01-67

Readiness code

The readiness code appears as an 8-digit display in measuring value block 086, display field 1. Each of the 8 digits is allocated to a specific exhaust related system.

During a test sequence which must be performed completely, On Board Diagnostic (OBD) checks the function of each of these systems and then changes the character assigned to it in the 8-digit indication from "1" to "0" once test has been performed successfully.

When the readiness code is generated after a successfully completed test sequence, it reads "0 0 0 0 0 0 0 0" (measuring value block 086, display field 1).

If a single test is completed entirely, but indicated as "not OK", a DTC will be stored in DTC memory. Check DTC Memory ⇒ .

01-68

**Readiness code is returned to"0 1 1 0 1 1 0 1"
if:**

♦ DTC memory was erased,

♦ Voltage supply to ECM was cut off (e.g.
connector disconnected, battery disconnected)

♦ a new Engine Control Module (ECM) was
installed

In this case, the readiness code must be re-
generated ⇒ .

Note:

*During driving operation in various load
conditions, exhaust relevant tests are performed
by the control module and the readiness code is
generated on its own. In this case, however, the
concluding control possibilities are not available,
meaning that it will not be indicated whether the
vehicle is free of malfunctions upon transfer to
the customer.*

01-69

Read readiness code

Test sequence

- Connect VAS5051 tester or VAG1551 scan tool and select control module for engine electronics using "address word" 01 ⟹ Page 01-10 . Ignition must remain switched on.

Rapid data transfer	HELP
Select function XX	

◄   When indicated on display

- Press buttons -0- and -8- to select "Read Measuring Value Block" and press -Q- button to confirm input.

Read measuring value block	Q
Enter display group number XXX	

◄   When indicated on display

- Press buttons -0-, -8- and -6- to select "display group number 086" and press -Q- button to confirm input.

Read Measuring Value Block 86	→
1 2 3 4	

◄   When indicated on display

- Check readiness code in display field 1

◆ Specification: 0 0 0 0 0 0 0 0

01-70

	Display fields			
	1	2	3	4
Display group 086: Readiness code				
Display	**0 0 0 0 0 0 0 0**	X X X X X X X X	X X X X X X X X	
Indicated	**Ready-Bits** **completed tests**	individual tests carried out	individual tests carried out	
Functional range	**1 = not completed** **0 = completed**	1 = not completed 0 = completed	1 = not completed 0 = completed	
Specified value	**0 0 0 0 0 0 0 0**	X X X X X X X X	X X X X X X X X	
Note	**Significance of readiness code ⇒ Page 01-71**			

Note for display field 1:

Display field 1 is the most important. This indicates which system was checked via On Board Diagnostic (OBD) since the last time DTC memory was erased or a new control module was implemented. Once DTC memory is erased, all testable values are set to "1", after the test is performed successfully, the values are set to "0".

01-71

| X | X | X | X | X | X | X | X | Notes for display group 086, display field 1 |

Diagnostic of catalytic converter

- ♦ Indication 0 = test was performed
- ♦ Indication 1 = test was not performed (generate readiness code ⇒ Page 01-73)

Indication always 0

EVAP system

- ♦ Indication 0 = test was performed
- ♦ Indication 1 = test was not performed (generate readiness code ⇒ Page 01-73)

Secondary air system

- ♦ Indication 0 = test was performed
- ♦ Indication 1 = test was not performed (generate readiness code ⇒ Page 01-73)

Indication always 0

Oxygen sensors

- ♦ Indication 0 = test was performed
- ♦ Indication 1 = test was not performed (generate readiness code ⇒ Page 01-73)

Oxygen sensor heating

- ♦ Indication 0 = test was performed

◆ Indication 1 = test was not performed (generate readiness code ⇒ Page 01-73)

Indication always 0

Note:

Readiness code is not generated until all indications in display field 1 display "0"

01-72

Once the specified value "0 0 0 0 0 0 0 0" is reached in display field 1:

- Press →button.

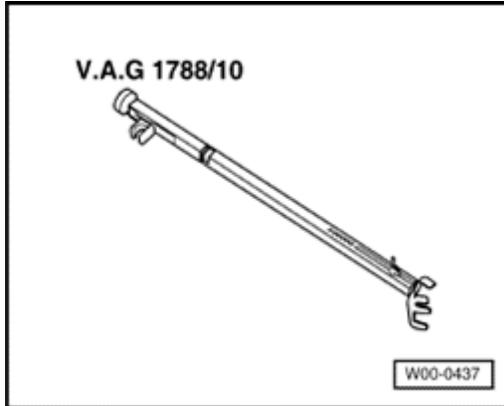| Rapid data transfer	HELP
Select function XX	

◄ Indicated on display (function selection)

- Check DTC memory as a control measure ⇒ Page 01-16 (there must not be any DTCs stored)

If specified value is not obtained:

- Generate readiness code ⇒ Page 01-73 .

01-73

Readiness code, generating

Special Tools and Equipment

V.A.G 1788/10

W00-0437

◆ VAG1788/10 RPM adjuster

Requirements

- Vehicle stationary

- Vehicles with automatic transmission Selector lever in P or N.

- Electrical consumers switched off (radiator fan must NOT run during test).

- A/C switched off.

- Coolant temperature at least 80 $^\circ$ C $\Rightarrow$ Display group 004, display field 3. Important: Drive engine warm via road test if possible.

Note:

If, during a work step, the test result is indicated as "OK" immediately after selecting a display group, the test has already been carried out and it is OK to continue on to the next work step.

01-74

Work step 1: Check DTC Memory

Test requirement:

* Engine not running, ignition switched on.

- Connect VAS5051 tester or VAG1551 scan tool
  and select control module for engine electronics
  using "address word" 01 $\Rightarrow$ Page 01-10 .

Rapid data transfer	HELP
Select function XX	

◄ When indicated on display

- Press buttons -0- and -2- to select "Check DTC memory" and press -Q-
  button to confirm input.

X malfunctions recognized!

◄ Number of stored DTCs or "No DTC recognized" will be indicated on
display.

If a DTC is stored:

- Repair malfunction, erase DTC memory. Road test vehicle and then
  check DTC memory as a control measure.

If no DTCs are stored:

- Press →button.

01-75

Work step 2: Erase DTC Memory

Test requirement:

- Engine not running, ignition switched on.

Rapid data transfer	HELP
Select function XX	

◄ When indicated on display

- Press buttons -0- and -5- to select "Erase DTC memory" and press -Q-button to confirm input.

Note:

When DTC memory is erased, readiness code is reset and must therefore be re-generated.

Rapid data transfer	→
DTC Memory is erased!	

◄ When indicated on display

- Press →button.

01-76

**Work step 3: Adapt throttle valve control
module to Engine Control Module (ECM)**

Test requirement:

- Engine not running, ignition switched on.

Rapid data transfer	**HELP**
Select function XX	

◀   When indicated on display

- Press buttons -0- and -4- to select "Initiate basic setting" and press -Q-
  button to confirm input.

Basic Setting	**Q**
Enter display group number XXX	

◀   When indicated on display

- Press buttons -0-, -6- and -0- to select "display group number 060" and
  press -Q- button to confirm input.

System in basic setting 60			→
1	**2**	**3**	**4**

◀   When indicated on display

- Check specified values in display fields 3 and 4

01-77

	Display fields			
	1	2	3	4
Display group 060: Adaptation of throttle valve control module				
Display	xx %	xx %	x	---
Indicated	Throttle valve angle (angle sensor 1)	Throttle valve angle (angle sensor 2)	**Adaptation step counter**	**Adaptation condition**
Functional range			**0 to 8**	**ADP in progress** **ADP OK** **ERROR**
Specified value	3 to 93 %	97 to 3 %	**8**	**ADP OK**
Note			**After adaptation, the adaptation step counter reaches the number 8 (it is OK for numbers to be skipped).**	**If "ERROR." is displayed: Check DTC memory ⇒ Page 01-16 .** **If specified value is not obtained: ⇒Note, ⇒ Page 24-126**

Note for display field 3:

Different numbers are shown in display field 3 during adaptation that represent the current adaptation condition. It is not particularly important how the adaptation step counter (display field 3) behaves during adaptation, but rather that display field

4 indicates the specification "ADP OK" after adaptation.

If specified value "ADP OK" is obtained:

- Press -C- button.

01-78

Work step 4: Kick down function, adapting[1]

[1] Only vehicles with automatic transmission

Test requirement:

- Engine not running, ignition switched on.

Basic Setting	Q
Enter display group number XXX	

◄ When indicated on display

- Press buttons -0-, -6- and -3- to select "display group number 063" and press -Q- button to confirm input.

System in basic setting 63	→
1	2	3	4

◄ When indicated on display

Note:

There will be a prompt: "Operate kickdown".

- Depress accelerator pedal completely, past kick down point, and hold down.

Note:

During adaptation of the kick down point, the VAG1551 will display "Kick down ADP in progress". After successful adaptation of the kick down point, the VAG1551 will display "Kick down ADP OK".

- Check specified value in display field 4:

01-79

	Display fields			
	1	2	3	4
Display group 063: Kick down function, adapting				
Display	xx %	xx %	**Kick down**	---
Indicated	Sensor 1 for Pedal position	Sensor 2 for Pedal position	**Kick down**	**Adaptation condition**
Functional range			**Kick down**	**operate** **ADP in progress** **ADP OK** **ERROR**
Specified value	12 to 97 %	4 to 49 %	**Kick down**	**ADP OK**
Note				**If "ERROR." is displayed: Check DTC memory ⇒ Page 01-16 .**

Note for display field 4:

"ERROR" can be indicated, for example, if the accelerator pedal is not immediately pressed in response to a request by the tester or if the accelerator pedal is released while adaptation is running despite the fact that adaptation is not yet complete. In both cases, "Basic Setting" must be exited and the adaptation must be performed again.

If specified value "ADP OK" is obtained:

- Press -C- button.

01-80

Work step 5: Check operating condition of oxygen sensor control

- Start engine (for a vehicle with manual transmission: engage clutch).

Note:

After starting engine, it may be necessary to select the Engine Control Module (ECM) again using "address word" 01 and the function "Initiate basic setting" using "04".

- Install VAG1788/10 RPM adjuster on accelerator pedal and raise engine speed to 2000 RPM.

Test requirement:

- Engine running at 2000 RPM.

Basic Setting	Q
Enter display group number XXX	

◄ When indicated on display

- Press buttons -0-, -3- and -0- to select "display group number 030" and press -Q- button to confirm input.

System in basic setting 30	→
1 2 3 4	

◄ When indicated on display

- Check oxygen sensor status in display fields 1 and 2.

Note:

A few minutes may pass until a diagnostic result is reached.

01-81

	Display fields			
	1	2	3	4
Display group 030: Oxygen sensor status				
Display	X X X	X X X		
Indicated	Oxygen sensor status, bank 1, sensor 1	Oxygen sensor status, bank 2, sensor 1		
Functional range	0 = off 1 = on	0 = off 1 = on		
Specified value	1 1 1	1 1 0		

Significance of 3 digit indications in display group 030			
X	X	X	**Display fields 1 and 2**
		X	Oxygen sensor control: 0= not active; 1 = active
	X		Operational readiness of oxygen sensor: 0= not active; 1 = active
X			Condition of oxygen sensor heater: 0= not active; 1 = active

Note:

♦ *The first position of the 3 digit indication (heating) fluctuates between 0 and 1 at certain operation points.*

♦ *Oxygen sensor control of oxygen sensor behind catalytic converter (bank 1, sensor 2) is not active without engine load, meaning that the third position of the 3-digit display is 0.*

- Do not start test until indication in display field 1

has reached "111" at least once and indication in display field 2 has reached "110" at least once.

01-82

Work step 6: Diagnostic of oxygen sensor aging before catalytic converter

Test requirement:

* Engine continues to run at 2000 RPM.

Basic Setting	**Q**
Enter display group number XXX	

◀ When indicated on display

 - Press buttons -0-, -3- and -4- to select "display group number 034" and press -Q- button to confirm input.

System in basic setting 34	→
1 **2** **3** **4**	

◀ When indicated on display

 - Check specified value in display field 4:

Note:

A few minutes may pass until a diagnostic result is reached.

01-83

	Display fields			
	1	2	3	4
Display group 034: Oxygen sensor aging diagnostic, oxygen sensor before catalytic converter (bank 1)				
Display	xxxx/min	xxx $^\circ$ C	x.x s	---
Indicated	Engine speed (RPM)	Exhaust temperature	Period duration Oxygen sensor before Catalytic converter	Diagnostic condition
Functional range				Test OFF Test ON B1-S2 OK B1-S2 not OK
Specified value	2000 RPM	more than 350 $^\circ$ C	0.0 to 1.0 s	B1-S2 OK
Note				**If "B1-S1 not OK" is displayed: Check DTC memory ⇒ Page 01-16 .**

If specified value "B1-S1 OK" is obtained:

- Press -C- button.

01-84

Work step 7: Diagnostic of operational readiness of oxygen sensor behind catalytic converter

Test requirement:

* Engine continues to run at 2000 RPM.

Basic Setting	Q
Enter display group number XXX	

◄   When indicated on display

- Press buttons -0-, -3- and -6- to select "display group number 036" and press -Q- button to confirm input.

System in basic setting 36	→
1 2 3	4

◄   When indicated on display

- Check specified value in display field 2:

01-85

	Display fields		3	4
	1	2		
Display group 036: Operational readiness of oxygen sensor behind catalytic converter (bank 1)				
Display	x.xxx V	---		
Indicated	Oxygen sensor voltage Bank 2, sensor 1	**Diagnostic condition**		
Functional range		**Test OFF** **Test ON** **B1-S2 OK** **B1-S2 not OK**		
Specified value	0.100 to 0.950 V	**B1-S2 OK**		
Note		**If "B1-S2 not OK" is displayed: Check DTC memory ⇒ Page 01-16**		

If specified value B1-S2 OK" is obtained:

- Press -C- button.

01-86

Work step 8: Diagnostic of oxygen sensor control system

Test requirement:

* Engine continues to run at 2000 RPM.

Basic Setting	Q
Enter display group number XXX	

◄ When indicated on display

- Press buttons -0-, -3- and -7- to select "display group number 037" and press -Q- button to confirm input.

System in basic setting 37	→
1 2 3 4	

◄ When indicated on display

- Check specified value in display field 4:

01-87

	Display fields			
	1	2	3	4
Display group 037: Diagnostic of oxygen sensor control system (Bank 1)				
Display	xxx %	x.xxx volts	xxx ms	---
Indicated	Load	Oxygen sensor voltage Bank 2, sensor 1	Oxygen sensor correction value between bank 1, sensor 1 and bank 1, sensor 2	Diagnostic condition
Functional range				**Test OFF** **Test ON** **System OK** **System not OK**
Specified value	12 to 30 %	0.100 to 0.950 V	-150 to 150 ms	System OK
Note				**If "System not OK" is displayed: Check DTC memory** ⇒ **Page 01-16**

If specified value "Syst. OK" is obtained:

- Press -C- button.

01-88

Work step 9: Diagnostic of catalytic converter

Test requirement:

* Engine continues to run at 2000 RPM.

Basic Setting	Q
Enter display group number XXX	

◀ When indicated on display

 - Press buttons -0-, -4- and -6- to select "display group number 046" and press -Q- button to confirm input.

System in basic setting 46	→
1 2 3 4	

◀ When indicated on display

 - Check specified values in display fields 2 and 4:

Note:

Catalytic converter diagnostic lasts approx. 60 seconds.

01-89

	Display fields			
	1	2	3	4
Display group 046: Diagnostic of catalytic converter (bank 1)				
Display	xxxx/min	xxx $^\circ$ C	x.x	---
Indicated	Engine speed (RPM)	Exhaust temperature	Measurement Catalytic converter - conversion	Diagnostic condition
Functional range				Test OFF Test ON Cat B1 OK Cat B1 not OK
Specified value	2000 RPM	more than 430 $^\circ$ C	0.0 to 0.2	Cat B1 OK
Note				**If "Cat B1 not OK" is displayed: Check DTC memory $\Rightarrow$ Page 01-16 . If no DTCs are stored, replace catalytic converter.**

If specified value "Cat B1 OK" is obtained:

- Press -C- button.

01-90

Work step 10: Diagnostic of Secondary Air Injection (AIR) system

- Remove VAG1788/10 RPM adjuster and leave engine running at idle.

Test requirement:

• Engine running at idle:

Note:

During diagnostic of the Secondary Air Injection (AIR) system, the Secondary Air Injection (AIR) pump will run for several seconds.

Basic Setting	Q
Enter display group number XXX	

◄ When indicated on display

- Press buttons -0-, -7- and -7- to select "display group number 077" and press -Q- button to confirm input.

System in basic setting 77	→
1 2 3 4	

◄ When indicated on display

- Check specified value in display field 4:

01-91

	Display fields			
	1	2	3	4
Display group 077: Secondary Air Injection (AIR) system diagnostic (Bank 1)				
Display	xxxx/min	xx.x g/s	xx.x g/s	---
Indicated	Engine speed (RPM)	Air mass	Air mass Secondary air system	**Diagnostic condition**
Functional range				**Test OFF** **Test ON** **System OK** **System not OK** **Aborted**
Specified value	FWD: 740 to 860 RPM AWD: 800 to 920 RPM	2 to 5 g/s	4 to 10 g/s	System OK
Note				**If "System not OK" is displayed: Check DTC memory ⇒ Page 01-16**

If specified value "Syst. OK" is obtained:

- Press -C- button.

01-92

Work step 11: Diagnostic of tank ventilation valve

Test requirement:

* Engine running at idle:

Basic Setting	**Q**
Enter display group number XXX	

◄ When indicated on display

  - Press buttons -0-, -7- and -0- to select "display group number 070" and press -Q- button to confirm input.

System in basic setting 70	→
1 **2** **3** **4**	

◄ When indicated on display

  - Check specified value in display field 4:

Note:

If test is not initiated or if indication switches from "Test ON" to "Test OFF", depress accelerator pedal briefly, test will be repeated.

01-93

	Display fields			
	1	**2**	**3**	**4**
Display group 070: Diagnostic of tank ventilation valve				
Display	xx %	xx %		---
Indicated	Degree tank ventilation valve is opened	Oxygen sensor control Diagnostic value		**Diagnostic condition**
Functional range				**Test OFF** **Test ON** **TVV OK** **TVV not OK** **Aborted**
Specified value	0 to 99 %	-7.0 to 7.0 %		**TVV OK**
Note				**If "TVV not OK" is displayed: Check DTC memory ⇒ Page 01-16 . Check Evaporative Emission (EVAP) canister purge regulator valve -N80- ⇒ Page 24-107**

If specified value "TVV OK" is obtained:

- Press -C- button.

01-94

Work step 12: Diagnostic of tank seal

Test requirements:

* Engine running at idle:

* Fuel filler cap opened briefly (to reduce pressure).

Basic Setting	**Q**
Enter display group number XXX	

◄ When indicated on display

- Press buttons -0-, -7- and -1- to select "display group number 071" and press -Q- button to confirm input.

System in basic setting 71	→
1 2 3 4	

◄ When indicated on display

Note:

♦ *Test lasts approx. 90 seconds.*

♦ *When the diagnostic of tank seal is performed several times in a row, the fuel filler cap must be opened briefly before each test to release pressure.*

- Check specified value in display field 4:

01-95

	Display fields			
	1	2	3	4
Display group 071: Diagnostic of tank seal				
Display	---	---	---	---
Indicated	Condition Reed-Terminal	DTC message	System condition	**Diagnostic condition**
Functional range	Reed open Reed closed	Small leak Large leak	System test Measurement END Measurement	**Test OFF** **Test ON** **System OK** **System not OK** **Aborted**
Specified value	Reed open	---	END Measurement	**System OK**
Note				**If "System not OK" is displayed: Check DTC memory ⟹ Page 01-16**

If specified value "Syst. OK" is obtained:

- Press ➞button.

‹

Indicated on display (function selection)

Work step 13: Read readiness code

- Read readiness code ⇒ Page 01-69 .