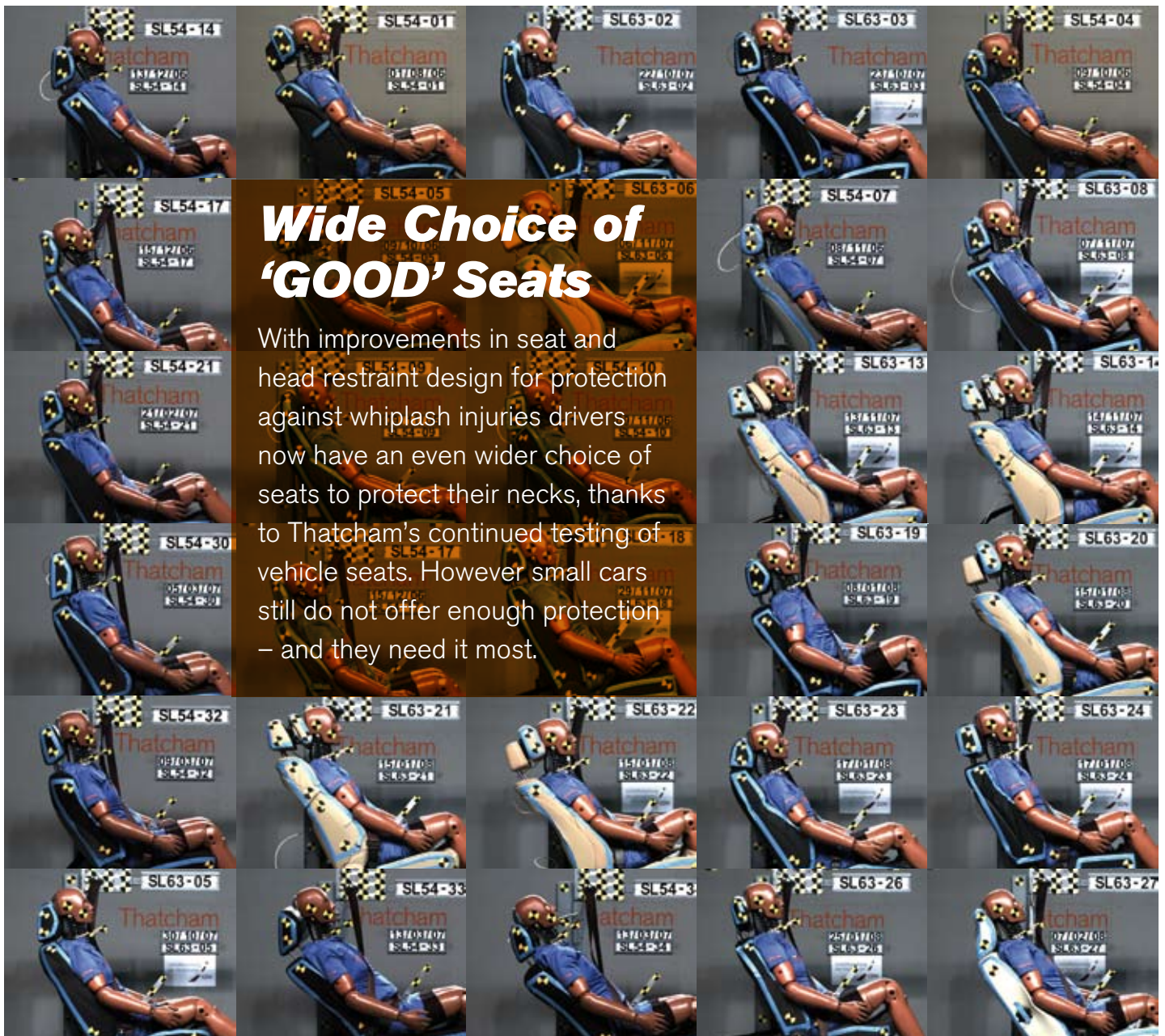


# Safety: You now have a choice (at almost every price range)



## Wide Choice of 'GOOD' Seats

With improvements in seat and head restraint design for protection against whiplash injuries drivers now have an even wider choice of seats to protect their necks, thanks to Thatcham's continued testing of vehicle seats. However small cars still do not offer enough protection – and they need it most.

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# Whiplash: 2008 update

Whiplash is the most common injury in car crashes, and the debilitating and painful symptoms associated with neck strain are a costly burden on the insurance industry, society, and the general public.

The results of the 2008 Model Year seats tested by Thatcham show improvements in seat and head restraint design with vehicle manufacturers continuing to take the prevention of whiplash injuries seriously, with around 75% of all new seats tested achieving a 'GOOD' or 'ACCEPTABLE' rating. At almost every price level, the buyer can choose a new vehicle with a 'GOOD' seat. However, some fast growing sectors of the market still have too few cars available with seats able to protect their occupants from an injury in a 10 m.p.h. crash.

## Small City cars still need better seats

With environmental and cost pressures becoming ever greater, very small or City cars are becoming increasingly popular. City cars are designed for the urban environment and spend the majority of their time in traffic – and this is where most whiplash injuries occur, due to low speed shunts. But no City cars have a seat and head restraint rated as 'GOOD' for protection against whiplash injuries, even though these are some of the latest designs. These cars need the best protection because they are smaller and lighter and more susceptible to high forces in a rear end crash. These City cars are not equipped to protect their occupants' necks when they have to absorb the crash energy from larger, heavier vehicles.

The only two City cars to achieve an 'ACCEPTABLE' rating were the Renault Twingo and the Smart Fortwo. The majority of the other nine City cars were rated as 'MARGINAL', with the current Ford Ka and Fiat Panda rated as 'POOR'. Even the recently released Fiat 500 – new for 2008 – only achieved a 'MARGINAL' rating.



**Marginal**  
Fiat 500

Neck protection is not much better in the class above. Two thirds of the Supermini cars were rated as 'MARGINAL' or 'POOR'. Renault is leading the way with the Clio and Modus seats rated as 'GOOD'.



**Good**  
Renault Clio

## Neck protection, but at a price!

For Small and Large Family cars, such as the Ford Focus or Mondeo, the situation is better. Over two thirds of these have seats rated as 'GOOD' or 'ACCEPTABLE'. This highlights the fact that the buyer is forced to pay for good whiplash protection.

You might expect MPVs to be a very safe group of cars because they are designed to carry the family. However in reality the most common rating is 'POOR' which accounts for 30% of the MPVs.

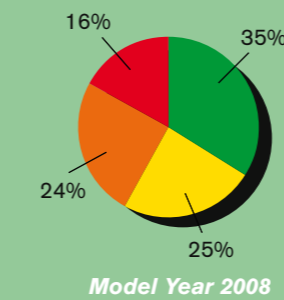
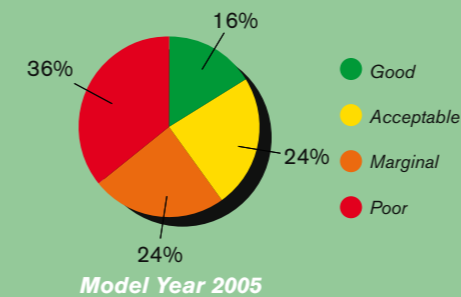
For the SUVs and Executive cars the majority of seats rate as 'GOOD'. Examples are the Peugeot 4007 and the BMW 5-Series. Buyers seeking a 'GOOD' rated seat for whiplash protection now have a wider choice than ever. But they are forced to spend more in order to achieve protection from a minor crash.



**Good**  
BMW 5-Series

## 2008 Model Year and most improved seat

Thatcham has been testing seats since 2004 for their ability to protect the occupant from whiplash injuries. The 2008 Model Year testing again confirms manufacturers from around the globe are listening to Thatcham and introducing new seat designs that can protect their occupants from whiplash injuries. Now over one third of all new seats are rated as 'GOOD'. Only 16% are rated as 'POOR' and these are mostly older designs due for replacement.



For the last three years of Thatcham testing, BMW seats have never achieved a 'GOOD' rating. In Model Year 2008, BMW have finally achieved a 'GOOD' rating for the new 5-Series, X3 and X5 seats demonstrating that they have finally begun to accept the importance of whiplash protection. BMW now join Mercedes and Audi in offering their drivers protection from whiplash injury.



BMW 5-Series seat with Pro-Active Head Restraint achieves a 'GOOD' rating

## The Thatcham whiplash test

The whiplash test used by Thatcham was developed with our international insurance research partners and is now used and respected throughout the world. The test recreates a typical 10 m.p.h. crash on a special test machine – the sort of shunt where whiplash injuries commonly occur



and features the unique BioRID whiplash dummy, especially created to emulate the movement of a human during a rear crash. The test assesses the forces endured by the car's occupants during the crash and measures the time until the head and neck are supported. The best seats have large head restraints that can support the occupant's head and neck very early and can mitigate the force of the crash – helping to prevent injury. Many of the best performing seats have anti-whiplash devices that can absorb the forces of the crash or move the head restraint automatically during the crash to support the head early to help prevent injury. The test measures the size of the head restraint and how close it would be to a typical driver. It also rates the dynamic performance of the seat during the crash test and combines these two assessments into one final, overall rating.

## Overall rating

- Good** A seat that offers good protection for most sizes of occupant – may be fitted with specific anti-whiplash protection.
- Acceptable** A seat that offers reasonable protection for small to average sized drivers.
- Marginal** A seat that offers some protection for small to average occupants.
- Poor** A seat that offers little protection from whiplash-type injuries.
- Refused supply** Manufacturer refused to supply seats or participate in testing. It may be assumed that these seats would offer insufficient protection.

*'NEW' indicates a new version of the vehicle available in this Model Year, where the old style vehicle of the same name is still available.*

## Protection

**Reactive Head Restraint:** A head restraint that automatically moves up and forward during the crash, actuated by the weight of the occupant in the seat. (Example: Saab SAHR)

**Pro-Active Head Restraint:** A head restraint that automatically moves up and forward at the start of the crash, actuated by crash sensors on the bumper or within the car. (Example: Mercedes-Benz NECK-PRO)

**Reactive Seat:** An entire seat and head restraint that absorbs the energy of a rear end crash. (Example: Volvo WHIPS)

**Passive Seat:** A seat that uses passive foam technology to absorb the energy of the crash and allows the occupant to engage the head restraint without neck distortion. (Example: Audi Backguard)

**No caption:** A traditional fixed or adjustable head restraint that has no specific anti-whiplash technology.

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# Ratings – the results

These ratings only allow the comparative assessment of a seat's ability to protect its occupant in a typical crash. They cannot be used as a guide to whether a particular injury is more or less likely, since we still do not know enough about the mechanisms of whiplash injury to state this confidently.

*It is important to remember that all occupants must adjust their head restraints correctly whether they have a 'POOR' or 'GOOD' rated seat. No head restraint can offer full protection if it is incorrectly adjusted. The ideal adjustment is as high as the top of the head, and as close to the back of the head as possible – touching is best.*

*Volvo and Saab continue to lead the way in whiplash safety, and in 2008 are joined by Audi with their introduction of the Backguard system across the range. These manufacturers are 'ALL GOOD' – with 'GOOD' rated seats in each and every new model on sale.*

**ALL GOOD**

Make	Current Model	Anti-Whiplash System	Overall Rating
Alfa Romeo	147		Poor
	159	Reactive Head Restraint	Good
	Brera	Reactive Head Restraint	Good
Audi	Spider	Reactive Head Restraint	Good
	A3	Passive Seat	Good
	S3	Passive Seat	Good
	A4	Passive Seat	Good
	A4 SPORT	Passive Seat	Good
	S4	Passive Seat	Good
	A5	Passive Seat	Good
	S5	Passive Seat	Good
	A6	Passive Seat	Good
	S6	Passive Seat	Good
	TT Coupe (March 2008 on)	Passive Seat	Good
	TT Roadster (March 2008 on)	Passive Seat	Good
BMW	R8	Passive Seat	Good
	Q7 (November 2007 on)	Passive Seat	Good
	Q7 comfort seat (November 2007 on)	Passive Seat	Good
	1-Series		Marginal
	1-Series Coupe		Good
	1-Series Convertible		Good
	3-Series		Poor
3-Series Coupe		Refused Supply	
3-Series Convertible		Refused Supply	
5-Series	Pro-Active Head Restraint	Good	
5-Series Comfort	Pro-Active Head Restraint	Good	
7-Series	Pro-Active Head Restraint	Acceptable	
X3	Pro-Active Head Restraint	Good	
X3 Comfort	Pro-Active Head Restraint	Good	
X5	Pro-Active Head Restraint	Good	
X5 Comfort	Pro-Active Head Restraint	Good	
Cadillac	BLS	Reactive Head Restraint	Good
Chevrolet	Matiz		Marginal
	Kalos		Poor
	Lacetti		Marginal
	Tacuma		Poor
	Captiva		Awaiting Supply
Chrysler	Sebring Cabrio		Marginal
	Sebring		Acceptable
	300 C		Acceptable
	PT Cruiser		Poor
	Voyager / Grand Voyager		Acceptable

Make	Current Model	Anti-Whiplash System	Overall Rating
Citroen	C1		Marginal
	C2		Poor
	C3		Acceptable
	C4		Acceptable
	C4 VTR / VTS		Poor
	C4 Picasso		Marginal
	Xsara Picasso		Acceptable
	C5 (new)		Awaiting Supply
	C6	Reactive Head Restraint	Acceptable
	C-Crosser		Good
Daihatsu	Materia		Awaiting Supply
	Sirion		Acceptable
	Terios		Good
Dodge	Caliber		Marginal
	Nitro		Poor
	Avenger		Acceptable
Fiat	500		Marginal
	Panda		Poor
	Grande Punto		Marginal
	Bravo	Reactive Head Restraint	Acceptable
	Croma	Reactive Head Restraint	Marginal
	Sedici		Marginal
	Doblo		Poor
	Multipla		Poor
Ford	Ka		Poor
	Ka (new)		Awaiting Supply
	Fiesta		Acceptable
	Fiesta ST		Poor
	Fusion		Marginal
	Focus		Good
	C-Max		Good
	Mondeo (new)	Reactive Head Restraint	Good
	S-Max	Reactive Head Restraint	Good
	Galaxy	Reactive Head Restraint	Good
Honda	Jazz		Poor
	Civic	Reactive Head Restraint	Good
	Civic Type R		Awaiting Supply
	Accord		Poor
	Legend		Awaiting Supply
	CR-V	Reactive Head Restraint	Good
	FR-V		Awaiting Supply
	Hyundai	Getz	
i10		Awaiting Supply	
i30		Awaiting Supply	
Sonata	Reactive Head Restraint	Good	
Tucson		Marginal	
Santa Fe	Reactive Head Restraint	Good	
Jaguar	X-Type		Poor
	X-Type Sport		Poor
	XJ	Re-Active Seat	Marginal
	XK (new)		Awaiting Supply

Make	Current Model	Anti-Whiplash System	Overall Rating
Jeep	Cherokee		Poor
	Compass		Acceptable
	Patriot		Acceptable
	Wrangler		Marginal
Kia	Picanto		Marginal
	Rio		Poor
	Cee'd		Awaiting Supply
	Sedona	Reactive Head Restraint	Good
	Sportage		Poor
Land Rover	Freelander II		Marginal
	Discovery III		Acceptable
	Range Rover Sport		Acceptable
	Range Rover	Reactive Head Restraint	Marginal
Lexus	IS	Passive Seat	Marginal
	GS	Passive Seat	Poor
	LS		Marginal
	RX	Passive Seat	Marginal
Mazda	2 (new)		Marginal
	3		Marginal
	5		Marginal
	6 (new)		Marginal
	CX-7		Marginal
	MX-5		Marginal
Mercedes	A-Class	Reactive Head Restraint	Acceptable
	B-Class	Reactive Head Restraint	Good
	C-Class	Pro-Active Head Restraint	Acceptable
	E-Class	Pro-Active Head Restraint	Good
	SLK		Awaiting Supply
	R-Class	Pro-Active Head Restraint	Good
	M-Class	Pro-Active Head Restraint	Good
	GL-Class	Pro-Active Head Restraint	Good
MINI	Convertible		Acceptable
	Hatch		Acceptable
Mitsubishi	Clubman		Acceptable
	Colt		Poor
	Lancer (new)		Good
	Outlander		Good
Nissan	Shogun		Poor
	Micra		Acceptable
	Micra CC		Acceptable
	Note	Reactive Head Restraint	Marginal
	Qashqai	Reactive Head Restraint	Good
	X-Trail	Reactive Head Restraint	Acceptable
	Murano	Reactive Head Restraint	Marginal
	Pathfinder	Reactive Head Restraint	Marginal
Peugeot	107		Marginal
	1007		Poor
	207		Marginal
	308		Awaiting Supply
	407		Acceptable
	4007		Good

Make	Current Model	Anti-Whiplash System	Overall Rating
Proton	Gen 2		Poor
Renault	Twingo (new)		Acceptable
	Clio Campus		Poor
	Clio		Good
	Modus		Good
	Kangoo		Awaiting Supply
	Megane		Acceptable
	Megane CC		Acceptable
	Laguna (new)		Acceptable
	Scenic		Marginal
	Espace		Acceptable
	Saab	9-3	Reactive Head Restraint
9-5		Reactive Head Restraint	Good
SEAT	Ibiza		Poor
	Leon	Reactive Head Restraint	Acceptable
	Leon (sport)	Reactive Head Restraint	Acceptable
	Leon		Acceptable
	Leon (sport)		Acceptable
	Altea	Reactive Head Restraint	Good
	Altea		Marginal
	Toledo	Reactive Head Restraint	Good
	Toledo		Marginal
	Skoda	Fabia	
Roomster			Acceptable
Octavia			Marginal
Superb (new)			Awaiting Supply
Smart	Fortwo (new)		Acceptable
Subaru	Impreza (new)	Reactive Head Restraint	Good
	Legacy (new)	Reactive Head Restraint	Marginal
	Legacy Outback	Reactive Head Restraint	Acceptable
	Forester	Reactive Head Restraint	Good
	Forester (new 09)	Reactive Head Restraint	Good
	B9 Tribeca	Reactive Head Restraint	Good
Suzuki	Splash		Awaiting Supply
	Swift		Acceptable
	SX4		Marginal
	Grand Vitara		Awaiting Supply
Toyota	Aygo		Marginal
	Yaris	Passive Seat	Marginal
	Yaris SR/TS		Awaiting Supply
	Auris	Passive Seat	Good
	Corolla Verso	Passive Seat	Poor
	Avensis	Passive Seat	Acceptable
	Prius	Passive Seat	Marginal
	RAV-4		Awaiting Supply
Vauxhall/Opel	Agila		Awaiting Supply
	Corsa		Awaiting Supply
	Astra		Marginal
	Vectra	Reactive Head Restraint	Acceptable
	Tigra	Reactive Head Restraint	Good
	Meriva	Reactive Head Restraint	Acceptable

**ALL GOOD**

Make	Current Model	Anti-Whiplash System	Overall Rating
Vauxhall/Opel	Meriva		Poor
	Zafira		Marginal
	Antara		Awaiting Supply
Volkswagen	Fox		Marginal
	Polo		Poor
	Golf	Reactive Head Restraint	Acceptable
	Golf		Awaiting Supply
	Golf GTI	Reactive Head Restraint	Acceptable
	Golf GTI		Awaiting Supply
	Golf Plus	Reactive Head Restraint	Acceptable
	Golf Plus		Awaiting Supply
	Eos		Marginal
	Beetle	Reactive Head Restraint	Acceptable
	Jetta	Reactive Head Restraint	Acceptable
	Jetta		Marginal
	Passat	Reactive Head Restraint	Acceptable
	Passat		Awaiting Supply
	Passat Coupe		Good
	Touran	Reactive Head Restraint	Acceptable
	Touran		Awaiting Supply
	Sharan		Poor
	Touareg		Marginal
Tiguan		Good	
Volvo	C30	Re-Active Seat	Good
	S40	Re-Active Seat	Good
	V50	Re-Active Seat	Good
	S60	Re-Active Seat	Good
	V70	Re-Active Seat	Good
	S80	Re-Active Seat	Good
	XC90	Re-Active Seat	Good

**ALL GOOD**

## Good News

Yet again a year on year improvement for new seats,  
Thattham's influence delivers increased real world safety.

[www.thatcham.org/ncwr](http://www.thatcham.org/ncwr)

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Colthrop Way, Thattham  
Berkshire RG19 4NR

Tel: 01635 868855  
Fax: 01635 871346  
Email: [iaiw@thatcham.org](mailto:iaiw@thatcham.org)  
[www.thatcham.org](http://www.thatcham.org)