

# FIT & FIDDLE

STORY CRAIG PARKER PHOTOS JULIUS GOBOLY



# Push & pull

► Paintless dent removal can be painless, too – well, almost

**I**F YOU drive a nice car, a supermarket car park is about the most dangerous place you can put it. Not only is it full of cars jammed into parking spaces too small by design, but as soon as they arrive their drivers arm themselves with shopping trolleys. They drive these with the same care and skill as they do their cars, and the result is all manner of dents and scratches.

Fortunately, with paintless dent removal (PDR), minor dents can be removed with a fraction of the effort necessary using traditional repair methods.

As well as reworking minor dings, quite large areas of damage can be repaired using these techniques. Anthony from Alchemy Cosmetic Car Repair showed us the basics and told us that

using PDR techniques can give quicker repairs to broader-area damage than you might think. Certainly, if the paint isn't broken the job doesn't have to be repainted, which is a time and money saver. But even on a panel due for paint, these techniques can be faster because the result doesn't have to be filled before painting.

The two basic PDR techniques are pushing, with rods (of which Anthony has a comprehensive collection) and pulling, using specially shaped plastic tabs that are hot-melt glued in place then yanked off using a slide hammer. Anthony said that with practice these fundamental skills can be taken even further. Still, first things first – here's a beginner's guide to removing minor dents.







**STEP 01** Dents can be difficult to see. The best method is to use a glancing light and to ensure that the edge of the reflection passes through the indentation, like this. You're looking for irregularities in the reflection. At the most basic level the idea of PDR is to get the tip of the rod in behind the dent and push. The ring shown provides a pivot for the rod but there isn't always a suitable hanging point for it.



**STEP 02** If there isn't a place to hang the ring the pivot will often be your hand and thumb as shown, but this can become very tiring. Regardless of the devices you employ, PDR makes for strong hands. Note the adjustable support strut holding up the bonnet behind the rod, and the ratchet pulley and cable that hold the bonnet firmly on the strut. This makes the bonnet rock solid to work on, which is essential for control.



**STEP 03** Here's what happens when you use the tool to apply direct pressure to the underside of the panel (as demonstrated in Step 02) – a definite sharp point. Apart from that, it has also pushed the rest of the dent up quite high. Note the difference in the reflection. Finding the correct pressure point takes experience. This is particularly true when access is a relatively long distance from the dent and a long rod is used.



**STEP 04** Anthony initially uses a pointed nylon tool to knock down the high spot he deliberately created. This releases the pressure and much of the dent sinks back a bit. However, overall it remains high, and there's a faint high spot where it was tapped down. Usually, the tip of the tool is placed on the high point and struck. Occasionally, for a stronger hit, the tip can be held above the high point and be knocked onto it.



**STEP 05** The variety of rods is needed for access to damage on the broadest range of cars, rather than for different tip styles. The 'whale tail' at the front may look very different to a bullet tip but because it's applied by twisting, only the rounded sides of the tip work against the metal. Therefore, it ends up doing pretty much as a bullet tip does. The fact that it's flat means it can get into very narrow places.



**STEP 06** Anthony does most of his work with bullet tips and works gradually on very small, concentrated points. Because this was such a small area it didn't take very long to bring up; just a handful of pushes and it was back in original condition – note the evenness of the reflection. Obviously, the bigger the dent the more work it requires. Larger dents can take 20 or 30 pushes to even out.





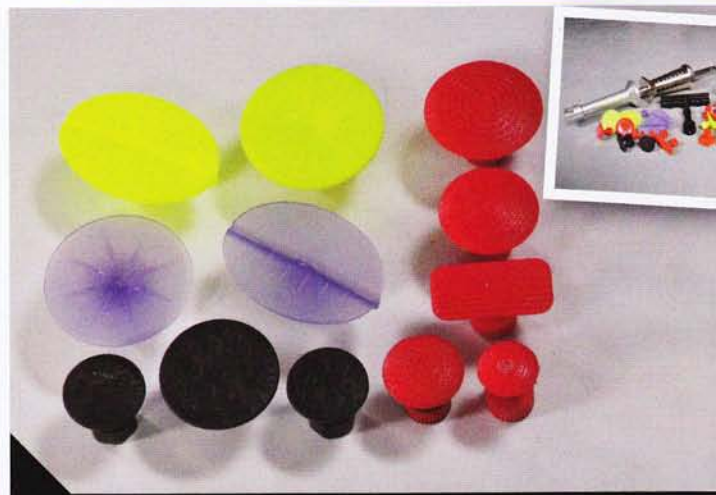
**STEP 07** Light is everything when it comes to finding and judging dents. In general you set the light source down quite low, so it glances across the surface, and look towards it. The appropriate angle just allows the light to reach the bottom of the dent. Changing the type of light, the angle at which it's set (independent of height), the height and the type of reflector all affect how dents will appear.



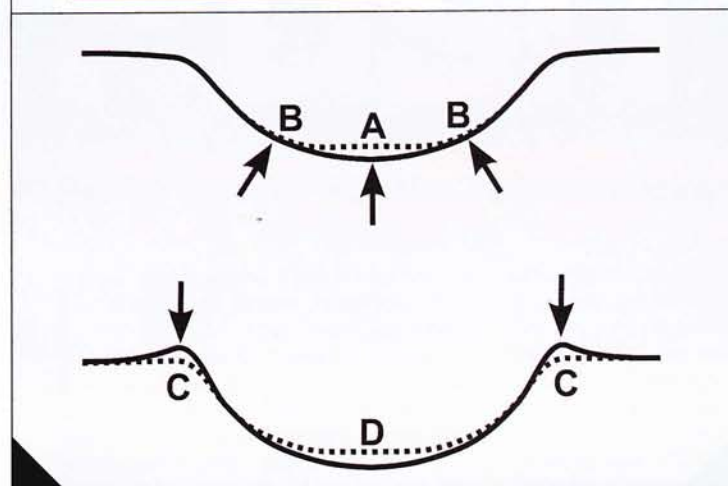
**STEP 08** Even with the best lighting techniques, some dents are extremely difficult to see – which is where reflector boards come in handy. They're available ready-made but operators often custom-make their own in their preferred colours, line sizes and spacings. The lines are reflected onto the car's bodywork to appear pinched (high spot) or divergent (low spot). Flexible arms and suction cups hold the cards in position.



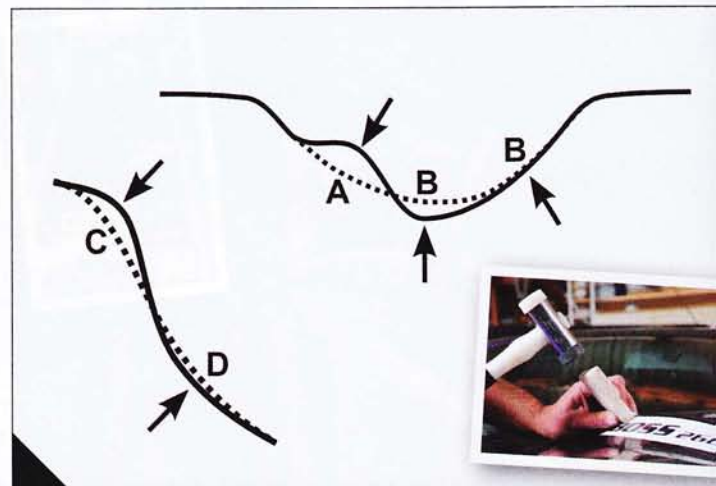
**STEP 09** Some dents can't be reached from behind. This is where glue-pulling comes in. A special plastic tab is stuck to the dent with hot-melt glue and then pulled off with a slide hammer, pulling the dent with it. Different glues have different temperature ranges and strengths; on old paint, Anthony uses the gentlest glue to avoid damaging the finish. A quick spray of methylated spirit and the residual glue tab peels off.



**STEP 10** Tabs come in different sizes, shapes and stiffness – the stiffer they are, the harder they pull. Their shape also makes a difference (for instance, oval units are for creases) and even the pattern on the glue face makes them pull/release differently. A T-handle (insert) engages the spline and allows them to be twisted off rather than using force to break them off. Remember you're pulling against paint, so care is needed.



**STEP 11** With a straightforward dent (top) you'd push the low spot a little (A). This would raise it and leave behind new low spots (B). You'd then work under those new lows and bring them up a little, swapping onto new lows until everything is even. Some dents are more complex (bottom); here you'd work around the upper ridge (C) and take that down to the surrounding metal before bringing up the low centre (D).



**STEP 12** A basic rule is to work on more sharply deformed areas first as they can often hold a dent in place. In the complex double dent (top), you'd first remove the sharp section at point A, which would turn it into a standard dent on which you'd then use the basic steps already described. With the dent pictured lower left, tapping point C down first (insert) just might push point D pretty much back to where it should be.





**STEP 13** Large dents that are normally considered the domain of hammer and dolly work can respond quite favourably to the PDR techniques shown here – Anthony actually removed this significant dent from the Commodore's front guard. Of course there are limitations: if the panel is noticeably creased, it usually can't be pulled or pried out, as there can be considerable tension holding the damage in place.



**STEP 14** Rods with heavily curved ends are often used with a twisting action rather than the straight levering action already shown. Inside a door cavity (insert) is a common application. The folded stainless-steel plate is backed with felt and extends down into the door. It bears against the window glass to spread the reactive load of the rod as it's twisted against the dent. Without the plate the glass would probably break.



**STEP 15** In Step 14, a wedge was used to open the gap enough to get the tool in. Another versatile device for this job is this tough, inflatable pouch called the Amo bag, from Würth. It's great for anything that needs to be accurately positioned and supported. Great care is needed with door glass as it shatters very easily – a big issue with the laminated side glass in many luxury cars, as it can cost more than \$2000 to replace!



**STEP 16** This EF door has a very broad intrusion bar; the four spot welds just to the left of the pry bar indicate its position. The outer skin can't be reached from the top of the door. In cases like this, often the only option is to drill an access hole for the tool (shown), which is plugged after the repair. Some people are not keen to drill holes, but it comes down to a choice between dent and hole. Note Anthony's neat custom door brace.

## WRAP UP

AS WITH everything, experts make it look easy. We've only examined the most basic of dents here, but very complex panel damage can be repaired using these methods. As a basic summary: creases create stresses that tend to hold damage in place, and the creases must be removed before other areas can be worked on. If the dent looks as if it will pop out, there's a very good chance it will when using PDR techniques. Best of all, this is something you can have a go at yourself – though we recommend practising on scrap panels before you attack your pride and joy.

The rods used in PDR are pretty simple in form, but they're manufactured from very springy steel. They can twist quite a long way and return to their original shape. Some of the smaller sizes can only be described as wire and getting the required pressure can call for 360 degrees of twist. So, while you could probably make your own tools, it's easier to buy them. And if you'd rather give the whole problem to a pro who knows how to use them, Anthony is in Melbourne and can be reached at 0409 395 723. 