BARNHART

LIFTING LETTER

www.barnhartcrane.com

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A Publication of Barnhart

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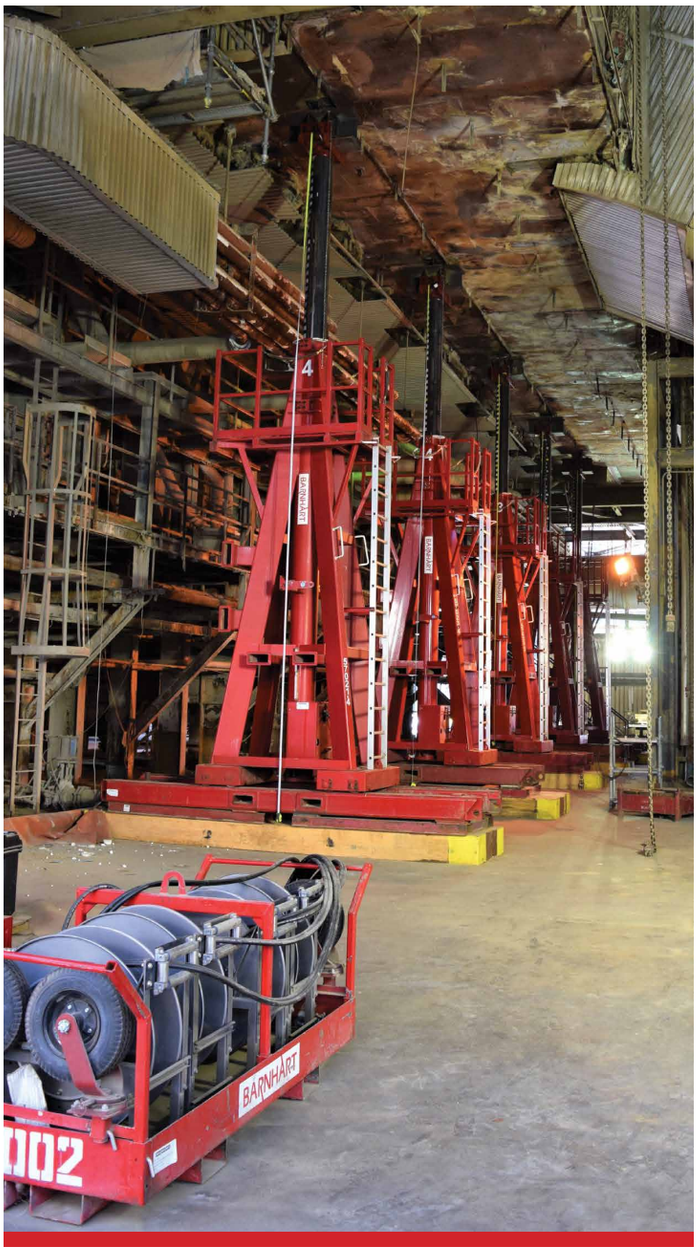
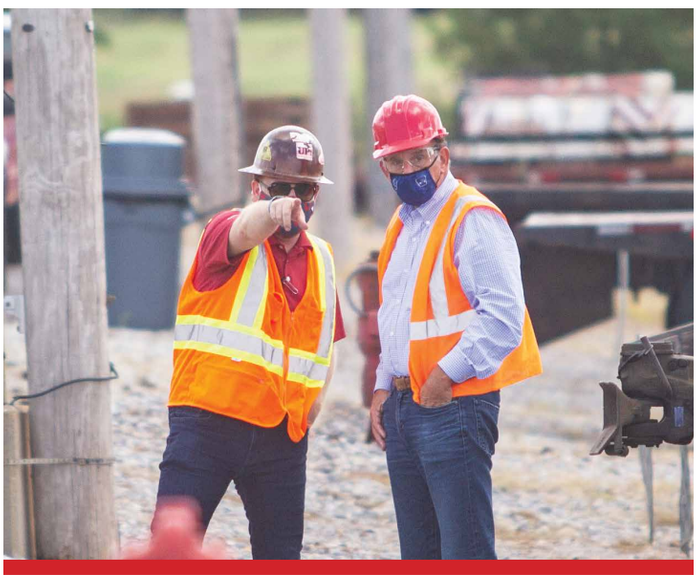


Creative thinking was at work in this emergency job at a coal-fired power plant in Texas. An 84-foot-long plenum duct had fallen 18 inches from its original position forcing a unit shutdown. Barnhart engineered a synchronous system involving five one-shot gantries along the duct that kept the gantries within an 1/8 inch of level during the lift.

A proactive customer came to Barnhart looking for a safe alternative for installing multiple HVAC units in downtown Seattle that would prevent the crew from working at excessive heights up to 100 feet. Barnhart used its Mini Movable Counterweight Cantilever System (MOCCS), which utilized a counterweight package and moved via remote control to move the units. This meant that the crew was not exposed to working at heights inside of a material hoisting platform or at the leading edge of the building.



Overdelivering in terms of time frame, cost or customer service can help cement a fledgling relationship.

Regular updates and sharing information help build confidence in you or your company.

FOR THE LONG HAUL: BUILD AND KEEP SUCCESSFUL BUSINESS RELATIONSHIPS

Long-term relationships make up the foundation of any company's ongoing success. Cultivating those loyal customers is essential but hardly easy. It starts by getting the relationship off on the right foot. But how?

Go above and beyond expectations. With any project you intend to deliver what you promised. However, exceeding the customer's expectations by overdelivering in terms of time frame, cost or customer service can help cement a fledgling relationship. Research shows that 70 percent of buying experiences are based on how the customer feels they are being treated.

Think creatively. It's likely a customer will contact you with a defined project and method to perform that project. However, if you are aware of a better way that would result in less downtime, reduced risk or fewer man-hours, offer it up as an option. The customer may not choose that solution, but you will have established yourself as a creative problem solver.

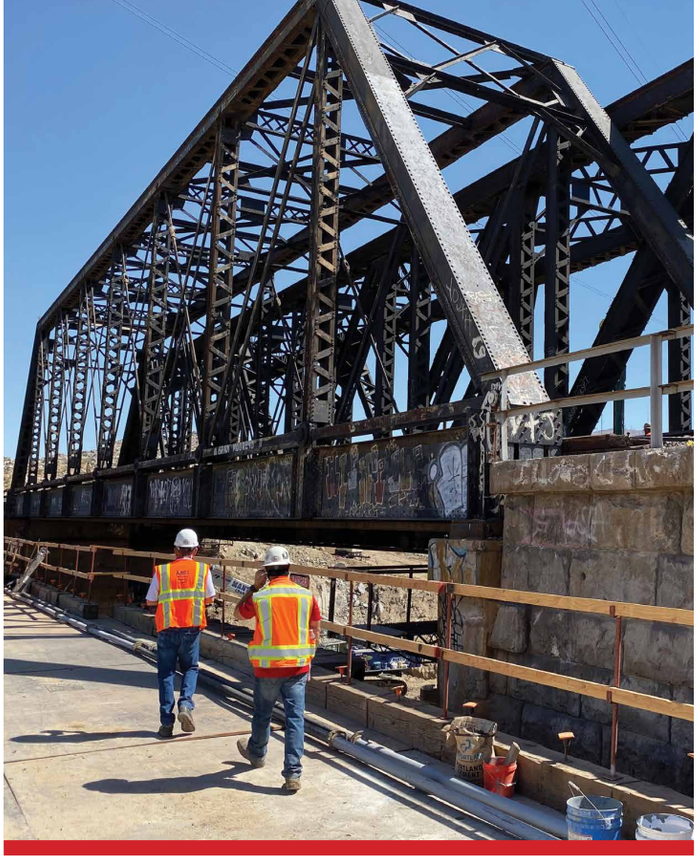
Speaking of which, **be a problem solver, not a credit taker**. You or your company are being engaged because you are considered experts. Use that expertise to solve a problem or resolve an issue at any stage of the project. In the process, if that makes the contractor, project manager or company look good, let them have the credit.

Communicate, communicate, communicate. Regular updates and sharing information help build confidence in you or your company. If the project hits a snag, address it up front. Be candid about the reasons for the snag and offer solutions. Openness and accountability build trust, a cornerstone of any long-term business relationship.

Once you've completed that first project, it's up to you to turn a one-time assignment into a repeat project. After all, your competition is trying to woo that customer away from you.

Stay in touch. Check in periodically to see about the customer's needs, be proactive and offer solutions. Emphasize that a customer gets the most value when they engage a vendor early in the planning process. Don't forget the personal touch. If you've worked with this customer before and know details such as birthdays, anniversaries or interests, acknowledge those in some way.

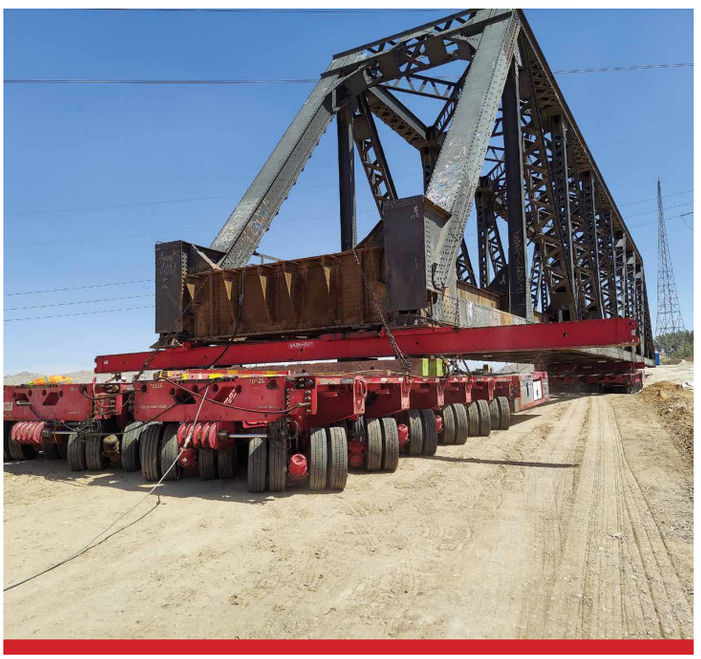
Recognize that long-term relationships are beneficial for both parties. Being able to fully understand each other's needs, processes, requirements, strengths and weaknesses makes each project more efficient and successful. The longer the relationship lasts, the better it is for all parties.



1 Two 100-year-old rail bridges needed to be removed in California. The first was 164 feet long and weighed 520,000 pounds. The second was 200 feet long with a weight of 840,000 pounds. The work would be performed next to live railroad tracks.

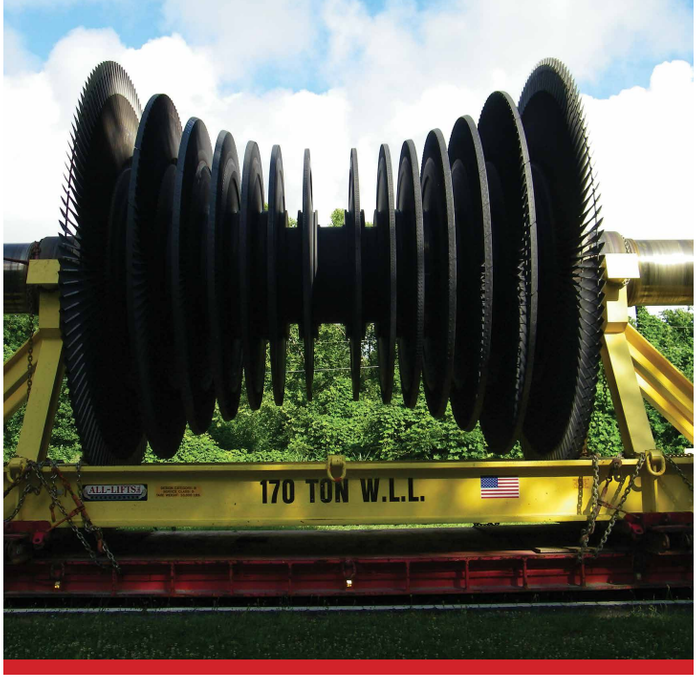
2 Barnhart developed a system using eight 100-ton jacks, a 16" slide track and 500-ton slide system to move the bridges. The team was challenged to maximize the unbraced length of the 16" slide beams to ensure safe loading.

3 A temporary bridge had been built next to the old bridges, and double-wide SPMT trailers were positioned on it. The old bridges were slid from their foundations and loaded onto the trailers.



4 The bridges were then driven to a laydown yard and offloaded from the trailers to stands.

BARNHART DEVELOPED A SYSTEM USING EIGHT 100-TON JACKS, A 16" SLIDE TRACK AND 500-TON SLIDE SYSTEM TO MOVE THE BRIDGES.

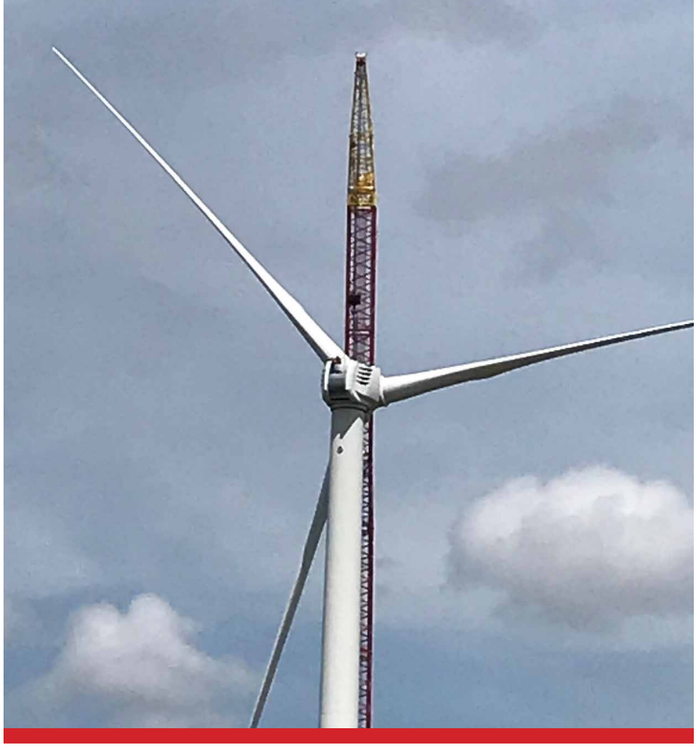


1 Barnhart was awarded a project during an outage at a nuclear power station to transport, stage and dispose of three low-pressure (LP) turbine rotors and the associated diaphragms. Each rotor was approximately 30 feet long, weighed 365,000 pounds and had a diameter of 15'6". The diaphragms ranged from 5,000 pounds to 28,000 pounds and varied in length.

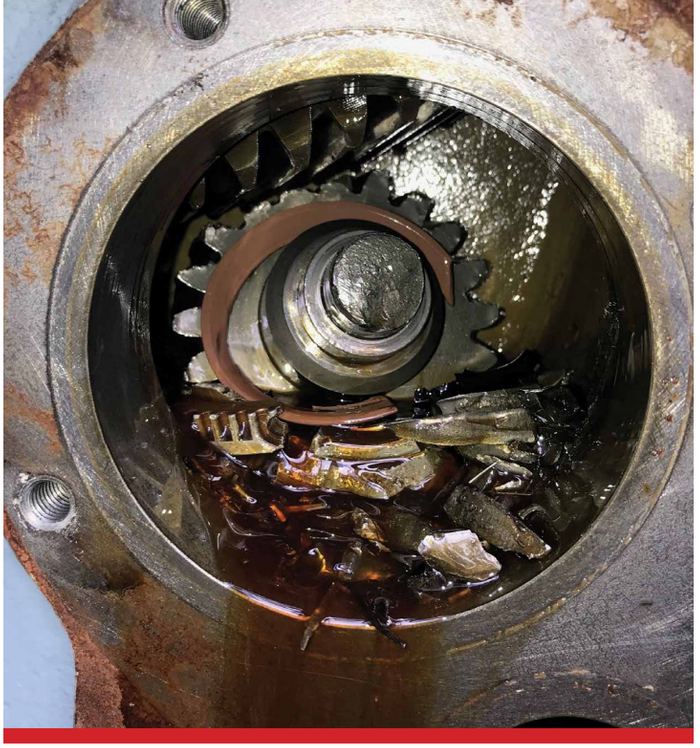
2 Barnhart identified a more cost-effective approach than its competitors for this project. This included sliding the LP rotors on and off the transporter versus handling with a crane or gantry and optimizing to a THP Goldhofer trailer for over-the-road hauling versus using the PST Goldhofer trailer that was required for the onsite hauling. Another approach was partnering with an approved local scrap vendor for disposal.

3 The team utilized Barnhart's 500-ton slide system to support the LP rotors on the transporter while in transit. This allowed for a quick and cost-effective means to load and offload at the staging area and scrap yard. As the convoy went through town, utility crews raised traffic lights so the load could safely clear overhead obstacles.

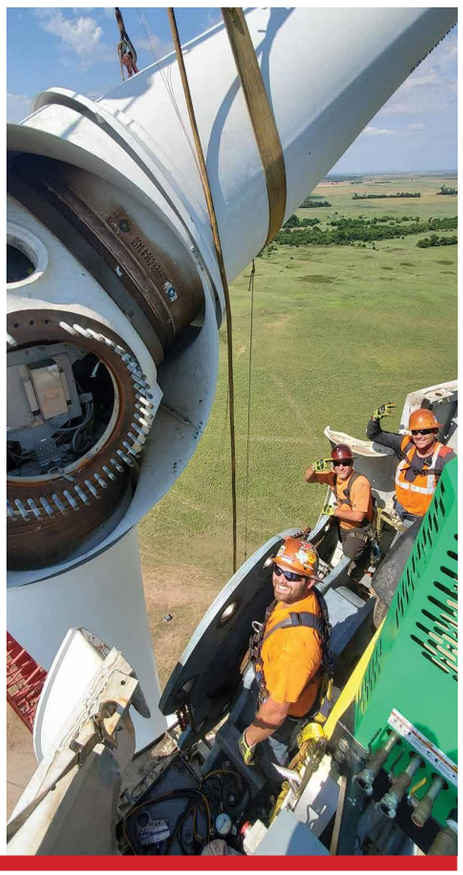
4 The rotors were hauled approximately 15 miles to a utility-approved scrap and recycling facility just across the state line in North Carolina. They were then offloaded via slide system and removed from the rotor stand with 500-ton one-shot gantries.



1 Barnhart was hired to do 19 turbine repowers at a wind farm in Kansas. One turbine rotor was problematic because it had seized in a position that would not allow for a standard rotor removal, as the tail blade was not in the six o'clock position.



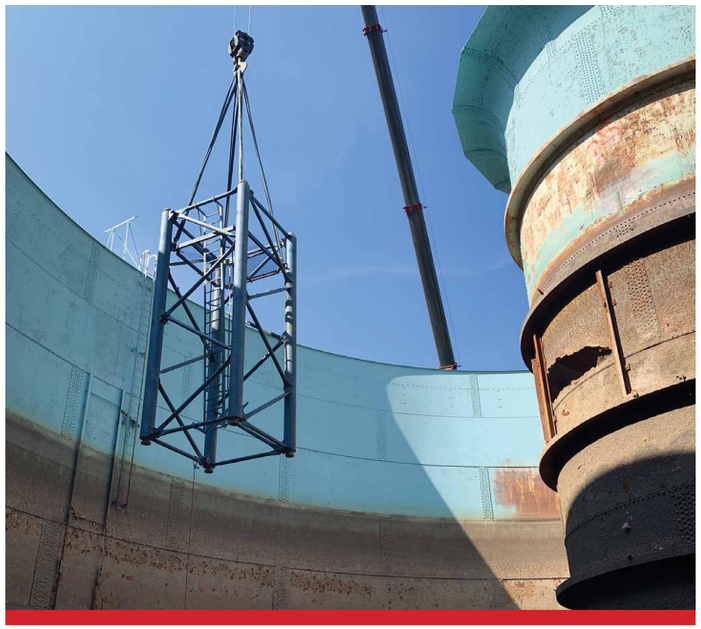
2 Further review of the turbine found that a gearbox failure was the reason for the rotor seize. Barnhart provided an engineered solution to get the rotor removed in its current position along with equipment, manpower and tooling to complete the rotor removal.



3 Since the rotor would not move, the crew had to install blade toggles and an air hoist and then lance off the bolts to free it from the gearbox. The crew then removed the rotor, used the air hoist to right the rotor in the correct SOP position and landed it successfully.

4 The crew then replaced the adapter ring, nacelle, hub and blades.

1 Barnhart was hired to provide support for a surge tank riser during an outage at a hydroelectric plant in West Virginia. The site was at the end of a narrow and winding access road up a mountain with little room for assembly and trucks.



2 The team engineered a new tower system using Canton Lift Towers. The pieces of the tower were lifted and set using a 250-ton all-terrain crane, which was set upon a small crane pad.

3 Two towers were constructed. Nodes were fabricated at the top of the towers to support two 72-foot beams and four adjustable rigging link setups.

4 Rigging was connected at the top of the riser, and pull-up jacks were held tight to reinforce the riser while repairs were made to the deteriorating riser sections below. Barnhart provided crane support for the duration of the outage.

1 A 129-foot-long absorber vessel needed to be transported from a fabricator in Winterville, North Carolina, across the country to a chemical plant in Beatrice, Nebraska. The vessel weighed 138,271 pounds.

2 It was transported on a 4-axle tractor with a 9-axle steerable dolly. The overall transport dimensions were 175′ 10″ x 11′ 4″ x 15′ with a weight of 229,500 pounds.

3 The 1,500-mile journey wound through four states at an average speed of 50 mph. Barnhart lined up permits and police escorts along the way and faced inclement weather and oversized cargo challenges.

4 Barnhart's Lincoln, Nebraska team, met the trailer at the site in Beatrice and offloaded the absorber at the plant.

1 Barnhart was hired to replace two HVAC units at a high school in State Center, Iowa. The five-piece units were trucked in and placed on the grass beside the school.

2 The team used a 100-ton Link Belt crane with the Mini Movable Counterweight Cantilever System (MOCCS) to lift each unit from the ground and put into position.

3 The crane operator was operating in the blind and was directed by a team member on the roof on a walkie-talkie. The units had to be placed in a mechanical shed atop the building.

4 A part of the school roof had to be removed in order for the unit to fit. The Mini MOCCS beam and unit cleared the opening with six inches to spare. Once inside, the units had to be lowered and set on concrete pads, which were a foot below the existing roof line. The job was completed in less than one day.

1 Preplanning was key in this project to set eight components at a chemical plant in Arkansas, which were added while the plant was in operation. Limited working space required the relocation of several components in order for the cranes to fit in the set location.

2 The largest component set was a cold box with dimensions of 184' x 16' x 16'. It weighed 401,000 pounds.

3 The crew used a CC2800 in superlift as the main crane. The tail crane was a CC2800, which was used to walk the box to the main crane. The rigging had to be sized precisely to avoid hitting the ladders and platforms that were installed.

4 The cold box was set next to the other boxes on a predetermined specific pad location. The project, which required more than a year of planning, was completed on schedule.

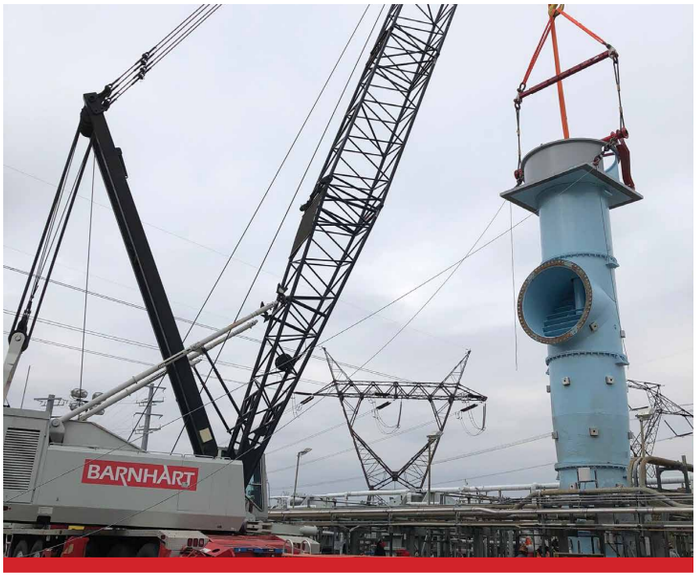
THE CREW USED A CC2800 IN SUPERLIFT AS THE MAIN CRANE. THE PROJECT, WHICH REQUIRED MORE THAN A YEAR OF PLANNING, WAS COMPLETED ON SCHEDULE.

1 Barnhart was awarded a contract to remove and replace a vertical circulating water pump at a nuclear power facility in Virginia. The project required an upending/downending evolution to complete the lift; therefore, Barnhart's client requested a pin-for-pin mockup to demonstrate the rigging evolution.

2 The pump was transported over-the-road to a facility in Pennsylvania to support the refurbishment. The pump was 46 feet long, 8 feet in diameter and weighed 92,000 pounds.

3 Due to site constraints that included a narrow-intake alleyway and 500,000-volt overhead power lines on both sides of the lift, the team decided to use a single crane and Barnhart's quad block to perform the lifting operation.

4 Barnhart designed a custom-fabricated rigging device that allowed the upending/downending operation to utilize the pump's existing lifting lugs.



5 Additionally, Barnhart employed its high-capacity turnbuckles to account for an offset center of gravity to ensure the pump was lifted level. From the start to the end of the lift, the pump was set in a single shift.

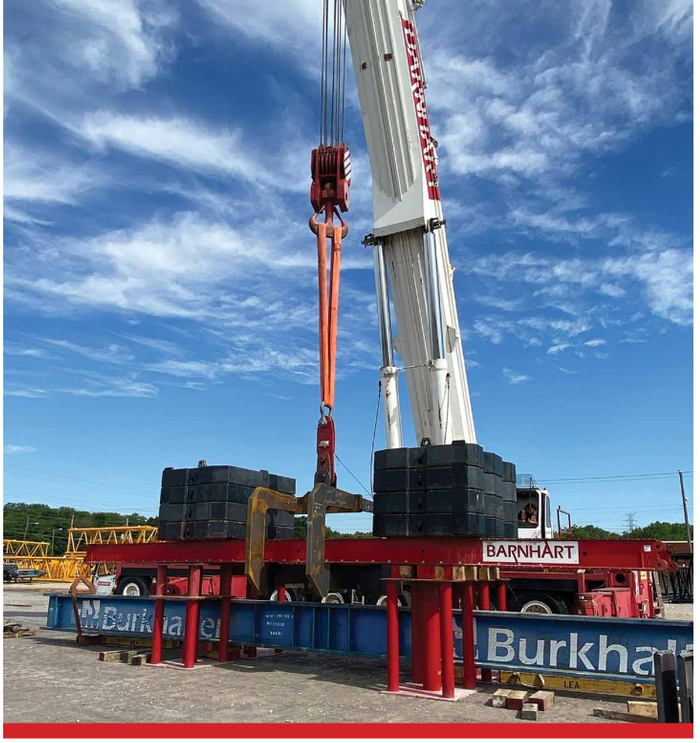
1 During an outage at a refinery in California, Barnhart completed a removal and replacement of seven old and seven new vessels that required hauling from just outside the refinery gate to within the facility. Barnhart mobilized self-propelled modular trailers (SPMTs) to support the haul and provided engineering securement for early arriving vessels like the orifice chamber, which was offloaded during pre-turnaround in the laydown yard.

2 Due to the different sizes of the vessels, Barnhart supplied operated 10-line/12-line and 8-line SPMTs and a crew of riggers to support them. Barnhart placed the old vessels on stands and beams and hauled them on the SPMTs into the laydown area. The biggest challenge was controlling the travel path through the refinery, which was used by all vehicles within the plant.

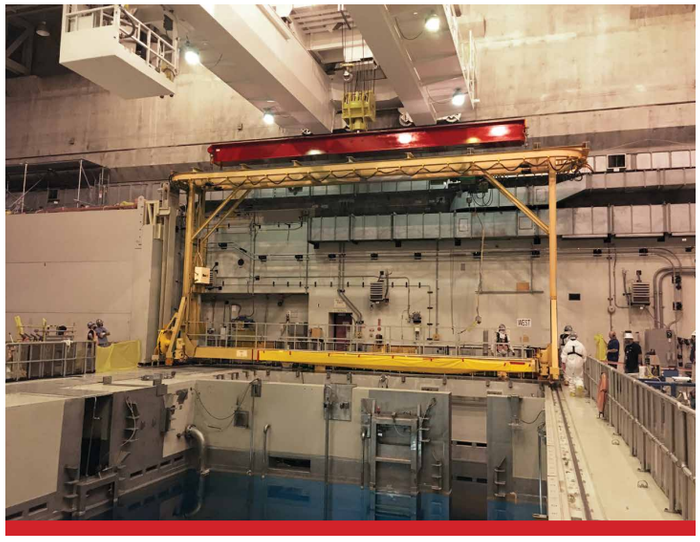
3 The longest and heaviest vessel was the D205 at 96 feet long with a weight of 205,000 pounds. The safe loading of the D205 to the SPMT required a crew of three riggers. The vessel then had to travel within the site to a unit on the opposite side of the refinery.

4 The D205 was delivered successfully to the unit. The project was part of the biggest turnaround in the history of the facility.

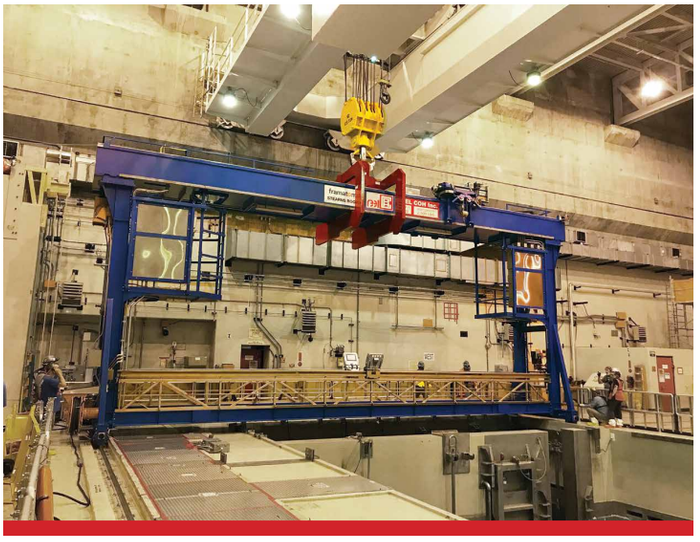
1 Barnhart assisted a nuclear plant in the removal and replacement of its Spent Fuel Handling Bridge (SFHB). The project required special rigging, designed per nuclear code ANSI N14.6, but the plant did not have a suitable system to perform the lifts. Barnhart was tasked with designing, fabricating and load testing custom rigging devices to facilitate the removal and replacement of the SFHB.



2 Due to minimal clearance between the top of the SFHB and the auxiliary building crane hook, any device Barnhart designed would need to be both high-capacity and low-headroom. Each SFHB required a custom rigging device, one for the existing SFHB and one for the new SFHB. Each rigging device was tested to 300 percent of its design capacity per ANSI code requirements.



3 The existing SFHB rigging device was designed and fabricated by Barnhart as a center-pick dual-beam spreader bar that enabled the SFHB to be lifted near the vertical supports, limiting the bending forces applied to the structural members. The spreader bar pinned directly into the overhead crane's sister hook to minimize the headroom required for the rigging.



4 The new SFHB rigging device was designed and fabricated as a dual C-Bar center-pick rigging arrangement to lift the bridge at the center of its span. The C-Bar arrangement was delivered in a custom, dedicated shipping frame that enabled easy assembly prior to each use. Both rigging devices performed as designed with no issues. Barnhart designed, fabricated, tested and delivered both lifting devices in less than three months.

BARNHART WAS TASKED WITH DESIGNING, FABRICATING AND LOAD TESTING CUSTOM RIGGING DEVICES TO FACILITATE THE REMOVAL AND REPLACEMENT OF THE SFHB.

MOBILE, ALABAMA

THIS BRANCH PROVIDES HEAVY LIFT CRANES, HEAVY TRANSPORT AND MARINE PROJECT CARGO SERVICES TO SOUTHERN COASTAL AREAS IN FLORIDA, ALABAMA, MISSISSIPPI AND LOUISIANA.

Mobile's Barnhart branch has a 27,000-square-foot facility with a seven-acre yard.

Barnhart's Mobile, Alabama, branch is a full-service branch with an extensive fleet of equipment located on the Gulf Coast. From its central location, the branch also serves Pensacola, Florida; Montgomery, Alabama; Pascagoula, Mississippi; New Orleans, Louisiana; and the surrounding areas.

Located near the Port of Mobile, the branch specializes in marine heavy lift and marine project cargo services and barging. Other capabilities include heavy cargo transport, engineered rigging, turnaround crane services and operated crane rental. Power generation, refining, chemical and pulp and paper are among the industries the branch serves.

"Our mission is to be the best heavy lift and transport company on the Gulf Coast. We continuously strive to provide safe, quality and innovative solutions to meet our customers' needs," says Branch Manager Lou Lartigue.

One feature of Barnhart's equipment arsenal is Big Al, a heavy-lift barge crane with a capacity of up to 400 tons located at the Port of Mobile. That is just one of a lineup of cranes that includes hydraulic cranes up to 600 tons and heavy lift crawler cranes up to 660 tons.

Barnhart's Mobile branch is here to help all heavy industries along the Gulf Coast as part of a network of more than 50 branches across the United States. With our wide selection of cranes and rigging onsite, plus our nationwide inventory at your disposal, there's no job we can't tackle.

Barnhart workers offload and haul a 725,000-pound steam turbine generator using 500-ton one-shot gantries.

The Mobile team tackles a 300-ton and 600-ton crane lift of an ocean floor umbilical reel at Mobile Middle Bay Port.

The integrated holding valve and locking pins allow the system to support a load safely without needing hydraulic pressure. This was an essential feature that enabled the crew to work around and under the piece being lifted.

The circuit breaker was lifted into place with inches to spare on all sides.

MULTI-LIFT JACKS

THE CUSTOM TOOL OCCUPIES MINIMAL SPACE AND HAS A CAPACITY OF 30,000 POUNDS.

The Multi-Lift Jack (MLJ) is a Barnhart-engineered tool that demonstrates the company's R & D team's ability to perform under pressure.

The tool was recently used successfully in a project to lift and install a circuit breaker in a nuclear plant. Yet, the tool did not exist when the project was awarded.

Barnhart's R & D team only had about a month to design, fabricate, load test and paint an entire tool system. The system had to support a load safely without hydraulic pressure. And, due to site constraints, the entire system would have to be assembled by hand using only small hand tools.

The result was a tool with an application beyond this project. With a capacity of 30,000 pounds, the MLJ has a minimal footprint with interchangeable base units that provide stability while occupying minimal space. For a four-jack system, each base plate only takes up a 30" x 30" square.

It has a low-profile with overall dimensions of 10.25" wide x 7.75" deep with a collapsed height of 6'1". The size of the MLJs allows it to be placed in areas in which space is limited. The tool is fairly lightweight as well. The jack assembly has a base weight of 640 pounds, which can be easily maneuvered with most small forklifts or a skate system.

With multiple accessories and attachments and integrated safety features, this tool is extremely versatile.

As for the MLJ's trial run at the nuclear plant, the project was executed smoothly and professionally, resulting in an extremely happy customer.

BARNHART

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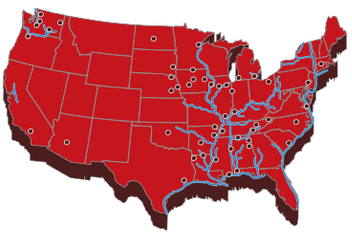

- ANNISTON, AL | FULL SERVICE
- DECATUR, AL | FULL SERVICE
- GADSDEN, AL | FULL SERVICE
- MOBILE, AL | FULL SERVICE
- BLYTHEVILLE, AR | FULL SERVICE
- LITTLE ROCK, AR | FULL SERVICE
- PHOENIX, AZ | RIGGING & TRANSPORT
- LOS ANGELES, CA | RIGGING & TRANSPORT
- MIDDLETOWN, CT | FULL SERVICE
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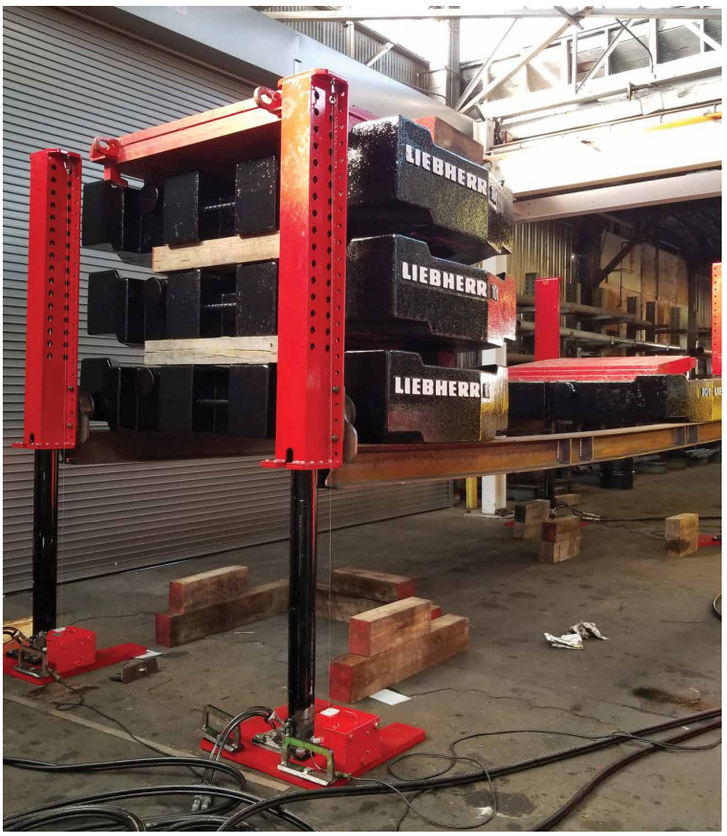
- SOUTH SIOUX CITY, NE | FULL SERVICE
- RALEIGH, NC | FULL SERVICE
- MANDAN, ND | FULL SERVICE
- CANTON, OH | FULL SERVICE
- OKLAHOMA CITY, OK | FULL SERVICE
- PORTLAND, OR | FULL SERVICE
- PHILADELPHIA, PA | RIGGING & TRANSPORT
- CHARLESTON, SC | RIGGING & TRANSPORT
- SIOUX FALLS, SD | FULL SERVICE
- 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