

Up To Standards

Chrysler All-Wheel-Drive For Minivans, Part I

By Mike Weinberg

With the global competition for increased car sales, manufacturers are adding more options and more technology. In 1991, Chrysler introduced an all-wheel-drive system for the Dodge Caravan and Plymouth Voyager minivans. This system is found on minivans equipped with 3.3 liter V-6 engines, a 604 automatic transaxle and 15-inch wheels. Looking to create a safer vehicle in all weather conditions, many carmakers are offering all-wheel-drive systems. Unfortunately, very few consumers are educated properly in the operation and maintenance of the vehicles and even fewer will read the car owner's manual that resides in the glove box. All-wheel-drive is NOT the same as four-wheel-drive. All-wheel-drive is a fulltime system in which all four wheels are capable of transmitting power to the road. These ve-

hicles are not designed for off-road use as they do not have adequate ground clearance or skid plates to protect undercar components, and they do not have the low-reduction gearing necessary for off-road travel. The all-wheel-drive systems are designed to give better traction and cornering in adverse weather conditions and to give the manufacturer a technological advantage in the battle for sales.

The all-wheel-drive powertrain in the Chrysler minivans is a very sophisticated, complex system and in order to diagnose and repair it successfully, one must understand how the components operate and interact with one another (See Figure 1).

The 604 computer-controlled transaxle is modified to accept a Power Transfer Unit (PTU) that bolts to the

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Up To Standards

**"AS" Body All-Wheel-Drive (AWD)
1991 All-Wheel-Drive Powerflow Chart**

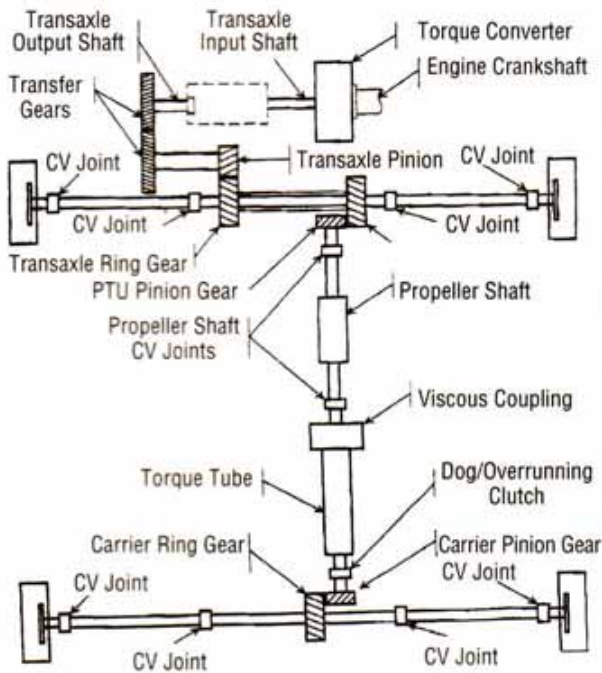


Figure 1

All-Wheel-Drive Component Overview

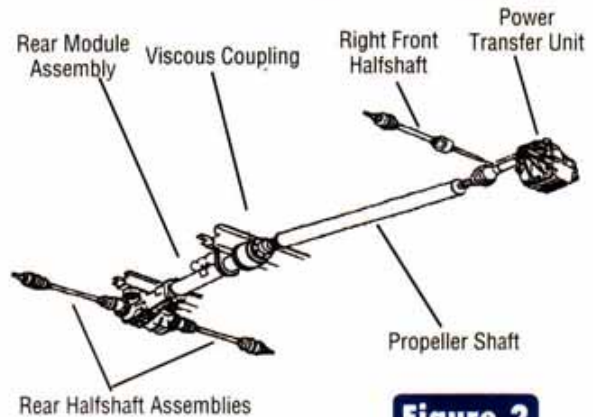


Figure 2

bad news as to the expense of these repairs, and they become very disenchanted with their choice of vehicles.

Other outside forces can create a nuclear meltdown on the aforementioned expensive components.

Example – with the viscous coupling, there are four differentials in this system. A wrong-size tire or tires,

continues next page

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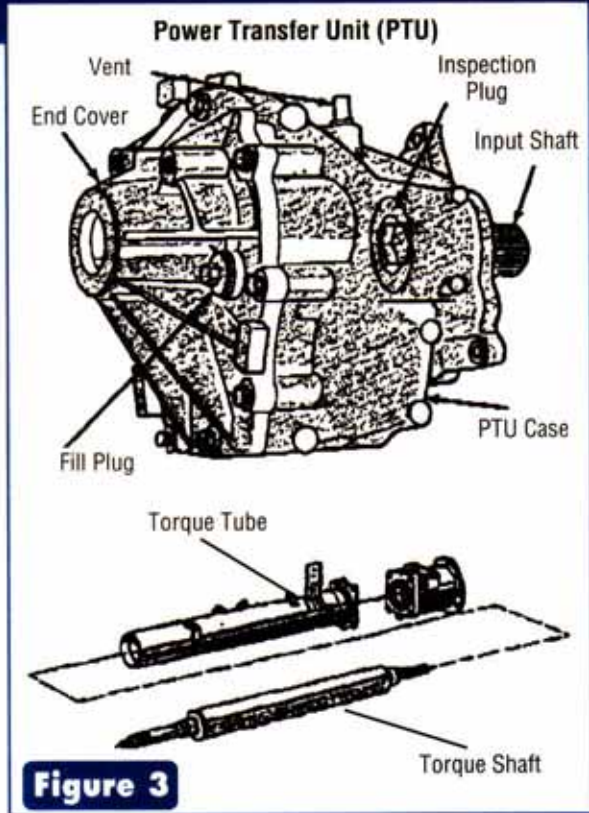
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incorrect tire pressures or badly worn tires can cause big-time damage to the PTU, the viscous coupling or the other differentials.

Next month we are into Chrysler all-wheel-drive diagnostics. **TD**

