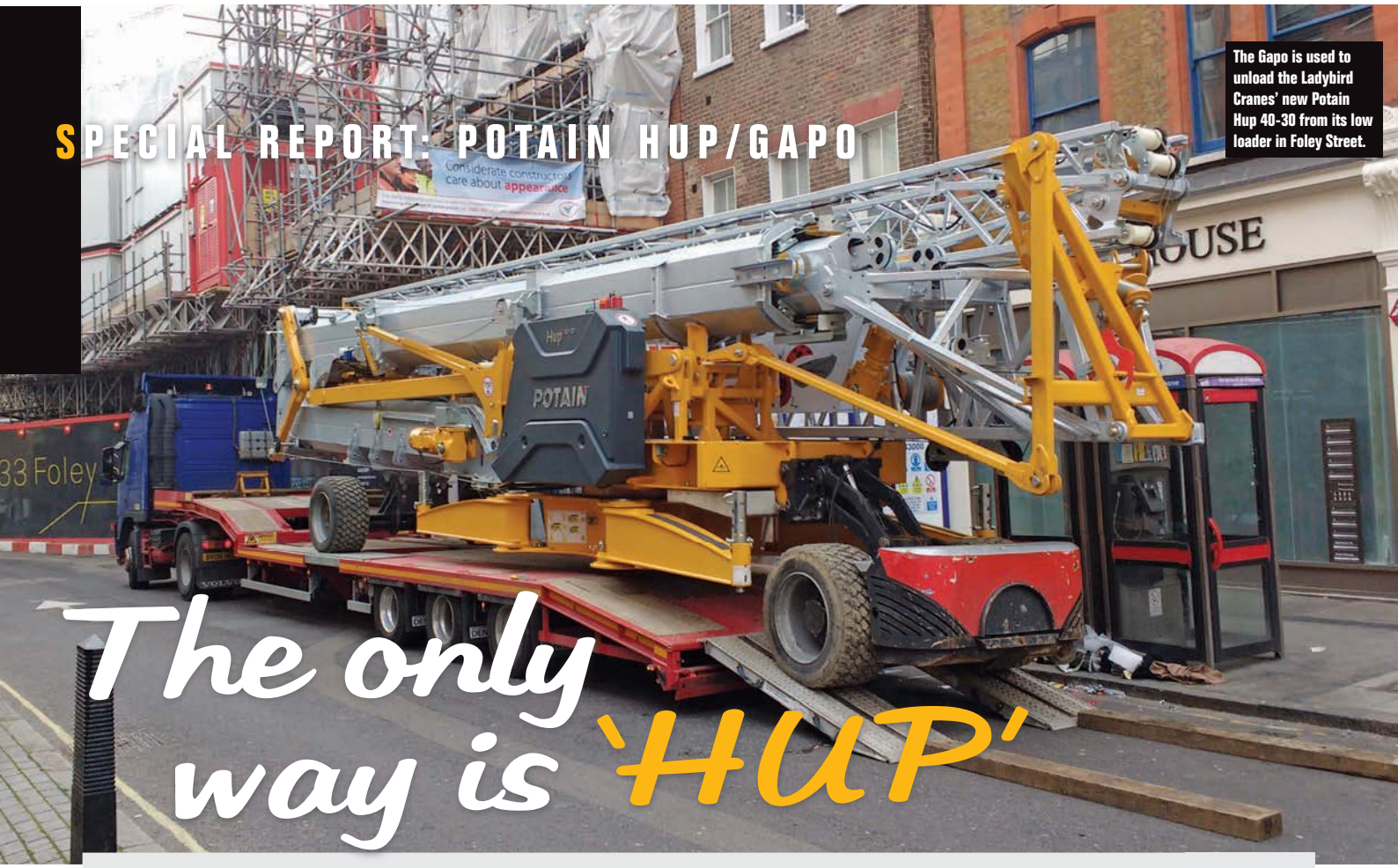


The Gapo is used to unload the Ladybird Cranes' new Potain Hup 40-30 from its low loader in Foley Street.

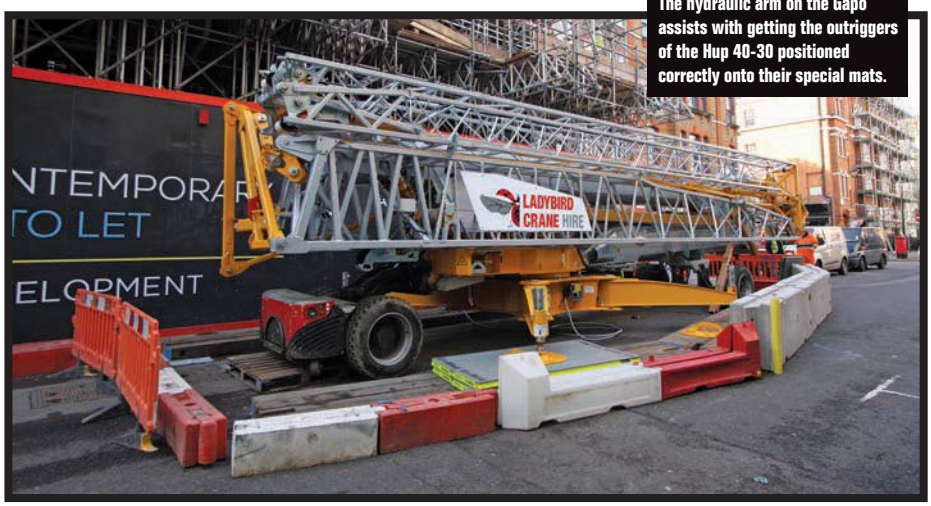
The only way is 'HUP'

Nick Johnson witnesses the tight site erection of the first Potain Hup 40-30 self-erecting tower crane to arrive in the UK. And he highlights the invaluable use of the clever Gapo.

Back at the Bauma plant exhibition in Munich last year, the Manitowoc Cranes stand revealed the new generation Hup design of Potain self-erecting tower cranes. Developed to replace some of the company's Igo models, the two Hup cranes on show were the 32-27 and 40-30.

The smaller Hup 32-27 was launched first. It features an adjustable two-section mast that has a third section contained within the second. This design allows the third mast section to be telescoped out, boosting the maximum working height of the crane (with jib horizontal) to 27.0m. The Hup 32-27 has a maximum capacity of 4.0 tonnes and it can lift 1.0 tonne at its maximum radius (with jib horizontal) of 32.0m. To gain extra lifting height, the jib can be luffed at up to 30°. To aid use on tight sites, the rear-slewing radius is only 2.25m and the crane can occupy a small footprint of only 4.0m x 4.0m.

The larger Hup 40-30 provides, as its model number indicates, a 40.0m long jib and achieves a maximum height under hook (with jib horizontal) of 30.0m. This machine also has a maximum capacity of 4.0 tonnes and it lifts 1.0 tonne at its maximum radius of 40.0m.



The hydraulic arm on the Gapo assists with getting the outriggers of the Hup 40-30 positioned correctly onto their special mats.

As with the Hup 32-27, the bigger new era Potain self-erector has a telescopic upper mast. On the Hup 40-30 the "low position" maximum working height is 25.6m whilst the fully extended "high position" working height is 30.0m – both figures achieved with the crane's jib horizontal. To gain extra working height, the jib on the Hup 40-30 can be luffed at angles of 10° and 20°. With the greater angle, the maximum height under hook becomes 40.0m with the maximum working radius reducing slightly to 37.5m.

To reduce the jib length when the Hup 40-30 is left to free slew in the wind when out of service, its three-section jib can be folded back to minimise oversailing surrounding properties. With the outer section folded back on itself through 180°, maximum radius is reduced to 28.0m and with the middle section also folded back, maximum radius is only 13.0m.

Like its smaller brother, the bottom slewing Hup 40-30 maintains a rear counterweight slew radius of only 2.5m and its outrigger centres are only slightly greater at 4.5m x 4.5m. Having been pleased with its purchase of two Hup 32-27 cranes, Ladybird Cranes of Redditch ordered two of the bigger Hup 40-30s. And last month I witnessed the erection of its first Hup 40-30 on a tight site in the centre of London.

Ladybird Cranes is now a prominent supplier of both self-erecting tower cranes and flat top conventional top slewing tower cranes. The roots of the company go back to 2003 when Chris Bird used a Potain HD30 self-erector to help construct a hotel block next to the Ladybird Inn in Bromsgrove. This successful use of a Potain self-erecting crane led to the creation of a specialist tower crane hire company named after the Inn.

Modern Potain Fleet

Now with Chris's son, Robert running Ladybird Cranes as Managing Director, the company has build up a modern fleet of over 90, mostly Potain, machines. The top slewing machines are mainly Potain MCT68 and MCT 88 models whilst the 58 self-erectors include Potain Igos and Hups with the Igo 50 being particularly prominent.

The new Hup 40-30 is effectively the new generation replacement for the Igo 50 and it scores by providing a higher lifting height. This extra height was a major factor in the selection of what is the first Hup 40-30 in the UK for use on a Kier London contract in Foley Street, London where a five-storey block, previously used by the BBC, is being converted into contemporary office space.

The slender dimensions of the Hup 40-30 has allowed it to be erected outside the building on a cordoned off part of the public highway. As there are vaults underneath the road, the contractor had to engineer a temporary works scheme that included propping the vaults and spreading the outrigger loads of the crane. So under the crane\s standard support pads there is an approved arrangement of 5.0m by 1.0m Ekki timber mats topped off with UniMat modular aluminium mats hired in from Universal Crane Mats. The Hup 40-30 was delivered to site on a low loader and unloaded and moved into position by one of Ladybird's Gapo powered transport units. The Gapo was devised by the Gavarini Group in Italy to provide an efficient way of getting its small tower cranes on and off construction sites with rough terrain or difficult access.

The first Gapo in this country was purchased by Ladybird Cranes back in 2009 and it has proved invaluable on many occasions to get the company's cranes in and out of otherwise inaccessible places. A good example was the movement of an Igo 21 through the narrow and twisting streets of Mevagissey in Cornwall (see Ladybird Crane Hire – Reaching the parts that others cannot

The mast being unfolded with the three-section jib neatly stowed alongside the upper mast.

The unfolding sequence is fully controlled at a safe distance by means of the crane's remote.

One of the 15 counterweight blocks being installed using the Hup's integral ballasting derrick.

Before the middle and outer jib sections were unfolded, the Hup 40-30 was able to load the Gapo onto a trailer for removal from site.

City Lifting used its Gapo with a Dolly axle / fifth wheel coupling attachment to help get one of its tower crane jibs down a narrow London street.

reach on You Tube).

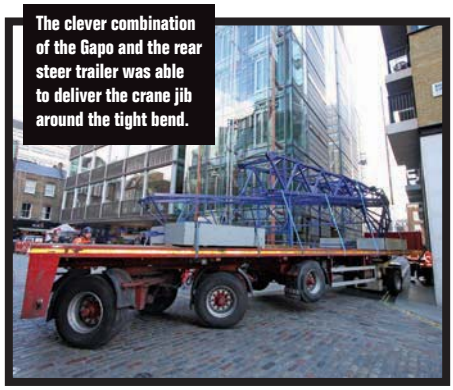
Whilst not as challenging as Mevagissey, the use of the Gapo in Foley Street allowed the Hup 40-30 to be quickly driven off the low loader and moved along the road. It aided the accurate positioning of the crane right up against the site hoarding and centrally within the well specially created for the rotation of its counterweights in between the projecting scaffolding covering the upper floors of the building under reconstruction.

Safe Remote Control

To move the Hup 40-30, the 2 tonne Gapo was pinned onto the front of the crane's slewing superstructure whilst a pair of non-powered transport wheels were connected to the stowed mast at the back. Compete with is own 27.1kW (36.8hp) Yanmar diesel engine, Rexroth hydraulics, two solid tyred wheels (each driven by a Bonfiglioli wheel motor) and two small support castors, the unit is operated by remote control.

Approved by VOSA for use on the public highway, the Gapo has a maximum travel speed of 5 km/h and its skid steering allows the unit to turn in its own length. Its hydraulically angled arm assists with getting the crane set up on its support mats.

The refined design of the Hup 40-30 includes easy-to-adjust outriggers and a good example of attention to detail is having each leg marked clearly with its maximum outrigger load. With each 28.9 tonne maximum leg load safely spread out onto the mats, the crane erection commenced using the smart radio remote control unit with its informative colour screen. The most distinctive feature of the Hup design is the way the base of the jib pivots beside, rather than on top of the mast.



The clever combination of the Gapo and the rear steer trailer was able to deliver the crane jib around the tight bend.

This usefully allows a lower transport height and, during erection, enables the trolley carrying the four-fall hook to be positioned ready for use on a short link piece between the inner and middle sections of the jib.

The crane's mast was quickly raised up to its vertical position using the Hup's Smart Set Up software which delivers step-by-step on-screen information during crane erection. The unfolding sequence is fully controlled at a safe distance from the crane's remote.

Once the mast was vertical and extended, the three-man Ladybird erection team, ably led by Lewis Major, used the crane's own ballasting derrick to position the 15 curved concrete counterweight blocks on the rear of the slewing superstructure. Each block weighs 1,750kg and they were brought to site on two semi trailers.

With all the counterweights installed and a check made to ensure that they could safely turn around within the well left in the scaffolding, the jib was raised up into its horizontal operating position. The trolley can operate on the inner jib whilst the other two sections remain folded up and this short jib configuration was used the lift the Gapo unit onto one of the trailers used to bring in half the counterweights.

Once the crane is tested and operational, the new remote system allows the operator to vary the working speed of the crane to suit the particular applications. There is the choice of "dynamic," for quick and easy lifting; "standard," for typical lifting applications; and "high precision," for precise load positioning.

The machine incorporates Potain's latest High Performance Lifting and Slewing (HPL) technology to aid fast and precise lifting on site. The radio remote control unit has different passwords to allow crane operation and the erection and dismantling sequences and there are integrated maintenance warning indicators.

Clever Combination

Ladybird Cranes is the UK agent for the Gapo and, as well as running its own units, it sells the useful machine to both other crane companies and, with a hook lift handling attachment, to companies moving skips in the waste and recycling industry. Just before Ladybird Gapo helped install the Hup 40-30 in Foley Street, City Lifting Ltd used its own Gapo with a Dolly axle / fifth wheel coupling attachment to help get the jib of one of its Raptor 84 articulated jib tower cranes down a narrow street in the Soho district of London.

To get around the tight turn from Broadwick Street into Hopkins Street in London, W1, City Lifting removed the ends and then carried the Raptor jib towards the erection crane on a rear steer semi trailer with the Gapo configured as a four-wheeled unit at the front in place of the standard tractor unit. With careful use of two remote control units (one for the Gapo and the other to steer the rear axles of the trailer) the jib section was "threaded" into the narrow opening much to the amazement of some of the passers-by!

With construction work now taking place on ever more challenging sites, particularly in crowded city centres like London, machines like the Gapo and the Potain Hup are proving invaluable.

For more information on the machines mentioned in this article please use the reader enquiry numbers below

POTAIN HUP CRANE
CIRCLE READERLINK 041
GAPO TRANSPORTER
CIRCLE READERLINK 042