

MAN engine error codes in German - Version 2

SPN 81 - FMI 1 - Exhaust gas differential pressure - too high

Monitoring strategy

Monitoring of differential pressure across the particulate filter

Possible causes

- The exhaust gas differential pressure across the particulate filter is too high

Possible test steps

- MAN cats: Observe the environmental conditions associated with the fault
- Check electrical wiring
- Check electrical plug connections
- Check the B695 differential pressure sensor for permissible values.
- p1 = pressure after DPF; p2 = pressure before DPF
- Check the exhaust system for leaks (possible leakage after DPF)
- Check the DPF for damage (possible partial collapse of the DPF)
- Checking for blockages in the downstream exhaust gas aftertreatment system or the downstream exhaust system
- Check exhaust back pressure with MAN-cats monitoring
- Check with MAN-cats: operating hours since last regeneration, fuel quantity since last regeneration, number of partial regenerations

Possible remedy

- Replace cables and plug contacts if necessary
- Replace the differential pressure sensor if necessary and reset the sensor's offset learning values. If this is not possible via MAN-cats, the ignition must be switched on and off again five times for a few seconds (approx. 20 s) (note the control unit follow-up time of max. 60 s)
- Repair leaks
- Burn off the particulate filter by: a) Passive regeneration by increasing the exhaust gas temperature. This is achieved by:
 - Placing a greater load on the engine (e.g., driving uphill, on a gradient) in a high gear
 - increasing the vehicle mass by increasing the load up to the maximum permissible total weight;
 - Higher vehicle speed. b) Active regeneration via MAN cats or optionally via regeneration request switch.
- Check downstream AGN or exhaust system for blockages
- Replace damaged DPF if necessary

SPN 81 - FMI 2 - Exhaust gas differential pressure - too low
Monitoring strategy

Monitoring of differential pressure across the particulate filter

Possible causes

- The exhaust gas differential pressure across the particulate filter is too low

Possible test steps

- Check electrical cables
- Check electrical plug connections
- Check the B695 differential pressure sensor for permissible values.
- p1 = pressure after DPF; p2 = pressure before DPF
- Check the exhaust system for leaks (possible leakage before DPF)
- Check the DPF for damage
- Check for tampering (possible removal of DPF). Is the DPF catalytic converter still installed in the housing?

Possible remedy

- Replace cables and plug contacts if necessary
- Replace the differential pressure sensor if necessary and reset the sensor's offset learning values. If this is not possible via MAN-cats, the ignition must be switched on and off again five times for a few seconds (approx. 20 s) (note the control unit follow-up time of max. 60 s).
- Repair any leaks
- Replace damaged DPF if necessary

SPN 94 - FMI 1 - Fuel supply pressure - too high
Monitoring strategy

Monitoring pressure

Possible causes

- Fuel filter clogged
- Air in the fuel rail
- Excessive vacuum upstream of the fuel delivery pump (blocked line from the tank)
- B377 Fuel pressure sensor defective
- Fuel feed pump defective

Possible test steps

- Check low-pressure circuit according to hydraulic test step list
- Check the fuel supply pressure using MAN CATS monitoring
- Setpoint: 5 bar to 6 bar when the engine is idling and the fuel filter is clean
- Check electrical wiring and plug connections
- B377 Check fuel pressure sensor
- Perform power supply, signal voltage, and resistance measurements according to the test step list.

Possible remedy

Perform a diagnosis of the common rail injection system using MAN cats:

- Fuel supply pressure before filter
- Setpoint: greater than 3 bar
- Rail pressure
- Setpoint: greater than 200 bar
- Replace fuel filter if necessary
- Replace B377 fuel pressure sensor if necessary
- Check/replace fuel delivery pump if necessary

SPN 94 - FMI 2 - Fuel supply pressure - too low
Monitoring strategy

Monitoring pressure

Possible causes

- Fuel filter clogged
- Air in the fuel rail
- Excessive vacuum pressure upstream of the fuel feed pump (blocked line from the tank)
- B377 Fuel pressure sensor defective
- Fuel feed pump is defective

Possible test steps

- Check low-pressure circuit according to hydraulic test step list
- Check the fuel supply pressure using MAN CATS monitoring
- Setpoint: 5 bar to 6 bar with engine idling and clean fuel filter
- Check electrical cables and plug connections
- Check B377 fuel pressure sensor
- Perform power supply, signal voltage, and resistance measurement according to the test step list.

Possible remedy

Perform a diagnosis of the common rail injection system using MAN cats:

- Fuel supply pressure before filter
- Setpoint: greater than 3 bar
- Rail pressure
- Setpoint: greater than 200 bar
- Replace fuel filter if necessary
- Replace B377 fuel pressure sensor if necessary
- Check/replace fuel feed pump if necessary

SPN 98 - FMI 1 - Engine oil level - too high

Monitoring strategy

Monitoring oil level

Possible causes

- Overfilling with oil

Possible test steps

- Check oil level

Possible remedy

- Lower oil level

SPN 98 - FMI 2 - Engine oil level - too low

Monitoring strategy

Monitoring oil level

Possible causes

- Oil level too low

Possible test steps

- Check oil level

Possible remedy

- Increase oil level

SPN 98 - FMI 3 - Engine oil level - implausible

Monitoring strategy

Monitoring oil level

Possible causes

- Oil level implausible

Possible test steps

- Check oil level

Possible remedy

- Adjust oil level

SPN 100 - FMI 2 - Engine oil pressure - too low
Monitoring strategy

Monitoring oil pressure

Possible causes

- Oil pressure too low
 - Oil level in oil pan too low -Oil pressure sensor/wiring not OK -Engine oil viscosity not OK (too low) - Bearing damage (bearing clearance too large); especially main and connecting rod bearings - Oil pump damage (too much play between oil pump wheels / bearings) - Oil suction basket clogged - Oil spray nozzle missing (broken off; fallen off) - Oil pressure control valve (oil module) defective / clogged

Possible test steps

-Check oil level - Install pressure gauge in oil circuit (oil module after oil cooler / in EDC sensor area); check wiring (continuity; resistance); replace pressure sensor -Check engine oil for fuel and/or coolant dilution (may be visible on oil filter); incorrect specification filled; oil change; Eliminate cause of dilution -Evaluate engine acoustics (possibly use MANCats cylinder deactivation test for detection); check oil filter for chips; repair bearings if necessary -Check for chips in oil filter; if in doubt, visually inspect oil pump; repair oil pump if necessary -Remove oil pan; Visually inspect oil suction basket; clean oil suction basket if necessary -Remove oil pan / oil pan yoke; visually inspect oil spray nozzle; replace oil spray nozzle if necessary -Remove oil module; visually inspect oil pressure control valve; clean / replace oil pressure control valve if necessary

Possible remedy

- B104 Replace oil pressure sensor
 - Replace electrical cables or plug connections if necessary

SPN 102 - FMI 1 - Charge air pressure upstream of engine (in charge air pipe) - too high**Monitoring strategy**

Monitoring for excessive boost pressure or plausibility of the rate of change of boost pressure in the charge air pipe

Possible causes

- B623 Charge pressure/temperature sensor is defective

Possible test steps

- Check the boost pressure for plausibility using MAN-cats monitoring
- Check B623 boost pressure/intercooler temperature sensor - Determine resistance values according to test step list in system description FEDC17 Industry - Check component wiring. Check component plug contacts

Possible remedy

- Replace B623 boost pressure/intercooled air temperature sensor if necessary
- Replace electrical cables or plug connections if necessary

SPN 102 - FMI 2 - Charge air pressure before engine (in charge air pipe) - too low**Monitoring strategy**

Monitoring for excessive and insufficient boost pressure, loose connection, or plausibility of the rate of change of boost pressure in the charge air pipe

Possible causes

- B623 Charge pressure/temperature sensor is defective
- Pressure loss via charge pressure line

Possible test steps

- Check the boost pressure for plausibility using MAN-cats monitoring
- Check B623 boost pressure/charge air temperature sensor
- Check B623 boost pressure/charge air temperature sensor according to test step list in system description MD1 Industry - Check component wiring. Check component plug contacts

Possible remedy

- Replace B623 boost pressure/intercooled air temperature sensor if necessary
- Replace electrical cables or plug connections if necessary

SPN 102 - FMI 3 - Charge air pressure upstream of engine (in charge air pipe) - implausible**Monitoring strategy**

Monitoring for excessive and insufficient boost pressure, loose connection, or plausibility of the rate of change of boost pressure in the charge air pipe

Possible causes

- B623 Charge pressure/temperature sensor is defective
- Pressure loss via charge pressure line

Possible test steps

- Check the boost pressure for plausibility using MAN-cats monitoring
- Check B623 boost pressure/charge air temperature sensor
- Check B623 boost pressure/charge air temperature sensor according to test step list in system description MD1 Industry - Check component wiring. Check component plug contacts

Possible remedy

- Replace B623 boost pressure/intercooled air temperature sensor if necessary
- Replace electrical cables or plug connections if necessary

SPN 102 - FMI 8 - Charge air pressure upstream of engine (in charge air pipe) - Invalid signal
Monitoring strategy

Monitoring for excessive and insufficient boost pressure, loose connection, or plausibility of the rate of change of boost pressure in the charge air pipe

Possible causes

- B623 Charge pressure/temperature sensor is defective

Possible test steps

- Check the boost pressure for plausibility using MAN-cats monitoring
- Check B623 boost pressure/intercooled air temperature sensor
- Check B623 boost pressure/intercooled air temperature sensor according to test step list in system description MD1 Industry - Check component wiring. Check component plug contacts

Possible remedy

- Replace B623 boost pressure/intercooled air temperature sensor if necessary
- Replace electrical cables or plug connections if necessary

SPN 105 - FMI 1 - Charge air temperature before cylinder inlet (after EGR feed) - too high**Monitoring strategy**

Monitoring for excessive and insufficient charge air temperature, loose connections, and plausibility of the rate of change

Possible causes

- Charge air temperature outside the permissible limit
- B123 Charge air temperature sensor defective
- The EGR valve may be blocked due to unauthorized tampering

Possible test steps

- Use MAN-cats monitoring to check the charge air temperature before cylinder intake after EGR - Check the charge air temperature sensor according to the test step list in the MD1 Industry system description

Possible remedy

- Replace B123 charge air temperature sensor if necessary

SPN 105 - FMI 2 - Charge air temperature before cylinder inlet (after EGR feed) - too low**Monitoring strategy**

Monitoring for excessively high and low charge air temperature, loose connection, and plausibility of the rate of change

Possible causes

- Charge air temperature outside the permissible limit
- B123 Charge air temperature sensor defective
- The EGR valve may be blocked due to unauthorized tampering

Possible test steps

- Use MAN-cats monitoring to check the charge air temperature before cylinder intake after EGR - Check the charge air temperature sensor according to the test step list in system description MD1 Industry

Possible remedy

- Replace B123 charge air temperature sensor if necessary

SPN 105 - FMI 8 - Charge air temperature before cylinder inlet (after EGR feed) - Invalid signal**Monitoring strategy**

Monitoring for excessive and insufficient charge air temperature, loose connection, or plausibility of the rate of change

Possible causes

- Charge air temperature outside the permissible limit
- B123 Charge air temperature sensor defective
- The EGR valve may be blocked due to unauthorized tampering

Possible test steps

- Use MAN-cats monitoring to check the charge air temperature before cylinder intake after EGR - Check the charge air temperature sensor according to the test step list in the MD1 Industry system description

Possible remedy

- Replace B123 charge air temperature sensor if necessary

SPN 108 - FMI 3 - Atmospheric pressure - implausible**Monitoring strategy**

Monitoring EDC internal atmospheric pressure

Possible causes

- Atmospheric pressure sensor is defective
- Pressure compensation element is defective

Possible test steps

- Check the atmospheric pressure using MAN-cats monitoring
- Check pressure compensation element on control unit (damaged or clogged)
- If no fault can be found: A435 Check EDC control unit

Possible remedy

- Replace control unit if necessary

SPN 110 - FMI 1 - Coolant temperature - too high**Monitoring strategy**

Temperature monitoring; physical diagnosis / The measured but valid sensor value is outside the range predicted by engine development. Exceeding or falling below the operating range suitable for the engine may require replacement reactions and/or limitations in order to prevent damage.

Possible causes

- Cooling capacity too low, mechanical defect in the cooling system, e.g., water pump or thermostat. Radiator dirty, fan speed too low. Temperature sensor defective.

Possible test steps

- Check the cooling water temperature for plausibility with MAN-cats monitoring
- Setpoint: 90 °C to 100 °C when engine is at operating temperature - Cooling capacity too low or mechanical defect in the cooling system, e.g., water pump or thermostat - Radiator dirty - Fan speed too low - Temperature sensor defective.

Possible remedy

- Clean the radiator depending on the test - Replace the water pump or thermostat if necessary - Adjust the fan speed

SPN 110 - FMI 2 - Coolant temperature - too low
Monitoring strategy

Temperature monitoring

Possible causes

- B124 Coolant temperature sensor defective
- Incorrect fan speed
- Coolant thermostat valve defective

Possible test steps

- Check the coolant temperature for plausibility using MAN CATS Monitoring
- Setpoint: 80 °C to 90 °C when the engine is at operating temperature
- Check the temperature of the cooling circuit with MAN CATS monitoring
- Check electrical cables and plug connections
- B124 Check the cooling water temperature sensor

Possible remedy

- Replace thermostat if necessary, check fan speed.

SPN 168 - FMI 1 - Battery voltage - too high
Monitoring strategy

Monitoring of voltage limits

Possible causes

- Generator is defective
- Voltage regulator on generator defective - Battery voltage too high (> 28V)

Possible test steps

- Check the battery voltage using MAN-cats monitoring
- Check the generator
- Check the battery
- Check power supply: Setpoint: 20 V to 28 V

Possible remedy

- Replace generator if necessary

SPN 168 - FMI 2 - Battery voltage - too low
Monitoring strategy

Monitoring of voltage limits

Possible causes

- Generator is defective
- Voltage regulator on generator is defective - Battery voltage too low (< 9V)

Possible test steps

- Check the battery voltage using MAN-cats monitoring
- Check the generator
- Check the battery
- Check power supply: Target value: 20 V to 28 V

Possible remedy

- Replace generator if necessary - Replace battery if necessary

SPN 168 - FMI 5 - Battery voltage - Short circuit to ground
Monitoring strategy

Monitoring of voltage limits

Possible causes

- Generator is defective
- Voltage regulator on generator is defective

Possible test steps

- Check the battery voltage using MAN CATS monitoring
- Check the generator
- Check the battery
- Check the power supply: Target value: 20 V to 28 V

Possible remedy

- Replace electrical cables and plug connections - Replace generator if necessary - Replace battery if necessary

SPN 168 - FMI 6 - Battery voltage - Short circuit after UBatt+

Monitoring strategy

Monitoring of voltage limits

Possible causes

- Generator is defective - Battery voltage too low (< 9V)

Possible test steps

- Check the battery voltage with MAN-cats monitoring
- Check generator
- Check the battery
- Check power supply: Target value: 20 V to 28 V

Possible remedy

- Replace electrical cables and plug connections - Replace generator if necessary - Replace battery if necessary

SPN 171 - FMI 1 - Ambient air temperature - too high**Monitoring strategy**

Temperature monitoring

Possible causes

- B269 Outside air/ambient air temperature sensor defective
- Electrical cables and plug connections from the B269 outside air/ambient air temperature sensor to the A1124 Power Train Manager (PTM) or A403 vehicle control computer (FFR) defective

Possible test steps

- Check the temperature value of the outside air/ambient air temperature sensor with MAN-cats in Monitoring > Temperatures for plausibility. Target value: the displayed value should be identical to the value in MAN-cats Monitoring of the Power Train Manager or Vehicle Management Computer.
- Check the outside air/ambient air temperature sensor
- Check electrical cables and plug connections from the temperature sensor to the Power Train Manager or vehicle control computer

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary
- Replace exhaust gas temperature sensor if necessary

SPN 171 - FMI 2 - Ambient air temperature - too low**Monitoring strategy**

Temperature monitoring

Possible causes

- B269 Outside air/ambient air temperature sensor defective
- Electrical cables and plug connections from the B269 outside air/ambient air temperature sensor to the A1124 Power Train Manager (PTM) or A403 vehicle control computer (FFR) defective

Possible test steps

- Check the temperature value of the outside air/ambient air temperature sensor with MAN-cats in Monitoring > Temperatures for plausibility. Target value: the displayed value should be identical to the value in MAN-cats Monitoring of the Power Train Manager or Vehicle Management Computer.
- Check the outside air/ambient air temperature sensor
- Check electrical cables and plug connections from the temperature sensor to the Power Train Manager or vehicle control computer

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary
- Replace exhaust gas temperature sensor if necessary

SPN 173 - FMI 1 - Exhaust gas temperature before exhaust gas aftertreatment - too high**Monitoring strategy**

Monitoring of exhaust gas temperature before Oxi-Kat

Possible causes

- The exhaust gas temperature before the AGN system is too high

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection
- Check the exhaust gas temperature sensor upstream of the AGN system in accordance with the test step list in the MD1 Industrie system description

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary
- Replace exhaust gas temperature sensor if necessary

SPN 173 - FMI 2 - Exhaust gas temperature before exhaust gas aftertreatment - too low
Monitoring strategy

Monitoring of exhaust gas temperature before Oxi-Kat

Possible causes

- The exhaust gas temperature before the AGN system is too low

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection
- Check the exhaust gas temperature sensor upstream of the AGN system in accordance with the test step list in the MD1 Industrie system description

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary
- Replace exhaust gas temperature sensor if necessary

SPN 173 - FMI 3 - Exhaust gas temperature before exhaust gas aftertreatment - implausible
Monitoring strategy

Monitoring of exhaust gas temperature before Oxi-Kat

Possible causes

- The exhaust gas temperature before the AGN system is not plausible for the modeled temperature

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection
- Check the exhaust gas temperature sensor upstream of the AGN system according to the test step list in the MD1 Industrie system description

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary
- Replace exhaust gas temperature sensor if necessary

SPN 173 - FMI 8 - Exhaust gas temperature before exhaust gas aftertreatment - Invalid signal
Monitoring strategy

Monitoring of exhaust gas temperature before oxy-cat

Possible causes

- The deviation of the exhaust gas temperature before the AGN system is too high

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection
- Check the exhaust gas temperature sensor upstream of the AGN system in accordance with the test step list in the MD1 Industrie system description

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary
- Replace exhaust gas temperature sensor if necessary

SPN 173 - FMI 9 - Exhaust gas temperature before exhaust gas aftertreatment - Device error
Monitoring strategy

Monitoring of exhaust gas temperature before Oxi-Kat

Possible causes

- The deviation of the exhaust gas temperature before the AGN system is too small

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection
- Check the exhaust gas temperature sensor upstream of the AGN system in accordance with the test step list in the MD1 Industrie system description

Possible remedy

- Replace CAN connection if necessary

SPN 174 - FMI 1 - Fuel temperature - too high
Monitoring strategy

Temperature monitoring

Possible causes
Possible test steps

- Check the fuel temperature for plausibility using MAN-cats monitoring
- Check electrical cables and plug connections - Check fuel temperature sensor
- Signal voltage: Measure voltage between pin C42 and pin C20
- Setpoint: 3.74 V to 1.22 V at 20 °C to 90 °C
- Ground connection: Resistance measurement between pin C20 and pin A02
- Setpoint: > 100 MΩ

Possible remedy

- Renew CAN connection if necessary

SPN 174 - FMI 3 - Fuel temperature - implausible
Monitoring strategy

Temperature monitoring

Possible causes
Possible test steps

- Check the fuel temperature for plausibility using MAN cats monitoring
- Check electrical cables and plug connections - Check fuel temperature sensor
- Signal voltage: Measure voltage between pin C42 and pin C20
- Setpoint: 3.74 V to 1.22 V at 20 °C to 90 °C
- Ground connection: Resistance measurement between pin C20 and pin A02
- Setpoint: > 100 MΩ

Possible remedy

- Recable injectors if necessary
- Replace injector if necessary
- Note: After replacing the injector, the current IQA code must be entered into the EDC17 using MAN cats.

SPN 174 - FMI 2 - Fuel temperature - too low
Monitoring strategy

Temperature monitoring

Possible causes
Possible test steps

- Check the fuel temperature for plausibility using MAN-cats monitoring

Possible remedy

SPN 609 - FMI 4 - Engine CAN - No signal**Monitoring strategy**

Monitoring of engine CAN for faulty messages. This can be caused by a short circuit on CAN Hi, CAN Lo, or an interruption in the CAN line between the vehicle control unit and EDC.

Possible causes

- Damaged wiring harness
- Failure of messages on the M-CAN

Possible test steps

- Check engine CAN as described in the EDC17 test step list in the system description - Check CAN network for interruptions and short circuits.

Possible remedy

SPN 609 - FMI 8 - Motor CAN - Invalid signal**Monitoring strategy**

Monitor Motor CAN for faulty messages. This can be caused by a short circuit on CAN Hi, CAN Lo, or an interruption in the CAN line between the vehicle control unit and EDC.

Possible causes

- Damaged wiring harness
- Failure of messages on the M-CAN

Possible test steps

- Check Motor-CAN as described in the system description EDC17 test step list - Check CAN network for interruptions and short circuits.

Possible remedy

SPN 651 - FMI 7 - Current path solenoid valve R4 and R6 = cylinder 1 Current path solenoid valve V8 and V12 = cylinder 1 - Short circuit
Monitoring strategy

Injector: Short circuit. If there is a short circuit in a current path to an injector, all injectors on the affected bank are switched off, i.e., no injection on all cylinders of bank 1

Possible causes

-Wiring to injectors -Wiring / plug / plug pins of the component defective -Injector defective

Possible test steps

-CR diagnosis MAN-CATS, check wiring - Determine resistance values according to test step list in system description FEDC17 Industry -Check component wiring. Check component plug contacts

Possible remedy

- Recable injectors if necessary
- Replace injector if necessary
- Note: After replacing the injector, the current IQA code must be entered into the EDC17 using MAN-cats

SPN 651 - FMI 9 - Current path solenoid valve R4 and R6 = cylinder 1 Current path solenoid valve V8 and V12 = cylinder 1 - Device error
Monitoring strategy

Injector: Short circuit. If there is a short circuit in a current path to an injector, all injectors on the affected bank are switched off, i.e., no injection on all cylinders of bank 1

Possible causes
Possible test steps
Possible remedy

- Recable injectors if necessary
- Replace injector if necessary
- Note: After replacing the injector, the current IQA code must be entered into the EDC17 using MAN-cats.

SPN 651 - FMI 10 - Current path solenoid valve R4 and R6 = cylinder 1 Current path solenoid valve V8 and V12 = cylinder 1 - interruption**Monitoring strategy**

Injector: interruption. If a current path is interrupted, only the defective injector is switched off, i.e., no injection on this cylinder.

Possible causes

-Wiring to injectors -Wiring / plug / plug pins of the component defective -Injector defective

Possible test steps

-CR diagnosis MAN-CATS, check wiring, - Determine resistance values according to test step list in system description FEDC17 Industry -Check component wiring. Check component plug contacts

Possible remedy

- Recable injectors if necessary
- Replace injector if necessary
- Note: After replacing the injector, the current IQA code must be entered into the EDC17 using MAN cats.

SPN 652 - FMI 7 - Current path solenoid valve R4 = cylinder 3; R6 = cylinder 5 Current path solenoid valve V8 = cylinder 5 V12 = cylinder 12 - short circuit
Monitoring strategy

Injector: Short circuit. If there is a short circuit in a current path to an injector, all injectors on the affected bank are switched off, i.e., no injection on all cylinders of bank 1

Possible causes

-Wiring to injectors -Wiring / plug / plug pins of the component defective -Injector defective

Possible test steps

-CR diagnosis MAN-CATS, check wiring - Determine resistance values according to test step list in system description FEDC17 Industry -Check component wiring. Check component plug contacts

Possible remedy

- Recable injectors if necessary
- Replace injector if necessary
- Note: After replacing the injector, the current IQA code must be entered into the EDC17 using MAN-cats

SPN 652 - FMI 9 - Current path solenoid valve R4 = cylinder 3; R6 = cylinder 5 Current path solenoid valve V8 = cylinder 5 V12 = cylinder 12 - Device error

Monitoring strategy

Injector: Short circuit. If there is a short circuit in a current path to an injector, all injectors on the affected bank are switched off, i.e., no injection on all cylinders of bank 1

Possible causes**Possible test steps****Possible remedy**

- Recable injectors if necessary
- Replace injector if necessary
- Note: After replacing the injector, the current IQA code must be entered into the EDC17 using MAN cats.

SPN 652 - FMI 10 - Current path solenoid valve R4 = cylinder 3; R6 = cylinder 5 Current path solenoid valve V8 = cylinder 5 V12 = cylinder 12 - interruption

Monitoring strategy

Injector: interruption. If a current path is interrupted, only the defective injector is switched off, i.e., no injection on this cylinder.

Possible causes

-Wiring to injectors -Wiring / plug / plug pins of the component defective -Injector defective

Possible test steps

-CR diagnosis MAN-CATS, check wiring, - Determine resistance values according to test step list in system description FEDC17 Industry -Check component wiring. Check component plug contacts

Possible remedy

- Recable injectors if necessary
- Replace injector if necessary
- Note: After replacing the injector, the current IQA code must be entered into the EDC17 using MAN-cats.

SPN 653 - FMI 7 - Current path solenoid valve R4 = cylinder 4; R6 = cylinder 3 Current path solenoid valve V8 = cylinder 7; V12 = cylinder 2 - Short circuit
Monitoring strategy

Injector: Short circuit. If there is a short circuit in a current path to an injector, all injectors on the affected bank are switched off, i.e., no injection on all cylinders of bank 1

Possible causes

-Wiring to injectors -Wiring / plug / plug pins of the component defective -Injector defective

Possible test steps

-CR diagnosis MAN-CATS, check wiring - Determine resistance values according to test step list in system description FEDC17 Industry -Check component wiring. Check component plug contacts

Possible remedy

- Recable injectors if necessary
- Replace injector if necessary
- Note: After replacing the injector, the current IQA code must be entered into the EDC17 using MAN-cats

SPN 653 - FMI 9 - Current path solenoid valve R4 = cylinder 4; R6 = cylinder 3 Current path solenoid valve V8 = cylinder 7; V12 = cylinder 2 - Device error**Monitoring strategy**

Injector: Short circuit. If there is a short circuit in a current path to an injector, all injectors on the affected bank are switched off, i.e., no injection on all cylinders of bank 1

Possible causes**Possible test steps****Possible remedy**

- Recable injectors if necessary
- Replace injector if necessary
- Note: After replacing the injector, the current IQA code must be entered into the EDC17 using MAN cats.

SPN 653 - FMI 10 - Current path solenoid valve R4 = cylinder 4; R6 = cylinder 3 Current path solenoid valve V8 = cylinder 7; V12 = cylinder 2 - interruption
Monitoring strategy

Injector: interruption. If a current path is interrupted, only the defective injector is switched off, i.e., no injection on this cylinder.

Possible causes

-Wiring to injectors -Wiring / plug / plug pins of the component defective -Injector defective

Possible test steps

-CR diagnosis MAN-CATS, check wiring, - Determine resistance values according to test step list in system description FEDC17 Industry -Check component wiring. Check component plug contacts

Possible remedy

- Recable injectors if necessary
- Replace injector if necessary
- Note: After replacing the injector, the current IQA code must be entered into the EDC17 using MAN-cats

SPN 654 - FMI 7 - Current path solenoid valve R4 = cylinder 2; R6 = cylinder 6 Current path solenoid valve V8 = cylinder 2; V12 = cylinder 11 - Short circuit
Monitoring strategy

Injector: Short circuit. If there is a short circuit in a current path to an injector, all injectors on the affected bank are switched off, i.e., no injection on all cylinders of bank 1

Possible causes

-Cabling to injectors -Cabling/connectors/connector pins of the component defective -Injector defective

Possible test steps

-CR diagnosis MAN-CATS, check wiring, - Determine resistance values according to test step list in system description FEDC17 Industry -Check component wiring. Check component plug contacts

Possible remedy

- Recable injectors if necessary
- Replace injector if necessary
- Note: After replacing the injector, the current IQA code must be entered into the EDC17 using MAN-cats

SPN 654 - FMI 9 - Current path solenoid valve R4 = cylinder 2; R6 = cylinder 6 Current path solenoid valve V8 = cylinder 2; V12 = cylinder 11 - Device error

Monitoring strategy

Injector: Short circuit. If there is a short circuit in a current path to an injector, all injectors on the affected bank are switched off, i.e., no injection on all cylinders of bank 1

Possible causes

Possible test steps

Possible remedy

- Recable injectors if necessary
- Replace injector if necessary
- Note: After replacing the injector, the current IQA code must be entered into the EDC17 using MAN-cats.

SPN 654 - FMI 10 - Current path solenoid valve R4 = cylinder 2; R6 = cylinder 6 Current path solenoid valve V8 = cylinder 2; V12 = cylinder 11 - interruption
Monitoring strategy

Injector: interruption. If there is an interruption in the current path, only the defective injector is switched off, i.e., no injection on this cylinder.

Possible causes

-Wiring to injectors -Wiring / plug / plug pins of the component defective -Injector defective

Possible test steps

-CR diagnosis MAN-CATS, check wiring, - Determine resistance values according to test step list in system description FEDC17 Industry -Check component wiring. Check component plug contacts

Possible remedy

- Recable injectors if necessary
- Replace injector if necessary
- Note: After replacing the injector, the current IQA code must be entered into the EDC17 using MAN-cats

SPN 655 - FMI 7 - Current path solenoid valve R6 = cylinder 2 Current path solenoid valve V8 = cylinder 6; V12 = cylinder 3 - Short circuit
Monitoring strategy

Injector: Short circuit. If there is a short circuit in a current path to an injector, all injectors on the affected bank are switched off, i.e., no injection on all cylinders of bank 1

Possible causes

-Cabling to injectors -Cabling/connectors/connector pins of the component defective -Injector defective

Possible test steps

-CR diagnosis MAN-CATS, check wiring, - Determine resistance values according to test step list in system description FEDC17 Industry -Check component wiring. Check component plug contacts

Possible remedy

- Recable injectors if necessary
- Replace injector if necessary
- Note: After replacing the injector, the current IQA code must be entered into the EDC17 using MAN-cats

SPN 655 - FMI 9 - Current path solenoid valve R6 = cylinder 2 Current path solenoid valve V8 = cylinder 6; V12 = cylinder 3 - Device error
Monitoring strategy

Injector: Short circuit. If there is a short circuit in a current path to an injector, all injectors on the affected bank are switched off, i.e., no injection on all cylinders of bank 1

Possible causes
Possible test steps
Possible remedy

- Recable injectors if necessary
- Replace injector if necessary
- Note: After replacing the injector, the current IQA code must be entered into the EDC17 using MAN-cats.

SPN 655 - FMI 10 - Current path solenoid valve R6 = cylinder 2 Current path solenoid valve V8 = cylinder 6; V12 = cylinder 3 - interruption

Monitoring strategy

Injector: interruption. If there is an interruption in the current path, only the defective injector is switched off, i.e., no injection on this cylinder.

Possible causes

-Wiring to injectors -Wiring / plug / plug pins of the component defective -Injector defective

Possible test steps

-CR diagnosis MAN-CATS, check wiring, - Determine resistance values according to test step list in system description FEDC17 Industry -Check component wiring. Check component plug contacts

Possible remedy

- Recable injectors if necessary
- Replace injector if necessary
- Note: After replacing the injector, the current IQA code must be entered into the EDC17 using MAN-cats

SPN 656 - FMI 7 - Current path solenoid valve R6 = cylinder 4 Current path solenoid valve V8 = cylinder 3; V12 = cylinder 10 - Short circuit
Monitoring strategy

Injector: Short circuit. If there is a short circuit in a current path to an injector, all injectors on the affected bank are switched off, i.e., no injection on all cylinders of bank 1

Possible causes

-Cabling to injectors -Cabling/connectors/connector pins of the component defective -Injector defective

Possible test steps

-CR diagnosis MAN-CATS, check wiring, - Determine resistance values according to test step list in system description FEDC17 Industry -Check component wiring. Check component plug contacts

Possible remedy

- Recable injectors if necessary
- Replace injector if necessary
- Note: After replacing the injector, the current IQA code must be entered into the EDC17 using MAN-cats

SPN 656 - FMI 9 - Current path solenoid valve R6 = cylinder 4 Current path solenoid valve V8 = cylinder 3; V12 = cylinder 10 - Device error
Monitoring strategy

Injector: Short circuit. If there is a short circuit in a current path to an injector, all injectors on the affected bank are switched off, i.e., no injection on all cylinders of bank 1

Possible causes
Possible test steps
Possible remedy

- Recable injectors if necessary
- Replace injector if necessary
- Note: After replacing the injector, the current IQA code must be entered into the EDC17 using MAN-cats.

SPN 656 - FMI 10 - Current path solenoid valve R6 = cylinder 4 Current path solenoid valve V8 = cylinder 3; V12 = cylinder 10 - interruption

Monitoring strategy

Injector: interruption. If there is an interruption in the current path, only the defective injector is switched off, i.e., no injection on this cylinder.

Possible causes

-Wiring to injectors -Wiring / plug / plug pins of the component defective -Injector defective

Possible test steps

-CR diagnosis MAN-CATS, check wiring, - Determine resistance values according to test step list in system description FEDC17 Industry -Check component wiring. Check component plug contacts

Possible remedy

- Recable injectors if necessary
- Replace injector if necessary
- Note: After replacing the injector, the current IQA code must be entered into the EDC17 using MAN-cats

SPN 1079 - FMI 8 - Sensor supply 6 - Invalid signal
Monitoring strategy

Check sensor supply voltage

Possible causes

D2x and D38 Euro6c: 5V supply to coolant pressure sensor (B1121) Short circuit to ground, +Ubat or wire break.
D0834, D0836 Euro6a,b,c EGR: 5V supply to fuel pressure sensor HCI (B703) Short circuit to ground, +Ubat or wire break.

Possible test steps

- Check electrical wiring and plug connections

Possible remedy

-Check the component wiring. Check the component plug contacts

SPN 1080 - FMI 8 - Sensor supply 4 - Invalid signal**Monitoring strategy**

Check sensor supply voltage; 5 V supply Oil pressure sensor (B104) Short circuit to ground, +UBatt, or wire break.

Possible causes

D2x and D38 Euro6c: 5V cooling water pressure sensor (B1121) power supply short circuit to ground, +Ubat, or open circuit.

Possible test steps

- Check electrical cables and plug connections

Possible remedy

- Check the component wiring. Check the component plug contacts

SPN 1131 - FMI 1 - Charge air temperature before engine (in charge air pipe) - too high
Monitoring strategy

Monitor for loose connections or plausibility of the rate of change of the charge air temperature and for excessively high or low temperatures

Possible causes

- Interruption in the wiring of the B623 boost pressure/temperature sensor
- B623 boost pressure/temperature sensor is defective

Possible test steps

- Check electrical cables and plug connections
- B623 Check boost pressure/intercooler temperature sensor according to test step list in system description MD1 Industry

Possible remedy

- Replace defective EGR valve if necessary

SPN 1131 - FMI 2 - Charge air temperature before engine (in charge air pipe) - too low
Monitoring strategy

Monitor for loose connections or plausibility of the rate of change of the charge air temperature and for excessively high or low temperatures

Possible causes

- Interruption in the wiring of the B623 boost pressure/temperature sensor
- B623 boost pressure/temperature sensor is defective

Possible test steps

- Check electrical cables and plug connections
- B623 Check boost pressure/intercooler temperature sensor according to test step list in system description MD1 Industry

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary
- Replace defective EGR valve if necessary

SPN 1131 - FMI 8 - Charge air temperature before engine (in charge air pipe) - Invalid signal**Monitoring strategy**

Monitor for loose connection or plausibility of the rate of change of the charge air temperature and for excessively high or low temperatures

Possible causes

- Interruption in the wiring of the B623 boost pressure/temperature sensor
- B623 boost pressure/temperature sensor is defective

Possible test steps

- Check electrical lines and plug connections
- Check B623 boost pressure/intercooled air temperature sensor according to test step list in system description MD1 Industry

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary
- Replace defective EGR valve if necessary

SPN 1761 - FMI 3 - AdBlue level is invalid - implausible
Monitoring strategy

Monitoring of the AdBlue level

Possible causes

- Leak in the AdBlue tank or in the pump line
- AdBlue level sensor is defective
- Insufficient AdBlue in the tank
- In earlier sensors, water ingress and loose contacts could occur due to manufacturing issues

Possible test steps

- Check the CAN connection on the A1192 AdBlue level sensor
- Check AdBlue level
- Check A1192 AdBlue level sensor
- Check the pump line

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace the CAN connection if necessary
- Replace defective EGR valve if necessary

SPN 1761 - FMI 8 - AdBlue level is invalid - Invalid signal
Monitoring strategy

Monitoring of the AdBlue level

Possible causes

- Leak in the AdBlue tank or in the pump line
- AdBlue level sensor is defective
- Insufficient AdBlue in the tank
- In earlier sensors, water ingress and loose contacts could occur due to manufacturing issues

Possible test steps

- Check CAN connection on A1192 AdBlue level sensor
- Check AdBlue level
- Check A1192 AdBlue level sensor
- Check pump line

Possible remedy

- Replace electrical lines or plug connections if necessary
- Replace CAN connection if necessary
- Replace defective EGR valve if necessary

SPN 2808 - FMI 3 - EGR valve positioner - implausible
Monitoring strategy

Monitoring of EGR valve: persistent control deviation

Possible causes

-Blocked EGR valve -Damage to EGR actuator / EGR flap insufficient positioning, control deviation

Possible test steps

Check EGR valve for stiffness -Perform actuator test with MAN cats --> can the fully closed or fully open position be reached?

Possible remedy

- Replace defective EGR valve if necessary

SPN 2821 - FMI 3 - EGR valve current measurement - implausible

Monitoring strategy

Monitoring of EGR valve; current measurement implausible

Possible causes

- The current measurement at the EGR valve is implausible - Actuator defective

Possible test steps

- Check electrical cables and plug connections
- Check actuator according to test step list in system description FEDC17

Possible remedy

- Replace defective EGR valve if necessary

SPN 2821 - FMI 5 - EGR valve current measurement - short circuit to ground**Monitoring strategy**

Monitoring of the EGR valve; short circuit to ground for current measurement

Possible causes

- The current measurement of the EGR valve shows a short circuit to negative or ground - Actuator defective

Possible test steps

- Check electrical cables and plug connections
- Check actuator according to test step list in system description FEDC17

Possible remedy

- Replace defective EGR valve if necessary

SPN 2821 - FMI 6 - EGR valve current measurement - Short circuit to UBatt+**Monitoring strategy**

Monitoring of the EGR valve; short circuit to +Ubatt for current measurement

Possible causes

- The current measurement of the EGR valve shows a short circuit to +UBat - Actuator defective

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace EGR valve if necessary
- Replace electrical cables or plug connections if necessary

SPN 2823 - FMI 8 - EGR valve current measurement - Invalid signal**Monitoring strategy**

Monitoring the EGR valve

Possible causes

-EGR valve: Component in default state or briefly without power supply.

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- EGR valve: Engine current signal invalid, possible temporary actuator reset; no component replacement necessary

SPN 2836 - FMI 1 - EGR valve zero point adaptation invalid - too high**Monitoring strategy**

Monitoring of the EGR valve; offset in open position

Possible causes

- The EGR valve has an offset error in the open position - Blocked EGR valve - Damage to the EGR actuator / EGR valve Inadequate positioning, control deviation

Possible test steps

- Check EGR valve for stiffness - Perform actuator test with MAN cats --> Can the fully closed or fully open position be reached?

Possible remedy

- Replace defective EGR valve if necessary

SPN 2836 - FMI 2 - EGR valve zero point adaptation invalid - too low
Monitoring strategy

Monitoring of the EGR valve; offset in closed position

Possible causes

- The EGR valve has an offset error in the closed position - Blocked EGR valve - Damage to EGR actuator / EGR valve Inadequate positioning, control deviation

Possible test steps

- Check EGR valve for stiffness - Perform actuator test with MAN cats --> Can the fully closed or fully open position be reached?

Possible remedy

- Replace defective EGR valve if necessary

SPN 3004 - FMI 4 - EGR valve blocked - No signal
Monitoring strategy

Exhaust gas aftertreatment monitoring

Possible causes

- EGR valve stuck
- M289 EGR actuator defective

Possible test steps

- Check EGR valve
- Perform with MAN-cats: Actuator test EGR valve
- Check the actuator temperature of the EGR actuator with MAN-cats
- Check the back pressure values through the charge air throttle valve with MAN-cats
- Check with MAN-cats monitoring: Injection system > Fuel quantity

Possible remedy

- Replace electrical cables or plug connections if necessary
- Renew CAN connection if necessary

SPN 3005 - FMI 1 - CAN message. Blocked EGR valve cannot be detected - too high**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- EGR valve stuck
- EGR actuator is defective
- Invalid EGR position
- The EGR valve may be blocked due to unauthorized tampering
- Interruption in the CAN between eAGR and charge air throttle valve
- CAN high and low reversed

Possible test steps

- Check EGR valve
- Check with MAN-cats monitoring: Injection system > Fuel quantity
- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 3005 - FMI 2 - CAN message. Blocked EGR valve cannot be detected - too low**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- EGR valve stuck
- EGR actuator is defective
- Invalid EGR position
- The EGR valve may be blocked due to unauthorized tampering
- Interruption in the CAN between eAGR and charge air throttle valve
- CAN high and low reversed

Possible test steps

- Check EGR valve
- Check with MAN-cats monitoring: Injection system > Fuel quantity
- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 3009 - FMI 1 - Engine overspeed - too high

Monitoring strategy

Monitoring for exceeding the limit speed

Possible causes

Possible test steps

Possible remedy

SPN 3014 - FMI 3 - EDC control unit Main relay error - implausible**Monitoring strategy**

Main relay stuck/jammed

Possible causes**Possible test steps**

- Check the battery voltage using MAN-cats monitoring - Determine resistance values according to the test step list in the FEDC17 Industry system description - Check the component wiring. Check the component plug contacts

Possible remedy

- Replace electrical cables or plug connections if necessary

SPN 3017 - FMI 8 - CAN message PTM1: Error bank shutdown - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 3018 - FMI 8 - CAN message PTM1: Error status of motor brake - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 3019 - FMI 8 - CAN message PTM1: Overspeed error - Invalid signal
Monitoring strategy

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 3020 - FMI 8 - CAN message PTM1: Upper idle error - Invalid signal

Monitoring strategy

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 3021 - FMI 8 - CAN message PTM1: Drive train status error - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 3022 - FMI 8 - CAN bot message PTM1: Error status ramps off - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 3023 - FMI 8 - CAN message PTM1: Intermediate speed error - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 3024 - FMI 2 - CAN message PTM1: Speed controller error upper idle speed - too low**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 3024 - FMI 8 - CAN message PTM1: Speed controller error, upper idle speed - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 3025 - FMI 8 - CAN message PTM1: Driver request error - Invalid signal

Monitoring strategy

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 3028 - FMI 8 - CAN message PTM2: Maximum acceleration error - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 3029 - FMI 8 - CAN message PTM2: Error Mode Request - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Renew CAN connection if necessary

SPN 3030 - FMI 1 - CAN message PTM2: Speed controller error lower idle speed - too high**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 3030 - FMI 4 - CAN message PTM2: Speed controller error, lower idle speed - No signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 3030 - FMI 8 - CAN message PTM2: Speed controller error, lower idle speed - Invalid signal
Monitoring strategy

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 3031 - FMI 1 - CAN message PTM2: Error start or stop request - too high**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 3031 - FMI 2 - CAN message PTM2: Error start or stop request - too low**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Errors in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check the CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 3032 - FMI 8 - CAN message PTM2: Speed error - Invalid signal
Monitoring strategy

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 3033 - FMI 8 - CAN message PTM2: Error quantity limit - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 3034 - FMI 8 - CAN message PTM2: Error quantity limit - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 3036 - FMI 8 - CAN message PTM3: Pedal value error - Invalid signal

Monitoring strategy

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Renew CAN connection if necessary
- See also TI 481700

SPN 3037 - FMI 8 - CAN message PTM3: Retarder oil temperature error - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not working properly
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Renew CAN connection if necessary
- See also TI 481700

SPN 3038 - FMI 8 - CAN message PTM3: Error feedback factor end speed limiter - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check the CAN connection

Possible remedy

- Repair or replace EGR valve

SPN 3039 - FMI 8 - CAN message PTM3: Error distance traveled or operating hours - Invalid signal

Monitoring strategy

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- If no error can be detected: Replace A435 EDC control unit if necessary

SPN 3040 - FMI 8 - CAN message PTM3: Error signal vehicle is stationary - Invalid signal
Monitoring strategy

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- If no error can be detected: Replace A435 EDC control unit if necessary

SPN 3041 - FMI 4 - CAN message DM1-DCU: Timeout error - No signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- If no fault can be detected: replace A435 EDC control unit if necessary

SPN 3043 - FMI 3 - CAN message error AdBlue tank temperature - implausible
Monitoring strategy

Monitoring of CAN signals

Possible causes

- Interruption in the CAN between the AdBlue system and the engine control unit
- Thermocouple in AdBlue tank is defective

Possible test steps

- Check the temperature of the AdBlue thermocouple tank using MAN-cats monitoring
- Check the CAN connection between the AdBlue system and the engine control unit

Possible remedy

- Replace electrical cables or plug connections if necessary
- If no fault can be detected: Replace A435 EDC control unit if necessary

SPN 3043 - FMI 8 - CAN message error AdBlue tank temperature - Invalid signal
Monitoring strategy

Monitoring of CAN signals

Possible causes

- Interruption in the CAN between the AdBlue system and the engine control unit
- Thermocouple in AdBlue tank is defective

Possible test steps

- Check the temperature of the AdBlue thermocouple tank using MAN-cats monitoring
- Check the CAN connection between the AdBlue system and the engine control unit

Possible remedy

- If necessary, replace electrical cables or plug connections
- If no fault can be detected: Replace A435 EDC control unit if necessary

SPN 3044 - FMI 3 - CAN message error EGR position invalid - implausible**Monitoring strategy**

Exhaust aftertreatment monitoring

Possible causes

- EGR actuator is defective
- Invalid EGR position

Possible test steps

- Check the positioning of the EGR valve using MAN-cats monitoring

Possible remedy

- Read out the error memory and rectify the causes found there
- Replace electrical cables or plug connections if necessary

SPN 3046 - FMI 3 - Atmospheric pressure sensor - implausible
Monitoring strategy

Monitoring for voltage limits, AD blocking, and loose connections

Possible causes

- Sensor signal is implausible. The sensor is classified as defective

Possible test steps

- Check the atmospheric pressure for plausibility using MAN-cats monitoring
- Check electrical lines and plug connections
- If no fault can be detected: Check A435 EDC control unit

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 3046 - FMI 4 - Atmospheric pressure sensor - No signal
Monitoring strategy

Monitoring for voltage limits, AD blocking, and loose connections

Possible causes

- Sensor signal is implausible. The sensor is classified as defective

Possible test steps

- Check the atmospheric pressure for plausibility using MAN-cats monitoring
- Check electrical cables and plug connections
- If no fault can be detected: Check A435 EDC control unit

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 3046 - FMI 5 - Atmospheric pressure sensor - Short circuit to ground
Monitoring strategy

Monitoring for voltage limits, AD blocking, and loose connections

Possible causes

- Sensor signal is implausible. The sensor is classified as defective

Possible test steps

- Check the atmospheric pressure for plausibility using MAN-cats monitoring
- Check electrical cables and plug connections
- If no fault can be detected: Check A435 EDC control unit

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 3046 - FMI 6 - Atmospheric pressure sensor - Short circuit after UBatt+
Monitoring strategy

Monitoring for voltage limits, AD blocking, and loose connections

Possible causes

- Sensor signal is implausible. The sensor is classified as defective

Possible test steps

- Check the atmospheric pressure for plausibility using MAN-cats monitoring
- Check electrical cables and plug connections
- If no fault can be detected: Check A435 EDC control unit

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 3046 - FMI 11 - Atmospheric pressure sensor - Loose connection

Monitoring strategy

Monitoring for voltage limits, AD blocking, and loose connection

Possible causes

- Sensor signal is implausible. The sensor is classified as defective

Possible test steps

- Check the atmospheric pressure for plausibility using MAN-cats monitoring
- Check electrical lines and plug connections
- If no fault can be detected: Check A435 EDC control unit

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 3047 - FMI 4 - CAN message information tachograph timeout - no signal**Monitoring Strategy**

Monitoring for CAN signals

Possible causes

- Interruption in CAN between power train manager / vehicle control computer and engine control unit

Possible test steps

- Check electrical cables and plug connections
- Check CAN connections

Possible remedy

- Renew CAN connection if necessary
- See also TI 481700

SPN 3048 - FMI 4 - CAN message information time/date timeout - no signal**Monitoring Strategy**

Monitoring for CAN signals

Possible causes

- Interruption in CAN between individual participants
- Short circuit between CAN high and low

Possible test steps

- Check electrical cables and plug connections
- Check CAN connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 3050 - FMI 4 - CAN message information Engine temperature timeout - No signal**Monitoring Strategy**

Monitoring for CAN signals

Possible causes

- Interruption in CAN between individual participants
- Short circuit between CAN high and low

Possible test steps

- Check electrical cables and plug connections
- Check CAN connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 3051 - FMI 4 - CAN message information Ambient temperature timeout - No signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Interruption in the CAN between individual participants
- Short circuit between CAN high and low

Possible test steps

- Check electrical cables and plug connections
- Check CAN connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 3052 - FMI 4 - CAN message information ZBR timeout - No signal
Monitoring strategy

Monitoring for CAN signals

Possible causes

- Interruption in CAN between individual participants
- Short circuit between CAN high and low

Possible test steps

- Check electrical cables and plug connections
- Check CAN connections

Possible remedies

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 3053 - FMI 4 - CAN message timeout error AdBlue quality sensor - No signal**Monitoring strategy**

Timeout error message AdBlue quality sensor (CTRI 1). For troubleshooting, see also Troubleshooting in the CAN network Exhaust.

Possible causes

-AdBlue quality sensor, check the power supply. -Cabling / connector / connector pins of the component defective

Possible test steps

Note: Check exhaust CAN as described in the EDC system description. This SPN may be stored in the fault memory if there are faults on the CAN. When troubleshooting on the CAN, always use the vehicle-specific circuit diagram. The defective location can be circled using the SPNs stored in the fault memory. An overview of the vehicle-specific CAN switching sequences can be found in the separate system description for the EDC17 engine control unit.

Possible remedy

SPN 3054 - FMI 4 - CAN message Invalid CAN error status EGR valve - No signal**Monitoring strategy**

Monitoring of CAN signals

Possible causes

- Interruption in the CAN between eAGR and charge air throttle valve
- CAN high and low reversed

Possible test steps

- If messages are missing > Check CAN connection
- Check electrical cables and plug connections

Possible remedy

- Correct pairing with MAN-cats

SPN 3054 - FMI 8 - CAN message Invalid CAN error status EGR valve - Invalid signal**Monitoring strategy**

Monitoring of CAN signals

Possible causes

- Interruption in the CAN between eAGR and charge air throttle valve
- CAN high and low swapped

Possible test steps

- If messages are missing > Check CAN connection
- Check electrical cables and plug connections

Possible remedy

- Adjust oil level
- Replace electrical cables or plug connections if necessary
- Replace B104 oil pressure sensor if necessary

SPN 3055 - FMI 4 - CAN message timeout error EGR valve - No signal**Monitoring strategy**

Monitoring of CAN signals

Possible causes

- EGR actuator is defective
- Interruption between charge air throttle valve and EGR
- Interruption between engine control unit and charge air throttle valve

Possible test steps

Note: This SPN may be stored in the fault memory if there are faults on the CAN. When troubleshooting on the CAN, always use the vehicle-specific circuit diagram. The defective location can be circled using the SPNs stored in the fault memory. An overview of the vehicle-specific CAN switching sequences can be found in the separate system description for the EDC17 engine control unit.

Possible remedy

- Adjust oil level
- Replace electrical cables or plug connections if necessary
- Replace B104 oil pressure sensor if necessary

SPN 3056 - FMI 4 - CAN message timeout error EGR valve - No signal**Monitoring strategy**

Monitoring of CAN signals

Possible causes

- EGR actuator is defective
- Interruption between charge air throttle valve and EGR
- Interruption between engine control unit and charge air throttle valve

Possible test steps

Note: This SPN may be stored in the fault memory if faults are present on the CAN. When troubleshooting on the CAN, always use the vehicle-specific circuit diagram. The defective location can be circled using the SPNs stored in the fault memory. An overview of the vehicle-specific CAN switching sequences can be found in the separate system description for the EDC17 engine control unit.

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace B487 rail pressure sensor if necessary

SPN 3057 - FMI 4 - CAN message information throttle valve retarder timeout - no signal available**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Interruption between engine power box and charge air throttle valve or at the charge air throttle valve
- Intercooler throttle actuator is defective
- Incorrect positioning of the charge air throttle valve

Possible test steps

- with MAN-cats monitoring Check boost pressure for plausibility
- Check throttle valve for proper functioning
- Check for ground between charge air throttle valve pin 2 (terminal 31) and threaded bolt on engine power box
- If ground is present at pin 2 of the connector > Component defective
- Measure resistance at the charge air throttle valve actuator Note: This SPN may be stored in the fault memory if there are faults on the CAN. When troubleshooting on the CAN, always use the vehicle-specific circuit diagram. The defective location can be circled using the SPNs stored in the fault memory. An overview of the vehicle-specific CAN switching sequences can be found in the separate system description for the EDC17 engine control unit.

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace B487 rail pressure sensor if necessary

SPN 3058 - FMI 4 - CAN message information throttle valve bus off status - no signal available**Monitoring Strategy**

Monitoring for CAN signals

Possible causes

- Interruption in CAN between engine control unit and charge air throttle valve
- CAN high and low reversed

Possible test steps

- If messages are missing > Check CAN connection
- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace B487 rail pressure sensor if necessary

SPN 3058 - FMI 8 - CAN message information Throttle valve bus off status - faulty signal
Monitoring Strategy

Monitoring for CAN signals

Possible causes

- Interruption in CAN between engine control unit and charge air throttle valve
- CAN high and low reversed

Possible test steps

- If messages are missing > Check CAN connection
- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace B104 oil pressure sensor if necessary
- If no fault can be found: Replace the A435 EDC control unit if necessary

SPN 3059 - FMI 4 - CAN message information throttle valve - no signal available
Monitoring strategy

Monitoring for CAN signals

Possible causes

- Interruption in CAN between individual participants
- Short circuit between CAN high and low

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace B104 oil pressure sensor if necessary
- If no fault can be found: Replace the A435 EDC control unit if necessary

SPN 3060 - FMI 4 - EGR valve BusOff status - No signal
Monitoring strategy

Exhaust gas aftertreatment monitoring

Possible causes

- Interruption in the CAN between eAGR and charge air throttle valve
- CAN high and low swapped

Possible test steps

- Check EGR valve
- Perform with MAN-cats monitoring: Compare target/actual position of the EGR valve
- If messages are missing > Check CAN connection
- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace B104 oil pressure sensor if necessary
- If no fault can be detected: Replace A435 EDC control unit if necessary

SPN 3060 - FMI 8 - EGR valve BusOff status - Invalid signal
Monitoring strategy

Exhaust aftertreatment monitoring

Possible causes

- Interruption in the CAN between eAGR and charge air throttle valve
- CAN high and low swapped

Possible test steps

- Check EGR valve
- Perform with MAN-cats monitoring: Compare target/actual position of the EGR valve
- If messages are missing > Check CAN connection
- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace B104 oil pressure sensor if necessary
- If no fault can be detected: Replace A435 EDC control unit if necessary

SPN 3061 - FMI 4 - CAN message throttle valve bus off status - no signal available
Monitoring strategy

Monitoring internal control unit errors

Possible causes

- Interruption in the CAN between the engine control unit and the charge air throttle valve
- Interruption in CAN between eAGR and charge air throttle valve
- CAN high and low swapped

Possible test steps

- Retrieve status information with MAN-cats monitoring: CAN bus on/off
- If messages are missing > Check CAN connection
- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace B104 oil pressure sensor if necessary
- If no fault can be found: Replace the A435 EDC control unit if necessary

SPN 3061 - FMI 8 - CAN message throttle valve bus off status - faulty signal
Monitoring strategy

Monitoring internal control unit errors

Possible causes

- Interruption in the CAN between the engine control unit and the charge air throttle valve
- Interruption in the CAN between eAGR and charge air throttle valve
- CAN high and low reversed

Possible test steps

- with MAN-cats monitoring Retrieve status information: CAN bus on/off
- If messages are missing > Check CAN connection
- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace B104 oil pressure sensor if necessary
- If no fault can be found: Replace the A435 EDC control unit if necessary

SPN 3062 - FMI 4 - CAN communication throttle valve - no signal available
Monitoring strategy

Monitoring for CAN signals

Possible causes

- Interruption in the CAN between the engine control unit and the charge air throttle valve
- CAN high and low reversed

Possible test steps

- Retrieve status information with MAN-cats monitoring: CAN bus on/off
- If messages are missing > Check CAN connection
- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace B623 boost pressure/temperature sensor if necessary

SPN 3076 - FMI 8 - Immobilizer Pairing incorrect - Invalid signal

Monitoring strategy

Monitoring for CAN signals; EDC control unit receives no ID number or incorrect ID number from vehicle control unit

Possible causes

- Incorrect immobilizer code - Damaged wiring harness - Failure of messages on the M-CAN

Possible test steps

- Check engine CAN as described in the EDC17 test step list in the system description - Check with MAN-cats control unit parameterization

Possible remedy

- Replace electrical cables or plug connections if necessary

SPN 3077 - FMI 3 - Immobilizer pairing missing - implausible

Monitoring strategy

Monitoring of CAN signals; monitoring of EDC pairing detection for vehicle control

Possible causes

- Incorrect immobilizer code - Damaged wiring harness - Failure of messages on the M-CAN

Possible test steps

- Check engine CAN as described in the EDC17 test step list in the system description - Check with MAN-cats control unit parameterization

Possible remedy

- Replace electrical cables or plug connections if necessary

SPN 3082 - FMI 1 - Oil pressure sensor plausibility - too high**Monitoring strategy**

Monitoring pressure sensor; oil pressure sensor: implausible, difference too high. Pressure difference between low and high engine speed too low

Possible causes

- B104 Oil pressure sensor is defective

Possible test steps

- Check oil level
- Check the oil circuit for leaks after the oil pump
- Check the suction pipe on the oil pump
- Check the oil cooler for blockages
- Check the oil pressure for plausibility using MAN-cats monitoring - Determine the sensor according to the test step list in the FEDC17 Industry system description

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace B104 oil pressure sensor if necessary

SPN 3082 - FMI 2 - Oil pressure sensor plausibility - too low**Monitoring strategy**

Monitoring pressure sensor; oil pressure sensor: implausible, difference too low. Pressure difference between low and high engine speed too low

Possible causes

- B104 Oil pressure sensor is defective

Possible test steps

- Check oil level
- Check oil circuit for leaks after oil pump
- Check the suction pipe on the oil pump
- Check oil cooler for blockages
- Check oil pressure for plausibility using MAN-cats monitoring - Determine sensor according to test step list in system description FEDC17 Industry

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace B104 oil pressure sensor if necessary

SPN 3083 - FMI 1 - Rail pressure sensor plausibility - too high
Monitoring strategy

Monitoring of rail pressure Offset test rail pressure

Possible causes

- B487 Rail pressure sensor is defective -Cabling / connector / connector pins of the component are defective -
Plausibility of rail pressure sensor

Possible test steps

- Check electrical cables and plug connections -Rail control: Compare target/actual rail pressure
- Check B487 rail pressure sensor - Perform CR diagnosis with MAN-CATS as documented in the test
step list of the FEDC17 system description

Possible remedy

Check or replace sensor according to repair instructions in system description T175

SPN 3083 - FMI 2 - Rail pressure sensor plausibility - too low**Monitoring strategy**

Monitoring of rail pressure Offset test Rail pressure

Possible causes

- B487 Rail pressure sensor is defective - Cabling / connector / connector pins of the component are defective - Plausibility of rail pressure sensor

Possible test steps

- Check electrical lines and plug connections - Rail control: Compare rail pressure target/actual
- Check B487 rail pressure sensor - Perform CR diagnosis with MAN-CATS as documented in the test step list of the FEDC17 system description. - Check fuel low pressure system for damage (lines, KSC)

Possible remedy

Check or replace sensor according to repair instructions in system description T175

SPN 3087 - FMI 1 - Oil pressure sensor - too high
Monitoring strategy

Monitoring pressure sensor; adaptation offset too high

Possible causes

- B104 Oil pressure sensor is defective

Possible test steps

- Check oil level
 - Check oil pressure for plausibility using MAN-cats monitoring - Determine sensor according to test step list in system description FEDC17 Industry

Possible remedy

- Replace electrical cables or plug connections if necessary
 - Replace B104 oil pressure sensor if necessary

SPN 3087 - FMI 3 - Oil pressure sensor - implausible**Monitoring strategy**

Monitoring pressure sensor; oil pressure measurement implausible

Possible causes

- B104 Oil pressure sensor is defective

Possible test steps

- Check oil level
- Check oil pressure for plausibility using MAN-cats monitoring - Determine sensor according to test step list in system description FEDC17 Industry

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace B104 oil pressure sensor if necessary

SPN 3087 - FMI 4 - Oil pressure sensor - No signal
Monitoring strategy

Monitoring pressure sensor; oil pressure signal error

Possible causes

- B104 oil pressure sensor is defective
- Interruption in the wiring of the B104 oil pressure sensor

Possible test steps

- Check oil level
- Check the oil pressure for plausibility using MAN-cats monitoring - Determine sensor values according to the test step list in the FEDC17 Industry system description

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace B104 oil pressure sensor if necessary

SPN 3087 - FMI 5 - Oil pressure sensor - Short circuit to ground**Monitoring strategy**

Monitoring pressure sensor; short circuit to ground

Possible causes

- B104 oil pressure sensor is defective
- Interruption in the wiring of the B104 oil pressure sensor

Possible test steps

- Check the oil pressure for plausibility using MAN-cats monitoring - Determine the sensor value according to the test step list in the FEDC17 Industry system description

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace B104 oil pressure sensor if necessary

SPN 3087 - FMI 11 - Oil pressure sensor - Loose connection
Monitoring strategy

Monitoring pressure sensor; loose connection

Possible causes

- B104 oil pressure sensor is defective
- Interruption in the wiring of the B104 oil pressure sensor

Possible test steps

- Check oil level
- Check the oil circuit for leaks after the oil pump
- Check the suction pipe on the oil pump
- Check oil cooler for blockages
- Check the oil pressure for plausibility using MAN-cats monitoring - Determine the sensor according to the test step list in the FEDC17 Industry system description

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace B104 oil pressure sensor if necessary

SPN 3087 - FMI 12 - Oil pressure sensor - Interruption or short circuit after Ubatt**Monitoring strategy**

Monitoring pressure sensor; short circuit to +Ubatt

Possible causes

- B104 oil pressure sensor is defective
- Interruption in the wiring of the B104 oil pressure sensor

Possible test steps

- Check the oil pressure for plausibility using MAN-cats monitoring - Determine sensor values according to the test step list in the FEDC17 Industry system description.

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace B104 oil pressure sensor if necessary

**SPN 3088 - FMI 3 - Charge air pressure sensor upstream of engine (in charge air pipe)
- implausible**
Monitoring strategy

Intercooled charge air pressure monitoring

Possible causes

- Interruption in the wiring of the B623 boost pressure/temperature sensor
- B623 boost pressure/temperature sensor is defective

Possible test steps

- Check the boost pressure at idle for plausibility using MAN CATS monitoring
- Check electrical cables and plug connections
- B623 Check boost pressure/temperature sensor - Determine sensor according to test step list in system description FEDC17 Industry

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace B623 boost pressure/temperature sensor if necessary

SPN 3088 - FMI 5 - Charge air pressure sensor upstream of engine (in charge air pipe) - Short circuit to ground**Monitoring strategy**

- Charge air pressure monitoring (charge air pressure sensor after high-pressure charge air cooler)

Possible causes

- Interruption in the wiring of the B623 boost pressure/temperature sensor
- B623 Boost pressure/temperature sensor is defective

Possible test steps

- Use MAN CATS Monitoring to check the boost pressure at idle for plausibility
- Check electrical cables and plug connections
- Check B623 boost pressure/temperature sensor - Determine sensor according to test step list in system description FEDC17 Industry

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace B623 boost pressure/temperature sensor if necessary.

SPN 3088 - FMI 11 - Charge air pressure sensor upstream of engine (in charge air pipe) - Loose connection**Monitoring strategy**

- Charge air pressure monitoring (charge pressure sensor after high-pressure charge air cooler)

Possible causes

- Interruption in the wiring of the B623 boost pressure/temperature sensor
- B623 Boost pressure/temperature sensor is defective
- Pressure loss upstream of engine

Possible test steps

- Use MAN CATS monitoring to check the boost pressure at idle for plausibility
- Check electrical cables and plug connections
- Check B623 boost pressure/temperature sensor - Determine sensor according to test step list in system description FEDC17 Industry

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace B623 boost pressure/temperature sensor if necessary.

SPN 3088 - FMI 12 - Charge air pressure sensor upstream of engine (in charge air pipe) - Interruption or short circuit after Ubatt**Monitoring strategy**

- Charge air pressure monitoring (charge pressure sensor after high-pressure charge air cooler)

Possible causes

- Interruption in the wiring of the B623 boost pressure/temperature sensor
- B623 boost pressure/temperature sensor is defective

Possible test steps

- Use MAN-cats monitoring to check the boost pressure at idle for plausibility
- Check electrical cables and plug connections
- Check electrical cables and plug connections
- Check B623 boost pressure/temperature sensor - Determine sensor according to test step list in system description FEDC17 Industry

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace B623 boost pressure/temperature sensor if necessary

SPN 3089 - FMI 3 - Charge air temperature sensor upstream of cylinder inlet (after EGR) - implausible**Monitoring strategy**

Temperature monitoring

Possible causes

- Interruption in the wiring of the B123 charge air temperature sensor
- B123 charge air temperature sensor is defective

Possible test steps

- Check the charge air temperature for plausibility using MAN-cats monitoring
- Check electrical cables and plug connections
- Check B123 charge air temperature sensor
- Determine sensor according to test step list in system description MD1 Industry

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace B123 temperature sensor if necessary

SPN 3089 - FMI 5 - Charge air temperature sensor upstream of cylinder inlet (after EGR) - Short circuit to ground**Monitoring strategy**

Temperature monitoring

Possible causes

- Interruption in the wiring of the B123 charge air temperature sensor
- B123 charge air temperature sensor is defective

Possible test steps

- Check the charge air temperature for plausibility using MAN-cats monitoring
- Check electrical cables and plug connections
- Check B123 charge air temperature sensor
- Determine sensor according to test step list in system description MD1 Industry

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace B123 temperature sensor if necessary

SPN 3089 - FMI 6 - Charge air temperature sensor upstream of cylinder inlet (after EGR) - Short circuit to UBatt+**Monitoring strategy**

Temperature monitoring

Possible causes

- Interruption in the wiring of the B123 charge air temperature sensor
- B123 charge air temperature sensor is defective

Possible test steps

- Check the charge air temperature for plausibility using MAN-cats monitoring
- Check electrical cables and plug connections
- Check B123 charge air temperature sensor
- Determine sensor according to test step list in system description MD1 Industry

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace B123 temperature sensor if necessary

SPN 3089 - FMI 10 - Charge air temperature sensor upstream of cylinder inlet (after EGR) - Interruption**Monitoring strategy**

Temperature monitoring

Possible causes

- Interruption in the wiring of the B123 charge air temperature sensor
- B123 charge air temperature sensor is defective

Possible test steps

- Check the charge air temperature for plausibility using MAN-cats monitoring
- Check electrical cables and plug connections
- Check B123 charge air temperature sensor
- Determine sensor according to test step list in system description MD1 Industry

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace B123 temperature sensor if necessary

SPN 3089 - FMI 11 - Charge air temperature sensor upstream of cylinder inlet (after EGR) - Loose connection**Monitoring strategy**

Temperature monitoring

Possible causes

- Interruption in the wiring of the B123 charge air temperature sensor
- B123 charge air temperature sensor is defective

Possible test steps

- Check the charge air temperature for plausibility using MAN-cats monitoring
- Check electrical wiring and plug connections
- B123 Check charge air temperature sensor
- Determine sensor according to test step list in system description MD1 Industry

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace B123 temperature sensor if necessary

SPN 3091 - FMI 3 - Coolant temperature sensor - implausible**Monitoring strategy**

-Coolant Temperature: Temperature implausible / value is frozen when error is detected. Once the error has been cleared, the system switches to a replacement value. The EGR valve is then closed! Once the error has been corrected, the system switches back to the sensor value!

Possible causes

- Interruption in the wiring of the B124 coolant temperature sensor
- B124 coolant temperature sensor is defective

Possible test steps

- Check the coolant temperature for plausibility using MAN-cats monitoring
- Check the B124 cooling water temperature sensor for proper functioning
- Check electrical cables and plug connections - Determine sensor values according to the test step list in the FEDC17 Industry system description

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace B124 temperature sensor if necessary

SPN 3091 - FMI 4 - Coolant temperature sensor - No signal**Monitoring strategy**

-Coolant Temperature: Temperature implausible / value is frozen when error is detected. Once the error has been debounced, the system switches to a replacement value. The EGR is then closed! Once the error has been rectified, the system switches back to the sensor value!

Possible causes

- Interruption in the wiring of the B124 coolant temperature sensor
- B124 coolant temperature sensor is defective

Possible test steps

- Check the coolant temperature for plausibility using MAN-cats monitoring
- B124 Check cooling water temperature sensor for proper functioning
- Check electrical cables and plug connections - Determine sensor values according to the test step list in the FEDC17 Industry system description

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace B124 temperature sensor if necessary

SPN 3091 - FMI 5 - Coolant temperature sensor - Short circuit to ground**Monitoring strategy**

Coolant temperature: Short circuit to ground / EGR closed, power reduction for load protection and OBD A error

Possible causes

- Interruption in the wiring of the B124 coolant temperature sensor
- B124 coolant temperature sensor is defective

Possible test steps

- Check the cooling water temperature for plausibility using MAN-cats monitoring
- B124 Check the cooling water temperature sensor for proper functioning
- Check electrical cables and plug connections - Determine sensor values according to the test step list in system description FEDC17 Industry

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace B124 temperature sensor if necessary

SPN 3091 - FMI 6 - Coolant temperature sensor - Short circuit to UBatt
Monitoring strategy

Coolant temperature: Short circuit to Ubatt+/ EGR closed, power reduction for load protection and OBD A error

Possible causes

- Interruption in the wiring of the B124 coolant temperature sensor
- B124 Coolant temperature sensor defective

Possible test steps

- Check the coolant temperature for plausibility using MAN-cats monitoring
- B124 Check cooling water temperature sensor for proper functioning
- Check electrical cables and plug connections - Determine sensor values according to the test step list in system description FEDC17 Industry

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace B124 temperature sensor if necessary

SPN 3091 - FMI 10 - Coolant temperature sensor - Interruption
Monitoring strategy

Coolant temperature: interruption/ EGR closed, power reduction for load protection and OBD A error

Possible causes

- Interruption in the wiring of the B124 coolant temperature sensor
- B124 Coolant temperature sensor defective

Possible test steps

- Check the coolant temperature for plausibility using MAN-cats monitoring
- B124 Check cooling water temperature sensor for proper function
- Check electrical cables and plug connections - Determine sensor values according to the test step list in system description FEDC17 Industry

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace B124 temperature sensor if necessary

SPN 3091 - FMI 11 - Coolant temperature sensor - Loose connection**Monitoring strategy**

-Coolant temperature/value is frozen when an error is detected. Once the error has been cleared, the system switches to a replacement value. The EGR valve is then closed! Once the error has been rectified, the system switches back to the sensor value!

Possible causes

- Interruption in the wiring of the B124 coolant temperature sensor
- B124 coolant temperature sensor is defective

Possible test steps

- Check the coolant temperature for plausibility using MAN-cats-Monitoring
- Check the B124 cooling water temperature sensor for proper function
- Check electrical cables and plug connections - Determine sensor values according to the test step list in the FEDC17 Industry system description

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace B124 temperature sensor if necessary

SPN 3097 - FMI 3 - Fuel temperature sensor - implausible**Monitoring strategy**

Fuel temperature sensor: Temperature implausible

Possible causes**Possible test steps**

- Check electrical wiring and plug connections
- B197 Check fuel temperature sensor (NTC sensor)
- Check component according to test step list in system description FEDC17

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace component if necessary

SPN 3097 - FMI 5 - Fuel temperature sensor - Short circuit to ground**Monitoring strategy**

Fuel temperature sensor: Short circuit to ground

Possible causes**Possible test steps**

- Check electrical wiring and plug connections
- B197 Check fuel temperature sensor (NTC sensor)
- Check component according to test step list in system description FEDC17

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace component if necessary

SPN 3097 - FMI 6 - Fuel temperature sensor - Short circuit to UBatt
Monitoring strategy

Fuel temperature sensor: Short circuit to UBatt

Possible causes
Possible test steps

- Check electrical wiring and plug connections
- Check B197 fuel temperature sensor (NTC sensor)
- Check component according to test step list in system description FEDC17

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace component if necessary

SPN 3097 - FMI 10 - Fuel temperature sensor - Interruption**Monitoring strategy**

Fuel temperature sensor: interruption

Possible causes**Possible test steps**

- Check electrical wiring and plug connections
- B197 Check fuel temperature sensor (NTC sensor)
- Check component according to test step list in system description FEDC17

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace component if necessary

SPN 3097 - FMI 11 - Fuel temperature sensor - Loose connection

Monitoring Strategy

Fuel temperature sensor: loose connection

Possible causes

Possible test steps

- Check electrical wiring and plug connections
- B197 Check fuel temperature sensor (NTC sensor)
- Check component according to test step list in system description FEDC17

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace component if necessary

SPN 3099 - FMI 12 - Rail pressure sensor - Interruption or short circuit after Ubatt**Monitoring strategy**

Monitoring of rail pressure

Possible causes

- Interruption in the wiring of the B487 rail pressure transmitter
- B487 rail pressure transmitter is defective

Possible test steps

- Check electrical cables and plug connections
- Check B487 rail pressure sensor - Perform CR diagnosis with MAN-CATS as documented in the test step list of the FEDC17 system description.

Possible remedy

SPN 3099 - FMI 13 - Rail pressure sensor - Interruption or short circuit to ground**Monitoring strategy**

Monitoring of rail pressure

Possible causes

- Interruption in the wiring of the B487 rail pressure transmitter
- B487 rail pressure sensor is defective

Possible test steps

- Check electrical cables and plug connections
- Check the B487 rail pressure sensor - Perform CR diagnostics with MAN-CATS as documented in the test step list in the FEDC17 system description.

Possible remedy

SPN 3100 - FMI 3 - Fuel supply pressure sensor - implausible
Monitoring strategy

Fuel supply pressure sensor: pressure implausible

Possible causes

- B377 Fuel pressure sensor is defective

Possible test steps

- Check the fuel supply pressure using MAN-cats monitoring
- Setpoint: 5 bar to 6 bar when the engine is idling and the fuel filter is clean
- Check electrical cables and plug connections
- Check B377 fuel pressure sensor
- Check component according to test step list in system description FEDC17

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace component if necessary

SPN 3100 - FMI 4 - Fuel supply pressure sensor - No signal
Monitoring Strategy

Fuel supply pressure sensor: Signal faulty

Possible causes

- B377 Fuel pressure sensor is defective

Possible test steps

- Check the fuel supply pressure using MAN CATS monitoring
- Setpoint: 5 bar to 6 bar when the engine is idling and the fuel filter is clean
- Check electrical cables and plug connections
- Check B377 fuel pressure sensor
- Check component according to test step list in system description FEDC17

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace component if necessary

SPN 3100 - FMI 11 - Fuel supply pressure sensor - Loose connection
Monitoring Strategy

Fuel supply pressure sensor: loose connection

Possible causes

- B377 Fuel pressure sensor is defective

Possible test steps

- Check the fuel supply pressure using MAN-cats monitoring
- Setpoint: 5 bar to 6 bar when the engine is idling and the fuel filter is clean
- Check electrical cables and plug connections
- Check B377 fuel pressure sensor
- Check component according to test step list in system description FEDC17

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace component if necessary

SPN 3100 - FMI 12 - Fuel supply pressure sensor - Open circuit or short circuit after Ubatt+**Monitoring Strategy**

Fuel supply pressure sensor: Short circuit after UBatt+

Possible causes

- B377 Fuel pressure sensor is defective

Possible test steps

- Check the fuel supply pressure using MAN-cats monitoring
- Setpoint: 5 bar to 6 bar when the engine is idling and the fuel filter is clean
- Check electrical cables and plug connections
- Check B377 fuel pressure sensor
- Check component according to test step list in system description FEDC17

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace component if necessary

SPN 3100 - FMI 13 - Fuel supply pressure sensor - Open circuit or short circuit to ground**Monitoring Strategy**

Fuel supply pressure sensor: Short circuit to ground

Possible causes

- B377 Fuel pressure sensor is defective

Possible test steps

- Check the fuel supply pressure using MAN-cats monitoring
- Setpoint: 5 bar to 6 bar when the engine is idling and the fuel filter is clean
- Check electrical cables and plug connections
- Check B377 fuel pressure sensor
- Check component according to test step list in system description FEDC17

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace component if necessary

SPN 3456 - FMI 2 - AdBlue level < 10% - too low
Monitoring strategy

AdBlue system monitoring

Possible causes

- AdBlue level too low
- Leak in AdBlue tank or pump line
- A1192 AdBlue combination sensor defective

Possible test steps

- Check AdBlue level
- Check pump line
- Check function of A1192 AdBlue combination sensor

Possible remedy

- Replace electrical lines or plug connections if necessary
- Replace Y332 proportional fuel valve if necessary
- If no fault can be detected: Replace control unit EDC A435 if necessary

SPN 3457 - FMI 2 - AdBlue level - too low**Monitoring strategy**

AdBlue tank level: Warning level 2 - AdBlue tank level below 5% - increased warning AdBlue tank level: Warning level 3 - AdBlue tank level below 2.5% - torque reduction AdBlue tank level: Warning level 4 - AdBlue tank level 0% - creep mode

Possible causes

- AdBlue level too low
- Leak in AdBlue tank or pump line - AdBlue level << 10%

Possible test steps

- Check AdBlue level
- Check pump line - Check that the float of the fill level sensor is moving freely

Possible remedy

Refill AdBlue tank with at least 1/4 of the tank volume

SPN 3649 - FMI 3 - High-pressure charge air cooler - implausible

Monitoring strategy

AdBlue tank level: Warning level 3 - AdBlue tank level below 2.5% - Torque reduction

Possible causes

Possible test steps

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace Y398 solenoid valve CRT engine damper if necessary
- If no fault can be detected: Replace A435 control unit EDC if necessary

SPN 3673 - FMI 4 - OBD-CAN - No signal

Monitoring Strategy

AdBlue tank level: Warning level 4 - AdBlue tank level 0% - Crawl mode

Possible causes

- Interruption in the CAN between individual participants
- Short circuit between CAN high and low

Possible test steps

- Retrieve status information with MAN-cats monitoring: CAN bus on/off
- Check CAN connection - Determine resistance values according to test step list in system description FEDC17 Industry - Check component cabling. Check component plug contacts

Possible remedy

SPN 3673 - FMI 8 - OBD-CAN - Invalid signal**Monitoring strategy**

Monitoring for CAN signals; Error Passive

Possible causes

- Interruption in the CAN between individual participants
- Short circuit between CAN high and low

Possible test steps

- with MAN-cats monitoring Retrieve status information: CAN bus on/off
 - Check CAN connection - Determine resistance values according to test step list in system description FEDC17
- Industry - Check component cabling. Check component plug contacts

Possible remedy

SPN 3674 - FMI 4 - Master/Slave CAN - No signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Interruption in the CAN between individual participants

Possible test steps

- Check CAN connection
- Check CAN according to the test step list in system description FEDC17.

Possible remedy

SPN 3674 - FMI 8 - Master/Slave CAN - Invalid signal**Monitoring Strategy**

Monitoring for CAN signals

Possible causes

- Interruption in the CAN between individual participants

Possible test steps

- Check CAN connection
- Check CAN according to the test step list in system description FEDC17.

Possible remedy

SPN 3735 - FMI 5 - EDC internal temperature sensor 1 - Short circuit to ground

Monitoring strategy

Monitoring EDC internal temperature

Possible causes

- Interruption in the wiring of the internal temperature sensor 1

Possible troubleshooting steps

Possible remedy

SPN 3735 - FMI 6 - EDC internal temperature sensor 1 - Short circuit to UBatt+**Monitoring strategy**

Monitoring EDC internal temperature

Possible causes

- Interruption in the wiring of internal temperature sensor 1

Possible test steps**Possible remedy**

SPN 3745 - FMI 1 - High-pressure turbocharger output stage Control valve (wastegate) in front of engine
- too high
Monitoring strategy

Monitoring of the final stage for controlling the wastegate on the high-pressure turbocharger

Possible causes

- Overtemperature

Possible test steps

- Check electrical cables and plug connections
- Check boost pressure or boost pressure build-up using MAN-cats monitoring

Possible remedy

- Synchronize the speed sensors
- Correct sensor spacing if necessary
- Replace B488 speed incremental encoder if necessary
- If no fault can be detected: Replace A435 EDC control unit if necessary

SPN 3745 - FMI 5 - High-pressure turbocharger output stage Control valve (wastegate) in front of engine
- Short circuit to ground
Monitoring strategy

Monitoring of the output stage for controlling the wastegate on the high-pressure turbocharger

Possible causes

- Short circuit to negative or ground

Possible test steps

- Check electrical cables and plug connections
- Check boost pressure or boost pressure build-up using MAN-cats monitoring

Possible remedy

- Synchronize the speed sensors
- Correct sensor spacing if necessary
- Replace B488 speed incremental encoder if necessary
- If no error can be detected: Replace A435 EDC control unit if necessary

SPN 3745 - FMI 6 - High-pressure turbocharger output stage Control valve (wastegate) in front of engine
- Short circuit to UBatt+
Monitoring strategy

Monitoring of the output stage for controlling the wastegate on the high-pressure turbocharger

Possible causes

- Short circuit to +UBat

Possible test steps

- Check electrical cables and plug connections
- Check boost pressure or boost pressure build-up using MAN-cats monitoring

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace B377 fuel pressure sensor if necessary

SPN 3745 - FMI 10 - High-pressure turbocharger output stage wastegate valve in front of engine - interruption
Monitoring strategy

Monitoring of the output stage for controlling the wastegate on the high-pressure turbocharger

Possible causes

- Interruption

Possible test steps

- Check electrical cables and plug connections
- Check boost pressure or boost pressure build-up using MAN-cats monitoring

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace B377 fuel pressure sensor if necessary

SPN 3746 - FMI 1 - Exhaust gas recirculation output stage - too high**Monitoring strategy**

Monitoring of the final stage for temperature, short circuit, and wire break

Possible causes

- Overheating EGR module
- Note: In many vehicles, the EGR system is controlled by the electric M289 EGR servomotor. The pneumatic EGR system with B673 actuator cylinder with position sensor and Y458 proportional valve E-AGR is only used in the D0836 LOH and D2066 LUH bus engines.

Possible test steps

- for D0836 LOH and D2066 LUH bus engines:
- Check Y458 proportional valve E-EGR
- on the engine control unit Measure resistance between pin C29 and pin C04
- Target value: 25 to 110 Ω

Possible remedy

- Perform a diagnosis of the common rail injection system using MAN cats:
- Check fuel supply pressure before filter --> Setpoint: greater than 3 bar
 - Check rail pressure --> Target value: greater than 200 bar
 - Perform high-pressure test > shows whether the fault lies on the pressure generator side (high-pressure pump, metering unit) or on the consumer side (injector, pressure pipe connection, pressure relief valve)
 - If the pressure reduction times are OK during the high-pressure test > further troubleshooting in the low-pressure fuel system or high-pressure pump

SPN 3746 - FMI 5 - Exhaust gas recirculation output stage - Short circuit to ground
Monitoring strategy

Monitoring of the output stage for temperature, short circuit, and wire break

Possible causes

- Interruption in the wiring
- Note: In many vehicles, the EGR system is controlled by the electric M289 EGR servomotor. The pneumatic EGR system with B673 actuator cylinder with position sensor and Y458 proportional valve E-AGR is only used in the D0836 LOH and D2066 LUH bus engines.

Possible test steps

- Check electrical cables and plug connections
- For bus motors D0836 LOH and D2066 LUH:
- Y458 Check proportional valve E-AGR
- on the engine control unit Measure resistance between pin C29 and pin C04
- Target value: 25 to 110 Ω

Possible remedy

- Perform a diagnosis of the common rail injection system using MAN cats:
- Check fuel supply pressure before filter --> Setpoint: greater than 3 bar
 - Check rail pressure --> Target value: greater than 200 bar
 - Perform high-pressure test > shows whether the fault is on the pressure generator side (high-pressure pump, metering unit) or the consumer side (injector, pressure pipe connection, pressure relief valve)
 - If the pressure reduction times are OK during the high-pressure test > further troubleshooting in the low-pressure fuel system or high-pressure pump

SPN 3746 - FMI 6 - Power amplifier exhaust gas recirculation - Short circuit after UB**Monitoring strategy**

Monitoring of the output stage for temperature, short circuit, and wire break

Possible causes

- Interruption in the wiring
- Note: In many vehicles, the EGR system is controlled by the electric M289 EGR servomotor. The pneumatic EGR system with B673 actuator cylinder with position sensor and Y458 proportional valve E-AGR is only used in the D0836 LOH and D2066 LUH bus engines.

Possible test steps

- Check electrical cables and plug connections
- For D0836 LOH and D2066 LUH bus engines:
- Check Y458 proportional valve E-AGR
- on the engine control unit Measure resistance between pin C29 and pin C04
- Target value: 25 to 110 Ω

Possible remedy

Perform a diagnosis of the common rail injection system using MAN cats:

- Check fuel supply pressure before filter --> Target value: greater than 3 bar
- Check rail pressure --> Target value: greater than 200 bar
- Perform high-pressure test > shows whether the fault is on the pressure generator side (high-pressure pump, metering unit) or the consumer side (injector, pressure pipe connection, pressure relief valve)
- If the pressure reduction times are OK during the high-pressure test > further troubleshooting in the low-pressure fuel system or high-pressure pump

SPN 3746 - FMI 10 - Exhaust gas recirculation output stage - interruption**Monitoring strategy**

Monitoring of the output stage for temperature, short circuit, and cable interruption

Possible causes

- Interruption in the wiring
- Note: In many vehicles, the EGR system is controlled by the electric M289 EGR servomotor. The pneumatic EGR system with B673 actuator cylinder with position sensor and Y458 proportional valve E-AGR is only used in the D0836 LOH and D2066 LUH bus engines.

Possible test steps

- Check electrical cables and plug connections
- For D0836 LOH and D2066 LUH bus engines:
- Check Y458 proportional valve E-AGR
- on the engine control unit Measure resistance between pin C29 and pin C04
- Target value: 25 to 110 Ω

Possible remedy

Perform a diagnosis of the common rail injection system using MAN cats:

- Check fuel supply pressure before filter --> Setpoint: greater than 3 bar
- Check rail pressure --> Target value: greater than 200 bar
- Perform high-pressure test > shows whether the fault is on the pressure generator side (high-pressure pump, metering unit) or the consumer side (injector, pressure pipe connection, pressure relief valve)
- If the pressure reduction times are OK during the high-pressure test > further troubleshooting in the low-pressure fuel system or high-pressure pump

SPN 3747 - FMI 1 - Lowside output stage measurement unit: Short circuit / temperature (pin 373) - too high**Monitoring strategy**

Monitoring of the output stage for excessive temperature/short circuit. Follow-up error SPN 3781 DBV has opened.

Possible causes

-Cabling / plug connection not OK -Cabling / plug / plug pins of the component defective -Measuring unit ZME (MProp) defective.

Possible test steps

-Check wiring/plug connection -Check component wiring. Check component plug contacts
-Perform CR diagnosis with MAN-CATS as documented in the test step list of the FEDC17 system description. -Check the low-pressure fuel system for damage (lines, KSC).

Possible remedy

Perform a diagnosis of the common rail injection system using MAN-cats:

- Check fuel supply pressure before filter
- Target value: greater than 3 bar
- Check rail pressure
- Setpoint: greater than 200 bar
- Perform high-pressure test > shows whether the fault lies on the pressure generator side (high-pressure pump, metering unit) or on the consumer side (injector, pressure pipe connection, pressure relief valve)
- If the pressure reduction times are OK during the high-pressure test > further troubleshooting in the low-pressure fuel system or high-pressure pump

SPN 3747 - FMI 5 - Lowside output stage Metering unit: Short circuit / temperature (pin 373) - Short circuit to ground**Monitoring strategy**

Monitoring of the power stage for short circuit to ground. Follow-up error SPN3781 DBV open. Metering unit: Lowside power stage short circuit to ground

Possible causes

-Cabling / plug connection not OK -Cabling / plug / plug pins of the component defective -Metering unit ZME (MProp) defective.

Possible test steps

-Check wiring/plug connection -Check component wiring. Check component plug contacts
-Perform CR diagnostics with MAN-CATS as documented in the test step list in the FEDC17 system description. -Check the low-pressure fuel system for damage (lines, KSC).

Possible remedy

Perform a diagnosis of the common rail injection system using MAN-cats:

- Check fuel supply pressure before filter
- Target value: greater than 3 bar
- Check rail pressure
- Setpoint: greater than 200 bar
- Perform high-pressure test > shows whether the fault is on the pressure generator side (high-pressure pump, metering unit) or the consumer side (injector, pressure pipe connection, pressure relief valve)
- If the pressure reduction times are OK during the high-pressure test > further troubleshooting in the low-pressure fuel system or high-pressure pump

SPN 3747 - FMI 6 - Lowside output stage metering unit: short circuit / temperature (pin 373) - short circuit to UBatt+
Monitoring strategy

Monitoring of the power stage for short circuit to +Ubat. Follow-up error SPN3781 DBV open. | Metering Unit: Lowside powerstage short circuit to battery

Possible causes

-Cabling / plug connection not OK -Cabling / plug / plug pins of the component defective -Metering unit ZME (MProp) defective.

Possible test steps

-Check wiring/plug connection -Check component wiring. Check component plug contacts
-Perform CR diagnosis with MAN-CATS as documented in the test step list of the FEDC17 system description. -Check the low-pressure fuel system for damage (lines, KSC).

Possible remedy

Perform a diagnosis of the common rail injection system using MAN-cats:

- Check fuel supply pressure before filter
- Target value: greater than 3 bar
- Check rail pressure
- Setpoint: greater than 200 bar
- Perform high-pressure test > shows whether the fault is on the pressure generator side (high-pressure pump, metering unit) or the consumer side (injector, pressure pipe connection, pressure relief valve)
- If the pressure reduction times are OK during the high-pressure test > further troubleshooting in the low-pressure fuel system or high-pressure pump

SPN 3748 - FMI 1 - Highside output stage measurement unit (pin 325) - too high**Monitoring strategy**

Metering Unit: Internal current sensing voltage too high

Possible causes**Possible test steps**

-Check wiring/plug connection -Check component wiring. Check component plug contacts
-Perform CR diagnostics with MAN-CATS as documented in the test step list in the FEDC17 system description. -Check the low-pressure fuel system for damage (lines, KSC).

Possible remedy

SPN 3748 - FMI 2 - Highside output stage measurement unit (pin 325) - too low

Monitoring Strategy

Metering Unit: Internal current sensing voltage too low.

Possible causes

Possible test steps

-Check wiring/plug connection -Check component wiring. Check component plug contacts
 -Perform CR diagnostics with MAN-CATS as documented in the test step list in the FEDC17 system description. -Check the low-pressure fuel system for damage (lines, KSC).

Possible remedy

SPN 3748 - FMI 4 - Highside output stage measurement unit (pin 325) - No signal**Monitoring strategy**

Monitoring of the output stage for line interruption/loose connection. Consequential error SPN 3781 DBV has opened.

Possible causes

-Cabling / plug / plug pins of the component defective

Possible test steps

-Check the component's wiring. Check the component's plug contacts. -Monitoring
- Rail control: Compare rail pressure target/actual, condition of pressure relief valve.

Possible remedy

-Check ZME as documented in the test step list of the FEDC17 system description.

SPN 3748 - FMI 5 - High-side output stage measurement unit (pin 325) - Short circuit to ground**Monitoring strategy**

Monitoring of the power stage for short circuit to ground. Follow-up error SPN3781 DBV open. Metering Unit: Highside power stage short circuit to ground

Possible causes

-Cabling / connector / connector pins of the component defective -Metering unit ZME (MProp) defective. -Cabling / connector / connector pins of the component defective

Possible test steps

-Check the component's cabling. Check the component's plug contacts

Possible remedy

-Check ZME as documented in the test step list in the FEDC17 system description.

SPN 3748 - FMI 6 - High-side output stage measuring unit (pin 325) - Short circuit to UBatt+**Monitoring strategy**

Monitoring of the power stage for short circuit to +Ubat. Follow-up error SPN3781 DBV open. | Metering Unit: Highside powerstage short circuit to battery

Possible causes

-Cabling / connector / connector pins of the component defective -Metering unit ZME (MProp) defective. -Cabling / connector / connector pins of the component defective

Possible test steps

-Check the component's wiring. Check the component's plug contacts

Possible remedy

-Check ZME as documented in the test step list of the FEDC17 system description.

SPN 3748 - FMI 10 - High-side output stage measuring unit (pin 325) - Interruption**Monitoring strategy**

Monitoring of the output stage for open lines/line interruptions. Consequential error SPN 3781 DBV has opened. | Metering Unit: Open load

Possible causes

-Cabling to the measuring unit (ZME, proportional pressure control valve MPROP) on the high-pressure pump interrupted/loose connection. Shutdown of the output stage (reversible) Pressure relief valve opens, motor continues to run with approx. 800 bar rail pressure. -Measuring unit ZME (MProp) defective. - Cabling/connector/connector pins of the component defective

Possible test steps

-Monitoring
- Rail control: Comparison of target/actual rail pressure, condition of pressure relief valve. - Check component wiring. Check component plug contacts

Possible remedy

-Check ZME as documented in the test step list of the FEDC17 system description.

SPN 3749 - FMI 1 - Output stage motor brake or motor damper flap - too high
Monitoring strategy

Monitor the output stage for temperature, short circuit, wire break, and plausibility

Possible causes

- Y398 Solenoid valve CRT engine stalling flap is defective

Possible test steps

- Check signal for plausibility using MAN-cats monitoring
- Check electrical cables and plug connections
- Y398 Solenoid valve CRT Check engine damper
- Measure resistance between pin A30 and pin A18
- Target value: 40 Ω to 100 Ω
- If no fault can be detected: Check A435 EDC control unit

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace pressure lines and connections if necessary
- Replace exhaust differential pressure sensor if necessary

SPN 3749 - FMI 3 - Output stage engine brake or engine throttle flap - implausible**Monitoring strategy**

Monitoring of the output stage for temperature, short circuit, cable break, and plausibility

Possible causes

- Y398 Solenoid valve CRT engine stalling flap is defective

Possible test steps

- Check signal for plausibility using MAN-cats monitoring
- Check electrical lines and plug connections
- Check Y398 solenoid valve CRT engine stalling flap
- Measure resistance between pin A30 and pin A18
- Target value: 40 Ω to 100 Ω
- If no fault can be detected: Check A435 EDC control unit

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace exhaust differential pressure sensor if necessary.

SPN 3749 - FMI 5 - Output stage engine brake or engine stalling flap - Short circuit to ground**Monitoring strategy**

Monitoring of the exhaust flap output stage: electrical short circuit to ground of the solenoid/control valve of the engine brake flap, diagnostic condition: terminal 15 on

Possible causes

- Wiring / connector / connector pins of the component defective

Possible test steps

- Check electrical lines and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary

SPN 3749 - FMI 6 - Output stage engine brake or engine stall flap - Short circuit to UBatt+**Monitoring strategy**

Monitoring of the output stage for temperature, short circuit, cable break, and plausibility

Possible causes

- Y398 Solenoid valve CRT engine stalling flap is defective

Possible test steps

- Check signal for plausibility using MAN-cats monitoring
- Check electrical lines and plug connections
- Check Y398 solenoid valve CRT engine stalling flap
- Measure resistance between pin A30 and pin A18
- Setpoint: 40 Ω to 100 Ω
- If no fault can be detected: Check A435 control unit EDC

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace exhaust differential pressure sensor if necessary.

SPN 3749 - FMI 8 - Output stage engine brake or engine stalling flap - Invalid signal**Monitoring strategy**

Monitor the output stage for temperature, short circuit, cable break, and plausibility

Possible causes

- Y398 Solenoid valve CRT engine stalling flap is defective

Possible test steps

- Check signal for plausibility using MAN-cats monitoring
- Check electrical cables and plug connections
- Y398 Solenoid valve CRT Check engine throttle flap
- Measure resistance between pin A30 and pin A18
- Target value: 40 Ω to 100 Ω
- If no fault can be detected: Check A435 EDC control unit

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace exhaust differential pressure sensor if necessary.

SPN 3749 - FMI 10 - Output stage engine brake or engine stalling flap - interruption
Monitoring strategy

Monitoring of the output stage for temperature, short circuit, line interruption, and plausibility

Possible causes

- Y398 Solenoid valve CRT motor damper is defective

Possible test steps

- Check signal for plausibility using MAN-cats monitoring
- Check electrical lines and plug connections
- Check Y398 solenoid valve CRT engine stalling flap
- Measure resistance between pin A30 and pin A18
- Target value: 40 Ω to 100 Ω
- If no fault can be detected: Check A435 EDC control unit

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace pressure lines and connections if necessary
- Replace exhaust gas differential pressure sensor if necessary

SPN 3751 - FMI 1 - Output stage starter relay - too high

Monitoring strategy

Monitoring the output stage for temperature

Possible causes

- Interruption in the wiring between the engine control unit and the starter
- M100 starter (relay) is defective

Possible test steps

- Check electrical cables and plug connections
- Check M100 starter (relay)
- Check wiring according to the test step list in the FEDC17 system description

Possible remedy

- Replace electrical cables or plug connections if necessary

SPN 3751 - FMI 2 - Output stage starter relay - too low
Monitoring strategy

Monitoring the output stage for temperature

Possible causes

- Interruption in the wiring between the engine control unit and the starter
- M100 starter (relay) is defective

Possible test steps

- Check electrical cables and plug connections
- Check M100 starter (relay)
- Check wiring according to the test step list in the FEDC17 system description

Possible remedy

- Replace electrical cables or plug connections if necessary

SPN 3751 - FMI 5 - Output stage starter relay - Short circuit to ground

Monitoring strategy

Monitoring the output stage for short circuit to ground

Possible causes

- Interruption in the wiring between the engine control unit and the starter
- M100 starter (relay) is defective

Possible test steps

- Check electrical cables and plug connections
- Check M100 starter (relay)
- Check wiring according to the test step list in the FEDC17 system description

Possible remedy

- Replace electrical cables or plug connections if necessary

SPN 3751 - FMI 6 - Output stage starter relay - Short circuit after UBatt+
Monitoring strategy

Monitoring of the output stage for short circuit after +UBatt

Possible causes

- Interruption in the wiring between the engine control unit and the starter
- M100 starter (relay) is defective

Possible test steps

- Check electrical cables and plug connections
- Check M100 starter (relay)
- Check wiring according to the test step list in the FEDC17 system description

Possible remedy

- Replace electrical cables or plug connections if necessary

SPN 3751 - FMI 9 - Output stage starter relay - Device error

Monitoring strategy

Monitoring the output stage for internal temperature

Possible causes

- Interruption in the wiring between the motor control unit and the starter
- M100 starter (relay) is defective

Possible test steps

- Check electrical cables and plug connections
- Check M100 starter (relay)
- Check wiring according to the test step list in the FEDC17 system description

Possible remedy

- Replace electrical cables or plug connections if necessary

SPN 3751 - FMI 10 - Output stage starter relay - Interruption
Monitoring strategy

Monitoring the output stage for interruptions

Possible causes

- Interruption in the wiring between the motor control unit and the starter
- M100 starter (relay) is defective

Possible test steps

- Check electrical cables and plug connections
- Check M100 starter (relay)
- Check wiring according to the test step list in the FEDC17 system description

Possible remedy

- Replace electrical cables or plug connections if necessary

SPN 3752 - FMI 1 - Segment sensor (camshaft sensor) - too high
Monitoring strategy

Camshaft position sensor: offset error

Possible causes

- B489 Speed sensor is defective
- Crankshaft and camshaft speed sensors not connected or reversed polarity
- Camshaft sensor wheel is defective

Possible test steps

- Check the synchronization of the speed sensors using MAN-cats monitoring
- Use MAN CATS monitoring to check whether the operating mode of the speed sensor is "Camshaft signal faulty"
- Check electrical connections
- Check sensor for reverse polarity
- Check the camshaft wheel
- Check sensor distance
- Check B489 speed segment encoder
- Check sensor distance to encoder wheel
- Check component according to test step list in system description FEDC17
- If no fault can be detected: Check A435 EDC control unit

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace component if necessary

SPN 3752 - FMI 4 - Camshaft position sensor - No signal**Monitoring strategy**

Camshaft position sensor: no signal

Possible causes

- B489 Speed segment sensor is defective
- Crankshaft and camshaft speed sensors not connected or reversed polarity
- Camshaft sensor wheel defective

Possible test steps

- Check the synchronization of the speed sensors using MAN-cats monitoring
- Use MAN CATS monitoring to check whether the operating mode of the speed sensor is "Camshaft signal faulty"
- Check electrical connections
- Check sensor for reverse polarity
- Check the camshaft wheel
- Check the sensor distance
- B489 Check speed segment encoder
- Check sensor distance to encoder wheel
- Check component according to test step list in system description FEDC17
- If no fault can be detected: Check A435 EDC control unit

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace component if necessary

SPN 3752 - FMI 5 - Segment sensor (camshaft sensor) - Short circuit to ground**Monitoring strategy**

Camshaft position sensor: Short circuit (to ground)

Possible causes

- B489 Speed segment sensor is defective
- Crankshaft and camshaft speed sensors not connected or reversed polarity
- Camshaft sensor wheel is defective

Possible test steps

- Check the synchronization of the speed sensors using MAN-cats monitoring
- Use MAN CATS monitoring to check whether the operating mode of the speed sensor is "camshaft signal faulty"
- Check electrical connections
- Check sensor for reverse polarity
- Check the camshaft wheel
- Check sensor distance
- Check B489 speed segment encoder
- Check sensor distance to encoder wheel
- Check component according to test step list in system description FEDC17
- If no fault can be detected: Check A435 EDC control unit

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace component if necessary

SPN 3752 - FMI 6 - Segment encoder (camshaft sensor) - Short circuit to UBatt+**Monitoring strategy**

Camshaft position sensor: Short circuit to UBatt+

Possible causes

- B489 Speed segment encoder is defective
- Crankshaft and camshaft speed sensors not connected or reversed polarity
- Camshaft sensor wheel defective

Possible test steps

- Check the synchronization of the speed sensors using MAN-cats monitoring
- Use MAN CATS monitoring to check whether the operating mode of the speed sensor is "Camshaft signal faulty"
- Check electrical connections
- Check sensor for reverse polarity
- Check the camshaft wheel
- Check sensor distance
- Check B489 speed segment encoder
- Check sensor distance to encoder wheel
- Check component according to test step list in system description FEDC17
- If no fault can be detected: Check A435 EDC control unit

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace component if necessary

SPN 3752 - FMI 8 - Segment sensor (camshaft sensor) - Invalid signal**Monitoring strategy**

Camshaft sensor (camshaft sensor) faulty signal. Camshaft signal shows too many or too few pulses

Possible causes

- B489 Speed segment sensor is defective
- Crankshaft and camshaft speed sensors not connected or reversed polarity
- Camshaft sensor wheel defective

Possible test steps

- Check the synchronization of the speed sensors with MAN-cats monitoring
- Use MAN CATS monitoring to check whether the operating mode of the speed sensor is "camshaft signal faulty."
- Check electrical connections
- Check the sensor for reverse polarity
- Check the camshaft wheel
- Check sensor distance
- Check B489 speed segment encoder
- Check sensor distance to encoder wheel
- Check component according to test step list in system description FEDC17
- If no fault can be detected: Check A435 EDC control unit

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace component if necessary

SPN 3752 - FMI 10 - Segment sensor (camshaft sensor) - Interruption**Monitoring strategy**

Crankshaft position sensor: Cable interruption, not electrically connected

Possible causes

- B489 Speed segment sensor defective
- Crankshaft and camshaft speed sensors not connected or reversed polarity
- Camshaft sensor wheel defective

Possible test steps

- Check the synchronization of the speed sensors using MAN-cats monitoring
- Use MAN CATS monitoring to check whether the operating mode of the speed sensor is "Camshaft signal faulty"
- Check electrical connections
- Check sensor for reverse polarity
- Check the camshaft wheel
- Check sensor distance
- Check B489 speed segment encoder
- Check sensor distance to encoder wheel
- Check component according to test step list in system description FEDC17
- If no fault can be detected: Check A435 EDC control unit

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace component if necessary

SPN 3753 - FMI 4 - Incremental encoder (crankshaft sensor) - No signal**Monitoring strategy**

Incremental encoder (crankshaft sensor): no signal

Possible causes

- B488 Speed increment encoder is defective
- Crankshaft and camshaft speed sensors not connected or reversed polarity
- Flywheel defective

Possible test steps

- Check the synchronization of the speed sensors using MAN CATS Monitoring
- Use MAN-cats monitoring to check whether the operating mode of the speed sensor is "camshaft signal faulty."
- Check electrical connections
- Check the sensor for reverse polarity
- Check flywheel
- Check sensor distance
- Check B488 speed increment sensor
- Check sensor distance to encoder wheel
- Check component according to test step list in system description FEDC17
- If no fault can be detected: Check A435 EDC control unit

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace component if necessary

SPN 3753 - FMI 5 - Incremental encoder (crankshaft sensor) - Short circuit to ground**Monitoring strategy**

Incremental encoder (crankshaft sensor): Short circuit to ground

Possible causes

- B488 Speed incremental encoder is defective
- Crankshaft and camshaft speed sensors not connected or reversed polarity
- Flywheel defective

Possible test steps

- Check the synchronization of the speed sensors using MAN-cats monitoring
- Use MAN CATS monitoring to check whether the operating mode of the speed sensor is "Camshaft signal faulty"
- Check electrical connections
- Check sensor for reverse polarity
- Check flywheel
- Check the sensor distance
- Check B488 speed increment sensor
- Check sensor distance to encoder wheel
- Check component according to test step list in system description FEDC17
- If no fault can be detected: Check A435 EDC control unit

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace component if necessary

SPN 3753 - FMI 6 - Incremental encoder (crankshaft sensor) - Short circuit to UBatt+**Monitoring strategy**

Incremental encoder (crankshaft sensor): Short circuit to Ubatt

Possible causes

- B488 Speed increment encoder is defective
- Crankshaft and camshaft speed sensors not connected or reversed polarity
- Flywheel defective

Possible test steps

- Check the synchronization of the speed sensors using MAN CATS Monitoring
- Use MAN-cats monitoring to check whether the operating mode of the speed sensor is "camshaft signal faulty."
- Check electrical connections
- Check the sensor for reverse polarity
- Check flywheel
- Check sensor distance
- Check B488 speed increment sensor
- Check sensor distance to encoder wheel
- Check component according to test step list in system description FEDC17
- If no fault can be detected: Check A435 EDC control unit

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace component if necessary

SPN 3753 - FMI 8 - Incremental encoder (crankshaft sensor) - Invalid signal**Monitoring strategy**

Incremental encoder (crankshaft sensor): Signal interference

Possible causes

- B488 Speed incremental encoder is defective
- Crankshaft and camshaft speed sensors not connected or reversed polarity
- Flywheel defective

Possible test steps

- Check the synchronization of the speed sensors using MAN-cats monitoring
- Use MAN CATS monitoring to check whether the operating mode of the speed sensor is "Camshaft signal faulty"
- Check electrical connections
- Check sensor for reverse polarity
- Check flywheel
- Check the sensor distance
- Check B488 speed increment sensor
- Check sensor distance to encoder wheel
- Check component according to test step list in system description FEDC17
- If no fault can be detected: Check A435 EDC control unit

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace component if necessary

SPN 3753 - FMI 10 - Incremental encoder (crankshaft sensor) - Interruption**Monitoring strategy**

Incremental encoder (crankshaft sensor): Cable interruption, not electrically connected

Possible causes

- B488 Speed incremental encoder is defective
- Crankshaft and camshaft speed sensors not connected or reversed polarity
- Flywheel defective

Possible test steps

- Check the synchronization of the speed sensors using MAN-cats monitoring
- Use MAN CATS monitoring to check whether the operating mode of the speed sensor is "Camshaft signal faulty"
- Check electrical connections
- Check sensor for reverse polarity
- Check flywheel
- Check sensor distance
- B488 Check speed incremental encoder
- Check sensor distance to encoder wheel
- Check component according to test step list in system description FEDC17
- If no fault can be detected: Check A435 EDC control unit

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace component if necessary

SPN 3755 - FMI 1 - Plausibility check of fuel supply pressure - too high
Monitoring strategy

Pressure monitoring

Possible causes

- B377 Fuel pressure sensor is defective

Possible test steps

- Check low-pressure circuit according to hydraulic test step list
- Check signal for plausibility using MAN-cats monitoring
- Check electrical cables and plug connections
- B377 Check fuel pressure sensor
- Power supply: Measure voltage between pin C81 and pin C19
- Setpoint: 4.75 V to 5.25 V
- Signal voltage: Measure voltage between pin C35 and pin C19
- Setpoint: 1.00 V to 2.50 V at 1.90 to 7.50 bar when idling
- Ground connection: Resistance measurement between pin C19 and pin A02
- Setpoint: > 100 MΩ

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace B322 lambda sensor if necessary

SPN 3755 - FMI 3 - Fuel supply pressure plausibility check - implausible
Monitoring strategy

Pressure monitoring

Possible causes

- The fuel supply pressure is implausible
- B377 Fuel pressure sensor is defective

Possible test steps

- Check low-pressure circuit according to hydraulic test step list
- Check signal for plausibility using MAN cats monitoring
- Check electrical cables and plug connections
- Check B377 fuel pressure sensor
- Power supply: Measure voltage between pin C81 and pin C19
- Setpoint: 4.75 V to 5.25 V
- Signal voltage: Measure voltage between pin C35 and pin C19
- Setpoint: 1.00 V to 2.50 V at 1.90 to 7.50 bar when idle
- Ground connection: Resistance measurement between pin C19 and pin A02
- Setpoint: > 100 MΩ

Possible remedy

- Replace electrical cables or plug connections if necessary

SPN 3775 - FMI 1 - Rail pressure monitoring - too high**Monitoring strategy**

Monitoring function of the A435 EDC control unit has detected excessive rail pressure (maximum permissible system pressure exceeded) Rail pressure at D08/D2X: > 1900 bar (1-digit: 1800 bar system) Rail pressure at D38/D42: > 2650 bar (2-digit: 2500 bar system)

Possible causes

-Cabling to rail pressure sensor defective. -Rail pressure sensor -ZME cabling -ZME measuring unit (MPROP proportional pressure control valve) connected to high-pressure pump, DBV open -Check on-board voltage: voltage peaks or drops can cause impermissible rail pressure fluctuations.

Possible test steps

-Rail control: Rail pressure monitoring status: Limp Home (open DBV) -Rail control: Comparison of target/actual rail pressure - Rail control: Output value of pressure regulator -Rail control: Rail pressure monitoring status: Limp Home (open DBV). Set measuring unit to maximum delivery - Perform CR diagnosis with MAN-CATS as documented in the test step list of the FEDC17 system description. - Check low-pressure fuel system for damage (lines, KSC).

Possible remedy

- Replace electrical lines or plug connections if necessary.
- Replace power amplifier if necessary

SPN 3775 - FMI 2 - Rail pressure monitoring - too low**Monitoring strategy**

Monitoring function of the A435 control unit EDC has detected excessive rail pressure (maximum permissible system pressure exceeded) Rail pressure at D08/D2X: > 1900 bar (1-digit: 1800 bar system) Rail pressure at D38/D42: > 2650 bar (2-digit: 2500 bar system)

Possible causes

- Air in the fuel system, rail pressure does not build up
- Excessive vacuum upstream of the fuel feed pump (blocked line from the tank) -Injector leakage - Leaky connection between injectors and fuel rail
- Fuel feed pump or high-pressure pump defective

Possible test steps

Pressures: Fuel supply pressure upstream of filter greater than 3 bar. Rail control: Actual rail pressure greater than 200 bar. Pressures: Fuel supply pressure upstream of filter greater than 3 bar. Rail control: Actual rail pressure greater than 200 bar - Perform CR diagnosis with MAN CATS as documented in the test step list in the FEDC17 system description. - Check low-pressure fuel system for damage (lines, KSC) - Injector test

Possible remedy

SPN 3776 - FMI 1 - Positive control difference rail pressure - too high
Monitoring strategy

Monitoring of rail pressure

Possible causes

- Air in the fuel system
- Excessive vacuum in front of the fuel delivery pump (blocked line from the tank)
- Pump delivery rate too low
- Fuel delivery pump or high-pressure pump defective
- Y332 Proportional valve fuel is defective
- B487 Rail pressure sensor defective
- Engine D38/D4276Lxx: Diagnostic error message SPN 3776 in conjunction with SPN 4351 FMI10. Interruption/loose connection in PCVN power supply
- Engine D38/D4276Lxx: Diagnostic message SPN 3776 in conjunction with SPN 94 FMI 2 Fuel supply pressure too low at full load.

Possible test steps

- Check fuel system
- Check electrical cables and plug connections
- B487 Check rail pressure sensor according to test step list
- Power supply: Perform voltage measurement according to test step list
- Check the wiring and plug contacts on the PCVN. Check the PCVN.
- Monitor Check fuel pressure under full load when loaded; the value must not fall below 4 bar.

Possible remedy

- Replace electrical cables or plug connections if necessary
-

SPN 3777 - FMI 1 - negative rail pressure control difference - too high
Monitoring strategy

Monitoring of rail pressure; excessive rail pressure cannot be regulated. Rail pressure deviation greater than 200 bar when the engine is running. In thrust or idle mode. DBV may open under certain circumstances.

Possible causes

-Measuring unit ZME (proportional pressure control valve MPROP) connected to high-pressure pump, DBV is open - Return pressure at high-pressure pump too high, resulting in excessive rail pressure (especially when idling and in overrun)

Possible test steps

-Rail control: Rail pressure monitoring status: Limp Home (open DBV). Metering unit at maximum delivery - Rail control: Output value of pressure regulator less than 1% when idling. Compare rail pressure target/actual. Check return line for back pressure. - Perform CR diagnosis with MAN-CATS as documented in the test step list of the FEDC17 system description. - Check low-pressure fuel system for damage (lines, KSC).

Possible remedy

SPN 3778 - FMI 1 - Rail pressure leakage under thrust conditions - too high**Monitoring strategy**

Controller setpoint too high in thrust mode. Requested pump delivery rate too high in cruise mode/engine running, but no rail pressure deviation. Follow-up error if 94-1 or 94-2 are present.

Possible causes

-Insufficient pump delivery rate -DBV on the rail is open/stuck/leaking -Injector leak

Possible test steps

- Check fuel system
- Check electrical lines and plug connections - Perform CR diagnosis with MAN-CATS as documented in the FEDC17 system description. - Check low-pressure fuel system for damage (lines, KSC) - High-pressure test - DBV open test - Perform injector test

Possible remedy

SPN 3779 - FMI 1 - Rail pressure leak (incorrect quantity balance - too high)**Monitoring strategy**

Monitor the high-pressure hydraulics for leaks. Follow-up error if 94-1 or 94-2 are present

Possible causes

-DBV on rail is open/stuck/leaking -Injector leak -Insufficient pump delivery

Possible test steps

-Perform CR diagnosis with MAN-CATS as documented in system description FEDC17. - Check low-pressure fuel system for damage (lines, KSC). - High-pressure test - DBV open test - Perform injector test

Possible remedy

SPN 3780 - FMI 1 - Rail pressure leakage at idle - too high**Monitoring strategy**

Rail pressure deviation. Controller setpoint too high when idling. Requested pump delivery rate too high when driving/engine running, but no rail pressure deviation. Note: Error 94-1 or 94-2 must not be present here.

Possible causes

-DBV on rail is open/stuck/leaking -Insufficient pump delivery -Injector leakage

Possible test steps

-Perform CR diagnosis with MAN-CATS as documented in the FEDC17 system description. - Check the low-pressure fuel system for damage (lines, KSC). - Perform high-pressure test - DBV open test - injector test.

Possible remedy

SPN 3781 - FMI 1 - Pressure relief valve opens - too high**Monitoring strategy**

Monitoring for open pressure relief valve. Caution: PRV must not be replaced.

Possible causes

-Return pressure at high-pressure pump too high, resulting in excessive rail pressure (especially when idling and pushing) - Wiring to the measuring unit (ZME, proportional pressure control valve MPROP) on the high-pressure pump interrupted/loose connection. Shutdown of the output stage (reversible) Pressure relief valve opens, motor continues to run with approx. 800 bar rail pressure. -Check on-board voltage: Voltage peaks or drops can cause impermissible rail pressure fluctuations. -Cabling to rail pressure sensor defective. -Rail pressure sensor

Possible test steps

Rail control: Output value of pressure regulator less than 1% when idling. Compare target/actual rail pressure. Check return line for back pressure. Monitoring
- Rail control: Comparison of target/actual rail pressure, condition of pressure relief valve. - Rail control: Status of rail pressure monitoring: Limp Home (open DBV) - Rail control: Comparison of target/actual rail pressure - Perform CR diagnosis with MAN-CATS as documented in the test step list of the FEDC17 system description. - Check low-pressure fuel system for damage (lines, KSC).

Possible remedy

SPN 3782 - FMI 1 - Fuel supply pressure fluctuates - too high**Monitoring strategy**

Fuel supply pressure: Pressure fluctuation

Possible causes

- Fuel filter is clogged
- B377 Fuel pressure sensor is defective

Possible test steps

- Check fuel pressure
- Check the filter
- Check electrical wiring and plug connections
- Check B377 fuel pressure sensor according to the test step list in the FEDC17 system description

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace fuel pressure sensor if necessary

SPN 3785 - FMI 1 - Particulate filter/PM catalyst monitoring - too high**Monitoring strategy**

Differential pressure monitoring

Possible causes

- CRT filter is blocked
- PM catalytic converter is blocked > Exhaust gas differential pressure outside the permissible limit
- B695 Exhaust gas differential/relative pressure sensor is defective

Possible test steps

- Check CRT filter for presence or blockage
- Check PM catalytic converter for presence or blockage
- Check exhaust back pressure using MAN-cats monitoring
- Check with MAN-cats: operating hours since last regeneration, distance traveled since last regeneration, fuel quantity since last regeneration, number of partial regenerations
- Check electrical cables and plug connections
- B695 Check exhaust gas differential/relative pressure sensor according to the test step list in the FEDC17 system description

Possible remedy

- Replace electrical cables or plug connections if necessary

SPN 3785 - FMI 2 - Particulate filter/PM catalyst monitoring - too low**Monitoring strategy**

Differential pressure monitoring

Possible causes

- CRT filter is blocked
- PM catalytic converter is blocked > Exhaust gas differential pressure outside the permissible limit
- B695 Exhaust gas differential/relative pressure sensor is defective

Possible test steps

- Check CRT filter for presence or blockage
- Check PM cat for presence or blockage
- Check exhaust back pressure with MAN-cats monitoring
- Check with MAN-cats: operating hours since last regeneration, distance traveled since last regeneration, fuel quantity since last regeneration, number of partial regenerations
- Check electrical cables and plug connections
- B695 Check exhaust gas differential/relative pressure sensor according to the test step list in the FEDC17 system description

Possible remedy

- Replace electrical cables or plug connections if necessary

SPN 3787 - FMI 2 - Particulate filter regeneration unsuccessful - too low**Monitoring strategy**

Monitoring of exhaust gas aftertreatment

Possible causes

- The exhaust gas temperature required for regeneration was not reached

Possible test steps

- Check electrical cables and plug connections
- Check the exhaust gas temperatures in the exhaust system using MAN-cats monitoring
- Check the function of the M119 charge air throttle valve using MAN cats monitoring
- Check the power supply to the M119 charge air throttle valve in accordance with system description FEDC17

Possible remedy

- Replace electrical cables or plug connections if necessary

SPN 3789 - FMI 1 - Exhaust gas differential pressure sensor - too high
Monitoring strategy

Particulate filter differential pressure sensor: value too high

Possible causes

- DPF load limit reached
- DPF regeneration not fully completed

Possible test steps

- Check electrical cables and plug connections
- Check pressure lines and connection points for correct installation/laying and for leaks/chafing
- Check pressure lines for blockages

Possible remedy

- Repair electrical cables and plug connections of the CAN data bus exhaust
- Replace defective CAN data bus participants (see possible causes) if necessary

SPN 3789 - FMI 3 - Exhaust gas differential pressure sensor - implausible**Monitoring strategy**

Particulate filter differential pressure sensor: implausible

Possible causes

- DPF load limit reached
- DPF regeneration not fully completed

Possible test steps

- Check electrical cables and plug connections
- Check pressure lines and connections for correct installation/laying and for leaks/chafing
- Check pressure lines for blockages

Possible remedy

- Repair electrical cables and plug connections of the CAN data bus exhaust
- Replace defective CAN data bus participants (see possible causes) if necessary

SPN 3789 - FMI 5 - Exhaust differential pressure sensor - Short circuit to ground**Monitoring strategy**

Particulate filter differential pressure sensor: Short circuit to ground

Possible causes**Possible test steps**

- Check electrical wiring and plug connections

Possible remedy

- Repair electrical cables and plug connections of the CAN data bus exhaust
- Replace defective CAN data bus participants (see possible causes) if necessary

SPN 3789 - FMI 10 - Exhaust gas differential pressure sensor - Interruption

Monitoring strategy

Particulate filter differential pressure sensor: interruption

Possible causes

- Pressure line installation error

Possible test steps

- Check electrical lines and plug connections

Possible remedy

SPN 3789 - FMI 11 - Exhaust gas differential pressure sensor - Loose connection

Monitoring strategy

Particle filter Differential pressure sensor: loose connection

Possible causes

Possible test steps

- Check electrical cables and plug connections

Possible remedy

SPN 3789 - FMI 12 - Exhaust differential pressure sensor - Interruption or short circuit after Ubatt+**Monitoring strategy**

Particulate filter differential pressure sensor: Short circuit after Ubatt+

Possible causes**Possible test steps**

- Check electrical cables and plug connections

Possible remedy

SPN 3790 - FMI 1 - Plausibility of exhaust gas differential pressure sensor - too high
Monitoring strategy

Monitoring of exhaust gas aftertreatment

Possible causes

- Differential pressure too high
- DPF load limit reached

Possible test steps

- Check electrical cables and plug connections
- Check pressure lines and connections for correct installation/laying and for leaks/chafing
- Check pressure lines for blockages

Possible remedy

- Replace injector if necessary
- Note: When doing so, re-enter the IQA codes for the injector using MAN-cats

SPN 3790 - FMI 3 - Plausibility of exhaust gas differential pressure sensor - implausible**Monitoring strategy**

Monitoring of exhaust gas aftertreatment

Possible causes

- Differential pressure implausible
- DPF not installed

Possible test steps

- Check electrical cables and plug connections
- Check pressure lines and connections for correct installation/laying and for leaks/chafing
- Check pressure lines for blockages

Possible remedy

- Replace injector if necessary
- Note: When doing so, re-enter the IQA codes for the injector using MAN-cats

SPN 3792 - FMI 3 - Exhaust gas temperature sensor upstream of exhaust gas aftertreatment - implausible
Monitoring strategy

Monitoring of exhaust gas aftertreatment

Possible causes

- Exhaust gas temperature sensor upstream of the exhaust gas aftertreatment system is defective

Possible test steps

- Check electrical cables and plug connections
- Use MAN-cats monitoring to check the exhaust gas temperatures around the AGN system for plausibility

Possible remedy

- Replace injector if necessary
- Note: re-enter the IQA codes for the injector using MAN-cats

SPN 3792 - FMI 5 - Exhaust gas temperature sensor upstream of exhaust gas aftertreatment - Short circuit to ground**Monitoring strategy**

Monitoring of exhaust aftertreatment

Possible causes

- Exhaust gas temperature sensor upstream of the exhaust gas aftertreatment system is defective

Possible test steps

- Check electrical cables and plug connections
- Use MAN-cats monitoring to check the exhaust gas temperatures around the AGN system for plausibility

Possible remedy

- Replace injector if necessary
- Note: re-enter the IQA codes for the injector using MAN-cats

SPN 3792 - FMI 10 - Exhaust gas temperature sensor upstream of exhaust gas aftertreatment - interruption**Monitoring strategy**

Monitoring of exhaust gas aftertreatment

Possible causes

- Exhaust gas temperature sensor upstream of the exhaust gas aftertreatment system is defective

Possible test steps

- Check electrical cables and plug connections
- Use MAN-cats monitoring to check the exhaust gas temperatures around the AGN system for plausibility

Possible remedy

- Replace injector if necessary
- Note: re-enter the IQA codes for the injector using MAN-cats

SPN 3792 - FMI 11 - Exhaust gas temperature sensor upstream of exhaust gas aftertreatment - Loose connection**Monitoring strategy**

Monitoring of exhaust gas aftertreatment

Possible causes

- Exhaust gas temperature sensor upstream of the exhaust gas aftertreatment system is defective

Possible test steps

- Check electrical cables and plug connections
- Use MAN-cats monitoring to check the exhaust gas temperatures around the AGN system for plausibility

Possible remedy

- Replace injector if necessary
- Note: re-enter the IQA codes for the injector using MAN-cats

SPN 3793 - FMI 1 - Exhaust gas temperature after particulate filter - too high**Monitoring strategy**

Monitoring of exhaust gas aftertreatment

Possible causes

- Exhaust gas temperature after particulate filter is too high

Possible test steps

- Check electrical cables and plug connections
- Use MAN-cats monitoring to check the exhaust gas temperatures around the AGN system for plausibility

Possible remedy

- Replace injector if necessary
- Note: re-enter the IQA codes for the injector using MAN-cats

SPN 3793 - FMI 2 - Exhaust gas temperature after particulate filter - too low**Monitoring strategy**

Monitoring of exhaust gas aftertreatment

Possible causes

- Exhaust gas temperature after particulate filter is too low

Possible test steps

- Check electrical cables and plug connections
- Use MAN-cats monitoring to check the exhaust gas temperatures around the AGN system for plausibility

Possible remedy

- Renew CAN connection if necessary
- If necessary, renew B994 NOx sensor 2 (after exhaust gas aftertreatment)

SPN 3794 - FMI 3 - Exhaust gas temperature sensor upstream of particulate filter - implausible
Monitoring strategy

Monitoring of exhaust gas aftertreatment

Possible causes

- Exhaust gas temperature sensor upstream of DPF defective

Possible test steps

- Check electrical cables and plug connections
- Use MAN-cats monitoring to check the exhaust gas temperatures around the AGN system for plausibility

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective lambda sensor if necessary

**SPN 3794 - FMI 5 - Exhaust gas temperature sensor upstream of particulate filter -
Short circuit to ground**
Monitoring strategy

Monitoring of exhaust gas aftertreatment

Possible causes

- Exhaust gas temperature sensor upstream of DPF defective

Possible test steps

- Check electrical cables and plug connections
- Use MAN-cats monitoring to check the exhaust gas temperatures around the AGN system for plausibility

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective lambda sensor if necessary

SPN 3794 - FMI 10 - Exhaust gas temperature sensor upstream of particulate filter - Interruption
Monitoring strategy

Monitoring of exhaust gas aftertreatment

Possible causes

- Exhaust gas temperature sensor upstream of DPF defective

Possible test steps

- Check electrical cables and plug connections
- Use MAN-cats monitoring to check the exhaust gas temperatures around the AGN system for plausibility

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace oil temperature sensor if necessary

SPN 3794 - FMI 11 - Exhaust gas temperature sensor upstream of particulate filter - Loose connection
Monitoring strategy

Monitoring of exhaust gas aftertreatment

Possible causes

- Exhaust gas temperature sensor upstream of DPF defective

Possible test steps

- Check electrical cables and plug connections
- Use MAN CATS monitoring to check the exhaust gas temperatures around the AGN system for plausibility

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace oil temperature sensor if necessary

SPN 3795 - FMI 1 - Exhaust gas temperature before particulate filter - too high
Monitoring strategy

Monitoring of exhaust gas aftertreatment

Possible causes

- Exhaust gas temperature sensor upstream of DPF defective
- Exhaust gas temperature sensor upstream of DPF drifted

Possible test steps

- Check electrical cables and plug connections
- Use MAN-cats monitoring to check the exhaust gas temperatures around the AGN system for plausibility

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace oil temperature sensor if necessary

SPN 3795 - FMI 2 - Exhaust gas temperature before particulate filter - too low
Monitoring strategy

Monitoring of exhaust gas aftertreatment

Possible causes

- Exhaust gas temperature sensor upstream of DPF defective
- Exhaust gas temperature sensor upstream of DPF drifted

Possible test steps

- Check electrical cables and plug connections
- Use MAN-cats monitoring to check the exhaust gas temperatures around the AGN system for plausibility

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace oil temperature sensor if necessary

SPN 3795 - FMI 4 - Exhaust gas temperature before particulate filter - No signal
Monitoring strategy

Monitoring of exhaust gas aftertreatment

Possible causes

- Exhaust gas temperature sensor upstream of DPF defective
- Exhaust gas temperature sensor upstream of DPF drifted

Possible test steps

- Check electrical cables and plug connections
- Use MAN-cats monitoring to check the exhaust gas temperatures around the AGN system for plausibility

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace oil temperature sensor if necessary

SPN 3796 - FMI 3 - Plausibility check of exhaust gas temperature before particulate filter - implausible**Monitoring strategy**

Monitoring of exhaust gas aftertreatment

Possible causes

- Exhaust gas temperature sensor upstream of DPF defective
- Exhaust gas temperature sensor upstream of DPF drifted

Possible test steps

- Check electrical cables and plug connections
- Use MAN CATS monitoring to check the exhaust gas temperatures around the AGN system for plausibility

Possible remedies

- Replace electrical cables or plug connections if necessary
- Replace oil temperature sensor if necessary

SPN 3796 - FMI 8 - Plausibility check of exhaust gas temperature before particulate filter - Invalid signal**Monitoring strategy**

Monitoring of exhaust gas aftertreatment

Possible causes

- Exhaust gas temperature sensor upstream of DPF defective
- Exhaust gas temperature sensor upstream of DPF drifted

Possible test steps

- Check electrical cables and plug connections
- Use MAN-cats monitoring to check the exhaust gas temperatures around the AGN system for plausibility

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace the coolant pressure sensor if necessary

SPN 3797 - FMI 3 - Output stage lambda sensor heater - implausible**Monitoring strategy**

Lambda sensor: Overtemperature of the heating output stage

Possible causes**Possible test steps****Possible remedy**

- Replace electrical cables or plug connections if necessary - Replace lambda sensor

SPN 3797 - FMI 5 - Output stage lambda sensor heater - Short circuit to ground**Monitoring strategy**

Lambda sensor: Heater short circuit to ground

Possible causes

- Defect in the wiring of the B322 lambda sensor
- B322 lambda sensor is defective

Possible test steps

- Check with MAN-cats monitoring: Voltage lambda sensor
- Check electrical cables and plug connections
- Check B322 lambda sensor
- Check component according to test step list in system description FEDC17

Possible remedy

- Replace electrical cables or plug connections if necessary - Replace lambda sensor

SPN 3797 - FMI 6 - Output stage lambda sensor heater - Short circuit to UBatt+**Monitoring strategy**

Lambda sensor: Heating Short circuit to battery

Possible causes

- Defect in the wiring of the B322 lambda sensor
- B322 lambda sensor is defective

Possible test steps

- Check with MAN-cats monitoring: Voltage lambda sensor
- Check electrical cables and plug connections
- Check B322 lambda sensor
- Check component according to test step list in system description FEDC17

Possible remedy

- Replace electrical cables or plug connections if necessary - Replace lambda sensor

SPN 3797 - FMI 10 - Output stage lambda sensor heater - Interruption
Monitoring strategy

Lambda sensor: Heating circuit interruption (open load)

Possible causes

- Interruption in the wiring of the B322 lambda sensor
- B322 lambda sensor is defective

Possible test steps

- Check with MAN-cats monitoring: Voltage lambda sensor
- Check electrical cables and plug connections
- Check B322 lambda sensor
- Check component according to test step list in system description FEDC17

Possible remedy

- Replace electrical cables or plug connections if necessary - Replace lambda sensor

SPN 3798 - FMI 1 - Power amplifier OBD lamp (MIL) - too high**Monitoring strategy**

Monitoring the output stage for temperature, short circuit, and wire break

Possible causes

- The temperature of the output stage (MIL) is too high

Possible test steps

- Check electrical cables and plug connections
- Check instrumentation
- Measure continuity between pin A45 and the instrumentation

Possible remedy

- Adjust coolant level if necessary

SPN 3798 - FMI 5 - Output stage OBD lamp (MIL) - Short circuit to ground**Monitoring strategy**

Monitoring of the output stage for temperature, short circuit, and wire break

Possible causes

- Interruption in the wiring of the output stage (MIL)

Possible test steps

- Check electrical cables and plug connections
- Check instrumentation
- Measure continuity between pin A45 and the instrumentation

Possible remedy

SPN 3798 - FMI 6 - Output stage OBD lamp (MIL) - Short circuit to UBatt+

Monitoring strategy

Monitoring of the output stage for temperature, short circuit, and wire break

Possible causes

- Interruption in the wiring of the output stage (MIL)

Possible test steps

- Check electrical cables and plug connections
- Check instrumentation
- Measure continuity between pin A45 and the instrumentation

Possible remedy

SPN 3798 - FMI 10 - Output stage OBD lamp (MIL) - Interruption

Monitoring strategy

Monitoring of the output stage for temperature, short circuit, and wire interruption

Possible causes

- Interruption in the wiring of the output stage (MIL)

Possible test steps

- Check electrical cables and plug connections
- Check instrumentation
- Measure continuity between pin A45 and the instrumentation

Possible remedy

SPN 3800 - FMI 1 - Low-pressure turbocharger output stage wastegate valve - too high**Monitoring strategy**

Monitoring the turbocharger

Possible causes

- Overheating of the output stage

Possible test steps

- Check electrical cables and plug connections
- Check boost pressure or boost pressure build-up using MAN-cats monitoring

Possible remedy

SPN 3800 - FMI 5 - Low-pressure turbocharger output stage wastegate valve - Short circuit to ground**Monitoring strategy**

Monitoring of the turbocharger

Possible causes**Possible test steps**

- Check electrical cables and plug connections
- Check boost pressure or boost pressure build-up with MAN-cats monitoring

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace B623 boost pressure/temperature sensor if necessary

SPN 3800 - FMI 6 - Low-pressure turbocharger output stage wastegate valve - Short circuit to UBatt+**Monitoring strategy**

Monitoring of the turbocharger

Possible causes**Possible test steps**

- Check electrical cables and plug connections
- Check boost pressure or boost pressure build-up with MAN-cats monitoring

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace B623 boost pressure/temperature sensor if necessary

SPN 3800 - FMI 10 - Low-pressure turbocharger output stage wastegate valve - interruption**Monitoring strategy**

Monitoring the turbocharger

Possible causes**Possible test steps**

- Check electrical cables and plug connections
- Check boost pressure or boost pressure build-up with MAN-cats monitoring

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace B623 boost pressure/temperature sensor if necessary

SPN 3801 - FMI 5 - Output stage valve charge air cooling water circuit - Short circuit to ground**Monitoring strategy**

Monitor output stage valve for short circuit, device error, and interruption

Possible causes

- The Y496 shut-off/pressure reducing valve low temperature of the coolant thermostat is defective

Possible test steps

- Check the temperature of the cooling circuit using MAN-cats monitoring
- Check electrical cables and plug connections
- Y496 Check low-temperature shut-off/pressure reducing valve
- Measure resistance between pin C05 and pin C03
- Target value: 20 to 28 Ω
- If no fault can be detected: Check A435 EDC control unit

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace B623 boost pressure/temperature sensor if necessary

SPN 3801 - FMI 6 - Output stage valve charge air cooling water circuit - Short circuit to ground**Monitoring strategy**

Monitoring of output stage valve for short circuit, device error, and interruption

Possible causes

- The Y496 shut-off/pressure reducing valve low temperature of the cooling water thermostat is defective

Possible test steps

- Check the temperature of the cooling circuit using MAN CATS monitoring
- Check electrical cables and plug connections
- Check the Y496 low-temperature shut-off/pressure reducing valve
- Measure resistance between pin C05 and pin C03
- Target value: 20 to 28 Ω
- If no fault can be detected: Check A435 EDC control unit

Possible remedy

SPN 3801 - FMI 9 - Output stage valve charge air cooling water circuit - Device error**Monitoring strategy**

Monitoring of output stage valve for short circuit, device error, and interruption

Possible causes

- Inadmissible temperature increase at the valve of the cooling water thermostat
- The Y496 shut-off/pressure reducing valve low temperature of the cooling water thermostat is defective

Possible test steps

- Check the temperature of the cooling circuit using MAN CATS monitoring
- Check electrical cables and plug connections
- Check the Y496 low-temperature shut-off/pressure reducing valve
- Measure resistance between pin C05 and pin C03
- Target value: 20 to 28 Ω
- If no fault can be detected: Check A435 EDC control unit

Possible remedy

SPN 3801 - FMI 10 - Output stage valve charge air cooling water circuit - interruption**Monitoring strategy**

Monitoring output stage valve for short circuit, device error, and interruption

Possible causes

- The Y496 shut-off/pressure reducing valve low temperature of the cooling water thermostat is defective

Possible test steps

- Check the temperature of the cooling circuit using MAN CATS monitoring
- Check electrical cables and plug connections
- Check the Y496 low-temperature shut-off/pressure reducing valve
- Measure resistance between pin C05 and pin C03
- Target value: 20 to 28 Ω
- If no fault can be detected: Check A435 EDC control unit

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace B623 boost pressure/temperature sensor if necessary

SPN 3802 - FMI 1 - Power stage compressed air shut-off valve - too high
Monitoring strategy

Monitoring internal control unit errors

Possible causes

- Y460 shut-off valve E-AGR/EVBec is defective
- The temperature of the output stage of the Y460 shut-off valve E-AGR/EVBec is too high

Possible test steps

- Check electrical cables and plug connections
- Check Y460 shut-off valve E-AGR/EVBec
- Resistance measurement between pin C54 and pin C47
- Target value: 25 to 260 Ω

Possible remedy

- Replace cables or plug connections if necessary
- Replace ambient air temperature sensor if necessary

SPN 3802 - FMI 5 - Output stage Compressed air shut-off valve - Short circuit to ground**Monitoring strategy**

Monitoring of internal control unit errors

Possible causes

- Y460 shut-off valve E-AGR/EVBec is defective
- Interruption in the wiring of the Y460 shut-off valve E-AGR/EVBec

Possible test steps

- Check electrical cables and plug connections
- Y460 Check E-AGR/EVBec shut-off valve
- Resistance measurement between pin C54 and pin C47
- Target value: 25 to 260 Ω

Possible remedy

- Replace cables or plug connections if necessary
- Replace ambient air temperature sensor if necessary

SPN 3802 - FMI 6 - Output stage Compressed air shut-off valve - Short circuit after UB
Monitoring strategy

Monitoring of internal control unit errors

Possible causes

- Y460 shut-off valve E-AGR/EVBec is defective
- Interruption in the wiring of the Y460 shut-off valve E-AGR/EVBec

Possible test steps

- Check electrical cables and plug connections
- Y460 Check E-AGR/EVBec shut-off valve
- Measure resistance between pin C54 and pin C47
- Target value: 25 to 260 Ω

Possible remedy

- Replace cables or plug connections if necessary
- Replace ambient air temperature sensor if necessary

SPN 3802 - FMI 9 - Output stage Compressed air shut-off valve - Device error**Monitoring strategy**

Monitoring internal control unit errors

Possible causes

- Y460 shut-off valve E-AGR/EVBec is defective
- Interruption in the wiring of the Y460 shut-off valve E-AGR/EVBec

Possible test steps

- Check electrical cables and plug connections
- Y460 Check E-AGR/EVBec shut-off valve
- Measure resistance between pin C54 and pin C47
- Target value: 25 to 260 Ω

Possible remedy

- Replace cables or plug connections if necessary
- Replace ambient air temperature sensor if necessary

SPN 3802 - FMI 10 - Output stage Compressed air shut-off valve - Interruption**Monitoring strategy**

Monitoring internal control unit errors

Possible causes

- Y460 shut-off valve E-AGR/EVBec is defective
- Interruption in the wiring of the Y460 shut-off valve E-AGR/EVBec

Possible test steps

- Check electrical cables and plug connections
- Y460 Check E-AGR/EVBec shut-off valve
- Measure resistance between pin C54 and pin C47
- Target value: 25 to 260 Ω

Possible remedy

- Replace cables or plug connections if necessary
- Replace ambient air temperature sensor if necessary

SPN 3813 - FMI 8 - Starter monitoring - Invalid signal**Monitoring strategy**

Monitoring of the start duration or switch-on time of the starter

Possible causes

- The starter was operated continuously for longer than 30 seconds without the engine starting.
- The engine control unit estimates the heating of the starter
- It is likely that the long starter operation is the result of another fault in the system, which leads to poor engine starting behavior.

Possible test steps

- Determine the cause of the poor starting performance and the resulting long starting time (e.g., starter speed too low, sensor error, immobilizer, air in the fuel system, fuel supply, dirty filter).
- The error message SPN 3813 appears on the display
- It remains active until the starter motor has cooled down sufficiently.
- The message remains active for 10 minutes for every 30 seconds of operation
- This error has no other effects.
- The error message disappears automatically after the specified time has elapsed.

Possible remedy

- Replace A435 EDC control unit if necessary

SPN 3815 - FMI 1 - Exhaust back pressure engine brake - too high**Monitoring strategy**

Monitoring for short circuit, cable break, voltage values

Possible causes

- The exhaust back pressure at the engine brake is outside the tolerance range
- Y355 EVB module with integrated exhaust back pressure sensor may be defective

Possible test steps

- Check the exhaust back pressure using MAN cats monitoring
- Check electrical cables and plug connections
- Check the Y355 EVB module with integrated exhaust back pressure sensor
- Power supply: Voltage measurement between pin A50 and pin A08
- Setpoint: 4.75 V to 5.25 V
- Signal voltage: Voltage measurement between pin A25 and pin A08
- Setpoint: 0.25 V to 1.15 V when idle

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace B322 lambda sensor if necessary

SPN 3815 - FMI 2 - Exhaust back pressure engine brake - too low**Monitoring strategy**

Monitoring for short circuit, cable break, voltage values

Possible causes

- The exhaust back pressure at the engine brake is outside the tolerance range.
- Y355 EVB module with integrated exhaust gas back pressure sensor may be defective

Possible test steps

- Check the exhaust back pressure using MAN cats monitoring
- Check electrical cables and plug connections
- Check the Y355 EVB module with integrated exhaust back pressure sensor
- Power supply: Measure voltage between pin A50 and pin A08
- Setpoint: 4.75 V to 5.25 V
- Signal voltage: Measure the voltage between pin A25 and pin A08
- Setpoint: 0.25 V to 1.15 V when idle

Possible remedy

- Calibrate B322 lambda sensor
- Replace B322 lambda sensor if necessary

SPN 3815 - FMI 3 - Exhaust back pressure engine brake - implausible**Monitoring strategy**

Monitoring for short circuit, wire break, voltage values

Possible causes

- The exhaust back pressure at the engine brake is outside the tolerance range
- Y355 EVB module with integrated exhaust back pressure sensor may be defective

Possible test steps

- Check the exhaust back pressure using MAN CATS monitoring
- Check electrical cables and plug connections
- Check the Y355 EVB module with integrated exhaust back pressure sensor
- Power supply: Measure voltage between pin A50 and pin A08
- Setpoint: 4.75 V to 5.25 V
- Signal voltage: Voltage measurement between pin A25 and pin A08
- Setpoint: 0.25 V to 1.15 V when idle

Possible remedy

- Calibrate B322 lambda sensor
- Replace B322 lambda sensor if necessary

SPN 3815 - FMI 5 - Exhaust back pressure engine brake - Short circuit to ground**Monitoring strategy**

Monitoring for short circuit, wire break, voltage values

Possible causes

- The exhaust back pressure at the engine brake is outside the tolerance range
- Y355 EVB module with integrated exhaust back pressure sensor may be defective

Possible test steps

- Check the exhaust back pressure with MAN CATS monitoring
- Check electrical cables and plug connections
- Check Y355 EVB module with integrated exhaust back pressure sensor
- Power supply: Measure voltage between pin A50 and pin A08
- Setpoint: 4.75 V to 5.25 V
- Signal voltage: Measure the voltage between pin A25 and pin A08
- Setpoint: 0.25 V to 1.15 V when idle

Possible remedy

- Calibrate B322 lambda sensor
- Replace B322 lambda sensor if necessary

SPN 3815 - FMI 6 - Exhaust back pressure engine brake - Short circuit to UBatt+
Monitoring strategy

Monitoring for short circuit, cable break, voltage values

Possible causes

- The exhaust back pressure at the engine brake is outside the tolerance range
- Y355 EVB module with integrated exhaust back pressure sensor may be defective

Possible test steps

- Check the exhaust back pressure using MAN CATS monitoring
- Check electrical cables and plug connections
- Check the Y355 EVB module with integrated exhaust back pressure sensor
- Power supply: Measure voltage between pin A50 and pin A08
- Setpoint: 4.75 V to 5.25 V
- Signal voltage: Measure voltage between pin A25 and pin A08
- Setpoint: 0.25 V to 1.15 V at no load

Possible remedy

SPN 3815 - FMI 11 - Exhaust back pressure engine brake - Loose connection**Monitoring strategy**

Monitoring for short circuit, wire break, voltage values

Possible causes

- The exhaust back pressure at the engine brake is outside the tolerance range
- Y355 EVB module with integrated exhaust back pressure sensor may be defective

Possible test steps

- Check the exhaust back pressure using MAN CATS monitoring
- Check electrical cables and plug connections
- Check the Y355 EVB module with integrated exhaust back pressure sensor
- Power supply: Voltage measurement between pin A50 and pin A08
- Setpoint: 4.75 V to 5.25 V
- Signal voltage: Voltage measurement between pin A25 and pin A08
- Setpoint: 0.25 V to 1.15 V when idle

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace B623 boost pressure/temperature sensor if necessary

SPN 3817 - FMI 3 - Control deviation engine brake monitoring - implausible**Monitoring strategy**

Monitoring control engine brake

Possible causes

- The exhaust back pressure at the engine brake is outside the tolerance range.
- Y355 EVB module with integrated exhaust gas back pressure sensor is defective

Possible test steps

- Check the exhaust back pressure using MAN cats monitoring
- Check electrical cables and plug connections
- Check the Y355 EVB module with integrated exhaust back pressure sensor
- Power supply: Measure voltage between pin A50 and pin A08
- Setpoint: 4.75 V to 5.25 V
- Signal voltage: Measure the voltage between pin A25 and pin A08
- Setpoint: 0.25 V to 1.15 V when idle

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace oil temperature sensor if necessary

SPN 3817 - FMI 9 - Control deviation motor brake monitoring - Device error**Monitoring strategy**

Engine brake flap is closed and blocked, exhaust back pressure is higher than expected during combustion operation (no engine brake request), diagnostic condition: engine is running (no engine brake request), note: max. permitted exhaust back pressure is speed-dependent -> vehicle must be driven for inspection

Possible causes

- The exhaust back pressure at the engine brake is outside the tolerance range. Check proportional valve control. - Actuator defective: mechanically blocked - Exhaust brake flap sluggish / stuck

Possible test steps

- Visual inspection of flap mechanism/linkage. Function test using brake request steering column lever (reaching end positions) Actuator test --> engine brake flap.

Possible remedy

**SPN 3818 - FMI 1 - Exhaust back pressure sensor upstream of engine brake flap
plausibility check - too high****Monitoring strategy**

Monitoring exhaust back pressure sensor

Possible causes

- The exhaust back pressure at the engine brake is outside the tolerance range.
- Y355 EVB module with integrated exhaust gas pressure sensor is defective

Possible test steps

- Check the exhaust back pressure using MAN cats monitoring
- Check electrical cables and plug connections
- Check Y355 EVB module with integrated exhaust back pressure sensor
- Power supply: Measure voltage between pin A50 and pin A08
- Setpoint: 4.75 V to 5.25 V
- Signal voltage: Measure the voltage between pin A25 and pin A08
- Setpoint: 0.25 V to 1.15 V when idle

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace oil temperature sensor if necessary

SPN 3818 - FMI 3 - Exhaust back pressure sensor upstream of engine brake flap
Plausibility check - implausible**Monitoring strategy**

Monitoring exhaust back pressure sensor

Possible causes

- The exhaust back pressure at the engine brake is outside the tolerance range.
- Y355 EVB module with integrated exhaust gas back pressure sensor is defective

Possible test steps

- Check the exhaust back pressure using MAN cats monitoring
- Check electrical cables and plug connections
- Check the Y355 EVB module with integrated exhaust back pressure sensor
- Power supply: Measure voltage between pin A50 and pin A08
- Setpoint: 4.75 V to 5.25 V
- Signal voltage: Measure voltage between pin A25 and pin A08
- Setpoint: 0.25 V to 1.15 V when idle

Possible remedy

- Replace A432 EDC control unit if necessary

SPN 3818 - FMI 9 - Exhaust back pressure sensor upstream of engine brake flap
Plausibility check - Device error**Monitoring strategy**

Monitoring exhaust back pressure sensor

Possible causes

- The exhaust back pressure at the engine brake is outside the tolerance range.
- Y355 EVB module with integrated exhaust gas back pressure sensor is defective

Possible test steps

- Check the exhaust back pressure using MAN cats monitoring
- Check electrical cables and plug connections
- Check the Y355 EVB module with integrated exhaust back pressure sensor
- Power supply: Measure voltage between pin A50 and pin A08
- Setpoint: 4.75 V to 5.25 V
- Signal voltage: Measure voltage between pin A25 and pin A08
- Setpoint: 0.25 V to 1.15 V when idle

Possible remedy

SPN 3819 - FMI 4 - Exhaust CAN - No signal
Monitoring strategy

Monitoring CAN signals

Possible causes

- Interruption in the CAN data bus exhaust between the A435 EDC control unit and the M119 charge air throttle valve
- CAN data bus lines high and low swapped
- Interruption/short circuit to ground and/or battery voltage (+Ubat) on one or more downstream CAN data bus participants: B1055 NOx sensor 1, M289 exhaust gas recirculation servomotor, A808 AdBlue delivery module, B994 NOx sensor 2, A1191 thermocouples with evaluation electronics, A1192 AdBlue combination sensor

Possible test steps

- Continuity measurement between A435 EDC control unit (pin A34 (CAN high) and pin A47 (CAN low)) and M119 charge air throttle valve (pin 4 (CAN high in) and pin 3 (CAN low in))
- If M119 charge air throttle valve OK, then check plug connections of the charge air throttle valve
- Further test steps:
- Measure the voltage of the components from EDC to the AdBlue control unit (CAN high and low) to ground and to 24V vehicle electrical system voltage. Check whether CAN high and low are reversed.
- If the result of the voltage measurement is: 0V > short circuit
- If the result of the voltage measurement to ground is: Potential difference 0V > Short circuit to ground
- If the result of the voltage measurement is 24V on the vehicle electrical system: Potential difference 0V > Short circuit to Ubat
- If a voltage is measured in both measurements, perform a continuity test on all CAN connections between the components to find the broken point.
- In the event of a short circuit, check all components in sequence for voltage to the corresponding potential
- If the voltage value increases > the interruption is located between the last measured component and the measured component

Possible remedy

- If necessary, replace the A432 EDC control unit

SPN 3819 - FMI 8 - Exhaust CAN - Invalid signal**Monitoring strategy**

Monitoring CAN signals

Possible causes

- Interruption in the CAN data bus exhaust between the A435 EDC control unit and the M119 charge air throttle valve
- CAN data bus lines high and low swapped
- Interruption/short circuit to ground and/or battery voltage (+Ubat) on one or more downstream CAN data bus participants: B1055 NOx sensor 1, M289 exhaust gas recirculation servomotor, A808 AdBlue delivery module, B994 NOx sensor 2, A1191 thermocouples with evaluation electronics, A1192 AdBlue combination sensor

Possible test steps

- Continuity measurement between A435 EDC control unit (pin A34 (CAN high) and pin A47 (CAN low)) and M119 charge air throttle valve (pin 4 (CAN high in) and pin 3 (CAN low in))
- If M119 charge air throttle valve OK, then check plug connections of the charge air throttle valve
- Further test steps:
- Measure the voltage of the components from EDC to the AdBlue control unit (CAN high and low) to ground and to 24V vehicle electrical system voltage. Check whether CAN high and low are reversed.
- If the result of the voltage measurement is: 0V > short circuit
- If the result of the voltage measurement to ground is: Potential difference 0V > Short circuit to ground
- If the result of the voltage measurement is 24V on the vehicle electrical system: Potential difference 0V > Short circuit to Ubat
- If a voltage is measured in both measurements, perform a continuity test on all CAN connections between the components to find the broken point.
- In the event of a short circuit, check all components in sequence for voltage to the corresponding potential
- If the voltage value increases > the interruption is located between the last measured component and the measured component

Possible remedy

SPN 3820 - FMI 4 - Oil temperature error reception - No signal**Monitoring strategy**

Monitoring CAN signals

Possible causes

- Interruption in CAN between individual participants
- Short circuit between CAN high and low

Possible test steps

- Check CAN connection
- Measure resistance between pin A48 and pin A35
- Target value: 115 to 125 Ω

Possible remedy

- Replace F894 fuse if necessary Replace AdBlue level sensor/NOx sensor
- Replace electrical cables or plug connections if necessary
- Replace B994 NOx sensor II OBD if necessary

SPN 3821 - FMI 4 - Error reception vehicle speed - No signal
Monitoring strategy

Monitoring CAN signals

Possible causes

- Interruption in CAN between individual participants
- Short circuit between CAN high and low

Possible test steps

- Check CAN connection
- Measure resistance between pin A48 and pin A35
- Target value: 115 to 125 Ω

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace F894 fuse AdBlue level sensor/NOx sensor if necessary
- Replace B994 NOx sensor II OBD if necessary

SPN 3822 - FMI 4 - Timeout NOx sensor before exhaust aftertreatment - No signal**Monitoring strategy**

Timeout NOx sensor before exhaust gas aftertreatment. For troubleshooting, see also Troubleshooting in the CAN network exhaust gas.

Possible causes

- Power supply KL15 interrupted, KI 31 interrupted.
- Power supply NOx sensor 1 (before exhaust aftertreatment) -Cabling / connector / connector pins of the component defective

Possible test steps

- NOx sensor, check the power supply -Check the component wiring. Check the component plug contacts
- Note: This SPN may be stored in the fault memory if there are faults on the CAN. Always use the engine-specific circuit diagram when troubleshooting on the CAN.

Possible remedy

SPN 3823 - FMI 3 - Misfire on multiple cylinders - implausible
Monitoring strategy

Monitoring injectors

Possible causes

- Injector is defective

Possible test steps

- Check the fuel quantity correction for the individual cylinders using MAN-cats monitoring
- Perform a diagnosis of the common rail injection system using MAN-cats

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace F894 fuse AdBlue level sensor/NOx sensor if necessary
- Replace B994 NOx sensor II OBD if necessary

SPN 3824 - FMI 3 - Misfire R4 and R6 = Cyl. 1 - implausible
Monitoring strategy

Monitoring injectors

Possible causes

- Injector is defective

Possible test steps

- Check the fuel quantity correction for each cylinder using MAN-cats monitoring
- Perform a diagnosis of the common rail injection system using MAN-cats

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace F894 fuse AdBlue level sensor/NOx sensor if necessary
- Replace B994 NOx sensor II OBD if necessary

SPN 3825 - FMI 3 - Misfire R4 = cylinder 3; R6 = cylinder 5 - implausible

Monitoring strategy

Monitoring injectors

Possible causes

- Injector is defective

Possible test steps

- Check the fuel quantity correction for each cylinder using MAN-cats monitoring
- Perform a diagnosis of the common rail injection system using MAN-cats

Possible remedy

- If necessary, replace F894 fuse AdBlue level sensor/NOx sensor
- If necessary, replace B994 NOx sensor II OBD

SPN 3826 - FMI 3 - Misfire R4 = cylinder 4; R6 = cylinder 3 - implausible
Monitoring strategy

Monitoring injectors

Possible causes

- Injector is defective

Possible test steps

- Check the fuel quantity correction for each cylinder using MAN-cats monitoring
- Perform a diagnosis of the common rail injection system using MAN-cats

Possible remedy

- If necessary, replace F894 fuse AdBlue level sensor/NOx sensor
- If necessary, replace B994 NOx sensor II OBD

SPN 3827 - FMI 3 - Misfire R4 = cylinder 2; R6 = cylinder 6 - implausible**Monitoring strategy**

Monitoring injectors

Possible causes

- Injector is defective

Possible test steps

- Check the fuel quantity correction for the individual cylinders using MAN-cats monitoring
- Perform a diagnosis of the common rail injection system using MAN-cats

Possible remedy

- If necessary, replace F894 fuse AdBlue level sensor/NOx sensor
- If necessary, replace B994 NOx sensor II OBD

SPN 3828 - FMI 3 - Misfire R6 = Cyl. 2 - implausible**Monitoring strategy**

Monitoring injectors

Possible causes

- Injector is defective

Possible test steps

- Check the fuel quantity correction for each cylinder using MAN-cats monitoring
- Perform a diagnosis of the common rail injection system using MAN-cats

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace B487 rail pressure sensor if necessary

SPN 3829 - FMI 3 - Misfire R6 = Cyl. 4 - implausible

Monitoring strategy

Monitoring injectors

Possible causes

- Injector is defective

Possible test steps

- Check the fuel quantity correction for each cylinder using MAN-cats monitoring
- Perform a diagnosis of the common rail injection system using MAN-cats

Possible remedy

- If necessary, install B322 lambda sensor correctly

SPN 3830 - FMI 4 - Timeout NOx sensor after exhaust aftertreatment - No signal**Monitoring strategy**

Timeout NOx sensor after exhaust aftertreatment (tailpipe) Check also see Troubleshooting in the CAN network exhaust.

Possible causes

- Interruption in CAN
- NOx sensor 2 (after exhaust gas aftertreatment) is defective

Possible test steps

- Check the voltage supply to the NOx sensor after exhaust gas aftertreatment

Possible remedy

SPN 3837 - FMI 1 - Lambda sensor oxygen signal - too high**Monitoring strategy**

Monitoring exhaust gas aftertreatment

Possible causes

- B322 Lambda sensor is defective

Possible test steps

- Check electrical cables and plug connections
- Use MAN-Cats monitoring to verify the lambda value based on NOx concentration, air and fuel mass, and EGR valve position

Possible remedy

- Replace defective lambda sensor if necessary

SPN 3837 - FMI 2 - Lambda sensor oxygen signal - too low**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- B322 Lambda sensor is defective

Possible test steps

- Check electrical cables and plug connections
- Use MAN-Cats monitoring to verify the lambda value based on NOx concentration, air and fuel mass, and EGR valve position

Possible remedy

- Replace defective lambda sensor if necessary

SPN 3837 - FMI 5 - Lambda sensor signal oxygen - short circuit to ground**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- Interruption in the wiring of the B322 lambda sensor (oxygen signal)

Possible test steps

- Check with MAN-cats monitoring: Voltage lambda sensor
- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace B694 boost pressure/temperature sensor low temperature if necessary

SPN 3837 - FMI 6 - Lambda sensor signal oxygen - short circuit to +UBat

Monitoring strategy

Exhaust gas aftertreatment monitoring

Possible causes

- Interruption in the wiring of the B322 lambda sensor (oxygen signal)

Possible test steps

- Check with MAN CATS monitoring: Voltage of lambda sensor
- Check electrical cables and plug connections

Possible remedy

- Replace NOx sensor if necessary

SPN 3840 - FMI 3 - Oil temperature sensor - implausible
Monitoring strategy

Monitoring for voltage limits, short circuits, interruptions

Possible causes

- Oil temperature sensor is defective

Possible test steps

- Check the oil temperature using MAN-cats monitoring
- Check electrical cables and plug connections
- Check oil temperature sensor
- Determine sensor according to test step list in system description FEDC17 Industry

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace oil temperature sensor if necessary

SPN 3840 - FMI 4 - Oil temperature sensor - No signal**Monitoring strategy**

Monitoring for voltage limits, short circuits, interruptions

Possible causes

- Interruption in the wiring of the oil temperature sensor
- Oil temperature sensor is defective

Possible test steps

- Check the oil temperature using MAN-cats monitoring
- Check electrical cables and plug connections
- Check oil temperature sensor
- Determine sensor according to test step list in system description FEDC17 Industry

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace oil temperature sensor if necessary

SPN 3840 - FMI 5 - Oil temperature sensor - Short circuit to ground
Monitoring strategy

Monitoring for voltage limits, short circuits, interruptions

Possible causes

- Interruption in the wiring of the oil temperature sensor
- Oil temperature sensor is defective

Possible test steps

- Check the oil temperature using MAN CATS monitoring
- Check electrical cables and plug connections
- Check oil temperature sensor
- Determine sensor according to test step list in system description FEDC17 Industry

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace oil temperature sensor if necessary

SPN 3840 - FMI 6 - Oil temperature sensor - Short circuit to UBatt+
Monitoring strategy

Monitoring for voltage limits, short circuit, interruptions

Possible causes

- Interruption in the wiring of the oil temperature sensor
- Oil temperature sensor is defective

Possible test steps

- Check the oil temperature using MAN-cats monitoring
- Check electrical cables and plug connections
- Check oil temperature sensor
- Determine sensor according to test step list in system description FEDC17 Industry

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace oil temperature sensor if necessary

SPN 3840 - FMI 10 - Oil temperature sensor - Interruption**Monitoring strategy**

Monitoring for voltage limits, short circuits, interruptions

Possible causes

- Interruption in the wiring of the oil temperature sensor
- Oil temperature sensor is defective

Possible test steps

- Check the oil temperature using MAN-cats monitoring
- Check electrical cables and plug connections
- Check oil temperature sensor
- Determine sensor according to test step list in system description FEDC17 Industry

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace oil temperature sensor if necessary

SPN 3840 - FMI 11 - Oil temperature sensor - Loose connection**Monitoring strategy**

Monitoring for voltage limits, short circuits, interruptions

Possible causes

- Interruption in the wiring of the oil temperature sensor
- Oil temperature sensor is defective

Possible test steps

- Check the oil temperature using MAN-cats monitoring
- Check electrical cables and plug connections
- Check oil temperature sensor
- Measure voltage between pin C38 and pin C78
- Setpoint 3.74 V to 0.98 V at 20 °C to 100 °C

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace oil temperature sensor if necessary

SPN 3841 - FMI 3 - Coolant pressure sensor - implausible**Monitoring strategy**

Monitoring for voltage limits and loose connections

Possible causes

- The coolant pressure sensor is defective

Possible test steps

- Check electrical cables and plug connections
- Check the coolant pressure sensor

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace coolant pressure sensor if necessary

SPN 3841 - FMI 5 - Coolant pressure sensor - Short circuit to ground
Monitoring strategy

Monitoring for voltage limits and loose connections

Possible causes

- The coolant pressure sensor is defective

Possible test steps

- Check electrical cables and plug connections
- Check the coolant pressure sensor

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace coolant pressure sensor if necessary

SPN 3841 - FMI 6 - Coolant pressure sensor - Short circuit to UBatt+
Monitoring strategy

Monitoring for voltage limits and loose connections

Possible causes

- The coolant pressure sensor is defective

Possible test steps

- Check electrical cables and plug connections
- Check the coolant pressure sensor

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace coolant pressure sensor if necessary

SPN 3841 - FMI 11 - Coolant pressure sensor - Loose connection

Monitoring strategy

Monitoring for voltage limits and loose connection

Possible causes

- The coolant pressure sensor is defective

Possible test steps

- Check electrical cables and plug connections
- Check the coolant pressure sensor

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace coolant pressure sensor if necessary

SPN 3842 - FMI 1 - Coolant pressure - too high**Monitoring strategy**

Pressure monitoring

Possible causes

- The cooling water pressure is too high

Possible test steps

- Check the coolant level

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective coolant pressure sensor if necessary

SPN 3842 - FMI 2 - Coolant pressure - too low**Monitoring strategy**

Pressure monitoring

Possible causes

- Coolant pressure is too low

Possible test steps

- Check the coolant level
- Check the system for leaks

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective coolant pressure sensor if necessary

SPN 3842 - FMI 8 - Coolant pressure - Invalid signal**Monitoring strategy**

Pressure monitoring

Possible causes

- The coolant pressure sensor is defective

Possible test steps

- Check coolant level
- Check electrical cables and plug connections
- Check the coolant pressure sensor

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective coolant pressure sensor if necessary

SPN 3843 - FMI 3 - Coolant temperature plausibility check - implausible
Monitoring strategy

Temperature monitoring

Possible causes

- The coolant temperature when the engine is started is implausible

Possible test steps

- Check the cooling water temperature for plausibility using MAN-cats monitoring

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective air mass sensor if necessary
- Replace the air filter if necessary
- Disconnect both connectors on both boost pressure sensors and on the EDC control unit (connector C) and reconnect them

SPN 3843 - FMI 8 - Coolant temperature plausibility check - Invalid signal**Monitoring strategy**

Temperature monitoring

Possible causes

- The coolant temperature when the engine is started is implausible

Possible test steps

- Check the cooling water temperature for plausibility using MAN-cats monitoring

Possible remedy

- Replace the air mass sensor if necessary
- Replace the air filter if necessary
- Disconnect both connectors on both boost pressure sensors and on the EDC control unit (connector C) and reconnect them

SPN 3845 - FMI 3 - Ambient temperature - implausible
Monitoring strategy

Temperature monitoring

Possible causes

- The ambient air temperature is implausible in relation to the charge air temperature upstream of the engine in the charge air pipe

Possible test steps

- Use MAN-cats monitoring to check the ambient temperature and charge air temperature for plausibility

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace sensor if necessary

SPN 3847 - FMI 3 - Charge air temperature sensor in front of engine (in charge air pipe) - implausible**Monitoring strategy**

Monitoring for voltage limits, AD blocking, and line interruptions

Possible causes

- Interruption in the wiring of the B623 boost pressure/temperature sensor
- B623 boost pressure/temperature sensor is defective

Possible test steps

- Use MAN-cats monitoring to check the charge air temperature after the charge air cooler before EGR for plausibility
- Target value: 0 °C to 60 °C
- Check electrical cables and plug connections
- Check B623 boost pressure/temperature sensor
- Determine sensor according to test step list in system description MD1 Industry

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace sensor if necessary

SPN 3847 - FMI 4 - Charge air temperature sensor upstream of engine (in charge air pipe) - No signal**Monitoring strategy**

Monitoring for voltage limits, AD blocking, and line interruption

Possible causes

- Interruption in the wiring of the B623 boost pressure/temperature sensor
- B623 boost pressure/temperature sensor is defective

Possible test steps

- Use MAN-cats monitoring to check the charge air temperature after the charge air cooler before EGR for plausibility
- Target value: 0 °C to 60 °C
- Check electrical cables and plug connections
- Check B623 boost pressure/temperature sensor
- Determine sensor according to test step list in system description MD1 Industry

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace sensor if necessary

SPN 3847 - FMI 5 - Charge air temperature sensor upstream of engine (in charge air pipe) - Short circuit to ground**Monitoring strategy**

Monitoring for voltage limits, AD blocking, and cable interruption

Possible causes

- Interruption in the wiring of the B623 boost pressure/temperature sensor
- B623 boost pressure/temperature sensor is defective

Possible test steps

- Use MAN-cats monitoring to check the charge air temperature after the charge air cooler before EGR for plausibility
- Target value: 0 °C to 60 °C
- Check electrical cables and plug connections
- Check B623 boost pressure/temperature sensor
- Determine sensor according to test step list in system description MD1 Industry

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace sensor if necessary

SPN 3847 - FMI 6 - Charge air temperature sensor upstream of engine (in charge air pipe) - Short circuit to UBatt+**Monitoring strategy**

Monitoring for voltage limits, AD blocking, and cable interruption

Possible causes

- Interruption in the wiring of the B623 boost pressure/temperature sensor
- B623 boost pressure/temperature sensor is defective

Possible test steps

- Use MAN-cats monitoring to check the charge air temperature after the charge air cooler before EGR for plausibility
- Target value: 0 °C to 60 °C
- Check electrical cables and plug connections
- Check B623 boost pressure/temperature sensor
- Determine sensor according to test step list in system description MD1 Industry

Possible remedy

SPN 3847 - FMI 8 - Charge air temperature sensor upstream of engine (in charge air pipe) - Invalid signal
Monitoring strategy

Monitoring for voltage limits, AD blocking, and line interruption

Possible causes
Possible test steps

- Use MAN-cats monitoring to check the charge air temperature after the charge air cooler before EGR for plausibility
- Target value: 0 °C to 60 °C
- Check electrical lines and plug connections
- B623 Check boost pressure/temperature sensor
- Determine sensor according to test step list in system description MD1 Industry

Possible remedy

SPN 3847 - FMI 9 - Charge air temperature sensor upstream of engine (in charge air pipe) - Device error**Monitoring strategy**

Monitoring for voltage limits, AD blocking, and cable interruption

Possible causes**Possible test steps**

- Use MAN CATS monitoring to check the charge air temperature after the charge air cooler before EGR for plausibility.
- Setpoint: 0 °C to 60 °C
- Check electrical cables and plug connections
- B623 Check boost pressure/temperature sensor
- Determine sensor according to test step list in system description MD1 Industry

Possible remedy

SPN 3847 - FMI 10 - Charge air temperature sensor upstream of engine (in charge air pipe) - Interruption
Monitoring strategy

Monitoring for voltage limits, AD blocking, and line interruption

Possible causes

- Interruption in the wiring of the B623 boost pressure/temperature sensor
- B623 boost pressure/temperature sensor is defective

Possible test steps

- Use MAN-cats monitoring to check the charge air temperature after the intercooler before EGR for plausibility
- Setpoint: 0 °C to 60 °C
- Check electrical cables and plug connections
- B623 Check boost pressure/temperature sensor
- Determine sensor according to test step list in system description MD1 Industry

Possible remedy

SPN 3847 - FMI 11 - Charge air temperature sensor in front of engine (in charge air pipe) - Loose connection**Monitoring strategy**

Monitoring for voltage limits, AD blocking, and cable interruption

Possible causes

- Interruption in the wiring of the B623 boost pressure/temperature sensor
- B623 boost pressure/temperature sensor is defective

Possible test steps

- Use MAN-cats monitoring to check the charge air temperature after the charge air cooler before EGR for plausibility
- Target value: 0 °C to 60 °C
- Check electrical cables and plug connections
- Check B623 boost pressure/temperature sensor
- Determine sensor according to test step list in system description MD1 Industry

Possible remedy

SPN 3848 - FMI 3 - Ambient air temperature sensor - implausible**Monitoring strategy**

Temperature monitoring

Possible causes

- The value of the ambient air temperature sensor is implausible
- The ambient air temperature sensor is defective
- Interruption in the CAN between the power train manager and the engine control unit (the signal from the ambient air temperature sensor is provided by the power train manager)

Possible test steps

- Check the ambient air temperature for plausibility using MAN-cats-Monitoring
- Check cables and plug connections (power supply and CAN connection)
- Check the ambient air temperature sensor

Possible remedy

SPN 3848 - FMI 5 - Ambient air temperature sensor - Short circuit to ground**Monitoring strategy**

Temperature monitoring

Possible causes

- The value of the ambient air temperature sensor is implausible
- The ambient air temperature sensor is defective
- Interruption in the CAN between the power train manager and the engine control unit (the signal from the ambient air temperature sensor is provided by the power train manager)

Possible test steps

- Check the ambient air temperature for plausibility using MAN-cats-Monitoring
- Check cables and plug connections (power supply and CAN connection)
- Check the ambient air temperature sensor

Possible remedy

SPN 3848 - FMI 6 - Ambient air temperature sensor - Short circuit to UBatt+**Monitoring strategy**

Temperature monitoring

Possible causes

- The value of the ambient air temperature sensor is implausible
- The ambient air temperature sensor is defective
- Interruption in the CAN between the power train manager and the engine control unit (the signal from the ambient air temperature sensor is provided by the power train manager)

Possible test steps

- Check the ambient air temperature for plausibility using MAN-cats-Monitoring
- Check cables and plug connections (power supply and CAN connection)
- Check the ambient air temperature sensor

Possible remedy

SPN 3848 - FMI 10 - Ambient air temperature sensor - Interruption**Monitoring strategy**

Temperature monitoring

Possible causes

- The value of the ambient air temperature sensor is implausible.
- The ambient air temperature sensor is defective
- Interruption in the CAN between the power train manager and the engine control unit (the signal from the ambient air temperature sensor is provided by the power train manager)

Possible test steps

- Check the ambient air temperature for plausibility using MAN-cats-Monitoring
- Check cables and plug connections (power supply and CAN connection)
- Check the ambient air temperature sensor

Possible remedy

SPN 3848 - FMI 11 - Ambient air temperature sensor - Loose connection**Monitoring strategy**

Temperature monitoring

Possible causes

- The value of the ambient air temperature sensor is implausible
- The ambient air temperature sensor is defective
- Interruption in the CAN between the power train manager and the engine control unit (the signal from the ambient air temperature sensor is provided by the power train manager)

Possible test steps

- Check the ambient air temperature for plausibility using MAN-cats monitoring
- Check cables and plug connections (power supply and CAN connection)
- Check ambient air temperature sensor

Possible remedy

- Consequential errors may occur:
 - Lambda sensor heater
 - AdBlue tank Heating valve
 - Wastegate high pressure
 - Heating bypass valve
- Replace electrical cables or plug connections if necessary

SPN 3849 - FMI 9 - Particulate filter not installed - Device error
Monitoring strategy

Monitoring of particle differential pressure

Possible causes

- The particle filter is defective or not installed

Possible test steps

- Check the exhaust back pressure using MAN cats monitoring

Possible remedy

- Follow-up errors may occur:
- Compressed air shut-off valve
- Grid Heater
- Electronic water pump
- Cooper valve (pressure relief valve for charge air cooling thermostats)
- Replace electrical cables or plug connections if necessary

SPN 3850 - FMI 1 - EGR valve zero point adaptation - too high
Monitoring strategy

Exhaust gas aftertreatment monitoring

Possible causes

- For bus engines D0836LOH and D2066LUH (pneumatic EGR):
- Zero point adaptation of the EGR valve is not possible
- B673 E-EGR cylinder position sensor is defective
- Note: In many vehicles, the EGR system is controlled by the electric M289 EGR servomotor. The pneumatic EGR system with B673 actuator cylinder with position sensor and Y458 proportional valve E-AGR is only used in bus engines D0836 LOH and D2066 LUH.

Possible test steps

- Perform with MAN cats: EGR actuator test. Check the EGR valve for proper functioning
- Check electrical cables and plug connections
- For bus engines D0836LOH and D2066LUH (pneumatic EGR):
- Check the control cylinder
- B673 Check E-EGR cylinder position sensor
- Power supply: Measure voltage between pin C85 and pin C45
- Setpoint: 4.75 to 5.25 V at idle
- Signal voltage: Measure voltage between pin C59 and pin C45
- Setpoint: 0.50 to 0.90 V at idle

Possible remedy

- Consequential errors may occur:
- Compressed air shut-off valve
- Grid heater
- Electronic water pump
- Cooper valve (pressure relief valve for charge air cooling thermostats)
- Replace electrical cables or plug connections if necessary

SPN 3851 - FMI 1 - EGR valve position sensor - too high**Monitoring strategy****Possible causes**

- The voltage of the EGR valve position sensor is too high
- Invalid EGR position

Possible test steps**Possible remedy**

- Follow-up errors may occur:
- PCF
- Engine brake
- Low-pressure wastegate
- Fan
- Replace electrical cables or plug connections if necessary

SPN 3851 - FMI 2 - EGR valve position sensor - too low**Monitoring strategy****Possible causes**

- The voltage of the EGR valve position sensor is too low
- Invalid EGR position

Possible test steps**Possible remedy**

- Follow-up errors may occur:
- PCF
- Engine brake
- Low-pressure wastegate
- Fan
- Replace electrical cables or plug connections if necessary

SPN 3851 - FMI 5 - EGR valve position sensor - Short circuit to ground**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- B673 Position sensor E-EGR cylinder is defective
- EGR actuator is defective
- Invalid EGR position
- Note: In many vehicles, the EGR system is controlled by the electric M289 EGR actuator motor. The pneumatic EGR system with B673 actuator cylinder with position sensor and Y458 proportional valve E-AGR is only used in the D0836 LOH and D2066 LUH bus engines.

Possible test steps

- Check EGR valve
- Perform with MAN cats: Actuator test EGR valve
- Use MAN-cats to extend the actuator temperature of the EGR actuator
- Check the back pressure values using MAN-cats via the charge air throttle valve
- B673 Check E-EGR cylinder position sensor
- Power supply: Measure voltage between pin C85 and pin C45
- Setpoint: 4.75 to 5.25 V at idle
- Signal voltage: Measure voltage between pin C59 and pin C45
- Setpoint: 0.50 to 0.90 V at idle

Possible remedy

SPN 3851 - FMI 6 - EGR valve position sensor - Short circuit after UB
Monitoring strategy

Exhaust gas aftertreatment monitoring

Possible causes

- B673 Position sensor E-EGR cylinder is defective
- EGR actuator is defective
- Invalid EGR position
- Note: In many vehicles, the EGR system is controlled by the electric M289 EGR actuator motor. The pneumatic EGR system with B673 actuator cylinder with position sensor and Y458 proportional valve E-AGR is only used in the D0836 LOH and D2066 LUH bus engines.

Possible test steps

- Check EGR valve
- Perform with MAN-cats: Actuator test EGR valve
- Use MAN-cats to extend the actuator temperature of the EGR actuator
- Check the back pressure values using MAN-cats via the charge air throttle valve
- B673 Check E-EGR cylinder position sensor
- Power supply: Measure voltage between pin C85 and pin C45
- Setpoint: 4.75 to 5.25 V at idle
- Signal voltage: Voltage measurement between pin C59 and pin C45
- Setpoint: 0.50 to 0.90 V when idle

Possible remedy

SPN 3851 - FMI 11 - EGR valve position sensor - Loose connection
Monitoring strategy

Exhaust gas aftertreatment monitoring

Possible causes

- B673 Position sensor E-EGR cylinder is defective
- EGR actuator is defective
- Invalid EGR position
- Note: In many vehicles, the EGR system is controlled by the electric M289 EGR actuator motor. The pneumatic EGR system with B673 actuator cylinder with position sensor and Y458 proportional valve E-AGR is only used in the D0836 LOH and D2066 LUH bus engines.

Possible test steps

- Check EGR valve
- Perform with MAN-cats: Actuator test EGR valve
- Extend the actuator temperature of the EGR actuator with MAN-cats
- Check the back pressure values using MAN cats via the charge air throttle valve
- B673 Check the E-AGR cylinder position sensor
- Power supply: Measure voltage between pin C85 and pin C45
- Setpoint: 4.75 to 5.25 V at idle
- Signal voltage: Measure voltage between pin C59 and pin C45
- Setpoint: 0.50 to 0.90 V at idle

Possible remedy

- Renew CAN connection if necessary
- Replace AdBlue level sensor if necessary
- See also TI 481700

SPN 3853 - FMI 1 - Control deviation position-controlled EGR monitoring - too high**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- Y458 Proportional valve E-EGR is defective
- EGR actuator defective
- Invalid EGR position
- The EGR valve may be blocked due to unauthorized tampering
- Note: In many vehicles, the EGR system is controlled by the electric M289 EGR actuator motor. The pneumatic EGR system with B673 actuator cylinder with position sensor and Y458 proportional valve E-AGR is only used in the D0836 LOH and D2066 LUH bus engines.

Possible test steps

- Check EGR valve
- Perform with MAN-cats: Actuator test EGR valve
- Use MAN-cats to extend the actuator temperature of the EGR actuator
- Check the back pressure values using MAN-cats via the charge air throttle valve
- Check with MAN-cats monitoring: Injection system > Fuel quantity
- Y458 Check proportional valve E-EGR
- Resistance measurement between pin C29 and pin C04
- Setpoint: 25 to 110 Ω

Possible remedy

- Renew CAN connection if necessary

SPN 3853 - FMI 2 - Control deviation position-controlled EGR monitoring - too low**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- Y458 Proportional valve E-EGR is defective
- EGR actuator is defective
- Invalid EGR position
- The EGR valve may be blocked due to unauthorized tampering
- Note: In many vehicles, the EGR system is controlled by the electric M289 EGR actuator motor. The pneumatic EGR system with B673 actuator cylinder with position sensor and Y458 proportional valve E-AGR is only used in the D0836 LOH and D2066 LUH bus engines.

Possible test steps

- Check EGR valve
- Perform with MAN cats: Actuator test EGR valve
- Use MAN-cats to extend the actuator temperature of the EGR actuator
- Check the back pressure values using MAN-cats via the charge air throttle valve
- Check with MAN-cats monitoring: Injection system > Fuel quantity
- Y458 Check proportional valve E-EGR
- Resistance measurement between pin C29 and pin C04
- Target value: 25 to 110 Ω

Possible remedy

- Renew CAN connection if necessary

SPN 3854 - FMI 5 - EDC internal temperature sensor 2 - Short circuit to ground**Monitoring strategy**

Monitoring internal control unit errors

Possible causes

- Interruption in the wiring of the internal temperature sensor 2

Possible test steps**Possible remedy**

- Renew CAN connection if necessary
- Replace B694 charge air pressure/temperature sensor if necessary

SPN 3854 - FMI 6 - EDC internal temperature sensor 2 - Short circuit to UBatt+

Monitoring strategy

Monitoring internal control unit errors

Possible causes

- Interruption in the wiring of internal temperature sensor 2

Possible test steps

Possible remedy

- Renew CAN connection if necessary

SPN 3855 - FMI 5 - Lambda sensor sensor lines - Short circuit to ground
Monitoring strategy

Exhaust gas aftertreatment monitoring

Possible causes

- Interruption in the wiring > Incorrect power supply to the B322 lambda sensor
- B322 lambda sensor is defective

Possible test steps

- Check with MAN-cats monitoring: Voltage lambda sensor
- Check electrical cables and plug connections
- Check B322 lambda sensor
- Measure resistance between pin A52 and pin A53 --> Target value: 30 Ω to 300 Ω
- Resistance measurement between pin A33 and pin A46 --> Target value: 2 Ω to 4 Ω

Possible remedy

- Renew CAN connection if necessary

SPN 3855 - FMI 6 - Lambda sensor sensor lines - Short circuit to UBatt+
Monitoring strategy

Exhaust gas aftertreatment monitoring

Possible causes

- Interruption in the wiring > Incorrect power supply to the B322 lambda sensor
- B322 lambda sensor is defective

Possible test steps

- Check with MAN-cats monitoring: Voltage lambda sensor
- Check electrical cables and plug connections
- Check B322 lambda sensor
- Measure resistance between pin A52 and pin A53 --> Target value: 30 Ω to 300 Ω
- Resistance measurement between pin A33 and pin A46 --> Target value: 2 Ω to 4 Ω

Possible remedy

- Renew CAN connection if necessary

SPN 3856 - FMI 1 - Lambda sensor calibration - too high**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- The B322 lambda sensor must be calibrated
- B322 lambda sensor is defective

Possible test steps

- Check the adaptation of the lambda sensor using MAN-cats monitoring
- Check electrical cables and plug connections
- Check B322 lambda sensor
- Measure resistance between pin A52 and pin A53
- Target value: 30 Ω to 300 Ω
- Resistance measurement between pin A33 and pin A46
- Target value: 2 Ω to 4 Ω
- Correction factor Check lambda probe with MAN cats monitoring "NOx control measurement"
- Target value: 890 to 1140

Possible remedy

- Renew CAN connection if necessary
- Replace sending control unit if necessary

SPN 3856 - FMI 2 - Lambda sensor calibration - too low**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- The B322 lambda sensor must be calibrated
- B322 lambda sensor is defective

Possible test steps

- Check the adaptation of the lambda sensor with MAN-cats monitoring
- Check electrical cables and plug connections
- B322 Check the lambda sensor
- Measure resistance between pin A52 and pin A53
- Target value: 30 Ω to 300 Ω
- Resistance measurement between pin A33 and pin A46
- Target value: 2 Ω to 4 Ω
- Check correction factor for lambda sensor with MAN cats monitoring "NOx control measurement"
- Target value: 890 to 1140

Possible remedy

- Renew CAN connection if necessary
- Replace sending control unit if necessary

SPN 3857 - FMI 3 - Control unit error lambda sensor evaluation unit - implausible**Monitoring strategy**

Monitoring Internal control unit errors

Possible causes

- A435 Control unit EDC is defective
- Lambda sensor defect due to implausible O2 values

Possible test steps

- Check A435 EDC control unit
- Check the status information "EDC communication" with MAN-cats monitoring
- Check the lambda values using MAN-cats monitoring
- Check electrical cables and plug connections

Possible remedy

- Renew CAN connection if necessary
- Replace the transmitting control unit if necessary

SPN 3858 - FMI 1 - Lambda sensor temperature - too high
Monitoring strategy

Temperature monitoring

Possible causes

- The temperature of the B322 lambda sensor is too high
- B322 lambda sensor is defective

Possible test steps

- Check with MAN-cats monitoring: Voltage lambda sensor
- Check electrical cables and plug connections
- Check B322 lambda sensor
- Measure resistance between pin A52 and pin A53
- Target value: 30 Ω to 300 Ω
- Resistance measurement between pin A33 and pin A46
- Target value: 2 Ω to 4 Ω
- Check probe temperature with MAN cats monitoring "Lambda values"
- Setpoint: 780 °C \pm 2 °C
- Check duty cycle for heating stage control with MAN-cats monitoring
- Setpoint: \leq 60%

Possible remedy

- Renew CAN connection if necessary
- Replace sending control unit if necessary

SPN 3858 - FMI 2 - Lambda sensor temperature - too low
Monitoring strategy

Temperature monitoring

Possible causes

- The temperature of the B322 lambda sensor is too low
- B322 lambda sensor is defective

Possible test steps

- Check with MAN-cats monitoring: Voltage lambda sensor
- Check electrical cables and plug connections
- B322 Check lambda sensor
- Resistance measurement between pin A52 and pin A53
- Target value: 30 Ω to 300 Ω
- Resistance measurement between pin A33 and pin A46
- Target value: 2 Ω to 4 Ω
- Check probe temperature with MAN cats monitoring "Lambda values"
- Setpoint: 780 °C \pm 2 °C
- Check duty cycle for heating stage control with MAN-cats monitoring
- Setpoint: \leq 60%

Possible remedy

- Renew CAN connection if necessary
- Replace sending control unit if necessary

SPN 3859 - FMI 1 - Lambda sensor resistance calibration - too high
Monitoring strategy

Monitoring the lambda sensor temperature

Possible causes

- The B322 lambda sensor must be calibrated
- B322 lambda sensor is defective

Possible test steps

- Check with MAN-cats monitoring: Voltage of lambda sensor
- Check electrical cables and plug connections
- Check B322 lambda sensor
- Measure resistance between pin A52 and pin A53
- Target value: 30 Ω to 300 Ω
- Resistance measurement between pin A33 and pin A46
- Target value: 2 Ω to 4 Ω
- Check probe temperature with MAN cats monitoring "Lambda values"
- Setpoint: 780 °C \pm 2 °C
- Check duty cycle for heating stage control with MAN-cats monitoring
- Setpoint: \leq 60%

Possible remedy

- Renew CAN connection if necessary

SPN 3859 - FMI 2 - Lambda sensor resistance calibration - too low
Monitoring strategy

Monitoring of lambda sensor temperature

Possible causes

- The B322 lambda sensor must be calibrated
- B322 lambda sensor is defective

Possible test steps

- Check with MAN-cats monitoring: Voltage of lambda sensor
- Check electrical cables and plug connections
- B322 Check lambda sensor
- Resistance measurement between pin A52 and pin A53
- Target value: 30 Ω to 300 Ω
- Resistance measurement between pin A33 and pin A46
- Target value: 2 Ω to 4 Ω
- Check probe temperature with MAN cats monitoring "Lambda values"
- Setpoint: 780 °C \pm 2 °C
- Check duty cycle for heating stage control with MAN-cats monitoring
- Setpoint: \leq 60%

Possible remedy

SPN 3860 - FMI 1 - Turbine wheel speed exhaust gas turbocharger - too high

Monitoring strategy

Monitoring ATL speed

Possible causes

Possible test steps

Possible remedy

SPN 3860 - FMI 2 - Turbine wheel speed exhaust gas turbocharger - too low

Monitoring strategy

Monitoring ATL speed

Possible causes

Possible test steps

Possible remedy

SPN 3860 - FMI 3 - Turbine wheel speed exhaust gas turbocharger - implausible

Monitoring strategy

Monitoring ATL speed

Possible causes

Possible test steps

Possible remedy

SPN 3860 - FMI 4 - Turbine wheel speed exhaust gas turbocharger - no signal available

Monitoring strategy

Monitoring ATL speed

Possible causes

Possible test steps

Possible remedy

SPN 3863 - FMI 1 - Thrust monitoring - too high**Monitoring strategy**

Monitoring of injection duration in thrust mode. Current injection duration exceeds permissible value.

Possible causes

- The control duration of the injectors in overrun mode is too high. This condition may occur under high load and sudden load removal.

Possible test steps

Check the current operating status of the engine/vehicle using the diagnostic memory entry.

Possible remedy

SPN 3868 - FMI 3 - Plausibility check of charge air temperature in charge air pipe before EGR - implausible
Monitoring strategy

Monitoring charge air temperature

Possible causes

- B623 Charge pressure/temperature sensor is defective

Possible test steps

- Use MAN-cats monitoring to check the charge air temperature after the charge air cooler before EGR for plausibility
- Check electrical cables and plug connections
- Check B623 boost pressure/temperature sensor
- Power supply: Voltage measurement between pin C58 and pin C68
- Setpoint: 4.75 V to 5.25 V
- Signal voltage: Voltage measurement between pin C12 and pin C68
- Setpoint: 4.30 V to 2.20 V at 0 °C to 60 °C
- Ground connection: Resistance measurement between pin C68 and pin A02
- Setpoint: > 100 MΩ

Possible remedy

- Renew CAN connection if necessary

SPN 3869 - FMI 1 - Oil temperature - too high**Monitoring strategy**

Monitoring for sensor drift when the ignition is switched on, i.e. whether the oil temperature has dropped to coolant temperature while the engine is not running

Possible causes

- The engine oil temperature is too high
- Interruption in the wiring of the oil temperature sensor
- Oil temperature sensor is defective

Possible test steps

- Check the oil temperature using MAN CATS monitoring
- Check electrical cables and plug connections
- Check oil temperature sensor
- Determine sensor according to test step list in system description FEDC17 Industry

Possible remedy

- Renew CAN connection if necessary

SPN 3869 - FMI 2 - Oil temperature - too low**Monitoring strategy**

Monitoring for sensor drift when the ignition is switched on, i.e., whether the oil temperature has dropped to coolant temperature while the engine is not running

Possible causes

- The engine oil temperature is too low
- Interruption in the wiring of the oil temperature sensor
- Oil temperature sensor is defective

Possible test steps

- Check the oil temperature using MAN CATS monitoring
- Check electrical cables and plug connections
- Check oil temperature sensor
- Determine sensor according to test step list in system description FEDC17 Industry

Possible remedy

- Renew CAN connection if necessary

SPN 3869 - FMI 3 - Oil temperature - implausible**Monitoring strategy**

Monitoring for sensor drift when the ignition is switched on, i.e., whether the oil temperature has dropped to coolant temperature while the engine is not running

Possible causes

- Interruption in the wiring of the oil temperature sensor
- Oil temperature sensor is defective

Possible test steps

- Check the oil temperature using MAN-cats monitoring
- Check electrical cables and plug connections
- Check oil temperature sensor
- Determine sensor according to test step list in system description FEDC17 Industry

Possible remedy

- Renew CAN connection if necessary

SPN 3869 - FMI 6 - Oil temperature - Short circuit to UBatt+**Monitoring strategy**

Monitoring for sensor drift when the ignition is switched on, i.e., whether the oil temperature has dropped to coolant temperature while the engine is not running

Possible causes

- Interruption in the wiring of the oil temperature sensor
- Oil temperature sensor is defective

Possible test steps

- Check the oil temperature using MAN-cats monitoring
- Check electrical cables and plug connections
- Check oil temperature sensor
- Determine sensor according to test step list in system description FEDC17 Industry

Possible remedy

SPN 3871 - FMI 1 - EDC internal temperature 2 - too high

Monitoring strategy

Monitoring of internal device errors

Possible causes

- The internal temperature 2 of the engine control unit is too high
- Setpoint: below 90°C; above this, data loss may occur

Possible test steps

- Check electrical cables and plug connections

Possible remedy

SPN 3871 - FMI 2 - EDC internal temperature 2 - too low

Monitoring strategy

Monitoring internal device errors

Possible causes

- The internal temperature 2 of the motor control unit is too low
- Setpoint: below 90 °C

Possible test steps

Possible remedy

- Renew CAN connection if necessary

SPN 3872 - FMI 1 - EDC internal temperature 1 - too high**Monitoring strategy**

Monitoring internal device errors

Possible causes

- The internal temperature 1 of the engine control unit is too high
- Setpoint: below 90°C; above this, data loss may occur

Possible test steps

- Check electrical cables and plug connections

Possible remedy

- Renew CAN connection if necessary

SPN 3872 - FMI 2 - EDC internal temperature 1 - too low

Monitoring strategy

Monitoring internal device errors

Possible causes

- The internal temperature 1 of the engine control unit is too low
- Setpoint: below 90 °C

Possible test steps

Possible remedy

- Renew CAN connection if necessary

SPN 3919 - FMI 7 - NOx sensor after exhaust gas aftertreatment Heating status - Short circuit**Monitoring strategy**

Monitoring for short circuits and cable breaks

Possible causes

- F894 AdBlue level sensor/NOx sensor fuse is defective
- B994 NOx sensor II OBD is defective
- The B994 NOx sensor II OBD cannot be heated due to a short circuit

Possible test steps

- Check the lambda signal for plausibility using MAN cats monitoring
- Check electrical cables and plug connections
- Check F894 fuse AdBlue level sensor/NOx sensor
- Check B994 NOx sensor II OBD
- Measure voltage between pin 1 (wire 90008) and pin 4 (wire 31000) of the NOx sensor
- Target value: +Ubat Note: This SPN may be stored in the fault memory if there are faults on the CAN. When troubleshooting on the CAN, always use the vehicle-specific circuit diagram. The defective location can be circled using the SPNs stored in the fault memory. An overview of the vehicle-specific CAN switching sequences can be found in the separate system description for the EDC17 engine control unit.

Possible remedy

- Check wiring if necessary.

SPN 3919 - FMI 10 - NOx sensor after exhaust gas aftertreatment Heating status - interruption**Monitoring strategy**

Monitoring for short circuit and line interruption

Possible causes

- F894 Fuse AdBlue level sensor/NOx sensor is defective
- B994 NOx sensor II OBD is defective
- The B994 NOx sensor II OBD cannot be heated due to a broken cable

Possible test steps

- Check the lambda signal for plausibility using MAN cats monitoring
- Check electrical lines and plug connections
- Check F894 fuse AdBlue level sensor/NOx sensor
- Check B994 NOx sensor II OBD
- Measure voltage between pin 1 (wire 90008) and pin 4 (wire 31000) of the NOx sensor
- Setpoint: +Ubat Note: This SPN may be stored in the fault memory if faults are present on the CAN. When troubleshooting on the CAN, always use the vehicle-specific circuit diagram. The defective location can be circled using the SPNs stored in the fault memory. An overview of the vehicle-specific CAN switching sequences can be found in the separate system description for the EDC17 engine control unit.

Possible remedy

- Check the wiring if necessary.

SPN 3920 - FMI 3 - NOx sensor after exhaust aftertreatment Error status NOx concentration - implausible**Monitoring strategy**

NOx value after exhaust gas aftertreatment invalid/implausible

Possible causes

-NOx concentration after AGN outside the permissible limits (min/max)

Possible test steps

-Plausibility check

Possible remedy

SPN 3920 - FMI 7 - NOx sensor after exhaust gas aftertreatment Error status NOx concentration - Short circuit**Monitoring strategy**

NOx value after exhaust gas aftertreatment: value too high

Possible causes**Possible test steps****Possible remedy**

SPN 3920 - FMI 10 - NOx sensor after exhaust gas aftertreatment Error status NOx concentration - interruption**Monitoring strategy**

NOx value after exhaust gas aftertreatment: value too low

Possible causes**Possible test steps****Possible remedy**

SPN 3920 - FMI 1 - NOx sensor after exhaust gas aftertreatment Error status NOx concentration - too high**Monitoring strategy**

NOx value after exhaust gas aftertreatment: value too high

Possible causes

-NOx concentration after AGN outside the permissible limits (min/max)

Possible test steps

-Plausibility check

Possible remedy

SPN 3920 - FMI 2 - NOx sensor after exhaust gas aftertreatment Error status NOx concentration - too low**Monitoring strategy**

NOx value after exhaust gas aftertreatment: value too low

Possible causes

-NOx concentration after AGN outside the permissible limits (min/max)

Possible test steps

-Plausibility check

Possible remedy

SPN 3921 - FMI 1 - NOx sensor after exhaust gas aftertreatment Lambda signal - too high**Monitoring strategy**

Exhaust aftertreatment monitoring

Possible causes

- F894 Fuse AdBlue level sensor/NOx sensor is defective
- B994 NOx sensor II OBD is defective

Possible test steps

- Check the lambda signal for plausibility using MAN cats monitoring
- Check electrical cables and plug connections
- F894 Check fuse for AdBlue level sensor/NOx sensor
- Check B994 NOx sensor II OBD
- Measure voltage between pin 1 (wire 90008) and pin 4 (wire 31000) of the NOx sensor
- Target value: +Ubat

Possible remedy

SPN 3921 - FMI 2 - NOx sensor after exhaust gas aftertreatment Lambda signal - too low**Monitoring strategy**

Exhaust aftertreatment monitoring

Possible causes

- F894 Fuse AdBlue level sensor/NOx sensor is defective
- B994 NOx sensor II OBD is defective

Possible test steps

- Check the lambda signal for plausibility using MAN cats monitoring
- Check electrical cables and plug connections
- F894 Check fuse for AdBlue level sensor/NOx sensor
- Check B994 NOx sensor II OBD
- Measure voltage between pin 1 (wire 90008) and pin 4 (wire 31000) of the NOx sensor
- Target value: +Ubat

Possible remedy

SPN 3921 - FMI 3 - NOx sensor after exhaust gas aftertreatment Lambda signal - implausible**Monitoring strategy**

Exhaust aftertreatment monitoring

Possible causes

- F894 Fuse AdBlue level sensor/NOx sensor is defective
- B994 NOx sensor II OBD is defective

Possible test steps

- Check the lambda signal for plausibility using MAN cats monitoring
- Check electrical cables and plug connections
- F894 Check fuse for AdBlue level sensor/NOx sensor
- Check B994 NOx sensor II OBD
- Measure voltage between pin 1 (wire 90008) and pin 4 (wire 31000) of the NOx sensor
- Target value: +Ubat

Possible remedy

SPN 3923 - FMI 1 - Coolant temperature intercooling - too high**Monitoring strategy**

Temperature monitoring

Possible causes

- The coolant temperature is too high (above 115°C)
- The B1049 low-temperature coolant temperature sensor is defective

Possible test steps

- Check the cooling water temperature of the charge air cooling system using MAN CATS Monitoring
- Check electrical cables and plug connections
- Check the B1049 low-temperature cooling water sensor
- Signal voltage: Measure voltage between pin A29 and pin A41
- Setpoint: 3.74 to 1.22 V at 20 to 90 °C when idling

Possible remedy

SPN 3923 - FMI 2 - Coolant temperature intercooling - too low**Monitoring strategy**

Temperature monitoring

Possible causes

- The coolant temperature is too low (below 48°C).
- The B1049 low-temperature coolant temperature sensor is defective

Possible test steps

- Check the cooling water temperature of the charge air cooling system using MAN CATS Monitoring
- Check electrical cables and plug connections
- Check the B1049 low-temperature cooling water sensor
- Signal voltage: Measure the voltage between pin A29 and pin A41
- Setpoint: 3.74 to 1.22 V at 20 to 90 °C when idle

Possible remedy

SPN 3923 - FMI 3 - Coolant temperature intercooling - implausible**Monitoring strategy**

Temperature monitoring

Possible causes

- The coolant temperature is implausible
- The B1049 low-temperature coolant temperature sensor is defective

Possible test steps

- Use MAN CATS Monitoring to check the coolant temperature of the charge air cooling system for plausibility
- Check electrical cables and plug connections
- Check the B1049 low-temperature cooling water temperature sensor
- Signal voltage: Voltage measurement between pin A29 and pin A41
- Setpoint: 3.74 to 1.22 V at 20 to 90 °C when idle

Possible remedy

SPN 3925 - FMI 3 - Coolant temperature sensor, intercooling - implausible**Monitoring strategy**

Monitoring for voltage limits, plausibility, cable breakage, and loose connection

Possible causes

- The value of the B1049 low-temperature coolant temperature sensor is implausible
- The B1049 low-temperature coolant temperature sensor is defective

Possible test steps

- Use MAN cats to check the cooling water temperature of the charge air cooling system for plausibility.
- Check electrical cables and plug connections
- B1049 Check low-temperature coolant temperature sensor
- Signal voltage: Voltage measurement between pin A29 and pin A41
- Setpoint: 3.74 to 1.22 V at 20 to 90 °C when idling

Possible remedy

SPN 3925 - FMI 5 - Coolant temperature sensor, intercooler - Short circuit to ground**Monitoring strategy**

Monitoring for voltage limits, plausibility, cable break, and loose connection

Possible causes

- Interruption in the wiring of the B1049 low-temperature cooling water sensor
- The B1049 low-temperature cooling water sensor is defective

Possible test steps

- Use MAN-cats to check the coolant temperature of the charge air cooling system for plausibility
- Check electrical cables and plug connections
- Check B1049 low-temperature coolant temperature sensor
- Signal voltage: Measure voltage between pin A29 and pin A41
- Setpoint: 3.74 to 1.22 V at 20 to 90 °C when idling

Possible remedy

SPN 3925 - FMI 6 - Coolant temperature sensor intercooling - Short circuit after UB
Monitoring strategy

Monitoring for voltage limits, plausibility, cable breakage, and loose connection

Possible causes

- Interruption in the wiring of the B1049 low-temperature coolant temperature sensor
- The B1049 low-temperature cooling water sensor is defective

Possible test steps

- Use MAN-cats to check the coolant temperature of the charge air cooling system for plausibility
- Check electrical cables and plug connections
- Check B1049 low-temperature coolant temperature sensor
- Signal voltage: Measure voltage between pin A29 and pin A41
- Setpoint: 3.74 to 1.22 V at 20 to 90 °C when idle

Possible remedy

SPN 3925 - FMI 10 - Coolant temperature sensor, intercooling - Interruption**Monitoring strategy**

Monitoring for voltage limits, plausibility, cable interruption, and loose connection

Possible causes

- Interruption in the wiring of the B1049 low-temperature coolant temperature sensor
- The B1049 low-temperature coolant temperature sensor is defective

Possible test steps

- Use MAN-cats to check the coolant temperature of the charge air cooling system for plausibility
- Check electrical cables and plug connections
- B1049 Check low-temperature coolant temperature sensor
- Signal voltage: Measure voltage between pin A29 and pin A41
- Setpoint: 3.74 to 1.22 V at 20 to 90 °C when idling

Possible remedy

SPN 3925 - FMI 11 - Coolant temperature sensor, intercooler - Loose connection**Monitoring strategy**

Monitoring for voltage limits, plausibility, cable break, and loose connection

Possible causes

- Interruption in the wiring of the B1049 low-temperature coolant temperature sensor
- The B1049 low-temperature coolant temperature sensor is defective.

Possible test steps

- Use MAN-cats to check the coolant temperature of the charge air cooling system for plausibility
- Check electrical cables and plug connections
- Check B1049 low-temperature coolant temperature sensor
- Signal voltage: Measure voltage between pin A29 and pin A41
- Setpoint: 3.74 to 1.22 V at 20 to 90 °C when idling

Possible remedy

SPN 3926 - FMI 11 - Rail shock sensor - Loose connection**Monitoring strategy**

Monitoring for loose connections in the signal from the rail pressure sensor.

Possible causes

-Defective component wiring/connector/connector pins -Rail pressure sensor Loose connection detection - Rail pressure sensor

Possible test steps

-Check the component's wiring. Check the component's plug contacts -Check the rail pressure sensor according to the test step list in the FEDC17 system description. -Rail control: Compare rail pressure target/actual

Possible remedy

- Replace electrical cables or plug connections if necessary

SPN 3927 - FMI 9 - Lambda sensor is not installed in the exhaust pipe - Device error

Monitoring strategy

Monitoring lambda values

Possible causes

- B322 Lambda sensor is not installed

Possible test steps

- Check whether B322 lambda sensor is installed in the exhaust system

Possible remedy

- Replace electrical cables or plug connections if necessary

SPN 3929 - FMI 1 - EGR deviation lambda control - too high**Monitoring strategy**

EGR system: Lambda value too high

Possible causes

- If SPN 4025 (air mass sensor deviation) is also present, check the EGR for internal blockages (remove the flutter valves to do this).
- There may also be a leak in the intake area.

Possible test steps

- Check the lambda signal for plausibility using MAN-cats monitoring.

Possible remedy

- See causes

SPN 3929 - FMI 2 - EGR deviation lambda control - too low
Monitoring strategy

EGR system: Lambda value too low

Possible causes

- If SPN 4025 (air mass sensor deviation) is also present, check the EGR for internal blockages and broken shafts (remove the flutter valves to do this).

Possible test steps

- Use MAN-cats monitoring to check the lambda signal for plausibility

Possible remedy

- See causes

SPN 3930 - FMI 1 - EGR: Deviation in lambda control - too high**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes**Possible test steps**

- Check the lambda signal for plausibility using MAN-cats monitoring

Possible remedy

- Renew CAN connection if necessary

SPN 3938 - FMI 1 - Lambda sensor not adaptable - too high**Monitoring strategy**

Monitoring exhaust gas aftertreatment

Possible causes

- Lambda sensor defect due to implausible O2 values

Possible test steps

- Check the lambda values using MAN-cats monitoring

Possible remedy

SPN 3938 - FMI 2 - Lambda sensor not adaptable - too low**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- Lambda sensor defect due to implausible O2 values

Possible test steps

- Check the lambda values using MAN-cats monitoring

Possible remedy

SPN 3938 - FMI 3 - Lambda sensor cannot be adapted - implausible
Monitoring strategy

Monitoring exhaust gas aftertreatment

Possible causes

- Lambda sensor defect due to implausible O2 values

Possible test steps

- Check the lambda values using MAN-cats monitoring

Possible remedy

- Replace defective temperature sensor if necessary

SPN 3938 - FMI 8 - Lambda sensor cannot be adapted - Invalid signal**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- Lambda sensor defect due to implausible O2 values

Possible test steps

- Check the lambda values using MAN-cats monitoring

Possible remedy

SPN 3972 - FMI 1 - Monitoring NOx value after exhaust gas aftertreatment - too high**Monitoring strategy**

Monitoring NOx sensor

Possible causes

- The NOx value after exhaust gas aftertreatment is too high
- NOx sensor is defective

Possible test steps

- Check the lambda values using MAN cats monitoring
- Check electrical cables and plug connections

Possible remedy

SPN 3972 - FMI 2 - Monitoring NOx value after exhaust gas aftertreatment - too low**Monitoring strategy**

Monitoring NOx sensor

Possible causes

- The NOx value after exhaust gas aftertreatment is too low
- NOx sensor is defective

Possible test steps

- Check the lambda values using MAN cats monitoring
- Check electrical cables and plug connections

Possible remedy

SPN 3973 - FMI 3 - Lambda sensor open sensor lines - implausible**Monitoring strategy**

Monitoring exhaust gas aftertreatment

Possible causes**Possible test steps**

- Check electrical cables and plug connections as follows:
- 1. Save and delete the diagnostic memory.
- 2. Create a monitoring lambda sensor screen.
- 3. Disconnect the lambda sensor plug and check pin 1 of cable 60183 for damage. Determine the resistance value between pin 1 and pin 5 of the lambda sensor. (30 to 300 ohms)
- 4. If no fault can be detected, reassemble the system and perform a test drive with MAN cats. Call up the lambda sensor monitoring, activate the lambda sensor, then coast the vehicle for approx. 10 seconds without engaging the engine brake and observe the adaptation factor of the lambda sensor to see if it changes.
The learned value should be between 1 and 1.04. Create a screen with MAN Cats.
- 5. If there has been no change in the adaptation factor, in step 2, disconnect connector A on the EDC 17 control unit and check plug contacts A/52 and A/53 for silicone leakage and the pins in the control unit for damage. If no defect can be detected, perform a test drive as described in point 4 and determine the values.
- 6. If error SPN 3973 is still active, replace plug contact pin 1 cable 60183 and perform another test drive as described above.
- 7. If the error persists, replace the lambda sensor.

Possible remedy

SPN 3974 - FMI 7 - Open sensor lines on lambda sensor - Short circuit**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- Check electrical lines and plug connections

Possible test steps

- Replace electrical cables or plug connections if necessary

Possible remedy

- Replace defective exhaust gas temperature sensor if necessary

SPN 3975 - FMI 8 - Lambda sensor open sensor cables - Invalid signal**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- Check electrical cables and plug connections

Possible test steps

- Replace electrical cables or plug connections if necessary

Possible remedy

- Replace defective exhaust gas temperature sensor if necessary

SPN 3976 - FMI 3 - Lambda sensor signal too slow - implausible
Monitoring strategy

Monitoring exhaust gas aftertreatment

Possible causes

- Lambda sensor defect due to implausible O2 values

Possible test steps

- Check the lambda values using MAN-cats monitoring
- Check electrical cables and plug connections

Possible remedy

- Replace defective exhaust gas temperature sensor if necessary

SPN 4016 - FMI 1 - EGR position sensor - too high**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- EGR actuator is damaged
- Note: In many vehicles, the EGR system is controlled by the electric M289 EGR actuator motor. The pneumatic EGR system with B673 actuator cylinder with position sensor and Y458 proportional valve E-AGR is only used in the D0836 LOH and D2066 LUH bus engines.

Possible test steps

- Check EGR valve
- Perform with MAN-cats: Actuator test EGR valve
- Use MAN-cats to extend the actuator temperature of the EGR actuator
- Check the back pressure values using MAN-cats via the charge air throttle valve

Possible remedy

- Replace engine control unit if necessary

SPN 4016 - FMI 2 - EGR position sensor - too low**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- EGR actuator is damaged
- Note: In many vehicles, the EGR system is controlled by the electric M289 EGR actuator. The pneumatic EGR system with B673 actuator cylinder with position sensor and Y458 proportional valve E-AGR is only used in the D0836 LOH and D2066 LUH bus engines.

Possible test steps

- Check EGR valve
- Perform with MAN-cats: Actuator test EGR valve
- Use MAN-cats to extend the actuator temperature of the EGR actuator
- Check the back pressure values using MAN-cats via the charge air throttle valve

Possible remedy

- Replace engine control unit if necessary

SPN 4017 - FMI 3 - Temperature sensor after EGR cooler - implausible**Monitoring strategy**

Temperature monitoring

Possible causes

- Interruption in the wiring of the B123 temperature sensor after the EGR cooler
- B123 temperature sensor after EGR cooler is defective

Possible test steps

- Use MAN-cats monitoring to check the temperature after EGR cooler for plausibility
- Check plausibility with temperature signal from the B623 temperature and charge air pressure sensor before EGR feed
- Check electrical cables and plug connections
- Check B123 temperature sensor after EGR cooler according to test step list in system description FEDC17

Possible remedy

SPN 4017 - FMI 5 - Temperature sensor after EGR cooler - Short circuit to ground**Monitoring strategy**

Temperature monitoring

Possible causes

- Interruption in the wiring of the B123 temperature sensor after EGR cooler
- B123 temperature sensor after EGR cooler is defective

Possible test steps

- Use MAN-cats monitoring to check the temperature after EGR cooler for plausibility
- Check plausibility with temperature signal from B623 temperature and charge air pressure sensor before EGR feed
- Check electrical cables and plug connections
- Check B123 temperature sensor after EGR cooler according to test step list in system description FEDC17

Possible remedy

SPN 4017 - FMI 6 - Temperature sensor after EGR cooler - Short circuit to UBatt+**Monitoring strategy**

Temperature monitoring

Possible causes

- Interruption in the wiring of the B123 temperature sensor after EGR cooler
- B123 temperature sensor after EGR cooler is defective

Possible test steps

- Use MAN-cats monitoring to check the temperature after EGR cooler for plausibility
- Check plausibility with temperature signal from the B623 temperature and charge air pressure sensor before EGR feed
- Check electrical cables and plug connections
- B123 Check the temperature sensor after the EGR cooler according to the test step list in system description FEDC17

Possible remedy

SPN 4017 - FMI 10 - Temperature sensor after EGR cooler - Interruption**Monitoring strategy**

Temperature monitoring

Possible causes

- Interruption in the wiring of the B123 temperature sensor after EGR cooler
- B123 temperature sensor after EGR cooler is defective

Possible test steps

- Use MAN-cats monitoring to check the temperature after EGR cooler for plausibility
- Plausibility check with temperature signal from the B623 temperature and charge air pressure sensor before EGR feed
- Check electrical wiring and plug connections
- B123 Check the temperature sensor after the EGR cooler in accordance with the test step list in system description FEDC17

Possible remedy

SPN 4017 - FMI 11 - Temperature sensor after EGR cooler - Loose connection**Monitoring strategy**

Temperature monitoring

Possible causes

- Interruption in the wiring of the B123 temperature sensor after EGR cooler
- B123 temperature sensor after EGR cooler is defective

Possible test steps

- Use MAN-cats monitoring to check the temperature after EGR cooler for plausibility
- Plausibility check with temperature signal from the B623 Temperature and charge air pressure sensor upstream of EGR feed
- Check electrical cables and plug connections
- Check B123 temperature sensor after EGR cooler according to test step list in system description FEDC17

Possible remedy

SPN 4019 - FMI 1 - Temperature after EGR cooler - too high**Monitoring strategy**

Temperature monitoring

Possible causes

- The temperature is too high (above 200°C)
- A thermocouple after the EGR cooler is defective
- The EGR valve may be blocked due to unauthorized tampering.

Possible test steps

- Check electrical cables and plug connections
- Check that the M289 servomotor for the EGR valve is moving freely

Possible remedy

SPN 4019 - FMI 2 - Temperature after EGR cooler - too low**Monitoring strategy**

Temperature monitoring

Possible causes

- The temperature is too low (below 100°C)
- A thermocouple after the EGR cooler is defective
- The EGR valve may be blocked due to unauthorized tampering

Possible test steps

- Check electrical wiring and plug connections
- M289 Check the servomotor for the EGR valve for free movement

Possible remedy

SPN 4019 - FMI 3 - Temperature after EGR cooler - implausible
Monitoring strategy

Temperature monitoring

Possible causes

- The temperature is too implausible
- A thermocouple after the EGR cooler is defective
- The EGR valve may be blocked due to unauthorized tampering

Possible test steps

- Check electrical wiring and plug connections
- Check M289 servomotor EGR valve for free movement

Possible remedy

SPN 4020 - FMI 13 - Air mass sensor supply voltage - interruption or short circuit to ground**Monitoring strategy**

Supply voltage monitoring

Possible causes

- B323 Air mass sensor defective
- Electrical connection between A435 EDC control unit and air mass sensor interrupted

Possible test steps

- Check electrical cables and plug connections
- Check supply voltage
- Measure voltage between pins A07 and A55
- Target value 8.45 V to 13.45 V

Possible remedy

SPN 4021 - FMI 3 - Air mass sensor drift compensation - implausible

Monitoring strategy

Monitoring supply voltage

Possible causes

Possible test steps

Possible remedy

SPN 4021 - FMI 8 - Air mass sensor drift compensation - faulty signal

Monitoring strategy

Monitoring supply voltage

Possible causes

Possible test steps

Possible remedy

SPN 4022 - FMI 3 - Air mass sensor drift compensation at idle speed - implausible

Monitoring strategy

Monitoring internal control unit errors

Possible causes

Possible test steps

Possible remedy

SPN 4023 - FMI 3 - Air mass sensor drift compensation under load - implausible

Monitoring strategy

Air mass sensor monitoring

Possible causes

Possible test steps

Possible remedy

SPN 4024 - FMI 1 - Air mass sensor supply voltage - too high**Monitoring strategy**

Monitoring air mass sensor

Possible causes

- The signal from the air mass sensor is outside the permissible limit value

Possible test steps

- Check electrical cables and plug connections
- Check supply voltage
- Perform CR diagnosis with MAN-CATS as documented in the test step list of the FEDC17 system description.

Possible remedy

SPN 4024 - FMI 2 - Air mass sensor Supply voltage - too low**Monitoring strategy**

Monitoring air mass sensor

Possible causes

- The signal from the air mass sensor is outside the permissible limit value

Possible test steps

- Check electrical cables and plug connections
- Check the supply voltage
- Perform CR diagnosis with MAN-CATS as documented in the test step list of the FEDC17 system description.

Possible remedy

SPN 4025 - FMI 1 - Air mass sensor deviation - too high**Monitoring strategy**

Monitoring air mass sensor

Possible causes

- Air mass meter is defective
- Air filter dirty
- 4025 as a consequential error of a blocked EGR; see procedure for SPN 3929
- Leakage in the intake area
- A safety element may have been incorrectly installed in the air intake
- In conjunction with SPN 102 (3) or SPN 3942 (3), this is a wiring harness problem

Possible test steps

- Check electrical wiring and plug connections
- Check the air mass sensor
- Check the air filter

Possible remedy

SPN 4025 - FMI 13 - Air mass sensor deviation - Interruption or short circuit to ground**Monitoring strategy**

Monitoring air mass sensor

Possible causes

- Air mass meter is defective
- Air filter dirty
- 4025 as a consequential error of a blocked EGR; see procedure for SPN 3929
- Leakage in the intake area
- A safety element may have been incorrectly installed in the air intake
- In conjunction with SPN 102 (3) or SPN 3942 (3), this is a wiring harness problem

Possible test steps

- Check electrical cables and plug connections
- Check the air mass sensor
- Check the air filter

Possible remedy

SPN 4026 - FMI 8 - Air mass sensor signal - Invalid signal**Monitoring strategy**

Monitoring sensor supply voltage

Possible causes

- Interruption in the sensor wiring
- B323 Air mass sensor is defective

Possible test steps

- Check electrical cables and plug connections

Possible remedy

SPN 4027 - FMI 2 - Air mass sensor communication - too low**Monitoring strategy**

Monitoring internal control unit errors

Possible causes

- Interruption in the sensor wiring
- B323 Air mass sensor is defective

Possible test steps

- Check electrical cables and plug connections

Possible remedy

SPN 4027 - FMI 13 - Air mass sensor communication - interruption or short circuit to ground**Monitoring strategy**

Monitoring internal control unit errors

Possible causes

- Interruption in the sensor wiring
- B323 Air mass sensor is defective

Possible test steps

- Check electrical cables and plug connections

Possible remedy

SPN 4028 - FMI 1 - Outside temperature sensor - too high

Monitoring strategy

Temperature monitoring

Possible causes

Possible test steps

Possible remedy

SPN 4028 - FMI 2 - Outdoor temperature sensor - too low

Monitoring strategy

Temperature monitoring

Possible causes

Possible test steps

Possible remedy

SPN 4029 - FMI 5 - Intake air temperature sensor: Intake air temperature sensor - Short circuit to ground**Monitoring strategy**

Monitoring intake air temperature; note: for engines up to and including SW P747_66x, measurement is performed via the air mass sensor (HFM); from SW P747_69x onwards, measurement is performed via the temperature sensor upstream of the compressor.

Possible causes

- Interruption in the sensor wiring
Air mass meter is defective
Wiring of the intake pipe temperature sensor is defective.
Sensor is defective

Possible test steps

- Check electrical cables and plug connections
- Check the sensor as documented in the test step list in the FEDC17 system description
Note: Observe the engine-specific circuit diagram.

Possible remedy

SPN 4029 - FMI 12 - Intake air temperature sensor: Intake air temperature sensor - Open circuit or short circuit after Ubatt+**Monitoring strategy**

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Possible causes

- Interruption in the sensor wiring Air mass sensor is defective Wiring of the intake pipe temperature sensor is defective. Sensor is defective

Possible test steps

- Check electrical cables and plug connections
- Check the sensor as documented in the test step list in the FEDC17 system description Note: Observe the engine-specific circuit diagram.

Possible remedy

SPN 4030 - FMI 1 - Intake air temperature sensor Intake air temperature - too high**Monitoring strategy****Possible causes**

- The intake air temperature is too high

Possible test steps

- Use MAN-cats monitoring to check the intake air temperature for plausibility Note: Observe the engine-specific circuit diagram.

Possible remedy

SPN 4030 - FMI 2 - Intake air temperature sensor Intake air temperature - too low**Monitoring strategy**

Monitoring intake air temperature; Note: For engines up to and including SW P747_66x, the measurement is taken via the air mass sensor (HFM); from SW P747_69x onwards, the measurement is taken via the temperature sensor upstream of the compressor.

Possible causes

- The intake air temperature is too low

Possible test steps

- Check the intake air temperature for plausibility using MAN-cats monitoring Note: Observe the engine-specific circuit diagram.

Possible remedy

SPN 4030 - FMI 3 - Intake air temperature sensor Intake air temperature - implausible**Monitoring strategy**

Monitoring intake air temperature; Note: For engines up to and including SW P747_66x, the measurement is taken via the air mass sensor (HFM); from SW P747_69x onwards, the measurement is taken via the temperature sensor upstream of the compressor.

Possible causes

- The intake air temperature is implausible

Possible test steps

- Check the intake air temperature for plausibility using MAN-cats monitoring Note: Observe the engine-specific circuit diagram.

Possible remedy

SPN 4033 - FMI 3 - Plausibility check for charge air temperature sensor 0 - implausible**Monitoring strategy**

Monitoring charge air temperature

Possible causes**Possible test steps**

- Check the charge air temperature for plausibility using MAN-cats monitoring

Possible remedy

SPN 4034 - FMI 3 - Plausibility check for charge air temperature sensor 1 - implausible**Monitoring strategy**

Monitoring charge air temperature

Possible causes**Possible test steps**

- Check the charge air temperature for plausibility using MAN-cats monitoring

Possible remedy

- If necessary, replace A435 EDC control unit

SPN 4035 - FMI 3 - Plausibility check of charge air temperature sensor 2 - implausible**Monitoring strategy**

Monitoring charge air temperature

Possible causes**Possible test steps**

- Check the charge air temperature for plausibility using MAN-cats monitoring

Possible remedy

- If necessary, replace A435 EDC control unit

SPN 4036 - FMI 3 - Plausibility check for charge air temperature sensor 3 - implausible**Monitoring strategy**

Monitoring charge air temperature

Possible causes**Possible test steps**

- Check the charge air temperature for plausibility using MAN-cats monitoring

Possible remedy

- If necessary, replace A435 EDC control unit

SPN 4037 - FMI 3 - Plausibility check of charge air temperature sensor 4 - implausible**Monitoring strategy**

Monitoring charge air temperature

Possible causes**Possible test steps**

- Check the charge air temperature for plausibility using MAN CATS monitoring

Possible remedy

- If necessary, replace A435 EDC control unit

SPN 4038 - FMI 3 - Plausibility check of several charge air temperature sensors among themselves - implausible**Monitoring strategy**

Monitoring charge air temperature

Possible causes**Possible test steps**

- Check the charge air temperature for plausibility using MAN-cats monitoring

Possible remedy

- If necessary, replace A435 EDC control unit

SPN 4039 - FMI 5 - Supply voltage actuator group 0 - Short circuit to ground
Monitoring strategy

Supply voltage actuator group 0 short circuit to ground. The following actuators are present in this group and may be responsible for the diagnostic message. Actuators are listed under possible causes.

Possible causes

- The following actuators are present in this group and may be responsible for the diagnostic message - Motor brake (EVB, EVBec) - HCI metering valve - ND cycle valve (Y493) - Fan magnetic coupling - SCR line heating relay (UBAT path) Cabling/plug connection not OK

Possible test steps

-Check wiring/plug connection -Check component wiring. Check component plug contacts
- Electrical test of the actuator (resistance, voltage, etc.), replacement Note: Observe the motor-specific circuit diagram.

Possible remedy

- Replace A435 control unit EDC if necessary

SPN 4039 - FMI 6 - Supply voltage actuator group 0 - Short circuit to UBatt+**Monitoring strategy**

Supply voltage actuator group 0 short circuit to ground. The following actuators are present in this group and may be responsible for the diagnostic message. Actuators are listed under possible causes.

Possible causes

- The following actuators are present in this group and may be responsible for the diagnostic message - Motor brake (EVB, EVBec) - HCI metering valve - ND timing valve (Y493) - Fan magnetic coupling - SCR line heating relay (UBAT path) Cabling/plug connection not OK

Possible test steps

-Check wiring/plug connection -Check component wiring. Check component plug contacts
- Electrical test of the actuator (resistance, voltage, etc.), replacement Note: Observe the motor-specific circuit diagram.

Possible remedy

- Replace A435 control unit EDC if necessary

SPN 4040 - FMI 5 - Supply voltage actuator group 1 - Short circuit to ground**Monitoring strategy**

Supply voltage actuator group 1 short circuit to +UBatt. The following actuators are present in this group and may be responsible for the diagnostic message. Actuators are listed under possible causes.

Possible causes

- The following actuators are present in this group and may be responsible for the diagnostic message - Motor brake (EVB, EVBec) - HCI metering valve - ND timing valve (Y493) - Fan magnetic coupling - SCR line heating relay (UBAT path) Cabling/plug connection not OK

Possible test steps

-Check wiring/plug connection -Check component wiring. Check component plug contacts
- Electrical test of the actuator (resistance, voltage, etc.), replacement Note: Observe the motor-specific circuit diagram.

Possible remedy

SPN 4040 - FMI 6 - Supply voltage actuator group 1 - Short circuit to UBatt+**Monitoring strategy**

Supply voltage actuator group 1 short circuit to +UBatt. The following actuators are present in this group and may be responsible for the diagnostic message. Actuators are listed under possible causes.

Possible causes

- The following actuators are present in this group and may be responsible for the diagnostic message - Motor brake (EVB, EVBec) - HCI metering valve - ND timing valve (Y493) - Fan magnetic coupling - SCR line heating relay (UBAT path) Cabling/plug connection not OK

Possible test steps

-Check wiring/plug connection -Check component wiring. Check component plug contacts
- Electrical test of the actuator (resistance, voltage, etc.), replacement Note: Observe the motor-specific circuit diagram.

Possible remedy

SPN 4041 - FMI 5 - Supply voltage actuator group 2 - Short circuit to ground**Monitoring strategy**

Supply voltage actuator group 2 short circuit to ground. The following actuators are present in this group and may be responsible for the diagnostic message. Actuators are listed under possible causes.

Possible causes

- The following actuators are present in this group and may be responsible for the diagnostic message - Motor brake (EVB, EVBec) - HCI metering valve - ND cycle valve (Y493) - Fan magnetic coupling - SCR line heating relay (UBAT path) Wiring/plug connection not OK

Possible test steps

-Check wiring/plug connection -Check component wiring. Check component plug contacts
- Electrical test of the actuator (resistance, voltage, etc.), replacement Note: Observe the motor-specific circuit diagram.

Possible remedy

SPN 4041 - FMI 6 - Supply voltage actuator group 2 - Short circuit to UBatt+**Monitoring strategy**

Supply voltage actuator group 2 short circuit after Ubatt+. The following actuators are present in this group and may be responsible for the diagnostic message. Actuators are listed under possible causes.

Possible causes

-The following actuators are present in this group and may be responsible for the diagnostic message - Motor brake (EVB, EVBec) - HCI metering valve - ND cycle valve (Y493) - Fan magnetic coupling - SCR line heating relay (UBAT path) Wiring/plug connection not OK

Possible test steps

-Check wiring / plug connection -Check component wiring. Check component plug contacts
- Electrical test of the actuator (resistance, voltage, etc.), replacement Note: Observe the motor-specific circuit diagram.

Possible remedy

SPN 4045 - FMI 3 - Coolant temperature plausibility check - implausible**Monitoring strategy**

Temperature monitoring

Possible causes

- The cooling water temperature values are implausible when compared with each other

Possible test steps

- Check the cooling water temperatures for plausibility using MAN-cats monitoring

Possible remedy

SPN 4049 - FMI 9 - EDC control unit internal communication - Device error

Monitoring strategy

Exhaust gas aftertreatment monitoring

Possible causes

- There is an internal control unit error

Possible test steps

Possible remedy

SPN 4050 - FMI 8 - Smooth running control multiple cylinders at the limit - faulty signal

Monitoring strategy

Monitoring injectors

Possible causes

Possible test steps

Possible remedy

SPN 4051 - FMI 1 - Smooth running control cylinder 1 at the limit Injection sequence - too high

Monitoring strategy

Monitoring injectors

Possible causes

Possible test steps

- Check electrical wiring
- Check electrical plug connections

Possible remedy

SPN 4051 - FMI 2 - Smooth running control cylinder 1 at the limit Injection sequence - too low

Monitoring strategy

Monitoring injectors

Possible causes

Possible test steps

- Check electrical wiring
- Check electrical plug connections

Possible remedy

SPN 4052 - FMI 1 - Smooth running control cylinder 2 at the limit Injection sequence - too high

Monitoring strategy

Monitoring injectors

Possible causes

Possible test steps

- Check electrical cables
- Check electrical plug connections

Possible remedy

- Replace A435 EDC control unit if necessary

**SPN 4052 - FMI 2 - Smooth running control cylinder 2 at the limit Injection sequence
- too low**
Monitoring strategy

Monitoring injectors

Possible causes
Possible test steps

- Check electrical wiring
- Check electrical plug connections

Possible remedy

- Replace A435 EDC control unit if necessary

**SPN 4053 - FMI 1 - Smooth running control cylinder 3 at the limit Injection sequence
- too high**
Monitoring strategy

Monitoring injectors

Possible causes
Possible test steps

- Check electrical wiring
- Check electrical plug connections

Possible remedy

- Replace A435 EDC control unit if necessary

**SPN 4053 - FMI 2 - Smooth running control cylinder 3 at the limit Injection sequence
- too low****Monitoring strategy**

Monitoring injectors

Possible causes**Possible test steps**

- Check electrical wiring
- Check electrical plug connections

Possible remedy

**SPN 4054 - FMI 1 - Smooth running control cylinder 4 at the limit Injection sequence
- too high****Monitoring strategy**

Monitoring injectors

Possible causes**Possible test steps**

- Check electrical wiring
- Check electrical plug connections

Possible remedy

**SPN 4054 - FMI 2 - Smooth running control cylinder 4 at the limit Injection sequence
- too low****Monitoring strategy**

Monitoring injectors

Possible causes**Possible test steps**

- Check electrical wiring
- Check electrical plug connections

Possible remedy

- If necessary, replace electrical cables and plug connections on the A435 EDC control unit
- Replace defective main relay if necessary

SPN 4055 - FMI 1 - Smooth running control cylinder 5 at the limit Injection sequence - too high

Monitoring strategy

Monitoring injectors

Possible causes

Possible test steps

- Check electrical wiring
- Check electrical plug connections

Possible remedy

- Renew CAN connection if necessary

SPN 4055 - FMI 2 - Smooth running control cylinder 5 at the limit Injection sequence - too low

Monitoring strategy

Monitoring injectors

Possible causes

Possible test steps

- Check electrical wiring
- Check electrical plug connections

Possible remedy

- Renew CAN connection if necessary

**SPN 4056 - FMI 1 - Smooth running control cylinder 6 at the limit Injection sequence
- too high****Monitoring strategy**

Monitoring injectors

Possible causes**Possible test steps**

- Check electrical wiring
- Check electrical plug connections

Possible remedy

- Renew CAN connection if necessary

**SPN 4056 - FMI 2 - Smooth running control Cylinder 6 at the limit Injection sequence
- too low**
Monitoring strategy

Monitoring injectors

Possible causes
Possible test steps

- Check electrical wiring
- Check electrical plug connections

Possible remedy

- Renew CAN connection if necessary

SPN 4057 - FMI 1 - Torque limit without error for motor protection - too high**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- This protective function limits the motor torque, e.g., in the event of excessive temperatures.
- It does not specify exactly where a fault lies

Possible test steps

- Check the temperatures and engine values (limitations) using MAN-cats monitoring

Possible remedy

- Renew the CAN connection if necessary

SPN 4058 - FMI 4 - CAN message timeout error AdBlue tank sensor - No signal
Monitoring strategy

Monitoring AdBlue system

Possible causes

- Interruption in the AdBlue delivery system between AdBlue sensor, thermocouples, and NoNOx
- Interruption between EGR and NoNOx
- Interruption between engine power box and NoNOx
- Not enough AdBlue in the tank
- In earlier sensors, water ingress and loose contacts could occur due to manufacturing issues

Possible test steps

- Check AdBlue level
- Check AdBlue tank sensor and thermocouples for proper function
- Check fuse F894
- Measure voltage via pin 1 (terminal 15) between F894
- Measure voltage between AdBlue pin 1 and NoNOx
- Check pin assignment of engine exhaust cable disconnect point X3212 according to circuit diagram
- If voltage is present at pin 1 of the connector > component defective
- Check AdBlue delivery system and thermocouples for proper function
- Check for ground between AdBlue pin 4 (terminal 31) and thermocouples and threaded bolt on engine power box X1983
- If there is ground on pin 4 of the connector > Component defective Note: This SPN may be stored in the fault memory if there are faults on the CAN. When troubleshooting on the CAN, always use the vehicle-specific circuit diagram. The defective location can be circled using the SPNs stored in the fault memory. An overview of the vehicle-specific CAN switching sequences can be found in the separate system description for the EDC17 engine control unit.

Possible remedy

- Replace cables or plug connections if necessary
- Replace B994 NOx sensor II (OBD) if necessary

SPN 4059 - FMI 8 - CAN message DSI1 timeout error AdBlue dosing system 1 - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Interruption in CAN between AdBlue system and engine control unit
- AdBlue system error during dosing

Possible test steps

- Check the AdBlue delivery system with MAN-cats monitoring: Temperature of AdBlue delivery system, temperature of cooling water and engine
- Check the AdBlue delivery system using MAN-cats monitoring: Pressure in the AdBlue delivery system (NOx concentration), dosing quantity requirement
- Check CAN connection between AdBlue system and engine control unit Note: This SPN may be stored in the fault memory if there are faults on the CAN. When troubleshooting on the CAN, always use the vehicle-specific circuit diagram. The defective location can be circled using the SPNs stored in the fault memory. An overview of the vehicle-specific CAN switching sequences can be found in the separate system description for the EDC17 engine control unit.

Possible remedy

- Replace cables or plug connections if necessary
- Replace B994 NOx sensor II (OBD) if necessary

SPN 4060 - FMI 8 - CAN message DSI2 timeout error AdBlue dosing system 2 - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Interruption in CAN between AdBlue system and engine control unit
- AdBlue system error during dosing

Possible test steps

- Check the AdBlue delivery system with MAN-cats monitoring: Temperature of AdBlue delivery system, temperature of cooling water and engine
- Check the AdBlue delivery system using MAN-cats monitoring: Pressure in the AdBlue delivery system (NOx concentration), dosing quantity requirement
- Check CAN connection between AdBlue system and engine control unit Note: This SPN may be stored in the fault memory if there are faults on the CAN. When troubleshooting on the CAN, always use the vehicle-specific circuit diagram. The defective location can be circled using the SPNs stored in the fault memory. An overview of the vehicle-specific CAN switching sequences can be found in the separate system description for the EDC17 engine control unit.

Possible remedy

- Replace cables or plug connections if necessary
- Replace B994 NOx sensor II (OBD) if necessary

SPN 4061 - FMI 8 - CAN message EDC4 charge air temperature - invalid signal**Monitoring strategy**

Temperature monitoring

Possible causes

- Interruption in the CAN between individual participants
- Short circuit between CAN high and low
- B694 Charge air pressure/temperature sensor low temperature is defective

Possible test steps

- Use MAN CATS monitoring to check the charge air temperature after the low-pressure charge air cooler for plausibility.
- Check the CAN connection

Possible remedy

- Replace cables or plug connections if necessary
- Replace B994 NOx sensor II (OBD) if necessary

SPN 4062 - FMI 4 - CAN message ERC1 timeout error Retarder continuous braking system - No signal
Monitoring strategy

Monitoring for CAN signals

Possible causes

- Interruption in CAN between individual participants
- Short circuit between CAN high and low

Possible test steps

- Check CAN connection

Possible remedy

- Replace cables or connectors if necessary
- Replace B994 NOx sensor II (OBD) if necessary

SPN 4063 - FMI 4 - CAN message information fan target speed timeout - no signal available**Monitoring strategy**

Monitoring for CAN signals

Possible causes**Possible test steps****Possible remedy**

- Replace cables or connectors if necessary
- Replace B994 NOx sensor II (OBD) if necessary

SPN 4063 - FMI 8 - CAN message information Target fan speed timeout - faulty signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes**Possible test steps****Possible remedy**

- Replace cables or plug connections if necessary
- Replace B1055 NOx sensor I (raw emissions) if necessary

SPN 4065 - FMI 8 - CAN message timeout error Retarder configuration - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Interruption in CAN between individual participants
- Short circuit between CAN high and low

Possible test steps

- Check CAN connection

Possible remedy

- Replace cables or plug connections if necessary
- Replace B1055 NOx sensor I (raw emissions) if necessary

SPN 4066 - FMI 8 - CAN message timeout error Retarder configuration - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Interruption in CAN between individual participants
- Short circuit between CAN high and low

Possible test steps

- Check CAN connection

Possible remedy

- Replace cables or connectors if necessary
- Replace B1055 NOx sensor I (raw emissions) if necessary

SPN 4067 - FMI 4 - Communication with flame start system - No signal
Monitoring strategy

Monitoring for CAN signals

Possible causes

- Interruption in CAN between individual participants
- Short circuit between CAN high and low
- Transmitting control unit defective

Possible test steps

- Check CAN connection

Possible remedy

- Replace cables or plug connections if necessary
- Replace B1055 NOx sensor I (raw emissions) if necessary

SPN 4067 - FMI 4 - Communication with flame start system - No signal
Monitoring strategy

Monitoring for CAN signals

Possible causes

- Interruption in CAN between individual participants
- Short circuit between CAN high and low
- Transmitting control unit defective

Possible test steps

- Check CAN connection

Possible remedy

- Replace cables or plug connections if necessary
- Replace B1055 NOx sensor I (raw emissions) if necessary

SPN 4067 - FMI 4 - Communication with flame start system - No signal

Monitoring strategy

Monitoring for CAN signals

Possible causes

- Interruption in the CAN between individual participants
- Short circuit between CAN high and low
- Transmitting control unit defective

Possible test steps

- Check CAN connection

Possible remedy

SPN 4067 - FMI 4 - Communication with flame start system - No signal
Monitoring strategy

Monitoring for CAN signals

Possible causes

- Interruption in CAN between individual participants
- Short circuit between CAN high and low
- Transmitting control unit defective

Possible test steps

- Check CAN connection

Possible remedy

SPN 4067 - FMI 9 - Communication with flame start system - Device error
Monitoring strategy

Monitoring for CAN signals

Possible causes

- Interruption in CAN between individual participants
- Short circuit between CAN high and low
- Transmitting control unit defective

Possible test steps

- Check CAN connection

Possible remedy

SPN 4069 - FMI 1 - OBD power limitation - too high

Monitoring strategy

OBD power limitation or reduction due to an emission-related error entry (=consequential error)

Possible causes

Follow-up errors of all emission-related diagnostic memory entries

Possible test steps

- Read out the diagnostic memory and check for emission-related SPNs.

Possible remedy

SPN 4070 - FMI 8 - EDC control unit internal communication with CY146 module - Invalid signal**Monitoring strategy**

Monitoring internal control unit errors

Possible causes

- There is an internal control unit error

Possible test steps**Possible remedy**

SPN 4071 - FMI 8 - EDC control unit internal communication with CY146 module - Invalid signal**Monitoring strategy**

Monitoring internal control unit errors

Possible causes

- There is an internal control unit error

Possible test steps**Possible remedy**

SPN 4072 - FMI 8 - EDC control unit internal communication with CY146 module - Invalid signal**Monitoring strategy**

Monitoring internal control unit errors

Possible causes

- There is an internal control unit error

Possible test steps**Possible remedy**

SPN 4073 - FMI 8 - EDC control unit internal communication with CY317 module - Invalid signal**Monitoring strategy**

Monitoring internal control unit errors

Possible causes

- There is an internal control unit error

Possible test steps**Possible remedy**

SPN 4074 - FMI 8 - Control unit EDC internal communication with module CY320 - Invalid signal**Monitoring strategy**

Monitoring internal control unit errors

Possible causes

- There is an internal control unit error

Possible test steps**Possible remedy**

- Replace electrical cables or plug connections if necessary

SPN 4075 - FMI 1 - No power amplifier diagnosis due to battery voltage - too high**Monitoring strategy**

Monitoring internal control unit errors

Possible causes**Possible test steps**

- Check the battery voltage with MAN CATS monitoring
- Check electrical cables and plug connections

Possible remedies

- Replace electrical cables or plug connections if necessary

SPN 4075 - FMI 2 - No power amplifier diagnosis due to battery voltage - too low**Monitoring strategy**

Monitoring internal control unit errors

Possible causes**Possible test steps**

- Check the battery voltage with MAN-cats monitoring
- Check electrical cables and plug connections

Possible remedies

- Replace electrical cables or plug connections if necessary

SPN 4076 - FMI 3 - CAN message AdBlue dosing quantity - implausible**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Interruption in CAN between individual participants
- Short circuit between CAN high and low

Possible test steps

- Check CAN connection

Possible remedy

- Renew CAN connection if necessary

SPN 4076 - FMI 8 - CAN message AdBlue dosing quantity - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Interruption in CAN between individual participants
- Short circuit between CAN high and low

Possible test steps

- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary

SPN 4077 - FMI 3 - CAN message AdBlue temperature - implausible
Monitoring strategy

Monitoring for CAN signals

Possible causes

- Interruption in CAN between individual participants
- Short circuit between CAN high and low

Possible test steps

- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary

SPN 4077 - FMI 8 - CAN message AdBlue temperature - Invalid signal**Monitoring Strategy**

Monitoring for CAN signals

Possible causes

- Interruption in CAN between individual participants
- Short circuit between CAN high and low

Possible test steps

- Check CAN connection

Possible remedy

- Replace cables or connectors if necessary

SPN 4078 - FMI 8 - CAN message AdBlue system status - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Interruption in the CAN between individual participants
- Short circuit between CAN high and low

Possible test steps

- Check CAN connection

Possible remedy

- Renew CAN connection if necessary
- Renew electrical cables and plug connections if necessary

SPN 4079 - FMI 8 - CAN message ACK timeout error - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Interruption in the CAN between individual participants
- Short circuit between CAN high and low

Possible test steps

- Check CAN connection

Possible remedy

- Renew CAN connection if necessary
- Renew electrical cables and plug connections if necessary

SPN 4080 - FMI 4 - CAN communication AGR / CAN interruption - No signal
Monitoring strategy

Monitoring for CAN signals

Possible causes

- Interruption in CAN between eAGR and charge air throttle valve
- Interruption in CAN between eAGR and NoNOx
- CAN high and low reversed

Possible test steps

- If messages are missing > Check CAN connection
- Check electrical cables and plug connections

Possible remedy

SPN 4080 - FMI 10 - CAN communication AGR / CAN interruption - Interruption
Monitoring strategy

Monitoring for CAN signals

Possible causes

- Interruption in CAN between eAGR and charge air throttle valve
- Interruption in CAN between eAGR and NoNOx
- CAN high and low swapped

Possible test steps

- If messages are missing > Check CAN connection
- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective EDC 17 control unit if necessary

SPN 4081 - FMI 1 - EGR valve Physical sensor value / overheating - too high
Monitoring strategy

Monitoring for CAN signals

Possible causes

- A thermocouple after the EGR cooler is defective

Possible test steps

- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective EDC 17 control unit if necessary

SPN 4081 - FMI 2 - EGR valve Physical sensor value / Overheating - too low
Monitoring strategy

Monitoring for CAN signals

Possible causes

- A thermocouple after the EGR cooler is defective

Possible test steps

- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective EDC 17 control unit if necessary

SPN 4081 - FMI 8 - EGR valve Physical sensor value / overheating - invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- A thermocouple after the EGR cooler is defective

Possible test steps

- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective EDC 17 control unit if necessary

SPN 4082 - FMI 3 - CAN message EGR valve: Error cannot be detected - implausible**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Interruption in CAN between eAGR and charge air throttle valve
- Interruption in the CAN between eAGR and NoNOx
- CAN high and low swapped

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective EDC 17 control unit if necessary

SPN 4082 - FMI 4 - CAN message EGR valve: Error cannot be detected - No signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Interruption in CAN between eAGR and charge air throttle valve
- Interruption in the CAN between eAGR and NoNOx
- CAN high and low swapped

Possible test steps

- if messages are missing > Check CAN connection
- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective EDC 17 control unit if necessary

SPN 4082 - FMI 10 - CAN message EGR valve: Error cannot be detected - interruption**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Interruption in the CAN between eAGR and charge air throttle valve
- Interruption in CAN between eAGR and NoNOx
- CAN high and low swapped

Possible test steps

- if messages are missing > Check CAN connection
- Check electrical cables and plug connections

Possible remedy

SPN 4082 - FMI 11 - CAN message EGR valve: Error cannot be detected - Loose connection**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Interruption in the CAN between eAGR and charge air throttle valve
- Interruption in CAN between eAGR and NoNOx
- CAN high and low swapped

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 4083 - FMI 1 - CAN message EGR valve: Error cannot be detected - too high**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Interruption in CAN between eAGR and charge air throttle valve
- Interruption in the CAN between eAGR and NoNOx
- CAN high and low swapped

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 4083 - FMI 3 - CAN message EGR valve: Error cannot be detected - implausible**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Interruption in CAN between eAGR and charge air throttle valve
- Interruption in CAN between eAGR and NoNOx
- CAN high and low reversed

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 4084 - FMI 1 - CAN message EGR valve: Error supply voltage position sensor - too high**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Interruption in CAN between eAGR and charge air throttle valve
- Interruption in CAN between eAGR and NoNOx
- CAN high and low reversed

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 4084 - FMI 2 - CAN message EGR valve: Error supply voltage position sensor - too low**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Interruption in CAN between eAGR and charge air throttle valve
- Interruption in the CAN between eAGR and NoNOx
- CAN high and low swapped

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace particle filter or silencer module if necessary

SPN 4084 - FMI 3 - CAN message EGR valve: Error supply voltage position sensor - implausible**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Interruption in CAN between eAGR and charge air throttle valve
- Interruption in CAN between eAGR and NoNOx
- CAN high and low reversed

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 4084 - FMI 8 - CAN message EGR valve: Error supply voltage position sensor - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Interruption in the CAN between eAGR and charge air throttle valve
- Interruption in the CAN between eAGR and NoNOx
- CAN high and low reversed

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Perform particle filter regeneration

SPN 4085 - FMI 8 - Error during EEPROM deletion - Invalid signal

Monitoring strategy

Monitoring internal control unit errors

Possible causes

- Error in EEPROM

Possible test steps

Possible remedy

- Replace particle filter or silencer module if necessary

SPN 4086 - FMI 8 - Error reading EEPROM - Invalid signal

Monitoring strategy

Monitoring internal control unit errors

Possible causes

- Error in EEPROM

Possible test steps

Possible remedy

- Perform particle filter regeneration

SPN 4087 - FMI 8 - Error during EEPROM writing - Invalid signal

Monitoring strategy

Monitoring internal control unit errors

Possible causes

- Error in EEPROM

Possible test steps

Possible remedy

- Replace particle filter or silencer module if necessary

SPN 4089 - FMI 10 - Injection shutdown - Interruption**Monitoring strategy**

Injection quantity limitation due to SG monitoring error. Follow-up reaction to certain monitoring errors, e.g., control duration in thrust implausible.

Possible causes

Injection shutdown detected in ECU monitoring SW miscalculation or incorrect DS.

Possible test steps

a) Check whether a DS update has been performed. b) Check whether the function parameters for the ZDR control have changed. c) Check whether the vehicle control computer has received an update.

Possible remedy

a) Check whether a DS update needs to be performed. b) Check the FUP configuration (ZDR control). c) Check whether the vehicle control computer has received an update.
- If so, flash the FFR back to its previous state and test.

SPN 4090 - FMI 10 - Dual-mass flywheel at resonance point - interruption

Monitoring strategy

Monitoring of crankshaft vibration behavior

Possible causes

- The dual-mass flywheel is at the resonance point

Possible test steps

Possible remedy

SPN 4091 - FMI 5 - Exhaust gas temperature sensor 1 - Short circuit to ground**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes**Possible test steps**

- Check electrical cables and plug connections

Possible remedy

- Replace filter if necessary

SPN 4091 - FMI 10 - Exhaust gas temperature sensor 1 - Interruption
Monitoring strategy

Monitoring exhaust gas aftertreatment

Possible causes
Possible test steps

- Check electrical cables and plug connections

Possible remedy

- Replace filter if necessary

SPN 4092 - FMI 5 - Exhaust gas temperature sensor 2 - Short circuit to ground

Monitoring strategy

Exhaust aftertreatment monitoring

Possible causes

Possible test steps

- Check electrical wiring and plug connections

Possible remedy

SPN 4092 - FMI 10 - Exhaust gas temperature sensor 2 - Interruption

Monitoring strategy

Monitoring exhaust gas aftertreatment

Possible causes

Possible test steps

- Check electrical cables and plug connections

Possible remedy

SPN 4093 - FMI 5 - Exhaust gas temperature sensor 3 - Short circuit to ground**Monitoring strategy**

Exhaust aftertreatment monitoring

Possible causes**Possible test steps**

- Check electrical wiring and plug connections

Possible remedy

SPN 4093 - FMI 10 - Exhaust gas temperature sensor 3 - Interruption

Monitoring strategy

Monitoring exhaust gas aftertreatment

Possible causes

Possible test steps

- Check electrical cables and plug connections

Possible remedy

SPN 4094 - FMI 5 - Exhaust gas temperature sensor 4 - Short circuit to ground

Monitoring strategy

Exhaust aftertreatment monitoring

Possible causes

Possible test steps

- Check electrical wiring and plug connections

Possible remedy

SPN 4094 - FMI 10 - Exhaust gas temperature sensor 4 - Interruption

Monitoring strategy

Monitoring exhaust gas aftertreatment

Possible causes

Possible test steps

- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables and plug connections if necessary
- Replace CAN connection if necessary

SPN 4095 - FMI 5 - Exhaust gas temperature sensor 5 - Short circuit to ground**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes**Possible test steps**

- Check electrical wiring and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace pressure sensor before OxiCat if necessary

SPN 4095 - FMI 10 - Exhaust gas temperature sensor 5 - Interruption
Monitoring strategy

Exhaust gas aftertreatment monitoring

Possible causes
Possible test steps

- Check electrical wiring and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace pressure sensor before OxiCat, if necessary

SPN 4096 - FMI 5 - Exhaust gas temperature sensor 6 - Short circuit to ground**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes**Possible test steps**

- Check electrical wiring and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace the pressure sensor in front of the OxiCat if necessary

SPN 4096 - FMI 10 - Exhaust gas temperature sensor 6 - Interruption**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes**Possible test steps**

- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary

SPN 4097 - FMI 8 - Camshaft position - Invalid signal**Monitoring strategy**

Monitoring internal control unit errors

Possible causes

- Error in assigning the position of the camshaft sensor to the camshaft

Possible test steps

- B489 Check speed segment encoder > Mounting, wiring, and plug connections

Possible remedy

SPN 4098 - FMI 1 - Exhaust gas temperature controller post-injection - too high

Monitoring strategy

Monitoring exhaust gas aftertreatment

Possible causes

Possible test steps

Possible remedy

SPN 4098 - FMI 2 - Exhaust gas temperature controller post-injection - too low

Monitoring strategy

Exhaust gas aftertreatment monitoring

Possible causes

Possible test steps

Possible Remedial Action

- Replace damaged hose lines if necessary
- Replace defective differential pressure sensor if necessary

SPN 4099 - FMI 3 - Control deviation OxiCat temperature control - implausible

Monitoring strategy

Exhaust gas aftertreatment monitoring

Possible causes

Possible test steps

Possible remedy

- Replace damaged hose lines if necessary
- Replace defective differential pressure sensor if necessary

SPN 4101 - FMI 4 - CAN message from AGR: Error cannot be detected - No signal**Monitoring strategy**

Monitoring for short circuit, power supply, initialization, and interruption

Possible causes

- Interruption in the CAN between E-AGR and charge air throttle valve
- Interruption in CAN between E-AGR and NoNOx
- CAN high and low reversed
- Insufficient power supply to E-AGR

Possible test steps

- Check the battery voltage with MAN-cats monitoring
- Check electrical cables and plug connections of the EGR
- If messages are missing > Check CAN connection

Possible remedy

SPN 4101 - FMI 7 - CAN message from AGR: Error cannot be detected - Short circuit**Monitoring strategy**

Monitoring for short circuit, power supply, initialization, and interruption

Possible causes

- Insufficient power supply to the E-AGR

Possible test steps

- Check the battery voltage with MAN-cats monitoring
- Check the electrical cables and plug connections of the EGR

Possible remedy

- Perform a diagnosis of the common rail injection system using MAN-cats (possibly a problem with rail pressure control)

SPN 4101 - FMI 9 - CAN message from AGR: Error cannot be detected - Device error**Monitoring strategy**

Monitoring for short circuit, power supply, initialization, and interruption

Possible causes

- Insufficient power supply to the E-AGR

Possible test steps

- Check the battery voltage with MAN-cats monitoring
- Check the electrical cables and plug connections of the EGR

Possible remedy

SPN 4101 - FMI 10 - CAN message from AGR: Error cannot be detected - interruption**Monitoring strategy**

Monitoring for short circuit, power supply, initialization, and interruption

Possible causes

- Insufficient power supply to the E-AGR

Possible test steps

- Check the battery voltage with MAN-cats monitoring
- Check the electrical cables and plug connections of the EGR

Possible remedy

**SPN 4102 - FMI 1 - CAN message from AGR: Temperature cannot be detected
- too high****Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- Interruption in CAN between eAGR and charge air throttle valve
- Interruption in CAN between eAGR and NoNOx
- CAN high and low swapped

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Perform a diagnosis of the common rail injection system using MAN cats

SPN 4102 - FMI 9 - CAN message from AGR: Temperature cannot be detected
- Device error**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- Interruption in CAN between eAGR and charge air throttle valve
- Interruption in CAN between eAGR and NoNOx
- CAN high and low swapped

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Analysis based on other error entries necessary
- After the cause of the error has been found and the error has been rectified, reset the valve's learning values using MAN-cats

SPN 4201 - FMI 1 - Particulate filter temperature control: Setpoint outside control window - too high**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes**Possible test steps**

- Check electrical cables and plug connections

Possible remedy

SPN 4201 - FMI 2 - Particulate filter temperature control: Setpoint outside control window - too low**Monitoring strategy**

Monitoring exhaust gas aftertreatment

Possible causes**Possible test steps**

- Check electrical cables and plug connections

Possible remedy

SPN 4202 - FMI 3 - Particulate filter temperature control: Setpoint outside control window - implausible**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes**Possible test steps**

- Check electrical cables and plug connections

Possible remedy

SPN 4205 - FMI 3 - Plausibility check of exhaust gas temperature sensors among themselves - implausible

Monitoring strategy

Monitoring exhaust gas aftertreatment

Possible causes

- The exhaust gas temperature values are implausible when compared with each other

Possible test steps

- Check the exhaust gas temperatures for plausibility using MAN-cats monitoring
- Check electrical cables and plug connections

Possible remedy

- Check electrical cables and plug connections if necessary
- Replace defective proportional valve fuel if necessary
- Replace defective pressure control valve if necessary
- There may also be a fault in the control unit; if so, replace the defective control unit

SPN 4209 - FMI 1 - Fan output stage - too high**Monitoring strategy**

Monitoring for temperature, short circuit, and interruption

Possible causes**Possible test steps**

- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective proportional fuel valve if necessary
- If necessary, there may also be a fault in the control unit; if so, replace the defective control unit

SPN 4209 - FMI 5 - Fan output stage - Short circuit to ground**Monitoring strategy**

Monitoring for temperature, short circuit, and interruption

Possible causes**Possible test steps**

- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective proportional fuel valve if necessary
- If necessary, there may also be a fault in the control unit; if so, replace the defective control unit

SPN 4209 - FMI 6 - Fan output stage - Short circuit to UBatt+**Monitoring strategy**

Monitoring for temperature, short circuit, and interruption

Possible causes**Possible test steps**

- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective proportional fuel valve if necessary
- If necessary, there may also be a fault in the control unit; if so, replace the defective control unit

SPN 4209 - FMI 12 - Fan output stage - Interruption or short circuit after Ubatt+**Monitoring strategy**

Monitoring for temperature, short circuit, and interruption

Possible causes**Possible test steps**

- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective proportional fuel valve if necessary
- If necessary, there may also be a fault in the control unit; if so, replace the defective control unit

SPN 4210 - FMI 3 - Plausibility check of exhaust gas temperatures among themselves - implausible

Monitoring strategy

Monitoring exhaust gas aftertreatment

Possible causes

- Exhaust gas temperature 1 is implausible compared to the exhaust gas temperatures of the other cylinders

Possible test steps

- Check the exhaust gas temperatures for plausibility using MAN-cats monitoring

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective proportional fuel valve if necessary
- If necessary, there may also be a fault in the control unit; if so, replace the defective control unit

**SPN 4211 - FMI 3 - Plausibility check of exhaust gas temperatures among themselves
- implausible****Monitoring strategy**

Monitoring exhaust gas aftertreatment

Possible causes

- Exhaust gas temperature 2 is implausible compared to the exhaust gas temperatures of the other cylinders

Possible test steps

- Check the exhaust gas temperatures for plausibility using MAN-cats monitoring

Possible remedy

**SPN 4212 - FMI 3 - Plausibility check of exhaust gas temperatures among themselves
- implausible**
Monitoring strategy

Monitoring exhaust gas aftertreatment

Possible causes

- Exhaust gas temperature 3 is implausible in relation to the exhaust gas temperatures of the other cylinders

Possible test steps

- Check the exhaust gas temperatures for plausibility using MAN-cats monitoring

Possible remedy

- Replace electrical cables or plug connections if necessary
- If necessary, correctly connect or replace the tank heating hoses
- Replace the A808 AdBlue supply unit if necessary
- Replace the Y437 cooling water solenoid valve if necessary

**SPN 4213 - FMI 3 - Plausibility check of exhaust gas temperatures among themselves
- implausible**
Monitoring strategy

Monitoring exhaust gas aftertreatment

Possible causes

- Exhaust gas temperature 4 is implausible in relation to the exhaust gas temperatures of the other cylinders

Possible test steps

- Check the exhaust gas temperatures for plausibility using MAN-cats monitoring

Possible remedy

- Replace electrical cables or plug connections if necessary
- If necessary, correctly connect or replace the tank heating hoses
- Replace the A808 AdBlue supply unit if necessary
- Replace the Y437 cooling water solenoid valve if necessary

**SPN 4214 - FMI 3 - Plausibility check of exhaust gas temperatures among themselves
- implausible****Monitoring strategy**

Monitoring exhaust gas aftertreatment

Possible causes

- Exhaust gas temperature 5 is implausible in relation to the exhaust gas temperatures of the other cylinders

Possible test steps

- Check the exhaust gas temperatures for plausibility using MAN-cats monitoring

Possible remedy

**SPN 4215 - FMI 3 - Plausibility check of exhaust gas temperatures among themselves
- implausible****Monitoring strategy**

Monitoring exhaust gas aftertreatment

Possible causes

- Exhaust gas temperature 6 is implausible compared to the exhaust gas temperatures of the other cylinders

Possible test steps

- Check the exhaust gas temperatures for plausibility using MAN-cats monitoring

Possible remedy

- Refill AdBlue
- If error persists > A1192 Check AdBlue combination sensor for proper function, replace if necessary

SPN 4218 - FMI 8 - Fan speed sensor: PWM period duration is too long - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Interruption in CAN between power train manager / vehicle control computer and engine control unit

Possible test steps

- Check CAN connection

Possible remedy

SPN 4219 - FMI 2 - Fuel tank level - too low

Monitoring strategy

Monitoring fuel tank level

Possible causes

- Insufficient fuel in the tank

Possible test steps

- Check fuel level

Possible remedy

SPN 4220 - FMI 1 - Fuel supply pressure plausibility - too high

Monitoring strategy

Monitoring fuel supply pressure

Possible causes

Possible test steps

- Check electrical cables and plug connections

Possible remedy

SPN 4220 - FMI 2 - Fuel supply pressure plausibility - too low

Monitoring strategy

Monitoring fuel supply pressure

Possible causes

Possible test steps

- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary

SPN 4221 - FMI 3 - Exhaust gas temperature 1 implausible compared to simulated value - implausible**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- Exhaust gas temperature 1 is not plausible compared to the value from the model calculation

Possible test steps

- Check the exhaust gas temperatures for plausibility using MAN-cats monitoring

Possible remedy

- Replace electrical cables or plug connections if necessary

SPN 4222 - FMI 3 - Exhaust gas temperature 2 implausible compared to the simulated value - implausible**Monitoring strategy**

Monitoring exhaust gas aftertreatment

Possible causes

- The exhaust gas temperature 2 is not plausible compared to the value from the model calculation.

Possible test steps

- Check the exhaust gas temperatures for plausibility using MAN-cats monitoring

Possible remedy

SPN 4223 - FMI 3 - Exhaust gas temperature 3 implausible compared to the simulated value - implausible**Monitoring strategy**

Monitoring exhaust gas aftertreatment

Possible causes

- Exhaust gas temperature 3 is not plausible compared to the value from the model calculation

Possible test steps

- Check the exhaust gas temperatures for plausibility using MAN-cats monitoring

Possible remedy

SPN 4224 - FMI 3 - Exhaust gas temperature 4 implausible compared to simulated value - implausible
Monitoring strategy

Monitoring exhaust gas aftertreatment

Possible causes

- Exhaust gas temperature 4 is not plausible compared to the value from the model calculation

Possible test steps

- Check the exhaust gas temperatures for plausibility using MAN-cats monitoring

Possible remedy

SPN 4225 - FMI 3 - Exhaust gas temperature 5 implausible compared to simulated value - implausible**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- Exhaust gas temperature 5 is not plausible compared to the value from the model calculation

Possible test steps

- Check the exhaust gas temperatures for plausibility using MAN-cats monitoring

Possible remedy

- Replace electrical cables or plug connections if necessary

SPN 4226 - FMI 3 - Exhaust gas temperature 6 implausible compared to simulated value - implausible**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- Exhaust gas temperature 6 is not plausible compared to the value from the model calculation

Possible test steps

- Check the exhaust gas temperatures for plausibility using MAN-cats monitoring

Possible remedy

- Replace electrical cables or plug connections if necessary

SPN 4228 - FMI 1 - OBD monitoring of idle speed control - too high
Monitoring strategy

Exhaust aftertreatment monitoring

Possible causes

- Engine speed too high at idle

Possible test steps

- Check engine speed using MAN-cats monitoring

Possible remedy

- Replace electrical cables or plug connections if necessary

SPN 4228 - FMI 2 - OBD monitoring of idle speed control - too low**Monitoring strategy**

Monitoring exhaust gas aftertreatment

Possible causes

- Engine speed too low at idle

Possible test steps

- Check the engine speed using MAN CATS monitoring

Possible remedy

SPN 4229 - FMI 2 - Number of injections too low due to low booster capacity**Monitoring strategy**

Monitoring injectors

Possible causes

- Hardware error in the engine control unit

Possible test steps**Possible remedy**

- Replace A435 EDC control unit if necessary

SPN 4230 - FMI 2 - Number of injections too low due to high-pressure pump**Monitoring strategy**

Monitoring of injection

Possible causes

- Target injection quantity is higher than the capacity of the high-pressure pump

Possible test steps**Possible remedy**

- If necessary, replace A435 EDC control unit

SPN 4231 - FMI 2 - Number of injections limited by system - too low

Monitoring strategy

Monitoring injectors

Possible causes

- System cannot initiate a higher number of injections

Possible test steps

Possible remedy

- If necessary, replace control unit EDC A435

SPN 4232 - FMI 2 - Number of injections limited by runtime - too low
Monitoring strategy

Monitoring injectors

Possible causes

- The injectors are worn due to long running time and cannot initiate the number of injection processes

Possible test steps

- Check how long the injectors have been installed

Possible remedy

- If necessary, replace the A435 EDC control unit

SPN 4233 - FMI 9 - Start-up unsuccessful - Device error

Monitoring strategy

Monitoring internal control unit errors

Possible causes

- The engine could not be started

Possible test steps

Possible remedy

- Replace A435 EDC control unit if necessary

SPN 4234 - FMI 2 - Minimum rail pressure not reached - too low
Monitoring strategy

Monitoring of rail pressure

Possible causes

- The rail pressure is too low to initiate injection processes

Possible test steps

- Check the rail pressure using MAN-cats monitoring

Possible remedy

- Replace A435 EDC control unit if necessary

SPN 4235 - FMI 4 - Blocked LIN bus - No signal**Monitoring strategy**

Monitoring internal control unit errors

Possible causes

- The LIN data bus is blocked

Possible test steps**Possible remedy**

- If necessary, replace B944 NOx sensor II (OBD)
- If necessary, replace A435 EDC control unit

SPN 4237 - FMI 5 - Injector bank 0 - Short circuit to ground

Monitoring strategy

Monitoring injectors

Possible causes

Possible test steps

- Check electrical cables and plug connections
- Check injector cable harness, including the tightness of the wiring leading to the injectors

Possible remedy

- Replace electrical cables or plug connections if necessary

SPN 4237 - FMI 7 - Injector bank 0 - Short circuit

Monitoring strategy

Monitoring injectors

Possible causes

Possible test steps

- Check electrical cables and plug connections
- Check injector cable harness, including secure connection of wiring leading to injectors

Possible remedy

- Replace electrical cables or plug connections if necessary

SPN 4238 - FMI 5 - Injector bank 1 - Short circuit to ground**Monitoring strategy**

Monitoring injectors

Possible causes**Possible test steps**

- Check electrical cables and plug connections
- Check injector cable harness, including secure connection of wiring leading to injectors

Possible remedy

- Replace electrical cables or plug connections if necessary
- If necessary, replace the exhaust gas temperature sensor after the hydrolysis catalytic converter

SPN 4238 - FMI 7 - Injector bank 1 - Short circuit

Monitoring strategy

Monitoring injectors

Possible causes

Possible test steps

- Check electrical cables and plug connections
- Check injector cable harness, including the tightness of the wiring leading to the injectors

Possible remedy

- Replace electrical cables or plug connections if necessary
- If necessary, replace the exhaust gas temperature sensor after the hydrolysis catalyst

SPN 4239 - FMI 9 - CY 33X output stage - device error**Monitoring strategy**

Monitoring Internal control unit errors

Possible causes

- There is an internal hardware error

Possible test steps**Possible remedy**

- Replace electrical cables or plug connections if necessary
- If necessary, replace the exhaust gas temperature sensor upstream of the hydrolysis catalyst

SPN 4240 - FMI 9 - Adjustment of injectors R4 and R6 = cylinder 1 - Device error
Monitoring strategy

Monitoring injectors

Possible causes

- The IQA codes of the injectors are incorrect or not programmed

Possible test steps

- Check the IQA codes of the injectors using MAN cats

Possible remedy

- Replace electrical cables or plug connections if necessary
- If necessary, replace the exhaust gas temperature sensor upstream of the hydrolysis catalyst

SPN 4241 - FMI 9 - Adjustment injector R4 = cylinder 3; R6 = cylinder 5 - Device error

Monitoring strategy

Monitoring injectors

Possible causes

- The IQA codes of the injectors are incorrect or not programmed

Possible test steps

- Check the IQA codes of the injectors using MAN cats

Possible remedy

- Replace electrical cables or plug connections if necessary
- If necessary, replace the exhaust gas temperature sensor upstream of the hydrolysis catalyst

SPN 4242 - FMI 9 - Adjustment injector R4 = cylinder 4; R6 = cylinder 3 - Device error
Monitoring strategy

Monitoring injectors

Possible causes

- The IQA codes of the injectors are incorrect or not programmed

Possible test steps

- Check the IQA codes of the injectors using MAN cats

Possible remedy

- Replace electrical cables or plug connections if necessary
- If necessary, replace the exhaust gas temperature sensor upstream of the hydrolysis catalyst

SPN 4243 - FMI 9 - Adjustment injector R4 = cylinder 2; R6 = cylinder 6 - Device error
Monitoring strategy

Monitoring injectors

Possible causes

- The IQA codes of the injectors are incorrect or not programmed

Possible test steps

- Check the IQA codes of the injectors using MAN cats

Possible remedy

- Replace electrical cables or plug connections if necessary
- If necessary: Replace B994 NOx sensor II (OBD)

SPN 4244 - FMI 9 - Adjustment injector R6 = cylinder 2 - device error

Monitoring strategy

Monitoring injectors

Possible causes

- The IQA codes of the injectors are incorrect or not programmed

Possible test steps

- Check the IQA codes of the injectors using MAN cats

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective exhaust gas temperature sensor if necessary

SPN 4245 - FMI 9 - Adjustment injector R6 = cylinder 4 - device error

Monitoring strategy

Monitoring injectors

Possible causes

- The IQA codes of the injectors are incorrect or not programmed

Possible test steps

- Check the IQA codes of the injectors using MAN cats

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective exhaust gas temperature sensor if necessary

SPN 4246 - FMI 3 - Lambda sensor: Supply - implausible

Monitoring strategy

Exhaust gas aftertreatment monitoring

Possible causes

Possible test steps

- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective exhaust gas temperature sensor if necessary

SPN 4246 - FMI 8 - Lambda sensor: Supply - Invalid signal**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes**Possible test steps**

- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- If necessary, replace the exhaust gas temperature sensor after the particulate filter

SPN 4247 - FMI 1 - Lambda sensor: deviation in O2 concentration - too high**Monitoring strategy**

Monitoring O2 concentration

Possible causes

- The measured O2 content under full load deviates too much from the calculated value

Possible test steps

- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- If necessary, replace the exhaust gas temperature sensor after the particulate filter

SPN 4247 - FMI 2 - Lambda sensor: deviation in O2 concentration - too low

Monitoring strategy

Monitoring O2 concentration

Possible causes

- The measured O2 content under full load deviates too much from the calculated value

Possible test steps

- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- If necessary, replace the exhaust gas temperature sensor after the particulate filter

SPN 4248 - FMI 1 - Lambda sensor: Deviation of O2 concentration in boost mode - too high**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- The measured O2 content in coasting mode deviates too much from the calculated value

Possible test steps

- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- If necessary, replace the exhaust gas temperature sensor after the particulate filter

SPN 4248 - FMI 2 - Lambda sensor: Deviation in O2 concentration during deceleration - too low**Monitoring strategy**

Monitoring exhaust gas aftertreatment

Possible causes

- The measured O2 content in coasting mode deviates too much from the calculated value

Possible test steps

- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- If necessary, replace the exhaust gas temperature sensor after the particulate filter

SPN 4249 - FMI 3 - Lambda sensor: O2 concentration is too low - implausible**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- O2 content is implausible in the partial load range

Possible test steps

- Check electrical cables and plug connections

Possible remedy

SPN 4250 - FMI 8 - Current path solenoid valve R4 and R6 = cylinder 1 - Invalid signal**Monitoring strategy**

Monitoring internal control unit errors

Possible causes

- Output stage in A435 control unit EDC defective
- Defect in the electrical wiring between the control unit and the injector

Possible test steps

- Check electrical cables and plug connections
- Pin assignment for injector wiring: High D04, Low D13

Possible remedy

SPN 4251 - FMI 8 - Power path solenoid valve R4 = cylinder 3; R6 = cylinder 5 - Invalid signal**Monitoring strategy**

Monitoring internal control unit errors

Possible causes

- Output stage in A435 control unit EDC defective
- Defect in the electrical wiring between the control unit and the injector

Possible test steps

- Check electrical cables and plug connections
- Pin assignment for injector wiring: High D01, Low D16

Possible remedy

SPN 4252 - FMI 8 - Current path solenoid valve R4 = cylinder 4; R6 = cylinder 3 - Invalid signal
Monitoring strategy

Monitoring internal control unit errors

Possible causes

- Output stage in A435 control unit EDC defective
- Defect in the electrical wiring between the control unit and the injector

Possible test steps

- Check electrical cables and plug connections
- Pin assignment for injector wiring: High D05, Low D12

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace exhaust gas temperature sensor upstream of particulate filter if necessary

SPN 4253 - FMI 8 - Current path solenoid valve R4 = cylinder 2; R6 = cylinder 6 - Invalid signal
Monitoring strategy

Monitoring internal control unit errors

Possible causes

- Output stage in A435 control unit EDC defective
- Defect in the electrical wiring between the control unit and the injector

Possible test steps

- Check electrical cables and plug connections
- Pin assignment for injector wiring: High D02, Low D15

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace exhaust gas temperature sensor upstream of particulate filter if necessary

SPN 4254 - FMI 8 - Current path solenoid valve R6 = Cyl. 2 - Invalid signal
Monitoring strategy

Monitoring internal control unit errors

Possible causes

- Output stage in A435 control unit EDC defective
- Defect in the electrical wiring between the control unit and the injector

Possible test steps

- Check electrical cables and plug connections
- Pin assignment for injector wiring: High D11, Low D06

Possible remedy

- Replace electrical cables or plug connections if necessary
- If necessary, replace the exhaust gas temperature sensor upstream of the particulate filter

SPN 4255 - FMI 8 - Current path solenoid valve R6 = cylinder 4 - Invalid signal**Monitoring strategy**

Monitoring internal control unit errors

Possible causes

- Output stage in A435 control unit EDC defective
- Defect in the electrical wiring between the control unit and the injector

Possible test steps

- Check electrical cables and plug connections
- Pin assignment for injector wiring: High D03, Low D14

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace exhaust gas temperature sensor upstream of particulate filter, if necessary

SPN 4257 - FMI 2 - Lambda sensor: Supply voltage at SPI chip - too low
Monitoring strategy

Monitoring exhaust gas aftertreatment

Possible causes

- The supply voltage at the SPI chip is too low

Possible test steps
Possible remedy

- Replace NOx sensor II (OBD) if necessary

SPN 4258 - FMI 3 - Cold lambda sensor: Voltage O2 concentration - implausible

Monitoring strategy

Exhaust gas aftertreatment monitoring

Possible causes

Possible test steps

- Check electrical cables and plug connections

Possible remedy

- Replace NOx sensor I (raw emissions) if necessary

SPN 4264 - FMI 3 - A/D converter: plausibility / NTP error - implausible
Monitoring strategy

Monitoring internal control unit errors

Possible causes

- There is an internal error in the control unit.

Possible test steps
Possible remedies

- Replace electrical cables or plug connections if necessary
- Replace exhaust gas temperature sensor after SCR catalytic converter, if necessary

SPN 4266 - FMI 8 - A/D converter: Radiometric correction - Invalid signal
Monitoring strategy

Monitoring internal control unit errors

Possible causes

- There is an internal error in the control unit

Possible test steps
Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace the exhaust gas temperature sensor upstream of the SCR catalytic converter if necessary

SPN 4267 - FMI 8 - Internal communication error - Invalid signal

Monitoring strategy

Monitoring internal control unit errors

Possible causes

- There is an internal error in the control unit

Possible troubleshooting steps

Possible remedy

- Replace electrical cables or plug connections if necessary
- If necessary, replace the exhaust gas temperature sensor upstream of the SCR catalytic converter

SPN 4268 - FMI 4 - SPI timeout / SPI error counter - No signal**Monitoring strategy**

Monitoring internal control unit errors

Possible causes

- There is an internal error in the control unit

Possible test steps**Possible remedy**

- Replace electrical cables or plug connections if necessary
- If necessary, replace the exhaust gas temperature sensor upstream of the SCR catalytic converter

SPN 4268 - FMI 8 - SPI timeout / SPI error counter - Invalid signal
Monitoring strategy

Monitoring internal control unit errors

Possible causes

- There is an internal error in the control unit

Possible troubleshooting steps
Possible remedy

- Replace electrical cables or plug connections if necessary
- If necessary, replace the exhaust gas temperature sensor upstream of the SCR catalytic converter

SPN 4269 - FMI 9 - ROM memory - Device error

Monitoring strategy

Monitoring internal control unit errors

Possible causes

- There is an internal error in the control unit.
- Several errors have occurred in the ROM memory of the engine control unit

Possible test steps

Possible remedy

- Replace electrical cables or plug connections if necessary

SPN 4270 - FMI 4 - Redundant shutdown paths - No signal

Monitoring strategy

Monitoring internal control unit errors

Possible causes

- There is an internal error in the control unit

Possible test steps

Possible remedy

- Replace electrical cables or plug connections if necessary

SPN 4271 - FMI 8 - Redundant shut-off paths => quantity limitation - Invalid signal**Monitoring strategy**

Monitoring internal control unit errors

Possible causes

- There is an internal error in the control unit

Possible test steps**Possible remedy**

- Replace electrical cables or plug connections if necessary

SPN 4272 - FMI 8 - Redundant shutdown paths: Response time - Invalid signal**Monitoring strategy**

Monitoring internal control unit errors

Possible causes

- There is an internal error in the control unit.

Possible troubleshooting steps**Possible remedy**

- Replace electrical cables or plug connections if necessary

SPN 4273 - FMI 8 - Redundant shutdown paths: SPI error - Invalid signal
Monitoring strategy

Monitoring internal control unit errors

Possible causes

- There is an internal error in the control unit

Possible test steps
Possible remedy

- Renew the CAN connection if necessary

SPN 4274 - FMI 1 - Redundant shutdown paths: Overvoltage or undervoltage - too high**Monitoring strategy**

Monitoring internal control unit errors

Possible causes

- There is an internal error in the control unit

Possible test steps**Possible remedy**

- Renew CAN connection if necessary

SPN 4274 - FMI 2 - Redundant shutdown paths: Overvoltage or undervoltage - too low

Monitoring strategy

Monitoring of internal control unit errors

Possible causes

- There is an internal error in the control unit

Possible test steps

Possible remedy

- Renew CAN connection if necessary

SPN 4275 - FMI 9 - Redundant shutdown paths: Monitoring module - Device error
Monitoring strategy

Monitoring internal control unit errors

Possible causes

- There is an internal error in the control unit.

Possible test steps
Possible remedies

- Renew CAN connection if necessary

SPN 4276 - FMI 8 - Redundant shutdown paths: Timeout operating system - Invalid signal**Monitoring strategy**

Monitoring internal control unit errors

Possible causes

- There is an internal error in the control unit

Possible test steps**Possible remedy**

SPN 4277 - FMI 8 - Redundant shutdown paths: Test failed - Invalid signal

Monitoring strategy

Monitoring internal control unit errors

Possible causes

- There is an internal error in the control unit

Possible test steps

Possible remedy

SPN 4278 - FMI 8 - Redundant shutdown paths: Timeout error - Invalid signal
Monitoring strategy

Monitoring internal control unit errors

Possible causes

- There is an internal error in the control unit

Possible troubleshooting steps
Possible remedy

- SPN 4448 detects a short circuit after Ubat. or ground of the 5V supply to the fan speed sensor, EVB back pressure sensor, exhaust differential pressure sensor, or low fuel pressure sensor.
- Check the wiring to the sensors mentioned and the function of the sensors with MAN cats.
- The monitoring system cannot distinguish between a short circuit to ground ($U < 4.75V$) or +Ubat ($U > 5.25V$).

SPN 4281 - FMI 8 - Speed monitoring - Invalid signal**Monitoring strategy**

Plausibility check of speed signal

Possible causes

-Engine speed detection NW and KW speed sensors not connected -NW speed sensor not connected, reverse polarity, interference signals, NW sensor wheel damaged -NW speed sensor reverse polarity -Error in assigning camshaft sensor position to camshaft -KW speed sensor not connected, reverse polarity, sporadic short circuit on sensor supply 2 of the speed sensor (see also SPN 4448), interference signals, flywheel damaged. -KW speed sensor reverse polarity

Possible test steps

-Engine speeds: Synchronization of speed sensors "Synchronization complete?", operating mode of speed sensors - Engine speeds: Operating mode of speed sensors: "Camshaft signal faulty" -Engine speeds: Operating mode of speed sensors: "Camshaft signal faulty" -Monitoring synchronization of position sensors. -Motor speeds: Synchronization of speed sensors "Synchronization complete?", operating mode of speed sensors -Motor speeds: Synchronization of speed sensors "Synchronization complete?", operating mode of speed sensors

Possible remedy

SPN 4282 - FMI 3 - The control duration at the injector is too high - implausible**Monitoring strategy**

Monitoring injectors

Possible causes

- The control duration at the injector is implausible

Possible test steps

- Check electrical cables and plug connections
- Check with MAN Cats Monitoring B487 Rail pressure sensor Y332 Proportional valve for plausibility

Possible remedy

SPN 4282 - FMI 8 - The control duration at the injector is too high - Invalid signal**Monitoring strategy**

Monitoring injectors

Possible causes

- The value for the control duration at the injector is invalid

Possible test steps

- Check electrical cables and plug connections
- Check with MAN-cats-Monitoring B487 rail pressure sensor and Y332 proportional valve for plausibility

Possible remedy

SPN 4283 - FMI 3 - The control angle at the injector is incorrect - implausible

Monitoring strategy

Monitoring injectors

Possible causes

- The injection timing is implausible or incorrect

Possible test steps

- Check electrical cables and plug connections

Possible remedy

SPN 4284 - FMI 3 - Injection quantity - implausible**Monitoring strategy**

Monitoring injectors

Possible causes

- The EGR valve may be blocked due to unauthorized tampering.
- Note: In many vehicles, the EGR system is controlled by the electric M289 EGR servomotor. The pneumatic EGR system with B673 actuator cylinder with position sensor and Y458 proportional valve E-AGR is only used in the D0836 LOH and D2066 LUH bus engines.

Possible test steps

- Check EGR valve for proper functioning
- Perform with MAN cats: Actuator test EGR valve

Possible remedy

SPN 4285 - FMI 8 - Plausibility check of Pol2 efficiency - Invalid signal

Monitoring strategy

Monitoring internal control unit errors

Possible causes

- There is an internal error in the control unit

Possible test steps

Possible remedy

SPN 4286 - FMI 8 - Error in Pol2 shutdown - Invalid signal

Monitoring strategy

Monitoring internal control unit errors

Possible causes

- There is an internal error in the control unit

Possible test steps

Possible remedy

SPN 4287 - FMI 8 - Plausibility check of Pol3 efficiency - Invalid signal

Monitoring strategy

Monitoring internal control unit errors

Possible causes

- There is an internal error in the control unit

Possible troubleshooting steps

Possible remedy

SPN 4288 - FMI 8 - EDC control unit pressure wave correction plausibility check - faulty signal**Monitoring strategy**

Monitoring of rail pressure

Possible causes**Possible test steps****Possible remedy**

SPN 4290 - FMI 8 - Torque limitation control unit Monitoring concept - faulty signal

Monitoring strategy

Monitoring for CAN signals

Possible causes

Possible test steps

Possible remedy

SPN 4291 - FMI 1 - Torque limit control unit monitoring concept - too high**Monitoring strategy**

Monitoring internal control unit errors

Possible causes**Possible test steps****Possible remedy**

SPN 4292 - FMI 8 - Torque limitation control unit monitoring concept - faulty signal

Monitoring strategy

Monitoring internal control unit errors

Possible causes

Possible test steps

Possible remedy

SPN 4293 - FMI 8 - Torque limiter control unit monitoring concept - faulty signal**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes**Possible test steps****Possible remedy**

- Check whether the wastegate valve moves smoothly

SPN 4294 - FMI 1 - Sensor supply - too high
Monitoring strategy

Monitoring of the voltage limits of the sensor supply

Possible causes
Possible test steps

- Check electrical cables and plug connections

Possible remedy

- Check AdBlue system according to Ti548000b for proper functioning

SPN 4294 - FMI 2 - Sensor supply - too low**Monitoring strategy**

Monitoring of sensor supply voltage limits

Possible causes**Possible test steps**

- Check electrical cables and plug connections

Possible remedy

- Check that the AdBlue system is functioning properly in accordance with Ti548000b
- Replace defective components if necessary

SPN 4295 - FMI 9 - Error: Main relay opened too early - Device error**Monitoring strategy**

Monitoring of internal control unit errors

Possible causes

- Interruption of terminal 30 on the A435 EDC control unit
- The control unit follow-up could not be completed due to the interruption of the power supply (terminal 30).

Possible test steps

- Check electrical cables and plug connections on the A435 EDC control unit
- Check the main relay for the power supply

Possible remedy

SPN 4296 - FMI 3 - CAN message: NOx sensor heating - implausible

Monitoring strategy

Monitoring for CAN signals

Possible causes

- Interruption in CAN between individual participants
- Short circuit between CAN high and low

Possible test steps

- Check CAN connection

Possible remedy

SPN 4296 - FMI 8 - CAN message: NOx sensor heating - Invalid signal
Monitoring strategy

Monitoring for CAN signals

Possible causes

- Interruption in CAN between individual participants
- Short circuit between CAN high and low

Possible test steps

- Check CAN connection

Possible remedy

- Replace A1192 AdBlue combination sensor if necessary
- Replace Y432 cooling water solenoid valve if necessary
- If necessary, connect coolant lines correctly

SPN 4297 - FMI 3 - CAN message: NOx sensor after exhaust gas aftertreatment O2 concentration - implausible**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Interruption in CAN between individual participants
- Short circuit between CAN high and low

Possible test steps

- Check CAN connection

Possible remedy

- Replace A1192 AdBlue combination sensor if necessary
- Replace Y432 cooling water solenoid valve if necessary
- If necessary, connect coolant lines correctly

SPN 4298 - FMI 3 - CAN message: NOx sensor NOx concentration - implausible**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Interruption in CAN between individual participants
- Short circuit between CAN high and low

Possible test steps

- Check CAN connection

Possible remedy

- Replace A1192 AdBlue combination sensor if necessary
- Replace Y432 cooling water solenoid valve if necessary
- Connect coolant lines correctly if necessary

SPN 4298 - FMI 8 - CAN message: NOx sensor NOx concentration - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Interruption in CAN between individual participants
- Short circuit between CAN high and low

Possible test steps

- Check CAN connection

Possible remedy

- If necessary, empty the AdBlue tank and refill it with AdBlue with the correct urea concentration in accordance with ISO 22241-1

SPN 4302 - FMI 3 - Temperature after particulate filter - implausible**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes**Possible test steps**

- Check electrical cables and plug connections

Possible remedy

- Replace defective fan speed sensor if necessary
- Replace defective electrical cables or plug connections if necessary

SPN 4304 - FMI 8 - NOx sensor after exhaust gas aftertreatment: Supply voltage - Invalid signal**Monitoring strategy**

Exhaust aftertreatment monitoring

Possible causes

- Interruption in the wiring of the B994 NOx sensor II (OBD)
- B994 NOx Sensor II (OBD) is defective

Possible test steps

- Check electrical lines and plug connections
- Check the B994 NOx Sensor II (OBD) for proper function

Possible remedy

- Renew CAN connection if necessary

SPN 4305 - FMI 3 - NOx sensor after exhaust gas aftertreatment plausibility check - implausible
Monitoring strategy

Exhaust aftertreatment monitoring

Possible causes
Possible test steps

- Check electrical cables and plug connections

Possible remedy

- Recable the glow plug if necessary
- Perform TI 445702 if necessary

SPN 4306 - FMI 8 - NOx value after exhaust gas aftertreatment: Dynamics - Invalid signal**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes**Possible test steps**

- Check electrical cables and plug connections

Possible remedy

- Recable the glow plug if necessary
- Perform TI 445702 if necessary

SPN 4307 - FMI 8 - NOx sensor value invalid after exhaust gas aftertreatment during operation - Invalid signal**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes**Possible test steps**

- Check electrical wiring and plug connections

Possible remedy

- If necessary, rewire the glow plug
- Perform TI 445702 if necessary

SPN 4308 - FMI 8 - NOx sensor after exhaust gas aftertreatment: Timeout error heating - Invalid signal
Monitoring strategy

Exhaust gas aftertreatment monitoring

Possible causes

- Interruption in the wiring of the B994 NOx sensor II O(BD)
- B994 NOx Sensor II (OBD) is defective

Possible test steps

- Check cables and plug connections
- Check B994 NOx Sensor II (OBD) for proper function

Possible remedy

- Replace glow plug if necessary
- Recable the flame glow plug if necessary
- Perform TI 445702 if necessary

SPN 4309 - FMI 1 - NOx value after exhaust gas aftertreatment: Offset - too high**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes**Possible test steps**

- Check electrical cables and plug connections

Possible remedy

- Replace glow plug if necessary
- Recable the glow plug if necessary
- Perform TI 445702 if necessary

SPN 4309 - FMI 2 - NOx value after exhaust gas aftertreatment: offset - too low

Monitoring strategy

Exhaust gas aftertreatment monitoring

Possible causes

Possible test steps

- Check electrical cables and plug connections

Possible remedy

- Recable the glow plug if necessary
- Perform TI 445702 if necessary

SPN 4310 - FMI 8 - NOx sensor before exhaust aftertreatment: Supply voltage - Invalid signal**Monitoring strategy**

Exhaust aftertreatment monitoring

Possible causes

- Interruption in the wiring of the B1055 NOx sensor I (raw emission)
- B1055 NOx sensor I (raw emission) defective

Possible test steps

- Check electrical cables and plug connections
- Check B1055 NOx sensor I (raw emission) for proper function

Possible remedy

- If necessary, rewire the glow plug
- Perform TI 445702 if necessary

SPN 4311 - FMI 3 - NOx sensor before exhaust aftertreatment: Plausibility check with another sensor - implausible
Monitoring strategy

Exhaust aftertreatment monitoring

Possible causes
Possible test steps

- Check electrical cables and plug connections

Possible remedy

- Recable the glow plug if necessary
- Perform TI 445702 if necessary

SPN 4312 - FMI 8 - NOx value before exhaust gas aftertreatment: Dynamics - Invalid signal**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes**Possible test steps**

- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace solenoid valve fuel if necessary

SPN 4313 - FMI 8 - NOx sensor value invalid before exhaust aftertreatment during operation - Invalid signal
Monitoring strategy

Exhaust aftertreatment monitoring

Possible causes
Possible test steps

- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace fuel solenoid valve if necessary

SPN 4314 - FMI 8 - NOx sensor before exhaust aftertreatment: Timeout error heating - Invalid signal
Monitoring strategy

Exhaust aftertreatment monitoring

Possible causes

- Interruption in the wiring of the B1055 NOx sensor I (raw emission)
- B1055 NOx sensor I (raw emission) is defective

Possible test steps

- Check electrical cables and plug connections
- Check B1055 NOx Sensor I (raw emission) for proper function

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace fuel solenoid valve if necessary

SPN 4315 - FMI 1 - NOx value before exhaust gas aftertreatment: offset - too high
Monitoring strategy

Exhaust gas aftertreatment monitoring

Possible causes
Possible test steps

- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace solenoid valve fuel if necessary

SPN 4315 - FMI 2 - NOx value before exhaust gas aftertreatment: offset - too low

Monitoring strategy

Exhaust gas aftertreatment monitoring

Possible causes

Possible test steps

- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace solenoid valve fuel if necessary

SPN 4316 - FMI 3 - Error status NOx concentration before exhaust gas aftertreatment - implausible**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes**Possible test steps**

- Check electrical cables and plug connections

Possible remedy

- Replace CAN connection if necessary

**SPN 4316 - FMI 5 - Error status NOx concentration before exhaust gas aftertreatment -
Short circuit to ground**
Monitoring strategy

Exhaust gas aftertreatment monitoring

Possible causes
Possible test steps

- Check electrical wiring and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary

SPN 4316 - FMI 6 - Error status NOx concentration before exhaust gas aftertreatment - Short circuit after UBatt+**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes**Possible test steps**

- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary

SPN 4317 - FMI 7 - Error status NOx sensor before exhaust gas aftertreatment - Short circuit
Monitoring strategy

Exhaust aftertreatment monitoring

Possible causes
Possible test steps

- Check electrical wiring and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Perform MAN-cats system test HCI system

SPN 4317 - FMI 10 - Error status NOx sensor before exhaust gas aftertreatment - interruption**Monitoring strategy**

Monitoring exhaust gas aftertreatment

Possible causes**Possible test steps**

- Check electrical cables and plug connections

Possible remedy

SPN 4319 - FMI 8 - EDC internal error: Power stage shutdown Monitoring error - Invalid signal**Monitoring strategy**

Monitoring Internal control unit errors

Possible causes

- There is an internal error in the control unit.

Possible test steps**Possible remedies**

- Replace electrical cables or plug connections if necessary
- Replace EGR valve if necessary

SPN 4320 - FMI 1 - EDC internal error: Power amplifier shutdown due to overvoltage/undervoltage - too high

Monitoring strategy

Monitoring Internal control unit errors

Possible causes

- During overvoltage, the output stages of the control unit could not be shut down

Possible test steps

Possible remedy

- Replace EGR valve if necessary

SPN 4320 - FMI 2 - EDC internal error: Output stage shutdown due to overvoltage/undervoltage - too low**Monitoring strategy**

Monitoring Internal control unit errors

Possible causes

- During undervoltage, the output stages of the control unit could not be shut down

Possible test steps**Possible remedy**

- Replace EGR valve if necessary

SPN 4337 - FMI 8 - EDC internal error: Output stage shutdown Cause unknown - Invalid signal**Monitoring strategy**

Monitoring Internal control unit errors

Possible causes

- For unknown reasons, the output stages could not be switched off.

Possible test steps**Possible remedy**

- Replace EGR valve if necessary

SPN 4338 - FMI 5 - Oil level sensor - Short circuit to ground

Monitoring strategy

Oil level monitoring

Possible causes

- Interruption in the wiring of the oil level sensor

Possible test steps

- Check the oil level using MAN-cats monitoring
- Check electrical cables and plug connections
- Check the oil level sensor
- Determine sensor according to test step list in FEDC Industry system description

Possible remedy

- Replace electrical cables or plug connections if necessary

SPN 4338 - FMI 11 - Oil level sensor - Loose connection
Monitoring strategy

Oil level monitoring

Possible causes

- Interruption in the wiring of the oil level sensor

Possible test steps

- Check the oil level using MAN-cats monitoring
- Check electrical cables and plug connections
- Check the oil level sensor
- Determine sensor according to test step list in FEDC Industry system description

Possible remedies

- Replace electrical cables or plug connections if necessary

SPN 4338 - FMI 12 - Oil level sensor - Open circuit or short circuit after Ubatt+

Monitoring strategy

Oil level monitoring

Possible causes

- Interruption in the wiring of the oil level sensor

Possible test steps

- Check the oil level using MAN-cats monitoring
- Check electrical cables and plug connections
- Check the oil level sensor
- Determine sensor according to test step list in FEDC Industry system description

Possible remedies

- Replace electrical cables or plug connections if necessary

SPN 4340 - FMI 8 - Invalid value reported by PTM in EngTempRx - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Interruption in CAN between power train manager and engine control unit

Possible test steps

- Check CAN connection between engine control unit and power train manager

Possible remedy

SPN 4341 - FMI 10 - NOx sensor after exhaust aftertreatment: Heating fault - Interruption
Monitoring strategy

Monitoring exhaust gas aftertreatment

Possible causes
Possible test steps

- Check electrical wiring and plug connections

Possible remedy

SPN 4342 - FMI 10 - NOx sensor upstream of exhaust gas aftertreatment: Heating fault - interruption**Monitoring strategy**

Monitoring exhaust gas aftertreatment

Possible causes**Possible test steps**

- Check electrical cables and plug connections

Possible remedy

SPN 4343 - FMI 10 - CAN message: NOx sensor after exhaust gas aftertreatment
Cable break - interruption**Monitoring strategy**

Monitoring exhaust gas aftertreatment

Possible causes

- Interruption in the wiring of the B994 NOx sensor II (OBD)

Possible test steps

- Check cables and plug connections

Possible remedy

- Connect the cables of the B488 speed increment sensor with the correct polarity

SPN 4344 - FMI 10 - CAN message: NOx sensor after exhaust gas aftertreatment - interruption**Monitoring strategy**

Exhaust aftertreatment monitoring

Possible causes

- Interruption in the CAN between eAGR and NoNOx

Possible test steps

- if messages are missing > Check CAN connection
- Check electrical cables and plug connections

Possible remedy

- Connect the cables of the B489 speed segment encoder with the correct polarity

SPN 4345 - FMI 10 - CAN message: NOx sensor before exhaust aftertreatment - interruption

Monitoring strategy

Exhaust aftertreatment monitoring

Possible causes

- Interruption in CAN between eAGR and NoNOx

Possible test steps

- If messages are missing > Check CAN connection
- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections of the measuring unit if necessary
- Replace fuel line if necessary
- Replace the injection unit if necessary
- After replacement, there may be air in the system > Perform at least three HCl system tests with MAN cats to flush the system with fuel
- After a maximum of six HCl system tests, heat the exhaust aftertreatment to 270 °C to burn off the accumulated fuel. Otherwise, there is a risk of damage to the exhaust system!

SPN 4346 - FMI 8 - OxiCat HC conversion rate < limit value - faulty signal
Monitoring strategy

Exhaust gas aftertreatment monitoring

Possible causes
Possible test steps
Possible remedy

- Replace fuel line if necessary
- Replace injection unit if necessary
- After replacement, there may be air in the system > Perform at least three HCl system tests with MAN cats to flush the system with fuel
- After a maximum of six HCl system tests, heat the exhaust aftertreatment to 270°C to burn off the accumulated fuel. Otherwise, there is a risk of damage to the exhaust system!

SPN 4347 - FMI 8 - OxiCat HC conversion rate < limit value - faulty signal
Monitoring strategy

Exhaust gas aftertreatment monitoring

Possible causes
Possible test steps
Possible remedy

- If necessary, replace electrical cables or plug connections of the measuring unit
- Replace fuel line if necessary
- Replace the injection unit if necessary
- After replacement, there may be air in the system > Perform at least three HCl system tests with MAN cats to flush the system with fuel
- After a maximum of six HCl system tests, heat the exhaust aftertreatment to 270 °C to burn off the accumulated fuel. Otherwise, there is a risk of damage to the exhaust system!

SPN 4349 - FMI 1 - Adjustment limit value reached at rail pressure control valve - too high
Monitoring strategy

Monitoring of rail pressure

Possible causes
Possible test steps
Possible remedy

- If necessary, replace the electrical cables or plug connections of the measuring unit
- Replace fuel line if necessary
- Replace the injection unit if necessary
- After replacement, there may be air in the system > Perform at least three HCl system tests with MAN cats to flush the system with fuel
- After a maximum of six HCl system tests, heat the exhaust aftertreatment to 270°C to burn off the accumulated fuel. Otherwise, there is a risk of damage to the exhaust system!

SPN 4349 - FMI 2 - Adjustment limit value reached at rail pressure control valve - too low**Monitoring strategy**

Monitoring of rail pressure

Possible causes**Possible test steps****Possible remedy**

- Replace electrical cables or plug connections if necessary
- Replace measuring unit if necessary
- After replacement, there may be air in the system > Perform at least three HCl system tests with MAN cats to flush the system with fuel
- After a maximum of six HCl system tests, heat the exhaust aftertreatment to 270 °C to burn off the accumulated fuel. Otherwise, there is a risk of damage to the exhaust system!

SPN 4350 - FMI 9 - Controller deviation in control valve operation - Device error**Monitoring strategy**

Monitoring the controller

Possible causes**Possible test steps****Possible remedy**

- Replace measuring unit if necessary
- After replacement, there may be air in the system > Perform at least three HCl system tests with MAN cats to flush the system with fuel
- After a maximum of six HCl system tests, heat the exhaust aftertreatment to 270 °C to burn off the accumulated fuel. Otherwise, there is a risk of damage to the exhaust system!

SPN 4351 - FMI 1 - Rail pressure control valve output stage - too high**Monitoring strategy**

PCV (pressure control valve) output stage overheats, diagnostic conditions: KI.15 on

Possible causes

- Component wiring/connectors/connector pins defective - Actuator defective

Possible test steps

--Check the component's wiring. Check the component's plug contacts -Electrical test of the actuator (resistance, voltage), replacement

Possible remedy

--Replace the component's wiring. Replace the component's plug contacts

SPN 4351 - FMI 10 - Output stage Rail pressure control valve - Interruption
Monitoring strategy

PCV (Pressure Control Valve) is not electrically connected, diagnostic conditions: KI.15 on

Possible causes

-Component wiring/connector/connector pins defective -Actuator defective

Possible test steps

--Check the component's wiring. Check the component's plug contacts -Electrical test of the actuator (resistance, voltage), replacement

Possible remedy

--Replace the component wiring. Replace the component plug contacts.

SPN 4352 - FMI 5 - Output stage Rail pressure control valve - Short circuit to ground

Monitoring strategy

PCV (Pressure Control Valve): Short circuit LowSide to ground, diagnostic conditions: Kl.15 on

Possible causes

- Component wiring/connector/connector pins defective - Actuator defective

Possible test steps

- Check electrical cables and plug connections

Possible remedy

- Check the component's wiring. Check the component's plug contacts - Perform an electrical test of the actuator (resistance, voltage), replace

SPN 4352 - FMI 6 - Output stage rail pressure control valve - Short circuit to UBatt+**Monitoring strategy**

PCV (Pressure Control Valve): Short circuit LowSide to ground, diagnostic conditions: Kl.15 on

Possible causes

- Component wiring/connector/connector pins defective - Actuator defective

Possible test steps

- Check electrical cables and plug connections

Possible remedy

- Check the component's wiring. Check the component's plug contacts - Perform an electrical test of the actuator (resistance, voltage), replace

SPN 4353 - FMI 5 - Output stage Rail pressure control valve - Short circuit to ground

Monitoring strategy

Monitoring of internal control unit errors

Possible causes

Possible test steps

- Check electrical cables and plug connections

Possible remedy

Replacement

SPN 4353 - FMI 6 - Output stage Rail pressure control valve - Short circuit after UB
Monitoring strategy

Monitoring of internal control unit errors

Possible causes
Possible test steps

- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Renew CAN connection if necessary
- Replace NOx sensor if necessary

SPN 4354 - FMI 5 - Current feedback rail pressure control valve - Short circuit to ground
Monitoring strategy

Monitoring internal control unit errors

Possible causes
Possible test steps

- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary
- Replace NOx sensor if necessary

SPN 4354 - FMI 6 - Current feedback measurement Rail pressure control valve - Short circuit to UBatt+**Monitoring strategy**

Monitoring of internal control unit errors

Possible causes**Possible test steps**

- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary
- Replace NOx sensor if necessary

SPN 4355 - FMI 1 - Particulate filter load - too high
Monitoring strategy

Exhaust gas aftertreatment monitoring

Possible causes

- The particulate filter has reached its maximum ash load

Possible test steps
Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace the CAN connection if necessary
- Replace NOx sensor if necessary

SPN 4356 - FMI 9 - Particulate filter not functioning - Device error**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- The particulate filter is defective
- No particulate filter is installed

Possible test steps

- Check exhaust gas differential pressure for plausibility using MAN-cats monitoring
- Check for the presence of a particulate filter

Possible remedy

SPN 4357 - FMI 1 - Replace/clean particle filter Maximum particle filter ash load reached. - Too high
Monitoring strategy

Exhaust gas aftertreatment monitoring Ash volume in particle filter too high. The existing ash volume is calculated from fuel consumption, utilization, and operating hours.

Possible causes

- Differential pressure too high - Ash in particle filter due to engine oil consumption

Possible test steps

- Check electrical wiring
 - Check electrical connections -During normal combustion in engines, some oil is always burned. This produces non-combustible components (ash). These collect in the particulate filter. Ash cannot be broken down by regeneration measures.

Possible remedy

-The particulate filter must be cleaned/replaced. Empty the AdBlue tank and refill it with AdBlue with the correct urea concentration in accordance with ISO 22241-1.
 - If necessary, replace the A1192 AdBlue combination sensor.
 - In this context, also observe SPN 4597.

SPN 4357 - FMI 3 - Replace/clean the particulate filter Monitoring particulate filter/PM catalytic converter - implausible

Monitoring strategy

Monitoring exhaust gas aftertreatment Differential pressure across particulate filter and OxiCat too high. The evaluation is performed depending on the exhaust gas volume flow. The fault cannot be diagnosed if the volume flows are too low.

Possible causes

- Differential pressure too low - Damage to EGR actuator / EGR valve Inadequate positioning, control deviation - Particulate filter regeneration unsuccessful because temperatures were not reached (Possible causes: - Breakthrough; -excessive load) -Damage to throttle valve actuator / throttle valve: insufficient positioning -Engine smoking excessively due to a defect. -Air mass signal faulty - Differential pressure signal faulty -Face plugging OxiCat -Ash in particle filter due to engine oil consumption -Boost pressure too low -Exhaust brake flap sluggish / stuck

Possible test steps

- Check electrical wiring
- Check electrical connections Charge exchange / cylinder filling impeded Defective injection system Exhaust back pressure upstream of OxiCat too high Leaks between turbocharger and engine Throttle valve sticks / sluggish
.... -Leakage in the air duct, sensor drift HFM, (D08 SCR only EU VIc): Combined boost pressure/temperature sensor
-> Influence on EDC model - Sensor drift of the differential pressure sensor Pressure equalization hole on the sensor element clogged/covered. Connection lines on the sensor clogged or leaking. - Inlet side of the OxiCat covered with a large area of greasy deposits. Channels clogged. Channels may no longer be visible. -During normal combustion in engines, some oil is always burned. This produces non-combustible components (ash). These collect in the particle filter. Ash cannot be removed by regeneration measures. The particle filter must be cleaned/replaced. -Check whether the wastegate is sluggish. Check whether the timing valve is defective ==> Actuator test Check the pressure supply to the timing valve Check for leaks (air) upstream of the turbine Check for leaks (exhaust gas) downstream of the compressor - Visual inspection of flap mechanism/linkage. Function test using brake request Steering column lever (reaching end positions) Actuator test --> CHECK!

Possible remedy

- Empty AdBlue tank and refill with AdBlue with correct urea concentration in accordance with ISO 22241-1
- If necessary, replace A1192 AdBlue combination sensor
- In this context, also observe SPN 4597

SPN 4357 - FMI 4 - Replace/clean particulate filter Soot mass in filter too high - No signal

Monitoring strategy

Monitoring exhaust gas aftertreatment calculated soot mass in filter too high

Possible causes

-Faceplugging OxiCat -Air mass signal faulty -Differential pressure signal faulty -Ash in particle filter due to engine oil consumption -Engine smoking excessively due to a defect. -Damage to the throttle valve actuator / throttle valve: insufficient positioning -Damage to the EGR actuator / EGR valve: insufficient positioning, control deviation -Boost pressure too low -Exhaust brake valve sluggish / stuck

Possible test steps

- Check electrical wiring
 - Check electrical connections Ash cannot be removed by regeneration measures. The particulate filter must be cleaned/replaced. -Perform free acceleration and measure K values. Causes of heavy smoke may include: Charge exchange/cylinder filling impeded Defective injection system Exhaust back pressure upstream of OxiCat too high Leaks between turbocharger and engine Throttle valve sticks/stiff Pressures: Plausibility of boost pressure/resistance at the actuator Charge air throttle valve Positioning: EGR valve positioning/extension of actuator temperature EGR actuator in MANcats/check back pressure values via LDK Check whether the wastegate is sluggish. Check whether the timing valve is defective==> Actuator test Check pressure supply to timing valve Check for leakage (air) before turbine Check for leakage (exhaust gas) after compressor -Visual inspection of flap mechanism / linkage. Function test by means of brake request Steering column lever (reaching end positions) Actuator test

Possible remedy

- Empty the AdBlue tank and refill it with AdBlue with the correct urea concentration in accordance with ISO 22241-1.
- If necessary, replace the A1192 AdBlue combination sensor
- In this context, also observe SPN 4597

SPN 4357 - FMI 8 - Replace/clean particulate filter - Invalid signal
Monitoring strategy

Exhaust gas aftertreatment monitoring Differential pressure across particulate filter and OxiCat too high. The evaluation is performed depending on the exhaust gas volume flow. The fault cannot be diagnosed if the volume flows are too low.

Possible causes

-Face plugging OxiCat -Air mass signal faulty -Differential pressure signal faulty -Ash in particle filter due to engine oil consumption -Engine smoking excessively due to a defect. -Damage to EGR actuator / EGR flap: insufficient positioning, control deviation -Damage to throttle valve actuator / throttle valve: insufficient positioning

Possible test steps

- Check electrical wiring
 - Check electrical plug connections -Large area of the inlet side of the OxiCat covered in grease. Channels blocked. Channels may no longer be recognizable. -Leakage in the air duct, sensor drift HFM, (D08 SCR only EU VIc): Combined sensor boost pressure/temperature sensor -> Influence on EDC model -Sensor drift of the differential pressure sensor Pressure equalization hole on the sensor element clogged/covered. Connection lines on the sensor clogged or leaking. -During normal combustion in engines, some oil is always burned. This produces non-combustible components (ash). These collect in the particulate filter. Ash cannot be removed by regeneration measures. The particle filter must be cleaned/replaced. -Perform free acceleration and measure K values. Causes of heavy smoke can be: Charge exchange/cylinder filling impeded Defective injection system Exhaust back pressure upstream of OxiCat too high Leaks between turbocharger and engine Throttle valve stuck/stiff Positioning: EGR valve positioning / extension of actuator temperature EGR actuator in MANcats / check back pressure values via LDK Pressures: plausibility of boost pressure / resistance at actuator charge air throttle valve Check whether wastegate is sluggish. Check whether the timing valve is defective ==> Actuator test Check pressure supply to timing valve Check for leakage (air) before turbine Check for leakage (exhaust gas) after compressor -Visual inspection of valve mechanism / linkage. Function test by means of brake request Steering column lever (reaching end positions) Actuator test

Possible remedy

SPN 4357 - FMI 9 - Replace/clean particle filter - Device error**Monitoring strategy**

Exhaust gas aftertreatment monitoring Differential pressure across particle filter and OxiCat too high. Evaluation is based on exhaust gas volume flow. The error cannot be diagnosed if the volume flows are too low.

Possible causes

- The particulate filter is defective
- No particulate filter installed -Air mass signal faulty -Differential pressure signal faulty -Particulate filter removed or damaged -Leak between turbocharger outlet and exhaust aftertreatment

Possible test steps

- Check particle filter for presence - Leakage in the air duct, sensor drift HFM, - Sensor drift of the differential pressure sensor Pressure equalization hole on the sensor element clogged/covered. Connection lines on the sensor clogged or leaking. -Check whether the particulate filter is damaged or removed. Damaged particulate filter shows soot on the clean side. Smoke visible when accelerating? -Leak test / visible traces of soot

Possible remedy

- If necessary, replace electrical cables or plug connections on the measuring unit
- Replace the measuring unit if necessary
- After replacement, there may be air in the system > Perform at least three HCI system tests with MAN cats to flush the system with fuel
- After a maximum of six HCI system tests, heat the exhaust aftertreatment to 270 °C to burn off the accumulated fuel. Otherwise, there is a risk of damage to the exhaust system!
- Note: Depending on the software version, system tests are performed automatically when the diagnostic routine is started. Fault memory entries may only be set after several system tests.

SPN 4359 - FMI 2 - Exhaust gas temperature after particulate filter - too low

Monitoring strategy

Monitoring of exhaust gas temperature before particulate filter

Possible causes

- The exhaust gas temperature after the particulate filter cannot be detected

Possible test steps

- Check electrical cables and plug connections

Possible remedy

SPN 4360 - FMI 2 - Exhaust gas temperature before particulate filter - too low

Monitoring strategy

Monitoring exhaust gas aftertreatment

Possible causes

Possible test steps

- Check electrical cables and plug connections

Possible remedy

SPN 4361 - FMI 2 - Exhaust gas differential pressure too high in the afterrun - too low**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- Particulate filter is defective

Possible test steps

- Check the throughput of the particulate filter
- Check the particulate filter

Possible remedy

SPN 4362 - FMI 8 - Particulate filter efficiency too low - Invalid signal**Monitoring strategy**

Monitoring exhaust gas aftertreatment

Possible causes

- The particulate filter is defective
- No particulate filter is installed

Possible test steps

- Check particle filter for presence

Possible remedy

SPN 4363 - FMI 1 - Differential pressure across particle filter outside permissible limits - too high
Monitoring strategy

Monitoring exhaust gas aftertreatment

Possible causes

-Engine smoking excessively due to a defect. -Differential pressure signal faulty -Boost pressure too low - Exhaust brake flap sluggish / stuck -Damage to actuator Throttle valve actuator / throttle valve: Inadequate positioning - Damage to EGR actuator / EGR flap Inadequate positioning, control deviation - Particulate filter regeneration unsuccessful because temperatures were not reached (Possible causes: - Breakthrough; - Excessive load) - OxiCat blockage

Possible test steps

- Check with MAN cats: operating hours since last regeneration, distance traveled since last regeneration, fuel consumption since last regeneration, number of partial regenerations - Perform free acceleration and measure K values. Causes of heavy smoke may include: Charge exchange/cylinder filling impeded, injection system defective, exhaust back pressure upstream of OxiCat too high, leaks between turbocharger and engine, throttle valve stuck/stiff.... -Sensor drift of the differential pressure sensor, pressure equalization bore on the sensor element clogged/covered. Connection lines on the sensor clogged or leaking. -Check whether the wastegate is sluggish. Check whether the timing valve is defective==> Actuator test Check pressure supply to timing valve Check for leakage (air) before turbine Check for leakage (exhaust gas) after compressor -Visual inspection of flap mechanism/linkage. Function test using brake request Steering column lever (reaching end positions) Actuator test - Pressures: Plausibility of boost pressure / resistance at the actuator Charge air throttle valve -Positioning: EGR valve positioning / extension of actuator temperature EGR actuator in MANcats / Checking back pressure values via LDK -Pressure: Exhaust back pressure < ..mbar --> Check value -Inlet side of OxiCat extensively coated with grease. Channels clogged. Channels may no longer be recognizable.

Possible remedy

SPN 4364 - FMI 9 - Particle filter is regenerated too frequently - Device error
Monitoring strategy

Exhaust gas aftertreatment monitoring

Possible causes

- Particulate filter is clogged
- Particulate filter installed with too small pore size

Possible test steps

- Check the particulate filter

Possible remedy

- Adjust oil level

SPN 4365 - FMI 8 - CAN message timeout - faulty signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Interruption in the CAN between individual participants
- Short circuit between CAN high and low

Possible test steps

Note: This SPN may be stored in the fault memory if there are faults on the CAN. When troubleshooting on the CAN, always use the vehicle-specific circuit diagram. The defective location can be circled using the SPNs stored in the fault memory. An overview of the vehicle-specific CAN switching sequences can be found in the separate system description for the EDC17 engine control unit.

Possible remedy

SPN 4366 - FMI 8 - CAN message timeout - faulty signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Interruption in CAN between individual participants
- Short circuit between CAN high and low

Possible test steps

Note: This SPN may be stored in the fault memory if faults are present on the CAN. When troubleshooting on the CAN, always use the vehicle-specific circuit diagram. The defective location can be circled using the SPNs stored in the fault memory. An overview of the vehicle-specific CAN switching sequences can be found in the separate system description for the EDC17 engine control unit.

Possible remedy

SPN 4367 - FMI 3 - Dynamic plausibility exhaust gas differential pressure - implausible**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes**Possible test steps**

- Check electrical cables and plug connections

Possible remedy

SPN 4368 - FMI 1 - Particulate filter regeneration is disabled - too high

Monitoring strategy

Exhaust gas aftertreatment monitoring

Possible causes

Possible test steps

- Check electrical cables and plug connections

Possible remedy

SPN 4369 - FMI 1 - measured soot mass deviates from simulated value - too high

Monitoring strategy

Monitoring exhaust gas aftertreatment

Possible causes

Possible test steps

- Check electrical cables and plug connections

Possible remedy

SPN 4369 - FMI 2 - measured soot mass deviates from simulated value - too low
Monitoring strategy

Monitoring exhaust gas aftertreatment

Possible causes
Possible test steps

- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- If necessary, replace the exhaust gas temperature sensor upstream of the catalytic converter

SPN 4370 - FMI 1 - Particulate filter service - too high
Monitoring strategy

Exhaust gas aftertreatment monitoring

Possible causes

- Filter is clogged
- Regeneration takes too long

Possible test steps

- Check filter and clean if necessary

Possible remedy

- Replace electrical cables or plug connections if necessary
- If necessary, replace the exhaust gas temperature sensor upstream of the catalytic converter

SPN 4370 - FMI 2 - Particulate filter service - too low**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- Filter is clogged
- Particulate filter differential pressure is too low

Possible test steps

- Check the filter and clean it if necessary

Possible remedy

- Replace electrical cables or plug connections if necessary
- If necessary, replace the exhaust gas temperature sensor upstream of the catalytic converter

SPN 4371 - FMI 1 - Flow resistance too high/too low - too high**Monitoring strategy**

Monitoring exhaust gas aftertreatment

Possible causes**Possible test steps**

- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- If necessary, replace the exhaust gas temperature sensor upstream of the catalytic converter

SPN 4371 - FMI 2 - Flow resistance too high/too low - too low
Monitoring strategy

Exhaust gas aftertreatment monitoring

Possible causes
Possible test steps

- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- If necessary, replace the exhaust gas temperature sensor upstream of the catalytic converter

SPN 4372 - FMI 3 - Application error: Map fields not monotonic - implausible**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes**Possible test steps****Possible remedy**

- Replace electrical cables or plug connections if necessary
- Replace exhaust gas temperature sensor upstream of particulate filter, if necessary

SPN 4373 - FMI 1 - Pressure before OxiCat - too high

Monitoring strategy

Monitoring exhaust gas aftertreatment

Possible causes

- The pressure upstream of OxiCat is too high

Possible test steps

- Check electrical wiring and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace exhaust gas temperature sensor upstream of particulate filter if necessary

SPN 4373 - FMI 2 - Pressure before OxiCat - too low

Monitoring strategy

Monitoring exhaust gas aftertreatment

Possible causes

- The pressure upstream of OxiCat is too low

Possible test steps

- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- If necessary, replace the exhaust gas temperature sensor upstream of the particulate filter

SPN 4373 - FMI 8 - Pressure before OxiCat - Invalid signal**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes**Possible test steps****Possible remedy**

- Replace electrical cables or plug connections if necessary
- Replace exhaust gas temperature sensor upstream of particulate filter, if necessary

SPN 4374 - FMI 8 - CAN message timeout - faulty signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Interruption between EGR and charge air throttle valve or at plug connections
- CAN high swapped with low

Possible test steps

- Check pin assignment according to circuit diagram and continuity measurement between EGR and charge air throttle valve
- If no continuity > Cable (CAN low or high in) swapped between EGR and charge air throttle valve
- Check pin assignment: Pin 7 (intercooler valve CAN low out) must be on pin 3 (ECV CAN low in) and pin 8 (intercooler valve CAN high out) must be on pin 4 (ECV CAN high in)
- Check pin assignment of potential distributor X4742 Note: This SPN may be stored in the fault memory if there are faults on the CAN. When troubleshooting on the CAN, always use the vehicle-specific circuit diagram. The defective location can be circled using the SPNs stored in the fault memory. An overview of the vehicle-specific CAN switching sequences can be found in the separate system description for the EDC17 engine control unit.

Possible remedy

- Replace electrical cables or plug connections if necessary
- If necessary, replace the exhaust gas temperature sensor upstream of the particulate filter

SPN 4375 - FMI 3 - Pressure sensor upstream of OxiCat - implausible**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- The values of the pressure sensor before OxiCat are implausible
- The pressure sensor before OxiCat is defective

Possible test steps

- Use MAN-cats-Monitoring to check the corresponding exhaust gas pressure for plausibility
- Check electrical cables and plug connections
- Check the pressure sensor upstream of OxiCat

Possible remedy

- Replace electrical cables or plug connections if necessary
- If necessary, replace the exhaust gas temperature sensor after the particulate filter

SPN 4375 - FMI 5 - Pressure sensor upstream of OxiCat - Short circuit to ground**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- Interruption in the wiring of the pressure sensor before OxiCat
- The pressure sensor before OxiCat is defective

Possible test steps

- Use MAN-cats-Monitoring to check the corresponding exhaust gas pressure for plausibility
- Check electrical cables and plug connections
- Check the pressure sensor before OxiCat

Possible remedy

- Replace electrical cables or plug connections if necessary
- If necessary, replace the exhaust gas temperature sensor after the particulate filter

SPN 4375 - FMI 6 - Pressure sensor before OxiCat - Short circuit after UBatt+
Monitoring strategy

Exhaust gas aftertreatment monitoring

Possible causes

- Interruption in the wiring of the pressure sensor before OxiCat
- The pressure sensor before OxiCat is defective

Possible test steps

- Use MAN-cats-Monitoring to check the corresponding exhaust gas pressure for plausibility
- Check electrical cables and plug connections
- Check the pressure sensor before OxiCat

Possible remedy

- Replace electrical cables or plug connections if necessary
- If necessary, replace the exhaust gas temperature sensor after the particulate filter

SPN 4375 - FMI 11 - Pressure sensor in front of OxiCat - Loose connection
Monitoring strategy

Exhaust gas aftertreatment monitoring

Possible causes

- Interruption in the wiring of the pressure sensor before OxiCat
- The pressure sensor before OxiCat is defective

Possible test steps

- Use MAN-cats-Monitoring to check the corresponding exhaust gas pressure for plausibility
- Check electrical cables and plug connections
- Check the pressure sensor before OxiCat

Possible remedy

- Replace electrical cables or plug connections if necessary
- If necessary, replace the exhaust gas temperature sensor after the particulate filter

SPN 4376 - FMI 5 - Exhaust differential pressure sensor - Short circuit to ground

Monitoring strategy

Exhaust gas aftertreatment monitoring

Possible causes

- Interruption in the wiring

Possible test steps

- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- If necessary, replace the exhaust gas temperature sensor after the particulate filter

SPN 4376 - FMI 12 - Exhaust gas differential pressure sensor - Interruption or short circuit after Ubatt+

Monitoring strategy

Exhaust gas aftertreatment monitoring

Possible causes

- Interruption in the cabling

Possible test steps

- Check electrical cables and plug connections

Possible remedy

SPN 4377 - FMI 8 - CAN message timeout - faulty signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Interruption in CAN between individual participants
- Short circuit between CAN high and low

Possible test steps

Note: This SPN may be stored in the fault memory if faults are present on the CAN. When troubleshooting on the CAN, always use the vehicle-specific circuit diagram. The defective location can be circled using the SPNs stored in the fault memory. An overview of the vehicle-specific CAN switching sequences can be found in the separate system description for the EDC17 engine control unit.

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace A1191 thermocouple evaluation unit if necessary

SPN 4378 - FMI 3 - Differential pressure particle filter: "hoseline monitoring" Hose mixed up or missing - implausible**Monitoring strategy**

Monitoring of exhaust gas aftertreatment

Possible causes

- Pressure difference at the differential pressure sensor of the DPF is implausible

Possible test steps

- Check hose lines from the extraction points to the differential pressure sensor for leaks, chafing, etc.
- Check connection points for tight fit

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace A1191 thermocouple evaluation unit if necessary

**SPN 4379 - FMI 2 - Differential pressure particle filter: too low for hose line monitoring
- too low****Monitoring strategy**

Monitoring of exhaust gas aftertreatment

Possible causes

- Pressure difference at the differential pressure sensor of the DPF is too low
- Monitoring function of hose connections is not possible

Possible test steps

- Check hose lines from the extraction points to the differential pressure sensor for leaks, chafing, etc.
- Check connection points for tight fit

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace A1191 thermocouple evaluation unit if necessary

SPN 4380 - FMI 8 - CAN message AT1OGC1: NH3 correction - invalid signal

Monitoring strategy

Monitoring for CAN signals

Possible causes

Possible test steps

- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace A1191 thermocouple evaluation unit if necessary

**SPN 4381 - FMI 1 - Number of permitted pressure relief valve openings too high
- too high****Monitoring strategy**

Pressure limitation monitoring

Possible causes**Possible test steps**

- Check pressure relief valve

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace A1191 thermocouple evaluation unit if necessary

SPN 4382 - FMI 1 - Targeted opening of the pressure relief valve - too high

Monitoring strategy

Monitoring of rail pressure

Possible causes

- Fuel pressure in the rail is too high for too long
- Targeted opening of the pressure relief valve due to pressure increase

Possible test steps

- Check pressure relief valve

Possible remedy

SPN 4383 - FMI 1 - Targeted opening of the pressure relief valve - too high**Monitoring strategy**

If the pressure remains too high, the ZME is opened ==>SPN 4382 If the ZME does not respond, the injection is also interrupted. Follow-up errors from SPN 3781 and 4382.

Possible causes

-Targeted opening of the pressure relief valve due to pressure peaks

Possible test steps

- see SPN 3781 and 4382

Possible remedy

SPN 4384 - FMI 9 - Quantity balance check to determine whether the system delivery rate is sufficient to open the pressure relief valve - Device error**Monitoring strategy**

Monitoring injectors

Possible causes

- Leakage in the high-pressure system

Possible test steps

- Check the fuel system for external and internal leaks
- After switching off the engine, observe the fuel pressure over time: a rapid drop in pressure indicates a leak.

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace the exhaust gas temperature sensor in the tailpipe if necessary

SPN 4385 - FMI 9 - Pressure relief valve does not open at expected pressure after opening - Device error**Monitoring strategy**

PRV pressure range outside tolerance limits

Possible causes

- After opening the pressure relief valve, the expected opening pressure was not reached (no longer provided for in 2-position devices)

Possible test steps

- Check pressure relief valve

Possible remedy

SPN 4386 - FMI 1 - Maximum accumulated time that the pressure relief valve may be open exceeded - too high
Monitoring strategy

Monitoring of rail pressure

Possible causes
Possible test steps

- Check pressure relief valve

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace exhaust gas temperature sensor in tailpipe if necessary

SPN 4387 - FMI 8 - CAN message AT1GC1: NH3 correction - Invalid signal

Monitoring strategy

Monitoring for CAN signals

Possible causes

Possible troubleshooting steps

- Check CAN connection

Possible remedy

SPN 4388 - FMI 8 - CAN message AT1OGC2: NO2 correction - Invalid signal

Monitoring strategy

Exhaust gas aftertreatment monitoring

Possible causes

Possible test steps

- Check CAN connection

Possible remedy

SPN 4389 - FMI 8 - CAN message AT1GC2: NO2 correction - Invalid signal

Monitoring strategy

Exhaust gas aftertreatment monitoring

Possible causes

Possible test steps

- Check CAN connection

Possible remedy

SPN 4391 - FMI 3 - Controller deviation in CPC controller mode - implausible**Monitoring strategy**

Monitoring of rail pressure control

Possible causes

- There is a fault in the rail pressure control system (D38 or D42).
- Error in the area of the Y332 proportional valve fuel
- Error in the pressure control valve on the rail
- The setpoint for the pressure control valve is too high

Possible test steps

- Check electrical cables and plug connections
- Check with MAN-cats injection system, compare target and actual rail pressure
- Check the function of the Y332 proportional fuel valve and the pressure control valve with MAN-cats
- Check Y332 proportional fuel valve for ground fault:
- Measure resistance between pin C25 and pin C73; target value > 2.5 Ω - 4.5 Ω
- Resistance measurement between pin C73 and A02; target value > 100 M Ω
- Use MAN-cats to check the control of the pressure control valve by the A435 EDC control unit

Possible remedy

SPN 4392 - FMI 1 - Rail pressure deviation in CPC controller mode - too high
Monitoring strategy

Monitoring of rail pressure control

Possible causes

- There is a fault in the rail pressure control area (D38 or D42).
- Error in the area of the Y332 proportional valve fuel
- Error in the pressure control valve on the rail
- The setpoint for the pressure control valve is too high

Possible test steps

- Check electrical cables and plug connections
- Check with MAN-cats injection system, compare target and actual rail pressure
- Check the function of the Y332 proportional fuel valve and the pressure control valve with MAN-cats
- Check Y332 proportional fuel valve for ground fault:
- Measure resistance between pin C25 and pin C73; target value > 2.5 Ω - 4.5 Ω
- Resistance measurement between pin C73 and A02; target value > 100 M Ω
- Use MAN-cats to check the control of the pressure control valve by the A435 EDC control unit

Possible remedy

- Replace A435 EDC control unit if necessary

SPN 4392 - FMI 2 - Rail pressure deviation in CPC controller mode - too low
Monitoring strategy

Monitoring of rail pressure control

Possible causes

- There is a fault in the rail pressure control area (D38 or D42).
- Error in the area of the Y332 proportional valve fuel
- Error in the pressure control valve on the rail
- The setpoint for the pressure control valve is too high

Possible test steps

- Check electrical cables and plug connections
- Check with MAN-cats injection system, compare target and actual rail pressure
- Check the function of the Y332 proportional fuel valve and the pressure control valve with MAN-cats
- Check Y332 proportional fuel valve for ground fault:
- Measure resistance between pin C25 and pin C73; target value > 2.5 Ω - 4.5 Ω
- Resistance measurement between pin C73 and A02; target value > 100 M Ω
- Use MAN-cats to check the control of the pressure control valve by the A435 EDC control unit

Possible remedy

- Replace injector if necessary

SPN 4393 - FMI 1 - Rail pressure deviation in PCV controller mode – rail pressure too low - too high
Monitoring strategy

Monitoring of rail pressure control

Possible causes

- Positive control deviation: Actual pressure is lower than the setpoint pressure

Possible test steps

- Check electrical cables and plug connections
- Check with MAN-cats injection system: Compare setpoint and actual rail pressure
- Check the function of the Y332 proportional fuel valve with MAN-cats
- Check Y332 proportional fuel valve for ground fault:
- Measure resistance between pin C25 and pin C73; target value > 2.5 Ω - 4.5 Ω
- Resistance measurement between pin C73 and pin A02; target value > 100 M Ω

Possible remedy

- Replace injector if necessary

SPN 4394 - FMI 1 - Rail pressure deviation in PCV controller mode – rail pressure too low - too high
Monitoring strategy

Monitoring of rail pressure control

Possible causes

- Positive deviation from the setpoint for the suction throttle

Possible test steps

- Check electrical cables and plug connections
- Check with MAN-cats injection system: Compare target and actual rail pressure
- Check the function of the Y332 proportional fuel valve with MAN-cats
- Check Y332 proportional valve fuel for ground fault:
- Measure resistance between pin C25 and pin C73; target value > 2.5 Ω - 4.5 Ω
- Resistance measurement between pin C73 and pin A02; target value > 100 M Ω

Possible remedy

- Replace injector if necessary

SPN 4395 - FMI 1 - Rail pressure deviation in PCV controller mode – rail pressure too high - too high**Monitoring strategy**

Monitoring of rail pressure control

Possible causes

- Negative control deviation compared to the setpoint for the suction throttle

Possible test steps

- Check electrical cables and plug connections
- Check with MAN-cats injection system: Compare target and actual rail pressure
- Check the function of the Y332 proportional fuel valve with MAN-cats
- Check Y332 proportional valve fuel for ground fault:
- Measure resistance between pin C25 and pin C73; target value > 2.5 Ω - 4.5 Ω
- Resistance measurement between pin C73 and pin A02; target value > 100 M Ω

Possible remedy

- Replace injector if necessary

SPN 4396 - FMI 1 - Rail pressure deviation in PCV controller mode – rail pressure too high - too high
Monitoring strategy

Monitoring of rail pressure control

Possible causes

- The Y332 proportional fuel valve can no longer be controlled
- The Y332 proportional fuel valve is defective

Possible test steps

- Check electrical cables and plug connections
- Check with MAN-cats injection system: Compare target and actual rail pressure
- Check the function of the Y332 proportional fuel valve with MAN-cats
- Check the Y332 proportional fuel valve for ground fault:
- Measure resistance between pin C25 and pin C73; target value > 2.5 Ω - 4.5 Ω
- Resistance measurement between pin C73 and pin A02; target value > 100 M Ω

Possible remedy

- Replace injector if necessary

SPN 4396 - FMI 2 - Rail pressure deviation in PCV controller mode – rail pressure too low - too low**Monitoring strategy**

Monitoring rail pressure control

Possible causes

- The Y332 proportional fuel valve can no longer be controlled
- The Y332 proportional fuel valve is defective

Possible test steps

- Check electrical cables and plug connections
- Check with MAN-cats injection system: Compare target and actual rail pressure
- Check the function of the Y332 proportional fuel valve with MAN-cats
- Check the Y332 proportional fuel valve for ground fault:
- Measure resistance between pin C25 and pin C73; target value > 2.5 Ω - 4.5 Ω
- Resistance measurement between pin C73 and pin A02; target value > 100 M Ω

Possible remedy

- Replace injector if necessary

SPN 4397 - FMI 1 - Rail pressure deviation in PCV controller mode – Rail pressure too high (second stage) - too high
Monitoring strategy

Monitoring of rail pressure control

Possible causes

- Negative control deviation compared to the setpoint for the suction throttle (second stage)

Possible test steps

- Check electrical cables and plug connections
- Check with MAN-cats injection system: Compare setpoint and actual rail pressure
- Check the function of the Y332 proportional fuel valve with MAN-cats
- Check Y332 proportional fuel valve for ground fault:
- Measure resistance between pin C25 and pin C73; target value > 2.5 Ω - 4.5 Ω
- Resistance measurement between pin C73 and pin A02; target value > 100 M Ω

Possible remedy

- If necessary, replace the differential pressure sensor and reset the sensor's offset learning values. If this is not possible via MANCats, the ignition must be switched on and off again five times for a few seconds (20s) (note the control unit follow-up time of max. 60s).

SPN 4398 - FMI 1 - The controller is in PCV mode – rail pressure too high - too high
Monitoring strategy

Monitoring of rail pressure control

Possible causes

- Rail pressure control via the proportional fuel valve is no longer possible

Possible test steps

- Check electrical cables and plug connections
- Check with MAN-cats injection system: Compare target and actual rail pressure
- Check the MAN-cats function of the Y332 proportional valve fuel
- Check Y332 proportional valve fuel for ground fault:
- Measure resistance between pin C25 and pin C73; target value > 2.5 Ω - 4.5 Ω
- Resistance measurement between pin C73 and pin A02; target value > 100 M Ω

Possible remedy

- If necessary, replace the differential pressure sensor and reset the sensor's offset learning values. If this is not possible via MANCats, the ignition must be switched on and off again five times for a few seconds (20 s) (note the control unit follow-up time of max. 60 s).

SPN 4399 - FMI 1 - Blocked pressure relief valve - too high**Monitoring strategy**

Monitoring of rail pressure; critical overpressure detected in the system. Rail pressure monitoring, max. system pressure permanently exceeded, engine is shut down. Fault in the high-pressure fuel system.

Possible causes

- Fuel pressure in the system too high for too long - Blocked DBV (fuel pressure in the system too high for too long)

Possible test steps

-Monitoring rail pressure target/actual. Monitoring KS supply pressure injection quantity.
- Check pressure relief valve

Possible remedy

- Replace DBV if necessary.

SPN 4400 - FMI 8 - AdBlue system: De-icing failed - Invalid signal**Monitoring strategy**

Monitoring AdBlue system

Possible causes

- Defect in the AdBlue heating system

Possible test steps

- Check the electrical wiring and heating of the A808 AdBlue supply unit
- Check the electrical wiring for the heating of the AdBlue lines
- Check the hoses and electrical lines to the Y437 solenoid valve Check the coolant for the tank heating system
- Check electrical cables and plug connections

Possible remedy

- If necessary, replace the differential pressure sensor and reset the sensor's offset learning values. If this is not possible via MAN-cats, the ignition must be switched on and off again five times for a few seconds (20 s) (note the control unit follow-up time of max. 60 s).

SPN 4400 - FMI 9 - AdBlue system: De-icing failed - Device error

Monitoring strategy

AdBlue system monitoring

Possible causes

- AdBlue de-icing has failed

Possible test steps

- Check electrical wiring and heating of the A808 AdBlue supply unit
- Check the electrical wiring for heating the AdBlue lines
- Hoses and electrical cables to the Y437 solenoid valve Check the coolant for the tank heater
- Check electrical cables and plug connections

Possible remedy

- If necessary, remove the urea nozzle and check for blockages or deposits (also in the silencer)

SPN 4401 - FMI 8 - AdBlue system: Dosing - Invalid signal
Monitoring strategy

AdBlue system monitoring

Possible causes

- AdBlue system error during dosing
- Leak in pump line, system sucks in air
- Clogged filters or frozen tank
- Defective valve in the coolant circuit or defective coolant temperature sensor
- Damage to the AdBlue injection nozzle

Possible test steps

- Check with MAN-cats monitoring AdBlue delivery system: Temperature of AdBlue delivery system, temperature of coolant and engine
- Check the AdBlue delivery system using MAN-cats monitoring: Pressure in the AdBlue delivery system (NOx concentration), dosing quantity requirement

Possible remedy

- If necessary, remove the urea nozzle and check for blockages or deposits (also in the silencer)

SPN 4401 - FMI 9 - AdBlue system: Dosing - Device error**Monitoring strategy**

AdBlue system monitoring

Possible causes

- AdBlue system error
- Leak in pump line, system sucks in air
- Clogged filters or frozen tank
- Defective valve in the coolant circuit or defective coolant temperature sensor
- Damage to the AdBlue injection nozzle

Possible test steps

- Check with MAN-cats monitoring AdBlue delivery system: Temperature of AdBlue delivery system, temperature of coolant and engine
- Check the AdBlue delivery system using MAN-cats monitoring: Pressure in the AdBlue delivery system (NOx concentration), dosing quantity requirement

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace coolant temperature sensor if necessary

SPN 4402 - FMI 2 - AdBlue tank empty - too low**Monitoring strategy**

Monitoring of the AdBlue level

Possible causes

- AdBlue tank is empty
- A1192 AdBlue combination sensor is defective
- Note: The A1192 AdBlue combination sensor is used for almost all tank sizes. For certain wheelbases (e.g., in dump trucks), a 28-liter tank with a fill level/temperature sensor and separate quality sensor may be installed for space reasons.

Possible test steps

- Check the AdBlue level for plausibility using MAN-cats monitoring.

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace coolant temperature sensor if necessary

SPN 4403 - FMI 7 - NOx sensor after exhaust gas aftertreatment: Heating fault - Short circuit**Monitoring strategy**

Monitoring NOx sensor

Possible causes

- Interruption in the wiring

Possible test steps

- Check electrical cables and plug connections
- B994 Check NOx sensor II (OBD)

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace coolant temperature sensor if necessary

SPN 4404 - FMI 7 - NOx sensor upstream of exhaust aftertreatment: Heating fault - Short circuit**Monitoring strategy**

Monitoring NOx sensor

Possible causes

- Interruption in the wiring

Possible test steps

- Check electrical cables and plug connections
- B1055 Check NOx sensor I (raw emissions)

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace coolant temperature sensor if necessary

SPN 4405 - FMI 7 - CAN message: NOx sensor after exhaust gas aftertreatment O2 - short circuit**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Interruption in CAN

Possible test steps

- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace coolant temperature sensor if necessary

SPN 4406 - FMI 7 - CAN message: NOx sensor after exhaust gas aftertreatment NOx - short circuit**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Interruption in CAN

Possible test steps

- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace coolant temperature sensor if necessary

SPN 4407 - FMI 7 - CAN message: NOx sensor before exhaust aftertreatment NOx - short circuit**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Interruption on CAN

Possible test steps

- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace coolant temperature sensor if necessary

SPN 4409 - FMI 8 - Sensor supply 5: Short circuit to ground or +Ubat - Invalid signal**Monitoring strategy**

Monitoring internal control unit errors

Possible causes

- Interruption in the sensor supply: Short circuit to +Ubat or ground

Possible test steps

- Check electrical cables and plug connections

Possible remedy

SPN 4410 - FMI 5 - EDC internal supply voltage 12 V - Short circuit to ground
Monitoring strategy

Monitoring of internal control unit errors

Possible causes
Possible test steps

- Check electrical cables and plug connections

Possible remedy

- Install SCR catalytic converter or replace silencer module if necessary

SPN 4410 - FMI 6 - EDC internal supply voltage 12 V - Short circuit after UBatt+

Monitoring strategy

Monitoring internal control unit errors

Possible causes

Possible test steps

- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary

SPN 4411 - FMI 1 - Sensor power supply 12 V - too high**Monitoring strategy**

Monitoring internal control unit errors

Possible causes**Possible test steps**

- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary

SPN 4411 - FMI 2 - Sensor power supply 12 V - too low**Monitoring strategy**

Monitoring internal control unit errors

Possible causes**Possible test steps**

- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary

**SPN 4412 - FMI 8 - Small signal output stage Chip heater Air mass sensor HFM -
Faulty signal****Monitoring strategy**

Monitoring internal control unit errors

Possible causes**Possible test steps**

- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary

**SPN 4413 - FMI 8 - Small signal output stage PWM for intelligent actuator PIN 230 -
Faulty signal****Monitoring strategy**

Monitoring for CAN signals

Possible causes**Possible test steps**

- Check electrical wiring and plug connections

Possible remedy

SPN 4414 - FMI 8 - Small signal output stage Camshaft signal for slave - faulty signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes**Possible test steps**

- Check electrical cables and plug connections

Possible remedy

SPN 4415 - FMI 8 - Small signal output stage Crankshaft signal for slave - faulty signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes**Possible test steps**

- Check electrical cables and plug connections

Possible remedy

SPN 4416 - FMI 1 - Output stage for service lamp - too high

Monitoring strategy

Monitoring internal control unit errors

Possible causes

- The temperature of the output stage of the service lamp is too high

Possible test steps

- Check electrical cables and plug connections

Possible remedy

SPN 4416 - FMI 5 - Output stage for service lamp - Short circuit to ground

Monitoring strategy

Monitoring of internal control unit errors

Possible causes

- Interruption in the wiring of the service lamp

Possible test steps

- Check electrical cables and plug connections

Possible remedy

SPN 4416 - FMI 6 - Output stage for service lamp - Short circuit to UBatt+

Monitoring strategy

Monitoring internal control unit errors

Possible causes

- Interruption in the wiring of the service lamp

Possible test steps

- Check electrical cables and plug connections

Possible remedy

SPN 4416 - FMI 10 - Output stage for service lamp - Interruption
Monitoring strategy

Monitoring internal control unit errors

Possible causes

- Interruption in the wiring of the service lamp

Possible test steps

- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- If necessary, replace B634 exhaust gas temperature sensor after SCR catalytic converter

SPN 4419 - FMI 9 - Control unit reset with error display - Device error
Monitoring strategy

Monitoring of internal control unit errors

Possible causes

- There is an internal error in the control unit

Possible test steps
Possible remedy

- Replace electrical cables or plug connections if necessary
- If necessary, replace B634 exhaust gas temperature sensor after SCR catalytic converter

SPN 4419 - FMI 9 - Control unit reset with error display - Device error
Monitoring strategy

Monitoring of internal control unit errors

Possible causes

- There is an internal error in the control unit

Possible test steps
Possible remedy

- Renew the CAN connection if necessary
- Read the error memory of the Power Train Manager and rectify the causes there

SPN 4420 - FMI 9 - Control unit reset with error storage - Device error**Monitoring strategy**

Monitoring internal control unit errors

Possible causes

- There is an internal error in the control unit.

Possible troubleshooting steps**Possible remedy**

- Renew the CAN connection if necessary
- Read the error memory of the Power Train Manager and rectify the causes there

SPN 4420 - FMI 9 - Control unit reset with error storage - Device error
Monitoring strategy

Monitoring internal control unit errors

Possible causes

- There is an internal error in the control unit

Possible test steps
Possible remedy

- Renew the CAN connection if necessary
- Read the error memory of the Power Train Manager and rectify any causes found there

SPN 4421 - FMI 9 - Control unit reset without error entry - Device error**Monitoring strategy**

Monitoring internal control unit errors

Possible causes

- There is an internal error in the control unit

Possible test steps**Possible remedy**

- Renew the CAN connection if necessary
- Read the error memory of the Power Train Manager and rectify the causes there

SPN 4421 - FMI 9 - Control unit reset without error entry - Device error
Monitoring strategy

Monitoring internal control unit errors

Possible causes

- There is an internal error in the control unit

Possible test steps
Possible remedy

- Renew the CAN connection if necessary
- Read the error memory of the Power Train Manager and rectify the causes there

**SPN 4422 - FMI 3 - CAN message: NOx sensor after exhaust aftertreatment
Gain/Offset - implausible****Monitoring strategy**

Monitoring for CAN signals

Possible causes

- The messages from the B994 NOx sensor II (OBD) are implausible

Possible test steps

- Check the signals from the B994 NOx sensor II (OBD) for plausibility using MAN-cats monitoring
- Connect replacement sensor if necessary
- Check the error memory again. If the error is still present > A435 Check the EDC control unit

Possible remedy

- Renew the CAN connection if necessary
- Read out the error memory of the Power Train Manager and rectify the causes there

**SPN 4422 - FMI 8 - CAN message: NOx sensor after exhaust aftertreatment
Gain/Offset - Invalid signal****Monitoring strategy**

Monitoring for CAN signals

Possible causes

- The messages from the B994 NOx sensor II (OBD) are implausible

Possible test steps

- Use MAN-cats monitoring to check the signals from the B994 NOx sensor II (OBD) for plausibility.
- Connect a replacement sensor if necessary
- Check the error memory again. If the error is still present > A435 Check the EDC control unit

Possible remedy

- Empty the AdBlue tank and refill it with AdBlue with the correct urea concentration in accordance with ISO 22241-1
- If necessary, replace A1192 AdBlue combination sensor

SPN 4424 - FMI 5 - Diesel particulate control signal for SCR - Short circuit to ground**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes**Possible test steps****Possible Remedial Action**

SPN 4424 - FMI 6 - Diesel particle control signal during SCR - Short circuit after UB**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes**Possible test steps****Possible remedy**

- Replace electrical cables or plug connections if necessary
- Replace A1191 thermocouple evaluation unit with thermocouples, if necessary

SPN 4425 - FMI 3 - Exhaust gas temperature after hydrolysis cat - implausible
Monitoring strategy

Exhaust gas aftertreatment monitoring

Possible causes

- Interruption in the wiring of the exhaust gas temperature sensor after the hydrolysis catalyst
- The exhaust gas temperature sensor after the hydrolysis catalyst is defective

Possible test steps

- Use MAN-cats-Monitoring to check the corresponding exhaust gas temperature for plausibility
- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace A1191 thermocouple evaluation unit with thermocouples if necessary

SPN 4425 - FMI 5 - Exhaust gas temperature after hydrolysis cat - Short circuit to ground
Monitoring strategy

Exhaust gas aftertreatment monitoring

Possible causes

- Interruption in the wiring of the exhaust gas temperature sensor after the hydrolysis catalyst
- The exhaust gas temperature sensor after the hydrolysis catalyst is defective

Possible test steps

- Use MAN-cats-Monitoring to check the corresponding exhaust gas temperature for plausibility
- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace A1191 thermocouple evaluation unit with thermocouples if necessary

SPN 4425 - FMI 10 - Exhaust gas temperature after hydrolysis cat - interruption**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- Interruption in the wiring of the exhaust gas temperature sensor after the hydrolysis catalyst
- The exhaust gas temperature sensor after the hydrolysis catalyst is defective

Possible test steps

- Use MAN-cats-Monitoring to check the corresponding exhaust gas temperature for plausibility
- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace A1191 thermocouple evaluation unit with thermocouples if necessary

SPN 4425 - FMI 11 - Exhaust gas temperature after hydrolysis cat - Loose connection**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- Interruption in the wiring of the exhaust gas temperature sensor after the hydrolysis catalyst
- The exhaust gas temperature sensor after the hydrolysis catalyst is defective

Possible test steps

- Use MAN-cats-Monitoring to check the corresponding exhaust gas temperature for plausibility
- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace A1191 thermocouple evaluation unit with thermocouples if necessary

SPN 4426 - FMI 3 - Exhaust gas temperature before hydrolysis catalytic converter - implausible
Monitoring strategy

Exhaust gas aftertreatment monitoring

Possible causes

- Interruption in the wiring of the exhaust gas temperature sensor before the hydrolysis catalyst
- The exhaust gas temperature sensor before the hydrolysis catalyst is defective

Possible test steps

- Use MAN-cats-Monitoring to check the corresponding exhaust gas temperature for plausibility
- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace A1191 thermocouple evaluation unit with thermocouples if necessary

SPN 4426 - FMI 5 - Exhaust gas temperature before hydrolysis catalytic converter - Short circuit to ground
Monitoring strategy

Exhaust gas aftertreatment monitoring

Possible causes

- Interruption in the wiring of the exhaust gas temperature sensor before the hydrolysis catalyst
- The exhaust gas temperature sensor before the hydrolysis catalyst is defective

Possible test steps

- Use MAN-cats-Monitoring to check the corresponding exhaust gas temperature for plausibility
- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace A1191 thermocouple evaluation unit with thermocouples if necessary

SPN 4426 - FMI 10 - Exhaust gas temperature before hydrolysis catalytic converter - interruption
Monitoring strategy

Exhaust gas aftertreatment monitoring

Possible causes

- Interruption in the wiring of the exhaust gas temperature sensor before the hydrolysis catalyst
- The exhaust gas temperature sensor before the hydrolysis catalyst is defective

Possible test steps

- Use MAN-cats-Monitoring to check the corresponding exhaust gas temperature for plausibility
- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace A1191 thermocouple evaluation unit with thermocouples if necessary

SPN 4426 - FMI 11 - Exhaust gas temperature before hydrolysis catalytic converter - Loose connection
Monitoring strategy

Exhaust gas aftertreatment monitoring

Possible causes

- Interruption in the wiring of the exhaust gas temperature sensor before the hydrolysis catalyst
- The exhaust gas temperature sensor before the hydrolysis catalyst is defective

Possible test steps

- Use MAN-cats-Monitoring to check the corresponding exhaust gas temperature for plausibility
- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace A1191 thermocouple evaluation unit with thermocouples if necessary

**SPN 4428 - FMI 8 - CAN message: NOx sensor before exhaust gas aftertreatment
Pressure correction - Invalid signal**
Monitoring strategy

Monitoring for CAN signals

Possible causes

- The pressure correction of the NOx signal is faulty
- B994 NOx sensor II (OBD) is defective

Possible test steps

- Check electrical wiring and plug connections
- Check B994 NOx sensor II (OBD)

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace A1191 thermocouple evaluation unit with thermocouples if necessary

**SPN 4429 - FMI 1 - Plausibility check of exhaust gas temperature after particulate filter
- too high**
Monitoring strategy

Monitoring exhaust gas aftertreatment

Possible causes

- The temperature difference between the measuring points before and after the particle filter is too high

Possible test steps

- Use MAN-cats monitoring to check the corresponding exhaust gas temperatures before and after the particle filter for plausibility.
- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace A1191 thermocouple evaluation unit with thermocouples if necessary

**SPN 4429 - FMI 2 - Plausibility check of exhaust gas temperature after particulate filter
- too low**
Monitoring strategy

Monitoring exhaust gas aftertreatment

Possible causes

- The temperature difference between the measuring points before and after the particle filter is too small.

Possible test steps

- Use MAN-cats monitoring to check the corresponding exhaust gas temperatures before and after the particle filter for plausibility.
- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4429 - FMI 3 - Plausibility check of exhaust gas temperature after particulate filter - implausible**Monitoring strategy**

Monitoring exhaust gas aftertreatment

Possible causes

- The temperature difference between the measuring points before and after the particle filter is implausible.

Possible test steps

- Use MAN-cats monitoring to check the corresponding exhaust gas temperatures before and after the particle filter for plausibility.
- Check electrical cables and plug connections

Possible remedy

SPN 4430 - FMI 3 - Exhaust gas temperature sensor after particle filter - implausible
Monitoring strategy

Monitoring exhaust gas aftertreatment

Possible causes

- Interruption in the wiring of the exhaust gas temperature sensor after particulate filter
- The exhaust gas temperature sensor after the particulate filter is defective

Possible test steps

- Use MAN-cats monitoring to check the corresponding exhaust gas temperature for plausibility
- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary

SPN 4430 - FMI 4 - Exhaust gas temperature sensor after particulate filter - No signal**Monitoring strategy**

Monitoring exhaust gas aftertreatment

Possible causes

- Interruption in the wiring of the exhaust gas temperature sensor after the particulate filter
- The exhaust gas temperature sensor after the particulate filter is defective

Possible test steps

- Use MAN-cats-Monitoring to check the corresponding exhaust gas temperature for plausibility
- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary

SPN 4430 - FMI 5 - Exhaust gas temperature sensor after particulate filter - Short circuit to ground**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- Interruption or short circuit in the wiring of the exhaust gas temperature sensor after the particulate filter
- The exhaust gas temperature sensor after the particulate filter is defective

Possible test steps

- Use MAN-cats-Monitoring to check the corresponding exhaust gas temperature for plausibility
- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary

SPN 4430 - FMI 10 - Exhaust gas temperature sensor after particulate filter - Interruption**Monitoring strategy**

Monitoring exhaust gas aftertreatment

Possible causes

- Interruption in the wiring of the exhaust gas temperature sensor after the particulate filter
- The exhaust gas temperature sensor after the particulate filter is defective

Possible test steps

- Use MAN-cats-Monitoring to check the corresponding exhaust gas temperature for plausibility
- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary

SPN 4430 - FMI 11 - Exhaust gas temperature sensor after particulate filter - Loose connection
Monitoring strategy

Exhaust gas aftertreatment monitoring

Possible causes

- Interruption in the wiring of the exhaust gas temperature sensor after the particulate filter
- The exhaust gas temperature sensor after the particulate filter is defective

Possible test steps

- Use MAN-cats-Monitoring to check the corresponding exhaust gas temperature for plausibility
- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary

SPN 4431 - FMI 1 - Exhaust gas temperature before particulate filter - too high**Monitoring strategy**

Monitoring exhaust gas aftertreatment

Possible causes

- The exhaust gas temperature upstream of the particulate filter is too high

Possible test steps

- Check the corresponding exhaust gas temperature using MAN-cats monitoring
- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4431 - FMI 2 - Exhaust gas temperature before particulate filter - too low**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- The exhaust gas temperature before the particulate filter is too low

Possible test steps

- Check the corresponding exhaust gas temperature using MAN-cats monitoring
- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4431 - FMI 3 - Exhaust gas temperature before particulate filter - implausible**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- The exhaust gas temperature before the particulate filter is implausible

Possible test steps

- Use MAN-cats monitoring to check the corresponding exhaust gas temperature for plausibility
- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4432 - FMI 3 - Exhaust gas temperature sensor upstream of particulate filter - implausible**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- Interruption in the wiring of the exhaust gas temperature sensor upstream of the particulate filter
- The exhaust gas temperature sensor upstream of the particulate filter is defective

Possible test steps

- Use MAN-cats-Monitoring to check the corresponding exhaust gas temperature for plausibility
- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

**SPN 4432 - FMI 5 - Exhaust gas temperature sensor upstream of particulate filter -
Short circuit to ground****Monitoring strategy**

Exhaust aftertreatment monitoring

Possible causes

- Interruption in the wiring of the exhaust gas temperature sensor upstream of the particulate filter
- The exhaust gas temperature sensor upstream of the particulate filter is defective

Possible test steps

- Use MAN-cats-Monitoring to check the corresponding exhaust gas temperature for plausibility
- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4432 - FMI 10 - Exhaust gas temperature sensor upstream of particulate filter - Interruption
Monitoring strategy

Exhaust gas aftertreatment monitoring

Possible causes

- Interruption in the wiring of the exhaust gas temperature sensor upstream of the particulate filter
- The exhaust gas temperature sensor upstream of the particulate filter is defective

Possible test steps

- Use MAN-cats-Monitoring to check the corresponding exhaust gas temperature for plausibility
- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4432 - FMI 11 - Exhaust gas temperature sensor upstream of particulate filter - Loose connection
Monitoring strategy

Exhaust gas aftertreatment monitoring

Possible causes

- Interruption in the wiring of the exhaust gas temperature sensor upstream of the particulate filter
- The exhaust gas temperature sensor upstream of the particulate filter is defective

Possible test steps

- Use MAN-cats-Monitoring to check the corresponding exhaust gas temperature for plausibility
- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

**SPN 4433 - FMI 8 - CAN message: NOx sensor after exhaust gas aftertreatment Error
O2 pressure correction - Invalid signal****Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Interruption in CAN between individual participants
- Short circuit between CAN high and low

Possible test steps

- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4434 - FMI 8 - Power amplifier boost pressure control too hot - faulty signal
Monitoring strategy

Monitoring boost pressure control

Possible causes
Possible test steps
Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4436 - FMI 3 - CAN message: NOx sensor before exhaust aftertreatment Gain/offset - implausible

Monitoring strategy

Monitoring for CAN signals

Possible causes

- Interruption in CAN between individual participants
- Short circuit between CAN high and low

Possible test steps

- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4436 - FMI 8 - CAN message: NOx sensor before exhaust aftertreatment
Gain/offset - Invalid signal
Monitoring strategy

Monitoring for CAN signals

Possible causes

- Interruption in CAN between individual participants
- Short circuit between CAN high and low

Possible test steps

- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4437 - FMI 3 - Exhaust gas temperature sensor after SCR - implausible**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- The value of the exhaust gas temperature sensor after the SCR catalytic converter is implausible.
- The exhaust gas temperature sensor after the SCR catalytic converter is defective

Possible test steps

- Check the exhaust gas temperatures for plausibility using MAN cats monitoring
- Check electrical cables and plug connections
- Check the exhaust gas temperature sensor after the SCR catalytic converter

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4437 - FMI 5 - Exhaust gas temperature sensor after SCR - Short circuit to ground**Monitoring strategy**

Exhaust aftertreatment monitoring

Possible causes

- The value of the exhaust gas temperature sensor after the SCR catalytic converter is implausible.
- The exhaust gas temperature sensor after the SCR catalytic converter is defective

Possible test steps

- Check the exhaust gas temperatures for plausibility using MAN cats monitoring
- Check electrical cables and plug connections
- Check the exhaust gas temperature sensor after the SCR catalytic converter

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4437 - FMI 10 - Exhaust gas temperature sensor after SCR - Interruption**Monitoring strategy**

Monitoring exhaust gas aftertreatment

Possible causes

- The value of the exhaust gas temperature sensor after the SCR catalytic converter is implausible.
- The exhaust gas temperature sensor after the SCR catalytic converter is defective

Possible test steps

- Check the exhaust gas temperatures for plausibility using MAN cats monitoring
- Check electrical cables and plug connections
- Check the exhaust gas temperature sensor after the SCR catalytic converter

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4437 - FMI 11 - Exhaust gas temperature sensor after SCR - Loose connection**Monitoring strategy**

Monitoring exhaust gas aftertreatment

Possible causes

- The value of the exhaust gas temperature sensor after the SCR catalytic converter is implausible.
- The exhaust gas temperature sensor after the SCR catalytic converter is defective

Possible test steps

- Check the exhaust gas temperatures for plausibility using MAN cats monitoring
- Check electrical cables and plug connections
- Check the exhaust gas temperature sensor after the SCR catalytic converter

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4438 - FMI 3 - Exhaust gas temperature sensor before SCR - implausible
Monitoring strategy

Exhaust gas aftertreatment monitoring

Possible causes

- The value of the exhaust gas temperature sensor upstream of the SCR catalytic converter is implausible.
- The exhaust gas temperature sensor upstream of the SCR catalytic converter is defective

Possible test steps

- Check the exhaust gas temperatures for plausibility using MAN cats monitoring
- Check electrical cables and plug connections
- Check the exhaust gas temperature sensor upstream of the SCR catalytic converter

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4438 - FMI 5 - Exhaust gas temperature sensor upstream of SCR - Short circuit to ground
Monitoring strategy

Exhaust aftertreatment monitoring

Possible causes

- The value of the exhaust gas temperature sensor upstream of the SCR catalytic converter is implausible.
- The exhaust gas temperature sensor upstream of the SCR catalytic converter is defective

Possible test steps

- Check the exhaust gas temperatures for plausibility using MAN cats monitoring
- Check electrical cables and plug connections
- Check the exhaust gas temperature sensor upstream of the SCR catalytic converter

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace A1191 thermocouple evaluation unit if necessary

SPN 4438 - FMI 10 - Exhaust gas temperature sensor upstream of SCR - Interruption
Monitoring strategy

Exhaust gas aftertreatment monitoring

Possible causes

- The value of the exhaust gas temperature sensor upstream of the SCR catalytic converter is implausible.
- The exhaust gas temperature sensor upstream of the SCR catalytic converter is defective

Possible test steps

- Check the exhaust gas temperatures for plausibility using MAN cats monitoring
- Check electrical cables and plug connections
- Check the exhaust gas temperature sensor upstream of the SCR catalytic converter

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace A1191 thermocouple evaluation unit if necessary

SPN 4438 - FMI 11 - Exhaust gas temperature sensor upstream of SCR - Loose connection
Monitoring strategy

Monitoring exhaust gas aftertreatment

Possible causes

- The value of the exhaust gas temperature sensor upstream of the SCR catalytic converter is implausible.
- The exhaust gas temperature sensor upstream of the SCR catalytic converter is defective

Possible test steps

- Check the exhaust gas temperatures for plausibility using MAN cats monitoring
- Check electrical cables and plug connections
- Check the exhaust gas temperature sensor upstream of the SCR catalytic converter

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace A1191 thermocouple evaluation unit if necessary

SPN 4439 - FMI 1 - AdBlue tank heater: Output stage error - too high**Monitoring strategy**

AdBlue system monitoring

Possible causes

- Excessive temperature of the output stage
- Incorrect power supply to the AdBlue system

Possible test steps

- Check the supply voltage using MAN-cats monitoring
- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace A1191 thermocouple evaluation unit if necessary

SPN 4439 - FMI 5 - AdBlue tank heating: Output stage fault - Short circuit to ground
Monitoring strategy

AdBlue system monitoring

Possible causes

- Interruption in the wiring
- Incorrect power supply to the AdBlue system

Possible test steps

- Check the supply voltage using MAN-cats monitoring
- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace A1191 thermocouple evaluation unit if necessary

SPN 4439 - FMI 6 - AdBlue tank heating: Output stage error - Short circuit to UBatt**Monitoring strategy**

AdBlue system monitoring

Possible causes

- Interruption in the wiring
- Incorrect power supply to the AdBlue system

Possible test steps

- Check the supply voltage with MAN-cats monitoring
- Check electrical cables and plug connections

Possible remedies

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4439 - FMI 10 - AdBlue tank heating: Error in output stage - interruption
Monitoring strategy

AdBlue system monitoring

Possible causes

- Interruption in the wiring
- Incorrect power supply to the AdBlue system

Possible test steps

- Check the supply voltage using MAN-cats monitoring
- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4441 - FMI 8 - CAN message: Vehicle speed - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Interruption in CAN between individual participants
- Short circuit between CAN high and low

Possible test steps

- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4442 - FMI 8 - CAN message: NOx sensor before exhaust aftertreatment Pressure correction - Invalid signal
Monitoring strategy

Monitoring for CAN signals

Possible causes

- Interruption in CAN between individual participants
- Short circuit between CAN high and low

Possible test steps

- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4443 - FMI 8 - CAN message NOx sensor before exhaust aftertreatment Lambda - Invalid signal
Monitoring strategy

Monitoring for CAN signals

Possible causes

- Interruption in CAN between individual participants
- Short circuit between CAN high and low

Possible test steps

- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4445 - FMI 8 - CAN message: PGNRQG1b timeout error - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Interruption in CAN between individual participants
- Short circuit between CAN high and low

Possible test steps

- Check CAN connection if necessary

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4446 - FMI 8 - CAN message: PGNRQ timeout error - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Interruption in the CAN between individual participants
- Short circuit between CAN high and low

Possible test steps

- Check CAN connection if necessary

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4447 - FMI 8 - Sensor supply 1: Short circuit - Invalid signal
Monitoring strategy

Monitoring sensor supply voltage

Possible causes
Possible test steps

- Check electrical cables and plug connections
- The voltage values of the affected sensors must be checked separately

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4448 - FMI 8 - Sensor supply 2: Short circuit - Invalid signal**Monitoring strategy**

Monitoring for short circuit

Possible causes**Possible test steps**

- Check electrical cables and plug connections
- The voltage values of the affected sensors must be checked separately

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace the CAN connection if necessary

SPN 4449 - FMI 8 - Sensor supply 3: Short circuit - Invalid signal**Monitoring strategy**

Power supply for rail pressure sensor (B487) at PIN (according to test step list) outside the valid voltage range.

Possible causes

Cabling/plug connection not OK

Possible test steps

- Check wiring/plug connection - Check component wiring. Check component plug contacts

Possible remedy

- Replace electrical cables or plug connections if necessary

SPN 4450 - FMI 1 - ZFL correction R4 and R6 = Cyl. 1 - Limit value reached - too high

Monitoring strategy

Monitoring ZFL correction

Possible causes

#NAME?

Possible test steps

- Use MAN-cats to check the plausibility of the cylinder filling correction: Cylinder > Fuel quantity correction

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4450 - FMI 2 - ZFL correction R4 and R6 = Cyl. 1 - Limit value reached - too low
Monitoring strategy

Monitoring ZFL correction

Possible causes
Possible test steps

- Use MAN cats to check the plausibility of the cylinder filling correction: Cylinder > Fuel quantity correction

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective EGR valve if necessary

SPN 4451 - FMI 1 - ZFL correction R4 = cylinder 3, R6 = cylinder 5 - limit value reached - too high

Monitoring strategy

Monitoring ZFL correction

Possible causes

Possible test steps

- Use MAN-cats to check the cylinder filling correction for plausibility: Cylinders > Fuel quantity correction

Possible remedy

- Replace defective EGR valve if necessary

SPN 4451 - FMI 2 - ZFL correction R4 = cylinder 3, R6 = cylinder 5 - Limit value reached - too low**Monitoring strategy**

Monitoring ZFL correction

Possible causes**Possible test steps**

- Use MAN cats to check the plausibility of the cylinder filling correction: Cylinder > Fuel quantity correction

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary
- Replace A1192 AdBlue combination sensor if necessary

SPN 4452 - FMI 1 - ZFL correction R4 = cylinder 4, R6 = cylinder 3 - limit value reached - too high

Monitoring strategy

Monitoring ZFL correction

Possible causes**Possible test steps**

- Use MAN-cats to check the cylinder filling correction for plausibility: Cylinders > Fuel quantity correction

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective intake air throttle valve if necessary

**SPN 4452 - FMI 2 - ZFL correction R4 = cylinder 4, R6 = cylinder 3 - limit value reached
- too low****Monitoring strategy**

Monitoring ZFL correction

Possible causes**Possible test steps**

- Use MAN cats to check the plausibility of the cylinder filling correction: Cylinder > Fuel quantity correction

Possible remedy

- Replace defective intake air throttle valve if necessary

SPN 4453 - FMI 1 - ZFL correction R4 = cylinder 2, R6 = cylinder 6 - Limit value reached - too high**Monitoring strategy**

Monitoring ZFL correction

Possible causes**Possible test steps**

- Use MAN-cats to check the cylinder filling correction for plausibility: Cylinders > Fuel quantity correction

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

**SPN 4453 - FMI 2 - ZFL correction R4 = cylinder 2, R6 = cylinder 6 - limit value reached
- too low****Monitoring strategy**

Monitoring ZFL correction

Possible causes**Possible test steps**

- Use MAN cats to check the plausibility of the cylinder filling correction: Cylinder > Fuel quantity correction

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4454 - FMI 1 - ZFL correction R6 = Cyl. 2 - Limit value reached - too high
Monitoring strategy

Monitoring ZFL correction

Possible causes
Possible test steps

- Use MAN-cats to check the cylinder filling correction for plausibility: Cylinders > Fuel quantity correction

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4454 - FMI 2 - ZFL correction R6 = Cyl. 2 - Limit value reached - too low
Monitoring strategy

Monitoring ZFL correction

Possible causes
Possible test steps

- Use MAN cats to check the plausibility of the cylinder filling correction: Cylinder > Fuel quantity correction

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4455 - FMI 1 - ZFL correction R6 = Cyl. 4 - Limit value reached - too high
Monitoring strategy

Monitoring ZFL correction

Possible causes
Possible test steps

- Use MAN-cats to check the plausibility of the cylinder filling correction: Cylinders > Fuel quantity correction

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4455 - FMI 2 - ZFL correction R6 = Cyl. 4 - Limit value reached - too low
Monitoring strategy

Monitoring ZFL correction

Possible causes
Possible test steps

- Use MAN cats to check the plausibility of the cylinder filling correction: Cylinder > Fuel quantity correction

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4456 - FMI 2 - Crankcase pressure - too low

Monitoring strategy

Pressure monitoring

Possible causes

Possible test steps

- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4456 - FMI 3 - Crankcase pressure - implausible

Monitoring strategy

Pressure monitoring

Possible causes

Possible test steps

- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4457 - FMI 3 - Crankcase pressure sensor - implausible
Monitoring strategy

Pressure monitoring

Possible causes
Possible test steps

- Check electrical wiring
- Check electrical plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4457 - FMI 5 - Crankcase pressure sensor - Short circuit to ground

Monitoring strategy

Pressure monitoring

Possible causes

Possible test steps

- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4457 - FMI 6 - Crankcase pressure sensor - Short circuit to ground

Monitoring strategy

Pressure monitoring

Possible causes

Possible test steps

- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4457 - FMI 10 - Crankcase pressure sensor - Interruption
Monitoring strategy

Pressure monitoring

Possible causes
Possible test steps

- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4458 - FMI 3 - EGR cooler effect too low - implausible
Monitoring strategy

Exhaust gas aftertreatment monitoring

Possible causes

- The cooling capacity of the EGR cooler is too low

Possible test steps

- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4458 - FMI 8 - EGR cooler effect too low - Invalid signal**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- The cooling capacity of the EGR cooler is too low

Possible test steps

- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4459 - FMI 3 - Power amplifier exhaust brake flap/engine damper too hot -
Monitoring strategy

Monitoring sensors/actuators

Possible causes
Possible test steps
Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4460 - FMI 1 - Maximum permissible charge air pressure exceeded - too high**Monitoring strategy**

Charge air pressure monitoring

Possible causes

- The boost pressure is too high
- The wastegate valve is closed or blocked

Possible test steps

- Check the boost pressure using MAN-cats monitoring
- Perform an actuator test on the wastegate valve using MAN-cats

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary
- Replace defective EGR valve if necessary

SPN 4462 - FMI 8 - NOx conversion less than limit conversion 1 - Invalid signal**Monitoring strategy**

During operation, the system continuously checks whether the NOx conversion rates of the SCR system are sufficiently high. If this is not the case, an FSP entry is made. The diagnosis checks the NOx conversion rates within a driving cycle defined by a working window (a window corresponds to the mechanical work performed in the acceptance cycle).

Possible causes

-SCR-Cat conversion too low -NOx sensor drift -AdBlue tank insufficiently filled, AdBlue tank leak, level sensor defective -AdBlue nozzle leaking/corroded -AdBlue nozzle line or nozzle clogged -NoNOx: Insufficient compressed air supply to the AdBlue pump -Air mass signal faulty -SCR - Cat not installed -SCR mixing section blocked -AdBlue leak line from pump to nozzle

Possible test steps

-Aging of the AGN system -Contamination due to unsuitable operating materials -AdBlue/exhaust gas leaks -NOx sensor drift -
-Check the AdBlue tank level Check that the float of the level sensor is moving freely -Replace the AdBlue nozzle and line -NoNOx actuator test: Air unit (the vehicle's air system must be completely filled) During the test, air must be audibly flowing through the metering line If not, clean the air path of the pump: Fill a 6 mm diameter, 2 m long line with water (be sure to use clean water, as the air channel has a diameter of 0.65 mm and the pump can be damaged!) and connect one end to the air connection of the NoNOx. Connect the other end to compressed air at 6 to 12 bar. (vehicle or external) Disconnect the AdBlue dosing line and lead the dosing outlet of the pump into a container (if possible, disconnect between the flexible and rigid lines and lead the flexible line into a container). It is essential to disconnect the dosing line to ensure that the catalytic converter is not damaged when cleaning the pump! Control the actuator test air unit via MANCATs and check whether water is escaping from the disconnected dosing line (caution: water may escape from the air valve of the AdBlue dosing system at the end of the actuator test! The water should flow out continuously. Repeat the tests several times if necessary. If water flows out quickly from the disconnected point during this test, reconnect the dosing system completely (air supply and to the nozzle) and repeat the air test. During the air test, air must be audibly flowing through the dosing line. If not, replace the dosing line and AdBlue nozzle. Perform "actuator test filling routine." Check the AdBlue tank filter and the pump inlet filter. The AdBlue tank must be at least 1/4 full. The AdBlue line must not be kinked or crushed. Correct line routing between the tank and the pump. Air supply to the pump must be available (check the air unit using the actuator test). -Leakage in the air duct, sensor drift HFM, (D08 SCR only EU VIc): Combined sensor boost pressure/temperature sensor -> Influence on EDC model -Pressures: Exhaust back pressure -Severe crystallization in the mixing section. Visual inspection. -Visual inspection of urea lines

Possible remedy

SPN 4463 - FMI 8 - NOx conversion less than limit conversion 2 - Invalid signal
Monitoring strategy

Exhaust gas aftertreatment monitoring

Possible causes

- There is a problem with the AdBlue dosing (AdBlue supply unit, dosing unit)

Possible test steps

- Check electrical cables and plug connections
- Check AdBlue hose lines for kinks/damage
- Check the A808 AdBlue supply unit and the A1279 AdBlue dosing unit using MAN cats monitoring

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary
- Replace defective EGR valve if necessary

SPN 4464 - FMI 1 - AdBlue consumption - too high
Monitoring strategy

AdBlue system monitoring

Possible causes

- AdBlue consumption is too high

Possible test steps

- Check the function of the A1192 AdBlue combination sensor
- Perform a dosing quantity test
- See also SPN 4551

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4464 - FMI 2 - AdBlue consumption - too low**Monitoring strategy**

AdBlue system monitoring

Possible causes

- AdBlue consumption is too low

Possible test steps

- Check the function of the A1192 AdBlue combination sensor
- Perform a dosing quantity test
- See also SPN 4551

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4466 - FMI 1 - Boost pressure permanent control deviation - too high
Monitoring strategy

Boost pressure monitoring

Possible causes

- The wastegate valve is closed and blocked

Possible test steps

- Check the boost pressure using MAN-cats monitoring
- Perform with MAN-cats: Actuator test wastegate valve

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4466 - FMI 8 - Boost pressure permanent control deviation - faulty signal**Monitoring strategy**

Boost pressure monitoring

Possible causes**Possible test steps**

- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4467 - FMI 1 - AdBlue tank temperature: unexpected change - too high**Monitoring strategy**

AdBlue system monitoring

Possible causes

- Temperature sensor in A1192 AdBlue combination sensor in AdBlue tank is defective
- Y437 cooling water solenoid valve (heating valve) on the AdBlue tank defective, coolant can flow unintentionally through the tank's heating spindle and heat it up
- The supply and return lines (coolant) are connected incorrectly and the Y437 solenoid valve for coolant (heating valve) can be pressed open unintentionally.

Possible test steps

- Check the temperature in the AdBlue tank using MAN cats monitoring
- Check the function of the Y432 solenoid valve coolant using the actuator test
- Check the coolant lines to the AdBlue tank (correctly connected, damaged).

Possible remedy

- Replace electrical lines or plug connections if necessary
- Replace CAN connection if necessary
- Replace defective charge air throttle valve if necessary

SPN 4467 - FMI 2 - AdBlue tank temperature: unexpected change - too low**Monitoring strategy**

AdBlue system monitoring

Possible causes

- Temperature sensor in A1192 AdBlue combination sensor in AdBlue tank is defective
- Y437 cooling water solenoid valve (heating valve) on the AdBlue tank defective, coolant can flow unintentionally through the tank's heating spindle and heat it up
- The supply and return lines (coolant) are connected incorrectly and the Y437 solenoid valve for coolant (heating valve) can be pressed open unintentionally.

Possible test steps

- Check the temperature in the AdBlue tank using MAN cats monitoring
- Check the function of the Y432 solenoid valve coolant using the actuator test
- Check the coolant lines to the AdBlue tank (correctly connected, damaged).

Possible remedy

- Replace electrical lines or plug connections if necessary
- Renew CAN connection if necessary

SPN 4467 - FMI 9 - AdBlue tank temperature: unexpected change - device error**Monitoring strategy**

AdBlue system monitoring

Possible causes

- Temperature sensor in A1192 AdBlue combination sensor in AdBlue tank is defective
- Y437 cooling water solenoid valve (heating valve) on the AdBlue tank is defective; coolant can flow unintentionally through the tank's heating spindle and heat it up
- The supply and return lines (coolant) are connected incorrectly and the Y437 solenoid valve for coolant (heating valve) can be pressed open unintentionally.

Possible test steps

- Check the temperature in the AdBlue tank using MAN cats monitoring
- Check the function of the Y432 solenoid valve coolant using the actuator test
- Check the coolant lines to the AdBlue tank (correctly connected, damaged).

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace the CAN connection if necessary
- Replace defective charge air throttle valve if necessary

SPN 4468 - FMI 2 - AdBlue level too low - too low**Monitoring strategy**

AdBlue system monitoring

Possible causes**Possible test steps**

- Check AdBlue level

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4468 - FMI 3 - AdBlue level too low - implausible**Monitoring strategy**

AdBlue system monitoring

Possible causes**Possible test steps**

- Check AdBlue level

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4468 - FMI 8 - AdBlue level too low - faulty signal**Monitoring strategy**

AdBlue system monitoring

Possible causes**Possible test steps**

- Check AdBlue level

Possible remedy

- Replace defective EGR valve if necessary

SPN 4469 - FMI 1 - NOx limit exceeded - too high**Monitoring strategy**

AdBlue system monitoring

Possible causes

- AdBlue with too low a urea concentration was refilled
- Water was refilled instead of AdBlue

Possible test steps

- Check the urea concentration in the AdBlue tank using MAN-cats monitoring.
- Target value for urea concentration according to ISO 22241-1: 32.5% ± 0.7%

Possible remedy

- Replace defective EGR valve if necessary

SPN 4470 - FMI 3 - Vehicle speed - implausible**Monitoring strategy**

Monitoring speed signal

Possible causes

- Interruption in the CAN between the power train manager/vehicle control computer and the engine control unit

Possible test steps

- Check CAN between power train manager / vehicle control computer and engine control unit

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary
- Replace defective EGR valve if necessary

SPN 4471 - FMI 1 - Fan speed control: Frequency input error - too high**Monitoring strategy**

Fan monitoring

Possible causes

- The fan speed sensor is defective
- The wiring between the fan speed sensor and the A435 EDC control unit is defective

Possible test steps

- Check the fan speed for plausibility using MAN CATS Monitoring
- Check electrical cables and plug connections (pin C07, pin C31)

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary
- Replace defective EGR valve if necessary

SPN 4471 - FMI 3 - Fan speed control: Frequency input error - implausible**Monitoring strategy**

Fan monitoring

Possible causes

- The fan speed sensor is defective
- The wiring between the fan speed sensor and the A435 EDC control unit is defective

Possible test steps

- Check the fan speed for plausibility using MAN CATS Monitoring
- Check electrical cables and plug connections (pin C07, pin C31)

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary
- Replace defective EGR valve if necessary

SPN 4471 - FMI 8 - Fan speed control: Frequency input error - Invalid signal**Monitoring strategy**

Fan monitoring

Possible causes

- The fan speed sensor is defective
- The wiring between the fan speed sensor and the A435 EDC control unit is defective

Possible test steps

- Check the fan speed for plausibility using MAN CATS Monitoring
- Check electrical cables and plug connections (pin C07, pin C31)

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary
- Replace defective EGR valve if necessary

SPN 4473 - FMI 8 - CAN message: Fan target speed faulty - Invalid signal**Monitoring strategy**

Fan monitoring

Possible causes

- Interruption in the CAN between individual participants
- Short circuit between CAN high and low

Possible test steps

- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective EGR valve if necessary

SPN 4475 - FMI 1 - Flame start system: Flame glow plug - too high**Monitoring strategy**

Monitoring flame start system

Possible causes

- The current to the glow plug is too high

Possible test steps

- Check the wiring of the flame glow plug
- Check the electrical resistance of the flame glow plug

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective EGR valve if necessary

SPN 4475 - FMI 2 - Flame start system: Flame glow plug - too low**Monitoring strategy**

Monitoring flame start system

Possible causes

- The current to the glow plug is too low

Possible test steps

- Check the wiring of the flame glow plug
- Check the electrical resistance of the flame glow plug

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective EGR valve if necessary

SPN 4475 - FMI 4 - Flame start system: Flame glow plug - No signal**Monitoring strategy**

Monitoring flame start system

Possible causes

- No flame

Possible test steps

- Check the wiring of the glow plug
- Check fuel supply to flame start system
- Check the flame glow plug

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective EGR valve if necessary

SPN 4475 - FMI 5 - Flame start system: Flame glow plug - Short circuit to ground**Monitoring strategy**

Monitoring flame start system

Possible causes

- The glow plug has a short circuit to ground

Possible test steps

- Check the wiring of the glow plug

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective EGR valve if necessary

SPN 4475 - FMI 6 - Flame start system: Flame glow plug - Short circuit after UBatt+**Monitoring strategy**

Monitoring flame start system

Possible causes

- The glow plug has a short circuit to +UBat

Possible test steps

- Check the wiring of the glow plug

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective EGR valve if necessary

SPN 4475 - FMI 8 - Flame start system: Flame glow plug - Invalid signal**Monitoring strategy**

Monitoring flame start system

Possible causes

- The glow plug output stage is defective

Possible test steps

- Check the wiring of the glow plug

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective EGR valve if necessary

SPN 4475 - FMI 9 - Flame start system: Flame glow plug - Device error**Monitoring strategy**

Monitoring flame start system

Possible causes

- Output stage of the glow plug is overheated

Possible test steps

- Check the wiring of the glow plug

Possible remedy

- Replace the intake air throttle valve if defective

SPN 4475 - FMI 10 - Flame start system: Flame glow plug - Interruption**Monitoring strategy**

Monitoring flame start system

Possible causes

- The connection to the glow plug is interrupted

Possible test steps

- Check the wiring of the glow plug

Possible remedy

- Replace defective intake air throttle valve if necessary

SPN 4477 - FMI 1 - Flame start system: Fuel solenoid valve - too high**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Output stage overheats

Possible test steps

- Check electrical cables and plug connections
- Check solenoid valve

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective intake air throttle valve if necessary

SPN 4477 - FMI 5 - Flame start system: Fuel solenoid valve - Short circuit to ground**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Short circuit to ground

Possible test steps

- Check electrical cables and plug connections
- Check solenoid valve

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective intake air throttle valve if necessary

SPN 4477 - FMI 6 - Flame start system: Fuel solenoid valve - Short circuit to UBatt+**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Short circuit to +UBat

Possible test steps

- Check electrical cables and plug connections
- Check solenoid valve

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective intake air throttle valve if necessary

SPN 4477 - FMI 9 - Flame start system: Fuel solenoid valve - Device error**Monitoring strategy**

Monitoring for CAN signals

Possible causes

-Output stage defective

Possible test steps

- Check electrical cables and plug connections
- Check solenoid valve

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary
- Replace defective intake air throttle valve if necessary

SPN 4477 - FMI 10 - Flame start system: Fuel solenoid valve - Interruption**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Interruption

Possible test steps

- Check electrical cables and plug connections
- Check solenoid valve

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective intake throttle valve if necessary

SPN 4478 - FMI 8 - CAN message: Light test - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes**Possible test steps**

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective intake throttle valve if necessary

SPN 4479 - FMI 1 - CAN message information Intake air throttle valve - too high**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Interruption in CAN between engine control unit and charge air throttle valve
- CAN high and low reversed

Possible test steps

- If messages are missing > Check CAN connection
- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary
- Replace the intake air throttle valve if necessary

SPN 4479 - FMI 2 - CAN message information Intake air throttle valve - too low**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Interruption in the CAN between the engine control unit and the charge air throttle valve
- CAN high and low reversed

Possible test steps

- If messages are missing > Check CAN connection
- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary
- Replace defective intake air throttle valve if necessary

SPN 4479 - FMI 8 - CAN message information Intake air throttle valve - faulty signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Interruption in the CAN between the engine control unit and the charge air throttle valve
- CAN high and low reversed

Possible test steps

- if messages are missing > Check CAN connection
- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary
- Replace defective intake air throttle valve if necessary

SPN 4479 - FMI 11 - CAN message information intake air throttle valve - loose connection**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Interruption in the CAN between the engine control unit and the charge air throttle valve
- CAN high and low reversed

Possible test steps

- if messages are missing > Check CAN connection
- Check electrical cables and plug connections

Possible remedy

SPN 4480 - FMI 3 - CAN message information Intake air throttle valve - implausible**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Interruption in CAN between engine control unit and charge air throttle valve
- CAN high and low reversed

Possible test steps

- If messages are missing > Check CAN connection
- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective intake throttle valve if necessary

SPN 4480 - FMI 8 - CAN message information Intake air throttle valve - faulty signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Interruption in CAN between engine control unit and charge air throttle valve
- CAN high and low reversed

Possible test steps

- If messages are missing > Check CAN connection
- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective intake throttle valve if necessary

SPN 4480 - FMI 10 - CAN message information Intake air throttle valve - interruption**Monitoring Strategy**

Monitoring for CAN signals

Possible causes

- Interruption in CAN between engine control unit and charge air throttle valve
- CAN high and low reversed

Possible test steps

- If messages are missing > Check CAN connection
- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective intake throttle valve if necessary

SPN 4481 - FMI 1 - CAN message information Intake air throttle valve - too high**Monitoring strategy**

Monitoring for CAN signals

Possible causes**Possible test steps****Possible remedy**

- Replace electrical cables or plug connections if necessary
- Replace defective intake throttle valve if necessary

SPN 4481 - FMI 2 - CAN message information Intake air throttle valve - too low**Monitoring strategy**

Monitoring for CAN signals

Possible causes**Possible test steps****Possible remedy**

- Replace electrical cables or plug connections if necessary
- Replace defective intake throttle valve if necessary

SPN 4482 - FMI 1 - CAN message information Intake air throttle valve - too high**Monitoring strategy**

Monitoring for CAN signals

Possible causes**Possible test steps****Possible remedy**

- Replace electrical cables or plug connections if necessary
- Replace defective intake air throttle valve if necessary

SPN 4482 - FMI 3 - CAN message information Intake air throttle valve - implausible**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Interruption in CAN between individual participants
- Short circuit between CAN high and low

Possible test steps

- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective intake air throttle valve if necessary

SPN 4482 - FMI 8 - CAN message information Intake air throttle valve - faulty signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Interruption in CAN between individual participants
- Short circuit between CAN high and low

Possible test steps

- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4483 - FMI 4 - CAN message information Intake air throttle valve - no signal available**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Interruption in the CAN between individual participants
- Short circuit between CAN high and low

Possible test steps

- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4483 - FMI 7 - CAN message information Intake air throttle valve - short circuit**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Interruption in CAN between individual participants
- Short circuit between CAN high and low

Possible test steps

- Check CAN connection
- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4483 - FMI 9 - CAN message information Intake air throttle valve - Device error**Monitoring Strategy**

Monitoring for CAN signals

Possible causes

- Interruption in CAN between individual participants
- Short circuit between CAN high and low

Possible test steps

- Check CAN connection
- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4483 - FMI 10 - CAN message information Intake air throttle valve - interruption**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Interruption in the CAN between individual participants
- Short circuit between CAN high and low

Possible test steps

- Check CAN connection
- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4484 - FMI 1 - CAN message information Intake air throttle valve - too high**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Interruption in CAN between engine control unit and charge air throttle valve
- CAN high and low reversed

Possible test steps

- Check CAN connection

Possible remedy

- Replace defective intake air throttle valve if necessary

SPN 4484 - FMI 3 - CAN message information Intake air throttle valve - implausible**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Interruption in CAN between engine control unit and charge air throttle valve
- CAN high and low reversed

Possible test steps

- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4484 - FMI 9 - CAN message information Intake air throttle valve - Device error**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Interruption in the CAN between the engine control unit and the charge air throttle valve
- CAN high and low reversed

Possible test steps

- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4485 - FMI 1 - HCI system: Supply voltage - too high**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- Power supply to the HCI system is too high

Possible test steps

- Check the battery voltage using MAN-cats monitoring
- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4485 - FMI 2 - HCI system: Supply voltage - too low**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- Power supply to the HCI system is too low

Possible test steps

- Check the battery voltage using MAN-cats monitoring
- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4486 - FMI 2 - HCl system: Pressure difference too low**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- Fuel supply pressure or exhaust back pressure is incorrect
- Measuring unit is defective

Possible test steps

- Check the HCl supply pressure using MAN cats monitoring
- Check the exhaust back pressure using MAN cats monitoring

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4487 - FMI 1 - EGR system: Injection start delay and rail pressure reduction active - too high**Monitoring strategy**

Exhaust aftertreatment monitoring

Possible causes

- Lambda deviation in the EGR

Possible test steps

- Check electrical wiring and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4488 - FMI 4 - EGR valve: Temperature exceeded / Engine current faulty - No signal**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes**Possible test steps**

- Check electrical cables and plug connections
- Check with MAN cats Check EGR servomotor
- Check the EGR valve for smooth operation over the entire adjustment range when de-energized

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4488 - FMI 8 - EGR valve: Temperature exceeded / Engine current faulty - Invalid signal**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes**Possible test steps**

- Check electrical cables and plug connections
- Check with MAN cats Check EGR servomotor
- Check the EGR valve for smooth operation over the entire adjustment range when de-energized

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4489 - FMI 1 - EGR valve blocked - too high**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- The EGR valve may be blocked due to unauthorized tampering
- EGR actuator is defective

Possible test steps

- Check EGR valve
- Perform with MAN-cats monitoring: Compare target/actual position of the EGR valve

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4489 - FMI 2 - EGR valve blocked - too low**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- The EGR valve may be blocked due to unauthorized tampering
- EGR actuator is defective

Possible test steps

- Check EGR valve
- Perform with MAN-cats monitoring: Compare target/actual position of the EGR valve

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4489 - FMI 3 - EGR valve blocked - implausible**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- The EGR valve may be blocked due to unauthorized tampering.
- The EGR actuator is defective

Possible test steps

- Check EGR valve
- using MAN-cats monitoring: Compare target/actual position of the EGR valve

Possible remedy

SPN 4489 - FMI 11 - EGR valve blocked - loose connection**Monitoring strategy**

Monitoring exhaust gas aftertreatment

Possible causes

- The EGR valve may be blocked due to unauthorized tampering
- EGR actuator is defective

Possible test steps

- Check EGR valve
- Perform with MAN-cats monitoring: Compare target/actual position of the EGR valve

Possible remedy

SPN 4490 - FMI 7 - EGR valve: Position sensor deviation / short circuit - Short circuit**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- Interruption in the wiring of the E-AGR cylinder position sensor

Possible test steps

- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4490 - FMI 8 - EGR valve: Position sensor deviation / short circuit - Invalid signal**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- Interruption in the wiring of the E-EGR cylinder position sensor

Possible test steps

- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4491 - FMI 1 - EGR valve: Position sensor - too high**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- The EGR position sensor has become too warm

Possible test steps

- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4491 - FMI 4 - EGR valve: Position sensor - No signal**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- The supply voltage of the EGR position sensor is incorrect

Possible test steps

- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace the CAN connection if necessary

SPN 4491 - FMI 8 - EGR valve: Position sensor - Invalid signal**Monitoring strategy**

Exhaust aftertreatment monitoring

Possible causes

- Initialization of the EGR position sensor has failed

Possible test steps

- Check electrical wiring and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4492 - FMI 3 - Incremental encoder: incorrect polarity (3); segment encoder: incorrect polarity (8) - implausible**Monitoring strategy**

Monitoring sensor supply voltage

Possible causes

- The B488 speed incremental encoder is incorrectly polarized

Possible test steps

- Check the polarity of the B488 speed incremental encoder cables

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace the CAN connection if necessary

SPN 4492 - FMI 8 - Incremental encoder: incorrect polarity (3); segment encoder: incorrect polarity (8) - Invalid signal**Monitoring strategy**

Monitoring sensor supply voltage

Possible causes

- The B489 speed segment encoder is incorrectly polarized

Possible test steps

- Check the polarity of the B489 speed segment encoder cables

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4493 - FMI 1 - Exhaust gas temperature controller HCl system - too high**Monitoring strategy**

Monitoring exhaust gas aftertreatment

Possible causes**Possible test steps****Possible remedy**

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4493 - FMI 2 - Exhaust gas temperature controller HCl system - too low**Monitoring strategy**

Monitoring exhaust gas aftertreatment

Possible causes**Possible test steps****Possible remedy**

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4493 - FMI 8 - Exhaust gas temperature controller HCl system - faulty signal**Monitoring strategy**

Monitoring exhaust gas aftertreatment

Possible causes**Possible test steps****Possible remedy**

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4495 - FMI 1 - Fuel metering valve HCl system - too high**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- The temperature of the HCl fuel metering valve is too high
- The temperature sensor of the delivery unit is defective

Possible test steps

- Use MAN-cats-Monitoring to check the temperature of the HCl system for plausibility
- Check the temperature of the exhaust gas aftertreatment system using MAN cats monitoring
- Check the exhaust back pressure using MAN cats monitoring
- Check electrical cables and plug connections

Possible remedies

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4495 - FMI 5 - Fuel metering valve HCl system - Short circuit to ground**Monitoring strategy**

Exhaust aftertreatment monitoring

Possible causes

- The temperature sensor of the delivery unit is defective
- The output stage of the feed unit is defective

Possible test steps

- Use MAN-cats-Monitoring to check the temperature of the HCl system for plausibility
- Check the temperature of the exhaust gas aftertreatment system using MAN-cats monitoring
- Check the exhaust back pressure using MAN cats monitoring
- Check electrical cables and plug connections

Possible remedies

- Replace electrical cables or plug connections if necessary
- Replace the CAN connection if necessary

SPN 4495 - FMI 6 - Fuel metering valve HCl system - Short circuit to ground**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- The temperature sensor of the delivery unit is defective
- The output stage of the feed unit is defective

Possible test steps

- Use MAN-cats-Monitoring to check the temperature of the HCl system for plausibility
- Check the temperature of the exhaust gas aftertreatment system using MAN-cats monitoring
- Check the exhaust back pressure using MAN cats monitoring
- Check electrical cables and plug connections

Possible remedies

- Replace electrical cables or plug connections if necessary
- Renew CAN connection if necessary

SPN 4496 - FMI 1 - Pressure increase after Departronic metering valve - too high**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- Dosing valve blocked (open)
- The pressure sensor of the metering unit is defective

Possible test steps

- Perform with MAN cats: HCl system test. Check pressure for plausibility
- Check for leaks (SV open and DV closed)

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4496 - FMI 2 - Pressure increase after Departronic metering valve - too low**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- Leak in fuel line
- Injection valve blocked (open)
- Pressure sensor of the metering unit defective
- Interruption in the wiring of the metering unit

Possible test steps

- Perform with MAN cats: HCI system test. Check pressure for plausibility
- Check for leaks (SV and DV are open)
- Check fuel line for leaks
- Check the wiring of the measuring unit

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4497 - FMI 1 - Pressure after metering valve - too high**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- The valve of the injection unit may be defective (stuck open).
- Fuel line is blocked

Possible test steps

- Perform with MAN cats: HCl system test. Check pressure for plausibility
- Check whether the fuel line is blocked

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4497 - FMI 2 - Pressure after metering valve - too low**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- The valve of the injection unit may be defective (blocked closed).
- A pressure drop has occurred or the fuel line is leaking
- Interruption in the wiring of the metering unit

Possible test steps

- Perform with MAN cats: HCl system test. Check pressure for plausibility
- Check whether the fuel line is leaking
- Check the wiring of the measuring unit

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4498 - FMI 1 - In system test: Pressure increase after Departronic metering valve (1); pressure loss after Departronic metering valve too high (8) - too high**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- Injection unit valve may be defective (blocked closed)
- Fuel line is blocked

Possible test steps

- Perform with MAN cats: HCl system test. Check pressure for plausibility
- Check whether the fuel line is blocked

Possible remedy

- Replace electrical cables or plug connections if necessary
- Renew CAN connection if necessary

SPN 4498 - FMI 8 - In system test: Pressure increase after Departronic metering valve (1); Pressure loss after Departronic metering valve too high (8) - Invalid signal**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- Injection unit valve may be defective (stuck open)
- Fuel line is leaking
- Interruption in the wiring of the metering unit

Possible test steps

- Perform with MAN cats: HCl system test. Check pressure for plausibility
- Check whether the fuel line is leaking
- Check the wiring of the measuring unit

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4499 - FMI 1 - About the system test: Pressure change after Departronic metering valve too low - too high**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- Interruption in the wiring
- The pressure sensor of the metering unit is defective

Possible test steps

- Perform with MAN cats: HCl system test. Check pressure for plausibility
- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Renew CAN connection if necessary

SPN 4501 - FMI 2 - Pressure upstream of metering valve - too low**Monitoring strategy**

Monitoring pressure at metering valve

Possible causes

- Fuel supply pressure is too low
- The shut-off valve may be defective (stuck open)

Possible test steps

- Use MAN-cats monitoring to check the fuel pressure upstream of the HCI system for plausibility

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace the CAN connection if necessary

SPN 4502 - FMI 2 - Pressure drop upstream of metering valve - too low**Monitoring strategy**

Monitoring pressure metering valve

Possible causes

- Fuel line is leaking or the system is sucking in air
- The metering valve or injection valve may be defective (stuck open)

Possible test steps

- Perform with MAN cats: HCl system test
- Check whether the fuel line is leaking

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4503 - FMI 1 - Pressure upstream of metering valve in HCl mode - too high**Monitoring strategy**

Monitoring pressure metering valve

Possible causes

- The fuel supply pressure is too high
- The metering valve may be defective (blocked closed)

Possible test steps

- Use MAN-cats monitoring to check the fuel pressure upstream of the HCl system for plausibility

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace the CAN connection if necessary

SPN 4503 - FMI 2 - Pressure upstream of metering valve in HCl mode - too low**Monitoring strategy**

Monitoring pressure metering valve

Possible causes

- The fuel supply pressure is too low
- The shut-off valve may be defective (blocked closed)

Possible test steps

- Use MAN-cats monitoring to check the fuel pressure upstream of the HCl system for plausibility

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace the CAN connection if necessary

SPN 4504 - FMI 1 - Pressure upstream of metering valve - too high**Monitoring strategy**

Monitoring pressure metering valve

Possible causes

- Fuel supply pressure is too high

Possible test steps

- Use MAN-cats monitoring to check the fuel pressure upstream of the HCl system for plausibility

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4504 - FMI 8 - Pressure before metering valve - faulty signal**Monitoring strategy**

Monitoring pressure metering valve

Possible causes

- Shut-off valve or metering valve may be defective (stuck open)

Possible test steps

- Perform with MAN cats: HCl system test. Check pressure for plausibility

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4505 - FMI 1 - Pressure change upstream of metering valve during system test - too high**Monitoring strategy**

Pressure monitoring

Possible causes

- Interruption in the cabling
- The measuring unit is defective

Possible test steps

- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4506 - FMI 8 - Pressure equalization metering valve - faulty signal**Monitoring strategy**

Monitoring pressure metering valve

Possible causes

- The metering valve may be defective (blocked closed).

Possible test steps

- Perform with MAN cats: HCl system test. Check pressure for plausibility.

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4506 - FMI 9 - Pressure equalization metering valve - Device error**Monitoring strategy**

Monitoring pressure metering valve

Possible causes

- Error in EEPROM

Possible test steps

- Switch off ignition and wait for control unit A435 control unit EDC to finish running
- Turn on ignition and clear error

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4507 - FMI 3 - Ventilation phase pressure increase HCl system test - implausible**Monitoring strategy**

Monitoring internal control unit errors

Possible causes

- HCl system tests with MAN cats failed
- Clear assignment of the error is not possible

Possible test steps

- Switch off ignition and wait for control unit EDC A435 to finish running
- Switch on ignition and delete error
- Perform with MAN cats: HCl system test
- Check the entire HCl system, including the low-pressure fuel circuit

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4509 - FMI 1 - HC return flow restrictor closed/open - too high**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes**Possible test steps**

- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4509 - FMI 2 - HC reflux valve closed/open - too low**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes**Possible test steps**

- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4510 - FMI 1 - Metering valve opening phase - too high**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- The metering valve of the measuring unit may be defective (blocked closed).

Possible test steps

- Perform with MAN cats: HCl system test

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4510 - FMI 2 - Metering valve opening phase - too low**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- The metering valve of the metering unit may be defective (stuck open).

Possible test steps

- Perform with MAN cats: HCl system test

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4510 - FMI 3 - Metering valve opening phase - implausible**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- The metering valve of the metering unit may be defective

Possible test steps

- Perform with MAN cats: HCl system test

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4510 - FMI 8 - Metering valve opening phase - faulty signal**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- Many errors during operation (Measuring unit, injection valve)
- Defective fuel line
- Defect in the low-pressure fuel circuit

Possible test steps

- Switch off the ignition and wait for the control unit follow-up of the A435 control unit EDC
- Switch on the ignition and delete the fault
- Perform with MAN cats: HCI system test

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4511 - FMI 3 - Pressure sensor after metering valve - implausible**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- The pressure sensor after the metering valve of the metering unit is defective

Possible test steps

- Perform with MAN cats: HCl system test

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4512 - FMI 3 - Pressure sensor upstream of metering valve - implausible**Monitoring strategy**

Monitoring pressure sensor

Possible causes

- The pressure sensor upstream of the metering valve of the metering unit is defective

Possible test steps

- Perform with MAN cats: HCl system test

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4513 - FMI 1 - HCl injection valve is blocked - too high**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- HCl injection valve is defective (blocked closed)
- The fuel line may be damaged

Possible test steps

- Perform with MAN cats: HCl system test
- Check fuel line for damage or blockages

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4513 - FMI 2 - HCl injection valve is blocked - too low**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- HCl injection valve is defective (blocked open)
- The fuel line may be damaged

Possible test steps

- Perform with MAN cats: HCl system test
- Check fuel line for damage or blockage

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4514 - FMI 3 - Reading operating hours from EEPROM (3) - implausible**Monitoring strategy**

Monitoring EEPROM

Possible causes**Possible test steps****Possible remedy**

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4514 - FMI 8 - Reading operating hours from EEPROM (3) - Faulty signal**Monitoring strategy**

EEPROM monitoring

Possible causes**Possible test steps****Possible remedy**

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4515 - FMI 1 - Dosing unit shut-off valve blocked - too high**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- Shut-off valve on metering unit is defective (blocked closed)

Possible test steps

- Perform with MAN-cats: System test HCI

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4515 - FMI 2 - Dosing unit shut-off valve blocked - too low**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- Shut-off valve on metering unit is defective (blocked open)

Possible test steps

- Perform with MAN cats: HCl system test

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective stop switch if necessary

SPN 4516 - FMI 3 - Fuel temperature in Departronic measuring unit - implausible**Monitoring strategy**

Monitoring pressure metering valve

Possible causes

- The thermocouple (temperature sensor) in front of the delivery unit valve has failed

Possible test steps

- Use MAN-cats monitoring to check the temperature of the HCI system for plausibility

Possible remedy

- Drain separated water from the fuel prefilter
- Replace electrical cables or plug connections if necessary
- Replace defective water level sensor if necessary

SPN 4517 - FMI 1 - Fuel pressure in the HCl system after the injector - too high**Monitoring strategy**

Monitoring fuel pressure in the HCl system

Possible causes

- The fuel pressure after the metering valve in HCl mode is too high

Possible test steps**Possible remedy**

- Replace electrical cables or plug connections if necessary
- Replace defective water level sensor if necessary

SPN 4517 - FMI 2 - Fuel pressure in the HCl system after the injector - too low**Monitoring strategy**

Monitoring fuel pressure in the HCl system

Possible causes

- The fuel pressure after the metering valve in HCl mode is too low

Possible test steps**Possible remedy**

- Replace electrical cables or plug connections if necessary
- Replace defective water level sensor if necessary

SPN 4518 - FMI 4 - Fuel pressure sensor in HCl system after injector - no signal present**Monitoring strategy**

Fuel pressure monitoring

Possible causes

- Interruption in the wiring
- The fuel pressure sensor after the injector of the metering unit is defective

Possible test steps

- Use MAN-cats monitoring to check the pressure in the HCl system for plausibility
- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective water level sensor if necessary

SPN 4519 - FMI 5 - Fuel pressure sensor in the HCl system after the injector - Short circuit to ground**Monitoring strategy**

Fuel pressure monitoring

Possible causes

- Interruption in the wiring of the measuring unit
- The fuel pressure sensor after the injector of the measuring unit is defective

Possible test steps

- Use MAN-cats monitoring to check the pressure in the HCl system for plausibility
- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective turbocharger unit if necessary

SPN 4519 - FMI 6 - Fuel pressure sensor in the HCl system after the injector - Short circuit after UB**Monitoring strategy**

Fuel pressure monitoring

Possible causes

- Interruption in the wiring of the measuring unit
- The fuel pressure sensor after the injector of the measuring unit is defective

Possible test steps

- Use MAN-cats monitoring to check the pressure in the HCl system for plausibility
- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective turbocharger unit if necessary

SPN 4519 - FMI 3 - Fuel pressure sensor in the HCl system after the injector - implausible**Monitoring strategy**

Fuel pressure monitoring

Possible causes

- The fuel pressure sensor after the injector of the metering unit is defective

Possible test steps

- Use MAN-cats monitoring to check the pressure in the HCl system for plausibility

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective turbocharger unit if necessary

SPN 4519 - FMI 11 - Fuel pressure sensor in HCl system after injector - loose connection**Monitoring strategy**

Fuel pressure monitoring

Possible causes

- Interruption in the wiring of the measuring unit
- The fuel pressure sensor after the injector of the measuring unit is defective

Possible test steps

- Use MAN CATS Monitoring to check the pressure in the HCl system for plausibility
- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective turbocharger unit if necessary

SPN 4520 - FMI 1 - Fuel pressure in the HCl system upstream of the injector - too high**Monitoring strategy**

Monitoring fuel pressure

Possible causes**Possible test steps**

- Check the pressure in the HCl system using MAN cats monitoring

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective turbocharger unit if necessary

SPN 4520 - FMI 2 - Fuel pressure in the HCl system upstream of the injector - too low**Monitoring strategy**

Monitoring fuel pressure

Possible causes**Possible test steps**

- Check the pressure in the HCl system using MAN cats monitoring

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective turbocharger unit if necessary

SPN 4521 - FMI 4 - Fuel pressure sensor in the HCl system upstream of the injector - no signal present**Monitoring strategy**

Exhaust aftertreatment monitoring

Possible causes

- Interruption in the wiring of the measuring unit
- The measuring unit is defective

Possible test steps

- Check the pressure in the HCl system using MAN CATS monitoring
- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective turbocharger unit if necessary

SPN 4522 - FMI 3 - Fuel pressure sensor in the HCl system upstream of the injector - implausible**Monitoring strategy**

Pressure monitoring

Possible causes

- The fuel pressure sensor upstream of the injector of the metering unit is defective.

Possible test steps

- Check the pressure in the HCl system using MAN-cats monitoring

Possible remedy

- Replace defective turbocharger unit if necessary

SPN 4522 - FMI 5 - Fuel pressure sensor in the HCl system upstream of the injector - Short circuit to ground**Monitoring strategy**

Pressure monitoring

Possible causes

- Interruption in the wiring of the measuring unit
- The fuel pressure sensor upstream of the injector of the measuring unit is defective

Possible test steps

- Check the pressure in the HCl system using MAN CATS monitoring
- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective turbocharger unit if necessary

**SPN 4522 - FMI 6 - Fuel pressure sensor in HCl system upstream of injector -
Short circuit to ground****Monitoring strategy**

Pressure monitoring

Possible causes

- Interruption in the wiring of the measuring unit
- The fuel pressure sensor upstream of the injector of the measuring unit is defective

Possible test steps

- Check the pressure in the HCl system using MAN CATS Monitoring
- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective turbocharger unit if necessary

SPN 4522 - FMI 11 - Fuel pressure sensor in HCl system upstream of injector - loose connection
Monitoring strategy

Pressure monitoring

Possible causes

- Interruption in the wiring of the measuring unit
- The fuel pressure sensor upstream of the injector of the measuring unit is defective

Possible test steps

- Check the pressure in the HCl system using MAN CATS Monitoring
- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective turbocharger unit if necessary

SPN 4523 - FMI 1 - Fuel temperature in the HCl system upstream of the injector - too high**Monitoring strategy**

Temperature monitoring

Possible causes

- Interruption in the wiring
- Fuel temperature sensor of the measuring unit is defective

Possible test steps

- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective start switch if necessary

SPN 4523 - FMI 2 - Fuel temperature in HCl system before injector - too low**Monitoring strategy**

Temperature monitoring

Possible causes

- Interruption in the wiring
- Fuel temperature sensor of the measuring unit is defective

Possible test steps

- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4524 - FMI 4 - Fuel temperature sensor in the HCl system upstream of the injector - no signal present**Monitoring strategy**

Exhaust aftertreatment monitoring

Possible causes

- Interruption in the wiring of the measuring unit
- Fuel temperature sensor upstream of injector of metering unit is defective

Possible test steps

- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective coolant level sensor if necessary

SPN 4525 - FMI 3 - Fuel temperature sensor in the HCl system upstream of the injector - implausible**Monitoring strategy**

Temperature monitoring

Possible causes

- The fuel temperature sensor upstream of the injector of the metering unit is defective

Possible test steps**Possible remedy**

- Replace electrical cables or plug connections if necessary
- Replace defective coolant level sensor if necessary

**SPN 4525 - FMI 5 - Fuel temperature sensor in the HCl system upstream of the injector
- Short circuit to ground****Monitoring strategy**

Temperature monitoring

Possible causes

- Interruption in the wiring of the measuring unit
- The fuel temperature sensor upstream of the injector of the measuring unit is defective

Possible test steps

- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective coolant level sensor if necessary

SPN 4525 - FMI 6 - Fuel temperature sensor in the HCl system upstream of the injector
- Short circuit to ground**Monitoring strategy**

Temperature monitoring

Possible causes

- Interruption in the wiring of the measuring unit
- The fuel temperature sensor upstream of the injector of the measuring unit is defective

Possible test steps

- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective coolant level sensor if necessary

SPN 4525 - FMI 10 - Fuel temperature sensor in HCl system upstream of injector - interruption**Monitoring strategy**

Temperature monitoring

Possible causes

- Interruption in the wiring of the measuring unit
- The fuel temperature sensor upstream of the injector of the measuring unit is defective

Possible test steps

- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective coolant level sensor if necessary

SPN 4525 - FMI 11 - Fuel temperature sensor in the HCl system upstream of the injector - loose connection**Monitoring strategy**

Temperature monitoring

Possible causes

- Interruption in the wiring of the measuring unit
- The fuel temperature sensor upstream of the injector of the measuring unit is defective

Possible test steps

- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective coolant level sensor if necessary

**SPN 4526 - FMI 3 - CAN message: NOx sensor upstream of exhaust aftertreatment
Lambda - implausible****Monitoring strategy**

Exhaust aftertreatment monitoring

Possible causes

- The lambda signal from the B1055 NOx sensor I (raw emissions) is implausible

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4527 - FMI 3 - NOx sensor after exhaust gas aftertreatment: plausibility check - implausible**Monitoring strategy**

Exhaust aftertreatment monitoring

Possible causes

- The lambda signal from the B994 NOx sensor II (OBD) is implausible compared to the signal from the B322 lambda sensor

Possible test steps

- Check electrical cables and plug connections
- Use MAN Cats Monitoring to check the plausibility of the signals from the B994 NOx sensor I (raw emissions) and the B322 lambda sensor
- Check whether the NOx sensor is installed in the exhaust system

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective turbocharger unit if necessary, if VTG is defective
- Replace defective wastegate if necessary
- Replace defective turbocharger speed sensor if necessary

SPN 4527 - FMI 8 - NOx sensor after exhaust aftertreatment: Plausibility check - Invalid signal**Monitoring strategy**

Exhaust aftertreatment monitoring

Possible causes

- The signal from the B994 NOx sensor II (OBD) is implausible compared to the signal from the B1055 NOx sensor I (raw emissions) before exhaust aftertreatment

Possible test steps

- Check electrical cables and plug connections
- Use MAN Cats Monitoring to check the plausibility of the signals from the two NOx sensors B994 and B1055
- Check whether the NOx sensor is installed in the exhaust system

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective turbocharger unit if VTG is defective
- Replace defective wastegate if necessary
- If necessary, eliminate leaks in the exhaust system
- Replace defective turbocharger speed sensor if necessary

SPN 4528 - FMI 3 - NOx sensor before exhaust aftertreatment: plausibility check - implausible**Monitoring strategy**

Monitoring exhaust gas aftertreatment

Possible causes

- The lambda signal from the B1055 NOx sensor I (raw emission) is implausible compared to the signal from the B322 lambda sensor

Possible test steps

- Check electrical cables and plug connections
- Use MAN Cats Monitoring to check the plausibility of the signals from the B1055 NOx sensor I (raw emissions) and the B322 lambda sensor
- Check whether the NOx sensor is installed in the exhaust system

Possible remedy

- Replace electrical cables or plug connections if necessary
- If necessary, install the speed sensor correctly
- Replace defective speed sensor if necessary

SPN 4528 - FMI 8 - NOx sensor before exhaust aftertreatment: Plausibility check - Invalid signal**Monitoring strategy**

Exhaust aftertreatment monitoring

Possible causes

- The signal from the B1055 NOx sensor I (raw emissions) is implausible compared to the signal from the B994 NOx sensor 2 (OBD) after exhaust aftertreatment

Possible test steps

- Check electrical cables and plug connections
- Use MAN-cats monitoring to check the plausibility of the signals from the two NOx sensors B994 and B1055
- Check whether the NOx sensor is installed in the exhaust system.

Possible remedy

- Replace electrical cables or plug connections if necessary
- If necessary, install the speed sensor correctly
- Replace defective speed sensor if necessary

SPN 4529 - FMI 1 - NOx sensor before exhaust aftertreatment: Lambda signal - too high**Monitoring strategy**

Exhaust aftertreatment monitoring

Possible causes

- The lambda signal from the B1055 NOx sensor I (raw emissions) is too high

Possible test steps

- Check electrical cables and plug connections
- Use MAN-cats monitoring to check the plausibility of the lambda signal with the B994 NOx sensor II (OBD) after exhaust gas aftertreatment and the B322 lambda sensor

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective turbocharger unit if VTG is defective
- Replace defective wastegate if necessary
- Replace defective turbocharger speed sensor if necessary

SPN 4529 - FMI 2 - NOx sensor upstream of exhaust aftertreatment: Lambda signal - too low**Monitoring strategy**

Exhaust aftertreatment monitoring

Possible causes

- The lambda signal from the B1055 NOx sensor I (raw emissions) is too low

Possible test steps

- Check electrical cables and plug connections
- Use MAN-cats monitoring to check the plausibility of the lambda signal with the B994 NOx sensor II (OBD) after exhaust gas aftertreatment and the B322 lambda sensor

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective turbocharger unit if VTG is defective
- Replace defective wastegate if necessary
- Replace defective turbocharger speed sensor if necessary

SPN 4529 - FMI 3 - NOx sensor before exhaust aftertreatment: Lambda signal - implausible**Monitoring strategy**

Exhaust aftertreatment monitoring

Possible causes

- The lambda signal from the B1055 NOx sensor I (raw emissions) is implausible

Possible test steps

- Check electrical cables and plug connections
- Use MAN-cats monitoring to check the plausibility of the lambda signal with the B994 NOx sensor II (OBD) after exhaust gas aftertreatment and the B322 lambda sensor

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective turbocharger speed sensor if necessary

SPN 4530 - FMI 1 - NOx sensor before exhaust aftertreatment: O2 signal - too high**Monitoring strategy**

Exhaust aftertreatment monitoring

Possible causes

- The O2 signal from the B1055 NOx sensor I (raw emissions) is too high

Possible test steps

- Check electrical cables and plug connections
- Use MAN-cats monitoring to check the plausibility of the O2 signal from the B1055 NOx sensor I (raw emission) with that from the B994 NOx sensor II (OBD) after exhaust gas aftertreatment

Possible remedy

- Refill AdBlue
- Replace pump line if necessary
- Replace A1192 AdBlue combination sensor if necessary

SPN 4530 - FMI 2 - NOx sensor upstream of exhaust aftertreatment: O2 signal - too low**Monitoring strategy**

Exhaust aftertreatment monitoring

Possible causes

- The O2 signal from the B1055 NOx sensor I (raw emissions) is too low

Possible test steps

- Check electrical cables and plug connections
- Use MAN-cats monitoring to check the plausibility of the O2 signal from the B1055 NOx sensor I (raw emission) with that from the B994 NOx sensor II (OBD) after exhaust gas aftertreatment

Possible remedy

- Refill AdBlue
- Replace pump line if necessary
- Replace A1192 AdBlue combination sensor if necessary

SPN 4531 - FMI 2 - Oil level - too low**Monitoring strategy**

Monitoring engine oil level

Possible causes

- Low oil level

Possible test steps

- Check oil level

Possible remedy

- Refill AdBlue
- Replace pump line if necessary
- Replace A1192 AdBlue combination sensor if necessary

SPN 4532 - FMI 10 - CAN message: NOx sensor before exhaust aftertreatment Cable break - interruption**Monitoring strategy**

Exhaust aftertreatment monitoring

Possible causes

- Interruption in the wiring of the NOx sensor before exhaust aftertreatment

Possible test steps

- Check electrical cables and plug connections
- Check the CAN connection

Possible remedy

- Empty the AdBlue tank and refill it with AdBlue of the correct quality
- Replace electrical cables or plug connections if necessary
- Replace defective A1192 AdBlue combination sensor if necessary
- Clear the error memory

SPN 4533 - FMI 4 - Rail pressure control: Pressure reduction in the rail not possible after engine stop - No signal**Monitoring strategy**

Monitoring rail pressure control

Possible causes**Possible test steps**

- Check the rail pressure curve using MAN-cats monitoring

Possible remedy

SPN 4534 - FMI 1 - AdBlue system: Adaptation at stop - too high**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- AdBlue quality is insufficient (incorrect urea concentration)
- A1192 AdBlue combination sensor is defective

Possible test steps

- Check the status information for AdBlue quality using MAN-cats Monitoring
- Check the urea concentration of the AdBlue used: Target value 32.5% ± 0.7% according to ISO 22241-1
- Check A1192 AdBlue combination sensor
- Check electrical cables and plug connections

Possible remedy

- Fill the expansion tank with coolant to the correct level
- Replace electrical cables or plug connections if necessary
- Replace defective coolant level sensor if necessary
- If necessary, repair leaks in cooling circuit components
- Replace defective radiator cap if necessary

SPN 4535 - FMI 1 - AdBlue quality warning - too high**Monitoring strategy**

AdBlue system: Urea concentration too low. Check AdBlue

Possible causes

- AdBlue quality is insufficient (incorrect urea concentration)
- A1192 AdBlue combination sensor is defective

Possible test steps

- Check the status information for AdBlue quality using MAN-cats Monitoring
- Check the urea concentration of the AdBlue used. Should be $32.5\% \pm 0.7\%$ according to ISO 22241-1 Check the AdBlue sensor in the tank
- Check A1192 AdBlue combination sensor
- Check electrical cables and plug connections

Possible remedy

Replace the AdBlue with fresh AdBlue (do not top up, replace completely!)

SPN 4535 - FMI 2 - AdBlue quality warning - too low**Monitoring strategy**

AdBlue system: AdBlue urea content too low, possibly diluted with water (warning threshold 2)

Possible causes

- AdBlue quality is insufficient (incorrect urea concentration)
- A1192 AdBlue combination sensor is defective

Possible test steps

- Check the status information for AdBlue quality using MAN-cats Monitoring
- Check the urea concentration of the AdBlue used. Should be $32.5\% \pm 0.7\%$ according to ISO 22241-1 Check the AdBlue sensor in the tank
- Check A1192 AdBlue combination sensor
- Check electrical cables and plug connections

Possible remedy

- Replace the AdBlue with fresh AdBlue (do not top up, replace completely!)
- Read out the error memory, rectify any errors and delete the error memory so that the engine can run normally again

SPN 4536 - FMI 7 - NOx sensor before exhaust aftertreatment: lambda signal short circuit
- Short circuit**Monitoring strategy**

Exhaust aftertreatment monitoring

Possible causes

- Interruption in the wiring of the B1055 NOx sensor I (raw emissions) before exhaust aftertreatment

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4537 - FMI 10 - HCI system: Fuel shut-off valve interruption or short circuit to ground - interruption**Monitoring strategy**

Monitoring exhaust gas aftertreatment

Possible causes

- Interruption in the wiring of the fuel shut-off valve
- Fuel shut-off valve is defective

Possible test steps

- Check electrical cables and plug connections

Possible remedy

- Repair heat shields, insulation, control unit coolers
- Replace cables and plug contacts if necessary
- Replace EDC if necessary

SPN 4538 - FMI 6 - HCl system: Fuel shut-off valve: Short circuit to +UBat - Short circuit to UBatt+

Monitoring strategy

Exhaust gas aftertreatment monitoring

Possible causes

- Interruption in the wiring of the measuring unit
- Measuring unit is defective

Possible test steps

- Check electrical cables and plug connections

Possible remedy

- Replace cables and plug connections if necessary
- Replace light bulbs and lamp housings if necessary

SPN 4539 - FMI 8 - Intake air throttle valve temperature - faulty signal**Monitoring strategy**

Temperature monitoring

Possible causes

- Intercooler throttle valve sensors are defective or overheated
- Intercooler throttle actuator is defective
- Incorrect positioning of the charge air throttle valve

Possible test steps

- Check the boost pressure for plausibility using MAN-cats monitoring
- Perform resistance measurement on the charge air throttle valve actuator

Possible remedy

- Replace cables and plug contacts if necessary
- Replace light bulbs and lamp housings if necessary

SPN 4540 - FMI 8 - Intake air throttle valve Motor current - faulty signal**Monitoring strategy**

Monitoring internal control unit errors

Possible causes

- Charge air throttle valve engine current is faulty

Possible test steps

- Perform with MAN-cats monitoring: Actuator test for charge air throttle valve
- Check the status information "Voltage at LDK" using MAN-cats monitoring

Possible remedy

- Replace cables and plug contacts if necessary
- Replace light bulbs and lamp housings if necessary

SPN 4541 - FMI 1 - Intake air throttle valve blocked valve closed/open - too high**Monitoring strategy**

Supply voltage monitoring

Possible causes

- Pressure loss at the charge air throttle valve
- Charge air throttle valve is sluggish or valve is blocked
- Intercooler throttle valve actuator is defective
- Incorrect positioning of the charge air throttle valve

Possible test steps

- Perform with MAN-cats monitoring: Actuator test for charge air throttle valve
- Check boost pressure for plausibility with MAN-cats monitoring
- Perform resistance measurement on charge air throttle actuator
- Check electrical cables and plug connections

Possible remedy

- Repair heat shields, insulation, control unit coolers
- Replace cables and plug contacts if necessary
- Replace EDC if necessary

SPN 4541 - FMI 2 - Intake air throttle valve blocked valve closed/open - too low**Monitoring strategy**

Monitoring supply voltage

Possible causes

- Pressure loss at the charge air throttle valve
- Charge air throttle valve is sluggish or valve is blocked
- Intercooler throttle valve actuator is defective
- Incorrect positioning of the charge air throttle valve

Possible test steps

- Perform with MAN-cats monitoring: Actuator test for charge air throttle valve
- Check boost pressure for plausibility using MAN-cats monitoring
- Perform resistance measurement on the charge air throttle actuator
- Check electrical cables and plug connections

Possible remedy

- Replace cables and plug contacts if necessary
- Replace bulbs and lamp housings if necessary

SPN 4541 - FMI 3 - Intake air throttle valve blocked valve closed/open - implausible**Monitoring strategy**

Monitoring supply voltage

Possible causes

- Pressure loss at the charge air throttle valve
- Intercooler throttle valve is sluggish or valve is blocked
- Intercooler throttle valve actuator is defective
- Incorrect positioning of the charge air throttle valve

Possible test steps

- Perform with MAN CATS monitoring: Actuator test for charge air throttle valve
- Check boost pressure for plausibility with MAN-cats monitoring
- Perform resistance measurement on the charge air throttle actuator
- Check electrical cables and plug connections

Possible remedy

- Replace cables and plug contacts if necessary
- Replace light bulbs and lamp housings if necessary

SPN 4542 - FMI 1 - Intake air throttle valve physical sensor value - too high**Monitoring strategy**

Monitoring supply voltage

Possible causes

- Sensors of the charge air throttle valve are defective or overheated
- Pressure loss at the charge air throttle valve
- Intercooler valve is sluggish or valve is blocked

Possible test steps

- Perform with MAN-cats monitoring: Actuator test for charge air throttle valve
- Check boost pressure for plausibility with MAN-cats monitoring
- Resistance measurement
- Check electrical cables and plug connections

Possible remedy

- Replace cables and plug contacts if necessary
- Replace light bulbs and lamp housings if necessary

SPN 4542 - FMI 2 - Intake air throttle valve physical sensor value - too low**Monitoring strategy**

Monitoring supply voltage

Possible causes

- Sensors of the charge air throttle valve are defective or overheated
- Pressure loss at the charge air throttle valve
- Intercooler valve is sluggish or valve is blocked

Possible test steps

- Perform with MAN-cats monitoring: Actuator test for charge air throttle valve
- with MAN-cats monitoring Check boost pressure for plausibility
- Resistance measurement
- Check electrical cables and plug connections

Possible remedy

- Repair heat shields, insulation, control unit coolers
- Replace cables and plug contacts if necessary
- Replace EDC if necessary

SPN 4542 - FMI 8 - Intake air throttle valve physical sensor value - faulty signal**Monitoring strategy**

Monitoring supply voltage

Possible causes

- Sensors of the charge air throttle valve are defective or overheated
- Pressure loss at the charge air throttle valve
- Intercooler throttle valve is stiff or valve is blocked

Possible test steps

- Perform with MAN-cats monitoring: Actuator test for charge air throttle valve
- with MAN-cats monitoring Check boost pressure for plausibility
- Resistance measurement
- Check electrical cables and plug connections

Possible remedy

- Replace cables and plug contacts if necessary
- Replace light bulbs and lamp housings if necessary

SPN 4542 - FMI 10 - Intake air throttle valve physical sensor value - interruption**Monitoring strategy**

Monitoring supply voltage

Possible causes

- Sensors of the charge air throttle valve are defective or overheated
- Pressure loss at the charge air throttle valve
- Intercooler throttle valve is stiff or valve is blocked

Possible test steps

- Perform with MAN-cats monitoring: Actuator test for charge air throttle valve
- with MAN-cats monitoring Check boost pressure for plausibility
- Resistance measurement
- Check electrical cables and plug connections

Possible remedy

- Replace cables and plug contacts if necessary
- Replace light bulbs and lamp housings if necessary

SPN 4543 - FMI 7 - Intake air throttle position sensor - Short circuit**Monitoring strategy**

Monitoring supply voltage

Possible causes

- The position sensor of the charge air throttle valve is defective
- Pressure loss at the charge air throttle valve
- Intercooler throttle valve is sluggish or valve is blocked
- Intercooler throttle actuator is defective
- Incorrect positioning of the charge air throttle valve

Possible test steps

- Perform with MAN-cats monitoring: Actuator test for charge air throttle valve
- Check boost pressure for plausibility with MAN-cats monitoring
- Perform resistance measurement on charge air throttle actuator
- Check electrical cables and plug connections

Possible remedy

- Replace cables and plug contacts if necessary
- Replace bulbs and lamp housings if necessary

SPN 4543 - FMI 8 - Intake air throttle position sensor - faulty signal**Monitoring strategy**

Monitoring supply voltage

Possible causes

- The position sensor of the charge air throttle valve is defective
- Pressure loss at the charge air throttle valve
- Intercooler throttle valve is sluggish or valve is blocked
- Incorrect positioning of the charge air throttle valve

Possible test steps

- Perform with MAN-cats monitoring: Actuator test for charge air throttle valve
- Check boost pressure for plausibility with MAN-cats monitoring
- Perform resistance measurement on charge air throttle valve actuator
- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4543 - FMI 11 - Intake air throttle position sensor - Loose connection**Monitoring strategy**

Supply voltage monitoring

Possible causes

- The position sensor of the charge air throttle valve is defective
- Pressure loss at the charge air throttle valve
- Intercooler valve is sluggish or valve is blocked
- Incorrect positioning of the charge air throttle valve

Possible test steps

- Perform with MAN-cats monitoring: Actuator test for charge air throttle valve
- Check boost pressure for plausibility with MAN-cats monitoring
- Perform resistance measurement on charge air throttle valve actuator
- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4544 - FMI 8 - Intake air throttle valve sensor supply - faulty signal**Monitoring strategy**

Monitoring supply voltage

Possible causes

- The power supply to the sensors for the charge air throttle valve is interrupted

Possible test steps

- Check with MAN-cats monitoring: Status information voltage

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace A1279 AdBlue dosing unit if necessary

SPN 4545 - FMI 8 - Intake air throttle valve Software initialization - Signal faulty**Monitoring strategy**

Intake air throttle valve monitoring

Possible causes

- The necessary software initialization of the charge air throttle valve was not performed correctly.

Possible test steps**Possible remedy**

- Replace electrical cables or plug connections if necessary
- Replace A1279 AdBlue dosing unit if necessary

SPN 4546 - FMI 8 - Intake air throttle valve temperature - faulty signal**Monitoring strategy**

Temperature monitoring

Possible causes

- Intercooler throttle valve sensors are defective or overheated
- Intercooler throttle actuator is defective
- Incorrect positioning of the charge air throttle valve

Possible test steps

- Check the boost pressure for plausibility using MAN-cats monitoring
- Perform resistance measurement on the charge air throttle actuator
- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace A1279 AdBlue dosing unit if necessary

SPN 4547 - FMI 1 - Inducement System: Warning (dosing interrupted) - too high**Monitoring strategy**

Off-road/marine engine: Collective/consequential error due to particulate filter diagnosis (PCD). Be sure to note additional SPNs in the error memory. On-road engine: AdBlue consumption is too low/consequential error due to insufficient AdBlue consumption. Be sure to note additional SPNs in the error memory.

Possible causes

- Invalid AdBlue consumption
- A808 AdBlue supply unit is defective

Possible test steps

- Check the AdBlue quantity dosage with MAN-cats monitoring

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace A1279 AdBlue dosing unit if necessary

SPN 4547 - FMI 2 - Inducement System: Warning (dosing interrupted) - too low**Monitoring strategy**

AdBlue dosing is interrupted: Follow-up error due to dosing interruption. Therefore, it is essential to note additional SPNs in the error memory.

Possible causes

- AdBlue dosing interrupted
- A808 AdBlue supply unit is defective

Possible test steps

- Check the AdBlue quantity dosing with MAN-cats Monitoring

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace A1279 AdBlue dosing unit if necessary

SPN 4548 - FMI 1 - Inducement System: Warning (monitoring error); collective error EGR and emission control system - too high**Monitoring strategy**

Collective SPN for activation of torque limitation (after 36 hours) and creep mode after (100 hours).

Possible causes

Collective SPN for activation of torque limitation (after 36 hours) and creep mode (after 100 hours). Causative SPNs may be: 4489 (FMI1 and FMI2) and 3004 (FMI4)

Possible test steps

- See the SPNs listed under causes

Possible remedy

SPN 4548 - FMI 4 - Inducement System: Warning (monitoring error); collective error EGR and emission control system - No signal**Monitoring Strategy**

Collective SPN for activation of torque limitation (after 36 hours) and creep mode after (100 hours).

Possible causes

Collective SPN for activation of torque limitation (after 36 hours) and creep mode (after 100 hours). Causative SPNs can be: 3047 (FMI4), 4441 (FMI8), 3821 (FMI4), 4058 (FMI4), 3053 (FMI4), 1761 (FMI3 and FMI8), 3043 (FMI3 and FMI8), 3746 (FMI10), 3055 (FMI4), and 3056 (FMI4)

Possible test steps

- see SPNs mentioned under causes

Possible remedy

SPN 4549 - FMI 1 - Particulate filter regeneration required - too high**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- The particulate filter needs to be cleaned - The driving profile for driving regeneration is too unfavorable - Engine error prevents driving and stationary regeneration - Engine soot raw emissions significantly increased

Possible test steps**Possible remedies**

-Perform a service regeneration -Read the EDC fault memory entry. Correct any faults found. -Check engine raw emissions

SPN 4550 - FMI 2 - Engine oil level too low - too low**Monitoring strategy**

Monitoring engine oil level

Possible causes

- Oil level is too low

Possible test steps

- Check oil level

Possible remedy

- Read out EDC fault memory entry. Correct any faults.

SPN 4551 - FMI 1 - AdBlue system: Urea consumption too low - too high**Monitoring strategy**

AdBlue system monitoring

Possible causes

- Defect in A1192 AdBlue combination sensor, electrical or mechanical
- The tank was overfilled or small amounts (less than 5 liters) were refilled

Possible test steps

- Check the function of the A1192 AdBlue combination sensor
- Refuel the vehicle correctly

Possible remedy

Check engine raw emissions

SPN 4552 - FMI 3 - Air mass sensor 1: Plausibility error - implausible**Monitoring strategy**

Monitoring Internal control unit errors

Possible causes**Possible test steps**

- Use MAN-cats monitoring to check the intake air mass against the boost pressure for plausibility

Possible remedy

- Replace electrical cables and connectors
- Replace defective A435 EDC control unit if necessary

SPN 4553 - FMI 3 - Air mass sensor 2: Plausibility error - implausible**Monitoring strategy**

Monitoring Internal control unit errors

Possible causes**Possible test steps**

- Use MAN-cats monitoring to check the intake air mass with the boost pressure for plausibility

Possible remedy

- Replace electrical cables and connectors
- Replace defective A435 EDC control unit if necessary

SPN 4554 - FMI 3 - Air mass sensor 3: Plausibility error - implausible**Monitoring strategy**

Monitoring Internal control unit errors

Possible causes**Possible test steps**

- Use MAN-cats monitoring to check the intake air mass against the boost pressure for plausibility

Possible remedy

- Replace electrical cables and connectors
- Replace defective A435 EDC control unit if necessary

SPN 4555 - FMI 3 - Air mass sensor 4: Plausibility error - implausible**Monitoring strategy**

Monitoring Internal control unit errors

Possible causes**Possible test steps**

- Use MAN-cats monitoring to check the intake air mass against the boost pressure for plausibility

Possible remedy

SPN 4556 - FMI 5 - CAN exhaust gas temperature sensor upstream of OxiCat - Short circuit to ground**Monitoring strategy**

Thermocouple 1: Short circuit to ground

Possible causes

- Plug connection Wiring of the exhaust gas temperature sensor upstream of the catalytic converter
- Exhaust gas temperature sensor upstream of catalytic converter is defective

Possible test steps

- Check the temperatures of the exhaust gas aftertreatment system using MAN-cats monitoring
- Check electrical cables and plug connections
- Check exhaust gas temperature sensor upstream of catalytic converter

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4556 - FMI 6 - CAN exhaust gas temperature sensor upstream of OxiCat - Short circuit to UBatt+**Monitoring strategy**

Thermocouple 1: Short circuit to battery

Possible causes

- Plug connection Wiring of the exhaust gas temperature sensor before Oxikat
- Exhaust gas temperature sensor before Oxikat is defective

Possible test steps

- Check the temperatures of the exhaust gas aftertreatment system with MAN CATS monitoring
- Check electrical cables and plug connections
- Check the exhaust gas temperature sensor upstream of the catalytic converter

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4556 - FMI 8 - CAN exhaust gas temperature sensor upstream of OxiCat - Invalid signal**Monitoring strategy**

CAN message temperature module 1: Temperature implausible

Possible causes

- Plug connection Wiring of the exhaust gas temperature sensor before Oxikat
- Exhaust gas temperature sensor before Oxikat is defective

Possible test steps

- Check the temperatures of the exhaust gas aftertreatment system with MAN CATS monitoring
- Check electrical cables and plug connections
- Check the exhaust gas temperature sensor upstream of the catalytic converter

Possible remedies

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4556 - FMI 9 - CAN exhaust gas temperature sensor upstream of OxiCat - Device error**Monitoring strategy**

Thermocouple 1: Device error

Possible causes

- Plug connection Wiring of the exhaust gas temperature sensor before Oxikat
- Exhaust gas temperature sensor before Oxikat is defective

Possible test steps

- Check the temperatures of the exhaust gas aftertreatment system using MAN-cats monitoring
- Check electrical wiring and plug connections
- Check the exhaust gas temperature sensor upstream of the catalytic converter

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4556 - FMI 10 - CAN exhaust gas temperature sensor upstream of OxiCat - interruption**Monitoring strategy**

Thermocouple 1: Cable interruption (open load)

Possible causes

- Plug connection Wiring of the exhaust gas temperature sensor before Oxikat
- Exhaust gas temperature sensor before Oxikat is defective

Possible test steps

- Check the temperatures of the exhaust gas aftertreatment system using MAN-cats monitoring
- Check electrical cables and plug connections
- Check exhaust gas temperature sensor upstream of catalytic converter

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4557 - FMI 5 - CAN message: Exhaust gas temperature sensor upstream of particulate filter - short circuit to ground**Monitoring strategy**

Exhaust aftertreatment monitoring

Possible causes

- Interruption in the wiring of the exhaust gas temperature sensor upstream of the particulate filter
- Exhaust gas temperature sensor upstream of particulate filter is defective

Possible test steps

- Check the exhaust gas aftertreatment temperatures using MAN CATS monitoring
- Check electrical cables and plug connections
- Check exhaust gas temperature sensor upstream of particulate filter

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace A1279 AdBlue dosing unit if necessary

SPN 4557 - FMI 6 - CAN message: Exhaust gas temperature sensor upstream of particulate filter - Short circuit to UBatt+**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- Interruption in the wiring of the exhaust gas temperature sensor upstream of the particulate filter
- Exhaust gas temperature sensor upstream of particulate filter is defective

Possible test steps

- Check the exhaust gas aftertreatment temperatures using MAN cats monitoring
- Check electrical cables and plug connections
- Check exhaust gas temperature sensor upstream of particulate filter

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace A1279 AdBlue dosing unit if necessary

SPN 4557 - FMI 8 - CAN message: Exhaust gas temperature sensor upstream of particulate filter - Invalid signal**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- Interruption in the wiring of the exhaust gas temperature sensor upstream of the particulate filter
- Exhaust gas temperature sensor upstream of particulate filter is defective

Possible test steps

- Check the exhaust gas aftertreatment temperatures using MAN cats monitoring
- Check electrical cables and plug connections
- Check exhaust gas temperature sensor upstream of particulate filter

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace A1279 AdBlue dosing unit if necessary

SPN 4557 - FMI 9 - CAN message: Exhaust gas temperature sensor upstream of particulate filter - device error**Monitoring strategy**

Monitoring exhaust gas aftertreatment

Possible causes

- Interruption in the wiring of the exhaust gas temperature sensor upstream of the particulate filter
- Exhaust gas temperature sensor upstream of particulate filter is defective

Possible test steps

- Check the exhaust gas aftertreatment temperatures using MAN-cats monitoring
- Check electrical cables and plug connections
- Check exhaust gas temperature sensor upstream of particulate filter

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace A1279 AdBlue dosing unit if necessary

SPN 4557 - FMI 10 - CAN message: Exhaust gas temperature sensor upstream of particulate filter - interruption**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- Interruption in the wiring of the exhaust gas temperature sensor upstream of the particulate filter
- Exhaust gas temperature sensor upstream of particulate filter is defective

Possible test steps

- Check the exhaust gas aftertreatment temperatures using MAN-cats monitoring
- Check electrical cables and plug connections
- Check exhaust gas temperature sensor upstream of particulate filter

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace A1279 AdBlue dosing unit if necessary

SPN 4558 - FMI 5 - CAN message: Exhaust gas temperature sensor after particulate filter - short circuit to ground**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- Interruption in the wiring of the exhaust gas temperature sensor after the particulate filter
- Exhaust gas temperature sensor after particulate filter is defective

Possible test steps

- Check the temperatures of the exhaust gas aftertreatment system using MAN-cats monitoring
- Check electrical cables and plug connections
- Check the exhaust gas temperature sensor after the particulate filter

Possible remedy

SPN 4558 - FMI 6 - CAN message: Exhaust gas temperature sensor after particulate filter - Short circuit after UBatt+**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- Interruption in the wiring of the exhaust gas temperature sensor after the particulate filter
- Exhaust gas temperature sensor after particulate filter is defective

Possible test steps

- Check the exhaust gas aftertreatment temperatures using MAN-cats monitoring
- Check electrical cables and plug connections
- Check the exhaust gas temperature sensor after the particulate filter

Possible remedy

SPN 4558 - FMI 8 - CAN message: Exhaust gas temperature sensor after particulate filter - Invalid signal**Monitoring strategy**

Exhaust aftertreatment monitoring

Possible causes

- Interruption in the wiring of the exhaust gas temperature sensor after the particulate filter
- Exhaust gas temperature sensor after particulate filter is defective

Possible test steps

- Check the exhaust gas aftertreatment temperatures using MAN-cats monitoring
- Check electrical cables and plug connections
- Check the exhaust gas temperature sensor after the particulate filter

Possible remedy

- Check the plausibility of errors stored in the error memory and rectify them before the final inducement occurs and the engine is only running at idle speed
- AdBlue level --> Fill up the tank, check the function of the tank sensor in the A1192 AdBlue combination sensor
- AdBlue quality --> Empty tank and fill with AdBlue with correct urea content, check function of quality sensor in A1192 AdBlue combination sensor
- Sensor error: Check electrical wiring and plug connections, replace defective sensor if necessary
- EGR valve: Check mobility, perform actuator test with MANcats, initiate learning drive, replace defective component if necessary
- AdBlue dosing: Check electrical wiring, check hose lines, check with MANcats A808 AdBlue delivery module and A1279 AdBlue dosing module, replace defective/damaged parts if necessary

SPN 4558 - FMI 9 - CAN message: Exhaust gas temperature sensor after particulate filter - Device error**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- Interruption in the wiring of the exhaust gas temperature sensor after the particulate filter
- Exhaust gas temperature sensor after particulate filter is defective

Possible test steps

- Check the temperatures of the exhaust gas aftertreatment system using MAN cats monitoring
- Check electrical cables and plug connections
- Check the exhaust gas temperature sensor after the particulate filter

Possible remedy

- Check the plausibility of errors stored in the error memory and rectify them:
- AdBlue level --> Fill up the tank, check the function of the tank sensor in the A1192 AdBlue combination sensor
- AdBlue quality --> Empty the tank and fill with AdBlue with the correct urea content, check the function of the quality sensor in the A1192 AdBlue combination sensor
- Sensor error: Check wiring, replace defective sensor if necessary
- EGR valve: Test actuator with MANcats, initiate learning cycle, replace defective component if necessary
- AdBlue dosing: Check electrical wiring, check hose lines, check AdBlue delivery module with MANcats A808 and AdBlue dosing module with A1279, replace defective/damaged parts if necessary

SPN 4558 - FMI 10 - CAN message: Exhaust gas temperature sensor after particulate filter - interruption**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- Interruption in the wiring of the exhaust gas temperature sensor after the particulate filter
- Exhaust gas temperature sensor after particulate filter is defective

Possible test steps

- Check the temperatures of the exhaust gas aftertreatment system using MAN-cats monitoring
- Check electrical cables and plug connections
- Check exhaust gas temperature sensor after particulate filter

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4559 - FMI 4 - CAN message: EgTFrm1 Exhaust gas temperature sensor system before DOC timeout error - No signal**Monitoring strategy**

Monitoring exhaust gas aftertreatment

Possible causes

- Cabling/plug connection not OK -- Power supply KL.15 or 31 not OK
- Error in the CAN connection

Possible test steps

- '- Check also see Troubleshooting EDC17 in the CAN network -- Check EGR valve for function and plausibility
- Note: This SPN may be stored in the error memory if there are errors on the CAN. When troubleshooting on the CAN, always use the engine-specific circuit diagram. The defective location can be circled using the SPNs stored in the error memory. An overview of the motor-specific CAN switching sequences can be found in the separate system description for the EDC17 engine control unit.

Possible remedy

SPN 4560 - FMI 3 - CAN exhaust gas temperature sensor - implausible**Monitoring strategy**

Monitoring exhaust gas temperature sensors

Possible causes

- The temperature at the reference measuring point of the thermocouple evaluation unit is implausible

Possible test steps

- Check electrical cables and plug connections
- A1191 Check thermocouple evaluation unit

Possible remedy

- Replace electrical cables or plug connections if necessary
- Renew CAN connection if necessary

SPN 4560 - FMI 7 - CAN exhaust gas temperature sensor - short circuit**Monitoring strategy**

Monitoring exhaust gas temperature sensors

Possible causes

- There is a short circuit at the reference measuring point of the thermocouple evaluation unit.

Possible test steps

- Check electrical cables and plug connections
- A1191 Check thermocouple evaluation unit

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4560 - FMI 8 - CAN exhaust gas temperature sensor - Invalid signal**Monitoring strategy**

Monitoring exhaust gas temperature sensors

Possible causes

- There is a PCB error in the thermocouple evaluation unit

Possible test steps

- Check electrical cables and plug connections
- A1191 Check thermocouple evaluation unit

Possible remedy

- If necessary, replace the blocked A808 AdBlue supply unit if the pump does not rotate despite correct boundary conditions
- After replacing the A808 AdBlue supply unit, perform the service routines "Component Change," "Filter Reset," and "Initial Operation."

SPN 4560 - FMI 9 - CAN exhaust gas temperature sensor - device error**Monitoring strategy**

Monitoring exhaust gas temperature sensors

Possible causes

- There is a device error in the thermocouple evaluation unit

Possible test steps

- Check electrical cables and plug connections
- A1191 Check thermocouple evaluation unit

Possible remedy

- Replace any damaged or blocked cables

SPN 4560 - FMI 10 - CAN exhaust gas temperature sensor - interruption**Monitoring strategy**

Monitoring exhaust gas temperature sensors

Possible causes

- The reference measuring point of the thermocouple evaluation unit is interrupted

Possible test steps

- Check electrical cables and plug connections
- A1191 Check thermocouple evaluation unit

Possible remedy

- Replace damaged or blocked cables if necessary
- Replace dirty filters if necessary
- Replace the sampling unit if necessary
- Refill AdBlue tank if necessary

SPN 4561 - FMI 5 - CAN message: Exhaust gas temperature sensor in tailpipe - Short circuit to ground**Monitoring strategy**

Exhaust aftertreatment monitoring

Possible causes

- Interruption in the wiring of the exhaust gas temperature sensor in the tailpipe
- Exhaust gas temperature sensor in tailpipe is defective

Possible test steps

- Check the exhaust gas aftertreatment temperatures using MAN cats monitoring
- Check electrical cables and plug connections
- Check the exhaust gas temperature sensor in the tailpipe

Possible remedy

- Replace damaged or blocked cables if necessary
- Replace blocked sampling unit if necessary

SPN 4561 - FMI 6 - CAN message: Exhaust gas temperature sensor in tailpipe - Short circuit to UBatt+**Monitoring strategy**

Exhaust aftertreatment monitoring

Possible causes

- Interruption in the wiring of the exhaust gas temperature sensor in the tailpipe
- Exhaust gas temperature sensor in tailpipe is defective

Possible test steps

- Check the exhaust gas aftertreatment temperatures using MAN cats monitoring
- Check electrical cables and plug connections
- Check the exhaust gas temperature sensor in the tailpipe

Possible remedy

- Replace damaged or blocked cables if necessary
- Replace dirty filters if necessary
- Replace the sampling unit if necessary
- Refill AdBlue tank if necessary

SPN 4561 - FMI 8 - CAN message: Exhaust gas temperature sensor in tailpipe - Invalid signal**Monitoring strategy**

Exhaust aftertreatment monitoring

Possible causes

- Interruption in the wiring of the exhaust gas temperature sensor in the tailpipe
- Exhaust gas temperature sensor in tailpipe is defective

Possible test steps

- Check the exhaust aftertreatment temperatures using MAN CATS monitoring
- Check electrical cables and plug connections
- Check the exhaust gas temperature sensor in the tailpipe

Possible remedy

- Replace any damaged or blocked cables if necessary
- Replace blocked extraction unit if necessary

SPN 4561 - FMI 9 - CAN message: Exhaust gas temperature sensor in tailpipe - Device error**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- Interruption in the wiring of the exhaust gas temperature sensor in the tailpipe
- Exhaust gas temperature sensor in tailpipe is defective

Possible test steps

- Check the exhaust aftertreatment temperatures using MAN CATS monitoring
- Check electrical cables and plug connections
- Check the exhaust gas temperature sensor in the tailpipe

Possible remedy

- Replace any damaged or blocked cables if necessary

SPN 4561 - FMI 10 - CAN message: Exhaust gas temperature sensor in tailpipe - interruption**Monitoring strategy**

Exhaust aftertreatment monitoring

Possible causes

- Interruption in the wiring of the exhaust gas temperature sensor in the tailpipe
- Exhaust gas temperature sensor in tailpipe is defective

Possible test steps

- Check the exhaust aftertreatment temperatures using MAN CATS monitoring
- Check electrical cables and plug connections
- Check the exhaust gas temperature sensor in the tailpipe

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace damaged AdBlue lines if necessary
- Replace A1279 AdBlue dosing unit if necessary
- Replace sampling unit if necessary

SPN 4562 - FMI 4 - CAN message: EgTFrm2 exhaust gas temperature sensor after DPF timeout error - No signal**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- Cabling/plug connection not OK -- Power supply KL.15 or 31 not OK
- Error in the CAN connection

Possible test steps

- Check exhaust gas CAN as described in the FEDC system description. -Check electrical cables and plug connections
- Check CAN connection
- Note: This SPN may be stored in the fault memory if there are faults on the CAN. Always use the engine-specific circuit diagram when troubleshooting the CAN. The defective location can be circled using the SPNs stored in the fault memory. An overview of the engine-specific CAN switching sequences can be found in the separate system description for the EDC17 engine control unit.

Possible remedy

SPN 4563 - FMI 1 - Air humidity - too high**Monitoring strategy**

Monitoring of air humidity values

Possible causes

- The humidity is too high

Possible troubleshooting steps**Possible remedy**

- Replace damaged or blocked AdBlue lines if necessary
- Replace dirty filters in the tank extraction unit or the A808 AdBlue supply unit, if necessary
- Replace the inlet filter of the A1279 AdBlue dosing unit if necessary
- Refill AdBlue tank if necessary
- Replace the A808 AdBlue supply unit if necessary
- After replacing the A808 AdBlue supply unit, perform the "Component Change," "Filter Reset," and "Initial Operation" service routines

SPN 4563 - FMI 2 - Humidity - too low**Monitoring strategy**

Monitoring of air humidity values

Possible causes

- The air humidity is too low

Possible test steps**Possible remedy**

- If necessary, replace the A808 AdBlue supply unit
- After replacing the A808 AdBlue supply unit, perform the "Component Change," "Filter Reset," and "Initial Operation" service routines

SPN 4564 - FMI 3 - Humidity sensor - implausible**Monitoring strategy**

Monitoring humidity sensor

Possible causes

- Humidity sensor is defective

Possible test steps

- Check electrical cables and plug connections
- Check humidity sensor

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective AdBlue supply unit if necessary
- After replacing the A808 AdBlue supply unit, perform the "Component Change," "Filter Reset," and "Initial Operation" service routines

SPN 4564 - FMI 5 - Humidity sensor - Short circuit to ground**Monitoring strategy**

Monitoring humidity sensor

Possible causes

- Humidity sensor is defective
- Interruption in the humidity sensor wiring

Possible test steps

- Check electrical cables and plug connections
- Check the humidity sensor

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective AdBlue supply unit if necessary
- After replacing the A808 AdBlue supply unit, perform the "Component Change," "Filter Reset," and "Initial Operation" service routines

SPN 4564 - FMI 6 - Humidity sensor - Short circuit after UB**Monitoring strategy**

Monitoring humidity sensor

Possible causes

- Humidity sensor is defective
- Interruption in the wiring of the humidity sensor

Possible test steps

- Check electrical wiring
- Check electrical connections
- Check humidity sensor

Possible remedy

- Replace damaged AdBlue lines if necessary
- Replace dirty filters if necessary
- Refill AdBlue tank if necessary
- Replace A808 AdBlue supply unit if necessary
- Replace the A1279 AdBlue dosing unit if necessary
- After replacing the A808 AdBlue supply unit or the A1279 AdBlue dosing unit, perform the "Component Change," "Filter Reset," and "Initial Operation" service routines

SPN 4564 - FMI 11 - Humidity sensor - Loose connection**Monitoring strategy**

Monitoring humidity sensor

Possible causes

- Humidity sensor is defective
- Interruption in the humidity sensor wiring

Possible test steps

- Check electrical wiring and plug connections
- Check the humidity sensor

Possible remedy

- Replace the AdBlue filter of the A808 AdBlue supply unit in accordance with the service manual
- After replacement, perform the "Filter Reset" and "Initial Operation" service routines
- After performing the "Initial Operation" service routine, the control unit follow-up must run completely

SPN 4565 - FMI 1 - Crawl mode active - too high**Monitoring strategy**

AdBlue system monitoring

Possible causes

- There are faults in the exhaust gas aftertreatment system; final inducement is active

Possible troubleshooting steps**Possible remedy**

- Replace the AdBlue filter of the A808 AdBlue supply unit according to the service manual
- After replacement, perform the "Filter Reset" and "Initial Operation" service routines
- After executing the "Initial Operation" service routine, the control unit follow-up must run completely

SPN 4566 - FMI 1 - Tamper monitoring creep mode - too high**Monitoring strategy**

Monitoring internal control unit errors

Possible causes

- There are faults in the exhaust gas aftertreatment system; final inducement is active

Possible troubleshooting steps**Possible remedy**

- Replace electrical cables or plug connections if necessary
- Replace defective AdBlue dosing unit if necessary

SPN 4566 - FMI 8 - Tamper monitoring creep mode - Invalid signal**Monitoring strategy**

Monitoring internal control unit errors

Possible causes

- There are errors in the exhaust aftertreatment system, final inducement is active

Possible test steps**Possible remedy**

- Replace electrical cables or plug connections if necessary
- Replace defective AdBlue dosing unit if necessary

SPN 4567 - FMI 3 - Starter monitoring - implausible**Monitoring strategy**

Monitoring internal control unit errors

Possible causes

- There may be a defect in the A435 EDC control unit

Possible test steps

- Delete the error memory
- If the error no longer occurs after switching on the ignition (Kl. 15), the A435 EDC control unit is OK
- If the error is still present after switching on the ignition (circuit 15), the A435 EDC control unit is defective

Possible remedy

- Replace electrical cables or plug connections if necessary.
- Replace relay or fuse if necessary

SPN 4568 - FMI 3 - Exhaust relative pressure upstream of catalytic converter - implausible**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- B695 Exhaust gas differential/relative pressure sensor is defective

Possible test steps

- '
- 1. Delete FSP

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace relay or fuse if necessary

SPN 4569 - FMI 3 - Exhaust relative pressure before catalytic converter - implausible**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- B695 Exhaust gas differential/relative pressure sensor is defective

Possible test steps

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- 2. If the fault no longer occurs after terminal 15 "On," the EDC control unit can remain in the vehicle. If the fault still occurs after terminal 15 "On," the EDC control unit must be replaced.

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective EDC if necessary

SPN 4571 - FMI 1 - Smooth running control: R4 and R6 = Cyl. 1 outside tolerance - too high**Monitoring strategy**

Monitoring injectors

Possible causes

- The injector's injection quantity correction is outside tolerance

Possible test steps

- Monitor the cylinder with MAN CATS monitoring: injection quantity correction

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective EDC if necessary

SPN 4572 - FMI 1 - Smooth running control: R4 = cylinder 3, R6 = cylinder 5 outside tolerance**- Too high****Monitoring strategy**

Monitoring injectors

Possible causes

- The injector's injection quantity correction is outside tolerance

Possible test steps

- Monitor the cylinder using MAN CATS monitoring: injection quantity correction

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective pedal position sensor if necessary

SPN 4573 - FMI 1 - Smooth running control: R4 = cylinder 4, R6 = cylinder 3 outside tolerance**- too high****Monitoring strategy**

Monitoring injectors

Possible causes

- The injector's injection quantity correction is outside the tolerance range

Possible test steps

- Monitor the cylinder using MAN cats monitoring: injection quantity correction

Possible remedy

- Replace electrical cables or plug connections if necessary
- If necessary, relearn the adjustment path with MAN-cats VTG actuator
- Replace defective turbocharger unit if necessary
- Replace defective relay for power supply if necessary

SPN 4574 - FMI 1 - Smooth running control: R4 = cylinder 2, R6 = cylinder 6 outside tolerance**- too high****Monitoring strategy**

Monitoring injectors

Possible causes

- The injector's injection quantity correction is outside tolerance

Possible test steps

- Monitor the cylinder using MAN-cats monitoring: injection quantity correction

Possible remedy

- Replace electrical cables or plug connections if necessary
- If necessary, relearn the adjustment path with MAN-cats VTG actuator
- Replace defective turbocharger unit if necessary
- Replace defective relay for power supply if necessary

SPN 4575 - FMI 1 - Smooth running control: R6 = Cyl. 2 outside tolerance - too high**Monitoring strategy**

Monitoring injectors

Possible causes

- The injector's injection quantity correction is outside tolerance

Possible test steps

- Monitor the cylinder using MAN-cats monitoring: injection quantity correction

Possible remedy

- Replace electrical cables or plug connections if necessary
- If necessary, relearn the adjustment path with MAN-cats VTG actuator
- Replace defective turbocharger unit if necessary
- Replace defective relay for power supply if necessary

SPN 4576 - FMI 1 - Smooth running control: R6 = Cyl. 4 outside tolerance - too high**Monitoring strategy**

Monitoring injectors

Possible causes

- The injector's injection quantity correction is outside tolerance

Possible test steps

- Monitor the cylinder using MAN-cats monitoring: injection quantity correction

Possible remedy

- Replace cables and plug contacts if necessary
- Replace light bulbs and lamp housings if necessary

SPN 4577 - FMI 1 - Particulate filter differential pressure: Offset before start (cold sensor) - too high**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- Blocked particulate filter
- Incorrect offset learning values

Possible test steps

- Check the exhaust back pressure with MAN-cats monitoring
- Check with MAN-cats: operating hours since last regeneration, distance traveled since last regeneration, fuel quantity since last regeneration, number of partial regenerations

Possible remedies

- Replace electrical cables or plug connections if necessary
- If necessary, relearn the adjustment path with MAN-cats VTG actuator
- Replace defective turbocharger unit if necessary
- Replace defective relay for power supply if necessary

SPN 4577 - FMI 2 - Particulate filter differential pressure: Offset before start (cold sensor) - too low**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- Blocked particulate filter
- Incorrect offset learning values

Possible test steps

- Check the exhaust back pressure with MAN-cats monitoring
- Check with MAN-cats: operating hours since last regeneration, distance traveled since last regeneration, fuel quantity since last regeneration, number of partial regenerations

Possible remedy

- If necessary, replace electrical cables or plug connections
- If necessary, relearn the adjustment range with MAN-cats VTG actuator
- Replace defective turbocharger unit if necessary
- Replace defective relay for power supply if necessary

SPN 4578 - FMI 1 - Particulate filter differential pressure: Offset in follow-up (hot sensor) - too high**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- Blocked particulate filter
- Incorrect offset learning values

Possible test steps

- Check the exhaust back pressure with MAN-cats monitoring
- Check with MAN-cats: operating hours since last regeneration, distance traveled since last regeneration, fuel quantity since last regeneration, number of partial regenerations

Possible remedies

- Replace electrical cables or plug connections if necessary
- If necessary, relearn the adjustment path with MAN-cats VTG actuator
- Replace defective turbocharger unit if necessary
- Replace defective relay for power supply if necessary

SPN 4578 - FMI 2 - Particulate filter differential pressure: Offset in follow-up (hot sensor) - too low**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- Blocked particulate filter
- Incorrect offset learning values

Possible test steps

- Check the exhaust back pressure with MAN-cats monitoring
- Check with MAN-cats: operating hours since last regeneration, distance traveled since last regeneration, fuel quantity since last regeneration, number of partial regenerations

Possible remedies

- Replace electrical cables or plug connections if necessary
- Replace defective relays if necessary
- Replace defective EDC control unit if necessary

SPN 4579 - FMI 1 - AdBlue system: Differential pressure across SCR catalytic converter - too high**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- SCR catalytic converter blocked by urea deposits

Possible test steps

- Check the exhaust back pressure with MAN-cats monitoring
- If the exhaust back pressure values are OK, there may also be a blockage in front of the SCR catalytic converter due to a damaged or blocked urea nozzle

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective relays if necessary
- Replace defective EDC control unit if necessary

SPN 4579 - FMI 2 - AdBlue system: Differential pressure across SCR catalytic converter - too low**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- SCR catalytic converter blocked by urea deposits

Possible test steps

- Check the exhaust back pressure with MAN-cats monitoring
- If the exhaust back pressure values are OK, there may also be a blockage in front of the SCR catalytic converter due to a damaged or blocked urea nozzle

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective relays if necessary
- Replace defective EDC control unit if necessary

SPN 4581 - FMI 2 - AdBlue level - too low**Monitoring strategy**

Monitoring of the AdBlue level

Possible causes

- AdBlue tank is empty
- A1192 AdBlue combination sensor is defective
- Note: The A1192 AdBlue combination sensor is used for almost all tank sizes. For certain wheelbases (e.g., in dump trucks), a 28-liter tank with a fill level/temperature sensor and separate quality sensor may be installed for space reasons.

Possible test steps

- Check AdBlue level

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective relays if necessary
- Replace defective EDC control unit if necessary

SPN 4582 - FMI 2 - AdBlue level - too low**Monitoring strategy**

Monitoring the AdBlue level

Possible causes

- AdBlue level is too low
- A1192 AdBlue combination sensor is defective
- Note: The A1192 AdBlue combination sensor is used for almost all tank sizes. For certain wheelbases (e.g., in dump trucks), a 28-liter tank with a level/temperature sensor and separate quality sensor may be installed for space reasons.

Possible test steps

- Check AdBlue level

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective A435 EDC control unit if necessary

SPN 4583 - FMI 2 - AdBlue level - too low**Monitoring strategy**

Monitoring of the AdBlue level

Possible causes

- AdBlue level is too low
- A1192 AdBlue combination sensor is defective
- Note: The A1192 AdBlue combination sensor is used for almost all tank sizes. For certain wheelbases (e.g., in dump trucks), a 28-liter tank with a level/temperature sensor and separate quality sensor may be installed for space reasons.

Possible test steps

- Check AdBlue level

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective A435 EDC control unit if necessary

SPN 4584 - FMI 2 - AdBlue level - too low**Monitoring strategy**

Monitoring of the AdBlue level

Possible causes

- AdBlue level is too low
- A1192 AdBlue combination sensor is defective
- Note: The A1192 AdBlue combination sensor is used for almost all tank sizes. For certain wheelbases (e.g., in dump trucks), a 28-liter tank with a level/temperature sensor and separate quality sensor may be installed for space reasons.

Possible test steps

- Check AdBlue level

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective A435 EDC control unit if necessary

SPN 4585 - FMI 1 - Coolant temperature in EGR cooler too high**Monitoring strategy**

Monitoring of the EGR cooler medium temperature sensor

Possible causes

- Temperature sensor in EGR cooler defective

Possible test steps

- Check electrical cables and plug connections
- Check coolant temperature with MAN-cats monitoring
- Use MAN CATS monitoring to verify that the displayed temperature value is plausible with the coolant temperature value at the engine outlet

Possible remedy

- Replace electrical cables or plug connections if necessary

SPN 4585 - FMI 2 - Coolant temperature in EGR cooler - too low**Monitoring strategy**

Monitoring of the EGR cooler medium temperature sensor

Possible causes

- Temperature sensor in EGR cooler defective

Possible test steps

- Check electrical cables and plug connections
- Check coolant temperature with MAN-cats monitoring
- Use MAN CATS monitoring to verify that the displayed temperature value is plausible with the coolant temperature value at the engine outlet

Possible remedy

- Replace electrical cables or plug connections if necessary

SPN 4586 - FMI 3 - Coolant temperature sensor in EGR cooler - implausible**Monitoring strategy**

Monitoring of the EGR cooler coolant temperature sensor

Possible causes

- Temperature sensor in EGR cooler defective

Possible test steps

- Check electrical cables and plug connections
- Check coolant temperature using MAN-cats monitoring

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace coolant temperature sensor if necessary

SPN 4586 - FMI 5 - Coolant temperature sensor in EGR cooler - Short circuit to ground**Monitoring strategy**

Monitoring of the EGR cooler coolant temperature sensor

Possible causes

- Temperature sensor in EGR cooler defective

Possible test steps

- Check electrical cables and plug connections
- Check coolant temperature using MAN-cats monitoring

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace coolant temperature sensor if necessary

SPN 4586 - FMI 6 - Coolant temperature sensor in EGR cooler - Short circuit to UBatt+**Monitoring strategy**

Monitoring of the EGR cooler medium temperature sensor

Possible causes

- Temperature sensor in EGR cooler defective

Possible test steps

- Check electrical cables and plug connections
- Check coolant temperature using MAN CATS monitoring

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace coolant temperature sensor if necessary

SPN 4586 - FMI 10 - Coolant temperature sensor in EGR cooler - Interruption**Monitoring strategy**

Monitoring of the EGR cooler medium temperature sensor

Possible causes

- Temperature sensor in EGR cooler defective

Possible test steps

- Check electrical cables and plug connections
- Check coolant temperature using MAN-cats monitoring

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace coolant temperature sensor if necessary

SPN 4586 - FMI 11 - Coolant temperature sensor in EGR cooler - Loose connection**Monitoring strategy**

Monitoring of the EGR cooler medium temperature sensor

Possible causes

- Temperature sensor in EGR cooler defective

Possible test steps

- Check electrical cables and plug connections
- Check coolant temperature using MAN-cats monitoring

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace coolant temperature sensor if necessary

SPN 4587 - FMI 8 - Tuning protection - Invalid signal**Monitoring strategy**

Monitoring internal control unit errors

Possible causes

- The engine control unit has been tampered with without authorization

Possible test steps

- Check with MAN cats: Trend data on fuel quantity, smoke limitation, maximum torque

Possible remedy

SPN 4588 - FMI 8 - SCR catalytic converter not installed - Invalid signal**Monitoring strategy**

Monitoring exhaust gas aftertreatment

Possible causes

- The SCR catalytic converter is not installed

Possible test steps

- Use MAN-cats monitoring to check the exhaust back pressure and NOx concentrations before and after the SCR catalytic converter for plausibility.
- Check whether an SCR catalytic converter is installed

Possible remedy

SPN 4589 - FMI 1 - Speed limiter - too high

Monitoring strategy

Monitoring internal control unit errors

Possible causes

- The output stage for the speed limiter has become too warm

Possible test steps

- Check electrical cables and plug connections

Possible remedy

SPN 4589 - FMI 5 - Speed limiter - Short circuit to ground**Monitoring strategy**

Monitoring internal control unit errors

Possible causes

- Interruption of the cabling

Possible test steps

- Check electrical cables and plug connections

Possible remedy

SPN 4589 - FMI 6 - Speed limiter - Short circuit after UBatt+**Monitoring strategy**

Monitoring internal control unit errors

Possible causes

- Interruption of the cabling

Possible test steps

- Check electrical cables and plug connections

Possible remedy

SPN 4589 - FMI 10 - Speed limiter - Interruption

Monitoring strategy

Monitoring of internal control unit errors

Possible causes

- Interruption of the wiring

Possible test steps

- Check electrical cables and plug connections

Possible remedy

SPN 4590 - FMI 1 - CAN message: Ambient temperature invalid - too high**Monitoring strategy**

Temperature monitoring

Possible causes**Possible test steps**

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 4591 - FMI 1 - High pressure charge air pressure monitoring - too high**Monitoring strategy**

Monitoring charge air pressure

Possible causes**Possible test steps**

- Check the boost pressure for plausibility using MAN-cats monitoring
- Check the wastegate control pressure (target 2.5 bar); under certain circumstances, there may be insufficient pressure to control the wastegate.

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective AdBlue supply unit if necessary
- After replacing the A808 AdBlue supply unit, perform the service routines "Component Change," "Filter Reset," and "Initial Operation."

SPN 4591 - FMI 2 - High pressure charge air pressure monitoring - too low**Monitoring strategy**

Monitoring charge air pressure

Possible causes

- The wastegate is open and blocked
- Pressure loss via boost pressure line

Possible test steps

- Check the boost pressure for plausibility using MAN-cats monitoring

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective AdBlue supply unit if necessary
- After replacing the A808 AdBlue supply unit, perform the "Component Change," "Filter Reset," and "Initial Operation" service routines

SPN 4592 - FMI 1 - Low pressure charge air pressure monitoring - too high**Monitoring strategy**

Charge air pressure monitoring

Possible causes**Possible test steps**

- Check the charge pressure for plausibility using MAN-cats monitoring

Possible remedy

SPN 4592 - FMI 2 - Charge air pressure monitoring low pressure - too low**Monitoring strategy**

Charge air pressure monitoring

Possible causes

- Pressure loss via charge pressure line

Possible test steps

- Check the boost pressure for plausibility using MAN-cats monitoring

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective AdBlue dosing unit if necessary

SPN 4593 - FMI 1 - Ambient air temperature sensor implausible - too high**Monitoring strategy**

Temperature monitoring

Possible causes

- The ambient air temperature is implausible in relation to the temperature of the air mass flow sensor

Possible test steps

- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective AdBlue dosing unit if necessary

SPN 4594 - FMI 1 - Exhaust gas temperature after SCR catalytic converter - too high**Monitoring strategy**

Monitoring exhaust gas aftertreatment; physical diagnosis / The measured but valid sensor value is above the predicted range

Possible causes

- Interruption in the wiring of the B634 exhaust gas temperature sensor after SCR catalytic converter
- B634 exhaust gas temperature sensor after SCR catalytic converter is defective or sensor drift

Possible test steps

- Check the exhaust gas aftertreatment temperatures using MAN cats monitoring
- Check electrical cables and plug connections
- Check B634 exhaust gas temperature sensor after SCR catalytic converter - Check exhaust gas temperature sensor as documented in the test step list of the FEDC17 system description

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace the exhaust gas temperature sensor if necessary

SPN 4594 - FMI 2 - Exhaust gas temperature after SCR catalytic converter - too low**Monitoring strategy**

Monitoring exhaust gas aftertreatment; physical diagnosis / The measured but valid sensor value is below the predicted range

Possible causes

- Interruption in the wiring of the B634 exhaust gas temperature sensor after SCR catalytic converter
- B634 exhaust gas temperature sensor after SCR catalytic converter is defective or sensor drift

Possible test steps

- Check the exhaust gas aftertreatment temperatures using MAN cats monitoring
- Check electrical cables and plug connections
- Check B634 exhaust gas temperature sensor after SCR catalytic converter - Check exhaust gas temperature sensor as documented in the test step list of the FEDC17 system description

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace the exhaust gas temperature sensor if necessary

SPN 4594 - FMI 8 - Exhaust gas temperature after SCR catalytic converter - Invalid signal**Monitoring strategy**

Monitoring exhaust gas aftertreatment; exhaust gas temperature after SCR: temperature drops too quickly

Possible causes

- Interruption in the wiring of the B634 exhaust gas temperature sensor after SCR catalytic converter
- B634 exhaust gas temperature sensor after SCR catalytic converter is defective or sensor drift

Possible test steps

- Check the exhaust gas aftertreatment temperatures using MAN cats monitoring
- Check electrical cables and plug connections
- Check B634 exhaust gas temperature sensor after SCR catalytic converter - Check exhaust gas temperature sensor as documented in the test step list of the FEDC17 system description

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace the exhaust gas temperature sensor if necessary

SPN 4594 - FMI 9 - Exhaust gas temperature after SCR catalytic converter - Device error**Monitoring strategy**

Monitoring exhaust gas aftertreatment; exhaust gas temperature after SCR: temperature difference too low (removal detection for off-road/marine)

Possible causes

- Interruption in the wiring of the B634 exhaust gas temperature sensor after SCR catalytic converter
- B634 exhaust gas temperature sensor after SCR catalytic converter is defective or sensor drift

Possible test steps

- Check the exhaust aftertreatment temperatures using MAN cats monitoring
- Check electrical cables and plug connections
- Check B634 exhaust gas temperature sensor after SCR catalytic converter - Check exhaust gas temperature sensor as documented in the test step list of the FEDC17 system description

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace the exhaust gas temperature sensor if necessary

SPN 4595 - FMI 3 - CAN message: PTM4 regeneration suppression invalid - implausible**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Interruption in CAN between power train manager and engine control unit

Possible test steps

- Check CAN connection between engine control unit and power train manager

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace A808 AdBlue supply unit if necessary
- After replacing the A808 AdBlue supply unit, perform the "Component Change," "Filter Reset," and "Initial Operation" service routines
- After executing the "Initial Operation" service routine, the control unit follow-up must run completely.

SPN 4595 - FMI 4 - CAN message: PTM4 regeneration suppression invalid - No signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Interruption in CAN between power train manager and engine control unit

Possible test steps

- Check CAN connection between engine control unit and power train manager

Possible remedy

- Replace electrical cables or plug connections if necessary
- If necessary, relearn the adjustment range with MAN-cats VTG actuator
- Replace defective turbocharger unit if necessary

SPN 4595 - FMI 8 - CAN message: PTM4 regeneration suppression invalid - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Interruption in the CAN between the power train manager and the engine control unit

Possible test steps

- Check CAN connection between engine control unit and power train manager

Possible remedy

- Replace electrical cables or plug connections if necessary
- If necessary, relearn the adjustment range with MAN-cats VTG actuator
- Replace defective turbocharger unit if necessary

SPN 4596 - FMI 3 - CAN message: PTM4 AdBlue tank level information invalid - implausible**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Interruption in CAN between power train manager and engine control unit

Possible test steps

- Check CAN connection between engine control unit and power train manager

Possible remedy

- Replace electrical cables or plug connections if necessary
- If necessary, relearn the adjustment range with MAN-cats VTG actuator
- Replace defective turbocharger unit if necessary

SPN 4596 - FMI 4 - CAN message: PTM4 AdBlue tank level information invalid - No signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Interruption in CAN between power train manager and engine control unit

Possible test steps

- Check CAN connection between engine control unit and power train manager

Possible remedy

- Repair heat shields, insulation, control unit coolers
- Replace cables and plug contacts if necessary
- Replace EDC if necessary

SPN 4596 - FMI 8 - CAN message: PTM4 AdBlue tank level information invalid - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Interruption in CAN between power train manager and engine control unit

Possible test steps

- Check CAN connection between engine control unit and power train manager

Possible remedy

- Replace cables and plug contacts if necessary
- Replace light bulbs and lamp housings if necessary

SPN 4597 - FMI 3 - CAN message: CRI1 urea concentration incorrect - implausible**Monitoring strategy**

AdBlue system monitoring

Possible causes

- AdBlue quality insufficient (urea concentration too low)
- A1192 AdBlue combination sensor in AdBlue tank defective
- Interruption in the CAN between individual participants
- Short circuit between CAN high and low

Possible test steps

- Check the status information for AdBlue quality using MAN-cats Monitoring
- Check the urea concentration of the AdBlue used: Target value 32.5% ± 0.7% according to ISO 22241-1
- Check A1192 AdBlue combination sensor

Possible remedy

- Replace cables and plug contacts if necessary
- Replace light bulbs and lamp housings if necessary

SPN 4598 - FMI 8 - CAN message: CRI1AdBlue tank temperature faulty - Invalid signal**Monitoring strategy**

AdBlue system monitoring

Possible causes

- A1192 AdBlue combination sensor in AdBlue tank is defective
- Interruption in CAN between individual participants
- Short circuit between CAN high and low

Possible test steps

- Check the AdBlue temperature in the tank using MAN cats monitoring Note: This SPN may be stored in the fault memory if there are faults on the CAN. When troubleshooting on the CAN, always use the vehicle-specific circuit diagram. The defective location can be circled using the SPNs stored in the fault memory. An overview of the vehicle-specific CAN switching sequences can be found in the separate system description for the EDC17 engine control unit.

Possible remedy

- Replace cables and plug contacts if necessary
- Replace bulbs and lamp housings if necessary

SPN 4600 - FMI 2 - AdBlue consumption too low - too low**Monitoring strategy**

AdBlue system monitoring

Possible causes

- Invalid AdBlue consumption
- AdBlue delivery unit pump is defective

Possible test steps

- Check the AdBlue quantity dosage using MAN-cats Monitoring

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace load relay if necessary

SPN 4601 - FMI 1 - CAN exhaust gas temperature before OxiCat - too high**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- The exhaust gas temperature upstream of OxiKat is too high

Possible test steps

- Check electrical cables and plug connections
- Check connection CAN 2 (exhaust gas) between A435 control unit EDC and A1191 thermocouple evaluation unit
- Measure resistance between pin A34 (CAN high) and pin A47 (CAN low)
- Target value 115 Ω to 125 Ω
- Check that the thermocouple is correctly installed in the exhaust system

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace load relay if necessary

SPN 4601 - FMI 2 - CAN exhaust gas temperature before OxiCat - too low**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- The exhaust gas temperature before OxiKat is too low

Possible test steps

- Check electrical cables and plug connections
- Check connection CAN 2 (exhaust gas) between A435 control unit EDC and A1191 thermocouple evaluation unit
- Measure resistance between pin A34 (CAN high) and pin A47 (CAN low)
- Target value 115 Ω to 125 Ω
- Check that the thermocouple is correctly installed in the exhaust system

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace load relays if necessary

SPN 4602 - FMI 1 - CAN exhaust gas temperature before particulate filter - too high**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- The exhaust gas temperature before the particulate filter is too high

Possible test steps

- Check electrical cables and plug connections
- Check CAN 2 (exhaust gas) connection between A435 EDC control unit and A1191 thermocouple evaluation unit
- Resistance measurement between pin A34 (CAN High) and pin A47 (CAN Low)
- Target value 115 Ω to 125 Ω
- Check that the thermocouple is correctly installed in the exhaust system

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace load relay if necessary

SPN 4602 - FMI 2 - CAN exhaust gas temperature before particulate filter - too low**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- The exhaust gas temperature before the particulate filter is too low

Possible test steps

- Check electrical cables and plug connections
- Check CAN 2 (exhaust gas) connection between A435 EDC control unit and A1191 thermocouple evaluation unit
- Measure resistance between pin A34 (CAN high) and pin A47 (CAN low)
- Target value 115 Ω to 125 Ω
- Check that the thermocouple is correctly installed in the exhaust system

Possible remedy

- Replace electrical cables or plug connections if necessary
- If necessary, eliminate leaks in the air system, replace defective components
- Replace defective air mass sensor if necessary

SPN 4603 - FMI 1 - CAN exhaust gas temperature after particulate filter - too high**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- The exhaust gas temperature after the particulate filter is too high

Possible test steps

- Check electrical cables and plug connections
- Check connection CAN 2 (exhaust gas) between A435 control unit EDC and A1191 thermocouple evaluation unit
- Measure resistance between pin A34 (CAN high) and pin A47 (CAN low)
- Target value 115 Ω to 125 Ω
- Check that the thermocouple is correctly installed in the exhaust system

Possible remedy

- Replace electrical cables or plug connections if necessary
- If necessary, repair leaks in the air system and replace defective components
- Replace defective air mass sensor if necessary

SPN 4603 - FMI 2 - CAN exhaust gas temperature after particulate filter - too low**Monitoring strategy**

Exhaust aftertreatment monitoring

Possible causes

- The exhaust gas temperature after the particulate filter is too low

Possible test steps

- Check electrical cables and plug connections
- Check CAN 2 (exhaust gas) connection between A435 EDC control unit and A1191 thermocouple evaluation unit
- Resistance measurement between pin A34 (CAN High) and pin A47 (CAN Low)
- Target value 115 Ω to 125 Ω
- Check that the thermocouple is correctly installed in the exhaust system

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4604 - FMI 1 - Temperature CAN exhaust gas temperature sensor evaluation unit - too high**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- The temperature of the exhaust gas temperature sensor evaluation unit is too high

Possible test steps

- Check electrical cables and plug connections
- A1191 Check thermocouple evaluation unit

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4604 - FMI 2 - Temperature CAN exhaust gas temperature sensor evaluation unit - too low**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- The temperature of the exhaust gas temperature sensor evaluation unit is too low

Possible test steps

- Check electrical cables and plug connections
- A1191 Check thermocouple evaluation unit

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4605 - FMI 1 - Supply CAN exhaust gas temperature sensor evaluation unit - too high**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- The power supply to the exhaust gas temperature sensor evaluation unit is too high

Possible test steps

- Check electrical cables and plug connections
- Check the power supply to the A1191 thermocouple evaluation unit
- Measure the voltage at the evaluation unit between pin 1 and pin 4
- Target value: +UBat

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace the CAN connection if necessary

SPN 4605 - FMI 2 - Supply CAN exhaust gas temperature sensor evaluation unit - too low**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- The power supply to the exhaust gas temperature sensor evaluation unit is too low

Possible test steps

- Check electrical cables and plug connections
- Check the power supply to the A1191 thermocouple evaluation unit
- Measure the voltage at the evaluation unit between pin 1 and pin 4
- Target value: +UBat

Possible remedy

- Replace cooling water lines if necessary, connect correctly
- Replace Y437 cooling water solenoid valve if necessary
- Replace electrical cables or plug connections if necessary
- Replace AdBlue line if necessary
- Replace A1279 AdBlue dosing unit if necessary
- Replace A808 AdBlue supply unit if necessary
- After replacing the A 808 AdBlue supply unit, perform the "Component Change," "Filter Reset," and "Initial Operation" service routines

SPN 4606 - FMI 1 - CAN exhaust gas temperature in tailpipe - too high**Monitoring strategy**

Exhaust aftertreatment monitoring

Possible causes

- The exhaust gas temperature in the tailpipe is too high

Possible test steps

- Check electrical cables and plug connections
- Check the CAN connection between the A435 EDC control unit and the A1191 thermocouple evaluation unit
- Resistance measurement between pin A34 (CAN High) and pin A47 (CAN Low)
- Target value 115 Ω to 125 Ω
- Check that the thermocouple is correctly installed in the exhaust system

Possible remedy

- Replace defective intake air throttle valve if necessary

SPN 4606 - FMI 2 - CAN exhaust gas temperature in tailpipe - too low**Monitoring strategy**

Exhaust gas aftertreatment monitoring

Possible causes

- The exhaust gas temperature in the tailpipe is too low

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection between A435 EDC control unit and A1191 thermocouple evaluation unit
- Measure resistance between pin A34 (CAN high) and pin A47 (CAN low)
- Target value 115 Ω to 125 Ω
- Check that the thermocouple is correctly installed in the exhaust system

Possible remedy

- Replace electrical cables or plug connections if necessary

SPN 4607 - FMI 8 - CAN message HRLFC: Timeout error (fuel consumption) - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary

SPN 4608 - FMI 1 - EGR valve: Zero point adaptation invalid in closed position - too high**Monitoring strategy**

Monitoring of the EGR valve

Possible causes

- EGR valve has not learned the end positions correctly
- EGR valve is sluggish
- Current limitation of the servomotor is active (motor protection)

Possible test steps

- Check M289 EGR valve for stiffness --> can the fully closed or fully open position be reached?
- Initiate a new learning cycle with MAN cats, then check the position feedback during manual operation
- Check the current consumption of the servomotor --> Is the current limitation active (motor protection)?

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace air mass sensor if necessary

SPN 4609 - FMI 8 - Rail Pressure Limiting: Irreversible shut-off | x - Signal faulty

Monitoring strategy

Possible causes

Possible test steps

Possible remedy

- Replace electrical cables or plug connections if necessary

SPN 4611 - FMI 8 - Rail Pressure Limiting: Rail pressure not plausible | x - Signal faulty**Monitoring strategy****Possible causes****Possible test steps****Possible remedy**

- Replace electrical cables or plug connections if necessary

SPN 4612 - FMI 8 - Rail Pressure Limiting: Maximum rail pressure limiting count reached | x - Signal faulty**Monitoring strategy****Possible causes****Possible test steps****Possible remedy**

- Replace electrical cables or plug connections if necessary
- Replace air mass sensor if necessary

SPN 4613 - FMI 8 - Rail Pressure Limiting: Maximum rail pressure limiting time reached | x - Signal faulty**Monitoring strategy****Possible causes****Possible test steps****Possible remedy**

- Seal the charge air system if necessary
- Clean or replace Venturi tube if necessary

SPN 4614 - FMI 8 - Rail Pressure Limiting: Reversible shut-off | x - Signal faulty**Monitoring strategy****Possible causes****Possible test steps****Possible remedy**

- Seal the charge air system if necessary
- Replace Venturi tube if necessary

SPN 4615 - FMI 8 - Rail Pressure Limiting: Torque Limit | x - Signal faulty

Monitoring strategy

Possible causes

Possible test steps

Possible remedy

- Replace air mass sensor if necessary

SPN 4616 - FMI 8 - Rail Pressure Limiting: Rail pressure over limit | x - Signal faulty**Monitoring strategy****Possible causes****Possible test steps****Possible remedy**

- Replace air mass sensor if necessary

SPN 4617 - FMI 8 - OxiCat: Calculated HC conversion rate < limit value - Signal faulty**Monitoring strategy****Possible causes****Possible test steps****Possible remedy**

- Replace electrical cables or plug connections if necessary

**SPN 4619 - FMI 5 - CAN exhaust gas temperature sensor before Oxi-Kat 2. Flood -
Short circuit to ground****Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Wiring/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary

**SPN 4619 - FMI 6 - CAN exhaust gas temperature sensor before Oxi-Kat 2. Flood -
Short circuit after UBatt+**
Monitoring strategy

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary

SPN 4619 - FMI 8 - CAN exhaust gas temperature sensor before Oxi-Kat 2. Flood - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Wiring/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections
- Replace defective fuse, if necessary
- Replace defective exhaust gas temperature module if necessary

SPN 4619 - FMI 9 - CAN exhaust gas temperature sensor before Oxi-Kat 2. Flood - Device error**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections
- Replace defective fuse if necessary
- Replace defective exhaust gas temperature module if necessary

SPN 4619 - FMI 10 - CAN exhaust gas temperature sensor before Oxi-Kat 2. Flood - Interruption**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Wiring/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections
- Replace defective fuse if necessary
- Replace defective exhaust gas temperature module if necessary

**SPN 4620 - FMI 5 - CAN exhaust gas temperature sensor upstream of particulate filter
2nd flood - short circuit to ground****Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Wiring/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections
- Replace defective fuse if necessary
- Replace defective exhaust gas temperature module if necessary

SPN 4620 - FMI 6 - CAN exhaust gas temperature sensor upstream of particulate filter 2nd flood - short circuit to UBatt+**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Check the plausibility of errors stored in the error memory for the EGR system according to the troubleshooting list and rectify them
- Clear the fault memory

**SPN 4620 - FMI 8 - CAN exhaust gas temperature sensor upstream of particulate filter
2nd flood - Invalid signal****Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Check the plausibility of errors stored in the error memory for the EGR system according to the troubleshooting list and rectify them
- Clear the fault memory

SPN 4620 - FMI 9 - CAN exhaust gas temperature sensor upstream of particulate filter 2nd flood - device error**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Check the plausibility of errors stored in the error memory relating to AdBlue dosing in accordance with the troubleshooting list and rectify them
- Clear the fault memory

SPN 4620 - FMI 10 - CAN exhaust gas temperature sensor upstream of particulate filter 2nd flood - interruption**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Check the plausibility of errors stored in the error memory relating to AdBlue dosing in accordance with the troubleshooting list and rectify them
- Clear the fault memory

SPN 4621 - FMI 5 - CAN exhaust gas temperature sensor upstream of SCR - Short circuit to ground**Monitoring strategy**

Thermocouple: Short circuit to ground

Possible causes

- Wiring/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace component if necessary

SPN 4621 - FMI 6 - CAN exhaust gas temperature sensor upstream of SCR - Short circuit to UBatt+**Monitoring strategy**

Thermocouple: Short circuit to battery

Possible causes

- Wiring/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace component if necessary

SPN 4621 - FMI 8 - CAN exhaust gas temperature sensor upstream of SCR - Invalid signal**Monitoring strategy**

Thermocouple: Temperature invalid

Possible causes

- Wiring/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace component if necessary

SPN 4621 - FMI 9 - CAN exhaust gas temperature sensor before SCR - Device error**Monitoring strategy**

Thermocouple: Device error

Possible causes

- Wiring/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check the CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace component if necessary

SPN 4621 - FMI 10 - CAN exhaust gas temperature sensor before SCR - interruption**Monitoring strategy**

Thermocouple: Cable interruption

Possible causes

- Wiring/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace component if necessary

SPN 4622 - FMI 1 - CAN exhaust gas temperature before Oxi-Kat 2. Flood - too high**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Check the injection system with MAN-cars
- Check the plausibility of faults in the injection system in accordance with the troubleshooting guide and test step list, and rectify them
- Replace defective components if necessary

SPN 4622 - FMI 2 - CAN exhaust gas temperature before Oxi-Cat 2. Flood - too low**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Check the injection system with MAN-cars
- Check for faults in the injection system according to the troubleshooting guide and test step list and rectify them
- Replace defective components if necessary

SPN 4623 - FMI 1 - CAN exhaust gas temperature before particulate filter 2nd flood - too high**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check the CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Check the injection system with MAN-cats
- Check for faults in the injection or rail pressure control system and rectify them
- Replace defective sensors if necessary

SPN 4623 - FMI 2 - CAN exhaust gas temperature before particulate filter 2nd flood - too low**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Errors in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check the CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective rail pressure sensor if necessary

SPN 4624 - FMI 1 - CAN exhaust gas temperature after particulate filter 2nd flood - too high**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check the CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective proportional fuel valve if necessary
- Replace defective EDC control unit if necessary

SPN 4624 - FMI 2 - CAN exhaust gas temperature after particulate filter 2nd flood - too low**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or connectors if necessary
- Replace defective proportional fuel valve if necessary
- Replace defective EDC control unit if necessary

SPN 4625 - FMI 4 - Timeout CAN reception message exhaust gas temperature sensor 2 (off-road/marine SCR module) CAN message EgT2Frm1 - No signal**Monitoring strategy**

Monitoring for CAN signals CAN message EgT2Frm1: Timeout.

Possible causes

- Wiring/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check exhaust CAN as described in the FEDC17 Industry system description. Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 4626 - FMI 3 - CAN exhaust gas temperature sensor 2 - implausible**Monitoring strategy**

Monitoring exhaust gas temperature sensors

Possible causes

- The temperature at the reference measuring point of the thermocouple evaluation unit of the second flood is implausible

Possible test steps

- Check electrical cables and plug connections
- A1191 Check thermocouple evaluation unit

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective proportional fuel valve if necessary
- Replace defective EDC control unit if necessary

SPN 4626 - FMI 7 - CAN exhaust gas temperature sensor 2 - short circuit**Monitoring strategy**

Monitoring exhaust gas temperature sensors

Possible causes

- There is a short circuit at the reference measuring point of the thermocouple evaluation unit of the second flood.

Possible test steps

- Check electrical cables and plug connections
- A1191 Check thermocouple evaluation unit

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective proportional fuel valve if necessary
- Replace defective EDC control unit if necessary

SPN 4626 - FMI 8 - CAN exhaust gas temperature sensor 2 - Invalid signal**Monitoring Strategy**

Monitoring exhaust gas temperature sensors

Possible causes

- There is a PCB error in the thermocouple evaluation unit of the second flood.

Possible test steps

- Check electrical cables and plug connections
- A1191 Check thermocouple evaluation unit

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective proportional fuel valve if necessary
- Replace defective EDC control unit if necessary

SPN 4626 - FMI 9 - CAN exhaust gas temperature sensor 2 - Device error**Monitoring strategy**

Monitoring exhaust gas temperature sensors

Possible causes

- There is a device error in the thermocouple evaluation unit of the second flood.

Possible test steps

- Check electrical cables and plug connections
- A1191 Check thermocouple evaluation unit

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective proportional fuel valve if necessary
- Replace defective EDC control unit if necessary

SPN 4626 - FMI 10 - CAN exhaust gas temperature sensor 2 - interruption**Monitoring strategy**

Monitoring exhaust gas temperature sensors

Possible causes

- The reference measuring point of the thermocouple evaluation unit of the second flood is interrupted.

Possible test steps

- Check electrical cables and plug connections
- A1191 Check thermocouple evaluation unit

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective proportional fuel valve if necessary
- Replace defective EDC control unit if necessary

SPN 4627 - FMI 5 - CAN exhaust gas temperature sensor in tailpipe 2nd flood - short circuit to ground**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Wiring/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective proportional fuel valve if necessary
- Replace defective rail pressure sensor if necessary
- Replace defective EDC control unit if necessary

SPN 4627 - FMI 6 - CAN exhaust gas temperature sensor in tailpipe 2nd flood - short circuit to UBatt**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Wiring/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective proportional fuel valve if necessary
- Replace defective EDC control unit if necessary

SPN 4627 - FMI 8 - CAN exhaust gas temperature sensor in tailpipe 2nd flood - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace defective proportional fuel valve if necessary
- Replace defective EDC control unit if necessary

SPN 4627 - FMI 9 - CAN exhaust gas temperature sensor in tailpipe 2nd flood - device error**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Wiring/plug connection not OK
- Errors in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check the CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4627 - FMI 10 - CAN exhaust gas temperature sensor in tailpipe 2nd flood - interruption**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Wiring/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4628 - FMI 4 - Timeout CAN reception message exhaust gas temperature sensor 2 (off-road/marine SCR module) CAN message EgTFrmT2 - No signal**Monitoring strategy**

Monitoring for CAN signals CAN message EgT2Frm2: Timeout.

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check exhaust gas CAN as described in the FEDC17 Industry system description. Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 4629 - FMI 1 - CAN exhaust gas temperature evaluation unit 2: Temperature too high - too high**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4629 - FMI 2 - CAN exhaust gas temperature evaluation unit 2: Temperature too low - too low**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4630 - FMI 1 - CAN exhaust gas temperature evaluation unit 2: Supply voltage too high - too high**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4630 - FMI 2 - CAN exhaust gas temperature evaluation unit 2: Supply voltage too high - too low**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4631 - FMI 1 - CAN exhaust gas temperature in tailpipe 2. Flood - too high**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4631 - FMI 2 - CAN exhaust gas temperature in tailpipe 2. Flood - too low**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4633 - FMI 3 - EGR valve position adjustment time too long - implausible**Monitoring strategy**

Monitoring of the EGR valve

Possible causes**Possible test steps**

- Use MAN-cats to check the M289 EGR valve for stiffness --> can the fully closed or fully open position be reached?
- Move the EGR valve with MAN-cats and compare the target and actual positions
- Initiate a new learning run with MAN-cats, then check the position feedback during manual movement
- Check the current consumption of the servomotor --> Is the current limitation active (motor protection)?
- Check the joints and linkage between the servomotor and the flap housing for freedom of movement and wear

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4634 - FMI 10 - EGR valve broken return spring - interruption**Monitoring strategy**

Monitoring of the EGR valve

Possible causes

- Return spring in the servomotor is broken
- Valve is sluggish, does not return to the closed position or returns too slowly

Possible test steps

- M289 Move EGR valve with MAN cats to fully open position, disconnect plug --> if the spring is intact, the valve must be pushed back to the closed position automatically

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4642 - FMI 2 - AdBlue level too low**Monitoring strategy**

Monitoring of the SCR system

Possible causes

- AdBlue tank is almost empty or empty
- Defect in A1192 AdBlue combination sensor in AdBlue tank

Possible test steps

- Check electrical cables and plug connections
- Check AdBlue level in tank
- Check A1192 AdBlue combination sensor
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4646 - FMI 3 - Intake air throttle valve: Position adjustment time too long - implausible**Monitoring strategy**

Monitoring of the intake air throttle valve

Possible causes**Possible test steps**

- Use MAN cats to check the M119 intake air throttle valve for stiffness --> can the fully closed or fully open position be reached?
- Move the intake air throttle valve with MAN-cats and compare the target and actual positions
- Initiate a new learning run with MAN-cats, then check the position feedback during manual movement
- Check the current consumption of the servomotor --> Is the current limitation active (motor protection)?

Possible remedy

- Replace electrical cables or plug connections if necessary
- Renew CAN connection if necessary

SPN 4647 - FMI 10 - Intake air throttle valve: broken return spring - interruption**Monitoring strategy**

Monitoring of the intake air throttle valve

Possible causes

- Return spring in the servomotor is broken
- Damper is sluggish --> does not return to the closed position or returns too slowly

Possible test steps

- M119 Move the intake air throttle valve with MAN cats to the fully open position, disconnect the plug --> if the spring is intact, the valve must be pushed back to the closed position automatically

Possible remedy

SPN 4660 - FMI 8 - CAN message AuxEC: Error air conditioning compressor request - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace atmospheric pressure sensor if necessary
- Replace pressure compensation element on the control unit if necessary
- If no fault can be found: Replace A435 EDC control unit if necessary
- Please also note SPN 3046 in this context

SPN 4663 - FMI 8 - CAN message AuxEC: Checksum error - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 4664 - FMI 8 - CAN message AuxEC: Error message counter - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 4668 - FMI 8 - CAN message AuxEC: Maximum motor acceleration error - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 4670 - FMI 8 - CAN message AuxEC: Error light test request - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Read the error memory of the Power Train Manager and rectify any causes found there
- Renew the CAN connection if necessary

SPN 4671 - FMI 8 - CAN message AuxEC: Mode selection error - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4672 - FMI 8 - CAN message AuxEC: Error smoke map selection - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not working properly
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4673 - FMI 8 - CAN message AuxEC: Error feedback factor end speed limiter - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Renew CAN connection if necessary

SPN 4674 - FMI 8 - CAN message AuxEC: Stop request invalid - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 4675 - FMI 8 - CAN message AuxEC: Start request invalid - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace CAN connection if necessary

SPN 4676 - FMI 8 - CAN message AuxEC: Error loss moments - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 4677 - FMI 8 - CAN message AuxEC: Error signal vehicle is stationary - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not working properly
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Adjust oil level
- Replace electrical cables or plug connections if necessary
- Replace B104 oil pressure sensor if necessary

SPN 4678 - FMI 9 - Possible carbon buildup OxiCat -

Monitoring strategy

Possible causes

Possible test steps

Possible remedy

- Adjust oil level
- Replace electrical cables or plug connections if necessary
- Replace B104 oil pressure sensor if necessary

SPN 4679 - FMI 1 - Possible excess fuel in the exhaust aftertreatment system -**Monitoring strategy****Possible causes****Possible test steps****Possible remedy**

- Replace electrical cables or plug connections if necessary
- Replace B487 rail pressure sensor if necessary

SPN 4680 - FMI 9 - Possible blockage in the AdBlue dosing line -

Monitoring strategy

Possible causes

Possible test steps

Possible Remedial Action

- Replace electrical cables or plug connections if necessary
- Replace B487 rail pressure sensor if necessary

SPN 4681 - FMI 9 - Not active -**Monitoring strategy****Possible causes****Possible test steps****Possible remedy**

- Replace electrical cables or plug connections if necessary
- Replace B104 oil pressure sensor if necessary
- If no fault can be detected: Replace A435 EDC control unit if necessary

SPN 4682 - FMI 4 - CAN message AuxEC: Timeout error - No signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace B623 boost pressure/temperature sensor if necessary

SPN 4682 - FMI 8 - CAN message AuxEC: Timeout error - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not working properly
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 4685 - FMI 1 - Particulate filter is regenerated too frequently -

Monitoring strategy
Possible causes
Possible test steps
Possible remedy

SPN 4697 - FMI 4 - CAN message AuxEC2: Timeout error - No signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 4697 - FMI 8 - CAN message AuxEC2: Timeout error - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not working
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 4698 - FMI 8 - CAN message EDC6: Fan loss torque invalid - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 4699 - FMI 4 - CAN message EGRVlvExtdStRx: Timeout error AGR flap - No signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

-CAN timeout -Check CAN network for interruptions and short circuits.

Possible test steps

-Setpoint approx. 60Ω in the network, individually 120Ω approx. 0Ω short circuit from CAN-High to CAN-Low ∞ both terminating resistors not connected or damaged. CAN Hi Setpoint: 2.4V - 2.9V approx. 24V Short circuit from CAN high to UBat approx. 0V Short circuit from CAN high to ground 0V - 2.4V and 2.9V - 24V Short circuit from CAN high to any potential CAN Lo Setpoint: 2.2V - 2.7V approx. 24V Short circuit from CAN-Low to UBat approx. 0V Short circuit from CAN-Low to ground 0V - 2.4V and 2.9V - 24V Short circuit from CAN-Low to any potential

- Note: This SPN may be stored in the error memory if there are errors on the CAN. When troubleshooting on the CAN, always use the motor-specific circuit diagram. The defective location can be circled using the SPNs stored in the error memory. An overview of the motor-specific CAN switching sequences can be found in the separate system description FEDC17

Possible remedy

SPN 4699 - FMI 8 - CAN message EGRVlvExtdStRx: Timeout error EGR valve - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

-CAN TimeOUT -CAN Check connection for interruptions and short circuits.

Possible test steps

-Check exhaust gas CAN as described in the FEDC system description. -Check electrical cables and plug connections
- Check CAN connection
- Note: This SPN may be stored in the error memory if there are errors on the CAN. When troubleshooting on the CAN, always use the engine-specific circuit diagram. The defective location can be circled using the SPNs stored in the error memory. An overview of the engine-specific CAN switching sequences can be found in the separate FEDC17 system description.

Possible remedy

SPN 4700 - FMI 4 - CAN message EGRVlvSt: Timeout error EGR valve - No signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

-CAN TimeOUT -CAN Check connection for interruptions and short circuits.

Possible test steps

-Check exhaust gas CAN as described in the FEDC system description. -Check electrical cables and plug connections
- Check CAN connection
- Note: This SPN may be stored in the error memory if there are errors on the CAN. When troubleshooting on the CAN, always use the engine-specific circuit diagram. The defective location can be circled using the SPNs stored in the error memory. An overview of the engine-specific CAN switching sequences can be found in the separate FEDC17 system description.

Possible remedy

SPN 4700 - FMI 8 - CAN message EGRVlvSt: Timeout error EGR valve - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

-CAN timeout -Check CAN network for interruptions and short circuits.

Possible test steps

-Check the exhaust gas CAN as described in the FEDC system description. -Check electrical cables and plug connections

- Check CAN connection
- Note: This SPN may be stored in the error memory if there are errors on the CAN. When troubleshooting on the CAN, always use the engine-specific circuit diagram. The defective location can be circled using the SPNs stored in the error memory. An overview of the engine-specific CAN switching sequences can be found in the separate FEDC17 system description.

Possible remedy

SPN 4701 - FMI 1 - Lifetime of catalytic converter 1 exceeded -**Monitoring strategy****Possible causes****Possible test steps**

- Note:

Possible remedy

For D08 engines:

- If necessary, replace Y340 turbocharger 1 timing valve
- Replace electrical cables or plug connections if necessary
- If no fault can be detected: replace A435 EDC control unit if necessary

SPN 4702 - FMI 1 - Lifetime of catalytic converter 2 exceeded -**Monitoring strategy****Possible causes****Possible test steps**

This SPN may be stored in the error memory if there are errors on the CAN.

Possible remedy

For D08 engines:

- If necessary, replace Y340 clock valve turbocharger 1
- Replace electrical cables or plug connections if necessary
- If no error can be detected: Replace A435 EDC control unit if necessary

SPN 4703 - FMI 1 - Lifetime catalyst 3 exceeded -**Monitoring strategy****Possible causes****Possible test steps**

When troubleshooting on the CAN, always use the engine-specific circuit diagram. The defective location can be identified using the SPNs stored in the fault memory.

Possible remedy

- Replace electrical cables or plug connections if necessary
- If no fault can be detected: Replace the A435 EDC control unit if necessary
- For bus motors D0836 LOH and D2066 LUH:
- Replace Y458 proportional valve E-AGR if necessary

SPN 4704 - FMI 1 - Lifetime of catalytic converter 4 exceeded -**Monitoring strategy****Possible causes****Possible test steps**

An overview of the engine-specific CAN switching sequences can be found in the separate system description for the EDC17 engine control unit.

Possible remedy

- Replace electrical cables or plug connections if necessary
- If no fault can be detected: Replace the A435 EDC control unit if necessary
- For bus motors D0836 LOH and D2066 LUH:
- If necessary, replace Y458 proportional valve E-AGR

SPN 4705 - FMI 1 - Catalytic converter 5 lifetime exceeded -**Monitoring strategy****Possible causes****Possible test steps****Possible Remedial Action**

- Replace electrical cables or plug connections if necessary
- If no fault can be detected: Replace A435 EDC control unit if necessary
- For bus engines D0836 LOH and D2066 LUH:
- Replace Y458 proportional valve E-AGR if necessary

SPN 4706 - FMI 4 - CAN message FanDrive: Timeout error fan control - No signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check the CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- If no fault can be found: Replace A435 EDC control unit if necessary
- For bus motors D0836 LOH and D2066 LUH:
- Replace Y458 proportional valve E-AGR if necessary

SPN 4707 - FMI 4 - CAN message InletCondition1: Timeout error Air intake signals - No signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check the CAN connection

Possible remedy

For D08 engines:

- If necessary, replace Y340 turbocharger 1 timing valve
- Replace electrical cables or plug connections if necessary
- If no fault can be detected: Replace A435 EDC control unit if necessary

SPN 4711 - FMI 4 - CAN message EEC1: Timeout error - No signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check the CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace Y332 proportional fuel valve if necessary
- If no fault can be detected: Replace A435 EDC control unit if necessary

SPN 4712 - FMI 4 - CAN message EEC2: Timeout error - No signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check the CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace Y332 proportional fuel valve if necessary
- If no fault can be detected: Replace A435 EDC control unit if necessary

SPN 4713 - FMI 4 - CAN message EEC3: Timeout error - No signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check the CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace Y332 proportional fuel valve if necessary
- If no fault can be detected: Replace A435 EDC control unit if necessary

SPN 4714 - FMI 4 - Timeout error message throttle valve (ThrVlvExtdSt) - No signal**Monitoring strategy**

CAN message throttle valve: Timeout error

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection
- M119 Intercooler throttle valve interruption class 30, class 31

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection
- Check charge air throttle valve according to test step list in system description FEDC17

Possible remedy

- Replace electrical cables or plug connections if necessary

SPN 4714 - FMI 8 - Timeout error message throttle valve (ThrVlvExtdSt) - Invalid signal**Monitoring strategy**

CAN message throttle valve: Data length error

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check the CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary

SPN 4715 - FMI 4 - CAN message ThrVlvSt: Timeout error - No signal**Monitoring strategy**

Timeout of throttle valve message

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection
- M119 Charge air throttle valve interruption pin 30 or pin 31

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection
- Check the power supply to the M119 charge air throttle valve

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace throttle valve if necessary

SPN 4715 - FMI 8 - CAN message ThrVlvSt: Timeout error - Invalid signal**Monitoring strategy**

Timeout of throttle valve message

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace throttle valve if necessary

SPN 4731 - FMI 4 - CAN message VEP1: Timeout error - No signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

Perform a diagnosis of the common rail injection system using MAN-cats:

- Note: During the diagnostic tests, follow the sequence high-pressure test, DBV open test, DLR injector test
- Check fuel supply pressure before filter
- Setpoint: greater than 3 bar
- Check rail pressure
- Setpoint: greater than 200 bar
- Perform high-pressure test > shows whether the fault lies on the pressure generator side (high-pressure pump, metering unit) or on the consumer side (injector, pressure pipe connection, pressure relief valve)
- If the pressure reduction times are OK during the high-pressure test > further troubleshooting in the low-pressure fuel system or high-pressure pump
- To rule out the pressure relief valve as the cause, perform a DBV open test
- If the fault is on the consumer side (injector, pressure pipe connection, pressure relief valve), perform a DLR injector test

SPN 4732 - FMI 9 - EGR valve: broken return spring - device error**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Return spring in servomotor is broken
- Flap is stiff --> does not return to closed position or returns too slowly

Possible test steps

- Move the M289 EGR flap with MAN cats to the fully open position, disconnect the plug --> if the spring is intact, the flap must be pushed back into the closed position automatically

Possible remedy

Perform a diagnosis of the common rail injection with MAN cats:

- Note: During the diagnostic tests, follow the sequence high-pressure test, DBV open test, DLR injector test
- Check fuel supply pressure before filter
- Target value: greater than 3 bar
- Check rail pressure
- Setpoint: greater than 200 bar
- Perform high-pressure test > shows whether the fault is on the pressure generator side (high-pressure pump, metering unit) or the consumer side (injector, pressure pipe connection, pressure relief valve)
- If the pressure reduction times are OK during the high-pressure test > further troubleshooting in the low-pressure fuel system or high-pressure pump
- To rule out the pressure relief valve as the cause, perform a DBV open test
- If faults are found on the consumer side (injector, pressure pipe connection, pressure relief valve), perform a DLR injector test

SPN 4733 - FMI 3 - EGR valve: Persistent control deviation - implausible**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- EGR valve has not learned the end positions correctly
- EGR valve is sluggish
- Current limitation of the servomotor is active (motor protection)

Possible test steps

- M289 Check EGR valve for stiffness --> can the fully closed or fully open position be reached?
- Start a new learning run with MAN cats, then check the position feedback during manual operation
- Check the current consumption of the servomotor --> Is the current limitation active (motor protection)?

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace B695 exhaust gas differential/relative pressure sensor if necessary > After replacement with MAN-cats, reset the sensor's learning values

SPN 4737 - FMI 8 - EGR valve: Electronic error - Invalid signal**Monitoring strategy**

Monitoring of the EGR valve

Possible causes**Possible test steps**

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace B695 exhaust gas differential/relative pressure sensor if necessary > After replacement with MAN cats, reset the sensor's learning values

SPN 4738 - FMI 3 - EGR valve: Position measurement implausible - implausible**Monitoring strategy**

Monitoring of the EGR valve

Possible causes

- EGR valve has not learned the end positions correctly
- EGR valve is sluggish
- Current limitation of the servomotor is active (motor protection)

Possible test steps

- Use MAN-cats to initiate a new learning cycle for the M289 EGR valve --> The EGR valve relearns the 0% and 100% positions
- Use MAN-cats to manually move the M289 EGR valve and check the setpoint, position feedback, and actual valve position

Possible remedy

- Replace electrical cables or plug connections if necessary
- If necessary, replace B695 exhaust gas differential/relative pressure sensor > after replacement with MAN cats, reset the sensor's learning values

SPN 4738 - FMI 5 - EGR valve: Position measurement Short circuit to negative or ground - Short circuit to ground**Monitoring strategy**

Monitoring of the EGR valve

Possible causes

- Error in position determination of the EGR valve

Possible test steps

- Check electrical cables and plug connections
- Check the CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace Y460 shut-off valve E-AGR/EVBec if necessary

SPN 4738 - FMI 6 - EGR valve: Position measurement Short circuit to +UBat - Short circuit to UBatt+**Monitoring strategy**

Monitoring of the EGR valve

Possible causes

- Error in position determination of the EGR valve

Possible test steps

- Check electrical cables and plug connections
- Check the CAN connection

Possible remedy

- Read the error memory of the sending control unit and rectify the causes there
- Renew the CAN connection if necessary

SPN 4738 - FMI 8 - EGR valve: Position measurement sensor error - Invalid signal**Monitoring strategy**

Monitoring of the EGR valve

Possible causes

- Error in position determination of the EGR valve

Possible test steps

- Check electrical cables and plug connections
- Check the CAN connection

Possible remedy

SPN 4740 - FMI 2 - EGR valve: Slow response - too low**Monitoring strategy**

Monitoring the EGR valve

Possible causes

- Current limitation of the servomotor is active (motor protection)

Possible test steps

- Use MAN-cats to check the M289 EGR valve for stiffness --> can the fully closed or fully open position be reached?
- If possible, move the flap manually through its entire range with the plug disconnected (caution: hot part!)
- Initiate a new learning cycle with MAN-cats, then check the position feedback during manual movement
- Check the current consumption of the servomotor --> Is the current limitation active (motor protection)?

Possible remedy

SPN 4741 - FMI 3 - EGR valve temperature measurement - implausible**Monitoring strategy**

EGR valve: Temperature measurement implausible

Possible causes**Possible test steps**

Damage to EGR actuator/EGR valve: inadequate positioning, control deviation

Possible remedy

-Positioning: EGR valve positioning / Extension of actuator temperature EGR actuator in MANcats / Checking back pressure values via LDK

SPN 4741 - FMI 5 - EGR valve temperature measurement - Short circuit to ground**Monitoring strategy**

EGR valve: Temperature sensor short circuit to ground

Possible causes**Possible test steps**

Damage to EGR actuator / EGR valve Inadequate positioning, control deviation

Possible remedy

-Positioning: EGR flap positioning / extension of actuator temperature EGR actuator in MANcats / check back pressure values via LDK

SPN 4741 - FMI 6 - EGR valve temperature measurement - Short circuit after UBatt+**Monitoring strategy**

EGR valve: Temperature sensor short circuit against Ubatt

Possible causes**Possible test steps**

Damage to EGR actuator / EGR valve Inadequate positioning, control deviation

Possible remedy

-Positioning: EGR flap positioning / extension of actuator temperature EGR actuator in MANcats / check back pressure values via LDK

SPN 4741 - FMI 8 - EGR valve temperature measurement - Invalid signal**Monitoring strategy**

EGR valve: Signal invalid, possible temporary actuator reset; no component replacement necessary

Possible causes**Possible test steps**

-Insufficient power supply to eAGR

Possible remedy

-Status information: Voltage

SPN 4742 - FMI 1 - EGR valve overheating - too high**Monitoring strategy**

Monitoring of the EGR valve

Possible causes**Possible test steps**

- Are all heat protection devices in the area of the EGR valve present and correctly installed?
- Use MAN-cats to check the M289 EGR valve for stiffness --> can the fully closed or fully open position be reached?
- Initiate a new learning run with MAN-cats, then check the position feedback during manual operation
- Check the current consumption of the servomotor --> Is the current limitation active (motor protection)?

Possible remedy

SPN 4744 - FMI 1 - EGR valve: Supply voltage too high - too high**Monitoring strategy**

Monitoring of the EGR valve

Possible causes**Possible test steps**

- Check electrical cables and plug connections
- Check the supply voltage of the M289 EGR valve --> Plug connection Pin 1: Terminal 30 (+UBat), Pin 2: Terminal 31 (ground)

Possible remedy

SPN 4744 - FMI 2 - EGR valve: Supply voltage too low**Monitoring strategy**

Monitoring of the EGR valve

Possible causes**Possible test steps**

- Check electrical cables and plug connections
- Check the supply voltage of the M289 EGR valve --> Plug connection Pin 1: Terminal 30 (+UBat), Pin 2: Terminal 31 (ground)
- Check fuse in supply line F1108

Possible remedy

SPN 4745 - FMI 1 - Engine overspeed warning - too high

Monitoring strategy

Over-speed warning

Possible causes

Possible test steps

Possible remedy

SPN 4747 - FMI 5 - Small signal output stage 3 - PIN: 330 (camshaft sensor output to slave) - Short circuit to ground

Monitoring Strategy
Possible causes
Possible test steps
Possible Remedial Action

SPN 4747 - FMI 6 - Small signal output stage 3 - PIN: 330 (camshaft sensor output to slave) - Short circuit to UBatt+

Monitoring strategy
Possible causes
Possible test steps
Possible remedy

SPN 4748 - FMI 5 - Small signal output stage 4 - PIN: 306 (crankshaft sensor output to slave) - Short circuit to ground**Monitoring strategy****Possible causes****Possible test steps****Possible remedy**

SPN 4748 - FMI 6 - Small signal output stage 4 - PIN: 306 (crankshaft sensor output to slave) - Short circuit to UBatt+**Monitoring strategy****Possible causes****Possible test steps****Possible remedy**

SPN 4751 - FMI 8 - Intake air throttle valve: Electronic fault - Invalid signal**Monitoring strategy**

Throttle valve electronics error

Possible causes

- Intake air throttle valve has not learned the end positions correctly
- Intake air throttle valve is sluggish
- Current limitation of the servomotor is active (motor protection) - Intake air throttle valve defective

Possible test steps

- M119 Check intake air throttle valve for stiffness --> can the fully closed or fully open position be reached?
- Initiate a new learning run with MAN cats, then check the position feedback during manual operation
- Check the current consumption of the servomotor --> Is the current limitation active (motor protection)? -Electrical test of the actuator (resistance, voltage, etc.), replacement

Possible remedy

SPN 4752 - FMI 3 - Intake air throttle valve: current measurement implausible - implausible**Monitoring strategy**

Monitoring of the intake air throttle valve

Possible causes

- Current limitation of the servomotor is active (motor protection)

Possible test steps

- Check the current consumption of the servomotor --> Is the current limitation active (motor protection)?

Possible remedy

SPN 4752 - FMI 5 - Intake air throttle valve: Current measurement Short circuit to negative or ground - Short circuit to ground**Monitoring strategy**

Monitoring of the intake air throttle valve

Possible causes

- Possible electronic defect in the servomotor

Possible test steps

- Check electrical cables and plug connections

Possible remedy

SPN 4752 - FMI 6 - Intake air throttle valve: Current measurement Short circuit to +UBat - Short circuit to UBatt+**Monitoring strategy**

Monitoring of the intake air throttle valve

Possible causes

- Possible electronic defect in the servomotor

Possible test steps

- Check electrical cables and plug connections

Possible remedy

SPN 4752 - FMI 8 - Intake air throttle valve: Current measurement faulty - Invalid signal**Monitoring strategy**

Monitoring of the intake air throttle valve

Possible causes

- Possible electronic defect in the servomotor

Possible test steps

- Check electrical cables and plug connections

Possible remedy

SPN 4754 - FMI 8 - Intake air throttle valve: Electronic error - Invalid signal**Monitoring strategy**

Monitoring of the intake air throttle valve

Possible causes

- Possible electronic defect in the servomotor

Possible test steps

- Check electrical cables and plug connections

Possible remedy

- Replace CAN connection if necessary

SPN 4755 - FMI 3 - Intake air throttle valve: Position measurement implausible - implausible**Monitoring strategy**

Monitoring of the intake air throttle valve

Possible causes

- Intake air throttle valve has not learned the end positions correctly
- Intake air throttle valve is sluggish
- Current limitation of the servomotor is active (motor protection)
- Interruption terminal 15 or terminal 31

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection
- Use MAN-cats to initiate a new learning cycle for the M119 intake air throttle valve --> The EGR valve relearns the 0% and 100% positions
- Use MAN-cats to manually move the M119 intake air throttle valve and check the setpoint, position feedback, and actual valve position
- Check power supply: Pin A17 (terminal 15), A02 (terminal 31)

Possible remedy

- Replace electrical cables or plug connections if necessary

SPN 4755 - FMI 5 - Intake air throttle valve: Position measurement Short circuit to negative or ground - Short circuit to ground**Monitoring strategy**

Monitoring of the intake air throttle valve

Possible causes

- Possible electronic defect in the servomotor

Possible test steps

- Check electrical cables and plug connections

Possible remedy

SPN 4755 - FMI 6 - Intake air throttle valve: Position measurement Short circuit after +UBat - Short circuit after UBatt+**Monitoring strategy**

Monitoring of the intake air throttle valve

Possible causes

- Possible electronic defect in the servomotor

Possible test steps

- Check electrical cables and plug connections

Possible remedy

SPN 4755 - FMI 8 - Intake air throttle valve: Position measurement faulty - Invalid signal**Monitoring strategy**

Monitoring of the intake air throttle valve

Possible causes

- Intake air throttle valve has not learned the end positions correctly
- Intake air throttle valve is stiff
- Current limitation of the servomotor is active (motor protection)
- Interruption of terminal 15 or terminal 31

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection
- Use MAN-cats to initiate a new learning run for the M119 intake air throttle valve --> The EGR valve relearns the 0% and 100% positions
- Use MAN-cats to manually move the M119 intake air throttle valve and check the setpoint, position feedback, and actual valve position
- Check power supply: Pin A17 (terminal 15), A02 (terminal 31)

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace oil temperature sensor if necessary

SPN 4756 - FMI 1 - Intake air throttle valve: Zero point adaptation error, offset in fully open position - too high**Monitoring strategy**

Monitoring of the intake air throttle valve

Possible causes

- Intake air throttle valve has not learned the end positions correctly
- Intake air throttle valve is sluggish
- Current limitation of the servomotor is active (motor protection)

Possible test steps

- Use MAN-cats to initiate a new learning cycle for the M119 intake air throttle valve --> The EGR valve relearns the 0% and 100% positions
- Use MAN-cats to manually move the M119 intake air throttle valve and check the setpoint, position feedback, and actual valve position

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace oil temperature sensor if necessary

SPN 4756 - FMI 2 - Intake air throttle valve: Zero point adaptation error, offset in fully open position - too low**Monitoring strategy**

Monitoring of the intake air throttle valve

Possible causes

- Intake air throttle valve has not learned the end positions correctly
- Intake air throttle valve is sluggish
- Current limiting of the servomotor is active (motor protection)

Possible test steps

- With MAN-cats, initiate a new learning cycle for the M119 intake air throttle valve --> The EGR valve relearns the 0% and 100% positions
- Using MAN-cats, manually move the M119 intake air throttle valve and check the setpoint, position feedback, and actual valve position

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace the coolant pressure sensor if necessary

SPN 4757 - FMI 2 - Intake air throttle valve: sluggish response - too low**Monitoring strategy**

Intake air throttle valve: learning error or sluggish behavior

Possible causes

-Battery voltage lower than 8V -Actuator defective: mechanically blocked

Possible test steps

- Check intake air throttle valve for stiffness --> can the fully closed or fully open position be reached?
- Start a new learning run with MAN cats, then check the position feedback during manual operation
- Check the current consumption of the servomotor --> Is the current limitation active (motor protection)?

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace actuator if necessary

SPN 4758 - FMI 3 - Intake air throttle valve: Temperature measurement implausible - implausible**Monitoring strategy**

Monitoring of the intake air throttle valve

Possible causes

- Possible electronic defect in the servomotor

Possible test steps

- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- If necessary, replace B623 boost pressure/temperature sensor

SPN 4758 - FMI 5 - Intake air throttle valve: Temperature measurement Short circuit to negative or ground - Short circuit to ground**Monitoring strategy**

Monitoring of the intake air throttle valve

Possible causes

- Possible electronic defect in the servomotor

Possible test steps

- Check electrical cables and plug connections

Possible remedy

- Replace cables or plug connections if necessary
- Replace ambient air temperature sensor if necessary

SPN 4758 - FMI 6 - Intake air throttle valve: Temperature measurement short circuit after +UBat - Short circuit after UBatt+**Monitoring strategy**

Monitoring of the intake air throttle valve

Possible causes

- Possible electronic defect in the servomotor

Possible test steps

- Check electrical cables and plug connections

Possible remedy

- Replace Y458 proportional valve E-AGR if necessary

SPN 4758 - FMI 8 - Intake air throttle valve: Temperature measurement faulty - Invalid signal**Monitoring strategy**

Monitoring of the intake air throttle valve

Possible causes

- Possible electronic defect in the servomotor

Possible test steps

- Check electrical cables and plug connections

Possible remedy

SPN 4759 - FMI 1 - Intake air throttle valve: Overtemperature - too high**Monitoring strategy**

Monitoring of the intake air throttle valve

Possible causes**Possible test steps**

- Are all heat protection devices in the area of the M119 intake air throttle valve present and correctly installed?
- Check the M119 intake air throttle valve for stiffness --> can the fully closed or fully open position be reached?
- Start a new learning run with MAN cats, then check the position feedback during manual operation
- Check the current consumption of the servomotor --> Is the current limitation active (motor protection)?

Possible remedy

SPN 4760 - FMI 1 - Intake air throttle valve: Supply voltage too high - too high**Monitoring strategy**

Monitoring of the intake air throttle valve

Possible causes**Possible test steps**

- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace B322 lambda sensor if necessary

SPN 4760 - FMI 2 - Intake air throttle valve: Supply voltage too high - too low**Monitoring strategy**

Monitoring of the intake air throttle valve

Possible causes**Possible test steps**

- Check electrical cables and plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace B322 lambda sensor if necessary

SPN 4767 - FMI 8 - CAN message CM1: Particulate filter regeneration request invalid - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not working properly
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Calibrate B322 lambda sensor
- Replace B322 lambda sensor if necessary

SPN 4768 - FMI 8 - CAN message CM1: Particulate filter regeneration suppression invalid - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check the CAN connection

Possible remedy

- Calibrate B322 lambda sensor
- Replace B322 lambda sensor if necessary

SPN 4769 - FMI 8 - CAN message CM1: Fan target speed - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace A435 EDC control unit if necessary

SPN 4770 - FMI 4 - CAN message CM1: Timeout error - No signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace B322 lambda sensor if necessary

SPN 4770 - FMI 8 - CAN message CM1: Data length error - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace B322 lambda sensor if necessary

SPN 4786 - FMI 8 - Intake air throttle valve: Persistent control deviation - Invalid signal**Monitoring strategy**

Monitoring of the intake air throttle valve

Possible causes

- Intake air throttle valve has not learned the end positions correctly
- Intake air throttle valve is sluggish
- Current limitation of the servomotor is active (motor protection)

Possible test steps

- M119 Check intake air throttle valve for stiffness --> can the fully closed or fully open position be reached?
- Initiate a new learning run with MAN cats, then check the position feedback during manual operation
- Check the current consumption of the servomotor --> Is the current limitation active (motor protection)?

Possible remedy

**SPN 4808 - FMI 4 - CAN message TSC1AE: Counter error torque and speed limit -
No signal****Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Errors in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check the CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace B623 boost pressure/temperature sensor if necessary

SPN 4808 - FMI 8 - CAN message TSC1AE: Checksum error Torque and speed limit - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace oil temperature sensor if necessary

SPN 4809 - FMI 4 - CAN message TSC1TE: Counter error speed specification - No signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace oil temperature sensor if necessary

SPN 4809 - FMI 8 - CAN message TSC1TE: Checksum error speed specification - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace oil temperature sensor if necessary

SPN 4810 - FMI 4 - CAN message TSC1TR: Counter error engine brake torque specification**- No signal****Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 4810 - FMI 8 - CAN message TSC1TR: Checksum error Motor brake torque specification - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary

SPN 4811 - FMI 4 - CAN message TSC1VE: Counter error torque specification - No signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check the CAN connection

Possible remedy

**SPN 4811 - FMI 8 - CAN message TSC1VE: Checksum error Torque specification
- Invalid signal****Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary

**SPN 4817 - FMI 4 - CAN message TSC1VR: Counter error motor brake torque setpoint
- No signal****Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 4817 - FMI 8 - CAN message TSC1VR: Checksum error Motor brake torque specification - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace F894 fuse AdBlue level sensor/NOx sensor if necessary
- Replace electrical cables or plug connections if necessary
- If necessary, replace B994 NOx sensor II OBD

SPN 4995 - FMI 1 - Boost pressure before throttle valve -

Monitoring strategy
Possible causes
Possible test steps
Possible Remedies

SPN 4995 - FMI 2 - Boost pressure before throttle valve -

Monitoring strategy

Possible causes

Possible test steps

Possible remedy

SPN 4995 - FMI 9 - Boost pressure before throttle valve -**Monitoring strategy****Possible causes****Possible test steps****Possible Remedies**

- If necessary, replace fuse F894 AdBlue level sensor/NOx sensor
- If necessary, replace B994 NOx sensor II OBD

SPN 6014 - FMI 4 - CAN message ETC1: Timeout error - No signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes**Possible troubleshooting steps****Possible remedy**

- Replace electrical cables or plug connections if necessary
- Replace F894 fuse AdBlue level sensor/NOx sensor if necessary
- Replace B994 NOx sensor II OBD if necessary

SPN 6014 - FMI 8 - CAN message ETC1: Timeout error - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes**Possible test steps****Possible remedy**

- Replace electrical cables or plug connections if necessary
- Replace F894 fuse AdBlue level sensor/NOx sensor if necessary
- Replace B994 NOx sensor II OBD if necessary

SPN 6017 - FMI 4 - CAN message VTG2: Timeout error - No signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection - Sensor defective

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection
- Note: This SPN may be stored in the error memory if there are errors on the CAN. When troubleshooting on the CAN, always use the motor-specific circuit diagram. The defective location can be circled using the SPNs stored in the error memory. An overview of the motor-specific CAN switching sequences can be found in the separate system description for the FEDC17 motor control unit.

Possible remedy

SPN 6017 - FMI 4 - CAN message VTG2: Timeout error - No signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection - Sensor defective

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection
- Note: This SPN may be stored in the error memory if there are errors on the CAN. When troubleshooting on the CAN, always use the motor-specific circuit diagram. The defective location can be circled using the SPNs stored in the error memory. An overview of the motor-specific CAN switching sequences can be found in the separate system description for the FEDC17 motor control unit.

Possible remedy

SPN 6018 - FMI 4 - CAN message ShutDwn: Timeout error - No signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace B487 rail pressure sensor if necessary

SPN 6019 - FMI 4 - CAN message TSC1AE: Timeout error (active) - No signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- If necessary, install B322 lambda sensor correctly

SPN 6020 - FMI 4 - CAN message TSC1AE: Timeout error (passive) - No signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Check EGR for internal blockage
- Check intake area for possible air leaks

SPN 6021 - FMI 4 - CAN message TSC1AR: Timeout error (active) - No signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

-
- Check EGR for internal blockages
- Check intake area for possible air leaks

SPN 6022 - FMI 4 - CAN message TSC1AR: Timeout error (passive) - No signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 6023 - FMI 4 - CAN message TSC1DE: Timeout error (active) - No signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 6024 - FMI 4 - CAN message TSC1DE: Timeout error (passive) - No signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 6025 - FMI 4 - CAN message TSC1DR: Timeout error (active) - No signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 6026 - FMI 4 - CAN message TSC1DR: Timeout error (passive) - No signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace B694 low-temperature boost pressure/temperature sensor if necessary

SPN 6027 - FMI 4 - CAN message TSC1PE: Timeout error (active) - No signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace B694 low-temperature boost pressure/temperature sensor if necessary

SPN 6028 - FMI 4 - CAN message TSC1PE: Timeout error (passive) - No signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 6029 - FMI 4 - CAN message TSC1TE: Timeout error (active) - No signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 6030 - FMI 4 - CAN message TSC1TE: Timeout error (passive) - No signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Repair or replace EGR valve

SPN 6031 - FMI 4 - CAN message TSC1TR: Timeout error (active) - No signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check the CAN connection

Possible remedy

- Repair or replace EGR valve

SPN 6032 - FMI 4 - CAN message TSC1TR: Timeout error (passive) - No signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- If necessary, replace the temperature sensor after the EGR cooler

SPN 6033 - FMI 4 - CAN message TSC1VE: Timeout error (active) - No signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace the temperature sensor after the EGR cooler, if necessary

SPN 6034 - FMI 4 - CAN message TSC1VE: Timeout error (passive) - No signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace the temperature sensor after the EGR cooler, if necessary

SPN 6035 - FMI 4 - CAN message TSC1VR: Timeout error (active) - No signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace the temperature sensor after the EGR cooler, if necessary

SPN 6036 - FMI 4 - CAN message TSC1VR: Timeout error (passive) - No signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace the temperature sensor after the EGR cooler, if necessary

SPN 6037 - FMI 4 - CAN message TSC1AE: Timeout error - No signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 6037 - FMI 8 - CAN message TSC1AE: Data length error - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 6038 - FMI 4 - CAN message TSC1AR: Timeout error - No signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 6038 - FMI 8 - CAN message TSC1AR: Data length error - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 6039 - FMI 4 - CAN message TSC1DE: Timeout error - No signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 6039 - FMI 8 - CAN message TSC1DE: Data length error - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 6040 - FMI 4 - CAN message TSC1DR: Timeout error - No signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 6040 - FMI 8 - CAN message TSC1DR: Data length error - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 6041 - FMI 4 - CAN message TSC1PE: Timeout error - No signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 6041 - FMI 8 - CAN message TSC1PE: Timeout error - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 6042 - FMI 4 - CAN message TSC1TE: Timeout error - No signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 6042 - FMI 8 - CAN message TSC1TE: Data length error - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Consequential errors may occur:
- Lambda sensor heater
- HCl shut-off valve
- AdBlue tank Heating valve
- Wastegate high pressure
- Heating bypass valve
- Replace electrical cables or plug connections if necessary

SPN 6043 - FMI 4 - CAN message TSC1TR: Timeout error - No signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Consequential errors may occur:
- Pneumatic EGR (bus)
- Compressed air shut-off valve
- Grid heater
- Electronic water pump
- Cooper valve (pressure relief valve for charge air cooling thermostats)
- Replace electrical cables or plug connections if necessary

SPN 6043 - FMI 8 - CAN message TSC1TR: Data length error - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 6044 - FMI 4 - CAN message TSC1VE: Timeout error - No signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 6044 - FMI 8 - CAN message TSC1VE: Data length error - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 6045 - FMI 4 - CAN message TSC1VR: Timeout error - No signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 6045 - FMI 8 - CAN message TSC1VR: Data length error - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 6046 - FMI 4 - CAN message VDHRT: Timeout error - No signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 6046 - FMI 8 - CAN message VDHRT: Data length error - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 6048 - FMI 4 - CAN message VH: Timeout error - No signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 6048 - FMI 8 - CAN message VH: Data length error - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 6049 - FMI 4 - CAN message VTG1: Timeout error - No signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection
- Short circuit in CAN line to +UBat
- Interruption VTG pin 15
- Interruption VTG terminal 31

Possible test steps

- Check electrical lines and plug connections
- Check CAN connection - Check wiring as documented in the test step list of the FEDC17 system description

Possible remedy

SPN 6049 - FMI 8 - CAN message VTG1: Data length error - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection - Check wiring as documented in the test step list in the FEDC17 system description

Possible remedy

SPN 6051 - FMI 4 - CAN message WFI: Timeout error - No signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Replace CAN connection if necessary

SPN 6052 - FMI 5 - Engine stop switch stuck - Short circuit to ground**Monitoring strategy**

Monitoring of the stop switch

Possible causes

- The stop switch is blocked in the activated position

Possible test steps

- Check electrical cables and plug connections
- Check stop switch for proper functioning

Possible remedy

- Renew CAN connection if necessary

SPN 6053 - FMI 1 - Water separator in fuel filter full - too high**Monitoring strategy**

Monitoring of the fuel filter

Possible causes

- The separated water in the fuel pre-filter has reached the maximum permissible level
- The water level sensor in the fuel pre-filter is defective

Possible test steps

- Check electrical cables and plug connections

Possible remedy

- Replace CAN connection if necessary
- Replace B694 low-temperature boost pressure/temperature sensor if necessary

SPN 6054 - FMI 1 - Water level sensor in fuel filter - too high**Monitoring strategy**

Monitoring of the fuel filter

Possible causes

- The output signal from the water level sensor in the fuel pre-filter is too high

Possible test steps

- Check electrical cables and plug connections

Possible remedy

- Renew CAN connection if necessary

SPN 6054 - FMI 2 - Water level sensor in fuel filter - too low

Monitoring strategy

Monitoring the fuel filter

Possible causes

- The output signal from the water level sensor in the fuel prefilter is too low

Possible test steps

- Check electrical cables and plug connections

Possible remedy

SPN 6054 - FMI 3 - Water level sensor in fuel filter - implausible**Monitoring strategy**

Monitoring of the fuel filter

Possible causes

- The output signal from the water level sensor in the fuel prefilter is implausible

Possible test steps

- Check electrical cables and plug connections

Possible remedy

SPN 6056 - FMI 8 - VTG: Requested position is invalid - Invalid signal**Monitoring strategy**

VTG: The CAN message from the EDC to the VTG actuator regarding the desired VTG position is invalid

Possible causes

-Cabling/connector/connector pins of the component defective -Possible loose connection or fault in the power supply. Check the cabling and connector contacts from the battery main switch to the engine control unit. - Defect/malfunction in the actuator electronics

Possible test steps

-Check the component's wiring. Check the component's plug contacts -Replace the exhaust gas turbocharger

Possible remedy

SPN 6057 - FMI 8 - VTG: Current position is invalid - Invalid signal**Monitoring strategy**

VTG: The CAN message from the VTG actuator to the EDC regarding the current VTG position is invalid

Possible causes

-Cabling/connector/connector pins of the component defective -Possible loose connection or fault in the power supply. Check the cabling and connector contacts from the battery main switch to the engine control unit. - Defect/malfunction in the actuator electronics

Possible test steps

-Check the component's wiring. Check the component's plug contacts -Replace the exhaust gas turbocharger

Possible remedy

SPN 6058 - FMI 4 - VTG: Command timeout error - No signal**Monitoring strategy**

Monitoring the VTG

Possible causes**Possible test steps**

- Check electrical cables and plug connections of the CAN bus connection to the VTG actuator
- Check the power supply to the VTG actuator: Pin 1 = +UBat, Pin 2 = ground
- Check VTG actuator with MAN-cats: Mobility, end positions, position

Possible remedy

SPN 6059 - FMI 8 - VTG: Motor power is invalid - Invalid signal**Monitoring strategy**

Monitoring the VTG

Possible causes**Possible test steps**

- Check electrical cables and plug connections of the CAN bus connection to the VTG actuator
- Check the power supply to the VTG actuator: Pin 1 = +UBat, Pin 2 = ground
- Check VTG actuator with MAN-cats: Mobility, end positions, position

Possible remedy

SPN 6060 - FMI 9 - VTG: Internal actuator error - Device error**Monitoring strategy**

Monitoring of the VTG

Possible causes**Possible test steps**

- Check electrical cables and plug connections of the CAN bus connection to the VTG actuator
- Check the power supply to the VTG actuator: Pin 1 = +UBat, Pin 2 = ground
- Check VTG actuator with MAN-cats: Mobility, end positions, position

Possible remedy

SPN 6061 - FMI 4 - VTG: Command is invalid - No signal**Monitoring strategy**

Monitoring the VTG

Possible causes**Possible test steps**

- Check electrical cables and plug connections of the CAN bus connection to the VTG actuator
- Check the power supply to the VTG actuator: Pin 1 = +UBat, Pin 2 = ground
- Check with MAN-cats VTG actuator: Mobility, end positions, position

Possible remedy

SPN 6062 - FMI 9 - VTG: Reference magnet not recognized - Device error**Monitoring strategy**

Monitoring the VTG

Possible causes

- The turbocharger's adjustment system cannot identify the reference point

Possible test steps

- Check electrical cables and plug connections
- Perform a learning run of the VTG actuator with MAN-cats: If the normal travel distance is reached, which position data appears in MAN-cats?

Possible remedy

SPN 6063 - FMI 9 - VTG: Adjustment range limitation - Device error**Monitoring strategy**

Monitoring the VTG

Possible causes**Possible test steps**

- Check with MAN-cats VTG actuator: Is the full adjustment range available? Are the end positions approached correctly? Are there any areas where movement is difficult?

Possible remedy

SPN 6064 - FMI 1 - VTG: Supply voltage too high - too high**Monitoring strategy**

Monitoring of the VTG

Possible causes**Possible test steps**

- Check electrical cables and plug connections
- Check the power supply at the connector plug of the VTG actuator: Pin 1 = +UBat, Pin 2 = ground

Possible remedy

SPN 6064 - FMI 2 - VTG: Supply voltage too low**Monitoring strategy**

Monitoring the VTG

Possible causes**Possible test steps**

- Check electrical cables and plug connections
- Check the power supply at the connector plug of the VTG actuator: Pin 1 = +UBat, Pin 2 = ground

Possible remedy

SPN 6065 - FMI 9 - VTG: Permissible temperature exceeded - Device error

Monitoring strategy

Monitoring of the VTG

Possible causes

Possible test steps

- Check electrical cables and plug connections

Possible remedy

SPN 6066 - FMI 8 - Terminal 50: Switch defective - Invalid signal**Monitoring strategy**

Monitoring of terminal 50

Possible causes

The switch for activating the starter motor is not functioning correctly

Possible test steps

- Check electrical cables and plug connections
- Check that the starter switch is functioning correctly

Possible remedy

SPN 6067 - FMI 8 - CAN message VH: Vehicle operating hours invalid - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 6069 - FMI 5 - Coolant level 2 Short circuit to negative or ground - Short circuit to ground**Monitoring strategy**

Monitoring of coolant level

Possible causes

- Coolant level sensor is defective

Possible test steps

- Check electrical cables and plug connections
- Check coolant level sensor for short circuit to +UBat: Measure voltage between pin A16 and pin A23; target value 3.60 volts - 2.40 volts when fill level is correct

Possible remedy

SPN 6069 - FMI 6 - Coolant level 2 Short circuit to +UBat - Short circuit to UBatt+**Monitoring strategy**

Monitoring of coolant level

Possible causes

- Coolant level sensor is defective

Possible test steps

- Check electrical cables and plug connections
- Check coolant level sensor for short circuit to ground: Measure resistance between pin A23 and pin A02; target value > 100 MΩ

Possible remedy

SPN 6069 - FMI 8 - Coolant level 2 measuring range error - Invalid signal**Monitoring strategy**

Monitoring of coolant level

Possible causes

- Coolant level sensor is defective

Possible test steps

- Check electrical cables and plug connections
- Check coolant level sensor for short circuit to +UBat: Measure voltage between pin A16 and pin A23; target value 3.60 volts - 2.40 volts when fill level is correct

Possible remedy

SPN 6070 - FMI 5 - Coolant level 3 Short circuit to negative or ground - Short circuit to ground**Monitoring strategy**

Monitoring of coolant level

Possible causes

- Coolant level sensor is defective

Possible test steps

- Check electrical cables and plug connections
- Check coolant level sensor for short circuit to ground: Measure resistance between pin A23 and pin A02; target value > 100 MΩ

Possible remedy

SPN 6070 - FMI 6 - Coolant level 3 Short circuit to +UBat - Short circuit to UBatt+**Monitoring strategy**

Monitoring of coolant level

Possible causes

- Coolant level sensor is defective

Possible test steps

- Check electrical cables and plug connections
- Check coolant level sensor for short circuit to +UBat: Measure voltage between pin A16 and pin A23; target value 3.60 volts - 2.40 volts when fill level is correct

Possible remedy

SPN 6070 - FMI 8 - Coolant level 3 measuring range error - Invalid signal**Monitoring strategy**

Monitoring of coolant level

Possible causes

- Coolant level sensor is defective

Possible test steps

- Check electrical cables and plug connections
- Check coolant level sensor for short circuit to +UBat: Measure voltage between pin A16 and pin A23; target value 3.60 volts - 2.40 volts when fill level is correct

Possible remedy

SPN 6071 - FMI 4 - CAN message FIEco: Timeout error - No signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 6097 - FMI 1 - Turbocharger speed - too high**Monitoring strategy**

Turbocharger speed: speed too high

Possible causes

-Charged air line leaking - According to HFM -Air filter dirty -Compressor coked

Possible test steps

- Check electrical cables and plug connections
- Check turbocharger speed with MAN cats
- Check VTG function with MAN-cats --> malfunction may lead to increased charger speed
- Check exhaust system upstream of turbocharger for leaks: traces of soot, blowing noise when engine is running
- Check speed sensor according to test step list in system description FEDC17

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace component if necessary

SPN 6097 - FMI 3 - Turbocharger speed - implausible**Monitoring strategy**

Turbocharger speed: implausible

Possible causes

-Sensor defective -Wiring/plug connection not OK

Possible test steps

- Check electrical cables and plug connections
- Check turbocharger speed with MAN-cats
- Check the function of the VTG with MAN-cats --> a malfunction may be causing the low charger speed
- Check exhaust system upstream of turbocharger for leaks: traces of soot, blowing noise when engine is running
- Check the speed sensor according to the test step list in the FEDC17 system description

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace component if necessary

SPN 6097 - FMI 4 - Turbocharger speed sensor - No signal**Monitoring strategy**

Turbocharger speed sensor: no signal

Possible causes

-Sensor defective -Wiring/plug connection not OK

Possible test steps

- Check electrical cables and plug connections
- Check that the speed sensor is correctly installed in the charger housing

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace component if necessary

SPN 6097 - FMI 8 - Turbocharger speed sensor - Invalid signal**Monitoring strategy**

Turbocharger speed sensor: Signal faulty

Possible causes

-Sensor defective -Wiring/plug connection not OK

Possible test steps

- Check electrical cables and plug connections
- Check that the speed sensor is correctly installed in the charger housing

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace component if necessary

SPN 6100 - FMI 1 - Turbocharger speed: Speed too high - too high**Monitoring strategy**

Monitoring of the turbocharger

Possible causes

- The speed signal from the turbocharger speed sensor is too high

Possible test steps

- Check electrical cables and plug connections
- Check the turbocharger speed with MAN-cats
- Check the function of the VTG with MAN-cats --> a malfunction (blockage) may lead to increased turbocharger speed
- Check any wastegate for correct function: jammed, control defective
- Check speed sensor

Possible remedy

- Replace A435 EDC control unit if necessary

SPN 6100 - FMI 2 - Turbocharger speed: Speed too high - too low**Monitoring strategy**

Monitoring of the turbocharger

Possible causes

- The speed signal from the turbocharger speed sensor is too low

Possible test steps

- Check electrical cables and plug connections
- Check the turbocharger speed with MAN-cats
- Check the function of the VTG with MAN-cats --> a malfunction (blockage) may be causing the low turbocharger speed
- Check any wastegate for correct function: open, jammed, control defective

Possible remedy

- Replace A435 EDC control unit if necessary

SPN 6100 - FMI 8 - Turbocharger speed: Speed too high - Invalid signal**Monitoring strategy**

Monitoring of the turbocharger

Possible causes

- The turbocharger speed is invalid

Possible test steps

- Check electrical cables and plug connections
- Check the turbocharger speed using MAN-cats

Possible remedy

SPN 6103 - FMI 2 - AdBlue system: Level 3 low level warning**Monitoring strategy**

Monitoring of the SCR system

Possible causes

- AdBlue level has fallen below 2.5%
- Leak in the AdBlue tank or in the pump line
- A1192 AdBlue combination sensor is defective

Possible test steps

- Check AdBlue level
- Check pump line
- Check electrical lines and plug connections of the CAN bus connection of the AdBlue combination sensor
- Check fuse for power supply to A1192 AdBlue combination sensor (10 amps)
- Check the power supply of the A1192 AdBlue combination sensor: At the connector, pin 1 = +12 V, pin 4 = terminal 31
- Check the A1192 AdBlue combination sensor with MAN cats: does the displayed fill level match the actual fill level in the tank, does the display react as expected when the fill level changes

Possible remedy

SPN 6104 - FMI 2 - AdBlue system: Level 4 low level warning**Monitoring strategy**

Monitoring of the SCR system

Possible causes

- AdBlue level has fallen below 1.0%
- Leak in the AdBlue tank or in the pump line
- A1192 AdBlue combination sensor is defective

Possible test steps

- Check AdBlue level
- Check pump line
- Check electrical lines and plug connections of the CAN bus connection of the AdBlue combination sensor
- Check fuse for power supply to A1192 AdBlue combination sensor (10 amps)
- Check the power supply of the A1192 AdBlue combination sensor: At the connector, pin 1 = +12 V, pin 4 = terminal 31
- Check the A1192 AdBlue combination sensor with MAN cats: does the displayed fill level match the actual fill level in the tank, does the display react as expected when the fill level changes

Possible remedy

SPN 6104 - FMI 2 - AdBlue system: Level 4 fill level warning - too low**Monitoring strategy**

Monitoring of the SCR system

Possible causes

- AdBlue level has fallen below 1.0%
- Leak in the AdBlue tank or in the pump line
- A1192 AdBlue combination sensor is defective

Possible test steps

- Check AdBlue level
- Check pump line
- Check electrical lines and plug connections of the CAN bus connection of the AdBlue combination sensor
- Check the power supply to the A1192 AdBlue combination sensor (10 amps).
- Check the power supply to the A1192 AdBlue combination sensor: On the connector, pin 1 = +12 V, pin 4 = terminal 31
- Check the A1192 AdBlue combination sensor with MAN cats: does the displayed fill level match the actual fill level in the tank, does the display react as expected when the fill level changes

Possible remedy

- Renew CAN connection if necessary

SPN 6110 - FMI 1 - Inducement system: AdBlue quality warning - too high**Monitoring strategy**

Monitoring of the SCR system

Possible causes

- The urea content of the AdBlue does not meet the required quality
- AdBlue has been diluted with water
- Defect in the A1192 AdBlue combination sensor

Possible test steps

- Read out the fault memory
- Check the electrical cables and plug connections of the CAN bus connection of the AdBlue combination sensor
- Check the fuse for the power supply of the A1192 AdBlue combination sensor (10 amps)
- Check the power supply of the A1192 AdBlue combination sensor: At the connector, pin 1 = +12 V, pin 4 = terminal 31
- Check the A1192 AdBlue combination sensor with MAN cats: what urea content is displayed? Does the value change to the expected value when the correct AdBlue is filled into the tank?
- Check the urea concentration of the AdBlue used: Should be 32.5% ± 0.7% according to ISO 22241-1

Possible remedy

- Renew CAN connection if necessary

SPN 6111 - FMI 2 - Coolant level: Level in the expansion tank has reached the warning level - too low**Monitoring strategy**

Monitoring the coolant level

Possible causes

- Coolant level in the expansion tank has dropped to warning level

Possible test steps

- Check coolant level in expansion tank
- Check electrical cables and plug connections
- Check coolant level sensor with MAN-cats: Does the displayed value correspond to the actual coolant level in the reservoir? Does the displayed value change as expected when the fill level changes?
- Check coolant level sensor according to test step list:
- Check for short circuit to ground: Pin A16 and pin A23; target value: 0.9 kΩ to 2.5 kΩ
- Voltage measurement at engine idle speed, coolant level correct: Pin A16 and pin A23; target value: 2.4 V to 3.6 V
- Check components of the cooling circuit for leaks, especially on hoses and hose connections
- Check the pressure relief valves for venting and bleeding the cooling system (usually installed in the cover).
- Perform a pressure loss test on the cooling system

Possible remedy

- Renew CAN connection if necessary

SPN 6112 - FMI 2 - Coolant level: Level in the expansion tank is too low - too low**Monitoring strategy**

Monitoring the coolant level

Possible causes

- Coolant level in the expansion tank has dropped to alarm level

Possible test steps

- Check coolant level in expansion tank
- Check electrical cables and plug connections
- Check coolant level sensor with MAN cats: Does the displayed value correspond to the actual coolant level in the reservoir? Does the displayed value change as expected when the fill level changes?
- Check coolant level sensor according to test step list:
- Check for short circuit to ground: Pin A16 and pin A23; target value: 0.9 kΩ to 2.5 kΩ
- Voltage measurement at engine idle speed, coolant level correct: Pin A16 and pin A23; target value: 2.4 V to 3.6 V
- Check components of the cooling circuit for leaks, especially on hoses and hose connections
- Check the pressure relief valves for venting and bleeding the cooling system (usually installed in the cover)
- Perform pressure loss test on the cooling system

Possible remedy

- Renew CAN connection if necessary

**SPN 6125 - FMI 1 - Deactivation of override system active (override inducement)
- Too high****Monitoring strategy**

Monitoring of the inducement system

Possible causes

- There is an emission-related error
- The error was not corrected even during the weak inducement time window
- Now the final inducement is active and the motor is only running at idle speed.

Possible test steps

- The restrictions of the final inducement have been reset for a certain period of time, e.g., for troubleshooting and fault correction
- If the error has not been corrected by the end of the time period, the final inducement is reactivated

Possible remedy

- Renew the CAN connection if necessary

SPN 6126 - FMI 1 - Deactivation of all limitations active (override, marine) - too high**Monitoring strategy**

Monitoring of the control unit

Possible causes

- Suppression of all alarm responses has been activated

Possible test steps

- In order to be able to continue operating the engine without restrictions in exceptional cases, alarm responses such as power limitation have been deactivated

Possible remedy

SPN 6127 - FMI 4 - CAN message A1SCRSI2: Timeout error - No signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 6130 - FMI 1 - Output stage Warning light 1: Overtemperature - too high**Monitoring strategy**

Warning light 1: Overtemperature

Possible causes**Possible test steps**

- Check electrical wiring
- Check electrical plug connections
- Possibly MAN-cats monitoring EDC internal temperature

Possible remedies

- Replace electrical cables or plug connections if necessary

SPN 6130 - FMI 5 - Output stage Warning light 1: Overtemperature - Short circuit to ground**Monitoring strategy**

Warning light 1: Short circuit to ground

Possible causes**Possible test steps**

- Check electrical wiring
- Check electrical plug connections
- Check light bulbs and lamp housings

Possible remedies

- Replace electrical cables or plug connections if necessary

SPN 6130 - FMI 6 - Output stage warning light 1: Overtemperature - Short circuit after UBatt+**Monitoring strategy**

Warning light 1: Short circuit after Ubatt

Possible causes**Possible test steps**

- Check electrical cables
- Check electrical plug connections
- Check light source and lamp housing

Possible remedies

- Replace electrical cables or plug connections if necessary

SPN 6130 - FMI 10 - Output stage Warning light 1: Overtemperature - Interruption**Monitoring strategy**

Warning light 1: Interruption

Possible causes**Possible test steps**

- Check electrical cables
- Check electrical plug connections
- Check light bulbs and lamp housings

Possible remedies

- Replace electrical cables or plug connections if necessary

SPN 6131 - FMI 1 - Output stage warning light 2: Overtemperature - too high**Monitoring strategy**

Warning light 2: Overtemperature

Possible causes**Possible test steps**

- Check electrical wiring
- Check electrical connections
- Possibly MAN-cats monitoring EDC internal temperature

Possible remedy

- Replace electrical cables or plug connections if necessary

SPN 6131 - FMI 5 - Output stage warning light 2: Short circuit to negative or ground - Short circuit to ground**Monitoring strategy**

Warning light 2: Short circuit to ground

Possible causes**Possible test steps**

- Check electrical wiring
- Check electrical plug connections
- Check light bulbs and lamp housings

Possible remedies

- Replace electrical cables or plug connections if necessary

SPN 6131 - FMI 6 - Output stage warning light 2: Short circuit to +UBat - Short circuit to UBatt+**Monitoring strategy**

Warning lamp 2: Short circuit after Ubatt+

Possible causes**Possible test steps**

- Check electrical wiring
- Check electrical plug connections
- Check light source and lamp housing

Possible remedies

- Replace electrical cables or plug connections if necessary

SPN 6131 - FMI 10 - Output stage warning light 2: Interruption - Interruption**Monitoring strategy**

Warning light 2: Interruption

Possible causes**Possible test steps**

- Check electrical cables
- Check electrical plug connections
- Check light bulbs and lamp housings

Possible remedies

- Replace electrical cables or plug connections if necessary

SPN 6132 - FMI 1 - Output stage warning light 3: Overtemperature - too high**Monitoring strategy**

Warning light 3: Overtemperature

Possible causes**Possible test steps**

- Check electrical wiring
- Check electrical plug connections
- Possibly MAN-cats monitoring EDC internal temperature

Possible remedies

- Replace electrical cables or plug connections if necessary

SPN 6132 - FMI 5 - Output stage Warning light 3: Short circuit to negative or ground - Short circuit to ground**Monitoring strategy**

Warning light 3: Short circuit to ground

Possible causes**Possible test steps**

- Check electrical wiring
- Check electrical plug connections
- Check light bulbs and lamp housings

Possible remedies

- Replace electrical cables or plug connections if necessary

SPN 6132 - FMI 6 - Output stage warning light 3: Short circuit to negative or ground - Short circuit to UBatt**Monitoring strategy**

Warning light 3: Short circuit to Ubatt

Possible causes**Possible test steps**

- Check electrical wiring
- Check electrical plug connections
- Check light source and lamp housing

Possible remedies

- Replace electrical cables or plug connections if necessary

SPN 6132 - FMI 10 - Power amplifier warning light 3: Interruption - Interruption**Monitoring strategy**

Warning light 3: Interruption

Possible causes**Possible test steps**

- Check electrical cables
- Check electrical plug connections
- Check light bulbs and lamp housings

Possible remedies

- Replace electrical cables or plug connections if necessary

SPN 6135 - FMI 4 - CAN message AdBlue tank sensor: Timeout - No signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not working properly
- Error in the CAN connection

Possible test steps

-
- Check the exhaust gas CAN as described in the EDC system description. - Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 6135 - FMI 8 - CAN message AdBlue tank sensor: Timeout - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

-
- Check the exhaust gas CAN as described in the EDC system description. - Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 6140 - FMI 5 - Airless dosing system Pressure sensor - Short circuit to ground**Monitoring strategy**

Monitoring of the pressure sensor of the AdBlue dosing unit

Possible causes

- The minimum permissible system pressure of -0.2 bar was not reached (signal voltage less than 250 mV)

Possible test steps

- Check the wiring between the A435 EDC control unit and the A1279 AdBlue dosing unit, especially for short circuits to ground (EDC pin A13, dosing unit pin 8)
- Check the wiring for correct plug connections, loose contacts, and chafing points
- Check the supply voltage of 5 V between EDC pin A49 and pin A22, dosing unit pin 5 and pin 7
- Setpoint 4.75 V to 5.25 V

Possible remedy

SPN 6140 - FMI 6 - Airless dosing system Pressure sensor - Short circuit after UBatt+**Monitoring strategy**

Monitoring of the pressure sensor of the AdBlue dosing unit

Possible causes

- The maximum permissible system pressure of 16.8 bar has been exceeded (signal voltage greater than 4400 mV)

Possible test steps

- Check the wiring between the A435 EDC control unit and the A1279 AdBlue dosing unit, paying particular attention to short circuits between
+UBat (EDC pin A13, dosing unit pin 8)
- Check wiring for correct plug connections, loose contacts, and chafing
- Check supply voltage 5 V between EDC pin A49 and pin A22, dosing unit pin 5 and pin 7
- Setpoint 4.75 V to 5.25 V

Possible remedy

SPN 6140 - FMI 11 - Airless dosing system Pressure sensor - Loose connection**Monitoring strategy**

Monitoring of the pressure sensor of the AdBlue dosing unit

Possible causes

- The permissible system pressure limits were exceeded or fallen below at least 10 times within 10 seconds

Possible test steps

- Check the wiring for correct plug connections, loose contacts, and chafing (EDC pin A13, dosing unit pin 8)

Possible remedy

SPN 6142 - FMI 5 - Airless dosing system Temperature sensor - Short circuit to ground**Monitoring strategy**

Monitoring of the temperature sensor of the AdBlue dosing unit to check whether the measured value is below the valid value

Possible causes**Possible test steps**

- Check the wiring, especially for short circuit to ground! Also check for correct plug connection/loose contacts/chafing, etc. Check whether the operating voltage (5V) is present. Check whether the system is frozen. - Replace the dosing valve

Possible remedy

SPN 6142 - FMI 6 - Airless dosing system Temperature sensor - Short circuit after UBatt+**Monitoring strategy**

Monitoring of the temperature sensor of the AdBlue dosing unit to check whether the measured value is above the valid value

Possible causes**Possible test steps**

- Check the wiring, especially for short circuit after UBat! and for correct plug connection/loose contacts/chafing points, etc. Check whether operating voltage is present. Check whether the system is frozen. Check whether the system is under pressure. - Replace the dosing valve

Possible remedy

SPN 6142 - FMI 11 - Airless dosing system Temperature sensor - Loose connection**Monitoring strategy**

Monitoring the temperature sensor of the AdBlue dosing unit for loose connections

Possible causes**Possible test steps**

- Check the wiring for correct plug connections/loose connections/chafing, etc. - Replace the dosing valve

Possible remedy

SPN 6143 - FMI 6 - AdBlue dosing unit - Short circuit after UBatt**Monitoring strategy**

Monitoring of the AdBlue metering unit

Possible causes**Possible test steps**

- Check the wiring of the low-side output stage between the A435 EDC control unit and the A1279 AdBlue dosing unit, especially for short circuit to +UBat (EDC pin A76, dosing unit pin 2)

Possible remedy

SPN 6143 - FMI 7 - AdBlue dosing unit - Short circuit**Monitoring strategy**

Monitoring of the AdBlue dosing unit

Possible causes**Possible test steps**

- Check the wiring of the high-side output stage between the A435 EDC control unit and the A1279 AdBlue dosing unit, especially for short circuits (EDC pin A53, dosing unit pin 1)

Possible remedy

SPN 6143 - FMI 12 - AdBlue dosing unit - Interruption or short circuit after Ubatt+**Monitoring strategy**

Monitoring of the AdBlue dosing unit

Possible causes**Possible test steps**

- Check the wiring of the high-side output stage between the A435 EDC control unit and the A1279 AdBlue dosing unit, specifically for short circuit to +UBat or interruption (EDC pin A53, dosing unit pin 1)

Possible remedy

- Analysis based on other error entries necessary
- After the cause of the fault has been found and the fault has been rectified, reset the valve's learning values using MAN-cats

SPN 6143 - FMI 13 - AdBlue dosing unit - interruption or short circuit to ground**Monitoring strategy**

Monitoring of the AdBlue dosing unit

Possible causes**Possible test steps**

- Check the wiring of the low-side output stage between the A435 EDC control unit and the A1279 AdBlue dosing unit, especially for short circuit to ground or interruption (EDC pin A76, dosing unit pin 2)

Possible remedy

- Replace electrical cables or plug connections if necessary

SPN 6145 - FMI 5 - AdBlue system: Speed specification - Short circuit to ground**Monitoring strategy**

Monitoring strategy: Monitoring the speed setpoint signal for short circuit to ground

Possible causes**Possible test steps**

1. Check the wiring for correct connector connections/chafing/contacts to ground-carrying lines or vehicle ground points, etc. 2. Replace the pump (when replacing the pump, the service routine Filter Reset & Initial Operation must be performed! After the service routine Initial Operation, the SG follow-up must be completely terminated!

Possible remedy

SPN 6145 - FMI 6 - AdBlue system: Speed specification - Short circuit after UBatt+**Monitoring strategy**

Monitoring strategy: Monitoring of the speed reference signal for short circuit after Ubatt+

Possible causes**Possible test steps**

-1. Check the wiring for correct plug connections/chafing/contacts to live wires, etc. 2. Replace the pump (when replacing the pump, the service routine Filter Reset & Initial Operation must be performed! After the service routine Initial Operation, the SG follow-up must be completely terminated!

Possible remedy

SPN 6145 - FMI 10 - AdBlue system: Speed specification - interruption**Monitoring strategy**

Monitoring strategy: Monitoring the speed setpoint signal for interruption

Possible causes**Possible test steps**

1. Check the wiring for correct plug connections/loose contacts/chafing points, etc. 2. Replace the pump (when replacing the pump, the service routine Filter Reset & Initial Operation must be performed! After the service routine Initial Operation, the SG run-on must be completely terminated!

Possible remedy

SPN 6148 - FMI 3 - CAN message AT1T1: AdBlue tank level (mm) defective - implausible**Monitoring strategy**

Error criterion: Error entry after a defined time when the line is open

Possible causes

- There is an emission-related error
- The error was not corrected even during the weak inducement time window
- The final induction is now active and the engine is only running at idle speed

Possible test steps

- The restrictions of the final induction were reset for a certain period of time, e.g., for troubleshooting and fault correction
- If the error has not been corrected by the end of the time period, the final induction is reactivated

Possible remedy

SPN 6148 - FMI 8 - CAN message AT1T1: AdBlue tank level (mm) defective - Invalid signal**Monitoring strategy**

1. Check the wiring for correct plug connections/chafing/contacts to ground-carrying lines or vehicle ground points, etc.

Possible causes

- There is an emission-related fault
- The fault was not rectified even during the weak inducement time window
- The final induction is now active and the engine is only running at idle speed.

Possible test steps

- The restrictions of the final induction were reset for a certain period of time, e.g., for troubleshooting and error correction
- If the error has not been corrected by the end of the time limit, the final inducement is reactivated.

Possible remedy

SPN 6149 - FMI 3 - CAN message AdBlue tank sensor: Fill level - implausible**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection - Sensor defective

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 6149 - FMI 8 - CAN message AdBlue tank sensor: Fill level - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection - Sensor defective

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 6150 - FMI 3 - CAN message: AdBlue tank sensor tank temperature defective - implausible**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 6150 - FMI 8 - CAN message: AdBlue tank sensor tank temperature invalid - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Wiring/plug connection not OK
- Errors in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check the CAN connection

Possible remedy

SPN 6151 - FMI 1 - Output stage PTC heating AdBlue dosing unit - too high**Monitoring strategy**

Monitoring of the output stage of the PTC heating of the AdBlue dosing unit

Possible causes

- Short circuit in the connection between A435 control unit EDC and A1279 AdBlue dosing unit

Possible test steps

- Check the wiring of the low-side output stage between the A435 EDC control unit and the A1279 AdBlue dosing unit, especially for short circuits to +UBat (EDC pin A20, dosing unit pin 3)
- Check the PTC heating element for proper function by measuring its resistance
- Measurement between pin B07 and pin B20
- Target value: 12 Ω to 14 Ω

Possible remedy

- Replace electrical cables or plug connections if necessary
- If necessary, replace the exhaust gas temperature sensor after the particulate filter

SPN 6151 - FMI 2 - Output stage PTC heating AdBlue dosing unit - too low**Monitoring strategy**

Monitoring of the output stage of the PTC heating of the AdBlue dosing unit

Possible causes

- Short circuit in the connection between A435 EDC control unit and A1279 AdBlue dosing unit

Possible test steps

- Check the wiring of the low-side output stage between the A435 EDC control unit and the A1279 AdBlue dosing unit, especially for short circuits to ground (EDC pin B20, dosing unit pin 3).

Possible remedy

- Replace electrical cables or plug connections if necessary
- If necessary, replace the exhaust gas temperature sensor upstream of the SCR catalytic converter

SPN 6151 - FMI 5 - Output stage PTC heating AdBlue dosing unit - Short circuit to ground**Monitoring strategy**

Monitoring of the output stage of the PTC heating of the AdBlue dosing unit

Possible causes

- Short circuit in the connection between A435 control unit EDC and A1279 AdBlue dosing unit

Possible test steps

- Check the wiring of the high-side output stage between the A435 EDC control unit and the A1279 AdBlue dosing unit, especially for short circuits to ground (EDC pin B07, dosing unit pin 4)

Possible remedy

- Replace electrical cables or plug connections if necessary
- If necessary, replace the exhaust gas temperature sensor upstream of the SCR catalytic converter

SPN 6151 - FMI 6 - Output stage PTC heating AdBlue dosing unit - Short circuit to UBatt**Monitoring strategy**

Monitoring of the output stage of the PTC heating of the AdBlue dosing unit

Possible causes

- Short circuit in the connection between A435 control unit EDC and A1279 AdBlue dosing unit

Possible test steps

- Check the wiring of the high-side output stage between the A435 EDC control unit and the A1279 AdBlue dosing unit, especially for short circuits to +UBat (EDC pin B07, dosing unit pin 4)

Possible remedy

With SPN 4448, a short circuit to Ubat or ground of the 5V supply is detected on the fan speed sensor, EVB back pressure sensor, exhaust differential pressure sensor, or low fuel pressure sensor. Check the wiring to the sensors mentioned and the function of the sensors with MAN-cats. The monitoring system cannot distinguish between a short circuit to ground ($U < 4.75V$) or +Ubat ($U > 5.25V$).

SPN 6151 - FMI 10 - Output stage PTC heating AdBlue dosing unit - Interruption**Monitoring strategy**

Monitoring of the output stage of the PTC heating of the AdBlue dosing unit

Possible causes

- Interruption in the connection between A435 control unit EDC and A1279 AdBlue dosing unit

Possible test steps

- Check the low-side output stage wiring between the A435 EDC control unit and the A1279 SCR dosing unit, paying particular attention to interruptions (EDC pin A20, dosing unit pin 3)

Possible remedy

SPN 6152 - FMI 1 - Inducement system: Deactivation Request system active - too high**Monitoring strategy**

Monitoring of the inducement system

Possible causes

- There is an emission-related error
- The error was not corrected even during the weak inducement time window
- The final inducement is now active and the engine is only running at idle speed

Possible test steps

- The restrictions of the final induction were reset for a certain period of time, e.g., for troubleshooting and error correction
- if the error has not been corrected by the end of the time limit, the final inducement is reactivated

Possible remedy

Check wastegate control. - Actuator test MAN CATS - Check wastegate control for smooth operation - Supply pressure approx. 2.5 bar - Preload 1-1.5 mm - Replace turbo clock valve if necessary.

SPN 6153 - FMI 1 - Inducement system: Deactivation request system marine active - too high**Monitoring strategy**

Monitoring of the inducement system

Possible causes

- There is an emission-related fault
- The error was not corrected even during the weak inducement time window
- Now the final inducement is active and the motor is only running at idle speed.

Possible test steps

- The restrictions of the final inducement have been reset for a certain period of time, e.g., for troubleshooting and fault correction
- If the error has not been corrected by the end of the time period, the final inducement is reactivated

Possible remedy

Hello, check the wastegate valve to see if it moves smoothly and if the control rod is at a right angle to it. Unhook the wastegate rod and check it. There should be a preload of approx. 1 - 1.5 mm.
Check the air supply to the timing valve of 2.5 bar.

SPN 6154 - FMI 1 - Inducement system: Power reduction active due to repeated error - too high**Monitoring strategy**

Monitoring of the inducement system

Possible causes

- An emission-related error has occurred repeatedly within the monitoring time window
- After a defined period of time has elapsed, the weak induction becomes active and limits speed and torque

Possible test steps

- Read out the error memory
- Are there any emission-related errors: AdBlue level, AdBlue quality, NOx sensor failure, lambda sensor, EGR valve failure, error in AdBlue dosing?
- Check AdBlue level and quality
- Check A808 AdBlue delivery module and A1279 dosing module Check sensors, check electrical wiring
- Check EGR valve for blockages or mobility
- AdBlue dosing: Check components

Possible remedy

SPN 6155 - FMI 1 - Inducement system: Creep mode active due to repeated error - too high**Monitoring strategy**

Monitoring of the inducement system

Possible causes

- An emission-relevant error has occurred repeatedly within the monitoring time window
- The error was not corrected even during the weak inducement time window
- The final inducement is now active and the engine is only running at idle speed

Possible test steps

- Read out the fault memory
- Are there any emission-related faults: AdBlue level, AdBlue quality, NOx sensor failure, lambda sensor, EGR valve failure, fault in AdBlue dosing?
- Check AdBlue level and quality
- Check A808 AdBlue delivery module and A1279 dosing module Check sensors, check electrical wiring
- Check EGR valve for blockages, test actuator with MANcats, relearn
- AdBlue dosing: Check components

Possible remedy

- Actuator test MAN CATS

SPN 6157 - FMI 8 - CAN message AT1IGC1: Timeout error - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 6158 - FMI 8 - CAN message AT1IGC2: Timeout error - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

**SPN 6159 - FMI 8 - CAN message NOx sensor II OBD AT1OGC1: Timeout error
- Invalid signal****Monitoring strategy**

Monitoring for CAN signals

Possible causes

-CAN timeout -Check CAN network for interruptions and short circuits.

Possible test steps

-Check exhaust gas CAN as described in the FEDC system description. -Check electrical cables and plug connections
- Check CAN connection
- Note: This SPN may be stored in the error memory if there are errors on the CAN. Always use the engine-specific circuit diagram when troubleshooting the CAN. The defective location can be circled using the SPNs stored in the error memory. An overview of the engine-specific CAN switching sequences can be found in the separate FEDC17 system description.

Possible remedy

**SPN 6160 - FMI 8 - CAN message NOx sensor II OBD AT1OGC2: Timeout error
- Invalid signal****Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK -- Power supply KL.15 or 31 not OK
- Error in the CAN connection

Possible test steps

- Check exhaust CAN as described in the FEDC system description. -Check electrical cables and plug connections
- Check CAN connection
- Note: This SPN may be stored in the fault memory if there are faults on the CAN. Always use the engine-specific circuit diagram when troubleshooting the CAN. The defective location can be circled using the SPNs stored in the fault memory. An overview of the engine-specific CAN switching sequences can be found in the separate FEDC17 system description.

Possible remedy

SPN 6161 - FMI 1 - AdBlue supply unit - too high**Monitoring strategy**

Monitoring of the AdBlue supply unit for blocked pump motor

Possible causes

- Blocked pump motor, e.g., due to ice in the pump chamber
- A808 AdBlue supply unit defective

Possible test steps

- Note

Possible remedy

SPN 6161 - FMI 2 - AdBlue supply unit - too low**Monitoring strategy**

Monitoring the AdBlue supply unit for blocked pump motor

Possible causes

-AdBlue system: Throttling point in suction and/or pressure path, e.g., dirt, kinked or crushed lines, etc.

Possible test steps

This SPN may be stored in the error memory if errors occur on the CAN.

Possible remedy

SPN 6162 - FMI 1 - AdBlue supply unit: Speed-flow correlation implausible - too high**Monitoring strategy**

Monitoring of the AdBlue supply unit

Possible causes

- Leak in the suction line between the AdBlue tank and the A808 AdBlue supply unit
- Withdrawal unit or suction line blocked
- AdBlue tank empty

Possible test steps

When troubleshooting on the CAN, always use the engine-specific circuit diagram. The defective location can be circled using the SPNs stored in the fault memory.

Possible remedy

- Read out the fault memory of the power train manager/vehicle control computer and rectify the causes there
- Renew the CAN connection if necessary

SPN 6162 - FMI 3 - AdBlue supply unit: Speed-flow correlation implausible - implausible**Monitoring strategy**

Monitoring of the AdBlue supply unit

Possible causes

- Return line from the A1279 AdBlue dosing unit to the tank blocked

Possible test steps

An overview of the engine-specific CAN switching sequences can be found in the separate system description FEDC17

Possible remedy

- Read out the error memory of the power train manager/vehicle control computer and rectify the causes there.
- Check the wiring for faulty crimping
- Renew the CAN connection if necessary

SPN 6163 - FMI 1 - AdBlue dosing unit Pressure-speed correlation in the service routine - too high**Monitoring strategy**

Monitoring for pre-fault pressure/speed too high

Possible causes

- Leakage in the suction line between the AdBlue tank and the A808 AdBlue supply unit
- Withdrawal unit or suction line blocked
- AdBlue tank empty

Possible test steps

- Verify and rectify faults in accordance with the "Suction line leak" test procedure
- Check suction line and connections between extraction unit and A808 AdBlue supply unit for leaks, kinks, or pinches, e.g., caused by cable ties
- Check the AdBlue line and connections between the A808 AdBlue supply unit and the A1279 AdBlue dosing unit for leaks, kinks, or pinches, e.g., caused by cable ties
- Check the withdrawal unit in the AdBlue tank for continuity.
- Check the inlet filter on the extraction unit for contamination.

Possible remedy

SPN 6163 - FMI 2 - AdBlue dosing unit Pressure-speed correlation in the service routine - too low**Monitoring strategy**

Monitoring for pre-fault pressure/speed too high

Possible causes

- Return line from the A1279 AdBlue dosing unit to the tank blocked

Possible test steps

- Verify and rectify fault according to "Blocked return line" test procedure
- Check AdBlue return line from A1279 dosing unit to tank for kinks or pinches, e.g., caused by cable ties
- Check the withdrawal unit in the AdBlue tank for continuity

Possible remedy

SPN 6163 - FMI 3 - AdBlue dosing unit pressure-speed correlation in the service routine - implausible**Monitoring strategy**

Monitoring for pre-fault pressure/speed too high

Possible causes

- Return line from the A1279 AdBlue dosing unit to the tank blocked

Possible test steps

- Verify and rectify fault according to "Blocked return line" test procedure
- Check AdBlue return line from A1279 AdBlue dosing unit to tank for kinks or pinches, e.g., caused by cable ties
- Check the withdrawal unit in the AdBlue tank for continuity

Possible remedy

SPN 6164 - FMI 9 - AdBlue dosing unit - Device error**Monitoring strategy**

Monitoring the AdBlue dosing unit for defects

Possible causes

- Defect in the electrical wiring
- Defect in the AdBlue supply or return line

Possible test steps

- Read out the fault memory
- Check electrical lines and connectors to the AdBlue dosing unit for short circuits, loose connections, or interruptions
- Check AdBlue supply and return lines for damage and correct connection
- Check the extraction unit in the AdBlue tank for continuity

Possible remedy

SPN 6165 - FMI 3 - AdBlue supply unit Pressure-speed correlation - implausible**Monitoring strategy**

Monitor the AdBlue suction line for leaks

Possible causes

- Leak in the suction line between the AdBlue tank and the A808 AdBlue supply unit
- Withdrawal unit or suction line blocked
- AdBlue tank empty

Possible test steps

- Verify and rectify faults in accordance with the "Suction line leak" test procedure
- Check AdBlue lines on the suction and pressure sides for leaks, continuity, and correct connection
- Check lines for kinks and pinch points, e.g., caused by cable ties
- Check the AdBlue level in the tank
- Check the tank filter and extraction unit for contamination
- Check the suction and main filters of the A808 AdBlue supply unit for contamination
- Check the inlet filter of the A1279 AdBlue dosing unit for contamination

Possible remedy

SPN 6166 - FMI 1 - AdBlue supply unit speed - too high**Monitoring strategy**

Monitoring the AdBlue suction line for leaks

Possible causes

- Leakage in the suction line between the AdBlue tank and the pump
- Withdrawal unit or suction line blocked
- AdBlue tank empty

Possible test steps

- Verify and rectify faults in accordance with the "Suction line leak" test procedure
- Check AdBlue lines on the suction and pressure sides for leaks, continuity, and correct connection
- Check lines for kinks and pinch points, e.g., caused by cable ties
- Check the AdBlue level in the tank
- Check the tank filter and extraction unit for contamination
- Check the suction and main filters of the A808 AdBlue supply unit for contamination
- Check the inlet filter of the A1279 AdBlue dosing unit for contamination

Possible remedy

SPN 6166 - FMI 3 - AdBlue supply unit speed - implausible**Monitoring strategy**

Monitor the AdBlue suction line for leaks

Possible causes

- Frozen AdBlue system

Possible test steps

- Check whether the AdBlue system is frozen (temperature below -9 °C).
- Set a speed of 30% on the A808 AdBlue supply unit; the actual pump speed should then be 1475 rpm ± 500 rpm
- If the speed is not reached, replace the A808 AdBlue supply unit

Possible remedy

SPN 6167 - FMI 5 - AdBlue supply unit: Speed signal short circuit to negative or ground - Short circuit to ground**Monitoring strategy**

Monitoring of the AdBlue supply unit

Possible causes

- Wiring/plug connection not OK
- Internal fault in the A808 AdBlue supply unit

Possible test steps

- Check electrical cables and plug connections
- Check target and actual speed with MAN CATS monitoring
- Check target speed signal: EDC pin B30, pin A02 (terminal 31)
- Check actual speed feedback signal: EDC pin B16, pin A02 (terminal 31)
- Target speed: duty cycle 95% (ignition on, without engine running)
- Actual speed feedback: 50 Hz (ignition on, without engine running)
- Check the wiring of the speed signals for continuity:
- Target speed: EDC pin B30, connector A808 AdBlue supply unit pin 3
- Actual speed feedback: EDC pin B16, connector of the A808 AdBlue supply unit pin 1
- Ground: EDC pin A02, connector of the A808 AdBlue supply unit pin 4

Possible remedy

- Renew CAN connection if necessary

SPN 6167 - FMI 6 - AdBlue supply unit: Speed signal short circuit to negative or ground - Short circuit to UBatt**Monitoring strategy**

Monitoring of the AdBlue supply unit

Possible causes

- Wiring/plug connection not OK
- Internal error in the A808 AdBlue supply unit

Possible test steps

- Check electrical cables and plug connections
- Check target and actual speed with MAN CATS monitoring
- Check target speed signal: EDC pin B30, pin A02 (terminal 31)
- Check actual speed feedback signal: EDC pin B16, pin A02 (terminal 31)
- Target speed: duty cycle 95% (ignition on, without engine running)
- Actual speed feedback: 50 Hz (ignition on, without engine running)
- Check the wiring of the speed signals for continuity:
- Setpoint speed: EDC pin B30, connector A808 AdBlue supply unit pin 3
- Actual speed feedback: EDC pin B16, connector of the A808 AdBlue supply unit pin 1
- Ground: EDC pin A02, connector of the A808 AdBlue supply unit pin 4

Possible remedy

- Renew CAN connection if necessary

SPN 6170 - FMI 9 - AdBlue supply unit - Device error**Monitoring strategy**

Monitor whether the AdBlue supply unit can draw in and build up pressure

Possible causes

- Leak in the suction line between the AdBlue tank and the A808 AdBlue supply unit
- Withdrawal unit or suction line blocked
- AdBlue tank empty

Possible test steps

- Verify and rectify faults in accordance with the "Suction line leakage" test procedure
- Check the line package for leaks, continuity, and correct connection
- Check lines for kinks and pinch points, e.g., caused by cable ties
- Check the AdBlue level in the tank
- Check the tank filter of the extraction unit for contamination
- Check the main filter of the A808 AdBlue supply unit for contamination
- Check the inlet filter of the A1279 AdBlue dosing unit for contamination

Possible remedy

SPN 6171 - FMI 1 - AdBlue supply unit filter replacement - too high**Monitoring strategy**

Monitoring the filter service life of the AdBlue supply unit

Possible causes

- The system has dispensed more than 7000 liters of AdBlue
- Indication of upcoming filter replacement

Possible test steps

- Check the filter in the A808 AdBlue supply unit for contamination and replace it

Possible remedy

SPN 6172 - FMI 1 - AdBlue supply unit filter full - too high**Monitoring strategy**

Monitoring the filter service life of the AdBlue supply unit

Possible causes

- The system has dispensed more than 8500 liters of AdBlue
- Maximum filter service life reached

Possible test steps

- Check the filter in the A808 AdBlue supply unit for contamination and replace it

Possible remedy

SPN 6173 - FMI 5 - SCR system temperature sensor - short circuit to ground**Monitoring strategy**

Monitoring of the SCR system

Possible causes

- Defect in the wiring of the temperature sensor in the A1279 AdBlue dosing unit
- Defective temperature sensor in the A1279 AdBlue dosing unit

Possible test steps

- Check electrical cables and plug connections
- Check the wiring of the temperature sensor in the A1279 AdBlue dosing unit:
- Temperature signal at EDC pin A27
- Ground at EDC pin A22
- Setpoint signal voltage at 20 °C: 2.0 V to 2.5 V

Possible remedy

- Renew CAN connection if necessary

SPN 6173 - FMI 6 - SCR system Temperature sensor - Short circuit to UBatt+**Monitoring strategy**

Monitoring of the SCR system

Possible causes

- Defect in the wiring of the temperature sensor in the A1279 AdBlue dosing unit
- Defective temperature sensor in the A1279 AdBlue dosing unit

Possible test steps

- Check electrical cables and plug connections
- Check the wiring of the temperature sensor in the A1279 AdBlue dosing unit:
- Temperature signal at EDC pin A27
- Ground at EDC pin A22
- Setpoint signal voltage at 20 °C: 2.0 V to 2.5 V

Possible remedy

- Renew CAN connection if necessary

SPN 6174 - FMI 1 - SCR system supply voltage - too high

Monitoring strategy

Monitoring of the SCR system

Possible causes

- Fault in the wiring of the A808 AdBlue supply unit

Possible test steps

- Check electrical cables and plug connections
- Check the wiring of the power supply to the A808 AdBlue supply unit
- Control is via a relay that is controlled by the EDC via pins C01 and C77
- Relay resistance at 12 V 100 Ω to 125 Ω
- Relay resistance at 24 V 125 Ω to 138 Ω
- Check pins 2 and 4 on the connector to the A808 AdBlue supply unit

Possible remedy

- Renew CAN connection if necessary

SPN 6174 - FMI 2 - SCR system supply voltage - too low**Monitoring strategy**

Monitoring of the SCR system

Possible causes

- Fault in the wiring of the A808 AdBlue supply unit

Possible test steps

- Check electrical cables and plug connections
- Check the wiring of the power supply to the A808 AdBlue supply unit
- Control is via a relay that is controlled by the EDC via pins C01 and C77
- Relay resistance at 12 V 100 Ω to 125 Ω
- Relay resistance at 24 V 125 Ω to 138 Ω
- Check pins 2 and 4 on the connector to the A808 AdBlue supply unit

Possible remedy

- Replace electrical cables or plug connections if necessary

SPN 6175 - FMI 1 - SCR system sensor supply - too high**Monitoring strategy**

Monitoring of the SCR system

Possible causes

- Fault in the wiring of the A1279 AdBlue dosing unit

Possible test steps

- Check electrical wiring and plug connections
- Check sensor supply at the EDC: Pin A49 (5 V supply), Pin A22 (ground)
- Setpoint supply voltage: 4.75 V to 5.25 V
- Check sensor supply at the plug connection to the A1279 AdBlue dosing unit: Pin 5 (5 V supply), Pin 7 (ground)

Possible remedy

- Replace electrical cables or plug connections if necessary

SPN 6175 - FMI 2 - SCR system sensor supply - too low**Monitoring strategy**

Monitoring of the SCR system

Possible causes

- Fault in the wiring of the A1279 AdBlue dosing unit

Possible test steps

- Check electrical wiring and plug connections
- Check sensor supply at the EDC: Pin A49 (5 V supply), Pin A22 (ground)
- Setpoint supply voltage: 4.75 V to 5.25 V
- Check sensor supply at the plug connection to the A1279 AdBlue dosing unit: Pin 5 (5 V supply), Pin 7 (ground)

Possible remedy

- Perform with MAN cats: HCl system test
- Analysis based on other error entries necessary

SPN 6178 - FMI 3 - Pedal position sensor: Position error - implausible**Monitoring strategy**

Monitoring of the pedal position sensor

Possible causes

- Defective pedal position sensor, the position of the accelerator pedal is not detected correctly

Possible test steps

- Check electrical cables and plug connections
- Check with MAN-cats pedal value sensor: does the displayed value match the actual accelerator pedal position, are changes in the accelerator pedal position displayed correctly
- Check the power supply to the pedal position sensor: measure the voltage between pin B08 and pin B47; target value: 5.0 volts \pm 0.25 volts
- Check accelerator pedal signal: Measure voltage between pin B50 and pin B47; target value: 0.6 V - 4.5 V

Possible remedy

SPN 6179 - FMI 1 - Output stage Warning LED 2: Overtemperature - too high**Monitoring strategy**

Monitoring of warning lights

Possible causes

- Defect in the VTG adjustment unit

Possible test steps

- Check electrical cables and plug connections
- Check the function of the VTG actuator using MAN-cats: if the actuator is blocked/stiff, it moves through its entire travel range
- Use MAN-cats to relearn the adjustment range of the VTG actuator
- Check the relay control for the VTG actuator power supply: Measure the voltage between pin B06 and pin A02; setpoint +UBat
- Check the relay for the voltage supply to the VTG actuator

Possible remedy

SPN 6179 - FMI 5 - Output stage Warning LED 2: Overtemperature - Short circuit to ground**Monitoring strategy**

Monitoring of warning lights

Possible causes**Possible test steps**

- Check electrical cables and plug connections
- Check the function of the VTG actuator with MAN-cats: if the actuator is blocked/stiff, it moves through its entire travel range
- Use MAN-cats to relearn the adjustment range of the VTG actuator
- Check the relay control for the VTG actuator power supply: Measure the voltage between pin B06 and pin A02; setpoint +UBat
- Check the relay for the voltage supply to the VTG actuator

Possible remedy

SPN 6179 - FMI 6 - Output stage Warning LED 2: Overtemperature - Short circuit after UBatt+**Monitoring strategy**

Monitoring of warning lights

Possible causes**Possible test steps**

- Check electrical cables and plug connections
- Check the function of the VTG actuator with MAN-cats: if the actuator is blocked/stiff, it moves through its entire travel range
- Use MAN-cats to relearn the adjustment range of the VTG actuator
- Check the relay control for the VTG actuator power supply: Measure the voltage between pin B06 and pin A02; setpoint +UBat
- Check the relay for the voltage supply to the VTG actuator

Possible remedy

- Replace the EGR valve shut-off flap if necessary (currently not available separately)

SPN 6179 - FMI 10 - Output stage Warning LED 2: Overtemperature - Interruption**Monitoring strategy**

Monitoring of warning lights

Possible causes**Possible test steps**

- Check electrical cables
- Check electrical plug connections
- Check light bulbs and lamp housings

Possible remedy

- Replace EGR flap if necessary

SPN 6180 - FMI 1 - VTG: Control deviation - too high**Monitoring strategy**

VTG: Persistent control deviation

Possible causes

-Sticky or jammed blades/nozzle ring of the VTG, possibly coked on the gas side, preventing/hindering adjustment of the actuator/mechanism -Exhaust back pressure too high, DOC/DPF/SCR blocked -Component wiring/connector/connector pins defective -Possible loose connection or fault in the power supply.
Check the wiring and connector contacts from the battery main switch to the engine control unit.

Possible test steps

- Check electrical cables and plug connections
- Check the function of the VTG actuator with MAN cats: if the actuator is blocked/stiff, it moves through its entire travel range
- Use MAN-cats to relearn the adjustment range of the VTG actuator
- Check the control of the relay for the power supply to the VTG actuator
- Check the relay of the VTG actuator power supply - Compare the VTG position setpoint and actual value - Check the component wiring. Check the component plug contacts

Possible remedies

- Check exhaust gas turbocharger -Check exhaust gas back pressure, check catalytic converters

SPN 6180 - FMI 3 - VTG: Control deviation - implausible**Monitoring strategy**

VTG: After checking, at least one of the end stops deviates from the calibrated position

Possible causes

-Sticky or snagging blades/nozzle ring of the VTG, possibly coked on the gas side, preventing/hindering adjustment of the actuator/mechanism

Possible test steps

- Check electrical cables and plug connections
- Check the function of the VTG actuator with MAN cats: if the actuator is blocked/sticky, it moves over the entire travel range
- With MAN-cats, relearn the adjustment range of the VTG actuator -Comparison between VTG position setpoint and actual value

Possible remedy

- Check exhaust gas turbocharger

SPN 6180 - FMI 9 - VTG: Control deviation - Device error**Monitoring strategy**

VTG: High servomotor load, servomotor load may be limited, control deviations may result

Possible causes

-Sticky or snagging blades/nozzle ring of the VTG, possibly coked on the gas side, preventing/hindering adjustment of the actuator/mechanism -Exhaust back pressure too high, blocked DOC/DPF/SCR -Defective cabling/connectors/connector pins of the component

Possible test steps

- Check electrical cables and plug connections
- Check the function of the VTG actuator with MAN-cats: if the actuator is blocked/sticky, it moves through its entire travel range
- Use MAN-cats to relearn the adjustment range of the VTG actuator
- Comparison between VTG position target value and actual value -Check the component's wiring. Check the component's plug contacts
- Check the relay of the VTG actuator power supply

Possible remedy

-Check exhaust gas turbocharger -Check exhaust gas back pressure, check catalytic converters

SPN 6181 - FMI 1 - AdBlue line heating: Overtemperature - too high**Monitoring strategy**

Monitoring of the AdBlue line heating of the SCR system

Possible causes

- Control of the AdBlue line heating by the EDC is faulty
- Both relays no longer open
- Feedback line for active heating is interrupted

Possible test steps

- Check electrical lines and plug connections
- Check relays in the supply and ground paths: do the relays switch when the control voltage is applied or removed?
- Check the control voltage of the relay in the supply path: Measure the voltage between pin B51 and pin B28; setpoint +UBat
- Check the voltage supply to the relay in the ground path: Measure the voltage between pin B03 and pin B05; setpoint +UBat
- Check the resistance of the relay solenoids: Measure the resistance between pin B51 and B28 or pin B05 and B03; setpoint 85 Ω to 105 Ω
- Check feedback line for active heating: when the heating is switched on, +UBat must be present at pin B23 on the EDC (feedback to EDC that the relays have switched and voltage is present at the heating elements)

Possible remedy

- Replace fuel line if necessary
- Replace the injection unit if necessary
- After replacement, there may be air in the system > Perform at least 3 HCl system tests with MAN cats to flush the system with fuel
- After a maximum of 6 HCl system tests, heat the exhaust aftertreatment to 270°C to burn off the accumulated fuel. Otherwise, there is a risk of damage to the exhaust system!
- Note: Depending on the software version, system tests are performed automatically when the diagnostic routine is started. Fault memory entries may only be set after several system tests.

SPN 6181 - FMI 5 - AdBlue line heating: Overtemperature - Short circuit to ground**Monitoring strategy**

Monitoring of the AdBlue line heating of the SCR system

Possible causes

- Control of the AdBlue line heating by the EDC is faulty

Possible test steps

- Check electrical lines and plug connections
- Check relays in the supply and ground paths: do the relays switch when the control voltage is applied or removed?
- Check the control voltage of the relay in the supply path: measure the voltage between pin B51 and pin B28; setpoint value +UBat
- Check the voltage supply to the relay in the ground path: Measure the voltage between pin B03 and pin B05; setpoint +UBat
- Check the resistance of the relay solenoids: Measure the resistance between pin B51 and B28 or pin B05 and B03; setpoint 85 Ω to 105 Ω

Possible remedy

- Replace electrical cables or plug connections of the measuring unit if necessary
- Replace fuel line if necessary
- Replace the injection unit if necessary
- After replacement, there may be air in the system > Perform at least 3 HCl system tests with MAN cats to flush the system with fuel
- After a maximum of 6 HCl system tests, heat the exhaust aftertreatment to 270°C to burn off the accumulated fuel. Otherwise, there is a risk of damage to the exhaust system!
- Note: Depending on the software version, system tests are performed automatically when the diagnostic routine is started. Fault memory entries may only be set after several system tests.

SPN 6181 - FMI 6 - AdBlue line heating: Overtemperature - Short circuit after UBatt+**Monitoring strategy**

Monitoring of the AdBlue line heating of the SCR system

Possible causes

- Control of the AdBlue line heating by the EDC is faulty

Possible test steps

- Check electrical lines and plug connections
- Check relays in the supply and ground paths: do the relays switch when the control voltage is applied or removed?
- Check the control voltage of the relay in the supply path: measure the voltage between pin B51 and pin B28; setpoint value +UBat
- Check the voltage supply to the relay in the ground path: Measure the voltage between pin B03 and pin B05; setpoint +UBat
- Check the resistance of the relay solenoids: Measure the resistance between pin B51 and B28 or pin B05 and B03; target value 85 Ω to 105 Ω

Possible remedy

- Replace fuel line if necessary
- Replace the injection unit if necessary
- After replacement, there may be air in the system > Perform at least 3 HCl system tests with MAN cats to flush the system with fuel
- After a maximum of 6 HCl system tests, heat the exhaust aftertreatment to 270°C to burn off the accumulated fuel. Otherwise, there is a risk of damage to the exhaust system!
- Note: Depending on the software version, system tests are performed automatically when the diagnostic routine is started. Fault memory entries may only be set after several system tests.

SPN 6181 - FMI 10 - AdBlue line heating: Overtemperature - Interruption**Monitoring strategy**

Monitoring of the AdBlue line heating of the SCR system

Possible causes

- Control of the AdBlue line heating by the EDC is faulty
- The heating of the AdBlue lines is not working correctly

Possible test steps

- Check electrical lines and plug connections
- Check relays in the supply and ground paths: do the relays switch when the control voltage is applied or removed?
- Check the control voltage of the relay in the supply path: Measure the voltage between pin B51 and pin B28; setpoint +UBat
- Check the voltage supply to the relay in the ground path: Measure the voltage between pin B03 and pin B05; setpoint value +UBat
- Check the resistance of the relay solenoids: Measure the resistance between pin B51 and B28 or pin B05 and B03; setpoint 85 Ω to 105 Ω

Possible remedy

- If necessary, replace the electrical cables or plug connections of the measuring unit
- Replace fuel line if necessary
- Replace the injection unit if necessary
- After replacement, there may be air in the system > Perform at least 3 HCl system tests with MAN cats to flush the system with fuel
- After a maximum of 6 HCl system tests, heat the exhaust aftertreatment to 270°C to burn off the accumulated fuel. Otherwise, there is a risk of damage to the exhaust system!
- Note: Depending on the software version, system tests are performed automatically when the diagnostic routine is started. Error memory entries may only be set after several system tests.

SPN 6182 - FMI 1 - AdBlue line heating output stage: Overtemperature - too high**Monitoring strategy**

Monitoring of the output stage for controlling the AdBlue line heating of the SCR system

Possible causes

- The output stage of the A435 EDC control unit shows an overtemperature error
- The heating of the AdBlue lines is no longer active

Possible test steps

- Check electrical lines and plug connections
- Check the control voltage of the relay in the supply path: Measure the voltage between pin B51 and pin B28; setpoint +UBat
- Check the voltage supply to the relay in the ground path: Measure the voltage between pin B03 and pin B05; setpoint +UBat

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace the measuring unit if necessary
- After replacement, there may be air in the system > Perform at least 3 HCl system tests with MAN cats to flush the system with fuel
- After a maximum of 6 HCl system tests, heat the exhaust gas aftertreatment system to 270°C to burn off the accumulated fuel. Otherwise, there is a risk of damage to the exhaust system!
- Note: Depending on the software version, system tests are performed automatically when the diagnostic routine is started. Fault memory entries may only be set after several system tests.

SPN 6182 - FMI 5 - AdBlue line heating output stage: Overtemperature - Short circuit to ground**Monitoring strategy**

Monitoring of the output stage for controlling the AdBlue line heating of the SCR system

Possible causes

- The output stage of the A435 EDC control unit shows a short circuit fault
- The heating of the AdBlue lines is no longer active

Possible test steps

- Check electrical lines and plug connections
- Check the control voltage of the relay in the supply path: Measure the voltage between pin B51 and pin B28; setpoint +UBat
- Check the voltage supply to the relay in the ground path: Measure the voltage between pin B03 and pin B05; setpoint value +UBat

Possible remedy

- If necessary, change the measuring unit
- After replacement, there may be air in the system > With MAN cats, perform at least 3 HCl system tests to flush the system with fuel
- After a maximum of 6 HCl system tests, heat the exhaust aftertreatment to 270°C to burn off the accumulated fuel. Otherwise, there is a risk of damage to the exhaust system!
- Note: Depending on the software version, system tests are performed automatically when the diagnostic routine is started. Error memory entries may only be set after several system tests.

SPN 6182 - FMI 6 - AdBlue line heating output stage: Overtemperature - Short circuit after UBatt+**Monitoring strategy**

Monitoring of the output stage for controlling the AdBlue line heating of the SCR system

Possible causes

- The output stage of the A435 EDC control unit shows a short circuit fault
- The heating of the AdBlue lines is no longer active

Possible test steps

- Check electrical lines and plug connections
- Check the control voltage of the relay in the supply path: Measure the voltage between pin B51 and pin B28; setpoint +UBat
- Check the voltage supply to the relay in the ground path: Measure the voltage between pin B03 and pin B05; setpoint value +UBat

Possible remedy

- Replace fuel line if necessary
- Depending on the fault pattern, replace the injection unit or measuring unit
- After replacement, there may be air in the system > Perform at least 3 HCl system tests with MAN cats to flush the system with fuel
- After a maximum of 6 HCl system tests, heat the exhaust aftertreatment to 270°C to burn off the accumulated fuel. Otherwise, there is a risk of damage to the exhaust system!
- Note: Depending on the software version, system tests are performed automatically when the diagnostic routine is started. Fault memory entries may only be set after several system tests.

SPN 6182 - FMI 10 - AdBlue line heating output stage: Overtemperature - Interruption**Monitoring strategy**

Monitoring of the output stage for controlling the AdBlue line heating of the SCR system

Possible causes

- The output stage of the A435 EDC control unit shows an interruption error
- The heating of the AdBlue lines is no longer active

Possible test steps

- Check electrical lines and plug connections
- Check the control voltage of the relay in the supply path: Measure the voltage between pin B51 and pin B28; setpoint +UBat
- Check the voltage supply of the relay in the ground path: Measure the voltage between pin B03 and pin B05; setpoint +UBat

Possible remedy

- Replace the measuring unit if necessary
- After replacement, there may be air in the system > Perform at least 3 HCl system tests with MAN cats to flush the system with fuel
- After a maximum of 6 HCl system tests, heat the exhaust aftertreatment to 270°C to burn off the accumulated fuel. Otherwise, there is a risk of damage to the exhaust system!
- Note: Depending on the software version, system tests are performed automatically when the diagnostic routine is started. Fault memory entries may only be set after several system tests.

SPN 6183 - FMI 8 - Immobilizer: incorrect immobilizer code (incorrect pairing) - Invalid signal**Monitoring strategy**

Monitoring of the control unit

Possible causes**Possible test steps**

- Check whether the correct key was used

Possible remedy

SPN 6184 - FMI 4 - Tamper protection: Timeout error - No signal**Monitoring strategy**

Monitoring of the control unit

Possible causes

- There is a fault in the immobilizer system.
- The immobilizer has been tampered with

Possible test steps

- Check electrical cables and plug connections
- Check the components of the immobilizer system for proper functioning and signs of tampering

Possible remedy

SPN 6184 - FMI 8 - Tamper protection: Torque reduction active - Invalid signal**Monitoring strategy**

Monitoring of the control unit

Possible causes

- There is a fault in the immobilizer system
- The immobilizer has been tampered with

Possible test steps

- Check electrical cables and plug connections
- Check the components of the immobilizer system for proper functioning and signs of tampering

Possible remedy

- Replace the measuring unit if necessary
- After replacement, there may be air in the system > Perform at least 3 HCl system tests with MAN cats to flush the system with fuel
- After a maximum of 6 HCl system tests, heat the exhaust aftertreatment to 270°C to burn off the accumulated fuel. Otherwise, there is a risk of damage to the exhaust system!
- Note: Depending on the software version, system tests are performed automatically when the diagnostic routine is started. Fault memory entries may only be set after several system tests.

SPN 6186 - FMI 1 - AdBlue supply unit: Pressure-speed correlation in service routine - too high**Monitoring strategy**

Monitoring of the AdBlue supply unit

Possible causes**Possible test steps**

- Suppressed error in case of frost or empty tank

Possible remedy

- Replace the measuring unit if necessary
- After replacement, there may be air in the system > Perform at least 3 HCl system tests with MAN cats to flush the system with fuel
- After a maximum of 6 HCl system tests, heat the exhaust aftertreatment to 270°C to burn off the accumulated fuel. Otherwise, there is a risk of damage to the exhaust system!
- Note: Depending on the software version, system tests are performed automatically when the diagnostic routine is started. Error memory entries may only be set after several system tests.

SPN 6186 - FMI 2 - AdBlue supply unit: Pressure-speed correlation in service routine - too low**Monitoring strategy**

Monitoring of the AdBlue supply unit

Possible causes**Possible test steps**

- Suppressed error in case of frost or empty tank

Possible remedy

- Replace the measuring unit if necessary
- After replacement, there may be air in the system > Perform at least 3 HCl system tests with MAN cats to flush the system with fuel
- After a maximum of 6 HCl system tests, heat the exhaust aftertreatment to 270°C to burn off the accumulated fuel. Otherwise, there is a risk of damage to the exhaust system!
- Note: Depending on the software version, system tests are performed automatically when the diagnostic routine is started. Error memory entries may only be set after several system tests.

SPN 6186 - FMI 3 - AdBlue supply unit: Pressure-speed correlation in service routine - implausible**Monitoring strategy**

Monitoring of the AdBlue supply unit

Possible causes**Possible test steps**

- Suppressed error in case of frost or empty tank

Possible remedy

- Analysis based on other error entries necessary
- Rectify other errors stored in the diagnostic memory

SPN 6187 - FMI 1 - AdBlue supply unit: Pump blocked - too high**Monitoring strategy**

Monitoring of the AdBlue supply unit

Possible causes**Possible test steps**

- Suppressed error in case of frost or empty tank

Possible remedy

- Replace measuring unit if necessary
- After replacement, there may be air in the system > Perform at least 3 HCl system tests with MAN cats to flush the system with fuel
- After a maximum of 6 HCl system tests, heat the exhaust aftertreatment to 270°C to burn off the accumulated fuel. Otherwise, there is a risk of damage to the exhaust system!
- Note: Depending on the software version, system tests are performed automatically when the diagnostic routine is started. Error memory entries may only be set after several system tests.

SPN 6187 - FMI 2 - AdBlue supply unit: Pump blocked - too low**Monitoring strategy**

Monitoring of the AdBlue supply unit

Possible causes**Possible test steps**

- Suppressed error in case of frost or empty tank

Possible remedy

- Replace the measuring unit if necessary
- After replacement, there may be air in the system > Perform at least 3 HCl system tests with MAN cats to flush the system with fuel
- After a maximum of 6 HCl system tests, heat the exhaust aftertreatment to 270°C to burn off the accumulated fuel. Otherwise, there is a risk of damage to the exhaust system!
- Note: Depending on the software version, system tests are performed automatically when the diagnostic routine is started. Error memory entries may only be set after several system tests.

SPN 6188 - FMI 1 - AdBlue supply unit: Speed-flow correlation - too high**Monitoring strategy**

Monitoring of the AdBlue supply unit

Possible causes**Possible test steps**

- Suppressed error in case of frost or empty tank

Possible remedy

- Replace fuel line if necessary
- Replace injection unit if necessary
- After replacement, there may be air in the system > Perform at least 3 HCl system tests with MAN cats to flush the system with fuel
- After a maximum of 6 HCl system tests, heat the exhaust aftertreatment to 270°C to burn off the accumulated fuel. Otherwise, there is a risk of damage to the exhaust system!
- Note: Depending on the software version, system tests are performed automatically when the diagnostic routine is started. Fault memory entries may only be set after several system tests.

SPN 6188 - FMI 3 - AdBlue supply unit: Speed-flow correlation - implausible**Monitoring strategy**

Monitoring of the AdBlue supply unit

Possible causes**Possible test steps**

- Suppressed error in case of frost or empty tank

Possible remedy

- Replace fuel line if necessary
- Replace injection unit if necessary
- After replacement, there may be air in the system > Perform at least 3 HCl system tests with MAN cats to flush the system with fuel
- After a maximum of 6 HCl system tests, heat the exhaust aftertreatment to 270°C to burn off the accumulated fuel. Otherwise, there is a risk of damage to the exhaust system!
- Note: Depending on the software version, system tests are performed automatically when the diagnostic routine is started. Fault memory entries may only be set after several system tests.

SPN 6189 - FMI 3 - AdBlue supply unit: Pressure-speed correlation - implausible**Monitoring strategy**

Monitoring of the AdBlue supply unit

Possible causes**Possible test steps**

- Suppressed error in case of frost or empty tank

Possible remedy

SPN 6190 - FMI 1 - AdBlue supply unit: Pump speed - too high**Monitoring strategy**

Monitoring of the AdBlue supply unit

Possible causes**Possible test steps**

- Suppressed error in case of frost or empty tank

Possible remedy

SPN 6190 - FMI 3 - AdBlue supply unit: Pump speed - implausible**Monitoring strategy**

Monitoring of the AdBlue supply unit

Possible causes**Possible test steps**

- Suppressed error in case of frost or empty tank

Possible remedy

- Replace the measuring unit if necessary
- After replacement, there may be air in the system > Perform at least 3 HCl system tests with MAN cats to flush the system with fuel
- After a maximum of 6 HCl system tests, heat the exhaust aftertreatment to 270°C to burn off the accumulated fuel. Otherwise, there is a risk of damage to the exhaust system!
- Note: Depending on the software version, system tests are performed automatically when the diagnostic routine is started. Error memory entries may only be set after several system tests.

SPN 6191 - FMI 5 - AdBlue supply unit: Pump speed - Short circuit to ground**Monitoring strategy**

Monitoring of the AdBlue supply unit

Possible causes

- Wiring/plug connection not OK
- Internal fault in the A808 AdBlue supply unit

Possible test steps

- Check electrical cables and plug connections
- Check target and actual speed with MAN CATS monitoring
- Check target speed signal: EDC pin B30, pin A02 (terminal 31)
- Check actual speed feedback signal: EDC pin B16, pin A02 (terminal 31)
- Target speed: Duty cycle 95% (ignition on, without engine running)
- Actual speed feedback: 50 Hz (ignition on, without motor running)
- Check the wiring of the speed signals for continuity:
- Target speed: EDC pin B30, connector A808 AdBlue supply unit pin 3
- Actual speed feedback: EDC pin B16, connector of the A808 AdBlue supply unit pin 1
- Ground: EDC pin A02, connector of the A808 AdBlue supply unit pin 4

Possible remedy

- Replace measuring unit if necessary
- After replacement, there may be air in the system > Perform at least 3 HCl system tests with MAN cats to flush the system with fuel
- After a maximum of 6 HCl system tests, heat the exhaust aftertreatment to 270°C to burn off the accumulated fuel. Otherwise, there is a risk of damage to the exhaust system!
- Note: Depending on the software version, system tests are performed automatically when the diagnostic routine is started. Fault memory entries may only be set after several system tests.

SPN 6191 - FMI 6 - AdBlue supply unit: Pump speed - Short circuit after UBatt+

Monitoring strategy

Monitoring of the AdBlue supply unit

Possible causes

- Wiring/plug connection not OK
- Internal error in the A808 AdBlue supply unit

Possible test steps

- Check electrical cables and plug connections
- Check target and actual speed with MAN CATS monitoring
- Check target speed signal: EDC pin B30, pin A02 (terminal 31)
- Check actual speed feedback signal: EDC pin B16, pin A02 (terminal 31)
- Target speed: duty cycle 95% (ignition on, without engine running)
- Actual speed feedback: 50 Hz (ignition on, without engine running)
- Check the wiring of the speed signals for continuity:
- Target speed: EDC pin B30, connector A808 AdBlue supply unit pin 3
- Actual speed feedback: EDC pin B16, connector of the A808 AdBlue supply unit pin 1
- Ground: EDC pin A02, connector of the A808 AdBlue supply unit pin 4

Possible remedy

- Replace measuring unit if necessary
- After replacement, there may be air in the system > Perform at least 3 HCl system tests with MAN cats to flush the system with fuel
- After a maximum of 6 HCl system tests, heat the exhaust aftertreatment to 270°C to burn off the accumulated fuel. Otherwise, there is a risk of damage to the exhaust system!
- Note: Depending on the software version, system tests are performed automatically when the diagnostic routine is started. Fault memory entries may only be set after several system tests.

SPN 6193 - FMI 5 - SCR pump pressure sensor - short circuit to ground
Monitoring strategy

Monitoring of the SCR system

Possible causes

- Defect in the wiring of the pressure sensor of the A1279 AdBlue supply unit
- Defective pressure sensor in the A1279 AdBlue dosing unit

Possible test steps

- Check electrical cables and plug connections
- Check the wiring of the pressure sensor of the A1279 AdBlue dosing unit:
- Pressure signal at EDC pin A13
- Ground at EDC pin A22
- Setpoint signal voltage at ambient pressure 0.47 V to 0.6 V

Possible remedy

- Replace electrical cables or plug connections of the measuring unit if necessary
- Replace the measuring unit if necessary
- After replacement, there may be air in the system > Perform at least 3 HCl system tests with MAN cats to flush the system with fuel
- After a maximum of 6 HCl system tests, heat the exhaust aftertreatment to 270°C to burn off the accumulated fuel. Otherwise, there is a risk of damage to the exhaust system!
- Note: Depending on the software version, system tests are performed automatically when the diagnostic routine is started. Error memory entries may only be set after several system tests.

SPN 6193 - FMI 6 - SCR pump pressure sensor - short circuit to UBatt+**Monitoring Strategy**

Monitoring of the SCR system

Possible causes

- Defect in the wiring of the pressure sensor of the A1279 AdBlue supply unit
- Defective pressure sensor in the A1279 AdBlue dosing unit

Possible test steps

- Check electrical lines and plug connections
- Check the wiring of the pressure sensor of the A1279 AdBlue dosing unit:
- Pressure signal at EDC pin A13
- Ground at EDC pin A22
- Setpoint signal voltage at ambient pressure 0.47 V to 0.6 V

Possible remedy

- If necessary, replace the electrical cables or plug connections of the measuring unit
- Replace the measuring unit if necessary
- After replacement, there may be air in the system > Perform at least 3 HCl system tests with MAN cats to flush the system with fuel
- After a maximum of 6 HCl system tests, heat the exhaust aftertreatment to 270°C to burn off the accumulated fuel. Otherwise, there is a risk of damage to the exhaust system!
- Note: Depending on the software version, system tests are performed automatically when the diagnostic routine is started. Error memory entries may only be set after several system tests.

SPN 6194 - FMI 9 - AdBlue supply unit: Device defective - Device error**Monitoring strategy**

Monitoring of the AdBlue supply unit

Possible causes**Possible test steps**

- Suppressed error in case of frost or empty tank

Possible remedy

- If necessary, replace the electrical cables or plug connections of the metering unit
- If necessary, change the measuring unit
- After replacement, there may be air in the system > With MAN cats, perform at least 3 HCl system tests to flush the system with fuel
- After a maximum of 6 HCl system tests, heat the exhaust aftertreatment to 270°C to burn off the accumulated fuel. Otherwise, there is a risk of damage to the exhaust system!
- Note: Depending on the software version, system tests are performed automatically when the diagnostic routine is started. Error memory entries may only be set after several system tests.

SPN 6195 - FMI 7 - AdBlue line heating: Short circuit - Short circuit**Monitoring strategy**

Monitoring of the SCR system

Possible causes

- Wiring/plug connection not OK
- Internal fault in the AdBlue line

Possible test steps**Possible remedy**

- After replacement, there may be air in the system > Perform at least 3 HCl system tests with MAN cats to flush the system with fuel
- After a maximum of 6 HCl system tests, heat the exhaust aftertreatment to 270°C to burn off the accumulated fuel. Otherwise, there is a risk of damage to the exhaust system!
- Note: Depending on the software version, system tests are performed automatically when the diagnostic routine is started. Fault memory entries may only be set after several system tests.

SPN 6196 - FMI 7 - AdBlue line heating: Short circuit - Short circuit**Monitoring strategy**

Monitoring the SCR system

Possible causes

- Wiring/plug connection not working properly
- Internal fault in the AdBlue line

Possible test steps**Possible remedy**

- If necessary, replace the electrical lines or plug connections of the measuring unit
- Replace the measuring unit if necessary
- After replacement, there may be air in the system > Perform at least 3 HCl system tests with MAN cats to flush the system with fuel
- After a maximum of 6 HCl system tests, heat the exhaust aftertreatment to 270°C to burn off the accumulated fuel. Otherwise, there is a risk of damage to the exhaust system!
- Note: Depending on the software version, system tests are performed automatically when the diagnostic routine is started. Error memory entries may only be set after several system tests.

SPN 6197 - FMI 5 - Airless metering system Speed feedback - Short circuit to ground**Monitoring strategy**

Monitoring of the pump speed frequency for plausible value range (min. limit)

Possible causes

- Interference signals on the line
- Faults in the electrical wiring

Possible test steps

- Check the wiring for correct plug connections/loose contacts/chafing, etc. Check whether interference signals are being coupled into the line (e.g., is there a frequency-carrying line running parallel in the wiring harness?). Check whether the pump's power supply is secure. - Replace the pump. (When replacing the pump, the service routine Filter Reset & Initial Operation must be performed with MAN cats! After the Initial Operation service routine, the SG follow-up must be completely terminated!

Possible remedy

SPN 6197 - FMI 6 - Airless dosing system Speed feedback - Short circuit after UBatt+**Monitoring strategy**

Monitoring of the pump speed frequency for plausible value range (min. limit)

Possible causes

- Interference signals on the line
- Fault in the electrical cabling

Possible test steps

- Check the wiring for correct plug connections/loose contacts/chafing, etc. Check whether interference signals are being coupled into the line (e.g., is there a frequency-carrying line running parallel in the cable harness?). Check whether the pump's power supply is secure. - Replace the pump. (When replacing the pump, the service routine Filter Reset & Initial Operation must be performed with MAN cats! After the Initial Operation service routine, the SG follow-up must be completely terminated!

Possible remedy

SPN 6198 - FMI 1 - VTG: Control deviation, travel distance after learning too large - too high**Monitoring strategy**

Monitoring of the VTG

Possible causes**Possible test steps**

- Check electrical cables and plug connections
- Check the function of the VTG actuator with MAN-cats: if the actuator is blocked/stiff, it moves through its entire travel range
- Use MAN-cats to relearn the adjustment range of the VTG actuator

Possible remedy

- If necessary, replace the electrical cables or plug connections of the measuring unit
- Replace the measuring unit if necessary
- After replacement, there may be air in the system > Perform at least 3 HCl system tests with MAN-cats to flush the system with fuel
- After a maximum of 6 HCl system tests, heat the exhaust aftertreatment to 270°C to burn off the accumulated fuel. Otherwise, there is a risk of damage to the exhaust system!
- Note: Depending on the software version, system tests are performed automatically when the diagnostic routine is started. Error memory entries may only be set after several system tests.

SPN 6204 - FMI 8 - VTG: Actuator status invalid - Invalid signal**Monitoring strategy**

VTG: Invalid status of the actuator

Possible causes

-Defect/malfunction in the actuator electronics

Possible test steps

- Check electrical cables and plug connections
- Check the function of the VTG actuator with MAN-cats: if the actuator is blocked/stiff, it moves through its entire travel range
- Use MAN-cats to relearn the adjustment range of the VTG actuator

Possible remedy

- Replace the exhaust gas turbocharger if necessary

SPN 6205 - FMI 8 - VTG: Actuator temperature invalid - Invalid signal**Monitoring strategy**

VTG: Invalid temperature value (board temperature) of the actuator

Possible causes

-Defect/malfunction in the actuator electronics

Possible test steps

- Check electrical cables and plug connections
- Check the function of the VTG actuator using MAN-cats: if the actuator is blocked/stiff, it moves through its entire travel range
- Use MAN-cats to relearn the adjustment range of the VTG actuator

Possible remedy

- Replace the exhaust gas turbocharger if necessary

SPN 6206 - FMI 1 - Output stage warning LED - too high**Monitoring strategy**

Output stage warning LED1: Overtemperature

Possible causes

-Short circuit between pin B29 and terminal 15

Possible test steps

- Check electrical wiring
- Check electrical plug connections

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace component if necessary

SPN 6206 - FMI 5 - Output stage warning LED - Short circuit to ground**Monitoring strategy**

Output stage warning LED1: Short circuit to ground

Possible causes

,-Short circuit between pin B29 and terminal 15

Possible test steps

- Check electrical wiring
- Check electrical plug connections
- Check light bulbs and lamp housings

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace component if necessary

SPN 6206 - FMI 6 - Output stage warning LED - Short circuit after UBatt+**Monitoring strategy**

Output stage warning LED1: Short circuit after Ubatt

Possible causes

,-Short circuit between pin B29 and terminal 15

Possible test steps

- Check electrical wiring
- Check electrical plug connections
- Check light source and lamp housing

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace component if necessary

SPN 6206 - FMI 10 - Output stage warning LED - Interruption**Monitoring strategy**

Output stage warning LED1: Interruption

Possible causes

,-Wire interruption between pin B29 and terminal 15

Possible test steps

- Check electrical cables
- Check electrical plug connections
- Check light source and lamp housing

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace component if necessary

SPN 6207 - FMI 1 - Output stage relay AdBlue supply unit - too high**Monitoring strategy**

Monitoring of the load relay of the AdBlue supply unit: Overtemperature

Possible causes

- Overtemperature in the output stage of the power supply of the A808 AdBlue supply unit
- Transition resistance in the plug connection
- Defect in the control coil of the load relay

Possible test steps

- Check the wiring for correct plug connections, loose contacts, and chafing points
- Check load relay for proper function

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace component if necessary

SPN 6207 - FMI 5 - Output stage relay AdBlue supply unit - Short circuit to ground**Monitoring strategy**

Monitoring of the load relay of the AdBlue supply unit: Short circuit to ground

Possible causes

- Short circuit in load relay to ground

Possible test steps

- Check wiring for correct plug connections, loose contacts, chafing
- Check load relay for proper function

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace component if necessary

SPN 6207 - FMI 6 - Output stage relay AdBlue supply unit - Short circuit to UBatt**Monitoring strategy**

Monitoring of the load relay of the AdBlue supply unit: Short circuit after Ubatt

Possible causes

- Short circuit in load relay against Ubatt+

Possible test steps

- Check wiring for correct plug connections, loose contacts, chafing
- Check load relay for proper function

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace component if necessary

SPN 6207 - FMI 10 - Output stage relay AdBlue supply unit - Interruption**Monitoring strategy**

Monitoring of the load relay of the AdBlue supply unit: interruption

Possible causes

- Interruption of the connection to the load relay

Possible test steps

- Check the wiring for correct plug connections, loose contacts, and chafing points
- Check load relay for proper function

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace component if necessary

SPN 6208 - FMI 3 - Air mass sensor bank 1: Offset on air mass signal - implausible**Monitoring strategy**

Monitoring of the air mass sensor: Signal implausible, offset error

Possible causes

- B 323 Air mass sensor is defective
- Leak in the air system

Possible test steps

- Check electrical cables and plug connections
- Check the air system for leaks, especially hose lines and connections
- Check with MAN-cats air mass signal and B323 air mass meter
- Check component according to test step list in system description FEDC17

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace component if necessary

SPN 6208 - FMI 9 - Air mass sensor bank 1: Offset on air mass signal - Device error**Monitoring strategy**

Monitoring of the air mass sensor: Error CAN message

Possible causes

- B323 Air mass sensor is defective
- Leak in the air system

Possible test steps

- Check electrical wiring and plug connections
- Check the air system for leaks, especially hose lines and connections
- Check with MAN cats Air mass signal and B323 air mass sensor
- Check component according to test step list in system description FEDC17

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace component if necessary

SPN 6209 - FMI 4 - CAN message TFI4Cmd: Timeout error - No signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 6210 - FMI 4 - CAN message TFI4Data: Timeout error - No signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Install NOx sensor

SPN 6210 - FMI 8 - CAN message TFI4Data: Data length error - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Install NOx sensor

SPN 6211 - FMI 4 - CAN message TxTFI4OBD: Timeout error - No signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

- Install NOx sensor

SPN 6212 - FMI 9 - Deicing of the AdBlue system failed - Device error**Monitoring strategy**

Monitoring the heating of the AdBlue system

Possible causes

- Fault in the cooling water heating of the AdBlue tank and the A808 AdBlue supply unit
- Fault in the electrical heating of the AdBlue lines and the A1279 AdBlue dosing unit

Possible test steps

- Check the coolant lines for heating the tank and A808 AdBlue supply unit for leaks, kinks, and pinches, e.g., caused by cable ties
 - Check the wiring of the Y437 solenoid valve cooling water for correct plug connections, loose contacts, and chafing (EDC pin A32 and pin A54, solenoid valve pin 1 and pin 2)
 - Y437 Check solenoid valve cooling water for proper function
 - Resistance measurement between pin A32 and pin A54
 - Setpoint for 12-volt system: 15.5 Ω to 17 Ω
 - Setpoint for 24-volt system: 30.5 Ω to 33.5 Ω
- Check the wiring of the AdBlue line bundle heating for correct plug connections, loose contacts, and chafing (EDC pin B28 and pin B51 in the supply path, pin B03 and pin B05 in the ground path)
- Check both relays of the line heating for proper function
 - Measure resistance in the supply path between pin B28 and pin B51, in the ground path between pin B03 and pin B05
 - Target value: 85 Ω to 105 Ω
 - Check the wiring of the A1279 AdBlue dosing unit heating for correct plug connections, loose contacts, and chafing (EDC pin B07 and pin B20, dosing unit pin 4 and pin 3)
 - Check the PTC heating element of the A1279 AdBlue dosing unit for proper functioning
 - Resistance measurement between pin B07 and pin B20
 - Target value: 12 Ω to 14 Ω

Possible remedy

SPN 6217 - FMI 9 - Intake air throttle valve: Return spring broken - Device error**Monitoring strategy**

Monitoring of the intake air throttle valve

Possible causes

- Return spring in the servomotor is broken
- Damper is sluggish, does not return to the closed position or returns too slowly

Possible test steps

- M119 Move the intake air throttle valve with MAN cats to the fully open position, disconnect the plug --> if the spring is intact, the valve must be pushed back to the closed position automatically

Possible remedy

SPN 6222 - FMI 1 - Starter monitoring: Start interruption -

Monitoring strategy

Possible causes

Possible test steps

Possible Remedies

SPN 6989 - FMI 1 - Lambda sensor adaptation necessary -**Monitoring strategy**

Deviation in lambda sensor

Possible causes**Possible test steps****Possible remedy**

- Perform lambda sensor test routine with MAN cats

SPN 6990 - FMI 1 - Lambda sensor adaptation required immediately -**Monitoring strategy****Possible causes****Possible test steps****Possible remedy**

SPN 6993 - FMI 3 - Pressure sensor before OxiCat - implausible**Monitoring strategy**

Pressure sensor upstream of OxiCat: implausible (differential pressure sensor)

Possible causes

-Component wiring/connector/connector pins defective -Sensor defective

Possible test steps

-Check the component's wiring -Check the component's plug contacts

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace component if necessary

SPN 6993 - FMI 5 - Pressure sensor upstream of OxiCat - Short circuit to ground**Monitoring strategy**

Pressure sensor upstream of OxiCat: Short circuit to ground (differential pressure sensor)

Possible causes

-Component wiring/connector/connector pins defective -Sensor defective

Possible test steps

-Check the component's wiring -Check the component's plug contacts

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace component if necessary

SPN 6993 - FMI 6 - Pressure sensor before OxiCat - Short circuit after UBatt+**Monitoring strategy**

Pressure sensor before OxiCat: Short circuit after UBatt+ (differential pressure sensor)

Possible causes

-Cabling / connector / connector pins of the component defective -Sensor defective

Possible test steps

-Check the component's wiring -Check the component's plug contacts

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace component if necessary

SPN 6993 - FMI 11 - Pressure sensor in front of OxiCat - Loose connection**Monitoring strategy**

Pressure sensor in front of OxiCat: loose connection (differential pressure sensor)

Possible causes

-Cabling / connector / connector pins of the component defective -Sensor defective

Possible test steps

-Check the component's wiring -Check the component's plug contacts

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace component if necessary

SPN 6994 - FMI 5 - Air mass sensor channel 2: Short circuit to negative or ground - Short circuit to ground**Monitoring strategy**

Monitoring of the intake air mass sensor

Possible causes**Possible test steps**

- Check electrical wiring
- Check electrical connections
- Pin assignment on the component: Pin 1: VDD = +5 V; Pin 2: SENT 1 (dynamic pressure); Pin 3: GND; Pin 4: SENT 2 (absolute pressure, air temperature).
- Pin assignment EDC: A43: (VDD) V_V_5VSS1F (+5 V \pm 0.1 V); A58: (SENT 1) I_F_DF01; A55: (GND) G_R_DF02; A44: (SENT 2) I_F_DF02.

Possible remedy

SPN 6994 - FMI 6 - Air mass sensor channel 2: Short circuit to negative or ground - Short circuit to UBatt**Monitoring strategy**

Monitoring of the intake air mass sensor

Possible causes**Possible test steps**

- Check electrical wiring
- Check electrical plug connections
- Pin assignment on the component: Pin 1: VDD = +5 V; Pin 2: SENT 1 (dynamic pressure); Pin 3: GND; Pin 4: SENT 2 (absolute pressure, air temperature).
- Pin assignment EDC: A43: (VDD) V_V_5VSS1F (+5 V \pm 0.1 V); A58: (SENT 1) I_F_DF01; A55: (GND) G_R_DF02; A44: (SENT 2) I_F_DF02.

Possible remedy

SPN 6994 - FMI 8 - Air mass sensor channel 2: Short circuit to negative or ground - Invalid signal**Monitoring strategy**

Monitoring of the intake air mass sensor

Possible causes**Possible test steps**

- Check the power supply on the air mass sensor side: Power supply (4.85 to 5.15) V, current supply within (20 to 50) mA
- Pin assignment on component: Pin 1: VDD = +5 V; Pin 2: SENT 1 (dynamic pressure); Pin 3: GND; Pin 4: SENT 2 (absolute pressure, air temperature).
- Pin assignment EDC: A43: (VDD) V_V_5VSS1F (+ 5 V \pm 0.1 V); A58: (SENT 1) I_F_DF01; A55: (GND) G_R_DF02; A44: (SENT 2) I_F_DF02.

Possible remedy

SPN 6996 - FMI 1 - Replace/clean particle filter with power reduction -**Monitoring strategy**

-Ash load above limit value

Possible causes**Possible test steps****Possible remedy**

- Replace the charge air throttle valve position sensor if necessary Cleaning/replacement of DPF

SPN 6997 - FMI 5 - Air mass sensor channel 1 - Short circuit to ground**Monitoring strategy**

Monitoring of the intake air mass sensor

Possible causes**Possible test steps**

- Check electrical wiring
- Check electrical connections
- Pin assignment on the component: Pin 1: VDD = +5 V; Pin 2: SENT 1 (dynamic pressure); Pin 3: GND; Pin 4: SENT 2 (absolute pressure, air temperature).
- Pin assignment EDC: A43: (VDD) V_V_5VSS1F (+5 V \pm 0.1 V); A58: (SENT 1) I_F_DF01; A55: (GND) G_R_DF02; A44: (SENT 2) I_F_DF02.

Possible remedy

- Replace electrical cables and plug connections if necessary
- Replace the charge air throttle valve position sensor if necessary

SPN 6997 - FMI 6 - Air mass sensor channel 1 - Short circuit to UBatt**Monitoring strategy**

Monitoring of the intake air mass sensor

Possible causes**Possible test steps**

- Check electrical wiring
- Check electrical plug connections
- Pin assignment on the component: Pin 1: VDD = +5 V; Pin 2: SENT 1 (dynamic pressure); Pin 3: GND; Pin 4: SENT 2 (absolute pressure, air temperature).
- Pin assignment EDC: A43: (VDD) V_V_5VSS1F (+5 V \pm 0.1 V); A58: (SENT 1) I_F_DF01; A55: (GND) G_R_DF02; A44: (SENT 2) I_F_DF02.

Possible remedy

SPN 6997 - FMI 8 - Air mass sensor channel 1 - Invalid signal**Monitoring strategy**

Monitoring of the intake air mass sensor

Possible causes**Possible test steps**

- Check electrical cables
- Check electrical connections
- Pin assignment on the component: Pin 1: VDD = +5 V; Pin 2: SENT 1 (dynamic pressure); Pin 3: GND; Pin 4: SENT 2 (absolute pressure, air temperature).
- Pin assignment EDC: A43: (VDD) V_V_5VSS1F (+5 V \pm 0.1 V); A58: (SENT 1) I_F_DF01; A55: (GND) G_R_DF02; A44: (SENT 2) I_F_DF02.

Possible remedy

SPN 6998 - FMI 1 - Air mass differential pressure - too high**Monitoring strategy**

Monitoring the intake air mass sensor

Possible causes**Possible test steps**

- MAN cats: observe the environmental conditions associated with the fault
- Check the charge air system for leaks (possible leakage in the direction of flow after the air mass sensor)
- Check the Venturi tube for sooting and blockages
- Check Venturi tube for correct part number

Possible remedy

SPN 6998 - FMI 2 - Air mass differential pressure - too low**Monitoring strategy**

Monitoring of the intake air mass sensor

Possible causes**Possible test steps**

- MAN cats: Observe the environmental conditions associated with the fault
- Check the charge air system for leaks (possible leakage in the direction of flow before the air mass sensor)
- Check the Venturi tube for sooting and blockages
- Check Venturi tube for correct part number

Possible remedy

SPN 6998 - FMI 3 - Air mass differential pressure - implausible**Monitoring strategy**

Monitoring of the intake air mass sensor

Possible causes**Possible test steps**

- Attempt last calibration by stopping the engine and waiting for 5x tau

Possible remedy

SPN 6998 - FMI 9 - Air mass differential pressure - Device error**Monitoring strategy**

Monitoring of the intake air mass sensor

Possible causes**Possible test steps**

- None

Possible remedy

- Replace EGR valve lock flap if necessary (currently not available separately)

SPN 6999 - FMI 10 - Output stage speed output -

Monitoring strategy

Possible causes

Possible test steps

Possible Remedies

- Replace EGR valve shut-off flap if necessary (currently not available separately)

SPN 6999 - FMI 1 - Power amplifier speed output -

Monitoring strategy

Possible causes

Possible test steps

Possible Remedies

- Perform particle filter regeneration

SPN 6999 - FMI 6 - Power stage speed output -

Monitoring strategy

Possible causes

Possible test steps

Possible Remedies

- Adjust oil level

SPN 6999 - FMI 5 - Output stage speed output -**Monitoring Strategy****Possible causes****Possible test steps****Possible remedy**

- Replace WEMA sensor
- Reset urea plausibility check with MANCats in the EDC menu (currently only possible in trucks)

SPN 7020 - FMI 4 - Error in time-synchronous private CAN - No signal

Monitoring strategy
Possible causes
Possible test steps
Possible remedy

SPN 7021 - FMI 4 - Timeout for CAN receive message Frm_ComMS_Sys1_SRcv - No signal

Monitoring strategy
Possible causes
Possible test steps
Checking the error memory of the SLAVE control unit
Possible remedy

SPN 7022 - FMI 4 - Timeout for CAN receive message Frm_ComMS_Sys2_SRcv - No signal

Monitoring strategy
Possible causes
Possible test steps
Check error memory SLAVE control unit
Possible remedy

SPN 7023 - FMI 4 - Timeout for CAN receive message Frm_ComMS_Sys3_SRcv - No signal

Monitoring strategy
Possible causes
Possible test steps
Check error memory SLAVE control unit
Possible remedy

SPN 7024 - FMI 4 - Timeout for CAN receive message Frm_ComMS_Sys4_SRcv - No signal

Monitoring strategy

Possible causes

Possible test steps

Check error memory SLAVE control unit

Possible remedy

SPN 7025 - FMI 4 - Timeout for CAN receive message Frm_ComMS_Sys5_SRcv - No signal

Monitoring strategy
Possible causes
Possible test steps
Check error memory SLAVE control unit
Possible remedy

SPN 7026 - FMI 4 - Timeout for CAN receive message Frm_ComMS_Sys6_SRcv - No signal

Monitoring strategy
Possible causes
Possible test steps
Check error memory SLAVE control unit
Possible remedy

SPN 7027 - FMI 4 - Timeout for CAN receive message Frm_ComMS_Sys7_SRcv - No signal

Monitoring strategy
Possible causes
Possible test steps
Check error memory SLAVE control unit
Possible remedy

SPN 7028 - FMI 4 - Timeout for CAN receive message Frm_ComMS_Sys8_SRcv - No signal

Monitoring strategy
Possible causes
Possible test steps
Check error memory SLAVE control unit
Possible remedy

SPN 7029 - FMI 4 - Timeout for CAN receive message Frm_ComMS_Sys9_SRcv - No signal

Monitoring strategy
Possible causes
Possible test steps
Check error memory SLAVE control unit
Possible remedy

SPN 7030 - FMI 4 - Timeout for CAN receive message Frm_ComMS_Sys10_SRcv - No signal**Monitoring strategy****Possible causes****Possible test steps**

Check error memory SLAVE control unit

Possible remedy

SPN 7051 - FMI 3 - Priority 1 for display in master from slave - implausible

Monitoring strategy

Possible causes

Possible test steps

Check error memory SLAVE control unit

Possible remedy

SPN 7052 - FMI 3 - Priority 2 for display in master from slave - implausible

Monitoring strategy

Possible causes

Possible test steps

Check error memory SLAVE control unit

Possible remedy

SPN 7053 - FMI 3 - Priority 3 for display in master from slave - implausible

Monitoring strategy

Possible causes

Possible test steps

Check error memory SLAVE control unit

Possible remedy

SPN 7063 - FMI 4 - Timeout for CAN receive message Frm_MSMon_FidFCC_MRcv - No signal**Monitoring strategy****Possible causes****Possible test steps**

Check error memory SLAVE control unit

Possible remedy

SPN 7071 - FMI 4 - Timeout for CAN receive message Frm_ComMS_Sys1_MRcv - No signal

Monitoring strategy
Possible causes
Possible test steps
Check error memory SLAVE control unit
Possible remedy

SPN 7072 - FMI 4 - Timeout for CAN receive message Frm_ComMS_Sys11_SRcv - No signal**Monitoring strategy****Possible causes****Possible test steps**

Check error memory SLAVE control unit

Possible remedy

SPN 7076 - FMI 8 - Checksum and counter invalid (S0) - Invalid signal

Monitoring strategy

Possible causes

Possible test steps

Check error memory SLAVE control unit

Possible remedy

SPN 7077 - FMI 8 - Checksum and counter invalid (S1) - Invalid signal**Monitoring strategy****Possible causes****Possible test steps**

Check error memory SLAVE control unit

Possible remedy

SPN 7078 - FMI 4 - Timeout for CAN receive message Frm_ComMS_Sys12_SRcv - No signal**Monitoring strategy****Possible causes****Possible test steps**

Check error memory SLAVE control unit

Possible remedy

SPN 7079 - FMI 3 - Master slave identification implausible - implausible**Monitoring strategy****Possible causes****Possible test steps**

Check error memory SLAVE control unit

Possible remedy

SPN 7081 - FMI 4 - Timeout for CAN receive message Frm_MSMon_FidFCC_SRcv - No signal

Monitoring strategy

Possible causes

Possible test steps
Check error memory SLAVE control unit

Possible remedy

SPN 7082 - FMI 8 - Master slave software version invalid - Invalid signal

Monitoring strategy

Possible causes

Possible test steps

Possible remedy

SPN 7083 - FMI 4 - Timeout for CAN receive message Frm_ComMS_Sys2_MRcv - No signal**Monitoring strategy****Possible causes****Possible test steps**

Check error memory SLAVE control unit

Possible remedy

SPN 7084 - FMI 4 - Timeout for CAN receive message Frm_ComMS_Sys3_MRcv - No signal**Monitoring strategy****Possible causes****Possible test steps**

Check error memory SLAVE control unit

Possible remedy

SPN 7085 - FMI 4 - Timeout for CAN receive message Frm_ComMS_Sys13_SRcv - No signal**Monitoring Strategy****Possible causes****Possible test steps**

Check error memory SLAVE control unit

Possible remedy

SPN 7086 - FMI 4 - Timeout for CAN receive message Frm_ComMS_Sys4_MRcv - No signal

Monitoring strategy

Possible causes

Possible test steps
Check error memory SLAVE control unit

Possible remedy

SPN 7088 - FMI 4 - Timeout for CAN receive message Frm_ComMS_Sys5_MRcv - No signal**Monitoring strategy****Possible causes****Possible test steps**

Check error memory SLAVE control unit

Possible remedy

SPN 8109 - FMI 1 - Injector bank 0 timeout error - too high**Monitoring strategy**

Monitoring of the injection system

Possible causes

- Short circuit monitoring for bank 1 is not functioning correctly

Possible test steps

- Check electrical cables and plug connections

Possible remedy

SPN 8110 - FMI 1 - Injector bank 1 timeout error - too high**Monitoring strategy**

Monitoring of the injection system

Possible causes

- Short circuit monitoring for bank 2 is not working correctly

Possible test steps

- Check electrical cables and plug connections

Possible remedy

SPN 8111 - FMI 1 - ECU monitoring: Engine overheating protection - too high**Monitoring strategy**

Monitoring of the control unit

Possible causes

- There is a fault in the injection system

Possible test steps

- Check the injection system with MAN cats
- The injection duration in coasting mode is too high
- Use MAN-cats to check whether idle mode is being detected correctly

Possible remedy

SPN 8120 - FMI 1 - Exhaust gas temperature before SCR - too high**Monitoring strategy**

Exhaust gas temperature before SCR: The measured sensor value is above the predicted range/physical diagnosis

Possible causes

- Fault in the power supply to the exhaust gas temperature module
- The exhaust gas temperature sensor before SCR is defective

Possible test steps

- Check electrical cables and plug connections
- Check the CAN connection:
- Check component according to test step list in system description FEDC17
- Check the fuse for the power supply to the exhaust gas temperature module

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace component if necessary

SPN 8120 - FMI 2 - Exhaust gas temperature before SCR too low**Monitoring strategy**

Exhaust gas temperature before SCR: The measured sensor value is below the predicted range/physical diagnosis

Possible causes

- Fault in the power supply to the exhaust gas temperature module
- The exhaust gas temperature sensor before SCR is defective

Possible test steps

- Check electrical cables and plug connections
- Check the CAN connection:
- Check component according to test step list in system description FEDC17
- Check the fuse for the power supply to the exhaust gas temperature module

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace component if necessary

SPN 8120 - FMI 8 - Exhaust gas temperature before SCR - Invalid signal**Monitoring strategy**

Exhaust gas temperature before SCR: The measured sensor value for the temperature drops too quickly

Possible causes

- Fault in the power supply to the exhaust gas temperature module
- The exhaust gas temperature sensor before SCR is defective

Possible test steps

- Check electrical cables and plug connections
- Check the CAN connection:
- Check component according to test step list in system description FEDC17
- Check the fuse for the power supply to the exhaust gas temperature module

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace component if necessary

SPN 8120 - FMI 9 - Exhaust gas temperature before SCR - Device error**Monitoring strategy**

Exhaust gas temperature before SCR: Temperature difference too low (removal detection for off-road/marine)

Possible causes

- Fault in the power supply to the exhaust gas temperature module
- The exhaust gas temperature sensor before SCR is defective

Possible test steps

- Check electrical cables and plug connections
- Check the CAN connection:
- Check component according to test step list in system description FEDC17
- Check the fuse for the power supply to the exhaust gas temperature module

Possible remedy

- Replace electrical cables or plug connections if necessary
- Replace component if necessary

SPN 8121 - FMI 2 - Inducement system: Power reduction due to EGR error - too low**Monitoring strategy**

Monitoring of the induction system

Possible causes

- There is an emission-related fault in the EGR area
- After a defined period of time, the weak inducement becomes active and limits speed and torque

Possible test steps

- Read out the error memory

Possible remedy

- Replace injector if necessary

SPN 8122 - FMI 2 - Inducement system: Creep mode due to EGR error - too low**Monitoring strategy**

Monitoring of the inducement system

Possible causes

- There is an emission-related error in the EGR area
- The error was not corrected even during the weak inducement time window
- The final inducement is now active and the engine is only running at idle speed

Possible test steps

- Read out the fault memory

Possible remedy

- Replace injector if necessary

SPN 8124 - FMI 2 - Inducement system: Power reduction due to dosing interruption - too low**Monitoring strategy**

Monitoring of the inducement system

Possible causes

- There is an emission-related fault in the AdBlue dosing system
- After a defined period of time, the weak inducement becomes active and limits speed and torque

Possible test steps

- Read out the error memory

Possible remedy

SPN 8125 - FMI 2 - Inducement system: Creep mode due to dosing interruption - too low**Monitoring strategy**

Monitoring of the inducement system

Possible causes

- There is an emission-related error in the AdBlue dosing area
- The error was not corrected even during the weak inducement time window
- The final inducement is now active and the engine is only running at idle speed

Possible test steps

- Read out the fault memory

Possible remedy

SPN 8127 - FMI 2 - Inducement system: Creep mode due to empty AdBlue tank - too low**Monitoring strategy**

Monitoring of the inducement system

Possible causes

- There is an emissions-related fault; the AdBlue tank has fallen below the alarm threshold
- The error was not corrected even during the weak inducement time window
- The final inducement is now active and the engine is only running at idle speed

Possible test steps

- Check the AdBlue tank level
- Read out the error memory
- Check the electrical cables and plug connections of the CAN bus connection of the AdBlue combination sensor
- Check the fuse for the power supply of the A1192 AdBlue combination sensor (10 amps)
- Check the power supply of the A1192 AdBlue combination sensor: At the connector, pin 1 = +12 V, pin 4 = terminal 31
- Check the A1192 AdBlue combination sensor with MAN cats: does the displayed fill level match the actual fill level in the tank, does the display react as expected when the fill level changes

Possible remedy

- Replace electrical cables and plug connections if necessary
- If necessary, replace B696 EGR temperature sensor in EGR cooler

SPN 8128 - FMI 2 - Inducement system: Power reduction due to AdBlue consumption - too low**Monitoring strategy**

Monitoring of the inducement system

Possible causes

There is an emission-related fault; this is a consequential fault due to low or no AdBlue consumption. Be sure to note any additional SPNs in the fault memory.

Possible test steps

- Check additional SPNs, as SPN 8128 is a follow-up error

Possible remedy

SPN 8129 - FMI 2 - Inducement system: Power reduction due to AdBlue consumption - too low**Monitoring strategy**

Monitoring of the inducement system

Possible causes

There is an emission-related fault; this is a consequential fault due to low or no AdBlue consumption. Be sure to note any additional SPNs in the fault memory.

Possible test steps

Check additional SPNs, as SPN 8129 is a consequential error.

Possible remedy

SPN 8131 - FMI 2 - Inducement system: Power reduction due to AdBlue quality - too low**Monitoring strategy**

Monitoring of the inducement system

Possible causes

- There is an emissions-related fault; the AdBlue quality does not meet the specifications.
- After a defined period of time, the weak inducement becomes active and limits speed and torque.

Possible test steps

- Read out the fault memory
- Check the electrical cables and plug connections of the AdBlue combo sensor's CAN bus connection.
- Check the fuse for the power supply of the A1192 AdBlue combination sensor (10 amps).
- Check the power supply of the A1192 AdBlue combination sensor: At the connector, pin 1 = +12 V, pin 4 = terminal 31
- A1192 Check AdBlue combination sensor with MAN cats: what urea content is displayed, does the value change to the expected value (urea content $32.5\% \pm 0.7\%$) when the correct AdBlue is filled into the tank?

Possible remedy

SPN 8132 - FMI 2 - Inducement system: creep mode due to AdBlue quality - too low**Monitoring strategy**

Monitoring of the inducement system

Possible causes

- There is an emissions-related fault; the AdBlue quality does not meet the specifications.
- The error was not corrected even during the weak inducement time window
- Now the final inducement is active and the engine is only idling

Possible test steps

- Read out the error memory
- Check the electrical cables and plug connections of the CAN bus connection of the AdBlue combination sensor
- Check the fuse for the power supply of the A1192 AdBlue combination sensor (10 amps)
- Check the power supply of the A1192 AdBlue combination sensor: At the connector, pin 1 = +12 V, pin 4 = terminal 31
- Check the A1192 AdBlue combination sensor with MAN cats: what urea content is displayed, does the value change to the expected value when the correct AdBlue is filled into the tank
- Check the urea concentration of the AdBlue used: Should be 32.5% \pm 0.7% according to ISO 22241-1

Possible remedy

- If necessary, install SCR catalytic converter or replace silencer module

SPN 8134 - FMI 2 - Inducement system: Power reduction due to NOx control intervention - too low**Monitoring strategy**

Monitoring of the inducement system

Possible causes

- There is an emissions-related fault that may result in the permissible NOx emissions no longer being complied with.
- After a defined period of time, the weak inducement becomes active and limits speed and torque.

Possible test steps

- Read out the fault memory
- Check all components in the exhaust aftertreatment system, in particular the AdBlue dosing system and NOx sensors.

Possible remedy

**SPN 8135 - FMI 2 - Inducement system: Creep mode due to NOx control intervention
- too low****Monitoring strategy**

Driver information warning level 3 - Crawling mode: Follow-up error due to NOx control intervention. Therefore, it is essential to note additional SPNs in the fault memory. Debounce time Onroad/Offroad EU 100h, Offroad EPA 4h

Possible causes

- There is an emissions-related fault that may result in the permissible NOx emissions no longer being complied with.
- The fault was not rectified even during the weak inducement time window
- The final inducement is now active and the engine is only running at idle speed -Collective SPN for activating torque limitation (after 36h) and creep mode (after 100h). Causative SPNs may be: 3047 (FMI4), 4441 (FMI8), 3821 (FMI4), 4058 (FMI4), 3053 (FMI4), 1761 (FMI3 and FMI8), 3043 (FMI3 and FMI8), 3746 (FMI10), 3055 (FMI4), and 3056 (FMI4)

Possible test steps

- Read out fault memory - Check causative SPNs

Possible remedy

- Correct the SPNs causing the fault

SPN 8201 - FMI 1 - Rail pressure regulator has been in limp home mode for too long - too high**Monitoring strategy**

Maximum limp home time exceeded

Possible causes

- There is a fault in the fuel injection system
- The engine has been in limp home mode for too long - Maximum duration of 36 engine operating hours in limp home mode exceeded. Error can no longer be deleted normally via MANCats.

Possible test steps

- Read out the error memory and identify errors in the fuel injection system -To delete the error, the DBV reset routine must be performed.

Possible remedy

SPN 8203 - FMI 3 - Rail pressure monitoring: Error in the low-pressure circuit - implausible**Monitoring strategy**

Sticking PCVN detected. Rail pressure too high even though the PCVN should be open, engine in coasting condition. Rail pressure control deviation Pressure regulator PCVN defective. Rail pressure deviation greater than 200 bar above an engine speed of 1000 rpm

Possible causes

-PCVN sticking

Possible test steps

-Perform pressure control valve and DBV OpenTest

Possible remedy

-Replace PCVN after test results.

SPN 8204 - FMI 3 - Rail pressure regulator: Injection cut-off - implausible**Monitoring strategy**

Monitoring of rail pressure control

Possible causes

- There is a fault in the rail pressure control system - Fuel supply pressure: too high (1); too low (2) - Air in the system, fuel rail pressure does not build up - Insufficient pump delivery

Possible test steps

-Monitoring target/actual rail pressure. Monitoring fuel supply pressure and injection quantity. -Rail control: Output value of pressure regulator -Rail control: Status of rail pressure monitoring: Limp Home (open DBV) -Check component wiring. Check component plug contacts

Possible remedy

SPN 8208 - FMI 1 - Rail pressure regulator: Warning pressure reduction - too high**Monitoring strategy**

Monitoring of rail pressure control

Possible causes

- Defective Y332 proportional valve Fuel
- Stuck pressure relief valve
- Control of the Y332 proportional fuel valve by the A435 EDC control unit defective

Possible test steps

Perform CR diagnosis with MAN-CATS as documented in the test step list of the FEDC17 system description. Check the low-pressure fuel system for damage (lines, KSC).

Possible remedy

SPN 8209 - FMI 3 - Rail pressure regulator: Pressure reduction active - implausible**Monitoring strategy**

Monitoring of rail pressure control

Possible causes

- Defect in the Y332 proportional fuel valve
- Jammed pressure relief valve
- Control of the Y332 proportional fuel valve by the A435 EDC control unit defective

Possible test steps

Perform CR diagnosis with MAN-CATS as documented in the test step list of the FEDC17 system description. Check the low-pressure fuel system for damage (lines, KSC).

Possible remedy

SPN 8210 - FMI 3 - Rail pressure regulator: irreversible motor shutdown - implausible**Monitoring strategy**

Monitoring of rail pressure control

Possible causes

- Defect in the Y332 proportional fuel valve
- Jammed pressure relief valve
- Control of the Y332 proportional fuel valve by the A435 EDC control unit defective

Possible test steps

Perform CR diagnosis with MAN-CATS as described in the FEDC17 system description. Check the low-pressure fuel system for damage (lines, KSC).

Possible remedy

SPN 8211 - FMI 1 - Rail pressure regulator: Pressure reduction active - too high**Monitoring strategy**

System-critical rail pressure exceeded. If the system pressure exceeds 2695 bar, the PCVN is opened by the EDC.
Note: If the system-critical rail pressure of 2695 bar is exceeded 50 times, the error memory entry SPN 8212 is made.
Caution: For the error counter reset, the FEDC 17 control unit must be replaced with software levels prior to P747.694.
For software levels from P747.694 onwards, SPN 8212 can be reset using a routine. At the same time, the hydraulic components (high-pressure lines, PCVN, HD pump, and rail) must be checked for damage or replaced.

Possible causes

-System-critical rail pressure exceeded -ZME cabling -Cabling to the rail pressure sensor defective. - Component wiring/connector/connector pins defective -Check on-board voltage: voltage peaks or drops can cause impermissible rail pressure fluctuations. -Fuel supply pressure is insufficient under certain conditions, e.g., air in the fuel system, narrowed fuel lines, or general leakage in the fuel supply.

Possible test steps

- Check electrical lines and plug connections to the Y332 proportional fuel valve
- Check with MAN-cats injection system: Compare target and actual rail pressure -Monitoring target - actual rail pressure. Monitor fuel supply pressure and injection quantity. Rail control: Output value of pressure regulator Rail control: Status of rail pressure monitoring: Limp Home (open PCVN) Check the component wiring. Check the component plug contacts

Possible remedy

SPN 8212 - FMI 1 - Rail pressure regulator: Pressure reduction too frequent - too high**Monitoring strategy**

If excessive rail pressure is detected, this function is responsible for opening the PCVN more quickly. An error is logged when the PCVN has been opened 50 times. The main error is SPN 8211. To reset the error counter, the FEDC 17 control unit must be replaced with software versions prior to P747.694. For software levels from P747.694 onwards, SPN 8212 can be reset using a routine. Work through the causes of the error as described for SPN 8211. After the error counter reset, the hydraulic components (high-pressure lines, PCVN, HD pump, and rail) must be checked for damage or replaced.

Possible causes**Possible test steps**

- Work through the causes of the error as described for SPN 8211. - Attention for off-road/marine: Error cannot be deleted in SW P747 EDC17. Engine control unit must be replaced. Troubleshoot causes of error as described for SPN 8211. After error counter reset, the hydraulic components (high-pressure lines, PCVN, HD pump, and rail) must be checked for damage or replaced.

Possible remedy

- Check for availability of software update to software level P747.694. After the software update, the error can be reset using the diagnostic routine. - If no software update is available, the control unit must be replaced.

SPN 8213 - FMI 3 - Rail pressure regulator: reversible engine shut-off - implausible**Monitoring strategy**

Monitoring of rail pressure control

Possible causes

- Defect in the Y332 proportional fuel valve
- Jammed pressure relief valve
- Control of the Y332 proportional fuel valve by the A435 EDC control unit defective

Possible test steps

-Perform CR diagnosis with MAN-CATS as documented in the test step list of the FEDC17 system description. - Check the low-pressure fuel system for damage (lines, KSC).

Possible remedy

SPN 8214 - FMI 1 - Rail pressure regulator: Torque limitation active - too high**Monitoring strategy**

Monitoring of rail pressure control

Possible causes

- Defect in the Y332 proportional valve fuel
- Jammed pressure relief valve
- Control of the Y332 proportional fuel valve by the A435 EDC control unit defective

Possible test steps

Perform CR diagnosis with MAN-CATS as described in the FEDC17 system description. Check the low-pressure fuel system for damage (lines, KSC).

Possible remedy

SPN 8215 - FMI 3 - Rail pressure regulator (limp-home mode): positive control deviation - implausible**Monitoring strategy**

Monitoring of rail pressure control

Possible causes

- Defective Y332 proportional fuel valve
- Control of the Y332 proportional valve fuel by the A435 control unit EDC defective

Possible test steps

Perform CR diagnosis with MAN-CATS as documented in the test step list of the FEDC17 system description. Check the low-pressure fuel system for damage (lines, KSC).

Possible remedy

SPN 8216 - FMI 3 - Rail pressure regulator (limp home mode): Pressure measurement range exceeded - implausible**Monitoring strategy**

Monitoring rail pressure control

Possible causes

- Defect in the Y332 proportional valve Fuel
- Jammed pressure relief valve
- B487 rail pressure sensor defective
- Control of the Y332 proportional fuel valve by the A435 EDC control unit defective

Possible test steps

- Perform CR diagnosis with MAN-CATS as documented in the test step list of the FEDC17 system description.
- Check the low-pressure fuel system for damage (lines, KSC).

Possible remedy

SPN 8217 - FMI 3 - Rail pressure regulator (limp home mode): minimum rail pressure not reached - implausible**Monitoring strategy**

Monitoring of rail pressure control

Possible causes

- Defect in Y332 proportional valve fuel
- Jammed pressure relief valve
- Control of the Y332 proportional fuel valve by the A435 EDC control unit defective

Possible test steps

-Perform CR diagnosis with MAN-CATS as documented in the test step list of the FEDC17 system description. - Check the low-pressure fuel system for damage (lines, KSC).

Possible remedy

SPN 8218 - FMI 1 - Rail pressure regulator (limp home mode): maximum rail pressure exceeded - too high**Monitoring strategy**

Monitoring of rail pressure control

Possible causes

- Defect in the Y332 proportional fuel valve
- Jammed pressure relief valve
- Control of the Y332 proportional fuel valve by the A435 control unit EDC defective - Rail pressure too low or too high when PCVN is open.

Possible test steps

-Perform CR diagnosis with MAN-CATS as documented in the test step list of the FEDC17 system description. - Check the low-pressure fuel system for damage (lines, KSC).

Possible remedy

SPN 8220 - FMI 8 - CAN message AuxEC2: Checksum error - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 8221 - FMI 8 - CAN message AuxEC: Idle switch faulty - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not working
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 8222 - FMI 8 - CAN message AuxEC: Engine stop variant invalid - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 8534 - FMI 8 - CAN message AuxEC2: Error message counter - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 8535 - FMI 8 - CAN message AuxEC2: Signal motor brake request warm-up function faulty - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check the CAN connection

Possible remedy

SPN 8536 - FMI 8 - CAN message AuxEC2: Fuel level warning invalid - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 8537 - FMI 8 - CAN message AuxEC2: Signal efficiency request faulty - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 8538 - FMI 8 - CAN message AuxEC2: Stop prevention reason faulty - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Errors in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check the CAN connection

Possible remedy

SPN 8539 - FMI 8 - CAN message AuxEC2: Error terminal 15 - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 8540 - FMI 8 - CAN message AuxEC2: Vehicle operating mode faulty - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 8541 - FMI 8 - CAN message AuxEC: Idle switch faulty - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not working properly
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 8542 - FMI 8 - CAN message AuxEC: Start variant faulty - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check the CAN connection

Possible remedy

SPN 8543 - FMI 8 - CAN message AuxEC2: Speed increase invalid - Invalid signal**Monitoring strategy**

Monitoring for CAN signals

Possible causes

- Cabling/plug connection not OK
- Error in the CAN connection

Possible test steps

- Check electrical cables and plug connections
- Check CAN connection

Possible remedy

SPN 8554 - FMI 8 - AuxEC2 error Speed increase -

Monitoring strategy

Possible causes

Possible test steps

Possible remedy

SPN 8554 - FMI 8 - AuxEC2 speed increase error -

Monitoring strategy

Possible causes

Possible test steps

Possible remedy

