

Inter Company Correspondence

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Name & Department	Division	Plant/Office	CIMS Number
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Subject: Fuel System Design - Chrysler Passenger Cars And Trucks.

Pursuant to the discussions between Messrs. Vining, Jeffe, Sperlich and yourself with Mr. Mochida on August 22, the fuel system design for domestic passenger cars and trucks is summarized for Mr. Mochida's information.

Not only are the impact performance requirements of MVSS-301 pertinent to the design approach but the significant increase in the last few years in the numbers of product liability cases involving fuel system fires and the increase in the size of the awards by sympathetic juries has to be recognized. In the Ford Pinto case the NHTSA Office of Defects Investigation selected arbitrary performance criteria of minimal or no fuel leakage when the test car is impacted in the rear by a full size car at 35 mph as a basis for questioning the safety of a recall modification of the Pinto.

• Passenger Car

Fuel Tank Location

The front wheel drive configuration in Chrysler's Omni and Horizon allowed the fuel tank to be located beneath the rear seat. This location provides the protection of all of the structure behind the rear wheels--as well as the rear wheels themselves--to protect the tank from being damaged in a collision. This same location will be used in the new 1981 K-Body cars which will also have a front wheel drive.

The rear wheel drive H-Body scheduled for introduction in 1983 will have the fuel tank located over the rear axle and beneath the floor pan.

The question of whether M, R or J-Body cars should be converted to tank over axle prior to their phase-out is a matter under intensive study at this time.

Filler Neck And Cap

As the fuel tank is moved to a more forward location, the fuel fill is moved to the side of the car. The fuel cap will be recessed below the body surface and a fuel fill door provided. The fuel filler neck is designed to break away from the car body with the fuel filler cap still in place.

In this design the filler cap and fill neck or fill tube remain with the tank to avoid separation and possible fuel leakage. This side fill is scheduled for J and M-Bodies in 1980 and the Y-car in 1981.

The fuel fill is less likely to be damaged in a sideswipe when located on the right side of the car. As new models are introduced, the fuel fill will be moved to the right side of the vehicle. This may also offer greater protection to drivers who run out of gasoline on the highway, since they will fill the tank on the side away from the traffic.

Structure

In 1979 through 1983, the M, R, and J model cars which have the fuel tank under the floor pan behind the rear wheels, structural reinforcement of the longitudinals on each side of the tank, shielding of any unfriendly surfaces adjacent to the tank, and the design of straps and hangers to limit undesired tank movement will be employed.

Truck

Fuel Tank Location

The same principles regarding fuel tank location apply to truck design. It is important that these larger fuel tanks are not only shielded from damage in a collision but do not break away from the truck and thereby spread fuel onto the roadway. The approach used by Mitsubishi on the SP-27 of locating the fuel tank ahead of the rear wheels appears to provide good protection for the tank.

The front wheel drive T-115 to be introduced in 1982 will have the fuel tank ahead of the rear wheels and under the rear seat. However, in rear wheel drive trucks there is no clearance over the axle for fuel tank installation and in many cases there is insufficient space ahead of the axle for fuel tanks of the desired capacity.

Chrysler is investigating fuel tank relocation ahead of the rear wheels for vans and multi-purpose vehicles, but present plans for pickups through 1983 and for MPV's and vans through 1985 have the fuel tank located behind the rear wheels. In vehicles both with and without bumpers there is a concern with vertical height differences that create a mismatch with passenger car bumpers. Where fuel tank location behind the rear axle is all that is feasible, a protective impact deflection structure may have to be provided whether or not a bumper is provided. An investigation whether to relocate the fuel tank or to provide impact deflecting structures is presently underway.

Fill Neck And Cap

All trucks and vans have side fill. The sweptline pickup truck (DW 1-3) and multi-purpose vehicles (AD-1 & AW-1) will have a recessed fill cap and fuel filler door beginning in 1981.


L. L. Baker