TECHNICALLY Speaking

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ZF tips with a European flavor

ZF is one of the world's leading powertrain manufacturers. One of its divisions, in Saarbrücken, Belgium, specializes in producing automatic transmissions for cars.

When you consider working on a ZF automatic, your starting point should be the tag, which leads you to the information and application required for the unit *(see Figure 1)*.

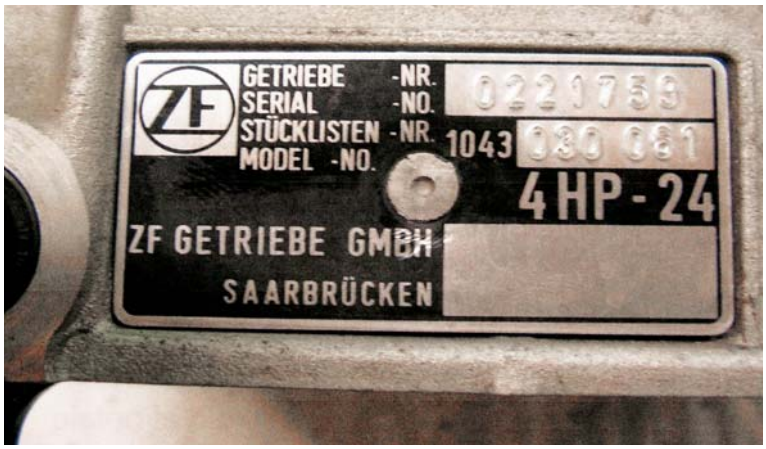

Figure 1

The first line of the tag is the serial number, which is required to identify which running changes or modifications might apply.

The second line, the part number (stucklisten), is often the most important number. The first four digits of this number identify the type of transmission. For example, the 1019 is 4HP20, 1043 is 4HP24, and 1056 is 5HP18.

The next three digits of the stucklisten identify a design type, such as 000, 010, 020 or 030, telling you if there is a transfer case, electronic control or special application. For example, if the tag says 1043.030, it is a ZF4HP24. If it reads 1060.50, you know it is a ZF5HP19 specific for Porsche.

The last three numbers identify the application. If the tag reads 1058.000.026, it means you have a ZF5HP24 RWD Jag41 (AJ26).

Some tags include the part number from the car manufacturer that uses this type of transmission. For example, NNE4400AA equals Jaguar.

Because there are so many applications worldwide, the tag numbers are an important way to ensure you order the right parts.

ZFHP24 repair tips

When a car with a ZF 5-speed electronic controlled transmission comes into your shop, the first thing I suggest you do is a road test, along with a scan for codes and data. Common complaints are no reverse and slipping in forward.

If the complaint is no reverse without any problem codes, disconnect the solenoid wiring from the transmission. This will place the hydraulics in failsafe mode, meaning all safety devices are off, including reverse lockout. If you now have reverse gear, check the operation of the selection switch. It is common to have an electrical command issue. If you still do not have reverse,

Figure 2

more likely than not the F piston is bad and you have a failure within the transmission.

If the transmission is slipping in forward with the ratio out of limit, your problem is probably a cracked input drum A (see Figure 2). The snap ring breaks out of this groove and results in no forward or difficult forward.

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If there is no movement in Drive and in manual first, the overrun clutch in the F drum is likely at fault.

There are seldom problems with repairing these transmissions. You can often see a problem and repair it, but you may not have addressed the root cause, as there are often changes or updates in components.

When working on the ZF5HP24 you must be sure to use the newest version of the input shaft A *(see Figure 3)*.

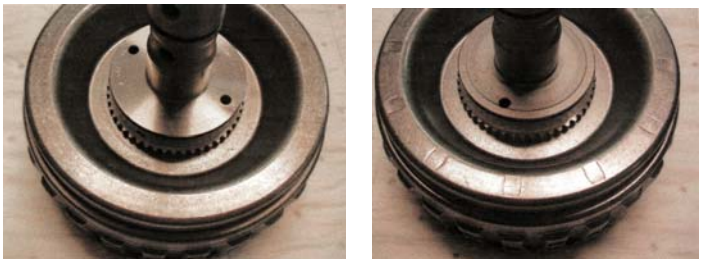

Figure 3: Old model of input shaft at left, new model with dimples, 1058.270.040 at right.

Secondly, you must check the main pressure regulator valve. The last spool of the valve should be 10mm long. On the older valves, the spool is 9mm. If you have an old valve in your transmission, you must change both the valve and the valve body housing. The new valve number is 1058.327.030 and the valve body number is 1058.327.020 or 022, depending on the part number of the transmission *(see Figure 4)*.

Figure 4: The location of the main pressure valve (left), the old valve (center) and the new valve (right).

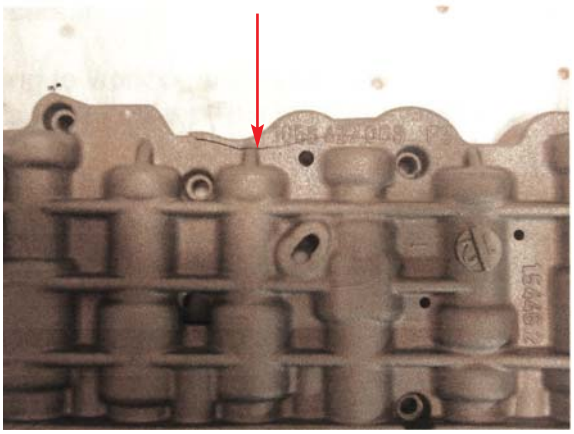

Figure 5

When you are working on the valve body, make sure you take a good look at the small valve body housing beneath the channel plate. Because of pressure, this has a tendency to crack and trigger a number of codes (slipping, 3rd, 4th gear). *(See Figure 5.)*

The ZF is generally not a difficult transmission to work on. Just be aware of the part number applications and various design changes along the way.

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