REPAIR MANUAL

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ZF-AS Tronic

Trucks
Repair level 1 - 2

Maintenance, diagnosis, replacement of components

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BEARINGS

If the bearings are fitted while hot, these should be heated accordingly (e.g. in a heating cabinet).
The temperature should be approx. 85 °C and must not exceed 120 °C. All bearings fitted must be coated with operating oil after assembly.

SEALING

If a sealing agent* is to be used for carrying out sealing, comply with the manufacturer's directions for use. The sealing agent should be applied to the surfaces in thin layers and must be spread evenly. Do not allow sealing agent to enter oil ducts and bores. The sealing agent should be wiped off oil-carrying ducts and bores from the surfaces to be sealed near apertures to ensure that no sealing agent penetrates the oil feeds when the surfaces are sealed.

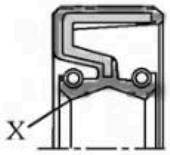
SHAFT SEALS

a) Apply a thin coat of sealing agent* on outer edge of shaft seals with "steel surround".

b) **Never apply sealing agent** to shaft seals with "rubber surround" but apply a thin coat of Vaseline 8420 to the outer edge or spray with a lubricant, such as a water-soluble, concentrated washing-up liquid (e.g. Pril, Coin, Palmolive).

c) Shaft seals with steel and rubber surrounds should be treated as shaft seals (described above in section (b)) on the outer edge of the rubber surround.

d) Duo shaft seals have two sealing lips. The dust protection sealing lip (X) must face outwards.



e) Fill the gap between the sealing lips so that it is 60 % filled with grease* (use a grease e.g. produced by Aral such as Aralub HL2 or produced by DEA such as Spectron FO 20).

f) If possible, heat shaft seal bores to between 40 and 50 °C (this makes fitting easier).
Press the shaft seal with mounting or face plate evenly into the relevant installation depth.

RETAINING AGENTS

Retaining agents* may only be used in those places specified in the parts list.
Always comply with the manufacturer's directions of use when using retaining agents (e.g. Loctite).
During assembly, observe all adjustment data, checking data and tightening torques.

TRANSMISSION OIL

After completing repairs, fill the transmission with transmission oil. For the procedure and approved oils, refer to the transmission operating manual and List of Lubricants TE-ML (refer to type plate). These documents are available from all ZF After-Sales Service points and can be found on the Internet at www.zf.com.
After filling the transmission with oil, tighten the screw plugs at the oil filling point and the oil overflow to the specified torques.

** refer to consumables*

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Fig. no.	Special tools	Order no. Application	Remarks
11		**Application software ZF-AS Tronic 2** 6008 308 019 de 6008 308 119 en 6008 308 219 fr 6008 308 319 es 6008 308 419 it	Single station licence
12		**0501 301 068** **Simple programming device EPD1**	Programming tool for control unit programming
13		**6008 298 029** **+ details of program item no.** **PlugIn**	Memory card for control unit programming (depends on parts list)
14		**6008 207 003** **Table mode adapter for AS Tronic**	Adapter cable for programming and configuration purposes as well as diagnosis outside vehicle
15		**Terminal test** **6008 006 002** (68-pin)	The terminal tester can be used to interrupt all PINs and/or to take measurements on all PINs

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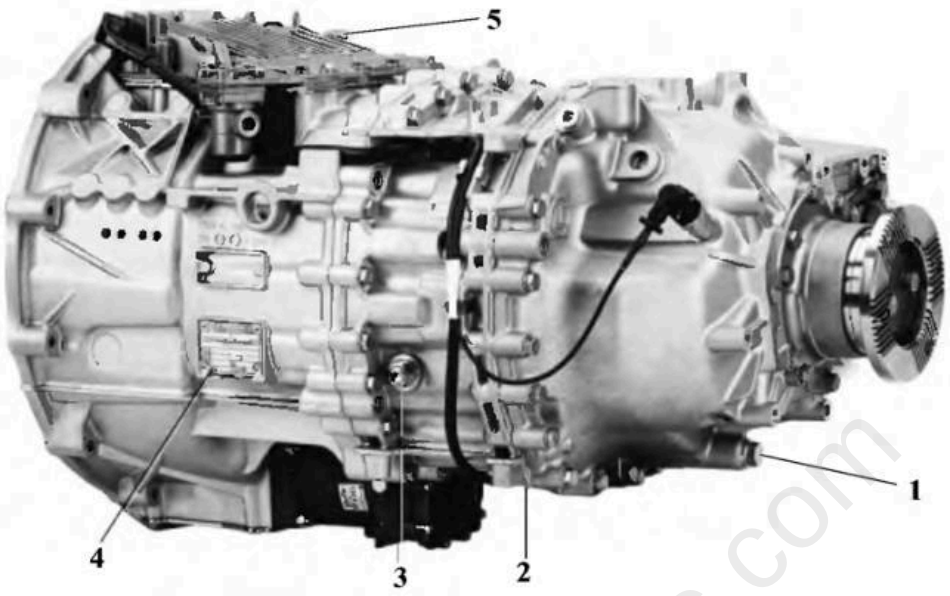

1 Tighten oil drain plug to 60 Nm
2 Tighten oil drain plug to 60 Nm
3 Tighten oil fill plug to 60 Nm
4 Type plate
5 Transmission breather

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1.6 Transmission breather

The transmission oil heats up during travel. Overpressure therefore builds up and is continuously removed through a breather valve.
Ensure that the breather valve is functioning at all times. Do not spray directly with pressurized water (water in transmission – risk of corrosion). The breather **(5)** must be clean and not have a plastic cover.

1.7 Oil change intervals

In order to retain the transmission's level of operating safety, the oil change intervals, as specified in ZF List of Lubricants TE-ML 02, must be observed.

1.8 Oil change check (ZF-AS Tronic without ZF-Intarder)

⚠ **DANGER !**
Too little oil in the transmission results in transmission damage. RISK OF ACCIDENT

Check the transmission oil level as part of vehicle servicing:

- Undertake oil level check with vehicle on level ground.
- Do not check oil level immediately after travel (incorrect measurement result). Only undertake check once the transmission oil has cooled down (<40 °C).
- Remove oil filler plug **(3)**.
- If the oil level has fallen below the oil filler aperture, the oil must be topped up (refer to 1.9.1).

NOTE
Whenever checking the oil level, the transmission should also be checked for leaks.

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3 Component replacement

3.1 Transmission actuator

3.1.1 Removing transmission actuator

⚠ DANGER
Only work on transmission actuator when ignition is off.

1 Switch off ignition

CAUTION
If vehicle-specific parts (e.g. fuel pump, exhaust pipe or steering pump) have to be removed, please contact the vehicle manufacturer.

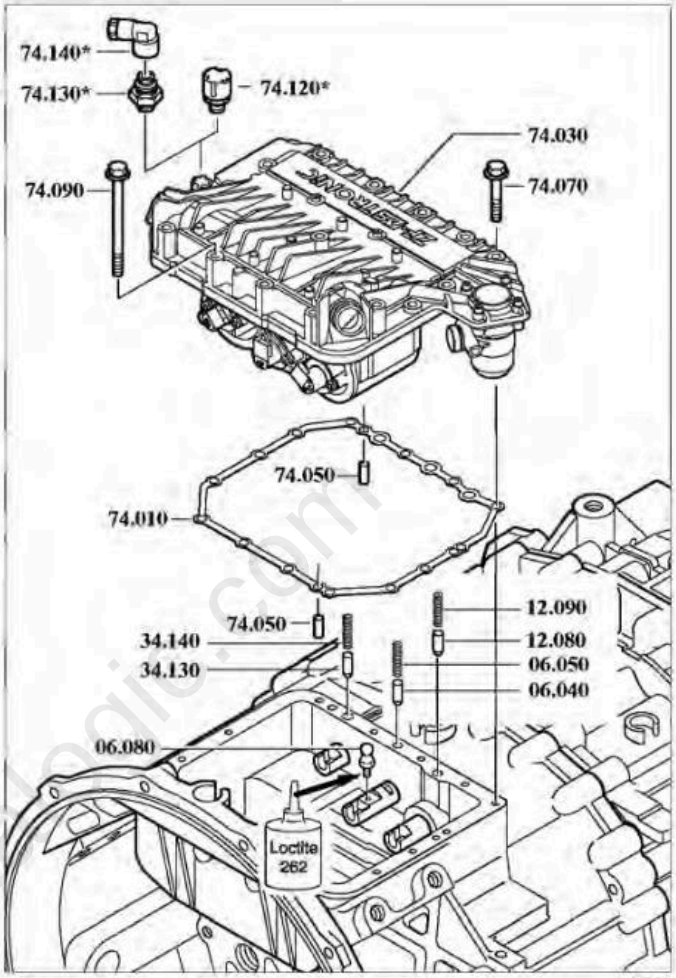
2 Disconnect electric plug connections from transmission actuator.

⚠ DANGER
Protective glasses should be worn when removing compressed air line from transmission actuator. Compressed air will escape. Risk of injury from particles of dirt.

3 Remove compressed air line from pressure limitation valve of transmission actuator.

4 Remove breather **(74.120)** and/or bracket piece **(74.140)** and cannon socket **(74.130)** from transmission actuator **(74.030)** if these parts are being replaced.

5 Remove 15 M8 hex bolts **(74.090; 74.070)** from transmission actuator **(74.030)**.



* depending on parts list

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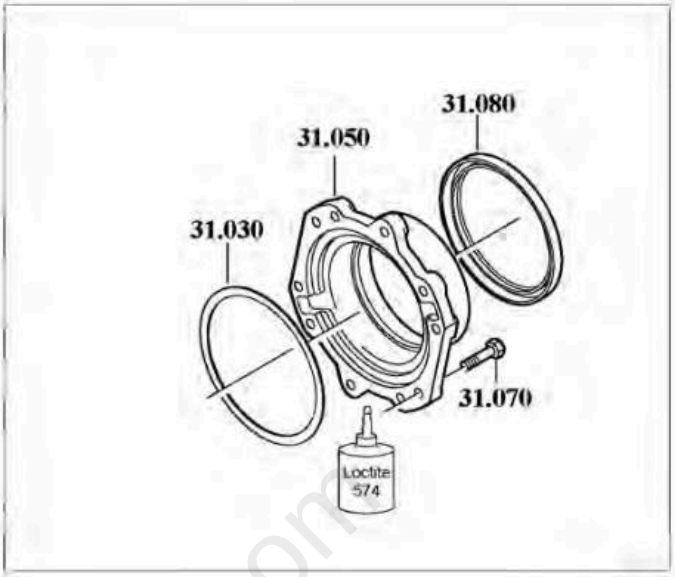
3.5.3 Removing output cover

NOTE
Sections 3.5.3 and 3.5.4 do not apply to transmission versions with Intarders because the parts are not present.

1 Remove 10 M10 hex bolts **(31.070)** and take off output cover **(31.050)**.

2 Take off shim **(31.030)**.

3 Use appropriate tool to remove shaft seal **(31.080)** taking care not to damage output cover.



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3.5.4 Fitting output cover

1 Coat outer circumference of shaft seal **(31.080)** methylated spirits and press adapter **1X56 137 124** together with ring **1X56 138 189** into output cover **(31.050)** until firmly home. Apply grease to sealing lip.

2 Coat sealing face of output cover with Loctite no. 574.

NOTE
Sealing faces must be clean and free of all oil and grease.

3 Attach output cover **(31.050)** with shim **(31.030)**.

4 Tighten 10 M10 hex bolts **(31.070)** to 46 Nm.

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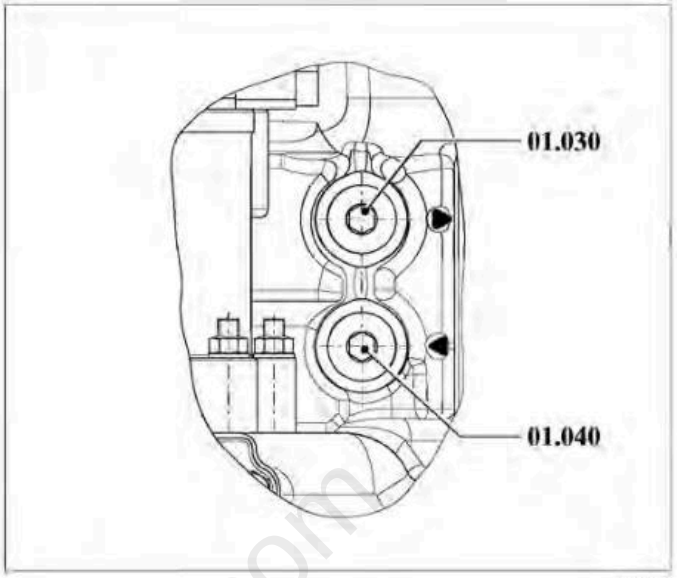
3.9 Additional cooling connection

1 Remove screw plugs **(01.030** and **01.040).**



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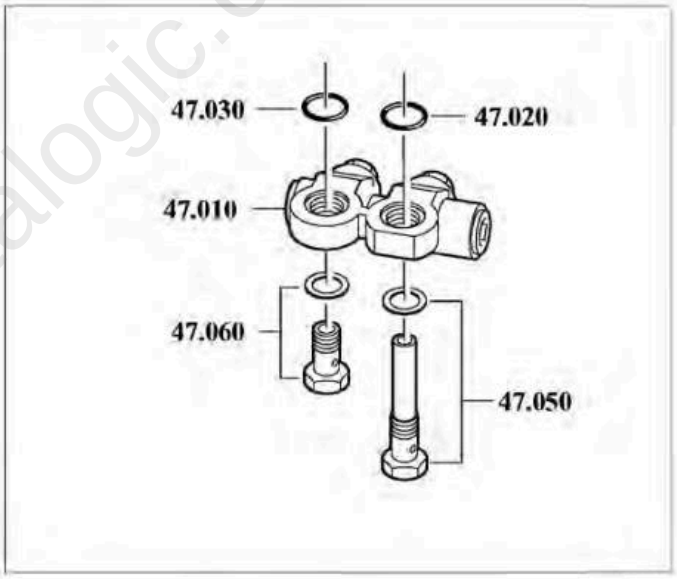
2 Insert O-rings **(47.020** and **47.030)** and union screws **(47.050** and **47.060)** in valve block **(41.010).**



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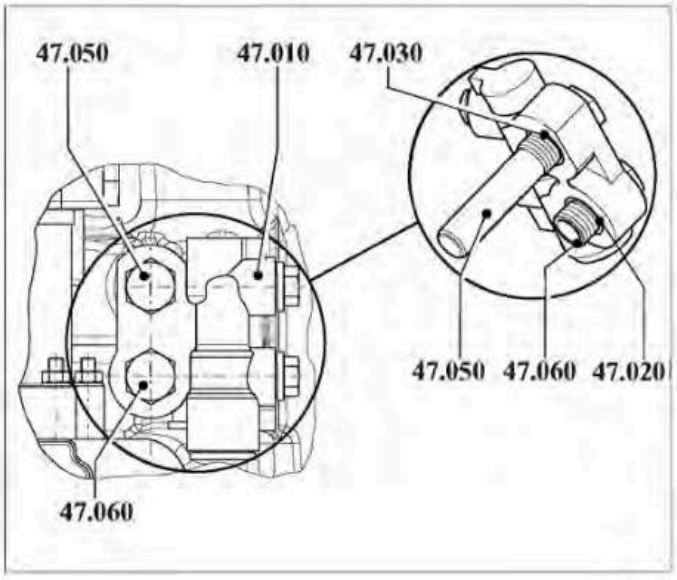
3 Screw union screws **(47.050** and **47.060)** into transmission housing and tighten to 60 Nm.



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Lubricant class 02A

Gear oil of viscosity grades: SAE 80W / 80W-85 / 80W-90 (not applicable for Intarder)

Note:

1. In moderate climate zones, shift quality is impaired if viscosity grades higher than SAE 80W are used.
2. Product group **ASTRONiC:** The lubricants marked thus (*) may not be used.

Manufacturer (02A)	Trade name (02A)
ADDINOL LUBE OIL GMBH, LEUNA/D	ADDINOL GETRIEBEÖL GS 80W
ADDINOL LUBE OIL GMBH, LEUNA/D	ADDINOL GETRIEBEÖL GS 80W-90
AGIP SCHMIERTECHNIK GMBH, WÜRZBURG/D	AUTOL GETRIEBEÖL 80W-90
ARAL AG, BOCHUM/D	ARAL GETRIEBEÖL EP SAE 80W
AVIA MINERALÖL-AG, MÜNCHEN/D	AVIA GEAR OIL MZ 80
BAYWA AG, MÜNCHEN/D	BAYWA MEHRZWECKGETRIEBEÖL SAE 80
BLASER SWISSLUBE AG, HASLE-RÜEGSAU/CH	EP-GETRIEBEÖL 80W-100
BLASER SWISSLUBE AG, HASLE-RÜEGSAU/CH	EP-GETRIEBEÖL 80W-68
BLASER SWISSLUBE AG, HASLE-RÜEGSAU/CH	EP-GETRIEBEÖL 80W90
BP INTERNATIONAL, PANGBOURNE, READING/GB	BP ENERGEAR EP 80W
BP INTERNATIONAL, PANGBOURNE, READING/GB	BP ENERGEAR EP 80W-90
BP INTERNATIONAL, PANGBOURNE, READING/GB	FRONTOL MEHRZWECKGETRIEBEÖL SAE 80W
BUCHER AG LANGENTHAL, LANGENTHAL/CH	MOTOREX GEAR OIL EP 80W
BUCHER AG LANGENTHAL, LANGENTHAL/CH	MOTOREX GEAR OIL EP 80W/90
CALPAM MINERALÖL-GMBH, ASCHAFFENBURG/D	CALPAM MP GEAR OIL 80W GL 4
CASTROL INTERNATIONAL, PANGBOURNE READING/GB	CASTROL EP80W
CASTROL INTERNATIONAL, PANGBOURNE READING/GB	CASTROL UNITRON 80W
CEPSA LUBRICANTS S.A., MADRID/E	CEPSA TRANSMISIONES 80W-90
CEPSA LUBRICANTS S.A., MADRID/E	ERTOIL TRANSMISIONES 80W-90
CEPSA LUBRICANTS S.A., MADRID/E	ERTOIL TRANSMISIONES F SAE 80
CHEVRONTEXACO, GHENT/B	GEARTEX EP-A 80W (*)
CHEVRONTEXACO, GHENT/B	GEARTEX EP-A 80W-90
COMP.BRASIL. D. PETRO. IPIRANGA, RIO DE JANEIRO/BR	IPIRGEROL EP 80W
CONDAT LUBRIFIANTS, CHASSE SUR RHONE/F	GEAR A (80W)
DE OLIEBRON B.V., ZWIJNDRECHT/NL	TOR MULTIPURPOSE GEAR OIL SAE 80W90
ENI S.P.A. REFINING & MARKETING DIVISION, ROME/I	ROTRA HY 80W-90
ENI S.P.A. REFINING & MARKETING DIVISION, ROME/I	ROTRA HY DB 80W
EXXON MOBIL CORPORATION, FAIRFAX, VIRGINIA/USA	ESSO GEAR OIL GP-D 80W
EXXON MOBIL CORPORATION, FAIRFAX, VIRGINIA/USA	MOBILUBE GX-A 80W
FUCHS PETROLUB AG, MANNHEIM/D	TITAN GEAR MP SAE 80W
GINOUVES GEORGES SA, LA FARLEDE/F	YORK 791 SAE 80W85
GULF OIL INTERNATIONAL, PITTSBURG/USA	GULF GEAR MZ 80W
HAFA, PARIS/F	HAFA MPB SAE 80W
HUILES BERLIET S.A., SAINT PRIEST/F	HRD EP 80W
HUILES BERLIET S.A., SAINT PRIEST/F	HRD EP 80W-90
IGOL FRANCE SA, AMIENS/F	TRANS EPA SAE80W-85W
KOMPRESSOL-OEL VERKAUFS GMBH, KÖLN/D	KOMPRESSOL-MEHRZWECK-GETRIEBEOEL SAE 80W-90
KRAFFT S.A., ANDOAIN/E	HIDROIL SAE 80W90
KUWAIT PETROLEUM R&T B.V., EUROPOORT RT/NL	Q8 T 35 SAE 80 W
KUWAIT PETROLEUM R&T B.V., EUROPOORT RT/NL	Q8 T 35 SAE 80W-90
LIQUI MOLY GMBH, ULM/D	LIQUI MOLY GETRIEBEÖL GL 4 SAE 80W
MAZIVA ZAGREB D.O.O, ZAGREB/HR	INA TRANSMOL DB 80W
MAZIVA ZAGREB D.O.O, ZAGREB/HR	INA TRANSMOL HD 80W-90
MEGUIN GMBH & CO. KG MINERALOELWERKE, SAARLOUIS/D	MEGOL MEHRZWECKGETRIEBEOEL GL 4 SAE 80W
MOL-LUB LTD., ALMASFUZITO/H	MOL HYKOMOL 80W
MOTUL SA, AUBERVILLIERS CEDEX/F	MOTUL GEAR MB 80W
NEW PROCESS AG, TÜBACH/CH	EP GEAROIL SAE 80W
OEST, GEORG MINERALÖLWERK, FREUDENSTADT/D	OEST MEHRZWECK-GETRIEBEÖL SAE 80W
OEST, GEORG MINERALÖLWERK, FREUDENSTADT/D	OEST MEHRZWECK-GETRIEBEÖL SAE 80W-90
OMV AG, SCHWECHAT/A	OMV GEAR OIL MP SAE 80W-85
PAKELO MOTOR OIL S.R.L, SAN BONIFACIO (VR)/I	PAKELO GEAR OIL EP/FZ SAE 80W
PAKELO MOTOR OIL S.R.L, SAN BONIFACIO (VR)/I	PAKELO GEAR OIL EP/FZ SAE 80W/90
PANOLIN AG, MADETSWIL/CH	PANOLIN EP GEAR 80W
PANOLIN AG, MADETSWIL/CH	PANOLIN EP GEAR 80W/90
RAFINERIA NAFTY JEDLICZE SA, JEDLICZE/PL	HIPOL 10 ZF
RAFINERIA NAFTY JEDLICZE SA, JEDLICZE/PL	HIPOL SUPER GL-4 80W
RAFINERIA NAFTY JEDLICZE SA, JEDLICZE/PL	HIPOL SUPER GL-4 80W-90
REPSOL LUBRICANTES, MADRID/E	CS EP M SAE 80W
S.A.E.L., MADRID/E	GULF GEAR LUBRICANT 80W-85

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Full Version Available

ZF-AS Tronic Transmission Service Manual

ZF ZF-AS Tronic transmission service manual covering repair procedures, torques, diagnosis and component replacement. English PDF, 70 pages.

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