yes	

NOTE: The Subaru tool is a dealership fault code tester made to work in thru the DLC in vehicles with functioning electrical systems only.

Instructors may be able to fabricate a direct to module cable from a vehicle side connector

Subaru Files

- SSM3 Raw data is saved as a Subaru Select Monitor (.SSM) file. Modules can store up to 6 events: Front New, Front Old, Side New, Side Old, Rollover New and Rollover Old events.
- Frontal and side events have 4 files per record, Precrash, Delta V detail, Delta V summary, and Key cycles/other. Rollovers have a 5th record for roll rate. All events record X and Y Delta V.
- Front and Side events typically come in pairs. Delta V data is very similar but has slight differences due to different wakeup times.

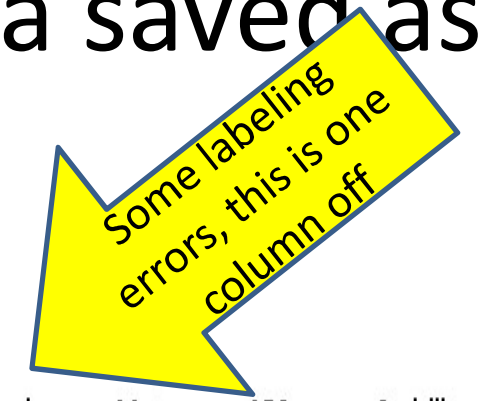
Subaru Files Cont'd

- Once saved as an SSM, the file can be reopened in the software.
- SSM 3 files (2015 and earlier) can be saved as a CSV (excel) file.
- SSM4 (2016 and later) does not support CSV, data must be screen shotted or written down manually. **If you have a choice, USE SSM3!!!!!**
- There are no data limitations.
- There is no "PDF" report.

Subaru Direct to Module

- A direct to module cable, Subaru part # 98299FJ040, with TWO ends on it, that fits MOST models, is sold separately by the Bosch Diagnostics Kent Moore division (800-345-2233) for $1100. Rick Ruth has that cable. Cables can be home made much cheaper if a vehicle side mating connector can be obtained.
- Cable 98299AL040 is required for 2015+ Legacy/Outback. Kent Moore division sells that cable for $2800.

Sample SSM3 Data saved as CSV



System	Comment	Base extensions										
'Airbag												
System	'	'ssm										
Sampling time	Event name	Vehicle Speed	Accelerator Opening Angle %	Service brake	on/off	Engine Speed	Motor RPM	ABS activity	Stability control	Steering input	Steering input (%)	Mark
sec		km/h	%		rpm	rpm			deg	%		
0	Frontal Crash New Data	21	0	OFF	1300	invalid	OFF	ON	0	0	0	
0.5	Frontal Crash New Data	21	0	OFF	1200	invalid	OFF	ON	0	0	0	
1	Frontal Crash New Data	20	5	OFF	1100	invalid	OFF	ON	0	0	0	
1.5	Frontal Crash New Data	21	0	OFF	1500	invalid	OFF	ON	0	0	0	
2	Frontal Crash New Data	21	0	OFF	1300	invalid	OFF	ON	0	0	0	
2.5	Frontal Crash New Data	21	0	ON	1000	invalid	OFF	ON	0	0	0	
3	Frontal Crash New Data	20	0	ON	1100	invalid	OFF	ON	0	0	0	
3.5	Frontal Crash New Data	18	0	ON	1100	invalid	OFF	ON	-2.5	0	0	
4	Frontal Crash New Data	17	0	OFF	1100	invalid	OFF	ON	-2.5	0	0	
4.5	Frontal Crash New Data	16	0	ON	1100	invalid	OFF	ON	-7.5	-1	0	
5	Frontal Crash New Data	11	0	ON	900	invalid	OFF	ON	-2.5	0	0	

Sample Data Subaru labeling issues

		Column Headings generated as found in CSV file											
Sampling time	Event name	Vehicle Speed	Accelerator Opening Angle %	Service brake	on/off	Engine Speed	Motor RPM	ABS activity	Stability control	Steering input	Steering input (%)	Mark	
sec		km/h	%		rpm	rpm			deg	%			
		Corrected Column Headings based on other data views available in software											
		Vehicle Speed km/h	Accelerator Opening Angle %	Service brake on/off	Engine Speed rpm	Motor RPM rpm	ABS Activity	Stability Control	Steering input degrees	Steering input %	Mark?		Suggested time label
0	Frontal Crash New Data	21	0	OFF	1300	invalid	OFF	ON	0	0	0		-5
0.5	Frontal Crash New Data	21	0	OFF	1200	invalid	OFF	ON	0	0	0		-4.5
1	Frontal Crash New Data	20	5	OFF	1100	invalid	OFF	ON	0	0	0		-4
1.5	Frontal Crash New Data	21	0	OFF	1500	invalid	OFF	ON	0	0	0		-3.5
2	Frontal Crash New Data	21	0	OFF	1300	invalid	OFF	ON	0	0	0		-3
2.5	Frontal Crash New Data	21	0	ON	1000	invalid	OFF	ON	0	0	0		-2.5
3	Frontal Crash New Data	20	0	ON	1100	invalid	OFF	ON	0	0	0		-2
3.5	Frontal Crash New Data	18	0	ON	1100	invalid	OFF	ON	-2.5	0	0		-1.5
4	Frontal Crash New Data	17	0	OFF	1100	invalid	OFF	ON	-2.5	0	0		-1
4.5	Frontal Crash New Data	16	0	ON	1100	invalid	OFF	ON	-7.5	-1	0		-0.5
5	Frontal Crash New Data	11	0	ON	900	invalid	OFF	ON	-2.5	0	0		0

There are no data limitations given

Subaru EDR Assistance Policy

- Subaru has assisted parties in the past with signed owner consent on Subaru's release form, or with sufficient legal authority such as a court order or police search warrant, for a fee. There are new reports they have stopped helping private parties
- Subaru asks that the vehicle be towed to a Subaru dealer.
- The dealer will use its dealer diagnostic tool if the electrical system is working. If it is not working, the dealer cannot do anything.
- The dealer does not know what buttons to push to get the EDR data, take this tutorial with you.

Publicly Available Tools

- The first publicly available tool to read Subaru EDR's was Hitachi HDS-3000 with "Subaru Select Monitor III" software. This tool services 1998-2015 Subaru's.
- The tool was sold by Blue Streak Electronics for $2999 hardware and a software subscription of $1999/year (detail on next slide).
- This is not an EDR-only tool. You could be in the vehicle repair business with it.

http://www.bsecorp.com/images/HDS-order2012-V2.pdf

Hitachi HDS Order Form

Blue Streak Electronics
45 Basaltic Road unit 1
Concord ON L4K 1G5
Canada

Tel (905) 669-4812 Fax (905) 669-5179
www.bsecorp.com /hds.php
info@bsecorp.com

Qty	Part #	Description	Price
	HDS-3000 **	Subaru/Saab Diagnostic Scan Tool	$2,999
		Includes ✔ Select Monitor III Interface (software required) ✔ Diagnostic Cable ✔ USB Cable ✔ Compact Flash CF Memory Card ✔ Carrying Case ✔ 1 Year Parts & Labour Warranty (Warranty shipping not included)	
		Select Choice and Quantity of Software(required with tool purchase)	
	HDS-3051 **	Subaru Diagnostic Software (1yr subscription)	$1,999
	HDS-3052 **	Saab Diagnostic Software (1yr subscription)	$1,999
		Subaru CD updates *are quarterly and Saab CD updates are biannual.*	
	1B120XZ0	Pulse/Analog Kit	$478
		Optional Accessories	
	BABD35061	Optional AC to DC power adapter	$35
		Please Select Preferred Method of Shipping	
	UPS Ground	Ground Ship - USA lower 48 / Canada	$35 / $30
	UPS Air	Express Air Ship - USA all / Canada	$70 / $65
		**In stock lead time 1 week. Out of stock lead time 12 weeks Your credit card will be charged upon shipment from BSE	

Canadian orders subject to 13% HST

What should you do if you have a Subaru case?

- If the vehicle electrical system is functioning, you can make arrangements to take the vehicle to a Subaru dealer after getting Subaru approval that you have proper authority
- If the vehicle electrical system is not functioning, you can put it into another vehicle, or take the ACM out of the vehicle and send it to Rick Ruth or Brad Muir.
- For law enforcement, with nonfunctional electrical system, talk to your instructors about making or borrowing a custom wiring harness and taking it with you to the dealer.

Non Bosch EDR Tools

Manufacturer	12 months Sales end 2/16	Market Share	2016 EDR?	Tool?
GM	3,079,772	17.6%	YES	Bosch CDR
Ford	2,634,491	15.0%	YES	Bosch CDR
Toyota	2,498,889	14.3%	YES	Bosch CDR
Chrysler Group	2,273,230	13.0%	YES	Bosch CDR
Honda	1,598,383	9.1%	YES	Bosch CDR
Nissan	1,499,020	8.6%	YES	Bosch CDR
Hyundai	762,720	4.4%	YES	GIT tool co.
Kia	631,531	3.6%	YES	GIT tool co.
Subaru	583,617	3.3%	YES	Denso 2016+, was Hitachi
BMW	400,064	2.3%	2015	Bosch CDR
Mercedes-Benz	380,690	2.2%	2014	Bosch CDR
Volkswagen	342,626	2.0%	2015	Bosch CDR
Mazda	314,510	1.8%	YES	Bosch CDR
Audi	202,774	1.2%	2015	Bosch CDR
Mitsubishi	95,450	0.5%	YES	OTC/Bosch SPX
Tata (Jag, LR)	87,120	0.5%	YES	OTC/Bosch SPX
Geely (Volvo)	71,744	0.4%	YES	Bosch CDR
Porsche	52,532	0.3%	NO	N/A
Industry Total	17,509,163	100.0%	99.3%	Bosch CDR 87.0%
updated April 4 2016				Non CDR 12.3%

3.3% for $6895
DLC only

Subaru EDR Tools and Software

- The Subaru dealer diagnostic software for models up to 2015 model year is known as the Subaru Select Monitor III. The software comes on a disk and is loaded onto a laptop, and creates an icon on the desktop.
- The software and hardware thru 2015 MY is made by Blue Streak Electronics in Ontario, Canada. **DLC only.**
- Subaru has changed dealer diagnostic tool suppliers effective 2016MY to NuSpire. The software is known as Subaru Select Monitor IV. This tool will be discussed later in the chapter.

Only Published Reference – ARJ May 2015
Great article, but implies data in all 2013+

SUBARU E.D.R. – A Case Study

By Wade Bartlett, PE

Subaru is one of the few vehicle manufacturers that records "event data" in the Airbag Control Module (ACM) which is not readable with the Bosch CDR Tool.[1] It is understood that model year 2012 Subaru Imprezas included event data recording (EDR) functionality, and that all 2013 and newer Subaru models have it.[2] This article will serve to recount what was learned during a recent benchtop download of a 2013 Subuaru Legacy. The car involved in this case had been in a severe frontal crash, causing massive front end damage and necessitating extrication of the occupant. It was decided to go directly to the ACM to image the EDR data.

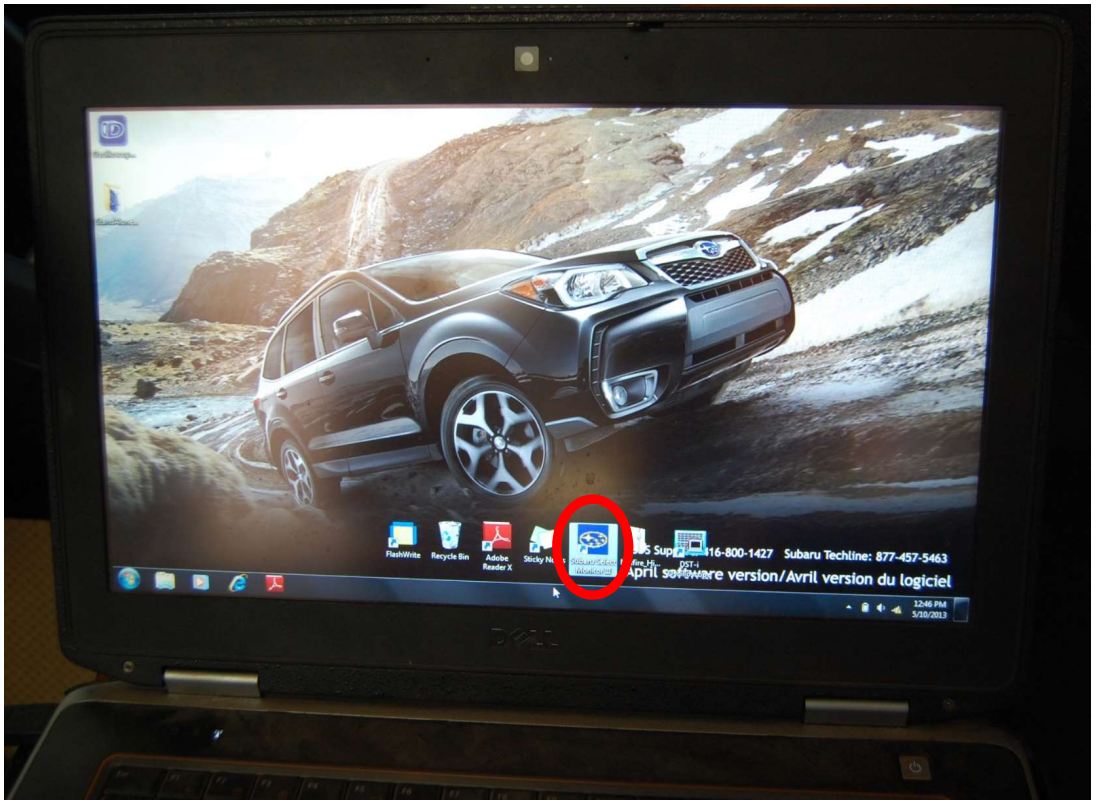
The ACM on this car was between the seats underneath the center console, as shown in Figure 1. The ACM was set down over 2 tion bases were covered. The local Subaru dealer, with whom arrangements for the download had been made in advance, asked for copies of the consent forms, and was generally quite helpful. Other dealers may or may not be as accommodating, with some reportedly declining to participate in cases like this.

The tool to image Subaru ACMs is part of each dealer's proprietary diagnostic scan-tool suite, the "Subaru Select Monitor III" package. This diagnostic system is installed on a dedicated computer, an older Panasonic Toughbook model in this case. Once the VIN is entered and the vehicle identified, one selects "Airbag system" from the menu of systems to be accessed, where you can then access the "Event Record Data".

Once connected to the ACM, four records were available to check with the software: Frontal Crash Old Data, Frontal Crash New Data, Side Crash Old Data, and Side Crash New Data. In the immediate case, reading the "Old" records (where there was no data stored) got the following message: "*Event record data are not recorded.*" The two "New" records contained identical data, each consisting of four subsections:

"*Event data (-5.0 to 0.0sec)*" – containing 9 elements: the vehicle speed, accelerator opening angle %, service brake ON/OFF, RPM, ABS Activity, Stability Control, Steering input (degrees), Motor RPM (invalid for our non-hybrid car), and steering input percent. Data is recorded every ½ second, out

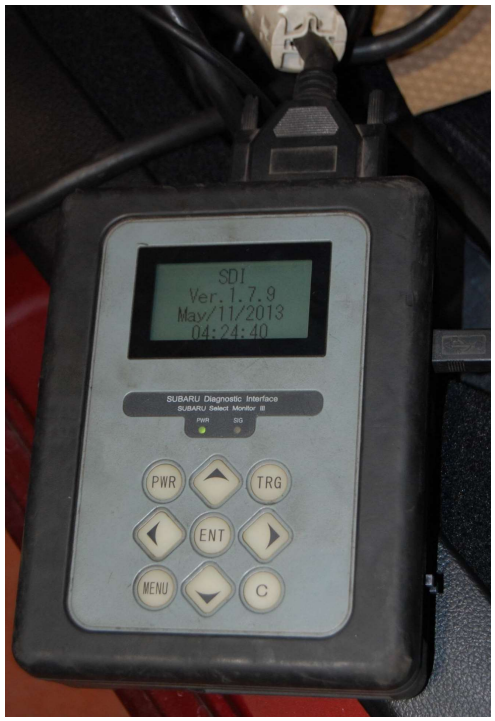
Subaru Select Monitor III Software

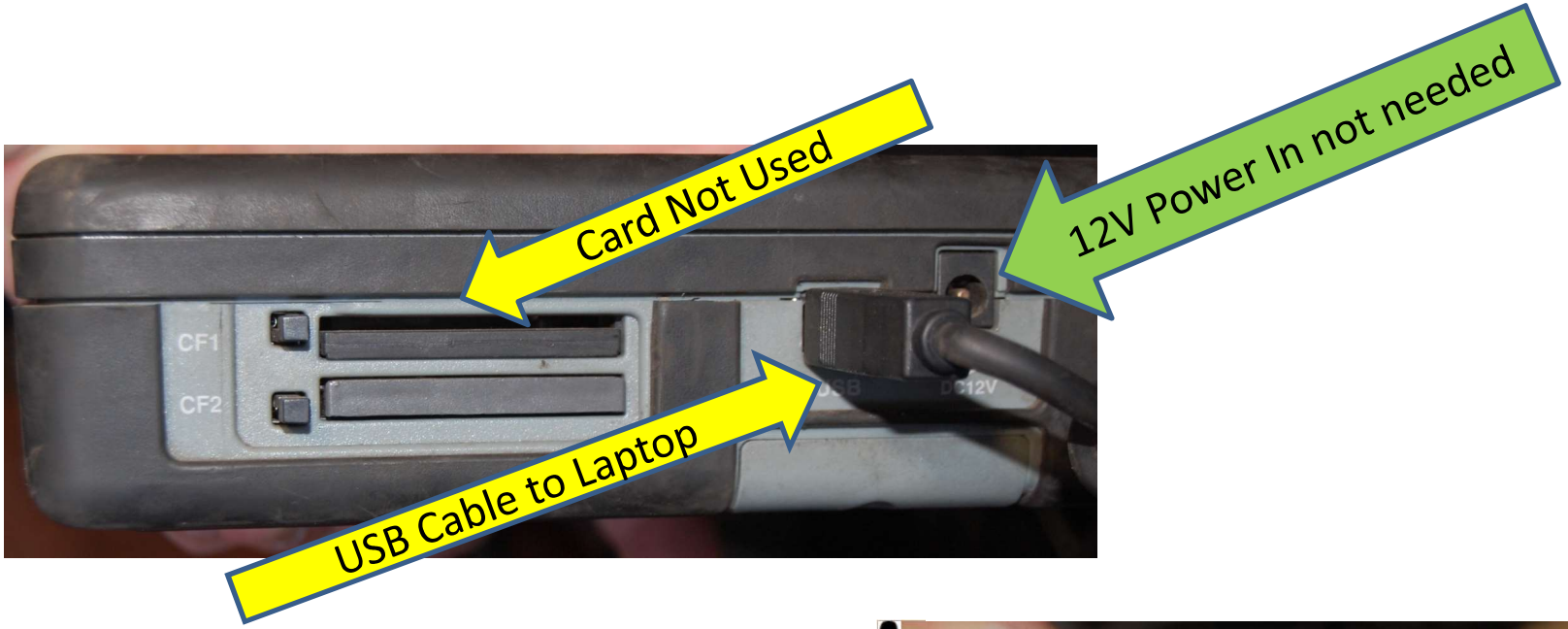


Subaru Diagnostic Interface 2012-15 (Based on a Hitachi HDS-3000) by Blue Streak

- The tool is primarily a service tool – dealer techs can use it without a laptop for some diagnostics

- For EDR it is always used with the SSM3 Software on a laptop, connected via a USB cable





Scan Tool Edge Views

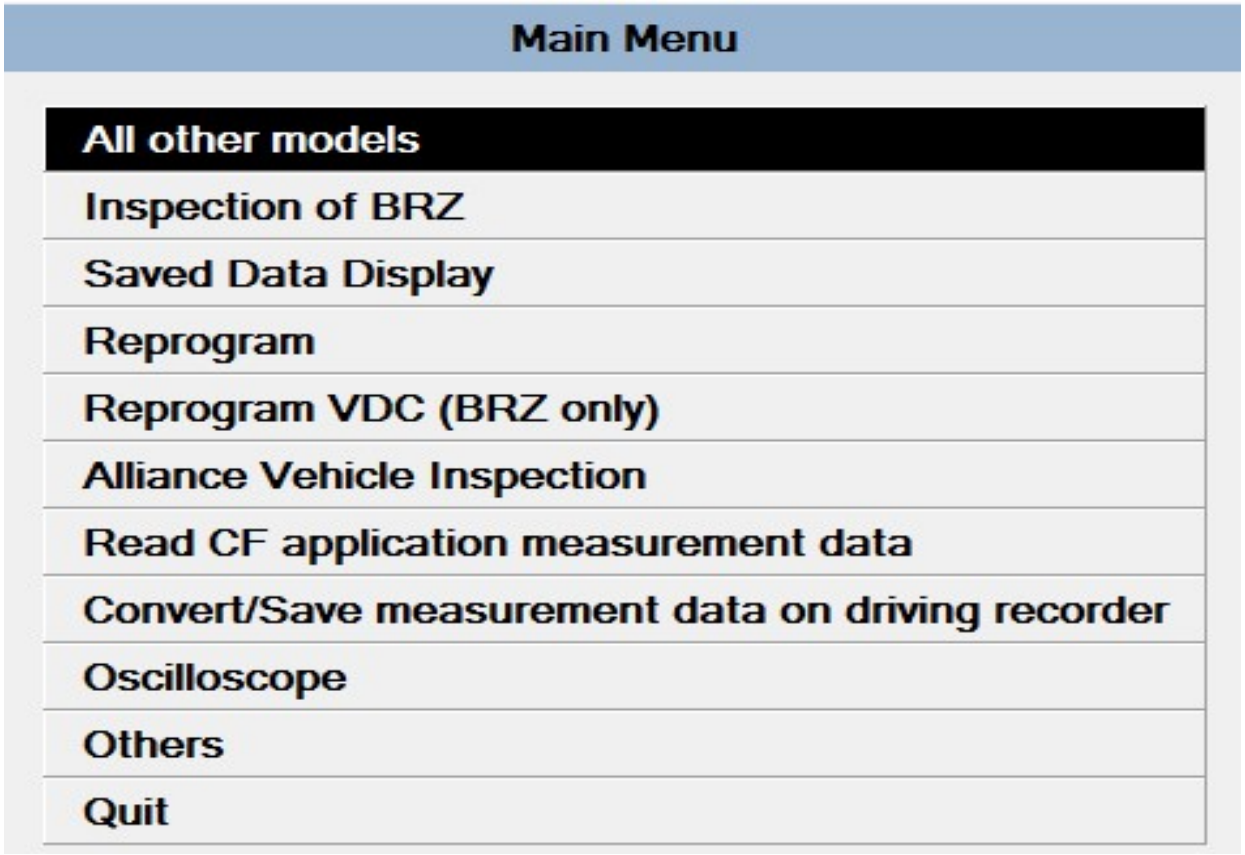
Cable from Interface to DLC. No direct to module cables (unless you build them!)

Newer SSM3 may require picking which interface is used

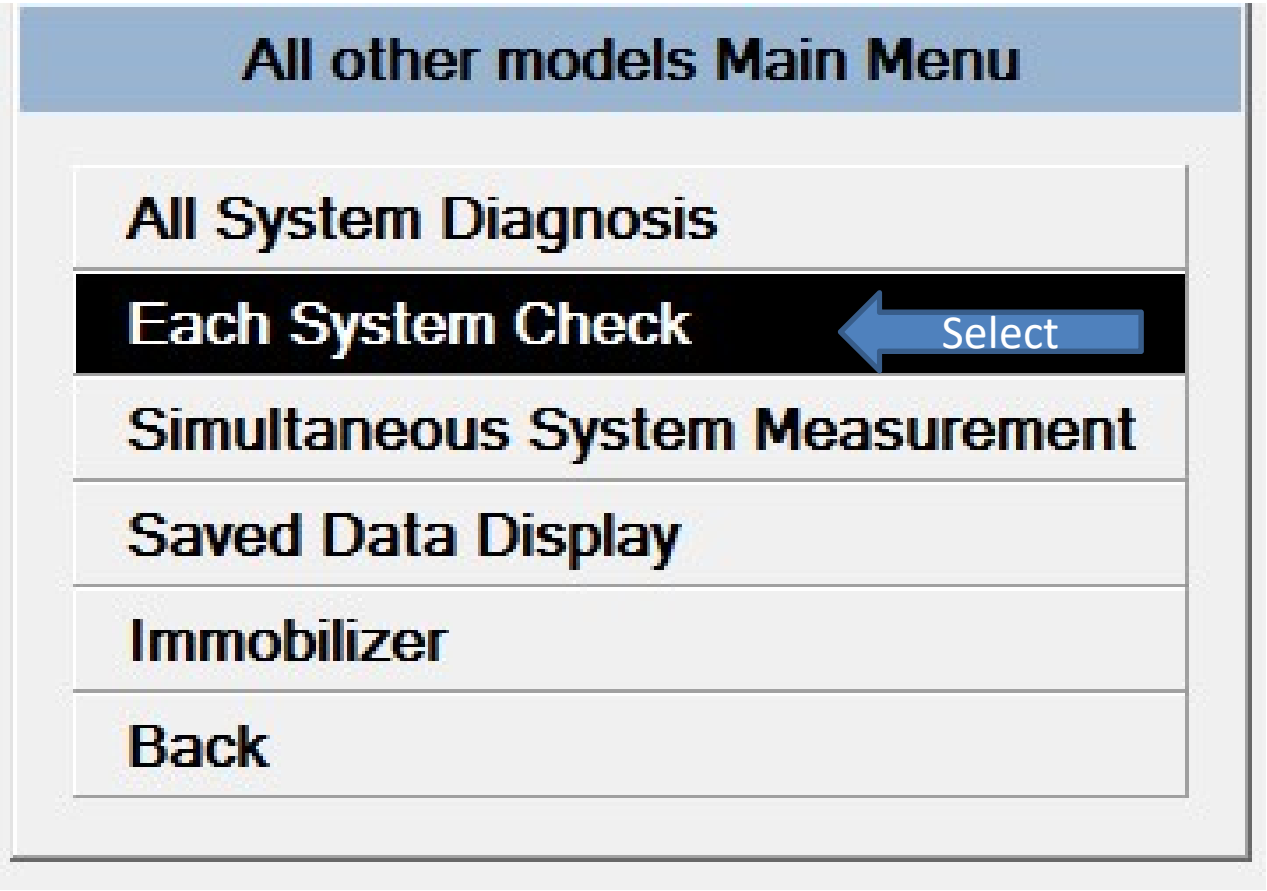
- When the DST-I came out, Subaru added a button in SSM3 to select which interface was being used. The default setting was the old Hitachi interface.

Order of Powering

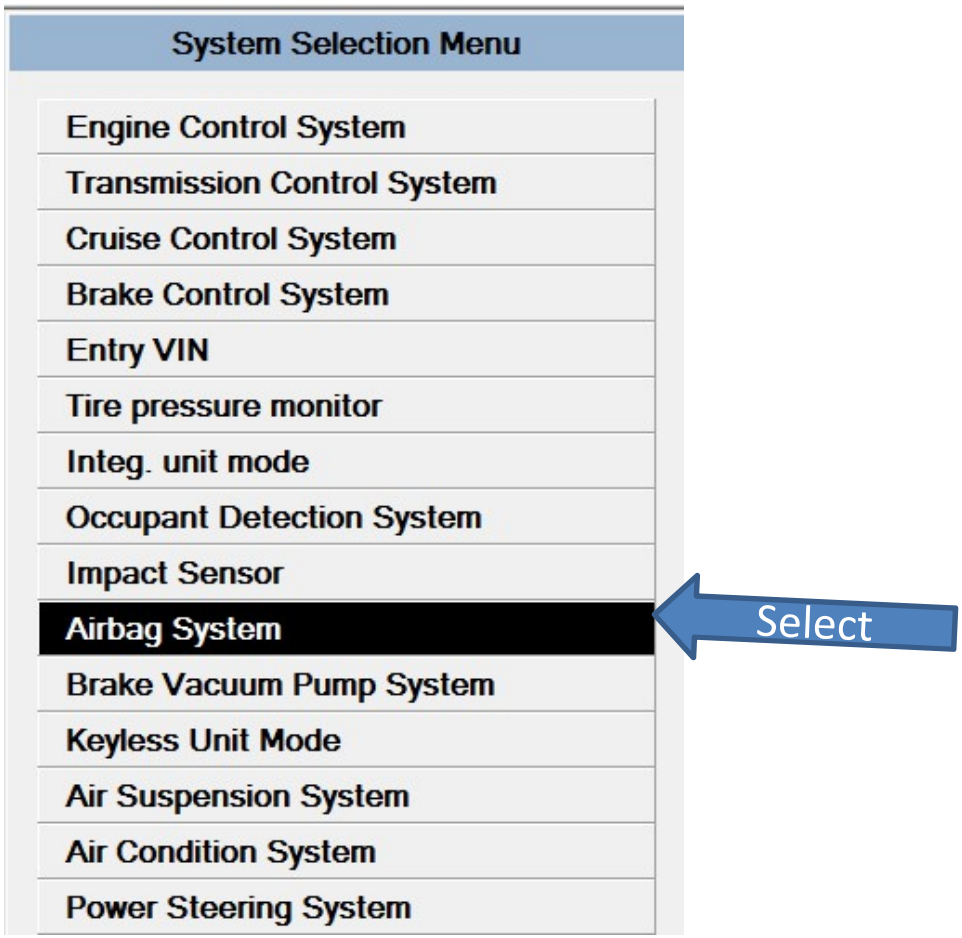
- Power the ACM first
- Then turn on the interface
- Then open the software
- We don’t understand why it has to be done in this order, but if we do it in any other order, there is no communication from the laptop to the ACM. The laptop will talk to the interface, the interface will talk to the ACM, but the Laptop won’t talk directly to the ACM.
- Also caused if wrong interface is selected on one of first screens, F10, select DST-i.



Main Menu: Select “All Other Models” (Unless you have a BRZ)

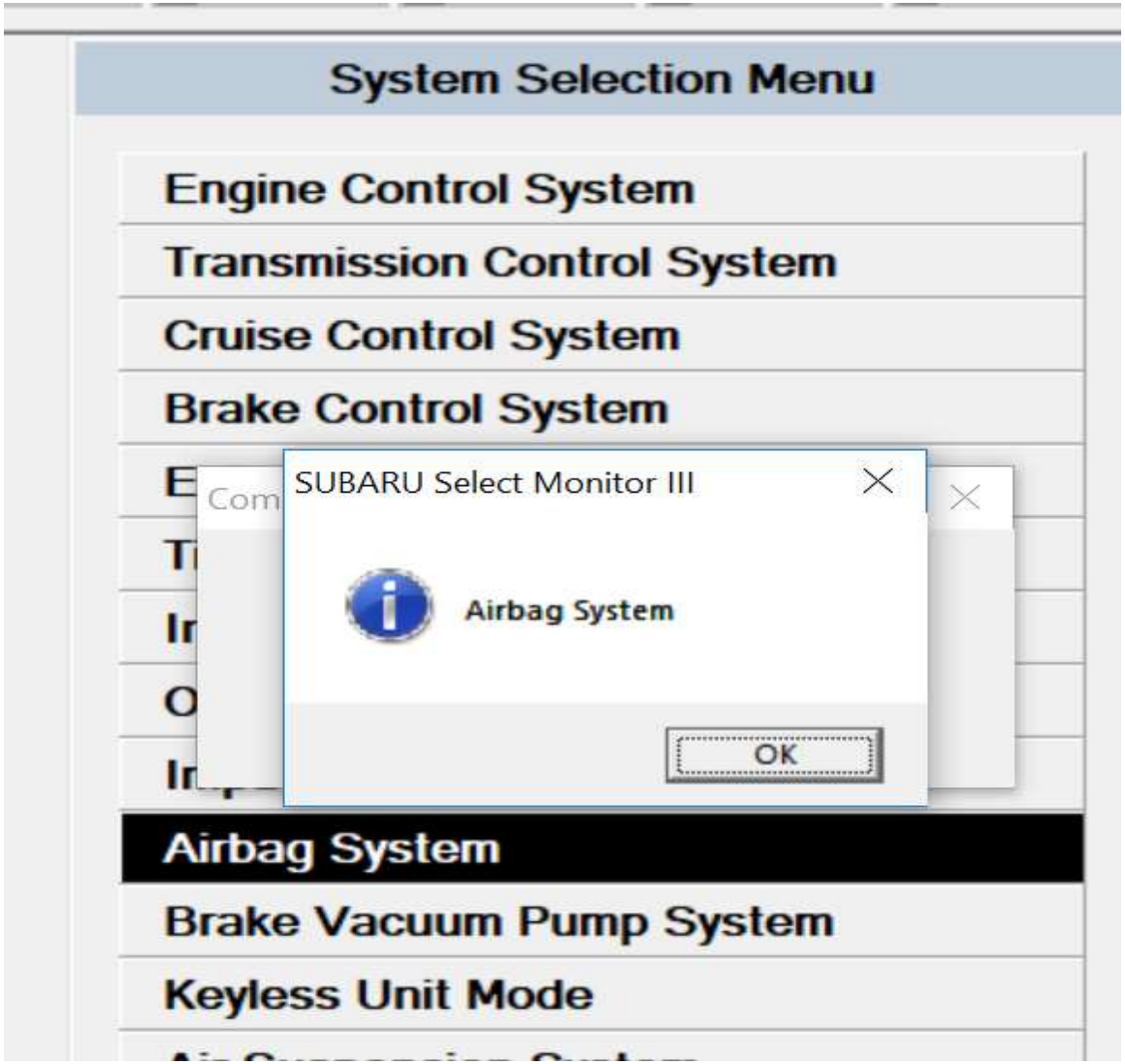


Select "Each System Check" below the All System Diagnosis

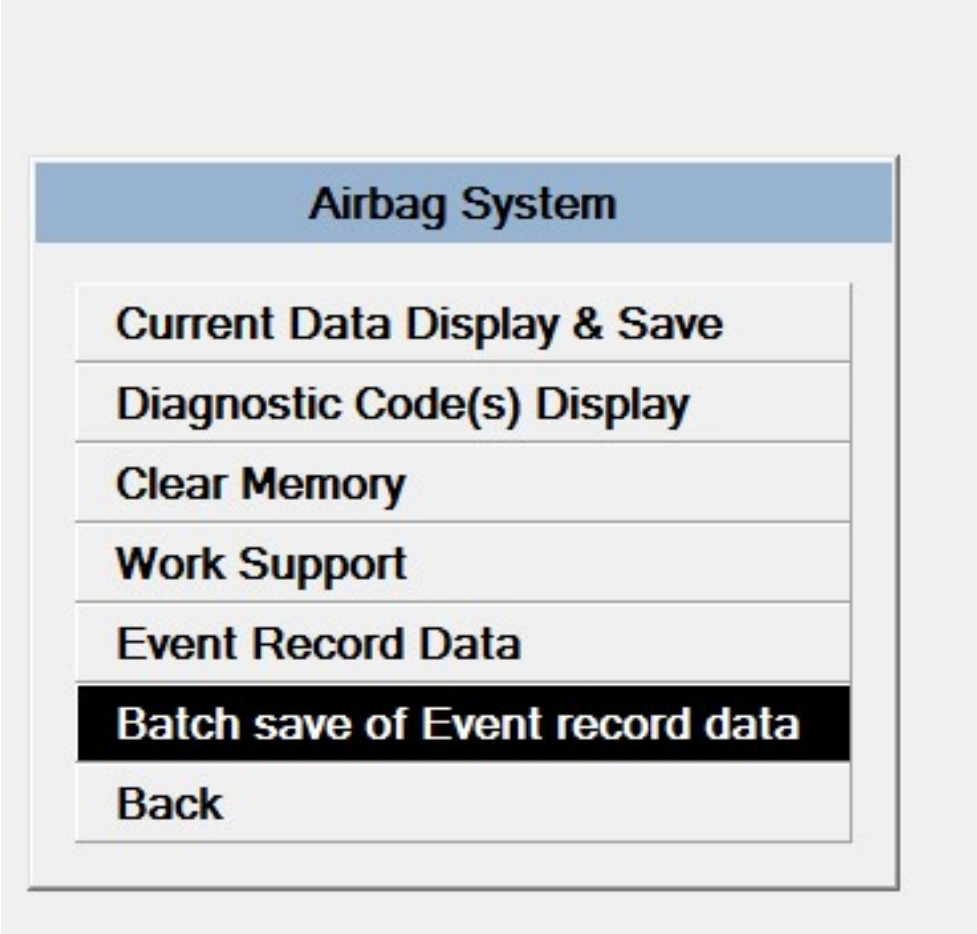


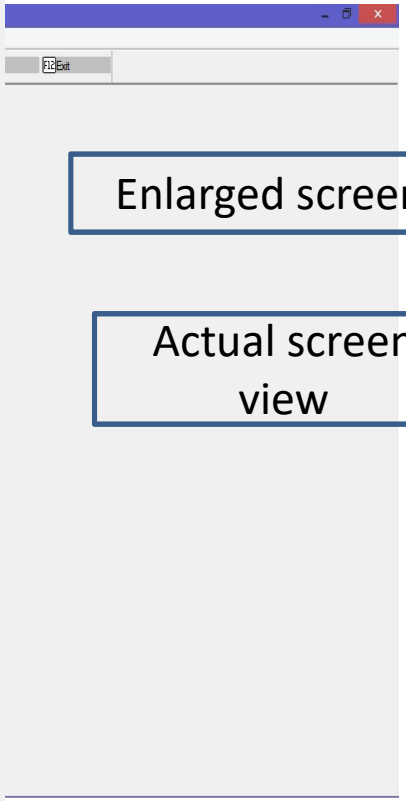
Select “Airbag System”

System acknowledges communication with airbag module



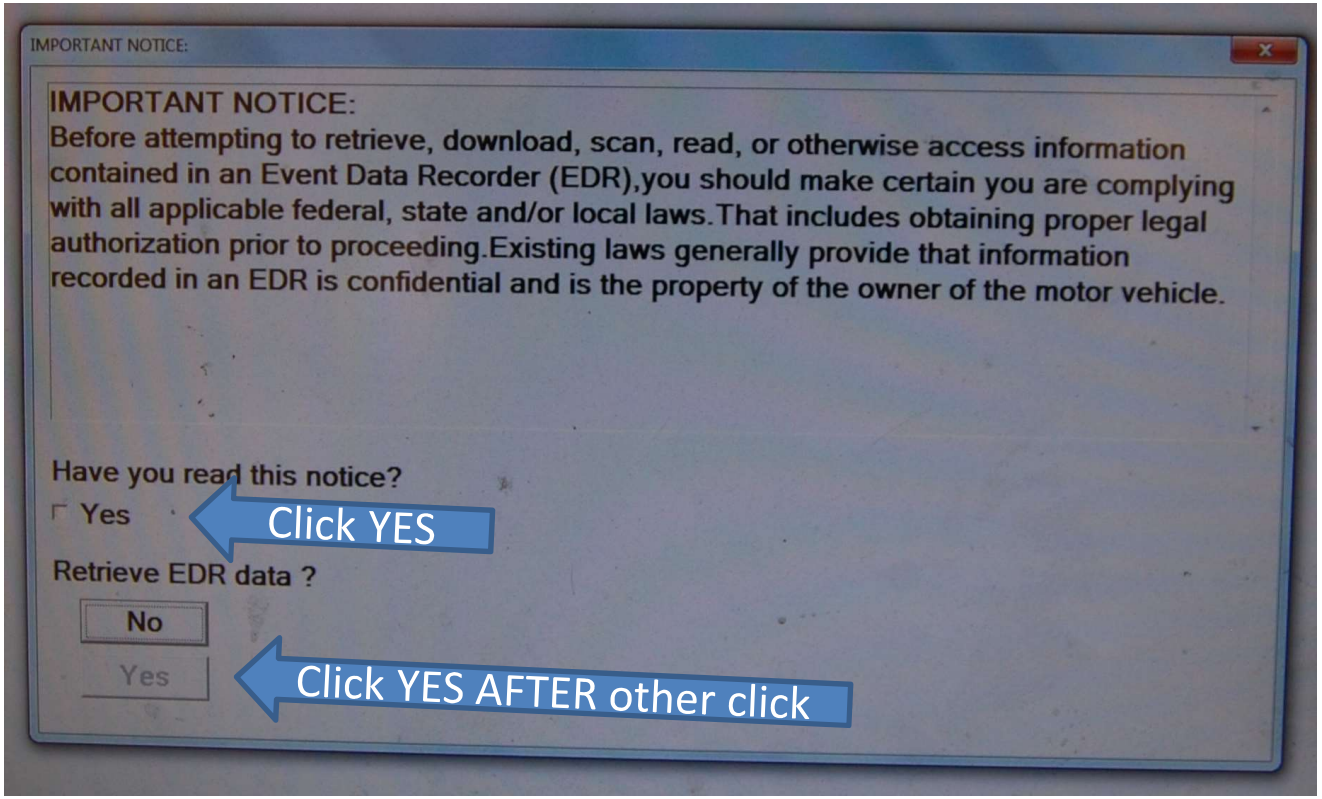
First – Batch Save the File





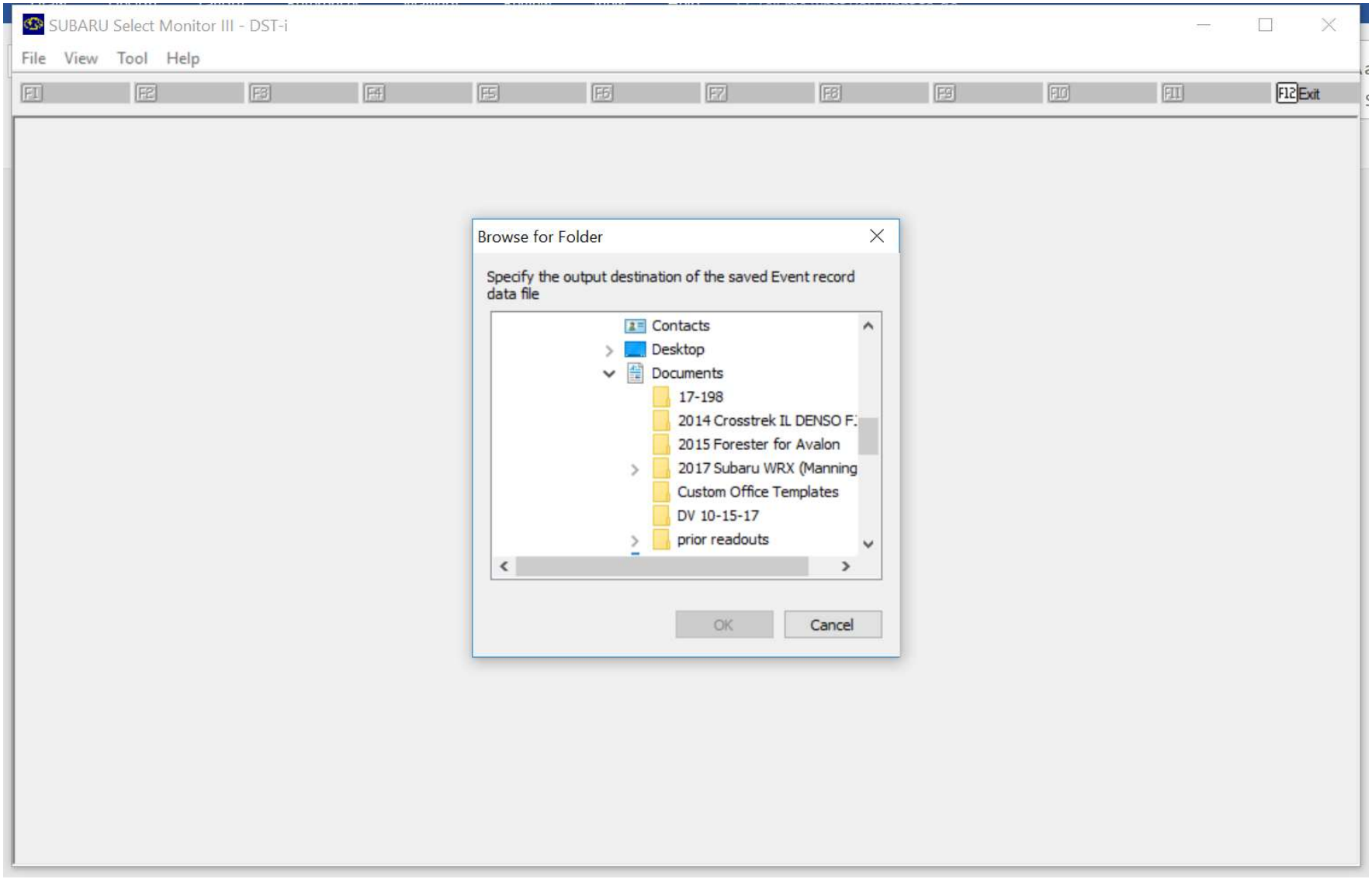
Enlarged screen view

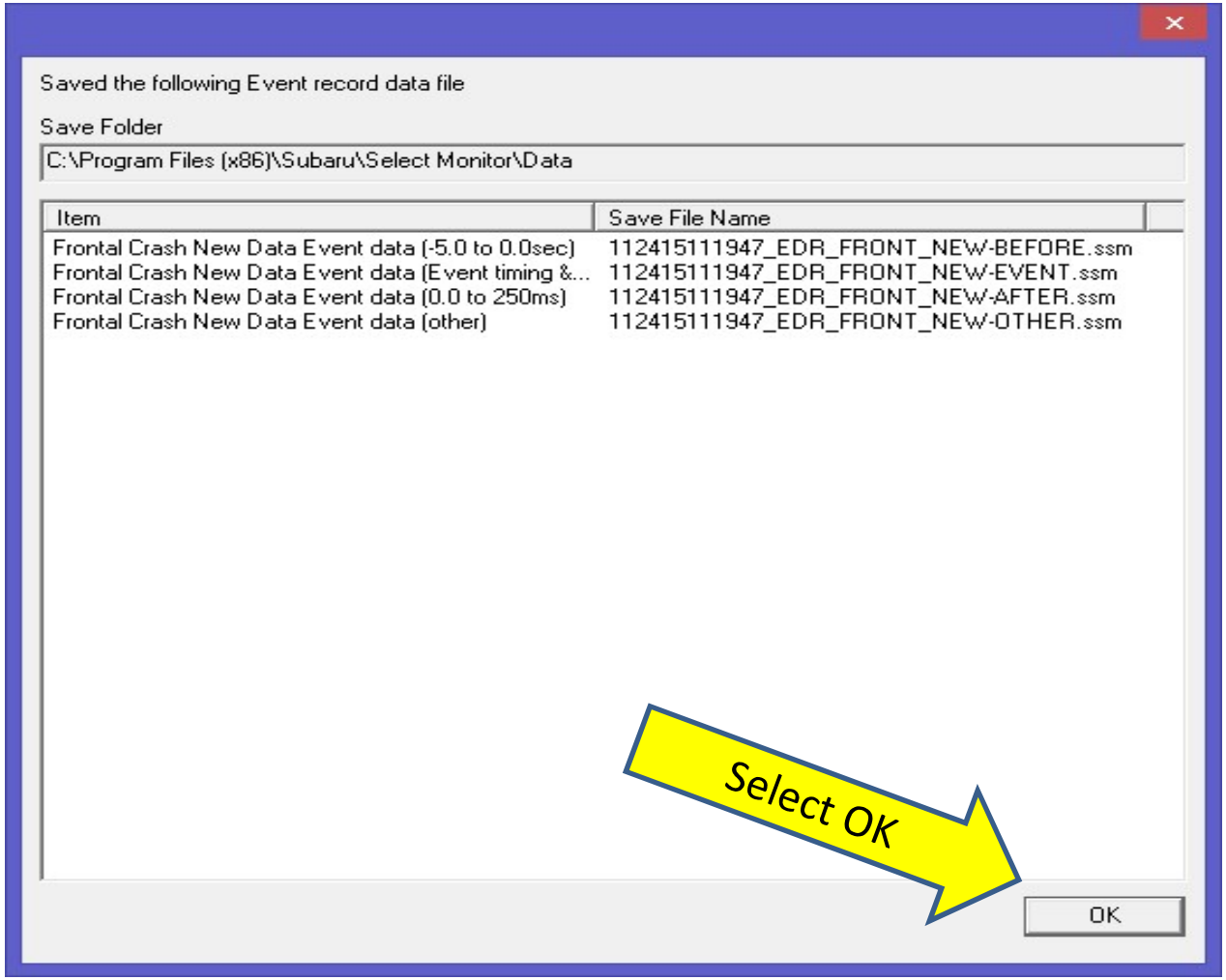
Actual screen view



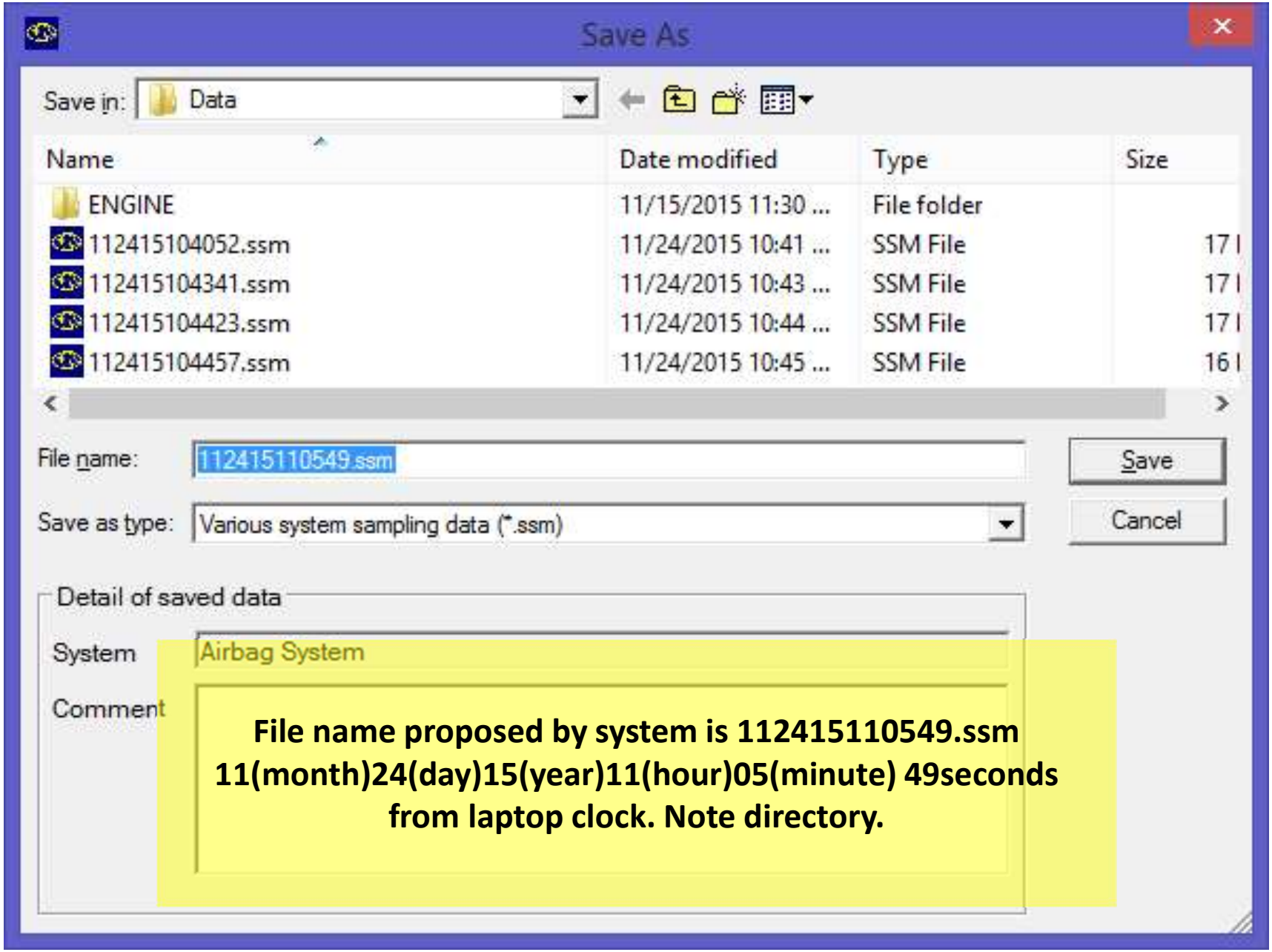
Legal Notice – click top yes, then bottom yes goes live, select it

Choose folder to save files

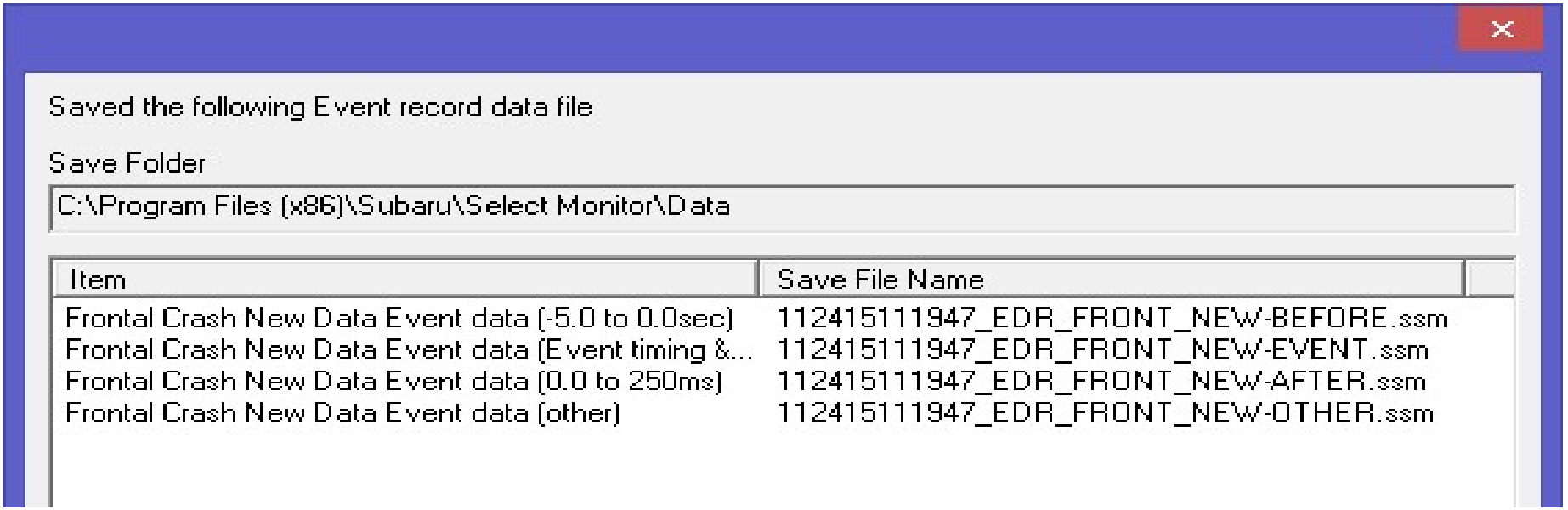




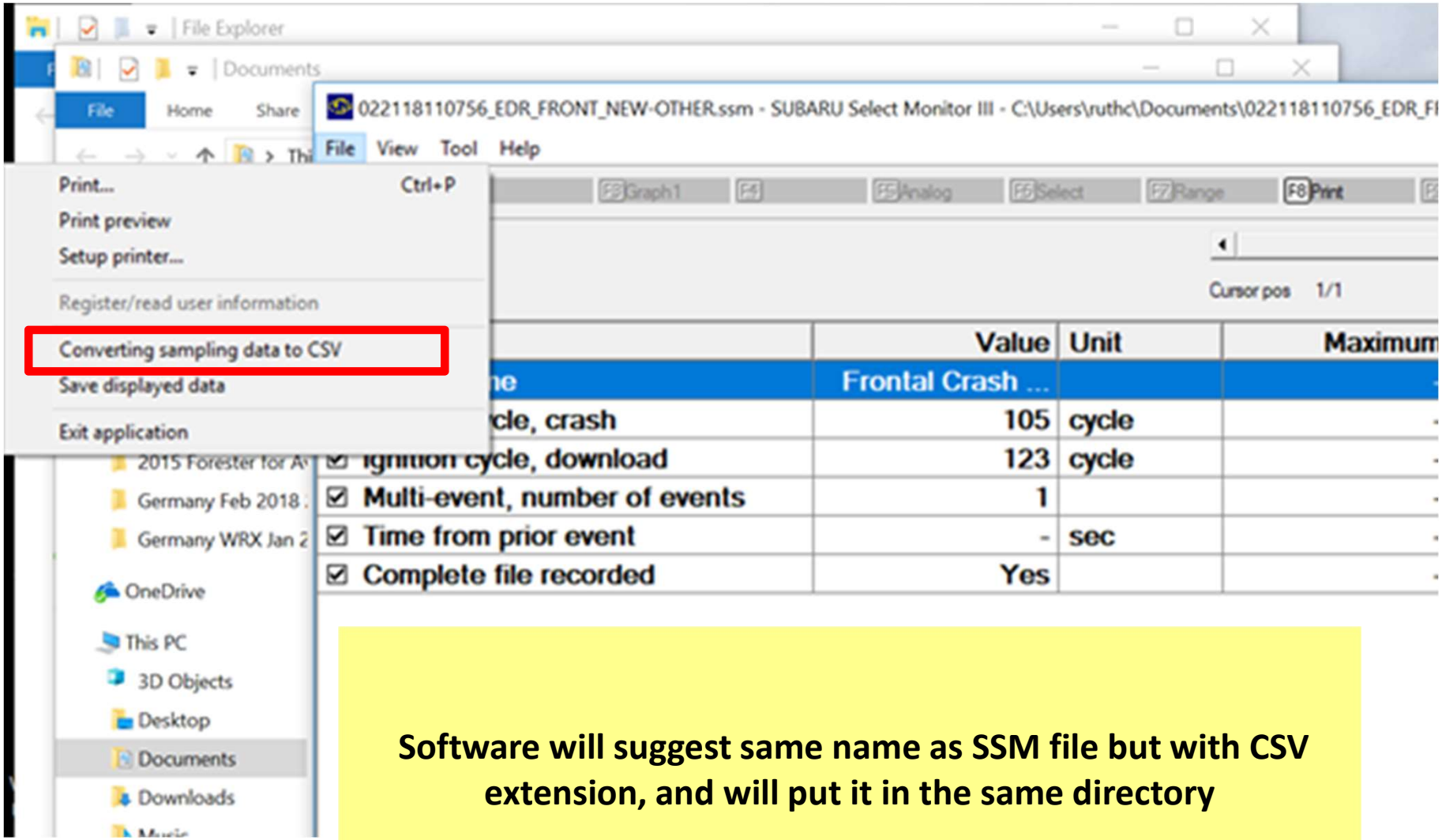
Software prompts with 4 files/event


Save As
Save in: Data
Name
Date modified
Type
Size
ENGINE
11/15/2015 11:30 ...
File folder
112415104052.ssm
11/24/2015 10:41 ...
SSM File
17 I
112415104341.ssm
11/24/2015 10:43 ...
SSM File
17 I
112415104423.ssm
11/24/2015 10:44 ...
SSM File
17 I
112415104457.ssm
11/24/2015 10:45 ...
SSM File
16 I
File name:
112415110549.ssm
Save
Save as type:
Various system sampling data (*.ssm)
Cancel
Detail of saved data
System
Airbag System
Comment
File name proposed by system is 112415110549.ssm
11(month)24(day)15(year)11(hour)05(minute) 49seconds
from laptop clock. Note directory.

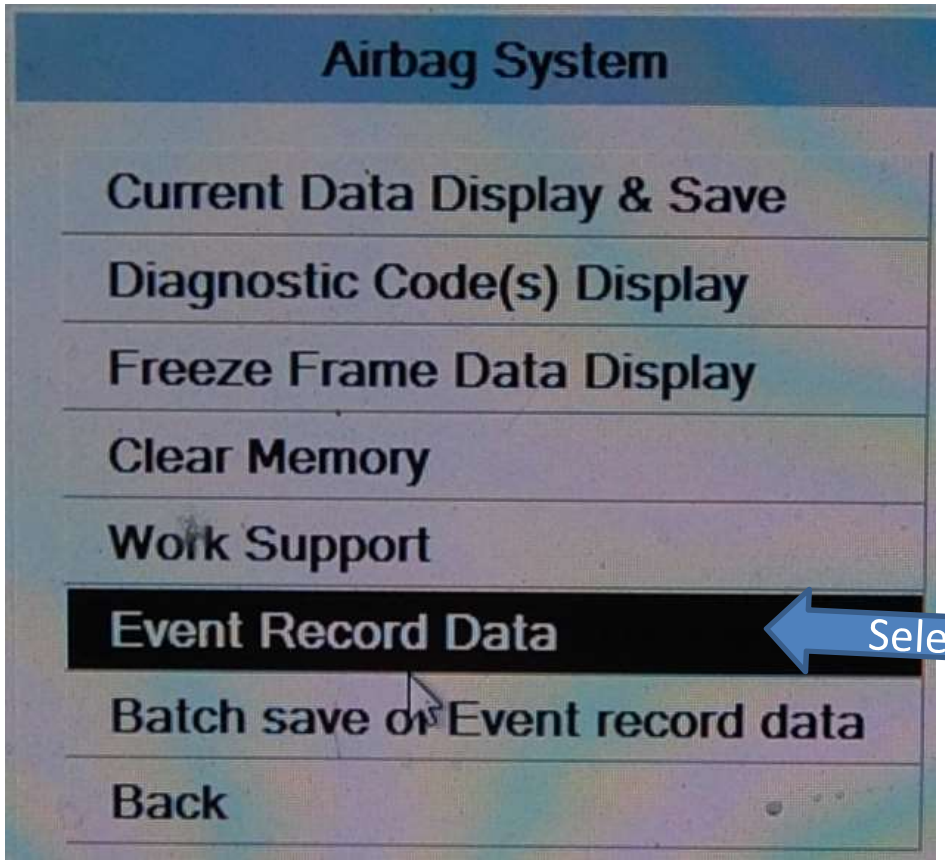
Navigate to the directory the SSM files are saved in. Click on the SSM files one at a time. Click on file menu and select save as CSV.



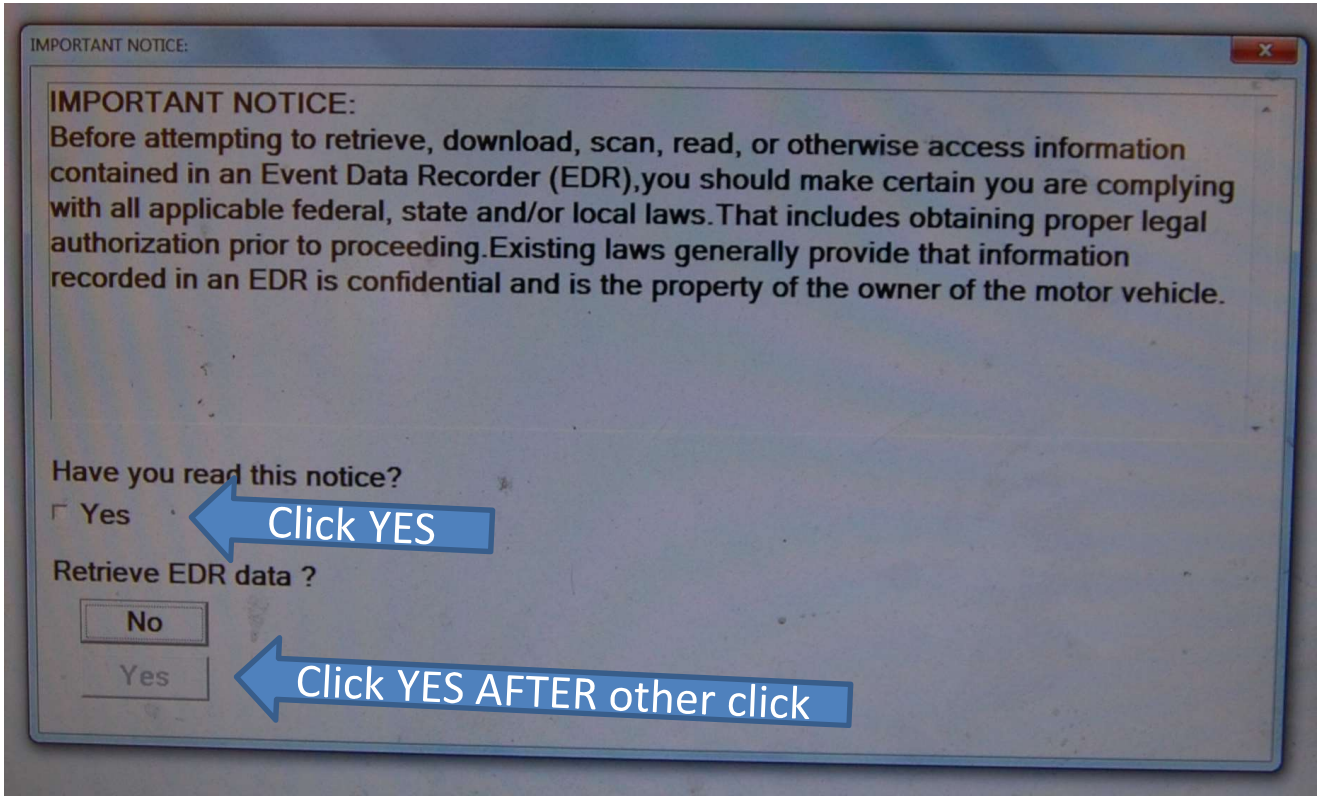
Converting SSM to CSV – File Menu



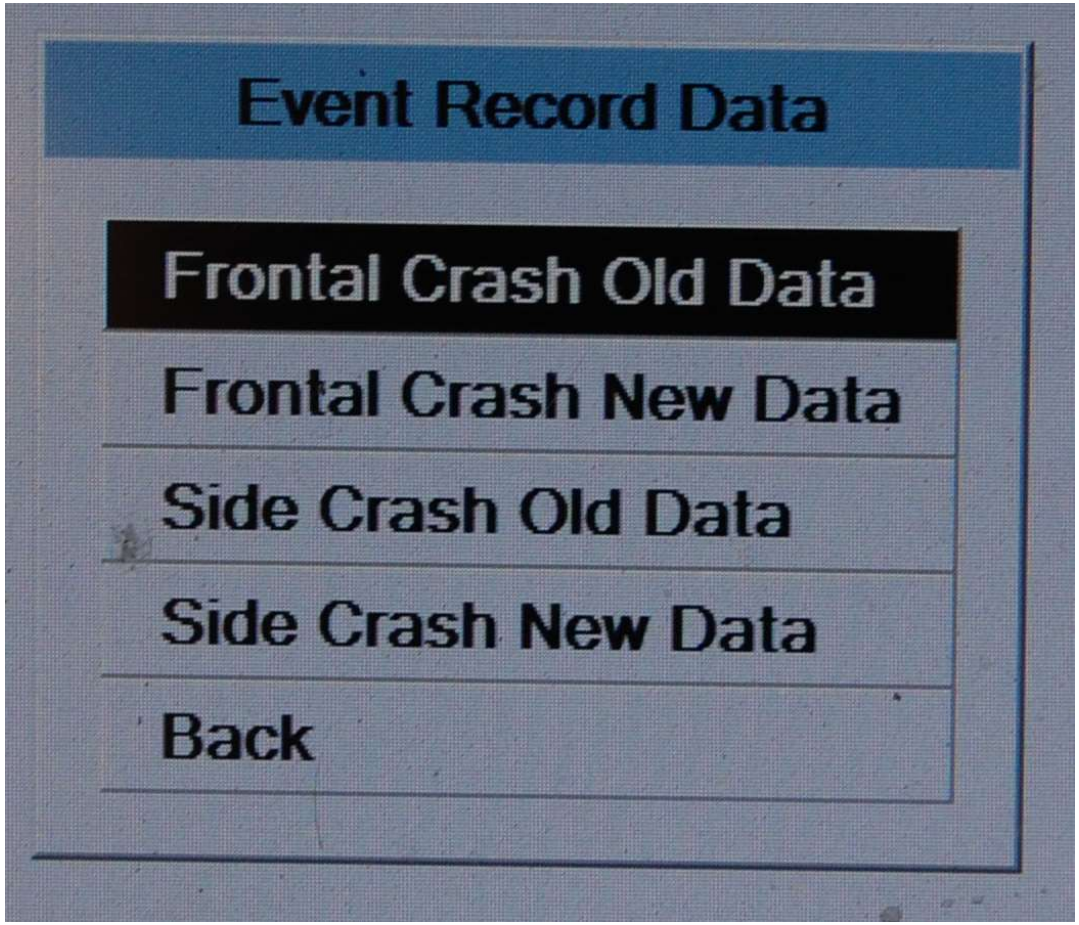
Software will suggest same name as SSM file but with CSV extension, and will put it in the same directory



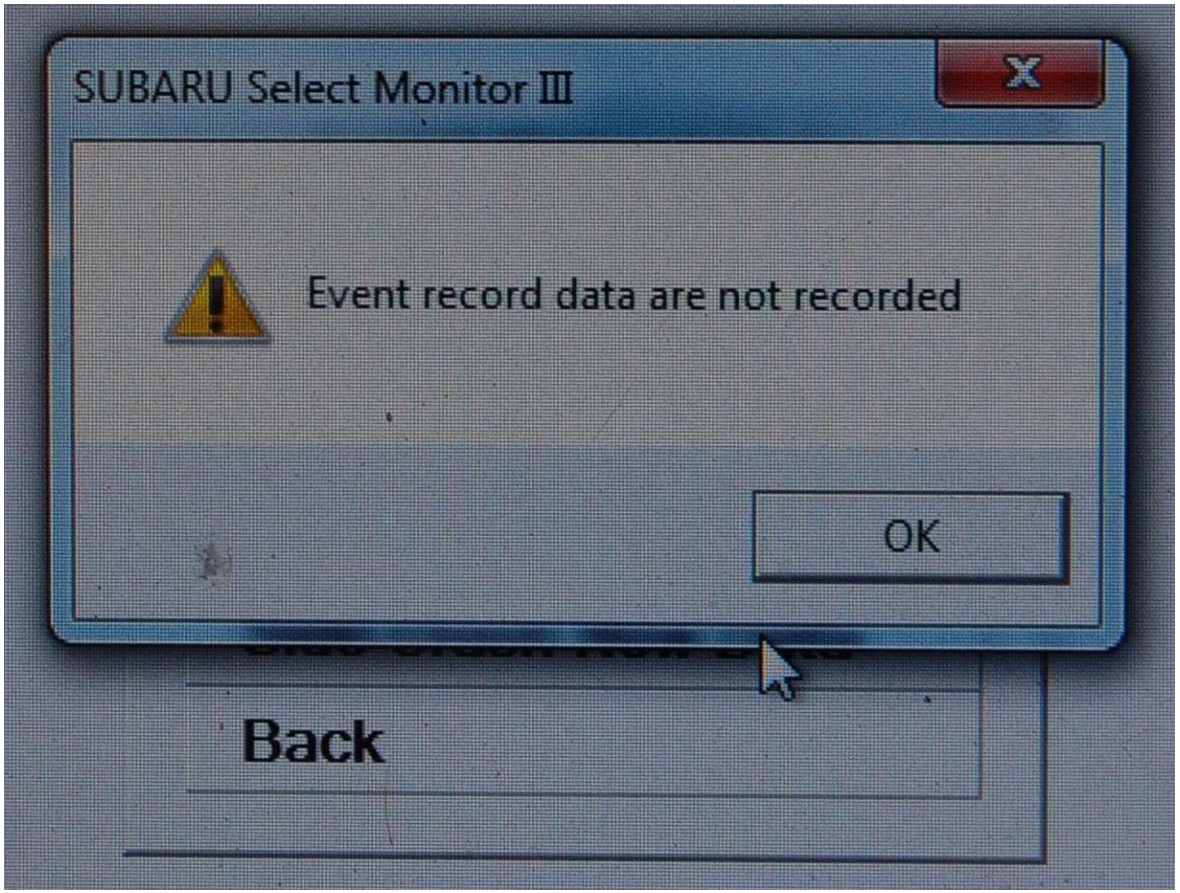
If you want to view data on screen, then Select “Event Record Data”. The on screen view is NOT user friendly but some may want to look anyway. The CSV files are easier to view.



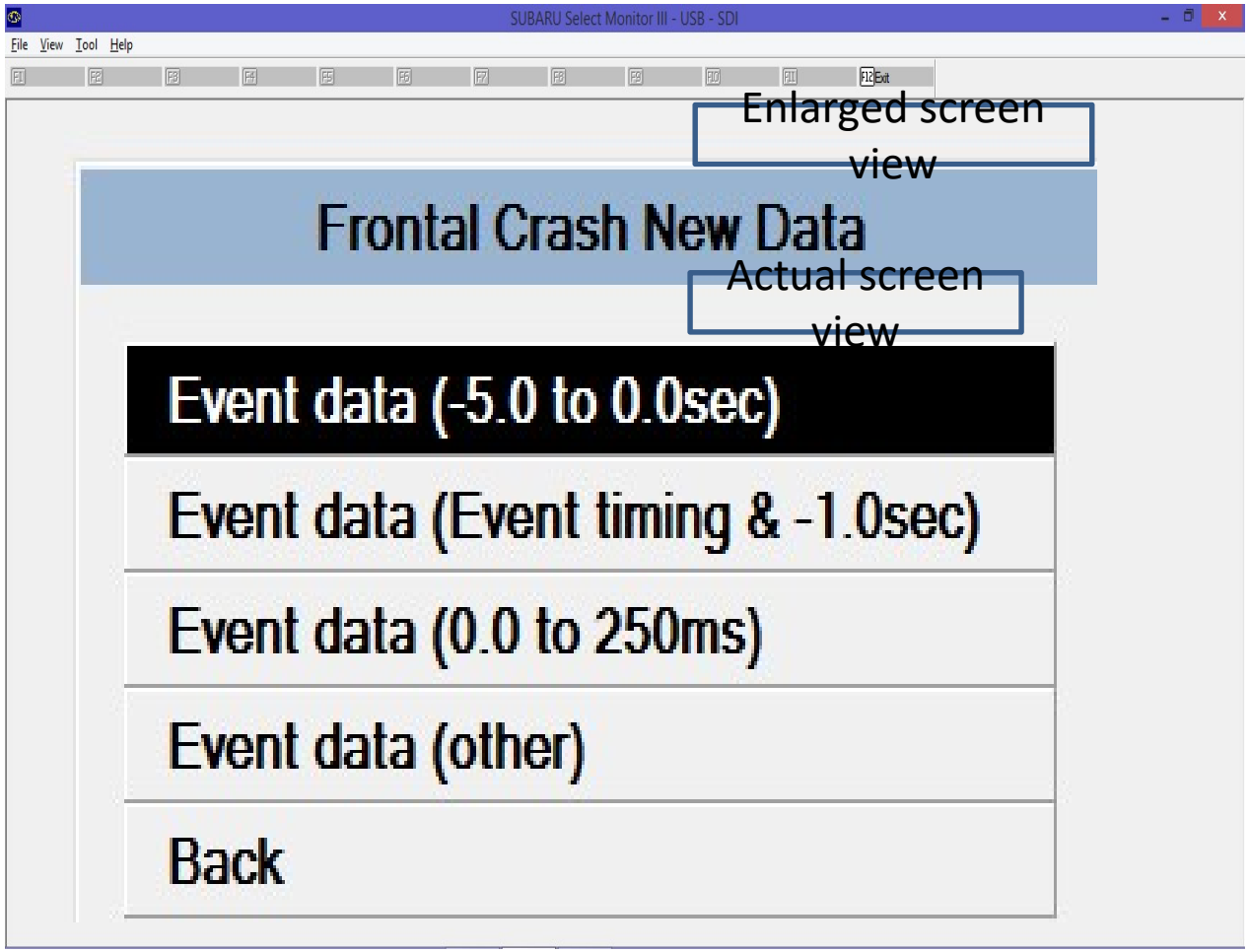
Legal Notice – click top yes, then bottom yes goes live, select it



Four Spaces in Memory (six if rollover equipped)

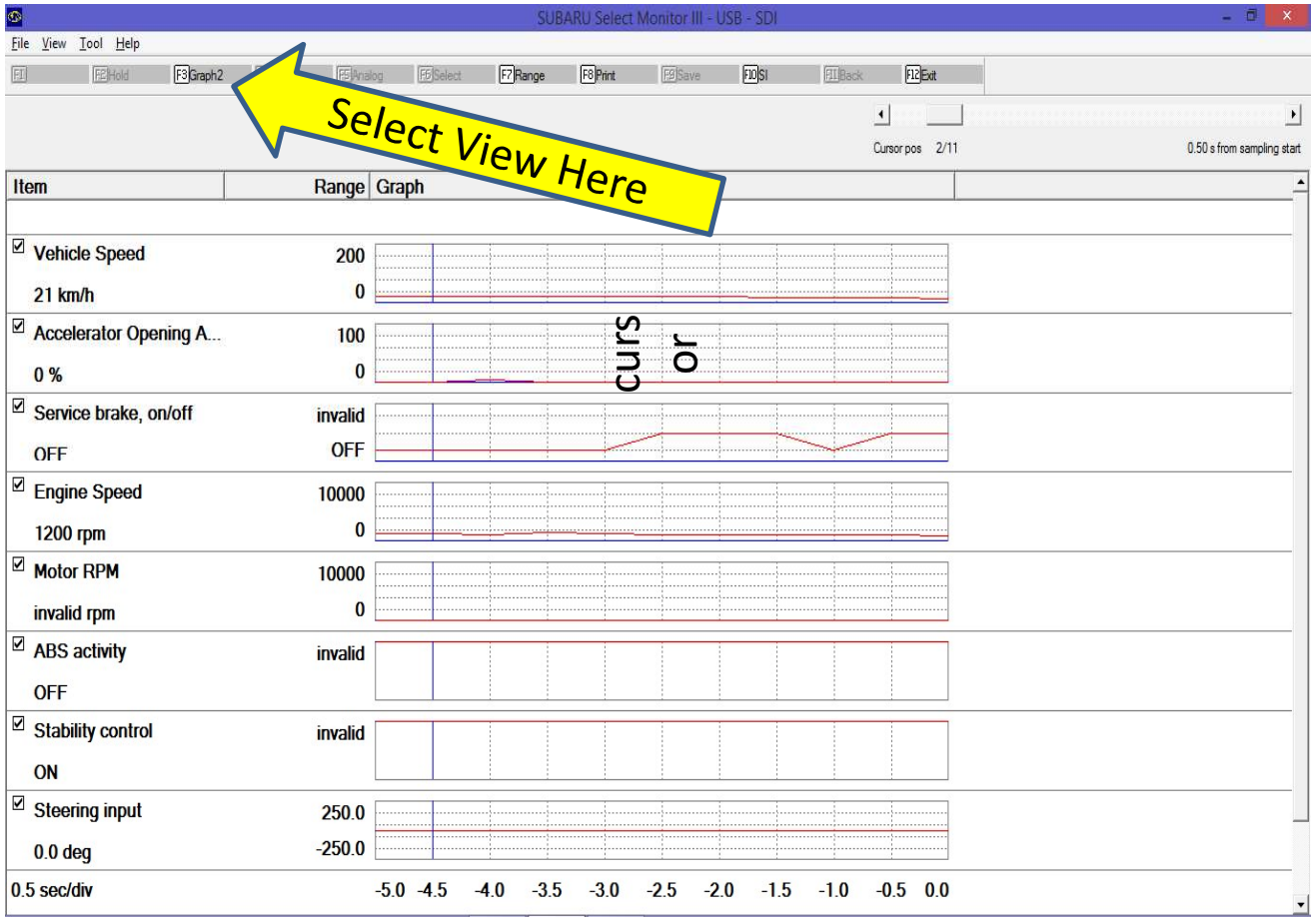


If no events are present



Four Parts to Each of the 4 Event Spaces

Graph2 View of Events

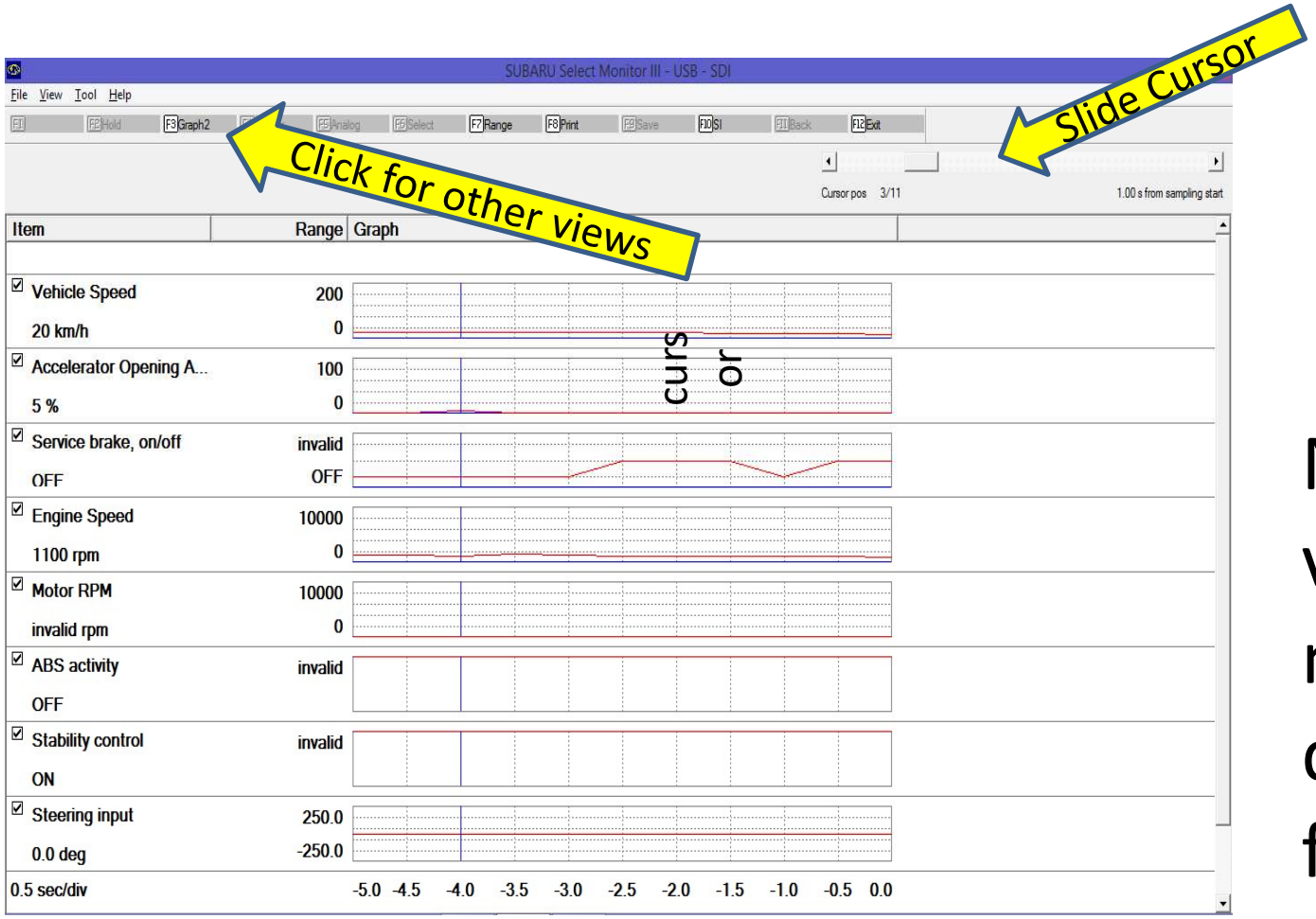


- Note graph is hard to read – big scale
- Note blue line is a cursor at -4.5
- The values for each parameter at -4.5 are displayed
- Move the cursor across graph to see all values

Viewing Precrash Data on Screen

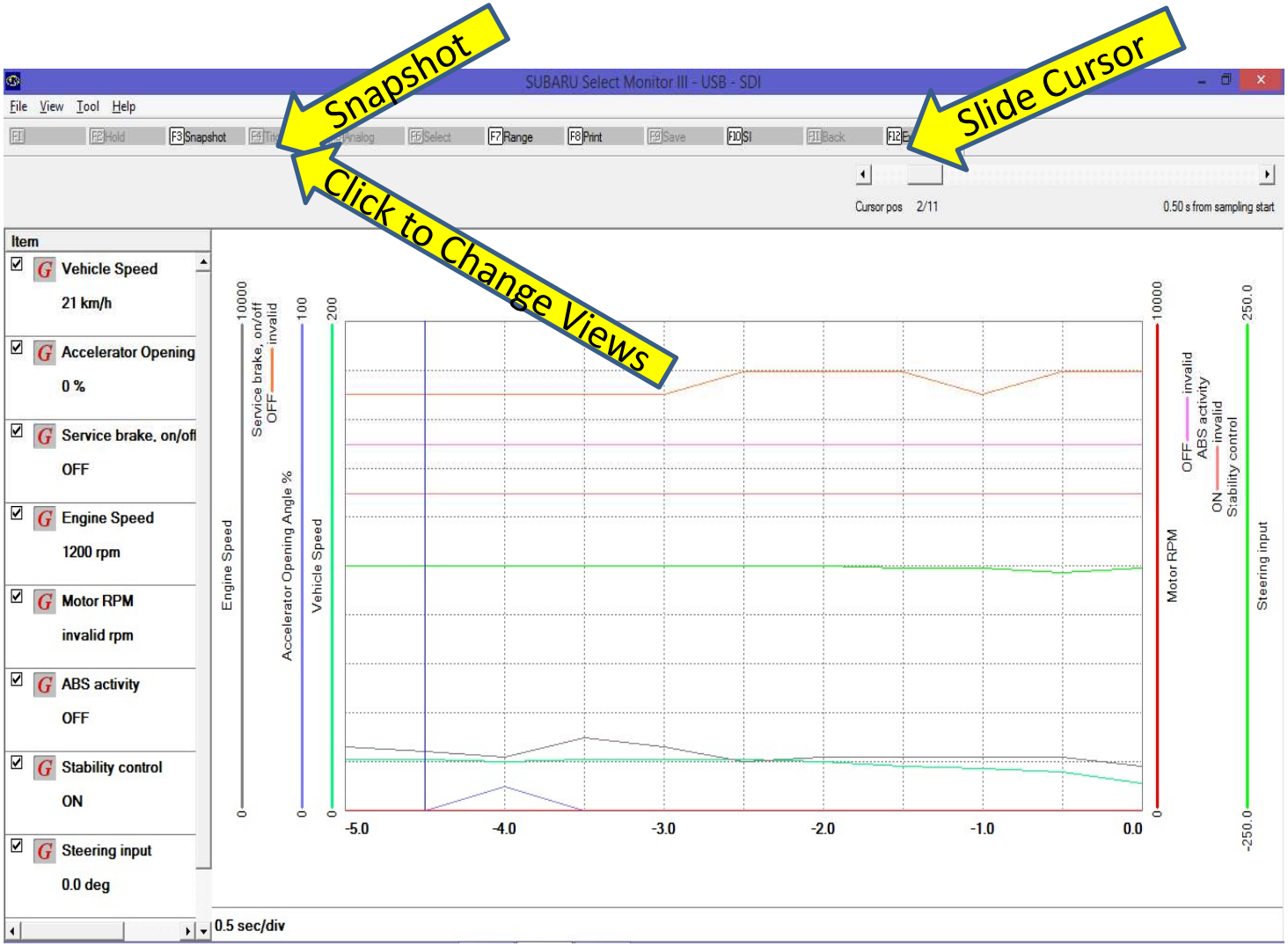
- For precrash data, there is a slide bar in the upper right. Slide bar to left shows data point 1 which is 5 seconds to impact. Data points are in half second intervals. Slide bar at far right shows data point 11 which is at impact.
- The software can show you a graph but will only display one number at a time digitally, you must move the slide bar 11 times to see all the numbers.

Graph2 View – Cursor at -4.0

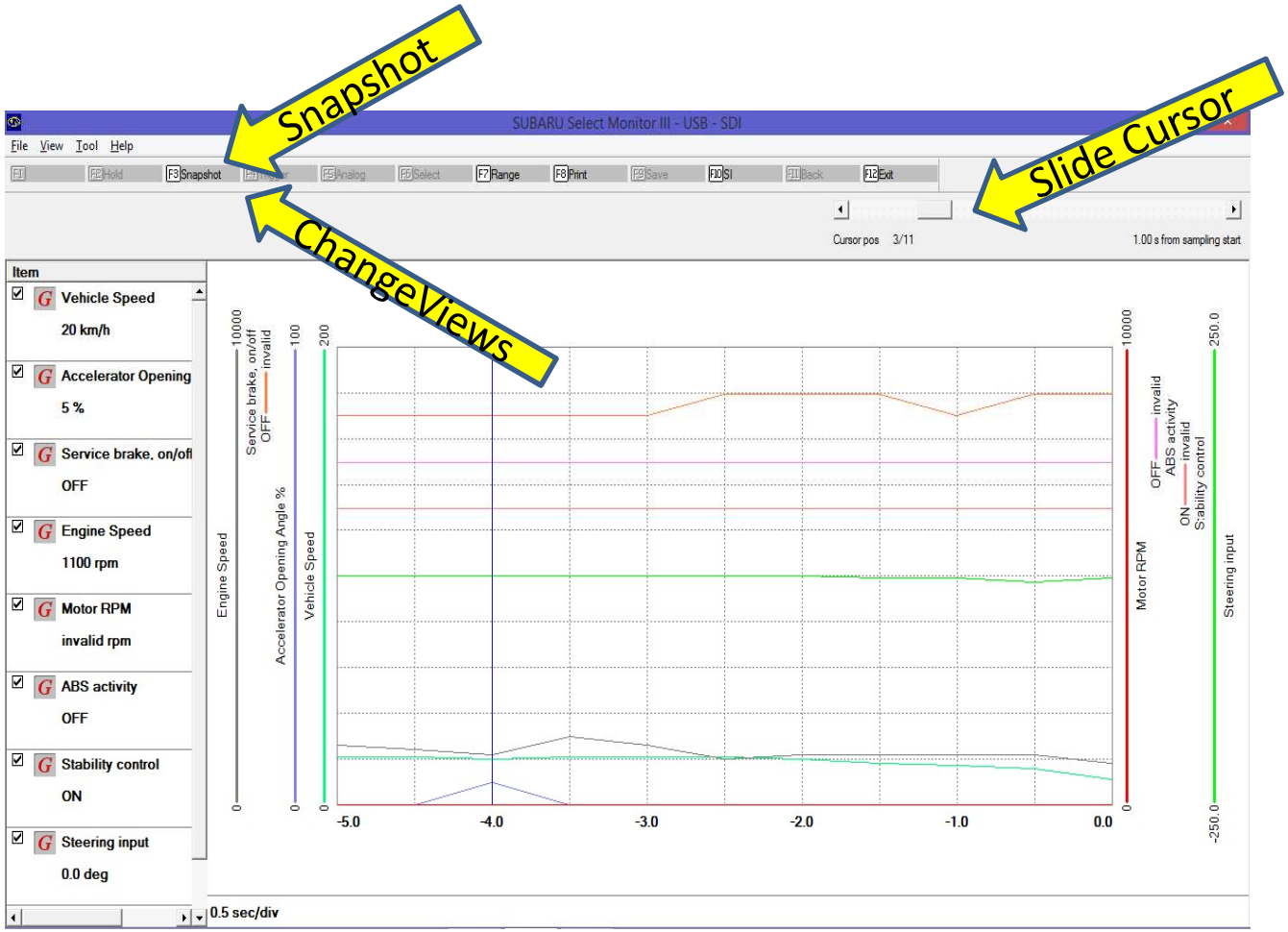


Note values are now displayed for -4.0 where cursor is located

Snapshot View – Cursor at -4.5

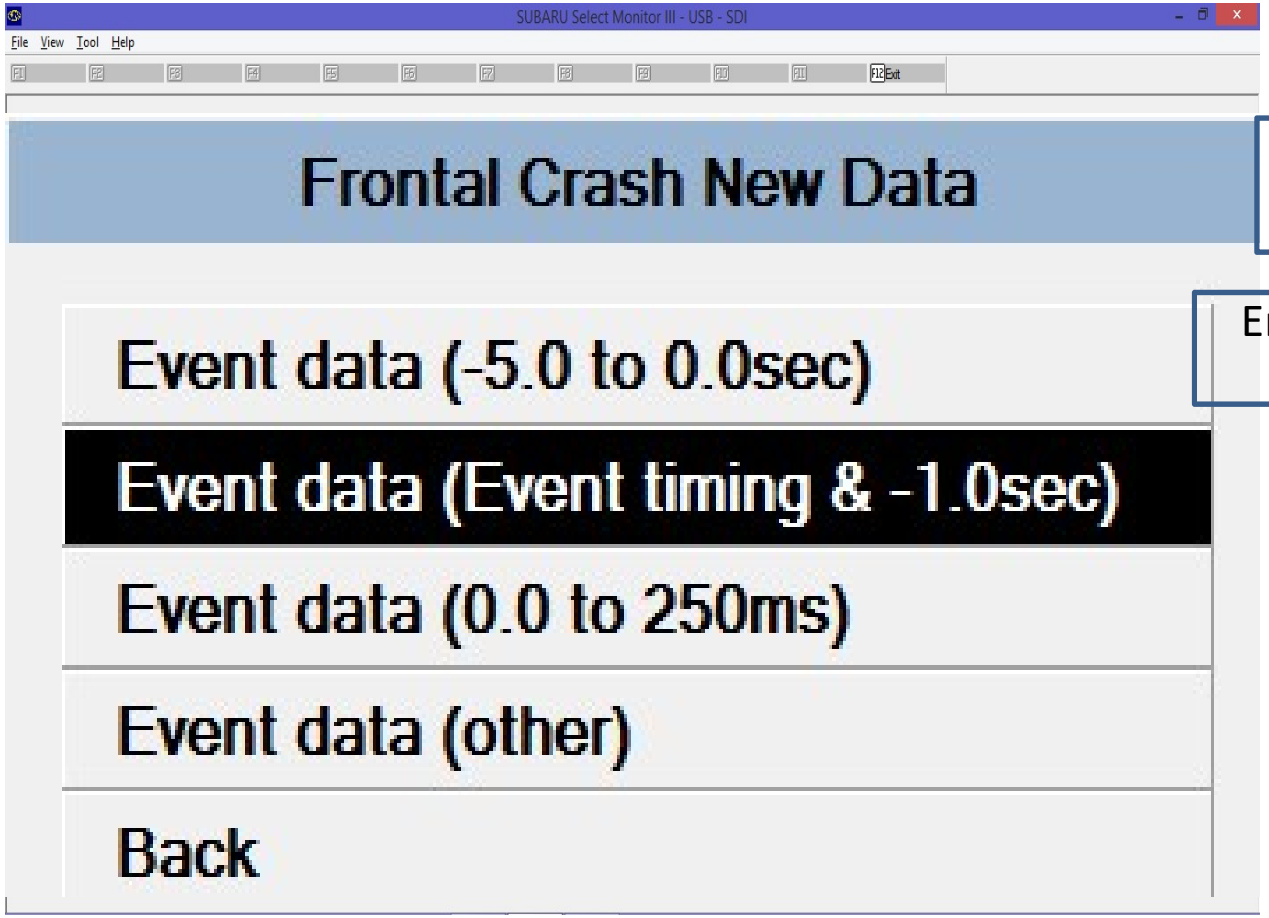


- Values at Left are for cursor at -4.5
- Scroll cursor to see all values



Snapshot View – Cursor at -4.0

- Values at Left are for cursor at -4.0
- Scroll to see other values



Actual screen view

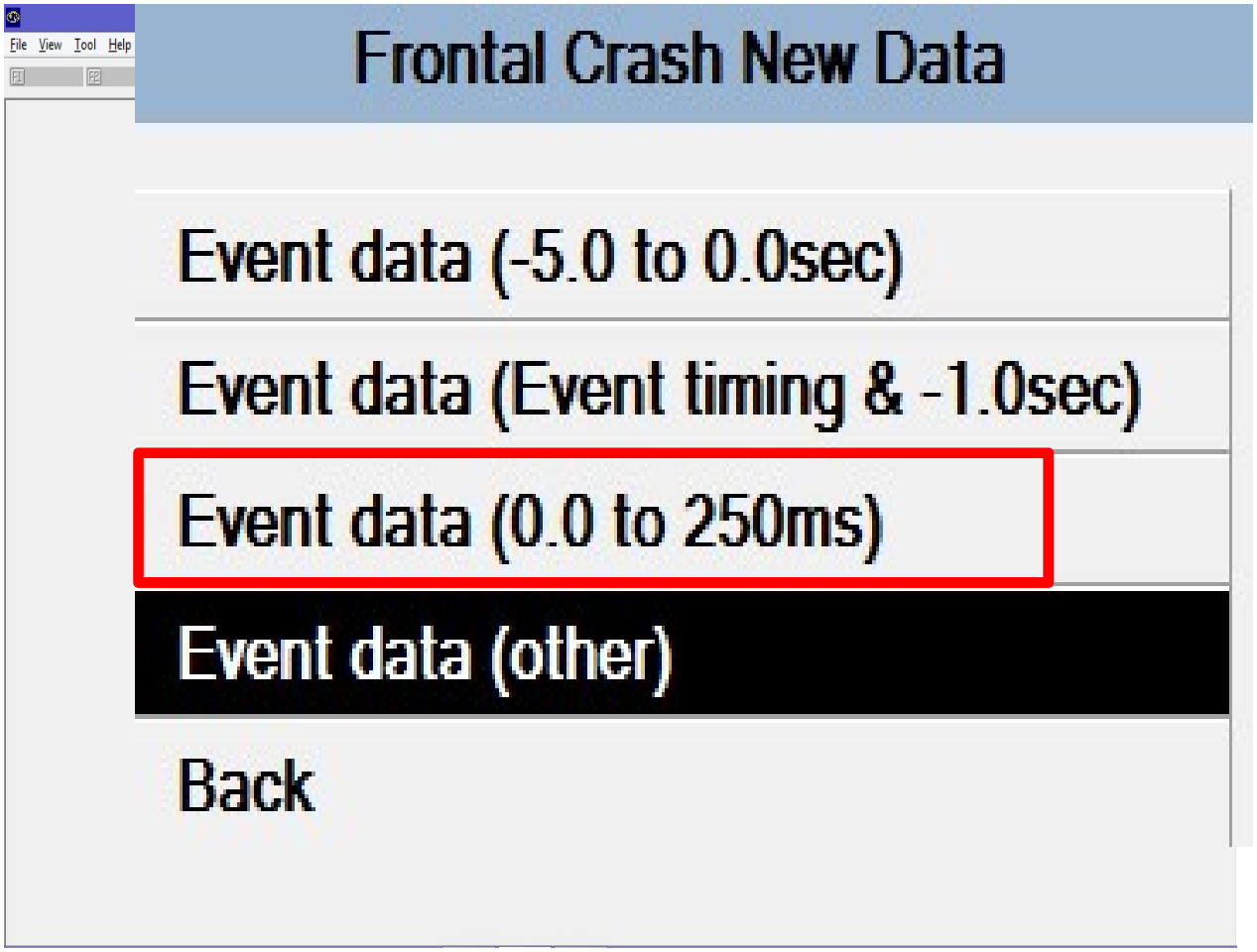
Enlarged screen view

Event Data

Item	Value	Unit
☑ Event name	Frontal Crash ...	
☐ Maximum delta-V longitudinal	-9	km/h
☐ Time,maximum delta-V	120.0	ms
☐ Maximum delta-V, lateral	0	km/h
☐ Time maximum delta-V, lateral	67.5	ms
☐ Frontal air bag deployment, time...	invalid	ms
☐ Frontal air bag deployment, time...	invalid	ms
☐ Frontal air bag deployment, time...	invalid	ms
☐ Frontal air bag deployment, time...	invalid	ms
☐ Side air bag deployment, time to...	invalid	ms
☐ Side air bag deployment, time to...	invalid	ms
☐ Side curtain air bag deployment,...	invalid	ms
☐ Side curtain air bag deployment,...	invalid	ms
☐ Frontal air bag warning lamp	OFF	
☐ Safety belt status, driver	ON (fastened)	
☐ Safety belt status, right front pa...	OFF (not faste...	
☐ Occupant size classification, rig...	Yes	

Enlarged screen view

Actual screen view

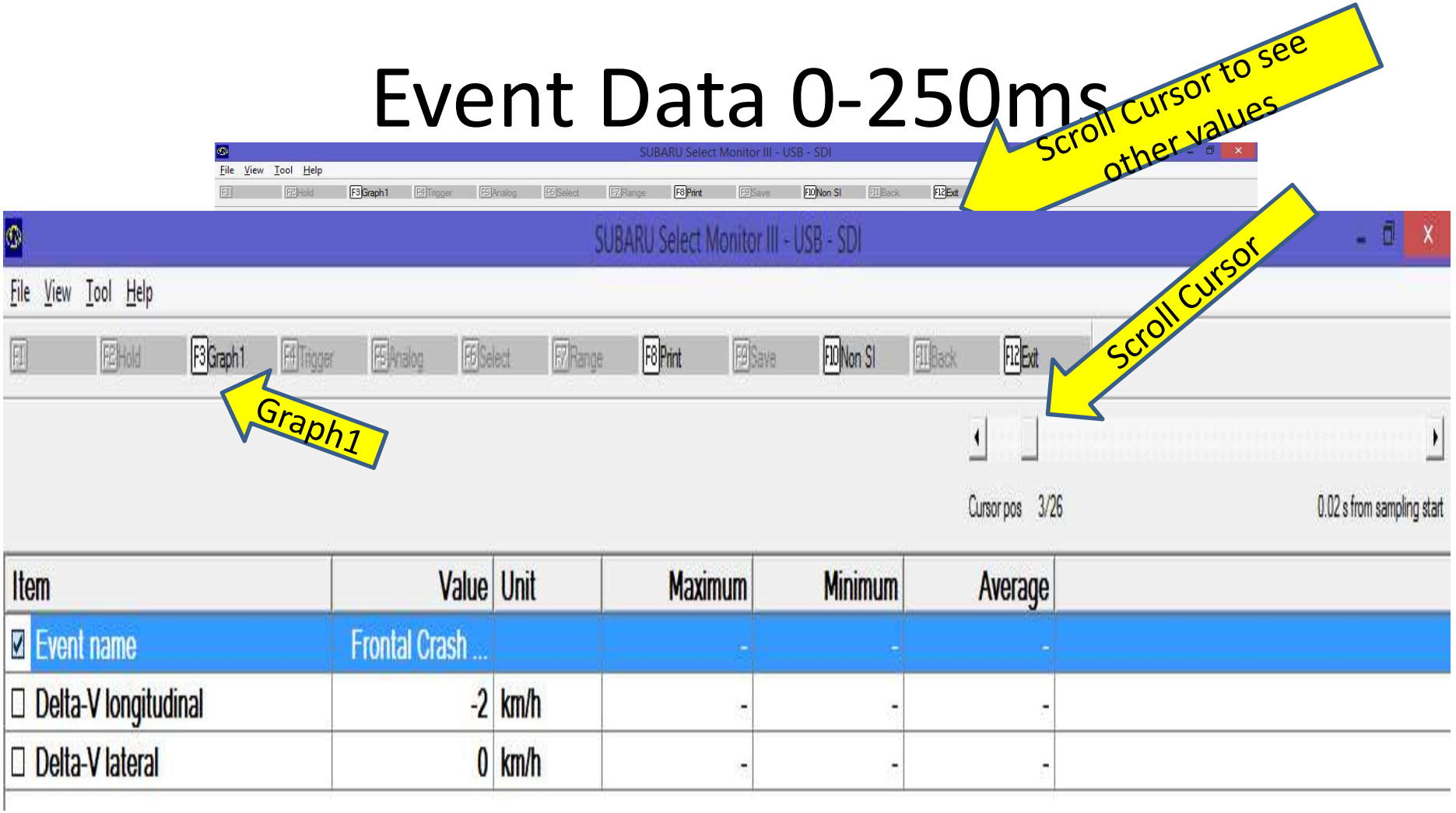


Enlarged screen view

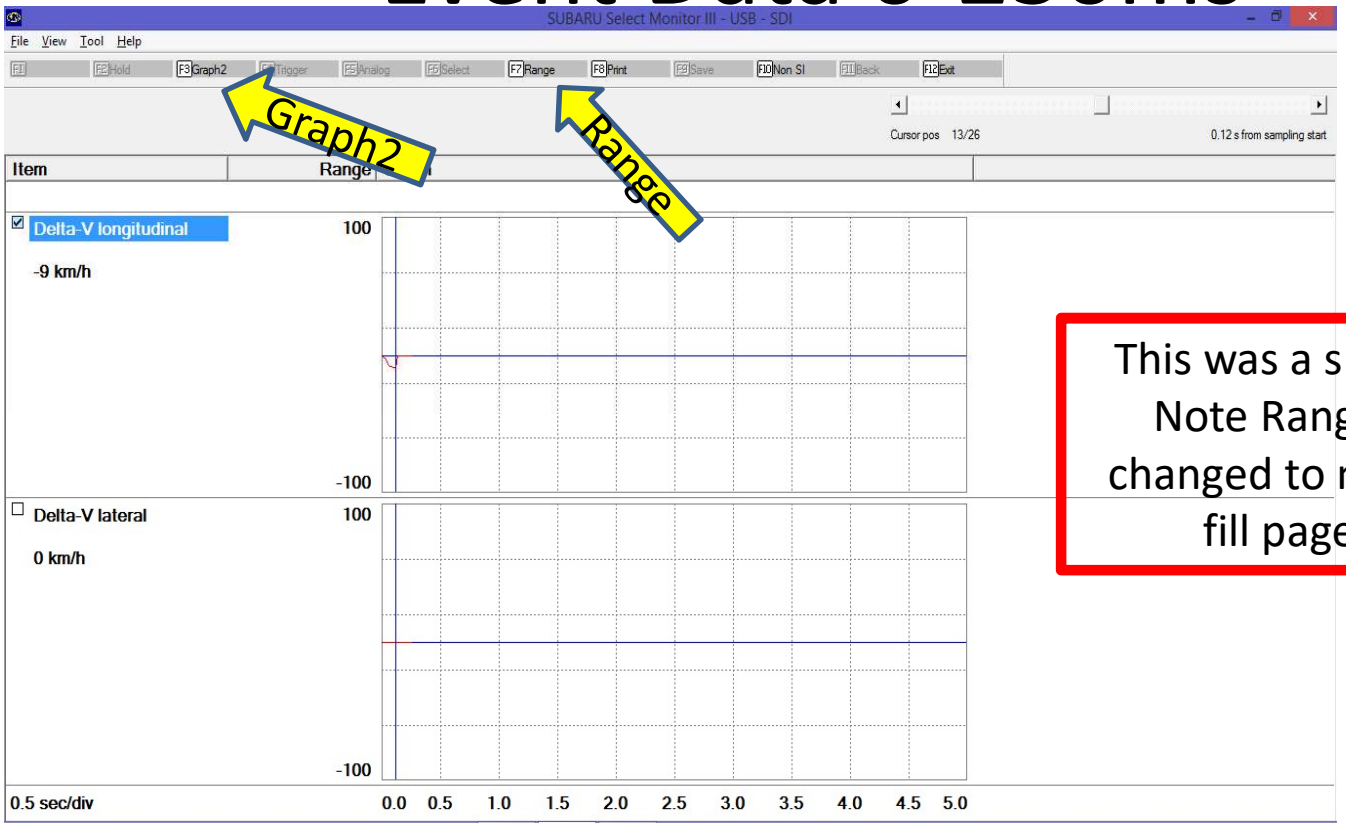
Viewing Delta V data on screen

- There is data from 0 to 250ms stored, 26 data points at 10ms intervals.
- The software will only display on value digitally at a time.
- There is a slide bar in the upper right that moves the cursor from point to point.
- It is easier to look at the CSV file

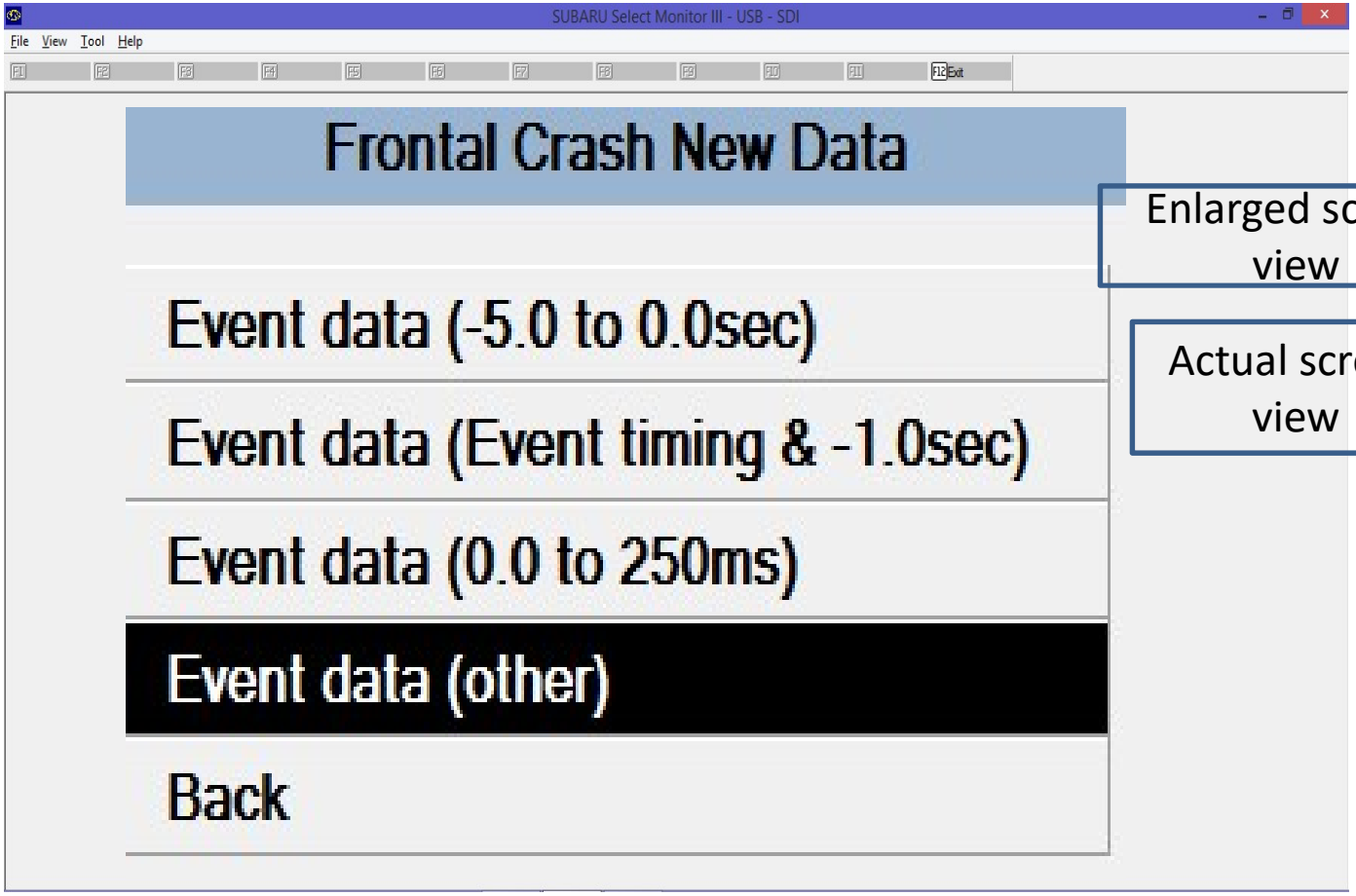
Event Data 0-250ms



Event Data 0-250ms

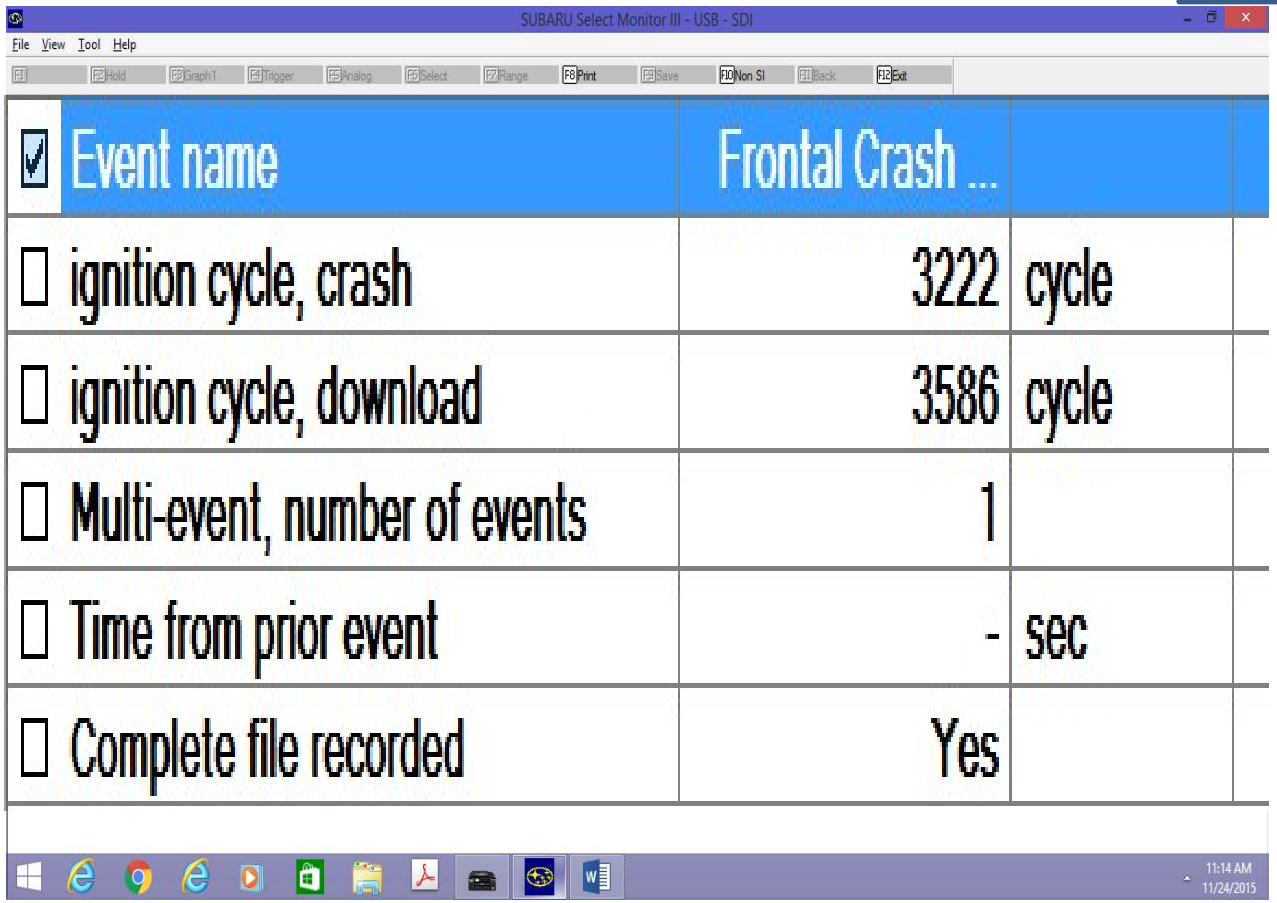


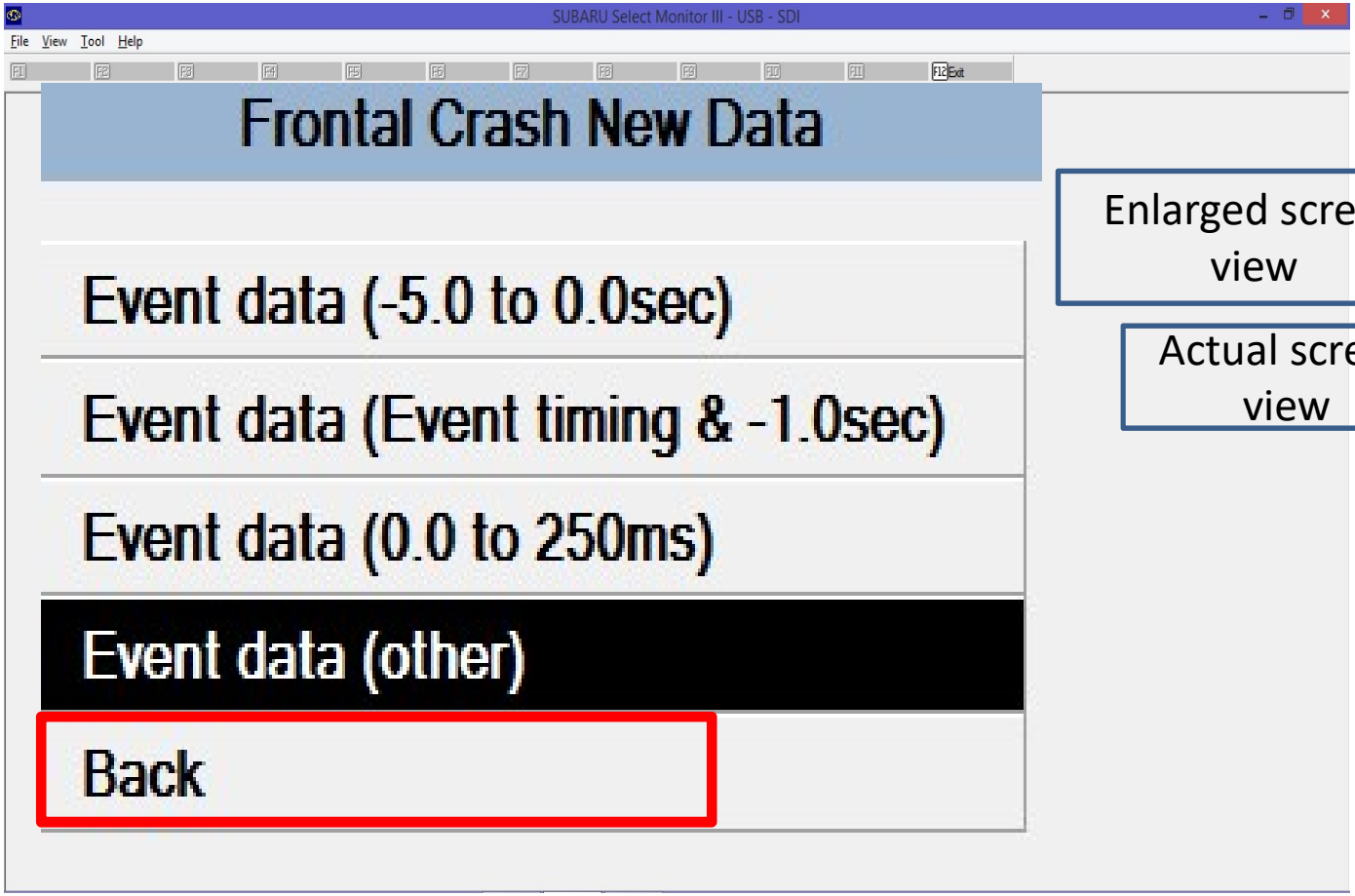
This was a small event. Note Range can be changed to make graph fill page more


SUBARU Select Monitor III - USB - SDI
File View Tool Help
F12 Exit
Frontal Crash New Data
Event data (-5.0 to 0.0sec)
Event data (Event timing & -1.0sec)
Event data (0.0 to 250ms)
Event data (other)
Back
Enlarged screen view
Actual screen view

Event Data (other) – key cycles and time between events

Enlarged screen view

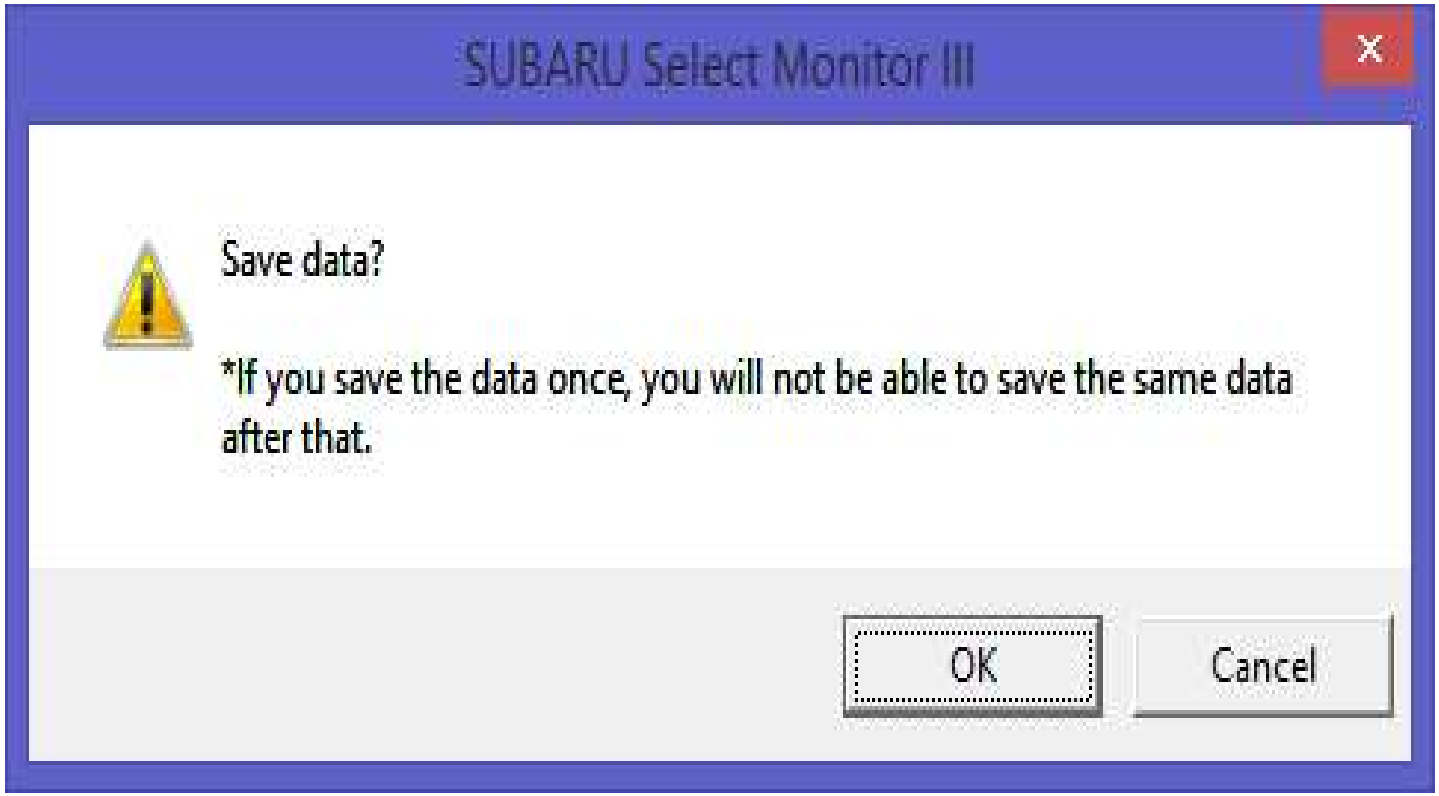




Enlarged screen view

Actual screen view

If you try to save data from on screen, you will get this Scary Warning Message. OK it.



Freeze frame data is another menu choice – this one had no data present

What should you do if you have a Subaru case?

- Law Enforcement, If the vehicle electrical system is functioning, you can make arrangements to take the vehicle to a Subaru dealer after getting Subaru approval that you have proper authority. Private, hire someone with the tool.
- If the vehicle electrical system is not functioning, you can take the ACM out of the vehicle and put it in an exemplar, or send it me or to Brad Muir of Crash Data Specialists who are building custom cables. There is no gateway in these pre-2016 vehicles
- For 2016 with nonfunctional electrical system, talk to your instructors about researching whether custom wiring harness will be sufficient (make sure no gateway has been put in)

Back Powering Subaru

- The Subaru interface has a DLC cable and normally gets its power through the DLC. If the vehicle electrical system is dead, you may have to back power the DLC fuse in addition to the airbag module fuse.
- There is also a jack in the side of the Hitachi Interface that takes the same size pin as your 12VDC Bosch CDR power supply. This will power the tester but not the ACM. The ACM must be powered separately.

SSM3 vs SSM4 Software

- SSM3 is thoroughly documented. SSM3 does not ask for a VIN or model or model year, just “airbag system”.
- The new SSM 4 software asks you for the model year, if you respond 2015 it tells you to use SSM 3 software on it. SSM3 software works with the new Denso interface. Some 2016 models respond to either SSM3 or 4, after VIN input on SSM4 it shows options.

Next Gen Public Tool

- Subaru has changed their dealer test equipment provider from Blue Streak to Nuspire for the 2016 model year. The **Hitachi** tool may read some carryover 2016's.
- The new tool is the **Denso** DSTi. It is backwards compatable and will service 2004-2017+ Subaru's and will be the tool needed to access future model years.

To buy the new Denso DST-I tool

Original source: with oscilloscope port

- Nuspire Networks – Tom Sepp, SDS mgr.
  3155 Dallavo Court, Commerce, MI 48390
  Nuspire (877) 782-7404 (Sepp 248-896-6187)
  thomas.sepp@nuspire.com

New source: without oscilloscope port ($900 less)

- **Ohio Diagnostics LLC**
- **Paul Schwager** 330-668-1518
- info@ohiodiagnostics.com

(smaller outfit, more personal service)

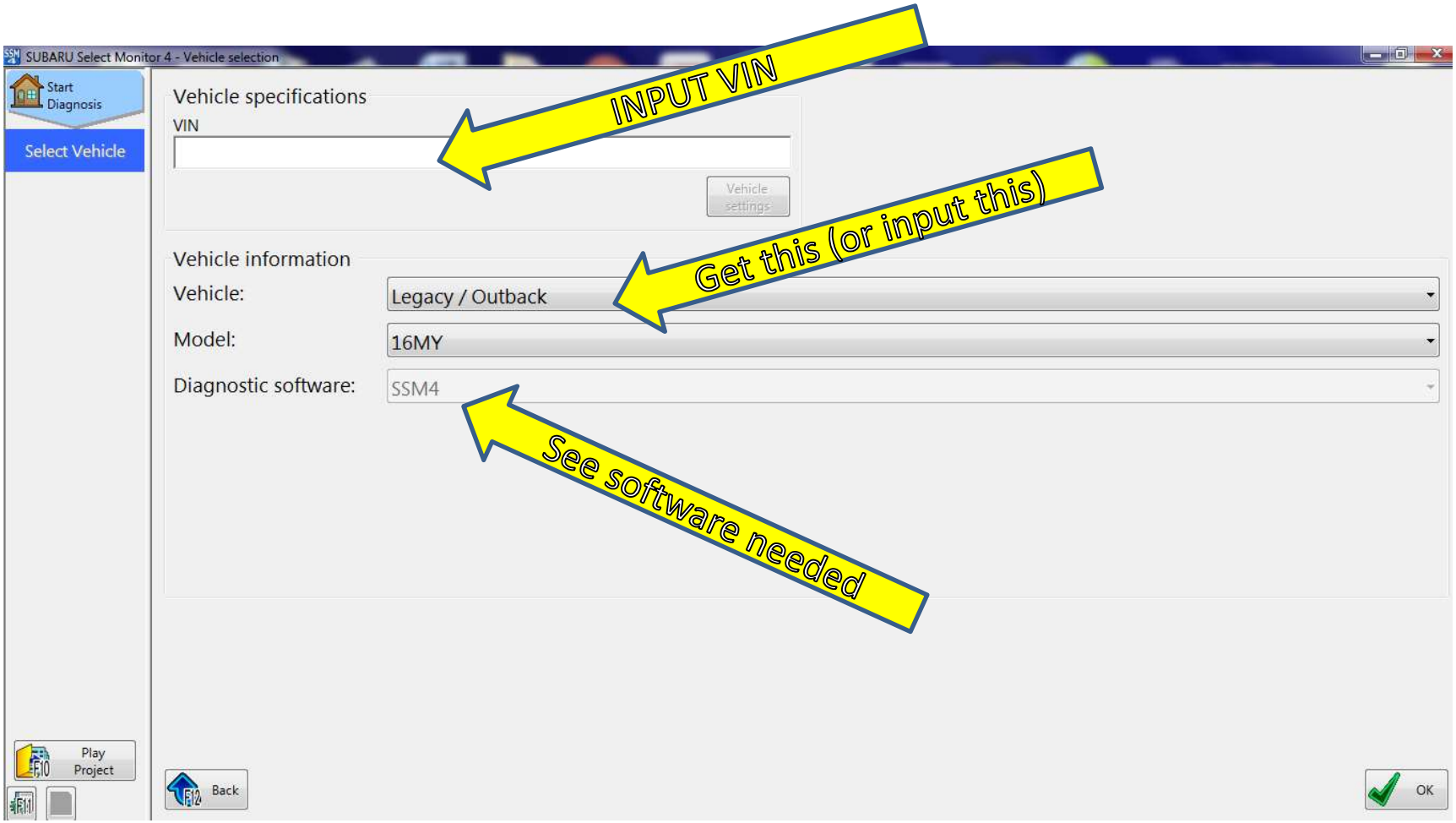
SSM 4 Cost

- The Denso interface with SSM4 software now $5900 - $3200 for the interface plus $2700/yr software.
- There is no “EDR only” tool, the price is based on dealers fixing broken cars daily to pay for it.
- Only a few have it - myself, Brad Muir, DJS Associates in the Philly area, Robert Willer at collisiondata.com in Florida, robert@collisiondata.com, and by now surely a few others have invested in this tool.
- Subaru USA has been working with Bosch CDR to switch to a Bosch CDR system. Bosch has released V18.0 including 2019 Ascent/Forester and will eventually cove back models to 2012.

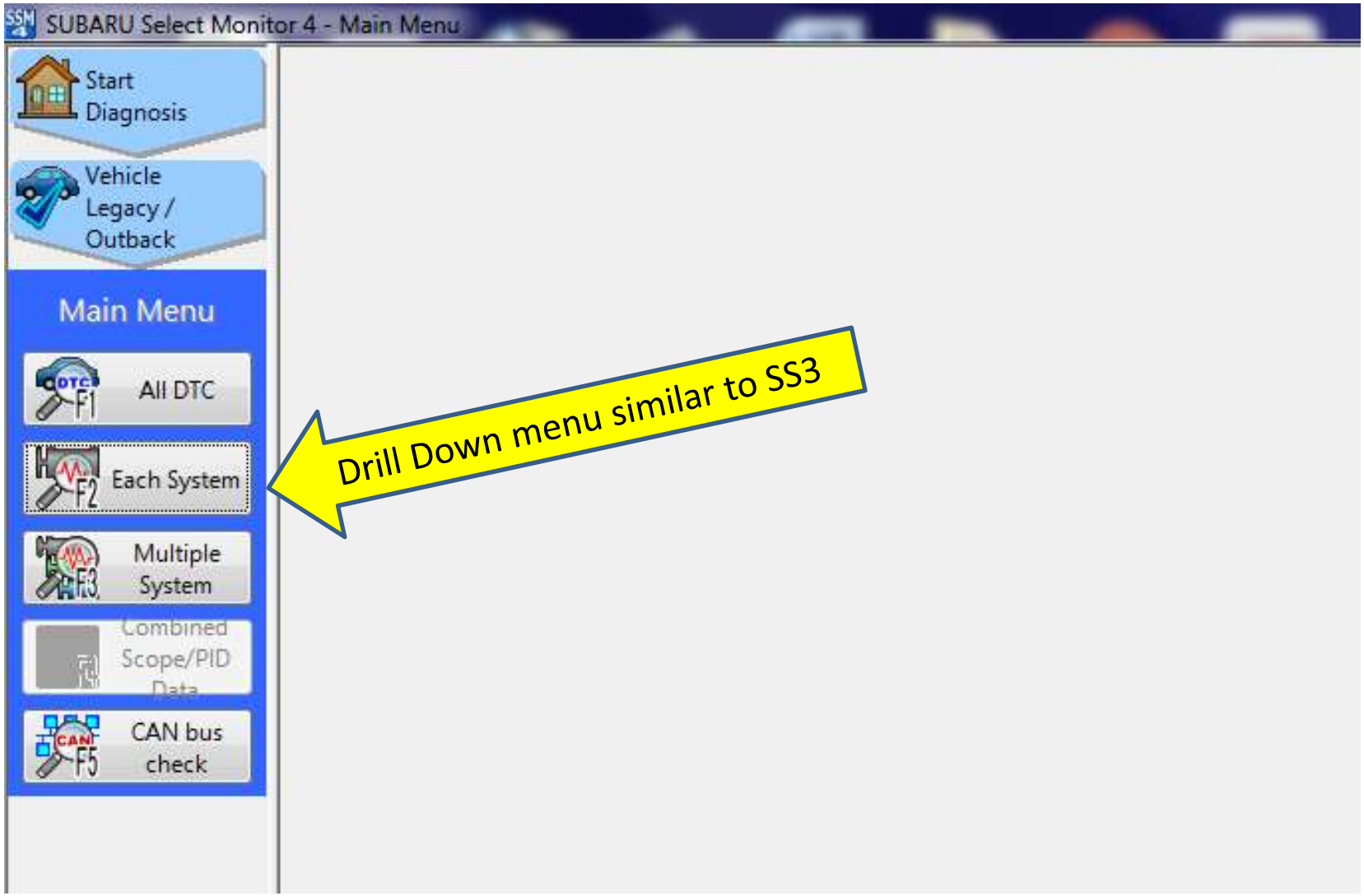
New Denso DSTi Tool Interface

Start with “Diagnosis”

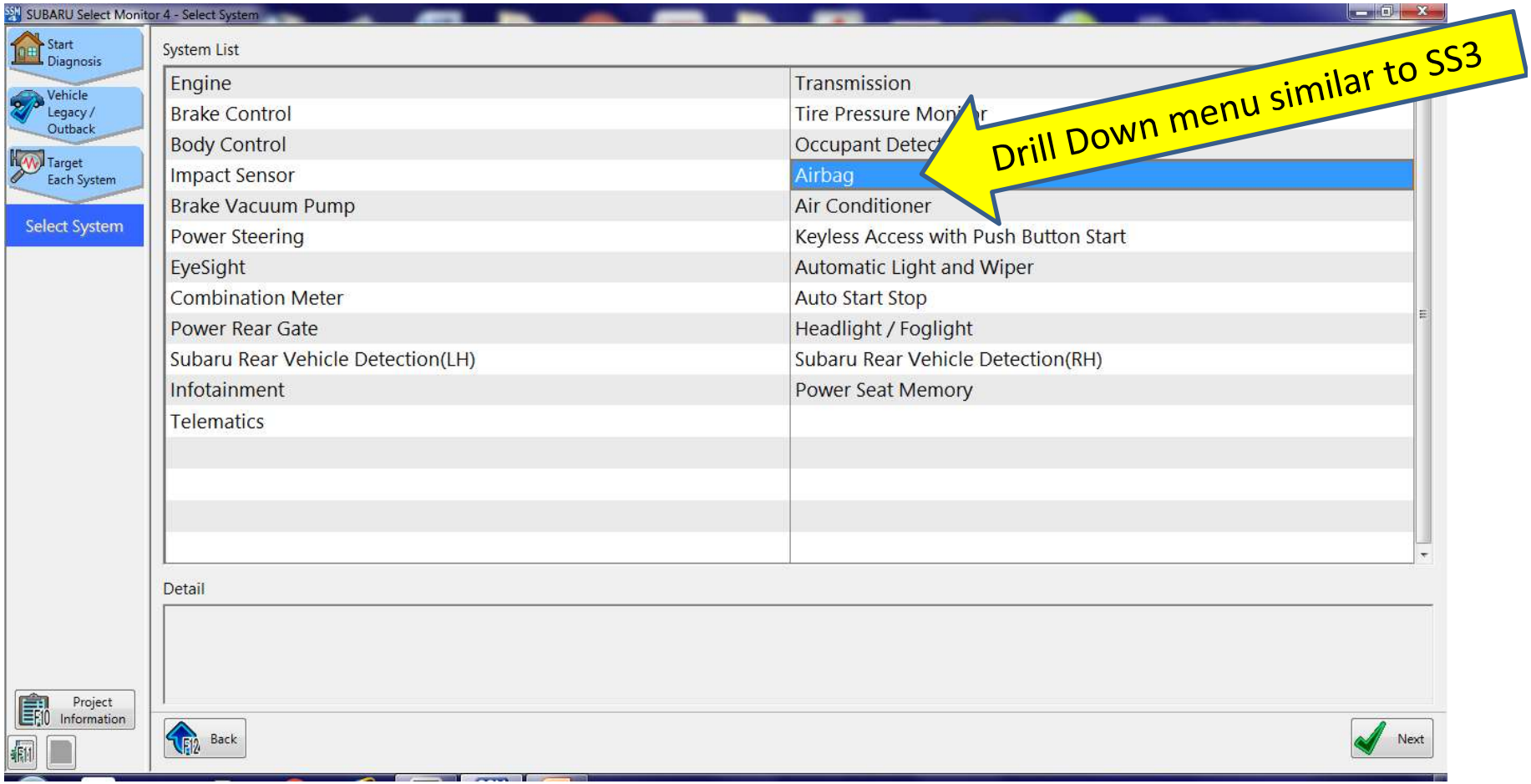
Next: Vehicle Selection



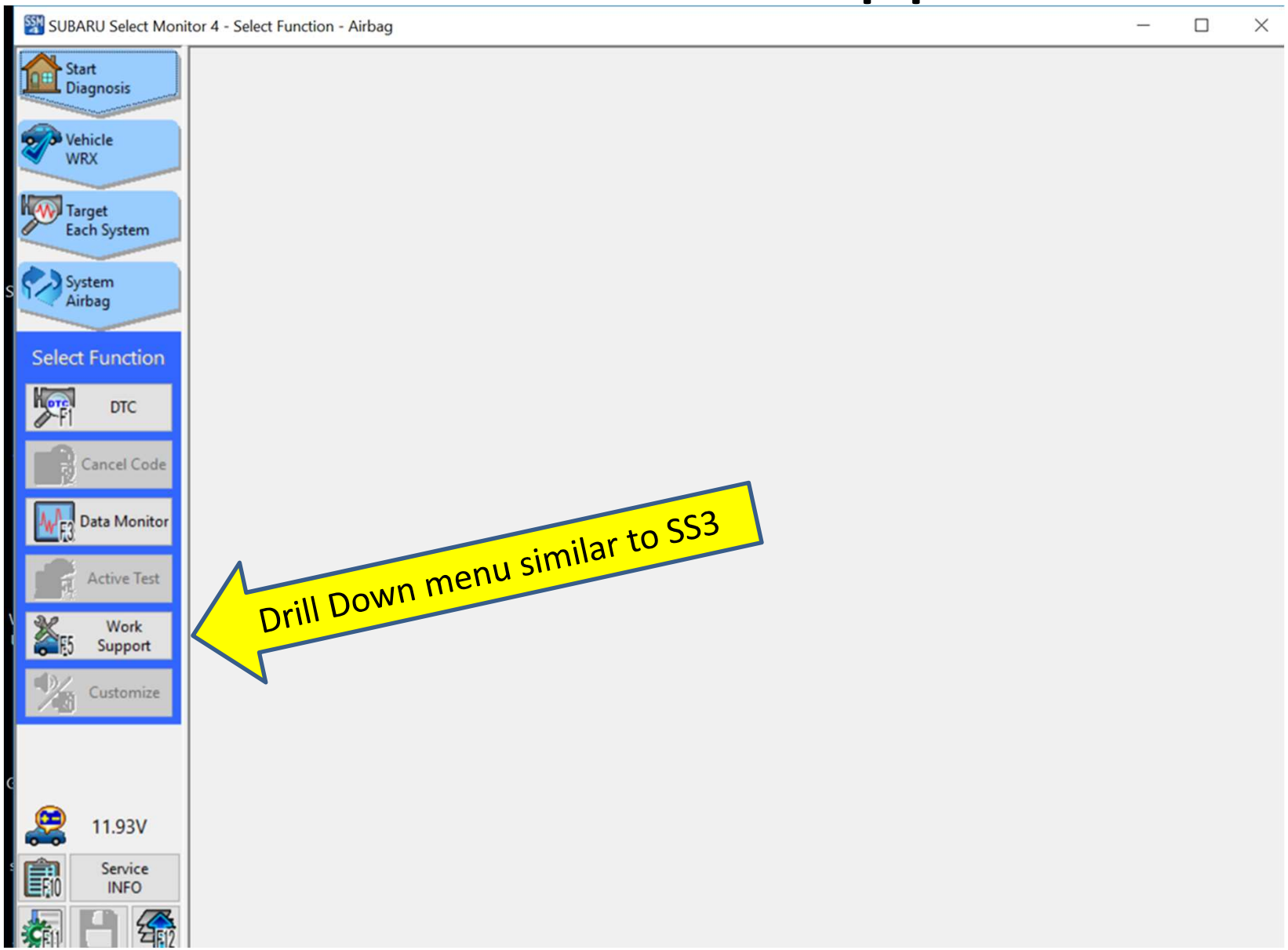
Next: Select “Each System”



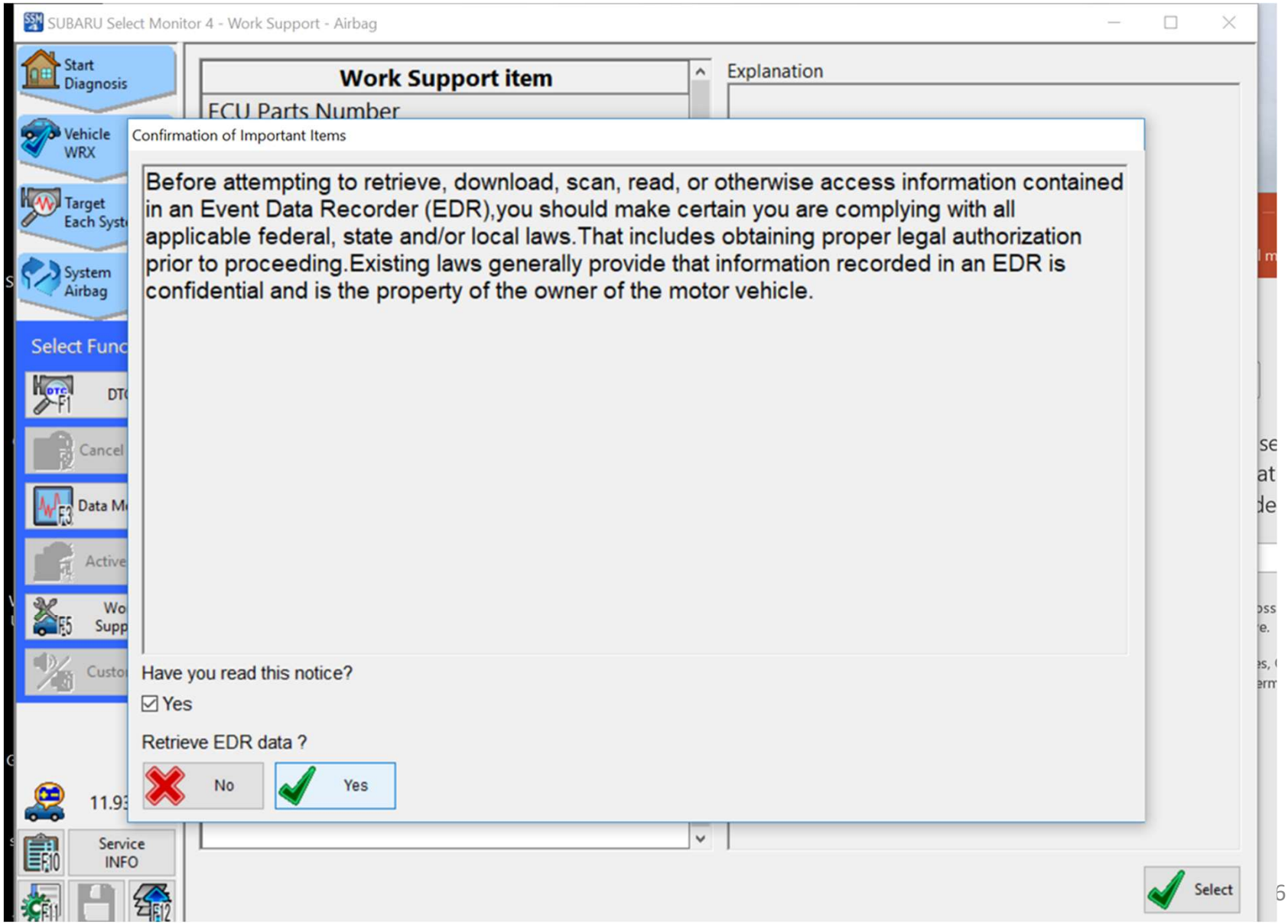
Next Select “Airbag”



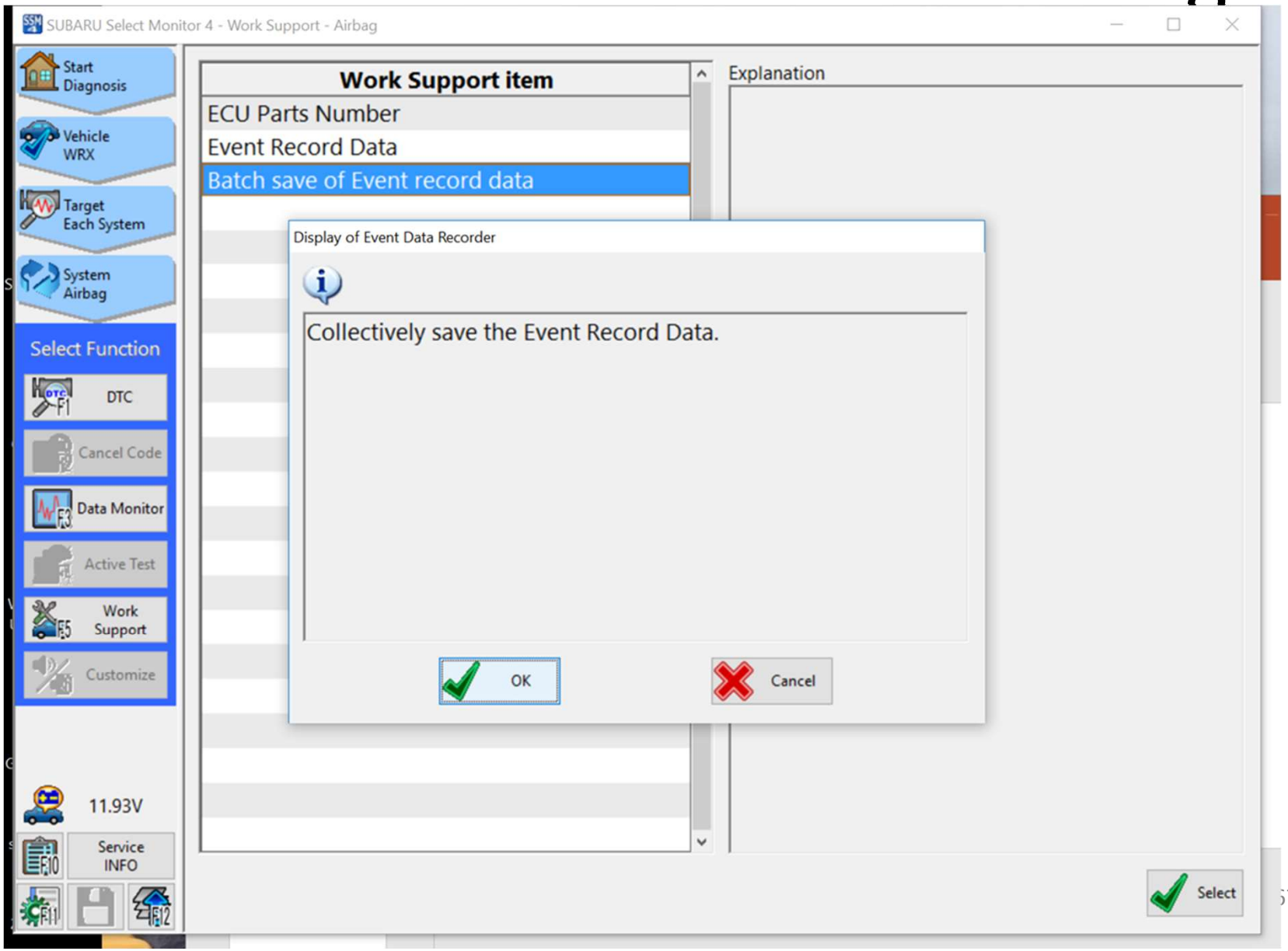
Select Work Support



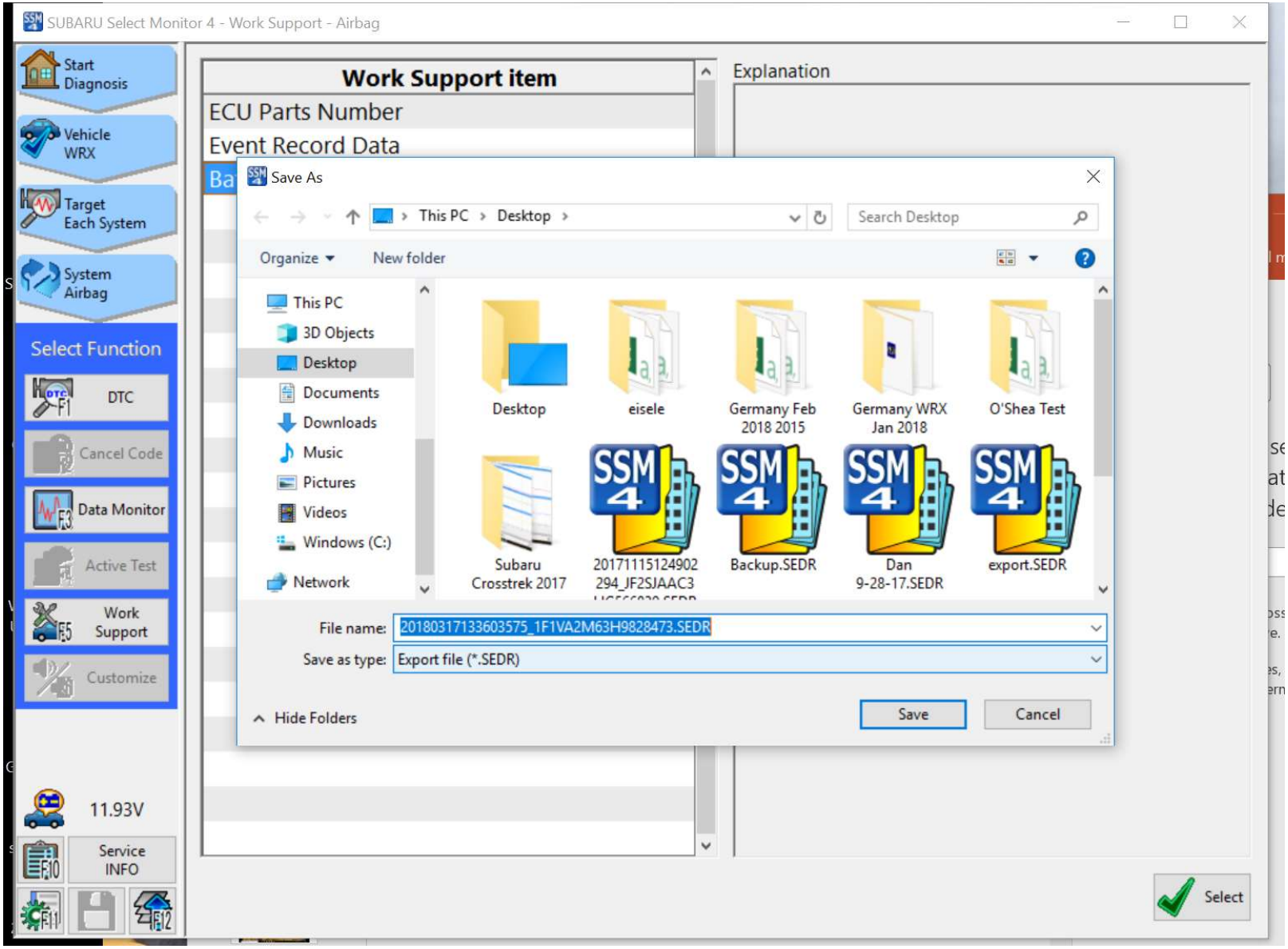
Acknowlege Privacy Caution



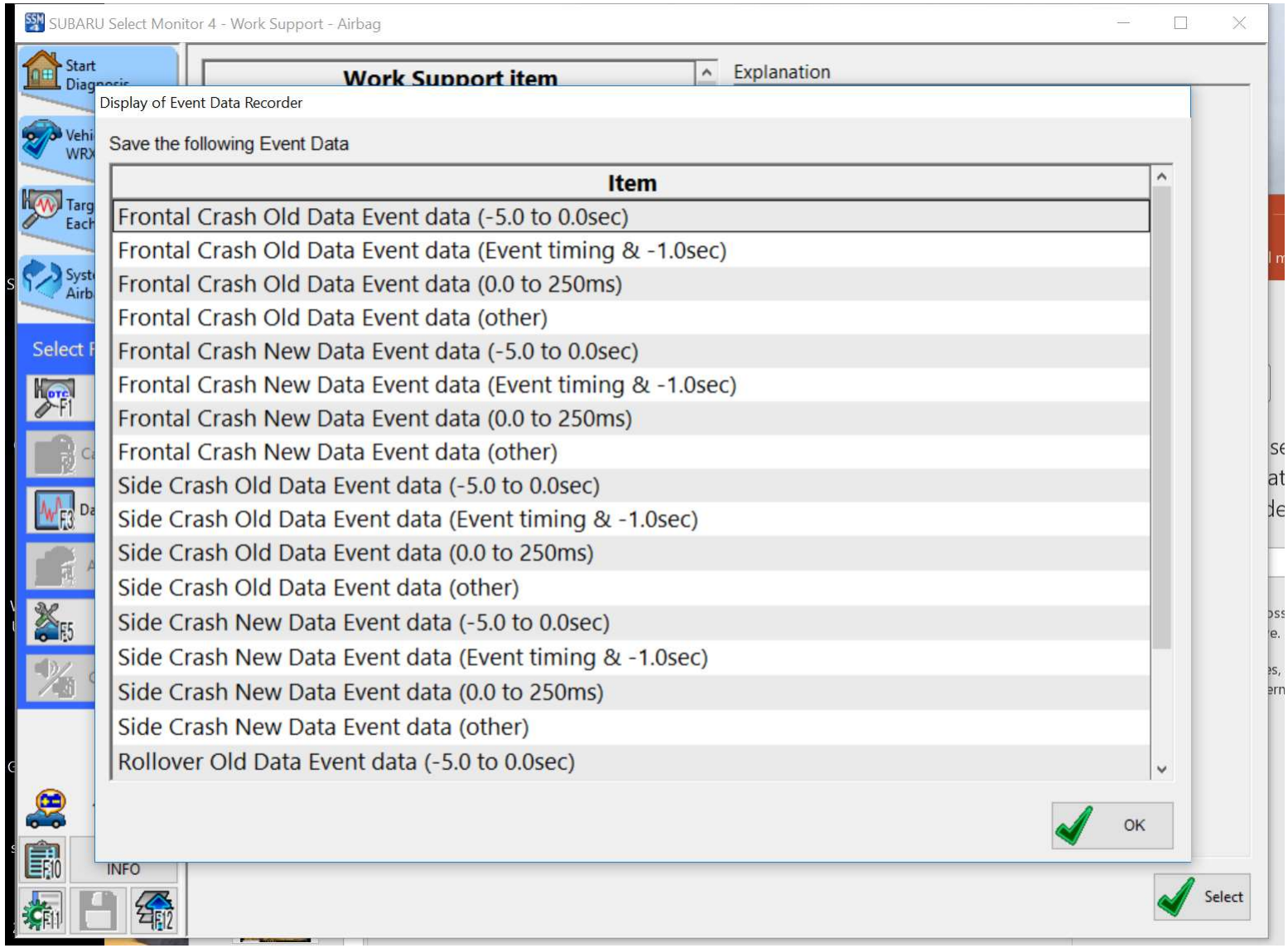
Select Batch Save and acknowlege



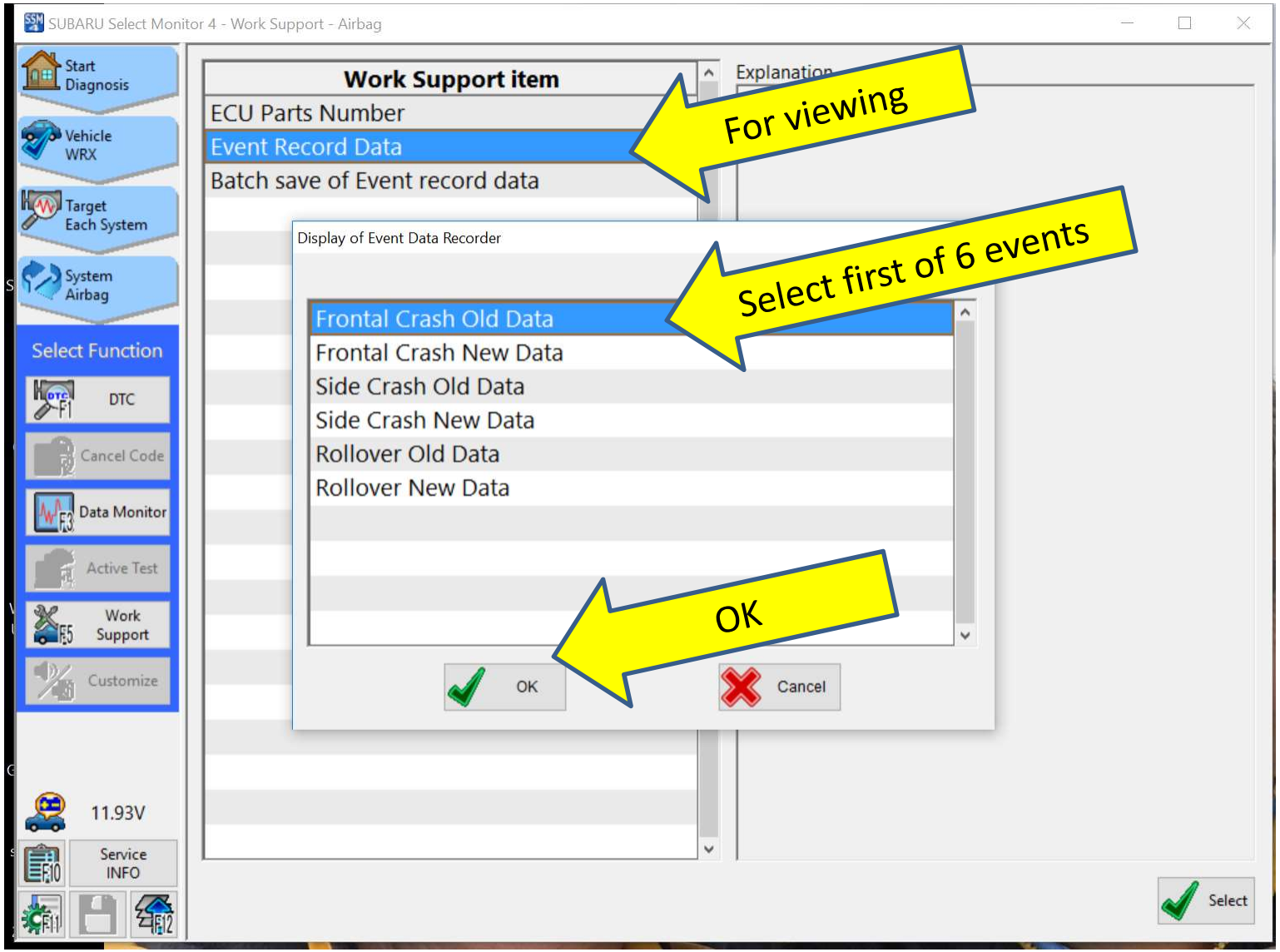
Choose save location and file name



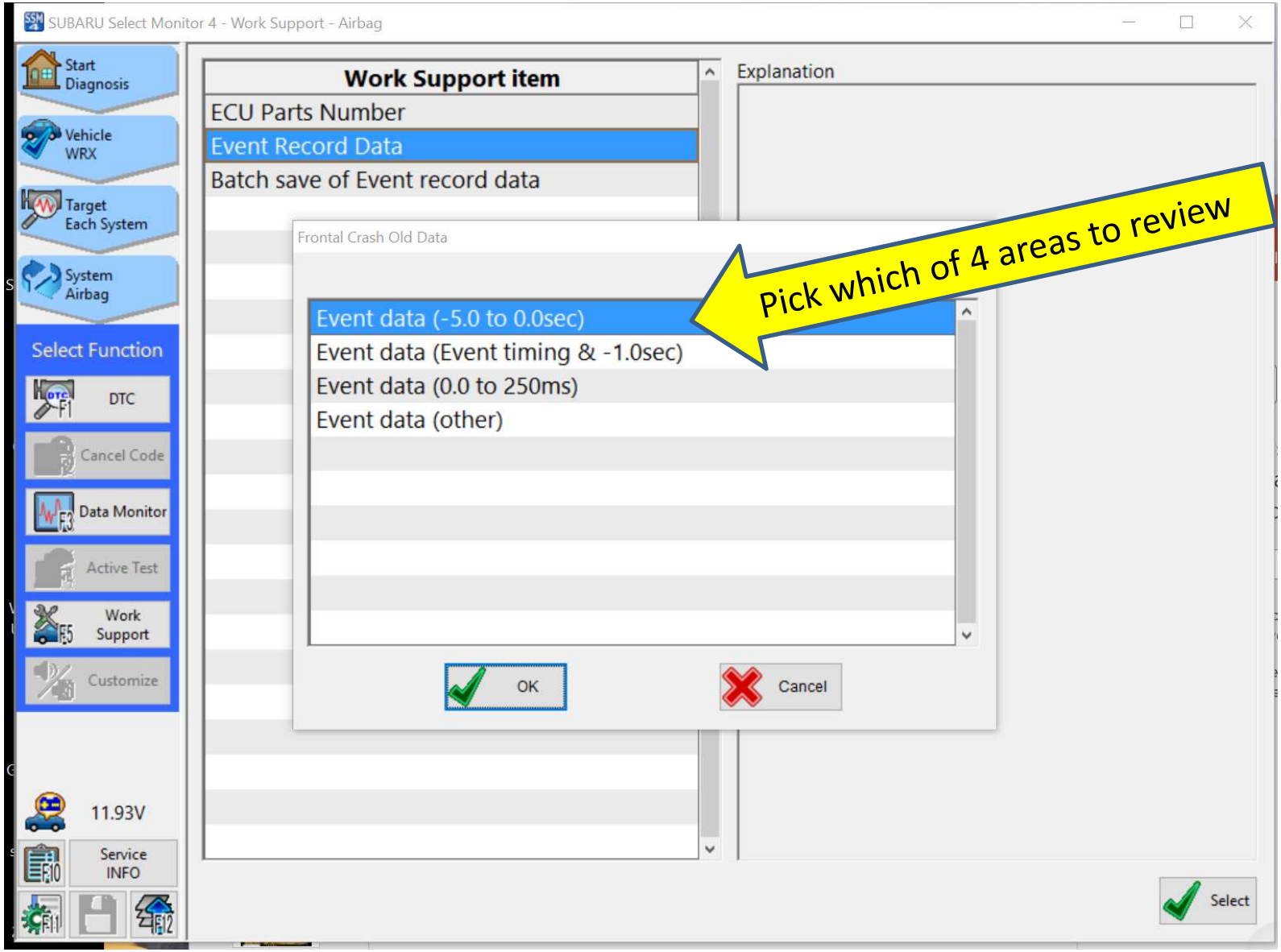
OK the list of events to be saved



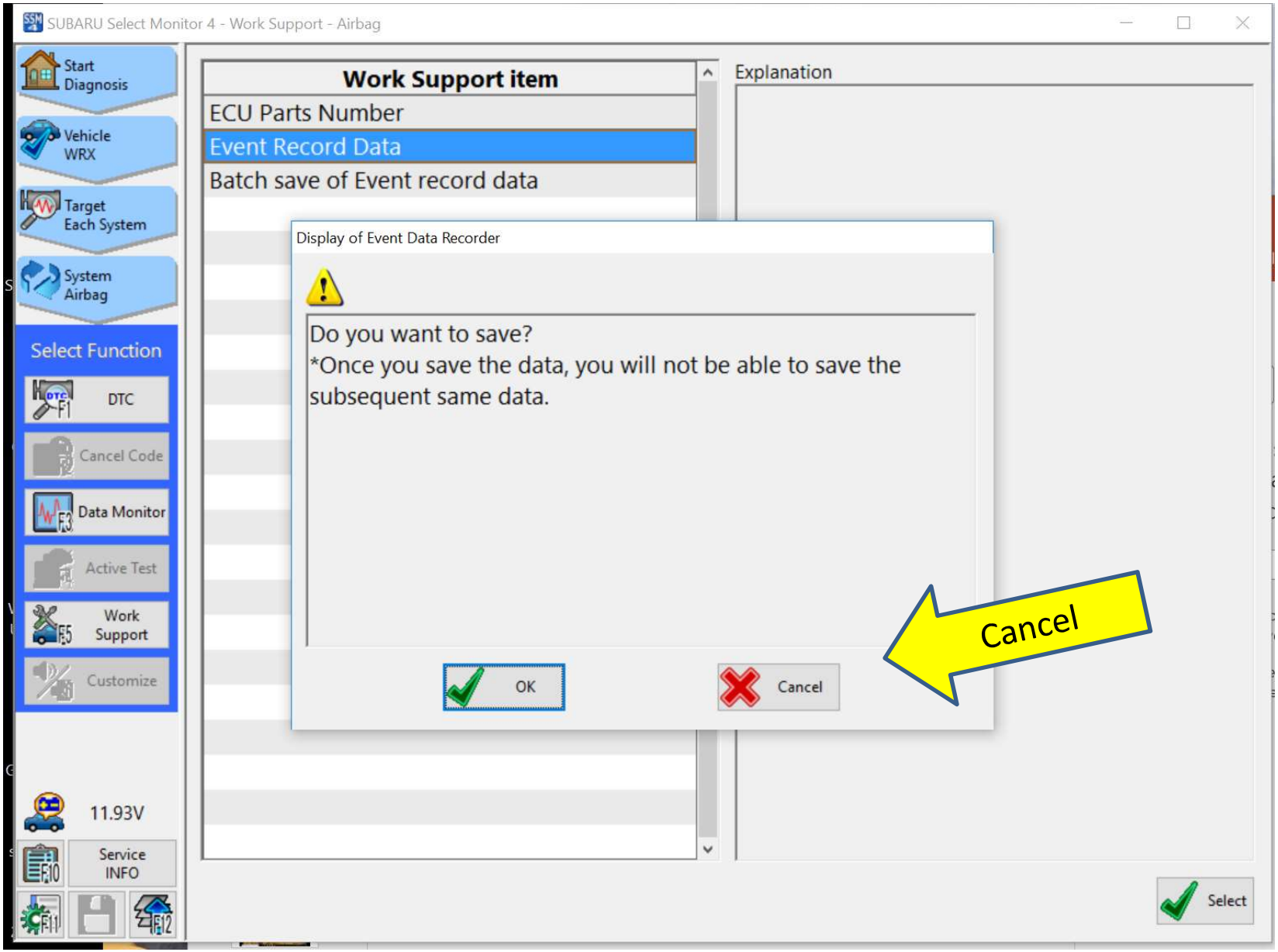
Now go back to review data



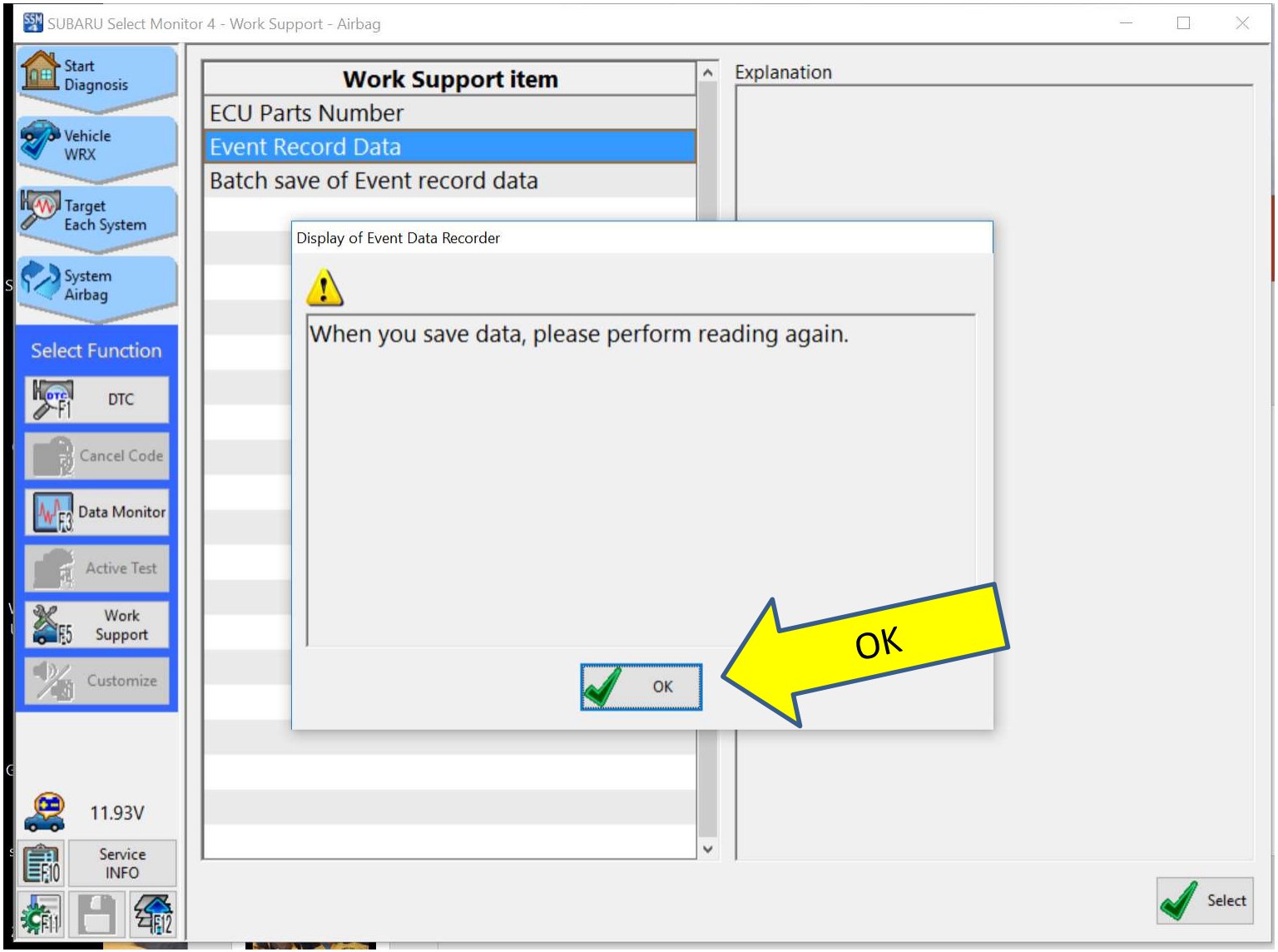
Select area of data to review



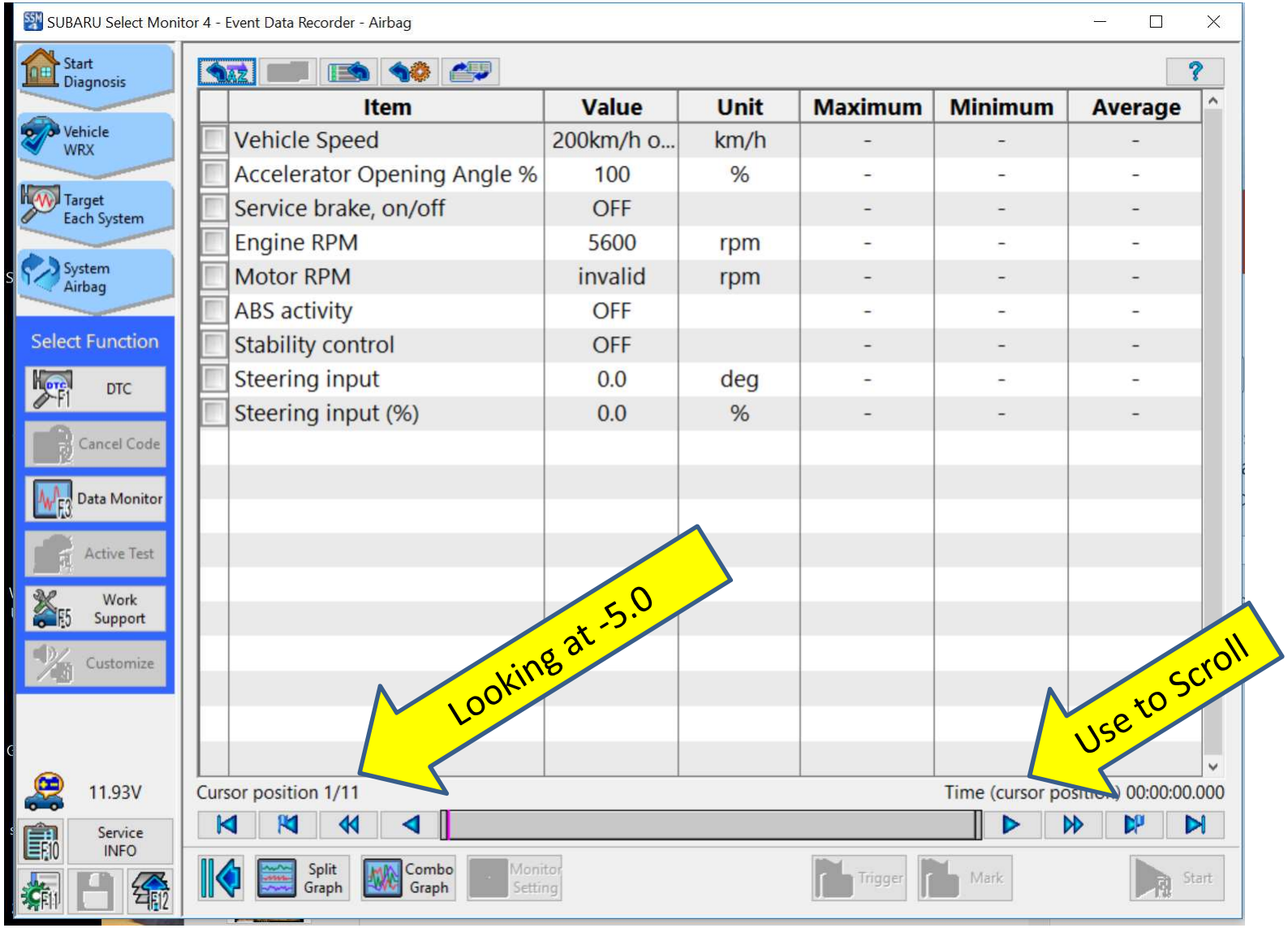
Scary choice makes no difference -



Acknowledge to move on



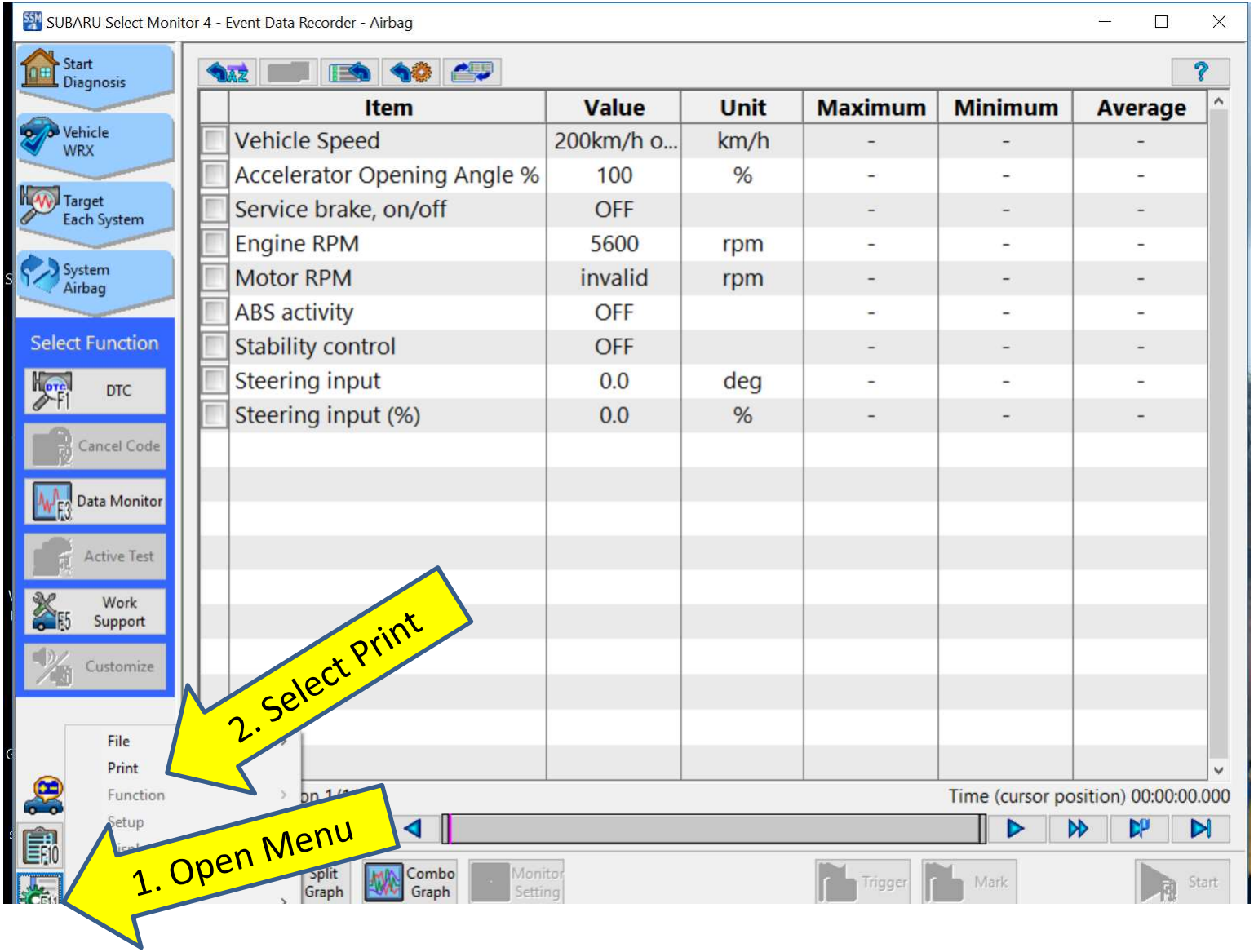
Data is displayed one time sample at a time – use arrows to see other time samples



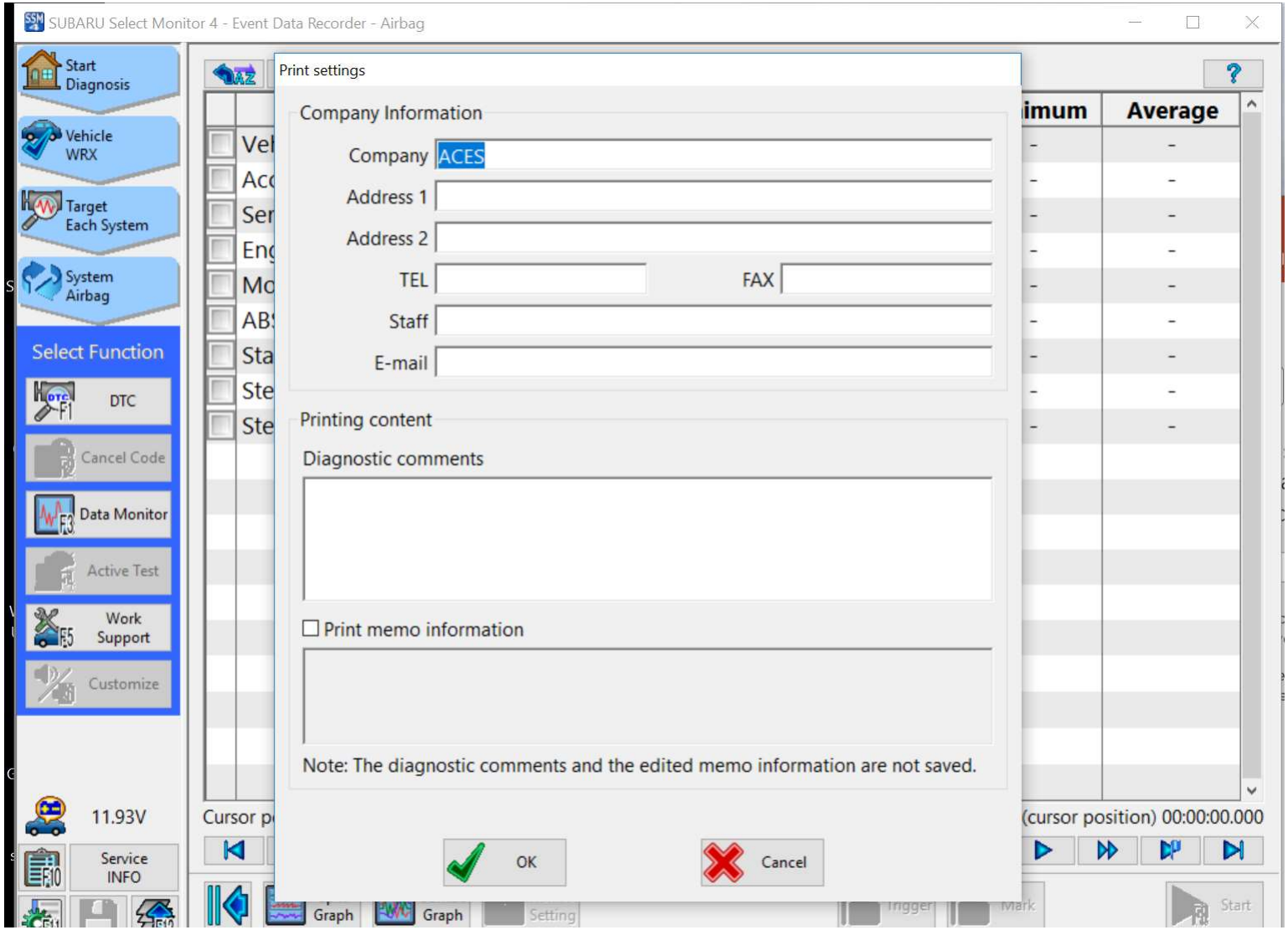
SSM4 Software Documentation

- What we do know is after saving as SSM4 files, that Subaru has DELIBERATELY DISABLED the convert to CSV file menu pick (grayed out).
- You can reopen and see the SSM4 files later, but to send data to someone else you must either summarize it yourself or screenshot it.
- If you have 6 events with 28 files, you may have to take hundreds of screen shots.

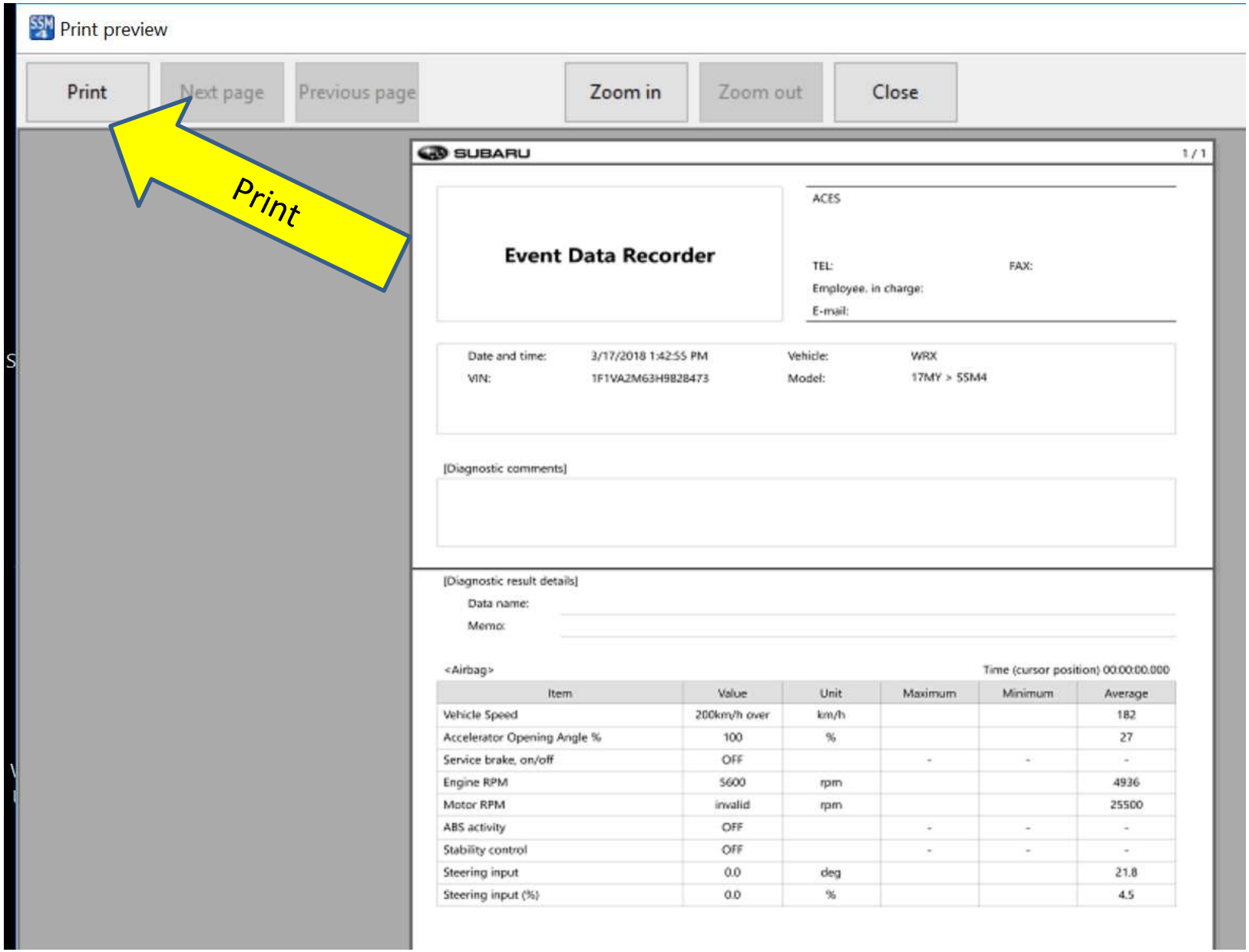
How to capture screen shot



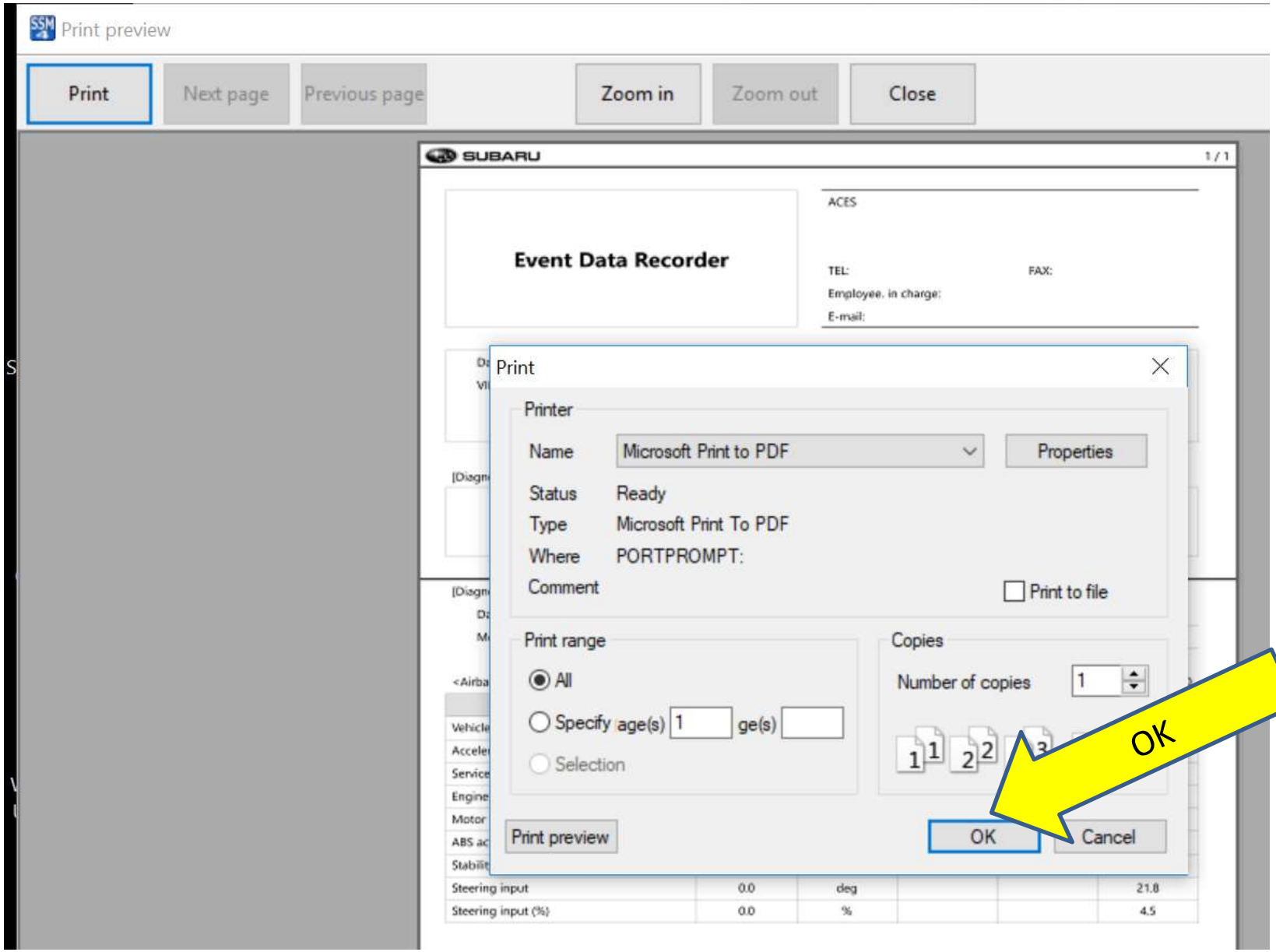
OK this useless screen



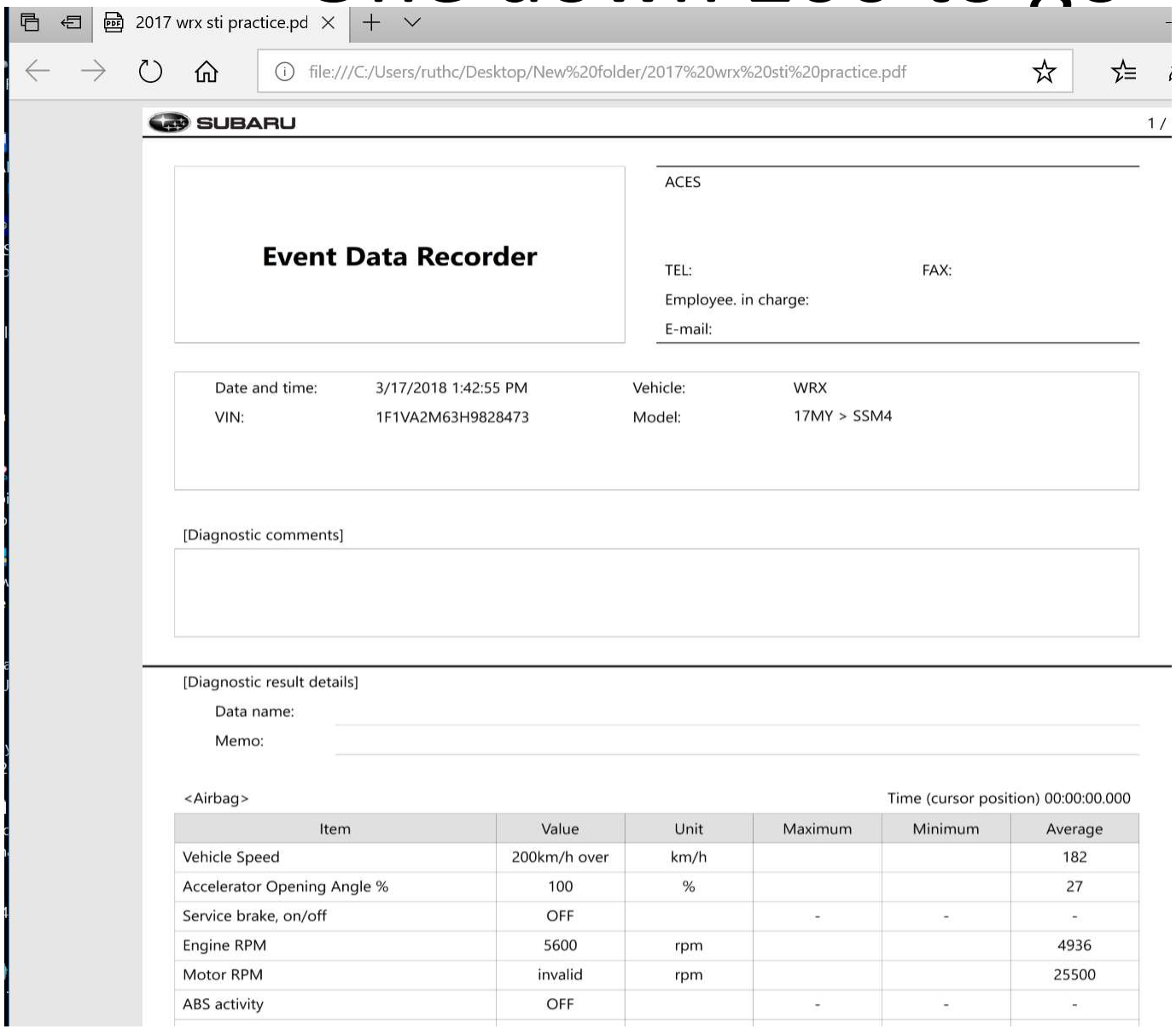
Preview of Save is shown



Print to PDF


Print preview
Print
Next page
Previous page
Zoom in
Zoom out
Close
SUBARU
1 / 1
Event Data Recorder
ACES
TEL:
FAX:
Employee. in charge:
E-mail:
Print
Printer
Name
Microsoft Print to PDF
Properties
Status
Ready
Type
Microsoft Print To PDF
Where
PORTPROMPT:
Comment
Print to file
Print range
All
Specify age(s)
ge(s)
Selection
Copies
Number of copies
OK
Print preview
OK
Cancel
Steering input
Steering input (%)

One down 200 to go



2017 wrx sti practice.pd

file:///C:/Users/ruthc/Desktop/New%20folder/2017%20wrx%20sti%20practice.pdf

SUBARU 1 /

Event Data Recorder

ACES

TEL: FAX:

Employee. in charge:

E-mail:

Date and time:	3/17/2018 1:42:55 PM	Vehicle:	WRX
VIN:	1F1VA2M63H9828473	Model:	17MY > SSM4

[Diagnostic comments]

[Diagnostic result details]

Data name:

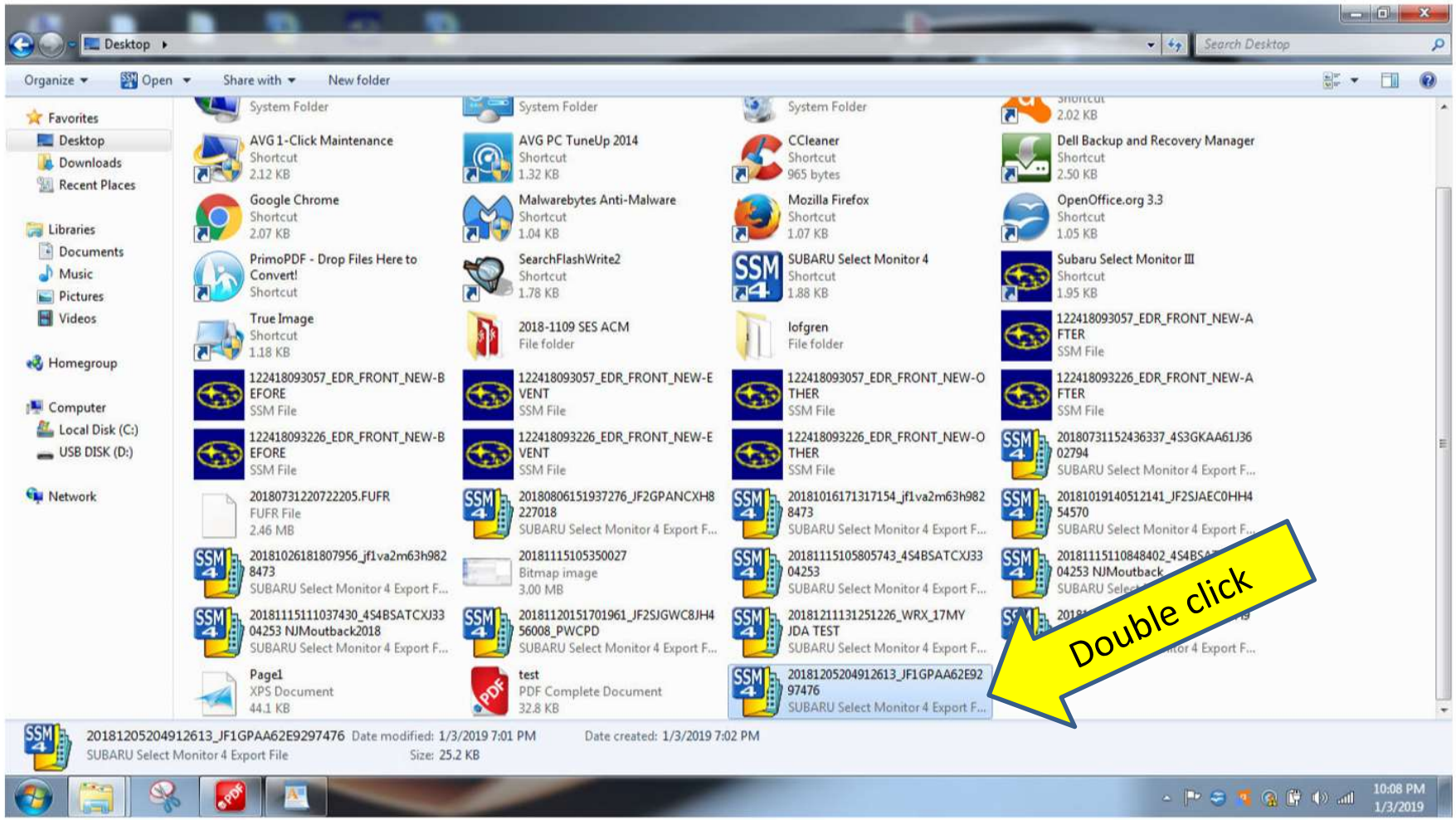
Memo:

<Airbag> Time (cursor position) 00:00:00.000

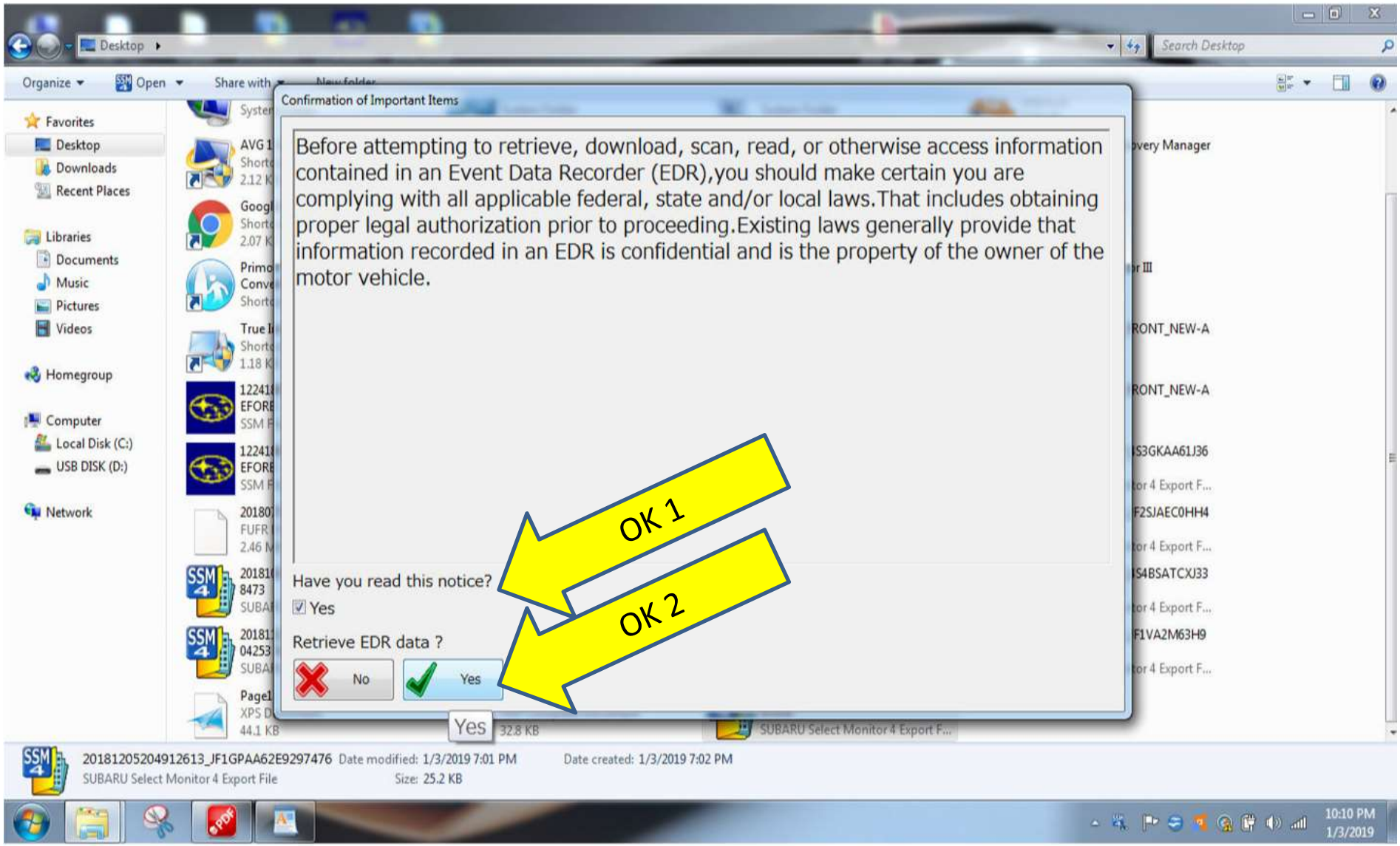
Item	Value	Unit	Maximum	Minimum	Average
Vehicle Speed	200km/h over	km/h			182
Accelerator Opening Angle %	100	%			27
Service brake, on/off	OFF		-	-	-
Engine RPM	5600	rpm			4936
Motor RPM	invalid	rpm			25500
ABS activity	OFF		-	-	-

Reopening .SEDR File

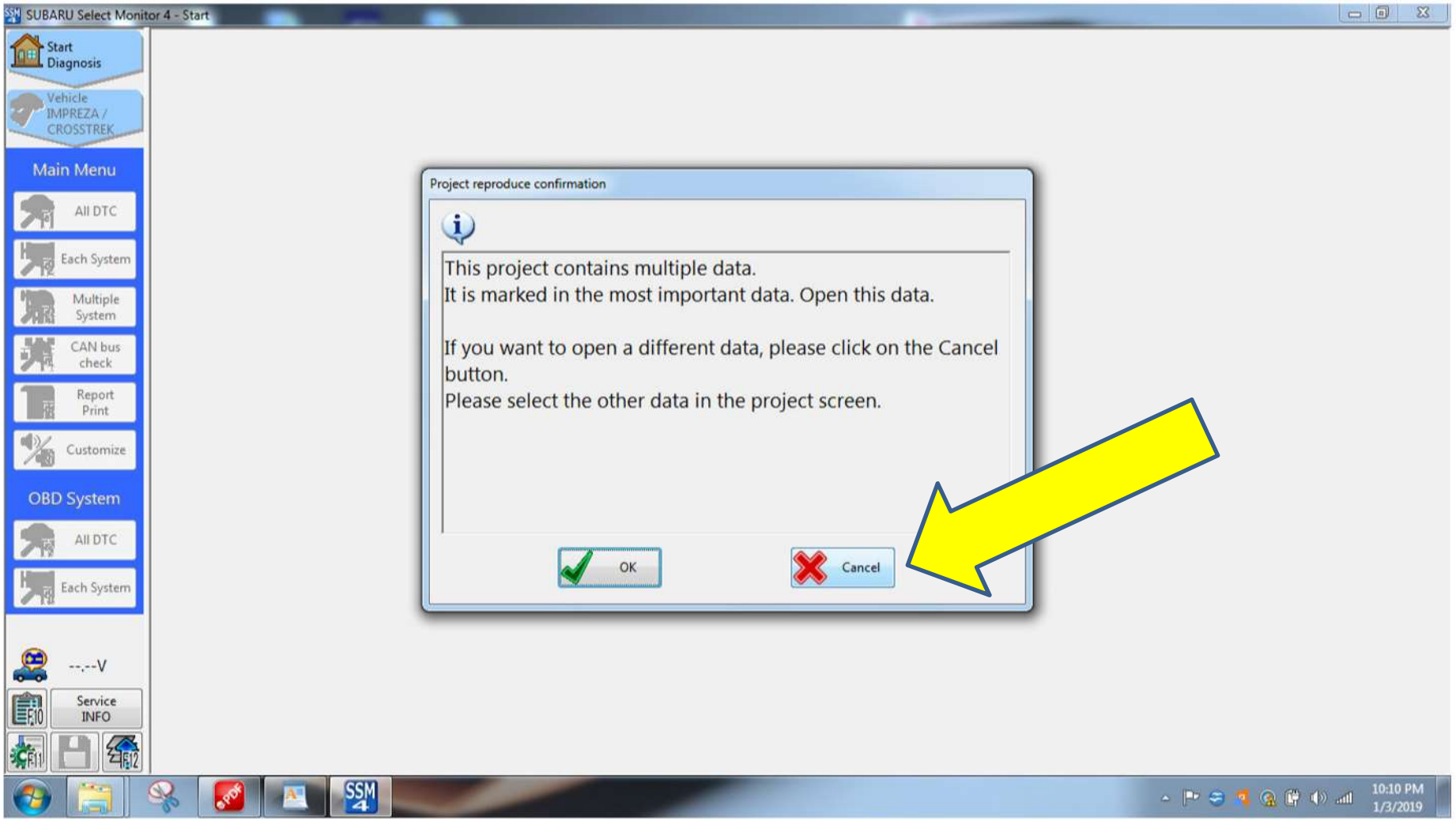
Reopen .SEDR File by double clicking on it - SSM program will open



OK Privacy Screen

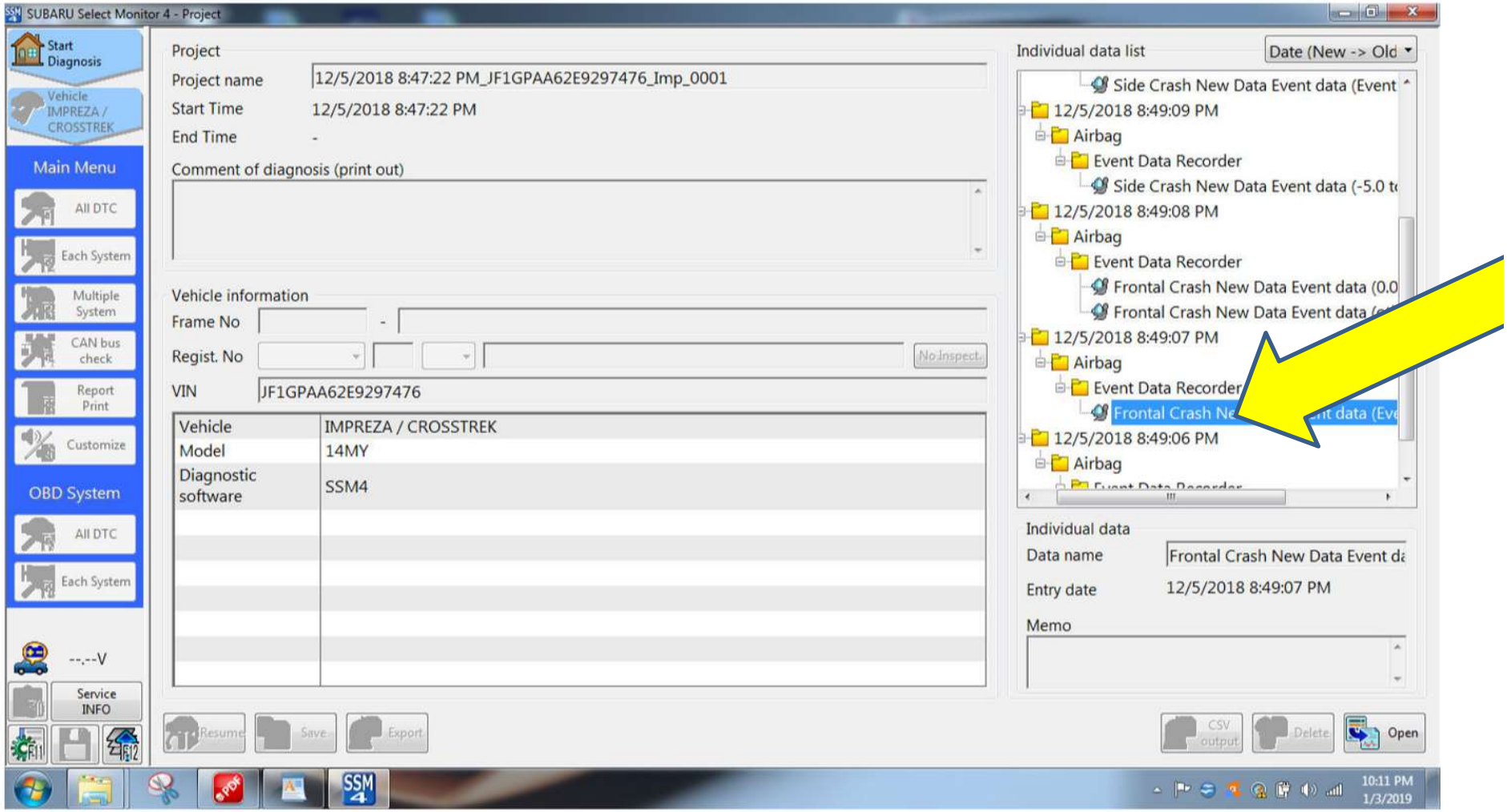


Hit Cancel

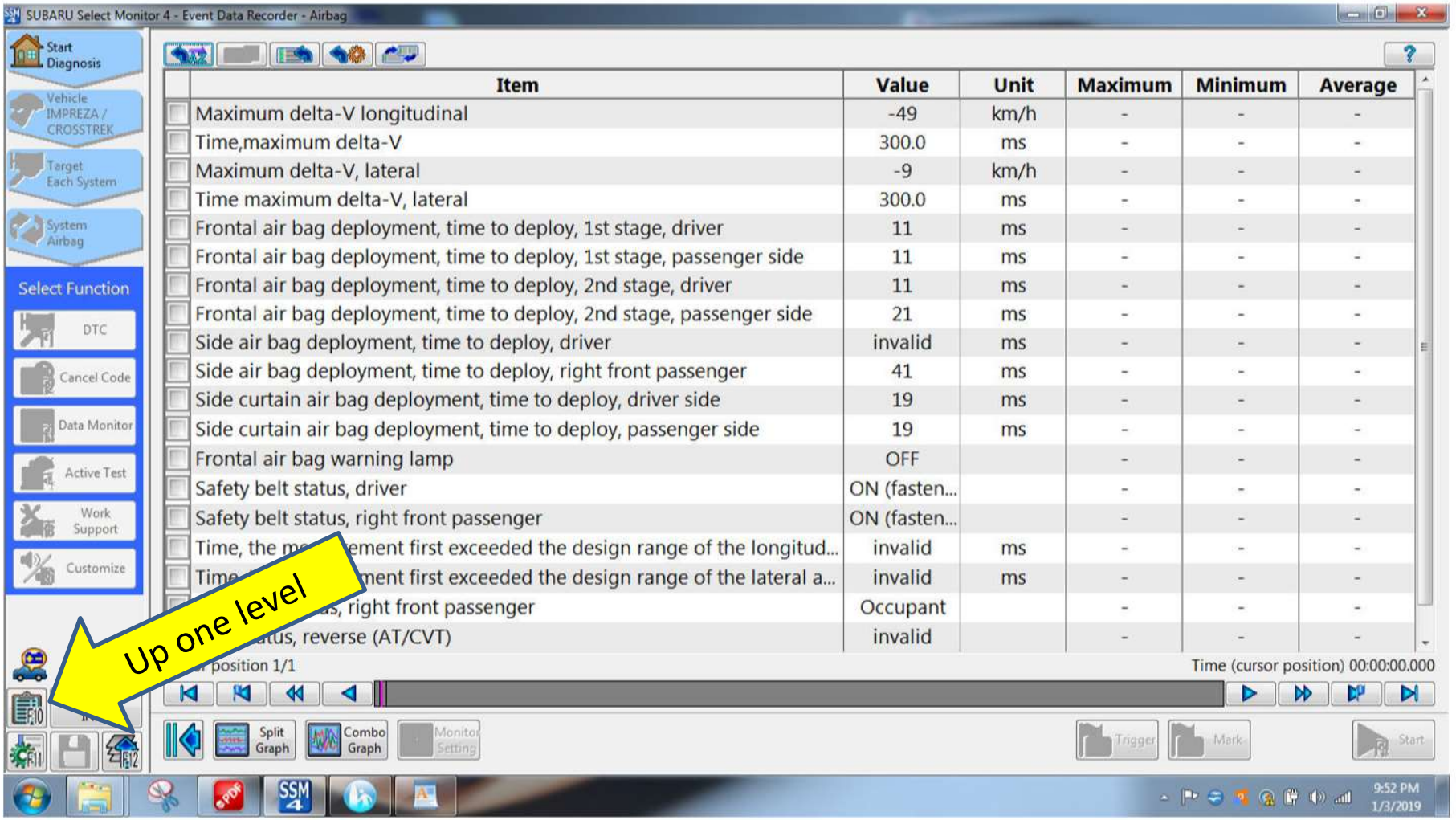

SUBARU Select Monitor 4 - Start
Start Diagnosis
Vehicle IMPREZA / CROSSTREK
Main Menu
All DTC
Each System
Multiple System
CAN bus check
Report Print
Customize
OBD System
All DTC
Each System
--.--V
Service INFO
Project reproduce confirmation
This project contains multiple data.
It is marked in the most important data. Open this data.
If you want to open a different data, please click on the Cancel button.
Please select the other data in the project screen.
OK
Cancel
10:10 PM
1/3/2019

Select file to be viewed in right box

Note you had to have opened it before to reopen it



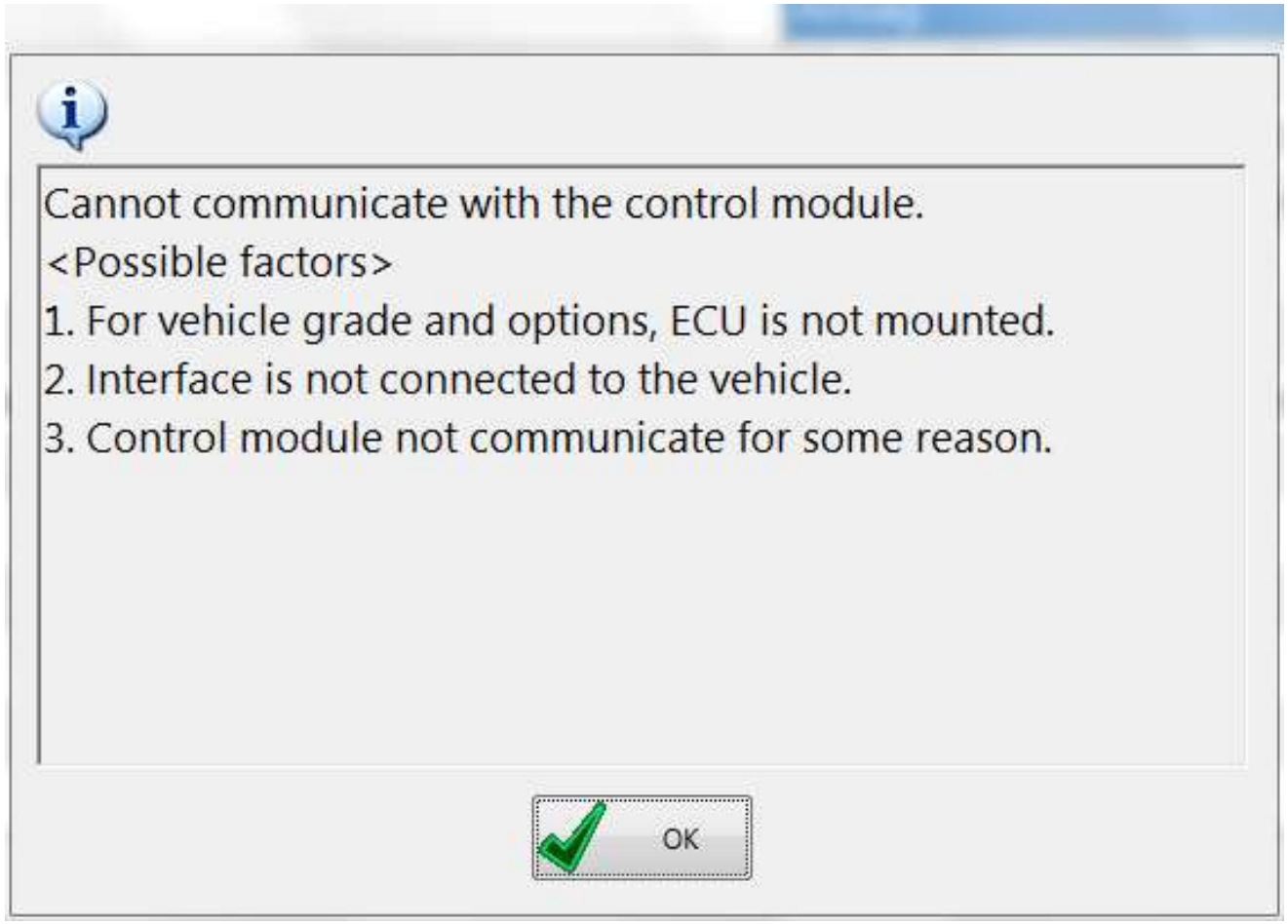
F10 key takes you to nav screen



Other ways to capture SSM4

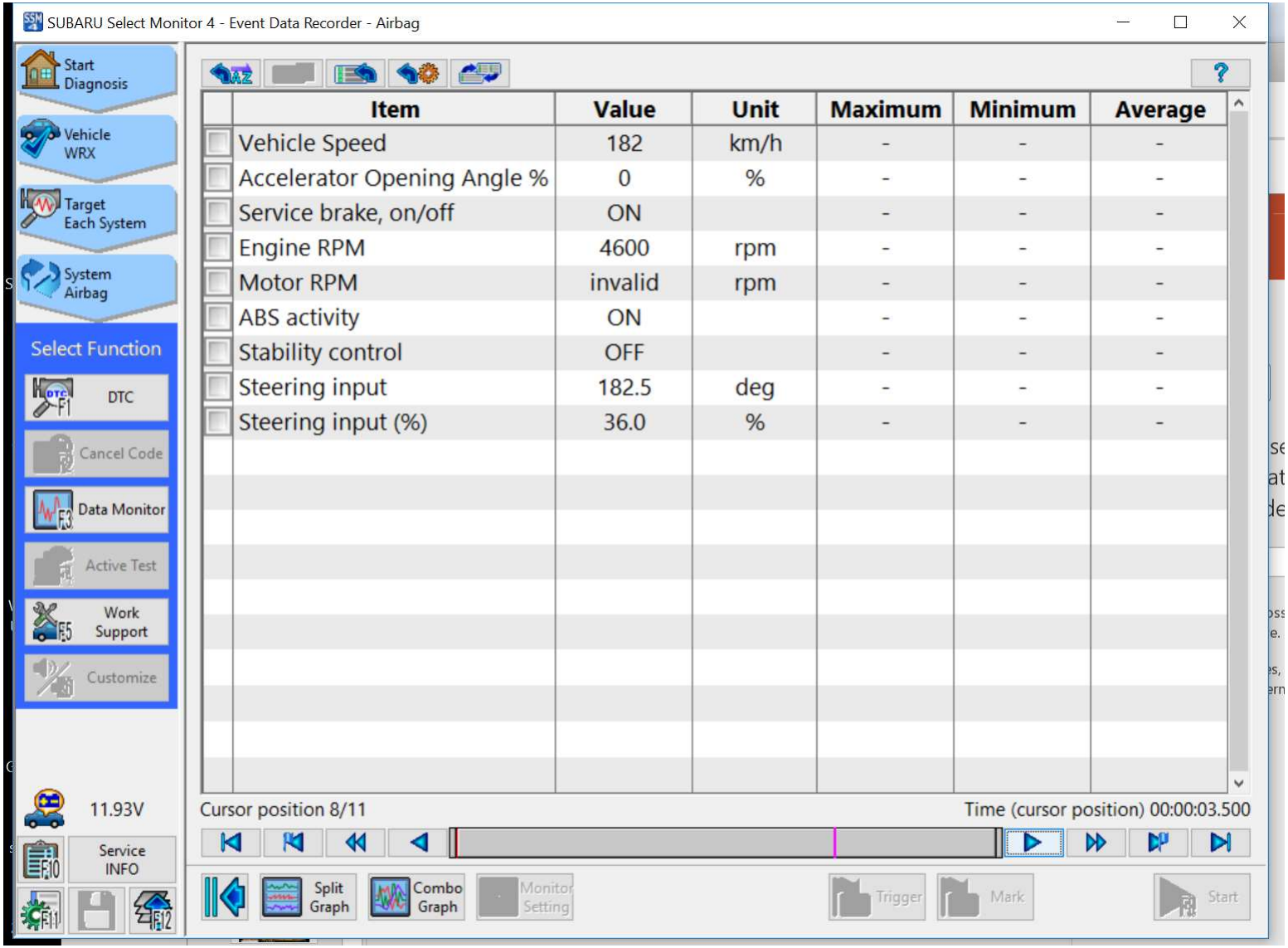
- Use the open office feature and open a text document file
- Use the Function-F11 key to do a screen capture
- Paste into open document
- Be sure to hit return between pastes. If you don’t, it may just overwrite former paste

If no communication with ACM, you will get this error message

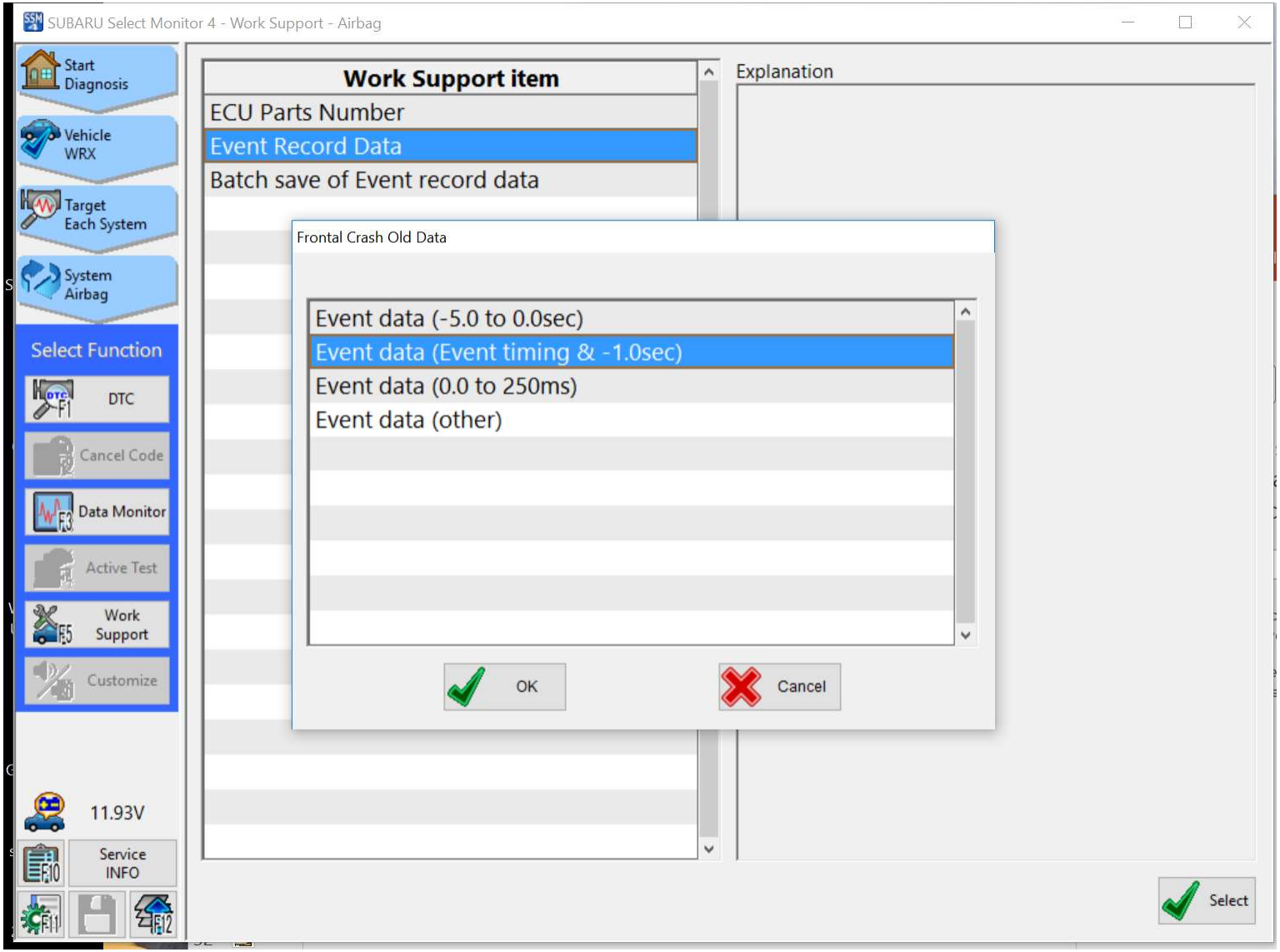


After a severe crash the DLC plug may not be powered. You may have to back power DLC fuse and ACM fuse to get data.

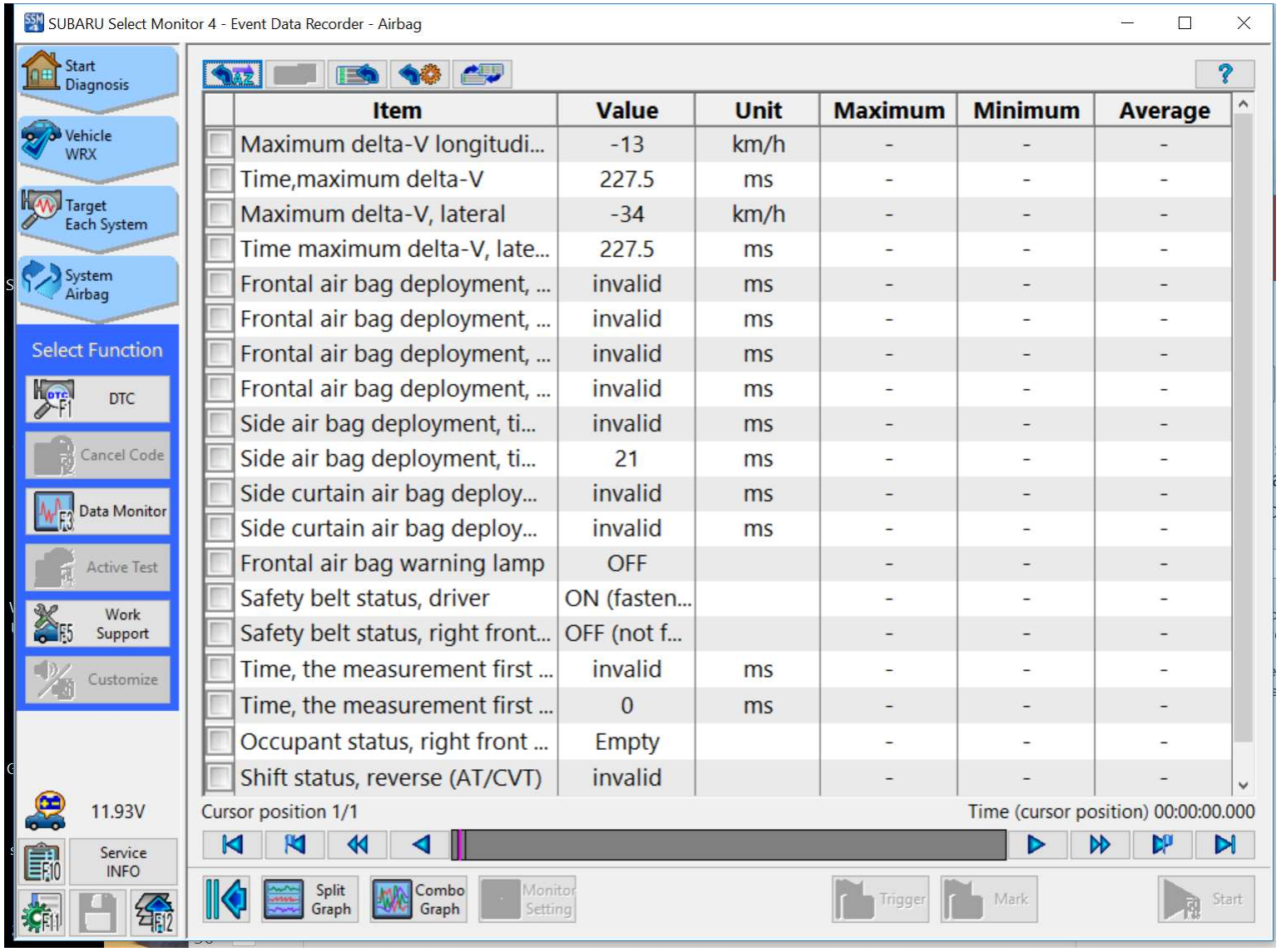
Scroll to next point in time. Repeat.



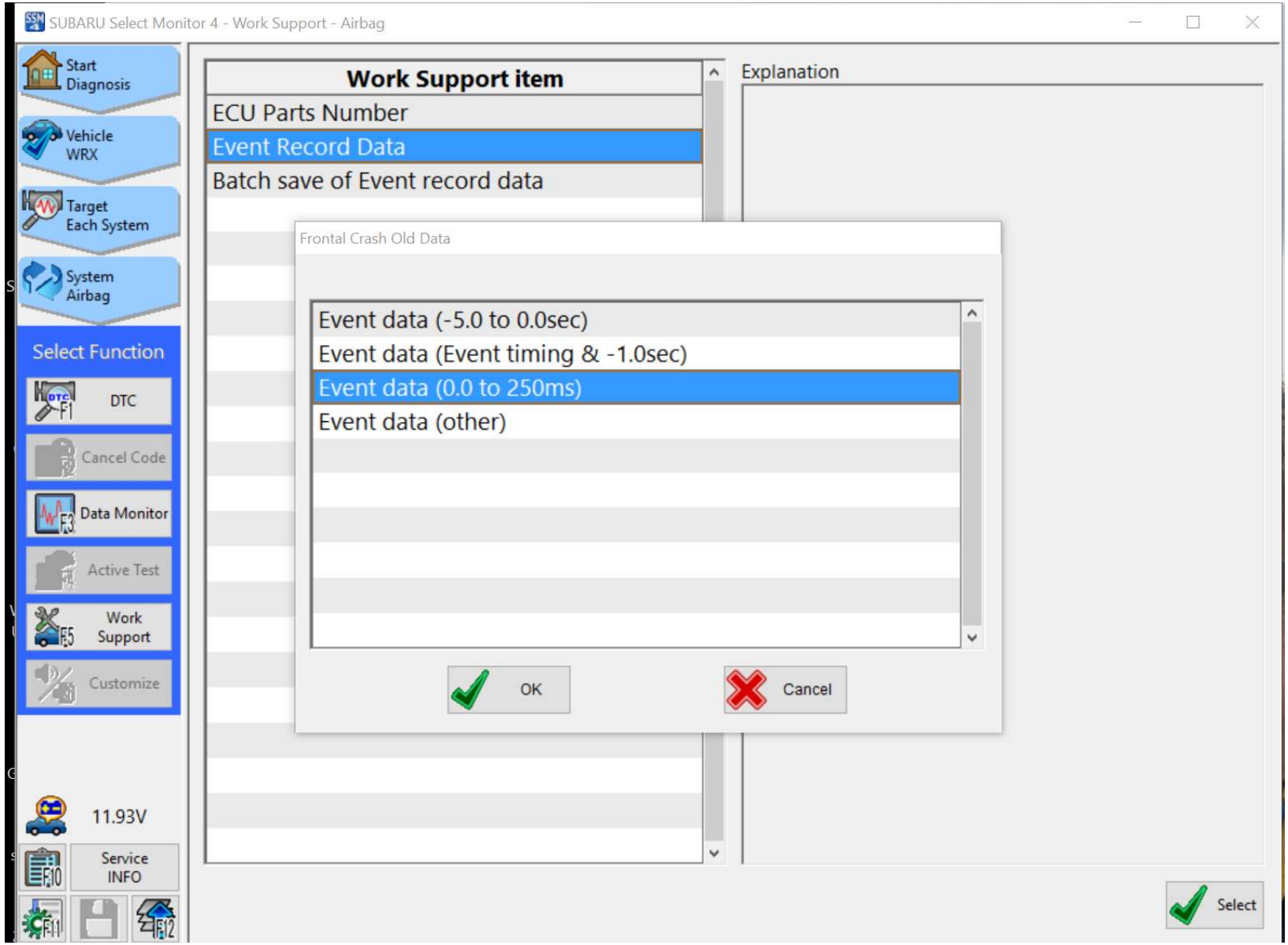
When finished with 11 precrash, go on to next section of data



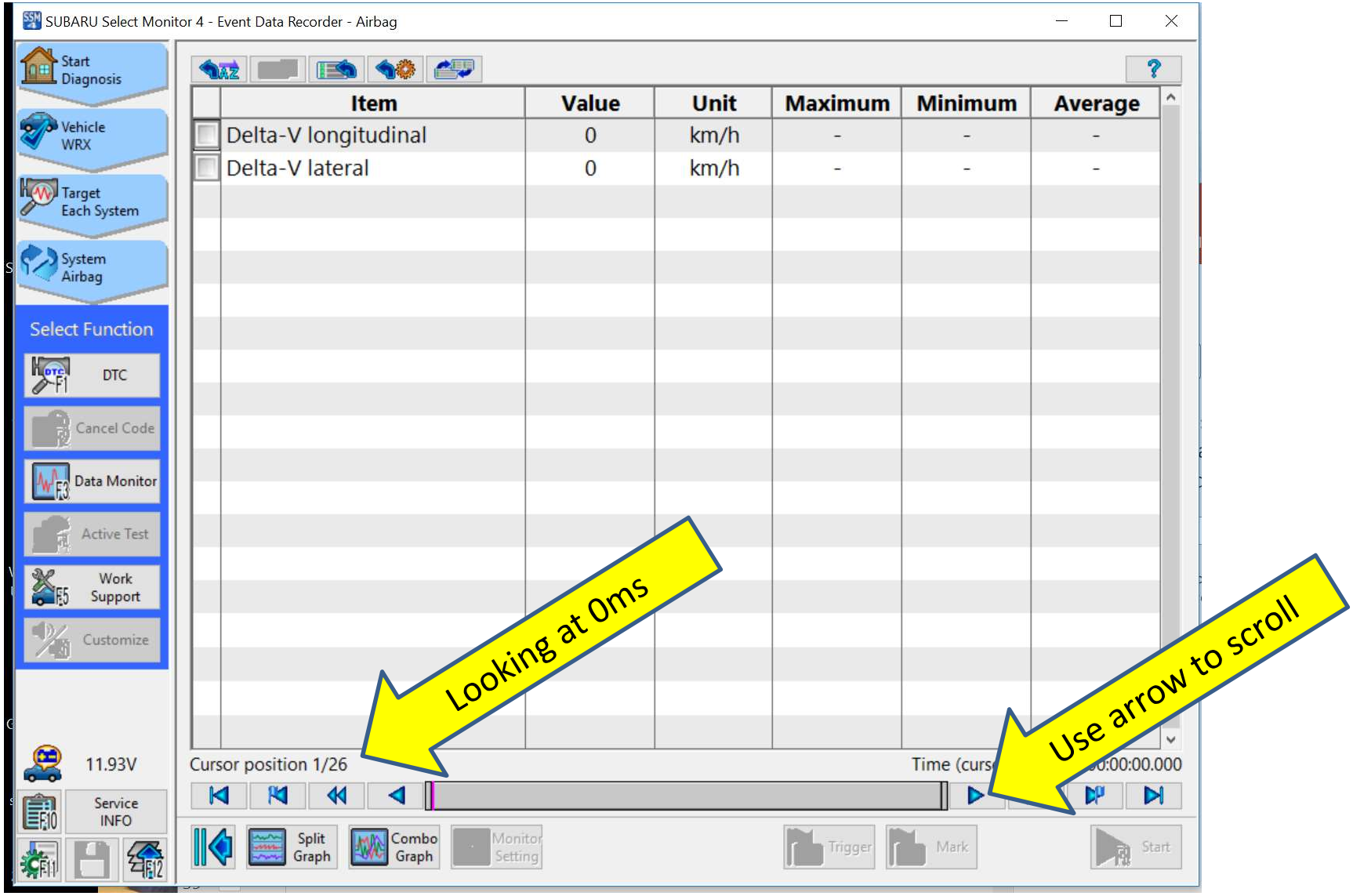
Go thru same save procedure. Only one screen in this section to save.



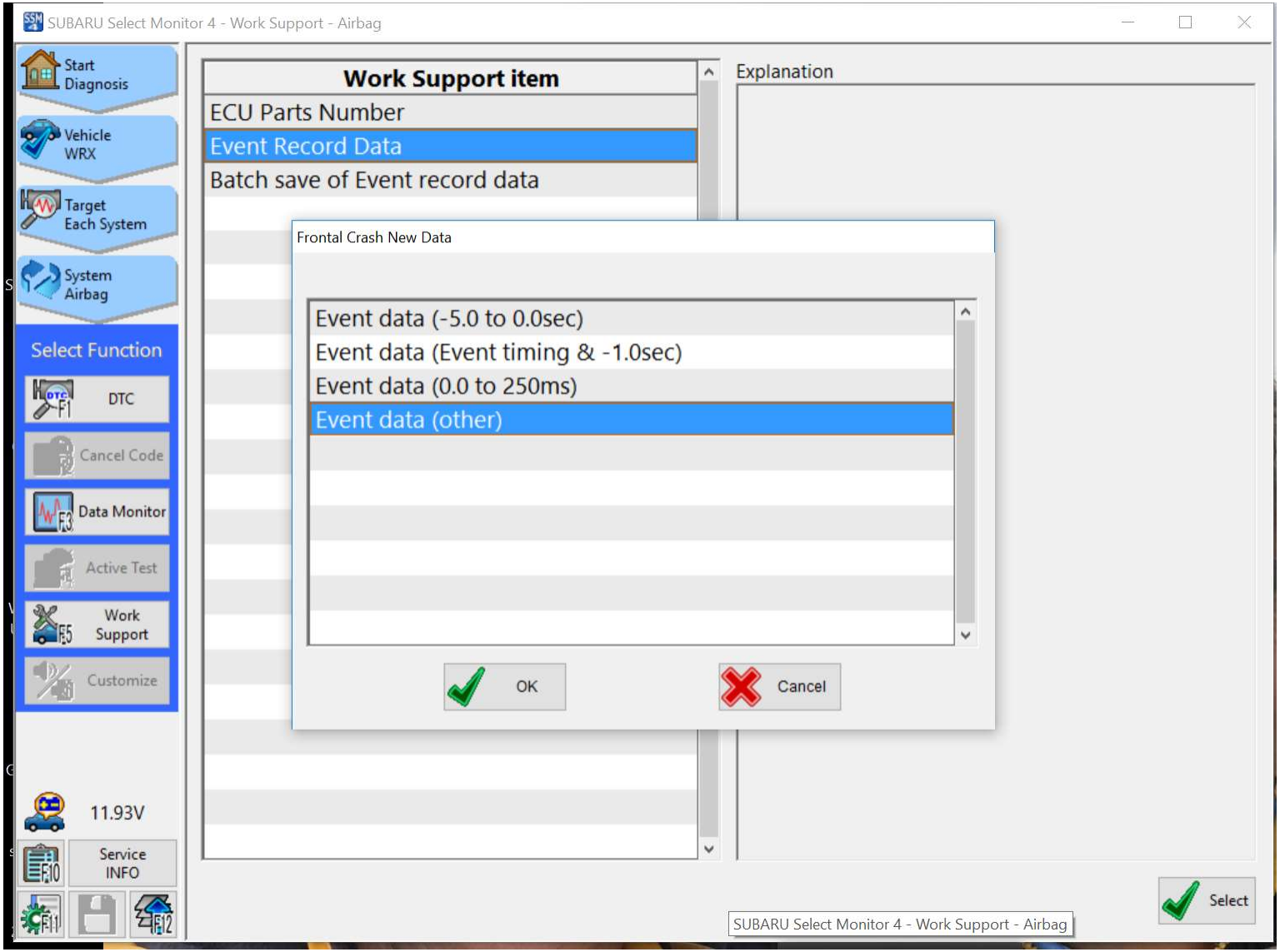
On to third section – Delta V



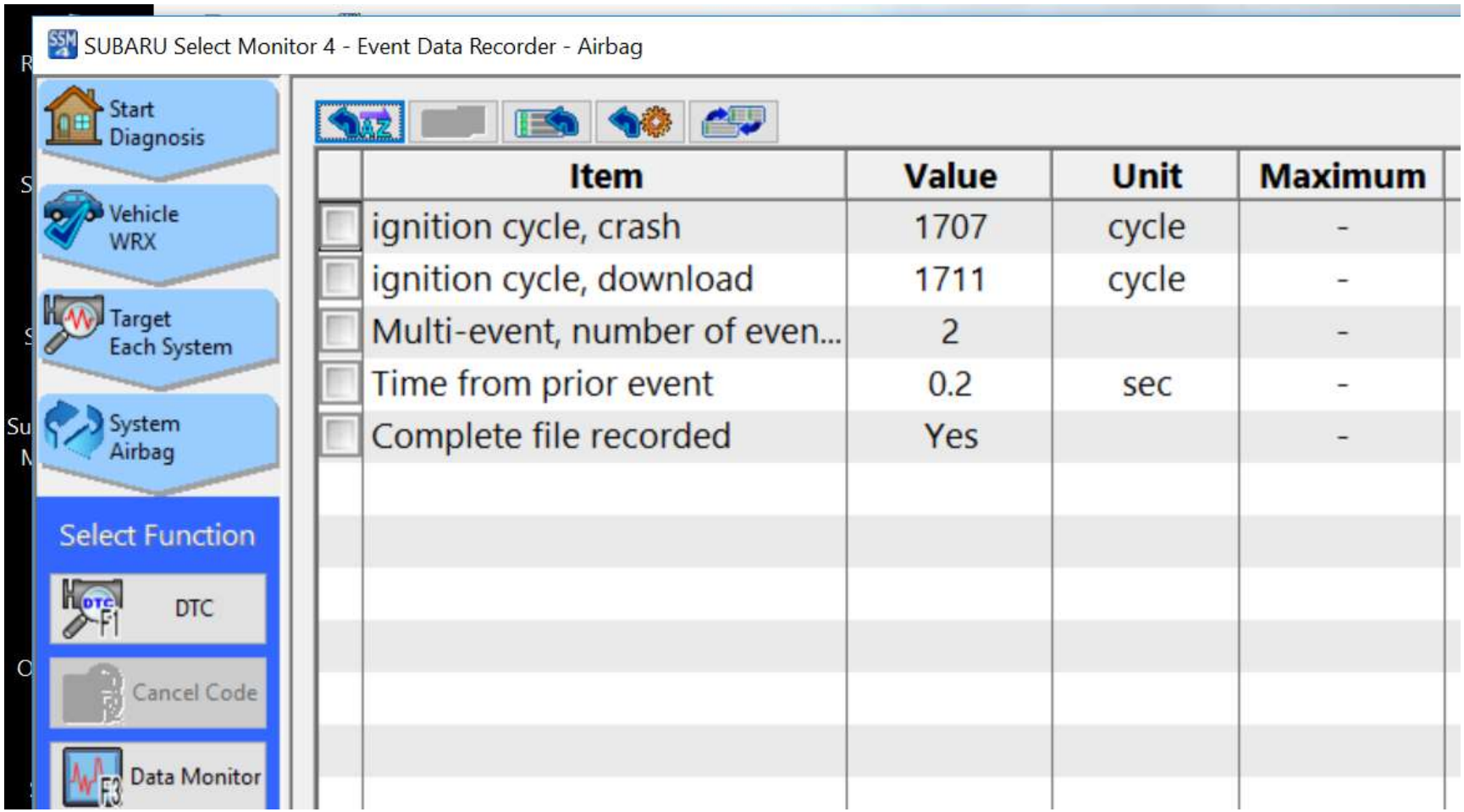
26 of these to get – yippee!



One section to go



Just one screen in this section



One event done

- Now repeat for your Front New, Side Old, Side New, Rollover Old, and Rollover New (if present in your module). Pray for a small number of events.

ACM Locations

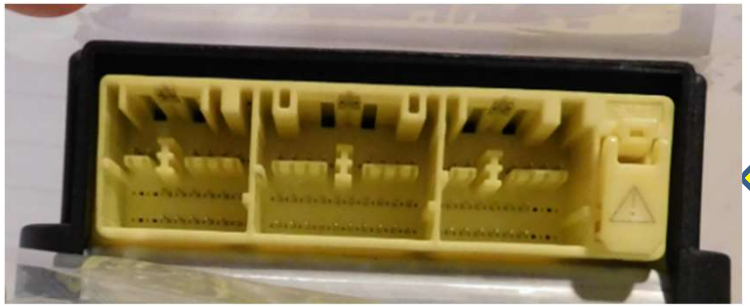
- Most ACM's are located under the center stack.
- The Legacy/Outback is under the center console between the seats

Three different DTM Connectors Needed to Do All! Connectors similar to Toyota CDR 613 & 615.

IMPRESZA, 2013 LEGACY, WRX

BRZ?? Really a Toyota

OUTBACK, CROSSTREK, WRX-STI



2015+ LEGACY/OUTBACK

DTM Cables. Build your own or buy from Bosch SPX Kent Moore. $1100 & $2800.

Yes, DTM can be done – so far no gateway module issues

Data Analysis

- Holds two events per crash type Frt/Side/Roll
- Longitudinal and Lateral Delta V in all modes
- Recording threshold 8km/h (5mph) over 150ms
- Deployments lock data for that crash mode but other crash modes are not locked
- Nondeployments can be overwritten, based on limited cases it appears to retain the most recent two events (like Toyota).
- Analyze this data in the same manner you would any other manufacturer's.
- Steering - positive is left (updated 6/2019)

Data Analysis

- Max speed it can show is 200 kph
- Max steering is 252.5 degrees

Reopen SSM3 .ssm file

- Under **file** menu, select “converting sampling data to csv”.
- File name will mirror .ssm file, only extension is different
- CSV file for precrash will have 11 rows for times and 8 columns for data, all displayed together in summary fashion (unlike the other screens that only showed one data point at a time).

Column headings and time label need adjustment as shown below

Column Headings generated as found in CSV file

Vehicle Speed km/h	Accelerator Opening Angle % %	Service brake	on/off	Engine Speed rpm	Motor RPM	ABS activity	Stability control deg	Steering input %	Steering input (%)	Mark

Corrected Column Headings based on other data views available in software

Vehicle Speed km/h	Accelerator Opening Angle %	Service brake on/off	Engine Speed rpm	Motor RPM rpm	ABS Activity	Stability Control	Steering input degrees	Steering input %	Mark?
21	0	OFF	1300	invalid	OFF	ON	0	0	0

READY

Number of Data Columns will vary by model

- It’s hard to make a template to fix it!

Subaru BRZ

- Subaru BRZ is a rebadged Toyota Scion FS-R
- The EDR is a Toyota EDR
- The Subaru software will still talk to the FS-R, but the data display screens are all different than the other Subaru EDR's.
- DiTallo reported at the 2018 EDR Summit that the Subaru software worked on the 2015 BRZ. In May 2018 a user tried to use it on a 2017 and got some good and some possibly bad values.

Subaru BRZ

- Bosch CDR software supports the Toyota FS-R
- A user successfully input a 2017 Subaru BRZ vin into CDR and used the CDR kit on the ACM. The VIN has structure like a Toyota.
- The CDR program yielded logical results. The Subaru tool retrieved good speed data, but the Delta V was different than CDR and appeared implausible. Steering data was not shown in the Subaru program but was visible in CDR.
- If you have a BRZ test the VIN in CDR, if it takes you should use the CDR software.

Sampling Time Label Adjustment

Suggested time label	Sampling time sec	Event name	Vehicle Speed km/h
-5	0	Frontal Crash New Data	21
-4.5	0.5	Frontal Crash New Data	21
-4	1	Frontal Crash New Data	20
-3.5	1.5	Frontal Crash New Data	21
-3	2	Frontal Crash New Data	21
-2.5	2.5	Frontal Crash New Data	21
-2	3	Frontal Crash New Data	20
-1.5	3.5	Frontal Crash New Data	18
-1	4	Frontal Crash New Data	17
-0.5	4.5	Frontal Crash New Data	16
0	5	Frontal Crash New Data	11

Technical Resources

- Subaru Technical Information System(STIS) www.subarutechinfo.com/stis/#/login
- $34.95 for 3 days access

There is an excellent presentation by Shawn Gyorke and Mike Ditallo from the 2018 CDR User's Conference with additional detail on the BRZ and case studies.

Bosch CDR Tool Coverage for 2019+

Supported Subaru Vehicles

Use this section of the help file to determine if a vehicle is supported by the CDR tool and look up the correct cable (and in some c

Click here for tips on how to use this *Supported Vehicles* help topic

General Subaru Application Notes:

All supported vehicles listed below require the vehicle's ignition key to be switched on prior to and during EDR record imaging throu

2019 2019 2020

Mkt	Year/Make	Model	Module		Vehicle Interface	OBD/DLC Connect Adapter/Cable	D2M Connect Adapter/Cable	Module Location
1	2019 Subaru	Ascent	ACM	Data	CDR 900	1699200615 click here for connection diagram	Cable ID 835 click here for connection diagram	Under Instrument Panel, Center
1	2019 Subaru	Forester	ACM	Data	CDR 900	1699200615 click here for connection diagram	Cable ID 835 click here for connection diagram	Under Instrument Panel, Center

Bosch CDR Tool

- Requires newer CDR900 Interface.
- Direct to Module cable available
- Current coverage only 2019 Ascent/Forester
- Back model coverage expected this year

2014+ Subaru Eyesight System (optional)

- Has two cameras in the rear view mirror
- In one case, Subaru factory rep plugged into rear view mirror with special software, download ONE B&W picture from when crash avoidance algorithm activated.

Subaru Eyesight System - What it is and how it works.

Subaru EyeSight.® The highest-rated front crash prevention system by IIHS.

Add confidence to your drive with new Subaru technology that monitors your safety–whether your eyes are on the road or not.

EyeSight®

Subaru EyeSight®

Subaru takes a look into the future with EyeSight®. Two cameras are mounted by the rearview mirror to monitor traffic and react to conditions even before you do. Basically, EyeSight® sees the problems and initiates action to help avoid the trouble. Eyesight® will also sound an alert and flash a visual warning if there's danger of a collision and will apply the brakes automatically if you don't. It can also optimize cruise control and warn drivers when they're straying outside their lane.

Available on select 2015 Subaru Outbacks, Legacys Foresters, Imprezas and Crosstreks.

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