

On Board Diagnostic (OBD), function

The automatic transmission is controlled electro-hydraulically.

The automatic transmission control module - J217- receives information from components that effect selection of gears and passes the information on to solenoid valves that control the solenoid valves in the valve body. The solenoid valves convey the fluid pressure generated by the ATF pump to the appropriate clutches/brakes to be engaged.

Transmission control module -J217- fault recognition

The term "On Board Diagnostic (OBD)" is specifically for the electronic/electric control.

The control module is equipped with a DTC memory so that in the event of an electronic/electrical component failure or on open circuit the fault can be determined quickly. Fault are recognized by electrical signals and stored in the DTC memory together with an indication of the type of fault and fault location.

The control module recognizes faults during vehicle operation and stores them in a DTC memory. This information will remain available even if the system voltage fails.

The control module distinguishes between faults present (permanent) and temporary faults (sporadic).

If a fault is no longer present after a certain period or a lengthy drive, it will be converted to a sporadic (SP) DTC.

A fault will also be converted to sporadic when the DTC memory is not erased after repairs.

Faults which are stored in the memory as sporadically occurring faults, will be displayed as "sporadic DTCs" when checked by the scan tool VAG 1551. In such cases "SP" appears on the right of the display. If the printer is switched on, the print-out will show "sporadic DTC" after the identification of the fault.

If the sporadic DTC does not occur again after 40 cold engine starts (and subsequent transmission warm-up), the fault in DTC memory will be automatically erased.

The possibilities offered by On Board Diagnosis can only be fully utilized with the vehicle diagnostic, testing and information system VAS5051 or the VAG1551 scan tool (mode 1, rapid data transfer).

Available functions of vehicle diagnostic, testing and information system VAS5051 or the VAG1551 scan tool ⇒ [page 01-42](#) .

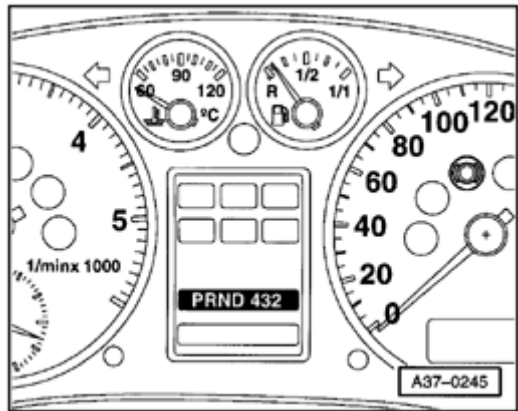
Security functions of the Transmission Control Module (TCM)

When one or more components or sensors fail, the Transmission Control Module (TCM) -J217- activates the appropriate replacement functions or emergency programs. This ensures destruction-free operation of the automatic transmission with some effect on the function and quality of shifting.

When critical malfunctions occur with an active transmission control module -J217-, the currently selected gear will be held. "Mechanical emergency running mode with the control module active" is activated by the transmission control module -J217- as soon as the driving situation regarding transmission security and engine security permits it.

Mechanical backup with active control module

- The transmission shifts out of all forward gears into hydraulic 4th gear. The torque converter clutch is unlocked (not applied). All solenoid valves are de-energized.
- Maximum shift pressure is applied to the power-transmitting elements.



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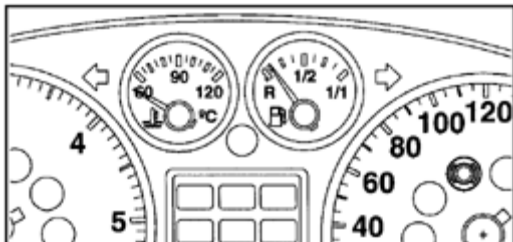
- Reverse gear can be engaged. The shift lock solenoid is active (in "P" and "N").
- All of the segments of the transmission range selector lever display are lit up completely.

- The MIL lights up after 2 Dcy); check DTC memory (⇒ [page 01-43](#) and compare with DTC table ⇒ [page 01-45](#) .

If the TCM -J217- malfunctions (e.g. if the power supply is faulty or the connector becomes disconnected), the transmission will immediately switch to "mechanical back-up mode with inactive control module" and continue to operate.

Mechanical backup with non-active control module

- The transmission shifts out of all forward gears into hydraulic 4th gear. The torque converter clutch is unlocked (not applied). All solenoid valves are de-energized.
- Maximum shift pressure is applied to the power-transmitting elements.
- Reverse gear can be engaged. The shift lock solenoid is active (in "P" and "N").
- All of the segments of the transmission range selector lever display are dark.
- The MIL lights up when the Engine control module (ECM) has recognized a CAN-bus malfunction (missing data exchange between engine and transmission control modules) (after 2 Dcy); if necessary,



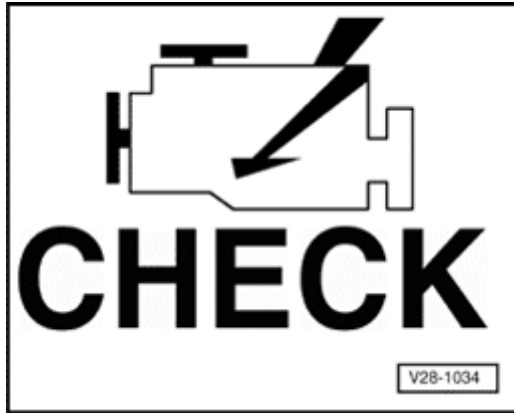
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check DTC memory of the control module.

- Transmission control module -J217- does not function at all, i.e. it cannot be checked via On Board Diagnostic (OBD).

Malfunction Indicator Lamp (MIL) function, checking

If emissions-influencing malfunctions are recognized by the TCM, the Malfunction Indicator Lamp (MIL) will be switched on.



Location of the MIL: integrated in speedometer in instrument cluster

Notes:

When the MIL is switched on, it will either blink or light continuously. In either case, the DTC memory for the TCM must be checked ⇒ [page 01-43](#).

- ◆ *MIL flashing: there is a malfunction that could damage the Three Way Catalytic Converter (TWC). In this case, drive only with reduced power.*
- ◆ *MIL continuously on: there is a malfunction that degrades emissions. Check DTC memory of the Engine Control Module (ECM) or the TCM.*
- ◆ *If there are driveability problems (e.g. a customer complaint) and the MIL is not on, the MIL functional test must be carried out, since malfunctions that do not immediately switch on the MIL can be stored.*

MIL functional check

- Switch ignition on. the MIL must come on.

If the MIL does not come on when the ignition is switched on (with the engine not running):
Check DTC memory ⇒ [page 01-43](#) . If necessary, check wiring per wiring diagram or replace light bulb.

- Start engine and let idle: the MIL must be switched off after several seconds.

If the MIL is not switched off after the engine is started: Check DTC memory ⇒ [page 01-43](#) .

Conditions for recognition of a driving cycle (Dcy)

A driving cycle (Dcy) is considered complete when the ignition is switched on one time, the engine is started, the engine start is recognized by the control module, and the ignition is switched off again.

On Board Diagnostic (OBD), technical data

Memory	
◆ Permanent memory	yes
Data output	
Rapid data transfer	yes
Blink code output	no
Output Diagnostic Test Mode	yes
Basic setting	no
Coding control module	yes
Read measuring value block	yes

Electrical/electronic component locations ⇒
[Page 01-11](#)

On Board Diagnostic II (OBD II), functions

Note:

The following modes can be selected via address word 33:

Mode	Function
1	Transmit diagnostic data: ◆ Only certain individual test values can be read. In the workshop, the measuring value block is read only using address word 02, function 08.
2	Not applicable
3	Check DTC memory: ◆ Only emissions-influencing malfunctions are indicated immediately or after two driving cycles (Dcy), depending on the malfunction, via the corresponding P-codes. In the workshop DTC memory is checked using address word 02, function 02.
4	Erase DTC memory: ◆ DTC memory can be erased even if it has not previously been read. In the workshop DTC memory is erased using address word 02, function 05.
5	Not applicable
6	Not applicable
7	OBD test results, continuously monitored: ◆ Emissions-related malfunctions can be read, even if these malfunctions have not existed long enough for the MIL to be switched on.

Mode	Function
8	<ul style="list-style-type: none"><li data-bbox="319 319 727 373">• Not applicable
9	<p data-bbox="290 436 1417 491">This mode only applies as of model year 2000.</p> <ul style="list-style-type: none"><li data-bbox="319 578 3083 632">• The first value indicates the Part No. and the program or data status of the Transmission Control Module (TCM).<li data-bbox="319 684 2994 801">• The second value indicates a checking summation, for instance A357. This value is calculated internally and can be disregarded.