

ROOF RACKS

If the freight won't fit inside it has to stay at home or go on top, but it's vital you know how much is too much.

A roof rack is usually a 'grudge purchase', because you buy one only when you can't fit everything you need inside the vehicle. A roof rack load ruins the streamlined shape of your vehicle, thereby increasing fuel consumption at highway speeds and also puts a load up top, where it can affect vehicle stability. There's also the factor of loading and unloading safety: more than one off-roader has fallen from a roof rack.

Roof racks range from the simple cross-bars that join factory-installed roof rails to complex welded basket structures that bolt to the roof.

What you choose will depend on the type of vehicle you have and what you need the rack to do.



The starting point is your vehicle's roof load capacity: it's listed in most wagon handbooks and some have a load rating plate fixed to the bodywork. Most 4x4 wagons have very limited roof load capacity and around 70 kg is typical. The limits are imposed by the maker's engineers and take into account the structural strength of the vehicle and the effects of a roof load on its handling. You should never exceed the manufacturer's roof load ratings.

On this point it's important to note that the roof load rating includes the weight of the rack. Some of the full-length steel racks we've seen exceed many modern wagons' roof loads...without any freight on them!

Even within the rated load parameters you may find it advantageous to fit heavier-rated rear springs to your wagon, or a pair of load-assist airbags, to preserve body-sway control.

If you know the weight of the rack you propose fitting you simply subtract that amount from the roof load rating to get the rack payload figure you're allowed. A set of bathroom scales is accurate enough to check the weight of the gear you intend to load in the rack.

For example, if the rack weighs 30kg and the roof load rating is 65kg, you can stow only 35kg of freight on it.

Racks are ideal for light stuff that won't have too much effect on your 4x4's centre of gravity. Swags and tents are bulky rather than heavy and rain and dust won't damage a well packed tent on a roof rack.

If your roof rack is carrying a tent, poles, folding camping chairs and table, an unmounted spare tyre, empty jerry cans and a couple of small gas bottles, it's probably full.

Oh, and don't be tempted to carry a Porta-Pottie™ in your roof rack, because if it leaks, you'll be in the poo, literally!



What Rack

Lightweight aluminium and plastic roof racks that are little more than a pair of cross bars are suitable really for on-road use only. Rough tracks will shake these assemblies to bits. The same goes for many factory-fit roof rack arrangements.

No new 4x4 wagon designs have external gutter mouldings, so you need to fit the rack feet to the roof tracks that are either standard or optional fittings. The best roof track designs for off-road use have pre-drilled and pre-threaded feet attachment holes. Roof tracks that simply rivet to the vehicle roof aren't strong enough for off-roading. Beware of drilling into roof structures to fit non-standard rack feet.



The rack you choose can be either a flat, grid type or a basket type, with turned-up sides. Sides on a rack are insurance should something come loose up top. It's a good idea to think of streamlining, as best you can. Tapering the load profile, with a rising 'wedge' shape from front to rear is beneficial.

A wind deflector at the leading edge of the rack will improve its disastrous aerodynamics and a hard or soft cover will also aid streamlining as well as offer weather protection.

Racks are usually made from aluminium or steel, but we've seen successful racks made from metal cross bars, clamped to marine-grade plywood floors.

We've tested steel and aluminium roof racks with equal success. Well designed mountings and proper packing are more important than the construction material.

Correct Loading

It's vital that anything in a roof rack is strapped down so that it can't work loose and fall off.



A wheel and tyre is best attached by a long bolt, running through the hub hole or one of the wheel stud holes and through a load-bearing plate, fixed to the floor of the rack.

Gas bottles are notoriously difficult to strap down. They need to sit in mounting rings or chocks, so they can't 'walk' on the rack floor. Turnbuckles or webbing straps are best for clamping-down gas bottles.

Folding chairs and tables are easier to secure if they're stowed inside canvas bags.

Many off-roaders come to grief climbing up to and down from their roof racks. A purpose-built ladder that's part of the rack, or clips onto it, is the best access solution, but wheel steps that clip over your 4x4's rear tyres also work well.

Most rack attachment screws work loose when 4x4s are driven over rough or corrugated tracks. Loose screws result in damaged threads at best and a departed roof rack as the worst consequence. It's important that the attachment screws are easy to check for tension and, if a special tool is required, it needs to be stowed somewhere in the vehicle where it can't be lost.

The Tent Roof Rack

An alternative to packing your tent and bedding into a roof rack is to buy a roof-top tent – somnambulists beware!

There are many different types to choose from, including hard-shell models, but make sure you find out the accurate, all-up weight of the unit you want, so that you're sure it can be fitted without overloading the roof structure.

Roof top tents are easily packed away and are partly streamlined when folded. They also come with access ladders that take most of the risks out of high-rise sleeping.

