



CRA BULLETIN

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Signed: _____ Dated: _____

UPGRADING OF CENTRE REAR SEATBELTS

Once again the subject of upgrading of centre rear lap belts to three point belts has been raised in the media.

The following guidelines were sent to us by Chris Sweetman of Autoliv.

Concentrating on the Technical issues the following points need consideration:

VEHICLE DESIGN AND STRUCTURE:

- Vehicle manufacturers design the structure of the vehicle to incorporate the features and equipment to be used.
- These designs reflect the Standards and Safety requirements of the day.
- Safety systems are part of this design process
- All restraints are designed, developed and tested in the vehicle structure to perform to recognised International Standards.
- Over the years, these technical requirements have increased to accommodate more sophisticated systems and passive safety devices
- A vehicle that is 10, 15 or 20 years old will not have the safety features or vehicle structure of a vehicle that is 2 or 3 years old.
- Retrofitting some safety systems in older vehicles without testing the modification in the vehicle structure is leaving the resultant system as 'unproven'

SEDANS:

- Rear seatbelts in sedans are often mounted on or near the rear parcel tray
- However, the tray / structure has been engineered and tested to accommodate these units
- If a vehicle has a Lap Belt in the centre, then the parcel tray in the centre has not been engineered to take the forces imposed by the upper anchor point of a three point seatbelt.
- The parcel tray is often part of the rear window structure and any distortion of the tray caused by an incorrect adult seatbelt mount could break the rear window, even under heavy braking.
- Putting a large reinforcing plate under the parcel tray as additional support will not be sufficient to make the installation safe and stop distortion.
- Child anchors incorporated in the parcel tray are engineered and certified to tolerate a different 'force' during an accident.
- Child Harnesses are attached to these anchors and they are restricted to occupants weighing 32kgs or less.
- These Child anchor points CANNOT be used for adult style seatbelts

HATCHBACKS AND WAGONS:

- These vehicles do not have a parcel tray as part of the vehicle structure
- Late model vehicles utilise roof mounted or 'belt in seat' style restraints that are engineered into the vehicle structure
- The rear floor of the vehicle has not been designed to carry the forces of a seatbelt anchor
- Do not confuse Child Anchor points or Luggage Restraint points in the rear of the vehicle as a point suitable for an adult seatbelt anchor

BELT IN SEAT INSTALLATIONS:

- In recent years technology has allowed the installation of three point seatbelts into the rear seats. In some cases similar technology is used in front seats.
- As the seat frame, seat mounting points and vehicle structure becomes the seatbelt mounting; the system is engineered and tested accordingly.
- This development has allowed wagons and hatchbacks to have three point belts in the centre seating position.
- As part of the development the locking mechanism for the fold-down seatback has also been engineered to withstand the forces imposed by an adult seatbelt under load.
- An older vehicle with fold-down rear seats uses a different locking system manufactured to a different standard to perform under different conditions.
- DO NOT attempt to retrofit a three point seatbelt, onto or into, a seat frame designed for a lap belt.

LEGAL REQUIREMENTS:

- Installing additional anchor points is a vehicle modification and may require a Low Volume Certification
- Modifications may require a Standards Test
- Does this type of modification impact on the vehicles Insurance?
- Does this type of modification impact on any vehicle warranty?
- Should the modification fail, does this make the modifier liable?

SUMMARY:

- Although the sentiment of a 'safer vehicle' is valid the execution of this process is not easy or inexpensive
- There are over a million vehicles in NZ with centre rear lap belts. Retrofitting these vehicles would be impractical.
- We are dependent on the vehicle standards of overseas countries where NZ source their new and used vehicles. Some of these countries allow lap belts.
- It is easier to control the quality and standard of future imports than attempt to upgrade older vehicles.
- A seatbelt upgrade undertaken badly could give the vehicle owner a false sense of security that may only be found out when the vehicle has an accident. At this point it is too late.
- If an owner undertakes a modification without the appropriate engineering and certification and then sells the vehicle, the next owner could be unaware of the modification.
- Ultimately the vehicle has been designed and engineered to a certain performance level. Changing the performance level requires considerable work and should not be carried out on an ad-hoc basis.