

# New directions in truck suspension

**H**endrickson recently introduced a new truck air suspension system which combines the improved ride and increased load carrying abilities of conventional air suspensions but retains the stability and traction advantages which steel springs offer for tipper, agitator, logging and similar applications.

Conventional air suspension systems give a much better ride, reducing driver fatigue and causing less damage to sensitive loads. Because they cause less damage to road surfaces than steel spring suspensions, road transport authorities allow heavier loadings on air suspended vehicles. For these reasons they are popular with drivers, freight forwarders and state governments.

The drawbacks are reduced stability, particularly in rough terrain, and a tendency to lose traction because with conventional air suspensions there is no positive link between the axles as there is with most steel sprung arrangements. The positive link ensures that when one axle lifts and loses traction, the other is pressed down and obtains a better grip. This is not a problem for highway operators, but although it can be partially overcome with quad locking differentials, it is a serious consideration when the truck is used in less than ideal situations, and it's a particular problem when a truck must be used for a variety of purposes.

Hendrickson's new AR2 air suspension system is designed to overcome these difficulties.



*Rose McArdle in front of the Ford being retrofitted with a Hendrickson AR2 kit. The kit comes in the large cardboard box at her left.*

It was designed and is built in Australia, and was first introduced at the last Brisbane Truck Show.

The Hendrickson AR2 is really a modification of the conventional Hendrickson walking beam design, but with two air springs on each side mounted on a trailing arm replacing the original steel springs. Thus it retains the inter axle connection and can be retrofitted using the truck's existing walking beams and longitudinal torque rods.

Additions needed  
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*This shows how the original walking beam is incorporated into the new spring arrangement.*



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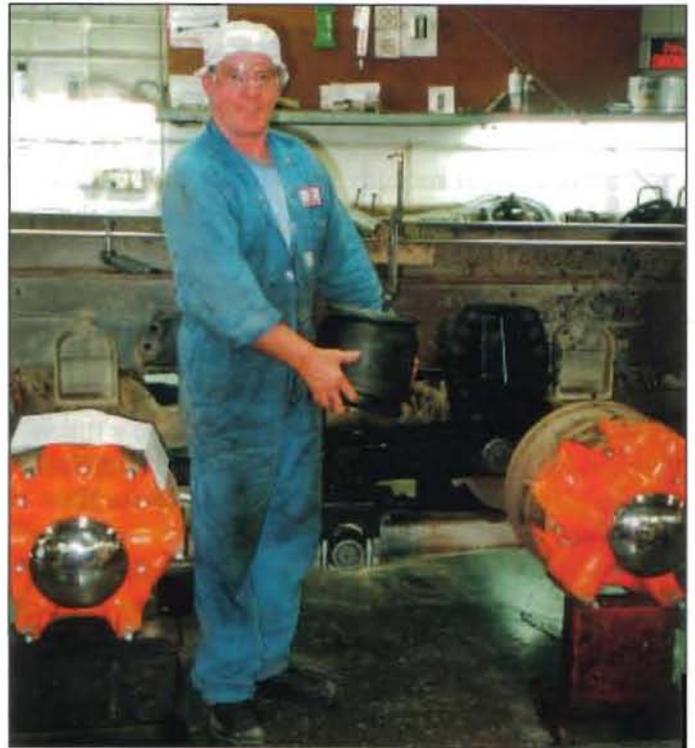
are transverse torque rods and shock absorbers fitted to the rear of the trailing arm. All necessary parts for retrofitting are contained in a kit which can be fitted by authorised Hendrickson installers,

It can also be ordered as original equipment on new trucks.

*Brake & Suspension* was present during the installation of an AR2 kit on a 1988 Ford Louisville at McArdle Repairs & Spares Pty. Ltd. in the outer Sydney suburb of Riverstone.

"This is the second installation I have done," said Gerry McArdle. "This new kit gives the owners of trucks with Hendrickson suspensions and used as tippers, garbage trucks, concrete trucks or prime movers the opportunity to convert them to air and carry bigger loads without the problems usually associated with air suspension. There is a dump valve located in the cabin which exhausts the air, allowing the load to settle on the solid rubber bumpers inside the air springs. This gives much greater stability in awkward tipping situations and similar circumstances. Retaining the walking beams means that the articulation of the suspension is not significantly altered, and traction is maintained at the limits of suspension travel.

"It's not an economic conversion for most older trucks, as it costs about \$11,000 to install the kit, including rebushing the beams and torque rods, but it's a proposition for people like this customer who uses this truck with an air suspended dog on bulk haulage



*Gerry McArdle about to install one of the two airbags fitted to each side.*

around Canberra. It gives an extra six tonnes payload to the combination."

Gerry says that while the ride is not quite as good as Hendrickson's standard air suspension, its other features make it a better proposition for certain applications.

"It really gives you the best of both worlds while sacrificing a bit of ride comfort on the one hand and a bit of the rigidity of the steel springs on the other," he said. "On balance though, it's a worthwhile exercise if

the economic fundamentals are in place. It's like having your cake and eating it!"

The AR2 was designed and is built at Hendrickson's Dandenong (Vic) works. Its overall weight is said to be the same the steel sprung version and it can be fitted to 1985 and later versions with minimal frame modifications such as drilling holes for shock absorber mounts, air bag-top supports and lateral torque rods. Mounts for the lateral torque rods also need to be welded to the axle housings. **B&S**

*The Hendrickson AR2 is an innovative Australian initiative in truck suspension design.*

