

# THE ZF S6-40 TRANSMISSION.

POPULAR SERVICE INFORMATION.

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# Configurations

There are six part numbers for the LT5 and six part numbers for the L98 and LT1/4.

## S6-40 Transmission - Engine Model LT 5 (ZR1)

ZF Reman #	ZF Part #	Model Year	Engine	Shifter Style	Torque (Nm)
1052 000 031ZW	1052 000 031	1989 - 1990	LT 5	Lift Ring	610 Nm
1052 000 035ZW	1052 000 035	1991	LT 5	Lift Ring	610 Nm
1052 000 045ZW	1052 000 045	1992 - 1993 1/2	LT 5	Lift Ring	610 Nm
1052 000 047ZW	1052 000 047	1993 1/2	LT 5	Lift Ring	540 Nm
1052 000 081ZW	1052 000 081	1994	LT 5	Lift Ring	540 Nm
1052 000 087ZW	1052 000 087	1995 - 1996	LT 5	Crash Thru	540 Nm

## S6-40 Transmission - Engine Model L 98 / LT 1 / LT 4

ZF Reman #	ZF Part #	Model Year	Engine	Shifter Style	Torque (Nm)
1052 000 032ZW	1052 000 032	1989	L 98	Lift Ring	610 Nm
1052 000 036ZW	1052 000 036	1990 - 1991	L 98	Lift Ring	610 Nm
1052 000 044ZW	1052 000 044	1992 - 1993	LT 1	Lift Ring	610 Nm
1052 000 046ZW	1052 000 046	1993	LT 1	Lift Ring	540 Nm
1052 000 084ZW	1052 000 084	1994	LT 1	Lift Ring	540 Nm
1052 000 089ZW	1052 000 089	1995 - 1996	LT 1/LT 4	Crash Thru	540 Nm

# Torque Capacity

610 Nm = 500 lbs./ft.

540 Nm = 400 lbs./ft.

The strongest LT5's develop 565 lbs./ft. torque. I have never heard of a transmission failure due to torque load with the 540 Nm version.

There is a lubrication shortcoming for the reverse gear on some units. The problem occurs when driving over 120 mph for more than a few minutes. When the bearing is running dry the transmission will make a high pitched squeak. Slow the car immediately to minimize damage. The [www.ZFDoc.com](http://www.ZFDoc.com) has a solution.

# Shifter Options

- **The OE shifter**
  - 16 degree throws
- **The Bill Boudreau shifter.** [www.ZFDoc.com](http://www.ZFDoc.com)
  - About 25% shorter throws
  - 25% more effort
  - OE reverse lockout
- **The Hurst shifter**
  - About 25% shorter throws
  - 25% more effort
  - Solid shaft
- **The B&M shifter**
  - About 40% shorter throws
  - 40% more effort
  - Solid shaft
  - Discontinued in about 2010
- **The White Racing Products shifter**

# Interchange

**ZR-1 models have an input shaft that is 31 mm / 1.2” longer than the L98 and LT1/4 models.**

**The shaft can be changed. This requires complete disassembly of the transmission.**

# Black and Blue Tags

The serial and model tags are black up to about 1993 1/2. They are blue from that point forward.

Black tags units were manufactured in West Germany. The blue tag units were manufactured in Vernon Hills Illinois. There is no clear correlation for tag color and torque capacity. The model number listed on the tag specifies the torque capacity.

# Speedometer Sensors

The speedometer sensor for the '89 and '90 units has been discontinued. GM part number 25007224. This sensor is not available as a service part.

'91 and up transmissions used discontinued part number 10456089. It is currently available from Standard Motor Products and others. The Standard Motor Products part number is SC13. Airtex/Wells 5S4637.

The '91 and up part can be used to service the '89 and '90 units. The fit is the same except the electrical connector is different. Use AC Delco connector PT120/GM 12085498 to adapt the '91 and up sensor to the earlier transmissions.



# Lubrication

The OE lubricant has been discontinued. PN 1052931. It was Texaco 5W-30 mineral engine oil with certain additives deleted for compatibility with the phosphor bronze synchronizers.

ZF's recommendation for an alternative lubricant.

In 1996. Castrol Formula RS 10W-60. This is a synthetic lubricant.

In about 2000 the Formula RS was replaced with TWS 10W-60.

In about 2014 the TWS was replaced with Edge Sport 10W-60.

We use the Amsoil product MTF. It's a synthetic 5W-30 manual transmission specialty lubricant. Red Line MTL is also good.

For an application that uses a single mass flywheel, we have found that Red Line Shock Proof Heavy is the best for suppressing gear rattle. PN 58204

The capacity is 2.5 quarts.

Never use ring and pinion lubricant. The EP additive will attack the synchronizers.

# Speedometer Correction

ZR-1's can not be adjusted via the engine control system. Speedometer correction gears are available for axle gear ratios 3.90 and 4.10.

L98 and LT1/4?

The gears are easy to change. The OD of the driving gear is smaller than the ID of the rear seal. The gear can be unclipped and slipped out. There is no need to remove the extension housing.

The best electronic corrector is the ERA. Available from Abbott at [www.atrol.com](http://www.atrol.com). It's digital and does not drift.

# CAGS

**It's for fuel economy.**

**It's very annoying.**

**Drive around it by going over 19 mph before shifting.**

**On all cars the electrical connector on the side of the transmission can be disconnected to disable the shift blocking solenoid.**

**The refined approach is to turn the feature off in the ECM program. This also turns off the "One to Four" light on the cluster.**