Allison Transmission Sept. 14 introduced to the media a radically different 10-speed fully automatic twin-countershaft range-type truck transmission called the TC-10. Allison says production will begin in October 2012, and ramp up to maximum levels by 2013. Several prototype transmissions are being tested by fleets.

Like all other Allisons, the transmission will have a torque converter with lockup clutch in place of a standard dry clutch at front. But it will have helical gears integrated with a twin-countershaft layout for the five forward speeds and the reverse gears in the main box, as well as a two-speed planetary range box at the rear. The transmission is new from the ground up, including the torque converter.

Todd Dygert, NAFTA-MSS product specialist for the TC-10, said all the shifts will be made through five multiplate wet clutches similar to those used in other Allison automatics, one of which will serve to handle range shifts. Dygert described the unit as having “blended architecture,” combining characteristics of the twin-countershaft mechanical truck transmission with those of Allison automatics.

Andy Osterholzer, marketing specialist, said the transmission will provide continuous power application, although the power level will be reduced slightly during shifts to cushion them. Acceleration is much faster because when power flow is continuous, the turbocharger does not have to spool back up after shifts. Drivers will notice that shifts occur quickly – much more so than with an automated manual – yet smoothly. Engine brake operation also will apply torque continuously even when the transmission is downshifting.

The transmission’s torque converter multiplies engine torque by 1.76 at startup, which allows use of a taller first gear than other 10-speeds. This provides a smoother launch as well as the ability to offer much closer gearsteps – especially between 8th, 9th and 10th gears – than standard 10-speeds. The steps between 8th, 9th and 10th gears are only about 17 percent versus about 34 percent in typical 10-speeds.