

575M Maranello

Marzo / March 2003



ERRORS

All possible errors that can be detected and stored by the ECU are shown on this computer screen. The errors that are presently stored in the ECU are displayed by colour changing of the dot placed on the left of the error type indication. It is possible to select the type of error or component for which information is required by positioning the cursor on it and pressing the [Enter]key. An environment will be entered where the possible outline data about that error are displayed. Here it is possible to activate a Help environment where you can navigate with information, wiring diagrams, connectors and guided diagnosis for the solution of the detected error.

WHENEVER A DIAGNOSIS HAS TO BE MADE, IT IS ABSOLUTELY NECESSARY TO PRINT THE ERRORS FIRST.

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[CYL.7-8-9 REAR LAMBDA SENSOR \(P1036 \)](#)

[CYL.7-8-9 REAR LAMBDA SENSOR \(P1037 \)](#)

[CYL. 10-11-12 FRONT LAMBDA SENSOR \(P1038 \)](#)

[CYL. 10-11-12 FRONT LAMBDA SENSOR \(P1039 \)](#)

[CYL. 7-8-9 FRONT LAMBDA SENSOR \(P1040 \)](#)

[CYL. 7-8-9 FRONT LAMBDA SENSOR \(P1041 \)](#)

[FRONT LAMBDA SENSOR FOR RH CYL. 4-5-6 AND LH CYL. 7-8-9 \(P1043 \)](#)

[BACK OX. SENSOR \(RH.CYL.4-5-6 AND LH.CYL.7-8-9\) \(P1045 \)](#)

[CYL. 10-11-12 FRONT LAMBDA SENSOR \(P1046 \)](#)

[CYL. 10-11-12 FRONT LAMBDA SENSOR \(P1047 \)](#)

[CYL. 7-8-9 FRONT LAMBDA SENSOR \(P1048 \)](#)

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[LH-B AIR-FLOW METER \(P1101 \)](#)

[LH-B AIR-FLOW METER \(P1104 \)](#)

[LH-B AIR-FLOW METER \(P1106 \)](#)

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[Long Term Fuel Trim Multiplicative, Lower \(Bank 2\) \(P1127 \)](#)

[Long Term Fuel Trim Multiplicative, Lower \(Bank 2\) \(P1128 \)](#)

[CYL. 7-8-9 SELF-LEARNING OF AIR FUEL MIXTURE RATIO AT LOW ENGINE SPEED \(P1129 \)](#)

[CYL. 7-8-9 SELF-LEARNING OF AIR FUEL MIXTURE RATIO AT LOW ENGINE SPEED \(P1130 \)](#)

[LH-B THROTTLE POTENTIOETER \(P1132 \)](#)

[LH-B ENVIRONMENT TEMPERATURE SENSOR \(P1133 \)](#)

[LH-B ADDITIONAL AIR SELF-LEARNING \(P1136 \)](#)

[LH-B ADDITIONAL AIR SELF-LEARNING \(P1137 \)](#)

[CYL. 7-8-9 ADDITIONAL AIR SELF-LEARNING \(P1138 \)](#)

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[LH BANK SELF-LEARNING OF AIR FUEL MIXTURE RATIO AT LOW ENGINE SPEED \(P1140 \)](#)

[LH BANK SELF-LEARNING OF AIR FUEL MIXTURE RATIO AT LOW ENGINE SPEED \(P1141 \)](#)

[CYL.7-8-9 SELF-LEARNING OF AIR FUEL MIXTURE RATIO AT LOW ENGINE SPEED \(P1142 \)](#)

[CYL.7-8-9 SELF-LEARNING OF AIR FUEL MIXTURE RATIO AT LOW ENGINE SPEED \(P1143 \)](#)

[LH-B ECU INTERNAL ERROR \(P1254 \)](#)

[LH-B ECU INTERNAL ERROR \(P1255 \)](#)

[LH-B FUEL SELF-LEARNING \(P1256 \)](#)

[LH-B FUEL SELF-LEARNING \(P1257 \)](#)

[LH-B FUEL SELF-LEARNING \(P1258 \)](#)

[CYL. 7-8-9 FUEL SELF-LEARNING \(P1259 \)](#)

[CYL. 7-8-9 FUEL SELF-LEARNING \(P1260 \)](#)

[CYL. 7-8-9 FUEL SELF-LEARNING \(P1261 \)](#)

[CYL.10-11-12 REAR LAMBDA SENSOR HEATING CHECK \(P1262 \)](#)

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[CYL.10-11-12 REAR LAMBDA SENSOR HEATING CHECK \(P1265 \)](#)

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[LH-B RPM SENSOR \(P1338 \)](#)

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[LH-B FUEL PUMP 2 RELAY \(P1548 \)](#)

[LH-B TANK EMPTY ERROR \(P1557 \)](#)

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[PERMANENT POWER SUPPLY \(P1602 \)](#)

[LH-B ECU INTERNAL ERROR \(P1604 \)](#)

[LH-B ECU INTERNAL ERROR \(P1605 \)](#)

[LH-B ECU INTERNAL ERROR \(P1614 \)](#)

[CAN LINE ERROR WITHIN THE ECU \(P1638 \)](#)

[LH-B ECU INTERNAL ERROR \(P1642 \)](#)

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[BATTERY VOLTAGE FROM MAIN LH-B RELAY \(P1687 \)](#)

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[MAIN RELAY \(P1696 \)](#)

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[Long Term Fuel Trim Multiplicative, Lower \(Bank 2\) \(P2179 \)](#)

[Long Term Fuel Trim Multiplicative, Lower \(Bank 2\) \(P2180 \)](#)

[Long Term Fuel Trim Additive Air \(Bank 2\) \(P2189 \)](#)

[Long Term Fuel Trim Additive Air \(Bank 2\) \(P2190 \)](#)

[Long Term Fuel Trim Multiplicative, Upper \(Bank 2\) \(P2193 \)](#)

[Long Term Fuel Trim Multiplicative, Upper \(Bank 2\) \(P2194 \)](#)

[FRONT LAMBDA SENSOR FOR RH CYL. 4-5-6 AND LH CYL. 7-8-9 \(P1043 \)](#)

[BACK OX. SENSOR \(RH.CYL.4-5-6 AND LH.CYL.7-8-9\) \(P1045 \)](#)

[THROTTLE POSITION SENSOR \(P1131 \)](#)

- Air flow value inconsistent with throttle position and engine revolutions. Probable false contact or damaged warmed film.

ERROR TYPE

INTERMITTENT FAILURE PRESENT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

AIR-FLOW METER

- The minimum intake air flow rate measured is not consistent with the engine conditions.
Reference parameters for error validation: throttle position, engine rpm.

ERROR TYPE

C.C. to Ground or air flow minimum value reached.

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

AIR-FLOW METER

- The maximum intake air flow rate measured is not consistent with the engine conditions.
Reference parameters for error validation: throttle position, engine rpm.

ERROR TYPE

C.A./C.C. to VBatt or air flow maximum value reached.

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

AIR-FLOW METER

INTAKE AIR TEMPERATURE (P0112)

- Malfunction due to the air flow meter which calculates that intake air temperature to optimize combustion. Reference parameters for error validation: throttle position, engine rpm, climate conditions.

ERROR TYPE

Calculated minimum value

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

AIR-FLOW METER

INTAKE AIR TEMPERATURE (P0113)

- Malfunction due to the air flow meter which calculates that intake air temperature to optimize combustion. Reference parameters for error validation: throttle position, engine rpm, climate conditions.

ERROR TYPE

Calculated maximum value

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

AIR-FLOW METER

- Probable false contact. A temporary lack of signal was detected.

ERROR TYPE

SPORADIC CONTACT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

WATER TEMPERATURE SENSOR

WATER TEMPERATURE SENSOR (P0116)

- Signal not plausible. A water temperature value inconsistent with the vehicle conditions was detected (e.g. engine running time).

ERROR TYPE

Value not plausible

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

WATER TEMPERATURE SENSOR

WATER TEMPERATURE SENSOR (P0117)

- Signal not plausible, probable false contact. A water temperature value inconsistent with the vehicle conditions was detected (e.g. engine running time).

ERROR TYPE

GND SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

WATER TEMPERATURE SENSOR

WATER TEMPERATURE SENSOR (P0118)

- Signal not plausible, probable false contact. A water temperature value inconsistent with the vehicle conditions was detected (e.g. engine running time).

ERROR TYPE

VBATT SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

WATER TEMPERATURE SENSOR

THROTTLE POSITION SENSOR 1 (P0121)

- System error generally associated with another error of potentiometer 1 on the throttle body.
Reference parameters for error validation: engine rpm, intake air flow rate

ERROR TYPE

Value not plausible

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

RH MOTOR DRIVEN THROTTLE

- Probable false contact. A temporary lack of signal was detected.

ERROR TYPE

SPORADIC CONTACT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

FRONT OXYGEN SENSOR 1

FRONT LAMBDA SENSOR (P0132)

- Maximum value reached. Possible O.C. or S.C. to Vbatt. Check the Lambda sensor heating in the active diagnosis mode. Check that the resistance value between pin 3 and pin 4 on the connector is equal to 3,2 Ohm The maximum value reached error

ERROR TYPE

MAXIMUM VALUE

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

FRONT OXYGEN SENSOR 1

- The lambda sensor does not oscillate properly during adjustment. This may be due to an aged sensor or to external interference factors (combustion): injectors, coils, air intakes etc.

ERROR TYPE

Value not plausible

VERIFICATIONS

Component intactness check

TOPOLOGICAL

[BACK OXYGEN SENSOR 1](#)

- Adjustment voltage value high

ERROR TYPE

VBATT SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

[BACK OXYGEN SENSOR 1](#)

- The lambda sensor does not oscillate properly during adjustment. This may be due to an aged sensor or to external interference factors (combustion): injectors, coils, air intakes etc.

ERROR TYPE

Slow response

VERIFICATIONS

Component intactness check

TOPOLOGICAL

[BACK OXYGEN SENSOR 1](#)

- Generic error indicating a system failureignition/injection, generally simultaneous with a specific error on the cylinder which caused the malfunction.

ERROR TYPE

Malfunction

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Minimum plausible value measured

ERROR TYPE

GND SHORT CIRCUIT

VERIFICATIONS

Check of correct sensor installation and tightening torque (see manual). Check component intactness.

TOPOLOGICAL

CYLINDERS 1/3 DETONATION SENSOR

- Maximum plausible value measured

ERROR TYPE

VBATT OPEN CIRCUIT/SHORT CIRCUIT

VERIFICATIONS

Check of correct sensor installation and tightening torque (see manual). Check component intactness.

TOPOLOGICAL

CYLINDERS 1/3 DETONATION SENSOR

- Minimum plausible value measured

ERROR TYPE

GND SHORT CIRCUIT

VERIFICATIONS

Check of correct sensor installation and tightening torque (see manual). Check component intactness.

TOPOLOGICAL

CYLINDERS 4/6 DETONATION SENSOR

- Maximum plausible value measured

ERROR TYPE

VBATT OPEN CIRCUIT/SHORT CIRCUIT

VERIFICATIONS

Check of correct sensor installation and tightening torque (see manual). Check component intactness.

TOPOLOGICAL

CYLINDERS 4/6 DETONATION SENSOR

- Derivative for engine rpm out of range signal detected

ERROR TYPE

SPORADIC CONTACT

VERIFICATIONS

Check parameters using toothed wheel Diagnosis Check Tester (conformity and gap between sensor and toothed wheel). Check drive shaft and camshaft signals.

TOPOLOGICAL

RH REVOLUTIONS SENSOR

- No pressure increase measured within the fuel tank. (Major leakage)The error can be validated only while running the anti-evaporation test.

ERROR TYPE

Tank leakage

VERIFICATIONS

Checkout of possible losses within anti-evaporation circuit. Check of fuel pressure sensor. Check of solenoid valve cable.

TOPOLOGICAL

RH BANK ANTIEVAPORATION SOL. VALVE

- Vehicle speed data issued on the CAN line by the ABS/ASR system

ERROR TYPE

Malfunction

VERIFICATIONS

Error check in the ABS/ASR system

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

ENGINE PARAMETERS AT IDLE SPEED (P0506)

- Idling condition detected beyond the minimum acceptable threshold (e.g. too low engine rpm with accelerator pedal released)

ERROR TYPE

MINIMUM VALUE

VERIFICATIONS

With the engine idling, check that the motor driven throttle value is 1.5 - 3% when it operates at a steady speed. With the engine idling, check that the air flow value is 18 - 25 Kg/h when operating at a steady speed. With the engine idling, check that the rpm rate is 1060 +/-40.

TOPOLOGICAL

RH MOTOR DRIVEN THROTTLE

- Idling condition detected beyond the maximum acceptable threshold (e.g. too high engine rpm with accelerator pedal released)

ERROR TYPE

MAXIMUM VALUE

VERIFICATIONS

With the engine idling, check that the motor driven throttle value is 1.5 - 3% when it operates at a steady speed. With the engine idling, check that the air flow value is 18 - 25 Kg/h when operating at a steady speed. With the engine idling, check that the rpm rate is 1060 +/-40.

TOPOLOGICAL

RH MOTOR DRIVEN THROTTLE

BATTERY VOLTAGE (P0562)

- Battery voltage value too low, the critical operating threshold could be reached

ERROR TYPE

MINIMUM VALUE

VERIFICATIONS

Main relay circuit check. Battery condition check. Alternator efficiency check.

TOPOLOGICAL

- Battery voltage value too high, the critical operating threshold could be reached

ERROR TYPE

MAXIMUM VALUE

VERIFICATIONS

Main relay circuit check. Battery condition check. Alternator efficiency check.

TOPOLOGICAL

- The information relating to the brake switch pressed has proved to be not plausible if compared with the three inputs available: brake switch contact 1 (specific to Motronic), brake switch contact 2 (Stop lights turning on), information issued on the CAN line.

ERROR TYPE

Value not plausible

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

- CAN line communication error between the RH ECU and the LH ECU

ERROR TYPE

Communication Error

VERIFICATIONS

Wiring and system intactness check.

TOPOLOGICAL

- Ram internal check not plausible

ERROR TYPE

Value not plausible

VERIFICATIONS

Internal error. Delete the errors and check the ECU for proper operation. If the error persists, replace the ECU.

TOPOLOGICAL

- Rom internal check not plausible

ERROR TYPE

Value not plausible

VERIFICATIONS

Internal error. Delete the errors and check the ECU for proper operation. If the error persists, replace the ECU.

TOPOLOGICAL

- Wrong calculation of injection time for cylinder filling

VERIFICATIONS

Internal error. Delete the errors and check the ECU for proper operation. If the error persists, replace the ECU.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Possible SC to Vbatt or potentiometer 1 position value inconsistent with potentiometer 2 position and throttle position

ERROR TYPE

Voltage value high

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

ACCELERATOR PEDAL SENSOR

- Possible SC to ground or potentiometer 1 position value inconsistent with potentiometer 2 position and throttle position

ERROR TYPE

Voltage value low

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

ACCELERATOR PEDAL SENSOR

- Potentiometer 1 position value inconsistent with potentiometer 2 position and throttle position

ERROR TYPE

Voltage value not plausible

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

ACCELERATOR PEDAL SENSOR

- Possible SC to Vbatt or potentiometer 2 position value inconsistent with potentiometer 1 position and throttle position

ERROR TYPE

Voltage value high

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

ACCELERATOR PEDAL SENSOR

- Potentiometer 2 position value inconsistent with potentiometer 1 position and throttle position

ERROR TYPE

Voltage value low

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

ACCELERATOR PEDAL SENSOR

- The error occurred during a throttle actuation (through the accelerator pedal) as it does not recognize the minimum and maximum values stored during self-learning. Conditions required to carry out a correct check- Battery Voltage

ERROR TYPE

Malfunction

VERIFICATIONS

Using the Tester, delete the throttle self-learning cycle. Run the self-learning procedure. Using the parameters, it checks the throttle for correct opening 0 - 100%. Check of component intactness/electric wiring.

TOPOLOGICAL

RH MOTOR DRIVEN THROTTLE

MOTOR DRIVEN THROTTLE RETURN SPRING FAILURE (P1179)

- A failure was detected on the return spring during a throttle actuation (acceleration stage) - (probable high throttle opening time)

ERROR TYPE

Fault

VERIFICATIONS

Using the diagnosis Tester, check that the throttle opening parameters are correct (0 - 100%) . Check the component intactness /electric wiring.

TOPOLOGICAL

RH MOTOR DRIVEN THROTTLE

MOTOR DRIVEN THROTTLE RETURN SPRING FAILURE (P1180)

- A failure was detected on the return spring during a throttle actuation (release stage) - (probable high throttle closing time)

ERROR TYPE

Fault

VERIFICATIONS

Using the diagnosis Tester, check that the throttle opening parameters are correct (0 - 100%) . Check the component intactness /electric wiring.

TOPOLOGICAL

RH MOTOR DRIVEN THROTTLE

- The error occurred during a throttle actuation (through the accelerator pedal) as it does not recognize the minimum and maximum values stored during self-learning. Conditions required to carry out a correct check- Battery Voltage

ERROR TYPE

Malfunction

VERIFICATIONS

Using the Tester, delete the throttle self-learning cycle. Run the self-learning procedure. Using the parameters, it checks the throttle for correct opening 0 - 100%. Check of component intactness/electric wiring.

TOPOLOGICAL

RH MOTOR DRIVEN THROTTLE

- The error occurs during the first self-learning initialization

ERROR TYPE

OUT OF RANGE

VERIFICATIONS

Using the Tester, delete the throttle self-learning cycle. Run the self-learning procedure. Using the parameters, it checks the throttle for correct opening 0 - 100%. Check of component intactness/electric wiring.

TOPOLOGICAL

RH MOTOR DRIVEN THROTTLE

- Position signal amplifier.

ERROR TYPE

OUT OF RANGE

VERIFICATIONS

Using the Tester, delete the throttle self-learning cycle. Run the self-learning procedure. Using the parameters, it checks the throttle for correct opening 0 - 100%. Check of component intactness/electric wiring.

TOPOLOGICAL

RH MOTOR DRIVEN THROTTLE

- Actuation motor failure

ERROR TYPE

Power Off

VERIFICATIONS

Using the diagnosis Tester, check that the throttle opening parameters are correct (0 - 100%) . Check the component intactness /electric wiring.

TOPOLOGICAL

RH MOTOR DRIVEN THROTTLE

- Position drift with respect to the pedal request

ERROR TYPE

Value not plausible

VERIFICATIONS

Using the diagnosis Tester, check that the throttle opening parameters are correct (0 - 100%) . Check the component intactness /electric wiring.

TOPOLOGICAL

RH MOTOR DRIVEN THROTTLE

- Throttle position out of range

ERROR TYPE

Value out of range

VERIFICATIONS

Using the diagnosis Tester, check that the throttle opening parameters are correct (0 - 100%) . Check the component intactness /electric wiring.

TOPOLOGICAL

RH MOTOR DRIVEN THROTTLE

- Failure during ignition check

ERROR TYPE

Process interrupted

VERIFICATIONS

Using the diagnosis Tester, check that the throttle opening parameters are correct (0 - 100%) . Check the component intactness /electric wiring.

TOPOLOGICAL

RH MOTOR DRIVEN THROTTLE

- Self learning cannot be executed

ERROR TYPE

OUT OF RANGE

VERIFICATIONS

Using the Tester, delete the throttle self-learning cycle. Run the self-learning procedure. Using the parameters, it checks the throttle for correct opening 0 - 100%. Check of component intactness/electric wiring.

TOPOLOGICAL

RH MOTOR DRIVEN THROTTLE

- Potentiometer 1 position value inconsistent with potentiometer 2 position and throttle position

ERROR TYPE

Voltage value not plausible

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

ACCELERATOR PEDAL SENSOR

- Safety monitoring function for fuel cut-out ECU reset anomalous conditions

ERROR TYPE

Value not plausible

VERIFICATIONS

Internal error. Delete the errors and check the ECU for proper operation. If the error persists, replace the ECU.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Torque ratio monitoring function. ECU reset anomalous conditions

ERROR TYPE

Value not plausible

VERIFICATIONS

Internal error. Delete the errors and check the ECU for proper operation. If the error persists, replace the ECU.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- The sensor has reached the maximum value (possible sensor locking)

ERROR TYPE

MAXIMUM VALUE

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

FRONT OXYGEN SENSOR 1

- System error generally associated with throttle self-learning errors which trigger its recovery function.

ERROR TYPE

Maximum threshold exceeded

VERIFICATIONS

Using the Tester, delete the throttle self-learning cycle. Run the self-learning procedure. Using the parameters, it checks the throttle for correct opening 0 - 100%. Check of component intactness/electric wiring.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- The torque value issued by the RH bank is not compatible with that for the LH bank

ERROR TYPE

Value not plausible

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- The timing sensor signal is too delayed with respect to the engine rpm signal

ERROR TYPE

Minimum threshold exceeded

VERIFICATIONS

Indicator panel check. Tming variator check. Engine timing check.

TOPOLOGICAL

RH TIMING SENSOR

- Inconsistent detection on the four sensors

ERROR TYPE

Value not plausible

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Catalytic converter temperature check: protection active (max)Caused by an excessive temperature value on the catalytic converter.

ERROR TYPE

Activation triggered

VERIFICATIONS

Check of fuel level in the tank. Thermocouple operation check. Check HC CO emissions. Using the active diagnosis, check that the injectors are functioning. Injector wiring check. Ignition coil wiring check.

TOPOLOGICAL

ECU FOR RH BANK CATALYTIC CONVERTER CONTROL

- The error is validated only during the air pump operation

ERROR TYPE

VBATT SHORT CIRCUIT

VERIFICATIONS

*In diagnosis mode, check that the Secondary Air Pump is functioning correctly.
Wiring check.*

TOPOLOGICAL

AIR PUMP RELAY

- The error is validated only during the air pump operation

ERROR TYPE

GND SHORT CIRCUIT

VERIFICATIONS

*In diagnosis mode, check that the Secondary Air Pump is functioning correctly.
Wiring check.*

- The error is validated only during the air pump operation

ERROR TYPE

OPEN CIRCUIT

VERIFICATIONS

*In diagnosis mode, check that the Secondary Air Pump is functioning correctly.
Wiring check.*

- Air bleeding detected with solenoid valve closed

ERROR TYPE

Leakage

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

RH BANK: SECONDARY AIR SOLENOID VALVE

- Fuel pump relay wire in short circuit

ERROR TYPE

GND SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

RH FAN RELAY

FUEL PUMP RELAY 1 CONTROL (P1541)

- Fuel pump relay wire cut-out

ERROR TYPE

OPEN CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

PUMP RELAY

- No communication during ignition between alarm system and engine check

ERROR TYPE

Malfunction

VERIFICATIONS

Check the alarm system condition using the SD2 tester. Motronic ECU wiring and Alarm system ECU wiring check.

TOPOLOGICAL

[BOSCH MOTRONIC IGNITION-INJECTION ECU](#)

- This error does not allow the engine to be started

ERROR TYPE

CRITICAL ERROR STILL PRESENT

VERIFICATIONS

Check the alarm system remote control for proper operation. Using the Diagnosis Tester, check the interface ECU status. Wiring / component intactness check.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- A major failure occurred within the gearbox, which required the engine to turn off

ERROR TYPE

Controlled by ECU

VERIFICATIONS

Electronically-controlled gearbox system check

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- ASR message not received

ERROR TYPE

Malfunction

VERIFICATIONS

ABS/ASR ECU check.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Gearbox ECU message not received

ERROR TYPE

Malfunction

VERIFICATIONS

Gearbox ECU error check.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- CAN messages between the two banks not timed

ERROR TYPE

Value not plausible

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Wrong bank configuration (defined as RH or LH)

ERROR TYPE

Value not plausible

VERIFICATIONS

Wiring and system intactness check.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Non plausible signal from the accelerator pedal during actuation

ERROR TYPE

Value not plausible

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

ACCELERATOR PEDAL SENSOR

- Instrument panel message not received

ERROR TYPE

Malfunction

VERIFICATIONS

Instrument panel check.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Signal inconsistent conditions

ERROR TYPE

Value not plausible

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

RH TIMING SENSOR

- Signal value low, below threshold

ERROR TYPE

GND SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

RH TIMING SENSOR

- Signal value high, above threshold

ERROR TYPE

VBATT SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

RH TIMING SENSOR

- The signal inconsistency error can also be caused by a malfunction of one of the following components - injector and relative wiring, - coil and relative wiring, - exhaust intake valve bleeding - engine time, Notes:

ERROR TYPE

Value not plausible

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

FRONT OXYGEN SENSOR 1

- Possible false contact on the rpm sensor cable

ERROR TYPE

Malfunction

VERIFICATIONS

Check the installation gap - Wiring / component intactness check.

TOPOLOGICAL

REVOLUTIONS SENSOR

- Inconsistent detection on the four sensors

ERROR TYPE

Value not plausible

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

CYLINDERS 1/3 DETONATION SENSOR

CYLINDERS 4/6 DETONATION SENSOR

CYLINDERS 10/12 DETONATION SENSOR

- No operation detected by the sensor. Possible ageing / damaging

ERROR TYPE

NO OPERATIONS

VERIFICATIONS

Component intactness check

TOPOLOGICAL

BACK OXYGEN SENSOR 1

- A cut-out on the wire of the accelerometer for uneven roadbed has been detected

ERROR TYPE

OPEN CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- A malfunction of the accelerometer sensor for roadbed or probable S.C. has been detected to Vbatt

ERROR TYPE

VALUE TOO HIGH

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- The error can be validated only during the air pump operation. (see manual) If it is associated to another error on the secondary air solenoid valve, check the efficiency of the entire system.

ERROR TYPE

Insufficient oxygen: Value read low

VERIFICATIONS

Wiring and system intactness check.

TOPOLOGICAL

RH BANK: SECONDARY AIR SOLENOID VALVE

SECONDARY SOLENOID VALVE CONTROL CIRCUIT (P0412)

- The error can be validated only during the air pump operation. (see manual) If it is associated to another error on the secondary air solenoid valve, check the efficiency of the entire system.

ERROR TYPE

VBATT SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

RH BANK: SECONDARY AIR SOLENOID VALVE

SECONDARY AIR SOLENOID VALVE (P0413)

- It can be validated only during the air pump operation (see manual).

ERROR TYPE

OPEN CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

RH BANK: SECONDARY AIR SOLENOID VALVE

SECONDARY AIR SOLENOID VALVE (P0414)

- It can be validated only during the air pump operation (see manual).

ERROR TYPE

GND SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

RH BANK: SECONDARY AIR SOLENOID VALVE

THROTTLE POSITION SENSOR 2 (P0221)

- System error generally associated with another error of potentiometer 1 on the throttle body.
Reference parameters for error validation: engine rpm, intake air flow rate

ERROR TYPE

Value not plausible

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

RH MOTOR DRIVEN THROTTLE

- Misfire critical conditions within the cylinder. The engine correct operation is jeopardized

ERROR TYPE

Maximum threshold exceeded

VERIFICATIONS

Fuel level check. Fuel supply pressure check. Fuel pump operating check. Injector operation check using the diagnosis function. Check of ignition coils and relative connection. Check the spark plugs. Wiring check.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Misfire critical conditions within the cylinder. The engine correct operation is jeopardized

ERROR TYPE

Maximum threshold exceeded

VERIFICATIONS

Fuel level check. Fuel supply pressure check. Fuel pump operating check. Injector operation check using the diagnosis function. Check of ignition coils and relative connection. Check the spark plugs. Wiring check.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Misfire critical conditions within the cylinder. The engine correct operation is jeopardized

ERROR TYPE

Maximum threshold exceeded

VERIFICATIONS

Fuel level check. Fuel supply pressure check. Fuel pump operating check. Injector operation check using the diagnosis function. Check of ignition coils and relative connection. Check the spark plugs. Wiring check.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Misfire critical conditions within the cylinder. The engine correct operation is jeopardized

ERROR TYPE

Maximum threshold exceeded

VERIFICATIONS

Fuel level check. Fuel supply pressure check. Fuel pump operating check. Injector operation check using the diagnosis function. Check of ignition coils and relative connection. Check the spark plugs. Wiring check.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Misfire critical conditions within the cylinder. The engine correct operation is jeopardized

ERROR TYPE

Value not plausible

VERIFICATIONS

Fuel level check. Fuel supply pressure check. Fuel pump operating check. Injector operation check using the diagnosis function. Check of ignition coils and relative connection. Check the spark plugs. Wiring check.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Misfire critical conditions within the cylinder. The engine correct operation is jeopardized

ERROR TYPE

Value not plausible

VERIFICATIONS

Fuel level check. Fuel supply pressure check. Fuel pump operating check. Injector operation check using the diagnosis function. Check of ignition coils and relative connection. Check the spark plugs. Wiring check.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Misfire critical conditions within the cylinder. The engine correct operation is jeopardized

ERROR TYPE

Value not plausible

VERIFICATIONS

Fuel level check. Fuel supply pressure check. Fuel pump operating check. Injector operation check using the diagnosis function. Check of ignition coils and relative connection. Check the spark plugs. Wiring check.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Misfire critical conditions within the cylinder. The engine correct operation is jeopardized

ERROR TYPE

Value not plausible

VERIFICATIONS

Fuel level check. Fuel supply pressure check. Fuel pump operating check. Injector operation check using the diagnosis function. Check of ignition coils and relative connection. Check the spark plugs. Wiring check.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Possible short circuit to + Vbatt on the motor-driven throttle control cable

ERROR TYPE

VBATT SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

RH MOTOR DRIVEN THROTTLE

- Possible short circuit to ground on the motor-driven throttle control cable

ERROR TYPE

GND SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

RH MOTOR DRIVEN THROTTLE

- Possible open circuit on the motor-driven throttle control cable

ERROR TYPE

OPEN CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

RH MOTOR DRIVEN THROTTLE

- Misfire critical conditions within the cylinder. The engine correct operation is jeopardized

ERROR TYPE

Maximum threshold exceeded

VERIFICATIONS

Fuel level check. Fuel supply pressure check. Fuel pump operating check. Injector operation check using the diagnosis function. Check of ignition coils and relative connection. Check the spark plugs. Wiring check.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Misfire critical conditions within the cylinder. The engine correct operation is jeopardized

ERROR TYPE

Maximum threshold exceeded

VERIFICATIONS

Fuel level check. Fuel supply pressure check. Fuel pump operating check. Injector operation check using the diagnosis function. Check of ignition coils and relative connection. Check the spark plugs. Wiring check.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Misfire critical conditions within the cylinder. The engine correct operation is jeopardized

ERROR TYPE

Maximum threshold exceeded

VERIFICATIONS

Fuel level check. Fuel supply pressure check. Fuel pump operating check. Injector operation check using the diagnosis function. Check of ignition coils and relative connection. Check the spark plugs. Wiring check.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Misfire critical conditions within the cylinder. The engine correct operation is jeopardized

ERROR TYPE

Maximum threshold exceeded

VERIFICATIONS

Fuel level check. Fuel supply pressure check. Fuel pump operating check. Injector operation check using the diagnosis function. Check of ignition coils and relative connection. Check the spark plugs. Wiring check.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Heating circuit malfunction

ERROR TYPE

NO SIGNAL

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

FRONT OXYGEN SENSOR 1

- Heating circuit malfunction

ERROR TYPE

GND SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

FRONT OXYGEN SENSOR 1

- Heating circuit malfunction

ERROR TYPE

VBATT SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

FRONT OXYGEN SENSOR 1

- Heating circuit malfunction

ERROR TYPE

NO SIGNAL

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

BACK OXYGEN SENSOR 1

- Heating circuit malfunction

ERROR TYPE

GND SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

[BACK OXYGEN SENSOR 1](#)

- Heating circuit malfunction

ERROR TYPE

VBATT SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

[BACK OXYGEN SENSOR 1](#)

- Engine intake air temperature inconsistent with the operating conditions

ERROR TYPE

INTERMITTENT FAILURE PRESENT

VERIFICATIONS

Compare the temperature value read by the system using an outside sensor. From the parameter page, check the air flow between the LH and RH banks: the difference must not exceed 5kg/h. Wiring / component intactness check.

TOPOLOGICAL

AIR-FLOW METER

BAROMETRIC PRESSURE (P0106)

- Malfunction that can be due to the air flow meter which calculates the barometric pressure to optimize combustion at high altitudes (poor oxygen). Reference parameters for the error validation: throttle position, engine rpm, condition

ERROR TYPE

Value calculated not plausible

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

AIR-FLOW METER

- Malfunction that can be due to the air flow meter which calculates the barometric pressure to optimize combustion at high altitudes (poor oxygen). Reference parameters for the error validation: throttle position, engine rpm, condition

ERROR TYPE

Calculated minimum value

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

AIR-FLOW METER

- Malfunction that can be due to the air flow meter which calculates the barometric pressure to optimize combustion at high altitudes (poor oxygen). Reference parameters for the error validation: throttle position, engine rpm, condition

ERROR TYPE

Calculated maximum value

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

AIR-FLOW METER

INTAKE AIR TEMPERATURE (P0110)

- Malfunction due to the air flow meter which calculates that intake air temperature to optimize combustion. Reference parameters for error validation: throttle position, engine rpm, climate conditions.

ERROR TYPE

Value calculated not plausible

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

AIR-FLOW METER

INTAKE AIR TEMPERATURE (P0111)

- Malfunction due to the air flow meter which calculates that intake air temperature to optimize combustion. Reference parameters for error validation: throttle position, engine rpm, climate conditions.

ERROR TYPE

Value calculated not plausible

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

AIR-FLOW METER

- Potentiometer's output signal value low

ERROR TYPE

GND SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

RH MOTOR DRIVEN THROTTLE

- Potentiometer's output signal value high

ERROR TYPE

VBATT SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

RH MOTOR DRIVEN THROTTLE

- The lambda sensor does not oscillate properly during adjustment. This may be due to an aged sensor or to external interference factors (combustion): injectors, coils, air intakes etc.

ERROR TYPE

Slow response

VERIFICATIONS

Component intactness check

TOPOLOGICAL

[FRONT OXYGEN SENSOR 1](#)

- The lambda sensor does not oscillate properly during adjustment. This may be due to an aged sensor or to external interference factors (combustion): injectors, coils, air intakes etc.

ERROR TYPE

Value not plausible

VERIFICATIONS

Component intactness check

TOPOLOGICAL

[FRONT OXYGEN SENSOR 1](#)

- Adjustment voltage value low

ERROR TYPE

GND SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

[BACK OXYGEN SENSOR 1](#)

- The lambda sensor does not oscillate properly during adjustment. This may be due to an aged sensor or to external interference factors (combustion): injectors, coils, air intakes etc.

ERROR TYPE

Value not plausible

VERIFICATIONS

Component intactness check

TOPOLOGICAL

[BACK OXYGEN SENSOR 1](#)

- Fuel self-learning incorrect, check: all the devices relating to carburation / combustion (sensors, air flow meter, spark plug injectors, coils), all mechanical parts relating to emissions (engine timing, valve seal, exhaust manifolds etc.

ERROR TYPE

Value not plausible

VERIFICATIONS

Check all the devices relating to carburation/combustion (sensors, air-flow meter, spark plug injectors, coils), all the mechanical parts relating to emissions (engine timing, valve seal, exhaust manifolds etc.)

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Fuel self-learning incorrect, check: all the devices relating to carburation / combustion (sensors, air flow meter, spark plug injectors, coils), all mechanical parts relating to emissions (engine timing, valve seal, exhaust manifolds etc.

ERROR TYPE

Lean fuel value

VERIFICATIONS

Check all the devices relating to carburation/combustion (sensors, air-flow meter, spark plug injectors, coils), all the mechanical parts relating to emissions (engine timing, valve seal, exhaust manifolds etc.)

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Fuel self-learning incorrect, check: all the devices relating to carburation / combustion (sensors, air flow meter, spark plug injectors, coils), all mechanical parts relating to emissions (engine timing, valve seal, exhaust manifolds etc.

ERROR TYPE

Rich fuel value

VERIFICATIONS

Check all the devices relating to carburation/combustion (sensors, air-flow meter, spark plug injectors, coils), all the mechanical parts relating to emissions (engine timing, valve seal, exhaust manifolds etc.)

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

CYLINDER 1 INJECTOR (P0201)

- Possible false contact or injector clogged/blocked open (combustion not perfect, HC and CO values out of range)

ERROR TYPE

Malfunction

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

INJECTION CABLE JOINT TO RH BANK INJECTOR

- Possible false contact or injector clogged/blocked open (combustion not perfect, HC and CO values out of range)

ERROR TYPE

Malfunction

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

INJECTION CABLE JOINT TO RH BANK INJECTOR

- Possible false contact or injector clogged/blocked open (combustion not perfect, HC and CO values out of range)

ERROR TYPE

Malfunction

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

INJECTION CABLE JOINT TO RH BANK INJECTOR

- Possible false contact or injector clogged/blocked open (combustion not perfect, HC and CO values out of range)

ERROR TYPE

Malfunction

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

INJECTION CABLE JOINT TO RH BANK INJECTOR

- Possible false contact or injector clogged/blocked open (combustion not perfect, HC and CO values out of range)

ERROR TYPE

Malfunction

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

INJECTION CABLE JOINT TO RH BANK INJECTOR

- Possible false contact or injector clogged/blocked open (combustion not perfect, HC and CO values out of range)

ERROR TYPE

Malfunction

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

INJECTION CABLE JOINT TO RH BANK INJECTOR

- Possible false contact or injector clogged/blocked open (combustion not perfect, HC and CO values out of range)

ERROR TYPE

Malfunction

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

INJECTION CABLE JOINT TO LH BANK INJECTOR

- Possible false contact or injector clogged/blocked open (combustion not perfect, HC and CO values out of range)

ERROR TYPE

Malfunction

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

INJECTION CABLE JOINT TO LH BANK INJECTOR

- Possible false contact or injector clogged/blocked open (combustion not perfect, HC and CO values out of range)

ERROR TYPE

Malfunction

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

INJECTION CABLE JOINT TO LH BANK INJECTOR

CYLINDER 10 INJECTOR CIRCUIT (P0210)

- Possible false contact or injector clogged/blocked open (combustion not perfect, HC and CO values out of range)

ERROR TYPE

Malfunction

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

INJECTION CABLE JOINT TO LH BANK INJECTOR

- Possible false contact or injector clogged/blocked open (combustion not perfect, HC and CO values out of range)

ERROR TYPE

Malfunction

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

INJECTION CABLE JOINT TO LH BANK INJECTOR

- Possible false contact or injector clogged/blocked open (combustion not perfect, HC and CO values out of range)

ERROR TYPE

Malfunction

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

INJECTION CABLE JOINT TO LH BANK INJECTOR

- It is possible that the engine ran beyond the boost control threshold under particular driving conditions (track)

ERROR TYPE

Maximum threshold exceeded

TOPOLOGICAL

RH REVOLUTIONS SENSOR

- Potentiometer's output signal value low

ERROR TYPE

GND SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

RH MOTOR DRIVEN THROTTLE

- Potentiometer's output signal value high

ERROR TYPE

VBATT SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

RH MOTOR DRIVEN THROTTLE

FUEL PUMP RELAY (P0230)

- Pump relay control wire in short circuit to battery positive

ERROR TYPE

VBATT SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

PUMP RELAY

CYLINDER 1 INJECTOR (P0261)

- Control wire for cylinder 1 injector in short circuit to ground

ERROR TYPE

GND SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

INJECTION CABLE JOINT TO RH BANK INJECTOR

CYLINDER 1 INJECTOR (P0262)

- Control wire for cylinder 1 injector in short circuit to battery positive

ERROR TYPE

VBATT SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

INJECTION CABLE JOINT TO RH BANK INJECTOR

CYLINDER 2 INJECTOR (P0264)

- Control wire for cylinder 1 injector in short circuit to ground

ERROR TYPE

GND SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

INJECTION CABLE JOINT TO RH BANK INJECTOR

CYLINDER 2 INJECTOR (P0265)

- Control wire for cylinder 1 injector in short circuit to battery positive

ERROR TYPE

VBATT SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

INJECTION CABLE JOINT TO RH BANK INJECTOR

CYLINDER 3 INJECTOR (P0267)

- Control wire for cylinder 1 injector in short circuit to ground

ERROR TYPE

GND SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

INJECTION CABLE JOINT TO RH BANK INJECTOR

- Control wire for cylinder 1 injector in short circuit to battery positive

ERROR TYPE

VBATT SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

INJECTION CABLE JOINT TO RH BANK INJECTOR

CYLINDER 4 INJECTOR (P0270)

- Control wire for cylinder 1 injector in short circuit to ground

ERROR TYPE

GND SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

INJECTION CABLE JOINT TO RH BANK INJECTOR

- Control wire for cylinder 1 injector in short circuit to battery positive

ERROR TYPE

VBATT SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

INJECTION CABLE JOINT TO RH BANK INJECTOR

CYLINDER 5 INJECTOR (P0273)

- Control wire for cylinder 1 injector in short circuit to ground

ERROR TYPE

GND SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

INJECTION CABLE JOINT TO RH BANK INJECTOR

- Control wire for cylinder 1 injector in short circuit to battery positive

ERROR TYPE

VBATT SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

INJECTION CABLE JOINT TO RH BANK INJECTOR

CYLINDER 6 INJECTOR (P0276)

- Control wire for cylinder 1 injector in short circuit to ground

ERROR TYPE

GND SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

INJECTION CABLE JOINT TO RH BANK INJECTOR

CYLINDER 6 INJECTOR (P0277)

- Control wire for cylinder 1 injector in short circuit to battery positive

ERROR TYPE

VBATT SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

INJECTION CABLE JOINT TO RH BANK INJECTOR

CYLINDER 7 INJECTOR (P0279)

- Control wire for cylinder 1 injector in short circuit to ground

ERROR TYPE

GND SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

INJECTION CABLE JOINT TO LH BANK INJECTOR

- Control wire for cylinder 1 injector in short circuit to battery positive

ERROR TYPE

VBATT SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

INJECTION CABLE JOINT TO LH BANK INJECTOR

CYLINDER 8 INJECTOR (P0282)

- Control wire for cylinder 1 injector in short circuit to ground

ERROR TYPE

GND SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

INJECTION CABLE JOINT TO LH BANK INJECTOR

- Control wire for cylinder 1 injector in short circuit to battery positive

ERROR TYPE

VBATT SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

INJECTION CABLE JOINT TO LH BANK INJECTOR

CYLINDER 9 INJECTOR CIRCUIT (P0285)

- Possible short circuit to ground of the injector 1 control drive

ERROR TYPE

GND SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

INJECTION CABLE JOINT TO LH BANK INJECTOR

CYLINDER 9 INJECTOR CIRCUIT (P0286)

- Possible short circuit to + V batt on the injector control drive

ERROR TYPE

VBATT SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

INJECTION CABLE JOINT TO LH BANK INJECTOR

CYLINDER 10 INJECTOR CIRCUIT (P0288)

- Possible short circuit to ground of the injector 1 control drive

ERROR TYPE

GND SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

INJECTION CABLE JOINT TO LH BANK INJECTOR

CYLINDER 10 INJECTOR CIRCUIT (P0289)

- Possible short circuit to + V batt on the injector control drive

ERROR TYPE

VBATT SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

INJECTION CABLE JOINT TO LH BANK INJECTOR

CYLINDER 11 INJECTOR CIRCUIT (P0291)

- Possible short circuit to ground of the injector 1 control drive

ERROR TYPE

GND SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

INJECTION CABLE JOINT TO LH BANK INJECTOR

CYLINDER 11 INJECTOR CIRCUIT (P0292)

- Possible short circuit to + V batt on the injector control drive

ERROR TYPE

VBATT SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

INJECTION CABLE JOINT TO LH BANK INJECTOR

- Possible short circuit to ground of the injector 1 control drive

ERROR TYPE

GND SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

INJECTION CABLE JOINT TO LH BANK INJECTOR

CYLINDER 12 INJECTOR CIRCUIT (P0295)

- Possible short circuit to + V batt on the injector control drive

ERROR TYPE

VBATT SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

INJECTION CABLE JOINT TO LH BANK INJECTOR

- Lack of timing sensor signal detected

ERROR TYPE

OPEN CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

RH TIMING SENSOR

- Possible causes: C.C. to ground, C.C. to Vbatt, Open circuit or false contact (signal discontinuous)

ERROR TYPE

Malfunction

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

CYLINDER COIL 1

- Possible causes: C.C. to ground, C.C. to Vbatt, Open circuit or false contact (signal discontinuous)

ERROR TYPE

Malfunction

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

CYLINDER COIL 2

- Possible causes: C.C. to ground, C.C. to Vbatt, Open circuit or false contact (signal discontinuous)

ERROR TYPE

Malfunction

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

CYLINDER COIL 3

- Possible causes: C.C. to ground, C.C. to Vbatt, Open circuit or false contact (signal discontinuous)

ERROR TYPE

Malfunction

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

CYLINDER COIL 4

- Possible causes: C.C. to ground, C.C. to Vbatt, Open circuit or false contact (signal discontinuous)

ERROR TYPE

Malfunction

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

CYLINDER COIL 5

- Possible causes: C.C. to ground, C.C. to Vbatt, Open circuit or false contact (signal discontinuous)

ERROR TYPE

Malfunction

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

CYLINDER COIL 6

- Possible causes: C.C. to ground, C.C. to Vbatt, Open circuit or false contact (signal discontinuous)

ERROR TYPE

Malfunction

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

CYLINDER COIL 7

- Possible causes: C.C. to ground, C.C. to Vbatt, Open circuit or false contact (signal discontinuous)

ERROR TYPE

Malfunction

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

CYLINDER COIL 8

- Possible causes: C.C. to ground, C.C. to Vbatt, Open circuit or false contact (signal discontinuous)

ERROR TYPE

Malfunction

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

[CYL. 9 COIL](#)

- Possible causes: C.C. to ground, C.C. to Vbatt, Open circuit or false contact (signal discontinuous)

ERROR TYPE

Malfunction

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

CYL. 10 COIL

- Possible causes: C.C. to ground, C.C. to Vbatt, Open circuit or false contact (signal discontinuous)

ERROR TYPE

Malfunction

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

CYL. 11 COIL

- Possible causes: C.C. to ground, C.C. to Vbatt, Open circuit or false contact (signal discontinuous)

ERROR TYPE

Malfunction

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

CYL. 12 COIL

- An insufficient temperature for optimizing the catalytic converter operation has been detected

ERROR TYPE

Minimum threshold exceeded

VERIFICATIONS

System intactness and temperature sensor check.

TOPOLOGICAL

ECU FOR RH BANK CATALYTIC CONVERTER CONTROL

RH CATALYTIC CONVERTOR TEMPERATURE SENSOR (P0426)

- Catalytic convertor temperature signal inconsistent with the vehicle driving conditions (e.g. engine running time and temp. H2O>90 °C)

ERROR TYPE

SPORADIC CONTACT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

ECU FOR RH BANK CATALYTIC CONVERTER CONTROL

- Temperature value below minimum threshold with vehicle in steady running conditions

ERROR TYPE

C.C. to ground or minimum value reached

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

ECU FOR RH BANK CATALYTIC CONVERTER CONTROL

- Temperature value above maximum threshold with vehicle in steady running conditions, check that the catalytic converter has not actually overheated

ERROR TYPE

C.C. to VBATT or maximum value

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

ECU FOR RH BANK CATALYTIC CONVERTER CONTROL

- High vacuum value detected inside the fuel tank. The error can be validated only during the anti-evaporation test activation.

ERROR TYPE

Maximum threshold exceeded

VERIFICATIONS

Checkout of possible losses within anti-evaporation circuit. Check of fuel pressure sensor. Check of solenoid valve cable.

TOPOLOGICAL

RH BANK ANTIEVAPORATION SOL. VALVE

- Short circuit to Vbatt detected on the solenoid valve control drive.The error can be validated only while running the anti-evaporation test.

ERROR TYPE

VBATT SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

CANISTER SOLENOID VALVE

- Wire for canister purge solenoid valve cut-out

ERROR TYPE

OPEN CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

RH BANK ANTIEVAPORATION SOL. VALVE

- Wire for canister purge solenoid valve possibly in short-circuit to ground

ERROR TYPE

GND SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

RH BANK ANTIEVAPORATION SOL. VALVE

- Short circuit to Vbatt on the solenoid valve control drive. The error can be validated only during the tank leakage test activation.

ERROR TYPE

VBATT SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

SOLENOID VALVE FOR FUEL VAPOR RECIRCULATION

- Short circuit to Vbatt on the solenoid valve control drive. The error can be validated only during the tank leakage test activation.

ERROR TYPE

OPEN CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

SOLENOID VALVE FOR FUEL VAPOR RECIRCULATION

- Short circuit to Vbatt on the solenoid valve control drive. The error can be validated only during the tank leakage test activation.

ERROR TYPE

GND SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

SOLENOID VALVE FOR FUEL VAPOR RECIRCULATION

- Short circuit to Vbatt on the solenoid valve control drive. The error can be validated only during the tank leakage test activation.

ERROR TYPE

SPORADIC CONTACT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

SOLENOID VALVE FOR FUEL VAPOR RECIRCULATION

TANK PRESSURE SENSOR (P0450)

- Malfunction found on the fuel tank pressure sensor. Possible false contact or sensor damaged.

ERROR TYPE

SPORADIC CONTACT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

FUEL PRESSURE SENSOR

TANK PRESSURE SENSOR (P0451)

- Malfunction in the fuel tank pressure sensor. Inconsistent value

ERROR TYPE

Value not plausible

VERIFICATIONS

Using the Tester, run the leakage diagnosis cycle and check the result. Check that the parameters read are consistent with all the circuit lines and with the system components. Wiring / component intactness check.

TOPOLOGICAL

FUEL PRESSURE SENSOR

TANK PRESSURE SENSOR (P0452)

- Malfunction found on the fuel tank pressure sensor. The value read is equal to the maximum acceptable threshold.

ERROR TYPE

C.C. to ground or minimum value reached

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

FUEL PRESSURE SENSOR

TANK PRESSURE SENSOR (P0453)

- Malfunction found on the fuel tank pressure sensor. The value read is equal to the maximum acceptable threshold.

ERROR TYPE

C.C. to VBATT or maximum value

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

FUEL PRESSURE SENSOR

- Incorrect pressure increase within the fuel tank.(Minor leakage) The error can be validated only while running the anti-evaporation test.

ERROR TYPE

Minor leakage

VERIFICATIONS

Using the Tester, run the leakage diagnosis cycle and check the result. Check that the parameters read are consistent with all the circuit lines and with the system components. Wiring / component intactness check.

TOPOLOGICAL

RH BANK ANTIEVAPORATION SOL. VALVE

- Incorrect pressure increase within the fuel tank.(Minor leakage) The error can be validated only while running the anti-evaporation test.

ERROR TYPE

Minor leakage

VERIFICATIONS

Checkout of possible losses within anti-evaporation circuit. Check of fuel pressure sensor. Check of solenoid valve cable.

TOPOLOGICAL

RH BANK ANTIEVAPORATION SOL. VALVE

FUEL LEVEL SENSOR (P0460)

- Calculated values inconsistent with information received via CAN line from the instrument panel or error message received from CAN

ERROR TYPE

Malfunction

VERIFICATIONS

Check of information or errors on the instrument panel / fuel level sensor

TOPOLOGICAL

[BOSCH MOTRONIC IGNITION-INJECTION ECU](#)

- Calculated values inconsistent with information received via CAN line from the instrument panel or error message received from CAN

ERROR TYPE

Value not plausible

VERIFICATIONS

Check of information or errors on the instrument panel / fuel level sensor

TOPOLOGICAL

[BOSCH MOTRONIC IGNITION-INJECTION ECU](#)

- Calculated values inconsistent with information received via CAN line from the instrument panel or error message received from CAN

ERROR TYPE

MINIMUM VALUE

VERIFICATIONS

Check of information or errors on the instrument panel / fuel level sensor

TOPOLOGICAL

[BOSCH MOTRONIC IGNITION-INJECTION ECU](#)

- Calculated values inconsistent with information received via CAN line from the instrument panel or error message received from CAN

ERROR TYPE

MAXIMUM VALUE

VERIFICATIONS

Check of information or errors on the instrument panel / fuel level sensor

TOPOLOGICAL

[BOSCH MOTRONIC IGNITION-INJECTION ECU](#)

- Malfunction found on the exhaust by-pass control solenoid valve

ERROR TYPE

SPORADIC CONTACT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

COMPENSATION SOLENOID VALVE FOR EXHAUST MANIFOLD

- Malfunction found on the exhaust by-pass control solenoid valve

ERROR TYPE

GND SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

COMPENSATION SOLENOID VALVE FOR EXHAUST MANIFOLD

- Malfunction found on the exhaust by-pass control solenoid valve

ERROR TYPE

VBATT SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

COMPENSATION SOLENOID VALVE FOR EXHAUST MANIFOLD

- An incorrect management of the engine water cooling fan has been detected

ERROR TYPE

Malfunction

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

[RH FAN RELAY](#)

- Vehicle speed data issued on the CAN line by the ABS/ASR system

ERROR TYPE

Value not plausible

VERIFICATIONS

Error check in the ABS/ASR system

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Vehicle speed data issued on the CAN line by the ABS/ASR system

ERROR TYPE

MINIMUM VALUE

VERIFICATIONS

Error check in the ABS/ASR system

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

BATTERY VOLTAGE (P0560)

- Battery voltage value inconsistent with the vehicle operating conditions (e.g. Battery voltage unsteady)

ERROR TYPE

Value not plausible

VERIFICATIONS

Main relay circuit check. Battery condition check. Alternator efficiency check.

TOPOLOGICAL

- Malfunction inside the microprocessor

ERROR TYPE

Malfunction

VERIFICATIONS

Internal error. Delete the errors and check the ECU for proper operation. If the error persists, replace the ECU.

TOPOLOGICAL

- Control wire discontinuous

ERROR TYPE

Malfunction

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

AIR CONDITIONING COMPRESSOR ELECTROMAGNET

- Relay control wire in short circuit to ground

ERROR TYPE

GND SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

AIR CONDITIONING COMPRESSOR ELECTROMAGNET

- Relay control wire cut-out or in short circuit to Vbatt

ERROR TYPE

VBATT OPEN CIRCUIT/SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

AIR CONDITIONING COMPRESSOR ELECTROMAGNET

- Engine rpm output wire discontinuous

ERROR TYPE

Malfunction

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Malfunction found on the modular manifold control solenoid valve

ERROR TYPE

SPORADIC CONTACT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

COMPENSATION SOLENOID VALVE FOR INTAKE MANIFOLD

- Malfunction found on the modular manifold control solenoid valve

ERROR TYPE

GND SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

COMPENSATION SOLENOID VALVE FOR INTAKE MANIFOLD

- Malfunction found on the modular manifold control solenoid valve

ERROR TYPE

VBATT SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

COMPENSATION SOLENOID VALVE FOR INTAKE MANIFOLD

- RH and LH front lambda sensor connections inverted

ERROR TYPE

INVERTED CONNECTION

VERIFICATIONS

Check the electric system connection on the component.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- RH and LH front lambda sensor connections inverted

ERROR TYPE

INVERTED CONNECTION

VERIFICATIONS

Check the electric system connection on the component.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Failure found on throttle safety spring during opening

ERROR TYPE

MINIMUM VALUE

VERIFICATIONS

Component intactness check

TOPOLOGICAL

LH MOTOR DRIVEN THROTTLE

- Failure found on throttle safety spring during opening

ERROR TYPE

MINIMUM VALUE

VERIFICATIONS

Component intactness check

TOPOLOGICAL

LH MOTOR DRIVEN THROTTLE

- Throttle position inconsistent with engine conditions: engine rpm and intake air quantity

ERROR TYPE

Value not plausible

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

LH MOTOR DRIVEN THROTTLE

- *The error occurred during a throttle actuation (through the accelerator pedal) as it does not recognize the minimum and maximum values stored during self-learning*
Conditions required to carry out a correct check- Battery Voltage

ERROR TYPE

MINIMUM VALUE

VERIFICATIONS

*Using the Tester, delete the throttle self-learning cycle. Run the self-learning procedure. Using the parameters, it checks the throttle for correct opening 0 - 100%.
Check of component intactness/electric wiring.*

TOPOLOGICAL

LH MOTOR DRIVEN THROTTLE

- Intake air charge sensor's input not plausible, anomalous conditions which may cause the ECU resetting

ERROR TYPE

Value not plausible

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Accelerator pedal position sensor's input not plausible, anomalous conditions which may cause the ECU resetting

ERROR TYPE

Value not plausible

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- The timing sensor signal is too advanced with respect to the engine rpm signal

ERROR TYPE

Maximum threshold exceeded

VERIFICATIONS

Indicator panel check. Tming variator check. Engine timing check.

TOPOLOGICAL

RH TIMING SENSOR

- Sporadic malfunction of the engine rpm signal

ERROR TYPE

Malfunction

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

RH REVOLUTIONS SENSOR

- Inconsistency detected on the engine rpm input, anomalous conditions which reset the ECU.

ERROR TYPE

Value not plausible

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Hardware defect (breakage) detected on the canister purge device

ERROR TYPE

MAXIMUM VALUE

VERIFICATIONS

Check of all system components (canister, tubes, solenoid valve etc.)

TOPOLOGICAL

CANISTER SOLENOID VALVE

- Hardware defect (breakage) detected on the canister purge device

ERROR TYPE

MINIMUM VALUE

VERIFICATIONS

Check of all system components (canister, tubes, solenoid valve etc.)

TOPOLOGICAL

CANISTER SOLENOID VALVE

- Hardware defect (breakage) detected on the canister purge device

ERROR TYPE

SPORADIC CONTACT

VERIFICATIONS

Check of all system components (canister, tubes, solenoid valve etc.)

TOPOLOGICAL

CANISTER SOLENOID VALVE

- Hardware defect (breakage) detected on the canister purge device

ERROR TYPE

Value not plausible

VERIFICATIONS

Check of all system components (canister, tubes, solenoid valve etc.)

TOPOLOGICAL

CANISTER SOLENOID VALVE

- Relay control wire for electric cooling fan 1 in short circuit

ERROR TYPE

VBATT SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

- Relay control wire for electric cooling fan 1 in short circuit

ERROR TYPE

GND SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

- Information coming from CAN line and issued by the F1 gearbox ECU

ERROR TYPE

Malfunction

VERIFICATIONS

Gearbox ECU error check.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Relay control wire for electric cooling fan 2 in short circuit

ERROR TYPE

VBATT SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

PUMP RELAY

- Fuel pump relay wire in short circuit

ERROR TYPE

GND SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

PUMP RELAY

- Fuel pump relay wire cut-out

ERROR TYPE

OPEN CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

PUMP RELAY

FUEL TANK EMPTY ERROR (P1556)

- Fuel tank empty condition not plausible

ERROR TYPE

Value not plausible

VERIFICATIONS

Check of information or errors on the instrument panel / fuel level sensor

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- The direct supply from the battery has reached the minimum value for the ECU operation

ERROR TYPE

MINIMUM VALUE

VERIFICATIONS

Battery intactness/wiring check.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Internal EEPROM faulty

ERROR TYPE

Value not plausible

VERIFICATIONS

The ECU is faulty.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Short circuit to Vbatt on the serial line K

ERROR TYPE

VBATT SHORT CIRCUIT

VERIFICATIONS

Wiring and system intactness check.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Short circuit to ground on the serial line K

ERROR TYPE

GND SHORT CIRCUIT

VERIFICATIONS

Wiring and system intactness check.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Serial line K wire cut out

ERROR TYPE

OPEN CIRCUIT

VERIFICATIONS

Wiring and system intactness check.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

INTERNAL ERROR ON RH-B CAN LINE (P1637)

- Failure on CAN line internal processor

ERROR TYPE

CRITICAL ERROR STILL PRESENT

VERIFICATIONS

The ECU is faulty.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Internal function checks inconsistent with engine running conditions

ERROR TYPE

Value not plausible

VERIFICATIONS

Internal error. Delete the errors and check the ECU for proper operation. If the error persists, replace the ECU.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Internal function checks inconsistent with engine running conditions

ERROR TYPE

Value not plausible

VERIFICATIONS

Internal error. Delete the errors and check the ECU for proper operation. If the error persists, replace the ECU.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Main relay control wire in short circuit

ERROR TYPE

VBATT SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Main relay control wire in short circuit

ERROR TYPE

GND SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Sporadic contact on main relay control wire

ERROR TYPE

Malfunction

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

BATTERY VOLTAGE FROM MAIN RELAY (P1694)

- Reference voltage input from main relay cut-out wire

ERROR TYPE

OPEN CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

BATTERY VOLTAGE FROM MAIN RELAY (P1695)

- Reference voltage input from main relay not steady

ERROR TYPE

Malfunction

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Probable false contact or toothed wheel gap, revolution sensor incorrect

ERROR TYPE

SPORADIC CONTACT

VERIFICATIONS

Check parameters using toothed wheel Diagnosis Check Tester (conformity and gap between sensor and toothed wheel). Check drive shaft and camshaft signals.

TOPOLOGICAL

RH REVOLUTIONS SENSOR

- Probable ground shortcircuit or toothed wheel gap, revolutions sensor incorrect

ERROR TYPE

MINIMUM VALUE

VERIFICATIONS

Check parameters using toothed wheel Diagnosis Check Tester (conformity and gap between sensor and toothed wheel). Check drive shaft and camshaft signals.

TOPOLOGICAL

RH REVOLUTIONS SENSOR

- Probable ground shortcircuit or toothed wheel gap, revolutions sensor incorrect

ERROR TYPE

MAXIMUM VALUE

VERIFICATIONS

Check parameters using toothed wheel Diagnosis Check Tester (conformity and gap between sensor and toothed wheel). Check drive shaft and camshaft signals.

TOPOLOGICAL

RH REVOLUTIONS SENSOR

- Incorrect fuel self-learning, fuel percentage lower than optimal value

ERROR TYPE

Lean fuel value

VERIFICATIONS

Check all the devices relating to carburation/combustion (sensors, air-flow meter, spark plug injectors, coils), all the mechanical parts relating to emissions (engine timing, valve seal, exhaust manifolds etc.)

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Incorrect fuel self-learning, fuel percentage greater than optimal value

ERROR TYPE

Rich fuel value

VERIFICATIONS

Check all the devices relating to carburation/combustion (sensors, air-flow meter, spark plug injectors, coils), all the mechanical parts relating to emissions (engine timing, valve seal, exhaust manifolds etc.)

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Incorrect fuel self-learning, air percentage injected too high

ERROR TYPE

Lean fuel value

VERIFICATIONS

Check all the devices relating to carburation/combustion (sensors, air-flow meter, spark plug injectors, coils), all the mechanical parts relating to emissions (engine timing, valve seal, exhaust manifolds etc.)

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Incorrect fuel self-learning, air percentage injected too low

ERROR TYPE

Rich fuel value

VERIFICATIONS

Check all the devices relating to carburation/combustion (sensors, air-flow meter, spark plug injectors, coils), all the mechanical parts relating to emissions (engine timing, valve seal, exhaust manifolds etc.)

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Incorrect fuel self-learning, fuel percentage lower than optimal value

ERROR TYPE

Lean fuel value

VERIFICATIONS

Check all the devices relating to carburation/combustion (sensors, air-flow meter, spark plug injectors, coils), all the mechanical parts relating to emissions (engine timing, valve seal, exhaust manifolds etc.)

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Incorrect fuel self-learning, fuel percentage greater than optimal value

ERROR TYPE

Rich fuel value

VERIFICATIONS

Check all the devices relating to carburation/combustion (sensors, air-flow meter, spark plug injectors, coils), all the mechanical parts relating to emissions (engine timing, valve seal, exhaust manifolds etc.)

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- During the opening check, a failure was found on the safety spring

ERROR TYPE

MINIMUM VALUE

VERIFICATIONS

Component intactness check

TOPOLOGICAL

RH MOTOR DRIVEN THROTTLE

- During the opening check, a failure was found on the safety spring

ERROR TYPE

MINIMUM VALUE

VERIFICATIONS

Component intactness check

TOPOLOGICAL

RH MOTOR DRIVEN THROTTLE

- The error occurred during a throttle actuation (through the accelerator pedal) as it does not recognize the minimum and maximum values stored during self-learning. Conditions required to carry out a correct check- Battery Voltage

ERROR TYPE

MINIMUM VALUE

VERIFICATIONS

Using the Tester, delete the throttle self-learning cycle. Run the self-learning procedure. Using the parameters, it checks the throttle for correct opening 0 - 100%. Check of component intactness/electric wiring.

TOPOLOGICAL

RH MOTOR DRIVEN THROTTLE

- Cylinder filling time/quantity calculation error

ERROR TYPE

Value not plausible

VERIFICATIONS

Internal error. Delete the errors and check the ECU for proper operation. If the error persists, replace the ECU.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Plausibility error found during throttle position self-learning cycle

ERROR TYPE

Value not plausible

VERIFICATIONS

Using the Tester, delete the throttle self-learning cycle. Run the self-learning procedure. Using the parameters, it checks the throttle for correct opening 0 - 100%. Check of component intactness/electric wiring.

TOPOLOGICAL

LH MOTOR DRIVEN THROTTLE

- An error was found on the safety spring in the opening stage, during the throttle actuation check

ERROR TYPE

MAXIMUM VALUE

VERIFICATIONS

Using the Tester, delete the throttle self-learning cycle. Run the self-learning procedure. Using the parameters, it checks the throttle for correct opening 0 - 100%. Check of component intactness/electric wiring.

TOPOLOGICAL

LH MOTOR DRIVEN THROTTLE

- An error was found on the safety spring in the closing stage, during the throttle actuation check

ERROR TYPE

MAXIMUM VALUE

VERIFICATIONS

Using the Tester, delete the throttle self-learning cycle. Run the self-learning procedure. Using the parameters, it checks the throttle for correct opening 0 - 100%. Check of component intactness/electric wiring.

TOPOLOGICAL

LH MOTOR DRIVEN THROTTLE

- The throttle self-learning was not successful

ERROR TYPE

OUT OF RANGE

VERIFICATIONS

Using the Tester, delete the throttle self-learning cycle. Run the self-learning procedure. Using the parameters, it checks the throttle for correct opening 0 - 100%. Check of component intactness/electric wiring.

TOPOLOGICAL

LH MOTOR DRIVEN THROTTLE

- Error during throttle self-learning initialization

ERROR TYPE

OUT OF RANGE

VERIFICATIONS

Using the Tester, delete the throttle self-learning cycle. Run the self-learning procedure. Using the parameters, it checks the throttle for correct opening 0 - 100%. Check of component intactness/electric wiring.

TOPOLOGICAL

LH MOTOR DRIVEN THROTTLE

- Position signal amplifier.

ERROR TYPE

Value not plausible

VERIFICATIONS

Using the Tester, delete the throttle self-learning cycle. Run the self-learning procedure. Using the parameters, it checks the throttle for correct opening 0 - 100%. Check of component intactness/electric wiring.

TOPOLOGICAL

LH MOTOR DRIVEN THROTTLE

- Fault of power stage controlling throttle motor

ERROR TYPE

Value not plausible

VERIFICATIONS

Using the diagnosis Tester, check that the throttle opening parameters are correct (0 - 100%) . Check the component intactness /electric wiring.

TOPOLOGICAL

LH MOTOR DRIVEN THROTTLE

- The throttle position does not correspond with the position requested by the accelerator pedal

ERROR TYPE

Value not plausible

VERIFICATIONS

Using the Tester, delete the throttle self-learning cycle. Run the self-learning procedure. Using the parameters, it checks the throttle for correct opening 0 - 100%. Check of component intactness/electric wiring.

TOPOLOGICAL

LH MOTOR DRIVEN THROTTLE

- Throttle position value out of admitted range

ERROR TYPE

OUT OF RANGE

VERIFICATIONS

Using the Tester, delete the throttle self-learning cycle. Run the self-learning procedure. Using the parameters, it checks the throttle for correct opening 0 - 100%. Check of component intactness/electric wiring.

TOPOLOGICAL

RH MOTOR DRIVEN THROTTLE

- Throttle potentiometer 1 voltage high, out of acceptable range. Possible short circuit to + Vbatt on one of the output signals

ERROR TYPE

OUT OF RANGE OR SHORT CIRCUIT TO VBATT.

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

LH MOTOR DRIVEN THROTTLE

- Throttle potentiometer 1 voltage high, out of acceptable range. Possible short circuit to + Vbatt on one of the output signals

ERROR TYPE

OUT OF RANGE OR SHORT CIRCUIT TO GROUND

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

LH MOTOR DRIVEN THROTTLE

- Throttle potentiometer 1 voltage inconsistent with the requested position

ERROR TYPE

Value not plausible

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

[LH MOTOR DRIVEN THROTTLE](#)

- Throttle potentiometer 2 voltage high, out of acceptable range. Possible short circuit to + Vbatt on one of the output signals

ERROR TYPE

OUT OF RANGE OR SHORT CIRCUIT TO VBATT.

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

LH MOTOR DRIVEN THROTTLE

- Throttle potentiometer 2 voltage high, out of acceptable range. Possible short circuit to ground on one of the output signals

ERROR TYPE

OUT OF RANGE OR SHORT CIRCUIT TO GROUND

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

LH MOTOR DRIVEN THROTTLE

- Throttle potentiometer 2 voltage inconsistent with the requested position

ERROR TYPE

Value not plausible

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

[LH MOTOR DRIVEN THROTTLE](#)

- Initial check procedure interrupted. Check the fault conditions that do not enable the initial test upon Key On

ERROR TYPE

CHECK PROCEDURE INTERRUPTED

VERIFICATIONS

Using the Tester, delete the throttle self-learning cycle. Run the self-learning procedure. Using the parameters, it checks the throttle for correct opening 0 - 100%. Check of component intactness/electric wiring.

TOPOLOGICAL

LH MOTOR DRIVEN THROTTLE

- Throttle position values during self-learning out of range

ERROR TYPE

OUT OF RANGE

VERIFICATIONS

Using the Tester, delete the throttle self-learning cycle. Run the self-learning procedure. Using the parameters, it checks the throttle for correct opening 0 - 100%. Check of component intactness/electric wiring.

TOPOLOGICAL

LH MOTOR DRIVEN THROTTLE

- Safety monitoring function for fuel cut-out ECU reset anomalous conditions

ERROR TYPE

Fault

VERIFICATIONS

Internal error. Delete the errors and check the ECU for proper operation. If the error persists, replace the ECU.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Torque ratio monitoring function. ECU reset anomalous conditions

ERROR TYPE

Fault

VERIFICATIONS

Internal error. Delete the errors and check the ECU for proper operation. If the error persists, replace the ECU.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Possible short circuit in the Lambda sensor heating cable

ERROR TYPE

SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

REAR LAMBDA SENSOR

- Possible short circuit to ground on the Lambda sensor heating cable

ERROR TYPE

GND SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

REAR LAMBDA SENSOR

- Possible short circuit to + Vbatt on the Lambda sensor heating cable

ERROR TYPE

VBATT SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

REAR LAMBDA SENSOR

- Possible short circuit in the Lambda sensor heating cable

ERROR TYPE

SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

FRONT OXYGEN SENSOR 2

- Possible short circuit to ground on the Lambda sensor heating cable

ERROR TYPE

GND SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

FRONT OXYGEN SENSOR 2

- Possible short circuit to + Vbatt on the Lambda sensor heating cable

ERROR TYPE

VBATT SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

FRONT OXYGEN SENSOR 2

- Malfunction in the Lambda sensor heating circuit.

ERROR TYPE

Value not plausible

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

FRONT OXYGEN SENSOR 2

- Possible short circuit in the Lambda sensor heating cable

ERROR TYPE

SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

FRONT OXYGEN SENSOR 1

- Possible short circuit to ground on the Lambda sensor heating cable

ERROR TYPE

GND SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

FRONT OXYGEN SENSOR 1

- Possible short circuit to + Vbatt on the Lambda sensor heating cable

ERROR TYPE

VBATT SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

FRONT OXYGEN SENSOR 1

- Malfunction in the Lambda sensor heating circuit.

ERROR TYPE

Value not plausible

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

FRONT OXYGEN SENSOR 1

- Low value response, possible short circuit to ground on the sensor heating cable

ERROR TYPE

VALUE TOO LOW

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

FRONT OXYGEN SENSOR 2

- Low value response, possible short circuit to ground on the sensor heating cable

ERROR TYPE

VALUE TOO LOW

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

FRONT OXYGEN SENSOR 1

- Incorrect Lambda sensor oscillation (slow)

ERROR TYPE

Slow response

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

[BACK OXYGEN SENSOR 2](#)

- Incorrect Lambda sensor oscillation (slow)

ERROR TYPE

Slow response

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

REAR LAMBDA SENSOR

- Incorrect Lambda sensor oscillation (slow)

ERROR TYPE

Slow response

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- The sensor has reached the maximum value (possible sensor locking)

ERROR TYPE

MAXIMUM VALUE

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

FRONT OXYGEN SENSOR 1

- Torque limiter activation due to maximum value exceeded

ERROR TYPE

MAXIMUM VALUE

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- The torque value issued by the RH bank is not compatible with that for the LH bank

ERROR TYPE

Value not plausible

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Check of the detonation sensor input signal, values inconsistent with the engine conditions

ERROR TYPE

Value not plausible

VERIFICATIONS

Check of correct sensor installation and tightening torque (see manual). Check component intactness.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Main relay control wire in short circuit

ERROR TYPE

GND SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

PUMP RELAY

- Main relay control wire in short circuit

ERROR TYPE

VBATT SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

PUMP RELAY

- Main relay control wire in short circuit

ERROR TYPE

OPEN CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

PUMP RELAY

- Idling condition detected beyond the maximum acceptable threshold (e.g. too high engine rpm with accelerator pedal released)

ERROR TYPE

Maximum threshold exceeded

VERIFICATIONS

With the engine idling, check that the motor driven throttle value is 1.5 - 3% when it operates at a steady speed. With the engine idling, check that the air flow value is 18 - 25 Kg/h when operating at a steady speed. With the engine idling, check that the rpm rate is 1060 +/-40.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Idling condition detected beyond the minimum acceptable threshold (e.g. too low engine rpm with accelerator pedal released)

ERROR TYPE

MINIMUM VALUE

VERIFICATIONS

With the engine idling, check that the motor driven throttle value is 1.5 - 3% when it operates at a steady speed. With the engine idling, check that the air flow value is 18 - 25 Kg/h when operating at a steady speed. With the engine idling, check that the rpm rate is 1060 +/-40.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Vehicle speed data issued on the CAN line by the ABS/ASR system

ERROR TYPE

Value not plausible

VERIFICATIONS

Check the ABS/ASR ECU functioning /errors. Check the CAN line wiring

TOPOLOGICAL

[BOSCH MOTRONIC IGNITION-INJECTION ECU](#)

- Vehicle speed data issued on the CAN line by the ABS/ASR system

ERROR TYPE

Value not plausible

VERIFICATIONS

Check the ABS/ASR ECU functioning /errors. Check the CAN line wiring

TOPOLOGICAL

[BOSCH MOTRONIC IGNITION-INJECTION ECU](#)

- Vehicle speed data issued on the CAN line by the ABS/ASR system

ERROR TYPE

Value not plausible

VERIFICATIONS

Check the ABS/ASR ECU functioning /errors. Check the CAN line wiring

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

CLUTCH SWITCH (P1542)

- Defect found on the clutch position sensor. Position values inconsistent (or no signal) with the vehicle working conditions.

ERROR TYPE

Malfunction

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

CLUTCH PEDAL SWITCH

- Message coming from the F1 gearbox system in case of serious failure with low speeds of the vehicle (safety)

ERROR TYPE

CRITICAL ERROR STILL PRESENT

VERIFICATIONS

Check if the gearbox system has serious failures that may activate the ECU recovery (e.g. clutch failure).

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- No CAN messages were read by the ABS system within the established time

ERROR TYPE

Malfunction

VERIFICATIONS

Error check in the ABS/ASR system

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- No CAN messages were read by the F1Gearbox system within the established time

ERROR TYPE

Malfunction

VERIFICATIONS

Electronically-controlled gearbox system check

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Wrong bank configuration (defined as RH or LH)

ERROR TYPE

Value not plausible

VERIFICATIONS

Wiring and system intactness check.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Wrong Can communication between the two banks

ERROR TYPE

Malfunction

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- CAN messages between the two banks not timed

ERROR TYPE

Value not plausible

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- ECU internal reset

ERROR TYPE

CRITICAL ERROR STILL PRESENT

VERIFICATIONS

Internal error. Delete the errors and check the ECU for proper operation. If the error persists, replace the ECU.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- No CAN messages were read by the instrument panel within the established time

ERROR TYPE

Malfunction

VERIFICATIONS

Instrument panel check.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Check of the detonation sensor input signal, values inconsistent with the engine conditions

ERROR TYPE

Value not plausible

VERIFICATIONS

Check of correct sensor installation and tightening torque (see manual). Check component intactness.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Check of the detonation sensor input signal, values inconsistent with the engine conditions

ERROR TYPE

Value not plausible

VERIFICATIONS

Check of correct sensor installation and tightening torque (see manual). Check component intactness.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Solenoid valve malfunction detected. The error can be validated only while running the anti-evaporation test."

ERROR TYPE

VBATT SHORT CIRCUIT

VERIFICATIONS

Checkout of possible losses within anti-evaporation circuit. Check of fuel pressure sensor. Check of solenoid valve cable.

TOPOLOGICAL

CANISTER SOLENOID VALVE

ROADBED SENSOR (P1610)

- Open circuit detected on the roadbed sensor input.

ERROR TYPE

OPEN CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- The supply voltage is below the minimum permitted level.

ERROR TYPE

VALUE TOO LOW

VERIFICATIONS

Check the battery charge status and voltage. Check the connection between the ECU, the GND pin and the VBAT pin. Check the vehicle no-load absorption.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

ROADBED SENSOR (P1619)

- High value read on the roadbed sensor input. Possible S.C. to +VBATT

ERROR TYPE

VBATT SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Probable false contact. A temporary lack of signal was detected.

ERROR TYPE

SPORADIC CONTACT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

[BACK OXYGEN SENSOR 1](#)

FRONT LAMBDA SENSOR (P0152)

- Maximum value reached. Possible O.C. or S.C. to Vbatt. Check the Lambda sensor heating in the active diagnosis mode. Check that the resistance value between pin 3 and pin 4 on the connector is equal to 3,2 Ohm The maximum value reached error

ERROR TYPE

Voltage value high

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

FRONT OXYGEN SENSOR 1

- The lambda sensor does not oscillate properly during adjustment. This may be due to an aged sensor or to external interference factors (combustion): injectors, coils, air intakes etc.

ERROR TYPE

Value not plausible

VERIFICATIONS

Component intactness check

TOPOLOGICAL

REAR LAMBDA SENSOR

- Adjustment voltage value high

ERROR TYPE

VBATT SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

REAR LAMBDA SENSOR

LH REAR LAMBDA SENSOR (P0159)

- The lambda sensor does not oscillate properly during adjustment. This may be due to an aged sensor or to external interference factors (combustion): injectors, coils, air intakes etc.

ERROR TYPE

Slow response

VERIFICATIONS

Component intactness check

TOPOLOGICAL

REAR LAMBDA SENSOR

- No operation detected by the sensor. Possible ageing / damaging

ERROR TYPE

NO OPERATIONS

VERIFICATIONS

Component intactness check

TOPOLOGICAL

REAR LAMBDA SENSOR

- Minimum value reached, probable S.C. to ground

ERROR TYPE

MINIMUM VALUE

VERIFICATIONS

Check of correct sensor installation and tightening torque (see manual). Check component intactness.

TOPOLOGICAL

CYLINDERS 10/12 DETONATION SENSOR

- Minimum value reached, probable S.C. to ground

ERROR TYPE

MINIMUM VALUE

VERIFICATIONS

Check of correct sensor installation and tightening torque (see manual). Check component intactness.

TOPOLOGICAL

CYLINDERS 7/9 DETONATION SENSOR

- Maximum value reached, probable S.C. to Vbatt

ERROR TYPE

MAXIMUM VALUE

VERIFICATIONS

Check of correct sensor installation and tightening torque (see manual). Check component intactness.

TOPOLOGICAL

CYLINDERS 7/9 DETONATION SENSOR

- Maximum value reached, probable S.C. to Vbatt

ERROR TYPE

MAXIMUM VALUE

VERIFICATIONS

Check of correct sensor installation and tightening torque (see manual). Check component intactness.

TOPOLOGICAL

CYLINDERS 10/12 DETONATION SENSOR

- Air flow inlet not correct

ERROR TYPE

MINIMUM VALUE

VERIFICATIONS

Check the additional air circuit. Check the wiring/component intactness.

TOPOLOGICAL

RH BANK: SECONDARY AIR SOLENOID VALVE

- Insufficient oxygen. The error can be validated only during the air pump operation. If this condition is associated to another error on the secondary air solenoid valve, check the efficiency of the entire system.

ERROR TYPE

MINIMUM VALUE

VERIFICATIONS

Check of pump/air flow working condition using the diagnosis. Air circuit efficiency check (partial blocking of the tubes or valves). Pump's electrical wiring check.

TOPOLOGICAL

RH BANK: SECONDARY AIR SOLENOID VALVE

- Air flow inlet not correct

ERROR TYPE

MINIMUM VALUE

VERIFICATIONS

Check the additional air circuit. Check the wiring/component intactness.

TOPOLOGICAL

RH BANK: SECONDARY AIR SOLENOID VALVE

- Catalytic converter temperature check: protection active (max)Caused by an excessive temperature value on the catalytic converter.

ERROR TYPE

Activation triggered

VERIFICATIONS

Check of fuel level in the tank. Thermocouple operation check. Check HC CO emissions. Using the active diagnosis, check that the injectors are functioning. Injector wiring check. Ignition coil wiring check.

TOPOLOGICAL

ECU FOR LH BANK CATALYTIC CONVERTER CONTROL

- Possible false contact on the fuel level sensor cable

ERROR TYPE

Malfunction

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Possible false contact on the fuel level sensor or value inconsistent with the calculations made

ERROR TYPE

Value not plausible

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Possible short circuit to ground on the fuel level sensor or minimum value beyond threshold.

ERROR TYPE

GND SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Possible short circuit to + Vbatt on the fuel level sensor cable or minimum value beyond threshold

ERROR TYPE

VBATT SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Air bleeding detected with solenoid valve closed

ERROR TYPE

Leakage

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

RH BANK: SECONDARY AIR SOLENOID VALVE

- The signal inconsistency error can also be caused by a malfunction of one of the following components - injector and relative wiring, - coil and relative wiring, - exhaust intake valve bleeding - engine time, Notes:

ERROR TYPE

Value not plausible

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

LH MOTOR DRIVEN THROTTLE

- Calculated ambient pressure value at the maximum threshold. The air-flow meter may be damaged or show inconsistent values

ERROR TYPE

MAXIMUM VALUE

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

REVOLUTIONS SENSOR

- Calculated ambient pressure value at the minimum threshold. The air-flow meter may be damaged or show inconsistent values

ERROR TYPE

C.C. to ground or minimum value reached

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

REVOLUTIONS SENSOR

- Invalid environment pressure value. The air-flow meter may be damaged or show inconsistent values

ERROR TYPE

Value not plausible

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

REVOLUTIONS SENSOR

- Heating circuit malfunction

ERROR TYPE

NO SIGNAL

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

FRONT OXYGEN SENSOR 1

- Heating circuit malfunction

ERROR TYPE

GND SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

FRONT OXYGEN SENSOR 1

- Heating circuit malfunction

ERROR TYPE

VBATT SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

FRONT OXYGEN SENSOR 1

- Heating circuit malfunction

ERROR TYPE

NO SIGNAL

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

REAR LAMBDA SENSOR

- Heating circuit malfunction

ERROR TYPE

GND SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

REAR LAMBDA SENSOR

- Heating circuit malfunction

ERROR TYPE

VBATT SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

REAR LAMBDA SENSOR

- The lambda sensor does not oscillate properly during adjustment. This may be due to an aged sensor or to external interference factors (combustion): injectors, coils, air intakes etc.

ERROR TYPE

Slow response

VERIFICATIONS

Component intactness check

TOPOLOGICAL

[BACK OXYGEN SENSOR 1](#)

- The lambda sensor does not oscillate properly during adjustment. This may be due to an aged sensor or to external interference factors (combustion): injectors, coils, air intakes etc.

ERROR TYPE

Value not plausible

VERIFICATIONS

Component intactness check

TOPOLOGICAL

[BACK OXYGEN SENSOR 1](#)

- Adjustment voltage value low

ERROR TYPE

GND SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

REAR LAMBDA SENSOR

LH REAR LAMBDA SENSOR (P0161)

- The lambda sensor does not oscillate properly during adjustment. This may be due to an aged sensor or to external interference factors (combustion): injectors, coils, air intakes etc.

ERROR TYPE

Value not plausible

VERIFICATIONS

Component intactness check

TOPOLOGICAL

REAR LAMBDA SENSOR

- Fuel self-learning incorrect, check: all the devices relating to carburation / combustion (sensors, air flow meter, spark plug injectors, coils), all mechanical parts relating to emissions (engine timing, valve seal, exhaust manifolds etc.

ERROR TYPE

Value not plausible

VERIFICATIONS

Check all the devices relating to carburation/combustion (sensors, air-flow meter, spark plug injectors, coils), all the mechanical parts relating to emissions (engine timing, valve seal, exhaust manifolds etc.)

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Fuel self-learning incorrect, check: all the devices relating to carburation / combustion (sensors, air flow meter, spark plug injectors, coils), all mechanical parts relating to emissions (engine timing, valve seal, exhaust manifolds etc.

ERROR TYPE

Lean fuel value

VERIFICATIONS

Check all the devices relating to carburation/combustion (sensors, air-flow meter, spark plug injectors, coils), all the mechanical parts relating to emissions (engine timing, valve seal, exhaust manifolds etc.)

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Fuel self-learning incorrect, check: all the devices relating to carburation / combustion (sensors, air flow meter, spark plug injectors, coils), all mechanical parts relating to emissions (engine timing, valve seal, exhaust manifolds etc.

ERROR TYPE

Rich fuel value

VERIFICATIONS

Check all the devices relating to carburation/combustion (sensors, air-flow meter, spark plug injectors, coils), all the mechanical parts relating to emissions (engine timing, valve seal, exhaust manifolds etc.)

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Lack of timing sensor signal detected

ERROR TYPE

OPEN CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

RH TIMING SENSOR

- Signal inconsistent conditions

ERROR TYPE

Value not plausible

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

RH TIMING SENSOR

- Signal value low, below threshold

ERROR TYPE

GND SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

RH TIMING SENSOR

- Signal value high, above threshold

ERROR TYPE

VBATT SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

RH TIMING SENSOR

- Sporadic malfunction of the engine rpm signal

ERROR TYPE

Malfunction

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

RH REVOLUTIONS SENSOR

- Sporadic malfunction of the engine rpm signal

ERROR TYPE

Value not plausible

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

RH REVOLUTIONS SENSOR

- Sporadic malfunction of the engine rpm signal

ERROR TYPE

GND SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

[RH REVOLUTIONS SENSOR](#)

- Sporadic malfunction of the engine rpm signal

ERROR TYPE

VBATT SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

[RH REVOLUTIONS SENSOR](#)

- An insufficient temperature for optimizing the catalytic converter operation has been detected

ERROR TYPE

Minimum threshold exceeded

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

ECU FOR LH BANK CATALYTIC CONVERTER CONTROL

- Catalytic convertor temperature signal inconsistent with the vehicle driving conditions (e.g. engine running time and temp. H2O>90 °C)

ERROR TYPE

SPORADIC CONTACT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

ECU FOR LH BANK CATALYTIC CONVERTER CONTROL

- Temperature value below minimum threshold with vehicle in steady running conditions

ERROR TYPE

C.C. to ground or minimum value reached

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

ECU FOR LH BANK CATALYTIC CONVERTER CONTROL

- Temperature value above maximum threshold with vehicle in steady running conditions, check that the catalytic converter has not actually overheated

ERROR TYPE

C.C. to VBATT or maximum value

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

ECU FOR LH BANK CATALYTIC CONVERTER CONTROL

- Malfunction detected on the rear lambda sensor circuit. Possible false contact

ERROR TYPE

SPORADIC CONTACT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

BACK OXYGEN SENSOR 2

- Malfunction detected on the rear lambda sensor circuit. Possible short circuit to ground

ERROR TYPE

GND SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

BACK OXYGEN SENSOR 2

- Malfunction detected on the rear lambda sensor circuit. Possible short circuit to V batt

ERROR TYPE

VBATT SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

BACK OXYGEN SENSOR 2

- No probe oscillations detected

ERROR TYPE

NO SIGNAL

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

BACK OXYGEN SENSOR 2

- Malfunction detected on the rear lambda sensor circuit. Possible false contact

ERROR TYPE

SPORADIC CONTACT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

REAR LAMBDA SENSOR

- Malfunction detected on the rear lambda sensor circuit. Possible short circuit to ground

ERROR TYPE

GND SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

REAR LAMBDA SENSOR

- Malfunction detected on the rear lambda sensor circuit. Possible short circuit to V batt

ERROR TYPE

VBATT SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

REAR LAMBDA SENSOR

- No probe oscillations detected

ERROR TYPE

NO SIGNAL

VERIFICATIONS

Component intactness check

TOPOLOGICAL

REAR LAMBDA SENSOR

- Maximum value offset condition read by the sensor, very rich mixture

ERROR TYPE

OUT OF RANGE

VERIFICATIONS

Fuel pressure check. Check any non-complying exhaust gas emissions (engine running at steady speed with sensors disconnected HC<250ppm CO<1,1%) (see service manual). Check the injector working condition in the diagnosis mode. Check the ignition coils for proper operation. Check the spark plugs status. Check the lambda sensors working condition.

TOPOLOGICAL

FRONT OXYGEN SENSOR 2

- Oscillation delay found with respect to the correction request. Minimum value

ERROR TYPE

Slow response

VERIFICATIONS

Fuel pressure check. Check any non-complying exhaust gas emissions (engine running at steady speed with sensors disconnected HC<250ppm CO<1,1%) (see service manual). Check the injector working condition in the diagnosis mode. Check the ignition coils for proper operation. Check the spark plugs status. Check the lambda sensors working condition.

TOPOLOGICAL

FRONT OXYGEN SENSOR 2

- Maximum value offset condition read by the sensor, very rich mixture

ERROR TYPE

OUT OF RANGE

VERIFICATIONS

Fuel pressure check. Check any non-complying exhaust gas emissions (engine running at steady speed with sensors disconnected HC<250ppm CO<1,1%) (see service manual). Check the injector working condition in the diagnosis mode. Check the ignition coils for proper operation. Check the spark plugs status. Check the lambda sensors working condition.

TOPOLOGICAL

FRONT OXYGEN SENSOR 1

- Oscillation delay found with respect to the correction request. Minimum value

ERROR TYPE

Slow response

VERIFICATIONS

Fuel pressure check. Check any non-complying exhaust gas emissions (engine running at steady speed with sensors disconnected HC<250ppm CO<1,1%) (see service manual). Check the injector working condition in the diagnosis mode. Check the ignition coils for proper operation. Check the spark plugs status. Check the lambda sensors working condition.

TOPOLOGICAL

FRONT OXYGEN SENSOR 1

- RH and LH front lambda sensor connections inverted

ERROR TYPE

INVERTED CONNECTION

VERIFICATIONS

Check the Lambda sensors operation using the Diagnosis Tester.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- RH and LH front lambda sensor connections inverted

ERROR TYPE

INVERTED CONNECTION

VERIFICATIONS

Check the Lambda sensors operation using the Diagnosis Tester.

TOPOLOGICAL

BOSCH IGNITION-INJECTION ECU

- Sensor malfunction detected, possible false contact

ERROR TYPE

Malfunction

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

FRONT OXYGEN SENSOR 2

- Sensor malfunction detected, possible short circuit to +Vbatt

ERROR TYPE

VBATT SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

FRONT OXYGEN SENSOR 2

- Sensor malfunction detected, possible false contact

ERROR TYPE

Malfunction

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

FRONT OXYGEN SENSOR 1

- Sensor malfunction detected, possible short circuit to +Vbatt

ERROR TYPE

VBATT SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

FRONT OXYGEN SENSOR 1

- Plausibility error detected on the intake air quantity read.

ERROR TYPE

Value not plausible

VERIFICATIONS

Engine operation check (check all the components that may "unbalance" the engine if malfunctioning). Wiring / component intactness check.

TOPOLOGICAL

AIR-FLOW METER

- Minimum value reached, probable S.C. to ground

ERROR TYPE

C.C. to ground or minimum value reached

VERIFICATIONS

Engine operation check (check all the components that may "unbalance" the engine if malfunctioning). Wiring / component intactness check.

TOPOLOGICAL

AIR-FLOW METER

- Maximum value reached, probable S.C. to Vbatt

ERROR TYPE

C.C. to VBATT or maximum value

VERIFICATIONS

Engine operation check (check all the components that may "unbalance" the engine if malfunctioning). Wiring / component intactness check.

TOPOLOGICAL

AIR-FLOW METER

- Malfunction detected on the air temperature sensor incorporated in the air-flow meter, possible false contact

ERROR TYPE

Malfunction

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

AIR-FLOW METER

- Air temperature value not plausible, on the basis of the weather conditions, engine temperature, intake air quantity

ERROR TYPE

Value not plausible

VERIFICATIONS

Check of the temperature values plausibility between one bank and the other. Check of the wiring and component intactness.

TOPOLOGICAL

AIR-FLOW METER

- Minimum value reached, probable S.C. to ground

ERROR TYPE

C.C. to ground or minimum value reached

VERIFICATIONS

Compare the temperature value read by the system using an outside sensor. From the parameter page, check the air flow between the LH and RH banks: the difference must not exceed 5kg/h. Wiring / component intactness check.

TOPOLOGICAL

AIR-FLOW METER

- Maximum value reached, probable S.C. to Vbatt

ERROR TYPE

C.C. to VBATT or maximum value

VERIFICATIONS

Compare the temperature value read by the system using an outside sensor. From the parameter page, check the air flow between the LH and RH banks: the difference must not exceed 5kg/h. Wiring / component intactness check.

TOPOLOGICAL

AIR-FLOW METER

- Incorrect fuel self-learning, fuel percentage greater than optimal value

ERROR TYPE

Rich fuel value

VERIFICATIONS

Check all the devices relating to carburation/combustion (sensors, air-flow meter, spark plug injectors, coils), all the mechanical parts relating to emissions (engine timing, valve seal, exhaust manifolds etc.)

TOPOLOGICAL

BOSCH IGNITION-INJECTION ECU

- Incorrect fuel self-learning, fuel percentage lower than optimal value

ERROR TYPE

Lean fuel value

VERIFICATIONS

Check all the devices relating to carburation/combustion (sensors, air-flow meter, spark plug injectors, coils), all the mechanical parts relating to emissions (engine timing, valve seal, exhaust manifolds etc.)

TOPOLOGICAL

BOSCH IGNITION-INJECTION ECU

- Incorrect fuel self-learning, fuel percentage greater than optimal value

ERROR TYPE

Rich fuel value

VERIFICATIONS

Check all the devices relating to carburation/combustion (sensors, air-flow meter, spark plug injectors, coils), all the mechanical parts relating to emissions (engine timing, valve seal, exhaust manifolds etc.)

TOPOLOGICAL

BOSCH IGNITION-INJECTION ECU

- Incorrect fuel self-learning, fuel percentage lower than optimal value

ERROR TYPE

Lean fuel value

VERIFICATIONS

Check all the devices relating to carburation/combustion (sensors, air-flow meter, spark plug injectors, coils), all the mechanical parts relating to emissions (engine timing, valve seal, exhaust manifolds etc.)

TOPOLOGICAL

BOSCH IGNITION-INJECTION ECU

- The two potentiometer values are inconsistent. Carry out a throttle self-learning cycle

ERROR TYPE

Value not plausible

VERIFICATIONS

Using the diagnosis Tester, check that the throttle opening parameters are correct (0 - 100%) . Check the component intactness /electric wiring.

TOPOLOGICAL

LH MOTOR DRIVEN THROTTLE

- Intake air temperature from the engine inconsistent with the operating conditions of the sensor incorporated in the air-flow meter. Reference parameters for error validation: intake air quantity, throttle position, engine rpm.

ERROR TYPE

Value not plausible

VERIFICATIONS

Check of the temperature values plausibility between one bank and the other. Check of the wiring and component intactness.

TOPOLOGICAL

AIR-FLOW METER

- Incorrect fuel self-learning, air percentage injected too low

ERROR TYPE

Rich fuel value

VERIFICATIONS

Delete the values self-learned by the ECU. Check of the additional air circuit connections. Check the fuel pressure. Check whether the exhaust gas emissions are within the accepted limits. (engine at steady rpm with sensors disconnected HC<250ppm CO<1,1%) (see manual)

TOPOLOGICAL

BOSCH IGNITION-INJECTION ECU

- High self-learned value for injected air quantity. The ECU detects an injected air ratio above the basic values.

ERROR TYPE

Lean fuel value

VERIFICATIONS

Delete the values self-learned by the ECU. Check of the additional air circuit connections. Check the fuel pressure. Check whether the exhaust gas emissions are within the accepted limits. (engine at steady rpm with sensors disconnected HC<250ppm CO<1,1%) (see manual)

TOPOLOGICAL

BOSCH IGNITION-INJECTION ECU

- Incorrect fuel self-learning, air percentage injected too low

ERROR TYPE

Rich fuel value

VERIFICATIONS

Delete the values self-learned by the ECU. Check of the additional air circuit connections. Check the fuel pressure. Check whether the exhaust gas emissions are within the accepted limits. (engine at steady rpm with sensors disconnected HC<250ppm CO<1,1%) (see manual)

TOPOLOGICAL

BOSCH IGNITION-INJECTION ECU

- Incorrect fuel self-learning, air percentage injected too high

ERROR TYPE

Lean fuel value

VERIFICATIONS

Delete the values self-learned by the ECU. Check of the additional air circuit connections. Check the fuel pressure. Check whether the exhaust gas emissions are within the accepted limits. (engine at steady rpm with sensors disconnected HC<250ppm CO<1,1%) (see manual)

TOPOLOGICAL

BOSCH IGNITION-INJECTION ECU

- A rich air fuel mixture ratio was detected

ERROR TYPE

Rich fuel value

VERIFICATIONS

Delete the values self-learned by the ECU. Check of the additional air circuit connections. Check the fuel pressure. Check whether the exhaust gas emissions are within the accepted limits. (engine at steady rpm with sensors disconnected HC<250ppm CO<1,1%) (see manual)

TOPOLOGICAL

BOSCH IGNITION-INJECTION ECU

- A lean air fuel mixture ratio was detected

ERROR TYPE

Lean fuel value

VERIFICATIONS

Delete the values self-learned by the ECU. Check of the additional air circuit connections. Check the fuel pressure. Check whether the exhaust gas emissions are within the accepted limits. (engine at steady rpm with sensors disconnected HC<250ppm CO<1,1%) (see manual)

TOPOLOGICAL

BOSCH IGNITION-INJECTION ECU

- A rich air fuel mixture ratio was detected

ERROR TYPE

Rich fuel value

VERIFICATIONS

Delete the values self-learned by the ECU. Check of the additional air circuit connections. Check the fuel pressure. Check whether the exhaust gas emissions are within the accepted limits. (engine at steady rpm with sensors disconnected HC<250ppm CO<1,1%) (see manual)

TOPOLOGICAL

BOSCH IGNITION-INJECTION ECU

- A lean air fuel mixture ratio was detected

ERROR TYPE

Lean fuel value

VERIFICATIONS

Delete the values self-learned by the ECU. Check of the additional air circuit connections. Check the fuel pressure. Check whether the exhaust gas emissions are within the accepted limits. (engine at steady rpm with sensors disconnected HC<250ppm CO<1,1%) (see manual)

TOPOLOGICAL

BOSCH IGNITION-INJECTION ECU

ERROR TYPE

CALCULATION ERROR

VERIFICATIONS

Internal error. Delete the errors and check the ECU for proper operation. If the error persists, replace the ECU.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

ERROR TYPE

CALCULATION ERROR

VERIFICATIONS

Internal error. Delete the errors and check the ECU for proper operation. If the error persists, replace the ECU.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Fuel self-learning incorrect, check: all the devices relating to carburation / combustion (sensors, air flow meter, spark plug injectors, coils), all mechanical parts relating to emissions (engine timing, valve seal, exhaust manifolds etc.

ERROR TYPE

Value not plausible

VERIFICATIONS

Check all the devices relating to carburation/combustion (sensors, air-flow meter, spark plug injectors, coils), all the mechanical parts relating to emissions (engine timing, valve seal, exhaust manifolds etc.)

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Incorrect fuel self-learning, fuel percentage greater than optimal value

ERROR TYPE

Lean fuel value

VERIFICATIONS

Check all the devices relating to carburation/combustion (sensors, air-flow meter, spark plug injectors, coils), all the mechanical parts relating to emissions (engine timing, valve seal, exhaust manifolds etc.)

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Incorrect fuel self-learning, fuel percentage greater than optimal value

ERROR TYPE

Rich fuel value

VERIFICATIONS

Check all the devices relating to carburation/combustion (sensors, air-flow meter, spark plug injectors, coils), all the mechanical parts relating to emissions (engine timing, valve seal, exhaust manifolds etc.)

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Fuel self-learning incorrect, check: all the devices relating to carburation / combustion (sensors, air flow meter, spark plug injectors, coils), all mechanical parts relating to emissions (engine timing, valve seal, exhaust manifolds etc.

ERROR TYPE

Value not plausible

VERIFICATIONS

Check all the devices relating to carburation/combustion (sensors, air-flow meter, spark plug injectors, coils), all the mechanical parts relating to emissions (engine timing, valve seal, exhaust manifolds etc.)

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Incorrect fuel self-learning, fuel percentage greater than optimal value

ERROR TYPE

Lean fuel value

VERIFICATIONS

Check all the devices relating to carburation/combustion (sensors, air-flow meter, spark plug injectors, coils), all the mechanical parts relating to emissions (engine timing, valve seal, exhaust manifolds etc.)

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Incorrect fuel self-learning, fuel percentage greater than optimal value

ERROR TYPE

Rich fuel value

VERIFICATIONS

Check all the devices relating to carburation/combustion (sensors, air-flow meter, spark plug injectors, coils), all the mechanical parts relating to emissions (engine timing, valve seal, exhaust manifolds etc.)

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Malfunction in the Lambda sensor heating circuit.

ERROR TYPE

Value not plausible

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

[BACK OXYGEN SENSOR 2](#)

- Malfunction in the Lambda sensor heating circuit.

ERROR TYPE

Value not plausible

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

REAR LAMBDA SENSOR

- Possible short circuit in the Lambda sensor heating cable

ERROR TYPE

SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

[BACK OXYGEN SENSOR 2](#)

- Possible short circuit to ground on the Lambda sensor heating cable

ERROR TYPE

GND SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

[BACK OXYGEN SENSOR 2](#)

- Possible short circuit to + Vbatt on the Lambda sensor heating cable

ERROR TYPE

VBATT SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

[BACK OXYGEN SENSOR 2](#)

LH TIMING SENSOR (P1339)

- The timing sensor signal is too advanced with respect to the engine rpm signal

ERROR TYPE

Maximum threshold exceeded

VERIFICATIONS

Indicator panel check. Tming variator check. Engine timing check.

TOPOLOGICAL

RH TIMING SENSOR

LH TIMING SENSOR (P1340)

- The timing sensor signal is too delayed with respect to the engine rpm signal

ERROR TYPE

Minimum threshold exceeded

VERIFICATIONS

Indicator panel check. Tming variator check. Engine timing check.

TOPOLOGICAL

RH TIMING SENSOR

- ECU internal error on the engine rpm calculation function. It is however always advisable to check the wiring

ERROR TYPE

Value not plausible

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- A non-efficiency was found on the catalytic converter, it is however advisable to check the sensors' efficiency

ERROR TYPE

Maximum threshold exceeded

VERIFICATIONS

Check the Lambda sensors operation using the Diagnosis Tester.

TOPOLOGICAL

ECU FOR LH BANK CATALYTIC CONVERTER CONTROL

- A non-efficiency was found on the catalytic converter, it is however advisable to check the sensors' efficiency

ERROR TYPE

Maximum threshold exceeded

VERIFICATIONS

Check the Lambda sensors operation using the Diagnosis Tester.

TOPOLOGICAL

ECU FOR LH BANK CATALYTIC CONVERTER CONTROL

- Solenoid valve malfunction detected. The error can be validated only while running the anti-evaporation test."

ERROR TYPE

GND SHORT CIRCUIT

VERIFICATIONS

Checkout of possible losses within anti-evaporation circuit. Check of fuel pressure sensor. Check of solenoid valve cable.

TOPOLOGICAL

CANISTER SOLENOID VALVE

- Solenoid valve malfunction detected. The error can be validated only while running the anti-evaporation test."

ERROR TYPE

OPEN CIRCUIT

VERIFICATIONS

Checkout of possible losses within anti-evaporation circuit. Check of fuel pressure sensor. Check of solenoid valve cable.

TOPOLOGICAL

CANISTER SOLENOID VALVE

- Leakage found from secondary air inlet circuit

ERROR TYPE

GREAT LEAKAGE

VERIFICATIONS

Circuit connections check. Solenoid valve integrity check.

TOPOLOGICAL

RH BANK: SECONDARY AIR SOLENOID VALVE

- Leakage found from secondary air inlet circuit

ERROR TYPE

GREAT LEAKAGE

VERIFICATIONS

Circuit connections check. Solenoid valve integrity check.

TOPOLOGICAL

RH BANK: SECONDARY AIR SOLENOID VALVE

- Main relay control wire in short circuit

ERROR TYPE

VBATT SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

PUMP RELAY

- Main relay control wire in short circuit

ERROR TYPE

GND SHORT CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

PUMP RELAY

- Relay control wire cut-out (or in short circuit)

ERROR TYPE

OPEN CIRCUIT

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

PUMP RELAY

LH-B TANK EMPTY ERROR (P1557)

- Fuel level inconsistent with the engine operating conditions

ERROR TYPE

Value not plausible

VERIFICATIONS

Check the fuel level. Check the level sensor. Check for any misfiring errors.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Battery voltage value inconsistent with the vehicle operating conditions (e.g. Battery voltage unsteady)

ERROR TYPE

Value not plausible

VERIFICATIONS

Check the ground connections. Check the reference voltages on the ECU input (+15 / +30). Check the wiring connection.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Battery voltage value low. This error is memorised when the battery voltage drops below 10 Volt

ERROR TYPE

VALUE TOO LOW

VERIFICATIONS

Check the alternator charge status. Check the reference voltages on the ECU input (+15 / +30). Check the wiring connection.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Battery voltage value high, above the 15Volt diagnosis threshold

ERROR TYPE

VALUE TOO HIGH

VERIFICATIONS

Check the alternator charge status. Check the reference voltages on the ECU input (+15 / +30). Check the wiring connection.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Malfunction detected on the brake switch input. The two contacts must activate one after the other, with a different pedal stroke (1st NO - 2nd NC)

ERROR TYPE

Malfunction

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Ram internal error detected

ERROR TYPE

CRITICAL ERROR STILL PRESENT

VERIFICATIONS

Internal error. Delete the errors and check the ECU for proper operation. If the error persists, replace the ECU.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Rom internal error detected

ERROR TYPE

CRITICAL ERROR STILL PRESENT

VERIFICATIONS

Internal error. Delete the errors and check the ECU for proper operation. If the error persists, replace the ECU.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Internal EEPROM faulty

ERROR TYPE

CRITICAL ERROR STILL PRESENT

VERIFICATIONS

Internal error. Delete the errors and check the ECU for proper operation. If the error persists, replace the ECU.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

CAN LINE ERROR WITHIN THE ECU (P1638)

- CAN line error internal to the ECU. Possible interruption CAN line within the ECU. (Switch failure)

ERROR TYPE

INTERNAL ERRORS

VERIFICATIONS

Delete all errors, then check the correct functioning. In case the error is still present, replace the ECU.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Internal failure of the group A parts

ERROR TYPE

CRITICAL ERROR STILL PRESENT

VERIFICATIONS

Internal error. Delete the errors and check the ECU for proper operation. If the error persists, replace the ECU.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Internal failure of the group B parts

ERROR TYPE

CRITICAL ERROR STILL PRESENT

VERIFICATIONS

Internal error. Delete the errors and check the ECU for proper operation. If the error persists, replace the ECU.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Malfunction detected on the K line cable

ERROR TYPE

VBATT SHORT CIRCUIT

VERIFICATIONS

Wiring and system intactness check.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Malfunction detected on the K line cable

ERROR TYPE

GND SHORT CIRCUIT

VERIFICATIONS

Wiring and system intactness check.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Malfunction detected on the K line cable

ERROR TYPE

OPEN CIRCUIT

VERIFICATIONS

Wiring and system intactness check.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

BATTERY VOLTAGE FROM MAIN LH-B RELAY (P1687)

- Reference battery voltage from main relay not connected

ERROR TYPE

OPEN CIRCUIT

VERIFICATIONS

Wiring and system intactness check.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

BATTERY VOLTAGE FROM MAIN LH-B RELAY (P1688)

- Reference battery voltage from main relay not connected

ERROR TYPE

Value not plausible

VERIFICATIONS

Wiring and system intactness check.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Malfunction on main relay control cable

ERROR TYPE

SPORADIC CONTACT

VERIFICATIONS

Wiring and system intactness check.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Malfunction on main relay control cable

ERROR TYPE

VBATT SHORT CIRCUIT

VERIFICATIONS

Wiring and system intactness check.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Malfunction on main relay control cable

ERROR TYPE

GND SHORT CIRCUIT

VERIFICATIONS

Wiring and system intactness check.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Incorrect fuel self-learning, fuel percentage lower than optimal value

ERROR TYPE

Lean fuel value

VERIFICATIONS

Check all the devices relating to carburation/combustion (sensors, air-flow meter, spark plug injectors, coils), all the mechanical parts relating to emissions (engine timing, valve seal, exhaust manifolds etc.)

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Incorrect fuel self-learning, fuel percentage greater than optimal value

ERROR TYPE

Rich fuel value

VERIFICATIONS

Check all the devices relating to carburation/combustion (sensors, air-flow meter, spark plug injectors, coils), all the mechanical parts relating to emissions (engine timing, valve seal, exhaust manifolds etc.)

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Incorrect fuel self-learning, air percentage injected too high

ERROR TYPE

Rich fuel value

VERIFICATIONS

Check all the devices relating to carburation/combustion (sensors, air-flow meter, spark plug injectors, coils), all the mechanical parts relating to emissions (engine timing, valve seal, exhaust manifolds etc.)

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Incorrect fuel self-learning, air percentage injected too low

ERROR TYPE

Lean fuel value

VERIFICATIONS

Check all the devices relating to carburation/combustion (sensors, air-flow meter, spark plug injectors, coils), all the mechanical parts relating to emissions (engine timing, valve seal, exhaust manifolds etc.)

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Incorrect fuel self-learning, fuel percentage lower than optimal value

ERROR TYPE

Lean fuel value

VERIFICATIONS

Check all the devices relating to carburation/combustion (sensors, air-flow meter, spark plug injectors, coils), all the mechanical parts relating to emissions (engine timing, valve seal, exhaust manifolds etc.)

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- Incorrect fuel self-learning, fuel percentage greater than optimal value

ERROR TYPE

Rich fuel value

VERIFICATIONS

Check all the devices relating to carburation/combustion (sensors, air-flow meter, spark plug injectors, coils), all the mechanical parts relating to emissions (engine timing, valve seal, exhaust manifolds etc.)

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

- RH and LH front lambda sensor connections inverted

ERROR TYPE

INVERTED CONNECTION

VERIFICATIONS

Check the Lambda sensors operation using the Diagnosis Tester.

TOPOLOGICAL

BOSCH MOTRONIC IGNITION-INJECTION ECU

THROTTLE POSITION SENSOR (P1131)

- Throttle position inconsistent with engine conditions: engine rpm and intake air quantity

ERROR TYPE

Value not plausible

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

RH MOTOR DRIVEN THROTTLE

PARAMETERS

The parameters relating to the ECU in question are displayed in this environment. The reference values, if present, are detected when the car is static and the key is in the ON position.

PARAMETERS selection menu

[ENGINE REVOL.](#)

[ENGINE TEMPERATURE](#)

[INTAKE AIR TEMPERATURE](#)

[INTAKE AIR](#)

[IGNITION ANGLE](#)

[INJECTION TIME \(CYL.1-2-3/10-11-12\)](#)

[ENGINE FILLING](#)

[THROTTLE ABSOLUTE ANGLE](#)

[FRONT CURRENT LAMBDA \(CYL.4-5-6/7-8-9\)](#)

[BATTERY VOLTAGE](#)

[CAR SPEED](#)

[FRONT LAMBDA SENSOR VOLTAGE \(CYL.1-2-3/10-11-12\)](#)

[REAR LAMBDA SENSOR VOLTAGE \(CYL.1-2-3/10-11-12\)](#)

[NOMINAL RPM IN IDLE CONDITION](#)

[CANISTER PURGE VALVE OPENING](#)

[ACCELERATOR PEDAL POTENTIOMETER 1](#)

ACCELERATOR PEDAL POTENTIOMETER 2

ACCELERATOR PEDAL POSITION

FUEL CORRECTION FACTOR (CYL. 1-2-3/10-11-12)

THROTTLE LEARNING COUNTER

FRICTION TORQUE

INTAKE MANIFOLD CALCULATED PRESSURE

CALCULATED ENVIRONMENT PRESSURE

FRONT CURRENT LAMBDA (CYL.1-2-3/10-11-12)

REAR CURRENT LAMBDA (CYL.1-2-3/10-11-12)

ACTUAL INDICATED TORQUE

TORQUE REQUESTED BY THE DRIVER

TORQUE REQUIRED BY ASR/F1

TORQUE REQUIRED BY MSR ACTIVATION

AIR-FLOW METER PULSE CORRECTION

RELATIVE ENGINE FILLING (CYL.1-2-3/10-11-12)

IDLING CONTROL INTEGRAL TORQUE

TORQUE FOR IDLE CONDITION PROPORTIONAL CONTROL

INJECTION FACTOR UPON START-UP

CANISTER FILLING FACTOR

TREATED AIR OUTFLOW THROUGH THROTTLE

NUMBER OF CYLINDERS IN CUT-OFF CONDITION

INTAKE COMPENSATION

KNOCK SENSOR STATUS

CLUTCH STATUS

BRAKE PEDAL STATUS

INERTIA INTERRUPTION

AC BUTTON STATUS

AC COMPRESSOR RELAY STATUS

ENGINE IDLE CONDITION

FUEL RATIO

GUIDE CYCLE COMPLETED

WARMING-UP CYCLE COMPLETED

BANK1 FRONT LAMBDA SENSOR OPERATING MODE

CATALYTIC CONVERTER HEATING

FRONT LAMBDA SENSOR ADJUSTMENT (CYL.1-2-3/10-11-12)

FRONT LAMBDA SENSOR ADJUSTMENT (CYL.4-5-6/7-8-9)

REAR LAMBDA SENSOR ADJUSTMENT (CYL.1-2-3/10-11-12)

REAR LAMBDA SENSOR ADJUSTMENT (CYL.4-5-6/7-8-9)

CANISTER PURGE CONTROL

ENGINE OFF REQUEST FROM F1 GEAR

SELF-LEARNING ACTIVE

SELF LEARNING STATE

SELF-LEARNING COMPLETED

SELF-LEARNING CYCLE NOT COMPLETED

FUEL SELF-LEARNING HIGH LOADS (CYL. 1-2-3/10-11-12)

LOW-LOAD FUEL SELF-LEARNING (CYL.1-2-3/10-11-12)

FUEL SELF-LEARNING PRESENT LOAD (CYL. 1-2-3/10-11-12)

TIME ADDITIVE FACTOR (CYL. 1-2-3/10-11-12)

IGNITION ADDITIVE FACTOR (CYL. 1-2-3/10-11-12)

MIN. ADDITIVE FACTOR (CYL. 1-2-3/10-11-12)

ALTITUDE CORRECTION FACTOR

SELF-LEARNED FRICTION TORQUE

FUEL SELF-LEARNING (CYL. 1-2-3/10-11-12)

IMMOBILIZER STATUS

INJECTION STATE

AIR FLOW THROUGH THROTTLE-VALVE

INJECTION TIME CORRECTION WITH BATTERY VOLTAGE

AIR QUANTITY THROUGH AIR-FLOW METER

Actual injection time

IGNITION ANGLE

INJECTION TIME (CYL.1-2-3/10-11-12)

INJECTION TIME (CYL.4-5-6/7-8-9)

NOMINAL OX. SENSOR VALUE (CYL. 1-2-3/10-11-12)

AIR FLOW

NOMINAL REAR LAMBDA (CYL.1-2-3/10-11-12)

REQUESTED TORQUE

OPTIMUM INDICATED TORQUE

RESULTING NOMINAL TORQUE

NOMINAL TORQUE RESULTING FROM ADVANCE VARIATION

THROTTLE ACTIVATION NOMINAL TORQUE

MAXIMUM REACHABLE TORQUE

MINIMUM INDICATED TORQUE

TORQUE REQUESTED BY ASR FOR FAST ACTIVATION

TORQUE REQUESTED BY ASR FOR SLOW ACTIVATION

DELTA ENGINE TORQUE FOR ANTI-JERK

INTAKE VALVE TEMPERATURE MODEL

END OF INJECTION ANGLE

ACTUAL INJECTION TIME (CYL.1-2-3/10-11-12)

EXHAUST GAS TEMPERATURE MODEL

FRONT B LAMBDA ADJUSTED VOLTAGE SX

FRONT LAMBDA SENSOR VOLTAGE (CYL.4-5-6/7-8-9)

REAR LAMBDA SENSOR VOLTAGE (CYL.4-5-6/7-8-9)

LAMBDA CORRECTION (CYL.4-5-6/7-8-9)

FUEL SELF-LEARNING HIGH LOADS (CYL.4-5-6/7-8-9)

FUEL SELF-LEARNING LOW LOADS (CYL.4-5-6/7-8-9)

FUEL SELF-LEARNING PRESENT LOAD (CYL.4-5-6/7-8-9)

ADDITIVE FACTOR FOR INJECTION TIME (CYL. 4-5-6/7-8-9)

IGNITION ADDITIVE FACTOR (CYL.4-5-6/7-8-9)

ADDITIVE FACTOR IN IDLE CONDITION (CYL.4-5-6/7-8-9)

FRONT NOMINAL LAMBDA (CYL.4-5-6/7-8-9)

REAR CURRENT LAMBDA (CYL.4-5-6/7-8-9)

TORQUE REQUESTED BY F1 GEARBOX

RH CATALYTIC CONV.TEMP.

NOMINAL REAR LAMBDA (CYL.1-2-3/10-11-12)

INTEGRAL FACTOR FOR REAR LAMBDA SENSOR (CYL.4-5-6/7-8-9)

RELATIVE ENGINE FILLING (CYL.4-5-6/7-8-9)

ACTUAL INJECTION TIME (CYL.4-5-6/7-8-9)

INJECTION TIME (CYL.4-5-6/7-8-9)

BRAKE LIGHT SWITCH

BRAKE SWITCH

FUEL PUMP RELAY 1 (NO RESISTANCE)

FUEL PUMP RELAY 2 (RESISTANCE)

COOLING FAN SPEED 1

CAM AXLE POSITION SELF-LEARNING

KEY SIGNAL STATUS (15)

START CONDITION (IGNITION)

FUEL SELF-LEARNING (CIL.4-5-6/7-8-9)

BATTERY RESET

VEHICLE CONFIGURATION WITH ASR

VEHICLE CONFIG. WITH F1 GEARBOX

VEHICLE CONFIG. WITH MANUAL GEARBOX

VEHICLE CONFIG. WITH SECONDARY AIR SYSTEM

VEHICLE CONFIG. WITH CATALYTIC CONVERTER

SELF-LEARNING ENABLED

PEDAL FAULT

LIMP HOME ON PEDAL

CUT-OFF FOR RECOVERY MODE

CUT-OFF FOR THROTTLE WRONG POSITION

THROTTLE SUPPLY CUT-OFF

LIMP HOME ON THROTTLE ACTUATOR

MIL ACTIVE ON REQUEST

MIL BLINK REQUEST

SLOW DOWN ACTIV. REQUEST

CATALYTIC CONVERTER PROTECTION ACTIVE

HIGH BEAMS INDICATOR

BY-PASS VALVE CONDITION UPON EXHAUST

RELATIVE FILLING CALIBRATED THROUGH THE HEIGHT

A/D CONVERTER SD2

GEAR ENGAGED

INTEGRAL FACTOR FOR REAR LAMBDA SENSOR (CYL.1-2-3/10-11-12)

ENGINE REVOL. (rpm)

Analogue value, input generated by the variable inductor sensor, which detects the passage of the flywheel teeth
Engine rpm number

ENGINE TEMPERATURE (°C)

Analogue value, engine water temperature

INTAKE AIR TEMPERATURE (°C)

Intake air temperature value, calculated by the air flow meter

INTAKE AIR (kg/h)

Analogue value of the air quantity taken in by the engine and measured by the air flow meter

IGNITION ANGLE (°)

Spark advance angle for combustion optimization

INJECTION TIME (CYL.1-2-3/10-11-12) (ms)

Injector opening control time

ENGINE FILLING (%)

Quantity of energy supplied by the engine and expressed as a percentage

THROTTLE ABSOLUTE ANGLE (%)

Motor driven throttle position

FRONT CURRENT LAMBDA (CYL.4-5-6/7-8-9)

Working functionalities of the oxygen sensor at the present conditions (reference values at minimum – ox. sensor 1- approx. 1000 mV)

BATTERY VOLTAGE (V)

Battery voltage value

CAR SPEED (km/h)

Vehicle speed according to the data issued by the ABS/ASR ECU on the CAN line

FRONT LAMBDA SENSOR VOLTAGE (CYL.1-2-3/10-11-12) (V)

Correct voltage for lambda sensor on front catalytic converter

REAR LAMBDA SENSOR VOLTAGE (CYL.1-2-3/10-11-12) (V)

Correct voltage for lambda sensor on rear catalytic converter

NOMINAL RPM IN IDLE CONDITION (rpm)

Nominal value for engine rpm in idle condition

CANISTER PURGE VALVE OPENING (%)

Canister purge valve duty cycle

ACCELERATOR PEDAL POTENTIOMETER 1 (V)

Accelerator pedal potentiometer voltage (potentiometer 1)

ACCELERATOR PEDAL POTENTIOMETER 2 (V)

Accelerator pedal potentiometer voltage (potentiometer 2)

ACCELERATOR PEDAL POSITION (%)

Accelerator pedal position (percentage)

FUEL CORRECTION FACTOR (CYL. 1-2-3/10-11-12)

Lambda correction factor over injection time

THROTTLE LEARNING COUNTER

Position counter during throttle self-learning stage

FRICION TORQUE (%)

Clutch friction torque from CAN line

INTAKE MANIFOLD CALCULATED PRESSURE (mbar)

Absolute pressure to the intake manifold, calculated by the air flow meter

CALCULATED ENVIRONMENT PRESSURE (mbar)

Barometric pressure to the intake manifold, calculated by the air flow meter

FRONT CURRENT LAMBDA (CYL.1-2-3/10-11-12)

Reference value calculated for front lambda sensor

REAR CURRENT LAMBDA (CYL.1-2-3/10-11-12)

Reference value calculated for rear lambda sensor

ACTUAL INDICATED TORQUE (%)

Actual indicated torque value

TORQUE REQUESTED BY THE DRIVER (%)

Relative torque requested by the driver based on the accelerator pedal position

TORQUE REQUIRED BY ASR/F1 (%)

Indicated torque requested by outside ECUs (ASR / GEARBOX)

TORQUE REQUIRED BY MSR ACTIVATION (%)

Torque requested by MSR during the release stage, to prevent sharp decelerations

AIR-FLOW METER PULSE CORRECTION

Correction on the data measured by the air flow meter during air flow pulsations

RELATIVE ENGINE FILLING (CYL.1-2-3/10-11-12) (%)

Fuel quantity calculated with respect to the engine current conditions

IDLING CONTROL INTEGRAL TORQUE (%)

Torque integral value for idle condition control

TORQUE FOR IDLE CONDITION PROPORTIONAL CONTROL (%)

Torque derivative value for idle condition control

INJECTION FACTOR UPON START-UP

Injection factor during engine ignition

CANISTER FILLING FACTOR

Calculated value for canister filling factor for purge activation

TREATED AIR OUTFLOW THROUGH THROTTLE (kg/h)

Air bleeding through throttle in idle condition

NUMBER OF CYLINDERS IN CUT-OFF CONDITION

Number of cylinder in cut-off stage

INTAKE COMPENSATION

Intake balance current condition (ON - OFF)

KNOCK SENSOR STATUS

Knocking sensor current status (ON - OFF)

CLUTCH STATUS

Clutch pedal status (pressed - released)

BRAKE PEDAL STATUS

Brake pedal status (pressed - released)

INERTIA INTERRUPTION

Inertia switch current status (ON - OFF)

AC BUTTON STATUS

Current status of air conditioner activation push-button (ON - OFF)

AC COMPRESSOR RELAY STATUS

Current status of air conditioner compressor relay (ON - OFF)

ENGINE IDLE CONDITION

Engine idling current status (IDLING - NOT IDLING)

FUEL RATIO

Fuel mixture current status (NO - YES)

BANK1 FRONT LAMBDA SENSOR OPERATING MODE

Current working condition of front RH Lambda sensor (OPEN LOOP - CLOSED LOOP)

WARMING-UP CYCLE COMPLETED

Rpm cycle conditions met (YES - NO)

CATALYTIC CONVERTER HEATING

Optimum heating conditions for exhaust gas reduction gained.

FRONT LAMBDA SENSOR ADJUSTMENT (CYL.1-2-3/10-11-12)

Present status front ox. sensor functioning (OPEN LOOP – CLOSED LOOP)

FRONT LAMBDA SENSOR ADJUSTMENT (CYL.4-5-6/7-8-9)

Present status front ox. sensor functioning (OPEN LOOP – CLOSED LOOP)

REAR LAMBDA SENSOR ADJUSTMENT (CYL.1-2-3/10-11-12)

Present status front ox. sensor functioning (OPEN LOOP – CLOSED LOOP)

REAR LAMBDA SENSOR ADJUSTMENT (CYL.4-5-6/7-8-9)

Present status front ox. sensor functioning (OPEN LOOP – CLOSED LOOP)

CANISTER PURGE CONTROL

Current status of canister purge function (ACTIVE - NOT ACTIVE)

ENGINE OFF REQUEST FROM F1 GEAR

Engine off requested by F1 gearbox ECU

SELF-LEARNING ACTIVE

Mixture self-learning condition (ACTIVE - NOT ACTIVE)

SELF LEARNING STATE

Mixture self-learning condition (ACTIVE - NOT ACTIVE)

SELF-LEARNING COMPLETED

Optimizing fuel self-learning conditions (air/fuel quantity): gained.

SELF-LEARNING CYCLE NOT COMPLETED

Conditions for self-learning not gained (e.g. water temperature < than the 90° steady-speed temperature)

FUEL SELF-LEARNING HIGH LOADS (CYL. 1-2-3/10-11-12)

Self-adaptative value of the air/fuel ratio at high loads (throttle >50%)

LOW-LOAD FUEL SELF-LEARNING (CYL.1-2-3/10-11-12)

Self-adaptative value of the air/fuel ratio at low loads (throttle >50%)

FUEL SELF-LEARNING PRESENT LOAD (CYL. 1-2-3/10-11-12)

Self-adaptative value of the air/fuel ratio at present load.

TIME ADDITIVE FACTOR (CYL. 1-2-3/10-11-12)

Self-learned injection time value for mixture fuel variation

IGNITION ADDITIVE FACTOR (CYL. 1-2-3/10-11-12)

Injection time correction due to ignition correction.

MIN. ADDITIVE FACTOR (CYL. 1-2-3/10-11-12)

Self-adaptative value of the mixture ratio at low load (released throttle)

ALTITUDE CORRECTION FACTOR

SELF-LEARNED FRICTION TORQUE (%)

Clutch friction torque stored for pick-up torque management.

FUEL SELF-LEARNING (CYL. 1-2-3/10-11-12)

Mixture self-learning condition (ACTIVE - NOT ACTIVE)

IMMOBILIZER STATUS

Immobilizer status (ACTIVE - NOT ACTIVE)

INJECTION STATE

Ignition enable from alarm system

AIR FLOW THROUGH THROTTLE-VALVE

Air quantity taken in by the throttle

INJECTION TIME CORRECTION WITH BATTERY VOLTAGE (ms)

Injection time correction in relation to the battery voltage.

AIR QUANTITY THROUGH AIR-FLOW METER (kg/h)

Air mass taken in by the motor (reference values at min. 24-27 Kg/h)

Actual injection time (ms)

Effective injection time before ox. sensor correction.

IGNITION ANGLE

Actual calculated spark advance value

INJECTION TIME (CYL.1-2-3/10-11-12)

Injectors opening time.

INJECTION TIME (CYL.4-5-6/7-8-9) (kg/h)

Injectors opening time.

NOMINAL OX. SENSOR VALUE (CYL. 1-2-3/10-11-12)

Lambda sensor reference value

AIR FLOW

Analogue value of the air quantity taken in by the engine and measured by the air flow meter

NOMINAL REAR LAMBDA (CYL.1-2-3/10-11-12)

Lambda sensor reference value

REQUESTED TORQUE (%)

Optimum requested torque indication

OPTIMUM INDICATED TORQUE (%)

Optimum torque value for current engine conditions

RESULTING NOMINAL TORQUE (%)

Resulting engine torque value

NOMINAL TORQUE RESULTING FROM ADVANCE VARIATION (%)

Nominal torque value resulting from spark advance correction

THROTTLE ACTIVATION NOMINAL TORQUE (%)

Nominal torque value resulting from load

MAXIMUM REACHABLE TORQUE (%)

Maximum engine torque

MINIMUM INDICATED TORQUE (%)

Minimum engine torque

TORQUE REQUESTED BY ASR FOR FAST ACTIVATION (%)

Torque indication requested by ASR for fast intervention

TORQUE REQUESTED BY ASR FOR SLOW ACTIVATION (%)

Torque indication requested by ASR for slow intervention

DELTA ENGINE TORQUE FOR ANTI-JERK (%)

Torque delta value for anti-jerk

INTAKE VALVE TEMPERATURE MODEL (°C)

Calculation of the typical air temperature taken in by the throttle

END OF INJECTION ANGLE (GRADI)

Angle value for end of injection

ACTUAL INJECTION TIME (CYL.1-2-3/10-11-12) (ms)

Actual injection time

EXHAUST GAS TEMPERATURE MODEL (°C)

Calculation of the exhaust gas temperature

FRONT B LAMBDA ADJUSTED VOLTAGE SX (V)

Correct voltage value on LH front Lambda sensor

FRONT LAMBDA SENSOR VOLTAGE (CYL.4-5-6/7-8-9) (V)

Voltage value correction on front ox. sensor.

REAR LAMBDA SENSOR VOLTAGE (CYL.4-5-6/7-8-9) (V)

Voltage value correction on front ox. sensor.

LAMBDA CORRECTION (CYL.4-5-6/7-8-9)

Ox. sensor correction factor. Constant value set in the ECU for consumption optimizing, in relation to antipollution laws.

FUEL SELF-LEARNING HIGH LOADS (CYL.4-5-6/7-8-9)

Self-adaptive value for the mixture ratio with current load

FUEL SELF-LEARNING LOW LOADS (CYL.4-5-6/7-8-9)

Self-learned injection time for mixture ratio variation on LH bank

FUEL SELF-LEARNING PRESENT LOAD (CYL.4-5-6/7-8-9)

Self-learned spark advance angle value for mixture ratio variation on LH bank

ADDITIVE FACTOR FOR INJECTION TIME (CYL. 4-5-6/7-8-9)

Self-learned injection time value for mixture fuel variation

IGNITION ADDITIVE FACTOR (CYL.4-5-6/7-8-9)

ECU injection time adjustment for ignition correction.

ADDITIVE FACTOR IN IDLE CONDITION (CYL.4-5-6/7-8-9)

Self-adaptative value of the mixture ratio at low load (released throttle)

FRONT NOMINAL LAMBDA (CYL.4-5-6/7-8-9)

Rated value for front lambda sensor adjustment

REAR CURRENT LAMBDA (CYL.4-5-6/7-8-9)

Reference value calculated for rear lambda sensor

TORQUE REQUESTED BY F1 GEARBOX (%)

Torque value requested by the F1 ECU for optimizing gearshifting.

RH CATALYTIC CONV.TEMP.

Catalytic converter temperature measured using a linear 0-5V thermal couple type J, with Vescovini converter (operating temperature approximately 600°).

INTEGRAL FACTOR FOR REAR LAMBDA SENSOR (CYL.4-5-6/7-8-9) (ms)

Integral factor for rear lambda sensor correction in CLOSED LOOP

RELATIVE ENGINE FILLING (CYL.4-5-6/7-8-9) (ms)

Total intake mixture measured based on the current engine rpm.

ACTUAL INJECTION TIME (CYL.4-5-6/7-8-9) (ms)

Actual calculated injection time

INJECTION TIME (CYL.4-5-6/7-8-9) (ms)

Estimated duration of the injectors' opening/closing cycle, in ms.

BRAKE LIGHT SWITCH

Stop lights switch input (active high)

BRAKE SWITCH

Secondary switch input relating to brake pedal activation

FUEL PUMP RELAY 1 (NO RESISTANCE)

Fuel pump relay release 1st speed/Activation. Standard resistors on the pump control to reduce the noise and the absorption.

FUEL PUMP RELAY 2 (RESISTANCE)

Fuel pump relay release 2nd speed/Activation. Direct activation.

COOLING FAN SPEED 1

Cooling fan 1 current speed conditions

CAM AXLE POSITION SELF-LEARNING

Self-learning cycle for the camshaft position using the timing sensor signal (which determines the injection timing).

KEY SIGNAL STATUS (15)

Key ON switch input (+15)

START CONDITION (IGNITION)

Initial check (check of malfunctions upon start-up)

FUEL SELF-LEARNING (CIL.4-5-6/7-8-9)

Calculation of the basic fuel quantity required for optimizing combustion in compliance with anti-pollution standards.

BATTERY RESET

Failure conditions detected on power supply voltage (active-not active).

VEHICLE CONFIGURATION WITH ASR

Vehicle configuration with ASR system (On-Off)

VEHICLE CONFIG. WITH F1 GEARBOX

F1 gearbox version (On-Off)

VEHICLE CONFIG. WITH MANUAL GEARBOX

Manually controlled gearbox (On-Off)

VEHICLE CONFIG. WITH SECONDARY AIR SYSTEM

Vehicle configuration with air injection system (On - Off)

VEHICLE CONFIG. WITH CATALYTIC CONVERTER

Vehicle configuration according to catalytic converter type

Throttle self-learning (On-Off)

PEDAL FAULT

Failure conditions on the accelerator pedal (On-Off)

LIMP HOME ON PEDAL

Accelerator pedal position stored.

CUT-OFF FOR RECOVERY MODE

Fuel cut-off irreversible condition (On-Off)

CUT-OFF FOR THROTTLE WRONG POSITION

Fuel cut-out for throttle position acknowledgement failed

THROTTLE SUPPLY CUT-OFF

Throttle supply cut-out for acknowledgement of critical operating conditions (On-Off)

LIMP HOME ON THROTTLE ACTUATOR

Motor driven throttle stored position

MIL ACTIVE ON REQUEST

Check engine indicator lamp constantly lit

MIL BLINK REQUEST

Check engine indicator lamp flashing

SLOW DOWN ACTIV. REQUEST

Switch-on control for RH bank slow down indicator lamp flashing

CATALYTIC CONVERTER PROTECTION ACTIVE

Catalytic converter protection activation (active - not active).

HIGH BEAMS INDICATOR

Slow-Down warning light status (constantly lit/flashing).

BY-PASS VALVE CONDITION UPON EXHAUST

Present status exhaust by-pass valve (ON-OFF)

RELATIVE FILLING CALIBRATED THROUGH THE HEIGHT (%)

Optimum requested torque indication

A/D CONVERTER SD2

Value read by the A/D converter of the SD2 Tester

GEAR ENGAGED

Engaged gear value from CAN line

INTEGRAL FACTOR FOR REAR LAMBDA SENSOR (CYL.1-2-3/10-11-12) (%)

Integral factor for rear lambda sensor correction in CLOSED LOOP

DIAGNOSIS

The active diagnosis permit to determine wether there are problems on the specific functions of the system or to execute operations necessary to the set up or adjustment of the system itself. To that purpose, there is a number of diagnosis available to verify the most important functionalities of a system and to set up and maintain the same system.

DIAGNOSIS selection menu

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[INJECTOR 2, CYLINDER 5](#)

[INJECTOR 3, CYLINDER 3](#)

[INJECTOR 4, CYLINDER 6](#)

[INJECTOR 5, CYLINDER 2](#)

[INJECTOR 6, CYLINDER 4](#)

[FRONT OXYGEN SENSOR 1 WARMING-UP](#)

[FRONT OXYGEN SENSOR 2 WARMING-UP](#)

[REAR OXYGEN SENSOR 1 WARMING-UP](#)

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[COOLING SYSTEM FAN 1](#)

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[INJECTOR 2 CYL. 5 DISABLE](#)

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[INJECTOR 4 CYL. 6 DISABLE](#)

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[DEACTIVATION OF CANISTER WASHING](#)

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[ADAPTIVE VALUE RESET FOR MOTOR DRIVEN THROTTLE](#)

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[INJECTOR 1, CYLINDER 12](#)

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[INJECTOR 4 CYL. 7 DISABLE](#)

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[FRONT OXYGEN SENSOR 1 WARMING-UP](#)

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[INJECTOR 1 CYL. 12 DISABLE](#)

[INJECTOR 2 CYL. 8 DISABLE](#)

[INJECTOR 3 CYL. 10 DISABLE](#)

[INJECTOR 4 CYL. 7 DISABLE](#)

[INJECTOR 5 CYL. 11 DISABLE](#)

[INJECTOR 6 CYL. 9 DISABLE](#)

[ADAPTIVE VALUE RESET FOR MOTOR DRIVEN THROTTLE](#)

[RESET ALL ADAPTIVE VALUES](#)

INJECTOR 1, CYLINDER 1

Conditions for carrying out the test: key to ON, engine OFF. Check of injector no. 1 activation, corresponding to cylinder no. 1. The injector is operated for a maximum time of 30 seconds to allow the operator to check the activation.

INJECTOR 2, CYLINDER 5

Conditions for carrying out the test: key to ON, engine OFF. Check of injector no. 2 activation, corresponding to cylinder no. 5 The injector is activated for a max. time of 30 seconds, so as to allow the user to check its activation.

INJECTOR 3, CYLINDER 3

Conditions for carrying out the test: key to ON, engine OFF. Check of injector no. 3 activation, corresponding to cylinder no. 3 The injector is activated for a max. time of 30 seconds, so as to allow the user to check its activation.

INJECTOR 4, CYLINDER 6

Conditions for carrying out the test: Key to ON, engine OFF. Check of injector 4 activation, corresponding to cylinder no. 6. The injector is activated for a max. time of 30 seconds, so as to allow the user to check its activation.

INJECTOR 5, CYLINDER 2

Conditions for carrying out the test: key to ON, engine OFF. Check of injector no. 5 activation, corresponding to cylinder no. 2 The injector is activated for a max. time of 30 seconds, so as to allow the user to check its activation.

INJECTOR 6, CYLINDER 4

Conditions for carrying out the test: key to ON, engine OFF. Check of injector no. 6 activation, corresponding to cylinder no. 4 The injector is activated for a max. time of 30 seconds, so as to allow the user to check its activation.

FRONT OXYGEN SENSOR 1 WARMING-UP

It checks the front oxygen sensor no. 1 for proper heating. Do not touch, in any way, the sensor during the diagnosis cycle and for several minutes after it has been completed, in order to avoid the risk of burns. The check is carried out on the electric connection between the sensor and the ECU.

FRONT OXYGEN SENSOR 2 WARMING-UP

It checks the front oxygen sensor no. 2 for proper heating. Do not touch, in any way, the sensor during the diagnosis cycle and for several minutes after it has been completed, in order to avoid the risk of burns. The check is carried out on the electric connection between the sensor and the ECU.

REAR OXYGEN SENSOR 1 WARMING-UP

It checks the rear oxygen sensor no. 1 for proper heating. Do not touch, in any way, the sensor during the diagnosis cycle and for several minutes after it has been completed, in order to avoid the risk of burns. The check is carried out on the electric connection between the sensor and the ECU.

REAR OXYGEN SENSOR 2 WARMING-UP

It checks the rear oxygen sensor no. 2 for proper heating. Do not touch, in any way, the sensor during the diagnosis cycle and for several minutes after it has been completed, in order to avoid the risk of burns. The check is carried out on the electric connection between the sensor and the ECU.

Intake ducts variation

This checks the correct operation of the solenoid valve controlling the intake volume variation: it opens and closes the valve. By means of a visual inspection, it is possible to check the valve proper operation.

CANISTER PURGE VALVE

Conditions for carrying out the test: key to ON, engine OFF. Activation sequence for the canister purge solenoid valve The solenoid valve is activated intermittently, at 1 sec. intervals to allow the operator to perform a check.

AC COMPRESSOR RELAY

It checks the proper operation of the control relay for the Air Conditioner compressor. The relay trips upon the compressor activation request.

FUEL PUMP 1: RELAY ACTIVATION

It checks the fuel pump no. 1 driving relay for proper operation. The relay trips upon the pump activation request following a fuel delivery request

FUEL PUMP 2: RELAY ACTIVATION

It checks the fuel pump no. 2 driving relay for proper operation. The relay trips upon the pump activation request following a fuel delivery request

EXHAUST BYPASS VALVE ACTIVATION

It checks the exhaust by-pass solenoid valve for proper operation: the valve must open and close. With a visual inspection it is possible to check the valve correct operation.

SECONDARY AIR PUMP ACTIVATION

It checks the secondary air pump for proper working condition. The pump is activated to check its proper working condition: a diagnosis cycle is run on the electric connections to the pump in order to check if there are any SC or OC.

SECONDARY AIR SOLENOID VALVE ACTIVATION

It checks the valve for the secondary air pump for proper operation. The valve is activated to check its working condition: a diagnosis cycle is run on the electric connections to the pump in order to check if there are any SC or OC.

REVOLUTION COUNTER TEST

It checks the Engine Rpm counter circuit for proper operation: the ECU output frequency signal is controlled to check the instrument panel.

MIL LAMP

Conditions for carrying out the test: key to ON, engine OFF. Activation control for Check Engine lamp, until the tester turns it off or until the key is turned to OFF.

SLOW DOWN LAMP

Conditions for carrying out the test: key to ON, engine OFF. Activation control for Slow Down lamp, until the tester turns it off or until the key is turned to OFF.

COOLING SYSTEM FAN 1

It checks the cooling fan for proper operation: by activating the fan, you can carry out a visual/auditory inspection on the fan itself, paying particular attention.

INJECTOR 1 CYL. 1 DISABLE

It cuts-out the connection with the injector electronically, thereby preventing the injector from operating while carrying out an operation check on it.

INJECTOR 2 CYL. 5 DISABLE

It cuts-out the connection with the injector electronically, thereby preventing the injector from operating while carrying out an operation check on it.

INJECTOR 3 CYL. 3 DISABLE

It cuts-out the connection with the injector electronically, thereby preventing the injector from operating while carrying out an operation check on it.

INJECTOR 4 CYL. 6 DISABLE

It cuts-out the connection with the injector electronically, thereby preventing the injector from operating while carrying out an operation check on it.

INJECTOR 5 CYL. 2 DISABLE

It cuts-out the connection with the injector electronically, thereby preventing the injector from operating while carrying out an operation check on it.

INJECTOR 6 CYL. 4 DISABLE

It cuts-out the connection with the injector electronically, thereby preventing the injector from operating while carrying out an operation check on it.

DEACTIVATION OF CANISTER WASHING

It cuts-out the connection with the canister purge valve electronically, thereby preventing the purge valve from operating while carrying out an operation check on it.

DEACTIVATION OF LAMBDA CONTROL

It cuts-out the control on the Lambda sensors electronically, thereby preventing the sensors from operating while carrying out an operation check on them.

DEACTIVATION OF CANISTER PURGE AND LAMBDA CONTROL

It carries out both diagnosis cycles for CANISTER PURGE DISABLING and CANISTER PURGE DISABLING AND LAMBDA CONTROL.

ADAPTIVE VALUE RESET FOR MOTOR DRIVEN THROTTLE

It eliminates all the ADAPTIVE PARAMETERS, including those concerning the self-learning cycle of the motor-driven throttle. After the following key-off / key-on these values are recalculated.

RESET ALL ADAPTIVE VALUES

Conditions for carrying out the test: key to ON, engine OFF. Reset of all error records and of all values learned. The procedure will be completed after a key OFF / ON cycle. All parameters are reset except for the function

INJECTOR 1, CYLINDER 12

Conditions for carrying out the test: key to ON, engine OFF. Check of injector no. 1 activation, corresponding to cylinder no. 12 The injector is activated for a max. time of 30 seconds, so as to allow the user to check its activation.

INJECTOR 2, CYLINDER 8

Conditions for carrying out the test: key to ON, engine OFF. Check of injector no. 2 activation, corresponding to cylinder no. 8 The injector is activated for a max. time of 30 seconds, so as to allow the user to check its activation.

INJECTOR 3, CYLINDER 10

Conditions for carrying out the test: key to ON, engine OFF. Check of injector no. 3 activation, corresponding to cylinder no. 10 The injector is activated for a max. time of 30 seconds, so as to allow the user to check its activation.

INJECTOR 4 CYL. 7 DISABLE

Conditions for carrying out the test: key to ON, engine OFF. Check of injector no. 4 activation, corresponding to cylinder no. 7 The injector is activated for a max. time of 30 seconds, so as to allow the user to check its activation.

INJECTOR 5 CYL. 11 DISABLE

Conditions for carrying out the test: key to ON, engine OFF. Check of injector no. 5 activation, corresponding to cylinder no. 11 The injector is activated for a max. time of 30 seconds, so as to allow the user to check its activation.

INJECTOR 6 CYL. 9 DISABLE

Conditions for carrying out the test: key to ON, engine OFF. Check of injector no. 6 activation, corresponding to cylinder no. 9 The injector is activated for a max. time of 30 seconds, so as to allow the user to check its activation.

INJECTOR 1 CYL. 12 DISABLE

It cuts-out the connection with the injector electronically, thereby preventing the injector from operating while carrying out an operation check on it.

INJECTOR 2 CYL. 8 DISABLE

It cuts-out the connection with the injector electronically, thereby preventing the injector from operating while carrying out an operation check on it.

INJECTOR 3 CYL. 10 DISABLE

It cuts-out the connection with the injector electronically, thereby preventing the injector from operating while carrying out an operation check on it.

INJECTOR 4 CYL. 7 DISABLE

It cuts-out the connection with the injector electronically, thereby preventing the injector from operating while carrying out an operation check on it.

INJECTOR 5 CYL. 11 DISABLE

It cuts-out the connection with the injector electronically, thereby preventing the injector from operating while carrying out an operation check on it.

INJECTOR 6 CYL. 9 DISABLE

It cuts-out the connection with the injector electronically, thereby preventing the injector from operating while carrying out an operation check on it.

ERRORS

All possible errors that can be detected and stored by the ECU are shown on this computer screen. The errors that are presently stored in the ECU are displayed by colour changing of the dot placed on the left of the error type indication. It is possible to select the type of error or component for which information is required by positioning the cursor on it and pressing the [Enter]key. An environment will be entered where the possible outline data about that error are displayed. Here it is possible to activate a Help environment where you can navigate with information, wiring diagrams, connectors and guided diagnosis for the solution of the detected error.

WHENEVER A DIAGNOSIS HAS TO BE MADE, IT IS ABSOLUTELY NECESSARY TO PRINT THE ERRORS FIRST.

Error selection menu

[REVERSE GEAR SWITCH \(P1747 \)](#)

[SWITCH STBY \(P1746 \)](#)

[SWITCH DOWN \(P1748 \)](#)

[SWITCH UP \(P1745 \)](#)

[CLUTCH POSITION SENSOR \(P1710 \)](#)

[SELECTION POTENTIOMETER \(P1742 \)](#)

[ENGAGEMENT POTENTIOMETER \(P1741 \)](#)

[OIL PRESSURE SENSOR \(P1720 \)](#)

[BATTERY VOLTAGE \(P1749 \)](#)

[ENGINE REVOL. \(P0725 \)](#)

[GEARBOX OUTPUT REVOLUTIONS \(P0720 \)](#)

[GEARBOX INPUT REVOLUTIONS \(P0715 \)](#)

[PUMP RELAY \(P1730 \)](#)

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[SELECTION SV 1 \(P1750 \)](#)

[SPEED SELECTION SV2 \(P1751 \)](#)

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[REVERSE LIGHT RELAY \(P1759 \)](#)

[CLUTCH SV \(P1758 \)](#)

[SV FOR UNEVEN GEAR ENGAGEMENT \(P1756 \)](#)

[SV FOR EVEN GEAR ENGAGEMENT \(P1757 \)](#)

[CAN_ERROR_CODE \(P0600 \)](#)

[GROUND_DETACHMENT_ERROR \(P1765 \)](#)

[GEARBOX_SELF-LEARNING \(P1767 \)](#)

[CLUTCH_POSITION_PRIMARY_VAC_SENSOR \(P1790 \)](#)

[GEAR_ENGAGEMENTS_WITH_WRONG_SHIFTS \(P1770 \)](#)

[GEARBOX_INPUT_HIGH_RPM \(P1771 \)](#)

[OPPOSITE_GEAR_ENGAGEMENT \(P1772 \)](#)

[CLUTCH_BEYOND_PIS \(P1773 \)](#)

[CLUTCH_HYDRAULIC_FAILURE \(P1774 \)](#)

[GEAR_RELEASE_FAILED \(P1775 \)](#)

LEVER SWITCH NOT OK (P1780)

BRAKE ERROR (DETACHED WIRE/BRAKE_STUCK/BRAKE_CAN_ERROR) (P1760)

SAFETY MICRO ERROR (P1764)

- Defect found on the dashboard reverse switch. Switch status inconsistent with the levers' conditions of use

ERROR TYPE

Above max. threshold: short circuit to vbatt or open circuit, signal > 4,64 V

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

ELECTRONICALLY-CONTROLLED GEARBOX DASHBOARD

- Defect found on the dashboard reverse switch. Switch status inconsistent with the levers' conditions of use

ERROR TYPE

Under min. threshold: short circuit to ground or signal < 0.49 V

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

ELECTRONICALLY-CONTROLLED GEARBOX DASHBOARD

- Defect found on the dashboard reverse switch. Switch status inconsistent with the levers' conditions of use

ERROR TYPE

Invalid signal: discontinuous signal or signal not consistent -after two subsequent

samplings- or stuck (activated for more than 6 seconds).

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

ELECTRONICALLY-CONTROLLED GEARBOX DASHBOARD

- Defect found on the lever control switch, connected in parallel to the UP and DOWN switch. Switch status inconsistent with the levers' conditions of use

ERROR TYPE

Above max. threshold: short circuit to vbatt or open circuit, signal > 4,64 V

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

GEARS SELECTION SWITCH

- Defect found on the lever control switch, connected in parallel to the UP and DOWN switch. Switch status inconsistent with the levers' conditions of use

ERROR TYPE

Under min. threshold: short circuit to ground or signal < 0.49 V

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

GEARS SELECTION SWITCH

- Defect found on the lever control switch, connected in parallel to the UP and DOWN switch. Switch status inconsistent with the levers' conditions of use

ERROR TYPE

Invalid signal: discontinuous signal or signal not consistent -after two subsequent

samplings- or stuck (activated for more than 6 seconds).

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

GEARS SELECTION SWITCH

- Defect found on the DOWN switch. Switch condition inconsistent with the levers' conditions of use

ERROR TYPE

Above max. threshold: short circuit to vbatt or open circuit, signal > 4,64 V

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

GEARS SELECTION SWITCH

- Defect found on the DOWN switch. Switch condition inconsistent with the levers' conditions of use

ERROR TYPE

Under min. threshold: short circuit to ground or signal < 0.49 V

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

GEARS SELECTION SWITCH

- Defect found on the DOWN switch. Switch condition inconsistent with the levers' conditions of use

ERROR TYPE

Invalid signal: discontinuous signal or signal not consistent -after two subsequent

samplings- or stuck (activated for more than 6 seconds).

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

GEARS SELECTION SWITCH

- Defect found on the UP switch. Switch condition inconsistent with the levers' conditions of use

ERROR TYPE

Above max. threshold: short circuit to vbatt or open circuit, signal > 4,64 V

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

GEARS SELECTION SWITCH

- Defect found on the UP switch. Switch condition inconsistent with the levers' conditions of use

ERROR TYPE

Under min. threshold: short circuit to ground or signal < 0.49 V

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

GEARS SELECTION SWITCH

- Defect found on the UP switch. Switch condition inconsistent with the levers' conditions of use

ERROR TYPE

Invalid signal: discontinuous signal or signal not consistent -after two subsequent

samplings- or stuck (activated for more than 6 seconds).

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

GEARS SELECTION SWITCH

CLUTCH POSITION SENSOR (P1710)

- Defect found on the clutch position sensor. Position values inconsistent (or no signal) with the vehicle working conditions.

VERIFICATIONS

In the parameters environment and using the diagnosis tool, check that the clutch moves correctly during gear shifting. Check wiring / component intactness.

TOPOLOGICAL

CLUTCH SENSOR

- Gear selection value inconsistent (or no signal) with the vehicle working conditions

ERROR TYPE

Above max. threshold: short circuit to vbatt or open circuit, signal > 4,64 V

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

ENGAGEMENT/SELECTION POTENTIOMETERS CONNECTING JOINT

- Gear selection value inconsistent (or no signal) with the vehicle working conditions

ERROR TYPE

Under min. threshold: short circuit to ground or signal < 0.49 V

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

ENGAGEMENT/SELECTION POTENTIOMETERS CONNECTING JOINT

- Gear selection value inconsistent (or no signal) with the vehicle working conditions

ERROR TYPE

Invalid signal: discontinuous signal or signal not consistent, after two subsequent samplings.

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

ENGAGEMENT/SELECTION POTENTIOMETERS CONNECTING JOINT

- Gear-shift value inconsistent (or no signal) with the levers' conditions of use

ERROR TYPE

Above max. threshold: short circuit to vbatt or open circuit, signal > 4,64 V

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

ENGAGEMENT/SELECTION POTENTIOMETERS CONNECTING JOINT

- Gear-shift value inconsistent (or no signal) with the levers' conditions of use

ERROR TYPE

Under min. threshold: short circuit to ground or signal < 0.49 V

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

ENGAGEMENT/SELECTION POTENTIOMETERS CONNECTING JOINT

- Gear-shift value inconsistent (or no signal) with the levers' conditions of use

ERROR TYPE

Invalid signal: discontinuous signal or signal not consistent, after two subsequent samplings.

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

ENGAGEMENT/SELECTION POTENTIOMETERS CONNECTING JOINT

OIL PRESSURE SENSOR (P1720)

- Oil pressure out of range (or no signal)

ERROR TYPE

Above max. threshold: short circuit to vbatt or open circuit, signal > 4,64 V

VERIFICATIONS

On the "Parameters" page, check that the pump is functioning correctly using the pressure value (HYDRAULIC CIRC.PRESS.), using the parameter "PUMP RELAYCOM." or by activating any of the diagnoses relative to gearshift and check

TOPOLOGICAL

GEARBOX OIL LEVEL SENSOR

- Oil pressure out of range (or no signal)

ERROR TYPE

Under min. threshold: short circuit to ground or signal < 0.49 V

VERIFICATIONS

On the "Parameters" page, check that the pump is functioning correctly using the pressure value (HYDRAULIC CIRC.PRESS.), using the parameter "PUMP RELAYCOM." or by activating any of the diagnoses relative to gearshift and check

TOPOLOGICAL

GEARBOX OIL LEVEL SENSOR

- Oil pressure out of range (or no signal)

ERROR TYPE

Invalid signal: discontinuous signal or signal not consistent, after two subsequent samplings.

VERIFICATIONS

On the "Parameters" page, check that the pump is functioning correctly using the pressure value (HYDRAULIC CIRC.PRESS.), using the parameter "PUMP RELAYCOM." or by activating any of the diagnoses relative to gearshift and check

TOPOLOGICAL

GEARBOX OIL LEVEL SENSOR

BATTERY VOLTAGE (P1749)

- Battery voltage value low. This error is memorised when the battery voltage drops below 10 Volt

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

BATTERY POSITIVE

- Inconsistent engine rpm (or no CAN information) with the vehicle working conditions

VERIFICATIONS

Check the engine control ECU's functioning /errors. Check the CAN line wiring

TOPOLOGICAL

DASHBOARD/F1 CABLE TO CAN LINE

GEARBOX OUTPUT REVOLUTIONS (P0720)

- Gearbox output r.p.m inconsistent (or no CAN information) with the vehicle working conditions

VERIFICATIONS

Check the ABS/ASR ECU functioning /errors. Check the CAN line wiring

TOPOLOGICAL

DASHBOARD/F1 CABLE TO CAN LINE

- Gearbox input r.p.m inconsistent (or no signal) with the vehicle working conditions

VERIFICATIONS

In the parameters environment and using the diagnosis tool, check that the rpm value is correct (with clutch closed, gearbox input rpm equal to engine rpm). Check wiring / component intactness.

TOPOLOGICAL

GEARBOX SENSOR

- Relay control wire cut-out (or in short circuit)

VERIFICATIONS

On the "Parameters" page, check that the pump is functioning correctly using the pressure value (HYDRAULIC CIRC.PRESS.), using the parameter "PUMP RELAYCOM." or by activating any of the diagnoses relative to gearshift and check

TOPOLOGICAL

PUMP RELAY

- Relay control wire cut-out (or in short circuit)

VERIFICATIONS

On the "Parameters" page, check for correct functioning during the ignition stage using the parameter " IGNITION INPUT STATUS" which must be "ON" and check that "Check wiring/intactness" is not displayed on the errors screen

TOPOLOGICAL

12V IGNITION MOTOR

SELF-SUPPLY RELAY (P1735)

- The self-supply relay is incorporated in the gearbox ECU.If this error occurs, the ECU must be replaced.

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

ELECTRONICALLY-CONTROLLED GEARBOX ECU

- Solenoid valve control wire cut-out (or in short circuit)

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

SOLENOID VALVE 3

- Solenoid valve control wire cut-out (or in short circuit)

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

SOLENOID VALVE 4

- Solenoid valve control wire cut-out (or in short circuit)

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

SOLENOID VALVE 5

REVERSE LIGHT RELAY (P1759)

- Relay control wire cut-out (or in short circuit)

VERIFICATIONS

Check that the reverse lights switch on using the special command on the instrument panel. Check wiring / component intactness

TOPOLOGICAL

REVERSE GEAR INDICATOR SWITCH

- Solenoid valve control wire cut-out (or in short circuit)

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

CLUTCH SOLENOID VALVE

- Solenoid valve control wire cut-out (or in short circuit)

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

SOLENOID VALVE 1

- Solenoid valve control wire cut-out (or in short circuit)

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

SOLENOID VALVE 2

- CAN line wires cut-out / short circuit or communication error from the network

VERIFICATIONS

CAN line wiring check

TOPOLOGICAL

DASHBOARD/F1 CABLE TO CAN LINE

GROUND_DETACHMENT ERROR (P1765)

- It can be a sporadic error. The error is due to a lack of connection to the TCU ground. A wrong contact / wire cut-out on one of the ECU ground references has been detected.

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

ELECTRONICALLY-CONTROLLED GEARBOX ECU

- Ecu internal error which is set in the event that the checksum in the EEPROM self-setting variable area is wrong

VERIFICATIONS

The ECU is faulty.

TOPOLOGICAL

ELECTRONICALLY-CONTROLLED GEARBOX ECU

CLUTCH POSITION PRIMARY_VAC SENSOR (P1790)

- Primary signal for clutch position sensor out of range. Possible failure either in the sensor primary or in the ECU internal stage

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

CLUTCH SENSOR

- The error counter is activated when a gear is selected with a selection value out of range

VERIFICATIONS

With the diagnosis tool, check that the value of the gears engaged is within the accepted range

TOPOLOGICAL

ENGAGEMENT/SELECTION POTENTIOMETERS CONNECTING JOINT

GEARBOX INPUT HIGH RPM (P1771)

- This error is activated when the gearbox input rpm, the vehicle speed and the engaged gear are not plausible.

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

GEARBOX SENSOR

- The error is set when the value read on the potentiometers, following a gear-shift, indicates a gear which is opposite to the one that the user wished to engage

VERIFICATIONS

With the diagnosis tool, check that the value of the gears engaged is within the accepted range. Check electrical wiring / gear engagement and selection sensor intactness

TOPOLOGICAL

ENGAGEMENT/SELECTION POTENTIOMETERS CONNECTING JOINT

- This error is activated when the ECU recognizes the gearbox primary shaft driving with the clutch beyond the touch point (P.I.S.) (open).

VERIFICATIONS

Check that the pis self-learning functions correctly and that the closed clutch position value is correct

TOPOLOGICAL

ELECTRONICALLY-CONTROLLED GEARBOX ECU

CLUTCH HYDRAULIC FAILURE (P1774)

- This error is activated when the ECU detects a wrong clutch movement through the clutch sensor

VERIFICATIONS

Hydraulic circuit (piping, drains etc) check. Wiring and component intactness check

TOPOLOGICAL

CLUTCH SENSOR

- The error is set when, following a gearshift request, the gear previously engaged cannot be released

VERIFICATIONS

Hydraulic circuit (piping, drains etc) check. Hydraulic ECU component intactness and wiring check

TOPOLOGICAL

ENGAGEMENT/SELECTION POTENTIOMETERS CONNECTING JOINT

LEVER SWITCH NOT OK (P1780)

- The error is set when all four switches in the lever unit feature values which do not correspond to a foreseen lever position

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

GEAR SELECTION SWITCH

- Wire for brake pedal pressed signal cut-out or in short circuit

ERROR TYPE

Error edited on CAN line, compared to physical input, wire for brake pedal pressed signal cut-out or in short circuit

VERIFICATIONS

Wiring / component intactness check

TOPOLOGICAL

ELECTRONICALLY-CONTROLLED GEARBOX ECU

- Error inside the ECU, on the second safety micro-switch (watchdog)

VERIFICATIONS

The ECU is faulty.

TOPOLOGICAL

ELECTRONICALLY-CONTROLLED GEARBOX ECU

ERRORS

All possible errors that can be detected and stored by the ECU are shown on this computer screen. The errors that are presently stored in the ECU are displayed by colour changing of the dot placed on the left of the error type indication. It is possible to select the type of error or component for which information is required by positioning the cursor on it and pressing the [Enter]key. An environment will be entered where the possible outline data about that error are displayed. Here it is possible to activate a Help environment where you can navigate with information, wiring diagrams, connectors and guided diagnosis for the solution of the detected error.

WHENEVER A DIAGNOSIS HAS TO BE MADE, IT IS ABSOLUTELY NECESSARY TO PRINT THE ERRORS FIRST.

Error selection menu

[ECU MALFUNCTION](#)

[BATTERY VOLTAGE](#)

[RH FRONT WHEEL ACCELERATION SENSOR](#)

[LH FRONT WHEEL ACCELERATION SENSOR](#)

[RH FRONT CAR BODY ACCELERATION SENSOR](#)

[LH FRONT CAR BODY ACCELERATION SENSOR](#)

[RH REAR CAR BODY ACCELERATION SENSOR](#)

[SIDE ACCELERATION SENSOR](#)

[LAMP ERROR](#)

[RH FRONT SOLENOID VALVE](#)

[LH FRONT SOLENOID VALVE](#)

[RH REAR SOLENOID VALVE](#)

[LH REAR SOLENOID VALVE](#)

[SENSORS FEEDING](#)

[SPEED SIGNAL](#)

[BRAKE SIGNAL](#)

[SPORT SWITCH](#)

- Watchdog initialization failed during start-up Self test. Error caused by a Software malfunction.

ERROR TYPE

No further information

CONDITIONS

Error detected in KEY-ON condition.

VERIFICATIONS

Replace the ECU

TOPOLOGICAL

CAR TRIM ECU (BOGE SYSTEM)

BATTERY VOLTAGE

- The battery voltage measured is over 16V.

ERROR TYPE

VALUE TOO HIGH

CONDITIONS

Error detected in KEY-ON condition.

VERIFICATIONS

Check the battery voltage. Check the connection between the ECU, the GND pin and the VBAT pin.

TOPOLOGICAL

CAR TRIM ECU (BOGE SYSTEM)

- *The battery voltage measured is below 9V*

ERROR TYPE

VALUE TOO LOW

CONDITIONS

Error detected in KEY-ON condition.

VERIFICATIONS

Check the battery voltage. Check the connection between the ECU, the GND pin and the VBAT pin.

TOPOLOGICAL

CAR TRIM ECU (BOGE SYSTEM)

RH FRONT WHEEL ACCELERATION SENSOR

- The error is detected when the vehicle speed is > 30 km/h. The number of signal variations summed up is lower than the prescribed value. Check: 1) The sensor power supply; 2) The sensor operation. The error is stored in the historical records only upon the following

ERROR TYPE

INVALID SIGNAL

CONDITIONS

Error detected with vehicle in motion.

VERIFICATIONS

Check the connection between the pin (1) for the right wheel acceleration sensor power supply and the ECU. If connection is correct, check that the sensor is intact by replacing it.

TOPOLOGICAL

RH WHEEL ACCELERATION SENSOR

- *The error was probably caused by a connection cut-out between the ECU and the sensor or to a SCVBatt. The wheel acceleration measured is over 13.33g. Even if the signal is restored, the error is memorised in the historical records only upon*

ERROR TYPE

VALUE TOO HIGH

CONDITIONS

Error detected in KEY-ON condition.

VERIFICATIONS

Check the connection between the signal pin (3) for the right wheel acceleration sensor and the ECU. Check the connection between the GND pin and the ECU.

TOPOLOGICAL

RH WHEEL ACCELERATION SENSOR

- *The error was caused by a SC GND in the connection between the ECU and the sensor. The wheel acceleration measured is below -13.33g. The error is stored in the historical records only upon the following KEY-ON.*

ERROR TYPE

VALUE TOO LOW

CONDITIONS

Error detected in KEY-ON condition.

VERIFICATIONS

Check that the connection between the signal pin (3) for the right wheel acceleration sensor and that the ECU is not in short-circuit to GND.

TOPOLOGICAL

RH WHEEL ACCELERATION SENSOR

LH FRONT WHEEL ACCELERATION SENSOR

- The error is detected when the vehicle speed is > 30 km/h. The number of signal variations summed up is lower than the prescribed value. Check: 1) The sensor power supply; 2) The sensor operation. The error is stored in the historical records only upon the following

ERROR TYPE

INVALID SIGNAL

CONDITIONS

Error detected with vehicle in motion.

VERIFICATIONS

Check the connection between the pin (1) for the right wheel acceleration sensor power supply and the ECU. If connection is correct, check that the sensor is intact by replacing it.

TOPOLOGICAL

LH WHEEL ACCELERATION SENSOR

- *The error was probably caused by a connection cut-out between the ECU and the sensor or to a SCVBatt. The wheel acceleration measured is over 13.33g. Even if the signal is restored, the error is memorised in the historical records only upon*

ERROR TYPE

VALUE TOO HIGH

CONDITIONS

Error detected in KEY-ON condition.

VERIFICATIONS

Check the connection between the pin (1) for the right wheel acceleration sensor power supply and the ECU. If connection is correct, check that the sensor is intact by

replacing it.

TOPOLOGICAL

LH WHEEL ACCELERATION SENSOR

- *The error was caused by a SC GND in the connection between the ECU and the sensor. The wheel acceleration measured is below -13.33g. The error is stored in the historical records only upon the following KEY-ON.*

ERROR TYPE

VALUE TOO LOW

CONDITIONS

Error detected in KEY-ON condition.

VERIFICATIONS

Check the connection between the signal pin (3) for the right wheel acceleration sensor and the ECU. Check the connection between the GND pin and the ECU.

TOPOLOGICAL

LH WHEEL ACCELERATION SENSOR

RH FRONT CAR BODY ACCELERATION SENSOR

- The error is detected when the vehicle speed is > 30 km/h. The number of signal variations summed up is lower than the prescribed value. Check: 1) The sensor power supply; 2) The sensor operation. The error is stored in the historical records only upon the following

ERROR TYPE

INVALID SIGNAL

CONDITIONS

Error detected with vehicle in motion.

VERIFICATIONS

Check that the connection between the signal pin (3) for the right wheel acceleration sensor and that the ECU is not in short-circuit to GND.

TOPOLOGICAL

RH VERTICAL ACCELERATION SENSOR

- *The error was probably caused by a connection cut-out between the ECU and the sensor or to a SC to VBatt. The car body acceleration measured is over 2.33g. Even if the connection is restored, the error is memorised in the historical records only upon the foll*

ERROR TYPE

VALUE TOO HIGH

CONDITIONS

Error detected in KEY-ON condition.

VERIFICATIONS

Check the connection between the pin (1) for the right wheel acceleration sensor power supply and the ECU. If connection is correct, check that the sensor is intact by replacing it.

TOPOLOGICAL

RH VERTICAL ACCELERATION SENSOR

- *The error was caused by a SC GND in the connection between the ECU and the sensor. The car body acceleration measured is below -0.33g. The error is stored in the historical records only upon the following KEY-ON.*

ERROR TYPE

VALUE TOO LOW

CONDITIONS

Error detected in KEY-ON condition.

VERIFICATIONS

Check the connection between the signal pin (3) for the right wheel acceleration sensor and the ECU. Check the connection between the GND pin and the ECU.

TOPOLOGICAL

RH VERTICAL ACCELERATION SENSOR

- The error is detected when the vehicle speed is > 30 km/h. The number of signal variations summed up is lower than the prescribed value. Check: 1) The sensor power supply; 2) The sensor operation. The error is stored in the historical records only upon the following

ERROR TYPE

INVALID SIGNAL

CONDITIONS

Error detected with vehicle in motion.

VERIFICATIONS

Check that the connection between the signal pin (3) for the right wheel acceleration sensor and that the ECU is not in short-circuit to GND.

TOPOLOGICAL

LH WHEEL ACCELERATION SENSOR

- *The error was probably caused by a connection cut-out between the ECU and the sensor or to a SCVBatt. The car body acceleration measured is over 2.33g. Even if the connection is restored, the error is memorised in the historical records only upon the foll*

ERROR TYPE

VALUE TOO HIGH

CONDITIONS

Error detected in KEY-ON condition.

VERIFICATIONS

Check the connection between the pin (1) for the right wheel acceleration sensor power supply and the ECU. If connection is correct, check that the sensor is intact by replacing it.

TOPOLOGICAL

LH WHEEL ACCELERATION SENSOR

- *The error was caused by a SC GND in the connection between the ECU and the sensor. The car body acceleration measured is below -0.33g. The error is stored in the historical records only upon the following KEY-ON.*

ERROR TYPE

VALUE TOO LOW

CONDITIONS

Error detected in KEY-ON condition.

VERIFICATIONS

Check the connection between the signal pin (3) for the right wheel acceleration sensor and the ECU. Check the connection between the GND pin and the ECU.

TOPOLOGICAL

LH WHEEL ACCELERATION SENSOR

- The error is detected when the vehicle speed is > 30 km/h. The number of signal variations summed up is lower than the prescribed value. Check: 1) The sensor power supply; 2) The sensor operation. The error is stored in the historical records only upon the following

ERROR TYPE

INVALID SIGNAL

CONDITIONS

Error detected with vehicle in motion.

VERIFICATIONS

Check that the connection between the signal pin (3) for the right wheel acceleration sensor and that the ECU is not in short-circuit to GND.

TOPOLOGICAL

BOGE VERTICAL ACCELERATION SENSOR

- *The error was probably caused by a connection cut-out between the ECU and the sensor or to a SCVBatt. The car body acceleration measured is over 2.33g. Even if the connection is restored, the error is memorised in the historical records only upon the foll*

ERROR TYPE

VALUE TOO HIGH

CONDITIONS

Error detected in KEY-ON condition.

VERIFICATIONS

Check the connection between the pin (1) for the right wheel acceleration sensor power supply and the ECU. If connection is correct, check that the sensor is intact by replacing it.

TOPOLOGICAL

BOGE VERTICAL ACCELERATION SENSOR

- *The error was caused by a SC GND in the connection between the ECU and the sensor. The car body acceleration measured is below -0.33g. The error is stored in the historical records only upon the following KEY-ON.*

ERROR TYPE

VALUE TOO LOW

CONDITIONS

Error detected in KEY-ON condition.

VERIFICATIONS

Check the connection between the signal pin (3) for the right wheel acceleration sensor and the ECU. Check the connection between the GND pin and the ECU.

TOPOLOGICAL

BOGE VERTICAL ACCELERATION SENSOR

- The error is detected when the vehicle speed is > 30 km/h. The number of signal variations summed up is lower than the prescribed value. Check: 1) The sensor power supply; 2) The sensor operation. The error is stored in the historical records only upon the following

ERROR TYPE

VALUE TOO HIGH

CONDITIONS

Error detected with vehicle in motion.

VERIFICATIONS

Check that the connection between the signal pin (3) for the right wheel acceleration sensor and that the ECU is not in short-circuit to GND.

TOPOLOGICAL

CAR TRIM ECU (BOGE SYSTEM)

- *The error was probably caused by a connection cut-out between the ECU and the sensor or to a SCVBatt. The car body acceleration measured is over 1.33g. Even if the connection is restored, the error is memorised in the historical records only upon the foll*

ERROR TYPE

VALUE TOO LOW

CONDITIONS

Error detected in KEY-ON condition.

VERIFICATIONS

Check the correct connection between the ECU (pin 5 - pin 25) and the solenoid valve. Check that the connection is not in short-circuit to GND or to VBAT

TOPOLOGICAL

CAR TRIM ECU (BOGE SYSTEM)

- *The error was caused by a SC GND in the connection between the ECU and the sensor. The car body acceleration measured is below -0.33g. The error is stored in the historical records only upon the following KEY-ON.*

ERROR TYPE

VALUE TOO LOW

CONDITIONS

Error detected in KEY-ON condition.

VERIFICATIONS

Check that the connection between the signal pin (3) for the right wheel acceleration sensor and that the ECU is not in short-circuit to GND.

TOPOLOGICAL

CAR TRIM ECU (BOGE SYSTEM)

- Error caused by a warning lamp malfunction, a cut-out or a short circuit in the connection between the ECU and the warning light. The control driver for the warning light detects a malfunction. The error is memorised in the historical records only upon the following

VERIFICATIONS

Check the connection between the ECU (pin 26) and the instrument panel. Check that the connection is not in short-circuit to GND. Check the instrument panel.

TOPOLOGICAL

CAR TRIM ECU (BOGE SYSTEM)

- The error was caused by a cut-out in the connection between the ECU and the valve. According to the indications from the hardware output stage, the current regulator is saturated and cannot control the component current. The current regulator

ERROR TYPE

VALUE TOO LOW

CONDITIONS

Error detected in KEY-ON condition.

VERIFICATIONS

*Check the correct connection between the ECU (pin 5 - pin 25) and the solenoid valve.
Check that the connection is not in short-circuit to GND or to VBAT*

TOPOLOGICAL

SOLENOID VALVE FOR FRONT RH SHOCK ABSORBER

- *The error was caused by a short circuit to VBatt or to GND in the connection between the ECU and the valve. According to the indications from the hardware output stage, the current regulator is saturated and cannot control the component properly. Il re*

ERROR TYPE

VALUE TOO HIGH

CONDITIONS

Error detected in KEY-ON condition.

VERIFICATIONS

Check that the solenoid valve connection is not in short-circuit to GND or to VBAT

TOPOLOGICAL

SOLENOID VALVE FOR FRONT RH SHOCK ABSORBER

- The error was caused by a cut-out in the connection between the ECU and the valve. According to the indications from the hardware output stage, the current regulator is saturated and cannot control the component current. The current regulator

ERROR TYPE

VALUE TOO LOW

CONDITIONS

Error detected in KEY-ON condition.

VERIFICATIONS

*Check the correct connection between the ECU (pin 4 - pin 24) and the solenoid valve.
Check that the connection is not in short-circuit to GND or to VBAT*

TOPOLOGICAL

SOLENOID VALVE FOR FRONT LH SHOCK ABSORBER

- *The error was caused by a short circuit to VBatt or to GND in the connection between the ECU and the valve. According to the indications from the hardware output stage, the current regulator is saturated and cannot control the component properly. Il re*

ERROR TYPE

VALUE TOO HIGH

CONDITIONS

Error detected in KEY-ON condition.

VERIFICATIONS

Check that the solenoid valve connection is not in short-circuit to GND or to VBAT

TOPOLOGICAL

SOLENOID VALVE FOR FRONT LH SHOCK ABSORBER

- The error was caused by a cut-out in the connection between the ECU and the valve. According to the indications from the hardware output stage, the current regulator is saturated and cannot control the component current. The current regulator

ERROR TYPE

VALUE TOO LOW

CONDITIONS

Error detected in KEY-ON condition.

VERIFICATIONS

*Check the correct connection between the ECU (pin 3 - pin 23) and the solenoid valve.
Check that the connection is not in short-circuit to GND or to VBAT*

TOPOLOGICAL

SOLENOID VALVE FOR REAR RH SHOCK ABSORBER

- *The error was caused by a short circuit to VBatt or to GND in the connection between the ECU and the valve. According to the indications from the hardware output stage, the current regulator is saturated and cannot control the component properly. Il re*

ERROR TYPE

VALUE TOO HIGH

CONDITIONS

Error detected in KEY-ON condition.

VERIFICATIONS

Check that the solenoid valve connection is not in short-circuit to GND or to VBAT

TOPOLOGICAL

SOLENOID VALVE FOR REAR RH SHOCK ABSORBER

- The error was caused by a cut-out in the connection between the ECU and the valve. According to the indications from the hardware output stage, the current regulator is saturated and cannot control the component current. The current regulator

ERROR TYPE

VALUE TOO LOW

CONDITIONS

Error detected in KEY-ON condition.

VERIFICATIONS

*Check the correct connection between the ECU (pin 2 - pin 22) and the solenoid valve.
Check that the connection is not in short-circuit to GND or to VBAT*

TOPOLOGICAL

SOLENOID VALVE FOR REAR LH SHOCK ABSORBER

- *The error was caused by a short circuit to VBatt or to GND in the connection between the ECU and the valve. According to the indications from the hardware output stage, the current regulator is saturated and cannot control the component properly. Il re*

ERROR TYPE

VALUE TOO HIGH

CONDITIONS

Error detected in KEY-ON condition.

VERIFICATIONS

Check that the solenoid valve connection is not in short-circuit to GND or to VBAT

TOPOLOGICAL

SOLENOID VALVE FOR REAR LH SHOCK ABSORBER

- Error caused by a short circuit to VBatt in the power supply connection between the ECU and the sensors. The supply voltage measured is over 5.5V. The error is memorised in the historical records only when the correct conditions are restored.

ERROR TYPE

VALUE TOO HIGH

CONDITIONS

Error detected in KEY-ON condition.

VERIFICATIONS

Check that the power supply pin for one of the acceleration sensors is not in short-circuit to VBAT. Check that the signal pin of one of the acceleration sensors is not in short-circuit to VBAT. The power supply lines for the sensors are shared

TOPOLOGICAL

CAR TRIM ECU (BOGE SYSTEM)

- Error caused by a short circuit to GND in the power supply connection between the ECU and the sensors. The supply voltage measured is below 4.5V. The error is memorised in the historical records only when the correct conditions are restored.

ERROR TYPE

VALUE TOO LOW

CONDITIONS

Error detected in KEY-ON condition.

VERIFICATIONS

Check that the power supply pin for one of the acceleration sensors is not in short-circuit to GND. The power supply lines for the sensors are shared and the ECU cannot

indicate which sensor has a problem. The sensors must be separated

TOPOLOGICAL

CAR TRIM ECU (BOGE SYSTEM)

SPEED SIGNAL

- Error caused by a cut-out in the connection between the ECU and the dashboard Bridge Can ECU. Error detectable only when the vehicle is in motion. Plausibility check: (the speed signal is lost when the vehicle speed is > 40 km/h)

ERROR TYPE

NO SIGNAL

CONDITIONS

Error detected with vehicle in motion.

VERIFICATIONS

Check the correct connection between the ECU pin 31 and the ECU BRIDGE-CAN instrument panel. Check that the connection is not in short-circuit to GND. Check that the connection is not in short-circuit to VBAT. Check, by reading the parameters, that

TOPOLOGICAL

CAR TRIM ECU (BOGE SYSTEM)

BRAKE SIGNAL

- Error caused by a cut-out in the connection between the ECU and the Brake switch. Error detectable only when the vehicle is in motion. Plausibility check: (longitudinal acceleration $< -0,5g$ without brake signal). The error is memo

ERROR TYPE

NO SIGNAL

CONDITIONS

Error detected with vehicle in motion.

VERIFICATIONS

By reading the parameters and with the car stationary, check that none of the acceleration sensors is emitting an acceleration value lower than $-0.7g$. If this is the case, replace the sensor.

TOPOLOGICAL

STOP INDICATOR SWITCH

SPORT SWITCH

- Error caused by a cut-out, a short circuit to Vbatt or a short circuit to GND in the connection between the ECU and the SPORT switch. Error detectable only when the vehicle is in motion. Plausibility check: status of the signals to Pins 32

ERROR TYPE

INVALID SIGNAL

CONDITIONS

Error detected with vehicle in motion.

VERIFICATIONS

Check that the sport switch inputs (pin 32, pin 33) are not both to GND or to VBAT. If this is the case, check which of the two inputs does not correspond to the sport switch condition. Check that the sport switch is intact.

TOPOLOGICAL

CAR TRIM ECU (BOGE SYSTEM)

PARAMETERS

The parameters relating to the ECU in question are displayed in this environment. The reference values, if present, are detected when the car is static and the key is in the ON position.

PARAMETERS selection menu

[SPEED](#)

[BRAKE](#)

[RH FRONT SOLENOID VALVE VOLTAGE](#)

[LH FRONT SOLENOID VALVE VOLTAGE](#)

[RH BACK SOLENOID VALVE VOLTAGE](#)

[LH BACK SOLENOID VALVE VOLTAGE](#)

[RH FRONT WHEEL ACCELERATION](#)

[FRONT LH WHEEL ACCELERATION](#)

[RH FRONT BODY ACCELERATION](#)

[LH FRONT BODY ACCELERATION](#)

[RH REAR BODY ACCELERATION](#)

[SIDE ACCELERATION](#)

[BATTERY VOLTAGE](#)

[SENSOR 1 SUPPLY VOLTAGE](#)

[SENSOR 2 SUPPLY VOLTAGE](#)

[SPORT SWITCH](#)

SPEED (km/h)

Signal transmitted to Pin 31 from the dashboard Bridge - Can ECU

BRAKE

N.C. contact to ground, OPEN with brake pedal pressed.

RH FRONT SOLENOID VALVE VOLTAGE (A)

Current absorbed by the solenoid valve fitted inside the RH front suspension and connected by means of the wire coming out from the suspension upper coupling. Upon KEY-ON, the absorbed current is normally 0.1 A.

LH FRONT SOLENOID VALVE VOLTAGE (A)

Current absorbed by the solenoid valve fitted inside the LH front suspension and connected by means of the wire coming out from the suspension upper coupling. Upon KEY-ON, the absorbed current is normally 0.1 A.

RH BACK SOLENOID VALVE VOLTAGE (A)

Current absorbed by the solenoid valve fitted inside the RH rear suspension and connected by means of the wire coming out from the suspension upper coupling. Upon KEY-ON, the absorbed current is normally 0.1 A.

LH BACK SOLENOID VALVE VOLTAGE (A)

Current absorbed by the solenoid valve fitted inside the LH rear suspension and connected by means of the wire coming out from the suspension upper coupling. Upon KEY-ON, the absorbed current is normally 0.1 A.

RH FRONT WHEEL ACCELERATION (m/s²)

The sensor mounted on the RH front suspension's arm transmits a voltage value ranging between 0.5 and 4.5V, which is translated by the ECU.

FRONT LH WHEEL ACCELERATION (m/s²)

The sensor mounted on the LH front suspension's arm transmits a voltage value ranging between 0.5 and 4.5V, which is translated by the ECU.

RH FRONT BODY ACCELERATION (m/s²)

The sensor mounted on the RH front suspension's upper coupling transmits a voltage value ranging between 0.5 and 4.5V, which is translated by the ECU.

LH FRONT BODY ACCELERATION (m/s²)

The sensor mounted on the LH front suspension's upper coupling transmits a voltage value ranging between 0.5 and 4.5V, which is translated by the ECU.

RH REAR BODY ACCELERATION (m/s2)

The sensor mounted in the rear area transmits a voltage value ranging between 0.5 and 4.5V, which is translated by the ECU.

SIDE ACCELERATION (m/s²)

The sensor mounted to the radiator side, behind the front bumper, transmits a voltage value ranging between 0.5 and 4.5V, which is translated by the ECU.

BATTERY VOLTAGE (Volt)

Value measured on Pin 21 for ECU power supply The low supply voltage condition is not stored in the error memory.

SENSOR 1 SUPPLY VOLTAGE (Volt)

Supplies power to part of the sensors

SENSOR 2 SUPPLY VOLTAGE (Volt)

Supplies power to part of the sensors

SPORT SWITCH

input received from dashboard Bridge Can ECU (SPORT MODE OUTPUT Pin B8)

ERRORS

All possible errors that can be detected and stored by the ECU are shown on this computer screen. The errors that are presently stored in the ECU are displayed by colour changing of the dot placed on the left of the error type indication. It is possible to select the type of error or component for which information is required by positioning the cursor on it and pressing the [Enter]key. An environment will be entered where the possible outline data about that error are displayed. Here it is possible to activate a Help environment where you can navigate with information, wiring diagrams, connectors and guided diagnosis for the solution of the detected error.

WHENEVER A DIAGNOSIS HAS TO BE MADE, IT IS ABSOLUTELY NECESSARY TO PRINT THE ERRORS FIRST.

Error selection menu

[ECU :](#)

[ECU SUPPLY](#)

[CONNECTION BETWEEN ECU AND FAULT LAMP](#)

[CASE ATTACHMENT](#)

[PASSENGER BAG DEACTIV. LAMP](#)

[OUTPUT LINE \(CRASH OUTPUT\)](#)

[INPUT LINE \(CRASH INPUT\)](#)

[DRIVER AIRBAG](#)

[PASSENGER AIRBAG](#)

[DRIVER PRETENSIONER](#)

[PASSENGER PRE-TENSIONER](#)

[PASSENGER AIRBAG DEACTIVATION SWITCH](#)

WIRING POLARIZATION

FAULT INDICATOR LAMP/ LED

- Error occurring when the ECU detects a fault inside itself.

ERROR TYPE

INTERNAL ERRORS

CONDITIONS

Error detected in KEY-ON condition.

VERIFICATIONS

Check that the ECU and the electrical wiring are correctly connected. If it is properly connected, replace the ECU.

TOPOLOGICAL

AIR-BAG ECU

- *Error occurring when the ECU underwent a crash event with subsequent activation command for the pretensioner modules*

ERROR TYPE

AIRBAG AND PRETENSIONER CRASH DATA

CONDITIONS

Error detected in KEY-ON condition.

VERIFICATIONS

Replace the Airbag ECU

TOPOLOGICAL

AIR-BAG ECU

- This error occurs when a power supply value below 10V is detected for more than 10 seconds.

ERROR TYPE

VALUE TOO LOW

CONDITIONS

Error detected in KEY-ON condition.

VERIFICATIONS

Check the supply voltage to pins 1 and 2 in the ECU's connector A. Check that the ECU and the electrical wiring are correctly connected. If it is properly connected, replace the ECU.

TOPOLOGICAL

AIR-BAG ECU

- *This error occurs when a power supply value over 16V is detected for more than 1 minute.*

ERROR TYPE

VALUE TOO HIGH

CONDITIONS

Error detected in KEY-ON condition.

VERIFICATIONS

Check the supply voltage to pins 1 and 2 in the ECU's connector A. Check that the ECU and the electrical wiring are correctly connected. If it is properly connected, replace the ECU.

TOPOLOGICAL

AIR-BAG ECU

- An open circuit is detected on the connection between the ECU and the Malfunction Indicator Lamp. The error can be due to oxidized, cut or disconnected wires.

ERROR TYPE

OPEN CIRCUIT

CONDITIONS

Error detected in KEY-ON condition.

VERIFICATIONS

Check the connection to pin 10, conn. A. on the ECU.

TOPOLOGICAL

AIR-BAG ECU

- *This error occurs when a contact to Ground is detected on the connection between the ECU and Malfunction Indicator Lamp.*

ERROR TYPE

GND SHORT CIRCUIT

CONDITIONS

Error detected in KEY-ON condition.

VERIFICATIONS

Check that the connection to pin 10 in the ECU's conn. A is not in short-circuit to GND.

TOPOLOGICAL

AIR-BAG ECU

- *This error occurs when a contact to Vbatt is detected on the connection between the ECU and Malfunction Indicator Lamp.*

ERROR TYPE

VBATT SHORT CIRCUIT

CONDITIONS

Error detected in KEY-ON condition.

VERIFICATIONS

Check that the connection to pin 10 in the ECU's conn. A is not in short-circuit to VBAT.

TOPOLOGICAL

AIR-BAG ECU

- The ground contact is not ensured for the ECU ground.

ERROR TYPE

Value not plausible

CONDITIONS

Error detected in KEY-ON condition.

VERIFICATIONS

Check the connection between the stranded earth wire and the ECU.

TOPOLOGICAL

AIR-BAG ECU

- An open circuit is detected on the connection between the ECU and the Malfunction Indicator Lamp. The error can be due to oxidized, cut or disconnected wires.

ERROR TYPE

OPEN CIRCUIT

CONDITIONS

Error detected in KEY-ON condition.

VERIFICATIONS

Check the connection to pin 9, conn. A. on the ECU.

TOPOLOGICAL

AIR-BAG ECU

- *This error occurs when a contact to Ground is detected on the connection between the ECU and Malfunction Indicator Lamp.*

ERROR TYPE

GND SHORT CIRCUIT

CONDITIONS

Error detected in KEY-ON condition.

VERIFICATIONS

Check that the connection to pin 9 in the ECU's conn. A is not in short-circuit to GND.

TOPOLOGICAL

AIR-BAG ECU

- *This error occurs when a contact to Vbatt is detected on the connection between the ECU and Malfunction Indicator Lamp.*

ERROR TYPE

VBATT SHORT CIRCUIT

CONDITIONS

Error detected in KEY-ON condition.

VERIFICATIONS

Check that the connection to pin 9 in the ECU's conn. A is not in short-circuit to VBAT.

TOPOLOGICAL

AIR-BAG ECU

- The error occurring indicates a malfunction in the CRASH output operation with respect to its normal working condition. A possible cause may be a faulty CRASH output.

ERROR TYPE

Value not plausible

CONDITIONS

Error detected in KEY-ON condition.

VERIFICATIONS

Check that the ECU and the electrical wiring are correctly connected. If it is properly connected, replace the ECU.

TOPOLOGICAL

AIR-BAG ECU

- The error occurring indicates a malfunction in the CRASH input with respect to its normal operation. A possible cause may be a faulty CRASH input.

ERROR TYPE

Value not plausible

CONDITIONS

Error detected in KEY-ON condition.

VERIFICATIONS

Check that the ECU and the electrical wiring are correctly connected. If it is properly connected, replace the ECU.

TOPOLOGICAL

AIR-BAG ECU

- The error occurring indicates a malfunction in the driver's airbag circuit.

ERROR TYPE

OPEN CIRCUIT

CONDITIONS

Error detected in KEY-ON condition.

VERIFICATIONS

Check the connection between the BAG and the electrical wiring. Check that the wires are not in short-circuit to one another. Check that the wires are not in short-circuit to VBAT or to GND. Check that the wires are not in short-circuit with other components

TOPOLOGICAL

[DRIVER AIR-BAG](#)

- The error which occurs indicates a malfunction for S.C. to Ground on the passenger's airbag circuit.

ERROR TYPE

GND SHORT CIRCUIT

CONDITIONS

Error detected in KEY-ON condition.

VERIFICATIONS

Check the connection between the BAG and the electrical wiring. Check that the wires are not in short-circuit to one another. Check that the wires are not in short-circuit to VBAT or to GND. Check that the wires are not in short-circuit with other components

TOPOLOGICAL

PASSENGER AIR-BAG

- *The error which occurs indicates a malfunction for S.C. to VBatt on the passenger's airbag circuit.*

ERROR TYPE

VBATT SHORT CIRCUIT

CONDITIONS

Error detected in KEY-ON condition.

VERIFICATIONS

Check the connection between the BAG and the electrical wiring. Check that the wires are not in short-circuit to one another. Check that the wires are not in short-circuit to VBAT or to GND. Check that the wires are not in short-circuit with other components

TOPOLOGICAL

PASSENGER AIR-BAG

- The error occurring indicates a wrong value (too low) for the driver's pretensioner.

ERROR TYPE

VALUE TOO LOW

CONDITIONS

Error detected in KEY-ON condition.

VERIFICATIONS

Check the connection between the pre-tensioner and the electrical wiring. Check that the wires are not in short-circuit to one another. Check that the wires are not in short-circuit to VBAT or to GND. Check that the wires are not in short-circuit with

TOPOLOGICAL

[DRIVER PRE-TENSIONER](#)

- The error occurring indicates a wrong value (too high) for the passenger's pretensioner.

ERROR TYPE

VALUE TOO HIGH

CONDITIONS

Error detected in KEY-ON condition.

VERIFICATIONS

Check the connection between the pre-tensioner and the electrical wiring. Check that the wires are not in short-circuit to one another. Check that the wires are not in short-circuit to VBAT or to GND. Check that the wires are not in short-circuit with

TOPOLOGICAL

PASSENGER PRE-TENSIONER

PASSENGER AIRBAG DEACTIVATION SWITCH

- The error occurring indicates a malfunction in the switch circuit for passenger airbag charge deactivation.

ERROR TYPE

Value not plausible

CONDITIONS

Error detected in KEY-ON condition.

VERIFICATIONS

Check the connection between the ECU and the inhibition switch. Check that the wires are not in short-circuit to one another. Check that the connection is not in short-circuit to VBAT or to GND. Check that the switch conforms

TOPOLOGICAL

PASSENGER AIRBAG CUT OUT CONTROL

- *The error occurring indicates a malfunction in the switch circuit for passenger airbag charge deactivation.*

ERROR TYPE

DEFECTIVE SIGNAL

CONDITIONS

Error detected in KEY-ON condition.

VERIFICATIONS

Check the connection between the ECU and the inhibition switch. Check that the wires are not in short-circuit to one another. Check that the connection is not in short-circuit to VBAT or to GND. Check that the switch conforms

TOPOLOGICAL

PASSENGER AIRBAG CUT OUT CONTROL

- The error occurs in the event of an inconsistency between the wiring polarization input and the wiring itself.

ERROR TYPE

Value not plausible

CONDITIONS

Error detected in KEY-ON condition.

VERIFICATIONS

Check that the ECU and the electrical wiring are correctly connected. If it is properly connected, replace the ECU.

TOPOLOGICAL

AIR-BAG ECU

- The error occurs when an open circuit on the connection between the ECU and the Malfunction Indicator Lamp is detected. This can be due to a burnt lamp or led.

ERROR TYPE

OPEN CIRCUIT

CONDITIONS

Error detected in KEY-ON condition.

VERIFICATIONS

Check that the instrument panel is properly connected to the electrical wiring. Check the warning light (pin 1 conn. C on the instrument panel).

TOPOLOGICAL

COMPLETE TOOL

- *The error occurs when an O.C. is detected on the Malfunction Indicator Lamp power supply.*

ERROR TYPE

FUEL SUPPLY SHORTAGE

CONDITIONS

Error detected in KEY-ON condition.

VERIFICATIONS

Check that the instrument panel is properly connected to the electrical wiring. Check the warning light (pin 1 conn. C on the instrument panel).

TOPOLOGICAL

COMPLETE TOOL

- *The error occurs when an O.C. is detected on the Malfunction Indicator Lamp's ground.*

ERROR TYPE

GROUND SHORTAGE

CONDITIONS

Error detected in KEY-ON condition.

VERIFICATIONS

Check that the instrument panel is properly connected to the electrical wiring. Check the warning light (pin 1 conn. C on the instrument panel).

TOPOLOGICAL

COMPLETE TOOL

- *The error occurs when a S.C. to ground is detected on the connection between the ECU and the Malfunction Indicator Lamp.*

ERROR TYPE

GND SHORT CIRCUIT

CONDITIONS

Error detected in KEY-ON condition.

VERIFICATIONS

Check that the instrument panel is properly connected to the electrical wiring. Check the warning light (pin 1 conn. C on the instrument panel).

TOPOLOGICAL

COMPLETE TOOL

- *The error occurs when a S.C. to VBatt is detected on the connection between the ECU and the Malfunction Indicator Lamp.*

ERROR TYPE

VBATT SHORT CIRCUIT

CONDITIONS

Error detected in KEY-ON condition.

VERIFICATIONS

Check that the instrument panel is properly connected to the electrical wiring. Check the warning light (pin 1 conn. C on the instrument panel).

TOPOLOGICAL

COMPLETE TOOL

PARAMETERS

The parameters relating to the ECU in question are displayed in this environment. The reference values, if present, are detected when the car is static and the key is in the ON position.

PARAMETERS selection menu

[SYSTEM FAILURE WARN.LIGHT](#)

[VBATT<10 V](#)

[WIRING TYPE \(CONTACT\)](#)

[PASSENGER AIRBAG DEACTIVATION SWITCH](#)

[PASSENGER BAG DEACTIV. INDICATOR LAMP](#)

[PRETENSIONER OPERATION COUNTER](#)

[ECU LIFETIME](#)

[NUMBER OF KEY IGNITIONS](#)

[ACCELEROMETER 1](#)

[ACCELEROMETER 2](#)

[ACCELEROMETER 3](#)

[POWER RESERVE 1](#)

[POWER RESERVE 2](#)

[ASIC 1](#)

[ASIC 2](#)

[ASIC 3](#)

[MICROPROCESSOR](#)

[SAFETY SENSOR 1](#)

[EEPROM](#)

[VOLTAGE REGULATOR](#)

[DRIVER SMART LED](#)

[DRIVER LIGHT CHARGE CUT-OUT](#)

[SAFETY SENSOR 2](#)

[A/D CONVERTER SD2](#)

SYSTEM FAILURE WARN.LIGHT

Airbag Fault lamp status on Instrument Panel. Possible conditions: Active / Not active

VBATT<10 V

Permanence time of VBATT<10 V FOR T>100 msec before crash. Possible conditions: True / False

WIRING TYPE (CONTACT)

Flag for wiring type selection: Possible conditions: Only driver's side / Driver and Passenger.

PASSENGER AIRBAG DEACTIVATION SWITCH

Status of passenger's bag cut-out switch. Possible conditions: ON / OFF. Cutting out the switch will involve deactivating the charges.

PASSENGER BAG DEACTIV. INDICATOR LAMP

Status of passenger's bag cut-out indicator lamp. Possible conditions: Off / On

PRETENSIONER OPERATION COUNTER

Number of pretensioner activations stored. A total of 3 activations max.

ECU LIFETIME (min.)

ECU life-time starting from the first activation, 5 sec. resolution 15 years max.

NUMBER OF KEY IGNITIONS

Number of Key - ON sequences starting from the first event detected.

ACCELEROMETER 1

The parameter content illustrates all possible malfunctions inside the ECU, which can be memorised by the ECU itself. Not useful for a service diagnosis. Possible conditions: ON / OFF

ACCELEROMETER 2

The parameter content illustrates all possible malfunctions inside the ECU, which can be memorised by the ECU itself. Not useful for a service diagnosis. Possible conditions: ON / OFF

ACCELEROMETER 3

The parameter content illustrates all possible malfunctions inside the ECU, which can be memorised by the ECU itself. Not useful for a service diagnosis. Possible conditions: ON / OFF

POWER RESERVE 1

The parameter content illustrates all possible malfunctions inside the ECU, which can be memorised by the ECU itself. Not useful for a service diagnosis. Possible conditions: ON / OFF

POWER RESERVE 2

The parameter content illustrates all possible malfunctions inside the ECU, which can be memorised by the ECU itself. Not useful for a service diagnosis. Possible conditions: ON / OFF

ASIC 1

The parameter content illustrates all possible malfunctions inside the ECU, which can be memorised by the ECU itself. Not useful for a service diagnosis. Possible conditions: ON / OFF

ASIC 2

The parameter content illustrates all possible malfunctions inside the ECU, which can be memorised by the ECU itself. Not useful for a service diagnosis. Possible conditions: ON / OFF

ASIC 3

The parameter content illustrates all possible malfunctions inside the ECU, which can be memorised by the ECU itself. Not useful for a service diagnosis. Possible conditions: ON / OFF

MICROPROCESSOR

The parameter content illustrates all possible malfunctions inside the ECU, which can be memorised by the ECU itself. Not useful for a service diagnosis. Possible conditions: ON / OFF

SAFETY SENSOR 1

The parameter content illustrates all possible malfunctions inside the ECU, which can be memorised by the ECU itself. Not useful for a service diagnosis. Possible conditions: ON / OFF

EEPROM

The parameter content illustrates all possible malfunctions inside the ECU, which can be memorised by the ECU itself. Not useful for a service diagnosis. Possible conditions: ON / OFF

VOLTAGE REGULATOR

The parameter content illustrates all possible malfunctions inside the ECU, which can be memorised by the ECU itself. Not useful for a service diagnosis. Possible conditions: ON / OFF

DRIVER SMART LED

The parameter content illustrates all possible malfunctions inside the ECU, which can be memorised by the ECU itself. Not useful for a service diagnosis. Possible conditions: ON / OFF

DRIVER LIGHT CHARGE CUT-OUT

The parameter content illustrates all possible malfunctions inside the ECU, which can be memorised by the ECU itself. Not useful for a service diagnosis. Possible conditions: ON / OFF

SAFETY SENSOR 2

The parameter content illustrates all possible malfunctions inside the ECU, which can be memorised by the ECU itself. Not useful for a service diagnosis. Possible conditions: ON / OFF

A/D CONVERTER SD2

Value read by the A/D converter of the SD2 Tester

ERRORS

All possible errors that can be detected and stored by the ECU are shown on this computer screen. The errors that are presently stored in the ECU are displayed by colour changing of the dot placed on the left of the error type indication. It is possible to select the type of error or component for which information is required by positioning the cursor on it and pressing the [Enter]key. An environment will be entered where the possible outline data about that error are displayed. Here it is possible to activate a Help environment where you can navigate with information, wiring diagrams, connectors and guided diagnosis for the solution of the detected error.

WHENEVER A DIAGNOSIS HAS TO BE MADE, IT IS ABSOLUTELY NECESSARY TO PRINT THE ERRORS FIRST.

Error selection menu

[FLOOR TREATED AIR SENSOR](#)

[SPEED ADJUSTER](#)

[OUTSIDE TEMPERATURE](#)

[PASSENGER COMPARTMENT TEMPERATURE](#)

[PRESSURE SWITCH](#)

[MIXER](#)

FLOOR TREATED AIR SENSOR

- The data read by the sensor is filtered with respect to a minimum value and a maximum value, beyond which an error is recorded. The sensor is mounted on the evaporator body.

ERROR TYPE

Voltage value low

VERIFICATIONS

Check the connection between the ECU and the FLOOR temperature sensor. Check that the sensor mounted on the evaporator body is intact.

TOPOLOGICAL

ELECTRIC CONTROL UNIT FOR AIR CONDITIONER COMPRESSOR

- For the validation of this error, a limited time for engine control has been defined. When this time has elapsed, a shift must have taken place. This shift can be detected by means of a potentiometric feedback of the engine itself. If this is not the case, an error is set.

ERROR TYPE

Delayed actuation

VERIFICATIONS

Check the connection between the ECU and the air distribution motor. Check that there are no interferences for the fan motion. Check the fan motor and regulator intactness.

TOPOLOGICAL

ELECTRIC CONTROL UNIT FOR AIR CONDITIONER COMPRESSOR

OUTSIDE TEMPERATURE

- The data read by the sensor is filtered with respect to a minimum value and a maximum value, beyond which an error is recorded. The sensor is mounted on the LH rear view mirror.

ERROR TYPE

Value out of range

VERIFICATIONS

Check the correct connection between ECU and external temperature sensor. Check the intactness of the sensor mounted on the rear mirror.

TOPOLOGICAL

ELECTRIC CONTROL UNIT FOR AIR CONDITIONER COMPRESSOR

- The data read by the sensor is filtered with respect to a minimum value and a maximum value, beyond which an error is recorded. The sensor is installed on the dashboard.

ERROR TYPE

Value out of range

VERIFICATIONS

Check the correct connection between ECU and passengers' compartment temperature sensor. Check the intactness of the sensor mounted on the dashboard, at the right side of the driver's side steering column.

TOPOLOGICAL

ELECTRIC CONTROL UNIT FOR AIR CONDITIONER COMPRESSOR

- The ECU recognizes the error on the basis of the system pressure and of the voltage value measured on the pressure gauge output

ERROR TYPE

Voltage value low

VERIFICATIONS

Check the connection between the ECU and the coolant pressure gauge. Check that the wires that connect the pressure gauge are not detached or short-circuited to GND. Check that the pressure gauge is in perfect condition.

TOPOLOGICAL

- This error is activated when no voltage is supplied to the mixer input. The mixture cock is positioned on the LH side of the unit.

ERROR TYPE

Voltage value low

VERIFICATIONS

Check the connection between the ECU and the mixer proportional valve. Check that the wires connecting the valve are not short-circuited to GND or in SC to Vbatt. Check that the mixing motor and the potentiometer are in perfect condition.

TOPOLOGICAL

ELECTRIC CONTROL UNIT FOR AIR CONDITIONER COMPRESSOR

PARAMETERS

The parameters relating to the ECU in question are displayed in this environment. The reference values, if present, are detected when the car is static and the key is in the ON position.

PARAMETERS selection menu

[REQUESTED TEMP. CONTR.](#)

[DISTRIBUTION CONTR.](#)

[VENTILATION CONTR.](#)

[RECIRCULATION CONTR.](#)

[AIR CONDITIONER](#)

[FAN STATUS](#)

[DISTRIBUTION ACTUATION](#)

[FAN ADJUSTER TEMP.](#)

[CAR TYPE](#)

[HARDWARE CODE](#)

[SOFTWARE CODE](#)

[PASSENGER COMP. TEMP.](#)

[OUTSIDE TEMP.](#)

[TREATED TEMP.](#)

[SOLAR SENSOR SIGNAL](#)

[MIX POTENTIOM. SIGNAL](#)

BATTERY VOLTAGE

MOTRONIC

RECIRCULATION

COMPRESSOR

WATER ENGINE TEMP.

PRESSURE GAUGE CONTACT

PRESSURE SWITCH

REQUESTED TEMP. CONTR. (°C)

The parameter indicates the temperature value selected by the user through the potentiometer. If the requested temperature is below 16°, the display will show the LOW symbol. If the requested temperature is above 28°, the display will show the H symbol

DISTRIBUTION CONTR.

The parameter indicates the distributor speed requested through the knob.

VENTILATION CONTR.

This parameter indicates the fan speed level requested via the knob.

RECIRCULATION CONTR.

The parameter indicates the status detected on the input corresponding to the RECIRCULATION push-button, when the button is pressed. The values it can feature are: RELEASED/PRESSED.

AIR CONDITIONER

The parameter indicates the status found on the input corresponding to the air conditioner activation signal. The values it can feature are: ON - OFF

FAN STATUS

The parameter was obtained from the value read by the inside A/D converter translated into a speed value.

DISTRIBUTION ACTUATION

The parameter was obtained from the value read by the A/D converter translated into a position.

FAN ADJUSTER TEMP. (°C)

The parameter is obtained from the value read by the internal A/D converter and it indicates whether the regulator temperature is above or below the threshold.

CAR TYPE

This parameter indicates the vehicle type for which the ECU has been configured

HARDWARE CODE

This parameter indicates the acknowledgement code for the ECU Hardware

SOFTWARE CODE

This parameter indicates the acknowledgement code for the ECU Software

PASSENGER COMP. TEMP. (°C)

The parameter is obtained from the value read by the internal A/D converter concerning the signal coming from the passenger compartment temperature sensor.

OUTSIDE TEMP. (°C)

The parameter is obtained from the value read by the internal A/D converter concerning the signal coming from the outside temperature sensor.

TREATED TEMP. (°C)

The parameter is obtained from the value read by the internal A/D converter concerning the signal coming from the treated temperature sensor.

SOLAR SENSOR SIGNAL

The data represents the irradiated power. The operating range is: (0 / 255).

MIX POTENTIOM. SIGNAL

The parameter indicates the value read by the internal A/D converter on the mixing motor and represented by a variable value (0 / 255).

BATTERY VOLTAGE (Volt)

Battery voltage value read by the ECU

MOTRONIC

Value of the output to the Motronic ECU to indicate the compressor activation. It can be ON / OFF

RECIRCULATION

The parameter indicates the value of the current recirculation command. It can be ON / OFF

COMPRESSOR

The parameter indicates the current compressor status value. It can be ON / OFF

WATER ENGINE TEMP. (°C)

Engine coolant temperature value

PRESSURE GAUGE CONTACT

Status of the MIN/MAX coolant pressure gauge. This is in the CLOSED condition if the pressure is < 25 bar and in the OPEN condition if it is > 25 bar or < 2 bar

PRESSURE SWITCH (bar)

Coolant pressure level read by the pressure gauge

ERRORS

All possible errors that can be detected and stored by the ECU are shown on this computer screen. The errors that are presently stored in the ECU are displayed by colour changing of the dot placed on the left of the error type indication. It is possible to select the type of error or component for which information is required by positioning the cursor on it and pressing the [Enter]key. An environment will be entered where the possible outline data about that error are displayed. Here it is possible to activate a Help environment where you can navigate with information, wiring diagrams, connectors and guided diagnosis for the solution of the detected error.

WHENEVER A DIAGNOSIS HAS TO BE MADE, IT IS ABSOLUTELY NECESSARY TO PRINT THE ERRORS FIRST.

Error selection menu

[LH FRONT ABS INTAKE VALVE](#)

[RH FRONT ABS INTAKE VALVE](#)

[LH REAR ABS INTAKE VALVE](#)

[RH REAR ABS INTAKE VALVE](#)

[LH FRONT ABS EXHAUST VALVE](#)

[RH FRONT ABS EXHAUST VALVE](#)

[LH REAR ABS EXHAUST VALVE](#)

[RH REAR ABS EXHAUST VALVE](#)

[SOLENOID VALVE INPUT](#)

[SPEED SENSOR FOR LH FRONT WHEEL: NO SIGNAL](#)

[SPEED SENSOR FOR LH FRONT WHEEL: INTERMITTENT SIGNAL](#)

[SPEED SENSOR FOR RH FRONT WHEEL: NO SIGNAL](#)

[SPEED SENSOR FOR RH FRONT WHEEL: INTERMITTENT SIGNAL](#)

[SPEED SENSOR FOR LH REAR WHEEL: NO SIGNAL](#)

[SPEED SENSOR FOR LH REAR WHEEL: INTERMITTENT SIGNAL](#)

[SPEED SENSOR FOR RH REAR WHEEL: NO SIGNAL](#)

[SPEED SENSOR FOR RH REAR WHEEL: INTERMITTENT SIGNAL](#)

[TOOTHED WHEEL TOOTH](#)

[SCAVENGE PUMP](#)

[BATTERY VOLTAGE](#)

[FOOT BRAKE PEDAL SWITCH](#)

[ECU ERROR](#)

[PRIMARY VALVE 1](#)

[PRIMARY VALVE 2](#)

[PILOT VALVE 1](#)

[PILOT VALVE 2](#)

[CAN](#)

[ENGINE MAINTENANCE MESSAGE](#)

[TEMPORARY FAILURE](#)

[CAN - DASHBOARD FAULT MESSAGE](#)

[CAN - ENGINE REVOLUTION FAULT MESSAGE](#)

- Error caused by a malfunction in the front LH intake valve. The error is memorised in the historical records only when the correct conditions are restored. An error which is no longer present remains stored in the ECU for 20 KEY-ON/KEY-OFF cycles

VERIFICATIONS

Check that the hydraulic system is correctly connected. If it is properly connected, replace the ECU.

TOPOLOGICAL

ANTISKID ECU

- Error caused by a malfunction in the front RH intake valve. The error is memorised in the historical records only when the correct conditions are restored. An error which is no longer present remains stored in the ECU for 20 KEY-ON/KEY-OFF cycles and then

VERIFICATIONS

Check that the hydraulic system is correctly connected. If it is properly connected, replace the ECU.

TOPOLOGICAL

ANTISKID ECU

- Error caused by a malfunction in the rear LH intake valve. The error is memorised in the historical records only when the correct conditions are restored. An error which is no longer present remains stored in the ECU for 20 KEY-ON/KEY-OFF cycles

VERIFICATIONS

Check that the hydraulic system is correctly connected. If it is properly connected, replace the ECU.

TOPOLOGICAL

ANTISKID ECU

- Error caused by a malfunction in the rear RH intake valve. The error is memorised in the historical records only when the correct conditions are restored. An error which is no longer present remains stored in the ECU for 20 KEY-ON/KEY-OFF cycles, then

VERIFICATIONS

Check that the hydraulic system is correctly connected. If it is properly connected, replace the ECU.

TOPOLOGICAL

ANTISKID ECU

- Error caused by a malfunction in the front LH exhaust valve. The error is memorised in the historical records only when the correct conditions are restored. An error which is no longer present remains stored in the ECU for 20 KEY-ON/KEY-OFF cycles, then

VERIFICATIONS

Check that the hydraulic system is correctly connected. If it is properly connected, replace the ECU.

TOPOLOGICAL

ANTISKID ECU

- Error caused by a malfunction in the front RH exhaust valve. The error is memorised in the historical records only when the correct conditions are restored. An error which is no longer present remains stored in the ECU for 20 KEY-ON/KEY-OFF cycles and it is then

VERIFICATIONS

Check that the hydraulic system is correctly connected. If it is properly connected, replace the ECU.

TOPOLOGICAL

ANTISKID ECU

- Error caused by a malfunction in the rear LH exhaust valve. The error is memorised in the historical records only when the correct conditions are restored. An error which is no longer present remains stored in the ECU for 20 KEY-ON/KEY-OFF cycles and then

VERIFICATIONS

Check that the hydraulic system is correctly connected. If it is properly connected, replace the ECU.

TOPOLOGICAL

ANTISKID ECU

- Error caused by a malfunction in the rear RH exhaust valve. The error is memorised in the historical records only when the correct conditions are restored. An error which is no longer present remains stored in the ECU for 20 KEY-ON/KEY-OFF cycles and it is then

VERIFICATIONS

Check that the hydraulic system is correctly connected. If it is properly connected, replace the ECU.

TOPOLOGICAL

ANTISKID ECU

SOLENOID VALVE INPUT

- This error is detected when no correct power supply is provided to the solenoid valve unit. Caused by: Defective fuse, VALVE RELAY faulty, short circuit or open circuit on the wiring supplying power to the solenoid valve unit. The error

VERIFICATIONS

Check the connection between the electrical system's wiring and the ECU on pins 17 and 18. Check that voltage is supplied to the pins. If so, replace the ECU.

TOPOLOGICAL

ANTISKID ECU

SPEED SENSOR FOR LH FRONT WHEEL: NO SIGNAL

- Error detected when there is no speed signal from the front left toothed wheel sensor. Caused by: fault in the sensor or open circuit on the connection between the ECU and the sensor. The error is memorised in the historical records when the conditions are restored

VERIFICATIONS

Check the connection between the sensor and the electrical wiring. Check the connection between the sensor and the ECU on pins 6 and 7. If the connection is correct, replace the sensor.

TOPOLOGICAL

ANTI-SKID SENSOR FOR FRONT LH TOOTHED WHEEL

SPEED SENSOR FOR LH FRONT WHEEL: INTERMITTENT SIGNAL

- Error detected when the speed signal from the front left toothed wheel is unstable or not constant. If the signal is intermittent, the ECU switches the fault lamp on when a speed of over 12km/h is reached. The sensor is faulty or is not correctly

VERIFICATIONS

Check the connection between the sensor and the electrical wiring. Check the connection between the sensor and the ECU on pins 6 and 7. If the connection is correct, replace the sensor.

TOPOLOGICAL

ANTI-SKID SENSOR FOR FRONT LH TOOTHED WHEEL

SPEED SENSOR FOR RH FRONT WHEEL: NO SIGNAL

- Error detected when there is no speed signal from the front right toothed wheel sensor. Caused by: fault in the sensor or open circuit on the connection between the ECU and the sensor. The error is memorised in the historical records when the conditions are restored

VERIFICATIONS

Check the connection between the sensor and the electrical wiring. Check the connection between the sensor and the ECU on pins 5 and 4. If the connection is correct, replace the sensor.

TOPOLOGICAL

ANTI-SKID SENSOR FOR FRONT RH TOOTHED WHEEL

SPEED SENSOR FOR RH FRONT WHEEL: INTERMITTENT SIGNAL

- Error detected when the speed signal from the front right toothed wheel sensor is unstable or not constant. If the signal is intermittent, the ECU switches the fault lamp on when a speed of over 12km/h is reached. The sensor is faulty or is not correctly

VERIFICATIONS

Check the connection between the sensor and the electrical wiring. Check the connection between the sensor and the ECU on pins 5 and 4. If the connection is correct, replace the sensor.

TOPOLOGICAL

ANTI-SKID SENSOR FOR FRONT RH TOOTHED WHEEL

SPEED SENSOR FOR LH REAR WHEEL: NO SIGNAL

- Error detected when there is no speed signal from the rear left toothed wheel sensor. Caused by: fault in the sensor or open circuit on the connection between the ECU and the sensor. The error is memorised in the historical records when the conditions are restored

VERIFICATIONS

Check the connection between the sensor and the electrical wiring. Check the connection between the sensor and the ECU on pins 8 and 9. If the connection is correct, replace the sensor.

TOPOLOGICAL

ANTI-SKID SENSOR FOR REAR LH TOOTHED WHEEL

SPEED SENSOR FOR LH REAR WHEEL: INTERMITTENT SIGNAL

- Error detected when the speed signal from the rear left toothed wheel sensor is unstable or not constant. If the signal is intermittent, the ECU switches the fault lamp on when a speed of over 12km/h is reached. The sensor is faulty or is not correctly

VERIFICATIONS

Check the connection between the sensor and the electrical wiring. Check the connection between the sensor and the ECU on pins 8 and 9. If the connection is correct, replace the sensor.

TOPOLOGICAL

ANTI-SKID SENSOR FOR REAR LH TOOTHED WHEEL

SPEED SENSOR FOR RH REAR WHEEL: NO SIGNAL

- Error detected when there is no speed signal from the rear right toothed wheel sensor. Caused by: fault in the sensor or open circuit on the connection between the ECU and the sensor. The error is memorised in the historical records when the conditions are restored

VERIFICATIONS

Check the connection between the sensor and the electrical wiring. Check the connection between the sensor and the ECU on pins 1 and 2. If the connection is correct, replace the sensor.

TOPOLOGICAL

ANTI-SKID SENSOR FOR REAR RH TOOTHED WHEEL

SPEED SENSOR FOR RH REAR WHEEL: INTERMITTENT SIGNAL

- Error detected when the speed signal from the rear right toothed wheel sensor is unstable or not constant. If the signal is intermittent, the ECU switches the fault lamp on when a speed of over 12km/h is reached. The sensor is faulty or is not correctly

VERIFICATIONS

Check the connection between the sensor and the electrical wiring. Check the connection between the sensor and the ECU on pins 1 and 2. If the connection is correct, replace the sensor.

TOPOLOGICAL

ANTI-SKID SENSOR FOR REAR RH TOOTHED WHEEL

TOOTHED WHEEL TOOTH

- The error is set when an incorrect number of "teeth" or an incorrect distance between the "teeth" is detected on the toothed wheel of one of the wheel speed sensors. The error is memorised in the historical records only when the correct conditions are restored. An err

VERIFICATIONS

By reading the parameters, check which sensor is transmitting incorrect speed data.

- Error caused by a malfunction in the hydraulic circuit pump. The pump is not powered or is faulty. The error is memorised in the historical records only when the correct conditions are restored. An error which is no longer present remains stored in the ECU

VERIFICATIONS

Check that the hydraulic system is correctly connected. If it is properly connected, replace the ECU.

TOPOLOGICAL

ANTISKID ECU

BATTERY VOLTAGE

- The error is set when the battery voltage detected is too low. The error is memorised in the historical records only when the correct conditions are restored. An error which is no longer present remains stored in the ECU for 20 KEY-ON/KEY-OFF cycles, then it is

VERIFICATIONS

Check that the battery voltage is correct. Check that the system is correctly connected.

TOPOLOGICAL

ANTISKID ECU

FOOT BRAKE PEDAL SWITCH

- Discontinuous signal from brake pedal switch. The brake pedal switch is faulty or the wiring is malfunctioning. The error is memorised in the historical records only when the correct conditions are restored. An error which is no longer present remains memorised in the ECU

VERIFICATIONS

*Check the connection between the switch on the brake pedal and the electrical wiring.
Check the connection between the switch on the brake pedal and the ECU on pin 14.
If the connection is correct, replace the switch.*

TOPOLOGICAL

STOP INDICATOR SWITCH

ECU ERROR

- Internal error detected by ECU Microprocessor. The ECU is faulty. The error is memorised in the historical records only when the correct conditions are restored. An error which is no longer present remains stored in the ECU for 20 KEY-ON/KEY-OFF cycles

VERIFICATIONS

Error within ECU; Check that the ECU and the electrical wiring are correctly connected. If this is the case, replace the ECU.

TOPOLOGICAL

ANTISKID ECU

PRIMARY VALVE 1

- Error caused by a malfunction in primary valve 1. The error is memorised in the historical records only when the correct conditions are restored. An error which is no longer present remains stored in the ECU for 20 KEY-ON/KEY-OFF cycles, then it is cancelled.

VERIFICATIONS

Check that the hydraulic system is correctly connected. If it is properly connected, replace the ECU.

TOPOLOGICAL

ANTISKID ECU

- Error caused by a malfunction in primary valve 2. The error is memorised in the historical records only when the correct conditions are restored. An error which is no longer present remains stored in the ECU for 20 KEY-ON/KEY-OFF cycles, then it is cancelled.

VERIFICATIONS

Check that the hydraulic system is correctly connected. If it is properly connected, replace the ECU.

TOPOLOGICAL

ANTISKID ECU

- Error caused by a malfunction in pilot valve 1. The error is memorised in the historical records only when the correct conditions are restored. An error which is no longer present remains stored in the ECU for 20 KEY-ON/KEY-OFF cycles, then it is cancelled. S

VERIFICATIONS

Check that the hydraulic system is correctly connected. If it is properly connected, replace the ECU.

TOPOLOGICAL

ANTISKID ECU

- Error caused by a malfunction in pilot valve 2. The error is memorised in the historical records only when the correct conditions are restored. An error which is no longer present remains stored in the ECU for 20 KEY-ON/KEY-OFF cycles, then it is cancelled. S

VERIFICATIONS

Check that the hydraulic system is correctly connected. If it is properly connected, replace the ECU.

TOPOLOGICAL

ANTISKID ECU

- Error caused by a lack of communication on the CAN network. The periodic messages expected by the ECU are missing. The network is faulty or disconnected. The error is memorised in the historical records only when the correct conditions are restored. An error which is no longer pre

VERIFICATIONS

Check that the CAN network connection on pins 29 and 30 is intact. Check that the CAN network is not in short-circuit to VBAT or to GND. Check that the CAN network is closed by the termination resistance. If network connection is correct

TOPOLOGICAL

DASHBOARD/ABS CONNECTION JOINT FOR CAN LINE

- Error caused by a lack of communication with the engine control ECU on the CAN network. The periodic messages expected by the ECU are missing. The network is faulty or the engine control is faulty. The error is stored in the historical records

VERIFICATIONS

The Engine control ECU has broken down or the CAN C line is faulty.

TOPOLOGICAL

DASHBOARD/ABS CONNECTION JOINT FOR CAN LINE

TEMPORARY FAILURE

- A temporary interference has been detected on the CAN network. The CAN network wiring is not perfect. The error is memorised in the historical records only when the correct conditions are restored. An error which is no longer present remains stored in the ECU for 20 KEY-ON/KEY-OFF cycles.

VERIFICATIONS

Check that the CAN network connection on pins 29 and 30 is intact. Check that the CAN network is closed by the termination resistance.

TOPOLOGICAL

[DASHBOARD/ABS CONNECTION JOINT FOR CAN LINE](#)

CAN - DASHBOARD FAULT MESSAGE

- An error is set when the Dashboard-Bridge Can ECU transmits an error message via the CAN network. The Bridge Can ECU has at least one error in its memory. If sporadic, the error is automatically reset by the ECU when

VERIFICATIONS

Instrument panel check.

TOPOLOGICAL

DASHBOARD/ABS CONNECTION JOINT FOR CAN LINE

- The error is set when the engine control ECU transmits an engine rpm signal error message via the CAN network. If sporadic, the error is automatically reset by the ECU when a KEY-OFF/KEY-ON cycle is carried out.

VERIFICATIONS

Cancel the self-learning using the active diagnosis and carry out the self-learning procedure again. Wiring / component intactness check.

TOPOLOGICAL

DASHBOARD/ABS CONNECTION JOINT FOR CAN LINE

PARAMETERS

The parameters relating to the ECU in question are displayed in this environment. The reference values, if present, are detected when the car is static and the key is in the ON position.

PARAMETERS selection menu

[FOOT BRAKE PEDAL SWITCH](#)

[PUMP MOTOR](#)

[VALVE INPUT](#)

[ASR SWITCH STATUS](#)

[ENGINE REVOL.](#)

[LH FRONT WHEEL SPEED](#)

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FOOT BRAKE PEDAL SWITCH

Status of the switch mounted on the Brake pedal. The conditions it can feature are: OFF/ON. The ON condition indicates that the pedal is pressed. The active signal provides +15 to the ECU input.

PUMP MOTOR

This parameter Indicates the power supply for the motor of the brake hydraulic circuit pump. This parameter can be in OFF/ON condition. The MR-Actuation provides a GROUND to the MOTOR RELAY, which is so activated and supplies +15 to the Motor and to the FeedBack Motor monitoring input. The motor power supply is subject to the VALVE relay activation.

VALVE INPUT

Status of the power voltage for the valve unit. This parameter can be in OFF/ON condition. The ON condition Indicates that the valves are powered. Through the VR-Actuation, a GROUND is provided to the VALVE RELAY, which is so activated and supplies +15 to the valve unit and to the corresponding monitor input in the ECU. If the Valve Relay does not activate, the pump will not be started as well.

ASR SWITCH STATUS

This parameter indicates the Status of the ASR switch on the dashboard. Parameter acquired by the ECU via CAN network. The Switch condition is acquired by the Dashboard-Bridge Can ECU, which transmits it via the network. The conditions it can feature are: D

ENGINE REVOL. (rpm)

Parameter indicating the engine revolution speed. Parameter acquired by the ECU via CAN network. The rpm rate is acquired by the ECU controlling the engine, which transmits this data via the Network. Data in Rpm

LH FRONT WHEEL SPEED (Km/h)

Wheel speed acquired by the ECU through the corresponding toothed wheel sensor. The minimum detectable value is 1.75 Km/h.

RH FRONT WHEEL SPEED (Km/h)

Wheel speed acquired by the ECU through the corresponding toothed wheel sensor. The minimum detectable value is 1.75 Km/h.

LH REAR WHEEL SPEED (Km/h)

Wheel speed acquired by the ECU through the corresponding toothed wheel sensor. The minimum detectable value is 1.75 Km/h.

RH REAR WHEEL SPEED (Km/h)

Wheel speed acquired by the ECU through the corresponding toothed wheel sensor. The minimum detectable value is 1.75 Km/h.

CURRENT TORQUE (%)

Parameter indicating the torque value currently provided by the engine. Parameter acquired by the ECU via CAN network, transmitted by the engine control ECU. The data is expressed as a percentage value.

REQUESTED TORQUE (%)

Parameter indicating the torque value required by the ABS ECU for managing the ASR function.
Parameter calculated by the ECU and transmitted via CAN network. The ASR function (if it has not been deactivated by the driver) foresees that the E

A/D CONVERTER SD2

Value read by the A/D converter of the SD2 Tester