Performing self diagnosis

Read measured value block

The control unit can transfer a considerable amount of test data. This test data delivers information on the operational condition of the system and/or sensor connected to it. In many cases the transferred test data supports fault finding and fault rectification. The test data has been summarized into single display groups because all the information cannot be evaluated at the same time. The information can be selected via display group numbers.

During a test drive when a fault reader V.A.G 1551 is connected and is in the diagnosis or read measured value mode, there will be no ABS or ESP regulation. The ABS or ESP warning lamps will not light up.

- Connect fault reader V.A.G 1551 and select address word 03 for brake electronics with the ignition switched on => Page 01-22.

→ 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 measured value block
Enter display group number XXX
```

- Enter display group number => List of selectable display group numbers, page 01-197.

List of selectable display group

numbers

Display group number	Display zone	Designation
001	1	Wheel speed at front left wheel sensor (km/h)
	2	Wheel speed at front right wheel sensor (km/h)
	3	Wheel speed at rear left speed sensor (km/h)
	4	Wheel speed at rear right speed sensor (km/h)
002	1	Wheel speed at front left speed sensor (km/h)
	2	Wheel speed at front right wheel sensor (km/h)
	3	Wheel speed at rear left speed sensor (km/h)
	4	Wheel speed at rear right speed sensor (km/h)
003	1	Brake light switch
	2	Brake recognition

		switch
	3	Vacant
	4	Vacant

Display group number	Display zone	Designation
004	1	Steering angle sender
	2	Lateral acceleration sender
	3	Yaw rate sender
	4	Vacant
005	1	Brake pressure sender
	2	Brake pressure sender
	3	Vacant
	4	Vacant
125	1	Data bus communication for engine
	2	Data bus communication for steering angle
	3	Data bus communication for gearbox1)
	4	Vacant

1) Vehicles with an automatic gearbox only

Test sequence and test tables with measured values

Display group number 001

- Press keys 0, 0 and 1
- Confirm entry with key Q.

→ In read measured value block there are always 4 display zones -arrows-. The significance of the values in display zones 1 to 4 can be taken from the tables following.

```
Read measured value block    1    ⇒
⇒ 1    ⇒ 2    ⇒ 3    ⇒ 4
```

→ Indicated on display: (with vehicle stationary)

```
Read measured value block    1    ⇒
0 Km/h    0 Km/h    0Km/h    0 Km/h
```

With key -3- the next highest display group number 002 can be selected.

If the ⇒ key is pressed, then the keys 0 and 8 must be pressed afterwards to enter "Read measured value block" again.

For display group number 001 remember:

The actual wheel speeds are displayed. They serve to check the speed sensor allocation to the wheel. (The vehicle must be raised and the wheel must be rotated by hand by a 2nd mechanic).

Read measured value block	1⇒	**Display group number: 001**

0 km/h	4 km/h	0 km/h	0 km/h	◂ Indicated on display: (Example)
				Wheel speed at rear right speed sensor - (0...255 km/h)
			Wheel speed at rear left speed sensor - (0...255 km/h)	
		Wheel speed at front right speed sensor - (0...255 km/h)		
	Wheel speed at front left speed sensor - (0...255 km/h)			

Display group number 002

- Press keys 0, 0 and 2
- Confirm entry with key Q.

→ In read measured value block there are always 4 display zones -arrows-. The significance of the values in display zones 1 to 4 can be taken from the tables following.

```
Read measured value block    2    ⇒
⇒ 1    ⇒ 2    ⇒ 3    ⇒ 4
```

→ Indicated on display: (with vehicle stationary)

```
Read measured value block    2    ⇒
255 Km/h    255 Km/h    255Km/h    25
```

With key -1- the next lowest or with key -3- the next highest display group number can be selected.

If the ⇒ key is pressed, then the keys 0 and 8 must be pressed afterwards to enter "Read measured value block" again.

For display group number 002 remember:

Deviations in display zones 1 to 2 of the displayed values may on no account be above 6 km/h.

Deviations in display zones 3 to 4 of the displayed values may on no account be above 2 km/h.

Read measured value block			2⇒	**Display group number: 002**
3 km/h1)	6 km/h1)	2 km/h1)	1 km/h1)	◂ Indicated on display: (when driving slowly)
				Wheel speed at rear right speed sensor - (0...255

km/h)
Wheel speed at rear left speed sensor
- (0...255 km/h)
Wheel speed at front right speed sensor
- (0...255 km/h)
Wheel speed at front left speed sensor
- (0...255 km/h)

1) If the deviations in display zones 1 to 2 are greater than 6 km/h the following may be the fault cause:

2) If the deviations in display zones 3 to 4 are greater than 2 km/h the following may be the fault cause:

- Air gap between speed sensor and rotor may be too big.

- Check that speed sensor is screwed correctly to wheel bearing housing.

- Speed sensor or rotor exterior damaged.

- Change damaged component.

Display group number 003

- Press keys 0, 0 and 3
- Confirm entry with key Q.

→ In read measured value block there are always 4 display zones -arrows-. The

```
Read measured value block    3    ⇒
⇒ 1    ⇒ 2    ⇒ 3    ⇒ 4
```

significance of the values in display zones 1 to 4 can be taken from the tables following.

→ Indicated on display: (with vehicle stationary)

```
Read measured value block    3    ⇒
not oper.    not oper.
```

With key –1– the next lowest or with key –3– the next highest display group number can be selected.

If the ⇒ key is pressed, then the keys 0 and 8 must be pressed afterwards to enter "Read measured value block" again.

Read measured value block 3⇒	**Display group number: 003**
not oper. not oper.	◂ Indicated on display
	Vacant
	Vacant
	Brake recognition switch: – not oper. ⇒ brake pedal not depressed – operated ⇒ brake pedal depressed

for deviations: Electrical checks => Page 01-236, perform test step No. 23.

Brake light switch:
- not oper. ⇒ brake pedal not depressed
- operated ⇒ brake pedal depressed

for deviations: Electrical checks => Page 01-286.

Display group number 004

- Press keys 0, 0 and 4
- Confirm entry with key Q.

→ In read measured value block there are always 4 display zones -arrows-. The significance of the values in display zones 1 to 4 can be taken from the tables following.

```
Read measured value block    4    ⇒
⇒ 1    ⇒ 2    ⇒ 3    ⇒ 4
```

→ Indicated on display: (with vehicle stationary)

```
Read measured value block    4    ⇒
0.05    0.0m/s2    -    1.265/s
```

Note:

During a test drive up to a maximum speed of 20 km/h (approx. 12.5 mph), all 3 values must be positive when driving through a left-hand bend, and all 3 values must be negative when driving through a

right-hand bend.

With key -1- the next lowest or with key -3- the next highest display group number can be selected.

If the ⇒ key is pressed, then the keys 0 and 8 must be pressed afterwards to enter "Read measured value block" again.

Read measured value block	4⇒	**Display group number: 004**
0.0° 0.0m/s2 - 1.26°/s		◂ Indicated on display (example)
		Vacant
	Yaw rate sender: - Specification when vehicle is stationary:± 2.5 °/s Electrical checks =>Page 01-236, perform test step 19.	
	Lateral acceleration sender: - Specification when vehicle is stationary:± 0.5 m/s2 - Specification at full lock and travelling at 20	

km/h (12.5 mph) in a left-hand curve: the measured values increase constantly with a positive (no) prefix.
- Specification at full lock and travelling at 20 km/h (12.5 mph) in a right-hand curve: the measured values increase constantly with a negative (-) prefix.
Electrical checks
=>Page 01-236, perform test step 18.

Steering angle sender:
- Perform a zero compensation first, when checking the steering angle sender -G85- when travelling straight-ahead => Page 01-236, perform test step 17.

1) During a test drive when a fault reader V.A.G 1551 is connected and is in the diagnosis or read measured value mode there will be no ABS or ESP regulation. The ABS or stability program warning lamps will not light up. The self-diagnosis of control unit-J104- is terminated when a speed of 20 km(h (12.5 mph) is exceeded.

Display group number 005

- Press keys 0, 0 and 5
- Confirm entry with key Q.

→ In read measured value block there are

```
Read measured value block    5    ⇒
```

always 4 display zones -arrows-. The significance of the values in display zones 1 to 4 can be taken from the tables following.

```
⇒ 1     ⇒ 2     ⇒ 3     ⇒ 4
```

→ Indicated on display: (with vehicle stationary)

```
Read measured value block    5    ⇒
-    0.85 bar    -    1.91 bar
```

The next highest display group of 125 cannot be selected with key -3-.

If the ⇒ key is pressed, then the keys 0 and 8 must be pressed afterwards to enter "Read measured value block" again.

To select the next highest display group number of 125 press the C key and select the display group number 125 directly.

Read measured value block 5⇒	**Display group number: 005**
- 0.85 bar - 1.91 bar	◂ Indicated on display (example)
	Vacant
Vacant	
Brake pressure sender	

- Specification when brake pedal is not depressed: ± 7 bar
Electrical checks =>Page 01-236, perform test steps 20 and 21.

Brake pressure sender
- Specification when brake pedal is not depressed: ± 7 bar
Electrical checks =>Page 01-236, perform test steps 20 and 21.

Display group number 125

- Press keys 1, 2 and 5
- Confirm entry with key Q.

→ In read measured value block there are always 4 display zones -arrows-. The significance of the values in display zones 1 to 4 can be taken from the tables following.

```
Read measured value block    125    ⇒
⇒ 1    ⇒ 2    ⇒ 3    ⇒ 4
```

→ Indicated on display: (with vehicle stationary)

```
Read measured value block    125    ⇒
Engine 1    St.ang. 1    Gear. 1
```

Press C key for the next display group number entry.

If the ⇒ key is pressed, then the keys 0 and

8 must be pressed afterwards to enter "Read measured value block" again.

Read measured value block	125⇒	**Display group number: 125**
Engine 1 St.ang. 1 Gear. 1		◂ Indicated on display (example)

Vacant

Data bus for gearbox1)
- 1 ⇒Data bus connection is available.
- 0 ⇒Data bus connection is not available 2).

Data bus for steering angle
- 1 ⇒Data bus connection is available.
- 0 ⇒Data bus connection is not available.

Perform a zero compensation.
=>Function 04, basic settings =>Page 01-213, Display group number 060

Data bus for engine
- 1 ⇒Data bus connection is available.

- 0 ⇒Data bus connection is not available3).

1) Vehicles with an automatic gearbox only.

2) Interrogate fault memories for gearbox control unit and data bus diagnostic interface.

3) Interrogate fault memories for engine control unit and data bus diagnostic interface.