



ZF Aftermarket: the experts for transmission repair for commercial vehicles

- CV transmission troubleshooting requires specific expertise
- Causes of errors are diverse

Modern transmissions are efficient and durable. Despite this, problems or even damage can occur. To avoid time-consuming and costly repairs, especially in the commercial vehicle sector, effective error diagnosis and specific expertise up front are essential. ZF Aftermarket provide high-quality repairs for both ZF and non-ZF transmissions for commercial vehicles. They ensure top results with state-of-the-art diagnosis and repair methods using original parts. Fast, professional transmission repairs guarantee continued vehicle mobility.

Transmissions come in different types and designs. When it comes to commercial vehicles (CV) transmission repairs, independent workshops can count on ZF Aftermarket's highly specialized systems expertise – whether they are dealing with manual, automatic or automated transmissions. The ZF Aftermarket Service location in Dortmund provides the expertise required to professionally repair almost all common CV transmissions from renowned manufacturers and to fit them with OE-quality spare parts.

Normally, CV transmissions run for 700,000 – 800,000 km, equivalent to a service life of 12-15 years. However, gearshift errors, wear and soiling can restrict their functionality and cause failure over the long term. The complexity of the components makes an in-depth diagnosis and repair process necessary.

Causes of errors are diverse

Whatever their type, CV transmissions are subject to high loads every day. That is why incorrect use, defective peripheral parts in the vehicle or lack of maintenance quickly cause damage and costly repairs. Often,



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this initially only requires the replacement during repairs of worn small components such as needle roller bearings, synchronizer rings, sliding sleeves or seals. But 80% of problems are due to the synchronization of the clutch or transmission actuators. One possible indicator of a defective clutch is unstable gear shifts. The gear repeatedly jumps or refuses to engage. If the driver manages to actuate the clutch and apparently engage the gear, the engine remains in idling mode. Transmission failures can also be down to mechanical or electronic wear.

Many symptoms seem to indicate transmission damage, but are caused by a component that interacts with the transmission. Examples are a defective DMF or a problem with the air supply. The ZF Aftermarket experts explain that it is important to rule out these error sources before carrying out a transmission repair.

Step by step: CV Transmission repair

ZF Aftermarket has clearly defined its professional and structured transmission repair process: error diagnosis, cleaning, analysis, disassembly and repair or replacement of spare parts as necessary.

Step 1: Diagnosis and interpretation of vehicle data

The basis for a reliable diagnosis is provided by reading the fault memory and expertly interpreting all the relevant vehicle data. ZF uses diagnostic units that support professional, systematic troubleshooting throughout the entire vehicle.

The ZF Testman diagnostic unit developed specifically for ZF products focuses on the driveline technology. Unlike other diagnostic solutions, this system can also be used on already disassembled transmissions. The ZF Testman can read the transmission's electronic data, check statistic and dynamic vehicle data, extract unfiltered information from the CV fault memory, teach ZF components and mirror the software of individual components.



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Step 2: Gear unit cleaning with sandblasting technology

After identifying the causes of the fault, the gearbox is cleaned. This means that any stuck deposits and dirt residue are removed with the aid of sandblasting technology.

Step 3: Dismantling the gear unit

ZF Aftermarket then examines the components inside the transmission. To do this, the transmission is completely dismantled and the individual parts inspected and, if necessary, measured. The torque converter in automatic transmissions is emptied, cleaned, and overhauled.

Steps 4 and 5: Mechatronics repair and inspection

Transmission repair and replacement are among ZF Aftermarket's core competencies. ZF has gained extensive transmission expertise over many decades. That enables Dortmund to offer its workshop customers repairs tailored to the requirements and current value of the specific vehicle. This ranges from replacement of defective transmission components right up to complete assembly of an exchange unit that meets the state of the art in current volume production. After the repair, all transmissions undergo final testing under real-life conditions on the ZF test bench. The oil in automatic transmissions is heated to 75°C to realistically simulate the right temperature and pressure conditions.

Steps 6 and 7: Assembly and final tests on the test bench

After assembly, the transmission is filled with fresh oil. ZF has developed a specific test bench for thorough leak and function testing of its automatic transmissions. Following these tests, the automatic transmission software is reset so that the workshop can re-enter the vehicle data and update the vehicle manufacturer software after installation of the transmission. A final test run of the transmission in the vehicle completes the repair process.

ZF Aftermarket`s system competence

The central prerequisites for repairing transmission damage are comprehensive specialist knowledge and a high level of diagnostic expertise for gearboxes of all brands. The worldwide ZF Service Partner



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network supports independent workshops in complex transmission repairs as a strong and quality-oriented service provider. ZF Aftermarket also offers spare parts and transmission oils in OEM quality. This ensures fast, professional, and reliable repairs, including replacement to series production status.

Caption:

ZF Aftermarket developed a specific test bench for leak and function testing.

Image: ZF

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ZF Friedrichshafen AG

ZF ist ein weltweit führender Technologiekonzern in der Antriebs- und Fahrwerktechnik sowie der aktiven und passiven Sicherheitstechnik. Er ist mit 146.000 Mitarbeitern an rund 230 Standorten in nahezu 40 Ländern vertreten. Im Jahr 2017 hat ZF einen Umsatz von 36,4 Milliarden Euro erzielt. ZF zählt zu den weltweit größten Automobilzulieferern.

ZF lässt Fahrzeuge sehen, denken und handeln. Das Unternehmen wendet jährlich mehr als sechs Prozent des Umsatzes für Forschung und Entwicklung auf, vor allem für effiziente und elektrische Antriebe und eine Welt ohne Unfälle. Mit seinem umfangreichen Portfolio verbessert ZF Mobilität und Dienstleistungen nicht nur für Pkw, sondern auch für Nutzfahrzeuge und Industrietechnik-Anwendungen.

Die Division Aftermarket der ZF Friedrichshafen AG sichert mit integrierten Lösungen sowie dem kompletten ZF-Produktportfolio die Leistungsfähigkeit und Wirtschaftlichkeit von Fahrzeugen über deren gesamten Lebenszyklus. Die Kombination aus etablierten Produktmarken, digitalen Innovationen, bedarfsgerechten Angeboten und einem weltweiten Servicenetzwerk macht ZF zu einem gefragten Partner und der Nummer zwei im weltweiten Automotive Aftermarket.

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