

**Powershift transmissions type PowerLine (US production)****List of lubricants TE-ML 31**

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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 |

The list of lubricants TE-ML 31, **edition 01.04.2026** 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.

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2. Oil change intervals

2.1. Oil change intervals for pick-up

| Application | Oil change interval [mls/ year] ⁽⁶⁾ |
|-------------|--|
| Standard | 60.000 mls 1 x every 4 years |

2.2. Oil change intervals for trucks

| Application | Oil change interval [mls/ year] ⁽³⁾ 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)

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.

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 |