

INSURANCE INSTITUTE FOR HIGHWAY SAFETY

NEWS RELEASE

May 4, 1998

RETRO STYLING OF VOLKSWAGEN'S NEW BEETLE WINS BUYERS' AFFECTION; ITS CRASHWORTHINESS SETS 1998 SAFETY STANDARD AMONG SMALL CARS

ARLINGTON, VA – The Volkswagen Beetle of the 1960s is a pop culture icon to which the 1998 New Beetle pays homage, right down to the built-in bud vase in the dashboard. But the reincarnated Beetle's crashworthiness performance is as up-to-the-minute as its styling is retro. In fact, the New Beetle sets the standard among small cars for how well it protects its occupants in serious crashes, as measured in a frontal offset crash test at 40 mph conducted by the Insurance Institute for Highway Safety.

The original Beetle didn't earn safety kudos. In 1966, Ralph Nader told a Senate Public Works subcommittee that "it is hard to find a more dangerous car." That may have been true in the 1960s, but the 1998 New Beetle is a whole different story.

Best Performer Among 16 Models

The Institute has evaluated 16 small cars for crashworthiness, "and the New Beetle is the best by far," Institute President Brian O'Neill points out. Here's what's special about this car compared with the other small 1997-98 models the Institute has evaluated:

1. The Beetle is the only model to earn an overall evaluation of good and a "best pick" designation. Among the other 15 models, 9 are rated acceptable, 2 are marginal, and 4 are poor overall. This also is the only model among the 16 to earn a good evaluation for structural performance in the Institute's frontal

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offset crash test – impressive because the test is so demanding of vehicle structure, or safety cage.

2. The Beetle is the only model among the 16 with head restraint geometry rated good, indicating the restraint is high enough and close enough to the back of an average-size male's head to limit relative head and torso movement in rear-end collisions. Such movement often causes whiplash injuries.

3. The Beetle sustained by far the least amount of damage in four low-speed (5 mph) crash tests – a total of \$134 damage compared with more than \$1,000 damage to most small cars and more than \$3,000 damage to the worst performer.

4. The Beetle is one of only a few small car models with airbags to protect people in side impacts. It's also one of the few with shoulder belt crash tensioners to prevent slack from allowing excessive forward movement in a crash and devices to limit belt force on occupants.

Crashworthiness evaluations are based primarily on performance in a 40 mph frontal offset crash test. All vehicles are rated in three categories and then assigned overall evaluations of good, acceptable, marginal, or poor (see attached list). Head restraint design and bumper performance in low-speed crash tests don't affect overall evaluations but are considered when establishing vehicle rankings within each group (small cars, midsize four-door cars, etc.).

"The Beetle's excellent crashworthiness design plus its bumpers that resist damage indicate the commitment that Volkswagen's senior management has made to becoming a leader in this area," O'Neill points out. "Now Volkswagen's commitment is paying off with two 1998 models – the Passat as well as the Beetle – that earn good overall crashworthiness ratings."

Performance in 40 MPH Frontal Offset Crash Test

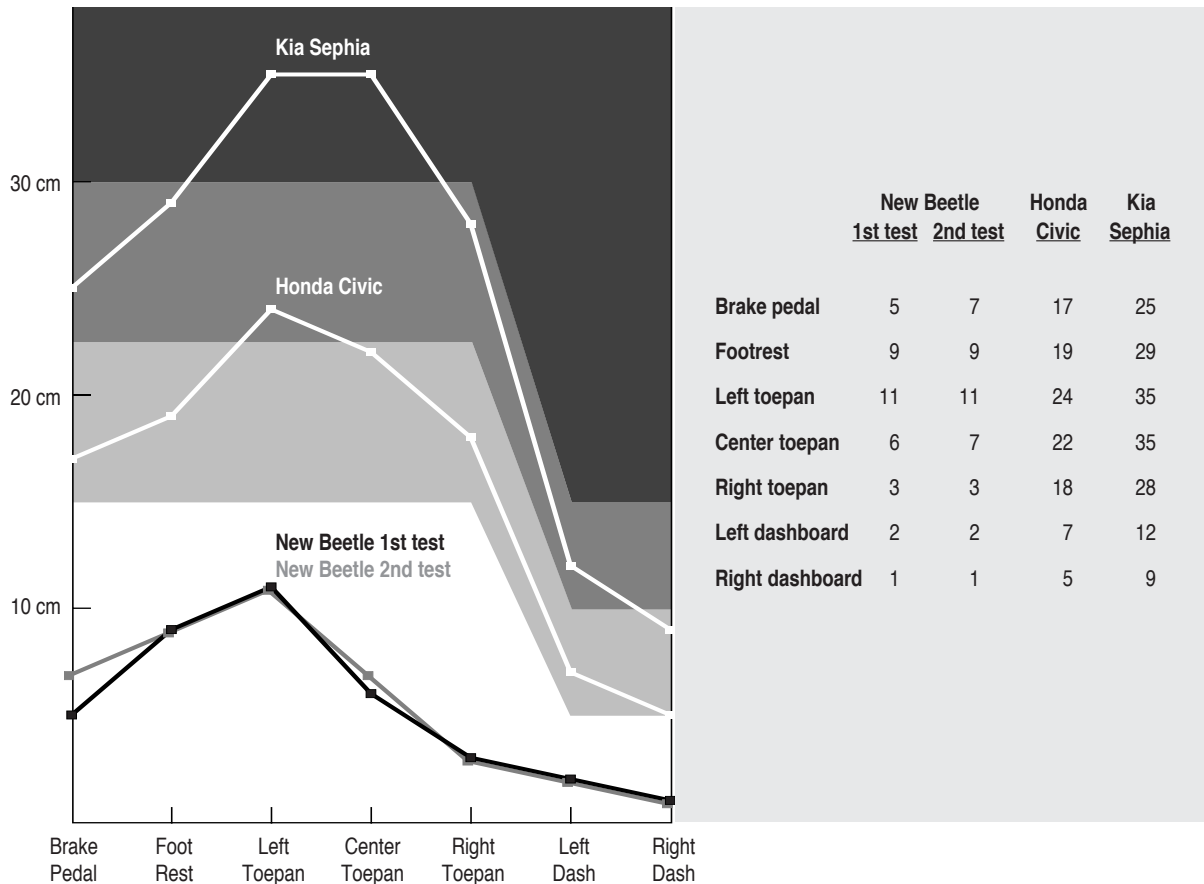
The Institute tested the New Beetle twice at 40 mph. In the first test, it earned a good overall evaluation. But following discussions with Volkswagen about restraint system performance, the automaker changed the size of the airbag vent hole and requested a second test. The Institute's crashworthiness evaluation covers both tests, but the ratings are based on the second test because the airbag design change will be introduced in this model year.

In both tests, there was minimal intrusion into the driver footwell area. Dummy movement was reasonably well controlled during both tests at 40 mph, although the airbag and safety belt system did allow the dummy's head to contact the steering wheel through the airbag late in both crashes. Measures taken from the dummy's neck, chest, and both legs in the offset tests indicate low risk of injury to these body regions. However, forces on the head from hitting the steering wheel in the first test were high enough to indicate the possibility of minor head injury – rated acceptable. In the second test, the forces recorded from head contact were lower.

"The structural performance was impressive," O'Neill explains. "The front-end crush zone managed the crash energy very well so that damage was kept away from the occupant compartment. The driver space was maintained so well that, after the 40 mph crash tests, the deployed airbags were the only obvious indications inside the occupant compartments that the impacts had been serious. Later, when we measured the precise amounts and pattern of the intrusion into the New Beetle's occupant compartment, our initial assessment was confirmed. There was much less intrusion than in the other small cars we previously tested."

The graph on page 4 compares the Beetle's structural performance with the performance of two other small cars, the Honda Civic and Kia Sephia.

Comparison of Intrusion Measurements, 40 MPH Frontal Offset Crash Test



How Researchers Assess Vehicle Performance in the Frontal Offset Crash Test

Institute researchers use 40 mph offset crash tests to evaluate three important aspects of passenger vehicle crashworthiness – (1) how well the front-end crush zone manages crash energy and the safety cage limits occupant compartment intrusion, (2) injury risk measured on a dummy representing an average-size male driver, and (3) how well dummy movement is controlled during impact. Vehicle structure, occupant restraints, and injury measures in the 40 mph frontal off-

set test are evaluated separately – even though they’re related – because good performance for any one of the three by itself in a single test isn’t sufficient to reliably indicate good crashworthiness. The same crash test is used to evaluate new cars by the European Union in cooperation with motor clubs and by an Australian consortium of state governments and motor clubs. In addition, the Institute’s crashworthiness evaluations reflect the adequacy of front-seat head restraint designs and bumper performance in four crash tests at 5 mph.

Institute and Government Crash Tests Complement Each Other

The federal government has been testing new passenger vehicles in 35 mph crash tests since 1978. This New Car Assessment Program has been a major contributor to crashworthiness improvements – in particular, improved restraint systems in new passenger vehicles. The Institute’s offset test, which involves 40 percent of a vehicle’s front end hitting a deformable barrier at 40 mph, complements the federal test involving the full width of the front end hitting a rigid barrier. The government test is especially demanding of vehicles’ restraint systems but not so much so of vehicle structure. An offset test is more demanding of vehicle structure.

End of five-page release on Volkswagen New Beetle
One-page list attached: evaluations of 16 small cars
Video news release Mon., May 4, 2:00-2:30 p.m. EDT
Galaxy 4/Transponder 7; test footage & related video

Internet: www.highwaysafety.org

Crashworthiness Evaluations

Small Cars



VOLKSWAGEN NEW BEETLE
1998 models

OVERALL EVALUATION	Frontal Offset Crash Test Performance								
	Structure/ Safety Cage	Restraints & Dummy Kinematics	Injury Measures				Head Restraint Design	Bumper Performance	
			Head/ Neck	Chest	Leg/ Foot, Left	Leg/ Foot, Right			
G	G	A	G	G	G	G	G	G	
Tested twice with modified airbag in 2nd test. Overall evaluation good in both tests, but head/neck measures acceptable in 1st test.									
A	A	G	G	A	A	G	M	A	
A	A	M	G	G	M	G	A	G	
A	A	G	G	G	G	P	P	A	
A	A	A	A	G	G	A	P	P	
A	A	M	G	A	A	G	P	G	
A	A	M	G	G	G	M	P	M	
A	M	A	A	G	M	G	M	G	
M	M	A	A	G	P	A	P	G	
P	M	P	A	G	G	P	A	M	
P	M	P	G	G	M	P	M	G	
P	P	P	G	G	P	P	P	M	

G GOOD **A** ACCEPTABLE **M** MARGINAL **P** POOR

For details about these and other vehicles, visit the Insurance Institute for Highway Safety online: www.highwaysafety.org, or write to 1005 North Glebe Road, Arlington, Virginia 22201. Telephone 703/247-1500. The Institute is a nonprofit research and communications organization wholly supported by automobile insurers. Printed on recycled paper. May 1998.