

LIFTING LETTER

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**COVER STORY:
TAILING OPTIONS**

Innovative tailing methods can save time, money and space.



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Major industrial plant projects rarely take place in wide open spaces. Congested work areas with extremely limited clearances are common problems facing crane and rigging companies and other contractors. The issue becomes more significant when the job requires tailing a component into place. Traditionally, a second crane is needed to tail a piece into position. When the lift area is tight and space is limited, utilizing a second crane is not only costly it is sometimes nearly impossible. Fortunately, the team at Barnhart has several tailing options that can eliminate the need for dual cranes. Here are various examples of innovative tailing methods that can save time, money and space.



Tri-Block

Tailing Tower System



TRI-BLOCK SYSTEM This method allows cranes to *self tail* a variety of loads, eliminating the need for an additional crane for tailing. This system has also proven especially beneficial when erecting wind turbine towers in remote, rough locations. The Tri-Block helps eliminate congestion, reduces the equipment management demand and significantly lowers costs.

FORKLIFTS With a capacity of up to 120,000 lbs, Barnhart's heavy forklifts offer a low cost alternative to a traditional tailing crane. When combined with custom rigging booms, the mobility and size of a forklift can avoid added congestion and extra costs.



Platform Trailer Tailing Device



Tailing with Gantry



Tailing with Fork Lift

PLATFORM TRAILER TAILING DEVICE (PTTD)

The PTTD is a simple hinged device attached to the bottom of the load that allows a trailer to be used as a tailing device. The base of the device is mounted to the top of the Barnhart Platform Trailer. While the head of the load is being lifted, the Platform Trailer with the tailing attachment is slowly moved with the load and the tailing beams attached to the component's base are free to rotate. This allows the load to follow the path of travel during the lift. As the piece reaches a vertical position, a simple fulcrum brings the skirt directly under the head of the vessel. For more on use of Goldhofer as a tailing device, see Project Review on page 7.

HYDRAULIC GANTRY SYSTEM When certain conditions are present, Barnhart's Gantry System can be a highly economical and efficient tailing option. Using two or four legs of gantry provides high capacity, variable lift and hydraulic movement for efficient tailing operations.

MODULAR TAILING TOWER SYSTEM (MTT)

When jobsite space constraints do not allow the use of a platform transporter to tail or when the weight of the vessel is such that other tailing methods are costly, a viable method of tailing a load during a lift tower application is the use of the Barnhart Modular Tailing Tower. Using standard MLT components, the vessel tailing lug is attached to the MTT using fixed links upon unloading from the transporter. The MTT is mounted on a travel track that runs from the tail starting point to under the main lifting system. During erection of the vessel, the MTT travels on the steel track as the load is raised to vertical. The movement is a synchronized process that is easily controlled by the hydraulic power console.

PROJECT REVIEWS



COAL POWER: Stator Lift

Barnhart's Memphis Branch recently completed an impressive stator lift at a coal fired power plant in Missouri. The project included setting the turbine casing and the generator. Using the 450 ton gantries and 500 ton hoist, the lifts had to take place outside of the turbine building. Then each load was carried over the operating deck to the generator pedestal. The process required intermediate supports inside

the building to shore up the joint of 45' and 60' gantry track. It also used components of Barnhart's Modular Lift Tower to form the outer support, and two inner "independent" supports.

Barnhart's innovative use of existing tools to address a unique project allowed the team to complete the job on time and without incident.



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PROJECT REVIEWS



NUCLEAR POWER: Feedwater Heater Replacement

During a refueling outage at an Arkansas nuclear plant, Barnhart used a large part of its toolbox to remove and replace two FWH vessels and bundles. First, the team off-loaded the replacement components from rail using mobile cranes and pull-up gantries. Next, the Barnhart team began extracting the bundles from their shells. The plan called for a slide system to also serve as support frames. The frames were then loaded onto 4-axle floats using pull-up gantries. Barnhart also constructed a 3-leg gantry system to span a 14' deep pit next to the building. Components of the Modular Lift Tower were placed in the pit to support barge ramps under the gantry. To extract the bundle, one end of the frame was connected to the condenser wall while the 125K hoist supported the frame. The bundles were extracted using slide system components and custom chocks for support. Once each bundle was completely extracted, the slide track frame was uncoupled from the condenser wall and turned 90 degrees using the 125K hoist, gantry and slide system. When the bundles were over the



pit, they were placed on 4-axle floats on top of the barge ramps. The reverse process was used to install the new bundles.

The vessels were removed by installing temporary saddles to jack them from their bases. Each vessel was then moved to the floor opening above using the light slide system. Next, Barnhart's innovative Tipstick was used to lift the vessels to the turbine deck and down onto the floats. Because the overhead crane main hook would not travel to the center line of the floor opening, the Tri-Block System was used to allow access. The reverse process was used to install the new vessels.



PROJECT REVIEWS



PETROLEUM REFINERY: 300 Ton Reactor Haul

Recently, a 300 ton reactor arrived from Japan for delivery to a refinery in Camden, New Jersey. Barnhart was contracted to transport and erect the critical refinery reactor. After arriving at port, Barnhart loaded the reactor onto a barge using a 16-line PSTe Goldhofer trailer. From there, the barge and trailer were towed to the refinery where the reactor was rolled-off and transported to the lift area. The team then used the Barnhart Modular Lift Tower with a 500 ton hoist, along with the Goldhofer reconfigured as tailing device, to smoothly lift the reactor into place. The Barnhart team's resourceful use of equipment in engineering the haul and lift saved time and money. The customer was very satisfied with the safe and timely completion of the project.



PROJECT REVIEWS



POWER GENERATION: Turbine & Generator Hauls

Barnhart's team at Marino Crane Service was asked to make a series of difficult and challenging hauls during the biting sub-zero Connecticut winter. The job included providing engineering services for the barge roll-off, ballasting, transfer to/from rail and the DOT plan to haul all of the components to a power plant.

The haul included two combustion turbines, two combustion turbine generators and one steam turbine generator. After rolling each component off the barge, the Barnhart team moved them

a half mile where gantries loaded them onto rail cars. After a short five mile rail run, the components were off-loaded from rail car to Goldhofer trailers for the final two mile haul to the site. The haul included the use of Barnhart's 40' bridge jumper to cross a low weight bridge. Throughout the process, the team dealt with the extreme temperatures, hauls on public routes and normal demands of heavy hauling. Barnhart's proactive and resourceful team completed this very successful job with no injuries and no equipment damage.

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PROJECT REVIEWS



COMMERCIAL CONSTRUCTION: Intermodal Crane Erection

Barnhart Crane & Rigging was contracted to erect two intermodal cranes in a rail yard in Memphis, Tennessee. The girders were 300 feet long and weighed nearly 300,000 lbs. each. The plan called for two fully outfitted 500 ton cranes to set the girders via tandem picks. Because the erection site was located in a tight gap between two girders, the Barnhart team was able to set both sides of the crane from the same location. This reduced the number of setups by half, and saved the customer a significant amount of time and money. From the same position, Barnhart was also able to erect the legs that supported the girders. When the job was completed, the customer commented that Barnhart's lift plans were some of the best he had ever seen.





**HISTORICAL HAUL:
Vintage Locomotive Move**

When a vintage 1918 steam locomotive needed to be moved to a new home, Barnhart Crane & Rigging was ready to assist. The locomotive and tender car had to be moved from the Birmingham, AL Fairgrounds to a new home at the Sloss Furnace National History Landmark on the other side of town. To get the job done, the Barnhart team had to develop a cost effective transport plan.

The plan initially called for cranes to lift the train from its original location and have Barnhart haul the train across town. Once at its destination, cranes would be used again for unloading the train. Then Barnhart explored the possibility of railing the locomotive to avoid public road traffic. A rail spur was located near the fairgrounds and another one was located within 300' of the new resting place. Barnhart's plan called for the locomotive to be loaded onto a 12-axle PSTe Goldhofer and transported to the nearby rail spur. The tender car was to be transported via road trailer to the Sloss site. The Barnhart plan was the most cost effective method. It also eliminated major route modifications and the potential traffic congestion concerns. Barnhart Crane & Rigging provided a better solution for a safe and uneventful project. The company also saved the City of Birmingham thousands of dollars.



Branch Profile:

Mobile, AL

Situated halfway between New Orleans and Florida, the city of Mobile, Alabama, is home to a busy shipping port that offers a variety of heavy rigging and transportation opportunities. In 1999, it became evident that there was a growing demand for more crane and rigging services. Barnhart Crane & Rigging recognized that need and the Mobile branch was born.

Since that time, the branch has expanded to include 17 experienced employees performing some of the most unique work in the company. Branch Manager Tim Wilson is proud of his team. "We are a small group with so much knowledge and industry experience that it enables us to handle any type of job," says Wilson. Indeed, the Mobile branch has become well known across the region for its ability to handle unique challenges.

The Mobile team is experienced in using a wide variety of tools and techniques including the Modular Lift Tower, PSTe, Slide System and other specialty rigging devices. In fact, the Mobile branch was the first to utilize multiple sets of Gantry in order to set condensers at a coal fired power plant. This system worked so well, it has been used on several jobs since then.

Regardless of the industry or size of the job, the Mobile team has the tools and experience to get the job done right.



A few members of the Mobile Team:

Tim Wilson, Branch Manager; Johnny Middleton (Fat Daddy), Field Supervisor; Jody Brunson, Crane Operator and David Shivers, Sales Representative



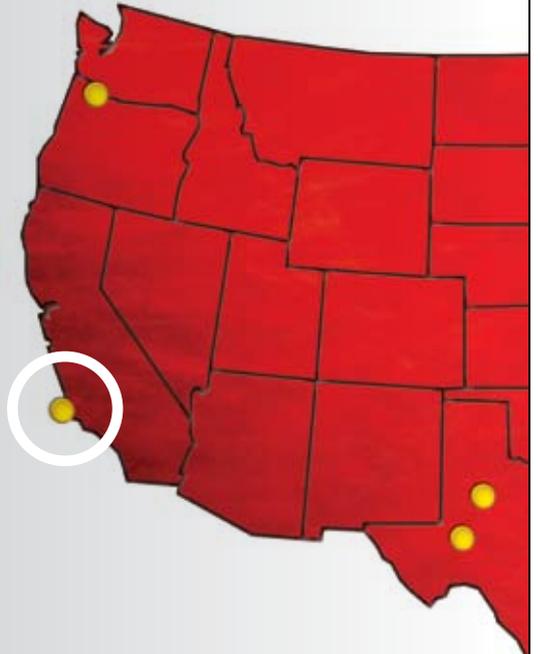
"We are a small group with so much knowledge and industry experience that it enables us to handle any type of job." Indeed, the branch has become well known across the region for its ability to handle unique challenges.

Barnhart Announces Opening Of Western Region Office In California

Barnhart Crane & Rigging has opened a Western Region Office and local branch in Long Beach, California. The Long Beach branch will serve as an operations center for the company's work in the Western U.S., as well as a project service office for the southern California area.

Regional Director Jim Harris will be overseeing the region and is excited about the opportunities that will become available thanks to this new location. "Barnhart's vision has always included an office here in California, and we have been doing work in this state, along the Pacific Coast, and in the Western U.S. for years," says Harris. This new location is just part of a natural progression for us. Barnhart is very bullish on our future here and on the California economy."

For more information on Barnhart's Long Beach branch and Western Region operations, please go to www.barnhartcrane.com

A collage of images illustrating water and sanitation projects. It includes photos of people at a water pump, a person using a latrine, a close-up of water being poured, a person filling a bucket, a child with hands clasped in prayer, a woman at a water tap, a person using a hand pump, a group of people looking at a map, a group of people celebrating, and a person holding a sign for Lifewater International. A central yellow banner reads "Fighting poverty through clean water, sanitation, and hygiene".

Find out how YOU can help

Fighting poverty through clean water, sanitation, and hygiene

Approximately 1.1 billion people do not have access to safe drinking water.

Equipment Profile:

WEIGHING SERVICES



Barnhart's already impressive tool box got a little bigger with the addition of weighing technology. The weighing system offers significant benefits to transportation and rigging projects. It improves the overall safety of each project by providing the most accurate load and center of gravity data.

The computerized processing unit, flexible hydraulic bellows and direct connection system, is not only accurate, it is also very versatile.



CAPABILITIES INCLUDE:

- Ability to weigh 50 to 3000 tons
- Up to 30 load scales on single computer console
- Accurate center of gravity calculation
- Easily incorporated into other job steps for effective weighing

Call Barnhart today for more information on this unique and highly effective tool.

BARNHART EMPLOYEE AWARDED PRESTIGIOUS GRANT



Specialized Carriers & Rigging Foundation Scholarships & Grants

The Specialized Carriers & Rigging (SC&R) Foundation has long been a supporter of educational and training programs to help young men and women pursue a career in the industry. The SC&R Foundation works to give students more opportunities to reach their career goals and give others in the industry a chance to advance in their careers.

One of the recipients of a \$1,000 SC&R Foundation grant is Barnhart employee, Steve Martin who began working with Barnhart in the fabrication shop as a welder. He was later promoted to the engineering department where he works as a draftsman. In addition to his career with Barnhart, Steve attends Southwest Community College in Memphis. This award will help him pursue a bachelor's degree in mechanical or industrial engineering.

Steve received his award in April during the Specialized Carriers & Rigging Association (SC&RA) Annual Conference

in Palm Springs, California.

The SC&R Foundation awarded ten scholarships and grants.

Five scholarships totaling

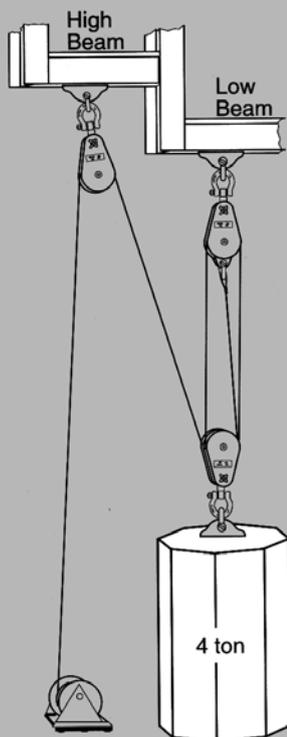
\$3,000 were given to students who are preparing for careers related to transportation or construction management. The SC&R Foundation also awarded five \$1,000 grants for use in the pursuit of industry related technical degrees or certificates.

The SC&R Foundation, a 501(c)(3) organization, provides support to the carrier, crane, rigging, and millwrighting industries by providing industry research, education and scholarships. Since its inception, the Foundation has invested more than one-half million dollars to advance the work of the industry including awarding \$235,000 in scholarships.

MULTIPLE PART LINES

**Rigger's
Corner**

Hint:
Assume a
frictionless
system.



Determine the loading to the winch lines and beams based on the illustration at the left.

Load to the winch line = _____

(A) .5 ton (B) 2 ton (C) 1 ton

Load to the "high" beam = _____

(A) 1 ton (B) 2 ton (C) 3 ton

Load to the "low" beam = _____

(A) 1 ton (B) 2 ton (C) 3 ton

For more rigging workshops or to order a copy of Mike's Rigging Mysteries, go to www.tirc.net or call 888.567.8472.

Load to "winch line" = 1 Ton. Load to "high beam" = 2 Ton. Load to "low beam" = 3 Ton.

2163 Airways Blvd,
Memphis, TN 38114

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



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- Shreveport, LA

Modular construction improves safety, reduces labor costs & avoids unnecessary extended plant downtime.

- MODULARIZATION -

Build it Big. Move it Once.

NOBODY MOVES MODULAR LIKE WE DO.



YOUR EXPERTISE IS BUILDING IT. OURS IS MOVING IT.

- Barnhart has the experience, equipment (including Goldhofer Trailers) and logistic support to turn formidable modular projects into timely, profitable, completed projects.
- If your project involves Modular Construction we have the experience and equipment for the job.
- Choosing the right heavy lifting and transportation contractor is critical to ensure that you realize the cost savings from Modular Construction.

We specialize in developing solutions that reduce, or even eliminate, downtime.

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HAKE

MARINO

Minds Over Matter

BARNHART EQUIPMENT & SERVICES

HEAVY LIFTING, MOVING AND SLIDING

Hydraulic Gantries to 800 tons
Sliding Systems from 100 to 1000 tons
Fork Lifts to 120,000 lbs w/hydraulic booms
Strand Lifts to 700 tons
Hoists to 500 tons
Modular Lift Towers to 2800 tons

TELESCOPIC BOOM CRANES

110 cranes from 17.5 to 80 tons
25 cranes from 100 to 180 tons
15 cranes from 210 to 500 tons

LATTICE BOOM CRANES

Crawlers from 250 to 700 tons
Truck cranes from 125 to 800 tons
Ringer cranes from 360 to 1,760 tons

TRANSPORTATION SERVICES

Capacity of over 6,500 tons of Hydraulic Platform Trailers, including SPMT and PSTe
Barge and Rail Loading and Securement
Dolly Transporters to 1,000 tons
Temporary Bridges to 152'
Jumper Ramps 30' to 60'

STORAGE CAPABILITIES

500,000 Square Feet of Indoor Warehousing
Over 100 Acres of Outdoor Storage

MARINE SERVICES

Memphis TN – Heavy Lift Terminal with 1,250
Derrick Crane, Rail and Heavy Storage
Decatur, AL – Barge Dock,
Cranes to 500 tons, RO/RO

WEIGHING SYSTEMS

Multi-point weighing up to 3000 Tons

