
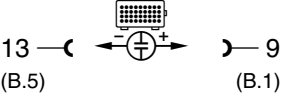
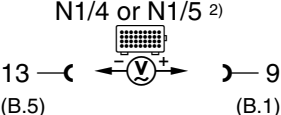

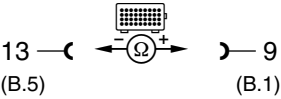


Electrical Test Program - Test (Engine Runs)

Test step DTC	Scope of test	Test connection	Test condition	Nominal value	Possible cause/remedy
⇒ 1.0	 Left or right camshaft position sensor (L5/2 or L5/3)	<p>N1/4 or N1/5 ¹⁾</p>  <p>13 — (B.5) 9 — (B.1)</p> <p>N1/4 or N1/5 ²⁾</p>  <p>13 — (B.5) 9 — (B.1)</p>	<p>Engine: at Idle</p> <p>Engine: at Idle</p>	<p>Signal, see Figure 2.</p> <p>>0.3 V ³⁾</p>	<p>Wiring ⇒ 1.1, ⇒ 1.2,</p>
⇒ 1.1	 Resistance of camshaft position sensor (L5/2 or L5/3)	<p>N1/4 or N1/5</p>  <p>13 — (B.5) 9 — (B.1)</p>	<p>Ignition: OFF Unplug test cable with connector (B) on ignition control module (N1/4 or N1/5) (see Figure 4).</p>	<p>900 – 1600 Ω</p>	<p>Camshaft position sensor (L5/2 or L5/3).</p>

1) Test with oscilloscope.

2) Test with multimeter only if oscilloscope is unavailable.

3) Voltage increases with increasing rpm.

Electrical Test Program - Test (Engine Runs)

Test step DTC	Scope of test	Test connection	Test condition	Nominal value	Possible cause/remedy
⇒ 1.2	5 Insulation of camshaft position sensor (L5/2 or L5/3)	N1/4 or N1/5 	Ignition: OFF Unplug test cable with connector (B) on ignition control module (N1/4 or N1/5) (see Figure 4).	> 200 kΩ	Camshaft position sensor (L5/2 or L5/3).
⇒ 2.0	17 Left or right crankshaft position sensor (L5/4 or L5/5)	N1/4 or N1/5 ¹⁾ N1/4 or N1/5 ²⁾ 	Engine: at Idle Engine: at Idle	Signal, see Figures 1. > 1 V ³⁾	Wiring ⇒ 2.1, ⇒ 2.2, Starter ring gear segments.

1) Test with oscilloscope.


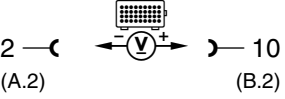

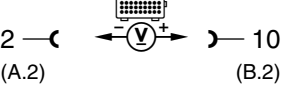

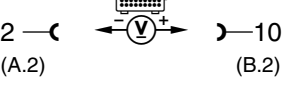
2) Test with multimeter only if oscilloscope is unavailable.

3) Voltage increases with increasing rpm.

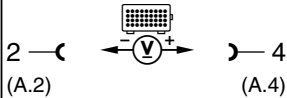
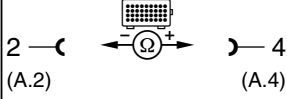
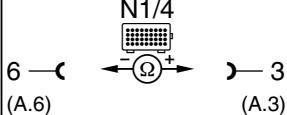
Electrical Test Program - Test (Engine Runs)

Test step DTC	Scope of test	Test connection	Test condition	Nominal value	Possible cause/remedy
⇒ 2.1	Resistance from crankshaft position sensor (L5/4 or L5/5)	<p>N1/4 or N1/5</p>	Ignition: OFF Unplug connector (2) for crankshaft position sensor at ignition control module (N1/4 or N1/5) (see Figure 4).	680 – 1300 Ω	⇒ 2.2.
⇒ 2.2	Insulation of crankshaft position sensor (L5/4 or L5/5)	<p>N1/4 or N1/5</p>		> 200 kΩ	Crankshaft position sensor (L5/4 or L5/5),
⇒ 3.0	Left or right reference resistor (DI) (R16/3 or R16/4)	<p>R16/3 or R16/4</p>	Ignition: OFF Unplug R16/3 or R16/4 from ignition control module (N1/4 or N1/5) (see Figure 3 and 4).	2.4 kΩ	Reference resistor (R16/3 or R16/4),

Electrical Test Program - Test (Engine Runs)

Test step DTC	Scope of test	Test connection	Test condition	Nominal value	Possible cause/remedy
⇒ 4.0	 Transmission overload protection switch, brake band B1 (S65) and transmission overload protection switch, brake band B2 (S65/1)	N1/4 or N1/5  2 —((A.2) —) 10 (B.2)	Parking brake set. Engine: at Idle Selector lever in transmission range: “D”	After approx. 10 seconds < 1.5 – 1.7 V	Wires, S65 and/or S65/1 does not close.
⇒ 5.0	 Transmission overload protection switch, brake band B1 (S65) and transmission overload protection switch, brake band B2 (S65/1)	N1/4 or N1/5  2 —((A.2) —) 10 (B.2)	Parking brake set. Engine: at Idle Selector lever in:: “P/N”	> 4 V	Wires, S65 and/or S65/1 does not open.
⇒ 6.0	 Transmission overload protection switch, brake band B1 (S65)	N1/4 or N1/5  2 —((A.2) —) 10 (B.2)	Parking brake set. Engine: at Idle Selector lever in transmission range: “2”	2.4 – 2.7 V	S65 does not open.

Electrical Test Program - Test (Engine Runs)

Test step DTC	Scope of test	Test connection	Test condition	Nominal value	Possible cause/remedy
⇒ 7.0 12	TN-signal	N1/4 or N1/5 	Engine: at Idle	5 – 7 V	⇒ 7.1, Ignition control module (N1/4 or N1/5), LH control module (N3/2 or N3/3).
⇒ 7.1 12	TN wire to LH control module (N3/2 or N3/3)	N1/4 or N1/5 	Unplug N3/2 or N3/3. Unplug test cable with connector (A) on ignition control module (N1/4 or N1/5) (see Figure 4)	> 200 kΩ	Wire.
⇒ 8.0 19	Left ignition control module (N1/4) Coding	N1/4 	Ignition: ON	11 – 14 V	Open circuit in ground wire (W25/1) of left ignition control module.

Electrical Test Program - Test (Engine Runs)

Test step DTC	Scope of test	Test connection	Test condition	Nominal value	Possible cause/remedy
⇒ 9.0 26 27 28	CAN databus	N1/4 (B) 3 — Ω — 4	Ignition: OFF Unplug connector (B) at left ignition control module (N1/4) and test directly at connector (B) (Figure 7)	115 – 125 Ω	⇒ 9.1, Databus.
⇒ 9.1 26	CAN element in right ignition control module (N1/5)	N1/5 (B) 3 — Ω — 4	Ignition: OFF Unplug connector (B) at right ignition control module (N1/5) and test directly at ignition control module (N1/5) (Figure 8)	115 – 125 Ω	Right ignition control module (N1/5)
⇒ 10.0 26	CAN element in left ignition control module (N1/4)	N1/4 (B) 3 — Ω — 4	Ignition: OFF Unplug connector (B) at left ignition control module (N1/4) and test directly at ignition control module (N1/4) (Figure 8)	115 – 125 Ω	Left ignition control module (N1/4)