

Defects for uprated brakes can be costly to remedy. Learn how to avoid them in this month's Ask the Engineer with John Varetimidis of Consulmotive

# HAUL UP



**FF:** We've seen a lot of brake upgrade options for readers' favourite makes and models and yet some car owners have said they got defected because of them. How do we know what's been OK'd and what hasn't?

**JV:** You'll probably find that most of them are not ADR approved. There are generally two kinds of terminology: One is simply specifying that your brake upgrade componentry is approved, as opposed to the other which says it's ADR approved for a particular make and model.

What's required is a brake test to confirm that it continues to apply with the existing Australian Design Rule, ADR 31, which specifies requirements for braking efficiency, braking componentry, warning lights, fluid levels, displays et cetera.

A lot of vehicles fail the fade tests, wet and dry. If a manufacturer has manufactured their brake upgrade kit for a particular make and model and tested it to comply with ADR 31 then it will comply for that make/model vehicle.

**But surely bigger disc brake rotors and calipers will increase a car's braking capacity and be a lot safer?**

If the efficiency of a car's braking system has increased – disc rotor size, rolling diameter, the actual brake pad size – then obviously brake fade won't become an issue. But, then again, it also comes down to a package: You may have the right calipers and discs, but you may not have the right master cylinder or the right booster to suit. You've also got an issue of brake balance: I can remember a number of R34 GT-Rs I test drove for a competition and one of them in particular had rear lock-up because the brake bias wasn't proportioned.

So when you are fitting different brake components, although they may work better, if the balance isn't correct – that is, more efficiency on the rear than what you need – you'll find that the car will lock up in the rear and will try to spin out. That's obviously a non-compliant braking system.

**A car club member has been pinged for a brake bias adjuster during the course of a random roadside inspection. What's the go there?**

Aftermarket adjustable brake bias valves or proportioning valves should not be readily adjustable without the use of tools. If you've got a remote reservoir fitted, where you can adjust the

**INTERVIEW:** Greg Conway

proportioning by hand, that's non compliant. If, however, you have that unit locked up with a secondary lock nut and the valve or top cap removed, and only someone with the use of tools can go in there and undo it, then that's fine.

Here's a case in point: If your modified vehicle has a high-performance braking system and you leave it at another workshop and someone there doesn't identify the valve and says 'what does this do' and turns it the wrong way, the next time you jump in your car you might experience a serious loss of control to indicate that your brake bias is now very wrong; the car might come straight 'round on you.

If you had to apply the brakes for an emergency situation only to find that the back locks up on you, you've got no chance of controlling it – regardless of driving skill.



**Are aftermarket braided brake hoses compliant?**

A lot of people are drawn towards them because, with rubber hydraulic hoses, you'll find that the expansion in the rubber hose can lead to sponginess in the brake pedals whereas, with a braided brake hose, the wall doesn't expand much at all and so improves the efficiency. The system will feel more direct in its response rate, but you'll have to find an approved manufacturer for those hoses.

There's an Australian Design Rule – Number 7 – which specifies the requirements for flexible hydraulic brake hoses, not the fixed kind, which have to be tested in extreme cold and extreme heat and in salt spray and so on.

A recognised manufacturer should have the tag or label fitted permanently, or their own embossed logo on the end of the swaged fittings, and the

actual hose assembly and all its attachments must not come apart. BF Goodrich, SPV Racing and Brake Quip are three that come to mind as being compliant.

**NEXT ISSUE:** Street-legal weight-saving measures – Don't miss it!

FFA 0706 109