

## Can you balance a 4x4 wheel using a cone from the front?

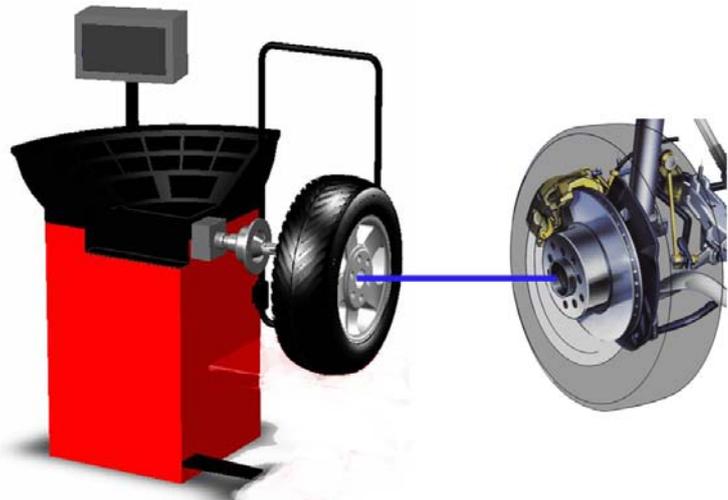
YES, you can get the wheel balancer to read ZERO ZERO.  
You can also get a block of wood to read ZERO ZERO on a wheel balancer

Balancing a 4x4 wheel correctly means that you have repeatable results. i.e. take the wheel off the balancer and put it back on and still achieve ZERO ZERO\*.



The main factor outside the condition of the wheel that can affect the balance results is gravity. While mounting the wheel to the balancer gravity is continually trying to force it down as it is being tightened up on the shaft.

When a wheel is fitted to a wheel balancer the objective is always to have the wheel on the same centreline as when the wheel is on the vehicle.



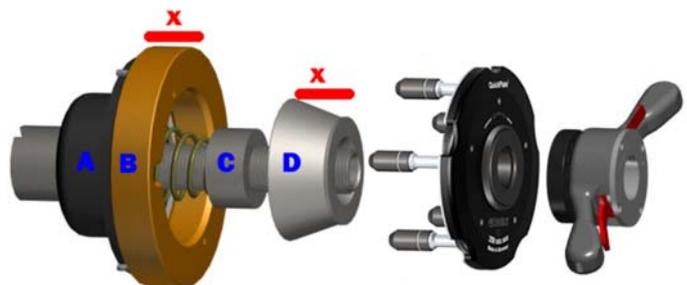
When this is achieved and the wheel is put back on the vehicle it will run smoothly.

## Why is it necessary to rear cone mounting 4WD wheels?

Gravity pushes the wheel down and with heavy wheels it is impossible to position the wheel correctly by hand.

The cone at the back allows the wheel to slide up and approximate the centre line.

Mounting a 4x4 wheel using a cone from the rear may require a cone that is a larger diameter than the back plate of the wheel balancer. A backing or spacer disk may be required (item B). This increased the diameter allowing the cone (item D) to fit inside it.



## Rear cone mounting in itself is not the solution.

A clamping hood on the wingnut can create more problems than it solves given the many different types of rim design.

The styles of 4X4 rims differ considerably from passenger cars and the flange on the stud hole or centre hole can interfere with the clamping hood causing it not to sit flush.

The larger diameter clamping hood was designed by Haweke for passenger car alloy wheels where the mounting surface is pretty much even. This clamping hood is much flatter than the standard clamping hood and is likely to catch on the centre hole flange of 4x4 wheel.



Both clamping hoods have rubber rings that are fitted to the contact surface. These work well with the alloy wheels but create problems when used on steel wheels.

Some wheel balancer manufactures have an encapsulated spring with a very high compression ratio and an extreme amount of force is required to tighten the rim to the wheel balancer so that it sits flush on the back plate, this tends to deform the clamping hood and prevent the rim from sitting flush against the back plate.

Using a cone only from the rear to mount a 4WD wheel does not always product the most repeatable wheel balance result.

Using an adaptor in combination with the rear cone kit enables the wheel to be mounted to the wheel balancer in the same way it is mounted on the vehicle



## Wheel Balancers wheel lifter

There are a number of ways to manually get the 4x4 wheel to an approximate centre, however the best way to do this is to a tyre lifter.

The tyre lifter in addition to help centre the wheel on the wheel balancer reduces the risk of back injury through the continual motion of lifting the 4X4 wheel up and across.

The main objective of the wheel lifter in obtaining better balance results is negating the effect of gravity i.e. the wheel must still be able to move up and down around the shaft allowing the adaptors to centre the wheel. If the wheel is held in a fixed position either through a chain mechanism or an air ram the wheel is not able to centre itself and the lifter is forcing the wheel on to the balancer at a height determined by the lifter not the adaptors.

The Haweka Airgolift is designed to lift and settle wheels on the wheel balancer to achieve the best possible positioning of the wheel on the wheel balancer shaft. There is no pressure on the shaft or wheel balancer during the clamping process, no false readings as a result of distortion from pressure on the shaft.

There are tyre lifters that use a chain mechanism and one's that use an air ram. These lifters lift the tyre up to the wheel balancer but because they are rigid, they can interfere with the balance results leaving the vehicle with a distinct vibration. Choose a lifter that is able to "bounce" up and down when in the neutral position.



\* Whilst a repeatable balancer of zero-zero is achievable it is more difficult on larger wheels like those fitted to the 4x4. The process requires "cross matching" tyres to rims using the matching programme on the wheel balancer, cleaning all the mating surfaces and using a torque wrench to ensure manufacture's recommended torque is applied to each wheel nut. Tyre manufactures has a tolerance in re-mount errors which is dependant on the size of the tyre.