

### Diagnosis – Diagnostic Trouble Code (DTC) Memory

#### Diagnostic Trouble Code (DTC) Readout with Impulse Counter Scan Tool.

The DI control module (N1/3) is equipped with DTC readout **including** malfunction memory.

Malfunctions which occur with the engine running are counted by a malfunction counter. A malfunction is recorded into memory only if the same malfunction has occurred after 8 sequential engine starts.

This prevents a malfunction from being recorded if, for example, it occurred only once. If, for example, a malfunction occurred only 7 times, then the malfunction counter will be cleared again after a certain number of engine starts.

The memory remains active even if the vehicle's battery is disconnected.

Malfunctions occurring in the following areas are stored immediately:

- CKP sensor defective (diagnostic trouble code 17).
- Magnets for CKP sensor not recognized (diagnostic trouble code 18) (Engine 119 only).

Malfunctions can be recalled from memory using the impulse counter scan tool with the engine off and the ignition "ON". Numbers ranging from 1 to 41 may appear on the display of the impulse counter scan tool.

The number 1 indicates: No malfunction recognized in system.

All further numbers refer to a particular malfunction source. If there are multiple system malfunctions, the malfunction assigned with the lowest number will be displayed first.

If the DTC readout number indicated first reappears after more than two DTC readouts, then no further malfunctions are present in the system.

After eliminating all malfunctions, the DTC's must be **cleared individually**

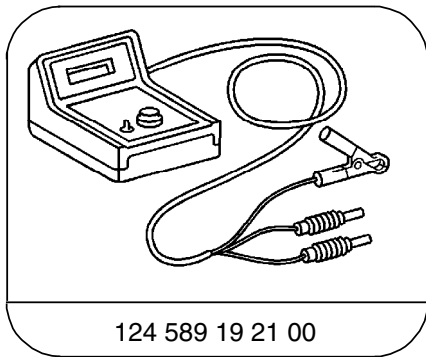
In case of engine complaints, the DTC memory must be read and the malfunction must be eliminated before proceeding with any additional repairs.

### Diagnosis – Diagnostic Trouble Code (DTC) Memory

Preparation for Test with Impulse Counter Scan Tool

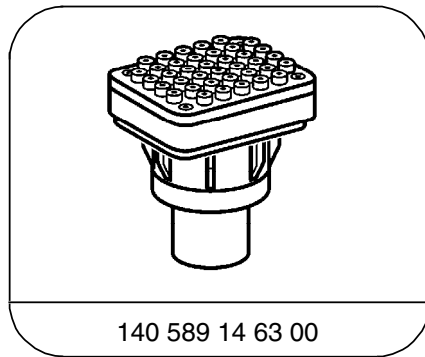
- Connect impulse counter scan tool according to connection diagram (see section 0).
- Read DTC memory (see section 0).

#### Special Tools



124 589 19 21 00


Pulse counter



140 589 14 63 00



Adapter

### Diagnosis – Diagnostic Trouble Code (DTC) Memory

DTC 	Possible cause	Test step/Remedy <sup>1)</sup>
1	No malfunction in system	–
2	Maximum retard setting on at least one cylinder has been reached	Increased knock tendency, i.e. due to poor fuel quality, carbon build-up, mechanical damage.
3	Not used	–
4	MAP sensor in DI control module (N1/3) defective	Check vacuum supply to N1/3, Replace N1/3.
5	Knock sensor 1 and/or 2 defective	Knock sensor not plugged in at N1/3, Replace knock sensor.
6	CMP sensor (L5/1) defective	24 ⇒ 1.0
7	Knock control-output switch in DI control module (N1/3) defective	Replace N1/3.
8	Transmission overload protection switch (S65) does not close	24 ⇒ 5.0
9	Transmission overload protection switch (S65) does not open	24 ⇒ 6.0
10	Not used	–
11	Reference resistor (DI) (R16/2) defective	24 ⇒ 4.0
12	TN-signal (engine rpm output) is outside of tolerance range	24 ⇒ 7.0
13	Not used	–


<sup>1)</sup> Observe Preparation for Test, see 22.

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DTC  	Possible cause	Test step/Remedy <sup>1)</sup>
14	Not used	–
15	Ignition coil 1 output from DI control module (N1/3) defective or primary winding of ignition coil has open circuit	23 ⇒ 7.0
16 <b>119 only</b>	Ignition coil 2 output from DI control module (N1/3) defective or primary winding of ignition coil has open circuit	23 ⇒ 8.0
17	CKP sensor (L5) defective	23 ⇒ 4.0
18 <b>119 only</b>	Magnets for CKP sensor (L5) not recognized	23 ⇒ 5.0
19	Not used	–
20	DI control module (N1/3) DTC memory defective	Replace N1/3.
21	MAP sensor in DI control module (N1/3) defective (recognized with engine running)	Replace N1/3.
22	Not used	–
23	Not used	–
24	Not used	–
25	Not used	–
26	DI control module (N1/3) data exchange malfunction	24 ⇒ 8.0 – 9.0
27	LH-SFI control module (N3/1) data exchange malfunction	24 ⇒ 8.0
28	EA/CC/ISC control module (N4/1) data exchange malfunction	24 ⇒ 8.0

<sup>1)</sup> Observe Preparation for Test, see 22.

### Diagnosis – Diagnostic Trouble Code (DTC) Memory

DTC 	Possible cause	Test step/Remedy <sup>1)</sup>
29	Not used	–
30	Not used	–
31	Not used	–
32	Not used	–
33	Not used	–
34	Ignition misfire cylinder 1 (engine 104)      cyl. 1 (engine 119)	2)
35	Ignition misfire cylinder 5 (engine 104)      cyl. 5 (engine 119)	2)
36	Ignition misfire cylinder 3 (engine 104)      cyl. 4 (engine 119)	2)
37	Ignition misfire cylinder 6 (engine 104)      cyl. 8 (engine 119)	2)
38	Ignition misfire cylinder 2 (engine 104)      cyl. 6 (engine 119)	2)
39	Ignition misfire cylinder 4 (engine 104)      cyl. 3 (engine 119)	2)
40 <b>119 only</b>	Ignition misfire      cyl. 7 (engine 119)	2)
41 <b>119 only</b>	Ignition misfire      cyl. 2 (engine 119)	2)

1) Observe Preparation for Test, see 22.

2) Spark plugs, ignition wire of respective cylinder, high-voltage distributor 23 = Test steps 11.0 – 12.0, ignition coil 23 = Test steps 9.0 – 10.0, DI control module.