Calspan/Chrysler RSV Bumper System

Some idea of the durability of the Calspan/Chrysler RSV front bumper can be obtained from the attached photo which indicates that, although ripped from the car, the foam bumper is intact after an 80 MPH collision.

One of the primary objectives of the RSV Design was to develop bumpers which provided both improved pedestrian protection (front) and improved low speed damage protection (front and rear). The overall objectives were to reduce pedestrian injuries in impacts at 20-25 MPH and to have no permanent damage in flat barrier impacts up to 8 MPH, and RSV to RSV impacts up to 13 MPH.

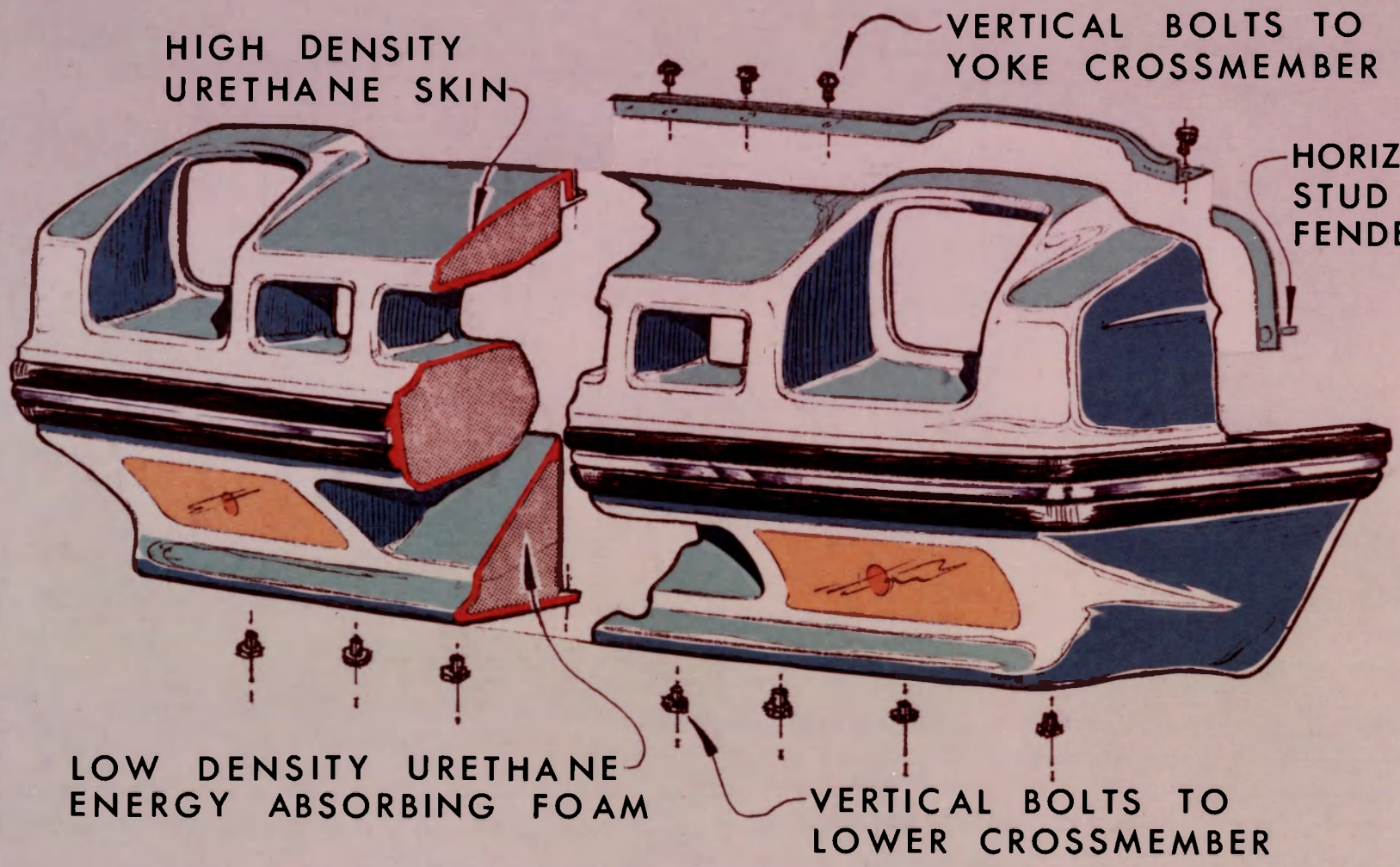
Urethane foam with a density of 5 lbs/cu.ft. was utilized to make a number of test bumpers. The weight of this front bumper was 31 pounds, about half the weight of conventional bumpers which meet todays standards. The cost of the bumper appears competitive with existing vehicle bumper-grill assembles.

In a series of performance tests ranging from low speed barrier impacts to high speed car-to-car impacts, and including pedestrian dummy impacts, the RSV bumper provided both low speed damage and pedestrian protection near or above the goals. Tests with both adult male and child dummies at 20 and 25 MPH show that the injury mitigating performance of this RSV bumper would produce injuries comparable to impacts by conventional vehicle front ends at 5 to 10 MPH lower. In flat barrier tests no vehicle damage occured at speeds up to 8 MPH; at 9 MPH some damage occured to supporting structure but the bumper was undamaged.

Work is now underway to further evaluate the durability of the bumper. At the present time this bumper system has promise for reducing vehicle property damage and saving lives of pedestrians.

RSV FRONTAL OFFSET IMPACT AT 79.8 MPH

BUMPER DESIGN & INSTALLATION



TOTAL SYSTEM WEIGHT - 31 LBS.