

Technical data on the vehicle

| | | | |
|---------|----------------------------|------------------|------------|
| Make | Iveco LV | Date: | 06-07-2011 |
| Model | Stralis 440 E 44 Cursor 13 | Owner | _____ |
| Year | 2002-2009 | Registration No. | _____ |
| Engine | F3B E0681C | VIN | _____ |
| Variant | | 1. Reg. Date | _____ |

| Technical item | Data |
|----------------|------|
|----------------|------|

Engine

| | |
|--|---|
| Engine ID code | F3B E0681C |
| Number of cylinders | R6 |
| Number of valves | 24, OHV |
| Capacity/ (bore/ stroke) | 12880 cm ³ (135,0/ 150,0) |
| Compression ratio | 16,5: 1 |
| Max. output kW (din hp)/ rpm | 324 (440)/ 1450 - 1900 |
| Max. torque NM/ rpm | 2100/ 1000 - 1470 |
| Engine code location | Engine block left side |
| Vehicle Identification Number location | Right side rail by front wheel |
| Vehicle identification plate location | Behind front grille |
| Valve clearance, inlet (cold/ hot) | 0.40 ± 0.05 cold i |
| Valve clearance, exhaust (cold/ hot) | 0.60 ± 0.05 cold i |
| Valve angle/ seat angle | Intake 60° 30'/ 60° Exhaust 45° 30'/ 45° |
| Valve height in cylinder head, mm | i |
| Oil pressure/ rpm, bar | Min. 1.5/ idle speed (5.0/ max. rpm) |
| Radiator cap, bar/ thermostat °C | / 84° ± 2° C |
| Thermostat gap at test temperature | Max. open/ 94° ± 2° C |
| Clutch freeplay, mm | (Hydraulic) |
| Timing gear: | i |
| Drive belt | i |

Engine management

| | |
|-------------------------------------|--------------------------------------|
| Engine management system | Bosch MS6.2 PDE |
| Pump/ pump type | Bosch/ PDE 31 |
| Injector/ injector type | Bosch/ |
| Crank position °/ engine piston, mm | Electronic |
| Pump position, mm | i |
| Adjustment method | i |
| Injector opening pressure, new, bar | 1500 |
| Injection order | 1 - 4 - 2 - 6 - 3 - 5 |

Electrical system

| | |
|---------------------------------|--|
| Terminal definitions DIN 72 552 | |
|---------------------------------|--|

Wheel alignment

| | |
|---------------|---|
| Load | Unloaded |
| Toe-in, mm | 1,00 ± 0,75 |
| Camber° | 1° |
| Caster° | 1° 24' |
| KPI/SAI° | 7° |
| Rear camber° | 1° i |
| Rear toe-in ° | Left wheel 0 ± 0.75/ Right wheel ÷ 2.00 ± 0.75 i |

Tightening torques

| | |
|----------------------------------|--|
| Tightening, NM | Torque standards |
| Cylinder head bolts, stage 1, Nm | 60 Nm oiled i |
| Cylinder head bolts, stage 2, Nm | 120 Nm |
| Cylinder head bolts, stage 3, Nm | + 90° |
| Cylinder head bolts, stage 4, Nm | Bolts 4, 5, 12, 20, 21 = 45° |
| Cylinder head bolts, stage 5, Nm | Others = 65° |
| Main bearings, Nm | i |

| Technical item | Data |
|----------------|------|
|----------------|------|

Tightening torques

| | |
|--|--|
| Connection rod bearings, Nm | 60 Nm + 60° oiled |
| Flywheel, Nm | 120 Nm + 60° + 30° oiled |
| Crankshaft pulley/ vibration damp. Nm | / 70 Nm + 50° |
| Camshaft pulley/ bearings, Nm | 60 Nm + 60° (Rocker arm assembly 100 Nm + 60°) |
| Pump pulley/ idle wheel, Nm | / 30 Nm + 90° |
| Nozzle retainer/ Nozzle in cylinder head | 26/ |
| Wheel nuts/ bolts, Nm | Front 665/ Rear 600 |
| Wheel hub, front/ rear, Nm | 515/ 932 i |

Brakes

| | |
|--|---------------------------------|
| Front, min. thickness (new) | 37,0/ 414,0 mm (45,0/ 410,0 mm) |
| Rear, min. thickness (new) | 37,0/ 414,0 mm (45,0/ 410,0 mm) |
| Min. brake lining thickness, front, mm | Pads 2.0 mm (Shoes 4.7 mm) |
| Min. brake lining thickness, rear, mm | Pads 2.0 mm (Shoes 4.7 mm) |

Capacities

| | |
|-----------------------------------|--|
| Engine oil/ - incl. filter, litre | 28,0/ 31,0 (Urania Turbo LD) |
| Manual transmission, litre | i |
| Final drive, litre | U177 = 18,5, RT160 centre/ rear = 18.5/ 16,5 |
| Power steering, litre | 2,7 (Tutela GI/A) i |
| Cooling system, litre | 44.0 (64.0 with retarder) |

Environmental parametres

| | |
|------------------------|-----------|
| Idle speed, rpm | 525 ± 25 |
| Max rpm (exhaust test) | 2250 ± 25 |

Remarks

n

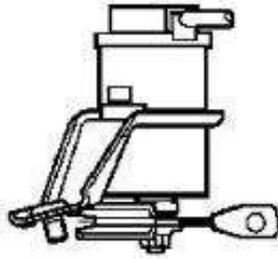
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Order No.: _____

Mechanic _____

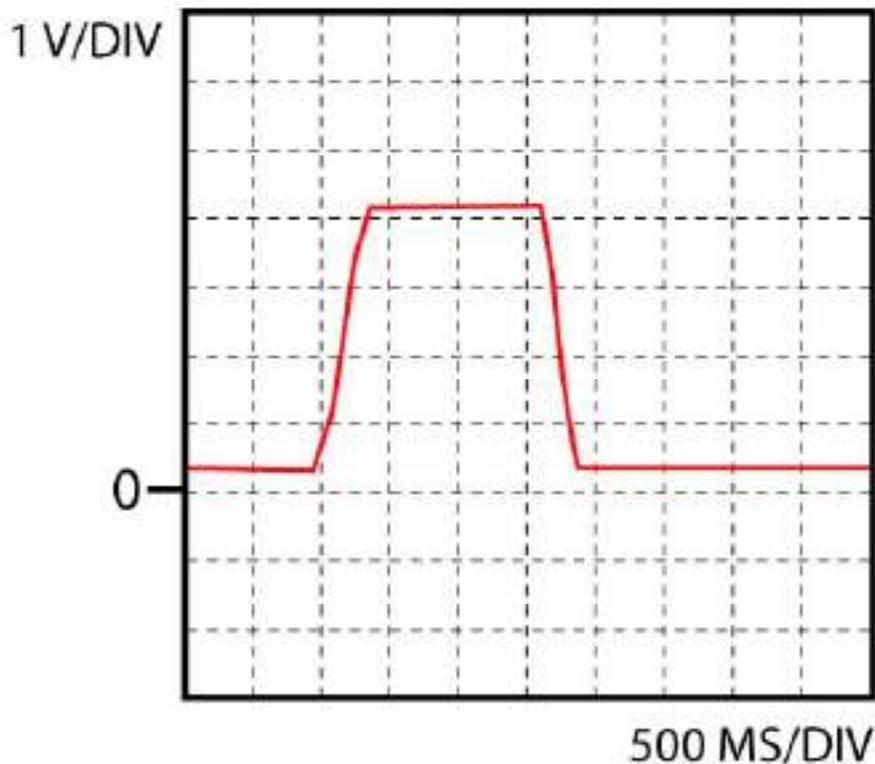
Accelerator pedal sensor



Function

The spindle which is connected to the accelerator pedal operates the position sensor. The sensor comprises a carbon strip and a stylus, the spindle operates the stylus. The stylus moves over the carbon strip, the voltage on the stylus depends on the position at which the stylus touches the carbon strip. Based on the output voltage the control unit determines fuel delivery.

Info



Quickcheck

Check connector(s): Inspect the connector(s) and if necessary clean or fix them to make sure the connection is good. Check supply voltage accelerator pedal position sensor: Turn off ignition. Remove connector from pedal position sensor. Turn ignition on. Measure voltage between supply terminal and the negative terminal of the battery. It should equal specified voltage. If not check wiring then check ECU. Check connection to ECU: Turn off ignition. Remove connector from pedal position sensor and ECU. Measure the resistance between connectors terminal and the corresponding terminal in the ECU connector. Should be < 1 ohm. If not check wiring. Check position sensor signal: Connect oscilloscope to the signal wire pin of the ECU and ground. Turn ignition on and compare to the data

Air temperature sensor



Function

The air temperature sensor incorporates a NTC thermistor, the resistance decreases as the temperature of the air increases. As the temperature changes, the thermistor resistance changes, enabling the control unit to calculate the air temperature from the level of voltage that is registered on the sensors' signal wire.

Quickcheck

Check connector(s): Inspect the connector(s) and if necessary clean or fix them to make sure the connection is good. **Check resistance:** Turn off ignition. Remove connector from sensor. Measure resistance between pins of the sensor. Compare with specified resistance. **Check supply voltage:** Turn off ignition. Remove connector from sensor. Turn ignition on and measure successively voltage between connector terminal and the negative terminal of the battery. One should be 5 V. If not check wiring then check ECU. **Check connection to ECU:** Turn off ignition. Remove connectors from sensor and ECU. Measure the resistance between supply voltage connector terminal and the corresponding terminal in the ECU connector. It should be < 1 ohm. If not check wiring. **Check ground:** Check in schematic if ground connection is connected to a direct ground or to the ECU. When it is connected directly to ground: Turn off ignition. Remove connector from sensor and measure resistance between ground connector terminal and the negative terminal of the battery. It should be < 1 ohm. If not check wiring. **When it is connected to the ECU:** Turn off ignition. Remove connector from sensor and ECU. Measure resistance between ground connector terminal and the corresponding terminal in the ECU connector. It should be < 1 ohm. If not check wiring then check ECU.

Boost pressure valve



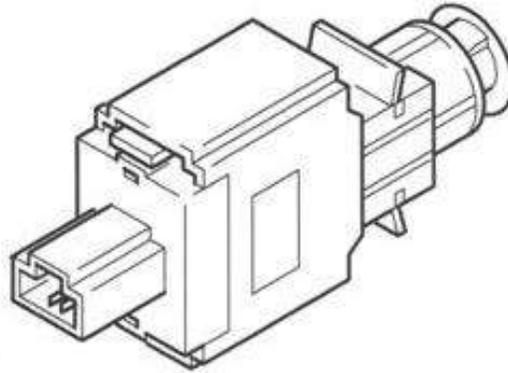
Function

The solenoid controls a valve which opens or closes the air line between the waste gate valve and vacuum. When the valve opens vacuum is applied to the waste gate valve, which in turn regulates the amount of exhaust gasses passing through the exhaust gas turbine. In this way the turbo pressure is regulated.

Quickcheck

Check connector(s): Inspect the connector(s) and if necessary clean or fix them to make sure the connection is good. **Check resistance:** Turn off ignition. Remove connector from solenoid. Locate the two pins of the solenoid. Measure resistance between the two pins of the solenoid. Compare with specified resistance. Alternatively you can check functioning of the solenoid by applying battery voltage to the two pins of the solenoid, the solenoid should "click". **Check supply voltage:** Turn off ignition. Remove connector from solenoid. Locate the two connector terminals of the solenoid. Start the engine and measure voltage between one connector terminal of the solenoid and the negative terminal of the battery. Check the second terminal of the solenoid, one of the two should equal the battery voltage. If not check wiring and if present fuse and relay. **Check connection to ECU:** Turn off ignition. Remove connectors from solenoid and ECU. Locate the two connector terminals of the solenoid. Measure the resistance between one of the two connector terminals of the solenoid and the corresponding terminal in the ECU connector. Check the other terminal of the solenoid, one of the two should be < 1 ohm. If not check wiring.

Brake pedal switch



Function

Engaging the brakes is detected by the brake pedal switch. There are single and double switches. Single switches send a voltage signal to the control unit, thus signaling that the brakes are engaged. In a double switch the additional switch actuates the brake lights.

Fault finding:

Check connector(s): Inspect the connector(s) and if necessary clean or fix them to make sure the connection is good.

Check supply voltage:

Turn off ignition. Remove connector from brake pedal switch.

Turn ignition on. Measure voltage between connector terminal + and the negative terminal of the battery. Both should equal battery voltage. If not check wiring, relay and fuse(s).

Check connection to ECU:

Turn off ignition. Remove connector from brake pedal switch.

Measure the resistance between connector terminal + and - and the corresponding terminals in the ECU connector. Both should be < 1 ohm. If not check wiring.

Check switch signal:

Connect oscilloscope or voltage meter to the pin of the ECU which corresponds to the brake pedal switch and ground. Turn ignition on, output voltage should equal battery voltage. Press brake, output voltage should be 0 V. Connect oscilloscope or voltage meter to the pin of the ECU which corresponds to the brake light switch and ground. Turn ignition on, output voltage should be 0 V. Press brake, output voltage should equal battery voltage.

CAN BUS SAE J1708

Function

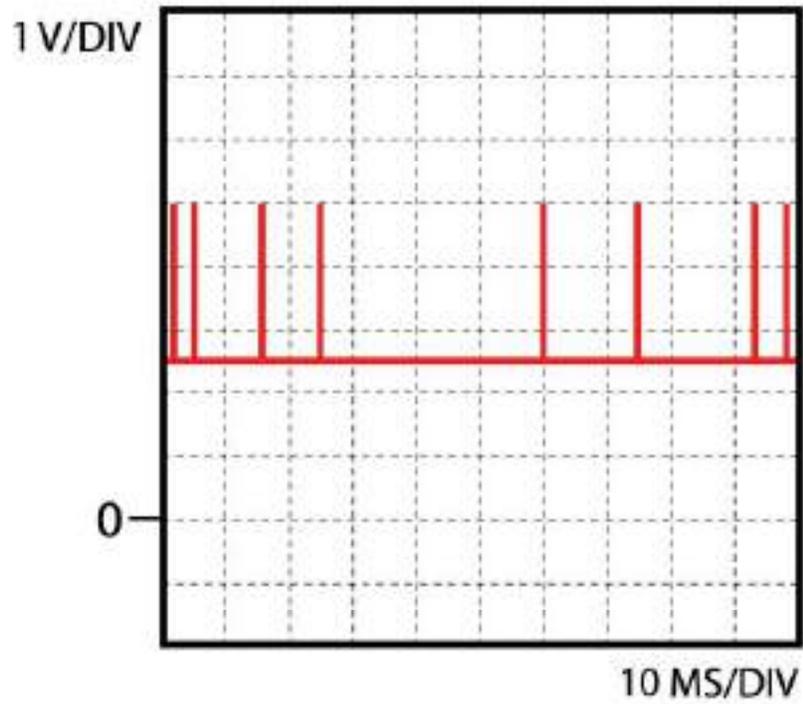
CAN bus connection SAE J1708 is a data chain used to send trouble code information etc. The voltage on the data chain varies and depends on the number of ECUs and the traffic on the line.

CAN BUS SAE J1939

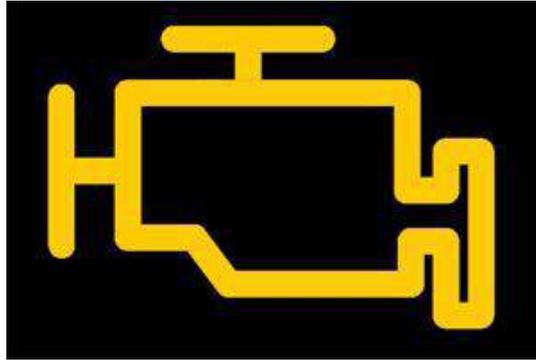
Function

CAN bus connection SAE J1939 is an electric control chain used to send data that the system uses for control functions. The voltage on the control chain varies and depends on the number of ECUs and the traffic on the line.

Info



ECU lamp



Function

The control unit actuates the check engine light when it senses inadequate functioning of the motormanagement system.

Coolant temperature sensor



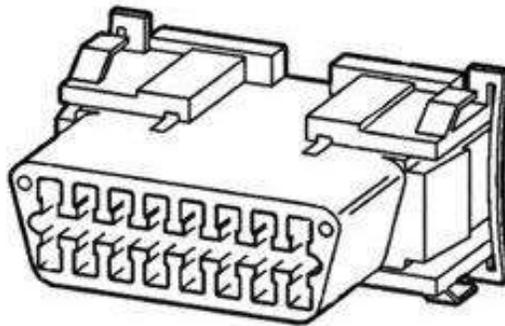
Function

The coolant temperature sensor incorporates a NTC thermistor, the resistance decreases as the temperature of the coolant increases. As the temperature changes, the thermistor resistance changes, enabling the control unit to calculate the coolant temperature from the level of voltage that is registered on the sensors' signal wire.

Quickcheck

Inspect the connector(s) and if necessary clean or fix them to make sure the connection is good. Check resistance: Turn off ignition. Remove connector from sensor. Measure resistance between pins of the sensor. Compare with specified resistance. Check supply voltage: Turn off ignition. Remove connector from sensor. Turn ignition on and measure successively voltage between connector terminal and the negative terminal of the battery. One should be 5 V. If not check wiring then check ECU. Check connection to ECU: Turn off ignition. Remove connectors from sensor and ECU. Measure the resistance between supply voltage connector terminal and the corresponding terminal in the ECU connector. It should be < 1 ohm. If not check wiring. Check ground: Check in schematic if ground connection is connected to a direct ground or to the ECU. When it is connected directly to ground: Turn off ignition. Remove connector from sensor and measure resistance between ground connector terminal and the negative terminal of the battery. It should be < 1 ohm. If not check wiring. When it is connected to the ECU: Turn off ignition. Remove connector from sensor and ECU. Measure resistance between ground connector terminal and the corresponding terminal in the ECU connector. It should be < 1 ohm. If not check wiring then check ECU.

Diagnostic connector



Function

The diagnostic connector is connected to the control unit. It facilitates communication with the control unit to get information on stored error codes and/or operating states of sensors and actuators.

Fault finding:

"Check connector(s): Inspect the connector(s) and if necessary clean or fix them to make sure the connection is good. Check in schematic which diagnostic connector terminal is (are) connected to the connector terminal(s) of the ECU connector or ground. Measure the resistance between the ECU connector terminal(s) and each pin of the diagnostic connector. The resistance between the ECU connector terminal(s) and the corresponding terminal in the diagnostic connector should be < 1 ohm.

Measure the resistance between the negative terminal of the battery and each pin of the diagnostic connector. The resistance between the negative battery terminal and the corresponding terminal in the diagnostic connector should be < 1 ohm.

ECU



Function

The control unit is the electronic processing unit for the motormanagement system. The control unit has to ensure that the engine receives the right amount of fuel, the right injection timing and a proper idle control in every operating state. The control unit uses sensors to determine engine operating conditions. Depending on the engine conditions, the control unit activates actuators.

Quickcheck

Check connector(s): Inspect the connector(s) and if necessary clean or fix them to make sure the connection is good. When you suspect the control unit is faulty make sure all sensors, actuators and the communication with other control units function properly. Furthermore check the supply voltage and ground connections of the control unit: Turn ignition off. Remove ECU connector. Locate the supply voltage connections. Turn ignition on, measure voltage between corresponding connector terminal(s) and the negative terminal of the battery, these should equal battery voltage. If not check wiring and fuse. Turn ignition off. Locate the ground connections. Measure resistance between corresponding connector terminal(s) and the negative terminal of the battery, these should be < 1 ohm.

Exhaust pressure sensor



Function

The pressure in the exhaust is measured using the exhaust pressure sensor. The sensor is a transducer, the sensor senses the absolute pressure in the exhaust and transduces this to a DC voltage signal.

Quickcheck

Check connector(s): Inspect the connector(s) and if necessary clean or fix them to make sure the connection is good. Check supply voltage: Turn off ignition. Remove connector from sensor. Turn ignition on and measure voltage between the supply terminal and negative terminal of the battery. It should be 5 V. Check connection to ECU: Turn off ignition. Remove connector from sensor and ECU. Measure the resistance between the terminals and the corresponding terminals in the ECU connector. They all should be < 1 ohm. If not check wiring.

Fuel temperature sensor

Function

The fuel temperature sensor incorporates a NTC thermistor, the resistance decreases as the temperature of the fuel increases. As the temperature changes, the thermistor resistance changes, enabling the control unit to calculate the fuel temperature from the level of voltage that is registered on the sensors' signal wire.

Quickcheck

Check connector(s): Inspect the connector(s) and if necessary clean or fix them to make sure the connection is good. Check resistance: Turn off ignition. Remove connector from diesel pump. Measure resistance between pin 1 and 2 of the connector. Compare with specified resistance. Check supply voltage: Turn off ignition. Remove connector from diesel pump. Turn ignition on and measure voltage between terminal 4 and the negative terminal of the battery. It should equal 5 V. If not check wiring then check ECU. Check connection to ECU: Turn off ignition. Remove connector from diesel pump and ECU. Measure the resistance between terminal 1, 2 and the corresponding terminals in the ECU connector, each one should be < 1 ohm. If not check wiring.

Inductive position sensor 1



Function

Function:

The sensor contains three parts: a coil, a magnet and a soft iron core. The teeth of a gearwheel move past the magnetic pickup which changes the magnetic field of the magnet, increasing when a tooth approaches and decreasing when a tooth moves away. These changes result in an AC voltage produced in the coil. Engine rpm and/or TDC are determined in this way.

Trouble shooting:

"Check connector(s): Inspect the connector(s) and if necessary clean or fix them to make sure the connection is good.

Check resistance:

Turn off ignition. Remove connector from pickup sensor.

Measure resistance between the two pins of the coil of the pickup sensor. Compare with specified resistance.

Check connection to ECU:

Turn off ignition. Remove connector from pickup sensor and ECU.

Measure the resistance between each coil connector terminal and the corresponding terminals in the ECU connector. Both should be < 1 ohm.

If present check shield connection:

Check in schematic if the shield terminal is connected to a direct ground or to the ECU. When it is connected to a direct ground: Turn off ignition. Remove connector from pickup sensor. Measure resistance between the shield connector terminal and the negative terminal of the battery. It should be < 1 ohm. When it is connected to the ECU: Turn off ignition. Remove connector from pickup sensor and ECU. Measure the resistance between the shield connector terminal and the corresponding terminal in the ECU connector. It should be < 1 ohm. If not check wiring.

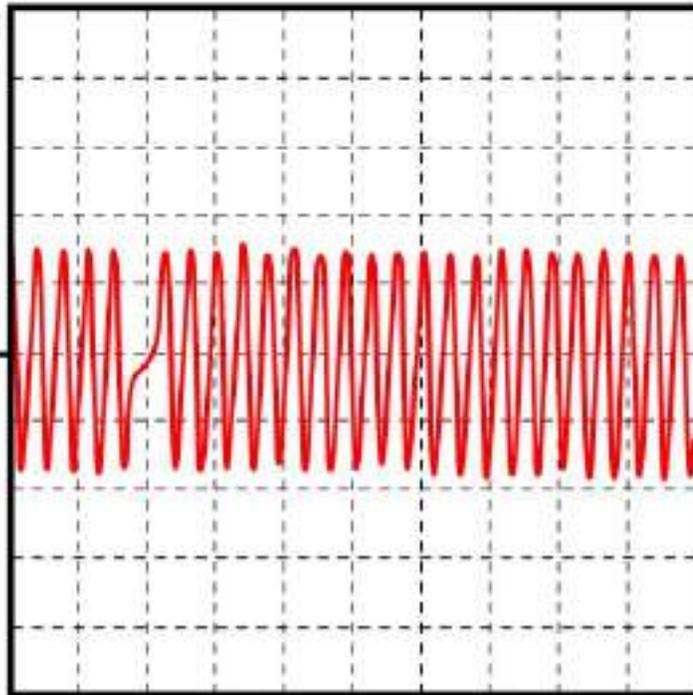
Check sensor signal:

Connect oscilloscope to signal wire pin of the ECU and ground. Start or crank the engine and compare to the scope image shown."

Info

2 V/DIV

0



5 MS/DIV

Inductive position sensor 2



Function

Function:

The sensor contains three parts: a coil, a magnet and a soft iron core. The teeth of a gearwheel move past the magnetic pickup which changes the magnetic field of the magnet, increasing when a tooth approaches and decreasing when a tooth moves away. These changes result in an AC voltage produced in the coil. Engine rpm and/or TDC are determined in this way.

Trouble shooting:

"Check connector(s): Inspect the connector(s) and if necessary clean or fix them to make sure the connection is good.

Check resistance:

Turn off ignition. Remove connector from pickup sensor.

Measure resistance between the two pins of the coil of the pickup sensor. Compare with specified resistance.

Check connection to ECU:

Turn off ignition. Remove connector from pickup sensor and ECU.

Measure the resistance between each coil connector terminal and the corresponding terminals in the ECU connector. Both should be < 1 ohm.

If present check shield connection:

Check in schematic if the shield terminal is connected to a direct ground or to the ECU. When it is connected to a direct ground: Turn off ignition. Remove connector from pickup sensor. Measure resistance between the shield connector terminal and the negative terminal of the battery. It should be < 1 ohm. When it is connected to the ECU: Turn off ignition. Remove connector from pickup sensor and ECU. Measure the resistance between the shield connector terminal and the corresponding terminal in the ECU connector. It should be < 1 ohm. If not check wiring.

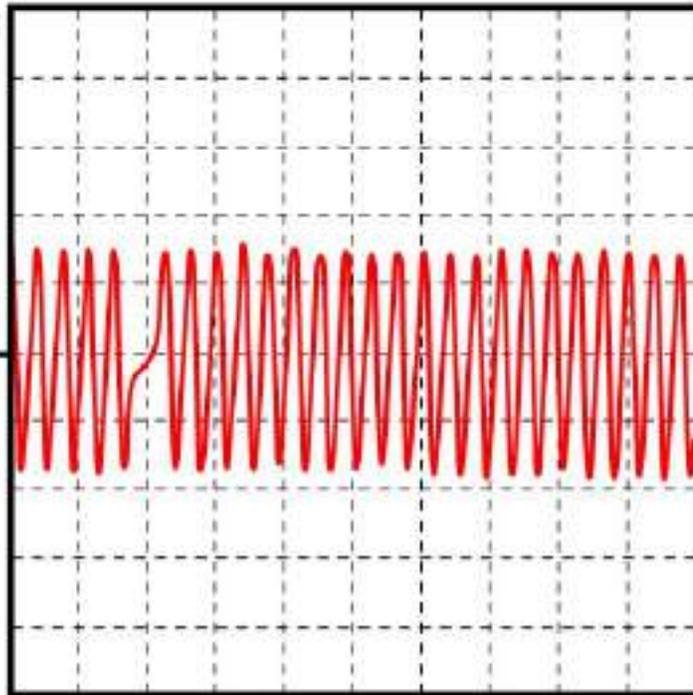
Check sensor signal:

Connect oscilloscope to signal wire pin of the ECU and ground. Start or crank the engine and compare to the scope image shown."

Info

2 V/DIV

0



5 MS/DIV

Inductive position sensor



Function

Function:

The sensor contains three parts: a coil, a magnet and a soft iron core. The teeth of a gearwheel move past the magnetic pickup which changes the magnetic field of the magnet, increasing when a tooth approaches and decreasing when a tooth moves away. These changes result in an AC voltage produced in the coil. Engine rpm and/or TDC are determined in this way.

Trouble shooting:

"Check connector(s): Inspect the connector(s) and if necessary clean or fix them to make sure the connection is good.

Check resistance:

Turn off ignition. Remove connector from pickup sensor.

Measure resistance between the two pins of the coil of the pickup sensor. Compare with specified resistance.

Check connection to ECU:

Turn off ignition. Remove connector from pickup sensor and ECU.

Measure the resistance between each coil connector terminal and the corresponding terminals in the ECU connector. Both should be < 1 ohm.

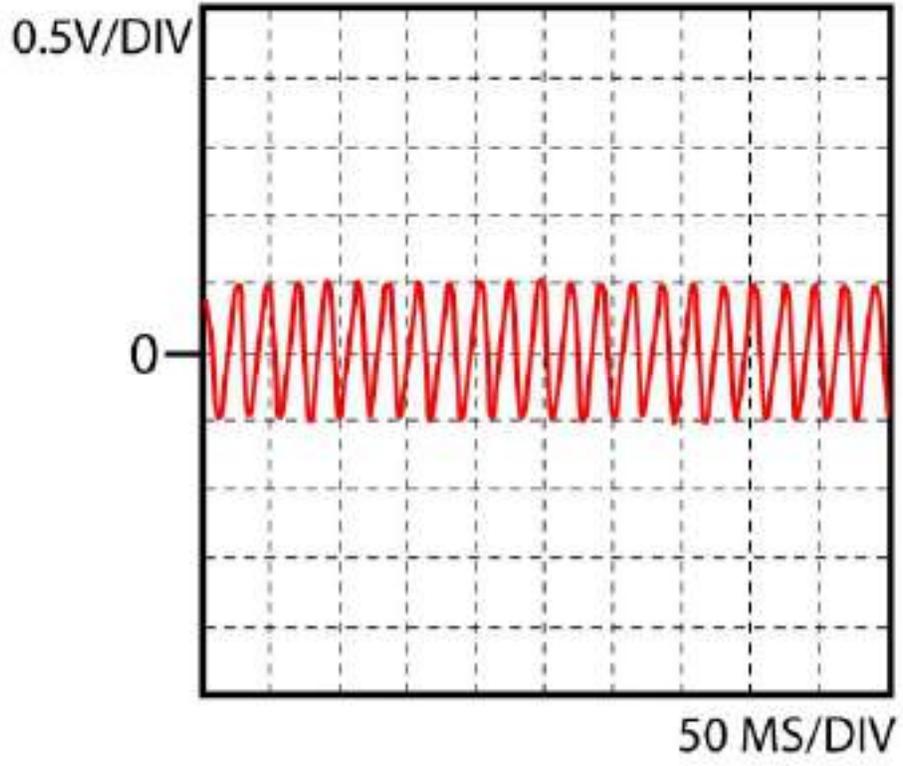
If present check shield connection:

Check in schematic if the shield terminal is connected to a direct ground or to the ECU. When it is connected to a direct ground: Turn off ignition. Remove connector from pickup sensor. Measure resistance between the shield connector terminal and the negative terminal of the battery. It should be < 1 ohm. When it is connected to the ECU: Turn off ignition. Remove connector from pickup sensor and ECU. Measure the resistance between the shield connector terminal and the corresponding terminal in the ECU connector. It should be < 1 ohm. If not check wiring.

Check sensor signal:

Connect oscilloscope to signal wire pin of the ECU and ground. Start or crank the engine and compare to the scope image shown."

Info



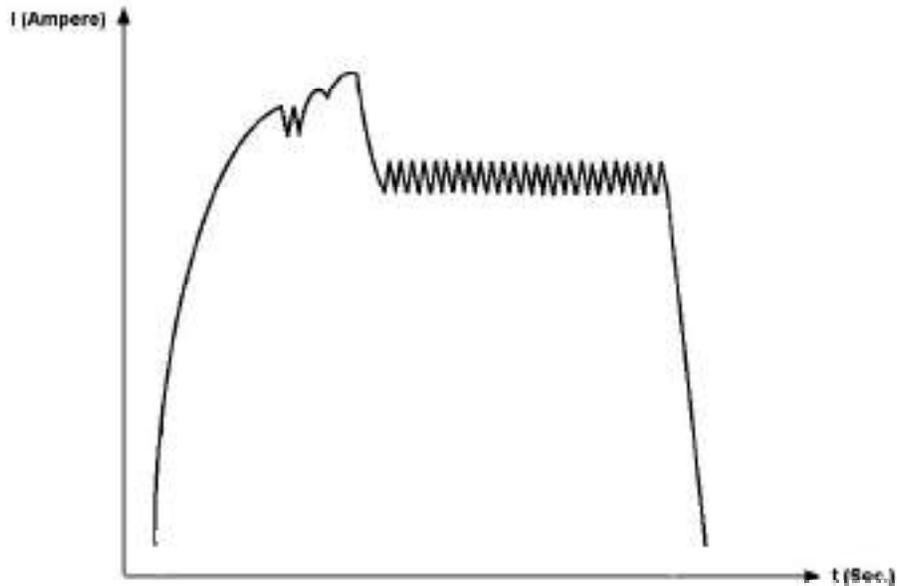
Unit Injector 1



Function

The unit injector is a one-cylinder injection pump and injection valve built into one unit. The unit injector is activated mechanically by the camshaft that is used to produce the high injection pressure of up to approx. 2000 bar. The actual injection takes place via the solenoid valve inside the injector that pulls up a fitting connected with the injector needle. Thus, fuel is injected directly into the combustion chamber of the cylinder. The injector valve is activated by the control unit where it receives a signal about injection amount and injection point. One unit injector is used for every cylinder.

Info



Quickcheck

Check connector(s): Inspect the connector(s) and if necessary clean or fix them to make sure the connection is good. Check resistance: Turn off ignition. Remove connector(s) from injector(s). Measure resistance between the two pins of the injector. Compare with specified resistance. Check connection to ECU: Turn off ignition. Remove connector(s) from injector (s) and ECU. Measure the resistance between one of the two connector terminals and the corresponding terminal in the ECU connector. Check the other terminal, one of the two should be < 1 ohm. If not check wiring. Check connection to ground: Turn off ignition. Remove connector(s) from injector(s). Measure the resistance between one of the two connector terminals and the negative battery pole. Check the other terminal, one of the two should be < 1 ohm. If not check wiring. Check injector activation: Connect oscilloscope to one of the signal wire pins of the ECU and ground. Start or crank the engine and compare to the scope image shown.

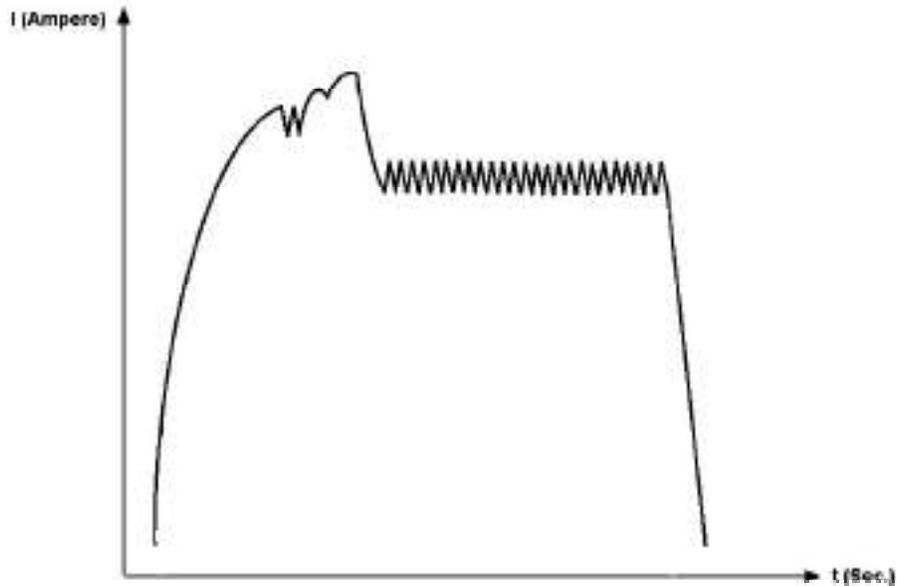
Unit Injector 1



Function

The unit injector is a one-cylinder injection pump and injection valve built into one unit. The unit injector is activated mechanically by the camshaft that is used to produce the high injection pressure of up to approx. 2000 bar. The actual injection takes place via the solenoid valve inside the injector that pulls up a fitting connected with the injector needle. Thus, fuel is injected directly into the combustion chamber of the cylinder. The injector valve is activated by the control unit where it receives a signal about injection amount and injection point. One unit injector is used for every cylinder.

Info



Quickcheck

Check connector(s): Inspect the connector(s) and if necessary clean or fix them to make sure the connection is good. Check resistance: Turn off ignition. Remove connector(s) from injector(s). Measure resistance between the two pins of the injector. Compare with specified resistance. Check connection to ECU: Turn off ignition. Remove connector(s) from injector (s) and ECU. Measure the resistance between one of the two connector terminals and the corresponding terminal in the ECU connector. Check the other terminal, one of the two should be < 1 ohm. If not check wiring. Check connection to ground: Turn off ignition. Remove connector(s) from injector(s). Measure the resistance between one of the two connector terminals and the negative battery pole. Check the other terminal, one of the two should be < 1 ohm. If not check wiring. Check injector activation: Connect oscilloscope to one of the signal wire pins of the ECU and ground. Start or crank the engine and compare to the scope image shown.

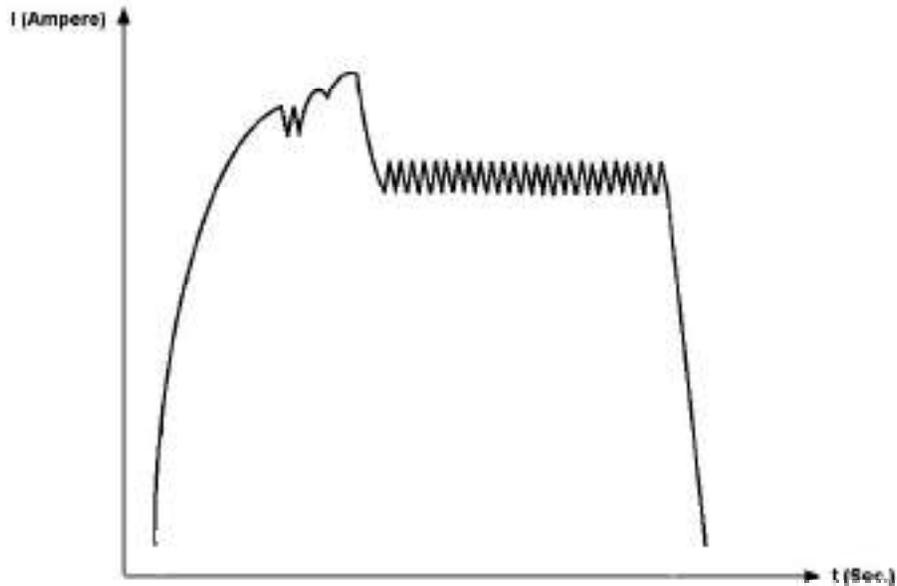
Unit Injector 2



Function

The unit injector is a one-cylinder injection pump and injection valve built into one unit. The unit injector is activated mechanically by the camshaft that is used to produce the high injection pressure of up to approx. 2000 bar. The actual injection takes place via the solenoid valve inside the injector that pulls up a fitting connected with the injector needle. Thus, fuel is injected directly into the combustion chamber of the cylinder. The injector valve is activated by the control unit where it receives a signal about injection amount and injection point. One unit injector is used for every cylinder.

Info



Quickcheck

Check connector(s): Inspect the connector(s) and if necessary clean or fix them to make sure the connection is good. Check resistance: Turn off ignition. Remove connector(s) from injector(s). Measure resistance between the two pins of the injector. Compare with specified resistance. Check connection to ECU: Turn off ignition. Remove connector(s) from injector (s) and ECU. Measure the resistance between one of the two connector terminals and the corresponding terminal in the ECU connector. Check the other terminal, one of the two should be < 1 ohm. If not check wiring. Check connection to ground: Turn off ignition. Remove connector(s) from injector(s). Measure the resistance between one of the two connector terminals and the negative battery pole. Check the other terminal, one of the two should be < 1 ohm. If not check wiring. Check injector activation: Connect oscilloscope to one of the signal wire pins of the ECU and ground. Start or crank the engine and compare to the scope image shown.

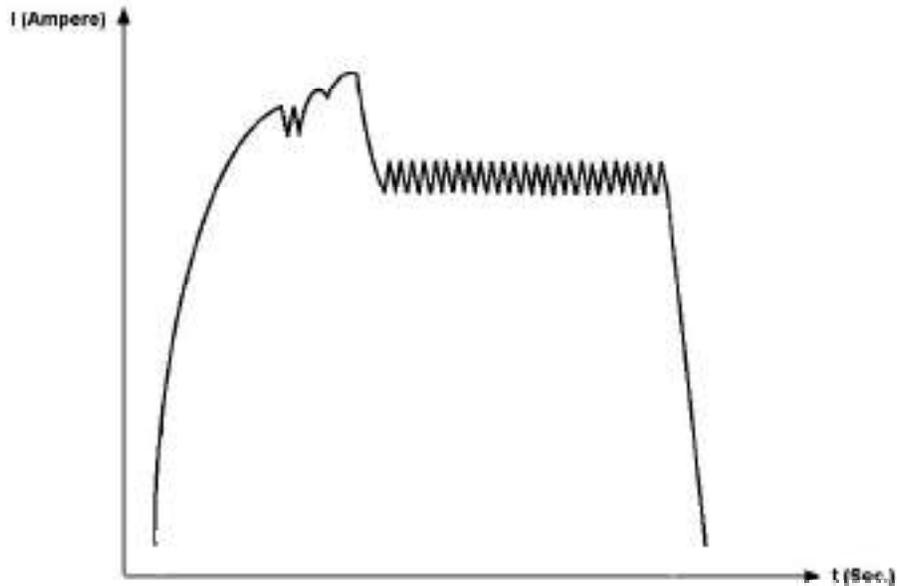
Unit Injector 3



Function

The unit injector is a one-cylinder injection pump and injection valve built into one unit. The unit injector is activated mechanically by the camshaft that is used to produce the high injection pressure of up to approx. 2000 bar. The actual injection takes place via the solenoid valve inside the injector that pulls up a fitting connected with the injector needle. Thus, fuel is injected directly into the combustion chamber of the cylinder. The injector valve is activated by the control unit where it receives a signal about injection amount and injection point. One unit injector is used for every cylinder.

Info



Quickcheck

Check connector(s): Inspect the connector(s) and if necessary clean or fix them to make sure the connection is good. Check resistance: Turn off ignition. Remove connector(s) from injector(s). Measure resistance between the two pins of the injector. Compare with specified resistance. Check connection to ECU: Turn off ignition. Remove connector(s) from injector (s) and ECU. Measure the resistance between one of the two connector terminals and the corresponding terminal in the ECU connector. Check the other terminal, one of the two should be < 1 ohm. If not check wiring. Check connection to ground: Turn off ignition. Remove connector(s) from injector(s). Measure the resistance between one of the two connector terminals and the negative battery pole. Check the other terminal, one of the two should be < 1 ohm. If not check wiring. Check injector activation: Connect oscilloscope to one of the signal wire pins of the ECU and ground. Start or crank the engine and compare to the scope image shown.

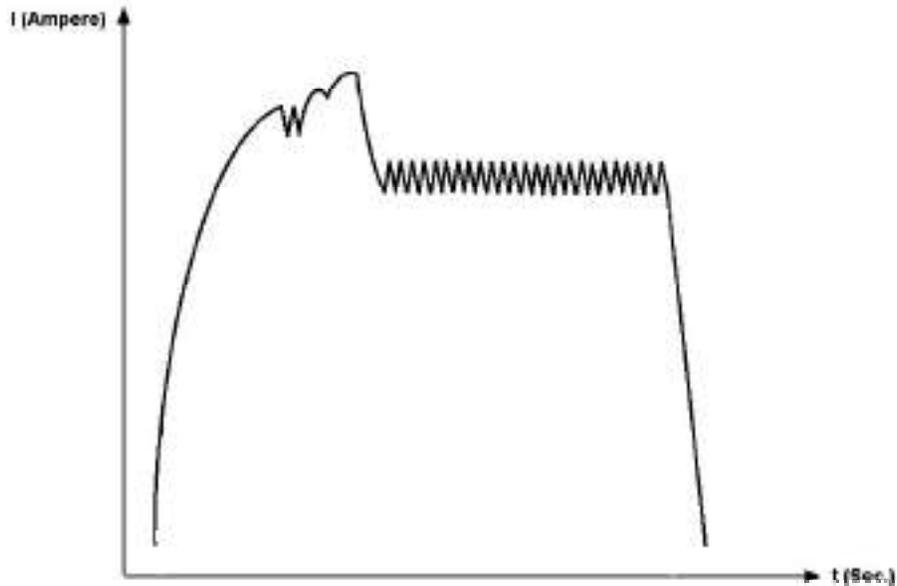
Unit Injector 4



Function

The unit injector is a one-cylinder injection pump and injection valve built into one unit. The unit injector is activated mechanically by the camshaft that is used to produce the high injection pressure of up to approx. 2000 bar. The actual injection takes place via the solenoid valve inside the injector that pulls up a fitting connected with the injector needle. Thus, fuel is injected directly into the combustion chamber of the cylinder. The injector valve is activated by the control unit where it receives a signal about injection amount and injection point. One unit injector is used for every cylinder.

Info



Quickcheck

Check connector(s): Inspect the connector(s) and if necessary clean or fix them to make sure the connection is good. Check resistance: Turn off ignition. Remove connector(s) from injector(s). Measure resistance between the two pins of the injector. Compare with specified resistance. Check connection to ECU: Turn off ignition. Remove connector(s) from injector (s) and ECU. Measure the resistance between one of the two connector terminals and the corresponding terminal in the ECU connector. Check the other terminal, one of the two should be < 1 ohm. If not check wiring. Check connection to ground: Turn off ignition. Remove connector(s) from injector(s). Measure the resistance between one of the two connector terminals and the negative battery pole. Check the other terminal, one of the two should be < 1 ohm. If not check wiring. Check injector activation: Connect oscilloscope to one of the signal wire pins of the ECU and ground. Start or crank the engine and compare to the scope image shown.

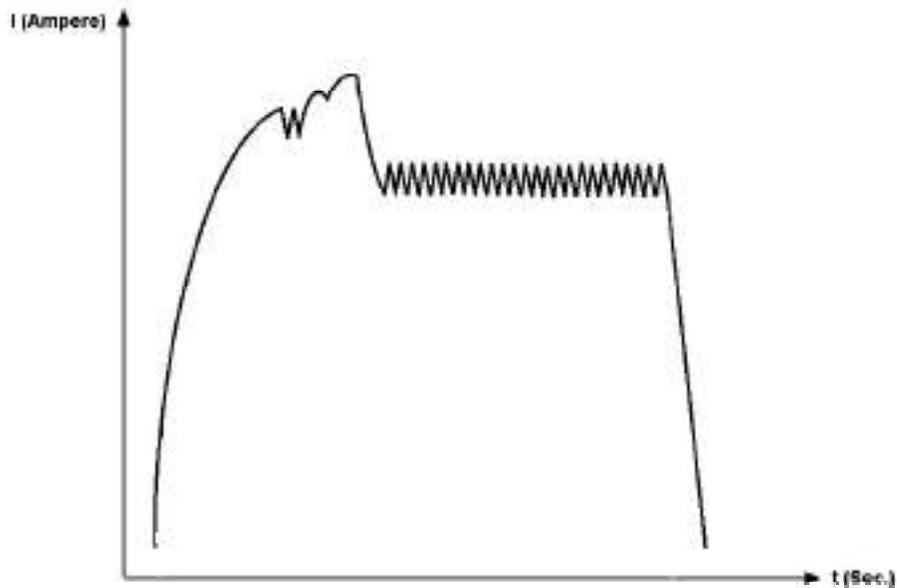
Unit Injector 5



Function

The unit injector is a one-cylinder injection pump and injection valve built into one unit. The unit injector is activated mechanically by the camshaft that is used to produce the high injection pressure of up to approx. 2000 bar. The actual injection takes place via the solenoid valve inside the injector that pulls up a fitting connected with the injector needle. Thus, fuel is injected directly into the combustion chamber of the cylinder. The injector valve is activated by the control unit where it receives a signal about injection amount and injection point. One unit injector is used for every cylinder.

Info



Quickcheck

Check connector(s): Inspect the connector(s) and if necessary clean or fix them to make sure the connection is good. Check resistance: Turn off ignition. Remove connector(s) from injector(s). Measure resistance between the two pins of the injector. Compare with specified resistance. Check connection to ECU: Turn off ignition. Remove connector(s) from injector (s) and ECU. Measure the resistance between one of the two connector terminals and the corresponding terminal in the ECU connector. Check the other terminal, one of the two should be < 1 ohm. If not check wiring. Check connection to ground: Turn off ignition. Remove connector(s) from injector(s). Measure the resistance between one of the two connector terminals and the negative battery pole. Check the other terminal, one of the two should be < 1 ohm. If not check wiring. Check injector activation: Connect oscilloscope to one of the signal wire pins of the ECU and ground. Start or crank the engine and compare to the scope image shown.

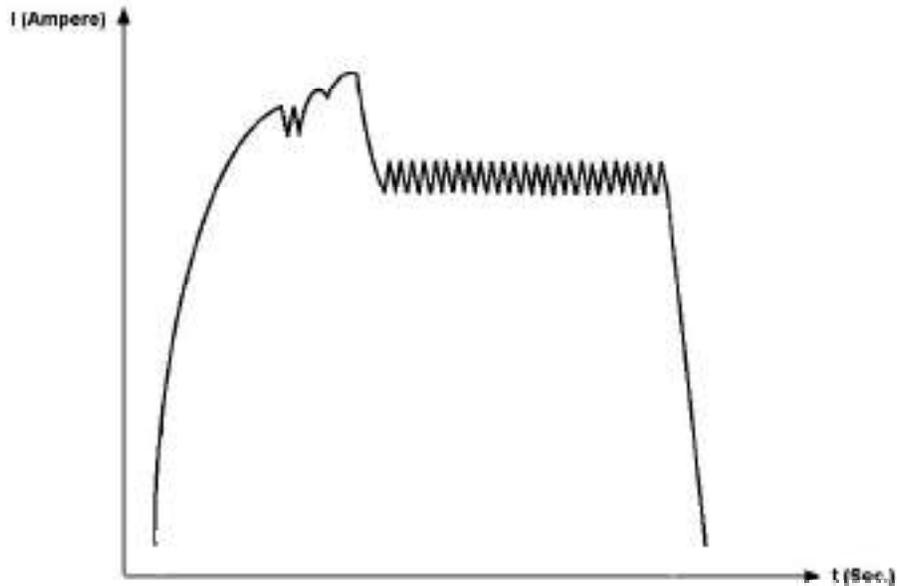
Unit Injector 6



Function

The unit injector is a one-cylinder injection pump and injection valve built into one unit. The unit injector is activated mechanically by the camshaft that is used to produce the high injection pressure of up to approx. 2000 bar. The actual injection takes place via the solenoid valve inside the injector that pulls up a fitting connected with the injector needle. Thus, fuel is injected directly into the combustion chamber of the cylinder. The injector valve is activated by the control unit where it receives a signal about injection amount and injection point. One unit injector is used for every cylinder.

Info



Quickcheck

Check connector(s): Inspect the connector(s) and if necessary clean or fix them to make sure the connection is good. Check resistance: Turn off ignition. Remove connector(s) from injector(s). Measure resistance between the two pins of the injector. Compare with specified resistance. Check connection to ECU: Turn off ignition. Remove connector(s) from injector(s) and ECU. Measure the resistance between one of the two connector terminals and the corresponding terminal in the ECU connector. Check the other terminal, one of the two should be < 1 ohm. If not check wiring. Check connection to ground: Turn off ignition. Remove connector(s) from injector(s). Measure the resistance between one of the two connector terminals and the negative battery pole. Check the other terminal, one of the two should be < 1 ohm. If not check wiring. Check injector activation: Connect oscilloscope to one of the signal wire pins of the ECU and ground. Start or crank the engine and compare to the scope image shown.

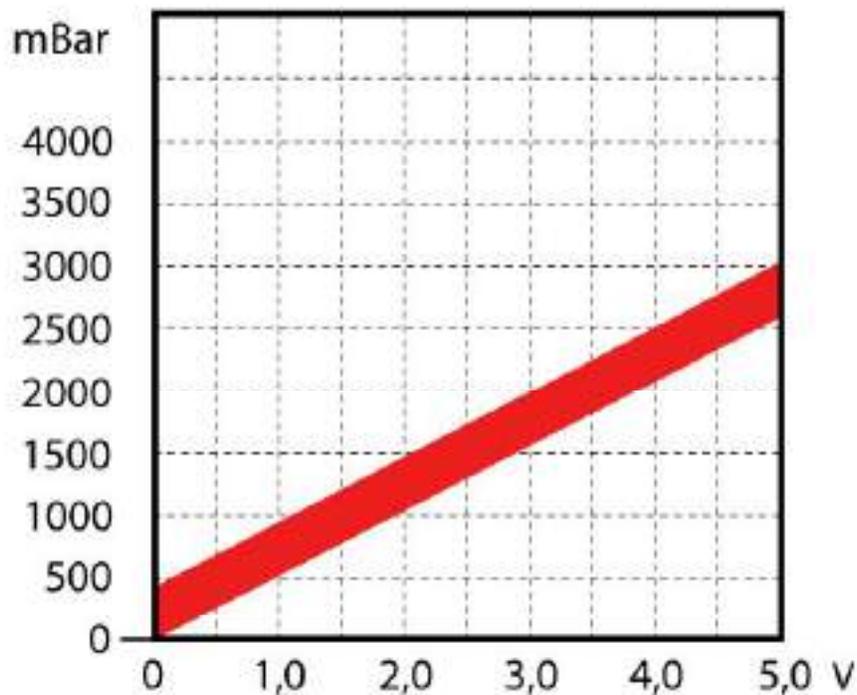
MAP-sensor



Function

The air pressure in the intake manifold is measured using the Manifold Absolute Pressure (MAP) sensor. The MAP sensor is a transducer, the MAP sensor senses the absolute pressure in the intake manifold and transduces this to a DC voltage signal.

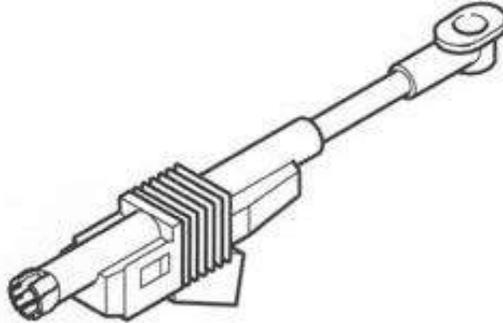
Info



Quickcheck

Check connector(s): Inspect the connector(s) and if necessary clean or fix them to make sure the connection is good. **Check supply voltage:** Turn off ignition. Remove connector from sensor. Turn ignition on and measure voltage between the supply terminal and negative terminal of the battery. It should be 5 V. **Check connection to ECU:** Turn off ignition. Remove connector from MAP sensor and ECU. Measure the resistance between MAP sensor terminals and the corresponding terminals in the ECU connector. They all should be < 1 ohm. If not check wiring. **Check MAP sensor signal:** Connect oscilloscope or voltmeter to the corresponding pin of the ECU (signal wire) and ground. Remove vacuum tube and connect vacuum pump. Turn ignition on and apply several different pressures. Compare to the characteristic shown.

Clutch switch



Function

Engaging the clutch pedal is detected by this switch. The control unit senses the voltage signal of this switch detecting that the clutch is engaged.

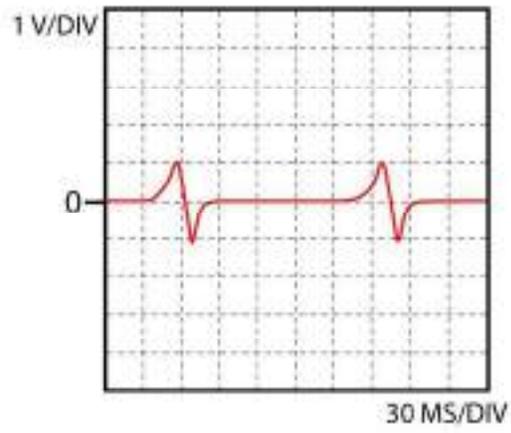
Speedometer



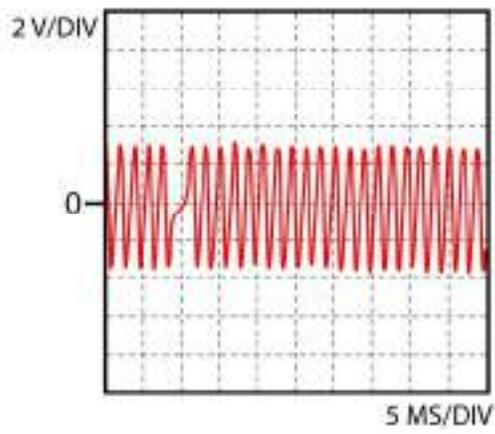
Function

Gives information about the speed of the car.

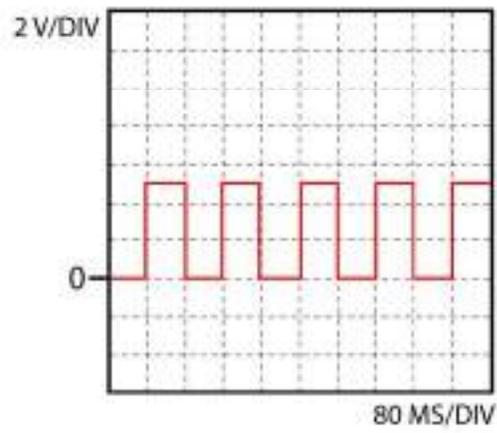
1007



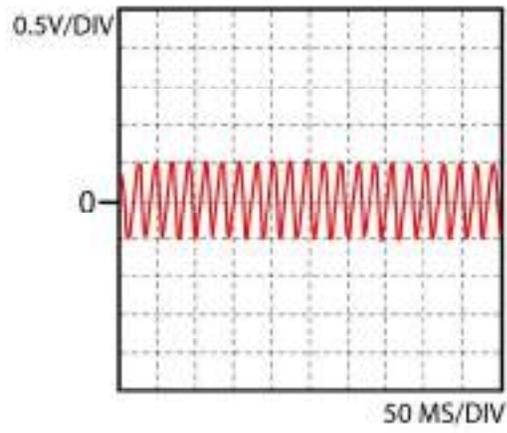
1012



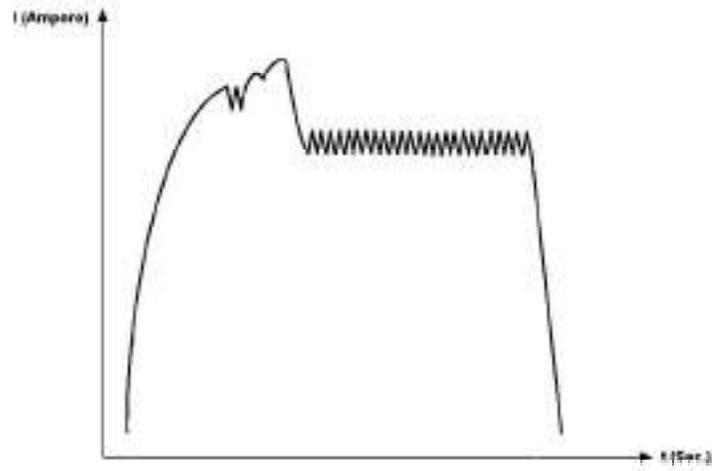
1047



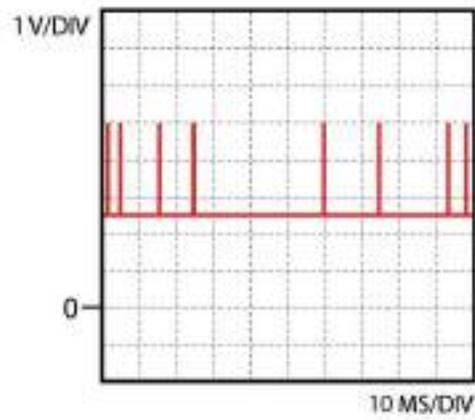
1050

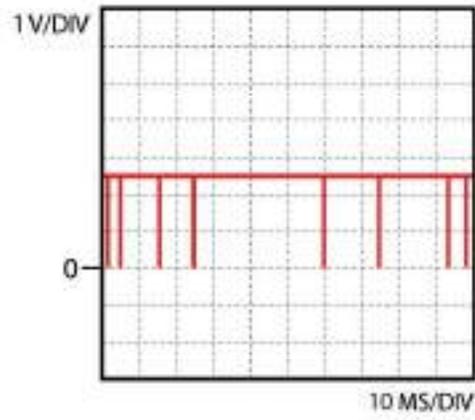


1079



1087





Iveco LV Stralis 440 E 44 Cursor 13**Main bearings, Nm**

Tightening of lower block. Step 1 outer position bolts 30 Nm. Step 2 inner position bolts 120 Nm. Step 3 inner position bolts + 60°. Step 4 inner position bolts + 55°. Step 5 outer position bolts + 60°.

DIN 72 552

Klemmebetegnelser:

Terminal Definition:

IGNITION

- 1 Ignition coil, ignition distributor, low voltage
(Ignition distributor with two separate electrical circuits)
- 1a to ignition contact breaker I
- 1b to ignition contact breaker II
- 2 short-circuit terminal (magneto ignition)
- 4 Ignition coil, ignition distributor, high voltage
(ignition distributor with two separate electrical circuits)
- 4a from ignition coil I, terminal 4
- 4b from ignition coil II, terminal 4
- 15 Switched + downstream of battery
(output of ignition/driving switch)
- 15a Output at dropping resistor to ignition coil and starter

GLOW PLUG AND STARTER SWITCH

- 17 Start
- 19 Preheat

BATTERY

- 30 input from + battery terminal, direct
- 30a input from + terminal of battery II
(12/24 V series-parallel battery switch)
- 31 Return line to battery
- battery terminal or ground, direct
- 31b Return line to negative battery terminal or ground, via
switch or relay (switched negative)
(12/24 V series-parallel battery)
- 31a Return line to - terminal of battery II
- 31c Return line to - terminal of battery I

ELECTRIC MOTORS

- 32 Return line
(Polarity reversal possible at terminals 32-33)
- 33 Main terminal connection
(Polarity reversal possible at terminals 32-33)
- 33a Self-parking switch-off
- 33b Shunt field
- 33f For second lower-speed range
- 33g For third lower-speed range
- 33h For fourth lower-speed range

- 33L Counterclockwise rotation
- 33R Clockwise rotation

STARTER

- 45 Separate starter relay, output; starter input (main current)
- 45a Output, starter I
Input, starters I and II (Two-starter parallel operation)
- 45b Output, starter II (Two-starter parallel operation)
- 48 Terminal on starter and on start-repeating relay for monitoring starting procedure

TURN SIGNAL FLASHER

- 49 Input
- 49a Output
- 49b Output, second turn-signal circuit
- 49c Output, third turn-signal circuit

STARTER

- 50 Starter control (direct)
- 50a Output for starter control
(Series-parallel battery switch)
- 50b Starter control with parallel operation of two starters with sequential control
- 50c Input at starting relay for starter I
(Starting relay for sequential control of the engagement current during parallel operation of two starters)
- 50d Input at starting relay for starter I
(Starting relay for sequential control of the engagement current during parallel operation of two starters)
- 50e Input, Start-locking relay
- 50f Output, Start-locking relay
- 50g Input, Start-repeating relay
- 50h Output, Start-repeating relay

ALTERNATOR

- 51 DC voltage at rectifier
- 51e DC voltage at rectifier with choke coil for daytime driving

TRAILER SIGNALS

- 52 Signals from trailer to towing vehicle, general

WIPER MOTOR

- 53 Wiper motor, input (+)
- 53a Wiper (+), self-parking switch-off
- 53b Wiper (shunt winding)
- 53c Electric windshield-washer pump
- 53e Wiper (brake winding)
- 53i Wiper motor with permanent magnet and third brush (for higher speed)

TRAILER SIGNAL

54 For lamp combinations and trailer plug connections

TRAILER STOP LAMP

54g Pneumatic valve for additional retarding brake,
electromagnetically actuated

LIGHTING

55 Fog lamps

56 Headlamp

56a High beam, high-beam indicator lamp

56b Low beam

56d Headlamp-flasher contact

57 Side-marker lamp: motorcycles, mopeds.

Abroad also cars, trucks, etc.

57a Parking lamp

57L Parking lamp, left

57R Parking lamp, right

58 Side-marker lamps, tail lamps, license-plate lamps and
instrument-panel lamps

58b Tail-lamp changeover for single-axle tractors

58c Trailer plug-and-receptacle assembly for single-
conductor

tail-lamp cable with fuse in trailer

58d Variable-intensity instrument-panel lamp, tail-lamp and
side-marker lamp

58L Side-marker lamp, left

58R Side-marker lamp, right; license-plate lamp

ALTERNATOR (magneto, generator)

59 AC voltage, output

Rectifier, input

59a Charging armature, output

59b Tail-lamp armature, output

59c Stop-lamp armature, output

61 Alternator charge-indicator lamp

TONE-SEQUENCE CONTROL DEVICE

71 Input

71a Output to horns 1 & 2, low

71b Output to horns 1 & 2, high

72 Alarm switch (rotating beacon)

INTERIOR

75 Radio, cigarette lighter

76 Speaker

77 Door-valve control

SWITCHES

(Break-contact and changeover switches)

81 Input

81a 1st output, break side

81b 2nd output, break side

(Make-contact switches)

82 Input

82a 1st output

82b 2nd output

82z 1st input

82y 2nd input
(Multiple-position switches)-
83 Input
83a Output, position 1
83b Output, position 2
83L Output, left-hand position
83R Output, right-hand position

CURRENT RELAY

84 Input, actuator and relay contact
84a Output, actuator
84b Output, relay contact

SWITCHING RELAY

85 Output, actuator (end of winding to ground or negative)
86 Start of winding
86a Start of winding or 1st winding
86b Winding tap or 2nd winding
(relay contact for break and changeover contacts)
87 Input
87a 1st output (break side)
87b 2nd output
87c 3rd output
87x 1st input
87y 2nd input
87z 3rd input
(Relay contact for make contact)-
88 Input
(Relay contact for make and changeover contacts (make side))-
88a 1st output
88b 2nd output
88c 3rd output
(Relay contact for make contact)-
88z 1st input
88y 2nd input
88x 3rd input

ALTERNATOR and VOLTAGE REGULATOR GENERATOR and GENERATOR REGULATOR

B+ Battery positive
B- Battery negative
D+ Dynamo positive
D- Dynamo negative
DF Dynamo field
DF1 Dynamo field 1
DF2 Dynamo field 2
(Alternator with separate rectifier)
J Excitation winding positive
K Excitation winding negative
Mp Center point terminal
U,V,W Alternator terminals

DIRECTION INDICATOR (turn-signal flasher)

C First indicator lamp
C0 Main terminal connection for separate indicator circuits

actuated by the turn-signal switch

- C2 Second indicator lamp
- C3 Third indicator lamp (e.g., when towing two trailers)
- L Turn-signal lamps, left
- R Turn-signal lamps, right

Cross-reference for old and new terminal designations in accordance with DIN 72 552.
Only terminal designations whose significance has altered are given.

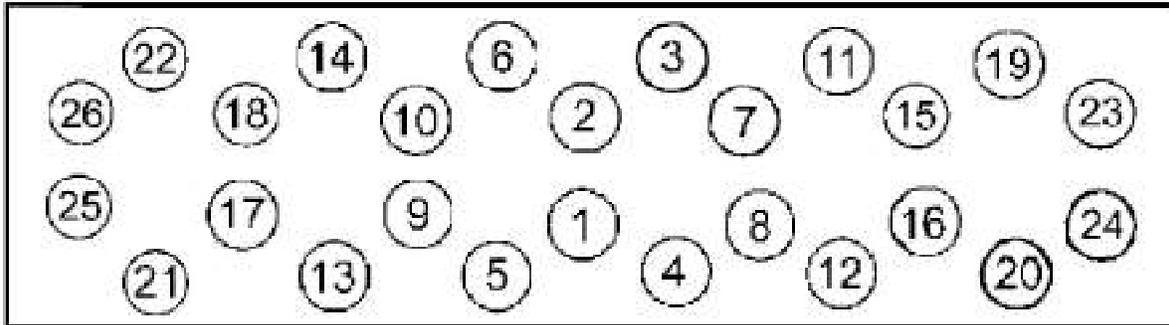
| OLD | NEW |
|--------|-----------------------------|
| 1 | 1, 53(wiper), 53e |
| 2 | 2, 53e |
| 3 | 53, 53b(wiper) |
| 4 | 4, 53a, 53b(wiper) |
| 15 | 15, 49(turn-signal flasher) |
| 15+ | 49 |
| 15/54 | 15, 49, 54 |
| 16 | 15a, 15 |
| 30 | 30, 33(motor) |
| 30/51 | 30, 87, 88(relay) |
| 30f | 45 |
| 30h | 45, 45a |
| 30h I | 45a |
| 30h II | 45b |
| 30L | 33L (motors) |
| 30R | 33R (motors) |
| 31 | 31, 31c, 32(motors) |
| 31a | 31a, 31c |
| 31B- | B- |
| 50 | 50, 50b, 50f, 50h |
| 50a | 50, 50a, 50e, 50g |
| 50b | 50d |
| 50k | 50d |
| 50 II | 50c |
| 51 | 51, 59, B+ |
| 51 - | 59 |
| 51a | 59 |
| 51B+ | B+ |
| 54 | 54, 53a, 54g |
| 54/15 | 15 |
| 54d | 53(wiper) |
| 54e | 33b, 53b(wiper) |
| 54L | 49a |
| 58 | 58, 58L, 58R |
| 58b | 58b, 58d |
| 59 | 59a |
| 85d | 31b(alarm switch) |
| B+30 | B+ |
| B+51 | B+ |
| D+/61 | D+ |
| D-/61 | D- |
| H | 71 |
| HL | L (L54b) |
| HR | R (R54b) |
| K | C |
| K0 | C0 |

| | |
|------|---|
| K1 | C, C2 |
| K2 | C2 |
| K3 | C2, C3 |
| K4 | C2, C3 |
| L54 | L (L54) |
| N | 55 |
| P | C, 57a |
| PL | 57L |
| PR | 57R |
| R | R, 75 |
| R54 | R, (R54) |
| R54b | Rb |
| S | 49a, 53(wiper) |
| S4 | 49a |
| SBL | (L54) |
| SBR | (R54) |
| VL | L |
| VR | R |
| + | 15, 49(turn-signal flasher) 53, 53a(wiper) |
| +2 | 53a |
| +15 | 49 |
| - | 1 (ignition coil), 31 |

Iveco LV Stralis 440 E 44 Cursor 13

Cylinder head bolts, stage 1, Nm

Tightening sequence



Pic. 1

Iveco LV Stralis 440 E 44 Cursor 13

Timing gear:

Timing gear marking

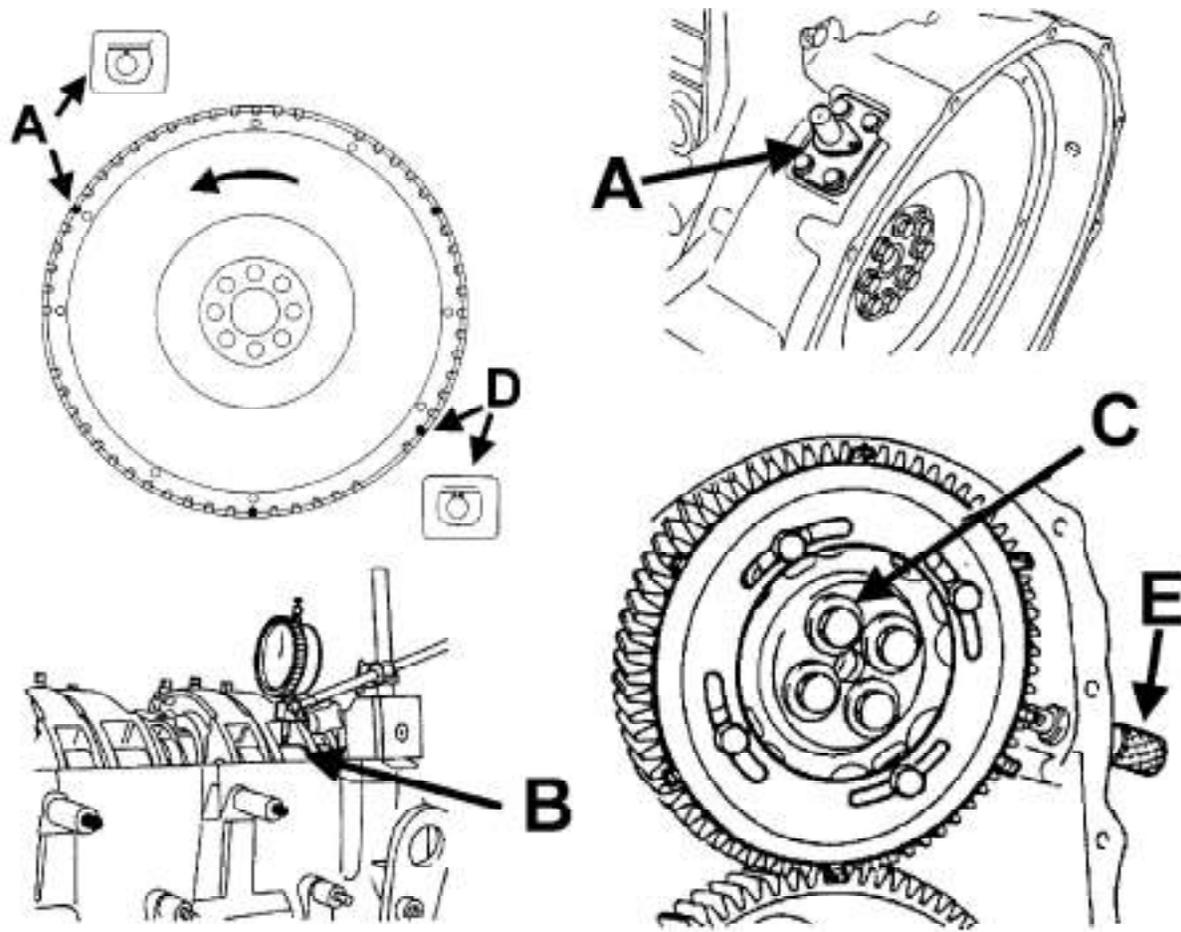
Cylinder 1 in compression top. (Hole "11" in the flywheel, outside of the crank position sensor hole in the clutch casing (see arrow A)). Fit the measuring gauge to the roller bearing on the rocker arm of the flue injection nozzle on cylinder 1 (see arrow B), and prestress the measuring gauge (see below). Turn the engine in the direction of revolution until the measuring gauge shows the minimum deflection. Reset the measuring gauge and turn the engine in the direction of rotation until the measuring gauge shows:

Engine type:

Height measured on the roller bearing Prestressing of measuring gauge

| | | |
|--------------|--------------------|-------------------|
| F2B (Euro 2) | 2.43 ± 0.05 mm | Prestressing 4 mm |
| F2B (Euro 3) | 4.90 ± 0.05 mm | Prestressing 6 mm |
| F3A | 4.44 ± 0.05 mm | Prestressing 6 mm |
| F3B | 5.31 ± 0.05 mm | Prestressing 6 mm |

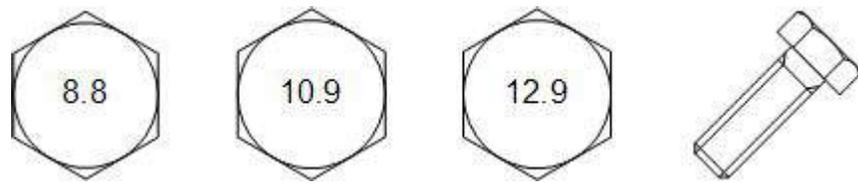
Check that the special tool (99360612) can be placed into the flywheel "11." hole without resistance (see arrow A). If not, the securing bolt of the cam gear is not loose (see arrow C) and the engine is turned approx. half a crank revolution back. Turn the engine forwards to the top and fit the special tool (99360612) into the flywheel "11." hole (see arrow A). Tighten the cam gear again and check using the measuring gauge again as previously described. Turn the crank to 54° to before the top of cylinder 1 and place the special tool (99360612) into the flywheel hole (Note: there should be two notches outside of the hole (see arrow D)). Check that the special tool (99360613) can go over the marked tooth on the cam gear (see arrow E).



Pic. 1

Tightening torques

| | | |
|---------|------|---------|
| M4 | 8.8 | 2.4 Nm |
| M4 | 10.9 | 3.6 Nm |
| M5 | 8.8 | 5.0 Nm |
| M5 | 10.9 | 7.3 Nm |
| M5 | 12.9 | 8.0 Nm |
| M6 | 8.8 | 8.6 Nm |
| M6 | 10.9 | 12.6 Nm |
| M6 | 12.9 | 14.0 Nm |
| M7 | 8.8 | 14.0 Nm |
| M7 | 10.9 | 20.5 Nm |
| M7 | 12.9 | 22.5 Nm |
| M8 | 8.8 | 20.5 Nm |
| M8 | 10.9 | 30.5 Nm |
| M8 | 12.9 | 33.5 Nm |
| M8x1 | 8.8 | 22 Nm |
| M8x1 | 10.9 | 32 Nm |
| M8x1 | 12.9 | 35.5 Nm |
| M10 | 8.8 | 41 Nm |
| M10 | 10.9 | 60 Nm |
| M10 | 12.9 | 66 Nm |
| M10x1 | 8.8 | 44 Nm |
| M10x1 | 10.9 | 65 Nm |
| M10x1 | 12.9 | 72 Nm |
| M12 | 8.8 | 71 Nm |
| M12 | 10.9 | 104 Nm |
| M12 | 12.9 | 116 Nm |
| M12x1.5 | 8.8 | 73 Nm |
| M12x1.5 | 10.9 | 108 Nm |
| M12x1.5 | 12.9 | 120 Nm |
| M14 | 8.8 | 112 Nm |
| M14 | 10.9 | 165 Nm |
| M14 | 12.9 | 185 Nm |
| M14x1.5 | 8.8 | 120 Nm |
| M14x1.5 | 10.9 | 175 Nm |
| M14x1.5 | 12.9 | 195 Nm |
| M16 | 8.8 | 175 Nm |
| M16 | 10.9 | 255 Nm |
| M16 | 12.9 | 280 Nm |
| M16x1.5 | 8.8 | 180 Nm |
| M16x1.5 | 10.9 | 265 Nm |
| M16x1.5 | 12.9 | 295 Nm |
| M18 | 8.8 | 240 Nm |
| M18 | 10.9 | 355 Nm |
| M18 | 12.9 | 395 Nm |
| M18x1.5 | 8.8 | 265 Nm |
| M18x1.5 | 10.9 | 385 Nm |
| M18x1.5 | 12.9 | 430 Nm |



Pic. 1

Iveco LV Stralis 440 E 44 Cursor 13

Valve clearance, exhaust (cold/ hot)

Valve adjustment

Valve adjustment:

Measure by rocker arm / valve arm.

| | |
|-------------------------|---------------------------|
| When valves overlap on: | adjust on: |
| Cylinder 6 | Cylinder 1 and injector 5 |
| Cylinder 3 | Cylinder 4 and injector 1 |
| Cylinder 5 | Cylinder 2 and injector 4 |
| Cylinder 1 | Cylinder 6 and injector 2 |
| Cylinder 4 | Cylinder 3 and injector 6 |
| Cylinder 2 | Cylinder 5 and injector 3 |

Iveco LV Stralis 440 E 44 Cursor 13

Valve clearance, inlet (cold/ hot)

Valve adjustment

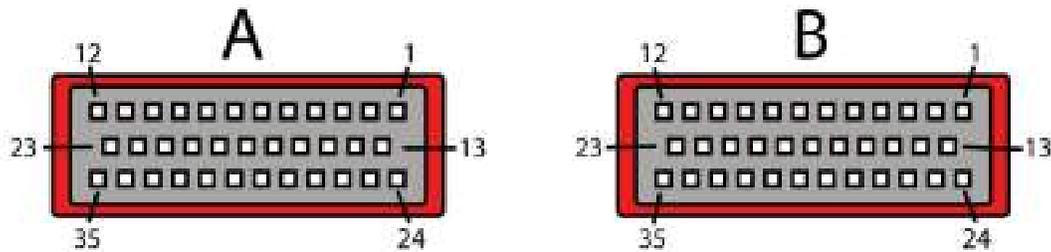
Valve adjustment:

Measure by rocker arm / valve arm.

| | |
|-------------------------|---------------------------|
| When valves overlap on: | adjust on: |
| Cylinder 6 | Cylinder 1 and injector 5 |
| Cylinder 3 | Cylinder 4 and injector 1 |
| Cylinder 5 | Cylinder 2 and injector 4 |
| Cylinder 1 | Cylinder 6 and injector 2 |
| Cylinder 4 | Cylinder 3 and injector 6 |
| Cylinder 2 | Cylinder 5 and injector 3 |

Iveco LV Stralis 440 E 44 Cursor 13**Manual transmission, litre**

Gearbox no.: ZF 16S 181 / 221 = 13.0. ZF 16S 181 / 221 with retarder = 21.5. Eurotronic 12 AS 2301 / with retarder = 12.0 / 21.0. Eurotronic 12 AS 2601 / with retarder = 12.0 / 23.0.



Troubleshooting-data

Model: Stralis 440 E 44 Cursor 13

Motor: F3B E0681C / Bosch MS6.2 Unit Inje

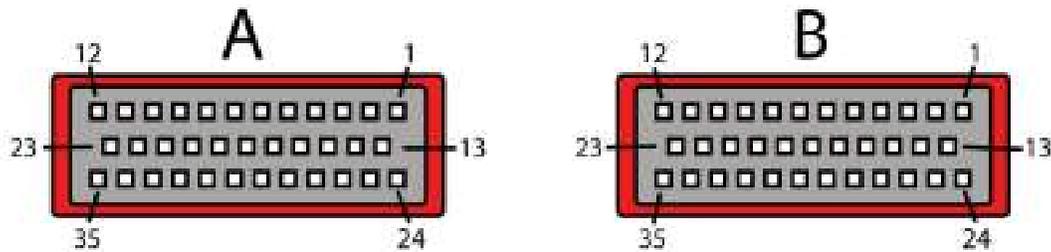
| Component: | From: | To: | Condition: | Value | Measured | etc. |
|-----------------------------|-------|---------|---|-------------|----------|------|
| . | . | . | Connector seen from wire side | . | | |
| . | . | . | Measurements taken with connector installed | . | | |
| Battery (earth) | B1 | Batt. - | Ignition on | 0 V | | |
| Battery (earth) | B2 | Batt. - | Ignition on | 0 V | | |
| CAN BUS SAE J1939 | B11 | B12 | Ignition off | 55 - 65 ohm | | |
| CAN BUS SAE J1939 | B12 | B1 | Idle | | | 1087 |
| CAN BUS SAE J1939 | B11 | B1 | Idle | | | 1088 |
| Accelerator pedal sensor | B35 | B1 | Ignition on | 0 V | | |
| Accelerator pedal sensor | B16 | B35 | Ignition on | 4,5 - 5,5 V | | |
| Accelerator pedal sensor | B23 | B35 | Ignition on, accelerator released | 0,2 - 0,6 V | | |
| Accelerator pedal sensor | B23 | B35 | Ignition on, accelerator fully depressed | 3,5 - 4 V | | |
| Boost pressure valve | A31 | A18 | Ignition on | 22 - 28 V | | |
| Brake pedal switch | B26 | B1 | Ignition on, brake pedal released | 22 - 28 V | | |
| Brake pedal switch | B31 | B1 | Ignition on, brake pedal released | 0 V | | |
| Brake pedal switch | B31 | B1 | Ignition on, brake pedal depressed | 22 - 28 V | | |
| Brake pedal switch | B26 | B1 | Ignition on, brake pedal depressed | 0 V | | |
| Clutch switch | B20 | B1 | Ignition on | 22 - 28 V | | |
| Clutch switch | B20 | B1 | Ignition on, pedal activated | 0 V | | |
| Ignition | B15 | B1 | Ignition on | 22 - 28 V | | |
| Ignition | B15 | B1 | Ignition off | 0 V | | |
| Inductive position sensor | A7 | A16 | Idle | | | 1050 |
| Inductive position sensor 1 | A2 | A14 | Starter rpm | | | 1007 |
| Inductive position sensor 2 | A1 | A14 | Starter rpm | | | 1012 |
| MAP-sensor | A17 | A23 | Ignition on | 4,5 - 5,5 V | | |
| MAP-sensor | A12 | A23 | Ignition on | 0,9 - 1,1 V | | |
| MAP-sensor | A23 | B1 | Ignition on | 0 V | | |
| MAP-sensor | A12 | A23 | 2000 rpm | 1,3 - 1,7 V | | |
| MAP-sensor | A12 | A23 | Ignition on, at 2500 - 3000 mbar | 3,4 - 4,7 V | | |
| Relay | B27 | B1 | Ignition on | 0 - 1 V | | |
| Relay | B3 | B1 | Ignition on | 22 - 28 V | | |
| Relay | B4 | B1 | Ignition on | 22 - 28 V | | |
| Relay | B4 | B1 | Ignition off | 0 V | | |
| Relay | B27 | B1 | Ignition off | 22 - 28 V | | |

Troubleshooting-data

Model: Stralis 440 E 44 Cursor 13

Motor: F3B E0681C / Bosch MS6.2 Unit Inje

| Component: | From: | To: | Condition: | Value | Measured | pic. |
|-------------------|--------------|------------|-------------------|--------------|-----------------|-------------|
| Relay | B3 | B1 | Ignition off | 0 V | | |
| Speedometer | B29 | B1 | Vehicle in motion | | | 1047 |
| Unit Injector 1 | A35 | A24 | Idle | | | 1079 |
| Unit Injector 2 | A34 | A24 | Idle | | | 1079 |
| Unit Injector 3 | A33 | A24 | Idle | | | 1079 |
| Unit Injector 4 | A26 | A25 | Idle | | | 1079 |
| Unit Injector 5 | A28 | A25 | Idle | | | 1079 |
| Unit Injector 6 | A27 | A25 | Idle | | | 1079 |



Troubleshooting-data

Model: Stralis 440 E 44 Cursor 13

Motor: F3B E0681C / Bosch MS6.2 Unit Inje

| Component: | From: | To: | Condition: | Value | Measured | etc. |
|-----------------------------|-------|---------|---|-------------|----------|------|
| . | . | . | Connector seen from wire side | . | | |
| . | . | . | Measurements taken with connector installed | . | | |
| Battery (earth) | B1 | Batt. - | Ignition on | 0 V | | |
| Battery (earth) | B2 | Batt. - | Ignition on | 0 V | | |
| CAN BUS SAE J1939 | B11 | B12 | Ignition off | 55 - 65 ohm | | |
| CAN BUS SAE J1939 | B12 | B1 | Idle | | | 1087 |
| CAN BUS SAE J1939 | B11 | B1 | Idle | | | 1088 |
| Accelerator pedal sensor | B35 | B1 | Ignition on | 0 V | | |
| Accelerator pedal sensor | B16 | B35 | Ignition on | 4,5 - 5,5 V | | |
| Accelerator pedal sensor | B23 | B35 | Ignition on, accelerator released | 0,2 - 0,6 V | | |
| Accelerator pedal sensor | B23 | B35 | Ignition on, accelerator fully depressed | 3,5 - 4 V | | |
| Boost pressure valve | A31 | A18 | Ignition on | 22 - 28 V | | |
| Brake pedal switch | B26 | B1 | Ignition on, brake pedal released | 22 - 28 V | | |
| Brake pedal switch | B31 | B1 | Ignition on, brake pedal released | 0 V | | |
| Brake pedal switch | B31 | B1 | Ignition on, brake pedal depressed | 22 - 28 V | | |
| Brake pedal switch | B26 | B1 | Ignition on, brake pedal depressed | 0 V | | |
| Clutch switch | B20 | B1 | Ignition on | 22 - 28 V | | |
| Clutch switch | B20 | B1 | Ignition on, pedal activated | 0 V | | |
| Ignition | B15 | B1 | Ignition on | 22 - 28 V | | |
| Ignition | B15 | B1 | Ignition off | 0 V | | |
| Inductive position sensor | A7 | A16 | Idle | | | 1050 |
| Inductive position sensor 1 | A2 | A14 | Starter rpm | | | 1007 |
| Inductive position sensor 2 | A1 | A14 | Starter rpm | | | 1012 |
| MAP-sensor | A17 | A23 | Ignition on | 4,5 - 5,5 V | | |
| MAP-sensor | A12 | A23 | Ignition on | 0,9 - 1,1 V | | |
| MAP-sensor | A23 | B1 | Ignition on | 0 V | | |
| MAP-sensor | A12 | A23 | 2000 rpm | 1,3 - 1,7 V | | |
| MAP-sensor | A12 | A23 | Ignition on, at 2500 - 3000 mbar | 3,4 - 4,7 V | | |
| Relay | B27 | B1 | Ignition on | 0 - 1 V | | |
| Relay | B3 | B1 | Ignition on | 22 - 28 V | | |
| Relay | B4 | B1 | Ignition on | 22 - 28 V | | |
| Relay | B4 | B1 | Ignition off | 0 V | | |
| Relay | B27 | B1 | Ignition off | 22 - 28 V | | |

Troubleshooting-data

Model: Stralis 440 E 44 Cursor 13

Motor: F3B E0681C / Bosch MS6.2 Unit Inje

| Component: | From: | To: | Condition: | Value | Measured | pic. |
|-------------------|--------------|------------|-------------------|--------------|-----------------|-------------|
| Relay | B3 | B1 | Ignition off | 0 V | | |
| Speedometer | B29 | B1 | Vehicle in motion | | | 1047 |
| Unit Injector 1 | A35 | A24 | Idle | | | 1079 |
| Unit Injector 2 | A34 | A24 | Idle | | | 1079 |
| Unit Injector 3 | A33 | A24 | Idle | | | 1079 |
| Unit Injector 4 | A26 | A25 | Idle | | | 1079 |
| Unit Injector 5 | A28 | A25 | Idle | | | 1079 |
| Unit Injector 6 | A27 | A25 | Idle | | | 1079 |

| | |
|------|-----------------------------|
| A19 | Speedometer |
| A95 | ECU |
| B156 | Inductive position sensor 1 |
| B157 | Inductive position sensor 2 |
| B163 | Inductive position sensor |
| B164 | Solenoid valve exh. Brake 1 |
| B22 | Coolant temperature sensor |
| B23 | Air temperature sensor |
| B27 | Exhaust pressure sensor |
| B36 | Fuel temperature sensor |
| B39 | Accelerator pedal sensor |
| B79 | MAP-sensor |
| F- | Fuse |
| G15 | CAN BUS SAE J1708 |
| G16 | CAN BUS SAE J1939 |
| H11 | ECU lamp |
| K96 | Relay |
| R11 | Resistor |
| S14 | Brake pedal switch |
| S15 | Clutch switch |
| X11 | Diagnostic connector |
| Y42 | Boost pressure valve |
| Y66 | Unit Injector 1 |
| Y67 | Unit Injector 2 |
| Y68 | Unit Injector 3 |
| Y69 | Unit Injector 4 |
| Y95 | Unit Injector 5 |
| Y96 | Unit Injector 6 |

Fault-codes

Model: Stralis 440 E 44 Cursor 13

Motor: F3B E0681C / ABS-ASR Basis 4 Char

| Faultcode | Possible cause(s) |
|--------------------------------|---|
| 01 - 01, Wheel speed sensor 1L | CAN communication, Air gap, Wrong, |
| 01 - 02, Wheel speed sensor 1L | CAN communication, Tyre size, Wrong, |
| 01 - 03, Wheel speed sensor 1L | Short circuit to plus, |
| 01 - 04, Wheel speed sensor 1L | Short circuit to ground, |
| 01 - 05, Wheel speed sensor 1L | Circuit open, |
| 01 - 06, Wheel speed sensor 1L | Short circuit, |
| 01 - 07, Wheel speed sensor 1L | CAN communication, Toothed ring, Wrong, |
| 01 - 08, Wheel speed sensor 1L | Wheel slip detected, |
| 01 - 09, Wheel speed sensor 1L | Fault in circuit, |
| 01 - 0A, Wheel speed sensor 1L | Speed low, |
| 01 - 0B, Wheel speed sensor 1L | Signal error/ signal variation, |
| 01 - 0C, Wheel speed sensor 1L | Signal, Input too high, |
| 02 - 01, Wheel speed sensor 1R | CAN communication, Air gap, Wrong, |
| 02 - 02, Wheel speed sensor 1R | CAN communication, Tyre size, Wrong, |
| 02 - 03, Wheel speed sensor 1R | Short circuit to plus, |
| 02 - 04, Wheel speed sensor 1R | Short circuit to ground, |
| 02 - 05, Wheel speed sensor 1R | Circuit open, |
| 02 - 06, Wheel speed sensor 1R | Short circuit, |
| 02 - 07, Wheel speed sensor 1R | CAN communication, Toothed ring, Wrong, |
| 02 - 08, Wheel speed sensor 1R | Wheel slip detected, |
| 02 - 09, Wheel speed sensor 1R | Fault in circuit, |
| 02 - 0A, Wheel speed sensor 1R | Speed low, |
| 02 - 0B, Wheel speed sensor 1R | Signal error/ signal variation, |
| 02 - 0C, Wheel speed sensor 1R | Signal, Input too high, |
| 03 - 01, Wheel speed sensor 2L | CAN communication, Air gap, Wrong, |
| 03 - 02, Wheel speed sensor 2L | CAN communication, Tyre size, Wrong, |
| 03 - 03, Wheel speed sensor 2L | Short circuit to plus, |
| 03 - 04, Wheel speed sensor 2L | Short circuit to ground, |
| 03 - 05, Wheel speed sensor 2L | Circuit open, |
| 03 - 06, Wheel speed sensor 2L | Short circuit, |
| 03 - 07, Wheel speed sensor 2L | CAN communication, Toothed ring, Wrong, |
| 03 - 08, Wheel speed sensor 2L | Wheel slip detected, |
| 03 - 09, Wheel speed sensor 2L | Fault in circuit, |
| 03 - 0A, Wheel speed sensor 2L | Speed low, |
| 03 - 0B, Wheel speed sensor 2L | Signal error/ signal variation, |
| 03 - 0C, Wheel speed sensor 2L | Signal, Input too high, |
| 04 - 01, Wheel speed sensor 2R | CAN communication, Air gap, Wrong, |
| 04 - 02, Wheel speed sensor 2R | CAN communication, Tyre size, Wrong, |
| 04 - 03, Wheel speed sensor 2R | Short circuit to plus, |
| 04 - 04, Wheel speed sensor 2R | Short circuit to ground, |
| 04 - 05, Wheel speed sensor 2R | Circuit open, |
| 04 - 06, Wheel speed sensor 2R | Short circuit, |
| 04 - 07, Wheel speed sensor 2R | CAN communication, Toothed ring, Wrong, |
| 04 - 08, Wheel speed sensor 2R | Wheel slip detected, |
| 04 - 09, Wheel speed sensor 2R | Fault in circuit, |
| 04 - 0A, Wheel speed sensor 2R | Speed low, |
| 04 - 0B, Wheel speed sensor 2R | Signal error/ signal variation, |
| 04 - 0C, Wheel speed sensor 2R | Signal, Input too high, |
| 07 - 03, Control valve 1L | Short circuit to plus, |
| 07 - 05, Control valve 1L | Circuit disconnected/ short circuited, |
| 07 - 06, Control valve 1L | Short circuit to ground, |

Fault-codes

Model: Stralis 440 E 44 Cursor 13

Motor: F3B E0681C / ABS-ASR Basis 4 Char

| Faultcode | Possible cause(s) |
|------------------------------|--|
| 08 - 03, Control valve 1R | Short circuit to plus, |
| 08 - 05, Control valve 1R | Circuit disconnected/ short circuited, |
| 08 - 06, Control valve 1R | Short circuit to ground, |
| 09 - 03, Control valve 2L | Short circuit to plus, |
| 09 - 05, Control valve 2L | Circuit disconnected/ short circuited, |
| 09 - 06, Control valve 2L | Short circuit to ground, |
| 0A - 03, Control valve 2R | Short circuit to plus, |
| 0A - 05, Control valve 2R | Circuit disconnected/ short circuited, |
| 0A - 06, Control valve 2R | Short circuit to ground, |
| 0D - 03, Retarder | Relay control circuit electrical, Short circuit to +, |
| 0D - 05, Retarder | Relay control circuit electrical, Circuit open, |
| 0D - 06, Retarder | Relay control circuit electrical, Short-circuited to ground, |
| 0E - 04, ABS ECU | Circuit low, |
| 0E - 05, ABS ECU | Connection to ground, |
| 0E - 06, ABS ECU | Internal fault, |
| 10 - 03, Pressure sensor | Short circuit to plus, |
| 10 - 05, Pressure sensor | Circuit disconnected/ short circuited, |
| 12 - 03, ASR valve | Short circuit to plus, |
| 12 - 05, ASR valve | Circuit open, |
| 12 - 06, ASR valve | Short circuit to ground, |
| 17 - 05, ABS fault indicator | Circuit disconnected/ short circuited, |
| E7 - 05, CAN communication | Circuit disconnected/ short circuited, |
| E7 - 06, CAN communication | Malfunction, |
| E7 - 07, CAN communication | No signal, ECU, Retarder, |
| E7 - 08, CAN communication | No signal, ECU, Engine, |
| E7 - 09, CAN communication | No signal, ECU, Engine, |
| E7 - 0C, CAN communication | Internal fault, ECU, |
| FB - 03, ABS ECU | Voltage too high, |
| FD - 01, ABS ECU | Incorrect coding, |
| FD - 02, ABS ECU | Incorrect, Tyre size, |

Diagnostic connector

Flash code:

