



BH-USA

THE COMPANY YOU CAN TRUST

OVERHEAD LIFT GUIDE

Rvsd. 7-2015

THIS GUIDE IS INTENDED FOR THE END USER, and contains general information for installing a hoist lift system onto an existing overhead structure. This is not a construction manual, BH-USA is a manufacturer of hoists and lift components and not an installer.



BH-USA assumes no responsibility or liability for installations and/or improper use of the equipment. This guide is intended to be used as a reference and general guideline only. BH-USA is not responsible for the design, construction or installation of docks, piers or lifts.

WARRANTY PROCEDURE

Please review this publication before attempting a return to BH-USA for warranty consideration.

DO NOT return the product to the store where it was purchased or to the installer/dealer.

Call
BH-USA
CUSTOMER
SUPPORT
800-259-8715

Returned merchandise must be sent via ground and not through the U.S. Postal Service.

Warranties depend upon an annual professional inspection by a qualified technician.

Although BH-USA does not endorse any builder or installer, a BUILDER LOCATOR is provided on the BH-USA website, listing builder's found to be reliable and knowledgeable using BH-USA equipment.
**BH-USA.COM
/BUILDER-LOCATOR**

BH-USA WARRANTY INFORMATION

- **MOTORS - ONE YEAR**
- **SWITCH AND GFCI - 30 DAYS**
- **GEARPLATE ASSEMBLIES (GPAS) - LIFETIME**
- **ENCLOSED GEARS - TWO YEARS**

The following warranty applies to all components and hoists manufactured by BH-USA. Warranty applies to manufacturing defects and/or failures due to design or fabrication. Replacement parts, a repaired unit, or a new unit will be supplied at no charge at the discretion of BH-USA. This does NOT include labor or freight.

THE FOLLOWING ARE NOT WARRANTABLE BUT ARE MANUFACTURED AND REGULATED BY SPECIFIC INDUSTRY STANDARDS.

SLINGS AND CRADLES

STRUCTURAL STEEL

FASTENERS

CABLE AND RIGGING

MACHINED PARTS, I.E. GEARS

Warranty is void if unit is improperly installed, maintained, or greased or alterations are made to the original manufacturer's design.

Warranty is predicated on the equipment being inspected and serviced on an annual basis by a qualified technician.

A record of inspection is required with any warranty request.

Warranty applies to original owner.

Warranty is VOID if transfer of ownership.

**BH-USA RETURNS
2368 FM 2087N
LONGVIEW, TX
75603**

Call prior to returning equipment for RMA (Returned Merchandise Authorization).

All Returns must have RMA number clearly listed on return box.

We are not responsible for damages incurred in shipment.

Customer is responsible for return shipping costs.

Once item is received, BH-USA will deem item returned warrantable within two weeks.

BH-USA reserves the right to determine whether warranted items will be repaired or replaced.

WHILE EVERY CARE HAS BEEN TAKEN TO AVOID MISTAKES, BH-USA WILL NOT ACCEPT LIABILITY FOR ANY ERRORS, MISPRINTS, TYPOGRAPHICAL ERRORS, OMISSIONS OR MISINTERPRETATIONS OF THE BH-USA OVERHEAD LIFT GUIDE - APPENDIX A.

** See BH-USA Limited Warranty Information in the BH-USA Equipment Guide.*

CAUTION...
BH-USA IS A
MANUFACTURER
ONLY

While there are many notable and qualified professional lift installers, there is no governing or licensing agency that regulates boathouse installations. BH-USA assumes no liability for the installation of your lift.

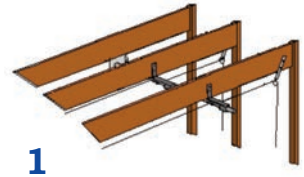
End users should familiarize themselves with the basics of an overhead lift and its design, to enable them to determine if a proper installation has been completed. BH-USA warranties equipment based on proper installation and maintenance and the strict following of one of these seven guides.

HELPFUL TIPS ON OVERHEAD LIFTS

Boat Houses and Overhead Structures built on the water vary depending on their geographic location. Seven of the most common construction methods used in stationary dock construction are illustrated below. One of these general designs will most likely resemble the structure with which you are working.

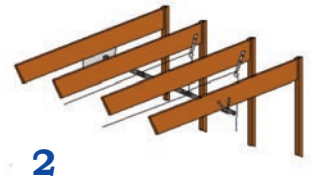
1 WOOD CONSTRUCTION WITH THREE OVERHEAD JOISTS

In this construction method the boat house has two joists that are larger, or doubled, to enable them to carry the weight of the boat. A third joist is required to hang the hoist. This is a common installation for boats up to 8,500 lbs.



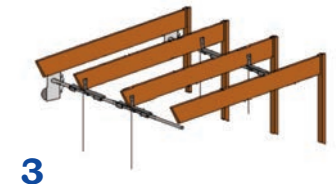
2 WOOD CONSTRUCTION WITH NO DEDICATED LIFTING JOISTS

A common construction method where the structure does not have two larger or doubled joists for the lift, but has standard 2 x 6 or 2 x 8 floor joists at 16" to 24" centers. The installer uses as many joists as needed. This installation is often used for boats up to 8,500 lbs.



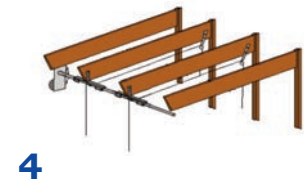
3 WOOD CONSTRUCTION WITH TWIN HOISTS FOR BOAT EXCEEDING 8500 LBS.

This is an install of two independent hoists on a wood structure. It allows for a boat exceeding 8,500 lbs. but no more than 12,000 lbs.



4 WOOD CONSTRUCTION USING THREE OVERHEAD JOISTS WITH HOIST AND PIPE MOUNTED TO ONE SIDE

Typically used for boats weighing no more than 4,500 lbs.



5 STEEL TOP STRUCTURE ON FOUR PILINGS USING TWO CROSS BEAMS FOR THE LIFT (ONE MOTORIZED HOIST)

The upper structure of this configuration consists of steel I-beams, tubing or channels with at least two beams running perpendicular over the slip, and is a typical installation for boats weighing no more than 8,500 lbs.



6 STEEL TOP STRUCTURE ON FOUR PILINGS USING TWO CROSS BEAMS FOR TWIN HOISTS

The upper structure of this design consists of steel I-beams, tubing or channels with at least two beams running perpendicular over the slip, and includes two hoists. This is a common installation for boats weighing up to 12,000 lbs.



7 TWO STRUCTURAL I-BEAM SPANNING THE SLIP, RESTING ON STRINGERS OR STRUCTURAL CHANNEL BOLTED TO FORM STRINGERS

A popular, clean design that is used to incorporate an enclosed drive such as the BH-USA A-Drive, or a traditional Flat Plate Hoist.



**Comprehensive four-post and six post lift guides can be found on the BH-USA website. BH-USA.COM*

APPROX. WEIGHTS

Fuel Weight=
Gallons x 6 lb

Tuna Towers or Wake
Board Towers =
+/- 400 lbs

Steel Cradles :
5" I-beams = 10 lbs
per foot
6" I-beams = 12.5 lbs
per foot
2-1/4" Angle =
3.29 lbs per foot
2 x 8' Lumber =
Approx. 2 lbs per foot

SIGNS A HOIST IS IN A BIND OR BEING USED AS LOAD BEARING:

Unit is not lifting

Unit "squeals"

Gear or back plate
bearing breaks

Metal shavings are
coming from the
worm housing

Unit freezes or locks
up when turned by
hand.

HELPFUL TIPS ON OVERHEAD LIFTS

An overhead lift system is the most cost effective method to get your boat out of the water. Keep in mind, each structure and installation method is unique to your application and determined by the boat to be lifted and your structure. The following are common guidelines that all overhead lift systems must follow, to properly and safely lift a boat.

- Check the weight of your load, versus the lifting capacity of the hoist. When calculating the load, don't forget the weight of the boat, fuel, boating gear, cradle, etc.
- Make sure you have enough voltage to lift your boat.

Boat lift motors and hoists can NEVER be run on a generator or powered with an extension cord.

Generators do not produce enough constant voltage to power a boat hoist motor correctly and this can cause damage to the motor. For this reason you should also never use extension cords to power your hoist or motor. The thermal protection has also been removed from the inside of the boat hoist motor, therefore if it runs hot, the motor can burn up.

- **NEVER WELD** a hoist, or any brackets to the structure.
- Mount the hoist at the end of the pipe, never in the center.
- Only use two bolts to mount the hoist to the joist.
- Always grease the hoist before first use, and approximately every 25 cycles thereafter or after a heavy rain.

Use proper boat hoist grease, specifically designed for all flat-plate boat hoists.
***BH-USA's grease is engineered to meet maintenance requirements for boat lifts, hoists and other components in overhead lifts, it withstands temperatures over 800 degrees, will not pound out, and is completely waterproof, even against salt water.**

- The drive pipe needs to be perpendicular to the hoist and should slide easily within the hoist sleeve. (**Fig. 1-Placement**).
- Always support the pipe on each side of the lifting point and every ten feet with pipe supports. Never use the hoist as support.
- Never put the drive pipe above the plane of the pulley (above top joist). This puts additional downward strain and causes the hoist to get in a bind. Cable must run directly to the pipe, not angled or up and down.
- Always use the proper size of 7 x 19 Aircraft Cable to lift your boat.

7x19 Aircraft Cable is constructed of seven strands of nineteen wires, and has excellent flexibility, good abrasion resistance and superior strength.

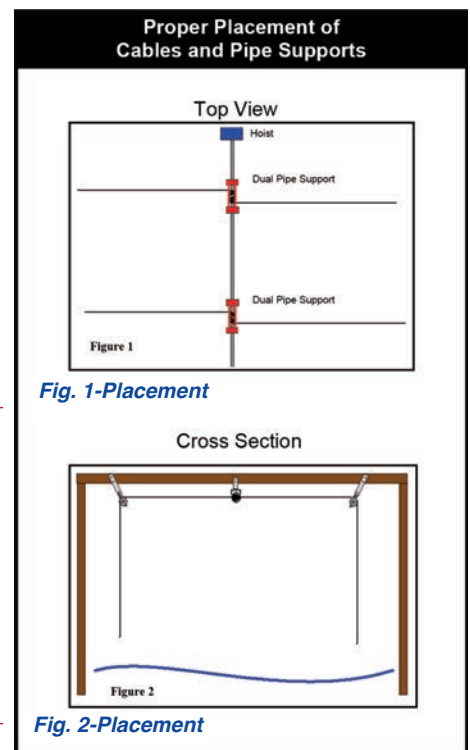


Fig. 1-Placement

Fig. 2-Placement

**BH-USA Grease can be ordered online at BH-USA.com, item # 12280.*

A NOTE ABOUT CABLE

Boat lift cable is made of steel, and will eventually break. Similar to how a paper clip, when bent enough times, will snap in two.

It is typical to replace cable every two years or after any type of major (named) storm.

Excessive use is another reason to be dutiful when examining cable. For example, a professional fishing guide might use his lift much more often than a weekend, recreational fisherman.

Having your lift inspected at the start and end of each season is a good way to be safe and to ensure that equipment is wearing well and working properly.

BH-USA has provided a BUILDER LOCATOR on the BH-USA website, that is a handy way to find a qualified technician in your area who can perform these inspections.

HELPFUL TIPS ON OVERHEAD LIFTS

- Proper cable attachment to the pipe is important. Cables should be perpendicular to pipe. Do not use a hose clamp. Always drill the hole through the drive pipe and use one piece of cable for the front of the boat and one for the back. This will ensure that while the cable wraps, the pull will always be even off both sides of the pipe. **(Fig. 2-Placement)** .
- Make sure cable is winding off opposite sides of the pipe **(Fig. 1-Placement)** .
- Cable clamps should be attached to the cable correctly, with the saddle side on the uncut side of the cable.
- Strap hangers, if used, should be hung at a 45 degree angle to the boat. **(Fig. 2.)**
- Cable winders are optional, they increase the life of the cable and can increase the speed of the lift, however they decrease the lifting capacity of the hoist.
- Permanently mount the switch, with the cable coming from the bottom, to eliminate water penetration.
- **NEVER** attempt to use any more, or less, than four lift points. **NEVER** use three lift points, it must always be four. Do not use the boat's lifting eyes to lift or store the boat.
- Never mount one hoist in the back of boat and one hoist in the front of boat. The back of the boat is the heaviest, so twin drives should always be mounted on either side of the boat to disperse the weight of the boat evenly to each hoist.
- You must use a full length of pipe connecting forward and aft pipe supports, never use two short pieces of pipe.
- Never "offset" drive pipe, it should always be centered.
- Never mount hoist in the center of pipe.
- Use a GR5 or stronger bolt to secure drive pipe to hoist.

BH-USA supplies a hardened GR5 bolt with all hoists and A-drives, to attach the drive pipe to the hoist. It is the end-users responsibility to ensure that the installer did use the GR5 bolt supplied by BH-USA, using a weaker grade bolt can cause the weaker bolt to fail and drop the boat.

- When designing your lift, check all component ratings. **BH-USA uses no less than schedule 40 steel pipe that is 1.5" inside diameter and 2-3/8" outside diameter. Any other size pipe will change the ratings for the hoist overall.**

REMEMBER: The lifting capacity of your hoist/lift is only as high as the weakest rated component used.

- For example, if the motor, hoist and gearplate are rated for 8,500 lbs but you use a block rated for 800 lbs. then your lifting capacity is only 800 lbs.

A hoist should NEVER be used to lift human beings. Hoists are not designed, nor intended to lift human beings, or to lift loads over areas where humans might be. NEVER use this hoist for any other application other than the one for which it is designed. NEVER stand beneath the boat on a hoist.

- Lifting points should not be any more than 9-10 feet apart either on a boat cradle or when using slings.

DETERMINING BOAT WEIGHT - AN EXAMPLE ONLY

Dry Weight of Boat =
2,900 lbs

40 Gallons of Fuel = 240
lbs

Wakeboard Tower = 400
lbs

Gear (Coolers, Skies, Etc) =
150 lbs

Steel I-Beam Boat Cradle =
500 lbs

APPROXIMATE WEIGHT =
4190 LBS

IN THIS EXAMPLE A
HOIST RATED OVER
4,190 LBS IS NEEDED TO
LIFT THE BOAT.

SIGNS A HOIST IS IN A BIND OR BEING USED AS LOAD BEARING:

Unit is not lifting

Unit "squeals"

Gear or back plate
bearing breaks

Metal shavings are
coming from the
worm housing

Unit freezes or locks
up when turned by
hand.

TROUBLESHOOTING AN OVERHEAD LIFT

A flat-plate hoist should be mounted up and down with the motor at the bottom. In some areas it is popular to mount the hoist lengthwise, with the pulley facing down. If this method is used, it is important that the back plate does not torque to the wood or beam which can cause bowing of the back plate and bending of the beam.

Applying **Loctite** or a similar product, to the 10" and 2" pulleys can help to keep the vibration from working them off the shaft.



A Squealing or Screeching Hoist signals that the unit is in a bind and that the gears may be misaligned. When installed and used correctly a flat plate hoist should operate quietly and only the motor should be heard.

If the hoist is in a bind, here are some trouble-shooting measures to try:

- Loosen the bolts holding the unit. If the bolts holding the unit are tightened too much, the plate can bend to the beam if the beam is not perfectly straight.
- Check that the hoist was installed correctly:
NOT WELDED
Motor is hanging on the bottom and not up
Only two bolt holes have been used
Hoist should be at the end of the pipe and not in the middle
- Check that the pipe is straight when under load. The pipe acts like a lever to the gear as it enters and must be straight. A proper installation will have no load on the hoist. If the pipe is bent or bowed in any way it will move the gear.

CAUTION ABOUT PIPE BOWING:

With a boat on the lift, look down the length of the pipe like sighting in a rifle. The pipe should be perfectly straight. If the pipe is "bowing" in one direction or making a slight "S" shape then there is uneven pull. The pipe's deflection will point to where the problem is occurring. If the pipe is not straight, gears will wear rapidly and cause friction to the hoist, and can cause the motor and hoist to fail.

IMPORTANT RATIOS FOR OVERHEAD LIFTS:

- Drive pipe should be no larger than 2-3/8" OD^{*}.
If using cable winders, or if putting a "drum" on the diameter of the area that the cable is wrapping, it will increase, thus decreasing the rating of the hoist.
- The larger the cable used the harder the hoist will have to work. BH-USA bases all hoist ratings upon the use of a 1/4" cable. If using another size cable, the calculation must be corrected accordingly.
- Flat-plate hoists come with a 10" pulley and a 2" pulley on the motor. This 5 to 1 ratio is considered in the rating of the hoist and, BH-USA does not encourage changing these ratios. It is also used in calculating the life and wear pattern of the gears.

^{*} OD = Outside Diameter of the pipe.

CAUTION ABOUT CABLE CRAWL:

This is a common occurrence that can be very dangerous in a boat lift. When the cable wraps onto the drive pipe, it can "crawl" on top of itself, it can then start wrapping backward. The section that "crawled" will now be lifting at a different ratio than the other three lift points, causing the lift to either stop working; to transfer more load to one point; to damage the cable, or to become in a bind and even break, dropping the boat.

CAUSES OF CABLE CRAWL:

- Improper cable installation
- Using too much cable. (If you have too much cable wrapping on the pipe, the farther out the cable will track, it will start to pull back, thus beginning the "crawl". There should only be approximately 7" of cable wrap for each lifting point on the pipe.)
- Using old cable which has begun to fray or splinter will cause it to want to "grab" itself due to the coarseness.

SAFETY FIRST!

- A hoist should NEVER be used to lift human beings.
- NEVER use a hoist for any other application, other than the one for which it is designed.
- NEVER put children or adults in a boat while the boat is on a lift.
- NEVER allow children to play in or around a boat while it is on a lift.
- NEVER allow children or adults to swim around or under a boat lift, or near the boat lift when it is submerged.
- NEVER stand on a lift platform if partially submerged, due to the possibility of electric shock.
- NEVER mount or hang a drum switch where it can be reached while in the boat.
- ALWAYS exit the boat and have all passengers exit the boat before lifting the boat.
- NEVER ride the lift while in the boat.
- NEVER leave your boat in the lift with the drain plug open, if the lift drops the boat while you are absent, the boat could fill with water and sink.
- ALWAYS have an operating bilge pump with a functional float switch in any boat on a lift. Rain water can fill the boat adding thousands of pounds that the lift might not be able to handle.

Hoists are not designed, nor intended to lift human beings, or to lift loads over areas where humans might be. Precautions, such as using NEMA and UL components and installing GFCIs on systems and wiring should not be relied upon when the risk of electrocution is possible. Components can fail. For this reason it is NEVER a good idea to swim around a lift.

Be vigilant about safety, submerged cables can conduct electricity to the water if your system is not properly grounded, or you have developed a voltage leak.

During the threat of exceptionally bad weather, such as a tropical depression or storm, hurricane or gale force winds, a boat should be removed from the lift and stored on a trailer in a safer place.

PROPER PLACEMENT OF BOAT ON SLINGS OR CRADLES

It is important to use proper placement to avoid lift failure or cables from breaking.

The bow (front) of a boat wights the least and it is ok if it is left unsupported by an overhead lift. Adding a third beam or lift point can cause a lift to fail. Lift point on any boat under 34 feet needs to be no farther than 9-10 feet apart. The back of boat or transom should never be hung more than 18-19" from the first lifting point. This is the heaviest part of the boat, if too much weight is out of the back, the weight of the stern will lift the bow and transfer weight to the rear cables, causing cable to break.

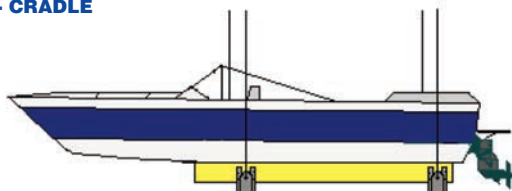
The boat must be centered on the cradle. Never attempt to offset the boat closer to one side of the slip than the other, this will cause uneven pull on the cables and lift. It can cause the lift to fail, motors to burn up, gears to wear, and cable to break.

Boat cradles should only have two bunks. This ensures the boat will be centered on the lift. If four bunks, or outside bunks are used, pay particular attention to the boat placement during lifting, to be sure it is not uneven on two of the bunks. This can also cause the cable to break, and the boat to drop.

Cable to slings should be as straight as possible all the way to the pear ring of the sling. Any inward pull toward the boat will cause stress on the lift.

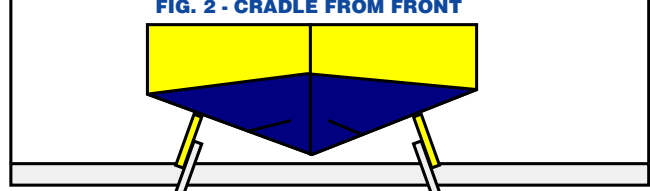
If you are compounding, or two-parting the cable^{*}, it is important that the cable run directly back to the same area or beam that the pulley is on, so the two cables are running parallel to one another. If you "dead-end" the cable on another beam, forming a V shape with the cable, they could stop working and the cable could break.

FIG. 1 - CRADLE



I-BEAMS OF A CRADLE LINE-UP DIRECTLY UNDER EACH LIFTING POINT. BEAMS ARE NOT SPACED MORE THAN 9-10' APART, WITH THE AFT I-BEAM 18" TO 19" FROM THE TRANSOM. LIFTING CABLES RUN STRAIGHT FROM THE BEAMS TO THE LIFTING POINTS AND ARE NEVER ANGLED.

FIG. 2 - CRADLE FROM FRONT



BOAT MUST BE CENTERED ON THE CRADLE, DO NOT ATTEMPT TO OFFSET THE BOAT CLOSER TO ONE SIDE OF THE SLIP THAN THE OTHER, THIS WILL CAUSE UNEVEN PULL ON THE CABLES AND THE LIFT. .

^{*} Two-parting cable means that you are running the lifting cable down to the cradle or sling, through a pulley, then back up to the structure.

SEVEN COMMON TYPES OF CONSTRUCTION AND APPROXIMATE SUPPLIES

SUGGESTED PARTS LIST	1	2	3	4	5	6	7
	WOOD W/3 OVERHEAD JOISTS	WOOD W/NO DEDICATED LIFTING JOISTS	WOOD W/TWIN MOTORS FOR BOATS OVER 8500 LBS	WOOD W/3 OVERHEAD JOISTS, HOIST & PIPE MOUNTED TO ONE SIDE FOR BOATS UP TO 4500 LBS	STEEL TOP STRUCTURE ON 4 PILINGS, W/2 CROSS BEAMS FOR LIFT	STEEL TOP STRUCTURE ON 4 PILINGS, W/2 CROSS BEAMS, TWIN MOTORS	ALUMINUM BEAMS OVERHEAD
FLAT PLATE HOIST	1	1	2- ONE WIRED WITH 45' OF CONTROL CABLE AND ONE WIRED WITH 16'	1	1	2-ONE WIRED WITH 45' OF CONTROL CABLE AND ONE WIRED WITH 16'	1 ENCLOSED DRIVE OR 1 FLAT PLATE HOIST
PIPE SUPPORTS /HOIST HANGERS	2 DUAL PIPE SUPPORTS FOR WOOD	3 BASIC PIPE SUPPORTS FOR WOOD	4 DUAL PIPE SUPPORTS FOR WOOD	2 DUAL PIPE SUPPORTS FOR WOOD	1 HOIST HANGER, AND 1 DUAL PIPE SUPPORT FOR STEEL	2 HOIST HANGERS, AND 2 DUAL PIPE SUPPORT FOR STEEL	1 HOIST HANGER 1 PIPE SUPPORT
3" BLOCKS (1.5 TON) 4" BLOCKS (3 TON)	4 OF EITHER SIZE 4 OF EITHER SIZE	4 OF EITHER SIZE 4 OF EITHER SIZE	NOT NEEDED	2 OF EITHER SIZE	4 OF EITHER SIZE 4 OF EITHER SIZE	NOT NEEDED	NOT NEEDED
STRAP HANGERS	4-12"	4-12"	NOT NEEDED	2-12"	NOT NEEDED	NOT NEEDED	NOT NEEDED
7 X 19 AIRCRAFT CABLE SUGGESTED LENGTHS	APPROX. 80' OF 1/4" STRAIGHT OR 120' OF 1/4" WHEN COMPOUNDED	APPROX. 80' OF 1/4" STRAIGHT OR 120' OF 1/4" WHEN COMPOUNDED	APPROX. 80' OF 1/4" STRAIGHT OR 120' OF 1/4" WHEN COMPOUNDED	APPROX. 80' OF 1/4" STRAIGHT OR 120' OF 1/4" WHEN COMPOUNDED	APPROX. 80' OF 1/4" STRAIGHT OR 120' OF 1/4" WHEN COMPOUNDED	APPROX. 80' OF 1/4" STRAIGHT OR 120' OF 1/4" WHEN COMPOUNDED	APPROX. 80' OF 1/4" STRAIGHT OR 120' OF 1/4" WHEN COMPOUNDED
I-BEAM CLAMPS	0	0	0	NOT NEEDED	4 GALVANIZED	NOT NEEDED	NOT NEEDED
CABLE CLAMPS	8	8	8	8	8	8	8
CABLE THIMBLES	4	4	4	4	4	4	4
SLINGS/CRADLES	2 POLYESTER SLINGS OR 1 BOAT CRADLE	2 POLYESTER SLINGS OR 1 BOAT CRADLE	2 POLYESTER SLINGS OR 1 BOAT CRADLE	2 POLYESTER SLINGS OR 1 BOAT CRADLE	2 POLYESTER SLINGS OR 1 BOAT CRADLE	2 POLYESTER SLINGS OR 1 BOAT CRADLE	2 POLYESTER SLINGS OR 1 BOAT CRADLE
10LB WEIGHTS	4 NEEDED IF USING SLINGS	4 NEEDED IF USING SLINGS	4 NEEDED IF USING SLINGS	4 NEEDED IF USING SLINGS	4 NEEDED IF USING SLINGS	4 NEEDED IF USING SLINGS	4 NEEDED IF USING SLINGS
CABLE WINDERS	2 (OPTIONAL)	2 (OPTIONAL)	4 (OPTIONAL)	2 (OPTIONAL)	2 (OPTIONAL)	4 (OPTIONAL)	4 (OPTIONAL)
GEM REMOTE	1 (OPTIONAL) GEM GR1	1 (OPTIONAL) GEM GR1	1 (OPTIONAL) GEM GR2 FOR TWIN MOTORS	1 (OPTIONAL) GEM GR1	1 (OPTIONAL) GEM GR1	1 (OPTIONAL) GEM GR2 FOR TWIN MOTORS	1 (OPTIONAL) GEM GR2 FOR TWIN MOTORS

CONSTRUCTION METHOD 1: WOOD WITH THREE OVERHEAD JOISTS

Strap hangers are mounted on the joists at 45° angles toward the boat (Fig. 5). Blocks at the end are directly above lifting points on the cradle or sling (Fig. 3). The flat plate hoist is mounted to the joist that does not support the blocks. The hoist and pipe supports are mounted in the center of the slip. Only two holes (not all four) are used to mount the hoist to the joist.

Strap hangers are mounted on the joist at a 45° angle toward the boat. The block hangs at the end of the strap hanger and is directly above the lifting point on the cradle or sling

Typical joist spacing is 10' to 12' apart. The dual pipe supports are designed to mount in the center, directly under a joist, allowing the cable to line up with the blocks.

One section of cable is used for the front and one for the back. A hole is drilled in the pipe and the cable is run through it.

Cables run perpendicular to the pipe and not at an angle.

FIG. 1 - CONSTRUCTION 1

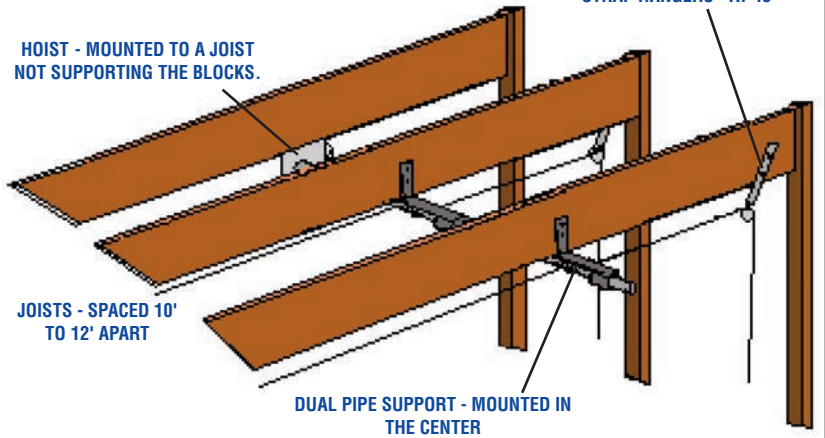


FIG. 2

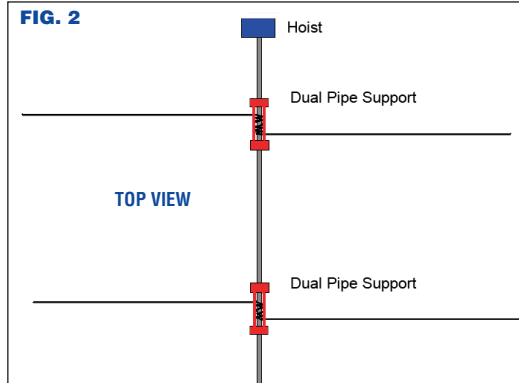


FIG. 3

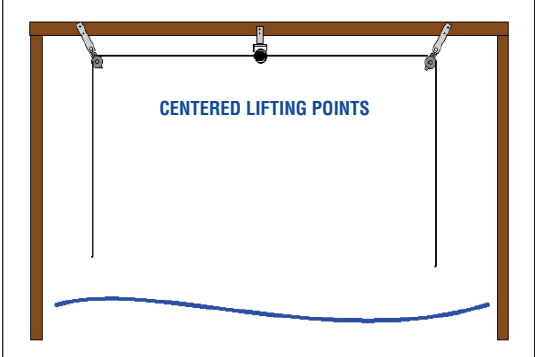
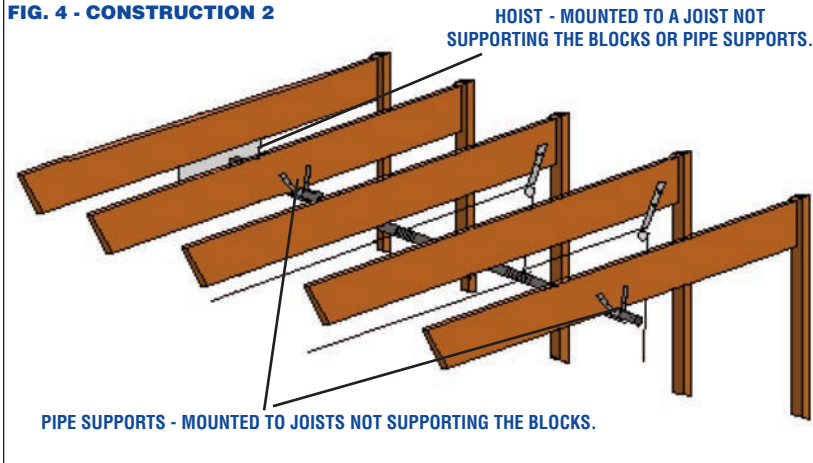
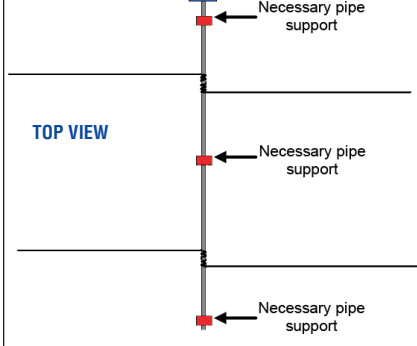
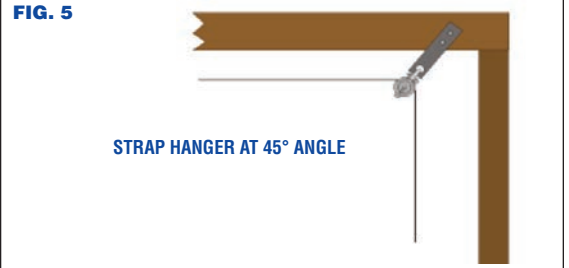


FIG. 4 - CONSTRUCTION 2**FIG. 6****FIG. 5****CONSTRUCTION METHOD 2:****WOOD WITH NO DEDICATED LIFTING JOISTS**

Strap hangers are mounted on the joists at 45° angles toward the boat (*Fig. 5*). The flat plate hoist is mounted to the joist that is not being used to hold the blocks

or pipe supports. The hoist and pipe supports are mounted in the center of the slip. Two holes (not all four) are used to mount the hoist to the joist.

The pipe supports are designed to mount on joists that are not supporting the blocks and strap hangers. One pipe support will mount before, and one after the lifting point. Additional pipe supports are typically spaced every ten feet.

One section of cable for the front and one for the back. A hole is drilled in the pipe and the cable run through, perpendicular to the pipe and not at an angle.

CONSTRUCTION METHOD 3:**WOOD WITH TWIN MOTORS FOR BOATS OVER 8,500 LBS.**

In this application the dual pipe supports are load bearing (*Fig 8*).

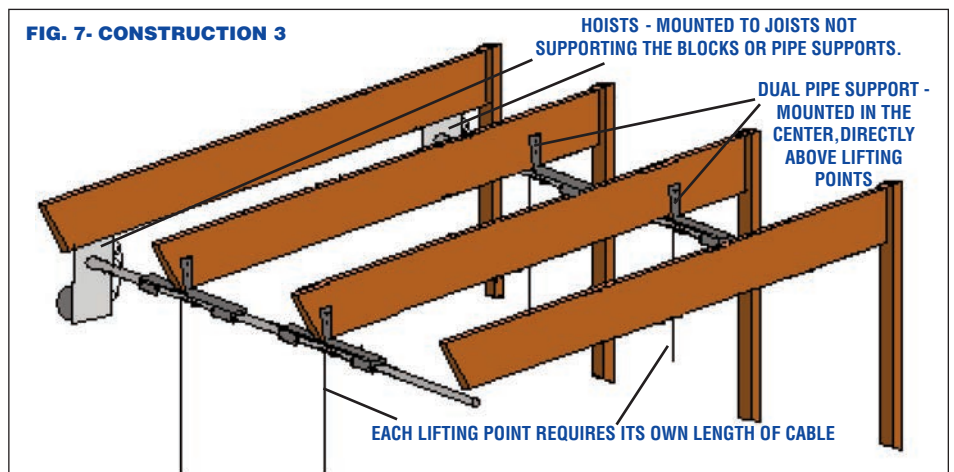
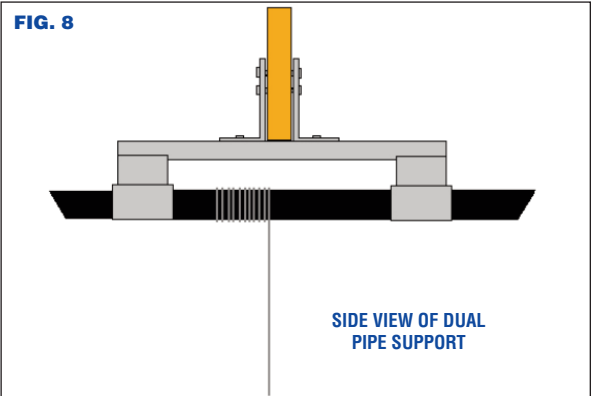
The hoists are mounted to both sides of the slip, running parallel to the boat to be lifted, to ensure each hoist is sharing the load equally.

Hoists are mounted to the joists not being used to support the blocks or pipe supports. Each pipe support is well-greased to help eliminate friction. The dual pipe supports are mounted directly above each lifting point on the sling or cradle, and are designed to mount in the center, directly under a joist. Typical joist spacing is 10' to 12' apart.

Each lifting point requires its own length of cable. A hole is drilled in the center of each dual pipe support, and the end of cable is run through the hole and fed through the shaft of the pipe and out the end. A cable clamp is then attached and pulled back through the pipe.

Having one hoist wired with extra control cable allows for mounting both standard switches side by side. Both hoists are never wired to one drum switch. A GEM Remote for twin drives allows for operation of two motors with only one remote.

Two motors on one lift also require more voltage than traditional one motor lifts. The BH-USA Equipment Guide provides a handy chart for wiring requirements.

FIG. 7 - CONSTRUCTION 3**FIG. 8**

CONSTRUCTION METHOD 4:

WOOD WITH THREE OVERHEAD JOISTS, HOIST AND PIPE MOUNTED TO ONE SIDE FOR BOATS UP TO 4,500 LBS.

This is a typical construction method used for boats weighing 4,500 lbs or less. The hoist is mounted to the joist not being used to hold the blocks or pipe supports. Hoist and pipe supports are aligned directly above the lifting points, on one side of the slip, where the boat will be lifted. Only two holes are used to mount the hoist (not four).

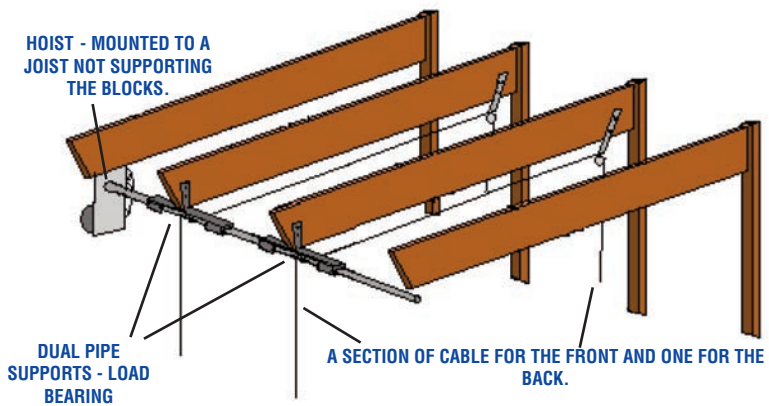
Typical joist spacing is 10' to 12' apart.

Strap hangers are mounted on the same joists as the pipe supports, and at a 45° angle, toward the boat to be lifted (**Fig 5**). The block hangs at the end and is directly above the lift point on the cradle or sling.

The dual pipe supports in this application are load bearing, and are well-greased to eliminate friction (**Fig 8**).

One section of cable is used for the front and one for the back. A hole is drilled in the pipe and the cable run through it. Cables run perpendicular to the pipe and not at an angle.

FIG. 9 - CONSTRUCTION 4



CONSTRUCTION METHOD 5:

STEEL TOP STRUCTURE ON FOUR PILINGS USING TWO CROSS BEAMS FOR THE LIFT.

This is a typical lift design for boats up to 8,500 lbs. Specific length and size of beams determine the equipment needed. The steel hoist hanger is designed to hang the hoist and support the pipe at the same time, and is only used with the dual pipe support for steel. It will not align with other supports, and is never used in side mount applications due to the uneven torque and leverage that can damage the hanger and void warranties.

The hoist hanger is mounted on the same beam as the first lifting point. Typical beam spacing is 10' to 12' apart. Galvanized I-beam clamps are angled at 45° toward the boat to be lifted to eliminate unnecessary torque, and sliding of clamps on the I-beams under extreme loads. (Clamps can be used on I-beams, channels or tubing.)

There is never more than 10' between the hoist hanger and the dual pipe support, to avoid “bowing” of pipes that aren’t properly supported. Improperly supported dual pipe supports can cause the unit to bind.

One section of cable is used for the front and one for the back. A hole is drilled in the pipe and the cable run through it perpendicularly and not at an angle.

FIG. 10 - CONSTRUCTION 5

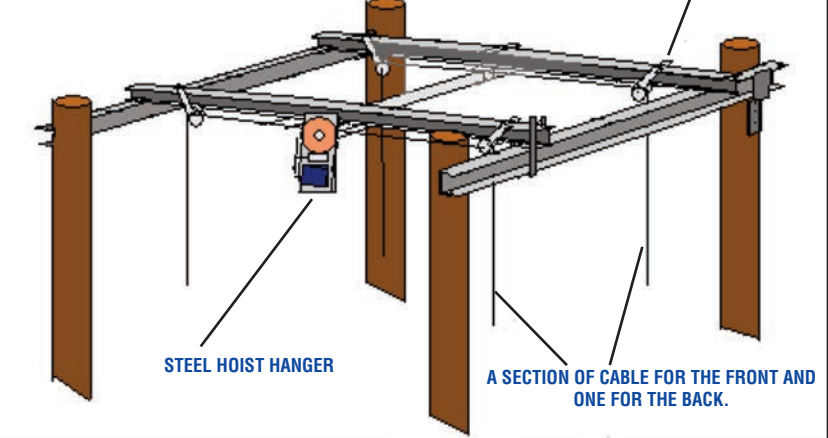


FIG. 11

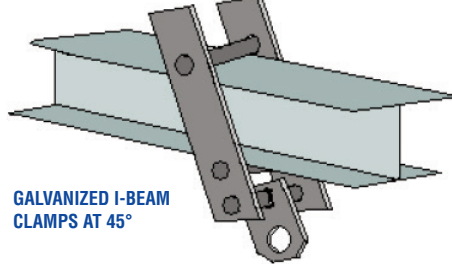


FIG. 12

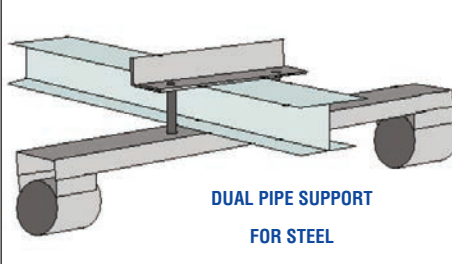


FIG. 13



CONSTRUCTION METHOD 6: STEEL TOP STRUCTURE ON FOUR PILINGS USING TWO CROSS BEAMS FOR TWIN MOTORS

Commonly used for boats up to 12,000 lbs., specific length and size of beams determine the equipment needed.

The steel hoist hanger (Fig. 13) is designed to hang the hoist and support the pipe at the same time, and is only used with the dual pipe support for steel. It will not align with other supports, and is never used in side mount applications due to the uneven torque and leverage that can damage the hanger and void warranties.

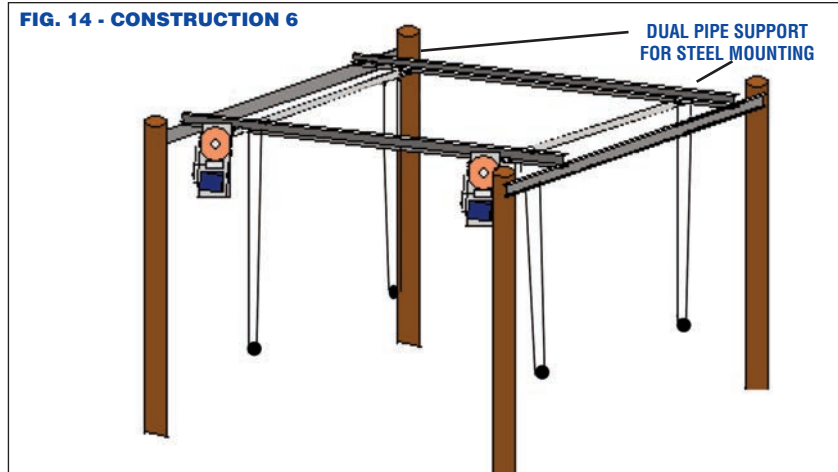
The dual pipe support for steel mounting is lined up with the hoist hanger (Fig 12).

BH-USA hoist hangers and dual pipe supports are fabricated to line-up for easier installations.

Each lifting point requires its own length of cable. A hole is drilled in the center of each dual pipe support and a cable run through the hole. It is then fed through the shaft of the pipe and out the end. A cable clamp is attached and it is pulled back through the pipe.

There is never more than 12' between the hoist hanger and the dual pipe support, to avoid “bowing” of pipes that aren’t properly supported. Improperly supported dual pipe supports can cause the unit to bind.

FIG. 14 - CONSTRUCTION 6



CONSTRUCTION METHOD 7 ALUMINUM BEAMS OVERHEAD

In this construction there are two structural aluminum I-beams that span the slip, typically resting on the stringers or structural aluminum channel that has been bolted to the structure to form stringers. The clean and simple look has become very popular. BH-USA manufactures aluminum hangers that easily bolt to the I-Beams that span the slip, allowing for a center mount of up to 8,500 lbs, and a side mount of up to 4,500 lbs. Depending upon the actual structure, a twin drive design for up to 12,000 lbs. is possible when compounding.

The hoist hanger slides onto the beam for a guide and four bolts are drilled and inserted in the correct location to mount. BH-USA makes a hoist hanger for the A-drive and the flat-plate hoists.

The hoist hanger also functions as a pipe support like the steel hoist hanger.

The rear pipe support mounts the same way by sliding onto the beam and bolting.

For center and side mount installations, sheave housings are available to slide onto the beam then bolt.

FIG. 15 - CONSTRUCTION 7

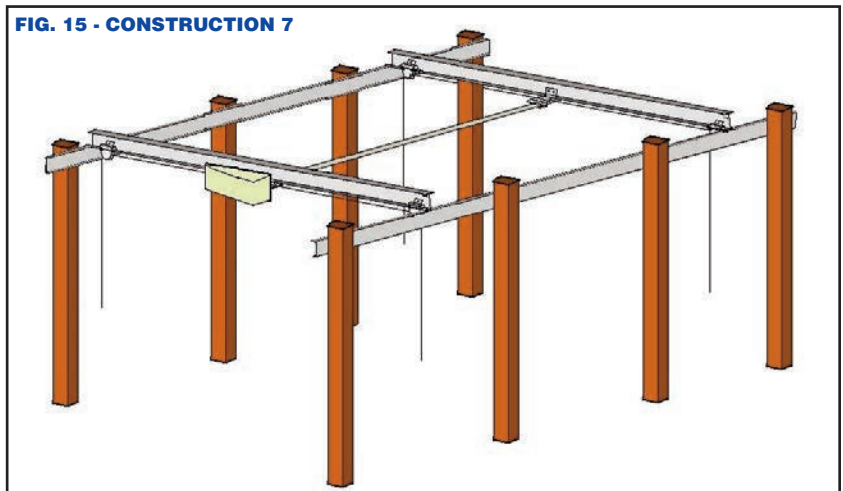


FIG. 16



FLAT PLATE HOIST HANGER

FIG. 17



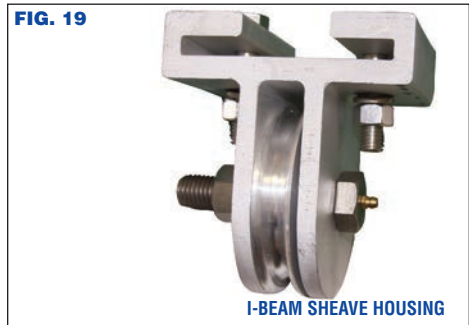
A-DRIVE HOIST HANGER

FIG. 18



PIPE SUPPORT

FIG. 19



I-BEAM SHEAVE HOUSING

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