

DOCK EDGE ^{INC.} Premium & Ultimate

Howell™ Economy

MOORING WHIP INSTALLATION INSTRUCTIONS

IMPORTANT



CAUTION

Warning: Failure to follow proper installation instructions voids warranty and may lead to product failure and/or property damage.

Note: Some mooring areas may be too rough for any type of tie-up system.

IMPORTANT NOTES TO ENSURE A SAFE, SECURE INSTALLATION & WARRANT YOUR NEW MOORING WHIPS

IMPORTANT: Ensure that you have purchased the appropriate DockEdge Mooring Whip for your application. Weight and water level variations are more critical factors than length in estimating your requirements.

3 YEAR Limited Warranty
against defects in materials and workmanship.

MOORING WHIP PRODUCT CHART "A"

PREMIUM & ULTIMATE WHIP MODELS:

#3200 8 ft. (2.44m)	Craft Up to 18 ft. (5.49m) Up to 2,500 lb. (1133Kg) Capacity Mooring Distance From Dock - Minimum 3 Ft. (0.91m)
#3400 & 3450 12 ft. (3.66m)	Craft Up to 23 ft. (7.01m) Up to 5,000 lb. (2267Kg) Capacity Mooring Distance From Dock - Minimum 4 Ft. (1.22m)
#3600 & 3650 14 ft. (4.27m)	Craft Up to 28 ft. (8.53m) Up to 10,000 lb. (4535Kg) Capacity Mooring Distance From Dock - Minimum 5 Ft. (1.52m)
#3800 & 3850 16 ft. (4.88m)	Craft Up to 33 ft. (10.06m) Up to 20,000 lb. (9070Kg) Capacity Mooring Distance From Dock - Min. 5-6 Ft. (1.52-1.83m)

ECONOMY WHIP MODELS:

#3100 8 ft. (2.44m)	Craft Up to 18 ft. (5.49m) Up to 2,000 lb. (907Kg) Capacity Mooring Distance From Dock - Minimum 3 Ft. (0.91m)
#3120 12 ft. (3.66m)	Craft Up to 23 ft. (7.01m) Up to 4,000 lb. (1814Kg) Capacity Mooring Distance From Dock - Minimum 4 Ft. (1.22m) (supplied epoxy use required for assembly)

DOCK EDGE ^{INC.} Premium & Ultimate

1 INSTALLING THE MOORING WHIP BASES

Mooring whips require a firm, secure footing for mounting.

- The recommended location for mooring whips is on the side of the dock which is most protected from winds. This is preferable to cause the boat to stay clear of the dock rather than be forced towards it.
- Locate the cast aluminum bases 4-5" from the edge of the dock. Fig. 1a & 1b
- Align the whip bases with their respective cleats on the bow and stern of the boat making sure that the whips are perpendicular to the edge of the dock. Fig. 1c

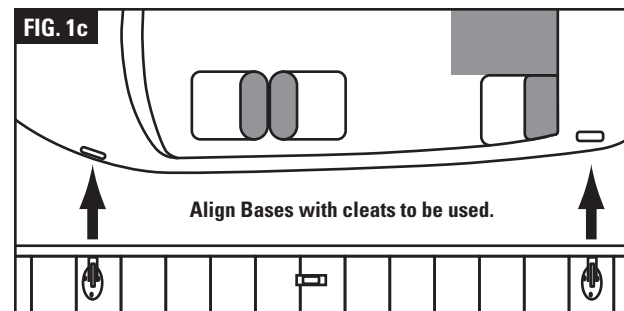
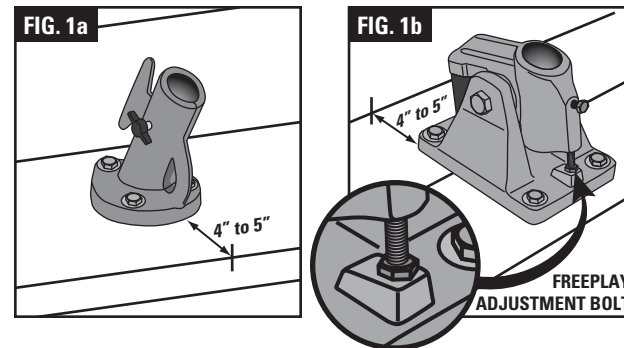
The general rule is that the span between the whips should be approximately 2/3 of the boats' overall length. Install additional cleat(s) on the boat if necessary to retain the 2/3 rule. Space whip bases accordingly for such an application.

ATTENTION: Fig. 1b also illustrates the location of a bolt at the rear of the rocker base which is used to adjust the freeplay of a completed whip assembly. This bolt should be adjusted only enough to eliminate any freeplay between the rocker base arm and the rubber bushing.

NOTE: In applications where side cleats are unavailable a center bow or stern cleat of the boat may be used.

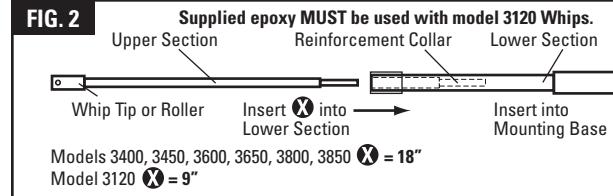
- Mark the location of the mounting holes for the bases and drill through the plank with a 1/8" drill bit. Lag down the whip bases with the lag bolts and washers supplied.

NOTE: Concrete docks will require lag bolts and masonry plug inserts. Softwood docks such as cedar should have a 3/8" hole drilled through the dock at each mounting hole location of the base and 3/8" bolts or "carriage" bolts and use washers, lock-washers and nuts or locking nuts in place of the 3/8" lag bolts supplied with your mooring whip kit.



2 WHIP ASSEMBLY (where applicable)

Models 3400, 3450, 3600, 3650, 3800 & 3850 are two part assemblies. Carefully follow the instructions for 2-part assemblies. (See Fig. 2) With a threading motion turn the top portion of the mooring whip into the base section until it is fully seated.



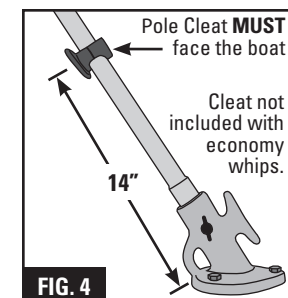
3 WHIP MOUNTING & PREPARATION

- Feed the whip lines over the line rollers at the tips. Ensure whip tip rollers are parallel to the dock surface. (Fig. 3)
- Insert the whip into the base, making sure the whip is fully seated in the base and so that the whip line is hanging straight down OR for models incorporating a tip pulley, align the pulley so that it is perpendicular to the dock surface. (Fig. 3)



Once the tip has been aligned, tighten the thumb screw on the whip base only enough to prevent the whip from lifting out of the base. Overtightening may damage the fiberglass strand and integrity of the whip.

Pole Cleat - Attach the pole cleat no more than 14 inches from the whip base. See Fig. 4. The pole cleat can be used to wrap the boats' whip line around for quick release and ease of maneuvering the watercraft towards the dock when required.



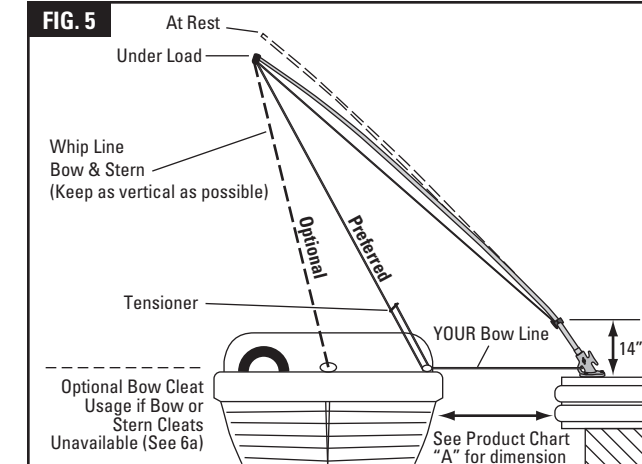
4 INSTALLATION OF WHIP LINES

- Tie off the dock side end of each whip line to the pole or base cleat, Fig. 4 making sure there is sufficient excess line at both ends to allow for tie-up of the boat with the tensioner, and release of line tension at the dock.
- To adjust for proper tension on the mooring whip lines slip the loops from the lines through the bow and stern cleats of the boat. Using the sliding tension adjuster, place enough tension on the line to just pull the whip tip down. (See Fig. 5 & 6)

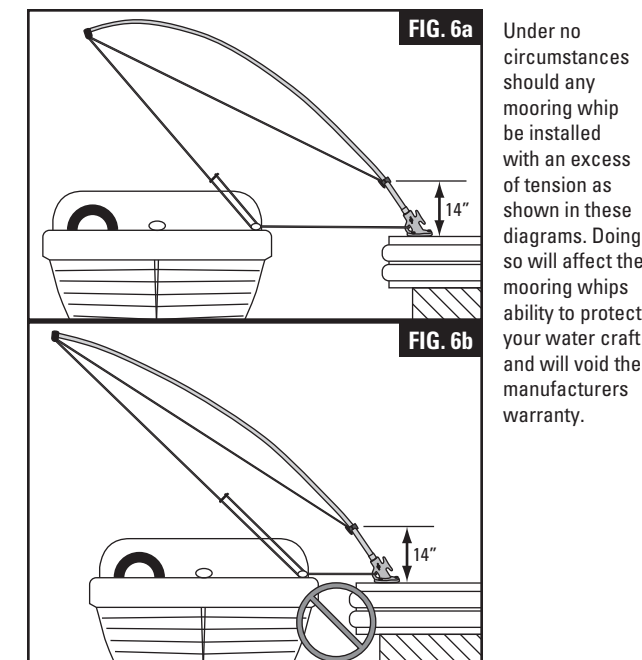
CAUTION: When adjusting whip and/or spring line tensions DO NOT over-torque the whip. Pull each whip tip down in inches, as the whip is in total length, ie. 8ft. - 8 inches, 12 ft. - 12 inches, 14 ft. - 14 inches, 16 ft. - 16 inches.

CAUTION: For installation of mooring whips on stationary docks in locations where water levels fluctuate more than 2 ft., mooring whips without a rocker base MUST be adjusted periodically to compensate for these variations. Failure to make adjustments to spring and whip line tension in such conditions may result in damage to the whips and void the manufacturers warranty, see Fig. 5 thru 9. Adjustments are seldom necessary on floating docks, as the dock and boat will rise and fall accordingly. Alternatively, Mooring whips with a rocker base (models 3450, 3650 & 3850) may be installed for such applications. The rocker base should adequately adjust for tidal variations that could exceed the abilities of whips with a rigid non-pivoting base.

CORRECT INSTALLATION



INCORRECT INSTALLATIONS



5 INSTALLATION OF SPRING LINES

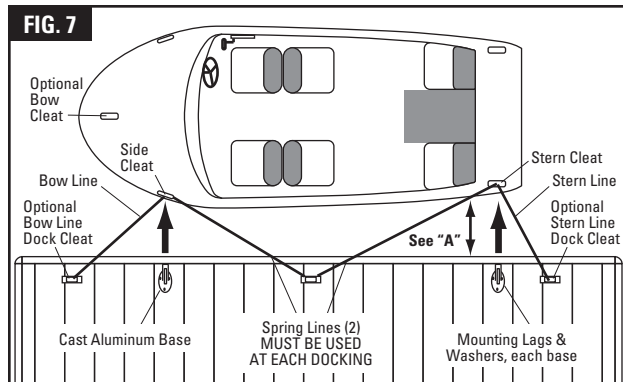
- Refer to the Figures 5 through 9 for proper configuration and spring line attachment.
- Spring lines should be attached to the built-in cleat of solid mooring whip bases and bow and stern lines should be attached to the integral eyelet of each whip base. Pivoting/ rocker base whip bases must use separate dock cleats as shown in Fig. 7, 8 & 9.

IMPORTANT: Spring lines MUST always be used. Tension must be equal on all lines. Install additional cleat(s) on the boat if necessary to retain the 2/3 rule Discussed in Section 1 "Installing The Mooring Whip Bases".

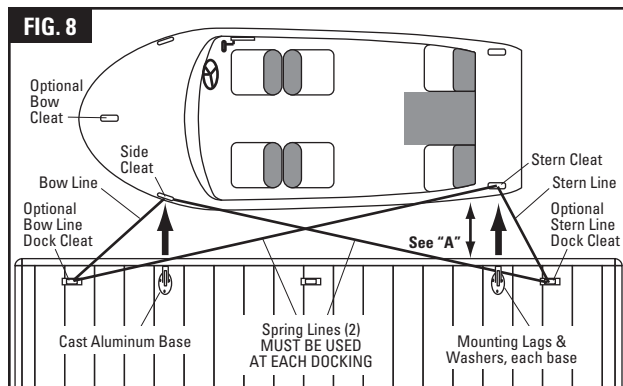
The boat should lie the distance specified in product chart "A" for your whips.

DO NOT attempt to retain the "Distance from Dock" dimension shown in chart "A" if using oversized whips. Larger whips are intended for larger watercraft with a wider beam and therefore able to retain the recommended "Distance from Dock" dimension. Distance from dock should never be less than 3-4ft.

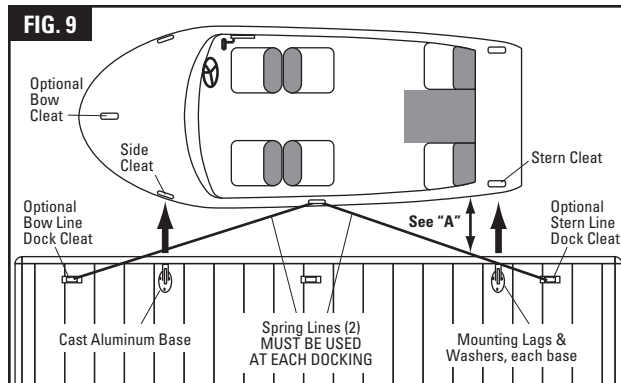
"M" Method - Whips & Whip Lines Not Shown



"X" Method - Whips & Whip Lines Not Shown

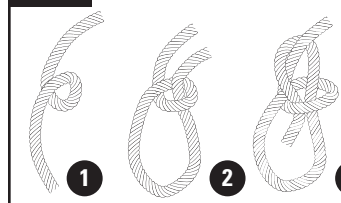


"V" Method - Whips & Whip Lines Not Shown



- Loops in the ends of the bow, stern and spring lines can be made using a "bowline knot" as shown in Fig. 10.
- Once the bow, stern and spring lines have been made to the correct length they should be left on the dock for easy tie-up upon return.

FIG. 10 BOWLINE KNOT



- Form a loop.
- Pass the rope's free end through the loop.
- Loop the end around the main rope and back through the first loop again.

IMPORTANT: When spring lines have been cut to length, seal the cut ends of the lines with a flame (lighter, match or small torch) to prevent fraying.

WINTER STORAGE: For winter storage remove the whips from the aluminum bases only. Leave the aluminum bases mounted to the dock. Two (2) piece whip assemblies other than the DockEdge 3120 model, can be separated into the upper and lower halves for more compact storage. It is recommended that whips be stored in a location that remains above freezing such as a basement or heated garage.


Premium Whip kit includes:

- 2 whip poles
- 2 locking screws (for base)
- 2 pole cleat assembly (2pc)
- 2 optional pulley tip wheel
- 2 whip lines
- 1 spring line
- 2 line tensioners
- 2 aluminum bases
- 6 lag bolts (for bases)
- 6 washers (for bases)

Ultimate Whip kit includes:

- 2 whip poles
- 2 pole cleat assembly (2pc)
- 2 optional pulley tip wheel
- 2 whip lines
- 1 spring line
- 2 line tensioners
- 2 rocker bases
- 8 lag bolts (for bases)
- 8 washers (for bases)

For answers to your questions or to enquire about other DockEdge+ products call, write or visit us at:

DOCK EDGE  **INC.** 300 New Huntington Road
Woodbridge, ON, Canada L4H 0R4
CMP Phone: 800-295-3625 www.dockedge.com



Economy Whips

CAUTION: Installation of mooring whips on stationary docks where water levels fluctuate more than 2 ft.:

Mooring whips with a fixed angle base **MUST** be adjusted periodically to compensate for these variations. Failure to make adjustments to spring and whip line tension in such conditions may result in damage to the whips and void the manufacturers warranty, see Fig. 5 thru 9. Adjustments are seldom necessary on floating docks, as the dock and boat will rise and fall together accordingly.

1 INSTALLING THE MOORING WHIP BASES

Mooring whips require a firm, secure footing for mounting.

- The recommended location for mooring whips is on the side of the dock which is most protected from winds. This is preferable to cause the boat to stay clear of the dock rather than be forced towards it.
- Locate the aluminum bases 4-5" from the edge of the dock. Fig. 1a
- Align the whip bases with their respective cleats on the bow and stern of the boat making sure that the whips are perpendicular to the edge of the dock. Fig. 1c

The general rule is that the span between the whips should be approximately 2/3 of the boats' overall length. Install additional cleat(s) on the boat if necessary to retain the 2/3 rule. Space whip bases accordingly for such an application.

NOTE: In applications where side cleats are unavailable a center bow or stern cleat of the boat may be used.

- Mark the location of the mounting holes for the bases and drill through the plank with a 1/8" drill bit. Lag down the whip bases with the lag bolts and washers supplied.

NOTE: Concrete docks will require lag bolts and masonry plug inserts. Softwood docks such as cedar should have a 3/8" hole drilled through the dock at each mounting hole location of the base and 3/8" bolts or "carriage" bolts and use washers, lock-washers and nuts or locking nuts in place of the 3/8" lag bolts supplied with your mooring whip kit.

2 WHIP ASSEMBLY (where applicable)

Carefully follow the instructions for 2-part assemblies. (See Fig. 2). Supplied epoxy **MUST** be used with Howell 3120 Whips only. Ensure the 2-part epoxy is thoroughly mixed as it is applied. With a threading motion turn the top portion of the mooring whip into the base section until it is fully seated. Recommended cure time is 2 - 4 hours.

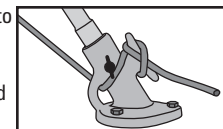
3 WHIP MOUNTING & PREPARATION

- Feed the whip lines through the whip line roller pins at the tips.
- Insert the whip into the base, making sure the whip is fully seated in the base and so that the whip line is hanging straight down. Ensure roller pins are parallel to the dock surface. See (Fig. 3)

Once the tip has been aligned, tighten the thumb screw on the whip base only enough to prevent the whip from lifting out of the base. Overtightening may damage the fiberglass strand and integrity of the whip.

4 INSTALLATION OF WHIP LINES

- Tie off the dock side end of each whip line to the pole or base cleat, making sure there is sufficient excess line at both ends to allow for tie-up of the boat with the tensioner, and release of line tension at the dock.
- To adjust for proper tension on the mooring whip lines slip the loops from the lines through the bow and stern cleats of the boat. Using the sliding tension adjuster, place enough tension on the line to just pull the whip tip down. (See Fig. 5 & 6)



Sample Base Cleat Tie-Off

CAUTION: When adjusting whip and/ or spring line tensions Do Not over-torque the whip. Pull each whip tip down in inches, as the whip is in total length, ie. 8ft. - 8 inches, 12 ft. - 12 inches.

CAUTION: For installation of mooring whips on stationary docks in locations where water levels fluctuate more than 2 ft., fixed base whips **MUST** be adjusted periodically to compensate for these variations. Failure to make adjustments to spring and whip line tension in such conditions may result in damage to the whips and void the manufacturers warranty, see Fig. 5 thru 9.

5 INSTALLATION OF SPRING LINES

- Refer to the illustrations below for proper configuration and spring line attachment.
- Spring lines should be attached to the built-in cleat of solid mooring whip bases and bow and stern lines should be attached to the integral eyelet of each whip base. Pivoting/ rocker base whip bases must use separate dock cleats as shown in Fig. 7, 8 & 9.

IMPORTANT: Spring lines **MUST** always be used. Tension must be equal on all lines. Install additional cleat(s) on the boat if necessary to retain the 2/3 rule discussed in the Section 1.

The boat should lie the distance specified in product chart "A" (page 1) from and parallel to the dock.

DO NOT attempt to retain the "Distance from Dock" dimension shown in chart "A" (page 1) if using oversized whips. Larger whips are intended for larger watercraft with a wider beam and therefore able to retain the recommended "Distance from Dock" dimension.

Distance from dock should never be less than 3-4ft.

- Loops in the ends of the bow, stern and spring lines can be made using a "bowline knot" as shown in Fig. 10.
- Once the bow, stern and spring lines have been made to the correct length they should be left on the dock for easy tie-up upon return.

IMPORTANT: When spring lines have been cut to length, seal the cut ends of the lines with a flame (lighter, match or small torch) to prevent fraying.

WINTER STORAGE: For winter storage remove the whips from the aluminum bases only. Leave the aluminum bases mounted to the dock. It is recommended that whips be stored in a location that remains above freezing such as a basement or heated garage.

Economy Whip kit includes:

- | | | |
|------------------------------|--------------------------------|---------------|
| 2 whip poles | 2 whip lines | 1 Spring line |
| 2 line tensioners | 2 aluminum bases | |
| 2 locking screws (for bases) | 6 lag bolts (for bases) | |
| 6 washers (for bases) | 1 epoxy glue for (3120-F only) | |

Kit Includes:

- A 2 Poles
- B 4 Pole Tips
- C 8 Stainless Steel machine bolts
- 8 Stainless Steel lock nuts for "C"
- D 2 Stainless Steel base Plates
- E 2 U-Bolts
- F 4 Half-Nuts (preinstalled on "U" bolts)
- G 4 Lock Nuts
- H 8 3/8" x 3" Lag Bolts
- I 4 5/16" x 3" Lag Bolts & washers
- J 2 Snap Lines, includes 2 shackles
- K 2 Cleats

TOOL LIST

- Measuring Tape
- Box End Wrenches
- Phillips Screw Driver
- Socket Wrench Set
- 3/16" Drill Bit
- Electric Drill (preferably cordless due to working around water to avoid the possibility of electric shock)
- Hack Saw

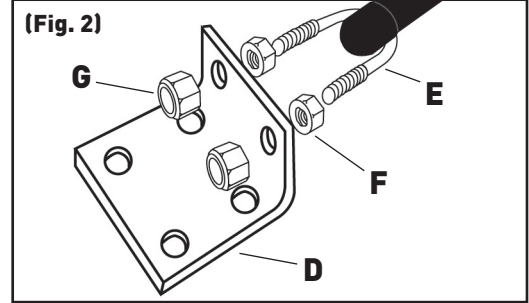
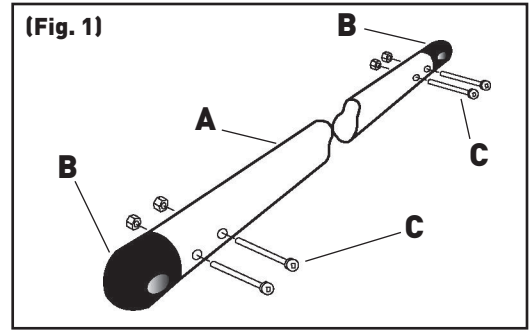
Mooring Arm Assembly

Step 1 (Fig. 1)

Insert one pole Tip (B) into each end of each pole (A). Align holes in pole (A) and pole tip (B) and insert Machine Bolt (C) through the pole and pole tip. Install Locking Nuts and tighten until firm only.

Step 2 (Fig. 2)

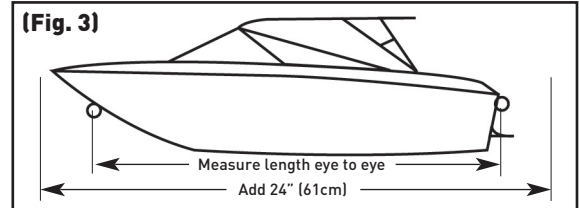
Insert U-Bolt (E) through one of the assembled pole tips as per Fig. 2 (which end does not matter). Insert U-Bolt into Base Plate (D) as per Fig. 2 and secure to the Base Plate (D) with Lock Nuts (G). Repeat this procedure for the remaining assembled mooring arm and Base Plate.



Installing your new Mooring Arms

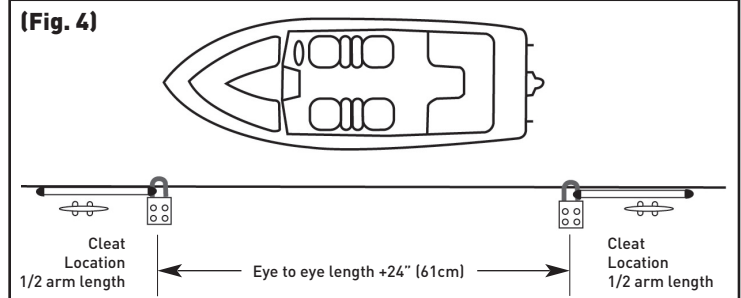
Step 1, Preparation (Fig. 3)

Measure the distance from the bow eye to stern eye of your boat. Add 24" (61cm) to this measure. The total measure is the distance that the mooring arms should be mounted apart from each other on the dock.



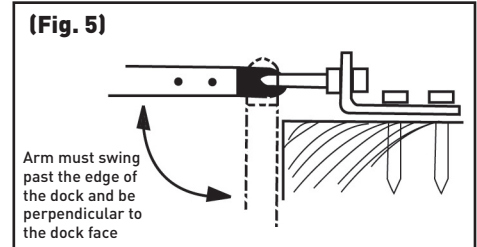
Step 2 (Fig. 4)

Based on the total measurement determined in step 1, choose a suitable location on the dock for mounting the mooring arm bases. Mark these locations, the total distance apart from one another.



Step 3 (Fig. 5)

Note: It is preferred Not mount the base plates in a location where dock bumper profile is used. This may result in securing the base plate too close to the edge of the dock and result in insufficient fastening to the base plate. If it is necessary to secure the mount the base plates where dock profile is present, the profile should be removed from the immediate area where the base plate is to be mounted. Place the bow Base Plate approximately 1" (26 mm) from the edge of the dock as shown in Fig. 5. The mooring arm should hang freely over the edge of the dock without touching the dock. Mark the lag bolt locations (4) onto the dock surface. Drill 3/16" pilot holes for lag bolt installation at each and fasten the base plate to the dock with Lag Bolts (H). Repeat the procedure for the Stern Base Plate.



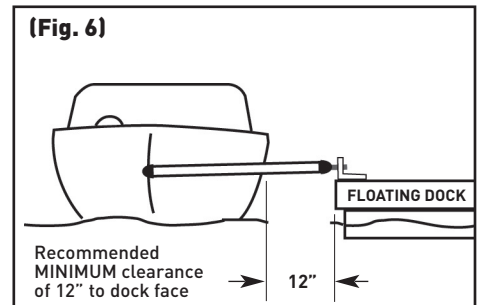
Step 4, Cleat Installation (Fig. 4)

Move the bow and stern mooring arms around the U-Bolts and lay them pointing bow and aft respectively, parallel to the docks' edge as per illustration Fig. 4. Attach a cleat (K) at a distance approximately 1/2 the length of each mooring arm from the mooring bases, Fig. 4.

Step 5, Securing your craft and adjustment of mooring arm length (Fig. 6)

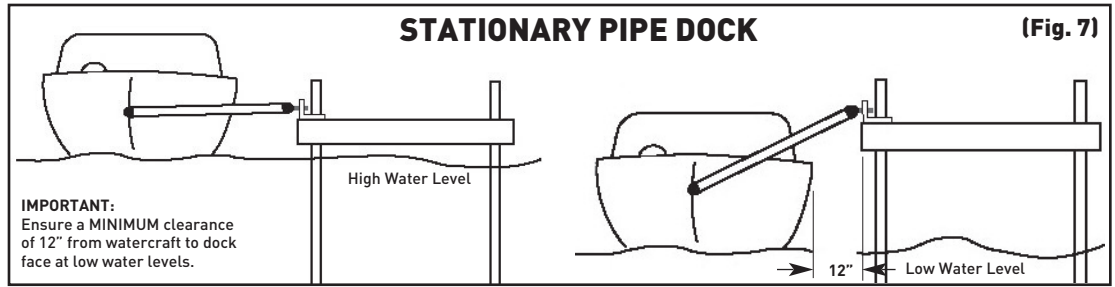
Floating Dock Installations:

Correctly installed in a floating dock installation, the boat and dock with both rise and fall with water level variations. In all floating dock installations the MINIMUM distance from craft to dock should be NO LESS that 12" (31cm).



Stationary Dock Installations:

Correctly installed in a stationary dock installation, the dock will not rise and fall with water level variations as it does with a floating dock. For this reason it must be determined what that maximum change in water level may be. The **MINIMUM** distance from dock to boat at either maximum or minimum water levels should be **NO LESS** than 12" (31cm).



Note: It may be desirable to shorten one or both mooring arm lengths for one of the following reasons.

1. To keep the boat parallel with the docks edge, example; stern eye is not the center line of the boat.
2. To allow the entire boat to be closer to the docks edge yet no closer than 12" (31cm)
3. For use on PWCs or other small craft.

To Shorten a Mooring Arm

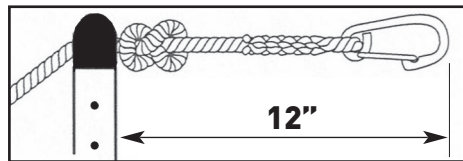
1. Measure from the center of the stern to the eye to which the mooring arm WILL be attached, Fig 8. This is the measurement/ length that must be cut from that mooring arm.
2. Remove the stern arm from the Base Plate by removing the Stainless Steel thru-bolts and lock nuts.
3. Using the measurement from (1), measure from the end without the pole tip and mark that length from the end of the mooring arm.
4. Using a fine-tooth saw or hack-saw, cut the mooring arm at this location.
5. Using the pole tip as a template Fig. 9, mark and drill new holes in the mooring arm to accommodate the pole tip.

6. Install the pole tip into the pole, align the holes and reinstall the Stainless Steel screws and lock nuts.

IMPORTANT: If the stern arm has been shortened, it will be necessary to remount the dock cleat for the stern arm as well to reflect the shorter mooring arm length.

Setting the Mooring Arms for the boat

1. Tie a knot in each snap line (J), so that from the knot to the end of the snap clip is 12" (31cm) Fig. 10
2. Thread the free end of the snap line through the mooring arm tip until the knot is stopped at the tip.
3. Align the mooring arm to a 90° angle (right angle) with the docks edge and tie off the snap line onto the cleat for that mooring arm to retain the 90° angle.
4. Repeat the procedure for the remaining mooring arm.



Using your Mooring Arms

Mooring:

1. Clip the stern snap line onto the stern eyelet
2. Swing the stern mooring arm out until it engages with the knot 12" (31cm) behind the snap clip. This should place the stern mooring arm at 90° and perpendicular to the docks edge.
3. Clip the bow snap line to the bow eyelet and draw the snap line toward the dock and away from the boat. This will cause the bow mooring arm to slide on the snap line towards the boat and pull the boat away from the dock until it too engages the knot behind the snap clip.
4. Pull the bow snap line taught and secure to the bow mooring cleat on the dock. This should cause both mooring arms to now be at 90° (right angles) to the dock edge. Fig. 11.

The watercraft is now safely moored and will freely follow water level variations, wakes, waves and tidal movement.

Casting Off: It is only necessary to uncleat one snap line to allow casting off.

1. Uncleat the bow snap line from the dock.
2. Pulling upward on the bow mooring arm will cause the boat to approach the dock.
3. Unsnap the bow snap clip and lay the arm and snap line on the dock for your return.
4. Unsnap the stern snap clip. It is not necessary to uncleat the stern line. Lay the stern mooring arm and snap line on the dock for reattachment upon your return.

TIPS

To avoid losing snap lines, it's suggested that a knot be tied in the snap line between the mooring arm tip(s) and closer to the dock cleat. This will prevent the snap line from sliding through the mooring eye and sinking. Frequently inspect the mooring arms and components for wear, looseness or damage. Replace components as required.

