The march of the MOVER

We explore the history of the one accessory that's revolutionised the caravanning world more than any other – the motor mover. Follow our fascinating timeline…

The origins of the mover in the UK can be traced back to 1989 with the launch of a motorised trolley called the Mr Shifta. It had a towball to engage with the hitch head and was powered by an on-board traction battery and electric motor.

The Mr Shifta was a great piece of kit but a bit too big and heavy to put in the boot of your car and take with you.

An early form of powered mover was the 'Mr Shifta'

WRITTEN BY

TERRY OWEN

Terry looks back at more than 25 years of development of the piece of equipment that has transformed caravanning for many, by removing the need for manual pushing and pulling.

In February 1999, Powrwheel launched a powered jockey wheel. It was less cumbersome than the Mr Shifta but still weighed in at 20kg. These two products marked an era that saw others produce similar devices, but the real breakthrough was yet to come.

Powrwheel's motorised jockey wheel

It was another company, Carver, which broke the mould by designing a mover that clamped to the caravan's chassis and acted directly on the road tyres via friction rollers. Carver was already well known in the caravan industry for its water and space heating products so the new mover was a natural development for them.

The idea for a chassis-mounted mover wasn't exactly new. A patent for something very similar had been taken out in the USA as far back as 1974. Carver was aware of this, referencing the US patent in its own patent application.

An early version of Carver's mover was demonstrated to the caravanning public in 1996. They were asked to write down how much they would pay for such a device if it ever went on sale. The positive results convinced Carver to go into production without delay.

Carver's mover sparked a revolution when it launched the following year. People would stare in amazement as caravans moved under their own power, something never seen before. On level ground it was actually possible for the caravan to tow the car backwards, to the even greater astonishment of onlookers.

In those days, very few UK caravans came with shock absorbers and the mover motors occupied the space where the shock absorbers would have been. For some, this was a problem and, to solve it, Carver moved the motors away from the friction rollers, using a chain to transmit the power across the gap. The new mover

Carver's Euromover alongside a newly fitted shock absorber

In October 2000, Dutch company, IVRA, entered the mover market, helped by former Carver personnel made redundant when Carver sold its heating and water products to Truma.

The 'Move Control' launched and was novel in that the motors were mounted inboard, away from muck thrown up by the wheels. The design also avoided any shock absorbers that might be fitted. Long, gritted rollers transmitted drive to the wheels, giving excellent traction. It was also the first mover on the market to feature soft-start electronics.

The revolutionary design caught the eye of German manufacturer, Reich, which bought the product from IVRA in May 2001.

IVRA's mover had inboard motors and long rollers. The design was so successful it's still available today

Carver's chain drive - minus cover and friction roller

was called the 'Euromover' as its core market lay in mainland Europe where many caravans had shock absorbers fitted as standard.

Meanwhile, in January 2001, Powrwheel had launched its first chassis mounted mover, the Powrtouch. It came in two versions - one for caravans without shock absorbers and one with them. To gain market share, the Powrtouch offered a five-year guarantee - compared to just two for the Carver and Reich products. Five years has become the norm for mover guarantees.

ABOVE Carver's Mover II had radio control in place of the previous wired handset

ABOVE RIGHT The first movers from Powrwheel

The market was growing at a heady rate and Truma wanted part of the action. It had already acquired Carver's other touring caravan products and in 2002 it acquired the mover. Carver continued production, but with Truma branding. Soon, the operation transferred to Truma's HQ in Bavaria and it set about taking the mover to the next level.

Truma's site at Putzbrunn, near Munich, has a basement with a long ramp set at 15 degrees - a commonly adopted gradient on which mover manufacturers do much of their testing. The building became home to mover development, with many prototypes being tested up and down that slope.

The 15-degree ramp at Truma where prototypes were tested. Its function has since been replaced by a computerised machine

Up until this point, all movers were engaged and disengaged manually, either by operating a bar with an 'over-centre' action or winding a nut that slowly moved the rollers in and out. The first could require quite a bit of force, especially if the two sides were linked together with a cross bar. The second could be tedious with as many as 70 turns being required by some models.

There was a clear need to offer a motorised solution and the race was on to do so. In 2006, Truma introduced the SE (single-axle) and TE (twin-axle) models with the 'E' standing for electric engagement. At the same time, Truma dispensed with gritted rollers in favour of aluminium alloy ones. These had a much longer life and had proved themselves over and over on that 15-degree ramp.

Truma's SE mover won the Red Dot Design Award in 2006

CONTINUE OVER

In the meantime, Carver had been working on a mover that would be effective with twin-axle caravans. The problem with a twin-axle caravan is that it naturally resists turning. Early experiments using a single-axle mover proved less than encouraging.

To overcome the turning problem, Carver realised it would have to find a way of releasing the sideways force that builds up on the inside wheels. The answer was to continually pulse the drive motor on that side of the caravan so the wheels moved a short distance in the same direction as the outer wheels. The net result was a somewhat ungainly crabbing motion and a very large turning circle, but it worked.

The other issue to be overcome with twin-axle caravans was their sheer size and weight. Carver addressed this with more powerful motors and larger rollers for better grip. However, tests showed that, on a 25-degree slope, a really heavy caravan would tend to creep slightly, despite the worm gearing that should have prevented it. Carver, therefore, decided to go to the expense and complication of developing brakes for the motors.

Powrwheel, too, had been experimenting with a twin-axle variant of its mover and was keen to beat Carver to market. The new product launched in 2001, ahead of Carver's version. It was basically the single-axle model, but with different control electronics.

The first public demonstration of Carver's twin-axle mover took place in a corner of the NEC during the caravan show in February 2002. It featured an experimental type of metal roller with a special mesh for grip. The roller never made it into production but the mover soon did. Following independent tests at MIRA in May 2002, the new mover launched in the summer, giving a boost to the sales of twin-axle caravans.

Carver's twin-axle mover had extra power and motor brakes compared to the single-axle version

Truma's design was a giant leap forward and it won the much-coveted Red Dot Design Award - an international design prize from Germany. Reich and Powrwheel responded with motorised drive attachments that could be retrofitted to their movers.


A Powrtouch mover with optional electric actuator

By now, the success of the mover in sales terms was tempting other companies into the market. Purple Line entered with the Enduro in 2007. Its basic design echoed the Carver unit, but it was soon followed by the e-go range with more advanced features.

This early Purpleline Enduro was still working well despite the muck

Rhyno also entered the fray in 2007 with the selling point that their mover was made in the UK. Interestingly, up to this time, several manufacturers used the same motors and gearboxes. These were very similar, if not identical, to the ones from the original Carver mover and were made in Essex by a company called EMD (now part of Parvalux). They proved to be extremely reliable; in fact, they're still in use today on some models.

Despite the competition, the Powrtouch was doing very well, no doubt bolstered by social media reports of excellent on-site support for those who had problems. The success caught the eye of a certain German lady, Renate Schimmer-Wottrich, the owner of Truma and Alde. In 2008, she bought Powrwheel and provided the necessary support to drive its products to the next level.

The result was the Powrtouch Evolution, a brand new design that was more powerful and reliable than previous models.

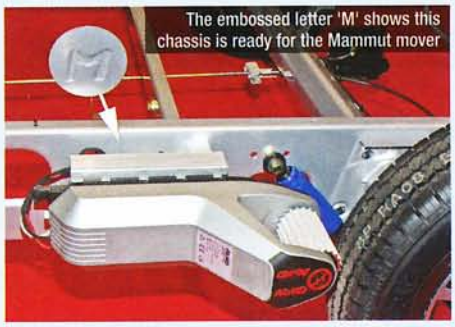

The Evolution represented a major step forward for the Powrtouch

With all these movers coming to market, one company was conspicuous by its absence. That company was AL-KO, the company that supplied 90% of the chassis for UK caravans. It was in the enviable position of being able to modify the chassis to take a mover that could bolt directly to it. This would avoid the need for clamping with its inherent reduction in ground clearance.

The obvious and quick solution would have been to partner with an existing mover manufacturer but, instead, AL-KO chose to go it alone. This could explain why it was not until 2010 that AL-KO's Mammut mover appeared.

Recognising the importance of the UK market, the launch took place at the NEC caravan show in February 2010. The newly modified chassis rails appeared from April that year. Each carries the letter 'M' to denote suitability for the Mammut.

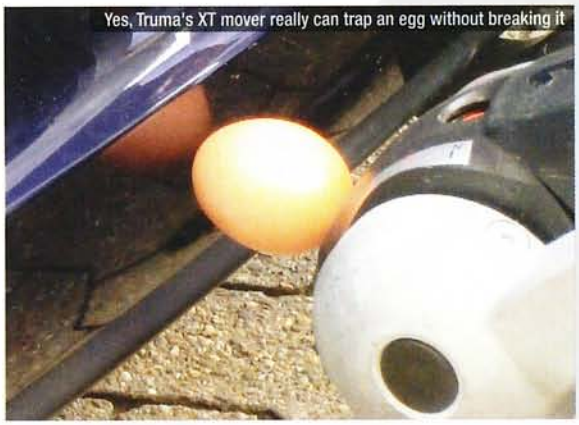
The Mammut is unusual in that the control electronics are carried in the motor housings; there is no separate control box. It means that, if anything goes wrong, the motor unit on that side has to be changed, there are no user serviceable parts. Also, for several years, the Mammut was only suitable for single-axle caravans.


The embossed letter 'M' shows this chassis is ready for the Mammut mover

A twin-axle version of the Mammut launched at the Düsseldorf show in August 2015, but only as a four-wheel drive model. This is because AL-KO believes a two-wheel drive version could get stuck when climbing a kerb if a driven wheel became lifted from the ground.

The electric motors used up to this point had one thing in common - they were all 12-volt DC motors with carbon brushes carrying current to a central armature. Whilst such motors can be very powerful, they do have a problem in that precise speed control is difficult.

Enter Truma's XT mover, which launched at Düsseldorf in 2014. It uses three-phase brushless motors with feedback so that the control circuitry always knows exactly what the motors are doing. The result is an efficient mover that can trap an egg without breaking it and a caravan that will track straight despite one or more wheels going over obstacles.


Yes, Truma's XT mover really can trap an egg without breaking it

Rival manufacturer, BPW, on whose chassis all Explorer Group caravans sat at the time, decided to partner with Reich. The new mover came to market in 2012, with BPW branding. It bolts to a crossbar running through the chassis rather than underneath it, as with other clamping systems.

BPW's mover hangs on a crossbar that goes through the modified chassis

CONTINUE OVER

The XT represented another huge leap forward and once again saw Truma win the Red Dot Design Award for one of its movers. That is perhaps why, despite being a premium product, it has sold well, reaching 10,000 units by the beginning of 2015.

This gold version of Truma's XT mover marked 10,000 units being manufactured

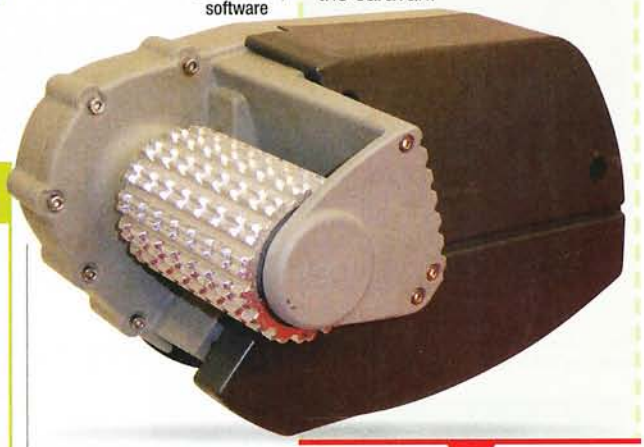
Today, the choice of movers is huge. Powrwheel is enjoying success with its Evolution mover, whilst Reich offers some of the most powerful movers on the market. It even has a smartphone app! Truma offers a range of movers, topped by its groundbreaking XT.

Purple Line has its entry-level Enduro along with the more advanced e-go, whilst Rhyno continues to offer its product direct to the public. There are also dealer-exclusive models such as The Riviera from Riversway Leisure and the Magic Mover from Bolsover Caravans.

Since 2011, Danish manufacturer, Kronings, has been supplying its movers into the UK market. They're beautifully engineered and well worth checking out. They feature an isolation device that can be operated remotely from a convenient place in the caravan.

Reich's Pro 3.1 is the most powerful mover currently on the market. It can move a 3.1-tonne caravan up a 15-degree gradient

Kronings movers are well engineered and have updateable software



CARVER - THE COMPANY THAT STARTED IT ALL

Carver was founded by Joseph Carver in Walsall in 1776 and remains family owned to this day. During its first 100 years, the company began manufacturing metal products and went on to produce munitions during the First World War. In 1959, the first Carver clamps were produced, forming the basis of the business as it is today.

In 1967, the company moved to a new, purpose built, factory in the Brownhills district of Walsall. Around this time the company began to manufacture space and water heating systems for touring caravans. It was so successful that Carver became the sole supplier of such products to the UK caravan industry.

In 1996, John Carver, a keen caravanner, saw the need for a chassis-mounted mover and produced the first prototype. By 2002, Carver had sold all its touring caravan products to German rival, Truma. However, it remains involved in the static caravan business, making gas and electric heating appliances under the Widney and Imperial brands. Carver also manufactures electronic control equipment under the Zig brand. Zig control panels were common in UK caravans in the 1980s and early 1990s.

CARVER

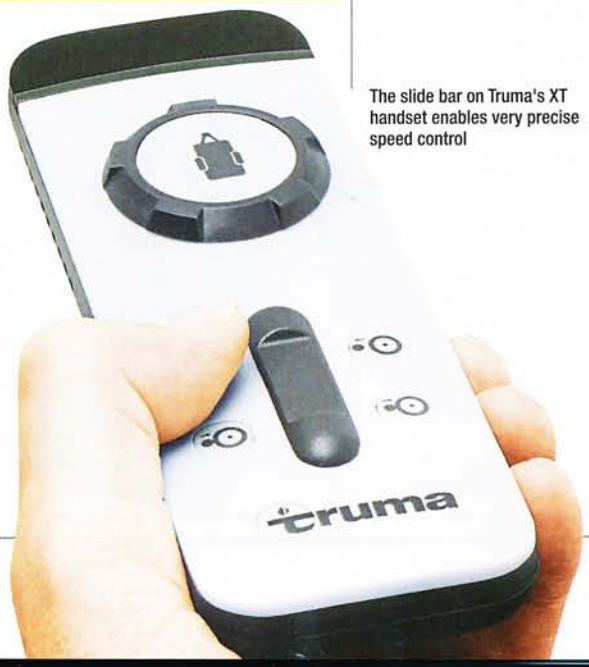
SPEED CONTROL

In the beginning there was no form of speed control. The drive motors were either on or off, making controlling the caravan tricky, especially in confined spaces. Late 2000 saw the introduction of soft-start and soft-stop, which made things much easier.

In 2010, AL-KO introduced its Mammut with infinitely variable speed control, the first mover to have this feature.

Powrwheel introduced a form of speed control in 2012 with the introduction of its FM Electronics System, which allowed the motors to be driven at 25%, 50% and 75%, as well as full speed.

Really precise speed control came with Truma's XT mover in 2014 and its brushless motor technology.



The slide bar on Truma's XT handset enables very precise speed control

There is no doubt that the caravan mover has allowed more people to enjoy caravanning and to do so for longer with larger caravans. Tight spaces are not the problem they once were and bad backs through pushing and pulling heavy caravans are a thing of the past.

The question is: what's next for our beloved caravan mover? There is no doubt it's here to stay and that strong competition will help to keep prices down, especially at the entry end of the market. We'll undoubtedly see more brushless motors and more information passed back to handsets on things like battery voltage, drive engagement and fault diagnosis. We may even see a mover that can learn a parking manoeuvre and repeat it. Whatever happens, it's going to be interesting...

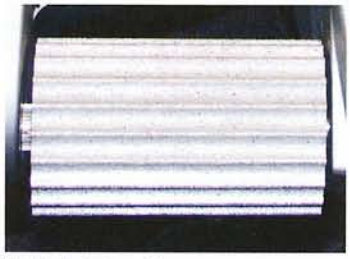
FRICTION ROLLERS

The first rollers were made of steel, coated with a coarse grit. Early examples were prone to the whole coating falling off. This was quickly fixed but gritted rollers did tend to wear and could easily be damaged by stones picked up in the tread of the tyres.

The problem was solved by switching to aluminium rollers and having a tread pattern with a hard-wearing surface. The other change is that rollers have tended to get larger in diameter as this gives more surface area to grip the tyre.

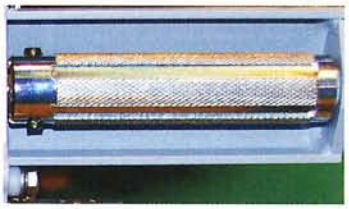
The first rollers were made of steel and coated with grit which could wear out

Truma's aluminium roller is wider in the centre where the tyre is softest



AL-KO aluminium roller

Kronings aluminium roller



This Motorglide roller is quite small in diameter to provide lower gearing and is made of steel

INCREASING POWER

The simplest way to increase power is to lower the gearing, which has little or no effect on the weight, but does mean it can drive a heavier caravan. The downside is a reduction in speed. The other option is to use more powerful drive motors, though this can mean more weight, which can be an issue as it eats into your payload. Carver's first twin-axle mover had larger motors, but was 12kg heavier than their single-axle.

Another way of getting more power out of a given size of DC motor is to use four poles instead of the normal two. In essence, this means an extra pair of stationary windings and brushes. The motor consumes more current, but produces more power. This is exactly what Truma did when it brought out the 'R' versions of its SE and TE movers in 2009.

Truma's 'R' mover on the left has four poles and brushes compared to the normal two

MOVER PRICES

In January 2000, Carver launched a special offer. Its Euromover (for caravans with shock absorbers) could be bought for £1150 including VAT and fitting at participating dealers. The nearest equivalent today is perhaps the Powrtouch Classic. It retails at a fitted price of just £700. Allowing for inflation the Carver mover would cost £1610 today. This just shows how competition has driven prices down.

The fitted price for a mover like this was £1150 in 2000, it's just £700 today

QUAD MOVERS

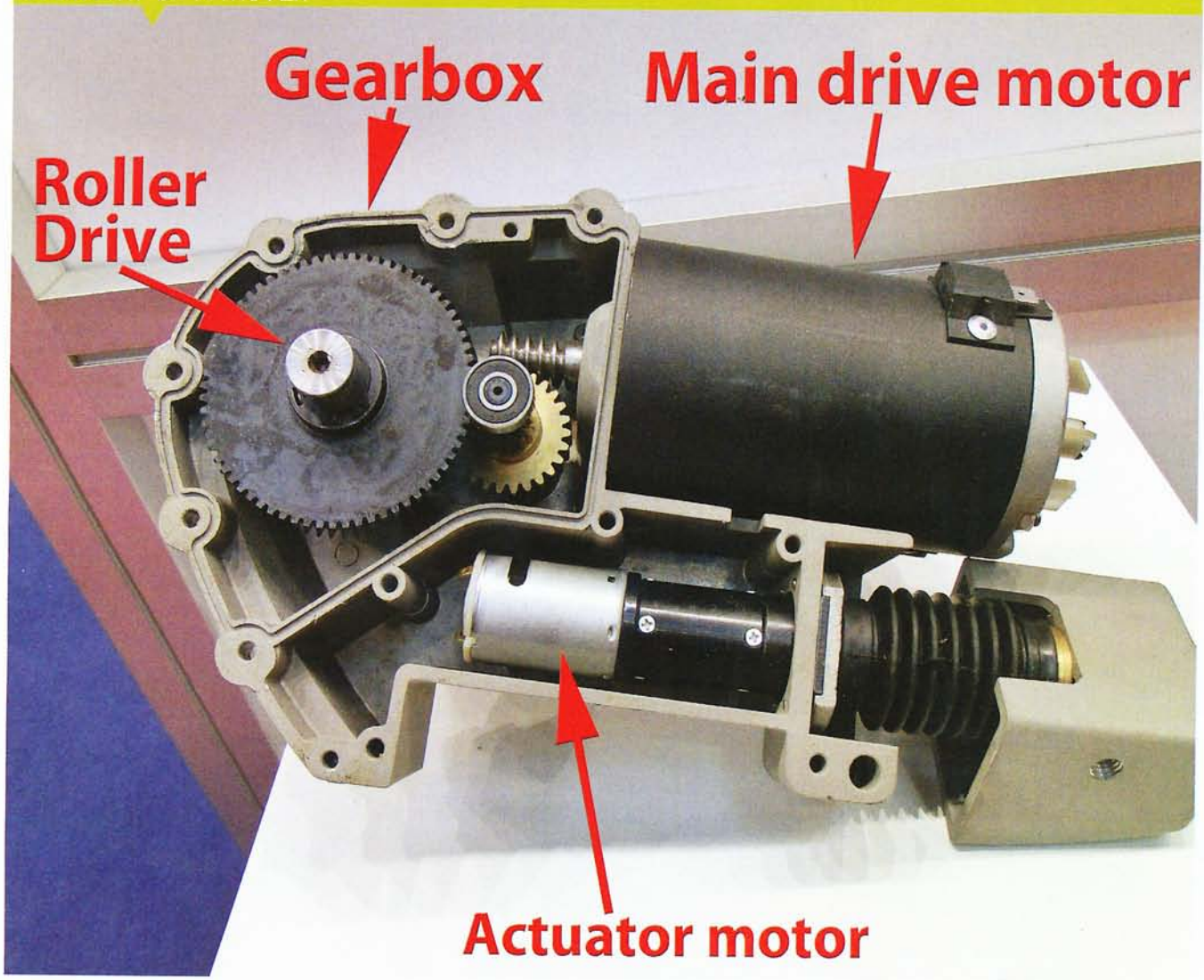
Although the problem of turning a twin-axle caravan had been cracked in 2001 the large turning circle that resulted was far from ideal. In 2005 Reich hit on the idea of using two movers, one for each axle, controlled by a single handset.

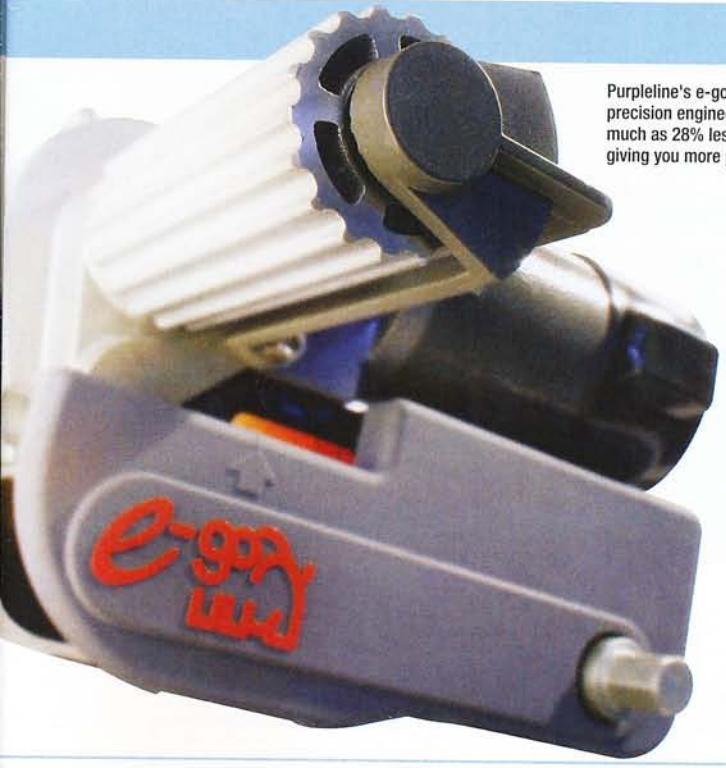
Lack of space meant the second mover had to be installed behind the rear wheels. This was less than ideal as it obscured the jacking point and interfered with under-slung wheel carriers. The result, however, was a much tighter turning circle and better overall performance, albeit with twice the weight penalty. Other manufacturers soon followed and today most offer quad versions of their movers.

Reich's quad mover was one of the first to market in 2005

MOTOR MOVERS TODAY (CHECK THESE OUT)

Powrtouch motor movers are a market leader, combining value, quality and ease of use in a great-looking package





Purpleline's e-go moto rmover features precision engineering and weighs as much as 28% less than some others, giving you more payload

Truma's XT mover is 'the daddy', capable of shifting vans up to 2300kg! It's available in single and twin-axle set-ups and offers excellent reliability