

Bavarian Autosport

Fault Code Reader / Reset Tool

Instruction Manual and Code Charts



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IMPORTANT DISCLAIMER - READ NOW

Thank you for purchasing the SR-300x scanner/resetter for BMWs. This product was designed to provide a long service life and ease of use at a low cost. In designing this product we went to great lengths to assure compatibility and safe operation with the majority of BMWs. As with any software-based device, there is a risk that a small number of unique DME variants may not be compatible with this device. Bavarian Autosport may not be held liable for any problems resulting from incompatibilities. Additionally, the code definitions contained in this manual should be regarded as a starting point for diagnosing a problem - the codes your BMW generates can often be misleading, and there may be errors in our code definitions. Before spending your money on a repair, make sure you have a clear understanding of the problem by using additional sources of information, such as a good quality repair manual (see page 40), expert advice, the Internet, etc... **Bavarian Autosport may not be held liable for any expenses you incur in response to the codes or instructions contained in this manual.**

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Code Tables:

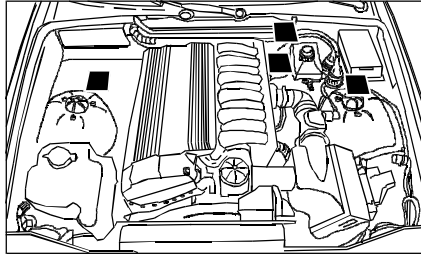
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LOCATING THE DIAGNOSTIC CONNECTOR

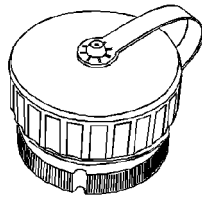
1987 Through 2000 (Located under the hood)*

Important Note: Mid-2000-on often use OBD connector, page 4

BMW's built 1987 to year 2000 have a 20 pin diagnostic connector located in the engine compartment. The car image at right gives a general idea of where the connector can be found depending on year and model. The images below show what the connector looks like, covered and uncovered.

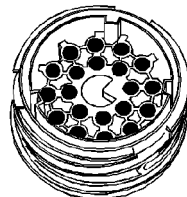


Black squares show possible locations



20 pin Connector used in BMWs 1987-2000

Left- dust cap on.



Right- dust cap removed.

Orientation:

BMW located the 20 pin diagnostic connector in several locations in varying orientations. You may find that when the tool is plugged in properly, the face panel is actually upside-down relative to your position.

Plugging tool in properly:

When inserting the SR-300, plug it straight in, as you would plug a lamp into a wall socket. The car's connector appears to be a twist-on type, but the SR-300 DOES NOT twist in (twisting will damage tool)

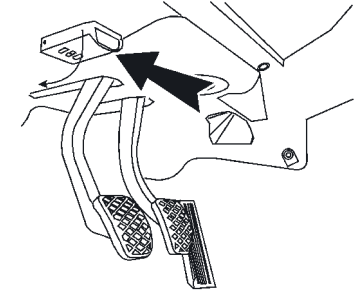
*Not there?

All BMWs 1989 - 1999 have the above connector - no exceptions. Mid 2000 forward is when BMW began to phase out the above connector in favor of the "OBD" connector on page 4.

2001 and Later (Connector Located inside the Car)

Important: an adaptor may be required on some SR-300 configurations see Appendix, page 39 for details.

To locate the Diagnostic Connector in most BMWs built 2001 and later, open the driver's door, kneel down and look up at the underside of the dashboard. You will see the diagnostic connector near the pedals, above the driver's left leg (see illustration below.) You will see a rectangular access panel, (often embossed with the letters OBD) with a rounded thumb grip you will use to snap it off. The cover will swing downward revealing the 16 pin diagnostic connector inside.



Under the dashboard:

Not there?

Try looking on the passenger side of the center console, or to the left of the driver's left leg. Note: A small number of 2001 and later models also have the 20 pin connector, such as the 2001 X5 and the Z3 up to 2003. See pg 3.

SR-300 FACE PANEL



1. **Display:** Shows menu selections, activity and fault codes.
2. **Function button:** Used to review and select the available functions. (See page 5)
3. **Start button:** After using "Function" to choose a function (see page 5). The Start button causes the function to execute.

DIRECTIONS

- 1.) Turn on key (DO NOT START ENGINE)
- 2.) Plug tool into diagnostic connector (see page 3 and 4 for description, and page 40 for warning)- Tool is ready to use when it displays "Fc".
- 3.) Use the "Function" button to select one of the functions shown below
- 4.) Press "Start" to execute the function

Function Reference

Fc **Fault Code Read.** The tool automatically starts in this mode, (though it won't read the fault codes until you press the "Start" button). When Start is pressed the unit will attempt to read the fault codes. If there are no faults it will display "--". If it finds faults, it will automatically display the number of the code table to use (see pages 6 through 36). To then view the faults press Start, repeat until the end of the fault list - (tool will show a double dash line. Press Start to return to "Fc")

cE **MIL Reset.** (Resets "Check Engine" or "Service Engine Soon") When you have selected cE in the display, you are now ready to reset the MIL "malfunction indicator lamp". Pressing Start will execute the reset. When finished it will return to "Fc". This clears all faults and extinguishes the MIL. To verify the reset, UNPLUG the tool and start the engine- MIL should be off. (Note: After a MIL reset on some models with Automatic Transmission, the Automatic Transmission Light will be on. To clear it, simply start the engine twice.)

oL **Oilservice Reset.** When you have selected oL in the display, you are now ready to reset the "oilservice" light. Pressing Start will execute the reset. During the reset procedure the display will count from 0 to 2. When finished the display will return to "Fc". Si indicator will indicate a successful reset when finished. (See page 39 for trouble shooting)

in **Inspection reset.** When you have selected "in" in the display, you are now ready to reset the "inspection" light. Pressing Start will execute reset. During the reset procedure the display will count from 0 to 9. When finished the display will return to "Fc". Si indicator will indicate a successful reset when finished. (See page 39 for troubleshooting)

Fii and **Cii** apply only to 12 cylinder BMWs, all of which have two Engine ECU's. It is the exact same procedure as Fc and cE (see above), except you are reading the 2nd ECU.

cii

Making sense of the codes

Tip 1: The first number is not a code! After pressing "Start" to read codes, the first number shown is the code table to use. See Tip 2.

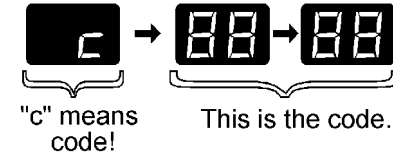
Tip 2: There is no code table "FF". BMWs built 1995 and earlier will not tell the tool which code table to use, so the tool just says "FF" See below.

Tip 3: Is that a b or a 6? The tool displays a "B" as "b" which looks like a "6". Case does not matter; a "b" on the tool = "B" in the table.



When codes starts with a "c" (applies only to 2002 and later BMWs)

A "c" indicates a four digit code is coming. Example: code 8888 would be shown as follows.



Repeats in loop until Start is pressed.

(If there is no "c" then the codes are only two digits in length.)

1995 and Older BMWs:

If the tool displays "FF" for the table designator, note the year and model of the BMW (and the VDS number if necessary) and find the car in table 1.

Note: VDS number is digit 4 thru 7 in the vin:

WBAAA13LAE57862

Table 1: "FF" Fault Table Locator

Year	Model	VDS	Table	Year	Model	VDS	Table
1987				1988	325 A/2	AB64	K1
1987	325is	AA13	K1	1988	325iX/2	AB93	K1
1987	325is A	AA23	K1	1988	325i/4	AD13	K1
1987	325i/4	AD13	K1	1988	325iA/4	AD23	K1
1987	325iA/4	AD23	K1	1988	325i/4	AE54	K1
1987	325iC	BB13	K1	1988	325 A/4	AE64	K1
1987	325iCA	BB23	K1	1988	325C	BB13	K1
				1988	325iCA	BB23	K1
				1988	528e	DK73	K1
				1988	528e A	DK83	K1
				1988	635CSi	EC74	K1
				1988	635CSi A	EC84	K1
				1988	735i	GB33	K1
				1988	735i A	GB43	K1
				1988	735iL A	GC43	K1
				1988	750iL A	GC83	K15
				1988 M3			K1
				1989			
				1989	325i/5	AA13	K1
				1989	325iA/2	AA23	K1
				1989	325iX A/2	AB03	K1
				1989	325iX/2	AB93	K1
				1989	325iA/4	AD13	K1
				1989	325iA/4	AD23	K1
				1989	325iX A/4	AE03	K1
				1989	325iX/4	AE93	K1
				1989	325iC	BB13	K1
				1989	325iCA	BB23	K1
				1989 M3			K1
				1989	635CSi	EC74	K1

1989	635CSi A	EC84	K1
1989	735i	GB33	K1
1989	735i A	GB43	K1
1989	735iL A	GC43	K1
1989	750iL A	GC83	K15
1989	525i	HC13	K1
1989	525i A	HC23	K1
1989	535i	HD13	K1
1989	535i A	HD23	K1
1989	M5		K1

Year	Model	VDS	Table
1990	325i/is/2	AA13	K1
1990	325iA/2	AA23	K1
1990	325iX A/2	AB03	K1
1990	325iX/2	AB93	K1
1990	325i/4	AD13	K1
1990	325iA/4	AD23	K1
1990	325iX A/4	AE03	K1
1990	325iX/4	AE93	K1
1990	325iC	BB13	K1
1990	325iCA	BB23	K1
1990	M3		K1
1990	735i	GB33	K1
1990	735i A	GB43	K1
1990	735iL A	GC43	K1
1990	750iL A	GC83	K15
1990	525i	HC13	K1
1990	525i A	HC23	K1
1990	535i	HD13	K1
1990	535i A	HD23	K1
1990	M5		K1

Year	Model	VDS	Table
1991	325i/is/2	AA13	K1
1991	325iA/2	AA23	K1
1991	325iX A/2	AB03	K1
1991	325iX/2	AB93	K1
1991	325i/4	AD13	K1
1991	325iA/4	AD23	K1
1991	325iX A/4	AE03	K1
1991	325iX/4	AE93	K1
1991	318i/s/2	AF93	K13
1991	318i/4	AJ93	K13
1991	318iC/2	BA73	K13
1991	325iC	BB13	K1
1991	325iCA	BB23	K1
1991	M3		K1
1991	850i	EG13	K7
1991	850i A	EG23	K7
1991	735i A	GB43	K1
1991	735iL A	GC43	K1
1991	750iL A	GC83	K7
1991	535i	HD13	K1
1991	535i A	HD23	K1
1991	525i	HD53	K10
1991	525i A	HD63	K10
1991	M5	HD93	K1

Year	Model	VDS	Table
1992	318iC/2	BA73	K13
1992	325iC	BB13	K1
1992	325iCA	BB23	K1
1992	318i/s	BE53	K6
1992	325i/s	BF33	K10
1992	325i/s A	BF43	K10
1992	318i	CA53	K6
1992	325i	CB33	K10
1992	325i A	CB43	K10
1992	M3		K1
1992	850i	EG13	K7
1992	850i A	EG23	K7
1992	735i A	GB43	K1
1992	735iL A	GC43	K1
1992	750iL A	GC83	K7
1992	535i	HD13	K1
1992	535i A	HD23	K1
1992	525i	HD53	K10
1992	525i A	HD63	K10
1992	M5	HD93	K1
1992	525iT	HJ63	K10

Year	Model	VDS	Table
1993	325iC	BB13	K1
1993	325iCA	BB23	K1
1993	318i/s	BE53	K6
1993	318i/s A	BE63	K6
1993	325i/s	BF33	K5
1993	325i/s A	BF43	K5
1993	318i	CA53	K6
1993	318i A	CA63	K6
1993	325i	CB33	K5
1993	325i A	CB43	K5
1993	M3		K5
1993	850i	EG13	K7
1993	850i A	EG23	K7
1993	750iL A	GC83	K7
1993	740i A	GD43	K11
1993	740iL A	GD83	K11
1993	535i	HD13	K1
1993	535i A	HD23	K1
1993	525i	HD53	K5
1993	525i A	HD63	K5
1993	M5	HD93	K1
1993	525iT	HJ63	K5

Year	Model	VDS	Table
1994	318i/s	BE53	K6
1994	318i/s A	BE63	K6
1994	325i/s	BF33	K5
1994	325i/s A	BF43	K5
1994	325iC	BJ53	K5
1994	325iCA	BJ63	K5
1994	318iC	BK53	K6
1994	318iC A	BK63	K6
1994	318i	CA53	K6
1994	318i A	CA63	K6

For 1996 and later see page 10

1994	325i	CB33	K5
1994	325i A	CB43	K5
1994	840Ci A	EF63	K11
1994	850i A	EG23	K7
1994	850CSi	EG93	K7
1994	750iL A	GC83	K7
1994	740i A	GD43	K11
1994	740iL A	GD83	K11
1994	525i	HD53	K5
1994	525i A	HD63	K5
1994	530i	HE13	K11
1994	530i A	HE23	K11
1994	540i A	HE63	K11
1994	525iT	HJ63	K5
1994	530iT A	HK23	K11

Year	Model	VDS	Table
1995	318i/s	BE53	K6
1995	318i/s A	BE63	K6
1995	M3 A	BF03	K5
1995	325i/s	BF33	K5
1995	325i/s A	BF43	K5
1995	M3	BF93	K5
1995	325iC	BJ53	K5
1995	325iCA	BJ63	K5
1995	318iC	BK53	K6
1995	318iC A	BK63	K6
1995	318i	CA53	K6
1995	318i A	CA63	K6
1995	325i	CB33	K5
1995	325i A	CB43	K5
1995	318i	CC73	K6
1995	318i A	CC83	K6
1995	318i/s	CG53	K6
1995	318i/s A	CG63	K6
1995	840Ci A	EF63	K11
1995	850Ci A	EG43	K12
1995	850CSi	EG93	K7
1995	740i A	GF63	K11
1995	740iL A	GJ63	K11
1995	750iL A	GK23	K12
1995	525i	HD53	K5
1995	525i A	HD63	K5
1995	530i	HE13	K11
1995	530i A	HE23	K11
1995	540i	HE53	K11
1995	540i A	HE63	K11
1995	525iT	HJ63	K5
1995	530iT A	HK23	K11

A NOTE ABOUT NON-U.S. BMWs:

The above vehicle reference refers to US specification BMWs only, and does not include any non-US BMW variants. To best use the SR-300 on your non-US BMW, you will need to determine which of the above most closely matches your BMW. For instance a 1991 320i, is a 3 series, four cylinder, made for non-US markets: In this case, the best table for you to use would be table K13, as the closest US spec car would be a 1991 318i (which is also a 4cyl, 3 series) This method doesn't always work, you may need to experiment to find the correct table.

USE THESE CODE DEFINITIONS WISELY:

The code definitions contained in this manual should be regarded as a starting point for diagnosing a problem. The codes that your BMW generates can be misleading. There may also be errors in this manual. Before spending your money on a repair or replacement parts, make sure you have a clear understanding of the problem by using additional sources of information, such as a good quality repair manual, expert advice, the Internet, etc... Note: Unfortunately, we are not staffed to answer your questions about codes, diagnostics, or BMW problems or offer repair advice. We apologize for any inconvenience this may cause.

"FF" CODE TABLES (FOR 1987-95):

Table K1

- 1 DME control unit selftest
- 3 Electrical fuel pump relay
- 4 Idle speed actuator (open)
- 5 Evaporative purge control valve
- 7 Air flow meter
- 0A Emission (lambda) control
- 0F Check engine lamp
- 10 Fuel Injectors (Cyl. 1,3,5)
- 11 Fuel Injectors (Cyl. 2,4,6)
- 16 Idle speed actuator (close)
- 17 Oxy sensor heating relay
- 1C Oxy sensor
- 1d Vehicle speed signal not present
- 21 AT kick-down prevent solenoid valve
- 25 Control unit supply
- 26 Automatic Stability Control / DWA
- 28 A/C Compressor
- 2b Idle CO Potentiometer
- 2C Intake air temperature sensor
- 2d Coolant temperature sensor
- 32 Engine drag torque control (MSR)
- 33 Ignition timing intervention
- 34 Idle switch
- 35 Full load switch
- 36 Torque Converter Clutch
- 64 Unspecified DME Output Stage

- 1d Idle speed actuator (open)
- 1F Fuel Injector, Cyl #3
- 20 Fuel Injector, Cyl #2
- 21 Fuel Injector, Cyl #1
- 24 Evaporative purge control valve
- 26 Oxy sensor heating relay
- 29 Air mass sensor
- 2A Vehicle speed signal not present
- 30 A/C Compressor control
- 32 Ignition Coil, Cyl #1
- 33 Ignition Coil, Cyl #2
- 34 Ignition Coil, Cyl #3
- 36 Battery voltage / DME main relay
- 37 Misfire, Cyl #6
- 39 Ignition timing intervention
- 41 A/C Compressor
- 42 DWA/EWS Input
- 45 Knock Sensor, Cyl 4-6
- 46 Knock Sensor, Cyl 1-3
- 49 Throttle position sensor
- 4C Idle CO Potentiometer
- 4d Intake air temperature sensor
- 4E Coolant temperature sensor
- 52 Intervention, MSR
- 53 Intervention, ASC
- 64 Output Stage, Group #1
- C8 DME Control Unit
- C9 Lambda Control #1
- CA Fault code memory error
- CC Idle speed increase during MSR
- CE Knock control test pulse
- dC EWS message

- 2A Knock sensor, Cyl 3-4
- 30 A/C Compressor control
- 36 Control unit supply
- 37 Ignition coils
- 40 Ignition timing intervention
- 46 Oxy sensor
- 49 Vehicle speed signal not present
- 4C Idle CO Potentiometer
- 4d Intake air temperature sensor
- 4E Coolant temperature sensor
- 51 DWA/EWS input
- 55 A/C Compressor
- 64 Unspecified DME Output Stage
- C8 DME control unit selftest
- C9 Emission (lambda) control
- CE Knock control test pulse
- CF Knock control regulation
- dC EWS message

Table K7

- 1 Electrical fuel pump relay
- 3 Fuel Injectors (Cyl 2,4,6 or 8,10,12)
- 8 Check engine lamp
- 10 Camshaft/Cylinder ID sensor
- 20 Fuel Injectors (Cyl 1,3,5 or 7,9,11)
- 24 Evaporative purge control valve
- 25 Oxy sensor heating relay
- 29 Air flow sensor
- 30 A/C Compressor control
- 36 Control unit supply
- 3F Torque converter clutch
- 40 Ignition timing intervention
- 46 Oxy sensor
- 49 Vehicle speed signal not present
- 4C Idle CO Potentiometer
- 4d Intake air temperature sensor
- 4E Coolant temperature sensor
- 52 Engine drag torque control (MSR)
- 53 ASC / ZAB
- 64 Unspecified DME Output Stage
- C8 DME control unit selftest
- C9 Emission (lambda) control

Table K10

- 1 Electrical fuel pump relay

Table K5

- 1 Electrical fuel pump relay
- 2 Idle speed actuator (close)
- 3 Fuel Injector, Cyl #5
- 4 Fuel Injector, Cyl #6
- 5 Fuel Injector, Cyl #4
- 6 Fuel Injector, Unknown
- 7 VANOS (Solenoid)
- 8 Check engine lamp
- 0d Oxy sensor
- 0F Ignition secondary monitor
- 10 Crankshaft sensor
- 11 Camshaft sensor
- 17 Ignition Coil, Cyl #4
- 18 Ignition Coil, Cyl #6
- 19 Ignition Coil, Cyl #5
- 1A Control unit supply

Table K6

- 1 Electrical fuel pump relay
- 3 Fuel Injectors (Cyl 2,4)
- 8 Check engine lamp
- 0C Throttle position sensor
- 0F Knock sensor, Cyl 1-2
- 10 Camshaft/Cylinder ID sensor
- 12 Intake air resonance (DISA) valve
- 1d Idle Control Valve
- 20 Fuel Injectors (Cyl 1,3)
- 24 Evaporative purge control valve
- 25 Oxy sensor heating relay
- 29 Air flow sensor

- 2 Idle speed actuator (close)
- 3 Fuel Injector, Cyl #1
- 4 Fuel Injector, Cyl #3
- 5 Fuel Injector, Cyl #2
- 6 Fuel Injector, Unknown
- 8 Check engine lamp
- 0C Throttle position sensor
- 10 Camshaft sensor
- 12 Output Stage, Group #1
- 13 Output Stage, Group #2
- 17 Ignition Coil, Cyl #2
- 18 Ignition Coil, Cyl #3
- 19 Ignition Coil, Cyl #1
- 1A Control unit supply
- 1d Idle speed actuator (open)
- 1F Fuel Injector, Cyl #5
- 20 Fuel Injector, Cyl #6
- 21 Fuel Injector, Cyl #4
- 24 Evaporative purge control valve
- 25 Oxy sensor heating relay
- 29 Air mass sensor
- 2E Output Stage
- 30 A/C Compressor control
- 32 Ignition Coil, Cyl #4
- 33 Ignition Coil, Cyl #6
- 34 Ignition Coil, Cyl #5
- 36 Battery voltage / DME main relay
- 37 Ignition output stage
- 3E EML Signal
- 3F Torque convertor clutch lockup
- 40 Ignition timing intervention
- 43 Crankshaft sensor
- 46 Oxy sensor
- 49 Vehicle speed signal not present
- 4C Idle CO Potentiometer
- 4d Intake air temperature sensor
- 4E Coolant temperature sensor
- 51 DWA Input
- 52 Engine drag torque control (MSR)
- 53 Intervention, ASC
- 55 A/C Compressor
- 64 Output Stage
- C8 DME Control Unit
- C9 Lambda Control
- CA Fault code memory error
- Cb Lambda Control #2
- CC Ignition circuit primary monitor
- CC Stall protection

- 23 Fuel Injector, Cyl #2
- 24 Evaporative purge control valve
- 25 Oxy sensor heating relay
- 29 Air mass sensor
- 2A Vehicle speed signal not present
- 30 A/C Compressor control
- 31 Ignition Coil, Cyl #2
- 32 Ignition Coil, Cyl #3
- 33 Ignition Coil, Cyl #8
- 34 Ignition Coil, Cyl #5
- 36 Battery voltage / DME main relay
- 3E EML Signal
- 41 A/C Compressor
- 42 DWA/EWS Input
- 43 Knock Sensor, Cyl 7-8
- 44 Knock Sensor, Cyl 5-6
- 45 Knock Sensor, Cyl 3-4
- 46 Knock Sensor, Cyl 1-2
- 49 Throttle position sensor
- 4C Idle CO Potentiometer
- 4d Intake air temperature sensor
- 4E Coolant temperature sensor
- 52 Intervention, MSR
- 53 Intervention, ASC
- 64 Output Stage, Group #1
- 65 Output Stage, Group #2
- C8 DME Control Unit
- C9 Lambda Control #1
- CA Fault code memory error
- Cb Lambda Control #2
- CC Idle speed increase - CAN Bus
- Cd Ignition timing intervention
- CE Knock control test pulse
- d2 CAN message
- dC EWS message

Table K12

- 4 PreCat oxy sensor heater, Bank 2
- 5 AfterCat oxy sensor heater, Bank 2
- 8 Misfire w/ low fuel
- 0A PreCat oxy sensor, Bank 1
- 0C AfterCat oxy sensor, Bank 1
- 0d PreCat oxy sensor heater, Bank 1
- 0E AfterCat oxy sensor heater, Bank 1
- 0F PreCat oxy sensor response time, Bank 1
- 10 PreCat oxy sensor aging, Bank 1
- 11 AfterCat oxy sensor response time, Bank 1
- 12 PreCat oxy sensor, Bank 2
- 14 AfterCat oxy sensor, Bank 2
- 15 PreCat oxy sensor response time, Bank 2
- 16 PreCat oxy sensor aging, Bank 2
- 17 AfterCat oxy sensor response time, Bank 2
- 18 A/C Compressor
- 1A Fuel trim, multiplicative, Bank 1
- 1b Fuel trim, QL additive, Bank 1
- 1C Fuel trim, Ti additive, Bank 1
- 20 Idle control valve stuck mechanically
- 22 Fuel trim, multiplicative, Bank 2
- 23 Fuel trim, QL additive, Bank 2
- 24 Fuel trim, Ti additive, Bank 2
- 27 EWS message
- 28 Catalyst efficiency, Bank 1
- 2d Catalyst efficiency, Bank 2
- 32 Misfire, Cyl #1
- 33 Misfire, Cyl #2
- 34 Misfire, Cyl #3
- 35 Misfire, Cyl #4
- 36 Misfire, Cyl #5
- 37 Misfire, Cyl #6
- 38 Misfire, Cyl #7
- 39 Misfire, Cyl #8
- 3A Misfire, Cyl #9

Table K11

- 1 Electrical fuel pump relay
- 2 Idle speed actuator (close)
- 3 Fuel Injector, Cyl #1
- 4 Fuel Injector, Cyl #4
- 5 Fuel Injector, Cyl #6
- 6 Fuel Injector, Unknown
- 7 Fuel Injector, Cyl #7
- 8 Check engine lamp
- 0C Oxy sensor, #2
- 0d Oxy sensor, #1
- 0F Ignition secondary monitor
- 10 Crankshaft sensor
- 11 Camshaft sensor
- 13 Secondary air pump relay
- 16 Ignition Coil, Cyl #7
- 17 Ignition Coil, Cyl #6
- 18 Ignition Coil, Cyl #4
- 19 Ignition Coil, Cyl #1
- 1A Control unit supply
- 1d Idle speed actuator (open)
- 1F Fuel Injector, Cyl #5
- 20 Fuel Injector, Cyl #8
- 21 Fuel Injector, Cyl #3

- 3b Misfire, Cyl #10
- 3C Misfire, Cyl #11
- 3d Misfire, Cyl #12
- 3E Misfire, random or unknown cylinder
- 3F Misfire, catalyst damaging, Cyl #1
- 40 Misfire, catalyst damaging, Cyl #2
- 41 Misfire, catalyst damaging, Cyl #3
- 42 Misfire, catalyst damaging, Cyl #4
- 43 Misfire, catalyst damaging, Cyl #5
- 44 Misfire, catalyst damaging, Cyl #6
- 45 Misfire, catalyst damaging, Cyl #7
- 46 Misfire, catalyst damaging, Cyl #8
- 47 Misfire, catalyst damaging, Cyl #9
- 48 Misfire, catalyst damaging, Cyl #10
- 49 Misfire, catalyst damaging, Cyl #11
- 4A Misfire, catalyst damaging, Cyl #12
- 4b Misfire det, ctlyst damaging, random/unknown Cyl.

- 4E Crankshaft position sensor (too many teeth)
- 50 Secondary air control, Bank 1
- 54 Secondary air pump final stage
- 55 Secondary air valve final stage
- 5d EVAP emission control system
- 5E EVAP large leak
- 61 EVAP small leak
- 62 EVAP purge control valve circuit
- 65 DME, internal RAM failure
- 66 DME, external RAM failure
- 67 DME, ROM failure
- 68 Fault code memory error
- 6b Control unit supply voltage
- 6C Battery disconnected
- 6F Crankshaft position sensor
- 70 Camshaft position sensor
- 73 Air mass sensor
- 75 Throttle position sensor
- 78 Vehicle speed signal not present
- 79 Load calculation crosscheck (HFM vs TPS)
- 7b Coolant temperature sensor
- 7C Intake air temperature sensor
- 87 Torque reduction: Transmission
- 8A A/C Compressor torque reduction
- 8b Electric thermostat control final stage
- 8d ASC signal plausibility
- 8F Intervention, MSR
- 90 Intervention, ASC
- 93 Electric thermostat control performance
- 94 EWS Input
- 96 Fuel Injector, Cyl #1
- 97 Fuel Injector, Cyl #2
- 98 Fuel Injector, Cyl #3
- 99 Fuel Injector, Cyl #4
- 9A Fuel Injector, Cyl #5
- 9b Fuel Injector, Cyl #6
- 9C Fuel Injector, Cyl #7
- 9d Fuel Injector, Cyl #8
- 9E Fuel Injector, Cyl #9
- 9F Fuel Injector, Cyl #10
- A0 Fuel Injector, Cyl #11
- A1 Fuel Injector, Cyl #12
- A5 Check engine lamp
- A7 Electrical fuel pump relay
- A8 Idle speed actuator (open)
- A9 Idle speed actuator (close)
- AA A/C Compressor control
- d0 Secondary air control, Bank 2
- d2 Knock Sensor #1
- d3 Knock Sensor #2
- d4 Knock Sensor #3
- d5 Knock Sensor #4
- d8 CAN timeout, ASC
- dC Knock control test pulse

- dE Knock control test pulse
- EA Automatic start input
- EC CAN timeout, EGS
- Ed Automatic start output
- Fd Coolant fan final stage

Table K13

- 1 Electrical fuel pump relay
- 3 Fuel Injectors (Cyl 1..3)
- 8 Check engine lamp
- 0C Throttle position sensor
- 10 Camshaft/Cylinder ID sensor
- 1d Idle Control Valve
- 20 Fuel Injectors (Cyl 2,4)
- 24 Evaporative purge control valve
- 25 Oxy sensor heating relay
- 29 Air flow sensor

- 30 A/C Compressor control
- 36 Control unit supply
- 40 Ignition timing intervention
- 46 Oxy sensor
- 49 Vehicle speed signal not present
- 4C Idle CO Potentiometer
- 4d Intake air temperature sensor
- 4E Coolant temperature sensor
- 55 A/C Compressor request
- 64 Unspecified DME Output Stage
- C8 DME control unit selftest
- C9 Emission (lambda) control

Table K15

- 1 DME control unit selftest
- 3 Electric fuel pump relay / TR Signal
- 5 Evaporative purge control valve

- 7 Air flow meter
- 0A Emission (lambda) control
- 0F Check engine lamp
- 10 Fuel Injectors (Cyl. 1,3,5 or 7,9,11)
- 11 Fuel Injectors (Cyl. 2,4,6 or 8,10,12)
- 17 Oxy sensor heating relay
- 1C Oxy sensor
- 25 Control unit supply
- 2b Idle CO Potentiometer
- 2C Intake air temperature sensor
- 2d Coolant temperature sensor
- 33 Ignition angle
- 36 Torque Convertor Clutch
- 64 Unspecified DME Output Stage

CODE TABLES (FOR 1996 AND LATER)

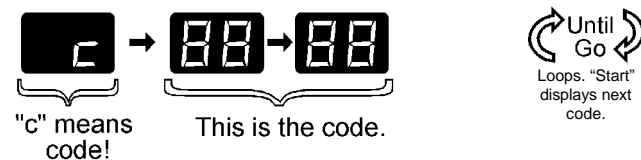
USE THESE CODE DEFINITIONS WISELY:

The code definitions contained in this manual should be regarded as a starting point for diagnosing a problem. The codes that your BMW generates can be misleading. There may also be errors in this manual. Before spending your money on a repair or replacement parts, make sure you have a clear understanding of the problem by using additional sources of information, such as a good quality repair manual, expert advice, the Internet, etc... Note: Unfortunately, we are not staffed to answer your questions about codes, diagnostics, or BMW problems or offer repair advice. We apologize for any inconvenience this may cause.

Important: If the tool displayed "FF" you are in the wrong table section. Please go back and read page 6

When codes starts with a "c" (applies only to 2002 and later BMWs)

A "c" indicates a four digit code is coming. Example: code 8888 would be displayed as follows:



If 8888 were a real code, it would cycle "c-88-88" in a loop until "Start" is pressed. If there is no "c" then the codes are only two digits long.

Begin Tables for 1996-2006 BMWs

Table 00

- 01 Electrical fuel pump relay
- 02 Idle speed actuator (close)
- 03 Fuel Injector, Cyl #1
- 04 Fuel Injector, Cyl #4
- 05 Fuel Injector, Cyl #6
- 06 Fuel Injector, Unknown
- 07 Fuel Injector, Cyl #7
- 08 Check engine lamp
- 0C O2 sensor, #2
- 0d O2 sensor, #1

- 0F Ignition secondary monitor
- 10 Crankshaft sensor
- 11 Camshaft sensor
- 13 Secondary air pump relay
- 16 Ignition Coil, Cyl #7
- 17 Ignition Coil, Cyl #6
- 18 Ignition Coil, Cyl #4
- 19 Ignition Coil, Cyl #1
- 1A Control unit supply
- 1D Idle speed actuator (open)
- 1F Fuel Injector, Cyl #5
- 20 Fuel Injector, Cyl #8
- 21 Fuel Injector, Cyl #3

- 23 Fuel Injector, Cyl #2
- 24 Evaporative purge control valve
- 25 O2 sensor heating relay
- 29 Air mass sensor
- 2A Vehicle speed signal not present
- 30 A/C Compressor control
- 31 Ignition Coil, Cyl #2
- 32 Ignition Coil, Cyl #3
- 33 Ignition Coil, Cyl #8
- 34 Ignition Coil, Cyl #5
- 36 Battery voltage - DME main relay
- 3E EML Signal
- 41 A/C Compressor

42 DWA/EWS Input
43 Knock Sensor, Cyl 7-8
44 Knock Sensor, Cyl 5-6
45 Knock Sensor, Cyl 3-4
46 Knock Sensor, Cyl 1-2
49 Throttle position sensor
4C Idle CO Potentiometer
4D Intake air temperature sensor
4E Coolant temperature sensor
52 Intervention, MSR
53 Intervention, ASC
64 Output Stage, Group #1
65 Output Stage, Group #2
C8 DME Control Unit
C9 Lambda Control #1
CA Fault code memory error
CB Lambda Control #2
CC Idle speed increase - CAN Bus
CD Ignition timing intervention
CE Knock control test pulse
D2 CAN message
DC EWS message

Table 06

04 PreCat 02 sensor heater, Cyl 5-8
05 AfterCat 02 sensor heater, Cyl 5-8
08 Misfire w/ low fuel
0A PreCat 02 sensor, Cyl 1-4
0C AfterCat 02 sensor, Cyl 1-4
0D PreCat 02 sensor heater, Cyl 1-4
0E AfterCat 02 sensor heater, Cyl 1-4
0F PreCat 02 sensor response time, Cyl 1-4
10 PreCat 02 sensor aging, Cyl 1-4
11 AfterCat 02 sensor response time, Cyl 1-4
12 PreCat 02 sensor, Cyl 5-8
14 AfterCat 02 sensor, Cyl 5-8
15 PreCat 02 sensor response time, Cyl 5-8
16 PreCat 02 sensor aging, Cyl 5-8
17 AfterCat 02 sensor response time, Cyl 5-8
18 A/C Compressor
1A Fuel trim, multiplicative, Cyl 1-4
1B Fuel trim, QL additive, Cyl 1-4
1C Fuel trim, Ti additive, Cyl 1-4
20 Idle control valve stuck mechanically
22 Fuel trim, multiplicative, Cyl 5-8
23 Fuel trim, QL additive, Cyl 5-8
24 Fuel trim, Ti additive, Cyl 5-8
27 EWS message

28 Catalyst efficiency, Cyl 1-4
2D Catalyst efficiency, Cyl 5-8

32 Misfire, Cyl #1

33 Misfire, Cyl #2
34 Misfire, Cyl #3
35 Misfire, Cyl #4
36 Misfire, Cyl #5
37 Misfire, Cyl #6
38 Misfire, Cyl #7
39 Misfire, Cyl #8

3E Misfire, random or unknown cylinder
3F Misfire, catalyst damaging, Cyl #1
40 Misfire, catalyst damaging, Cyl #2
41 Misfire, catalyst damaging, Cyl #3
42 Misfire, catalyst damaging, Cyl #4
43 Misfire, catalyst damaging, Cyl #5
44 Misfire, catalyst damaging, Cyl #6
45 Misfire, catalyst damaging, Cyl #7
46 Misfire, catalyst damaging, Cyl #8
4B Misfire, catalyst damaging, random or unknown cylinder

4E Crankshaft position sensor (too many teeth)
50 Secondary air control, Cyl 1-4
54 Secondary air pump final stage
55 Secondary air valve final stage
5D EVAP emission control system
5E EVAP large leak

61 EVAP small leak
62 EVAP purge control valve circuit
65 DME, internal RAM failure
66 DME, external RAM failure
67 DME, ROM failure
68 Fault code memory error
6B Control unit supply voltage
6C Battery disconnected
6F Crankshaft position sensor
70 Camshaft position sensor
73 Air mass sensor
75 Throttle position sensor
78 Vehicle speed signal not present
79 Load calculation crosscheck (HFM vs TPS)
7B Coolant temperature sensor
7C Intake air temperature sensor
87 Torque reduction: Transmission
8A A/C Compressor torque reduction
8B Electric thermostat control final stage
8D ASC signal plausibility
8F Intervention, MSR
90 Intervention, ASC
93 Electric thermostat control performance
94 EWS Input

96 Fuel Injector, Cyl #1
97 Fuel Injector, Cyl #2
98 Fuel Injector, Cyl #3
99 Fuel Injector, Cyl #4
9A Fuel Injector, Cyl #5
9B Fuel Injector, Cyl #6
9C Fuel Injector, Cyl #7
9D Fuel Injector, Cyl #8

A5 Check engine lamp
A7 Electrical fuel pump relay
A8 Idle speed actuator (open)
AA A/C Compressor control
AP Idle speed actuator (close)
AA A/C Compressor control
D0 Secondary air control, Cyl 5-8
D2 Knock Sensor, Cyl 1-2
D3 Knock Sensor, Cyl 3-4
D4 Knock Sensor, Cyl 5-6
D5 Knock Sensor, Cyl 7-8
D8 CAN timeout, ASC

DC Knock control test pulse
DE Knock control test pulse
EA Automatic start input
EC CAN timeout, EGS
ED Automatic start output
FD Coolant fan final stage

Table 07

08 Misfire w/ low fuel
0A PreCat 02 sensor
0C AfterCat 02 sensor
0D PreCat 02 sensor heater
0E AfterCat 02 sensor heater
0F PreCat 02 sensor response time
10 PreCat 02 sensor aging
11 AfterCat 02 sensor response time
18 A/C Compressor
1A Fuel trim, multiplicative
1B Fuel trim, QL additive
1C Fuel trim, Ti additive
20 Idle control valve stuck mechanically
27 EWS message
28 Catalyst efficiency
32 Misfire, Cyl #1
33 Misfire, Cyl #2
34 Misfire, Cyl #3
35 Misfire, Cyl #4
3E Misfire, random or unknown cylinder
3F Misfire, catalyst damaging, Cyl #1
40 Misfire, catalyst damaging, Cyl #2
41 Misfire, catalyst damaging, Cyl #3
42 Misfire, catalyst damaging, Cyl #4

4B Misfire, catalyst damaging, random or unknown cylinder
4E Crankshaft position sensor (too many teeth)
50 Secondary air control
5D EVAP emission control system
5E EVAP large leak
61 EVAP small leak
62 EVAP purge control valve circuit
65 DME, internal RAM failure
66 DME, external RAM failure
67 DME, ROM failure
68 Fault code memory error
6B Control unit supply voltage
6C Battery disconnected
6F Crankshaft position sensor
70 Camshaft position sensor
73 Air mass sensor
75 Throttle position sensor
78 Vehicle speed signal not present
79 Load calculation crosscheck (HFM vs TPS)
7B Coolant temperature sensor
7C Intake air temperature sensor
87 Torque reduction: Transmission
8F Intervention, MSR
90 Intervention, ASC
94 EWS Input
96 Fuel Injector, Cyl #1
97 Fuel Injector, Cyl #2
98 Fuel Injector, Cyl #3
99 Fuel Injector, Cyl #4
A5 Check engine lamp
A7 Electrical fuel pump relay
A8 Idle speed actuator (open)
A9 Idle speed actuator (close)
AA A/C Compressor control
AP DISA (intake resonance) flap
D2 Knock Sensor, Cyl 1-2
D3 Knock Sensor, Cyl 3-4
DC Knock control zero test
DE Knock control test pulse
EC CAN timeout, EGS

Table 09

04 PreCat 02 sensor heater, Bank 2
05 AfterCat 02 sensor heater, Bank 2
08 Misfire w/ low fuel
0A PreCat 02 sensor, Bank 1
0C AfterCat 02 sensor, Bank 1
0D PreCat 02 sensor heater, Bank 1
0E AfterCat 02 sensor heater, Bank 1
0F PreCat 02 sensor response time, Bank 1
10 PreCat 02 sensor aging, Bank 1
11 AfterCat 02 sensor response time, Bank 1
12 PreCat 02 sensor, Bank 2
14 AfterCat 02 sensor, Bank 2
15 PreCat 02 sensor response time, Bank 2
16 PreCat 02 sensor aging, Bank 2
17 AfterCat 02 sensor response time, Bank 2
18 A/C Compressor
1A Fuel trim, multiplicative, Bank 1
1B Fuel trim, QL additive, Bank 1
1C Fuel trim, Ti additive, Bank 1
20 Idle control valve stuck mechanically
22 Fuel trim, multiplicative, Bank 2
23 Fuel trim, QL additive, Bank 2
24 Fuel trim, Ti additive, Bank 2
27 EWS message
28 Catalyst efficiency, Bank 1
2D Catalyst efficiency, Bank 2
32 Misfire, Cyl #1
33 Misfire, Cyl #2
34 Misfire, Cyl #3
35 Misfire, Cyl #4
3E Misfire, random or unknown cylinder
3F Misfire, catalyst damaging, Cyl #1
40 Misfire, catalyst damaging, Cyl #2
41 Misfire, catalyst damaging, Cyl #3
42 Misfire, catalyst damaging, Cyl #4

38 Misfire, Cyl #7
39 Misfire, Cyl #8
3A Misfire, Cyl #9
3B Misfire, Cyl #10
3C Misfire, Cyl #11
3D Misfire, Cyl #12
3E Misfire, random or unknown cylinder
3F Misfire, catalyst damaging, Cyl #1
40 Misfire, catalyst damaging, Cyl #2
41 Misfire, catalyst damaging, Cyl #3
42 Misfire, catalyst damaging, Cyl #4
43 Misfire, catalyst damaging, Cyl #5
44 Misfire, catalyst damaging, Cyl #6
45 Misfire, catalyst damaging, Cyl #7
46 Misfire, catalyst damaging, Cyl #8
47 Misfire, catalyst damaging, Cyl #9
48 Misfire, catalyst damaging, Cyl #10
49 Misfire, catalyst damaging, Cyl #11
4A Misfire, catalyst damaging, Cyl #12
4B Misfire, catalyst damaging, random or unknown cylinder
4E Crankshaft position sensor (too many teeth)
50 Secondary air control, Bank 1
54 Secondary air pump final stage
55 Secondary air valve final stage
5D EVAP emission control system
5E EVAP large leak
61 EVAP small leak
62 EVAP purge control valve circuit
65 DME, internal RAM failure
66 DME, external RAM failure
67 DME, ROM failure
68 Fault code memory error
6B Control unit supply voltage
6C Battery disconnected
6F Crankshaft position sensor
70 Camshaft position sensor
73 Air mass sensor
75 Throttle position sensor
78 Vehicle speed signal not present
79 Load calculation crosscheck (HFM vs TPS)
7B Coolant temperature sensor
7C Intake air temperature sensor
87 Torque reduction: Transmission
8F Intervention, MSR
90 Intervention, ASC
94 EWS Input
96 Fuel Injector, Cyl #1
97 Fuel Injector, Cyl #2
98 Fuel Injector, Cyl #3
99 Fuel Injector, Cyl #4
A5 Check engine lamp
A7 Electrical fuel pump relay
A8 Idle speed actuator (open)
A9 Idle speed actuator (close)
AA A/C Compressor control
AP DISA (intake resonance) flap
D2 Knock Sensor, Cyl 1-2
D3 Knock Sensor, Cyl 3-4
DC Knock control zero test
DE Knock control test pulse
EC CAN timeout, EGS

EA Automatic start input
EC CAN timeout, EGS
ED Automatic start output
FD Coolant fan final stage

Table 0b

01 EVAP LDP Valve final stage
02 EVAP Running losses valve final stage
03 EVAP Reed switch not closed, doesn't open/close
04 PreCat 02 sensor heater, Cyl 5-8
05 AfterCat 02 sensor heater, Cyl 5-8
06 CAN timeout, instrument cluster
07 Engine coolant temperature, radiator outlet
08 Misfire w/ low fuel
0A PreCat 02 sensor, Cyl 1-4
0C AfterCat 02 sensor, Cyl 1-4
0D PreCat 02 sensor heater, Cyl 1-4
0E AfterCat 02 sensor heater, Cyl 1-4
0F PreCat 02 sensor response time, Cyl 1-4
10 PreCat 02 sensor aging, Cyl 1-4
11 AfterCat 02 sensor response time, Cyl 1-4
12 PreCat 02 sensor, Cyl 5-8
14 AfterCat 02 sensor, Cyl 5-8
15 PreCat 02 sensor response time, Cyl 5-8
16 PreCat 02 sensor aging, Cyl 5-8
17 AfterCat 02 sensor response time, Cyl 5-8
18 A/C Compressor
1A Fuel trim, multiplicative, Cyl 1-4
1B Fuel trim, QL additive, Cyl 1-4
1C Fuel trim, Ti additive, Cyl 1-4
1D Air containment valve, shrouded injectors, Cyl 1-4
20 Idle control valve stuck mechanically
22 Fuel trim, multiplicative, Cyl 5-8
23 Fuel trim, QL additive, Cyl 5-8
24 Fuel trim, Ti additive, Cyl 5-8
27 EWS message
28 Catalyst efficiency, Cyl 1-4
2D Catalyst efficiency, Cyl 5-8
32 Misfire, Cyl #1
33 Misfire, Cyl #2
34 Misfire, Cyl #3
35 Misfire, Cyl #4
36 Misfire, Cyl #5
37 Misfire, Cyl #6
38 Misfire, Cyl #7
39 Misfire, Cyl #8
3E Misfire, random or unknown cylinder
3F Misfire, catalyst damaging, Cyl #1
40 Misfire, catalyst damaging, Cyl #2
41 Misfire, catalyst damaging, Cyl #3
42 Misfire, catalyst damaging, Cyl #4
43 Misfire, catalyst damaging, Cyl #5
44 Misfire, catalyst damaging, Cyl #6
45 Misfire, catalyst damaging, Cyl #7
46 Misfire, catalyst damaging, Cyl #8
4B Misfire, catalyst damaging, random or unknown cylinder
4D Air containment valve, shrouded injectors, Cyl 5-8
4E Crankshaft position sensor (too many teeth)
50 Secondary air control, Cyl 1-4
54 Secondary air pump final stage
55 Secondary air valve final stage
5B EVAP purge control valve, Cyl 5-8
5D EVAP emission control system
5E EVAP large leak
61 EVAP small leak
62 EVAP purge control valve circuit
65 DME, internal RAM failure
66 DME, external RAM failure
67 DME, ROM failure
68 Fault code memory error
69 DME, EEPROM failure
6B Control unit supply voltage
6C Battery disconnected
6F Crankshaft position sensor
70 Camshaft position sensor
73 Air mass sensor
75 Throttle position sensor
78 Vehicle speed signal not present
79 Load calculation crosscheck (HFM vs TPS)
7C Intake air temperature sensor
87 Torque reduction: Transmission
8A A/C Compressor torque reduction
8B Electric thermostat control final stage
8D ASC signal plausibility
8F Intervention, MSR
90 Intervention, ASC
93 Electric thermostat control performance
94 EWS Input
96 Fuel Injector, Cyl #1
97 Fuel Injector, Cyl #2
98 Fuel Injector, Cyl #3
99 Fuel Injector, Cyl #4
9A Fuel Injector, Cyl #5
9B Fuel Injector, Cyl #6
9C Fuel Injector, Cyl #7
9D Fuel Injector, Cyl #8
A4 EVAP Barometric tank pressure sensor
A5 Check engine lamp
A7 Electrical fuel pump relay
A8 Idle speed actuator (open)
1B Fuel trim, QL additive, Cyl 1-4
1C Fuel trim, Ti additive, Cyl 1-4
AA A/C Compressor control
B7 EVAP large leak
B8 EVAP pinched hose check
CB Ignition feedback failed
CC EWS rolling code storage
D0 Secondary air control, Cyl 5-8
D2 Knock Sensor, Cyl 1-2
D3 Knock Sensor, Cyl 3-4
D4 Knock Sensor, Cyl 5-6
D5 Knock Sensor, Cyl 7-8
D6 CAN index verification
D7 CAN timeout, left/right DME
D8 CAN timeout, ASC
D9 CAN signal, EML
DC Knock control test pulse
DE Knock control test pulse
E4 Automatic start output
E9 Automatic start output
EA Automatic start input
EC CAN timeout, EGS
ED Automatic start output
FD Coolant fan final stage

Table 0E

1 EVAP LDP Valve final stage
2 EVAP Running losses valve final stage
3 EVAP Reed switch not closed, doesn't open/close
4 PreCat oxy sensor heater, Bank 2
5 AfterCat oxy sensor heater, Bank 2
6 CAN timeout, instrument cluster
7 Engine coolant temperature, radiator outlet
8 Misfire w/ low fuel
0A PreCat oxy sensor, Bank 1
0E EVAP emission control system
0d PreCat oxy sensor heater, Bank 1
0E AfterCat oxy sensor heater, Bank 1
0F PreCat oxy sensor response time, Bank 1
10 PreCat oxy sensor aging, Bank 1
11 AfterCat oxy sensor response time, Bank 1
12 PreCat oxy sensor, Bank 2
13 CAN timeout, EKAT
14 AfterCat oxy sensor, Bank 2

15 PreCat oxy sensor response time, Bank 2
 16 PreCat oxy sensor aging, Bank 2
 17 AfterCat oxy sensor response time, Bank 2
 18 A/C Compressor
 1A Fuel trim, multiplicative, Bank 1
 1b Fuel trim, QL additive, Bank 1
 1C Fuel trim, Ti additive, Bank 1
 1d Air containment valve, shrouded injectors, Bank 1
 1E EKAT - Status 7 - power switch control
 20 Idle control valve stuck mechanically
 21 EKAT - Status 8 - EKAT ECU
 22 Fuel trim, multiplicative, Bank 2
 23 Fuel trim, QL additive, Bank 2
 24 Fuel trim, Ti additive, Bank 2
 27 EWS message
 28 Catalyst efficiency, Bank 1
 2A EKAT - Status 1 - heater disconnection, Catalyst #1
 2b EKAT - Status 2 - Switch on operation condition for Catalyst #1
 2C EKAT - Status 3 - Power switch for Catalyst #1
 2d Catalyst efficiency, Bank 2
 2E EKAT - Status 4 - Heater disconnection, Catalyst #2
 2F EKAT - Status 5 - Switch on operation condition for Catalyst #2
 30 EKAT - Status 6 - Power switch for Catalyst #2
 32 Misfire, Cyl #1
 33 Misfire, Cyl #2
 34 Misfire, Cyl #3
 35 Misfire, Cyl #4
 36 Misfire, Cyl #5
 37 Misfire, Cyl #6
 38 Misfire, Cyl #7
 39 Misfire, Cyl #8
 3A Misfire, Cyl #9
 3b Misfire, Cyl #10
 3C Misfire, Cyl #11
 3d Misfire, Cyl #12
 3E Misfire, random or unknown cylinder
 3F Misfire, catalyst damaging, Cyl #1
 40 Misfire, catalyst damaging, Cyl #2
 41 Misfire, catalyst damaging, Cyl #3
 42 Misfire, catalyst damaging, Cyl #4
 43 Misfire, catalyst damaging, Cyl #5
 44 Misfire, catalyst damaging, Cyl #6
 45 Misfire, catalyst damaging, Cyl #7
 46 Misfire, catalyst damaging, Cyl #8
 47 Misfire, catalyst damaging, Cyl #9
 48 Misfire, catalyst damaging, Cyl #10
 49 Misfire, catalyst damaging, Cyl #11
 4A Misfire, catalyst damaging, Cyl #12
 4b Misfire detctd, catalyst dimg, random/unknown cyl.
 4d Air containment valve, shrouded injectors, Bank 2
 4E Crankshaft position sensor (too many teeth)
 50 Secondary air control, Bank 1
 51 EKAT - Status 9 - Sensor check temperature sensor 1 in batt.
 52 EKAT - Status 10 - Sensor check temperature sensor 2 in batt.
 53 EKAT - Status 11 - plausibility check of sensor temp. in batt.
 54 Secondary air pump final stage
 55 Secondary air valve final stage
 5b EVAP purge control valve, Bank 2
 5d EVAP emission control system
 5E EVAP large leak

EA Automatic start input

Table 0F

01 LDP control circuit
 02 DM-TL solenoid control circuit
 03 PreCat O2 sensors swapped
 04 AfterCat O2 sensor heater, Cyl#5-8
 05 PreCat O2 sensor heater, Cyl#5-8
 0A PreCat O2 sensor, Cyl#1-4
 0C AfterCat O2 sensor, Cyl#1-4
 0D PreCat O2 sensor heater, Cyl#1-4
 0E AfterCat O2 sensor heater, Cyl#1-4
 0F PreCat O2 sensor slow response, Cyl#1-4
 10 PreCat O2 sensor aging, Cyl#1-4
 11 AfterCat O2 sensor aging, Cyl#1-4
 12 PreCat O2 sensor, Cyl#5-8
 14 AfterCat O2 sensor, Cyl#5-8
 15 PreCat O2 sensor slow response, Cyl#5-8
 16 PreCat O2 sensor aging, Cyl#5-8
 17 AfterCat O2 sensor aging, Cyl#5-8
 18 Mixture Control, higher load, Cyl #1-4
 19 Mixture Control, higher load, Cyl #5-8
 1A Mixture Control, off idle, Cyl #1-4
 1B Mixture Control, off idle, Cyl #5-8
 1C Mixture Control, idle, Cyl #1-4
 1D Mixture Control, idle, Cyl #5-8
 1E Mixture Control, idle, Cyl #1-4
 1F Mixture Control, idle, Cyl #5-8
 20 Idle speed control
 21 Camshaft VANOS control, Cyl#1-4
 22 Camshaft VANOS control, Cyl#5-8
 27 EWS, manipulation detected
 28 Catalyst efficiency, Cyl#1-4
 2D Catalyst efficiency, Cyl#5-8
 32 Misfire, Cyl #1
 33 Misfire, Cyl #5
 34 Misfire, Cyl #4
 35 Misfire, Cyl #8
 36 Misfire, Cyl #6
 37 Misfire, Cyl #3
 38 Misfire, Cyl #7
 39 Misfire, Cyl #2
 3E Misfire, random/multiple cylinders
 50 Secondary air system, Cyl #1-4
 51 Secondary air system, Cyl #5-8
 52 Secondary air valve
 54 Secondary air control circuit
 55 Secondary air valve
 5D Evaporative emission system
 62 Evaporative emission system purge valve
 65 Torque monitoring
 66 MFL interface
 67 Safety concept monitoring
 68 Clutch switch
 69 Control unit self-test, RAM faulty
 6A Brake switch
 6B Control unit self-test, ROM faulty
 6C Control unit self-test, reset
 6D Battery voltage
 6E Torque control
 6F Crankshaft sensor
 70 Timing reference high resolution signal
 71 Camshaft position sensor, Cyl#1-4
 72 Camshaft position sensor, Cyl#5-8
 73 Air mass sensor
 75 Throttle position sensors
 76 Throttle position sensor 1
 77 Throttle position sensor 2

78 Vehicle speed
 79 Wheel sensor failure
 7A Ambient temperature sensor
 7B Engine coolant temperature sensor
 7C Intake air temperature sensor
 7D Radiator outlet temperature sensor
 7F Coolant temperature plausibility
 82 Drive-by-wire throttle position monitoring
 83 Drive-by-wire throttle control
 84 Drive-by-wire throttle control output stage
 85 Drive-by-wire throttle controller, spring check
 86 Drive-by-wire throttle controller, lower adaptation
 87 Drive-by-wire throttle controller, amplifier check
 88 Drive-by-wire throttle, emergency air position test
 8B Map controlled thermostat jammed
 8C Map controlled thermostat circuit/control
 8D Engine cooling fan control
 8E Exhaust flap control
 94 EWS signal/interface
 96 Fuel Injector, Cyl #1
 97 Fuel Injector, Cyl #5
 98 Fuel Injector, Cyl #4
 99 Fuel Injector, Cyl #8
 9A Fuel Injector, Cyl #6
 9B Fuel Injector, Cyl #3
 9C Fuel Injector, Cyl #7
 9D Fuel Injector, Cyl #2
 A3 Throttle position / air mass plausibility
 A4 Ambient pressure sensor
 A5 VANOS output stage, Cyl #1-4
 A6 VANOS output stage, Cyl #5-8
 A7 Fuel pump relay control
 A8 Check engine lamp/MIL
 AA A/C compressor control
 B7 LDP diagnosis
 B8 LDP system
 B9 LDP pressure sensor
 BA DM-TL pump control circuit
 BB DM-TL small leak
 BC DM-TL large leak
 BD DM-TL pump current
 C9 DM-TL heater
 CC EWS exchange code stored
 D2 Knock sensor, Cyl #1-2
 D3 Knock sensor, Cyl #3-4
 D4 Knock sensor, Cyl #5-6
 D5 Knock sensor, Cyl #7-8
 D6 Knock control zero test
 D7 Knock control offset
 D8 Knock control test pulse
 DB CAN timeout
 DC CAN timeout, EGS
 DD CAN timeout, ASC/DSC
 DE CAN timeout, instrument cluster
 DF CAN timeout, ACC
 E0 MSR intervention plausibility
 E1 ACC intervention plausibility
 E2 Fuel level plausibility
 E5 Pedal position sensor supply voltage
 E6 Pedal position sensors
 E7 Pedal position sensor 1
 E8 Pedal position sensor 2
 E9 Automatic starter control output
 EA Automatic starter input signal
 EC Intake air flap control
 ED Automatic starter

Table 11 (& 16)

01 Ignition Coil, Cyl #2
 02 Ignition Coil, Cyl #4
 03 Ignition Coil, Cyl #6
 05 Fuel Injector, Cyl #2
 06 Fuel Injector, Cyl #1
 08 Air mass sensor
 0A Coolant temperature sensor
 0B EVAP system pressure sensor
 0C Throttle position sensor
 0E Intake air temperature sensor
 10 A/C compressor PWM signal
 12 EWS Signal
 14 Check engine lamp
 15 VANOS (Solenoid)
 16 Fuel Injector, Cyl #3
 17 Fuel Injector, Cyl #6
 18 Fuel Injector, Cyl #4
 19 PreCat O2 sensor heater, Cyl #1-3
 1B Idle speed actuator (close)
 1D Ignition Coil, Cyl #1
 1E Ignition Coil, Cyl #3
 1F Ignition Coil, Cyl #5
 21 Fuel Injector, Cyl #5
 23 Secondary air system relay/pump
 2E Fuel level signal (reserve lamp)
 2F Catalyst temperature after start-up
 32 EVAP system running losses valve
 33 EVAP system shutoff valve
 34 Rear exhaust valve flap
 35 Idle speed actuator (open)
 37 PreCat O2 sensor heater, Cyl #4-6
 38 Ignition feedback - shunt resistor
 39 Knock Sensor, Cyl #1-3
 3B Knock Sensor, Cyl #4-6
 3D AfterCat O2 sensor heater, Cyl #4-6
 3E Secondary air system, switching valve
 41 Camshaft sensor
 44 EVAP system, purge control valve ckt.
 45 Electrical fuel pump relay
 4A A/C compressor relay
 4B PreCat O2 sensor voltage, Cyl #1-3
 4C PreCat O2 sensor voltage, Cyl #4-6
 4D AfterCat O2 sensor voltage, Cyl #1-3
 4E AfterCat O2 sensor voltage, Cyl #4-6
 4F AfterCat O2 sensor heater, Cyl #1-3
 50 ASC signal, active too long
 51 MSR signal, active too long
 52 EML signal, active too long
 53 Crankshaft Sensor
 64 DME Control Unit
 BE EVAP reed switch not closed
 BF EVAP reed switch doesn't open
 C0 EVAP reed switch doesn't close
 C1 EVAP clamped tube check
 C2 EVAP large leak detected
 C3 EVAP small leak detected
 C4 EVAP electrical LDP valve
 C5 EVAP barometric pressure sensor
 C8 PreCat O2 sensor no activity, Cyl #1-3
 C9 PreCat O2 sensor no activity, Cyl #4-6
 CA O2 sensor control limit, Cyl #1-3
 CB O2 sensor control limit, Cyl #4-6
 CC Idle control system, idle speed not plausible
 D1 EWS message
 D2 Ignition feedback faulty (>2 cylinders)
 D3 Idle control valve mechanically stuck
 D4 VANOS mechanically stuck
 D6 Vehicle speed signal not present
 D7 ASC/MSR/EML - interface not plausible
 D8 Gear selector signal, signal undefined
 D9 CAN bus timeout
 DA CAN controller - warning level reached
 DB CAN bus offline
 DE Time to closed loop temperature too long
 E3 O2 sensor adaption limit, Cyl #1-3
 E4 O2 sensor adaption limit, Cyl #4-6
 E5 PreCat O2 sensor response time, Cyl #1-3
 E6 PreCat O2 sensor response time, Cyl #4-6
 E7 PreCat O2 sensor switching Time, Cyl #1-3
 E8 PreCat O2 sensor switching Time, Cyl #4-6
 E9 Catalyst efficiency below threshold, Cyl #1-3
 EA Catalyst efficiency below threshold, Cyl #4-6
 EB AfterCat O2 sensor heater power, Cyl #1-3
 EC AfterCat O2 sensor heater power, Cyl #4-6
 EE Misfire, Cyl #1
 EF Misfire, Cyl #2
 F0 Misfire, Cyl #3
 F1 Misfire, Cyl #4
 F2 Misfire, Cyl #5
 F3 Misfire, Cyl #6
 F4 Flywheel adaption, segment timing faulty
 F5 Secondary air system flow too low, Cyl #1-3
 F6 Secondary air system flow too low, Cyl #4-6
 F7 Secondary air system injector valve jammed
 FA EVAP TEV not operating
 FB EVAP small leak detected
 FC EVAP incorrect purge flow
 FD EVAP shut off valve stuck closed
 FE EVAP large leak detected
 FF EVAP TEV stuck open

Table 14

01 Relay Fuel pump
 02 Idle adjuster closing coil
 03 Injector valve 1
 04 Injector valve 3
 05 Injector valve 2
 07 input camshaft sensor
 09 ignition current Bank 2
 0A output camshaft sensor
 0C Lambda probe 2
 0D Lambda probe 1
 0F ignition current Bank 1
 10 Error crankshaft-sensor
 13 Relay Secondary air pump
 15 output-VANOS-late valve
 16 output-VANOS-early valve
 17 ignition output transistor 2
 18 ignition output transistor 3
 19 ignition output transistor 1
 1D Idle adjuster opening coil
 1F Injector valve 5
 20 Injector valve 6
 21 Injector valve 4
 24 Tank ventilation valve
 25 Relay Lambda probe heating
 29 air mass flow meter
 2A speed sensor
 2C active Oil level sensor
 2E consumption signal
 2F Engine speed signal
 30 Relay Air conditioning compressor
 32 ignition output transistor 4
 33 ignition output transistor 6
 34 ignition output transistor 5

35 Relay electric fan
 36 battery voltage
 40 aircondition switch AC/KO
 42 EWS-interface
 43 output-VANOS-early valve
 44 Knock sensor 3
 45 Knock sensor 2
 46 Knock sensor 1
 48 output-VANOS-late valve
 49 Throttle valve potentiometer
 4D intake air temperature sensor
 4E cooling water temperature sensor
 50 Switch Gear
 52 starter switch KL50
 56 CAN-bus Off
 82 EWS-signal manipulation
 88 Error idle speed controller
 89 CAN-protocol error
 8A CAN-Timeout message 1
 8B CAN-Timeout message 2
 8C CAN-Timeout message 3
 90 lambda controller 1
 91 lambda controller 2
 96 internal: memory test Master
 97 internal: driver diagnosis
 98 internal: Kommunikation Master
 9B internal: error memory Master
 9C internal: error memory slave
 9D internal: memory test slave
 9E internal: Kommunikation slave
 9F internal: knock module 1
 A0 internal: knock module 2
 A1 internal: knock module 3
 A2 synchronisation camshaft sensor
 A3 internal: ecu-reset

Table 15 (not the same as table K15)

01 Ignition Coil, Cyl #2
 02 Ignition Coil, Cyl #4
 03 Ignition Coil, Cyl #6
 05 Fuel Injector, Cyl #2
 06 Fuel Injector, Cyl #1
 08 Air mass sensor
 0A Coolant temperature sensor
 0B Radiator outlet temperature sensor
 0E Intake air temperature sensor
 12 Camshaft sensor, exhaust cam
 13 VANOS solenoid, exhaust
 15 VANOS solenoid, intake
 16 Fuel Injector, Cyl #3
 17 Fuel Injector, Cyl #6
 18 Fuel Injector, Cyl #4
 19 PreCat 02 sensor heater, Cyl #1-3
 1B Idle speed actuator (close)
 1D Ignition Coil, Cyl #1
 1E Ignition Coil, Cyl #3
 1F Ignition Coil, Cyl #5
 21 Fuel Injector, Cyl #5
 23 Secondary air system electrical pump
 26 Clutch switch
 27 Brakelight switch (BLS) / brake light test plausibility
 28 Brake light switch (BLS) / pedal sensor plausibility
 29 Multi-function steering wheel (MFL) signal
 2A Multi-function steering wheel (MFL) redundant code transmission

2B Multi-function steering wheel (MFL) control switch
 2D Multi-function steering wheel (MFL) toggle bit
 32 Running loss (3/2) valve final stage
 34 Rear exhaust valve flap
 35 Idle speed actuator (open)
 37 PreCat 02 sensor heater, Cyl #4-6
 38 Ignition feedback - shunt resistor
 39 Knock Sensor, Cyl #1-3
 3B Knock Sensor, Cyl #4-6
 3D AfterCat 02 sensor heater, Cyl #4-6
 3E Secondary air system, switching valve
 41 Camshaft sensor, intake cam
 44 EVAP system, purge control valve circuit
 45 Electrical fuel pump relay
 4A A/C compressor relay
 4F AfterCat 02 sensor heater, Cyl #1-3
 53 Crankshaft Sensor
 64 DME Control Unit
 67 VANOS, faulty intake reference value
 68 VANOS, faulty exhaust reference value
 69 VANOS, intake mechanically stuck
 6A VANOS, exhaust mechanically stuck
 6D Motorized Throttle Valve (MDK), PWM not plausible
 6E Pedal sensor (PWG) potentiometer #1
 6F Pedal sensor (PWG) potentiometer #2
 70 Motorized Throttle Valve (MDK) potentiometer #1
 71 Motorized Throttle Valve (MDK) potentiometer #2
 72 Motorized Throttle Valve (MDK) final stage
 73 Reference voltage (5v) source for #1 potentiometers
 74 Reference voltage (5v) source for #2 potentiometers
 75 Pedal sensor (PWG) potentiometer plausibility
 76 Motorized Throttle Valve (MDK) feedback plausibility
 77 Motorized Throttle Valve (MDK) mechanically stuck
 78 PWG / MDK potentiometers not plausible
 7A Oil temperature sensor
 7B Electric thermostat control final stage
 7C DISA flap control
 7D Coolant fan final stage
 7E LDP solenoid valve
 7F Electrical fuel pump
 80 EWS signal
 82 CAN timeout (ASC1)
 83 CAN timeout (instr2)
 84 CAN timeout (instr3)
 85 CAN timeout (ASC3)
 8C EVAP LDP reed switch not closed
 8D EVAP LDP reed switch doesn't open
 8E EVAP LDP reed switch doesn't close
 8F EVAP clamped tube check
 90 EVAP large leak detected
 91 EVAP small leak detected
 92 EVAP capillary leak (0.5mm) detected
 95 MDK position and airmass signal not plausible
 96 PreCat 02 sensor short to B+, Cyl #1-3
 97 PreCat 02 sensor short to ground, Cyl #1-3
 98 PreCat 02 sensor disconnection, Cyl #1-3
 99 PreCat 02 sensor short to B+, Cyl #4-6
 9A PreCat 02 sensor short to ground, Cyl #4-6

9B PreCat 02 sensor disconnection, Cyl #4-6
 9C AfterCat 02 sensor short to B+, Cyl #1-3
 9D AfterCat 02 sensor short to ground, Cyl #1-3
 9F AfterCat 02 sensor short to B+, Cyl #4-6
 A0 AfterCat 02 sensor short to ground, Cyl #4-6
 A8 Electrical thermostat mechanically jammed open
 A9 Motorized Throttle (MDK) final stage failure
 AA Communication with safety controller disturbed
 AB Safety controller has shut down MDK function
 AC Pedal sensor (PWG) short between potentiometers
 AD Motorized Throttle (MDK) short between potentiometers
 AE Motorized Throttle (MDK) idle position not plausible
 AF Pedal sensor (PWG) pot. #1 idle position not plausible
 B0 Pedal sensor (PWG) pot. #2 idle position not plausible
 BB 02 sensor ckt. no activity detected, bank2, sens1
 BC PreCat 02 sensor heater insufficient, Cyl #1-3
 BD PreCat 02 sensor heater insufficient, Cyl #4-6
 BE AfterCat 02 sensor heater insufficient, Cyl #1-3
 BF AfterCat 02 sensor heater insufficient, Cyl #4-6
 CA 02 sensor control limit, Cyl #1-3
 CB 02 sensor control limit, Cyl #4-6
 CC Idle control system, idle speed not plausible
 DD EWS engine speed check not ok
 D0 EWS message
 D2 Ignition feedback faulty (>2 cylinders)
 D3 Idle control valve mechanically stuck
 D6 Vehicle speed signal not present
 D7 AfterCat 02 sensor disconnection, Cyl #1-3
 D8 AfterCat 02 sensor disconnection, Cyl #4-6
 D9 CAN timeout (EGS1)
 DB CAN bus offline
 DC AfterCat 02 sensor slow response time, Cyl #1-3
 DD AfterCat 02 sensor slow response time, Cyl #4-6
 DE Coolant temp too low for closed loop operation
 DF AfterCat 02 sensor slow switching time, Cyl #1-3
 E0 AfterCat 02 sensor slow switching time, Cyl #4-6
 E1 AfterCat 02 sensor trim control, Cyl #1-3
 E2 AfterCat 02 sensor trim control, Cyl #4-6
 E3 02 sensor adaption limit, Cyl #1-3
 E4 02 sensor adaption limit, Cyl #4-6
 E5 PreCat 02 sensor slow response time, Cyl #1-3
 E6 PreCat 02 sensor slow response time, Cyl #4-6
 E7 PreCat 02 sensor slow switching Time, Cyl #1-3
 E8 PreCat 02 sensor slow switching Time, Cyl #4-6
 E9 Catalyst efficiency below threshold, Cyl #1-3
 EA Catalyst efficiency below threshold, Cyl #4-6

EB PreCat 02 sensor trim control, Cyl #1-3
 EC PreCat 02 sensor trim control, Cyl #4-6
 EE Misfire, Cyl #1
 EF Misfire, Cyl #2
 F0 Misfire, Cyl #3
 F1 Misfire, Cyl #4
 F2 Misfire, Cyl #5
 F3 Misfire, Cyl #6
 F4 Flywheel adaption, segment timing faulty
 F5 Secondary air system flow too low, Cyl #1-3
 F6 Secondary air system flow too low, Cyl #4-6
 F7 Secondary air system valve stuck open
 F8 AfterCat 02 sensor, signal after decel not plausible, Cyl #1-3
 F9 AfterCat 02 sensor, signal after decel not plausible, Cyl #4-6
 FA Functional check purge valve

Table 16 (see table 11)

Table 18

01 Fuel pump relay
 02 Idle speed actuator (close)
 03 Fuel Injector, Cyl #1
 04 Fuel Injector, Cyl #3
 05 Fuel Injector, Cyl #2
 06 Timeout SMG-CAN
 07 Intake camshaft position sensor, Cyl #1-4
 08 Intake camshaft position sensor, Cyl #5-8
 09 Knock sensor, Cyl #1-2
 0A Exhaust camshaft position sensor, Cyl #1-4
 0B Exhaust camshaft position sensor, Cyl #5-8
 0C PreCat 02 sensor, Cyl #5-8
 0D PreCat 02 sensor, Cyl #1-4
 0E Tank small leak
 0F Crankshaft/Camshaft position correlation, Cyl #1-4
 10 Crankshaft sensor
 12 Map controlled thermostat actuator
 13 Secondary air pump relay
 14 Starter relay
 15 Exhaust camshaft VANOS retard valve, Cyl #1-4
 16 Exhaust camshaft VANOS advance valve, Cyl #1-4
 17 Ignition Coil, Cyl #2
 18 Ignition Coil, Cyl #3
 19 Ignition Coil, Cyl #1
 1A Ignition Coil, Cyl #8
 1B DM-TL switching valve
 1C Map controlled thermostat control
 1D Idle speed actuator (open)
 1E Control unit self-test, A/D converter monitoring
 1F Fuel Injector, Cyl #5
 20 Fuel Injector, Cyl #6
 21 Fuel Injector, Cyl #4
 22 Fuel Injector, Cyl #7
 23 Fuel Injector, Cyl #8
 24 Evaporative emission purge control valve
 25 PreCat 02 sensor heater control, Cyl #1-4
 26 PreCat 02 sensor heater control, Cyl #5-8
 27 AfterCat 02 sensor heater control, Cyl #1-4
 28 AfterCat 02 sensor heater control, Cyl #5-8
 29 Air mass sensor, Cyl #1-4
 2A Vehicle speed input signal, hardwired A

signal
 2B Radiator outlet temperature sensor
 2C Thermal oil level sensor
 2D Drive-by-wire throttle actuator driver
 2E Fuel consumption (KVA) signal output
 2F Engine RPM (TD) signal output
 30 A/C Compressor relay
 32 Ignition Coil, Cyl #4
 33 Ignition Coil, Cyl #6
 34 Ignition Coil, Cyl #5
 35 Electronic fan (relay)
 36 Battery voltage behind main relay
 37 Ignition Coil, Cyl #7
 39 Air mass sensor, Cyl #5-8
 3A Sensor voltage supply 1
 3B Sensor voltage supply 2
 3C Pedal position sensor 1, master measurement
 3D Pedal position sensor 2, master measurement
 3F Secondary air switching valve
 41 Throttle position sensor 2, slave measurement
 42 EWS interface
 43 Intake camshaft VANOS advance valve, Cyl #1-4
 45 Knock sensor, Cyl #5-6
 46 Knock sensor, Cyl #3-4
 47 Knock sensor, Cyl #7-8
 48 Intake camshaft VANOS retard valve, Cyl #1-4
 49 Air mass sensor, plausibility
 4A Intake camshaft VANOS advance valve, Cyl #5-8
 4B Intake camshaft VANOS retard valve, Cyl #5-8
 4C Ambient pressure sensor
 4D Intake air temperature sensor
 4E Coolant temperature sensor
 4F Exhaust gas temperature sensor
 50 Switch-chain grip
 51 MFL interface signal
 52 Muffler flap
 53 Exhaust camshaft VANOS advance valve, Cyl #5-8
 54 Exhaust camshaft VANOS retard valve, Cyl #5-8
 55 Throttle position sensor, master measurement
 56 CAN bus offline
 57 AfterCat 02 sensor voltage, Cyl #1-4
 58 AfterCat 02 sensor voltage, Cyl #5-8
 59 Control unit self-test, Safety Concept slave check
 5A PreCat 02 sensor aging, Cyl #1-4
 5B PreCat 02 sensor aging, Cyl #5-8
 5C AfterCat 02 sensor aging, Cyl #1-4
 5D AfterCat 02 sensor aging, Cyl #5-8
 63 Control unit self-test, Safety Concept master check
 64 Tire pressure left front
 65 Tire pressure right front
 66 Tire pressure right back
 67 Tire pressure left back
 69 Engine coolant temperature, Plausibility
 6A Brake light switch
 6B Control unit self-test, pre-drive check of drive-by-wire system
 6C Switching valve oil circuit left

6D Switching valve oil circuit right
 6E Sport switch LED indicator
 6F Pedal position sensor 1, cross check
 70 Pedal position sensor 2, cross check
 71 Intake camshaft VANOS position control, Cyl #5-8
 72 Exhaust camshaft VANOS position control, Cyl #5-8
 73 Control unit self-test, internal ECU temperature
 74 Servotronic valve current
 75 Servotronic speed signal
 76 Throttle position sensor 1
 77 Throttle position sensor 2
 78 Throttle position sensors, cross check
 79 Throttle position sensors, both bad
 7A Control unit self-test, master processor
 7B Bus offline, SMG-CAN
 7C Active engine bearing
 7D Spoiler adjustment
 7E Fuel pump crash shut-off
 7F DM-TL module
 80 Idle speed deviation
 82 EWS signal, manipulation detected
 83 DSC intervention, plausibility
 84 DSC message timeout
 85 Steering angle sensor message timeout
 86 Instrument Cluster message timeout
 87 Vehicle speed signals (both Discrete & CAN)
 88 Idle speed controller
 89 Jet stream pump
 8A Differential lock
 8B Cruise control system
 8C Engine noise too high
 8D Fuel level, plausibility
 8F E-box-fan
 90 Fuel control, Cyl #1-4
 91 Fuel control, Cyl #5-8
 95 Misfire w/ empty fuel tank
 96 Control unit self-test, memory test master
 97 Control unit self-test, driver diagnostics chain
 98 Control unit self-test, communication master
 9B Control unit self-test, adaption EEPROM master
 9C Control unit self-test, adaption EEPROM slave
 9D Control unit self-test, memory test slave
 9E Control unit self-test, communication slave
 9F Control unit self-test, knock detection IC 1
 A0 Control unit self-test, knock detection IC 2
 A1 Knock control
 A2 Crankshaft/Camshaft position correlation, Cyl #5-8
 A3 Control unit self-test, master resets
 AA Secondary air system, flow too low
 AB Secondary air system, valve sticking
 AC VANOS pressure storage valve
 AD Starter switch input
 AE Air-fuel adaptation, Cyl #1-4
 AF Air-fuel adaptation, Cyl #5-8
 B0 Air-fuel adaptation at idle, Cyl #1-4
 B1 Air-fuel adaptation at idle, Cyl #5-8
 B2 Catalyst system efficiency, Cyl #1-4
 B3 Catalyst system efficiency, Cyl #5-8
 B4 Tank leak detected
 B5 Filler cap open
 B6 Injection driver 1, over temp.
 B7 Injection driver 2, over temp.
 B8 Intake camshaft VANOS position control, Cyl

#1-4	08 Air mass sensor	63 Secondary air system, valve jammed open	D7 AfterCat 02 sensor disconnection, Cyl #1-3	1B DM-TL switching valve	6E Sport switch LED indicator
B9 Exhaust camshaft VANOS position control, Cyl #1-4	0A Engine coolant temperature	64 Memory self-test, control module defective	D8 AfterCat 02 sensor disconnection, Cyl #4-6	1C Map controlled thermostat control	6F Pedal position sensor 1, cross check
BA Ignition output stage, Cyl #1	0B Engine coolant temperature, radiator outlet	67 Intake camshaft VANOS, over-advanced or system perf.	D9 CAN timeout (EGS1)	1D Idle speed actuator (open)	70 Pedal position sensor 2, cross check
BB Ignition output stage, Cyl #2	0C Engine coolant temperature, Plausibility	68 Exhaust camshaft VANOS, over-advanced or system perf.	DB CAN bus offline	1E Control unit self-test, A/D converter monitoring	73 Control unit self-test, internal ECU temperature
BC Ignition output stage, Cyl #3	0E Intake air temperature	69 Intake camshaft VANOS, over-retarded	DC AfterCat 02 sensor slow resp time, Cyl #1-3	1F Fuel Injector, Cyl #5	76 Throttle position sensor 1
BD Ignition output stage, Cyl #4	12 Exhaust camshaft position sensor	6A Exhaust camshaft VANOS, over-retarded	DD AfterCat 02 sensor slow resp time, Cyl #4-6	20 Fuel Injector, Cyl #6	77 Throttle position sensor 2
BE Ignition output stage, Cyl #5	13 Exhaust camshaft solenoid valve	6B Throttle valve control circuit	DE Coolant temp too low for closed loop operation	21 Fuel Injector, Cyl #4	78 Throttle position sensors, cross check
BF Ignition output stage, Cyl #6	15 Intake camshaft solenoid valve	6E Pedal position sensor 1	DF AfterCat 02 sensor slow switching time, Cyl #1-3	24 Evaporative emission purge control valve	79 Throttle position sensors, both bad
C0 Ignition output stage, Cyl #7	16 Fuel Injector, Cyl #3	6F Pedal position sensor 2	E0 AfterCat 02 sensor slow switching time, Cyl #4-6	25 PreCat 02 sensor heater control, Cyl #1-3	7A Control unit self-test, master processor
C1 Ignition output stage, Cyl #8	17 Fuel Injector, Cyl #6	70 Throttle position sensor 1	E1 AfterCat fuel trim system, Cyl #1-3	26 PreCat 02 sensor heater control, Cyl #4-6	7B Bus offline, SMG-CAN
C2 Control unit self-test, cruise control shut-off	18 Fuel Injector, Cyl #4	71 Throttle position sensor 2	E2 AfterCat fuel trim system, Cyl #4-6	27 AfterCat 02 sensor heater control, Cyl #1-3	7E Fuel pump crash shut-off
C3 Control unit self-test, torque manager monitoring	19 PreCat 02 sensor heater insufficient, Cyl #1-3	72 Pedal position sensor, plausibility	E3 02 sensor adaptation limit, Cyl #1-3	28 AfterCat 02 sensor heater control, Cyl #4-6	7F DM-TL module
C4 Misfire, Cyl #1	1B Idle speed actuator (close)	73 Throttle position sensor, adaptation	E4 02 sensor adaptation limit, Cyl #4-6	29 Air mass sensor	80 Idle speed deviation
C5 Misfire, Cyl #2	1D Ignition Coil, Cyl #1	75 Pedal position sensor, range/performance	E5 PreCat 02 sensor slow resp time, Cyl #1-3	2A Vehicle speed signal	81 Low fuel catalyst protection
C6 Misfire, Cyl #3	1E Ignition Coil, Cyl #3	76 Throttle position sensor 1, plausibility, range, or performance	E6 PreCat 02 sensor slow resp time, Cyl #4-6	2B Radiator outlet temperature sensor	82 EWS signal, manipulation detected
C7 Misfire, Cyl #4	1F Ignition Coil, Cyl #5	77 Throttle position sensor 2, plausibility, range, or performance	E7 PreCat 02 sensor slow switching Time, Cyl #1-3	2C Thermal oil level sensor	83 DSC intervention, plausibility
C8 Misfire, Cyl #5	21 Fuel Injector, Cyl #5	78 Brake and Pedal positions not plausible	E8 PreCat 02 sensor slow switching Time, Cyl #4-6	2D Drive-by-wire throttle actuator driver	84 DSC message timeout
C9 Misfire, Cyl #6	23 Secondary air pump relay	7A Oil temperature sensor	E9 Catalyst efficiency below threshold, Cyl #1-3	2E Fuel consumption (KVA) signal output	85 LWS message timeout
CA Misfire, Cyl #7	24 Main relay	7B Map controlled thermostat	EA Catalyst efficiency below threshold, Cyl #4-6	2F Engine RPM (TD) signal output	86 Instrument Cluster message timeout
CB Misfire, Cyl #8	25 Main relay switching delay	7C DISA control	EB PreCat fuel trim system, Cyl #1-3	30 A/C Compressor relay	87 Vehicle speed signal
CC Misfire, multiple cylinders	26 Clutch switch	7D E-fan	EC PreCat fuel trim system, Cyl #4-6	32 Ignition Coil, Cyl #4	88 Idle speed controller
CD Misfire during warm-up, Cyl #1	27 BLS/BTS plausibility	7E DM-TL Switching solenoid	EE Misfire, Cyl #1	33 Ignition Coil, Cyl #6	8B Cruise control system
CE Misfire during warm-up, Cyl #2	2A MFL signal redundancy	80 EWS signal	EF Misfire, Cyl #2	34 Ignition Coil, Cyl #5	8C Engine noise too high
CF Misfire during warm-up, Cyl #3	2B MFL seesaw key	81 Timeout, SSG	F0 Misfire, Cyl #3	35 Electronic fan (relay)	8D Fuel level, plausibility
CG Misfire during warm-up, Cyl #4	2D MFL bit toggle	82 Timeout, CAN - ASC1	F1 Misfire, Cyl #4	36 Battery voltage behind main relay	8F E-box-fan
D0 Misfire during warm-up, Cyl #5	2F Torque limitation, safety level 1	83 Timeout, CAN - INSTR2	F2 Misfire, Cyl #5	3A Sensor voltage supply 1	90 Fuel control, Cyl #1-3
D1 Misfire during warm-up, Cyl #6	30 Control module self-test, control module defective	84 Timeout, CAN - INSTR3	F3 Misfire, Cyl #6	3B Sensor voltage supply 2	91 Fuel control, Cyl #4-6
D2 Misfire during warm-up, Cyl #7	31 Control module self-test, torque monitoring	85 SSG intervention, plausibility	F4 Flywheel adaption, segment timing faulty	3C Pedal position sensor 1, master measurement	95 Misfire w/ empty fuel tank
D3 Misfire during warm-up, Cyl #8	32 Control module self-test, speed monitoring	86 DM-TL pump control circuit	F5 Secondary air system flow too low, Cyl #1-3	3D Pedal position sensor 2, master measurement	96 Control unit self-test, memory test master
D4 Misfire during warm-up, multiple cylinders	33 Control module self-test, speed monitoring	8E DM-TL pump current	F6 Secondary air system flow too low, Cyl #4-6	3F Secondary air switching valve	97 Control unit self-test, driver diagnostics chain
D5 PreCat 02 sensor slow response, Cyl #1-4	34 Exhaust flap	8F DM-TL leak detected	F7 Secondary air system valve stuck open	41 Throttle position sensor 2, slave measurement	98 Control unit self-test, communication master
D6 PreCat 02 sensor slow response, Cyl #5-8	35 Idle speed actuator (open)	92 Pedal position sensor 1, supply voltage	F8 AfterCat 02 sensor, signal after decel not plausible, Cyl #1-3	42 EWS interface	9A Crankcase venting
D7 PreCat 02 sensor slow switching (rich to lean), Cyl #1-4	37 PreCat 02 sensor heater insufficient, Cyl #4-6	93 Pedal position sensor 2, supply voltage	F9 AfterCat 02 sensor, signal after decel not plausible, Cyl #4-6	43 Intake camshaft VANOS advance valve	9B Control unit self-test, adaption EEPROM master
D9 PreCat 02 sensor slow switching (rich to lean), Cyl #5-8	38 Ignition feedback - shunt resistor	95 Air mass sensor, range/performance	FA Functional check purge valve	44 SMG Safety concept	9C Control unit self-test, adaption EEPROM slave
DA PreCat 02 sensor signal size/amplitude, Cyl #1-4	39 Knock Sensor, Cyl #1-3	96 AfterCat 02 sensor voltage, Cyl #1-3		45 Knock sensor, Cyl #5-6	9D Control unit self-test, memory test slave
DB PreCat 02 sensor signal size/amplitude, Cyl #5-8	3A Control module self-test, control module defective	97 PreCat 02 sensor voltage, Cyl #4-6		46 Knock sensor, Cyl #3-4	9E Control unit self-test, communication slave
E4 Drive-by-wire, throttle control failure	3B Knock Sensor, Cyl #4-6	98 AfterCat 02 sensor voltage, Cyl #1-3		47 Intake camshaft VANOS retard valve	9F Control unit self-test, knock detection IC 1
E5 Drive-by-wire, throttle control failure	3D AfterCat 02 sensor heater insufficient, Cyl #4-6	99 AfterCat 02 sensor voltage, Cyl #4-6		48 Ambient pressure sensor	A0 Control unit self-test, knock detection IC 2
E6 Drive-by-wire, throttle position failure	3E Secondary air system, switching valve circuit	A0 Throttle valve position controller, stuck temporarily		49 Air mass sensor, plausibility	A1 Knock control
E7 Control unit self-test, slave processor check	3F Control module self-test, control module defective	A1 Throttle valve position controller, stuck permanently		4C Intake air temperature sensor	A3 Control unit self-test, master resets
E8 Evaporative emissions purge valve functional check	41 Intake camshaft position sensor	A2 Throttle valve position controller, control deviation		4E Coolant temperature sensor	AA Secondary air system, flow too low
F7 VANOS pressure accumulator valve	42 Control module self-test, control module defective	A8 Coolant thermostat jammed open		4F Exhaust gas temperature sensor	AB Secondary air system, valve sticking
F8 Intake camshaft VANOS moving time, Cyl #1-4	43 Control module self-test, control module defective	BA 02 sensor heating during regulation, Cyl #1-3		50 Switch-chain grip	AC VANOS pressure storage valve
F9 Exhaust camshaft VANOS moving time, Cyl #1-4	44 Evaporative emission system, purge control valve	BB 02 sensor heating during regulation, Cyl #4-6		51 MFL interface signal	AD Starter switch input
FA Intake camshaft VANOS sealing, Cyl #1-4	45 Fuel pump relay	BC PreCat 02 sensor heater circuit, Cyl #1-3		52 Muffler flap	AE Mixture adaptation, Cyl #1-3
FB Exhaust camshaft VANOS sealing, Cyl #1-4	46 Control module self-test, control module defective	BD PreCat 02 sensor heater circuit, Cyl #4-6		55 Throttle position sensor, master measurement	AF Mixture adaptation, Cyl #4-6
FC Intake camshaft VANOS moving time, Cyl #5-8	47 Control module self-test, control module defective	BE AfterCat 02 sensor heater circuit, Cyl #1-3		56 CAN bus offline	B0 DM-TL error
FD Exhaust camshaft VANOS moving time, Cyl #5-8	48 Control module self-test, control module defective	BF AfterCat 02 sensor heater circuit, Cyl #4-6		57 AfterCat 02 sensor voltage, Cyl #1-3	B2 Catalyst system efficiency, Cyl #1-3
FE Intake camshaft VANOS sealing, Cyl #5-8	4A A/C compressor relay	C4 Pressure sensor circuit		58 AfterCat 02 sensor voltage, Cyl #4-6	B3 Catalyst system efficiency, Cyl #4-6
FF Exhaust camshaft VANOS sealing, Cyl #5-8	4F AfterCat 02 sensor heater insufficient, Cyl #1-3	C5 Pressure sensor circuit		59 Control unit self-test, Safety Concept slave check	B4 Tank leak detected
	53 Crankshaft Sensor	C6 Catalytic converter efficiency, Cyl #1-3		5A PreCat 02 sensor aging, Cyl #1-3	B6 Injection driver 1, over temp.
	5E Secondary air system, air mass	C7 Catalytic converter efficiency, Cyl #4-6		5B PreCat 02 sensor aging, Cyl #4-6	B7 Injection driver 2, over temp.
	5F Secondary air system, tube blocked	CA 02 sensor control limit, Cyl #1-3		5C AfterCat 02 sensor aging, Cyl #1-3	B8 Intake camshaft VANOS position control
	60 Secondary air system, pump not active	CB 02 sensor control limit, Cyl #4-6		5D AfterCat 02 sensor aging, Cyl #4-6	B9 Exhaust camshaft VANOS position control
	61 Secondary air system, flow too low	CC Idle control system, idle speed not plausible		5E Radiator outlet temp plausibility	BA Ignition output stage, Cyl #1
	62 Secondary air system, flow too high	D1 EWS message		60 Control unit self-test, Safety Concept master check	BB Ignition output stage, Cyl #2
		D2 Ignition feedback faulty (>2 cylinders)		61 Control unit self-test, Safety Concept master check	BC Ignition output stage, Cyl #3
		D3 Idle control valve mechanically stuck		62 Control unit self-test, Safety Concept master check	BD Ignition output stage, Cyl #4
		D6 Vehicle speed signal not present		69 Engine coolant temperature, Plausibility	BE Ignition output stage, Cyl #5
				6A Brake light switch	BF Ignition output stage, Cyl #6
				6B Control unit self-test, pre-drive check of drive-by-wire system	C2 Control unit self-test, cruise control shut-off
				6C Switching valve oil circuit left	C3 Control unit self-test, torque manager monitoring
				6D Switching valve oil circuit right	C4 Misfire w/ fuel cutoff, Cyl #1
					C5 Misfire w/ fuel cutoff, Cyl #2

Table 19

01 Ignition Coil, Cyl #2
02 Ignition Coil, Cyl #4
03 Ignition Coil, Cyl #6
05 Fuel Injector, Cyl #2
06 Fuel Injector, Cyl #1

Table 1b

01 Fuel pump relay
02 Idle speed actuator (close)
03 Fuel Injector, Cyl #1
04 Fuel Injector, Cyl #3
05 Fuel Injector, Cyl #2
06 Timeout SMG-CAN
07 Intake camshaft position sensor
09 Knock sensor, Cyl #1-2
0A Exhaust camshaft position sensor
0C PreCat 02 sensor, Cyl #4-6
0D PreCat 02 sensor, Cyl #1-3
0E Tank small leak
0F Crankshaft/Camshaft position correlation
10 Crankshaft sensor
11 SMG shifting
12 Map controlled thermostat actuator
13 Secondary air pump relay
14 Starter relay
15 Exhaust camshaft VANOS retard valve, Cyl #1-4
16 Exhaust camshaft VANOS advance valve, Cyl #1-4
17 Ignition Coil, Cyl #2
18 Ignition Coil, Cyl #3
19 Ignition Coil, Cyl #1

C6 Misfire w/ fuel cutoff, Cyl #3	2743 misfire Cyl. 5	27C2 AC-compressor controller	283F Oil pressure switch: signal implausible	28F2 02 sensor trim control, Bank 1	29A1 AfterCat 02 sensor signal, Bank 1
C7 Misfire w/ fuel cutoff, Cyl #4	2744 misfire Cyl. 3	27C3 Thermal oil level sensor	2869 DME self diagnostics: RAM-check failed	28F3 02 sensor trim control, Bank 2	29A2 PreCat 02 sensor signal, Bank 2
C8 Misfire w/ fuel cutoff, Cyl #5	2745 misfire Cyl. 6	27C4 main relay	286A DME self diagnostics: knock sensor module	28F4 PreCat 02 sensor cold test, Bank 1	29A3 PreCat 02 sensor signal, Bank 2
C9 Misfire w/ fuel cutoff, Cyl #6	2746 misfire Cyl. 2	27C5 brale-light-test-switch: signal	286B DME self diagnostics: multi output module	28F5 PreCat 02 sensor cold test, Bank 2	29A4 PreCat 02 sensor heater control, Bank 1
CC Misfire, multiple cylinders w/ fuel cutoff	2747 misfire Cyl. 4	27C7 Main relay: switching delay	2882 mixture preparation bank1	28F6 AfterCat 02 sensor cold test, Bank 1	29A5 PreCat 02 sensor heater control, Bank 2
CD Misfire during warm-up, Cyl #1	274E misfire on several cylinders	27CC DMTL pump: controlled	2883 mixture preparation bank2	28F7 AfterCat 02 sensor cold test, Bank 2	29A6 PreCat 02 sensor signal, Bank 1
CE Misfire during warm-up, Cyl #2	2750 Electronic throttle controller: momentarily sticking	27CA DMTL: leakage	2892 misfire with low tank volume	28F9 roughness: segment time measurement	29A7 PreCat 02 sensor signal, Bank 1
CF Misfire during warm-up, Cyl #3	2751 Electronic throttle controller: permanently sticking	27CD DMTL: module failure	2893 internal ECU temperature	28FA torque in shift phase	29A8 telegram monitoring failure: network failure power management
D0 Misfire during warm-up, Cyl #4	2752 Electronic throttle controller: hard movement	27CF Ignition cyl. 1	2894 irreversible ecu error	28FB Active Cruise Control (ACC)	29A9 telegram monitoring failure: battery Powermanagement
D1 Misfire during warm-up, Cyl #5		27D0 Ignition cyl. 5	2895 crank shaft sensor: signal	28FF DME-selftest	
D2 Misfire during warm-up, Cyl #6		27D1 Ignition cyl. 3	2896 camshaft sensor: input-signal	2900 DME-selftest	
D5 Misfire during warm-up, multiple cylinders		27D2 Ignition cyl. 6	2897 camshaft sensor: output-signal	293C telegram monitoring: torque requirement	29AB torque request with CAN
D6 PreCat 02 sensor slow response, Cyl #1-3	2753 Ignition coil cyl. 1	27D3 Ignition cyl. 2	2898 AfterCat 02 sensor signal, Bank 1	2947 telegram monitoring: torque request ACC	29AE Tank flap
D7 PreCat 02 sensor slow response, Cyl #4-6	2754 Ignition coil cyl. 5	27D4 Ignition cyl. 4	2899 AfterCat 02 sensor signal, Bank 2	2948 telegram monitoring: ARS	29AF telegram and signal monitoring KL.15
D8 PreCat 02 sensor slow switching (rich to lean), Cyl #1-3	2755 Ignition coil cyl. 3	27D6 Idle controller: position closed	289A PreCat 02 sensor heater function, Bank 1	2949 telegram monitoring: CAS	29B5 Secondary air system
D9 PreCat 02 sensor slow switching (rich to lean), Cyl #4-6	2756 Ignition coil cyl. 6	27D7 Idle controller: position open	289B PreCat 02 sensor heater function, Bank 2	294A telegram monitoring: torque request SMG	29B6 Cyl. switch off
DA PreCat 02 sensor signal size/amplitude, Cyl #1-3	2757 Ignition coil cyl. 2	27D9 DMTL heater: controlled	289C AfterCat 02 sensor heater function, Bank 1	294B telegram monitoring: speed DSC	29CC Misfire, several Cyls
DB PreCat 02 sensor signal size/amplitude, Cyl #4-6	2758 Ignition coil cyl. 4	27DA BSD-generator	289D AfterCat 02 sensor heater function, Bank 2	294C telegram monitoring: status DSC	29CD Misfire, Cyl. 1
DD System check, crankcase venting	2760 Secondary air system	27DB accelerator pedal and brake pedal: signal implausible		294D telegram monitoring: torque request EGS	29CE Misfire, Cyl. 2
DE CAN timeout, ZSG	2761 Secondary air system	27DC EWS 3.3 exchange code storing	289E PreCat 02 sensor, Bank 1	294E telegram monitoring: transmission data EGS/SMG	29CF Misfire, Cyl. 3
E0 Load signal plausibility	2762 Secondary air valve	27DD temperature sensor engine coolant: gradient	289F PreCat 02 sensor, Bank 2		29D0 Misfire, Cyl. 4
E1 Ambient temperature	2764 Relay sec.air pump: controller	27DE temperature sensor engine coolant: signal			29D1 Misfire, Cyl. 5
E2 Instrument cluster, relative time	2765 solenoid valve secondary air: activation	27DF temperature sensor engine coolant: constant signal	28A1 driving speed regulation		29D2 Misfire, Cyl. 6
E4 Drive-by-wire, throttle control failure	2766 Camshaft sensor inlet: phase position	27E0 crankschaft sensor: segment time measurement	28A2 air path	294F telegram monitoring: torque request SMG	29D9 Misfire in case of tank filling level too low
E5 Drive-by-wire, throttle control failure	2767 Camshaft sensor outlet: signal time	27E2 knock sensor 1	28A4 engine-speed	2950 telegram monitoring: AC	29DA crankshaft sensor, segment adaptation
E6 Drive-by-wire, throttle position failure	2768 Camshaft sensor inlet: phase position	27E3 knock sensor 2	28A5 Pedal value	2951 telegram monitoring: temp. combi	29DB engine roughness, segment time measurement
E7 Control unit self-test, slave processor check	276C Camshaft sensor outlet: phase position	27EB Telegram (EGS 2) missing from EGS-ECU	28A7 telegram monitoring: NOx-sensor 1	2952 telegram monitoring: km-count combi	
E8 Evaporative emissions purge valve functional check	276D function-check tank venting	27EC Telegram (EGS 1) missing from EGS-ECU	28A8 telegram monitoring: NOx-sensor 2	2953 telegram monitoring: status combi	29DC Cyl. injection switch-off
F7 VANOS pressure accumulator valve	2770 secondary air heated film air mass sensor	27F2 petrol tank level implausible	28AA idle speed regulator	2954 telegram monitoring: batt.voltage powermodul	29E0 fuel mixture control
F8 Intake camshaft VANOS moving time	2772 TEV: controller	27F7 Pedal input sensor 1	28AB external torque requirement: monitoring	2955 telegram monitoring: charge voltage powermodul	29E1 fuel mixture control 2
F9 Exhaust camshaft VANOS moving time	2774 engine cut off time	27F8 Pedal input sensor 2	28AC nominal torque		29E2 fuel injection rail, pressure sensor signal
FA Intake camshaft VANOS sealing	2777 DME-selftest: AD-converter	27F9 Start auto.: control	28AD actual torque		29E5 fuel mixture adaptation, upper speed range
FB Exhaust camshaft VANOS sealing	2778 clutch switch	27FB controlled air management: activation	28AE torque limit	2956 telegram monitoring: cruise control	29E6 fuel mixture adaptation 2, upper speed range
	2779 DME-selftest: RAM	2800 Telegram (I-combi 2) missing from combi-ECU	28B1 rpm limit	2957 telegram monitoring: steering angle	
	2783 heated film at air mass measuring sensor	2801 idle-speed implausible (air leakage)	28B2 rpm limiting: reset	2958 telegram monitoring: sport switch	29F1 fuel pressure, plausibility
	2786 TPS 1	2804 driving speed regulation: requirement	28B3 Throttle flap: cont. adaption	2960 PreCat 02 sensor, Bank 1	29F2 fuel high pressure system, fuel pressure
	2787 TPS 2	2805 switch driving speed regulation: signal	28B4 Sport button	2961 PreCat 02 sensor, Bank 2	29F3 fuel pressure sensor, electrical
	2788 Vehicle speed	2806 driving speed regulation: time limit data transmission reached	28B5 Soundflap: signal	2962 PreCat 02 sensor dynamics, Bank 1	29F4 Cat conversion
	278B Coolant temp sensor		28B6 Inlet-camshaft bank1: mechanical	2963 PreCat 02 sensor dynamics, Bank 2	29F5 Cat conversion 2
	278C Intake air sensor		28B8 exhaust camshaft bank1: mechanical	2964 PreCat 02 sensor ceramic temp, Bank 1	29F6 Cat conversion 2
	278D Radiator outlet temp sensor		28BA Inlet-camshaft bank1: rough-running	2965 PreCat 02 sensor ceramic temp, Bank 2	29F6 Cat conversion, complete system: below threshold
	278F generator: under uproar		28BC exhaust camshaft bank1: stiff	2966 PreCat 02 sensor signal, Bank 1	
	2790 coolant-outlet-temperature: implausible		28BD intake camshaft sensor: latching	2967 PreCat 02 sensor signal, Bank 2	29F7 Cat conversion 2, complete system: below threshold
	2794 Electronic throttle controller		28BE exhaust camshaft sensor: latching	2968 PreCat 02 sensors switched	29FF secondary air system
	2796 Electronic throttle controller: adaption wrong		28BF NOx-sensor 1	2969 AfterCat 02 sensors switched	2A00 secondary air system
	279B Mapped thermostat cooling: mechanical		28C0 NOx-sensor 2	2973 PreCat 02 sensor wires/lines, Bank 1	2A01 secondary air valve, mechanics
	279C Mapped thermostat cooling: control		28C1 PreCat 02 sensor, Bank 1	2974 PreCat 02 sensor wires/lines, Bank 2	2A02 secondary air valve, input signal
	279D engine fan: activation		28C2 PreCat 02 sensor, Bank 2	2986 PreCat 02 sensor systemcheck, Bank 1	2A03 secondary air pump relay, input signal
	279E Exhaust flap: control		28C3 PreCat 02 sensor heater function, Bank 1	2987 PreCat 02 sensor systemcheck, Bank 2	2A04 secondary air mass sensor, plausibility
	27A0 E-box fan: control		28C4 PreCat 02 sensor heater function, Bank 2	2988 PreCat 02 sensor systemcheck, Bank 1	2A07 secondary air valve, mechanics
	27A1 Electronic throttle controller: start check		28C5 AfterCat 02 sensor systemcheck, Bank 1	2989 PreCat 02 sensor systemcheck, Bank 2	2A0C exhaust fume return, systemfunction
	27A4 Interface EWS 3.3 - DME		28C6 AfterCat 02 sensor systemcheck, Bank 2	2991 NOx-sensor 2: systemcheck	2A0D exhaust fume return valve, input signal
	27A5 Throttle valve: new adaption		28CA Ozone exchange: too low	2992 NOx-sensor 1: systemcheck dynamic	2A0E exhaustfume returnvalve, deviation postioncontrolling
	27A6 Injection valve cyl. 1		28CB Ozone sensor 2	2993 NOx-sensor 2: systemcheck dynamic	
	27A7 Injection valve cyl. 5		28CC Ozone sensor 1	2994 NOx-sensor 1: heater power	2A0F exhaust fume return valve, adaptation
	27A8 Injection valve cyl. 3		28CF Fuel pump: emergency switch off	2995 NOx-sensor 2: heater power	2A10 exhaust fume return valve, signal
	27A9 Injection valve cyl. 6		28DD Fuel pump	2996 NOx-sensor 1: systemcheck plausibility	2A12 DMTL diagnosis module tank leakage, magnetic valve, input signal
	27AA Injection valve cyl. 2		28D0 Oil mass system	2997 NOx-sensor 2: OBD-II-diagnostics plausibility	2A13 DMTL diagnosis module tank leakage, leakage diagnosis pump, input signal
	27AB Injection valve cyl. 4		28E6 02 sensor analysis unit/self test, Bank 1	2998 NOx-sensor 1: systemcheck	2A15 DMTL diagnosis module tank leakage, fine leakage
	27B2 brake-light-switch: signal		28E7 02 sensor analysis unit/self test, Bank 2	2999 NOx-sensor 2: systemcheck	
	27B4 Ambient-pressure sensor		28E8 02 sensor trim control, Bank 1	299A error management EGS	2A16 DMTL diagnosis module tank leakage, finest leakage
	27B5 Camshaft control inlet bank1: controller		28E9 02 sensor trim control, Bank 2	299B battery sensor: signal	2A17 DMTL diagnosis module tank leakage, system failure
	27B7 Gas pump relay: control		28EA AfterCat 02 sensor signal, Bank 1	299C battery sensor: Function	
	27B9 PreCat 02 sensor voltage increase, Bank 1		28EB AfterCat 02 sensor signal, Bank 2	299D battery sensor: data transmission	2A18 DMTL diagnosis module tank leakage, heating: input signal
	27BA PreCat 02 sensor voltage increase, Bank 2		28EC AfterCat 02 sensor (after full load) Bank 1	299E AfterCat 02 sensor signal, Bank 1	
	27BD Camshaft control outlet bank1: controller		28ED AfterCat 02 sensor (after full load) Bank 2	299F AfterCat 02 sensor signal, Bank 1	
			28F0 AfterCat 02 sensor systemcheck, Bank 1	29A0 AfterCat 02 sensor signal, Bank 1	
			28F1 AfterCat 02 sensor systemcheck, Bank 2		

Table 20

2712 DMTL magnetic valve
2715 PreCat 02 sensor heater control, Bank 2
2716 AfterCat 02 sensor heater control, Bank 1
2717 AfterCat 02 sensor heater control, Bank 2
2718 Camshaft generator: positioning
2719 crank shaft sensor: cycle duration
271A PreCat 02 sensor signal, Bank 1
271C AfterCat 02 sensor signal, Bank 1
271D PreCat 02 sensor heater control, Bank 1
271F 02 sensor aging bank 1: period duration
2720 02 sensor aging bank 1: switching time
2721 AfterCat 02 sensor aging, Bank 1
2722 PreCat 02 sensor signal, Bank 2
2724 AfterCat 02 sensor signal, Bank 2
2725 02 sensor aging bank 2: period duration
2726 02 sensor aging bank 2: switching time
2727 AfterCat 02 sensor aging, Bank 2
2734 TPS 1: signal not plausible against MAF
2735 TPS 2: signal not plausible against MAF
2737 EWS 3.3 manipulation protection
2738 Catalyst bank 1
273B Catalyst bank 1 via NOx-sensor
273C Catalyst bank 2 via NOx-sensor
273D Catalyst bank 2
2740 Pedal 1: voltage supply
2741 Pedal 2: voltage supply
2742 misfire Cyl. 1

2A19	tank ventilation valve, input signal	2A97	crankshaft sensor, gap failure	2C39	PreCat 02 sensor dynamics, Bank 1	2D0B	throttle valve heater, Relay	cycle	2E85	electrical coolant pump, communication	
2A1A	tank ventilation system, function	2A98	crank shaft - intake camshaft, correlation	2C3A	PreCat 02 sensor dynamics, Bank 2	2D0C	throttle valve, defrosting	2DC0	longitudinal dynamics management	2E8B	intelligent battery sensor, signal
2A1B	tank lid	2A99	crank shaft - exhaust camshaft, correlation	2C3B	PreCat 02 sensor disconnected, Bank 1	2D0E	air mass meter, electrical	2DC3	control Klemme 15	2E8C	intelligent battery sensor, function
2A1C	tank filling level, plausibility	2A9A	camshaft sensor intake, signal	2C3C	PreCat 02 sensor disconnected, Bank 2	2D0F	air mass meter, signal	2DC5	torque requirement over CAN, plausibility	2E8D	intelligent battery sensor, signal transmission
2A26	Cat conversion during shift operation	2A9B	camshaft sensor exhaust, signal	2C3D	PreCat 02 sensor lines/wires, Bank 1	2D15	air mass sensor, metering range	2DC6	fuel tank level, plausibility	2E8E	intelligent battery sensor, communication
2A27	Cat 2, conversion during shift operation	2A9C	crank shaft sensor, electric	2C3E	PreCat 02 sensor lines/wires, Bank 2	2D16	air mass meter, signal	2DC8	message of electronic gear control? missing, electronic gear control? 1	2E96	generator, under excitation
2A29	Fuel low pressure sensor, Signal	2A9E	camshaft sensor intake, synchronization	2C3F	DME, internal error: lambda probe (Bank 1) analysing chip	2D18	manipulation protection, max air mass	2DC9	message of electronic gear control? missing, electronic gear control? 2	2E97	Generator
2A2B	fuel mixture control	2A9F	camshaft sensor exhaust, synchronization	2C40	DME, internal error: lambda probe (Bank 2) analysing chip	2D1B	accelerator pedal module, pedal sensor signal 1	2DCC	message of ASC/DSC anti slip control/dynamic stability control missing, ASCanti slip control 1	2E98	generator, communication
2A2C	fuel mixture control 2	2AA0	camshaft sensor intake, signal	2C41	DME, internal error: lambda probe Bank 1	2D1C	accelerator pedal module, pedal sensor signal 2	2DCD	message of ASC/DSC anti slip control/dynamic stability control missing, ASCanti slip control 2	2E9F	oil condition sensor
2A2D	fuel low pressure system, fuel pressure	2AA1	camshaft sensor exhaust, signal	2C42	DME, internal error: lambda probe Bank 2	2D1D	accelerator pedal module, pedal sensor 1, voltage supply	2DCE	message of ASC/DSC anti slip control/dynamic stability control missing, ASC 4	2EA1	oil condition sensor, communication
2A2E	mixture control	2AA2	camshaft sensor intake, gap loss	2C6A	AfterCat 02 sensors switched	2D1E	accelerator pedal module, pedal sensor 2, voltage supply	2DD0	message of instrument cluster missing, I-Kombi 2	2EAE	message of nitrogen oxide sensor 1 missing
2A2F	mixture control 2	2AA3	camshaft sensor exhaust, loss	2C6B	AfterCat 02 sensor systemcheck, Bank 1	2D1F	accelerator pedal module, pedal sensor potentiometer, signal	2DD1	message of instrument cluster missing, I-Kombi 3	2EAF	message of nitrogen oxide sensor 2 missing
2A30	Valvetronic, eccentric shaft sensor: power supply	2AA4	camshaft sensor intake, tooth failure	2C6C	AfterCat 02 sensor systemcheck, Bank 2	2D20	accelerator pedal module, pedal sensor, plausibility between signal 1 and signal 2	2DD2	message of LWS steering angle sensor control unit missing, LWS	2EC2	LIN-Bus, communication
2A31	Valvetronic, eccentric shaft sensor: guidance	2AA5	camshaft sensor exhaust, tooth failure	2C6D	AfterCat 02 sensor aging, Bank 1	2D28	differential pressure sensor, suction pipe: Signal	2DD3	message of SMG-control unit missing, SMG 1	2ECB	Generator, emission worsening
2A32	Valvetronic, eccentric shaft sensor: reference	2AA8	variable suction unit adjustment motor: input signal	2C6E	AfterCat 02 sensor aging, Bank 2	2D29	differential pressure sensor, suction pipe: plausibility	2DD5	message from EKP missing	2ECC	generator, communication
2A33	Valvetronic, eccentric shaft sensor: guidance	2AA9	variable suction unit adjustment motor 2: input signal	2C6F	AfterCat 02 sensor signal at full load, Bank 1	2D2A	differential pressure sensor, suction pipe: adaptation	2DE0	message of electrical fuel pump missing, EKP	2ECD	Generator, electric
2A34	Valvetronic, eccentric shaft sensor: reference	2AAA	variable suction unit, plausibility	2C70	AfterCat 02 sensor signal at full load, Bank 2	2D2B	pressure sensor of the intake pipe, re-running	2DE1	fuel level sensor, right: Signal	2ECE	Generator, Plausibility: electrical
2A35	Valvetronic, eccentric shaft sensor: guidance	2AAB	variable suction unit, self diagnosis	2C73	AfterCat 02 sensor signal, Bank 1	2D2E	angle of throttle valve - intake pipe underpressure, correlation	2DE2	fuel level sensor, left: Signal	2ECF	Generator, overtemperature
2A36	Valvetronic, eccentric shaft sensor: reference	2AAC	variable suction unit 2, self diagnosis	2C74	AfterCat 02 sensor signal, Bank 2	2D33	Absolute pressure sensor, intake pipe: Signal	2DE3	message instrument panel missing, I-Kombi 7	2ED0	Generator, plausibility: temperature
2A37	Valvetronic, eccentric shaft sensor: plausibility	2AAD	fuel pump, emergency off	2C75	AfterCat 02 sensor signal, Bank 1	2D35	Absolute pressure sensor, intake pipe: adaption	2DEB	power management, vehicle wiring system control	2ED1	Generator, mechanical
2A38	Valvetronic, actuator: sluggish or open circuit	2AAE	Fuel pump	2C76	AfterCat 02 sensor signal, Bank 2	2D50	DME digital motor electronics, internal failure: driving speed contro	2DEC	power management, battery control	2ED2	Generator, controller false
2A39	Valvetronic, adjustable range	2AAF	fuel pump, plausibility	2C77	AfterCat 02 sensor signal, Bank 1	2D51	Air path control	2DED	power management, standby current control	2ED3	Generator, type false
2A3A	Valvetronic, internal error	2AAB	DME, internal error: RAM	2C78	AfterCat 02 sensor signal, Bank 2	2D52	DME digital motor electronics, internal failure: control motor speed	2E18	ignition, Cyl. 1	2EE0	coolant temperature sensor, Signal
2A3B	Valvetronic, servo motor: rotation direction	2AAB	DME, internal error: RAM-checksum	2C79	AfterCat 02 sensor signal, Bank 1	2D53	DME digital motor electronics, internal failure: control speed limitation	2E19	ignition, Cyl. 2	2EE1	coolant temperature sensor, plausibility
2A3C	Valvetronic relay, input signal	2AAB	DME, internal error: knocksensor	2C7A	AfterCat 02 sensor signal, Bank 2	2D54	DME, internal error: control overspeed trip unit reset	2E1A	ignition, Cyl. 3	2EE2	coolant temp sensor, plausibility: Signal constant
2A3D	Valvetronic, adjustment motor: input signal	2AAB	DME, internal error: output chip	2C7B	AfterCat 02 sensor signal, Bank 1	2D55	DME digital motor electronics, internal failure: control driver pedal module	2E1B	ignition, Cyl. 4	2EE3	coolant temp sensor, plausibility: Gradient range
2A3E	Valvetronic, servo motor: overload	2AAB	charging pressure sensor, electrical	2C7C	AfterCat 02 sensor signal, Bank 2	2D56	DME digital motor electronics, internal failure: control idle running	2E1C	ignition, Cyl. 5	2EEA	temperature sensor radiator outlet, signal
2A3F	Valvetronic, servo motor: power supply	2AAB	intake pressure sensor, re-running	2C7E	AfterCat 02 sensor trim control, Bank 1	2D57	DME digital motor electronics, internal failure: control external torque requirement	2E1D	ignition, Cyl. 6	2EEB	temperature sensor radiator outlet, plausibility, gradient
2A40	Valvetronic, thermic overload protection	2AAB	sound flap, control	2C7F	AfterCat 02 sensor trim control, Bank 2	2D58	DME digital motor electronics, internal failure: control nominal torque??	2E24	ignition coil, Cyl. 1	2EEC	temperature sensor radiator outlet, plausibility
2A41	Valvetronic, electronic overload protection	2AAB	Sport switch signal	2C87	Sport switch illumination, electric	2D59	DME digital motor electronics, internal failure: control actual torque??	2E25	ignition coil, Cyl. 2	2EF4	map thermostat, mechanics
2A42	Valvetronic, position at restart: plausibility	2AAB	Sport switch illumination, electric	2C89	exhaust gas temperature sensor, electric	2D5A	control motor torque limitation	2E26	ignition coil, Cyl. 3	2EF5	map thermostat, input signal
2A43	Valvetronic, thermic overload protection: warning threshold	2AAB	DME digital motor electronics main relay, input signal	2C92	exhaust gas temperature sensor, electric	2D5B	DME, internal error: torque control	2E27	ignition coil, Cyl. 4	2EFF	electrical fan, input signal
2A44	Valvetronic, output limitation	2ACC	DME digital motor electronics main relay, switch delay	2C93	exhaust gas temperature sensor, plausibility	2D5C	DME digital motor electronics, internal failure: control hardware	2E28	ignition coil, Cyl. 5	2F08	inlet air temperature sensor, signal
2A45	Valvetronic, adjustment motor: plausibility	2AD0	gear control	2C9C	PreCat 02 sensor heater input signal, Bank 1	2D5D	ECU, internal error: Reset	2E29	ignition coil, Cyl. 6	2F09	inlet air temperature sensor, plausibility
2A46	Valvetronic, adaption	2AD8	EAC-sensor, control	2C9D	PreCat 02 sensor heater input signal, Bank 2	2D60	fuel mass, monitoring	2E2A	ignition coil, Cyl. 1	2F0A	inlet air temperature sensor turbo charger, signal
2A47	Valvetronic, eccentric shaft sensor: plausibility	2AD9	EAC-sensor, coding	2C9E	AfterCat 02 sensor heater input signal, Bank 1	2D61	throttle valve, monitoring	2E2B	ignition coil, Cyl. 2	2F0C	intake airtemperature, signal: Gradient
2A48	Valvetronic, Temp. Plausibility	2ADA	EAC-sensor, electrical error	2C9F	AfterCat 02 sensor heater input signal, Bank 2	2D64	control stoichiometric mixture	2E2C	ignition coil, Cyl. 3	2F0D	radiator blind, input signal, (GLF)
2A49	Valvetronic, mechanical	2ADB	EAC-sensor, communication	2CA6	PreCat 02 sensor function, Bank 1	2D65	fuel mass, monitoring	2E2D	ignition coil, Cyl. 4	2F0E	radiator blind, bottom
2A4A	Valvetronic-servo motor	2ADC	EAC-Sensor, Communication	2CA7	PreCat 02 sensor function, Bank 2	2D66	throttle valve adaptation value	2E2E	ignition coil, Cyl. 5	2F0F	radiator blind, top
2A76	Valvetronic, matching voltage	2ADF	idle running control, speed	2CA8	AfterCat 02 sensor function, Bank 1	2D67	throttle valve adaptation value	2E2F	ignition coil, Cyl. 6	2F11	radiator blind, top
2A77	ecu, internal error: Valvetronic-output	2AE0	idle running control during cold start	2CA9	AfterCat 02 sensor function, Bank 2	2D68	control throttle valve positioner, permanently stuck	2E30	injection valve Cyl. 1, input signal	2F12	air conditioning compressor, input signal
2A80	Intake Vanos variable cam control test, input signal	2AE1	demand for power output in idle running too high	2CAA	PreCat 02 sensor temperature, Bank 1	2D69	throttle valve positioner, sluggish	2E31	injection valve Cyl. 2, input signal	2F14	EWS manipulation protection
2A81	Intake VANOS, Control 2	2AE4	engine ventilation-heater relais, control	2CAB	PreCat 02 sensor temperature, Bank 2	2D6A	throttle positioner, input signal	2E32	injection valve Cyl. 3, input signal	2F45	interface EWS-DME
2A82	Intake Vanos variable cam control test	2AE5	idle switch position OPEN	2CAC	throttle positioner, stuck for an intermediate time	2D6B	throttle valve potentiometer 1, plausibility with regard to air mass	2E33	injection valve Cyl. 4, input signal	2F46	EWS code-saving
2A85	Exhaust VANOS variable cam control test	2AE6	idle switch position CLOSE	2CE2	throttle positioner, permanently stuck	2D6C	throttle valve potentiometer 2, plausibility with regard to air mass	2E34	injection valve Cyl. 5, input signal	2F47	EWS irreversible ecu error
2A86	Exhaust VANOS, Control 2	2AF0	nitric oxide sensor, heating	2CEE	throttle positioner, sluggish	2D6D	throttle valve potentiometer 1	2E35	injection valve Cyl. 6, input signal	2F49	EWS manipulation protection
2A87	Exhaust Vanos variable cam control test, mechanics	2AF2	nitric oxide sensor, Lambda linear	2CEF	throttle positioner, input signal	2D6E	throttle valve potentiometer 2	2E68	knock sensor signal 1	2F4A	interface EWS-DME electronic vehicle immobilization/digital motor electronics
2A8A	Intake VANOS, Adaption limit stop	2B00	overspeed, lean-range	2CF6	throttle valve potentiometer 1, plausibility with regard to air mass	2D6F	throttle valve potentiometer 1	2E69	knock sensor signal 2	2F4B	DME digital motor electronics, internal failure: EWS (electronic vehicle immobilization) data
2A8C	Exhaust VANOS, Adaption limit stop	2C24	PreCat 02 sensors switched	2CF7	throttle valve potentiometer 2, plausibility with regard to air mass	2D6F	throttle valve potentiometer 2	2E74	mixture adaption, injector ageing: Bank 1	2F4C	message EWS-DME digital motor electronics electronic vehicle immobilization-digital motor electronics failure
2A92	Exhaust VANOS 1, control	2C27	PreCat 02 sensor systemcheck, Bank 1	2CF8	throttle valve potentiometer 1	2D6F	throttle valve potentiometer 2	2E75	mixture adaption, injector ageing: Bank 2	2F4E	vehicle speed, plausibility
2A93	Intake VANOS, control	2C28	PreCat 02 sensor systemcheck, Bank 2	2CF9	throttle valve potentiometer 2	2D6F	throttle valve potentiometer 2	2E77	ignition, voltage supply	2F58	start automatics, input signal
2A94	crankshaft sensor, signal	2C2C	PreCat 02 sensor systemcheck, Bank 2	2CFA	throttle valve potentiometer 1	2D6F	throttle valve potentiometer 2	2E7C	bit serial data interface, signal	2F63	brake light switch, plausibility
2A95	crankshaft sensor, synchronisation	2C2D	PreCat 02 sensor thrust control, Bank 1	2CFB	throttle valve adaptation value	2D6F	throttle valve potentiometer 2	2E81	electrical coolant pump, speed deviation		
2A96	crankshaft sensor, tooth failure	2C2E	PreCat 02 sensor thrust control, Bank 2	2CFC	throttle valve adaptation value	2D6F	throttle valve potentiometer 2	2E82	electrical coolant pump, shut down		
		2C31	PreCat 02 sensor trim control, Bank 1	2CFD	throttle valve, start test	2D6F	throttle valve potentiometer 2	2E83	electrical coolant pump, power reduced operation		
		2C32	PreCat 02 sensor trim control, Bank 2	2CFE	throttle valve adaptation value missing	2D6F	throttle valve potentiometer 2	2E84	electrical coolant pump, communication		
		2C37	PreCat 02 sensor heater connection, Bank 1	2D06	air mass system	2D07	Throttle flap 1				
		2C38	PreCat 02 sensor heater connection, Bank 2	2D09	Throttle valve	2D09	Throttle valve				

2F64	brake light test switch, plausibility	30C1	motor oil pressure control, statically	CDA4	message (status ARSActive roll stabilizing module, 1AC)acceleration?	2736	Throttle controller PWM short test	277D	Battery Voltage	27C3	Signal oil level sensor (TOENS)
2F65	brake booster, system check	30C2	oil pressure regulating valve, control	CDA5	message (status DSCdynamic stability control, 19E)	2737	EWS-manipulation control	277E	Moment restrictor level 1	27C6	LDP Diagnose 0.5mm leak
2F66	brake booster, electric ATIC39	30C3	motor oil pressure sensor, signal	CDA6	message (status electrical fuel pump, 335)	2738	Catalytic-converter conversion	277F	Crankshaft sensor	27C7	LDP Diagnose 1.0mm leak
2F67	clutch switch, signal	30C4	motor oil pressure control, mechanically	CDA7	message (status reverse gear, 3B0)	2739	Catalytic-converter conversion LSU	2780	Ref. marking generator	27C8	LDP system
2F6C	exhaust flap, input signal	30C5	engine oil pump, mechanical: engine oil pressure	CDA8	message (status KOMBI, 1B4)	273A	Catalytic-converter conversion LSU bank2	2781	Camshaft sensor inlet	27C9	Leak diag. module
2F71	E-box-fan, input signal	30C6	motor oil pressure sensor, plausibility	CDA9	Message (heat stream/load AC, 1B5)	273B	Throttle controller PWM long test	2782	Camshaft sensor outlet	27CA	Ansteuerung DM-TL Pumpenmotor
2F76	ambient pressure sensor, signal	30C7	motor oil pressure system	CDA0	message (status crash shut off EKPelectric fuel pump, 135)	273C	Throttle controller diff.	2783	Hot film air mass meter	27CB	DM-TL 0.5mm leak MIL off
2F77	ambient pressure sensor, plausibility	30C8	motor oil pressure, final stage (preliminary)	CDAB	message (lamp condition, 21A)	273D	Catalytic-converter conversion (bank2)	2784	Thermostat diag. THM	27CC	DM-TL 1mm & 0.5mm leak
2F79	ambient pressure sensor, re-running	30C9	engine oil pump, control	CDAC	message (status water valve, 3B5)	273E	Signal temper.sensor exhaust1	2785	DK-Potentiometer	27CD	DM-TL module
2F7A	ambient pressure sensor, re-running	30CF	Wastegate, input signal	CDAD	message (requirement road wheel torque drive line, BF)	273F	Signal temper.sensor exhaust2	2786	Throttle-valve potentiometer 1	27CE	Load sensor monitoring
2F7B	oil pressure switch, plausibility	30D0	Wastegate 2, input signal	CDAE	message (time/date, 2F8)	2740	Pedal-travel1 permanently	2787	Throttle-valve potentiometer 2	27CF	Ignition time Cyl.1
2F80	motor shutoff time, plausibility	30D6	nitric oxide sensor, plausibility	CDAF	message (status trailer, 2E4)	2741	Pedal-travel2 permanently	2788	Vehicle speed	27D0	Ignition time Cyl.3
2F85	DME digital motor electronics, internal failure: inside temperature sensor, signal	30D8	NOX sensor, Sensor damaged	CDB0	message (display gear data)	2742	Misfire detection cyl.1	2789	Bad way detection	27D1	Ignition time Cyl.4
2F8F	accelerator pedal module and brake pedal, plausibility	30DA	NOX sensor, Signal	CDB1	message (status central locking system, 2FC)	2743	Misfire detection cyl.3	278A	Ambient temperature	27D2	Ignition time Cyl.2
2F94	fuel pump relay, input signal	30DE	NOX sensor, heating	CDB3	Message (speed demand steering, B9)	2744	Misfire detection cyl.4	278B	Engine temperature	27D5	failure within the idle-speed control
2F99	ambient temperature sensor, plausibility	30E0	NOX sensor, Offset	CDB4	Message (transmission data 3, 3B1) missing	2745	Misfire detection cyl.2	278C	Intake air temperature	27D6	Output idle-speed controller OFF
2F9A	ambient temperature sensor, communication	30E2	NOX sensor, thrust test	CDB5	PT-CAN communication failure	2746	Misfire detection cyl.	278D	Temp. sensor coolant temperature	27D7	Output idle-speed controller ON
2F9E	thermal oil level sensor	30E4	NOX sensor, aging	CDB8	Message speed demand DKG, B8)	2747	Misfire detection cyl.	278E	Diff. pressure sensor suction tube	27D8	Failure depressure pump
2FA3	coding missing	30E6	NOX, dynamics	CDB9	message (Stellanforderung EMF, 1A7)	2748	Misfire detection cyl.	278F	LowRange signal not plausible	27D9	Output DM-TL heater
2FA4	wrong data set	30E9	NOX Cat, aging	CDBE	message. (torque demand from DSC)	2749	Misfire detection cyl.	2790	transmission temp.	27DA	generator failure
2FAB	active engine bearing	30EA	NOX Cat, sulfurated			274A	Misfire detection cyl.	2791	Parts exchange without adaption	27DC	EWS3.3 Random-code storing
2FAC	Active engine bearing 2, electrical	30EE	extreme knock Cyl. 1			274B	Misfire detection cyl.	2792	Drosselklappe - Positionsüberwachung	27DD	monitoring pedal-travel sensor
2FBC	fuel pressure control valve, signal	30EF	extreme knock Cyl. 2			274C	Misfire detection cyl.	2793	DK-Actuator regulator area	27E2	Knock sensor 1
2FBD	fuel pressure steuer ventil, plausibility	30F0	extreme knock Cyl. 4			274D	Misfire detection cyl.	2794	DK-Actuator controlled	27E3	knock sensor2 bank1
2FBE	fuel pressure after motorstop	30F1	extreme knock Cyl. 5			274E	Misfire detection, Checksum failure	2795	Spring test DK-controller closing spring	27E4	Knock sensor 3
2FBF	fuel pressure at injection release	30F2	extreme knock Cyl. 6			274F	Misfire, Checksum failure, service rel.	2796	Throttle flap lower stop	27E5	Knock sensor 4
2FC0	fuel pressure, measurement range	30FC	Turbo charger, density			2752	Pedal-travel half plausibility	2797	DK-Controller failure booster	27E6	Knock sensor zero test
2FC3	fuel pressure steuer ventil, plausibility	30FE	Turbo charger, high pressure side			2753	Monitoring ign. coil 1	2798	Throttle flap emergency air point	27E7	Knock sensor offset
2FC6	energy save mode active	30FF	Turbo charger, low pressure side			2754	Monitoring ign. coil 3	2799	Abort DV-adaption because of enviroment	27E8	Knock regulation Test impulse
2FC7	power saving mode 2, active	3100	Air charge control, shut-down			2755	Monitoring ign. coil 4	279A	Throttle flap adation - abort after reteaching	27E9	Knock sensor zero test bank2
2FDA	cank case ventilation, system check	3104	engine roughness, layer charging operation			2756	Monitoring ign. coil 2			27EA	CAN-Timeout HDEV
2FDB	cank case ventilation, electric ATIC39					2757	Monitoring ign. coil			27EB	CAN-Timeout TCU
3070	Cyl. same adjustment via irregular running Cyl. 1	3105	engine roughness, layer charging operation: warming			2758	Monitoring ign. coil			27EC	CAN-Timeout EGS
3071	Cyl. same adjustment via irregular running Cyl. 2	3C1D	crank shaft sensor: signal			2759	Monitoring ign. coil			27ED	CAN-Timeout ASC/DSC
3072	Cyl. same adjustment via irregular running Cyl. 3	3C1E	camshaft sensor: input-signal			275A	Monitoring ign. coil			27EE	CAN-Timeout Instrumentenkombination
3073	Cyl. same adjustment via irregular running Cyl. 4	3C1F	camshaft sensor: output-signal			275B	Monitoring ign. coil			27EF	CAN ACC-Signalfehler
3074	Cyl. same adjustment via irregular running Cyl. 5	3D33	torque request with CAN			275C	Monitoring ign. coil			27F0	Control E-box fan
3075	Cyl. same adjustment via irregular running Cyl. 6	CD87	PT-CAN communication failure			275D	Monitoring ign. coil			27F1	Plausibility ACC-control
307C	Cyl. same adjustment via Lambda Cyl. 1	CD88	local-CAN communication failure			275E	Monitoring ign. coil			27A2	Temp.sensor engine LR
307D	Cyl. same adjustment via Lambda Cyl. 2	CD8F	PT-CAN communication error			275F	Pedal-travel defect			27A3	CAN timeout HDEV2 SG
307E	Cyl. same adjustment via Lambda Cyl. 3	CD94	message (outside temperature/relative time, 310)			2760	Secondary air system			27A4	EWS3.3 Schnittstelle EWS-DME
307F	Cyl. same adjustment via Lambda Cyl. 4	CD95	Message (handling FGR / ACC, 194)			2761	Secondary air valve output stage bank2			27A6	Ansteuerung Einspritzventil 1
3080	Cyl. same adjustment via Lambda Cyl. 5	CD96	message (torque requirement ACCActive cruise control, B7)			2762	Secondary air valve			27A7	Ansteuerung Einspritzventil 3
3081	Cyl. same adjustment via Lambda Cyl. 6	CD97	Message (speed demand AFS, B1)			2763	Secondary air valve bank2			27A8	Ansteuerung Einspritzventil 4
30A0	ignition coil Cyl. 1, input signal	CD98	message (torque requirement DSCdynamic stability control, B6)			2764	Control sek.air pump relay			27A9	Ansteuerung Einspritzventil 2
30A1	ignition coil Cyl. 2, input signal	CD99	message (torque requirement EGSElectronic gear control?, B5)			2765	Control sek.air valve			27AA	Ansteuerung Einspritzventil
30A2	ignition coil Cyl. 3, input signal	CD9A	message (torque requirement SMG, B2)			2766	Phase generator1 time duration			27AB	Ansteuerung Einspritzventil
30A3	ignition coil Cyl. 4, input signal	CD9B	message (vehicle mode, 315)			2767	Phase generator2 time duration			27AC	Ansteuerung Einspritzventil
30A4	ignition coil Cyl. 5, input signal	CD9C	message (speed, 1A0)			2768	Phase generator positioning failure			27AD	Ansteuerung Einspritzventil
30A5	ignition coil Cyl. 6, input signal	CD9D	message (gear data, BA)			2769	Spring test DK-controller open spring			27AE	Ansteuerung Einspritzventil
30AC	injection valve Cyl. 1, input signal	CD9E	message (gear data 2, 1A2)			276A	Control-unit recognition			27AF	Ansteuerung Einspritzventil
30AD	injection valve Cyl. 2, input signal	CD9F	message (kilometer reading/coverage, 330)			276B	Secondary air valve output stage bank2			27B0	Ansteuerung Einspritzventil
30AE	injection valve Cyl. 3, input signal	CDA0	message (terminal state, 130)			276C	Phase generator2 positioning failure			27B1	Ansteuerung Einspritzventil
30AF	injection valve Cyl. 4, input signal	CDA1	message (steering wheel angle, C4)			276D	Tank-ventilation functional check			27B3	Diagnose DK/HFM adjustment
30B0	injection valve Cyl. 5, input signal	CDA2	message (power management battery voltage, 3B4)			276E	Tank-ventilation functional check bank2			27B4	Ambient-pressure sensor
30B1	injection valve Cyl. 6, input signal	CDA3	message power management load voltage, 334)			276F	failure within secondary air system			27B5	Control inlet-VANOS
30BA	Injector bank 1 or ECU, internal error					2770	failure within secondary air system			27B6	Control inlet-VANOS bank2
30BB	Injector bank 2 or ECU, internal error					2771	Secondary air system locked			27B7	Control gas pump relay
30BE	injector, calibration: plausibility					2772	Control gas ventilation valve			27B8	Plausibility diff. pressure sensor
30C0	motor oil pressure control, dynamically					2773	Tank-ventilation valve output stage bank2			27B9	BLS/BTS Plausibility
						2774	Monitoring cyc. failurestoring			27BA	Output AC-kompr. enable from AC-SG
						2775	engine moment monitoring level 2			27BB	Camshaft control outlet-VANOS
						2776	Interface multifunction steering wheel			27BC	Camshaft control outlet-VANOS bank2
						2777	Monitoring controller function			27BD	Control outlet-VANOS
						2778	Switch clutch			27BE	Output outlet-VANOS bank2
						2779	SG selftest RAM			27BF	Camshaft sensor inlet bank2
						277A	Switch break			27C0	Camshaft sensor outlet bank2
						277B	SG selftest ROM			27C1	Master camshaft sensor
						277C	SG selftest reset			27C2	Control AC-compressor relay

2822	Forced switched EGS	2873	Output-stage HDEV-SG1 bank1	29E6	LR-Adaption multiplicative area2 (Bank2)	2B61	Assign. camshaft to crankshaft	2C9E	Control heater sensor after cat	sequence	
2823	Heating lambda sensor befor Cat	2874	Output-stage HDEV-SG1 bank2	29E7	LR-Adaption additive per time (Bank1)	2B62	camshaft sensor inlet	2C9F	Control heater sensor after cat (bank2)	2E25	spark coil cylinder 2 in 4. ignition
2824	Heating lambda sensor befor Cat bank2	2875	Output-stage HDEV-SG1 bank3	29E8	LR-Adaption additive per time (bank2)	2B63	camshaft sensor outlet	2CA0	lambda sensor heating in front of cat	sequence	
2825	Lambdasensor aging after Cat	2876	Output-stage HDEV-SG2 bank1	29E9	LR-Adaption add. per ignition	2B64	camshaft sensor inlet bank2	2CA1	Oxygen sensor heater before cat. (bank2)	2E26	spark coil cylinder 3 in 2. ignition
2826	Lambdasensor aging after Cat bank2	2877	Output-stage HDEV-SG2 bank2	29EA	LR-Adaption add. per ignition bank2	2B65	camshaft sensor outlet bank2	2CA2	heating lambda sensor of front cat	sequence	
2827	heater link at signal-path	2878	Output-stage HDEV-SG2 bank3	29EB	LR-Deviation	2B66	Master camshaft sensor	(shearing stress)	2E27	spark coil cylinder 4 in 3. ignition	
2828	CAN ARS-Signalfehler	2879	Signal exhaust temp. sensor 4	29EC	LR-Deviation bank2	2B70	DISA	2CA3	heating lambda sensor of front cat	sequence	
2829	CAN CAS-Signalfehler	287A	Output pressure control valve	29ED	LR-Adaption multiplicative area1 (Bank1)	2B71	Failure DISA	(shearing stress) Bank2	2E30	injection valve cylinder 1 in 1. cylinder	
282A	CAN IHKA-Signalfehler	287B	Signal exhaust temp. sensor 3	29EE	LR-Adaption multiplicative area1 (Bank2)	2B72	DISA temp. warn level engine protection	2CA8	Oxygen sensor heater after cat.	sequence	
282B	CAN PWML-Signalfehler	287C	Pressure sensor suction tube	29F4	Catalytic-converter conversion			2CA9	Oxygen sensor heater after cat. (bank2)	2E31	injection valve cylinder 2 in 4. cylinder
282C	CAN SZL-Signalfehler	287D	Signal rail-pressure sensor	29F5	Catalytic-converter conversion (bank2)	2B7F	Diagnose DK/HFM adjustment	2CEF	DK-actuator	sequence	
282D	heater link at signal-path bank2	287E	Pressure control valve	29F8	Cat-konversion LSU	2B80	idle running controlling	2CF0	DK-Actuator regulator area	2E32	injection valve cylinder 3 in 2. cylinder
282E	PWG-movement	287F	High pressure sensor test	29F9	Catalytic-converter conversion LSU bank2	2B8A	Knock sensor zero test	2CF1	DK position monitoring	sequence	
2830	aging of O2-sensor behind catalyst (Bank 2)	2880	AGR system	29FE	secondary air injection system	2B8B	Knock sensor offset	2CF8	DK-poti sensor	2E33	injection valve cylinder 4 in 3. cylinder
		2881	CDKBKE Output twist generator controller	29FF	secondary air system (Bank2)	2B8C	Knock regulation Test impulse	2CF9	Throttle-valve potentiometer 1	sequence	
2832	Plausibility ASR-Torque	2882	Output pressure control valve	2A01	secondary air injection control valve	2B8D	Knock sensor zero test bank2	2CFA	Throttle-valve potentiometer 2	2E68	Knock sensor 1
2833	Plausibility CAS	2883	Rail-pressure regulation	2A02	Control air system valve	2B8E	Knock control offset bank2	2CFF	DK-Controller failure booster	2E69	knock sensor2 (Bank1)
2834	Plausibility IHKA	2889	plausibility monitoring of the RAM backup	2A03	secondary air pump relay	2B8F	Knock control test signal bank2	2D00	spring-check throttle-valve-actuator	2E6A	Knock sensor 3
2835	Plausibility PWML	2893	DME- Temperature	2A05	Secondary air valve bank2	2B98	plausibility monitoring of the RAM backup		closing spring	2E6B	Knock sensor 4
2836	Plausibility SZL	2898	lambda sensor after cat bank1: signal	2A0E	AGR valve	2B99	RAM Backup	2D01	spring-check throttle-valve-actuator	2E7C	BSD wire failure
2837	Plausibility EMF	28A0	Output gas circuit switch	2A12	magnetic valve DMTL control	2B9A	ECU self-test RAM		opening spring	2E86	Electrical water pump
2838	Output-stage AAV	28C8	Lambdacontrol mismatch	2A13	Control DMTL pump motor	2B9B	ECU self-test ROM	2D02	error emergency air setpoint	2E88	IBS communication
2839	AAV-Functionality	28C9	Lambdacontrol mismatch bank2	2A14	DM-TL Fine leak	2B9C	ECU self-test Reset	2D03	Abort DV-adaption because of environment	2E8C	IBS general error
283A	Failure oil quality sensor	28D2	Pressure sensor charge-air	2A15	bank-ventilation-system major leak	2B9D	overvoltage detection on VCC	2D04	throttle valve adaption	2E8D	IBS plausibility
283B	Camshaft control output bank2	28D3	Plausibility ambient- to charge pressure	2A16	DM-TL 0.5mm leak MIL off	2B9E	Energy saving mode active	2D05	Abort at UMA-repeat learning	2E95	generator communication
283C	Camshaft control output	28D4	Pressure control valve	2A17	DM-TL module	2BA7	torque restrictor level 1	2D08	parts exchange without adaption	2E97	CDKDG/CDKGEN - BSD generator
283D	PT - CAN bus off	28D5	Output charge pressure control valve	2A18	Control DMTL heater	2BB6	Control main relay	2D0F	Hot film air mass meter	2E9F	Failure oil quality sensor
283E	VVT enable control	28D6	HO-Proc.failure, coding missing	2A19	Tank ventilation valve	2C24	interchanged O2-sensors	2D10	Plausibility HFM	2EA0	Oil status sensor
283F	Plausibilitaet Oeldruckschalter	28D7	Generator communication	2A1A	Tank-ventilation functional check	2C37	heater link at signal-path	2D11	Plausibility, mass flow Lambda sensor	2E88	BSD-message from IBS not existent
2841	Air flushed injector valves control	28D8	RAM backup-failure	2A1D	Tank leakage monitoring	2C38	heater link at signal-path bank2	2D12	Plausibility, mass flow Lambda sensor	2EBC	BSD message from oil sensor missing
2843	plausibility diagnostics LSU by LSH after catalyst	28D9	elec. heater	2A1E	Leakage diagnostic pump	2C39	LSU dynamic too slow	Bank2		2EBD	BSD message from generator missing
		28DA	CAN timeout elec. heater	2A58	VVT-Enable control	2C3A	LSU dynamic too slow bank2	2D19	PWG-movement	2EBE	BSD message from generator missing
2844	internal diagnostics CJ125 SPI communication	28DB	min. Lift adaption repeat. ran over	2A59	VVT-leading sensor	2C3B	voltage-monitoring O2-sensor on air	2D1A	accelerator potentiometer	2EE0	Temperature sensor engine cooling liquid
		28DC	generator 2 communication	2A5A	VVT-leading sensor bank2	2C3C	voltage-monitoring O2-sensor on air bank2	2D1B	Pedal-travel Pot1	2EEA	Temp. sensor coolant temperature
2849	power break at pump-current	2906	AGR valve monitoring	2A5B	VVT-ref. sensor	2C45	lambda sensor in front of cat	2D1C	Pedal-travel Pot2	2EF4	Thermostat characteristic diagram cooling, mechanical
284A	short circuit to minus or to plus at sensor-line	2907	AGR valve monitoring	2A5C	VVT-ref. sensor (bank2)	2C46	lambda sensor of front cat bank2	2D28	Diff. pressure sensor suction tube	2EF5	Thermostat characteristic diagram cooling, activation
284C	LSU dynamic too slow	2908	CAN timeout DSG SG	2A5D	VVT-Sensor plausibility	2C47	short circuit to minus or to plus at sensor-line	2D29	Plausibility diff. pressure sensor	2EF6	characteristic diagram thermostat
284F	failure at speed-display kombi	2909	CAN timeout EGS	2A5E	VVT-Sensor plausibility (bank2)	2C48	short circuit to minus or to plus at sensor-line bank2	2D32	Plausibility pressure sensor intake tube	2EFE	engine blower
2850	VVT-guiding sensor	290A	active front steering torque	2A5F	VVT-Supply volatge for the sensor	2C49	plausibility diagnostics LSU by LSH after catalyst	2D6E	moment monitoring level 2	2D70	Control unit monitoring group A
2851	VVT-guiding sensor (bank2)	292B	LSU adjustment line	2A60	VVT-Supply volatge for the sensor (bank2)	2C4A	plausibility diagnostics LSU by LSH after catalyst bank2	2D6F	Load sensor monitoring	2D71	Control unit monitoring group B
2852	VVT-ref. sensor	292C	LSU adjustment line bank2	2A61	VVT-Teaching function at stop	2C4B	internal diagnostics CJ125 SPI communication	2D72	Control unit monitoring group C	2D72	Control unit monitoring group C
2853	VVT-ref. sensor (bank2)	292D	LSU Nernst cell break	2A62	VVT-Teaching function at stop (bank2)	2C4C	internal diagnostics CJ125 SPI communication bank2	2D73	fuel pressure sensor	2D73	fuel pressure sensor
2854	VVT-Sensor plausibility	292E	LSU Nernst cell break bank2	2A63	VVT-Actuator monitoring	2C4D	power break at pump-current	2D74	funktion monitoring: Lambda Plausibility	2D74	funktion monitoring: Lambda Plausibility
2855	VVT-Sensor plausibility (bank2)	2930	LSU virtual mass break	2A64	VVT-Actuator monitoring (Bank2)	2C4E	power break at pump-current bank2	2D75	engine speed monitoring	2F08	Intake air temperature
2856	VVT-Supply volatge for the sensor	2931	LSU virtual mass break bank2	2A65	VVT-Control unit internal failure	2C4F	LSU adjustment line	2D76	pedal encoder monitoring (level2)	2F0D	Control controlled airflow
2857	VVT-Supply volatge for the sensor (bank2)	2936	fuel pressure sensor	2A66	VVT-Control unit internal failure (bank2)	2C50	LSU adjustment line bank2	2D78	Control air mass flow adjustment	2F12	Air conditioner compressor control
		2937	funktion monitoring: Lambda Plausibility	2A67	VVT-activation	2C51	LSU Nernst cell break	2DB4	interface MFL	2F17	Forced switched EGS
2858	VVT-Teaching function at stop	296B	inverted lambda sensors of front cat	2A68	VVT-Output-stage (bank2)	2C52	LSU Nernst cell break	2DBF	CAN ACC signal failure	2F1C	oil temperature sensor
2859	VVT-Teaching function at stop (bank2)	2972	Control pump for breaks	2A69	VVT-Output-stage	2C53	LSU virtual mass break	2DF8	CAN ACC signal failure	2F21	engine controller, power reduction
285A	VVT-Actuator monitoring	297D	CAN SSG signal failure	2A6A	VVT-Power supply	2C54	LSU virtual mass break bank2	2DCA	CAN timeout EGS	2F44	EWS3.3 manipulation protection
285B	VVT-Actuator monitoring (Bank2)	2981	Control controlled airflow	2A6B	VVT-Power supply (bank2)	2C55	Lambda sensor periode duration ageing	2DCB	CAN SSG signal failure	2F45	EWS3.3 Interface DME-EWS
285C	VVT-CAN-communication	299B	IBS communication	2A6C	VVT-stops leaning necessary	2C56	Lambda sensor ageing TV	2DCF	CAN- Timeout instrument combination	2F46	EWS3.3 Random-code storing
285D	VVT-CAN-communication (bank2)	299C	IBS general error	2A6D	VVT-system overload	2C6A	inverted lambda sensors of front cat	2DD6	CAN- Timeout ASC/DSC	2F4E	Vehicle speed
285E	VVT-Control unit internal failure	299D	IBS plausibility	2A6E	VVT-system overload bank2	2C6B	Lambda sensor aging of rear cat bank1	2DD6	CAN- Timeout ASC/DSC	2F58	Control starter automatic
285F	VVT-Control unit internal failure (bank2)	29A8	power management network failure	2A6F	VVT-system overload stop	2C6C	Lambda sensor aging of rear cat (VL- test)	2DD6	CAN- Timeout VVT-Control unit	2F59	Input starter automatic
2860	VVT-Control	29A9	power management	2A70	error current plausibility	2C6E	lambda sensor aging of rear cat (VL- test)	2DDE	VVT-CAN-communication	2F5A	Start automatic control
2861	VVT-Controll (bank2)	29AE	bank-ventilation-system major leak	2A71	output stage diagnostics of discharge relay VVT	2C70	aging of O2-sensor behind catalyst (Bank 2)	2DDE	VVT-CAN-communication (bank2)	2F62	Switch brakes
2862	VVT-Power supply	29CC	misfire detection summation error	2A72	Actuator control VVT throw adjustment	2C71	lambda sensor in rear of cat	2DDE	VVT-CAN-communication (bank2)	2F67	Switch clutch
2863	VVT-Power supply (bank2)	29CD	misfire detection cylinder 1 in 1. ignition sequence	2A77	injector-VANOS	2C72	Lambda sensor of rear cat bank2	2DDE	VVT-CAN-communication (bank2)	2F6C	Control exhaust flap
2864	DM-TL-Pump control failure	29CE	misfire detection cylinder 2 in 4. ignition sequence	2A80	inlet-VANOS bank2	2C73	output heater O2-sensor before catalyst	2DDE	VVT-CAN-communication (bank2)	2F71	E-Box blower
2865	Power supply limit VVT-emergency	29CF	misfire detection cylinder 3 in 2. ignition sequence	2A81	Control inlet-VANOS bank2	2C7D	output heater O2-sensor before catalyst bank2	2DDE	VVT-CAN-communication (bank2)	2F76	Ambient-pressure sensor
2866	VVT-stops leaning necessary	29D0	misfire detection cylinder 4 in 3. ignition sequence	2A83	camshaft control- Input			2DDE	VVT-CAN-communication (bank2)	2F7B	oil pressure switch
2867	VVT system overload	29D9	misfire at too low fuel filling level	2A85	outlet-VANOS			2DDE	VVT-CAN-communication (bank2)	2F80	error CAN / relative timer
2868	VVT system overload (bank2)	29DD	Bad way detection	2A86	Control outlet-VANOS bank2			2DDE	VVT-CAN-communication (bank2)	2F85	DME- Temperature
286F	AGR Valve output	29E5	LR-Adaption multiplicative area2 (Bank1)	2A88	camshaft control outlet			2DDE	VVT-CAN-communication (bank2)	2F8A	Battery Voltage
2870	AGR Valve monitoring			2A89	camshaft control outlet-VANOS bank2			2DDE	VVT-CAN-communication (bank2)	2F94	fuelpump relay
2871	AGR Valve positioning sensor			2B5C	Crankshaft sensor			2DDE	VVT-CAN-communication (bank2)	2F99	Ambient temperature
2872	Diagnose AGR valve			2B5D	Ref. marking generator			2DDE	VVT-CAN-communication (bank2)	2F9E	Thermal oillevel sensor
								2DEC	power management	2FA3	HO-proc.failure, coding missing
								2DED	Powermanagement: quiescent current violation	2FB2	suction jet pump for brake force amplifier
								2E24	spark coil cylinder 1 in 1. ignition	2FB7	electr. under pressure pump for brake booster

CD87 PT - CAN bus off
 CD8B Local CAN Bus Off
 CD9B status vehicle-mode
 CDA1 angle of steering wheel
 CDA2 powermanagement battery voltage
 CDA3 powermanagement charge voltage
 CDA7 status gear reverse
 CDAA control crash-switch-off EKP
 CDAC status water valve

2760 secondary air injection system
 2761 Secondary air system bank2
 2762 secondary air injection control valve
 2763 Secondary air valve bank2
 2764 Control stagerelais secondary air pompe
 2765 Control air system valve
 2769 spring-check throttle-valve-actuator opening spring
 276B Control secondary air valve bank2
 276D Tank-ventilation functional check
 276E Tank-ventilation functional check bank2
 2772 Control tank-ventilation valve
 2773 Control tank-ventilation valve bank2
 2774 Engine Off Time
 2775 engine moment monitoring level 2
 2776 interface MFL
 2777 Monitoring controller function
 2778 Switch clutch
 2779 ECU self-test RAM
 277A Switch brakes
 277B ECU self-test ROM
 277C ECU self-test Reset
 277D Battery Voltage
 277E torque restrictor level 1
 277F Crankshaft sensor
 2780 Ref. marking generator
 2781 camshaft sensor inlet
 2782 camshaft sensor outlet
 2783 Hot film air mass meter
 2785 DK-poti sensor
 2786 Throttle-valve potentiometer 1
 2787 Throttle-valve potentiometer 2
 2788 Vehicle speed
 2789 Bad way detection
 278A Ambient temperature
 278B Engine temperature
 278C Intake air temperature
 278D Temp. sensor coolant temperature
 278E Diff. pressure sensor suction tube
 278F LowRange signal not plausible
 2790 transmission temp.
 2791 parts exchange without adaption
 2792 DK position monitoring
 2793 DK-Actuator regulator area
 2794 DK-Actuator controlled
 2795 spring-check throttle-valve-actuator closing spring
 2796 check at lower stop
 2797 DK-Controller failure booster
 2798 error emergency air sepoint
 2799 Abort DV-adaption because of environment
 279A Abort at UMA-repeat learning
 279B Thermostat jamming
 279C Control thermostat map cooling
 279D Control engine fan
 279E Control exhaust flap
 279F Control fan A
 27A0 Control E-box fan
 27A4 EWS3.3 Interface DME-EWS
 27A6 activation EV1
 27A7 activation EV5
 27A8 activation EV4
 27A9 activation EV8
 27AA activation EV6
 27AB activation EV3
 27AC activation EV7
 27AD activation EV2
 27B3 Diagnose DK/HFM adjustment
 27B4 Ambient-pressure sensor
 27B5 Control inlet-VANOS

27B6 Control inlet-VANOS bank2
 27B7 Control fuel pump relay
 27B8 Plausibility diff. pressure sensor
 27BB camshaft control outlet-VANOS0
 27BC camshaft control outlet-VANOS bank2
 27BD Control outlet-VANOS
 27BE Control outlet-VANOS bank2
 27BF camshaft sensor inlet bank2
 27C0 camshaft sensor outlet bank2
 27C1 Master camshaft sensor
 27C2 Control A/C-compressor control
 27C3 Failure oil status sensor
 27C8 tank-ventilation-system major leak
 27CA Control DMTL pump motor
 27CB DM-TL 0.5mm leak MIL off
 27CC DM-TL Fine leak
 27CD DM-TL module
 27CE Load sensor monitoring
 27D5 failure within the idle-speed control
 27D9 Control DMTL heater
 27DA generator failure
 27DC EWS3.3 Random-code storing
 27E1 monitoring pedal-travel sensor
 27E2 Knock sensor 1
 27E3 Knock sensor 2
 27E4 Knock sensor 3
 27E5 Knock sensor 4
 27E6 Knock sensor zero test
 27E7 Knock sensor offset
 27E8 Knock regulation Test impulse
 27E9 Knock sensor zero test bank2
 27EA CAN-Timeout HDEV
 27EB CAN-Timeout TXU
 27EC CAN EGS signal failure
 27ED CAN ASC/DSC signal failure
 27EE CAN Instrument cluster signal failure
 27EF CAN ACC signal failure
 27F0 Plausibility MSR-control
 27F1 Plausibility ACC-control
 27F2 Plausibility gas level
 27F3 CAN-Timeout VVT-Control unit
 27F5 CAN-Timeout DME-Control unit
 27F6 acelarator potentiometer
 27F7 Pedal-travel Pot1
 27F8 Pedal-travel Pot2
 27F9 Control starter automatic
 27FA Input starter automatic
 27FB controlled airflow
 27FD Start automatic control
 27FE Knock control offset bank2
 27FF Knock control test signal bank2
 280A Assign. camshaft to crankshaft
 2812 oil temperature
 2813 Control unit monitoring group A
 2814 Control unit monitoring group B
 2815 Control unit monitoring group C
 2816 engine speed monitoring
 2818 voltage-monitoring O2-sensor on air
 281D BSD wire failure
 281E Control DISA
 281F voltage-monitoring O2-sensor on air bank2
 2820 Failure DISA
 2821 DISA temp. warn level engine protection model
 2822 Forced switched EGS
 2823 Lambda sensor heater before cat (within acceleration)
 2824 Lambda sensor heater before cat (within acceleration) bank2
 2825 aging of O2-sensor behind catalyst

2826 aging of O2-sensor behind catalyst (Bank 2)
 2827 heater link at signal-path
 2828 CAN ARS signal failure
 2829 CAN CAS signal failure
 282A CAN IHKA signal failure
 282B CAN PWML signal failure
 282C CAN SZL signal failure
 282D heater link at signal-path bank2
 282E PWG-movement
 2830 aging of O2-sensor behind catalyst (Bank 2)
 2832 plausibility diagnostics LSU by LSH after catalyst bank2
 2833 internal diagnostics CJ125 SPI communication bank2
 2834 power break at pump-current bank2
 2835 short circuit to minus or to plus at sensor-line bank2
 2836 LSU dynamic too slow bank2
 283A Failure oil quality sensor
 283E VVT-enable-wire control
 283F Plausibility oil pressure switch
 2841 Containment injectors control
 2842 2. generator error
 2843 plausibility diagnostics LSU by LSH after catalyst
 2844 internal diagnostics CJ125 SPI communication
 2849 power break at pump-current
 284A short circuit to minus or to plus at sensor-line
 284C LSU dynamic too slow
 284F failure at speed-display kombi
 2850 VVT-leading sensor
 2851 VVT-leading sensor bank2
 2852 VVT-ref. sensor
 2853 VVT-ref. sensor (bank2)
 2854 VVT-Sensor plausibility
 2855 VVT-Sensor plausibility (bank2)
 2856 VVT-Supply volatge for the sensor
 2857 VVT-Supply volatge for the sensor (bank2)
 2858 VVT-Teaching function at stop
 2859 VVT-Teaching function at stop (bank2)
 285A VVT-Actuator monitoring
 285B VVT-Actuator monitoring (Bank2)
 285C VVT-CAN-communication
 285D VVT-CAN-communication (bank2)
 285E VVT-Control unit internal failure
 285F VVT-Control unit internal failure (bank2)
 2860 VVT-Output
 2861 VVT-Output-stage (bank2)
 2862 VVT-Power supply
 2863 VVT-Power supply (bank2)
 2864 DM-TL-Pump control failure
 2865 Power supply limit VVT-emergency
 2866 VVT-stops leaning necessary
 2867 VVT-system overload
 2868 VVT-system overload bank2
 287C Pressure sensor suction tube
 2880 AGR system
 2889 plausibility monitoring of the RAM backup
 28C8 LR-Deviation
 28C9 LR-Deviation bank2
 28D2 Pressure sensor charge-air
 28D3 charge pressure sensor
 28D4 charge pressure actuator
 28D5 Control charge pressure control valve
 28D6 HO-proc.failure, coding missing

28D7 generator communication
 28D8 network-system switched off, error-memory deleted
 28DB multip. min lift adaption stop
 28DC generator 2 communication
 2908 CAN Timeout DSC SG
 2909 CAN timeout EGS
 290A active front steering torque
 292B LSU adjustment line
 292C LSU adjustment line bank2
 292D LSU Nernst cell break
 292E LSU Nernst cell break bank2
 2930 LSU virtual mass break
 2931 LSU virtual mass break bank2
 297D CAN SSG signal failure
 2981 Control controlled airflow
 2982 oil control light activation
 299B Communication DME - IBS
 299C IBS proprietary diagnostic 1
 299D IBS proprietary diagnostic 2
 29A8 power management network failure
 29A9 power management
 29AE Check Filler Cap
 29CC misfire, several cylinder
 29CD misfire, cylinder 1
 29CE misfire, cylinder 2
 29CF misfire, cylinder 3
 29D0 misfire, cylinder 4
 29D1 misfire, cylinder 5
 29D2 misfire, cylinder 6
 29D3 misfire, cylinder 7
 29D4 misfire, cylinder 8
 29D9 misfire with low fuel
 29DD Bad way detection
 29E5 mixture adaption, upper speed range
 29E6 mixture adaption 2, upper speed range
 29E7 mixture adaption at idle speed per time
 29E8 mixture adaption 2 at idle speed per time
 29E9 mixture adaption at idle speed per ignition
 29EA mixture adaption 2 at idle speed per ignition
 29EB mixture adaption, deflection
 29EC mixture adaption 2, deflection
 29ED mixture adaption, lower speed range
 29EE mixture adaption 2, lower speed range
 29EF mixture adaption, total fault
 29F0 mixture adaption 2, total fault
 29F4 catalyst conversion
 29F5 Catalyst conversion 2
 29FE Sekundary air system
 2A01 Sekundary air valve, Mechanics
 2A02 Sekundary air valve, Control
 2A03 Sekundary air pump relais, Control
 2A05 Sekundary luftventil 2, Mechanics
 2A08 secondary air system 2
 2A09 secondary airpump plausibility
 2A12 DMTL-magnetic valve, control
 2A13 DMTL-Leckdiagnosepumpe, control
 2A14 DMTL, subtest leakage
 2A15 DMTL, fine leakage
 2A16 DMTL, subtest leakage
 2A17 DMTL, system error
 2A18 DMTL, Heizung: control
 2A19 fuel evaporation valve, control
 2A1A fuel evaporation system, function
 2A1B gascap
 2A1C fuel level, plausibility
 2A1D fuel level, plausibility
 2A1E fuel level, signal
 2A20 Tank ventilation valve, plausibility

2A23 DMTL, leakage diagnostic pump
 2A58 Valvetronic, power supply
 2A59 Valvetronic, eccentric shaft sensor: guide
 2A5A Valvetronic, eccentric shaft sensor 2: guide
 2A5B Valvetronic, eccentric shaft sensor: reference
 2A5C Valvetronic, eccentric shaft sensor 2: reference
 2A5D Valvetronic, eccentric shaft sensor: plausibility
 2A5E Valvetronic, eccentric shaft sensor 2: plausibility
 2A5F Valvetronic, eccentric shaft sensor: power supply
 2A60 Valvetronic, eccentric shaft sensor 2: power supply
 2A61 Valvetronic, adjustable range
 2A62 Valvetronic, adjustable range 2
 2A63 Valvetronic, servo motor: monitoring tightness, rotation direction
 2A64 Valvetronic, servo motor 2: monitoring tightness, rotation direction
 2A65 Valvetronic, internal error
 2A66 Valvetronic, internal error 2
 2A67 Valvetronic, servo motor: control
 2A68 Valvetronic, servo motor 2: control
 2A69 Valvetronic, servo motor: power supply
 2A6A Valvetronic, servo motor 2: power supply
 2A6B Valvetronic, power limitation
 2A6C Valvetronic, position at restart: plausibility
 2A6D Valvetronic, electric overload protection
 2A6E Valvetronic, electrical overload protection 2
 2A6F Valvetronic, minimal stroke
 2A80 Intake-VANOS, control
 2A81 Intake-VANOS, Control 2
 2A83 Intake-VANOS
 2A84 Intake-VANOS 2
 2A85 outlet-VANOS, control
 2A86 Outlet-VANOS, Control 2
 2A88 outlet-VANOS
 2A89 Outlet-VANOS 2
 2A8A intake-VANOS, Adaption limit stop
 2A8B intake-VANOS, Adaption limit stop 2
 2A8C outlet-VANOS, Adaption limit stop
 2A8D outlet-VANOS, Adaption limit stop 2
 2A8E intake camshaft, cog offset of crankshaft
 2A8F intake camshaft 2, cog offset of crankshaft
 2A90 outlet camshaft, cog offset of crankshaft
 2A91 outlet camshaft 2, cog offset of crankshaft
 2B5C crankshaft sensor, signal
 2B5D crankshaft sensor, plausibility
 2B61 crankshaft - camshaft, correlation
 2B62 camshaft sensor, intake
 2B63 camshaft sensor, outlet
 2B64 camshaft sensor 2, intake
 2B65 camshaft sensor 2, outlet
 2B66 camshaft sensor, master
 2B70 variable intake system, control
 2B71 Variable suction system
 2B72 variable intake system, temperature warning limit
 2B73 Variable intake system, plausibility
 2B7F trim throttle valve-air mass sensor
 2B80 idle running control
 2B84 Intake flap, Signal
 2B98 ecu, internal error: RAM backup, plausibility
 2B99 ecu, internal error: RAM backup

Table 22

2712 magnetic valve DMTL control
 2713 interchanged O2-sensors
 2714 Oxygen sensor heater after cat. (bank2)
 2715 Oxygen sensor heater before cat. (bank2)
 2716 Control heater sensor after cat
 2717 Control heater sensor after cat (bank2)
 271A lambda sensor before catalyst bank 1
 271B output heater O2-sensor before catalyst
 271C Oxygen sensor after cat.
 271D Oxygen sensor heater before cat.
 271E Oxygen sensor heater after cat.
 271F Lambda sensor periode duration ageing
 2720 Lambda sensor ageing TV
 2721 Lambda sensor ageing after cat
 2722 Oxygen sensor2 before cat.
 2723 output heater O2-sensor before catalyst bank2
 2724 Oxygen sensor2 after cat.
 2725 Lambda sensor periode duration ageing bank2
 2726 Lambda sensor ageing TV bank2
 2727 Lambda sensor ageing after cat bank2
 2728 LR-Adaption multiplicative area2
 2729 LR-Adaption multiplicative area2 (bank2)
 272A LR-Adaption multiplicative area1
 272B LR-Adaption multiplicative area1 (bank1)
 272C LR-Adaption additive per time
 272D LR-Adaption additive per time (bank2)
 272E LR-Adaption add. per ignition
 272F LR-Adaption add. per ignition bank2
 2731 camshaft control inlet
 2732 NW-intaken control bank2
 2737 EWS3.3 manipulation protection
 2738 Catalytic-converter conversion
 2739 Cat-konversion LSU
 273A Catalytic-converter conversion LSU bank2
 273D Catalytic-converter conversion (bank2)
 273E exhaust temperature sensor in front of catalyst
 273F exhaust temperature sensor in front of catalyst (Bank2)
 2742 misfire detection cyl. 1
 2743 misfire detection cyl. 5
 2744 misfire detection cyl. 4
 2745 misfire detection cyl. 8
 2746 misfire detection cyl. 6
 2747 misfire detection cyl. 3
 2748 misfire detection cyl. 7
 2749 misfire detection cyl. 2
 274E Misfire detection, Checksum failure
 2753 monitoring igniter 1
 2754 monitoring igniter 5
 2755 monitoring igniter 4
 2756 monitoring igniter 8
 2757 monitoring igniter 6
 2758 monitoring igniter 3
 2759 monitoring igniter 7
 275A monitoring igniter 2

2B9A ecu, internal error: RAM	2CF8 throttle valve potentiometer	2E2A spark coil cylinder 7	2F6C flue gas damper, control	272C Lambda sensor driver diagnostic heating NKAT bank 1	2762 VANOS maximum stop outlet bank 2
2B9B ecu, internal error: ROM	2CF9 throttle valve potentiometer 1	2E2B spark coil cylinder 8	2F71 E-Box-fan, control	272D Lambda sensor driver diagnostic heating NKAT bank 2	2763 VANOS valve inlet bank 1
2B9C ecu, internal error: reset	2CFA throttle valve potentiometer 2	2E30 injection valve cylinder 1, control	2F76 ambient pressure, signal	2737 Fill plausibility bank 1	2764 VANOS valve outlet bank 1
2B9D ecu, internal error: overvoltage	2CFF throttle valve actuator, amplifier alignment	2E31 injection valve cylinder 2, control	2F77 ambient pressure, plausibility	2738 Fill plausibility bank 2	2765 VANOS valve inlet bank 2
2BA7 monitoring engine torque limit	2D00 throttle valve actuator, spring check closing spring	2E32 injection valve cylinder 3, control	2F78 DME, internal error: environment pressure sensor	2739 secondary air Mini-HFM electr. Diagnostics	2766 VANOS valve outlet bank 2
2BBF Oil control lamp Control	2D01 throttle valve actuator, spring check opening spring	2E33 injection valve cylinder 4, control	2F7B oil pressure switch, plausibility	273A Lambda sensor vibration test NKAT bank 1	2767 Injection valve cyl 1 electric diagnostic
2BC0 Environment temperature sensor, Plausibility	2D02 throttle valve actuator, auxiliary air point	2E34 injection valve cylinder 5, control	2F80 engine turn off time, plausibility	273B Lambda sensor vibration test NKAT bank 2	2768 Injection valve cyl 2 electric diagnostic
2BC1 ambienttemperature sensor, signal	2D03 throttle valve actuator, abort alignment because of environmental condition	2E35 injection valve cylinder 6, control	2F8A Battery Voltage	273C Lambda sensor part/full diagnostic VKAT bank 1	2769 Injection valve cyl 3 electric diagnostic
2CC2 lambda probe front catalyst, exchanged	2D04 throttle valve actuator, checking lower block	2E36 injection valve cylinder 7, control	2F94 Fuel pump relay, actuation	273D Lambda sensor part/full diagnostic VKAT bank 2	276A Injection valve cyl 4 electric diagnostic
2C31 lambda probe front catalyst, adjustment control	2D05 throttle valve actuator, abort at UMA releam	2E37 injection valve cylinder 8, control	2F99 Environment temperature sensor, Plausibility	273E Lambda sensor terminal stage heating VKAT bank 1	276B Injection valve cyl 5 electric diagnostic
2C32 lambda probe front catalyst 2, adjustment control	2D08 throttle valve actuator, change detection without alignment	2E68 Knocking sensor signal 1	2F9E thermic oil level sensor	273F Lambda sensor terminal stage heating VKAT bank 2	276C Injection valve cyl 6 electric diagnostic
2C37 lambda probe front catalyst, heater interconnection	2D0F airflow sensor, signal	2E69 Knocking sensor signal 2	2FA3 coding is absence	2740 Lambda sensor heating control diagnostic VKAT bank 1	276D Injection valve cyl 7 electric diagnostic
2C38 lambda probe front catalyst 2, heater interconnection	2D10 Lair mass gauger, plausibility	2E6A Knocking sensor signal 3	CD87 PT-CAN communication error	2741 Lambda sensor heating control diagnostic VKAT bank 2	276E Injection valve cyl 8 electric diagnostic
2C39 lambda probe front catalyst, dynamic	2D11 Lair mass current, plausibility	2E6B Knocking sensor signal 4	CD88 local CAN communication error	2742 Lambda sensor heater resistance diagnostic VKAT bank 1	276F Injection valve cyl 9 electric diagnostic
2C3A lambda probe front catalyst 2, dynamic	2D13 Luftmassenmesser, rational	2E72 ecu, internal error: knock sensor device	CD9B telegram monitoring (vehicle mode, 315)	2743 Lambda sensor heater resistance diagnostic VKAT bank 2	2770 Injection valve cyl 10 electric diagnostic
2C3B lambda probe front catalyst, not plugged	2D14 air mass gauger, correction rsignal	2E73 ecu, internal error: knock sensor device	CD9A telegram monitoring (steering angle, C4)	2744 Lambda sensor heater diagnostic after START VKAT bank 1	2771 Lambda sensor dynamic diagnostic VKAT bank 1
2C3C lambda probe front catalyst 2, not plugged	2D19 gas pedal device, gas pedal sensor	2E7C Biterial data interface, signal	CD9B telegram monitoring (power management battery voltage, 3B4)	2745 Lambda sensor heater diagnostic after START VKAT bank 2	2772 Lambda sensor dynamic diagnostic VKAT bank 2
2C45 lambda probe front catalyst	2D1A gas pedal device, gas pedal sensor	2E86 Electrical water pump	CD9A telegram monitoring (power management charging voltage, 334)	2746 Lambda probe Reference resistance diag. VKAT Bank 1	2773 Secondary air pump actuation electric diagnostic
2C46 lambda probe front catalyst 2	2D1B gas pedal device, gas pedal sensor 1	2E88 Intelligent Battery sensor, Signal	CDAA Message (Status Crash shut off EKP, 135)	2747 Lambda probe Reference resistance diag. VKAT Bank 2	2774 Generator
2C47 lambda probe front catalyst, sensor line	2D1C gas pedal device, gas pedal sensor 2	2E8D Intelligent Battery sensor, Signal transmission	CDAC message (status of water valve, 3B5)	2748 Lambda probe Diag.via ATIC42-device VKAT Bank1	2775 Power management battery
2C48 lambda probe front catalyst, plausibility	2D28 differential airpressure, intake tube: signal	2E95 Generator	CDEB Message (lamp status, 21A)	2749 Lambda probe Diag.via ATIC42-device VKAT Bank2	2776 Unterdrucksensor Mastervac
2C49 lambda probe front catalyst, plausibility	2D29 differential airpressure, intake tube: plausibility	2E97 Generator	CDED Message (request wheel torque drivetrain, BF)	2750 Lambda sensor error pump current cable VKAT bank 1	2777 Motor emergency programm activated
2C4A lambda probe front catalyst 2, plausibility	2D32 differential pressure, intake tube: plausibility	2E99 generator 2	CDEE Message (time/date, 2F8)	2751 Lambda sensor error pump current cable VKAT bank 2	2778 Intake jet pump system check
2C4B ecu, internal error: lambda probe device	2D32 differential pressure, intake tube: plausibility	2E9A Generator 2, communication	CDEF Message (status of trailer, 2E4)	2752 SG internal error Inj working page	2779 EWS
2C4C ecu, internal error: lambda probe device 2	2D6E DME, internal error: monitoring actual torque	2E9F Oil status sensor		2753 Ignition cyl 1 actuation electric diagnostic	2780 EWS communication error
2C4D lambda probe front catalyst, pumping electricity line	2D6F monitoring airflow	2E9A Ölzustandssensor		2754 Ignition cyl 2 actuation electric diagnostic	2781 Generator communication error
2C4E lambda probe front catalyst 2, pumping electricity line	2D70 DME, internal error: monitoring engine functions	2E8B BSD message from intelligent battery sensor missing		2755 Ignition cyl 3 actuation electric diagnostic	2782 BSD bus error (general)
2C4F lambda probe front catalyst, alignment line	2D71 DME, internal error: monitoring input variable	2E88 BSDmessage from electric coolant pump missing, electronic missing		2756 Ignition cyl 4 actuation electric diagnostic	2783 Power management battery closed-circuit current violation
2C50 lambda probe front catalyst 2, alignment line	2D72 DME, internal error: monitoring hardware	2E8B BSDmessage from electric coolant pump missing, motor missing		2757 Ignition cyl 5 actuation electric diagnostic	2784 VANOS maximum stop inlet bank 1
2C51 lambda probe front catalyst, Nernst line	2D75 DME, internal error: monitoring engine speed	2E89 BSD message from glow ecu missing		2758 Ignition cyl 6 actuation electric diagnostic	2785 VANOS maximum stop inlet bank 2
2C52 lambda probe front catalyst 2, Nernst line	2D76 DME, internal error: monitoring gas pedal device	2E8A BSD message from glow ecu missing		2759 Ignition cyl 7 actuation electric diagnostic	2786 VANOS maximum stop outlet bank 1
2C53 lambda probe front catalyst, virtuell mass	2D78 air mass current alignment	2E8A Ölzustandssensor		2760 Ignition cyl 8 actuation electric diagnostic	2787 VANOS maximum stop outlet bank 2
2C54 lambda probe front catalyst 2, virtuell mass	2DB4 multifunction steering wheel, communication	2E8B BSD message from intelligent battery sensor missing		2761 Ignition cyl 9 actuation electric diagnostic	2788 VANOS maximum stop inlet bank 1
2C61 lambda probe front catalyst, electrical error	2DBF CAN, ACC: signal error	2E8B BSDmessage from electric coolant pump missing, motor missing		2762 Ignition cyl 10 actuation electric diagnostic	2789 VANOS maximum stop inlet bank 2
2C62 lambda probe front catalyst 2, electrical error	2DCA EGS message missing, timeout	2E89 BSD message from glow ecu missing		2763 Ignition cyl 11 actuation electric diagnostic	2790 VANOS maximum stop inlet bank 1
2C6D lambda probe rear catalyst, aging	2DCB CAN, SSG: signal error	2E8A BSD message from glow ecu missing		2764 Ignition cyl 12 actuation electric diagnostic	2791 VANOS maximum stop inlet bank 2
2C6E lambda probe rear catalyst 2, aging	2DCF CAN, control panel: signal error	2E8A Ölzustandssensor		2765 Ignition cyl 13 actuation electric diagnostic	2792 VANOS maximum stop inlet bank 1
2C71 lambda probe rear catalyst	2DD7 DSC message missing, timeout	2E8B BSD message from intelligent battery sensor missing		2766 Ignition cyl 14 actuation electric diagnostic	2793 VANOS maximum stop inlet bank 2
2C72 lambda probe rear catalyst 2	2DD8 AFS message missing, timeout	2E89 BSD message from glow ecu missing		2767 Ignition cyl 15 actuation electric diagnostic	2794 VANOS maximum stop inlet bank 1
2C9C lambda probe heater front catalyst, control	2DD9 CAN, ARS: signal error	2E8A BSD message from glow ecu missing		2768 Ignition cyl 16 actuation electric diagnostic	2795 VANOS maximum stop inlet bank 2
2C9D lambda probe heater front catalyst 2, control	2DDA CAN, CAS: signal error	2E8B BSD message from intelligent battery sensor missing		2769 Ignition cyl 17 actuation electric diagnostic	2796 VANOS maximum stop inlet bank 1
2C9E lambda probe heater rear catalyst, control	2ddb CAN, IHKA: signal error	2E89 BSD message from glow ecu missing		2770 Ignition cyl 18 actuation electric diagnostic	2797 VANOS maximum stop inlet bank 2
2C9F lambda probe heater rear catalyst 2, control	2DDC Message from SZL is absent	2E8A BSD message from glow ecu missing		2771 Ignition cyl 19 actuation electric diagnostic	2798 VANOS maximum stop inlet bank 1
2CA0 lambda probe heater front catalyst	2DDD Valvetronic message missing	2E8B BSD message from intelligent battery sensor missing		2772 Ignition cyl 20 actuation electric diagnostic	2799 VANOS maximum stop inlet bank 2
2CA1 lambda probe heater front catalyst 2	2DDE Local-CAN communication	2E89 BSD message from glow ecu missing		2773 Ignition cyl 21 actuation electric diagnostic	2800 VANOS maximum stop inlet bank 1
2CA2 Lambda probe heating in front of catalyst, shearing stress	2DDF Local-CAN communication 2	2E8A BSD message from glow ecu missing		2774 Ignition cyl 22 actuation electric diagnostic	2801 VANOS maximum stop inlet bank 2
2CA3 Lambda probe heating in front of catalyst 2, shearing stress	2DEB Powermanagement, vehicle electrical system monitoring	2E8B BSD message from intelligent battery sensor missing		2775 Ignition cyl 23 actuation electric diagnostic	2802 VANOS maximum stop inlet bank 1
2CA8 lambda probe heater rear catalyst, funktion	2DEC Powermanagement, battery monitoring	2E89 BSD message from glow ecu missing		2776 Ignition cyl 24 actuation electric diagnostic	2803 VANOS maximum stop inlet bank 2
2CA9 lambda probe heater rear catalyst 2, funktion	2DED Powermanagement, quiescent current control	2E8A BSD message from glow ecu missing		2777 Ignition cyl 25 actuation electric diagnostic	2804 VANOS maximum stop inlet bank 1
2CEF throttle valve actuator, control	2E24 spark coil cylinder 1	2E8B BSD message from intelligent battery sensor missing		2778 Ignition cyl 26 actuation electric diagnostic	2805 VANOS maximum stop inlet bank 2
2CF0 throttle valve actuator, control range	2E25 spark coil cylinder 2	2E89 BSD message from glow ecu missing		2779 Ignition cyl 27 actuation electric diagnostic	2806 VANOS maximum stop inlet bank 1
2CF1 throttle valve actuator, position monitoring	2E26 spark coil cylinder 3	2E8A BSD message from intelligent battery sensor missing		2780 Ignition cyl 28 actuation electric diagnostic	2807 VANOS maximum stop inlet bank 2
	2E27 spark coil cylinder 4	2E8B BSD message from intelligent battery sensor missing		2781 Ignition cyl 29 actuation electric diagnostic	2808 VANOS maximum stop inlet bank 1
	2E28 spark coil cylinder 5	2E89 BSD message from glow ecu missing		2782 Ignition cyl 30 actuation electric diagnostic	2809 VANOS maximum stop inlet bank 2
	2E29 spark coil cylinder 6	2E8A BSD message from intelligent battery sensor missing		2783 Ignition cyl 31 actuation electric diagnostic	2810 VANOS maximum stop inlet bank 1
		2E8B BSD message from intelligent battery sensor missing		2784 Ignition cyl 32 actuation electric diagnostic	2811 VANOS maximum stop inlet bank 2
		2E89 BSD message from glow ecu missing		2785 Ignition cyl 33 actuation electric diagnostic	2812 VANOS maximum stop inlet bank 1
		2E8A BSD message from intelligent battery sensor missing		2786 Ignition cyl 34 actuation electric diagnostic	2813 VANOS maximum stop inlet bank 2
		2E8B BSD message from intelligent battery sensor missing		2787 Ignition cyl 35 actuation electric diagnostic	2814 VANOS maximum stop inlet bank 1
		2E89 BSD message from glow ecu missing		2788 Ignition cyl 36 actuation electric diagnostic	2815 VANOS maximum stop inlet bank 2
		2E8A BSD message from intelligent battery sensor missing		2789 Ignition cyl 37 actuation electric diagnostic	2816 VANOS maximum stop inlet bank 1
		2E8B BSD message from intelligent battery sensor missing		2790 Ignition cyl 38 actuation electric diagnostic	2817 VANOS maximum stop inlet bank 2
		2E89 BSD message from glow ecu missing		2791 Ignition cyl 39 actuation electric diagnostic	2818 VANOS maximum stop inlet bank 1
		2E8A BSD message from intelligent battery sensor missing		2792 Ignition cyl 40 actuation electric diagnostic	2819 VANOS maximum stop inlet bank 2
		2E8B BSD message from intelligent battery sensor missing		2793 Ignition cyl 41 actuation electric diagnostic	2820 VANOS maximum stop inlet bank 1
		2E89 BSD message from glow ecu missing		2794 Ignition cyl 42 actuation electric diagnostic	2821 VANOS maximum stop inlet bank 2
		2E8A BSD message from intelligent battery sensor missing		2795 Ignition cyl 43 actuation electric diagnostic	2822 VANOS maximum stop inlet bank 1
		2E8B BSD message from intelligent battery sensor missing		2796 Ignition cyl 44 actuation electric diagnostic	2823 VANOS maximum stop inlet bank 2
		2E89 BSD message from glow ecu missing		2797 Ignition cyl 45 actuation electric diagnostic	2824 VANOS maximum stop inlet bank 1
		2E8A BSD message from intelligent battery sensor missing		2798 Ignition cyl 46 actuation electric diagnostic	2825 VANOS maximum stop inlet bank 2
		2E8B BSD message from intelligent battery sensor missing		2799 Ignition cyl 47 actuation electric diagnostic	2826 VANOS maximum stop inlet bank 1
		2E89 BSD message from glow ecu missing		2800 Ignition cyl 48 actuation electric diagnostic	2827 VANOS maximum stop inlet bank 2
		2E8A BSD message from intelligent battery sensor missing		2801 Ignition cyl 49 actuation electric diagnostic	2828 VANOS maximum stop inlet bank 1
		2E8B BSD message from intelligent battery sensor missing		2802 Ignition cyl 50 actuation electric diagnostic	2829 VANOS maximum stop inlet bank 2
		2E89 BSD message from glow ecu missing		2803 Ignition cyl 51 actuation electric diagnostic	2830 VANOS maximum stop inlet bank 1
		2E8A BSD message from intelligent battery sensor missing		2804 Ignition cyl 52 actuation electric diagnostic	2831 VANOS maximum stop inlet bank 2
		2E8B BSD message from intelligent battery sensor missing		2805 Ignition cyl 53 actuation electric diagnostic	2832 VANOS maximum stop inlet bank 1
		2E89 BSD message from glow ecu missing		2806 Ignition cyl 54 actuation electric diagnostic	2833 VANOS maximum stop inlet bank 2
		2E8A BSD message from intelligent battery sensor missing		2807 Ignition cyl 55 actuation electric diagnostic	2834 VANOS maximum stop inlet bank 1
		2E8B BSD message from intelligent battery sensor missing		2808 Ignition cyl 56 actuation electric diagnostic	2835 VANOS maximum stop inlet bank 2
		2E89 BSD message from glow ecu missing		2809 Ignition cyl 57 actuation electric diagnostic	2836 VANOS maximum stop inlet bank 1
		2E8A BSD message from intelligent battery sensor missing		2810 Ignition cyl 58 actuation electric diagnostic	2837 VANOS maximum stop inlet bank 2
		2E8B BSD message from intelligent battery sensor missing		2811 Ignition cyl 59 actuation electric diagnostic	2838 VANOS maximum stop inlet bank 1
		2E89 BSD message from glow ecu missing		2812 Ignition cyl 60 actuation electric diagnostic	2839 VANOS maximum stop inlet bank 2
		2E8A BSD message from intelligent battery sensor missing		2813 Ignition cyl 61 actuation electric diagnostic	2840 VANOS maximum stop inlet bank 1
		2E8B BSD message from intelligent battery sensor missing		2814 Ignition cyl 62 actuation electric diagnostic	2841 VANOS maximum stop inlet bank 2
		2E89 BSD message from glow ecu missing		2815 Ignition cyl 63 actuation electric diagnostic	2842 VANOS maximum stop inlet bank 1
		2E8A BSD message from intelligent battery sensor missing		2816 Ignition cyl 64 actuation electric diagnostic	2843 VANOS maximum stop inlet bank 2
		2E8B BSD message from intelligent battery sensor missing		2817 Ignition cyl 65 actuation electric diagnostic	2844 VANOS maximum stop inlet bank 1
		2E89 BSD message from glow ecu missing		2818 Ignition cyl 66 actuation electric diagnostic	2845 VANOS maximum stop inlet bank 2
		2E8A BSD message from intelligent battery sensor missing		2819 Ignition cyl 67 actuation electric diagnostic	2846 VANOS maximum stop inlet bank 1
		2E8B BSD message from intelligent battery sensor missing		2820 Ignition cyl 68 actuation electric diagnostic	2847 VANOS maximum stop inlet bank 2
		2E89 BSD message from glow ecu missing		2821 Ignition cyl 69 actuation electric diagnostic	2848 VANOS maximum stop inlet bank 1
		2E8A BSD message from intelligent battery sensor missing		2822 Ignition cyl 70 actuation electric diagnostic	2849 VANOS maximum stop inlet bank 2
		2E8B BSD message from intelligent battery sensor missing		2823 Ignition cyl 71 actuation electric diagnostic	2850 VANOS maximum stop inlet bank 1
		2E89 BSD message from glow ecu missing		2824 Ignition cyl 72 actuation electric diagnostic	2851 VANOS maximum stop inlet bank 2
		2E8A BSD message from intelligent battery sensor missing		2825 Ignition cyl 73 actuation electric diagnostic	2852 VANOS maximum stop inlet bank 1
		2E8B BSD message from intelligent battery sensor missing		2826 Ignition cyl 74 actuation electric diagnostic	2853 VANOS maximum stop inlet bank 2
		2E89 BSD message from glow ecu missing		2827 Ignition cyl 75 actuation electric diagnostic	2854 VANOS maximum stop inlet bank 1
		2E8A BSD message from intelligent battery sensor missing		2828 Ignition cyl 76 actuation electric diagnostic	2855 VANOS maximum stop inlet bank 2
		2E8B BSD message from intelligent battery sensor missing		2829 Ignition cyl 77 actuation electric diagnostic	2856 VANOS maximum stop inlet bank 1
		2E89 BSD message from glow ecu missing		2830 Ignition cyl 78 actuation electric diagnostic	2857 VANOS maximum stop inlet bank 2
		2E8A BSD message from intelligent battery sensor missing		2831 Ignition cyl 79 actuation electric diagnostic	2858 VANOS maximum stop inlet bank 1
		2E8B BSD message from intelligent battery sensor missing		2832 Ignition cyl 80 actuation electric diagnostic	2859 VANOS maximum stop inlet bank 2
		2E89 BSD message from glow ecu missing		2833 Ignition cyl 81 actuation electric diagnostic	2860 VANOS maximum stop inlet bank 1
		2E8A BSD message from intelligent battery sensor missing		2834 Ignition cyl 82 actuation electric diagnostic	2861 VANOS maximum stop inlet bank 2
		2E8B BSD message from intelligent battery sensor missing		2835 Ignition cyl 83 actuation electric diagnostic	2862 VANOS maximum stop inlet bank 1
		2E89 BSD message from glow ecu missing		2836 Ignition cyl 84 actuation electric diagnostic	2863 VANOS maximum stop inlet bank 2
		2E8A BSD message from intelligent battery sensor missing		2837 Ignition cyl 85 actuation electric diagnostic	2864 VANOS maximum stop inlet bank 1
		2E8B BSD message from intelligent battery sensor missing		2838 Ignition cyl 86 actuation electric diagnostic	2865 VANOS maximum stop inlet bank 2
		2E89 BSD message from glow ecu missing		2839 Ignition cyl 87 actuation electric diagnostic	2866 VANOS maximum stop inlet bank 1
		2E8A BSD message from intelligent battery sensor missing		2840 Ignition cyl 88 actuation electric diagnostic	2867 VANOS maximum stop inlet bank 2
		2E8B BSD message from intelligent battery sensor missing		2841 Ignition cyl 89 actuation electric diagnostic	2868 VANOS maximum stop inlet bank 1
		2E89 BSD message from glow ecu missing		2842 Ignition cyl 90 actuation electric diagnostic	2869 VANOS maximum stop inlet bank 2
		2E8A BSD message from intelligent battery sensor missing		2843 Ignition cyl 91 actuation electric diagnostic	2870 VANOS maximum stop inlet bank 1
		2E8B BSD message from intelligent battery sensor missing		2844 Ignition cyl 92 actuation electric diagnostic	2871 VANOS maximum stop inlet bank 2
		2E89 BSD message from glow ecu missing		2845 Ignition cyl 93 actuation electric diagnostic	2872 VANOS maximum stop inlet bank 1
		2E8A BSD message from intelligent battery sensor missing		2846 Ignition cyl 94 actuation electric diagnostic	2873 VANOS maximum stop inlet bank 2
		2E8B BSD message from intelligent battery sensor missing		2847 Ignition cyl 95 actuation electric diagnostic	2874 VANOS maximum stop inlet bank 1
		2E89 BSD message from glow ecu missing		2848 Ignition cyl 96 actuation electric diagnostic	2875 VANOS maximum stop inlet bank 2
		2E8A BSD message from intelligent battery sensor missing		2849 Ignition cyl 97 actuation electric diagnostic	2876 VANOS maximum stop inlet bank 1
		2E8B BSD message from intelligent battery sensor missing		2850 Ignition cyl 98 actuation electric diagnostic	2877 VANOS maximum stop inlet bank 2
		2E89 BSD message from glow ecu missing		2851 Ignition cyl 99 actuation electric diagnostic	2878 VANOS maximum stop inlet bank 1
		2E8A BSD message from intelligent battery sensor missing		2852 Ignition cyl 100 actuation electric diagnostic	2879 VANOS maximum stop inlet bank 2
		2E8B BSD message from intelligent battery sensor missing		2853 Ignition cyl 101 actuation electric diagnostic	2880 VANOS maximum stop inlet bank 1
		2E89 BSD message from glow ecu missing		2854 Ignition cyl 102 actuation electric diagnostic	2881 VANOS maximum stop inlet bank 2
		2E8A BSD message from intelligent battery sensor missing		2855 Ignition cyl 103 actuation electric diagnostic	2882 VANOS maximum stop inlet bank 1
		2E8B BSD message from intelligent battery sensor missing		2856 Ignition cyl 104 actuation electric diagnostic	2883 VANOS maximum stop inlet bank 2
		2E89 BSD message from glow ecu missing		2857 Ignition cyl 105 actuation electric diagnostic	2884 VANOS maximum stop inlet bank 1
		2E8A BSD message from intelligent battery sensor missing		2858 Ignition cyl 106 actuation electric diagnostic	2885 VANOS maximum stop inlet bank 2
		2E8B BSD message from intelligent battery sensor missing		2859 Ignition cyl 107 actuation electric diagnostic	2886 VANOS maximum stop inlet bank 1
		2E89 BSD message from glow ecu missing		2860 Ignition cyl 108 actuation electric diagnostic	2887 VANOS maximum stop inlet bank 2
		2E8A BSD message from intelligent battery sensor missing		2861 Ignition cyl 109 actuation electric diagnostic	2888 VANOS maximum stop inlet bank 1
		2E8B BSD message from intelligent battery sensor missing		2862 Ignition cyl 110 actuation electric diagnostic	2889 VANOS maximum stop inlet bank 2
		2E89 BSD message from glow ecu missing		2863 Ignition cyl 111 actuation electric diagnostic	2890 VANOS maximum stop inlet bank 1
		2E8A BSD message from intelligent battery sensor missing		2864 Ignition cyl 112 actuation electric diagnostic	2891 VANOS maximum stop inlet bank 2
		2E8B BSD message from intelligent battery sensor missing		2865 Ignition cyl 113 actuation electric diagnostic	2892 VANOS maximum stop inlet bank 1
		2E89 BSD message from glow ecu missing		2866 Ignition cyl 114 actuation electric diagnostic	2893 VANOS maximum stop inlet bank 2
		2E8A BSD message from intelligent battery sensor missing		2867 Ignition cyl 115 actuation electric diagnostic	2894 VANOS maximum stop inlet bank 1
		2E8B BSD message from intelligent battery sensor missing		2868 Ignition cyl 116 actuation electric diagnostic	2895 VANOS maximum stop inlet bank 2
		2E89 BSD message from glow ecu missing		2869 Ignition cyl 117 actuation electric diagnostic	2896 VANOS maximum stop inlet bank 1
		2E8A BSD message from intelligent battery sensor missing		2870 Ignition cyl 118 act	

27A1 Throttle valve actuator enable cable bank 1	27D6 tank sensor right electrical failure	2B21 Throttle valve actuator predrive check bank 1	2B59 Coolant thermostat monitor	2713 Reversed Lambda probes or plug assignment HDEV control module reversed	2782 Camshaft sensor outlet
27A2 Throttle valve actuator enable cable bank 2	27D7 Lambda sensor SLOPE diagnostics NKAT Bank 1	2B22 Throttle valve actuator predrive check bank 2	2B5A Intake air temperature sensor plausibility bank 2	2716 Actuation of heating sensor downstream of cat	2783 Hot film air mass meter
27A3 Oil pressure switch electric diagnostic	27D8 Lambda sensor SLOPE diagnostics NKAT Bank 2	2B23 Idling speed control valve control monitor bank 1	2B5B throttle valve error status Bank 1	271A Lambda probe upstream of cat	2784 Throttle valve potentiometer
27A4 Tank ventilation function test bank 1	27D9 Plausibility Difference-pressure-sensor Mastervac	2B24 Idling speed control valve control monitor bank 2	2B5C throttle valve error status Bank 2	271B Output heating probe upstream of catalytic converter	2785 Throttle valve potentiometer 1
27A5 Tank ventilation function test bank 2	27DA Plausibility depressionpump Mastervac	2B25 Throttle valve monitor bank 1	2B5D Vehicle speed control release	271C Lambda probe downstream of cat	2786 Throttle valve potentiometer 2
27A6 Tank ventilation actuation bank 1	27DB INDEX_203_INJ	2B26 Throttle valve monitor bank 2	2B5E acknowledgement of accelerator and brake at the same time	271D Lambda probes heating upstream of cat	2787 Driving speed
27A7 Tank ventilation actuation bank 2	27DC INDEX_204_INJ	2B27 Throttle valve test reset springs bank 1	2B5F CAS Control electrical Diagnostics	271E Lambda probes heating downstream of cat	2788 Poor road recognition
27A8 SG internal monitor level 2	27DD INDEX_205_INJ	2B28 Throttle valve test reset springs bank 2	2B60 longitudinal acceleration sensor Handshaltungserie	2721 Lambda probe ageing downstream of cat	278A Ambient temperature
27A9 Crankshaft sensor	27DE INDEX_206_INJ	2B29 Torque manager monitor	2B61 Gear input speed sensor / slipping clutch	2722 LR adaption multiplicative range2	278B Engine temperature
27AA Lambda adaption at VKAT stop bank 1	27DF INDEX_207_INJ	2B2A Idling speed control valve initialisation	2B62 environment temperature sensor	272A LR adaption multiplicative range1	278C Intake air temperature
27AB Lambda adaption at VKAT stop bank 2	27E0 INDEX_208_INJ	2B2B DSC requirement plausibility	2B63 Idle running switch control - CSS	272C LR adaption additive per time	278D Temperature sensor radiator outlet
27AC Crank housing ventilation diagnostic bank 1	27E1 INDEX_209_INJ	2B2C Throttle valve initialisation bank 1	2B64 Shunt coolant temperature sensor	272E LR adaption additive per ignition	278E Differential pressure sensor intake pipe
27AD Crank housing ventilation diagnostic bank 2	27E2 INDEX_210_INJ	2B2D Throttle valve initialisation bank 2	2B65 Post adaption longitudinal acceleration sensor HSG	2730 Mix adaption summ error	2791 Exchanger code without adaption
27AE Tank fuel level implausible	27E4 INDEX_212_INJ	2B2E Idling speed control valve initialisation bank 1	2B66 INDEX_110_IGN	2731 camshaft controller inlet	2792 Throttle valve position monitor
27AF Secondary air pump	27E5 INDEX_213_INJ	2B2F Idling speed control valve initialisation bank 2	2B67 INDEX_111_IGN	2733 Mix adaption summ error Bank2	2793 DK-Actuator Control deviation
27B0 Secondary air system throughput bank 1	27E6 INDEX_214_INJ	2B35 Combustion misfire with cut-out cyl 1	2B68 INDEX_112_IGN	2736 Lamda probe in front of catalyst, electrical error	2794 Throttle valve adjuster activation
27B1 Secondary air system throughput bank 2	27E7 INDEX_215_INJ	2B36 Combustion misfire with cut-out cyl 2	2B69 INDEX_113_IGN	2737 EWS3.3 manipulation guard	2795 Spring test throttle valve adjuster closing spring
27B2 Secondary air system throughput main section	27E8 INDEX_216_INJ	2B37 Combustion misfire with cut-out cyl 3	2B6A INDEX_114_IGN	2738 Catalytic conversion	2796 Check bottom stop
27B3 Energy saving mode active	27E9 INDEX_217_INJ	2B38 Combustion misfire with cut-out cyl 4	2B6B INDEX_115_IGN	2742 Failure recognition cyl.1	2797 Throttle valve adjuster error during amplifier matching
27B4 Gear leergassen switch of manual transmission	27EA INDEX_218_INJ	2B39 Combustion misfire with cut-out cyl 5	2B6C INDEX_116_IGN	2743 Failure recognition cyl.7	2798 Check emergency air point
27B5 Clutch switch manual gearbox	27EB INDEX_219_INJ	2B3A Combustion misfire with cut-out cyl 6	2B6D INDEX_117_IGN	2744 Failure recognition cyl.5	2799 Cancel DV adaption because of environmental conditions
27B6 VANOS oil pressure	27EC INDEX_220_INJ	2B3B Combustion misfire with cut-out cyl 7	2B6E INDEX_118_IGN	2745 Failure recognition cyl.11	279A Cancel during UMA relearn
27B7 elektrische Unterdruckpumpe fuer Mastervac	27ED INDEX_221_INJ	2B3C Combustion misfire with cut-out cyl 8	2B6F INDEX_119_IGN	2746 Failure recognition cyl.3	279B Thermostat jamming
27B8 E blower actuation electric diagnostic	27EE INDEX_222_INJ	2B3D Combustion misfire with cut-out cyl 9	2B70 INDEX_120_IGN	2747 Failure recognition cyl.9	279C Activation of thermostat characteristic fluid cooling
27BA Fuel system diagnostic bank 1	27EF INDEX_223_INJ	2B3E Combustion misfire with cut-out cyl 10	2B71 INDEX_121_IGN	2748 Failure recognition cyl.6	279D activation engine electric fan
27BB Fuel system diagnostic bank 2	2AF8 ECU internal IGN-error memory test	2B3F Ion current signal bank 1	2B72 INDEX_122_IGN	2749 Failure recognition cyl.12	279E Activation of exhaust valve
27BC Catalyst protection Bank 1	2AF9 Coolant temperature sensor	2B40 Ion current signal bank 2	2B73 INDEX_123_IGN	274A Failure recognition cyl.2	279F Output fanA
27BD Catalyst protection Bank 2	2AFA Coolant temperature sensor plausibility	2B41 Combustion misfire with cut-out several cyl	2B74 INDEX_124_IGN	274B Failure recognition cyl.8	27A0 Activation of E box fan
27BE Message (Status Gear)	2AFB Intake air temperature sensor bank 1	2B42 Combustion misfire with emissions deterioration cyl 1	2B75 INDEX_125_IGN	274C Failure recognition cyl.4	27A2 engine fan 2 activated
27BF Message (Request wheel moment)	2AFC Intake air temperature sensor bank 2	2B43 Combustion misfire with emissions deterioration cyl 2	2B76 INDEX_126_IGN	274D Failure recognition cyl.10	27A4 EWS3.3 EWS-DME interface
27C0 Tankgeber elektrischer Fehler	2AFE Voltage at terminal 87	2B44 Combustion misfire with emissions deterioration cyl 3	2B77 INDEX_127_IGN	274E Failure recognition sum error	27B0 environment temperature sensor, Signal
27C1 Info Tank leer bei Fehlereintrag	2AFF Radiator output temperature sensor	2B45 Combustion misfire with emissions deterioration cyl 4	CD87 CAN bus communication error	2753 Monitor magneto 1	27B1 environment temperature sensor, Plausibility
27C2 Message (wheel tolerance adjustment)	2B00 Control module temperature sensor	2B46 Combustion misfire with emissions deterioration cyl 5	CD8B Bus off idling speed control valve /SMG CAN	2754 Control igniter 5	27B3 Throttle valve/HFM matching activation
27C3 DM-TL leak detection	2B01 Voltage supply at PIN 111,219,514	2B47 Combustion misfire with emissions deterioration cyl 6	CD93 Bus off throttle valve CAN	2755 Control igniter 3	27B4 Pressure sensor environment
27C4 environment pressure Plausibility	2B02 Voltage supply at PIN 124,512	2B48 Combustion misfire with emissions deterioration cyl 7	CD94 Message (exterior temperature)	2756 Control igniter 6	27B5 Activation of inlet VANOS
27C5 secondary air Mini-HFM Plausibility	2B03 SG internal error Ign working page	2B49 Combustion misfire with emissions deterioration cyl 8	CD95 Message (control FGR)	2757 Control igniter 2	27B6 Activation of fuel pump relay
27C6 Lambda probe AD-Diagnostics trim control Bank 1	2B04 Radiator outlet temperature plausibility	2B4A Combustion misfire with emissions deterioration cyl 9	CD98 Message (current requirement DSC)	2758 Control igniter 4	27B8 Plausibility differential pressure sensor
27C7 Lambda sensor trim control AD diagnostic bank 2	2B05 Pedal value sensor 1	2B4B Combustion misfire with emissions deterioration cyl 10	CD9B Message (vehicle mode)	2759 Control igniter 7	27B9 Environment pressure sensor, Signal
27C8 Lambda probe electr. OPENLOAD-Diagnostics NKAT Bank1	2B06 Pedal value sensor 2	2B4C Ion current control module internal bank 1	CD9C Message (vehicle speed)	275A Control igniter 11	27BA Environment pressure sensor, Plausibility
27C9 Lambda probe electr. OPENLOAD-Diagnostics NKAT Bank2	2B07 Pedal value sensor plausibility	2B4D Ion current control module internal bank 2	CD9F Message (mileage)	275B Control igniter 9	27BB camshaft control outlet
27CA Lambda probe Wiedereinsetz-Diagnose NKAT Bank 1	2B08 SG internal error IGN processor control bank 1	2B4E Combustion misfire with emissions deterioration several cyl	CDA0 Message (terminal status)	275C Control igniter 12	27BD Activation of outlet VANOS
27CB Lambda probe Wiedereinsetz-Diagnose NKAT Bank 2	2B0E Idling speed control valve monitor bank 2	2B4F Intake air temperature sensor plausibility bank 1	CDA1 Message (steering angle)	275D Control igniter 8	27C1 Master camshaft sensor
27CC Lambda probe heating energy NKAT Bank 1	2B0F SMG switch process monitor	2B50 request Plausibility	CDA5 Message (status DSC)	275E Monitor magneto 10	27C2 Activation of air conditioning compressor controller
27CD Lambda probe heating energy NKAT Bank 2	2B10 SMG module monitor	2B51 Message (Status EKP)	CDA8 Message (cluster status)	2760 Secondary air system	27C8 DM-TL rough leakage
27CE fuel pressure-Model comparison	2B11 SMG engine speed monitor	2B52 Additional oil pump bank 1	CDA9 Message (air-conditioning requirement)	2762 Secondary air valve	27CA Activation of DM-TL pump motor
27CF building up of fuel pressure EKP-forward stroke	2B12 Ambient temperature sensor plausibility	2B53 Additional oil pump bank 2	CDAF Message (trailer status)	2764 Activate relay for secondary air pump	27CB DM-TL Very fine leak (0.5 mm) ML off
27D0 fuel pressure control adaption	2B13 Speed registration	2B54 SG internal error	CDBB Message (wheel speeds)	2765 Activate secondary air valve	27CC DM-TL fine leak
27D1 Gear temperature sensor of manual transmission	2B14 initialisation throttle positioner	2B55 SG internal monitor level 2	CDBC Message (audio telephone control)	2769 Spring test throttle valve adjuster opening spring	27CD DM-TL module
27D2 Lambda probe VKAT/ATIC42 SPI-communication	2B15 Throttle valve actuator control monitor bank 1	2B56 Brake light/test switch plausibility	CDBD Idling speed control valve CAN message bank 1	276A Control module selection	27CE Load-sensor-, wire- or ECU-error
27D3 INDEX_195_INJ	2B16 Throttle valve actuator control monitor bank 2	2B57 Motor emergency programm activated	CDBE Idling speed control valve CAN message bank 2	276D Tank ventilation functional check	27D5 Idling control defective
27D4 Message (OBD-ErrorType)	2B17 Throttle valve adaption bank 1	2B58 Idling control monitor	CDBF Throttle valve actuator CAN message bank 1	2772 Activate tank ventilation valve	27D9 Activation of DM-TL heating
27D5 tank sensor left electrical failure	2B18 Throttle valve adaption bank 2		CDC0 Throttle valve actuator CAN message bank 2	2774 plausibility system clock power module	27DA Generator error
	2B19 Ion current signal amplification bank 1		CDC1 SMG CAN message 1	2775 Engine torque monitor level 2	27DC EWS3.3 altering code saving
	2B1A Ion current measurement voltage selection bank 1		CDC2 SMG CAN message 2	2776 Multi-functional steering wheel interface	27E1 Pedal value sensor monitor
	2B1B Ion current signal amplification bank 2		CDC3 SMG CAN message 3	2778 Clutch switch	27E2 Knocking sensor1
	2B1C Ion current measurement voltage selection bank 2		FFFF Unknown error location	2779 Control module self-test RAM	27E3 Knocking sensor2
	2B1D Exhaust temperature sensor bank 1			277A Brake switch	27E4 Knocking sensor3
	2B1E Exhaust temperature sensor bank 2			277B Control module self-test ROM	27E5 Knocking sensor3
	2B1F Throttle valve sensor bank 1			277C Control module self-test RESET	27E6 Knocking control zero test
	2B20 Throttle valve sensor bank 2			277D Battery voltage	27E7 Knocking control offset
				277E Torque limitation level 1	27E8 Knocking control zero pulse
				277F Crankshaft sensor	27E9 Knocking control zero test bank2
				2780 Reference mark sensor	27EA CAN timeout HDEV
				2781 Camshaft sensor inlet	27EC CAN-EGS Signal error

Table 24

2712 Actuation of solenoid valve DM-TL

27ED CAN-ASC/DSC signal error	operation	2923 high pressure injection valve low side 6	2A16 DMTL diagnosis module tank leakage, finest leakage	2C39 Lambda probe in front of catalytic converter, dynamics	2D77 DME, DME2: torque comparison
27EE CAN-instrument cluster signal error	2866 VVT stop learning necessary	2924 Rail pressure control	2A17 DMTL diagnosis module tank leakage, system failure	2C3B DMTL probe in front of catalytic converter, not plugged	2DBF CAN, ACC: signal error
27EF CAN-ACC signal error	2867 VVT system overload	2924 LSU matching cable	2A18 DMTL diagnosis module tank leakage, heating: input signal	2C47 lambda probe front catalyst, sensor line	2DC1 message from powermodul missing
27F2 Plausibility tank fill level	286D output HDEV9, cable 9	292D LSU Nemst cell break	2A19 tank ventilation valve, input signal	2C4B ecu, internal error: lambda probe device	2DCF CAN, control panel: signal error
27F3 CAN-Timeout VVT control module	286E output HDEV12, cable 12	2930 LSU virtual earth break	2A1A tank ventilation system, function	2C4D lambda probe front catalyst, pumping electricity line	2DD7 Message from DSC doesn't exist, timeout
27F4 fuel level, signal	286F output HDEV8, cable 8	2932 output pressure control valve	2A1D tank filling level, plausibility	2C4F lambda probe front catalyst, alignment line	2DD9 CAN, ARS: signal error
27F5 fuel level, plausibility	2870 output HDEV10, cable 10	2937 Function monitor: Lambda plausibilisation	2A1E fuel level, signal	2C51 lambda probe front catalyst, Nemst line	2DDA CAN, CAS: signal error
27F6 Pedal value sensor	2871 high pressure injection valve high side 7	2940 high pressure injection valve high side 2	2A21 Tank fill level 2, signal	2C53 lambda probe front catalyst, virtuell mass	2DDB CAN, HKHA: signal error
27F7 Pedal value sensor potentiometer1	2872 high pressure injection valve high side 11	2941 high pressure injection valve high side 4	2A2A Ventilation valve return system, control	2C61 lambda probe front catalyst, electrical error	2DDC Message from SZL is absent
27F8 Pedal value sensor potentiometer2	2873 high pressure injection valve high side 9	2942 high pressure injection valve low side 2	2A58 Valvetronic, power supply	2C6D Lambda probe behind catalytic converter, aging	2DDD Valvetronic message missing
27FA Automatic start input	2874 high pressure injection valve high side 12	2943 high pressure injection valve low side 4	2A59 Valvetronic, eccentric shaft sensor: track	2C71 lambda probe rear catalyst	2DDE Local-CAN communication
27FD Automatic start	2875 high pressure injection valve high side 8	2944 DME coupling messages	2A5B Valvetronic, eccentric shaft sensor: referenz	2C84 Lambda probe behind catalyst, Dynamics	2DE6 Local-CAN, DME/DME2: communication
27FE Knocking control offset bank2	2876 high pressure injection valve high side 10	296C CAN timeout TXU	2A61 Valvetronic, adjustment range	2C9C Lambda probe heating in front of catalytic converter, input signal	2E24 Ignition coil cyl. 1
27FF Knocking control test pulse bank2	2877 high pressure injection valve high side 7	296D Engine torque bank comparison	2A63 Valvetronic, servo motor: monitoring tightness, rotation direction	2C9E Lambda probe heating behind catalytic converter, input signal	2E25 Ignition coil cyl. 2
2813 Control module monitor group A	2878 high pressure injection valve high side 11	2971 Program and data state plausibilisation of master and slave	2A65 Valvetronic, internal error	2CA0 lambda probe heater front catalyst	2E26 Ignition coil cyl. 3
2814 Control module monitor group B	287A high pressure injection valve high side 9	297C RL limiting	2A67 Valvetronic, adjustment motor: input signal	2CA8 Lambda probe heating behind catalytic converter, function	2E27 Ignition coil cyl. 4
2815 Control module monitor group C	287D high pressure injection valve low side 12	298E high pressure injection valve 1	2A69 Valvetronic, servo motor: power supply	2CEF throttle valve actuator, activation	2E28 Ignition coil cyl. 5
2816 Engine speed monitor	287E high pressure injection valve low side 8	298F high pressure injection valve 5	2A6B Valvetronic, power limiting	2CF0 throttle valve actuator, control range	2E29 Ignition coil cyl. 6
2818 Voltage monitor probe on air (probe not fitted but connected)	287F high pressure injection valve low side 10	2990 high pressure injection valve 3	2A6C Valvetronic, position at restart: plausibility	2CF8 throttle valve potentiometer	2E2A spark coil cylinder 7
2819 time out ECU-coupling	2880 activation return ventilation-valve	2991 high pressure injection valve 6	2A6D Valvetronic, electronic overload protection	2CF9 throttle valve potentiometer 1	2E2B spark coil cylinder 8
281E Activation of DISA	2889 Plausibility monitor RAM backup	2992 high pressure injection valve 2	2A6F Valvetronic, minimal stroke	2CFA throttle valve potentiometer 2	2E2C ignition coil cylinder 9
2822 Forced circuit EGS	28C8 LR deviation	2993 high pressure injection valve 4	2A80 inlet-VANOS variable cam control test, input signal	2CFF throttle valve actuator, amplifier alignment	2E2D ignition coil cylinder 10
2823 Lambda probe heating upstream of cat (in thrust)	28D6 HO process error, no coding	2994 high pressure injection valve 7	2A83 injector-VANOS	2D00 throttle valve actuator, spring check closing spring	2E2E ignition coil cylinder 11
2825 Lambda probe ageing downstream of cat	28D7 Generator communication	2995 high pressure injection valve 11	2A85 outlet-VANOS variable cam control test	2D01 throttle valve actuator, spring check opening spring	2E2F ignition coil cylinder 12
2827 Heating connection to signal path	28D8 RAM backup error	2996 high pressure injection valve 9	2A88 outlet-VANOS	2D02 throttle valve actuator, auxiliary air point	2E3C HDEV-control unit line 9, control
2828 CAN-ARS signal error	28DB Min stroke adaption stop several times	2997 high pressure injection valve 12	2A8A intake-VANOS, Adaption limit stop	2D03 throttle valve actuator, abort alignment because of environmental condition	2E3D HDEV-control unit line 12, control
2829 CAN-CAS signal error	28DC 2. generator communication	2998 high pressure injection valve 8	2A8E intake camshaft, cog offset of crankshaft	2E3F HDEV-control unit line 10, control	2E40 HDEV-control unit line 1, control
282A ICAN-HKA signal error	28DE Boostertimeout high pressure injection valve cyl 1	2999 high pressure injection valve 10	2A90 outlet camshaft, cog offset of crankshaft	2E41 HDEV-control unit line 5, control	2E44 HDEV-control unit line 1, control
282B CAN-PWML signal error	28DF Boostertimeout high pressure injection valve cyl 3	29AE fuel tank cap open	2B5C crankshaft sensor, signal	2E43 HDEV-control unit line 6, control	2E44 HDEV-control unit line 2, control
282C CAN-SZL signal error	28E0 Boostertimeout high pressure injection valve cyl 6	29AE fuel tank cap open	2B5D crankshaft sensor, plausibility	2E44 HDEV-control unit line 4, control	2E45 HDEV-control unit line 7, control
282E PWG movement	28E1 Boostertimeout high pressure injection valve cyl 2	29AE fuel tank cap open	2B5E crankshaft sensor, signal	2E46 HDEV-control unit line 11, control	2E48 Booster high pressure injector 1
283A Error oil level sensor	28E2 Boostertimeout high pressure injection valve cyl 4	29AE fuel tank cap open	2B62 camshaft sensor, intake	2E49 Booster high pressure injector 5	2E4A Booster high pressure injector 3
283D PT CAN bus off	28E3 Boostertimeout high pressure injection valve cyl 7	29AE fuel tank cap open	2B63 camshaft sensor, outlet	2E4B Booster high pressure injector 6	2E44 Booster high pressure injector 4
283E VVT enable cable activation	28E4 Boostertimeout high pressure injection valve cyl 11	29AE fuel tank cap open	2B66 camshaft sensor, master	2E4C Booster high pressure injector 2	2E4E Booster high pressure injector 7
283F Plausibility oil pressure switch	28E5 boostertimeout high pressure injector cyl 12	29AE fuel tank cap open	2B7A Stop valve return system, control	2E4D Booster high pressure injector 4	2E4F Booster high pressure injector 11
2841 Air-encased injection valves activation	2901 Boostertimeout high pressure injection valve cyl 9	29AE fuel tank cap open	2B7F Adjustment throttle valve-air mass sensor	2E50 Booster high pressure injector 9	2E51 Booster high pressure injector 12
2842 2. generator error	2902 boostertimeout high pressure injector cyl 12	29AE fuel tank cap open	2B81 idle speed control at homogen mode	2E52 Booster high pressure injector 8	2E53 Booster high pressure injector 10
2843 Plausibility diagnostic LSU by LSH rear cat	2903 Boostertimeout high pressure injection valve cyl 8	29AE fuel tank cap open	2B82 Idle running control at catalyst heating system	2D1C accelerator pedal module, pedal sensor signal 2	2E60 HDEV-control unit, internal error: communication
2844 Self-diagnostic C.J125 SPI communication	2904 boostertimeout high pressure injector cyl 10	29AE fuel tank cap open	2B84 Additional air flap, control	2D28 differential pressure sensor, suction pipe: Signal	2E68 knock sensor signal 1
2846 Activation of intake valve	290F high pressure sensor test (signal rail pressure sensor)	29AE fuel tank cap open	2B88 ecu, internal error: RAM backup, plausibility	2D29 differential pressure sensor, suction pipe: plausibility	2E69 knock sensor signal 2
2847 Pressure switch activation	2913 output HDEV1, cable 1	29AE fuel tank cap open	2B99 ecu, internal error: RAM backup	2D6D DME, internal error: control DME/DME2	2E6A Knocking sensor signal 3
2848 Output relay HDEV SG	2914 output HDEV5 wire 5	29AE fuel tank cap open	2B9A control unit, internal failure: RAM	2D6E DME digital motor electronics, internal failure: control actual torque??	2E6E Ignition, control: firing time
2849 Cable break on pump current	2915 output HDEV3, cable 3	29AE fuel tank cap open	2B9B ecu, internal error: ROM	2D70 DME, internal error: monitoring engine functions	2E6F Ignition 2, control: firing time
284A Short circuit probe cables against earth or Ub	2916 output HDEV6, cable 6	29AE fuel tank cap open	2B9C ecu, internal error: reset	2D71 DME, internal error: monitoring input variable	2E72 control unit, internal failure: knock sensor module
284B Control return blocking valve	2917 output HDEV2, cable 2	29AE fuel tank cap open	2BA7 DME, internal error: toque limit control level 1	2D72 DME digital motor electronics, internal failure: control hardware	2E73 control unit, internal failure: knock sensor module
284C LSU dynamic too slow	2918 output HDEV4, cable 4	29AE fuel tank cap open	2BAC DME, DME2: Programmstand discrepancy	2D74 DME, internal error: control fuel pressure sensor	2E97 Generator
284F Speed display in cluster defective	2919 output HDEV7, cable 7	29AE fuel tank cap open	2BAD DME, DME2: Hardware, plausibility	2D75 DME digital motor electronics, internal failure: control motor speed	2E98 generator, communication
2850 VVT guide sensor	291A output HDEV11 cable 11	29AE fuel tank cap open	2BC0 ambient temperature sensor, plausibility	2D76 DME digital motor electronics, internal failure: control driver pedal module	2E99 Generator 2
2851 VVT-direction sensor (Bank2)	291B high pressure injection valve high side 1	29AE fuel tank cap open	2BC1 ambient temperature sensor, signal		2E9A Generator 2, communication
2852 VVT reference sensor	291C high pressure injection valve high side 5	29AE fuel tank cap open	2C24 Lambda probe in front of catalytic converter, muddled		2E9F oil condition sensor
2853 VVT reference sensor (bank2)	291D high pressure injection valve high side 3	29AE fuel tank cap open	2C31 Lambda probe in front of catalytic converter, trimming control		2EE0 coolant temperature sensor, Signal
2854 VVT sensor plausibilisation	291E high pressure injection valve high side 6	29AE fuel tank cap open	2C37 Lambda probe in front of catalytic converter, heatingcoupling		2EE1 coolant temperature sensor, plausibility
2855 VVT sensor plausibilisation (bank2)	291F high pressure injection valve, communication	29AE fuel tank cap open			2EEA Temperature sensor radiator emission, signal
2856 VVT sensor supply voltage	2920 high pressure injection valve low side 1	29AE fuel tank cap open			2EF4 map thermostat, mechanics
2857 VVT sensor supply voltage (bank2)	2921 high pressure injection valve low side 5	29AE fuel tank cap open			2EF5 map thermostat, input signal
2858 VVT learn function stop	2922 high pressure injection valve low side 3	29AE fuel tank cap open			
2859 VVT learn function stop (bank2)					
285A VVT actuator monitor					
285B VVT actuator monitor (bank2)					
285C VVT-CAN communication					
285D VVT-CAN communication (bank2)					
285E VVT control module internal error					
2860 VVT-output					
2862 VVT-power supply					
2864 DM-TL pump activation error					
2865 Performance limit VVT emergency					

Table 25

2EFC Electric fan 2, Control
 2EFE electrical fan, input signal
 2F08 inlet air temperature sensor, signal
 2F09 inlet air temperature sensor, plausibility
 2F0B intake air temperature sensor: cold portion, plausibility (preliminary)
 2F17 engine oil temperature, temporary to high, EGS-Zwangsschaltung
 2F44 EWS manipulation protection
 2F45 interface EWS-DME electronic vehicle immobilization/digital motor electronics
 2F46 EWS variable code storage
 2F4E vehicle speed, signal
 2F4F vehicle speed, plausibility
 2F50 vehicle speed, plausibility
 2F59 Start automatic, start signal
 2F5A Start automatic control
 2F62 Brake light switch
 2F6C exhaust fume flap, input signal
 2F71 E-box-fan, input signal
 2F77 ambient pressure sensor, plausibility
 2F78 DME, internal error: environment pressure sensor
 2F7B oil pressure switch, plausibility
 2F80 motor shutoff time, plausibility
 2F8A Battery Voltage
 2FA3 coding missing
 30AC injection valve cylinder 1, input signal
 30AD injection valve cylinder 2, input signal
 30AE injection valve cylinder 3, input signal
 30AF injection valve cylinder 4, input signal
 30B0 injection valve cylinder 5, input signal
 30B1 injection valve cylinder 6, input signal
 30B2 injection valve cylinder 7, control
 30B3 injection valve cylinder 8, control
 30B4 Injector cylinder 9, control
 30B5 Injector cylinder 10, control
 30B6 Injector cylinder 11, control
 30B7 Injector cylinder 12, control
 30D4 Message from HDEV missing
 30E8 Filling limit
 CD87 PT-CAN communication failure
 CDB8 local-CAN communication failure
 CDB7 Message (OBD-Sensor Diagnosis status, 5E0)
 CDC7 PT-CAN communication failure
 CDCB local-CAN communication failure
 CDDD message (gear data, BA)
 CDE0 message (terminal state, 130)

Table 26

01 Relay electric Fuel pump
 02 idle speed control valve dosing coil
 03 Injector valve Cylinder 2
 04 Injector valve Cylinder 4
 0C Throttle valve potentiometer
 0F Knock sensor 1
 12 difference suction pipe
 18 ignition coil Cylinder 3
 19 ignition coil Cylinder 1
 1D Idle adjuster opening coil
 1F Injector valve Cylinder 3
 20 Injector valve Cylinder 1
 24 Tank ventilation valve
 25 Lambda probe heating
 29 air mass flow sensor
 2A Knock sensor 2
 2C Sensor

2E electric fan
 30 Relay Air conditioning compressor
 33 ignition coil Cylinder 4
 34 ignition coil Cylinder 2
 36 Battery Voltage
 40 CAN function EGS
 43 Sensor
 46 Lambda probe
 49 signal
 4C potentiometer
 4D Intake air temperature
 4E Engine temperature
 51 theft alarm system-PIN
 52 air condition
 53 Switch Aircondition
 C8 control unit self-test
 C9 fuel trim limit
 CE Knock regulation
 D8 ASC-Signal
 DC function
 EC EGS-Signal

Table 27

64 control Ignition Cylinder 1
 65 control Ignition Cylinder 2
 66 control Ignition Cylinder 3
 67 control Ignition Cylinder 4
 68 control Injector valve Cylinder 1
 69 control Injector valve Cylinder 2
 6A control Injector valve Cylinder 3
 6B control Injector valve Cylinder 4
 6C control electric fan
 6E control Air conditioning compressor
 6F control Relay Fuel pump
 70 control Solenoid Valve suction tube (DISA)
 71 control Solenoid Valve Tank ventilation
 72 control Solenoid Valve suction jet pump
 73 control grid-controlled cooling
 75 control Idle adjuster
 76 control Lambda probe heating before KAT
 77 Signal Throttle valve potentiometer
 78 Signal air flow meter
 79 Signal Intake air temperature
 7A Signal cooling water temperature
 7B Signal cooling water exit temperature
 7C Battery Voltage main relay
 7D Signal Lambda probe before KAT
 7E Signal CAN ASC
 7F request CAN ASC
 80 Signal CAN EGS
 81 request CAN EGS
 82 Signal CAN IKE
 83 Signal Speed
 84 reference voltage for air flow meter
 85 reference voltage for Throttle valve potentiometer
 87 Signal Camshaft sensor
 88 Signal Crankshaft sensor
 89 Signal Knock sensor 1
 8A Signal Knock sensor 2
 8B Signal Lambda probe after KAT
 8C interface DME - EWS
 8D lambda regulation control range block
 8E regulation-self-test
 8F control unit self-test
 90 manipulation protection EWS
 91 misfire by Cylinder 1
 92 misfire by Cylinder 2

93 misfire by Cylinder 3
 94 misfire by Cylinder 4
 95 control valve secondary air
 96 control Relay Secondary air pump
 97 Sekundärluftsystem Plausibilität
 98 Selbsttest E2PROM-Emulation
 99 control Lambda probe heating after KAT
 9B Aussetzer abgasrelevant Summe
 9C Aussetzer katschaedigend Zyl.1
 9D Aussetzer katschaedigend Zyl.2
 9E Aussetzer katschaedigend Zyl.3
 9F Aussetzer katschaedigend Zyl.4
 A0 Aussetzer katschaedigend Summe
 A5 Katalysatorkonvertierung
 A6 Periodendauer Lambdasonde vor Kat
 A9 Heizleistung Sonde vor Kat
 AA Heizleistung Sonde nach Kat
 AB Pruefung Kraftstoff-Versorgungssystem

Table 61

64 control Ignition Cylinder 1
 65 control Ignition Cylinder 2
 66 control Ignition Cylinder 3
 67 control Ignition Cylinder 4
 68 control Injector valve Cylinder 1
 69 control Injector valve Cylinder 2
 6A control Injector valve Cylinder 3
 6B control Injector valve Cylinder 4
 6C control electric fan
 6E control Air conditioning compressor
 6F control Relay Fuel pump
 70 control Solenoid Valve suction tube (DISA)
 71 control Solenoid Valve Tank ventilation
 72 control Solenoid Valve suction jet pump
 73 control grid-controlled cooling
 75 control Idle adjuster
 76 control Lambda probe heating before KAT
 77 Signal Throttle valve potentiometer
 78 Signal air flow meter
 79 Signal Intake air temperature
 7A Signal cooling water temperature
 7B Signal cooling water exit temperature
 7C Battery Voltage main relay
 7D Signal Lambda probe before KAT
 7E Signal CAN ASC
 7F request CAN ASC
 80 Signal CAN EGS
 81 request CAN EGS
 82 Signal CAN IKE
 83 Signal Speed
 84 reference voltage for air flow meter
 85 reference voltage for Throttle valve potentiometer
 87 Signal Camshaft sensor
 88 Signal Crankshaft sensor
 89 Signal Knock sensor 1
 8A Signal Knock sensor 2
 8B Signal Lambda probe after KAT
 8C interface DME - EWS
 8D lambda regulation control range block
 8E knock-regulation-self-test
 8F control unit self-test
 90 manipulation protection EWS
 91 misfire by Cylinder 1
 92 misfire by Cylinder 2
 93 misfire by Cylinder 3
 94 misfire by Cylinder 4
 95 control valve secondary air

96 control Relay Secondary air pump
 97 Sekundärluftsystem Plausibilität
 98 SG-Selbsttest E2PROM-Emulation
 99 control Lambda probe heating after KAT
 9B Aussetzer abgasrelevant Summe
 9C Aussetzer katschaedigend Zyl.1
 9D Aussetzer katschaedigend Zyl.2
 9E Aussetzer katschaedigend Zyl.3
 9F Aussetzer katschaedigend Zyl.4
 A0 Aussetzer katschaedigend Summe
 A5 Katalysatorkonvertierung
 A6 Periodendauer Lambdasonde vor Kat
 A9 Heizleistung Sonde vor Kat
 AA Heizleistung Sonde nach Kat
 AB Pruefung Kraftstoff-Versorgungssystem

Appendix

Common Problems /Troubleshooting

E10 ERROR MESSAGE ON TOOL:

"E" means the car is not responding to the tool: This often happens when the data line (also called "diagnostic bus") inside the car is "hung" or disabled. Occasionally the SR-300 will display the message "E" followed by a number (most commonly 10 or 11) when an attempt is made to read codes or to reset the MIL light (Check Engine or Service Engine Soon)

Things To Try to Resolve the Flashing "E":

1.) Insertion Depth: Check the insertion depth of the SR-300. If it is not fully inserted the unit will not work. See page 40.

2.) Reversing the power-up sequence: Plug in the SR-300 first, THEN turn on the ignition key. This is the opposite of the routine specified by the manual and the tool label. This procedure has proven very effective on some cars.

3.) Pin 19: Observe that pin 19 of your diagnostic connector is not recessed. A number of models in the early 1990s had pin 19 improperly installed.

4.) Cycle power: Plug in tool, cycle the ignition key on and off two or three times (do not start engine)

5.) Other warning lights: Observe that no other malfunction indicator lights are on. Often a malfunctioning module (i.e. DME, EGS/transmission, ABS traction control, etc...) can impair or "hang" the diagnostic bus.

6.) Power resetting of all modules (entire car)

Note: before doing this procedure, get your radio security code from the dealer.

- a.) Disconnect the main car battery.
- b.) Activate the emergency flasher lights (this will fully drain all power from all ECUs) wait 5 minutes
- c.) Reconnect the main battery and try the tool again.

7.) Module Troubleshooting: If you suspect a particular module is malfunctioning or damaged, you may wish to consult repair documentation for the car (see page 40) and attempt to isolate the problem by removing the module from the diagnostic bus. **WARNING:** This procedure is for qualified mechanics only.

ABS service bulletin 34 01 96: BMW circulated a service bulletin and low cost repair advice detailing the malfunction of the ABS unit ground wiring which caused diagnostic bus problems on a large number of BMWs. This is often the problem on BMWs built prior to 10/1994 that are getting the "E" message on the SR-300 code tool. (Please do not Contact Bavarian Autosport

for service bulletins. Contact Central Letter Shop (see page 40), BMWs authorized publication vendor 1-800-695-0079, or 973-808-8339, 9:00am - 4:30pm EST)

8.) Trying the tool on a similar BMW

If you have access to a similar BMW, you can rule out the tool as the source of the problem by trying it on that car. If it either reads or resets without the E message, then you can narrow your attention to the car.

The SR-300 will not serve its intended purpose if the diagnostic bus is impaired by a malfunctioning control module. If one of the modules is inhibiting communications it is necessary to visit a BMW dealer or qualified repair facility to diagnose and fix/replace the bad module.

ENGINE LAMP WILL NOT RESET:

When the MIL is on, will not reset, yet no codes are found this can be caused by one of two things; most common: the car has automatic transmission related faults which can occasionally trigger an engine MIL. Another possible cause is the engine MIL circuit from the Engine ECU to the instrument cluster is open.

SERVICE LIGHT BATTERY PROBLEMS:

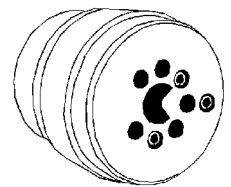
(note: only applies to BMWs older than 1989) The SR-300 is not giving error messages and appears to be working normally but one of the following conditions occurs: **a.)** The reset seemed successful but the service lights come back on shortly after the reset was done. **b.)** The service lights stay on while the ignition is off and the key is out of the ignition switch. **c.)** The service lights flash off and on. **d.)** The service lights will not reset at all. **e.)** The tachometer, temperature gauge, or fuel economy gauge seem erratic (meter needle jumps rapidly) or have quit working completely. The list of problems above indicates a dying or dead backup battery on your S.I. (Service Interval) computer circuit board. When this "backup" battery dies, the S.I. computer has to re-start every time you start your car, at which point an "Inspection" light will be indicated. Winter storage without a trickle charger is the most common cause of premature S.I. battery failure. These specialized batteries have a life expectancy of approximately 4 to 7 years. Replacing the S.I. batteries takes about 90 minutes from start to finish and requires that you know how to operate a soldering iron. Battery replacement kits are available on the web for most pre 1989 models

WRONG PLUG STYLE: THE TOOL DOESN'T FIT THE CAR.

If the tool does not fit the connector in the car please read the following guidelines which detail the possible causes:

1.) You may not have found the correct diagnostic plug (please closely review the illustrations on page 3 and 4)

2.) The BMW is 1988 or older and equipped with the 15 pin plug, which the SR-300 will not fit. An adaptor is available (see image at right) to adapt the SR-300 back to the older BMW for service light reset only, but no codes can be read on BMWs with the 15 pin connector built 1987 or earlier.



AB02, adapts SR-300 to pre-1988

3.) The tool is not equipped with the correct connector - there are two

native connector configurations for the SR-300

The 20 pin SR-300 Fits BMWs 1987 to year 2000 (20 pin format). (Note: Can be adapted to the 16 pin format of 2001 and later BMWs. Part number AB03, see "Adaptor advice" below)

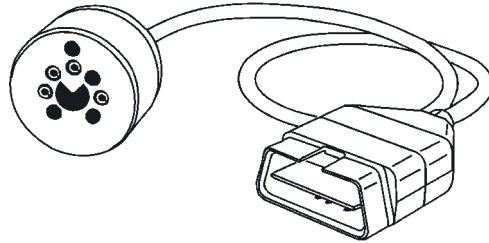
SR-300-16: Fits BMWs 2001 to present: (16 pin format) No adaptor available to adapt back to earlier BMWs. Important: Not for use on 1996 - 2000, even though it will fit.

INCREASING COMPATIBILITY:

If you require compatibility with BMWs built both before and after 2000, we highly recommend the AB03 adaptor to go along with the SR-300 (20 pin version). This gives the broadest range of code scanning and resets from 1987 to 2006.

If you plan to reset the Service Lights on older BMWs (1982 - 1986) we recommend the SR-300 in conjunction with the AB02 Adaptor (see image above).

Mechanics Universal Kit: For mechanics, we recommend a two piece kit consisting of a SR-300 (20 pin) tool and the AB03 adaptor, which will cover 1987 through year 2000.



AB03 Adaptor. Adapts 20 pin tool to 16 pin car.

WHERE'S THE ADAPTOR I ORDERED!

If you ordered the AB02 adaptor and do not see it in the box, do the following before calling us: (a) Check to see if the tool fills the entire hard plastic storage case, (b) see if there are three silver pins in the tool connector. If you answered yes/yes, then the adaptor is there, just tug it out of the end of the tool- we ship them plugged together - it looks like one unit with no adaptor.

SERVICE LIGHT RESET FAILS:

Commonly a reset was attempted before one of the Oilservice or Inspection lights came on but the five green lights did not illuminate. • The computer was counting down to a different service interval than the one you tried to reset. There is no way to know if the next light will be Oilservice or Inspection. Some BMWs will not reset prior to the illumination of the Oilservice or the Inspection lights. In all cases we advise you to wait for the Oilservice or Inspection light to come on before attempting a reset. In other words, if there are any green "countdown" lights remaining, do not attempt a reset because it probably won't work. Another cause of the service light not resetting is the tool type is using the wrong port; if your BMW has the round diagnostic port under the hood and the under dash port (see page 3), you can only reset the service lights through that round under-hood port.

TOOL WILL NOT RESET OTHER LIGHTS:

The SR-300 would not reset the brake lining light, the SRS/airbag light, or the ABS brake light. • The SR-300 only resets the Check engine, Service Engine Soon, Oilservice and Inspection

lights. However, Peak Research Corp offers the R5/SRS, Airbag Scan and Reset Tool, which will scan the airbag codes and reset the airbag light.

Sources of Technical Information:

Central Letter Shop is BMWs official technical documentation distribution source. All documentation relating to the service and maintenance of BMWs is available from them: Internet Address: <http://www.centrallettershop.com/> Phone 1-800-695-0079, or 973-808-8339

BMW: Pay-by-use technical information can be obtained online directly from BMW at <http://www.bmw-tis.com/>

Manual Publishers

Robert Bentley Publishing: 1-800-423-4595
Alldata: 1-800-859-3282
Chiltons: 1-800-695-1214

Mitchells: 888-724-6742
Haynes: 1-800-442-9637

Recommended Reading: • Bosch Automotive Handbook, by Robert Bosch, ISBN: 0837606144 • Bosch Fuel Injection and Engine Management, by Charles O. Probst. ISBN: 0837603005.

Warning about insertion of tool (applies to 20 pin tool only)

Tool must be fully inserted in order to work properly. To check for full insertion, first observe the faint line on the side of the connector on the SR-300. That line should be just even with the top of the BMW's diagnostic connector. If that line is more than 1/16th of an inch above the top of the diagnostic connector, the tool is not fully inserted. (Note: for your reference, the bold black line above this paragraph is exactly 1/16th of an inch thick).

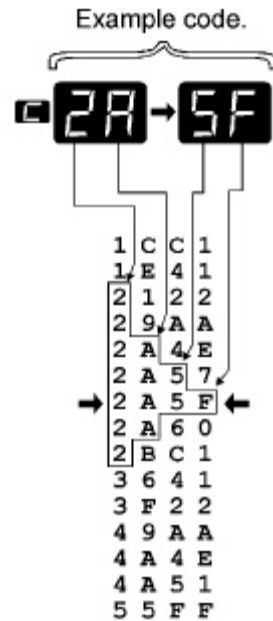
Glossary:

Confusion over codes with letters and numbers

Most late model BMWs store codes in a four digit format using letters and numbers. If you read these simple explanations, you will find that finding a code in this manual is almost exactly like finding a word in a dictionary.

Remember this sort order: **0 1 2 3 4 5 6 7 8 9 A B C D E F**

Let's compare looking up code "2A5F" to looking up the word "easy" in the dictionary:	
DICTIONARY Looking up the word "EASY"	CODE TABLE Looking up the code "2A5F"
Find words that start with the letter "E"	Find codes that start with the a "2"
Find the "E" words who's second letter is "A"	Find the "2" codes who's second digit is "A" (<i>A is always between 9 and B</i>)
Find the "EA" words who's third letter is "S"	Find the "2A" codes who's third digit is "5"
Find the "EAS" words who's final letter is "Y"	Find the "2A5" codes who's final digit is "F"
<p>The only difference: instead of 26 letters, you are using 10 numbers and 6 letters: sorted: 0 1 2 3 4 5 6 7 8 9 A B C D E F</p>	



Finding "2A5F" in a short list of codes

Test Yourself: What comes after 1999? If you said 199A, you've got it.
 What comes after 1FFF? If you answered 2000, you're set.

Note: this numbering system is called "hexadecimal". Wikipedia.com has an informative page on the hexadecimal numbering system is you are interested.

- A/C = Air conditioner
 - ABS = Anti-lock Brake System
 - ASC = Skid control (see "Intervention")
 - ADS = Aux Throttle Position Motor
 - AHK = Active Rear Axle Kinematics
 - BLS = Brake Light Switch
 - Check Engine Light:** on the dashboard, indicates the DME has detected a problem
 - CC = Check control
 - CO = Carbon Monoxide
 - DDE = ECU for Diesel Engine
 - Diagnostic Connector:** Where the SR-300 plugs into the car. See pages 3 and 4.
 - Decimal** = Numeric format the dealer diagnostic machines report codes in. See page ? for explanation.
 - DISA = intake runner length tuning mechanism
 - DME = Engine ECU (Gasoline engine): monitors and controls all engine sensors and functions
 - DSC = Dynamic Stability Control
 - DWA = Alarm system
 - E = Communications error: See "Flashing E below"
 - EGS = Electronic Automatic Transmission
 - EKAT = Electrically heated catalytic convertor
 - EKM = electronic Body Module
 - EML = Electronic Throttle Control
 - EVAP = relates to fuel vapor recovery often this code indicates a loose gas cap
 - EWS = Drive away protection (alarm system)
 - Fault Code:** a "code" stored in the DME memory bank that indicates a past or present problem.
 - Fuel Trim** = adjustments to maintain proper air fuel ratio (see Lambda Control)
 - Flashing E:** (in SR-300 display) communication problem in the vehicle
 - GM = General Module
 - Hex** = The SR-300 shows codes in a format called hexadecimal. See page ?.
 - Intervention, MSR, ASC** = intervention is when another control unit (i.e. skid control) requests a power/torque change from the DME. Code indicates DME assessed the request as being incorrect or too long.
 - Lambda Control** = Code means DME is unable to maintain requisite air/fuel ratio due to external factor (air leak, bad injector, sensor, etc...). (also see fuel trim)
 - LDP = Loss Diagnosis Pump
 - Load Calculation Cross Check (HFM vs TPS)**= when actual air flow exceeds +/- 25% of calculated air flow.
 - MDK = Motorized Throttle Valve
 - MIL = Malfunction Indicator Lamp, also called the "Check Engine" or "Service Engine Soon lamp"
 - MLF = Multi function Steering Wheel
 - MSR = Drag Torque Intervention (torque reduction for anti skid) see Intervention above
 - NTC = coolant temperature sensor
 - Oilservice & Inspection:** Also called Si (abbrev. for service interval) maintenance reminder lights
 - PWG = Pedal Sensor Potentiometer
 - QL = idle air mass adaption (see Fuel Trim)
 - SR-300: The scan/reset tool. Subject of this manual
 - RAM = DME random access memory
 - ROM = DME program memory
 - Scan Tool:** Generic term for the SR-300
 - Service Engine Soon:** on the dashboard, indicates the DME has detected a problem.
 - SI = Service Interval
 - SMG = BMW Motorsport Sequential Gearbox
 - SRS = Airbag
 - TD = Tachometer Signal
 - TEV = Evap, fuel tank vent / purge valve
 - Ti Additive:** idle fuel adaption (see fuel trim)
 - Ti multiplicative:** adaption a percentage +/- of injector time (see Fuel Trim)
 - TR signal** = from DME, RPM and valve position
 - VANOS = Adjustable Valve Train
 - VDS = Vehicle Description System. VIN Digits 4- 7
 - VIN = Vehicle identification number.
 - ZAB = see ASC
 - ZKE = Central Body Electronics
- For further definitions, please consult documentation for the vehicle.

Warranty:

Bavarian Autosport warrants, to the original purchaser, that your model number SR-300, BMW reset/scan tool, hereinafter called "unit", is free from any defects in material and workmanship and software compatibility issues for a period not exceeding ninety days from the date of purchase.* If any such defect is discovered within the warranty period, Bavarian Autosport will repair or replace the unit free of charge, subject to verification of proof of purchase, and verification of the defect or malfunction upon delivery. This warranty does not apply to defects resulting from abuse, alterations, or unreasonable use of the unit; resulting in cracked or broken parts, or units damaged by excessive heat, cold, or moisture, or problems related to the re-programming of the car's ECU. This warranty does not apply to non-functional and cosmetic attributes of the unit such as color, finish, or labels. In no event does Bavarian Autosport assume liability for any damage beyond the refund of the purchase price of the unit. This warranty is null and void if the unit has been disassembled or modified.

*It is the buyers responsibility to test the unit on the intended car within the warranty period to assess its functionality and compatibility (to test, simply read the codes (see pg 5) - does not effect the vehicle in any way) Failure to spot and report a problem within the warranty period will result in non-coverage.

To process a warranty claim please contact Bavarian Autosport for information & return authorization. All warranty claims must be accompanied by the original receipt. Warranty claims can only be processed by the original purchaser. This warranty is non-transferrable.

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(Rev. 1.0 NA)

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