

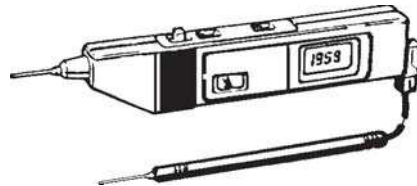
**⚠ WARNING!** Ventilate the engine compartment carefully and check that there is no smell of gasoline or LPG-gas.

## Trouble-shooting REX

### 25. Control Unit

- 1 Tachometer connection
- 2 Ground connection
- 3 Feeding voltage (15+)
- 4 Firing position sender connection, red
- 5 Firing position sender connection, white
- 6 Is connected but not needed (speed control)
- 7 Not used (-3°) ground
- 8 Not used (+3°) ground
- 9 Ignition coil, primary winding
- 10 Ignition coil, primary winding
- 11 Ignition coil, secondary winding
- 12 Radio suppression connection

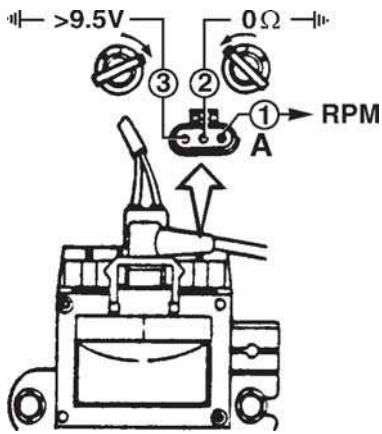
## Tools



**26.** Use Volvo Penta digital test instrument 9988452-0 when fault-tracing the REX ignition system.

## Trouble-shooting

- A. The engine does not start (see para. 26 to 33).
- B. The engine is running rough, starts with difficulty, low output. (See para. 34 to 40).
- C. The engine starts but does not continue to run. (See para. 41 to 45).



### Check the feed voltage

27. Remove the plug 'A'. Switch the ignition on. Connect a voltmeter to check the voltage between '3' and ground. The voltage should be at least 9.5 Volts.

### Check the ground connection

28. Measure the resistance between '2' and ground. The resistance should be 0 Ohm. The ground connection is a bolt behind and below the alternator. Should the resistance be higher than 0 Ohm. Check the ground connection and the wire harness.

### Checking spark plugs, ignition leads, the distributor and rotor.

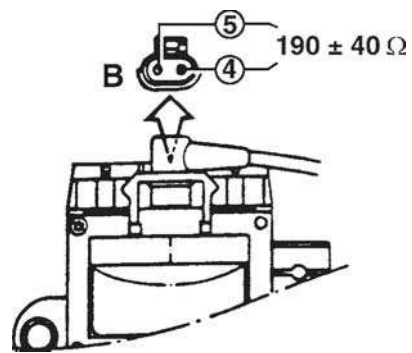
29. Spark plugs: Part no 875820 (Bosch W6DC) spark gap = 0.7 mm (0.02756"). Check to make sure that the sleeve at the connection is properly tightened.

- Ignition wires: Measure the resistance, should be between 1 and 4 kOhm. Check connections for corrosion. Check that the ignition wires are properly connected to the spark plugs.

- Distributor: Check the resistance center connection high voltage 75 Ohm. Pins connection, 0 Ohm. Check for corrosion, cracks and moisture.

- Rotor: Check the resistance. 1 kOhm, Check for corrosion and cracks.

- Check the basic setting of the distributor on the engine block. The ignition timing can not be altered at the distributor.



### Check the crankshaft position sender

30. Remove plug 'B'.

- Measure the resistance of the ignition position sender between connections '4' and '5'.

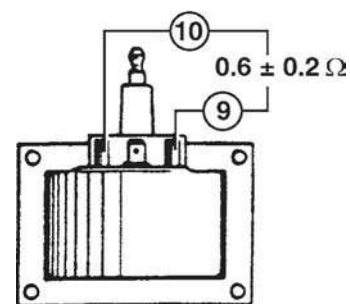
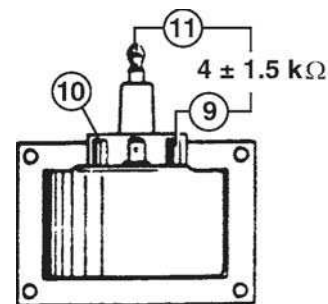
The resistance should be 190 Ohm  $\pm$  40 Ohm.

- Check that the wire at '4' is red. Check that the wire at '5' is white.

**NOTE!** Reversing these wires will change the timing  $\pm 4^\circ$ .

- Check that the crankshaft position sender and the fly-wheel are free from dirt.

- Should the resistance values be outside the tolerances: replace the sender!



### Check the ignition coil

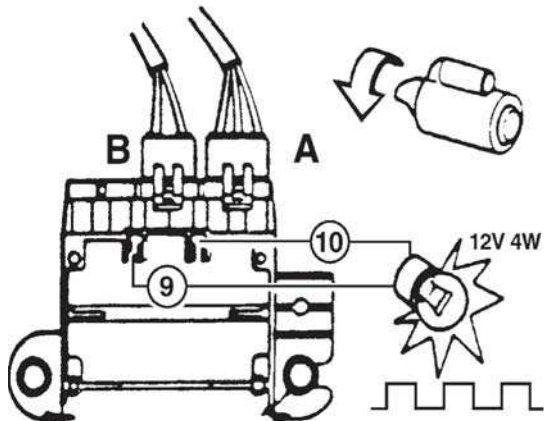
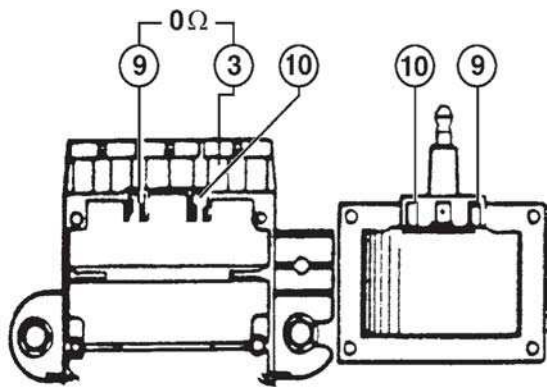
31. Remove the high voltage lead from the coil.

- Check that the contact points '9' and '10' are free from corrosion.

- Measure the resistance of the secondary winding between '9' and '11'. Should be  $4 \pm 1,5$  kOhm.

- Measure the resistance of the primary winding between '9' and '10'. Should be  $0.6 \pm 0.2$  Ohm.

- Should the resistance values be outside the tolerances: replace the ignition coil!



### Checking the control unit

**32 A.** - The ignition coil removed.

- Check that the contact points 9 and 10 are free from corrosion.
- Measure the resistance between 3 and 9. The resistance should be 0 Ohm.
- Resistance higher than 0 Ohm: replace the unit.

**B.** - Install the plug connectors A and B. Switch on the ignition.

- Attach a 12 Volt test bulb, with a minimum rating of 4W, between 9 and 10.
- Run the starter motor: the test bulb should start flashing. No flashing: replace the control unit.

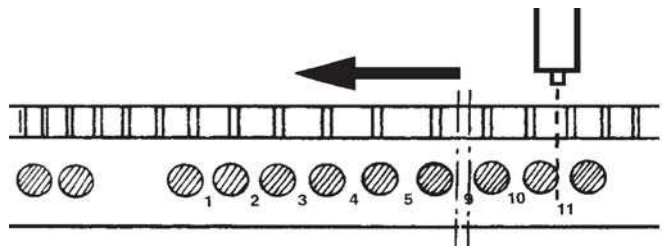
**33.** Lubricate the connections A and B. Use part no 870806-2

**34.** See paragraphs 26–27

**35.** See paragraphs 29 and 33.

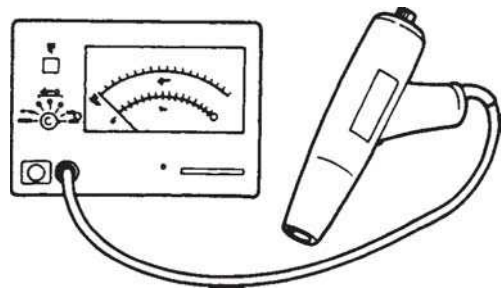
**36.** See paragraph 30.

**37.** Check that the tachometer is set properly for 4-cylinder gas engines by turning the screw (A) to position 3 and then to position 1.



### Checking the setting of the crankshaft position sender

**38.** Set the engine on T.D.C. for no 1 cylinder. In this position the center of the iron core of the sender should be positioned straight above the front edge of the 11th 'tooth', (space between the holes), counted back from the 'long gap'. Should the sender not be at this setting, then check to make certain that the engine is really at T.D.C. For example, use a dial indicator gauge through the spark plug hole.



### Checking the ignition

**39.** Use a stroboscope to check the setting as follows:

14.17r/s	(850 rpm)	$10^{\circ} \pm 2^{\circ}$
25 r/s	(1500 rpm)	$14^{\circ} \pm 2^{\circ}$
58.33 r/s	(3500 rpm)	$23^{\circ} \pm 2^{\circ}$
75 r/s	(4500 rpm)	$24^{\circ} \pm 2^{\circ}$
91.67 r/s	(5500 rpm)	$31^{\circ} \pm 2^{\circ}$

### Checking the speed limit

**40.** Check (using a tachometer) that the engine's speed does not increase above  $6200 \pm 100$  rpm.

If the speed increases above  $6200 \pm 100$  rpm, then the control unit must be replaced.

### Checking the toothed belt against the markings

**41.** Check that the timing belt is correctly installed so that the markings correspond. See page 73.

**42.** See paragraphs 26–27

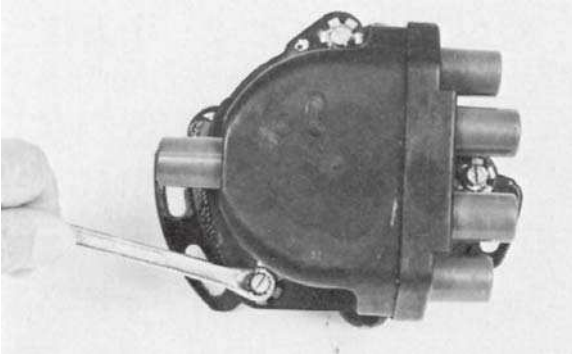
**43.** See paragraphs 29 and 33.

**44.** See paragraph 30.

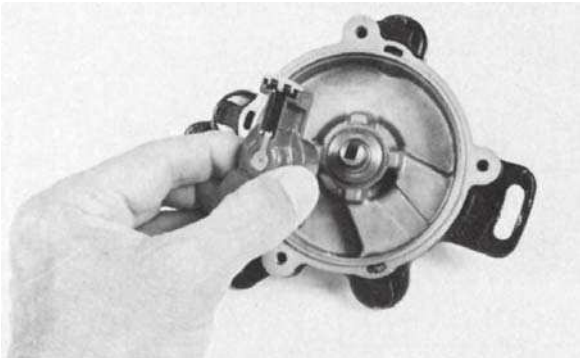
**45.** See paragraph 38.

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## Changing the rotor 251DOHC, AQ171



**46.** Remove the distributor cap, 3 screws. Tool width: 8 mm.



**47.** Remove and replace the rotor. Re-install the distributor cap.