

DEPARTMENT OF TRANSPORTATION

National Highway Traffic Safety Administration

[Docket No. NHTSA-2024-xxxx]

Denial of Motor Vehicle Defect Petition

AGENCY: National Highway Traffic Safety Administration (NHTSA), Department of Transportation.

ACTION: Defect Petition DP22-002 has been denied.

SUMMARY: This notice sets forth the reasons for the denial of defect petition DP22-002, submitted on April 29, 2022, by [REDACTED] (the petitioner) to NHTSA's Office of Defects Investigation (ODI). The petition requests that the Agency investigate alleged "wrong sized wrist pins" in Mercedes-Benz vehicles equipped with the M274 engine (including the Metris minivan, GLC300, and C300). After conducting a technical review of the petitioner's submissions, information provided by Mercedes-Benz in response to the Agency's Information Request, and data within its own files, NHTSA has concluded that there is insufficient evidence to warrant further action at this time. Accordingly, the Agency has denied the petition.

FOR FURTHER INFORMATION, CONTACT:

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SUPPLEMENTARY INFORMATION:

Introduction

Interested persons may petition NHTSA requesting that the Agency initiate an investigation to determine whether a motor vehicle or an item of replacement equipment does not

comply with an applicable motor vehicle safety standard or contains a defect that relates to motor vehicle safety. 49 U.S.C. 30162(a)(2); 49 CFR 552.1. Upon receipt of a properly filed petition, the Agency conducts a technical review of the petition, material submitted with the petition and any additional information. 49 U.S.C. 30162(a)(2); 49 CFR 552.6. The technical review may consist solely of a review of information already in the possession of the Agency or it may include the collection of information from the motor vehicle manufacturer and/or other sources. After conducting the technical review and considering appropriate factors, which may include, but are not limited to, the nature of the complaint, allocation of Agency resources, Agency priorities, the likelihood of uncovering sufficient evidence to establish the existence of a defect, and the likelihood of success in any necessary enforcement litigation, the Agency will grant or deny the petition. *See* 49 U.S.C. 30162(a)(2); 49 CFR 552.8.

Background Information

On February 4, 2022, the petitioner filed a Vehicle Owner Questionnaire (VOQ) designated ODI [REDACTED] reporting that the petitioner's vehicle made a popping sound and began to lose power while driving on a freeway at 70 mph. Petitioner stated that as he applied more accelerator input, the vehicle began to shake violently and began to expel white smoke through its exhaust. The petitioner safely exited traffic and arranged for the vehicle to be towed to a Mercedes dealership, where it was determined that the vehicle had a cracked piston. The dealer gave the petitioner a repair estimate for engine removal and diagnosis of a cracked piston, along with several repair options that included replacement of the catalytic converter and oxygen sensors, the damaged piston, and, contingent on damage identified during the diagnostic inspection, replacement of all four pistons and an engine rebuild.

On April 29, 2022, the petitioner submitted a petition requesting that the Agency initiate an investigation into alleged “wrong sized wrist pins” in all Mercedes-Benz models equipped with a variation of the M274 engine. The petitioner cited Mercedes technical service bulletin (TSB) LI03.10-P-060916 as the basis for the wrist pin concern. The petition included the petitioner’s vehicle repair estimate, the TSB, and screenshots of web forum statements from other Mercedes owners discussing either engine durability problems or the TSB.

TSB LI03.10-P-060916

The first iteration of TSB LI03.10-P-060916 was released on February 27, 2015. The TSB was updated 16 additional times through January 30, 2019. The TSB addressed the following complaint condition: “Clattering/rattling or knocking noise from the crank assembly of the engine when cold at oil temperatures up to approx. 50°C mostly heard on engine deceleration” and listed the cause as under analysis. The TSB gave further instructions on the collection of information and discouraged the replacement of any components.

TSB Version 4, issued on September 21, 2015, introduced engine build clean points (March 27, 2015 or April 20, 2015 depending on the engine plant); cause (unfavorable tolerance of the piston wrist pin resulting in enlarged end float of the connecting rod in the piston); and remedy (compare the complaint vehicle sound to an enclosed sound file under various operating conditions and then if verified, replace the pistons, connecting rods, and bearings, using updated pistons that include updated wrist pins).

Petitioner Vehicle History

The petitioner’s vehicle is a 2015 Mercedes C300 equipped with the M274 (LS) 4-cylinder 2.0L direct-injected / turbocharged engine fueled by 91 Octane or higher gasoline. A synopsis of the petitioner’s vehicle history leading up to the events prompting the petition is

listed as follows:

<u>Date</u>	<u>Mileage</u>	<u>Action(s)</u>
• Apr 2015		Vehicle manufactured
• Sept 2015		Titled to Owner #1
• Mar 2016	3,065 mi	TSB LI03.10-P-060916 performed: R&R 4 pistons and connecting rods
• Jan 2017	7,618 mi	Vehicle service incl. oil change
• Apr 2017		Damage Report: Front; Left; Rear; Minor to Moderate
• Nov 2017		Damage Report: Rear; Minor
• Dec 2017		Damage Report: Front; Moderate / accident reported
• Mar 2018	16,409 mi	Vehicle service incl. oil change
• Oct 2018	17,047 mi	Titled to Owner #2
• Nov 2018	17,746 mi	Vehicle service – tire pressure TPMS
• Feb 2021	26,927 mi	Vehicle service incl. oil change
• Feb 2021	27,140 mi	Titled to Owner #3 (Petitioner)
• Aug 2021		Accident Reported (no details available)
• Jan 2022	51,672 mi	Engine issue while driving

Alleged Defect and Scoping

The piston wrist pin links the upper narrow end of the connecting rod to the piston via two holes in the piston skirt. Proper operation requires a precise enough fit to prevent vibration, while allowing sufficient lubrication and clearance to permit smooth rotation relative to the piston as it reciprocates within the cylinder bore. Based on the latest version of the TSB,

customers may complain of clattering, rattling, or knocking noises from the engine, particularly with cold engine oil temperatures upon deceleration. This condition is attributed to unfavorable piston-wrist pin tolerance, leading to “enlarge end float.” Technicians are instructed to compare complaint vehicle sounds to a reference sound file and, if they match, replace connecting rods, pistons, and bearings from a dedicated replacement kit. Mercedes has asserted that this condition will not cause mechanical engine damage (evidenced by a lack of any such engine damage caused by wrist pin issues in the subject vehicles).

ODI focused its review on the petitioner’s vehicle engine configuration, which also falls within the scope of the TSB: a MY 2015 Mercedes C300 vehicle manufactured prior to May 2, 2015. The subject engine includes turbocharging, the requirement for 91 Octane fuel, and the inclusion of piston wrist pins coated with diamond-like carbon (DLC), whereas the M274 engine variant included in the Metris minivan (cited in the petition) lacks the DLC coated wrist pin forming the basis of the petitioner’s concerns. Thus, ODI did not include Metris vehicles in its analysis.

ODI Analysis

ODI searched its VOQ data for references to wrist pins, symptoms comparable to those reported by the petitioner, loss of motive power, and general engine complaints such as noise (safety and non-safety related). Out of the 86,112 MY 2015 C300 vehicles produced, ODI was able to identify 96 related VOQs submitted to NHTSA. These complaints did not include any confirmed cases of wrist pin(s) causing a loss of motive power without ability to restart, including the VOQ submitted by the petitioner.

Of the 96 VOQs, eight consumers cited “wrist pins” in their complaint narrative and only three of those eight VOQs alleged symptoms that could be interpreted as reduction of motive

power, similar to an operational limp mode or reduction in performance. These VOQs primarily referenced engine noises, and one claimed that the “engine broke” without specifically describing any safety related details to associate that complaint with a loss of motive power. Two VOQs mentioned wrist pins without any explanation of symptoms. While some VOQs have shown evidence of general engine part failure, they are uncorrelated to any trend and further, ODI was unable to verify that any these alleged wrist pin issues led to engine failure.

Finally, the petitioner’s vehicle was included within these VOQs that mentioned wrist pins, but there was insufficient evidence to link any failure with wrist pins in the Petitioner’s submissions, including repair records.

Petitioner’s VOQ ([REDACTED]) reported losing power and shaking while pushing the accelerator, and engine power loss while white smoke was emitted from the exhaust pipe. The description further states that the petitioner later took the vehicle to a service center and the engine was diagnosed with having a cracked piston and included an invoice from the service center. The VOQ further describes that the subject (wrist pin) TSB was discovered later and implied a correlation between the conditions covered by that bulletin and the cause of his vehicle’s engine failure. However, the petitioner was evidently unaware that his vehicle’s engine had already received all new wrist pins and pistons as per the TSB in March 2016, when the first owner of the vehicle completed the servicing recommended in TSB LI03.10-P-060916 (as shown above in the summary of the vehicle’s service history).

Analysis of VOQs and data received from Mercedes-Benz indicates no relationship between wrist pin repairs and engine failure or loss of motive power. Broader searches of both data sources for engine stalling related to engine durability were not identified.

An additional search of a commercial vehicle repair and diagnostics database for engine stalling related to engine durability for the 2015 Mercedes C300 revealed no wrist pin-related engine mechanical damage allegations of any kind.

Based on the nature of wrist pin-related piston skirt wear and the absence of a field data trend showing an engine stalling condition linked to wrist pins in particular or broken pistons in general, ODI has determined that no formal investigation is warranted. Accordingly, the Agency is denying the petition. As with all potential motor vehicle safety risks, NHTSA will continue to review any new information or incidents as they are submitted to the Agency.

Authority: 49 U.S.C. 30162(d); delegations of authority at CFR 1.95(a) and part 501.¹

Eileen Sullivan,

Associate Administrator for Enforcement.

BILLING CODE 4910–59–P

¹ The authority to determine whether to approve or deny defect petitions under 49 U.S.C. 30162(d) and 49 CFR part 552 has been further delegated to the Associate Administrator for Enforcement.