fact sheet

United States
Department of Transportation

Office of Public Affairs

Washington, D.C. 20590

The information contained in this fact sheet has been checked for accuracy and corrected as of the date shown below. The Office of Public Affairs should be contacted if further information is required.

Subject: Large Research Safety Vehicle (LRSV):

Date: October 1980

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Operational six-passenger demonstration vehicle developed by modifications of a current production car by Minicars, Inc., for the Department of Transportation's National Highway Traffic Safety Administration.

Objective: Demonstrate that good fuel economy, enhanced safety and low emissions can be achieved in a comfortable six-passenger car. The LRSV also demonstrates how advanced vehicle technology as developed in the compact-sized Research Safety Vehicle Program can be applied to full size, six-pasenger, family sedans to increase their fuel economy and improve their crashworthiness.

Safety Features: Crashworthiness - The LRSV structure and restraint systems are designed for improved crashworthiness. It has been tested and shown to meet Federal Motor Vehicle Safety Standard 208 injury criteria for 40 mph frontal and frontal oblique impacts, and 25 mph side impacts.

Structure: The LRSV has an integrated, unitized body comprised of body gauge sheet steel. The passenger compartment is reinforced with internal box section sills and lateral box crossmembers, all of which are filled with 2 lb./cu. ft. rigid urethane foam. The front doors are reinforced with an 18 gauge box section upper door beam of low carbon steel and a lower door beam of high strength low alloy steel. The fuel storage cell is mounted against the rear compartment bulkhead. Bumpers are flexible polyurethane covers over resilient 2 lb./cu. ft. foam with rubric reinforcements.

Restraint System: The restraint system includes air cushion restraints for the three front seat occupants. Force-limited lap belts are provided for all six occupant positions. In addition, foam-filled side impact padding is mounted on the doors and pillar sections in the hip and shoulder target areas.

Engine and Transmission: Development of the LRSV engine was accomplished by the Product Planning group of Volvo of America with assistance from D&M Engineering. The LRSV is powered by a 1975 cc four cylinder overhead cam spark ignition engine. It is equipped with an exhaust oxygen sensor in a closed loop system to control the fuel injector system. A four speed manual transaxle is adapted from the General Motors Citation for front wheel drive of the LRSV.

Acceleration: 0 to 60 mph in 15.5 seconds.

Fuel Economy and Emissions: Curb weight of the LRSV is 2960 pounds. After low mileage break-in, tests were conducted per EPA procedures. Test weight was 3250 pounds and dynamometer road load was set at 10.8 HP. Results were: 22.9 mpg city; 36.2 mpg highway; 27.5 mpg combined.

0.19 grams per mile HC
2.38 grams per mile CO
0.57 grams per mile NO_x

Damageability: Designed to insure no front damage in collisions up to 8 mph, and no rear damage in collisions up to 5 mph.

Crash Test Results:

Frontal Crash Protection

TEST DATA		INJURY MEASURES* HEAD	CHEST	FEMURS L/R., LBS.	TEST DATE
39 MPH Perpendicular Barrier	Driver:	17	60	49/49	5/9/79
	Center Pass.:	17	50	27/37	
	Right Pass.:	18	50	36/36	
40 MPH 30° Barrier	Driver:	25	53	36/36	7/20/79
	Center Pass:	13	53	56/27	
	Right Pass:	7	42	31/53	

SIDE CRASH PROTECTION

	HIC	CHEST	PELVIC	
25.6 MPH Moving 4,000 Lb., Barrier Perpendicular into LRSV	12	92	53G	2/7/80

*Injury Measures are given as percent of allowable in Federal Motor Vehicle Safety Standard No. 208.