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ZF – TRACTOR TRANSMISSION

T-7336 PS



ZF Passau GmbH

Donaustr. 25 - 71

D- 94034 Passau

REPAIR MANUAL **for the** **ZF – TRACTOR TRANSMISSION** **T-7336 PS**

IMPORTANT NOTE:

The great variety of ZF units compels a restriction of the Disassembly and Assembly Manuals to a current ZF production unit. Technical development of the ZF units as well as extensions concerning the design possibilities may require differing steps, which can be carried out by qualified Specialists without greater difficulties with the help of the Perspective Illustrations in the corresponding Spare Parts Lists.

The described Disassembly and Assembly Manual is based on the design level of a ZF production unit at the time of preparation of the Repair Manual.

The ZF Passau GmbH reserve the right to replace the present Disassembly and Assembly Manual by a successional edition without advance notice. Upon request, the ZF Passau GmbH will advise what edition is the latest one.

ATTENTION:

For the Installation as well as for the commissioning of the unit, the Instructions and Specifications of Vehicle Manufacturer have to be observed!

For information about the Operation, Maintenance and Description, see the corresponding ZF Operating Instructions.

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Abt.: ASDM / Section : ASDM

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Sous réserve de modifications techniques!

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PREFACE

This documentation has been developed for the skilled Serviceman, trained by the ZF Passau for the Repair and Maintenance operations on ZF-Units.

Treated is a ZF-Serial product according to the design stage of the date of Edition.

However, due to further technical developments of the product, the repair of the unit at your disposal could require different steps as well as other adjustment and testing specifications.

Therefore, we recommend to commit your ZF-Product to Masters and to Servicemen, whose practical and theoretical training is constantly completed to the actual situation in our Training School.

The Service Stations, established by the ZF Friedrichshafen all over the world, offer you:

- 1. Constantly trained personnel*
- 2. Prescribed installations, e.g. Special Tools*
- 3. Genuine ZF-Spare Parts according to the latest phase of development*

Here, all operations are carried out for you with utmost care and reliability.

Repair operations carried out by ZF-Service Stations, are covered additionally within the terms of the actual contractual conditions, by the ZF-Warranty.

Damages caused by inappropriate or inexpert work, carried out by personnel foreign to ZF, and after-expenditures eventually arising from it, are excluded from this contractual responsibility.
This applies also in case of a renouncement of Genuine ZF-Spare Parts.

ZF Passau GmbH

Service Department

GENERAL

The Service Manual covers all work required for dismantling and the pertaining installation.

When repairing the axle, ensure utmost cleanliness and that the work is carried out in an expert-like manner. The axle should only be disassembled for renewing damaged parts. Covers and housing parts installed with seals must be loosened by slight blows with a plastic mallet after screws and nuts have been removed. For removing parts being in tight contact with the shaft such as antifriction bearings, bearing races, and similar, use suitable pulling devices.

Dismantling and mounting work must be carried out at a clean working place. Use the special tools developed for this purpose. Prior to the re-installation of the parts, clean the contact surfaces of housings and covers from the residues of old seals. Remove burrs, if any, or similar irregularities with an oil stone. Clean housings and locking covers with a suitable detergent, in particular corners and angles. Damaged parts or parts heavily worn down must be renewed. Here, the expert must assess, whether parts such as antifriction bearings, thrust washers etc. subjected to normal wear during operation, can be installed again. Parts such as sealing rings, lock plates, split pins etc. must generally be renewed. Radial sealing rings with worn down or torn sealing lip must also be renewed. Particularly ensure that no chips or other foreign bodies remain in the housing. Lube oil bores and grooves must be checked for unhindered passage. All bearings must be treated with operating oil prior to installing them:

REFERENCE: For heating up parts such as bearings, housings etc., only a heating furnace or an electric drier is permitted to be used!
Parts fitted in heated state have to be installed subsequently after cooling down to ensure a perfect contact!

CAUTION

When assembling the transmission, absolutely observe the indicated torque limits and adjustment data. Screws and nuts must be tightened according to the enclosed standard table, unless otherwise specified. In view of the risk of functional failures in the control unit, the use of liquid sealing agents is not permitted. by no means.

Lined plates with organic friction linings (e.g. paper linings) must not be washed (negative effect on lining adhesion).

They are only allowed to be dry-cleaned (leather cloth).

For the installation of circlips and retaining rings it must be observed that slots are located exactly.



DANGER

When using detergents, observe the instructions given by the manufacturer regarding handling of the respective detergent.

Structure of the Repair Manual

The structure of this Repair Manual reflects the sequence of the working steps for completely disassembling the dismantled transmission. Dismantling and installing as well as the disassembly and assembly of a main group are always summarized in one chapter.

Special tools required for performing the respective repair work are listed in the text as well as in the Chapters “W” (List of Special Tools) and “WB” (Illustrated Tables).

Important information on industrial safety


Generally, the persons repairing ZF-units are responsible on their own for the industrial safety.


**The observation of all valid safety regulations and legal impositions is the pre-condition for avoiding damage to persons and to the product during maintenance and repair works.
Persons performing repair works must familiarize themselves with these regulations.**

The proper repair of these ZF-products requires the employment of suitably trained and skilled staff.

The repairer is obliged to perform the training.

The following safety references are used in the present Repair Manual:

	CAUTION	Serves as reference to special working procedures, methods, information, the use of auxiliaries etc... in this repair manual.
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	DANGER	Is used, if lacking care can lead to personal injury or damage the product .
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REFE- RENCE	Prior to starting the checks and repair works, thoroughly study the present instructions.
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CAUTION:	Illustrations, drawings and parts do not always represent the original; the working procedure is shown. The illustrations, drawings, and parts are not drawn to scale; conclusions regarding size and weight must not be drawn (not even within one representation). The works must be performed according to the description.
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REFE- RENCE:	After the repair works and the checks, the expert staff must convince itself that the product is properly functioning again.
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VERGLEICHSTABELLE FÜR MASSEINHEITEN
CONVERSION TABLE
TABLEAU DE CONVERSION

25,40 mm	=	1 in (inch)
1 kg (Kilogramm)	=	2,205 lb (pounds)
9,81 Nm (1 kpm)	=	7,233 lbf x ft (pound force foot)
1,356 Nm (0,138 kpm)	=	1 lbf x ft (pound force foot)
1 kg / cm	=	5,560 lb / in (pound per inch)
1 bar (1,02 kp/cm ²)	=	14,233 psi (pound force per square inch lbf/in ²)
0,070 bar (0,071 kp/cm ²)	=	1 psi (lbf/in ²)
1 Liter	=	0,264 Gallon (Imp.)
4,456 Liter	=	1 Gallon (Imp.)
1 Liter	=	0,220 Gallon (US)
3,785 Liter	=	1 Gallon (US)
1609,344 m	=	1 Mile (Landmeile)
0° C (Celsius)	=	+ 32° F (Fahrenheit)
0 ° C (Celsius)	=	273,15 Kelvin

BEZEICHNUNG DER GESETZLICHEN EINHEITEN
DENOMINATION OF STANDARD DIMENSIONS
DENOMINATION DES DIMENSIONS STANDARDISEES

Hinweis : längenbezogene Maße in kg/m; flächenbezogene maße in t/m²

Note : linear density in kg/m; areal density in t/m²

Nota : Densité linéaire en kg/m; Densité superficielle en t/m²

Begriff Unit Unité	Formelzeichen Formula Sign Symbole	Neu New Nouveau	Alt Old Vieu	Umrechnung Conversion Conversion	Bemerkungen Note Nota
Masse Mass Mass	m	kg (Kilogramm)	kg		
Kraft Force Force	F	N (Newton)	kp	1 kp = 9,81 N	
Arbeit Work Travail	A	J (Joule)	kpm	0,102kpm = 1J = 1Nm	
Leistung Power Puissance	P	KW (Kilowatt)	PS (DIN)	1 PS = 0,7355 KW 1 KW = 1,36 PS	
Drehmoment Torque Couple	T	Nm (Newtonmeter)	kpm	1 kpm = 9,81 Nm	T (Nm) = F (N) · r (m)
Kraftmoment Moment (Force) Moment (Force)	M	Nm (Newtonmeter)	kpm	1 kpm = 9,81 Nm	M (Nm) = F (N) · r (m)
Druck (Über-) Pressure (Overpress) Pression (Sur-)	pü	bar	atü	1,02 atü = 1,02 kp/cm ² = 1 bar = 750 torr	
Drehzahl Speed Nombre de Tours	n	min -1			

TORQUE LIMITS FOR SCREWS (IN Nm) TO ZF-STANDARD 148

Friction value: μ total= 0.12 for screws and nuts without after-treatment, as well as phosphatized nuts. Tightened by hand!

Torque limits, if not especially indicated, can be taken from the following list:

Metric ISO-Standard Thread DIN 13, Page 13

Size	8.8	10.9	12.9
M4	2.8	4.1	4.8
M5	5.5	8.1	9.5
M6	9.5	14	16.5
M7	15	23	28
M8	23	34	40
M10	46	68	79
M12	79	115	135
M14	125	185	215
M16	195	280	330
M18	280	390	460
M20	390	560	650
M22	530	750	880
M24	670	960	1100
M27	1000	1400	1650
M30	1350	1900	2250
M33	1850	2600	3000
M36	2350	3300	3900
M39	3000	4300	5100

Metric ISO-Fine Thread DIN 13, Page 13

Size	8.8	10.9	12.9
M 8 x 1	24	36	43
M 9 x 1	36	53	62
M 10 x 1	52	76	89
M 10 x 1.25	49	72	84
M 12 x 1.25	87	125	150
M 12 x 1.5	83	120	145
M 14 x 1.5	135	200	235
M 16 x 1.5	205	300	360
M 18 x 1.5	310	440	520
M 18 x 2	290	420	490
M 20 x 1.5	430	620	720
M 22 x 1.5	580	820	960
M 24 x 1.5	760	1100	1250
M 24 x 2	730	1050	1200
M 27 x 1.5	1100	1600	1850
M 27 x 2	1050	1500	1800
M 30 x 1.5	1550	2200	2550
M 30 x 2	1500	2100	2500
M33 x 1.5	2050	2900	3400
M 33 x 2	2000	2800	3300
M 36 x 1.5	2700	3800	4450
M 36 x 3	2500	3500	4100
M 39 x 1.5	3450	4900	5700
M 39 x 3	3200	4600	5300



Repair Manual

Off-Road Transmissions
and Axle Systems
Division



LIST OF SPECIAL TOOLS FOR DIS- AND REASSEMBLY

TRACTOR TRANSAXLE T-7336 PS 2094 009 003

Disassembly Chapter/Fig	Reassembly Chapter/Fig.	Designation and Use	Part No.
2/29		<u>Two-armed puller</u> Opening 120 mm Universal use. To pull off the ball bearing from the bearing bracket.	5870 970 002
3/04		<u>Adjusting screws</u> M 16 Dis- and reassembly aid for removal and installation of the complete cover from the transmission housing.	5870 204 023
3/07		<u>Rapid grip #</u> To pull off the bearing inner ring 32012X = 0750 117 505 from the input gear 2094 359 046. To be used in combination with: <u>Basic device</u>	5873 011 014 5873 001 000
3/08_3/18 3/19_3/21 3/24_3/47		<u>Gripping insert #</u> To pull off the bearing inner ring 30 210X = 0750 117 656 from the input shaft splitter group . To be used in combination with: <u>Basic device</u>	5873 001 038 5873 001 000
3/11 3/27 3/39	7/85 8/25 8/50 8/92	<u>Pressing bush #</u> To preload the compression springs 0732 041 183 in the disc carrier splitter group. To preload the set of cup springs 0501 314 521 on the FA and powershift clutch .	5870 506 117
3/13 3/29 3/41		<u>Clamping pliers</u> To lift the piston 2094 359 004 out of the disc carrier splitter group.	5870 900 007
3/14 3/30 3/42		<u>Internal extractor</u> <u>Countersupport</u> Universal use. To remove the needle bearing 0750 115 365 from the disc carrier splitter group.	5870 300 005 5870 300 003