



BARNHART

LIFTING LETTER

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PAGE

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FEEDWATER
HEATER REMOVE
AND REPLACE

VOL. 60

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PAGE

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CHEMICAL:
REACTOR
INSTALLATION

PAGE

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EQUIPMENT
PROFILE:
500-Ton One
Shot Gantries

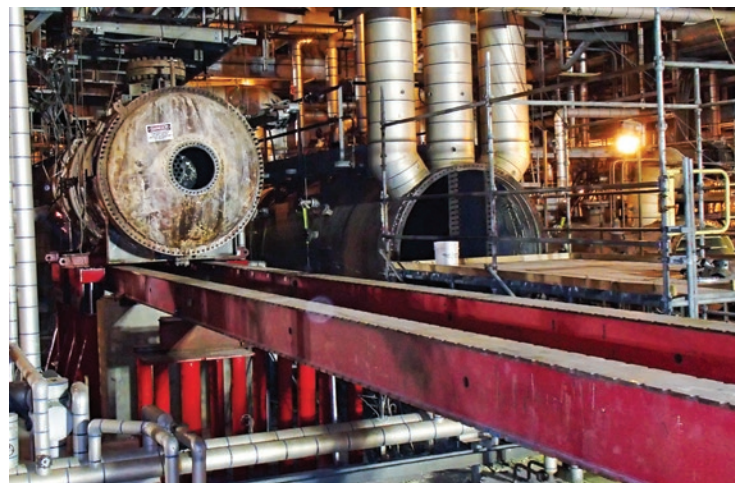
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BRANCH
PROFILE:
Cedar
Rapids, IA

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Quad Block Rigging System

CRANES+

WHILE BARNHART IS KNOWN FOR CRANE SERVICE, IT IS OFTEN OUR ADDITIONAL CAPABILITIES THAT ALLOWS US TO DELIVER ADDITIONAL VALUE TO THE CUSTOMER.

Because we have a larger equipment inventory and a national network of experts, Barnhart is not limited to a single solution (crane service) to meet our customers' needs. We have flexibility. Our access to engineered solutions, heavy transport, and broad inventory of specialized rigging tools, can often reduce a customer's risk and improve schedule in ways that traditional crane service simply can't.

For example, if a customer needs a piece of equipment removed from inside a roofed structure, the traditional approach using a hydraulic crane would likely involve removing a portion of the roof and any other structure above the component. Removing the overhead structure would necessitate additional construction on the front and back of project, and additional manpower. Not only does this increase costs but it also increases exposure to risk. Worse yet, if the overhead structure includes operating equipment it might require closing down the unit, which would mean a loss of revenue.

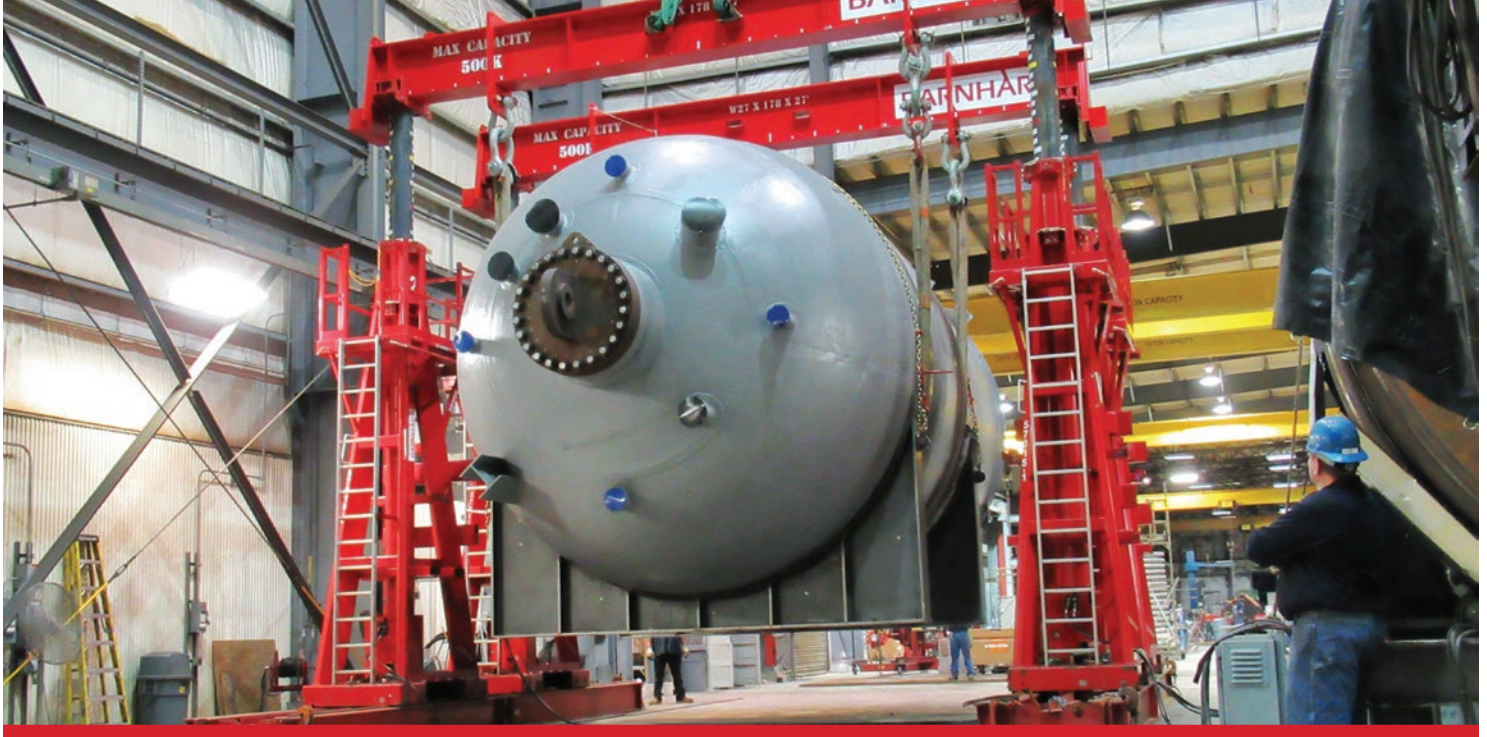
However, because of Barnhart's expanded options, we can customize a creative solution that will eliminate the need to remove the roof and overhead structure. These options might involve a use of our Moveable Counterweight Cantilever system, Slide Track, Tip Stick, Pull-Up Gantry or any number of custom tools that can provide low-headroom

lifting and lateral movement. All of which reduces risk and potential downtime.

As a manager of a branch which largely provides crane service, Andrew Artley, manager for the Ladd and Moline Illinois branch sees firsthand how Barnhart's "Cranes+" offering benefits his customers. "We employ some of the most qualified problem solvers in the industry who know how to create economical and safe solutions for our customers' needs," said Artley, "And so our customers have learned to appreciate the benefits of our larger tool box."

Whether our branches' primary focus is crane service or project support, Barnhart always offers creative, safe, efficient ideas to all the customers that we serve.

"WE EMPLOY SOME OF THE MOST QUALIFIED PROBLEM SOLVERS IN THE INDUSTRY WHO KNOW HOW TO CREATE ECONOMICAL AND SAFE SOLUTIONS FOR OUR CUSTOMERS' NEEDS."



- 1** Barnhart was contracted to receive, transport and rough set a reactor at a chemical plant in Illinois. The team was to receive the reactor at the customer's mechanical building, five miles away. On the day of the transport, the client's gantry system had a mechanical failure and Barnhart had to locate the appropriate gantry equipment and ship before the end of the day. The gantry system was set up and the Goldhofer trailer loaded by 9 pm.



- 2** The transport took place the following day and the reactor was delivered in a horizontal position.



- 3** The reactor was off-loaded and up-ended with a gantry system. It was held in place while the tailing frame was removed and the slide system was set up.



- 4** The reactor was then transferred from the gantry to the slide system and moved and set onto its final setting location. Efficient planning and coordination by the team allowed the project to be completed safely and on time.



1 Barnhart was hired to offload a 45,000 lb. reactor and install it in a fully operating chemical plant in Tennessee. The reactor was first offloaded from a truck using a Liebherr mobile crane.



2 The reactor had to skate 200 feet down a narrow hallway, making two 90 degree right turns into the reactor bay.



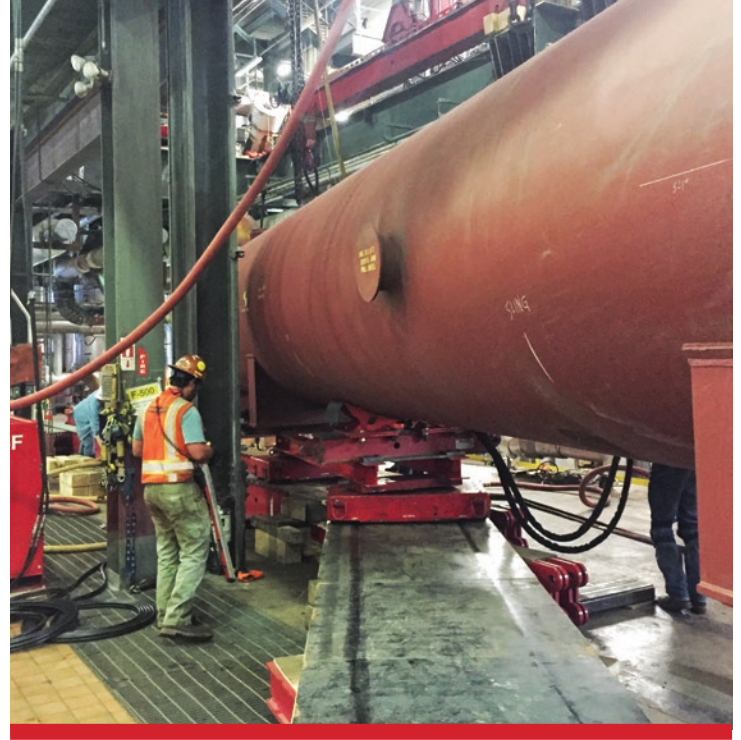
3 The heat on the reactor floor was over 100 degrees. Due to limited headroom, the team had to install temporary lifting beams on the existing structure at 30' elevation above the floor. The reactor was lifted until there was no more head room. The gantry system was built and slid under the reactor so that the crew could work safely under the reactor.



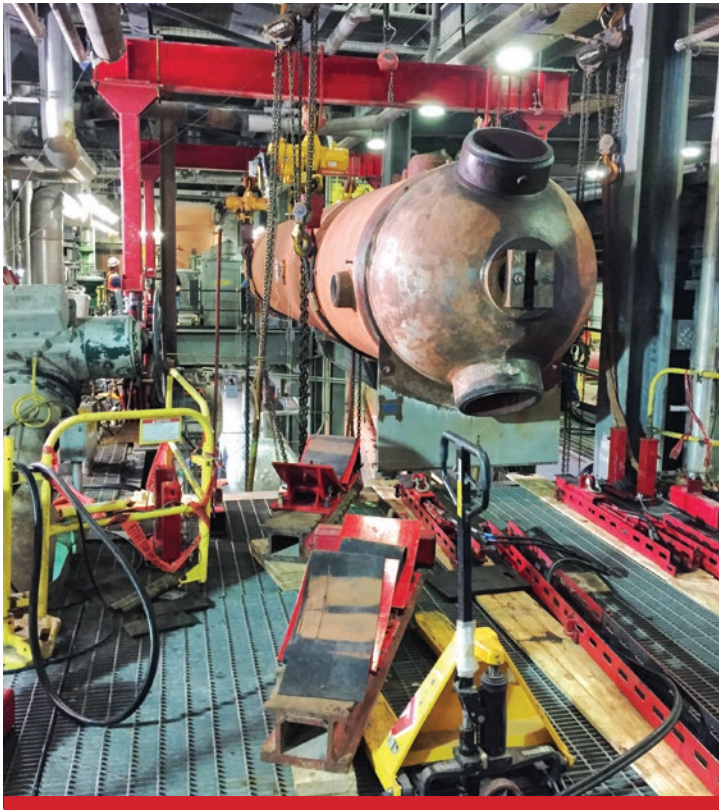
4 The gantries were used to finish lifting the reactor from underneath to a resting point where braces were installed to bolt the reactor to the structure. Once the reactor was in place, the temporary lifting beams were removed.



1 A project in Kansas required precise engineering to remove and replace two feedwater heaters during a planned outage at a power plant. The two heaters were stacked on two floors surrounded by a structure that could not be moved and was not within reach of the overhead cranes.

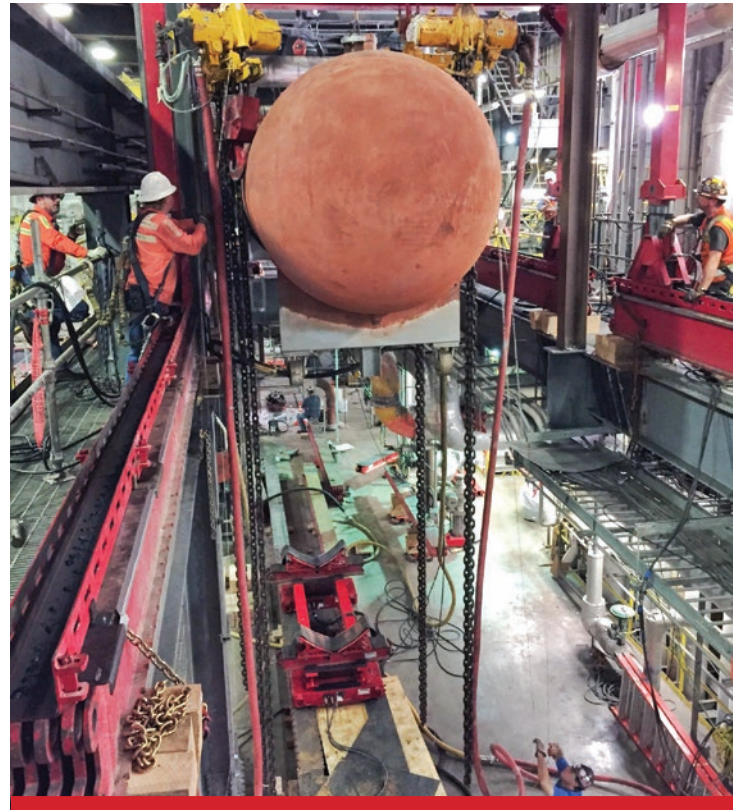


2 Barnhart used a light slide system to slide the lower heater forward, jack it up with Pull-up Jacks, lay heavy slide track underneath and roll it out with powered saddle rollers to the awaiting overhead crane. Limited capacity on the turbine deck floor required cribbing under the heavy slide system to be located directly over support beams in the floor.



3 Barnhart's engineers determined that the upper heater would have to be slid out with light slide gantries, suspended and lowered through a hole in the floor.

BARNHART HAD PLANNED TO COMPLETE THE JOB IN 16 SHIFTS, BUT WAS ABLE TO COMPLETE IT IN ONLY 12.



4 The upper heater was lowered with air hoists to powered saddle rollers, turned and maneuvered on a prepared surface of fabricated steel plates, and rolled the remainder of the way on heavy slide track to the awaiting overhead crane. The process was executed in reverse for replacing the upper and lower feedwater heaters. Precise engineering resulted in minimal downtime for the customer. Barnhart had planned to complete the job in 16 shifts, but was able to complete it in only 12.



- 1** Barnhart was hired to remove and replace a waste heat boiler in a hydrocracker unit at a refinery in California. The first step was to receive the new waste heat boiler, offload and stage it on site to be ready to be loaded to PSTe trailer prior to a plant shutdown.



- 2** The team then mobilized with a 80' Cantilever Beam and quad block system built with multi-purpose girders and counterweight blocks capable of reaching 29' into the structure to remove the old 75,000 lbs. unit.



- 3** The boilers were transported down a narrow roadway surrounded by active equipment. Both boilers were transferred to and from the staging area utilizing PSTe and offloaded from the truck by 44A gantries.



- 4** The new unit, which weighed 145,000 lbs. was successfully installed with the cantilever and quad block system. The job was completed in a week, because Barnhart sequenced operations to minimize their impact during a critical path project.



1 Barnhart was hired to lift and transport a 75' long coal car positioner weighing 86,000 lbs. from its track to a secondary work site for a rebuild and set it back in place after a one-week turnaround. Originally proposed as a jack & slide job, Barnhart engineered a new solution to lift the car with a Twin Lift rigging system.



2 One advantage of the Twin Lift is its 90 degrees of rear wheels, which offered flexibility in congested or tight spaces. On this project, there was less than 3" of space to position the Twin Lift.



3 The car's weight and length placed an even tighter working radius on the Twin Lift's range. The car had to be picked up to a height of five feet and moved six feet forward to reach the flat bed.

**BARNHART WAS ABLE TO REDUCE
CRITICAL PATH TIME FOR THE CLIENT
BY 12 HOURS**



4 The car was set to Barnhart's flat bed for transport to the work site. The process was repeated one week later in reverse to set the car back onto the original track. Barnhart was able to reduce critical path time for the client by 12 hours by optimizing the Twin Lift's unrealized potential and working with the client on car weight reductions.



1 Sometimes a project involves many stages as in this project to haul, roll on and barge contaminated scrap turbine components from a nuclear site in Michigan. Barnhart self-loaded the components from staging on site onto a Goldhofer PSTe trailer. The components were hauled 14 miles on state and county roads to a port in St. Joseph, Michigan. The haul involved multiple municipalities and utility companies.



2 At the port, the components were offloaded to staging with pull-up gantries. The components required a protective bag, which made securing and lifting them a challenge. They were then transloaded to wider staging beams for the transition to the barge deck.



3 Barnhart rolled the components and secured them onto the barge. The crew faced a tight schedule due to the barge's arrival and departure date, but still were able to complete the roll-on scope three days ahead of schedule.



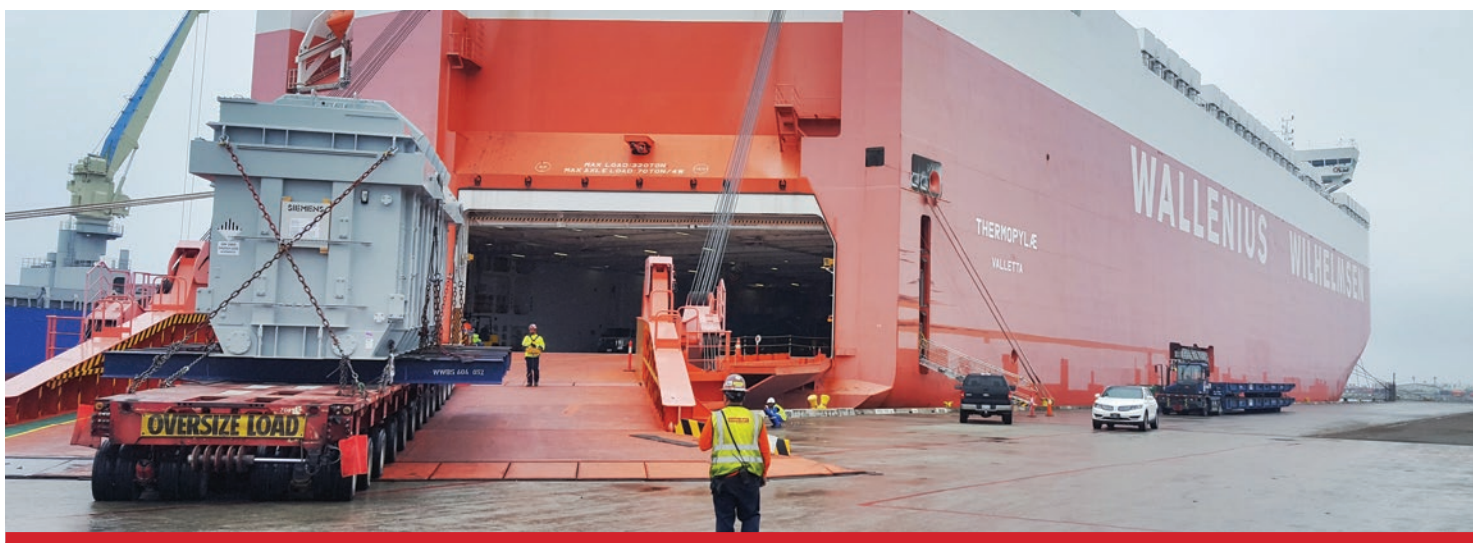
4 During the trip, Barnhart had to ballast under the Lemont Bridge, which spans the canal connecting Lake Michigan to the Illinois River. The bridge has a clearance of 19 feet between the water's surface and the bottom of the bridge; The cargo was successfully delivered to Oak Ridge, Tenn. where it was offloaded by Barnhart's Knoxville branch.



- 1** Barnhart was hired to offload a 467,000 lbs. transformer from a ship at a port in California. The cargo, which was sitting on stands in the cargo hold, was self-loaded onto a 12 line PSTe trailer.



- 2** There were tight conditions inside the ship so extra spotters were required. Working in a busy port, safety and efficiency were also of the utmost importance. Plus, the transformer needed to be unloaded quickly due to scheduling concerns.



- 3** The transformer was transported off the ship to stands roughly 100 yards away, where it was lowered with the hydraulics on the PSTe trailer to its final position.



- 1** Barnhart was contracted to remove and replace a bowl mill at a power plant in Arizona. The piece weighed 40,000 lbs. with a 12' X 12' circumference. Overhead and surrounding building structural beams made access a challenge.



- 2** Previous removal methods had been complex bull rigging combined with a dual crane pick. Barnhart's solution was to utilize its Twin Lift, a time-saving solution, and put it close to its maximum in boom, radius and weight tolerances.



- 3** The job required navigating the lift through structural beam obstructions and traveling with the bowl mill to an onsite location where it was set on stands. The bowl mill was replaced once repairs of the lower unit were complete.



1 Barnhart was hired to lift and slide a 40-foot-long accelerator vessel weighing 160,000 lbs. at a laboratory in Illinois. The vessel sat 12" below grade in an 88" wide pit. There were no existing suitable jacking haunches.



2 The vessel was lifted using Pull-up Jacks out of the pit to above the grade. It was cribbed and the jack stand supports were removed.



3 Lifting continued with pull-up jacks until the support beams and slide track could be placed underneath.



4 The vessel was slid 40 feet and lifted again. Then the jack stands supports were repositioned and the vessel was lowered to support stands. The project was successfully completed ahead of schedule.



1 Barnhart's assignment was to receive two neutrino detectors, which were shipped from Europe, at a port in Burns Harbor, Indiana, and stage and transport them to Batavia, Illinois. Barnhart received the detectors from ships gear to 14 lines of THP trailer and they were staged onsite while resting on the trailers. From the outside, the two detectors looked like extra-large shipping containers, but inside the walls were lined with incredibly delicate panels of wires.



2 Transportation of the detectors began once the permits were approved by the Indiana and Illinois DOT. The fragility of the cargo required taking several measures. The detectors had to be moved on a Goldhofer to limit the amount of deflection and required precise shimming when loaded. They also needed to be continuously supported during the transport, while traveling at reduced speeds.



3 Since the shells of the detectors were aluminum, Barnhart had to ensure that their securement chains did not make contact and damage the shells. In addition, the crew had to ensure that all trees along the route were sufficiently trimmed back to eliminate the risk of damage due to contact with limbs.



4 While the trip was only 250 miles, it took three days to complete due to the sensitivity of the detectors. Efficient planning and coordination by the team resulted in a project that was completed safely.



- 1** Barnhart was contracted by a corn processing plant to assist in the sliding and setting of a 300,000 lbs. package boiler. While the client considered renting the slide and jacks, they ultimately chose Barnhart because of their experience with projects of this scale. Barnhart used a 500-ton slide system to move the boiler.



- 2** Tight headroom and multiple starting and stopping operations were a challenge. The client used the boiler as a way to support the steam drum while handing it off over structural steel that was not removable.



- 3** Sliding had to stop and start so the steam drum could be set on top and passed over the beam using a third party's crane hook. The client was ultimately happy to pass the risk onto Barnhart for a move that was completed safely and on time.



Barnhart was contracted to receive and rough set one 63,000 lb. Vertical Turret Lathe at an industrial site in Illinois. There was limited space in the aisle between production stations and headroom restraints to navigate when selecting the proper tool. After considering a few options, Barnhart chose a 75-Ton Mobilift system, which had the proper footprint to operate in the limited aisle space and a tight turning radius.



The lathe was off-loaded from the transport trailer and turned into the proper setting orientation.



3 It was moved down the center aisle and rough set onto its foundation. All work was completed safely in one day.



- 1** Space constraints were an issue for this project at a refinery in Oklahoma to remove and replace a main blower from the fluid catalytic cracking (FCC) unit. There was limited area for a crane setup, eliminating the ability to use the moveable counterweight system. Barnhart also had to account for an offset center of gravity of the blower.



- 2** The team used a 120-ton hydraulic crane to lift the blower from the 500-ton heavy slide track system, which was set 9' above the ground, to slide it out. There was very little clearance room on either side, requiring precise measurements to set the piece into the shoes for sliding.



- 3** Beam trolleys and chain falls were utilized as well to remove and replace the unit. Barnhart's quick response time from site visit to completion of the project met the customer's needs to ship the blower for repairs. Despite an emergency equipment and personnel mobilization, the project was completed on time.



500-TON ONE-SHOT GANTRIES

BARNHART'S 500-TON ONE-SHOT GANTRIES ARE AN EXAMPLE OF CREATING A COOL TOOL TO ADDRESS A COMMON GANTRY PROBLEM.

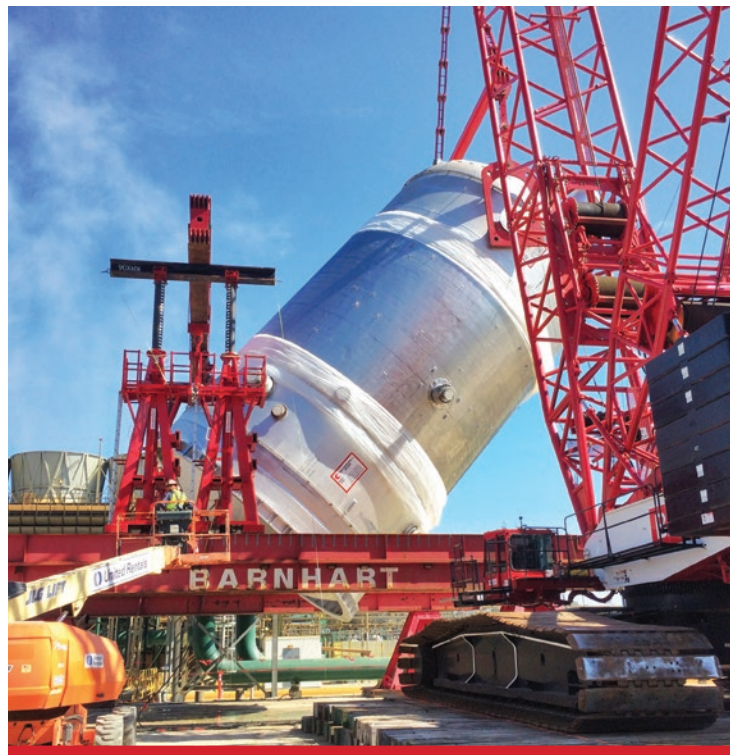
A typical gantry loses capacity as it is stroked out. The higher the extension, the lower the capacity. Barnhart recognized the need to retain maximum capacity regardless of the height and set out to create a custom-designed solution. The answer: a single stage gantry system that maintains its capacity from a collapsed height of 18' through to a fully extended height of 32'.

Each leg of Barnhart's One-Shot Gantry system has a capacity of 250,000 lbs., giving it a 4-leg combined capacity of 500 tons. With a housing deadweight of only 10,000 lbs., each leg has an exceptional strength-to-weight ratio.

The relative light weight of each leg allows for significant optimization in the areas of equipment mobilization and assembly. Comparable capacity gantry systems require a minimum of two trucks for shipment. Barnhart's One-Shot system needs only a single truck to transport all four legs and the hydraulic pump unit.

Once onsite, the One-Shot system can be fully assembled using readily available forklifts or boom trucks. For a customer, this means a smaller footprint for the project, significantly less mobilization and faster set up than when using a traditional crane.

One-Shot Gentries are also self-propelled, able to lift and travel vertically and horizontally. They have been used for projects in virtually all the industries you find Barnhart. Whether it's a power generation facility, refinery or chemical processing plant, the One-Shot Gentries are a reliable tool with a proven track record.





The Cedar Rapids team pictured left to right: Troy Henle, Gus Del Toro, Phillip Huber, Chad Walker, Patrick Kramme, Brandon Ashley and Eugene Kauffman.

CEDAR RAPIDS, IA

BARNHART'S CEDAR RAPIDS, IOWA BRANCH IS A CENTRALLY LOCATED FULL-SERVICE BRANCH POSITIONED TO SERVE CLIENTS IN CEDAR RAPIDS, DAVENPORT, WATERLOO, CEDAR FALLS AND SURROUNDING AREAS.

The branch boasts an arsenal of cranes, including an all-terrain crane, and specialty equipment including hydraulic gantries and Goldhofer transport trailers. However, as part of the Barnhart team, the branch can tap into a nationwide equipment inventory.

Services offered include crane and rigging services, project cargo logistics, heavy haul, plant outage, turnaround and shut down support and remove and replace work for the chemical industry. The branch has on site storage capabilities inside and out with over 3000 square feet of indoor storage.

Nuclear, power generation, chemical process, petroleum refining, and accelerated bridge construction are among the industries served by the Cedar Rapids branch.

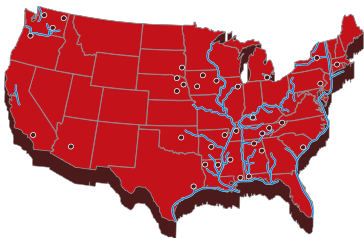
"We are a one-stop shop for rigging and crane work. A lot of competitors in the area offer cranes and that's it," says Branch Manager Gus Del Toro. "We have a wide array of equipment that enables us to handle more complex projects."





SETTING A COUPLE OF CHILLERS AT THE UNIVERSITY OF IOWA WITH BARNHART'S MOVABLE CANTILEVER COUNTERWEIGHT SYSTEM.

NATIONWIDE OFFICE LOCATIONS & FACILITIES



- LITTLE ROCK, AR | FULL SERVICE
- LONG BEACH, CA | RIGGING & TRANSPORT
- MIDDLETOWN, CT | FULL SERVICE
- CHICAGO, IL | RIGGING & TRANSPORT, HEAVY LIFT TERMINAL
- EAST MOLINE, IL (CATTANI) | FULL SERVICE
- LADD, IL (CATTANI) | FULL SERVICE
- AMES, IA | FULL SERVICE
- CEDAR RAPIDS, IA | FULL SERVICE
- DES MOINES, IA | FULL SERVICE
- MASON CITY, IA | FULL SERVICE
- CALVERT CITY, KY | FULL SERVICE
- OWENSBORO, KY | RIGGING & TRANSPORT
- BATON ROUGE, LA | FULL SERVICE
- SHREVEPORT, LA | FULL SERVICE
- WEST MONROE, LA | FULL SERVICE
- MONROE, MI | RIGGING & TRANSPORT
- JACKSON, MS | FULL SERVICE
- LINCOLN, NE | FULL SERVICE
- OMAHA, NE | FULL SERVICE
- SIOUX CITY, NE/IA | 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
- KINGSFORT, TN | FULL SERVICE
- KNOXVILLE, TN | FULL SERVICE
- MEMPHIS, TN | FULL SERVICE, SERVICE CENTER
- COLUMBIA, TN | SALES
- HOUSTON, TX | RIGGING & TRANSPORT
- HAMPTON, VA | FULL SERVICE
- KENT, WA | FULL SERVICE
- MT. VERNON, WA | FULL SERVICE
- RICHLAND, WA | RIGGING & TRANSPORT
- SPOKANE VALLEY, WA | FULL SERVICE
- DECATUR, AL | FULL SERVICE
- GADSDEN, AL | FULL SERVICE
- MOBILE, AL | FULL SERVICE
- PHOENIX, AZ | RIGGING & TRANSPORT
- BLYTHEVILLE, AR | 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
- GOLDHOFFER 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 1800 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