



Simple is not Simple

## Technical Information

09G/TF60-SN

# Clearing & Relearning Shift Adapts

The 09G is an adaptive learn transmission. The TCM can adapt the upshift and downshift pressures for each shift as well as the initial engagement into drive and reverse. Whenever the transmission is rebuilt or the valve body is changed, the shift adapts should be cleared and the vehicle should be driven to relearn the new adapts.

### Clearing the shift adapts:

The preferred way is to use a factory scan tool or equivalent to return the shift adapts to basic settings. Some Volkswagen vehicles, like the Beetle and Passat, will clear by turning the ignition to off, waiting 30 seconds and then disconnecting the harness connector from the TCM.

### Relearning the new shift adapts:

After clearing, the vehicle must be brought to operating temperature and driven to relearn the shift adapts. Clear any trouble codes and check to see if they come back. Drive the vehicle at about 20% throttle angle up through the gears. Once in sixth gear release throttle and allow at least 20 seconds to come to a complete stop. Repeat this cycle 15–20 times. The car may require more driving to fine tune the shift feel.

## **IMPORTANT NOTES**

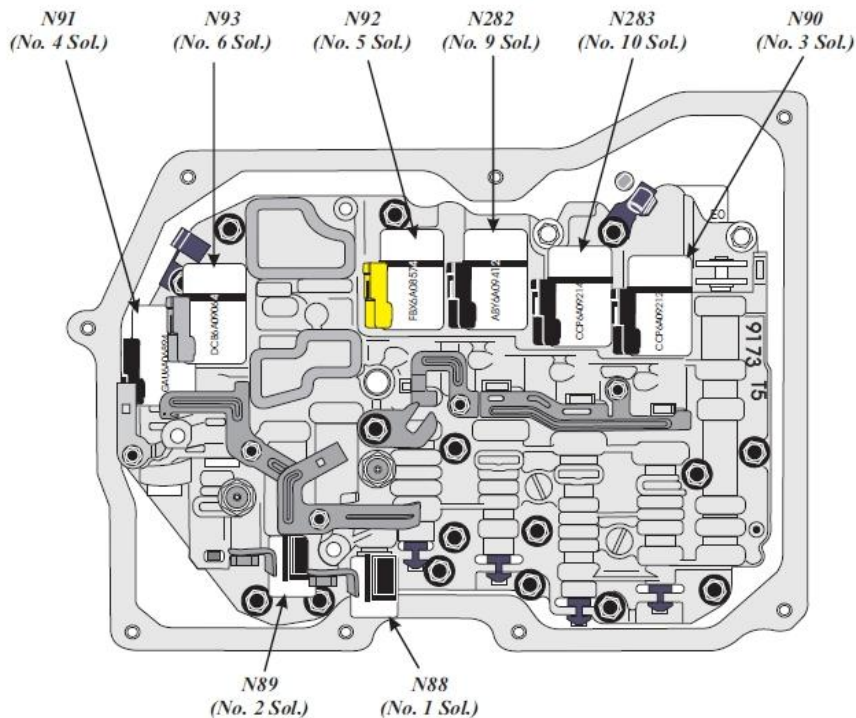
1.) If the transmission has a delay or harsh reverse engagement, hold your foot on the brake pedal until completely finished relearning reverse or drive engagement. \* move shifter to reverse, wait 3 seconds then move back to neutral and wait 3 seconds. Repeat 10 times and the engagement feel should be about normal.

2.) VW warns that during the learning process, shift quality may deteriorate before it gets better.

3.) TCM will **not** relearn the shift adapts when codes are present or if the transmission is not at operating temperature.

*\* The TCM has a safety feature that requires the brake pedal to be depressed until the transmission gear that is selected has engaged. If brake pedal is released before the transmission engages, the TCM will command neutral and the PRNDL lights will flash until the brake pedal is depressed and the transmission engages. Once it engages the PRNDL lights will stop flashing.*

## SOLENOID IDENTIFICATION



### INDIVIDUAL SOLENOID FUNCTION AND RESULT OF FAILURE

#### ***N88 Solenoid (No. 1 Solenoid)***

The N88 Solenoid is an ***On/Off*** solenoid and is On and Open in gears 4th through 6th. If this solenoid fails in the Closed (Off) position, 4th through 6th gear will not be available.

#### ***N89 Solenoid (No. 2 Solenoid)***

The N89 Solenoid is also an ***On/Off*** solenoid and is On and Open, to allow the apply of the torque converter clutch. When both the N88 and N89 solenoids are energized at the same time, the B2 brake clutch is applied in Tiptronic 1st Gear (Manual Low). If the N89 Solenoid fails in the Closed (Off) position, there will be no torque converter clutch apply and no engine braking in Tiptronic 1st gear (Manual Low).

#### ***N90 Solenoid (No. 3 Solenoid)***

The N90 Solenoid is a ***normally applied***, pulse width modulated solenoid controlling the apply and release of the K3 Clutch. When this solenoid is fully Off, the K3 clutch is fully applied. If this solenoid fails in the Off (Normally Applied) position, 3rd, 5th and Reverse shifts may be firm.

#### ***N91 Solenoid (No. 4 Solenoid)***

The N91 Solenoid is a ***normally vented***, pulse width modulated solenoid controlling the apply and release of the converter clutch, with the ability to ramp the apply and release. When this solenoid is fully Off, the converter clutch is fully released. If this solenoid fails in the Off (Normally Vented) position, there will be no converter clutch application.

#### ***Solenoid N92 (No. 5 Solenoid)***

The N92 Solenoid is a ***normally applied***, pulse width modulated solenoid controlling the apply and release of the K1 Clutch. When this solenoid is fully Off, the K1 clutch is fully applied. If this solenoid fails in the Off (Normally Applied) position, 1st through 4th shifts may be firm.

#### ***Solenoid N93 (No. 6 Solenoid)***

The N93 Solenoid is a ***normally applied***, pulse width modulated solenoid and controls the main line pressure. When this solenoid is fully Off, maximum line pressure is the result. If this solenoid fails in the Off (Normally Applied) position, all shifts will be harsh.

#### ***Solenoid N282 (No. 9 Solenoid)***

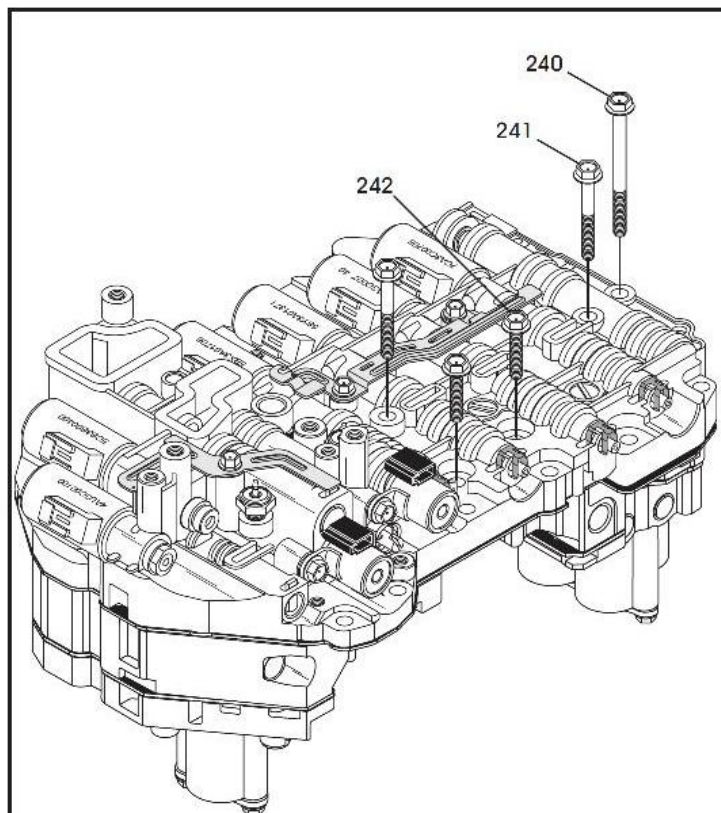
The N282 Solenoid is a ***normally applied***, pulse width modulated solenoid controlling the apply and release of the K2 Clutch. When this solenoid is fully Off, the K2 clutch is fully applied. If this solenoid fails in the Off (Normally Applied) position, 4th, 5th and 6th shifts may be firm.

#### ***Solenoid N283 (No. 10 Solenoid)***

The N283 Solenoid is a ***normally applied***, pulse width modulated solenoid controlling the apply and release of the B1 Clutch. When this solenoid is fully Off, the B1 clutch is fully applied. If this solenoid fails in the Off (Normally Applied) position, 2nd and 6th shifts may be firm.

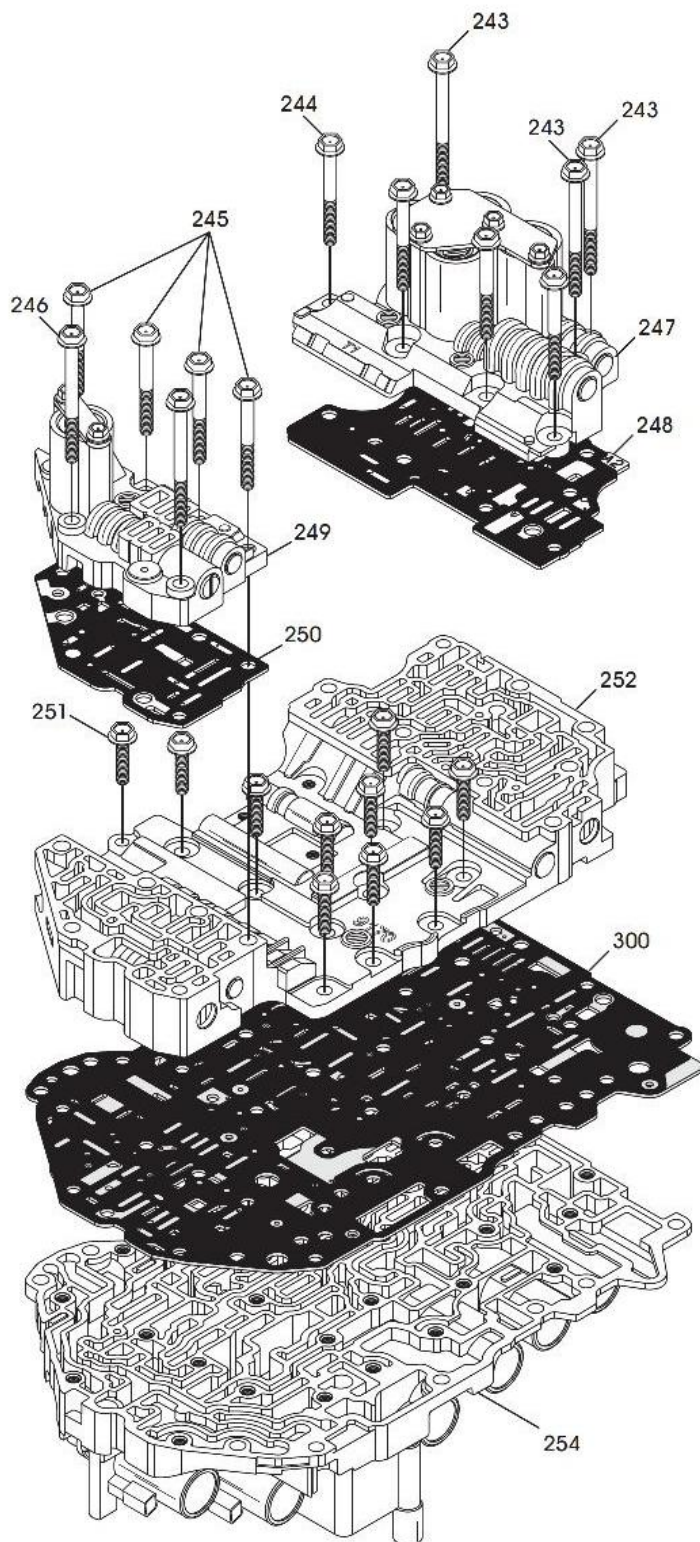
## COMPONENT REBUILD VALVE BODY ASSEMBLY

1. Disassemble the main valve body components using Figure 148 and 149 as a guide.  
**Note: All valve body bolt lengths are found in the legend and must be positioned properly.**
2. Clean all valve body components thoroughly and dry with compressed air.  
**Note: Do not submerge solenoids in solvent.**
3. Inspect all valve body components thoroughly for any damage.



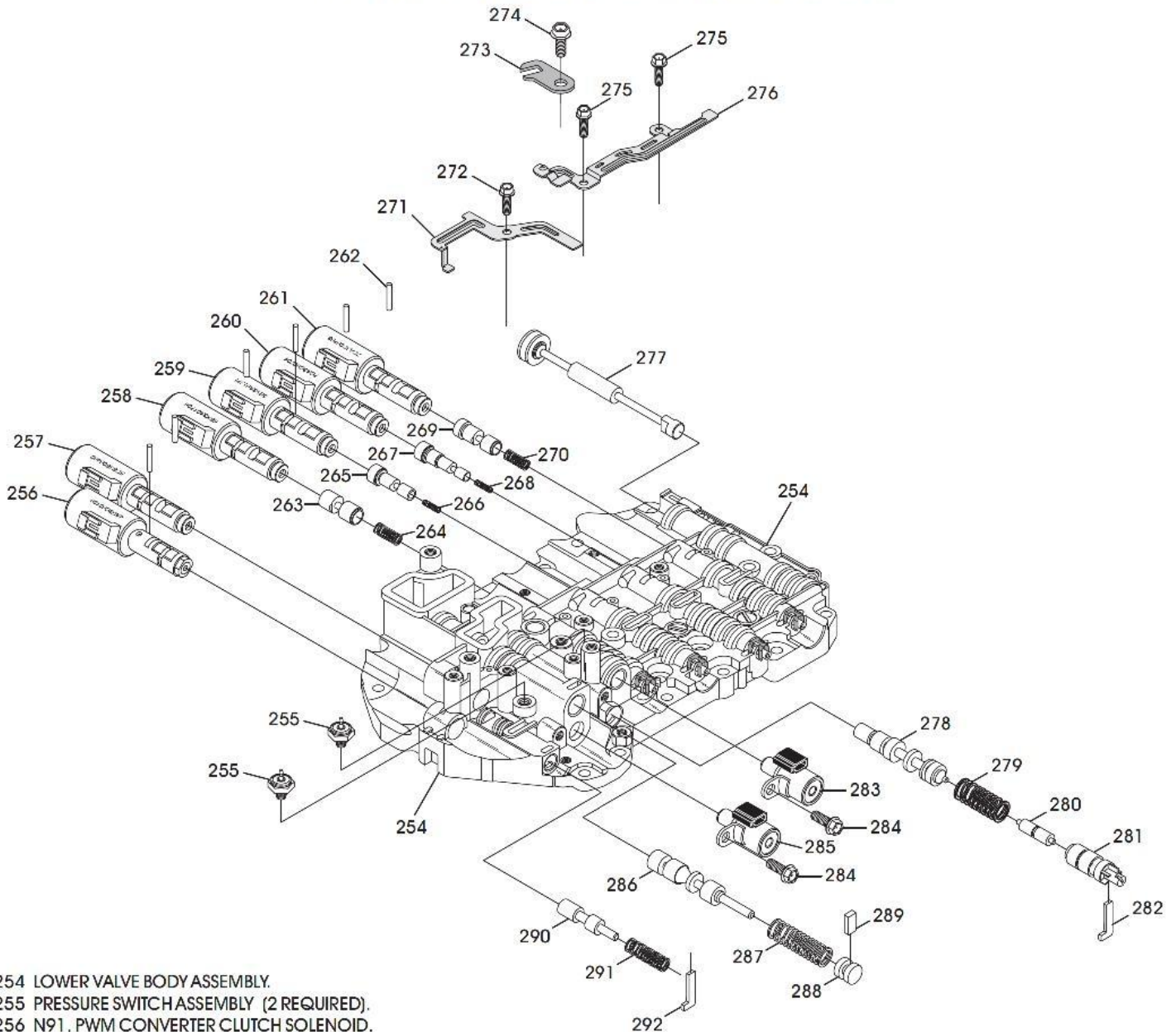
- 240 LOWER V.B. TO ACCUMULATOR HOUSING 2 BOLT (70 MM LENGTH).  
 241 LOWER V.B. TO UPPER V.B. BOLT (39.5 MM LENGTH).  
 242 LOWER V.B. TO UPPER V.B. BOLT (28 MM LENGTH).  
 243 ACCUMULATOR 2 HOUSING TO UPPER V.B. (64 MM LENGTH)(3 REQ).  
 244 ACCUMULATOR-2 HOUSING TO UPPER V.B. (52 MM LENGTH)(4 REQ).  
 245 ACCUMULATOR-1 HOUSING TO UPPER V.B. (52 MM LENGTH)(4 REQ).  
 246 ACCUMULATOR-1 HOUSING TO UPPER V.B. (64 MM LENGTH)(2 REQ).  
 247 ACCUMULATOR-2 HOUSING ASSEMBLY.  
 248 ACCUMULATOR-2 ASSEMBLY SPACER PLATE.  
 249 ACCUMULATOR-1 HOUSING ASSEMBLY.  
 250 ACCUMULATOR-1 ASSEMBLY SPACER PLATE.  
 251 UPPER V.B. TO LOWER V.B. BOLTS (21 MM LENGTH)(10 REQUIRED).  
 252 UPPER VALVE BODY ASSEMBLY.  
 254 LOWER VALVE BODY ASSEMBLY.  
 300 MAIN VALVE BODY SPACER PLATE.

## "09G" VALVE BODY EXPLODED VIEW



See Legend in Figure 148

## "09G" LOWER VALVE BODY ASSEMBLY, EXPLODED VIEW



- 254 LOWER VALVE BODY ASSEMBLY.
- 255 PRESSURE SWITCH ASSEMBLY (2 REQUIRED).
- 256 N91, PWM CONVERTER CLUTCH SOLENOID.
- 257 N93, PWM LINE PRESSURE CONTROL SOLENOID.
- 258 N92, PWM K1 CLUTCH CONTROL SOLENOID.
- 259 N282, PWM K2 CLUTCH CONTROL SOLENOID.
- 260 N283, PWM B1 CLUTCH CONTROL SOLENOID.
- 261 N90, PWM K3 CLUTCH CONTROL SOLENOID.
- 262 PWM SOLENOID RETAINING PINS (6 REQUIRED)
- 263 K1 CLUTCH REGULATOR VALVE.
- 264 K1 CLUTCH REGULATOR VALVE SPRING.
- 265 K2 CLUTCH REGULATOR VALVE.
- 266 K2 CLUTCH REGULATOR VALVE SPRING.
- 267 B1 CLUTCH REGULATOR VALVE.
- 268 B1 CLUTCH REGULATOR VALVE SPRING.
- 269 K3 CLUTCH REGULATOR VALVE.
- 270 K3 CLUTCH REGULATOR VALVE SPRING.
- 271 N91 AND N93 SOLENOID PIN RETAINING BRACKET.
- 272 SOLENOID PIN RETAINING BRACKET BOLT.
- 273 TRANSAXLE FLUID TEMPERATURE SENSOR RETAINING BRACKET.
- 274 TFT SENSOR RETAINING BRACKET BOLT.
- 275 SOLENOID PIN RETAINING BRACKET BOLTS (2 REQUIRED).

- 276 N92, N282, N283, N90 SOLENOID PIN RETAINING BRACKET.
- 277 MANUAL VALVE.
- 278 PRIMARY PRESSURE REGULATOR VALVE.
- 279 PRIMARY PRESSURE REGULATOR VALVE SPRING.
- 280 PRIMARY PRESSURE REGULATOR BOOST VALVE.
- 281 PRIMARY PRESSURE REGULATOR BOOST VALVE SLEEVE.
- 282 PRIMARY REGULATOR BOOST SLEEVE RETAINER.
- 283 N88, ON/OFF SOLENOID.
- 284 SOLENOID RETAINING BOLT (2 REQUIRED).
- 285 N89, ON/OFF SOLENOID.
- 286 SECONDARY PRESSURE REGULATOR VALVE.
- 287 SECONDARY PRESSURE REGULATOR SPRING.
- 288 SECONDARY PRESSURE REGULATOR BORE PLUG.
- 289 SECONDARY PRESSURE REGULATOR BORE PLUG RETAINER.
- 290 N88, N89, N90, N282, N283 SOLENOID REGULATOR VALVE.
- 291 SOLENOID REGULATOR VALVE SPRING.
- 292 SOLENOID REGULATOR VALVE SPRING RETAINER.