MAINSAIL RIGGING CHANGES

Mort Goldman, T-30 #136, *Valium*, August 1995*

Over the past few years I have been working up to acknowledging the need to make mainsail-handling physically less demanding on me (and less nerve-wracking to Marcia). The self-furling genoa has been a fixture on our boats from the outset, but converting the main to slab-reefing from the built-in roller reefing system on *Valium* was the only concession made to ease its handling, up to now. The crew has been particularly tense when changes in the wind and seas have made it necessary to reef the main at the mast, while the boat bounces around. After a winter of cogitating alternatives and shopping available commercial systems, I modified the main halyard and reefing system to make it all manageable from the cockpit.

The criteria for this modification included no rework of the sail itself (required by all of the commercially available systems), and minimum cost (consistent with my mostly-retired status). *Valium* enjoys a fully battened main, necessarily used in conjunction with a lazy jack system (also a unique design; see separate article) to contain the main and the battens above the boom when the sail is lowered or reefed, and we didn't want any further changes that commercially available systems would impose. There were also some layout limitations imposed by the off-center main-cabin hatch located just aft of the mast.

Once a project like this gets underway, other associated activities begin to bubble to the surface, and this was no exception. I planned to use deck-mounted turning blocks for the halyard, downhaul and reefing lines, and decided I might as well install a coach-roof hold-down system as suggested in other articles in *The Hook***. However, I intended to use stock components to make up a less-complicated system than those described there. I also decided not to move the mast-mounted main halyard winch to the cockpit area, but to install a new dual-purpose winch (with line clutches) on the coach roof alongside the companionway hatch for the halyard and reefing line. The end results of these machinations are shown in the accompanying figures.

Figure 1 shows the deck layout of the main halyard, main reefing and downhaul lines, and the line clutches and winch. All of the lines were led down the starboard side because of the main-cabin hatch

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** See article "Maintaining Hull & Deck Shape" on this website.

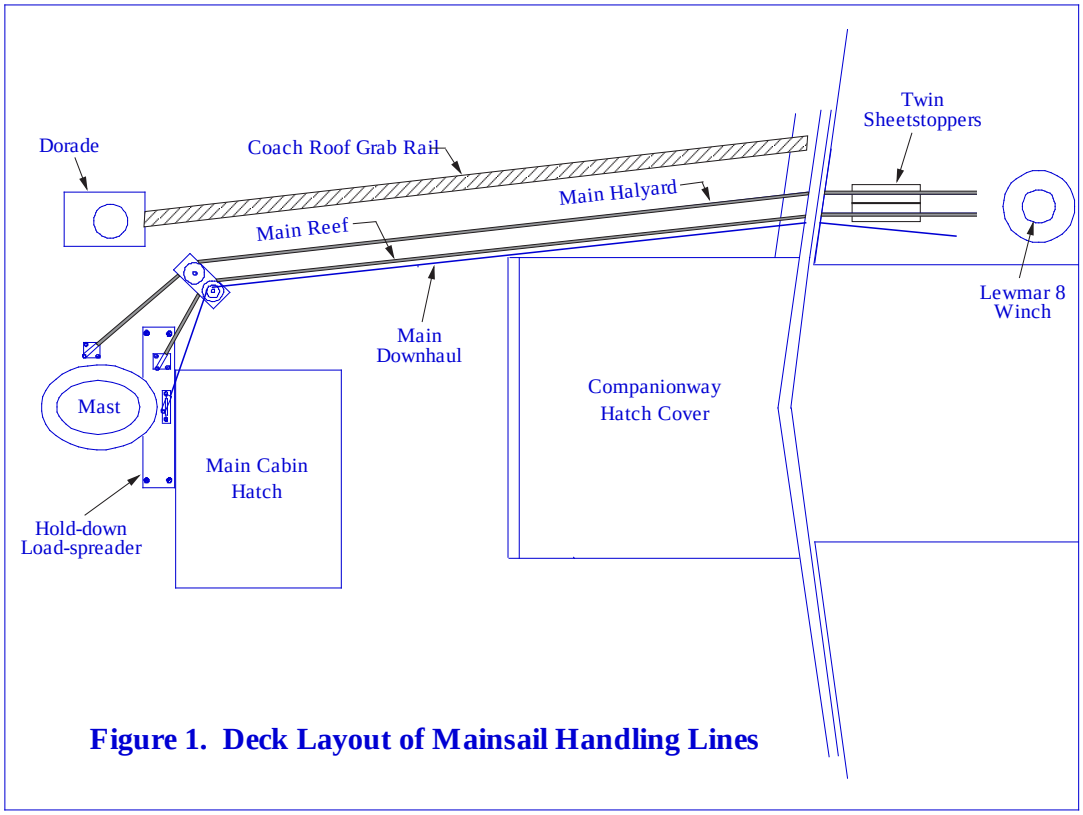


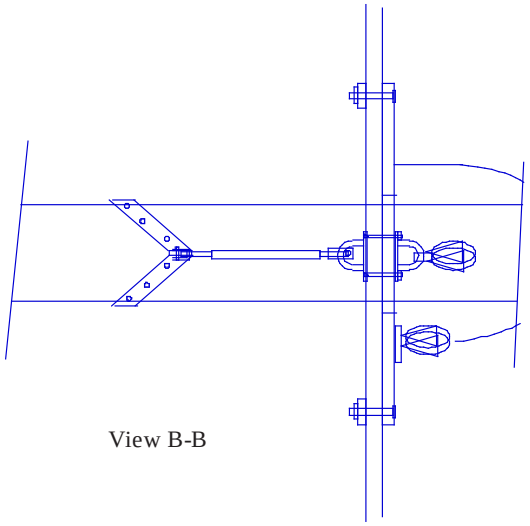
Figure 1. Deck Layout of Mainsail Handling Lines

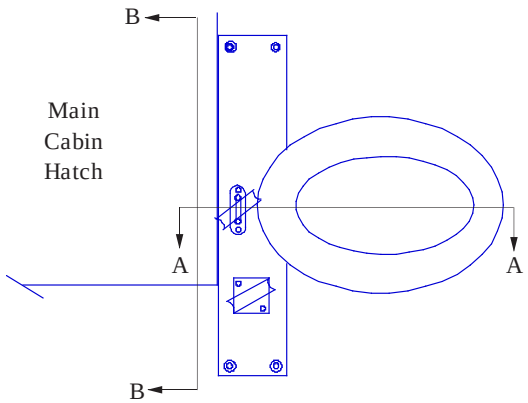
interference on the port side. The halyard turning block was mounted on the deck with a teak backing plate in the cabin, but the other turning blocks (reefing and downhaul lines) were mounted on the deck hold-down beam. For that function I chose a 1/2" x 3" x 15" teak board cut out to fit between the mast base and the main cabin hatch, bolted through the coach roof with 1/4" machine screws and teak backing plates, and back-to-back 3/4" stainless steel pad eyes; the lower pad eye is tied to the mast in the cabin via a jaw-to-jaw tubular turnbuckle (Johnson Marine # 05-100), as shown in Figure 2. The upper pad eye serves as the base for a small swivel base turning block for the downhaul line. The wood is consistent with other deck trim and should serve well, since that beam would be loaded only in compression.

For the new main halyard, I bought 95 feet of 3/8" ultra-low-stretch braided line, which turned out to be about 6 feet too long. A Lewmar 8 single-speed winch for the main halyard and reefing line (5/16" low stretch dacron braid) and a Spinlock Model XA-2 double clutch were mounted with teak backing plates on the starboard coach roof alongside the companionway hatch.

The halyard turning block at the mast base is a Schaefer Marine Series 303 swivel block on a deck plate, leading the halyard through a twin-sheave Spinlock organizer (Model TB2) on deck and 7/8" holes in the ledge molding to the line clutches and winch. The holes through the ledge molding were drilled using a 3" long carbide-tipped holesaw following a 1/8" pilot hole using a long bit. The reefing line uses the second organizer sheave, line clutch and the winch.

The mainsail downhaul line currently uses 1/8" dacron braid tied to the top-most sail-slug shackle, led down through the lower slug-shackles to the turning block. The line is then led through a small cheek block screwed to the top of the organizer in which holes were drilled and tapped for 8-32 threads, and then back to the cockpit through another 7/8" hole in the ledge molding.





COMPONENTS :
Padeyes (2 ea) ..... SeaDog, 3/4"I.D.
Turnbuckle ..... Jaw-Jaw Tubular, Johnson Marine #05-100
Boom Bail ..... 4" x 6", Boat/US #330192
Load-Spreader ..... 3" x 15" x 1/2" teak

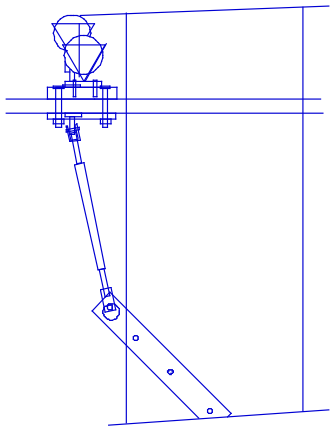


Figure 2. Details of Coach Roof Hold-Down

The general layout of the main reefing line is shown in Figure 3. The line runs from an existing cheek block on a track on the starboard side of the boom (an old circular-section roller-furling model) up through the first reefing grommet in the sail leech and then down to a curved base cheek block (Schaefer #303-30) on the opposite (port) side of the boom, then to an identical block on the port side of the boom as far forward as it could be mounted, up through the luff reefing grommet and then down on the starboard side to a cheek block mounted on the starboard side of the mast a few inches below the centerline of the boom. This block (shown with its custom-cut teak mounting block in Figure 4) was located on the mast to provide a degree of forward tension for the reefed tack, which would not be provided by a block mounted on the boom itself. The reefing line then proceeds down to a turning block mounted on the deck hold-down beam and thence to the deck organizer and back to the cockpit. To mount the block on the mast, it was necessary to remove a cleat used by the previous owner for a reefing line, a job that required cutting through one frozen screw.

In use, the lazy jacks are deployed and the main halyard attached to the mainsail head board before getting underway. Raising the main is easily done from the cockpit, as long as the boat is directly into the wind; the full battens can foul on the lazy jacks if the wind is not dead-on. Reefing involves slacking the main halyard to a mark, stopping the halyard and taking the reefing line on the winch. The reefing is not perfect, exhibiting the resistance (friction) of passing through the reefing grommets (and of all the blocks in series), but serviceable; the winch can easily apply the tension necessary to make the reef in fairly short order. Once the reefing line is winched in to its mark, it is stopped and the main halyard is re-tensioned using the winch. Lowering the main involves releasing the main halyard while on the wind, and using the light downhaul line to “encourage” the main to fall all the way into the lazy jacks.

The lazy jacks themselves were also modified from the design published earlier, to do a better job of catching and holding the main until the sail can be properly flaked and tied down. The original design worked well enough when the main was flaked and tied down before a crosswind could catch it; under

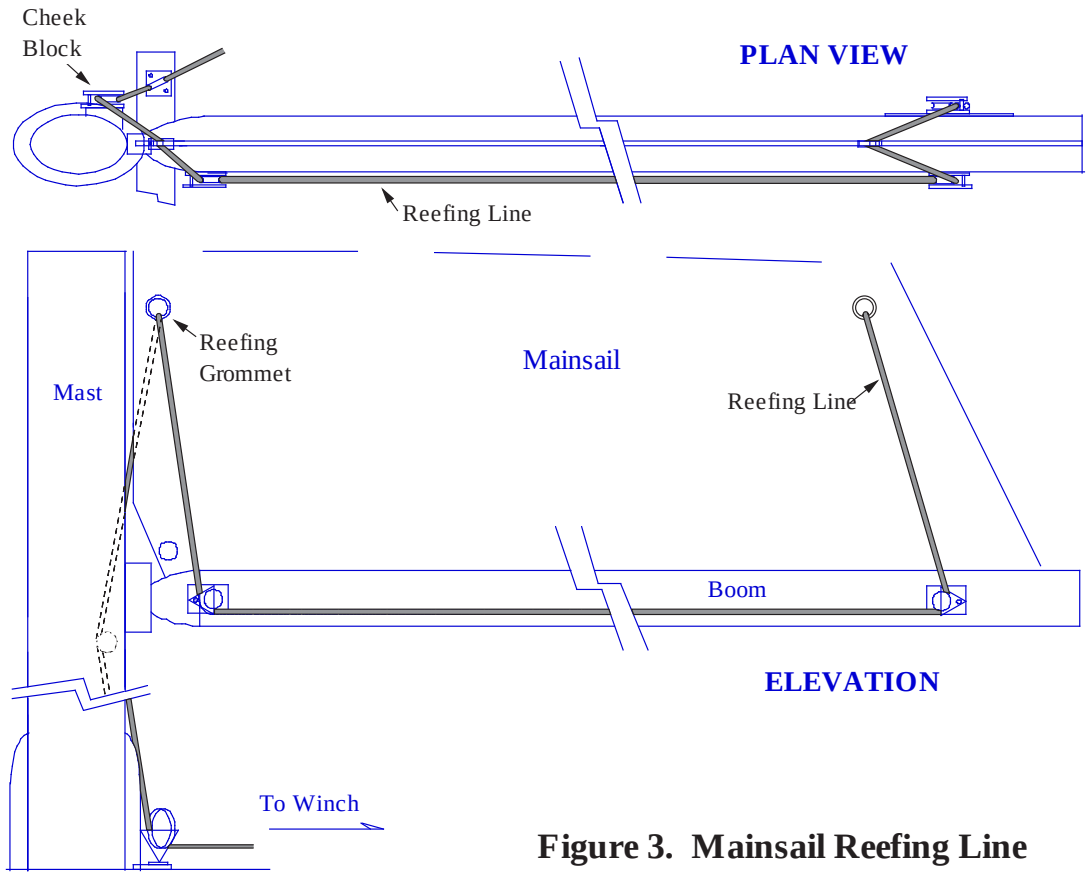


Figure 3. Mainsail Reefing Line

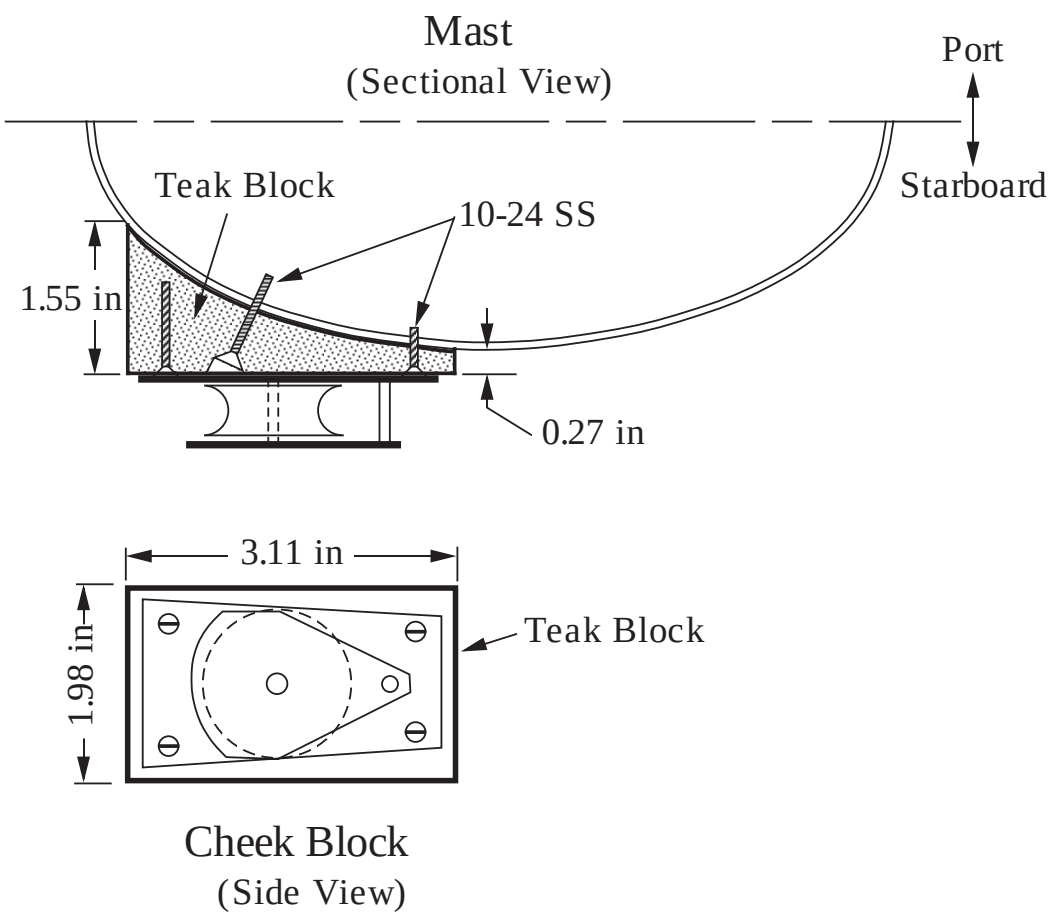


Figure 4. Cheek Block for Mainsail Reefing Line

the new criteria, it needs to be secured well-enough without immediate tie-downs. Again, the criterion was minimum change from the existing system. The main lazy-jack hoisting line was retained, and the other lines rearranged to all hang from the main line and provide a "basket" of five support lines on each side of the boom extending from the mast to two feet from the boom's aft end. The new design doesn't store as neatly as the original but it does hold the sail better. The final project will be to install a means of deploying and retracting the lazy-jacks from the cockpit; it is yet to be designed — but another winter lies ahead.