BARNHART

LIFTING LETTER

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Barnhart at a project to replace burned out turbines with new ones.

Acheson sits just outside of Edmonton (pictured above), Alberta, Canada.

BARNHART GOES INTERNATIONAL WITH CANADIAN ACQUISITION

Barnhart made its first international acquisition in June with the purchase of NCSG of Acheson, Alberta, Canada, continuing its rapid expansion.

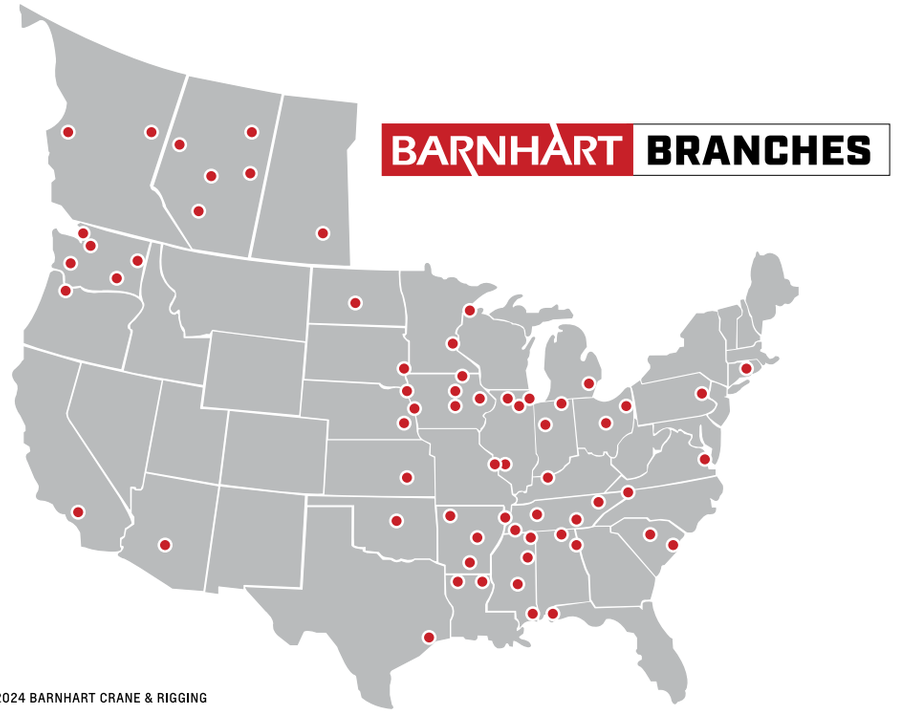
The purchase also is significant due to the size and scope of NCSG, which was founded in 1987 as Northern Crane Services. In addition to its corporate headquarters in Acheson, NCSG operated eight branches across Western Canada's energy corridor, with locations in Edmonton, Bonnyville, Calgary, Fort McMurray and Grande Prairie, Alberta; Fort St. John and Terrace, British Columbia; and Regina, Saskatchewan. NCSG represents Barnhart's largest single acquisition to date.

NCSG employs approximately 400 workers providing crane and heavy haul services to various industries including refining, upgrading, upstream oil and gas, utilities, forestry, mining and wind energy.

"The acquisition of NCSG literally takes Barnhart into new territory," said Alan Barnhart, CEO of Barnhart Crane and Rigging. "The decision to become an international company was not made lightly, but NCSG's preeminence, reputation and dominant market share ensure Barnhart's position as one of the leading crane, rigging, and logistics companies in North America."

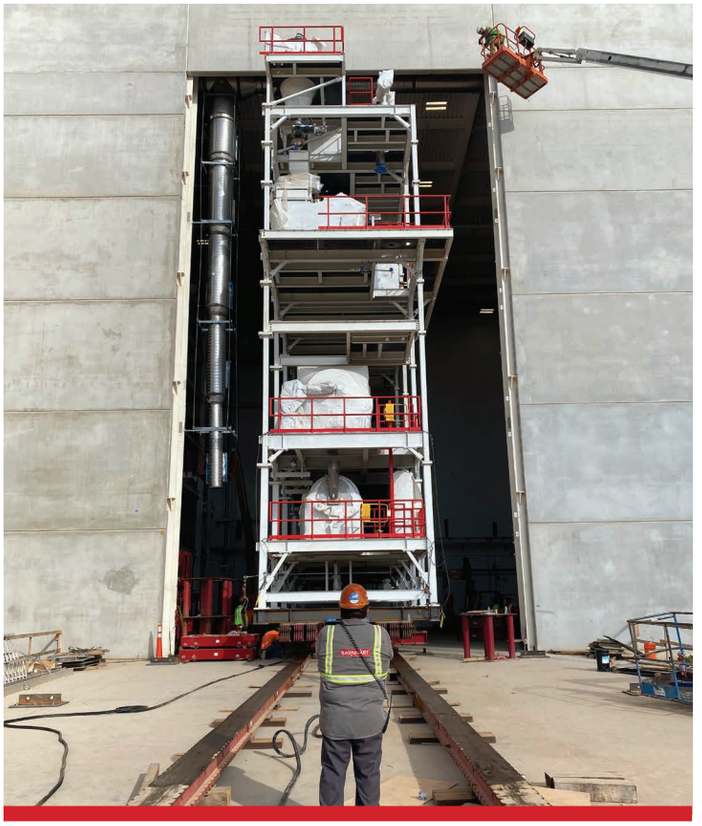
"We are pleased to join the Barnhart family," said NCSG President and CEO Heather MacCallum. "Our goal has been to serve as the premier supplier in Western Canada's crane and heavy haul sector by providing best-in-class equipment, personnel, an award-winning safety program, and operational best practices." MacCallum pointed to NCSG's record in sustainability, including numerous indigenous partnerships, its commitment to diversity, equity and inclusion in the workforce and its enviable safety record. "NCSG is a natural fit with Barnhart," she said.

Based in Memphis, Barnhart has over 50 branches across the United States, plus the eight new branches in Canada.

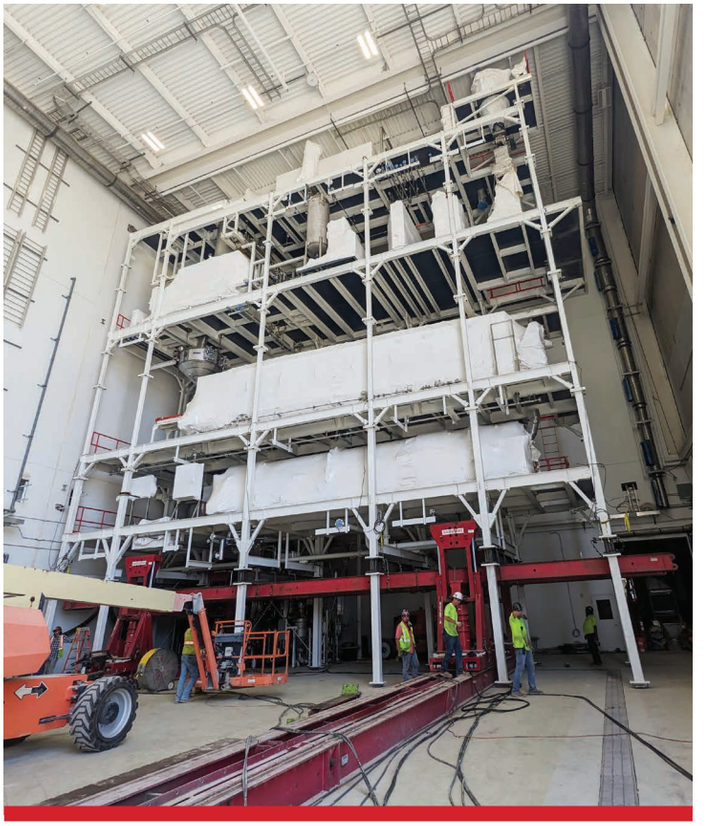


1 Barnhart's engineering team developed a custom-designed system to lift, stack and relocate 10 prefabricated modules for a project at a manufacturing site in Texas. Because the modules were constructed without lifting points, Barnhart first designed and fabricated five different types of lifting lugs, totaling 61, before the modules were transported to the facility.

2 Each module weighed 140,000 pounds. Each train consisted of four levels. Barnhart used a 500-ton Liebherr all-terrain crane to lift and stack the modules on its equipment.



3 Each stack measured 60' high x 60' long and weighed 480,000 pounds. Barnhart used a customized slide system to move the stacks of modules into the building.



4 The team utilized pull-up gantry jacks to lift the modules inside and then reconfigured them on powered gantry bases to transport them to their foundations. The project was completed within the allotted four weeks with zero incidents. **It was awarded an SC&RA Rigging Job of the Year $750,000–$2 Million.**

1 Barnhart was hired to help with a slew bearing replacement at a pulp and paper mill in Alabama.

2 The crew provided and set up an operated pull-up gantry system (PUGs) to lift hardwood and pine stacker reclaimers 18 inches in order for the bearings to be replaced.

3 The hardwood stacker reclaimer weighed 670,000 pounds and the pine stacker reclaimer weighed 580,000 pounds, which made the PUGs even more valuable. Beyond high capacity, PUGs can block the units, making it safe for crew to work underneath. They are also equipped with a holding valve for additional safety.

4 This allowed the customer's crew to successfully install the new bearings. The project was completed safely and ahead of schedule, saving a total of four days of outage time for the mill.

1 Barnhart was awarded an emergency job to haul a 597,000-pound transformer to a nuclear plant in Louisiana. Although it was originally awarded to another company, the customer came back to Barnhart when that company was unable to perform the work due to bridge crossing permitting requirements. Time was of the essence because the plant was offline and needed to get back online as soon as possible.

2 While it was a straight shot to the plant, obstacles along that route meant the 18' wide x 21' tall cargo had to travel on a longer, alternate 33-mile route. The dolly transporter, plus transformer, weighed approximately 1.2 million pounds and was 335' long, but its design helped distribute the weight to meet Louisiana Department of Transportation permit requirements.

3 Along the way the convoy faced challenges including lifting 17 signal arms and 24 power lines. Other challenges included multiple railroad tracks to be crossed, tight turns, coordination with local and state police, and a contraflow system for a stretch of the highway.

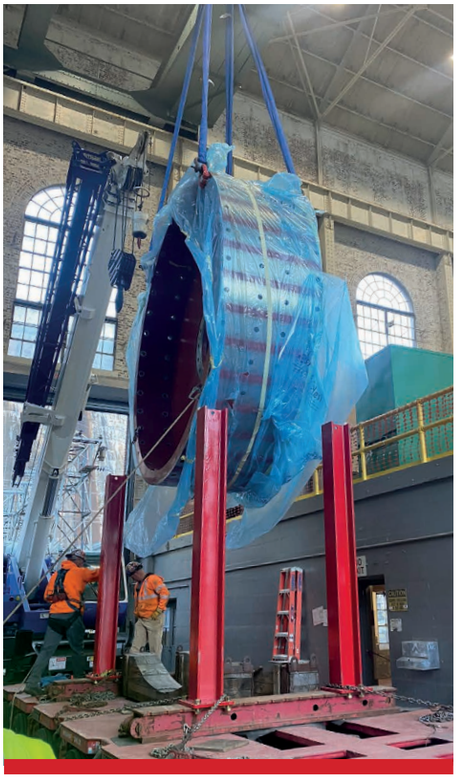
4 With a top speed of 25 mph and an average speed of two, the trip took 12 hours and the transformer was successfully delivered to the plant.

1 Barnhart was hired to receive and transport several turbine components to a powerhouse at a hydroelectric plant in Georgia. But first they had to invert the pieces to a vertical position using a 110' crane and a 40K Versalift to accommodate the width of the powerhouse door.

2 Barnhart's engineering team designed and fabricated a frame to safely transport the pieces upright.

3 The components were transported 2.3 miles on a 6-Line PST Goldhofer trailer down a gravel road with a 12% grade to the powerhouse.

4 The transport method provided sufficient clearance through the narrow powerhouse door opening.



5 Once inside the powerhouse, the components were tailed back to a horizontal/assembly orientation using a rough terrain crane and the customer's overhead crane.

1 A repower site in Illinois offered Barnhart's customer two turbines, which needed to be transported to sites in Iowa and Texas to replace two that had burned down. It took coordination between Barnhart and multiple parties to facilitate the loading and off-site transportation of the turbine components.

2 The components were transported hundreds of miles to their destinations. Barnhart disassembled the burned-out turbines and the components were scrapped and recycled before they completed the reassembly.

3 The components were reassembled with a single M16000 crane (Iowa) and a single LTM1750 crane (Texas). The project required the joint efforts and equipment of Barnhart's South Sioux City, Nebraska, Mason City, Iowa, and Oklahoma City, Oklahoma teams to complete the scope.

4 In addition to installing replacement components, Barnhart managed the electrical and fiber optic rough-in before turning the project over to the customer for return-to-service.

5 The blades were replaced using a single-crane method with Barnhart's universal blade bar and tilt stick arrangement. The blade bar is a fully adjustable spreader bar with a custom counterweight system. The project was delivered on time to the customer's satisfaction.

1 Barnhart was contacted by a customer to remove and replace a failed stator at a power plant in Missouri that required a rapid deployment. At the site, the crew used a modular lift tower (MLT) plus a 500-ton hoist to lift the damaged stator. Two 120' runs of 8' girders supported by 600-ton gantries were required to span from the pedestal support to crane bay supports.

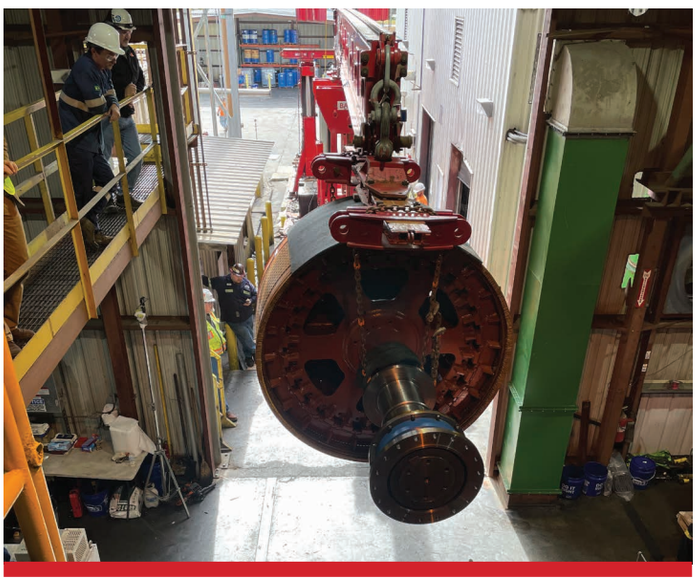
2 The stator was then loaded onto a 16-line Goldhofer PSTe trailer and transported to an on-site staging location. Meanwhile, the replacement stator was coming from a decommissioned plant in Louisiana, which was 700 miles away. It was identical in weight and dimensions: 720,000 pounds, 40' long, 14' tall and 15'4" wide.

3 In Louisiana, however, poor soil conditions had to be addressed before Barnhart was able to set up its MLT. The replacement stator also would not fit through the crane deck and had to go through a wall opening 46' in the air. A 500-ton hoist was used to lower the stator onto a Goldhofer trailer. It was then loaded onto a 24-dolly transporter for the trip to the rail spur.

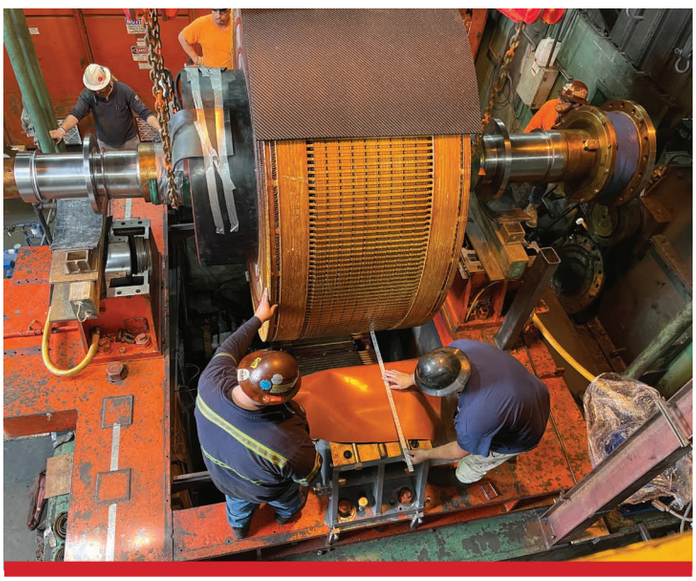
4 Seven hundred miles later, the replacement stator was successfully delivered to the Missouri site to replace the damaged stator. While a typical timeline for this work is 12-18 months, Barnhart successfully finished within a three-month timeframe. This helped the customer avoid potential grid disruptions during the peak summer season. **This project was awarded an SC&RA Rigging Job of the Year Over $2 Million.**

1 An aluminum mill in Alabama approached Barnhart seeking an alternative method to roof removal to remove and replace a 150,000-pound motor that was in a very congested area surrounded by equipment. Barnhart's engineering team laser scanned the area and began developing a concept.

2 The concept Barnhart developed involved a gantry supported cantilever beam with moving counterweight mounted to a hydraulic platform trailer. Due to the motor being installed off center of the door opening, the system was also mounted to a hydraulic rotation table that would provide the slight rotation required to get the hook positioned directly over the motor's center of gravity.



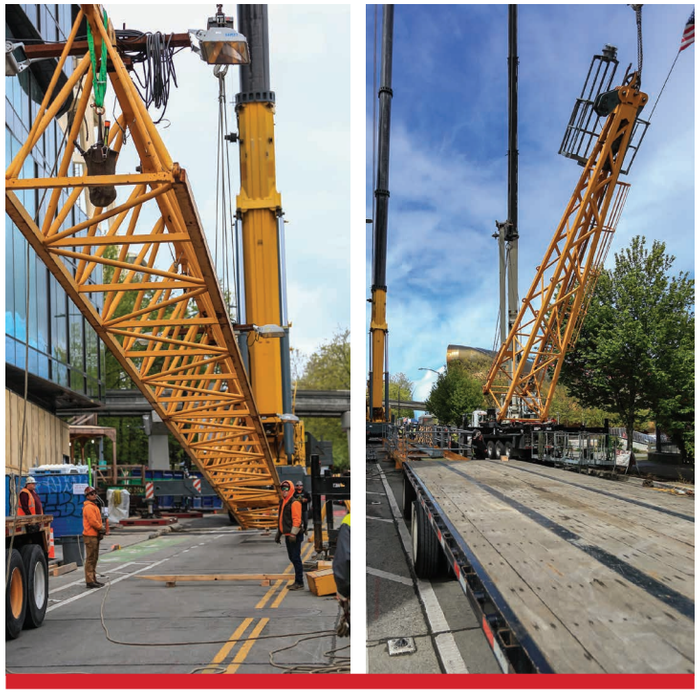
3 While removing the existing motor, the rigging method forced the motor to come into extremely tight clearance with the motor mount. The method was adjusted when bringing the new motor in to ensure adequate clearance.



4 The team rigged the motor tightly to allow it to go over the alignment block positioned in front of the motor. Then the motor was set to blocking, the chains were lengthened and the motor set down into the final position. Barnhart's method saved the customer time and nearly $1 million due to not having to remove the roof and mobilize a large crane to perform the motor lifts from above.

1 Barnhart was hired to dismantle a 235' tall tower crane at a site in downtown Seattle. They mobilized two cranes, a 550-ton GMK7550 and a 55-ton MBT 55, moving three loads of counterweight and two loads of luffing jib through the streets in the early morning.

2 To set up the cranes, trolley lines near the Space Needle had to be deenergized and deactivated. The crew also had to coordinate with the City of Seattle, Seattle Department of Transportation and King County Metro bus service, as well as police officers to block off adjacent streets.



3 The crane was dismantled piece by piece starting with the outer jib. Each piece was lifted with the 550-ton crane and set by the 55-ton assist crane to a horizontal position and loaded out on trucks.

4 With all jibs removed, the crew focused on the turntable, which was the heaviest piece at over 22,000 pounds. The final piece was the tower. From start to finish, the crane was dismantled within 10 hours.

TO SET UP THE CRANES, TROLLEY LINES NEAR THE SPACE NEEDLE HAD TO BE DEENERGIZED AND DEACTIVATED.

1 Barnhart was contracted to remove large components from the containment structure during the decommissioning of an SM1 reactor facility in Virginia. The major components included a steam generator, pressurizer, recirculation pumps and reactor pressure vessel (RPV). The components weighed between 4,000 and 32,500 pounds.

2 All the components were removed through the containment dome opening, which had been expanded to 12' x 17' to allow for additional clearance. The components not directly accessible were rigged with Barnhart's C-bar and air hoist below the new hatch opening.

3 The components were lifted out and then lowered into containment containers. The RPV, at 32,500 pounds, was the last major component to be removed.

4 The components were set into a Conex with only a one-inch clearance for some pieces of equipment and loaded onto a truck. The original scope was to remove seven components in an 11-day schedule. The project turned into a nine-month project due to the removal of ancillary equipment requested by the customer.

The BPU system has a nominal capacity of 3,000 metric tons.

BARNHART PUSHUP UNIT SYSTEM

The Barnhart Pushup Units (BPU) comprise a high-capacity system that is ideal for overhead loads in settings in which space is limited.

A complete BPU system consists of four pushup units, which are synchronized. The entire four-unit system has a nominal capacity of 3,000 metric tons with each leg capable of lifting 750 metric tons. In instances in which only a single leg is needed, the system can push a load up to 120 feet before stability bracing is required. Barnhart has also modified its 1,000-ton hydraulic turntable to integrate with the top of a single leg. This allows for controlled load rotation in addition to lifting and lowering.

Its height is adjusted by the insertion or removal of 4,000-pound barrels. The main lifting/lowering is performed by a jacking unit equipped with 45” stroke cylinders mounted on each corner. As the jacking unit lifts the barrel assembly, a conveyor system allows for an additional barrel to be added or removed from the barrel stack. The jacking unit has a 10’9” square footprint, which provides a stable base in a compact area.

The BPU system came in handy at a waste treatment facility in Tampa, Florida, on a project to remove and replace an overhead crane. Three different approaches were considered, but ultimately the BPU option became the chosen method to avoid removing a large portion of the roof or causing major impact to site structures.

SCAN HERE TO LEARN MORE

Barnhart's Madison branch offers a wide range of lifting, transportation and storage services from its 22,000-square-foot facility and 130,000-square-foot enclosed yard.

ST. LOUIS AREA BRANCHES

Last year, Barnhart acquired two branches in the St. Louis, Missouri, area. First, Barnhart acquired Taylor Crane Rental of St. Louis. A few months later, Bollmeier Crane of Madison, Illinois, became the second addition in the area, strengthening Barnhart's presence in the Midwest.

ST. LOUIS, MO BRANCH

As Taylor Crane, the business provided customized lifting solutions within a 300-miles radius of St. Louis. Customers now benefit from Barnhart's nationwide network, additional products and services, specialized rigging tools, project cargo logistic capabilities and access to an engineering department with more than 60 engineers.

In addition, the branch's services include:

- **CRANE SERVICE**: From plant maintenance to equipment placement on rooftops to any other crane services needed in St. Louis or elsewhere in the region.
- **INDUSTRIAL MACHINERY MOVING**: Whether moving a single piece of equipment or an entire facility in the St. Louis metro area or beyond, we'll provide efficient and cost-effective answers.
- **TRANSPORTATION SOLUTIONS:** Barnhart's award-winning team of engineers can solve even the most difficult problems. From bridge crossing systems to dolly combinations and state-of-the-art equipment, we have the expertise to tackle any project.

Branch Manager Canin Mizner said, "We are ensuring that Taylor's customers receive the same quality service they have had for the past 77 years. And as Barnhart, we've expanded that service to include an extensive equipment inventory and rigging solutions. So more offerings will confidently result in even greater customer satisfaction."

MADISON, IL BRANCH

Barnhart's Madison branch offers a wide range of lifting, transportation and storage services, including crane rental in the St. Louis metro area.

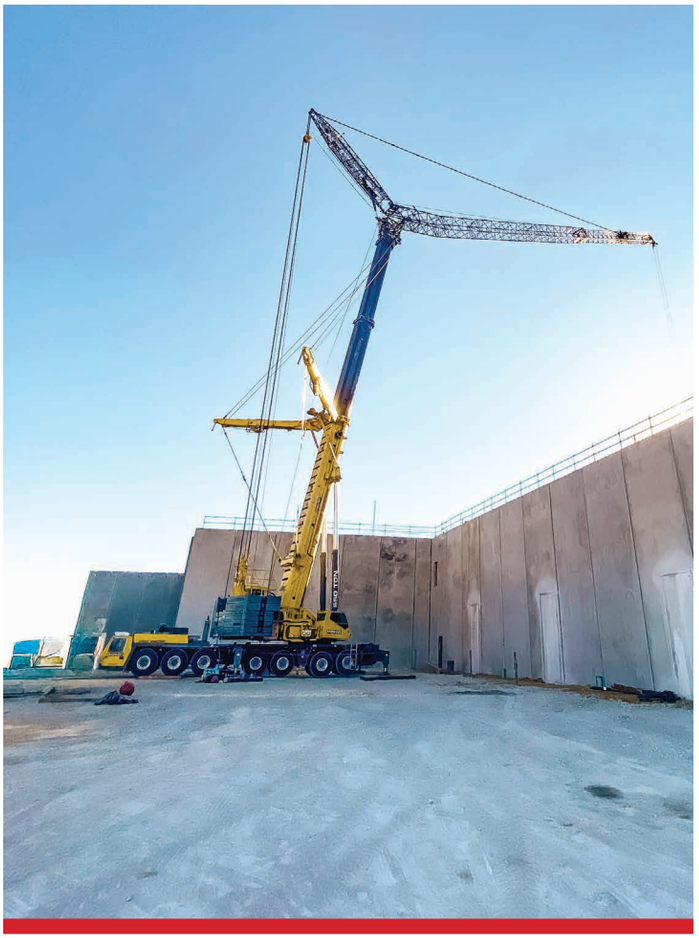
The branch has provided lifting services for some of the largest industrial customers in the region, including those in the steel manufacturing, oil and gas and power generation industries.

"Barnhart's nationwide footprint, its dedicated engineering and design team, expertise in project cargo logistics, and its own fleet of trucks, barges and specialized transporters will be a big benefit to our loyal customers. The proximity of the two branches have allowed us to share resources – labor, equipment and knowledge — on an almost daily basis," said Branch Manager Jeremy Hundelt.

The two branches solidify Barnhart's presence in the Midwest and give customers throughout Missouri, Illinois, Indiana, Iowa and Kentucky even better service and more options than ever before.

St. Louis used its Movable Counterweight Cantilever System (MOCCs) to install new transformers in downtown St. Louis.

The Madison team prepares to lift a horizontal belt filter at a power plant using two telescopic cranes.



A 550-ton all-terrain crane with a luffing jib is used by the St. Louis team to hoist new refrigeration equipment.

BARNHART

2163 Airways Blvd.
Memphis, TN 38114

www.barnhartcrane.com
1-800-587-3249
sales@barnhartcrane.com

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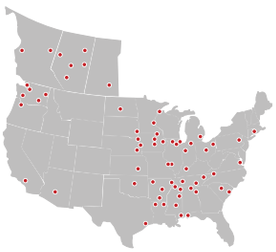

CANADA

- BONNYVILLE, AB
- CALGARY, AB
- EDMONTON, AB
- FORT MCMURRAY, AB
- GRAND PRAIRIE, AB
- FORT ST. JOHN, BC
- TERRACE, BC
- REGINA, SK

UNITED STATES

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- COLUMBIA, SC
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- CHATTANOOGA, TN
- JACKSON, TN
- KINGSPORT, TN
- KNOXVILLE, TN
- MEMPHIS, TN
- HOUSTON, TX
- CHESAPEAKE, VA
- KENT, WA
- MT. VERNON, WA
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BARNHART EQUIPMENT

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- FULL FLEET OF HYDRAULIC JACKING
- GANTRY TO 800 TONS
- LIFT TABLES
- STRAND JACKS
- TEMPORARY OVERHEAD CRANES
- EXTENSIVE SPECIALTY RIGGING

TRANSPORTATION & LOGISTICS

- DUAL LANE TRANSPORTERS
- SUSPENSION GIRDER SYSTEMS
- HYDRAULIC PLATFORM TRAILER
- PROJECT CARGO BARGING
- RAMPS AND TEMPORARY BRIDGES

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LATTICE BOOM CRANES

- CRAWLERS 100 TO 1,375 TONS
- 1,760 TON RINGER

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- STORAGE FACILITIES
- TURNAROUND OPERATIONS
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