

ISTA Fault Memory & Test Plan (Directed Diagnosis) View Module Info, Live Data, Trigger/Activate Components

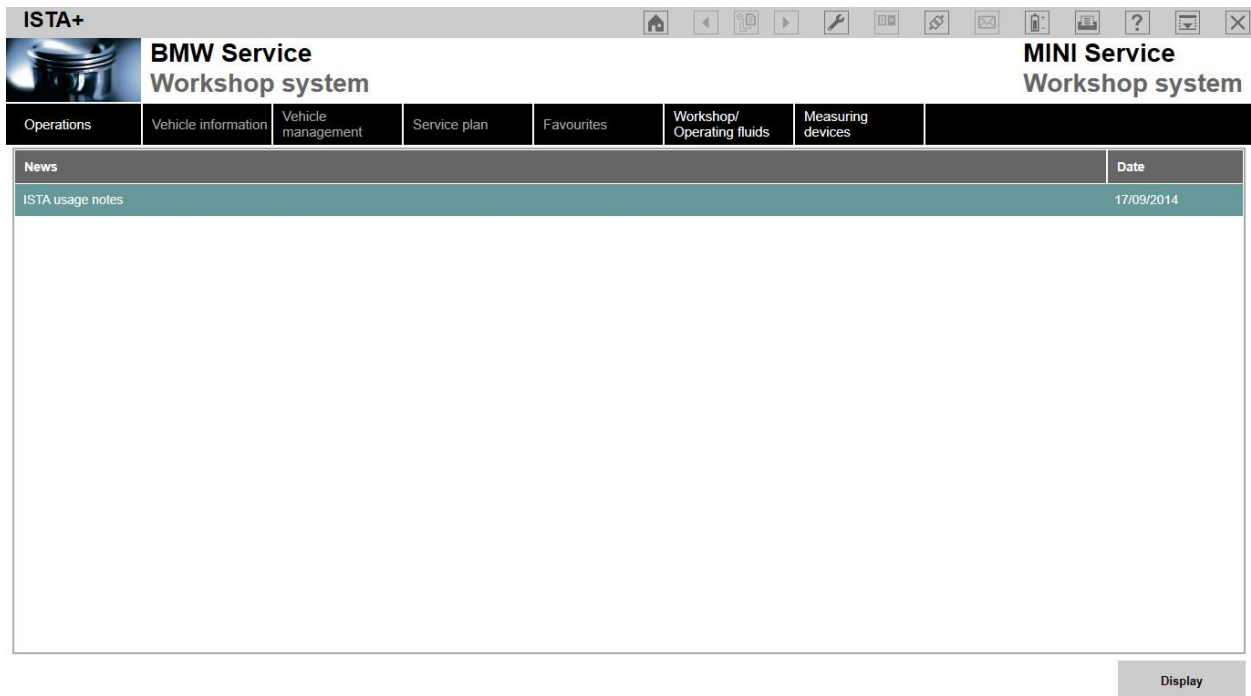
Scope of Tutorial; How to use ISTA+ to:

- 1) Connect ISTA to your Vehicle; View Status of ALL Modules/Bus Sys. (Control Unit Tree);
- 2) Display Control Unit LIST, showing Module Status, Full Name & System/Function;
- 3) Read Fault Codes in ALL Modules in your vehicle;
- 4) Read “Fault Description” of Selected Fault Code;
- 5) Read “Fault Details” and Freeze Frame Data/System Conditions at moment Fault Code saved;
- 6) Use “Calculate Test Plan” and follow Flow Chart “Directed Diagnosis”;
- 7) Connect to a Module: a) View ID/Info re Module; b) View “Live Data”/Diagnosis Scan of Inputs to Module; c) Trigger or Activate Motors, Solenoids, Lights connected to Module;
- 8) SAVE ScreenPrints of ISTA Screens to “Attach” to Forum Posts.

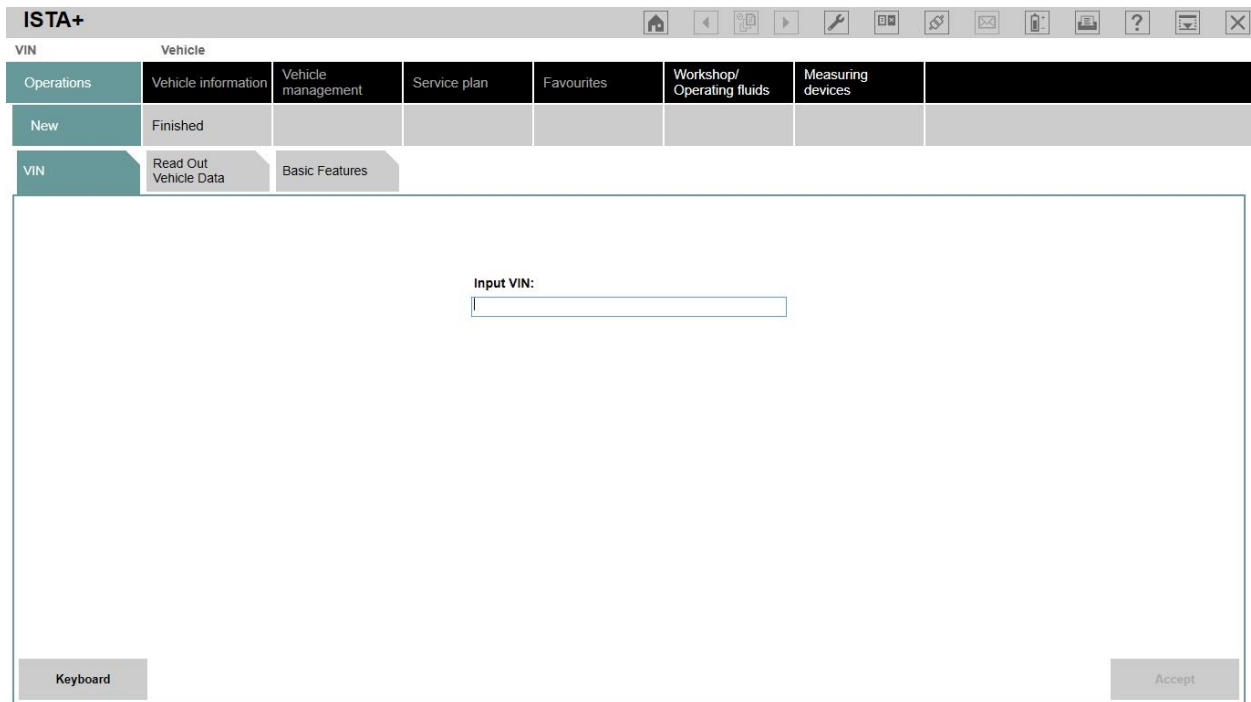
I. Connect ISTA to Vehicle & View Control Unit Tree:

1) Connect K+DCAN Cable to USB Port of Laptop: Ensure Com Port# = “COM1” & Latency = 1 msec, in Windows Device Manager, Ports (COM & LPT); Ports setting ONLY appears if you have the cable plugged into USB port of Laptop; strange things occur if “Windows Updates” changed those settings; then connect cable to OBD II Socket of Vehicle. If NO vehicle connection, check ‘Administration > VCI Config > Interface type: Ediabas default settings’ per section IX at end of this pdf.

2) Click ISTA Icon in TaskBar to Open ISTA: Following Opening Screen appears:

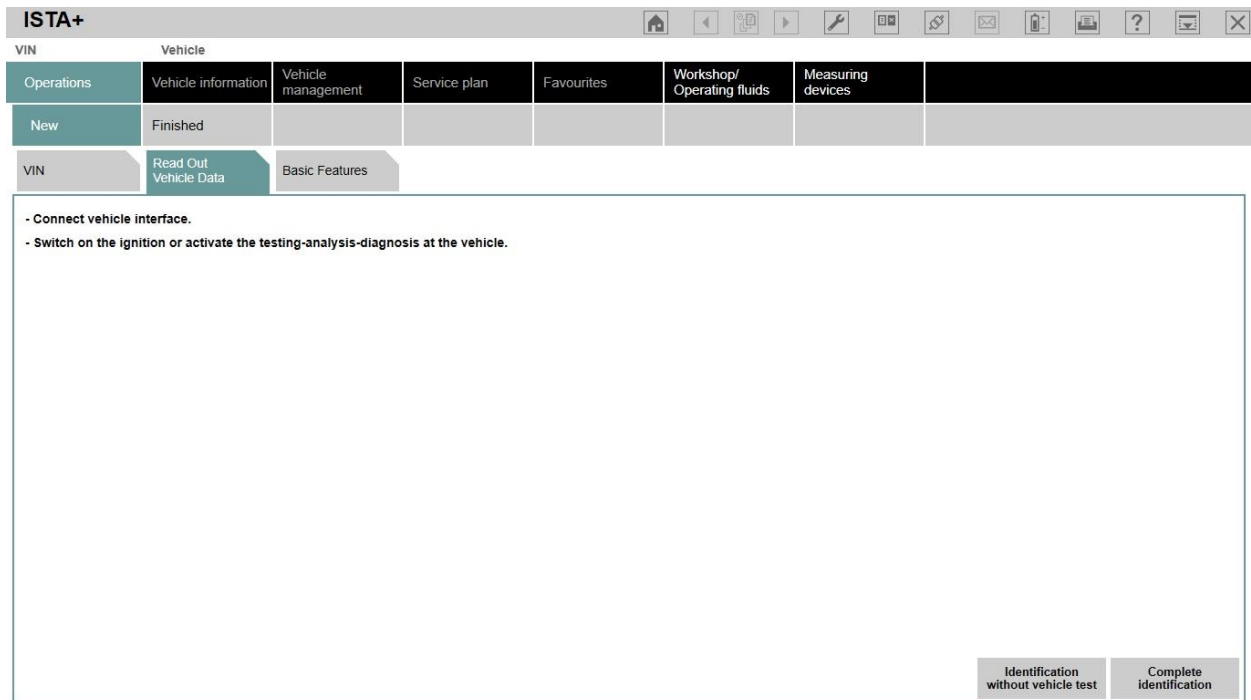


3) Click “Operations” Button: on Left of Menu, and Following Screen appears:



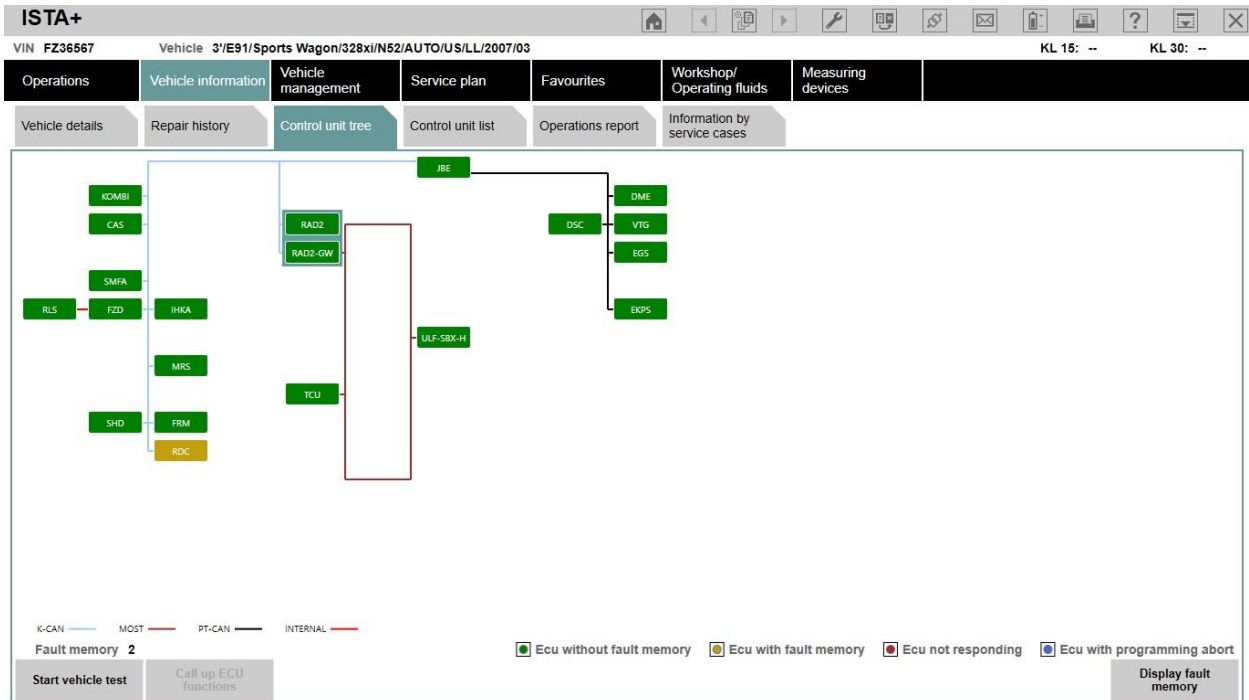
The “Navigation Area” consists of Main Menu line, beginning with “Operations”, Submenu line beginning with “New”, and Tab line beginning with “VIN”.

4) Click “Read Out Vehicle Data” Tab: and the following Screen appears:



5) Check to see that Computer is connected to OBD II Socket and Ignition is ON. Engine may be idling or Off. If Engine is Off, preferable to have Battery Charger Connected. Note the Buttons on the “Action Line” at bottom of Screen.

6) Click “Complete Identification” Button: on Action Line & “Control Unit Tree” appears. It MAY take nearly a minute to complete the scan and display the Tree:



Note: Last-7 Characters of VIN and basic vehicle features appear on “Header” line, beneath “Tool Bar” or “Symbol Bar”. More Main Menu Buttons are now active; New Tabs appear; NOTE the Tab for “Control unit list” which gives alphabetical list of Modules and status of each. There are different Bus systems, color-coded, depending upon model; on my 3/2007 build 328xi: K-CAN, MOST, PT-CAN & Internal.

Control Units/ Modules are grouped by Bus system; my vehicle has 20 Modules; RDC Module had 2 faults at moment screen selected, and appeared in Gold (ECU with fault memory); the other 19 appeared in Green box, indicating NO Fault Codes saved in Fault Memory; Note the buttons in the Action Line, including “Display fault memory”.

“Call up ECU functions” button on the “Action Line” is grayed-out in screen above. Select a Module on the Tree, or on Control Unit List shown below, by clicking it. You can NOW click that “Call up ECU functions” button, and you will see 3 Tabs related to selected Module:

A) **Identification;**

B) **Diagnosis Scan;** similar to INPA F5 Status; you can view Live Data/INPUTS to Module

C) **Component Triggering;** similar to INPA F6 Activations; send Command/Output from Module to attached Components to activate Motor/ Solenoid, Lights.

Those very powerful functions are illustrated in “VII. Connect to a Module”, later in this pdf.

II. Display Control Unit List:

1) **Control Unit List:** shows a) Module Status, b) Abbreviation for Module, & c) Full Control Unit Name. Like Tree, you can either (1) Display Fault Memory, or (2) Call up ECU functions. When you click on Control Unit List, you get screens similar to following:

The screenshots show the ISTA+ software interface for a vehicle with VIN FZ36567. The interface includes a navigation menu with options like Operations, Vehicle information, Vehicle management, Service plan, Favourites, Workshop/Operating fluids, and Measuring devices. The Control Unit List is displayed in a table format with columns for State, Abbrev., and Control unit name.

State	Abbrev.	Control unit name
<input checked="" type="checkbox"/>	CAS	Car Access System
<input checked="" type="checkbox"/>	DME	Engine electronics
<input checked="" type="checkbox"/>	DSC	Dynamic Stability Control DSC8 Plus
<input checked="" type="checkbox"/>	EGS	Transmission control
<input checked="" type="checkbox"/>	EKPS	Fuel pump control module
<input checked="" type="checkbox"/>	FRM	Driver's side footwell module
<input checked="" type="checkbox"/>	FZD	Roof function centre
<input checked="" type="checkbox"/>	IHKA	Automatic climate control
<input checked="" type="checkbox"/>	JBE	Junction Box Electronics
<input checked="" type="checkbox"/>	KOMBI	Instrument panel
<input checked="" type="checkbox"/>	MRS	Multiple restraint system
<input checked="" type="checkbox"/>	RAD2	Radio 2
<input checked="" type="checkbox"/>	RAD2-GW	Gateway
<input checked="" type="checkbox"/>	RDC	Tyre Pressure Monitor

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<input checked="" type="checkbox"/>	IHKA	Automatic climate control
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<input checked="" type="checkbox"/>	RAD2-GW	Gateway
<input checked="" type="checkbox"/>	RDC	Tyre Pressure Monitor
<input checked="" type="checkbox"/>	RLS	Rain/light sensor
<input checked="" type="checkbox"/>	SHD	Slide/tilt sunroof
<input checked="" type="checkbox"/>	SMFA	Seat module, driver
<input checked="" type="checkbox"/>	TCU	Telematics control unit
<input checked="" type="checkbox"/>	ULF-SBX-H	Interface box High
<input checked="" type="checkbox"/>	VTG	Transfer box

The CU (Control Unit) Tree provides some information that the CU List does NOT, but the LIST is better for beginning or occasional Diagnostics. It makes it easier to understand what the Module Abbreviations stand for and the functions of the system(s) controlled.

III. Display Fault Memory:

1) Click “Display fault memory” in Action Line, Bottom-Right; Fault Memory List appears:

Code	Description	Mileage	Class
00604E	RDC: RDC system	218680	
006055	RDC: Wheel electronics, front right	218680	

Number of fault memories: 2 / 2 No. fault patterns: 0 Filter: Default

IV. Fault Description of Selected Fault Code:

1) Double-Click the first Fault entry (604E in my case) to see Description Tab for that Fault.

Fault description

The fault is detected when following fault causes occur:

- Wheel detection not possible
- Radio link interference caused by external influence
- Wheel module from incompatible manufacturer
- Wrong-generation wheel module

The individual fault causes are stored in the corresponding types of fault.

Fault entry condition for corresponding type of fault:

- Types of fault: wheel detection not possible/too many wheel electronics: RDC control unit cannot learn the wheel electronics in the vehicle within 9 minutes (EU) or 12 minutes (US) of driving time.
- Type of fault: external influence: The RDC control unit determined a fault in the radio link for at least 10 minutes. The display is cancelled after terminal change.
- The type of fault is an incorrect wheel electronics generation: At minimum one of the four wheel electronics feature an incorrect generation
- Incompatible wheel module manufacturer fault: at least one of the four wheel modules is from an incompatible manufacturer.

Condition for fault identification Terminal 30 between 9 V and 17 V

V. Fault Details/ FF Data for Selected Fault Code:

1) Click Details Tab to view Freeze Frame Data & Details:

ISTA+ VIN FZ36567 Vehicle 3/E91/Sports Wagon/328xi/N52/AUTO/US/LL/2007/03 KL 15: -- KL 30: --

Operations: RDC 00604E RDC: RDC system

Repair/Maintenance: Description Details

Fault memory: SF

Code: D

00604E RI

006055 RI

Number of fault memory: []

Show fault code

Back Forward Refresh Close Calculate test plan

Fault types
CAN bus, no data 4 faulty
No reception

Environment conditions

Condition	Last / current fault memory entry
Frequency	-1
Logistics counter	30
Mileage/km reading	218680 km
Vehicle speed	34.4 km/h
Temperature	25.5 °C

VI. Test Plan; Directed Diagnosis:

1) At Fault Memory List, Select a Fault Code & click “Calculate Test Plan” button, Bottom-Right Action Line. A Test Plan screen appears with specific Diagnostic Procedures or “ABL”.

ISTA+ VIN FZ36567 Vehicle 3/E91/Sports Wagon/328xi/N52/AUTO/US/LL/2007/03 KL 15: -- KL 30: --

Operations: Vehicle information Vehicle management Service plan Favourites Workshop/Operating fluids Measuring devices

Hit list: Test plan Programming plan

Type	Title	State	Priority
	Wheel electronics system, front right		1
ABL	Front right wheel electronics	<input type="checkbox"/>	1
	Fault, wheel detection		2
ABL	Wheel recognition fault	<input checked="" type="checkbox"/>	2

Hits: 2 / 2 Filter: Default not called performed minimized canceled suspected

Back Filters Show symptoms Collapse / expand Set standard filter Display

2) Click 1st ABL and Procedure appears with Reference Tabs for SSP Wiring Diagram (Full Screen shown) and FUB Functional Description of system. Each of 3 tabs shown below:

ISTA+ VIN FZ36567 Vehicle 3/E91/Sports Wagon/328xi/N52/AUTO/US/LL/2007/03 KL 15: -- KL 30: --

ABL-DIT-B3622_REVR60 - Front right wheel electronics

Procedure

6055 front right wheel electronics
 No reception
 Fault not currently present
 Fault-statistics counter: 30

Following a reset, the front right wheel electronics were not received during a driving time of max. 2 minutes.

If one of the following faults is also present:

- 6054 front left wheel electronics
- 6056 rear left wheel electronics
- 6057 rear right wheel electronics
- 6059 position-free wheel electronics

1 Yes

2 No

Wiring Diagram Functional Description

Tyre Pressure Monitor


The Tyre Pressure Monitor (TPM) is a system for monitoring the tyre inflation pressure while the vehicle is being driven. For this purpose, the tyre pressure and the tyre air temperature are measured at certain intervals on request by the RDC control unit and telemetrically transmitted to the RDC aerial via a high-frequency transmission path. The RDC aerial forwards the signals back across the bus to the RDC control unit. The control unit evaluates the received data. It then forwards the information to the driver if necessary. The driver is thus informed of a necessary correction of the tyre pressure or a puncture that might have occurred.

Brief component description

The following components for RDC are described:

RDC aerial

The TPM aerial is generally located on the underbody. Depending on the series, the position can be in the front section (cross -member of A-pillar) or in the central area of the underbody.

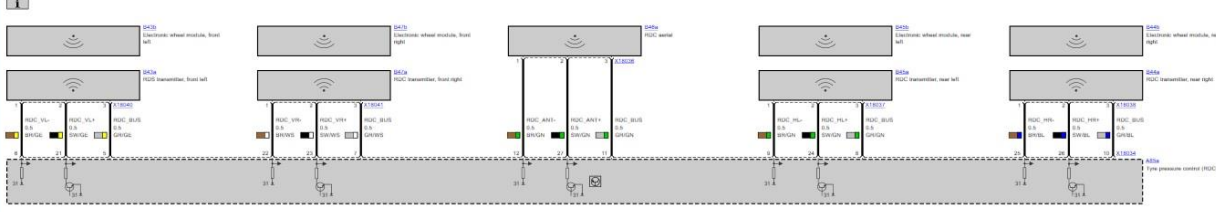


Back Measuring devices Keyboard Full Screen Update Next

ISTA+ VIN FZ36567 Vehicle 3/E91/Sports Wagon/328xi/N52/AUTO/US/LL/2007/03 KL 15: -- KL 30: --

SSP-SSP-SP0000019403 - Tyre pressure control (RDC)

Wiring Diagram Functional Description



Documents Zoom in Zoom out Overview Full Screen

ISTA+ VIN FZ36567 Vehicle 3/E91/Sports Wagon/328xi/N52/AUTO/US/LL/2007/03 KL 15: -- KL 30: --

FUB-FUB-FB-360001-F06 - Tyre Pressure Monitor (RDC)

Procedure

6055 front right wheel electronics
No reception
Fault not currently present
Fault-statistics counter: 30

Following a reset, the front right wheel electronics were not received during a driving time of max. 2 minutes.

If one of the following faults is also present:

- 6054 front left wheel electronics
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Brief component description

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Back Measuring devices Keyboard Full Screen Update Next

Type of information you get varies depending upon the Fault/System. You can view SSP Wiring Diagrams, FUB Functional Descriptions, & REP Repair Procedures WITHOUT being connected to a vehicle, using “Text search” Tab, “Component Structure” Tab, etc.

VII. Connect to a Module: ID, Live Data, Trigger/Activate:

1) Select/Click Module Rectangle/Line in Control Unit Tree or Control Unit List, and then click “Call up ECU functions”, as described at bottom of page 3 of this Tutorial:

ISTA+ VIN FZ36567 Vehicle 3/E91/Sports Wagon/328xi/N52/AUTO/US/LL/2007/03 KL 15: -- KL 30: --

Operations Vehicle details Re

Engine electronics (DME)

Identification Diagnosis scan Component triggering Software information

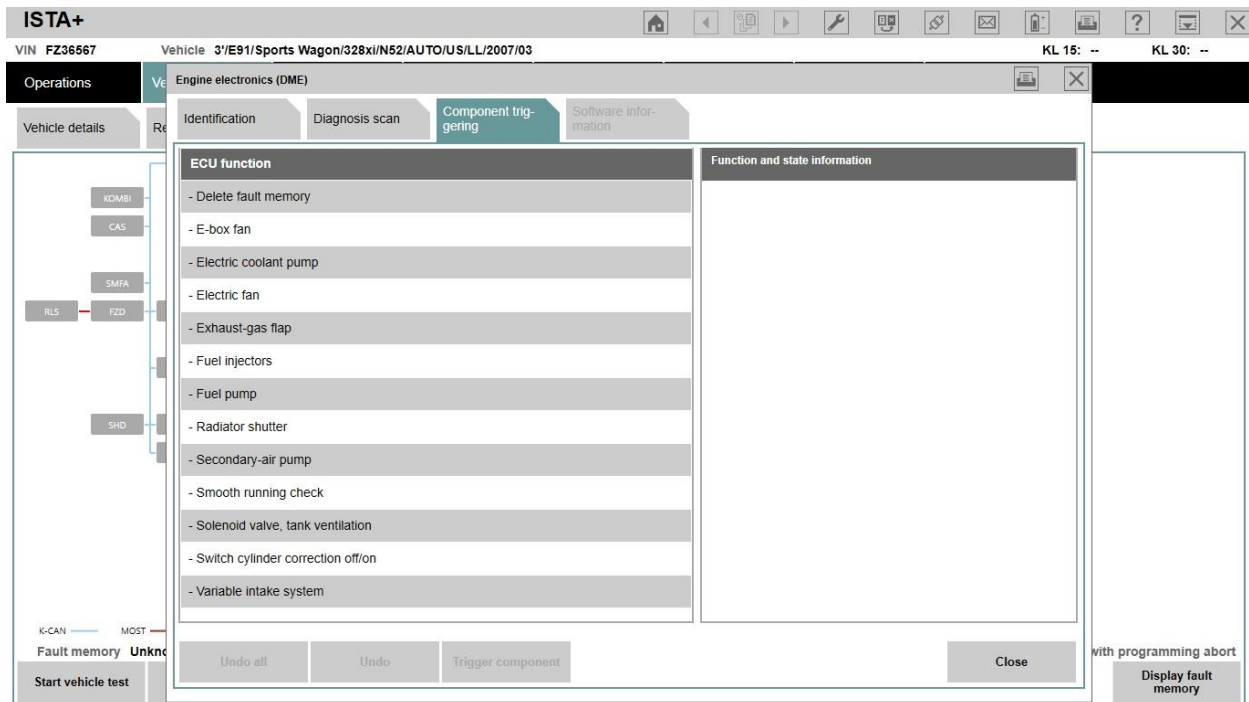
State	Abbrev	ECU function	Function and state information
<input checked="" type="checkbox"/>	CAS	Accelerator-pedal position	- Motor operating values Function: Accelerator-pedal position State: 0.00 %
<input checked="" type="checkbox"/>	DME	Air-mass flow	Function: Air-mass flow State: 19.44 kg/h
<input checked="" type="checkbox"/>	DSC	Ambient pressure	Function: Ambient pressure State: 1005.54 mbar
<input checked="" type="checkbox"/>	EGS	Ambient temperature	Function: Ambient temperature State: 25.50 °C
<input checked="" type="checkbox"/>	EKPS	Battery voltage	Function: Battery voltage State: 14.02 V
<input type="checkbox"/>	FRM	Coolant temperature, engine	Function: Coolant temperature, engine State: 84.00 °C
<input checked="" type="checkbox"/>	FZD	Duration of injection	Function: Fuel injection timing, cylinder 1 State: 4.01 ms
<input checked="" type="checkbox"/>	IHKA	Engine oil fill level, briefly	Function: Relative oil level (only with engine running, significant results obtained after 25 min.) State: Oil level = 1/4
<input checked="" type="checkbox"/>	JBE	Engine oil level	Function: Oil level (engine off, setpoint value > 60 mm) State: 62.11 mm
<input checked="" type="checkbox"/>	KOMBI	Engine speed	Function: Engine speed State: 730.00 1/min
<input checked="" type="checkbox"/>	MRS	Engine-oil temperature	
<input checked="" type="checkbox"/>	RAD2	Inside temperature, DME control unit	
<input checked="" type="checkbox"/>	RAD2-G	Intake-air temperature	
<input type="checkbox"/>	RDC		

Fault memory 4

Start vehicle test

Undo all Undo Read state Close

with programming abort Display fault memory



Diagnosis Scan Tab: select any/all of the parameters and click on “Read State” button to view Live Data for selected Parameters. Click Read State button again to exit, & Undo buttons to go to different screen.

Triggering Tab: Select component & click “Trigger component” button.

“State/Status” and “Trigger/Activation” vary by Module selected. Clearing Fault Codes/ “Delete Fault Memory” is found in the “Trigger” tab of most Modules, including the DME.

As long as you know it’s there and HOW to access it, you can test the functions yourself. ONLY caveat is READ CONDITIONS for Triggering/Activation BEFORE pressing the “Trigger Component” button.

VIII. Saving/ Posting ScreenPrints:

- 1) Have a photo editor (such as “Paint” – Windows Accessory) open & running in background BEFORE you open ISTA;
- 2) Open screen to be Saved; press PrtSc to “print screen”/save it in temp memory;
- 3) Alt+Tab to navigate to Paint; Ctrl+V to paste screenprint to Paint;
- 4) SaveAs jpg file format in Folder/Subfolder of your choice, with helpful descriptive name.
- 5) In Paint, press Ctrl+N to clear screen to be ready for NEW “Paste & SaveAs”.

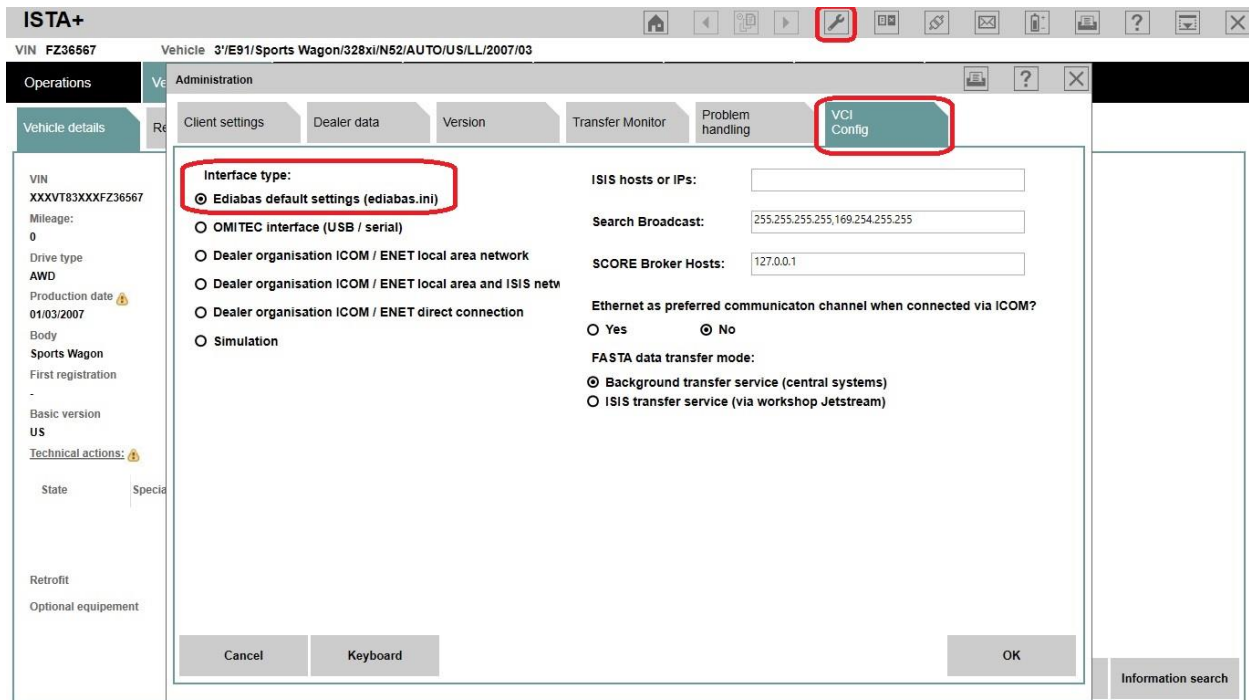
JPG Format ScreenPrints saved that way may be Attached to Forum Posts so we can ALL see what you see on your screen. Best way to get Forum Help from other ISTA users.

IX. Appendix:

A. Administration > VCI Config > Ediabas default settings:

If you are having trouble connecting to vehicle as described in Section I of this pdf, check the following as shown in the next ScreenPrint:

- 1) Click the Wrench/Spanner Icon in Symbol Bar, at top of Screen, Red Outline Below;
- 2) Administration Dialog box with 6 Tabs appears; Select 'VCI Config' Tab;
- 3) Under 'Interface type', click radio button: 'Ediabas default settings (ediabas.ini)'



Please post to forum if you encounter ANY problem performing steps in this Tutorial, or in connecting to Vehicle.