Check engine light with fault code P3005CA in MRD1 (CDI)

Topic number	LI49.20-N-078466
Version	5
Function group	49.20 - Exhaust gas aftertreatment
Date	10/29/26
Validity	Sprinter 907 OM654
Reason for change	Remedy Update

Complaint

The check engine light is on, with a possible reduction in power and the presence of soot in the exhaust system.

Fault code P3005CA: The diesel particulate filter efficiency is insufficient.

Additional information:

Additional fault codes may be present, related to the Diesel Particulate Filter (DPF) system or the Exhaust Gas Recirculation (EGR) system.

Cause

This fault code sets due to the following factors:

1. Damage to the Diesel Particulate Filter (DPF) unit.

2. The N74 Soot Particulate Sensor Control Unit detects soot or debris downstream of the underbody SCR catalytic converter.

Remedy

Note: The XENTRY guided tests for fault code P3005CA have been revised. Complete all applicable guided tests before replacing components.

TIPS cases are no longer required unless:

• No soot is found at the Diesel Particulate Filter (DPF) outlet.

• The fault occurs on a vehicle produced after the applicable production clean point.

• The fault returns after the applicable repairs have been completed.

• The fault occurs on a vehicle confirmed to have the latest available MRD1/CDI control unit software.

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If additional fault codes are present for the N74 Soot Particulate Sensor Control Unit, process those fault codes first.

1. Check the DPF and downstream exhaust system

• Complete the XENTRY guided tests for fault code P3005CA.

• Inspect the exhaust system from the engine to the Diesel Particulate Filter (DPF) for damage, loose connections, incorrectly installed sensors, or exhaust leaks.

• Detach the exhaust pipe downstream of the DPF.

• Perform a soot wipe test at the DPF outlet using a clean white cloth. See Wipe Test.jpg for an example of a failed soot wipe test.

• With the exhaust pipe detached, inspect the DPF monolith and Selective Catalytic Reduction (SCR) catalysts for soot, blockage, cracks, or other physical damage.

• Inspect the second SCR catalyst in the DPF unit to verify that it has not shifted toward the low-pressure EGR pickup tube or partially or fully blocked the tube. Compare the catalyst position with Figures 1 through 3.

• Inspect the low-pressure EGR exhaust pipe and filter screen for soot, carbon fouling, or blockage.

NOTE: There should be **no soot or debris downstream of the DPF**. This includes the second SCR catalyst, underbody SCR catalytic converter, soot particulate sensor, and low-pressure EGR system.

If soot is found at the DPF outlet

Check the low-pressure EGR filter screen for carbon fouling.

• If soot is found in the low-pressure EGR filter screen, replace the DPF. Check Y87/5, the low-pressure EGR actuator, and the low-pressure EGR cooler for soot deposits. See LP EGR.jpg and LP EGR Cooler.jpg. Replace affected components as needed.

• If soot is not found in the low-pressure EGR filter screen, replace only the DPF unless another condition identified during the inspection requires additional repair.

NOTE: If soot is found downstream of the DPF, also complete Step 2.

If the second SCR catalyst has shifted

If the second SCR catalyst has shifted toward or is partially or fully blocking the low-pressure EGR pickup tube, as shown in Figures 2 and 3, replace the affected DPF assembly according to the current repair instructions.

Inspect the low-pressure EGR exhaust pipe and filter screen for soot, carbon fouling, or blockage. If soot is found downstream of the DPF, also complete Step 2.

If no soot, blockage, physical damage, or shifting is found

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Open a TIPS case routed to the Powertrain Team Inbox. Include the initial Quick Test, CDI control unit log, guided test results, CDI and CPC performance data, soot wipe result, and photos of the inspected components.

The CDI and CPC performance data are found under Special procedures > Collation of diagnosis performance data.

Information:

After the replacement or repair of the component 'Diesel Particulate Filter', the following teach-in processes must be performed:

• Reset the learned values for the following components: 'Diesel Particulate Filter' and 'SCR Catalytic Converter'.

• Reset the learned values for the following components: 'Exhaust Gas Recirculation (low pressure)'.

2. Check for soot or debris downstream of the underbody SCR catalytic converter

Complete the following inspection if soot was found during Step 1, or if the DPF was previously replaced due to failure and fault code P3005CA returned:

• Remove the “SCR Catalytic Converter, underbody,” place a clean white cloth on the floor, and lightly tap one end of the underbody SCR catalytic converter onto the cloth. Repeat the inspection from the opposite end. See SCR Front.jpg and SCR Back.jpg for examples of soot found during this inspection. If soot is found on the cloth, replace the N74 Soot Particulate Sensor Control Unit and underbody SCR catalytic converter. See Soot Sensor.jpg for an example of soot contamination on the soot particulate sensor.

Information:

After the replacement or repair of the components 'N74 (Soot Particulate Sensor Control Unit)' and 'SCR Catalytic Converter, underbody', the following teach-in processes must be performed:

• Reset the learned values for the following components: 'N74 (Soot Particulate Sensor Control Unit)'.

• Reset the learned values for the following components: 'SCR Catalytic Converter, underbody'.

After completing all repairs and required teach-in processes, confirm that the MRD1/CDI software is at the latest available level.

• If the software is not current, perform the update before releasing the vehicle.

• Production introduction (clean points):

• Charleston (CHS): 04/01/2026, first VIN W1Z4KFHY1TT611481

• Düsseldorf: 04/09/2026, first VIN W1Y4KBHY2TP922519

• Ludwigsfelde: 04/09/2026, first VIN W1X8N33Y2TN387620

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• If fault code P3005CA is present on vehicles produced after the applicable clean point, or on vehicles confirmed to have the latest available MRD1/CDI software, open a TIPS case routed to the Powertrain Team Inbox. Include MRD1/CDI control unit logs and a current Quick Test.

NOTE: If the vehicle is predominantly used for short-distance driving or has extended non-operational periods, inform the client that these operating conditions may interfere with automatic Diesel Particulate Filter (DPF) regeneration. As a result, the DPF may become blocked. Fuel may also accumulate in the engine oil and cause engine damage. Refer the client to the “Diesel Particulate Filter” section of the operator’s manual for additional guidance.

Attachments

File	Description
LP EGR Cooler.jpg	Low-Pressure EGR Cooler
LP EGR.jpg	Low-Pressure EGR Valve
SCR Back.jpg	White Cloth SCR Back Side
SCR Front.jpg	White Cloth SCR Front Side
Soot Sensor.jpg	Soot Sensor Covered in Soot
Wipe Test.jpg	Failed Soot Wipe Test at DPF Outlet
Figure 1.jpg	Second SCR catalyst in correct position with LP EGR pickup tube unobstructed
Figure 2.jpg	Second SCR catalyst shifted toward the LP EGR pickup tube
Figure 3.jpg	Side-by-side comparison of correct and shifted second SCR catalyst positions

Disclaimer

NOTE: The information contained in this document is intended for use by trained, professional technicians with the knowledge to properly and safely perform diagnosis and repairs on Mercedes-Benz vehicles, using Mercedes-Benz approved tools and equipment. It informs service technicians about conditions that could occur in certain vehicles and provides information that could assist in proper vehicle diagnosis, service, or repair. It does not indicate that a defect is present in any vehicle referenced in this document nor does it imply warranty coverage. DO NOT assume that a symptom or condition, or a described cause of a symptom or condition, affects any particular vehicle or groups of vehicles, or that a described repair applies to any particular vehicle or groups of vehicles. There can be multiple causes resulting in the same or similar symptoms or conditions described in this document, and trained professional service technicians must use their diagnostic skills to make evaluations on a case-by-case basis. The information contained in this document does not guarantee warranty coverage nor does it extend the vehicle’s warranty in any way.

Symptoms

Power generation **>** Engine management **>** Indicator lamp **>** Engine diagnosis **>** lit

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Control unit/fault code

Control unit	Fault text
N3/40 - Motor electronics 'MRD1' for combustion engine 'OM654' (CDI) / (MRD1NFZ)	**P3005CA** - The efficiency of the diesel particulate filter is not sufficient.

Operation numbers/damage codes

Op. no.	Operation text	Time	Damage code	Note
495920	Replace SCR catalytic converter diesel particulate filter unit	2.4 H	14370	Refer to XENTRY Operation Time Guide for complete operations.

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