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Longer Stronge Smaller

Phil Bishop looks at what's new in All Terrain cranes and finds that boom lengths are getting longer, load charts getting stronger and chassis getting shorter.

The current strength of worldwide demand for All Terrain cranes is reflected in the wide array of new product development among the major manufacturers. After several years of retrenchment, there are new models to report on in all the major categories. The only problem is getting your hands on any of these machines. **Delivery times remain long** with most of the German manufacturers, as their suppliers struggle to meet the continuing upsurge in demand that has followed several lean years. Numerous UK crane buyers tell us that their purchase choices are no longer just about load chart, boom length and price, but also now about availability. What you can get has become as important as what you want. Good used equipment is also in short supply, so a well-planned procurement strategy has become essential.





The new product development scene is at its liveliest in the five-axle class, with four new models, This sector now covers a wide range of nominal capacities offering buyers a vast range of choice from 90 tonne fully rigged cranes to 220 tonne models which travel with only basic equipment.

220 tonne Grove tops the five axle entrants

The largest of these new five axle models is the 220 tonne Grove GMK 5220, with its seven-section main boom fully extended to 68metres; it can lift 14 tonnes or 13 tonnes to a radius of 24 metres. The addition of a 12-21 metre bi-fold luffing swingaway with two eight-metre inserts gives a maximum tip height of 105 metres and can is offset hydraulically from the cab by between five and 40 degrees.

Grove has redesigned the profile of its Megaform booms making them lighter and stronger; this was first seen on the GMK 5130-1 and continues on this year's new models. Other familiar Grove features include Twin-Lock boom pinning; Megatrak suspension and the ECOS operating system are also all still here.

One new feature, however, is a "steer-by-wire" hydraulic-electronic steering system that Grove says reduces tyre wear and improves drive quality.

A 200 tonner from Liebherr....

The LTM 1040-2.1 is the highest capacity two axle AT on the market

all terrain cranes

Liebherr has two new five-axle models: the 200-tonne LTM 1200-5.1 and the 160-tonne LTM 1160-5.1. The 200 tonner has the longest boom in its class, at 72 metres, offering a long-boom alternative to the nominally larger, LTM 1220-5.1 that features a 60 metre boom. A 12.2 metre to 22 metre bi-fold swingaway jib can be extended to 36 metres using two seven-metre lattice jib sections. Hydraulic luffing is available, but only as an option on the LTM 1200-5.1. It can be luffed under full load up to an angle of 45 degrees. The 5.3 metre base section of the swingaway jib can be equipped with a pulley set, which allows it to be used as an erection jib. It is released from the swing-away jib on the main boom with the aid of the hydraulic swingaway jib adjustment system and then erected on the telescopic boom without the need for an auxiliary crane. Carrier features such as the

ZF AS-Tronic gearbox, integrated

active, speed-sensitive rear-wheel

steering have been seen before on

other recent Liebherrs. A first for

mobile cranes, however, is the

use of air-operated disc brakes.

according to Liebherr, they make

braking more stable and reduce

wear on brake pads; all brake pads

Integrated in the crane axles,

retarder, speed control system,

automatic brake system, and

are fitted with wear indicators. There are also new engines in both the carrier and the upper, to meet Stage 3 of the European Directive relating to exhaust emissions.

....And a 160 tonner

These features are also seen on Liebherr's other new five-axle model, the LTM 1160-5.1. This is the successor to the LTM 1150-5.1, which was introduced in 1996 as the LTM 1120/1 and later uprated to 150 tonnes. The 62 metre boom is six metres longer than its predecessor and lifting capacities are increased by up to 30% at short radii. It can lift up to 11.5 tonnes on full boom, ideal for tower crane erection work. An additional 36 metres of reach can be added with a 22 metre folding fly and two intermediate lattice sections. The LTM 1160-5.1 is also notably compact for its class - a 12.3 metre chassis with a turning radius of just 10.6 metres.

Terex Demag upgrades the AC160

Terex-Demag also has a new 160 tonner, the AC 160-2. With an overall length of 12.35 metres, it is as compact as the Liebherr (a mere 5mm longer, in fact) but with a turning radius of 11.25 metres. The new

Grove's GMK 4080-1 has a 51 metre main boom, nearly 8 metres more than the predecessor 4075-1 model, yet the carrier is more compact than before



Demag is 25 percent stronger on average than its predecessor, the AC 160. Its 64 metre main boom can be extended to 96 metres with a four-section extension.

Features include Demag's IC-1 crane control system with touch-screen colour display, the Unimec boom telescoping and pinning system, electro-hydraulic rear-axle steering and the AS-Tronic gearbox.

Four axles

The four axle All Terrain was once limited to 60 tonne lifting capacities, how times have changed, the new

> models this year offer nominal lifting capacities of between 65 and 90 tonnes.

Top spec for Luna

There are three new models in this class, the largest of which is the only non-German machine to be featured here, the AT-90/58 from Spanish based manufacturer Luna. In the past, Luna had healthy exports across Europe as well as benefiting from a strong domestic market. Strong competition and the elimination of Spain's protectionist import

duties took its toll on Luna, with a significant reduction in volume. Recent years have seen it focussing on its home market as it restructured. The specifications of this new 90 tonner suggest it may be ready to compete internationally once again. On paper, it looks up for the challenge of the big German producers.

Its seven section, 58 metre main boom is the longest of any four axle mobile crane on the market. An 18 metre jib is an option. Both upper and lower power units are Mercedes, with a ZF AS-Tronic transmission

and 8x8x8 drive and steer. The chassis measures a compact 10.5 metres long and 2.75 metres wide. The AT-90/58 has integral electronic controls with data transmission via a bus system. A large touch screen within the tilting cab displays all crane functions as well as the functions of both engines, including overheating, pressures and rpm. This system also controls the automatic levelling of the suspension and outriggers. The operator is also able to watch the telescoping procedure on the

screen, to monitor the movement

of each boom section and the

situation of the pinning system.

Here at last

Grove's new four-axle 80 tonne GMK 4080-1, replaces the 4075-1 and shares a similar driveline (Mercedes engine, ZF AS-Tronic transmission). However, the GMK4080-1 has a two-step transfer case to improve control at lower speeds. The carrier is 265mm shorter, at 12.5 metres.



The Liebherr LTM 1200-5.1 has a 72 metre main boom and so offers a long-boom alternative to the stronger LTM 1220-5.1. which has a 60 metre boom.

It is noteworthy that Grove has opted to stick to a single engine in this class. The success of Faun in this category has been based, at least in part, on having a separate engine for crane operations, which saves on fuel costs. Liebherr followed suit with its 80 tonner.

The greatest difference on the new 80 tonne Grove is its six section main boom. Where the 4075 offered 43.2 metres, the new machine extends to 51 metres. The boom overhang is also reduced from more than two metres to 1.8 metres. The GMK 4080-1 will lift 6.6 tonnes at a

radius of 20 metres on the fully extended main boom. With hydraulic luffing jib and six metre extension, maximum tip height is 75 metres. The verdict from Grove dealers at its official launch was glowing, with the only negativity reserved for how long they had waited for such a good crane.

A third Global AT for Faun

The third new machine in the four-axle class is the Tadano Faun ATF 65G-4, launched in Germany last year. It replaced Faun's best-selling All Terrain, the ATF 60-4, and at 65 tonne capacity is stronger thanks to a new lighter, stronger boom system. In common with other new ATs of the past couple of years, there are also improvements in



manoeuvrability and off-road capability thanks to a new steering system. With the Faun all-wheel steering system, the fourth axle is electronically steered at speeds up to 25km/h, minimising turning radius.

The ATF 65G-4 is the third model to date in Faun's Global series, joining the ATF 110G-5 and the ATF 160G-5. The design of all G series machines takes into account the specific requirements and regulations of different national markets. As with the other G series models, the ATF 65G-4 uses a pinned boom extension system, while pinned booms take longer to extend and cannot telescope under load, the benefit of longer, lighter booms has proved to be what the market wants. While the main boom though is shorter than the other

featuring a single double-action multi stage cylinder, with first stage fixed to the base section of the boom, and intermediate rod fixed to the second boom section. and barrel attached to the third boom section. This allows power telescoping of the load and takes half the time to fully extend compared to a similar sized pinned boom. The reduced weight of the new telescope system provides improved lifting capacities, especially with long boom lengths at medium radii. For example with the boom extended to 40 metres, and working at 10 metre radius a 20 percent increase in capacity has been achieved...

two larger entrants, at 44 metres,

the Faun offers excellent lift

capacities for a given Gross Vehicle Weight, making it a good

taxi crane. A nine metre to 16

maximum hook height of 61

metres. New optional features

include the Lift Adjuster load

sway reduction system, 8x8

drive/steer and an additional

2.5 tonnes of counterweight.

Two and three axles

New this year at the smaller end

of the market is the three-axle

AC 55-1 from Terex PPM, the

two-axle Liebherr LTM 1040-2.1.

The French-built AC 55-1 has a

and the two axle Grove GMK2035E.

New full power telescoping system

new full power telescoping system,

metre boom extension takes the

The weight reduction also mean that it can now travel at 12 tonnes per axle equipped with 16:00 tyres, 5.15 tonnes of counterweight,

Ca all terrain cranes

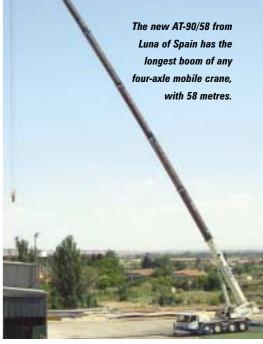
15 metre boom extension and hook blocks. A new option on this machine is a hydraulic powered luffing jib of either eight or 15 metres. This is also now being offered on the AC 35, AC 35L and AC 55L.

Liebherr take two axles to 40 tonnes

Liebherr has done well in the two-axle class recently, selling more than 1,500 of its 35tonne LTM 1030-2.1 over the past 10 years. The LTM 1040-2.1 gives customers a slightly

larger, stronger two-axle alternative. The new model has a 35 metre main boom (compared to 30 metres on the 35 tonner) with capacities averaging eight percent higher. At short radii, capacities are up to 25 percent greater. "This makes the new LTM 1040-2.1 the most powerful two-axle crane on the market," claim Liebherr.

This model also uses a single-stage, double-acting hydraulic cylinder to extend the boom, with a dual rope and pulley mechanism, providing fast telescoping even under load. An optional 9.5 metre offsettable folding fly jib means lifting heights of up to 45 metres and working radii of up to 39 metres are possible.



New Grove goes back to basics

The latest new product announcement is the new two axle, 35 tonne, Grove GMK2035E, while Groves GMK models are traditionally built in the company's Wilhelmshaven plant, the new model will be assembled in the new Niella plant in Italy. Grove has adopted a back to basics approach with this model, stripping off the Megatrak independent suspension in favour of a traditional axles and hydrogas suspension. Saving cost and complexity. Another saving is provided by dropping the hydraulic luffing swingaway in favour of a manual one, while the 29 metre main boom is carried over from its predecessor. Rental rates at this end of the market make it difficult to turn a profit, price and simplicity is all important.



Tadano Faun's new ATF 65G-4 features the Faun all wheel steering system for improved rough terrain capability

Where did all the Truck cranes go?

The All Terrain crane an unreliable povelty 25 years.

The All Terrain crane, an unreliable novelty 25 years ago, now dominates the mobile crane market. Truck cranes, although acknowledged by many hirers as the most profitable, are a thing of the past...or are they?

In the early 1980's few would have predicted that the All-Terrain concept would completely replace the then ubiquitous truck crane within 20 years. The two axle AT models then on offer, from the likes of Gottwald, Liebherr and P&H (Grove had already given up on the market) were horribly unreliable.

obliged to convert Grove RT59 and 60S swing cab Rough Terrain cranes into All Terrains.

The company had some success with the venture. Then in 1977 Liebherr introduced a purpose built model the LTM1025, which probably did more to develop the concept than any other crane.



The concept really began in Switzerland in the late 60's, yes there were some odd-ball models around before that, such as the 10 tonne "Pushmepullyou" crane that Smiths of Rodley built for the UK ministry of defence in 1963, but it was the Saturn cab-down crane made by Hydrokran AG in Switzerland that offered the first really commercial high speed road going Rough Terrain cranes. Swiss crane hirers appreciated the concept and Grove dealer Stirnimann was

The Liebherr LTM1025 later to become the 1030, took the All-Terrain to the mass market

The first LTM1025 were, as we have already said, notoriously unreliable, in the late 70's Grove shipped one to its Shady Grove plant in the USA to find out what it was doing wrong with its AT180. It found the Liebherr to be every bit as difficult to keep running and declared the AT concept to be a gimmick, a "Jack of all trades". It considered that there was no future for such an unreliable products and promptly washed its hands of All Terrains for many years. It took two acquisitions for them to catch up again and only now is the company acknowledged as having an All Terrain line that truly measures up. P&H also played a major role, in the late 70's its German subsidiary built the WS-250. It was a later model however, an All Terrain version of its 18 tonne Omega rough Terrain called the Omega S-20, which took the market forward, this relatively simple crane was very reliable for its time. Liebherr had also managed to iron out its problems by then and the two dominated the market for a while.

In the early days All-Terrains were chosen for their ability to combine all wheel drive and steer with the ability to pick and carry and relocate the crane from the top cab. Offering supposedly the road speed of the truck with the on site prowess of the RT. However its substantial price premium consigned it to a niche product in most countries. Once a few units were in rental fleets however, End users quickly appreciated the off road ability and compact dimensions, allowing the crane to get closer in to the lift. It did not take too long for premium rental rates to fall away thus stimulating demand.

For the crane hirer the advent of the All Terrain has, at least in the UK, been anything but a blessing. Not only are they more expensive to buy than truck cranes, but they are more complicated to repair and more costly to run, especially as they get older. With UK hirers running up substantial annual mileages, the cost of the expensive tyres, lower fuel efficiency and higher cost transmission and axle components really bites.

Rental rates in no way reflect these extra costs, they have come out of the hire companies pockets. Still it seems that there is no going back, and yet?? There have been some attempts over the years, largely stillborn, to roll back the carpet a

little. In the late 80's Grove tried a hybrid product called the TT760 (Truck Terrain, or Terrain Truck), with truck components, large diameter single wheels, and multiple axle drive. It died a quick death. With the departure of Kato and Tadano truck cranes from the European market, the sector looks positively dodoesque. Or is there a glimmer of change? Terex has announced that it will launch a new truck crane at Intermat and Tadano Faun is extending its HK range of commercial truck mounted cranes, up to the 40 tonnes.

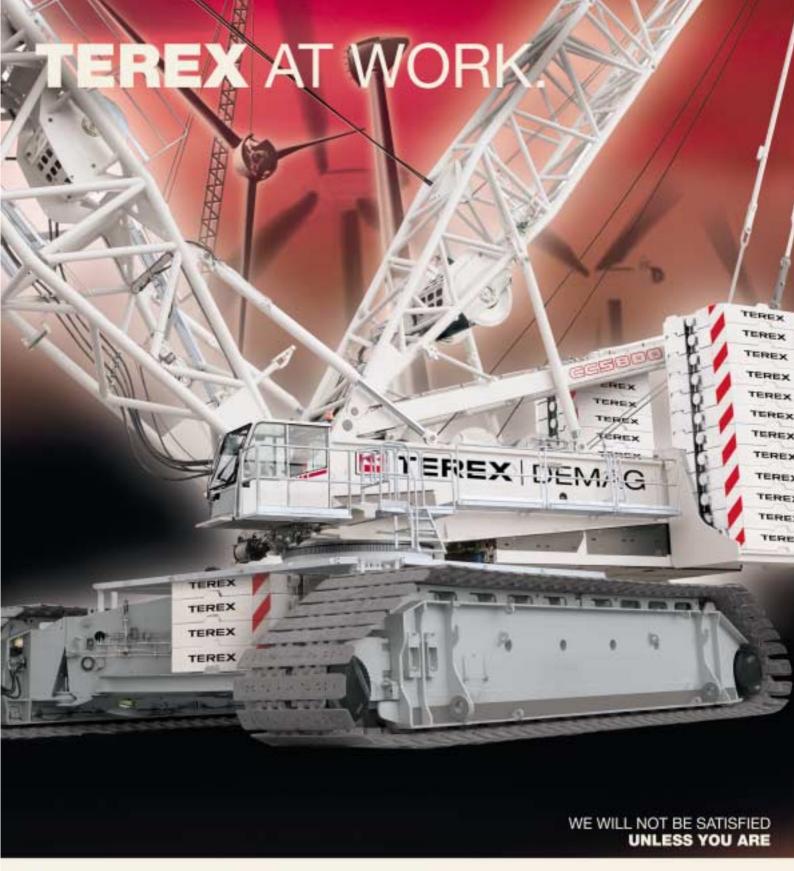
The P&H Omega \$15 and \$20 were highly popular in both Europe and the USA.

Is this the start of a comeback for the truck crane? Doubtful, but then in 1980 few though that All Terrains would catch on. Don't forget that until recently the All Terrain has largely been a European phenomena, Terex, Grove, Link-Belt and Tadano all continue to produce a range of truck mounted cranes for the American markets.

Oh and by the way, that Smiths military crane of 1963 vintage, it inspired the Gottwald All Terrain cranes, which inspired the Grove AT180 and the idea of having both driving and crane cabs on the superstructure. While the back to back format of those cranes is dead, the modern City crane, which some would argue is the latest incarnation of the All Terrain, encompasses the ideas of those early models.

This 10 tonne MOD crane might have been the first AT?





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customer Choices

The buying policies of the UK's Major hirers are well established. Ainscough's preferred supplier is Liebherr, while Hewden's machine of choice is Terex Demag. But what have others been buying recently? Phil Bishop polled some of the UK regional hirers.

Arnie Baggott, ABA, Wolverhampton

We've got a GMK 4080-1 and a GMK 5130 on order. We get excellent service from Grove and, despite the current problems, I think that will continue. The product is excellent and so is the price. We've been running a GMK 5100 for five years. It's absolutely superb and actually made us as a company - that and our six Grove 50 tonners. They're the backbone of our fleet. Faun and Grove give us the same deal they give to the big boys, which I consider fair. Liebherr and Demag give deals to them that they won't give to me.



Geoffrey Marsh, Marsh Plant, Havant

We've ordered eight cranes for 2006: an AC 35L and AC 50-1 from Demag; an ATF 45-3 and ATF 60-3 from Faun; An LTM 1100-5.1 and three LTM 1040-2.1s from Liebherr. All our ATs are renewed religiously at six years. In the two-axle class we are looking for a machine that has more than the standard 30m boom. The Liebherr has 35m and the Demag has 37m. We've got four GMK 3055s and we are trying

out the 60-tonne Faun to see if it's complimentary. Although it's got a shorter boom, it's got better lifting duties. We're trading up our 80 tonne Liebherrs to 100 tonnes and are standardising our 80 tonnes on Faun. The Liebherr 100 tonner has an extra boom section so it is more compact, with a legal boom overhang, as well as having the longest boom at 54m.

Bob Francis, Bob Francis Crane Hire, Rhyl

We've just taken the UK's first GMK 4080-1. It's a replacement for a 4075 that we've had for nearly five years. We try and change our new ATs every five years. We've been Grove users for many years and they've served us well. Out of 22 cranes, we have 12 Groves. We got two new GMK 2035s in December, also as replacements. I don't think the climate is right for increasing fleets at the moment. We've reached saturation point in this country.

John Lewis, Venture Lifting, Newbury

We've recently bought a Faun 80 and 60 tonner and have a 45 on order. I looked at the alternatives and I liked the Faun machine. It's strong, has very good duties and is good value for money. We've also found the service to be excellent.

Cameron Coutts, James Jack Lifting Services, Aberdeen

We are expanding as well as renewing our fleet. We don't keep cranes more than five years. We have had 15 new cranes delivered in the past six



months, of which nine or 10 are Liebherrs, ranging from 55 tonners up to a 300 tonne LTM 1300-6.1. We are waiting for some 1030s as well. We have

also bought a couple of Terex Demag city cranes, the AC 40-1 and three 65 tonne Fauns and two 80 tonne Fauns.

The problem is delivery. To get a replacement 70 tonne or 200 tonne Liebherr today you'd be looking at May or June next year. Faun can deliver quicker, and there are two



engines on the 65 tonne Faun. We would have liked some Grove cranes but unfortunately they can't deliver to us in time. We are having to order cranes now for end of year delivery.

Tim Proud, Dewsbury & Proud, Coseley (West Midlands)

We bought a Grove GMK 5130-1 last year [the UK's first] to replace a 120 tonne Demag AC 395. In our area, and for our type of work, main boom length duties are a key factor. A fly jib is often difficult to get on as well as increasing rigging time, so the client gets a more cost efficient crane with the Grove.

We have also ordered two 2-axle all terrains to replace some older equipment. We have chosen the 35 tonne Terex short boom machine [AC 35]. The rates on the lower end of the market have increased slightly due to a lack of modern 2-axles in the area.

