

MEGANE

3 Chassis

36B POWER ASSISTED STEERING

PAS

Vdiag No.: 04, 06, 08, 0C
and 12

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V2

Edition Anglaise

"The repair procedures given by the manufacturer in this document are based on the technical specifications current when it was prepared.

The procedures may be modified as a result of changes introduced by the manufacturer in the production of the various component units and accessories from which his vehicles are constructed."

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1. SCOPE OF THIS DOCUMENT

This document presents the fault finding procedure applicable to all computers with the following specifications:

Vehicle(s): **Mégane II, Scénic II**

Computer name: **PAS Computer**
Program No.: **from 8341**
Vdiag No.: **04, 06, 08, 0C and 12**

2. PREREQUISITES FOR FAULT FINDING

Documentation type:

Fault finding procedures (this manual):

- Assisted fault finding (integrated into the diagnostic tool), Dialogys.

Wiring Diagrams:

- Visu-Schéma (CD-ROM), paper.

Type of diagnostic tools:

- **CLIP + multiplex line sensor**

Special tooling required:

Special tooling required	
	Multimeter
Elé. 1681	Universal bornier

3. RECAP

Procedure

To run fault finding on the vehicle's computers, switch on the ignition in fault finding mode (forced + after ignition feed).

Proceed as follows:

- vehicle card in reader,
- press and hold the Start button (longer than 5 seconds) with the starting conditions not fulfilled,
- connect the diagnostic tool and perform the required operations.

Note (for Mégane II only):

The left-hand and right-hand xenon bulb computers are powered when the dipped headlights are lit. Fault finding can only be run on them after the ignition has been switched on in fault finding mode (forced + after ignition feed) and the dipped headlights are on.

To **cut off the + after ignition feed**, proceed as follows:

- disconnect the diagnostic tool,
- press the start button briefly 2 times (less than 3 seconds),
- confirm that the forced + after ignition feed has been cut off by checking that the computer indicator lights on the instrument panel have gone out.

Faults

Faults are declared as either present or stored (depending on whether they appeared in a certain context and have disappeared since, or whether they remain present but have not been diagnosed within the current context).

The **present** or **stored** status of faults should be taken into consideration when the diagnostic tool is used following the + after ignition supply being switched on (without acting on the system components).

For a **present fault**, apply the procedure described in the **Interpretation of faults** section.

For a **stored fault**, note the faults displayed and apply the **notes** section.

If the fault is **confirmed** when the instructions in the Notes section are applied, the fault is present. Deal with the fault
If the fault is **not confirmed**, check:

- the electrical lines which correspond to the fault,
- the connectors on these lines (corrosion, bent pins, etc.),
- the resistance of the component detected as faulty,
- the condition of the wires (melted or cut insulation, wear).

Conformity check

The aim of the conformity check is to check data that does not produce a fault on the diagnostic tool when inconsistent. Therefore, this stage is used to:

- carry out fault finding on faults that do not have a fault display, and which may correspond to a customer complaint.
- check that the system is operating correctly and that there is no risk of a fault recurring after repairs.

This section gives the fault finding procedures for statuses and parameters and the conditions for checking them.

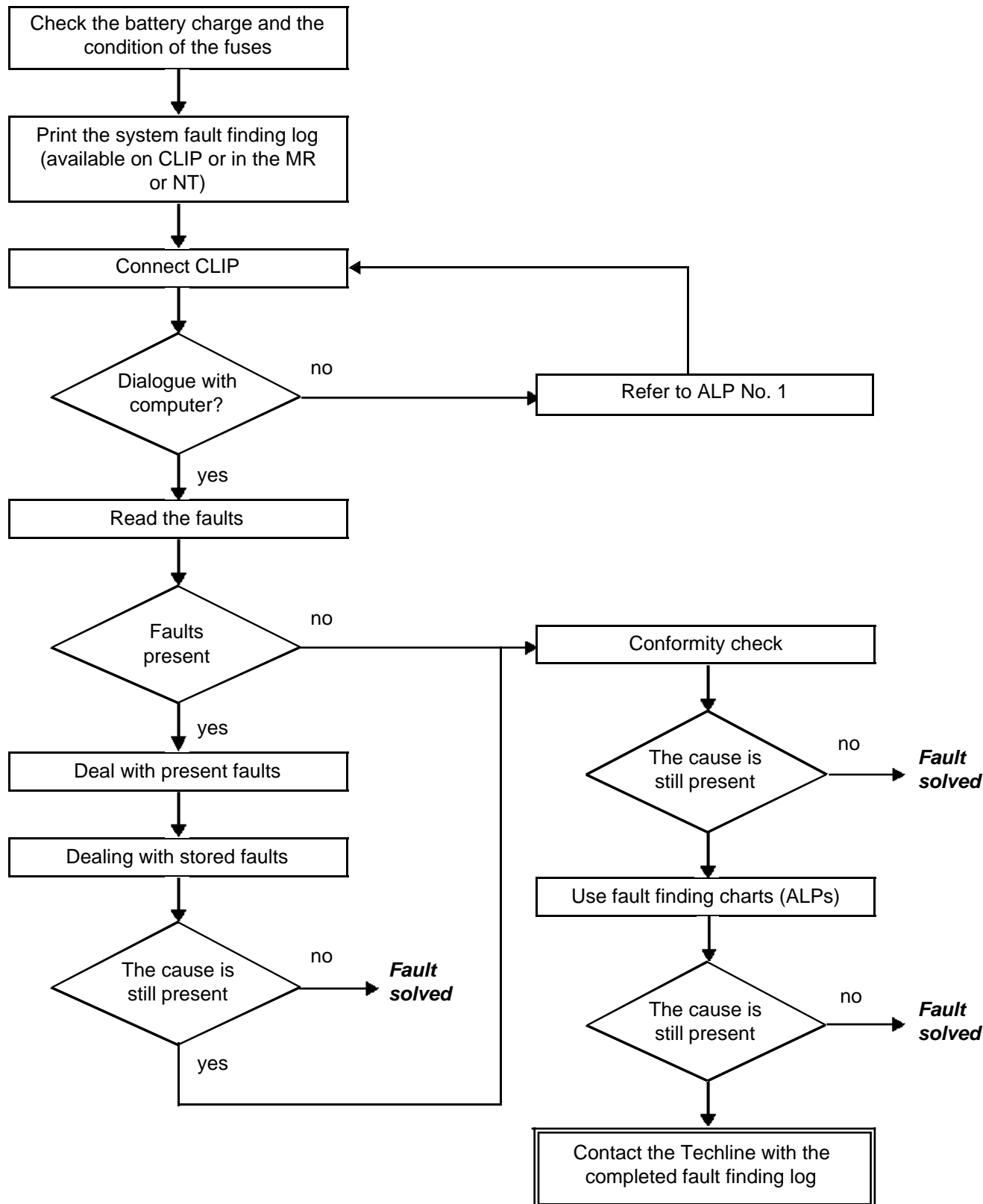
If a status is not behaving normally or a parameter is outside the permitted tolerance values, consult the corresponding fault finding page.

Customer complaints - Fault finding chart

If the test with the diagnostic tool is OK but the customer complaint is still present, the fault should be processed by **customer complaint**.

A summary of the overall procedure to follow is provided on the following page in the form of a flow chart.

4. FAULT FINDING PROCEDURE



4. FAULT FINDING PROCEDURE (continued)

Wiring check:

Fault finding problems:

Disconnecting the connectors and/or manipulating the wiring harness may temporarily remove the cause of a fault. Electrical measurements of voltage, resistance and insulation are generally correct, especially if the fault is not present when the analysis is made (stored fault).

Visual inspection:

Look for damage under the bonnet and in the passenger compartment.
Carefully check the fuses, insulation and wiring routing.
Look for signs of oxidation.

Tactile inspection:

While manipulating the wiring harness, use the diagnostic tool to note any change in fault status from stored to present.
Make sure that the connectors are properly locked.
Apply light pressure to the connectors.
Twist the wiring harness.
If there is a change in status, try to locate the source of the fault.

Inspection of each component:

Disconnect the connectors and check the appearance of the clips and tabs, as well as their crimping (no crimping on the insulating section).
Make sure that the clips and tabs are properly locked in the sockets.
Make sure no clips or tabs have been dislodged during connection.
Check the clip contact pressure using an appropriate model of tab.

Resistance check:

Check the continuity of entire lines, then section by section.
Look for a short circuit to earth, to + 12 V or to another wire.

If a fault is detected, repair or replace the wiring harness.

5. FAULT FINDING LOG



IMPORTANT

IMPORTANT

Any fault on a complex system requires thorough fault finding with the appropriate tools. The FAULT FINDING LOG, which should be completed during the procedure, enables you to keep track of the procedure which is carried out. It is an essential document when consulting the manufacturer.

IT IS THEREFORE MANDATORY TO FILL OUT A FAULT FINDING LOG FOR EACH FAULT FINDING PROCEDURE.

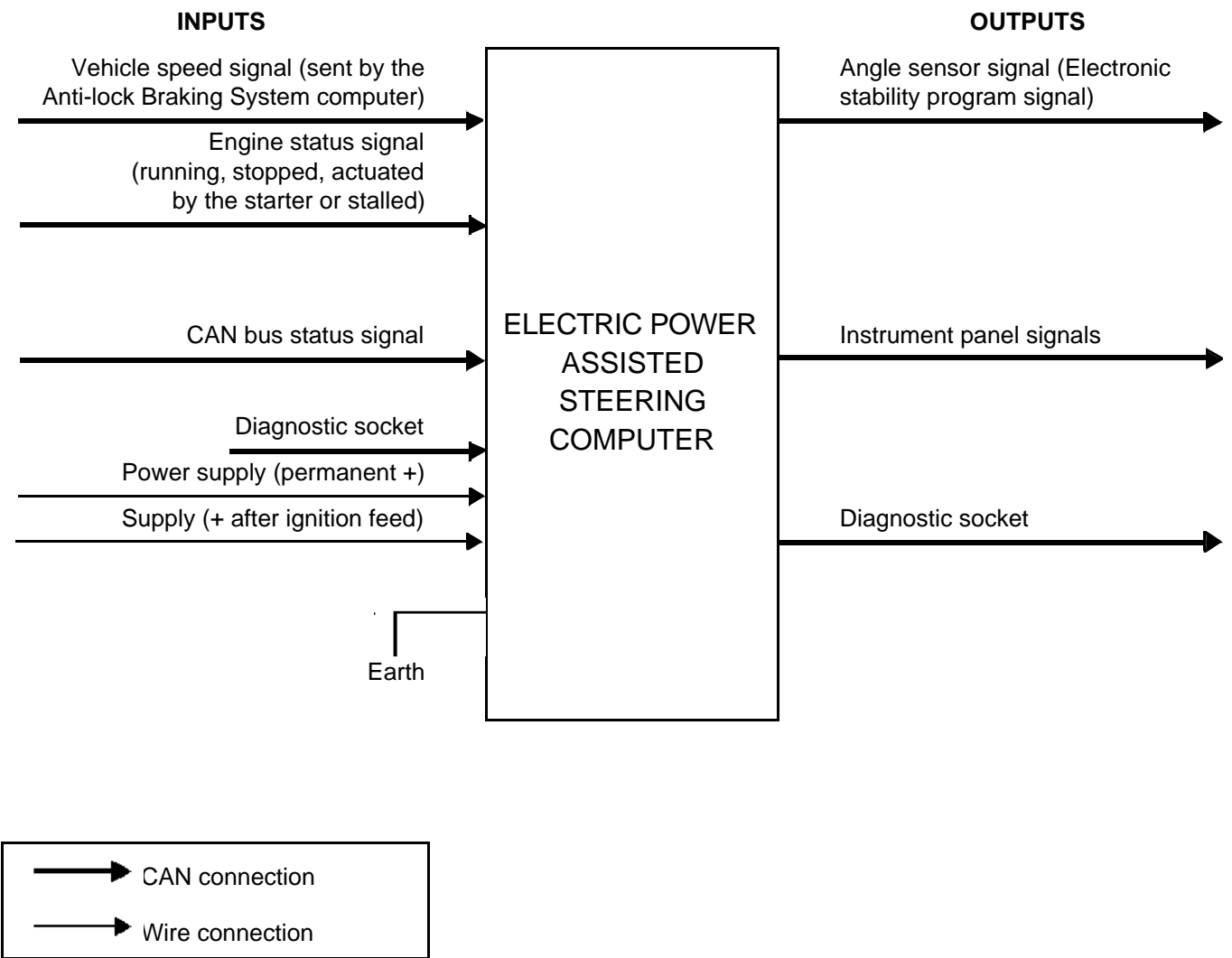
You will always be asked for this log:

- when requesting technical assistance from Techline,
- for approval requests when replacing parts for which approval is mandatory,
- to be attached to monitored parts for which reimbursement is requested. The log is needed for warranty reimbursement, and enables better analysis of the parts removed.

6. SAFETY ADVICE

Safety rules must be observed during any work on a component to prevent any damage or injury:

- check the battery voltage to avoid incorrect operation of computer functions,
- Use the proper tools.



SYSTEM OPERATION

On this vehicle, the steering system is power-assisted by an electric motor (mounted on the steering column). The driver's actions are translated by a torque sensor, which measures the force applied to the steering wheel by the driver, and by an angle measuring sensor. The steering wheel angle signal is used by the electronic stability program computer for the trajectory control programming.

Assistance is provided by means of an electric motor which applies an appropriate torque to the steering column, in one direction or the other.

A computer controls this assistance according to several vehicle environment parameters, including the vehicle speed.

Note:

If the computer detects a fault, the level of assistance can be modified depending on how serious the fault is. An incorrect or absent vehicle speed signal results in fixed, unsatisfactory assistance.

NOTE

Depending on the operating conditions and the operations performed on the vehicle before switching on the ignition, the assistance system may take a certain time to be activated after engine starting; this also applies after battery cut-off or switching off the ignition.

Fault finding warning lights illumination programming:

Slow flashing of the Service warning light at **2 Hz**: the electric power steering system is in fault finding mode.

Rapid flashing of the Service warning light at **8 Hz** accompanied by the **Check steering** message: the steering wheel angle sensor is not calibrated and not indexed.

Service warning light continuously lit with **Check steering** displayed on instrument panel: signal received by the EPAS computer.

- assistance equal to that provided at a speed of **24 mph (40 km/h)** if vehicle speed signal is absent or incorrect,
- angle sensor signal invalid: steering wheel angle sensor not calibrated (no active recall).

STOP warning light continuously lit with **steering defective** displayed on the instrument panel: fault in the EPAS system.

If the fault is still present after repair, contact the Techline.

Angle sensor programming (initialisation)

The steering wheel angle sensor is initialised after the ignition is switched on. The sensor is not initialised until the steering wheel has gone through a quarter turn left or right. If this turn is not carried out, the steering wheel angle value reading will be **1.2 degrees** higher or lower than the actual value.

Check consistency of **ET020 Steering wheel angle sensor programming**.

ALLOCATION OF TRACKS

EPAS computer (8-track black connector):

The computer is inseparable from the steering column assembly

track 1	Not used
track 2	Not used
track 3	Not used
track 4	Multiplex line L1 signal
track 5	Multiplex line L2 signal
track 6	Multiplex line H1 signal
track 7	Multiplex line H2 signal
track 8	+ after ignition feed

EPAS computer (2-track black connector):

track 1	permanent +
track 2	earth

The power-assisted steering computer cannot be separated from the steering column.
Before replacing the electric power assisted steering computer, the battery must be disconnected.

Procedure to follow after battery disconnection:

Every time the battery is disconnected, the steering wheel angle is invalid (remains at 0) and status **ET020** is at **Status 3**.

Following a road test, this will result in a fault in the Electronic Stability Program.

Therefore, every time the battery is disconnected, turn the steering wheel from lock to lock, then bring back the steering wheel to the centre point with the wheels set straight ahead and the engine running.

Check that **ET020 Steering wheel angle sensor programming** becomes **Status 4**.

If the fault is still present, stop and restart the engine **without pressing the ESP button** and repeat the procedure above.

Replacing the computer:

Each time the Electric Power Assisted Steering computer is replaced, configure the computer to the vehicle (see **SC001 Computer calibration**) and program the steering wheel angle sensor (**VP004 Steering wheel angle sensor programming**).

The computer must only be replaced with the battery disconnected.

VP004: STEERING WHEEL ANGLE SENSOR PROGRAMMING

NOTES

This programming procedure is performed after replacing the EPAS computer.

WARNING

Programming the steering wheel angle sensor means programming the 0 angle (wheels straight ahead position). It must be done for any blank computer, and every time it is requested in this note.

The absence of or incorrect programming of this sensor will illuminate the **Service** warning light and create an Electronic Stability Program fault.

OPERATIONS TO PERFORM BEFORE PROGRAMMING

- With the ignition on or engine running (to obtain maximum steering assistance), turn the steering wheel to full left lock and then to full right lock,
- position the vehicle with the wheels straight ahead and the steering at the centre point (driving in a straight line),
- run the command by pressing the **CONFIRM** button,
- while the **COMMAND IN PROGRESS** message is displayed, turn the steering wheel a quarter of a turn from left to right.
- Once the **COMMAND COMPLETE** message is displayed, exit fault finding mode (close dialogue with the computer without switching off the tool) and then switch off the vehicle's ignition for **15 seconds** minimum for the programming to be registered.

Note:

To obtain a precise position with the wheels set straight ahead (driving in a straight line), this operation must be performed on a front axle adjustment bench (especially for vehicles fitted with ESP).

OPERATIONS TO PERFORM AFTER PROGRAMMING

- Switch on the ignition and establish dialogue with the EPAS computer,
- turn the steering wheel to full left lock and then to full right lock,
- check that the programming has been properly registered: **ET020 Steering wheel angle sensor programming** should be **STATUS 4**,
- check the conformity of the angle value by consulting parameter **PR121 Steering wheel angle**,
- check that there are no faults,
- carry out the necessary repairs, consulting the fault finding manual.

IMPORTANT

If the vehicle is fitted with ESP, establish dialogue with the **ABS/ESP** computer after the operation; if the function is available (depending on computer version) clear the ESP sensor programming using command **RZ003**.

Make sure there are no ESP faults: make the necessary repairs, consulting the fault finding manual.

SC001: COMPUTER CALIBRATION

NOTES

This configuration is performed after replacing the EPAS computer.

WARNING

The computer is supplied with the default calibration 0.
An incorrect configuration may damage the function.

Command **SC001** is used to define the vehicle specifications.
The configuration is determined by the following specifications:

- **Vehicle type:**
- **The diameter of the vehicle wheel rims:**
- **The vehicle engine type and gearbox type:**

CALIBRATION PROCEDURE:

- Connect the diagnostic tool and select EPAS,
- select command **SC001 Computer calibration**,
- configure the computer in line with the vehicle definition,
- exit fault finding mode without switching off the tool (close the application only),
- switch off the ignition,
- **wait 15 seconds** for the end of power-latch then restart,
- make sure that the configuration reading corresponds to the desired calibration:
LC005 or **ET026 Computer calibration**.

LC005: COMPUTER CALIBRATION

Reading configuration **LC005** enables you to check that the computer calibration corresponds with the vehicle type undergoing fault finding.

The values of **LC005** are interpreted in **ET026** (see **Interpretation of statuses**).

If the calibration is not to your satisfaction, use command **SC001** to redefine the vehicle specifications.

POWER ASSISTED STEERING

Fault finding - Fault summary table

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Tool fault	ASSOCIATED FAULT FINDING CODE	Diagnostic tool title	STATUS
DF002	56 08	Computer	0D
DF020	56 01	Computer supply	12
DF033	D000	Multiplex network	0E
DF035	56 06	Variable power assisted steering motor	0D
DF038	56 05	Angle sensor	0D, 06
DF053	56 02	Computer configuration	0D, 16
DF054	56 04	Torque sensor	0D
DF055	56 07	Computer Memory	0D
DF057	56 09	Vehicle speed multiplex signal	0D, 0E
DF059	56 03	Angle sensor	0D, 06

**DF002
PRESENT
OR
STORED**

COMPUTER

DEF : Computer fault

WARNING

Consult the fault contexts.

If **PR143 Internal fault codes = 46** and the battery voltage when the fault occurs (**PR108**) is **above 9 V**, do not clear the fault; contact the Techline.

If **PR143 Internal fault code = 46** and the battery voltage when the fault occurs (**PR108**) is **less than or equal to 9 V**, run fault finding on the battery and charge circuit and clear the fault.

For other values of **PR143**, do not clear the fault, contact the Techline.

NOTES

Conditions for applying the fault finding procedure to stored faults:

The fault is declared present after starting or a steering wheel movement from full lock to full lock.

- Check the condition and connection of the battery terminals.
- Check that the EPAS black 2-track connector is correctly locked.
- Check that the EPAS black 8-track connector is correctly locked.
- Check the condition and conformity of the EPAS fuses: on the power fuse board (70A) and on the UPC (5A).
- Check the conformity of **PR108 Computer feed voltage**: $12\text{ V} < \text{PR108} < 16\text{ V}$.

Check that:

- there is a **+ 12 V before ignition** feed on **track 1** of the electric power steering **black 2-track** connector,
- there is an earth on **track 2** of the electric power steering **black 2-track** connector,
- there is a **+ 12 V after ignition** feed on **track 8** of the steering column assembly **black 8-track** connector.

If there is a repair procedure (see Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair), repair the wiring, otherwise change the wiring.

If the fault is still present, contact the Techline.

AFTER REPAIR

Carry out a road test followed by a complete test with the diagnostic tool.

DF020 PRESENT OR STORED	COMPUTER SUPPLY VOLTAGE DEF : Computer internal voltage
--	---

NOTES	Special notes: Although stored in the computer, this fault is not caused by an electric power-assisted steering failure, but by a poor electrical supply.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after the engine is started or a steering wheel movement from full lock to full lock.

- Check the condition and connection of the battery terminals.
- Check that the EPAS black 2-track connector is correctly locked.
- Check that the EPAS black 8-track connector is correctly locked.
- Check the condition and conformity of the EPAS fuses: on the power fuse board (70A) and on the UPC (5A).
- Check the conformity of **PR108 Computer feed voltage**: $12\text{ V} < \text{PR108} < 16\text{ V}$.

Check that:

- there is a **+ 12 V before ignition** feed on **track 1** of the electric power steering **black 2-track** connector,
 - there is an earth on **track 2** of the electric power steering **black 2-track** connector,
 - there is a **+ 12 V after ignition** feed on **track 8** of the steering column assembly **black 8-track** connector.
- If there is a repair procedure (see Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair), repair the wiring, otherwise change the wiring.

Check the voltage of the battery and the charge circuit.
Repair if necessary.

If the fault is still present, contact the Techline.

AFTER REPAIR	Carry out a road test followed by a complete test with the diagnostic tool.
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DF033 PRESENT OR STORED	MULTIPLEX NETWORK DEF : CAN connection fault
--	--

NOTES	Special notes: Although stored in the computer, this fault is not caused by an electric power-assisted steering failure, but by a multiplex network fault.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after the engine is started or a steering wheel movement from full lock to full lock.

Check that:

- there is a **+ 12 V before ignition** feed on **track 1** of the electric power steering **black 2-track** connector,
 - there is an earth on **track 2** of the electric power steering **black 2-track** connector,
 - there is a **+ 12 V after ignition** feed on **track 8** of the steering column assembly **black 8-track** connector.
- If there is a repair procedure (see Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair), repair the wiring, otherwise change the wiring.

Check **the continuity of the wiring harness** for the multiplex network (see **88B, Multiplexing**):

Black 8-track connector **track 5** —————> CAN_L

Black 8-track connector **track 7** —————> CAN_H

If there is a repair procedure (see Technical Note 6015A, Repairing electrical wiring, Multiplex network: repair), repair the multiplex connection, otherwise change the multiplex connection.

Check **the continuity of the wiring harness** for the multiplex network (see **88B, Multiplexing**)

Black 8-track connector **track 4** —————> CAN_L instrument panel

Black 8 track connector **track 6** —————> CAN_H instrument panel

If there is a repair procedure (see Technical Note 6015A, Repairing electrical wiring, Multiplex network: repair), repair the multiplex connection, otherwise change the multiplex connection.

Carry out a multiplex network test and deal with any faults.

If the fault is still present, contact the Techline.

AFTER REPAIR	Carry out a road test followed by a complete test with the diagnostic tool.
---------------------	---

**DF035
PRESENT
OR
STORED**

VARIABLE POWER ASSISTED STEERING MOTOR

DEF : Internal electronic fault

WARNING

For TRW EPAS **Vdiag 04 only**, consult the fault contexts.

- If **PR143 Internal fault code = 58** and if the battery voltage when the fault occurs (**PR108**) is **above 9 V**, do not clear the fault; contact the Techline.
- If **PR143 Internal fault code = 58** and if the battery voltage when the fault occurs (**PR108**) is **less than or equal to 9 V**, run fault finding on the battery and charge circuit.
- For other values of **PR143**, do not clear the fault, contact the Techline.

For the **other Vdiag** of TRW EPAS, do not clear the fault, contact the Techline.

NOTES

Conditions for applying the fault finding procedure to stored faults:

The fault is declared present after starting or a steering wheel movement from full lock to full lock.

Special notes:

Apply the fault finding procedure only on **Vdiag 04**.

For **Vdiag 06, 08, 0C and 12**, do not clear the fault and contact the Techline.

- Check the condition and connection of the battery terminals.
- Check that the EPAS black 2-track connector is correctly locked.
- Check that the EPAS black 8-track connector is correctly locked.
- Check the condition and conformity of the EPAS fuses: on the power fuse board (70A) and on the UPC (5A).
- Check the conformity of **PR108 Computer feed voltage**: $12\text{ V} < \text{PR108} < 16\text{ V}$.

Check that:

- there is a **+ 12 V before ignition** feed on **track 1** of the electric power steering **black 2-track** connector,
 - there is an earth on **track 2** of the electric power steering **black 2-track** connector,
 - there is a **+ 12 V after ignition** feed on **track 8** of the steering column assembly **black 8-track** connector.
- If there is a repair procedure (see Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair), repair the wiring, otherwise change the wiring.

If the fault is still present, contact the Techline.

AFTER REPAIR

Carry out a road test followed by a complete test with the diagnostic tool.

DF038 PRESENT OR STORED	ANGLE SENSOR DEF : Sensor internal electronic fault
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NOTES	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after a steering wheel movement from full lock to full lock or a road test.
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Check that:

- there is a **+ 12 V before ignition** feed on **track 1** of the electric power steering **black 2-track** connector,
 - there is an earth on **track 2** of the electric power steering **black 2-track** connector,
 - there is a **+ 12 V after ignition** feed on **track 8** of the steering column assembly **black 8-track** connector.
- If there is a repair procedure (see Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair), repair the wiring, otherwise change the wiring.

Program the steering wheel angle sensor using command **VP004 Steering wheel angle sensor programming**.

If the fault is still present, contact the Techline.

AFTER REPAIR	Carry out a road test followed by a complete test with the diagnostic tool.
---------------------	---

**DF053
PRESENT**

COMPUTER CONFIGURATION

DEF : Computer calibration not carried out

NOTES

Special notes:

This fault appears after the engine is started.

Configure the computer using command **SC001 Computer calibration**, in line with the equipment and vehicle type.

If the fault is still present, contact the Techline.

AFTER REPAIR

Carry out a road test followed by a complete test with the diagnostic tool.

DF054 PRESENT OR STORED	<u>TORQUE SENSOR</u> DEF : Sensor internal electronic fault
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NOTES	When the fault appears as present or stored, do not clear the fault.
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IMPORTANT This fault is a safety fault. It may occur intermittently.
Contact the Techline.

AFTER REPAIR	None
---------------------	------

DF055 PRESENT OR STORED	<u>COMPUTER MEMORY</u> DEF : EEPROM irregularity
--	---

NOTES	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after the battery is disconnected.
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Check that:

- there is a **+ 12 V before ignition** feed on **track 1** of the electric power steering **black 2-track** connector,
 - there is an earth on **track 2** of the electric power steering **black 2-track** connector,
 - there is a **+ 12 V after ignition** feed on **track 8** of the steering column assembly **black 8-track** connector.
- If there is a repair procedure (see Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair), repair the wiring, otherwise change the wiring.

Configure the computer using command **SC001 Computer calibration**, in line with the equipment and vehicle type.

If the fault is still present, without customer complaints, the EPAS is secure.

If the fault is still present and the assistance level is severely reduced, contact the Techline.

AFTER REPAIR	Carry out a road test followed by a complete test with the diagnostic tool.
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DF057 PRESENT OR STORED	<u>MULTIPLEX VEHICLE SPEED SIGNAL</u> DEF : CAN connection fault
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NOTES	Special notes: Although stored in the computer, this fault is not caused by an electric power-assisted steering failure, but by a multiplex network fault.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after a road test.

Check that:

- there is a **+ 12 V before ignition** feed on **track 1** of the electric power steering **black 2-track** connector,
 - there is an earth on **track 2** of the electric power steering **black 2-track** connector,
 - there is a **+ 12 V after ignition** feed on **track 8** of the steering column assembly **black 8-track** connector.
- If there is a repair procedure (see Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair), repair the wiring, otherwise change the wiring.

Check **the continuity of the wiring harness** for the multiplex network (see **88B, Multiplexing**):

Black 8-track connector **track 5** —————> CAN_L

Black 8-track connector **track 7** —————> CAN_H

If there is a repair procedure (see Technical Note 6015A, Repairing electrical wiring, Multiplex network: repair), repair the multiplex connection, otherwise change the multiplex connection.

Run a multiplex network test and make sure there are no faults.

If the fault is still present, contact the Techline.

AFTER REPAIR	Carry out a road test followed by a complete test with the diagnostic tool.
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**DF059
PRESENT
OR
STORED**

ANGLE SENSOR

DEF : Sensor internal electronic fault

NOTES

Conditions for applying the fault finding procedure to stored faults:

The fault is declared present after a steering wheel movement from full lock to full lock or a road test.

Check that:

- there is a **+ 12 V before ignition** feed on **track 1** of the electric power steering **black 2-track** connector,
 - there is an earth on **track 2** of the electric power steering **black 2-track** connector,
 - there is a **+ 12 V after ignition** feed on **track 8** of the steering column assembly **black 8-track** connector.
- If there is a repair procedure (see Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair), repair the wiring, otherwise change the wiring.

Program the steering wheel angle sensor using command **VP004 Steering wheel angle sensor programming**.

If the fault is still present, contact the Techline.

AFTER REPAIR

Carry out a road test followed by a complete test with the diagnostic tool.

POWER ASSISTED STEERING

Fault finding - Conformity check

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NOTES

Only carry out this conformity check after a complete check with the diagnostic tool.
The values shown in this conformity check are given as examples.
Execution conditions: **ENGINE STOPPED, IGNITION ON.**

MAIN SCREEN

Order	Function	Parameter or Status checked or Action		Display and Notes	Fault finding
1	Steering wheel angle	ET020:	Steering wheel angle sensor programming	Status 4: calibrated and initialised	In the event of a fault, consult the interpretation of status ET020 .
2	Engine	ET023:	Engine operation	STOPPED: engine stopped. STALLED: engine stopped without using the ignition key	In the event of a fault, test the multiplex network.
3	Computer supply	PR108:	Computer feed voltage	9 V < X < 16 V	If the computer supply voltage is not sufficient, dialogue cannot be established. If PR108 is not correct, run fault finding on the charge circuit.
4	Vehicle speed	PR003:	Vehicle speed	0 mph (0 km/h) when stationary	In the event of a fault, test the multiplex network.
5	Electric motor	PR012:	Current absorbed by the motor	0 A < X < 1 A	Without any action on the steering wheel.
6	Thermal protection	PR119:	Motor thermal protection indicator	Interior temperature ± 5 °C	If PR119 > 60°C , thermal protection is activated. The assistance level PR140 = 15 % . To deactivate thermal protection, do not operate the EPAS for 15 minutes.
		PR014:	Level of assistance available	99 % or 0 % depending on Vdiag 15 % if thermal protection activated.	

POWER ASSISTED STEERING

Fault finding - Conformity check

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NOTES

Only carry out this conformity check after a complete check with the diagnostic tool.
The values shown in this conformity check are given as examples.
Execution conditions: **ENGINE STOPPED, IGNITION ON.**

SUB-FUNCTION: POWER

Order	Function	Parameter or Status checked or Action		Display and Notes	Fault finding
1	Engine	ET023:	Engine operation	STOPPED or STALLED	In the event of a fault, test the multiplex network.
2	Computer supply	PR108:	Computer feed voltage	9 V < X < 16 V	If the computer supply voltage is not sufficient, dialogue cannot be established. If PR108 is not correct, run fault finding on the charge circuit.

POWER ASSISTED STEERING

Fault finding - Conformity check

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NOTES

Only check conformity after a complete check using the diagnostic tool. The values shown in this conformity check are given as examples.
Execution conditions: **ENGINE STOPPED, IGNITION ON.**

SUB-FUNCTION: ASSISTANCE

Order	Function	Parameter or Status checked or Action		Display and Notes	Fault finding
1	Steering wheel angle	ET020:	Steering wheel angle sensor programming	Status 4: calibrated and initialised	In the event of a fault, refer to the interpretation of status ET020 .
		PR121:	Steering wheel angle	0° with the wheels set straight ahead + or - 580° at full lock	In the event of a fault, consult the interpretation of PR121 .
2	Vehicle speed	PR003:	Vehicle speed	0 mph (km/h) when stationary	In the event of a fault, test the multiplex network.
3	Torque	PR001:	Torque applied to the steering wheel	0 Nm ± 0.2 Nm with no action on the steering wheel	In the event of a fault, consult the interpretation of PR001 .
		PR006:	Steering motor torque setpoint	0 Nm ± 0.2 Nm	In the event of a fault, consult the interpretation of PR006 .
4	Motor power	PR012:	Current absorbed by the motor	0 A < X < 1 A	In the event of a fault, consult the interpretation of PR012 .
		PR013:	Setpoint for current absorbed by the motor	0 A < X < 1 A	In the event of a fault, consult the interpretation of PR013 .
5	Thermal protection	PR119:	Motor thermal protection indicator	Interior temperature ± 5°C	If PR119 > 60 °C, thermal protection is activated. The level of assistance PR014 = 15 %.
		PR014:	Level of assistance available	0 % or 99 % depending on Vdiag 15 % if thermal protection activated.	To deactivate the thermal protection, do not operate the EPAS for 15 minutes.

<div>NOTES</div>	<div>Only carry out this conformity check after a complete check with the diagnostic tool.</div> <div>The values shown in this conformity check are given as examples.</div> <div>Execution conditions: ENGINE STOPPED, IGNITION ON.</div>
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SUB-FUNCTION: ASSISTANCE (CONTINUED)

Order	Function	Parameter or Status checked or Action		Display and Notes	Fault finding
6	Computer calibration	ET026:	Computer calibration	Configuration 1 to 5 according to equipment and vehicle type.	Redefine the vehicle specifications using command SC001 Computer calibration.

POWER ASSISTED STEERING

Fault finding - Conformity check

36B

NOTES

Only carry out this conformity check after a complete check with the diagnostic tool.
The values shown in this conformity check are given as examples.
Test condition: **ENGINE AT IDLE SPEED**.

MAIN SCREEN

Order	Function	Parameter or Status checked or Action		Display and Notes	Fault finding
1	Steering wheel angle	ET020:	Steering wheel angle sensor programming	Status 4: calibrated and initialised	In the event of a fault, consult the interpretation of status ET020 .
2	Engine	ET023:	Engine operation	RUNNING	In the event of a fault, test the multiplex network.
3	Computer supply	PR108:	Computer feed voltage	12 V < X < 16 V	If the computer supply voltage is not sufficient, dialogue cannot be established. If PR108 is not correct, run fault finding on the charge circuit.
4	Vehicle speed	PR003:	Vehicle speed	0 mph (0 km/h) when stationary	In the event of a fault, test the multiplex network.
5	Electric motor	PR012:	Current absorbed by the motor	- 90 < X < 90A ± 5A	None
6	Thermal protection	PR119:	Motor thermal protection indicator	Interior temperature ± 5 °C	If PR119 > 60 °C , thermal protection is activated. The assistance level PR140 = 15 % . To deactivate thermal protection, switch off the engine and do not operate the EPAS for 15 minutes.
		PR014:	Level of assistance available	100 % idling 15 % if thermal protection activated.	

POWER ASSISTED STEERING

Fault finding - Conformity check

36B

NOTES

Only check conformity after a complete check using the diagnostic tool. The values shown in this conformity check are given as examples.
Test condition: **ENGINE AT IDLE SPEED.**

SUB-FUNCTION: POWER

Order	Function	Parameter or Status checked or Action		Display and Notes	Fault finding
1	Engine	ET023:	Engine operation	RUNNING	In the event of a fault, test the multiplex network.
2	Computer supply	PR108:	Computer feed voltage	12 V < X < 16 V	If the computer supply voltage is not sufficient, dialogue cannot be established. If PR108 is not correct, run fault finding on the charge circuit.

POWER ASSISTED STEERING

Fault finding - Conformity check

36B

NOTES

Only check conformity after a complete check using the diagnostic tool. The values shown in this conformity check are given as examples.
Test condition: **ENGINE AT IDLE SPEED.**

SUB-FUNCTION: ASSISTANCE

Order	Function	Parameter or Status checked or Action		Display and Notes	Fault finding
1	Steering wheel angle	ET020:	Steering wheel angle sensor programming	Status 4: calibrated and initialised	In the event of a fault, refer to the interpretation of status ET020 .
		PR121:	Steering wheel angle	0° with the wheels set straight ahead + or - 570° ± 20° at full lock	In the event of a fault, consult the interpretation of PR121 .
2	Vehicle speed	PR003:	Vehicle speed	0 mph (km/h) when stationary	In the event of a fault, test the multiplex network.
3	Torque	PR001:	Torque applied to the steering wheel	- 11 Nm < X < + 11 Nm with action on the steering wheel	In the event of a fault, consult the interpretation of PR001 .
		PR006:	Steering motor torque setpoint	0 Nm ± 0.2 Nm	In the event of a fault, consult the interpretation of PR006 .
4	Motor power	PR012:	Current absorbed by the motor	- 90 < X < 90A ± 5A	In the event of a fault, consult the interpretation of PR012 .
		PR013:	Setpoint for current absorbed by the motor	- 90 < X < 90A ± 5A	None
5	Thermal protection	PR119:	Motor thermal protection indicator	Interior temperature ± 5 °C	If PR119 > 60 °C, thermal protection is activated. The assistance level PR140 = 15 %.
		PR014:	Level of assistance available	100 % idle speed 15 % if thermal protection activated.	To deactivate thermal protection, switch off the engine and do not operate the EPAS for 15 minutes.

<div>NOTES</div>	<div>Only check conformity after a complete check using the diagnostic tool. The values shown in this conformity check are given as examples.</div> <div>Test condition: ENGINE AT IDLE SPEED.</div>
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SUB-FUNCTION: ASSISTANCE (CONTINUED)

Order	Function	Parameter or Status checked or Action		Display and Notes	Fault finding
6	Computer calibration	ET026:	Computer calibration	Configuration 1 to 5 according to equipment and vehicle type.	Redefine the vehicle specifications using command SC001 Computer calibration .

POWER ASSISTED STEERING

Fault finding - Status summary table

36B

Tool status	Diagnostic tool title
ET020	Steering wheel angle sensor programming
ET023	Engine operation
ET026	Computer calibration

ET020	<u>PROGRAMMING THE STEERING WHEEL ANGLE SENSOR</u>
-------	--

NOTES	<p>Special notes:</p> <ul style="list-style-type: none"> – The status is declared as correct when it is STATUS 4 (nominal mode). Otherwise, apply this fault finding procedure. – An unprogrammed steering wheel angle sensor will cause the Service warning light to come on. – If the steering wheel angle sensor has never been programmed, the Service warning light will flash rapidly until the index position is detected.
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VARIOUS POSSIBLE STATUS VALUES (with the meaning):	
STATUS 1	<ul style="list-style-type: none"> – Steering wheel index not detected. – Straight ahead wheel position not programmed. – Invalid angle value. – NOT PROGRAMMED: Program the steering wheel angle sensor.
STATUS 2	<ul style="list-style-type: none"> – Steering wheel index detected. – Straight ahead wheel position not programmed. – Invalid angle value. – NOT PROGRAMMED: Program the steering wheel angle sensor.
STATUS 3	<ul style="list-style-type: none"> – Steering wheel index not detected. – Straight ahead wheel position not programmed. – Invalid angle value. – PROGRAMMING DONE, CONFIRM ANGLE: Turn the steering wheel to right full lock, and then left full lock; then slowly return to the centre point and go slightly beyond.
STATUS 4	<ul style="list-style-type: none"> – Straight ahead wheel position not programmed. – Valid angle value. – PROGRAMMING COMPLETE

Note:

A present or stored fault may prevent the change to **STATUS 4**.

AFTER REPAIR	<p>Run a system fault check. Repeat the conformity check.</p>
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DAETRW_V04_ET020/DAETRW_V08_ET020/DAETRW_V06_ET020/DAETRW_V0C_ET020/
DAETRW_V12_ET020

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ET020
CONTINUED

STATUS 1 OR STATUS 2

If the status is **STATUS 1** or **STATUS 2**, program the steering wheel angle sensor (see **Configurations and programming**).

STATUS 3

If the status is **STATUS 3**, turn the steering wheel to right full lock, and then left full lock; then slowly return to the centre point and go slightly beyond.
Status **ET020** should become **STATUS 4**.

Note:

A present or stored fault can impede **STATUS 4** (make the necessary repairs, consulting the fault finding manual).
After the battery is disconnected, status **ET020** is **STATUS 3** and **PR121** Steering wheel angle remains 0.
Consult the **Replacement of components** section for the procedure to follow after disconnecting the battery.

AFTER REPAIR

Run a system fault check.
Repeat the conformity check.

ET023	<u>ENGINE OPERATION</u> STOPPED STALLED RUNNING STARTING
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NOTES	This signal is sent by the injection computer and is then transmitted to the electric power-assisted steering computer via the multiplex network.
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STOPPED: the engine has not yet been started or has been stopped normally, using the Start button.

STALLED: the engine is stopped, but it has been stopped abnormally, without using the Start button.

RUNNING: the engine is presently running.

STARTING: the engine is being actuated by the starter.

If the signal does not match the actual status of the engine, run a multiplex network test.
Refer to the interpretation of fault **DF033 Multiplex network** if necessary.

AFTER REPAIR	Run a system fault check. Repeat the conformity check.
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ET026	<u>COMPUTER CALIBRATION</u> Configuration 0 Configuration 1 Configuration 2 Configuration 3 Configuration 4 Configuration 5
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NOTES	None
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WARNING

Use the information from the diagnostic tool.
Incorrect calibration can damage the function.

If the computer calibration is not as you want it (consult the help for **ET026** on the Clip tool, redefine the vehicle specifications using command **SC001 Computer calibration**.

AFTER REPAIR	Run a system fault check. Repeat the conformity check.
---------------------	---

Tool parameter	Diagnostic tool title
PR001	Torque applied to the steering wheel
PR003	Vehicle speed
PR006	Steering motor torque setpoint
PR012	Current absorbed by the motor
PR013	Setpoint for current absorbed by the motor
PR014	Level of assistance available
PR108	Computer feed voltage
PR119	Motor thermal protection indicator
PR121	Steering wheel angle

PR003	<u>VEHICLE SPEED</u>
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NOTES	This signal is sent by the ABS computer to the multiplex network.
--------------	---

The vehicle speed signal can adapt the steering assistance to the vehicle speed.

PR003 must be equal to the actual vehicle speed, **within 6 mph (10 km/h)**.

If the parameter does not match the actual vehicle speed:

- run fault finding on the multiplex network using the diagnostic tool,
- consult the interpretation of faults **DF033 Multiplex network** and **DF057 Vehicle speed multiplex signal**.

If the fault is still present, contact the **Techline**.

Note:

If the vehicle speed multiplex signal is absent or invalid, the value displayed on the tool is 0 or a fixed value (depending on the configuration).

AFTER REPAIR	Carry out a road test, followed by a check with the diagnostic tool.
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PR012	<u>CURRENT ABSORBED BY THE MOTOR</u>
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NOTES	None
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Parameter **PR013** indicates the stipulated current setpoint for the steering motor.

This current depends:

- on the vehicle speed,
- on the torque applied to the steering wheel.

Parameter **PR012** indicates the current actually consumed by the steering motor.

The value of parameter **PR013 Setpoint for current absorbed by motor** should be almost equal to the value of parameter **PR012 Current absorbed by motor**.

If the parameters do not match the values indicated in the **Conformity check**, consult the interpretation of fault **DF035 Variable power assisted steering motor**.

AFTER REPAIR	Carry out a road test, followed by a check with the diagnostic tool.
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PR013	<u>SETPOINT FOR CURRENT ABSORBED BY THE MOTOR</u>
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NOTES	None
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Parameter **PR013** indicates the stipulated current setpoint for the steering motor.

This current depends:

- on the vehicle speed,
- on the torque applied to the steering wheel.

Parameter **PR012** indicates the current actually consumed by the steering motor.

The value of parameter **PR013 Setpoint for current absorbed by motor** should be almost equal to the value of parameter **PR012 Current absorbed by motor**.

If the parameters do not match the values indicated in the **Conformity check**, consult the interpretation of fault **DF035 Variable power assisted steering motor**.

AFTER REPAIR	Carry out a road test, followed by a check with the diagnostic tool.
---------------------	--

PR014	<u>LEVEL OF ASSISTANCE AVAILABLE</u>
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The assistance level is the percentage of assistance authorised by the power-assisted steering computer.

This assistance level depends:

- on the status of the vehicle engine (started or stopped),
- on any system faults,
- on the system temperature,
- battery voltage.

Parameter **PR014** relates to EPAS motor thermal protection.

Assistance limitation due to an excessively high temperature, can be deactivated by not actuating the steering system for **at least 15 minutes**.

Note:

In normal operation, with the engine running and a battery voltage greater than or equal to 10 V, the displayed value of **PR014** should be 100 % and may fall to approximately 15 % if thermal protection is active. It is at 0 % if the battery voltage is less than or equal to 9 V or 99 % with the engine stopped or stalled.

AFTER REPAIR	Carry out a road test, followed by a check with the diagnostic tool.
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DAETRW_V04_PR014/DAETRW_V08_PR014/DAETRW_V06_PR014/DAETRW_V0C_PR014/
DAETRW_V12_PR014

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PR119	<u>MOTOR THERMAL PROTECTION INDICATOR</u>
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NOTES	None
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The computer and assistance motor are both thermally protected. When the critical temperature is reached, the power-assisted steering computer limits the assistance to **15 %**.
This critical temperature may vary with the operation and forces applied to the steering column.

If the temperature exceeds **60 °C**, do not operate the steering for 15 minutes, to allow the temperature to drop. A search must be made to identify the cause of the temperature rise. It may arise from:

- an environment causing a temperature rise,
- abnormal use by the driver.

Note:

If the steering wheel is kept at full lock for over 5 seconds, the assistance will drop to 15 %, although the temperature does not exceed 60°.

AFTER REPAIR	Carry out a road test, followed by a check with the diagnostic tool.
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PR121	<u>STEERING WHEEL ANGLE</u>
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NOTES	None
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The steering wheel angle, positive to the right or negative to the left, is the position of the steering wheel relative to the zero value set when the steering wheel angle sensor is programmed.

If the parameter is not in line with the conformity check values ($- 580^{\circ} < X < 580^{\circ}$), consult interpretation of faults **DF038 or DF059 Angle sensor**.

Note:

If the angle remains 0° :

- The steering wheel angle sensor has not been calibrated (status **ET020 at status 1 or 2**),
- the procedure to apply after disconnecting the battery was not observed,
- a fault is present. Deal with this fault.

AFTER REPAIR	Carry out a road test, followed by a check with the diagnostic tool.
---------------------	--

NO DIALOGUE WITH THE COMPUTER

ALP1

LOSS OF VEHICLE ASSISTANCE WITHOUT WARNING

ALP2

POOR VEHICLE HANDLING

ALP3

**THE STEERING WHEEL DOES NOT RETURN BY ITSELF TO THE
CENTRE AT LOW VEHICLE SPEED: STEERING WHEEL SELF-
CENTRING INACTIVE**

ALP4

**UNDER-ASSISTANCE AT LOW SPEED AND OVER-ASSISTANCE AT
HIGH SPEED**

ALP5

TOO LITTLE ASSISTANCE

ALP6

**ASSISTANCE AVAILABLE FOR 5 MIN. AFTER SWITCHING OFF THE
IGNITION**

ALP7

**ASSISTANCE AVAILABLE BUT CHECK STEERING WARNING
MESSAGE DISPLAYED AND SERVICE WARNING LIGHT LIT
CONSTANTLY OR FLASHING AT 8 Hz**

ALP8

Vdiag 06 and 12 only

**SERVICE INDICATOR LIGHT AND CHECK STEERING MESSAGE
COME ON STRAIGHT AWAY**

ALP9

THE VEHICLE PULLS TO THE RIGHT OR TO THE LEFT

ALP10

**THE ENGINE DOES NOT START AND THE "STEERING NOT
UNLOCKED" IS DISPLAYED
OR
"STEERING NOT LOCKED" AFTER THE IGNITION IS SWITCHED
OFF**

ALP11

ALP1	No dialogue with the computer
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NOTES	None
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Check the vehicle's battery voltage.
Repair if necessary.

Try the diagnostic tool on another computer on the same vehicle, or on a different vehicle.

Check the condition of the **5A** fuse on the UPC (shared between Electric power-assisted steering and Airbag) and attempt to run fault finding on the system.

If the condition of the fuse is not the cause, carry out the following operations:

- activate forced + after ignition feed or have the engine running,
- disconnect the Electric Power Assisted Steering power connector,
- check the connection by pushing and pulling the connector,
- try running fault finding again using the tool,
- if dialogue can be established the fault is repaired,
- if the fault is still present, apply the following procedure.

Check the electric power-assisted steering and engine compartment fuses (**70A**) and the passenger compartment fuse (**5A**).

Check the **continuity and absence of interference resistance** on the wiring harness between the battery and the variable power assisted steering computer:

- Black 2-track connector track 1 —————> + Battery
- Black 2-track connector track 2 —————> Battery 0 V
- Black 8-track connector track 8 —————> + After ignition

If there is a repair procedure (see Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair), repair the wiring, otherwise change the wiring.

Run fault finding on the multiplex network.

If the fault is still present, contact the Techline.

AFTER REPAIR	Carry out a road test followed by a check with the diagnostic tool.
---------------------	---

POWER ASSISTED STEERING

Fault finding - Fault Finding Chart

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ALP2

Loss of vehicle assistance without warning

NOTES

- apply the ALP after a complete check with the diagnostic tool,
- check the conformity of **ET026 Computer calibration**.

The vehicle loses the assistance function if the electric power assisted steering fuse is broken or the power supply is lost.

The driver will feel the loss of the assistance on the steering wheel. Steering will then be the same as for unassisted steering, manoeuvrable when driving even at low speed, but very difficult to manoeuvre when stationary.

Without its power supply, the power-assisted steering computer can no longer illuminate the warning light, and so the driver is not made aware of the fault.

Check the electric power-assisted steering and engine compartment fuses (**70A**) and the passenger compartment fuse (**5A**).

Change the fuses if necessary.

Check the computer supply voltage:

Black 2-track connector track 1 —————> **Vehicle earth**

Black 8-track connector track 8 —————> **Vehicle earth**

If there is a repair procedure (see Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair), repair the wiring, otherwise change the wiring.

Run a multiplex network test, and interpret any faults.

Check that the steering column and steering rack are in sound mechanical condition.

Repair if necessary.

Check that the front axle components, such as the track rod ends and shock absorber base plates, are in sound mechanical condition.

Repair if necessary.

If the fault is still present, contact the Techline.

AFTER REPAIR

Carry out a road test followed by a check with the diagnostic tool.

POWER ASSISTED STEERING

Fault finding - Fault Finding Chart

36B

ALP3	Poor vehicle handling
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NOTES	None
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Check using status ET026 **Computer calibration** that the computer configuration corresponds to the vehicle equipment, wheel size, vehicle type and engine:
Configure the computer correctly using the diagnostic tool, if necessary (see **SC001 Computer calibration**).

Check the conformity of **PR014 Assistance level available**.

Check the condition and pressure of the tyres, the condition of the joints and the front axle geometry.

Check the vehicle battery voltage and the condition of the battery terminals.
Repair if necessary.

Check the condition and presence of the electric power steering supply fuse.
Repair if necessary.

Check the condition of the electric power steering black 2-track power connector.
If there is a repair procedure (see Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair), repair the connector, otherwise change the wiring.

If the fault is still present, contact the Techline.

AFTER REPAIR	Carry out a road test followed by a check with the diagnostic tool.
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ALP4

The steering wheel does not return by itself to the centre at low vehicle speed: steering wheel self-centring inactive

NOTES

Check the condition and pressure of the tyres, the condition of the joints and the axle geometries.

Check the vehicle's battery voltage.
Repair if necessary.

Check that the steering wheel angle sensor is correctly calibrated and consistent with the position of the steering wheel (status **ET020** at status **3** or **4** and **PR121** at $0^\circ \pm 5^\circ$ with wheels set straight ahead).
Program the steering wheel angle again if necessary (see **VP004 Steering wheel angle sensor programming**).

If the fault is still present, contact the Techline.

AFTER REPAIR

Carry out a road test followed by a check with the diagnostic tool.

POWER ASSISTED STEERING

Fault finding - Fault Finding Chart

36B

ALP5	Under-assistance at low speed and over-assistance at high speed
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NOTES	None
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Check the vehicle's battery voltage.
Repair if necessary.
Make sure that the computer calibration **ET026** is in order (consult the help for ET026 on the Clip tool). Calibrate the computer using command **SC001** if necessary.
Check the conformity of **PR003 Vehicle speed**.
Carry out a multiplex network test.
Check the integrity of the multiplex network (see 88B, Multiplex).
Deal with any faults.
If the fault is still present, contact the Techline.

AFTER REPAIR	Carry out a road test followed by a check with the diagnostic tool.
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DAETRW_V04_ALP05/DAETRW_V08_ALP05/DAETRW_V06_ALP05/DAETRW_V0C_ALP05/
DAETRW_V12_ALP05

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V2

POWER ASSISTED STEERING

Fault finding - Fault Finding Chart

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ALP6

Too little assistance

NOTES

At full lock, steering assistance is reduced after 5 seconds.

Check the pressures and condition of the tyres, the condition of the joints and the front axle geometry.

Check the vehicle's battery voltage.

Repair if necessary.

Make sure that computer calibration **ET026** is in order (consult the help for ET026 on the Clip tool). Calibrate the computer using command **SC001** if necessary.

Check the conformity of **PR014 Assistance level available**.

Do not use the electric power steering for about fifteen minutes.

Make sure that no components located in the vicinity of the electric power steering are promoting a temperature rise in the system.

If the fault is still present, contact the Techline.

AFTER REPAIR

Carry out a road test followed by a check with the diagnostic tool.

ALP7

Assistance available for 5 minutes after switching off the ignition

NOTES

This fault may occur if the engine operating status multiplex signal is defective.

Check the vehicle's battery voltage.
Repair if necessary.

Test the multiplex network.
Check the integrity of the multiplex network (see **88B, Multiplexing**).
Deal with any faults.

Check the conformity of ET023 and PR003.

Run fault finding on the injection and ABS.
Repair if necessary.

If the fault is still present, contact the Techline.

AFTER REPAIR

Carry out a road test followed by a check with the diagnostic tool.

POWER ASSISTED STEERING

Fault finding - Fault Finding Chart

36B

ALP8	Assistance available but Check steering warning message displayed and Service warning light lit continuously or flashing at 8 Hz
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NOTES	None
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Check the vehicle battery voltage and the condition of the system's connections.
Repair if necessary.

Check the steering wheel angle sensor programming (ET020 = STATUS 4)
If the sensor is not calibrated, program the steering wheel angle sensor (procedure **VP004 Steering wheel angle sensor programming**).

If the fault is still present, contact the Techline.

AFTER REPAIR	Carry out a road test followed by a check with the diagnostic tool.
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DAETRW_V04_ALP08/DAETRW_V08_ALP08/DAETRW_V08_ALP08/DAETRW_V0C_ALP08/
DAETRW_V12_ALP08

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V2

ALP9	The Service indicator light and the Check Steering message come on straight away
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NOTES	Apply the fault finding procedure only on Vdiag 06 and 12 .
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<p>Check the conformity of the battery voltage and carry out fault finding on the charge circuit if necessary. Check the condition and conformity of the ABS computer connector and its clips. Check that the ABS computer has an electrical feed (see wiring diagram for the ABS fitted on the vehicle). Disconnect the 8-track electric power assisted steering computer connector. Check the condition and conformity of the connector and its clips. If there is a repair procedure (see Technical Note 6015A, Electrical wiring repair, Wiring: Precautions for repair), repair the connector, otherwise replace the wiring.</p>			
Carry out fault finding on the multiplex network (see 88B, Multiplexing).			
Check the insulation, continuity and the absence of interference resistance on the following connections:			
Electric power-assisted steering computer (8-track connector)	UCH (PE2 40-track connector)	Protection and Switching Unit (CT1 12-track connector)	
track 7	→	track 8	
track 5	→	track 18	
	track 6	→	track 8
	track 16	→	track 1
		track 3	→ ABS computer
		track 2	→ ABS computer (see wiring diagram of the ABS system installed in the vehicle)
If there is a repair procedure (see Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair), repair the wiring, otherwise replace it.			
If the connections previously checked are correct, contact the Techline.			

AFTER REPAIR	Carry out a check using the diagnostic tool.
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ALP10	The vehicle pulls to the right or to the left
--------------	--

NOTES	None
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Check that the casing under the steering wheel does not rub on the steering column or steering wheel.
Check the tyre pressures and the condition of the joints and the steering geometry. Repair if necessary.
Check status ET020 Steering wheel angle sensor programming , which must be STATUS 4 .
Position the vehicle wheels in the straight line driving position (steering centre point). Consult parameter PR121 Steering wheel angle which must be between - 10d° < X < 10d° . Turn the steering wheel to full right lock then to full left lock, and check that the parameter varies within the tolerances given in the Conformity check .
Check the position of the steering wheel on the splines of the steering column.
If parameter PR121 Steering wheel angle and status ET020 Steering wheel angle sensor programming listed above are not correct: Place the vehicle on a front axle adjusting bench. Position the vehicle wheels in the straight line driving position (steering centre point). Program the steering wheel angle using command VP004 Steering wheel angle sensor programming (see Configuration and programming).
If the fault is still present, contact the Techline.

AFTER REPAIR	Carry out a complete check using the diagnostic tool.
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POWER ASSISTED STEERING

Fault finding - Fault Finding Chart

36B

ALP11

The engine does not start and the "steering not unlocked" or "steering not locked" message is displayed after the ignition is switched off

NOTES

Special notes:

An electric power-assisted steering failure is not the reason these messages are displayed.

Check the UCH (see **87B, Passenger compartment connection unit**)

If the fault is still present, contact the Techline.

AFTER REPAIR

Carry out a complete check using the diagnostic tool.