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## On the cover:

The reflection of a Liebherr 750 tonne LTM 1750 captured in the facade of an adjacent building while erecting a tower crane.



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Asc 60

Ascendant, Genie launches new electric and hybrid 60ft booms, Terex pushes Zoomlion negotiations continue, Nic Hamilton

to host Vertikal Days awards, Nishio acquires Skyreach, Maeda launches new mini crane, New Polish aerial lift manufacturer, Manitowoc splits, New MEC and JLG scissor lifts, Niftylift unveils telescopic trailer lift, Easy Lift to launch new spiders, Time France contract terminated and financials round-up.

## Tower cranes 17

This month we take a look at London-based City Lifting. Unusually for a crane rental company



it has large fleets of tower cranes, mobile tower cranes and All Terrain cranes. We also take a look at some unusual applications from around the world.

# Small booms and mast booms 27

Recent new model introductions mean that choosing a small boom lift in the 10 to 12 metre range is even more difficult than before. Not only is there a wide choice of concepts - mast boom,

ultra-compact industrial booms, light weight electric and Rough Terrain - there is also a growing choice of power units. Cranes & Access looks into the latest models and developments.

# Bauma preview part 2 39



Last month we featured the first of our Bauma 2016 previews which concludes this month with more new products that are expected to be at the show. Products unveiled at the show will be covered in the show review in the April issue of Cranes & Access.

# 17 Tower cranes

Small booms and mast booms





SUBSCRIPTIONS: Cranes & Access is published nine times a year and is available on payment of an annual subscription of £40.00. If you wish to subscribe, please send a crossed cheque made payable to The Vertikal Press Ltd to: Subscriptions, The Vertikal Press, P0 Box 6998, Brackley, Northants NN13 5WY. Address changes should also be sent to this address. Please include the address label from a recent issue with all correspondence and allow 3 months for changes to be effective.

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Kran & Bühne: The Vertikal Press also publishes a German magazine which deals with the same issues as Cranes & Access, but is written for German users and buyers. Details available on request.

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# Opportunity is missed by most people because it is dressed in overalls and looks like work

Thomas Edison

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# In the next C&A

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For users & buyers of lifting equipment

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ISSN: 1467-0852 © Copyright The Vertikal Press Limited 2016









#### Bauma 2016

Unless you have been living in the far-flung reaches of Outer Mongolia for the past year or so you will be aware that Bauma - the world's largest construction equipment show - is taking place in Munich next month.

Over the past decade or two, Bauma has not only consolidated its

position as the premier showcase for construction equipment, but it has also emasculated the other international shows in comparative terms, making it the 'must go to' event in the historic tri-annual show calendar which includes Conexpo in the States and Intermat in France.

But as Bauma has continued to grow it has almost transcended its show status, becoming a significant factor in the development programmes of many heavy equipment manufacturers'. Such is the profile and draw of the show - it is the Mecca for new product launches - manufacturers increasingly use it as the focal point for their major new product launches.

A lot of business is done and sales made - or at least 'completed' - at the show. Liebherr alone - the show's largest exhibitor - is said to have taken orders worth the best part of €300 million at Bauma 2013. The company does have the biggest stand - an air conditioned three storey office block using 1,000 tonnes of steel - reportedly costing €15 million and keeping 1,500 staff busy for two shifts each day!

This year the show looks set to be even bigger and better than the record-breaking event of 2013. We have already featured two sizeable previews in the magazine and there are certain to be many surprise new product launches at the show itself.

It is now 30 years since my first Bauma in 1986 which was held at the old (Octoberfest) showground in the centre of Munich. As it has grown - particularly when it moved to its current location in 1998 it has somehow managed to keep the same buzz and excitement for visitors, which now exceed half a million.

For those interested in equipment but have never been before, it should be on your bucket list - the size and variety of exhibits is astounding, there is nothing else like it anywhere. If you cannot make it then look out for our show review and updates on www.vertikal.net. I will guarantee there will be plenty to talk about, both in terms of products and company news.

If you are going then make sure you plan your visit beforehand with the digital version of the Vertikal Bauma Guide. And then pick up a free copy from our booth at the entrance to the Crane and Access areas - the coffee will be on.

Mark Darwin

Comment and feedback is most welcome via post, email, fax or phone stating if we may publish them or not: editor@vertikal.net



# Vp acquires **Higher Access**

UK rental company Vp, owner of UK Forks, has acquired spider lift rental specialist Higher Access for £4.1 million in an all share purchase deal.

Higher Access - which probably runs the largest spider lift fleet in the UK operates from two depots in Burnley and Luton and was established around 10 years ago by Peter Ashburner. His daughter, Lucy Reynolds, a director of Higher Access, has been appointed managing director. Going forward it will operate alongside the UK Forks business which is managed by Shane Wright who joined the company from Haulotte UK and knows the access

Vp chairman Jeremy Pilkington said: "We are very pleased to welcome the Higher Access team to the Vp group. The acquisition will be an excellent complement to our strong UK Forks business and fits the Vp model of developing specialist rental businesses with strong market positions."



# **New Grove GMK 4100L**

Grove has announced a new four axle, 100 tonne All Terrain taxi crane, the GMK4100L-1 with higher capacities and more compact dimensions. The new crane's load chart is said to be 6.9 percent better than the previous model when equipped with its 26.2 tonnes maximum counterweight, or 9.3 percent better when rigged with the 6.7 tonnes of counterweight that it can carry on board within 12 tonne axle loading limits.

In the UK the crane will be able to carry up to 19.9 tonnes of counterweight, while in the USA travelling without counterweight, it will have the lowest Gross Vehicle Weight of any four axle 100 tonne/60 metre boom crane.

Overall length is half a metre shorter, while the width is now 2.55 metres compared to 2.75 metres before. Power comes from a single Tier IV Final/ EUROMOT 4 Mercedes.

The 60 metre main boom can be extended with an 18 metre telescopic swingaway extension with up to 45 degrees of offset, an eight metre section takes the extension to 26 metres. The cabs have been improved and now include Manitowoc group's Crane Control System (CCS) with a new Boom Configurator Mode.





# Falcon pleads guilty and faces £850,000 penalty

In late February UK-based Falcon Crane Hire pleaded guilty to charges relating to the Battersea tower crane collapse in 2006, after charges against managing director Doug Genge were dropped just before the trial opened.

Crane operator Jonathan Cloke, 37, and bystander Michael Alexa, 21, died when the 28 year old crane's slew ring parted company with the tower. An investigation found the crane had been fitted with the heavier 12 tonne counterweight but longer back mast which only required eight tonnes. The company had also neglected to investigate why four bolts on the slew ring had failed two months earlier. In mid-March the court handed the company a £750,000 fine plus £100,000 in costs.

# Aldercote/APS van mounts ready for market

APS/IAPS has completed the redesign of the Aldercote van mounted lift range and released specifications of a three product line range. These include the premium specification Performance line, a specific Utility contractors line and a keenly priced Contractor's line.

All three feature a new tripod pedestal design located behind the van bulkhead to provide more storage or working space in the back of the van. Two of the tripod's legs incorporate independent rotating stabilisers, allowing the platform loadings to transfer through the column directly to the stabiliser legs, reducing stress on the vehicle's chassis. The hydraulic tank and emergency lowering controls are now housed in the rear of the van, eliminating the need for climbing onto the roof.

The Performance series offers working heights from 13 to 18.4 metres, with what the company describes as an innovative boom design, allowing even the largest model in the series to be installed on a 5.2 tonne lveco van.

Features include automatic outreach optimisation based on the load in the platform, 250kg platform capacity and the option of remote fault diagnosis and access control/monitoring via modem.

The Utility line is targeted at the competitively priced street lighting market with telescopic booms topped by articulated jibs with 110 degrees of articulation, helping provide good outreach at low levels. The light weight boom design allows a 13 metre platform to be mounted on a 3.5 tonne van with 300kg of payload remaining in the van. The Contractor Series is said to be an extremely competitively priced marketentry product with direct hydraulic controls and a simple steel boom design.



# Tracked platform from Ascendant

UK vehicle mounted lift manufacturer Ascendant Access has launched an 18 metre tracked All Terrain work platform, the A18-13TJ. The unit features a high mount telescopic boom topped by a 120 degree articulating jib and is mounted on a Takeuchi TCR50 tracked carrier.

The superstructure is based on the Ascendant A18 truck mounted lift, but adapted for off road duties. Outreach is 13 metres and maximum capacity 230kg. It can level itself on a 20 degree transverse slope with its hydraulic outriggers.

The machine is aimed at those who need to work at height in difficult to reach locations such as overhead line maintenance and installation work. It weighs just 5.5 tonnes and benefits from a wide tracked base and a total

ground contact area of 2.25 metres providing low ground bearing pressures making it ideal for soft ground conditions. The chassis has a maximum travel speed of 9km/h with 35 percent gradeability. The first two units have been delivered with a further three in production.



# **Zoomlion offers** more for Terex

Chinese crane and equipment manufacturer Zoomlion has increased its offer to acquire Terex. The move follows the Terex decision to suspend merger integration planning with Finland's Konecrane and a demand

for a higher price from Zoomlion. The initial offer was worth around \$3.3 billion or \$30 a share. Zoomlion has increased this to \$31 a share valuing

the business at around \$3.4 billion. We understand that Terex has indicated that a price closer to \$33 would be required.



# A new Tadano Mantis tele crawler goes global

Tadano Mantis has announced a new 80 tonne CE marked, telescopic crawler crane - the GTC-800 - which will be available globally later this year. The new crane, only the second Tadano telescopic crawler, joins the 120 tonne GTC-1200 designed for global distribution. It features a full power five section 43 metre heavy duty main boom, plus a 10.1 to 17.7 metre bi-fold swingaway extension with offsets of 3.5, 25, and 45 degrees. An optional 2.5 metre heavy lift jib with a maximum capacity of 21.4 tonnes that offsets at 3.5 and 30 degrees is also available.

The GTC-800 can work on slopes up to four degrees with automatic out of

level load chart switching when the Mantis' 1.5 degree normal out of level allowance is exceeded. The crane also automatically senses which of the three working track widths ranging from 3.59 to 5.42 metres - is selected. Power is provided by a 211kW Cummins Euromot stage IV, Tier 4f, driving a two-speed track drive transmission with a maximum speed of 3.6 km/h and a maximum unladen gradeability of 78 percent.





# **Genie launches** 60ft electric ...

Genie has launched a new 60ft battery powered articulated boom lift, the Z60/37DC. Based on the current diesel powered Z62/40 it has a modified lift mechanism, four wheel direct electric AC wheel motor drive with oscillating axle. It has similar performance to its diesel powered cousin with slightly less outreach at 11.3 metres, while up and over reach is 7.4 metres but it is 2.2 tonnes lighter.

The company later announced the launch of a hybrid version, the Z60/37FE at Bauma. Essentially the same machine but with a diesel engine that can both top-up/recharge the batteries and/or push additional power into the wheel motors to boost the power available from the batteries alone.

## ... And adds new option packs

Genie has also announced several new options and features for its



62ft Z62/40, including a Trax crawler version using four rubber tracked units. The Trax package includes a new, more powerful Tier 4F Deutz TD 2.9 diesel.

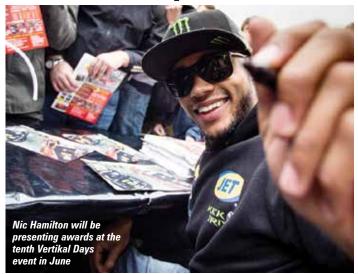
The supercharged engine can also be supplied on the standard Z62/40. The other option for the Z62/40 is four wheel, four mode steering. The company has also launched a new dual entry 6ft/1.8m platform and triple entry 8ft/2.4m basket. The new platforms include a single side mounted, walk-in swing gate and front and side mounted

drop bars and will be available on all Genie booms that take this size of platform whether new or for retrofit.

A new triple entry platform is also available for retrofit.



# Nic Hamilton to host Vertikal Days awards



Racing driver Nic Hamilton will host the fourth annual Stars of the Future Plant Mechanic Apprentice Awards at Vertikal Days in June. Hamilton, drives in the BTCC (British Touring Car Championship) and is the brother of reigning Formula One world champion Lewis Hamilton. Hamilton has cerebral palsy and until the age of 16 relied on the use

However he was absolutely determined to pursue a career in motor racing and is currently competing in an Audi S3 in the BTCC and has proved himself to be a fantastic driver in his own right.

He said: "Whilst I am aiming to improve as a driver, I am also hoping to inspire others to strive for their own personal goals, whatever their situation in life. Anyone can 'exceed expectations' in one way or another."

The Stars of the Future competition is an annual award scheme that recognises talented youngsters on apprentice schemes in 11 colleges across the UK. There are separate prizes for Level 2 and Level 3 apprentices and colleges will monitor their construction students and identify their two 'star' apprentices.

# Nishio acquires Skyreach

Japanese rental company Nishio Rental All has acquired 15.74 million shares - an 80 percent stake - in Skyreach, one of Australia's largest privately-owned powered access rental companies for around A\$21.2 million (\$16 million).

Owner Rod Leech - who started Skyreach in 1994 will retain the residual stake



in the business and continue in his role as chief executive. The company is based in Caboolture, Brisbane, Queensland, and has 10 branches spread along the East Coast of Australia employing around 100.

Skyreach revenues in the year to June 2015 were A\$32.9 million (\$17.3 million), while Nishio is one of the five largest equipment rental companies in Japan with locations in Vietnam, Malaysia, Thailand, Singapore, Indonesia and China. The company was established over 50 years ago and employs more than 3,000 across 368 branches. Revenues last year were 123.4 billion yen - roughly \$1 billion.



# **More 60 tonners for Marsh**

UK crane and telehandler rental company Marsh Plant Hire has added a further two 60 tonne, 48 metre boom three axle Liebherr LTM 1060-3.1 All Terrain cranes to its fleet, following a similar order for last year.

## Maeda launches new mini crane



Maeda has unveiled its new six tonne CC1485S-1 mini crawler crane. The crane replaces the LC1385 and features a 16.7 metre boom and a new swingaway extension which is said to be more user-friendly and easier to use.

Maeda has unveiled its new six tonne CC1485S-1 mini crawler crane

Standard equipment includes a rear view camera and seven inch monitor, while power is supplied by an EU Stage 3B compliant engine, which Maeda claims is 40 percent more fuel efficient. The first units have been sold and the new CC1485S-1 can be seen at Vertikal Days at Haydock Park in the UK this June.

# **New Polish** aerial lift manufacturer

A new Polish aerial lift manufacturer **Beckmann Volmer Technology has** introduced a new 19 metre truck mounted lift, the BVT STJ-19. One

of the first units was delivered to municipal services company



SuPeKom. The machine will be mainly used for tree pruning in the Western Polish city of Sulechów.

Mounted on a Nissan Cabstar 35.12 chassis, the lift features a three section boom and articulated jib providing an outreach of more than 12.5 metres and a platform capacity of 200kg. The unit has a standard 1,000kV insulated platform and is produced at the company's plant in Zukowo, near Gdansk, in Northern Poland.

Beckmann Volmer was originally part of the German-based Beckmann Volmer group which produces wind turbine fabrications. The Polish company became a separate, locally-owned business a couple of years ago and in addition to fabricating wind turbine tower sections, produces agricultural equipment such as harrows and rollers and has now added truck and tractor mounted aerial lifts to its product range. The truck mounted line currently extends to three principal models a 16 metre BVT ST-16, the 19 metre STJ19 and 22 metre ST22. Two 16 metre tractor models - the SR16/3 and SRJ18 - are also available.

# **New MEC** scissor lifts

MEC has launched a new 13ft micro scissor lift the 3130SE - aimed at the market currently dominated by 12ft mast type lifts and the Custom Equipment HB1230 scissor lift. It has an overall length of 1.45 metres with ladder installed -1.3 metres when removed.





The extended platform length is 1.9 metres with an overall weight of 860kg for the CE model. The new machine has rear wheel direct electric drive and a relatively low pressure hydraulic system allowing it to run on just two 12 volt sealed batteries.

MEC also launched a new 45ft slab electric scissor lift with front axle direct electric drive. With an overall width of 1.4 metres/55 inches, the 4555SE is 2.85 metres long and weighs 3,260kg. With a 16 metre working height, platform capacity is 227kg and drive at full height is unrestricted.

# TVH acquires DanTruck parts business

TVH has acquired the parts related assets of the Danish lift truck manufacturer DanTruck, becoming the exclusive replacement parts distributor for both DanTruck and Heden fork lift trucks.

The move follows the recent acquisition of the DanTruck sales and service operations by Toyota which completes in April at which time DanTruck will cease to exist. The deal includes the parts inventory, along with supplier and customer databases.

# Ahern Deutschland expands

Ahern Deutschland - the Snorkel aerial lift and Xtreme telehandler distributor for Germany - opened its new €1.1 million headquarters in mid-March. The 18,000 square metre facility is located in the Westerwald-Rhein/Sieg area between Cologne and Frankfurt and will stock around 200 new machines with 15,000 line items of spare parts.

Acquired in May last year the facility has been modified to include a showroom,

offices and training space, along with a fully-equipped workshop, a spare parts warehouse and a yard for stock machines. The company has also hired Erik Forkel and Tommy Härtig to join Snorkel veteran Roman Heindl as regional sales representatives for Germany and Austria.









cover Northwest,

Mid and Southwest



Roman Heindl handles Southern Germany and Austria

<u>V</u>anıtowoc

# **Manitowoc splits**

Manitowoc has completed the spin-off of Manitowoc Foodservice as an independent public company with

shares listed on the New York Stock Exchange. The split was initiated by an attack from activist shareholder Carl Icahn launched in December 2014. Manitowoc Crane - on its own for the first time in its history - joins Tadano as one of the few stand-alone publicly quoted crane companies.





# New York to revert to original crane rules

New York City looks set to drop its plans for tougher new rules for crawler cranes following the overturn of a large crawler crane in Manhattan on 5th February. Shortly after the incident the Department of Buildings announced that all crawler cranes must be safely stowed whenever winds of 20 mph (8.9 m/s) are reached. However contractors said that the rule was impractical.

A 'technical working group' was quickly formed by the City to investigate the incident with the aim of introducing new rules for large crawler cranes operating in the city. This group has now suggested reverting back to the former rules, but with cranes having to stop work when winds reached 30 miles an hour or according to the manufacturer's specification. Contractors and crane operators complained that the temporary rules were not making things safer and that the constant stopping was hurting business.

# **Niftylift** telescopic

Niftylift revealed an all-new telescopic trailer lift concept - the 40ft TM40 - designed for the North American market at the Rental Show last month. The unit has a chunky two section boom and end mounted platform giving 10 metres of



outreach. It is said to be simple and easy to operate with hydraulic fold-down outriggers and the boom stowed over the draw-bar.

Niftylift says it has yet to decide whether it moves forward to prototype and production stages, but has designed the unit with tree care work in mind, with heavy all-steel covers and protected hoses and wires etc.

# 65ft Haulotte trailer lift

Also at the Rental Show Haulotte unveiled the prototype of a new 22 metre articulated, telescopic trailer lift, with aluminium boom and more than 13 metres of outreach. The machine will weigh 2.7 tonnes and have an overall length of just over seven metres. The new machine has been built along the same lines as the Bil-Jax trailer lifts with the smaller North American rental stores in mind.



# All new JLG electric scissor lift

JLG has launched an all-new 19ft mini scissor lift to replace the current RS model. The 32 inch wide short chassis 1932R features hydraulic front wheel drive, active pothole protection, heavy duty steel machinery trays, and simple access for service. The unit will run alongside the company's ES premium range and be built in both Mexico and China.



The Peco goes Eco stateside

In addition to launching the new scissor lift JLG used the Rental Show last month to launch its Power Towers pecolift range in North America. Dubbed the JLG ecolift 50 and ecolift 70 the two model manually operated product range offers five and seven foot platform heights respectively.

JLG acquired Power Towers in June last year but continues to market its products as Power Towers wherever the brand is already established. In other markets such as the Americas it will be distributed via the JLG distribution network with JLG branding.



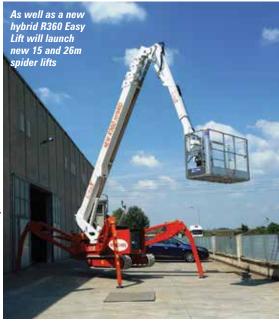
# Skyjack industrial boom

As we announced in last month's issue, Skyjack unveiled its all-new battery electric articulated boom lift at the Rental Show. The new 30ft SJ30 ARJE continues the Canadian manufacturer's philosophy of building simple reliable machines that are easy to maintain and repair. As with most other models of this type it features a rotating articulated jib. See Mast booms and boom lift on page 27 for more details on how this new machine stacks up against the current competitors. At the same time the company rolled out its new Accessoryzers attachments and accessories. These range from special tyre options to pipe racks, tool trays, sheet and glass handling racks and cladding packs, to name but a few.

# **New platforms from Easy Lift**

Italian aerial lift manufacturer Easy Lift will launch new 15 and 26 metre spider lifts. The 15 metre spider features a dual sigma type riser and telescopic boom, 360 degree slew and 6.8 metres of outreach with 230kg platform capacity. Up and over reach is 6.4 metres. Features include extending tracks, 180 degree platform rotation and petrol, diesel or lithium ion battery power options.

The 26 metre spider will have dual telescopic booms and an articulating jib with 140 degrees of articulation. Maximum outreach is 14.5 metres, maximum capacity 230kg and over height 11 metres. The 36 metre R360 spider will also now be available as a hybrid with diesel and lithium ion battery power. The company is also planning to launch a new 15 metre van mounted platform - the EV150 - on a 3.5 tonne Ford Transit chassis.



# First Liebherr for Crowland

UK rental company, Crowland Cranes has purchased its first Liebherr, a new 50 tonne LTC 1050-3.1 City type All Terrain crane.

The three axle crane features a 36 metre, six section main boom plus a 13 metre bifold swing away extension with 1.5 metre integrated assembly jib. The crane will be based at the company's new depot in Norwich.





# **Dingli safety alert**

Dingli Australia has warned of a potential stability related issue with some of the slab electric scissor lifts it has sold. The units affected are machines designed to Australian standards and manufactured prior to 2014.

A retrofit solution is currently being developed and tested and will be installed by Dingli Australia. In the meantime, the units affected should only be used indoors and with one person in the platform. Owners are advised to contact Dingli Australia for further information.

# Time terminates French contract

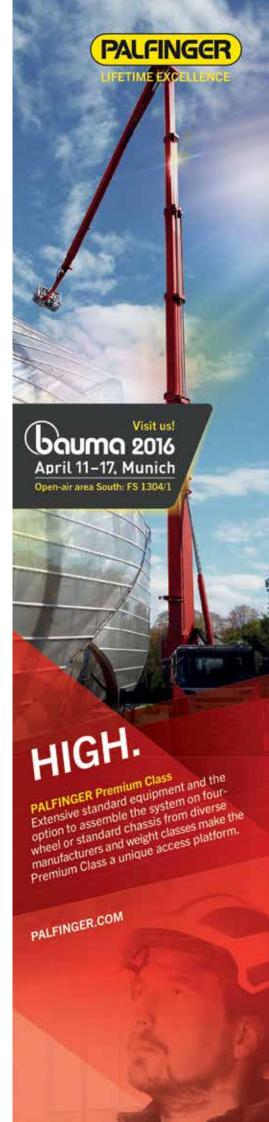
Time Export/Versalift is terminating its distribution contract with Time France for France, Spain, Portugal and Northern Africa.

Time France will no longer sell or distribute Versalift vehicle mounted aerial work platforms and all cooperation between the two companies will end. The name Time France will also cease to exist and the



company has already changed its name to Klubb as it moves forward with its own range of van and truck mounted platforms.

Time says that it will announce a new distribution and service strategy for the affected geographical regions in the near future. Time France was the exclusive Versalift distributor for 15 years in France and for six years in Spain.



# Financials round-up

2015 revenues at **Manitex** increased 56 percent to \$386.7 million thanks to a \$93 million contribution from PM Group and \$116.9 million



from ASV. The lifting division - which comprises Manitex boom trucks, Valla cranes, Ferrari marine equipment and PM - saw revenues increase by more than 14 percent to \$261.2 million. The company made a pre-tax loss of \$4.5 million compared to a profit of \$12.5 million in 2014.

US rental company **NEFF** has reported full year revenues of \$383.9 million, 3.2 percent higher than in 2014. Pre-tax profits more than quadrupled to \$43.8 million.

The Rental division of Brazilian construction group **Mills**, posted revenues of R293 million (\$79.4 million) for the year, down 21.5 percent. Operating profit fell 32.5 percent to 132.6 million (\$35.8 million). Group revenues dropped 28 percent to R576 million (\$156 million) with a loss of R128.7 million (\$34.9 million). The



company also plans to recapitalise through the issue of 47.5 million new shares with the aim of raising R125 million (\$34 million).

**Skyjack** revenues increased 23 percent to C\$852 million (\$642 million) in 2015, a new record. Operating profit jumped 42 percent to C\$156.2 million (\$118 million).



Haulotte had total revenues for 2015 of €445.3 million, eight percent up on 2014, with improvements across all sectors. The company says due to a buoyant start to the year - mainly in Europe - it expects 2016 revenues to rise by five percent.



Hertz Equipment Rental had revenues of \$1.52 billion in 2015, three percent lower than in 2014, partly due to the sale of its Spanish and French operations. Pre-tax profits for the year dropped almost 30 percent to \$120 million.

Manitou's Material Handling and Access Division achieved full year revenues of €827 million, three percent up on the year, while operating income more than doubled to €40.9 million. Revenues at the Compact Equipment division/Gehl



were flat at €240 million but 14 percent lower in local currency. Operating profits dropped from €17 million in 2014 to just €4.3 million in 2015.

Ashtead - owner of Sunbelt in the USA and A-Plant in the UK - has reported revenues of £1.88 billion for the nine months to December more than 25 percent higher than last year, while pre-tax profits improved 26 percent to £465 million. Sunbelt saw revenues increase 21 percent to \$2.47 billion, mostly through organic growth. Operating income increased 20 percent to \$771 million. A-Plant reported revenues of £263.9 million, nine percent higher than last year, mostly due to a larger fleet. Operating profit for the period increased 25 percent to £47 million.

**H&E Equipment** has reported a 4.5 percent fall in 2015 revenues to \$1.04 billion due mostly to lower sales of new equipment. Pre-tax profit declined 18.5 percent to \$75.7 million.



**Lavendon** - owner of **Nationwide Platforms** in the UK, **Gardemann** in Germany, **DK Rental** in Belgium and **Rapid Access** in the Middle East - saw revenues rise one percent to £248.6 million for 2015, while pre-tax profits fell 22 percent to £16.2 million.



**Terex Cranes** saw 2015 revenues fall five percent to \$1.7 billion, while operating profits dropped 33 percent to \$57.5 million.



Genie has reported revenues 6.5 percent lower at €2.21 billion for 2015, while operating profits fell 11 percent to €269.3 million.



Singapore-based crane rental company **Tat Hong** has reported nine month revenues of \$401.5 million, 15 percent down on last year. Crane rental declined 25 percent, tower cranes five percent, general equipment rental 23 percent and distribution revenues five percent. Pre-tax profit for the nine months was less than a sixth of last years \$36.7 million at \$5.9 million.



**Cramo** has reported full year revenues of €667.9 million, 2.5 percent up on 2014, thanks mostly to strong improvements in Sweden and Finland. Pre-tax profit for the period was three times that of the year before at €63.8 million.



Full year revenues at **Hiab** increased 10 percent to €928 million, operating profit more than doubled, rising 135 percent to €99.6 million. **Kalmar** had full year revenues of €1.66 billion, 12 percent higher than in 2014. Operating profit more than doubled rising 130 percent to €127.3 million.



Ramirent posted full year revenues of €635.6 million, 3.6 percent higher than in 2014, while pre-tax profits improved 10.4 percent to €46.9 million.



**Tadano** reported nine month revenues of ¥299.1 billion (\$2.6 billion) eight percent higher than last year, while net profits were ¥29.7 billion (\$262.4 million) an improvement of 8.5 percent.

Japanese rental company **Nishio Rental** All has acquired an 80 percent stake in Australian rental



company **Skyreach** for around A\$21.2 million (\$16 million).

For the full reports on all these stories check out Vertikal.net

# Full set of Katos for Reeds

The new 20 tonne Kato CR200Ri

UK rental company Reeds (Bray) Cranes has become the first

company to purchase all three models in the current Kato CityRange. Based in Gateshead, the company has taken the 13 tonne CR130Ri, the 35 tonne CR350Ri and most recently the 20 tonne CR200Ri.

The CR-200Ri, replaces the Kato CR250 and boasts a 28 metre six section main boom, plus four to 5.8 metre hydraulic luffing jib with up to 60 degrees of offset. The outriggers have five width settings with beam length sensors automatically feeding the set-up configuration to a colour touch screen Safe Load Indicator system equipped with working range-limiting functions. The fuel efficient Cummins Tier 4 Interim/Euro Stage IIIB compliant engine includes an Eco mode for greater fuel efficiency.

The Kato CityRange will be on display at Vertikal Days, 15th and 16th June.

# Bravi Leonardo platforms recall

A number of Bravisol Leonardo platforms built between 2007 and 2009 that have been retrofitted with a replacement PG Trionic control unit, have been found to malfunction at low battery levels and must be checked and where applicable the control board changed.

The affected machines were manufactured between 1st July 2007 and 31st December 2009 AND the original Microel panel replaced with a PG Trionic panel that dates from 2011 onwards. This warning and recall only applies to machines that comply with BOTH of these conditions. Machines that do should be immediately taken out of service. Bravi will supply a replacement contactor and software update free of charge.



Contact Marco Rivellini - email: parts@braviisol.com or Telephone +39 071 7819090

# **Quality Contract Lifting in administration**

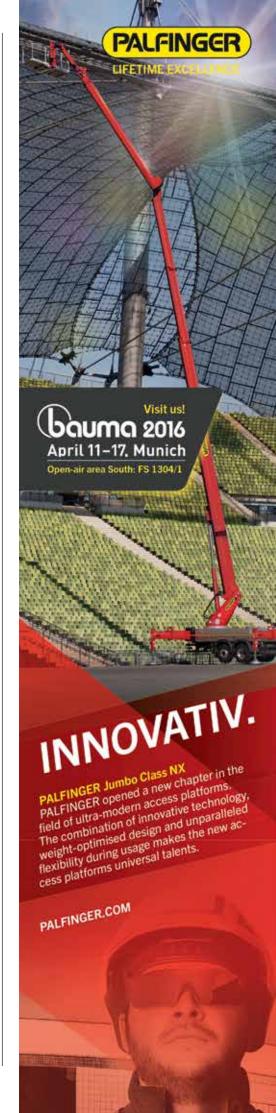
UK-based crane rental company Quality Contract Lifting went into administration last month. The Manchester-based company - owned by Shaun Quigley - was established in 2006 originally as Quigley Training Services, just before Quigley United Kingdom was placed in administration. Shaun and brother Gary formed another company - Quigley UK Lifting Services - which purchased some of the assets of Quigley United Kingdom and was declared bankrupt in 2013 following a series of bad debts. Shaun then began trading with Quality Contract Lifting.

# TVH to handle Isoli in Benelux

Italian truck mounted platform manufacturer Isoli has appointed TVH Equipment as its exclusive distributor for Belgium and Luxemburg. The agreement sees TVH taking over from sales and rental company Hermans Heftrucks, distributor for Belgium since June 2010.

Following the official agreement, TVH placed an order for 16 Isoli truck mounted lifts, some of which will go into its rental fleet, while others are destined for sales inventory. TVH subsidiary HDW has been the Netherlands distributor for Isoli since December 2010.









April 11-17 Booth No. Fs 902/2



3 Revolutionary Updates



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Rasey

Christophe Cantou

Tapio Kolunsarka

Kevin Chalmers

# **EWS HIGHLIGH**

- Eric Etchart has formally retired from Manitowoc in order to pursue a number of other business interests.
- Jason Stennes CEO of 360 Crane **Services** in Vancouver hit the headlines by offering jobs to two homeless men bussed from Saskatchewan.



UK-based O Crane & Plant Hire has taken delivery its fourth Kobelco crawler crane in 12 months.

Gary Kennedy sales office manager at RaycoWylie in the UK has died, he was 61.

UK rental company Star Platforms has ordered 220 new Skyjacks including masts, boom lifts and scissors.



ALC Vehicles has taken delivery of five 16 metre Dinolift 160XTII trailer mounted lifts for the UK Armv.

German access and telehandler rental company Möller Manlift has opened a new depot in Fulda,

South Korean food company CJ Cheiljedang has taken delivery of a 35 metre Easylift R360WBA spider lift.

Mammoet has devised a safer and more rapid solution for unloading bulk bags from ships.

Danish spider lift manufacturer TCA Lift has delivered a new 52 metre Falcon spider lift to Shanghai MixC Mall in China.

Australian rental company Camden Hire has installed Point of Rental Software rental management system.

Spierings has delivered new six axle SK1265-AT6 mobile self-erecting tower cranes to Bryn Thomas and Ainscough in the UK.

Mike Stevenson has retired after 11 years as a regional sales manager for **Snorkel**.

The Crane Industry Council of Australia Mike has partnered with the Piling & Stevenson Foundation Specialists Federation to introduce a Green sticker for foundation cranes.

Dutch international Oil and gas contractor Seaway Heavy Lifting has purchased two Sennebogen crawler cranes.

Snorkel has confirmed the appointment of **Andrew Fishburn** as divisional managing director of Snorkel UK.



Solutions has opened a new depot in Middlesborough. A new component supplier - Integrated Hydraulics Solutions - has opened in Sheffield, UK.

Hydco - the Israeli dealer for Effer - has opened its brand new 5,500 square metre facility in Gan-Yanne, central Israel.

German sales and rental company Hebetechnik Wendel has taken over the distribution of Matilsa aerial lifts.

Per Lundquist senior vice president, operations at rental company Cramo has resigned.

Per Lundquist UK-based rental company 1 Up Access has appointed Mark Trueman as operations

Terex Port Solutions is to supply two more Terex ship-to-shore cranes to TICTS Hutchison Port Holdings.

IAPS owned Outriggerpads has expanded its Hi Viz range with two new spreader plates.

A plant in Sabetta, Northern Russia has taken delivery of eight new JLG booms and scissor lifts.

Magna Tyres has appointed Christophe Cantou as sales manager for the South of France.

Emerson Crane Hire in the UK has purchased two Liebherr LTM 1060-3.1 All Terrain cranes.

Danish rental company AH Lift has purchased its fourth TCA Falcon FS330Z spider lift.

UK sales company AJ Access Platforms has ordered 30 diesel 4x4 Holland Lift scissor lifts.

 Ramirent has appointed a new chief executive, Tapio Kolunsarka, who will replace Magnus Rosén.

UK rental company Bryn Thomas Cranes has purchased five new Liebherr All-Terrain cranes.

 Load cell manufacturer Straightpoint has appointed Myron Jones as operations manager.

UK rental company Quinto Crane and Plant has taken delivery of a four axle Spierings SK 597-AT4.

Hertz Equipment will trade as Herc Rentals once it separates from the Hertz car rental

Lufthansa Hungary has taken delivery of a CTE ZED 23.2 JH articulated truck-mounted platform.

 Dragline rental company Kiesabbau Wiedemann has taken delivery of four Liebherr duty cycle

Norwegian crane rental company Nordic Crane has taken delivery of six new Grove All Terrain

UK-based **Hewden** has appointed Edward Carr as operations director cranes, Kevin Chalmers as operations director lifting solutions and Mike

Omond as operations director - plant.

Kalmar has delivered its 1,000th DCG90-180 mid-range forklift to Norwegian company NorSea.

A crane operator in Israel was fired after refusing to work in strong winds.

Ritchie Bros has acquired online equipment listing service Mascus International Holding.

• The **ALL** crane and access rental group has ordered five new Liebherr All Terrain cranes.

• E McAllister has been appointed to handle aftersales support for Manitowoc and Grove cranes in Columbia.

Wacker Neuson has confirmed Johannes Schulze Vohren as its North American regional president.

**US-based Trojan Battery** has appointed Michael Everett as senior vice president of engineering.

German crane rental company Wiesbauer has taken delivery of its new 700 tonne Terex AC700. Continental Tyre has appointed T. Shawn Rasey as global business

development manager for its OTR business.





Italian aerial lift manufacturer GSR has delivered is 800th van mounted platform to German distributor Rothlehner.

purchased three Böcker truck mounted cranes.

 Spanish rental company AP Lift has taken delivery of a 63m Ruthmann T 630 and 27m TB 270+.

Ahern Deutschland has appointed Erik Forkel as regional sales representative for North and East Germany and





Tommy Härtig for Northwest, Mid and Southwest Germany.

UK rental company Cannon Access has taken delivery of a 14 metre Airo X14EW 14 compact scissor.

Manitou has appointed Western Pacific Crane and Equipment to distribute its telehandlers.

 South Korean rental company Shinui Petra has taken delivery of the first Manitowoc MLC650 in the country.

• Ex-Terex CEO Ron Defeo has taken up a new full time job as chief executive of Kennametal.

Skyjack has delivered an 86ft SJ86 T telescopic boom lift to Ontario Rental Supply in Ottawa.

 UK access company Rapid Platforms has taken delivery of a new Almac Bibi 850-BL tracked scissor lift.

Oil & gas lifting provider Sparrows Group has extended its operations to Trinidad and Tobago.

Belgian rental company GF Hoogwerkerverhuur has ordered new Ruthmann and Versalift platforms.

H N Construction of Bokaro Steel City, India, has taken delivery of a new Terex Explorer 5800 All Terrain crane.

André Meijer the CEO of Dutch heavy crane manufacturer **Huisman** has left the company.

Tom Bennett, former chief executive of Prime Equipment/RSC has died, age 72.

 Jekko has appointed JT Cranes as its official distributor for the UK.

Isoli has appointed TVH Equipment as its distributor in Belgium and Luxemburg.

Mateco has opened a branch in Bamberg its 30th location in Germany.

Ahern Deutschland has opened its new HQ in

Weyerbusch central Germany. IPAF has appointed Burcu Ünal as country

representative for Turkey and **Johan** Friis for the Nordic and Baltic regions.





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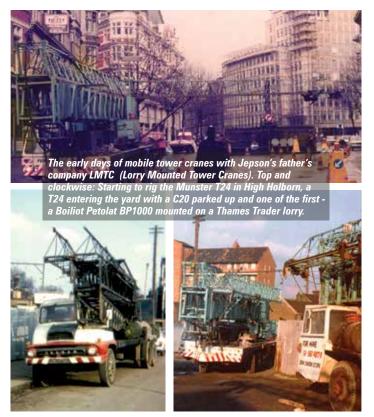


# City slickers

The first three Cranes & Access issues this year include features on mobile self-erecting tower cranes (January), tower cranes (this issue) and All Terrain cranes in the March issue. Unusually, one company has a sizeable fleet in all three of these usually disparate sectors. London-based City Lifting has the UK's largest fleet of mobile self-erecting tower cranes, more than 100 tower cranes and 35 All Terrains - as well as numerous spider cranes. Mark Darwin chatted with founder, managing director and self-confessed crane 'anorak' Trevor Jepson about the recent growth and changes in the company.

City Lifting's history has already been covered in the September 2007 issue of Cranes & Access following the delivery of its first seven axle Spierings SK 2400-AT7 mobile tower crane - which is still working in the fleet - and the first Unic 706 mini crane in the UK. However, it is its growth over the past five years that has been particularly exciting.

A brief history re-cap saw the company start in the early 1980s when Jepson left the family business started by his father and purchased two Potain tower cranes, operating one and renting out the other. The two cranes expanded to four and he also started working with other crane companies gaining a good reputation as a fitter/repairer. These services were offered on an







increasing basis in the early years and the company grew rapidly so that by the start of 1991 it had a fleet of 23 cranes, all Potain. The company continued to expand adding its first Spierings mobile self-erectors around 10 years later. It also became the Comansa tower crane dealer in the UK offering its full range of flat-top cranes for sale and rental and works with Artic Crane in Sweden having helped with the development of the Raptor range of articulating tower cranes. City Lifting has a small fleet of Unic and Maeda spider cranes and a sizeable All Terrain fleet with capacities up to the new 400 tonne Grove GMK6400. Today it employs around 120 at expanded offices on its Purfleet site, on the north side of the Thames in East London. Although it has another yard a couple of miles away - as overspill for Purfleet with the smaller mobile cranes running from there - and another depot in Mundon for its tower cranes, its head office is once again bursting at the seams and Jepson is constantly on the look-out for the right plot of land to ease the situation. The problem gets worse every week that goes by as he expands the fleet.

"We have made our purchases for this year but will be looking to order more cranes for 2017 later in the year," says Jepson, "including three Artic Raptors, two Wolff luffers and

two Comansa flat-tops."

It also has four more Spierings cranes on order - two of the new SK 597-SK4s as well as a new six axle crane and an almost new, 2014 five axle unit. Delivery dates had been delayed as Spierings - along with many other major manufacturers - is having problems adapting the machines for Euro IV, which requires radical changes to fit the new larger and heavier engines and much larger exhaust systems. The SK 597's also have steel mats with a placing crane built in so the driver can place the steel mats without assistance.

Other new deliveries include a 160 tonne Liebherr for this month, along with a 40 tonner and a new 50 tonne LTC 1050 City type crane. The reason for Liebherr to change from the previous LTC 1045 (City Lifting has three) is again trying to fit Euro IV engines which needed a major change of the chassis to accommodate this.

#### **Current fleet**

Relatively recent additions to the All Terrain fleet include two Groves - a 300 tonner purchased 18 months ago and another UK first, the 400 tonne GMK6400, added last September. These are the largest units in its fleet of 35 All Terrains, not including the 16 Spierings mobile tower cranes which will increase to 18 at the end of March.

### tower cranes

Cla

It is also expanding its mini crawler numbers with the fleet now predominantly Maeda.

"Kranlyft - the Maeda dealer in the UK - is more set up for supplying parts and looking after rental customers," says Jepson. "Also we have an old Maeda 305 - one of the first in the UK - which after a good clean and T-cut looks like new and is out working without a problem. All the Maeda machines are very reliable and parts are easy to obtain."

City Lifting was one of the first companies to take one of the new Maeda MK 1033 knuckle boom cranes. The new six tonner due to be launched at Bauma next month is also attracting Jepson's interest. All the spider cranes are stored under cover alongside the tower cranes in Mundon, Essex, as there is so no space for them at head office.

The company has a varied fleet of more than 100 tower cranes including 10 Wolff luffers - five 100 Bs and five 166 Bs - 11, two tonne at 32 metre Artic Raptor type 84 - which have a four metre out of service radius - with two more on order, Raimondi LR60's, self-erectors (mainly Potain) and also Liebherr telescopic 32TTs, one of which is crawler mounted.

"We have one Comedil bought a few years ago when we couldn't get a Comansa because of delivery problems but the majority of the tower crane fleet is made up of Comansa flat-tops as well as some older BKT cranes which are still a good crane. However, some need a lot of money spending on them, and it is easier to buy a new Comansa instead."

#### Purchase planning problems

"The problem with the crane business is it is very hard to

plan major purchases with any certainty," he says. "Due to the manufacturers' six to 12 month lead times, the general uncertainty in predicting what the state of the UK economy will be at that time, coupled with a fluctuating workload. All in all, it is a bit of a gamble when you are spending millions of pounds. And once you have decided to purchase a crane or two you don't know how much it will cost when delivered thanks to currency fluctuations. I always pay for the machine at the Sterling exchange rate when I get the crane, which is a gamble. Up to now I have been lucky with this approach but I think my luck may have run out due to the uncertainty the referendum is

Just manoeuvring a fleet of more than 150 cranes keeping them busy is a nightmare in itself.

"We took delivery at the beginning of January of two new Comansa flat-tops for a contract that should have started straight away. That job has now gone back to the end of March," he said. "This is another problem with tower cranes, if you are a week late on a contract the customer goes berserk, however if they delay then we cannot use the cranes elsewhere as the original job still has to be done, especially if the bases are designed and poured. Most of the expansion of the tower crane fleet has been due to other contractors not releasing cranes due to contracts over running which are promised elsewhere."

"With the mobile cranes we have days where we don't have enough cranes and other days when only half go out - it is an absolute planning nightmare. Add to that the day could be all contract lifts needing a minimum of three men per crane, transport for all the mats











and ancillaries, method statements in place, traffic management, road closures and all the right security passes or specialised training for where the job is."

"The next day could be predominantly CPA hires with one man per crane and everyone and everything else in the yard. Add to that this year so far has had more than enough storms and windy days. Our office staff are superb and keep on top of this ever changing demand."

#### **Recent growth**

The company has expanded enormously over the past five years after overcoming a problem with the head office mortgage during the financial crisis, when banks were trying to reduce exposure and squeezing companies with solid assets such as City Lifting.

"Once we sorted out the problem it wasn't a conscious decision to grow but if we needed a crane on a regular basis then we would buy another. The two criteria for purchasing a machine is having a specific job and whether are the rates are viable?"

Until a few years ago Jepson preferred Terex All Terrains, and it was not until 2012 that he purchased his first Liebherr - an LTC 1045. Since then he has added two more, with a new LTC 1050 on order. He is also expecting a 160 tonner - a cancelled order and available at short notice - and looking to add one of the new 100 tonne, 2.55 metre wide Grove GMK4100.







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#### Large yard investment

City Lifting has invested a good deal of money in its head office facility, but it puts the company in the heart of London with about 80 percent of its work within the M25 orbital motorway. "There is more than enough work in London," says Jepson. "We try to specialise such as carrying out lifts for glass installation and air conditioning unit replacement. We will also look at erecting steel work, but only the more difficult lifts on restricted sites."

For glass work it has a few Böcker aluminium boom truck cranes as well as the spider cranes and the Spierings. "We need to keep the fleet relatively new with the latest Euro engines for working in London's Low Emission Zone as the exemption may be removed at any time. The larger contractors already enforce it unless they cannot get a crane. The 10 year rule on tower cranes has also gone out of the window because of the shortage of cranes. When it goes quiet it will be enforced again. All this rule achieves is to force people to buy cheap tower cranes. Why buy a quality crane that may last 30 years if it cannot be used after it is 10?"

"Some sites force us to fit huge aviation lights to the towers and jibs even when the surrounding buildings are higher! They are so risk averse since the Vauxhall helicopter crash and demand 2000 candella lights even though a conversation with the local airports would probably let them know they are not required. The crane at Vauxhall needed the lights and was notified as an obstruction. These lights are of no use in daylight or fog."

#### Tower crane sector

The UK tower crane market is largely a rental one, so sales of its Comansa flat-tops are slow. When they do buy most companies tend to look for the cheapest, according to Jepson, "Comansa is a very good flat-top crane, at a good price, it is reliable, does the job and is easy to operate. We went with Comansa for flat tops as Wolff was too expensive, however the Wolff 166B luffer is ideal in London. It has a 12 tonne capacity and a reasonable jib length. The 166B can last 30 years and can do twice as many lifts in a day with many more safety features and with a lot of structural strenath in reserve both for working and for out of service conditions









in the extreme winds we now get from time to time. Not all customers appreciate this and still only want 'cheap'. The tower market at the moment is crazy but the future is totally uncertain, particularly with the 10 year rule hanging over evervone."

#### **New 184 Raptor**

The new eight tonne capacity Raptor 184 - which can lift four tonnes at 36 metres - is progressing well and hopefully will be seen at Vertikal Days in June. City Lifting is buying Raptor cranes as fast as Artic Crane can make them - about two or three a year - so at this point it has total exclusivity. The design of the Raptor 184 includes several new ideas and some of these may be added to the Raptor 84 making it a little less costly to manufacture. Jepson also wants to show a new tower crane rescue system at Vertikal Days.

#### Tower crane operator rescue

"At the moment there is no ideal solution to rescue an operator that has been taken ill in the cab. I think the manufacturers could offer a solution but no one wants to pay for it. The system designed with Artic involves a stretcher on the same level as the cab allowing two people to get the operator out the cab then using a hoist arrangement lift the stretcher over the side and lower it to the ground. It is not difficult but no one has done it yet. Tower crane elevators are a good idea as it will help prevent the operator having a heart attack in the first place, but they are not ideal for working in the UK - and again who is going to pay for them?"

"The best hoists/elevators are the ones on the inside of the tower such as Potain and Liebherr, easy to erect, as they are inbuilt. We have talked about doing an internal with a Raptor but this may be too much with so many other things happening."

#### Fire starter

Over the past few years City Lifting has had more than its fair share of crane fires and as a result has fitted engine and gearbox antisuppression systems on all its mobile cranes. Unfortunately since fitting these systems it has suffered another crane fire caused by a wheel bearing on a Spierings.

"The problem is when a wheel bearing suddenly collapses and the

## tower cranes



drum runs on the bottom shoe, the heat build-up even over a kilometre or two, results in a fire and the driver is unaware of it. Spierings now fits disc brakes which will eliminate the problem and are a lot easier to maintain. Fire suppression systems are expensive to install and have to be maintained every six months. They can be transferred from older to new cranes but again the costs are enormous."

"Time will tell how the Euro IV technology fares with engines and exhausts running much hotter and less room around the engines."

The expansion of the company over the past five years or so has been spectacular. Further growth looks dependent on finding another location and in London that is almost impossible and hugely expensive. Until then City Lifting will continue to grow adding cranes where needed and hope that through careful planning and a buoyant London economy they will be constantly out working.



# tower cranes Caa

# Cadiz bay bridge

Two 18 tonne capacity Linden Comansa 21LC400s have been working for eight years on the construction of the cable-stayed Bridge of the Constitution of 1812 - nicknamed 'La Pepa', which connects Cadiz with Puerto Real. The 3,092 metre long structure - one of Spain's largest infrastructure projects in recent years, adds a third route out of the city. The bridge has two, 185 metre high main pylons with a 540 metre main road deck span 69 metres above sea level.

The tower cranes, owned by construction company Dragados, are positioned on the two main pylons, one located on the edge of the bay at Puerto Real and the other in the middle of the bay. A team from rental company Eleva Grúas Torre of Seville, has been in charge of erecting and dismantling the cranes, as well as maintaining them.

"The two cranes reached a height of 195.6 metres. Strong winds are very common in the Bay of Cadiz which has hampered many tasks carried out by our team," said Tomás Criado, manager of Eleva Grúas Torre.

Erecting the two cranes was a challenge, especially the one in the middle of the bay which needed a barge-mounted mobile crane to assemble it up to its 14.2 metre minimum height, when the hydraulic climbing frame could be installed.

The crane was then climbed to a freestanding height 69.2



metres, using a further 10 tower sections. It then began work on the construction of the pylon, tieing in and climbing as it progressed, until it reached a height of almost 200 metres. The crane needed just four ties to the pylon to reach full height. The work included lifting all the pylons' steel and concrete, followed by the cables that supported the bridge deck.

A change in the design of the metal anchors that attach the cables to the pylons - increased their weight from 18 to 23 tonnes - forcing Linden Comansa's engineering team to find a last minute solution to lift them into place. A large mobile crane was used to place the anchors on the on-shore pylon. For the middle pylon, the crane's sheaves, trolley/hook set, hoisting cable and counterweights were all beefed-up to handle the heavier weight.

As the bridge reached completion last year, the mid-bay crane was removed, its top pylon tie weighed 10 tonnes and was 23 metres long, so lifting it down was a major issue. The tower crane was assisted by a loader crane installed on the top of the pylon for maintenance duties. After the tower crane had been jacked down closer to the top of the pylon, the maintenance crane removed three sections from the 50 metre jib, reducing it to 20 metres, as well as some of the counterweight. These were stowed on top of the pylon, so that the tower crane with its shorter jib could lower them to the deck. In this configuration it was also able to manage the other three ties itself as it climbed down.

The inland tower crane was positioned further away from the pylon, preventing the maintenance crane from assisting, so Linden Comansa conceived a device to self-remove two jib sections taking it down to 30 metres. The loader crane was then able reach the last section reducing it to 20 metres at





which the tower crane was able to remove the top two ties, leaving the two lowest to a mobile crane. Rodrigo García, head of Eleva Gruas Torre's erection team said: "The removal of both cranes was complicated, but was done very efficiently. We jacked down and dismantled the middle crane in just 21 days, when 30 had been scheduled. The 21LC400 located inland took just 17 days, even though several days of bad



Removing the tower cranes was a tricky operation.







A Liebherr 85 EC-B 5 FR.tronic tower crane has been erected on the 225 metre high elevator test tower in Rottweil, Germany with the aid of a 265 metre hook height 280 EC-H 12 Litronic. Both cranes will cover all materials handling on the site. The tower will be Baden-Württemberg's tallest structure and cost around €40 million. It will feature 12 shafts for testing elevators, including the first cable-less elevator in the world said to significantly increase personnel transport capacity. The elevator tower will also have a visitor platform open to the public - the highest in Germany.

The two tower cranes are currently working on the interior fittings, the facade and the surrounding construction work. The 280 EC-H 12 was working during the carcass phase and climbed to a final hook height of 265 metres as the elevator test tower grew. The 85 EC-B 5 flat-top was erected on the top of the building for the interior fittings work.

Using Micromove fine positioning mode, the 280 EC-H 12 was able to position the crane components for the 85 EC-B 5 at an altitude of 225 metres, bolted to a specially designed and manufactured steel structure, the crane is rigged with a special 12.5 metre short jib providing a 4.2 tonne capacity and allowing both cranes to work without hindering each other.

Liebherr tower cranes solutions project manager Michael Weissschädel said: "This steel structure had to be permanently connected to the building, assembled with millimetre precision and be sturdy enough to ensure the stability of the crane at this altitude. The base tower section is directly secured to the steel structure, allowing the use of standard Liebherr tower sections."





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# World's largest energy research facility

Six Potain tower cranes are helping with the construction of one of the world's largest experimental nuclear fusion reactors in the South of France. The €300 million ITER fusion reactor - built from stainless steel sections with thicknesses ranging from 50 to 250mm - will house the operation Tokamak complex where the nuclear power will be generated. The seven storey concrete building will be 120 metres long by 80 metres wide and will use 16,000 tonnes of rebar, 150,000 cubic metres of concrete and 7,500 tonnes of steel. The project is designed to demonstrate the large-scale production of electrical power and the self-sufficiency of tritium fuel.

The six tower cranes working on the project include two topless cranes an MDT 308 and an MDT 368 - and four traditional top-slewing tower cranes, the MD 610 M40, MD 485 B, MD 560 B and MD 175. The cranes were supplied new to Dodin Campenon Bernard - a subsidiary of Vinci Construction - which is managing all lifting work on site.







Overall construction management is being handled by the VFR Group, a consortium made up of Vinci, Ferrovial and Razel Bec.

The structure's design and the complex construction process meant that a range of crane capacities were required. Pascal Ducrot, director of Manitowoc's lift solutions division said: "Building an experimental facility, the contractor wanted to minimise the amount of unknown factors on the project, so it was important that the cranes had proven capabilities in real world situations."

The cranes were delivered at the end of 2014 and are expected to be on the contract for at least five years. Because of the complexity of the project, erection of the cranes took six months to complete.

The Potain cranes are currently working long shifts, handling the assembly of more than a million components fabricated by suppliers from all over the world. The cranes have capacities up to 40 tonnes and jib lengths of up to 60 metres, working at heights to 81 metres.



Six Potain cranes - two topless and four traditional top slewers - are helping construct the €300 million ITER fusion reactor in the South of France.



# **Boa Vista in Hamburg**

Two Terex flat top tower cranes, a CTT 91-5 and CTT 161A-8 helped build the new seven storey Boa Vista office building in Hamburg, Germany.

The cranes, supplied and erected by sales and rental company Proschwitz, took three erectors a day each to erect, helping keep the necessary road closures to a minimum. The 3.3 tonne CTT 91-5 was mounted on a freestanding C38 cruciform base had a hook height of 40.8 metres and a 30 metre jib. The eight tonne CTT 161A-8 was installed on cast-in anchor bolts, had a hook height of 49.5 metres, and a jib length of 40 metres at which it could handle loads of up to 4.15 tonnes.

Construction manager Robert Friske of main contractor Köster said: "The high-pressure deadlines normally involved in this type of project mean that we can't afford any downtime, so dependable machinery is crucial if the job is to be completed on time."











Two Terrex flat-top cranes are helping build the new seven storey Boa Vista office block in Hamburg, Germany.



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The choice IS yours

Recent new model introductions mean that choosing a small boom lift in the 10 to 12 metre range is even more difficult than before. Not only is there a wide choice of concepts - mast boom, ultra-compact industrial booms, and light weight electric or Rough Terrain - there is a growing choice of power units. Cranes & Access looks into the latest models and developments.

Last year there was flurry of activity in small lightweight booms with the launches of the Manitou Man'Go 12 and the Genie Z33/18. This year there have been fewer but no less interesting introductions.

The mast boom may appear to be out of step with the other products we have listed, with outreach on all but the largest limited to three or four metres. However, it has the advantage of being lighter and narrower, while offering far better up-and-over heights. A little later we take a look at the new Haulotte Star 10 and compare it with the updated competition. First however there has been a significant addition to

the 30ft articulated battery powered industrial type booms.

#### New Skyjack boom

Skyjack's latest 30ft SJ30 articulating boom takes it back into to a market that it last contested prior in the late 1990s with the SJKB-33N. It is the smallest in its three model articulated boom range - which includes the SJ46 and SJ63 - and the first ultra-compact industrial lift the company has produced since it re-entered the boom market in 2006. Two versions will be offered - the regular SJ30 AJE is a straightforward machine with short dual risers, two section telescopic boom and an articulated

jib, and the SJ30 ARJE (Articulating Rotating Jib Electric) with the jib rotator which, as a result has slightly less height and outreach.

This latest lift takes it into a wellestablished, slightly niche end of the boom market joining manufacturers such as Manitou, Genie, JLG, Haulotte and Airo.

Rental Show the Skyjack enters a market with products that are not upgraded too often and one where all the products are quite similar in performance and appearance. The typical 30ft industrial electric booms by some for their high round

superstructures - has an overall width of around 1.2 metres, working outreach getting-on for seven metres, absolute zero tail-swing and an up-and-over height of four metres or so. It might be interesting to point out that the sector dates back to the late 1980s when Mark Industries launched the 30KBN, although that unit had a longer single riser. Apart from that the specification has changed little so that the 27 year old design would compete head to head with the current crop of machines apart from the riser and the lack of a jib. Skyjack's last entry in this market the SJKB-33N could also hold its head up amongst the current crop. It also had a longer

mast booms

Launched at the recent ARA articulated boom - dubbed dust bin

How the new Skyjack compares with other industrial articulated booms

	Skyjack SJ30 ARJE	Manitou 120 AETJ-C	Genie Z30/20N RJ	JLG E300AJP	Airo A12 JE	Haulotte HA12 CJ+
Platform height	9.14m	9.95m	9.14m	8.97m	10.1m	9.68m
Width	1.19m	1.2m	1.19m	1.22m	1.2m	1.2m
Weight	5,563kg	6,660kg	6,450kg	7,100kg	7,510kg	7,065kg
Outreach	6.25m	6.5m	6.25m	6.1m	6.9m	6.3m
Capacity	227kg	200kg	227kg	230kg	230kg	230kg
Jib Rotate	Yes	Yes	Yes	Yes	No	Yes
Up and over	3.99m	4.77m	3.86m	4.01m	4.7m	4.74m
Stowed height	2.01m	1.99m	2.0m	2.01m	1.99m	1.99m
Grade	35%	25%	35%	25%	25%	25%
Drive speed	4.8km/h	6 km/h	4.8 km/h	4.8 km/h	6 km/h	6 km/h
0/a Length*	4.09m	3.74m	3.66m	5.74m	4.6m	4.2m
Power	Electric	Electric	Electric	Electric	Electric	Electric

With jib tucked under for transport where possible - JLG does not tuck under









Skyjack was in the market in the late 1990s with the SJKB-33N.

Today these machines are preferred by some users over a similar working height mast boom primarily for their outreach which is typically more than double. However, the downside of this is the significant increase in overall weight and at least 200mm greater width.

Skyjack says it identified 'two key parameters for its new electric boom - competitive reach specifications, coupled with exceptional drive and duty cycle performance', while keeping its long stated mantra of being simple, reliable and easy to run and operate.

Its drive and duty cycle performance remains to be seen but its 6.25 metre outreach is nothing to write home about being on par with most of the other manufacturers but a good deal less than one or two of the European offerings. This combined with the lowest working height probably accounts for the unit's light weight which is about two tonnes lighter than the heaviest and around a tonne less than the average, although we are using preliminary specifications and the CE machine might just end up heavier? The Skyjack is also one of the narrowest at 1.19 metres but



stowed height is on the higher side at just over two metres.

"A lot of manufacturing and warehouse facilities have narrow and confined spaces that require up-and-over access," says Corey Connolly, Skyjack product manager. "With its narrow dimensions and zero tail-swing, the SJ30 is ideally suited for their needs in the nine metre and under reach zone. The SJ30 is a perfect complement to our electric scissor lifts, that are limited to the up-and-over clearance of their extension decks. This product helps to fill out our product line and satisfies a demand customers have been asking for in

The SJ30's features include its relay-based control system, a vertical rise system and direction sensing drive and steer controls. In addition, all components have extra protection from water ingress and falling debris - particularly useful when being used for rental applications.

Before we end this sector it is worth pointing out that there are a few 34ft versions such as the Genie Z34/22N - but they tend to be wider - between 1.4 and 1.5





metres - taking them into the area covered by the lighter weight market such as the Niftylift HR12, Snorkel's AB38E and the recent Genie Z33/18.

#### **Mast booms**

An increasingly popular alternative to the industrial articulated lift such as the Skyjack SJ30 is the 10 metre mast boom. This sector which has always been very popular in its country of origin - France - is steadily picking up new followers with sales growing year on year over a wider number of markets, as users appreciate their compact design, light weight and enough outreach to complete most industrial, maintenance type tasks.

While most producers build eight metre working height models and there are an increasing number of larger models - some with telescopic jibs - and the 10 metre is by far and away the most popular. The JLG Toucan has consistently been market leader having been the first in the market, originally as the Delta Systemes Toucan. Haulotte though has carved out a significant share of the market with its Star 10, and appears to be gaining further volume with its new AC drive Star 10. JLG has responded with a lighter weight version of its Toucan 10E, but it faces strong competition from the Manitou - which is also sold by Genie as the GR26J - but there are also mast booms from Dingli and ATN and Airo which added the Airo V10 E last year.

As with the articulated industrial-type booms, the mast booms from all the manufacturers have very similar specifications with hardly a whisker between them. The working

height may vary from 9.8 to 10.4 metres, the overall width of all of them is generally a metre and stowed height just under two metres. Most of these specifications were laid down at the very beginning by the original Toucan and all the units that have followed have marched to pretty much the same tune. In fact it is only the overall weight and outreach that varies and then not by a great deal. We do know that in order to be competitive the overall weight needs to be under three tonnes, and outreach tends to be fixed by the fact that at this height none of the jibs are telescopic which pretty much limits what it possible, unless you extend the overall stowed length. This is what ATN has done with the Piaf 1000R which is a good 200 to 300mm longer than most, although still under three metres. The ATN is also the heaviest at almost three tonnes, this due to the longer jib pivoting on the front of the stack forklift type mast creating the best outreach at 3.46 metres. The unit also limits slew to 220 degrees - 110 degrees of centre - while most offer close to 350 degrees.

If three to 3.5 metres outreach is enough, the mast boom could be just the machine for you, it is much lighter and narrower than the compact industrial platform but may have a restricted outdoor working capacity.

#### Star improvements

The Star 10 and the smaller Star 8 are some of the best-selling products in the Haulotte range. The two are one and the same with an extra mast







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### mast booms



section converting the Star 8 into the Star 10. The product has been subject to a thorough update announced at Intermat 2015 and reaching production around July last year. One of the major changes is the switch to AC electric direct drive wheel motors which further improve battery life, reduce maintenance and provide an even more precise drive control. The platform controls feature a new joystick which is more intuitive and said to be much better for the operator when manoeuvring in confined spaces. The company's Activ'Shield Bar - secondary guarding - is also available. Haulotte says that the products have the best in class turning radius helped by intelligent steering with the rear steer linked to



the front drive motors, to match the speed of each with the crank angle of the steering axle. The platform has plenty of room for two for which it has both an indoor and outdoor rating.

On-board diagnostics via Haulotte's Activ'screen helps trouble-shooting faults. Standard centralised battery filling helps with maintenance and battery life of course, the new composite covers are said to be unbreakable, while a drastically improved anti-corrosion treatment has been used for components such as axles, bushings and fasteners. One of the most significant changes though may be the simple addition of higher built-in fork lift pockets. The machine can be forked laterally or longitudinally, the lateral fork pockets will be the most frequently used and unusually they are not located under the machine, but rather on the top of the chassis. This may not seem so significant, but one factor that deterred rental companies in the early days of the



mast boom was their difficulty to load. They did not lend themselves to fork trucks, and their high centre of gravity led to many accidents on truck loading ramps as the weight lifted off the drive brake wheels. In fact only last year a case which came to court in the UK led to a contractor being fined £12,000 fine for an accident involving a mast boom and telehandler which seriously injured one of the men trying to help move the machine. The higher lift pockets means that a substantial portion of the machine's weight lie under the forks creating a much better balanced load for carrying the machine across site, or from one factory building to another.

#### Passive or Active pot hole protection?

The new Star 10 and most other mast booms feature passive pot hole protection. Blocks close to the wheels prevent the entire wheel dropping into an open hole, or more likely over a kerb. Leading Chinese manufacturer Dingli has decided to install Active pothole protection on its new AMWP10-8100 similar to that used on most slab electric scissor lifts. The benefit is a greater ground clearance when the mast is stowed and less chance of catching up on wires and debris left on the ground.

#### A slimmer Toucan

The JLG Toucan 10E has the longest pedigree in the business and for many years the range dominated the sector. Now there is a good deal more competition, in what is a much larger and growing market. One of the results of the increased competition was pressure on the company to reduce the overall weight of the popular Toucan 10E, launched in late 2008. The first units shipped the following year with more than 1,000 units delivered in the first two years. While lighter than some of its predecessors



its was still around three tonnes, making it a challenge to transport on many 3.5 tonne trucks and equipment trailers. JLG is therefore shaving a few hundred kilos from the machine's counterweight, but the trade-off is a restricted outdoor rating with one person rather than two - although the heavier counterweight version will still be available. The new machine has also gone over to brushless AC direct electric drive motors with several other minor improvements. All of these will be launched at Bauma next month.



Manitou's nine metre working height 90 V'Air is aimed specifically at aeroplane maintenance.

With two operators in the platform the side areas can be opened up with three tilt angles available allowing operators to find the best position for the task at hand. The platform is equipped with anti-collision radar and multiple protection systems.

#### How the new Haulotte Star 10 and JLG Toucan 10E stack up

				•			
	Haulotte Star 10	JLG Toucan 10E	ATN Piaf 1000R	Airo V10 E	Dingli AMWP 10-8100	Manitou 100VJR	Snorkel MB26
Working height	10.0m	10.1m	10.4m	9.8m	10.0m	9.9m	9.8M
Width	1,000mm	990mm	1,030mm	998mm	1,000mm	990mm	1,000mm
Weight	2,677kg	2,700kg	2,980kg	2,770kg	2,890kg	2,650kg	2,660kg
Outreach	3.0m	3.08m	3.46m	3.3m	3.0m	3.0m	3.0m
Capacity	200kg	200kg	200kg	200kg	200kg	200kg	215kg
Up and over	6.6m	6.51m	-	6.64m	6.69m	6.67m	6.65m
Stowed height	1.99m	1.99m	1.98m	1.90m	1.99m	1.99m	1.98m
Grade	25%	25%	20%	25%	25%	25%	25%
Drive speed	5 km/h	5.5 km/h	4.8 km/h	6 km/h	4.5km/h	4.5km/h	3.3km/h

<sup>\*</sup>figures in red indicate best specification. JLG new Toucan 10E weight provisional. Snorkel MB26 up and over height estimated.





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# Semiautomatic guided mast boom

When the Dutch railway system operator
Nederlandse Spoorwegen was looking for a new
method of working at height while maintaining long
distance trains, it decided not only to use mast
booms - to reach the train roof area, the electric
overhead pantograph and air conditioning units - but
also to introduce a semi-automatic drive system
similar to that found on automatic guided delivery
trucks working in modern car plants.

The company wanted the aerial lift to travel down the platform parallel and close to the train without the risk of operator error causing it to go over the edge onto the rails. The work platforms can also be used for general maintenance work on the engine shed.

In order to satisfy these requirements it approached German mast boom manufacturer Lehmann for one of its Emu mast boom models. It eventually selected a modified version of the 7.5 metre working height Emu XXL 750, which uses a standard base and mast but has a long fixed platform attached to the top mast section, in place of the usual jib. Platform capacity is 250kg with indoor and outdoor CE certification.

The Lehmann XXI 750 was selected for the job

In order to develop a reliable automatic guided drive system Lehmann decided to team up with a specialist in this area, selecting Efatec, a producer of automated tow tractors and control system supplier. The result is an aerial work platform that automatically travels along the edge of the platform for the entire length of

the train, following a track set into the floor. The system maintains the mast boom at a safe optimum position at all times, allowing its operator to focus on operating the platform height and the work at hand. The railway purchased a small number of trial machines and early indications are very positive.

The track guidance system has been fully integrated into the mast boom's overall control system, largely using Curtis motor controllers and components. It helped that Efatec already used the same Curtis controller operating platform on a number of other special-purpose vehicles - including its articulated trailer movers - and so had plenty of operational experience that proved invaluable with the development of the mast boom. It also supplies complete custom made wiring harnesses.

#### Versatile control system

The Curtis system incorporates control units for both electric and hydraulic drive functions, linked through CANBus and is said to be extremely easy to programme using the Curtis developed Vehicle Control Language (VCL). This allows an optimum match to be made between the machine and the application requirements, making it a highly versatile solution. It is also helped by a wide range of additional Curtis equipment such as multifunction displays and programming tools.

Curtis claims that equipment



manufacturers can - once trained easily adapt the control system to the specific requirements of their machines, and specific applications. Alternatively the company can supply pre-programmed modules or algorithms. In the case of the mast boom, the complexity of the application made it necessary for Lehmann to work closely with the software developers. They programmed a software module with logic functions for the required track guidance and then integrated it into the overall control system together with the corresponding sensor system.

The integration offers several advantages, one being that the hydraulic steering and track guidance system communicate with each other. Response times between the two are said to be almost instantaneous, with the result that the automatic guided drive precisely and smoothly follows the wire track set into the ground. A wide range of built-in safety features include a key transfer interlock that prevents the platform from operating until the overhead power lines have been disconnected.

#### Simple architecture

The control 'architecture' comprises the Curtis 1232E-2121 motor controller operating as a master, controlling one of the two wheel drive motors. A second identical



control unit, with slave function, acts on the other wheel drive motor. Control of the hydraulic pump for steering and platform functions, including slew, is provided by a Curtis 1232E-2321 motor controller. A tilt sensor integrated into the system signals and then halts all functions when the maximum three degrees incline is reached.

Additional Curtis components built into the system include an LC display screen, with all components communicating with each other via CANBus and programmable through the universal Vehicle Control Language.







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Italian aerial lift manufacturer Tigieffe and its Airo brand builds a full range of platforms including scissors, articulated booms, spider lifts, push arounds and mast booms. With competitive specifications and impressive build quality it can only be a matter of time before it becomes better known all around the world. Mark Darwin travelled to its production facility in Luzzara, a 30 minute drive south west of Verona and was pleasantly impressed.

Although the company was founded in 1981, the latest incarnation of Tigieffe dates back to 2012,



when a large Asian group took a 60 percent stake in the business, increasing its holding to 90 percent 2014. The involvement of the new ownership appears to have been good for the company, allowing it to develop its products and distributors without the usual time and performance pressures.

Until 2014 Airo concentrated only in European market, with most of its sales in Italy, Germany and France. However, that is all beginning to change as belief in its products being as good or in many instances superior to other manufacturers spreads. A new export manager - Giovanni Marzoli - was recruited late last year from outside the access industry. He brings international sales experience and contacts and is starting to expand the company's geographical coverage.

### In the beginning...

The company's roots date back to 1970 when the three Ferramola brothers - at that time working in different industries - joined forces to form TGF (TiGiEffe) or Technology Group Ferramola. They began by manufacturing Pimespo forklift trucks which was sold to OM in 1980, became part of the Fiat group and then purchased by Linde.

Before the company sold Pimespo, it started to produce aerial work platforms. This was at the same time that one of the brothers founded another access company - Iteco - which claims to have produced the first European scissor lifts, a six to eight metre unit around 1986/7. In the early days Tigieffe manufactured the Iteco scissor lift, but then at the end of 1990 it decided to produce its own lifts under the Airo brand - which means 'raise' in Greek. It claims that its forklift heritage instilled an excellent customer service mentality which it still has today.

While the first Iteco and Airo scissors were Marklift copies, it





soon developed a style of its own and adopted the sigma lift design for its first in-house designed machines. Realising early on that it did not stand much chance competing against the major manufacturers - such as UpRight - with similar machines it decided to offer something different - equipment with different working heights, improved outreach or platform capacities - compared to the North American products.

It was not until the last remaining brother, Roberto Ferramola decided to leave the company in July 2014 - to be replaced by general sales manager Oscar Prigione - that the current management structure was formed, with Prigione on sales, Gianluca Ferramola - Roberto's nephew - overseeing technical/design engineering, and another employee in charge of administration, with the new owners keeping an eye on the business from a distance.

Gianluca Ferramola has grown up in the company and has been designing platforms since 1995, introducing innovative features such as larger central section scissor stacks to keep more weight inboard. As well as differentiating its products, in the last 20 years the company has finally realised that the route to success is to develop export markets - a decision helped along by Italy's economic crisis since 2008.

mast booms







## mast booms

The new management team and Asian ownership are having an effect as the company is growing rapidly. It produced around a 1,000 units last year, a significant rise from the 700 sold in 2014. This figure is split roughly between 65 percent scissors and 35 percent booms. Currently it has a maximum production capacity of 1,400 units a year however it owns surrounding land so could expand if demand requires.



#### Airo dealers

Italy is the company's largest market followed by Germany, with France growing fast through a wholly owned distribution company Airo France. It is developing new territories such as Turkey, Israel, Saudi Arabia and the UK where its dealer is Aerial Handling Services and it is looking at growth in Spain and the Netherlands. Its first distributor was Hoffmann in Germany which established and sold the brand for several years, in 2014 it decided to close its sales operation to focus on rental and helped Airo find its current distributor OmmeLift Germany, which is apparently working well. The export manager Giovanni Marzoli is now looking to the South American market and hopes to appoint several new dealers in South America, Scandinavia and Eastern Europe in 2016 and also reactivate the Airo brand in the whole Iberian Peninsula

The UK has now been identified as having major potential for Airo having previously avoided it, thinking that it was totally price



driven. Having said that, the Airo product is price competitive given the performance, features and level of standard equipment.

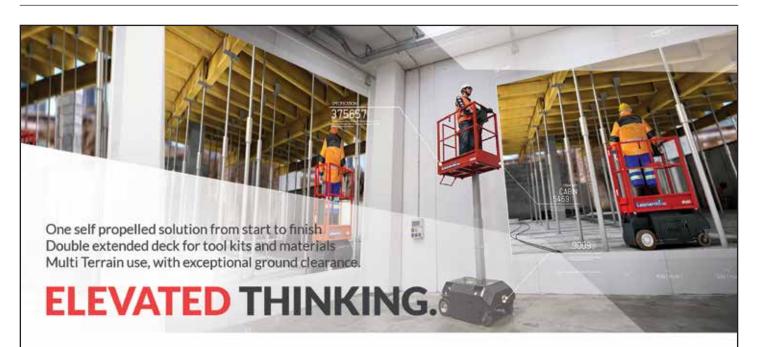
#### **New products**

AAiro has a full product range but has tended to concentrate on scissor lifts and articulated booms. Both lines are a mix of old and new, but older models are being upgraded to match or exceed competitor offerings. The company will launch several new products at Bauma, including two new safety devices, a scissor anti-entrapment device SAFE (Self Adjustment From Entrapment) with the concept and name by Ian Harding of its UK distributor Aerial Handling Services



and a secondary guarding system for boom lifts called Sentinal.

The SAFE system is a two part, operator controlled anti-entrapment system for scissors. The first part is a re-designed and collapsible version of the SanctuaryZone which physically prevents the operator being crushed. This is only fitted to scissors where the platform controls are docked providing protection for the user when travelling. When not in use the SanctuaryZone can be collapsed and stowed out of the way. The second part is the electronic system allowing the operator to set their own ceiling height preventing any accidental overhead collision. The operator simply takes the lift to the maximum



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# mast booms









safe height and arms the system by pushing a button on the control panel for three seconds which then prevents the platform from raising above this height until it is reset. The scissor can be lowered and raised as many times as necessary (being limited to its new maximum height) until the whole system is cancelled by holding down the button. By adding a more secure activation sequence the device could also be used for restricting the height of a platform which may be useful for rental companies sending out larger machines than booked. The system can be retrofitted to all Airo X series scissor lifts.

"The entire concept and philosophy behind SAFE is to challenge the market by having an option," said Harding. "It is very simple, entirely transferable technology but it is also the first Secondary Guarding solution for boom or scissor that requires the user to accept responsibility for their actions. Think of it like this, you crash your hire car and weren't wearing a seatbelt, do you blame the hire company?"

Sentinel is similar to other systems in that it stops the boom functions, when activated by leaning onto the pressure pad located above the controls. The system automatically 'backs off' the previous movement giving the operator more space between the control panel and the obstacle, as well as alerting fellow workers with a flashing light and siren.

#### **Bauma launch**

The main new product for Bauma will be a new 105ft straight boom with articulated jib, while a 98ft version without jib will also be available. The T34 JRTD platform has 24 metres outreach, a working height of 34 metres, and has been designed primarily for the Chinese shipyard market, but will be available for sale worldwide. The lift has extending axles, increasing the overall width from 2.45 to 3.36 metres, four wheel steer, a large 2.4 metre wide platform with a full 180 degrees of rotation and 450kg maximum capacity. It is powered by a Tier IV water cooled Deutz. The jib can be tucked under to reduce the overall transport length.

The plan is for all-new machines to be designed in Italy but built in both Italy for all the world and China for Asian and Pacific markets.

"Although we will launch the machine at Bauma it is being driven

by several requests received from Asian market. In future we will think to go higher, up to 40 meters and more," said Ferramola.

Airo is also in the process of

Airo is also in the process of designing a new range of Rough Terrain scissor lifts, it ceased production of its old product last year when its engine - a small Hatz - was no



"There was no space to use any other engine and the scissor mechanism was the older design, so we decided to create a new range with all the new features. The first will be a 12 metre machine - the X12 RTD - for which we have many requests, so we may see it over the coming months, followed by other sizes such as 10 and 14 metres. As with our other new machines, the RT scissor will have good specifications - 500kg platform capacity and long deck extensions - and be competitively priced for the performance."

#### **Major developments**

One of the major advances for the company has been the new scissor design by Gianluca Ferramola. The result allows features such as a long deck extensions up to 500mm longer than most competitors, larger internal scissor stack sections to keep the weight in-board, increased platform capacities and faster function speeds.

"This new design mentality - trying to exceed the best in class at the time - was also included in the A12JE and A15JE articulated booms. In the forklift market around 2011 the AC drive was a must, and while not popular in access platforms we decided to put AC drive and pump on both booms," says Ferramola. "Full AC drive gives a fast travel speed, good torque for driving up slopes and automatic braking preventing the operator travelling down a slope too quickly."

### **Mast booms**

The 10 metre V10E mast boom was introduced last year replacing a two model range, which used a

forklift mast and was too wide at 1.2 metres. The new V10E uses AC drive motors and function drive and is far more compact at just under a metre wide, and not too heavy.

"There is a big market for these machines particularly in France with the Haulotte Star 10, JLG Toucan and ATN. So we designed two models - the V10 and V8 which is a smaller version - inspired by the same philosophy to be different. It has the greatest reach in that sector at 3.3 metres and a key point was to keep the weight under 2,800kg, to comply with towing regulations."

"We are not planning to reduce the breadth of our range, but do want to harmonise it with common baskets and a unifying look. For example, the older A16JE is totally different in conception and look than the newer A12JE. We are planning to do a lot of changes in the range between 16 to 18 metres.

Airo is one of the few companies that offers an ATEX rated explosion-proof machine direct from the factory and can also offer a galvanized finish for those that want it.

"If a customer has a special request or feature they require then we are happy to try and work with them and produce the machine. For example, we have a contract at the moment to provide two XL19 E scissor list with a one metre side extension with 500kg capacity. This means a new scissor stack to handle the side loading but we are happy to carry out this work."

Airo is certainly a company that is changing under the new regime, it likes to be a bit different and looks set to grow as it expands overseas.







# YOUR OFFICE IN THE SKY



# Bauma preview part 2

Last month we featured part one of our Bauma 2016 product preview, this month we conclude the preview highlighting more new products that are expected at the show.

Bauma is THE major international equipment show - twice the size of Conexpo and Intermat - with many manufacturers using it as a major launch-pad. Because of this there will be lots of new products unveiled at the show that are not featured in our previews. These will be covered in the show review in the April issue of Cranes & Access.

#### **Dieci telehanders**

Italian telehandler manufacturer Dieci's stand will include the new 30 metre Pegasus 45.30 and two telehandlers - the I 12.56 and I 9.44 - aimed at the North American market.

The Pegasus 45.30 has a maximum



lift height of 30 metres and 4.5 tonne lift capacity. Powered by a 127kW FPT Tier IV coupled to an electronically controlled hydrostatic transmission, the unit has larger fuel tanks and an improved hydraulic system. Features include automatic attachment recognition, optional remote control and automatic outrigger levelling. Inside the cab there is a new colour touchscreen dual display with diagnostic display and a new Smart navigation system for the main electronic functions of the machine such as driving modes, minimum RPM control, forward speed and diagnostics.

The 17 metre I 12.56 and 13.3 metre I 9.44 utilise a totally new boom design giving lift capacities of 5,450 and 4,497kg respectively. Power is supplied by a Kubota Tier 4i engine and a top speed of 30km/h.

#### Airo

Airo will unveil a new 105ft telescopic boom, the T34 JRTD designed with shipyard applications in mind. Designed primarily for the Chinese market the unit has an articulated jib, a working height of 34 metres and up to 24 metres of outreach. A 98ft version without jib will also be available. The lift has extending axles, four wheel steer, 180 degrees of platform rotation and 450kg maximum platform capacity. Powered by a Tier IV water cooled Deutz it will be built by Airo both in Italy and China.

Airo will also show its new secondary guarding system for booms - Sentinel - and SAFE (Self



Adjustment From Entrapment) a two-part scissor anti-entrapment device.

#### Sumner

Sumner will show two new products - the Sumner 2500 series counterweighted material lift and the 2600 series Heavy Duty material lift. The 2500 series is available in four models with heights from 3.5 to 7.5 metres and capacities from 300 to 455kg. Aimed specifically at rental applications the unit breaks down into two component parts for easy transport. The 2600 series is the company's largest aluminium material lift to date and can lift 500kg to a maximum height of 4.6 metres.

#### **BKL Baukran Logistik**

Munich-based crane company Baukran Logistik - BKL - will show several new selferecting tower cranes from Italian manufacturer Cattaneo, including the 33 metre, four tonne capacity CM 82S4 and the 28 metre, 2.5 tonne capacity CM 280 both featuring a steerable high speed axle. The CM 82S4 has a maximum hook height of 21 metres and takes up a space just 5.1 metres square. The CM 280 can lift 2.5 tonnes at 12.1 metres and has a maximum tip load of 900kg.

**Bauma** 2016

BKL will also show the Cattaneo high speed steerable axle on the 27 metre CM 271. Also available for stationary cranes as a semi-trailer version, the 80 km/h axle can be electro-hydraulically steered via the remote controller.



# **Bauma 2016**

#### **Böcker**

Böcker will show several new cranes and construction hoists. New truck-mounted cranes will include the compact AK 37/4000 mounted on a 7.5 tonne chassis. Maximum capacity is four tonnes, while it can handle 250kg at full reach on its 37 metre boom. The crane features automatic levelling and new remote controls with full-colour display with up to four wireless cameras.

The new AK 46/6000 aluminium crane is mounted on an 18 or 26 tonne truck with a maximum capacity of six tonnes and 46 metres of reach. It can take 250kg to almost 40 metres and one tonne to 26 metres

Böcker trailer-mounted cranes on show will include the new AHK 30/1500 KS and AHK 36/2400. Class leader AHK 36/2400 has a maximum boom length of 36 metres and 2,400kg maximum capacity. The smaller AHK 30/1500 KS has a 1,500kg capacity and 30 metre boom. Both are fitted with a swivel drawbar to reduce the overall length during moving or setting up. The

36/2400 is also available with a crawler chassis.

The new Superlift MX 324 and LX 4024 construction hoists will also be on display. The MX 324 passenger/ material hoist is a compact, lightweight and easily assembled lift is particularly suitable for confined building sites for heights up to 100 metres and capacities up to 300kg at a speed of 24 metres per minute. The 4,000kg Superlift LX 4024 can be built to 250 metres.

#### Holland Lift

Hollland Lift will show six scissor lifts, three of which are new, including the HL-220 H25 and HL-190 H20 hybrid models and the diesel only HL-190 D20. The HL-190s have working heights of 18.8 metres with 550kg platform capacity. The HL-220 H25 has a working height of 21.7 metres, 750kg platform capacity and is rated for indoor and outdoor use.

Also on show will be the 21.7 metre narrow battery electric HL-220 E12, the 27.2 metre HL-275 H25 hybrid and the all electric 33 metre HL-330 E14.







#### **Grove**

In addition to its new 90 tonne Rough Terrain crane (see part one) Grove will launch a new four axle, 100 tonne GMK4100L-1 with greater lift capacities and more compact dimensions. The new crane offers a load chart said to be almost seven percent better than the crane it replaces, when equipped with its maximum 26.2 tonnes counterweight. The crane can carry 6.7 tonnes of counterweight and still meet 12 tonne axle loadings. In this configuration the load chart is said to be 9.3 percent better that the previous model.

The 60 metre main boom can be extended with an 18 metre telescopic swingaway extension with up to 45 degrees of offset, an eight metre extension adds a further 26 metres. Overall width of 2.55 metres, compared to the 2.75 metres of

its predecessor and is half a metre shorter. Power comes from a single Tier IV Final Mercedes.

The company is also expected to unveil an all-new 150 tonne five axle GMK 5150 but at the time of going to press details were scant.

#### Liebherr

Liebherr is to show the prototype of its 100 tonne capacity LR 1100 crawler crane which should be available for sale next summer. The new tubular structural design is said to provide improved lifting capacities which can be increased 20 percent using the optional









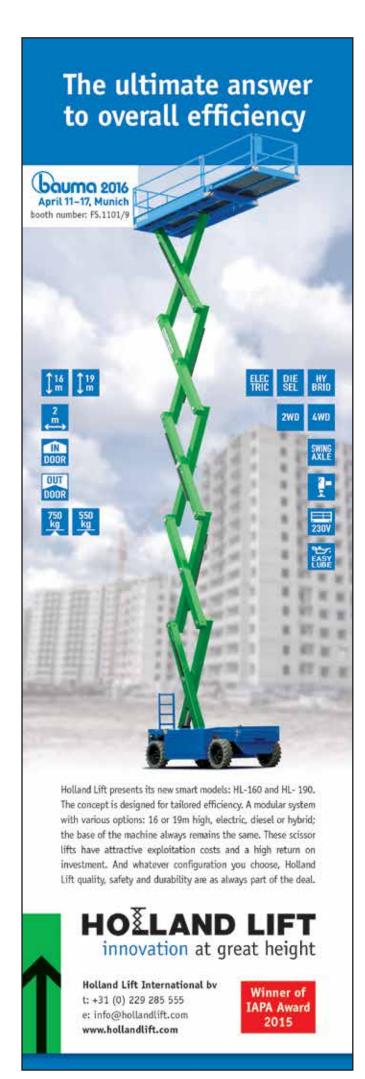
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hydraulically powered suspended counterweight.

Available with a fixed or luffing jib, the LR 1100 will be equipped with a 230kW stage IV/Tier 4f diesel, and is said to be extremely easy to transport. The weight is low enough for both the boom base section and tracks to remain on the crane during transportation.

#### Maeda

Maeda will unveil its new six tonne CC1485S-1 mini crawler crane. The crane - which features the new CC nomenclature, replaces the LC1385 and features a 16.7 metre boom with rear view camera and seven inch monitor as standard. Power is supplied by an EU Stage 3B compliant engine which Maeda claims is 40 percent more fuel efficient. The new swingaway extension is also said to be more user-friendly and easier to use. Other features include a fully enclosed air-conditioned cab with link sliding door, two speed winch,

hydrostatic transmission, four fall/ two fall hook block, tilt sensor/ alarm, hydraulic disc brake and new heptagonal five-section boom.

#### CTE

Aerial lift manufacturer CTE will show its new range of B-Lift truck mounted platforms and unveil a new truck mounted outrigger system named S3 (Smart Stability System) which automatically adapts in real time to the conditions of use, including platform load and geometry. A 39 metre B-Lift 390 High Range truck mounted lift will also be on display, its three section boom, two section upper boom and articulated jib with 180 degrees of articulation, offers 600kg platform capacity with 180 degree platform rotation. The B-Lift 390 includes variable outrigger set configuration and is the smallest of the CTE High Range with runs to working heights of 61 metres.



#### Sennebogen

As well as its two new lattice crawler cranes and 50 tonne telescopic crawler Sennebogen will unveil three new compact crane models - the 30 tonne 630 HD and 40 tonne 640 HD duty cycle cranes - and the upgraded 16 tonne capacity telescopic 613. The 613 has a full-power 18.8 metre main boom and five metre bi-fold swingaway extension. The completely redesigned operator's cab will be fitted on all small Sennebogen cranes as standard in the future. Overall width is 2.55 metres.

The E series 640 HD duty cycle crane is aimed at underground construction and features two 12 tonne free-fall winches with 16 tonne options available. The 30





The new SENNEBOGEN 630 and 640 duty cycle cranes of the E-Series are ideal for a variety of applications ranging from special underground engineering to mining.

tonne 630 HD fitted with a rope grapple or dragline bucket, has a maximum boom length of 35.5 metres and various jib options. The Maxcab comfort cab can inclined up to 15 degrees or elevated by 2.70 metres in order to provide a better view of the attachment and the work environment.

#### ATN

ATN will unveil a new 12 metre mast boom with telescopic jib - its largest mast boom to date. The new model - the Piaf 1200 R - has all electric controls, rather than the hydraulic controls used on its smaller models. Overall width is 1.2 metres, height 1.98 metres and length 3.66 metres. Outreach is five metres and the machine has an 800mm x 1.1 metre platform with 200kg capacity. Total weight is around 4,250kg. It will aslo show an upgraded Zebra 16.

## **Linden Comansa**

Sharing a stand with its partner BKL, Linden Comansa is aiming to launch a new luffing jib crane later in the year, but will use Bauma to show off three existing tower crane models - one luffer and two flattops. The company says it will also provide more information on its new 21LC450 flat-top crane, redesigned cabs on the LC2100 series and its new luffing-jib crane. On show will be an 18 tonne LCL280 luffer, the 21LC750 and 11LC160 flat-tops.



#### **Tadano Mantis**

Tadano will introduce its new CE marked, 80 tonne GTC-800 Mantis telescopic crawler crane which will be available globally later this year. The GTC-800 is the second in the GTC series - joining the 120 tonne GTC-1200 - and features a full power five section 43 metre heavy duty main boom designed to handle out-of-level, pick & carry and foundation work. A 10.1 to 17.7 metre bi-fold swingaway extension with offsets of 3.5, 25, and 45 degrees is also available. An optional 2.5 metre heavy lift jib with





# **Bauma 2016**

**C&a** 

a maximum capacity of 21.4 tonnes that offsets at 3.5 and 30 degrees is also available.

The GTC-800 can work - with reduced capacity - on slopes up to four degrees with automatic out of level load chart switching which incorporates Tadano Mantis' 1.5 degree slope allowance. The crane has track width sensing and three working track widths ranging from 3.59 metres to 5.42 metres. Power is provided by a 211kW Cummins Euromot stage IV, Tier 4f. Two-speed track drive provides a maximum speed of 3.6 km/h and a maximum unladen gradeability of 78 percent.



#### Cone Drive

Precision motion control and worm gear manufacturer Cone Drive will display a range of products such as slew gears and bearings from its recent acquisition of H-Fang. The company will also introduce its new distributor for the UK, Germany, Austria and Switzerland Rodriguez.



A Cone Drive slew ring.

#### **Easy Lift**

Italian aerial lift manufacturer Easy Lift will show its new 15 metre spider lift, a hybrid version of its 36 metre spider and a new 15 metre van mounted platform and may just have its new 26 metre spiderlift on the stand? See page 11 for more details.

#### Link-Belt

Link Belt will launch its new, four axle 100 tonne HTT-86110 Telescopic Truck Terrain crane with all-wheel steer and super single tyres. The crane - said to offer some of the advantages of an All Terrain without the cost and complexity - includes the usual four mode steering found on most ATs giving a turning radius of less than 8.3 metres. The crane has a six section, 50 metre pinned main boom, plus a 17.6 metre bi-fold swingaway extension with offsets of zero, 15, 30 and 45 degrees. The crane features an easier method of erecting and stowing the extension, reducing the need for a ladder. The extension also includes an integrated three metre short extension that can take up to four parts of line and handle up to 21.7 tonnes. Two additional 4.9 metre lattice inserts







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take the maximum tip height to 79.7 metres.

The unit can run at 11 tonne axle loadings, and remains under 12 tonnes when fully equipped with 1.8 tonnes of its standard 7.2 tonne counterweight. An optional 22 tonne counterweight is also available. Top road speed is 60mph.

Also on show will be Link-Belt's RTC-80150 Series II, new 100RT and new TCC-1400.

#### **Danfoss**

Danfoss Power Solutions will have a live demonstration of the latest telematics offerings from its **European Application Development** Centre in Nordborg, Denmark, the company will also focus on recent innovations in both system solutions and components. These include demonstrations of the new MP1 closed circuit axial piston pump, the new JS1 joystick platform and expanded line-up of mobile machine displays, steering innovations, and new valve solutions.



#### Magnetek

Digital power and motion control systems company Magnetek will show a variety of wireless controls, ranging from the full-featured XLTX transmitter to the handheld Flex Pro or Flex VUE transmitter with informative display.

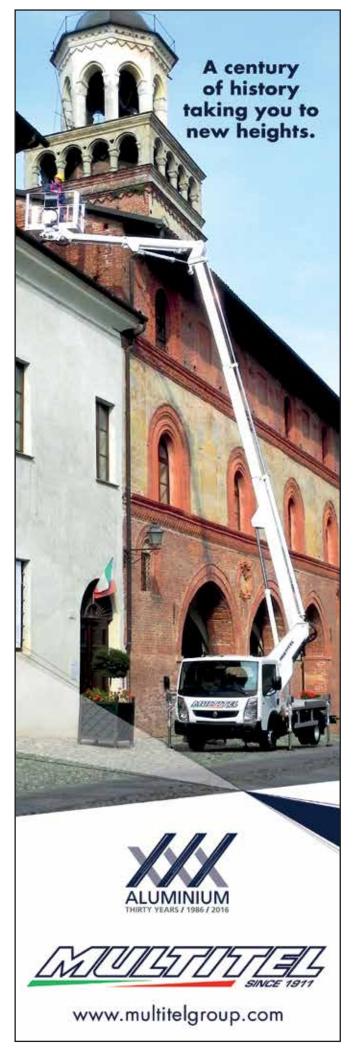
#### Giant

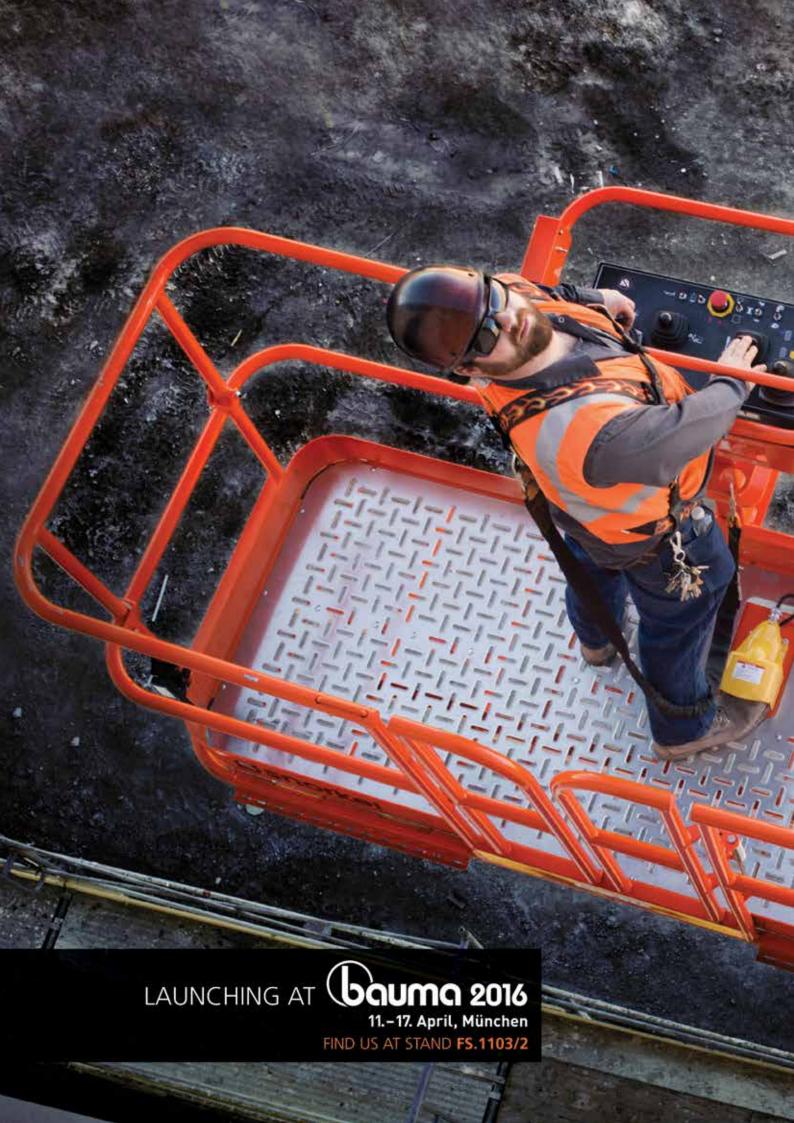
Check out the Giant 4548 Tendo compact telehandler on the Giant Machinery stand, it weighs less than three tonnes and has a 4.8 metre lift height. Overall length without bucket is 3.15 metres, width 1.57 metres and height 1.97 metres. Power is provided by a 33kW Kubota diesel.

#### Socage

Italian manufacturer Socage will have a wide range of models on show, the largest being the 75 metre forste 75 TJJ truck mounted platform with up to 40 metres of outreach. The 15VTJ is a 15 metre van mounted lift. Also look out for its E series 3.5 tonne truck mounts with X chassis construction and 300kg platform capacity. Produced in collaboration with Austrian manufacturer of ultralight chassis Welser the range includes the 21 metre 21DJ double articulated with jib and the 20 metre 20TJ telescopic boom with jib. Socage will also show a new and lighter version of its 28D mounted on a 3.5 tonne chassis.









# **Bauma 2016**

#### Genie

Genie will use Bauma for the worldwide launch of its new Fuel Electric Z-60/37FE hybrid version of the new Z60/37 unveiled at the recent ARA/Rental show. Based on the full electric machine the hybrid adds a 24hp Tier 4 Final /Stage IIIB diesel powered generator to top up/recharge the battery pack or boost machine performance. Specifications are the same as the all-electric model with 20.16 metres of working height, 11.14 metres of outreach and a 7.4 metre up-andover clearance. The standard jib has 135 degrees of articulation while platform rotation is 160 degrees. Maximum platform capacity is 227kg and the machine is equipped with three entry points. Total transport weight is 7,756kg with an overall stowed length of 8.15 metres.

The generator is able to fully charge depleted batteries in around four hours, but is also able to provide power directly to the AC wheel motors, boosting that available from the 48V battery pack, helping the lift cope with steeper inclines or particularly rugged terrain.

#### **Terex Cranes**

While Terex is keeping the lid on the major new All Terrain cranes it plans

to unveil, it will show a new 80 tonne capacity Rough Terrain crane aimed at the global market as well as launching the CTT332/16 tonne capacity flat-top tower crane. The stand will also include an updated 40 tonne capacity AC40-2, a three axle Challenger and updates to the five axle family of All Terrains. But also of interest will be a change in its product branding moving

# forward. Klubb

Klubb launched its new range of van mounted platforms in February and will unveil two more van mounted models at Bauma, taking its range to five machines from nine to 15 metres. The new lifts are the 13.8 metre K38P with an articulating jib, and the K42P 15 metre model.

These will join the 11.8 metre K26 - designed for a short wheel-base or cutaway van with an outreach of 6.8 metres - the K32 a 3.5 tonne,12.5 metre one-person platform without stabilisers, and the 9.2 metre K21 mounted on a 2.8 tonne Renault Traffic. All three have a similar two section telescopic boom with variable length fixed jibs.

#### Dingli

Leading Chinese aerial lift manufacturer Dingli will show its upgraded 13ft self-propelled micro scissor lifts - the JCPT0607DCI and JCPT0607DCS - which will replace the current JCPT0607DC. The two new models are almost identical, apart from the 'industrial' version which features smaller rear drive wheels and casters on the front steer axle to allow absolute zero degree turning. Both models have been third party tested and approved as compliant with to the latest EN280 and Ansi standards. Both models offer a maximum

working height of 5.9 metres with a platform capacity of 240kg. Expect to see a full representation of its wide product range, but this will also be an opportunity to learn more about its investment in telehandler manufacturer Magni and its plans for a European boom lift line.





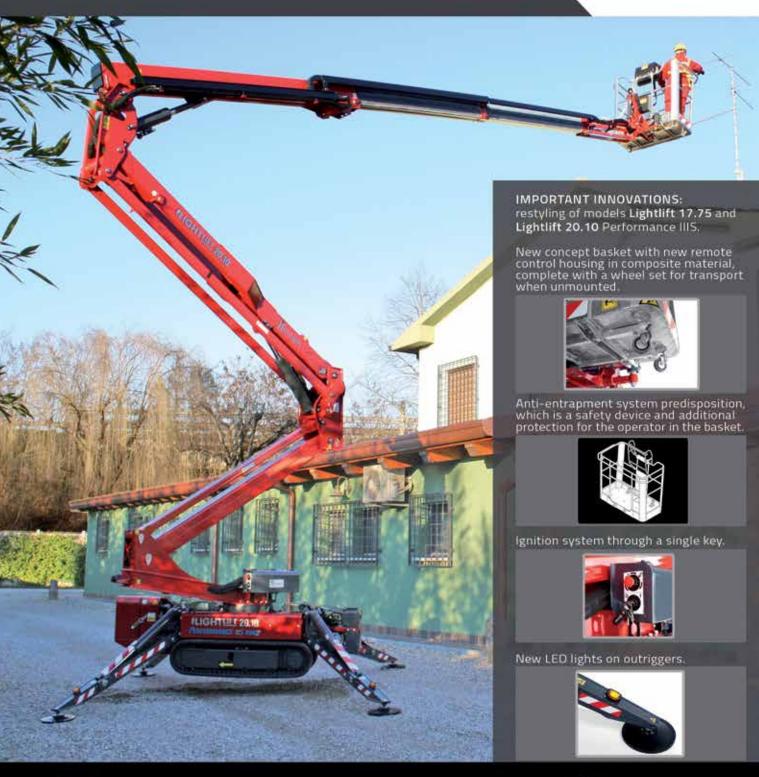


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Improving battery power

Semi or full traction batteries are a critical component of more than half of all aerial lifts and an increasing number of pick & carry cranes. Yet few rental companies or fleet owners spend much of their time or even take an interest in them. This is hardly surprising given that a modern lead acid battery appears to be pretty much the same as it was 50, or even 100 years ago. Many companies just look for a supplier that offers a keen price and has the size they need in stock and that's it. And yet this is an area that can make a massive difference to machine reliability and performance and therefore customer satisfaction.

OK recent changes to lead acid batteries are subtle - more evolution than revolution - but all of the quality manufacturers have improved and fine-tuned their products significantly over the past 10 years with changes in construction - both internally and externally - and additional features to make them easier to maintain.

But the major producers have also invested in their production facilities and technology, improving consistency, quality and as a result performance. And all for little if any extra purchase cost. In fact, thanks to increased competition and manufacturing efficiencies prices have fallen in real terms. If you then also add in the potential technology improvements from companies such as Trojan, Crown and US

total battery cost over the life of a machine has dropped significantly compared to say 10 to 12 years ago. As long as you buy a decent battery in the first place of course. During the same time frame the

availability of very cheap batteries from the developing world has proliferated and most owners have learnt the lesson on using cheap battery substitutions. But where you might have saved say €10 a battery 10 years ago, it is possible now to find a six volt battery of a similar physical size and 'power' that is €20 cheaper. Hopefully we need not repeat that buying a battery on dimensions, voltage and even amp/ hour rating is totally folly! An \$80 economy can easily cost you €300 and possibly lose you a valuable

Fred Wehmeyer, senior vice







president of engineering at one of the three major suppliers - U.S. Battery Manufacturing - sums up some of the work that these companies have been doing when he says: "Developments in battery technology increasingly allows companies operating a fleet of aerial work platforms to lower their annual operating costs. Technology such as our XC2 formulation, used in conjunction with our Diamond Plate Technology dramatically extends the cycle-life and total amp-hour operation in deep-cycle batteries. These deep-cycle batteries can reach peak capacity in as few as 25 cycles. In addition, the battery's initial and peak capacity are dramatically increased, and its higher total energy delivery will allow fleets to save time and money."

In order to determine any cost savings, the fleet owner or manager must first make scheduled maintenance checks and take detailed notes on the condition of the batteries. Anyone in charge of maintaining a fleet of machines needs to look at their battery expenditure in terms of cost-percycle and cost-per-amp hours delivered over the life of the battery. Simply comparing battery ratings on the label or published cycle life, doesn't always tell the whole story. In addition, purchasing the least expensive batteries you can find, almost never results in a cost saving over the long run. Over the course of several months, the information gathered will show an average run-time and amp-hours delivered from the batteries. This allows for a proper comparison of battery performance against the purchase cost. Once you compare the actual



# batteries



operating cost-per-amp-hour, you can begin to see that not all deepcycle batteries are the same, and those that are more efficient, even at a higher initial purchase price, can actually save overall operational costs in the long run."

All the above depends of course on sourcing the right batteries from the start. Most equipment manufacturers install a decent battery on the new machines that they produce but you do need to ensure they are well maintained. You can buy the very best battery in the world, but it will not last long if subjected to sloppy maintenance or abuse.

# New product design makes batteries go further

Whilst the improvements in the batteries themselves have been significant - albeit steady - far more dramatic things have been happening to the machines themselves which has transformed battery life beyond all recognition. Motor controllers limit the supply of power to the electric drive motors to match the speed or effort required. Inching a machine into position will use a great deal less than driving across a yard at full speed even if the time taken is the same. Improved tolerances on components such as hydraulic pumps have also made a difference, as has direct electric drive for travel, with an increasing move towards the even more efficient AC motors.



JLG is converting all of its electric booms to direct AC electric drive.



These changes are so significant that an electric powered 60ft Rough Terrain boom lift is now a very practical proposition. Genie is the latest to enter the market - joining Niftylift and JLG - which have had hybrid models for some time. Rough Terrain scissor lifts intended for real outdoor and Rough Terrain applications are now becoming increasingly popular and practical alternatives to IC powered models. The benefits include reduced fuel costs, quiet operation, cleanliness and zero emissions.

At the smaller end of the market, there are signs that improved batteries and more efficient drivelines could change the traditional power packs required for smaller scissor lifts. At last month's ARA-Rental show MEC launched its



new 13ft micro scissor - the 1332ES - which targets the 12ft mast lift market. Until now almost all aerial lifts apart from push around lifts operate on a pack of four, six volt lead acid batteries. The 1332 though only uses two 12 volt batteries, but that is not all, the batteries are also maintenance-free AGM (Absorbed

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Glass Mat) type, which typically have a shorter duty cycle than traditional flooded batteries as well as being more expensive. With this type of battery also improving and becoming less costly, we might see some major changes to the market.

#### Lithium is here to stay

At the higher end of the lift market - both in terms of working height and battery technology - lithium ion batteries are transforming platforms or cranes that need a lot of battery life and grunt yet have limited space on board. It is now more than six vears since Hinowa kicked off the lithium battery powered spider lift market. At the time we heard all about how much longer they would last with an average age of five years, how long they would go

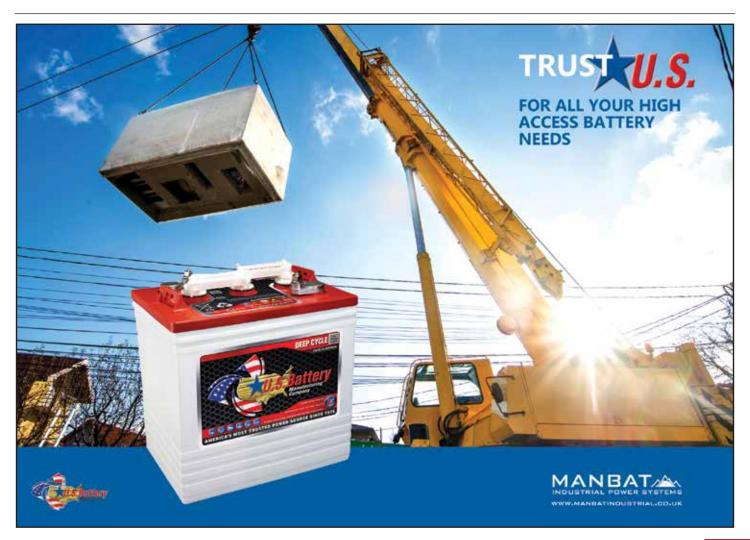
between charges with duty cycles of more than a full shift, and how fast they could be recharged from flat. So later on in this article we follow up on few lithium machines that have been in the field for a year

The other issue which will arise sooner rather than later is recycling. The lead acid battery is the perfect product when it comes to recycling, in that it is almost 100 percent recyclable. As a result they are most recycled consumer product by far, in the USA alone around 99 percent of all lead acid batteries are recycled almost 20 percent more than the next category - tyres. The whole process must be carried out properly and is now an increasingly regulated. But what of lithium? In



the car industry the battery pack was originally leased for about five years so the manufacturer will be involved in its recycling. But when it comes to aerial work platforms the battery pack is purchased and includes other components. We understand that some suppliers are already working on service exchange packs.

The car industry is making a massive impact on the lithium battery market, helping halve the cost of a battery over the past three years, and set to do the same again over the next three. But will that mean small scissors all shifting over to lithium? Unlikely - while the price is falling it still has a long way to go to catch up with the lead acid battery and with the improvements we have mentioned and the more efficient drive trains, the pressures that existed back in the early 1980s have gone - the current batteries are generally completely satisfactory. However, we can expect to see more maintenance-free batteries making an appearance - especially given the challenges of finding service engineers. The last thing you want is to tie up their valuable time replacing or even checking batteries.



# batteries

# Cla

# Real life experience with lithium batteries

With Hinowa, CTE, Teupen, CMC and others now offering standard lithium battery powered spider lifts we thought we would find out what sort of experience those running the machines for a year or two had experienced. Given that the decision to switch from an engine powered tracked machine to a battery powered unit, would have been unthinkable a few years ago.

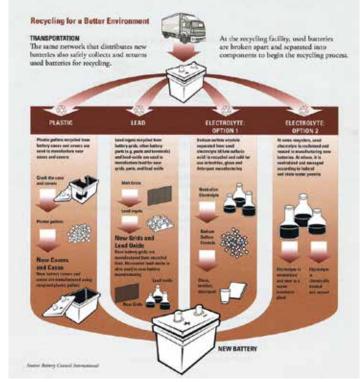
Barry Brady of UK-based rental company Elavation said: "The typical duty life is difficult to measure but we have no complaints. The terrain, temperature and driving conditions can all have a massive impact. The very nature of spider lift work can be very unusual. One application had us driving the machine to its final work site some two hours' drive away from the actual delivery point."

Thomas Cannon, director of UK rental company Cannon Access said: "In early February we rented the machine to Plantforce which required access to replant window boxes in the courtyard of an exclusive London hotel.

The hotel had stipulated a noise and emissions-free machine. The Hinowa 20.10's was able to set up in between planters and an outside dining area. Plantforce found the battery to be very good. They could get away with only charging the machine every other night (or whilst working) but charged it every evening as a precaution.

"In fact, we have not managed to use more than 50 percent of the battery capacity on any single day jobs so far, although if we need to charge whilst working it is no problem - it will actually charge faster than we can use the power! I was told to expect around five hours of battery life from constant use - from our experience this appears to be true, even conservative."

UK rental company Bella Access supplied one of its Hinowa Lithium spider lifts on a quarry job - not an application that immediately springs to mind for an electric power machine. Director Jason Dalmas said: "Before taking the quarry job on the customer questioned using electric instead of diesel. However once the machine was on site no more convincing was needed - it



worked a 10 hour shift and the customer was more than satisfied, so much so that he rebooked this machine for the end of February. The fact that, after just a two hour charge, 80 percent of the battery capacity was available was also a massive bonus."

Given this sort of feedback it is very possible to imagine almost

all aerial work platforms and mini cranes eventually converting to the technology. The new Genie Z60/37 is the first mainstream 60ft boom lift to rely solely on battery power, although it is to add a hybrid model at Bauma. Many engineers and rental companies will be watching to see how it works out.



A diamond of a show

The American Rental Association's 60th Rental show was a fitting tribute to the organisation and a surprisingly good one in terms of new product launches. As befits the association's membership the lifting products on display mostly covered access equipment and telehandlers although spider cranes, boom trucks and carry deck cranes are becoming more prominent.

Some of the totally new product launches are covered in the 'News' section so we will not duplicate that here, and a more detailed look at the new products will also be covered in features as we go through the year and get a chance to evaluate the production machines. So in the following pages we will simply provide a pictorial overview of the new products on show and some of the more interesting displays.









glimpse of the new 30ft SJ30ARJE industrial electric boom lift - more in our small booms feature

ARA show

















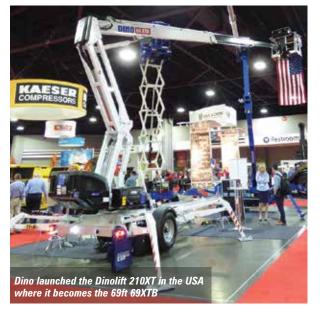




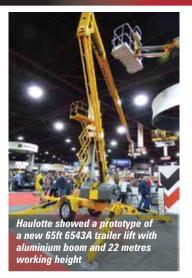




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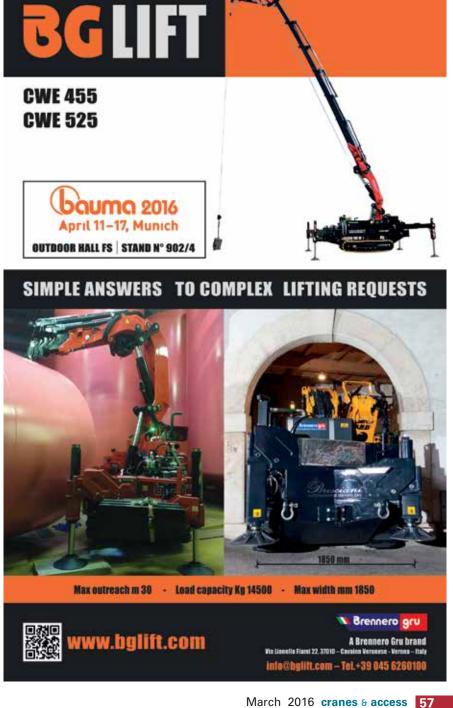












# **Executive Hire Show C** 6

# **Executive** Hire Show makes it 1

In the UK the Ricoh arena is known as the home of Coventry City football. More recently it has also become home to the London Wasps, and thus, the home of Coventry City Rugby. However, this February it hosted the 10th annual Executive Hire Show attracting around 2,100 visitors, to see a record 183 exhibitors. We take a look at some of the new products and highlights in the cranes, access and telehandler sector.

#### **Hird/Winlet**

Winlet and its local dealer Hird, used the show for the UK launch of its new 350TH fork mounted glass handling robot, designed principally as a telehandler attachment. The electric powered 350TH is designed to handle glass panels up to 350kg with its four 270mm vacuum pads. Weighing 400kg, the attachment is made to fit most telehandlers and can rotate 360 degrees.



Hird also used the show to announce the new nine tonne Valla 90TRX pick and carry crawler crane. Designed initially for Northern Escalator Installations in Halifax, the new crane fits into the Valla line between the five tonne 55TRX and 12 tonne 120DTRX, it boasts an eight metre four section boom plus a three metre luffing jib.

#### ATN/UE

ATN dealer Utility Equipment displayed the new 15ft ATN Piaf 660RC battery powered mast type lift, with 6.6 metres working height, 200kg platform capacity and overall weight of 980kg, including a 500mm deck extension. The 660RC joins the plain 660 and the 660RC Picking stocker picker version.

# **The Access Platform** Company

The Access Platform Company launched the new four metre Quickstep Ready, based on the existing Quickstep but with a heavier chassis, and larger wheels, eliminating the need for stabilisers. Overall width is 700mm, and overall height just under two metres.

With no batteries, electrics or hydraulics it is inexpensive and easy to maintain.

#### **New rental software**

MCS used the event to highlight its Workshop Mobile programme, The Android-based app can help service engineers streamline and manage repair and maintenance jobs remotely.

At the same time InspHire announced upgrades to its own mobile application in which teams, service engineers and clients can communicate more effectively using GPS mapping.













Next year the Executive Hire Show will be held on February 8th and 9th 2017.



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# New Andy **Access** poster

The latest Andy Access poster asks "Have you a rescue plan?" when using aerial work platforms on your site you should always perform a risk assessment and plan for a safe rescue. Help spread the message. Download artwork at www.ipaf.org/andyaccess



# **IPAF** instructors introduced to new learning tools



IPAF certified instructors received an overview of new learning tools that are set to rejuvenate the organisation's training programme for aerial work platform operators at this year's IPAF Professional Development Seminars, attended by more than 683 instructors from 23 countries covering eight languages.

The new tools include an eLearning theory module which delivers flexibility and interactivity, as well as an instructor-led theory course that uses the same state-of-the-art graphics, animations and learning techniques. What remains the same is the focus on practical training. Only trainees who pass a supervised theory test and a practical test are awarded a Smart PAL Card (Powered Access Licence) as proof of training.

IPAF instructors trained a record number of 145,094 people in 2015, an increase of 5.6 percent over the 137,436 trained in 2014. Training available from IPAF-approved centres includes operator courses for which a PAL Card is issued, and harness and management courses for which a certificate is issued. A record 137,517 PAL Cards were issued worldwide in 2015, an increase of 5.6 percent over 2014.

Chief executive Tim Whiteman said: "For almost 150,000 people every year, instructors are the face of IPAF. Their hard work and enduring commitment has made this voluntary training programme the global success that it is today. We aim to support our instructors by building on their skills and professionalism, and providing them with innovative and top-class learning tools."

The Professional Development Seminars ensure that instructors remain

up-to-date with legislation and training. Through attending the event they gain Continuing Professional Development (CPD) points, necessary to maintain their IPAF instructor status. This commitment to continuous learning is one of the unique features of the IPAF training programme.



# focus



# Research on powered access rental market underway

How do fluctuations in the economy affect the platform rental market? What is the impact of regulations on equipment purchasing decisions? Research is now underway to explore these questions and more.

IPAF has once again commissioned Ducker Research to produce the IPAF European Powered Access Rental Market Report 2016 and the IPAF US Powered Access Rental Market Report 2016.

The reports will:

- Evaluate the size of the aerial lift rental market overall and by country, and analyse this in detail
- · Provide an understanding of trends and dynamics in the market overall and by country
- Provide an estimate of the worldwide aerial work platform rental fleet size
- Include an update on the Chinese aerial work platform rental market

The reports will feature useful and valuable information - the result of approximately 125 qualitative interviews conducted with senior managers from rental companies, but also manufacturers and country-specific experts.

The 2016 reports will be published in April, but can be pre-ordered now at a 25 percent discount.

Those who order five or more copies of either report will get a 50 percent discount. www.ipaf.org/reports

# **IPAF** member satisfaction survey: iPad winner

Thank you to everyone who completed the IPAF Member Satisfaction Survey 2015.

The winner of the iPad Air (32G) is Jason Toh of Nishio Rent All Singapore Pte. His name was drawn from eligible entrants by Joe Hopkinson (pictured), of Brokk UK.

All IPAF members were invited to complete the survey which closed at the end of December, the results will be presented to the IPAF Council in March, and will guide policy making and membership development.

The next Member Satisfaction Survey is planned for 2017.



# PDS and UK member event: Save the dates

Professional Development Seminars (PDS) for UK instructors will be held on:

5th October 2016 in the north:

Marriott Hotel, The Metrocentre, Newcastle upon Tyne NE11 9XF, UK

3rd November 2016 in the south:

De Veres Milton Hill House, Milton Hill, Steventon, Oxfordshire Ox13 6AF, UK

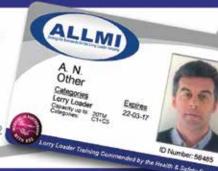
An IPAF UK Member Event will also be held on 2nd November at the same venue in the south, and will feature an afternoon of management seminars and an evening for dinner, networking and entertainment. IPAF has arranged a bed and breakfast room rate of £90 plus VAT. To book, call the hotel on +44 (0)1235 831474 and quote "IPAF event and block code IPAF021116". The special rate expires 1 October 2016.



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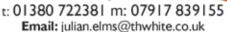
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# **New Guidance Note**

ALLMI's Technical Standards Committee has released a new Guidance Note covering the subject of provisionally overriding safety systems.

Aimed at owners and operators of loader cranes, as well as those carrying out servicing and repairs, the guidance starts by looking at the legislation relating to this topic, and then goes on to provide examples of how this can be contravened when safety systems are overridden. This is followed by detailed guidance on points that all parties should be aware of, including routine checks that fleet owners should have in place, as well as the safety procedures to be followed and the audit trail to be documented on the part of the fleet owner and service repairer, in the event of needing to temporarily override a system due to



a technical fault, with the sole intention of permitting the loader crane to be stowed for travel and returned to its base.

ALLMI technical manager, Keith Silvester said: "This is an important subject. The overriding of safety systems can create serious safety issues for loader crane users, so it is essential that all relevant parties are aware of their obligations, as well as the practices they should adopt in order to protect themselves and their employees."

The guidance note also stresses the importance of training. In many cases where issues are encountered with safety systems, it is due to a lack of understanding on the part of the operator, and fleet owners can help to negate this by ensuring that the manufacturer's handbook, or an appropriate abbreviated guide, is in the vehicle cab at all times, and that product familiarisation training of sufficient duration and detail has been provided. Compared to the expense of downtime, such training will be an investment, not a cost.

For a copy of "GN023 - Protocol for Provisional Overriding of Safety Systems", please contact ALLMI.

# **Election Time**

ALLMI has concluded the 2016 round of elections for its board of directors and its fleet owner division's Executive Committee.

For the ALLMI board, the process saw Mark Rigby of T H White retaining his place as chairman for the 11th year in a row, and a new addition in the form of Alastair Evans of Hiab. For the Operators' Forum Executive, the election resulted in Steve



Frazer-Brown being appointed as chairman for the 11th consecutive year, and Stewart Smith of D Smith Express joining the committee for the first time.

ALLMI chief executive Tom Wakefield said: "The election process is fundamental to the democratic manner in which ALLMI operates. The board and Executive Committee are elected on a biennial basis and this practice provides members with the opportunity to appoint those people who they feel will best represent their interests, as well as those of the wider industry;

and who will oversee the efficient and successful

running of the association."







# **Product Familiarisation Guidance Documents**

The findings from ALLMI's Discussion Group sessions held in the fourth quarter of last year, further revealed the importance of product familiarisation, and the problems that can be created when this training isn't provided to operators. This has led to the association issuing additional industry-wide reminders of the comprehensive guidance it has in place in relation to this subject.

Technical manager, Keith Silvester said: "There is a clear legal duty on the part of the employer and the employee for lorry loaders to be operated safely, and an important

aspect of ensuring this is for the operator to be

fully conversant with the crane being used. Therefore, the operator must not only undergo the appropriate basic training, but also receive machine familiarisation at the point of handover. As part of this, it's essential that the operator is familiarised with the controls and safety systems that are specific to that particular machine, because with manufacturers continually improving their designs and introducing new features, experience of using one make / model of crane does not mean that an operator will be conversant with any other."

ALLMI's guidance is divided into two parts: the first document provides guidance on the required level of information and product familiarisation that should be given to users of the equipment, as well as details of the audit trail that should be put in place, while the second document is a template form that can be used by those delivering the familiarisation training.

For a copy of this guidance, please contact ALLMI.



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# Fall protection training

Capital Safety, the fall protection equipment supplier, acquired last year by 3M, held an event on 3rd March at its TAG training facility in Greenfield, Manchester, UK to promote its dedicated work at height training facilities and safety equipment to a wide range of visitors representing different industries. Sam Pickering of Cranes & Access went along to learn more.

The training site is based at an old Victorian textile mill on the outskirts of Manchester and includes a number of towers of various heights, which provide prime opportunities for practical training exercises for those who work at height. One tower - a modified Vestas V25 wind turbine tower stands 30 metres high and provides trainees with the opportunity to climb and descend both the inside and outside, offering a training experience close to the real thing. I took the opportunity and thoroughly enjoyed the experience and the learning process, feeling fully secure with the help of the instructors and the supplied safety gear. Stephen Morris, Capital Safety's UK training and sales manager, instructed our group on the features of the equipment and how to safely climb both the wind turbine and a smaller



telecommunications tower. While the theory sessions were very informative the realistic practical session brought the whole thing to life and made a welcome break from the classroom.

The site is one of three training centres the company has in the UK - the others being in London and Carnegie - and are part of a global network of 27 locations in France, Germany, Poland, Dubai, Singapore, China, Australia Brazil, Mexico. Canada and the USA. The company is probably best known for its harnesses, lanyards and fall arrest equipment which it sells under the Sala and Protecta brands, but it also offers a range of work at height courses from beginner to specialist as well as bespoke programmes to meet individual company requirements.



# Cla

# training



# LMI override costs crane operator €4,500 and his job

A mobile crane operator in Germany was fined for overriding the LMI on his crane causing it to overturn and for being intoxicated. The man, 47, appeared before the district court of Fürstenfeldbruck, in Bavaria accused of negligence while carrying out a construction related task. He was lifting a set of glazed patio doors, weighing around 1,400kg into the back of a house in Puchheim near Munich in June 2015. The boom on the 80 tonne Tadano was fully extended and lowered below 45 degrees, where the capacity is no more than 700kg with the counterweight installed. In order to complete the lift the operator

overrode the Load Moment Indicator - the crane overturned onto the house, causing more than €200,000 of damage.

The operator was issued with a €4,500 penalty notice, but decided to go to court, claiming a technical failure as the cause. In court he changed his plea to guilty to the charge of overriding the LMI in exchange for a lower fine. He was also accused of having a blood alcohol rate of 0.81 milligrammes. The man was fired by the crane rental company Schindler and risked losing his driving licence, given that he had driven some distance on the public highway, presumably while intoxicated.

# Who trained them then?

Sent in by a reader a while back from the USA - a man using one of the biggest A Frame step ladders we have ever seen, and then standing on the top step! It looks like a JLG portable lift is available but we guess the desk was in the way?



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**Crawler crane emissions** the story so far...

As many of C&A readers will know, the Greater London **Authority generally requires Tier** IIIB emission levels in central London and Canary Wharf. An exemption is currently given to mobile cranes, which is understood to include crawler cranes in line with FEM and international definitions.

However, at a recent meeting of the authority's Exemptions Policy committee, Crossrail stated that crawler cranes are available with IIIB engines, or with IIIB levels of emissions which have been achieved by retrofitting. Because of this, the authority may want to review the exemption for crawler cranes. The CPA needs to be ready to justify crawler cranes remaining on the exemption list. To do this, we need to have strong answers to the following questions:

- 1. Are crawler cranes with IIIB engines available in significant numbers in the UK supply chain?
- 2. Is it viable to retrofit earlier engines to reduce particulates and NOX?
- 3. If this is not viable, is it viable to retrofit to reduce particulates alone? CPA director Kevin Minton said, "We are putting together a case to



take to Greater London Authority, asking for a class exemption for crawler cranes. We may need to subdivide them into different sizes and telescopic or lattice booms. If a class exemption is not acceptable, then having our technical information on file and ready will aid the authority's decision making when exemptions are applied for on a machine by machine basis." If you have any authoritative information, statistics, data or results of trials, please send them to: kevin.minton@cpa.uk.net.

The contractor on site needs to register all equipment and request exemptions if necessary.





# **New recruit for CPA**

Peter Brown has joined the CPA - Construction Plant-hire Association as technical development manager, a new role within the association.



He joins the CPA from the Construction Industry Training Board where he worked in a wide range of roles, including

training development, education, and skills certification. He was also responsible for setting the standard for the construction and allied sectors. As Construction Plant Competence Scheme (CPCS) product manager he managed and developed products and services for the scheme, which included implementing scheme rules and operating procedures, operator and instructor training programmes, test specifications, support material and renewal criteria.

Brown worked his way through the ranks, beginning his career in construction as an apprentice quickly becoming a full time research & development experimental technician. He is also an experienced machinery operator and demonstrator.

His new role will involve supporting the association and its members with technical development which will include involvement in the Strategic Forum Plant Safety Group, special interest groups, training and competency strategies and also liaising with government bodies such as BIS and HSE.

CPA chief executive Colin Wood said: "I am pleased to welcome Peter to the CPA. Many of our members have known him for many years and are aware of his skills and experience. I believe that Peter will be a great asset to both the members and staff at CPA."

Minton added: "Peter has extensive experience and is well respected in the equipment sector. I am very pleased that he has decided to join the CPA, and am confident that he will make a valuable contribution to the association and its members. I look forward to working with him."

# **Revision of Guidance on Excavators used for Lifting**

The Guidance on Excavators used for Lifting was first published by the CPA in 2008 and reviewed in 2009. The Strategic Forum Plant Safety Group is now planning a further revision of this document in 2016.

The use of excavators for lifting operations, particularly on construction sites, has become



more common over the past few years. Excavators and backhoes are designed for rapid earth moving and are not designed for lifting operations as their principal function. The guidance suggests that when planning a lifting operation, you should firstly consider whether an excavator is the most appropriate machine, taking into account the type of lift and the duration of the task.

Topics for revision and new additions to the guidance include: definition of Rated Object Handling, Requirements for excavators equipped for lifting, rated lift capacity indicator issues, hazardous location issues including road and railways.



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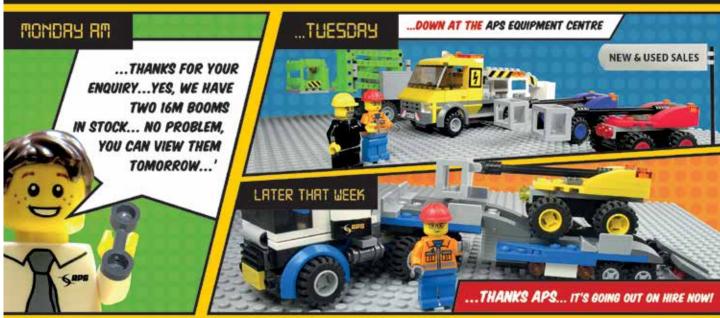


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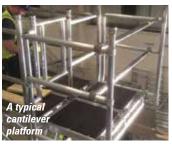
# Product standards for mobile access towers

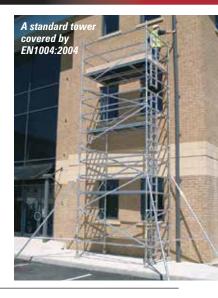
EN1004: 2004 (published in the UK as BS EN1004: 2004) is the European standard for mobile access and working towers made from prefabricated elements. It was published in 2004 and replaces the withdrawn British standard BS1139 Part 3. EN1004 covers standard mobile towers in the height range of 2.5 to eight metres for external (outdoor) use and 2.5 to 12 metres for internal (indoor) use.

BS1139 Part 6 Metal Scaffolding is the British standard covering mobile access towers outside of the scope of EN1004 but which use the same components. Examples are high level towers greater than 12 metres

for internal use and eight metres for external use, towers with cantilever platforms, towers less than 2.5 metres in height, commonly referred to as room scaffolds, linked towers and high clearance towers.







# Fifth record breaking year for PASMA training



PASMA the international association

for the mobile access tower industry has released its training statistics, which show that for the fifth consecutive year, the association has exceeded its previous year's total for the number of delegates trained.

In 2015 a total of 70,920 delegates were trained an increase of 5.5 percent on 2014. In the five years

since the beginning of 2011, over 323,000 delegates have qualified for a PASMA photocard and

certificate. Significantly, the figures for January and February 2016 have already exceeded those for the corresponding months in 2015.

PASMA's marketing and communications officer, Gary Chudleigh said: "As these latest statistics show, the association continues to make a major contribution to height safety, positioning it as one of the premier providers of specialist training in the work at height sector. On building sites and in workplaces up and down the country, the PASMA photocard is regarded as authoritative evidence of competency as required by the

Work at Height Regulations 2005."

The association currently offers nine different training courses covering everything from the essentials of working at height and low level access, to advanced courses such as Towers on Stairs and Towers for Riggers. Two further advanced courses, Towers with Cantilevers and Towers with Bridging Units will be launched later this year.

PASMA has also been a major contributor to the development of the UK's Access Industry Forum's (AIF's) inaugural training course Managing Work at Height, which will also be launched later this year.

# **Head of Strategic Engagement & Enterprise**

Applications have now closed for the newly created post of head of strategic engagement & enterprise. Reporting to PASMA managing director, Peter Bennett, the successful candidate will fulfil a variety of roles. Briefly:

- Supporting the strategic direction of the association to ensure effective engagement with industry partners and stakeholders.
- Taking the lead in managing and assisting the committees of the association to deliver objectives and projects.
- Leading the drive to positive member engagement and collaboration.
- Participating in, and fostering, a culture of continuous improvement in the provision and delivery of PASMA services.

# PASMA at ISNR Abu Dhabi

PASMA recently exhibited at the International Exhibition for National Security and Resilience at ADNEC, Abu Dhabi, United Arab Emirates. Organised by the UAE Ministry of Interior, the event was co-located with Occupational Safety & Health Middle East (OSHME). In addition to showcasing the safe use of towers, the association delivered a series of presentations.

Looking forward, PASMA will be exhibiting at the Safety & Health Expo, 21-23 June, at ExCeL, London, and participating in the Access Industry Forum's (AIF) first national conference Implementing Change and Innovation in Work at Height at the Holywell Park Conference Centre, Loughborough, on 13th October.

Email info@accessindustryforum.org.uk for information about the speakers and the topics to be covered.

# **PASMA** sponsors HAE Hire **Awards of Excellence**

PASMA will once again sponsor the SafeHire Company of the Year category at this year's HAE Hire Awards of Excellence. The winners will be announced on 23rd April at an awards ceremony taking place at 8 Northumberland Avenue, London. The award will go to the company which has best demonstrated its

# SafeHire Company of the Year

compliance to the SafeHire standard and has improved the health, safety and well-being of its workforce and/ or other users of hired or owned equipment. This year's finalists are:

- · Allen's Catering Hire, Hounslow, Middlesex.
- Artisan Hire, Melksham, Wiltshire.
- BAM Nuttall, Camberley, Surrey.
- · Hire Station, Nottingham.

Last year's winner was Travis Perkins.



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# A bluffers guide to rental rates

The economic recovery in many markets has so far brought only limited improvements in rental rates. But what causes rental rates to go down and be so resistant to increase? What can rental companies do about it? Is there anything that industry associations can do to help? In Part One of a two part article Jeff Eisenburg takes a look.

# **Calculating rental rates**

A common calculation methodology is useful as a starting point. In the USA, the **American Rental Association** (ARA) helpfully publishes a guide and software on 'Rental Market Metrics' with a particular focus on standardising rental utilisation calculations. This means that figures are comparable between companies. Some large European rental companies have already adopted this method in their investor presentations.



Most measurements of rental rates compare the rental rate per year with the cost. But which cost? The replacement cost is most widely used, with 'Payback' given in months or years. A 36 month payback means a machine that costs £10,000 generates £3,333 a year in rental revenue. Some rental companies use a 'financial utilisation' that takes the annual revenue as a percentage of the replacement cost. So, that £10,000 machine earning £3,333 a year will have 33 percent annual financial utilisation.

Payback and financial utilisation are almost always calculated net of expected physical utilisation, so at 75 percent utilisation in order to generate the £3,333, the rental rate would need to be £17.80 a day, which multiplied by 250 working days equals £4,444 at 100 percent utilisation - £3,333 at 75 percent. In the USA, the Rouse Analytics'

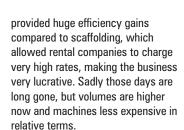
Rental Metrics Benchmark Service compares rental rates by equipment class, and analyses trends so that investors can check that company managements are not putting a spin on rental rate trends to paint a more positive picture.

## How are rental rates set in the first place?

In an established rental market where multiple competitors supply similar equipment, competition determines the rates. While there is room for a niche offering, additional services or equipment advantages, most prospective customers will ask for the price very early in the conversation.

If a rental company has a truly unique offering - be it product, service or combination of the two - they can avoid the commodity type pricing that affects so many equipment categories. Many early applications for powered access

Rouse Rate Index\*\*

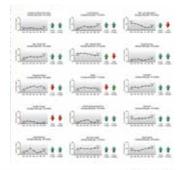


In the back of a customer's mind are always several questions:

"That's expensive to rent, perhaps I should buy instead?" Countered by: "what is the total cost and risk of ownership, how often do I need the machine, can my capital be better employed elsewhere?"

"Should I rent the equipment or sub-contract the iob?" Rent a car or take a taxi? In some countries such as India, you rarely have a choice, nearly all cars - and now platforms are rented with a driver.

In more developed markets, the question has moved on to: "I need to rent several 45ft diesel booms, who has the best price?" All too often product quality and service are 'assumed' to be acceptable. One rental company owner in London declared: "Today you can't win business with good service, you can



only lose it with bad service."

#### The 'ratchet effect'

rental rates

Economists talk about the ratchet effect in relation to prices that go up easily with inflation, but are far more resistant to coming down. This works like a ratchet in a mechanic's toolbox or on a hand winch that turns one way but holds firm in the other direction. The equipment rental industry tends to have the opposite problem, rental prices come down very quickly, but recover very slowly.

## Discipline and price delegation

But why do prices come down so quickly? Much of this can be explained by the oversupply of equipment either temporary or long term. If a rental company is missing its utilisation targets, especially when rates are soft, the temptation is to try and maintain revenue by discounting the last few machines in the yard. But one company's 'incremental' business, is another's core business and countered by retaliatory discounting and new lows. Rental companies are often highly leveraged, and desperate for cash to meet the payroll or bank payments, and can easily be tempted to discount a few machines for that extra revenue.... And so on it goes.





	United Rentals Inc. 2014	Andrews Sykes Group 2014	Lavendon Group Plc 2014	Aggreko Plc 2014	Ainscough Cranes Ltd. 2014
Rental Revenue	4,819	45,688	225,315	1,529	116,201
Rental assets at original cost	8,527	39,916	494,786	2,599	209,737
Financial Utilization	56.5%	114.5%	45.5%	58.8%	55.4%
payback In years	1.77	0.87	2.20	1.70	1.80
Depreciation Expense	921	4,563	37,186	259	13,363
	SG&A				
Wages and Salaries Expense	758	16,392	67,960	314	51,209
Total Personnel compared to depreciation %	82.3%	359.2%	182.8%	121.2%	383.2%
	US m \$; SG&A is used in place of Wages and Salaries (disclosure)	GBP 000	GBP 000	GBP m	GBP 000
	General equipment with significant AWP population, US and Canada	UK, Europe and Middle East, water pump and HVAC specialist	AWP specialist with some telehandlers, UK Europe and Middle East	Worldwide generator rental and power project specialist	UK crane rental specialist, rented with operators or contract lifts

## The 'ratchet effect' on fleet

When rental companies see a chance for growth, they often invest as quickly as they can manage, especially the younger companies with entrepreneurial owners. However, most dispose of the fleet much more slowly. This is one of the keys to rate problems, rates don't move back up because rental companies don't, or can't, reduce their fleets as quickly as they added to them. Rental companies that can are the multi-country operations where machines follow the work to markets in a different phase of the economic cycle.

Australian rental companies suffer more than most with this. When the economy suffered a serious downturn, rental rates plummeted and used equipment was difficult to shift, partly because of distance to other markets and differing machine regulations. While Australia's equipment standards have helped keep prices high in the past, they also hinder de-fleeting in difficult times.

#### **Rates and rental** associations

So why can't rental associations do something to fight low rates?

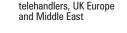


Most suggestions around setting minimum pricing in an industry are seen as anti-competitive behaviour and illegal. Even where this has been attempted, it rarely works. Managing directors tell their subordinates to raise the prices "everyone has agreed to increase five percent now and five percent in the summer" but remind them that they still need to hit revenue targets. So the discounting continues its downward spiral, sometimes via free rental days, free transport or telling the customer to order a smaller machine and delivering the larger one he really needs etc...

Where rental associations have been particularly successful is by encouraging the adoption of additional charges, such as insurance and environmental fees. The Spanish platform rental association ANAPAT has been particularly successful in this area, although the Spanish market has had more than its fair share of challenges.

## How to influence the rental rate - 'supply side'

Want faster payback times or higher financial utilisation? Buying equipment at a lower price will certainly help, starting with volume discounts and tough negotiation. Careful with what you save on though, it can affect resale value. What about cheaper brands? Are your customers price sensitive - will they pay more to rent a Mercedes than a Renault? Will they pay more for a boom with a jib?





# How about used rather than new equipment?

Mathematically the payback is twice as good if you buy used equipment at half the price, all other things being equal. However, you shouldn't calculate payback on the used price, but rather on the new price. It's a rare rental company that can grow on the 'junkyard' model, buying only used machines for the rental fleet. Junkvard is not meant in a derogatory sense - I have been involved with such companies personally, and there are advantages, but they are rarely sustainable. Steady supply of equipment is an issue. Building a 'junkyard rental company in 2016 is challenging, given the lack of equipment produced between the 2008 crash and 2012.

A down side is that running costs for used equipment can be higher, with no warranty and aging componentry. In the car rental industry, the majority of cars stay in fleets for less than a year and are sold on while still under warranty,

ideally before the first major service, helping keep costs down. An important lesson given the challenge of recruiting service engineers.

## What is a good rate? **Benchmarking**

Benchmarking against the largest and most profitable rental companies is always interesting and often useful. The payback or financial utilisation for an entire fleet can be calculated the same way as for a single machine. Particularly interesting is comparing general and specialist rental companies and different types of equipment.

The usual benchmarking caveats apply. If you are looking at financial reports from the outside you never see the entire story, but it's still a useful starting point for further analysis. In 2014 United Rentals saw its share price and market capitalisation rise to all-time highs as profitability increased, and as the largest equipment rental company in the world, it's a useful benchmark. Its financial utilisation was 56.5 percent - a payback of 1.77 years

#### 45 ft articulated boom example

Rental Revenue	£175 per week	6,825	£225 per week	8,775	£375 per week	14,625
Rental assets at original cost	75% utilization ( 46 euros per day )	35,000	75% utilization ( 59 euros per day )	35,000	75% utilization ( 98 euros per day )	35,000
Financial Utilization	, , , ,	19.5%		25.1%	, , , ,	41.8%
payback In years		5.13		3.99		2.39

Sources: Company Annual Reports, Annual Return at Companies House (for Ainscough), market intelligence and estimates.

compared to original price (it does not disclose replacement cost).



Lavendon, Europe's largest platform rental company has a slower payback of 2.2 years. What to read into this? The US market in 2014 was arguably further along in its recovery, while Lavendon has exposure to some of the tougher continental European markets which were still in recession.

Andrews Sykes Group is a specialist focussing on water pumps, Heating, Ventilation and Air Conditioning (HVAC) rental. It has much higher revenues compared to the asset values, therefore better payback. Generator specialist Aggreko falls between Sykes and Lavendon in terms of payback, as does Ainscough crane Hire, but it has the highest salary expense to depreciation ratio. It is more of a service business with every asset going out with an operator or a team of operators depending on the job.

Does this mean everyone should sell their platforms and buy water pumps? Financial utilisation and rental rates are NOT the whole story. The aerial lift market is much larger than for pumps which also requires far more personnel. Comparing salary expense to depreciation expense gives us

a hint as to the service content of the rental offering. Sykes people-costs are more than three times its depreciation cost, so yes, you get great payback on the assets but it takes an army of people to put all that equipment to work and keep it maintained.

#### Single machine economics

The ratios of payback and financial utilisation work the same for a fleet or a single machine. Total revenue is made from a multitude of units, so comparing each unit against the total fleet goal is imperative.

Typical rates in the UK construction market for 45ft booms during the downturn averaged £175 a week. At £175 per week payback on the £35,000 machine is five years, leaving precious little for its maintenance and the overheads required to run a rental company. With rates now above £225 a week, payback is four years - still not exciting considering the infrastructure and personnel it takes to support the equipment and provide the service. Even the good old days' of the mid 1990s at £375 to £400 a week was not great compared to the cost of the equipment.

#### What to do about it? See part II in the April issue of C&A

Jeff Eisenberg has been in the equipment rental industry since the mid 1990s, when he established Genie Financial Services. Since 2000 his roles include rental company director, shareholder, advisor, consultant and even equipment operator. His Claremont Consulting business advises financial institutions, investors and rental companies. jeff@claremont-consulting. com +44 7900 916933





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# Lifting beams

Scale models of cranes normally come with all the parts necessary to display the model, but they hardly ever include parts which enable realistic lifting poses. So no chains, slings, straps or lifting beams. To put that right the American model maker Weiss Brothers has released a kit that provides various spreader beams and lifting equipment to use with model cranes. And it is in 1:50 scale.

The kit comes in a high quality box, with the spreader beams resting in good quality foam packaging, all other parts are individually bagged. There is no information included with the kit, perhaps a parts list and sample configurations would have been useful.

A number of spreader beams are included and they are metal with a very good finish, and the capacity is marked with miniature decals. There are two 100 ton beams and one 75 ton beam, both of a box style construction. There are also four tubular 50 ton beams and two tubular 25 ton beams.

The kit also includes 16 nylon rope slings in four different lengths, and 24 web slings also in four different lengths. They are all nicely made parts.

Moving back to metal, there are 18 wire rope assemblies in three lengths and they have nicely crimped loops. There are also 12 chain sets with hooks in three different lengths, and they have a realistic small link size.

Completing the kit are die-cast shackles with 24 rated at 55 tons, and 18 rated at 120 tons. These

are high quality parts with working screw locking bolts. However as they are die-cast they will not bend so care has to be taken when using them.

The key feature of the kit is its flexibility, with many different lifting arrangements able to be reproduced. It has been made in a variety of colours including yellow for Liebherr, red for Manitowoc and white for Terex. Branded kits have also been made for Mammoet, Sarens and other companies.

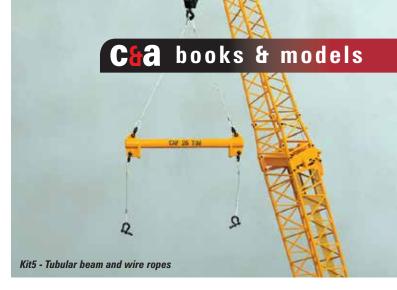
This is a high quality kit which is finished well with very good paintwork on the spreader beams. The range of parts provided make it good value, costing around £130 from model dealers, or the Mammoet and Sarens webshops. To read the full review of this model

visit www.cranesetc.co.uk



Kit1 - High quality packaging.











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# Letters

#### Dear Leigh,

This month's Cranes & Access editorial is frankly rubbish. Talking about Mark Industries and Simon in respect of the telescopic crane market? Going on at such length about Versalift as though they are such a big brand in the company of others. And to suggest that 'changes in dominant shares only have one direction - down' What twaddle. Of course in time everything goes down but many dominant companies remain market leaders after 50 years or more - Cat, Deere, Boeing, etc.

An editorial such as this undermines your excellent overall efforts.

#### **Stuart Anderson**

**Chortsey Bar Associates** 

We would and did disagree with Mr Anderson and responded that Mark and Simon were being cited as strong market leaders in our market (cranes and access equipment) that have since vanished, along with crane companies such as Lorain. As to our comment on a dominant market share only going down, this might be a question of definition rather than disagreement - given that dominant market positions tend to attract the attention of market regulators and usually requires sell offs or occasionally break up - see AT&T. We would also cite Boeing as an example of our point in that it was dominant and becoming more so - today it probably has a 30 to 40 percent share of the commercial airline market, with Airbus - a company that did not exist when Boeing at arguably at its strongest - outselling it in some years. The editorial was making the point of how hard it can be to protect a strong or dominant market share and how fast the situation can change.

#### Dear Sir

Ed

I loved the letter and picture of the old American 5299 crawler crane from 1971 - this was a great crane and similar to one I operated myself for many years before moving onto a bigger rig and then into management. It would be nice if more companies did this with their old cranes. While old trucks are increasingly being renovated and put on show there are very few people out there doing the same for old cranes. I would like to see more coverage of old/historic cranes in your excellent publication.

#### Ian Stevens

Detroit

#### Dear Sir,

This is my true and honest account of how not to buy a bespoke Unimog/Palfinger crane set-up for delivery in the UK.

In January 2015 I approached a Mercedes Unimog dealer in the UK to supply a new Unimog U530 with a Palfinger PK27002 SH-E & PJ060B fly-jib, winch and personnel basket. After various discussions regarding crane and sub-frame suppliers, it was decided that myself and the Unimog dealer travel to Austria and Germany to see what was on offer. We had constructive talks with two companies, FMG in Austria and Werner in Germany. FMG could offer a crane and sub-frame package that would operate to the cranes maximum lift and radius capacity throughout 360-degrees, while Werner could only offer the maximum lift at maximum radius over 230 degrees.

After many emails to each company regarding crane duties, it was decided that the 360-degree option would be the more beneficial. The order was placed and the machine was delivered to the UK late September 2015. There was one immediate problem in that that the leg deployment measuring wires were positioned outside of the leg structure in a position where they could be tampered with and would be prone to damage. FMG said this was the only place they could be installed, as there was no room to fit the sensors and wires within the leg structures. My Unimog dealer came up with a plan to rectify the issue and put his idea to FMG. The following day FMG came up with their own plan, and my Unimog dealer carried out the work to their instructions.

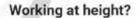
On taking delivery in late November 2015 it was noticed that the rear axle weight was too heavy. After many emails to and from FMG, we were told there was no way that it could be overweight as their calculation was correct. Their calculation was based on a Unimog chassis with a 7,200kg front axle and a 9,000kg rear axle maximum or GVW of 15,500kg. The calculation based on that axle weight gave the Unimog with crane & subframe fitted an approximate rear axle weight of 8,267kg, well within the 9,000kg allowed. After discussions with my Unimog dealer it was decided to upgrade the chassis to 7,500kg front and 9,500kg rear axle - 16,500kg GVW, thus allowing me to add further implements on the front and rear. This should have given me the original payload of 733kg + the additional 500kg = 1,233kg payload with the increased rear axle variant.

The delivered machine had a rear axle weight of 9,800kg! making it an illegal vehicle on any road in any country, and no spare capacity to carry any lifting equipment, personnel basket or the various implements this machine was designed to use. When questioned on the calculation, FMG's response was 'their calculation had no guarantee and was subject to a 5% variation'. Small variations can be expected, but it ended up with 19%, which is far from acceptable.

Both myself and Unimog dealer had the machine weighed at different locations, and informed FMG, but they were adamant that their calculation was correct. They came to the UK in January 2016 to try and sort out the lifting capacity of the crane (separate issue), and the machine was

Continued on page 79

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weighed with four individual weigh pads one under each wheel with an FMG representative in attendance, and it was overweight. At this point FMG asked my Unimog dealer to carry out some modifications, which he declined and the machine was transported back to Austria. When it arrived at FMG's workshop it was weighed again, and remarkably it was underweight!

At this point FMG offered to do some modifications and issue a compromise contract! which was reluctantly agreed to as the machine needed to be out working. This included a change to the back body to fully aluminium, shorten the rear stabiliser legs by 120mm, removing 20 litres of hydraulic oil while adding 650kg ballast to the front. All these modifications were offered even though it supposedly underweight and not a problem!

I visited FMG in Austria many times last year, and sent many emails regarding the weights, as I was concerned. This concern stems from owning and operating a Unimog U400 with Palfinger crane at maximum GVW for the last 14 years. FMG told me there would be no problem with weight - there is a problem, and FMG cannot and will not give me what was originally ordered. I then travelled to FMG in February to discuss the compromise agreement, whereby they would remove weight from the rear (approx. 260kg, and add a 650kg ballast weight to the front). I made my feelings known at this meeting that I had now lost the ability to mount the small winch that was originally ordered to the rear of the Unimog, as a bigger one was needed at the front to replace the 650kg ballast weight. It has also compromised any other add-on implements I had planned for this machine. It was then verbally agreed that FMG would supply and fit a front mounted winch which could be operated at the front and rear of the Unimog, free of charge for all the lost earnings and inconvenience caused thus far. This was accepted by myself and handshakes all round.

The following morning - back in the UK - I received an email saying 'after careful consideration the winch would not be supplied by FMG free of charge'.

FMG has no morals and zero customer service skills so beware, get it in writing, but to be honest that probably wouldn't be worth the paper it is written on, a bit like the calculation!

FMG have now carried out the modifications to address the overweight issue, and told the UK dealer to collect the machine. Their problem, their modification, and the UK dealer has to arrange collection at no cost to FMG. This company is not worth doing business with, find another.

Unfortunately, this is not the end of the saga, as the original and compromise contracts both stated that the crane will lift 330kg at 25.4

metres throughout 360-degrees. This cannot be achieved, maximum capacity is somewhere near 286kg, but this has yet to be verified. In hindsight, the genuine 230-degrees alternative from Werner at 286kg would have been better. This is not a Palfinger problem, but an FMG statement to obtain the order.

So if anyone is thinking about putting this kind of equipment together, might I suggest you do your own investigations before being well and truly turned over. There are two well-known companies that carry out this work, FMG Fahrzeugbau-Maschinebau Austria or Werner GmbH Forst- und Industrietechnik, Germany - with hindsight the order should have been placed with Werner.

It would cost too much money to pursue FMG through the legal system, and they know that. To date, lost earnings and loan repayments equate to approximately £57,000.00, plus an additional over of £20,000.00 for a heavier winch at the front — total unexpected expenditure £62,000.00 including transport expenses.

One other quite important issue that arose after initial delivery, was to do with the Unimog itself. As the Unimog was delivered with a 9,500kg rear axle variant, you have virtually zero options for tyres. If you plan to use your Unimog on paved, rock, sand, gravel or harder surfaces, then there may be no problem, but should you venture into anything that's slightly damp/ wet and muddy you're going to get stuck. The tyres offered by Mercedes were Michelin XZL 395/85 R20 or XZL 445/65 R22.5, neither of which have an aggressive enough tread pattern for operating in fields. I opted for the 395's as they were slightly the more aggressive of the two. Unfortunately, there was very little known about each tyre, and nobody that's used them to consult with. So what you have is probably the greatest 4x4 off-road vehicle on the planet, that can't do what I required of it, or from personal experience what I know it is capable of. This is based on my very short personal experience, albeit with an overweight rear axle. This is a work in progress with my UK dealer.

#### Foot Note

As of March 2016 it is still not working, so a very big mistake to commission something from someone who promises everything, but delivers nothing like what was ordered. Buyers beware

#### **Jerry North**

Director

JMN Construction Ltd

Chandlers Ford, Hants



#### **Gary Kennedy** *1954-2016*

Gary Kennedy, sales office manager at RaycoWylie in the UK, died suddenly on January 29th while on a diving holiday in Egypt. He was just 61. Kennedy worked with Wylie and Rayco Wylie for almost 30 years, having joined the crane overload indicator manufacturer following a two year contract with Tarmac as an electrical supervisor where he managed a team supporting the

concrete pouring and track laying phase on the Channel Tunnel. Prior to that he had spent almost 10 years with Balfour Beatty

Prior to that he had spent almost 10 years with Balfour Beatty Construction as an electrician working on large job sites, including the Dungeness Power Station.

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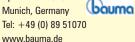
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601	Faun ATF 60-3	2003	6x6x6	40,20m
60 t	Faun ATF 60-3	2006	6x6x6	40,20m + 16,00m
108	Faun ATF 80-4	2003	Rx8x8	48,50m + 2,00m + runner
80 t	Faun ATF 80-4	2005	SxSxS.	48,50m + 16,00m + 2,50m
901	Liebherr LTM 1090-2	2001	Sx8x8	52,00m + 19,00m
1001	Grove GMK 5100	2005	10x6x10	51,00m + 18,00m +
				2,50m+nunner
130 t	Grove GMK 5130-1	2005	10x8x10	60,00m + 18,00m
160 t	Tadano Faun ATF 160G-5	2009	H0x8x8	60,00m + 37,00m
200 t	Terex-Demag AC 200-1	2005	10x8x8	68,00m + 33,00m + 1,50m
220 r	Liebhert LTM 1220-5.1	2005	10x8x8	60;00m + 22;00m

#### LATTICE-BOOM-TRUCK CRANES Make / Type 115 t Link-Belt HC 238 Drive 10x0x0 Boom / Fly Jih 48,00m + 18,00m y, 6, m. 1982

CRAWLER-LATTICE BOOM-CRANES Make / Type 180 t Link Belt LS 248 H y. o. m. 1997 Drive Boom / Fly Jih 59,90m + 48,70m

#### HARBOUR-MOBILE-CRANES Make / Type 40 t Sennebogen 640 M Boom / Fly Jils 22,00m Drive 4x2x2

YARD-CRANES Boom / Fly Jib 13,10m Make / Type 12 1 Demag V 72

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# Divisional Director – Access Equipment Sales

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Our client is seeking to recruit an experienced sales oriented business development person to take responsibility for a multi-million pound division involved in the sale of a wide range of aerial access products to an expanding UK market.

Reporting directly to the Group Managing Director the successful candidate will have autonomous responsibility for the access business within the group and will ideally have a proven track record in mobile equipment sales and the ability to lead an experienced sales and service team.

#### Responsibilities include:

- To promote the sale of a range of leading aerial platforms
- To act as the lead sales person for Key Accounts
- Configure the sales specification of high value specialist equipment
- Responsible for generating new sales leads and expanding the UK business
- Taking responsibility for the strategic development and continued growth of the Division.

#### The Ideal Candidate:

- Proven track record in mobile equipment sales – ideally powered access
- · Technical capability
- Ability to lead an experienced sales and service team
- Ability to act as principle relationship manager with suppliers
- A competent General Manager
- Ability to work under pressure

#### **Benefits include:**

- 25 days holidays plus statutory
- · Profit related bonus scheme
- · Pensions contribution
- Death-in-Service benefit (4 x salary)
- · Quality Car
- Family Healthcare Scheme

If you feel you have the necessary skills and experience to fulfil this role please forward your CV as soon as possible to: david@appletonlong.co.uk

All applications received will be treated in strict confidence.



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For details of all current opportunities, visit www.snorkellifts.com.

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### **HGV Drivers & Engineers** wanted

Advanced Access is a leading powered access provider in London and is looking for drivers & engineers to work in London and surrounding area and based from our busy South London depot.

Due to expansion we are looking for the right candidates to help continue the growth and reputation of Advanced Access. The ideal candidates will be CAP assessed and have the relevant experience in powered access.

Normal hours of works will be 8 - 5.30, Monday to Friday, plus overtime as and when required.

For the right candidate we can offer a fantastic salary, van and full benefits package.

If you are interested please email your CV to John Corcoran at: John@advancedaccessplatforms.co.uk



















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# Administrator Wanted

We are looking for an Administrator to work out of our main office in Leeds.

Your main responsibilities as a Training Centre Administrator:

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- Processing telephone orders
- Generating invoices
- Taking card payments over the phone
- E-mailing training course joining instructions
- Generating and posting out in-house training certificates
- Categorising and posting out external training cards and certificates
- · Ordering stationery
- Training Quotations
- · Filing and Post

The successful candidate will be a proficient user of MS Office packages and will have excellent communication skills - both written and verbal. Administrative experience is required. You will be meticulous with great attention to detail and the ability to see a job through thoroughly. A confident and friendly approach is a much. Working Hours:08:00am to 17:00pm - Monday to Friday

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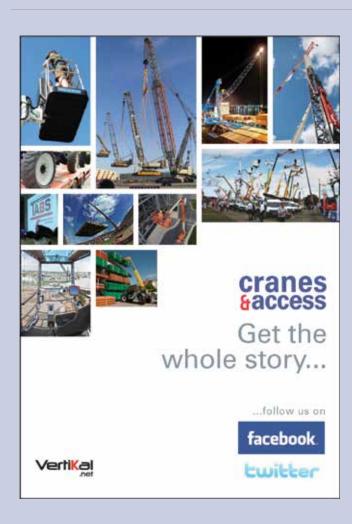
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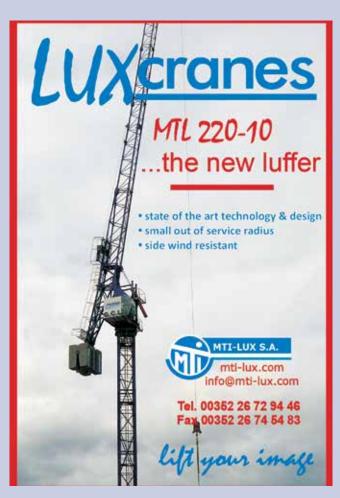
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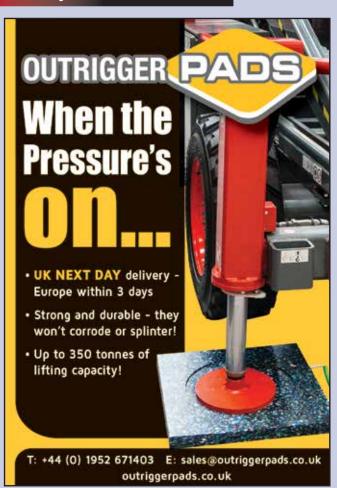




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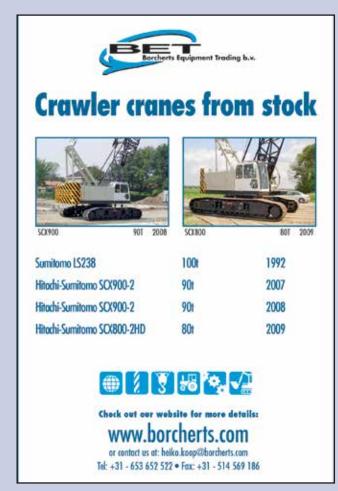






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### vertimac

#### March 2016

#### **AERIAL PLATFORMS & SPARE PARTS**



V17199 - JLG 2030ES - 2006 Electric - 8,1 Mtr. - 335 Hrs. € 4,600



V19240 - Genie G\$2668DC - 2001 Electric - 9,9 Mtr. - 638 Hrs. € 4.250



V19318 - Genie GS2646 - 2001 Electric - 9,92 Mtr. - 897 Hrs. € 3.950



V19121 - Hollandlift Y83€£16 - 2007 Electric - 10,3 Mtr. - / Hrs. €6.750



V16523 - Skyjack S./4632 - 2007 Electric - 11,8 Mtr. - 155 Hrs. € 6.500



V18254 - JLG 260MRT - 2006 Diesel 4x4 - 9,92 Mtr. - 2068 Hrs. €7.500



V17385 - Upright SL30SL - 2007 Diesel 4x4 - 11 Mtr. - / Hrs. € 10,500



V18433 - JLG 3394RT - 2004 Diesel 4x4 - 12,06 Mtr. - 2130 Hrs. €11,500



J17898 - Airo SF1200 - 2007 Diesel 4x4 - 14 Mtr. - 768 Hrs. €14.500



V19133 - Hollandlift Q135DL24-TR 2007 - Diesel 4x4 - 15,5 Mtr. - 2815 Hrs. 6 23,500



V17604 - Upright MB26 - 2009 Electric - 10 Mtr. - / Hrs. 6 8.500



V19145 - **A.G. Toucan 1010** - 2006 Electric - 10,1 Mtr. - 853 Hrs. € 8.500



V19367 - Genie Z45-258I - 2003 Bi-Energy - 15,87 Mtr. - 1008 Hrs. € 9,950



V18809 - Oil&Steel Octopussy 1412 2007 - Bi-Energy - 14 Mtr. - 871 Hrs. € 14.500



V19143 - Trupen Leo 19GT - 2008 Bi-Energy - 19 Mtr. - 1858 Hrs. € 27.500



V18233 - Genie Z45-25JRT - 2000 Diesel 4x4 - 16 Mtr. - 3858 Hrs. € 9.950



V17749 - Manitou 165ATJ - 2004 Diesel 4x4 - 16,5 Mtr. - / Hrs. € 13.750



V18267 - A.G 600AJ - 2007 Diesel 4x4 - 20,29 Mtr. - 2371 Hrs. € 29,500



J17902 - Airo SG1850 - 2007 Diesel 4x4 - 20,55 Mtr. - 786 Hrs. € 26,500



V17547 - JLG 800AJ - 2006 Diesel 4x4 - 26,38 Mtr. - 3587 Hrs. € 36.500



V16620 - Grove MZ46 CXT - 1999 Diesel 4x4 - 14,1 Mtr. - 5253 Hrs. € 6.500



V19141 - JŁG 6005C - 2007 Diesel 4x4 - 20,36 Mtr. - 3333 Hrs. € 29,500



V18886 - Terex TB66 - 2001
Diesel 4x4 - 21,95 Mtr. - 4931 Hrs.
€ 7.750



V19114 - JLG 660SJ - 2005 Diesel 4x4 - 22,32 Mtr. - 4451 Hrs. € 24,500



V18959 - Haulotte H23TPX - 2004 Diesel 4x4 - 22,6 Mtr. - 2359 Hrs. € 15,750



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