

Electrical Test Program – Test (Engine Runs)



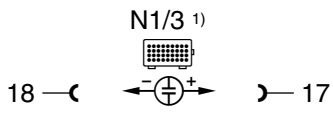
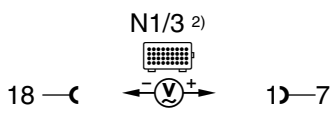

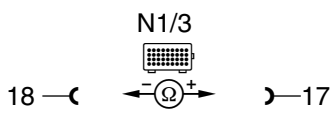

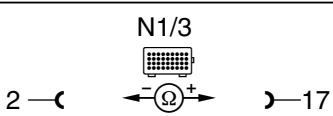
⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
1.0		CMP sensor (L5/1)	<p>N1/3 ¹⁾</p> <p>13 — (B.5) 9 — (B.1)</p> <p>N1/3 ²⁾</p> <p>13 — (B.5) 9 — (B.1)</p>	<p>Connect K to N1/3</p> <p>Engine: at Idle</p> <p>Engine: at Idle</p>	<p>Signal, see 25, figure 3.</p> <p>> 0.3 V ³⁾</p>	<p>Open circuit, ⇒ 1.1, ⇒ 1.2, Engine 119: Check distance between CMP sensor (L5/1) and contact sensor (see SMS, Repair Instructions, Group 15, Job No. 2143).</p>
1.1		Resistance of L5/1	<p>N1/3</p> <p>13 — (B.5) 9 — (B.1)</p>	<p>Unplug test cable at connector (B) on DI control module (N1/3) (25, Figure 5).</p>	900 – 1600 Ω	L5/1.
1.2		Insulation of L5/1	<p>N1/3</p> <p>2 — (A.2) 9 — (B.1)</p>	<p>Unplug test cable at connector (B) on DI control module (N1/3) (25, Figure 5).</p>	> 200 kΩ	L5/1.

1) Test with oscilloscope.

2) Test with multimeter only if oscilloscope is not available.

3) Voltage increases with increasing rpm.

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2.0		CKP sensor (L5)	<p>N1/3 ¹⁾</p>  <p>18 — (-) — (+) — 17</p> <p>N1/3 ²⁾</p>  <p>18 — (-) — (+) — 17</p>	<p>Engine: at Idle</p> <p>Engine: at Idle</p>	<p>Signal, see 25, figure 1 and 2.</p> <p>> 1 V ³⁾</p>	<p>Open circuit, ⇒ 1.1, ⇒ 1.2, Starter ring gear segments.</p>
2.1		Resistance of L5	<p>N1/3</p>  <p>18 — (-) — (+) — 17</p>	<p>Ignition: OFF Unplug connector (2) for L5 at DI control module (N1/3) (25, Figure 5).</p>	680 – 1200 Ω	L5.
2.2		Insulation of L5	<p>N1/3</p>  <p>2 — (-) — (+) — 17 (A.2)</p>	<p>Ignition: OFF Unplug connector (2) for L5 at DI control module (N1/3) (25, Figure 5).</p>	> 200 kΩ	L5.

1) Test with oscilloscope.

2) Test with multimeter only if oscilloscope is not available.

3) Voltage increases with increasing rpm.



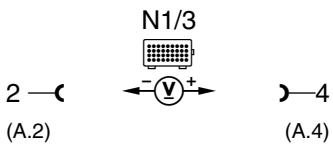

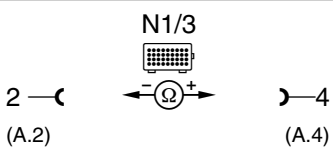

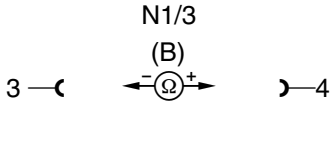

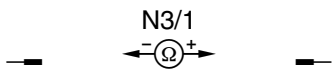
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⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
3.0		Magnets for CKP sensor Engine 119 only	18 — — 17	Engine: at Idle	Signal see 25, Figure 2.	Segments on starter ring gear.
4.0		Reference resistor (R16/2)	— —	Ignition: OFF Unplug R16/2 at DI control module (N1/3) (25, Figures 4 and 5).	2.4 kΩ	R16/2.
5.0 ⁴⁾		Transmission overload protection switch (S65) Does not close	2 — — 10 (B.2)	Depress parking brake. Engine: at Idle Selector lever in “D”.	< 1 V	Open circuit, S65.
6.0 ⁴⁾		Transmission overload protection switch (S65) Does not open	2 — — 10 (B.2)	Engine: at Idle Selector lever in “P” or “N”.	> 4 V	Short circuit, S65.



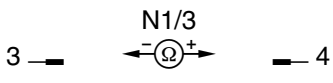
⁴⁾ Test steps 5.0 and 6.0 cannot be performed on model 124.034 (400 E). If DTC's or are displayed, proceed as follows:

- Replace transmission overload protection switch (S65),
- Clear DTC memory,
- With transmission in driving range “2”, drive vehicle for at least 2 seconds at an engine speed greater than 3000 rpm and subsequently shut engine OFF,
- Repeat DTC readout. If fault still exists, check wiring.

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⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
7.0		TN-signal (engine rpm output) Outside of tolerance range		Engine: at Idle	5 – 7 V	⇒ 7.1, DI control module (N1/3), LH-SFI control module (N3/1).
7.1		TN wire to LH-SFI control module (N3/1)		Unplug N3/1. Unplug test cable at connector (B) on DI control module (N1/3) (25, Figure 5).	> 200 kΩ	Short circuit.
8.0		CAN databus		Ignition: OFF Unplug connector (B) without test cable at DI control module (N1/3) and test directly at connector (B) (25, Figure 7).	115 – 125 Ω	⇒ 8.1, Databus.
8.1		CAN element in LH-SFI control module Resistance		Unplug LH-SFI control module (N3/1) and test directly at N3/1 (25, Figure 8).	115 – 125 Ω	N3/1.

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9.0		CAN element in DI control module Resistance		Ignition: OFF Unplug connector (B) without test cable at DI control module (N1/3) and test directly at N1/3 (25, Figure 9).	115 – 125 Ω	N1/3