Megabyte Rigging Manual

This manual is based on the original Megabyte Rigging Manual. Use it to refresh or gain understanding on how to rig this class of boat so that you can achieve the intended performance on the water. To magnify the images, use the zoom feature of whichever device you are using to view this document.

Note:

1. The **color** of the control lines used in this manual is purely illustrative. Different colored lines may be used on your Megabyte. Translate the information involving control lines to your needs.
2. Information on the lengths and diameters of all the lines, and recommended quality, is proved in Megabyte Mark I and Mark II Rigging Guide: Control lines and **other lines/shock cord** on page 20.

Mast Assembly

The first step in rigging your boat is the assembly of the mast but first a word of caution. The spar is a glass fiber/carbon fiber composite and needs to be handled with more care than an aluminum spar. Avoid banging, denting or chipping and look after it for what it is – very strong but easily damaged. **Note:** Carbon fiber is sensitive to UV rays. Applying a clear coat of UV inhibitor will extend the life of your MB spars (e.g. Krylon UV Resistant Clear Spray).

Assemble the topmast section into the lower mast section, lining up the tracks using the two tabs (Figure 1). Be careful to ensure that the two mast sections are in a straight line with respect to each other before sliding the upper section into the lower section. The two ends of the halyard should be loosely secured to the mast adjacent to the gooseneck fitting. In some Megabytes the halyard bundle comprises a wire (cable) and rope system. Caution: Do not pull the wire-to-rope splice through the sheave or you will have difficulty hoisting the sail. The splice should remain below the halyard lock.

Buoyancy and plug: The upper mast section has a plastic plug in the base which seals the upper mast section, thereby keeping it buoyant (to facilitate righting the boat after a capsize). Ensure that this plug is secure in the base of the upper section of the mast. Use silicone sealant to secure and seal as needed.

Figure 1 Insert the base of the top section of the mast into the top of the bottom section. Align the sail track on the two sections.

About the Mast Step

Your Megabyte has a unique mast step that is actually connected to the water under the boat! This means that no water stays in the cavity above the height of the waterline while sailing and the cavity drains completely when stored on shore. Rain water will actually flush out any dirt as will the movement of the water in the mast step while the boat is sailing (about 1-2″ (≈50 mm)). The bottom of the mast cavity and the hull structure are glued together with plexus and then through bolted with the bolts holding in the plate. Examine the mast cavity and note that, at the bottom (Figure 2), there is a round boss extending above a large, flat, plastic washer. Use your hand to familiarize yourself. The hole in the bottom of the mast plug must go over the boss and ride on the plastic washer. This way your mast will never touch the side or wear the bottom of the mast cavity as it will pivot solely on the boss. Insert the mast into the cavity and move the base around until it drops over the boss, rotates freely, and there is no more side to side or fore and aft movement at the bottom of the mast. See the cutaway illustration (Figure 2) showing the plastic washer unscrewed. There are channels in the washer allowing the water to reach an access hole across the boss which in turn is connected to a drain hole to the outside. The base of the mast and the plastic washer are self-lubricating. If you sail in salt water and are hosing off the boat with fresh water, hose down the mast cavity as well.

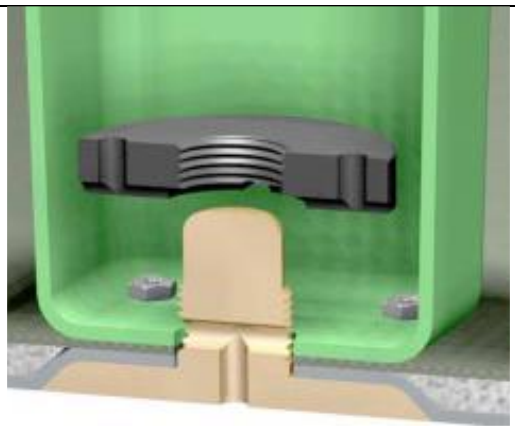

Figure 2 Illustration (cutaway) of the mast step. The ‘boss’ is the brown colored central pillar which protrudes through the large gray washer (colors not necessarily representative).

The Sail

The sail is delivered folded from the sailmaker for ease of handling. This has done no damage to the sail but repeated folding, particularly on the same fold, can eventually fatigue the mylar. It is suggested that the sail be folded at the top batten, leech to leech, and then rolled down to the foot and stored rolled.

MARK I Sail (MKI rig): Spread the sail out over the cockpit and insert the battens. The bottom three battens insert through the slit in the batten pocket until they come up against an elastic at the front of the pocket. Force them further into the pocket then tuck the back end of the batten under the flap and release. The elastic will force the batten out against the leech (Figure 3 through Figure 5).

Figure 3 Insert battens through slit in batten pocket.

Figure 4 Push battens in until they reach the elasted at the end of the pocket.

Figure 5 Force the battens in further then tuck the back end of the batten under the flap and release.

The top batten is a "full length" batten and does not have any elastic at the front end. Instead there is a batten pocket protector screwed onto the sail from both sides (Figure 6). Be sure that the batten is all the way into the protector. If it is not, the batten will come right through the pocket the first time you sail with it. Any damage caused this way is obvious and not covered by warranty.

At the back end of the batten, pass the webbing over the batten and through the buckle as shown and tighten until snug. Do not overtighten or you will induce too much bend in the batten and the sail will be too full in light air (Figure 7).

Figure 6 Batten pocket protector (top batten).

Figure 7 Buckle system at back end of the top batten.

MARK II Sail (MK II rig): The MARK II sail is a fully battened sail (Figure 8 and Figure 9). All of the battens extend from luff to leach and can be tensioned according to needs. The structure of the MARK II sail is modeled on the Byte CII mainsail.

Several Videos present aspects of the design and sailing with the fully battened sail, as used in the Byte CII class. Much of this information is transferable to the Megabyte.

[this is the URL to the videos: http://www.bytecii.com/byte-coaching-manual/]

Figure 8 Megabyte with MARK II sail
(source: http://www.megabyteclass.org)

Figure 9 Megabyte with MARK II sail
(source: http://www.sail1design.com)

Note: It is highly recommended that you configure the control lines before hoisting the sail – *Outhaul line line*, *Cunningham lines*, *Vang lines (kicking strap)*, *Mainsheet*, *JC Strap* (*Jibe Control - optional*)) - see detailed description in the following pages

This next section focuses on the control lines: Outhaul, Cunningham, Vang

- **Note: Outhaul & Vang control lines route through the 2 pairs of blocks on mast tang**
- **Note: Cunningham control line routes through 2 blocks on deck strap**

Outhaul (**Red** control line in this manual)

Before the boom is attached to the gooseneck fitting on the mast, slide the end of the boom through the permanent loop (Clew Strap) at the clew of the mainsail. Then attach the hook block of the Outhaul system to the grommet (Figure 10). Tips: The boom should be disengaged from the gooseneck fitting while mounting it through the Clew Strap. Put a temporary knot in the line to keep the sail out near the end of the boom. Now attach the boom to the gooseneck fitting.

Note that the clew strap can be replaced with a 'quick release' system, which can be very appropriate for the MARK II mainsail when needing to depower the sail rapidly in an onshore situation.

Figure 10 Loop (Clew Strap) at clew of mainsail (MARK I), slid over end of boom, with Outhaul hook block hooked into grommet.

Slide the front end of the boom over the gooseneck pin as shown (Figure 11 & Figure 12) secure the boom to the gooseneck via passing the shock cord (attached to one side of the boom) around the mast and attach it to the hook on the other side of the boom (Figure 12). Then remove the line-stopper-balls from the ends of the Outhaul Control line and thread the two ends of the Outhaul Control line (**Red**) through the small blocks on the gooseneck (Figure 13) and down to the outer mini blocks which are attached on each side of the spar (bottom mast section) at the lower fitting (Figure 14). From there, take each outhaul line to the outermost clam-cleat on the deck and re-attach the line-stopper-ball to the end of each line. Undo the temporary knot at the end of the boom (if used). This completes the Outhaul. Pull the bungee around the mast and hook it to the opposite side of the boom. This will prevent the boom from slipping off the gooseneck fitting and crashing to the deck when you lower the sail (Figure 12).

Figure 11 Gooseneck fitting on mast.

Figure 12 Boom attached to gooseneck fitting. Note red shock cord to secure boom to mast. Note that boom needs to be passed through the Clew Strap of mainsail before attaching the boom to the gooseneck.

Figure 13 Feed each end of the Red outhall line through the appropriate block on the gooseneck. Note stand-off pillar associated with port block. Bungee shockcord of halyard is passed around this standoff to secure halyard (Figure 38).

Figure 14 Outhaul lines (**Red**) fed through the blocks attached to mast fitting. Note that the 2 blocks on either side of the mast are attached to the mast via a shackle (5 mm D shackle). This is optional, but highly recommended.

Note: the big picture -

- The **Outhaul** and **Vang** deck control lines go through the 2 pairs of blocks on the mast tang (Figure 14).
- The **Cunningham** (downhaul) deck control line goes through the 2 blocks on the deck strap (Figure 14).

Cunningham (Green control line in this manual)

The Cunningham system is comprised of two parts, which form a cascading Cunningham control.

- Start the first part of the Cunningham by passing the long line (Green) through the inboard/bottom clamcleat (closest to midline of boat) on one side of the deck. Then pass the line through one of the two blocks on the deck (attached to central eyestrap on the deck adjacent to the mast (Figure 16). You will use the block that is on the same side of the hull as the clamcleat used to commence the threading of this Control line.
- Next, pass the line up and through the block that is attached to the second part of the Cunningham (block with short line that will pass through the hook-block before being secured) (Figure 17), then pass the line back down and through the second block attached to the eyestrap on the deck (Figure 16), then pass the line back to the inboard/bottom clamcleat on the opposite side of the deck. The free end of the line of the second part of the Cunningham goes up through the hook-block, which is hooked into the upper sail grommet, as shown (Figure 17), and the end is left untied until after the Vang is installed.

Figure 15 The green control lines are for the Cunningham.

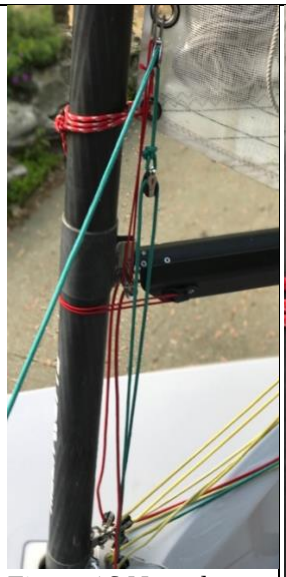

Figure 16 Note the two lines (Green) of the Cunningham (deck mounted and hook-block mounted).

Figure 17 The second line of the Cunningham going through the hook-block inserted into the upper grommet in the sail.

Vang (Yellow control line) (sometimes referred to as the Kicking Strap/Kicker)

The Vang (Kicker), is a 12:1 cascading system in three parts. The mini blocks (Figure 18 – blocks with Yellow lines) are already strung when the boat is shipped. Lay out the vang lines and blocks so there are no twisted lines and the lines run freely through the blocks.

- First part of Vang (Boom-end line): Attach the twist shackle and associated single block to the eye in the tang of the lower mast fitting as below (Figure 19). In this description, all of the Vang system comprises Yellow line. Attach the single block with becket (metal U-shaped strap at one end of block) and twist shackle to the boom by inserting the Vang-key into the slot of the boom key plate (Figure 20). Slip a bungee loop up against the Vang key to stop it falling out when close hauled (Figure 21).

Figure 18 Lower mast fitting with central tang with eye – to which the twisted shackle, with associated block, is attached. Outhaul and Vang blocks are also attached to either side of the mast fitting (Note D-shackle for each pair of blocks – optional).

Figure 19 Twisted shackle of associated single block of Vang system, attached to central tang of the lower mast fitting.

Figure 20 First part of Vang system connected to boom and Second part of Vang system hanging from hanging block of the first part of the Vang system.

Figure 21 Close-up of the Vang key inserted into the slot of the boom key plate. Bungee loop to prevent it falling out.

- The second part of the Vang system is shown hanging below the first assembled part (Figure 20) (Mast-end line). One end is attached to a block, the other end is free. Attach the free end of the line (Figure 20) to the eyestrap mounted on the deck behind the mast, tying it off between the Cunningham blocks (Figure 22).
- The third part of the Vang system is the deck Control line (Deck-end line). It starts in the middle side deck clam-cleat, goes forward to the remaining free block UNDER the Outhaul line (Figure 18 & Figure 20) then up to the block on part two (Figure 20) (the free block at the other end of the line tied off to the eyestrap (Figure 22)), then back down to the other free block under the outhaul line and then passed through the clam-cleat on the opposite side deck.

Figure 22 The free end of the second part of the Vang system tied off to the eyestrap on the deck. The block with twisted shackle is attached to the tange of the lower mast fitting.

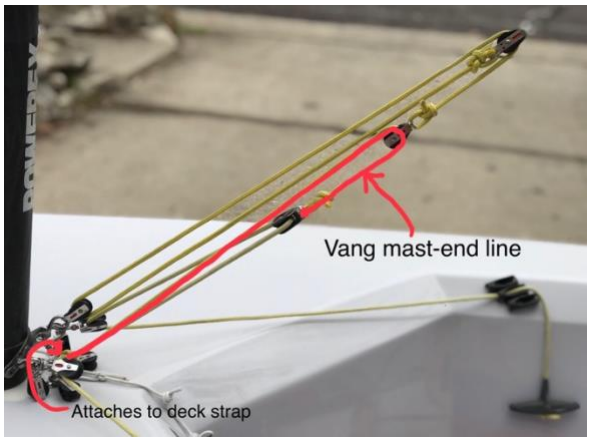

Figure 23 Vang (Kicker) system with the mast-end line highlighted.

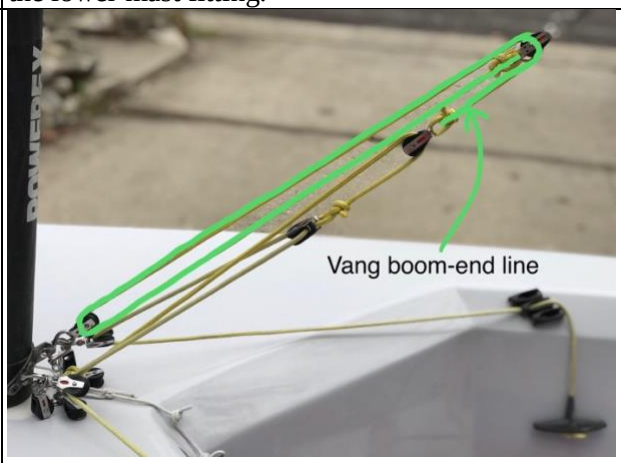

Figure 24 Vang (Kicker) system with the boom-end line highlighted.

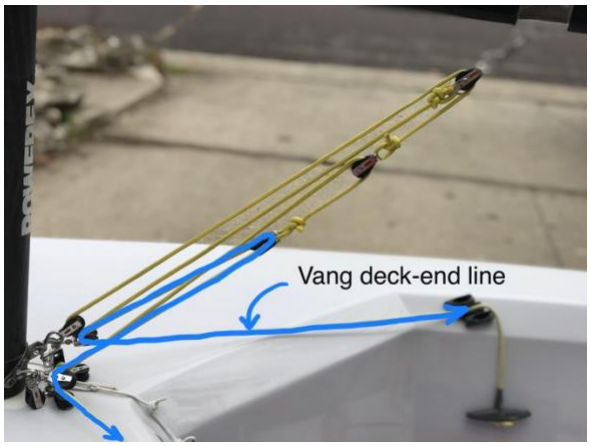

Figure 25 Vang (Kicker) system with the deck-end line highlighted.

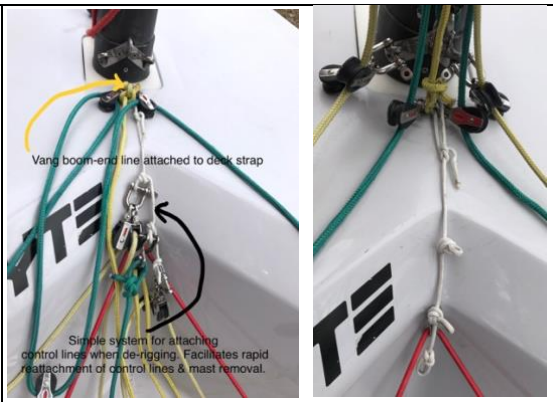

Figure 26 Illustrations of a simple system for storing assembled lines (Outhaul, Cunningham, Vang) - makes for easier removal the mast and speeds up re-attachment of these lines to the tang at the base of the mast. **Note:** A D-shackle is used for each pair of blocks (for Outhaul & Cunningham lines). Each shackle is connected to a loop. Top & bottom loops are used for the port and starboard pairs of blocks with D-shackle, respectively (can be color-coded if desired). Middle loop is for twisted shackle with Vang boom-end line & tied-off Cunningham line.

Complete the Cunningham

Tie the line coming down from the Cunningham hook to the twist shackle holding the first part of the Vang system to the lower mast fitting (tang) (Figure 27).

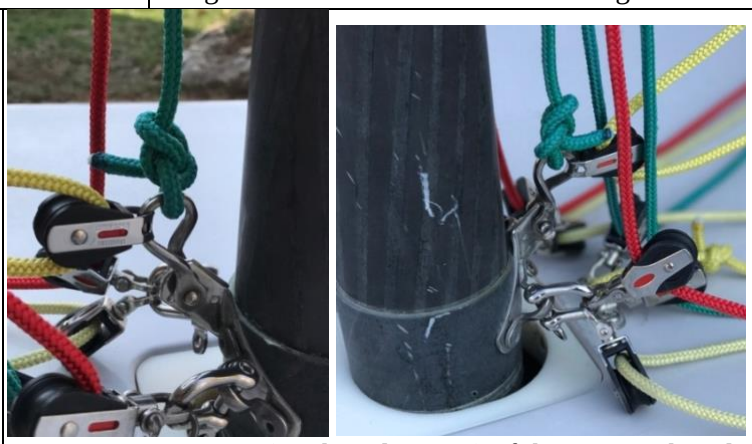

Figure 27 Two views (Starboard & Port) of the Cunningham line (Green) from hook-block, tied off on the twisted shackle of the Vang system attached to the lower section of the mast.

When fully rigged, the Control lines will appear as in Figure 28, adjacent to the base of the mast at the deck level.

Optional: Using **D-shackles** to secure the pair of small blocks (pulleys), as shown in various figures (e.g. Figure 18, Figure 19, Figure 27): The motivation for using these D-shackles (5mm pin) is that they enable the pair of small blocks to be separated from the mast (without removing the control lines), before dismasting the boat. Each of these D-shackles, as well as the twisted shackle (Vang system), which attaches to the central tang on the mast (between the 2 pairs of small blocks for the outhaul & vang) can also be removed. These 3 shackles can be attached to 3 loops in a thin line (attached to the deck eye strap) – for storage (Figure 26). Each loop associated with the placement of the shackles can be marked (e.g. red-marked loop (port D-shackle); center for vang; green-marked loop (starboard D-shackle)).

Figure 28 Control lines (Red - Outhaul, Yellow – Vang, Green – Cunningham) attached to deck eyestrap and tang fitting on lower mast section.

Control lines through clam cleats on deck should be set up as follows:

- Outhaul (**Red**) on top (outboard) clamcleat
- Vang (**Yellow**) in the middle clamcleat
- Cunningham (**Green**) in the bottom (inboard) clamcleat.

Figure 29 Arrangement of Control lines through the 3 clamcleats (Port deck).

Mainsheet

The mainsheet should be rigged as shown (Figure 30).

Attach the mainsheet to the tie-off pin (becket) of the top block that is attached to the boom. Then pass the line, in a clockwise direction (when adjacent to the Port side of the hull), through the increasingly larger diameter pulley/sheave of each block (on boom and traveler), terminating by passing the line through the ratchet block attached to the cockpit adjacent to the traveler. To prevent the mainsheet from pulling out of the mainsheet blocks, tie a figure-eight stopper knot in the end of the mainsheet.

Note that in light air the line can be taken off the top block and tied to the top pulley of the lower block for less purchase and faster trimming.

Note that this configuration (Figure 30) uses one traveler car on the traveler track (original configuration). The incorporation of a Bridal system, using 2 traveler cars, is provided below (bridal is permitted as in the Byte CII class).

Figure 30 Arrangement of the mainsheet through the mainsheet blocks (pulleys). The above arrangement does not include the bridle – see below

Mainsheet Modification: Bridle (Figure 31)

To install the recommended bridle system for the mainsheet, a second Ronstan traveler car is needed. The line for the bridle should be approx. 5 mm (13/64″) in diameter and approx. 100 cm (≈39″) long (e.g. FSE Robline 8 Plait Pro). After inserting the second traveler car, re-attach the one traveler line to the new traveler car. Relocate travelers to opposite ends of the traveler track and cleat them off with the associated line. Attach each end of the bridle line to a traveler car (bowline knot). The apex of the bridle should not exceed the height of the adjacent deck level. After removing the block/pulley system attached to the original traveler, pass the apex of the bridle line through the shackle/becket of the removed bottom block (pulley system), then loop the apex over the block, then include a 180° twist in the loop and pass it back over the block. Pull the line down snuggly around the shackle (modified 'Larkshead' knot). Ensure the block attached to the bridle is centered over the midline of the hull (use the centerboard slot for alignment). Ensure that the length of each bridle arm is such that the mainsheet blocks remain free from each other when the sail is in the fully sheeted (close-hauled) position (shorten bridle if necessary). The height of the bridle, relative to the deck, can be adjusted to suit tuning needs.

Figure 31 Mainsheet bridle installed on a Byte. Comprised of a single length of line, with each end attached to a traveler car. The apex of the triangle formed by the line is attached to the block (previously attached to a traveler car).

JC Strap modification

A JC Strap (Jibe Control) is permitted, per the Class Rules (draft). A JC Strap is used to prevent accidental jibing in light air. It can also be used to keep the mainsheet out of the water when healed to leeward. JC Straps are unique to catboats that carry pronounced rake in the top of the mast (e.g. Finn, Megabyte, Byte). The rake of the mast results in the tendency of the boom to be over the centerline of the hull, the lowest point of its arc. A description of the JC Strap is available via: http://megabyteclass.org/Class/megabyte_class_rules.htm **Materials:** 3 m (10′) x 8 mm (5/16″) shock cord, 1 x block (22 mm single, micro), 0.6 m (2′) x 6 mm Plait Pro line, 2 snap hooks, 4 hog clips (for securing shock cord to snap hooks). See Figure 32 through Figure 33

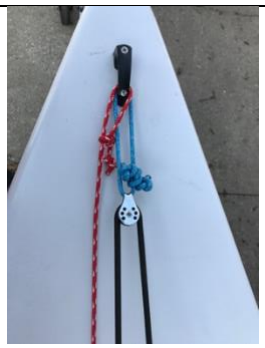

Figure 32 JC Strap system attached to bow eye via a small block and attached line.

Figure 33 Snap hook and hog clips/rings.

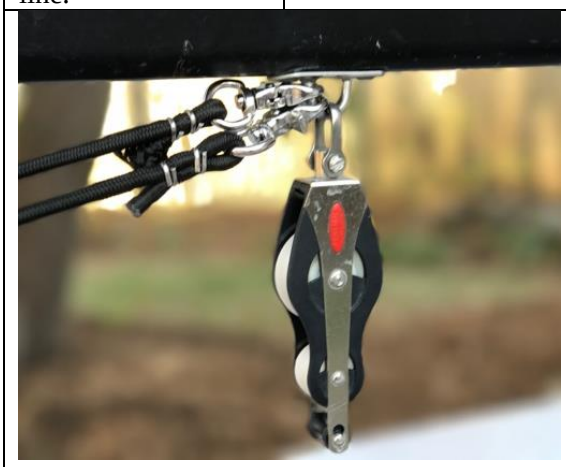

Figure 34 Ends of JC strap clipped onto mainsheet block bale on boom.

Hoisting the mainsail

Hoisting the sail will be a little hard the first few times. It helps if the boltrope at the head of the sail is lubricated with a silicone lubricant or spray as this will carry the lubricant up the track. This difficulty is partially due to the shape of the sail in that the luff is curved and the top, full-length batten induces some curve in the top mast section. The MARK II sail is more difficult to hoist due to all of the full-length battens and the resulting curvature of the luff of the sail, inducing curvature in the flexible top mast section.

Feed the top (head) of the sail into the track and attach the halyard (Figure 35). Do not attach the boom as it will make hoisting that much more difficult.

Figure 35 Feeding the top (head) of the sail (MARK I) into the bottom of the track (bottom mast section).

Note that as the top (head) of the sail nears the top of the mast (Figure 36), the angle at which the halyard pulls gets close to 45° which makes the last few inches of hoisting quite hard. Make sure you pull the halyard from about 3-4′ (≈3.5 m) in front of the mast so that the ball (on the halyard cable) goes through the opening in the lock without hitting the top of the fitting. Properly locked, it should look similar to Figure 36.

Should the halyard of your Megabyte be entirely rope, cleat the rope in the clamcleat near the top of the mast (Figure 37).

Figure 36 Sail (MARK I) at top of track and the lock near the top of the mast for securing the halyard (wire+rope compostion).

Figure 37 Alternative clamcleat system for securing the all-rope halyard.

Attached to the rope or wire-rope halyard will be a loop. To this loop is attached a small bungee loop (shock cord). Hook this around the small plastic standoff between the head of the bolt and the cheek block on the port side of the gooseneck fitting on mast (Figure 13 and Figure 38). This will keep the halyard from swinging loose.

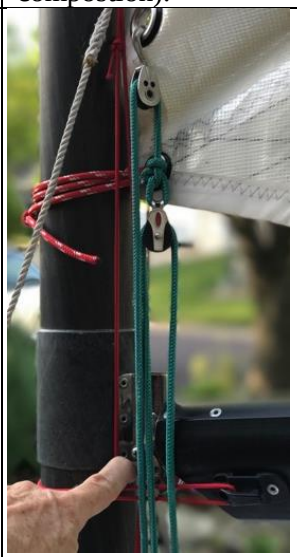

Figure 38 Hooking the bungee loop (attached to halyard) around the small plastic standoff on the port side of the gooseneck fitting on mast. See Figure 13 for another view of standoff.

Bunch up the halyard (if you don't coil it, the rope won't be kinked when you want to lower the sail) and stuff it in the pocket provided on the port side of the tack of the sail (Figure 39).

Figure 39 Store the halyard in the pocket on the port side of the tack of the sail.

Tie the tack of the sail to the mast, via the bottom grommet, so that the sail is approximately the same distance behind the mast as it is where it comes out of the sail track just above You should check this distance after pulling the Outhaul tight (Figure 40).

Figure 40 Tack of sail tied to the mast via the bottom grommet. The front edge of the tack should be parallel to the mast. Tie the tack, as above, quite tight to the mast. Once tension is applied to the outhaul, check the distance of the tack from the mast – aim for a parallel tack when the outhaul is under tension.

Hiking straps

There is a knot adjacent to the outside edge of the two central hiking straps that can be loosened and moved in or out depending on how far in you want each strap to lie when not in use, i.e. for tacking (Figure 41).

Note that the ends of the traveler Control lines in Figure 41 are tied together. This enables the traveler to be released from the leeward side of the boat and repositioned from the windward side.

Note that the shock cord used to elevate the 2 front hiking straps has been removed. When included the shock cord is tied off to one of the two traveler cleats on the deck and is then passed under the hiking straps (end adjacent to traveler system) and then tied off to the corresponding traveler cleat on the opposite deck.

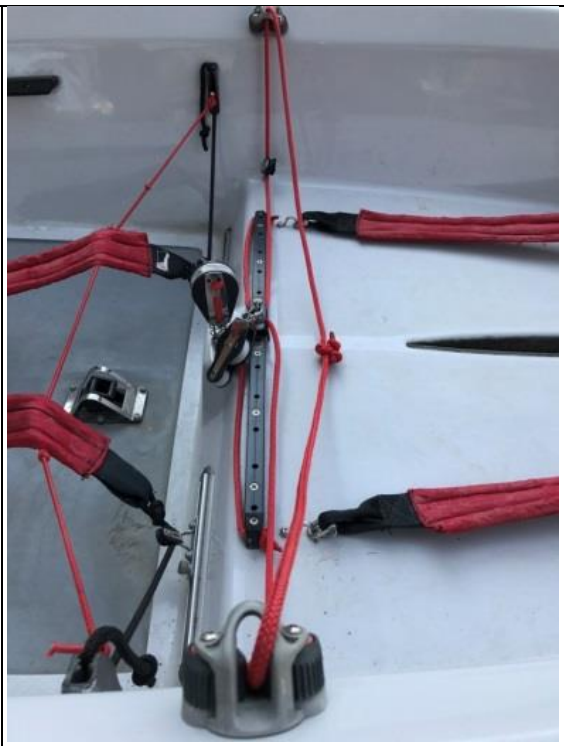

Figure 41 View from Starboard gunwale to show the shock cord with knots, used to lift hiking straps (skipper's). Each knot should be on the inside edge of the strap (adjacent to the midline of the hull) – not as in the above figure (note that the traveler here is not fitted with the **Bridle** system)

Be sure to check all knots (e.g. Figure 42)!

Periodically also check the tightness of screws on all deck fittings.

Figure 42 Hiking straps securely attached to rear wall of cockpit. Note the metal guard placed over the rear self bailer (available via www.zimsailing.com)

Replacing the anti-chafe shock cord at the end of the boom (prevents the boom chaffing the rear deck)

Material: 1/4" (≈6 mm) diameter shock cord. 1.5' or longer. Trim as needed. Study Figure 43 and Figure 44 in conjunction with the description below.

- Tie a knot in the end of the shock cord.
- Thread the shock cord through the hole in the bottom surface of the boom at the clew end, from the inside of the boom to the outside (Figure 44).
- Then pass the cord through either of the 2 nearby holes in the base of the boom (from the outside surface to the inside).
- Then pass the cord up and over the cord just threaded and then pass the cord through the second hole in the clew end of the boom (from the inside to the outside surface). This will form a loop over the initial length of cord).
- Then pass the cord through the loop just formed and then thread the end of the cord back through the hole that contains the other end of the cord. Be prepared to use a pair of nose-tipped pliers to pull the shock cord through the holes, especially the final hole where the diameter might be 'tight'.
- Once you have completed the threading of the cord you will need to tighten it up by pulling it through the various sections of the threaded route. You should end up with a snug fit, at which point you need to tie a knot in the end of the cord (or use a hog clip/ring around both ends of the cord to secure them).

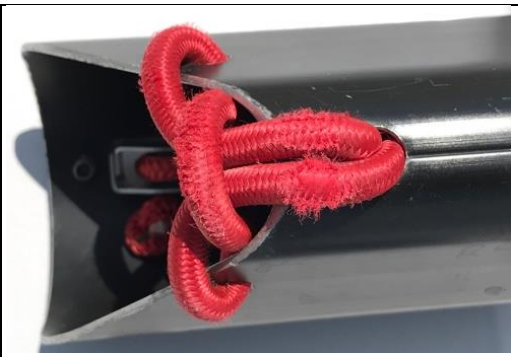

Figure 43 View of clew end of boom, bottom surface of boom, showing the installed anti-chafe shock cord.

Figure 44 View of clew end of boom showing the knotted ends of the shock cord within the boom and the 'path' of the shock cord that provides the anti-chafe protection for when the boom rests on the rear deck.

Installing the Outhaul control lines

The outhaul control line system comprises 2 components: Outhaul clew line and Outhaul deck line. These lines connect with each other within the boom. The line lengths differ for the MKI and MKII rigs.

MKI rig: Clew line: 8’ (244 cm); Deck line: 14’ (427 cm)

MKII rig: Clew line: 8’ 6” (259 cm); Deck line: 19’ (579 cm)

To install the outhaul clew line:

- Tie a knot in the end of the line. Pass the other end of the line through the hole, adjacent to the built-in block in the end of the boom. Then pass the line through the hook block. Then pass the line through the built-in block in the boom (Figure 45). Attach the small block to the remaining end of this line (Figure 46).

To install the outhaul deck line:

- Take the deck line and add one of the stopper balls to one end of the line. Pass the line through the small block at the end of the clew line, then add the second stopper ball to the end of this deck line (Figure 46). Now drop the 2 ends of the deck line down the interior of the boom so that they emerge at the gooseneck end of the boom. Remove the stopper balls from end of the outhaul deck line and thread through the pulleys for this line and attach the stopper ball to each of the 2 ends of the outhaul deck line. The outhaul control line system is now configured within the boom. You will need to configure the deck outhaul line before each sailing event, as described earlier (see/select **Outhaul, page 4**).

Figure 45 Part of outhaul control line system with hook block. This line has a small block on its other end (see Figure 46)

Figure 46 Showing the deck line component of the outhaul control line system. Note how the deck line is dropped out through the end of the boom, threaded through the block at the end of the clew line, and then has the stopper ball attached so as to provide weight for dropping back down through the boom.

Good Sailing!

Megabyte Mark I and Mark II Rigging Guide: Control lines and other lines/shock cord

If you upgrade from a Mark I rig to a Mark II rig you will need longer control lines for the Outhaul. The dimensions below are for the Mark I and II rigs.

The following information is based on measuring control lines for the Mark I and II rigs and checked with Zim Sailing (www.zimsailing.com). Note that the color of the control lines is optional as is the construction of the line. The color of the lines is to help the user to select the appropriate line when sailing. The information in the Construction is a guide.

Megabyte Control Lines (& other lines/shock cord)	Pieces	Length			Diameter		Construction
		cm	feet	inches	mm	inches	
Vang: deck end line	1	274	9	108	5	13/64	8 Plait Pro (e.g. Yellow)
Vang: mast end line	1	91	3	36	4	5/32	Dyneema (e.g. Yellow)
Vang: boom end line	1	142	4.8	56	4	5/32	Dyneema (e.g. Yellow)
Cunningham: deck end line	1	300	9.8	118	5	13/64	8 Plait Pro (e.g. Green)
Cunningham: sail end line	1	107	3.5	42	4	5/32	Dyneema (e.g. Green)
MK I: Outhaul: deck end line	1	442	14.5	174	5	13/64	8 Plait Pro (e.g. Red)
MK I: Outhaul: clew end line	1	244	8	95	5	13/64	8 Plait Pro (e.g. Red)
MK II: Outhaul: deck end line	1	579	19	228	5	13/64	8 Plait Pro (e.g. Red)
MK II: Outhaul: clew end line	1	259	8.5	102	5	13/64	8 Plait Pro (e.g. Red)
Mainsheet	1	1097	36	432	7	9/32	Dinghy sheet
Halyard	1	1280	42	504	5	13/64	8 Plait Pro
Halyard tensioner	1	46	1.5	18	3	3/32	Shock cord
Painter	1	366	12	144	5	13/64	8 Plait Pro
Traveler control line(s)	2	183	6	72	5	13/64	8 Plait Pro
Front hiking straps - ties (bow end)	2	46	1.5	18	5	13/64	8 Plait Pro
Front hiking straps - lifter (bow end)	1	88	2.9	35	5	13/64	Shock cord
Front hiking straps - lifter (stern end)	1	107	3.5	42	5	13/64	Shock cord
Center hiking straps - lifter (bow end)	1	107	3.5	42	5	13/64	Shock cord
Center hiking straps - connector between adjacent ends of each pair	2	18	0.6	7	5	13/64	Shock cord
Center hiking straps adjusters (bow end)	2	76	2.5	30	5	13/64	8 Plait Pro
Center hiking straps - common tie (stern end)	2	61	2	24	5	13/64	8 Plait Pro