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**Honda's European Accord Rated Top For Crash Worthiness in  
European New Cars Assessment Programme(Euro NCAP)**

Honda's European Accord, built at the Swindon, UK plant, has achieved the highest possible 4 star rating for crash worthiness in the tough European New Car Assessment Programme(Euro NCAP).

The result published today updates the "Family Car Category" of Euro NCAP with the Honda Accord joining the Volvo S40 as the top rated cars in this category.

The Accord scored 75% in the frontal impact test and 88% in the side impact test giving an overall score of 81% and a 4 star rating (see diagram).

"We are delighted that our customers can be assured that their new European Accord has been confirmed as a class leader in this important assessment, as well as being great fun to drive." said Hisao Suzuki, Head of Honda's European R&D operations.

"As we develop more cars for our European operations, our target is to become the benchmark for occupant protection in the Euro NCAP programme. It's what our customers expect"

This safety programme, supported by Consumer Groups, Motoring Organisations, the EU Commission and several European Governments has rating assessments significantly more severe than those under current European legislation. Cars are awarded up to 4 stars, which represent a combination of scores from both severe frontal and side impact tests carried out at various independent test institutes throughout Europe. The Accord was tested at the Transport Research Laboratory at Crowthorne in the UK.

The European version of the Honda Accord was launched just over a year ago, and has achieved significant success in markets all over Europe. The original 4 door saloon has been recently joined by a 5 door version as Honda further develops this model range to meet European customer tastes.

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## **Honda Accord Safety-Technical Detail**

The highest emphasis has been placed on securing the best possible safety characteristics in the design of the European Accord. An impact-resistant passenger cell, precisely calculated deformation zones, crash stabilising auxiliary frames and a complete all-round safety package for occupants, ranked high on the list of performance specifications.

The Accord is engineered to meet all current safety standards, including the most ambitious test for the evaluation of the strength of the bodyshell at the moment. The Accord also meets the EU side collision (50 kph side on) and EU offset barrier frontal impact stipulations (56 kph with an overlap of 40 per cent into a deformable barrier).

These capabilities result from a host of detail changes. Specific engineering solutions to meet impact legislation and to increase body rigidity include:

- Straight, large cross-section chassis rails
- Strengthened lower dashboard/toeboard area by doubling thickness of sheet steel
- Front floor frame with large cross section
- Side sills incorporating internal reinforcement and use of a thicker gauge of steel improving both frontal and side impact protection
- Strengthened A- (windscreen) pillar
- Strengthened B- (centre) pillar using thicker gauge steel and larger in cross section to provide better side protection
- Door beams mounted lower in the doors to increase protection
- A new method of fixing the side sill to the rear frame so improving rear impact characteristics
- Larger cross section mid-floor cross member
- Doors and front side frame chassis rails using laser-welded tailored blanks
- Upper rear bulkhead and bulkhead corner reinforcement
- Bars extending from each front suspension strut to the bulkhead to enhance rigidity
- Reinforced steering hanger bracket (A-pillar to A-pillar bracket)

### **Latest laser-welding technology**

'Laser-welded tailored blanks' describes the latest advanced technology that allows highly localised areas of a given panel to be strengthened. Most steel body panels are pressed from a single sheet of steel. Doors, however, are particularly highly stressed in localised areas especially in the hinge area where

additional reinforcements are required. By laser-welding different thicknesses of steel together - the so-called tailored blank - prior to pressing, door panels can be created featuring a hinge area twice as thick as the material elsewhere. This technology increases quality and saves weight. Similarly, the front side frame rails use tailored blanks to reduce weight, eliminate stiffeners, and allow effective dissipation of crash energy.

### **Larger, wider front frame rails**

In Honda Accord models worldwide, the front side frame rails have been made as straight and as large in cross-section as possible (this has been helped by the wider track). The frame rails of the previous Accord were more complex in shape, required more internal reinforcement and were therefore heavier. As well as weight saving benefits, the new chassis rails add stiffness and allow greater control of frontal impact energy. The rear frame has similarly been straightened.

The front sub-frame provides a notably rigid mounting point for the front suspension, but it also features a series of grid-like lines on its outer faces which contribute to its controlled deformation in a frontal impact. It thus helps to dissipate crash energy and channels those forces away from the cabin.

Front and rear bumpers are now stronger and lighter. High tensile rolled steel beams replace pressed steel, and together with load tuning achieved by varying their cross section, the bumpers behave more progressively under impact.

Positioning the fuel tank within the rear sub-frame has significant passive safety advantages, particularly in rear impacts and also uses a space which would otherwise remain unused. The use of plastic has also achieved a significant weight reduction.

### **Sophisticated restraint package**

While ensuring that occupants are particularly well protected in the event of an accident, the range of structural features described above are also designed to work in conjunction with the occupant restraint systems for even greater effectiveness. In this respect the Accord is comprehensively well-equipped and includes front SRS airbags and side airbags (the Type-R is not equipped with side airbags). It has front seat belt pre-tensioners with load limiters, three point seat belts on all five seats, ALR/ELR switchable function on the rear seats for more secure child seat location and finally four headrests (rear centre headrest is optional).

### **SRS airbags**

All Accord models are fitted with full size driver and front passenger SRS airbags. The new airbag module is simpler in design with fewer parts and is more reliable over a wide range of temperatures, using a so-called hybrid generator to inflate the bag. The non-azide propellant is environmentally friendly

and thanks to the pre-compressed gas, only a relatively small propelling charge is required.

Honda has also introduced a side airbag. Side-on collisions account for 25 per cent of all accidents (the second most common) and around 30 per cent of fatalities. Much of the problem is due to the inherent lack of side deformation travel available in a car bodyshell. The effect of a side airbag is to reduce driver and passenger injury by lessening the impact forces on the thorax and sternum. The airbag module is located on the outer edge of both front seat backs and because it moves with the seat, always remains in the correct position in relation to door and occupant. Its deployment is triggered by a multi-sensor system composed of a central sensor and two satellite sensors (one in each side sill) and operates by tearing through a seam in the front seat.

Side airbags are standard on all European Accord models, from LS models upwards. Otherwise they are available as an option except on the Type-R model which is fitted with unique Recaro seats.

#### **Pre-tensioners with load limiters**

The standard front seat belt pre-tensioners with load limiter use a gas cartridge, triggered electronically, to tighten the seat belts in a major accident and are designed to complement the inflation characteristics of the SRS airbags, both operating from a shared trigger device. All five occupants are provided with a three-point seatbelt.

## Briefing Notes

- **Euro NCAP Family Car Results**

First published 1<sup>st</sup> July 1997

Updated 28<sup>th</sup> May 1998

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	Star Rating
Honda Accord 4D	4
Volvo S40	4
Toyota Avensis	3
Nissan Primera	3
VW Passat	3
Opel/Vauxhall Vectra	3(1 flagged)
Ford Mondeo	3(1 flagged)
Audi A4	3(1 flagged)
Renault Laguna	3(1 flagged)
Mercedes C Class	2
Peugeot 406	2
Saab 900	2(1 flagged)
Rover 600	2(1 flagged)
BMW 3 series	2(1 flagged)
Citroen Xantia	2(1 flagged)

NB Flag means "unacceptably high risk of injury in a vulnerable body region"

Source-Euro NCAP

- Euro NCAP-The European New Cars Assessment Programme partnership is backed by the Federation International Automobile(FIA), International Testing(representing 25 independent consumer associations throughout Europe), various motoring organisations(the RAC(UK), the AA(UK), the ADAC(Germany), the ANWB(Netherlands)), the EU Commission and the Governments of France, Germany, the Netherlands, Sweden and the UK

- To date, crash worthiness tests and pedestrian safety tests have been carried out on five different classes of cars:

23.9.98 Superminis

23.9.99 Family cars(updated 28.5.98 & 24.2.00)

28.5.98 Small Family Cars(updated 26.1.99)

23.9.98 Executive Cars

29.6.99 MPVs

- Euro NCAP buys all cars anonymously, but checks that they are the latest models
- All cars undergo front and side impact testing and are also assessed for pedestrian safety(see diagrams):

**-Front Impact**

A test car is crashed at 64 kph(40mph)into a 40% offset deformable barrier, to simulate the impact of two cars in a head on collision

**-Side Impact**

A trolley, carrying a deformable barrier is crashed into the driver's side of the test vehicle at 50kph(30mph) to simulate a side impact collision between two cars

**-Pedestrian Impact**

Testing is carried out that represents collisions between cars and pedestrians at 40kph(25mph)