

Audi A4 1995 ➤

Automatic gearbox 01N Self-diagnosis								
Geartype	01N							

Edition 01.1998



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List of Workshop Manual Repair GroupsList of Workshop Manual
Repair GroupsList of Workshop Manual Repair Groups

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Automatic gearbox 01N Self-diagnosis

Repair Group

01 - Self-diagnosis, Electrical check



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Technical information should always be available to the foremen and mechanics, because their careful and constant adherence to the instructions is essential to ensure vehicle road-worthiness and safety. In addition, the normal basic safety precautions for working on motor vehicles must, as a matter of course, be observed.

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Audi Automatic gearbox 01N Self-diagnosis - Edition 01.1998



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01 - Self-diagnosis, Electrical check

1 - Self-diagnosis function

1.1 - Self-diagnosis function

The automatic gearbox is controlled electro-hydraulically.

The control unit for the automatic gearbox -J217 is supplied with information from components which influence gear selection, and generates signals to control the relevant solenoid valves in the valve body. The solenoid valves direct the fluid pressure produced by the ATF pump to close the appropriate clutches or brakes in the gearbox.

=> Self-Study Programme 172; Automatic Gearbox, 1995 Model Year

Gearshift programs in gearbox control unit for different driver types and driving situations

These gearshift programs were developed to accommodate the driving style of different driver types. The appropriate gearshift programs are selected automatically for "sporty" or economical drivers to give the best possible performance and refinement combined with optimum fuel economy.

Gearshift program in gearbox control unit according to "motion resistance factor"

The degree of resistance to motion on uphill or downhill gradients or when towing a trailer or driving against a headwind is registered automatically and related to various gearshift maps. The gearshift points are then selected automatically via these maps according to the throttle position and road speed.

Gearbox control unit fault recognition

The term "self-diagnosis" relates to the electronic and electrical components of the control system.

The control unit is equipped with a fault memory so that in the event of an electronic/electrical component failure or an open circuit the fault can be determined quickly.

Faults are detected via electrical signals. If faults occur in the monitored sensors or components, these are stored in the memory together with an indication of the location and the nature of the fault.

The control unit for the automatic gearbox -J217 will diagnose and store particular types of fault under various conditions. After processing the available information, it will distinguish between sporadic faults and static (i.e. continuously present) faults and store them accordingly. Interrogating fault memory =>page 21 .

When a fault occurs for the first time it is stored as a static fault. If the fault does not occur again after 6 to 24 minutes (or over a distance of 5 to 20 km) it is classified as a sporadic fault (SP).

Faults which are stored as sporadic faults in the fault memory are displayed as such when the fault memory is interrogated with V.A.G 1551 (or V.A.G 1552). In this case, "SP" appears on the right of the display. If the printer is switched on it will print out "sporadic fault" after the fault is identified.

Faults which are stored in the memory as sporadically occurring faults are automatically erased after 1,000 km (625 miles) or 20 hours.

The self-diagnosis functions are only available with the fault reader V.A.G 1551 (or V.A.G 1552) in operating mode 1 "Rapid data transfer".

For details of functions that can be performed with fault reader V.A.G 1551 (or V.A.G 1552) => List of selectable functions, page 20 .



Safety functions of gearbox control unit

If critical faults occur when driving, the gearbox will continue to operate in a back-up mode, or "emergency running" program. If the fault occurs with the selector lever in "D", "3" or "2", the emergency running program will engage 3rd gear.

If the fault occurs in "1", "P", "N" or "R", the emergency running program will retain whichever gear is engaged.

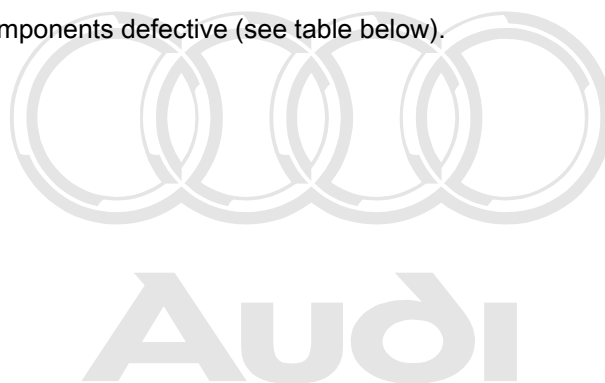
If the engine is started again in the emergency running mode and the fault occurs when selector lever is in position "D", "3" or "2" then 3rd gear is activated hydraulically, until the fault is rectified.

If the emergency running mode has been activated when a fault has occurred, the gearbox will remain in the emergency running mode until the ignition is switched off.

Faults which may lead to emergency running:

Open circuit in wiring, short-circuit, electrical or hydraulic components defective (see table below).

Fault code	
00258	Solenoid valve 1 -N88
00260	Solenoid valve 2 -N89
00262	Solenoid valve 3 -N90
00264	Solenoid valve 4 -N91
00266	Solenoid valve 5 -N92
00268	Solenoid valve 6 -N93
00270	Solenoid valve 7 -N94
00281	Road speed sender -G68
00297	Gearbox speed sender -G38
00529	Speed information missing
00545	Engine/gearbox electrical connection
00652	Gear monitoring
65535	Control unit defective



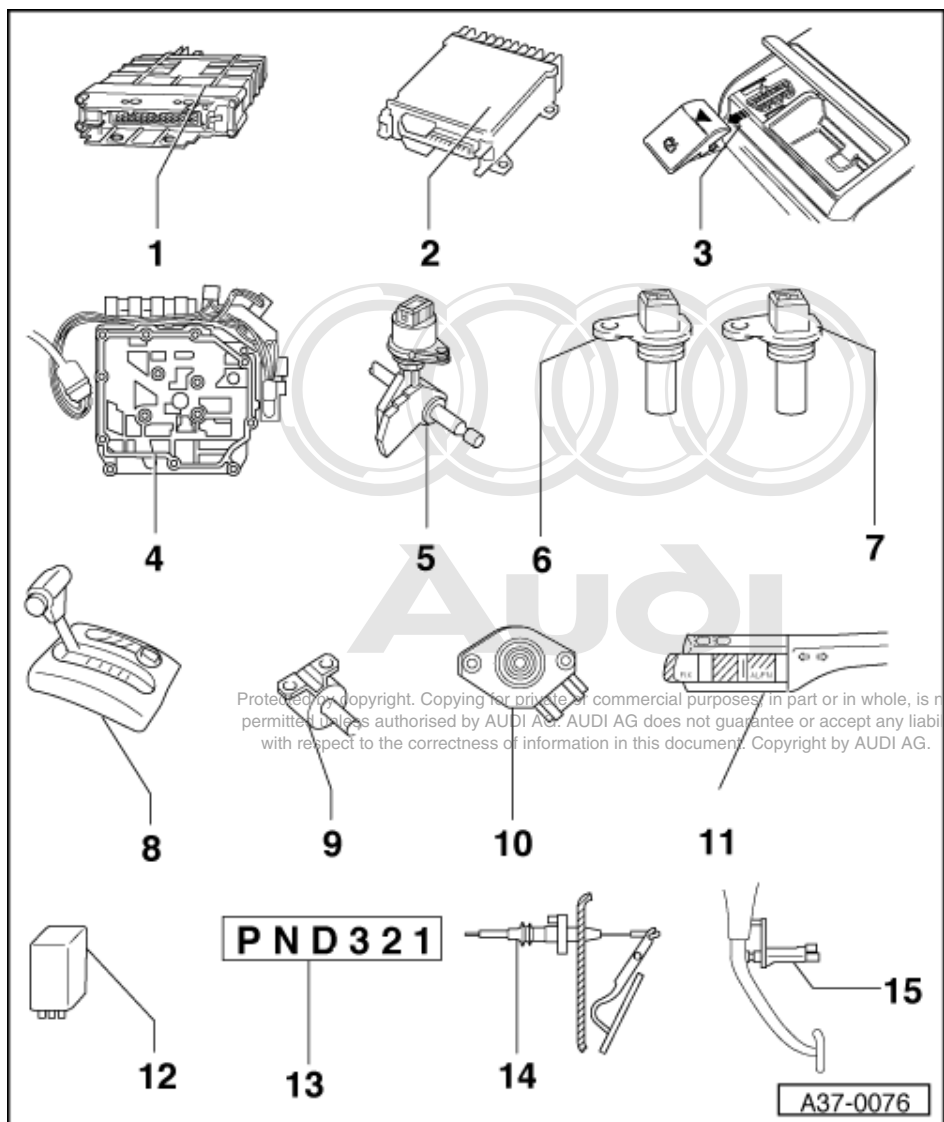
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1.2 - Technical data of self-diagnosis

Memory	
-Permanent memory	yes
- Volatile memory	no
Data output	
- Rapid data transfer	yes
- Flash code output	no
Final control diagnosis	no
Basic setting	yes
Coding control unit	no
Reading measured value block	yes
Electric/electronic components and fitting locations	=> Page 3

2 - Locations of electrical/electronic components

2.1 - Locations of electrical/electronic components



1 Automatic gearbox control unit -J217-

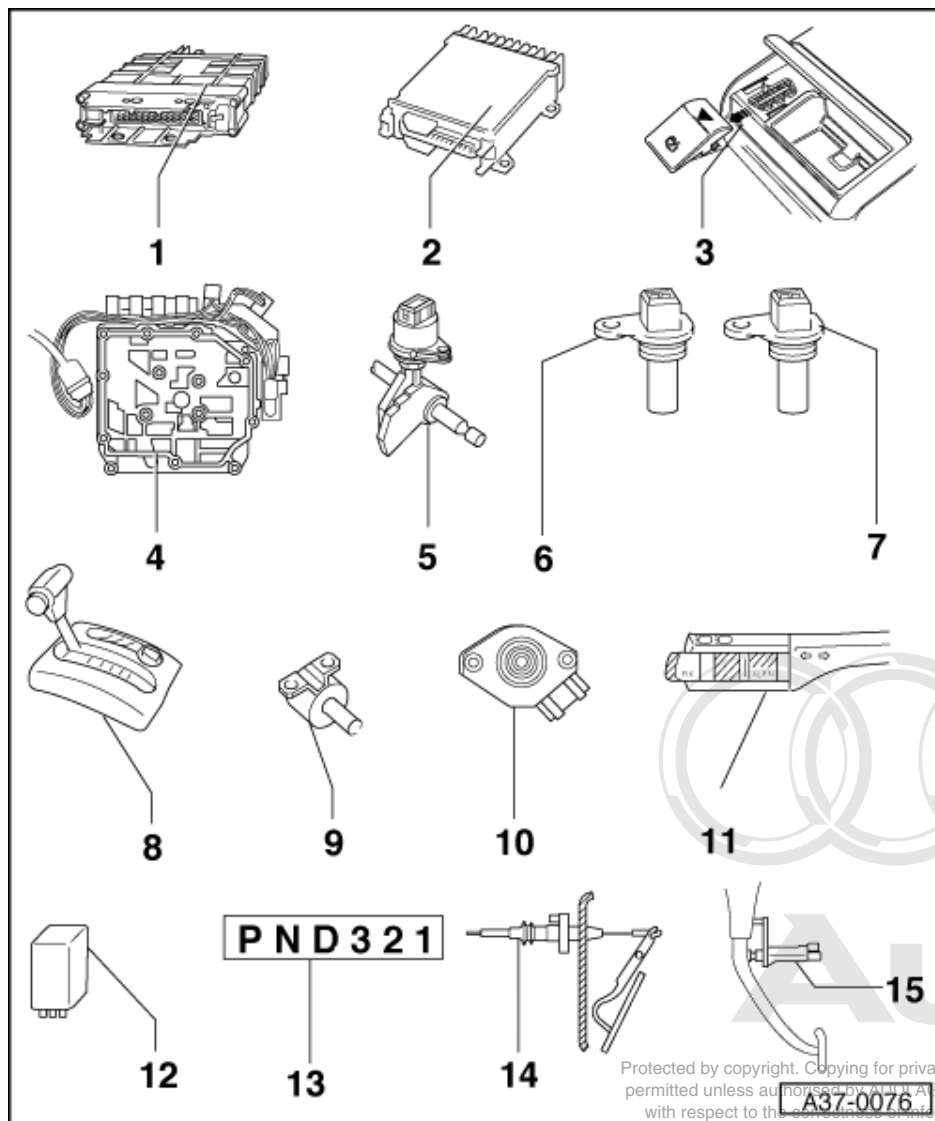
- ◆ Location => Fig. 11
- ◆ Removing => Fig. 11
- ◆ Installing => Fig. 12
- ◆ Control units are checked by self-diagnosis => Carrying out self-diagnosis, Page 18

2 Engine control unit

- ◆ Location => Fig. 12

Note:

If engine or gearbox control units are replaced, the system must be brought to basic setting => page 31, Initiating basic setting.



3 Diagnosis connection

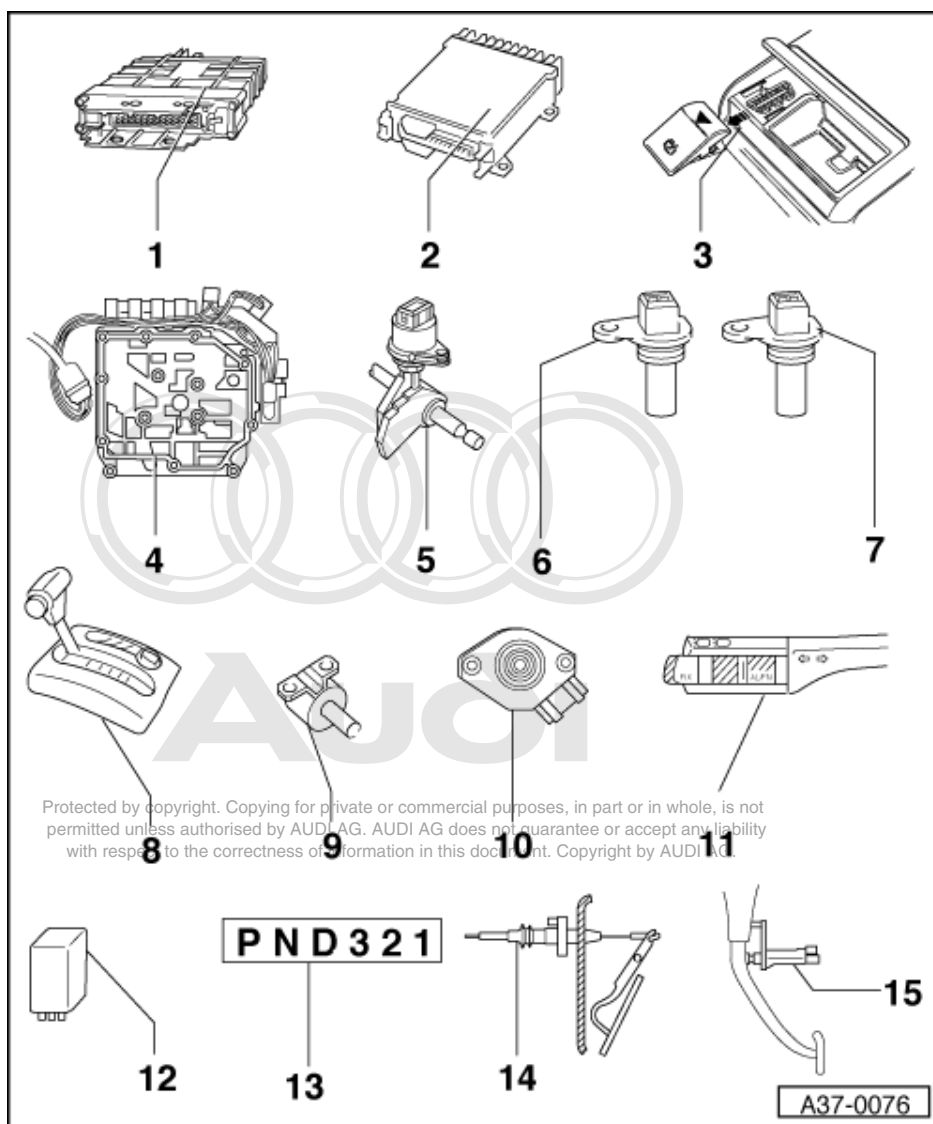
- ◆ Location => Fig. 13

4 Valve body

- ◆ Location => Fig. 13
- ◆ The solenoid valves -N88-, -N89-, -N90-, -N91-, -N92-, -N93- and -N94- are attached to the valve body
- ◆ The gearbox oil temperature sender (ATF) -G93 is integrated in the conductor strip (to solenoid valves); removing and installing=>Fig. 7
- ◆ Components are checked by self-diagnosis

5 Multi-function switch -F125-

- ◆ Location and removing and installing =>Fig. 14
- ◆ Checked by self-diagnosis



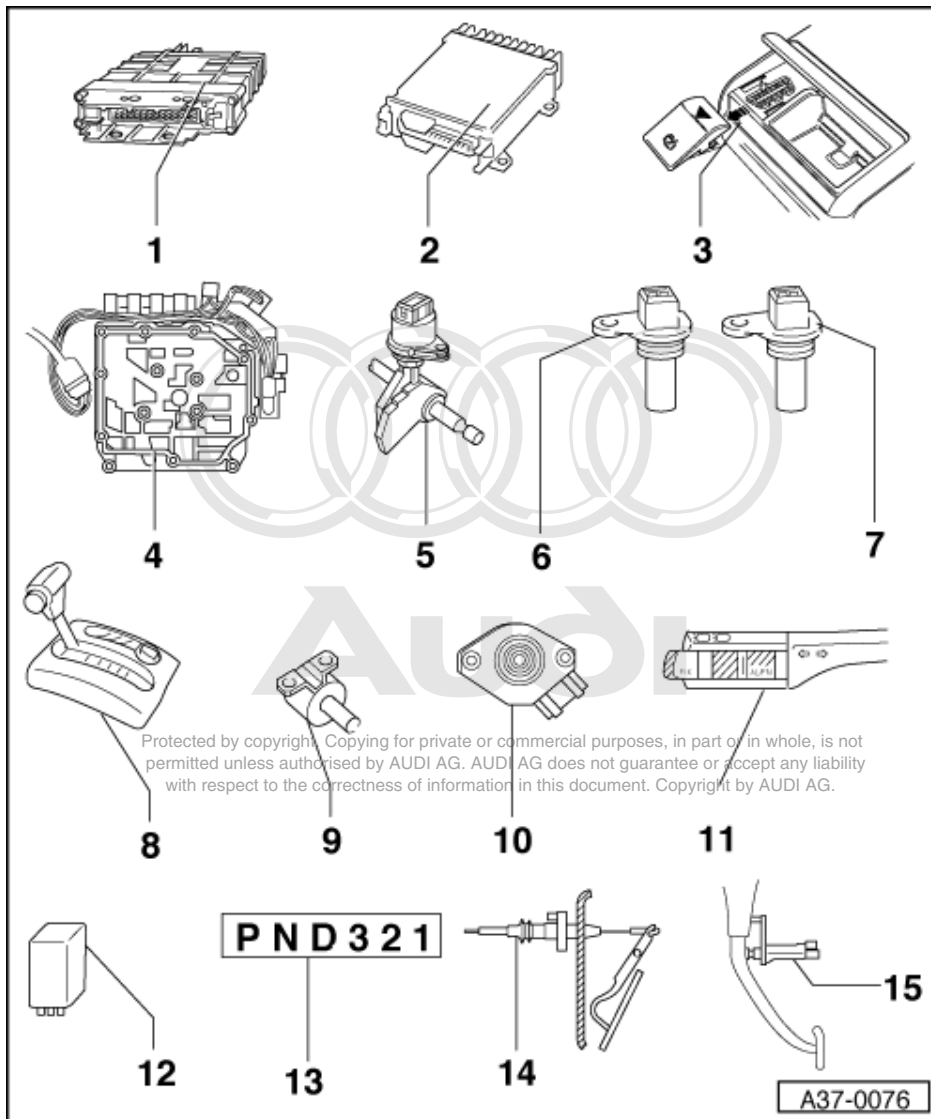
6 Gearbox speed sender -G38-

- ◆ Location and removing and installing =>Fig. 15
- ◆ Checked by self-diagnosis
- ◆ Functioning is impaired by dirt; clean if necessary

7 Road speed sender -G68-

- ◆ Location and removing and installing =>Fig. 15
- ◆ Checked by self-diagnosis
- ◆ Functioning is impaired by dirt; clean if necessary

Do not interchange connectors for senders -G38- and -G68-



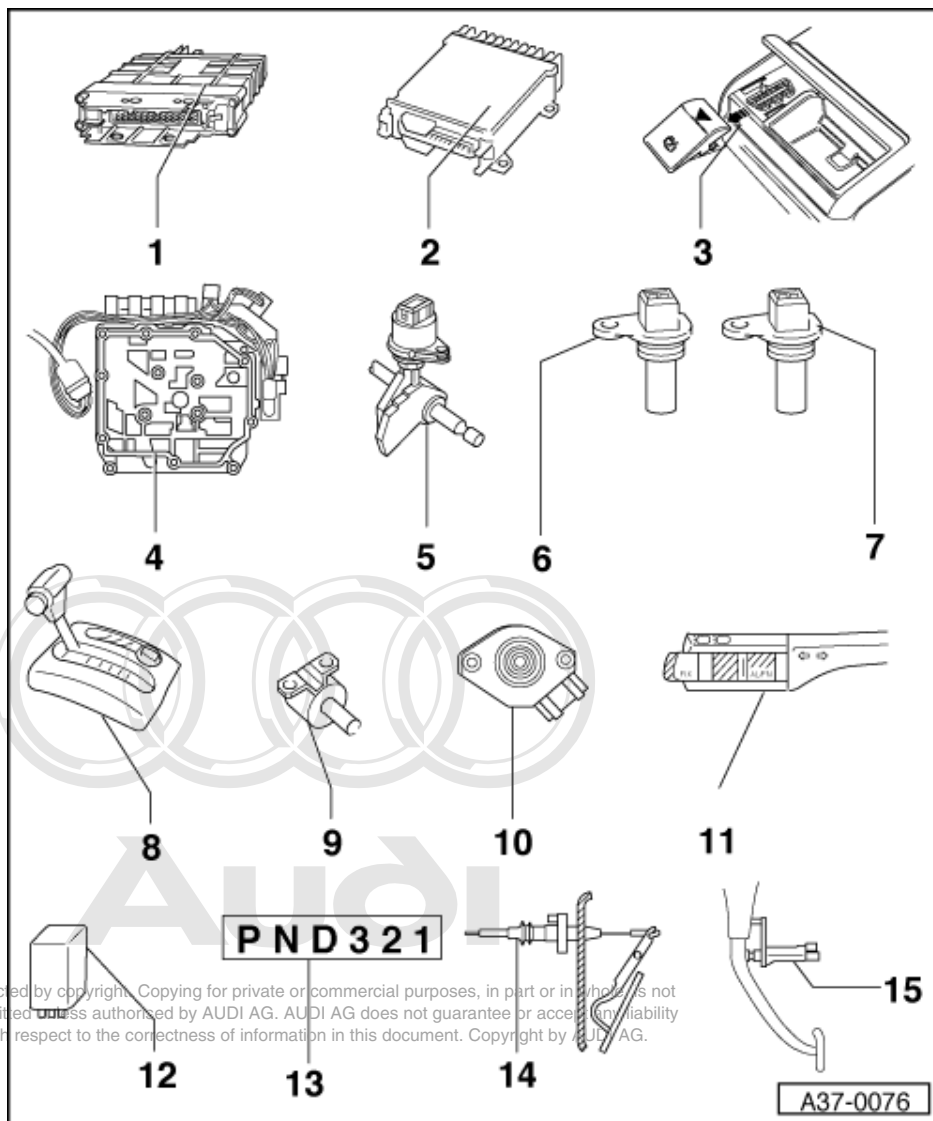
8 Shift mechanism

- ♦ Repairing shift mechanism

=> Automatic Gearbox 01N; Repair Group 37; Repairing shift mechanism Repairing shift mechanism

9 Solenoid for selector lever lock -N110-

- ♦ Location => Fig. 16
- ♦ Can be checked electrically
=> page 32



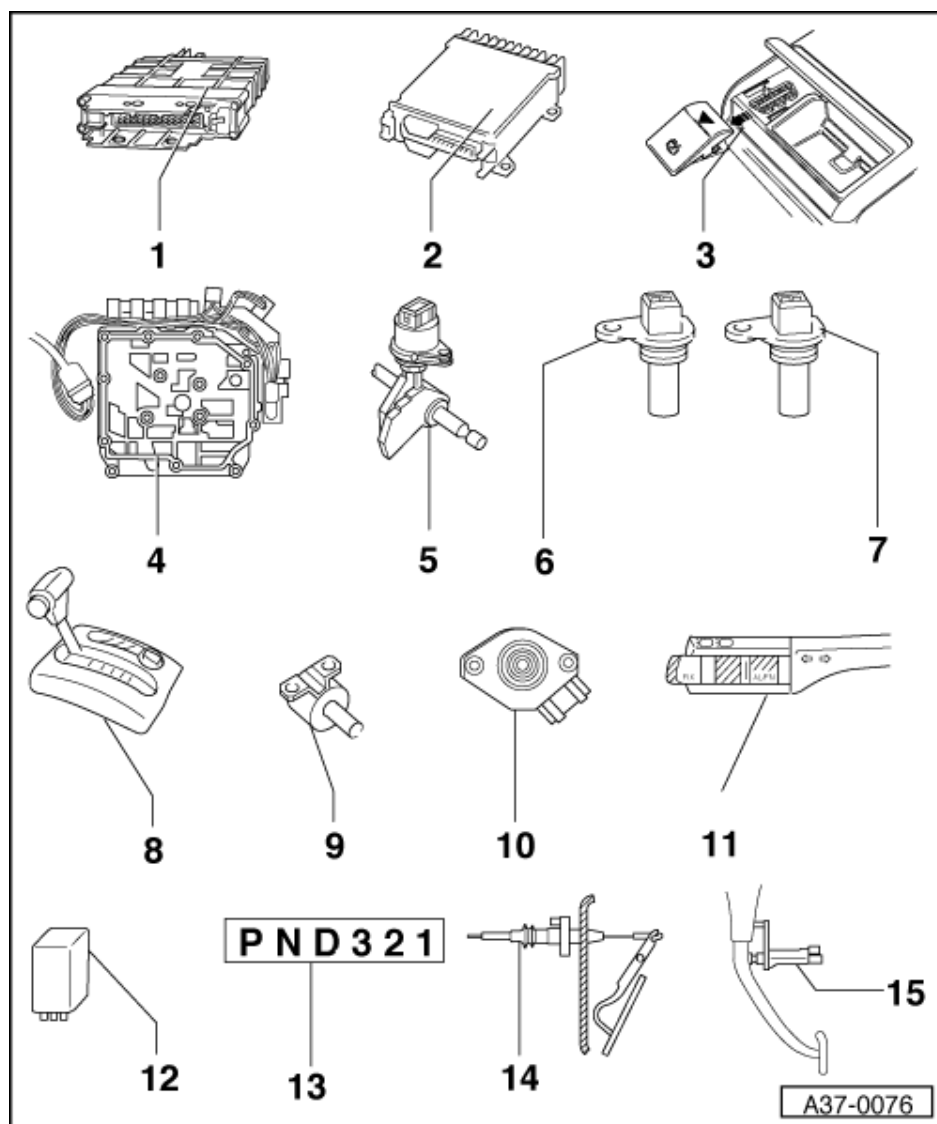
10 Throttle valve control part -J338

- ◆ Location: on throttle valve housing
- ◆ Checking operation

=> Motronic Fuel Injection and Ignition (4-Cylinder); Repair Group 24; Checking throttle valve control part
Checking throttle valve control part

- ◆ Signal is checked by self-diagnosis
- ◆ The signal is transmitted from the throttle valve control part to the gearbox control unit via the engine control unit. The signal can only be checked in the measured value block => page 32 . If self-diagnosis indicates that the throttle valve potentiometer or the throttle valve control part is the cause of the fault, always perform self-diagnosis for the engine control unit as well as for the gearbox control unit

=> Motronic Fuel Injection and Ignition (4-cylinder); Repair Group 01; Self-diagnosis; Interrogating fault memory
Self-diagnosis Interrogating fault memory



♦ Initiate basic setting after completing repairs => page 31

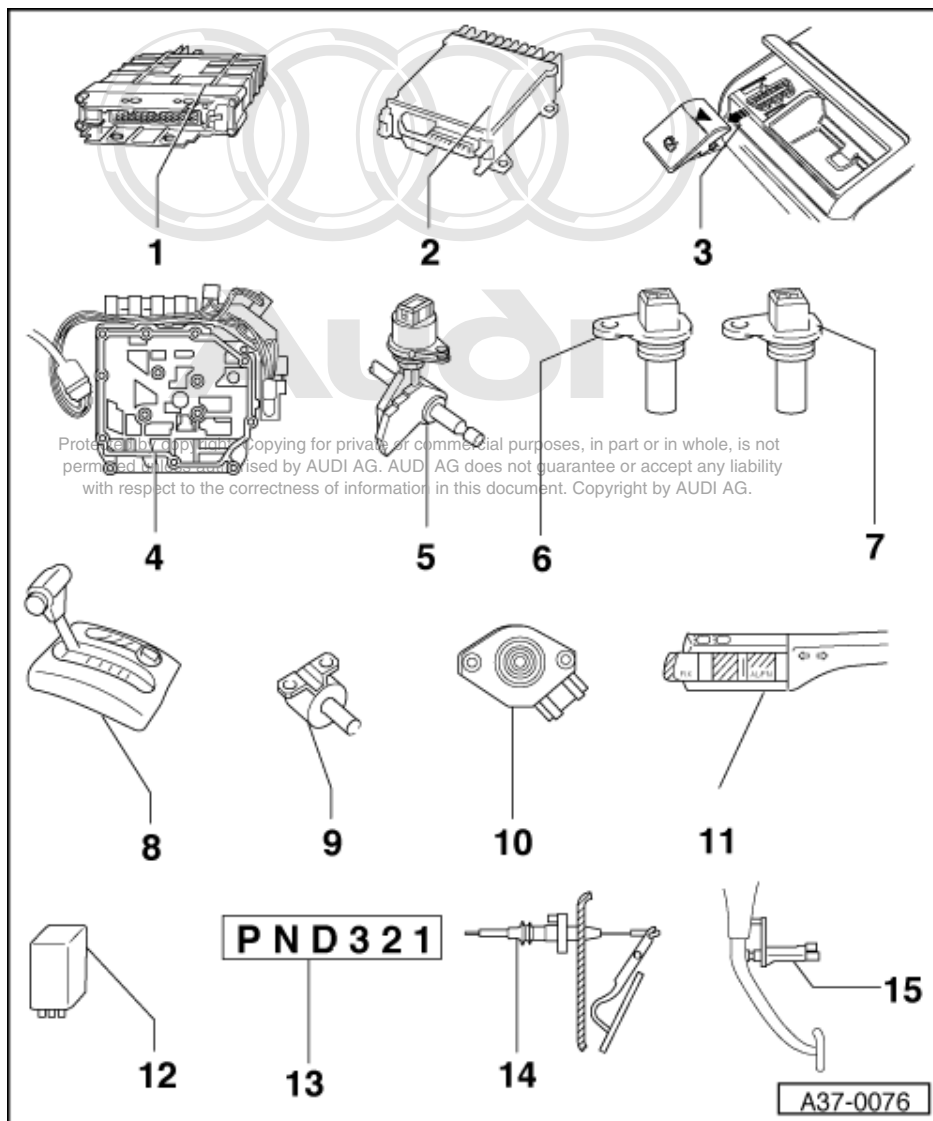
Notes:

- ♦ On the TDI engine the function of the throttle valve potentiometer is performed by accelerator position sender -G79
- ♦ Testing accelerator position sender -G79

=> Diesel Direct Injection and Glow Plug System (TDI 4-cylinder); Repair Group 23; Testing control unit inputs; Checking accelerator position sender Testing control unit inputs Checking accelerator position sender



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11 Cruise control switch -E45-

- ◆ Location => Fig. 16
- ◆ Removing and installing

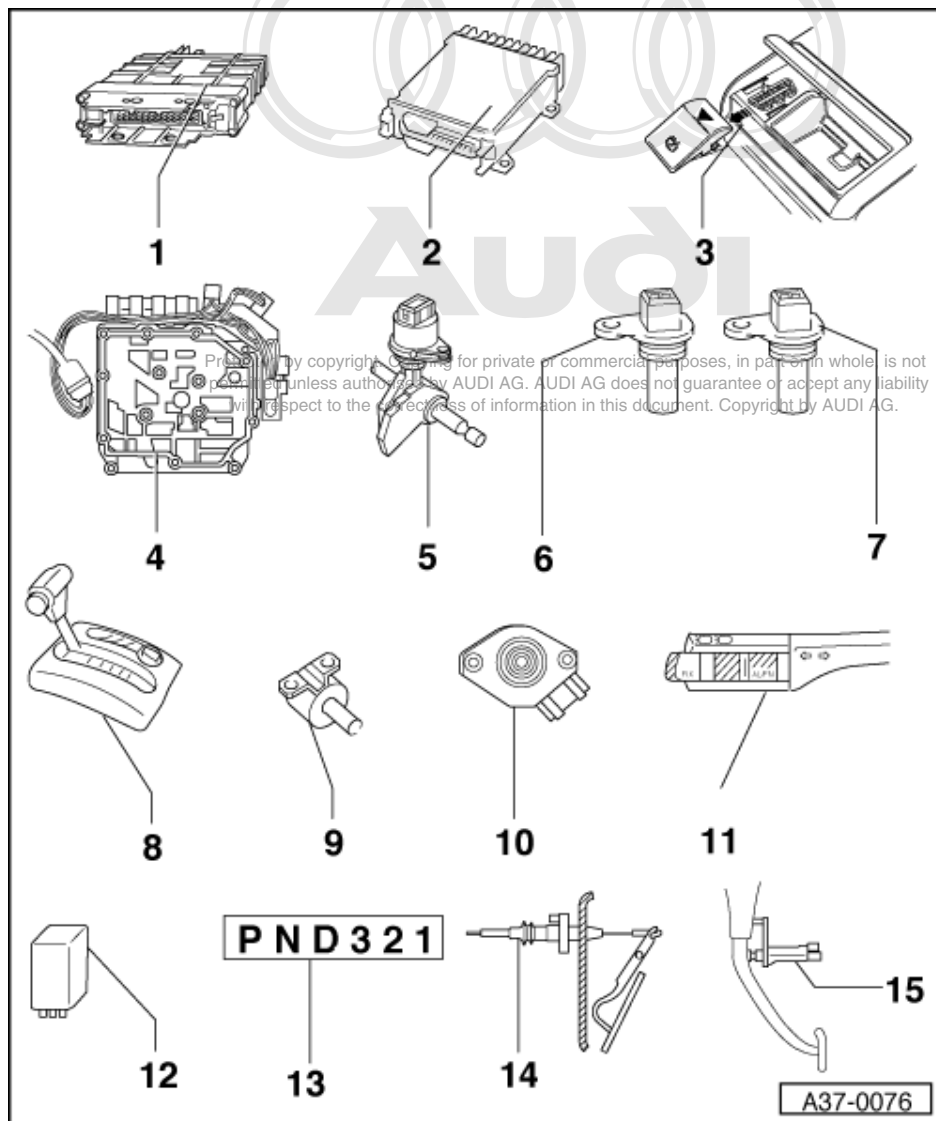
=> Electrical System ; Repair Group 94; Lights, Lamps, Switches - Exterior Removing and installing steering column switch Lights, Lamps, Switches - Exterior Removing and installing steering column switch

- ◆ Can be tested in measured value block => page 32

12 Starter inhibitor and reversing light relay -J226-

- ◆ Location: on relay carrier

=> Current Flow Diagrams, Electrical Fault-Finding and Fitting Locations



13 Selector lever position indicator -Y6

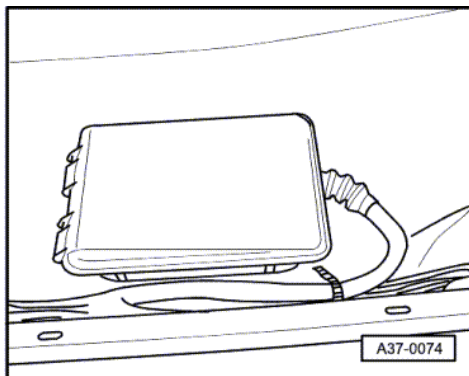
- ◆ Location: in dash panel insert
- ◆ If selector lever position indicator does not light up, this indicates that gearbox is in mechanical emergency running mode
- ◆ If all segments of selector lever position indicator light up together, this indicates that gearbox is in electrical emergency running mode

14 Kickdown switch -F8

- ◆ Location => Fig. 16
- ◆ Can be checked electrically
=> page 32

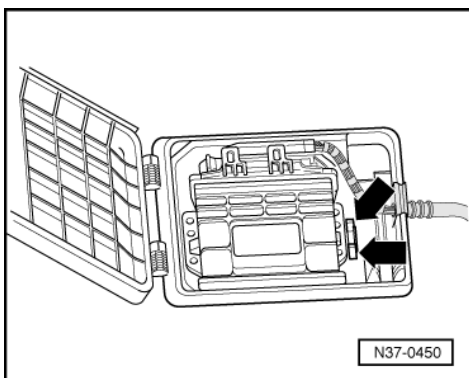
15 Brake light switch -F-

- ◆ Location: => Fig. 17
- ◆ Can be checked electrically
=> page 32



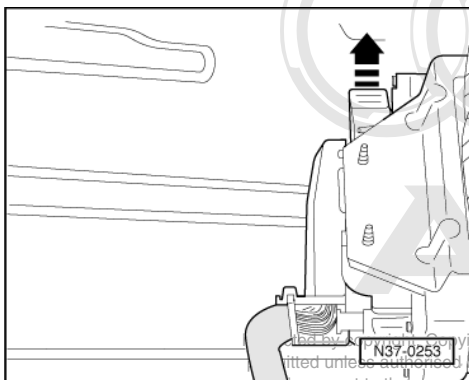
-> Fig.1 Location of automatic gearbox control unit -J217-

The control unit is located in front of the right-hand seat under the carpet in footwell.

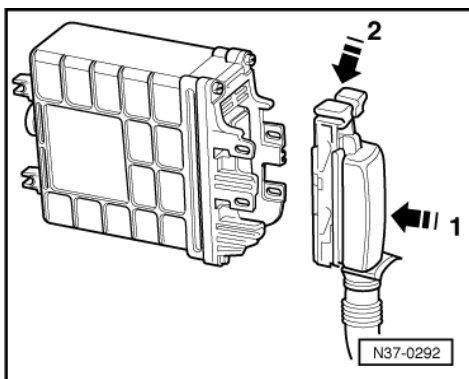


-> Fig.2 Removing automatic gearbox control unit -J217-

- Loosen carpet and fold up.
- Unclip control unit from box -arrows-



- -> Switch ignition off, release multi-pin connector in direction of arrow, and pull off control unit.



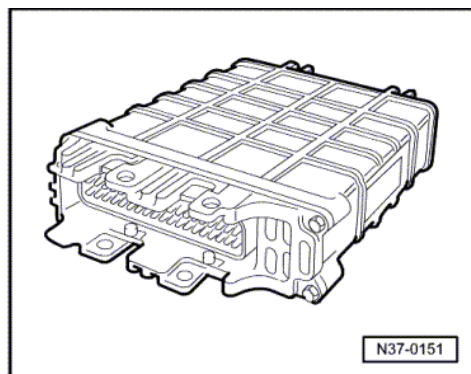


-> Fig.3 Installing automatic gearbox control unit -J217-

- Fit multi-pin connector onto pins on control unit -J217 (1), then lock retainer on multi-pin connector (2).

Note:

When renewing automatic gearbox control unit, perform basic setting=>Page **31**.



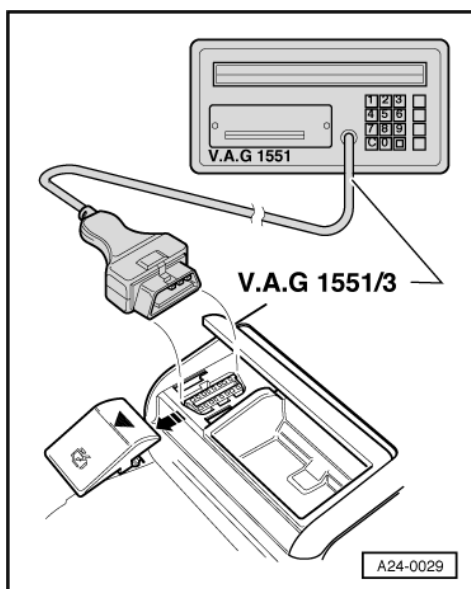
-> Fig.4 Engine control unit

Location: in electronics box in plenum chamber (left side)

Removing and installing control unit

=> Motronic Fuel Injection and Ignition (4-cylinder); Repair Group 24; Servicing Motronic injection system; Renewing engine control unit Servicing Motronic injection system Renewing engine control unit

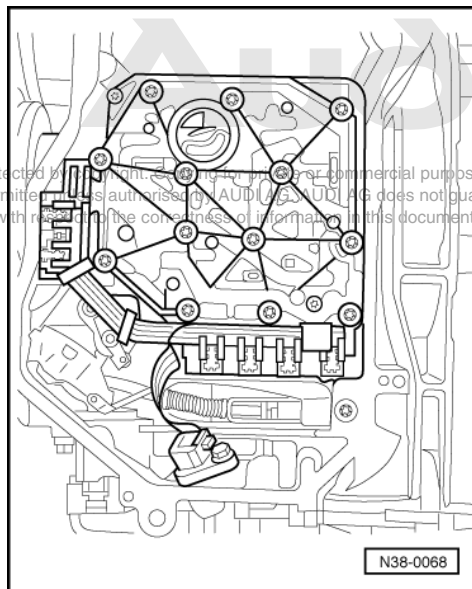
=> Diesel Direct Injection and Glow Plug System (TDI 4-cylinder) ; Repair Group 23; Servicing diesel direct injection system; Renewing engine control unit Servicing diesel direct injection system Renewing engine control unit



-> Fig.5 Diagnosis connections

Location: the diagnosis connection is located below the cover next to the rear ashtray (centre console).

- Connect fault reader V.A.G 1551 and enter address word "02 Gearbox electronics" and advance until "Select function XX" indicated on display => from page 18 .



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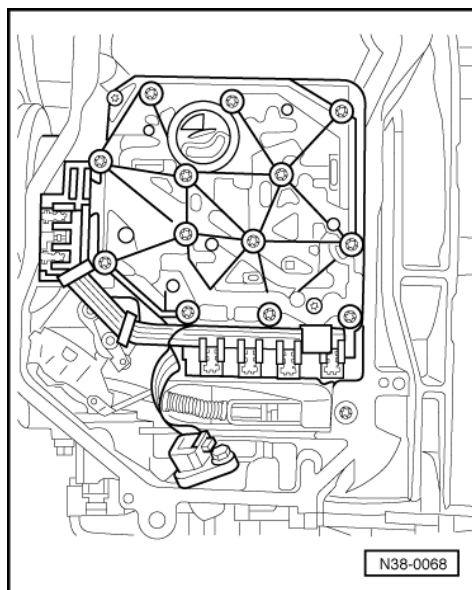
-> Fig.6 Valve body

Location: The valve body is bolted to the underside of gearbox housing inside the oil pan.

The solenoid valves -N88-, -N89-, -N90-, -N91-, -N92-, -N93- and -N94- are attached to the valve body.

Removing and installing valve body

=> Automatic Gearbox 01N; Repair Group 38; Removing and installing valve body Removing and installing valve body





-> Fig. 7 Conductor strip with integrated gearbox oil temperature sender (ATF) -G93-

Location: The conductor strip is located in the oil pan on the valve body.

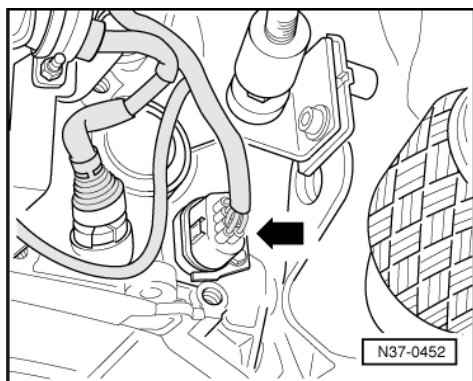
The conductor strip can be changed with gearbox installed without removing the valve body.

If the gearbox oil temperature sender (ATF) -G93- is defective, the conductor strip must be renewed at the same time since the sender is integral with the conductor strip and cannot be replaced separately.

Do not kink or damage the conductor strip.

Removing and installing conductor strip

=> Automatic Gearbox 01N; Repair Group 38; Removing and installing valve body Removing and installing valve body



-> Fig.8 Multi-function switch -F125-

Location: the multi-function switch (arrow) is located on the rear of the gearbox (right side).

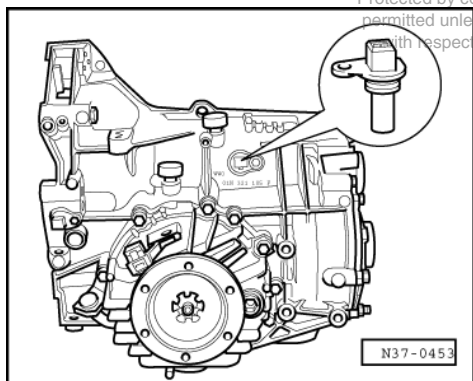
Removing and installing multi-function switch

- Pull connector off multi-function switch.
- Remove bolt and retainer.
- Remove multi-function switch.
- Renew seal.

Installation is performed in the reverse order.

- Tighten bolt to 10 Nm .
- Check ATF level and top-up.

=> Automatic Gearbox 01N; Repair Group 37; Checking ATF level, changing ATF Checking ATF level, changing ATF



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-> Fig.9 Gearbox speed sender -G38-

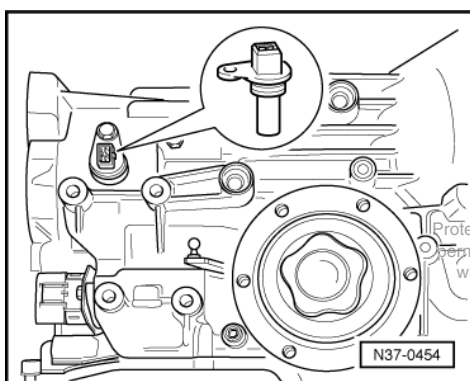
Location: The gearbox speed sender is located left on top of gearbox.

Removing and installing gearbox speed sender

- Pull connector off sender.
- Remove bolt and pull sender out.
- Renew seal.

Installation is performed in the reverse order.

- Tighten bolt to 10 Nm.



-> Fig.10 Road speed sender -G68-

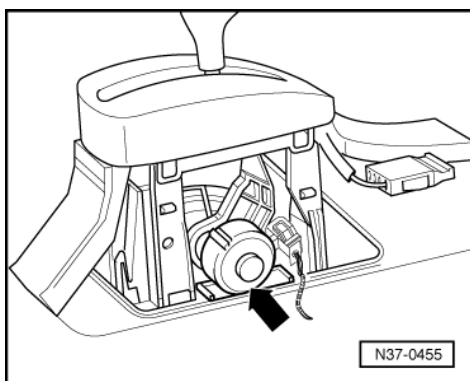
Location: The road speed sender is located right on top of gearbox.

Removing and installing road speed sender

- Pull connector off sender.
- Remove bolt and pull sender out.
- Renew seal.

Installation is performed in the reverse order.

- Tighten bolt to 10 Nm.



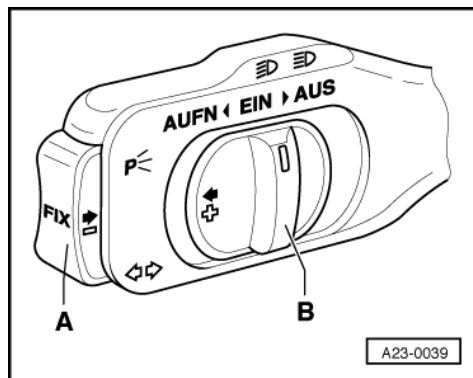


-> Fig.11 Selector lever lock solenoid -N110-

Location: The selector lever lock solenoid is located on selector lever (arrow).

Removing and installing selector lever lock solenoid

=> Automatic Gearbox 01N; Repair Group 37; Servicing shift mechanism Servicing shift mechanism

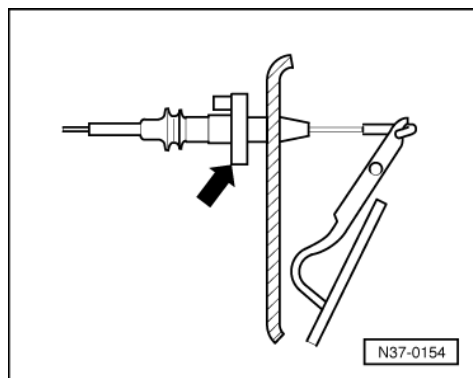


-> Fig.12 Cruise control system switch -E45-

Location: Cruise control switch is located on steering column switch.

Removing and installing cruise control switch

=> Electrical system; Repair Group 94; Servicing steering column switch Servicing steering column switch



-> Fig.13 Kickdown switch -F8

Location in vehicles with petrol engine: integral with throttle cable, in plenum chamber behind bulkhead.

Location in vehicles with TDI engine: integral with accelerator position sender -G79.

Removing and installing kickdown switch

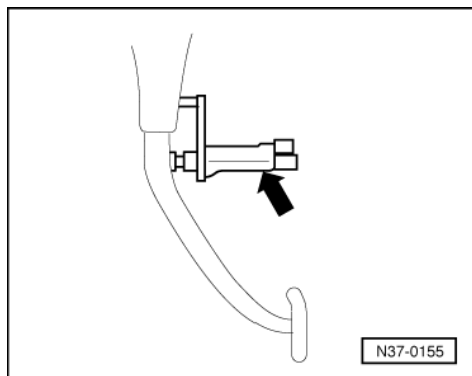
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- 4-cylinder fuel injection engine: to remove and install kickdown switch, remove and install throttle cable then adjust cable

=> 4-Cylinder fuel injection engine (5-valve), Mechanics ; Repair Group 20; Fuel supply; Servicing throttle cable (automatic gearbox) Fuel supply Servicing throttle cable (automatic gearbox)

- 4-cylinder diesel direct injection engine: to remove and install kickdown switch, remove and install accelerator position sender -G79

=> 4-Cylinder diesel direct injection engine (TDI), Mechanics ; Repair Group 20



-> Fig.14 Brake light switch -F-

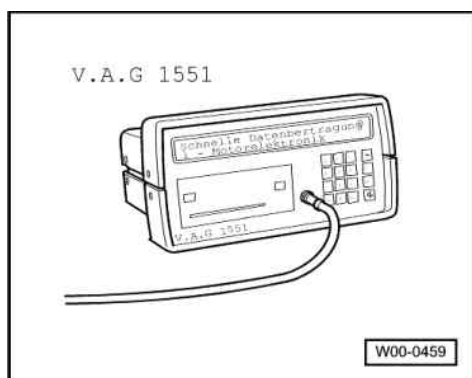
Location: Brake light switch (arrow) is located on pedal cluster.

Removing and installing brake light switch

=> Running Gear; Repair Group 46; Removing and installing pedal cluster; Servicing pedal cluster Removing and installing pedal cluster Servicing pedal cluster

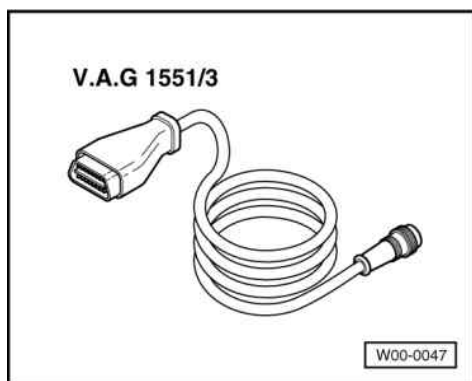
3 - Performing self-diagnosis

3.1 - Performing self-diagnosis



Special tools, testers and auxiliary items

- ♦ V.A.G 1551 Fault reader



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- ♦ V.A.G 1551/3A test lead

Additional information

- ♦ Workshop Manual Audi A4 1995ä , Automatic gearbox 01N
- ♦ Current flow diagrams, Electrical fault finding and Fitting locations

3.2 - Safety precautions

Observe following if test and measuring instruments are required during a test drive:

- ♦ Test and measuring instruments must be secured to rear seat and operated by a 2nd person from this location.

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If test and measuring instruments are operated from front passenger's seat and the vehicle is involved in an accident, there is a possibility that the person sitting in this seat may receive serious injuries when the airbag is triggered.

Warning!

Secure fault reader to rear seat and operate from this position.

3.3 - Connecting fault reader V.A.G 1551 (or V.A.G 1552) and selecting functions

Test conditions:

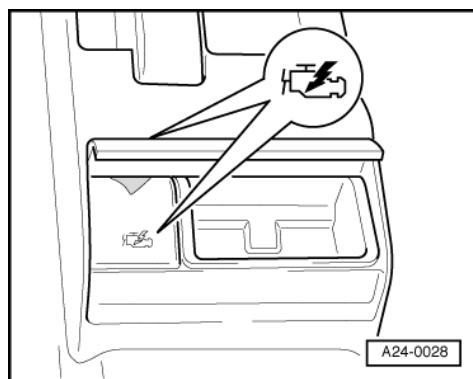
- Selector lever in position "P" and handbrake applied.
- Vehicle voltage supply in order.
- Fuses in order

=> Current flow diagrams, Electrical fault finding and Fitting locations

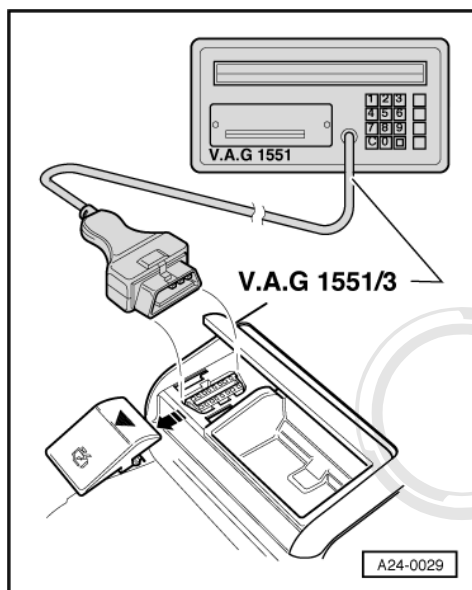
- Earth connections and earthing point for gearbox in order

=> Current flow diagrams, Electrical fault finding and Fitting locations

- Check earth connections for corrosion and poor contact; repair if necessary.
- Check battery earth strap and earth strap between battery and gearbox.



- Connecting fault reader:
- -> Open rear ashtray and remove cover for diagnostic connector.



- -> With ignition switched off, connect fault reader V.A.G 1551 using diagnosis cable V.A.G 1551/3.

-> Indicated on display:

V.A.G - SELF-DIAGNOSIS HELP
1 - Rapid data transfer1)
2 - Flash code output1)

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- 1) appears alternately

Notes:

- ◆ Additional operating instructions can be retrieved by pressing the HELP key of V.A.G 1551.
- ◆ The ➡ key is used for advancing within the programme sequence.
- ◆ An automatic check (keys 00) can be carried out in the operating mode 1 "Rapid data transfer". Then all vehicle control units will be interrogated automatically.

=> Fault reader V.A.G 1551 operating instructions.

- Switch on ignition.
- Switch on printer with the Print key (indicator lamp in key lights up).
- Press key 1 for "Rapid data transfer" mode.

-> Indicated on display:

Rapid data transfer HELP
Enter address word XX

- Press keys 0 and 2. (Enter the address word "gearbox electronics" with 02.)

-> Indicated on display:

Rapid data transfer Q
02 Gearbox electronics

- Confirm entry with key Q.

-> Indicated on display:

01N927733CK AG4 Gearbox 01N 2754
Coding 00000 WSC 00000

The control unit identification, the coding and the dealership number of the V.A.G 1551 are displayed:



Control unit identification

Depending upon build level (programme level) the control unit can indicate a different control unit identification, to that shown in the example. Allocation of control unit => Parts catalogue.

- ♦ 01N 927 733: Part No.
- ♦ AG4 Gearbox 01N: 4-speed automatic gearbox 01N
- ♦ 2754: EPROM (Programme level)
- ♦ Coding 00000: is not required at present.
- ♦ WSC 00000: V.A.G 1551 dealership number with which the last coding was performed.

-> Indicated on display:

Control unit does not answer! HELP

- By pressing the HELP key, a list of possible fault causes is printed out.
- After eliminating the possible causes of faults, again enter the address word 02 for "gearbox electronics" and confirm.

If "Control unit does not answer!" again appears:

-> Indicated on display:

Control unit does not answer! HELP

Check control unit voltage supply.

- Perform test step 1 => Page **48**, Electrical check.
- Check wiring connections to diagnostic sockets

=> Current flow diagrams, Electrical fault finding and Fitting locations

- => Fault table, page **21** under fault code 65535 control unit faulty!
- Press => key.

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-> Indicated on display:

Rapid data transfer HELP
Select function XX

- After the HELP key is pressed, a list of the possible functions is printed out.

3.4 - List of selectable functions

	Page
01 - Interrogate control unit version => Performing self-diagnosis	18
02 - Interrogate fault memory	21
04 - Initiate basic setting	31
05 - Erase fault memory	30
06 - End output	
08 - Read measured value block	32

Further functions, which can be printed out by pressing the HELP key, need not be considered.

- After interrogating a function the V.A.G 1551 returns to the following start position:

-> Indicated on display:

Rapid data transfer HELP
Select function XX

3.5 - Interrogating fault memory

- Connect fault reader V.A.G 1551 and enter address word "02 Gearbox electronics" and advance until "Select function XX" appears in the display => from page 18 .

-> Indicated on display:

Rapid data transfer HELP
Select function XX

- Press keys 0 and 2. (The function "Interrogate fault memory" is selected with 02).

-> Indicated on display:

Rapid data transfer Q
02 - Interrogate fault memory

- Confirm entry with key Q.

-> The number of stored faults or "No fault recognised" appears in the display.

X Faults recognised!

The stored faults are displayed in turn and printed out.

- Press => key.
- After the last fault has been displayed and printed out, the faults should be rectified as described in the fault table => from page 21.
- Press => key.

-> Indicated on display:

Rapid data transfer HELP
Select function XX

- Switch off ignition and unplug the diagnostic connector.

Note:

After interrogating the fault memory and rectifying the faults:

- Erase fault memory => Page 30 .

3.6 - Fault table

- ◆ All the possible faults which can be recognised by the automatic gearbox control unit -J217- and displayed on the V.A.G 1551 with the printer switched on when the fault memory is interrogated are listed below, grouped according to the fault code number.
- ◆ If faults occur only occasionally, or if the fault memory was not erased after rectifying the faults, these faults will be displayed as "sporadic faults" for a stipulated period of time => Gearbox control unit fault recognition, Page 1 .
- ◆ If components are indicated as being defective during interrogation of the fault memory, test also the wiring to the components for short circuit and open circuit according to current flow diagram

=> Current flow diagrams, Electrical fault finding and Fitting locations

- ◆ The fault code is printed out in the "rapid data transfer" mode only when the printer of V.A.G 1551 is switched on.
Example: Fault code (5-position) 65535



- ♦ The three-digit number appearing next to the fault code is a code indicating the type of fault, and can be disregarded.

Output on printer V.A.G 1551	
No fault recognised!	If "No fault recognised" appears after performing repairs, the self-diagnosis is completed. If the automatic gearbox does not shift gears properly despite self-diagnosis, carry out repairs as per fault finding programme. => "Fault finding, Power transmission" binder

Output on printer V.A.G 1551	Possible cause of fault	Rectifying fault
00258 Solenoid valve 1 -N88- Open circuit 1) Short to earth 1)	Wiring open circuit or short to earth Solenoid valve 1 -N88- defective	- Check wiring and connections according to CFD2) - Read measured value block =>Page 32 ; display group number 004 - Perform electrical tests =>from Page 48
00260 Solenoid valve 2 -N89- Open circuit 1) Short to earth 1)	Wiring open circuit or short to earth Solenoid valve 2 -N89- defective	- Check wiring and connections according to CFD 2) - Read measured value block =>Page 32 ; display group number 004 - Perform electrical tests =>from Page 48

1) One of these displays appears in addition to relevant component.

2) First check connections for contact corrosion or water ingress and renew if necessary. If solenoid faults are displayed then especially check the 10 pin connector on gearbox between valve body conductor strip and wiring harness.

Output on printer V.A.G 1551	Possible cause of fault	Rectifying fault
00262 Solenoid valve 3 -N90- Open circuit 1) Short to earth 1)	Wiring open circuit or short to earth Solenoid valve 3 -N90- defective	- Check wiring and connections according to CFD 2) - Read measured value block =>Page 32 ; display group number 004 - Perform electrical tests =>from Page 48
00264 Solenoid valve 4 -N91- Open circuit 1) Short to earth 1)	Wiring open circuit or short to earth Solenoid valve 4 -N91- defective	- Check wiring and connections according to CFD 2) - Read measured value block =>Page 32 ; display group number 004 - Perform electrical tests =>from Page 48

1) One of these displays appears in addition to relevant component.

2) First check connections for contact corrosion or water ingress and renew if necessary. If solenoid faults are displayed then especially check the 10 pin connector on gearbox between valve body conductor strip and wiring harness.

Output on printer V.A.G 1551	Possible cause of fault	Rectifying fault
00266 Solenoid valve 5 -N92- Open circuit 1) Short to earth 1)	Wiring open circuit or short to earth Solenoid valve 5 -N92- defective	- Check wiring and connections according to CFD 2) - Read measured value block =>Page 32 ; display group number 004 - Perform electrical tests =>from Page 48
00268 Solenoid valve 6 -N93- Open circuit 1) Short to earth 1)	Wiring open circuit or short to earth Solenoid valve 6 -N93- defective	- Check wiring and connections according to CFD 2) - Read measured value block =>Page 32 ; display group number 002 - Perform electrical tests =>from Page 48

- 1) One of these displays appears in addition to relevant component.
- 2) First check connections for contact corrosion or water ingress and renew if necessary. If solenoid faults are displayed then especially check the 10 pin connector on gearbox between valve body conductor strip and wiring harness.

Output on printer V.A.G 1551	Possible cause of fault	Rectifying fault
00270 Solenoid valve 7 -N94- Open circuit 1) Short to earth 1)	Wiring open circuit or short to earth Solenoid valve 7 -N94- defective	- Check wiring and connections according to CFD 2) - Read measured value block =>Page 32 ; display group number 004 - Perform electrical tests =>from Page 48

- 1) One of these displays appears in addition to relevant component.
- 2) First check connections for contact corrosion or water ingress and renew if necessary. If solenoid faults are displayed then especially check the 10 pin connector on gearbox between valve body conductor strip and wiring harness.

Output on printer V.A.G 1551	Possible cause of fault	Rectifying fault
00281 Road speed sender -G68- No signal	Open circuit in wiring Road speed sender -G68- defective	- Check wiring and connections according to current flow diagram 1) - Read measured value block =>Page 15 , Fig. 10

- 1) First check connectors for contact corrosion or water ingress and renew if necessary.

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A voltage drop in the road speed sender will be tested by the self-diagnosis function.

Output on printer V.A.G 1551	Possible cause of fault	Rectifying fault
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00293	Wiring open circuit	- Check wiring and connections according to CFD 1) - Read measured value block =>Page 32 ; display group number 001 - Perform electrical tests =>from Page 14 , Fig. 8 Check for axial movement at selector shaft lever (multi-function switch -F125- removed).
Multi-function switch -F125-	Multi-function switch -F125- defective	
Undefined switch condition	Selector shaft not secured in axial direction (e.g. after dismantling parking lock)	

- 1) First check connectors for contact corrosion or water ingress and renew if necessary.

Output on printer V.A.G 1551	Possible cause of fault	Rectifying fault
00297 Gearbox speed sender -G38- No signal	Wiring open circuit Gearbox speed sender -G38- dirty or defective	- Check wiring and connections according to current flow diagram - Perform electrical tests =>from Page 15 , Fig. 9
00300 Gearbox oil temperature sender -G93-1) No fault type recognised	Wiring open circuit Gearbox oil temperature sender (ATF) -G93- defective	- Check wiring and connections according to CFD 2) - Read measured value block =>Page 32 ; display group number 005 - Perform electrical tests =>from Page 14 , Fig. 7

- 1) A faulty ATF temperature sender is indicated.
 2) First check connectors for contact corrosion or water ingress and renew if necessary.

Note on fault code 00297:

The self-diagnosis function will only test for a voltage drop in the gearbox speed sender.

Output on printer V.A.G 1551	Possible cause of fault	Rectifying fault
00518 Throttle valve potentiometer -G69 1) 2) Signal outside tolerance	Open circuit or short in wiring Signal range of throttle valve potentiometer -G69 or throttle valve control part -J338 has shifted continued ▼	- If fault code 00638 is also displayed, rectify fault 00638 first Check wiring and plug connectors according to current flow diagram - Read measured value block =>Page 32 ; display group numbers 001 and 003 Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

- 1) Petrol engines: the signal is transmitted from throttle valve potentiometer -G69- or throttle valve control part -J338- to the gearbox control unit via the engine control unit. For this reason, always read out fault memory of engine control unit as well as gearbox control unit if this fault is displayed.
 2) TDI engine: accelerator position sender -G79-; a fault relating to the accelerator pedal position is therefore only stored in the engine control unit.

Output on printer V.A.G 1551	Possible cause of fault	Rectifying fault
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00518 Throttle valve potentiometer -G69 1) 2)	(Fault 00518 continued) Throttle valve potentiometer - G69 defective 3) Throttle valve control part -J338 defective	Test throttle valve potentiometer - G69 and throttle valve control part -J338; renew if necessary => Motronic Injection and Ignition System (4-cylinder); Repair Group 24; Testing throttle valve control part Testing throttle valve control part - Bring system to basic setting after renewing throttle valve control part =>Page 31
Signal outside tolerance	continued ▼	

1) Petrol engines: the signal is transmitted from throttle valve potentiometer -G69- or throttle valve control part -J338- to the gearbox control unit via the engine control unit. For this reason, always read out fault memory of engine control unit as well as gearbox control unit if this fault is displayed.

2) TDI engine: accelerator position sender -G79-; a fault relating to the accelerator pedal position is therefore only stored in the engine control unit

=> Diesel Direct Injection and Glow Plug System (TDI 4-cylinder); Repair Group 23; Testing signals from/to automatic gearbox; Testing signal for accelerator pedal position Testing signals from/to automatic gearbox
Testing signal for accelerator pedal position

3) Throttle valve potentiometer -G69- is incorporated in throttle valve control part -J338-. Throttle valve control part -J338- must therefore be renewed if throttle valve potentiometer -G69- is defective.

Output on printer V.A.G 1551	Possible cause of fault	Rectifying fault
00518 Throttle valve potentiometer -G69- 1) 2)	(Fault 00518 continued) Engine control unit defective	Test engine control unit and renew if necessary => Motronic Injection and Ignition System (4-cylinder); Repair Group 01; Self-diagnosis of Motronic system; Interrogating and erasing fault memory - Bring system to basic setting after re- newing engine control unit =>Page 31
Signal outside tolerance		

1) Petrol engines: the signal is transmitted from throttle valve potentiometer -G69- or throttle valve control part -J338- to the gearbox control unit via the engine control unit. For this reason, always read out fault memory of engine control unit as well as gearbox control unit if this fault is displayed.

2) TDI engine: accelerator position sender -G79-; a fault relating to the accelerator pedal position is therefore only stored in the engine control unit.

Output on printer V.A.G 1551	Possible cause of fault	Rectifying fault
00529	Open circuit or short in wiring between engine control unit and gearbox control unit	- Check wiring and connections according to CFD



Output on printer V.A.G 1551	Possible cause of fault	Rectifying fault
Speed information missing	Rpm signal from engine speed sender -G28- is not present or incorrect (implausible) continued ▼	- Read measured value block =>Page 32 ; display group number 003 Check engine speed signal => Motronic Injection and Ignition System (4-cylinder); Repair Group 24; Testing auxiliary signals; Testing engine speed signal Testing auxiliary signals; Testing engine speed signal => Diesel Direct-Injection and Glow Plug System (TDI 4-cylinder); Repair Group 23; Testing signals from/to automatic gearbox: Testing engine speed signal Testing signals from/to automatic gearbox: Testing engine speed signal

Output on printer V.A.G 1551	Possible cause of fault	Rectifying fault
00529 Speed information missing	(Fault 00529 continued) Rpm signal from engine speed sender -G28- is not present or incorrect (implausible) Engine speed sender -G28- defective; renew	- Test engine control unit and sender -G28- => Motronic Injection and Ignition System (4-cylinder); Repair Group 01; Self-diagnosis of Motronic system; Interrogating and erasing fault memory Self-diagnosis; Interrogating and erasing fault memory - Perform electrical check =>from Page 48

Output on printer V.A.G 1551	Possible cause of fault	Rectifying fault
00532 Supply voltage	Power supply defective Supply voltage to solenoid valves insufficient	- Test power supply => Electrical System; Repair Group 27; Battery Battery - Read measured value block =>Page 48
00545 Engine/gearbox electrical connection Open circuit1) Short to earth1)	Wiring open circuit or short earth No connection between engine/gearbox control units The signal for modulating ignition timing is not being transmitted between engine and gearbox control units, or is being transmitted incorrectly	- Check wiring and connectors according to current flow diagram - Read measured value block =>Page 31

1) One of these displays appears in addition to relevant component.

Output on printer V.A.G 1551	Possible cause of fault	Rectifying fault
00596	10 pin connector between valve body conductor strip and wiring harness	- Check wiring and connections according to CFD

Short circuit between valve wires	Conductor strip on valve body defective	- Perform electrical tests => from Page 14, Fig. 7
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Output on printer V.A.G 1551	Possible cause of fault	Rectifying fault
00638 Engine/gearbox electrical connection 2 No signal	Wiring open circuit or short to earth No connection between engine/gearbox control units Throttle valve signal not being transmitted to gearbox control unit Continued ▼	- Check wiring and connections according to CFD - Read measured value block =>Page 32; Display group number 005 Check signals from engine to gearbox => Motronic Injection and Ignition System (4-cylinder); Repair Group 24; Testing auxiliary signals Testing signals from/to automatic gearbox

Output on printer V.A.G 1551	Possible cause of fault	Rectifying fault
00638 Engine/gearbox electrical connection 2 No signal	(Fault 00638 continued) No connection between engine/gearbox control units Throttle valve signal not being transmitted to gearbox control unit	- Check engine control unit and renew if necessary => Motronic Injection and Ignition System (4-cylinder); Repair Group 01; Self-diagnosis of Motronic system; Interrogating and erasing fault memory 31

Output on printer V.A.G 1551	Possible cause of fault	Rectifying fault
00641 ATF temperature Signal too great	ATF level not OK Gearbox is overheating: not more than 148° C. If ATF is too hot gearbox will shift down to next gear Trailer load too heavy Gearbox oil temperature sender (ATF) -G93 defective	- Check ATF level => Automatic Gearbox 01N; Repair Group 37; Checking ATF level, topping up ATF Checking ATF level, topping up ATF - Read measured value block =>Page 32; display group number 005; read off ATF temperature Perform electrical tests =>from Page 14; Fig. 7

Output on printer V.A.G 1551	Possible cause of fault	Rectifying fault
00652 Gear monitoring 1) 2)	Incorrect signal for gearbox speed or gearbox output speed Road speed sender -G68 dirty or defective	- Rectify fault as described for fault codes 00281 and 00293 - Clean road speed sender -G68- and renew if necessary => Automatic Gearbox 01N; Repair Group 38; Dismantling and assembling parking lock Dismantling and assembling parking lock



Implausible signal	Gearbox speed sender -G38 dirty or defective	- Clean gearbox speed sender -G38- and renew if necessary => Automatic Gearbox 01N; Repair Group 38; Dismantling and assembling parking lock Dismantling and assembling parking lock
	Electrical or hydraulic fault Clutch or valve body defective continued ▼	- Read measured value block =>Page 32 ; display group number 007 and test with vehicle moving to establish in which gear the fault occurs

1) Fault recognition: the ratio of engine speed to gearbox output speed is implausible for the gear which is currently engaged. Slip rpm is higher than stall speed with the torque converter lock-up clutch open.

2) Do not renew clutch or valve body until all possible faults listed have been rectified.

Output on printer V.A.G 1551	Possible cause of fault	Rectifying fault
00652 Gear monitoring 1) 2)	(Fault 00652 continued) ATF level not OK	- Check ATF level => Automatic Gearbox 01N; Repair Group 37; Checking ATF level, changing ATF Checking ATF level, changing ATF
Implausible signal	Engine speed sender -G28- transmitting incorrect signal Drive gear for road speed sender -G68- or gearbox speed sender -G38- dirty or moved out of position continued ▼	- Rectify fault as described for fault code 00529 - Check drive gear => Automatic Gearbox 01N; Repair Group 39; Dismantling and assembling final drive Dismantling and assembling planetary gearbox

1) Fault recognition: the ratio of engine speed to gearbox output speed is implausible for the gear which is currently engaged. Slip rpm is higher than stall speed with the torque converter lock-up clutch open.

2) Do not renew clutch or valve body until all possible faults listed have been rectified.

Output on printer V.A.G 1551	Possible cause of fault	Rectifying fault
00652 Gear monitoring 1) 2)	(Fault 00652 continued) Selector lever cable incorrectly adjusted	- Adjust selector lever cable => Automatic Gearbox 01N; Repair Group 37; Servicing shift mechanism; Removing, installing and adjusting selector lever cable Servicing shift mechanism; Removing, installing and adjusting selector lever cable
Implausible signal	Multi-function switch -F125 defective	- Rectify fault as described for fault code 00293

1) Fault recognition: the ratio of engine speed to gearbox output speed is implausible for the gear which is currently engaged. Slip rpm is higher than stall speed with the torque converter lock-up clutch open.

2) Do not renew clutch or valve body until all possible faults listed have been rectified.

Output on printer V.A.G 1551	Possible cause of fault	Rectifying fault
00660	Open circuit in wiring	- Check wiring and connections according to CFD

Kickdown switch/throttle valve potentiometer 1) Implausible signal	Throttle valve potentiometer - G69 or throttle valve control part -J338 defective	- Rectify fault as described for fault code 00518
	Kickdown switch -F8 defective continued ▼	- Read measured value block =>Page 48 Check kickdown switch => Motronic injection and ignition system (4-cylinder); Repair group 24; Testing auxiliary signals Testing signals from/to automatic gearbox

1) Fault 00660 can only be recognised by control unit when vehicle is driven.

Output on printer V.A.G 1551	Possible cause of fault	Rectifying fault
00660 Kickdown switch/throttle valve potentiometer 1) Implausible signal	(Fault 00660 continued) Kickdown switch -F8 defective	- Adjust or renew throttle cable => 4-cylinder fuel injection engine (5-valve), Mechanics; Repair group 20; Fuel supply; Servicing throttle mechanism, automatic gearbox Fuel supply; Servicing throttle mechanism, automatic gearbox
		=> 4-cylinder Diesel Direct-Injection Engine (TDI), Mechanics; Repair Group 20

1) Fault 00660 can only be recognised by control unit when vehicle is driven.

Output on printer V.A.G 1551	Possible cause of fault	Rectifying fault
01192 Torque converter lock-up clutch Speed difference too great	ATF level not OK Torque converter defective or incorrect torque converter fitted Mechanical fault in solenoid valve 4 -N91- ATF supply to solenoid valve 4 -N91- not working properly Incorrect control unit fitted Electrical activation of solenoid valve 4 -N91 not OK	- Check ATF level => Automatic Gearbox 01N; Repair Group 37; Checking ATF level, changing ATF - Check torque converter identification Read measured value block =>Page 32 ; display group number 007 Check valve body => Automatic Gearbox 01N; Repair Group 38; Checking valve body Checking valve body - Check control unit identification => Page 20 - Rectify fault as described for fault code 00264

Output on printer V.A.G 1551	Possible cause of fault	Rectifying fault
01236	Open circuit in wiring	- Check wiring and plug connectors according to current flow diagram



Selector lever lock solenoid -N110 Open circuit 1) Short to earth 1)	Selector lever lock solenoid -N110 defective	- Read measured value block =>Page 32 , display group number 005, and if necessary renew selector lever lock solenoid -N110- => Automatic Gearbox 01N; Repair Group 37; Servicing shift mechanism; Dismantling and assembling shift mechanism Servicing shift mechanism; Dismantling and assembling shift mechanism
--	--	---

1) One of these displays appears in addition to relevant component.

Output on printer V.A.G 1551	Possible cause of fault	Rectifying fault
65535 Control unit defective	Control unit -J217- defective	- Renew control unit => Page 3 - Bring system into basic setting =>Page 31

The control unit -J217- should not be renewed =>page 31 until the possible cause of the fault has been determined and the following faults have been rectified:

- ♦ mechanical faults
- ♦ hydraulic faults
- ♦ all affected electrical/electronic components and wiring connections.

3.7 - Erasing fault memory

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Requirement:

- Fault memory interrogated => page 21 .

After fault memory has been interrogated:

-> Indicated on display:

Rapid data transfer Select function XX	HELP
---	------

- Press keys 0 and 5. (The function "Erase fault memory" is entered with 05.)

-> Indicated on display:

Rapid data transfer 05 Erase fault memory	Q
--	---

- Confirm entry with key Q.

-> If this display appears:

Attention! Fault memory is not interrogated
--

The procedure has not been followed exactly as described. The fault memory must first be interrogated.

Note:

If the ignition was switched off e.g. between interrogating the fault memory and erasing fault memory, the fault memory is then not erased.

-> Indicated on display:

Rapid data transfer
Fault memory is erased!

(The fault memory will be erased approx. 5 secs. after the display appears.)

The fault memory is now erased.

Note:

Wait about 1 minute before again interrogating the fault memory.

-> Indicated on display:

System cannot be interrogated!

-> Print out with printer switched on:

1 Fault recognized !
00811 3333
System cannot be interrogated

Control unit -J217- was not given sufficient time to recognize faults.

- Wait about 1 minute before again interrogating the fault memory.
- After interrogating and erasing the fault memory, carry out a test drive and again interrogate the fault memory.

-> If this display appears:

No fault recognised

- Interrogation of fault memory has been performed correctly.

3.8 - Initiating basic setting

The basic setting should be initiated after performing the following repairs:

- ◆ Exchanging engine
- ◆ Replacing engine control unit
- ◆ Adjusting throttle valve (setting idling speed).
- ◆ Replacing throttle valve potentiometer -G69- or throttle valve control part -J338-
- ◆ Altering throttle valve potentiometer -G69- setting e.g. when adjusting idling switch (engine)
- ◆ Replacing automatic gearbox control unit -J217-

Requirements

- Supply voltage OK and all electrical equipment switched off
- Accelerator cable correctly adjusted
- Fault memory has been interrogated, any faults rectified and fault memory erased.

- Connect fault reader V.A.G 1551 and enter address word "02 Gearbox electronics" and advance until "Select function XX" appears in the display => from page 18.

-> Indicated on display:

Rapid data transfer HELP
Select function XX



- Press keys 0 and 4. (The function "Initiating basic setting" is selected with 04).

Note:

Accelerator pedal must remain in idling position.

-> Indicated on display:

Rapid data transfer Q
04 Basic setting

- Confirm entry with key Q.

-> Indicated on display:

Basic setting HELP
Enter display group number XXX

- Press key 0, 0 and 0.
- Confirm entry with key Q.

-> Indicated on display:

System in basic setting 0

The system is now in the basic setting.

- Depress accelerator pedal as far as kickdown point and hold in this position for 3 seconds.
- Press key =>.

-> Indicated on display:

Rapid data transfer HELP
Select function XX

3.9 - Read measured value block

Additional information

- ♦ "Current flow diagrams, Electrical fault finding and Fitting locations" binder
- Connect fault reader V.A.G 1551 and enter address word "02 Gearbox electronics" and advance until "Select function XX" indicated on display => from page **18** .

-> Indicated on display:

Rapid data transfer HELP
Select function XX

- Press keys 0 and 8. (The function "Read measured value block" is selected with 08.)

-> Indicated on display:

Rapid data transfer Q
08 - Read measured value block

- Confirm entry with key Q.

-> Indicated on display:

Basic setting HELP
Enter display group number XXX

- Enter display group number => List of selectable display group numbers, Page **33** .
- Confirm entry with key Q.

Read measured value block 1
1

-> There are always 4 display zones in the measured value block (if necessary in physical quantities).
Decoding the individual values in display zones 1 to 4 => Test table page 34.

List of selectable display group numbers

Indicated on display (example)			
Display zones: 1 2 3 4 iiii	Display group No.	Display zone	Description
Read measured value block 1→ P 0.8 V 0 % 00000111	001	1 2 3 4	Selector lever position Voltage at throttle valve potentiometer or throttle valve control part Accelerator pedal value Switch positions
Read measured value block 2→ 0.983 A 0.985 A 12.76 V 2.50 V	002	1 2 3 4	Solenoid valve 6 -N93- actual current Solenoid valve 6 -N93- specified current Battery voltage Voltage at road speed sender -G68-
Read measured value block 3→ 0 km/h 900 rpm 0 0 %	003	1 2 3 4	Speed Engine speed Gear selected Accelerator pedal value
Read measured value block 4→ 1000 00 0 P 0 km/h	004	1 2 3 4	Solenoid valves Gear selected Selector lever position Speed

Indicated on display (example)			
Display zones: 1 2 3 4 iiii	Display group No.	Display zone	Description
Read measured value block 5→ 40°C 0011011 0 900 rpm	005	1 2 3 4	ATF temperature Selector output Gear to be selected Engine speed
Read measured value block 6→ +/- 0 % 0 % 10 % 0 %	006	1 2 3 4	Uphill or downhill gradient Gradient factor "Sport" factor Accelerator pedal factor
Read measured value block 7→ 1H+/-200 rpm 900 rpm 0 %	007	1 2 3 4	Gear selected (+ or - sign relates to display zone 2) Lock-up clutch slip Engine speed Accelerator pedal value
Read measured value block 8→	008	1 2 3 4	Can be disregarded

Note:

- ♦ If the printer is switched on, the current display is printed out on the log.

If the values match the specifications in all display zones of the measured value blocks:

- Press key =>.

-> Indicated on display:



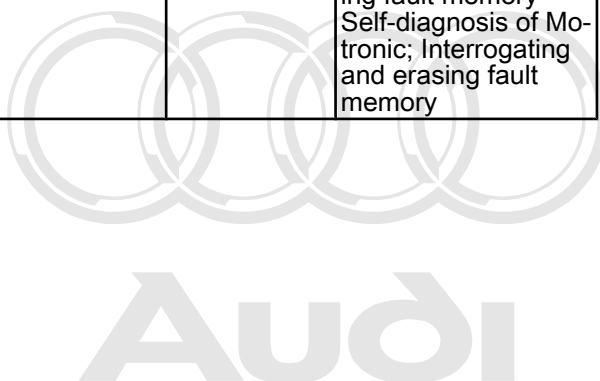
Rapid data transfer
Select function XX

HELP

3.10 - Test table

Display group number	Display zone	Designation	Test conditions	Specified readout on V.A.G 1551	Rectifying fault if readout does not match specification
001	1	Selector lever position - Multi-function switch - F125-	Stationary P	P	- Check multi-function switch -F125- =>electrical tests from Page 48
			Selector lever in	R	
				N	
				D	
				3	
				2	
				1	
continued ▼					

Display group number	Display zone	Designation	Test conditions	Specified readout on V.A.G 1551	Rectifying fault if readout does not match specification
001	2	Signal voltage of throttle valve potentiometer -G69- or throttle valve control part -J338-	Stationary Idling (min.) Idling (max.)	0.156 V 0.8 V 1)	Voltage increases continuously from idling to full throttle Perform self diagnosis of engine control unit => Motronic Injection and Ignition System (4-cylinder); Repair Group 01; Self-diagnosis of Motronic; Interrogating and erasing fault memory Self-diagnosis of Motronic; Interrogating and erasing fault memory



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Display group number	Display zone	Designation	Test conditions	Specified readout on V.A.G 1551	Rectifying fault if readout does not match specification
	continued ▼		Full throttle (min.) Full throttle (max.)	3.5 V 4.68 V	- Check throttle valve potentiometer -G69- and renew if necessary 2) => Motronic Injection and Ignition System (4-cylinder); Repair Group 24; Checking throttle valve control part; Checking throttle valve potentiometer Checking throttle valve control part; Checking throttle valve potentiometer

1) Coolant temperature at least 80°C.

2) Throttle valve potentiometer -G69- is incorporated in throttle valve control part -J338-. If throttle valve potentiometer -G69- is defective, throttle valve control part -J338- must be renewed.

Display group number	Display zone	Designation	Test conditions	Specified readout on V.A.G 1551	Rectifying fault if readout does not match specification
001	2	Signal voltage of throttle valve potentiometer -G69- or throttle valve control part -J338-	Stationary Idling (min.) Idling (max.)	0.156 V 0.8 V 1)	- Check throttle valve control part -J338- and renew if necessary => Motronic Injection and Ignition System (4-cylinder); Repair Group 24; Checking throttle valve control part Checking throttle valve control part
continued ▼			Full throttle (min.) Full throttle (max.)	3.5 V 4.68 V	- After renewing throttle valve potentiometer or throttle valve control part, bring system into basic setting =>Page 31

1) Coolant temperature at least 80°C.

Display group number	Display zone	Designation	Test conditions	Specified readout on V.A.G 1551	Rectifying fault if readout does not match specification
001	3	Accelerator pedal value	Stationary Idling	0...1 %	When accelerating from idling to full throttle, % figure increases continuously
			Full throttle	99...100 %	- Bring system into basic setting =>Page 31
	4	Switch positions 1) Brake light Display 1 switch -F-	Brake Operated	1	- Check brake light switch -F- => Perform electrical tests, from Page 48



Display group number	Display zone	Designation	Test conditions	Specified readout on V.A.G 1551	Rectifying fault if readout does not match specification
	continued ▼		Not operated	0	
		Traction control 2	Activated	1	- Check wiring according to CFD if necessary
		system (ASR)	Not activated	0	=> "Current flow diagrams, Electrical fault finding and Fitting locations" binder

1) The readout on V.A.G 1551 in display zone 4 comprises 8 digits, e.g. 10000111. The first digit from the left (display 1) refers to brake light switch -F. The second digit from the left (display 2) refers to the traction control system (ASR), and so on.

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Display group number	Display zone	Designation	Test conditions	Specified readout on V.A.G 1551	Rectifying fault if readout does not match specification
001	4	3	Can be disregarded		
		Kickdown switch Display 4	Kickdown Operated	1	- Check kickdown switch -F8 => Perform electrical test, from Page 48
		-F8	Not operated	0	
		Multi-function switch 5 Contact 63 2)	Selector lever in R, N, D, 3, 2	1	- Check multi-function switch -F125- => Perform electrical tests, from Page 48 Adjust selector lever cable 1) => Automatic Gearbox 01N; Repair Group 37; Repairing shift mechanism; Removing, installing and adjusting selector lever cable Repairing shift mechanism; Removing, installing and adjusting selector lever cable
	continued ▼	-F125-	P, 1	0	
		6	Selector lever in P, R, 2, 1	1	
		Contact 40 2)	N, D, 3	0	- Check wiring and components as necessary according to CFD

1) This repair measure is only effective if selector lever position does not agree with selector lever position indicator.

2) Designation of signal input contact on gearbox control unit -J217-.

Display group number	Display zone	Designation	Test conditions	Specified readout on V.A.G 1551	Rectifying fault if readout does not match specification
001	4	Multi-function Display switch 7	Selector lever in P, R, N, D	1	- Check multi-function switch -F125- => Perform electrical tests, from Page 48 Adjust selector lever cable 1)
		-F125- Contact 62 2)	3, 2, 1	0	=> Automatic Gearbox 01N; Repair Group 37; Repairing shift mechanism; Removing, installing and adjusting selector lever cable Repairing shift mechanism; Removing, installing and adjusting selector lever cable
		8	Selector lever in P, R, N	1	- Pull out starter inhibitor and reversing light relay -J226- and check readout again
		Contact 18 2)	D, 3, 2, 1	0	- Check wiring and components as necessary according to CFD

- 1) This repair measure is only effective if selector lever position does not agree with selector lever position indicator.
- 2) Designation of signal input contact on gearbox control unit -J217-.

Display group number	Display zone	Designation	Test conditions	Specified readout on V.A.G 1551	Rectifying fault if readout does not match specification
002	1	Solenoid valve 6 - N93- actual current	• Selector lever in "N"	0.0 A	Note when fault finding: the difference between actual current and specified current must not be more than 0.050 A The specifications shown here are the maximum values.
			• Stationary Full throttle		
	2	Solenoid valve 6 - N93- specified current	Idling max.	1.1 A	Bring system into basic setting =>Page 31
			• Selector lever in "N"	0.0 A	
continued ▼			• Stationary Full throttle		- Check solenoid valve -N93- => Perform electrical tests, from Page 48
			Idling max.	1.1 A	

- 1) Solenoid valve 6 -N93- controls the ATF main pressure.



Display group number	Display zone	Designation	Test conditions	Specified read-out on V.A.G 1551	Rectifying fault if readout does not match specification
002	3	Battery voltage	Stationary min.	10.8 V	- Check battery, renew if necessary Check voltage supply to control unit -J217- => Perform electrical tests, from Page 48
				max. 16.0 V	
	4	Road speed sender -G68-	Stationary min.	2.20 V	- Check road speed sender -G68- => Perform electrical tests, from Page 48
				max. 2.52 V	

Display group number	Display zone	Designation	Test conditions	Specified read-out on V.A.G 1551	Rectifying fault if readout does not match specification
003	1	Vehicle speed	Driving1)	...km/h	Speedometer reading and readout on V.A.G 1551 may differ slightly.
continued ▼	2	Engine speed	With engine running	... rpm	- Rectify engine fault if necessary => Motronic Injection and Ignition System (4-cylinder); Repair Group 01; Self-diagnosis of Motronic; Interrogating and erasing fault memory Self-diagnosis; Interrogating and erasing fault memory

1) When driving, a second mechanic is needed for reading the specified values.

Display group number	Display zone	Designation	Test conditions	Specified read-out on V.A.G 1551	Rectifying fault if readout does not match specification
003	3	Gear selected	Driving1) Neutral	0	- Check solenoid valves => Perform electrical check, from page 48
			Reverse	R	
			1 hydraulic	1H	
			1 mechanical	1M	
			2 hydraulic	2H	
			2 mechanical	2M	
			3 hydraulic	3 H	
			3 mechanical	3M	
			4 hydraulic	4H	
			4 mechanical	4M	
continued ▼					

1) When driving, a second mechanic is needed for reading the specified values.

Display group number	Display zone	Designation	Test conditions	Specified readout on V.A.G 1551	Rectifying fault if readout does not match specification
003	4	Accelerator pedal value	Driving1) Idling	0...1 %	When accelerating from idling to full throttle, the % figure increases constantly - Bring system to basic setting =>Page 31
			Full throttle	99...100 %	

1) When driving, a second mechanic is needed for reading the specified values.

Checking solenoid valves with vehicle moving

- ◆ The solenoid valves can be checked whilst driving via "Read measured value block 08"; "display group number 004".
- ◆ The table shows which of the solenoid valves -N88-, -N89- and -N90- are activated in each selector lever position. These solenoid valves control the selector valves for the relevant gears.
- ◆ Solenoid valve -N91- controls the modulation valve for the lock-up clutch.
- ◆ Solenoid valves -N92 and -N94 are supplementary valves which are designed to smooth out the gearshift; they are only activated during gear changes and appear in displays 5 and 6. The displays will read either "0" or "1", depending on the valve condition during the gearshift.
- ◆ V.A.G 1551 display zone 1 has 6 characters (0000 00) and is read as follows:

Display on V.A.G 1551	Display zone 1:					
	Display 1	Display 2	Display 3	Display 4	Display 5	Display 6
	Solenoid valve 1	Solenoid valve 2	Solenoid valve 3	Solenoid valve 4	Solenoid valve 5	Solenoid valve 7
1551	-N88-	-N89-	-N90-	-N91-	-N92-	-N94-

- ◆ Non-activated solenoid valves display "0" and activated solenoid valves display "1".
- ◆ Solenoid valves with variable switch condition are indicated with "X" in the following tables.
- ◆ All solenoid valves are checked via self-diagnosis => Interrogating fault memory, Page 21 .

Checking solenoid valves, whilst driving

Display group number	Display zone	Designation	Test conditions Selector lever in:	Specified readout on V.A.G 1551	Rectifying fault if readout does not match specification
004	1	Solenoid valves/indicated on V.A.G 1551 display: -N88- Display 1 -N89- Display 2 -N90- Display 3 -N91- Display 4 -N92- Display 5 -N94- Display 6 con-	P	1 0 1 0 0 0	Solenoid valves are selected according to driving condition - Perform electrical check =>from Page 48 - Continue fault finding according to fault finding programme => "Fault finding. Power transmission"
			R 1)	1 0 1 0 0 0	
			R 2)	0 0 1 0 0 0	
			N	1 0 1 0 0 0	
			D1)	1H 0 0 1 0 X0	
			1M	0 0 1 0 X0	
			2H	0 1 1 0 0 0	
			2M	0 1 1 0 0 0	
			3H	0 0 0 0 0 1	
			3M	0 0 0 0 0 1	
			4H	1 1 0 0 0 1	



	tinued ▼	X =	variable (1 4M or 0)	1 1 0 0 0 1	
--	-------------	-----	-------------------------	-------------	--

- 1) Whilst driving with gears selected a second mechanic is required for reading the specified values.
- 2) Road speed below 10 km/h

Display group number	Display zone	Designation	Test conditions Selector lever in:	Specified readout on V.A.G 1551	Rectifying fault if readout does not match specification
004	1	Solenoid valves/indicated on V.A.G 1551: -N88- Display 1 -N89- Display 2 -N90- Display 3 -N91- Display 4 -N92- Display 5 -N94- Display 6 X =	31)	1H	0 0 1 0 X0
				1M	0 0 1 0 X0
				2H	0 1 1 0 00
				2M	0 1 1 0 00
				3H	0 0 0 0 01
				3M	0 0 0 0 01
			21)	1H	0 0 1 0 X0
				1M	0 0 1 0 X0
				2H	0 1 1 0 00
				2M	0 1 1 0 00
			11)	1H	0 0 1 0 X0
			variable (1 or 0)	1M	0 0 1 0 X0
con- tinued ▼					Solenoid valves are selected according to driving condition - Perform electrical tests =>from Page 48 - Continue fault finding according to fault finding programme => "Fault finding, Power transmission"

- 1) Whilst driving with gears selected a second mechanic is required for reading the specified values.

Display group number	Display zone	Designation	Test conditions	Specified readout on V.A.G 1551	Rectifying fault if readout does not match specification
004	2	Gear selected	Driving 1) Neutral	0	- Check solenoid valves => Perform electrical tests, from Page 48
			Reverse	R	
			1 hydraulic	1H	
			1 mechanical	1M	
			2 hydraulic	2H	
			2 mechanical	2M	
			3 hydraulic	3 H	
			3 mechanical	3M	
			4 hydraulic	4H	
			4 mechanical	4M	
continued ▼					

- 1) When driving, a second mechanic is needed for reading the specified values.

Display group number	Display zone	Designation	Test conditions	Specified readout on V.A.G 1551	Rectifying fault if readout does not match specification
004	3	Selector lever position	Driving 1) P	P	- Check multi-function switch connection for contact corrosion, renew if necessary
			R	R	- Check wiring according to current flow diagram
			N	N	- Check multi-function switch -F125- => Perform electrical tests, from Page 48
			D	D	
			3 2 1	3 2 1	
continued ▼					

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1) When driving, a second mechanic is needed for reading the specified values.

Display group number	Display zone	Designation	Test conditions	Specified readout on V.A.G 1551	Rectifying fault if readout does not match specification
004	4	Vehicle speed	Speed at which vehicle is driven 1)	...km/h	The speedometer reading and readout on V.A.G 1551 may differ slightly
005 continued ▼	1	ATF temperature; ATF level is checked at approx. 35°C - 45°C	Stationary with engine running. The exact temperature is displayed from approx. 30°C	...°C	- Check gearbox oil temperature sender - G93- => Perform electrical tests, from Page 48

Display group number	Display zone	Designation	Test conditions	Specified readout on V.A.G 1551	Rectifying fault if readout does not match specification
005	2	Selector outputs	Driving 1) Ignition timing modulation 3)	1	- Check wiring according to current flow diagram Renew engine control unit => Motronic Injection and Ignition System (4-cylinder); Repair Group 24; Servicing Motronic Injection System; Renewing engine control unit Servicing Motronic Injection System; Renewing engine control unit
		Display 1 2)	is switched on		



con- tinued ▼	Display 2 2)	is switched off	0	=> Diesel Direct-Injection and Glow Plug System (TDI 4-cylinder); Repair Group 23; Servicing diesel direct-injection system; Renewing engine control unit Servicing diesel direct-injection system; Renewing engine control unit
		switched on	1	- Renew gearbox control unit -J217 => Page 3
		switched off	0	- Bring system into basic setting =>Page 31

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- 1) When driving, a second mechanic is needed for reading the specified values.
- 2) V.A.G 1551 must always show the same number "1" or "0" in displays 1 and 2.
- 3) Ignition timing modulation is only activated during a gearshift.

Display group number	Display zone	Designation	Test conditions	Specified read out V.A.G 1551	Rectifying fault if readout does not match specification
005	2	Selector outputs Display 3	Selector lever lock solenoid -N110- is switched on	1	- Check wiring according to current flow diagram - Check selector lever lock solenoid -N110- => Perform electrical tests, from Page 48
			is switched off	0	
		Display 4	is switched on 1)	1	- Check brake light switch -F => Electrical test, Test step 3, Page 48
			is switched off 2)	0	

- 1) Brake pedal not applied.
- 2) Brake pedal applied.

Display group number	Display zone	Designation	Test conditions	Specified read out V.A.G 1551	Rectifying fault if readout does not match specification
005	2	Display 5	Cruise control system switched on	1	- Check wiring according to current flow diagram - Check cruise control system => "Current flow diagrams, Electrical fault finding and Fitting locations" binder
			switched off	0	

Display group number	Display zone	Designation	Test conditions	Specified readout on V.A.G 1551	Rectifying fault if readout does not match specification
005	2	Selector outputs Display 6	Air conditioner was switched off	1	Check routing of wiring on basis of current flow diagram
				0	
			is not switched off		- Check air conditioner => Heating, Air Conditioner ; Repair Group 01; Self-diagnosis Self-diagnosis
		7	Park/Neutral signal Selector lever in		- Check wiring on basis of current flow diagram
continued ▼			P, N	1	
			R	0	
			D, 3, 2, 1	X 1)	Selector lever positions D, 3, 2 and 1 can be disregarded

1) X = variable readout: 1 or 0

Display group number	Display zone	Designation	Test conditions	Specified readout on V.A.G 1551	Rectifying fault if readout does not match specification
005	3	Gear to select	Driving 1) Neutral	0	- Check solenoid valves => Perform electrical tests, from Page 48 - If gearshifts do not occur, a clutch or brake may be defective => "Fault finding" binder, Power transmission, No. 14 - Renew gearbox control unit -J217- => Page 3
			Reverse	R	
			1 hydraulic	1H	
			1 mechanical	1M	
			2 hydraulic	2H	
			2 mechanical	2M	
			3 hydraulic	3H	
			3 mechanical	3M	
			4 hydraulic	4H	
			4 mechanical	4M	
continued ▼					

1) When driving, a second mechanic is needed for reading the specified values.



Display group number	Display zone	Designation	Test conditions	Specified read-out on V.A.G 1551	Rectifying fault if readout does not match specification
005	4	Engine speed	Driving 1) with engine running	... rpm	- Rectify engine fault if necessary => Diesel direct injection and glow plug system (TDI 4-cylinder); Repair group 01; Self-diagnosis; Interrogating and erasing fault memory Self-diagnosis; Interrogating and erasing fault memory

1) When driving, a second mechanic is needed for reading the specified values.

Display group number	Display zone	Designation	Test conditions	Specified read-out on V.A.G 1551	Rectifying fault if readout does not match specification
006	1	Uphill or downhill gradient 2)	Driving 1)		- Rectify fault according to self-diagnosis of engine and/or gearbox control unit
continued ▼			Downhill max.	- 32%	- Rectify engine fault if necessary
			Uphill max.	+31.75%	=> Digifant injection and ignition system (4-cylinder); Repair group 01; Interrogating and erasing fault memory => Motronic injection and ignition system (4-cylinder); Repair group 01; Self-diagnosis of Motronic system; Interrogating and erasing fault memory Self-diagnosis; Interrogating and erasing fault memory

1) When driving, a second mechanic is needed for reading the specified values.

2) Towing a trailer or increased payload also causes the readouts on V.A.G. 1551 to rise because of the increase in load.

Display group number	Display zone	Designation	Test conditions	Specified read-out on V.A.G 1551	Rectifying fault if readout does not match specification
006	2	Gradient factor 2)	Driving 1)	0 ... 100%	- Rectify fault according to self-diagnosis of engine and/or gearbox control unit - Rectify engine fault if necessary

continued ▼	3	"Sport" factor 3)		0 ... 100%	=> Digifant injection and ignition system (4-cylinder); Repair group 01; Interrogating and erasing fault memory => Motronic injection and ignition system (4-cylinder); Repair group 01; Self-diagnosis of Motronic system; Interrogating and erasing fault memory Self-diagnosis; Interrogating and erasing fault memory
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- 1) When driving, a second mechanic is needed for reading the specified values.
- 2) Towing a trailer or increased payload also causes the readouts on V.A.G. 1551 to rise because of the increase in load.
- 3) High values for the "sport" factor cause the gearshifts to occur at higher engine speeds.

Display group number	Display zone	Designation	Test conditions	Specified readout on V.A.G 1551	Rectifying fault if readout does not match specification
006	4	Accelerator pedal value	Driving 1)		
			Idling	0 ... 1%	When accelerating from idling to full throttle the percentage value constantly increases
			Full throttle	99 ... 100%	- Bring system into basic setting =>Page 31

Display group number	Display zone	Designation	Test conditions	Specified readout on V.A.G 1551	Rectifying fault if readout does not match specification
007	1 con- tinued ▼	Gear selected 1)	Neutral	0	- Check solenoid valves => Perform electrical tests, from Page 48
			Reverse	R	- If gearshifts do not occur, a clutch or brake may be defective
			1 hydraulic	1H+/-	=> "Fault finding" binder, Power transmission
			1 mechanical	1M+/-	- Renew gearbox control unit -J217- => Page 3
			2 hydraulic	2H +/-	- Bring system into basic setting =>Page 31
			2 mechanical	2M +/-	

- 1) When driving, a second mechanic is needed for reading the specified values.

Display group number	Display zone	Designation	Test conditions	Specified readout on V.A.G 1551	Rectifying fault if readout does not match specification
007	1	Gear selected 1)	3 hydraulic	3 H +/-	- Check solenoid valves => Perform electrical tests, from Page 48



continued ▼			3 mechanical	3M +/-	- If gearshifts do not occur, a clutch or brake may be defective => "Fault finding" binder, Power transmission - Renew gearbox control unit -J217- => Page 31
			4 hydraulic	4H +/-	
			4 mechanical	4M +/-	

1) When driving, a second mechanic is needed for reading the specified values.

Display group number	Display zone	Designation	Test conditions	Specified readout on V.A.G 1551	Rectifying fault if readout does not match specification
007 continued ▼	2	Torque converter slip 2)	Driving 1) with engine running Torque converter lock-up clutch open	0 rpm up to stall speed 5)	- Check ATF level Check wiring according to current flow diagram Rectify fault as described in fault table for fault codes 00529 and 00281 =>from Page 21 Clutch or brake defective4) Check solenoid valves 4) =>electrical tests, Page 48 Torque converter defective, or incorrect torque converter fitted (see code letters) => Automatic Gearbox 01N; Repair Group 00; Code letters, gearbox allocation, ratios, equipment Code letters, gearbox allocation, ratios, equipment
			Torque converter clutch closed 3)	Engine speed 2000 ... 3000 rpm	
			maximum engine speed	0 ... 15 rpm	

Note:

Refer to footnotes for display zone 2 in display group number 007=>Page 46.

Footnotes for display zone 2 in display group number 007

1) When driving, a second mechanic is needed for reading the specified values.

2) The torque converter lock-up clutch must be open. When the lock-up clutch is open, the torque converter slip may increase up to the stall speed. The lock-up clutch is open when "H" = hydraulic with slip is displayed in display zone 1 for the gear which is currently selected. Additionally the character "+" is displayed. "+" signifies

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that the engine speed (pump speed) is greater than the turbine speed, and "-" signifies that the engine speed is less than the turbine speed.

=> "Fault-finding" binder, Power transmission

3) Test conditions: the gearshift must be completed, the torque converter lock-up clutch must be closed and the accelerator pedal value must be constant.

4) If the torque converter slip speed shown on the display is too high, this may also indicate a slipping clutch or brake. Determine in which gear and in which selector element the fault occurs.

=> Automatic Gearbox 01N; Repair Group 37; Gearbox with selector elements Gearbox with selector elements

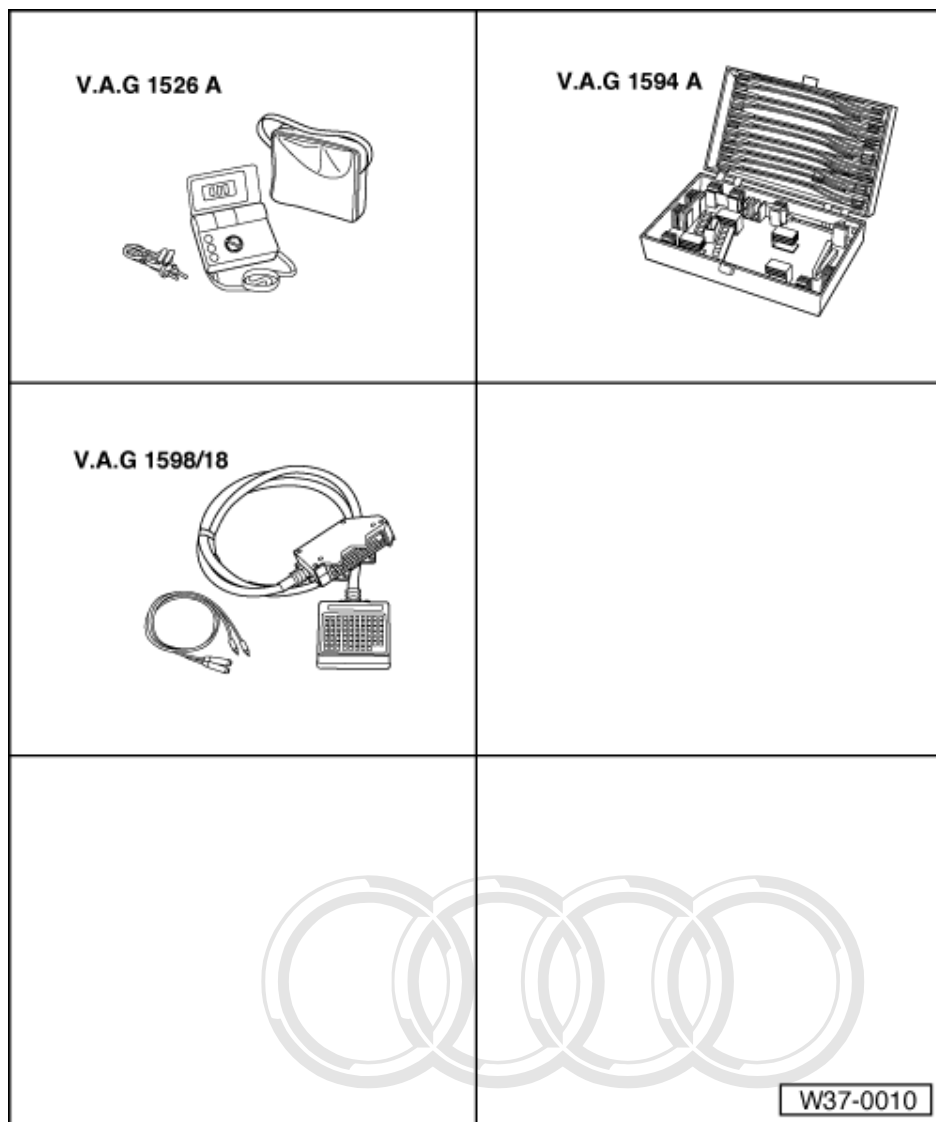
5) At present, the readout is limited to a maximum of 1900 rpm only by reason of the initialising of gearbox control unit -J217.

Display group number	Display zone	Designation	Test conditions	Specified read-out on V.A.G 1551	Rectifying fault if read-out does not match specification
007	3	Engine speed	With engine running	... rpm	- If necessary adjust engine settings => Diesel direct injection and glow plug system (TDI 4-cylinder); Repair group 01; Self-diagnosis; Interrogating and erasing fault memory Self-diagnosis of Motronic system; Interrogating and erasing fault memory
	4	Accelerator pedal value	Idling	0...1 %	When accelerating from idling to full throttle the percentage value constantly increases
			Full throttle	99...100 %	- Bring system into basic setting =>Page 31
008	Can be disregarded				



4 - Electrical test

4.1 - Electrical test



- ♦ V.A.G 1526 A Hand multimeter
- ♦ V.A.G 1594 A Adapter set
- ♦ V.A.G 1598/18 Test box

Additional information required

- ♦ Workshop Manual Audi A4 1995 a Automatic gearbox 01N
- ♦ Binder: "Current flow diagrams, Electrical fault-finding and Fitting locations"

Test requirements:

- Battery voltage in order.
- Fuses in order

=> "Current flow diagrams, Electrical fault finding and Fitting locations" binder

- Earth connections and gearbox earthing point in order

=> "Current flow diagrams, Electrical fault finding and Fitting locations" binder

- Check earth connections for corrosion and poor contact; repair if necessary.
- Check battery earth strap and earth strap between battery and gearbox.

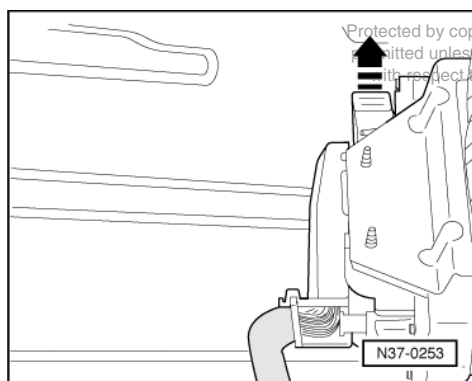
Warning!

Select the appropriate measuring range at the tester before connecting the test leads to avoid damaging the electronic components.

Notes:

- ◆ The specified values are valid for an ambient temperature from 0 °C...40 °C.
- ◆ If the readings obtained differ from the specified values, determine fault on the basis of the current flow diagram.
- ◆ If the readings obtained differ only slightly from the specified values, clean sockets and connectors of the testers and test leads and repeat test. Before replacing the particular components, test wiring and connections and, particularly if specified values are below 10 ω , repeat resistance measurement on component.

Performing electrical test

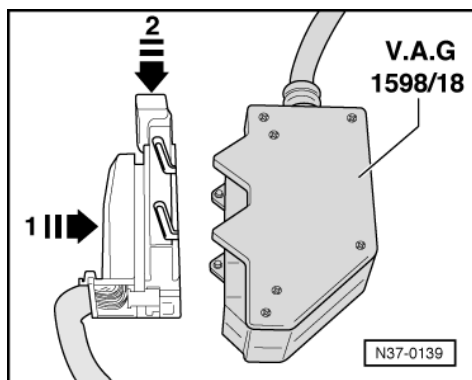


Note:

- ◆ Observe test requirements => Page 48

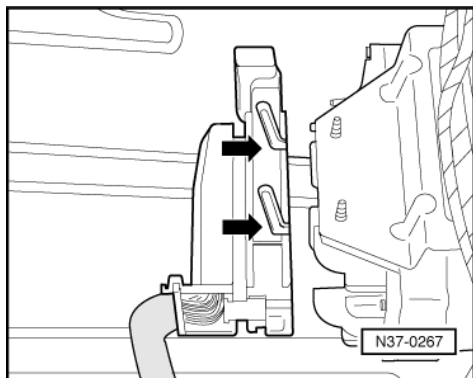
Control unit is located in front of right-hand seat under cover in footwell=>Page 11, Fig. 1.

- -> Switch ignition off, release multi-pin connector in direction of arrow, and pull off control unit.



- -> Fit test box V.A.G 1598/18 onto multi-pin connector (1) and lock, in direction of arrow (2).

Using test box V.A.G 1598/18 the wiring can be checked according to current flow diagram.



After electrical checks

- -> Fit multi-pin connector on control unit -J217- and lock.

When fitting ensure that the guides (arrows) are engaged on control unit pins.

Multi-pin connector (68 pin) on control unit -J217- (sockets on V.A.G 1598/18)

1- Earth (terminal 31)	20- Road speed sender -G68-
2- Vacant	21- Gearbox speed sender -G38-
3- Vacant	22- Solenoid valve 6 -N93- supply voltage
4- Vacant	23- Supply voltage (terminal 15)
5- Vacant	24- Diagnosis K-wire
6- Gearbox oil temperature sender -G93 (ATF)	25- Vacant
7- Vacant	26- Vacant
8- Vacant	27- Vacant
9- Solenoid valve 3 -N90-	28- Vacant
10- Solenoid valve 7 -N94-	29- Selector lever lock solenoid -N110-
11- Park/neutral signal	30- Vacant
12- Kickdown for air conditioner	31- Fan activation (diesel engine)
13- Ignition timing influence	32- Vacant
14- Vacant	33- Vacant
15- Brake light switch -F- signal voltage	34- Vacant
16- Kickdown switch -F8-	35- Vacant
17- Vacant	36- Vacant
18- Multi-function switch -F125-	37- Vacant
19- TD (revolution) signal	38- Vacant

39- Vacant	54- Solenoid valve 2 -N89-
40- Multi-function switch -F125-	55- Solenoid valve 1 -N88-
41- Engine load signal (throttle valve value) from engine control unit 1)	56- Solenoid valve 5 -N92-
42- Vacant	57- Selector lever position display
43- Road speed sender -G68- (screening)	58- Solenoid valve 6 -N93-

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44- Gearbox speed sender -G38- (screening)	59- Vacant
45- Supply voltage (terminal 30)	60- Cruise control system (input terminal15)
46- Vacant	61- Cruise control system (output)
47- Solenoid valve 4 -N91-	62- Multi-function switch - F125-
48- Vacant	63- Multi-function switch - F125-
49- Vacant	64- Vacant
50- Vacant	65- Road speed sender - G68-
51- Vacant	66- Gearbox speed sender -G38-
52- Vacant	67- Solenoid valves voltage supply
53- Vacant	68- Vacant

1) Signal (contact 41) directed via engine control unit to gearbox control unit and can only be checked in "Reading measured value block" => Page **32** .

List of test steps (multi-pin connector with 68 pins)

Only perform test steps for the relevant component as listed in fault finding table and read measured value block.

Component to be tested		Component to be tested	
Supply voltage for control unit -J217	- Perform test step 1	Solenoid valve 5 -N92	- Perform test step 10
Selector lever lock solenoid -N110	- Perform test steps 2 and 13	Solenoid valve 6 -N93	- Perform test step 11
Brake light switch -F	- Perform test step 3	Solenoid valve 7 -N94	- Perform test step 12
Supply voltage for cruise control system	- Perform test step 4	Kick-down switch -F8	- Perform test step 14
Multi-function switch -F125	- Perform test step 5	Road speed sender -G68	- Perform test step 15
Solenoid valve 1 -N88	- Perform test step 6	Screening for -G68	- Perform test step 16
Solenoid valve 2 -N89	- Perform test step 7	Gearbox speed sender -G38	- Perform test step 17
Solenoid valve 3 -N90	- Perform test step 8	Screening for -G38	- Perform test step 18
Solenoid valve 4 -N91	- Perform test step 9	Gearbox oil temperature sender -G93 (ATF)	- Perform test step 19

4.2 - Test table

Switch to voltage measuring range V =					
Test step	V.A.G 1598/18 sockets	Component tested	▪ Test conditions - Additional steps	Specification	Fault rectification if readout does not match specification



Switch to voltage measuring range V =					
1	23 + 1	Supply voltage from control unit - J217-	▪ Ignition switched on	approx. battery voltage	- Check wiring according to current flow diagram Check wiring from contact 1 to earth Check wiring from contact 23 to terminal 15, central electrics
2	29 + 15	Selector lever lock solenoid -N110-	▪ Ignition switched on ▪ Brake pedal not depressed	approx. battery voltage	- Check wiring according to current flow diagram Perform test step 3
			- Brake pedal depressed	0.2 V	- Renew selector lever lock solenoid => Automatic Gearbox 01N; Repair Group 37; Servicing shift mechanism Servicing shift mechanism

Switch to voltage measuring range V =					
Test step	V.A.G 1598/18 sockets	Component tested	▪ Test conditions - Additional steps	Specification	Fault rectification if readout does not match specification
3	15 + 1	Brake light switch -F-	▪ Ignition switched on ▪ Brake pedal not depressed	0 V	- Check wiring according to current flow diagram Renew and adjust brake light switch - F-
			- Brake pedal depressed	approx. battery voltage	=> Running Gear, Front-Wheel Drive; Repair Group 46; Brake mechanics, Servicing pedal cluster Brake mechanics, Servicing pedal cluster
4	60 + 1	Supply voltage for cruise control system	▪ Ignition switched on	approx. battery voltage	- Check wiring according to current flow diagram Check wire from contact 1 to earth Check wire from contact 60 to terminal 15 on relay plate Check fuse for cruise control system => Current flow diagrams, Electrical fault finding and Fitting locations

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Switch to resistance measuring range ω

Test step	V.A.G 1598/18 sockets	Component tested	Test conditions - Additional steps	Specification	Fault rectification if readout does not match specification
5	63 + 1 63 + 23 40 + 1 40 + 23 62 + 1 62 + 23 18 + 1 18 + 23	Multi-function switch -F125	- Ignition switched off - Multi-function switch -F125 and starter - inhibitor and reversing light relay -J226 - disconnected - Fuse for power supply of multi-function switch -F125 disconnected	infinite ω	- Check plug connector on multi-function switch - F125 for contact corrosion; renew if necessary - Check wiring according to current flow diagram - If test readings match specifications in this electrical test, but the display readout in the corresponding measured value
continued ▼	63 + 1 1) 40 + 2 1) 62 + 6 1) 18 + 5 1)			$\leq 1.5 \omega$	

1) Contact on connector for multi-function switch -F125. For contact assignment => see Fig. 54 .

2) Either of the following types of multi-function switch -F125 may be fitted:

- mechanical switch, Part No. 095 919 823 B or.

- electronic switch, Part No. 095 919 823 F (phased in from gearbox code 29 11 5 onwards).

Identification: Part No. is on top of switch housing. If necessary, remove switch.

If fitting a new switch either type may be installed.

Switch to voltage measuring range V =					
Test step	V.A.G 1598/18 sockets	Component tested	Test conditions - Additional steps	Specification	Fault rectification if readout does not match specification



5	29 + 1 1 + 7 1) 18 + 1	Multi-function switch -F125	▪ Ignition switched on	approx. battery voltage	- Check plug connector on multi-function switch - F125 for contact corrosion; renew if necessary Test wiring according to current flow diagram If test readings match specifications in this electrical test, but the display readout in the corresponding measured value block does not match the specification: Renew multi-function switch -F125 => Page 14 , Fig. 8
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1) Contact on connector for multi-function switch -F125. For contact assignment => see Fig. 54 .

2) Either of the following types of multi-function switch -F125 may be fitted:

- mechanical switch, Part No. 095 919 823 B or.

- electronic switch, Part No. 095 919 823 F (phased in from gearbox code 29 11 5 onwards).

Identification: Part No. is on top of switch housing. If necessary, remove switch.

If fitting a new switch either type may be installed.

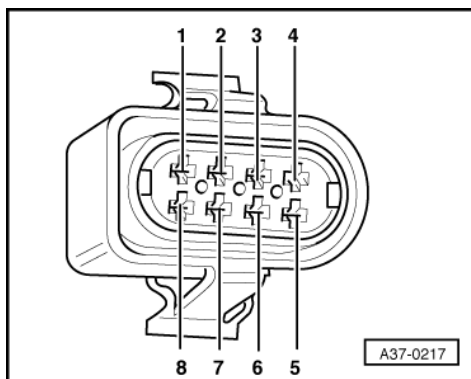


Fig. 1 Contact assignment on connector for multi-function switch -F125

Multi-function switch -F125 is located at the rear of the gearbox (right side)=> Page 14 ; Fig. 8

Switch to resistance measuring range ω					
Test step	V.A.G 1598/18 sockets	Component tested	▪ Test conditions - Additional steps	Specification	Fault rectification if readout does not match specification
6	55 + 67	Solenoid valve 1 - N88-	▪ Ignition switched off	55 to 65 ω	

Switch to resistance measuring range ω					
	55 + 1			infinite ω	- Check wiring according to current flow diagram
7	54 + 67	Solenoid valve 2 - N89-	▪ Ignition switched off	55 to 65 ω	
	54 + 1			infinite ω	
8	9 + 67	Solenoid valve 3 - N90-	▪ Ignition switched off	55 to 65 ω	- Renew conductor strip => Page 14, Fig. 7 or
	9 + 1			infinite ω	
9	47 + 67	Solenoid valve 4 - N91-	▪ Ignition switched off	4.5 to 6.5 ω	- Renew valve body =>Page 13, Fig. 6
	47 + 1			infinite ω	

Switch to resistance measuring range ω					
Test step	V.A.G 1598/18 sockets	Component tested	▪ Test conditions - Additional steps	Specification	Fault rectification if readout does not match specification
10	56 + 67	Solenoid valve 5 - N92-	▪ Ignition switched off	55 to 65 ω	- Check wiring according to current flow diagram
	56 + 1			infinite ω	
11	58 + 22	Solenoid valve 6 - N93-	▪ Ignition switched off	4.5 to 6.5 ω	- Renew conductor strip => Page 14, Fig. 7 or
	58 + 1 22 + 1			infinite ω	
12	10 + 67	Solenoid valve 7 - N94-	▪ Ignition switched off	55 to 65 ω	- Renew valve body => Page 13, Fig. 6
	10 + 1			infinite ω	

Switch to resistance measuring range ω					
Test step	V.A.G 1598/18 sockets	Component tested	▪ Test conditions - Additional steps	Specification	Fault rectification if readout does not match specification
13	23 + 29	Selector lever lock solenoid - N110-	▪ Ignition switched off	14 to 25 ω	- Check wiring according to current flow diagram Renew selector lever lock solenoid -N110- => Automatic Gearbox 01N; Repair Group 37; Servicing shift mechanism Servicing shift mechanism



Switch to resistance measuring range ω					
14	1 + 16	Kickdown switch -F8- (petrol engines only)	▪ Ignition switched off ▪ Accelerator pedal not depressed	infinite ω	- Test wiring according to current flow diagram - Adjust or renew accelerator cable => 4-cylinder Fuel Injection Engine (5-valve), Mechanics ; Repair Group 20; Fuel supply, Servicing accelerator linkage (automatic gearbox)
continued			- Depress accelerator as far as kickdown	less than 1.5 ω	=> 4-cylinder diesel direct injection engine (TDI) Mechanics ; Repair group 20

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Switch to voltage measuring range $V =$					
Test step	V.A.G 1598/18 sockets	Component tested	Test conditions - Additional steps	Specification	Fault rectification if readout does not match specification
14	1 + 16	(Test step 14 - continued) Kickdown switch -F8 (TDI engine only)	▪ Ignition switched on ▪ Accelerator not depressed	approx. battery voltage	=> Diesel Direct Injection and Glow Plug System (TDI); Repair Group 23; Servicing diesel direct injection system; Servicing throttle mechanism
			- Depress accelerator down to kickdown	less than 3 V	- Test wiring according to current flow diagram

Switch to resistance measuring range ω					
Test step	V.A.G 1598/18 sockets	Component tested	Test conditions - Additional steps	Specification	Fault rectification if readout does not match specification
15	20 + 65	Road speed sender -G68-	▪ Ignition switched off		- Check wiring according to current flow diagram

Switch to resistance measuring range ω					
			min.	0.75 K ω	- Renew road speed sender -G68- =>Page 15 , Fig. 10
			max.	1.0 K ω	
16	1 + 43	Screening for -G68	▪ Ignition switched off ▪ Ignition switched on	infinite ω	- Test wiring according to current flow diagram
17	21 + 66	Gearbox speed sender -G38-	▪ Ignition switched off		- Check wiring according to current flow diagram - Renew gearbox speed sender -G38- =>Page 15 , Fig. 9
			min.	0.75 K ω	
			max.	1.0 K ω	
18	1 + 44	Screening for -G38	▪ Ignition switched off ▪ Ignition switched on	infinite ω	- Test wiring according to current flow diagram

Switch to resistance measuring range ω					
Test step	V.A.G 1598/18 sockets	Component tested	▪ Test conditions - Additional steps	Specification	Fault rectification if readout does not match specification
19	6 + 67	Gearbox oil temperature sender -G93- (ATF)	▪ Ignition switched off ▪ ATF temperature approx. 20 °C ▪ ATF temperature approx. 60° C ▪ ATF temperature approx. 120° C	0.247 M ω 48.8 kw 7.4 kw	- Check wiring according to current flow diagram Renew conductor strip with integral gearbox oil temperature sender => Page 14 , Fig. 7