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FLAT-PROOFING PNEUMATIC TIRES IS A SOLID OPTION

To Fill or Not to Fill

Flat-proofing is solid option for maximizing tire life.

By Joe Negrey

Companies that operate telehandlers and aerial work platforms know they have different tire choices when they outfit their equipment. Although many fleet managers know about tire fill, commonly called foam fill, as a flat-proofing option, they may not recognize the advantages that tire fill offers the industry.

Tire fill is a polyurethane liquid that is pumped into pneumatic tires to replace air with a resilient, synthetic rubber core that eliminates dangerous and costly flat tires in commercial and industrial heavy equipment. Tire fill is typically delivered through the valve stem and cures within 24 hours. The material can be used in any tire with a sound casing. It is able to sustain tire pressure and footprint shape even in adverse weather conditions, including temperatures as low as -70° or in sweltering heat.

The other go-to tire choices on the market are solid-rubber tires with apertures and pneumatic tires. Pneumatic tires offer various cost advantages, but are vulnerable to going flat from nails, screws, and rebar punctures. While they can offer a float-like ride, their air pressure must also be constantly monitored and maintained to ensure safety and performance.

Solid tires are composed of the most stable tire material on the market and can't be punctured. However, they are limited on sizes, tread patterns, and durometers, and their ride may be rougher for equipment operators. Solid tires also represent a potentially negative impact on the environment, as they cannot be reclaimed as easily as polyurethane-filled tires.

Of the three tire options, tire fill can deliver specific advantages that may be preferable for heavy equipment owners and operators. Chief among them are the following.

Virtual elimination of flat tires: Vehicles that run on traditional pneumatic tires have a significantly greater chance of experiencing



In a filled tire, semi-solid polymer replaces the tire's air.

a flat tire. Tire flats are dangerous to field operators and they are costly, as they drain resources, affect the work schedule, decrease on-the-job productivity, and may render serious damage to equipment. Pneumatic air-filled tires are also at greater risk for blowouts.

Decrease in the effects of whole-body vibration: Tire fill provides optimal rough-terrain traction and tire deflection with the lowest g-force transmission, a leading cause of whole-body vibration.

The physiological effect called whole-body vibration may result in worker attrition and job absence due to measurable muscular-skeletal and neurological injury to equipment operators. This is a real occupational hazard, not to be ignored, that can cost construction companies hundreds of thousands of dollars in damages. Tire fill can offer drivers a smooth ride that is essentially synonymous with riding on air.

Reduction in vehicle wear and tear: What many who operate heavy equipment may not realize is that polyurethane tire fill helps reduce vehicle damage from prematurely worn-out components because it lessens g-force transmission.

Mounting equipment for solid tires is expensive, and the areas around the holes in aperture tires may be more prone to cracking. That increases tire wear and hastens the end of the tire life cycle. Tire fill eases the risk, helping to extend tire usability and saving operators from incurring costly equipment damage expenses.

Joe Negrey is vice president of Accella Tire Fill Systems (formerly AmcoPathway), a division of Accella Performance Materials. He can be reached at jnegrey@accellatirefill.com.

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► Analysis

Opportunity for reclamation and recycling: The polyurethane in filled tires can be reclaimed much more easily than the rubber in solid tires, creating a second product lifecycle that can help reduce landfill emissions—a factor likely to be attractive for companies focused on carbon footprint reduction. The ability to reclaim and repurpose the material, as well as recycle the polyurethane fill, helps to make this medium a more sustainable, eco-friendly option.

Greater adaptability and choice: The fact that polyurethane-filled pneumatic tires have a greater variety of tread patterns, tire constructions, and compounds available allows for greater flexibility in various applications. Polyurethane tire fill comes in a variety of durometers, so the type of fill can closely fit the application, from a softer fill for comfort and deflection to a harder fill for slow moving equipment with high pressure requirements. Also, the tire fill pressure can be varied to more closely mimic pneumatic tire pressure.

Tire purchase and maintenance is one of the more significant expenses that telehandler and aerial work platform equipment owners and fleet managers must consider. While all three leading tire choices offer positives and negatives, it's worth taking the time to explore the specific operational and financial advantages to each. Your company's bottom line is literally riding on it. ■



RIGGING HANDBOOK

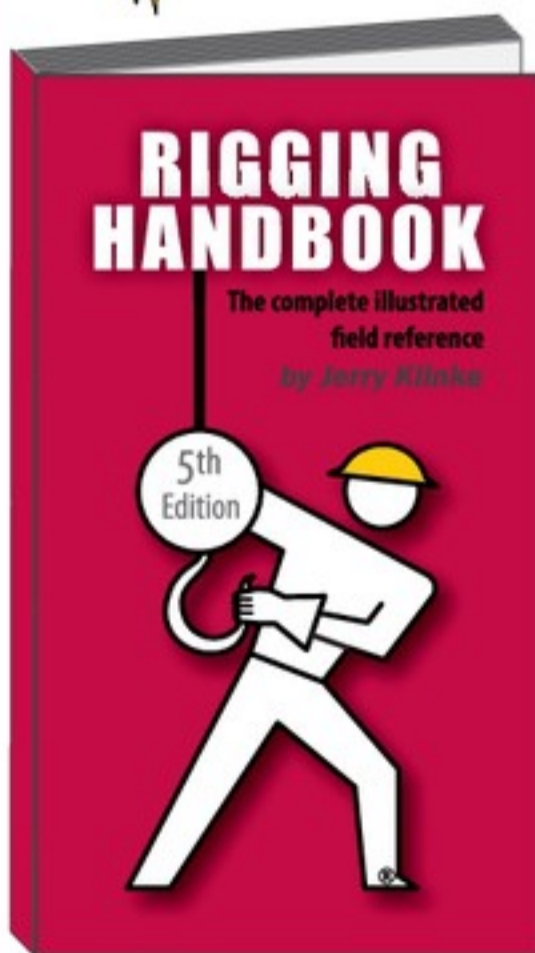
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Fast Answer

Portability, quick erection, and productivity are helping self-erecting cranes pick up new believers.

A small footprint and proportionally long reach are hallmarks of self-erecting cranes.

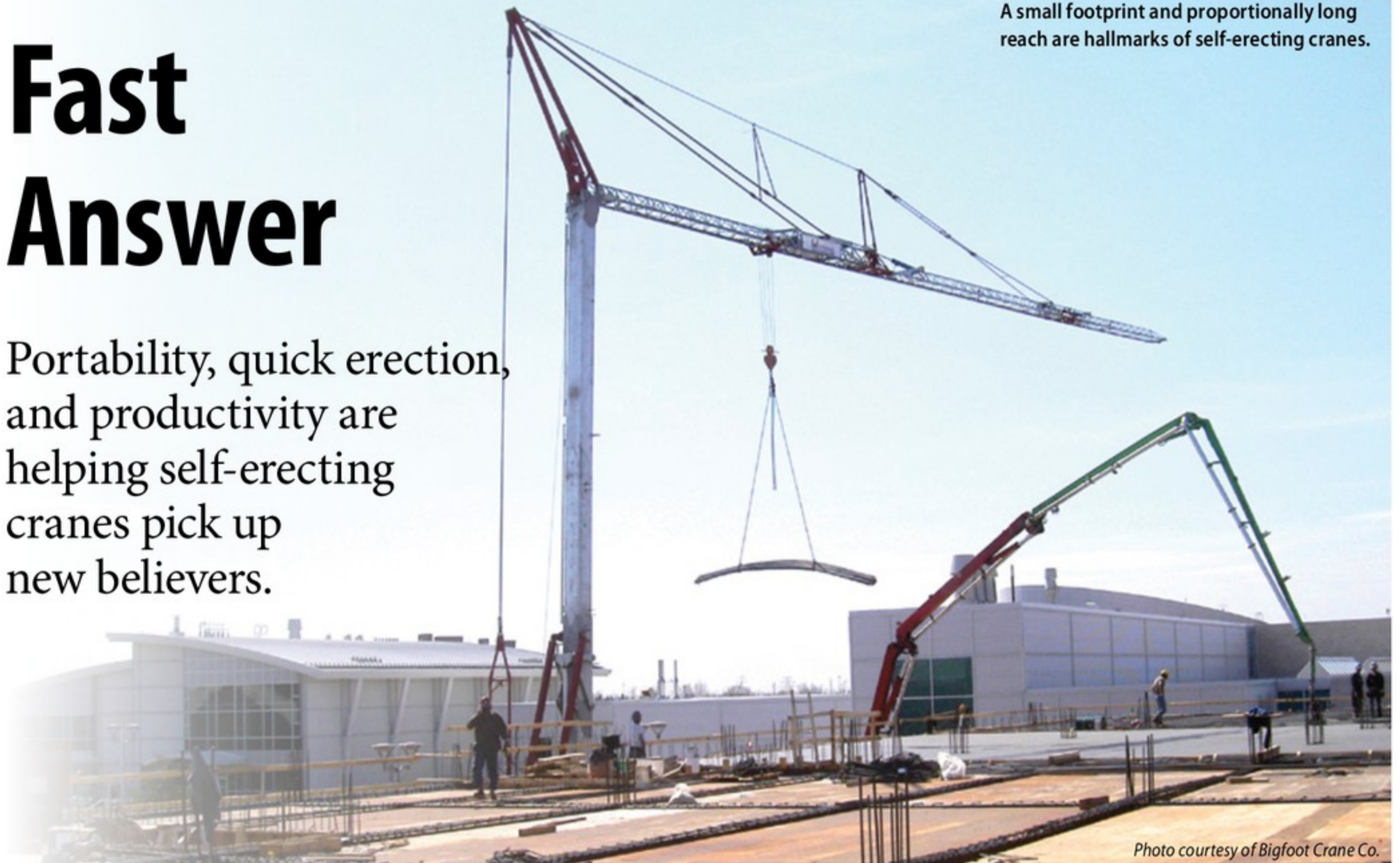


Photo courtesy of Bigfoot Crane Co.

By Mike Larson

A self-erecting crane is a relatively small, highly mobile tower crane that arrives on a jobsite folded and compact, and then uses its own hydraulic power and cable support system to upright its mast and gracefully open out its jib to working position within a few hours sans help from any other piece of equipment.

Unlike standard tower cranes, self erectors do not need to be mounted to a concrete foundation or tied into a structure for support. Their free-standing capability saves users major time and cost. They work from a compact steel chassis supported on outriggers that can be leveled to adjust for site conditions, and they are held stable by slabs of ballast that sit on the rear of the rotating turret.

Self erectors are designed to provide maximum reach while taking up minimum space. The array of self-erecting cranes available in North America offers jibs that reach out horizontally as much as 164 ft. Hook heights under the horizontal jib can top 132 ft. And lifting capacity at the farthest end of the jib can be up to 3,300 lbs. Yet even the longest-reaching, highest-capacity self erector sits on a chassis that measures just 16.4'x16.4'.

"In self erectors, customers look for easy transport, easy installation, capacity at the jib tip, and ease of use," says Gerry Wiebe, vice president of business development for Bigfoot Crane Co., Abbotsford, British Columbia.

Ease of operation is important in part because the person operating a self-erecting crane is often not a full-time operator, but a designated person from the work crew, such as a framer, glazer, or other tradesperson who does other work when the crane is not in use.

Self erectors' small footprint, ability to work right up next to a building, and to reach across it give them an edge over mobile cranes and high-reach forklifts on tight sites. In addition, many of them can be run with radio remote controls that let the operator stand at the most advantageous location, even where a load is being set.

All are powered electrically, so they run quietly and can theoretically be plugged into on-site power. In practice, however, many sites do not have the 480V three-phase power needed to run most self erectors, so users often rent a small diesel-driven generator to deliver the needed juice. The main exception is Vicario, which has found a way for its self erectors to run on single-phase power.

The dealers and users we talked with all said that they've found self erectors to be utterly reliable and easy to maintain. "The almost never break down," says Stephen Jehle, president of P&J Arcomet.

Popularity growing

Invented in Europe, self erectors have been a mainstay in construction and material handling there for decades. Although they've been available in North America since at least the mid-1990s, self erectors have not yet found the same widespread popularity here. But they are starting to catch on as more users in an expanding range of applications try them and see their capabilities.

Erick Zampini is general manager of Leavitt Cranes, a rental and sales company and Terex dealer that is headquartered in Abbotsford, British Columbia. Zampini's experience with self-erecting cranes started in 2006. "Customers want to reduce cost and increase speed," he says, "and they're beginning to see that self-erecting