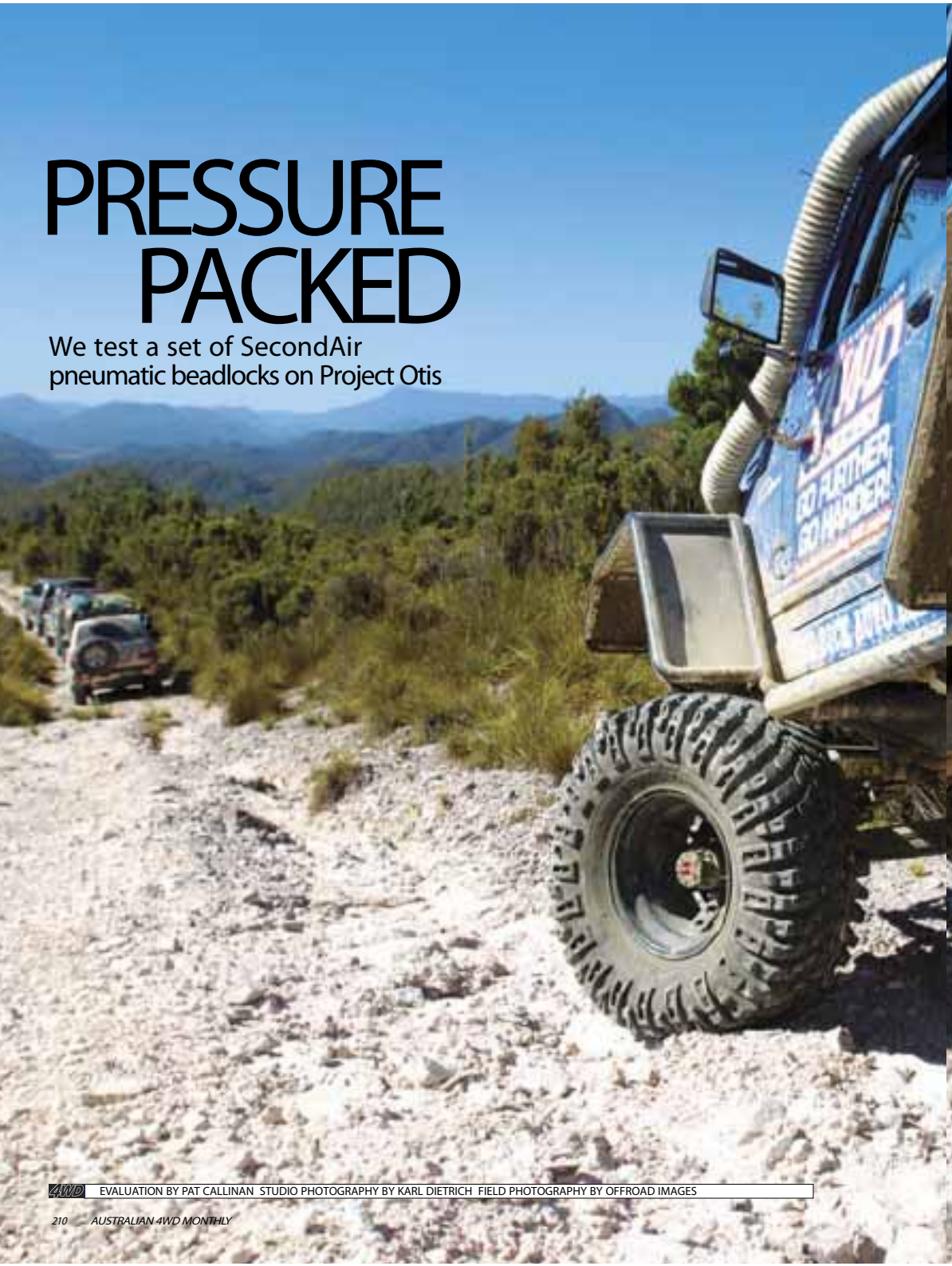
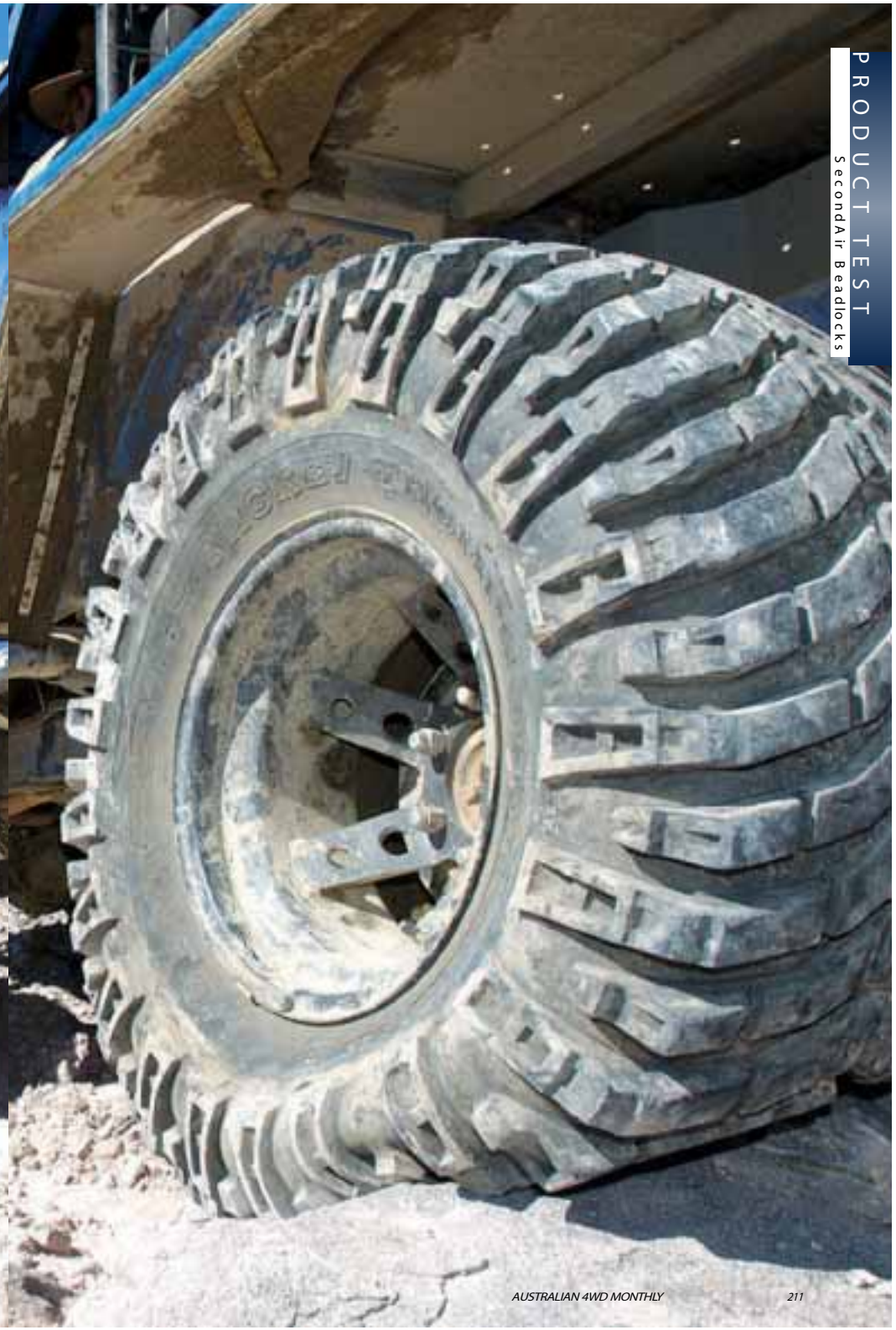
PRESSURE PACKED

We test a set of SecondAir pneumatic beadlocks on Project Otis





4WD EVALUATION BY PAT CALLINAN STUDIO PHOTOGRAPHY BY KARL DIETRICH FIELD PHOTOGRAPHY BY OFFROAD IMAGES

In slow, demanding, rocky terrain, low tyre pressures rule. Not only do they give your fourby a softer, more compliant ride, low pressures also give your truck buckets of grip and traction. Try it for yourself, and you'll see what a difference it can make. Think of it as the difference between high heels and Blundstones. Not that I'd know…

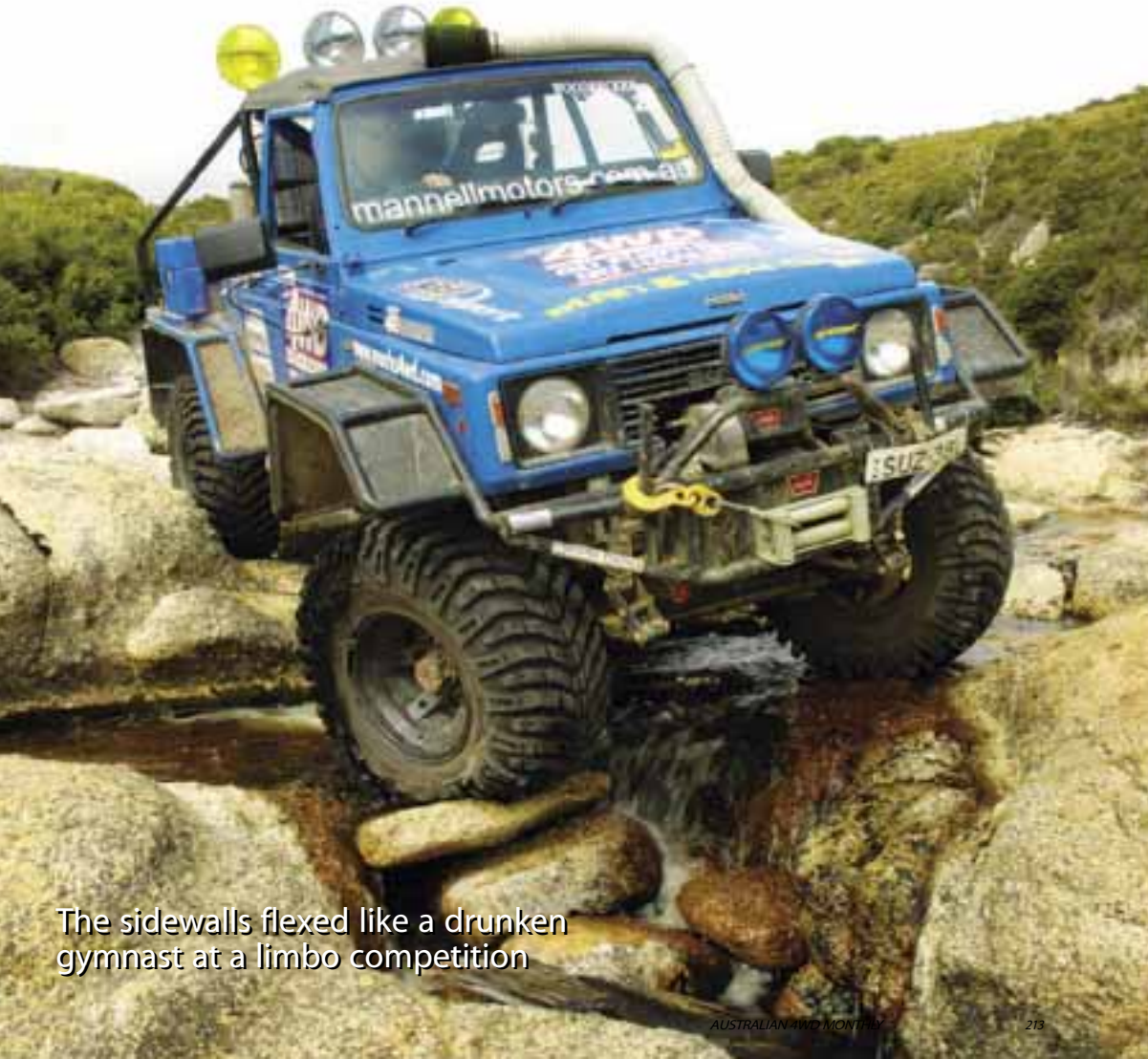
But low pressures go against the whole principle of tyres and rims. Tyres need to be at a certain pressure to keep the bead locked onto the rim, so you need to keep a modest amount of air in the tyres to prevent the tyre spinning on the rim, or to prevent the tyre popping off the bead. And when you throw flexing sidewalls and uneven rocky terrain into the bargain, keeping that bead on the rim becomes a pretty big issue. In fact, popping tyres off the bead is one of the main reasons we see fourby owners stranded on rocky tracks around the country.

So that's where beadlocks come in. We showed you a set of mechanical beadlocks in 4WD Monthly No. 62, but this time we're trialling a set of pneumatic beadlocks called SecondAir.

The idea of pneumatic beadlocks has been around for awhile, but more recently, Victorian 4WD competitor Roger Smith decided to have a crack at it himself. Roger thought he'd make a few improvements on the original product, while also manufacturing in Australia.

Internal pneumatic beadlocks run circumferentially around the rim, and sit about 40–50mm above the rim. They are inflated to a pressure of 40psi after the tyre is mounted to the rim. Upon inflation, they exert pressure on both the inner and outer beads. So no matter what the inflation pressure of the tyre, as long as the SecondAir is inflated, the tyre will stay locked onto the wheel.

SecondAirs used to be available only on 7–8in wide rims, but they're now available for 10–12in rims; so they fitted the 15x10 Eastern Wheel Works rims on Project Otis nicely.



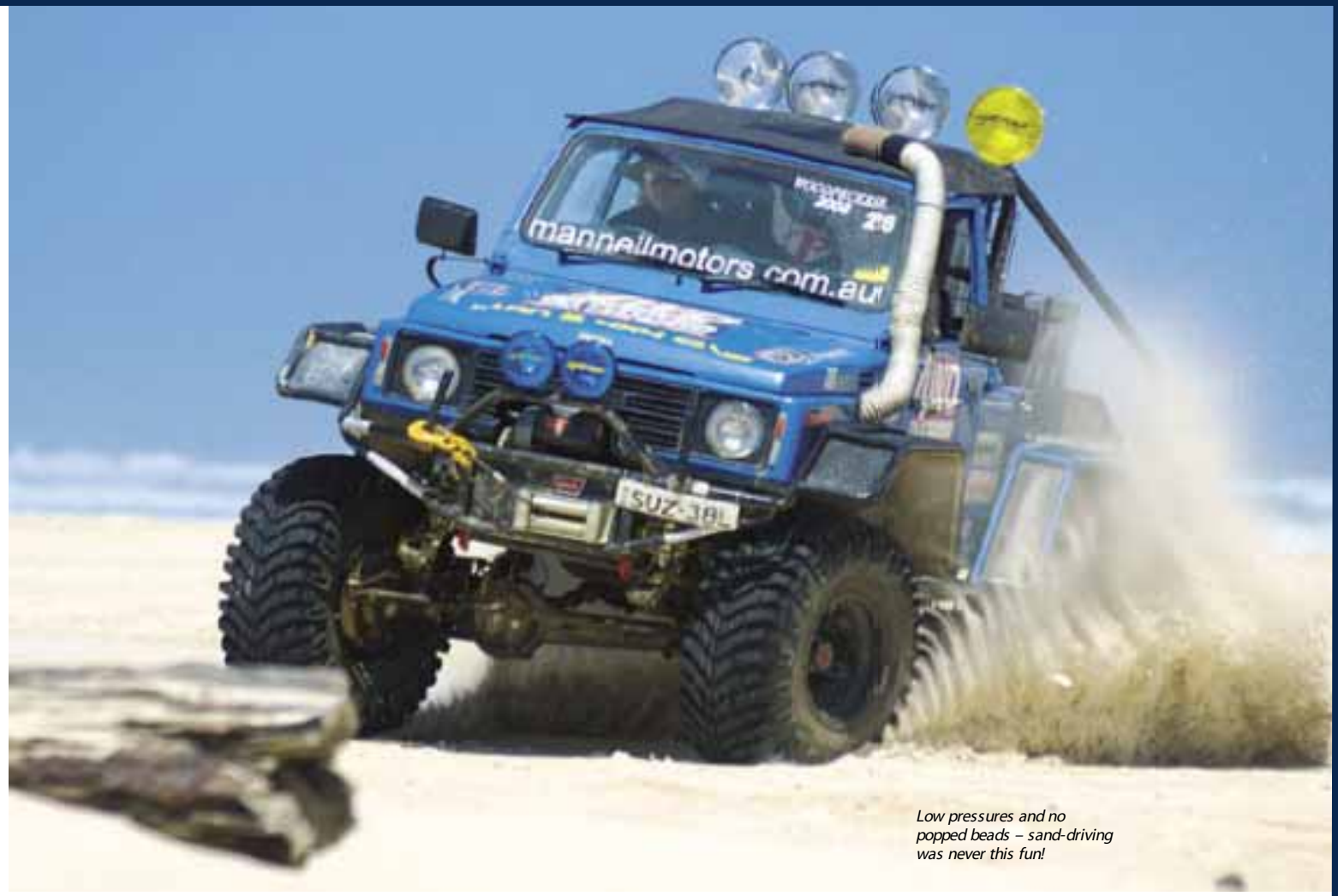
The sidewalls flexed like a drunken gymnast at a limbo competition

TESTING TIMES

My test of the SecondAirs on Otis involved me screwing the tyre valves out of the rims and dumping the air pressure completely. Hey, I wanted to see if these suckers worked! And work they did. With virtually no pressure in the tyres, the sidewalls flexed like a drunken gymnast at a limbo competition – and the tyre stayed glued to the rim.

It's funny, 'cause a lot of people say the Mickey Thompson Claws don't flex real well on the rocks, but my guess is that these people haven't tried 'em at the right pressures. And with a six-ply sidewall, of course it's gonna take a lot for them to flex, but when they do eventually flex – they really flex! Even at 5psi, the Mickey Ts were a little reluctant to bag too much, but dump the air that little bit further and they were flexing with the best of 'em!

Of course, the pressures you choose will depend on the weight of your vehicle, the width of your tyres – and whether you're running beadlocks. But these SecondAirs allowed me to run low pressures, guilt-free.



Low pressures and no popped beads – sand-driving was never this fun!

EXTERNAL VS INTERNAL BEAD LOCKS

LOOKS

Mechanical beadlocks scream, "Hi, I'm a hardcore off-roader!" with their trendy paintjobs and standout design. Geez, you can even buy imitation beadlocked rims these days…

Yet pneumatics are virtually invisible to the naked eye, with a second valve the only visible giveaway. You'll probably weigh up the decision depending on your fear of the boys in blue.

BALANCING

Pneumatics one, mechanical nil. The pneumatics can be easily balanced, because they're lightweight and spread across the width of the rim. Mechanical beadlocked rims can be balanced (it's a bugger, I'm told), but you may as well chuck a brick on there to counter the weight of the alloy or steel beadlock. I know which one I prefer for the highway.

HOW LOCKED IS LOCKED?

Mechanical beadlocks only lock the outside bead (generally the most vulnerable), while pneumatic beadlocks secure both inner and outer beads. Neither is foolproof, but it'll take a helluva lot of pressure to bust either system off the bead. Generally, you only hear of beadlocks failing in high-speed racing situations, and only then when drivers collide with big logs or rocks. And in this case, an external beadlock is a little more vulnerable than an internal.

LEGALITY

Any structural modification to a wheel is illegal in Australia. Yep, even drilling a single hole in it for a pneumatic beadlock. The common misconception out there is that pneumatic beadlocks are road legal, while external beadlocks are illegal. This is probably fuelled by the knowledge that no-one has yet received a defect notice on the basis of running internal beadlocks – no doubt due to their relative invisibility.

Yet, if you follow the rule of law, both internal and external beadlocks are illegal because both involve structural modification to the rim (however minor). Obviously, pneumatic beadlocks are the lesser of two evils. But then laws are laws, and in many cases they make very little practical sense in the real world. Personally, if I get a flat tyre on-road or off, I'd feel safer in the knowledge that the tyre is clamped to the rim. Who knows, maybe if manufacturers adopted this sort of technology, things like the Firestone debacle might not have happened.

DURABILITY

Because of their location, we've heard of mechanical beadlocks shattering when they whack obstacles at high speeds – not very often, mind you. And it does depend on their construction and materials.

By their very location, internal beadlocks are out of harm's way, and protected by a lot of rubber.

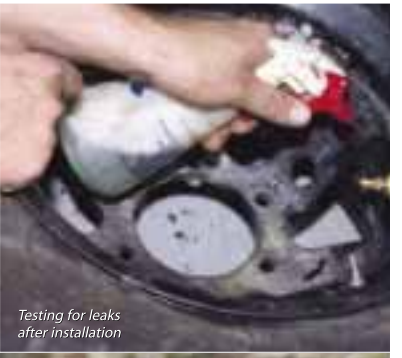
PRICE

This one's a toughie to compare. To get the price of a SecondAir is simple, as they cost between $195 and $225 each. But getting the price of an external beadlock is more difficult, as most external beadlocks come on custom rims, which are specifically designed to take the alloy or steel ring. Hence, these low-volume beadlocked rims are usually fairly pricey.

But let's make a comparison of my rims. I've got a set of Eastern Wheel Works 15x10in steel rims. The rims cost $220 each, while the SecondAir pneumatic beadlocks cost $219 each. That brings it to a total of $439 per wheel.

My other rims are schmick-looking CORE alloy 15x8in items with steel external beadlocks. These top-of-the-line rims, complete with beadlocks, cost $400 each. However, a set of steel CORE wheels with beadlocks starts at around $300.

The SecondAir casing is placed inside the Mickey T



Testing for leaks after installation

This picture is of no relevance to the story – I just thought it looked cool

HOW MUCH FOR SECONDAIR?

6–8in rims: $195–$212
(15in, 16in & 17in rims)
10–12in rims: $219–$225
(15in, 16in & 17in rims)

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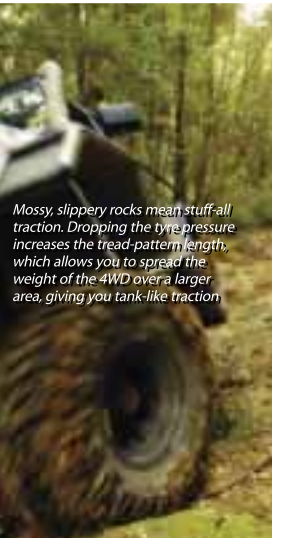

Mossy, slippery rocks mean stuff-all traction. Dropping the tyre pressure increases the tread-pattern length, which allows you to spread the weight of the 4WD over a larger area, giving you tank-like traction