

EGR Valve Diagnosis & Cleaning (and EGR Cooler Cleaning) – OM642, Sprinter 906/907

Topic number	LI14.20-N-073867
Version	11
Function group	14.20 - Exhaust gas recirculation
Date	1/16/26
Validity	906, 907 Sprinter with OM642 V6 Diesel Engine
Reason for change	OP.no

Complaint

Complaint A:

The engine is jolting/bucking between 1700 and 1900 rpm.

Complaint B:

One or more mechanical related fault codes for EGR Valve stored in CDI control unit, with possible Check Engine Light. Review list of mechanical fault codes in table below.

NOTE: If one or more electrical related fault codes for EGR Valve are also present in CDI, utilize Complaint C. Review list of electrical fault codes PDF document in attachments.

Complaint C:

One or more electrical related fault codes for EGR Valve stored in CDI control unit, with possible Check Engine Light. Review list of electrical fault codes PDF document attached.

NOTE: This LI supersedes LI14.20-N-073813, which is no longer valid.

Cause

Cause of Complaint A:

Increased friction between the EGR Valve blade and seat due to soot deposits causing a delay of the EGR Valve being able to reach the target value of the EGR Valve position controller.

NOTE: This causes the EGR Valve blade and potentially the boost pressure controller to oscillate.

Cause of Complaint B:

Soot deposits between the EGR Valve blade and seat leading to the EGR Valve no longer being able to meet the desired target of the EGR Valve position controller.

Cause of Complaint C:

Internal EGR Valve or other electrical faults related to the EGR Valve function.

Attachments

File	Description
OM642 EGR Valve before 1.jpeg 	Bottom of sooted EGR Valve.
OM642 EGR Valve before 2.jpeg 	Side view of sooted EGR Valve.

Remedy

Remedy for Complaint A:

Perform the following steps:

1. Disable the EGR Valve (Y27/17) by disconnecting the electrical connector.
2. Perform a test drive to check if the jolting/bucking issue resolves.
3. If the jolting/bucking is resolved, proceed to Remedy for Complaint B.
4. If jolting/bucking is still present, proceed with diagnosis to determine the root cause. Consider checking the following, but not limited to:
 - EGR system including the EGR Cooler, EGR Bypass Flap, EGR Temperature Sensor, and pipes for proper operation, excessive sooting and/or clogging, as well as EGR Bypass Flap vacuum element, switchover valve, and vacuum system.
 - Visually check the leak oil line or T-piece; reference LI07.00-N-059118.

XENTRY Tips

- Fuel System, including fuel type and quality.
- Intake system for excessive oil accumulation; If present, check for a worn oil separator or turbocharger.
- Combustion and compression.
- Transmission.
- Evaluate DPF Regeneration History.
- Plausibility check of the Exhaust Temperature Sensors and Back Pressure Sensor key on engine off check when the vehicle is cold.
- Etc.

Remedy for Complaint B:

1. Connect diagnostic unit (see AD00.00-S-2000-04E).
2. Perform an initial quick test, conduct a dynamic EGR valve check, and store the fault freeze frame data (see AD00.00-S-2000-04E).
3. Procedure in the event of an initial complaint of the EGR valve:
 - Clean the EGR Valve with TUNAP 926® (BQ6670128) by performing the steps below. NOTE: Part number BQ6670128 will transition to A 000 989 46 10 09 once existing inventory is depleted.
4. Procedure in the event of post-initial complaints of the EGR valve:
 - Procedure in the event of a repeated complaint of an EGR valve that has already been cleaned:
 - EGR valve must be replaced.
 - Check EGR track (EGR cooler, EGR bypass flap, and EGR single pipe) for carbonization, and replace if necessary in the event of significant carbonization.

New Mandatory Requirement:

Anytime the EGR Valve is cleaned or replaced, the EGR Cooler must also be cleaned as part of the same repair event. This ensures complete soot removal throughout the high-pressure EGR circuit and prevents repeat complaints caused by residual cooler carbonization. Perform the EGR Cooler cleaning procedure following the instructions outlined in the "Exhaust Gas Recirculation Cooler Cleaning" section of this LI.

Notes:

- This requirement applies regardless of fault code presence or soot severity.
- If the EGR Cooler shows signs of leakage or internal damage during removal, replacement must be carried out instead of cleaning.
- New EGR cooler seals must be installed after each cleaning.

NOTE: Prior to performing the cleaning procedure, ensure to run a coverage check of the EGR Valve using the following qualifying damage codes: 4901M, 14315. If no coverage, then performing the procedure is considered customer pay

EGR Valve Removal:

1. Remove the EGR Valve using the appropriate WIS document (document numbers referenced below).

EGR Valve Cleaning:

1. Attempt to gently turn the EGR Valve blades clockwise to ensure they move. If the blades are seized, the EGR Valve must be replaced, and therefore, cleaning is not permitted.
2. Position EGR Valve so open cavity is facing upward. Fill the cavity with cleaner, and then proceed to apply cleaner to the blades from the outside. Additionally, apply cleaner to the outside where additional soot is found.
3. Allow 15 minutes for the cleaning gel to take effect.

XENTRY Tips

4. Carefully brush the areas with the supplied cleaner brush or another suitable non-metallic brush with soft bristles; e.g. Kids' size toothbrush and straw cleaning brush (see picture in attachments).
5. Continue to clean the EGR Valve by turning the EGR Valve blades clockwise to the open position to enable cleaning the blade seat area. Hold blades in the open position by placing a suitable non-metallic holder/wedge in the hole directly in front of the open cavity (see the "Blades Open" attachment).
6. Rinse the cleaned mechanical areas of the EGR Valve with clear, cold water. Be careful not to get the electrical connection area of the EGR Valve wet. Furthermore, do not use pressurized water; otherwise, the EGR Valve can be damaged.
7. Dry the cleaned areas of the EGR Valve (DO NOT use compressed air).
8. Check whether soot deposits are still present. If traces of soot deposits are still present, repeat the cleaning process.

NOTES:

- Do not lift, pry up, or use excess force on the blades to open during steps 2 and 5 of the cleaning procedure.
- If, after a second cleaning, the EGR valve blades do not fully open with light pressure or fail to close under their spring tension, replace the EGR valve. See the attachment video, EGR Valve binding.
- An EGR Valve cleaning video aid is located in the attachments.

Debris Disposal:

- Refer to the attached MSDS as well as observe local regulations for information on disposal.

EGR Valve Installation and Testing:

1. Re-install the EGR Valve with a new gasket using the appropriate WIS document (document numbers referenced below).
 2. Following cleaning, initialization of the EGR Valve via XENTRY Diagnosis is NOT required.
- Perform a test drive to see if the complaint is resolved.
 - If the fault persists following the cleaning procedure, proceed to perform further diagnosis to determine the root cause, beginning with Remedy for Complaint A Step 4.
 - If no other faults are found following proper diagnosis, it is acceptable to replace the EGR Valve for mechanical issues.

Exhaust Gas Recirculation Cooler Cleaning

Approved Cleaner:

Mercedes-Benz EGR Cooler Cleaning Agent, Part No. A 000 989 91 10 09

Important Notes:

Only the EGR valve and EGR cooler on OM642 engines are approved for this cleaning process.

Cleaning removes carbon and soot deposits from the EGR cooler.

Always check the best-before date on the cleaning fluid bottle. Leftover fluid can be reused if within date—rinse applicators after use.

New Mandatory Requirement:

Anytime the EGR Valve is cleaned or replaced, the EGR Cooler must also be cleaned as part of the same repair event. This ensures complete soot removal throughout the high-pressure EGR circuit and prevents repeat complaints caused by residual cooler carbonization. Perform the EGR Cooler cleaning procedure following the instructions outlined in the "Exhaust Gas Recirculation Cooler Cleaning" section of this LI.

Notes:

XENTRY Tips

- This requirement applies regardless of fault code presence or soot severity.
- If the EGR Cooler shows signs of leakage or internal damage during removal, replacement must be carried out instead of cleaning.
- New EGR cooler seals must be installed after each cleaning.

Safety:

Follow all safety instructions on the cleaner container and the manufacturer's safety data sheet (SDS).

Wear appropriate personal protective equipment (PPE) as specified in WIS and the SDS.

Video Reference:

A step-by-step video is available in the TIPS document attachments (see video EGR Cooler Cleaning).

EGR Cooler Removal:

1. Remove the EGR cooler according to the relevant WIS repair instructions.
2. Check the bypass of the exhaust gas recirculation cooler for damage and traces of residue (e.g., due to leaks). If damage or leaks are detected, the exhaust gas recirculation cooler must be replaced. In this case, cleaning the exhaust gas recirculation cooler is not applicable.
3. Fabricate and install a closing cap on the side with the flush slats, using the old seal as needed.

Sealing Cap:

1. Fabricate a sealing cap for the exhaust gas recirculation cooler with reference to the corresponding document.
2. Install the sealing cap on the side with the flush slats using the old seal on the exhaust gas recirculation cooler.

EGR Cooler Cleaning:

1. Fill the EGR cooler (including the bypass channel) with the approved cleaner.
 - Do not allow cleaner into the coolant channels.
2. Allow the cleaner to soak in the EGR Cooler for at least 4 hours.
3. Drain the cleaner and remove the sealing cap.
4. Rinse the cooler thoroughly with clean, cold water.
 - Do not use pressurized water, at this may damage the cooler.
 - Hold the cooler upright and always start flushing from the unsealed side. Flush back and forth until water runs clear.
5. Dry the cooler using compressed air.
 - Ideally, a compressed air gun with a pipe attachment should be used to blow through each row of radiator fins individually.
 - Blow air through the exhaust gas recirculation cooler from the side with the recessed slats.
 - Compressed air must also be blown through the coolant channels.
6. Inspect for remaining soot deposits.
 - If deposits remain, repeat the cleaning process.
7. Replace the EGR cooler seal every time cleaning is performed.

Debris Disposal:

- Refer to the attached MSDS as well as observe local regulations for information on disposal.

Installation:

1. Install the EGR cooler per WIS instructions, always using a new seal.

2. Perform a test drive to confirm the repair.

Remedy for Complaint C:

1. Diagnose electrical faults.

2. If the electrical fault is determined to be the EGR Valve, it must be replaced. Cleaning will not be effective for electrical-related issues of the EGR Valve, and therefore, is not permitted.

Return Visits:

For repeat concerns following EGR valve cleaning as outlined in this LI, the EGR valve should be replaced. If documentation from a previous repair order or the vehicle's VMI shows that the EGR valve was cleaned during an earlier visit, replacement is permitted. Be sure to include the previous cleaning date and mileage in your warranty claim. There are no restrictions regarding time or mileage since the past cleaning. Please note that EGR valve replacement for repeat complaints is only allowed if cleaning was performed on a prior visit (i.e., alternate cleaning and replacement: clean/replace, clean/replace). If the EGR valve has not previously been cleaned, cleaning should be performed before considering replacement. Please retain all relevant documentation for warranty auditing purposes.

To identify the root cause of increased soot production and accumulation within the EGR system, consider checking the following items:

- Speak with the client to determine the primary vehicle usage, including driving habits (highway, city, stop-and-go, short trips) and the amount of idle time the vehicle/engine undergoes.
- Using the wrong oil or exceeding the maintenance interval can lead to increased soot production and accumulation within the EGR system. If questionable, obtain an oil sample and send it to ALS Tribology for testing and analysis.
- The use of any Diesel fuel exceeding 5% Biodiesel (B20 fuels) or Renewable Diesel fuels can lead to increased soot production and accumulation within the EGR system. If questionable, obtain a fuel sample and send it to ALS Tribology for testing and analysis.
- Check the EGR system, including the EGR Cooler, EGR Bypass Flap, EGR Temperature Sensor, and pipes for proper operation, excessive sooting, and/or clogging. Also, inspect the EGR Bypass Flap vacuum element, switchover valve, and vacuum system.
- Visually check the leak oil line or T-piece; reference LI07.00-N-059118.
- Evaluate the fuel system, including fuel type and quality.
- Inspect the intake system for excessive oil accumulation. If present, check for a worn oil separator or turbocharger.
- Low Engine compression, High cylinder loss, or excess oil in the cylinders.
- Evaluate the transmission.
- Review the DPF regeneration history.
- Perform a plausibility check of the Exhaust Temperature Sensors and Back Pressure Sensor with the key on engine off when the vehicle is cold.
- Consider other potential factors that may contribute to increased soot production.

Ensure to review and follow the following notes:

- If the EGR valve is found to have a mechanical fault, it should first be cleaned. After cleaning, take the vehicle for a test drive to determine if the issue is resolved. Only if the problem persists should an EGR valve replacement be considered and accepted as warrantable.
- If the EGR Valve requires replacement following cleaning and diagnosis, provided no remedy utilizing steps outlined in Remedy for Complaint A Step 4, state in the write-up that cleaning was performed before EGR Valve replacement. This information will be necessary if EGR Valve replacement is claimed under warranty.
- If the EGR Valve cleaning is unsuccessful in resolving the issue, the cleaning can still be claimed under warranty if EGR Valve warranty coverage is available for the vehicle.

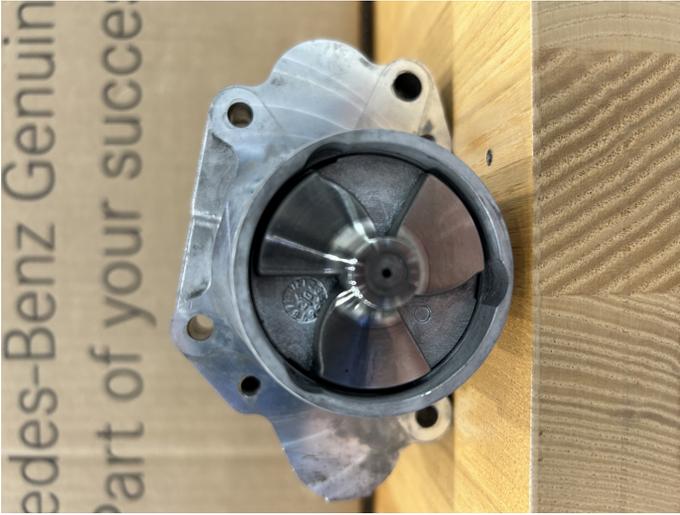
XENTRY Tips

•If Fault Code P300168 Component 'Exhaust gas recirculation cooler (High pressure)' has a malfunction present in the CDI Control Module, clean the EGR Cooler per (Exhaust Gas Recirculation Cooler Cleaning), in addition to cleaning/replacing the EGR Valve. Use Damage Code 143159.

•If the EGR Valve is damaged while attempting to remove it, the part must be replaced. Ensure to provide an explanation of the damage on RO and provide pictures of the damage to the warranty claim if the repair is warrantable.

•The EGR Valve and/or Cooler cleaning procedure is NOT valid for OM651 & OM654 equipped Sprinters or Diesel equipped Passenger Cars.

•Do NOT use TUNAP 926® to clean any other EGR system component. This product is only intended to clean EGR Valves.

Attachments	
File	Description
EGR Valve Electrical Fault Codes.pdf	List of EGR Valve Electrical Fault Codes.
OM642 EGR Valve Cleaning Instructional Video using TUNAP 926®.mp4	OM642 EGR Valve Cleaning Instructional Video using TUNAP 926.
TUNAP 926® MSDS.PDF	TUNAP 926 MSDS.
OM642 After Cleaning 1.JPG	Bottom view of cleaned EGR Valve looking at blades.
	
OM642 EGR After Cleaning 2.JPG	Side view of cleaned EGR Valve.
	

XENTRY Tips

EGR Valve Cleaner Application.JPG



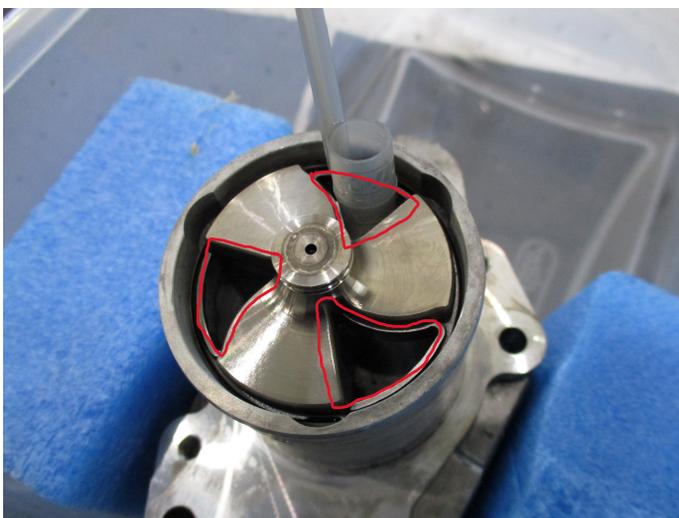
EGR Valve with cavity filled, and blades covered in cleaner.

Brushes.JPG



Non-metallic soft brushes to assist in cleaning, and pen cap used to hold blades open for cleaning.

Blades Open.JPG



Hold blades open to clean using suitable non-metallic holder/wedge placed in the hole directly in front of the open cavity (i.e. pen cap) to clean blade seats.

EGR Valve Binding.mp4	EGR Valve Binding
EGR Cooler Cleaning.mp4	EGR Cooler Cleaning

WIS-References		
Document number	Title	Note
AR14.20-D-1050SG	Install, remove exhaust gas recirculation	Engine 642 in model 906
AR14.20-D-7662SG	Remove/install exhaust gas recirculation valve	Engine 642 in model 906
AR14.20-D-7662TSV	Remove/install exhaust gas recirculation valve	Engine 642 in model 907
AR14.20-D-7665TSV	Remove/install exhaust gas recirculation cooler	Engine 642 in model 907

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 > Engine running > Runs rough/shakes
Power generation > Engine management > Indicator lamp > Engine diagnosis > lit
Power generation > Engine management > Function > Malfunction

Parts						
Part number	ES1	ES2	Designation	Quantity	Note	EPC
			Any additional necessary replacement parts, seals/gaskets, small components, workshop equipment, or consumable materials must be replaced according to the information provided in the WIS documents referenced in this TIPS document. These items should be identified based on the vehicle identification number (VIN) through the XENTRY Portal Parts Information System.		The gaskets for the EGR valve and cooler must be replaced every time they are removed.	X
A000989911009			Engine	1	OM642 EGR Cooler Cleaner	X

BQ6670128		Engine	0.5	BQ6670128 → will transition to: A 000 989 46 10 09	X
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Control unit/fault code	
Control unit	Fault text
N3/28 - Motor electronics 'CDI61NFZ' for combustion engine 'OM642' (CDI) (CR61NFZ)	<p>P042FFA - The exhaust gas recirculation positioner (high pressure) is jammed closed. _</p> <p>P049D00 - The position of the exhaust gas recirculation positioner (high pressure) is outside the adaptation values. _</p> <p>P30017E - The position of the exhaust gas recirculation positioner (high pressure) is outside the adaptation values.</p> <p>P30017F - The position of the exhaust gas recirculation positioner (high pressure) is outside the adaptation values. The commanded position cannot be reached.</p> <p>P300182 - Component 'Exhaust gas recirculation actuator (high pressure)' has a malfunction. The actuator does not open.</p> <p>P300198 - The exhaust gas recirculation positioner (high pressure) is jammed closed.</p> <p>P300199 - The exhaust gas recirculation positioner (high pressure) is jammed open.</p>
CDI60Common Rail Diesel Injection (CR60NFZ)	<p>P14A000 - The position of the exhaust gas recirculation positioner (high pressure) is outside the adaptation values.</p> <p>P14A100 - The position of the exhaust gas recirculation positioner (high pressure) is outside the adaptation values. The commanded position cannot be reached.</p> <p>P14B700 - The exhaust gas recirculation positioner (high pressure) is jammed closed.</p> <p>P14B800 - The exhaust gas recirculation positioner (high pressure) is jammed open.</p> <p>P148B00 - Component Exhaust gas recirculation positioner has a malfunction. The actuator does not close.</p>
CDI6Common Rail Diesel Injection (CR6NFZ)	<p>14A000 - Component 'Y27/17 (Exhaust gas recirculation positioner)' has an internal fault.</p> <p>14A100 - Component 'Y27/17 (Exhaust gas recirculation positioner)' has an internal fault.</p> <p>14B700 - The exhaust gas recirculation valve sticks when closed.</p> <p>14B800 - EGR valve jams in opened position.</p>

XENTRY Tips

	<p>14CF00 - Event:Component 'Y27/17 (Exhaust gas recirculation positioner)' was temporarily sluggish.(Position control deviation)</p> <p>148B00 - Exhaust gas recirculation rate is too high.</p>
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Operation numbers/damage codes

Op. no.	Operation text	Time	Damage code	Note
			4901M01	Use only for EMP 906 Sprinter with OM642 with active BlueTec Extended Modification Warranty. Total claim not to exceed 2.5 hours with supporting documentation and punch times. Also reference LI document number in technician story per Warranty Policy 10.11.
		H	1431593	Use only for non-EMP 906, 907 Sprinter with OM642 and vehicle has EGR Valve Warranty Coverage. Total claim not to exceed 2.5 hours with supporting documentation and punch times. Also reference LI document number in technician story per Warranty Policy 10.11.
140000	Clean EGR Cooler	0.5 H		Must follow non-time policy with separate and identifiable punch.
070641	Diagnosis of EGR Valve related concerns including CEL, or drivability concern	1.0 H		Punch time must support claimed time.
147613	Remove and install EGR Cooler	H		For time, refer to XOT.
147660	Remove and install EGR Valve	H		For time, refer to XOT.
147683	Clean EGR Valve	0.5 H		Claim time based on ZM rules, not to exceed .5 per cleaning.
541011	Quick Test	H		For time, refer to XOT.