**28 72**

# P0326

**Knock Sensor 1 - Signal implausible**

# P0331

**Knock Sensor 2 - Signal implausible**

# P1386

**Knock Control Test Pulse - Signal implausible**

**Function**

The Knock Control is designed to detect knocking combustion and to adjust the ignition timing toward late. When no further knocking occurs, the ignition timing is advanced again gradually to the specified value. Because of the engine design (boxer engine), 2 knock sensors are needed.

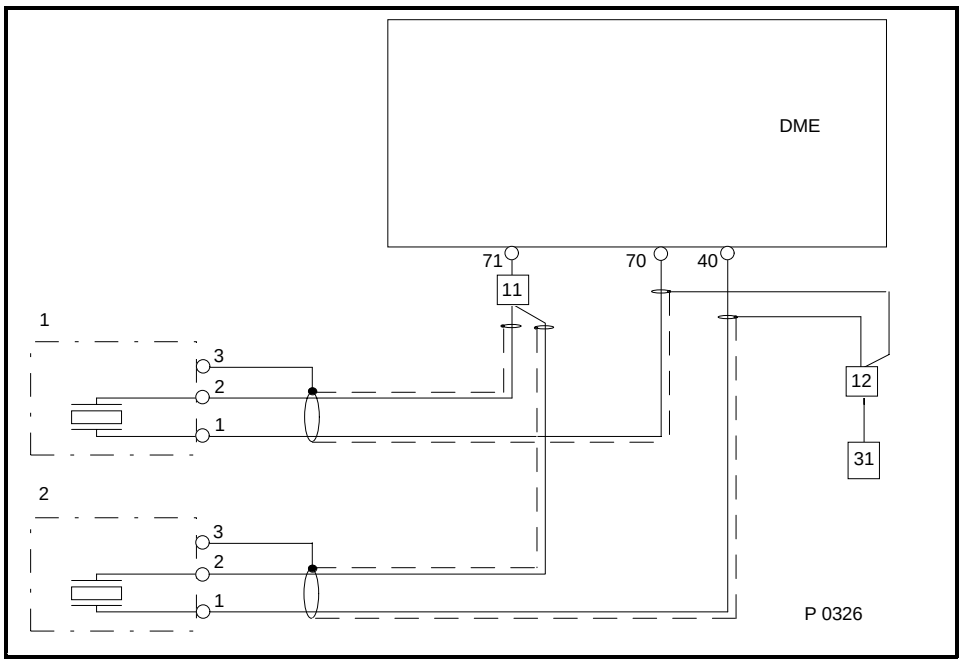
Knock Sensor 1 - cylinders 1 to 3
Knock Sensor 2 - cylinders 4 to 6

**Diagnostic conditions**

Engine speed higher than 3600 1/min

| DTC No. | Fault conditions | Fault areas |
|---|---|---|
| P0326<br>P0331 | Signal not plausible | - Knock sensor loose<br>- Knock sensor bridge loose or damaged<br>- Wiring break or short circuit<br>- Connector corrosion<br>- Knock Sensor faulty |
| P1386 | Internal ECM checking faulty | - ECM |

## Wiring Diagram




### Diagnostic procedure

**DTCs P0326 and P0331**

Check mounting of knock sensor on sensor bridge.
Tightening torque: 20 ± 5 Nm

not OK. → Tighten knock sensor. → **End**

OK

Check knock bridge for cracks.

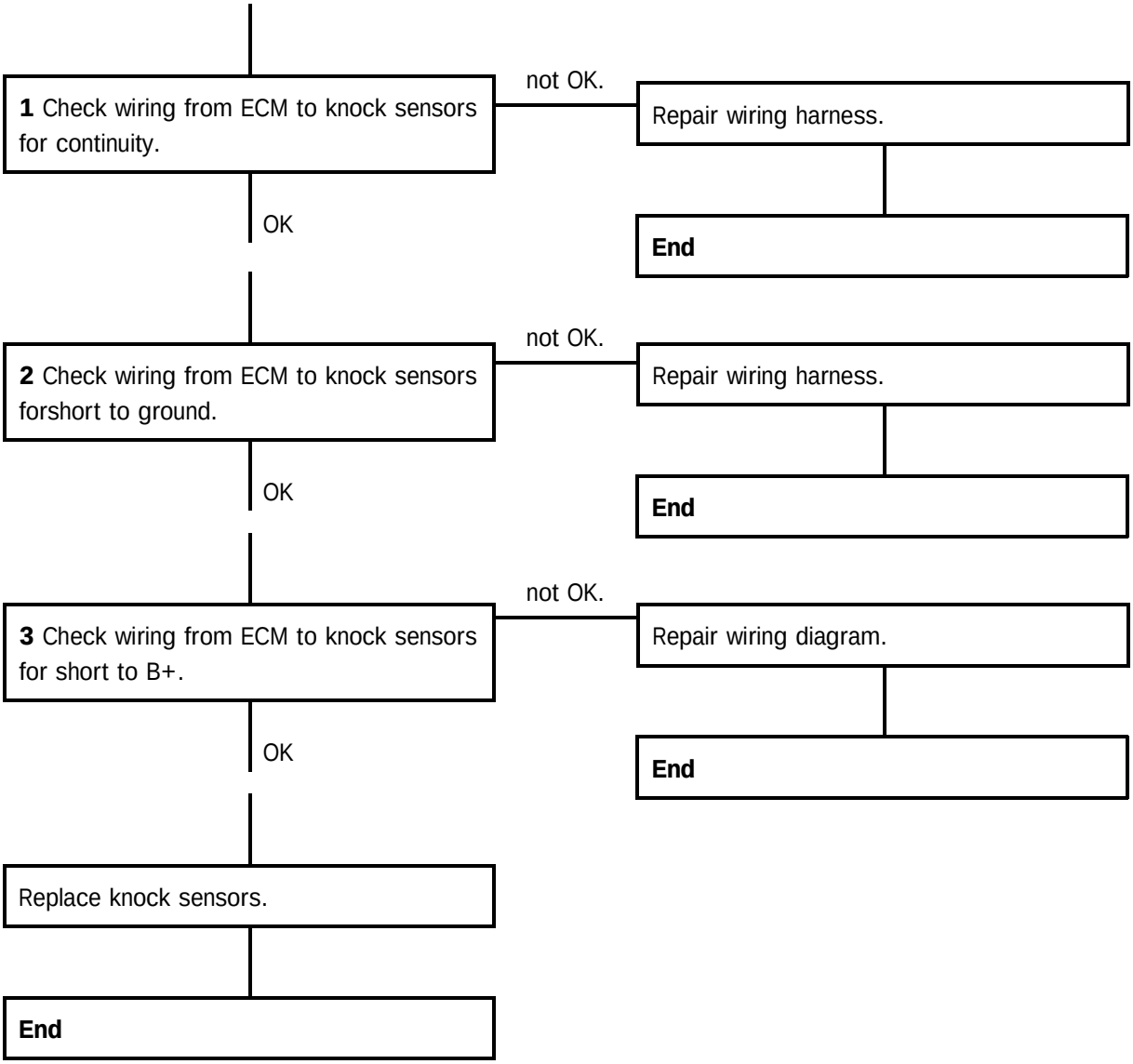
not OK. → Replace knock bridge. → **End**

OK

Mounting of knock sensor bridge
Tightening torque: 10 Nm

not OK. → Tighten knock sensor bridge → **End**

OK.




**DTC P1386**

Replace ECM.

## 1 Check wiring from ECM to knock sensors for continuity.

1. Remove knock sensor connectors.
2. Remove ECM connector.
3. Connect ohmmeter to ECM connector, pin 70 and to knock sensor connector 1, pin 1.
   Specified value: 0 - 5 Ω
4. Connect ohmmeter to ECM connector, pin 40 and to knock sensor connector 2, pin 1.
   Specified value: 0 - 5 Ω
5. Connect ohmmeter to ECM connector, pin 71 and to knock sensor connector 1, pin 2.
   Specified value: 0 - 5 Ω
6. Connect ohmmeter to ECM connector, pin 71 and to knock sensor connector. 2, pin 2.
   Specified value: 0 - 5 Ω
7. Connect ohmmeter to knock sensor connector 1, pin 3 and to ground.
   Specified value: 0 - 5 Ω
8. Connect ohmmeter to knock sensor connector 2, pin 3 and to ground .
   Specified value: 0 - 5 Ω

If the meter reads resistance of Ω at points 3 to 8, check wiring harness for chafing and pinching damage.

## 2 Check wiring from ECM to knock sensors for short to ground.

1. Remove connectors for knock sensors.
2. Remove ECM connector.
3. Connect ohmmeter to ECM connector, pin 70 and ground.
   Specified value: Ω
4. Connect ohmmeter to ECM connector, pin 40 and ground
   Specified value: Ω

If the meter reads resistance of 0 - 5 Ω at points 3 and 4, check wiring harness for chafing and pinching damage.

## 3 Check wiring from ECM to knock sensors for short to B+.

1. Remove knock sensor connectors.
2. Remove ECM connector.
3. Connect voltmeter to ECM connector, pin 70 and ground.
   Specified value: 0 Volt
4. Connect voltmeter to ECM connector, pin 40 and ground.
   Specified value: 0 Volt
5. Connect voltmeter to ECM connector, pin 71 and ground.
   Specified value: 0 Volt

If meter reads battery voltage at points 3 to 5, check wiring harness for chafing and pinching damage.