



Technical Service Information

VW/AUDI TF60-SN 09G/09M VAG (VCDS) DATA PARAMETERS AND TROUBLE CODE DESCRIPTIONS

The following information is to aid the technician in diagnosing the 09G/09M by familiarizing them with information found in the data/measured blocks located in the transmission control unit data list. We have also provided common VAG code descriptions and OBD-II cross over identification.

- *Refer to Figures 1-3 for data parameters in measured blocks and descriptions of data.*
- *Refer to Figure 4 for solenoid amperage readings for lines 7 and 8 based on clutch application and range.*
- *Refer to Figure 5-7 for common VAG code descriptions and OBD-II cross over I.D .*

MEASURED BLOCKS CONTINUED

08 Measured
Blocks

Data Block	ATF Temp G93	ATF Temp Voltage	Trans Condition	Voltage Supply
010	94.0°C	.60V	Blank	13.50V
011	Brake Switch Condition (F47)	Locking SL	Speed	Selector Lever
	OFF or ON	<div>↓</div> P/N =Locked Press Brake = --	0.0km/h	<div>↓</div> P-R-N-D Manual
012	Selector Lever	Tiptronic Recognition	Driving Mode	Transferrable Torque
	<div>↓</div> P-R-N-D Manual	<div>↓</div> P-R-N-D= Blank Manual= M	<div>↓</div> Park = 0 Reverse = R Neutral = 0 Drive = 1H-6H 3M-6M (Tcc)	100.0%
013	Selector Lever	Multifunction Switch	Tiptronic Recognition	Tiptronic Recognition
	<div>↓</div> P-R-N-D Manual	00000000 <div>↓</div> P=00001001 R=00001100 N=00000101 D=00000110 S=00001111	<div>↓</div> P-R-N-D= Blank Manual= M UP Button =UP DN Button = Down	<div>↓</div> D=00000000 M=00001000 UP=00011000 DN=00001100
014	Accelerator Pedal Position%		Idle Switch Condition	APP Condition
	0-100%	N/A	<div>↓</div> Off Idle=00000000 At Idle=00000001	00000000

Copyright © 2013 ATSG

Figure 1

MEASURED BLOCKS CONTINUED

08 Measured
Blocks

**Data
Block**

005

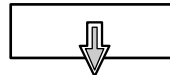
Hill Driving
Factor

0.0%

Throttle Valve
Factor

0.0%

Throttle Dynamic
Index



Changes
based on
snap of
Throttle

Accelerator
Pedal Position%

0-100%

006

ATF Temp
G93

84.0°C

Specified Current
(TCC) Solenoid
Valve 4 (N91)

.200A

Lock-up
Clutch Slip

xxxx

Lock-up
Clutch Slip

xxxx

007

Solenoid
Valve 5 (N92)



.100A Fully "Off"
.980A Fully "On"
See Note*

Solenoid
Valve 9 (N282)



.100A Fully "Off"
.980A Fully "On"
See Note*

Solenoid
Valve 3 (N90)



.100A Fully "Off"
.980A Fully "On"
See Note*

Solenoid
Valve 10 (N283)



.100A Fully "Off"
.980A Fully "On"
See Note*

008

(LP) Solenoid
Valve 6 (N93)



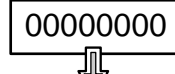
.200A to .940A
Based on
engine load

(TC) Solenoid
Valve 4 (N91)



.200A to 1.0A
Based on
load and PCM
TCC strategy

Solenoid Valve 1
Solenoid Valve 2



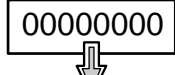
N89 N88
00000000
0= Off
1= On
11- for M1
10- for Tcc On

Battery Voltage

13.6V

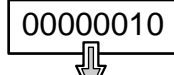
009

Brake Pedal
Switch



00000000=Off
00000011=On

Kick-down
Switch



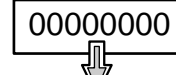
May be model
dependant
no state change

Selector Lever



P-R-N-D
Manual

Multifunction
Switch



P=00001001
R=00001100
N=00000101
D=00000110
S=00001111











**Note= Amperage changes during shift transitions*

Copyright © 2013 ATSG

Figure 2

MEASURED BLOCKS CONTINUED

08 Measured
Blocks

<i>Data Block</i>	ATF Temp G93	ATF Temp Voltage	Trans Condition	Voltage Supply
010	94.0°C	.60V	Blank	13.50V
011	Brake Switch Condition (F47) OFF or ON	Locking SL  P/N =Locked Press Brake = --	Speed 0.0km/h	Selector Lever  P-R-N-D Manual
012	Selector Lever  P-R-N-D Manual	Tiptronic Recognition  P-R-N-D= Blank Manual= M	Driving Mode  Park = 0 Reverse = R Neutral = 0 Drive = 1H-6H 3M-6M (Tcc)	Transferrable Torque 100.0%
013	Selector Lever  P-R-N-D Manual	Multifunction Switch 00000000  P=00001001 R=00001100 N=00000101 D=00000110 S=00001111	Tiptronic Recognition  P-R-N-D= Blank Manual= M UP Button =UP DN Button = Down	Tiptronic Recognition 00000000  D=00000000 M=00001000 UP=00011000 DN=00001100
014	Accelerator Pedal Position%	N/A	Idle Switch Condition  Off Idle=00000000 At Idle=00000001	APP Condition 00000000

Copyright © 2013 ATSG

Figure 3

SOLENOID APPLICATION CHART

SOLENOID	RANGE				GEAR					
	Park	Reverse	Neutral	Drive 1H	Manual 1H	2H	3H 3M	4H 4M	5H 5M	6H 6M
SV5-N92 (K1)	.100A	.980A	.980A	.100A	.100A	.100A	.100A	.100A	.980A	.980A
SV9-N282 (K2)	.100A	.980A	.980A	.980A	.980A	.980A	.980A	.100A	.100A	.100A
SV3-N90 (K3)	.980A	.100A	.980A	.980A	.980A	.980A	.100A	.980A	.100A	.980A
SV10-N283 (B1)	.980A	.980A	.980A	.980A	.980A	.100A	.980A	.980A	.980A	.100A
SV6-N93 (LP)	.980A	.980A	.980A	.980A	.740A	.860A	.980A	.980A	.740A	.740A
SV4-N91 (TC-PWM)	.200A	.200A	.200A	.200A	.200A	.200A	.200A	.200A	.200A	.200A
SV2-N89	0	0	0	0	1	0	3H=0 3M=1	4H=0 4M=1	5H=0 5M=1	6H=0 6M=1
SV1-N88	0	0	0	0	1	0	0*-1	0*-1	0*-1	0*-1

Description of terms:

.100A= Very Low amperage
Solenoid OFF

.980A= Very High amperage
Solenoid ON

SV1&2-N88&89
0 =OFF

1=ON

0*-1= OFF or ON

3H = 3rd Gear TCC OFF

3M = 3rd Gear TCC ON

(This applies to gears 3-6)

Special Notes:

During shift transitions

- Solenoid Valves 3,5,9 and 10 are Normally Applied which applies the component they are in charge of when they are Off. They are Energized (On) to turn the component they are in charge of Off. These Solenoids are also Modulated to control the apply and release rates. Consult the Clutch Application Chart below and compare the amperage to Clutch/Brake app. Example: Solenoid Valve 10 (N283) is pulsed Off during the 1H-2H transition and the Amperage will drop from .980A in 1H to .690A to .300A to .100A when the shift is finally completed into 2H to control the apply rate and shift feel of the B1 Brake.**
- Solenoid Valve 6 -N93 is modulated based on engine load. Low line pressure will indicate an amperage of 1.0 to .980A. Amperage will drop to increase line pressure.**
- Solenoid Valve 4-N91 is modulated to control Torque Converter Apply rate, but is dependant on Solenoid Valve 2-N89 to apply the TCC. There will be situations where during Manual shifts in Tiptronic mode, SV4-N91 amperage will indicate .500 to .700 and the TCC will be Off as Solenoid Valve 2-N89 is "0" which indicates Off.**

CLUTCH APPLICATION CHART

Gear	Component					
	K1	K2	K3	B1	B2	F1
1st Gear	X				X*	X
2nd Gear	X			X		
3rd Gear	X		X			
4th Gear	X	X				
5th Gear		X	X			
6th Gear		X		X		
Rev Gear			X		X	

* The B2 clutch is applied in Tiptronic Mode 1st gear only for engine braking.

Copyright © 2013 ATSG

Figure 4



Technical Service Information

VOLKSWAGEN "VAG" DIAGNOSTIC TROUBLE CODES	
DTC	DESCRIPTION
00258	N88-SV1 Shift Solenoid 1, Circuit Error (Open or Short)
00260	N89-SV2 Shift Solenoid 2, Circuit Error (Open or Short)
00262	N90- SV3 K3 Control Solenoid Circuit Error (Open or Short)
00264	N91-SV4 Torque Converter Clutch PWM Solenoid, Circuit Error (Open or Short)
00266	N92-SV5, K1 Control Solenoid Circuit Error (Open or Short)
00268	N93-SV6 Pressure Control Solenoid, Circuit Error (Open or Short)
00293	Transaxle Range (TR) switch F125, circuit malfunction (Implausible signal)
00300	Transmission Fluid Temp, (G93) circuit malfunction (Open or Short)
00348	N282-SV9, K2 Control Solenoid Circuit Error (Open or Short)
00349	N283-SV10, B1 Control Solenoid Circuit Error (Open or Short)
00364	System Voltage to Low
00453	Function restriction because of excess Trans Fluid Temp.
00529	TCM to ECM Error, No Engine Speed Signal G28
00541	ATF temp to high
00777	Throttle Position Sensor, No Signal CAN bus connection interrupted
01045	Tiptronic Switch F189 implausible signal
01166	Engine Torque signal no signal from ECM
01192	Torque Converter Clutch mechanical fault (slip)
01236	Selector Lever Lock Solenoid, Circuit Error N110 (Open or Short)
01312	Drive Train Data Bus Fault, No Communication
01314	Engine Control Module, DTC present
01316	ABS Module, No Communication, or ignition switched on with TCM unplugged
01679	Speed signal from ABS Front Left wheel implausible
01680	Speed signal from ABS Front Right wheel implausible
01681	Speed signal from ABS Rear Left wheel implausible
01682	Speed signal from ABS Rear Right wheel implausible
01683	Wheel speed signals/vehicle speed implausible
65535	Control Module Faulty, (TCM)
	Copyright © 2013 ATSG

Figure 5



Technical Service Information

VOLKSWAGEN "VAG" to obd11 DIAGNOSTIC TROUBLE CODES		
<i>vag</i>	<i>obd11</i>	<i>DESCRIPTION</i>
16988	P0604	TCM faulty
16989	P0605	TCM faulty
16997	P0613	TCM faulty
17084	P0700	TCM faulty
17089	P0705	Multifunction Trans Range sensor F125 electrical fault
17090	P0706	Multifunction Trans Range sensor F125 implausible signal
17095	P0711	Trans Fluid Temp G93 fault in electrical circuit
17096	P0712	Trans Fluid Temp G93 signal too low
17097	P0713	Trans Fluid Temp G93 signal too high
17099	P0715	Input Speed sensor G182 circuit fault
17100	P0716	Input Speed sensor G182 Implausible signal
17101	P0717	Input Speed sensor G182 no signal
17105	P0721	Output Speed sensor G195 circuit fault
17109	P0725	Engine Speed sensor G28 circuit fault from ECM
17113	P0729	Clutch of indicated gear is faulty (wrong ratio, slip)
17114	P0730	Clutch of indicated gear is faulty (wrong ratio, slip)
17115	P0731	1st Gear (wrong ratio, slip)
17116	P0732	2nd Gear (wrong ratio, slip)
17117	P0733	3rd Gear (wrong ratio, slip)
17118	P0734	4th Gear (wrong ratio, slip)
17119	P0735	5th Gear (wrong ratio, slip)
17132	P0748	N91-SV4 Torque Converter Clutch PWM Solenoid, Circuit (Open or Short)
17135	P0751	N88-SV1 Shift Solenoid 1, Circuit Error (Open or Short to ground)
17136	P0752	N88-SV1 Shift Solenoid 1, Circuit Error (Short to Battery voltage)
17137	P0753	N88-SV1 Shift Solenoid 1, Electrical Circuit fault
17140	P0756	N89-SV2 Shift Solenoid 2, Circuit Error (Open or Short to ground)
17141	P0757	N89-SV2 Shift Solenoid 2, Circuit Error (Short to Battery voltage)
17182	P0798	N93-SV6 Pressure control Circuit Error (Open or Short)
17195	P0811	Heavy Clutch Slip
17224	P0840	Trans pressure sensor 1 G193 mechanical fault (model dependant)
17225	P0841	Trans pressure sensor 1 G193 open or short/implausible (model dependant)
17226	P0842	Trans pressure sensor 1 G193 short to ground (model dependant)
17299	P0845	Trans pressure sensor 2 G194 mechanical fault (model dependant)
17230	P0846	Trans pressure sensor 2 G194 open or short/implausible (model dependant)
17231	P0847	Trans pressure sensor 2 G194 short to ground (model dependant)

Figure 6



Technical Service Information

<i>VOLKSWAGEN "VAG" to obd11 DIAGNOSTIC TROUBLE CODES</i>		
<i>vag</i>	<i>obd11</i>	<i>DESCRIPTION</i>
18010	P1602	<i>Voltage supply too low</i>
18255	P1847	<i>DTC in ABS problem</i>
18554	P2122	<i>Throttle position sensor signal too low G79</i>
19146	P2714	<i>N91-SV4 Torque Converter Clutch PWM Solenoid, Circuit (Open or Short)</i>
19147	P2715	<i>N91-SV4 Torque Converter Clutch PWM Solenoid, Circuit (short to B+)</i>
19148	P2716	<i>N91-SV4 Torque Converter Clutch PWM Solenoid, electrical circuit fault</i>
19155	P2723	<i>N92-SV5 K1 Clutch control Solenoid, Circuit (Open or Short)</i>
19156	P2724	<i>N92-SV5 K1 Clutch control Solenoid, Circuit (short to B+)</i>
19157	P2725	<i>N92-SV5 K1 Clutch control Solenoid, electrical circuit fault</i>
19164	P2732	<i>N93-SV6 Pressure control Solenoid, Circuit (Open or Short)</i>
19165	P2733	<i>N93-SV6 Pressure control Solenoid, Circuit (short to B+)</i>
19166	P2734	<i>N93-SV6 Pressure control Solenoid, electrical circuit fault</i>
Copyright © 2013 ATSG		

Figure 7