## ENGINE PERFORMANCE

### BMW SELF-DIAGNOSIS M57 DIESEL

#### DIAGNOSTIC TROUBLE CODES INDEX

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</table>
### DTC P0101 (BMW DTC 3FC0): AIR-MASS FLOW SENSOR: WRONG SIGNAL

**Information saved in**

DDE

**Fault code**

3FC0 - P0101

**Fault description**

The diagnostic trouble code is logged in the ECU when the idle correction factor for the measured air mass exceeds the approved limit 0.

**Condition for fault identification**

Test condition:

The test routine is executed continuously. However, a new correction factor is calculated only once per driving cycle, and provided that this function is enabled based on environmental conditions and the current operating point.

Voltage condition:

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</table>
The test routine is executed continuously. However, a new correction factor is calculated only once per driving cycle, and provided that this function is enabled based on environmental conditions and the current operating point.

**Condition for fault memory entry**

No debouncing. None.

**Action in service**

Check for leaks in mass airflow system between the mass-airflow sensor and the intake manifold/plenum.

If the mass airflow system is sealed:

Replace mass-airflow sensor.

**Fault effect and breakdown warning**

The error disables regeneration in the particulate filter.

Proceed to the nearest BMW Service facility.

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC P0101 (BMW DTC 3FD0): AIR-MASS FLOW SENSOR: NO SIGNAL**

**Information saved in**

DDE

**Fault code**

3FD0 - P0101

**Fault description**

The diagnostic trouble code is logged in the ECU when the load correction factor for the measured air mass exceeds the approved limit 0.

**Condition for fault identification**
Test condition:

The test routine is executed continuously. However, a new correction factor is calculated only once per driving cycle, and provided that this function is enabled based on environmental conditions and the current operating point.

Voltage condition:

The test routine is executed continuously. However, a new correction factor is calculated only once per driving cycle, and provided that this function is enabled based on environmental conditions and the current operating point.

Condition for fault memory entry

No debouncing. None.

Action in service

Replace mass-airflow sensor.

Fault effect and breakdown warning

The error disables regeneration in the particulate filter.

Driver information

Warning light:

MIL

Service instruction

none

DTC P0102 (BMW DTC 4C2D): AIR-MASS FLOW SENSOR, RANGE: UPPER PHYSICAL LIMIT EXCEEDED

Information saved in

DDE

Fault code

4C2D - P0102

Fault description

-
Condition for fault identification

none

Condition for fault memory entry

Debounce (1000 ms)

Action in service

-

Fault effect and breakdown warning

-

Driver information

Warning light:

MIL

Service instruction

none

DTC P0103 (BMW DTC 4C2C): AIR-MASS FLOW SENSOR, RANGE: LOWER PHYSICAL LIMIT UNDERSHOT

Information saved in

DDE

Fault code

4C2C - P0103

Fault description

The DTC is logged when the mass airflow falls below the limit value 5 kg/h.

Condition for fault identification

Test condition:

The malfunction diagnosis proceeds when no faults are present in the mass airflow system.

Voltage condition:
The malfunction diagnosis proceeds when no faults are present in the mass airflow system.

**Condition for fault memory entry**

Debounce (1000 ms)

**Action in service**

Check mass-airflow sensor.

**Fault effect and breakdown warning**

-

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC P0103 (BMW DTC 4BC0): AIR-MASS FLOW SENSOR: AIR MASS TOO LOW (SIGNAL FREQUENCY TOO LOW)**

**Information saved in**

DDE

**Fault code**

4BC0 - P0103

**Fault description**

Mass airflow sensor sensor-monitoring function. The diagnostic trouble code is logged in the ECU when the period duration of the raw sensor signal exceeds 833 us.

**Condition for fault identification**

Test condition:

The test is conducted under the following conditions:

- Engine RPM exceeds 590 1/min.
- No electrical faults stored for the HFM.
Power is being supplied to the mass-airflow sensor (Terminal 15 = On).

Voltage condition:

The test is conducted under the following conditions:

- Engine RPM exceeds 590 1/min.
- No electrical faults stored for the HFM.
- Power is being supplied to the mass-airflow sensor (Terminal 15 = On).

**Condition for fault memory entry**

Debounce (150 ms)

**Action in service**

1. Check wires, plug connections and electrical power supply.
2. If the wires, plugs and voltage supply are all ok:
   - Replace mass-airflow sensor.

**Fault effect and breakdown warning**

Proceed to the nearest BMW Service facility.

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC P0102 (BMW DTC 4BC1): AIR-MASS FLOW SENSOR: AIR MASS TOO HIGH (SIGNAL FREQUENCY TOO HIGH)**

**Information saved in**

DDE

**Fault code**

4BC1 - P0102

**Fault description**
Mass airflow sensor sensor-monitoring function. The diagnostic trouble code is logged in the ECU when the period duration of the raw sensor signal is less than 71 us.

**Condition for fault identification**

Test condition:

The test is conducted under the following conditions:

- Engine RPM exceeds 590 1/min.
- No electrical faults stored for the HFM.
- Power is being supplied to the mass-airflow sensor (Terminal 15 = On).

Voltage condition:

The test is conducted under the following conditions:

- Engine RPM exceeds 590 1/min.
- No electrical faults stored for the HFM.
- Power is being supplied to the mass-airflow sensor (Terminal 15 = On).

**Condition for fault memory entry**

Debounce (150 ms)

**Action in service**

1. Check wires, plug connections and electrical power supply.
2. If the wires, plugs and voltage supply are all ok:
   - Replace mass-airflow sensor.

**Fault effect and breakdown warning**

Proceed to the nearest BMW Service facility.

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC P0101 (BMW DTC 3FF0): AIR-MASS FLOW SENSOR: RATIO OF CALCULATED TO...**
MEASURED AIR MASS TOO HIGH

Information saved in

DDE

Fault code

3FF0 - P0101

Fault description

The diagnostic trouble code is logged in the ECU when the ratio of the calculated to the measured air mass rises above a limit value based on the operating point in the program map.

Condition for fault identification

Test condition:

Plausibility checks on the HFM runs during coasting/on overrun and during the drift compensation learning phases. The HFM plausibility check must also be enabled.

Voltage condition:

Plausibility checks on the HFM runs during coasting/on overrun and during the drift compensation learning phases. The HFM plausibility check must also be enabled.

Condition for fault memory entry

Debounce (4000 ms)

Action in service

1. Check boost-air temperature sensor for plausibility (possibly indicates excessively high values, usually without any DTC entry).
2. Check for leaks in the air-induction system between the intake-air noise attenuator, mass-airflow sensor and turbocharger.
3. Check air filter.
4. Examine EGR valve for sticking and to verify that it seals when closed.
5. Check swirl valves for sticking.

If results of the tests are OK:

Replace mass-airflow sensor.

Fault effect and breakdown warning
The error disables regeneration in the particulate filter.

Driver information

Warning light:
MIL

Service instruction

none

DTC P0101 (BMW DTC 3FF1): AIR-MASS FLOW SENSOR: RATIO OF CALCULATED TO MEASURED AIR MASS TOO LOW

Information saved in

DDE

Fault code

3FF1 - P0101

Fault description

The diagnostic trouble code is logged in the ECU when the ratio of the calculated to the measured air mass falls below a limit value based on the operating point in the program map.

Condition for fault identification

Test condition:

Plausibilities of the HFM runs during overrun operation or during the drift compensation learning phases. The HFM plausibility check must also be enabled.

Voltage condition:

Plausibilities of the HFM runs during overrun operation or during the drift compensation learning phases. The HFM plausibility check must also be enabled.

Condition for fault memory entry

Debounce (4000 ms)

Action in service

1. Check air-induction tract between turbocharger and intake-air plenum.
2. Check swirl valves for sticking.
If results of the tests are OK:

Replace mass-airflow sensor.

**Fault effect and breakdown warning**

The error disables regeneration in the particulate filter.

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC P0101 (BMW DTC 4BC2): AIR-MASS FLOW SENSOR**

**Information saved in**

DDE

**Fault code**

4BC2 - P0101

**Fault description**

The error is recognized when the mass-airflow sensor reports that the mass airflow signal has exceeded the maximum period duration.

**Condition for fault identification**

Test condition:

The test routine is executed when mass-airflow sensor diagnosis is not disabled and the sensor is receiving electrical power.

The test runs during each process execution.

Voltage condition:

The test routine is executed when mass-airflow sensor diagnosis is not disabled and the sensor is receiving electrical power.

The test runs during each process execution.
Condition for fault memory entry

Debounce (50 ms)

Action in service

1. Check wires and plug connections.
   (open circuit or short circuits in the signal wire, interruption of power supply to the mass-airflow sensor)

2. If wiring and plug connections are OK:
   Replace mass-airflow sensor.

Fault effect and breakdown warning

The error disables regeneration in the particulate filter.

Proceed to the nearest BMW Service facility.

Driver information

Warning light:
MIL

Service instruction

none

DTC P14D0 (BMW DTC 4C87): LOW-PRESSURE EXHAUST-GAS RECIRCULATION COOLER, PLAUSIBILITY: COOLER EFFICIENCY TOO LOW

Information saved in

DDE

Fault code

4C87 - P14D0

Fault description

Monitoring of adapted low-pressure EGR cooler efficiency. The diagnostic trouble code is logged when the cooler efficiency rises above the limit 0 or falls below the limit 0.

Condition for fault identification
Test condition:

To allow recognition of the error the model should not be in the learning phase.

The learning phase is completed once the efficiency level has been successfully adapted. The adaptation function is enabled when:

- the low-pressure EGR valve's travel feedback exceeds a limit value.
- the coolant temperature is greater than 40 °C.

The error check proceeds continuously in the defined process grid.

Voltage condition:

To allow recognition of the error the model should not be in the learning phase.

The learning phase is completed once the efficiency level has been successfully adapted. The adaptation function is enabled when:

- the low-pressure EGR valve's travel feedback exceeds a limit value.
- the coolant temperature is greater than 40 °C.

The error check proceeds continuously in the defined process grid.

Condition for fault memory entry

Debounce (10000 ms)

Action in service

Check low-pressure EGR cooler for contamination, replace low-pressure EGR cooler as indicated.

Fault effect and breakdown warning

Proceed to the nearest BMW Service facility.

Driver information

Warning light:

MIL

Service instruction

none

DTC P0607 (BMW DTC 491E): CONTROL UNIT INTERNAL (ADC): ANALOGUE/DIGITAL
CONVERTER, SWITCH-ON CALIBRATION TAKES TOO LONG

Information saved in
DDE

Fault code
491E - P0607

Fault description
Following activation a calibration routine runs in the analog-digital converter. This DTC is logged when the calibration routine is not completed within the specified period.

Condition for fault identification

Test condition:
The error check runs while the control module is being initialized.

Voltage condition:
The error check runs while the control module is being initialized.

Condition for fault memory entry

No debouncing. None.

Action in service
Replace DDE control module.

Fault effect and breakdown warning

Driver information
Warning light:
MIL

Service instruction
none

DTC P0607 (BMW DTC 4919): CONTROL UNIT INTERNAL (ADC): ANALOGUE/DIGITAL
CONVERTER, VOLTAGE CONVERSION TAKES TOO LONG

Information saved in
DDE

Fault code
4919 - P0607

Fault description
Following successful calibration of the analog-digital converter the A/D converter duration is checked. The diagnostic trouble code is logged in the ECU if conversion of all channels is not completed within a specified time.

Condition for fault identification

Test condition:
The converter check runs as part of the control module initialization routine following calibration.

Voltage condition:
The converter check runs as part of the control module initialization routine following calibration.

Condition for fault memory entry
No debouncing. None.

Action in service
Replace DDE control module.

Fault effect and breakdown warning
-

Driver information
Warning light:
MIL

Service instruction
none
DTC P0607 (BMW DTC 48D9): CONTROL UNIT INTERNAL (ADC2): ANALOGUE/DIGITAL CONVERTER, SWITCH-ON CALIBRATION TAKES TOO LONG

Information saved in
DDE

Fault code
48D9 - P0607

Fault description
Following activation a calibration routine runs in the analog-digital converter. This DTC is logged when the calibration routine is not completed within the specified period.

Condition for fault identification
Test condition:
The error check runs while the control module is being initialized.

Voltage condition:
The error check runs while the control module is being initialized.

Condition for fault memory entry
No debouncing. None.

Action in service
Replace DDE control module.

Fault effect and breakdown warning
-

Driver information
Warning light:
MIL

Service instruction
none
DTC P0607 (BMW DTC 48CE): CONTROL UNIT INTERNAL (ADC2): ANALOGUE/DIGITAL CONVERTER, VOLTAGE CONVERSION TAKES TOO LONG

Information saved in

DDE

Fault code

48CE - P0607

Fault description

Following successful calibration of the analog-digital converter the A/D converter duration is checked. The diagnostic trouble code is logged in the ECU if conversion of all channels is not completed within a specified time.

Condition for fault identification

Test condition:

The converter check runs as part of the control module initialization routine following calibration.

Voltage condition:

The converter check runs as part of the control module initialization routine following calibration.

Condition for fault memory entry

No debouncing. None.

Action in service

Replace DDE control module.

Fault effect and breakdown warning

- 

Driver information

Warning light:

MIL

Service instruction

none
DTC P0401 (BMW DTC 4B82): EXHAUST-GAS RECIRCULATION-RATE CONTROL, CONTROL DEVIATION: EXHAUST-GAS RECIRCULATION RATE TOO LOW/POSITIVE CONTROL DEVIATION

Information saved in

DDE

Fault code

4B82 - P0401

Fault description

The diagnostic trouble code is logged in the ECU when the exhaust-gas recirculation system's flow rate control's positive control deviation exceeds a limit defined based on the operating point.

Condition for fault identification

Test condition:

The check runs every 20 ms when the specified value priority assignment is set to flow rate and no other errors related to the exhaust-gas recirculation have been detected.

Voltage condition:

The check runs every 20 ms when the specified value priority assignment is set to flow rate and no other errors related to the exhaust-gas recirculation have been detected.

Condition for fault memory entry

Debounce (4000 ms)

Action in service

Check the following potential problem sources:

1. Mass airflow system on engine-side of compressor is leaking.
2. Leak in exhaust system upstream from turbine.
3. Defective boost pressure actuator/exhaust turbocharger (in combination with errors related to the boost pressure actuator).
5. Throttle valve defect (in combination with throttle valve faults).
6. Severe EGR cooler soot accumulation.

Applies to engines with single-stage boost: Conduct mass airflow system test.
Fault effect and breakdown warning

Proceed to the nearest BMW Service facility.

Driver information

Warning light:

MIL

Service instruction

Check diagnostic trouble codes for the named components.

**DTC P0402 (BMW DTC 4507): EXHAUST-GAS RECIRCULATION, CONTROL DEVIATION: AIR MASS TOO LOW/POSITIVE CONTROL DEVIATION**

Information saved in

DDE

Fault code

4507 - P0402

Fault description

The diagnostic trouble code is logged in the ECU when the exhaust-gas recirculation system's positive control deviation exceeds a limit defined based on the operating point.

Condition for fault identification

Test condition:

The test runs every 20 ms when the exhaust-gas recirculation system is activated, the monitoring system is enabled and no other system fault is present.

The test conditions must be satisfied for at least 0 ms.

Voltage condition:

The test runs every 20 ms when the exhaust-gas recirculation system is activated, the monitoring system is enabled and no other system fault is present.

The test conditions must be satisfied for at least 0 ms.

Condition for fault memory entry
Debounce (4000 ms)

Action in service

Check the following potential problem sources:

1. Leaks in mass airflow system between the mass-airflow sensor and the compressor.
2. Contaminated air filter.
3. Defective mass-airflow sensor.
4. Swirl valves sticking in closed position.
5. Carbon deposits on intake valves.

Applies to engines with single-stage boost: Conduct mass airflow system test.

Fault effect and breakdown warning

It is possible to continue driving the vehicle, emissions deteriorate.

Proceed to the nearest BMW Service facility.

Driver information

Warning light:

MIL_SVS

Service instruction

Note collateral effects with boost-pressure control. Problems related to EGR can affect the boost-pressure control.

DTC P0402 (BMW DTC 4B81): EXHAUST-GAS RECIRCULATION-RATE CONTROL, CONTROL DEVIATION: EXHAUST-GAS RECIRCULATION RATE TOO HIGH/NEGATIVE CONTROL DEVIATION

Information saved in

DDE

Fault code

4B81 - P0402
Fault description

The diagnostic trouble code is logged in the ECU when the exhaust-gas recirculation system flow rate control's positive control deviation exceeds a limit defined based on the operating point.

Condition for fault identification

Test condition:

In normal operation the check runs every 20 ms when the specified value priority assignment is set to flow rate and no other errors related to the exhaust-gas recirculation have been detected.

Voltage condition:

In normal operation the check runs every 20 ms when the specified value priority assignment is set to flow rate and no other errors related to the exhaust-gas recirculation have been detected.

Condition for fault memory entry

Debounce (3000 ms)

Action in service

Check the following potential problem sources:

1. Leak in mass airflow system between mass-airflow sensor and compressor.
2. Contaminated air filter.
3. Defective mass-airflow sensor.
4. Swirl valves sticking in closed position.
5. Carbon deposits on intake valves.

Applies to engines with single-stage boost: Conduct mass airflow system test.

Fault effect and breakdown warning

Proceed to the nearest BMW Service facility.

Driver information

Warning light:

MIL_SVS
Service instruction

Check diagnostic trouble codes for the named components.

**DTC P0401 (BMW DTC 4501): EXHAUST-GAS RECIRCULATION, CONTROL DEVIATION: AIR MASS TOO HIGH/NEGATIVE CONTROL DEVIATION**

Information saved in

DDE

Fault code

4501 - P0401

Fault description

The diagnostic trouble code is logged in the ECU when the exhaust-gas recirculation system's negative control deviation falls below a limit defined based on the operating point.

**Condition for fault identification**

Test condition:

The test runs every 20 ms when the exhaust-gas recirculation control system is activated, the monitoring system is enabled and no other system fault is present.

Voltage condition:

The test runs every 20 ms when the exhaust-gas recirculation control system is activated, the monitoring system is enabled and no other system fault is present.

**Condition for fault memory entry**

Debounce (7500 ms)

**Action in service**

Check the following potential problem sources:

1. Leaks in mass airflow system on engine side of compressor
2. Leaks in exhaust system on engine side of turbine (combined with mass airflow plausibility errors).
3. Throttle valve defect (in combination with throttle valve faults).
5. Defective turbocharger (in combination with turbocharger faults).
6. Severe EGR cooler soot accumulation.
Applies to engines with single-stage boost: Conduct mass airflow system test.

**Fault effect and breakdown warning**

It is possible to continue driving the vehicle, emissions deteriorate.

Proceed to the nearest BMW Service facility.

**Driver information**

Warning light:

MIL

**Service instruction**

Note collateral effects on boost-pressure control (faults in the exhaust-gas recirculation system can affect the boost-pressure control system).

Check diagnostic trouble codes for the named components.

**DTC P0403 (BMW DTC 4B8C): EXHAUST-GAS RECIRCULATION CONTROL, CONTROL DEVIATION: MAXIMUM DURATION UNTIL EXHAUST-GAS RECIRCULATION CONTROL ACTIVE EXCEEDED**

**Information saved in**

DDE

**Fault code**

4B8C - P0403

**Fault description**

The diagnostic trouble code is logged when the defined deactivation conditions for exhaust-gas recirculation control remain in place for longer than 300000 ms after the engine is started.

**Condition for fault identification**

Test condition:

The check continues until the error is recognized or all deactivation conditions have been cancelled.

Voltage condition:

The check continues until the error is recognized or all deactivation conditions have been cancelled.
Condition for fault memory entry

Debounce (20000 ms)

Action in service

Fault effect and breakdown warning

Driver information

Warning light:
KEINE

Service instruction
none

DTC P0070 (BMW DTC 4C5B): AMBIENT TEMPERATURE SENSOR, PLAUSIBILITY

Information saved in
DDE

Fault code
4C5B - P0070

Fault description

The measured variables from the air-temperature sensors are checked against each other for relative plausibility. The DTC is logged when the outside temperature is implausible relative to all of the other measured values.

Condition for fault identification

Test condition:
The monitoring routine executes once per driving cycle in the cold-start phase.

Voltage condition:
The monitoring routine executes once per driving cycle in the cold-start phase.

Condition for fault memory entry
Debounce (50 ms)

Action in service

Replace outside temperature sensor.

Fault effect and breakdown warning

Proceed to the nearest BMW Service facility.

Driver information

Warning light:

MIL

Service instruction

none

**DTC P007B (BMW DTC 4C52): CHARGE-AIR TEMPERATURE SENSOR, PLAUSIBILITY: CHARGE-AIR TEMPERATURE NOT PLAUSIBLE IN RELATION TO REMAINING TEMPERATURE SIGNALS**

Information saved in

DDE

Fault code

4C52 - P007B

Fault description

The measured variables from the air-temperature sensors are checked against each other for relative plausibility. The DTC is logged when the charge-air temperature is implausible relative to all other measured values.

Condition for fault identification

Test condition:

The monitoring routine executes once per driving cycle in the cold-start phase.

Voltage condition:

The monitoring routine executes once per driving cycle in the cold-start phase.

Condition for fault memory entry
Debounce (50 ms)

**Action in service**

Replace charge-air temperature sensor.

**Fault effect and breakdown warning**

Proceed to the nearest BMW Service facility.

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC P040B (BMW DTC 4C51): TEMPERATURE SENSOR AFTER EXHAUST-GAS RECIRCULATION COOLER, PLAUSIBILITY: TEMPERATURE AFTER EXHAUST-GAS RECIRCULATION COOLER NOT PLAUSIBLE IN RELATION TO REMAINING TEMPERATURE SIGNALS**

**Information saved in**

DDE

**Fault code**

4C51 - P040B

**Fault description**

The measured variables from the air-temperature sensors are checked against each other for relative plausibility. The DTC is logged when the exhaust-gas temperature downstream from the EGR cooler is implausible relative to all of the other measured values.

**Condition for fault identification**

Test condition:

The monitoring routine executes once per driving cycle in the cold-start phase.

Voltage condition:

The monitoring routine executes once per driving cycle in the cold-start phase.
Condition for fault memory entry

Debounce (50 ms)

Action in service

Replace exhaust-gas temperature sensor downstream from EGR cooler.

Fault effect and breakdown warning

Proceed to the nearest BMW Service facility.

Driver information

Warning light:

MIL

Service instruction

none

**DTC P041B (BMW DTC 4C50): TEMPERATURE SENSOR AFTER LOW-PRESSURE EXHAUST-GAS RECIRCULATION COOLER, PLAUSIBILITY: TEMPERATURE AFTER LOW-PRESSURE EXHAUST-GAS RECIRCULATION COOLER NOT PLAUSIBLE IN RELATION TO REMAINING TEMPERATURE SIGNALS**

Information saved in

DDE

Fault code

4C50 - P041B

Fault description

The measured variables from the air-temperature sensors are checked against each other for relative plausibility. The DTC is logged when the exhaust-gas temperature downstream from the low-pressure EGR cooler is implausible relative to all of the other measured values.

Condition for fault identification

Test condition:

The monitoring routine executes once per driving cycle in the cold-start phase.

Voltage condition:
The monitoring routine executes once per driving cycle in the cold-start phase.

**Condition for fault memory entry**

Debounce (50 ms)

**Action in service**

Replace exhaust-gas temperature sensor downstream from low-pressure EGR cooler.

**Fault effect and breakdown warning**

Proceed to the nearest BMW Service facility.

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC P2279 (BMW DTC 3F25): CHARGE-AIR TUBE MONITORING: CHARGE-AIR HOSE FALLEN OFF**

**Information saved in**

DDE

**Fault code**

3F25 - P2279

**Fault description**

Monitoring for separation of boost-air hose via dynamic observation of boost pressure. The diagnostic trouble code is logged when the boost-pressure control deviation exceeds a specific limit defined according to operating point.

**Condition for fault identification**

Test condition:

The test routine is executed continuously every 10 ms.

Voltage condition:
The test routine is executed continuously every 10 ms.

**Condition for fault memory entry**

No debouncing.

**Action in service**

On engines with multi-stage boost:

Check the following potential problem sources:

Leak in mass airflow system on engine-side of compressor (boost-air hose, boost-pressure sensor, intake manifold/plenum).

Applies to engines with single-stage boost:

Check the following potential problem sources:

Leak in mass airflow system on engine-side of compressor (boost-air hose, boost-pressure sensor, intake manifold/plenum).

Conduct mass airflow system test.

**Fault effect and breakdown warning**

Power loss owing to lack of air mass.

The error disables regeneration in the particulate filter.

Proceed to the nearest BMW Service facility.

**Driver information**

Warning light:

MIL_SVS

**Service instruction**

none

**DTC P2279 (BMW DTC 3F35): CHARGE-AIR TUBE MONITORING AT IDLE: CHARGE-AIR HOSE FALLEN OFF**

**Information saved in**

DDE
Fault code

3F35 - P2279

Fault description

Monitoring for separated boost-air hose via air mass in near-idle range with exhaust-gas recirculation deactivated. The diagnostic trouble code is logged when the air mass measured at the HFM falls below a limit value defined according to operating point.

Condition for fault identification

Test condition:

The error check runs under the following conditions:

- Injection quantity lies between 2 mg/hub and 70 mg/hub.
- Engine speed between 600 1/min and 1600 1/min.
- No other relevant diagnostic trouble code has been logged.

The test routine is executed continuously every 10 ms.

Voltage condition:

The error check runs under the following conditions:

- Injection quantity lies between 2 mg/hub and 70 mg/hub.
- Engine speed between 600 1/min and 1600 1/min.
- No other relevant diagnostic trouble code has been logged.

The test routine is executed continuously every 10 ms.

Condition for fault memory entry

No debouncing.

Action in service

Check the following potential problem sources:

1. Leak in mass airflow system on engine-side of compressor (boost-air hose, boost-pressure sensor, intake manifold/plenum).
2. Defective mass-airflow sensor.

Fault effect and breakdown warning

Power loss owing to lack of air mass.
The error disables regeneration in the particulate filter.

Proceed to the nearest BMW Service facility.

Driver information

Warning light:

MIL_SVS

Service instruction

- Check air mass system for leaks.
- Perform mass airflow system test.

DTC U0028 (BMW DTC CD87): POWERTRAIN CAN BUS: CONTROL UNIT HAS DEACTIVATED ITSELF FROM THE BUS (BUS OFF)

Information saved in

DDE

Fault code

CD87 - U0028

Fault description

Trouble with communications to PT CAN bus, signal reception is no longer present. Control module has deactivated itself from the PT CAN bus (bus off).

Condition for fault identification

Test condition:

Continuous, corresponding to the configured time grid.

Voltage condition:

Continuous, corresponding to the configured time grid.

Condition for fault memory entry

Debounce (400 ms)

Action in service

Conduct CAN system analysis.
Check wires and plug-in connections for short circuits and opens.

Fault effect and breakdown warning

- 

Driver information

Warning light:

MIL

Service instruction

none

DTC U029D (BMW DTC 49F1): CAN BUS D: CONTROL UNIT HAS DEACTIVATED ITSELF FROM THE BUS (BUS OFF)

Information saved in

DDE

Fault code

49F1 - U029D

Fault description

Communications to the CAN bus are impaired and no additional signals are received. The ECU has disconnected itself from the CAN bus (bus off).

Condition for fault identification

Test condition:

Continuous, corresponding to the configured time grid.

Voltage condition:

Continuous, corresponding to the configured time grid.

Condition for fault memory entry

Debounce (400 ms)

Action in service
Conduct CAN system analysis.

Fault effect and breakdown warning

- Driver information

Warning light:

MIL

Service instruction

none

**DTC P3200 (BMW DTC 48F2): CONTROL UNIT INTERNAL (POWERTRAIN CAN BUS): CAN CONTROLLER FAULTY (TPRAMCHECK)**

Information saved in

DDE

Fault code

48F2 - P3200

Fault description

The ECU recognizes an internal error while processing the PT CAN signal. (PT CAN controller)

Condition for fault identification

Test condition:

Continuous, corresponding to the configured time grid.

Voltage condition:

Continuous, corresponding to the configured time grid.

Condition for fault memory entry

Debounce (300 ms)

Action in service

Replace DDE control module.
Fault effect and breakdown warning

- 

Driver information

Warning light:

MIL

Service instruction

none

DTC P026A (BMW DTC 474D): INTERCOOLER, PLAUSIBILITY: COOLER EFFICIENCY TOO LOW

Information saved in

DDE

Fault code

474D - P026A

Fault description

A defective intercooler is recognized when the following conditions are met:

1. The enable time for debounce of the monitoring signal is greater than or equal to the limit value 150 s.
2. The calculated intercooler efficiency level is less than a limit value defined according to current operating coordinates.

Condition for fault identification

Test condition:

A check runs whenever the enable time is greater than 150 s.

Voltage condition:

A check runs whenever the enable time is greater than 150 s.

Condition for fault memory entry

-

Action in service
The intercooler's effective cooling capacity is too low.

Check air flow to the intercooler. Check cooling fins for contamination and clean as indicated.

If the air-supply duct is OK and no contamination is present:

Replace intercooler.

**Fault effect and breakdown warning**

- 

**Driver information**

Warning light:

MIL

**Service instruction**

If contaminant deposits are discovered on/in the intercooler then the engine radiator should also be inspected for contamination.

**DTC P0033 (BMW DTC 46D7): COMPRESSOR BYPASS PLATE, ACTIVATION: OPEN CIRCUIT**

**Information saved in**

DDE

**Fault code**

46D7 - P0033

**Fault description**

The DDE recognizes an open-circuit error at the output stage: switch valve for compressor bypass valve.

**Condition for fault identification**

Test condition:

The test routine is implemented each time process runs.

Voltage condition:

The test routine is implemented each time process runs.

**Condition for fault memory entry**
Debounce (220 ms)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:

   Replace switch valve for compressor bypass valve.

Fault effect and breakdown warning

Driver information

Warning light:

MIL_SVS

Service instruction

none

DTC P0039 (BMW DTC 46D8): COMRESSOR BYPASS PLATE, ACTIVATION: OUTPUT STAGE, OVERTEMPERATURE

Information saved in

DDE

Fault code

46D8 - P0039

Fault description

The DDE recognizes an over-temperature fault in the output stage: Switch valve for compressor bypass valve.

Condition for fault identification

Test condition:

The test routine is implemented each time process runs.

Voltage condition:

The test routine is implemented each time process runs.
Condition for fault memory entry

Debounce (220 ms)

Action in service

Check E-Box fan/DDE cooling. If E-Box fan/DDE cooling are OK:

Replace DDE control module.

Fault effect and breakdown warning

-

Driver information

Warning light:

MIL_SVS

Service instruction

none

DTC P0035 (BMW DTC 46D5): COMPRESSOR BYPASS PLATE, ACTIVATION: SHORT CIRCUIT TO POSITIVE

Information saved in

DDE

Fault code

46D5 - P0035

Fault description

The DDE recognizes a short circuit to positive in the output stage: Switch valve for compressor bypass valve.

Condition for fault identification

Test condition:

The test routine is implemented each time process runs.

Voltage condition:

The test routine is implemented each time process runs.
Condition for fault memory entry

Debounce (220 ms)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:

   Replace switch valve for compressor bypass valve.

Fault effect and breakdown warning

-

Driver information

Warning light:

MIL_SVS

Service instruction

none

DTC P0034 (BMW DTC 46D6): COMPRESSOR BYPASS PLATE, ACTIVATION: SHORT CIRCUIT TO GROUND

Information saved in

DDE

Fault code

46D6 - P0034

Fault description

The DDE recognizes a short to ground at the output stage: Switch valve for compressor bypass valve.

Condition for fault identification

Test condition:

The test routine is implemented each time process runs.

Voltage condition:
The test routine is implemented each time process runs.

**Condition for fault memory entry**

Debounce (220 ms)

**Action in service**

1. Check wires and plug connections.
2. If wiring and plug connections are OK:

   Replace switch valve for compressor bypass valve.

**Fault effect and breakdown warning**

- 

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC P0115 (BMW DTC 3EF0): COOLANT TEMPERATURE SENSOR, PLAUSIBILITY: NO TEMPERATURE INCREASE**

**Information saved in**

DDE

**Fault code**

3EF0 - P0115

**Fault description**

Dynamic plausibility check on coolant temperature sensor. The diagnostic trouble code is logged when the difference between the current coolant temperature and the coolant temperature at engine start is less than a limit defined with the program map.

**Condition for fault identification**

Test condition:
The monitoring system is active when compliance with the following conditions is present:

- The coolant temperature at engine start must exceed 40 °C.
- The injection quantity must exceed 11 mg/hub.
- The engine RPM must be in excess of 1000 1/min.

If one of the conditions listed above is not satisfied within a period defined in the program map, the timer stops and restarts from this count when compliance with the conditions is again present. The timer is not reset until the next driving cycle.

Voltage condition:

The monitoring system is active when compliance with the following conditions is present:

- The coolant temperature at engine start must exceed 40 °C.
- The injection quantity must exceed 11 mg/hub.
- The engine RPM must be in excess of 1000 1/min.

If one of the conditions listed above is not satisfied within a period defined in the program map, the timer stops and restarts from this count when compliance with the conditions is again present. The timer is not reset until the next driving cycle.

Condition for fault memory entry

- None.

Action in service

Replace coolant temperature sensor.

Fault effect and breakdown warning

Proceed to the nearest BMW Service facility.

Driver information

Warning light:

MIL

Service instruction

none

DTC P0117 (BMW DTC 434A): COOLANT-TEMPERATURE SENSOR, RANGE: UPPER PHYSICAL LIMIT EXCEEDED
Information saved in

DDE

Fault code

434A - P0117

Fault description

The diagnostic fault code is logged when the coolant-temperature sensor signal rises above the limit value 138 °C.

Condition for fault identification

Test condition:

The monitoring function is active only when no other error has been logged for the coolant-temperature sensor.

Voltage condition:

The monitoring function is active only when no other error has been logged for the coolant-temperature sensor.

Condition for fault memory entry

Debounce (4000 ms)

Action in service

Replace coolant temperature sensor.

Fault effect and breakdown warning

-

Driver information

Warning light:

MIL

Service instruction

none

DTC P0118 (BMW DTC 3EE0): COOLANT TEMPERATURE SENSOR, SIGNAL: OPEN OR SHORT CIRCUIT TO POSITIVE
Information saved in

DDE

Fault code

3EE0 - P0118

Fault description

Coolant temperature sensor voltage range monitor. If the raw sensor signal (voltage) lies above the limit 3280 mV the diagnostic trouble code is logged.

Condition for fault identification

Test condition:

None.

Voltage condition:

None.

Condition for fault memory entry

Debounce (600 ms)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   
   Replace coolant temperature sensor.

Fault effect and breakdown warning

Proceed to the nearest BMW Service facility.

Driver information

Warning light:

MIL

Service instruction

none
DTC P0117 (BMW DTC 3EE1): COOLANT TEMPERATURE SENSOR, SIGNAL: SHORT CIRCUIT TO GROUND

Information saved in

DDE

Fault code

3EE1 - P0117

Fault description

Coolant temperature sensor voltage range monitor. The diagnostic trouble code is logged when the raw sensor signal (voltage) lies below the limit 200 mV.

Condition for fault identification

Test condition:

none

Voltage condition:

none

Condition for fault memory entry

Debounce (600 ms)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   Replace coolant temperature sensor.

Fault effect and breakdown warning

-

Driver information

Warning light:

MIL

Service instruction
DTC U059E (BMW DTC 4585): MESSAGE (CALID-CVN FROM NOX SENSOR BEFORE DENOX CAT, 0X362, CAN SENSOR): MESSAGE FROM NOX SENSOR BEFORE SCR CATALYTIC CONVERTER FAILED

Information saved in

DDE

Fault code

4585 - U059E

Fault description

- 

Condition for fault identification

none

Condition for fault memory entry

Debounce (50 ms)

Action in service

- 

Fault effect and breakdown warning

- 

Driver information

Warning light:

MIL

Service instruction

none

DTC U059F (BMW DTC 4583): MESSAGE (CALID-CVN FROM NOX SENSOR AFTER DENOX CAT, 0X35B, CAN SENSOR): MESSAGE FROM NOX SENSOR AFTER SCR CATALYTIC CONVERTER FAILED
Information saved in DDE

Fault code
4583 - U059F

Fault description

Condition for fault identification
none

Condition for fault memory entry
Debounce (50 ms)

Action in service

Fault effect and breakdown warning

Driver information
Warning light:
MIL

Service instruction
none

DTC U0101 (BMW DTC 4AEF): MESSAGE (TRANSMISSION DATA, 0XBA): FAULT IN MESSAGE (CHECKSUM ERROR)

Information saved in DDE

Fault code
4AEF - U0101
Fault description

The diagnostic trouble code is logged when the message GETRIEBEDATEN (TRANSMISSION DATA) has a checksum error.

Condition for fault identification

Test condition:

The following conditions must be satisfied:

- The message must be active.
- Terminal 15 must be active.

The signals are transmitted in cycles with a periodicity of 20 ms.

The error is checked in a 20 ms time grid.

Voltage condition:

The following conditions must be satisfied:

- The message must be active.
- Terminal 15 must be active.

The signals are transmitted in cycles with a periodicity of 20 ms.

The error is checked in a 20 ms time grid.

Condition for fault memory entry

Debounce (100 ms)

Action in service

Troubleshooting in transmitting control module.

Fault effect and breakdown warning

- 

Driver information

Warning light:

MIL
Service instruction

none

**DTC U0101 (BMW DTC 4A89): MESSAGE (TRANSMISSION DATA, 0XBA): MESSAGE FROM TRANSMITTING CONTROL UNIT NOT CURRENT (ALIVE COUNTER)**

**Information saved in**

DDE

**Fault code**

4A89 - U0101

**Fault description**

The error is recognized when the alive signal of the message GETRIEBEDATEN (TRANSMISSION DATA) is invalid.

**Condition for fault identification**

**Test condition:**

The following conditions must be satisfied:

- The message must be active.
- Terminal 15 must be active.

The signals are transmitted in cycles with a periodicity of 20 ms.

The error is checked in a 20 ms time grid.

**Voltage condition:**

The following conditions must be satisfied:

- The message must be active.
- Terminal 15 must be active.

The signals are transmitted in cycles with a periodicity of 20 ms.

The error is checked in a 20 ms time grid.

**Condition for fault memory entry**

Debounce (100 ms)
Action in service

Troubleshooting in transmitting control module.

Fault effect and breakdown warning

- 

Driver information

Warning light:

MIL

Service instruction

none

**DTC U0101 (BMW DTC 4BE2): MESSAGE (TRANSMISSION DATA, 0XBA): SIGNAL(S) IN MESSAGE NOT VALID**

Information saved in

DDE

Fault code

4BE2 - U0101

Fault description

The error is recognized when at least one signal in the message GETRIEBEDATEN (TRANSMISSION DATA) is received with an error value.

Condition for fault identification

Test condition:

The following conditions must be satisfied:

- The message must be active.
- Terminal 15 must be active.

The signals are transmitted every 20 ms.

The error is checked in a 20 ms time grid.

Voltage condition:
The following conditions must be satisfied:

- The message must be active.
- Terminal 15 must be active.

The signals are transmitted every 20 ms.

The error is checked in a 20 ms time grid.

**Condition for fault memory entry**

Debounce (100 ms)

**Action in service**

Troubleshooting in transmitting control module.

**Fault effect and breakdown warning**

- 

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC U0101 (BMW DTC 4BE3): MESSAGE (TRANSMISSION DATA, 0XBA): MESSAGE FROM EGS FAILED**

Information saved in

DDE

**Fault code**

4BE3 - U0101

**Fault description**

The error is recognized when the message GETRIEBEDATEN (TRANSMISSION DATA) is not received.

**Condition for fault identification**
Test condition:

The following conditions must be satisfied:

- The message must be active.
- Terminal 15 must be active.

The signals are transmitted in cycles with a periodicity of 20 ms.

The error is checked in a 20 ms time grid.

Voltage condition:

The following conditions must be satisfied:

- The message must be active.
- Terminal 15 must be active.

The signals are transmitted in cycles with a periodicity of 20 ms.

The error is checked in a 20 ms time grid.

Condition for fault memory entry

Debounce (100 ms)

Action in service

Conduct CAN system analysis.

Fault effect and breakdown warning

- Driver information

Warning light:

MIL

Service instruction

none

DTC P110F (BMW DTC 497B): MESSAGE (OBDSNSDIAG, 0X580-0X5FF ID2=140): SIGNAL(S) IN MESSAGE NOT VALID
Information saved in
DDE

Fault code
497B - P110F

Fault description
The diagnostic trouble code is logged when at least one signal for the DIENSTE (SERVICES) message is received with an incorrect value.

Condition for fault identification

Test condition:
The following conditions must be satisfied:

- The message must be active.
- Terminal 15 must be active.

The signals are transmitted every 20 ms.
The error is checked in a 20 ms time grid.

Voltage condition:
The following conditions must be satisfied:

- The message must be active.
- Terminal 15 must be active.

The signals are transmitted every 20 ms.
The error is checked in a 20 ms time grid.

Condition for fault memory entry

Debounce (12000 ms)

Action in service
Troubleshooting in transmitting control module.

Fault effect and breakdown warning
Driver information

Warning light:

MIL

Service instruction

none

DTC P110F (BMW DTC 4C82): MESSAGE (STATUS, SENSORS, 0X580): MESSAGE FROM INSTRUMENT CLUSTER OR TANK MODULE FAILED

Information saved in

DDE

Fault code

4C82 - P110F

Fault description

The diagnostic trouble code is logged when the DIENSTE (SERVICES) message is not received.

Condition for fault identification

Test condition:

The following conditions must be satisfied:

- The message must be active.
- Terminal 15 must be active.

The signals are transmitted in cycles with a periodicity of 1000 ms.

The error is checked in a 100 ms time grid.

Voltage condition:

The following conditions must be satisfied:

- The message must be active.
- Terminal 15 must be active.
The signals are transmitted in cycles with a periodicity of 1000 ms.

The error is checked in a 100 ms time grid.

**Condition for fault memory entry**

Debounce (12000 ms)

**Action in service**

Conduct CAN system analysis.

**Fault effect and breakdown warning**

-

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC U029D (BMW DTC 481F): MESSAGE (NOX SENSOR BEFORE SCR CATALYTIC CONVERTER, 0X135, SENSOR-CAN): MESSAGE FROM NOX SENSOR BEFORE SCR CATALYTIC CONVERTER FAILED**

**Information saved in**

DDE

**Fault code**

481F - U029D

**Fault description**

The diagnostic trouble code is logged when the NOx sensor message is not received.

**Condition for fault identification**

Test condition:

The following conditions must be satisfied:
The signals are transmitted in cycles with a periodicity of 10 ms.

The error is checked in a 10 ms time grid.

Voltage condition:

The following conditions must be satisfied:

- The message must be active.
- Terminal 15 must be active.

The signals are transmitted in cycles with a periodicity of 10 ms.

The error is checked in a 10 ms time grid.

Condition for fault memory entry
Debounce (1000 ms)

Action in service
1. Check wires and plug connections.
2. If wiring and plug connections are OK:
3. Replace NOx control module 1 (before SCR converter).

Fault effect and breakdown warning

- 

Driver information

Warning light:

MIL

Service instruction

none

DTC P124E (BMW DTC 4872): NOX SENSOR AFTER DENOX CAT, PLAUSIBILITY

Information saved in
DDE

Fault code

4872 - P124E

Fault description

Monitoring of NOx sensor ID (Sensor 2 behind SCR converter).

The installed sensor is not correct for this system.

Condition for fault identification

Test condition:

The error check runs while the sensor is being initialized.

Voltage condition:

The error check runs while the sensor is being initialized.

Condition for fault memory entry

Debounce (500 ms)

Action in service

Install correct NOx sensor behind SCR converter.

Fault effect and breakdown warning

- 

Driver information

Warning light:

MIL

Service instruction

none

DTC P124C (BMW DTC 4871): NOX SENSOR BEFORE DENOX CAT, PLAUSIBILITY

Information saved in

Tuesday, September 09, 2014 5:12:34 PM
DDE

Fault code

4871 - P124C

Fault description

Monitoring ID of NOx sensor before the SCR converter.

The installed sensor is not correct for this system.

Condition for fault identification

Test condition:

The error check runs while the sensor is being initialized.

Voltage condition:

The error check runs while the sensor is being initialized.

Condition for fault memory entry

Debounce (500 ms)

Action in service

Install correct NOx sensor before SCR converter.

Fault effect and breakdown warning

-

Driver information

Warning light:

MIL

Service instruction

none

DTC U029E (BMW DTC 480F): MESSAGE (NOX SENSOR AFTER SCR CATALYTIC CONVERTER, 0X130, SENSOR-CAN): MESSAGE FROM NOX SENSOR AFTER SCR CATALYTIC CONVERTER FAILED
Information saved in

DDE

Fault code

480F - U029E

Fault description

The diagnostic trouble code is logged when the NOx sensor message is not received.

Condition for fault identification

Test condition:

The following conditions must be satisfied:

- The message must be active.
- Terminal 15 must be activated.

The signals are transmitted in cycles with a periodicity of 10 ms.

The error is checked in a 10 ms time grid.

Voltage condition:

The following conditions must be satisfied:

- The message must be active.
- Terminal 15 must be activated.

The signals are transmitted in cycles with a periodicity of 10 ms.

The error is checked in a 10 ms time grid.

Condition for fault memory entry

Debounce (1000 ms)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
3. Replace NOx control module 2 (behind SCR converter).

Fault effect and breakdown warning
Driver information

Warning light:

MIL

Service instruction

none

DTC U0155 (BMW DTC 49A2): MESSAGE (OUTSIDE TEMPERATURE, 0X310): SIGNAL(S) IN MESSAGE NOT VALID

Information saved in

DDE

Fault code

49A2 - U0155

Fault description

The diagnostic trouble code is logged when at least one signal of the message A_TEMP_RELATIVZEIT is received with an error value.

Condition for fault identification

Test condition:

The following conditions must be satisfied:

- The message must be active.
- Terminal 15 must be active.

The signals are transmitted every 20 ms.

The error is checked in a 100 ms time grid.

Voltage condition:

The following conditions must be satisfied:

- The message must be active.
- Terminal 15 must be active.
The signals are transmitted every 20 ms.

The error is checked in a 100 ms time grid.

**Condition for fault memory entry**

Debounce (6000 ms)

**Action in service**

Troubleshooting in transmitting control module.

**Fault effect and breakdown warning**

- 

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC U0155 (BMW DTC 49A3): MESSAGE (OUTSIDE TEMPERATURE, 0X310): MESSAGE FROM INSTRUMENT CLUSTER FAILED**

**Information saved in**

DDE

**Fault code**

49A3 - U0155

**Fault description**

If the message A_TEMP_RELATIVZEIT is not received the diagnostic trouble code is logged.

**Condition for fault identification**

Test condition:

The following conditions must be satisfied:

  o The message must be active.
o Terminal 15 must be active.

The signals are transmitted in cycles with a periodicity of 1000 ms.

The error is checked in a 100 ms time grid.

Voltage condition:

The following conditions must be satisfied:

o The message must be active.
  o Terminal 15 must be active.

The signals are transmitted in cycles with a periodicity of 1000 ms.

The error is checked in a 100 ms time grid.

Condition for fault memory entry

Debounce (6000 ms)

Action in service

Conduct CAN system analysis.

Fault effect and breakdown warning

Driver information

Warning light:

MIL

Service instruction

none

DTC U0101 (BMW DTC 4DF0): MESSAGE (TORQUE TRANSMISSION, 0XB5): FAULT IN MESSAGE (CHECKSUM ERROR)

Information saved in

DDE

Fault code
4DF0 - U0101

Fault description

The diagnostic trouble code is logged when a checksum error is present for the message DREHMOMENT_ANF_EGS.

Condition for fault identification

Test condition:

The following conditions must be satisfied:

- The message must be active.
- Terminal 15 must be active.

The signals are transmitted in cycles with a periodicity of 20 ms.

The error is checked in a 20 ms time grid.

Voltage condition:

The following conditions must be satisfied:

- The message must be active.
- Terminal 15 must be active.

The signals are transmitted in cycles with a periodicity of 20 ms.

The error is checked in a 20 ms time grid.

Condition for fault memory entry

Debounce (50 ms)

Action in service

Troubleshooting in transmitting control module.

Fault effect and breakdown warning

-

Driver information

Warning light:
MIL

Service instruction

none

**DTC U0101 (BMW DTC 4DF1): MESSAGE (TORQUE TRANSMISSION, 0XB5): MESSAGE FROM TRANSMITTING CONTROL UNIT NOT CURRENT (ALIVE COUNTER)**

Information saved in

DDE

**Fault code**

4DF1 - U0101

**Fault description**

The error is recognized if the alive signal of the message DREHMOMENT_ANF_EGS is invalid.

**Condition for fault identification**

Test condition:

The following conditions must be satisfied:

- The message must be active.
- Terminal 15 must be active.

The signals are transmitted in cycles with a periodicity of 20 ms.

The error is checked in a 20 ms time grid.

Voltage condition:

The following conditions must be satisfied:

- The message must be active.
- Terminal 15 must be active.

The signals are transmitted in cycles with a periodicity of 20 ms.

The error is checked in a 20 ms time grid.

**Condition for fault memory entry**
Debounce (50 ms)

Action in service

Troubleshooting in transmitting control module.

Fault effect and breakdown warning

- 

Driver information

Warning light:

MIL

Service instruction

none

**DTC U0101 (BMW DTC 4DF2): MESSAGE (TORQUE TRANSMISSION, 0XB5): SIGNAL(S) IN MESSAGE NOT VALID**

Information saved in

DDE

Fault code

4DF2 - U0101

Fault description

The error is recognized when at least one signal in the message DREHMOMENT_ANF_EGS is received with an error value.

Condition for fault identification

Test condition:

The following conditions must be satisfied:

- The message must be active.
- Terminal 15 must be active.

The signals are transmitted every 20 ms.

The error is checked in a 20 ms time grid.
Voltage condition:

The following conditions must be satisfied:

- The message must be active.
- Terminal 15 must be active.

The signals are transmitted every 20 ms.

The error is checked in a 20 ms time grid.

**Condition for fault memory entry**

Debounce (50 ms)

**Action in service**

Troubleshooting in transmitting control module.

**Fault effect and breakdown warning**

- 

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC U0101 (BMW DTC 4DF3): MESSAGE (TORQUE TRANSMISSION, 0XB5): MESSAGE FROM EGS FAILED**

**Information saved in**

DDE

**Fault code**

4DF3 - U0101

**Fault description**

The error is recognized when the message DREHMOMENT_ANF_EGS is not received.
Condition for fault identification

Test condition:

The following conditions must be satisfied:

- The message must be active.
- Terminal 15 must be active.

The signals are transmitted in cycles with a periodicity of 20 ms.

The error is checked in a 20 ms time grid.

Voltage condition:

The following conditions must be satisfied:

- The message must be active.
- Terminal 15 must be active.

The signals are transmitted in cycles with a periodicity of 20 ms.

The error is checked in a 20 ms time grid.

Condition for fault memory entry

Debounce (50 ms)

Action in service

Conduct CAN system analysis.

Fault effect and breakdown warning

Driver information

Warning light:

MIL

Service instruction

none

DTC P0500 (BMW DTC 49F3): MESSAGE (SPEED, 0XCE): MESSAGE FROM DSC FAILED
Information saved in
DDE

Fault code
49F3 - P0500

Fault description
The diagnostic trouble code is logged when the message GESCHWINDIGKEIT_RAD is not received.

Condition for fault identification

Test condition:
The following conditions must be satisfied:
  - The message must be active.
  - Terminal 15 must be activated.
The signals are transmitted in cycles with a periodicity of 20 ms.
The error is checked in a 20 ms time grid.

Voltage condition:
The following conditions must be satisfied:
  - The message must be active.
  - Terminal 15 must be activated.
The signals are transmitted in cycles with a periodicity of 20 ms.
The error is checked in a 20 ms time grid.

Condition for fault memory entry
Debounce (150 ms)

Action in service
Conduct CAN system analysis.

Fault effect and breakdown warning
-
Driver information

Warning light:

MIL

Service instruction

none

DTC P124E (BMW DTC 486C): NOX SENSOR AFTER DENOX CAT', PLAUSIBILITY

Information saved in

DDE

Fault code

486C - P124E

Fault description

Monitoring of correction factors for NOx sensor behind SCR converter.

The diagnostic trouble code is logged when:

- the NOx correction factor (gradient) does not lie between 800 and 1200.
- the NOx correction factor (offset) does not lie between -200 and 200.

Condition for fault identification

Test condition:

The error check runs while the sensor is being initialized.

Voltage condition:

The error check runs while the sensor is being initialized.

Condition for fault memory entry

Debounce (500 ms)

Action in service

Replace NOx sensor behind SCR converter.

Fault effect and breakdown warning
Driver information

Warning light:

MIL

Service instruction

none

DTC P124C (BMW DTC 486B): NOX SENSOR BEFORE DENOX CAT', PLAUSIBILITY

Information saved in

DDE

Fault code

486B - P124C

Fault description

Monitoring correction factors for NOx sensor before the SCR converter.

The diagnostic trouble code is logged when:

- the NOx correction factor (gradient) does not lie between 800 and 1200.
- the NOx correction factor (offset) does not lie between -200 and 200.

Condition for fault identification

Test condition:

The error check runs while the sensor is being initialized.

Voltage condition:

The error check runs while the sensor is being initialized.

Condition for fault memory entry

Debounce (500 ms)

Action in service

Replace NOx sensor before SCR converter.
Fault effect and breakdown warning

- 

Driver information

Warning light:

MIL

Service instruction

none

DTC P053A (BMW DTC 4B73): HEATING CRANKCASE VENTILATION, ACTIVATION: OPEN CIRCUIT

Information saved in

DDE

Fault code

4B73 - P053A

Fault description

The DDE recognizes a load drop error in the output stage: Positive crankcase ventilation heater.

Condition for fault identification

none

Condition for fault memory entry

Debounce (220 ms)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   Replace crankcase ventilation heater.

Fault effect and breakdown warning

-
Driver information

Warning light:

MIL

Service instruction

none

DTC P120D (BMW DTC 4B72): HEATING CRANKCASE VENTILATION, ACTIVATION: OUTPUT STAGE, OVERTEMPERATURE

Information saved in

DDE

Fault code

4B72 - P120D

Fault description

The DDE recognizes an over-temperature fault in the output stage:

Positive crankcase ventilation heater.

Condition for fault identification

none

Condition for fault memory entry

Debounce (220 ms)

Action in service

Check E-Box fan/DDE cooling. If E-Box fan/DDE cooling are OK:

Replace DDE ECU.

Fault effect and breakdown warning

-

Driver information

Warning light:
MIL

Service instruction

none

**DTC P053C (BMW DTC 4B70): HEATING CRANKCASE VENTILATION, ACTIVATION: SHORT CIRCUIT TO POSITIVE**

Information saved in

DDE

Fault code

4B70 - P053C

Fault description

The DDE recognizes a short circuit to positive error in the output stage:

Positive crankcase ventilation heater.

**Condition for fault identification**

none

**Condition for fault memory entry**

Debounce (220 ms)

**Action in service**

1. Check wires and plug connections.
2. If wiring and plug connections are OK:

   Replace crankcase ventilation heater.

**Fault effect and breakdown warning**

-

**Driver information**

Warning light:

MIL
DTC P053B (BMW DTC 4B6C): HEATING CRANKCASE VENTILATION, ACTIVATION: SHORT CIRCUIT TO GROUND

Information saved in
DDE

Fault code
4B6C - P053B

Fault description
The DDE recognizes short circuit to ground error in the output stage:
Positive crankcase ventilation heater.

Condition for fault identification
none

Condition for fault memory entry
Debounce (220 ms)

Action in service
1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   Replace crankcase ventilation heater.

Fault effect and breakdown warning
-

Driver information
Warning light:
MIL

Service instruction
none

DTC P0128 (BMW DTC 4C89): COOLANT TEMPERATURE SENSOR, PLAUSIBILITY: MEASURED TEMPERATURE TOO LOW COMPARED WITH MODELED TEMPERATURE

Information saved in

DDE

Fault code

4C89 - P0128

Fault description

The diagnostic trouble code is logged when the modeled coolant temperature rises above the threshold 70 °C and the measured coolant temperature is simultaneously below the limit 60 °C.

Condition for fault identification

Test condition:

The following conditions must be met for the error check:

1. Engine RPM greater than 450 1/min.
2. Vehicle speed greater than 0 km/h.
3. For a period of 2700 s the temperature at engine start must lie between -40 °C and 70 °C.
4. No other diagnostic trouble codes for the coolant-temperature sensor should be present.
5. The outside temperature must be below -7 °C.

The test routine is executed continuously in a 1000 ms grid.

Voltage condition:

The following conditions must be met for the error check:

1. Engine RPM greater than 450 1/min.
2. Vehicle speed greater than 0 km/h.
3. For a period of 2700 s the temperature at engine start must lie between -40 °C and 70 °C.
4. No other diagnostic trouble codes for the coolant-temperature sensor should be present.
5. The outside temperature must be below -7 °C.

The test routine is executed continuously in a 1000 ms grid.

Condition for fault memory entry
Debounce (100 ms)

**Action in service**

- 

**Fault effect and breakdown warning**

- 

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC P0607 (BMW DTC 4C8F): CONTROL UNIT INTERNAL: CY320 SPI COMMUNICATION FAULTY**

**Information saved in**

DDE

**Fault code**

4C8F - P0607

**Fault description**

Internal communications within the control module are monitored. A DTC is logged when the received data have incorrect checksums or no data transmission is possible.

**Condition for fault identification**

Test condition:

- 

Voltage condition:

- 

**Condition for fault memory entry**
Debounce (50 ms)

**Action in service**

Replace DDE control module.

**Fault effect and breakdown warning**

-

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC P245A (BMW DTC 485C): EGR COOLER, BYPASS VALVE, ACTIVATION: OPEN CIRCUIT**

**Information saved in**

DDE

**Fault code**

485C - P245A

**Fault description**

The DDE recognizes a load drop error in the output stage: Switch valve for EGR cooler bypass valve.

**Condition for fault identification**

Test condition:

The check frequency depends on the process sequence control.

Voltage condition:

The check frequency depends on the process sequence control.

**Condition for fault memory entry**

Debounce (220 ms)
Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:

   Replace switch valve for EGR cooler bypass valve.

Fault effect and breakdown warning

- 

Driver information

Warning light:

MIL

Service instruction

none

DTC P245B (BMW DTC 485D): EGR COOLER, BYPASS VALVE, ACTIVATION: OUTPUT STAGE, OVERTEMPERATURE

Information saved in

DDE

Fault code

485D - P245B

Fault description

The DDE recognizes an over-temperature fault in the output stage: Switch valve for EGR cooler bypass valve.

Condition for fault identification

Test condition:

The check frequency depends on the process sequence control.

Voltage condition:

The check frequency depends on the process sequence control.

Condition for fault memory entry
Debounce (220 ms)

Action in service

Inspect switch valve for EGR cooler bypass valve for short circuits.

Check E-Box fan/DDE cooling. If E-Box fan/DDE cooling are OK:

Replace DDE control module.

Fault effect and breakdown warning

Proceed to the nearest BMW Service facility.

Driver information

Warning light:

MIL

Service instruction

none

**DTC P245D (BMW DTC 485A): EGR COOLER, BYPASS VALVE, ACTIVATION: SHORT CIRCUIT TO POSITIVE**

Information saved in

DDE

Fault code

485A - P245D

Fault description

The DDE recognizes a short circuit to positive in the output stage: Switch valve for EGR cooler bypass valve.

Condition for fault identification

Test condition:

The check frequency depends on the process sequence control.

Voltage condition:

The check frequency depends on the process sequence control.
Condition for fault memory entry

Debounce (220 ms)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   Replace switch valve for EGR cooler bypass valve.

Fault effect and breakdown warning

- 

Driver information

Warning light:
MIL

Service instruction

none

DTC P245C (BMW DTC 485B): EGR COOLER, BYPASS VALVE, ACTIVATION: SHORT CIRCUIT TO GROUND

Information saved in

DDE

Fault code

485B - P245C

Fault description

The DDE recognizes short circuit to ground error in the output stage: Switch valve for EGR cooler bypass valve.

Condition for fault identification

Test condition:
The check frequency depends on the process sequence control.

Voltage condition:
The check frequency depends on the process sequence control.

**Condition for fault memory entry**

Debounce (220 ms)

**Action in service**

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   
   Replace switch valve for EGR cooler bypass valve.

**Fault effect and breakdown warning**

- 

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC P062F (BMW DTC 4BDE): CONTROL UNIT INTERNAL: EEP FAULT WHEN DELETING**

**Information saved in**

DDE

**Fault code**

4BDE - P062F

**Fault description**

The diagnostic trouble code is logged when it is not possible to delete a complete sector in the DDE storage medium (flash only), or it is not possible to complete a change of the sector in the storage medium.

**Condition for fault identification**

Test condition:

At each sector change.
Voltage condition:
At each sector change.

Condition for fault memory entry
- None.

Action in service
Replace DDE control module.

Fault effect and breakdown warning

Driver information
Warning light:
MIL

Service instruction
none

DTC P062F (BMW DTC 4AE9): CONTROL UNIT INTERNAL (EEP): EEP ERROR WHEN READING

Information saved in
DDE

Fault code
4AE9 - P062F

Fault description
The diagnostic trouble code is logged when more than 3 read errors occur during attempts to read a block from the storage medium (EEPROM).

Condition for fault identification
Test condition:
Each time the storage medium is accessed for reading.
Voltage condition:

Each time the storage medium is accessed for reading.

**Condition for fault memory entry**

- None, if debounce is defined as a constant 3.

**Action in service**

Replace DDE control module.

**Fault effect and breakdown warning**

- 

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC P062F (BMW DTC 4AEE): CONTROL UNIT INTERNAL (EEP): EEP ERROR WHEN WRITING**

**Information saved in**

DDE

**Fault code**

4AEE - P062F

**Fault description**

The diagnostic trouble code is logged when more than 3 write errors occur during attempts to write a block to the storage medium (EEPROM).

**Condition for fault identification**

Test condition:

Each time the storage medium is accessed for reading.
Voltage condition:
Each time the storage medium is accessed for reading.

**Condition for fault memory entry**

- None, if debounce is defined as a constant 3.

**Action in service**

Replace DDE control module.

**Fault effect and breakdown warning**

- 

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC P2457 (BMW DTC 4873): EXHAUST GAS RECIRCULATION COOLING, PLAUSIBILITY**

**Information saved in**

DDE

**Fault code**

4873 - P2457

**Fault description**

Monitoring EGR cooler bypass valve.

The temperature downstream from the EGR cooler bypass valve is stored at specific times.

The stored temperatures are employed to generate two temperature gradients.

An activation signal is transmitted to the EGR cooler bypass valve while the temperature gradients are being generated. If the EGR cooler bypass valve is in good condition then a temperature variation must be apparent. In contrast, if the EGR cooler bypass valve is defective then virtually no variation in the temperature gradient will be apparent.
The diagnostic trouble code is logged when the absolute difference between the temperature gradients falls below the limit value 5 K.

**Condition for fault identification**

**Test condition:**

The check runs every 100 ms when all of the enable conditions are present:

- For a duration of 1000 ms the specified torque gradient is below 4 Nm/s.
- The RPM is within the limits 980 1/min and 590 1/min.
- For the duration 1000 ms the modeled exhaust-gas recirculation rate is greater than 21.
- The engine is running at idle.
- The air mass control/EGR rate control is active and no deactivation conditions are active.
- The vehicle speed is less than 3 km/h.
- The engine is not in the regeneration mode.
- The coolant temperature is between 60 °C and 110 °C.
- The modeled exhaust-gas temperature is greater than EGR.
- The temperature behind the EGR cooler is below the limit value 1 K/s.
- The injection rate is between 6 mg/hub and 100 mg/hub.

**Voltage condition:**

The check runs every 100 ms when all of the enable conditions are present:

- For a duration of 1000 ms the specified torque gradient is below 4 Nm/s.
- The RPM is within the limits 980 1/min and 590 1/min.
- For the duration 1000 ms the modeled exhaust-gas recirculation rate is greater than 21.
- The engine is running at idle.
- The air mass control/EGR rate control is active and no deactivation conditions are active.
- The vehicle speed is less than 3 km/h.
- The engine is not in the regeneration mode.
- The coolant temperature is between 60 °C and 110 °C.
- The modeled exhaust-gas temperature is greater.
- The temperature behind the EGR cooler is below the limit value 1 K/s.
- The injection rate is between 6 mg/hub and 100 mg/hub.

**Condition for fault memory entry**

-

**Action in service**
1. Check vacuum supply to the EGR cooler's bypass valve (vacuum lines and switch valve).
2. If the vacuum supply is in satisfactory condition:

   Replace the EGR cooler (the bypass valve's return spring may be defective).

Fault effect and breakdown warning

Proceed to the nearest BMW Service facility.

Driver information

Warning light:
MIL

Service instruction

none

DTC P0403 (BMW DTC 4B39): EXHAUST-GAS RECIRCULATION CONTROLLER, ACTIVATION: OPEN CIRCUIT

Information saved in
DDE

Fault code
4B39 - P0403

Fault description
The DDE recognizes an open circuit in the output stage:
EGR actuator.

Condition for fault identification

Test condition:
The error is evaluated when a sticking valve is recognized or the open circuit diagnosis is active.
The diagnosis routine also runs when a start occurs.

Voltage condition:
The error is evaluated when a sticking valve is recognized or the open circuit diagnosis is active.
The diagnosis routine also runs when a start occurs.

**Condition for fault memory entry**

Debounce (220 ms)

**Action in service**

1. Check wires and plug connections.
   
   (open circuit)

2. If wiring and plug connections are OK:

   Replace EGR actuator.

**Fault effect and breakdown warning**

-

**Driver information**

Warning light:

MIL_SVS

**Service instruction**

With some engine versions the appropriate service function must be used to reset the EGR valve's adaptation before the EGR valve is replaced.

**DTC P0404 (BMW DTC 4B3F): EXHAUST-GAS RECIRCULATION CONTROLLER, ACTIVATION: OUTPUT STAGE, OVERTEMPERATURE**

**Information saved in**

DDE

**Fault code**

4B3F - P0404

**Fault description**

The DDE recognizes an over-temperature fault in the output stage:

EGR actuator.
Condition for fault identification

Test condition:

The test routine is implemented each time process runs.

Voltage condition:

The test routine is implemented each time process runs.

Condition for fault memory entry

Debounce (220 ms)

Action in service

Check E-Box fan/DDE cooling. If E-Box fan/DDE cooling are OK:

Replace DDE control module.

Fault effect and breakdown warning

- 

Driver information

Warning light:

MIL_SVS

Service instruction

none

DTC P0490 (BMW DTC 4B24): EXHAUST-GAS RECIRCULATION CONTROLLER, OUTPUT 1 (DC+), ACTIVATION: SHORT CIRCUIT TO POSITIVE

Information saved in

DDE

Fault code

4B24 - P0490

Fault description

The DDE recognizes a short circuit to positive at the output stage's positive output:
EGR actuator

Condition for fault identification

Test condition:
The test routine is implemented each time process runs.

Voltage condition:
The test routine is implemented each time process runs.

Condition for fault memory entry

Debounce (220 ms)

Action in service

1. Check wires and plug connections.
   (Short circuit)

2. If wiring and plug connections are OK:
   Replace EGR actuator.

Fault effect and breakdown warning

- 

Driver information

Warning light:

MIL_SVS

Service instruction

With some engine versions the appropriate service function must be used to reset the EGR valve's adaptation before the EGR valve is replaced.

DTC P0490 (BMW DTC 4B29): EXHAUST-GAS RECIRCULATION CONTROLLER, OUTPUT 2 (DC-), ACTIVATION: SHORT CIRCUIT TO POSITIVE

Information saved in

DDE
Fault code
4B29 - P0490

Fault description
The DDE recognizes a short circuit to positive at the output stage's negative output:
EGR actuator.

Condition for fault identification
Test condition:
The test routine is implemented each time process runs.

Voltage condition:
The test routine is implemented each time process runs.

Condition for fault memory entry
Debounce (220 ms)

Action in service
1. Check wires and plug connections.
   (Short circuit)
2. If wiring and plug connections are OK:
   Replace EGR actuator.

Fault effect and breakdown warning
-

Driver information
Warning light:
MIL_SVS

Service instruction
With some engine versions the appropriate service function must be used to reset the EGR valve's adaptation before the EGR valve is replaced.
DTC P0489 (BMW DTC 4B2E): EXHAUST-GAS RECIRCULATION CONTROLLER, OUTPUT 1 (DC+), ACTIVATION: SHORT CIRCUIT TO GROUND

Information saved in
DDE

Fault code
4B2E - P0489

Fault description
The DDE recognizes a short circuit to ground at the positive output of output stage:
EGR actuator.

Condition for fault identification
Test condition:
The test routine is implemented each time process runs.

Voltage condition:
The test routine is implemented each time process runs.

Condition for fault memory entry
Debounce (220 ms)

Action in service
1. Check wires and plug connections.
   (Short circuit)
2. If wiring and plug connections are OK:
   Replace EGR actuator.

Fault effect and breakdown warning
-

Driver information
Warning light:
MIL_SVS

Service instruction

With some engine versions the appropriate service function must be used to reset the EGR valve's adaptation before the EGR valve is replaced.

**DTC P0489 (BMW DTC 4B2F): EXHAUST-GAS RECIRCULATION CONTROLLER, OUTPUT 2 (DC-), ACTIVATION: SHORT CIRCUIT TO GROUND**

Information saved in

DDE

Fault code

4B2F - P0489

Fault description

The DDE recognizes a short circuit to ground at the negative output of the output stage:

EGR actuator.

Condition for fault identification

Test condition:

The test routine is implemented each time process runs.

Voltage condition:

The test routine is implemented each time process runs.

Condition for fault memory entry

Debounce (220 ms)

Action in service

1. Check wires and plug connections.
   
   (Short circuit, leakage current)

2. If wiring and plug connections are OK:

   Replace EGR actuator.
Fault effect and breakdown warning

Driver information

Warning light:
MIL_SVS

Service instruction

With some engine versions the appropriate service function must be used to reset the EGR valve's adaptation before the EGR valve is replaced.

**DTC P042F (BMW DTC 4C9E): EXHAUST-GAS RECIRCULATION VALVE, PLAUSIBILITY: MECHANICALLY FAULTY NEAR CLOSED POSITION**

Information saved in
DDE

Fault code

4C9E - P042F

Fault description

If a positive or negative deviation in the EGR control system remains present for a period of 1 s, and it has proven impossible to resolve this issue despite attempts to free the valve with the EGR actuator in the intervening period, the system recognizes the EGR valve as sticking in its closed position.

For this the actual pulse-duty factor of the EGR actuator must be less than 1 % or the specified pulse-duty factor of the EGR actuator greater

In this case a counter starts advancing. This deactivates monitoring for persistent EGR control deviation.

A diagnostic trouble code is logged when the counter reaches the limit value 6.

Condition for fault identification

Test condition:

The monitoring function is active only when the monitoring function for permanent control deviation in the EGR control is also active and a persistent control deviation has already been detected.

Voltage condition:
The monitoring function is active only when the monitoring function for permanent control deviation in the EGR control is also active and a persistent control deviation has already been detected.

**Condition for fault memory entry**

- Debounce time for detection of positive control deviation 2500 ms+ time for break-away attempts with persistent control deviation 1 s or time to recognition of negative control deviation error 2500 ms+ time during which enable function is active 1 s.

**Action in service**

With electric EGR valve:

Replace EGR valve.

With pneumatic EGR valve:

Check the vacuum system between the following components and repair as required:

- Pressure converter for EGR valve.
- EGR valve.

If the vacuum system is OK:

Replace EGR valve.

**Fault effect and breakdown warning**

Proceed to the nearest BMW Service facility.

**Driver information**

Warning light:

MIL

**Service instruction**

With some engine versions the appropriate service function must be used to reset the EGR valve's adaptation before the EGR valve is replaced.

**DTC P042E (BMW DTC 4C9F): EXHAUST-GAS RECIRCULATION VALVE, PLAUSIBILITY: MECHANICALLY FAULTY NEAR OPEN POSITION**

**Information saved in**

DDE
Fault code

4C9F - P042E

Fault description

If a negative control deviation in the EGR control system remains present for a period of 1 s, and it proves impossible to resolve this issue despite attempts to free the valve with the EGR actuator in the intervening period, the system recognizes the EGR valve as sticking in its open position.

For this the actual pulse-duty factor of the EGR actuator must be greater than 3 % or the specified pulse-duty factor of the EGR actuator less than.

A counter is incrementalized in response. This deactivates monitoring for persistent control deviation.

A diagnostic trouble code is logged when the counter reaches the limit value 6.

Condition for fault identification

Test condition:

The monitoring function is active only when the monitoring function for permanent control deviation in the EGR control is also active and a persistent control deviation has already been detected.

Voltage condition:

The monitoring function is active only when the monitoring function for permanent control deviation in the EGR control is also active and a persistent control deviation has already been detected.

Condition for fault memory entry

-Debounce time for detection of a negative control deviation 2500 ms+ time for break-away attempts during persistent control deviation 1 s.

Action in service

Replace EGR valve.

Fault effect and breakdown warning

Proceed to the nearest BMW Service facility.

Driver information

Warning light:

MIL_SVS
Service instruction

With some engine versions the appropriate service function must be used to reset the EGR valve's adaptation before the EGR valve is replaced.

**DTC P045F (BMW DTC 478E): LOW-PRESSURE EXHAUST-GAS RECIRCULATION VALVE, PLAUSIBILITY: MECHANICALLY FAULTY NEAR CLOSED POSITION**

Information saved in

DDE

Fault code

478E - P045F

Fault description

If a positive or negative deviation in the low-pressure EGR control system remains present for a period of 3 s, and it has proven impossible to resolve this issue despite attempts to free the valve with the low-pressure EGR actuator in the intervening period, the system recognizes the low-pressure EGR valve as sticking in its closed position.

For this the actual pulse-duty factor of the low-pressure EGR actuator must be less than 5 %

A counter is incrementalized in response. This deactivates monitoring for persistent control deviation.

A diagnostic trouble code is logged when the counter reaches the limit value 6.

**Condition for fault identification**

Test condition:

The monitoring function is active only when the monitoring function for persistent control deviation in the low-pressure EGR control is also active and a persistent control deviation has already been detected.

Voltage condition:

The monitoring function is active only when the monitoring function for persistent control deviation in the low-pressure EGR control is also active and a persistent control deviation has already been detected.

**Condition for fault memory entry**

-Debounce time for detection of a positive control deviation 5000 ms+ time for break-away attempts during persistent control deviation 3 s.

Or:
Time for recognition of a negative control deviation error 5000 ms+ time during which the enable function is activated (3 s).

**Action in service**

1. Check low-pressure EGR valve.
2. Replace sensors.
3. Replace low-pressure EGR valve.

**Fault effect and breakdown warning**

- 

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC P045E (BMW DTC 478F): LOW-PRESSURE EXHAUST-GAS RECIRCULATION VALVE, PLAUSIBILITY: MECHANICALLY FAULTY NEAR OPEN POSITION**

**Information saved in**

DDE

**Fault code**

478F - P045E

**Fault description**

If a negative deviation in the low-pressure EGR control system remains present for a period of 3 s, and it has proven impossible to resolve this issue despite attempts to free the valve with the low-pressure EGR actuator in the intervening period, the system recognizes the low-pressure EGR valve as sticking in its open position.

For this the actual pulse-duty factor of the low-pressure EGR actuator must be greater than 7 %

A counter is incrementalized in response. This deactivates monitoring for persistent control deviation.

A diagnostic trouble code is logged when the counter reaches the limit value 6.

**Condition for fault identification**
Test condition:

The monitoring function is active only when the monitoring function for persistent control deviation in the EGR control system is also active and a persistent control deviation has already been detected.

Voltage condition:

The monitoring function is active only when the monitoring function for persistent control deviation in the EGR control system is also active and a persistent control deviation has already been detected.

Condition for fault memory entry

-Debounce time for detection of a negative control deviation 5000 ms+ time for break-away attempts during persistent control deviation 3 s.

Action in service

1. Check low-pressure EGR valve.
2. Replace sensors.
3. Replace low-pressure EGR valve.

Fault effect and breakdown warning

Driver information

Warning light:

MIL_SVS

Service instruction

none

DTC P045A (BMW DTC 4794): LOW-PRESSURE EXHAUST-GAS RECIRCULATION CONTROLLER, ACTIVATION: OPEN CIRCUIT

Information saved in

DDE

Fault code

4794 - P045A

Fault description
The DDE recognizes a load drop error in the output stage:

Low-pressure EGR actuator.

**Condition for fault identification**

**Test condition:**

The error check proceeds continuously according to the programmed process grid.

**Voltage condition:**

The error check proceeds continuously according to the programmed process grid.

**Condition for fault memory entry**

Debounce (220 ms)

**Action in service**

1. Check wires and plug connections.
2. If wiring and plug connections are OK:

   Replace low-pressure EGR actuator.

**Fault effect and breakdown warning**

- 

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC P045B (BMW DTC 4DA7): LOW-PRESSURE EXHAUST-GAS RECIRCULATION CONTROLLER, ACTIVATION: OUTPUT STAGE, OVERTEMPERATURE**

**Information saved in**

DDE

**Fault code**
4DA7 - P045B

Fault description

The DDE recognizes an over-temperature fault in the output stage:

Low-pressure EGR actuator.

Condition for fault identification

Test condition:

The error check proceeds continuously in the programmed process grid.

Voltage condition:

The error check proceeds continuously in the programmed process grid.

Condition for fault memory entry

Debounce (220 ms)

Action in service

Check E-Box fan/DDE cooling. If E-Box fan/DDE cooling are OK:

Replace DDE ECU.

Fault effect and breakdown warning

- 

Driver information

Warning light:

MIL

Service instruction

none

DTC P045D (BMW DTC 4799): LOW-PRESSURE EXHAUST-GAS RECIRCULATION CONTROLLER, ACTIVATION: SHORT CIRCUIT TO POSITIVE

Information saved in

DDE
Fault code
4799 - P045D

Fault description
The DDE recognizes a short circuit to plus error in the output stage: Low-pressure EGR actuator.

Condition for fault identification
Test condition:
The check frequency depends on the process sequence control.
Voltage condition:
The check frequency depends on the process sequence control.

Condition for fault memory entry
Debounce (220 ms)

Action in service
1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   Replace low-pressure EGR actuator.

Fault effect and breakdown warning
-

Driver information
Warning light:
MIL

Service instruction
none

DTC P045C (BMW DTC 479E): LOW-PRESSURE EXHAUST-GAS RECIRCULATION CONTROLLER, ACTIVATION: SHORT CIRCUIT TO GROUND

Information saved in
DDE

Fault code

479E - P045C

Fault description

The DDE recognizes short circuit to ground error in the output stage:

Low-pressure EGR actuator.

Condition for fault identification

Test condition:

The check frequency depends on the process sequence control.

Voltage condition:

The check frequency depends on the process sequence control.

Condition for fault memory entry

Debounce (220 ms)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:

   Replace low-pressure EGR actuator.

Fault effect and breakdown warning

-

Driver information

Warning light:

MIL_SVS

Service instruction

none

DTC P0408 (BMW DTC 4784): LOW-PRESSURE EXHAUST-GAS RECIRCULATION
CONTROLLER, POSITION SENSOR, SIGNAL: SHORT CIRCUIT TO POSITIVE

Information saved in

DDE

Fault code

4784 - P0408

Fault description

Low-pressure EGR travel feedback sensor monitoring. The diagnostic trouble code is logged when the raw sensor signal (voltage) is greater than 4900 mV.

Condition for fault identification

Test condition:

No faults related to the sensor's voltage supply should be logged.

Voltage condition:

No faults related to the sensor's voltage supply should be logged.

Condition for fault memory entry

Debounce (220 ms)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:

   Replace low-pressure EGR actuator.

Fault effect and breakdown warning

-  

Driver information

Warning light:

MIL

Service instruction
DTC P0407 (BMW DTC 4789): LOW-PRESSURE EXHAUST-GAS RECIRCULATION CONTROLLER, POSITION SENSOR, SIGNAL: OPEN OR SHORT CIRCUIT TO GROUND

Information saved in

DDE

Fault code

4789 - P0407

Fault description

Low-pressure EGR travel feedback sensor monitoring. The diagnostic trouble code is logged when the raw sensor signal (voltage) is less than 100 mV.

Condition for fault identification

Test condition:

No faults related to the sensor's voltage supply should be logged.

Voltage condition:

No faults related to the sensor's voltage supply should be logged.

Condition for fault memory entry

Debounce (220 ms)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   
   Replace low-pressure EGR actuator.

Fault effect and breakdown warning

-

Driver information

Warning light:

MIL
Service instruction
none

**DTC P0406 (BMW DTC 4CA9): EXHAUST-GAS RECIRCULATION CONTROLLER, POSITION SENSOR, SIGNAL: SHORT CIRCUIT TO POSITIVE**

Information saved in
DDE

**Fault code**
4CA9 - P0406

**Fault description**
EGR valve position sensor monitoring function. The diagnostic trouble code is logged when the raw sensor signal (voltage) is greater than 3200 mV.

**Condition for fault identification**
Test condition:
No faults related to the sensor's voltage supply should be logged.

Voltage condition:
No faults related to the sensor's voltage supply should be logged.

**Condition for fault memory entry**
Debounce (220 ms)

**Action in service**
1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   Replace EGR valve.

**Fault effect and breakdown warning**
Proceed to the nearest BMW Service facility.

**Driver information**

Warning light:
MIL

Service instruction

With some engine versions the appropriate service function must be used to reset the EGR valve's adaptation before the EGR valve is replaced.

**DTC P0405 (BMW DTC 4CAE): EXHAUST-GAS RECIRCULATION CONTROLLER, POSITION SENSOR, SIGNAL: OPEN OR SHORT CIRCUIT TO GROUND**

Information saved in

DDE

Fault code

4CAE - P0405

Fault description

EGR valve position sensor monitoring function. The diagnostic trouble code is logged when the raw sensor signal (voltage) is less than 50 mV.

Condition for fault identification

Test condition:

No faults related to the sensor's voltage supply should be logged.

Voltage condition:

No faults related to the sensor's voltage supply should be logged.

Condition for fault memory entry

Debounce (220 ms)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   
   Replace EGR valve.

Fault effect and breakdown warning

Proceed to the nearest BMW Service facility.
**Driver information**

Warning light:

MIL

**Service instruction**

With some engine versions the appropriate service function must be used to reset the EGR valve's adaptation before the EGR valve is replaced.

**DTC P02CD (BMW DTC 4AD5): ZERO-QUANTITY ADAPTATION, INJECTOR, CYLINDER 1: PERMISSIBLE FILTERED ACTIVATION DURATION CORRECTION TOO HIGH**

**Information saved in**

DDE

**Fault code**

4AD5 - P02CD

**Fault description**

Monitoring zero delivery rate adaptation.

The diagnostic trouble code is logged when the corrected injection activation period at one of the 3 calibration points exceeds the maximum activation duration and when the signal deviation at one of the 3 calibration points exceeds the signal limit.

**Condition for fault identification**

Test condition:

Monitoring proceeds in a 100 ms grid.

Voltage condition:

Monitoring proceeds in a 100 ms grid.

**Condition for fault memory entry**

Event debounced (1)

**Action in service**

Replace injector.
Fault effect and breakdown warning

- 

Driver information

Warning light:

MIL

Service instruction

none

**DTC P02D5 (BMW DTC 4B15): ZERO-QUANTITY ADAPTATION, INJECTOR, CYLINDER 5: PERMISSIBLE FILTERED ACTIVATION DURATION CORRECTION TOO HIGH**

Information saved in

DDE

Fault code

4B15 - P02D5

Fault description

Monitoring zero delivery rate adaptation.

The diagnostic trouble code is logged when the corrected injection activation period at one of the 3 calibration points exceeds the maximum activation duration and when the signal deviation at one of the 3 calibration points exceeds the signal limit.

**Condition for fault identification**

Test condition:

Monitoring proceeds in a 100 ms grid.

Voltage condition:

Monitoring proceeds in a 100 ms grid.

**Condition for fault memory entry**

Event debounced (1)

**Action in service**
Replace injector.

Fault effect and breakdown warning

- 

Driver information

Warning light:

MIL

Service instruction

none

**DTC P02D1 (BMW DTC 4AF5): ZERO-QUANTITY ADAPTATION, INJECTOR, CYLINDER 3: PERMISSIBLE FILTERED ACTIVATION DURATION CORRECTION TOO HIGH**

Information saved in

DDE

Fault code

4AF5 - P02D1

Fault description

Monitoring zero delivery rate adaptation.

The diagnostic trouble code is logged when the corrected injection activation period at one of the 3 calibration points exceeds the maximum activation duration and when the signal deviation at one of the 3 calibration points exceeds the signal limit.

Condition for fault identification

Test condition:

Monitoring proceeds in a 100 ms grid.

Voltage condition:

Monitoring proceeds in a 100 ms grid.

Condition for fault memory entry

Event debounced (1)
Action in service
Replace injector.

Fault effect and breakdown warning
-

Driver information
Warning light:
MIL

Service instruction
none

DTC P02D7 (BMW DTC 4B25): ZERO-QUANTITY ADAPTATION, INJECTOR, CYLINDER 6: PERMISSIBLE FILTERED ACTIVATION DURATION CORRECTION TOO HIGH

Information saved in
DDE

Fault code
4B25 - P02D7

Fault description
Monitoring zero delivery rate adaptation.

The diagnostic trouble code is logged when the corrected injection activation period at one of the 3 calibration points exceeds the maximum activation duration and when the signal deviation at one of the 3 calibration points exceeds the signal limit.

Condition for fault identification
Test condition:
Monitoring proceeds in a 100 ms grid.

Voltage condition:
Monitoring proceeds in a 100 ms grid.

Condition for fault memory entry
Event debounced (1)

Action in service

Replace injector.

Fault effect and breakdown warning

- 

Driver information

Warning light:

MIL

Service instruction

none

**DTC P02CF (BMW DTC 4AE5): ZERO-QUANTITY ADAPTATION, INJECTOR, CYLINDER 2: PERMISSIBLE FILTERED ACTIVATION DURATION CORRECTION TOO HIGH**

Information saved in

DDE

Fault code

4AE5 - P02CF

Fault description

Monitoring zero delivery rate adaptation.

The diagnostic trouble code is logged when the corrected injection activation period at one of the 3 calibration points exceeds the maximum activation duration and when the signal deviation at one of the 3 calibration points exceeds the signal limit.

Condition for fault identification

Test condition:

Monitoring proceeds in a 100 ms grid.

Voltage condition:

Monitoring proceeds in a 100 ms grid.
Condition for fault memory entry

Event debounced (1)

Action in service

Replace injector.

Fault effect and breakdown warning

Driver information

Warning light:

MIL

Service instruction

none

DTC P02D3 (BMW DTC 4B05): ZERO-QUANTITY ADAPTATION, INJECTOR, CYLINDER 4: PERMISSIBLE FILTERED ACTIVATION DURATION CORRECTION TOO HIGH

Information saved in

DDE

Fault code

4B05 - P02D3

Fault description

Monitoring zero delivery rate adaptation.

The diagnostic trouble code is logged when the corrected injection activation period at one of the 3 calibration points exceeds the maximum activation duration and when the signal deviation at one of the 3 calibration points exceeds the signal limit.

Condition for fault identification

Test condition:

Monitoring proceeds in a 100 ms grid.

Voltage condition:
Monitoring proceeds in a 100 ms grid.

**Condition for fault memory entry**

Event debounced (1)

**Action in service**

Replace injector.

**Fault effect and breakdown warning**

-

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC P02CC (BMW DTC 4AD6): ZERO-QUANTITY ADAPTATION, INJECTOR, CYLINDER 1: PERMISSIBLE FILTERED ACTIVATION DURATION CORRECTION TOO LOW**

**Information saved in**

DDE

**Fault code**

4AD6 - P02CC

**Fault description**

Monitoring zero-quantity delivery rate adaptation.

The diagnostic trouble code is logged when the injector activation period at one of the 3 calibration points falls below the maximum activation duration and when the signal deviation at one of the 3 calibration points exceeds the signal limit.

**Condition for fault identification**

Test condition:

Monitoring proceeds in a 100 ms grid.
Voltage condition:

Monitoring proceeds in a 100 ms grid.

Condition for fault memory entry

Event debounced (1)

Action in service

Replace injector.

Fault effect and breakdown warning

-

Driver information

Warning light:

MIL

Service instruction

none

DTC P02D4 (BMW DTC 4B16): ZERO-QUANTITY ADAPTATION, INJECTOR, CYLINDER 5: PERMISSIBLE FILTERED ACTIVATION DURATION CORRECTION TOO LOW

Information saved in

DDE

Fault code

4B16 - P02D4

Fault description

Monitoring zero-quantity delivery rate adaptation.

The diagnostic trouble code is logged when the injector activation period at one of the 3 calibration points falls below the maximum activation duration and when the signal deviation at one of the 3 calibration points exceeds the signal limit.

Condition for fault identification

Test condition:
Monitoring proceeds in a 100 ms grid.

Voltage condition:

Monitoring proceeds in a 100 ms grid.

**Condition for fault memory entry**

Event debounced (1)

**Action in service**

Replace injector.

**Fault effect and breakdown warning**

-

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC P02D0 (BMW DTC 4AF6): ZERO-QUANTITY ADAPTATION, INJECTOR, CYLINDER 3: PERMISSIBLE FILTERED ACTIVATION DURATION CORRECTION TOO LOW**

**Information saved in**

DDE

**Fault code**

4AF6 - P02D0

**Fault description**

Monitoring zero-quantity delivery rate adaptation.

The diagnostic trouble code is logged when the injector activation period at one of the 3 calibration points falls below the maximum activation duration and when the signal deviation at one of the 3 calibration points exceeds the signal limit.

**Condition for fault identification**
Test condition:
Monitoring proceeds in a 100 ms grid.

Voltage condition:
Monitoring proceeds in a 100 ms grid.

Condition for fault memory entry
Event debounced (1)

Action in service
Replace injector.

Fault effect and breakdown warning

- 

Driver information
Warning light:
MIL

Service instruction
none

DTC P02D6 (BMW DTC 4B26): ZERO-QUANTITY ADAPTATION, INJECTOR, CYLINDER 6: PERMISSIBLE FILTERED ACTIVATION DURATION CORRECTION TOO LOW

Information saved in
DDE

Fault code
4B26 - P02D6

Fault description
Monitoring zero-quantity delivery rate adaptation.

The diagnostic trouble code is logged when the injector activation period at one of the 3 calibration points falls below the maximum activation duration and when the signal deviation at one of the 3 calibration points exceeds the signal limit.
Condition for fault identification

Test condition:

Monitoring proceeds in a 100 ms grid.

Voltage condition:

Monitoring proceeds in a 100 ms grid.

Condition for fault memory entry

Event debounced (1)

Action in service

Replace injector.

Fault effect and breakdown warning

Driver information

Warning light:

MIL

Service instruction

none

DTC P02CE (BMW DTC 4AE6): ZERO-QUANTITY ADAPTATION, INJECTOR, CYLINDER 2: PERMISSIBLE FILTERED ACTIVATION DURATION CORRECTION TOO LOW

Information saved in

DDE

Fault code

4AE6 - P02CE

Fault description

Monitoring zero-quantity delivery rate adaptation.

The diagnostic trouble code is logged when the injector activation period at one of the 3 calibration points falls
below the maximum activation duration and when the signal deviation at one of the 3 calibration points exceeds the signal limit.

**Condition for fault identification**

Test condition:

Monitoring proceeds in a 100 ms grid.

Voltage condition:

Monitoring proceeds in a 100 ms grid.

**Condition for fault memory entry**

Event debounced (1)

**Action in service**

Replace injector.

**Fault effect and breakdown warning**

-

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC P02D2 (BMW DTC 4B06): ZERO-QUANTITY ADAPTATION, INJECTOR, CYLINDER 4: PERMISSIBLE FILTERED ACTIVATION DURATION CORRECTION TOO LOW**

**Information saved in**

DDE

**Fault code**

4B06 - P02D2

**Fault description**
Monitoring zero-quantity delivery rate adaptation.

The diagnostic trouble code is logged when the injector activation period at one of the 3 calibration points falls below the maximum activation duration and when the signal deviation at one of the 3 calibration points exceeds the signal limit.

**Condition for fault identification**

Test condition:

Monitoring proceeds in a 100 ms grid.

Voltage condition:

Monitoring proceeds in a 100 ms grid.

**Condition for fault memory entry**

Event debounced (1)

**Action in service**

Replace injector.

**Fault effect and breakdown warning**

- 

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC P244C (BMW DTC 4C6C): EXHAUST-GAS TEMPERATURE CONTROLLER, CONTROL DEVIATION: DEVIATION FROM SETPOINT TEMPERATURE VALUE TOO HIGH (CURRENT MANIPULATED VARIABLE OF OUTER CONTROL LOOP AT MAXIMUM VALUE)**

**Information saved in**

DDE

**Fault code**
4C6C - P244C

Fault description

The exhaust-gas temperature control system relies on different control parameters (adjustment of throttle valve, secondary injection, etc.) to regulate the temperature of the exhaust gas to a specified level (roughly 620°C) during regeneration of the particulate filter. The external closed-loop control circuit regulates the exhaust-gas temperature of the particulate filter. The diagnostic trouble code is logged when the control deviation of the outer control circuit rises above a limit defined according to operating point and the current control variable of the outer control circuit lies above the threshold 1.

Condition for fault identification

Test condition:

The test routine runs when the following conditions are satisfied:

- The exhaust-gas temperature controller's control variable has reached its maximum.
- The outer exhaust-gas temperature controller must be active.
- The current operating point must be valid.
- The actual temperature of the inner exhaust-gas control circuit must exceed 10 s.

The check runs continuously in a 100 ms grid.

Voltage condition:

The test routine runs when the following conditions are satisfied:

- The exhaust-gas temperature controller's control variable has reached its maximum.
- The outer exhaust-gas temperature controller must be active.
- The current operating point must be valid.
- The actual temperature of the inner exhaust-gas control circuit must exceed 10 s.

The check runs continuously in a 100 ms grid.

Condition for fault memory entry

Debounce (20000 ms)

Action in service

Check the following potential problem sources:

- Mass airflow sensor contaminated/implausible air mass data.
- Pre-catalyst exhaust-gas temperature is implausible.
- Exhaust-gas temperature upstream from particulate filter is implausible. With engine cold check mutual
plausibility of exhaust-gas temperatures.

- Fuel quantity drift at injectors.

Check for DTC entries related to the indicated components, repair faults.

**Fault effect and breakdown warning**

- 

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC P244C (BMW DTC 4BC3): EXHAUST-GAS TEMPERATURE CONTROLLER, PLAUSIBILITY: RESPONSE TIME OF OUTER CONTROL LOOP TOO HIGH**

**Information saved in**

DDE

**Fault code**

4BC3 - P244C

**Fault description**

Monitoring of response lag of exhaust-gas temperature control for the outer control circuit. The diagnostic trouble code is logged when the period since activation of the inner control circuit exceeds a limit value defined by operating point.

**Condition for fault identification**

Test condition:

The test routine runs when the following conditions are satisfied:

- The inner exhaust-gas temperature controller is enabled in the current operating mode and no system errors should be present.
- The inner exhaust-gas temperature controller must be active.

The check runs continuously in a 100 ms grid.
Voltage condition:

The test routine runs when the following conditions are satisfied:

- The inner exhaust-gas temperature controller is enabled in the current operating mode and no system errors should be present.
- The inner exhaust-gas temperature controller must be active.

The check runs continuously in a 100 ms grid.

**Condition for fault memory entry**

Event debounced (1)

**Action in service**

- 

**Fault effect and breakdown warning**

- 

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC P1515 (BMW DTC 4DFB): ENGINE SWITCH-OFF TIME: ENGINE SWITCH-OFF TIME DETERMINATION FAULTY**

**Information saved in**

DDE

**Fault code**

4DFB - P1515

**Fault description**

The engine downtime is the period between the last time the engine was shut down and the most recent engine start.
The engine downtime monitoring function is implemented in two versions:

1. The system determines whether the count for the relative time received in the CAN bus advances correctly. This process compares the relative time with a software timer within the ECU.

   The diagnostic trouble code is logged when the time differential is greater than 8 s.

2. The engine downtime continuously monitored during the current driving cycle is written to the EEPROM (from engine downtime until deactivation of the main relay). This time is read from the EEPROM when the next driving cycle is initialized. The diagnostic trouble code is logged when this time is greater than the currently determined engine downtime.

This fault can occur when the instrument cluster's second counter has been interrupted. This scenario can arise when worked has been performed on the instrument cluster (reset, flash-programming, power supply deactivated...).

**Condition for fault identification**

**Test condition:**

The monitoring function is executed only when:

The relative time received on the CAN bus is greater than the threshold.

The software timer may not exceed the overrun of 248 days with the first version of the monitoring function.

With the second version the monitoring function the relative time must have exceeded the limit value 604800 s to avoid incorrect diagnosis when the battery is disconnected.

**Voltage condition:**

The monitoring function is executed only when:

The relative time received on the CAN bus is greater than the threshold.

The software timer may not exceed the overrun of 248 days with the first version of the monitoring function.

With the second version the monitoring function the relative time must have exceeded the limit value 604800 s to avoid incorrect diagnosis when the battery is disconnected.

**Condition for fault memory entry**

**Debounce (500 ms)**

**Action in service**

Start vehicle, switch it off, allow vehicle to enter sleep mode (can take up to 15 min), these steps must be carried out before the diagnostic trouble code can be deleted.
If the fault continues to appear respond by replacing the instrument cluster.

**Fault effect and breakdown warning**

No hazard to components is present

Proceed to the nearest BMW Service facility.

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC P244B (BMW DTC 4D00): EXHAUST BACKPRESSURE SENSOR, SIGNAL: SIGNAL TOO HIGH**

**Information saved in**

DDE

**Fault code**

4D00 - P244B

**Fault description**

Monitoring of particulate filter differential-pressure sensor. A diagnostic trouble code is logged when the particulate filter's pressure differential rises beyond the maximum limit.

**Condition for fault identification**

Test condition:

The check runs continuously in a 100 ms grid.

Voltage condition:

The check runs continuously in a 100 ms grid.

**Condition for fault memory entry**

Debounce (2000 ms)
Action in service

1. Check hose and electrical connections, test exhaust backpressure.
2. If wiring and plug connections are OK:
   Replace differential-pressure sensor.

Fault effect and breakdown warning

Proceed to the nearest BMW Service facility.

Driver information

Warning light:
MIL

Service instruction
none

**DTC P244D (BMW DTC 4175): EXHAUST-GAS TEMPERATURE SENSOR BEFORE PARTICULATE FILTER, SIGNAL: SIGNAL TOO HIGH**

Information saved in
DDE

Fault code
4175 - P244D

Fault description

Monitoring of exhaust-gas temperature sensor before particulate filter. When the exhaust-gas temperature rises above the physically logical upper the DTC is logged.

Condition for fault identification

Test condition:
The check runs continuously in a 100 ms grid.

Voltage condition:
The check runs continuously in a 100 ms grid.

Condition for fault memory entry
Debounce (50000 ms)

Action in service

1. Check particulate filter and catalyst for damage.
2. Check wires and plug-in connections, if OK: Replace pre-particulate filter exhaust-gas temperature sensor.
3. Check EGR valve for leakage, clean as required.

Fault effect and breakdown warning

Proceed to the nearest BMW Service facility.

Driver information

Warning light:

MIL

Service instruction

none

DTC P244A (BMW DTC 4D01): EXHAUST BACKPRESSURE SENSOR: SIGNAL TOO LOW

Information saved in

DDE

Fault code

4D01 - P244A

Fault description

Monitoring of particulate filter differential-pressure sensor. A diagnostic trouble code is logged when the particulate filter's differential pressure falls below the minimum limit value -40 mbar.

Condition for fault identification

Test condition:

The check runs continuously in a 100 ms grid.

Voltage condition:

The check runs continuously in a 100 ms grid.
Condition for fault memory entry

Debounce (2000 ms)

Action in service

1. Check sensor, hose and electrical connections, conduct backpressure test
2. If wires/plug connections are OK, replace sensor.

Fault effect and breakdown warning

Driver information

Warning light:

MIL

Service instruction

none

DTC P2229 (BMW DTC 432A): AMBIENT-PRESSURE SENSOR (INSTALLED IN CONTROL UNIT), RANGE: UPPER PHYSICAL LIMIT EXCEEDED

Information saved in

DDE

Fault code

432A - P2229

Fault description

The diagnostic trouble code is logged when the physical sensor signal for barometric pressure rises above the limit value 1100 mbar.

Condition for fault identification

Test condition:

The monitoring function is only implemented when no electrical error is logged.

Voltage condition:

The monitoring function is only implemented when no electrical error is logged.
Condition for fault memory entry

Debounce (200 ms)

Action in service

Replace DDE control module.

Fault effect and breakdown warning

Proceed to the nearest BMW Service facility.

Driver information

Warning light:

MIL

Service instruction

none

**DTC P2228 (BMW DTC 432B): AMBIENT-PRESSURE SENSOR (INSTALLED IN CONTROL UNIT), RANGE: LOWER PHYSICAL LIMIT UNDERSHOT**

Information saved in

DDE

Fault code

432B - P2228

Fault description

The diagnostic trouble code is logged when the physical sensor signal for barometric pressure falls below the limit value 490 mbar.

Condition for fault identification

Test condition:

The monitoring function is only implemented when no electrical error is logged.

Voltage condition:

The monitoring function is only implemented when no electrical error is logged.
Condition for fault memory entry

Debounce (200 ms)

Action in service

Replace DDE control module.

Fault effect and breakdown warning

Proceed to the nearest BMW Service facility.

Driver information

Warning light:

MIL

Service instruction

none

**DTC P2229 (BMW DTC 4060): AMBIENT-PRESSURE SENSOR (INSTALLED IN CONTROL UNIT), SIGNAL: SHORT CIRCUIT TO POSITIVE**

Information saved in

DDE

Fault code

4060 - P2229

Fault description

Barometric pressure sensor monitoring function. The diagnostic trouble code is logged when the raw sensor signal (voltage) is greater than 4900 mV.

Condition for fault identification

Test condition:

-

Voltage condition:

-
Condition for fault memory entry

Debounce (150 ms)

Action in service

Replace DDE control module.

Fault effect and breakdown warning

The error disables regeneration in the particulate filter.

Proceed to the nearest BMW Service facility.

Driver information

Warning light:

MIL

Service instruction

none

**DTC P2228 (BMW DTC 4061): AMBIENT-PRESSURE SENSOR (INSTALLED IN CONTROL UNIT), SIGNAL: OPEN OR SHORT CIRCUIT TO GROUND**

Information saved in

DDE

Fault code

4061 - P2228

Fault description

Barometric pressure sensor monitoring function. The diagnostic trouble code is logged when the raw sensor signal (voltage) is less than 1110 mV.

Condition for fault identification

Test condition:

-

Voltage condition:
**Condition for fault memory entry**

Debounce (50 ms)

**Action in service**

Replace DDE control module.

**Fault effect and breakdown warning**

The error disables regeneration in the particulate filter.
Proceed to the nearest BMW Service facility.

**Driver information**

Warning light:
MIL

**Service instruction**

none

**DTC P009A (BMW DTC 4D95): AMBIENT TEMPERATURE SENSOR, PLAUSIBILITY**

**Information saved in**
DDE

**Fault code**
4D95 - P009A

**Fault description**

Outside temperature plausibility check. The plausibility error is logged when the difference between the boost-air temperature and the outside temperature rises above the limit value 35 K.

The outside temperature is calculated from a physical temperature, the sensor ambient temperature, and an additive offset correction factor.

**Condition for fault identification**

Test condition:
The following conditions must be met before the error check can be active:

Either the boost-air temperature must lie between -40 °C and 70 °C or the outside temperature must be between -40 °C and 70 °C.

The speed signal must be greater than or equal to 75 km/h.

The monitored mass airflow must be greater than or equal to 100 kg/h.

Voltage condition:

The following conditions must be met before the error check can be active:

Either the boost-air temperature must lie between -40 °C and 70 °C or the outside temperature must be between -40 °C and 70 °C.

The speed signal must be greater than or equal to 75 km/h.

The monitored mass airflow must be greater than or equal to 100 kg/h.

Condition for fault memory entry

Debounce (15000 ms)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   - Replace outside-temperature sensor.

Fault effect and breakdown warning

Driver information

Warning light:

MIL

Service instruction

none

DTC P0073 (BMW DTC 4C1C): AMBIENT-TEMPERATURE SENSOR, RANGE: UPPER PHYSICAL LIMIT EXCEEDED
Information saved in
DDE

Fault code
4C1C - P0073

Fault description
The diagnostic trouble code is logged when the physical sensor signal for outside temperature rises above the limit value 80 °C.

Condition for fault identification

Test condition:
The monitoring routine is executed only provided that no electrical errors related to the sensor have been logged.

Voltage condition:
The monitoring routine is executed only provided that no electrical errors related to the sensor have been logged.

Condition for fault memory entry
Debounce (2000 ms)

Action in service
1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   Replace outside-temperature sensor.

Fault effect and breakdown warning

Driver information
Warning light:
MIL

Service instruction
DTC P0073 (BMW DTC 3F80): AMBIENT-TEMPERATURE SENSOR, SIGNAL: OPEN OR SHORT CIRCUIT TO POSITIVE

Information saved in
DDE

Fault code
3F80 - P0073

Fault description
Outside temperature sensor monitoring. The diagnostic trouble code is logged when the raw signal (voltage) from the outside temperature sensor signal rises above the limit value.

Condition for fault identification
Test condition:
Continuous.

Voltage condition:
Continuous.

Condition for fault memory entry
Debounce (6000 ms) None.

Action in service
1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   Replace outside-temperature sensor.

Fault effect and breakdown warning
-

Driver information
Warning light:
MIL
Service instruction

none

**DTC P0072 (BMW DTC 3F81): AMBIENT-TEMPERATURE SENSOR, SIGNAL: SHORT CIRCUIT TO GROUND**

*Information saved in*

DDE

*Fault code*

3F81 - P0072

*Fault description*

Outside temperature sensor monitoring. The error heals when the raw sensor signal (voltage) for outside temperature falls below the limit value

*Condition for fault identification*

Test condition:

Continuous.

Voltage condition:

Continuous.

*Condition for fault memory entry*

Debounce (6000 ms) None.

*Action in service*

1. Check wires and plug connections.
   
2. If wiring and plug connections are OK:
   
   Replace outside-temperature sensor.

*Fault effect and breakdown warning*

Proceed to the nearest BMW Service facility.

*Driver information*

Warning light:
DTC P0016 (BMW DTC 42B5): ENGINE SPEED MONITORING: DIFFERENCE BETWEEN CRANKSHAFT AND CAMSHAFT POSITIONS TOO HIGH

Information saved in

DDE

Fault code

42B5 - P0016

Fault description

An angular offset between crankshaft and camshaft produces a deterioration in exhaust emissions. This monitoring function detects angular offset between camshaft and crankshaft. The median angular offset must lie between -20 ° crank angle and 20 ° crank angle. The following error debounce is carried out when the limits are violated: When the deviation in camshaft position corresponding to error status is detected for 6 consecutive operating cycles the DTC is logged.

Condition for fault identification

Test condition:

At low engine speeds the defect counter registers actual consecutive camshaft revolutions. Because the calculation process only runs once every 100 ms, at high engine speeds multiple camshaft revolutions can elapse between scans, and these would not be included. Under these conditions the defect counter advances by just one increment with each scan, even if multiple camshaft revolutions have occurred.

Voltage condition:

At low engine speeds the defect counter registers actual consecutive camshaft revolutions. Because the calculation process only runs once every 100 ms, at high engine speeds multiple camshaft revolutions can elapse between scans, and these would not be included. Under these conditions the defect counter advances by just one increment with each scan, even if multiple camshaft revolutions have occurred.

Condition for fault memory entry

-

Action in service

1. Check bolt retaining sprocket on camshaft.
2. Check sensor reluctor ring attachment.
3. Check camshaft/valve timing.
4. Check timing chain

**Fault effect and breakdown warning**

Park vehicle.

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC P0336 (BMW DTC 3E91): CRANKSHAFT SENSOR, SIGNAL: INCORRECT SIGNAL**

**Information saved in**

DDE

**Fault code**

3E91 - P0336

**Fault description**

A crankshaft signal error is recognized when the number of sensor plausibility check errors reaches the limit 200. The error counter increases by the step width 10.

**Condition for fault identification**

Test condition:

The check starts as soon as the engine starts and continues for as long as the engine runs. The system monitors the crankshaft signal at every crankshaft flank (= crankshaft tooth).

**Voltage condition:**

The check starts as soon as the engine starts and continues for as long as the engine runs. The system monitors the crankshaft signal at every crankshaft flank (= crankshaft tooth).

**Condition for fault memory entry**
-200/10 Monitoring cycles

**Action in service**

Check the following potential fault causes and repair as needed:

1. Intermittent contact at plug.
2. Change in gap between sensor and reluctor ring (eccentric reluctor ring geometry, gap too wide, loose sensor, sensor movement).
3. Crankshaft sensor defect stemming from collision with reluctor ring.
4. Damaged reluctor ring.

**Fault effect and breakdown warning**

- 

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC P0335 (BMW DTC 3E90): CRANKSHAFT SENSOR, SIGNAL: NO SIGNAL**

**Information saved in**

DDE

**Fault code**

3E90 - P0335

**Fault description**

The DTC is logged when no crankshaft signal is detected in the course of 2 camshaft rotations.

**Condition for fault identification**

Test condition:

The check starts as soon as the engine starts and continues for as long as the engine runs. The system monitors the crankshaft signal at every crankshaft flank (= crankshaft tooth).
Voltage condition:

The check starts as soon as the engine starts and continues for as long as the engine runs. The system monitors the crankshaft signal at every crankshaft flank (= crankshaft tooth).

Condition for fault memory entry

- 

Action in service

Check the following potential fault causes and repair as needed:

1. The signal wire between the sensor and the control module is open or shorted to positive or ground.
2. Open circuit in voltage supply or ground wire.
3. Open circuit in one or both signal wires between sensor and control module.
4. If the sensor is a passive sensor (inductive sensor) the gap between the crankshaft sensor and reluctor ring is too wide.
5. Defective crankshaft sensor.

Fault effect and breakdown warning

- 

Driver information

Warning light:

MIL

Service instruction

none

DTC P0425 (BMW DTC 4C04): EXHAUST-GAS TEMPERATURE SENSOR BEFORE CAT., PLAUSIBILITY: DIFFERENCE, MEASURED FROM CALCULATED EXHAUST-GAS TEMPERATURE BEFORE CAT., TOO HIGH

Information saved in

DDE

Fault code

4C04 - P0425

Fault description
The error is logged when the difference between the measured and the simulated exhaust-gas temperature upstream from (on engine side of) the oxidation catalyst lies outside the plausibility window.

**Condition for fault identification**

Test condition:

The error check is activated when no other faults are stored for the sensor.

Voltage condition:

The error check is activated when no other faults are stored for the sensor.

**Condition for fault memory entry**

Debounce (60000 ms)

**Action in service**

Replace exhaust-gas temperature sensor upstream from oxidation catalyst.

**Fault effect and breakdown warning**

- **Driver information**

Warning light:

MIL

**Service instruction**

Defective exhaust-gas temperature sensor upstream from oxidation catalyst.

**DTC P042A (BMW DTC 4C09): EXHAUST-GAS TEMPERATURE SENSOR BEFORE PARTICULATE FILTER, PLAUSIBILITY: DIFFERENCE, MEASURED FROM CALCULATED EXHAUST-GAS TEMPERATURE BEFORE PARTICULATE FILTER, TOO HIGH**

**Information saved in**

DDE

**Fault code**

4C09 - P042A

**Fault description**
The DTC is logged when the difference between the measured and the simulated exhaust-gas temperature upstream from the particulate filter lies outside a plausibility window.

**Condition for fault identification**

Test condition:

The error check is activated when no other faults are stored for the sensor.

Voltage condition:

The error check is activated when no other faults are stored for the sensor.

**Condition for fault memory entry**

Debounce (60000 ms)

**Action in service**

Replace pre-particulate filter exhaust-gas temperature sensor.

**Fault effect and breakdown warning**

- 

**Driver information**

Warning light:

MIL

**Service instruction**

Exhaust-gas temperature sensor before particulate filter defective.

**DTC P242A (BMW DTC 4C0E): EXHAUST-GAS TEMPERATURE SENSOR BEFORE SCR CAT., PLAUSIBILITY: DIFFERENCE, MEASURED FROM CALCULATED EXHAUST-GAS TEMPERATURE BEFORE SCR CAT., TOO HIGH**

**Information saved in**

DDE

**Fault code**

4C0E - P242A

**Fault description**
The DTC is logged when the difference between the measured and the simulated exhaust-gas temperature before the SCR converter lies outside the plausibility window.

Condition for fault identification

Test condition:

The error check is activated when no other faults are stored for the sensor.

Voltage condition:

The error check is activated when no other faults are stored for the sensor.

Condition for fault memory entry

Debounce (60000 ms)

Action in service

Replace exhaust-gas temperature sensor before SCR converter.

Fault effect and breakdown warning

Driver information

Warning light:

MIL

Service instruction

Defective exhaust-gas temperature sensor before SCR cat.

**DTC P0425 (BMW DTC 4ABD): EXHAUST-GAS TEMPERATURE SENSOR BEFORE CAT., PLAUSIBILITY: EXHAUST TEMPERATURE BEFORE SCR CATALYTIC CONVERTER NOT PLAUSIBLE WHEN COMPARED TO THE OTHER EXHAUST TEMPERATURE SIGNALS**

Information saved in

DDE

Fault code

4ABD - P0425

Fault description
Plausibility check on exhaust-gas temperature sensor before oxidation catalyst.

For the plausibility check the temperature before the oxidation catalyst is compared with the other exhaust-gas temperature data, then the sensor plausibility is determined by calculating the differences.

The diagnostic trouble code is logged when the monitored sensor's data displays implausibility relative to that from the remaining sensors.

**Condition for fault identification**

Test condition:

The error check runs once per driving cycle once an engine cold start is detected and provided that the barometric pressure is above 750 mbar.

Voltage condition:

The error check runs once per driving cycle once an engine cold start is detected and provided that the barometric pressure is above 750 mbar.

**Condition for fault memory entry**

Debounce (100 ms)

**Action in service**

Replace exhaust-gas temperature sensor upstream from oxidation catalyst.

**Fault effect and breakdown warning**

- 

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC P042A (BMW DTC 4ABB): EXHAUST-GAS TEMPERATURE SENSOR BEFORE PARTICULATE FILTER, PLAUSIBILITY: EXHAUST TEMPERATURE BEFORE PARTICULATE FILTER NOT PLAUSIBLE WHEN COMPARED TO THE OTHER EXHAUST TEMPERATURE SIGNALS**

Information saved in
DDE

**Fault code**

4ABB - P042A

**Fault description**

Plausibility check on exhaust-gas temperature sensor before the particulate filter. For the plausibility check the exhaust-gas temperature value before the particulate filter is compared with the other exhaust-gas temperature data, then sensor plausibility is determined by calculating the differences.

The diagnostic trouble code is logged when the monitored sensor's data display implausibility relative to that from the remaining sensors.

**Condition for fault identification**

Test condition:

The error check runs once per driving cycle once an engine cold start is detected and provided that the barometric pressure is above 750 mbar.

Voltage condition:

The error check runs once per driving cycle once an engine cold start is detected and provided that the barometric pressure is above 750 mbar.

**Condition for fault memory entry**

Debounce (100 ms)

**Action in service**

Replace pre-particulate filter exhaust-gas temperature sensor.

**Fault effect and breakdown warning**

- 

**Driver information**

Warning light:

MIL

**Service instruction**

none
DTC P242A (BMW DTC 4ABA): EXHAUST-GAS TEMPERATURE SENSOR BEFORE SCR CAT.,
PLAUSIBILITY: EXHAUST TEMPERATURE BEFORE SCR CATALYTIC CONVERTER NOT
PLAUSIBLE WHEN COMPARED TO THE OTHER EXHAUST TEMPERATURE SIGNALS

Information saved in

DDE

Fault code

4ABA - P242A

Fault description

Plausibilities of exhaust-gas temperature sensor before the SCR converter. For the plausibility check the exhaust-gas temperature value before the SCR converter filter is compared with the other exhaust-gas temperature data, then sensor plausibility is determined by calculating the differences.

The diagnostic trouble code is logged when the monitored sensor's data are implausible relative to the data from the remaining sensors.

Condition for fault identification

Test condition:

The error check runs once per driving cycle once an engine cold start is detected and provided that the barometric pressure is above 750 mbar.

Voltage condition:

The error check runs once per driving cycle once an engine cold start is detected and provided that the barometric pressure is above 750 mbar.

Condition for fault memory entry

Debounce (100 ms)

Action in service

Replace exhaust-gas temperature sensor before SCR converter.

Fault effect and breakdown warning

-

Driver information

Warning light:
MIL

Service instruction

none

DTC P323F (BMW DTC 4674): FUEL INJECTION RATE MONITORING

Information saved in

DDE

Fault code

4674 - P323F

Fault description

Monitoring of calculated injection correction quantity.

The diagnostic trouble code is logged when the total correction quantity minus the current value for the base correction quantity rises above the limit value calculated based on the current operating point (limit value roughly 25 mg, depends on injection quantity and actual air mass). The monitoring function covers the injection quantities for all cylinders and is determined using the lambda factor. The EGR rate is used in an attempt to compensate for the deviation in the injection quantity.

Condition for fault identification

Test condition:

The monitoring function is active when the injection quantity monitoring is active.

Voltage condition:

The monitoring function is active when the injection quantity monitoring is active.

Condition for fault memory entry

Debounce (5000 ms)

Action in service

-

Fault effect and breakdown warning

-
Driver information

Warning light:

MIL

Service instruction

none

DTC P323F (BMW DTC 4679): FUEL INJECTION RATE MONITORING

Information saved in

DDE

Fault code

4679 - P323F

Fault description

Monitoring of calculated injection correction quantity.

The diagnostic trouble code is logged when the total correction quantity minus the current value for the base correction quantity falls below the limit value calculated based on the current operating point (limit value roughly -25 mg, depends on injection quantity and actual air mass). The monitoring function covers the injection quantities for all cylinders and is determined using the lambda factor.

Condition for fault identification

Test condition:

The monitoring function is active when the injection quantity monitoring is active.

Voltage condition:

The monitoring function is active when the injection quantity monitoring is active.

Condition for fault memory entry

Debounce (5000 ms)

Action in service

1. Check mass airflow system and exhaust system for leaks (also check before replacing parts) and repair leaks.
2. If diagnostic trouble codes related to the oxygen sensor have been logged: Conduct fault diagnosis on the
oxygen sensor based on the diagnostic trouble codes logged in the ECU.

Fault effect and breakdown warning

Proceed to the nearest BMW Service facility.

Driver information

Warning light:

MIL

Service instruction

Watch for leaks on exhaust-gas side behind exhaust-gas discharge for the EGR system.

**DTC P0182 (BMW DTC 435A): FUEL-TEMPERATURE SENSOR, RANGE: UPPER PHYSICAL LIMIT EXCEEDED**

Information saved in

DDE

Fault code

435A - P0182

Fault description

The diagnostic trouble code is logged when the physical sensor signal for fuel temperature rises above the limit value 100 °C.

Condition for fault identification

Test condition:

The monitoring routine is executed only provided that no electrical errors have been logged. The error check proceeds continuously in the programmed process grid.

Voltage condition:

The monitoring routine is executed only provided that no electrical errors have been logged. The error check proceeds continuously in the programmed process grid.

Condition for fault memory entry

Debounce (4000 ms)
Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   Replace fuel pressure and temperature sensor (on vehicles without closed-loop control of low-pressure fuel-delivery circuit: fuel-temperature sensor).

Fault effect and breakdown warning

Proceed to the nearest BMW Service facility.

Driver information

Warning light:
MIL

Service instruction

none

DTC P0183 (BMW DTC 4000): FUEL-TEMPERATURE SENSOR, SIGNAL: OPEN OR SHORT CIRCUIT TO POSITIVE

Information saved in
DDE

Fault code
4000 - P0183

Fault description

Fuel temperature sensor monitor. The DTC is logged when the raw sensor signal (voltage) violates the approved upper limit 3280 mV.

Condition for fault identification

Test condition:
None.

Voltage condition:
None.
Condition for fault memory entry

Debounce (600 ms)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:

Replace fuel pressure and temperature sensor (on vehicles without closed-loop control of low-pressure fuel-delivery circuit: fuel-temperature sensor).

Fault effect and breakdown warning

Proceed to the nearest BMW Service facility.

Driver information

Warning light:

MIL

Service instruction

none

DTC P0182 (BMW DTC 4001): FUEL-TEMPERATURE SENSOR, SIGNAL: SHORT CIRCUIT TO GROUND

Information saved in

DDE

Fault code

4001 - P0182

Fault description

Fuel temperature sensor monitor. The DTC is logged when the raw sensor signal (voltage) falls below the approved lower limit 220 mV.

Condition for fault identification

Test condition:

None.
Voltage condition:
None.

Condition for fault memory entry
Debounce (600 ms)

Action in service
1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   Replace fuel pressure and temperature sensor (on vehicles without closed-loop control of low-pressure fuel-delivery circuit: fuel-temperature sensor).

Fault effect and breakdown warning
Proceed to the nearest BMW Service facility.

Driver information
Warning light:
MIL

Service instruction
none

DTC P008F (BMW DTC 4CF6): FUEL TEMPERATURE SENSOR, PLAUSIBILITY

Information saved in
DDE

Fault code
4CF6 - P008F

Fault description
Fuel temperature plausibility check with Terminal 15 on. The diagnostic trouble code is logged when the difference between fuel temperature and coolant temperature rises above the limit value.

The limit value (roughly 21 °C) is calculated using a characteristic curve based on the engine's downtime.

Condition for fault identification
Test condition:

The error check runs once per driving cycle provided that compliance with the following conditions is present:

- The engine downtime is greater than or equal to 25200 s.
- No other error is logged.
- The intake-air temperature lies above the threshold -7 °C.

Voltage condition:

The error check runs once per driving cycle provided that compliance with the following conditions is present:

- The engine downtime is greater than or equal to 25200 s.
- No other error is logged.
- The intake-air temperature lies above the threshold -7 °C.

**Condition for fault memory entry**

-None.

**Action in service**

1. Check wires and plug connections.
2. If wiring and plug connections are OK:

   Replace fuel pressure and temperature sensor (on vehicles without closed-loop control of low-pressure fuel-delivery circuit: fuel-temperature sensor).

**Fault effect and breakdown warning**

- 

**Driver information**

Warning light:

MIL

Service instruction

none

**DTC P0670 (BMW DTC 4949): GLOW SYSTEM, CONFIGURATION**

Information saved in

DDE
Fault code

4949 - P0670

Fault description

The installed glow plugs are incorrect for the specific engine.

The DDE recognizes the fault based on a LIN signal.

The LIN signal can assume the following values:

- 1: Invalid combination of engine type/glow plug type
- 3: Different glow plug types installed
- 13: Not defined
- 15: Invalid

Condition for fault identification

Test condition:

The LIN message is transmitted every 500 ms.

Voltage condition:

The LIN message is transmitted every 500 ms.

Condition for fault memory entry

Debounce (1200 ms)

Action in service

Install correct glow plugs.

If the fault reoccurs: Replace glow-plug preheating control module.

Fault effect and breakdown warning

-

Driver information

Warning light:

MIL

Service instruction
Remove glow plugs with engine warmed to normal operating temperature to avoid damage to the cylinder head.

**DTC P0670 (BMW DTC 4A7F): GLOW CONTROL UNIT INTERNAL: INTERNAL EEPROM FAULT**

**Information saved in**

DDE

**Fault code**

4A7F - P0670

**Fault description**

EEPROM error in glow-plug preheating control module.

The DDE recognizes the fault based on a LIN signal.

The LIN signal can assume the following values:

- Fault in EEPROM
- Invalid

**Condition for fault identification**

Test condition:

The LIN message is transmitted every 500 ms.

Voltage condition:

The LIN message is transmitted every 500 ms.

**Condition for fault memory entry**

Debounce (1200 ms)

**Action in service**

Replace glow-plug preheating control module.

**Fault effect and breakdown warning**

- 

**Driver information**

Warning light:
MIL

Service instruction

none

**DTC P0670 (BMW DTC 4A7E): GLOW SYSTEM, COMMUNICATION**

Information saved in

DDE

Fault code

4A7E - P0670

Fault description

Error in glow plug message transmitted on LIN bus.

The DDE recognizes the fault based on a LIN signal.

The LIN signal can assume the following values:

- 1: Error detected

Condition for fault identification

Test condition:

The LIN message is transmitted every 500 ms.

Voltage condition:

The LIN message is transmitted every 500 ms.

Condition for fault memory entry

Debounce (1200 ms)

Action in service

1. Check wires and plug connections on LIN bus.
2. If wiring and plug connections are OK:
3. Replace glow-plug preheating control module.

Fault effect and breakdown warning
Driver information

Warning light:

MIL

Service instruction

none

**DTC P064C (BMW DTC 4A79): GLOW SYSTEM, COMMUNICATION: MESSAGE FROM PREHEATING CONTROL UNIT GSG FAILED**

Information saved in

DDE

Fault code

4A79 - P064C

Fault description

The DDE control module can no longer read the LIN message with the glow plug error information.

**Condition for fault identification**

Test condition:

The LIN message is transmitted every 500 ms.

Voltage condition:

The LIN message is transmitted every 500 ms.

**Condition for fault memory entry**

Debounce (1700 ms)

**Action in service**

1. Check wires and plug connections on LIN bus.
2. If wiring and plug connections are OK:
   
   Replace glow-plug preheating control module.
Fault effect and breakdown warning

Driver information

Warning light:
MIL

Service instruction

none

**DTC P064C (BMW DTC 4A74): GLOW SYSTEM, COMMUNICATION: MESSAGE FROM PREHEATING CONTROL UNIT GSG FAILED**

Information saved in

DDE

Fault code

4A74 - P064C

Fault description

The DDE control module can no longer read the LIN message with the glow-plug preheating control module error information.

Condition for fault identification

Test condition:
The LIN message is transmitted every 500 ms.

Voltage condition:
The LIN message is transmitted every 500 ms.

Condition for fault memory entry

Debounce (1700 ms)

Action in service

1. Check wires and plug connections on LIN bus.
2. If wiring and plug connections are OK:
Replace glow-plug preheating control module.

Fault effect and breakdown warning

Driver information

Warning light:

MIL

Service instruction

none

**DTC P066B (BMW DTC 4A6F): GLOW CONTROL UNIT: GLOW CONTROL UNIT, OUTPUT STAGE, CYLINDER 1, FAULTY**

Information saved in

DDE

Fault code

4A6F - P066B

Fault description

The preheating control module detects a defective output stage for activation of the glow plug at cyl. no. 1.

Condition for fault identification

Test condition:

The LIN message is transmitted every 500 ms.

Voltage condition:

The LIN message is transmitted every 500 ms.

Condition for fault memory entry

Debounce (1200 ms)

Action in service

Replace glow-plug preheating control module.
Replace glow plug 1.

Fault effect and breakdown warning

Poor starting at low temperatures.

Proceed to the nearest BMW Service facility.

Driver information

Warning light:

MIL

Service instruction

Remove glow plugs with engine warmed to normal operating temperature to avoid damage to the cylinder head.

DTC P0671 (BMW DTC 4A6E): GLOW PLUG, CYLINDER 1, ACTIVATION: OPEN CIRCUIT

Information saved in

DDE

Fault code

4A6E - P0671

Fault description

The glow-plug preheating control module reports an open circuit at glow plug 1 in a LIN message.

Condition for fault identification

Test condition:

The LIN message is transmitted every 500 ms.

Voltage condition:

The LIN message is transmitted every 500 ms.

Condition for fault memory entry

Debounce (1200 ms)

Action in service
1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   Replace glow plug 1.

If the fault reoccurs: Replace glow-plug preheating control module.

Fault effect and breakdown warning

Poor starting at low temperatures.

Proceed to the nearest BMW Service facility.

Driver information

Warning light:

MIL

Service instruction

Remove glow plugs with engine warmed to normal operating temperature to avoid damage to the cylinder head.

DTC P066A (BMW DTC 4A69): GLOW PLUG, CYLINDER 1, ACTIVATION: SHORT-CIRCUIT

Information saved in

DDE

Fault code

4A69 - P066A

Fault description

The glow-plug preheating control module reports a short to ground at glow plug 1 in a LIN message.

Condition for fault identification

Test condition:

The LIN message is transmitted every 500 ms.

Voltage condition:

The LIN message is transmitted every 500 ms.
Condition for fault memory entry

Debounce (1200 ms)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   Replace glow plug 1.

If the fault reoccurs: Replace glow-plug preheating control module.

Fault effect and breakdown warning

Poor starting at low temperatures.

Proceed to the nearest BMW Service facility.

Driver information

Warning light:

MIL

Service instruction

Remove glow plugs with engine warmed to normal operating temperature to avoid damage to the cylinder head.

**DTC P0671 (BMW DTC 4A64): GLOW PLUG, CYLINDER 1, ACTIVATION**

Information saved in

DDE

Fault code

4A64 - P0671

Fault description

The glow-plug preheating control module reports a resistance fault at glow plug 1 in a LIN message.

Condition for fault identification

Test condition:

The LIN message is transmitted every 500 ms.
Voltage condition:

The LIN message is transmitted every 500 ms.

Condition for fault memory entry

Debounce (1200 ms)

Action in service

1. Check wires and plug connections.
2. Check part numbers of installed glow plugs, replace with correct glow plugs as indicated.
3. If wiring and plug connections are OK:

   Replace glow plug 1.

Fault effect and breakdown warning

Poor starting at low temperatures.

Proceed to the nearest BMW Service facility.

Driver information

Warning light:

MIL

Service instruction

Remove glow plugs with engine warmed to normal operating temperature to avoid damage to the cylinder head.

DTC P066D (BMW DTC 4A5F): GLOW CONTROL UNIT: GLOW CONTROL UNIT, OUTPUT STAGE, CYLINDER 2, FAULTY

Information saved in

DDE

Fault code

4A5F - P066D

Fault description

The preheating control module detects a defective output stage for activation of the glow plug at cyl. no. 2.
Test condition:
The LIN message is transmitted every 500 ms.

Voltage condition:
The LIN message is transmitted every 500 ms.

Condition for fault memory entry
Debounce (1200 ms)

Action in service
Replace glow-plug preheating control module.
Replace glow plug 1.

Fault effect and breakdown warning
Poor starting at low temperatures.
Proceed to the nearest BMW Service facility.

Driver information
Warning light:
MIL

Service instruction
Remove glow plugs with engine warmed to normal operating temperature to avoid damage to the cylinder head.

DTC P0672 (BMW DTC 4A5E): GLOW PLUG, CYLINDER 2, ACTIVATION: OPEN CIRCUIT

Information saved in
DDE

Fault code
4A5E - P0672

Fault description
The glow-plug preheating control module reports an open circuit at glow plug 2 in a LIN message.
Condition for fault identification

Test condition:

The LIN message is transmitted every 500 ms.

Voltage condition:

The LIN message is transmitted every 500 ms.

Condition for fault memory entry

Debounce (1200 ms)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   
   Replace glow plug 2.

If the fault reoccurs: Replace glow-plug preheating control module.

Fault effect and breakdown warning

Poor starting at low temperatures.

Proceed to the nearest BMW Service facility.

Driver information

Warning light:

MIL

Service instruction

Remove glow plugs with engine warmed to normal operating temperature to avoid damage to the cylinder head.

DTC P066C (BMW DTC 4A59): GLOW PLUG, CYLINDER 2, ACTIVATION: SHORT-CIRCUIT

Information saved in

DDE

Fault code

4A59 - P066C
Fault description
The glow-plug preheating control module reports a short to ground at glow plug 2 in a LIN message.

Condition for fault identification
Test condition:
The LIN message is transmitted every 500 ms.
Voltage condition:
The LIN message is transmitted every 500 ms.

Condition for fault memory entry
Debounce (1200 ms)

Action in service
1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   Replace glow plug 2.
If the fault reoccurs: Replace glow-plug preheating control module.

Fault effect and breakdown warning
Poor starting at low temperatures.
Proceed to the nearest BMW Service facility.

Driver information
Warning light:
MIL

Service instruction
Remove glow plugs with engine warmed to normal operating temperature to avoid damage to the cylinder head.

DTC P0672 (BMW DTC 4A54): GLOW PLUG, CYLINDER 2, ACTIVATION

Information saved in
DDE
Fault code

4A54 - P0672

Fault description
The glow-plug preheating control module reports a resistance fault at glow plug 2 in a LIN message.

Condition for fault identification

Test condition:
The LIN message is transmitted every 500 ms.

Voltage condition:
The LIN message is transmitted every 500 ms.

Condition for fault memory entry

Debounce (1200 ms)

Action in service

1. Check wires and plug connections.
2. Check part numbers of installed glow plugs, replace with correct glow plugs as indicated.
3. If wiring and plug connections are OK:
   
   Replace glow plug 2.

Fault effect and breakdown warning

Poor starting at low temperatures.

Proceed to the nearest BMW Service facility.

Driver information

Warning light:

MIL

Service instruction

Remove glow plugs with engine warmed to normal operating temperature to avoid damage to the cylinder head.

DTC P066F (BMW DTC 4A4F): GLOW CONTROL UNIT: GLOW CONTROL UNIT, OUTPUT STAGE, CYLINDER 3, FAULTY
Information saved in

DDE

Fault code

4A4F - P066F

Fault description

The preheating control module detects a defective output stage for activation of the glow plug at cyl. no. 3.

Condition for fault identification

Test condition:

The LIN message is transmitted every 500 ms.

Voltage condition:

The LIN message is transmitted every 500 ms.

Condition for fault memory entry

Debounce (1200 ms)

Action in service

Replace glow-plug preheating control module.

Replace glow plug 1.

Fault effect and breakdown warning

Poor starting at low temperatures.

Proceed to the nearest BMW Service facility.

Driver information

Warning light:

MIL

Service instruction

Remove glow plugs with engine warmed to normal operating temperature to avoid damage to the cylinder head.
DTC P0673 (BMW DTC 4A4E): GLOW PLUG, CYLINDER 3, ACTIVATION: OPEN CIRCUIT

Information saved in
DDE

Fault code
4A4E - P0673

Fault description
The glow-plug preheating control module reports an open circuit at glow plug 3 in a LIN message.

Condition for fault identification
Test condition:
The LIN message is transmitted every 500 ms.

Voltage condition:
The LIN message is transmitted every 500 ms.

Condition for fault memory entry
Debounce (1200 ms)

Action in service
1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   Replace glow plug 3.

If the fault reoccurs: Replace glow-plug preheating control module.

Fault effect and breakdown warning
Poor starting at low temperatures.

Proceed to the nearest BMW Service facility.

Driver information
Warning light:
MIL
Service instruction

Remove glow plugs with engine warmed to normal operating temperature to avoid damage to the cylinder head.

**DTC P066E (BMW DTC 4A49): GLOW PLUG, CYLINDER 3, ACTIVATION: SHORT-CIRCUIT**

**Information saved in**

DDE

**Fault code**

4A49 - P066E

**Fault description**

The glow-plug preheating control module reports a short to ground at glow plug 3 in a LIN message.

**Condition for fault identification**

Test condition:

The LIN message is transmitted every 500 ms.

Voltage condition:

The LIN message is transmitted every 500 ms.

**Condition for fault memory entry**

Debounce (1200 ms)

**Action in service**

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   
   Replace glow plug 3.

If the fault reoccurs: Replace glow-plug preheating control module.

**Fault effect and breakdown warning**

Poor starting at low temperatures.

Proceed to the nearest BMW Service facility.

**Driver information**
Warning light:
MIL

Service instruction
Remove glow plugs with engine warmed to normal operating temperature to avoid damage to the cylinder head.

DTC P0673 (BMW DTC 4A44): GLOW PLUG, CYLINDER 3, ACTIVATION

Information saved in
DDE

Fault code
4A44 - P0673

Fault description
The glow-plug preheating control module reports a resistance fault at glow plug 3 in a LIN message.

Condition for fault identification
Test condition:
The LIN message is transmitted every 500 ms.

Voltage condition:
The LIN message is transmitted every 500 ms.

Condition for fault memory entry
Debounce (1200 ms)

Action in service
1. Check wires and plug connections.
2. Check part numbers of installed glow plugs, replace with correct glow plugs as indicated.
3. If wiring and plug connections are OK:
   Replace glow plug 3.

Fault effect and breakdown warning
Poor starting at low temperatures.
Proceed to the nearest BMW Service facility.

Driver information

Warning light:

MIL

Service instruction

Remove glow plugs with engine warmed to normal operating temperature to avoid damage to the cylinder head.

DTC P067B (BMW DTC 4A3F): GLOW CONTROL UNIT: GLOW CONTROL UNIT, OUTPUT STAGE, CYLINDER 4, FAULTY

Information saved in

DDE

Fault code

4A3F - P067B

Fault description

The preheating control module detects a defective output stage for activation of the glow plug at cyl. no. 4.

Condition for fault identification

Test condition:

The LIN message is transmitted every 500 ms.

Voltage condition:

The LIN message is transmitted every 500 ms.

Condition for fault memory entry

Debounce (1200 ms)

Action in service

Replace glow-plug preheating control module.

Replace glow plug 1.

Fault effect and breakdown warning
Poor starting at low temperatures.

Proceed to the nearest BMW Service facility.

**Driver information**

Warning light:

MIL

**Service instruction**

Remove glow plugs with engine warmed to normal operating temperature to avoid damage to the cylinder head.

**DTC P0674 (BMW DTC 4A3E): GLOW PLUG, CYLINDER 4, ACTIVATION: OPEN CIRCUIT**

**Information saved in**

DDE

**Fault code**

4A3E - P0674

**Fault description**

The glow-plug preheating control module reports an open circuit at glow plug 4 in a LIN message.

**Condition for fault identification**

Test condition:

The LIN message is transmitted every 500 ms.

Voltage condition:

The LIN message is transmitted every 500 ms.

**Condition for fault memory entry**

Debounce (1200 ms)

**Action in service**

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   
   Replace glow plug 4.
If the fault reoccurs: Replace glow-plug preheating control module.

**Fault effect and breakdown warning**

Poor starting at low temperatures.

Proceed to the nearest BMW Service facility.

**Driver information**

Warning light:

MIL

**Service instruction**

Remove glow plugs with engine warmed to normal operating temperature to avoid damage to the cylinder head.

**DTC P067A (BMW DTC 4A39): GLOW PLUG, CYLINDER 4, ACTIVATION: SHORT-CIRCUIT**

**Information saved in**

DDE

**Fault code**

4A39 - P067A

**Fault description**

The glow-plug preheating control module reports a short to ground at glow plug 4 in a LIN message.

**Condition for fault identification**

Test condition:

The LIN message is transmitted every 500 ms.

Voltage condition:

The LIN message is transmitted every 500 ms.

**Condition for fault memory entry**

Debounce (1200 ms)

**Action in service**
1. Check wires and plug connections.

2. If wiring and plug connections are OK:

   Replace glow plug 4.

If the fault reoccurs: Replace glow-plug preheating control module.

**Fault effect and breakdown warning**

Poor starting at low temperatures.

Proceed to the nearest BMW Service facility.

**Driver information**

Warning light:

MIL

**Service instruction**

Remove glow plugs with engine warmed to normal operating temperature to avoid damage to the cylinder head.

**DTC P0674 (BMW DTC 4A34): GLOW PLUG, CYLINDER 4, ACTIVATION**

**Information saved in**

DDE

**Fault code**

4A34 - P0674

**Fault description**

The glow-plug preheating control module reports a resistance fault at glow plug 4 in a LIN message.

**Condition for fault identification**

Test condition:

The LIN message is transmitted every 500 ms.

Voltage condition:

The LIN message is transmitted every 500 ms.
Condition for fault memory entry

Debounce (1200 ms)

Action in service

1. Check wires and plug connections.
2. Check part numbers of installed glow plugs, replace with correct glow plugs as indicated.
3. If wiring and plug connections are OK:
   
   Replace glow plug 4.

Fault effect and breakdown warning

Poor starting at low temperatures.

Proceed to the nearest BMW Service facility.

Driver information

Warning light:

MIL

Service instruction

Remove glow plugs with engine warmed to normal operating temperature to avoid damage to the cylinder head.

DTC P067D (BMW DTC 4A2F): GLOW CONTROL UNIT: GLOW CONTROL UNIT, OUTPUT STAGE, CYLINDER 5, FAULTY

Information saved in

DDE

Fault code

4A2F - P067D

Fault description

The preheating control module detects a defective output stage for activation of the glow plug at cyl. no. 5.

Condition for fault identification

Test condition:

The LIN message is transmitted every 500 ms.
Voltage condition:
The LIN message is transmitted every 500 ms.

Condition for fault memory entry
Debounce (1200 ms)

Action in service
Replace glow-plug preheating control module.
Replace glow plug 1.

Fault effect and breakdown warning
Poor starting at low temperatures.
Proceed to the nearest BMW Service facility.

Driver information
Warning light:
MIL

Service instruction
Remove glow plugs with engine warmed to normal operating temperature to avoid damage to the cylinder head.

**DTC P0675 (BMW DTC 4A2E): GLOW PLUG, CYLINDER 5, ACTIVATION: OPEN CIRCUIT**

Information saved in
DDE

Fault code
4A2E - P0675

Fault description
The glow-plug preheating control module reports an open circuit at glow plug 5 in a LIN message.

Condition for fault identification
Test condition:
The LIN message is transmitted every 500 ms.

Voltage condition:

The LIN message is transmitted every 500 ms.

**Condition for fault memory entry**

Debounce (1200 ms)

**Action in service**

1. Check wires and plug connections.
2. If wiring and plug connections are OK:

   Replace glow plug 5.

If the fault reoccurs: Replace glow-plug preheating control module.

**Fault effect and breakdown warning**

Poor starting at low temperatures.

Proceed to the nearest BMW Service facility.

**Driver information**

Warning light:

MIL

**Service instruction**

Remove glow plugs with engine warmed to normal operating temperature to avoid damage to the cylinder head.

**DTC P067C (BMW DTC 4A29): GLOW PLUG, CYLINDER 5, ACTIVATION: SHORT-CIRCUIT**

**Information saved in**

DDE

**Fault code**

4A29 - P067C

**Fault description**

The glow-plug preheating control module reports a short to ground at glow plug 5 in a LIN message.
Condition for fault identification

Test condition:
The LIN message is transmitted every 500 ms.

Voltage condition:
The LIN message is transmitted every 500 ms.

Condition for fault memory entry

Debounce (1200 ms)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   Replace glow plug 5.

If the fault reoccurs: Replace glow-plug preheating control module.

Fault effect and breakdown warning

Poor starting at low temperatures.

Proceed to the nearest BMW Service facility.

Driver information

Warning light:

MIL

Service instruction

Remove glow plugs with engine warmed to normal operating temperature to avoid damage to the cylinder head.

DTC P0675 (BMW DTC 4A24): GLOW PLUG, CYLINDER 5, ACTIVATION

Information saved in

DDE

Fault code

4A24 - P0675
Fault description

The glow-plug preheating control module reports a resistance fault at glow plug 5 in a LIN message.

Condition for fault identification

Test condition:

The LIN message is transmitted every 500 ms.

Voltage condition:

The LIN message is transmitted every 500 ms.

Condition for fault memory entry

Debounce (1200 ms)

Action in service

1. Check wires and plug connections.
2. Check part numbers of installed glow plugs, replace with correct glow plugs as indicated.
3. If wiring and plug connections are OK:

   Replace glow plug 5.

Fault effect and breakdown warning

Poor starting at low temperatures.

Proceed to the nearest BMW Service facility.

Driver information

Warning light:

MIL

Service instruction

Remove glow plugs with engine warmed to normal operating temperature to avoid damage to the cylinder head.

DTC P067F (BMW DTC 4A1F): GLOW CONTROL UNIT: GLOW CONTROL UNIT, OUTPUT STAGE, CYLINDER 6, FAULTY

Information saved in

DDE
Fault code
4A1F - P067F

Fault description
The preheating control module detects a defective output stage for activation of the glow plug at cyl. no. 6.

Condition for fault identification
Test condition:
The LIN message is transmitted every 500 ms.
Voltage condition:
The LIN message is transmitted every 500 ms.

Condition for fault memory entry
Debounce (1200 ms)

Action in service
Replace glow-plug preheating control module.
Replace glow plug 1.

Fault effect and breakdown warning
Poor starting at low temperatures.
Proceed to the nearest BMW Service facility.

Driver information
Warning light:
MIL

Service instruction
Remove glow plugs with engine warmed to normal operating temperature to avoid damage to the cylinder head.

DTC P0676 (BMW DTC 4A1E): GLOW PLUG, CYLINDER 6, ACTIVATION: OPEN CIRCUIT

Information saved in
DDE

Fault code

4A1E - P0676

Fault description

The glow-plug preheating control module reports an open circuit at glow plug 6 in a LIN message.

Condition for fault identification

Test condition:

The LIN message is transmitted every 500 ms.

Voltage condition:

The LIN message is transmitted every 500 ms.

Condition for fault memory entry

Debounce (1200 ms)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   Replace glow plug 6.

If the fault reoccurs: Replace glow-plug preheating control module.

Fault effect and breakdown warning

Poor starting at low temperatures.

Proceed to the nearest BMW Service facility.

Driver information

Warning light:

MIL

Service instruction

Remove glow plugs with engine warmed to normal operating temperature to avoid damage to the cylinder head.
DTC P067E (BMW DTC 4A19): GLOW PLUG, CYLINDER 6, ACTIVATION: SHORT-CIRCUIT

Information saved in
DDE

Fault code
4A19 - P067E

Fault description
The glow-plug preheating control module reports a short to ground at glow plug 6 in a LIN message.

Condition for fault identification
Test condition:
The LIN message is transmitted every 500 ms.

Voltage condition:
The LIN message is transmitted every 500 ms.

Condition for fault memory entry
Debounce (1200 ms)

Action in service
1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   Replace glow plug 6.

If the fault reoccurs: Replace glow-plug preheating control module.

Fault effect and breakdown warning
Poor starting at low temperatures.

Proceed to the nearest BMW Service facility.

Driver information
Warning light:
MIL
Service instruction

Remove glow plugs with engine warmed to normal operating temperature to avoid damage to the cylinder head.

DTC P0676 (BMW DTC 4A14): GLOW PLUG, CYLINDER 6, ACTIVATION

Information saved in

DDE

Fault code

4A14 - P0676

Fault description

The glow-plug preheating control module reports a resistance fault at glow plug 6 in a LIN message.

Condition for fault identification

Test condition:

The LIN message is transmitted every 500 ms.

Voltage condition:

The LIN message is transmitted every 500 ms.

Condition for fault memory entry

Debounce (1200 ms)

Action in service

1. Check wires and plug connections.
2. Check part numbers of installed glow plugs, replace with correct glow plugs as indicated.
3. If wiring and plug connections are OK:
   Replace glow plug 6.

Fault effect and breakdown warning

Poor starting at low temperatures.

Proceed to the nearest BMW Service facility.

Driver information
Warning light:

MIL

Service instruction

Remove glow plugs with engine warmed to normal operating temperature to avoid damage to the cylinder head.

DTC P0383 (BMW DTC 4A0F): PREHEATING SYSTEM

Information saved in

DDE

Fault code

4A0F - P0383

Fault description

The glow-plug preheating control module reports a fault in the ground connection between the glow-plug preheating control module and the glow plugs in a LIN message.

Condition for fault identification

Test condition:

The LIN message is transmitted every 500 ms.

Voltage condition:

The LIN message is transmitted every 500 ms.

Condition for fault memory entry

Debounce (1200 ms)

Action in service

Check ground connections on glow-plug preheating control module and on engine.

If the fault persists: Replace glow-plug preheating control module.

Fault effect and breakdown warning

-

Driver information
Warning light:
MIL

Service instruction
none

DTC P064C (BMW DTC 4A0E): GLOW CONTROL UNIT INTERNAL: INTERNAL HARDWARE FAULT

Information saved in
DDE

Fault code
4A0E - P064C

Fault description
Internal malfunction in glow-plug preheating control module.

The glow-plug preheating control module reports an internal fault in a LIN message.

Condition for fault identification

Test condition:
The LIN message is transmitted every 500 ms.

Voltage condition:
The LIN message is transmitted every 500 ms.

Condition for fault memory entry

Debounce (1200 ms)

Action in service
Replace glow-plug preheating control module.

Fault effect and breakdown warning

Driver information
Warning light:
MIL

Service instruction
none

**DTC P064C (BMW DTC 4A09): GLOW SYSTEM, COMMUNICATION: NO COMMUNICATION**

Information saved in
DDE

Fault code
4A09 - P064C

Fault description
Timeout error in a LIN message from the glow-plug preheating control module.

**Condition for fault identification**

Test condition:
The LIN message GPCM_Info is transmitted every 500 ms.

Voltage condition:
The LIN message GPCM_Info is transmitted every 500 ms.

**Condition for fault memory entry**

Debounce (1200 ms)

**Action in service**

1. Check wires and plug connections on LIN bus.
2. If wiring and plug connections are OK:

   Replace glow-plug preheating control module.

**Fault effect and breakdown warning**

-

**Driver information**
Warning light:

MIL

Service instruction

none

DTC P0670 (BMW DTC 494A): GLOW SYSTEM: NO VOLTAGE, TERM. 30 AT GLOW CONTROL UNIT

Information saved in

DDE

Fault code

494A - P0670

Fault description

The glow-plug preheating control module recognizes the voltage at Terminal 30 of the glow-plug preheating control module as too low.

The glow-plug preheating control module reports the fault to the DDE in a LIN message.

Condition for fault identification

Test condition:

The LIN message is transmitted every 500 ms.

Voltage condition:

The LIN message is transmitted every 500 ms.

Condition for fault memory entry

Debounce (1200 ms)

Action in service

Check power-supply wires and plug connections at glow-plug preheating control module's Terminal 30.

If the fault reoccurs: Replace glow-plug preheating control module.

Fault effect and breakdown warning
Driver information

Warning light:

MIL

Service instruction

none

DTC P064C (BMW DTC 4A04): GLOW CONTROL UNIT: INTERNAL TEMPERATURE TOO HIGH

Information saved in

DDE

Fault code

4A04 - P064C

Fault description

Preglow ECU overheating error.

The glow-plug preheating control module reports the fault to the DDE in a LIN message.

Condition for fault identification

Test condition:

The LIN message is transmitted every 500 ms.

Voltage condition:

The LIN message is transmitted every 500 ms.

Condition for fault memory entry

Debounce (1200 ms)

Action in service

1. Check contact between glow-plug preheating control module and engine block.
2. If no fault is detected: Replace glow-plug preheating control module.

Fault effect and breakdown warning
Driver information

Warning light:

MIL

Service instruction

none

**DTC P064C (BMW DTC 49FF): GLOW SYSTEM, POWER SUPPLY: VOLTAGE DIFFERENCE GLOW CONTROL UNIT TERM. 30 IN RELATION TO DDE POWER SUPPLY TOO HIGH**

Information saved in

DDE

Fault code

49FF - P064C

Fault description

Difference between electrical system voltage at glow-plug preheating control module and Terminal 30 at glow-plug preheating control module is too high.

The glow-plug preheating control module reports the fault to the DDE in a LIN message.

**Condition for fault identification**

Test condition:

The LIN message is transmitted every 500 ms.

Voltage condition:

The LIN message is transmitted every 500 ms.

**Condition for fault memory entry**

Debounce (1200 ms)

**Action in service**

1. Check power-supply wires and plug connections at glow-plug preheating control module.
2. If wiring and plug connections are OK:
Replace glow-plug preheating control module.

**Fault effect and breakdown warning**

-  

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC P0507 (BMW DTC 4DEC): IDLE SPEED, PLAUSIBILITY: ACTUAL IDLE SPEED TOO HIGH**

**Information saved in**

DDE

**Fault code**

4DEC - P0507

**Fault description**

Idle controller monitoring.

The diagnostic trouble code is logged when the engine's idle RPM rises above a limit value. The limit value is calculated from the lower specified engine RPM as defined according to operating point and the offset value. The maximum limit value is 1500 1/min.

**Condition for fault identification**

Test condition:

The test routine runs when the following conditions are satisfied:

The idle controller is active.

The vehicle's speed must exceed 1 km/h.

The idle controller is the only station requesting torque generation.

The idle controller is requesting torque lower than the limit value 0.
The engine RPM exceeds the limit value 300 1/min.
The check runs continuously in a 100 ms grid.

Voltage condition:
The test routine runs when the following conditions are satisfied:
The idle controller is active.
The vehicle's speed must exceed 1 km/h.
The idle controller is the only station requesting torque generation.
The idle controller is requesting torque lower than the limit value 0.
The engine RPM exceeds the limit value 300 1/min.
The check runs continuously in a 100 ms grid.

Condition for fault memory entry
Debounce (3000 ms)

Action in service
-

Fault effect and breakdown warning
-

Driver information
Warning light:
MIL

Service instruction
none

DTC P0506 (BMW DTC 4DED): IDLE SPEED, PLAUABILITY: ACTUAL IDLE SPEED TOO LOW

Information saved in
DDE
Fault code

4DED - P0506

Fault description

Idle controller monitoring.

The diagnostic trouble code is logged when the engine's idle RPM falls below a limit value. The limit value is calculated from the lower specified engine RPM as defined according to operating point and the offset value. The minimum limit value is 300 1/min.

Condition for fault identification

Test condition:

The test routine runs when the following conditions are satisfied:

The idle controller is active.

The vehicle's speed must exceed 1 km/h.

The idle controller is the only station requesting torque generation.

The idle controller is requesting torque lower than the limit value 0.

The engine RPM exceeds the limit value 300 1/min.

The check runs continuously in a 100 ms grid.

Voltage condition:

The test routine runs when the following conditions are satisfied:

The idle controller is active.

The vehicle's speed must exceed 1 km/h.

The idle controller is the only station requesting torque generation.

The idle controller is requesting torque lower than the limit value 0.

The engine RPM exceeds the limit value 300 1/min.

The check runs continuously in a 100 ms grid.

Condition for fault memory entry
Debounce (3000 ms)

Action in service

- Fault effect and breakdown warning

- Driver information

Warning light:

MIL

Service instruction

none

DTC P268C (BMW DTC 4BA8): INJECTOR, CYLINDER 1, INJECTION QUANTITY COMPENSATION

Information saved in

DDE

Fault code

4BA8 - P268C

Fault description

Monitoring for missing or incorrect programming of injector quantity calibration data for the injector. If the checksum for the injector calibration data is incorrect or if the base correction quantity exceeds the specified limits at a minimum of one injector test point, or if a read error that occurs when the EEPROM is being accessed makes it impossible to read the calibration data, then the diagnostic trouble code is logged.

Condition for fault identification

Test condition:

The error check runs during the DDE ECU's initialization routine or when the diagnostic tester implements a change in the calibration data.

Voltage condition:

The error check runs during the DDE ECU's initialization routine or when the diagnostic tester implements a
change in the calibration data.

**Condition for fault memory entry**

No debouncing. None.

**Action in service**

1. Repeat the injector quantity calibration for the injector and conduct a terminal status switch.
2. If the fault is still present in repeat testing:

   Replace DDE control module.

**Fault effect and breakdown warning**

Proceed to the nearest BMW Service facility.

**Driver information**

Warning light:
KEINE

**Service instruction**

none

**DTC P2690 (BMW DTC 4BA6): INJECTOR, CYLINDER 5, INJECTION QUANTITY COMPENSATION**

**Information saved in**

DDE

**Fault code**

4BA6 - P2690

**Fault description**

Monitoring for missing or incorrect programming of injector quantity calibration data for the injector. If the checksum for the injector calibration data is incorrect or if the base correction quantity exceeds the specified limits at a minimum of one injector test point, or if a read error that occurs when the EEPROM is being accessed makes it impossible to read the calibration data, then the diagnostic trouble code is logged.

**Condition for fault identification**

Test condition:
The error check runs during the DDE ECU's initialization routine or when the diagnostic tester implements a change in the calibration data.

Voltage condition:

The error check runs during the DDE ECU's initialization routine or when the diagnostic tester implements a change in the calibration data.

Condition for fault memory entry

No debouncing. None.

Action in service

1. Repeat the injector quantity calibration for the injector and conduct a terminal status switch.
2. If the fault is still present in repeat testing:

   Replace DDE control module.

Fault effect and breakdown warning

Proceed to the nearest BMW Service facility.

Driver information

Warning light:

KEINE

Service instruction

none

DTC P268E (BMW DTC 4BA5): INJECTOR, CYLINDER 3, INJECTION QUANTITY COMPENSATION

Information saved in

DDE

Fault code

4BA5 - P268E

Fault description

Monitoring for missing or incorrect programming of injector quantity calibration data for the injector. If the checksum for the injector calibration data is incorrect or if the base correction quantity exceeds the specified
limits at a minimum of one injector test point, or if a read error that occurs when the EEPROM is being accessed makes it impossible to read the calibration data, then the diagnostic trouble code is logged.

**Condition for fault identification**

Test condition:

The error check runs during the DDE ECU's initialization routine or when the diagnostic tester implements a change in the calibration data.

Voltage condition:

The error check runs during the DDE ECU's initialization routine or when the diagnostic tester implements a change in the calibration data.

**Condition for fault memory entry**

No debouncing. None.

**Action in service**

1. Repeat the injector quantity calibration for the injector and conduct a terminal status switch.
2. If the fault is still present in repeat testing:

   Replace DDE control module.

**Fault effect and breakdown warning**

Proceed to the nearest BMW Service facility.

**Driver information**

Warning light:

KEINE

**Service instruction**

none

**DTC P2691 (BMW DTC 4BA3): INJECTOR, CYLINDER 6, INJECTION QUANTITY COMPENSATION**

Information saved in

DDE

**Fault code**
4BA3 - P2691

Fault description

Monitoring for missing or incorrect programming of injector quantity calibration data for the injector. If the checksum for the injector calibration data is incorrect or if the base correction quantity exceeds the specified limits at a minimum of one injector test point, or if a read error that occurs when the EEPROM is being accessed makes it impossible to read the calibration data, then the diagnostic trouble code is logged.

Condition for fault identification

Test condition:

The error check runs during the DDE ECU's initialization routine or when the diagnostic tester implements a change in the calibration data.

Voltage condition:

The error check runs during the DDE ECU's initialization routine or when the diagnostic tester implements a change in the calibration data.

Condition for fault memory entry

No debouncing. None.

Action in service

1. Repeat the injector quantity calibration for the injector and conduct a terminal status switch.
2. If the fault is still present in repeat testing:

   Replace DDE control module.

Fault effect and breakdown warning

Proceed to the nearest BMW Service facility.

Driver information

Warning light:

KEINE

Service instruction

none

DTC P268D (BMW DTC 4BA2): INJECTOR, CYLINDER 2, INJECTION QUANTITY COMPENSATION
Information saved in

DDE

Fault code

4BA2 - P268D

Fault description

Monitoring for missing or incorrect programming of injector quantity calibration data for the injector. If the checksum for the injector calibration data is incorrect or if the base correction quantity exceeds the specified limits at a minimum of one injector test point, or if a read error that occurs when the EEPROM is being accessed makes it impossible to read the calibration data, then the diagnostic trouble code is logged.

Condition for fault identification

Test condition:

The error check runs during the DDE ECU's initialization routine or when the diagnostic tester implements a change in the calibration data.

Voltage condition:

The error check runs during the DDE ECU's initialization routine or when the diagnostic tester implements a change in the calibration data.

Condition for fault memory entry

No debouncing. None.

Action in service

1. Repeat the injector quantity calibration for the injector and conduct a terminal status switch.
2. If the fault is still present in repeat testing:
   
   Replace DDE control module.

Fault effect and breakdown warning

Proceed to the nearest BMW Service facility.

Driver information

Warning light:

KEINE
DTC P268F (BMW DTC 4B9D): INJECTOR, CYLINDER 4, INJECTION QUANTITY COMPENSATION

Information saved in

DDE

Fault code

4B9D - P268F

Fault description

Monitoring for missing or incorrect programming of injector quantity calibration data for the injector. If the checksum for the injector calibration data is incorrect or if the base correction quantity exceeds the specified limits at a minimum of one injector test point, or if a read error that occurs when the EEPROM is being accessed makes it impossible to read the calibration data, then the diagnostic trouble code is logged.

Condition for fault identification

Test condition:

The error check runs during the DDE ECU's initialization routine or when the diagnostic tester implements a change in the calibration data.

Voltage condition:

The error check runs during the DDE ECU's initialization routine or when the diagnostic tester implements a change in the calibration data.

Condition for fault memory entry

No debouncing. None.

Action in service

1. Repeat the injector quantity calibration for the injector and conduct a terminal status switch.
2. If the fault is still present in repeat testing:

   Replace DDE control module.

Fault effect and breakdown warning

Proceed to the nearest BMW Service facility.
Driver information

Warning light:

KEINE

Service instruction

none

DTC P268C (BMW DTC 4CE9): INJECTOR, CYLINDER 1, INJECTOR-RATE ADJUSTMENT: EEPROM VALUE IS 0 OR CHECKSUM INCORRECT

Information saved in

DDE

Fault code

4CE9 - P268C

Fault description

The injector quantity compensation data are read from the EEPROM during the ECU initialization routine.

An error for the injector's calibration value is registered when:

- a checksum error is present.
- the EEPROM initialization is erroneous.

Condition for fault identification

Test condition:

The test routine is executed once during the control module initialization routine.

Voltage condition:

The test routine is executed once during the control module initialization routine.

Condition for fault memory entry

No debouncing. None.

Action in service

1. Repeat the injector quantity compensation for the injector and conduct a terminal power-status switch.
2. If the error is still present:
Replace DDE control module.

Fault effect and breakdown warning

Proceed to the nearest BMW Service facility.

Driver information

Warning light:

KEINE

Service instruction

none

**DTC P2690 (BMW DTC 4CF9): INJECTOR, CYLINDER 5, INJECTOR-RATE ADJUSTMENT: EEPROM VALUE IS 0 OR CHECKSUM INCORRECT**

Information saved in

DDE

Fault code

4CF9 - P2690

Fault description

The injector quantity compensation data are read from the EEPROM during the ECU initialization routine. An error for the injector's calibration value is registered when:

- a checksum error is present.
- the EEPROM initialization is erroneous.

Condition for fault identification

Test condition:

The test routine is executed once during the control module initialization routine.

Voltage condition:

The test routine is executed once during the control module initialization routine.

Condition for fault memory entry
No debouncing. None.

**Action in service**

1. Repeat the injector quantity compensation for the injector and conduct a terminal power-status switch.
2. If the error is still present:
   - Replace DDE control module.

**Fault effect and breakdown warning**

Proceed to the nearest BMW Service facility.

**Driver information**

**Warning light:**

KEINE

**Service instruction**

none

**DTC P268E (BMW DTC 4CEF): INJECTOR, CYLINDER 3, INJECTOR-RATE ADJUSTMENT: EEPROM VALUE IS 0 OR CHECKSUM INCORRECT**

**Information saved in**

DDE

**Fault code**

4CEF - P268E

**Fault description**

The injector quantity compensation data are read from the EEPROM during the ECU initialization routine.

An error for the injector's calibration value is registered when:

- a checksum error is present.
- the EEPROM initialization is erroneous.

**Condition for fault identification**

Test condition:

The test routine is executed once during the control module initialization routine.
Voltage condition:

The test routine is executed once during the control module initialization routine.

Condition for fault memory entry

No debouncing. None.

Action in service

1. Repeat the injector quantity compensation for the injector and conduct a terminal power-status switch.
2. If the error is still present:
   
   Replace DDE control module.

Fault effect and breakdown warning

Proceed to the nearest BMW Service facility.

Driver information

Warning light:

KEINE

Service instruction

none

DTC P2691 (BMW DTC 4CFE): INJECTOR, CYLINDER 6, INJECTOR-RATE ADJUSTMENT: EEPROM VALUE IS 0 OR CHECKSUM INCORRECT

Information saved in

DDE

Fault code

4CFE - P2691

Fault description

The injector quantity compensation data are read from the EEPROM during the ECU initialization routine.

An error for the injector's calibration value is registered when:

- a checksum error is present.
- the EEPROM initialization is erroneous.
**Condition for fault identification**

Test condition:

The test routine is executed once during the control module initialization routine.

Voltage condition:

The test routine is executed once during the control module initialization routine.

**Condition for fault memory entry**

No debouncing. None.

**Action in service**

1. Repeat the injector quantity compensation for the injector and conduct a terminal power-status switch.
2. If the error is still present:
   
   Replace DDE control module.

**Fault effect and breakdown warning**

Proceed to the nearest BMW Service facility.

**Driver information**

Warning light:

KEINE

**Service instruction**

none

**DTC P268D (BMW DTC 4CEE): INJECTOR, CYLINDER 2, INJECTOR-RATE ADJUSTMENT: EEPROM VALUE IS 0 OR CHECKSUM INCORRECT**

Information saved in

DDE

**Fault code**

4CEE - P268D

**Fault description**
The injector quantity compensation data are read from the EEPROM during the ECU initialization routine.

An error for the injector's calibration value is registered when:

- a checksum error is present.
- the EEPROM initialization is erroneous.

**Condition for fault identification**

**Test condition:**

The test routine is executed once during the control module initialization routine.

**Voltage condition:**

The test routine is executed once during the control module initialization routine.

**Condition for fault memory entry**

No debouncing. None.

**Action in service**

1. Repeat the injector quantity compensation for the injector and conduct a terminal power-status switch.
2. If the error is still present:

   Replace DDE control module.

**Fault effect and breakdown warning**

Proceed to the nearest BMW Service facility.

**Driver information**

Warning light:

KEINE

**Service instruction**

none

**DTC P268F (BMW DTC 4CF4): INJECTOR, CYLINDER 4, INJECTOR-RATE ADJUSTMENT: EEPROM VALUE IS 0 OR CHECKSUM INCORRECT**

Information saved in
DDE

Fault code

4CF4 - P268F

Fault description

The injector quantity compensation data are read from the EEPROM during the ECU initialization routine.

An error for the injector's calibration value is registered when:

- a checksum error is present.
- the EEPROM initialization is erroneous.

Condition for fault identification

Test condition:

The test routine is executed once during the control module initialization routine.

Voltage condition:

The test routine is executed once during the control module initialization routine.

Condition for fault memory entry

No debouncing. None.

Action in service

1. Repeat the injector quantity compensation for the injector and conduct a terminal power-status switch.
2. If the error is still present:

   Replace DDE control module.

Fault effect and breakdown warning

Proceed to the nearest BMW Service facility.

Driver information

Warning light:

KEINE

Service instruction
DTC P0611 (BMW DTC 4917): INJECTORS, BANK 1, CHARGE SWITCH: SHORT-CIRCUIT

Information saved in

DDE

Fault code

4917 - P0611

Fault description

The DDE ECU recognizes a short circuit during control-activation of the injectors.

Condition for fault identification

Test condition:

The fault is checked every 10 ms.

Voltage condition:

The fault is checked every 10 ms.

Condition for fault memory entry

Event debounced (4)

Action in service

Replace DDE control module.

Fault effect and breakdown warning

Following terminal status switch attempt to start the engine, and proceed to a service facility.

Driver information

Warning light:

MIL

Service instruction

none
DTC P0611 (BMW DTC 4C59): INJECTORS, BANK 2, CHARGE SWITCH: SHORT-CIRCUIT

Information saved in
DDE

Fault code
4C59 - P0611

Fault description
The DDE ECU recognizes a short circuit during control-activation of the injectors.

Condition for fault identification

Test condition:
The fault is checked every 10 ms.

Voltage condition:
The fault is checked every 10 ms.

Condition for fault memory entry
Event debounced (4)

Action in service
Replace DDE control module.

Fault effect and breakdown warning
Following terminal status switch attempt to start the engine, and proceed to a service facility.

Driver information

Warning light:
MIL

Service instruction
none

DTC P0611 (BMW DTC 4B94): INJECTORS, BANK 1, ACTIVATION: SHORT-CIRCUIT
Information saved in

DDE

Fault code

4B94 - P0611

Fault description

The DDE ECU recognizes a short circuit during control-activation of the injectors.

Condition for fault identification

Test condition:

The error check is implemented once per camshaft rotation.

Voltage condition:

The error check is implemented once per camshaft rotation.

Condition for fault memory entry

Event debounced (4)

Action in service

1. Check wires and plug connections for all affected injectors.
2. If wiring and plug connections are OK:
   Replace DDE control module.

Fault effect and breakdown warning

-

Driver information

Warning light:

MIL

Service instruction

none

DTC P0611 (BMW DTC 4B99): INJECTORS, BANK 2, ACTIVATION: SHORT-CIRCUIT
Information saved in
DDE

Fault code
4B99 - P0611

Fault description
The DDE ECU recognizes a short circuit during control-activation of the injectors on Bank 2.

Condition for fault identification
Test condition:
The error check is implemented once per camshaft rotation.

Voltage condition:
The error check is implemented once per camshaft rotation.

Condition for fault memory entry
Event debounced (4)

Action in service
1. Check wires and plug connections for all three affected injectors.
2. If wiring and plug connections are OK:
   Replace DDE control module.

Fault effect and breakdown warning
-

Driver information
Warning light:
MIL

Service instruction
none

DTC P0611 (BMW DTC 4C0F): CONTROL UNIT INTERNAL: INJECTORS, BANK 1, FAULT IN
ACTIVATION MODULE

Information saved in
DDE

Fault code
4C0F - P0611

Fault description

The internal monitoring function detects a chip error in the injectors’ activation module.

Condition for fault identification

Test condition:
The error check is implemented once per camshaft rotation.

Voltage condition:
The error check is implemented once per camshaft rotation.

Condition for fault memory entry

Event debounced (10)

Action in service

Replace DDE control module.

Fault effect and breakdown warning

- 

Driver information

Warning light:
MIL_SVS

Service instruction

none

DTC P0611 (BMW DTC 4C1F): CONTROL UNIT INTERNAL: INJECTORS, BANK 2, FAULT IN ACTIVATION MODULE
Information saved in

DDE

Fault code

4C1F - P0611

Fault description

The internal monitoring function detects a chip error in the injectors’ activation module.

Condition for fault identification

Test condition:

The error check is implemented once per camshaft rotation.

Voltage condition:

The error check is implemented once per camshaft rotation.

Condition for fault memory entry

Event debounced (10)

Action in service

Replace DDE control module.

Fault effect and breakdown warning

-

Driver information

Warning light:

MIL_SVS

Service instruction

none

DTC P0201 (BMW DTC 441C): INJECTOR, CYLINDER 1, ACTIVATION: NEGATIVE SIDE INTERRUPTION

Information saved in
DDE

Fault code

441C - P0201

Fault description

The DDE ECU detects an open circuit during control-activation of the injector.

Condition for fault identification

Test condition:

The error check is implemented once per camshaft rotation.

Voltage condition:

The error check is implemented once per camshaft rotation.

Condition for fault memory entry

Event debounced (4)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   Replace injector.

Fault effect and breakdown warning

Proceed to the nearest BMW Service facility.

Driver information

Warning light:

MIL_SVS

Service instruction

none

DTC P0205 (BMW DTC 445C): INJECTOR, CYLINDER 5, ACTIVATION: NEGATIVE SIDE INTERRUPTION
Information saved in

DDE

Fault code

445C - P0205

Fault description

The DDE ECU detects an open circuit during control-activation of the injector.

Condition for fault identification

Test condition:

The error check is implemented once per camshaft rotation.

Voltage condition:

The error check is implemented once per camshaft rotation.

Condition for fault memory entry

Event debounced (4)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:

   Replace injector.

Fault effect and breakdown warning

Proceed to the nearest BMW Service facility.

Driver information

Warning light:

MIL_SVS

Service instruction

none

DTC P0203 (BMW DTC 443CV: INJECTOR, CYLINDER 3, ACTIVATION: NEGATIVE SIDE)
INTERRUPTION

Information saved in

DDE

Fault code

443C - P0203

Fault description

The DDE ECU detects an open circuit during control-activation of the injector.

Condition for fault identification

Test condition:

The error check is implemented once per camshaft rotation.

Voltage condition:

The error check is implemented once per camshaft rotation.

Condition for fault memory entry

Event debounced (4)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   
   Replace injector.

Fault effect and breakdown warning

Proceed to the nearest BMW Service facility.

Driver information

Warning light:

MIL_SVS

Service instruction

none
DTC P0206 (BMW DTC 446C): INJECTOR, CYLINDER 6, ACTIVATION: NEGATIVE SIDE INTERRUPTION

Information saved in
DDE

Fault code
446C - P0206

Fault description
The DDE ECU detects an open circuit during control-activation of the injector.

Condition for fault identification

Test condition:
The error check is implemented once per camshaft rotation.

Voltage condition:
The error check is implemented once per camshaft rotation.

Condition for fault memory entry

Event debounced (4)

Action in service
1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   Replace injector.

Fault effect and breakdown warning
Proceed to the nearest BMW Service facility.

Driver information

Warning light:
MIL_SVS

Service instruction
DTC P0202 (BMW DTC 442C): INJECTOR, CYLINDER 2, ACTIVATION: NEGATIVE SIDE INTERRUPTION

Information saved in

DDE

Fault code

442C - P0202

Fault description

The DDE ECU detects an open circuit during control-activation of the injector.

Condition for fault identification

Test condition:

The error check is implemented once per camshaft rotation.

Voltage condition:

The error check is implemented once per camshaft rotation.

Condition for fault memory entry

Event debounced (4)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   Replace injector.

Fault effect and breakdown warning

Proceed to the nearest BMW Service facility.

Driver information

Warning light:

MIL_SVS
Service instruction

none

DTC P0204 (BMW DTC 444C): INJECTOR, CYLINDER 4, ACTIVATION: NEGATIVE SIDE INTERRUPTION

Information saved in

DDE

Fault code

444C - P0204

Fault description

The DDE ECU detects an open circuit during control-activation of the injector.

Condition for fault identification

Test condition:

The error check is implemented once per camshaft rotation.

Voltage condition:

The error check is implemented once per camshaft rotation.

Condition for fault memory entry

Event debounced (4)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   Replace injector.

Fault effect and breakdown warning

Proceed to the nearest BMW Service facility.

Driver information

Warning light:
DTC P3148 (BMW DTC 4BC4): INJECTOR, CYLINDER 1, ACTIVATION: NEGATIVE SIDE, SHORT CIRCUIT TO POSITIVE SIDE

Information saved in

DDE

Fault code

4BC4 - P3148

Fault description

The DDE detects a short circuit between the positive and negative sides during control-activation of the injector.

Condition for fault identification

Test condition:

The error check is implemented once per camshaft rotation.

Voltage condition:

The error check is implemented once per camshaft rotation.

Condition for fault memory entry

Event debounced (4)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   
   Inspect injector: Measure resistance (at 20 - 40 °C).

Setpoint: 180 kOhm +/- 10 kOhm

If the specified value is not obtained: Replace injector.

Fault effect and breakdown warning
Perform terminal power-status switch and attempt engine start.

Driver information

Warning light:

MIL_SVS

Service instruction

none

DTC P3160 (BMW DTC 4BD4): INJECTOR, CYLINDER 5, ACTIVATION: NEGATIVE SIDE, SHORT CIRCUIT TO POSITIVE SIDE

Information saved in

DDE

Fault code

4BD4 - P3160

Fault description

The DDE detects a short circuit between the positive and negative sides during control-activation of the injector.

Condition for fault identification

Test condition:

The error check is implemented once per camshaft rotation.

Voltage condition:

The error check is implemented once per camshaft rotation.

Condition for fault memory entry

Event debounced (4)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   
   Inspect injector: Measure resistance (at 20 - 40 °C).
Setpoint: 180 kOhm +/- 10 kOhm

If the specified value is not obtained: Replace injector.

**Fault effect and breakdown warning**

Perform terminal power-status switch and attempt engine start.

**Driver information**

Warning light:

MIL_SVS

**Service instruction**

none

**DTC P3154 (BMW DTC 4BCE): INJECTOR, CYLINDER 3, ACTIVATION: NEGATIVE SIDE, SHORT CIRCUIT TO POSITIVE SIDE**

**Information saved in**

DDE

**Fault code**

4BCE - P3154

**Fault description**

The DDE detects a short circuit between the positive and negative sides during control-activation of the injector.

**Condition for fault identification**

Test condition:

The error check is implemented once per camshaft rotation.

Voltage condition:

The error check is implemented once per camshaft rotation.

**Condition for fault memory entry**

Event debounced (4)
Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   
   Inspect injector: Measure resistance (at 20 - 40 °C).

Setpoint: 180 kOhm +/- 10 kOhm

If the specified value is not obtained: Replace injector.

Fault effect and breakdown warning

Perform terminal power-status switch and attempt engine start.

Driver information

Warning light:

MIL_SVS

Service instruction

none

DTC P3163 (BMW DTC 4BD9): INJECTOR, CYLINDER 6, ACTIVATION: NEGATIVE SIDE, SHORT CIRCUIT TO POSITIVE SIDE

Information saved in

DDE

Fault code

4BD9 - P3163

Fault description

The DDE detects a short circuit between the positive and negative sides during control-activation of the injector.

Condition for fault identification

Test condition:

The error check is implemented once per camshaft rotation.

Voltage condition:
The error check is implemented once per camshaft rotation.

Condition for fault memory entry

Event debounced (4)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   
   Inspect injector: Measure resistance (at 20 - 40 °C).

Setpoint: 180 kOhm +/- 10 kOhm

If the specified value is not obtained: Replace injector.

Fault effect and breakdown warning

Perform terminal power-status switch and attempt engine start.

Driver information

Warning light:

MIL_SVS

Service instruction

none

DTC P3151 (BMW DTC 4BC9): INJECTOR, CYLINDER 2, ACTIVATION: NEGATIVE SIDE, SHORT CIRCUIT TO POSITIVE SIDE

Information saved in

DDE

Fault code

4BC9 - P3151

Fault description

The DDE detects a short circuit between the positive and negative sides during control-activation of the injector.

Condition for fault identification
Test condition:

The error check is implemented once per camshaft rotation.

Voltage condition:

The error check is implemented once per camshaft rotation.

Condition for fault memory entry

Event debounced (4)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   
   Inspect injector: Measure resistance (at 20 - 40 °C).

Setpoint: 180 kOhm +/- 10 kOhm

If the specified value is not obtained: Replace injector.

Fault effect and breakdown warning

Perform terminal power-status switch and attempt engine start.

Driver information

Warning light:

MIL_SVS

Service instruction

none

DTC P3157 (BMW DTC 4BCF): INJECTOR, CYLINDER 4, ACTIVATION: NEGATIVE SIDE, SHORT CIRCUIT TO POSITIVE SIDE

Information saved in

DDE

Fault code

4BCF - P3157
Fault description

The DDE detects a short circuit between the positive and negative sides during control-activation of the injector.

Condition for fault identification

Test condition:

The error check is implemented once per camshaft rotation.

Voltage condition:

The error check is implemented once per camshaft rotation.

Condition for fault memory entry

Event debounced (4)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   
   Inspect injector: Measure resistance (at 20 - 40 °C).

Setpoint: 180 kOhm +/- 10 kOhm

If the specified value is not obtained: Replace injector.

Fault effect and breakdown warning

Perform terminal power-status switch and attempt engine start.

Driver information

Warning light:

MIL_SVS

Service instruction

none

DTC P0261 (BMW DTC 4934): INJECTOR, CYLINDER 1, ACTIVATION: NEGATIVE SIDE, HIGH-RESISTANCE SHORT CIRCUIT TO POSITIVE SIDE

Information saved in
DDE

Fault code

4934 - P0261

Fault description

The DDE ECU detects a high-resistance short circuit between the positive and negative sides during control-
activation of the injector.

Condition for fault identification

Test condition:

The test routine is executed continuously every 10 ms.

Voltage condition:

The test routine is executed continuously every 10 ms.

Condition for fault memory entry

Event debounced (4)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:

Replace injector.

Fault effect and breakdown warning

Proceed to the nearest BMW Service facility.

Driver information

Warning light:

MIL_SVS

Service instruction

none

DTC P0273 (BMW DTC 4924): INJECTOR, CYLINDER 5, ACTIVATION: NEGATIVE SIDE, HIGH-
RESISTANCE SHORT CIRCUIT TO POSITIVE SIDE
Information saved in

DDE

Fault code

4924 - P0273

Fault description

The DDE ECU detects a high-resistance short circuit between the positive and negative sides during control-activation of the injector.

Condition for fault identification

Test condition:

The test routine is executed continuously every 10 ms.

Voltage condition:

The test routine is executed continuously every 10 ms.

Condition for fault memory entry

Event debounced (4)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   Replace injector.

Fault effect and breakdown warning

Proceed to the nearest BMW Service facility.

Driver information

Warning light:

MIL_SVS

Service instruction

none
DTC P0267 (BMW DTC 492E): INJECTOR, CYLINDER 3, ACTIVATION: NEGATIVE SIDE, HIGH-RESISTANCE SHORT CIRCUIT TO POSITIVE SIDE

Information saved in

DDE

Fault code

492E - P0267

Fault description

The DDE ECU detects a high-resistance short circuit between the positive and negative sides during control-activation of the injector.

Condition for fault identification

Test condition:

The test routine is executed continuously every 10 ms.

Voltage condition:

The test routine is executed continuously every 10 ms.

Condition for fault memory entry

Event debounced (4)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   - Replace injector.

Fault effect and breakdown warning

Proceed to the nearest BMW Service facility.

Driver information

Warning light:

MIL_SVS

Service instruction
none

**DTC P0276 (BMW DTC 491F): INJECTOR, CYLINDER 6, ACTIVATION: NEGATIVE SIDE, HIGH-RESISTANCE SHORT CIRCUIT TO POSITIVE SIDE**

**Information saved in**

DDE

**Fault code**

491F - P0276

**Fault description**

The DDE ECU detects a high-resistance short circuit between the positive and negative sides during control-activation of the injector.

**Condition for fault identification**

**Test condition:**

The test routine is executed continuously every 10 ms.

**Voltage condition:**

The test routine is executed continuously every 10 ms.

**Condition for fault memory entry**

Event debounced (4)

**Action in service**

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   
   Replace injector.

**Fault effect and breakdown warning**

Proceed to the nearest BMW Service facility.

**Driver information**

**Warning light:**

MIL_SVS
Service instruction

none

**DTC P0264 (BMW DTC 492F): INJECTOR, CYLINDER 2, ACTIVATION: NEGATIVE SIDE, HIGH-RESISTANCE SHORT CIRCUIT TO POSITIVE SIDE**

Information saved in

DDE

Fault code

492F - P0264

Fault description

The DDE ECU detects a high-resistance short circuit between the positive and negative sides during control-activation of the injector.

**Condition for fault identification**

Test condition:

The test routine is executed continuously every 10 ms.

Voltage condition:

The test routine is executed continuously every 10 ms.

**Condition for fault memory entry**

Event debounced (4)

**Action in service**

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   
   Replace injector.

**Fault effect and breakdown warning**

Proceed to the nearest BMW Service facility.

**Driver information**

Warning light:
MIL_SVS

Service instruction

none

DTC P0270 (BMW DTC 4929): INJECTOR, CYLINDER 4, ACTIVATION: NEGATIVE SIDE, HIGH-RESISTANCE SHORT CIRCUIT TO POSITIVE SIDE

Information saved in

DDE

Fault code

4929 - P0270

Fault description

The DDE ECU detects a high-resistance short circuit between the positive and negative sides during control-activation of the injector.

Condition for fault identification

Test condition:

The test routine is executed continuously every 10 ms.

Voltage condition:

The test routine is executed continuously every 10 ms.

Condition for fault memory entry

Event debounced (4)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:

   Replace injector.

Fault effect and breakdown warning

Proceed to the nearest BMW Service facility.

Driver information
Warning light:

MIL_SVS

Service instruction
none

DTC P0262 (BMW DTC 4BAE): INJECTOR, CYLINDER 1, ACTIVATION: SHORT-CIRCUIT

Information saved in

DDE

Fault code

4BAE - P0262

Fault description

The DDE ECU detects a short circuit during control-activation of the injector.

Condition for fault identification

Test condition:
The error check is implemented once per camshaft rotation.

Voltage condition:
The error check is implemented once per camshaft rotation.

Condition for fault memory entry

Event debounced (4)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   Replace injector.

Fault effect and breakdown warning

Perform terminal power-status switch and attempt engine start.

Driver information
Warning light:
MIL

Service instruction
none

DTC P0274 (BMW DTC 4BBE): INJECTOR, CYLINDER 5, ACTIVATION: SHORT-CIRCUIT

Information saved in
DDE

Fault code
4BBE - P0274

Fault description
The DDE ECU detects a short circuit during control-activation of the injector.

Condition for fault identification
Test condition:
The error check is implemented once per camshaft rotation.

Voltage condition:
The error check is implemented once per camshaft rotation.

Condition for fault memory entry
Event debounced (4)

Action in service
1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   Replace injector.

Fault effect and breakdown warning
Perform terminal power-status switch and attempt engine start.

Driver information
Warning light:
MIL

Service instruction
none

DTC P0268 (BMW DTC 4BB4): INJECTOR, CYLINDER 3, ACTIVATION: SHORT-CIRCUIT

Information saved in
DDE

Fault code
4BB4 - P0268

Fault description
The DDE ECU detects a short circuit during control-activation of the injector.

Condition for fault identification
Test condition:
The error check is implemented once per camshaft rotation.

Voltage condition:
The error check is implemented once per camshaft rotation.

Condition for fault memory entry
Event debounced (4)

Action in service
1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   Replace injector.

Fault effect and breakdown warning
Perform terminal power-status switch and attempt engine start.

Driver information
Warning light:
MIL

Service instruction
none

DTC P0277 (BMW DTC 4BBF): INJECTOR, CYLINDER 6, ACTIVATION: SHORT-CIRCUIT

Information saved in
DDE

Fault code
4BBF - P0277

Fault description
The DDE ECU detects a short circuit during control-activation of the injector.

Condition for fault identification

Test condition:
The error check is implemented once per camshaft rotation.

Voltage condition:
The error check is implemented once per camshaft rotation.

Condition for fault memory entry
Event debounced (4)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   Replace injector.

Fault effect and breakdown warning

Perform terminal power-status switch and attempt engine start.

Driver information
Warning light:
MIL

Service instruction
none

DTC P0265 (BMW DTC 4BAF): INJECTOR, CYLINDER 2, ACTIVATION: SHORT-CIRCUIT

Information saved in
DDE

Fault code
4BAF - P0265

Fault description
The DDE ECU detects a short circuit during control-activation of the injector.

Condition for fault identification

Test condition:
The error check is implemented once per camshaft rotation.

Voltage condition:
The error check is implemented once per camshaft rotation.

Condition for fault memory entry

Event debounced (4)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   Replace injector.

Fault effect and breakdown warning

Perform terminal power-status switch and attempt engine start.

Driver information
Warning light:
MIL

Service instruction
none

**DTC P0271 (BMW DTC 4BB9): INJECTOR, CYLINDER 4, ACTIVATION: SHORT-CIRCUIT**

**Information saved in**
DDE

**Fault code**
4BB9 - P0271

**Fault description**
The DDE ECU detects a short circuit during control-activation of the injector.

**Condition for fault identification**
Test condition:
The error check is implemented once per camshaft rotation.

Voltage condition:
The error check is implemented once per camshaft rotation.

**Condition for fault memory entry**
Event debounced (4)

**Action in service**
1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   Replace injector.

**Fault effect and breakdown warning**
Perform terminal power-status switch and attempt engine start.

**Driver information**
Warning light:
MIL

Service instruction
none

**DTC P0611 (BMW DTC 4954): CONTROL UNIT INTERNAL: DC/DC CONVERTER FAULTY, BUFFER CAPACITOR 1 CANNOT BE CHARGED**

Information saved in
DDE

**Fault code**
4954 - P0611

**Fault description**
The diagnostic trouble code is logged in the ECU if it was impossible to charge the condensers for activation of the Bank 1 injectors before the period 310 ms elapsed.

**Condition for fault identification**

Test condition:
The test routine is executed continuously in a 10 ms grid.

Voltage condition:
The test routine is executed continuously in a 10 ms grid.

**Condition for fault memory entry**

No debouncing. None.

**Action in service**
Replace DDE control module.

**Fault effect and breakdown warning**

- 

**Driver information**
Warning light:
MIL

Service instruction
none

DTC P0611 (BMW DTC 4959): CONTROL UNIT INTERNAL: DC/DC CONVERTER FAULTY, BUFFER CAPACITOR 2 CANNOT BE CHARGED

Information saved in
DDE

Fault code
4959 - P0611

Fault description
The diagnostic trouble code is logged in the ECU if it was impossible to charge the condensers for activation of the Bank 2 injectors before the period 310 ms elapsed.

Condition for fault identification
Test condition:
The test routine is executed continuously in a 10 ms grid.

Voltage condition:
The test routine is executed continuously in a 10 ms grid.

Condition for fault memory entry
No debouncing. None.

Action in service
Replace DDE control module.

Fault effect and breakdown warning
-

Driver information
Warning light:
MIL

Service instruction
none

DTC P026B (BMW DTC 46E6): SUBSEQUENT INJECTION VOLUME 1, PLAUSIBILITY

Information saved in
DDE

Fault code
46E6 - P026B

Fault description
-

Condition for fault identification
none

Condition for fault memory entry
Event debounced (50)

Action in service
-

Fault effect and breakdown warning
-

Driver information

Warning light:
MIL

Service instruction
none
DTC P026B (BMW DTC 46E7): SUBSEQUENT INJECTION VOLUME 2, PLAUSIBILITY

Information saved in
DDE

Fault code
46E7 - P026B

Fault description
-

Condition for fault identification
none

Condition for fault memory entry
Event debounced (50)

Action in service
-

Fault effect and breakdown warning
-

Driver information
Warning light:
MIL

Service instruction
none

DTC U0106 (BMW DTC 49A5): LIN BUS, COMMUNICATION

Information saved in
DDE

Fault code
Fault description

Monitoring LIN communications with glow-plug preheating control module. The diagnostic trouble code is logged if no LIN bus communications with the glow-plug preheating control module are possible.

Condition for fault identification

Test condition:

The test routine is executed continuously every 100 ms.

Voltage condition:

The test routine is executed continuously every 100 ms.

Condition for fault memory entry

Debounce (1200 ms)

Action in service

Check LIN bus.

If LIN bus is OK:

Replace glow-plug preheating control module.

Fault effect and breakdown warning

- 

Driver information

Warning light:

MIL

Service instruction

none

DTC P2243 (BMW DTC 41D7): OXYGEN SENSOR, SIGNAL, NERNST VOLTAGE: OPEN CIRCUIT

Information saved in

DDE
Fault code

41D7 - P2243

Fault description

An open circuit error is detected in the Nernst voltage when the resistance of the signal voltage lies above the threshold 3000 mV or the raw O2 value lies above the maximum threshold 1500 mV or below the minimum threshold -1300 mV.

The raw O2 voltage signal should equal roughly 3.3 V or 0 V when an error is present.

Condition for fault identification

Test condition:

Check frequency is continuous in accordance with the programmed time grid.

To activate the open circuit error test the following conditions must be satisfied:

- The sensor temperature is valid and continuously exceeds the operating temperature for 10 s.
- The vehicle is not in trailing throttle/overrun, debounce implemented with 100 ms and 100 ms.
- The battery voltage is above 10700 mV, debounce implemented with 0 ms and 2000 ms.
- No error related to low battery voltage at the chip or SPI communications error is present.
- The hot oxygen sensor tests are enabled.

The current error status for open circuit is registered as soon as the Ri signal voltage debounced with 0 ms and 0 ms exceeds the threshold 3000 mV.

After the period 2 s the open circuit error test is enabled for the time 2000 ms.

Once 2000 ms has elapsed the test is again deactivated.

Voltage condition:

Check frequency is continuous in accordance with the programmed time grid.

To activate the open circuit error test the following conditions must be satisfied:

- The sensor temperature is valid and continuously exceeds the operating temperature for 10 s.
- The vehicle is not in trailing throttle/overrun, debounce implemented with 100 ms and 100 ms.
- The battery voltage is above 10700 mV, debounce implemented with 0 ms and 2000 ms.
- No error related to low battery voltage at the chip or SPI communications error is present.
- The hot oxygen sensor tests are enabled.
The current error status for open circuit is registered as soon as the Ri signal voltage debounced with 0 ms and 0 ms exceeds the threshold 3000 mV.

After the period 2 s the open circuit error test is enabled for the time 2000 ms.

Once 2000 ms has elapsed the test is again deactivated.

**Condition for fault memory entry**

Debounce (500 ms)

**Action in service**

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   
   Replace oxygen sensor.

**Fault effect and breakdown warning**

- 

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC P2237 (BMW DTC 41E7): OXYGEN SENSOR, SIGNAL, PUMP CURRENT: OPEN CIRCUIT**

**Information saved in**

DDE

**Fault code**

41E7 - P2237

**Fault description**

An open circuit error is recognized in the pump current when the filtered raw O2 signal from the sensor is less than 0 although no lean operation has been detected.

**Condition for fault identification**
Test condition:

Continuous, corresponding to the configured time grid.

The following conditions must be satisfied for an IP load drop test:

The vehicle is not in trailing throttle/overrun, debounce implemented with 100 ms and 100 ms.

- No rich-mixture operation detected.
- The O2 signal from the sensor is valid.
- No rich-mixture operation detected, meaning that for longer than 2 s the calculated O2 value is above the limit 0.

The battery voltage is above 10700 mV, debounce implemented with 0 ms and 2000 ms.

- No thermal particulate filter regeneration is present.

Voltage condition:

Continuous, corresponding to the configured time grid.

The following conditions must be satisfied for an IP load drop test:

The vehicle is not in trailing throttle/overrun, debounce implemented with 100 ms and 100 ms.

- No rich-mixture operation detected.
- The O2 signal from the sensor is valid.
- No rich-mixture operation detected, meaning that for longer than 2 s the calculated O2 value is above the limit 0.

The battery voltage is above 10700 mV, debounce implemented with 0 ms and 2000 ms.

- No thermal particulate filter regeneration is present.

**Condition for fault memory entry**

Debounce (2000 ms)

**Action in service**

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   - Replace oxygen sensor.

**Fault effect and breakdown warning**
Driver information

Warning light:

MIL

Service instruction

none

**DTC P2251 (BMW DTC 41F7): OXYGEN SENSOR, SIGNAL, VIRTUAL GROUND: OPEN CIRCUIT**

Information saved in

DDE

Fault code

41F7 - P2251

Fault description

An open circuit failure in the virtual ground is recognized when the signal voltage's resistance is above the threshold 3000 mV and the raw O2 value mV lies between -100 mV and 100 mV.

Condition for fault identification

Test condition:

Check frequency is continuous in accordance with the programmed time grid.

For activation of the open circuit error test at UN and VG all of the following conditions must be satisfied:

- The sensor temperature is valid and continuously exceeds the operating temperature for a period of 10 s.

The vehicle is not in overrun, debounce implemented with 100 ms and 100 ms.

The battery voltage is above 10700 mV, debounce implemented with 0 ms and 2000 ms.

- No error related to low battery voltage at the chip or SPI communications error is present.

- The hot oxygen sensor tests are enabled.

The current error status for open circuit error is registered as soon as the Ri signal voltage debounced with 0 ms and 0 ms exceeds the threshold 3000 mV.

After the period 2 s the open circuit error test is enabled for the time 2000 ms.
Once 2000 ms has elapsed the test is again deactivated.

Voltage condition:

Check frequency is continuous in accordance with the programmed time grid.

For activation of the open circuit error test at UN and VG all of the following conditions must be satisfied:

- The sensor temperature is valid and continuously exceeds the operating temperature for a period of 10 s.

The vehicle is not in overrun, debounce implemented with 100 ms and 100 ms.

The battery voltage is above 10700 mV, debounce implemented with 0 ms and 2000 ms.

- No error related to low battery voltage at the chip or SPI communications error is present.
- The hot oxygen sensor tests are enabled.

The current error status for open circuit error is registered as soon as the Ri signal voltage debounced with 0 ms and 0 ms exceeds the threshold 3000 mV.

After the period 2 s the open circuit error test is enabled for the time 2000 ms.

Once 2000 ms has elapsed the test is again deactivated.

**Condition for fault memory entry**

Debounce (500 ms)

**Action in service**

1. Check wires and plug connections.
2. If wiring and plug connections are OK:

   Replace oxygen sensor.

**Fault effect and breakdown warning**

- 

**Driver information**

Warning light:

MIL

**Service instruction**
DTC P0133 (BMW DTC 43FD): OXYGEN SENSOR: DYNAMICS OF SENSOR SIGNAL IMPLAUSIBLE

Fault code

43FD - P0133

Fault description

Dynamic monitoring of oxygen sensor's O2 concentration rise duration at transition from load to overrun. This rise duration is also affected by the oxygen sensor's time constant.

If the oxygen sensor is intact it should not be longer than 3 s.

An error is logged when the measured O2 concentration during transition from load to overrun rises too slowly, or when a limit value defined based on the operating point is not reached once the period LSU_tiWait3_CA has elapsed following the load/overrun throttle transition.

Condition for fault identification

Test condition:

The test routine is executed during each load-to-overrun transition when the engine is at a suitable operating point.

The following conditions must be present for the error check:

 o No temporary error is present in the sensor.
   
   When the error check enable is active the state machine for the error check is executed.
   
   The state machine function is active once all of the following conditions are satisfied.

   o The engine RPM exceeds the limit value 900 1/min
   o The injection quantity is above the minimum value 9 mg/hub
   o The battery voltage is higher than 10700 mV.

Once all of the following conditions have been satisfied the state machine function changes to the following status:

For a period of LSU_tiWait1_CA the injection quantity remains within the tolerance range +/- 4 mg/hub.
The state machine function proceeds to the next status provided that compliance with one of the following conditions is present:

- The injection quantity decreases by more than 4 mg/hub.
- The O2 concentration rises above a limit value.

To ensure that a valid load-to-overrun transition is present, the injection quantity must now, within a period of LSU_tiWait2_CA, fall to a value below the threshold 0 mg/hub.

It must remain below this threshold until a defect or intact message is generated. Otherwise the test is aborted and the state machine becomes inactive.

Voltage condition:

The test routine is executed during each load-to-overrun transition when the engine is at a suitable operating point.

The following conditions must be present for the error check:

- No temporary error is present in the sensor.

  When the error check enable is active the state machine for the error check is executed.

  The state machine function is active once all of the following conditions are satisfied.

- The engine RPM exceeds the limit value 900 1/min
- The injection quantity is above the minimum value 9 mg/hub
- The battery voltage is higher than 10700 mV.

Once all of the following conditions have been satisfied the state machine function changes to the following status:

For a period of LSU_tiWait1_CA the injection quantity remains within the tolerance range +/- 4 mg/hub.

The state machine function proceeds to the next status provided that compliance with one of the following conditions is present:

- The injection quantity decreases by more than 4 mg/hub.
- The O2 concentration rises above a limit value.

To ensure that a valid load-to-overrun transition is present, the injection quantity must now, within a period of LSU_tiWait2_CA, fall to a value below the threshold 0 mg/hub.

It must remain below this threshold until a defect or intact message is generated. Otherwise the test is aborted and the state machine becomes inactive.
Condition for fault memory entry

Event debounced (2) Number 2 of consecutive defect detections. In service test diagnosis the debounce is divided by the factor 2.

Action in service

1. Check wires and plug connections.
2. Check exhaust system for leaks, check installation of oxygen sensor.
3. If wires and exhaust system are OK:
   Replace oxygen sensor.

Fault effect and breakdown warning

- 

Driver information

Warning light:

MIL

Service instruction

none

DTC P0032 (BMW DTC 4205): OXYGEN SENSOR, HEATER ACTIVATION: SHORT CIRCUIT TO POSITIVE

Information saved in

DDE

Fault code

4205 - P0032

Fault description

The DDE recognizes a short circuit to positive in the output stage:

Oxygen sensor heating.

Condition for fault identification

Test condition:
The following conditions must be present for the error check:

- The diagnostic function must be active.
- The pre-debounced battery voltage must be greater than 10700 mV.

Voltage condition:

The following conditions must be present for the error check:

- The diagnostic function must be active.
- The pre-debounced battery voltage must be greater than 10700 mV.

**Condition for fault memory entry**

Debounce (2000 ms)

**Action in service**

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   - Replace oxygen sensor.

**Fault effect and breakdown warning**

- 

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC P0031 (BMW DTC 4206): OXYGEN SENSOR, HEATER ACTIVATION: SHORT CIRCUIT TO GROUND**

**Information saved in**

DDE

**Fault code**

4206 - P0031
Fault description

The DDE recognizes a short to ground at the output stage:

Oxygen sensor heating.

Condition for fault identification

Test condition:

The following conditions must be present for the error check:

- The diagnostic function must be active.
- The pre-debounced battery voltage must be greater than 10700 mV.

Voltage condition:

The following conditions must be present for the error check:

- The diagnostic function must be active.
- The pre-debounced battery voltage must be greater than 10700 mV.

Condition for fault memory entry

Debounce (2000 ms)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   Replace oxygen sensor.

Fault effect and breakdown warning

-  

Driver information

Warning light:

MIL

Service instruction

none
DTC P0030 (BMW DTC 4207): OXYGEN SENSOR, HEATER ACTIVATION: OPEN CIRCUIT

Information saved in

DDE

Fault code

4207 - P0030

Fault description

The DDE recognizes an open-circuit error at the output stage:

Oxygen sensor heating.

Condition for fault identification

Test condition:

The following conditions must be present for the error check:

- The diagnostic function must be active.
- The pre-debounced battery voltage must be greater than 10700 mV.

Voltage condition:

The following conditions must be present for the error check:

- The diagnostic function must be active.
- The pre-debounced battery voltage must be greater than 10700 mV.

Condition for fault memory entry

Debounce (2000 ms)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   Replace oxygen sensor.

Fault effect and breakdown warning

-
Driver information

Warning light:

MIL

Service instruction

none

**DTC P0607 (BMW DTC 4235): CONTROL UNIT INTERNAL (LSU CALIBRATION): OFFSET OF LAMBDA SIGNAL EVALUATION TOO HIGH (ZERO-POINT CORRECTION)**

Information saved in

DDE

Fault code

4235 - P0607

Fault description

The diagnostic trouble code is logged in the ECU when the raw voltage signal for the O2 ratio exceeds the limit value 200 mV during the oxygen signal calibration routine.

**Condition for fault identification**

Test condition:

The test runs only when the calibration function is active.

Check frequency is then continuous in accordance with the programmed time grid.

Voltage condition:

The test runs only when the calibration function is active.

Check frequency is then continuous in accordance with the programmed time grid.

**Condition for fault memory entry**

Event debounced (10) Event debounce with the counter limit 10 for defect detection as. In the service test diagnosis the debounce is divided by the factor 2.

**Action in service**

Replace DDE control module.
Fault effect and breakdown warning

Driver information

Warning light:
MIL

Service instruction

none

DTC P0607 (BMW DTC 4236): CONTROL UNIT INTERNAL (LSU CALIBRATION): OFFSET OF LAMBDA SIGNAL EVALUATION TOO LOW (ZERO-POINT CORRECTION)

Information saved in
DDE

Fault code
4236 - P0607

Fault description

The diagnostic trouble code is logged in the ECU when the raw voltage signal for the O2 ratio falls below the limit value -200 mV during the oxygen signal calibration routine.

Condition for fault identification

Test condition:

The test runs only when the calibration function is active.

Check frequency is then continuous in accordance with the programmed time grid.

Voltage condition:

The test runs only when the calibration function is active.

Check frequency is then continuous in accordance with the programmed time grid.

Condition for fault memory entry

Event debounced (10) Event debounce with the counter limit 10 for defect detection as. In the service test diagnosis the debounce is divided by the factor 2.
Action in service

Replace DDE control module.

Fault effect and breakdown warning

- 

Driver information

Warning light:

MIL

Service instruction

none

**DTC P0132 (BMW DTC 4225): OXYGEN SENSOR: SIGNAL VOLTAGE TOO HIGH OR SIGNAL, COMPENSATING CURRENT, OPEN CIRCUIT**

Information saved in

DDE

Fault code

4225 - P0132

Fault description

The diagnostic trouble code is logged in the ECU when the raw voltage signal for the O2 ratio exceeds the limit value 3200 mV during normal operation.

Condition for fault identification

Test condition:

The following conditions must be present for the error check:

- The O2 calibration is not active.
- Oxygen sensor heater is active.

Voltage condition:

The following conditions must be present for the error check:

- The O2 calibration is not active.
Oxygen sensor heater is active.

**Condition for fault memory entry**

Debounce (1000 ms)

**Action in service**

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   
   Replace oxygen sensor.

**Fault effect and breakdown warning**

-

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC P0131 (BMW DTC 4226): OXYGEN SENSOR: SIGNAL VOLTAGE TOO LOW**

**Information saved in**

DDE

**Fault code**

4226 - P0131

**Fault description**

The diagnostic trouble code is logged in the ECU when the raw voltage signal for the O2 ratio falls below the limit value 300 mV during normal operation.

**Condition for fault identification**

Test condition:

The following conditions must be present for the error check:
o The O2 calibration is not active.
o Oxygen sensor heater is active.
o No demand for thermal regeneration may be present and the engine must remain in this condition for a period of 10000 ms.

Voltage condition:

The following conditions must be present for the error check:

  o The O2 calibration is not active.
o Oxygen sensor heater is active.
o No demand for thermal regeneration may be present and the engine must remain in this condition for a period of 10000 ms.

Condition for fault memory entry

Debounce (1000 ms)

Action in service

  1. Check wires and plug connections.
  2. If wiring and plug connections are OK:
      Replace oxygen sensor.

Fault effect and breakdown warning

-

Driver information

Warning light:

MIL

Service instruction

none

DTC P2297 (BMW DTC 447A): OXYGEN SENSOR: OXYGEN CONCENTRATION IMPLAUSIBLY HIGH (IN OVERRUN MODE)

Information saved in

DDE
Fault code

447A - P2297

Fault description

Plausibility check on measured vs. calculated O2 concentration from oxygen sensor on overrun. The diagnostic trouble code is logged when the measured O2 concentration is greater than the sum of the calculated O2 concentration and a tolerance range based on operating point.

Condition for fault identification

Test condition:

The following conditions must be present for the plausibility check:

- The plausibility check is enabled.
- The effects of injection quantity on O2 concentration are clear.
- The O2 concentration is valid.
- The calculated O2 concentration is stationary.

The operating point for the overrun plausibility check is enabled when:

- The engine speed lies between 850 1/min and 4000 1/min.
- The fuel injection rate lies between 0 mg/hub and 0 mg/hub.
- The air mass lies between 200 mg/Hub and 800 mg/Hub.
- The EGR must be deactivated in coasting/overrun mode.
- The EGR overrun monitoring function must be enabled for full throttle.
- The fuel tank cannot be empty.
- The battery voltage is higher than 10700 mV.
- No temporary errors have been recognized.
- No thermal particulate filter regeneration has been requested.

Once all of the above conditions have been satisfied the sum total air mass is determined by integrating the mass airflow in the current engine operating point.

The cumulative value must be below the limit value for full load (or LSU_mAirPlausEnaTst_CA#2 if the service test diagnosis is active).

The integration is restarted when one of the activation conditions indicated above is not satisfied.

The check runs continuously in a 20 ms grid.

Voltage condition:
The following conditions must be present for the plausibility check:

- The plausibility check is enabled.
- The effects of injection quantity on O2 concentration are clear.
- The O2 concentration is valid.
- The calculated O2 concentration is stationary.

The operating point for the overrun plausibility check is enabled when:

- The engine speed lies between 850 l/min and 4000 l/min.
- The fuel injection rate lies between 0 mg/hub and 0 mg/hub.
- The air mass lies between 200 mg/Hub and 800 mg/Hub.
- The EGR must be deactivated in coasting/overrun mode.
- The EGR overrun monitoring function must be enabled for full throttle.
- The fuel tank cannot be empty.
- The battery voltage is higher than 10700 mV.
- No temporary errors have been recognized.
- No thermal particulate filter regeneration has been requested.

Once all of the above conditions have been satisfied the sum total air mass is determined by integrating the mass airflow in the current engine operating point.

The cumulative value must be below the limit value for full load (or LSU_mAirPlausEnaTst_CA#2 if the service test diagnosis is active).

The integration is restarted when one of the activation conditions indicated above is not satisfied.

The check runs continuously in a 20 ms grid.

**Condition for fault memory entry**

Event debounced (100) The diagnostic trouble code is logged when at least 100 error events have been counted. During service test diagnosis the debounce is divided by 2.

**Action in service**

1. Check exhaust system for leaks.
2. Check wires and plug connections.
3. If wiring and plug connections are OK:
   - Replace oxygen sensor.

**Fault effect and breakdown warning**
Driver information

Warning light:

MIL

Service instruction

none

**DTC P2A00 (BMW DTC 448A): OXYGEN SENSOR: OXYGEN CONCENTRATION IMPLAUSIBLY HIGH (AT PART LOAD)**

Information saved in

DDE

Fault code

448A - P2A00

Fault description

Plausibility check of measured vs. calculated oxygen sensor O2 concentration at part-load with EGR control active. The diagnostic trouble code is logged when the measured O2 concentration is greater than the sum of the calculated O2 concentration and a tolerance range based on operating point.

**Condition for fault identification**

Test condition:

The following conditions must be present for the plausibility check:

- The plausibility check is enabled.
- The effects of injection quantity on O2 concentration are clear.
- The O2 concentration is valid.
- The calculated O2 concentration is stationary.

The operating point for the part-load plausibility check is enabled when:

- The engine speed lies between 590 1/min and 980 1/min.
- The fuel injection rate lies between 4 mg/hub and 328 mg/hub.
- The air mass lies between 180 mg/Hub and 600 mg/Hub.
- The EGR must be deactivated in coasting/overrun mode.
The EGR overrun monitoring function must be enabled for full throttle.
- the fuel tank cannot be empty.
- the battery voltage is higher than 10700 mV.
- no thermal particulate filter regeneration has been requested.

Once all of the above conditions have been satisfied the sum total air mass is determined by integrating the mass airflow in the current engine operating point.

The cumulative value must be above the limit value for full load (or LSU_mAirPlausEnaTst_CA#1 if the service test diagnosis is active).

The integration is restarted when one of the activation conditions indicated above is not satisfied.

The check runs continuously in a 20 ms grid.

Voltage condition:

The following conditions must be present for the plausibility check:
- The plausibility check is enabled.
- The effects of injection quantity on O2 concentration are clear.
- The O2 concentration is valid.
- The calculated O2 concentration is stationary.

The operating point for the part-load plausibility check is enabled when:
- The engine speed lies between 590 1/min and 980 1/min.
- The fuel injection rate lies between 4 mg/hub and 328 mg/hub.
- The air mass lies between 180 mg/Hub and 600 mg/Hub.
- The EGR must be deactivated in coasting/overrun mode.
- the EGR overrun monitoring function must be enabled for full throttle.
- the fuel tank cannot be empty.
- the battery voltage is higher than 10700 mV.
- no thermal particulate filter regeneration has been requested.

Once all of the above conditions have been satisfied the sum total air mass is determined by integrating the mass airflow in the current engine operating point.

The cumulative value must be above the limit value for full load (or LSU_mAirPlausEnaTst_CA#1 if the service test diagnosis is active).

The integration is restarted when one of the activation conditions indicated above is not satisfied.

The check runs continuously in a 20 ms grid.
Condition for fault memory entry

Event debounced (100) The diagnostic trouble code is logged when at least 100 error events have been counted. During service test diagnosis the debounce is divided by 2.

Action in service

1. Check exhaust system for leaks.
2. Check wires and plug connections.
3. If wiring and plug connections are OK:
   Replace oxygen sensor.

Fault effect and breakdown warning

Driver information

Warning light:
MIL

Service instruction

none

DTC P2297 (BMW DTC 447B): OXYGEN SENSOR: OXYGEN CONCENTRATION IMPLAUSIBLY LOW (IN OVERRUN MODE)

Information saved in
DDE

Fault code
447B - P2297

Fault description

Plausibility check on measured vs. calculated O2 concentration from oxygen sensor on overrun. The diagnostic trouble code is logged when the measured O2 concentration is less than the sum of the calculated O2 concentration and a tolerance range defined based on operating point.

Condition for fault identification

Test condition:
The following conditions must be present for the plausibility check:

- The plausibility check is enabled.
- The effects of injection quantity on O2 concentration are clear.
- The O2 concentration is valid.
- The calculated O2 concentration is stationary.

The operating point for the overrun plausibility check is enabled when:

- The engine speed lies between 850 l/min and 4000 l/min.
- The fuel injection rate lies between 0 mg/hub and 0 mg/hub.
- The air mass lies between 200 mg/Hub and 800 mg/Hub.
- The EGR must be deactivated in coasting/overrun mode.
- The EGR overrun monitoring function must be enabled for full throttle.
- The fuel tank cannot be empty.
- The battery voltage is higher than 10700 mV.
- No thermal particulate filter regeneration has been requested.

Once all of the above conditions have been satisfied the sum total air mass is determined by integrating the mass airflow in the current engine operating point.

The cumulative value must be above the limit value for WOT/full load (or LSU_mAirPlausEnaTst_CA#2 if the service test diagnosis is active).

The integration is restarted when one of the activation conditions indicated above is not satisfied.

The check runs continuously in a 20 ms grid.

Voltage condition:

The following conditions must be present for the plausibility check:

- The plausibility check is enabled.
- The effects of injection quantity on O2 concentration are clear.
- The O2 concentration is valid.
- The calculated O2 concentration is stationary.

The operating point for the overrun plausibility check is enabled when:

- The engine speed lies between 850 l/min and 4000 l/min.
- The fuel injection rate lies between 0 mg/hub and 0 mg/hub.
- The air mass lies between 200 mg/Hub and 800 mg/Hub.
- The EGR must be deactivated in coasting/overrun mode.
o the EGR overrun monitoring function must be enabled for full throttle.
o the fuel tank cannot be empty.
o the battery voltage is higher than 10700 mV.
o no thermal particulate filter regeneration has been requested.

Once all of the above conditions have been satisfied the sum total air mass is determined by integrating the
mass airflow in the current engine operating point.

The cumulative value must be above the limit value for WOT/full load (or LSU_mAirPlausEnaTst_CA#2 if the
service test diagnosis is active).

The integration is restarted when one of the activation conditions indicated above is not satisfied.

The check runs continuously in a 20 ms grid.

**Condition for fault memory entry**

Event debounced (100) The diagnostic trouble code is logged when at least 100 error events have been counted.
During service test diagnosis the debounce is divided by 2.

**Action in service**

1. Check exhaust system for leaks.
2. Check wires and plug connections.
3. If wiring and plug connections are OK:
   
   Replace oxygen sensor.

**Fault effect and breakdown warning**

- 

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC P2A00 (BMW DTC 448B): OXYGEN SENSOR: OXYGEN CONCENTRATION IMPLAUSIBLY LOW (AT PART LOAD)**

**Information saved in**
DDE

Fault code

448B - P2A00

Fault description

Plausibility check of measured vs. calculated oxygen sensor O2 concentration at part-load with EGR control active. The diagnostic trouble code is logged when the measured O2 concentration is less than the sum of the calculated O2 concentration and a tolerance range defined based on operating point.

Condition for fault identification

Test condition:

The following conditions must be present for the plausibility check:

- The plausibility check is enabled.
- The effects of injection quantity on O2 concentration are clear.
- The O2 concentration is stationary.

The operating point for the part-load plausibility check is enabled when:

- The engine speed lies between 590 1/min and 980 1/min.
- The fuel injection rate lies between 4 mg/hub and 328 mg/hub.
- The air mass lies between 180 mg/Hub and 600 mg/Hub.
- The EGR must be deactivated in coasting/overrun mode.
- The EGR overrun monitoring function must be enabled for full throttle.
- The fuel tank cannot be empty.
- The battery voltage is higher than 10700 mV.
- No thermal particulate filter regeneration has been requested.

Once all of the above conditions have been satisfied the sum total air mass is determined by integrating the mass airflow in the current engine operating point.

The cumulative value must be above the limit value for full load (or LSU_mAirPlausEnaTst_CA#1 if the service test diagnosis is active).

The integration is restarted when one of the activation conditions indicated above is not satisfied.

The check runs continuously in a 20 ms grid.

Voltage condition:
The following conditions must be present for the plausibility check:

- The plausibility check is enabled.
- The effects of injection quantity on O2 concentration are clear.
- The O2 concentration is stationary.

The operating point for the part-load plausibility check is enabled when:

- The engine speed lies between 590 l/min and 980 l/min.
- The fuel injection rate lies between 4 mg/hub and 328 mg/hub.
- The air mass lies between 180 mg/Hub and 600 mg/Hub.
- The EGR must be deactivated in coasting/overrun mode.
- The EGR overrun monitoring function must be enabled for full throttle.
- The fuel tank cannot be empty.
- The battery voltage is higher than 10700 mV.
- No thermal particulate filter regeneration has been requested.

Once all of the above conditions have been satisfied the sum total air mass is determined by integrating the mass airflow in the current engine operating point.

The cumulative value must be above the limit value for full load (or LSU_mAirPlausEnaTst_CA#1 if the service test diagnosis is active).

The integration is restarted when one of the activation conditions indicated above is not satisfied.

The check runs continuously in a 20 ms grid.

**Condition for fault memory entry**

Event debounced (100) The diagnostic trouble code is logged when at least 100 error events have been counted. During service test diagnosis the debounce is divided by 2.

**Action in service**

1. Check exhaust system for leaks.
2. Check wires and plug connections.
3. If wiring and plug connections are OK:
   - Replace oxygen sensor.

**Fault effect and breakdown warning**

-
Driver information

Warning light:

MIL

Service instruction

none

DTC P3022 (BMW DTC 4258): CONTROL UNIT INTERNAL: IMPLAUSIBLE VALUES IN SPI CHIP (LAMBDA SIGNAL EVALUATION)

Information saved in

DDE

Fault code

4258 - P3022

Fault description

Oxygen sensor chip diagnosis. The diagnostic trouble code is logged in the ECU when the value read from the chip's initialization register varies from the value written to the chip in the previous time interval.

Condition for fault identification

Test condition:

Check frequency is continuous in accordance with the programmed time grid.

Voltage condition:

Check frequency is continuous in accordance with the programmed time grid.

Condition for fault memory entry

No debouncing.

Action in service

Replace DDE control module.

Fault effect and breakdown warning

-
Driver information

Warning light:

MIL

Service instruction

none

**DTC P2239 (BMW DTC 49E4): OXYGEN SENSOR, SIGNAL PUMP CURRENT, NERNST VOLTAGE OR VIRTUAL MASS: SHORT CIRCUIT TO POSITIVE**

Information saved in

DDE

Fault code

49E4 - P2239

Fault description

The DDE recognizes a short circuit to positive in the output stage:

Oxygen sensor wiring.

Condition for fault identification

Test condition:

The following conditions must be met for the error check:

- No internal errors may be present in the output stage.
- The open-circuit diagnosis is not active.

Voltage condition:

The following conditions must be met for the error check:

- No internal errors may be present in the output stage.
- The open-circuit diagnosis is not active.

Condition for fault memory entry

Debounce (2000 ms)

Action in service
1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   Replace oxygen sensor.

Fault effect and breakdown warning

Driver information

Warning light:
MIL

Service instruction
none

DTC P2238 (BMW DTC 49EF): OXYGEN SENSOR, SIGNAL PUMP CURRENT, NERNST VOLTAGE OR VIRTUAL MASS: SHORT CIRCUIT TO GROUND

Information saved in
DDE

Fault code
49EF - P2238

Fault description
The DDE recognizes a short to ground at the output stage:
Oxygen sensor wiring.

Condition for fault identification
Test condition:
The following conditions must be met for the error check:
  o No internal errors may be present in the output stage.
  o The open-circuit diagnosis is not active.

Voltage condition:
The following conditions must be met for the error check:

- No internal errors may be present in the output stage.
- The open-circuit diagnosis is not active.

**Condition for fault memory entry**

Debounce (2000 ms)

**Action in service**

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   
   Replace oxygen sensor.

**Fault effect and breakdown warning**

-

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC P0135 (BMW DTC 4275): OXYGEN SENSOR, HEATER: TEMPERATURE TOO HIGH**

**Information saved in**

DDE

**Fault code**

4275 - P0135

**Fault description**

Oxygen sensor heater diagnosis. The diagnostic trouble code is logged in the ECU when the calculated oxygen sensor temperature is greater than or equal to the limit value 840 °C.

**Condition for fault identification**

Test condition:
The error check is implemented when the following conditions are satisfied:

- The debounced value for battery voltage is greater than the limit value 10700 mV. The debounce times for the battery voltage are 0 ms and 2000 ms.
- No overrun is detected. The debounce times for overrun detection are 100 ms and 100 ms.
- The heater control is active.
- The oxygen sensor resistance signal Ri is valid.
- No other fault is present.
- The heating does not detect shunt current.

Voltage condition:

The error check is implemented when the following conditions are satisfied:

- The debounced value for battery voltage is greater than the limit value 10700 mV. The debounce times for the battery voltage are 0 ms and 2000 ms.
- No overrun is detected. The debounce times for overrun detection are 100 ms and 100 ms.
- The heater control is active.
- The oxygen sensor resistance signal Ri is valid.
- No other fault is present.
- The heating does not detect shunt current.

Condition for fault memory entry

Debounce (60000 ms) 60000 ms. For brief diagnosis the time is divided by 2.

Action in service

Replace oxygen sensor.

Fault effect and breakdown warning

Driver information

Warning light:

MIL

Service instruction

none

DTC P0135 (BMW DTC 4276): OXYGEN SENSOR, HEATER: TEMPERATURE TOO LOW
Information saved in

DDE

Fault code

4276 - P0135

Fault description

Oxygen sensor heater diagnosis. The diagnostic trouble code is logged in the ECU when the calculated oxygen sensor temperature is less than or equal to the limit value 720 °C.

Condition for fault identification

Test condition:

The error check is implemented when the following conditions are satisfied:

- The debounced value for battery voltage is greater than the limit value 10700 mV. The debounce times for the battery voltage are 0 ms and 2000 ms.
- No overrun is detected. The debounce times for overrun detection are 100 ms and 100 ms.
- The heater control is active.
- The oxygen sensor resistance signal Ri is valid.
- No other fault is present.
- The heating does not detect shunt current.

Voltage condition:

The error check is implemented when the following conditions are satisfied:

- The debounced value for battery voltage is greater than the limit value 10700 mV. The debounce times for the battery voltage are 0 ms and 2000 ms.
- No overrun is detected. The debounce times for overrun detection are 100 ms and 100 ms.
- The heater control is active.
- The oxygen sensor resistance signal Ri is valid.
- No other fault is present.
- The heating does not detect shunt current.

Condition for fault memory entry

Debounce (60000 ms) 60000 ms. For short-distance diagnosis the time is divided by 2.

Action in service
Replace oxygen sensor.

**Fault effect and breakdown warning**

-

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC P0685 (BMW DTC 4121): MAIN RELAY: RELAY SWITCHES OFF TOO EARLY OR UNDERVOLTAGE**

**Information saved in**

DDE

**Fault code**

4121 - P0685

**Fault description**

Error opening main relay. The system is monitored to determine whether the main relay has been opened without a command from the DDE (prior to termination of post-operational shutdown phase).

If the main relay opens when it should remain closed the counter advances by one each time the ECU boots. This counter is stored in the EEPROM.

The diagnostic trouble code is logged when the counter total rises above the threshold 1.

**Condition for fault identification**

Test condition:

This test is executed one time during initialization of the ECU.

Voltage condition:

This test is executed one time during initialization of the ECU.

**Condition for fault memory entry**
Action in service

Determine whether the error is a collateral error stemming from undervoltage. If the error was not caused by undervoltage:

Replace the DDE main relay.

Fault effect and breakdown warning

- 

Driver information

Warning light:

MIL

Service instruction

If this error is logged together with other errors that trigger an ECU recovery or indicate undervoltage then these problems should be resolved. The main relay malfunction may be a collateral malfunction.

DTC P0685 (BMW DTC 4120): MAIN RELAY: RELAY DEACTIVATES TOO LATE

Information saved in

DDE

Fault code

4120 - P0685

Fault description

Error opening main relay. Response is monitored to determine whether the main relay is sticking.

The relay is recognized as sticking when the battery voltage following the command to open the main relay and the elapsed lag time 100 ms are greater than the threshold.

Condition for fault identification

Test condition:

The main relay diagnosis to check for a sticking relay is executed when a command to open the relay is present.

Voltage condition:
The main relay diagnosis to check for a sticking relay is executed when a command to open the relay is present.

**Condition for fault memory entry**

- None.

**Action in service**

Replace the DDE main relay.

**Fault effect and breakdown warning**

-  

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC P0001 (BMW DTC 4300): DELIVERY CONTROL VALVE, ACTIVATION: OPEN CIRCUIT**

**Information saved in**

DDE

**Fault code**

4300 - P0001

**Fault description**

The DDE recognizes an open-circuit error at the output stage:

Flow control valve.

**Condition for fault identification**

Test condition:

The check frequency depends on the process sequence control.

Voltage condition:
The check frequency depends on the process sequence control.

**Condition for fault memory entry**

Debounce (100 ms)

**Action in service**

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   
   Replace fuel-quantity control valve.

If the fault reoccurs:

Replace DDE control module.

**Fault effect and breakdown warning**

- 

**Driver information**

Warning light:

MIL_SVS

**Service instruction**

none

**DTC P0004 (BMW DTC 4310): DELIVERY CONTROL VALVE, ACTIVATION: SHORT CIRCUIT TO POSITIVE**

**Information saved in**

DDE

**Fault code**

4310 - P0004

**Fault description**

The DDE recognizes a short to positive error at the fuel-quantity control valve.

Metering unit.
Condition for fault identification

Test condition:

The check frequency depends on the process sequence control.

Voltage condition:

The check frequency depends on the process sequence control.

Condition for fault memory entry

Debounce (100 ms)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   - Replace fuel-quantity control valve.

Fault effect and breakdown warning

- 

Driver information

Warning light:

MIL_SVS

Service instruction

none

DTC P0003 (BMW DTC 4320): DELIVERY CONTROL VALVE, ACTIVATION: SHORT CIRCUIT TO GROUND

Information saved in

DDE

Fault code

4320 - P0003

Fault description
The DDE recognizes short circuit to ground error in the output stage:
Fuel-quantity control valve.

**Condition for fault identification**

**Test condition:**
The check frequency depends on the process sequence control.

**Voltage condition:**
The check frequency depends on the process sequence control.

**Condition for fault memory entry**

Debounce (100 ms)

**Action in service**

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   
   Replace fuel-quantity control valve.

**Fault effect and breakdown warning**

Proceed to the nearest BMW Service facility.

**Driver information**

**Warning light:**
MIL_SVS

**Service instruction**

none

**DTC P0301 (BMW DTC 4CE1): MISFIRE DETECTION, CYLINDER 1: NUMBER OF DETECTED MISFIRES TOO HIGH**

**Information saved in**

DDE

**Fault code**
4CE1 - P0301

Fault description

Ignition miss detection. If within a calculated number of engine crankshaft revolutions (numbered of processed blocks x number of revolutions per block): 45 x 15) at least 281 ignition miss events are counted and miss is detected at only one cylinder, then the diagnostic trouble code is logged.

Condition for fault identification

none

Condition for fault memory entry

- None.

Action in service

Check injector.

If injector is OK: Check injector wiring and plug connections for open circuit or short (possible additional diagnostic trouble codes logged?)

Fault effect and breakdown warning

-

Driver information

Warning light:

MIL

Service instruction

none

DTC P0305 (BMW DTC 4CE2): MISFIRE DETECTION, CYLINDER 5: NUMBER OF DETECTED MISFIRES TOO HIGH

Information saved in

DDE

Fault code

4CE2 - P0305
Fault description

Ignition miss detection. If within a calculated number of engine crankshaft revolutions (numbered of processed blocks x number of revolutions per block): 45 x 15) at least 281 ignition miss events are counted and miss is detected at only one cylinder, then the diagnostic trouble code is logged.

Condition for fault identification

none

Condition for fault memory entry

- None.

Action in service

Check injector.

If injector is OK: Check injector wiring and plug connections for open circuit or short (possible additional diagnostic trouble codes logged?)

Fault effect and breakdown warning

-

Driver information

Warning light:

MIL

Service instruction

none

DTC P0303 (BMW DTC 4CE3): MISFIRE DETECTION, CYLINDER 3: NUMBER OF DETECTED MISFIRES TOO HIGH

Information saved in

DDE

Fault code

4CE3 - P0303

Fault description
Ignition miss detection. If within a calculated number of engine crankshaft revolutions (numbered of processed blocks x number of revolutions per block): 45 x 15) at least 281 ignition miss events are counted and miss is detected at only one cylinder, then the diagnostic trouble code is logged.

**Condition for fault identification**

none

**Condition for fault memory entry**

- None.

**Action in service**

Check injector.

If injector is OK: Check injector wiring and plug connections for open circuit or short (possible additional diagnostic trouble codes logged?)

**Fault effect and breakdown warning**

-

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC P0306 (BMW DTC 4CE6): MISFIRE DETECTION, CYLINDER 6: NUMBER OF DETECTED MISFIRES TOO HIGH**

**Information saved in**

DDE

**Fault code**

4CE6 - P0306

**Fault description**

Ignition miss detection. If within a calculated number of engine crankshaft revolutions (numbered of processed blocks x number of revolutions per block): 45 x 15) at least 281 ignition miss events are counted and miss is
detected at only one cylinder, then the diagnostic trouble code is logged.

**Condition for fault identification**

none

**Condition for fault memory entry**

- None.

**Action in service**

Check injector.

If injector is OK: Check injector wiring and plug connections for open circuit or short (possible additional diagnostic trouble codes logged?)

**Fault effect and breakdown warning**

-

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC P0302 (BMW DTC 4CE7): MISFIRE DETECTION, CYLINDER 2: NUMBER OF DETECTED MISFIRES TOO HIGH**

**Information saved in**

DDE

**Fault code**

4CE7 - P0302

**Fault description**

Ignition miss detection. If within a calculated number of engine crankshaft revolutions (numbered of processed blocks x number of revolutions per block): 45 x 15) at least 281 ignition miss events are counted and miss is detected at only one cylinder, then the diagnostic trouble code is logged.
Condition for fault identification

none

Condition for fault memory entry

  o None.

Action in service

Check injector.

If injector is OK: Check injector wiring and plug connections for open circuit or short (possible additional diagnostic trouble codes logged?)

Fault effect and breakdown warning

-

Driver information

Warning light:

MIL

Service instruction

none

DTC P0304 (BMW DTC 4CE8): MISFIRE DETECTION, CYLINDER 4: NUMBER OF DETECTED MISFIRES TOO HIGH

Information saved in

DDE

Fault code

4CE8 - P0304

Fault description

Ignition miss detection. If within a calculated number of engine crankshaft revolutions (numbered of processed blocks x number of revolutions per block): 45 x 15) at least 281 ignition miss events are counted and miss is detected at only one cylinder, then the diagnostic trouble code is logged.

Condition for fault identification
Condition for fault memory entry

- None.

Action in service

Check injector.

If injector is OK: Check injector wiring and plug connections for open circuit or short (possible additional diagnostic trouble codes logged?)

Fault effect and breakdown warning

- 

Driver information

Warning light:

MIL

Service instruction

none

DTC P0300 (BMW DTC 4CF0): MISFIRE DETECTION IN SEVERAL CYLINDERS: NUMBER OF DETECTED MISFIRES TOO HIGH

Information saved in

DDE

Fault code

4CF0 - P0300

Fault description

Ignition miss detection on multiple cylinders. If within a calculated number of engine crankshaft revolutions (numbered of processed blocks x number of revolutions per block: 45 x 15) at least 281 ignition miss events are counted and miss is detected at more than one cylinder, then the diagnostic trouble code is logged.

Condition for fault identification

none
Condition for fault memory entry

- None.

Action in service

Check injectors.

If injectors are OK: Examine injector wiring and plug connections for open or short circuits (other diagnostic trouble codes logged in ECU?)

Fault effect and breakdown warning

- 

Driver information

Warning light:

MIL

Service instruction

none

DTC P2201 (BMW DTC 4976): NOX SENSOR BEFORE DENOX CAT', NOX PLAUSIBILITY

Information saved in

DDE

Fault code

4976 - P2201

Fault description

- 

Condition for fault identification

Test condition:

- 

Voltage condition:

-
Condition for fault memory entry

Event debounced (2000) -

Action in service

- 

Fault effect and breakdown warning

- 

Driver information

Warning light:

MIL

Service instruction

-

DTC P2201 (BMW DTC 496D): NOX SENSOR BEFORE DENOX CATALYTIC CONVERTER, NOX PLAUSIBILITY

Information saved in

DDE

Fault code

496D - P2201

Fault description

Monitoring of NOx offset learning function at NOx sensor 1 (before SCR). The error is recognized when the learned NOx offset value ppm falls below the limit -20 ppm.

Condition for fault identification

Test condition:

Continuous according to defined time grid when the offset test is enabled:

- Enabled in application 0== 0.
- The test is executed with a falling flank of.

and when the following conditions are satisfied:
The absolute difference between the maximum ppm and minimum ppm NOx offset value is less than 2 ppm.

- ppm is greater than 0 ppm.

- The averaged offset value ppm lies within the monitoring window -30 ppm and 30 ppm.

Voltage condition:

Continuous according to defined time grid when the offset test is enabled:

- Enabled in application 0== 0.

- The test is executed with a falling flank of.

and when the following conditions are satisfied:

- The absolute difference between the maximum ppm and minimum ppm NOx offset value is less than 2 ppm.

- ppm is greater than 0 ppm.

- The averaged offset value ppm lies within the monitoring window -30 ppm and 30 ppm.

Condition for fault memory entry

Debounce (2000 ms)

Action in service

- Fault effect and breakdown warning

- Driver information

Warning light:

MIL

Service instruction

- DTC P229F (BMW DTC 496C): NOX SENSOR AFTER DENOX CATALYTIC CONVERTER, PLAUSIBILITY NOX

Information saved in
DDE

Fault code

496C - P229F

Fault description

Monitoring of NOx offset learning function at NOx sensor 2 (behind SCR). The error is recognized when the learned NOx offset value ppm rises above the limit value 20 ppm.

Condition for fault identification

Test condition:

Continuous according to defined time grid when the offset test is enabled:

- Enabled in application 0== 0.
- The test is executed on a falling flank of.

and when the following conditions are satisfied:

- The absolute difference between the maximum ppm and minimum ppm NOx offset value is less than 2 ppm.
- ppm is greater than 0 ppm.
- The averaged offset value ppm lies within the monitoring window -30 ppm and 30 ppm.

Voltage condition:

Continuous according to defined time grid when the offset test is enabled:

- Enabled in application 0== 0.
- The test is executed on a falling flank of.

and when the following conditions are satisfied:

- The absolute difference between the maximum ppm and minimum ppm NOx offset value is less than 2 ppm.
- ppm is greater than 0 ppm.
- The averaged offset value ppm lies within the monitoring window -30 ppm and 30 ppm.

Condition for fault memory entry

Event debounced (1)

Action in service
1. Delete the DTC if the error frequency is 1.
2. Respond to multiple occurrences of this error by replacing the pre-SCR-cat NOx sensor.

Fault effect and breakdown warning

- 

Driver information

Warning light:

MIL

Service instruction

- 

DTC P229F (BMW DTC 496B): NOX SENSOR AFTER DENOX CATALYTIC CONVERTER,
PLAUSIBILITY NOX

Information saved in

DDE

Fault code

496B - P229F

Fault description

Monitoring of NOx offset learning function at NOx sensor 2 (behind SCR). The error is recognized when the learned NOx offset value ppm rises above the limit value 20 ppm.

Condition for fault identification

Test condition:

Continuous according to defined time grid when the offset test is enabled:

- Enabled in application 0== 0.
- The test is executed on a falling flank of.

and when the following conditions are satisfied:

- The absolute difference between the maximum ppm and minimum ppm NOx offset value is less than 2 ppm.
- ppm is greater than 0 ppm.
The averaged offset value ppm lies within the monitoring window -30 ppm and 30 ppm.

Voltage condition:

Continuous according to defined time grid when the offset test is enabled:

- Enabled in application 0== 0.
- The test is executed on a falling flank of.

and when the following conditions are satisfied:

- The absolute difference between the maximum ppm and minimum ppm NOx offset value is less than 2 ppm.
- ppm is greater than 0 ppm.
- The averaged offset value ppm lies within the monitoring window -30 ppm and 30 ppm.

Condition for fault memory entry

Event debounced (1)

Action in service

Determine whether multiple occurrences of the error are present. If the error occurs once then the DTC can simple be deleted. Respond to multiple occurrences by replacing the NOx sensor.

Fault effect and breakdown warning

- Driver information

Warning light:

MIL

Service instruction

- DTC P2201 (BMW DTC 4B6A): NITROGEN OXIDE SENSOR BEFORE SCR CATALYTIC CONVERTER, PLAUSIBILITY: NOX SIGNAL DYNAMICALLY TOO SLOW DURING TRACTION-OVERRUN TRANSITION

Information saved in

DDE
Fault code

4B6A - P2201

Fault description

Dynamic monitoring of NOx sensor before the SCR converter. The dynamic monitoring function evaluates the temporal progression of the NOx signal during the transition from acceleration to overrun. With an intact sensor the time constant should not be greater than 7 s.

Once trailing throttle/overrun is detected, the monitoring function proceeds through the following sequence:

A timer starts when the NOx concentration rises above the first threshold defined according to operating point, which corresponds to 30% of the anticipated drop in NOx concentration.

The timer stops when the NOx concentration rises above the second threshold defined according to operating point, representing 60% of the expected level of NOx concentration.

A sensor dynamics error is logged if the NOx sensor is unable to attain the second threshold value after 7 s elapses.

A sensor dynamics error is also logged when 9 s elapses without the second threshold value being exceeded.

Condition for fault identification

Test condition:

The test routine runs when the following conditions are satisfied:

  o Dynamic testing enabled.
  o The status of the NOx sensors is valid.
  o No diagnostic trouble codes have been logged for the NOx sensor and EGR.

Once these general conditions are satisfied the state machine function starts, provided that:

  o engine RPM is greater than 1650 1/min.
  o the injection quantity is greater than setpoint
  o the shift in the NOx concentration is greater than 80 ppm.

To ensure recognition of a valid load/overrun transition, the injection quantity must now, within a period of 2 s, fall to a value below the threshold 1 mg/hub.

Once compliance with these conditions is present a valid load/overrun transition is recognized and the monitoring function is enabled.

Voltage condition:
The test routine runs when the following conditions are satisfied:

- Dynamic testing enabled.
- The status of the NOx sensors is valid.
- No diagnostic trouble codes have been logged for the NOx sensor and EGR.

Once these general conditions are satisfied the state machine function starts, provided that:

- engine RPM is greater than 1650 1/min.
- the injection quantity is greater than setpoint.
- the shift in the NOx concentration is greater than 80 ppm.

To ensure recognition of a valid load/overrun transition, the injection quantity must now, within a period of 2 s, fall to a value below the threshold 1 mg/hub.

Once compliance with these conditions is present a valid load/overrun transition is recognized and the monitoring function is enabled.

**Condition for fault memory entry**

Event debounced (1)

**Action in service**

1. Delete the DTC if the error frequency is 1.
2. Respond to multiple occurrences of this error by replacing the pre-SCR-cat NOx sensor.

**Fault effect and breakdown warning**

- 

**Driver information**

Warning light:

MIL

**Service instruction**

- 

**DTC P124D (BMW DTC 4BF5): NITROGEN OXIDE SENSOR BEFORE SCR CATALYTIC CONVERTER, NOX SIGNAL: NOX SIGNAL INVALID FOR TOO LONG**

Information saved in

DDE
Fault code

4BF5 - P124D

Fault description

The NOx status signal from NOx sensor 1 (before SCR converter) reports an error: ==0.

This is the case when at least one of the following conditions is applicable:

- The debounced CAN status of the raw NOx sensor value is invalid ==0.
- There is an NOx signal error is disabled
- Lambda signal from NOx sensor 1 (before SCR converter) is not present, lean exhaust gas ==0.

Condition for fault identification

Test condition:

The error check runs when compliance with the following conditions is present (==1):

- A positive flank of the signal has been detected.
- This is a case of lean combustion == 1.
- The NOx sensor diagnosis is enabled ==1
- No plausibility or electrical error related to the NOx sensor has occurred is not disabled.
- Engine status ==RUNNING.

The error check proceeds continuously according to the programmed process grid.

Voltage condition:

The error check runs when compliance with the following conditions is present (==1):

- A positive flank of the signal has been detected.
- This is a case of lean combustion == 1.
- The NOx sensor diagnosis is enabled ==1
- No plausibility or electrical error related to the NOx sensor has occurred is not disabled.
- Engine status ==RUNNING.

The error check proceeds continuously according to the programmed process grid.

Condition for fault memory entry

Event debounced (10)

Action in service
1. Check wires and plug connections.
2. If wiring and plug connections are OK:
3. Check NOx sensor 1 (before SCR converter).

Fault effect and breakdown warning

- 

Driver information

Warning light:

MIL

Service instruction

Replace NOx sensor 1 (before SCR catalyst)

DTC P2201 (BMW DTC 46B4): NOX SENSOR BEFORE DENOX CAT., PLAUSIBILITY NOX: NOX SIGNAL OFFSET TOO HIGH AT TRAILING THROTTLE

Information saved in

DDE

Fault code

46B4 - P2201

Fault description

Monitoring of NOx signal offset value (NOx sensor 1 before SCR). The diagnostic trouble code is logged when the average offset value exceeds the limit of 30 ppm. The offset is calculated by averaging the pressure-compensated signal with the constant 1.

Condition for fault identification

Test condition:

The test routine is executed when the signal flank rises for a duration of 6 s. Within this time frame the absolute difference between the maximum and minimum NOx value must be less than 2 ppm. Once the diagnostic function is enabled the test routine is executed continuously in accordance with the defined process grid.

Voltage condition:

The test routine is executed when the signal flank rises for a duration of 6 s. Within this time frame the absolute difference between the maximum and minimum NOx value must be less than 2 ppm. Once the diagnostic
function is enabled the test routine is executed continuously in accordance with the defined process grid.

**Condition for fault memory entry**

Event debounced (1)

**Action in service**

Use SCR converter system check to analyze NOx sensor 1 (before SCR).

ID0004

ID0005

3. Replace NOx sensor 1 (before SCR).

**Fault effect and breakdown warning**

Proceed to the nearest BMW Service facility.

**Driver information**

Warning light:

MIL

**Service instruction**

Perform metering diagnosis if indicated.

**DTC P2201 (BMW DTC 46B9): NOX SENSOR BEFORE DENOX CAT., PLausibility NOX: NOX SIGNAL OFFSET TOO LOW**

**Information saved in**

DDE

**Fault code**

46B9 - P2201

**Fault description**

Monitoring of NOx signal offset value (NOx sensor 1 before SCR). The diagnostic trouble code is logged when the average offset falls below the limit of -30 ppm. The offset is calculated by averaging the pressure-compensated signal ppm with the constant 1.

**Condition for fault identification**
Test condition:

The test routine is executed when the signal flank rises for a duration of 6 s. Within this time frame the absolute difference between the maximum and minimum NOx value must be less than 2 ppm. Once the diagnostic function is enabled the test routine is executed continuously in accordance with the defined process grid.

Voltage condition:

The test routine is executed when the signal flank rises for a duration of 6 s. Within this time frame the absolute difference between the maximum and minimum NOx value must be less than 2 ppm. Once the diagnostic function is enabled the test routine is executed continuously in accordance with the defined process grid.

Condition for fault memory entry

Event debounced (1)

Action in service

Use SCR converter system check to analyze NOx sensor 1 (before SCR).

ID0004

ID0005

3. Replace NOx sensor 1 (before SCR).

Fault effect and breakdown warning

Proceed to the nearest BMW Service facility.

Driver information

Warning light:

MIL

Service instruction

- 

DTC P2209 (BMW DTC 4922): NITROGEN OXIDE SENSOR UPSTREAM OF SCR CATALYTIC CONVERTER

Information saved in

DDE

Fault code
Fault description

Timeout error in NOx heater temperature message for heater for NOx sensor before SCR converter.

A message failure is recognized when the sensor is not ready and no valid status signal is transmitted.

Condition for fault identification

Test condition:

The error is evaluated just once at the start of the driving cycle after the dew point has been reached and while the NOx sensor heater diagnosis is activated.

Voltage condition:

The error is evaluated just once at the start of the driving cycle after the dew point has been reached and while the NOx sensor heater diagnosis is activated.

Condition for fault memory entry

Event debounced (2)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
3. Replace NOx sensor 1 (before SCR converter).

Fault effect and breakdown warning

- 

Driver information

Warning light:

MIL

Service instruction

none

DTC P2203 (BMW DTC 4754): NITROGEN OXIDE SENSOR UPSTREAM OF SCR CATALYTIC CONVERTER, NOX RANGE: UPPER PHYSICAL LIMIT EXCEEDED

Information saved in
DDE

**Fault code**

4754 - P2203

**Fault description**

The diagnostic trouble code is logged when the physical NOx signal from NOx sensor 1 (before SRC catalyst) is greater than the limit value 1650 ppm.

**Condition for fault identification**

Test condition:

The test routine is executed when a valid NOx signal has been received.

Voltage condition:

The test routine is executed when a valid NOx signal has been received.

**Condition for fault memory entry**

Debounce (2000 ms)

**Action in service**

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   3. Replace NOx sensor 1 (on front side of SCR converter).

**Fault effect and breakdown warning**

-

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC P2202 (BMW DTC 4759): NITROGEN OXIDE SENSOR UPSTREAM OF SCR CATALYTIC CONVERTER, NOX RANGE: LOWER PHYSICAL LIMIT UNDERSHOT**
Information saved in

DDE

Fault code

4759 - P2202

Fault description

The diagnostic trouble code is logged when the physical NOx signal from NOx sensors 1 (before SCR cat) is less than the specified limit 1650 ppm.

Condition for fault identification

Test condition:

The test routine is executed when a valid NOx signal has been received.

Voltage condition:

The test routine is executed when a valid NOx signal has been received.

Condition for fault memory entry

Debounce (2000 ms)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
3. Replace NOx sensor 1 (on front side of SCR converter).

Fault effect and breakdown warning

-

Driver information

Warning light:

MIL

Service instruction

none

DTC P2200 (BMW DTC 475E): NITROGEN OXIDE SENSOR UPSTREAM OF SCR CATALYTIC
CONVERTER, LINE DISCONNECTION: OPEN CIRCUIT

Information saved in

DDE

Fault code

475E - P2200

Fault description

The error is recognized when NOx sensor 1 (before SCR converter) transmits a load drop error (linear, binary lambda value, NOx signal or heater circuit) via the CAN.

This is the case when at least one of the following error conditions has been recognized:

- NOx sensor wire open == 1
- Linear lambda wire open == 1
- Binary lambda wire open == 1
- Open wire in heater == 1

Condition for fault identification

Test condition:

The following conditions must be satisfied before the NOx sensor diagnosis function is enabled == 1

- Heater diagnosis enabled == 1
- NOx sensor heater temperature has reached specified temperature. == 1
- No electrical malfunctions have been detected is locked.

Voltage condition:

The following conditions must be satisfied before the NOx sensor diagnosis function is enabled == 1

- Heater diagnosis enabled == 1
- NOx sensor heater temperature has reached specified temperature. == 1
- No electrical malfunctions have been detected is locked.

Condition for fault memory entry

Debounce (2000 ms)

Action in service
1. Check wires and plug connections.
2. If wiring and plug connections are OK:
3. Replace NOx sensor 1 (on front side of SCR converter).

Fault effect and breakdown warning

Driver information

Warning light:

MIL

Service instruction

none

DTC P122C (BMW DTC 475F): NITROGEN OXIDE SENSOR UPSTREAM OF SCR CATALYTIC CONVERTER, LINE DISCONNECTION SHORT CIRCUIT TO GROUND: SHORT-CIRCUIT

Information saved in

DDE

Fault code

475F - P122C

Fault description

The error is recognized when NOx sensor 1 (before SCR converter) transmits a short circuit error (linear, binary lambda value, NOx signal or heater circuit) via the CAN.

This is the case when at least one of the following error conditions has been recognized:

- NOx sensor short circuit == 1
- Linear lambda short circuit == 1
- Binary lambda short circuit == 1
- Short circuit in heater == 1

Condition for fault identification

Test condition:

The following conditions must be satisfied before the NOx sensor diagnosis function is enabled == 1
○ Heater diagnosis enabled == 1
○ NOx sensor heater temperature has reached specified temperature. == 1
○ No electrical malfunctions have been detected is locked.

Voltage condition:

The following conditions must be satisfied before the NOx sensor diagnosis function is enabled == 1

○ Heater diagnosis enabled == 1
○ NOx sensor heater temperature has reached specified temperature. == 1
○ No electrical malfunctions have been detected is locked.

Condition for fault memory entry

Debounce (2000 ms)

Action in service

Replace wire (supply NOx sensor ECU or between NOx sensor ECU and NOx sensor)/check plug and/or replace NOx sensor 1 (before SCR converter).

Fault effect and breakdown warning

- 

Driver information

Warning light:

MIL

Service instruction

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
3. Replace NOx sensor 1 (on front side of SCR converter).

DTC P124F (BMW DTC 4BF0): NITROGEN OXIDE SENSOR AFTER SCR CATALYTIC CONVERTER, NOX SIGNAL: NOX SIGNAL INVALID FOR TOO LONG

Information saved in

DDE

Fault code
4BF0 - P124F

Fault description

The NOx status signal of the NOx sensors behind SCR converter reports a malfunction.

This is the case when at least one of the following conditions is applicable:

- The debounced CAN status of the raw NOx sensor value is invalid ==0.
- There is an NOx signal error is disabled
- Lambda signal from NOx sensor 2 (behind SCR converter) is not present, lean exhaust gas ==0.

Condition for fault identification

Test condition:

The error check runs when compliance with the following conditions is present (==1):

- A positive flank of the signal has been detected.
- This is a case of lean combustion == 1.
- The NOx sensor diagnosis is enabled ==1
- No plausibility or electrical error related to the NOx sensor has occurred is not disabled.
- Engine status ==RUNNING.

The error check proceeds continuously according to the programmed process grid.

Voltage condition:

The error check runs when compliance with the following conditions is present (==1):

- A positive flank of the signal has been detected.
- This is a case of lean combustion == 1.
- The NOx sensor diagnosis is enabled ==1
- No plausibility or electrical error related to the NOx sensor has occurred is not disabled.
- Engine status ==RUNNING.

The error check proceeds continuously according to the programmed process grid.

Condition for fault memory entry

Event debounced (10)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
3. Check NOx sensor 2 (behind SCR converter).

Fault effect and breakdown warning

- 

Driver information

Warning light:

MIL

Service instruction

Replace NOx sensor 2 (behind SCR catalyst).

DTC P229F (BMW DTC 4B3B): NITROGEN OXIDE SENSOR DOWNSTREAM OF SCR CATALYTIC CONVERTER, SHORT CIRCUIT TO B+

Information saved in

DDE

Fault code

4B3B - P229F

Fault description

The diagnostic trouble code is logged when the signal from the NOx sensors behind the SCR converter rises above the limit 2.

Condition for fault identification

Test condition:

The test routine is executed when a valid linear lambda signal has been received.

Voltage condition:

The test routine is executed when a valid linear lambda signal has been received.

Condition for fault memory entry

Debounce (2000 ms)

Action in service
1. Check wires and plug connections.
2. If wiring and plug connections are OK:
3. Replace NOx sensor 2 (behind SCR converter).

Fault effect and breakdown warning

Driver information

Warning light:
MIL

Service instruction

none

**DTC P229F (BMW DTC 4B3A): NITROGEN OXIDE SENSOR DOWNSTREAM OF SCR CATALYTIC CONVERTER, SHORT CIRCUIT TO GROUND**

Information saved in

DDE

Fault code

4B3A - P229F

Fault description

The diagnostic trouble code is logged when the signal from the NOs sensor behind the SCR converter falls below the limit 0.

Condition for fault identification

Test condition:

The test routine is executed when a valid linear lambda signal has been received.

Voltage condition:

The test routine is executed when a valid linear lambda signal has been received.

Condition for fault memory entry

Debounce (2000 ms)
Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:

   Replace NOx sensor 2 (behind SCR converter).

Fault effect and breakdown warning

-

Driver information

Warning light:

MIL

Service instruction

none

DTC P229F (BMW DTC 4724): NOX SENSOR AFTER DENOX CAT., PLAUSIBILITY LAMBDA: OXYGEN CONCENTRATION TOO HIGH WITH TRAILING THROTTLE

Information saved in

DDE

Fault code

4724 - P229F

Fault description

Plausibility check on NOx sensor 2 (behind SCR) lambda signal in coasting/overrun mode. The error is recognized when the lambda signal rises above the limit 0.

Condition for fault identification

Test condition:

The following conditions must be met before the error check can be active:

  o Sensor diagnosis is active: ==1.
  o No errors in the linear lambda signal have been reported is not locked.
  o The vehicle is in coasting/overrun mode == 1 for the period 5000 ms.
The error check proceeds continuously according to the programmed process grid.

Voltage condition:

The following conditions must be met before the error check can be active:

- Sensor diagnosis is active: ==1.
- No errors in the linear lambda signal have been reported is not locked.
- The vehicle is in coasting/overrun mode == 1 for the period 5000 ms.

The error check proceeds continuously according to the programmed process grid.

Condition for fault memory entry

Debounce (2000 ms)

Action in service

Replace NOx sensor 2 (behind SCR converter).

Fault effect and breakdown warning

- 

Driver information

Warning light:

MIL

Service instruction

Replace NOx sensor 2 (behind SCR converter).

DTC P229F (BMW DTC 4729): NOX SENSOR AFTER DENOX CAT., PLAUSIBILITY LAMBDA

Information saved in

DDE

Fault code

4729 - P229F

Fault description

Plausibility check on NOx sensor (sensor 2 behind SCR) lambda signal in coasting/overrun mode. If the lambda signal falls below the limit value 0 the error DFC_NoCat2DsLamPlausMin is recognized.
Condition for fault identification

Test condition:

The following conditions must be met before the error check can be active: Sensor diagnosis is active: ==TRUE. No errors related to the linear lambda signal are reported DINH_stFId.Fld_NoCat2DsOvrRunPlaus.5==FALSE The vehicle is in coasting/overrun mode (==TRUE) for the period 5000 ms The error check proceeds continuously in the defined process grid provided that diagnosis has been enabled.

Voltage condition:

The following conditions must be met before the error check can be active: Sensor diagnosis is active: ==TRUE. No errors related to the linear lambda signal are reported DINH_stFId.Fld_NoCat2DsOvrRunPlaus.5==FALSE The vehicle is in coasting/overrun mode (==TRUE) for the period 5000 ms The error check proceeds continuously in the defined process grid provided that diagnosis has been enabled.

Condition for fault memory entry

Debounce (2000 ms)

Action in service

Check of NOx sensor.

Fault effect and breakdown warning

Driver information

Warning light:

MIL

Service instruction

none

DTC P229F (BMW DTC 46A4): NOX SENSOR AFTER DENOX CAT., PLASIBILITY NOX: NOX SIGNAL OFFSET TOO HIGH AT TRAILING THROTTLE

Information saved in

DDE

Fault code
Fault description

Monitoring of NOx signal offset value (NOx sensor 2 behind SCR). The diagnostic trouble code is logged when the average offset value exceeds the limit of 30 ppm. The offset is calculated by averaging the pressure-compensated signal with the constant 1.

Condition for fault identification

Test condition:

The test routine is executed when the signal flank rises for a duration of Exh_tiNOxOfsTstVldNoCat2Ds. Within this time frame the absolute difference between the maximum and minimum NOx value must be less than 2 ppm. Once the diagnostic function is enabled the test routine is executed continuously in accordance with the defined process grid.

Voltage condition:

The test routine is executed when the signal flank rises for a duration of Exh_tiNOxOfsTstVldNoCat2Ds. Within this time frame the absolute difference between the maximum and minimum NOx value must be less than 2 ppm. Once the diagnostic function is enabled the test routine is executed continuously in accordance with the defined process grid.

Condition for fault memory entry

Event debounced (1)

Action in service

Use SCR converter system check to analyze NOx sensor 2 (behind SCR converter).

ID0004

ID0005

3. Replace NOx sensor 2 (behind SCR converter).

Fault effect and breakdown warning

Proceed to the nearest BMW Service facility.

Driver information

Warning light:

MIL
Service instruction

Perform metering diagnosis if indicated.

**DTC P229F (BMW DTC 46A9): NOX SENSOR AFTER DENOX CAT., PLAUSIBILITY NOX: NOX SIGNAL OFFSET TOO LOW**

Information saved in

DDE

Fault code

46A9 - P229F

Fault description

Monitoring of NOx signal offset value (NOx sensor 2 behind SCR). The diagnostic trouble code is logged when the average offset falls below the limit of -30 ppm. The offset is calculated by averaging the pressure-compensated signal with the constant 1.

**Condition for fault identification**

Test condition:

The test routine is executed when the signal flank rises for a duration of Exh_tiNOxOfsTstVldNoCat2Ds. Within this time frame the absolute difference between the maximum and minimum NOx value must be less than 2 ppm. Once the diagnostic function is enabled the test routine is executed continuously in accordance with the defined process grid.

Voltage condition:

The test routine is executed when the signal flank rises for a duration of Exh_tiNOxOfsTstVldNoCat2Ds. Within this time frame the absolute difference between the maximum and minimum NOx value must be less than 2 ppm. Once the diagnostic function is enabled the test routine is executed continuously in accordance with the defined process grid.

**Condition for fault memory entry**

Event debounced (1)

**Action in service**

Use SCR converter system check to analyze NOx sensor 2 (behind SCR converter).

ID0004

ID0005
3. Replace NOx sensor 2 (behind SCR converter).

Fault effect and breakdown warning

Proceed to the nearest BMW Service facility.

Driver information

Warning light:

MIL

Service instruction

-

DTC P22A7 (BMW DTC 4926): NITROGEN OXIDE SENSOR DOWNSTREAM OF SCR CATALYTIC CONVERTER

Information saved in

DDE

Fault code

4926 - P22A7

Fault description

Monitoring NOx signal ready status of NOx sensor behind SCR converter.

The diagnostic trouble code is logged when the NOx sensor is ready and does not transmit any valid NOx status information for at least 10000 ms.

Condition for fault identification

Test condition:

The error is evaluated just once at the start of the driving cycle after the dew point has been reached and while the NOx sensor heater diagnosis is activated.

Voltage condition:

The error is evaluated just once at the start of the driving cycle after the dew point has been reached and while the NOx sensor heater diagnosis is activated.

Condition for fault memory entry
Event debounced (2)

**Action in service**

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
3. Replace NOx sensor 2 (behind SCR converter).

**Fault effect and breakdown warning**

- 

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC P22A1 (BMW DTC 472E): NOX SENSOR AFTER DENOX CAT., RANGE NOX: UPPER PHYSICAL LIMIT EXCEEDED**

Information saved in

DDE

**Fault code**

472E - P22A1

**Fault description**

The diagnostic trouble code is logged when the physical NOx signal from NOx sensor 2 (behind SCR catalyst) is greater than the limit 1650 ppm.

**Condition for fault identification**

Test condition:

The test routine is executed when a valid NOx signal has been received.

Voltage condition:

The test routine is executed when a valid NOx signal has been received.
Condition for fault memory entry

Debounce (2000 ms)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
3. Replace NOx sensor 2 (behind SCR converter).

Fault effect and breakdown warning

-

Driver information

Warning light:

MIL

Service instruction

none

**DTC P22A0 (BMW DTC 472F): NOX SENSOR AFTER DENOX CAT., RANGE NOX: LOWER PHYSICAL LIMIT UNDERSHOT**

Information saved in

DDE

Fault code

472F - P22A0

Fault description

The diagnostic trouble code is logged when the physical NOx signal from NOx sensor 2 (behind SCR converter) is less than the limit 1650 ppm.

Condition for fault identification

Test condition:

The test routine is executed when a valid NOx signal has been received.

Voltage condition:
The test routine is executed when a valid NOx signal has been received.

**Condition for fault memory entry**

Debounce (2000 ms)

**Action in service**

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
3. Replace NOx sensor 2 (behind SCR converter).

**Fault effect and breakdown warning**

- 

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC P229E (BMW DTC 4744V): NITROGEN OXIDE SENSOR DOWNSTREAM OF SCR CATALYTIC CONVERTER, LINE DISCONNECTION SHORT CIRCUIT TO B+: OPEN CIRCUIT**

**Information saved in**

DDE

**Fault code**

4744 - P229E

**Fault description**

The error is recognized when NOx sensor 2 (behind SCR converter) transmits a load drop error (linear, binary lambda value, NOx signal or heater circuit) on the CAN.

This is the case when at least one of the following error conditions has been recognized:

- NOx sensor wire open == 1
- Linear lambda wire open == 1
- Binary lambda wire open == 1
Open wire in heater == 1

Condition for fault identification

Test condition:

The following conditions must be satisfied before the NOx sensor diagnosis function is enabled == 1

- Heater diagnosis enabled == 1
- NOx sensor heater temperature has reached specified temperature. == 1
- No electrical malfunctions have been detected is locked.

Voltage condition:

The following conditions must be satisfied before the NOx sensor diagnosis function is enabled == 1

- Heater diagnosis enabled == 1
- NOx sensor heater temperature has reached specified temperature. == 1
- No electrical malfunctions have been detected is locked.

Condition for fault memory entry

Debounce (2000 ms)

Action in service

1. Check wiring and plug-in connections (power supply to NOx sensor control module and NOx sensor).
2. Replace NOx sensor 2 (behind SCR converter).

Fault effect and breakdown warning

Driver information

Warning light:

MIL

Service instruction

none

DTC P122D (BMW DTC 4749): NITROGEN OXIDE SENSOR DOWNSTREAM OF SCR CATALYTIC CONVERTER, LINE DISCONNECTION SHORT CIRCUIT TO GROUND: SHORT-CIRCUIT
Information saved in
DDE

Fault code
4749 - P122D

Fault description
The error is recognized when NOx sensor 2 (behind SCR converter) transmits a short circuit error (linear, binary lambda value, NOx signal or heater circuit) on the CAN.

This is the case when at least one of the following error conditions has been recognized:

- NOx sensor short circuit == 1
- Linear lambda short circuit == 1
- Binary lambda short circuit == 1
- Short circuit in heater == 1

Condition for fault identification

Test condition:
The following conditions must be satisfied before the NOx sensor diagnosis function is enabled == 1

- Heater diagnosis enabled == 1
- NOx sensor heater temperature has reached specified temperature. == 1
- No electrical malfunctions have been detected is locked.

Voltage condition:
The following conditions must be satisfied before the NOx sensor diagnosis function is enabled == 1

- Heater diagnosis enabled == 1
- NOx sensor heater temperature has reached specified temperature. == 1
- No electrical malfunctions have been detected is locked.

Condition for fault memory entry

Debounce (2000 ms)

Action in service

1. Check wiring and plug-in connections (power supply to NOx sensor control module and NOx sensor).
2. Replace NOx sensor 2 (behind SCR converter).
Fault effect and breakdown warning

Driver information

Warning light:

MIL

Service instruction

none

DTC P14A3 (BMW DTC 4D03): EXHAUST BACKPRESSURE SENSOR: SENSOR DRIFT OUTSIDE TOLERANCE

Information saved in

DDE

Fault code

4D03 - P14A3

Fault description

Exhaust backpressure offset monitor.

If the differential between ambient barometric pressure and the pressure before the particulate filter exceeds 32767 mbar, or the absolute value of the adapted raw pressure value is greater than 30 mbar the DTC is entered.

Condition for fault identification

Test condition:

The error check is performed when:

- Following engine stationary, with ECU in shutdown phase and following completion of waiting time 4 s for the period 10 s.

Voltage condition:

The error check is performed when:

- Following engine stationary, with ECU in shutdown phase and following completion of waiting time 4 s for the period 10 s.
Condition for fault memory entry

Debounce (2000 ms)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:

   Replace exhaust-gas backpressure sensor.

Fault effect and breakdown warning

- 

Driver information

Warning light:

MIL

Service instruction

none

DTC P0420 (BMW DTC 4B91): OXIDATION CATALYTIC CONVERTER, PLAUSIBILITY: HYDROCARBON CONVERSION RATE DURING EXOTHERMIC REACTION TOO LOW

Information saved in

DDE

Fault code

4B91 - P0420

Fault description

Monitoring of the oxidation catalyst in warm-up mode. The DTC is logged when the calculated conversion rate lies below the limit value 0.

Condition for fault identification

Test condition:

The monitoring routine executes when the following conditions are satisfied:

- No other DTCs are logged.
The oxidation catalyst's surface temperature is above the minimum limit value 120 °C.

The oxidation catalyst surface temperature's gradient is above the minimum limit value.

Engine running.

The quantity of fuel consumed since the last particulate filter regeneration is below the threshold 328 l.

Temperature model is sufficiently precise: Difference between the measured and modeled temperatures behind the oxidation catalyst is less than 500 °C.

No calculation of HC conversion rate and no monitoring have taken place in this driving cycle.

Mass flow rate lies above the threshold 0 kg/h.

Conditions for aborting the process: The test is executed provided that none of the following conditions lead to mandatory cancellation:

Enable conditions are satisfied.

Warm-up mode active for less than maximum threshold (maximum threshold between 20 sec. at 0 °C and 300 sec. at 200 °C and above). The time is reset when the HC conversion-rate calculation is not enabled or when a change in operating mode affecting assessment of the HC conversion rate is detected.

Trigger condition: The diagnostic routine executes one time only after the following conditions are satisfied:

Cumulative exhaust-gas mass flow rate during the monitoring is less than setpoint. Generation of a cumulative current exhaust-gas mass flow rate continues for as long as monitoring remains enabled.

Trigger:

Cumulative HC quantity during the oxidation catalyst's warm-up phase is above 2 g. Generation of a cumulative current exhaust-gas mass flow rate continues for as long as the HC conversion rate calculation remains enabled.

Oxidation catalyst's surface temperature lies above -3550 °C.

Once all conditions are satisfied the error is checked one time with the positive flank.

Voltage condition:

The monitoring routine executes when the following conditions are satisfied:

No other DTCs are logged.

The oxidation catalyst's surface temperature is above the minimum limit value 120 °C.

The oxidation catalyst surface temperature's gradient is above the minimum limit value.

Engine running.

The quantity of fuel consumed since the last particulate filter regeneration is below the threshold 328 l.

Temperature model is sufficiently precise: Difference between the measured and modeled temperatures behind the oxidation catalyst is less than 500 °C.

No calculation of HC conversion rate and no monitoring have taken place in this driving cycle.
Mass flow rate lies above the threshold 0 kg/h.

Conditions for aborting the process: The test is executed provided that none of the following conditions lead to mandatory cancellation:

- Enable conditions are satisfied.
- Warm-up mode active for less than maximum threshold (maximum threshold between 20 sec. at 0 °C and 300 sec. at 200 °C and above). The time is reset when the HC conversion-rate calculation is not enabled or when a change in operating mode affecting assessment of the HC conversion rate is detected.

Trigger condition: The diagnostic routine executes one time only after the following conditions are satisfied:

- Cumulative exhaust-gas mass flow rate during the monitoring is less than setpoint. Generation of a cumulative current exhaust-gas mass flow rate continues for as long as monitoring remains enabled.

Trigger:

- Cumulative HC quantity during the oxidation catalyst's warm-up phase is above 2 g. Generation of a cumulative current exhaust-gas mass flow rate continues for as long as the HC conversion rate calculation remains enabled.
- Oxidation catalyst's surface temperature lies above -3550 °C.

Once all conditions are satisfied the error is checked one time with the positive flank.

Condition for fault memory entry

Event debounced (1)

Action in service

Replace oxidation catalyst/particulate filter.

Fault effect and breakdown warning

-

Driver information

Warning light:

MIL

Service instruction

none

DTC P02CB (BMW DTC 429A): BOOST-PRESSURE CONTROL, LOW-PRESSURE STAGE,
CONTROL DEVIATION: CHARGE-AIR PRESSURE TOO LOW/POSITIVE CONTROL DEVIATION

Information saved in

DDE

Fault code

429A - P02CB

Fault description

Monitoring of low-pressure boost pressure control. A positive control deviation (boost pressure too low) is recognized when the low-pressure boost-control deviation is greater than a limit defined according to the instantaneous operational status.

The limit for monitoring the control deviation is determined using a program map and is based on engine speed and injection quantity or internal torque.

Condition for fault identification

Test condition:

Monitoring for persistent control deviation is implemented when the engine is in operating range 3 or 4 and the low-pressure boost-pressure control is active.

- Operating range 3 is active when the injection quantity exceeds 22 mg/hub and the engine speed is greater than 2500 1/min.
- Operating range 4 is active when the injection quantity exceeds 35 mg/hub and the engine speed is greater than 4000 1/min.

When compliance with the above conditions is present, the error is checked continuously once the debounce time has elapsed.

Voltage condition:

Monitoring for persistent control deviation is implemented when the engine is in operating range 3 or 4 and the low-pressure boost-pressure control is active.

- Operating range 3 is active when the injection quantity exceeds 22 mg/hub and the engine speed is greater than 2500 1/min.
- Operating range 4 is active when the injection quantity exceeds 35 mg/hub and the engine speed is greater than 4000 1/min.

When compliance with the above conditions is present, the error is checked continuously once the debounce time has elapsed.
Condition for fault memory entry

Debounce (6000 ms)

Action in service

1. Check mass airflow system behind large compressor for leaks.
2. Check throttle valve for malfunctions.
3. Check EGR valve for malfunctions.
4. Check boost pressure actuator for faults.
5. Check exhaust system for flow obstructions and leaks (gasket between the turbines and the exhaust manifold).
6. Check compressor bypass valve for faults and sticking.
7. Check turbine control flap for faults and tight sealing when closed.
8. Check wastegate valve for malfunctions and to ensure that it seals when closed.

Fault effect and breakdown warning

The error disables regeneration in the particulate filter.

Proceed to the nearest BMW Service facility.

Driver information

Warning light:

MIL_SVS

Service instruction

Check diagnostic trouble codes for the named components.

**DTC P02CA (BMW DTC 428B): BOOST-PRESSURE CONTROL, LOW-PRESSURE STAGE, CONTROL DEVIATION: CHARGE-AIR PRESSURE TOO HIGH/NEGATIVE CONTROL DEVIATION**

Information saved in

DDE

Fault code

428B - P02CA

Fault description
Monitoring of low-pressure boost pressure control. A negative control deviation (boost pressure too high) is recognized when the low-pressure boost-control deviation is less than a limit defined according to the instantaneous operational status.

The limit for monitoring the control deviation is determined using a program map and is based on engine speed and injection quantity or internal torque.

**Condition for fault identification**

Test condition:

Monitoring for persistent control deviation is implemented when the engine is in operating range 3 or 4 and the low-pressure boost-pressure control is active.

- Operating range 3 is active when the injection quantity exceeds 22 mg/hub and the engine speed is greater than 2500 1/min.
- Operating range 4 is active when the injection quantity exceeds 35 mg/hub and the engine speed is greater than 4000 1/min.

When compliance with the above conditions is present, the error is checked continuously once the debounce time has elapsed.

Voltage condition:

Monitoring for persistent control deviation is implemented when the engine is in operating range 3 or 4 and the low-pressure boost-pressure control is active.

- Operating range 3 is active when the injection quantity exceeds 22 mg/hub and the engine speed is greater than 2500 1/min.
- Operating range 4 is active when the injection quantity exceeds 35 mg/hub and the engine speed is greater than 4000 1/min.

When compliance with the above conditions is present, the error is checked continuously once the debounce time has elapsed.

**Condition for fault memory entry**

Debounce (3000 ms)

**Action in service**

1. Check mass airflow system for leaks.
2. Check boost pressure sensor.
3. Check operation of the following components and inspect for tampering:
   - Turbine control flap.
   - Wastegate valve (can seize in closed position).
Fault effect and breakdown warning

Active torque reduction.

Do not drive at WOT/full throttle, component hazard possible.

The error disables regeneration in the particulate filter.

Proceed to the nearest BMW Service facility.

Driver information

Warning light:

MIL_SVS

Service instruction

- Check for diagnostic trouble codes for the named components.

**DTC P0299 (BMW DTC 4530): CHARGING PRESSURE CONTROL, HIGH-PRESSURE STAGE, CONTROL DEVIATION: CHARGING PRESSURE TOO LOW/POSITIVE CONTROL DEVIATION: CHARGE-AIR PRESSURE TOO LOW/POSITIVE CONTROL DEVIATION**

Information saved in

DDE

Fault code

4530 - P0299

Fault description

Boost-pressure control monitoring. A positive control deviation (boost pressure too low) is recognized when the boost-control deviation is greater than a limit defined based on instantaneous operational status.

The upper limit for monitoring the boost-pressure control deviation is derived from a program map, depends on engine RPM and injection quantity, and lies at roughly 450 hPa.

Condition for fault identification

Test condition:

Monitoring for persistent control deviation is implemented when the engine is in operating range 3 or 4.

- Operating range 3 is active when the injection quantity exceeds 10 mg/hub and the engine speed is greater than 1400 1/min.
Operating range 4 is active when the injection quantity exceeds 100 mg/hub and the engine speed is greater than 6000 1/min.

Voltage condition:

Monitoring for persistent control deviation is implemented when the engine is in operating range 3 or 4.

- Operating range 3 is active when the injection quantity exceeds 10 mg/hub and the engine speed is greater than 1400 1/min.
- Operating range 4 is active when the injection quantity exceeds 100 mg/hub and the engine speed is greater than 6000 1/min.

Condition for fault memory entry

Debounce (7000 ms)

Action in service

Engine with single-stage boost:

1. Check air-induction system for leaks.
2. Inspect exhaust system on engine side of turbine for leaks.
3. Check throttle valve.
4. Perform mass airflow system test.

Engine with multi-stage boost:

1. Check air-induction system for leaks.
2. Inspect exhaust system on engine side of turbines for leaks. Note: An internal exhaust leak at the joint between the large turbine and exhaust manifold is possible (at sealing ring for turbine control flap).
3. Check throttle valve (DTCs logged in error memory).
4. Check turbine control flap.
5. Check boost pressure actuator's high-pressure stage.
6. Check turbocharger high-pressure stage for damage to compressor and turbine blades.
7. Check wastegate valve.

Fault effect and breakdown warning

The error disables regeneration in the particulate filter.

Proceed to the nearest BMW Service facility.

Driver information

Warning light:
MIL

Service instruction

Check diagnostic trouble codes for the named components.

**NOTE:** On the F01 with N57D30T0 manufactured up to February, 2010 the vacuum actuators for the turbine control flap may display the following damage with the passage of time:

- Leaking vacuum diaphragm.
- Linkage separates from the vacuum actuator.

In this case the vacuum actuator must be replaced.

DTC P0234 (BMW DTC 4521): CHARGING PRESSURE CONTROL, HIGH-PRESSURE STAGE, CONTROL DEVIAION: CHARGING PRESSURE TOO HIGH/NEGATIVE CONTROL DEVIATION: CHARGE-AIR PRESSURE TOO HIGH/NEGATIVE CONTROL DEVIATION

Information saved in

DDE

Fault code

4521 - P0234

Fault description

Boost-pressure control monitoring. A negative control deviation (boost pressure too high) is recognized when the boost-control deviation is below the lower limit.

The lower limit for monitoring the boost-pressure control deviation is derived from a program map, depends on engine RPM and injection quantity, and lies at roughly -200 hPa.

Condition for fault identification

Test condition:

Monitoring for persistent control deviation is implemented when the engine is in operating range 3 or 4.

- Operating range 3 is active when the injection quantity exceeds 10 mg/hub and the engine speed is greater than 1400 1/min.
- Operating range 4 is active when the injection quantity exceeds 100 mg/hub and the engine speed is greater than 6000 1/min.

Voltage condition:
Monitoring for persistent control deviation is implemented when the engine is in operating range 3 or 4.

- Operating range 3 is active when the injection quantity exceeds 10 mg/hub and the engine speed is greater than 1400 1/min.
- Operating range 4 is active when the injection quantity exceeds 100 mg/hub and the engine speed is greater than 6000 1/min.

**Condition for fault memory entry**

Debounce (4000 ms)

**Action in service**

Engine with single-stage boost:

1. Check air-induction system for leaks.
2. Check boost pressure actuator for signs of tampering.
3. Perform mass airflow system test.

Engine with multi-stage boost:

1. Check air-induction system for leaks.
2. Check turbine control flap (tampering).
3. Check boost pressure actuator high-pressure stage (tampering).

**Fault effect and breakdown warning**

Active torque reduction.

Do not drive at WOT/full throttle, component hazard possible.

The error disables regeneration in the particulate filter.

Proceed to the nearest BMW Service facility.

**Driver information**

Warning light:

MIL_SVS

**Service instruction**

Check diagnostic trouble codes for the named components.

**DTC P0090 (BMW DTC 4330): RAIL-PRESSURE CONTROL VALVE, ACTIVATION: OPEN**
CIRCUIT

Information saved in
DDE

Fault code
4330 - P0090

Fault description
The DDE recognizes an open circuit error in the output stage for the rail pressure control valve.

Condition for fault identification
Test condition:
The check frequency depends on the process sequence control.

Voltage condition:
The check frequency depends on the process sequence control.

Condition for fault memory entry
Debounce (100 ms)

Action in service
1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   Replace rail pressure control valve.

Fault effect and breakdown warning
Proceed to the nearest BMW Service facility.

Driver information
Warning light:
MIL

Service instruction
none
DTC P0092 (BMW DTC 4340): RAIL-PRESSURE CONTROL VALVE, ACTIVATION: SHORT CIRCUIT TO POSITIVE

Information saved in

DDE

Fault code

4340 - P0092

Fault description

The DDE recognizes a short circuit to positive error in the output stage:

Rail-pressure control valve.

Condition for fault identification

Test condition:

The check frequency depends on the process sequence control.

Voltage condition:

The check frequency depends on the process sequence control.

Condition for fault memory entry

Debounce (100 ms)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:

   Replace rail pressure control valve.

Fault effect and breakdown warning

Proceed to the nearest BMW Service facility.

Driver information

Warning light:

MIL
Service instruction
none

**DTC P0091 (BMW DTC 4350): RAIL-PRESSURE CONTROL VALVE, ACTIVATION: SHORT CIRCUIT TO GROUND**

Information saved in
DDE

**Fault code**
4350 - P0091

**Fault description**
The hardware recognizes a short to ground error in the output stage:
Rail-pressure control valve.

**Condition for fault identification**
Test condition:
The check frequency depends on the process sequence control.

Voltage condition:
The check frequency depends on the process sequence control.

**Condition for fault memory entry**
Debounce (50 ms)

**Action in service**
1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   Replace rail pressure control valve.

**Fault effect and breakdown warning**
Proceed to the nearest BMW Service facility.

**Driver information**
Warning light:

MIL

Service instruction

none

**DTC P228F (BMW DTC 4C4E): RAIL-PRESSURE CONTROL VALVE, ADAPTATION: ADAPTATION VALUE TOO HIGH**

Information saved in

DDE

**Fault code**

4C4E - P228F

**Fault description**

If the learned adaptation factor for the rail pressure control valve is greater than or equal to the upper limit 1 the diagnostic trouble code is logged. This means that the system has drifted and the learned value has reached the maximum limit.

**Condition for fault identification**

Test condition:

The adaptation factor is calculated only one time in each driving cycle. The rail pressure control system must be operating in closed-loop pressure control mode.

Voltage condition:

The adaptation factor is calculated only one time in each driving cycle. The rail pressure control system must be operating in closed-loop pressure control mode.

**Condition for fault memory entry**

No debouncing. None.

**Action in service**

Replace rail pressure control valve.

**Fault effect and breakdown warning**

Proceed to the nearest BMW Service facility.
Driver information

Warning light:

MIL

Service instruction

none

DTC P228E (BMW DTC 4C4F): RAIL-PRESSURE CONTROL VALVE, ADAPTATION: ADAPTATION VALUE TOO LOW

Information saved in

DDE

Fault code

4C4F - P228E

Fault description

If the learned adaptation factor for the rail pressure control valve is less than or equal to the lower limit 1 a diagnostic trouble code is logged. This means that the system has drifted and the learned value has reached the minimum limit.

Condition for fault identification

Test condition:

The adaptation factor is calculated only one time in each driving cycle. The rail pressure control system must be operating in closed-loop pressure control mode.

Voltage condition:

The adaptation factor is calculated only one time in each driving cycle. The rail pressure control system must be operating in closed-loop pressure control mode.

Condition for fault memory entry

No debouncing. None.

Action in service

Replace rail pressure control valve.

Fault effect and breakdown warning
Proceed to the nearest BMW Service facility.

Driver information

Warning light:

MIL

Service instruction

none

DTC P321E (BMW DTC 48E1): AMBIENT PRESSURE SENSOR (INSTALLED IN DDE CONTROL UNIT), PLAUSIBILITY: AMBIENT PRESSURE TOO HIGH (NOT PLAUSIBLE IN RELATION TO PRESSURE BEFORE TURBOCHARGER AND CHARGE-AIR PRESSURE)

Information saved in

DDE

Fault code

48E1 - P321E

Fault description

Plausibilities of ambient pressure sensor with exhaust-gas pressure and boost pressure.

The diagnostic trouble code is logged when the difference between the ambient barometric pressure and the average of boost pressure and exhaust-gas pressure is above the limit 130 mbar and these reference pressures are roughly equal (difference less than 150 mbar).

Condition for fault identification

Test condition:

The plausibility test runs when one of the valid operating ranges is active:

Engine in standby mode: Status transition from wake-up for at least 0 s.

Terminal 15 on:

- Terminal 15 on for at least 400 ms.
- Engine RPM lower than 0 1/min.

Engine in start phase:

- Engine speed between 16384 1/min and 16384 1/min.
Terminal 50 active.

During extended idling phase and with low particulate filter content:

- Engine running.
- Operating range valid for at least 200 ms.
- Engine speed between 10 l/min and 10 l/min.
- Injection quantity lies between 0 mg/Hub and 328 mg/Hub.
- Throttle valve value less than 100 %.
- Maximum value for particulate filter load quantity less than 0 g.
- Period since last regeneration greater than 200 s.
- Vehicle speed less than 10 km/h.

Engine is in shutdown phase for at least 2500 ms.

Voltage condition:
The plausibility test runs when one of the valid operating ranges is active:

Engine in standby mode: Status transition from wake-up for at least 0 s.

Terminal 15 on:

- Terminal 15 on for at least 400 ms.
- Engine RPM lower than 0 l/min.

Engine in start phase:

- Engine speed between 16384 l/min and 16384 l/min.
- Terminal 50 active.

During extended idling phase and with low particulate filter content:

- Engine running.
- Operating range valid for at least 200 ms.
- Engine speed between 10 l/min and 10 l/min.
- Injection quantity lies between 0 mg/Hub and 328 mg/Hub.
- Throttle valve value less than 100 %.
- Maximum value for particulate filter load quantity less than 0 g.
- Period since last regeneration greater than 200 s.
- Vehicle speed less than 10 km/h.

Engine is in shutdown phase for at least 2500 ms.
Condition for fault memory entry

Debounce (500 ms)

Action in service

Replace DDE control module.

Fault effect and breakdown warning

Proceed to the nearest BMW Service facility.

Driver information

Warning light:

MIL

Service instruction

none

DTC P321F (BMW DTC 48E0): AMBIENT PRESSURE SENSOR (INSTALLED IN DDE CONTROL UNIT), PLAUSIBILITY: AMBIENT PRESSURE TOO LOW (NOT PLAUSIBLE IN RELATION TO PRESSURE BEFORE TURBOCHARGER AND CHARGE-AIR PRESSURE)

Information saved in

DDE

Fault code

48E0 - P321F

Fault description

Under certain operating conditions (start, shutdown, specific operating points) the pressures from ambient barometric pressure sensor, exhaust-gas backpressure sensor and boost-pressure sensor are checked for mutual plausibility. If the ambient pressure is farther than -130 mbar from the other two pressures and if their difference is less than 150 mbar the ambient pressure sensor is registered as defective.

Condition for fault identification

Test condition:

The plausibility test runs when one of the valid operating ranges is active:

Engine in standby mode: Status transition from wake-up for at least 0 s.
Terminal 15 on:
- Terminal 15 on for at least 400 ms.
- Engine RPM lower than 0 l/min.

Engine in start phase:
- Engine RPM lies between 16384 l/min and 16384 l/min.
- Terminal 50 active.

During extended idling phase and with low particulate filter content:
- Engine running.
- Operating range is valid for at least 200 ms.
- Engine speed lies between 10 l/min and 10 l/min.
- Injection quantity lies between 0 mg/Hub and 328 mg/Hub.
- Throttle valve value less than 100 %.
- Maximum value for particulate filter load quantity less than 0 g.
- Period since last particulate filter regeneration greater than 200 s.
- Vehicle speed less than 10 km/h.

Engine is in shutdown phase for at least 2500 ms.

Voltage condition:

The plausibility test runs when one of the valid operating ranges is active:

Engine in standby mode: Status transition from wake-up for at least 0 s.

Terminal 15 on:
- Terminal 15 on for at least 400 ms.
- Engine RPM lower than 0 l/min.

Engine in start phase:
- Engine RPM lies between 16384 l/min and 16384 l/min.
- Terminal 50 active.

During extended idling phase and with low particulate filter content:
- Engine running.
- Operating range is valid for at least 200 ms.
- Engine speed lies between 10 l/min and 10 l/min.
Injection quantity lies between 0 mg/Hub and 328 mg/Hub.
Throttle valve value less than 100 %.
Maximum value for particulate filter load quantity less than 0 g.
Period since last particulate filter regeneration greater than 200 s.
Vehicle speed less than 10 km/h.

Engine is in shutdown phase for at least 2500 ms.

**Condition for fault memory entry**
Debounce (500 ms)

**Action in service**
Replace DDE control module.

**Fault effect and breakdown warning**
Proceed to the nearest BMW Service facility.

**Driver information**
Warning light:
MIL

**Service instruction**
none

**DTC P0069 (BMW DTC 48DD): CHARGING PRESSURE SENSOR, PLAUSIBILITY: CHARGE-AIR PRESSURE TOO HIGH (NOT PLAUSIBLE IN RELATION TO PRESSURE BEFORE TURBOCHARGER AND AMBIENT PRESSURE)**

**Information saved in**
DDE

**Fault code**
48DD - P0069

**Fault description**
Under certain operating conditions (start, shutdown, specific operating points) the barometric pressure sensor, exhaust-gas backpressure sensor and boost-pressure sensor are cross-checked for mutual plausibility. The DTC is logged when the boost pressure differs from the other two pressures by more than 130 mbar and their
difference is less than 150 mbar.

Condition for fault identification

Test condition:
- 

Voltage condition:
- 

Condition for fault memory entry

Debounce (500 ms)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   Replace boost-pressure sensor.

Fault effect and breakdown warning

Proceed to the nearest BMW Service facility.

Driver information

Warning light:
MIL

Service instruction

none

DTC P0069 (BMW DTC 48DC): BOOST PRESSURE SENSOR, PLAUSIBILITY: CHARGE-AIR PRESSURE TOO LOW (NOT PLAUSIBLE IN RELATION TO PRESSURE BEFORE TURBOCHARGER AND AMBIENT PRESSURE)

Information saved in
DDE

Fault code

48DC - P0069
Fault description

Under certain operating conditions (start, shutdown, specific operating points) the barometric pressure sensor, exhaust-gas backpressure sensor and boost-pressure sensor are cross-checked for mutual plausibility. The DTC is logged when the boost pressure differs from the other two pressures by more than -130 mbar and their difference is less than 150 mbar.

Condition for fault identification

Test condition:

- 

Voltage condition:

- 

Condition for fault memory entry

Debounce (500 ms)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:

   Replace boost-pressure sensor.

Fault effect and breakdown warning

Proceed to the nearest BMW Service facility.

Driver information

Warning light:

MIL

Service instruction

none

DTC P2002 (BMW DTC 4C5E): PARTICULATE FILTER SYSTEM: MINIMUM DIFFERENTIAL PRESSURE UNDERSHOT

Information saved in

DDE
Fault code

4C5E - P2002

Fault description

To monitor the particulate filter the measured differential pressure is compared with a threshold. If the differential pressure is below this threshold then a removed filter or substantial damage is detected. The monitoring limit is stored in the program map where it is defined based on the volumetric flow rate and the continuously simulated soot mass in the particulate filter. The monitoring function thus makes it possible to detect damage when the filter is empty and to assess operational plausibility by monitoring the progressive increase in the pressure differential that accompanies higher loads and greater accumulations of carbon deposits.

Condition for fault identification

Test condition:

The error check is run on a continuous basis in a 100 ms grid whenever the following conditions are satisfied:

- Active regeneration in progress.
- The volumetric flow rate is above 700 m^3/h.

Voltage condition:

The error check is run on a continuous basis in a 100 ms grid whenever the following conditions are satisfied:

- Active regeneration in progress.
- The volumetric flow rate is above 700 m^3/h.

Condition for fault memory entry

Debounce (2500 ms)

E90-M57D30T2-AT-LEVII:

Debounce (4000 ms)

Action in service

1. Inspect to determine whether filter could be removed (carbon accumulation at tailpipe tip).
2. If soot is present on the end of the tailpipe and the end of the filter then the filter is defective.
3. If no soot is present on the end of the filter and at the tailpipe tip but the diagnostic trouble code has still been logged: Hose to differential-pressure sensor has fallen off or the sensor is defective (in which case a diagnostic trouble code for the differential-pressure sensor would also be logged).

Fault effect and breakdown warning
Proceed to the nearest BMW Service facility.

Driver information

Warning light:

MIL

Service instruction

If the differential-pressure sensor is defective then a diagnostic trouble code for the differential-pressure sensor would also be stored.

**DTC P14A6 (BMW DTC 4D99): PARTICULATE FILTER SYSTEM: MINIMUM DIFFERENTIAL PRESSURE AFTER REGENERATION UNDERSHOT**

Information saved in

DDE

Fault code

4D99 - P14A6

Fault description

The diagnostic trouble code is logged when the stored maximum value for differential pressure after correction with the current differential pressure offset is less than a threshold based on operating point.

The threshold is calculated based on a characteristic curve using the volumetric flow rate of the exhaust gas and is equal to roughly 4 hPa.

Condition for fault identification

Test condition:

The following conditions must be met for the error check:

- The maximum volumetric flow rate in the current driving cycle must lie above the threshold 350 m³/h.
- The current differential pressure offset must be completely calculated in the shutdown phase.
- The diagnostic trouble code 25C800 and 4D03 must be completely tested and should not be active.

Voltage condition:

The following conditions must be met for the error check:

- The maximum volumetric flow rate in the current driving cycle must lie above the threshold 350 m³/h.
- The current differential pressure offset must be completely calculated in the shutdown phase.
- The diagnostic trouble code 25C800 and 4D03 must be completely tested and should not be active.

**Condition for fault memory entry**

Debounce (1000 ms)

**Action in service**

- 

**Fault effect and breakdown warning**

- 

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC P2002 (BMW DTC 4B9C): PARTICULATE-FILTER SYSTEM, PLAUSIBILITY: PARTICULATE-FILTER EFFICIENCY TOO LOW**

**Information saved in**

DDE

**Fault code**

4B9C - P2002

**Fault description**

Monitoring of particulate filter efficiency. When the value for measured soot mass is lower than the limit value 0 g the diagnostic trouble code is logged.

**Condition for fault identification**

Test condition:

The error check runs when the simulated soot mass rises above the limit value 0 g.

**Voltage condition:**
The error check runs when the simulated soot mass rises above the limit value 0 g.

**Condition for fault memory entry**

- None.

**Action in service**

1. Inspect to determine whether filter could be removed (carbon accumulation at tailpipe tip).
2. If soot is present on the end of the tailpipe and the end of the filter then the filter is defective.
3. If no soot is visible in these places, but the diagnostic trouble code is still logged, the hose may have separated from the differential-pressure sensor or the differential-pressure sensor may be defective (in which case a diagnostic trouble code would also have to be logged for the differential-pressure sensor).

**Fault effect and breakdown warning**

Proceed to the nearest BMW Service facility.

**Driver information**

Warning light:

KEINE

**Service instruction**

If the differential-pressure sensor is defective then a diagnostic trouble code for the differential-pressure sensor would also be stored.

**DTC P2459 (BMW DTC 4C63): PARTICULATE FILTER SYSTEM: EXCESSIVELY FREQUENT ENGINE-PROTECTION REGENERATIONS**

**Information saved in**

DDE

**Fault code**

4C63 - P2459

**Fault description**

The diagnostic trouble code is logged when the DDE recognizes that particulate filter regeneration to protect the engine has been activated too often.

**Condition for fault identification**

Test condition:
When the engine is running the error check runs in a 100 ms grid on a continuous basis.

Voltage condition:

When the engine is running the error check runs in a 100 ms grid on a continuous basis.

**Condition for fault memory entry**

Debounce (100 ms)

**Action in service**

1. Check oil level and oil change intervals.
2. Conduct exhaust-gas backpressure test to allow assessment of particulate filter condition.
3. Test of swirl valves/throttle valve using activation and visual inspection.
4. Check mass-airflow sensor (the error can occur if the HFM is measuring too much air).
5. Perform mass airflow system test (on engines with single-stage boost).
6. If swirl valves, throttle valve and mass-airflow sensor are OK:

   Request/conduct service regeneration if customer engages in short-distance driving.

**Fault effect and breakdown warning**

-

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC P14A7 (BMW DTC 481A): PARTICULATE-FILTER SYSTEM: PARTICULATE FILTER HEAVILY CLOGGED (EXHAUST-GAS BACK-PRESSURE ABOVE MAXIMUM)**

**Information saved in**

DDE

**Fault code**

481A - P14A7

**Fault description**
Particulate filter overload detection. The monitoring function detects the error as follows:

1. The error is detected when the differential pressure rises above a specific threshold.
   
   The threshold is calculated from a program map and uses the parameters RPM and injection quantity.

2. The error is recognized when the flow resistance rises above a threshold. The threshold is calculated from a program map and uses the parameters RPM and injection quantity.

**NOTE:** Because excessive soot accumulation within the particulate filter can lead to overheating during thermal regeneration, when this fault occurs the regeneration process is deactivated once the soot mass reaches a certain level.

Condition for fault identification

Test condition:

Continuous, for enable conditions see defect and self-healing description

Voltage condition:

Continuous, for enable conditions see defect and self-healing description

**Condition for fault memory entry**

Debounce (20000 ms)

**Action in service**

1. Check oil level and change intervals, correct oil level or perform oil change as indicated.
2. Check swirl valves.
3. Check exhaust backpressure.
4. Check particulate filter (visual inspection of end pipe and ceramic filter element).
5. Conduct regeneration (possible only during steady-state operation lasting at least 30 minutes. The appropriate service function must be employed to trigger regeneration when this error is present).

**Fault effect and breakdown warning**

Proceed to the nearest BMW Service facility.

**Driver information**

Warning light:

MIL

**Service instruction**
After replacing the particulate filter carry out the corresponding service function!

**DTC P0471 (BMW DTC 48D1): EXHAUST BACKPRESSURE SENSOR BEFORE TURBINE, PLAUSIBILITY: PRESSURE BEFORE TURBOCHARGER TOO HIGH (NOT PLAUSIBLE IN RELATION TO CHARGE-AIR PRESSURE AND AMBIENT PRESSURE)**

**Information saved in**

DDE

**Fault code**

48D1 - P0471

**Fault description**

Plausibilities of exhaust-gas pressure sensor with boost-pressure sensor and ambient pressure sensor.

If the difference between the exhaust-gas pressure and the average of ambient pressure and pressure on the downstream side of the intercooler lies above the limit value and if these reference pressures are approximately equal, then - provided that the operating point is valid - the exhaust-gas pressure sensor is registered as defective and the diagnostic trouble code is logged.

**Condition for fault identification**

Test condition:

Terminal 15 on and engine stationary for at least 400 ms.

Voltage condition:

Terminal 15 on and engine stationary for at least 400 ms.

**Condition for fault memory entry**

Debounce (500 ms)

**Action in service**

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   
   Replace exhaust-gas pressure sensor.

**Fault effect and breakdown warning**

Proceed to the nearest BMW Service facility.
Driver information

Warning light:

MIL

Service instruction

IMPORTANT: If additional diagnostic trouble codes related to the engine have been logged (boost pressure hose fallen off, mass airflow control deviation, defect in air-induction system) then these should receive priority attention, because this fault can also occur as a collateral error!

DTC P0471 (BMW DTC 48D0): EXHAUST BACKPRESSURE SENSOR BEFORE TURBINE, PLAUSIBILITY: PRESSURE BEFORE TURBOCHARGER TOO LOW (NOT PLAUSIBLE IN RELATION TO CHARGE-AIR PRESSURE AND AMBIENT PRESSURE)

Information saved in

DDE

Fault code

48D0 - P0471

Fault description

Plausibilities of exhaust-gas pressure sensor with boost-pressure sensor and ambient pressure sensor.

If the difference between the exhaust-gas pressure and the average of ambient pressure and pressure on the downstream side of the intercooler lies below the limit value and if these reference pressures are approximately equal, then - provided that the operating point is valid - the exhaust-gas pressure sensor is registered as defective and the diagnostic trouble code is logged.

Condition for fault identification

Test condition:

Terminal 15 on and engine stationary for at least 400 ms.

Voltage condition:

Terminal 15 on and engine stationary for at least 400 ms.

Condition for fault memory entry

Debounce (500 ms)
Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   Replace exhaust-gas pressure sensor.

Fault effect and breakdown warning

Driver information

Warning light:
MIL

Service instruction

**IMPORTANT:** If additional diagnostic trouble codes related to the engine have been logged (boost pressure hose fallen off, mass airflow control deviation, defect in air-induction system) then these should receive priority attention, because this fault can also occur as a collateral error!

DTC P2458 (BMW DTC 4B93): PARTICULATE-FILTER SYSTEM: REGENERATION INCOMPLETE

Information saved in
DDE
Fault code
4B93 - P2458
Fault description
Monitoring for incomplete regeneration. The diagnostic trouble code is logged when the measured soot mass rises above a limit value. The limit value is calculated based on the simulated soot mass and a characteristic curve.

Condition for fault identification

Test condition:

The test routine runs when the following conditions are satisfied:

- Volumetric flow rate of exhaust gas is greater than 120 m^3/h.
Particulate filter temperature is less than 450 °C.
- The particulate filter load accumulation is determined based on measurement of differential pressure and not on simulation.
- Regeneration has been successfully concluded and the limit value has not yet been reached.

The error check runs with event debounce.

Voltage condition:

The test routine runs when the following conditions are satisfied:
- Volumetric flow rate of exhaust gas is greater than 120 m^3/h.
- Particulate filter temperature is less than 450 °C.
- The particulate filter load accumulation is determined based on measurement of differential pressure and not on simulation.
- Regeneration has been successfully concluded and the limit value has not yet been reached.

The error check runs with event debounce.

**Condition for fault memory entry**

Event debounced (1)

**Action in service**

Check particulate filter (aging, defect).

**Fault effect and breakdown warning**

Torque limitation, power reduction.

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC P0238 (BMW DTC 433A): CHARGE-AIR PRESSURE SENSOR, RANGE: UPPER PHYSICAL LIMIT EXCEEDED**

Information saved in
Fault code
433A - P0238

Fault description
Physical monitoring of boost-pressure sensor. The diagnostic trouble code is logged when the physical sensor signal for boost pressure rises above the limit value 3300 mbar.

Condition for fault identification
Test condition:
The monitoring routine is executed only provided that no electrical errors have been logged.

Voltage condition:
The monitoring routine is executed only provided that no electrical errors have been logged.

Condition for fault memory entry
Debounce (2000 ms)

Action in service
1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   Replace boost-pressure sensor.

Fault effect and breakdown warning
Proceed to the nearest BMW Service facility.
Component hazard possible, avoid WOT/full throttle operation.

Driver information
Warning light:
MIL

Service instruction
none
DTC P0237 (BMW DTC 433B): CHARGE-AIR PRESSURE SENSOR, RANGE: LOWER PHYSICAL LIMIT UNDERSHOT

Information saved in

DDE

Fault code

433B - P0237

Fault description

Physical monitoring of boost-pressure sensor. The diagnostic trouble code is logged when the physical sensor signal for the boost-pressure sensor falls below the limit value 200 mbar.

Condition for fault identification

Test condition:

The monitoring routine is executed only provided that no electrical errors have been logged.

Voltage condition:

The monitoring routine is executed only provided that no electrical errors have been logged.

Condition for fault memory entry

Debounce (2000 ms)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:

   Replace boost-pressure sensor.

Fault effect and breakdown warning

Proceed to the nearest BMW Service facility.

Component hazard possible, avoid WOT/full throttle operation.

Driver information

Warning light:

MIL
Service instruction

none

**DTC P0238 (BMW DTC 3F00): BOOST-PRESSURE SENSOR, SIGNAL: SHORT CIRCUIT TO POSITIVE**

Information saved in

DDE

**Fault code**

3F00 - P0238

**Fault description**

Boost-pressure sensor monitoring function. The diagnostic trouble code is logged when the raw sensor signal (voltage) exceeds the specified upper limit 4950 mV.

**Condition for fault identification**

Test condition:

The monitoring function is only implemented when no sensor power-supply problem is present. The check frequency depends on the process sequence control.

Voltage condition:

The monitoring function is only implemented when no sensor power-supply problem is present. The check frequency depends on the process sequence control.

**Condition for fault memory entry**

Debounce (600 ms)

**Action in service**

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   
   Replace boost-pressure sensor.

**Fault effect and breakdown warning**

Power reduction.

The error disables regeneration in the particulate filter.
Proceed to the nearest BMW Service facility.

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC P0237 (BMW DTC 3F01): BOOST-PRESSURE SENSOR, SIGNAL: OPEN OR SHORT CIRCUIT TO GROUND**

**Information saved in**

DDE

**Fault code**

3F01 - P0237

**Fault description**

Boost-pressure sensor monitoring function. The diagnostic trouble code is logged when the raw sensor signal (voltage) is less than the specified lower limit 70 mV.

**Condition for fault identification**

Test condition:

The monitoring function is only implemented when no sensor power-supply problem is present. The check frequency depends on the process sequence control.

Voltage condition:

The monitoring function is only implemented when no sensor power-supply problem is present. The check frequency depends on the process sequence control.

**Condition for fault memory entry**

Debounce (600 ms)

**Action in service**

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
Replace boost-pressure sensor.

**Fault effect and breakdown warning**

Power reduction.

The error disables regeneration in the particulate filter.

Proceed to the nearest BMW Service facility.

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC P0473 (BMW DTC 4D96): EXHAUST-GAS PRESSURE SENSOR BEFORE TURBOCHARGER, RANGE: UPPER PHYSICAL LIMIT EXCEEDED**

Information saved in

DDE

**Fault code**

4D96 - P0473

**Fault description**

If the physical sensor signal for pre-turbocharger exhaust-gas pressure exceeds the limit value 4900 mbar the diagnostic trouble code is logged.

**Condition for fault identification**

Test condition:

The monitoring routine is executed only provided that no electrical errors have been logged.

Voltage condition:

The monitoring routine is executed only provided that no electrical errors have been logged.

**Condition for fault memory entry**
Debounce (2000 ms)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:

   Replace exhaust-gas pressure sensor before turbocharger.

Fault effect and breakdown warning

Proceed to the nearest BMW Service facility.

Component hazard possible, avoid WOT/full throttle operation.

Driver information

Warning light:

MIL

Service instruction

none

**DTC P0472 (BMW DTC 4D97): EXHAUST-GAS PRESSURE SENSOR BEFORE TURBOCHARGER, RANGE: LOWER PHYSICAL LIMIT UNDERSHOT**

Information saved in

DDE

Fault code

4D97 - P0472

Fault description

The diagnostic trouble code is logged when the physical sensor signal for pre-turbocharger exhaust-gas pressure falls below the limit value 610 mbar.

Condition for fault identification

Test condition:

The monitoring routine is executed only provided that no electrical errors have been logged.

Voltage condition:
The monitoring routine is executed only provided that no electrical errors have been logged.

**Condition for fault memory entry**

Debounce (2000 ms)

**Action in service**

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   
   Replace exhaust-gas pressure sensor before turbocharger.

**Fault effect and breakdown warning**

-

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC P0087 (BMW DTC 4560): RAIL-PRESSURE PLAUSIBILITY DELIVERY-CONTROLLED: POSITIVE CONTROL DEVIATION/RAIL PRESSURE TOO LOW**

**Information saved in**

DDE

**Fault code**

4560 - P0087

**Fault description**

Monitoring for positive control deviation (rail pressure too low) while rail pressure is being regulated by fuel-quantity control valve.

The error is recognized when the positive control deviation is greater than the limit defined by the operating point.

The limit is calculated based on engine RPM and lies between 170 bar and 200 bar.
Condition for fault identification

Test condition:

The test routine runs only when the following conditions are satisfied:

- Rail-pressure control from fuel-quantity control valve is active.
- Monitoring is enabled.

Voltage condition:

The test routine runs only when the following conditions are satisfied:

- Rail-pressure control from fuel-quantity control valve is active.
- Monitoring is enabled.

Condition for fault memory entry

Debounce (900 ms)

Action in service

Check the following potential problem sources:

- Fuel presupply pressure (low-pressure delivery circuit) is too low (filter obstructed, leak in low-pressure circuit).
- Rail-pressure sensor indicates incorrect value.
- Leakage in high-pressure circuit.
- Injector is sticking open.
- Worn high-pressure pump.
- Worn injector.
- Internal leakage in common rail system.
- External leakage in common rail system.
- Air in common rail system.

Investigate potential problem sources, conduct rail-pressure control system test.

Fault effect and breakdown warning

Output governed.

Proceed to the nearest BMW Service facility.

Driver information
Warning light:

MIL_SVS

Service instruction

none

**DTC P0088 (BMW DTC 4580): RAIL-PRESSURE PLAUSIBILITY DELIVERY-CONTROLLED: RAIL PRESSURE TOO HIGH WITH MAXIMUM ACTIVATION, DELIVERY CONTROL VALVE (RA NEGATIVE)**

**Information saved in**

DDE

**Fault code**

4580 - P0088

**Fault description**

Monitoring for negative control deviation (rail pressure too high) when fuel-quantity control valve regulates rail pressure at delivery rate of zero.

The diagnostic trouble code is logged when the negative control deviation is less than the limit defined by the operating point and the volumetric flow rate defined for the fuel-quantity control valve is less than or equal to the limit -1650 mm^3/s.

The limit defined by operating point is calculated based on engine RPM and lies at roughly -300 bar.

**Condition for fault identification**

**Test condition:**

The test routine runs only when the following conditions are satisfied:

- Rail-pressure control from fuel-quantity control valve is active.
- The injection quantity must exceed 4 mg/hub.
- The fuel temperature must be greater than -40 °C.

**Voltage condition:**

The test routine runs only when the following conditions are satisfied:

- Rail-pressure control from fuel-quantity control valve is active.
- The injection quantity must exceed 4 mg/hub.
The fuel temperature must be greater than -40 °C.

Condition for fault memory entry

Debounce (2000 ms)

Action in service

Check the following potential problem sources:

- Possible faults in fuel pre-supply system: pre-supply pressure is too high.
- Fuel-quantity control valve sticking in open position.
- Fuel-quantity control valve has no power owing to electrical malfunction.

Investigate potential problem sources, conduct rail-pressure control system test.

Fault effect and breakdown warning

Output governed.

Proceed to the nearest BMW Service facility.

Driver information

Warning light:

MIL_SVS

Service instruction

none

DTC P0087 (BMW DTC 4590): RAIL-PRESSURE PLAUSIBILITY DELIVERY-CONTROLLED: MINIMUM PRESSURE UNDERSHOT

Information saved in

DDE

Fault code

4590 - P0087

Fault description

Monitoring minimum rail pressure with fuel-quantity control valve regulating fuel rail pressure.
The DTC is logged when the monitored rail pressure is less than the limit value calibrated against flow quantity of zero.

The limit is calculated based on engine RPM and lies between 120 bar and 140 bar.

**Condition for fault identification**

Test condition:

The test routine runs only when the following conditions are satisfied:

- Rail-pressure control from fuel-quantity control valve is active.
- Monitoring is enabled.

Voltage condition:

The test routine runs only when the following conditions are satisfied:

- Rail-pressure control from fuel-quantity control valve is active.
- Monitoring is enabled.

**Condition for fault memory entry**

Debounce (300 ms)

**Action in service**

Check the following potential problem sources:

- Fuel presupply pressure (low-pressure delivery circuit) is too low (filter obstructed, leak in low-pressure circuit).
- Rail-pressure sensor indicates incorrect value.
- Leakage in high-pressure circuit.
- Injector is sticking open.
- Worn high-pressure pump.
- Worn injector.
- Internal leakage in common rail system.
- External leakage in common rail system.
- Air in common rail system.

Investigate potential problem sources, conduct rail-pressure control system test.

**Fault effect and breakdown warning**

Output governed.
Proceed to the nearest BMW Service facility.

Driver information

Warning light:

MIL_SVS

Service instruction

none

DTC P0088 (BMW DTC 45A0): RAIL-PRESSURE PLAUSIBILITY DELIVERY-CONTROLLED: MAXIMUM PRESSURE EXCEEDED

Information saved in

DDE

Fault code

45A0 - P0088

Fault description

Monitoring maximum rail pressure with fuel-quantity control valve regulating fuel rail pressure. The diagnostic trouble code is logged when the monitored rail pressure is higher than the limit 1750 bar.

Condition for fault identification

Test condition:

The test routine runs only when the following conditions are satisfied:

- Rail-pressure control from fuel-quantity control valve is active.
- Monitoring is enabled.

Voltage condition:

The test routine runs only when the following conditions are satisfied:

- Rail-pressure control from fuel-quantity control valve is active.
- Monitoring is enabled.

Condition for fault memory entry

Debounce (240 ms)
Action in service

Check the following potential problem sources:

- Possible faults in fuel pre-supply system: pre-supply pressure is too high.
- Fuel-quantity control valve sticking in open position.
- Fuel-quantity control valve has no power owing to electrical malfunction.

Investigate potential problem sources, conduct rail-pressure control system test.

Fault effect and breakdown warning

Output governed.

Proceed to the nearest BMW Service facility.

Driver information

Warning light:

MIL_SVS

Service instruction

none

DTC P0087 (BMW DTC 4600): RAIL-PRESSURE PLAUSIBILITY PRESSURE-CONTROLLED: POSITIVE CONTROL DEVIATION/RAIL PRESSURE TOO LOW

Information saved in

DDE

Fault code

4600 - P0087

Fault description

Monitoring for positive control deviation (rail pressure too low) while rail pressure is being regulated by rail-pressure control valve. The diagnostic trouble code is logged when the positive control deviation is greater than the limit defined by the operating point.

The limit is calculated based on engine RPM and lies between 170 bar and 250 bar.

Condition for fault identification

Test condition:
The test routine runs only when the following conditions are satisfied:

- Rail pressure control with rail-pressure control valve, or rail pressure control with rail-pressure control valve and fuel-quantity control valve.
- Monitoring is enabled.

**Voltage condition:**

The test routine runs only when the following conditions are satisfied:

- Rail pressure control with rail-pressure control valve, or rail pressure control with rail-pressure control valve and fuel-quantity control valve.
- Monitoring is enabled.

**Condition for fault memory entry**

Debounce (800 ms)

**Action in service**

Check the following potential problem sources:

- Fuel presupply pressure (low-pressure delivery circuit) is too low (filter obstructed, leak in low-pressure circuit).
- Rail-pressure sensor indicates incorrect value.
- Leakage in high-pressure circuit.
- Injector is sticking open.
- Worn high-pressure pump.
- Worn injector.
- Leak in rail-pressure control valve.
- Internal leakage in common rail system.
- External leakage in common rail system.
- Air in common rail system.

Investigate potential problem sources, conduct rail-pressure control system test.

**Fault effect and breakdown warning**

Output governed.

Proceed to the nearest BMW Service facility.

**Driver information**

Warning light:
MIL_SVS

Service instruction

none

DTC P0088 (BMW DTC 4620): RAIL-PRESSURE PLAUSIBILITY PRESSURE-CONTROLLED:
RAIL PRESSURE TOO HIGH/NEGATIVE CONTROL DEVIATION WITH MINIMUM
ACTIVATION, PRESSURE CONTROL VALVE

Information saved in

DDE

Fault code

4620 - P0088

Fault description

Monitoring for negative control deviation (rail pressure too high) and excessively low rail-pressure control-valve control variable with rail pressure control from rail-pressure control valve.

The diagnostic trouble code is logged when the negative control deviation falls below the limit -250 bar and when the control variable is less than or equal to the limit 20 bar.

Condition for fault identification

Test condition:

The test routine runs only when the following conditions are satisfied:

- Rail pressure control with rail-pressure control valve, or rail pressure control with rail-pressure control valve and fuel-quantity control valve.
- Monitoring is enabled.

Voltage condition:

The test routine runs only when the following conditions are satisfied:

- Rail pressure control with rail-pressure control valve, or rail pressure control with rail-pressure control valve and fuel-quantity control valve.
- Monitoring is enabled.

Condition for fault memory entry

Debounce (2000 ms)
Action in service

Check the following potential problem sources:

- Rail-pressure control valve sticking shut.
- Electrical malfunction results in continuous power to the rail-pressure control valve.
- Filter screen in rail-pressure control valve is obstructed.

Investigate potential problem sources, conduct rail-pressure control system test.

Fault effect and breakdown warning

Proceed to the nearest BMW Service facility.

Driver information

Warning light:

MIL_SVS

Service instruction

none

DTC P0087 (BMW DTC 4630): RAIL-PRESSURE PLAUSIBILITY PRESSURE-CONTROLLED: MINIMUM PRESSURE UNDERSHOT

Information saved in

DDE

Fault code

4630 - P0087

Fault description

Monitoring minimum rail pressure with rail-pressure control valve regulating fuel rail pressure. The DTC is logged when the monitored rail pressure is less than the limit value calibrated against flow quantity of zero.

The limit is calculated based on engine RPM and is 120 bar.

Condition for fault identification

Test condition:

The test routine runs only when the following conditions are satisfied:
Rail pressure control with rail-pressure control valve, or rail pressure control with rail-pressure control valve and fuel-quantity control valve.

Monitoring is enabled.

Voltage condition:

The test routine runs only when the following conditions are satisfied:

- Rail pressure control with rail-pressure control valve, or rail pressure control with rail-pressure control valve and fuel-quantity control valve.
- Monitoring is enabled.

Condition for fault memory entry

Debounce (300 ms)

Action in service

Check the following potential problem sources:

- Fuel presupply pressure (low-pressure delivery circuit) is too low (filter obstructed, leak in low-pressure circuit).
- Rail-pressure sensor indicates incorrect value.
- Leakage in high-pressure circuit.
- Injector is sticking open.
- Worn high-pressure pump.
- Worn injector.
- Leak in rail-pressure control valve.
- Internal leakage in common rail system.
- External leakage in common rail system.
- Air in common rail system.

Investigate potential problem sources, conduct rail-pressure control system test.

Fault effect and breakdown warning

Attempt to restart the engine after a terminal power-status switch.

Proceed to the nearest BMW Service facility.

Driver information

Warning light:

MIL_SVS
Service instruction

none

**DTC P0088 (BMW DTC 4640): RAIL-PRESSURE PLASIBILITY PRESSURE-CONTROLLED: MAXIMUM PRESSURE EXCEEDED**

Information saved in

DDE

**Fault code**

4640 - P0088

**Fault description**

Monitoring maximum rail pressure with rail-pressure control valve regulating fuel rail pressure. The diagnostic trouble code is logged when the monitored rail pressure is higher than the limit 1750 bar.

**Condition for fault identification**

Test condition:

The test routine runs only when the following conditions are satisfied:

- Rail pressure control with rail-pressure control valve, or rail pressure control with rail-pressure control valve and fuel-quantity control valve.
- Monitoring is enabled.

Voltage condition:

The test routine runs only when the following conditions are satisfied:

- Rail pressure control with rail-pressure control valve, or rail pressure control with rail-pressure control valve and fuel-quantity control valve.
- Monitoring is enabled.

**Condition for fault memory entry**

Debounce (240 ms)

**Action in service**

Check the following potential problem sources:

- Rail-pressure control valve sticking shut.
Electrical malfunction results in continuous power to the rail-pressure control valve.
Filter screen in rail-pressure control valve is obstructed.

Investigate potential problem sources, conduct rail-pressure control system test.

**Fault effect and breakdown warning**

Output governed.
Proceed to the nearest BMW Service facility.

**Driver information**

Warning light:
MIL_SVS

**Service instruction**

none

**DTC P3000 (BMW DTC 3F40): RAIL PRESSURE SENSOR, OFFSET TEST: OFFSET MAXIMUM EXCEEDED**

**Information saved in**

DDE

**Fault code**

3F40 - P3000

**Fault description**

Rail-pressure sensor offset test monitoring function. If the raw value for rail pressure (voltage) remains, for the period of 30 ms during engine start, above the threshold 648 mV or for the period 100 ms at shutdown it remains above the threshold 648 mV the offset in the positive direction is too large and the DTC is logged.

**Condition for fault identification**

Test condition:

The test routine is executed according to the programmed time grid.

The error check is performed when the following conditions are active:

- No electrical diagnostic trouble codes logged.
Engine is in post-operational shutdown phase.

Voltage condition:

The test routine is executed according to the programmed time grid.

The error check is performed when the following conditions are active:

- No electrical diagnostic trouble codes logged.
- Engine is in post-operational shutdown phase.

**Condition for fault memory entry**

- At start: 30 ms

In post-operational shutdown phase: 100 ms

**Action in service**

1. Check wires and plug connections.
   
   Check connections for corrosion!

2. If wiring and plug connections are OK:
   
   Replace rail-pressure sensor.

**Fault effect and breakdown warning**

Proceed to the nearest BMW Service facility.

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC P3001 (BMW DTC 3F41): RAIL PRESSURE SENSOR, OFFSET TEST: OFFSET MINIMUM UNDERSHOT**

Information saved in

DDE
Fault code

3F41 - P3001

Fault description

Rail-pressure sensor offset test monitoring function. If the raw value for rail pressure remains, for the period of 30 ms during engine start, below the threshold 391 mV, or for the period 100 ms at shutdown it remains below the threshold 391 mV the offset in the negative direction is too large and the DTC is logged.

Condition for fault identification

Test condition:

The test routine is executed according to the programmed time grid.

The error check is performed when the following conditions are active:

- No electrical diagnostic trouble codes logged.
- Engine is in post-operational shutdown phase.

Voltage condition:

The test routine is executed according to the programmed time grid.

The error check is performed when the following conditions are active:

- No electrical diagnostic trouble codes logged.
- Engine is in post-operational shutdown phase.

Condition for fault memory entry

- At start: 30 ms

In post-operational shutdown phase: 100 ms

Action in service

1. Check wires and plug connections.

   Check connections for corrosion!

2. If wiring and plug connections are OK:

   Replace rail-pressure sensor.

Fault effect and breakdown warning
Driver information

Warning light:

MIL

Service instruction

none

**DTC P0193 (BMW DTC 3F30): RAIL-PRESSURE SENSOR, SIGNAL: OPEN OR SHORT CIRCUIT TO POSITIVE**

Information saved in

DDE

Fault code

3F30 - P0193

Fault description

Rail pressure sensor monitoring function. The diagnostic trouble code is logged when the raw sensor signal (voltage) exceeds the specified upper limit 4749 mV. The error is also recognized when the uncorrected raw sensor voltage is greater than the limit value 4900 mV.

**Condition for fault identification**

Test condition:

The monitoring functions are only performed when no sensor power-supply fault diagnostic trouble code has been logged.

The test routine is executed continuously in a 10 ms grid.

Voltage condition:

The monitoring functions are only performed when no sensor power-supply fault diagnostic trouble code has been logged.

The test routine is executed continuously in a 10 ms grid.

**Condition for fault memory entry**

Debounce (140 ms)
Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:

   Replace rail-pressure sensor.

Fault effect and breakdown warning

The error disables regeneration in the particulate filter.

Proceed to the nearest BMW Service facility.

Driver information

Warning light:

MIL_SVS

Service instruction

none

DTC P0192 (BMW DTC 3F31): RAIL-PRESSURE SENSOR, SIGNAL: SHORT CIRCUIT TO GROUND

Information saved in

DDE

Fault code

3F31 - P0192

Fault description

Rail-pressure sensor monitoring function. The diagnostic trouble code is logged when the raw sensor signal (voltage) is less than 256 mV.

Condition for fault identification

Test condition:

The monitoring functions are only performed when no sensor power-supply fault diagnostic trouble code has been logged.

The test routine is executed continuously in a 10 ms grid.
Voltage condition:

The monitoring functions are only performed when no sensor power-supply fault diagnostic trouble code has been logged.

The test routine is executed continuously in a 10 ms grid.

**Condition for fault memory entry**

Debounce (140 ms)

**Action in service**

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   
   Replace rail-pressure sensor.

**Fault effect and breakdown warning**

The error disables regeneration in the particulate filter.

Proceed to the nearest BMW Service facility.

**Driver information**

Warning light:

MIL_SVS

**Service instruction**

none

**DTC P207F (BMW DTC 4BD3): MIXTURE QUALITY INADEQUATE: POOR REDUCING-AGENT QUALITY DETECTED**

Information saved in

DDE

**Fault code**

4BD3 - P207F

**Fault description**

Monitoring of SCR system reduction agent quality. The diagnostic trouble code is logged when an invalid
quality for the reduction agent is recognized following refilling.

**Condition for fault identification**

*none*

**Condition for fault memory entry**

Debounce (2000 ms)

**Action in service**

1. Consult customer to clarify whether water may have used to refill the tank.

If yes: Extract all content from tanks and then refill.

If tanks have not yet been filled an efficiency error is present. This is then an exhaust-gas emissions problem. Fault rectification as for DTC 4D17 which will also be present in this case.

**Fault effect and breakdown warning**

-  

**Driver information**

Warning light:

MIL

**Service instruction**

*none*

**DTC P20EE (BMW DTC 4D11): REDUCTION AGENT METERING, LONG-TERM ADAPTATION: ADAPTATION VALUE TOO HIGH**

**Information saved in**

DDE

**Fault code**

4D11 - P20EE

**Fault description**

Monitoring long-term adaptation factor. The diagnostic trouble code is logged when the long-term adaptation factor rises above the maximum limit 1.
**Condition for fault identification**

Test condition:

The error check runs only with a rising flank for long-term adaptation factor and when no other faults are present.

The check runs continuously in a 100 ms grid.

**Voltage condition:**

The error check runs only with a rising flank for long-term adaptation factor and when no other faults are present.

The check runs continuously in a 100 ms grid.

**Condition for fault memory entry**

Event debounced (10)

**Action in service**

Depending upon the problem source:

- Refill tank (quality of reduction agent).
- Clean/replace (metering module/NOx sensor/SCR converter/particulate filter).

**Fault effect and breakdown warning**

- 

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC P20EE (BMW DTC 4D12V: REDUCTION AGENT METERING, LONG-TERM ADAPTATION: ADAPTATION VALUE TOO LOW**

Information saved in

DDE
Fault code

4D12 - P20EE

Fault description

Monitoring long-term adaptation factor. The diagnostic trouble code is logged when the long-term adaptation factor falls below the minimum limit value 1.

Condition for fault identification

Test condition:

The error check runs only with a rising flank for long-term adaptation factor and when no other faults are present.

The check runs continuously in a 100 ms grid.

Voltage condition:

The error check runs only with a rising flank for long-term adaptation factor and when no other faults are present.

The check runs continuously in a 100 ms grid.

Condition for fault memory entry

Event debounced (10)

Action in service

Depending upon the problem source:

- Refill tank.
- Clean/replace (metering valve/NOx sensor/SCR converter/particulate filter).

Fault effect and breakdown warning

- 

Driver information

Warning light:

MIL

Service instruction
DTC P20EE (BMW DTC 4D17): SCR SYSTEM, EFFICIENCY: EFFICIENCY TOO LOW IN USER 1 (LEVEL CONTROL)

Information saved in
DDE

Fault code
4D17 - P20EE

Fault description

Monitoring of NOx efficiency level. The diagnostic trouble code is logged when the average NOx conversion efficiency of the SCR system falls below the minimum NOx efficiency level threshold (varies according to operating point).

The efficiency level is calculated based on the mass flow rates of NOx upstream and downstream from the SCR converter and the correction factor SCRChk_facEta1Cor_C.

The efficiency level threshold is calculated based on the mass flow rate of the NOx upstream and downstream from the SCR converter and a threshold value.

Condition for fault identification

Test condition:

The test routine runs when the following conditions are satisfied:

- The efficiency level threshold is greater than 0.
- A new valid NOx efficiency level has been calculated (operating point and monitored value are plausible and valid).

The error check runs continuously during the calculation of efficiency level, provided that it supplies a valid, plausible value, in a grid with a 100 ms periodicity.

Voltage condition:

The test routine runs when the following conditions are satisfied:

- The efficiency level threshold is greater than 0.
- A new valid NOx efficiency level has been calculated (operating point and monitored value are plausible and valid).

The error check runs continuously during the calculation of efficiency level, provided that it supplies a valid,
plausible value, in a grid with a 100 ms periodicity.

**Condition for fault memory entry**

Event debounced (4)

**Action in service**

1. Refill tank with new fluid
2. Use diagnostic system to test SCR converter.
3. Check metering valve.
4. Check NOx sensors.
5. Replace SCR converter

**Fault effect and breakdown warning**

- 

**Driver information**

Warning light:

KEINE

**Service instruction**

- Quality (quality determination): Extract contents from tank and then refill.
- NOx sensor before or behind SCR converter (identified by corresponding diagnostic trouble code entry in ECU error memory) furnishing implausible data
- Defective SCR converter, check with SCR converter system test
- Coating on diesel particulate filter (indicated by DTC 4B91)
- Check operation of metering valve.

**DTC P20EE (BMW DTC 4D18): SCR SYSTEM, EFFICIENCY**

**Information saved in**

DDE

**Fault code**

4D18 - P20EE

**Fault description**

-
Condition for fault identification
none

Condition for fault memory entry
Event debounced (4)

Action in service
-

Fault effect and breakdown warning
-

Driver information
Warning light:
KEINE

Service instruction
none

DTC P20EE (BMW DTC 46E8V: DENOX SYSTEM, EFFICIENCY: EFFICIENCY TOO LOW IN RANGE 3

Information saved in
DDE

Fault code
46E8 - P20EE

Fault description
-

Condition for fault identification
none

Condition for fault memory entry
Event debounced (8)
Action in service

- 

Fault effect and breakdown warning

- 

Driver information

Warning light:

KEINE

Service instruction

none

**DTC P20EE (BMW DTC 4D16): SCR SYSTEM, EFFICIENCY: EFFICIENCY TOO LOW**

Information saved in

DDE

Fault code

4D16 - P20EE

**Fault description**

Monitoring of NOx efficiency level (entire efficiency range). The monitoring function links SCR efficiency level monitoring in efficiency range 1 and efficiency range 2.

The diagnostic trouble code is logged when an error is detected during monitoring of one of the two ranges.

**Condition for fault identification**

Test condition:

The monitoring function is active when the conditions for SCR efficiency monitoring in efficiency range 1 and efficiency range 2 (according to temperature range) are satisfied.

Voltage condition:

The monitoring function is active when the conditions for SCR efficiency monitoring in efficiency range 1 and efficiency range 2 (according to temperature range) are satisfied.

**Condition for fault memory entry**
Event debounced (4)

**Action in service**

1. Refill SCR system tank with new fluid
2. Use diagnostic system to test SCR converter.
3. Check metering valve.
4. Check NOx sensors.
5. Inspect metering module for correct installation position and contamination.

If results of all tests are OK:

Replace SCR converter.

**Fault effect and breakdown warning**

- 

**Driver information**

Warning light:

MIL

**Service instruction**

- Quality determination: Extract contents from tank and then refill.
- NOx sensor before or behind SCR converter (identified by corresponding diagnostic trouble code entry in ECU error memory) furnishing implausible data
- Defective SCR converter, check with SCR converter system test
- Coating on diesel particulate filter (indicated by DTC 4B91)
- Check operation of metering valve.

**DTC P229F (BMW DTC 4955): NOX SENSOR AFTER SCR CATALYTIC CONVERTER, NOX PLÁUSIBILITY: REQUIRED NITROGEN OXIDE SIGNAL CHANGE NOT PLÁUSIBLE FOR NITROGEN OXIDE SIGNAL BEFORE SCR CATALYTIC CONVERTER DURING LOAD REVERSAL**

Information saved in DDE

**Fault code**

4955 - P229F
Fault description

Plausibility check on NOx sensor behind SCR converter. The system waits for NOx peaks of an adequate intensity before the SCR converter for plausibility check on the NOx sensor behind the SCR converter.

If the sensor's shift in NOx concentration fails to reach the limit value for the operating point the diagnostic trouble code is logged.

Condition for fault identification

Test condition:

- 

Voltage condition:

- 

Condition for fault memory entry

Event debounced (1)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:

   Replace NOx sensor behind SCR converter.

Fault effect and breakdown warning

- 

Driver information

Warning light:

MIL

Service instruction

none

DTC P2201 (BMW DTC 4BB3): NOX SENSOR BEFORE DENOX CAT., PLAUSIBILITY NOX

Information saved in

DDE
Fault code
4BB3 - P2201

Fault description
-

Condition for fault identification
none

Condition for fault memory entry
Event debounced (1)

Action in service
-

Fault effect and breakdown warning
-

Driver information
Warning light:
MIL

Service instruction
none

DTC P2201 (BMW DTC 4BB2): NOX SENSOR BEFORE DENOX CAT., PLAUSIBILITY NOX

Information saved in
DDE

Fault code
4BB2 - P2201

Fault description
-
Condition for fault identification
none

Condition for fault memory entry
Event debounced (1)

Action in service
-

Fault effect and breakdown warning
-

Driver information
Warning light:
MIL

Service instruction
none

DTC P204F (BMW DTC 46F2): DENOX SYSTEM, FUNCTION: MAXIMUM DURATION EXCEEDED UNTIL METERING ACTIVE

Information saved in
DDE

Fault code
46F2 - P204F

Fault description
If compliance with the monitoring conditions is present = TRUE while the metering is simultaneously still not enabled = FALSE an error is recognized.

Condition for fault identification
Test condition:

Test conditions:
The monitoring function runs continuously when compliance with the test conditions is present.

Voltage condition:

Test conditions:

The monitoring function runs continuously when compliance with the test conditions is present.

**Condition for fault memory entry**

Debounce (1000 ms)

**Action in service**

1. Use diagnostic system to check temperature upstream from SCR converter and then replace as indicated.
2. SCR metering system, check pressurization function, replace as indicated.
3. If the fault source is a battery replacement or undervoltage: Clear diagnostic trouble codes from ECU error memory.

**Fault effect and breakdown warning**

- 

**Driver information**

Warning light:

MIL

**Service instruction**

1. Plausibility check on data after 5 minutes at idle: Temperature sensor on engine-side of SCR converter, temperature sensor before oxidation catalyst, temperature sensor before diesel particulate filter
2. Check pressure build-up in the SCR metering system test module

**DTC P20E9 (BMW DTC 4952): PRESSURE CONTROL SCR, OVERPRESSURE FAULT, DELIVERY MODULE: REDUCING-AGENT MEAN PRESSURE TOO HIGH**

**Information saved in**

DDE

**Fault code**

4952 - P20E9

**Fault description**
Monitoring reduction agent metering. If the specified pressure for the delivery module rises above the maximum pressure threshold 6500 mbar for at least 1 s the diagnostic trouble code is logged.

**Condition for fault identification**

Test condition:

The error check runs only when the metering function is active.

Voltage condition:

The error check runs only when the metering function is active.

**Condition for fault memory entry**

Debounce (0 ms)

**Action in service**

1. Use diagnostic system to check pressurization level.
2. Check plausibility of temperature and pressure levels within the active tank, if implausible values are present: Check ground wires for short circuits to B+. Replace wires and plug connections.
3. Replace delivery module.

**Fault effect and breakdown warning**

- 

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC P20E8 (BMW DTC 4D02): REDUCING AGENT, PRESSURE CONTROL, VACUUM FAULT: PRESSURE OF REDUCING AGENT TOO LOW**

Information saved in

DDE

**Fault code**

4D02 - P20E8
Fault description

Monitoring reduction agent metering. The diagnostic trouble code is logged when the specified pressure for the metering module falls below the minimum pressure threshold 3100 mbar for at least 30 s or if the pressure, for a period of at least 15 s, is below the second minimum pressure threshold 2900 mbar.

Condition for fault identification

none

Condition for fault memory entry

Debounce (0 ms)

Action in service

Depends on cause:

1. Refill reduction medium.
2. Replace any leaking components.
3. Replace delivery module.

Fault effect and breakdown warning

-

Driver information

Warning light:

MIL

Service instruction

Is reduction agent in the tank (check tank levels)?

In winter: Is the tank completely frozen, meaning that no reduction agent is at the pick-up point?

Is the delivery module drawing air between the pick-up point in the tank and the delivery module? Is a major leak present in the metering system (perform SCR system test and visual inspection for leaks)? Is the metering module sticking open?

DTC P20E9 (BMW DTC 463E): PRESSURE CONTROL SCR, OVERPRESSURE FAULT: REDUCING-AGENT MEAN PRESSURE TOO HIGH

Information saved in
DDE

Fault code

463E - P20E9

Fault description

Monitoring reduction agent metering. If the reduction agent metering pressure rises above the limit value 7950 mbar the error is recognized once the pre-debounce time 1 s expires.

Condition for fault identification

Test condition:

Monitoring is executed during initialization of the DDE (before pressurization in metering module.

Voltage condition:

Monitoring is executed during initialization of the DDE (before pressurization in metering module.

Condition for fault memory entry

Event debounced (3)

Action in service

If ice has formed, thaw system:

- Allow the engine to idle while the vehicle remains parked, the heater units will be activated automatically. Determine whether the fault is still present once the system has thawed.

If no ice is present:

- Replace delivery module.

Fault effect and breakdown warning

- 

Driver information

Warning light:

MIL

Service instruction
DTC P20E8 (BMW DTC 4804): REDUCING-AGENT PRESSURE BUILDUP, PLAUSIBILITY: NO REDUCING-AGENT PRESSURE INCREASE POSSIBLE

Information saved in

DDE

Fault code

4804 - P20E8

Fault description

SCR monitoring: Reduction agent pressurization. A timer is incrementalized if the metering system fails to reach the limit value 3500 mbar within the period 11000 ms. When the number of failed pressurization attempts exceeds the limit value 3 the diagnostic trouble code is logged.

Condition for fault identification

Test condition:

The error check only runs when the SCR monitoring system's status coordinator is at pressurization status.

Voltage condition:

The error check only runs when the SCR monitoring system's status coordinator is at pressurization status.

Condition for fault memory entry

Event debounced (1)

Action in service

Depends on cause:

1. Refill reduction medium.
2. Replace leaking components.
3. Replace delivery module.

Fault effect and breakdown warning

-  

Driver information

Warning light:
MIL

Service instruction

Is reduction agent in the tank (check tank levels)?

In winter: Is the tank completely frozen, meaning that no reduction agent is at the suction point?

Is the delivery module drawing air between the suction point in the tank and the delivery module? Is a major leak present in the metering system (perform SCR system test and visual inspection for leaks)? Is the metering module sticking?

DTC P20A5 (BMW DTC 4809): SCR PRESSURE REGULATION, PRESSURE LOSS FAULT: REDUCING-AGENT PRESSURE DROP TOO SLOW DURING BACK SUCTION

Information saved in

DDE

Fault code

4809 - P20A5

Fault description

SCR monitoring: Metering depressurization. If it is not possible to reduce the pressure in the metering system, within the period 3000 ms, below the limit value 500 mbar, then the diagnostic trouble code is logged.

Condition for fault identification

Test condition:

The error check only runs when the SCR monitoring system's status coordinator is at depressurization status.

Voltage condition:

The error check only runs when the SCR monitoring system's status coordinator is at depressurization status.

Condition for fault memory entry

Event debounced (3)

Action in service

Replace delivery module.

Fault effect and breakdown warning
Driver information

Warning light:

MIL

Service instruction

If the error occurs in combination with 4D02 and 4804 then the pump in the delivery module is defective (the pump is also employed for rapid depressurization).

**DTC P208E (BMW DTC 4D35): REDUCING-AGENT METERING VALVE, PLAUSIBILITY: METERING VALVE JAMMED CLOSED**

Information saved in

DDE

Fault code

4D35 - P208E

Fault description

Metering module plausibility check. Once compliance with the test conditions is present the current pressure of the reduction agent is saved.

When the test is enabled the pressure differential between the saved pressure value and the current monitored value is calculated and monitored for compliance with the limit value 1000 mbar.

If the limit value is exceeded this indicates a sticking metering module and a diagnostic trouble code is logged.

Condition for fault identification

Test condition:

The monitoring data are recalculated (positive flanks) when the state machine has a value of COSCR_VENTILLATION and the pressure of the metering pump is above the limit value 3000 mbar.

Voltage condition:

The monitoring data are recalculated (positive flanks) when the state machine has a value of COSCR_VENTILLATION and the pressure of the metering pump is above the limit value 3000 mbar.

Condition for fault memory entry
Event debounced (150)

**Action in service**

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
3. Use the diagnostic tester to activate the metering module and then listen for a ticking sound.
4. If an audible noise is present delete the stored DTCs from the error memory. The metering module is not defective.
5. If no sound is heard, remove the metering module and rinse it with water to remove crystallized deposits. Install the module again and activate it using the diagnostic tester. If a ticking sound is now audible the module is once again operational. Delete stored DTCs from error memory.
6. No noise is audible replace the metering module.

**Fault effect and breakdown warning**

- 

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC P20A5 (BMW DTC 4D20): REDUCING-AGENT CHANGEOVER VALVE, PLAUSIBILITY: CHANGEOVER VALVE JAMMED CLOSED**

**Information saved in**

DDE

**Fault code**

4D20 - P20A5

**Fault description**

Plausibility check on 4/2 directional-control valve (switch valve) in delivery module. Once compliance with the test conditions is present the current pressure of the reduction agent is saved. When the state machine enables the test the pressure differential between the saved pressure value and the current monitored value is calculated and monitored for the limit value 1000 mbar. If the limit value is exceeded this indicates a sticking reversing valve and a diagnostic trouble code is logged.
Condition for fault identification

Test condition:

The error check proceeds when the state machine has the value COSCR_PRESSUREREREDUCTION and the pressure of the delivery module is above the limit value 3000 mbar.

Voltage condition:

The error check proceeds when the state machine has the value COSCR_PRESSUREREREDUCTION and the pressure of the delivery module is above the limit value 3000 mbar.

Condition for fault memory entry

Event debounced (1)

Action in service

1. Use the diagnostic system to activate the suction valve.
2. Replace delivery module.

Fault effect and breakdown warning

- 

Driver information

Warning light:

MIL

Service instruction

none

DTC P209F (BMW DTC 4D10): REDUCING-AGENT ACTIVE-TANK HEATING, PLAUSIBILITY: TEMPERATURE INCREASE TOO LOW

Information saved in

DDE

Fault code

4D10 - P209F

Fault description
Plausibility check on active tank heater. When the heating system is activated the current temperature in the tank is saved and a timer starts.

The DTC is logged when it proves impossible to heat the tank to the limit value defined relative to the active tank's temperature within the time defined relative to temperature.

The limit value is calculated based on the active tank temperature and a characteristic curve and lies between roughly 5 °C at an active tank temperature of -40 °C and 0 °C at an active tank temperature of 0 °C.

**Condition for fault identification**

**Test condition:**

The error check runs continuously while the active tank heater is activated.

**Voltage condition:**

The error check runs continuously while the active tank heater is activated.

**Condition for fault memory entry**

No debouncing.

**Action in service**

1. Use diagnostic system to check active tank temperature sensor's transmitted data for plausibility.
2. Check active tank heating system: Transmit activation signal to heater and check current.
3. Check wires and plug connections at active tank heater and active tank temperature sensor.
4. Replace the active tank.

**Fault effect and breakdown warning**

- **Driver information**

Warning light:

MIL

**Service instruction**

Specified current during activation: at least 400 uA.

If defects related to the temperature sensor and/or wiring are present, then diagnostic trouble codes for the sensors must also be logged.
DTC P244B (BMW DTC 4BF4): 4BF4EXHAUST GAS DIFFERENTIAL PRESSURE SENSOR, DIESEL PARTICLE FILTER, SIGNAL: SHORT CIRCUIT TO POSITIVE

Information saved in

DDE

Fault code

4BF4 - P244B

Fault description

Exhaust-gas differential-pressure sensor monitoring. The diagnostic trouble code is logged when the raw sensor signal (voltage) exceeds the specified upper limit 4750 mV.

Condition for fault identification

Test condition:

The test routine is executed only provided that no other electrical faults are present. The test frequency varies according to the process sequence control.

Voltage condition:

The test routine is executed only provided that no other electrical faults are present. The test frequency varies according to the process sequence control.

Condition for fault memory entry

Debounce (600 ms)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:

   Replace exhaust-gas differential-pressure sensor.

Fault effect and breakdown warning

The error disables regeneration in the particulate filter.

Driver information

Warning light:

MIL
Service instruction

none

**DTC P0473 (BMW DTC 4B7E): EXHAUST-GAS PRESSURE SENSOR BEFORE TURBOCHARGER, SIGNAL: SHORT CIRCUIT TO POSITIVE**

Information saved in

DDE

Fault code

4B7E - P0473

Fault description

The diagnostic trouble code is logged when the raw voltage signal from the pre-turbocharger exhaust-gas pressure sensor exceeds the limit value 2800 mV.

**Condition for fault identification**

Test condition:

The monitoring function is only implemented when no sensor power-supply problem is logged. The error check proceeds continuously according to the programmed process grid.

Voltage condition:

The monitoring function is only implemented when no sensor power-supply problem is logged. The error check proceeds continuously according to the programmed process grid.

**Condition for fault memory entry**

Debounce (600 ms)

**Action in service**

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   
   Replace exhaust-gas pressure sensor before turbocharger.

**Fault effect and breakdown warning**

Proceed to the nearest BMW Service facility.

Component hazard possible.
Driver information

Warning light:

MIL

Service instruction

none

DTC P2033 (BMW DTC 4020): EXHAUST BACKPRESSURE SENSOR BEFORE PARTICULATE FILTER, SIGNAL: OPEN OR SHORT CIRCUIT TO POSITIVE

Information saved in

DDE

Fault code

4020 - P2033

Fault description

Monitoring of exhaust-gas temperature sensor before particulate filter. The diagnostic trouble code is logged when the raw sensor signal (voltage) exceeds the specified upper limit 3280 mV.

Condition for fault identification

Test condition:

The test routine is executed only provided that no other electrical faults are present.

Voltage condition:

The test routine is executed only provided that no other electrical faults are present.

Condition for fault memory entry

Debounce (600 ms)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:

   Replace exhaust-gas temperature sensor before particulate filter.

Fault effect and breakdown warning
Driver information

Warning light:
MIL

Service instruction
none

DTC P242D (BMW DTC 4714): EXHAUST-GAS TEMPERATURE SENSOR BEFORE SCR CAT., SIGNAL: OPEN OR SHORT CIRCUIT TO POSITIVE

Information saved in
DDE

Fault code
4714 - P242D

Fault description

The diagnostic trouble code is logged when the raw voltage signal of the exhaust-gas temperature sensor before the SCR converter rises above the limit value 3285 mV.

Condition for fault identification

Test condition:
The test routine is executed only provided that no other electrical faults are present. The error check proceeds continuously according to the defined process grid.

Voltage condition:
The test routine is executed only provided that no other electrical faults are present. The error check proceeds continuously according to the defined process grid.

Condition for fault memory entry

Debounce (1000 ms) 1000 ms.

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
Replace exhaust-gas temperature sensor before the SCR converter.

Fault effect and breakdown warning

Driver information

Warning light:

MIL

Service instruction

none

**DTC P204D (BMW DTC 4704): REDUCING-AGENT PRESSURE SENSOR, SIGNAL: SHORT CIRCUIT TO POSITIVE**

Information saved in

DDE

Fault code

4704 - P204D

Fault description

The diagnostic trouble code is logged when the raw voltage signal from the reduction agent pressure sensor rises above the limit value 4900 mV.

Condition for fault identification

Test condition:

The test routine is executed only provided that no other electrical faults are present.

Voltage condition:

The test routine is executed only provided that no other electrical faults are present.

Condition for fault memory entry

Debounce (400 ms)

Action in service
1. Check wires and plug connections.
   The power-supply voltage is up to 4.9V.

2. If wiring and plug connections are OK:
   3. Check pressure sensor.
   4. Replace delivery module.

Fault effect and breakdown warning

Driver information

Warning light:
MIL

Service instruction

For access reasons, start by checking wires between transfer plug and DDE (E70): behind the front bumper, E90): behind left rear wheel).

DTC P244A (BMW DTC 4BF9): 4BF9EXHAUST GAS DIFFERENTIAL-PRESSURE SENSOR, DIESEL PARTICLE FILTER, SIGNAL: OPEN OR SHORT CIRCUIT TO GROUND

Information saved in
DDE

Fault code
4BF9 - P244A

Fault description

Exhaust-gas differential-pressure sensor monitoring. The diagnostic trouble code is logged when the raw sensor signal (voltage) is less than the specified lower limit 152 mV.

Condition for fault identification

Test condition:

The test routine is executed only provided that no other electrical faults are present. The error check proceeds continuously according to the defined process grid.

Voltage condition:
The test routine is executed only provided that no other electrical faults are present. The error check proceeds continuously according to the defined process grid.

**Condition for fault memory entry**

Debounce (600 ms)

**Action in service**

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   
   Replace exhaust-gas differential-pressure sensor.

**Fault effect and breakdown warning**

The error disables regeneration in the particulate filter.

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC P0472 (BMW DTC 4B7F): EXHAUST-GAS PRESSURE SENSOR BEFORE TURBOCHARGER, SIGNAL: OPEN OR SHORT CIRCUIT TO GROUND**

**Information saved in**

DDE

**Fault code**

4B7F - P0472

**Fault description**

Pre-turbocharger exhaust-gas pressure sensor monitoring function. The diagnostic trouble code is logged when the raw sensor signal (voltage) is less than the specified lower limit 100 mV.

**Condition for fault identification**

Test condition:
The monitoring function is only implemented when no sensor power-supply problem is logged.

Voltage condition:

The monitoring function is only implemented when no sensor power-supply problem is logged.

**Condition for fault memory entry**

Debounce (600 ms)

**Action in service**

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   
   Replace exhaust-gas pressure sensor before turbocharger.

**Fault effect and breakdown warning**

Proceed to the nearest BMW Service facility.

Component hazard possible.

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC P2032 (BMW DTC 4021): EXHAUST BACKPRESSURE SENSOR BEFORE PARTICULATE FILTER, SIGNAL: SHORT CIRCUIT TO GROUND**

**Information saved in**

DDE

**Fault code**

4021 - P2032

**Fault description**

Monitoring of exhaust-gas temperature sensor before particulate filter. The diagnostic trouble code is logged when the raw sensor signal (voltage) is less than the specified lower limit 49 mV.
Condition for fault identification

Test condition:

The test routine is executed only provided that no other electrical faults are present. The error check proceeds continuously according to the defined process grid.

Voltage condition:

The test routine is executed only provided that no other electrical faults are present. The error check proceeds continuously according to the defined process grid.

Condition for fault memory entry

Debounce (600 ms)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:

   Replace exhaust-gas temperature sensor before particulate filter.

Fault effect and breakdown warning

-

Driver information

Warning light:

MIL

Service instruction

none

DTC P242C (BMW DTC 4719): EXHAUST-GAS TEMPERATURE SENSOR BEFORE SCR CAT., SIGNAL: SHORT CIRCUIT TO GROUND

Information saved in

DDE

Fault code

4719 - P242C
Fault description

Monitoring of exhaust-gas temperature sensor before the SCR converter. The diagnostic trouble code is logged when the raw sensor signal (voltage) is less than the specified lower limit 50 mV.

Condition for fault identification

Test condition:

The test routine is executed only provided that no other electrical faults are present.

Voltage condition:

The test routine is executed only provided that no other electrical faults are present.

Condition for fault memory entry

Debounce (1000 ms) 1000 ms.

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:

   Replace exhaust-gas temperature sensor before the SCR converter.

Fault effect and breakdown warning

-

Driver information

Warning light:

MIL

Service instruction

none

DTC P204C (BMW DTC 4709): REDUCING-AGENT PRESSURE SENSOR, SIGNAL: OPEN OR SHORT CIRCUIT TO GROUND

Information saved in

DDE

Fault code
4709 - P204C

Fault description

Pressure sensor monitoring function. The diagnostic trouble code is logged when the raw sensor signal (voltage) is less than the specified lower limit 350 mV.

Condition for fault identification

Test condition:

The test routine is executed only provided that no other electrical faults are present.

Voltage condition:

The test routine is executed only provided that no other electrical faults are present.

Condition for fault memory entry

Debounce (400 ms)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
3. Check pressure sensor.
4. Replace delivery module.

Fault effect and breakdown warning

- 

Driver information

Warning light:

MIL

Service instruction

When no pressure is present the sensor transmits a signal of 500 mV. If the value is not transmitted then the sensor or the power supply is defective.

For access reasons, start by checking wires between transfer plug and DDE (E70): behind the front bumper, E90): behind left rear wheel).

DTC P0641 (BMW DTC 4670): SUPPLY VOLTAGE 1: SHORT CIRCUIT TO POSITIVE OR
GROUND

Information saved in

DDE

Fault code

4670 - P0641

Fault description

The sensor power-supply voltage is monitored by the DDE hardware. If the power-supply voltage for sensor group 1 is outside the limits the diagnostic trouble code is logged.

The limits are defined by the hardware.

Sensor group 1 includes the following sensors:

- Accelerator pedal module sensor 1
- Rail-pressure sensor
- Boost-pressure sensor -
- Exhaust-gas backpressure sensor
  - Fuel pressure-temperature sensor
  - Brake pressure sensor
  - Throttle valve sensor

Condition for fault identification

Test condition:

The error check proceeds continuously according to the programmed process grid.

Voltage condition:

The error check proceeds continuously according to the programmed process grid.

Condition for fault memory entry

Debounce (80 ms)

Action in service

Check all of the components connected to sensor power-supply voltage 1 for corresponding diagnostic trouble codes (short circuit).
If this kind of diagnostic trouble code is entered in the ECU:

Conduct fault diagnosis for the affected component.

If no diagnostic trouble code of this type has been logged:

Replace DDE control module.

**Fault effect and breakdown warning**

- 

**Driver information**

Warning light:

MIL_SVS

**Service instruction**

none

**DTC P0651 (BMW DTC 4680): SUPPLY VOLTAGE 2: SHORT CIRCUIT TO POSITIVE OR GROUND**

**Information saved in**

DDE

**Fault code**

4680 - P0651

**Fault description**

The sensor power-supply voltage is monitored by the DDE hardware. If the power-supply voltage for sensor group 2 is outside the limits the diagnostic trouble code is logged.

The limits are defined by the hardware.

Sensor group 2 includes the following sensors:

- accelerator pedal module sensor 2
- particulate filter's exhaust-gas differential pressure sensor
- brake vacuum sensor
- EGR valve position sensor
- Exhaust-gas pressure sensor before turbocharger
Condition for fault identification

Test condition:

The error check proceeds continuously according to the programmed process grid.

Voltage condition:

The error check proceeds continuously according to the programmed process grid.

Condition for fault memory entry

Debounce (80 ms)

Action in service

Check all of the components connected to sensor power-supply voltage 2 for corresponding diagnostic trouble codes (short circuit).

If this kind of diagnostic trouble code is entered in the ECU:

Conduct fault diagnosis for the affected component.

If no diagnostic trouble code of this type has been logged:

Replace DDE control module.

Fault effect and breakdown warning

- Driver information

Warning light:

MIL

Service instruction

none

DTC P0697 (BMW DTC 4690): SUPPLY VOLTAGE 3: SHORT CIRCUIT TO POSITIVE OR GROUND

Information saved in

DDE
Fault code

4690 - P0697

Fault description

The sensor power-supply voltage is monitored by the DDE hardware. If the power-supply voltage for sensor group 3 is outside the limits the diagnostic trouble code is logged.

The limits are defined by the hardware.

Sensor group 3 includes the following sensors:

- Crankshaft sensor

Condition for fault identification

Test condition:

The error check proceeds continuously according to the programmed process grid.

Voltage condition:

The error check proceeds continuously according to the programmed process grid.

Condition for fault memory entry

Debounce (80 ms)

Action in service

Check all of the components connected to sensor power-supply voltage 3 for corresponding diagnostic trouble codes (short circuit).

If this kind of diagnostic trouble code is entered in the ECU:

Conduct fault diagnosis for the affected component.

If no diagnostic trouble code of this type has been logged:

Replace DDE control module.

Fault effect and breakdown warning

- 

Driver information
Warning light:
MIL

Service instruction
none

DTC P0113 (BMW DTC 4830): INTAKE-AIR TEMPERATURE SENSOR: TEMPERATURE TOO HIGH (DUTY FACTOR TOO HIGH)

Information saved in
DDE

Fault code
4830 - P0113

Fault description
-

Condition for fault identification
none

Condition for fault memory entry
Debounce (200 ms)

Action in service
-

Fault effect and breakdown warning
-

Driver information

Warning light:
MIL

Service instruction
none
DTC P0112 (BMW DTC 4831): INTAKE-AIR TEMPERATURE SENSOR: TEMPERATURE TOO LOW (DUTY FACTOR TOO LOW)

Information saved in
DDE

Fault code
4831 - P0112

Fault description
-

Condition for fault identification
none

Condition for fault memory entry
Debounce (200 ms)

Action in service
-

Fault effect and breakdown warning
-

Driver information
Warning light:
MIL

Service instruction
none

DTC P0113 (BMW DTC 4BA0): INTAKE-AIR TEMPERATURE SENSOR, SIGNAL: OPEN OR SHORT CIRCUIT TO POSITIVE/GROUND OR TEMPERATURE TOO HIGH

Information saved in
DDE
Fault code

4BA0 - P0113

Fault description

The diagnostic trouble code is logged when the intake-air temperature sensor signal rises above the limit value 130 °C.

Condition for fault identification

Test condition:

The monitoring function is only implemented when no sensor power-supply problem is logged.

Voltage condition:

The monitoring function is only implemented when no sensor power-supply problem is logged.

Condition for fault memory entry

Debounce (1000 ms)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   Replace mass-airflow sensor.

Fault effect and breakdown warning

- 

Driver information

Warning light:

MIL

Service instruction

none

DTC P007C (BMW DTC 436A): CHARGE-AIR TEMPERATURE SENSOR, RANGE: UPPER PHYSICAL LIMIT EXCEEDED

Information saved in
DDE

Fault code

436A - P007C

Fault description

The diagnostic trouble code is logged when the sensor signal for boost-air temperature rises above the limit value 110 °C.

Condition for fault identification

Test condition:

The monitoring function is only implemented when no sensor power-supply problem is logged.

Voltage condition:

The monitoring function is only implemented when no sensor power-supply problem is logged.

Condition for fault memory entry

Debounce (2000 ms)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:

   Replace charge-air temperature sensor.

Fault effect and breakdown warning

Proceed to the nearest BMW Service facility.

Driver information

Warning light:

MIL

Service instruction

none

DTC P007D (BMW DTC 4390): CHARGE-AIR TEMPERATURE SENSOR, SIGNAL: OPEN OR SHORT CIRCUIT TO POSITIVE
Information saved in

DDE

Fault code

4390 - P007D

Fault description

Charge-air temperature sensor monitoring. The diagnostic trouble code is logged when the raw sensor signal (voltage) exceeds the specified upper limit 3260 mV.

Condition for fault identification

Test condition:

The monitoring function is only implemented when no sensor power-supply problem is logged.

Voltage condition:

The monitoring function is only implemented when no sensor power-supply problem is logged.

Condition for fault memory entry

Debounce (150 ms)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:

    Replace charge-air temperature sensor.

Fault effect and breakdown warning

Proceed to the nearest BMW Service facility.

Driver information

Warning light:

MIL

Service instruction

none
DTC P007C (BMW DTC 4391): CHARGE-AIR TEMPERATURE SENSOR, SIGNAL: SHORT CIRCUIT TO GROUND

Information saved in

DDE

Fault code

4391 - P007C

Fault description

Charge-air temperature sensor monitoring. The diagnostic trouble code is logged when the raw sensor signal (voltage) is less than the specified lower limit 200 mV.

Condition for fault identification

Test condition:

The monitoring function is only implemented when no sensor power-supply problem is logged.

Voltage condition:

The monitoring function is only implemented when no sensor power-supply problem is logged.

Condition for fault memory entry

Debounce (150 ms)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   Replace charge-air temperature sensor.

Fault effect and breakdown warning

Proceed to the nearest BMW Service facility.

Driver information

Warning light:

MIL

Service instruction
none

**DTC P007B (BMW DTC 4D76): CHARGING AIR TEMPERATURE SENSOR, PLAUSIBILITY: DIFFERENCE, STARTING VALUE TO REFERENCE TEMPERATURE TOO HIGH**

**Information saved in**

DDE

**Fault code**

4D76 - P007B

**Fault description**

Boost-air temperature plausibility check. The DTC is logged when the temperature difference between the boost-air temperature and a calculated reference temperature rises above a limit defined based upon operating conditions.

The limit value is calculated using the engine's downtime and a characteristic curve.

**Condition for fault identification**

Test condition:

The error check runs once per driving cycle provided that compliance with the following conditions is present:

- The engine downtime (time between engine shutdown and next Terminal 15 on) is greater than or equal to 19800 s.
- No electrical error is logged.
- The reference temperature is above the threshold -40 °C.

Voltage condition:

The error check runs once per driving cycle provided that compliance with the following conditions is present:

- The engine downtime (time between engine shutdown and next Terminal 15 on) is greater than or equal to 19800 s.
- No electrical error is logged.
- The reference temperature is above the threshold -40 °C.

**Condition for fault memory entry**

- None.

**Action in service**
1. Check wires and plug connections.
2. If wiring and plug connections are OK:

   Replace charge-air temperature sensor.

Fault effect and breakdown warning

- 

Driver information

Warning light:

MIL

Service instruction

If electrical sensor faults are present (short circuit, open circuit) these should also be logged.

**DTC P040C (BMW DTC 4D90): EXHAUST GAS TEMPERATURE SENSOR AFTER EXHAUST GAS RECIRCULATION COOLER, RANGE: UPPER PHYSICAL LIMIT EXCEEDED**

Information saved in

DDE

Fault code

4D90 - P040C

Fault description

The diagnostic trouble code is logged when the sensor signal for exhaust-gas temperature behind the EGR cooler rises above the limit value 500 °C.

Condition for fault identification

Test condition:

The monitoring function is only implemented when no sensor power-supply problem is logged.

Voltage condition:

The monitoring function is only implemented when no sensor power-supply problem is logged.

Condition for fault memory entry

Debounce (2000 ms)
Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:

   Replace exhaust-gas temperature sensor behind EGR cooler.

Fault effect and breakdown warning

-

Driver information

Warning light:

MIL

Service instruction

none

DTC P040D (BMW DTC 4D87): EXHAUST GAS TEMP. SENSOR AFTER EXHAUST GAS RECIRCULATION COOLER, SIGNAL: OPEN OR SHORT CIRCUIT TO POSITIVE

Information saved in

DDE

Fault code

4D87 - P040D

Fault description

Exhaust-gas temperature behind EGR cooler sensor monitoring. The diagnostic trouble code is logged when the raw sensor signal (voltage) is greater than the maximum approved limit value 3280 mV.

Condition for fault identification

Test condition:

The monitoring function is only implemented when no sensor power-supply problem is logged.

Voltage condition:

The monitoring function is only implemented when no sensor power-supply problem is logged.

Condition for fault memory entry
Debounce (600 ms)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   Replace exhaust-gas temperature sensor behind EGR cooler.

Fault effect and breakdown warning

Driver information

Warning light:
MIL

Service instruction

none

DTC P040C (BMW DTC 4D88): EXHAUST GAS TEMP. SENSOR AFTER EXHAUST GAS RECIRCULATION COOLER, SIGNAL: SHORT CIRCUIT TO GROUND

Information saved in
DDE

Fault code

4D88 - P040C

Fault description

Exhaust-gas temperature behind EGR cooler sensor monitoring. The diagnostic trouble code is logged when the raw sensor signal (voltage) is less than the maximum approved limit value 80 mV.

Condition for fault identification

Test condition:
The monitoring function is only implemented when no sensor power-supply problem is logged.

Voltage condition:
The monitoring function is only implemented when no sensor power-supply problem is logged.
Condition for fault memory entry

Debounce (600 ms)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:

   Replace exhaust-gas temperature sensor behind EGR cooler.

Fault effect and breakdown warning

Driver information

Warning light:

MIL

Service instruction

none

**DTC P041C (BMW DTC 498C): EXHAUST TEMPERATURE SENSOR AFTER VACUUM EXHAUST GAS RECUPERATING COOLER, RANGE: UPPER PHYSICAL LIMIT EXCEEDED**

Information saved in

DDE

Fault code

498C - P041C

Fault description

The diagnostic trouble code is logged when the sensor signal for exhaust-gas temperature behind the low-pressure EGR cooler rises above the limit value 400 °C.

Condition for fault identification

Test condition:

The monitoring function is only implemented when no electrical error is logged.

Voltage condition:
The monitoring function is only implemented when no electrical error is logged.

**Condition for fault memory entry**

Debounce (2000 ms)

**Action in service**

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   
   Replace exhaust-gas temperature sensor behind low-pressure EGR cooler.

**Fault effect and breakdown warning**

- 

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC P041D (BMW DTC 4D82): EXHAUST-GAS TEMPERATURE SENSOR AFTER LOW PRESSURE EXHAUST-GAS RECIRCULATION COOLER, SIGNAL: OPEN OR SHORT CIRCUIT TO POSITIVE**

**Information saved in**

DDE

**Fault code**

4D82 - P041D

**Fault description**

Monitoring of voltage range on exhaust-gas temperature sensor behind low-pressure EGR cooler. The diagnostic trouble code is logged when the raw sensor signal (voltage) rises above the maximum specified limit value 3280 mV.

**Condition for fault identification**

Test condition:
The monitoring function is only implemented when no electrical error is logged.

Voltage condition:

The monitoring function is only implemented when no electrical error is logged.

Condition for fault memory entry

Debounce (600 ms)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   Replace exhaust-gas temperature sensor behind low-pressure EGR cooler.

Fault effect and breakdown warning

- 

Driver information

Warning light:

MIL

Service instruction

none

DTC P041C (BMW DTC 4D83): EXHAUST-GAS TEMPERATURE SENSOR AFTER LOW PRESSURE EXHAUST-GAS RECIRCULATION COOLER, SIGNAL: SHORT CIRCUIT TO GROUND

Information saved in

DDE

Fault code

4D83 - P041C

Fault description

Monitoring of voltage range on exhaust-gas temperature sensor behind low-pressure EGR cooler. The diagnostic trouble code is logged when the raw sensor signal (voltage) falls below the minimum approved limit value 80 mV.
Condition for fault identification

Test condition:

The monitoring function is only implemented when no electrical error is logged.

Voltage condition:

The monitoring function is only implemented when no electrical error is logged.

Condition for fault memory entry

Debounce (600 ms)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   
   Replace exhaust-gas temperature sensor behind low-pressure EGR cooler.

Fault effect and breakdown warning

-

Driver information

Warning light:

MIL

Service instruction

none

DTC P0545 (BMW DTC 4D71): EXHAUST-GAS TEMPERATURE SENSOR BEFORE CATALYTIC CONVERTER, RANGE: UPPER PHYSICAL LIMIT EXCEEDED

Information saved in

DDE

Fault code

4D71 - P0545

Fault description
When the physical sensor signal for the pre-catalyst exhaust-gas temperature rises above the limit value 790 °C the diagnostic trouble code is logged.

**Condition for fault identification**

Test condition:

The error check proceeds continuously in the programmed process grid.

Voltage condition:

The error check proceeds continuously in the programmed process grid.

**Condition for fault memory entry**

Debounce (2000 ms)

**Action in service**

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   
   Replace exhaust-gas temperature sensor before catalytic converter.

**Fault effect and breakdown warning**

-

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC P0546 (BMW DTC 4987): EXHAUST BACKPRESSURE SENSOR BEFORE CATALYTIC CONVERTER, SIGNAL: OPEN OR SHORT CIRCUIT TO POSITIVE**

**Information saved in**

DDE

**Fault code**

4987 - P0546
Fault description

Pre-oxidation catalyst temperature sensor monitoring function. When the raw sensor signal (voltage) is greater than the maximum limit value, the diagnostic trouble code is logged.

Condition for fault identification

Test condition:

The error check proceeds continuously according to the programmed process grid.

Voltage condition:

The error check proceeds continuously according to the programmed process grid.

Condition for fault memory entry

Debounce (600 ms)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:

   Exhaust-gas temperature sensor before oxidation catalyst.

Fault effect and breakdown warning

The error disables regeneration in the particulate filter.

Driver information

Warning light:

MIL

Service instruction

none

DTC P0545 (BMW DTC 4986): EXHAUST BACKPRESSURE SENSOR BEFORE CATALYTIC CONVERTER, SIGNAL: SHORT CIRCUIT TO GROUND

Information saved in

DDE

Fault code
4986 - P0545

Fault description

Pre-oxidation catalyst temperature sensor monitoring function. When the raw sensor signal (voltage) is less than the minimum the diagnostic trouble code is logged.

Condition for fault identification

Test condition:

The error check proceeds continuously according to the programmed process grid.

Voltage condition:

The error check proceeds continuously according to the programmed process grid.

Condition for fault memory entry

Debounce (600 ms)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:

   Exhaust-gas temperature sensor before oxidation catalyst.

Fault effect and breakdown warning

The error disables regeneration in the particulate filter.

Driver information

Warning light:

MIL

Service instruction

none

DTC P2032 (BMW DTC 4D6C): EXHAUST-GAS TEMPERATURE SENSOR BEFORE PARTICULATE FILTER, RANGE: UPPER PHYSICAL LIMIT EXCEEDED

Information saved in

DDE
Fault code

4D6C - P2032

Fault description

When the physical sensor signal for exhaust-gas temperature before the particulate filter exceeds the limit value 790 °C the diagnostic trouble code is logged.

Condition for fault identification

Test condition:

The monitoring function is only implemented when no electrical error is logged.

Voltage condition:

The monitoring function is only implemented when no electrical error is logged.

Condition for fault memory entry

Debounce (2000 ms)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:

   Exhaust-gas temperature sensor before the particulate filter.

Fault effect and breakdown warning

- 

Driver information

Warning light:

MIL

Service instruction

none

DTC P0638 (BMW DTC 4677): THROTTLE-VALVE ACTUATOR: MECHANICAL FAULT (CONTROL DEVIATION CLOSE TO CLOSED POSITION)

Information saved in
DDE

Fault code

4677 - P0638

Fault description

- 

Condition for fault identification

none

Condition for fault memory entry

Debounce (0 ms)

Action in service

-

Fault effect and breakdown warning

-

Driver information

Warning light:

MIL

Service instruction

none

**DTC P0638 (BMW DTC 4687): THROTTLE-VALVE ACTUATOR: ELECTRICALLY OR MECHANICALLY FAULTY (POSITION-SENSOR FAULT, CONTROL DEVIATION, MOTOR OVERCURRENT)**

Information saved in

DDE

Fault code

4687 - P0638
Fault description

- 

Condition for fault identification

none

Condition for fault memory entry

Debounce (0 ms)

Action in service

-

Fault effect and breakdown warning

-

Driver information

Warning light:

MIL

Service instruction

none

DTC P0638 (BMW DTC 4697): THROTTLE-VALVE ACTUATOR: ACTIVATION SIGNAL IMPLAUSIBLE, SUPPLY VOLTAGE INVALID, OVERTEMPERATURE

Information saved in

DDE

Fault code

4697 - P0638

Fault description

-

Condition for fault identification

none
Condition for fault memory entry
Debounce (0 ms)

Action in service

Fault effect and breakdown warning

Driver information
Warning light:
MIL

Service instruction
none

DTC P0638 (BMW DTC 49E7): THROTTLE ACTUATOR: ELECTRICALLY FAULTY (EEPROM)

Information saved in
DDE

Fault code
49E7 - P0638

Fault description

Condition for fault identification
none

Condition for fault memory entry
Debounce (0 ms)

Action in service

Fault effect and breakdown warning

Driver information

Warning light:
MIL

Service instruction
none

DTC P2620 (BMW DTC 43E2): THROTTLE-VALVE ACTUATOR, ACTIVATION: OPEN CIRCUIT

Information saved in
DDE

Fault code
43E2 - P2620

Fault description
The DDE recognizes an open-circuit error at the output stage:
Throttle-valve actuator.

Condition for fault identification
Test condition:
The check frequency depends on the process sequence control.

Voltage condition:
The check frequency depends on the process sequence control.

Condition for fault memory entry
Debounce (220 ms)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
Replace throttle-valve actuator.

Fault effect and breakdown warning

The error disables regeneration in the particulate filter.

Driver information

Warning light:

MIL

Service instruction

none

DTC P0638 (BMW DTC 43E3): THROTTLE-VALVE ACTUATOR, ACTIVATION: OUTPUT STAGE, OVERTEMPERATURE

Information saved in

DDE

Fault code

43E3 - P0638

Fault description

The DDE recognizes an over-temperature fault in the output stage:

Throttle-valve actuator.

Condition for fault identification

Test condition:

The check frequency depends on the process sequence control.

Voltage condition:

The check frequency depends on the process sequence control.

Condition for fault memory entry

Debounce (50 ms)

Action in service
Check E-Box fan/DDE cooling. If E-Box fan/DDE cooling are OK:

Replace DDE ECU.

**Fault effect and breakdown warning**

The error disables regeneration in the particulate filter.

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC P2622 (BMW DTC 43C0): THROTTLE-VALVE ACTUATOR, ACTIVATION: SHORT CIRCUIT TO POSITIVE**

**Information saved in**

DDE

**Fault code**

43C0 - P2622

**Fault description**

The DDE recognizes a short circuit to positive in the output stage:

Throttle-valve actuator.

**Condition for fault identification**

Test condition:

The check frequency depends on the process sequence control.

Voltage condition:

The check frequency depends on the process sequence control.

**Condition for fault memory entry**

Debounce (220 ms)
Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   Replace throttle-valve actuator.

Fault effect and breakdown warning

The error disables regeneration in the particulate filter.

Driver information

Warning light:
MIL

Service instruction

none

DTC P2621 (BMW DTC 43D1): THROTTLE-VALVE ACTUATOR, ACTIVATION: SHORT CIRCUIT TO GROUND

Information saved in
DDE

Fault code

43D1 - P2621

Fault description

The DDE recognizes a short circuit to ground error in the output stage:
Throttle-valve actuator.

Condition for fault identification

Test condition:
The check frequency depends on the process sequence control.

Voltage condition:
The check frequency depends on the process sequence control.
Condition for fault memory entry
Debounce (2400 ms)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   Replace throttle-valve actuator.

Fault effect and breakdown warning
The error disables regeneration in the particulate filter.

Driver information
Warning light:
MIL

Service instruction
none

DTC P0243 (BMW DTC 4707): WASTEGATE VALVE, ACTIVATION: OPEN CIRCUIT

Information saved in
DDE

Fault code
4707 - P0243

Fault description
The DDE recognizes an open circuit error in the output stage for the wastegate valve vacuum converter.

Condition for fault identification
none

Condition for fault memory entry
Debounce (220 ms)

Action in service
1. Check wires and plug connections.
2. If wiring and plug connections are OK:

   Replace wastegate valve vacuum converter.

Fault effect and breakdown warning

The error disables regeneration in the particulate filter.

Driver information

Warning light:

MIL_SVS

Service instruction

none

DTC P0244 (BMW DTC 4708): WASTEGATE VALVE, ACTIVATION: OUTPUT STAGE, OVERTEMPERATURE

Information saved in

DDE

Fault code

4708 - P0244

Fault description

The DDE recognizes an over-temperature error in the output stage for the wastegate valve.

Condition for fault identification

Test condition:

The error check runs in the programmed process grid.

Voltage condition:

The error check runs in the programmed process grid.

Condition for fault memory entry

Debounce (50 ms)
E90-M57D30T2-AT-LEVII:

Debounce (220 ms)

**Action in service**

Check E-Box fan/DDE cooling. If E-Box fan/DDE cooling are OK:

Replace DDE control module.

**Fault effect and breakdown warning**

The error disables regeneration in the particulate filter.

**Driver information**

Warning light:

MIL_SVS

**Service instruction**

none

**DTC P0246 (BMW DTC 46E5): WASTEGATE VALVE, ACTIVATION: SHORT CIRCUIT TO POSITIVE**

**Information saved in**

DDE

**Fault code**

46E5 - P0246

**Fault description**

The DDE recognizes a short circuit to positive in the output stage for the wastegate valve vacuum converter.

**Condition for fault identification**

Test condition:

The check frequency depends on the process sequence control.

Voltage condition:

The check frequency depends on the process sequence control.
Condition for fault memory entry

Debounce (220 ms)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:

   Replace wastegate valve vacuum converter.

Fault effect and breakdown warning

The error disables regeneration in the particulate filter.

Driver information

Warning light:

MIL_SVS

Service instruction

none

DTC P0245 (BMW DTC 46F6): WASTEGATE VALVE, ACTIVATION: SHORT CIRCUIT TO GROUND

Information saved in

DDE

Fault code

46F6 - P0245

Fault description

The DDE recognizes a short circuit to ground in the output stage for the wastegate valve vacuum converter.

Condition for fault identification

Test condition:

The check frequency depends on the process sequence control.

Voltage condition:
The check frequency depends on the process sequence control.

**Condition for fault memory entry**

Debounce (220 ms)

**Action in service**

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   - Replace wastegate valve vacuum converter.

**Fault effect and breakdown warning**

The error disables regeneration in the particulate filter.

**Driver information**

Warning light:

MIL_SVS

**Service instruction**

none

**DTC P0045 (BMW DTC 41A2): PRESSURE CONVERTER, TURBINE CONTROL FLAP, ACTIVATION: OPEN CIRCUIT**

**Information saved in**

DDE

**Fault code**

41A2 - P0045

**Fault description**

The DDE recognizes an open-circuit error in the output stage:

With single-stage boost: Boost-pressure actuator.

With multi-stage boost: Turbine control flap pressure converter.

**Condition for fault identification**
Test condition:
The check frequency depends on the process sequence control.

Voltage condition:
The check frequency depends on the process sequence control.

**Condition for fault memory entry**

Debounce (220 ms)

**Action in service**

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   
   With single-stage boost: Replace charge-air pressure controller.

   With multi-stage boost: Replace turbine control flap pressure converter.

**Fault effect and breakdown warning**

The error disables regeneration in the particulate filter.

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC P0046 (BMW DTC 41A3): PRESSURE CONVERTER, TURBINE CONTROL FLAP, ACTIVATION: OUTPUT STAGE, OVERTEMPERATURE**

**Information saved in**

DDE

**Fault code**

41A3 - P0046

**Fault description**
The DDE recognizes an over-temperature fault in the output stage:

With single-stage boost: Boost-pressure actuator.

With multi-stage boost: Turbine control flap pressure converter.

**Condition for fault identification**

Test condition:
The check frequency depends on the process sequence control.

Voltage condition:
The check frequency depends on the process sequence control.

**Condition for fault memory entry**

Debounce (220 ms)

**Action in service**

Check E-Box fan/DDE cooling. If E-Box fan/DDE cooling are OK:

Replace DDE control module.

**Fault effect and breakdown warning**

The error disables regeneration in the particulate filter.

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC P0048 (BMW DTC 4180): PRESSURE CONVERTER, TURBINE CONTROL FLAP, ACTIVATION: SHORT CIRCUIT TO POSITIVE**

Information saved in

DDE

**Fault code**
4180 - P0048

**Fault description**

The DDE recognizes a short circuit to positive in the output stage:

With single-stage boost: Boost-pressure actuator.

With multi-stage boost: Turbine control flap pressure converter.

**Condition for fault identification**

Test condition:

The check frequency depends on the process sequence control.

Voltage condition:

The check frequency depends on the process sequence control.

**Condition for fault memory entry**

Debounce (220 ms)

**Action in service**

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   - With single-stage boost: Replace charge-air pressure controller.
   - With multi-stage boost: Replace turbine control flap pressure converter.

**Fault effect and breakdown warning**

The error disables regeneration in the particulate filter.

**Driver information**

Warning light:

MIL

**Service instruction**

none

DTC P0047 (BMW DTC 4191): PRESSURE CONVERTER, TURBINE CONTROL FLAP,
ACTIVATION: SHORT CIRCUIT TO GROUND

Information saved in

DDE

Fault code

4191 - P0047

Fault description

The DDE recognizes a short to ground at the output stage:

With single-stage boost: Boost-pressure actuator.

With multi-stage boost: Turbine control flap pressure converter.

Condition for fault identification

Test condition:

The check frequency depends on the process sequence control.

Voltage condition:

The check frequency depends on the process sequence control.

Condition for fault memory entry

Debounce (220 ms)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   - With single-stage boost: Replace charge-air pressure controller.
   - With multi-stage boost: Replace turbine control flap pressure converter.

Fault effect and breakdown warning

The error disables regeneration in the particulate filter.

Driver information

Warning light:
MIL_SVS

Service instruction

none

**DTC P242C (BMW DTC 4D5C): EXHAUST GAS TEMPERATURE SENSOR BEFORE SCR CAT, PLAUSIBILITY: UPPER PHYSICAL LIMIT EXCEEDED**

Information saved in

DDE

Fault code

4D5C - P242C

Fault description

When the physical sensor signal for exhaust-gas temperature before the SCR converter rises above the limit value 750 °C the diagnostic trouble code is logged.

**Condition for fault identification**

Test condition:

The monitoring function is only implemented when no electrical error is logged.

Voltage condition:

The monitoring function is only implemented when no electrical error is logged.

**Condition for fault memory entry**

Debounce (2000 ms)

**Action in service**

1. Check wires and plug connections.
2. If wiring and plug connections are OK:

   Replace exhaust-gas temperature sensor before the SCR converter.

**Fault effect and breakdown warning**

-

**Driver information**
Warning light:

MIL

Service instruction

none

DTC P2062 (BMW DTC 47FE): REDUCING-AGENT METERING VALVE, ACTIVATION: OPEN CIRCUIT

Information saved in

DDE

Fault code

47FE - P2062

Fault description

The DDE recognizes an open-circuit error at the output stage:

Metering module.

Condition for fault identification

Test condition:

The error check proceeds continuously according to the programmed process grid.

Voltage condition:

The error check proceeds continuously according to the programmed process grid.

Condition for fault memory entry

Debounce (1000 ms)

Action in service

1. Check wires and plug connections.

2. If wiring and plug connections are OK:

   Replace metering module.

Fault effect and breakdown warning
Driver information

Warning light:

MIL

Service instruction

none

DTC P202F (BMW DTC 47FF): REDUCING-AGENT METERING VALVE, ACTIVATION: OUTPUT STAGE, OVERTEMPERATURE

Information saved in

DDE

Fault code

47FF - P202F

Fault description

The DDE recognizes an over-temperature fault in the output stage:

Metering module.

Condition for fault identification

Test condition:

The check frequency depends on the process sequence control.

Voltage condition:

The check frequency depends on the process sequence control.

Condition for fault memory entry

Debounce (1000 ms)

Action in service

Check E-Box fan/DDE cooling. If E-Box fan/DDE cooling are OK:

2. Replace DDE control module.
Fault effect and breakdown warning

Driver information

Warning light:
MIL

Service instruction
none

DTC P2064 (BMW DTC 4C7C): REDUCING-AGENT METERING VALVE, ACTIVATION: POSITIVE SIDE, SHORT CIRCUIT TO POSITIVE

Information saved in
DDE

Fault code
4C7C - P2064

Fault description
The DDE recognizes a short circuit to positive in the output stage:
SCR metering module.

Condition for fault identification
Test condition:
The error check proceeds continuously according to the programmed process grid.

Voltage condition:
The error check proceeds continuously according to the programmed process grid.

Condition for fault memory entry
Debounce (1000 ms)

Action in service
1. Check wires and plug connections.
2. If wiring and plug connections are OK:

Replace SCR metering module.

**Fault effect and breakdown warning**

- 

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC P2064 (BMW DTC 47F4): REDUCING-AGENT METERING VALVE, ACTIVATION: NEGATIVE SIDE, SHORT CIRCUIT TO POSITIVE**

**Information saved in**

DDE

**Fault code**

47F4 - P2064

**Fault description**

The DDE recognizes a short circuit to positive error in the output stage:

Metering module.

**Condition for fault identification**

Test condition:

The error check proceeds continuously according to the programmed process grid.

Voltage condition:

The error check proceeds continuously according to the programmed process grid.

**Condition for fault memory entry**

Debounce (1000 ms)
Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
3. Use diagnostic system to check metering module.
4. Replace metering module.

Fault effect and breakdown warning

Driver information

Warning light:

MIL

Service instruction

none

DTC P2063 (BMW DTC 4C7B): REDUCING-AGENT METERING VALVE, ACTIVATION: POSITIVE SIDE, SHORT CIRCUIT TO EARTH

Information saved in

DDE

Fault code

4C7B - P2063

Fault description

The DDE recognizes short circuit to ground error in the output stage:

SCR metering module.

Condition for fault identification

Test condition:

The check frequency depends on the process sequence control.

Voltage condition:

The check frequency depends on the process sequence control.
Condition for fault memory entry

Debounce (1000 ms)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:

   Replace SCR metering module.

Fault effect and breakdown warning

-

Driver information

Warning light:
MIL

Service instruction

none

DTC P2063 (BMW DTC 47F9): REDUCING-AGENT METERING VALVE, ACTIVATION: NEGATIVE SIDE, SHORT CIRCUIT TO EARTH

Information saved in
DDE

Fault code
47F9 - P2063

Fault description

The DDE recognizes short circuit to ground error in the output stage: Metering module.

Condition for fault identification

Test condition:

The check frequency depends on the process sequence control.
Voltage condition:

The check frequency depends on the process sequence control.

Condition for fault memory entry

Debounce (1000 ms)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
3. Use diagnostic tester to test metering module.
4. Replace metering module.

Fault effect and breakdown warning

- Driver information

Warning light:

MIL

Service instruction

none

DTC P10DA (BMW DTC 4603): REDUCING AGENT, OUTPUT OF FEED LINE HEATER TOO LOW: OPEN CIRCUIT, HEATER CIRCUIT

Information saved in

DDE

Fault code

4603 - P10DA

Fault description

Starting with 03/2010 the heating units for the delivery module and the heating systems are activated consecutively with a 500 ms delay. This results in two spikes in the lead value. The error is recognized when the second spike in the lead value is below the limit 0 1/Ohm.

Condition for fault identification
Test condition:

This error is checked once in each heating cycle when a lead value stroke has been detected or 2 seconds have elapsed since initial heater activation.

Voltage condition:

This error is checked once in each heating cycle when a lead value stroke has been detected or 2 seconds have elapsed since initial heater activation.

**Condition for fault memory entry**

Event debounced (1)

**Action in service**

1. If the DTC 45F1 also appears: Replace power switch.
2. Repair sources of electrical tracking and arcing (moisture in the wiring or plug connections).
3. Check the resistance in the metering line heating system.
4. Replace power switch.
5. Replace the metering line.

**Fault effect and breakdown warning**

-

**Driver information**

Warning light:

MIL

**Service instruction**

Resistance in the metering line heating system:

E70: 3.8 - 4.4 ohms

E90: 1.5 - 1.7 ohms

**DTC P10DB (BMW DTC 4602): REDUCING AGENT, OUTPUT OF FEED LINE HEATER TOO HIGH: SHORT CIRCUIT, HEATER CIRCUIT**

**Information saved in**

DDE
Fault code

4602 - P10DB

Fault description

The error is recognized when the resistance following activation of the metering line's heating unit rises above a specific limit value.

Condition for fault identification

Test condition:

A check for this error runs once per heating cycle.

Voltage condition:

A check for this error runs once per heating cycle.

Condition for fault memory entry

Event debounced (1)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   3. Check resistance in the metering line heating unit
   4. Replace metering line heating unit.

Fault effect and breakdown warning

-

Driver information

Warning light:

MIL

Service instruction

Resistance in the metering line heating system:

E70: 3.8 - 4.4 ohms
E90: 1.5 - 1.7 ohms
DTC P20B5 (BMW DTC 4601): REDUCING AGENT, OUTPUT OF DELIVERY MODULE HEATER TOO LOW: OPEN CIRCUIT, HEATER CIRCUIT

Information saved in
DDE

Fault code
4601 - P20B5

Fault description
The error is recognized when no lead value stroke has been recognized after a specific period of time, meaning that the lead value remains below the threshold 0 1/Ohm.

Condition for fault identification
Test condition:
A check for this error runs once per heating cycle.

Voltage condition:
A check for this error runs once per heating cycle.

Condition for fault memory entry
Event debounced (1)

Action in service
1. Check resistance of delivery module heater unit.
2. Replace delivery module.

Fault effect and breakdown warning

Driver information
Warning light:
MIL

Service instruction
Delivery module heating unit resistance:
2.9 - 5.5 ohms

**DTC P20B8 (BMW DTC 45F1): REDUCING AGENT, OUTPUT OF FEED MODULE HEATER POWER TOO HIGH: SHORT CIRCUIT, HEATER CIRCUIT**

Information saved in

DDE

**Fault code**

45F1 - P20B8

**Fault description**

Starting with 03/2010 the heating units for the delivery module and the metering line are activated consecutively with a 500 ms delay. This results in two peaks in the lead value. The error is recognized when the first spike in the lead value is above the limit 0.1 Ohm.

**Condition for fault identification**

Test condition:

A check for this error runs once per heating cycle.

Voltage condition:

A check for this error runs once per heating cycle.

**Condition for fault memory entry**

Event debounced (1)

**Action in service**

- If the DTC 4603 also appears at the same time: Replace power switch.

  Repair sources of electrical tracking and arcing (moisture in the wiring or plug connections).

- Check resistance of the delivery module’s heating system.

- Replace power switch.

**Fault effect and breakdown warning**

-

**Driver information**
Warning light:

MIL

Service instruction

If the new version of the power switch is installed measure the resistance of the delivery module heating system's circuits.

Delivery module heater resistance:

2.9 - 5.5 ohms

DTC P20B5 (BMW DTC 4C72): REDUCING-AGENT PRESSURE-LINE HEATING: SHORT CIRCUIT, HEATER CIRCUIT

Information saved in

DDE

Fault code

4C72 - P20B5

Fault description

Monitoring of reduction agent pressure line heating. The diagnostic trouble code is logged when the measured current draw from the deactivated heater exceeds the limit value 150 μA.

Condition for fault identification

Test condition:

The error check runs continuously when the tank heater is deactivated.

Voltage condition:

The error check runs continuously when the tank heater is deactivated.

Condition for fault memory entry

Debounce (15000 ms)

Action in service

1. Check the control wire and the diagnostic wire.
2. If wiring and plug connections are OK:
3. Check plug connections for moisture.
4. Use diagnostic system to test heating systems.
5. Replace power switch.

**Fault effect and breakdown warning**

- 

**Driver information**

Warning light:

MIL

**Service instruction**

The power switch transmits an activation signal to all heaters. The first heater circuit is for the active tank heater, the second heater circuit is for the delivery module and the metering line.

The control wire should not be in contact with ground or B+ when the DDE and power switch are unplugged.

**DTC P20B6 (BMW DTC 49E5): REDUCING-AGENT PRESSURE-LINE HEATING: OPEN CIRCUIT, HEATER CIRCUIT**

**Information saved in**

DDE

**Fault code**

49E5 - P20B6

**Fault description**

Monitoring reduction agent metering line heater. An open circuit error is recognized when the heating system's monitored current draw is below the limit value by an increment defined according to operating point.

**Condition for fault identification**

Test condition:

The test routine runs when the following conditions are satisfied:

- The active tank heating system is activated.
- No battery fault is detected.

**Voltage condition:**
The test routine runs when the following conditions are satisfied:

- The active tank heating system is activated.
- No battery fault is detected.

**Condition for fault memory entry**

Debounce (2200 ms)

**Action in service**

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
3. Use diagnostic system to activate the heater.
4. Replace metering line.

**Fault effect and breakdown warning**

- 

**Driver information**

Warning light:

MIL

**Service instruction**

Measure resistance in the metering line

Can only occur with earlier power switch installed prior to 09/2009.

**DTC P20B6 (BMW DTC 4968): REDUCING-AGENT PRESSURE-LINE HEATING: MAXIMUM HEAT OUTPUT TOO LOW**

**Information saved in**

DDE

**Fault code**

4968 - P20B6

**Fault description**

Monitoring peak power in reduction agent metering line heater. An open circuit error is recognized when the peak heater power lies below a limit value defined based on operating point and the peak power test has been
completed.

The peak power test is terminated when one of the following conditions is met:

- An activation signal has been transmitted to the heater for at least 10000 ms.
- When the peak power test has been recognized as terminated based on the shift in the heater's power.

**Condition for fault identification**

**Test condition:**

The error check runs once the peak power test has been completed.

**Voltage condition:**

The error check runs once the peak power test has been completed.

**Condition for fault memory entry**

**Event debounced (1)**

**Action in service**

1.a) If this error appears together with DTC 49E5: Fault in metering wire, check resistance.
1.b) If the error appears alone check the resistance in the delivery module heating system.
2. Defective delivery module heating system.
3. Metering line heater defective.

**Fault effect and breakdown warning**

- 

**Driver information**

**Warning light:**

MIL

**Service instruction**

none

**DTC P20B5 (BMW DTC 49E2): HEATING, SCR SYSTEM, POWER PEAKS: MAXIMUM HEAT OUTPUT TOO HIGH**

**Information saved in**
DDE

Fault code

49E2 - P20B5

Fault description

Monitoring peak power in reduction agent pressure line heater. A short circuit is recognized when the peak heater output is above a limit value defined based on operating point and the peak power test has been completed.

The peak power test is terminated when one of the following conditions is met:

- An activation signal has been transmitted to the heater for at least 10000 ms.
- When the peak power test has been recognized as terminated based on the shift in the heater's power.

Condition for fault identification

Test condition:

The error check runs once the peak power test has been completed.

Voltage condition:

The error check runs once the peak power test has been completed.

Condition for fault memory entry

Event debounced (1)

Action in service

1. Check resistance of heater elements.
2. Check heater wires for short circuits to ground.

Fault effect and breakdown warning

-

Driver information

Warning light:

MIL

Service instruction
DTC P202A (BMW DTC 49ED): REDUCING-AGENT ACTIVE-TANK HEATING: SHORT CIRCUIT, HEATER CIRCUIT

Information saved in

DDE

Fault code

49ED - P202A

Fault description

Active tank heater monitoring. When the heater is deactivated the measured current draw of the active tank heater should not be above the limit value 100 µA. If the measured current draw is not above the limit value, this indicates a short circuit and a diagnostic trouble code is logged.

Condition for fault identification

Test condition:

The error check runs continuously when the active tank heater is deactivated.

Voltage condition:

The error check runs continuously when the active tank heater is deactivated.

Condition for fault memory entry

Debounce (15000 ms)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
3. Replace power switch.

Fault effect and breakdown warning

- 

Driver information

Warning light:

MIL
Service instruction

Check the control-activation wire for a short circuit to ground. The power switch transmits an activation signal to all heaters. The first heater circuit is for the active tank heater, the second heater circuit is for the delivery module and the metering line.

The control-activation wire should have no continuity with either ground or positive when disconnected from the DDE and the power switch.

**DTC P209F (BMW DTC 49E1): REDUCING-AGENT ACTIVE-TANK HEATING: OPEN CIRCUIT, HEATER CIRCUIT**

**Information saved in**

DDE

**Fault code**

49E1 - P209F

**Fault description**

Active tank heater monitoring. An open circuit error is logged when the heater's measured current draw is below the limit value.

**Condition for fault identification**

**Test condition:**

The test routine runs when the following conditions are satisfied:

- The active tank heating system is activated.
- No battery fault is detected.

**Voltage condition:**

The test routine runs when the following conditions are satisfied:

- The active tank heating system is activated.
- No battery fault is detected.

**Condition for fault memory entry**

Debounce (2200 ms)

**Action in service**

Top up reduction agent and check fluid level using the diagnostic system.
If it is not possible to repair the problem by refilling with reduction agent:

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
3. Check the heating system using the diagnostic system.
4. Determine the level of electrical resistance in the tank's heating system.
5. Check active tank heating system:
6. Replace power switch.

**Fault effect and breakdown warning**

- 

**Driver information**

Warning light:

MIL

**Service instruction**

Refill reduction agent to avoid air bubble. Repeat activation of heater and check current signal (specified: 5 - 9 A) Check with tester.

Tank heating system resistance specifications:

1.5 - 2.4 ohms

**DTC P202C (BMW DTC 49DC): REDUCING-AGENT ACTIVE-TANK HEATING: MAXIMUM HEAT OUTPUT TOO HIGH**

**Information saved in**

DDE

**Fault code**

49DC - P202C

**Fault description**

Active tank heater power peak monitoring. A short circuit is recognized when the peak heater power is above a limit value defined based on operating point, and after the peak power test has been completed.

The peak power test is terminated when one of the following conditions is met:

- An activation signal has been transmitted to the heater for at least 10000 ms.
- When the peak power test has been recognized as terminated based on the output shift of the heater.

**Condition for fault identification**

**Test condition:**

The error check runs once the peak power test has been completed.

**Voltage condition:**

The error check runs once the peak power test has been completed.

**Condition for fault memory entry**

Event debounced (1)

**Action in service**

1. Check resistance of heater elements.
2. Check heater wires for short circuits to ground.

**Fault effect and breakdown warning**

- 

**Driver information**

Warning light:

MIL

**Service instruction**

Measure the resistance of the active tank's heating system at the power switch: Specified readings: 1.5 - 2.4 ohms

**DTC P20BD (BMW DTC 46C4): REDUCING-AGENT PRESSURE-LINE HEATING, ACTIVATION: OPEN CIRCUIT**

**Information saved in**

DDE

**Fault code**

46C4 - P20BD

**Fault description**
The DDE recognizes an open-circuit error at the output stage:

Metering line/delivery module heater.

**Condition for fault identification**

Test condition:

The test routine is executed continuously.

Voltage condition:

The test routine is executed continuously.

**Condition for fault memory entry**

Debounce (1000 ms)

**Action in service**

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   3. Inspect fuse.
   4. Replace relay.
   5. Replace power switch.

**Fault effect and breakdown warning**

Driver information

Warning light:

MIL

**Service instruction**

Heater circuit 2 is for the metering wire and delivery module.

If DTC 4C72 or 49ED is logged, this is a collateral error and shuts down the relay. Repair this malfunction and delete stored DTCs from the error memory.

**DTC P20C0 (BMW DTC 46C9): REDUCING-AGENT PRESSURE-LINE HEATING, ACTIVATION: SHORT CIRCUIT TO POSITIVE**

Information saved in
DDE

Fault code
46C9 - P20C0

Fault description

The DDE recognizes short circuit to B+ error in the output stage:

Reduction agent pressure line heating

Condition for fault identification

Test condition:

The check frequency depends on the process sequence control.

Voltage condition:

The check frequency depends on the process sequence control.

Condition for fault memory entry

Debounce (1000 ms)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   3. Use diagnostic system to activate the heater.
   4. Replace power switch.

Fault effect and breakdown warning

- 

Driver information

Warning light:

MIL

Service instruction

Heater circuit 2 is for the metering wire and delivery module.
DTC P20BF (BMW DTC 46CE): REDUCING-AGENT PRESSURE-LINE HEATING, ACTIVATION: SHORT CIRCUIT TO GROUND

Information saved in
DDE

Fault code
46CE - P20BF

Fault description
The DDE recognizes short circuit to ground error in the output stage:
Reduction agent pressure line heating

Condition for fault identification
Test condition:
The check frequency depends on the process sequence control.

Voltage condition:
The check frequency depends on the process sequence control.

Condition for fault memory entry
Debounce (1000 ms)

Action in service
1. Check wires and plug connections.
2. Defective power switch.
3. Defective fuse.
4. Defective relay.

Fault effect and breakdown warning
-

Driver information
Warning light:
MIL
Service instruction

Heater circuit 2 is for the metering wire and delivery module.

If DTC 4C72 or 49ED is logged, this is a collateral error and shuts down the relay. Repair this malfunction and delete stored DTCs from the error memory.

**DTC P20C0 (BMW DTC 46DE): REDUCING-AGENT PRESSURE-LINE HEATING DIAGNOSIS, SIGNAL: SHORT CIRCUIT TO POSITIVE**

Information saved in

DDE

**Fault code**

46DE - P20C0

**Fault description**

Metering wire/delivery module heater monitoring. When the voltage signal rises above the maximum limit 3200 mV the diagnostic trouble code is logged.

**Condition for fault identification**

Test condition:

The test routine is executed only provided that no other electrical faults are present. The error check proceeds continuously according to the defined process running time.

Voltage condition:

The test routine is executed only provided that no other electrical faults are present. The error check proceeds continuously according to the defined process running time.

**Condition for fault memory entry**

Debounce (50 ms)

E90-M57D30T2-AT-LEVII:

Debounce (500 ms)

**Action in service**

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
3. Check resistances in heating circuit.
4. Inspect fuse.
5. Use diagnostic system to test heating systems.
6. Replace power switch.
7. Replace metering line heater.

Fault effect and breakdown warning

Driver information

Warning light:
MIL

Service instruction

Heater circuit 2 is for the metering wire and delivery module.

Perform electrical checks of resistances in heater circuit at power switch. Heater circuit metering wire specifications:
E70: 3.8 - 4.4 ohms
E90: 1.5 - 1.7 ohms

Heater circuit delivery module specifications:
2.9 - 5.5 ohms

**DTC P202A (BMW DTC 46E4): REDUCING-AGENT ACTIVE-TANK HEATING, ACTIVATION: OPEN CIRCUIT**

Information saved in
DDE

Fault code
46E4 - P202A

Fault description
The DDE recognizes an open-circuit error at the output stage:
Active tank heating system.
Condition for fault identification

Test condition:

The error check proceeds continuously according to the programmed process grid.

Voltage condition:

The error check proceeds continuously according to the programmed process grid.

Condition for fault memory entry

Debounce (2000 ms)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
3. Use diagnosis to activate heating systems.
4. Inspect fuse.
5. Replace power switch (relay).

Fault effect and breakdown warning

-

Driver information

Warning light:

MIL

Service instruction

Heater circuit 2 is for the metering wire and delivery module.

If DTC 4C72 or 49ED is logged, this is a collateral error and shuts down the relay. Repair this malfunction and delete stored DTCs from the error memory.

DTC P202C (BMW DTC 46E9): REDUCING-AGENT ACTIVE-TANK HEATING, ACTIVATION: SHORT CIRCUIT TO POSITIVE

Information saved in

DDE

Fault code
46E9 - P202C

Fault description

The DDE recognizes a short circuit to positive error in the output stage:

Active tank heating system.

Condition for fault identification

Test condition:

The check frequency depends on the process sequence control.

Voltage condition:

The check frequency depends on the process sequence control.

Condition for fault memory entry

Debounce (1000 ms)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
3. Use diagnosis to activate heating systems.
4. Replace power switch.

Fault effect and breakdown warning

- 

Driver information

Warning light:

MIL

Service instruction

none

DTC P202B (BMW DTC 46EE): REDUCING-AGENT ACTIVE-TANK HEATING, ACTIVATION: SHORT CIRCUIT TO GROUND

Information saved in
DDE

Fault code

46EE - P202B

Fault description

The DDE recognizes short circuit to ground error in the output stage:

Active tank heating system.

Condition for fault identification

Test condition:

The check frequency depends on the process sequence control.

Voltage condition:

The check frequency depends on the process sequence control.

Condition for fault memory entry

Debounce (2000 ms)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
3. Use diagnosis to activate heating systems.
4. Check fuses.
5. Replace power switch.

Fault effect and breakdown warning

-

Driver information

Warning light:

MIL

Service instruction

Heater circuit 2 is for the metering wire and delivery module.
If DTC 4C72 or 49ED is logged, this is a collateral error and shuts down the relay. Repair this malfunction and delete stored DTCs from the error memory.

**DTC P202A (BMW DTC 46D4): REDUCING-AGENT ACTIVE-TANK HEATING DIAGNOSIS, SIGNAL: SHORT CIRCUIT TO POSITIVE**

**Information saved in**

DDE

**Fault code**

46D4 - P202A

**Fault description**

Active tank heater monitoring. When the voltage signal rises above the maximum limit 3200 mV the diagnostic trouble code is logged.

**Condition for fault identification**

**Test condition:**

The test routine is executed only provided that no other electrical faults are present. The error check proceeds continuously according to the defined process running time.

**Voltage condition:**

The test routine is executed only provided that no other electrical faults are present. The error check proceeds continuously according to the defined process running time.

**Condition for fault memory entry**

Debounce (50 ms)

E90-M57D30T2-AT-LEVI:

Debounce (500 ms)

**Action in service**

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
3. Check resistances in heating circuits.
4. Inspect fuse.
5. Use diagnostic system to test heating systems.
6. Replace power switch.
7. Check active tank heating system:

Fault effect and breakdown warning

-

Driver information

Warning light:

MIL

Service instruction

Perform electrical checks of resistances in heater circuit at power switch. Active tank heating circuit specifications:

1.5 - 2.4 ohms

DTC P21A9 (BMW DTC 4BCD): REDUCING-AGENT PASSIVE-TANK FILL-LEVEL SENSOR, PLAUSIBILITY: PLAUSIBILITY ERROR

Information saved in

DDE

Fault code

4BCD - P21A9

Fault description

Plausibility check on passive tank level sensor. When the physical sensor signal falls below the limit value 35 % the signal is classified as implausible and the diagnostic trouble code is logged.

Condition for fault identification

Test condition:

The test routine is executed continuously.

Voltage condition:

The test routine is executed continuously.

Condition for fault memory entry

Debounce (30000 ms)
Action in service

If the reduction agent is frozen: Allow the tank to thaw.

If the reduction agent is not frozen:

Completely fill tank.

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
3. Use diagnostic system to check fluid level.
4. Replace passive tank.

Fault effect and breakdown warning

- 

Driver information

Warning light:

MIL

Service instruction

When a plausibility error is present the higher level sensor recognizes a fluid level (conductivity) while the lower level sensor does not.

In winter: For example, when a frozen passive tank is refilled, the lower sensor might be encapsulated in ice, while the upper sensor would recognize conductivity.

The level sensor's conductivity can also be assessed as follows:

1. Use the diagnostic system to read out the tank fluid level.
2. Delete the DTCs from the error memory and carry out the quick-test procedure for the individual control modules. Watch for new DTC entries.

If the DTC 4BCB is present at the same time it must be repaired first.

**DTC P21A8 (BMW DTC 4BCC): REDUCING-AGENT PASSIVE-TANK FILL-LEVEL SENSOR, SIGNAL: SENSOR FAULT**

Information saved in

DDE

Fault code
Fault description

Monitoring of both passive tank level sensors. The DTC is logged when the physical sensor signal is between 35 % and 45 %.

Condition for fault identification

Test condition:

The test routine is executed continuously.

Voltage condition:

The test routine is executed continuously.

Condition for fault memory entry

Debounce (2000 ms)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
3. Use diagnostic system to check sensor signal.
4. Replace passive tank.

Fault effect and breakdown warning

- 

Driver information

Warning light:

MIL

Service instruction

Measure the resistance levels at the fluid-level sensor between pins 1 and 2, and between pins 3 and 4. The tank must be empty for this measurement.

Normal resistance with empty tank: 10 kOhm.

Resistance levels in excess of 12 kOhms indicate that the fluid-level sensor is defective.
DTC P21A8 (BMW DTC 4BCB): REDUCING-AGENT PASSIVE-TANK FILL-LEVEL SENSOR, SIGNAL: SENSOR MONITORING FAULT

Information saved in

DDE

Fault code

4BCB - P21A8

Fault description

Plausibility check on passive tank reduction agent level.

The level sensor's evaluation circuit transmits the information "all sensors wet" immediately followed by "all sensors dry" within the period 70 s. The diagnostic trouble code is logged when the status change is not completed within this period.

The diagnostic trouble code is also logged when the raw level value does not lie between SCR_rUPasTnkLvlMin_C and SCR_rUPasTnkLvlMax_C.

Condition for fault identification

Test condition:

The test routine is executed continuously.

Voltage condition:

The test routine is executed continuously.

Condition for fault memory entry

Debounce (2000 ms)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
3. Replace electronic processing circuitry for the passive tank's fluid-level sensors.

Fault effect and breakdown warning

-

Driver information
Warning light:
MIL

Service instruction
none

DTC P208A (BMW DTC 47EE): REDUCING-AGENT DELIVERY PUMP, ACTIVATION: OPEN CIRCUIT

Information saved in
DDE

Fault code
47EE - P208A

Fault description
The DDE recognizes an open-circuit error at the output stage:
Delivery pump.

Condition for fault identification
Test condition:
The error check proceeds continuously according to the programmed process grid.

Voltage condition:
The error check proceeds continuously according to the programmed process grid.

Condition for fault memory entry
Debounce (8000 ms)

Action in service
1. Check wires and plug connections.
2. If wiring and plug connections are OK:
3. Check fuse
4. Use diagnostic system to check pressurization.
5. Replace delivery module.
Fault effect and breakdown warning

- 

Driver information

Warning light:

MIL

Service instruction

1. The wire that activates the delivery pump is open. No 12-volt power supply is present.
2. Open circuit in voltage supply to active tank. In this case the DTC 46AF is also present.

DTC P208D (BMW DTC 47E4): REDUCING-AGENT DELIVERY PUMP, ACTIVATION: SHORT CIRCUIT TO POSITIVE

Information saved in

DDE

Fault code

47E4 - P208D

Fault description

The DDE recognizes a short circuit to positive error in the output stage:

Delivery pump.

Condition for fault identification

Test condition:

The check frequency depends on the process sequence control.

Voltage condition:

The check frequency depends on the process sequence control.

Condition for fault memory entry

Debounce (1000 ms)

Action in service
1. Check wires and plug connections.
2. If wiring and plug connections are OK:
3. Use diagnostic system to test delivery module.
4. Replace delivery module.

Fault effect and breakdown warning

- 

Driver information

Warning light:

MIL

Service instruction

none

DTC P208C (BMW DTC 47E9): REDUCING-AGENT DELIVERY PUMP, ACTIVATION: SHORT CIRCUIT TO GROUND

Information saved in

DDE

Fault code

47E9 - P208C

Fault description

The DDE recognizes short circuit to ground error in the output stage:

Delivery pump.

Condition for fault identification

Test condition:

The check frequency depends on the process sequence control.

Voltage condition:

The check frequency depends on the process sequence control.

Condition for fault memory entry
Debounce (8000 ms)

**Action in service**

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
3. Use diagnostic system to test delivery module.
4. Replace delivery module.

**Fault effect and breakdown warning**

-

**Driver information**

Warning light:

MIL

**Service instruction**

If the wires are OK and the pump indicates a short circuit to ground replace the delivery module.

**DTC P204D (BMW DTC 4D51): REDUCING-AGENT PRESSURE SENSOR, RANGE: UPPER PHYSICAL LIMIT EXCEEDED**

**Information saved in**

DDE

**Fault code**

4D51 - P204D

**Fault description**

The diagnostic trouble code is logged when the physical sensor signal for reduction agent pressure rises above the limit value 7800 mbar.

**Condition for fault identification**

Test condition:

The monitoring function is only implemented when no electrical error is logged.

Voltage condition:
The monitoring function is only implemented when no electrical error is logged.

**Condition for fault memory entry**

Debounce (10000 ms)

**Action in service**

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
3. Use diagnostic system to check pressure sensor.
4. Replace delivery module.

**Fault effect and breakdown warning**

Driver information

Warning light:

MIL

Service instruction

This fault is the result of a wiring defect.

**DTC P204B (BMW DTC 4D36): REDUCING-AGENT PRESSURE SENSOR, PLAUSIBILITY**

Information saved in

DDE

**Fault code**

4D36 - P204B

**Fault description**

Reduction agent pressure sensor plausibility check. The plausibility of the pressure sensor's transmissions is assessed using a pressure value calculated relative to the ambient temperature. The diagnostic trouble code is logged when the difference between measured reduction agent pressure and the reference pressure exceeds the limit value 450 mbar.

**Condition for fault identification**

Test condition:
Execution of the error check is contingent upon compliance with the following conditions:

1. The signal qualities of the reference pressure sensors are OK.
2. The fuel tank system has already been drained (level <= 0 %).

Voltage condition:

Execution of the error check is contingent upon compliance with the following conditions:

1. The signal qualities of the reference pressure sensors are OK.
2. The fuel tank system has already been drained (level <= 0 %).

Condition for fault memory entry

Debounce (600 ms)

Action in service

1. Use diagnostic system to test the pressure sensor.
2. Replace delivery module.

Fault effect and breakdown warning

- 

Driver information

Warning light:

MIL

Service instruction

none

**DTC P20A0 (BMW DTC 46AF): REDUCING-AGENT CHANGEOVER VALVE, ACTIVATION: OPEN CIRCUIT**

Information saved in

DDE

Fault code

46AF - P20A0

Fault description
The DDE recognizes a load drop error in the output stage:

Reduction agent switch valve

**Condition for fault identification**

Test condition:

The error check proceeds continuously according to the programmed process grid.

Voltage condition:

The error check proceeds continuously according to the programmed process grid.

**Condition for fault memory entry**

Debounce (1000 ms)

**Action in service**

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
3. Use diagnostic system to activate switch valve.
4. Check switch valve resistance.
5. Inspect fuse.
6. Replace delivery module.

**Fault effect and breakdown warning**

-

**Driver information**

Warning light:

MIL

**Service instruction**


**DTC P20A3 (BMW DTC 46BF): REDUCING-AGENT CHANGEOVER VALVE, ACTIVATION: SHORT CIRCUIT TO POSITIVE**

**Information saved in**

DDE
Fault code

46BF - P20A3

Fault description

The DDE recognizes a short circuit to the high side in the output stage:

Reduction agent switch valve (fuel delivery from passive to active fuel tank)

Condition for fault identification

Test condition:

The error check proceeds continuously according to the programmed process grid.

Voltage condition:

The error check proceeds continuously according to the programmed process grid.

Condition for fault memory entry

Debounce (1000 ms)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
3. Replace delivery module.

Fault effect and breakdown warning

-

Driver information

Warning light:

MIL

Service instruction

none

DTC P20A2 (BMW DTC 46CF): REDUCING-AGENT CHANGEOVER VALVE, ACTIVATION: SHORT CIRCUIT TO GROUND

Information saved in

Tuesday, September 09, 2014 5:12:38 PM
DDE

Fault code

46CF - P20A2

Fault description

The DDE recognizes a short circuit to ground in the output stage:

Reduction agent switch valve (fuel delivery from passive to active fuel tank)

Condition for fault identification

Test condition:

The error check proceeds continuously according to the programmed process grid.

Voltage condition:

The error check proceeds continuously according to the programmed process grid.

Condition for fault memory entry

Debounce (1000 ms)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   3. Replace delivery module.

Fault effect and breakdown warning

-  

Driver information

Warning light:

MIL

Service instruction

none

DTC P203B (BMW DTC 4BAD): REDUCING-AGENT ACTIVE-TANK FILL-LEVEL SENSOR, PLAUSIBILITY: PLAUSIBILITY ERROR
Information saved in

DDE

Fault code

4BAD - P203B

Fault description

Plausibility check on active tank level sensor. When the physical sensor signal falls below the limit value 35 % the signal is classified as implausible and the diagnostic trouble code is logged.

Condition for fault identification

none

Condition for fault memory entry

Debounce (15000 ms)

Action in service

- If the reduction agent is frozen: Allow the active tank to thaw. Delete the diagnostic trouble code from the ECU.
- If the reduction agent is not frozen:
  1. Check wires and plug connections.
  2. If wiring and plug connections are OK:
  3. Use diagnostic system to check fluid level in active tank.
  4. Check to determine whether DTC 4BAB is present. Repair this first.
  5. Replace the active tank.

Fault effect and breakdown warning

-

Driver information

Warning light:

MIL

Service instruction

In winter: Allow the tank to thaw. Check level. Delete the diagnostic trouble code from the ECU.

If the DTC 4BAB is present at the same time it must be repaired first.
DTC P203A (BMW DTC 4BAC): REDUCING-AGENT ACTIVE-TANK FILL-LEVEL SENSOR, SIGNAL: SENSOR FAULT

Information saved in

DDE

Fault code

4BAC - P203A

Fault description

Monitoring of active tank level sensor. The diagnostic trouble code is logged when the physical sensor signal is between 35 % and 45 %.

Condition for fault identification

none

Condition for fault memory entry

Debounce (2000 ms)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
3. Use the diagnostic system to check the fluid levels.
4. Replace the active tank.

Fault effect and breakdown warning

- 

Driver information

Warning light:

MIL

Service instruction

Measure the resistance levels on the level sensor between reference (pin 1) and tank level 1-3 (pins 2-4). The tank must be empty for the measurement.

Nominal value with tank empty: 10 kOhm
Resistance levels in excess of 12 kOhms indicate a defective fluid-level sensor.

**DTC P203A (BMW DTC 4BAB): REDUCING-AGENT ACTIVE-TANK FILL-LEVEL SENSOR, SIGNAL: SENSOR MONITORING FAULT**

**Information saved in**

DDE

**Fault code**

4BAB - P203A

**Fault description**

Plausibility check on active tank reduction agent level.

The level sensor's processing circuit transmits the information "all sensors wet" immediately followed by "all sensors dry" within the period 70 s. The diagnostic trouble code is logged when the status change is not completed within this period.

The diagnostic trouble code is also logged when the raw level value does not lie between SCR_rUTnkLvlMin_C and SCR_rUTnkLvlMax_C.

**Condition for fault identification**

none

**Condition for fault memory entry**

Debounce (2000 ms)

**Action in service**

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
3. Use the diagnostic system to check the fluid sensor.
4. Replace the electronic processing circuitry for the active tank's fluid-level sensors.

**Fault effect and breakdown warning**

-

**Driver information**

Warning light:
MIL

Service instruction

none

**DTC P205D (BMW DTC 46F4): REDUCING-AGENT ACTIVE-TANK TEMPERATURE SENSOR, SIGNAL: OPEN OR SHORT CIRCUIT TO POSITIVE**

Information saved in

DDE

Fault code

46F4 - P205D

Fault description

Active tank temperature sensor monitoring. The diagnostic trouble code is logged when the raw sensor signal (voltage) rises above the limit 3200 mV.

The diagnostic trouble code is also logged when the temperature sensor's resistance rises above roughly 350 kOhms.

**Condition for fault identification**

Test condition:

The test routine is executed only provided that no other electrical faults are present. The error check proceeds continuously in the programmed process grid.

Voltage condition:

The test routine is executed only provided that no other electrical faults are present. The error check proceeds continuously in the programmed process grid.

**Condition for fault memory entry**

Debounce (600 ms)

**Action in service**

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
4. Use diagnostic module to test temperature sensor's plausibility.
3. Replace active tank temperature sensor.
Fault effect and breakdown warning

Driver information

Warning light:
MIL

Service instruction

Specified active tank temperature sensor resistance: 12.3-12.6 kOhms at 20 °C.

**DTC P205C (BMW DTC 46F9): REDUCING-AGENT ACTIVE-TANK TEMPERATURE SENSOR, SIGNAL: SHORT CIRCUIT TO GROUND**

Information saved in

DDE

Fault code

46F9 - P205C

Fault description

Active tank temperature sensor monitoring. The diagnostic trouble code is logged when the raw sensor signal (voltage) falls below the minimum limit 165 mV.

Condition for fault identification

Test condition:

The test routine is executed only provided that no other electrical faults are present. The error check proceeds continuously in the programmed process grid.

Voltage condition:

The test routine is executed only provided that no other electrical faults are present. The error check proceeds continuously in the programmed process grid.

Condition for fault memory entry

Debounce (600 ms)

Action in service
1. Check wires and plug connections.
2. If wiring and plug connections are OK:
3. Use diagnostic system to test temperature sensor.
4. Replace sensor

**Fault effect and breakdown warning**

- 

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC P205B (BMW DTC 492C): REDUCING-AGENT ACTIVE-TANK TEMPERATURE SENSOR**

Information saved in

DDE

**Fault code**

492C - P205B

**Fault description**

A plausibility error at the reduction agent temperature sensor is recognized when:

Error 1: The tank temperature rises above the limit value -5 °C and the measured active tank level is less than 9 %.

Or:

Error 2: The tank temperature falls below the limit value -20 °C and the measured active tank level is greater than 9 %.

**Condition for fault identification**

Test condition:

For testing of the individual errors the following conditions must be satisfied:
1. The calculated tank level is greater than 45%.
   No other faults have been detected.

2. The outside temperature, the catalyst temperature and the coolant temperature do not display mutual deviations in excess of +/- 40 °C.

Voltage condition:

For testing of the individual errors the following conditions must be satisfied:

1. The calculated tank level is greater than 45%.
   No other faults have been detected.

2. The outside temperature, the catalyst temperature and the coolant temperature do not display mutual deviations in excess of +/- 40 °C.

**Condition for fault memory entry**

Debounce (16000 ms)

**Action in service**

1. Fill active tank.
2. Execute "refill recognition" service function.
3. Use the diagnostic system to read out the tank's contents and temperature and the data for the transfer pump and then examine them. Delete the DTC is plausible figures are indicated.
4. Replace temperature sensor.
5. Replace the transfer-pump assembly.

**Fault effect and breakdown warning**

- 

**Driver information**

Warning light:

MIL

**Service instruction**

In winter:
The temperature sensor is defective if a valid level signal is present at temperatures below -20°C.

**DTC P205B (BMW DTC 4D32): REDUCING-AGENT ACTIVE-TANK TEMPERATURE SENSOR, PLAUSIBILITY**

**Information saved in**

DDE

**Fault code**

4D32 - P205B

**Fault description**

Plausibility check on active tank reduction agent temperature sensor. The DTC is logged when the difference between the measured reduction agent temperature and the outside temperature rises above the limit value 40 °C.

**Condition for fault identification**

Test condition:

Execution of the error check is contingent upon compliance with the following conditions:

The outside temperature, the catalyst temperature and the coolant temperature do not display mutual deviations in excess of +/- 40 °C.

Voltage condition:

Execution of the error check is contingent upon compliance with the following conditions:

The outside temperature, the catalyst temperature and the coolant temperature do not display mutual deviations in excess of +/- 40 °C.

**Condition for fault memory entry**

Debounce (2000 ms)

**Action in service**

1. Use diagnostic system to check temperature sensor for plausible reading.
2. Replace temperature sensor.

**Fault effect and breakdown warning**

-
Driver information

Warning light:

MIL

Service instruction

none

DTC P205B (BMW DTC 4D33): REDUCING-AGENT ACTIVE-TANK TEMPERATURE SENSOR, PLAUSIBILITY

Information saved in

DDE

Fault code

4D33 - P205B

Fault description

Plausibility check on active tank reduction agent temperature sensor. The DTC is logged when the difference between the measured reduction agent temperature and the outside temperature falls below the limit value -40 °C.

Condition for fault identification

Test condition:

Execution of the error check is contingent upon compliance with the following conditions:

The outside temperature, the catalyst temperature and the coolant temperature do not display mutual deviations in excess of +/- 40 °C.

Voltage condition:

Execution of the error check is contingent upon compliance with the following conditions:

The outside temperature, the catalyst temperature and the coolant temperature do not display mutual deviations in excess of +/- 40 °C.

Condition for fault memory entry

Debounce (2000 ms)

Action in service
1. Use diagnostic system to check temperature sensor for plausible reading.
2. Replace temperature sensor.

Fault effect and breakdown warning

- 

Driver information

Warning light:
MIL

Service instruction

none

DTC P200A (BMW DTC 46A7): SWIRL-FLAP ACTUATOR: MECHANICAL FAULT (CONTROL DEVIATION CLOSE TO CLOSED POSITION)

Information saved in

DDE

Fault code

46A7 - P200A

Fault description

Swirl-valve actuator monitoring function.

The actuator reports an error to the DDE via the PWM control-activation wire.

The DDE recognizes the error when the actuator grounds the PWM control-activation signal between 400 ms and 600 ms.

Condition for fault identification

Test condition:

The check frequency depends on the process sequence control.

Voltage condition:

The check frequency depends on the process sequence control.

Condition for fault memory entry
Debounce (0 ms) Following detection of an error window the error counter is raised and the error timer is started.

If an additional error is recognized within the time 6600 ms the error counter is raised again and the timer is restarted.

If no error is recognized within the time, the error counter is reset to zero and the timer is stopped.

The diagnostic trouble code is logged when the error counter reaches the limit 3.

**Action in service**

Check the swirl-valve actuator for freedom of movement, replace as indicated.

**Fault effect and breakdown warning**

-  

**Driver information**

Warning light:

MIL_SVS

**Service instruction**

none

**DTC P200A (BMW DTC 46B7): SWIRL-FLAP ACTUATOR: ELECTRICALLY OR MECHANICALLY FAULTY (POSITION-SENSOR FAULT, CONTROL DEVIATION, MOTOR OVERCURRENT)**

**Information saved in**

DDE

**Fault code**

46B7 - P200A

**Fault description**

Swirl-valve actuator monitoring function.

The actuator reports an error to the DDE via the PWM control-activation wire.

The DDE recognizes the error when the actuator grounds the PWM control-activation signal between 850 ms and 1250 ms.
Condition for fault identification

Test condition:

The check frequency depends on the process sequence control.

Voltage condition:

The check frequency depends on the process sequence control.

Condition for fault memory entry

Debounce (0 ms) Following detection of an error window the error counter is raised and the error timer is started.

If an additional error is recognized within the time 6600 ms the error counter is raised again and the timer is restarted.

If no error is recognized within the time, the error counter is reset to zero and the timer is stopped.

When the error counter reaches the limit 3 the diagnostic trouble code is logged.

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   
   Replace swirl-valve actuator.

Fault effect and breakdown warning

- 

Driver information

Warning light:

MIL

Service instruction

none

DTC P200A (BMW DTC 46C7): SWIRL-FLAP ACTUATOR: ACTIVATION SIGNAL IMPLAUSIBLE, SUPPLY VOLTAGE INVALID, OVERTEMPERATURE

Information saved in
DDE

Fault code

46C7 - P200A

Fault description

Swirl-valve actuator monitoring function.

The actuator reports an error to the DDE via the PWM control-activation wire.

The DDE recognizes the error when the actuator grounds the PWM control-activation signal between 1350 ms and 1650 ms.

Condition for fault identification

Test condition:

The check frequency depends on the process sequence control.

Voltage condition:

The check frequency depends on the process sequence control.

Condition for fault memory entry

Debounce (0 ms) Following detection of an error window the error counter is raised and the error timer is started.

If an additional error is recognized within the time 6600 ms the error counter is raised again and the timer is restarted.

If no error is recognized within the time, the error counter is reset to zero and the timer is stopped.

When the error counter reaches the limit 3 the diagnostic trouble code is logged.

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   Replace swirl-valve actuator.

Fault effect and breakdown warning

-
Driver information

Warning light:

MIL

Service instruction

none

DTC P200A (BMW DTC 49F7): SWIRL-FLAP ACTUATOR: ELECTRICALLY FAULTY (EEPROM)

Information saved in

DDE

Fault code

49F7 - P200A

Fault description

Swirl-valve actuator monitoring function.

The actuator reports an error to the DDE via the PWM control-activation wire.

The DDE recognizes the error when the actuator grounds the PWM control-activation signal between 1850 ms and 2150 ms.

Condition for fault identification

Test condition:

The check frequency depends on the process sequence control.

Voltage condition:

The check frequency depends on the process sequence control.

Condition for fault memory entry

Debounce (0 ms) Following detection of an error window the error counter is raised and the error timer is started.

If an additional error is recognized within the time 6600 ms the error counter is raised again and the timer is restarted.

If no error is recognized within the time, the error counter is reset to zero and the timer is stopped.
When the error counter reaches the limit 1 the diagnostic trouble code is logged.

**Action in service**

Check swirl-valve actuator.

**Fault effect and breakdown warning**

-

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC P2008 (BMW DTC 4152): SWIRL-FLAP ACTUATOR, ACTIVATION: OPEN CIRCUIT**

**Information saved in**

DDE

**Fault code**

4152 - P2008

**Fault description**

The DDE recognizes an open-circuit error at the output stage:

Swirl-valve actuator.

**Condition for fault identification**

Test condition:

The error check proceeds continuously according to the programmed process grid.

Voltage condition:

The error check proceeds continuously according to the programmed process grid.

**Condition for fault memory entry**
Debounce (220 ms)

**Action in service**

1. Check wires and plug connections.
2. If wiring and plug connections are OK:

   Replace swirl-valve actuator.

**Fault effect and breakdown warning**

- 

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC P200A (BMW DTC 4153): SWIRL-FLAP ACTUATOR, ACTIVATION: OUTPUT STAGE, OVERTEMPERATURE**

**Information saved in**

DDE

**Fault code**

4153 - P200A

**Fault description**

The DDE recognizes an over-temperature fault in the output stage:

Swirl-valve actuator.

**Condition for fault identification**

Test condition:

The check frequency depends on the process sequence control.

Voltage condition:
The check frequency depends on the process sequence control.

**Condition for fault memory entry**

Debounce (220 ms)

**Action in service**

Check E-Box fan/DDE cooling. If E-Box fan/DDE cooling are OK:
Replace DDE control module.

**Fault effect and breakdown warning**

- none

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC P2010 (BMW DTC 4130): SWIRL-FLAP ACTUATOR, ACTIVATION: SHORT CIRCUIT TO POSITIVE**

**Information saved in**

DDE

**Fault code**

4130 - P2010

**Fault description**

The DDE recognizes a short circuit to positive error in the output stage:
Swirl-valve actuator.

**Condition for fault identification**

Test condition:

The check frequency depends on the process sequence control.
Voltage condition:

The check frequency depends on the process sequence control.

Condition for fault memory entry

Debounce (220 ms)

Action in service

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   Replace swirl-valve actuator.

Fault effect and breakdown warning

- 

Driver information

Warning light:

MIL

Service instruction

none

DTC P2009 (BMW DTC 4141): SWIRL-FLAP ACTUATOR, ACTIVATION: SHORT CIRCUIT TO GROUND

Information saved in

DDE

Fault code

4141 - P2009

Fault description

The DDE recognizes short circuit to ground error in the output stage:

Swirl-valve actuator.

Condition for fault identification
Test condition:

The check frequency depends on the process sequence control.

Voltage condition:

The check frequency depends on the process sequence control.

**Condition for fault memory entry**

Debounce (10200 ms)

**Action in service**

1. Check wires and plug connections.
2. If wiring and plug connections are OK:
   Replace swirl-valve actuator.

**Fault effect and breakdown warning**

-  

**Driver information**

Warning light:

MIL

**Service instruction**

none

**DTC P0501 (BMW DTC 3F53): ROADSPEED SIGNAL: PLAUSIBILITY W/INJECTION RATE AND ENGINE SPEED**

**Information saved in**

DDE

**Fault code**

3F53 - P0501

**Fault description**

The diagnostic trouble code is logged when the vehicle speed is below the minimum threshold 5 km/h.
Condition for fault identification

Test condition:

The test frequency depends on the time grid of the process.

Voltage condition:

The test frequency depends on the time grid of the process.

Condition for fault memory entry

Debounce (2000 ms)

Action in service

- Fault effect and breakdown warning

- Driver information

Warning light:

MIL

Service instruction

none

**DTC P0500 (BMW DTC 3F62): ROADSPEED SIGNAL VIA CAN: SIGNAL FAULTY**

Information saved in

DDE

Fault code

3F62 - P0500

Fault description

The diagnostic trouble code is logged when the vehicle speed transmitted through the CAN bus is invalid.

Condition for fault identification
Test condition:
The vehicle speed is received via the CAN bus. The check frequency depends on the process sequence control.

Voltage condition:
The vehicle speed is received via the CAN bus. The check frequency depends on the process sequence control.

Condition for fault memory entry
Debounce (1500 ms)

Action in service
Troubleshooting in transmitting control module.

Fault effect and breakdown warning

Driver information
Warning light:
MIL

Service instruction
none