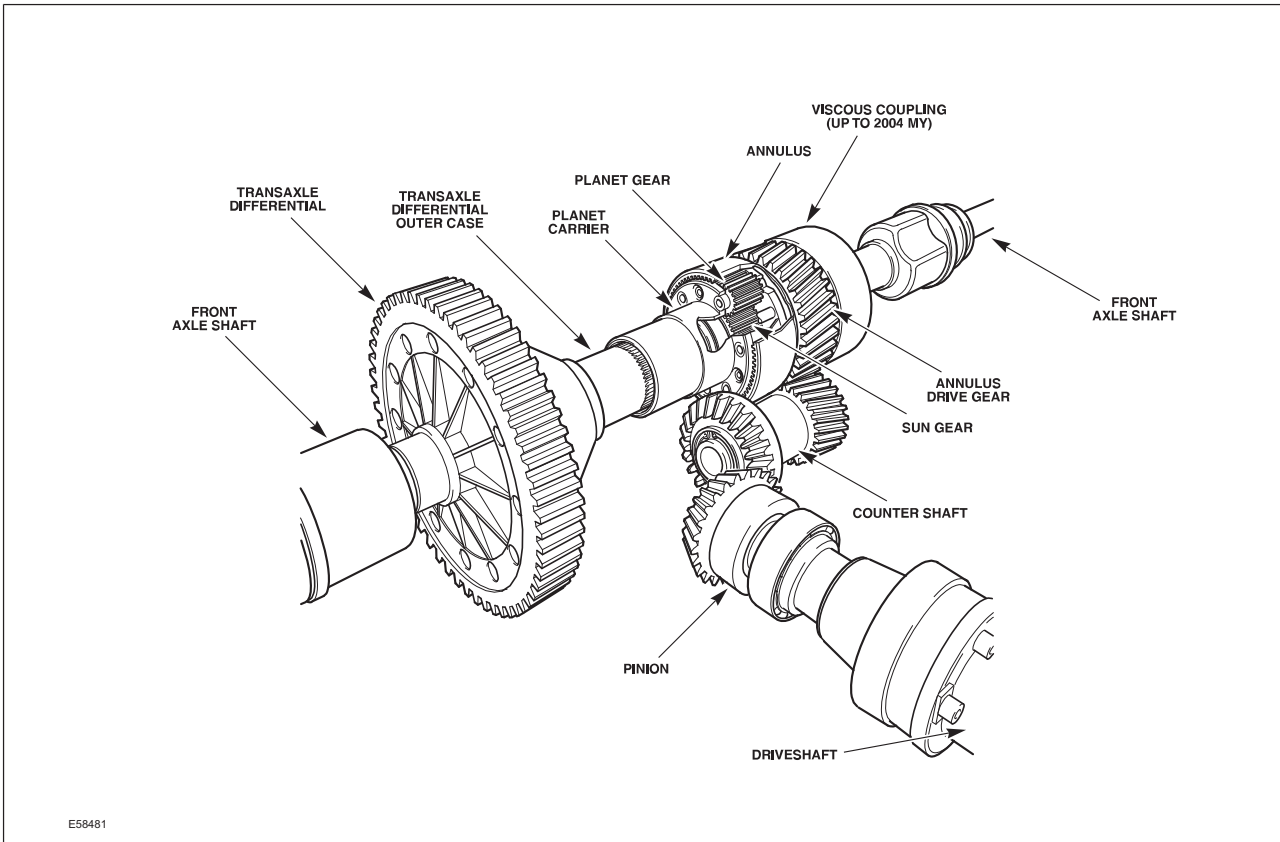


AWD OPERATION

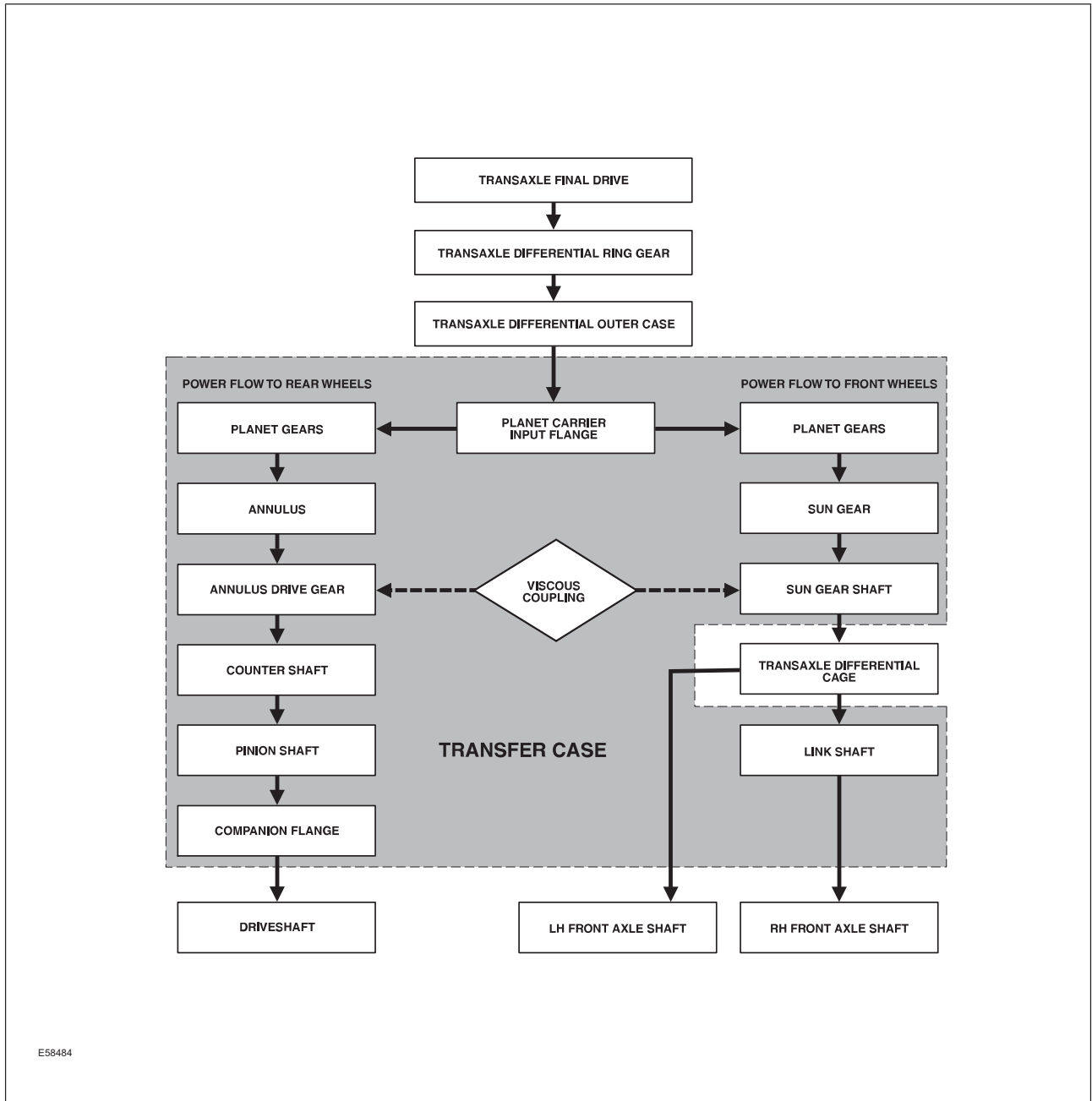
The transmission differential case is splined into the AWD epicyclic gear set planet carrier, which results in the AWD planet carrier turning in a clockwise direction; thus, the planet gears are also driven clockwise.

The AWD epicyclic annulus and sun gear are driven by the planet carrier at the same speed and in the same direction. The sun gear has splines that link back to the transmission; it drives the front differential cage. The differential cage in turn drives the differential pinion gears, resulting in an output transmitted to the front wheels via the link shaft for the RH side and pinion wheel for the LH side.

Transfer Case Internal Components

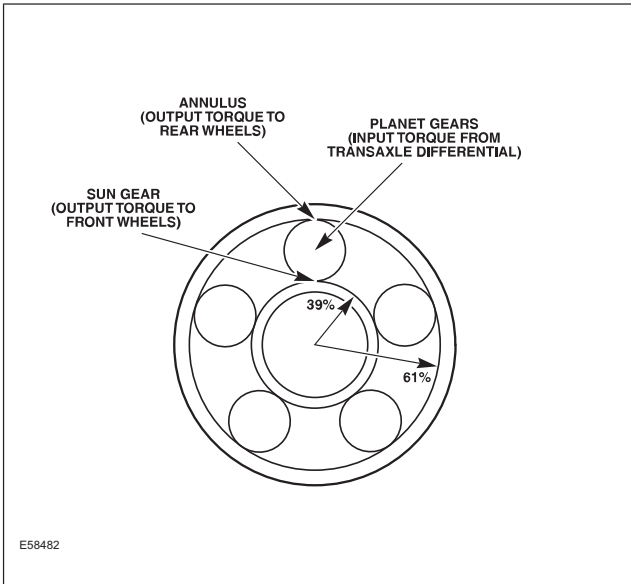


AWD Power Flow



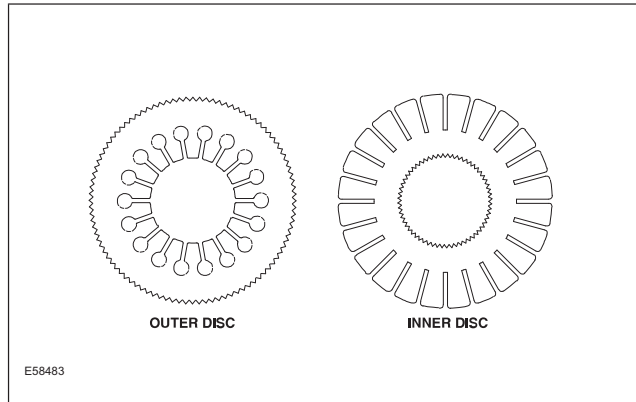
The 40% / 60% torque split is achieved by the ratio of radius to gear tooth contact on the annulus and sun gears, where they contact the planet gears, as indicated by the arrows shown in the diagram.

Epicyclic Differential Torque Split



Under normal driving conditions, all the components of the center differential rotate at the same speed, with front and rear torque split determined by the lever ratio of the tooth contacts.

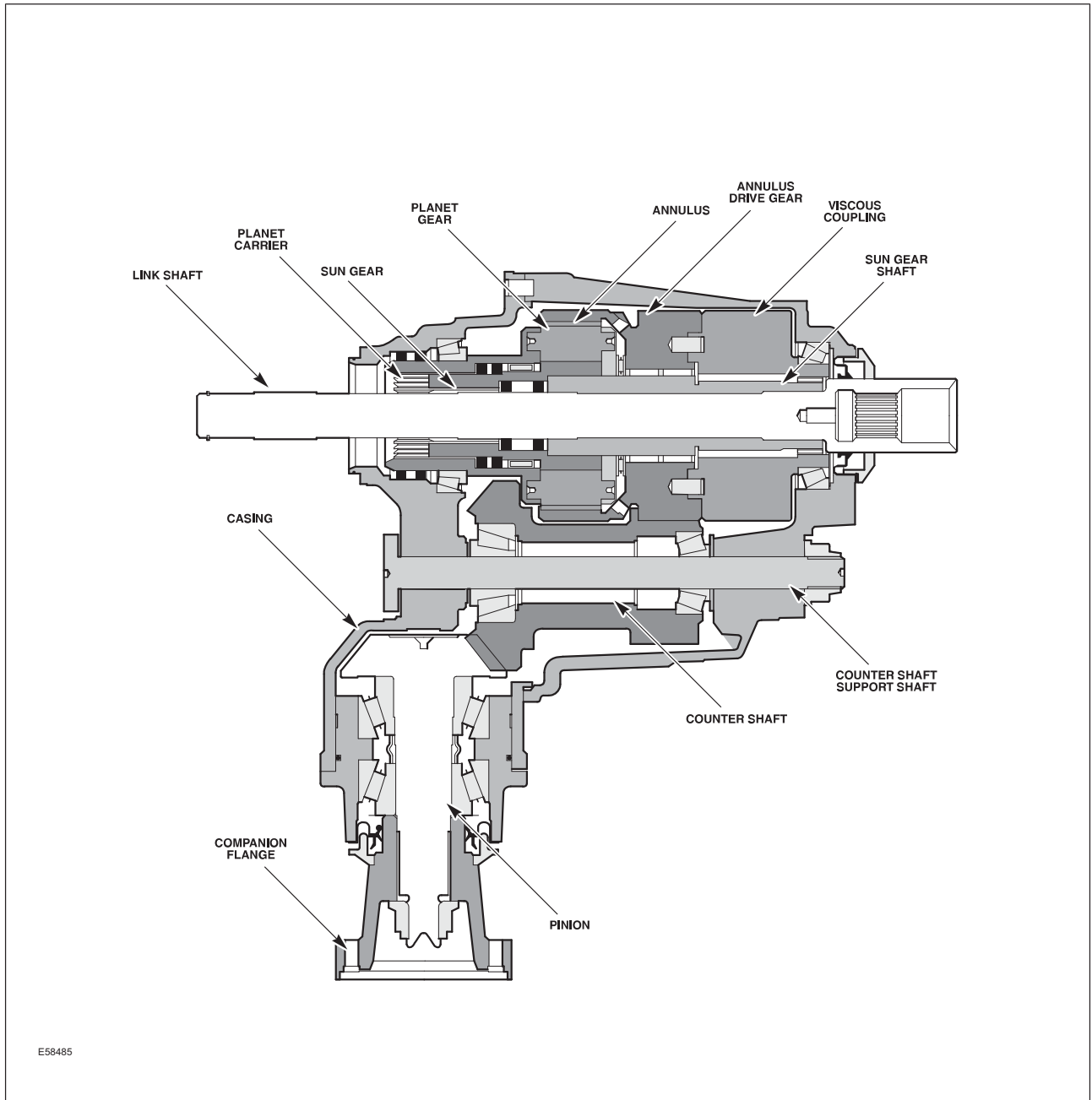
Viscous Coupling Discs



The sun shaft has male splines that connect to the viscous coupling inner hub; the outer viscous coupling is driven by the annulus via four drive pegs. The viscous action only occurs when there is a relative speed difference at the front and rear drive wheels due to reduced traction on either axle.

Drive from the annulus is via a helical gear that connects directly to a counter shaft. The counter shaft has a bevel pinion gear linked to the pinion bevel gear and out to the companion flange.

Transfer Case Cutaway View



2004 MY (X404) RUNNING CHANGES

The only change to the AWD system is the deletion of the viscous coupling. Any difference in traction between the front and rear wheels is now handled by the DSC system.