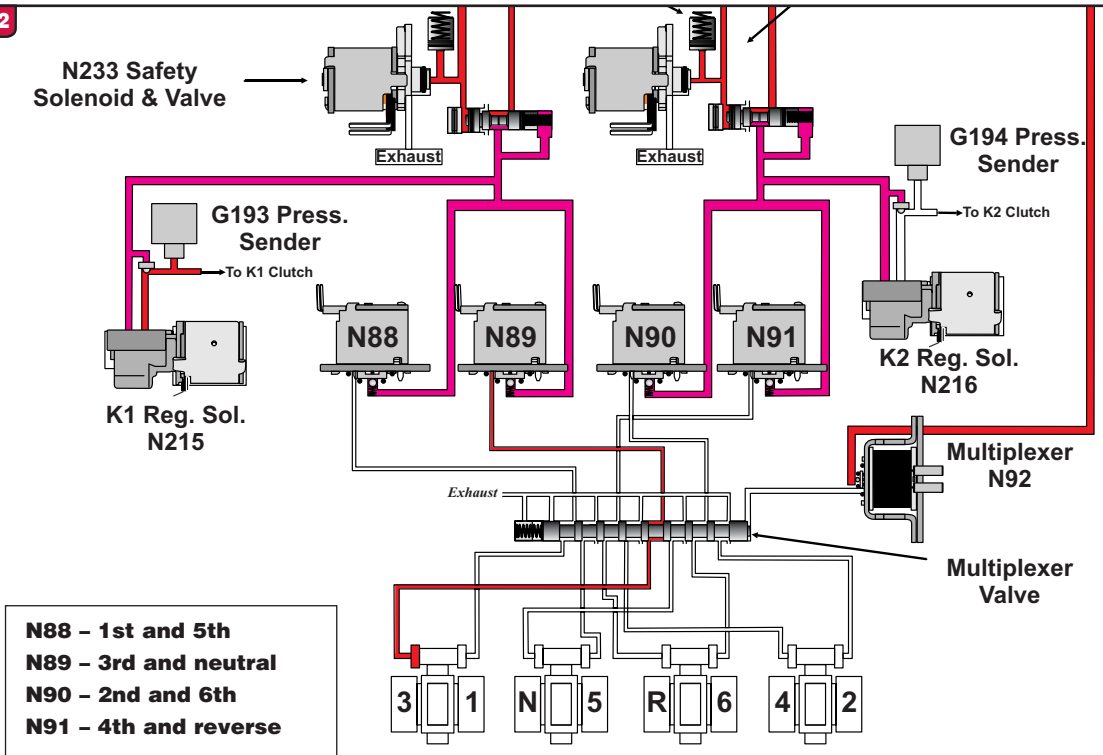
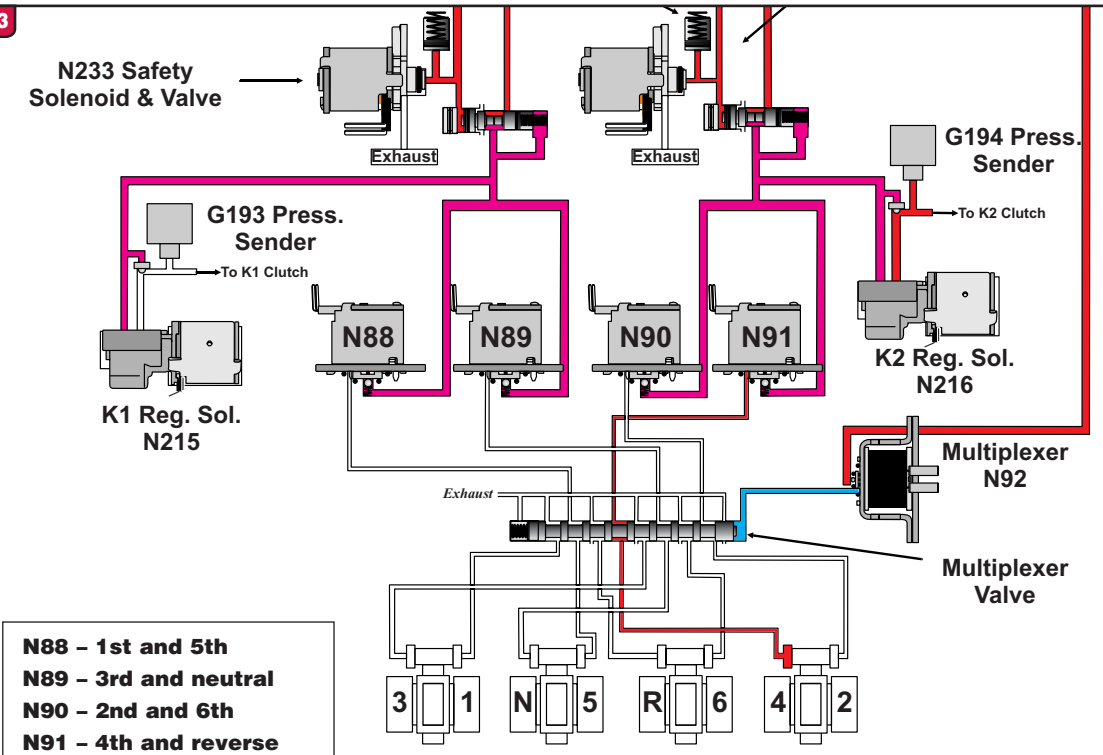
Figure 12



N88 – 1st and 5th
N89 – 3rd and neutral
N90 – 2nd and 6th
N91 – 4th and reverse

Third gear

Figure 13



N88 – 1st and 5th
N89 – 3rd and neutral
N90 – 2nd and 6th
N91 – 4th and reverse

Fourth gear

Figure 14

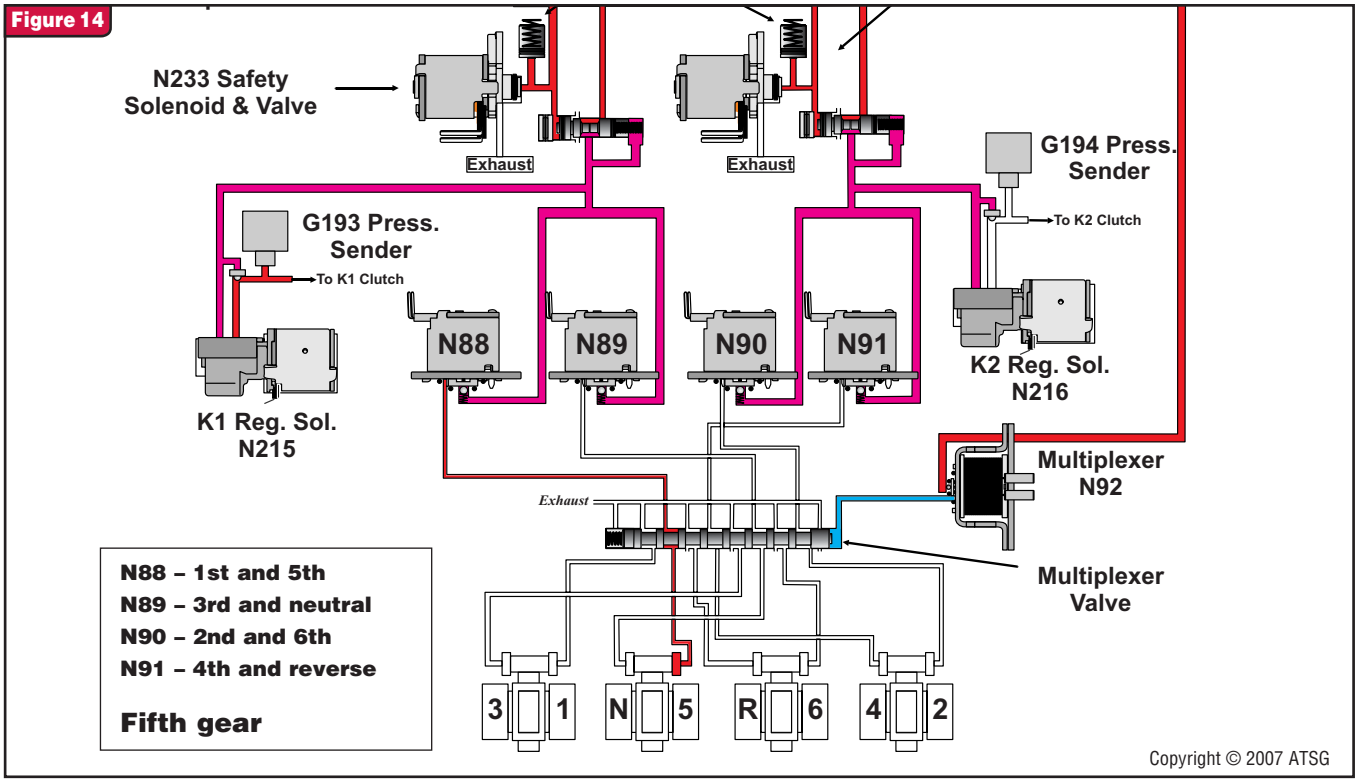
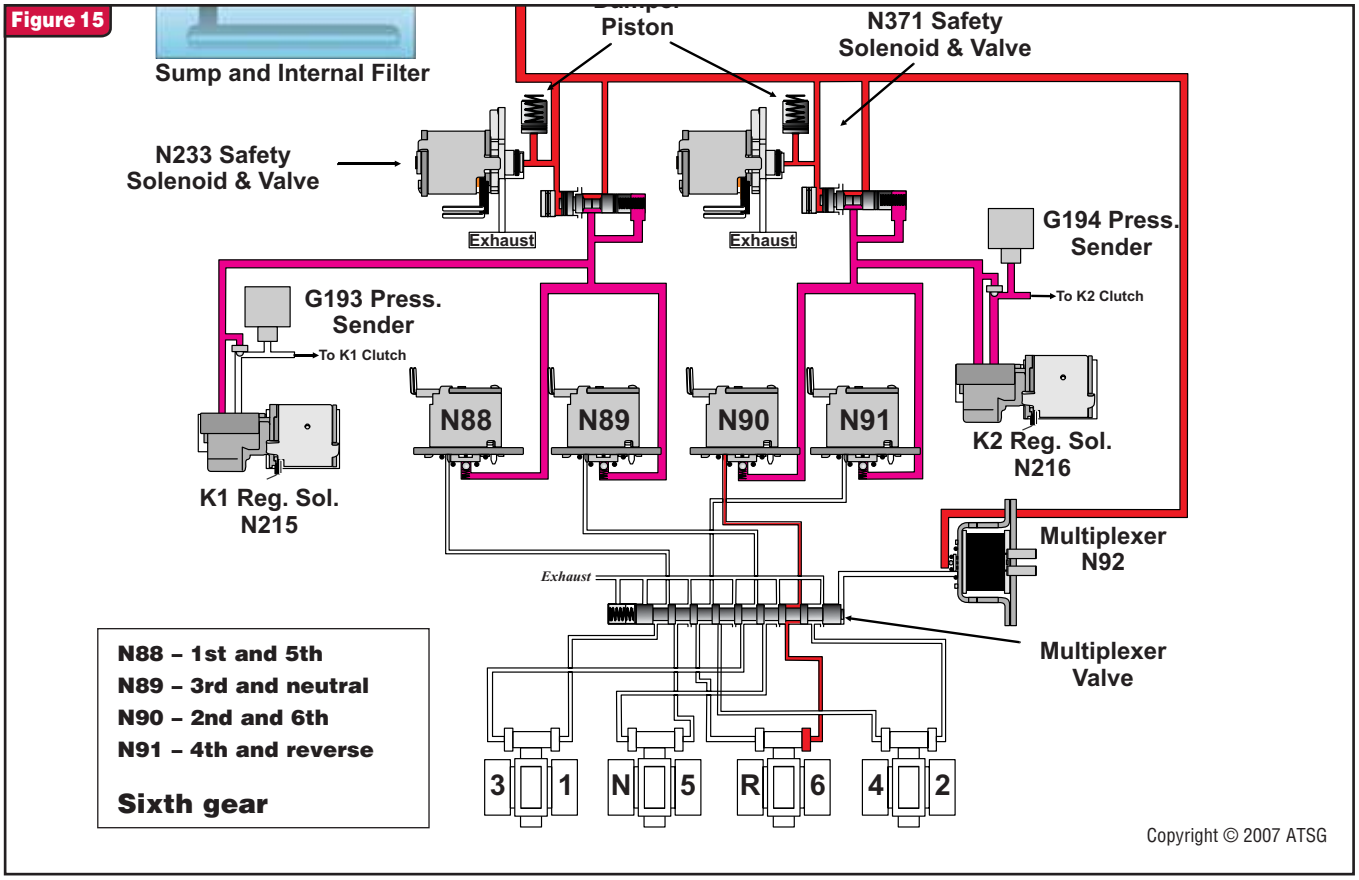


Figure 15



operated by the multiplexer solenoid (N92), shown at the 3 o'clock position in Figure 8. The multiplexer solenoid turns on and off to stroke and un-stroke the multiplexer valve to redirect solenoid-signal pressure to the appropriate shift rail. The idea is similar to that of a Chrysler 604 (41TE) transmission, in which the solenoid shift valve in the valve body is stroked in such a way that it allows the L/R solenoid to double as a TCC solenoid.

Another interesting point is that this multiplexer solenoid is exactly like the one used as a converter-clutch solenoid in Saturn Vue continuously variable transmissions.

Volkswagen says that when the multiplexer solenoid is off, 1st, 3rd, 5th and reverse can be achieved, but from the hydraulics that I drew it seems that 1st, 3rd, 6th and reverse can be achieved. Conversely, VW says that when the solenoid is turned on, 2nd, 4th and 6th can be achieved, yet the hydraulics reveal that 2nd, 4th, 5th and neutral can be achieved (see Figure 10 on page 44, Figure 11 on page 45, figures 12 and 13 on page 46, Figure 14 on page 47 and Figure 15 above).

We now have four solenoids remaining. N217 is the main line-pressure-control solenoid, and N218 controls clutch cooling pressure. The other two are safety control solenoids. N233 controls the fluid circuit to the N215, N88 and N89 solenoids, and N371 controls the fluid circuit to N216, N90 and N91. These safety solenoids are used to isolate hydraulic pressure to its associated section of the gearbox. In other words, if a problem is detected with either 2nd, 4th, 6th or reverse, N371 shuts down pressure to N216, N90 and N91. 1st and 3rd will become failsafe gears. If a problem is detected in either 1st, 3rd or 5th, N233 shuts down pressure to N215, N88 and N89 and only 2nd gear will the failsafe gear.

When you compare the information provided in Figure 8 with the hydraulic schematics in figures 10 through 15, much of what we've explained will make a bit more sense, and we will continue with additional information on this unit next month. TD

The Bottom Line:

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96 Useful information.
97 Not useful information.
98 We need more information.