

# New Problems Facing the 09G



by Bill Brayton  
[www.atra.com](http://www.atra.com)

**B**ack in 2008 Dave Skora wrote a series of articles introducing the VW 09G 6-speed transmission. That was before most shops were likely to run into this unit, but at ATRA we always like to keep the transmission industry up to speed on the tech that's coming down the road.

Well, it's been two years since then, and these new transmissions are starting to find their way into transmission shops all over the country. These units are most commonly seen in the 04-08 New Beetle and the 05-08 Jetta with various engine sizes.

In this edition of *Fun with Transmissions*, we'll look at a few critical aspects of service for the 09G, including fluid level inspection, valve body service and rebuilding tips.

## Oil Fill and Level Check

The only way to check the 09G oil level accurately requires a scan tool to determine the ATF temperature. When it's full, the oil will just drip over the stovepipe in the oil pan when the oil temperature is between 35°C (95°F) and 45°C (113°F). You should replace the seals on the fill plug and fill level pipe plug whenever you check or drain the oil.

To check the fluid level:

- Park the vehicle on level ground.
- Connect your scan tool to the vehicle.
- Make sure the transmission fluid is cold; below 35°C (95°F).
- Remove the fill level pipe plug.
- Start the engine.
- Watch the ATF temperature as the transmission warms up.
- The ATF should begin to drip out



Figure 1: The fluid level is correct when it just runs out the stove pipe inside the pan.

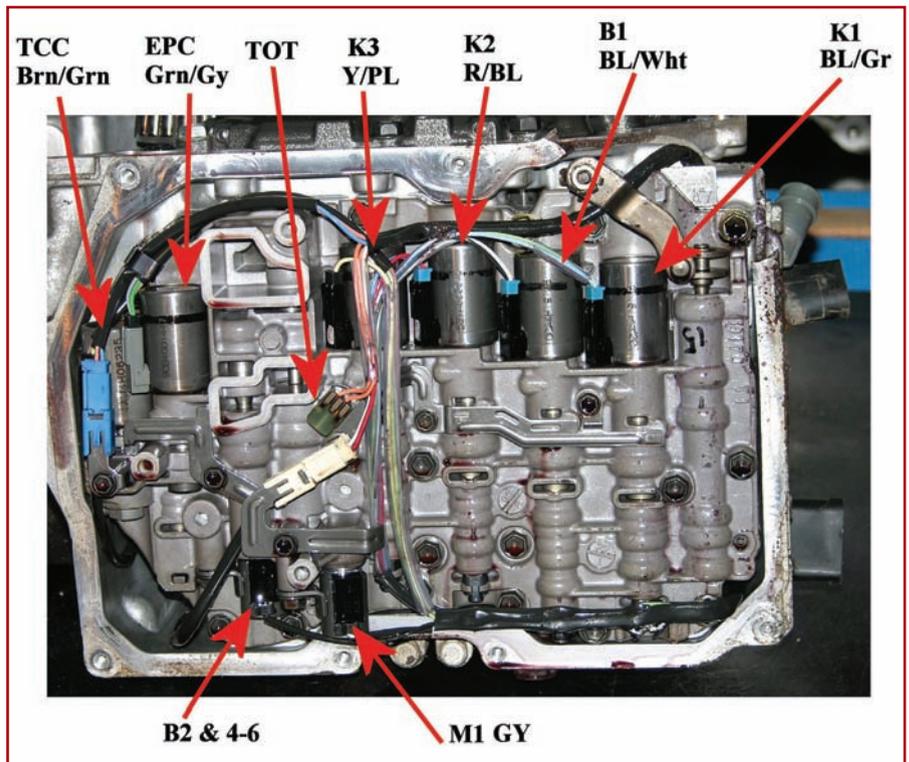
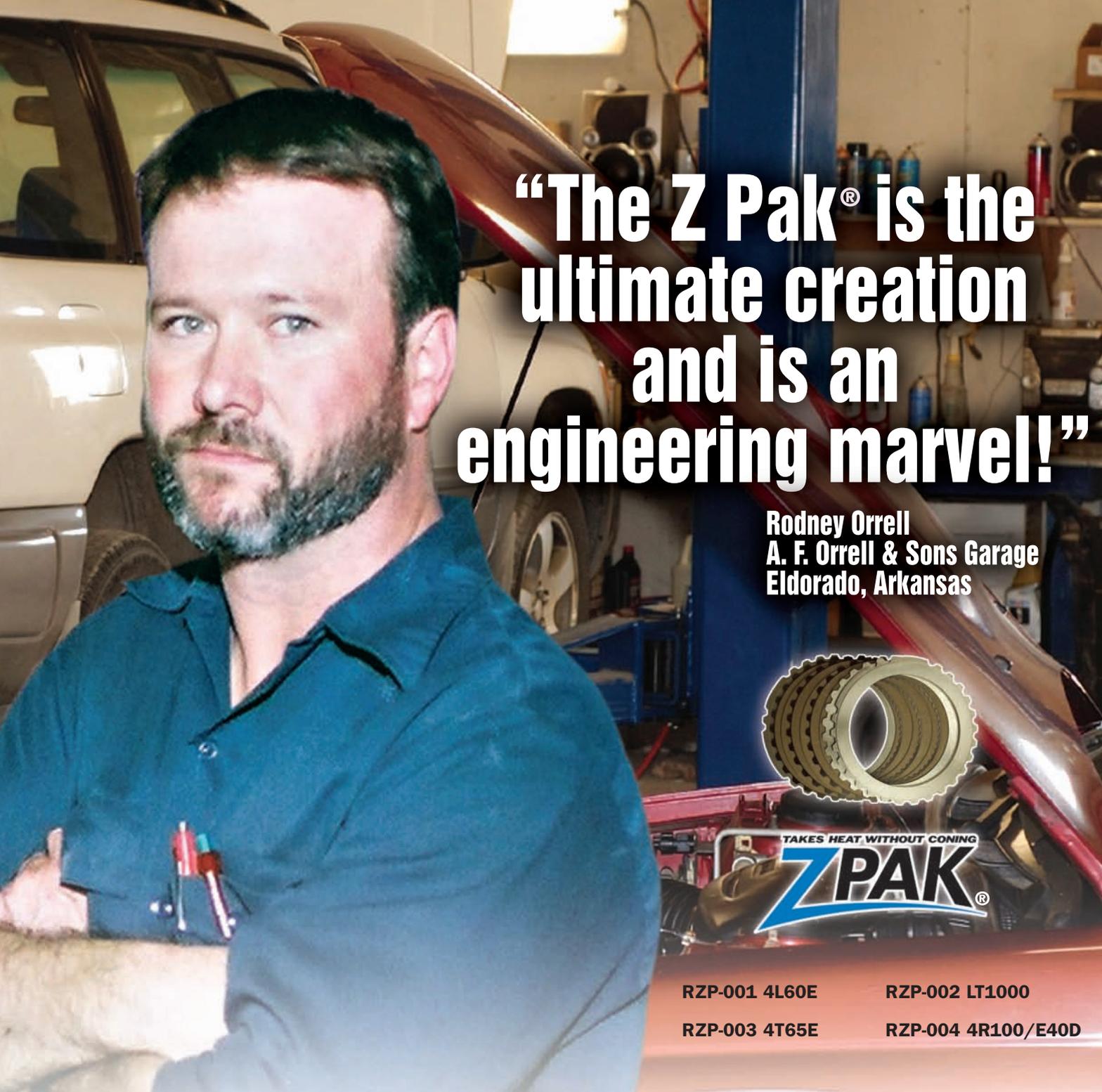
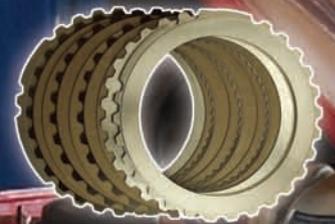


Figure 2: Always mark or take a picture of the harnesses connected to the solenoids for easy reassembly.



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of the fill level pipe plug as the transmission fluid temperature reaches 35°C (95°F).

- If the transmission fluid doesn't start to drip out of the fill level pipe plug, add fluid to the transmission until it starts to run out of the fill level plug (figure 1).

Other units require a similar method for filling and checking the fluid level, so most R&R techs have devised their own way of getting fluids into the transmission through a small opening. The critical step is to be sure that the ATF is within the correct temperature range.

## Shifting Issues

As with most new transmissions, it takes a few thousand miles of road service for the troubles to show up. There are some trouble spots you could easily overlook that we've learned about through experience. These spots include the valve body, the case, and some troubles you could cause yourself.

These units are well behaved for most of their road life. They start having issues when the valve bodies start wearing out. This can happen as early as 20,000 miles. The shifting complaints can range from clunky downshifts to a perceived slip or engine flare. Too much torque converter slip can also be a symptom of a worn out valve body.

A shift to neutral on the 3-4 shift can be caused if the steel sleeve down in the case rotates. This cuts off the feed to the K2 clutch, which is needed to apply 4<sup>th</sup>, 5<sup>th</sup> and 6<sup>th</sup> gears (we'll cover this in more detail later).

Another cause for a shift to neutral on the 3-4 can be solenoid related. This typically happens after the valve body is replaced or the unit rebuilt.

The reason? The M1 solenoid (light gray wire) and the B2/4-6 solenoid (black wire) have been crossed (figure 2). Always mark the solenoids harness or take a picture to make sure you connect the harnesses to the correct solenoids.

## Valve Body Inspection

When servicing the valve body, pay close attention to the valve bores.

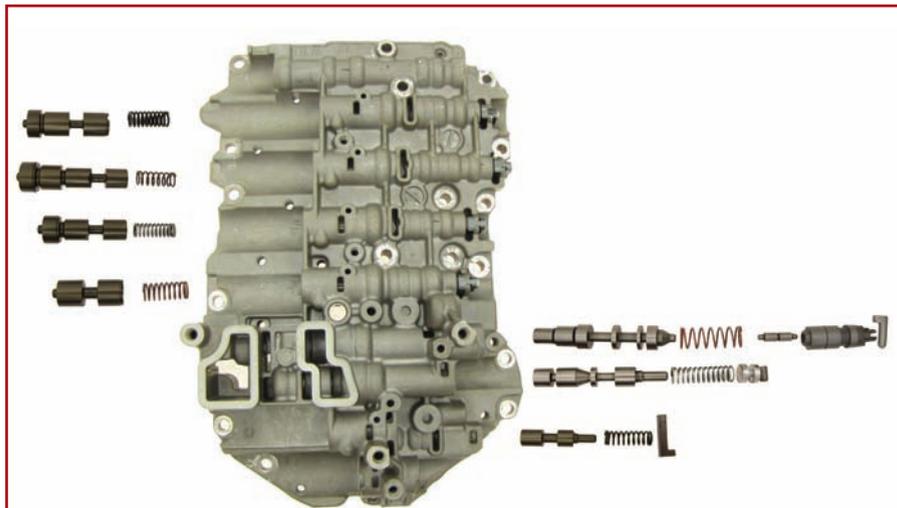


Figure 3: Removing every valve from the valve body will make the valve body easier to inspect.

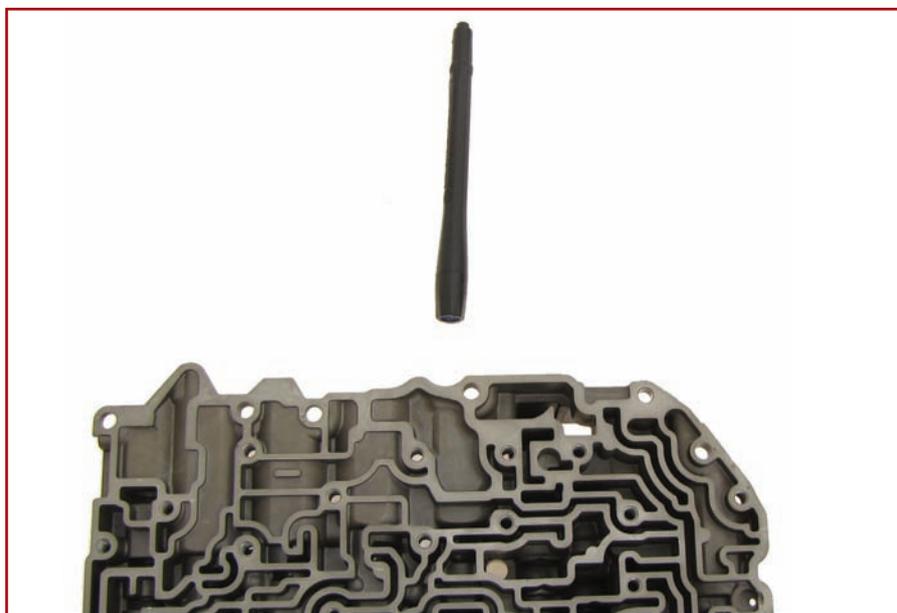


Figure 4: An inexpensive LED pen works well to shed light on worn valve bores.

Always remove every valve from every bore for easier inspection (figure 3). Good lighting is critical; an LED pen light is an excellent choice for this job (figure 4).

In this case, the Pressure Regulator Valve bore is in good shape; it's a dull aluminum color (figure 5). On the other hand, the Lockup Clutch Control Valve bore is shiny and worn (figure 6). When the bore becomes severely worn it may also exhibit visible ridges.

Okay, you've found a worn valve body. What are you going to do about it? These days you generally have three choices:

1. Replace the complete valve body with a new one from your local VW dealership. This used to be your only choice when you found a worn

VW valve body.

2. Get a valve body repair kit from the aftermarket. These kits involve boring the aluminum and installing sleeves and valves. Valve bore end plugs are also available.

3. Purchase a rebuilt valve body from a reputable rebuilder.

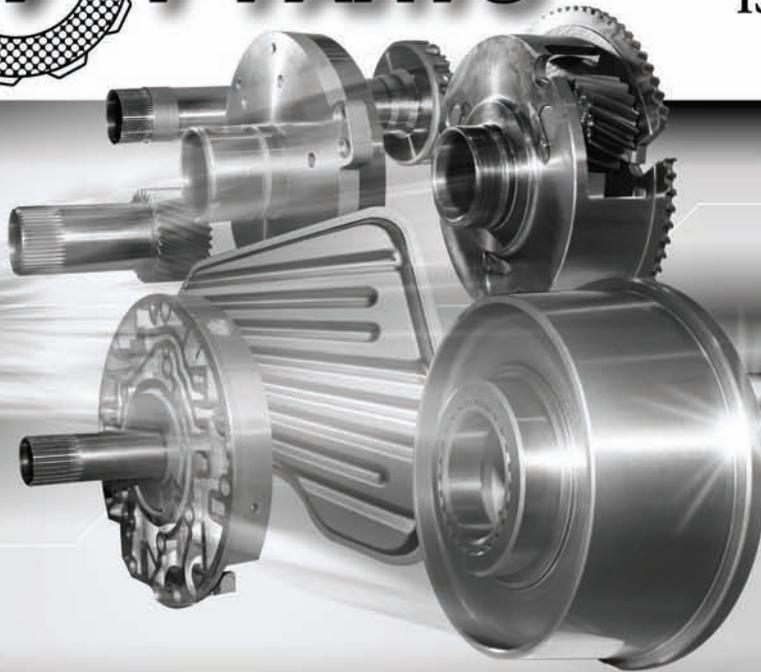
The important thing to remember is that these units are real hard on valve bodies; most of them are going to be damaged when they reach your bench.

## Inside the Unit

The 09G has a Lepelletier gearset (covered in the Nov/Dec 2006 *GEARS*) in the front and a Ravigneaux gearset (think AOD) in the rear. Both seem to be holding up extremely well.

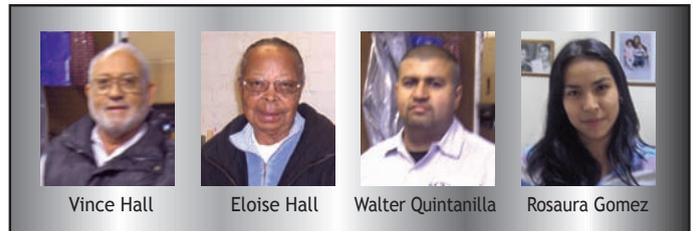


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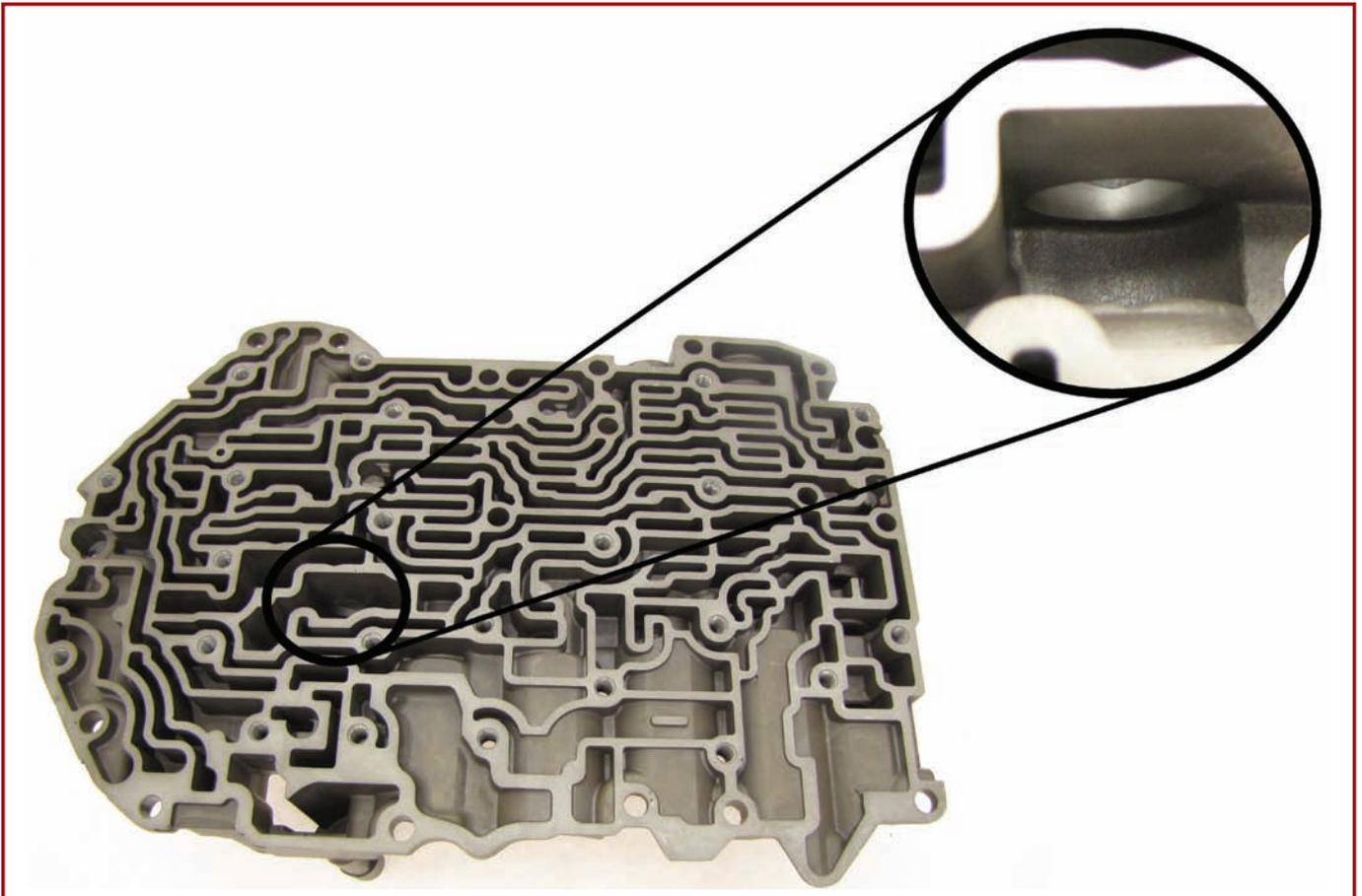


Figure 5: A dull bore is a sign of very light to no wear on a valve bore.

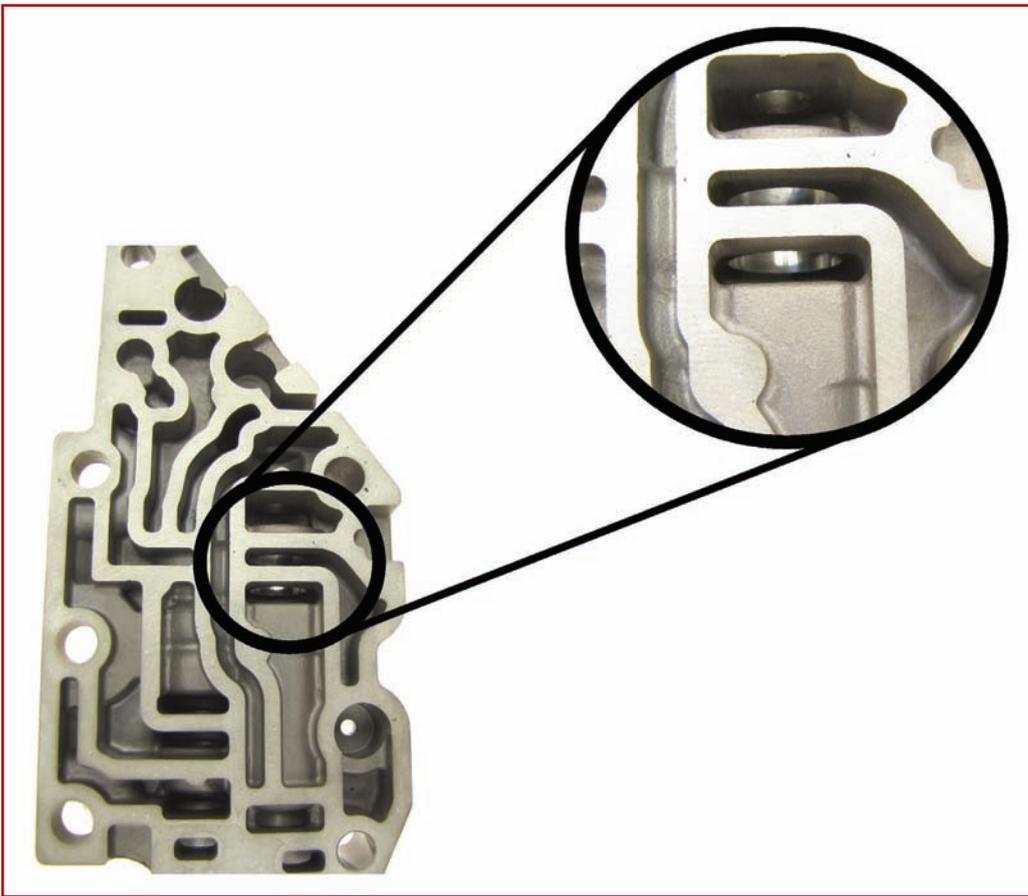


Figure 6: A shiny bore that may also have a ridge is a sign of a worn valve bore.

As discussed earlier, the sleeve for the K2 teflon sealing rings can spin in the case (figure 7). This can cause the transmission to shift into neutral on the 3-4 shift.

You can check for this problem before removing the transmission by installing a pressure gauge on the K2 pressure tap (figure 8). Then drive the vehicle, and check the pressure during the 3-4 shift.

When the transmission shifts from 3<sup>rd</sup> to 4<sup>th</sup>, the pressure in the K2 clutch circuit should rise to 65-90 PSI.

- If the pressure doesn't rise, look for a valve body problem such as a sticking valve or faulty solenoid.
- If the pressure rises normally but the transmission shifts into neutral, the sleeve is probably rotated in the case.

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If you find a rotated sleeve, there are two fixes here. Replace the case from the dealer or repair the sleeve with a kit from Sonnax. This product is brand new to the market. The rest of the hard parts in this unit have been holding up fairly well... so far.

### After Service

After a rebuild, it's important to reset the TCM. The important resets are the *throttle basic setting* for the TPS relearn and the *component adaptation reset* for the TCM adaptive reset. You can reset the TCM with most scan tools. Performing these two resets will return the computer to its base settings.

Reprogramming can't be performed on late model Volkswagens without some very expensive or very illegal scan tool equipment. So any reprogramming should be left to the dealer.

The 09G 6 speed transmission is going to be a profitable unit among the other new vehicles that are showing up in your service bays. We've identified

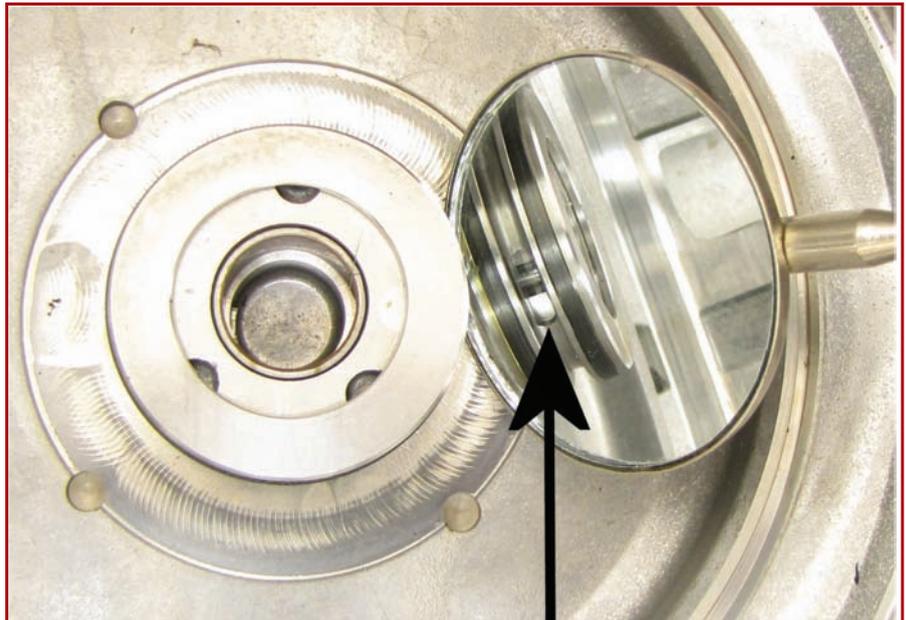


Figure 7: Use a mirror to get down into the case to check for a spun support sleeve.

the major trouble areas and their serviceability. You know that you can perform the basic reset functions with your scan tools. And you have the resources to deal with any troubles that may arise in the future.

So when you see a late model Volkswagen come into your service bay, you can be sure that, with a little knowledge, you can't help but have *fun with transmissions!*

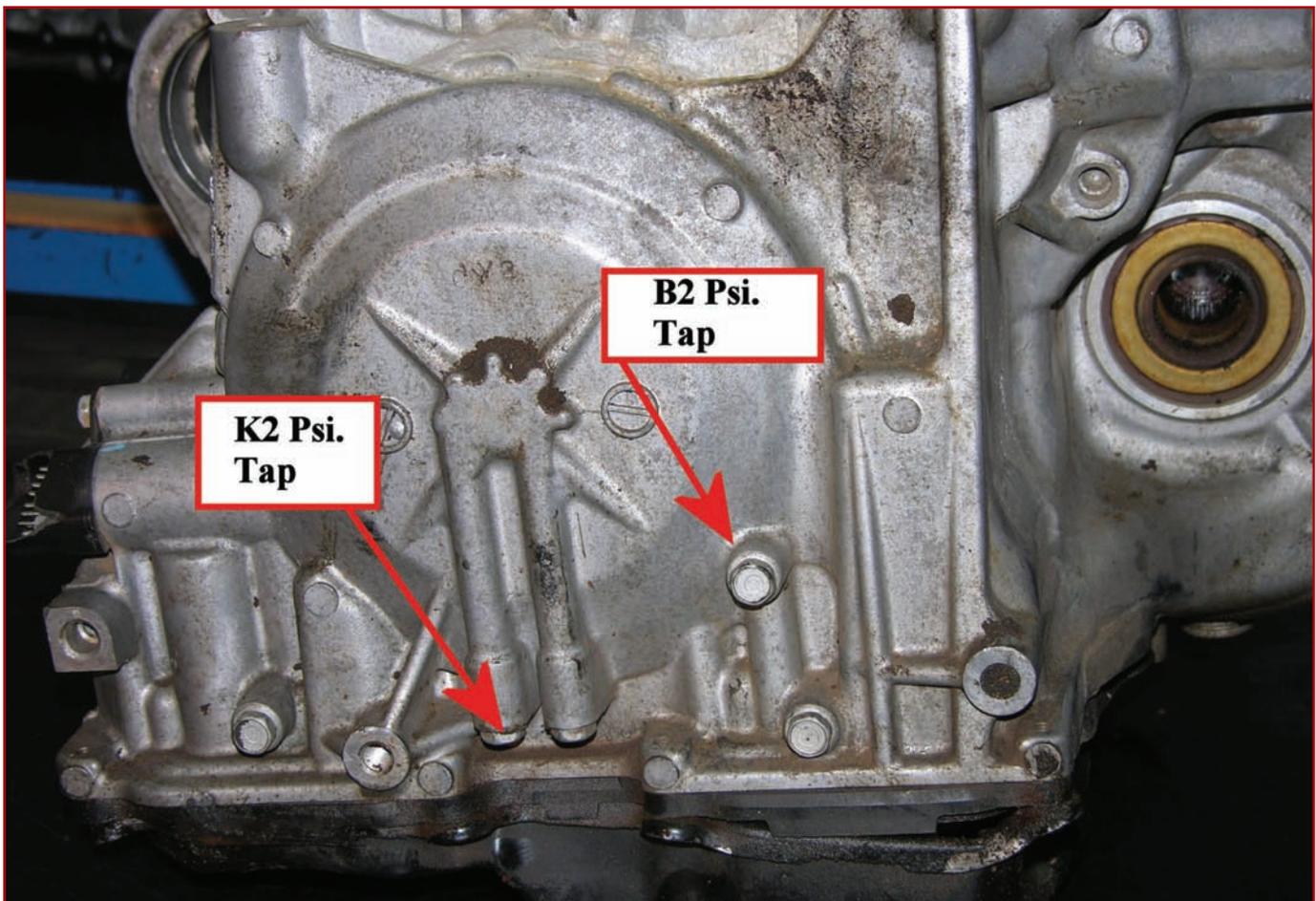


Figure 8: A pressure tap on the K2 clutch tap can help spot a problem before the unit is removed from the vehicle.

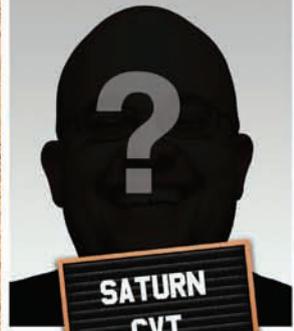
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