



Powershift transmissions type PowerLine (US production)

List of lubricants TE-ML 31

Table of contents

Page

1. Approved lubricant classes for PowerLine transmissions (US production)	2
2. Oil change intervals	2
2.1. Oil change intervals pickup	2
2.2. Oil change intervals truck	2
3. Explanation of footnotes and comments	3
4. Lubricant classes and approved trade products	4

The list of lubricants TE-ML 31, **edition 01.10.2026** replaces all previous editions. The current list can be requested from any ZF after-sales service center or accessed on the Internet under www.aftermarket.zf.com/lubricants.

ZF Friedrichshafen AG
D-88038 Friedrichshafen
www.zf.com/contact

Disclaimer: The lubricants and providers listed herein are presented solely for the purpose of documenting lubricants that were tested for compatibility with our products. This listing does not constitute an endorsement, recommendation, or preference for any of the mentioned lubricants, manufacturers, or providers. The inclusion of any lubricant in this list does not imply that it is superior to other available options, nor does it indicate that other lubricants or providers are unsuitable for use with our products. There may be additional lubricants, manufacturers, or providers — whether known or unknown to us — that are fully compatible or otherwise appropriate. It remains the sole responsibility of each customer to verify and comply with all applicable sanction laws and regulations prior to purchasing any of the mentioned lubricants.

1. Approved lubricant classes for PowerLine transmissions (US production)

Product groups	Lubricant classes for service fill ⁽²⁾
PowerLine transmission for pick-ups 8 AP 431 CN, 8 AP 471 CN, 8 AP 851 CN, 8 AP 1080 PN PowerLine transmission for trucks 8 AP 560 TN, 8 AP 660 TN, 8 AP 760 TN, 8 AP 860 TN, 8 AP 1000 TN ⁽¹⁾ , 8 AP 1050 TN	31D

2. Oil change intervals**2.1. Oil change intervals for pick-up**

Application	Oil change interval [mls/ year] ^{(6), (8)}
Standard	60.000 mls 1 x every 4 years

2.2. Oil change intervals for trucks

Application	Oil change interval [mls/ year] ^{(3), (8)} at a maximum permissible oil temperature of		
	85°C ⁽⁴⁾	95°C	105°C
Special applications Average vehicle speed < 20 mph, e.g. municipal vehicles, construction site operation ⁽⁵⁾ PTO HD ⁽⁷⁾	110.000 mls 1 x every 3 years	75.000 mls 1 x every 3 years	40.000 mls 1 x every 3 years
Standard Urban and regional distribution traffic	220.000 mls 1 x every 3 years	150.000 mls 1 x every 3 years	80.000 mls 1 x every 3 years
Long-distance transport Average vehicle speed > 40 mph	330.000 mls 1 x every 3 years	225.000 mls 1 x every 3 years	120.000 mls 1 x every 3 years

3. Explanation of footnotes and comments

Footnotes

- (1) Approved lubricants for 8 AP xxxx TN. For transmissions from EU production until 08/2023, see ZF List of Lubricants TE-ML 26. The List of Lubricants valid for the respective transmission is printed on the type plate.
- (2) Refer to the following pages for approved commercial products and oil change intervals.
- (3) Oil change required, depending on what occurs first. The maximum oil sump temperature may be exceeded for a maximum of 5% of the time. As of > 5%, the next higher class is to be applied.
- (4) For this temperature class, it is mandatory to provide a hose breather in a dry area.
- (5) For 8AP transmissions in Off road or military applications please refer to the List of Lubricants TE-ML 25.
- (6) CN/PN transmission with CLC functionality. High requirements regarding friction coefficient progression and friction coefficient stability.
- (7) PTO HD (Dual PTO or PTO performance >60 kW and operating time >1 h/day)
- (8) Oil pan replacement (integrated filter) kit 1390.298.004, see Note 3.

Comments

1. Instructions for transmission ventilation in accordance with Installation Guideline 1390 765 101 must be followed.
2. Additives of any kind added **later** to the oil change the oil in a manner that is unpredictable, and they are therefore not permitted. No liability of any kind will be accepted by ZF for any damage resulting from the use of such additives.
3. However, due to the many variables influencing the service life of transmissions in individual operation, ZF recommends replacing the oil pan (integrated filter) after 150,000 miles for the PowerLine, in addition to the oil change. If the oil pan replacement does not coincide with an oil change interval, the next larger oil change interval applies.

4. Lubricant classes and approved trade products

Lubricant class 31D

Manufacturer (31D)	Trade name (31D)	ZF approval number
ZF FRIEDRICHSHAFEN AG, FRIEDRICHSHAFEN/DE	ZF LIFEGUARD HYBRID 2	ZF008240