

Zf Ecosplit 8s 16s 151 Repair Manual

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ZF-ECOSPLIT[®]

16 S 151

8 S 151

1315 751 101d

Subject to alterations in design

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This manual is intended for skilled personnel who have been trained by ZF Friedrichshafen AG to carry out maintenance and repair work on ZF products.

This manual deals with the standard ZF product in accordance with the state of development on the date of issue.

However, due to continuing development of the product, repair work might require work practices and test or adjustment data which are not contained in this manual. We therefore recommend that work done on your ZF product is carried out only by skilled mechanics who have had their practical and theoretical knowledge updated on a regular basis at our Service Training Center.

Service points equipped by ZF Friedrichshafen AG all over the world offer you:

1. Well-trained personnel
2. Specified equipment, e.g. specialized tools
3. Genuine ZF spares, to our latest specifications

All work performed in these service points is carried out conscientiously and with care.

Repair work carried out at ZF service points is guaranteed in accordance with the prevailing contractual conditions.

Damage resulting from work performed by non-ZF personnel in an improper and unprofessional manner, together with follow-on costs caused by such work, is excluded from the contractual guarantee agreement. This also applies where genuine ZF spares have not been used.

ZF FRIEDRICHSHAFEN AG

Friedrichshafen Division
Service

Description of transmission

The ZF ECOSPLIT 16 S 151 / 8 S 151 synchromesh transmissions have been developed for heavy goods vehicle applications (from 220 to 370 kW).

16 S 151 and 8 S 151 transmissions main components:

- 4-speed section with reverse gear
- rear-mounted range-change of planetary design
- front-mounted integrated splitter group (not in 8 S 151)

ZF Friedrichshafen AG offers the following options with these transmissions:

- NMV 221, engine-dependent PTO
- torque converter clutch (WSK)
- further engine-driven ZF PTO (NMV) together with the torque converter clutch
- various clutch-dependent ZF PTOs
- drive for emergency / dual-circuit steering pumps
- separate heat exchanger for extreme applications
- ZF Intarder
- ZF ES 2 shift system
- silent kit

Repair manual

NOTE: If clamping fixture **1X56 137 944** is used for dismantling the transmission, remove the reverse gear cover before attaching the clamping fixture.

When reassembling the transmission, insert the reverse gear wheel before fitting the shaft set.
Then install the reverse idler gear pin.

CAUTION

The transmission must not be suspended by the input shaft nor by the output flange when transporting, removing, installing and repairing.

ENVIRONMENTAL HAZARD !

Lubricants and cleaning agents must not be allowed to enter the ground, the water table or the sewage system.

- **Request safety information for the products concerned from your local environmental protection authority, and follow any instructions herein at all times.**
 - **Always collect used oil in a suitably large container.**
 - **Always dispose of used oil, clogged filters, lubricants and cleaning agents in accordance with environmental protection laws.**
 - **Always observe manufacturer instructions when dealing with lubricants and cleaning agents.**
-

NOTE: Additional removal and installation instructions **1315 754 007** are available for transmissions with silent kit.

General

This repair manual shows how to repair a ZF ECOSPLIT 16 S 151 / 8 S 151 synchromesh transmission.

Layout of repair manual:

Section 1 includes adjustment data, tightening torques, spring characteristics and a list of specified ZF special tools.

Section 2 is a step-by-step guide to transmission repairs.

Directions for removal and assembly, general work instructions

This repair manual is based on the steps necessary for the complete removal of transmission components and their subsequent reassembly. When circumstances require, the assembly procedure for certain components is described immediately after the removal procedure. Such cases include the section on the “mainshaft and layshaft”, in which assembly instructions are given after removal instructions so as to ensure that only fully repaired components proceed to the complete assembly phase. This procedure reduces the risk of mixing up individual components and shortens the overall assembly phase.

Always ensure cleanliness and appropriate high standard of work; therefore, clean all transmissions removed from vehicles before dismantling.

Specified ZF special tools must be used.

After dismantling, clean all transmission components. Particular attention should be paid to corners, recesses and protruding edges on housings and covers.

Carefully remove old sealing compound and gaskets. Check for blocked of lubrication oil bores, grooves and pipes. There must be no build-up of deposits, foreign matter or preservatives. This is especially important in the case of new components.

It is impossible to avoid damaging some components during dismantling; these must always be renewed ; e.g. shaft seals, O-rings, grooved rings, flange packing, protective caps etc. Components such as roller bearings, thrust washers, synchronizer parts, etc., which are subject to normal wear during operation, must be checked by a specialist to determine whether they can be reused

Gaskets must be fitted dry, i.e. free from oil and grease. Sealing faces without gaskets must be sealed using a plastic-type, heat- oil-resistant sealing compound (e.g. WEVO-L 100 A).

During assembly, observe all adjustment values, test data and tightening torques.

Fill the transmission with transmission oil after repair. Procedure for this and permitted oil types are given in the Operating Manual and List of Lubricants TE-ML 02. These documents may be obtained from all ZF After-Sales Service points.

After filling with oil, tighten oil check plugs and oil drain plugs to specified torque.