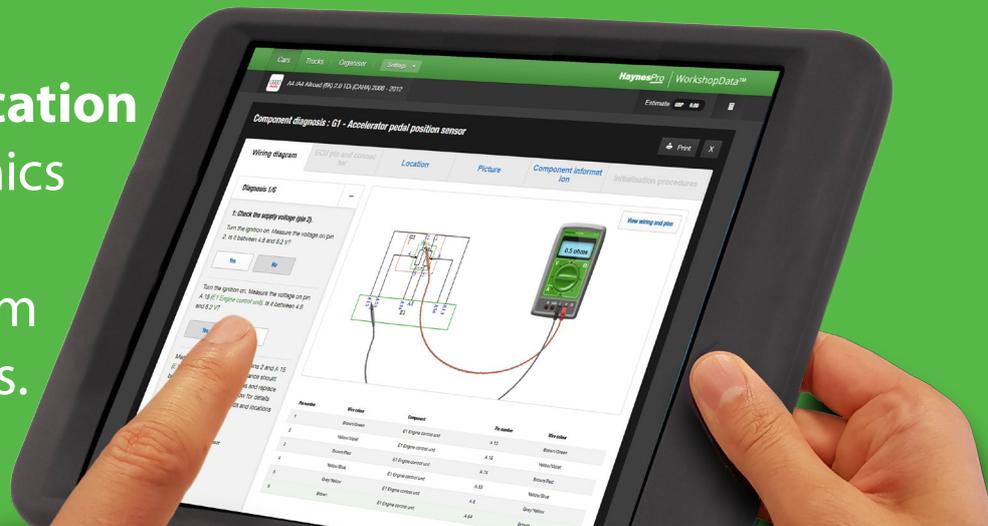
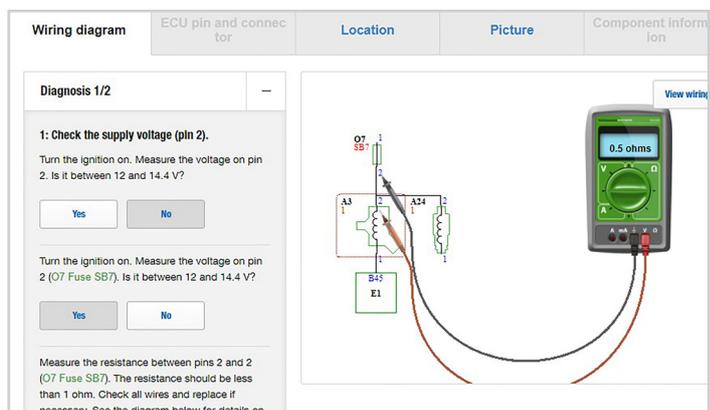
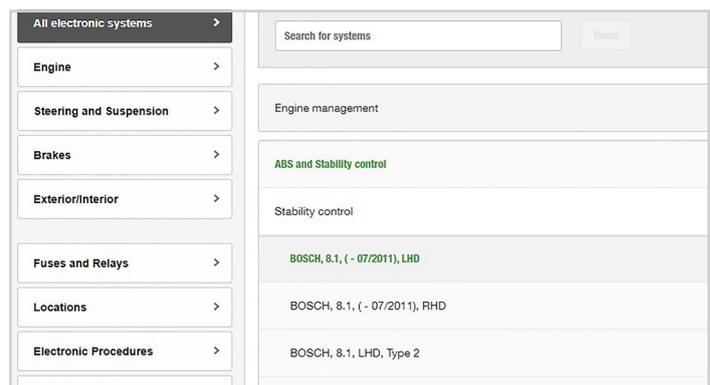


An innovative application which guides mechanics to a rapid, precise identification of system and component errors.



WorkshopData™ Electronics

HaynesPro's electronic data has always been an important aid to workshops. Nowadays, with **electrical systems and advanced technologies** becoming an ever more significant feature in modern cars, **it has become essential**. At its heart sits HaynesPro's exclusive **Vehicle Electronics Smart Assistant MK II (VESA™)**.





VESA MK II Guided Diagnostics



VESA MK II GUIDED DIAGNOSTICS

An innovative application for **electronics diagnostics**.

Probably unrivalled in the after-market arena, VESA is an innovative electronics diagnostics application. It is based on vehicle CAN-Bus data and helps mechanics diagnose faults and component errors. It takes an OEM's often bewildering and unfamiliar wiring schematic, converts it to a clearer, more readable format and then zooms in on the component and wiring under consideration.

Example A

DIAGNOSTICS BY COMPONENT

[Engine tab]

1. Select systems
2. Confirm selected systems

[Electronic systems page]

3. Select component

This screenshot shows the initial system selection screen. At the top, the vehicle is identified as an Audi A4 /A4 Allroad (8K) 2.0 TDI (CAHA) 2008 - 2012. A sidebar on the left lists various electronic systems, with 'Engine' selected. The main area shows a search bar and a list of selected systems under 'Engine management': 'BOSCH, EDC17, (- 04/2008)' (marked with a '1') and 'BOSCH, EDC17, (05/2009 -)' (checked with a green tick). A green button labeled 'Continue to Electronic Systems' (marked with a '2') is visible at the bottom.

This screenshot shows the 'Electronic Systems' page. It features a 'Components' tab and a list of components under the selected system 'Engine management: BOSCH, EDC17, (05/2009 -)'. The components include various injectors, solenoids, sensors, and control units. The 'A3 Fuel pressure control solenoid' is highlighted with a green circle and the number '3', indicating the current step in the diagnostic process.

Continued on next page

[Diagnosis page]

- 4. Answer the questions with *yes* or *no* until the component diagnosis is completed
- 5. or click in the wiring diagram to access the information for the selected component or fuse/ground point

A4 /A4 Allroad (8K) 2.0 TDi (CAHA) 2008 - 2012 Estimate GBP 0.00

Component diagnosis : A3 - Fuel pressure control solenoid

Wiring diagram | ECU pin and connector | Location | Picture | Component information | Initialisation procedures

Diagnosis 1/2

1: Check the supply voltage (pin 2).
Turn the ignition on. Measure the voltage on pin 2. Is it between 12 and 14.4 V?

Turn the ignition on. Measure the voltage on pin 2 (O7 Fuse SB7). Is it between 12 and 14.4 V?
 4

Measure the resistance between pins 2 and 2 (O7 Fuse SB7). The resistance should be less than 1 ohm. Check all wires and replace if necessary. See the diagram below for details on wire colours, connectors, welds and locations (if applicable).

2: Check the connectivity of pin 1.

Pin number	Wire colour	Component	Pin number	Wire colour
1	Brown/Blue	E1 Engine control unit	B 45	Brown/Blue
2	Grey/Violet	A24 Fuel metering solenoid	2	Grey/Violet
2	Grey/Violet	O7 Fuse SB7	2	Grey/Violet

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A4 /A4 Allroad (8K) 2.0 TDi (CAHA) 2008 - 2012 Estimate GBP 0.00

Component diagnosis : O7 - Fuse SB7

Wiring diagram | ECU pin and connector | Location | Picture | Component information | Initialisation procedures

Diagnosis 1/1

1: Check the supply voltage (pin 1).
Turn the ignition on, crank or start the engine. Measure the voltage on pin 1. Is it between 12 and 14.4 V?

Pin number	Wire colour	Component	Pin number	Wire colour
1	Red/Grey	O7 Fuse SB10	1	Red/Grey
1	Red/Grey	O7 Fuse SB2	1	Red/Grey
1	Red/Grey	O7 Fuse SB5	1	Red/Grey
1	Red/Grey	O7 Fuse SB6	1	Red/Grey
1	Red/Grey	O7 Fuse SB8	1	Red/Grey





Example B

DIAGNOSTICS BY CAN-BUS COMPONENTS OVERVIEW

[All electronic systems tab]

1. Select systems
2. Confirm selected systems

[Electronic systems page]

3. Select CAN-Bus overview tab
4. Select signal

BMW 3 (F30, F31, F80) 330e PHEV (B48 B20A) 2015 - ... Estimate GBP 0.00

All electronic systems

Search for systems

Engine management

ABS and Stability control

Electronic power steering

HWAC **1**

Climate control

BMW, Advanced climate control, with navigation system

BMW, Advanced climate control, without navigation system

BMW, Standard climate control, with navigation system

BMW, Standard climate control, without navigation system

Continue to Electronic Systems **2**

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3 (F30, F31, F80) 330e PHEV (B48 B20A) 2015 - ... Estimate GBP 0.00

Electronic Systems

Back to overview

Components CAN-Bus Overview **3** Fault Code Diagnosis Locations

CAN-Bus Overview

Engine management BOSCH, Motronic MED17

Stability control Teves, MK 100

Accelerator pedal position → Alternator

Camshaft position → Canister purge

Camshaft speed → Coolant pump

Clutch pedal position → Coolant system bypass control

Coolant temperature → Cooling fan motor

Coolant pressure → Cooling fan relay

Crankshaft position → Crankcase ventilation heating

Crankshaft speed → Engine mounting control

Cylinder head temperature → Detonation → Fuel delivery control

Detonation → Fuel injection

Fuel pressure → Inlet air temperature → Fuel injection timing

Inlet air temperature → Fuel pump

Manifold absolute pressure → Mass airflow → Ignition

Mass airflow → Oil level → Inlet camshaft timing control

Oil level → Oil pressure → Main supply control

Oil pressure → Oxygen level → Oil pressure control

Oxygen level → Throttle position → Outlet camshaft timing control

Throttle position → Valve lift → Oxygen sensor heating

Valve lift → Turbo cooling

Brake fluid level → Main supply control

Brake pad wear → Front left wheel speed → Front right wheel speed → Rear left wheel speed → Rear right wheel speed → Vehicle speed

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Continued on next page

3 (F30, F31, F80) 330e PHEV (B48 B20A) 2015 - ... Estimate **GBP 0.00**

Component diagnosis : V1 - Canister purge solenoid

Print X

Wiring diagram ECU pin and connector Location Picture Component information Initialisation procedures

Diagnosis 1/3

1: Check the supply voltage (pin 1).
Turn the ignition on. Measure the voltage on pin 1. Is it between 12 and 14.4 V?

Turn the ignition on. Measure the voltage on pin C 1 (E1 Engine control unit). Is it between 12 and 14.4 V?
 5

Measure the resistance between pins 1 and C 1 (E1 Engine control unit). The resistance should be less than 1 ohm. Check all wires and replace if necessary. See the diagram below for details on wire colours, connectors, welds and locations (if applicable).

1 Canister purge solenoid
Red/Green
C1 Engine control unit 1

2: Check the solenoid operation

3: Check the connectivity of pin 2.

6

Pin number	Wire colour	Component	Pin number	Wire colour
1	Red/Green	E1 Engine control unit	C 1	Red/Green
2	White	E1 Engine control unit	C 16	White

[Diagnosis page]

5. Answer the questions with *yes* or *no* until the component diagnosis is completed
6. or click in the wiring diagram to access the information for the selected component or fuse/ground point

3 (F30, F31, F80) 330e PHEV (B48 B20A) 2015 - ... Estimate **GBP 0.00**

Component diagnosis : E1 - Engine control unit

Print X

Wiring diagram ECU pin and connector Location Picture Component information Initialisation procedures

Diagnosis 1/17

1: Check the supply voltage
Turn the ignition on. Measure the voltage on pin D 10. Is it between 12 and 14.4 V?

2: Check the connection to ground

3: Check the connectivity of pin A 21.

4: Check the supply voltage

5: Check the connection to ground

6: Check the connectivity of pin A 26.

7: Check the supply voltage

8: Check the connection to ground

9: Check the connectivity of pin A 32.

10: Check the supply voltage

11: Check the connection to ground

12: Check the connectivity of pin A 47.

13: Check the supply voltage

14: Check the connectivity of pin A 47.

15: Check the supply voltage



YOUTUBE



For tips and guides to making the most of WorkshopData, visit our YouTube channel by scanning the QR code! There you'll find video instructions on how to use the various subjects and features.





Example C

DIAGNOSTICS BY FAULT CODE

[Overview page]

1. Add a fault code or multiple fault codes, separated by commas
2. Select a system

[Electronic systems page]

3. Select a fault code description or select *Combined diagnosis of the above*

AUDI A4 /A4 Allroad (8K) 2.0 TDi (CAHA) 2008 - 2012

Maintenance schedules
Select

Fault codes
p0100, p0101, p0108 Search 1

Most used
Repair Times

SmartPACK™
TSBs (Technical Service Bulletins) 56
Recalls 4
Cases 17

HaynesPro

AUDI A4 /A4 Allroad (8K) 2.0 TDi (CAHA) 2008 - 2012

Fault codes
p0100, p0101, p0108 Search Reset

Search results: p0100, p0101, p0108

Fault code description:
P0100 - Mass airflow meter 1 circuit/open
P0101 - Mass airflow meter 1 circuit range/performance
P0108 - MAP sensor/barometric pressure sensor circuit high
p0100, p0101, p0108 -

Electronic Systems
Engine management

BOSCH, EDC17, (- 04/2009) 2 Fault code: P0100 P0101 P0108

BOSCH, EDC17, (05/2009 -) Fault code: P0100 P0101 P0108

SmartCASE™
No results found

A4 /A4 Allroad (8K) 2.0 TDi (CAHA) 2008 - 2012

Electronic Systems

Components CAN-Bus Overview Fault Code Diagnosis Locations

Fault Code Diagnosis
p0100, p0101, p0108 Search

Fault code description:
P0100 - Mass airflow meter 1 circuit/open
P0101 - Mass airflow meter 1 circuit range/performance
P0108 - MAP sensor/barometric pressure sensor circuit high
p0100, p0101, p0108 -

P0100 Mass airflow meter 1 circuit/open

P0101 Mass airflow meter 1 circuit range/performance

P0108 MAP sensor/barometric pressure sensor circuit high

Combined diagnosis of the above 3

1 Mass airflow meter Show Diagnosis

2 Boost pressure sensor with air temperature sensor Show Diagnosis

Continued on next page

3 (F30, F31, F80) 330e PHEV (B48 B20A) 2015 - ... Estimate GBP 0.00

Fault Code Diagnosis : L1 - MAP sensor

Print X

Wiring diagram ECU pin and connector Location Picture Component information Initialisation procedures

Diagnosis 1/3

1: Check the supply voltage (pin 1).
Turn the ignition on. Measure the voltage on pin 1. Is it between 4.8 and 5.2 V?

Turn the ignition on. Measure the voltage on pin B 53 (E1 Engine control unit). Is it between 4.8 and 5.2 V?
 4

Measure the resistance between pins 1 and B 53 (E1 Engine control unit). The resistance should be less than 1 ohm. Check all wires and replace if necessary. See the diagram below for details on wire colours, connectors, welds and locations (if applicable).

2: Check the connection to ground (pin 2).
3: Check the connectivity of pin 3.

Pin number	Wire colour	Component	Pin number	Wire colour
1	Blue	E1 Engine control unit	B 53	Blue
2	Black/Yellow	E1 Engine control unit	B 48	Black/Yellow
3	Yellow	E1 Engine control unit	B 49	Yellow

1 2 **5**

[Diagnosis page]

- Answer the questions with *yes* or *no* until the component diagnosis is completed;
- and / or click here to go to the next fault code diagnosis

FEATURES	Car SET	Truck SET
Diagnostics wizard	✓	✓
Wiring diagrams for engine management, ABS and ESP	✓	✓
Wiring diagrams for EPS, air conditioning, climate control	✓	
Fault codes (manufacturer's and EOBD)	✓	
Fault code link to Smart module	✓	
Component and grounding point location	✓	✓
ECAS (Electronically controlled air-suspension)		✓

A4 /A4 Allroad (8K) 2.0 TDi (CAHA) 2008 - 2012 Estimate GBP 0.00

Fault Code Diagnosis : L18 - Boost pressure sensor with air temperature sensor

Print X

Wiring diagram ECU pin and connector Location Picture Component information Initialisation procedures

Diagnosis 1/4

1: Check the supply voltage (pin 3).
Turn the ignition on. Measure the voltage on pin 3. Is it between 4.8 and 5.2 V?

Turn the ignition on. Measure the voltage on pin A 17 (E1 Engine control unit). Is it between 4.8 and 5.2 V?

Measure the resistance between pins 3 and A 17 (E1 Engine control unit). The resistance should be less than 1 ohm. Check all wires and replace if necessary. See the diagram below for details on wire colours, connectors, welds and locations (if applicable).

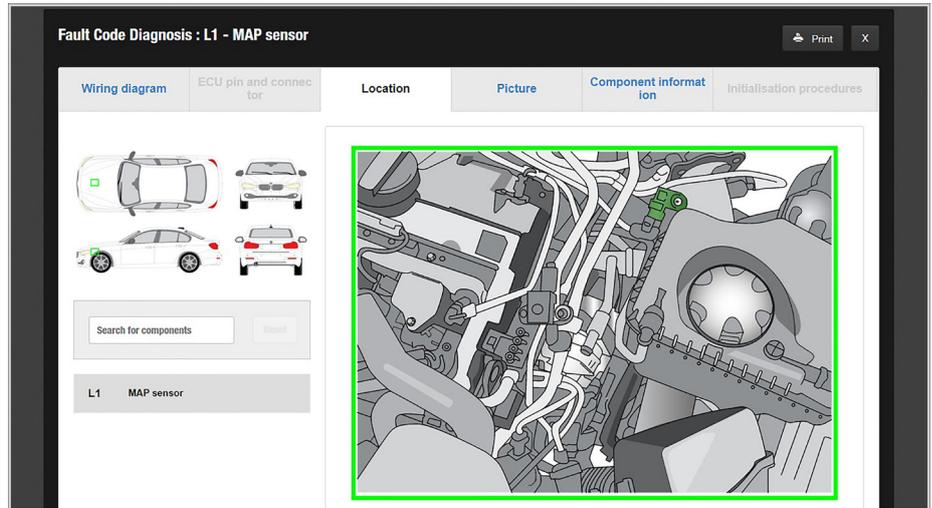
2: Check the connection to ground (pin 1).



VESA MK II Guided Diagnostics | general features

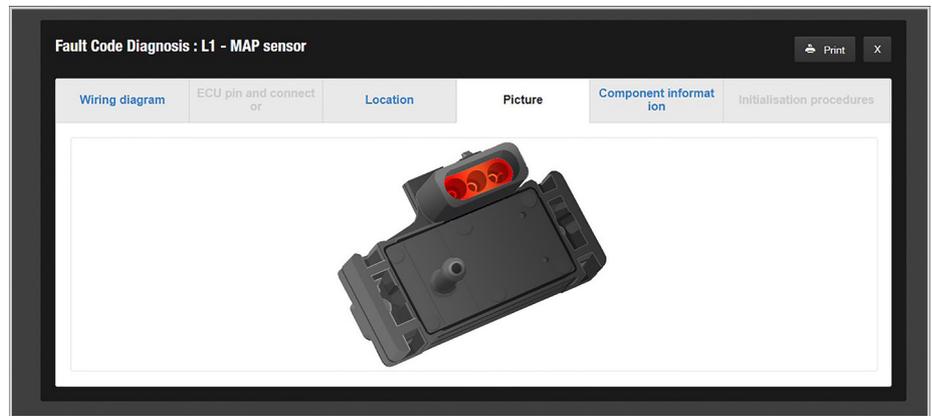
LOCATION

Component locations **directly accessible** from component diagnostics.



PICTURE

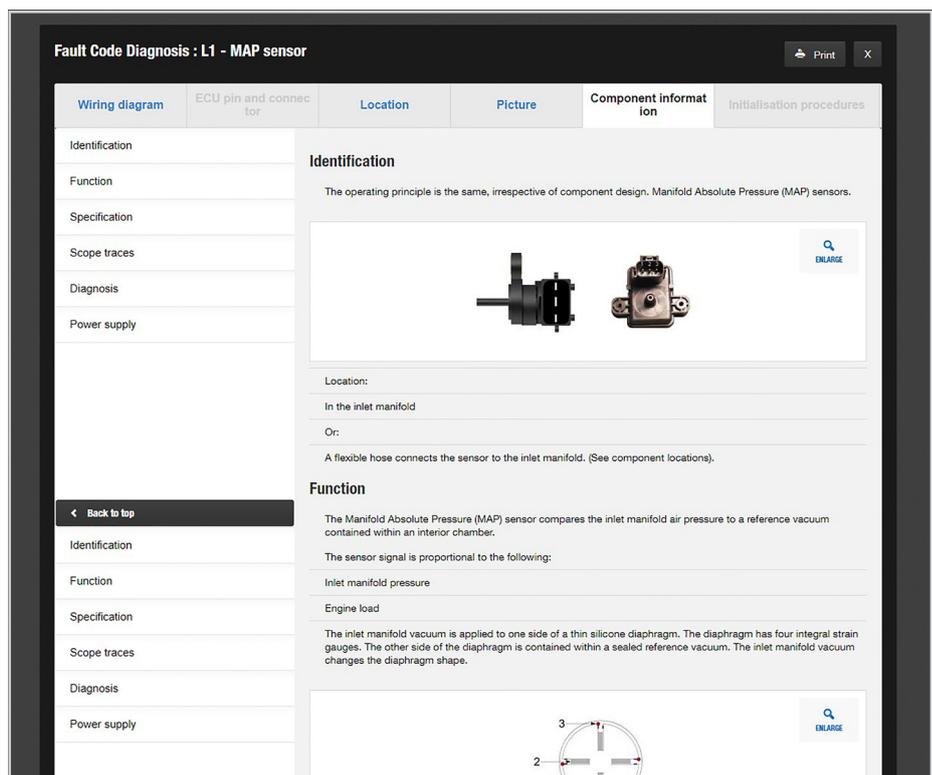
Generic picture of the **selected component**.



COMPONENT INFORMATION

Detailed technical information.

Component information covers technical details about the selected component. It covers a functional description and generic scope images (if relevant).



Wiring diagrams



COMFORT WIRING DIAGRAMS

Clear, 'localised' wiring schematics.

Clear, 'localised' wiring schematics for all key vehicle features, with wire and component trace functionality for fast, efficient, first-time fixes.

FEATURES	Car SET	Truck SET
Wiring diagrams covering electrical systems/ components, e.g. door locks, windows, windscreen/headlight wash/wipe, airbags, exterior lights, starting and charging	✓	✓
Pan and zoom functionality	✓	✓
Highlight functionality to trace corresponding wires and components)	✓	✓

3 (E36) 325i (M50 B25) 1990 - 1996 Estimate GBP 0.00

Security systems (Coupe), (1997 - 1999)

Reset the wiring diagram Colour codes

- D5 Front left door lock unit
- D6 Front right door lock unit
- D9 Boot lid lock unit
- E16 Central locking control unit
- E17 Airbag control unit
- E19 Immobiliser control unit
- E51 Antenna control unit
- M73 Fuel filler flap lock motor
- O6 Diagnostic connector
- S115 Front left door lock position switch
- S116 Front left door handle switch
- S128 Front right door lock position switch

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3 (E36) 325i (M50 B25) 1990 - 1996 Estimate GBP 0.00

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Reset the wiring diagram Colour codes

- D5 Front left door lock unit
- D6 Front right door lock unit
- D9 Boot lid lock unit
- E16 Central locking control unit
- E17 Airbag control unit
- E19 Immobiliser control unit
- E51 Antenna control unit
- M73 Fuel filler flap lock motor
- O6 Diagnostic connector
- S115 Front left door lock position switch
- S116 Front left door handle switch
- S128 Front right door lock position switch

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Fuses and relays



FUSES AND RELAYS

Clear fuse location and identification feature.

Ever helpful, HaynesPro has created an Electronics module packed with essential information, typified by this clear fuse location and identification feature. Fuse boxes may be installed in various locations on a vehicle, making them more difficult to find. Using the data in Fuses and Relays minimises the time spent on searching.

Fuse locations are also accessible directly from the wiring diagram.

FEATURES	Car SET	Truck SET
Fuse and relay box locations	✓	✓
Fuse and relay overview	✓	✓

Wiring diagram | ECU pin and connector | Location | Picture | Component information | Initialisation procedures

Diagnosis 0/1 | —

1: Check the supply voltage (pin 1).

View wiring and pins | Extended wiring diagram

Wiring diagram | ECU pin and connector | Location | Picture | Component information | Initialisation procedures

Search for components | Search

Left-hand drive is shown

1	ABS control unit (40A)	[SB1]
2	ABS control unit (40A)	[SB2]
3	Engine control unit (30A)	[SB3]
4	Oil level and temperature sensor	[SB4]
	Radiator fan control unit	

Warning lights and indicators

An extensive list of possible warning lights.

Specific to each manufacturer, with a short description and solution.

- Make-specific overview of available warning lights
- Covering both the European and the US car park

All electronic systems >

Engine >

Steering and Suspension >

Brakes >

Exterior/Interior >

Fuses and Relays >

Locations >

Electronic Procedures >

Warning lights and indicators >

Description

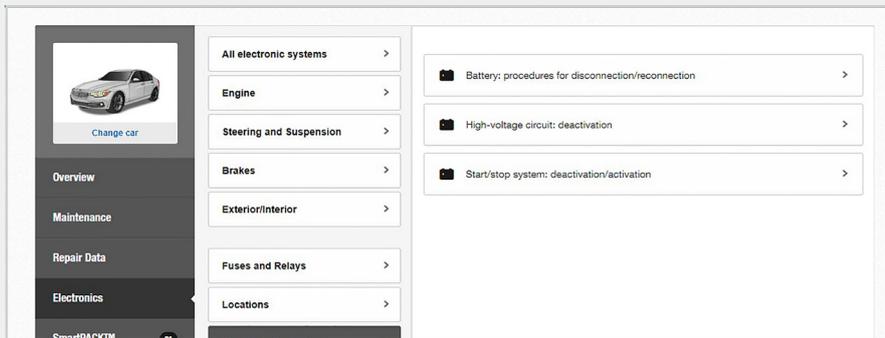
If the warning light remains illuminated

The coolant temperature is too high

If the warning light flashes:

High coolant temperature

Electronic Procedures



BATTERY: PROCEDURES FOR DISCONNECTION/ RECONNECTION

Disconnecting/
reconnecting a
battery **used to be** a
straightforward task.

In modern vehicles, the procedure is more complicated. The mechanic needs to know what procedures to follow after reconnecting a battery. This will prevent the customer having to return the vehicle to the workshop due to errors in systems such as parking assistance or power windows. Due to the growing number of hybrid vehicles on the market, mechanics also need specific instructions on how to work safely on these vehicles.

Other available procedures:



**HIGH-VOLTAGE CIRCUIT:
DEACTIVATION**



**START/STOP SYSTEM:
DEACTIVATION/ACTIVATION**

After disconnecting the battery

When working on pyrotechnic components (e.g. airbags, seat belt pretensioners):
Wait for 1 minute

After reconnecting the battery

After renewal, the new battery should be registered in the power management system

- Note: Reprogram the system whenever a battery with a different capacity is fitted

Reset volatile memories after reconnecting the battery cables

Until the window is fully closed

Repeat the procedure for the passenger's window

Initialising the electric sliding/tilting roof

Turn the ignition on

- Note: Do not start the engine

Ambient temperature: 18° - 28° C

Ensure the vehicle battery is fully charged

Turn the ignition on

- Note: Do not start the engine

Ensure the vehicle battery is fully charged

Terminal 15 voltage supply relay - ON

Press the switch to the maximum tilt position

Press and hold the switch

Wait for 30 seconds

Hold the switch until the sliding roof and the sunshade stop moving

Check for correct operation

Initialising the start/stop system

Vehicles with start/stop system:

Wait for 6 hours

The system must relearn the battery data



Locations

One of the clear goals of HaynesPro's data is to **reduce the number of unbillable hours.**

With our Locations feature, we ensure that the required component, control unit or ground point can be found immediately. All locations are accessible from the local wiring diagrams.

Available locations:

EOBD CONNECTOR

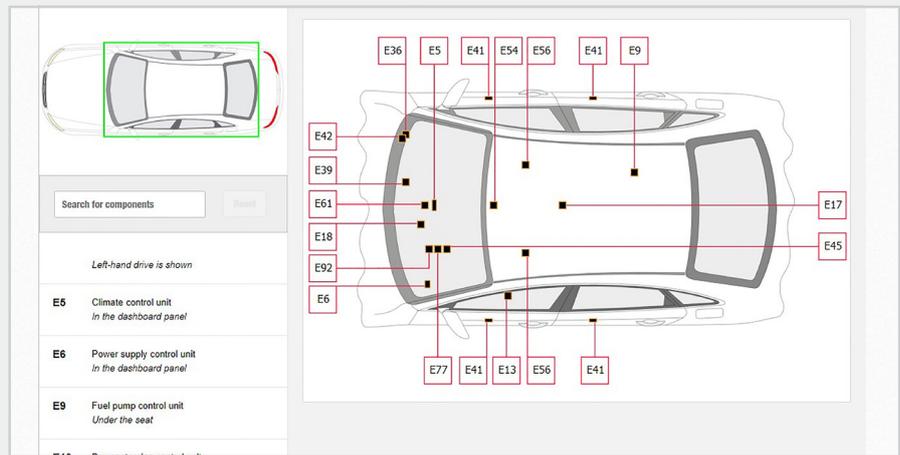
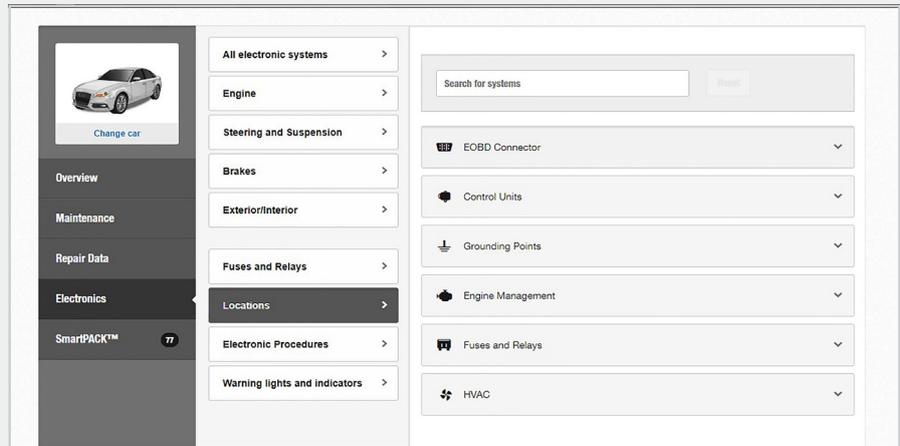
CONTROL UNITS

GROUNDING POINTS

ENGINE MANAGEMENT

FUSES AND RELAYS

HVAC



Clearly better data.

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