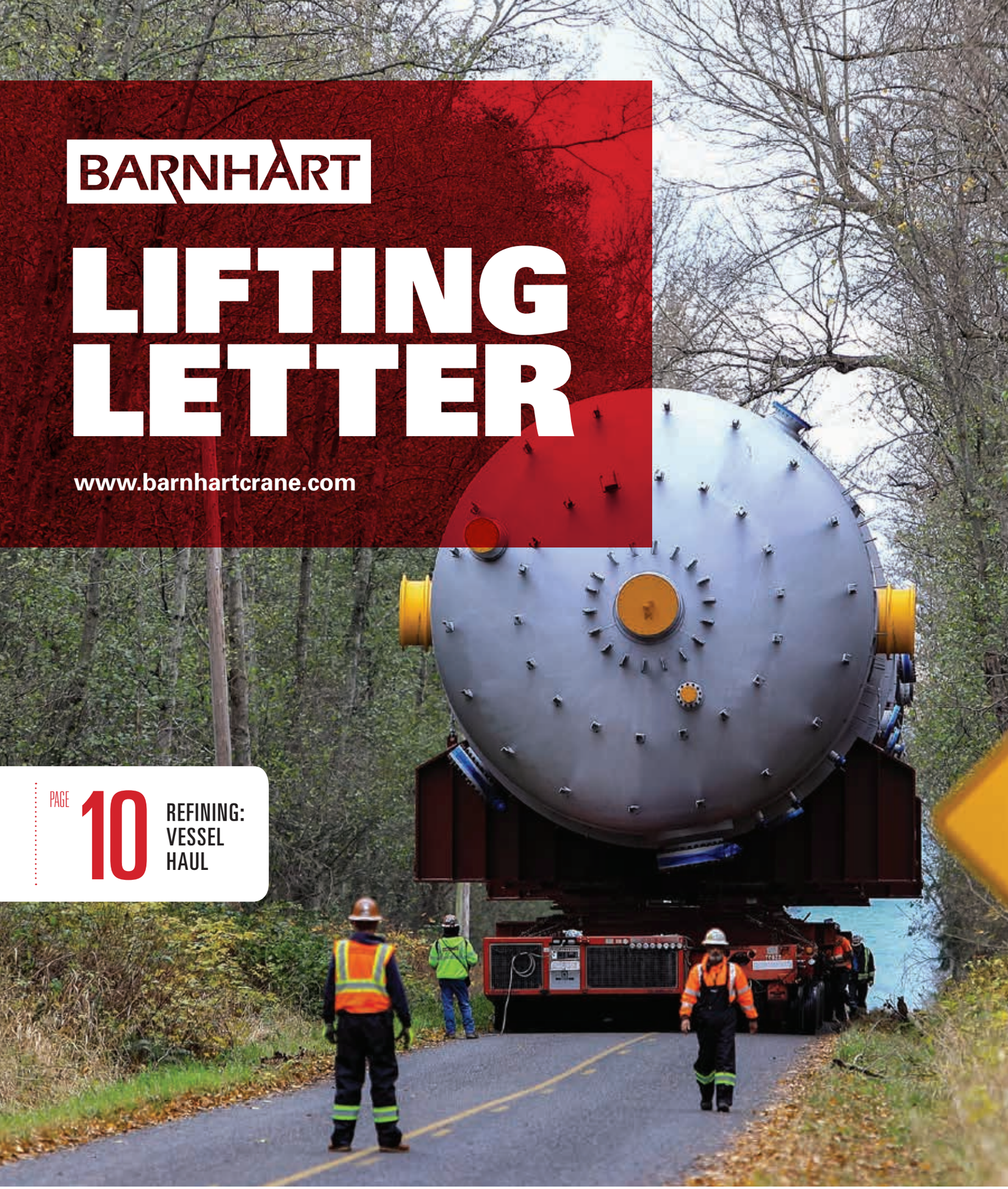
BARNHART

LIFTING LETTER

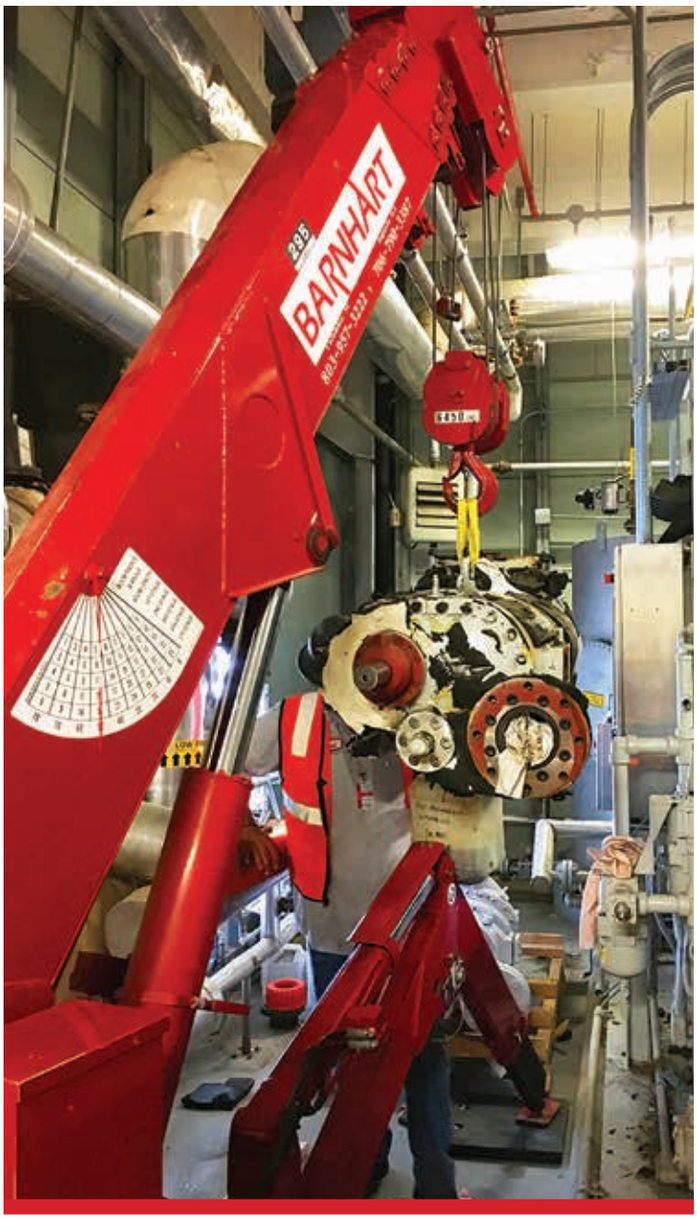
www.barnhartcrane.com



VOL. 68

A Publication of Barnhart

TABLE OF CONTENTS



Barnhart uses a Spydercrane to remove and replace a compressor at a pharmaceutical facility.

An operator uses a Mobilift to remove and replace an 80,000-pound flywheel for a press at a forge/heavy manufacturing facility.

A Barnhart operator uses an 80K Taylor forklift with a boom attachment to set a transformer at a research lab.

MEETING MACHINERY MOVING CHALLENGES

BARNHART HAS BOTH THE EXPERTISE AND SPECIALIZED EQUIPMENT TO MOVE HEAVY MACHINERY SAFELY, EFFICIENTLY AND IN A TIMELY MANNER

Shifting oversized equipment is no easy task. The size and weight of loads or items make handling them a unique job. Hiring professionals is an essential part of the process, and you won't find an equipment moving service that is more professional than Barnhart.

As expert heavy machinery movers, we are well-equipped to handle any kind of heavy equipment moving projects. We specialize in areas such as data center construction, automotive press moving, turnkey plant relocation, specialized equipment moving and emergency services.

Barnhart can provide a plan and timetable that works with you, saving you as much time and money as possible. We use the most advanced equipment, including:

- Forklifts from 3,000 to 120,000 pound capacities
- Specialized forklift attachments for difficult machines and plants
- Air skates
- Cantilever systems
- Mini slide system
- Baby gantries

Take a heavy load off your mind by letting us carry out these tough moves for you, and you will be back to work in no time, doing what you do best.

For our experts and equipment, no job is too big or too small.

1 A customer was delivering power plant equipment via heavy-duty rail car when it was discovered that three old bridges on the route could not support the load. Barnhart received an emergency request to find a solution to deliver a 36' long 606,000-pound turbine. A plan was devised to bring the railcar into the rail siding on the south side of the problem bridges. The turbine was then offloaded using 550-ton J & R gantries.

2 The turbine was loaded to a 16-line PST Goldhofer to be transported five miles across downtown Hattiesburg, Mississippi, to the next rail spur on the north side of the problem bridges. The City of Hattiesburg required that the transport be done on a Sunday morning when traffic was the lightest.

3 The route required transporting across four box culverts and one bridge. Due to their age, there were no plans for the bridge or culverts, so Barnhart utilized its inventory of jumper bridges to cross them. The crew used two sets of 40' jumper bridges and two sets of 56' jumper bridges. The bridges had to be deployed simultaneously and then immediately picked back up after the load crossed each one. To accomplish this, Barnhart used two crews for the haul.

4 The longest span required Barnhart to assemble a 110' temporary bridge. The project required the coordination and lease agreements of two separate railroads, civil improvements at both rail sidings, hauling permits, utility company coordination and scheduling police escorts. The turbine was then reloaded to the customer's rail car, and the cargo was on its way again. Because of this effort, the customer made their on-time delivery of the turbine.

1 A mill tire in a mine processing building needed to be removed and replaced after a growing tear was observed in 4"-thick steel. All work was completed above ground level and inside a building. Equipment needed to be moved into place through the roof or side of the building. Floor loads on the structure were also analyzed critically throughout the process.

2 The tire was 22' in diameter and weighed 85,000 pounds. Barnhart had to disassemble and relocate the heavier mill section before achieving access to the tire. The mill was also set on the second floor of the building, which further stressed the strict floor loading requirements.

3 The tire was removed and carried using gantries and a hydraulic slide system to a corner of the building.

4 The tire was moved in two directions until it reached the designated area for crane handoff. A crane then lifted the tire out of the building. The process was reversed for its replacement, and the equipment was removed through the roof.

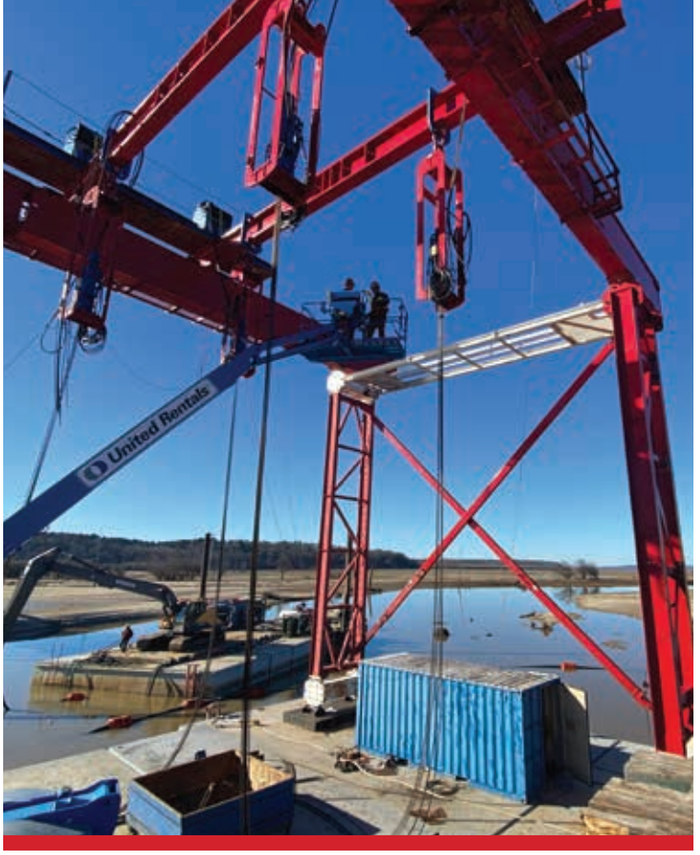
1 Barnhart was called to a refinery in California to remove and replace four CFH reactors. The tallest ones stood at 64'6" and the heaviest weighed 490,000 pounds.

2 There were numerous challenges, including a tight working area of less than 40' x 80' and adjacent obstructions. The units had to be tailed in an alley with a width of 25'. Barnhart constructed their first cantilevered Modular Lift Tower, which included approximately 400,000 pounds of counterweight for stability, and used one-shot gantries for the tailing process.

3 Once lifted, 1600 kip end trucks slid the tower to the tailing area, and the CFH reactors were rotated on a swivel hoist. Strand jacks lowered the reactors, and one-shot gantries and a custom tailing device were used to tail the reactors.

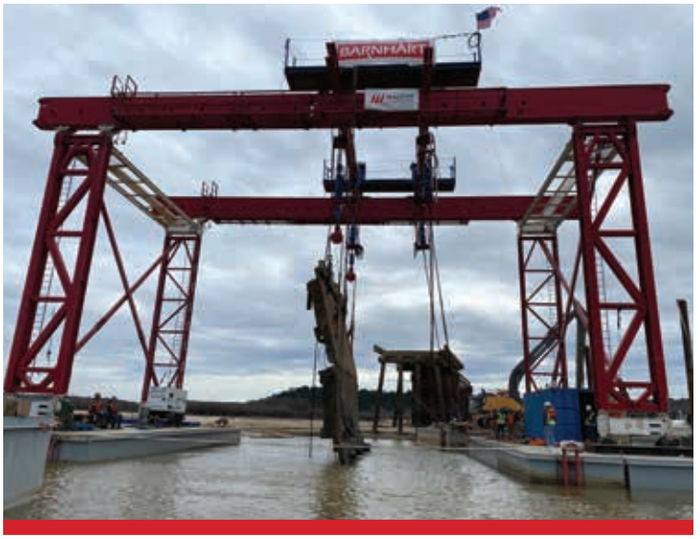
4 The reactors were loaded onto a Goldhofer trailer and transported to a temporary staging area. The process was repeated for the other three reactors and reversed for the installation of the new vessels.

1 A bridge in Yalobusha County, Mississippi, collapsed into the Skuna River Basin in 2021. Work to repair the bridge started in early 2022. The contractor brought on Barnhart to provide a lift system that could recover the sunken bridge sections.



2 The crew developed a first-time solution, assembling a Modular Lift Tower (MLT) on modular barges with strand jacks and girders.

3 The MLT and 5' girders supported the jacks and allowed them to be positioned over the sunken sections. The 70-ton strand jacks were used to lift the bridge sections out of the river.

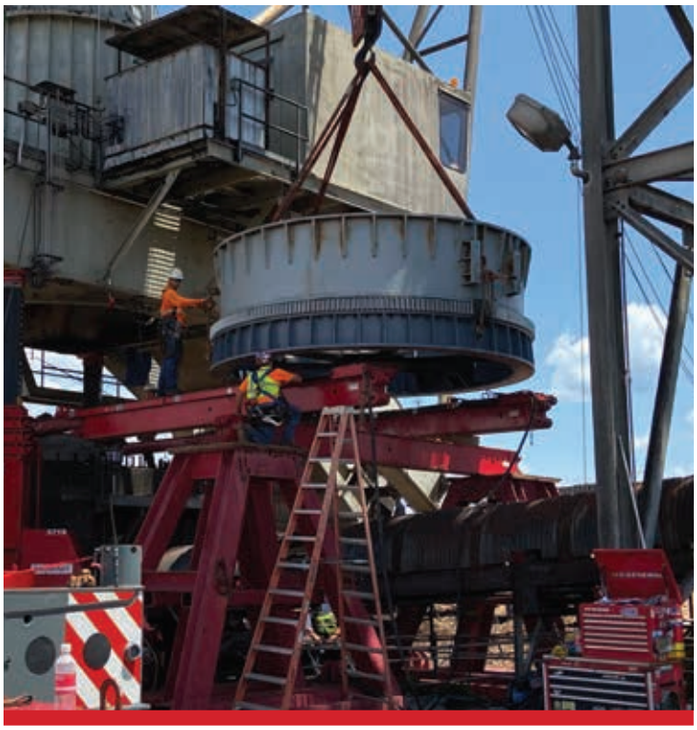


4 Barnhart successfully lifted the first section from the water and set the piece on a barge. The section was relocated to a riverbank, where it was broken up and hauled away. The Barnhart crew will recover at least one more section in the coming months.

THE CREW DEVELOPED A FIRST-TIME SOLUTION, ASSEMBLING A MODULAR LIFT TOWER (MLT) ON MODULAR BARGES WITH STRAND JACKS AND GIRDERS.

1 Barnhart was contracted to remove and replace a bearing at a paper mill in Alabama. This required lifting a 100-foot-tall, 850,000-pound reclaimer with an unknown center of gravity. The team chose a larger gantry system – 600-ton J & R Gantries – to account for this unknown. There was a large section of concrete around the reclaimer that left just enough room to place the gantries.

2 The crew had to lift the reclaimer approximately 18" to clear the anchor bolts and set up a slide track to slide the lower ring, bearing and upper ring out.



3 Once the bearing was slid out from underneath the reclaimer, the team rigged it to Barnhart's 265-ton LTM 1220 crane.

4 Once the old bearing was removed and the new one set in place, the reclaimer was lowered back on top of the rings and bearing. Despite muddy conditions, the job was performed safely. The crew will return to the site to perform the same job later this year.

1 Four Barnhart branches combined forces on a 90,000-pound superheater removal at a solar plant in Nevada. The crew set up two sets of slide gear on top of 300-ton gantries at the site.

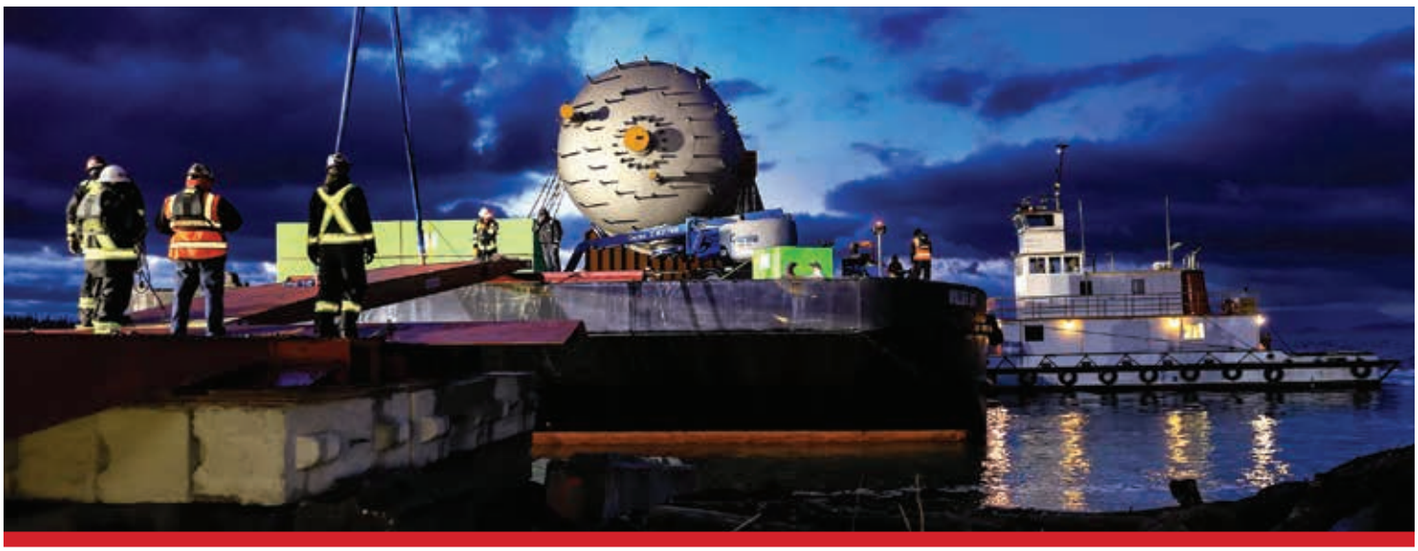
2 A 500-ton slide system then slid the vessel both east and north.

3 Once the crew slid the superheater out of the structure, it was hoisted with a 500-ton mobile crane.

4 Barnhart then used a 140-ton mobile crane to tail the vessel from vertical to horizontal to load it onto a heavy haul trailer.

5 The vessel was then transported by Barnhart to a fabrication shop in Portland, Oregon. Once the superheater is rebuilt, the team will repeat the process to install the superheater.

1 Barnhart was tasked with receiving a 500-ton vessel and transporting it to a nearby refinery in Washington. The 170-foot-long vessel was received from ship's gear to an awaiting barge and loaded onto two 12-line 1.5 wide PSTe trailers (bolster to bolster) that were on the barge.



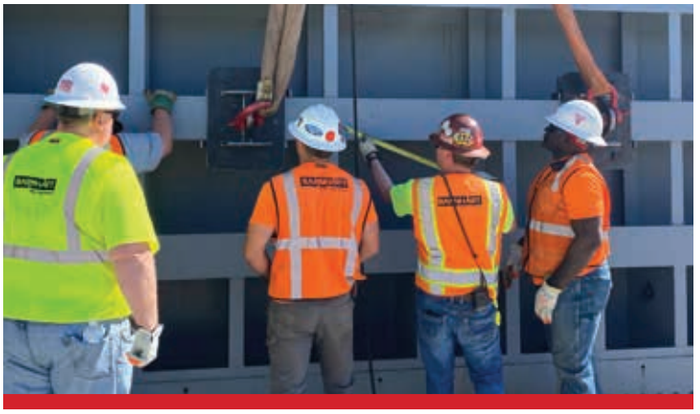
2 Barnhart managed shoreline environmental windows along with viable tidal windows to arrive and offload in one fluid event. A specialized barge ramp system was designed to roll off the vessel over the beach onto an adjoining road.

3 The beach was a protected area due to the existence of local native artifacts. All equipment used during the project had to be lifted over the area. Many hours of planning and design went into Barnhart's ability to mitigate any potential impact to the protected beach.

4 The vessel was transported on the hydraulic trailers 1.5 miles to the refinery. At the site, the vessel was set down to predesigned staging to allow for dress-out prior to final set.

1 A hydroelectric power plant had to replace six intake gates that were originally installed in 1949. Barnhart was hired to install the new gates, which weighed 76,000 pounds each. The intake gates were brought in by trucking transport, backed over the bridge to the intake deck, offloaded, self-tailed using the 400 kip Tri-Block (pictured above) and then set into designated docking stations.

2 The crew first prepared the intake gate to be offloaded from the transport trailer that was backed over the intake deck bridge and positioned close to Barnhart's crane.



3 A special paint coating that could not be scratched or damaged was applied in the manufacturing facility to the new gates. Barnhart's engineering team and Memphis fab shop designed and built customized clamps to hook onto the intake gate after being wrapped with a rubber softener to prevent any damage. The clamps worked as designed, and no scratches or damage occurred.

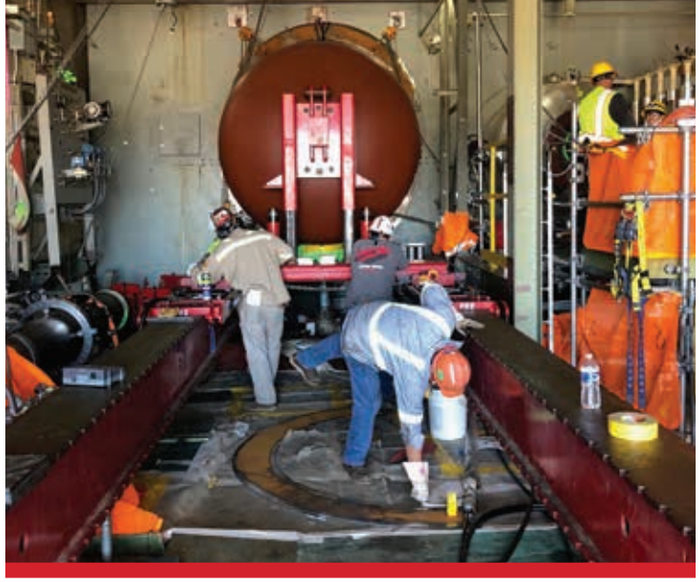
4 The customer's overhead crane picked the gates from the docking station and took them to their designated location on the intake deck. All gates were offloaded, tailed and set into the proper location without any issues. The installation of all the gates was completed on time to the satisfaction of both the Corps of Engineers and the customer.

1 Barnhart was contacted by a power plant with an emergent need for a high-capacity structural support for its scrubber units. Significant degradation of the steel in the outer walls of the vacuum chambers in the scrubbers had been discovered, which could have led to a total collapse. Having the units down meant the plant was eager for a support method to allow for safe repairs and to start the units as soon as possible.

2 Barnhart devised a system utilizing a Modular Lift Tower (MLT) to support the vertical load in the event of a structural failure of the scrubber outer walls and/or support steel. The team developed a distinctive MLT configuration, including "piggyback" vertical bents to improve stability as typical horizontal bracing was not an option because of site constraints.

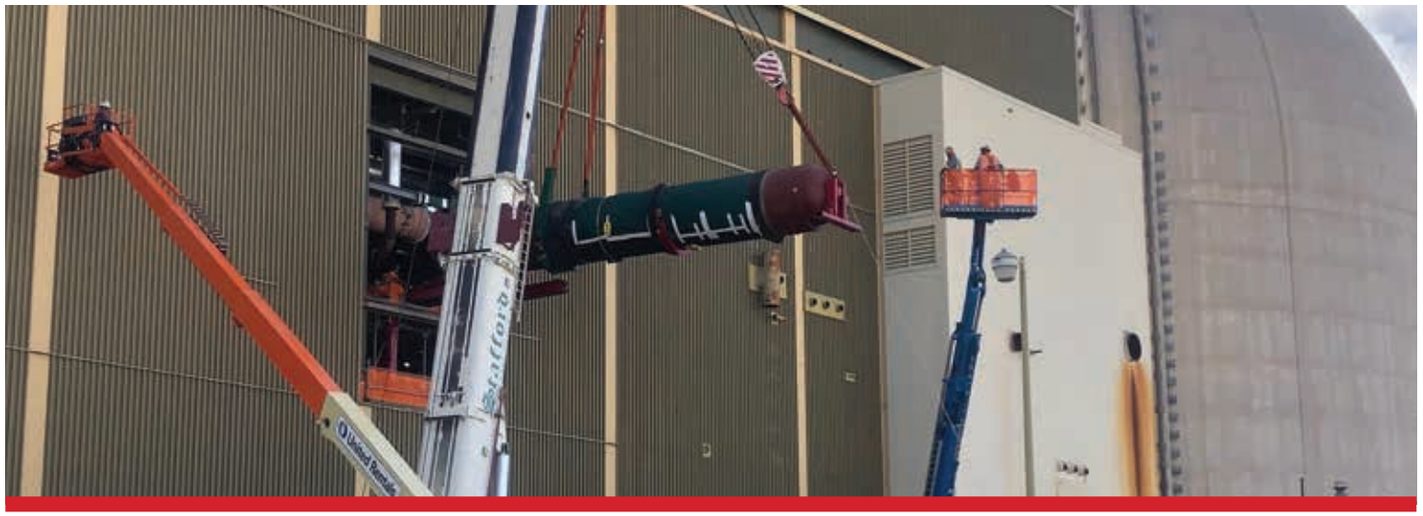
3 Barnhart's concept delivered a self-supporting MLT placed in a tight and congested footprint. This stable system did away with the use of guy wires or additional bracing from adjacent structures. MLT bents were used as vertical shoring columns. Multipurpose girders were used to span across from bent to bent and a combination of pull-up gantries and 200-ton hollow-core jacks provided an uplift capacity of 600,000 pounds.

4 Another challenge was the need to support each scrubber at multiple attachment points. In total, the crew connected to 12 radial lift points around the circumference of each scrubber. This was accomplished using slide beams with custom-fabricated offset links. Once the MLTs were erected, the plant safely began repairs by fitting and welding cladding sheets. The MLT system also allowed the plant to operate the units while completing repairs, greatly reducing downtime. After all repairs were completed, Barnhart quickly and safely demobilized.



1 Barnhart was contacted to remove and replace 94,000-pound stage one low-pressure feedwater heaters (FWH) at a nuclear power plant in Arizona as part of a multiyear project that involved 12 FWHs. A 500-ton slide system was set up to move the heaters.

2 The crew brought in 30K sliding gantries in order to position the heater for an awaiting crane.



3 Wall panels on the turbine building were removed to access the heater. The team set up a 600-ton crane and used its Quad Block to maneuver the heater out of the building.

4 The heater was loaded to a 6-line PSTe and moved to a staging area on site. The process was reversed for the heater replacement.

1 A coker unit at a refinery in Kansas needed to be dismantled and a process area cleared to create space for a new unit. Due to its proximity to adjacent live units, typical demolition methods could not be used. Barnhart developed a plan to use a crawler crane and rigging methods to pull the structure down in large sections so the demolition crew could segment at ground level.

2 Heavy lifts included nine steel structural sections, two concrete sections and four vessels. The largest structural steel segment was 50' long x 40' wide x 30' tall and weighed 205,000 pounds. All of the steel was coated in lead paint. In addition to the 660-ton crawler crane, the crew used a 240-ton all-terrain crane, a 900-ton all-terrain crane and a 100-ton rough terrain crane for the project.

3 The largest vessel weighed 365,000 pounds and the largest section of concrete foundation weighed 315,000 pounds.

4 The entire project spanned 73 working days next to live process equipment. The project was completed safely and on time.

1 A customer needed blades repaired at a site in Kansas and turned to Barnhart to improve their costs and schedule. The towers were over 375' tall and the blades were heavy, at 35,000-plus pounds, and over 200' long. Removal traditionally requires a two-crane method.

2 Barnhart used its Universal Blade Bar (UBB), which enabled the team to use a single 900-ton all-terrain crane. Using a single large but mobile crane is ideal when moving from turbine to turbine. The UBB also featured a remote-controlled Tip-Stick allowing the ground team to fine-tune center of gravity on the blades.

3 Barnhart also used a Multi-Tagline Device on site, which enabled one technician to control up to three taglines at a time, reducing labor costs to the customer.

4 Barnhart lowered the blades into adjustable tip-end saddles. New blades were installed, and the affected blades were repaired on the pad before being transported to an adjacent tower.

5 The project fulfilled the customer's goal of both reducing costs and improving schedule.

The Middletown branch serves customers throughout all six New England states, as well as eastern and upstate New York.

MIDDLETOWN, CONNECTICUT

Barnhart's Middletown branch has a long history dating back to 1952, when the company was Marino Crane. When Barnhart acquired Marino in 2008, they continued its reputation for blending top-class equipment, engineering expertise, experience and innovative thinking.

The Middletown branch specializes in the following services:

- Crane service
- Nuclear heavy lift and rigging services
- Accelerated bridge construction
- Specialized rigging and heavy hauling
- Power plant construction and maintenance
- Engineered heavy lift and hauling solutions
- Gantry services

With an extensive local inventory, and access to a nationwide network of equipment, the Middletown branch has the equipment you need to finish your project on time and on budget. That includes a full inventory of hydraulic cranes up to 500 tons and Goldhofer platform trailers. Heavy rigging equipment including Modular Lift Towers, gantry systems, slide systems, forklifts and other unique rigging tools are also available.

In addition to equipment, through our nationwide branch network, we can share personnel and engineering to provide customers with additional resources and expertise to meet their needs. The branch serves customers throughout all six New England states, as well as eastern and upstate New York.

Whether you are looking for rigging services, operated crane rental or specialized solutions, Barnhart's Middletown branch is ready to help you and your business.

The Middletown crew hoisted the submarine Turtle DSV out of the Mystic Aquarium and transported it to Richmond, Virginia.

Two 40' long feedwater bundles were removed and replaced by the Middletown team during a planned outage at a nuclear plant in Connecticut.

A DeMag CC2800-1 is parked at Barnhart's President's Island facility for assembly and testing before deployment to a project.

CRAWLER CRANES

Barnhart's fleet of crawler cranes – the LR 1300SX, LR 1600/2 and LR 1750 – are the all-stars of the heavy lift fleet. Their high lifting capacity and sturdiness make them a popular go-to choice for many projects.

One of the main advantages of the crawlers is their mobility. Their steel tracks enable them to move off-road on a variety of surfaces and in conditions such as muddy work sites. An additional advantage of crawler cranes is their capability of traveling with a load.

Another useful feature of the cranes is their lattice boom. These booms are lighter and typically longer than telescopic booms, and they are more commonly used when greater heights and heavier loads are needed.

Barnhart's crane fleet also has the following advantages:

- Shorter and cheaper mobilization due to our network of 50+ branches. Odds are we have a yard within 100 miles of your project.
- Almost all of our cranes are equipped with a variety of configurations (super lift, tray, buggy, luffing jib, fixed jib, etc.) so we have the right fit no matter the obstacles.
- Crawler cranes are ideal for long radius and heavy lifts.
- Crawler cranes are usually a cheaper alternative to a mobile crane for long-duration projects.

Pound for pound, our crawler cranes have some of the highest lifting capabilities of any type of crane, with maximum load capacities reaching hundreds of tons or more. You'll see Barnhart's fleet at work helping erect wind turbines, at industrial sites and on barges.

THE LR 1750

The 825-ton LR 1750 crawler crane is the heavy lifter of the Barnhart crawler fleet. This crane is ideal for use in power plants, refineries, and on bridge construction sites. The compact dimensions of the crane components and their relatively moderate weight mean that the crane can be transported to the site at a lower cost than other cranes.

The ballast trailer enables the crane to move with a load on the hook without any problems. But the LR1750 is not the only crane in Barnhart's heavy lift fleet, which includes the following:

Fleet Summary:

- (4) Demag CC1800 – 330T
- (7) Demag CC2800 – 660T
- (2) M2250 – 330T
- (6) M16000 – 440T
- (2) MLC300 – 385T
- (2) LR1600/2 – 660T
- LR1750 – 825T
- LR1300 – 330T
- CC4000S – 880T
- CC4000RL – 1760T
- TC3000 – 550T
- CC8800 – 1375T

Whatever the project, we've got a crane for the job.

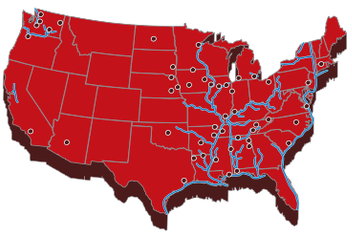
The LR 1750

BARNHART

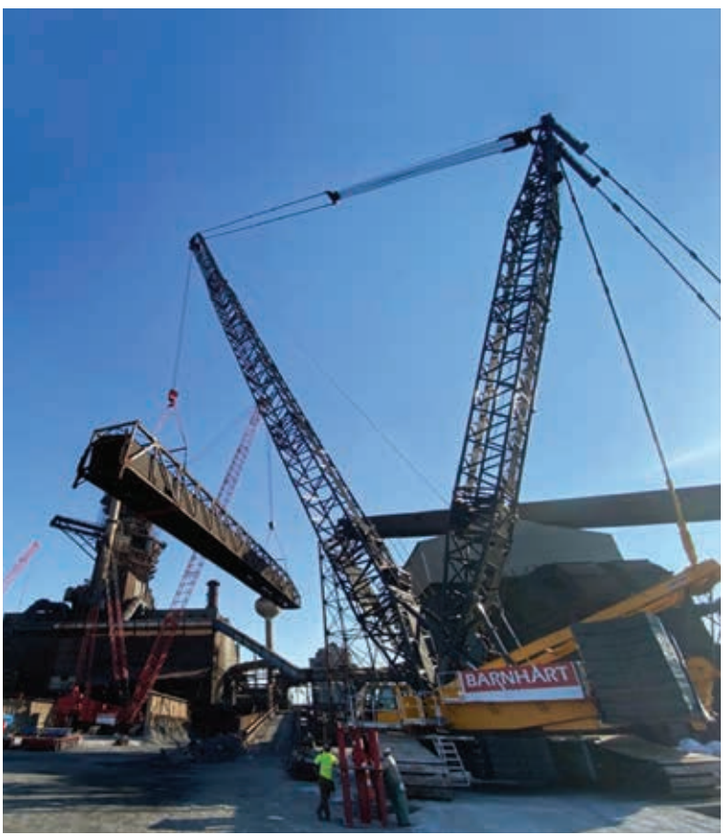
2163 Airways Blvd.
Memphis, TN 38114

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

NATIONWIDE OFFICE LOCATIONS & FACILITIES



- ANNISTON, AL | FULL SERVICE
- DECATUR, AL | FULL SERVICE
- GADSDEN, AL | FULL SERVICE
- MOBILE, AL | FULL SERVICE
- BLYTHEVILLE, AR | FULL SERVICE
- LITTLE ROCK, AR | FULL SERVICE
- PHOENIX, AZ | RIGGING & TRANSPORT
- LOS ANGELES, CA | RIGGING & TRANSPORT
- MIDDLETOWN, CT | FULL SERVICE
- CEDAR RAPIDS, IA | FULL SERVICE
- DES MOINES, IA | FULL SERVICE
- MASON CITY, IA | FULL SERVICE
- CHICAGO, IL | RIGGING & TRANSPORT,
- EAST MOLINE, IL | FULL SERVICE
- LADD, IL | FULL SERVICE
- ELKHART, IN | FULL SERVICE
- FOWLER, IN | FULL SERVICE
- CALVERT CITY, KY | FULL SERVICE
- OWENSBORO, KY | RIGGING & TRANSPORT
- SHREVEPORT, LA | FULL SERVICE
- WEST MONROE, LA | FULL SERVICE
- MONROE, MI | RIGGING & TRANSPORT
- COLUMBUS, MS | FULL SERVICE
- JACKSON, MS | FULL SERVICE
- PASCAGOULA, MS | FULL SERVICE
- LINCOLN, NE | FULL SERVICE
- OMAHA, NE | FULL SERVICE
- SOUTH SIOUX CITY, NE | FULL SERVICE
- MANDAN, ND | FULL SERVICE
- CANTON, OH | FULL SERVICE
- OKLAHOMA CITY, OK | FULL SERVICE
- PORTLAND, OR | FULL SERVICE
- PHILADELPHIA, PA | RIGGING & TRANSPORT
- CHARLESTON, SC | RIGGING & TRANSPORT
- SIOUX FALLS, SD | FULL SERVICE
- CHATTANOOGA, TN | FULL SERVICE
- JACKSON, TN | FULL SERVICE
- KINGSPORT, TN | FULL SERVICE
- KNOXVILLE, TN | FULL SERVICE
- MEMPHIS, TN | FULL SERVICE, SERVICE CENTER, HEAVY LIFT TERMINAL
- HOUSTON, TX | RIGGING & TRANSPORT
- HAMPTON, VA | FULL SERVICE
- KENT, WA | FULL SERVICE
- MT. VERNON, WA | FULL SERVICE
- RICHLAND, WA | RIGGING & TRANSPORT
- SPOKANE, WA | FULL SERVICE
- WOODINVILLE, WA | FULL SERVICE
- SUPERIOR, WI | FULL SERVICE



BARNHART EQUIPMENT

ALTERNATIVE HEAVY LIFT
- MODULAR LIFTING TOWER
- PULL-UP GANTRY
- HYDRAULIC SLIDE SYSTEM
- JACKS & RAMS
- 4-POINT GANTRY SYSTEM
- STRAND JACKS
- MODULAR HOISTS

TRANSPORTATION SYSTEMS
- DUAL LANE TRANSPORTERS
- GOLDHOFER PSTE
- HYDRAULIC DOLLY SYSTEMS
- BARGING
- RAMPS AND TEMPORARY BRIDGES

MARINE HEAVY LIFT
- DERRICK CRANE – MISSISSIPPI RIVER
- BARGE CRANE – GULF COAST
- BARGE CRANE – GREAT LAKES
- HEAVY LIFT TERMINAL – GREAT LAKES
- HEAVY LIFT CRANE – HOUSTON

TELESCOPIC BOOM CRANES
- FROM 7 TONS TO 650 TONS

LATTICE BOOM CRANES
- CRAWLERS FROM 100 TO 1,800 TONS
- TRUCK CRANES FROM 115 TO 800 TONS
- RINGER CRANES FROM 360 TO 1,800 TONS

OPERATED CRANE SERVICE
- OVER 450 CRANES
- LATTICE BOOM TO 1,760 TONS
- TELESCOPIC BOOM TO 600 TONS
- FULL TURNAROUND SERVICES
- NATIONWIDE NETWORK OF CRANE BRANCHES