

HARKEN®

I N S T R U C T I O N M A N U A L

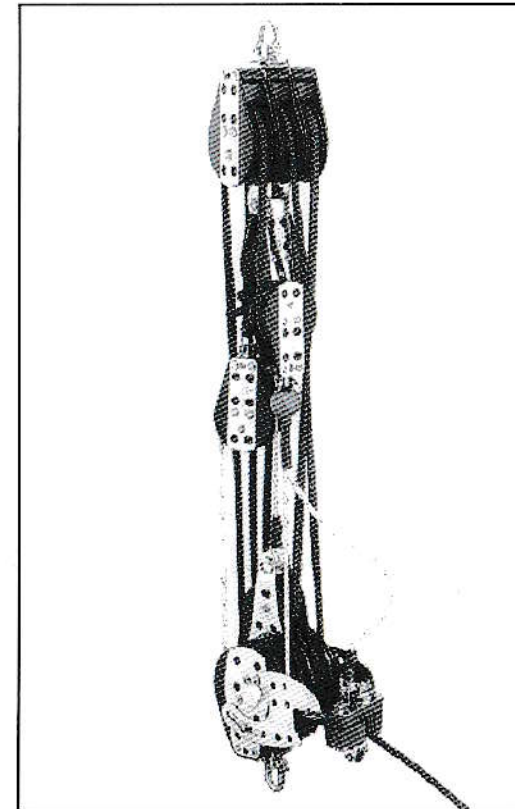
MAGIC BLOCKS™

Gross-Trim/Fine-Tune Mainsheet System

8:1 to 14:1

337 Single Line

Maximum Mainsail Area:
Multihull = 275ft² (25.5 m²)



The *Magic* in Magic Blocks™

Magic Blocks are patented gross-trim/fine-tune systems that automatically “shift gears” with a single mainsheet line. They offer a powerful fine-tune for subtle shaping of the main and a fast gross-trim for light air, quick maneuvers and mark roundings.

Magic Blocks utilize a unique tether line and the holding power of Hexaratchet® II + 2 sheaves to change the dead-end location of a single line mainsheet. This shifts the system from gross-trim to fine-tune as you trim and ease the sail.

337 SINGLE LINE

1

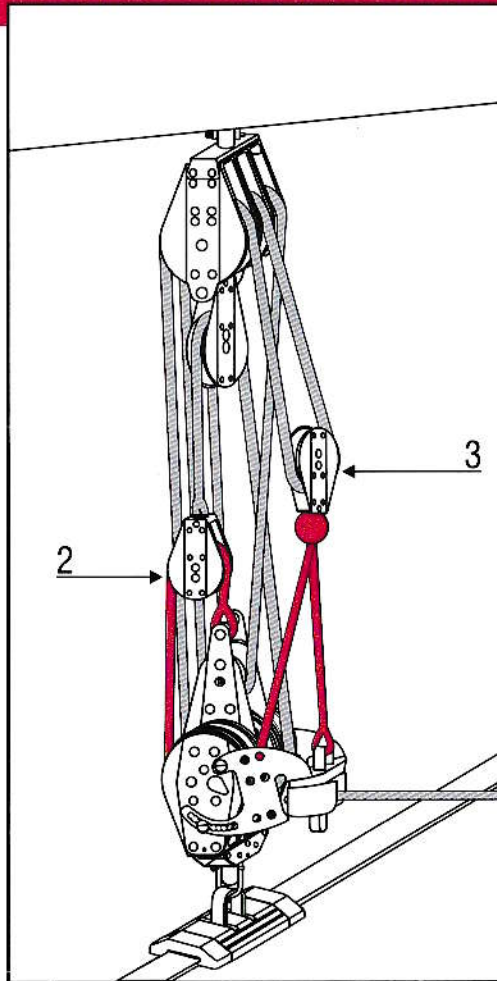


Figure 1: Sheet in so the main is close hauled.

2

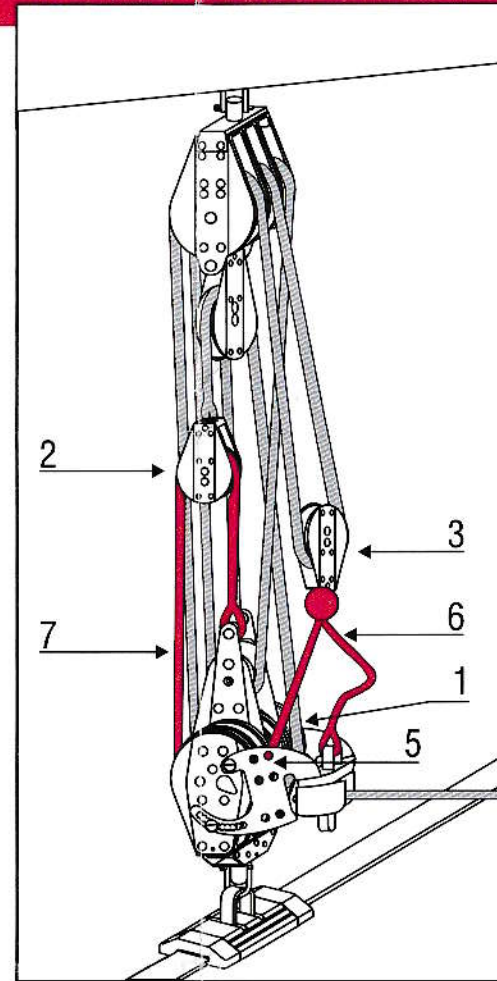


Figure 2: Ease sheet. Then pull the sheet and you're in fine-tune. Watch the tether line (6). When the tether line is relaxed, you can sheet using the fine-tune system.

3

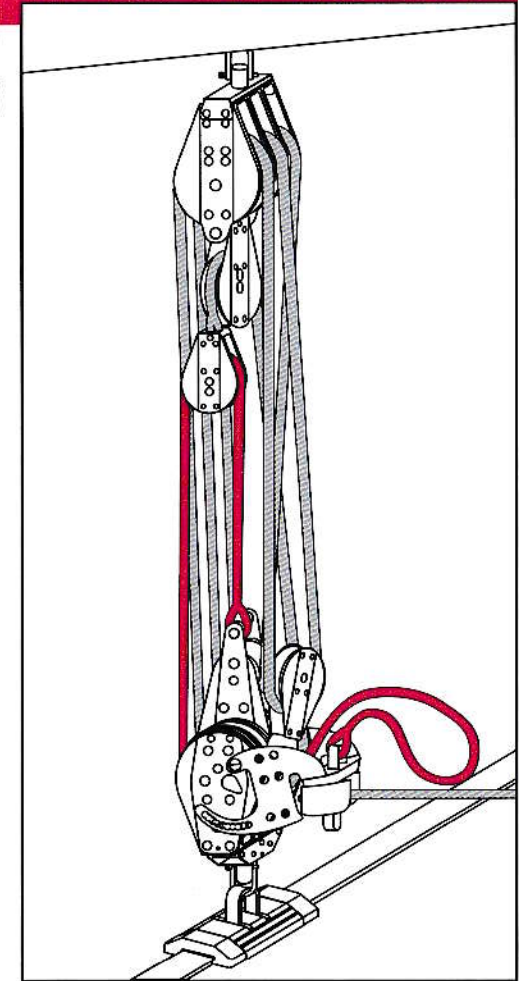


Figure 3: To rapidly ease, play out the sheet so ball hits the deck block. Now you can ease the sheet quickly in gross-trim.

INSTALLATION

Note: Blocks are shipped with a messenger line (Line 5). **DO NOT test blocks with messenger line. It is too short for the system to work properly.**

Gross-Trim Line Diameter

Use 5/16" or 3/8" (8 or 10 mm) line. A softer line or soft covered line is critical to operate the system. This is because the line must stop in Hexaratchet block 1 (Figure 2) to engage the fine-tune. If smaller lines are used, a larger tail can be added. See *Hints About Magic Blocks*.

Figuring Gross-Trim Line Length

Swing boom forward to maximum point and measure distance from center of the traveler to boom blocks. Multiply distance by 8. Add distance from lower mainsheet block to trimming point. **Purchase or reuse your existing mainsheet line.**

Reeving the Gross-Trim Line

- Use duct tape to attach mainsheet to messenger line at 5 (Figure 2). Pull through sheaves.
- Seize or splice an eye into bitter end of mainsheet. The eye should be small, yet large enough to accept a 3/16" (5 mm) clevis pin. See *Seizing Instructions*.
- Slide eye into square opening at top of block 2. Secure with 3/16" (5 mm) clevis pin and ring. Tape over ring. If line is too large, use shackle provided.

FINE-TUNE SET-UP

Fine-tune range depends on your boat's boom to traveler clearance. Boats with small clearances, such as catamarans, require careful set-up to gain the most range. On boats with ample boom to traveler clearance, such as those with cockpit mounted travelers, you should have just enough fine-tune range to ease the sheet during a puff. Too much range will make sheeting ineffective in some conditions. You can determine this later after sailing.

Dockside Set-Up

Determine fine-tune line lengths with the mainsail up and boom and traveler blocks shackled in place. This setup is preliminary. Do not splice or cut lines until after testing lengths under sail.

Fine-tune range is set by the length of tether line 6 and fine-tune line 7 (Figure 2). The distance between boom and traveler is the limiting factor of the fine-tune range.

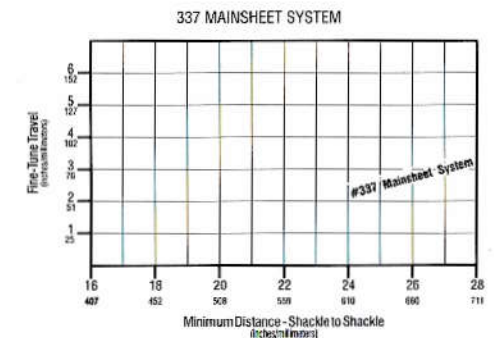
Magic Blocks are shipped with the tether line tied at 9" (229 mm) and the fine-tune line tied at 24" (610 mm). This gives a fine-tune range of 2 1/4" (57 mm).

Tip: To calculate fine-tune range, divide length of tether line by 4. Example: If tether line is 16" (400 mm), fine-tune range is 4" (100 mm).

Make sure you can sheet to the normal "close hauled" position without blocks 2 and 3 hitting the boom block. (Figure 1) To change the fine-tune scope, adjust the length of the tether and the fine-tune lines. The fine-tune line will be roughly three times the length of the tether line.

Note: A fine-tune range of 3" (76 mm) is sufficient to control the leech of most mainsails.

Tip: When adjusting scope, with the tether straight as in Figure 1, make sure the knot or splice at the top of block 2 is even with the ball on block 3.



FINE-TUNE SET-UP

Dockside Testing

Familiarize yourself with Magic Blocks at dock.

- Sheet in so the main is close hauled (**Figure 1**). Once tether 6 straightens, you are in gross-trim mode.
- Ease line and tether will collapse (**Figure 2**). If tether doesn't collapse, make sure both Hexaratchets are switched on so sheave 1 is locked. Trim in and Magic Blocks are in fine-tune mode. You will stay in this mode until block 3 reaches the end of tether (**Figure 1**).
- Sheet out. Once you ease enough line, the plastic ball will contact the deck block (**Figure 3**). Line will slip over Hexaratchet sheave 1 and you will be in gross-trim mode.

Testing Under Sail

The goal of sail testing is to get to know the system and to determine if any final adjustments need to be made to the tether and fine-tune lengths. For best results, sail the boat in a variety of conditions.

Note: Make sure the Hexaratchets are turned on.

Here's what to watch for under sail: While sailing upwind, sheet to the normal maximum. The first pull may be hard since you are in gross-trim. Let out the mainsheet and watch the tether line 6 collapse as block 3 moves downward (**Figures 1 to 3**). Sheet in and you are in the 14:1 range (**Figure 2**). You can now play the mainsheet in the 14:1 fine-tune range.

Tip: When you tack, pull the main in to the normal maximum during tack. Then let out immediately to enter the fine-tune range.

Bear off and let out the mainsheet. When the plastic ball stops at the deck block (**Figure 3**), you are in gross-trim. Continue to play out the mainsheet in gross-trim with the plastic ball stopped. As soon as you pull the sheet in, you are in fine-tune. This is perfect for power reaching as you can easily play the main in fine-tune.

Adjust the tether and the fine-tune lines as necessary. See **Dockside Set-Up** instructions. When you are comfortable, cut and seize the tether and fine-tune lines.

You are now ready to put the magic to work. It takes a little practice, but in fifteen to twenty minutes you will be a fine-tune magician.

HINTS ABOUT MAGIC BLOCKS

Disabling the Fine-Tune

In light air, the fine-tune mode isn't necessary. Disable by turning off sheave 1 Hexaratchet to reduce line friction.

Weight Saving and Drag Reduction

Once you find your fine-tune range, consider mounting the upper blocks to a wire pendant attached to the boom. Wire weighs less than wet rope and there is less windage.

Reduction of Mainsheet Internal Friction

Because catamaran sailors experience high mainsheet loads, many use a two-diameter mainsheet system. The crew handles the large diameter line portion, while the small diameter line runs easily through the blocks.

- Cut a length of 1/4" (6 mm) line long enough to run through the mainsheet blocks and to a trapezing mainsail trimmer.
- Expose enough large diameter line core to cut off 6" (153 mm).
- Sew small diameter line end-to-end to larger line core.
- Milk cover over junction. Sew cover to small diameter line.
- Whip end of large diameter line so it can run through blocks.
- Adjust length of small diameter line so junction between two diameters is just short of trimmer's hands when trapezing.

SEIZING INSTRUCTIONS

- Cut 4' (1.22 m) length of sail maker's twine or whipping thread.
- Form loop in bitter end of mainsheet, leaving 3 line diameters of tail turned back against the mainsheet. Stab through and capture tail of thread. (**Figure 4**)
- Continue sewing tail to mainsheet until you have passed through 6 times. (**Figure 5**)
- Tightly wrap sewed area with sail maker's twine, completely covering sewn area. (**Figure 6**)
- Wrap sail maker's twine lengthwise 3 times, pulling tightly. Bury twine back into seizing. Be careful not to cut thread with needle. (**Figure 7**)
- Cover finished seizing with rig tape to prevent chafing.

Figure 4

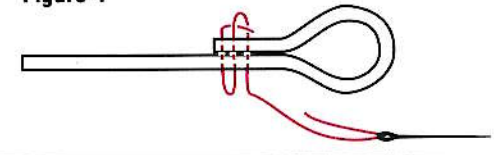


Figure 5

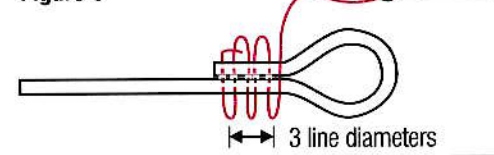


Figure 6

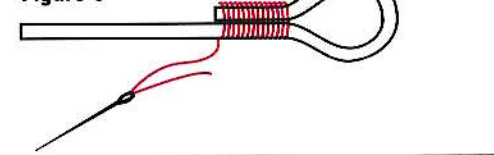
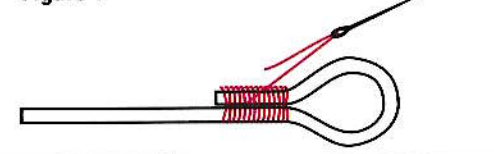


Figure 7



MAINTENANCE / WARRANTY

Small Boat Blocks: The plastic side plates and sheaves of small boat blocks are UV stabilized, but they may turn gray after exposure to the sun. This discoloration may be removed with a fine abrasive, but will not reduce the strength of the blocks.

Flush small boat blocks frequently with fresh water. Periodically clean blocks with detergent and water to remove salt and dirt. Lubrication is not required, but lubricants which will not attract dirt may be used. Examples are dry Teflon® or dry silicone sprays.

Inspect blocks periodically for damage. In particular, inspect shackles and swivel posts for cracks, corrosion, or elongation. When replacing shackles, be sure to use Harken parts to maintain the proper strength. Use Loctite® when refastening nuts or screws. Tape cotter rings to prevent snagging.

Do not leave heavy loads on small boat blocks when not being used. This may slightly deform the bearings. Normally they will return to their proper shape after being rotated, but an initial resistance to rolling may be felt.

See Harken catalog for full maintenance and warranty.

Patent: Harken Magic Blocks™ are a patented gross-trim-trim/fine-tune mainsheet system invented by Greg Scaze and Mike Zuteck, two scientists who race Tornado catamarans.