Golf 1992 , Vento 1992 ➢

Ecomatic Self-diagnosis

Edition 10.1993

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

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Ecomatic Self-diagnosis

Repair Group

01 - Self diagnosis, Electrical check

Contents

01 - Self diagnosis, Electrical check

1 - Performing self-diagnosis

1.1 - Performing self-diagnosis

Attention!
Before leaving the vehicle always
- **Place gear lever in neutral!**
- **Fully apply handbrake!**

Then it is not possible for the vehicle to drive away unintentionally.

Function

System functions of the Golf - Ecomatic

=> Self study programme No.146, Golf - Ecomatic

The Ecomatic (clutch electronics) control unit -J327- is equipped with a fault memory.

If faults occur in the monitored sensors or components, these are stored in the memory together with an indication of the type of fault.

Faults which occur only occasionally are known as sporadic faults and are additionally coded as such.

After evaluating the information, the Ecomatic (clutch electronic) control unit -J327- categorizes the different faults and stores them => -fault table-from Page 29 .

If faults do not reoccur within
min. 5 km (3 miles) or 6 minutes
max. 20 km (12 miles) or 24 minutes
they are erased.

Electrical faults that affect vehicle performance can be determined with the fault reader V.A.G 1551.

The possibilities offered by the self-diagnosis can only be fully utilized with the fault reader V.A.G 1551 in operating mode 1 "Rapid data transfer".

Functions which the fault reader V.A.G 1551 can register => page 28 , List of selectable functions.

Ecomatic control unit -J327- fault recognition

If a fault is present it will be stored as a statistical fault. If the fault is no longer present after a set period of time or distance travelled, it will be converted to a "sporadic fault".

Faults which are stored in the memory as sporadically occurring faults, will be displayed as "sporadic faults" when retrieved by fault reader V.A.G 1551. "SP" appears on the right of the display in such cases. If the printer is switched on, "sporadic faults" are printed out after the fault is addressed.

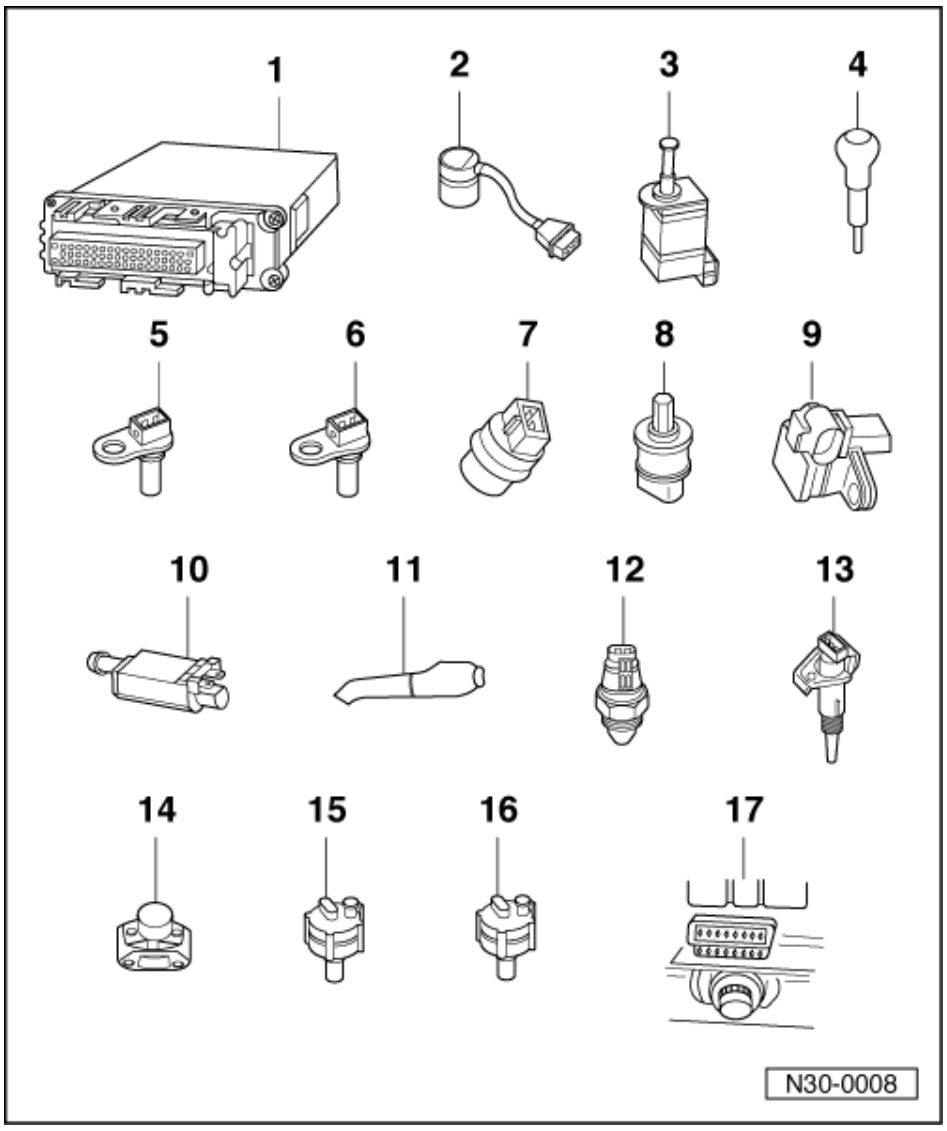
Faults which are stored in the memory as sporadically occurring faults are automatically erased after 1,000 km (625 miles) or 20 hours.

If a fault is present which necessitates a fault indication the Ecomatic, gear display and automatic Ecomatic override warning lamps will flash 10 times at a frequency of 1 second, at intervals of 1 minute.

1.2 - Technical data of self-diagnosis

Memory	
-Permanent memory - Volatile memory	yes no
Data output	
- Rapid data transfer - Flash code output	yes no
Final control diagnosis	no
Basic setting	yes
Coding control unit	no
Reading measured value block	yes
Location of components	=> page 2

1.3 - Electronic components



Control unit -J327- and Ecomatic sensors

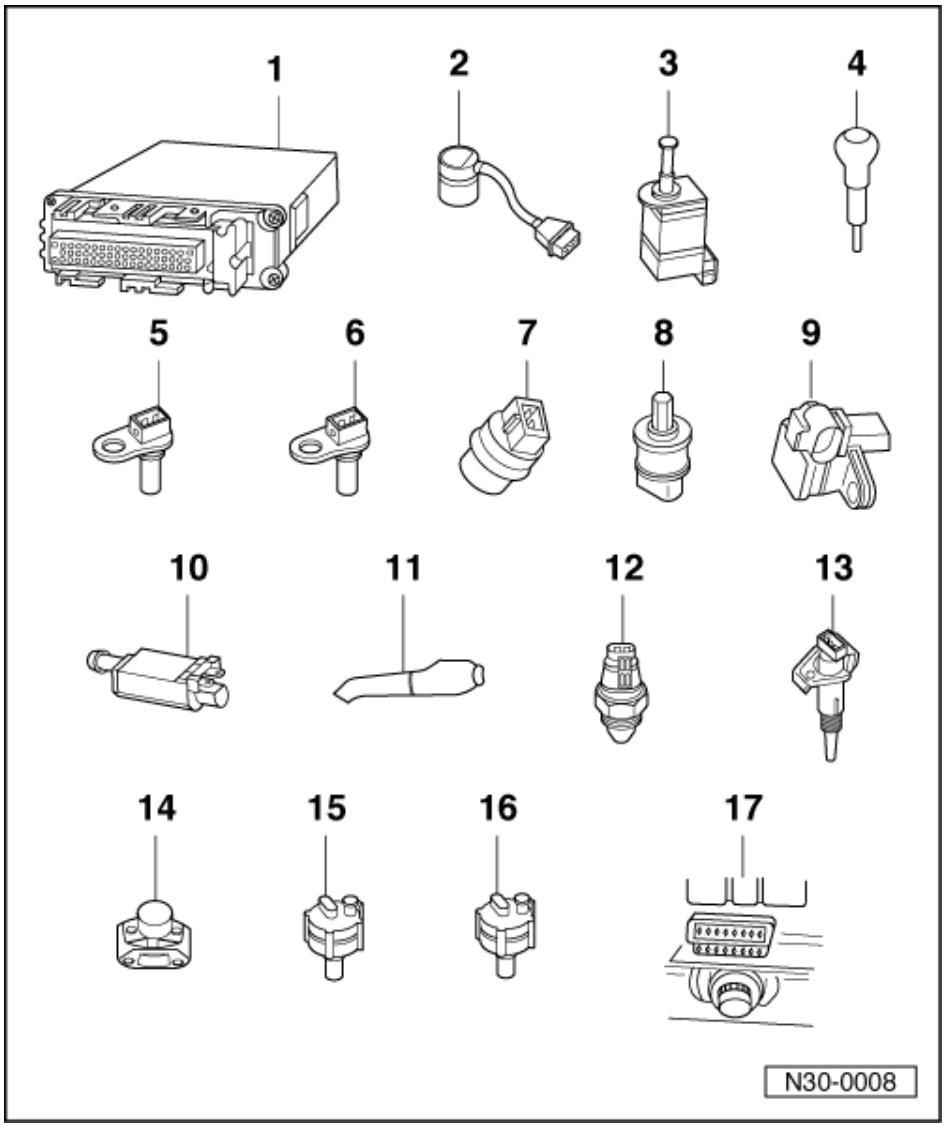
1 Ecomatic control unit -J327-

- Location: =>Fig. 1
- Checked by self-diagnosis
- Removing and installing =>Fig. 1

2 Load signal potentiometer -G157-

- Location: =>Fig. 9
- Checked by self-diagnosis
- Can be checked and adjusted in measuring value block, display group number 02 => Page 37
- Removing and installing

=> Diesel injection and glow plug system; Repair group 23; Servicing fuel injection Servicing fuel injection



3 Diesel engine inhibitor switch -F207-

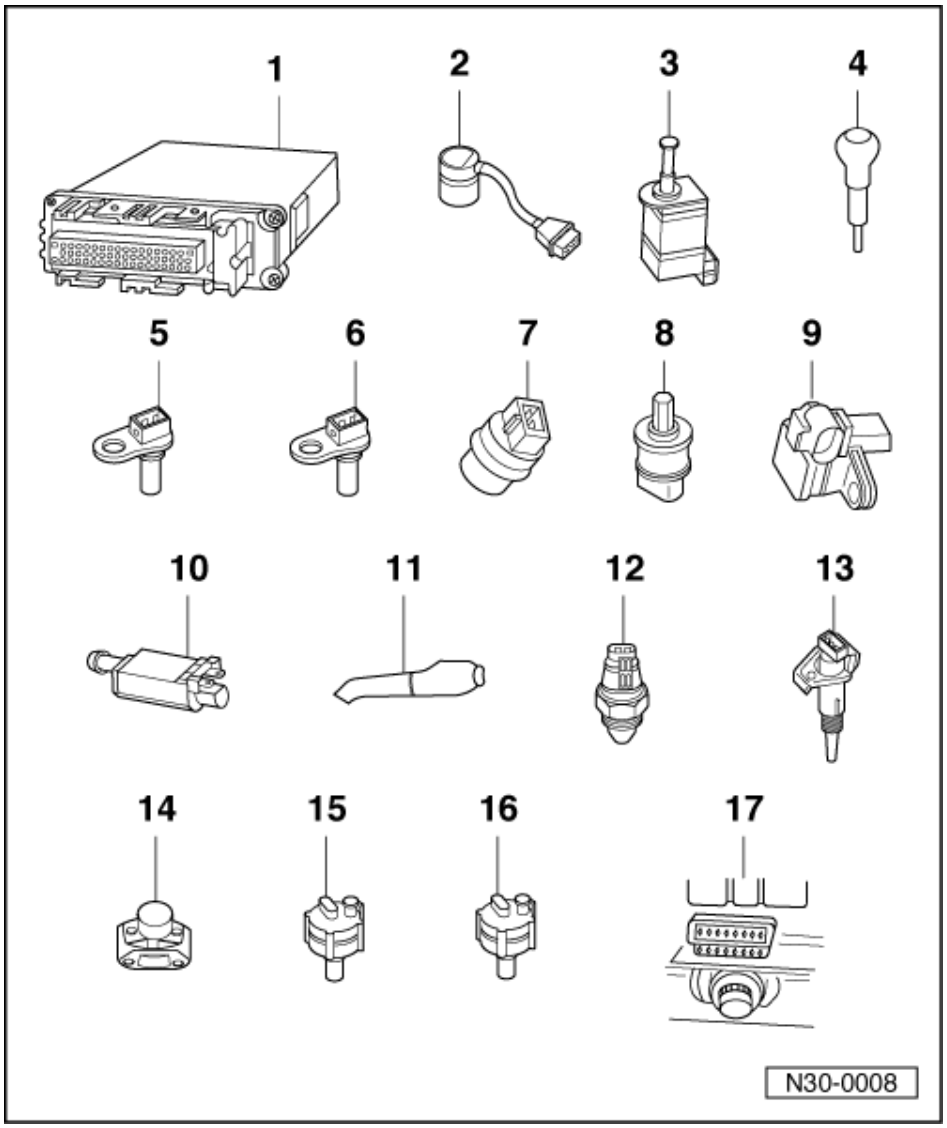
- Location: =>Fig. 6
- Checked by self-diagnosis
- Can be checked in measuring value block, display group number 04 => Page 37
- Removing and installing =>Fig. 6

4 Gearshift switch -F191-

- Location: =>Fig. 8
- Checked by self-diagnosis
- Can be checked in measuring value block, display group number 04 => Page 37

- Removing and installing

=> 5-speed manual gearbox 020; Repair group 34; Servicing selector mechanism -Ecomatic Servicing selector mechanism -Ecomatic

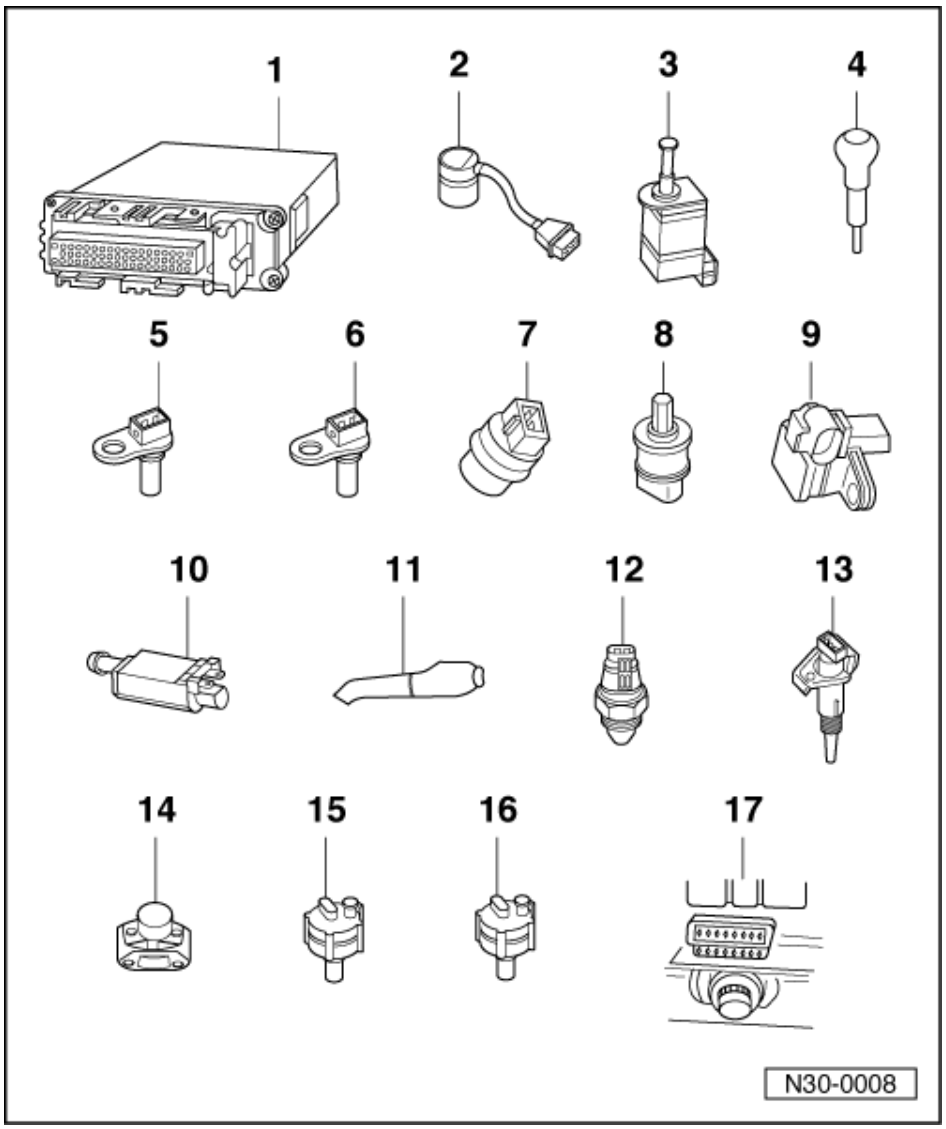


5 Engine speed sender -G28-

- Location: =>Fig. 2
- Checked by self-diagnosis
- Can be checked in measuring value block, display group number 01 => Page 37
- Removing and installing =>Fig. 2

6 Gearbox speed sender -G38-

- Location =>Fig. 2
- Checked by self-diagnosis
- Can be checked in measuring value block, display group number 01 => Page 37
- Removing and installing =>Fig. 2



7 Coolant temperature sender -G62-

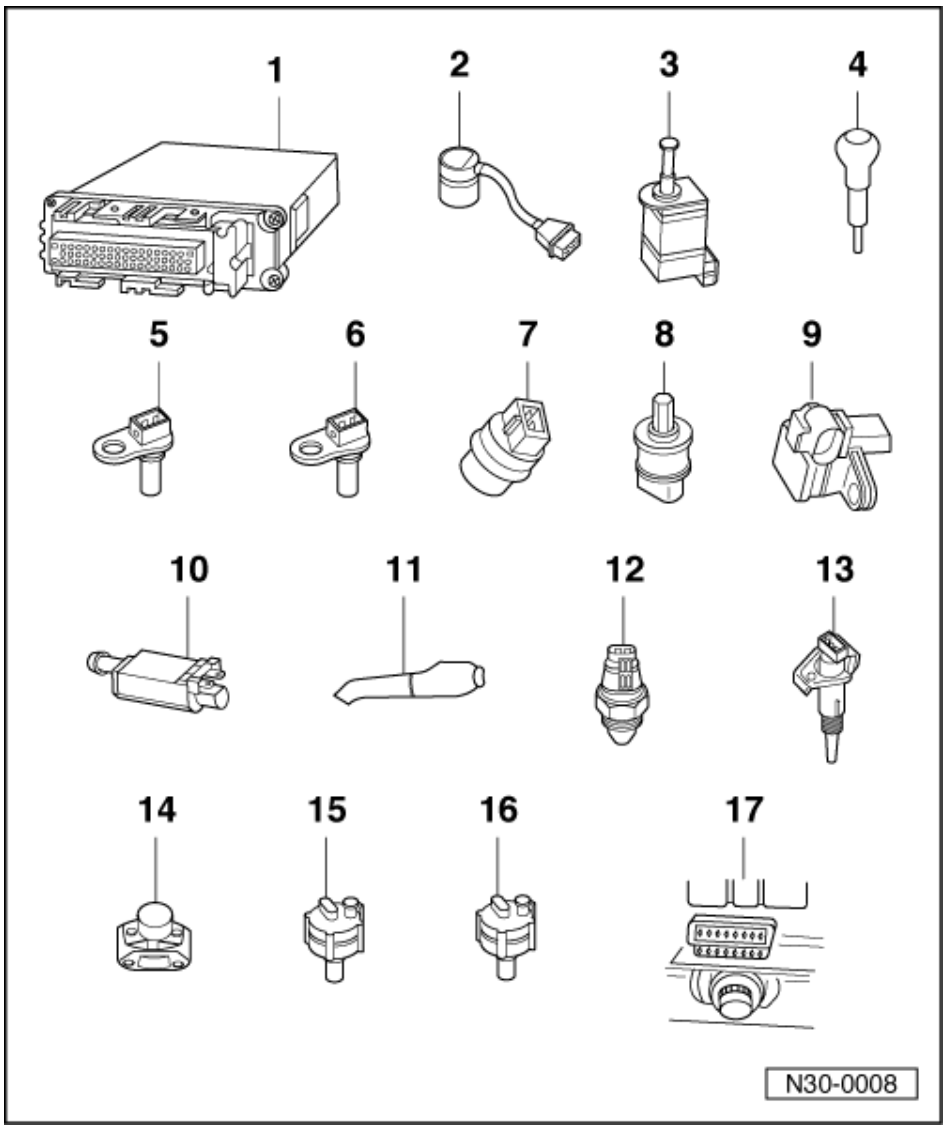
- Location: =>Fig. 7
- Checked by self-diagnosis
- Can be checked in measuring value block, display group number 02
  => Page 37
- Removing and installing

=> 4-Cyl. Diesel engine, Mechanics; Repair group 19; Removing and installing parts of the cooling system
Removing and installing parts of the cooling system

8 Door contact switch -F2-

- Location: In the driver's door B pillar
- Can be checked in measuring value block, display group number 04
  => Page 37
- Removing and installing

=> "Current flow diagrams, Electrical fault finding and Fitting locations" Binder, Golf 1992 ▸ Vento 1992 ▸



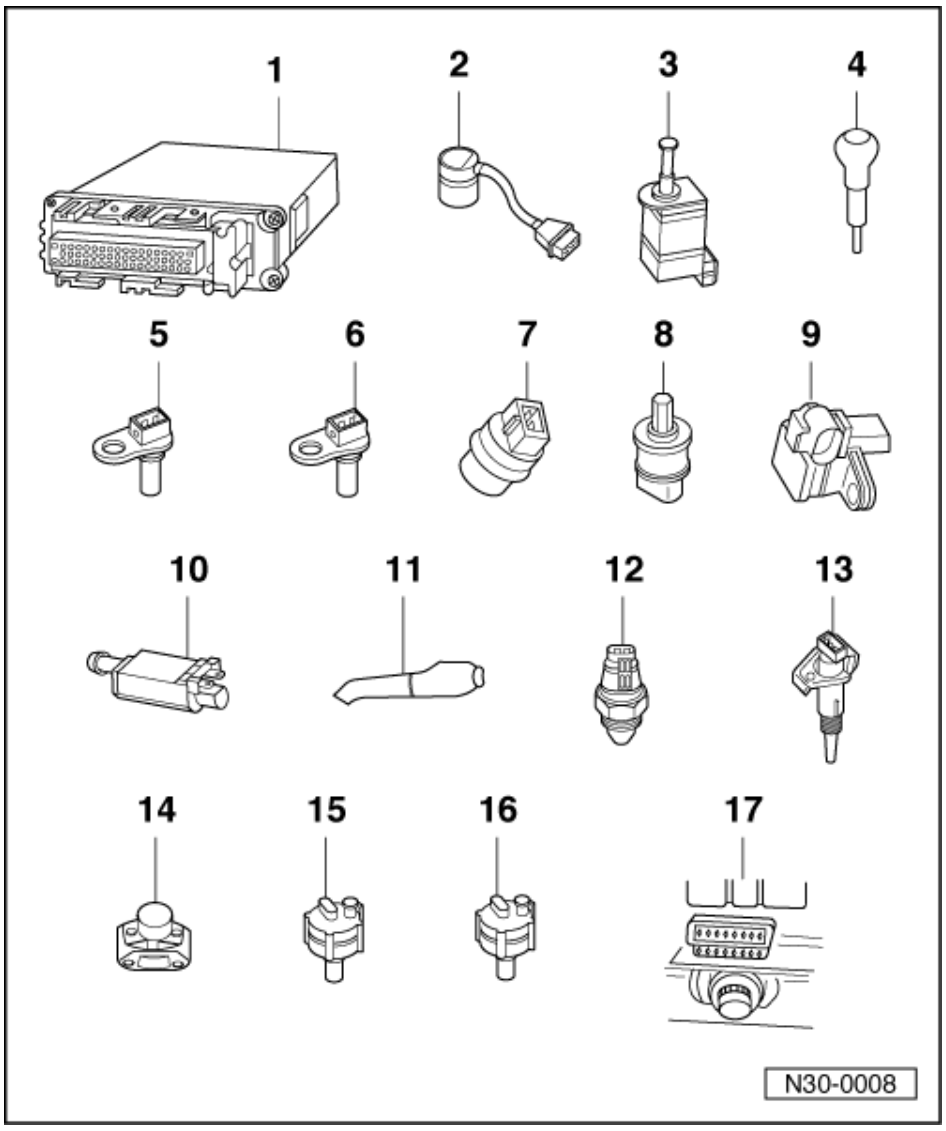
9 Gear recognition switch -F208-

- Fitting location: =>Fig. 3
- Checked by self-diagnosis
- Can be checked in measuring value block, display group number 01 => Page 37
- Removing and installing: =>Fig. 3

10 Brake light switch -F-

- Location: =>Fig. 4
- Location: The brake light switch is on the pedal cluster
- Checked by self-diagnosis
- Can be checked in measuring value block, display group number 04 => Page 37
- Removing and installing

=> Running gear; Repair group 47; Assembly overview: Pedal cluster, brake pedal Assembly overview: Pedal cluster, brake pedal



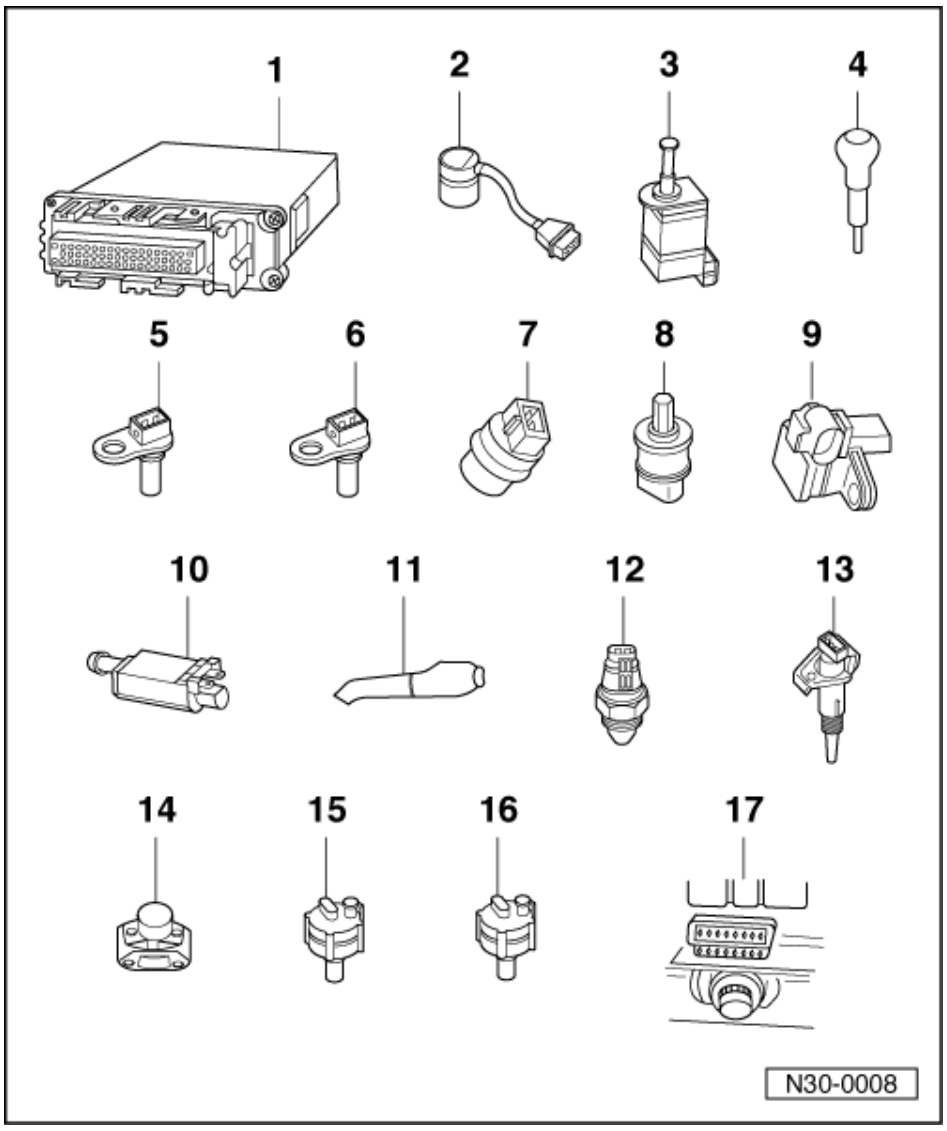
11 Ecomatic switch -E163-

- Location: =>Fig. 5
- Checked by self-diagnosis
- Can be checked in measuring value block, display group number 04
  => Page 37
- Removing and installing

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

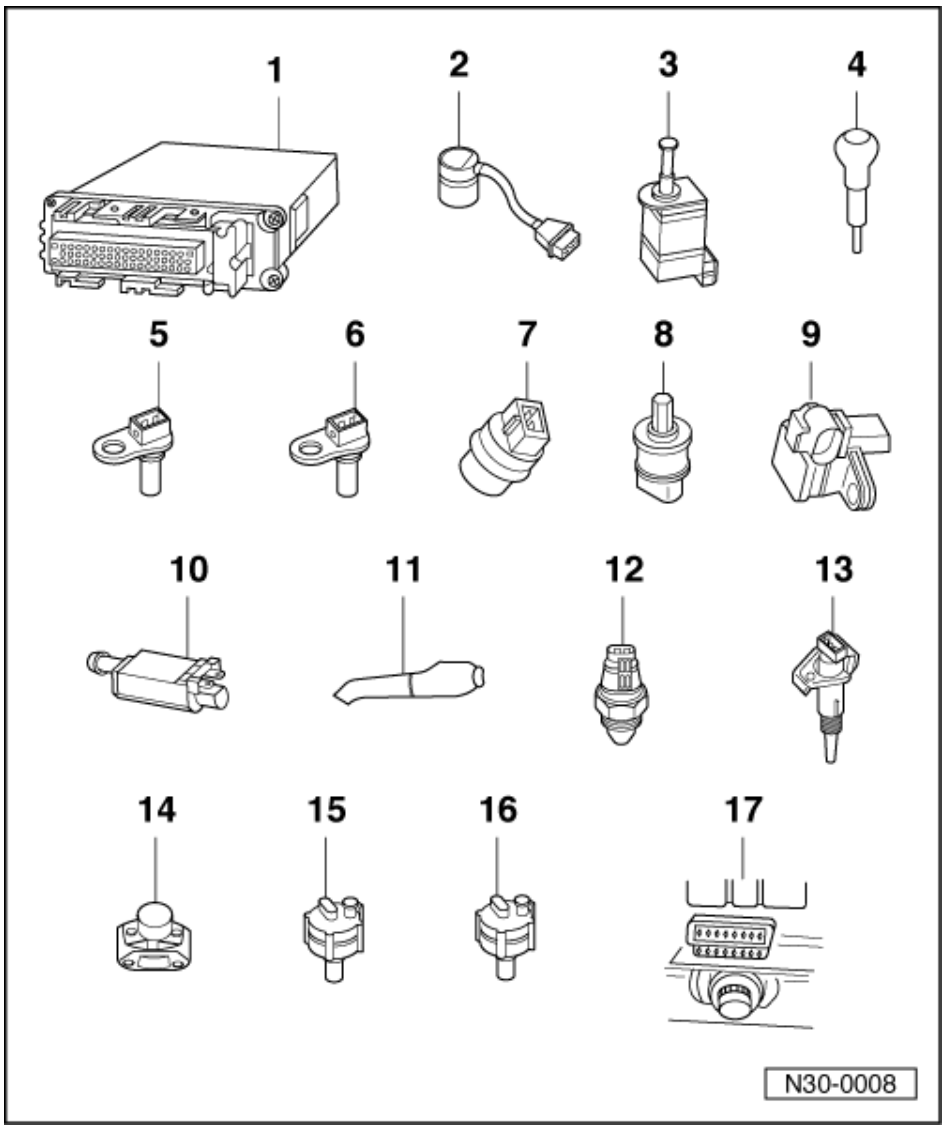
12 Gear monitoring switch -F209-

- Location: =>Fig. 3
- Checked by self-diagnosis
- Can be checked in measuring value block, display group number 04
  => Page 37
- Removing and installing =>Fig. 3



13 Speedometer sender -G22-

- Location: =>Fig. 3
- Speed signal is checked via dash panel insert by self-diagnosis
- Speed signal can be checked via dash panel insert in measuring block => Page 37 display group number 07
- Removing and installing =>Fig. 3



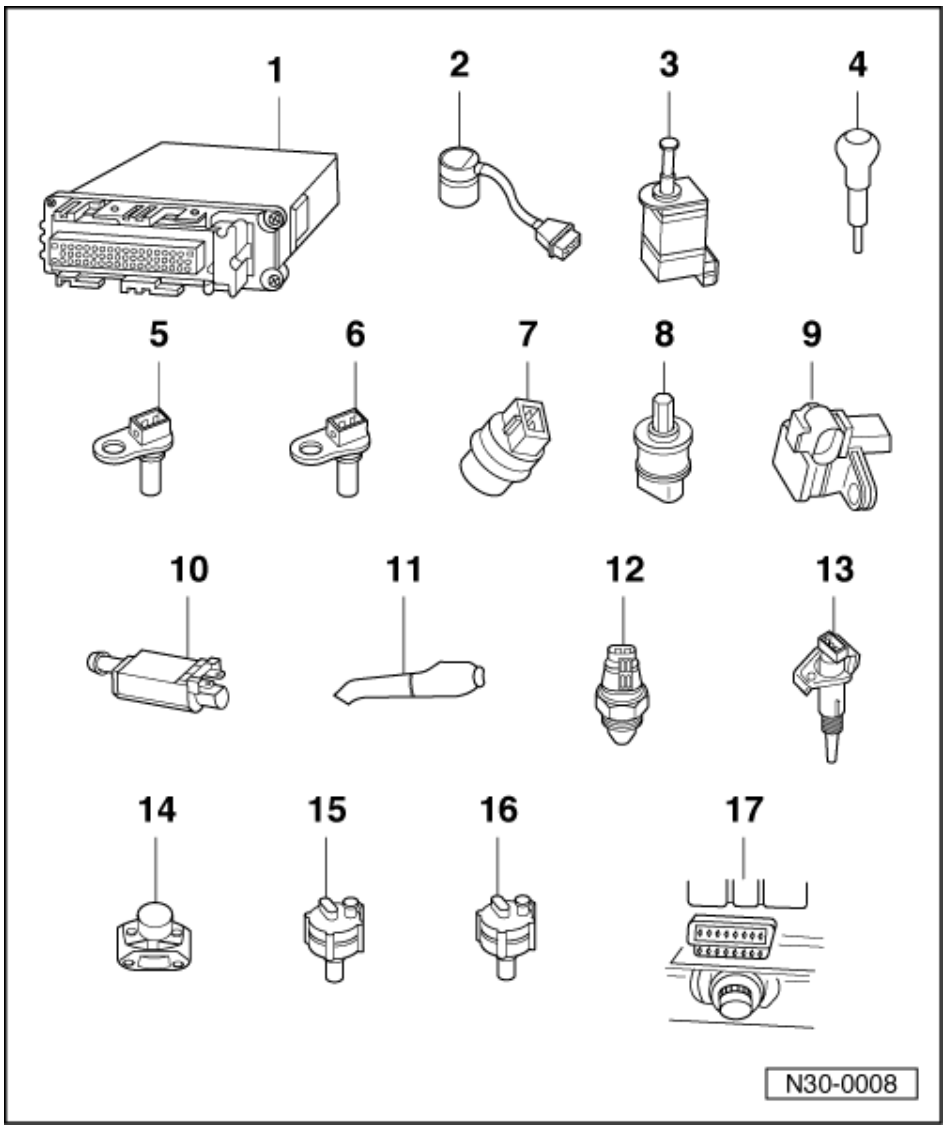
14 Clutch movement sender -G162-

- Location =>Fig. 10
- Located in clutch positioner
- Checked by self-diagnosis
- Can be checked and adjusted in measuring value block, display group number 02 => Page 37
- Removing and installing clutch positioner

=> 5-speed manual gearbox 020; Repair group 30; Servicing clutch control -Ecomatic; Removing and installing clutch positioner Servicing clutch control -Ecomatic Removing and installing clutch positioner

15 Clutch system vacuum switch -F210- (green)

- Location: =>Fig. 11
- Checked by self-diagnosis
- Can be checked in measuring value block => Page 37 ; display group number 04
- Removing and installing =>Fig. 11

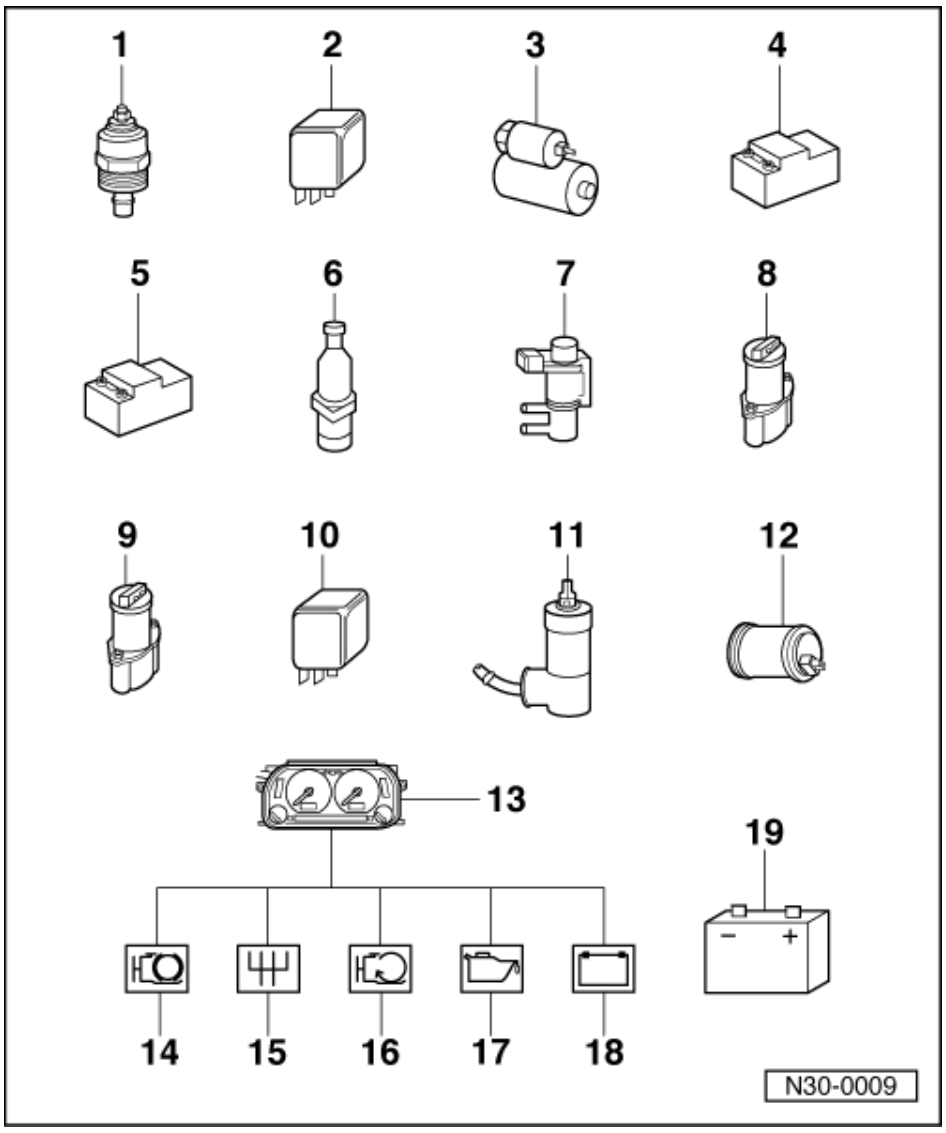


16 Brake servo vacuum switch -F190- (red)

- Location: Fig. 12
- Checked by self-diagnosis
- Can be checked in measuring value block => Page 37 ; display group number 04
- Removing and installing =>Fig. 12

17 Diagnosis connection

- Location: The diagnostic connectors are located behind the cover next to the ashtray, on the right, => Connecting fault reader V.A.G 1551 and selecting functions, Page 26

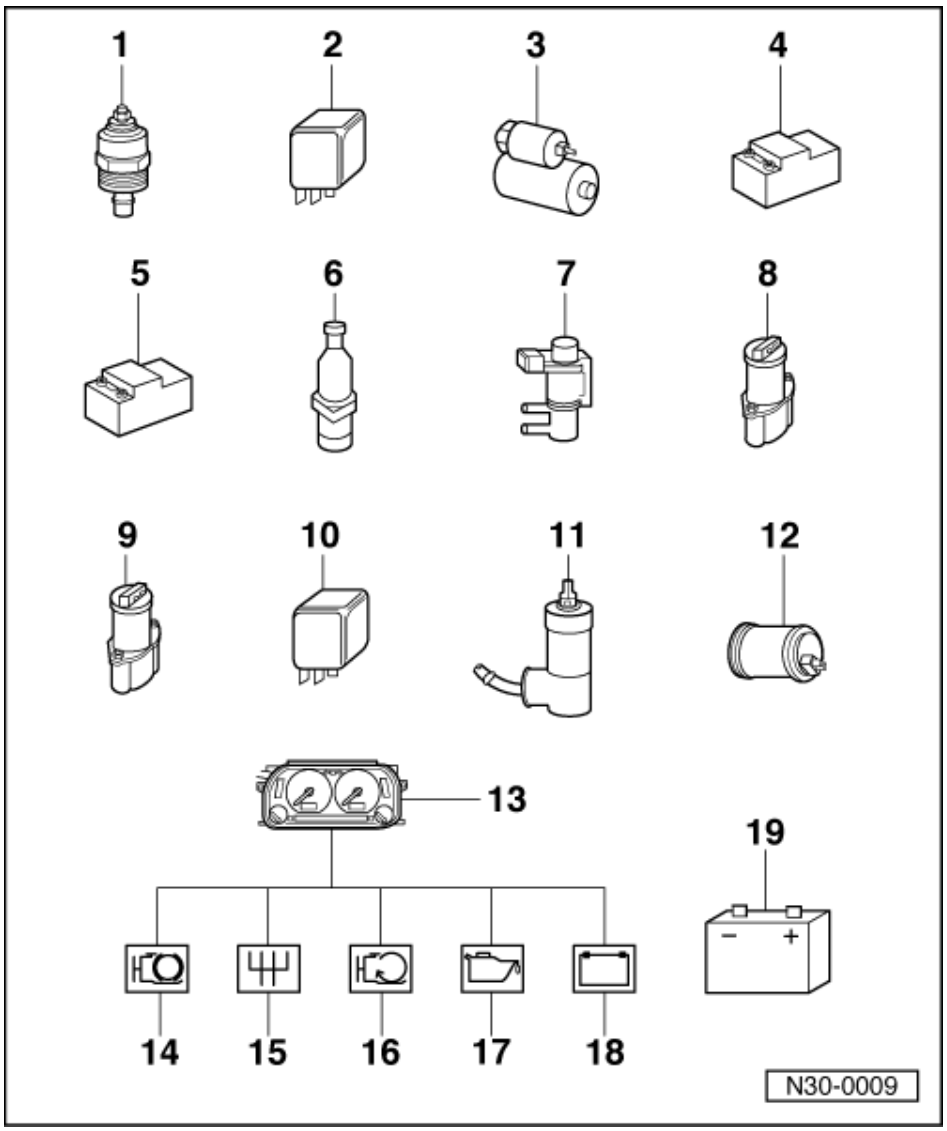


Ecomatic actuators

1 Fuel cut-off valve -N109-
- Location =>Fig. 14
- Checked by self-diagnosis
- Can be checked in measuring value block => Page 37 ; display group number 04
- Removing and installing Fig. 14

2 Starter relay -J53-
- Location: Additional relay plate left under dash panel
- Checked by self-diagnosis
- Can be checked in measuring value block => Page 37 ; display group number 04
- Removing and installing

=> "Current flow diagrams, Electrical fault finding and Fitting locations" Binder, Golf 1992 ▸, Vento 1992 ▸



3 Starter

- Removing and installing

=> Electrical system; Repair group 27; Removing and installing starter Removing and installing starter

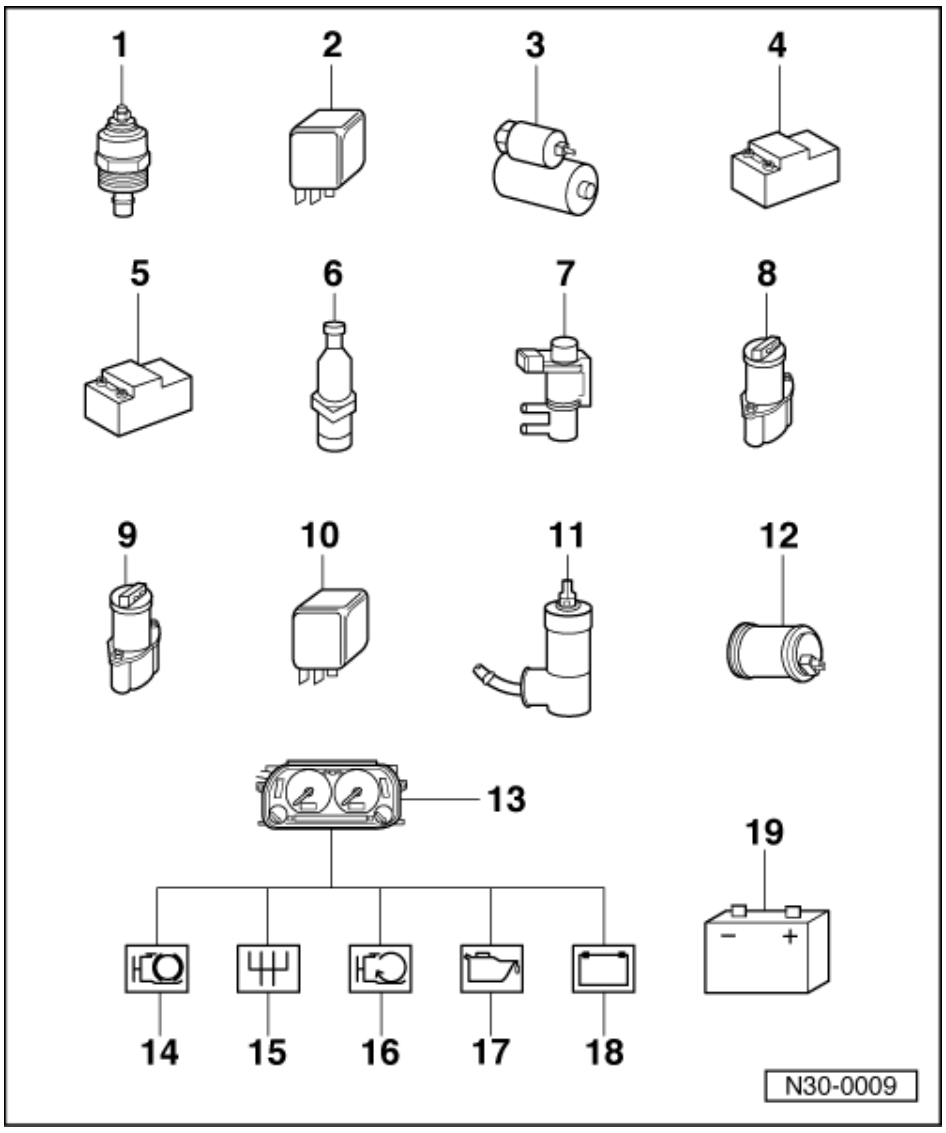
4 Second battery and driving lights control unit -J328-

- Location: =>Fig. 15
- Removing and installing =>Fig. 15
- Checking: When starting the engine via the accelerator pedal with the headlights switched on, the headlights must not dim appreciably

5 Steering hydraulics relay -J320-

- Location: =>Fig. 16
- Checked by self-diagnosis
- Activation can be checked in measuring value block => Page 37 ; display group number 04
- Removing and installing

=> Running gear; Repair group 48; Removing and installing steering hydraulic pump -V119-, Golf Ecomatic Removing and installing steering hydraulic pump -V119-, Golf Ecomatic



6 Steering hydraulic pump -V119-

- Location: =>Fig. 17
- Removing and installing

=> Running gear; Repair group 48; Removing and installing steering hydraulic pump -Ecomatic Removing and installing steering hydraulic pump -Ecomatic

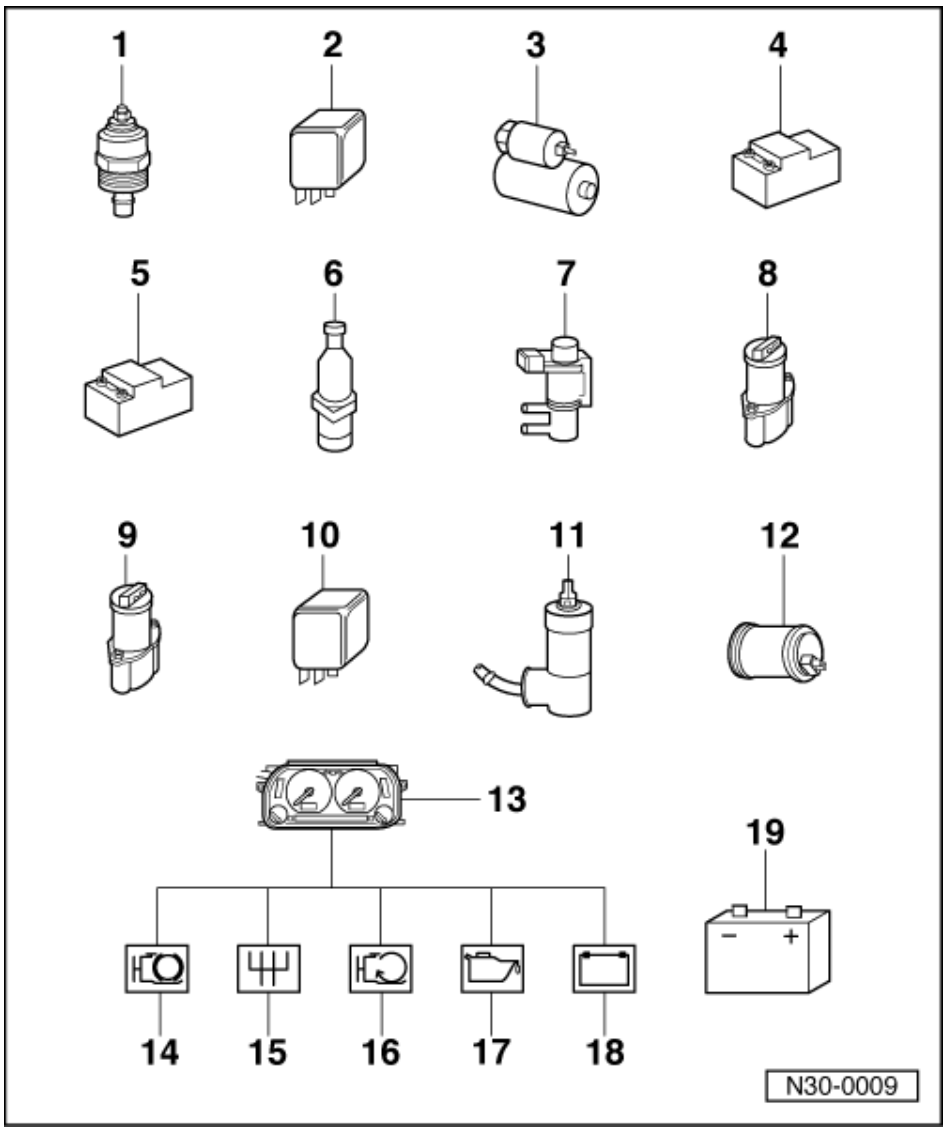
7 Priority switching valve -N185-

- Location: Fig. 18
- Checked by self-diagnosis
- Activation can be checked in measuring value block => Page 37 ; display group number 04
- Removing and installing =>Fig. 18

8 Clutch positioner vacuum valve -N183-

- Location: =>Fig. 10
- Checked by self-diagnosis
- Removing and installing clutch positioner

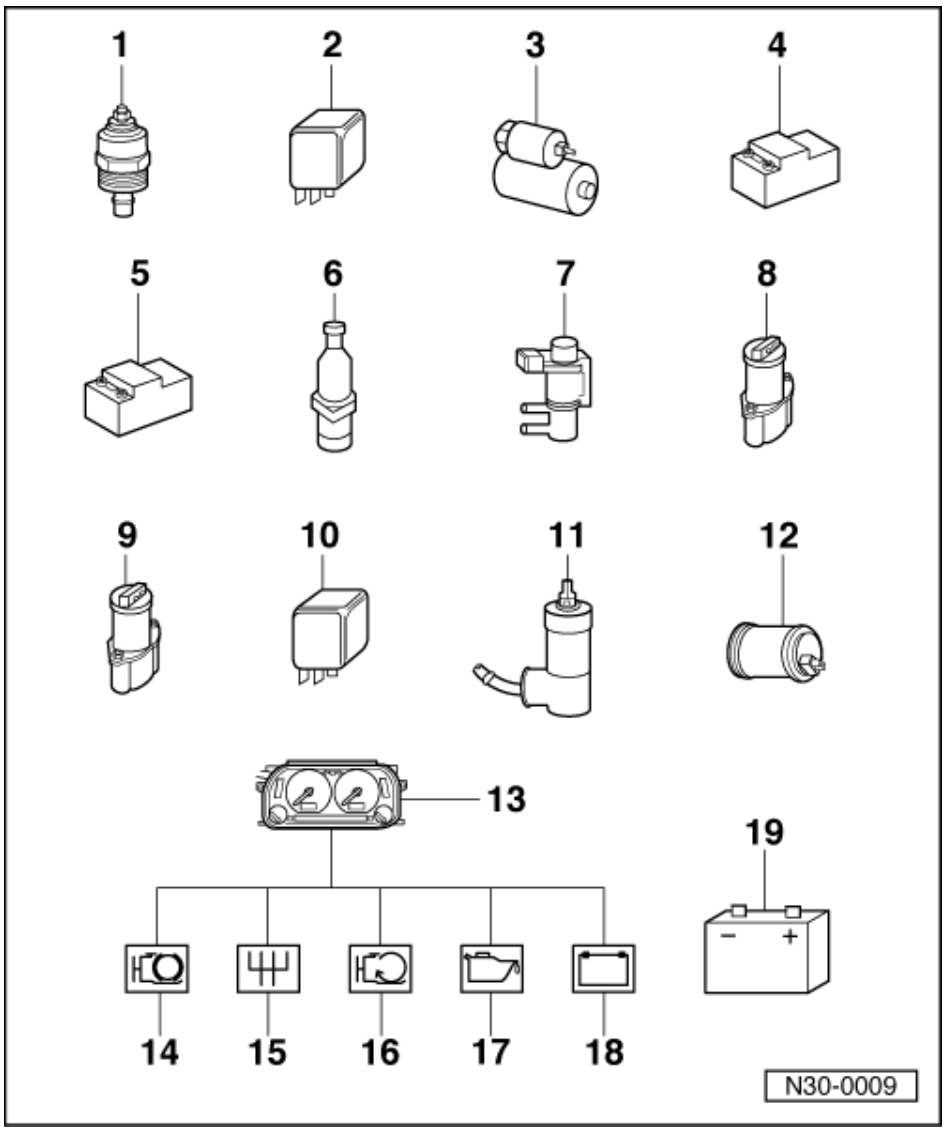
=> 5-speed manual gearbox 020; Repair group 30; Servicing clutch control -Ecomatic, removing and installing clutch positioner Servicing clutch control -Ecomatic, removing and installing clutch positioner



9 Clutch positioner vent valve -N184-

- Location: Fig. 10
- Checked by self-diagnosis
- Can be checked in measuring value block => Page 37 ; display group number 05
- Removing and installing clutch positioner

=> 5-Speed manual gearbox 020; Repair group 30; Servicing clutch control -Ecomatic, removing and installing clutch positioner Servicing clutch control -Ecomatic, removing and installing clutch positioner



10 Exhauster relay -J318-

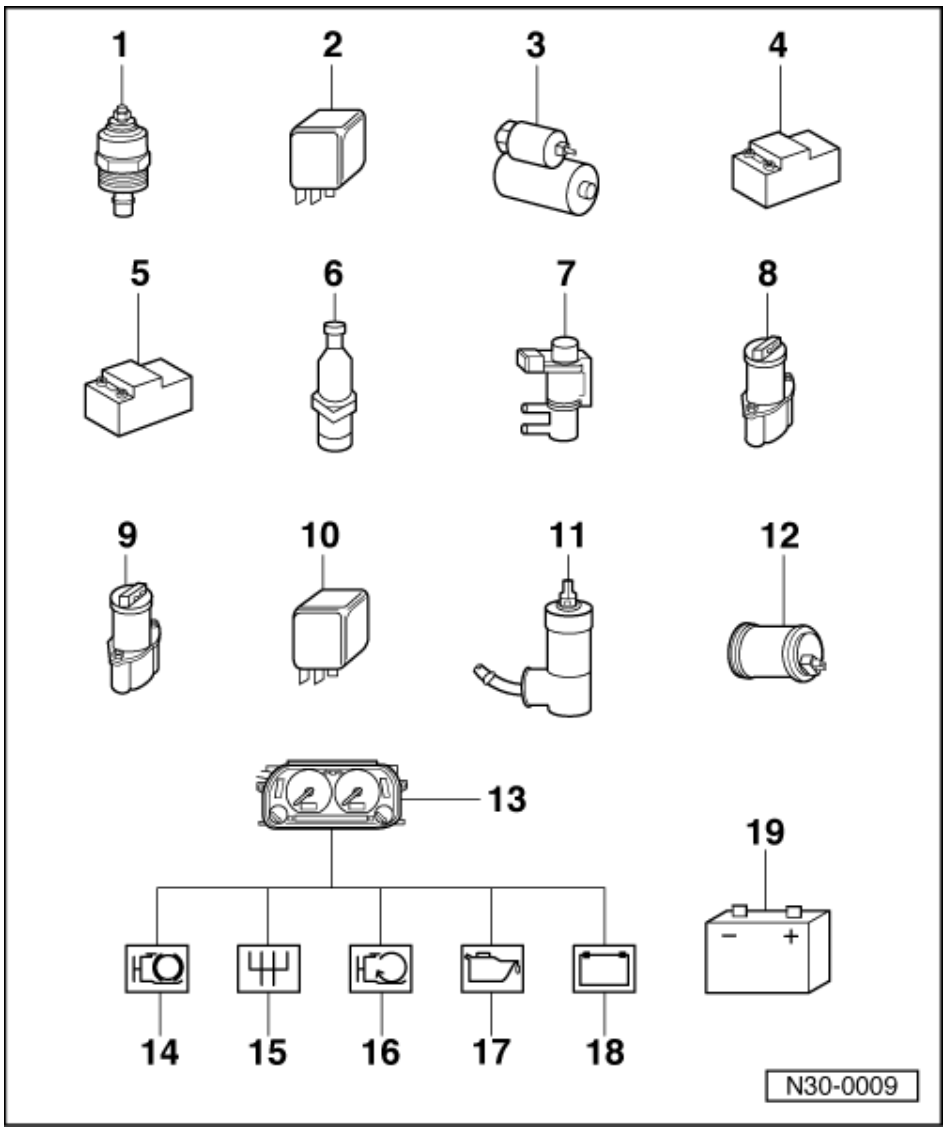
- Location: Additional relay plate left under dash panel
- Checked by self-diagnosis
- Activation can be checked in measuring value block => Page 37 ; display group number 04
- Removing and installing

=> "Current flow diagrams, Electrical fault finding and Fitting locations" Binder, Golf 1992 ‣, Vento 1992 ‣

11 Exhauster -V22-

- Location: =>Fig. 10
- The clutch vacuum system is checked by self-diagnosis
- Removing and installing

=> 5-speed manual gearbox 020; Repair group 30; Servicing clutch control -Ecomatic Servicing clutch control -Ecomatic



12 Coolant circulation pump -V50-

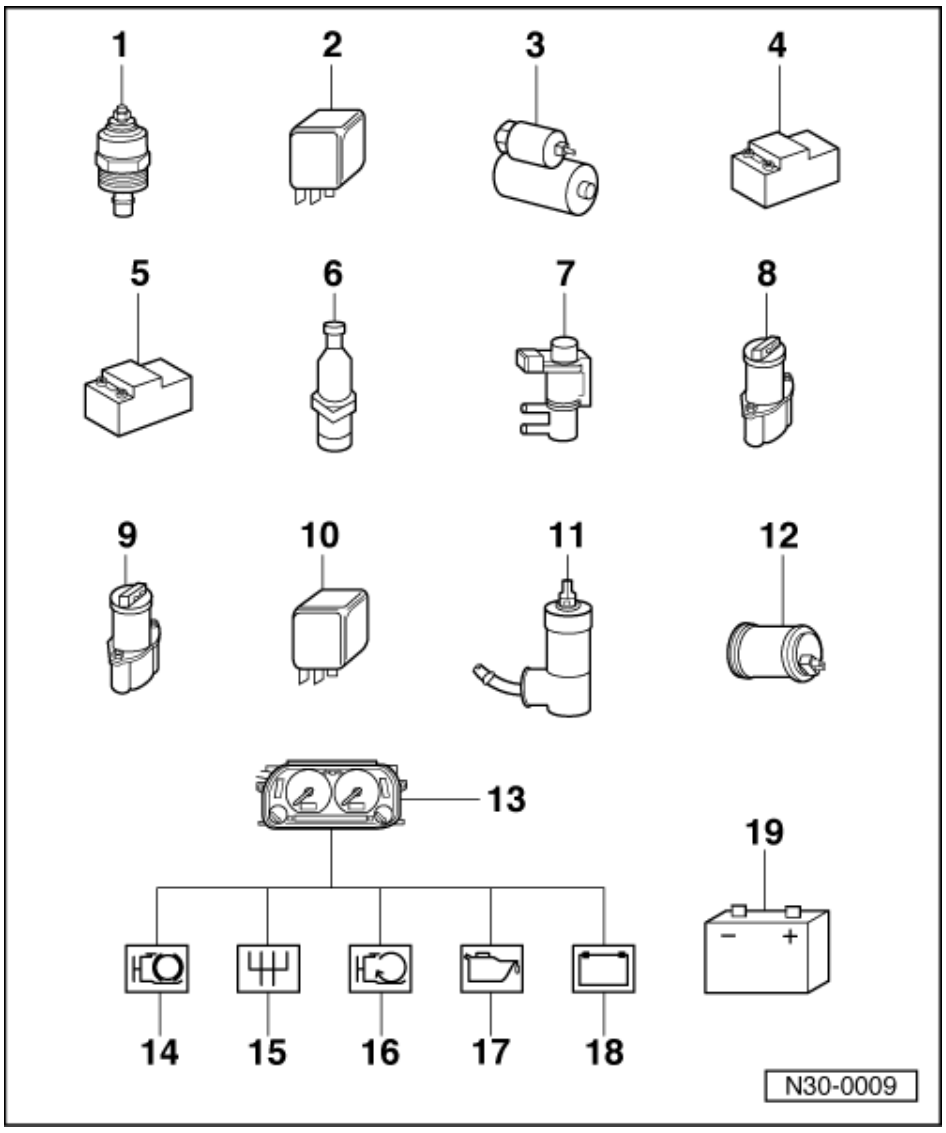
- Location: =>Fig. 13
- Removing and installing

=> 4-Cyl. Diesel engine, Mechanics; Repair group 19; Removing and installing parts of cooling system Removing and installing parts of cooling system

13 Dash panel insert

- With ignition switched on the warning lamps Pos. 14 , 15 and 16 light up
- If the warning lamps Pos. 14 , 15 and 16 flash carry out self-diagnosis
- Speed signal is checked via the dash panel insert by the self-diagnosis
  => Page 37 ; display group number 07
- Removing and installing

=> Electrical system; Repair group 90; Removing and installing dash panel insert Removing and installing dash panel insert



14 Ecomatic warning lamp -K110-

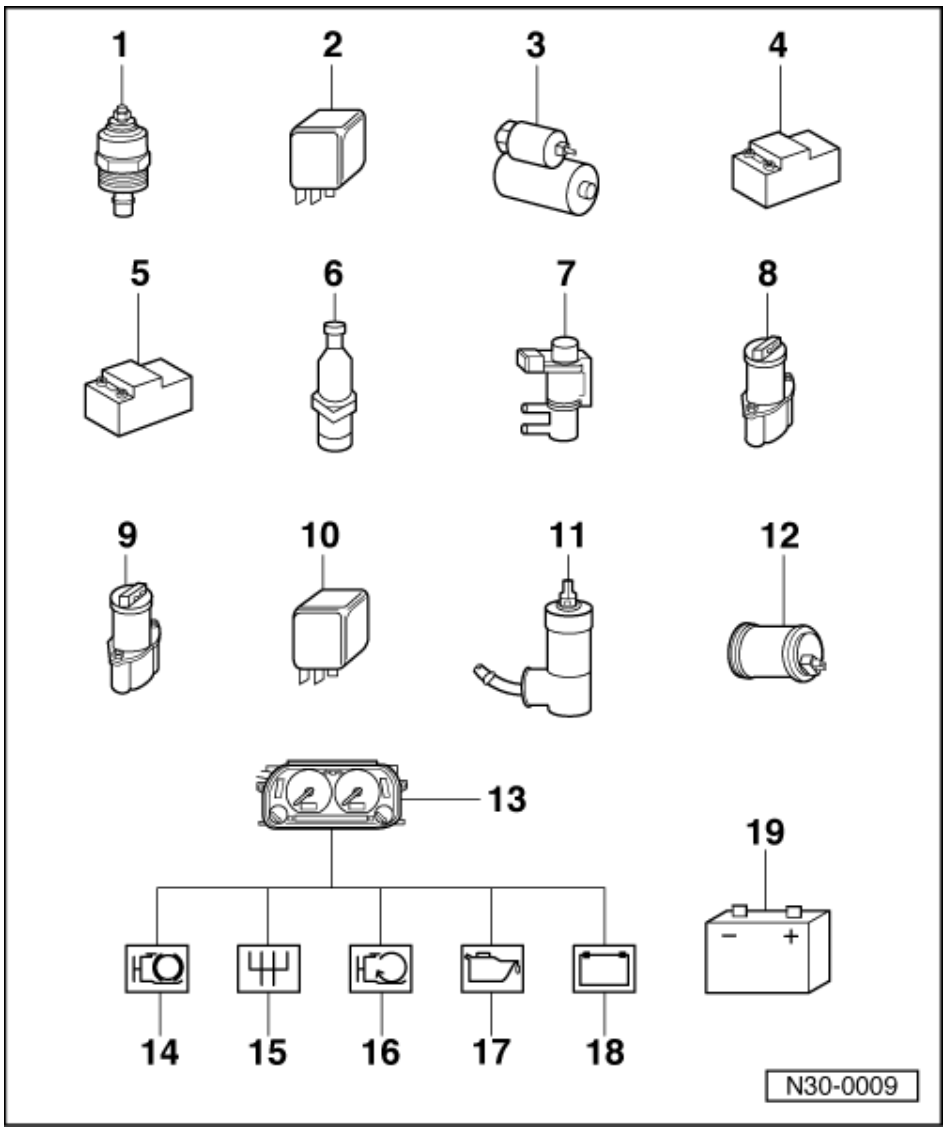
- Location: In dash panel insert
- Can be checked in measuring value block => Page 37 ; display group number 04
- Removing and installing

=> Electrical system; Repair group 90; Servicing dash panel insert Servicing dash panel insert

15 Gearshift indicator warning lamp -K48-

- Location: In dash panel insert
- Can be checked in measuring value block => Page 37 ; display group number 04
- Removing and installing

=> Electrical system; Repair group 90; Servicing dash panel insert Servicing dash panel insert



16 Ecomatic automatic override warning lamp -K111-

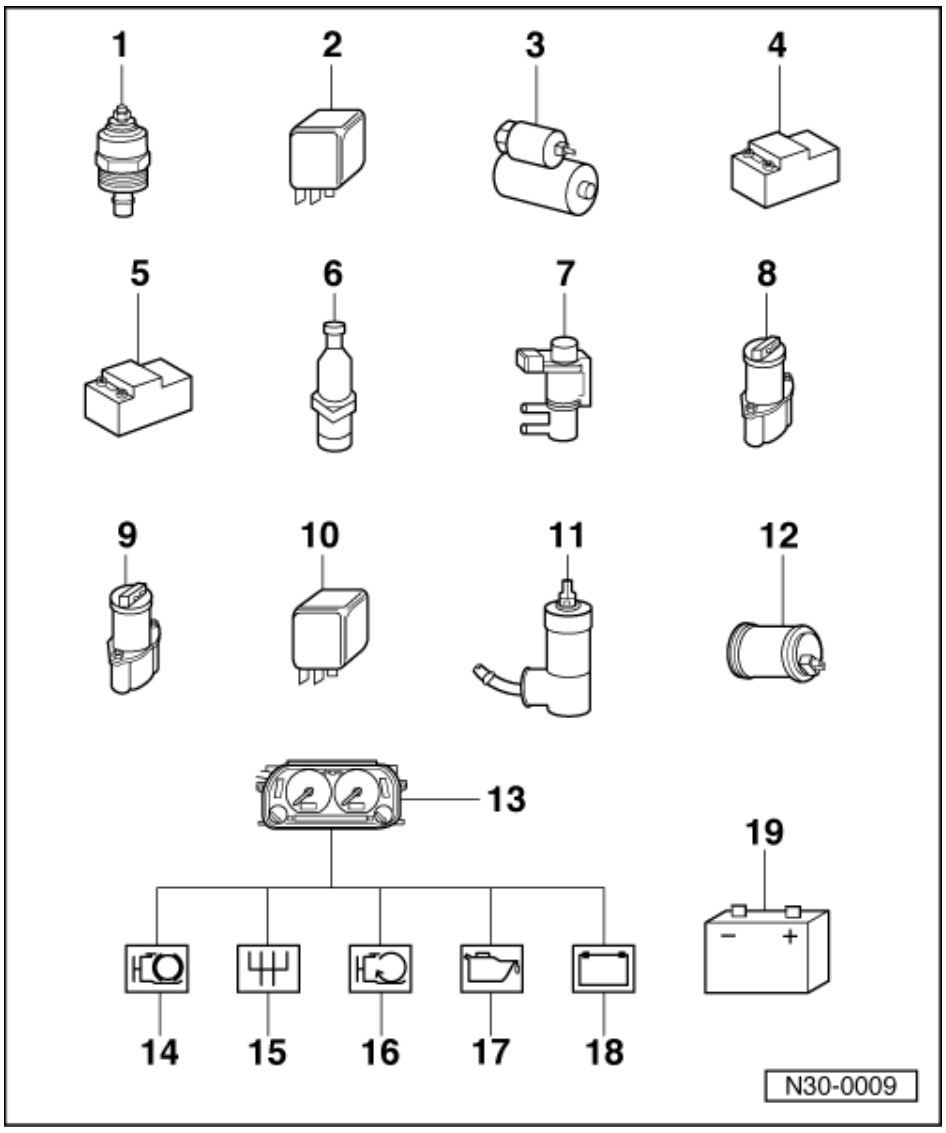
- Location: In dash panel insert
- Can be checked in measuring value block => Page 37 ; display group number 04
- Removing and installing

=> Electrical system; Repair group 90; Servicing dash panel insert Servicing dash panel insert

17 Oil pressure warning lamp -K3-

- Location: In dash panel insert
- Is suppressed when the engine is switched off and the vehicle is rolling
- Can be checked in measuring value block => Page 37 ; display group number 04
- Removing and installing

=> Electrical system; Repair group 90; Servicing dash panel insert Servicing dash panel insert



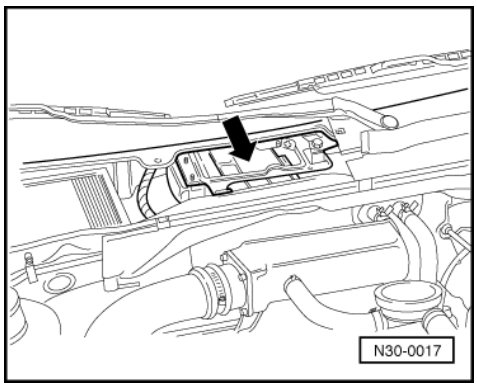
18 Alternator warning lamp -K2-

- Location: In dash panel insert
- Can be checked in measuring value block => Page 37 ; display group number 04
- Is suppressed when the engine is switched off and the vehicle is rolling
- Removing and installing

=> Electrical system; Repair group 90; Servicing dash panel insert Servicing dash panel insert

19 Second battery

- Location: =>Fig. 19
- Removing and installing =>Fig. 19

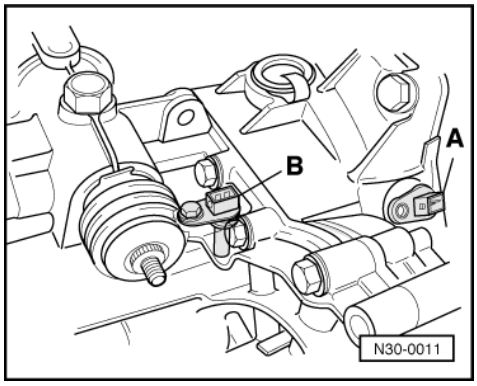


-> Fig.1 Ecomatic control unit -J327-

The control unit (arrow) is located on right in plenum chamber underneath the split water deflector.

Removing and installing the control unit

- Remove right water deflector, remove control unit retainer nut and bolt.
- Remove or install control unit in plenum chamber and disconnect or connect multi-pin connector.



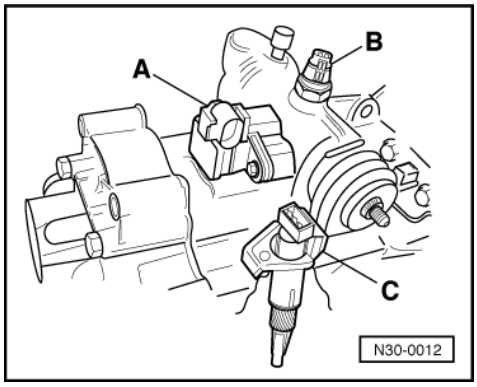
-> Fig.2 Engine and gearbox speed sender

A- Engine speed sender -G28-

- Disconnect or connect connector.
- Remove or install sender.

B- Gearbox speed sender -G38-

- Disconnect or connect connector.
- Remove or install sender.



-> Fig.3 Gear recognition, gear monitoring switch and speedometer sender

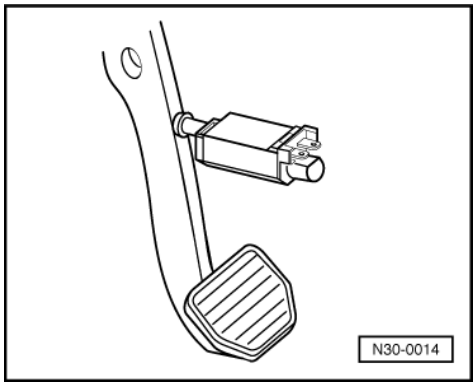
Removing and installing

A- Gear recognition switch -F208-

- Disconnect or connect connector.
- Remove/install bolts and remove/install gear recognition switch -F208-.

B- Gear monitoring switch -F209-

- Disconnect or connect connector.
- Unscrew or screw in switch.

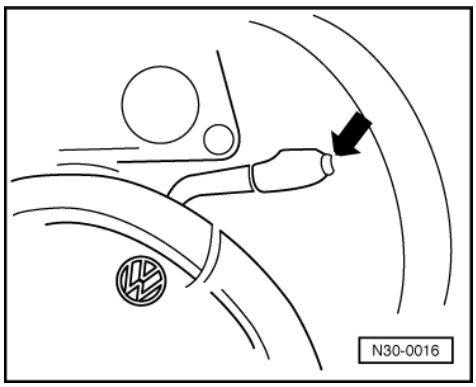


C- Speedometer sender -G22-

- Disconnect or connect connector.
- Remove bolt and remove/install speedometer sender -G22-.

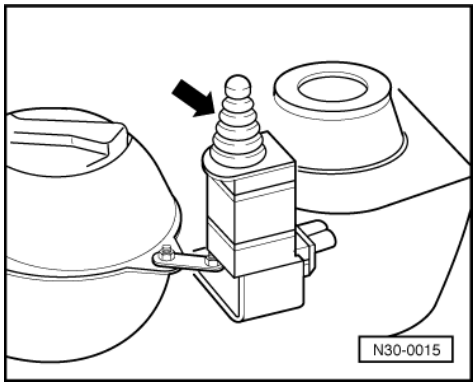
-> Fig.4 Brake light switch -F-

The brake light switch is located on pedal cluster.



-> Fig.5 Ecomatic switch -E163-

The Ecomatic switch -E163- (arrow) is located on steering column switch.

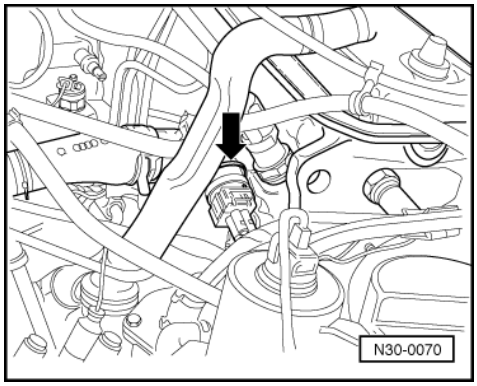


-> Fig.6 Diesel engine inhibitor switch -F207-

The Diesel engine inhibitor switch -F207- (arrow) is located next to the coolant expansion tank.

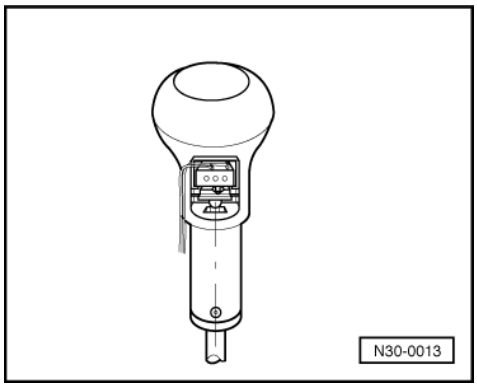
Removing and installing

- Disconnect or connect connector.
- Slide inhibitor switch in or out of the retainer on coolant expansion tank.



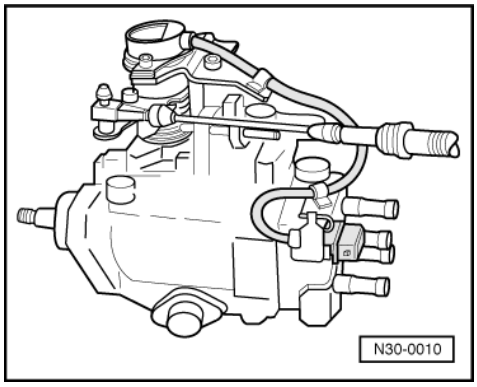
-> Fig.7 Coolant temperature sender -G62- (arrow)

The coolant temperature sender -G62- (arrow) is located on flange/cylinder head.



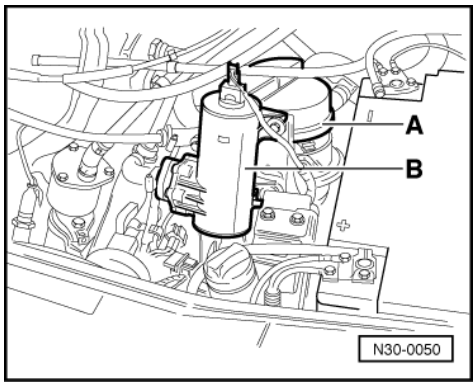
-> Fig.8 Gearshift switch -F191-

The gearshift switch -F191- is located in the gear stick.



-> Fig.9 Load signal potentiometer -G157-

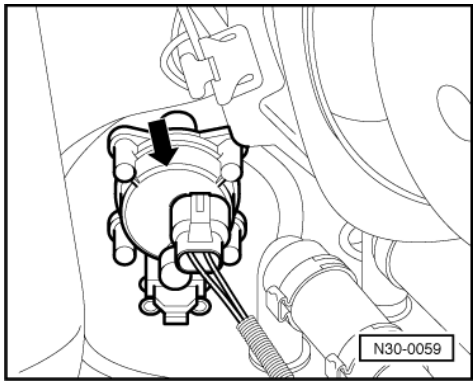
The load signal potentiometer -G157- is located on the injection pump.



-> Fig.10 Clutch positioner -A-, exhauster -V22- -B-

Located in clutch positioner -A- are: Clutch movement sender -G162-, clutch positioner vacuum valve -N183- and clutch positioner vent valve -N184-.

If components are defective replace clutch positioner.

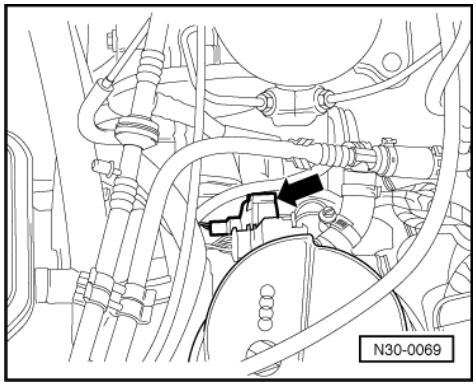


-> Fig.11 Clutch system vacuum switch (green) -F210- (arrow)

The clutch system vacuum switch -F210- is located on the vacuum reservoir in front left wheel housing.

Removing and installing vacuum switch

- Remove left battery.
- Remove or install vacuum hoses, then disconnect or connect vacuum switch connector. Slide vacuum switch out of or into the retainer on vacuum reservoir.

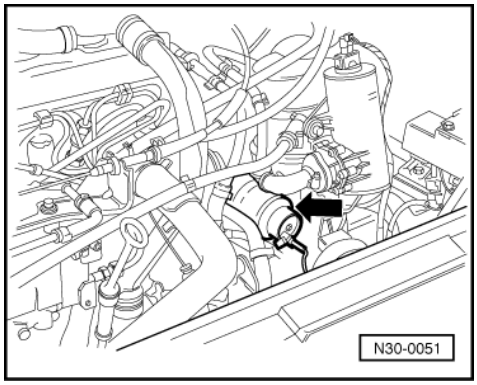


-> Fig.12 Brake servo vacuum switch (red) -F190- (arrow)

The vacuum switch is located behind the clutch positioner.

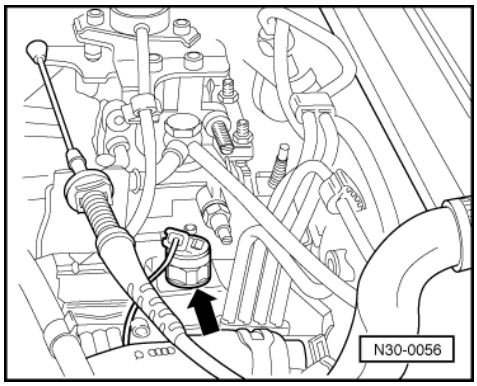
Removing and installing vacuum switch

- Remove or install vacuum hoses, then disconnect or connect vacuum switch connector. Remove or install vacuum switch.



-> Fig.13 Coolant circulation pump -V50- (arrow)

The pump is located on the clutch positioner bracket.

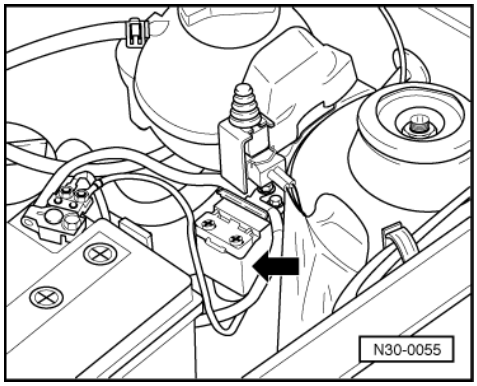


-> Fig.14 Fuel cut-off valve -N109- (arrow)

The fuel cut-off valve is located on the injection pump.

Removing and installing fuel cut-off valve -N109-

- Disconnect or connect connector.
- Unscrew or screw in fuel cut-off valve -N109-.

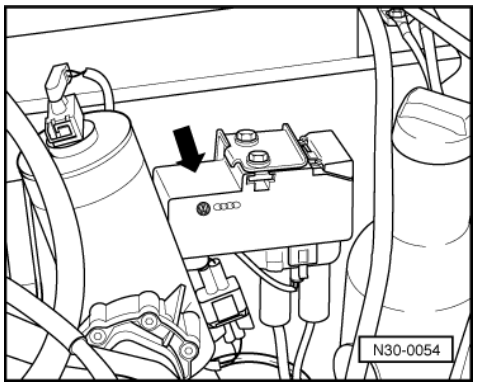


-> Fig.15 Second battery control unit -J328- (arrow)

The control unit is located under the coolant expansion tank.

Removing and installing control unit

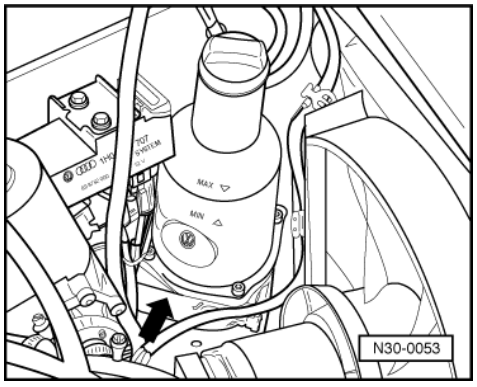
- Disconnect earth strap of both batteries.
- Remove or install earth straps from control unit.
- Remove or install control unit securing bolt.



- Disconnect or connect control unit connector.
- Remove or install control unit.

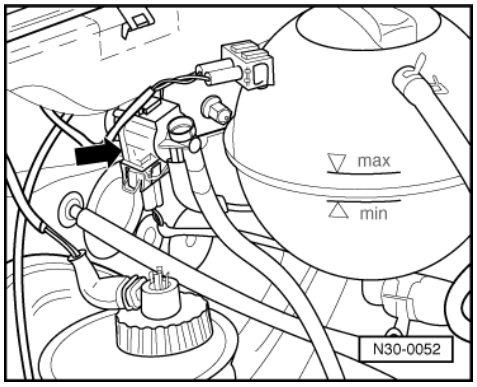
-> Fig.16 Steering hydraulics relay -J320- (arrow)

The relay is located next to the battery.



-> Fig.17 Steering hydraulic pump -V119- (arrow)

The pump is located next to the battery.

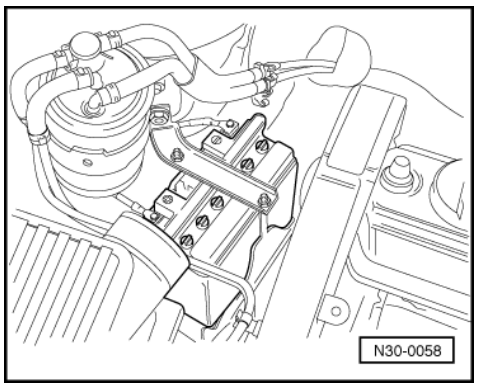


-> Fig.18 Priority switching valve -N185- (arrow)

The priority switching valve is located next to the brake servo.

Removing and installing priority switching valve

- Disconnect or connect connector.
- Slide priority switching valve out of or into the retainer.



-> Fig.19 Second battery 9Ah (arrow)

The 2nd battery is located on the right in engine compartment.

- Before removing or installing the 2nd battery disconnect both battery earth straps.

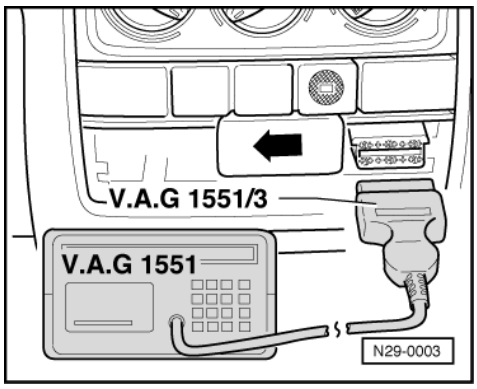
1.4 - Connecting fault reader V.A.G 1551 and selecting functions

Attention!
Before performing repairs with bonnet open, place gear stick in neutral and apply handbrake.

Test conditions:

- Vehicle voltage supply in order.
- Fuses No. 14, 15 and 21 OK.
- Check earth connections for gearbox:

- Check earth connections for corrosion and poor contact; repair if necessary.
- Earth connecting point is located on left next to relay plate.



- Check battery earth strap and earth strap between battery and gearbox.

• Gear stick in neutral and handbrake applied.

- Remove cover from diagnostic connections on right next to ashtray.
- -> With ignition switched off, connect fault reader V.A.G 1551 with diagnosis cable V.A.G 1551/3.

-> Indicated on display:

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

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 can be carried out in the "Rapid data transfer" mode. 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 1 and 2. (12 enters the "Clutch electronics" address word).

-> Indicated on display:

```
Rapid data transfer      Q
12 Clutch electronics
```

- Confirm entry with key Q.

-> Indicated on display:

```
1H0927303 Digi Swing     0028
Coding 00000     WSC 131071
```

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

Control unit identification

- 1H0927303: Part No. allocation => Parts list
- Digi Swing: Control unit -J327-
- 0028: EPROM (programme version)
- Coding 00000: is not required at present.
- WSC 131071: dealership number of the V.A.G 1551 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.

Check control unit voltage supply.

- Carry out test steps 1 and 2 => Page 47 , Electrical check.

- After repairing the possible fault causes again enter address word 12 for "Clutch electronics" and confirm.

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

-> Indicated on display:

```
Control unit does not answer!     HELP
```

- Check wiring connections to diagnostic sockets

=> "Current flow diagrams, Electrical fault finding and Fitting locations" Binder Golf 1992‣, Vento 1992‣.

- Press ⇒ key.

-> 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.

1.5 - List of selectable functions

	Page
01 - Interrogate control unit version =>Connecting fault reader V.A.G 1551 and selecting functions	26
02 - Interrogate fault memory	28
04 - Introduction of basic setting	36
05 - Erase fault memory	35
06 - End output	
08 - Read measured value block	37

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
```

1.6 - Interrogating fault memory

- Connect fault reader V.A.G 1551, enter address word "12 Clutch electronics" and advance programme until "Select function XX" is indicated on display => from Page 26 .

-> 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 29 .
- Press ⇒ key.

-> Indicated on display:

```
Rapid data transfer      HELP
Select function XX
```

Note:

After interrogating the fault memory and repairing faults erase fault memory, => Page 35 .

1.7 - Fault table

Notes:

- In the following table all possible faults which can be recognised by the Digi Swing control unit -J327- and displayed on V.A.G 1551 with printer switched on, when interrogating contents of fault memory, are listed according to fault code.
- If faults occur only occasionally or if the fault memory was not erased after rectifying the faults, these faults after a certain time are displayed as "sporadic faults".
- If faulty components are found, test the wiring to the components additionally for short-circuits and open circuits according to the current flow diagram.
- For the fault type "open circuit" first check connectors for contact corrosion or ingress of water, renew if necessary.
- 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
- For some faults only the fault code is shown on the print-out and the V.A.G 1551 display. Components checked are listed in the table.

Output on printer V.A.G 1551	Possible cause of fault	Rectifying fault
No fault recognised!	If after successful repairs "No fault recognised!" appears, the self-diagnosis is concluded. If the clutch electronics do not function fault-free despite self-diagnosis, repairs must be carried out.	

Output on printer V.A.G 1551	Possible cause of fault	Rectifying fault
00297 Gearbox speed sender -G38- No signal	Open circuit Gearbox speed sender -G38- defective	- Check wiring and connections according to current flow diagram, repair if necessary => "Current flow diagrams, Electrical fault finding and Fitting locations" Binder, Golf 1992 ‣, Vento 1992 ‣ - Can be checked in measuring value block => Page 37 ; display group number 01 - Replace gearbox speed sender -G38- =>Electronic components, Page 2
00513	Wiring open circuit	- Check wiring and connections according to current flow diagram, repair if necessary

Output on printer V.A.G 1551	Possible cause of fault	Rectifying fault
Engine speed sender -G28-	Engine speed sender -G28- defective Engine starts but dies immediately	=> "Current flow diagrams, Electrical fault finding and Fitting locations" Binder", Golf 1992 ▸, Vento 1992 ▸ Can be checked in measuring value block => Page 37 ; display group number 01
No signal		- Replace engine speed sender -G28- =>Electronic components, Page 2

Output on printer V.A.G 1551	Possible cause of fault	Rectifying fault
00522	Wiring open circuit	- Check wiring and connections according to current flow diagram, repair if necessary
Coolant temperature sender -G62-	Coolant temperature sender -G62- defective Engine does not automatically switch off in Ecomatic operation Engine is switched off before reaching operating temperature Ecomatic automatic override warning lamp -K111- permanently on	=> "Current flow diagrams, Electrical fault finding and Fitting locations" Binder, Golf 1992 ▸, Vento 1992 ▸ Can be checked in measuring value block=> Page 2
00526	Wiring open circuit	- Check wiring and connections according to current flow diagram, repair if necessary
Brake light switch -F-	Brake light switch -F- defective	=> "Current flow diagrams, Electrical fault finding and Fitting locations" Binder, Golf 1992 ▸, Vento 1992 ▸ Can be checked in measuring value block => Page 37 ; display group number 04
Open circuit/short to positive		- Replace brake light switch -F- =>Electronic components, Page 2

Output on printer V.A.G 1551	Possible cause of fault	Rectifying fault
01052	Wiring open circuit	- Check wiring and connections according to current flow diagram, repair if necessary
Load signal potentiometer -G157-	Engaging procedure delayed and harsh Load signal potentiometer -G157- incorrectly set, vehicle tends to creep	=> "Current flow diagrams, Electrical fault finding and Fitting locations" Binder, Golf 1992 ▸, Vento 1992 ▸ Can be checked and adjusted in measuring value block => Page 37 ; display group number 02
Signal outside tolerance	Load signal potentiometer -G157- defective	- Replace load signal potentiometer -G157- =>Electronic components, Page 36

Output on printer V.A.G 1551	Possible cause of fault	Rectifying fault
01066	Wiring open circuit	- Check wiring and connections according to current flow diagrams
Speed signal from dash panel	Speedometer sender -G22- defective	=> "Current flow diagrams, Electrical fault finding and Fitting locations" Binder, Golf 1992 ▸, Vento 1992 ▸ Speed signal is checked via dash panel insert by self-diagnosis => Page 37 ; display group number 07

Implausible signal	Speedometer sender -G22- or dash panel insert defective	- Replace speedometer sender -G22- or dash panel insert =>Electronic components, Page 2

Output on printer V.A.G 1551	Possible cause of fault	Rectifying fault
01070 Starter relay -J53-	Wiring open circuit Starter relay -J53- defective	- Check wiring and connections according to current flow diagram, repair if necessary => "Current flow diagrams, Electrical fault finding and Fitting locations" Binder, Golf 1992 ‣, Vento 1992 ‣ Can be checked in measuring value block => Page 2
01071 Clutch movement sender -G162-	Wiring open circuit Clutch movement sender -G162- defective Clutch operation delayed and harsh Clutch movement sender -G162- incorrectly set Vehicle cannot be driven	- Check wiring and connections according to current flow diagram, repair if necessary => "Current flow diagrams, Electrical fault finding and Fitting locations" Binder, Golf 1992 ‣, Vento 1992 ‣ Can be checked and adjusted in measuring value block => Page 36

Output on printer V.A.G 1551	Possible cause of fault	Rectifying fault
01072 Clutch positioner vacuum valve -N183-	Wiring open circuit Clutch positioner vacuum valve -N183- defective Vehicle cannot be driven	- Check wiring and connections according to current flow diagram, repair if necessary => "Current flow diagrams, Electrical fault finding and Fitting locations" Binder, Golf 1992 ‣, Vento 1992 ‣ Carry out test step 51) Replace clutch positioner =>Electronic components, Page 2

1) => page 47 , Electrical test

Output on printer V.A.G 1551	Possible cause of fault	Rectifying fault
01073 Clutch vacuum system	Wiring open circuit Clutch vacuum pipes or vacuum reservoir leaking Clutch system vacuum switch -F210- defective Clutch positioner vent valve -N184- defective Exhauster -V22- defective Exhauster relay -J318- defective Priority switching valve -N185- defective	- Check wiring and connections according to current flow diagram => "Current flow diagrams, Electrical fault finding and Fitting locations" Binder, Golf 1992 ‣, Vento 1992 ‣ Can be checked in measuring value block => Page 36

Output on printer V.A.G 1551	Possible cause of fault	Rectifying fault
01074 Clutch positioner vent valve -N184-	Wiring open circuit Clutch positioner vent valve -N184- defective	- Check wiring and connections according to current flow diagram, repair if necessary => "Current flow diagrams, Electrical fault finding and Fitting locations" Binder, Golf 1992 ‣, Vento 1992 ‣

Output on printer V.A.G 1551	Possible cause of fault	Rectifying fault
Open circuit/short to positive1) Open circuit/short to earth1) Resistance value too low1)	Clutch operation delayed and harsh	- Can be checked in measuring value block => Page 36

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

Output on printer V.A.G 1551	Possible cause of fault	Rectifying fault
01075	Wiring open circuit	- Check wiring and connections according to current flow diagram, repair if necessary
Exhauster relay -J318-	Exhauster relay -J318- defective Exhauster -V22- is not activated, vacuum for the clutch system is not built up Engine is not switched off in Ecomatic operation	=> "Current flow diagrams, Electrical fault finding and Fitting locations" Binder, Golf 1992 ‣, Vento 1992 ‣ Activation can be checked in measuring value block => Page 2

Output on printer V.A.G 1551	Possible cause of fault	Rectifying fault
01077	Wiring open circuit	- Check wiring and connectionss according to current flow diagram, repair if necessary
Brake servo vacuum switch -F190-	Engine is not switched off in Ecomatic operation	=> "Current flow diagrams, Electrical fault finding and Fitting locations" Binder, Golf 1992 ‣, Vento 1992 ‣ Can be checked in measuring value block => Page 37 ; display group number 04
Open circuit/short to positive	Brake servo vacuum switch -F190- defective	- Replace brake servo vacuum switch -F190- =>Electronic components, Page 2 Check vacuum pipes, hose connections or clutch/brake vacuum reservoir => 5-speed manual gearbox 020; Repair group 30 => Servicing clutch -Ecomatic

Output on printer V.A.G 1551	Possible cause of fault	Rectifying fault
01078	Wiring open circuit	- Check wiring and connections according to current flow diagram, repair if necessary
Gearshift switch -F191-	Gearshift switch -F191- defective Gearchange difficult with Ecomatic switched off	=> "Current flow diagrams, Electrical fault finding and Fitting locations" Binder, Golf 1992 ‣, Vento 1992 ‣ Can be checked in measuring value block => Page 2
01079	Wiring open circuit	- Check wiring and connections according to current flow diagram, repair if necessary

Steering hydraulics relay -J320-	Steering hydraulics relay -J320- defective Steering hydraulic pump -V119- is not activated Steering heavy	=> "Current flow diagrams, Electrical fault finding and Fitting locations" Binder, Golf 1992 ‣, Vento 1992 ‣ Activation can be checked in measuring value block => Page 2

Output on printer V.A.G 1551	Possible cause of fault	Rectifying fault
01081 Priority switching valve -N185-	Wiring open circuit Priority switching valve -N185- defective Engine is not switched off in Ecomatic operation	- Check wiring and connections according to current flow diagram, repair if necessary => "Current flow diagrams, Electrical fault finding and Fitting locations" Binder, Golf 1992 ‣, Vento 1992 ‣ Replace priority switching valve -N185- =>Electronic components, Page 2
01151 **Diesel engine inhibitor switch -F207-** Short to earth	Wiring open circuit Diesel engine inhibitor switch -F207- defective Not possible to start engine by depressing accelerator pedal Bonnet is not closed Inhibitor switch bracket bent	- Check wiring and connections according to current flow diagram, repair if necessary => "Current flow diagrams, Electrical fault finding and Fitting locations" Binder, Golf 1992 ‣, Vento 1992 ‣ Can be checked in measuring value bock => Page 37 ; display group number 04 - Replace Diesel engine inhibitor switch -F207- =>Electronic components, Page 2

Output on printer V.A.G 1551	Possible cause of fault	Rectifying fault
01152 Gear monitoring switch -F209-	Wiring open circuit Gear monitoring switch -F209- defective Synchronization makes noises when changing gear	- Check wiring and connections according to current flow diagram, repair if necessary => "Current flow diagrams, Electrical fault finding and Fitting locations" Binder, Golf 1992 ‣, Vento 1992 ‣ Can be checked in measuring value block => Page 2
01153 Ecomatic switch -E163- Short to earth	Wiring open circuit Ecomatic switch -E163- defective Ecomatic warning lamp -K110- permanently on	- Check wiring and connections according to current flow diagram, repair if necessary => "Current flow diagrams, Electrical fault finding and Fitting locations" Binder, Golf 1992 ‣, Vento 1992 ‣ Can be checked in measuring value block => Page 37 ; display group number 04 - Replace Ecomatic switch -E163- =>Electronic components, Page 2

Output on printer V.A.G 1551	Possible cause of fault	Rectifying fault
01154	Wiring open circuit	- Check wiring and connections according to current flow diagram, repair if necessary

Output on printer V.A.G 1551	Possible cause of fault	Rectifying fault
Clutch system vacuum switch -F210-	Clutch system vacuum switch -F210- defective Engine is not switched off in Ecomatic operation	=> "Current flow diagrams, Electrical fault finding and Fitting locations" Binder, Golf 1992 ▸, Vento 1992 ▸ Can be checked in measuring value block => Page 37 ; display group number 04
Open circuit/short to positive		- Replace clutch system vacuum switch -F210- =>Electronic components, Page 2

Output on printer V.A.G 1551	Possible cause of fault	Rectifying fault
01155		- Can be checked in measuring value block => Page 37 ; display group number 01
Clutch	Clutch slips Clutch worn Engine speed sender -G28- defective Gearbox speed sender -G38- defective	- Gearbox speed sender -G38- or engine speed sender -G28- defective =>Electronic components, Page 2 Renewing clutch => 5-speed manual gearbox 020; Repair group 30 => Servicing clutch
Speed deviation too large Regulating difference1)	System not in basic setting	- Bring system into basic setting =>Page 36

1) Does not need to be considered

Output on printer V.A.G 1551	Possible cause of fault	Rectifying fault
01156	Wiring open circuit	- Check wiring and connections according to current flow diagram, repair if necessary
Gear recognition switch -F208-	Gear recognition switch -F208- defective No drive connection engine/gearbox The fault: Gear recognition switch -F208- can also be indicated if a gear is not fully engaged	=> "Current flow diagrams, Electrical fault finding and Fitting locations" Binder, Golf 1992 ▸, Vento 1992 ▸ Can be checked in measuring value block => Page 37 ; display group number 01 Fully engage gear
Implausible signal		- Replace gear recognition switch -F208- =>Electronic components, Page 2
01237	Wiring open circuit	- Check wiring and connections according to current flow diagram, repair if necessary
Fuel cut-off valve -N109-	Fuel cut-off valve -N109- defective	=> "Current flow diagrams, Electrical fault finding and Fitting locations" Binder, Golf 1992 ▸, Vento 1992 ▸ Activation can be checked in measuring value block => Page 2

Output on printer V.A.G 1551	Possible cause of fault	Rectifying fault
65535	Electrical interference from outside sources of interference or poor earth connections	- Replace control unit -J327- =>Electronic components, Page 2
Control unit defective	Control unit -J327- defective	- Bring system into basic setting =>Page 36

Notes:

The control unit -J217- should not be renewed =>page 36 until the possible cause of the fault has been determined and the following faults have been rectified:

- mechanical faults
- all affected electrical components and cable connections.

Should the control unit be replaced => Page 36 .

1.8 - Erasing fault memory

Requirement:

- Fault memory interrogated => page 28 .

After fault memory has been interrogated:

-> Indicated on display:

```
Rapid data transfer      HELP
Select function XX
```

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

-> Indicated on display:

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

- Confirm entry with key Q.

-> Readout in display:

```
Attention!
Fault memory was not 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.

- Adhere strictly to the sequence of operations, i.e. first of all interrogate fault memory.

-> 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
```

System (control unit -J327-) was not given time to recognise 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.

When the fault memory is interrogated, the following display should appear:

"No fault recognized!"

1.9 - Initiating basic setting

Note:

The basic setting is carried out jointly by the load signal potentiometer -G157- and clutch pedal movement sender -G162-.

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

- Exchanging engine
- Replacing clutch electronics control unit
- Replacing Diesel injection pump
- Load signal potentiometer -G157-
- Changes to adjusting lever, adjustment of residual quantity or maximum speed adjustment screw on injection pump
- Replacement or adjustment of clutch or clutch positioner

- Connect fault reader V.A.G 1551, enter address word "12 Clutch electronics" and advance programme until "Select function XX" is shown on display => from Page 26 .
- Engage 1st gear and apply hand brake (do not start engine).

-> Indicated on display:

```
Rapid data transfer      HELP
Select function XX
```

- Press keys 0 and 4. (04 selects function "Basic setting".)

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 XX
```

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

-> Indicated on display:

```
System in basic setting
```

(Gearshift indicator warning lamp -K48- comes on briefly).

The system is now in the basic setting.

- Floor accelerator pedal and hold in this position for 3 seconds.
- Press key ⇒.

-> Indicated on display:

```
Rapid data transfer      HELP
Select function XX
```

- Disconnect V.A.G 1551 from diagnostic sockets and place gear stick in neutral.
- Start engine and run vehicle for about 30 seconds at idling. (Ecomatic switches in, Ecomatic warning lamp -K110- does not light up.) If the necessary "initial slip point" is attained within the 30 seconds, the engine switches off.
- To search for the slip point carry out a test drive.

Perform test drive as follows:

Note:

Do not operate clutch with vehicle raised.

- After pulling away engage 2nd gear.
- Without changing gear operate clutch 10 times.
- When doing this, starting from idling speed always give at least 50% throttle.

Herewith the search for the clutch slip point in basic setting is completed.

With every further clutch operation the slip point will be adapted by control unit -J327-.

1.10 - Read measured value block

- Connect fault reader V.A.G 1551, enter address word "12 Clutch electronics" and advance programme until "Select function XX" is shown on display => from Page 26 .

-> Indicated on display:

```
Rapid data transfer      HELP
Select function XX
```

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

-> Indicated on display:

```
Rapid data transfer      Q
08 - Read measured value block
```

- Confirm entry with key Q.

-> Indicated on display:

```
Read measuring value block
Enter display group number XX
```

List of selectable display group numbers

Display group No.	Display field	Designation
01	1 2 3 4	Engine speed Gearbox speed Accelerator pedal value Gear information

Display group No.	Display field	Designation
02	1 2 3 4	Load signal potenti-ometer -G157- Clutch movement sender Battery voltage Coolant temperature
03	1 2 3 4	Engine speed Gearbox speed Clutch actual position Clutch correct posi-tion
04	1 2 3 4	Input information Input information Output information Output information

Display group No.	Display field	Designation
05	1 2 3 4	Engine speed Battery voltage Vacant Vent valve current
06	1 2 3 4	Is not relevant Is not relevant Is not relevant Is not relevant
07	1 2 3 4	Engine speed Gearbox speed Vacant Speed
08	1 2 3 4	Is not relevant Is not relevant Is not relevant Is not relevant

-> Indicated on display:

```
Reading measured value block     1
1     2     3     4
```

(Specification => page 39)

- There are always 4 display fields in the measured value block (if necessary in physical quantities.)

Notes:

- Explanation of values in the individual display fields => Test table, page 39 .
- If the specifications for the potentiometer -G157- and clutch movement sender -G162- are not attained, carry out the basic setting=> Page 36 .
- Before replacing individual components check wiring and connectors according to current flow diagram, repair if necessary.

=> "Current flow diagrams, Electrical fault finding and Fitting locations" Binder, Golf 1992 ▸, Vento 1992 ▸

- If the printer is switched on, the current display is printed out on the log.
- If the specified values are reached in all the display fields:

- Press key ⇒.

-> Indicated on display:

```
Rapid data transfer      HELP
Select function XX
```

1.11 - Test table

Display group number	Display field	Designation	Test conditions	Display on V.A.G 1551 Specification	Measures for deviations from specification
01	1	Engine speed	Whilst driving2) with engine running and clutch engaged:	rpm	- When driving engine and gearbox speeds must be identical see display field -2- Replace engine speed sender -G28- =>Electronic components, Page 2 Carry out test step 41)
Continued	2	Gearbox speed	Whilst driving2) with engine running vehicle in overrun and clutch engaged:	rpm	- When driving engine and gearbox speeds must be identical, see display field -1- if necessary repair clutch Servicing clutch => 5-speed manual gearbox 020; Repair group 30; Servicing clutch 2 Carry out test step 31)

1) => page 47 , Electrical test

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

Display group number	Display field	Designation	Test conditions		Display on V.A.G 1551 Specification	Measures for deviations from specification
01	3	Accelerator pedal value	Stationary:	Idling	0...3 %	- Check and if necessary adjust load signal potentiometer -G157- group number 02, display field 1
				Full throttle	96...100 %	- Bring system into basic setting =>Page 36
	4	Gear information	Stationary: Gear is fully engaged mechanically			- Replace gear recognition switch -F208- =>Electronic components, Page 2
				R. gear	R. gear	
				Neutral gate 1-2 (left)	NG 1 - 2	- Fully engage gear
				Neutral gate 3-4 (right)	NG 3 - 4	
				1st gear	1st gear	
				2nd gear	2nd gear	
				3rd gear	3rd gear	
				4th gear	4th gear	
				5th gear	5th gear	

Display group number	Display field	Designation	Test conditions		Display on V.A.G 1551 Specification	Measures for deviations from specification
02	1	Load signal potentiometer -G157-	Stationary:	Idling min. Idling max.	0.56V 0.76V	- When revving up from idling to full throttle the voltage figure increases continuously Adjust load signal potentiometer -G157- to specification on injection pump adjustment lever.
Continued				Full throttle min. Full throttle max.	2.50V 4.40V	- Bring system into basic setting =>Page 2

Display group number	Display field	Designation	Test conditions	Display on V.A.G 1551 Specification	Measures for deviations from specification
02	2	Clutch movement sender -G162-	Before checking or adjusting the clutch movement sender -G162-: Switch off ignition, switch on ignition but do not start engine, engage 1st gear, select measuring block 08 display group number 02 then adjust sender min. max.	2.00 V 2.40 V	- Check clutch movement sender -G162- if necessary adjust to specification on adjusting nut on clutch cable. Bring system into basic setting =>Page 2
Continued			Test or adjustment values for used clutch If the sender is not adjusted the value will be min. max.	1.00 V 2.40V	- Before repairing gearbox or clutch positioner first read off specifications and set again to specifications read-off. For a specification below 1.00 Volts the clutch must be checked and if necessary repaired.

Display group number	Display field	Designation	Test conditions		Display on V.A.G 1551 Specification	Measures for deviations from specification
	3	Battery voltage	Stationary	min.	10.8 V	- Check battery, renew if necessary
				max.	16.0 V	

Display group number	Display field	Designation	Test conditions	Display on V.A.G 1551 Specification	Measures for deviations from specification
	4	Coolant temperature sender -G62-	Stationary with engine running; In Ecomatic operation the engine is switched off after a temperature of 40°C is reached. From 60°C the display is inaccurate and need not be considered	...°C	- Replace coolant temperature sender -G62- =>Electronic components, Page 2 If a constant figure of 150°C is displayed repair the short to earth If a constant figure of minus 60°C is displayed repair wiring open circuit

Display group number	Display field	Designation	Test conditions	Display on V.A.G 1551 Specification	Measures for deviations from specification
03	1	Engine speed	Whilst driving2) with engine running and clutch engaged:	rpm	- When driving engine and gearbox speeds must be identical, see display field -2- Replace engine speed sender -G28- =>Electronic components, Page 2 Carry out test step 41)
Continued	2	Gearbox speed	Whilst driving2) with engine running vehicle in overrun and clutch engaged:	rpm	- When driving engine and gearbox speeds must be identical, see display field -1- if necessary repair clutch Servicing clutch => 5-speed manual gearbox 020; Repair group 30; Servicing clutch 2 Carry out test step 31)

1) => page 47 , Electrical test

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

Display group number	Display field	Designation	Test conditions		Display on V.A.G 1551 Specification	Measures for deviations from specification
03	3	Clutch movement actual position	Whilst driving1) with engine running:			- Bring system into basic setting =>Page 36
			Clutch engaged	min. max.	0% 10%	- The actual and correct positions can deviate max. 5% from one another => display field 3 and 4.
			Clutch disengaged	min. max.	80% 100%	- Servicing clutch => 5-speed manual gearbox 020; Repair group 30; Servicing clutch Servicing clutch
	4	Clutch movement correct position	Whilst driving1) with engine running:			- Bring system into basic setting =>Page 36

Display group number	Display field	Designation	Test conditions		Display on V.A.G 1551 Specification	Measures for deviations from specification
			Clutch engaged	min. max.	0% 10%	- The actual and correct positions can deviate max. 5% from one another => display field 3 and 4.
			Clutch disengaged	min. max.	80% 100%	- Servicing clutch => 5-speed manual gearbox 020; Repair group 30; Servicing clutch Servicing clutch

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

Display group number	Display field	Designation	Test conditions	Display on V.A.G 1551 Specification	Measures for deviations from specification
04	1	Input information	Reverse gear		- Replace gear recognition switch -F208- =>Electronic components, Page 2
		Display 1	Engaged	1	
			Not engaged	0	
		Display 2	Stationary: Gearshift switch -F191-		- Replace gearshift switch -F191- =>Electronic components, Page 2
			Operated	0	
			Not operated	1	
		Display 3	With engine running: Vacuum for brakes		- Check brake vacuum system for leaks
			Vacuum has built-up	0	- Replace brake servo vacuum switch -F190- =>Electronic components, Page 2
Continued			Vacuum not built-up	1	

Display group number	Display field	Designation	Test conditions	Display on V.A.G 1551 Specification	Measures for deviations from specification
04	1	Display 4	Vacuum for clutch		- Check clutch vacuum system for leaks
			Vacuum has built-up	0	- Replace clutch vacuum switch -F210- =>Electronic components, Page 2
			Vacuum not built-up	1	
		Display 5	Stationary: Ecomatic switch -E163-		- Replace Ecomatic switch -E163- =>Electronic components, Page 2
			Operated	0	
			Not operated	1	
		Display 6	Stationary: Brake lights light up Brake light switch -F-		- Replace brake light switch -F- =>Electronic components, Page 2
			Operated	1	

Display group number	Display field	Designation	Test conditions	Display on V.A.G 1551 Specification	Measures for deviations from specification
Continued			Not operated	0	

Display group number	Display field	Designation	Test conditions	Display on V.A.G 1551 Specification	Measures for deviations from specification
04	1	Display 7	Stationary: Gear monitoring switch -F209-		- Replace gear monitoring switch -F209- =>Electronic components, Page 2
			Idling or gear engaged	0	
			Idling or gear not properly engaged	1	
		Display 8	Starting requirements: Signal from starter switch		- Check and if necessary repair wiring and connections according to current flow diagram
			Signal occurs	1	
Continued			Signal does not occur	0	

Display group number	Display field	Designation	Test conditions	Display on V.A.G 1551 Specification	Measures for deviations from specification
04	2	Input information			
		Display 1	Vacant	0	
		Display 2	Vacant	1	
		Display 3	Door contact switch -F2-		- Replace door contact switch -F2- =>Electronic components, Page 2
			Driver's door open	0	
			Driver's door closed	1	
		Display 4	Vacant	1	
Continued		Display 5	Vacant	1	

Display group number	Display field	Designation	Test conditions	Display on V.A.G 1551 Specification	Measures for deviations from specification
04	2	Display 6	Diesel engine inhibitor switch -F207-		- Replace Diesel engine inhibitor switch -F207- =>Electronic components, Page 2
			Bonnet open	0	
			Bonnet closed and locked	1	- Reset inhibitor switch bracket
		Display 7	Vacant	0	
Continued		Display 8	Vacant	1	

Display group number	Display field	Designation	Test conditions	Display on V.A.G 1551 Specification	Measures for deviations from specification
04	3	Output information	With engine running: Gearshift indicator warning lamp -K48-		- Switch on ignition and check if all warning lamps light up

Display group number	Display field	Designation	Test conditions	Display on V.A.G 1551 Specification	Measures for deviations from specification
		Display 1	Lights up	0	
			Does not light up	1	
		Display 2	With engine running: Ecomatic warning lamp -K110- Lights up	0	- Replace warning lamps => Electrical system; Repair group 90; Servicing dash panel insert Servicing dash panel insert
			Does not light up	1	
		Display 3	With engine running: Ecomatic automatic override warning lamp -K111- Lights up	0	
Continued			Does not light up	1	

Display group number	Display field	Designation	Test conditions	Display on V.A.G 1551 Specification	Measures for deviations from specification
04	3	Output information	Oil pressure -K3- and alternator -K2- warning lamps		- Switch on ignition and check if all warning lamps light up
		Display 4	Ignition switched on: Lights up	1	
			Ecomatic operation engine switched off: Do not light up	0	- Replace warning lamps => Electrical system; Repair group 90; Servicing dash panel insert Servicing dash panel insert
		Display 5	With engine running: Priority switching valve -N185- Activated	0	- Replace priority switching valve -N185- =>Electronic components, Page 2
Continued			Not activated	1	

Display group number	Display field	Designation	Test conditions	Display on V.A.G 1551 Specification	Measures for deviations from specification
04	3	Output information	Exhauster relay -J318-		- Replace exhauster relay -J318- =>Electronic components, Page 2
		Display 6	Activated	0	
			Not activated	1	- Relay is only activated when the vacuum has not built up
		Display 7	Ignition key at start position Starter relay -J53- Activated	0	- Replace starter relay -J53- =>Electronic components, Page 2

Display group number	Display field	Designation	Test conditions	Display on V.A.G 1551 Specification	Measures for deviations from specification
			Not activated	1	
		Display 8	Fuel cut-off valve -N109- Activated	1	- Replace fuel cut-off valve =>Electronic components, Page 2
Continued			Not activated	0	

Display group number	Display field	Designation	Test conditions	Display on V.A.G 1551 Specification	Measures for deviations from specification
04	4	Output information			
		Display 1	Vacant		
		Display 2	Vacant		
		Display 3	Vacant		
		Display 4	Vacant		
		Display 5	Vacant		
		Display 6	Vacant		
		Display 7	Vacant		
		Display 8	Steering hydraulics relay -J320- Activated	0	- Replace steering hydraulics relay =>Electronic components, Page 2
			Not activated	1	

Display group number	Display field	Designation	Test conditions		Display on V.A.G 1551 Specification	Measures for deviations from specification
05	1	Engine speed	Whilst driving2) with engine running and clutch engaged:		rpm	- When driving engine and gearbox speeds must be identical see display group number -1- Replace engine speed sender -G28- =>Electronic components, Page 2 Carry out test step 41)
	2	Battery voltage	Stationary:	min.	10.8 V	- Check battery, replace if necessary
				max.	16.0 V	
Continued	3	Vacant				

1) => page 47 , Electrical test

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

Display group number	Display field	Designation	Test conditions	Display on V.A.G 1551 Specification	Measures for deviations from specification
05	4	Vent valve -N184-	Switch off ignition, switch on ignition then select measuring value block 08 display group number 05: Idling min. max.	0.7 Amp. 1.2 Amp.	- Replace clutch positioner =>Electronic components, Page 36 Carry out test step 61)
			1st gear min. max.	0 Amp. 0.1 Amp.	
06	This display group is not considered				

1) => page 47 , Electrical test

Display group number	Display field	Designation	Test conditions	Display on V.A.G 1551 Specification	Measures for deviations from specification
07	1	Engine speed	Whilst driving2) with engine running and clutch engaged:	rpm	- When driving engine and gearbox speeds must be identical see display field -2- Replace engine speed sender -G28- =>Electronic components, Page 2 Carry out test step 41)
Continued	2	Gearbox speed	Whilst driving2) with engine running vehicle in overrun and clutch engaged:	rpm	- When driving engine and gearbox speeds must be identical see display field -1- if necessary repair clutch Servicing clutch => 5-speed manual gearbox 020; Repair group 30; Servicing clutch 2 Carry out test step 31)

1) => page 47 , Electrical test

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

Display group number	Display field	Designation	Test conditions	Display on V.A.G 1551 Specification	Measures for deviations from specification
07	3	Vacant			
	4	Speed	When driving1): Speedometer indicates the driving speed Speedometer indicated speed and value on V.A.G 1551 can differ slightly from one another.	...km/h	- Replace speedometer sender -G22- Replace dash panel insert
08	This display group is not considered				

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

2 - Gearbox: Electrical test

2.1 - Gearbox: Electrical test

- Perform only the recommended test steps listed in the fault table (targeted entry).
- Perform all the measures stated in the column "Rectifying fault".

Notes:

- Use the hand multimeter V.A.G 1526 for testing.
- The specified values relate to 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 the resistance measurement on component.
- To connect the testers use test box V.A.G 1598/18 and aux. cables from V.A.G 1594.

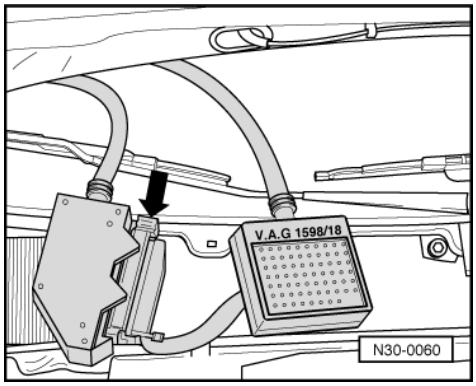
- The contact numbers of the connector and the socket numbers in the test box V.A.G 1598/18 are identical => Page 48 .

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

Test requirements:

- Battery voltage in order.
- Fuses No. 14, 15 and 21 OK.
- Earth connections in order:

  The earth connection point is located on the left next to the relay plate.
  Check battery earth strap and earth strap between battery and gearbox.



- Switch off ignition for all test steps, release multi-pin connector from clutch electronics control unit -J327- and then pull off (the control unit is located on right in plenum chamber below the split water deflector). Connect test box V.A.G 1598/18 to the wiring loom connector and lock in direction of arrow.
- If the readings obtained differ from the specified values, perform measures for rectifying faults in right-hand column of test table => from Page 48 .
- Using the test box 1598/18 all wiring from control unit -J327- can be checked for continuity or open circuit according to current flow diagram.

Ecomatic control unit -J327- multi-pin connector, 68-pin (sockets on V.A.G 1598/18)

1 - Earth (terminal 31)	24 - Priority switching valve -N185-
2 - Exhauster relay -J318-	25 - Starter relay -J53-
3 - Fuel cut-off valve N109-	26 - Gearshift indicator warning lamp -K48-
4 - Ecomatic warning lamp -K110-	27 - Ecomatic automatic override warning lamp -K111-
5 - Generator -K2- and oil pressure -K3- warning lamps	28 - Steering hydraulics relay -J320-
6 - Vacant	29 - Speedometer sender -G22-
7 - Vacant	30 - Diesel engine inhibitor switch -F207-
8 - K-wire for diagnosis	31 - Clutch positioner vent valve -N184-
9 - Clutch positioner vacuum valve -N183-	32 - Engine speed sender -G28-
10 - Engine speed sender -G28- (screening)	33 - Engine speed sender -G28- (input)
11 - Clutch movement sender -G162- (wear)	34 - Clutch movement sender -G162- earth
12 - Clutch movement sender -G162- (5 volts)	35 - Coolant temperature sender -G62-
13 - Gearbox speed sender -G38-	36 - Gearbox speed sender -G38- (screening)
14 - Gearbox speed sender -G38- (input)	37 - Gear recognition switch -F208- (1st and 4th gears)
15 - Gear recognition switch -F208- (2nd and 5th gear)	38 - Gear recognition switch -F208- (Neutral and 3rd gear)
16 - Load signal potentiometer -G157- (wear)	
17 - Load signal potentiometer -G157- (5 volts)	39 - Load signal potentiometer -G157- earth
18 - Gearshift switch -F191-	40 - Gear recognition switch (reverse gear) -F208-
19 - Clutch system vacuum valve -F210-	41 - Brake servo vacuum switch -F190-
20 - Brake light switch -F- (signal)	42 - Ecomatic switch -E163-
21 - Door contact switch -F2-	43 - Gear monitoring switch -F209-
22 - Terminal 15	44 - Terminal 50
23 - Terminal 30	45 - Terminal 86
	46 - Up to socket 681)

1) Sockets 46 to 68 are vacant

2.2 - Test table

Switch to voltage measuring range 20 V					
Test step	**V.A.G 1598 sockets**	**Test of**	**▪ Test conditions - Additional operations**	**Specified value**	**Rectifying fault**
1	22 + 1	Voltage supply from control unit -J327-	▪ Ignition switched on min. max.	10.8 V 16 V	- Check wire from contact 1 to earth Check wire from contact 22 to terminal 15 central electrics
2	23 + 1	Terminal 30	▪ Ignition switched off min. max.	10.8 V 16 V	- Check wire from contact 1 to earth Check wire from contact 23 to terminal 30 central electrics

Switch to resistance measuring range 20 K ω					
Test step	**V.A.G 1598 sockets**	**Test of**	**▪ Test conditions - Additional operations**	**Specified value**	**Rectifying fault**
3	13 + 14	Gearbox speed sender -G38-	min.	0.74 K ω	- Check wiring and connections according to current flow diagram, repair if necessary => "Current flow diagrams, Electrical fault finding and Fitting locations" Binder, Golf 1992 ▸, Vento 1992 ▸

			max.	0.84 K ω	- Replace gearbox speed sender -G38- =>Electronic components, Page 2
4	32 + 33	Engine speed sender -G28-	min.	0.70 K ω	- Check wiring and connections according to current flow diagram, repair if necessary => "Current flow diagrams, Electrical fault finding and Fitting locations" Binder, Golf 1992 ▸, Vento 1992 ▸
			max.	0.80 K ω	- Replace engine speed sender -G28- =>Electronic components, Page 2

Switch to resistance measuring range 200 ω					
Test step	V.A.G 1598 sockets	Test of	▪ Test conditions - Additional operations	Specified value	Rectifying fault
5	45 + 9	Clutch positioner vacuum valve -N183-	min.	3.6 ω	- Check wiring and connections according to current flow diagram, repair if necessary => "Current flow diagrams, Electrical fault finding and Fitting locations" Binder, Golf 1992 ▸, Vento 1992 ▸
			max.	3.8 ω	- Replace clutch positioner vacuum valve -N183- =>Electronic components, Page 2
6	45 + 31	Clutch positioner vent valve -N184-	min.	3.6 ω	- Check wiring and connections according to current flow diagram, repair if necessary => "Current flow diagrams, Electrical fault finding and Fitting locations" Binder, Golf 1992 ▸, Vento 1992 ▸
			max.	3.8 ω	- Replace clutch positioner vent valve -N184- =>Electronic components, Page 2