

# Keeping up with new repair techniques

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In this issue of PanelTalk we look at Toyota and in particular the 2003 Corolla. The Toyota Corolla is a pedigree of its own with well over 22 million built since its introduction back in 1966.

You would think that construction methods of this mass produced everyday car, would be basic and simple to repair. But like every vehicle being produced these days, it has its own product specific characteristics.

This article provides an awareness of some of the fundamental information needed when repairing a new Corolla.

## High Strength Steel (HSS)

HSS is used to help ensure body rigidity while providing a lightweight body.

Toyota recommends not to heat HSS components. Using heat to stress-relieve structural steel can result in:

- Destruction of corrosion-resistant coatings
- Decreased impact energy absorption capacity
- Brittleness of the metal
- Cracking of the metal

'Cold straightening' (stress-relieving) is the only approved repair method. If the structural member or perimeter frame cannot be satisfactorily restored to original dimensions during this process, it should be replaced.

## Body Reinforcements

The new Corolla features numerous new reinforcements on the sill panels, roof side rails, lower front pillars, inside the centre pillars, and the roof panel. To reinforce the area from the front A-pillar to the front suspension tower, a cowl top inner reinforcement is placed inside the cowl top panel. A brace joins the front pillars.

When repairing these areas, be sure to consult Toyota-recommended cut and join locations. Corolla body parts should not be cut in

a location other than described in the repair manual.

## Impact-Absorbing Body

The structure of the Corolla has been designed to help absorb and distribute the impact force during a collision. Following a collision of what might only appear to be minor impact will require a systematic inspection of the body structure for damage, as the force of the impact is likely to cause deformations in areas away from the actual impact.

## Differential-Thickness Sheet Metal

This is used in the front end of the front rails – the thinner front portion and the thicker rear portion enable the front end of the rail to collapse

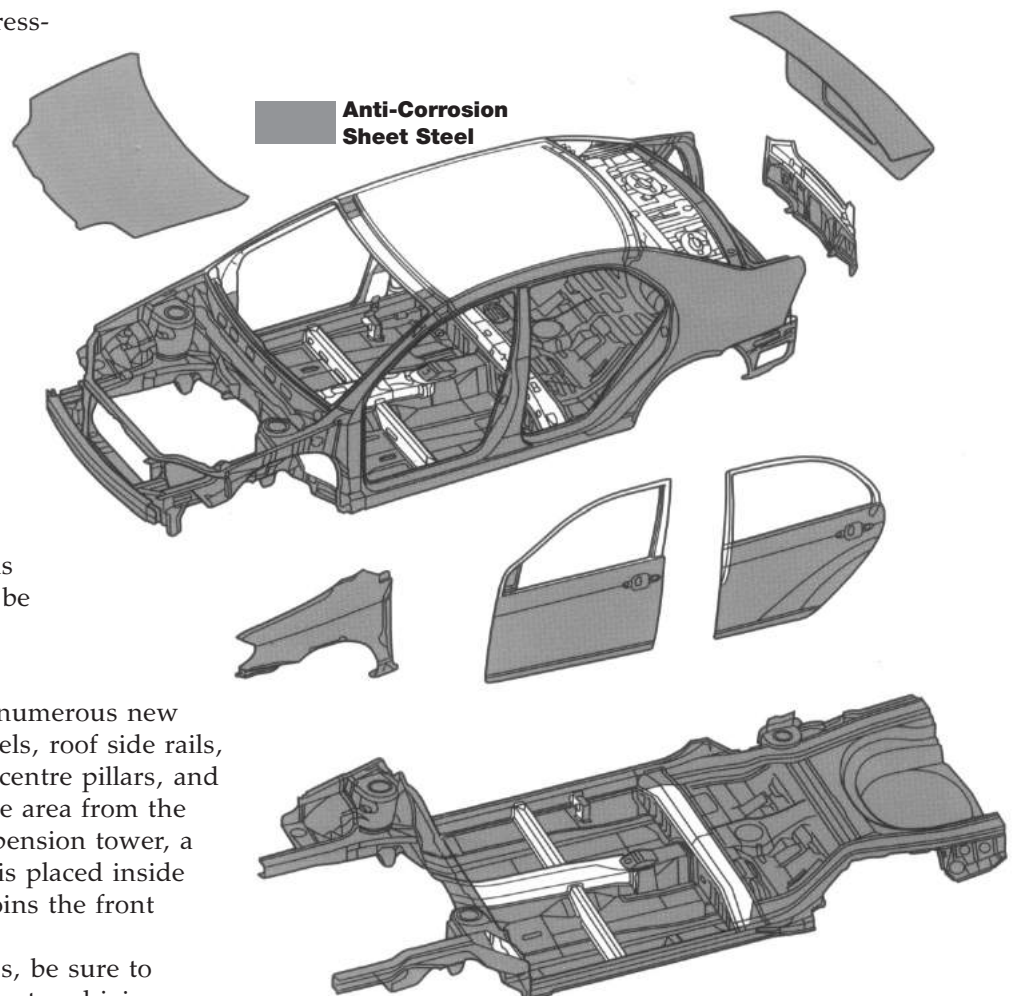


Figure 1. Panels made of anti-corrosion sheet steel.

efficiently to absorb the energy of an impact. Differential-thickness sheet metal is also used in the centre pillar. These areas should be inspected and repaired according to Toyota-recommended repair procedures.

### **Head Impact Protection Structure**

Corolla feature this type of construction, if the occupant's head impacts the roof side rail and pillar in reaction to a collision, the inner panels are designed to help absorb the force of the impact. If this structure is damaged, it must be replaced to help ensure proper performance in subsequent collisions.

### **Anti-Corrosion Sheet Steel**

Other than the roof panel and some inner reinforcements, as shown in figure 1, the body is constructed using anti-corrosion sheet steel. This must be taken into consideration when repairing any panels as applying body fillers and two component polyputties over bare anti-corrosion steel may result in inadequate adhesion. Blistering or peeling may result. An epoxy primer must first be applied to the bare metal before application of body filler.

### **Low Noise Body**

The Corolla like most other manufacturers has introduced a variety of new measures to help reduce vibrations and suppress road noise from the passenger compartment.

When a vehicle sustains a severe side or rear impact, the noise reduction materials may become dislodged, torn or broken. Checking of proper installation of these materials can help in producing a quality repair. If foam was damaged or removed during a repair it must be replaced with the appropriate replacement. This can help restore sound-deadening characteristics and corrosion protection.

### **Wax and Sealer**

Wax and sealer are applied to the hemmed portions of the hood, door panels, sill panels and boot door to improve rust resistance. Be sure to reapply the wax and sealer on these areas during repairs to help maintain proper corrosion protection.

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