

CLIO

2 Transmission

23A

AUTOMATIC TRANSMISSION

SIEMENS TA2000
PROGRAM No.: 94
VDIAG No.: 08

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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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PRELIMINARY WORK BEFORE FAULT FINDING

Before fault finding is carried out on the automatic transmission, the vehicle must not be showing any faults when in injection mode.

Before performing a fault finding procedure on the Automatic transmission, you must:

- Carry out fault finding on the injection system.
- Deal with any faults.
- Clear the memories of the injection computer.
- Carry out a road test.
- Repeat the test with the diagnostic tool.

If no fault appears on the injection system, continue with the Automatic transmission fault finding.

GENERAL APPROACH TO FAULT FINDING

To run fault finding on the automatic transmission system
"SIEMENS TA2000 Vdiag 08", it is essential to have the following components:

- The wiring diagram of the function on the vehicle concerned.
- Diagnostic tools (except XR 25).
- Multimeter.
- Test bornier: **Elé. 1588.**

- 1) **The gear lever must be in either Park or Neutral.**
Use the diagnostic tool to identify the system fitted to the vehicle (*read the "SIEMENS TA2000 Vdiag 08" computer group*).

Warning: If dialogue cannot be established with the computer, go directly to the "Customer complaints" section and consult ALP 1 NO COMMUNICATION WITH THE COMPUTER

- 2) **Locate the Fault finding documents corresponding to the system identified.**
- 3) **Read the faults stored in the computer memory and use the Fault interpretation section of the documents.**

Reminder: The interpretation of a fault should be considered when using the diagnostic tool after switching the ignition off then back on again.
There are two types of fault interpretation, faults present and faults stored in memory.
If the fault is declared "Present":
carry out fault finding directly.
If the fault is declared "Stored":
follow the notes for application to a stored fault.
If the fault does not appear as present, run fault finding but do not replace any components.
In both cases, finish the fault finding procedure by following the instructions in the After repair section.

- 4) Carry out the conformity check (*appearance of possible malfunctions not yet identified by the system's self-test procedure*) and apply the relevant fault finding procedures according to the results.
- 5) Confirm the repair (*disappearance of the "Customer complaints" and "Fault finding charts" sections*).
- 6) Use the sections on Customer complaints and the Fault finding charts if the problem persists.

CHARACTERISTICS OF THE BORNIER

Bornier Elé. 1588 consists of a 56-track fixed connector connected to a printed circuit on which are arranged 56 copper-plated areas numbered from 1 to 56.

Using the wiring diagrams, it is easy to identify connections and other parts needing to be checked.

WARNING

- * All checks carried out with bornier Elé.1588 must be done with the battery disconnected.
- * The bornier is designed to be used with an ohmmeter only. Under no circumstances should 12 volts be applied to the test points.

Note :

The computer of the DP0 automatic transmission uses self-adapting parameters for gear change management and the lock-up function.

These self-adapting parameters enable the pressure and fill times for the brakes and clutches to be optimised as a function of the specific mechanical/hydraulic characteristics of each automatic transmission.

Therefore, replacing any component that influences these parameters requires the stored values to be updated.

The self-adapting parameters are reset using command RZ005 (self-adapting parameters).

After using command RZ005, it is important to carry out a test drive performing all gear changes, both up and down, several times in order to store the new values.

Reset the auto-adaptive parameters after replacing the following components:

- Hydraulic distributor.
- Torque converter.
- Pressure modulating solenoid valve.
- The entire automatic transmission.

AUTOMATIC TRANSMISSION

Fault finding - Interpretation of faults

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DF002 PRESENT OR STORED	<u>COMPUTER</u>
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NOTES	None.
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<p>Check the supply fuse of the automatic transmission computer and the cleanliness of the contacts. Clean or change as necessary.</p>
<p>Check the + After ignition fuse of the automatic transmission computer and the cleanliness of the contacts. Clean or change as necessary.</p>
<p>Check that the battery and its terminals are clean. Check the battery voltage \longrightarrow $11.8\text{ V} < V_{\text{bat}} < 13.2\text{ V}$ Recharge or replace if necessary.</p>
<p>Disconnect the battery. Disconnect the computer. Check the cleanliness and condition of the connections. Connect the bornier in place of the computer and check the insulation, continuity and absence of interference resistance on the following connections:</p> <ul style="list-style-type: none"> 56-track computer \longrightarrow Engine fuse and relay box 27-track computer \longrightarrow Engine fuse and relay box 28-track computer \longrightarrow Vehicle earth <p>Repair if necessary.</p>
<ul style="list-style-type: none"> – If the fault is present, replace the computer (refer to the "Help" section). – If the fault is stored, clear the computer's fault memory (RZ004) and self-adapting parameters (RZ005). <p>Switch off the ignition, then switch it back on to reinitialise the computer.</p>

AFTER REPAIR	<p>Deal with any other faults. Clear the fault memory and switch off the ignition. Carry out a road test. Complete the operation by carrying out a check with the diagnostic tool.</p>
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DF003 PRESENT	<u>FEED TO THE ANALOGUE SENSORS</u>
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NOTES	If faults DF005 or DF023 are present, deal with them first.
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This fault is taken into account when the 5-volt supply voltage to the pressure sensor and oil temperature sensor drops below 4.5 volts (sensor short circuit or short circuit to earth of the 5 volts supply) or when the pressure sensor signal short circuits to 12 volts.	
Disconnect the modular connector from the automatic gearbox. Check the cleanliness and condition of the connections and the connector. Clean or replace it if necessary. Reconnect the modular connector.	
Check the connection of the connector, the cleanliness and condition of the contacts of the oil pressure sensor. Replace the connector if necessary.	
Disconnect the battery. Disconnect the computer. Check the cleanliness and condition of the connections. Connect the bornier in place of the computer and check the insulation, continuity and absence of interference resistance on the following connections: <div style="margin-left: 40px;"> 24-track computer ➔ Oil pressure sensor track C1 25-track computer ➔ Oil pressure sensor track C3 55-track computer ➔ Oil pressure sensor track C2 </div> Repair if necessary.	
Check that the resistance of the oil pressure sensor is not zero or equal to infinity between tracks 24 and 25 of the computer (definite sensor fault). If necessary replace the oil temperature sensor.	
Disconnect the battery. Disconnect the computer. Check the cleanliness and condition of the connections. Connect the bornier in place of the computer and check the insulation, continuity and absence of interference resistance on the following connections: <div style="margin-left: 40px;"> 53-track computer ➔ Oil temperature sensor track B4 54-track computer ➔ Oil temperature sensor track B1 </div> Repair if necessary.	

AFTER REPAIR	Deal with any other faults. Clear the fault memory and switch off the ignition. Carry out a road test. Complete the operation by carrying out a check with the diagnostic tool.
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DF003

CONTINUED

Check the **resistance** of the oil temperature sensor between tracks **53 and 54 of the computer**.
(See the values in the HELP section).
Replace the oil pressure sensor if necessary.

Replace the computer if the fault persists.

AFTER REPAIR

Deal with any other faults.
Clear the fault memory and switch off the ignition.
Carry out a road test.
Complete the operation by carrying out a check with the diagnostic tool.

AUTOMATIC TRANSMISSION

Fault finding - Interpretation of faults

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DF005 PRESENT OR STORED	<u>OIL PRESSURE SENSOR CIRCUIT</u>
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NOTES	<p><u>Conditions for applying the fault finding procedure to stored faults:</u></p> <p>The fault is declared present after a road test.</p>
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<p>Disconnect the modular connector from the automatic gearbox.</p> <p>Check the cleanliness and condition of the connections and the connector.</p> <p>Clean or replace it if necessary.</p> <p>Reconnect the modular connector.</p>									
<p>Check the connection of the connector, the cleanliness and condition of the contacts of the oil pressure sensor.</p> <p>Replace the connector if necessary.</p>									
<p>Disconnect the battery.</p> <p>Disconnect the computer. Check the cleanliness and condition of the connections.</p> <p>Connect the bornier in place of the computer and check the insulation, continuity and absence of interference resistance on the following connections:</p> <table><tr><td>24-track computer</td><td>————></td><td>Oil pressure sensor track C1</td></tr><tr><td>55-track computer</td><td>————></td><td>Oil pressure sensor track C2</td></tr><tr><td>25-track computer</td><td>————></td><td>Oil pressure sensor track C3</td></tr></table> <p>Repair if necessary.</p>	24-track computer	————>	Oil pressure sensor track C1	55-track computer	————>	Oil pressure sensor track C2	25-track computer	————>	Oil pressure sensor track C3
24-track computer	————>	Oil pressure sensor track C1							
55-track computer	————>	Oil pressure sensor track C2							
25-track computer	————>	Oil pressure sensor track C3							
<p>Check that the resistance of the oil pressure sensor is not zero or equal to infinity between tracks 24 and 25 of the computer (definite sensor fault).</p> <p>If necessary replace the oil temperature sensor.</p>									
<p>If the fault has still not been solved, deal with the other faults and then proceed to the conformity check.</p>									

AFTER REPAIR	<p>Deal with any other faults.</p> <p>Clear the fault memory and switch off the ignition.</p> <p>Carry out a road test.</p> <p>Complete the operation by carrying out a check with the diagnostic tool.</p>
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AUTOMATIC TRANSMISSION

Fault finding - Interpretation of faults

23A

**DF008
PRESENT
OR
STORED**

MULTIFUNCTION SWITCH ON INTERMEDIATE POSITION (see the earth connection of the multifunction switch)

NOTES

Conditions for applying the fault finding procedure to stored faults:

The fault is declared present when the selector lever is shifted from position **P** to position **D** (stopping in all the lever positions).

Check the installation of the multifunction switch on the automatic transmission.
Check the control adjustment (refer to the checking procedure in the Repair Manual).

Disconnect the **modular connector** from the automatic gearbox.
Check the **cleanliness and condition** of the connections and the connector.
Clean or replace it if necessary.
Reconnect the modular connector.

Disconnect the battery.
Disconnect the computer. Check the **cleanliness and condition** of the connections.
Connect the bornier in place of the computer and check the following connections:

Continuity

Lever in position "P", computer track 31	—————>	Computer track 42
Lever in position P, computer track 34	—————>	Earth
Lever in position "R", computer track 31, 32, 33	—————>	Computer track 42
Lever in position "N", computer track 32	—————>	Computer track 42
Lever in position "N", computer track 34	—————>	Earth
Lever in position "D", computer track 33	—————>	Computer track 42
Lever in position "2", computer track 37, 32, 33	—————>	Computer track 42
Lever in position "1", computer track 37, 31, 32	—————>	Computer track 42

Insulation

Lever in position "P", computer track 32, 33, 34, 37	—————>	Computer track 42
Lever in position "P", computer track 31, 32, 33, 37	—————>	Earth
Lever in position "R", computer track 34, 37	—————>	Computer track 42
Lever in position "N", computer track 31, 33, 34, 37	—————>	Computer track 42
Lever in position "N", computer track 31, 32, 33, 37	—————>	Earth
Lever in position "D", computer track 31, 32, 34, 37	—————>	Computer track 42
Lever in position "2", computer track 31, 34	—————>	Computer track 42
Lever in position "1", computer track 33, 34	—————>	Computer track 42

Repair if necessary.

AFTER REPAIR

Follow the instructions to confirm repair.
Deal with any other faults.
Clear the fault memory and switch off the ignition.
Carry out a road test.
Complete the operation by carrying out a check with the diagnostic tool.

DF008

CONTINUED

If all the checks are correct, reconnect the computer connector, switch on the ignition, then clear the computer's fault memory. Exit fault finding mode and switch off the ignition.
Carry out a road test using all the selector lever positions.
If the fault reappears, replace the multifunction switch.

If the fault has still not been solved, deal with the other faults and then proceed to the conformity check.

AFTER REPAIR

Follow the instructions to confirm repair.
Deal with any other faults.
Clear the fault memory and switch off the ignition.
Carry out a road test.
Complete the operation by carrying out a check with the diagnostic tool.

AUTOMATIC TRANSMISSION

Fault finding - Interpretation of faults

23A

**DF009
PRESENT
OR
STORED**

MULTIFUNCTION SWITCH IN PROHIBITED POSITION
(see the earth connection of the multifunction switch)

NOTES

Conditions for applying the fault finding procedure to stored faults:

The fault is declared present when the selector lever is shifted from position **P** to position **D** (stopping in all the lever positions).

Check the installation of the multifunction switch on the automatic transmission.
Check the control adjustment (refer to the checking procedure in the Repair Manual).

Disconnect the **modular connector** from the automatic gearbox.
Check the **cleanliness and condition** of the connections and the connector.
Clean or replace it if necessary.
Reconnect the modular connector.

Disconnect the battery.
Disconnect the computer. Check the **cleanliness and condition** of the connections.
Connect the bornier in place of the computer and check the following connections:

Continuity

Lever in position "P", computer track 31	—————>	Computer track 42
Lever in position P, computer track 34	—————>	Earth
Lever in position "R", computer track 31, 32, 33	—————>	Computer track 42
Lever in position "N", computer track 32	—————>	Computer track 42
Lever in position "N", computer track 34	—————>	Earth
Lever in position "D", computer track 33	—————>	Computer track 42
Lever in position "2", computer track 37, 32, 33	—————>	Computer track 42
Lever in position "1", computer track 37, 31, 32	—————>	Computer track 42

Insulation

Lever in position "P", computer track 32, 33, 34, 37	—————>	Computer track 42
Lever in position "P", computer track 31, 32, 33, 37	—————>	Earth
Lever in position "R", computer track 34, 37	—————>	Computer track 42
Lever in position "N", computer track 31, 33, 34, 37	—————>	Computer track 42
Lever in position "N", computer track 31, 32, 33, 37	—————>	Earth
Lever in position "D", computer track 31, 32, 34, 37	—————>	Computer track 42
Lever in position "2", computer track 31, 34	—————>	Computer track 42
Lever in position "1", computer track 33, 34	—————>	Computer track 42

Repair if necessary.

AFTER REPAIR

Follow the instructions to confirm repair.
Deal with any other faults.
Clear the fault memory and switch off the ignition.
Carry out a road test.
Complete the operation by carrying out a check with the diagnostic tool.

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DF009

CONTINUED

If all the checks are correct, reconnect the computer connector, switch on the ignition, then clear the computer's fault memory. Exit fault finding mode and switch off the ignition.
Carry out a road test using all the selector lever positions.
If the fault reappears, replace the multifunction switch.

If the fault has still not been solved, deal with the other faults and then proceed to the conformity check.

AFTER REPAIR

Follow the instructions to confirm repair.
Deal with any other faults.
Clear the fault memory and switch off the ignition.
Carry out a road test.
Complete the operation by carrying out a check with the diagnostic tool.

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**DF010
PRESENT
OR
STORED**

INSTRUMENT PANEL CONNECTION

NOTES

None.

- Test the multiplex network.
- Refer to the "Multiplex network" and "Instrument panel" sections of the Repair Manual.
- Perform fault finding on the "Instrument panel" system if necessary.

AFTER REPAIR

None.

AUTOMATIC TRANSMISSION

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**DF095
PRESENT
OR
STORED**

LEVER LOCK ELECTROMAGNET CIRCUIT

CO.0: Open circuit or short circuit to earth
CC.1: Short circuit to + 12 V

NOTES

Conditions for applying the fault finding procedure to stored faults:

The fault is declared present after **command AC024** has been run (sequential command of the actuators).

Check **the connection** of the connector, **the cleanliness and condition** of the contacts of the lever locking electromagnet.
Replace any parts if necessary.

Disconnect the battery.
Disconnect the computer. Check the **cleanliness and condition** of the connections.
Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** on the following connections:

Computer track 11 —————→ **Lever locking solenoid valve track B2**
+ After ignition —————→ **Lever locking solenoid valve track B1**

Repair if necessary.

Disconnect the 6-track connector in the central console and measure the coil resistance of the lever locking electromagnet between **tracks B1 and B2**.
Replace the solenoid valve if the resistance is not approximately **40 ± 4 ohms**.

Check for the presence of **+ After ignition feed** on **track B1** of the electromagnet connector.

If the fault has still not been solved, deal with the other faults and then proceed to the conformity check.

AFTER REPAIR

Follow the instructions to confirm repair.
Deal with any other faults.
Clear the fault memory and switch off the ignition.
Carry out a road test.
Complete the operation by carrying out a check with the diagnostic tool.

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**DF012
PRESENT
OR
STORED**

SHIFT SOLENOID VALVE SUPPLIES

CO: Open circuit
CC.1: Short circuit to + 12 V

NOTES

Conditions for applying the fault finding procedure to stored faults:

The fault is declared present after **command AC024** has been run (sequential command of the actuators).

Disconnect the **modular connector** from the automatic gearbox.
Check the **cleanliness and condition** of the connections and the connector.
Clean or replace it if necessary.
Reconnect the modular connector.

Disconnect the battery.
Disconnect the computer. Check the **cleanliness and condition** of the connections.
Connect the bornier in place of the computer, check the insulation, the continuity of the circuit and the **resistance** of the shift solenoid valve no. 3 between the following tracks (see the resistance value in the "HELP" section):

Computer track 1 —————> Computer track 7

Repair if necessary.

If all the checks are correct, switch on ignition then clear the computer's fault memory.
Exit fault finding mode and switch off the ignition.
If the fault reappears when the ignition is switched on, replace the internal wiring of the automatic transmission.

If the fault has still not been solved, deal with the other faults and then proceed to the conformity check.

AFTER REPAIR

Follow the instructions to confirm repair.
Deal with any other faults.
Clear the fault memory and switch off the ignition.
Carry out a road test.
Complete the operation by carrying out a check with the diagnostic tool.

AUTOMATIC TRANSMISSION

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**DF016
PRESENT
OR
STORED**

CONVERTER LOCKUP SOLENOID VALVE CIRCUIT

CO.0: Open circuit or short circuit to earth
CC.1: Short circuit to + 12 V

NOTES

Conditions for applying the fault finding procedure to stored faults:

The fault is declared present after **command AC024** has been run (sequential command of the actuators).

Disconnect the **modular connector** from the automatic gearbox.
Check the **cleanliness and condition** of the connections and the connector.
Clean or replace it if necessary.
Reconnect the modular connector.

Disconnect the battery.
Disconnect the computer. Check the **cleanliness and condition** of the connections.
Connect the bornier in place of the computer, check the insulation, the continuity of the circuit and the **resistance** of the converter lock-up solenoid valve between the following tracks (see the resistance value in the "HELP" section):

Computer track 19 —————> Computer track 26

Repair if necessary.

If all the checks are correct, reconnect the computer connector, switch on the ignition, then clear the computer's fault memory.

Exit fault finding mode and switch off the ignition.

If the fault reappears under the conditions defined in "Notes", replace **the lock-up solenoid valve**.

If the fault has still not been solved, deal with the other faults and then proceed to the conformity check.

AFTER REPAIR

Follow the instructions to confirm repair.
Deal with any other faults.
Clear the fault memory and switch off the ignition.
Carry out a road test.
Complete the operation by carrying out a check with the diagnostic tool.

AUTOMATIC TRANSMISSION

Fault finding - Interpretation of faults

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**DF017
PRESENT
OR
STORED**

EXCHANGER FLOW RATE SOLENOID VALVE CIRCUIT

CO.0: Open circuit or short circuit to earth
CC.1: Short circuit to + 12 V

NOTES

Conditions for applying the fault finding procedure to stored faults:

The fault is declared present after **command AC024** has been run (sequential command of the actuators).

Disconnect the **modular connector** from the automatic gearbox.
Check the **cleanliness and condition** of the connections and the connector.
Clean or replace it if necessary.
Reconnect the modular connector.

Disconnect the battery.
Disconnect the computer. Check the **cleanliness and condition** of the connections.
Connect the bornier in place of the computer, check the insulation, the continuity of the circuit and the **resistance** of the exchanger flow solenoid valve between the following tracks (see the resistance value in the "HELP" section):

Computer track 2 —————> Computer track 12

Repair if necessary.

If all the checks are correct, reconnect the computer connector, switch on the ignition, then clear the computer's fault memory. Exit fault finding mode and switch off the ignition.
If the fault reappears under the conditions defined in "Notes", replace the **exchanger flow solenoid valve**.

If the fault has still not been solved, deal with the other faults and then proceed to the conformity check.

AFTER REPAIR

Follow the instructions to confirm repair.
Deal with any other faults.
Clear the fault memory and switch off the ignition.
Carry out a road test.
Complete the operation by carrying out a check with the diagnostic tool.

**DF018
STORED**

CONVERTER LOCKUP SLIPPAGE

NOTES

If faults **DF018** and **DF005** are displayed at the same time, replace the pressure modulation solenoid valve, the converter lock-up solenoid valve and change the oil.
Refer to the repair manual for all mechanical operations.

Clear the computer memory then carry out a road test. This road test must be carried out in a manner that enables torque converter lock-up tests to be performed (driving in 3rd gear at a steady speed for more than 3 consecutive minutes).

Refer to the procedure and the safety instructions for carrying out a setting point check on the torque converter. If the setting point value is not **2300 ± 150 rpm** or if there is internal noise in the converter, replace the torque converter, the converter lock-up solenoid valve and change the oil.

If the oil is burnt, also replace the hydraulic distributor, all the solenoid valves and the exchanger.

If replacing the torque converter, ensure that the reaction shaft is securely attached to the hub of the oil pump (flanged shaft).

Note: A setting point which is too low may be linked to a lack of engine power.

If the setting point is OK, replace the lock-up solenoid valve and the oil.

AFTER REPAIR

Deal with any other faults.

Clear the fault memory and switch off the ignition.

Refer to the Help section for resetting the oil age counter (enter the date of the oil change).

Switch off the ignition, switch the ignition back on and carry out a road test.

Complete the operation by carrying out a check with the diagnostic tool.

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**DF020
STORED**

OLD OIL

NOTES

None.

The automatic transmission computer calculates how the oil is aging by using the operating parameters of the automatic transmission (oil temperature, vehicle speed, etc.).
When fault DF020 is indicated, replace the automatic transmission oil.
After carrying out an oil change, reset the oil age counter in the computer's memory and enter the date of the oil change. These two actions are carried out using command **CF074** (Enter date of gearbox oil change).
Then reset the self-adapting parameters using command mode **RZ005** (self-adapting parameters).

AFTER REPAIR

Deal with any other faults.
Clear the fault memory and switch off the ignition.
Carry out a road test.
Complete the operation by carrying out a check with the diagnostic tool.

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Fault finding - Interpretation of faults

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**DF022
PRESENT
OR
STORED**

FULL LOAD/NO LOAD PROGRAMMING NOT CARRIED OUT

NOTES

None.

- Test the multiplex network.
- Refer to the Multiplex Network section in the Workshop Repair Manual.

AFTER REPAIR

None.

AUTOMATIC TRANSMISSION

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**DF023
PRESENT**

GEARBOX OIL TEMPERATURE SENSOR CIRCUIT

NOTES

None.

Disconnect the **modular connector** from the automatic gearbox.
Check the **cleanliness and condition** of the connections and the connector.
Clean or replace it if necessary.
Reconnect the modular connector.

Disconnect the battery.
Disconnect the computer. Check the **cleanliness and condition** of the connections.
Connect the bornier in place of the computer, check the insulation, the continuity of the circuit and the **resistance** of the gearbox oil temperature sensor between the following tracks (see the resistance value in the "HELP" section):

Computer track 53 —————> Computer track 54

Repair if necessary.

If all the checks are correct, reconnect the computer connector, switch on the ignition, then clear the computer's fault memory.
Exit fault finding mode and switch off the ignition.
If the fault reappears when the ignition is switched on, replace the oil temperature sensor.

If the fault has still not been solved, deal with the other faults and then proceed to the conformity check.

AFTER REPAIR

Deal with any other faults.
Clear the fault memory and switch off the ignition.
Carry out a road test.
Complete the operation by carrying out a check with the diagnostic tool.

AUTOMATIC TRANSMISSION

Fault finding - Interpretation of faults

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**DF024
PRESENT**

COOLANT TEMPERATURE SENSOR CIRCUIT

NOTES

Check that there is no fault in injection fault finding mode.

- Test the multiplex network.
- Refer to the Multiplex Network section in the Workshop Repair Manual.

AFTER REPAIR

None.

**DF029
STORED**

MULTIFUNCTION SWITCH IN UNSTABLE POSITION
(see the earth connection of the multifunction switch)

NOTES

Conditions for applying the fault finding procedure to stored faults:

The fault is declared present when the selector lever is shifted from position **P** to position **D** (stopping in all the lever positions).

Check the installation of the multifunction switch on the automatic transmission.
Check the control adjustment (refer to the checking procedure in the Repair Manual).

Disconnect the **modular connector** from the automatic gearbox.
Check the **cleanliness and condition** of the connections and the connector.
Clean or replace it if necessary.
Reconnect the modular connector.

Disconnect the battery.
Disconnect the computer. Check the **cleanliness and condition** of the connections.
Connect the bornier in place of the computer and check the following connections:

Continuity

Lever in position "P", computer track 31	—————>	Computer track 42
Lever in position "P", computer track 34	—————>	Earth
Lever in position "R", computer track 31, 32, 33	—————>	Computer track 42
Lever in position "N", computer track 32	—————>	Computer track 42
Lever in position "N", computer track 34	—————>	Earth
Lever in position "D", computer track 33	—————>	Computer track 42
Lever in position "2", computer track 37, 32, 33	—————>	Computer track 42
Lever in position "1", computer track 37, 31, 32	—————>	Computer track 42

Insulation

Lever in position "P", computer track 32, 33, 34, 37	—————>	Computer track 42
Lever in position "P", computer track 31, 32, 33, 37	—————>	Earth
Lever in position "R", computer track 34, 37	—————>	Computer track 42
Lever in position "N", computer track 31, 33, 34, 37	—————>	Computer track 42
Lever in position "N", computer track 31, 32, 33, 37	—————>	Earth
Lever in position "D", computer track 31, 32, 34, 37	—————>	Computer track 42
Lever in position "2", computer track 31, 34	—————>	Computer track 42
Lever in position "1", computer track 33, 34	—————>	Computer track 42

Repair if necessary.

AFTER REPAIR

Follow the instructions to confirm repair.
Deal with any other faults.
Clear the fault memory and switch off the ignition.
Carry out a road test.
Complete the operation by carrying out a check with the diagnostic tool.

AUTOMATIC TRANSMISSION

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DF029

CONTINUED

If all the checks are correct, reconnect the computer connector, switch on the ignition, then clear the computer's fault memory. Exit fault finding mode and switch off the ignition.
Carry out a road test using all the selector lever positions.
If the fault reappears, replace the multifunction switch.

If the fault has still not been solved, deal with the other faults and then proceed to the conformity check.

AFTER REPAIR

Follow the instructions to confirm repair.
Deal with any other faults.
Clear the fault memory and switch off the ignition.
Carry out a road test.
Complete the operation by carrying out a check with the diagnostic tool.

AUTOMATIC TRANSMISSION

Fault finding - Interpretation of faults

23A

**DF030
PRESENT
OR
STORED**

CLIMATE CONTROL SHUT-OFF

CO.0: Open circuit or short circuit to earth
CC.1: Short circuit to + 12 V

NOTES

None.

- Test the multiplex network.
- Refer to the sections on the "Multiplex network" and "Air conditioning" in the Repair manual.
- Carry out fault finding on the air conditioning system, if necessary.

AFTER REPAIR

None.

AUTOMATIC TRANSMISSION

Fault finding - Interpretation of faults

23A

**DF036
PRESENT
OR
STORED**

PRESSURE MODULATING SOLENOID VALVE CIRCUIT

CO.0: Open circuit or short circuit to earth
CC.1: Short circuit to + 12 V

NOTES

Conditions for applying the fault finding procedure to stored faults:

The fault is declared present after **command AC024** has been run (sequential command of the actuators).

Disconnect the **modular connector** from the automatic gearbox.
Check the **cleanliness and condition** of the connections and the connector.
Clean or replace it if necessary.
Reconnect the modular connector.

Disconnect the battery.
Disconnect the computer. Check the **cleanliness and condition** of the connections.
Connect the bornier in place of the computer, check the insulation, the continuity of the circuit and the **resistance** of the pressure modulating solenoid valve between the following tracks (see the resistance value in the "HELP" section):

Computer track 26 —————> Computer track 20

Repair if necessary.

If all the checks are correct, reconnect the connectors, switch on the ignition and clear the fault memory.
Exit fault finding mode and switch off the ignition.
If the fault reappears under the conditions defined in "Notes", replace the pressure modulating solenoid valve.

If the fault has still not been solved, deal with the other faults and then proceed to the conformity check.

AFTER REPAIR

If replacing the pressure modulating solenoid valve, the self-adapting parameters must be cleared (command RZ005).
Follow the instructions to confirm repair.
Deal with any other faults.
Clear the fault memory and switch off the ignition.
Carry out a road test.
Complete the operation by carrying out a check with the diagnostic tool.

AUTOMATIC TRANSMISSION

Fault finding - Interpretation of faults

23A

**DF037
PRESENT
OR
STORED**

KICKDOWN SWITCH CIRCUIT

DEF: Unidentified electrical fault

NOTES

None.

- Test the multiplex network.
- Refer to the sections on the multiplex network and on ABS/ESP in the Workshop Repair Manual.
- Carry out a fault finding procedure on the ABS/ESP system, if necessary.

AFTER REPAIR

None.

AUTOMATIC TRANSMISSION

Fault finding - Interpretation of faults

23A

**DF038
PRESENT
OR
STORED**

TURBINE SPEED SENSOR CIRCUIT

- 1.DEF: No signal
- 2.DEF: Signal interference

NOTES

Conditions for applying the fault finding procedure to stored faults:

The fault is declared present when the engine is running and the gear selector lever is in P.

Disconnect the **modular connector** from the automatic gearbox.
Check the **cleanliness and condition** of the connections and the connector.
Clean or replace it if necessary.
Reconnect the modular connector.

Disconnect the battery.
Disconnect the computer. Check the **cleanliness and condition** of the connections.
Connect the bornier in place of the computer, check the insulation, the continuity of the circuit and the **resistance** of the turbine speed sensor between the following tracks (see the resistance value in the "HELP" section):

Computer track 45 —————> Computer track 46

Repair if necessary.

If all the checks are correct, reconnect the connectors, switch on the ignition and clear the fault memory.
Exit fault finding mode and switch off the ignition.
If the fault reappears under the conditions defined in "Notes", check the installation of the turbine speed sensor (position and secure fixture).
Check the condition of the wiring and that it is routed correctly (risk of signal interference).
Also check that the high voltage circuits are to specification and in good condition.

If the fault persists, replace the turbine speed sensor.

If the fault has still not been solved, deal with the other faults and then proceed to the conformity check.

AFTER REPAIR

Follow the instructions to confirm repair.
Deal with any other faults.
Clear the fault memory and switch off the ignition.
Carry out a road test.
Complete the operation by carrying out a check with the diagnostic tool.

AUTOMATIC TRANSMISSION

Fault finding - Interpretation of faults

23A

<p>DF048 PRESENT OR STORED</p>	<p><u>VEHICLE SPEED SIGNAL</u></p> <p>1.DEF: Unidentified electrical fault 2.DEF: Unidentified electrical fault 3.DEF: Multiplex 4.DEF: Multiplex</p>
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<p>1.DEF 2.DEF</p>	<p>NOTES</p>	<p><u>Conditions for applying the fault finding procedure to stored faults:</u></p> <p>The fault is declared present after a road test.</p>
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<p>Check the cleanliness, connection and condition of the connections of the vehicle speed sensor. Replace any parts if necessary.</p>
<p>Disconnect the battery. Disconnect the computer. Check the cleanliness and condition of the connections. Connect the bornier in place of the computer, check the insulation, the continuity of the circuit and the resistance of the vehicle speed sensor between the following tracks (see the resistance value in the "HELP" section):</p> <p>Computer track 47 —————> Computer track 48</p> <p>Repair if necessary.</p>
<p>If all the checks are correct, reconnect the computer connector and the sensor, switch on the ignition, then clear the computer's fault memory. Exit fault finding mode and switch off the ignition. If the fault reappears under the conditions defined in "Notes", check the fitting of the vehicle speed sensor (position and tightness). Check the condition of the wiring and that it is routed correctly (risk of signal interference). Also check that the high voltage circuits are to specification and in good condition.</p>
<p>If the fault persists, replace the vehicle speed sensor.</p>
<p>If the fault has still not been solved, deal with the other faults and then proceed to the conformity check.</p>

<p>AFTER REPAIR</p>	<p>Follow the instructions to confirm repair. Deal with any other faults. Clear the fault memory and switch off the ignition. Carry out a road test. Complete the operation by carrying out a check with the diagnostic tool.</p>
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AUTOMATIC TRANSMISSION

Fault finding - Interpretation of faults

23A

DF048
CONTINUED

3.DEF
4.DEF

NOTES

Check that there is no fault in injection fault finding mode.

- Test the multiplex network.
- Refer to the Multiplex Network section in the Workshop Repair Manual.

AFTER REPAIR

None.

DF049 STORED

GEARBOX OIL PRESSURE REGULATION

- 1.DEF:
- 2.DEF:

NOTES

If fault **DF005** is displayed, deal with this first.
If faults **DF049** and **DF018** are displayed, replace the pressure modulating solenoid valve, the converter lock-up solenoid valve and change the oil.

Put the selector lever into position **P/N**, with the engine stopped, in order to reveal any fault in the **modulating solenoid valve**.

With the engine stopped, check the line pressure signal supplied by the pressure sensor (see the parameters).
Replace the pressure sensor if the value is greater than **0.2 bar**.

Check the oil level.

Fit a pressure gauge to the pressure take-off on the automatic transmission housing (if a level check has already been carried out, ensure in the parameter function that the oil temperature is greater than **20°C** before continuing).

Note the line pressure value shown on the pressure gauge and by the diagnostic tool in the following conditions:

– **With the brakes applied, lever in position D and engine speed: 1200 rpm.**

Replace the pressure sensor if the values on the pressure gauge and the diagnostic tool parameters differ by more than **0.5 bar**.

Repeat the check after replacement.

AFTER REPAIR

Deal with any other faults.
Clear the fault memory and switch off the ignition.
Carry out a road test.
Complete the operation by carrying out a check with the diagnostic tool.

DF049

CONTINUED

With the automatic transmission oil **between 60 and 90°**, brakes applied and lever in position **D**, place a pedal press or a stop on the accelerator pedal to get a stable pressure setpoint of **approximately 8 bar** (see parameters) at an engine speed of approximately 1300 rpm.

Note the values obtained in these conditions, making sure that the engine speed remains stable between the two readings.

These measurements must be carried out as quickly as possible so that these conditions do not have to be maintained for too long.

Replace the pressure modulating solenoid valve and change the oil if the difference between the two values is more than **0.2 bar**.

Repeat the check after replacement. If the fault is still present, replace the hydraulic distributor and all the solenoid valves.

On completion of the work, clear the computer's fault memory and the auto-adaptive parameters by using the command.

Refer to the Help section for resetting the oil age counter (enter the date of the oil change).

Switch off the ignition, switch the ignition back on then carry out a road test.

If the fault has still not been solved, deal with the other faults and then proceed to the conformity check.

AFTER REPAIR

Deal with any other faults.

Clear the fault memory and switch off the ignition.

Carry out a road test.

Complete the operation by carrying out a check with the diagnostic tool.

AUTOMATIC TRANSMISSION

Fault finding - Interpretation of faults

23A

**DF054
PRESENT
OR
STORED**

P/N CONTACT INFO OF THE MULTIFUNCTION SWITCH
(see the earth connection of the multifunction switch)

NOTES

Conditions for applying the fault finding procedure to stored faults:

The fault is declared present when the selector lever is shifted from position **P** to position **D** (stopping in all the lever positions).

Disconnect the **modular connector** from the automatic gearbox.
Check the **cleanliness and condition** of the connections and the connector.
Clean or replace it if necessary.
Reconnect the modular connector.

Disconnect the battery.
Disconnect the computer. Check the **cleanliness and condition** of the connections.
Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** on the following connections:

Computer track 28 —————> **Multifunction switch**

Computer track 28 —————> **Vehicle earth** (see wiring diagram)

Repair if necessary.

If all the checks are correct, switch on ignition then clear the computer's fault memory. Exit fault finding mode and switch off the ignition.

Switch on the ignition with the selector lever in position **P** or **N**.

If the fault reappears, replace the multifunction switch.

If the fault has still not been solved, deal with the other faults and then proceed to the conformity check.

AFTER REPAIR

Deal with any other faults.
Clear the fault memory and switch off the ignition.
Carry out a road test.
Complete the operation by carrying out a check with the diagnostic tool.

AUTOMATIC TRANSMISSION

Fault finding - Interpretation of faults

23A

**DF055
PRESENT
OR
STORED**

INJECTION SYSTEM/AUTOMATIC TRANSMISSION CONNECTION

1. DEF: No signal
2. DEF: Signal interference

NOTES

None.

- Test the multiplex network.
- Refer to the Multiplex Network section in the Workshop Repair Manual.

AFTER REPAIR

None.

AUTOMATIC TRANSMISSION

Fault finding - Interpretation of faults

23A

**DF064
PRESENT
OR
STORED**

DISPLAY CIRCUIT

CO.0: Open circuit or short circuit to earth
CC.1: Short circuit to + 12 V

NOTES

None.

- Test the multiplex network.
- Refer, in the Workshop Repair Manual, to the "Multiplex Network" and "Instrument Panel" sections.
- Perform fault finding on the "Instrument panel" system if necessary.

AFTER REPAIR

None.

AUTOMATIC TRANSMISSION

Fault finding - Interpretation of faults

23A

**DF084
PRESENT
OR
STORED**

MULTIPLEX NETWORK

NOTES

None.

- Test the multiplex network.
- Refer to the Multiplex Network section in the Workshop Repair Manual.

AFTER REPAIR

None.

AUTOMATIC TRANSMISSION

Fault finding - Interpretation of faults

23A

**DF085
PRESENT
OR
STORED**

EVS1 SHIFT SOLENOID CIRCUITS

CO.0: Open circuit or short circuit to earth
CC.1: Short circuit to + 12 V
CC: Short circuit

NOTES

Conditions for applying the fault finding procedure to stored faults:

The fault is declared present after **command AC024** has been run (sequential command of the actuators).

Disconnect the **modular connector** from the automatic gearbox.
Check the **cleanliness and condition** of the connections and the connector.
Clean or replace it if necessary.
Reconnect the modular connector.

Disconnect the battery.
Disconnect the computer. Check **the cleanliness and condition** of the connections.
Connect the bornier in place of the computer, check the insulation, the continuity of the circuit and the **resistance** of EVS1 between the following tracks (see the resistance value in the "HELP" section):
Computer track 10 —————> Computer track 1
Repair if necessary.

If all of the checks are correct, reconnect the computer connector.
Switch on the ignition then clear the computer's fault memory, exit from fault finding mode and switch off the ignition.

If the fault has still not been solved, deal with the other faults and then proceed to the conformity check.

AFTER REPAIR

Follow the instructions to confirm repair.
Deal with any other faults.
Clear the fault memory and switch off the ignition.
Carry out a road test.
Complete the operation by carrying out a check with the diagnostic tool.

AUTOMATIC TRANSMISSION

Fault finding - Interpretation of faults

23A

**DF086
PRESENT
OR
STORED**

EVS2 SHIFT SOLENOID CIRCUITS

CO.0: Open circuit or short circuit to earth
CC.1: Short circuit to + 12 V
CC: Short circuit

NOTES

Conditions for applying the fault finding procedure to stored faults:

The fault is declared present after **command AC024** has been run (sequential command of the actuators).

Disconnect the **modular connector** from the automatic gearbox.
Check the **cleanliness and condition** of the connections and the connector.
Clean or replace it if necessary.
Reconnect the modular connector.

Disconnect the battery.
Disconnect the computer. Check the **cleanliness and condition** of the connections.
Connect the bornier in place of the computer, check the insulation, the continuity of the circuit and the **resistance** of EVS2 between the following tracks (see the resistance value in the "HELP" section):
Computer track 9 —————> Computer track 1
Repair if necessary.

If all of the checks are correct, reconnect the computer connector.
Switch on the ignition then clear the computer's fault memory, exit from fault finding mode and switch off the ignition.

If the fault has still not been solved, deal with the other faults and then proceed to the conformity check.

AFTER REPAIR

Follow the instructions to confirm repair.
Deal with any other faults.
Clear the fault memory and switch off the ignition.
Carry out a road test.
Complete the operation by carrying out a check with the diagnostic tool.

AUTOMATIC TRANSMISSION

Fault finding - Interpretation of faults

23A

**DF087
PRESENT
OR
STORED**

EVS3 SHIFT SOLENOID CIRCUITS

CO.0: Open circuit or short circuit to earth
CC.1: Short circuit to + 12 volts
CC: Short circuit

NOTES

Conditions for applying the fault finding procedure to stored faults:

The fault is declared present after **command AC024** has been run (sequential command of the actuators).

Disconnect the **modular connector** from the automatic gearbox.
Check the **cleanliness and condition** of the connections and the connector.
Clean or replace it if necessary.
Reconnect the modular connector.

Disconnect the battery.
Disconnect the computer. Check the **cleanliness and condition** of the connections.
Connect the bornier in place of the computer, check the insulation, the continuity of the circuit and the **resistance** of EVS3 between the following tracks (see the resistance value in the "HELP" section):
Computer track 7 —————> Computer track 1
Repair if necessary.

If all of the checks are correct, reconnect the computer connector.
Switch on the ignition then clear the computer's fault memory, exit from fault finding mode and switch off the ignition.

If the fault has still not been solved, deal with the other faults and then proceed to the conformity check.

AFTER REPAIR

Follow the instructions to confirm repair.
Deal with any other faults.
Clear the fault memory and switch off the ignition.
Carry out a road test.
Complete the operation by carrying out a check with the diagnostic tool.

AUTOMATIC TRANSMISSION

Fault finding - Interpretation of faults

23A

**DF088
PRESENT
OR
STORED**

EVS5 SHIFT SOLENOID CIRCUITS

CO.0: Open circuit or short circuit to earth
CC.1: Short circuit to + 12 V
CC: Short circuit

NOTES

Conditions for applying the fault finding procedure to stored faults:

The fault is declared present after **command AC024** has been run (sequential command of the actuators).

Disconnect the **modular connector** from the automatic gearbox.
Check the **cleanliness and condition** of the connections and the connector.
Clean or replace it if necessary.
Reconnect the modular connector.

Disconnect the battery.
Disconnect the computer. Check the **cleanliness and condition** of the connections.
Connect the bornier in place of the computer, check the insulation, the continuity of the circuit and the **resistance** of EVS5 between the following tracks (see the resistance value in the "HELP" section):
Computer track 13 —————> Computer track 1
Repair if necessary.

If all of the checks are correct, reconnect the computer connector.
Switch on the ignition then clear the computer's fault memory, exit from fault finding mode and switch off the ignition.

If the fault has still not been solved, deal with the other faults and then proceed to the conformity check.

AFTER REPAIR

Follow the instructions to confirm repair.
Deal with any other faults.
Clear the fault memory and switch off the ignition.
Carry out a road test.
Complete the operation by carrying out a check with the diagnostic tool.

AUTOMATIC TRANSMISSION

Fault finding - Interpretation of faults

23A

**DF089
PRESENT
OR
STORED**

EVS4 SHIFT SOLENOID CIRCUITS

CO.0: Open circuit or short circuit to earth
CC.1: Short circuit to + 12 V
CC: Short circuit

NOTES

Conditions for applying the fault finding procedure to stored faults:

The fault is declared present after **command AC024** has been run (sequential command of the actuators).

Disconnect the **modular connector** from the automatic gearbox.
Check the **cleanliness and condition** of the connections and the connector.
Clean or replace it if necessary.
Reconnect the modular connector.

Disconnect the battery.
Disconnect the computer. Check the **cleanliness and condition** of the connections.
Connect the bornier in place of the computer, check the insulation, the continuity of the circuit and the **resistance** of EVS4 between the following tracks (see the resistance value in the "HELP" section):
Computer track 8 —————> Computer track 1
Repair if necessary.

If all of the checks are correct, reconnect the computer connector.
Switch on the ignition then clear the computer's fault memory, exit from fault finding mode and switch off the ignition.

If the fault has still not been solved, deal with the other faults and then proceed to the conformity check.

AFTER REPAIR

Follow the instructions to confirm repair.
Deal with any other faults.
Clear the fault memory and switch off the ignition.
Carry out a road test.
Complete the operation by carrying out a check with the diagnostic tool.

AUTOMATIC TRANSMISSION

Fault finding - Interpretation of faults

23A

**DF109
PRESENT
OR
STORED**

ENGINE TORQUE MULTIPLEX SIGNAL

- 1.DEF: Consistency
- 2.DEF: Real torque
- 3.DEF: Anticipated torque
- 4.DEF: Torque excluding reduction

NOTES

Check that there is no fault in injection fault finding mode.

- Test the multiplex network.
- Refer to the Multiplex Network section in the Workshop Repair Manual.

AFTER REPAIR

None.

AUTOMATIC TRANSMISSION

Fault finding - Interpretation of faults

23A

**DF112
PRESENT
OR
STORED**

EVS6 SHIFT SOLENOID CIRCUITS

CO.0: Open circuit or short circuit to earth
CC.1: Short circuit to + 12 V
CC: Short circuit

NOTES

Conditions for applying the fault finding procedure to stored faults:

The fault is declared present after **command AC024** has been run (sequential command of the actuators).

Disconnect the **modular connector** from the automatic gearbox.
Check the **cleanliness and condition** of the connections and the connector.
Clean or replace it if necessary.
Reconnect the modular connector.

Disconnect the battery.
Disconnect the computer. Check the **cleanliness and condition** of the connections.
Connect the bornier in place of the computer, check the insulation, the continuity of the circuit and the **resistance** of EVS6 between the following tracks (see the resistance value in the "HELP" section):
Computer track 14 —————> Computer track 1
Repair if necessary.

If all of the checks are correct, reconnect the computer connector.
Switch on the ignition then clear the computer's fault memory, exit from fault finding mode and switch off the ignition.

If the fault has still not been solved, deal with the other faults and then proceed to the conformity check.

AFTER REPAIR

Follow the instructions to confirm repair.
Deal with any other faults.
Clear the fault memory and switch off the ignition.
Carry out a road test.
Complete the operation by carrying out a check with the diagnostic tool.

AUTOMATIC TRANSMISSION

Fault finding - Interpretation of faults

23A

**DF114
PRESENT
OR
STORED**

MULTIPLEX PEDAL POSITION

NOTES

None.

- Test the multiplex network.
- Refer to the Multiplex Network section in the Workshop Repair Manual.

AFTER REPAIR

None.

AUTOMATIC TRANSMISSION

Fault finding - Interpretation of faults

23A

**DF116
PRESENT
OR
STORED**

MULTIPLEX ENGINE SPEED SIGNAL

NOTES

Check that there is no fault in injection fault finding mode.

- Test the multiplex network.
- Refer to the Multiplex Network section in the Workshop Repair Manual.

AFTER REPAIR

None.

AUTOMATIC TRANSMISSION

Fault finding - Interpretation of faults

23A

**DF117
PRESENT
OR
STORED**

MULTIPLEX LEFT-HAND REAR WHEEL SIGNAL

NOTES

None.

- Test the multiplex network.
- Refer to the sections on the multiplex network and on ABS/ESP in the Workshop Repair Manual.
- Carry out a fault finding procedure on the ABS/ESP system, if necessary.

AFTER REPAIR

None.

AUTOMATIC TRANSMISSION

Fault finding - Interpretation of faults

23A

**DF118
PRESENT
OR
STORED**

MULTIPLEX LEFT-HAND REAR WHEEL SIGNAL

NOTES

None.

- Test the multiplex network.
- Refer to the sections on the multiplex network and on ABS/ESP in the Workshop Repair Manual.
- Carry out a fault finding procedure on the ABS/ESP system, if necessary.

AFTER REPAIR

None.

AUTOMATIC TRANSMISSION

Fault finding - Interpretation of faults

23A

DF119
PRESENT
OR
STORED

BRAKE PEDAL POSITION

NOTES

Depress the brake pedal and then release it.

Check the **cleanliness, connection and condition of the connectors** of the brake switches.
Replace the connector if necessary.

Check the **adjustment** of the brake switches and that they are **working correctly**.
Replace the switch if necessary.

Disconnect the battery.
Disconnect the computer. Check the **cleanliness and condition** of the connections.
Connect the bornier in place of the computer and ensure the **insulation, continuity and absence of interference resistance** on the following connections:
Computer track 16 → **Brake light computer**
Computer track 43 → **Brake light computer**
(See the connector track numbers in the appropriate wiring diagram)
Repair if necessary.

If the fault has still not been resolved, deal with the other faults and then proceed to the conformity check.

AFTER REPAIR

None.

AUTOMATIC TRANSMISSION

Fault finding - Interpretation of faults

23A

**DF121
PRESENT
OR
STORED**

MULTIFUNCTION SWITCH "PARK" SIGNAL
(see the earth connection of the multifunction switch)

NOTES

Conditions for applying the fault finding procedure to stored faults:

The fault is declared present when the gear lever is shifted from position **D** to position **P** (stopping in all the lever positions).

Check the installation of the multifunction switch on the automatic transmission.
Check the control adjustment (refer to the checking procedure in the Repair Manual).

Disconnect the **modular connector** from the automatic gearbox.
Check the **cleanliness and condition** of the connections and the connector.
Clean or replace it if necessary.
Reconnect the modular connector.

Disconnect the battery.
Disconnect the computer. Check the **cleanliness and condition** of the connections.
Connect the bornier in place of the computer and check the following connections:

Continuity

Lever in position "P", computer track 31	—————>	Computer track 42
Lever in position "P", computer track 34	—————>	Earth
Lever in position "R", computer track 31, 32, 33	—————>	Computer track 42
Lever in position "N", computer track 32	—————>	Computer track 42
Lever in position "N", computer track 34	—————>	Earth
Lever in position "D", computer track 33	—————>	Computer track 42
Lever in position "2", computer track 37, 32, 33	—————>	Computer track 42
Lever in position "1", computer track 37, 31, 32	—————>	Computer track 42

Insulation

Lever in position "P", computer track 32, 33, 34, 37	—————>	Computer track 42
Lever in position "P", computer track 31, 32, 33, 37	—————>	Earth
Lever in position "R", computer track 34, 37	—————>	Computer track 42
Lever in position "N", computer track 31, 33, 34, 37	—————>	Computer track 42
Lever in position "N", computer track 31, 32, 33, 37	—————>	Earth
Lever in position "D", computer track 31, 32, 34, 37	—————>	Computer track 42
Lever in position "2", computer track 31, 34	—————>	Computer track 42
Lever in position "1", computer track 33, 34	—————>	Computer track 42

Repair if necessary.

AFTER REPAIR

Follow the instructions to confirm repair.
Deal with any other faults.
Clear the fault memory and switch off the ignition.
Carry out a road test.
Complete the operation by carrying out a check with the diagnostic tool.

DF121
CONTINUED

If all the checks are correct, switch on ignition then clear the computer's fault memory. Exit fault finding mode and switch off the ignition.

Switch on the ignition with the selector lever in position **P** or **N**.

If the fault reappears, replace the multifunction switch.

If the fault has still not been solved, deal with the other faults and then proceed to the conformity check.

AFTER REPAIR

Follow the instructions to confirm repair.

Deal with any other faults.

Clear the fault memory and switch off the ignition.

Carry out a road test.

Complete the operation by carrying out a check with the diagnostic tool.

AUTOMATIC TRANSMISSION

Fault finding - Interpretation of faults

23A

**DF122
PRESENT
OR
STORED**

UCH CONNECTION

NOTES

None.

- Test the multiplex network.
- Refer to the Multiplex Network section in the Workshop Repair Manual.

AFTER REPAIR

None.

AUTOMATIC TRANSMISSION

Fault finding - Interpretation of faults

23A

**DF123
PRESENT
OR
STORED**

ABS COMPUTER CONNECTION

NOTES

None.

- Test the multiplex network.
- Refer to the Multiplex Network section in the Workshop Repair Manual.

AFTER REPAIR

None.

AUTOMATIC TRANSMISSION

Fault finding - Interpretation of faults

23A

**DF126
PRESENT
OR
STORED**

TURBINE SPEED SIGNAL

NOTES

None.

- Test the multiplex network.
- Refer to the Multiplex Network section in the Workshop Repair Manual.

AFTER REPAIR

None.

AUTOMATIC TRANSMISSION

Fault finding - Interpretation of faults

23A

**DF129
PRESENT
OR
STORED**

ELECTRONIC STABILITY PROGRAM

NOTES

None.

- Test the multiplex network.
- Refer to the sections on the multiplex network and on ABS/ESP in the Workshop Repair Manual.
- Carry out a fault finding procedure on the ABS/ESP system, if necessary.

AFTER REPAIR

None.

AUTOMATIC TRANSMISSION

Fault finding - Interpretation of faults

23A

DF131
PRESENT
OR
STORED

SLIPPAGE

NOTES

If faults DF038 or DF048 are present, deal with them first.
Conditions for applying the fault finding procedure to stored faults:
The fault is declared present after a road test.

- Excessive slipping indicates a mechanical fault in the automatic transmission.
- Refer to the Repair manual.

AFTER REPAIR

Follow the instructions to confirm repair.
Deal with any other faults.
Clear the fault memory and switch off the ignition.
Carry out a road test.
Complete the operation by carrying out a check with the diagnostic tool.

NOTES

Ignition on, engine stopped.

The values shown in the conformity check are only examples.
If necessary, refer to the exact function specifications in the Workshop Repair Manual.

Order	Function	Parameter or status Check or action	Display and notes	Fault finding
Electrical supply function				
1	Battery voltage	PR008: Computer feed voltage	11.8 < X < 13.2 V	In the event of a fault: Refer to fault finding procedure PR008.
Brake pedal function				
2	Brake pedal	Brake pedal released	STATUS CONFIRMED	In the event of a problem refer to fault finding procedures ET003 and ET142.
		ET003: Brake contact open		
		ET142: Brake pedal depressed	STATUS NOT CONFIRMED	
		Brake pedal depressed	STATUS NOT CONFIRMED	
		ET003: Brake contact open		
ET142: Brake pedal depressed	STATUS CONFIRMED			
Gear selector function				
3	Gear selector	Selector in position P	Position P confirmed by diagnostic tool	In the event of a problem, refer to: – the states charts in the Help section, – fault finding procedure ET012.
		ET012: Gear selector position		
		Selector in position R	Position R confirmed by diagnostic tool	
		ET012: Gear selector position	Position N confirmed by diagnostic tool	
		Selector in position N	Position D confirmed by diagnostic tool	
ET012: Gear selector position				
Selector in position D				
ET012: Gear selector position				

NOTES

Ignition on, engine stopped.

The values shown in the conformity check are only examples.
If necessary, refer to the exact function specifications in the Workshop Repair Manual.

Order	Function	Parameter or status Check or action	Display and notes	Fault finding
3 (continued)	Gear selector	Selector in position "2" ET012: Gear selector position	Position "2" confirmed by the diagnostic tool	In the event of a problem, refer to: – the states charts in the Help section, – fault finding procedure ET012.
		Selector in position 1 ET012: Gear selector position	Position 1 confirmed by the diagnostic tool	
		Selector in position "D" and "forced 3rd" button pressed (D3) ET012: Gear selector position	"Forced 3 rd " position confirmed by the diagnostic tool	In the event of a problem, refer to fault finding procedure ET012.
		Snow mode switch pressed ET081: Snow mode	Snow mode position confirmed by the diagnostic tool	In the event of a problem, refer to fault finding procedure ET081.
Sensor function				
4	Oil pressure sensor	PR003: Oil pressure	Pressure < 0.2 bar	In the event of a problem, refer to fault finding procedure PR003.

NOTES

Engine warm at idle speed, no electrical consumers.

The values shown in the conformity check are only examples.
If necessary, refer to the exact function specifications in the Workshop Repair Manual.

Order	Function	Parameter or status Check or action	Display and notes	Fault finding
Electrical supply functions				
1	Battery voltage	PR008: Computer feed voltage	$13 < X < 14.5 \text{ V}$	In the event of a fault: Refer to fault finding procedure PR008.
Sensor functions				
2	Oil temperature sensor	PR004: Oil temperature	$X = \text{Engine temperature} \pm 5 \text{ }^{\circ}\text{C}$	In the event of a problem, refer to fault finding procedure PR004.
3	Oil pressure sensor	Engine speed 1200 rpm and pressure ~ 7 bar. PR146: Difference between reference and oil pressure	Difference < 0.8 bar	In the event of a problem, refer to fault finding procedure PR146.
4	Engine and turbine speeds	PR128: Engine/turbine speed difference	Engine speed = Turbine speed	In the event of a problem, refer to fault finding procedure PR128.

NOTES	Road test.
	The values shown in the conformity check are only examples. If necessary, refer to the exact function specifications in the Workshop Repair Manual.

Order	Function	Parameter or status Check or action	Display and notes	Fault finding
Sensor functions				
1	Automatic gearbox vehicle speed sensor	PR105: Vehicle speed	X = Vehicle speed	In the event of a problem, refer to fault finding procedure PR105.

AUTOMATIC TRANSMISSION

Fault finding - Interpretation of statuses

23A

ET003

BRAKE CONTACT OPEN

NOTES

There must be no present or stored faults.

Check the **cleanliness, connection and condition of the connector** of the brake switch.
Replace the connector if necessary.

Check the **adjustment** of the brake switch and check that it is **working correctly**.
Replace the switch if necessary.

Disconnect the battery.
Disconnect the computer. Check the **cleanliness and condition** of the connections.
Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** on the following connection:
Computer track 16 —————> Brake switch track 3
Repair if necessary.

AFTER REPAIR

Repeat the conformity check from the start.

ET012	<u>GEAR SELECTOR POSITION</u>
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NOTES	There must be no present or stored faults.
--------------	--

Check the installation of the multifunction switch on the automatic transmission.

Check the control adjustment (refer to the checking procedure in the Repair Manual).

Disconnect the **modular connector** from the automatic gearbox.

Check the **cleanliness and condition** of the connections and the connector.

Clean or replace it if necessary.

Reconnect the modular connector.

Disconnect the battery.

Disconnect the computer. Check the **cleanliness and condition** of the connections.

Connect the bornier in place of the computer and check the following connections:

Continuity

Lever in position "P", computer track 31	—————▶	Computer track 42
Lever in position "P", computer track 34	—————▶	Earth
Lever in position "R", computer track 31, 32, 33	—————▶	Computer track 42
Lever in position "N", computer track 32	—————▶	Computer track 42
Lever in position "N", computer track 34	—————▶	Earth
Lever in position "D", computer track 33	—————▶	Computer track 42
Lever in position "2", computer track 37, 32, 33	—————▶	Computer track 42
Lever in position "1", computer track 37, 31, 32	—————▶	Computer track 42

Insulation

Lever in position "P", computer track 32, 33, 34, 37	—————▶	Computer track 42
Lever in position "P", computer track 31, 32, 33, 37	—————▶	Earth
Lever in position "R", computer track 34, 37	—————▶	Computer track 42
Lever in position "N", computer track 31, 33, 34, 37	—————▶	Computer track 42
Lever in position "N", computer track 31, 32, 33, 37	—————▶	Earth
Lever in position "D", computer track 31, 32, 34, 37	—————▶	Computer track 42
Lever in position "2", computer track 31, 34	—————▶	Computer track 42
Lever in position "1", computer track 33, 34	—————▶	Computer track 42

Repair if necessary.

AFTER REPAIR	Repeat the conformity check from the start.
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ET012

CONTINUED

Gear lever in position **D**

Forced 3rd switch deactivated

Computer track 36 —————> **Insulated from earth**

Forced 3rd switch activated

Computer track 36 —————> **Earth**

Rectify the electrical line or replace the switch.

If all the checks are correct, reconnect the computer connector, switch on the ignition, then clear the computer's fault memory. Exit fault finding mode and switch off the ignition.

Carry out a road test using all the selector lever positions.

If the fault reappears, replace the multifunction switch.

ET081

SNOW MODE

NOTES

There must be no present or stored faults.

Disconnect the switch connector.
Check the cleanliness and condition of the connections.
Check for the presence **of earth on track B2** of the connector.
Repair if necessary.

Disconnect the battery.
Disconnect the computer. Check the **cleanliness and condition** of the connections.
Connect the bornier in place of the computer and check the following connections:

"Normal" switch position

Computer track 40 —————> Insulated from earth

"Snow mode" position switch

Computer track 40 —————> Earth

Rectify the electrical line or replace the switch.

If it still does not function, replace the switch.

AFTER REPAIR

Repeat the conformity check from the start.

AUTOMATIC TRANSMISSION

Fault finding - Interpretation of statuses

23A

ET142

BRAKE PEDAL DEPRESSED

NOTES

There must be no present or stored faults.

Check **the cleanliness, connection and condition of the connector** of the brake switch.
Replace the connector if necessary.

Check the **adjustment** of the brake switch and check that it is **working correctly**.
Replace the switch if necessary.

Disconnect the battery.
Disconnect the computer. Check the **cleanliness and condition** of the connections.
Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** on the following connections:

Computer track 43 → Brake switch

(See the connector track number in the appropriate wiring diagram)

Repair if necessary.

AFTER REPAIR

Repeat the conformity check from the start.

PR003	<u>OIL PRESSURE</u>
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NOTES	There must be no present or stored faults.
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Check the cleanliness, connection and condition of the connector of the oil pressure sensor. Replace the connector if necessary.									
Check that the resistance of the oil pressure sensor is not zero or equal to infinity (definite sensor fault). If necessary replace the oil temperature sensor.									
Disconnect the battery. Disconnect the computer. Check the cleanliness and condition of the connections. Connect the bornier in place of the computer and check the insulation, continuity and absence of interference resistance on the following connections: <table><tr><td>Computer track 24</td><td>————→</td><td>Oil pressure sensor track C1</td></tr><tr><td>Computer track 55</td><td>————→</td><td>Oil pressure sensor track C2</td></tr><tr><td>Computer track 25</td><td>————→</td><td>Oil pressure sensor track C3</td></tr></table> Repair if necessary.	Computer track 24	————→	Oil pressure sensor track C1	Computer track 55	————→	Oil pressure sensor track C2	Computer track 25	————→	Oil pressure sensor track C3
Computer track 24	————→	Oil pressure sensor track C1							
Computer track 55	————→	Oil pressure sensor track C2							
Computer track 25	————→	Oil pressure sensor track C3							

AFTER REPAIR	Repeat the conformity check from the start.
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PR004	<u>AUTOMATIC TRANSMISSION OIL TEMPERATURE</u>
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NOTES	There must be no present or stored faults.
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<p>If the reading is inconsistent, ensure that the sensor is obeying the "resistance versus temperature" calibration curve. Replace the sensor if the values are incorrect (NOTE : If a sensor is incorrect, this is often due to an electric shock).</p>
<p>Disconnect the modular connector from the automatic gearbox. Check the cleanliness and condition of the connections and the connector. Clean or replace it if necessary. Reconnect the modular connector.</p>
<p>Disconnect the battery. Disconnect the computer. Check the cleanliness and condition of the connections. Connect the bornier in place of the computer, check the insulation, the continuity of the circuit and the resistance of the gearbox oil temperature sensor between the following tracks (see the resistance value in the "HELP" section): Computer track 53 —————> Computer track 54 Repair if necessary.</p>
<p>If all the checks are correct, reconnect the computer connector, switch on the ignition, then clear the computer's fault memory. Exit fault finding mode and switch off the ignition. If the fault reappears when the ignition is switched on, replace the oil temperature sensor.</p>

AFTER REPAIR	Repeat the conformity check from the start.
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PR008

COMPUTER SUPPLY VOLTAGE

NOTES

There must be no present or stored faults.
All electrical consumers switched off.

IGNITION ON

If voltage < Min. the battery is discharged:

Check the charging circuit to determine the cause of this fault.

If voltage > Max. the battery may be over-charged:

Check that the charging voltage is correct with and without electrical consumers switched on.

ENGINE AT IDLE SPEED

If voltage < Min. the charging voltage is too low:

Check the charging circuit to determine the cause of this fault.

If voltage > Max. the charging voltage is too high:

The alternator regulator is faulty.

AFTER REPAIR

Repeat the conformity check from the start.

PR105	<u>VEHICLE SPEED</u>
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NOTES	There must be no present or stored faults.
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<ul style="list-style-type: none">– Test the multiplex network.– Refer to the Multiplex Network section in the Workshop Repair Manual.
Check the cleanliness, connection and condition of the connections of the vehicle speed sensor. Replace any parts if necessary.
Disconnect the battery. Disconnect the computer. Check the cleanliness and condition of the connections. Connect the bornier in place of the computer, check the insulation, the continuity of the circuit and the resistance of the vehicle speed sensor between the following tracks (see the resistance value in the "HELP" section): Computer track 47 —————> Computer track 48 Repair if necessary.
If all the checks are correct, reconnect the computer connector and the sensor, switch on the ignition, then clear the computer's fault memory. Exit fault finding mode and switch off the ignition. If the fault reappears under the conditions defined in "Notes", check the fitting of the vehicle speed sensor (position and tightness). Check the condition of the wiring and that it is routed correctly (risk of signal interference). Also check that the high voltage circuits are to specification and in good condition.
If the fault persists, replace the vehicle speed sensor.

AFTER REPAIR	Repeat the conformity check from the start.
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AUTOMATIC TRANSMISSION

Fault finding - Interpretation of parameters

23A

PR128	<u>ENGINE/TURBINE SPEED DIFFERENCE</u>
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NOTES	There must be no present or stored faults.
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<p>Disconnect the modular connector from the automatic gearbox. Check the cleanliness and condition of the connections and the connector. Clean or replace it if necessary. Reconnect the modular connector.</p>
<p>Disconnect the battery. Disconnect the computer. Check the cleanliness and condition of the connections. Connect the bornier in place of the computer, check the insulation, the continuity of the circuit and the resistance of the turbine speed sensor between the following tracks (see the resistance value in the "HELP" section): Computer track 45 —————> Computer track 46 Repair if necessary.</p>
<p>If all the checks are correct, reconnect the connectors, switch on the ignition and clear the fault memory. Exit fault finding mode and switch off the ignition. If the fault reappears under the conditions defined in "Notes", check the installation of the turbine speed sensor (position and secure fixture). Check the condition of the wiring and that it is routed correctly (risk of signal interference). Also check that the high voltage circuits are to specification and in good condition.</p>
<p>If the fault persists, replace the turbine speed sensor.</p>

AFTER REPAIR	Repeat the conformity check from the start.
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PR146	<u>DIFFERENCE BETWEEN REFERENCE PRESSURE AND OIL PRESSURE</u>
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NOTES	There must be no present or stored faults.
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Disconnect the modular connector from the automatic gearbox. Check the cleanliness and condition of the connections and the connector. Clean or replace it if necessary. Reconnect the modular connector.
Check the connection of the connector, the cleanliness and condition of the contacts of the oil pressure sensor. Replace the connector if necessary.
Disconnect the battery. Disconnect the computer. Check the cleanliness and condition of the connections. Connect the bornier in place of the computer and check the insulation, continuity and absence of interference resistance on the following connections: Computer track 24 —————> Oil pressure sensor track C1 Computer track 55 —————> Oil pressure sensor track C2 Computer track 25 —————> Oil pressure sensor track C3 Repair if necessary.
Check that the resistance of the oil pressure sensor is not zero or equal to infinity between tracks 24 and 25 of the computer (definite sensor fault). If necessary replace the oil temperature sensor.

AFTER REPAIR	None.
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SPECIAL NOTES

– REPLACING THE COMPUTER

When replacing the automatic transmission computer, the AT oil age value in the computer being replaced must be loaded into the memory of the new computer.

Use the following procedure:

- Using parameter PR133 (Oil age counter), read the oil age value from the memory of the computer being replaced and note the value.
- Replace the computer. Enter the oil age value into the memory of the new computer using the command CF320 (Oil age counter report).

– CHANGING THE AUTOMATIC TRANSMISSION OIL

The oil age counter must be reset when the automatic transmission oil is changed. It is reset by entering the date of the oil change using command CF074 (Enter date of gearbox oil change).

– REPLACING COMPONENTS

The SIEMENS TA2000 computer uses self-adapting parameters for gear change management and the lock-up function.

These self-adapting parameters enable the pressure and fill times for the brakes and clutches to be optimised as a function of the specific mechanical/hydraulic characteristics of each automatic transmission.

Therefore, replacing any component that influences these parameters requires the stored values to be updated.

The self-adapting parameters are reset using command RZ005.

After using command RZ005, it is important to carry out a test drive performing all gear changes, both up and down, several times in order to store the new values.

Reset the auto-adaptive parameters after replacing the following components:

- Hydraulic distributor.
- Torque converter.
- Pressure modulating solenoid valve.
- The entire automatic transmission.

ELECTRICAL RESISTANCE OF COMPONENTS

Resistance values of components at 20°C:

Lever locking electromagnet → 45 ohms ± 10%

Exchanger flow solenoid valve → 40 ohms ± 10%

Converter lock-up solenoid valve → 1.5 ohms ± 10%

Modulation solenoid valve → 1 ohm ± 10%

Shift solenoid valve no.1 (EVS1) → 40 ohms ± 10%

Shift solenoid valve no.2 (EVS2) → 40 ohms ± 10%

Shift solenoid valve no.3 (EVS3) → 40 ohms ± 10%

Shift solenoid valve no.4 (EVS4) → 40 ohms ± 10%

Shift solenoid valve no.6 (EVS6) → 40 ohms ± 10%

Shift solenoid valve no.5 (EVS5) → 40 ohms ± 10%

Turbine speed sensor → 300 ohms ± 10%

Vehicle speed sensor → 1200 ohms ± 10%

Oil pressure sensor → 20 Kohms ± 10%

Oil temperature sensor			
Temperature in °C	20	40	80
Resistance in ohms ± 10%	2500	1300	300

DIAGNOSTIC TOOL STATES CHART

Statuses for the multifunction and gear lever switches:

– Switch on the ignition

LEVER POSITION	MULTIFUNCTION SWITCH CONTACT			
	S2	S3	S4	P
P	<i>INACTIVE</i>	ACTIVE	ACTIVE	<i>INACTIVE</i>
R	<i>INACTIVE</i>	<i>INACTIVE</i>	<i>INACTIVE</i>	ACTIVE
N	ACTIVE	<i>INACTIVE</i>	ACTIVE	<i>INACTIVE</i>
D	ACTIVE	ACTIVE	<i>INACTIVE</i>	ACTIVE
2	ACTIVE	<i>INACTIVE</i>	<i>INACTIVE</i>	ACTIVE
1	<i>INACTIVE</i>	<i>INACTIVE</i>	ACTIVE	ACTIVE
D + forced 3rd	ACTIVE	ACTIVE	<i>INACTIVE</i>	ACTIVE

Status of the shift solenoid valves:

– Switch on the ignition

LEVER POSITION	GEAR ENGAGED	SEQUENCE SOLENOID VALVE STATES					
		1	2	3	4	5	6
P	Neutral	INACTIVE	INACTIVE	ACTIVE	INACTIVE	INACTIVE	INACTIVE
R	R	INACTIVE	INACTIVE	INACTIVE	INACTIVE	INACTIVE	INACTIVE
N	Neutral	INACTIVE	INACTIVE	ACTIVE	INACTIVE	INACTIVE	INACTIVE
P or N < -10°C	Neutral	INACTIVE	ACTIVE	INACTIVE	INACTIVE	INACTIVE	INACTIVE
D at stop or when driving	1	INACTIVE	INACTIVE	ACTIVE	ACTIVE	ACTIVE	INACTIVE
D at stop or when driving	2	INACTIVE	ACTIVE	INACTIVE	ACTIVE	INACTIVE	INACTIVE
D when driving	3	INACTIVE	INACTIVE	INACTIVE	INACTIVE	INACTIVE	INACTIVE
D when driving	4	ACTIVE	ACTIVE	INACTIVE	INACTIVE	INACTIVE	INACTIVE
2	2	INACTIVE	INACTIVE	ACTIVE	ACTIVE	ACTIVE	INACTIVE
1	1	INACTIVE	INACTIVE	ACTIVE	ACTIVE	ACTIVE	INACTIVE
D + Snow mode	2	INACTIVE	ACTIVE	INACTIVE	ACTIVE	INACTIVE	INACTIVE

NOTES

Refer to Customer complaints only after carrying out a fault finding procedure using the diagnostic tool and after completing the conformity check.

NO DIALOGUE WITH THE COMPUTER

ALP 1

ENGINE STARTING FAULTS

ALP 2

→ The starter does not operate when the selector lever is in position P or N.

AUTOMATIC TRANSMISSION OPERATING FAULTS

ALP 3

→ No drive in forward or reverse gears

→ Delayed engagement with engine racing followed by a jolt when started

→ The vehicle moves sluggishly when started

→ Jolts, slippage or engine racing when changing gear

→ No gear change possible, vehicle stuck in one gear

→ One or more of the gears cannot be selected

AUTOMATIC TRANSMISSION MALFUNCTIONING ON GEAR
CHANGING

ALP 4

ERRATIC GEAR CHANGES

ALP 5

NOTES

Refer to Customer complaints only after carrying out a fault finding procedure using the diagnostic tool and after completing the conformity check.

REVERSING LIGHTS DO NOT WORK

ALP 6

Reverse gear works and the bulbs are OK

OIL PRESENT UNDER THE VEHICLE

ALP 7

SELECTOR LEVER DOES NOT LOCK IN PARK POSITION

ALP 8

SELECTOR LEVER STUCK IN PARK POSITION (IMPOSSIBLE TO UNLOCK IT BY PRESSING THE BRAKE PEDAL)

ALP 9

ALP 1	NO DIALOGUE WITH THE COMPUTER
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NOTES	None.
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Try to establish dialogue with a computer on another vehicle to make sure that the diagnostic tool is not faulty. If the diagnostic tool is not the cause of the fault and dialogue cannot be established with any other computer on the same vehicle, it may be that a faulty computer is disrupting fault finding lines **K** and **L**. Use a process of successive disconnections to locate this computer. Check the battery voltage and carry out the necessary operations to obtain a correct voltage (**8.7 volts < battery voltage < 16 volts**).

Check whether the **7.5A fuse** for the automatic transmission on the engine compartment fuse board has blown. If the **7.5 A fuse** is replaced but blows again as soon as the ignition is switched back on, firstly look for a short circuit to earth of the **+ After ignition** supply of the computer or the modulating or converter lock-up solenoid valves (tracks concerned: **26** and **27** of the computer). Check the connection and condition of the connectors at the computer connector. Check that the supply to the computer is correct:

- **Earth on track 28.**
- **+ After ignition on track 27.**

Check that the power supply to the diagnostic socket is correct:

- **Earth on tracks 4 and 5** of the diagnostic socket.
- **+ Battery feed on track 16** of the diagnostic socket.
- **+ After ignition on track 1** of the diagnostic socket.

Check and ensure the continuity and insulation of the lines connecting the diagnostic socket and the computer:

- Between **track 17** of the computer connector and **track 15** of the diagnostic socket.
- Between **track 18** of the computer connector and **track 7** of the diagnostic socket.

If dialogue still cannot be established after these various checks, replace the computer and clear the fault memory after completion of the work (refer to the Help section).

AFTER REPAIR	When dialogue is established, deal with any faults present or stored.
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AUTOMATIC TRANSMISSION

Fault finding - Fault Finding Chart

23A

ALP 2

ENGINE STARTING FAULTS

NOTES

Refer to the fault finding charts only after carrying out a fault finding procedure using the diagnostic tool and after completing the conformity check.

Check that the diagnostic tool display is consistent with the selector lever positions.

Are they consistent?

no

Check the mountings of the multifunction switch.
Check the control adjustment using the method described in the Technical Note.

yes

Switch off the ignition, disconnect the automatic transmission connector.
When the starter is activated, check that there is a **12-volt** supply to **track A5** of the **12-track green module** on the vehicle wiring side.

Is there a 12-volt supply to track A5?

no

Check the starter relay.
Check the continuity of the connection between **track A5** of the automatic transmission connector and the ignition switch relay.
Ensure that the ignition switch is working properly.

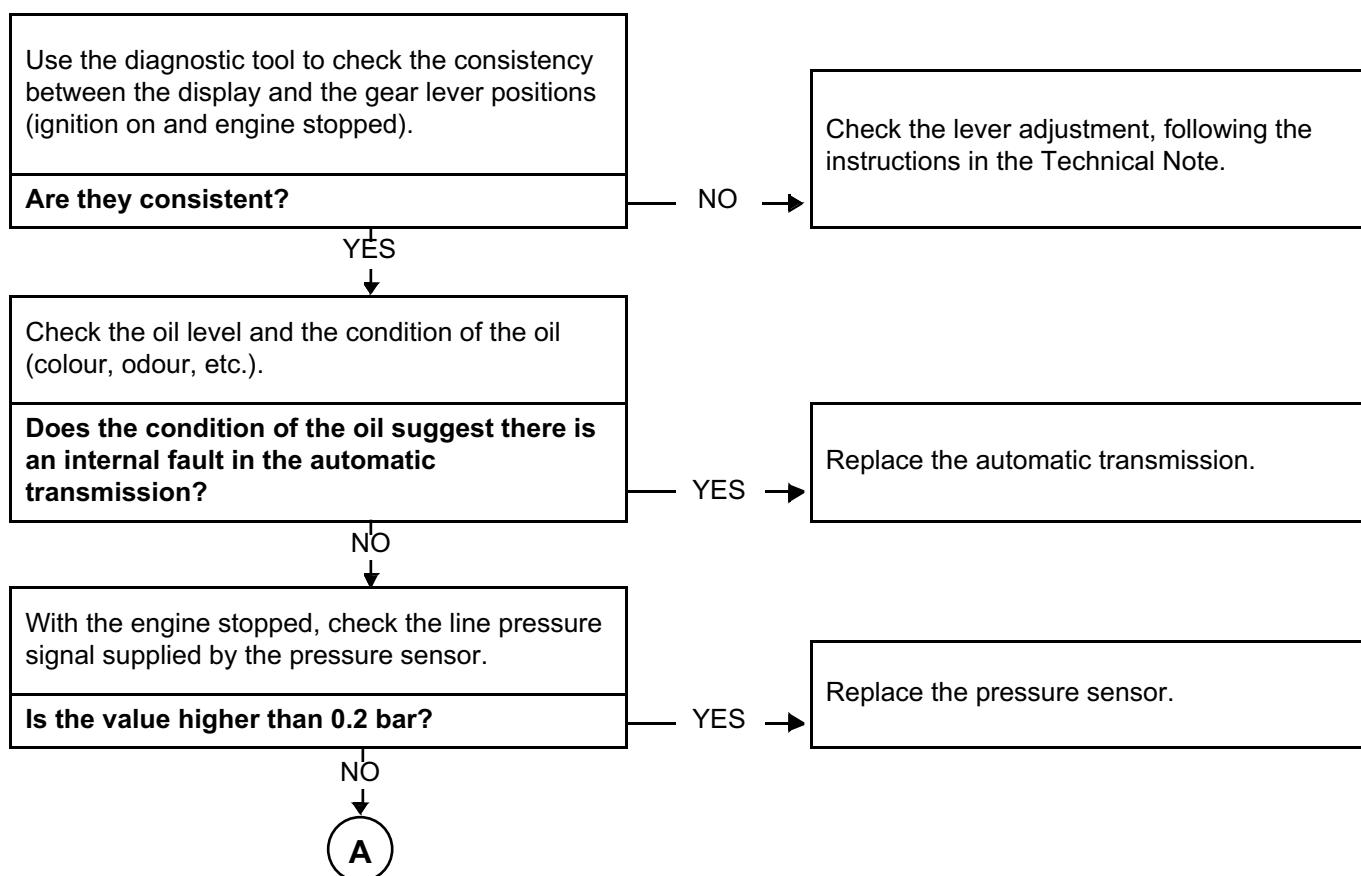
yes

Check the power circuit of the starter relay and the starter.

AFTER REPAIR

Carry out a road test then check with the diagnostic tool.

ALP 3	AUTOMATIC TRANSMISSION OPERATING FAULTS
NOTES	<p>Refer to the fault finding charts only after carrying out a fault finding procedure using the diagnostic tool and after completing the conformity check.</p> <p>If the engine races while cold when shifting from 1st to 2nd gear (automatic transmission oil temperature below 15?), replace the pressure modulating solenoid valve</p>



AFTER REPAIR	<p>On completion of the work, clear the computer's fault memory and the auto-adaptive parameters by using the command. Refer to the Help section for resetting the oil age counter (enter the date if the automatic transmission oil has been changed).</p>
---------------------	---

ALP 3 CONTINUED 1

A

NO

Check the oil level.
Fit a pressure gauge to the pressure measurement tapping on the automatic transmission housing (if a level check has already been carried out, ensure that the oil temperature is greater than 20°C before continuing).
Note the line pressure value shown on the pressure gauge and by the diagnostic tool in the following conditions:

– **With the brakes applied, lever in position D and engine speed = 1200 rpm.**

Do the readings on the pressure gauge and the diagnostic tool differ by more than 0.5 bar?

YES

Replace the pressure sensor.
Repeat the check after replacement.

NO

Automatic transmission oil between 60° and 90°, brakes applied and lever in position D, place a pedal press or a stop on the accelerator pedal to get a stable pressure setpoint of **approximately 8 bar** (engine speed approximately 1300 rpm).
Note the values obtained in these conditions, making sure that the engine speed remains stable between the two readings. These measurements must be carried out as quickly as possible so that these conditions do not have to be maintained for too long.

Is the difference between the two values more than 0.3 bar?

YES

Replace the pressure modulating solenoid valve and the oil. Repeat the check after replacement.
If the fault is still present, replace the hydraulic distributor and all the solenoid valves.

NO

B

AFTER REPAIR

On completion of the work, clear the computer's fault memory and the auto-adaptive parameters by using the command. Refer to the Help section for resetting the oil age counter (enter the date if the automatic transmission oil has been changed).

ALP 3 CONTINUED 2

B

NO

Start the engine.
With the brakes applied, move the selector lever to position **D** and accelerate, observing the turbine speed signal.

Does the turbine speed signal change?

YES

Replace the automatic transmission.

NO

Refer to the procedure and the safety instructions for carrying out a setting point check on the torque converter.
Theoretical value of engine speed at the setting point:

2300 ± 150 rpm.

Is the value of the setting point wrong or is there an internal noise in the converter?

YES

Replace the torque converter, the lock-up solenoid valve and the oil. If the oil is burnt, also replace the hydraulic distributor and all the solenoid valves.
When replacing the torque converter, ensure that the reaction shaft is securely attached to the hub of the oil pump (flanged shaft).
Note: A setting point which is too low may be linked to a lack of engine power.

NO

C

AFTER REPAIR

On completion of the work, clear the computer's fault memory and the auto-adaptive parameters by using the command. Refer to the Help section for resetting the oil age counter (enter the date if the automatic transmission oil has been changed).

ALP 3 CONTINUED 3

C

NO

Carry out a road test, monitoring the engine speed on the instrument panel and the displays on the diagnostic tool (refer to the Help section).

Does the engine speed change each time there is a gear change?

NO

Replace the hydraulic distributor and all the solenoid valves.

YES

The checks carried out have not provided any evidence of a fault and the automatic transmission appears to be working correctly. If the vehicle does show the customer complaint selected, continue with the entire fault finding procedure.

AFTER REPAIR

On completion of the work, clear the computer's fault memory and the auto-adaptive parameters by using the command. Refer to the Help section for resetting the oil age counter (enter the date if the automatic transmission oil has been changed).

AUTOMATIC TRANSMISSION

Fault finding - Fault Finding Chart

23A

ALP 4

AUTOMATIC TRANSMISSION MALFUNCTIONS WHEN CHANGING GEARS

NOTES

Consult the Fault finding charts only after carrying out a complete fault finding procedure using the diagnostic tool and after completing the conformity check.

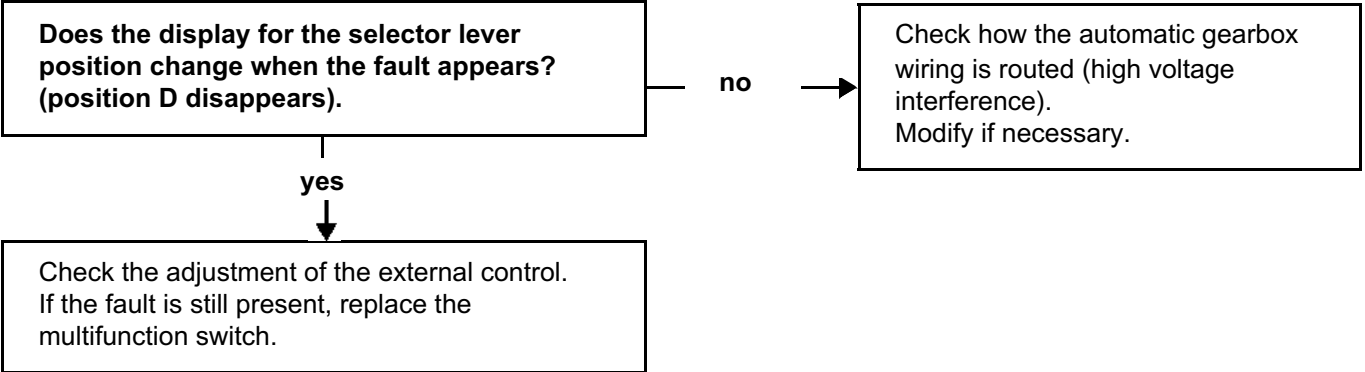
The automatic transmission may show malfunctions during gear changing without any fault being stored in the computer. These malfunctions may be due to contact resistance problems on the control lines of the sequence and progressivity solenoid valves (SSV1 to SSV6) preventing the self-test system from detecting a fault in the solenoid valve or preventing the solenoid valves from being controlled.
Check the clamping action and condition of the clips on all the connections to the solenoid valve control lines (from the computer to the solenoid valve).

AFTER REPAIR

Carry out a road test then check with the diagnostic tool.

ALP 5	ERRATIC GEAR CHANGES
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NOTES	Refer to the fault finding charts only after carrying out a fault finding procedure using the diagnostic tool and after completing the conformity check.
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AFTER REPAIR	Carry out a road test then check with the diagnostic tool.
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AUTOMATIC TRANSMISSION

Fault finding - Fault Finding Chart

23A

ALP 6

REVERSING LIGHTS DO NOT WORK

NOTES

Refer to the fault finding charts only after carrying out a fault finding procedure using the diagnostic tool and after completing the conformity check.

Switch off the ignition, disconnect the automatic transmission connector.
Switch the ignition back on and check whether there is a **+ After ignition** on **track A2** of the **12-track green module** on the vehicle wiring side.

Is **+ After ignition** present on track A2?

no

Ensure the continuity of the connection between **track A2** of the **12-track green module** and the passenger compartment interconnection unit.

yes

Switch off the ignition and check the continuity between **tracks A1 and A2** of the **12-track green module** on the gearbox side, with the lever in position **R**.
If continuity is not provided, replace the multifunction switch.
If continuity is good, ensure that there is continuity between **track A1** of the module on the vehicle wiring side and the reversing lights. Also check the rear lights earth.

AFTER REPAIR

Carry out a road test then check with the diagnostic tool.

AUTOMATIC TRANSMISSION

Fault finding - Fault Finding Chart

23A

ALP 7

OIL UNDER THE VEHICLE

NOTES

Refer to the fault finding charts only after carrying out a fault finding procedure using the diagnostic tool and after completing the conformity check.

Wash the automatic transmission, check the oil level using the method described in the Technical Note, mop up the leak and locate its origin.

Deal with the source of the leak and replace the faulty components.

Check the oil level.

AFTER REPAIR

Carry out a road test then check with the diagnostic tool.

AUTOMATIC TRANSMISSION

Fault finding - Fault Finding Chart

23A

ALP 8

NO GEAR LEVER LOCK IN "PARK" POSITION

NOTES

Refer to the fault finding charts only after carrying out a fault finding procedure using the diagnostic tool and after completing the conformity check.

Carry out fault finding procedure **DF095** even if there is no fault identified in the shift-lock electromagnet. Check the brake pedal switch circuits. Refer to the fault finding of statuses **ET003** and **ET142**.

If the customer complaint is continues, look for a mechanical fault on the lever locking mechanism.

AFTER REPAIR

Carry out a road test then check with the diagnostic tool.

DP094082.0

AUTOMATIC TRANSMISSION

Fault finding - Fault Finding Chart

23A

ALP 9

GEAR LEVER JAMMED IN PARK POSITION

NOTES

Refer to the fault finding charts only after carrying out a fault finding procedure using the diagnostic tool and after completing the conformity check.

Carry out fault finding procedure **DF095** even if there is no fault identified in the shift-lock electromagnet. Check the brake pedal switch circuits. Refer to the fault finding of statuses **ET003** and **ET142**.

If the customer complaint is continues, look for a mechanical fault on the lever locking mechanism.

AFTER REPAIR

Carry out a road test then check with the diagnostic tool.

DP094082.0