Air Compressors

It should be one of the first items you pack or mount in your 4x4, but an air compressor isn't viewed that way by many off-road travellers. We regularly come across people who aren't carrying any form of tyre inflation equipment.

The need for an air compressor off-road is absolute. Once you've employed your spare tyre to replace a 'flat' you don't have any choice but to repair the next puncture. Temporary plugs can do the job, but they're useless without some means of pumping in replacement air for that which leaked out.

If you can't reinflate tyres that have had a pressure drop to handle trail or sand conditions you risk damaging the tyre casings, or a more serious blowout, by running low pressures at highway speeds.
People who don't carry air compressors tend to run highway pressures in all conditions and that risks a stranding, or tyre and suspension damage.

Electric Air Compressors

The most popular way of inflating tyres is with a 12-volt electric air compressor. This type can be mounted permanently in your 4x4, or can be a portable unit.

The most commonly selected electric air compressors range in price from around $50 to $900, but you can spend more than a grand if you want to. As a general rule, price is a good guide to performance and quality.

Selecting the right compressor for your needs requires an analysis of what you actually intend to do with the compressor.

For example, many people buy a compressor with the expectation that it will serve to inflate tyres that have been pressure-dropped for off-road driving or repair, as well as quickly inflating mattresses and rubber boats. However, tyre inflation and mattress and boat inflation are slightly different processes. Inflating a tyre requires high pressure capability, but a relatively small volume delivery. Inflating a mattress or a rubber boat requires a pump with low pressure capability, but a relatively high volume capacity. We've watched campers running electric air compressors for ages, inflating mattresses and boats, when cheap, purpose-designed foot pumps would have done the trick in a few minutes – and much more quietly.

It's tempting to buy a cheap air compressor and you may well be lucky in finding a cheap, reliable and durable unit, but it's much more likely the cheap unit will give up when you need it most. Common failure points in cheap compressors are piston seizure, electric motor burn-out and air-hose rupture - all through overheating. Any air compressor will get very hot while it's pumping up four or

more large tyres and all components need to be up to the task. For example, a six-metre length of quality, heat-resistant air hose costs more than some cheap compressors do!

The optimum price for a quality air compressor is in the $200-$400 range.
There are performance differences between different brands and some compressors are quicker than others at re-inflating tyres, however, in our suggested price bracket you'll get acceptable performance from most units. As important as litres/minute statistics are durability, serviceability, ease of use and manufacturer warranty and bush backup. Air compressor essentials include an easily cleaned air filter, high-pressure cut-off and/or thermal overload cut-off and electrical power fusing.

Whether you hard-mount an air compressor or buy a portable, boxed unit depends on whether you want to move the unit from vehicle to vehicle. Hard-wired units are necessary to operate some after-market diff locks and the tyre-inflation feature is a bonus. A boxed unit takes up storage space inside your vehicle, but it's usually possible to pack your tyre repair kit in the compressor box as well.

Some air compressors come with in-line air pressure gauges, but we've found that many of these are inaccurate. A quality hand-held gauge is a worthwhile investment.
On the subject of air pressure, if you inflate your tyres with hot, compressed air after driving on a hot day, check the pressures again in the cool of the next morning. Don't be surprised it the pressures are considerably lower than they were the day before and need topping up.

Alternative Air

If you don't want air conditioning in your 4x4 you can have your aircon compressor converted to become a high-performance, engine-driven air compressor. That may be a tad radical for most off-roaders, but an engine-driven compressor is a possibility, if you have enough space in your engine bay to fit a second aircon compressor-sized, belt-driven unit.
Engine-driven air compressors outpower most electrical units.
Another approach is to use bottled pressure, from a portable CO_2 tank. Using stored gas pressure to inflate tyres is quicker than all but the best electric air compressors and there's enough instant gas volume to reseat a tubeless tyre bead. However, there are some downsides: pricing is upwards of $700 and it costs between $20 (small bottle) and $40 (large bottle) for a refill, if you're near a licensed refilling station. For that outlay you should be able to re-inflate between 20 and 40 4x4 tyres, from around 20spi to 35psi.

Reseating a Tyre

It's not uncommon to roll a tubeless tyre off a rim if the sand is soft, the pressure is below around 16psi and the driver is overly enthusiastic. Reseating a tubeless tyre bead can be a real challenge in the bush. The simplest way is with a powerful air compressor that can deliver a burst of high-pressure air in sufficient volume to overcome the inevitable leakage that occurs until the bead reseats.

Bottled CO_2 and air compressors with auxiliary storage tanks can manage that initial burst, but conventional compressors may not. You can help the reseating process by running a ratchet strap around the tread circumference of the tyre and cranking it on as tightly as you can.

Compressor and Winch in One Unit

Warn released its PowerPlant Dual Force winch and air compressor unit at the 2006 SEMA show in the USA. This clever design allows the powerful winch motor to power an air compressor, at the flick of a switch, providing much more drive than most air compressors can command. In conjunction with a two-litre storage tank the PowerPlant is claimed capable of pumping up four large tyres in less than 10 minutes.
In addition, it's intended to operate air tools and to inflate boats very quickly.

The PowerPlant Dual Force is available with air compressor accessories, including larger air tanks and comes in 9500lb high-performance (HP) and 12,000lb heavy-duty (HD) models.
The PowerPlant attaches to a suitable 'roo bar using the standard Warn, four-bolt pattern.