SCHAEFER BOOM FURLING

PATENTED

BETA BOOM

Sailmaking Guide

SCHAEFER MARINE

Advancing the Mechanics of Sailing

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Sailmaking Guide

Introduction:

As with any in-boom furling system, a complementary mainsail is necessary for proper furling and unfurling. This guide serves to identify those important characteristics of the mainsail design and construction to work properly with the Schaefer Boom Furler. Schaefer Marine does not endorse any deviations from these instructions, as doing so may cause early mainsail failure and improper sail furling. If any questions arise, please contact your Schaefer Marine customer service representative.

Please take the time to carefully read these instructions completely. There are many important details required for the sail to function properly.

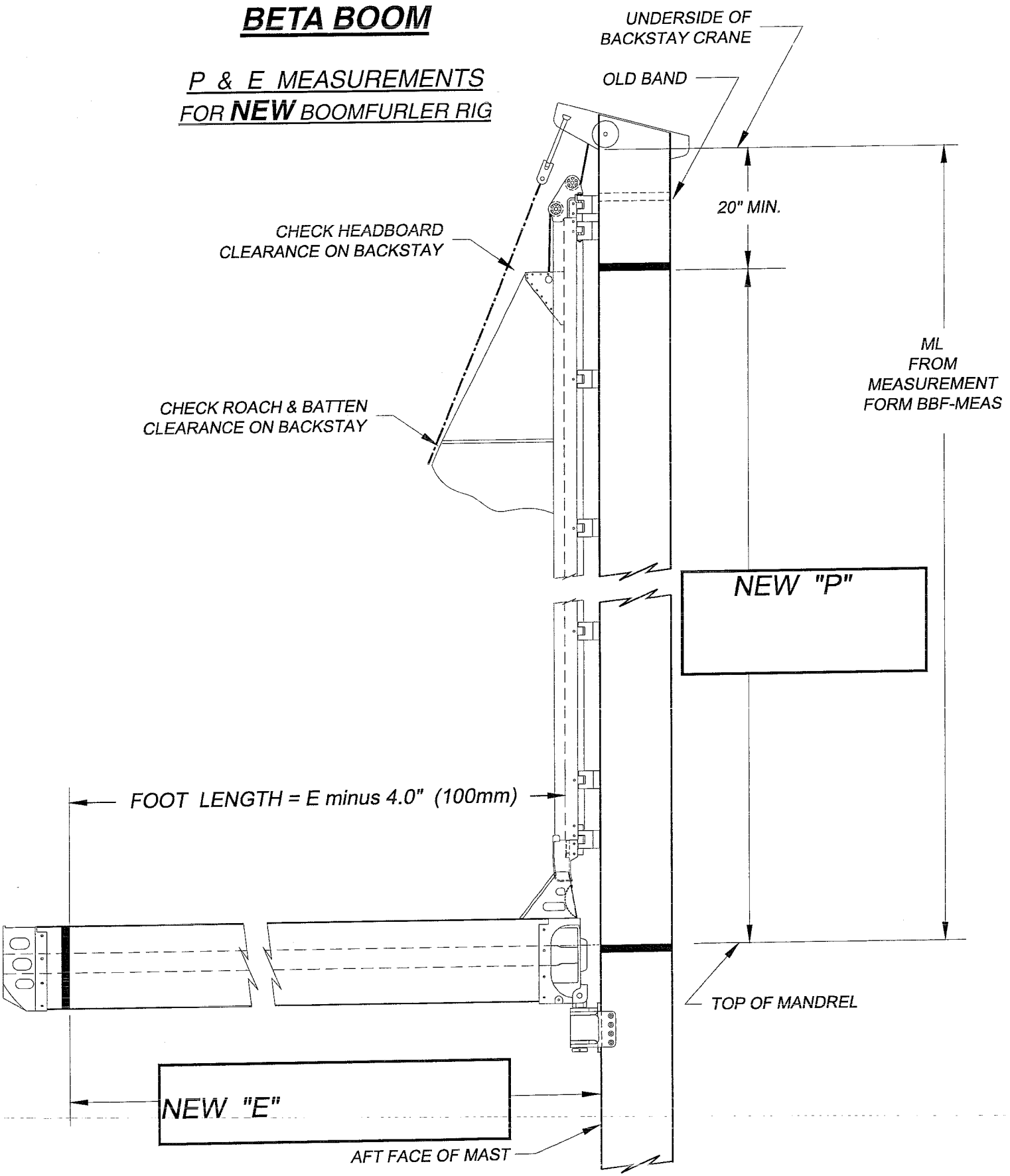
Sail Dimensions & Determining P & E (fig 100):

1. **P** is the maximum hoist of the luff of the mainsail. It is measured from the **top of the mandrel** to the top of the band mark near masthead. The sailmaker must adjust for stretch deductions. The new **P** for the boom furler should be shorter than the existing mainsail to allow for the sheave box at the top of the mast track. Dimensions of this area and other related measurements are shown in fig. 100. The measurements should be recorded and sent to Schaefer Marine for assistance in determining new luff length. If there is not ample clearance, further reductions of **P** are necessary for the sail to fit. If the rig is standing the "ML" measurement in fig. 101 can be taken using the main halyard with a tape measure attached to it. Contact customer service for a detailed measurement form BBF-MEAS-INST.

2. **E** is the measurement from the aft face of the mast to the aftermost edge of the clew of the sail or band mark on the boom. E is usually the same as the previous boom. The luff of the sail is set back 4" and this amount is deducted from the **E** to calculate the foot length of the sail. This difference must be accounted for in order for the sail to fit properly in the boom. The sailmaker must also adjust for stretch deductions.

   The P and E are rig measurements and the sail must fit within these parameters.

FIG. 100


BETA BOOM
P & E MEASUREMENTS
FOR NEW BOOMFURLER RIG
UNDERSIDE OF BACKSTAY CRANE
OLD BAND
20" MIN.
CHECK HEADBOARD CLEARANCE ON BACKSTAY
CHECK ROACH & BATTEN CLEARANCE ON BACKSTAY
ML FROM MEASUREMENT FORM BBF-MEAS
NEW "P"
FOOT LENGTH = E minus 4.0" (100mm)
TOP OF MANDREL
NEW "E"
AFT FACE OF MAST

Sail Specifications:

1. **Luff Tape:** Use ***only*** ***#6*** single bead hard-cored **Teflon** luff tape. Do not use luff tapes with dual beads. Do not use Spectra luff tape or any other type than the "Teflon" cord from Sail Systems, Inc. tel: 978-745-0440 fax: 978-745-4285 contact: Hayden Brown or from Bainbridge International, Inc. tel: 781-821-2600 fax: 781-821-2609. The tape is white with black flecks.

2. **Foot Rope:** Use 5/16" mainsail bolt rope.

3. **Leech:** Use heavy duty leech tape. If an adjustable leech line is used, mount it on the starboard side of sail. Tie off the line with Gransegel cleat or small clam cleat mounted on the starboard side. Avoid excessive twist in the leech.

4. **Sail Cloth Weight:** Cloth should be the lightest possible for ease of rolling. In general .5 to 1.0 oz. lighter than a conventional sail is recommended. Heavy weight cloth will increase the furled diameter of the sail too much to fit inside the boom. Since the leech is reinforced with the two-ply, the sail cloth can be lighter..

5. **Luff Curve:** Minimum luff curve works best. Luff curve must not exceed mast bend plus 1" (25 mm). Use broad seaming to induce draft in sail. The draft should achieve a mid girth cord ratio of approximately 11%. Flatter cuts will roll with fewer wrinkles on the mandrel.

6. **Roach:** Maximum roach must not exceed 25% "E". See fig. 102 or fig. 103. The maximum roach and leech must not exceed the foot length.

7. **Leech Plying:** The leech plying is necessary to help build the rolled diameter of the sail in the aft area to be nearly the same as the forward end where it is bulkier due to the luff tape. Leech ply material should be the same as the sail and attached to the port side. The plying should be broad seamed in the same manner as the panels. Tuck the aft edge of the ply under the leech tape. See fig. 102 or 103 for specific dimensions.

8. **Battens & Batten Layouts:** There are two sail layouts available: a four batten layout shown in fig. 102 for luff lengths up to 35 ft. (10.7M) and a five batten layout shown in fig. 103 for luff lengths up to 45 ft. (13.7M). The batten angles must be installed accurately to ensure they roll parallel to the mandrel. All battens must be on the **STARBOARD** side. The leech end of the batten and pocket must not extend beyond the leech. **Velcro** pockets on the aft end are acceptable. The leech end must be smooth. Avoid bulky ends as they may interfere with the furling operation. The panel sizes are proportioned to position the two lower battens near the reef points to help flatten a reefed sail. **RBS compression tapered battens are the only manufacturer recommended.** RBS will properly finish the front end to conform to the Schaefer batten end fittings and taper it to proper specifications. This labor savings should offset any freight charges. ***The batten width must not exceed .78" (20 mm) and the thickness at the luff end must not exceed .160" (4.0 mm) to fit into the supplied batten receptacles.*** These narrow battens fit into the receptacles supplied by Schaefer Marine in a sailmakers kit. The narrow battens are required as they create less bulk when the sail is rolled. RBS and Tuff Stix can be ordered with the proper tip thickness. Do not use either wide or round battens. Battens are available from the following suppliers:

RBS, Inc.
P.O. Box 988
Hood River, OR 97031
tel: 541-386-7677
fax: 541-386-7669
web: rbsbattens.com

FIG. 102
4 BATTEN SAIL LAYOUT
Luff lengths up to 35ft.

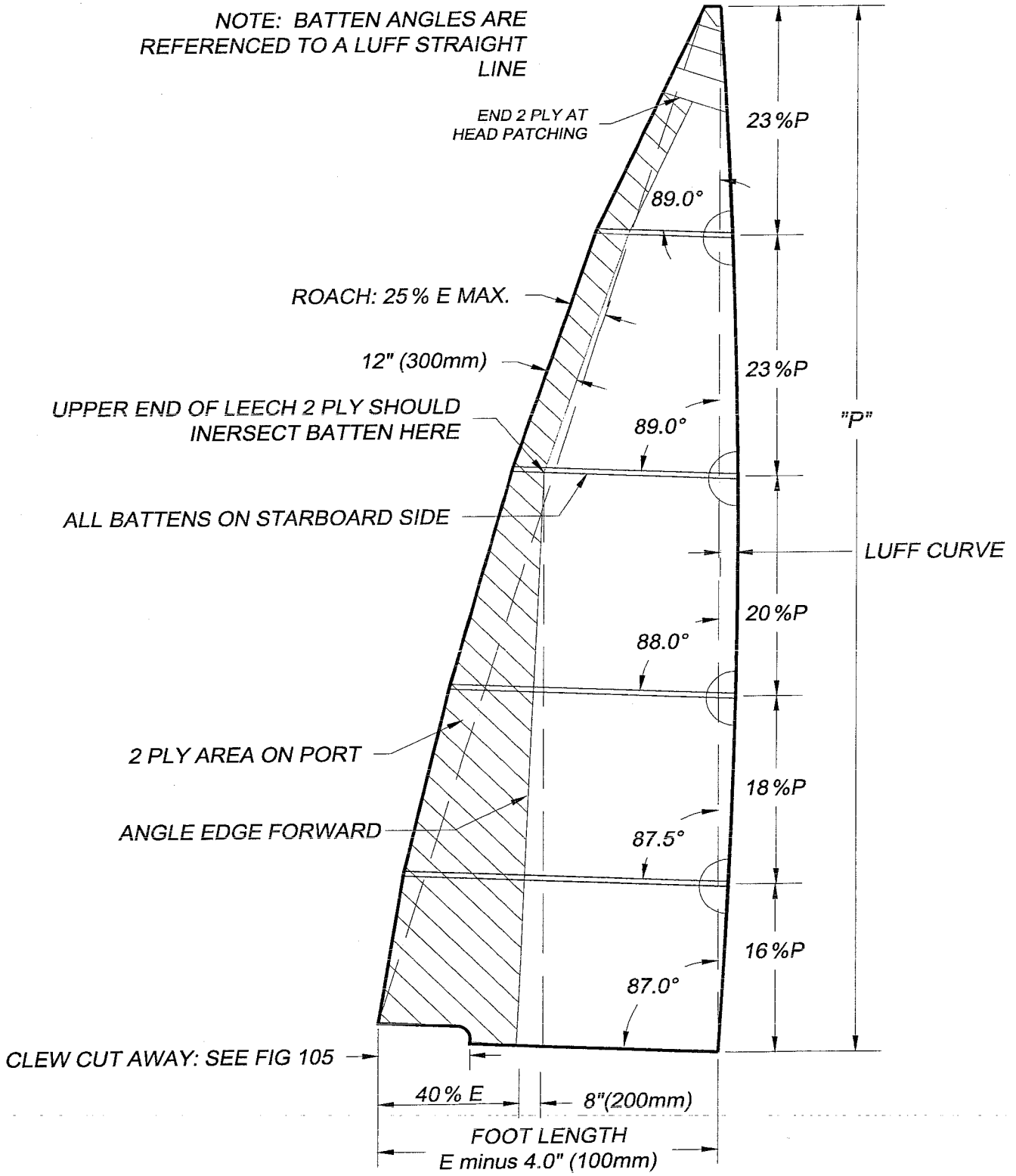
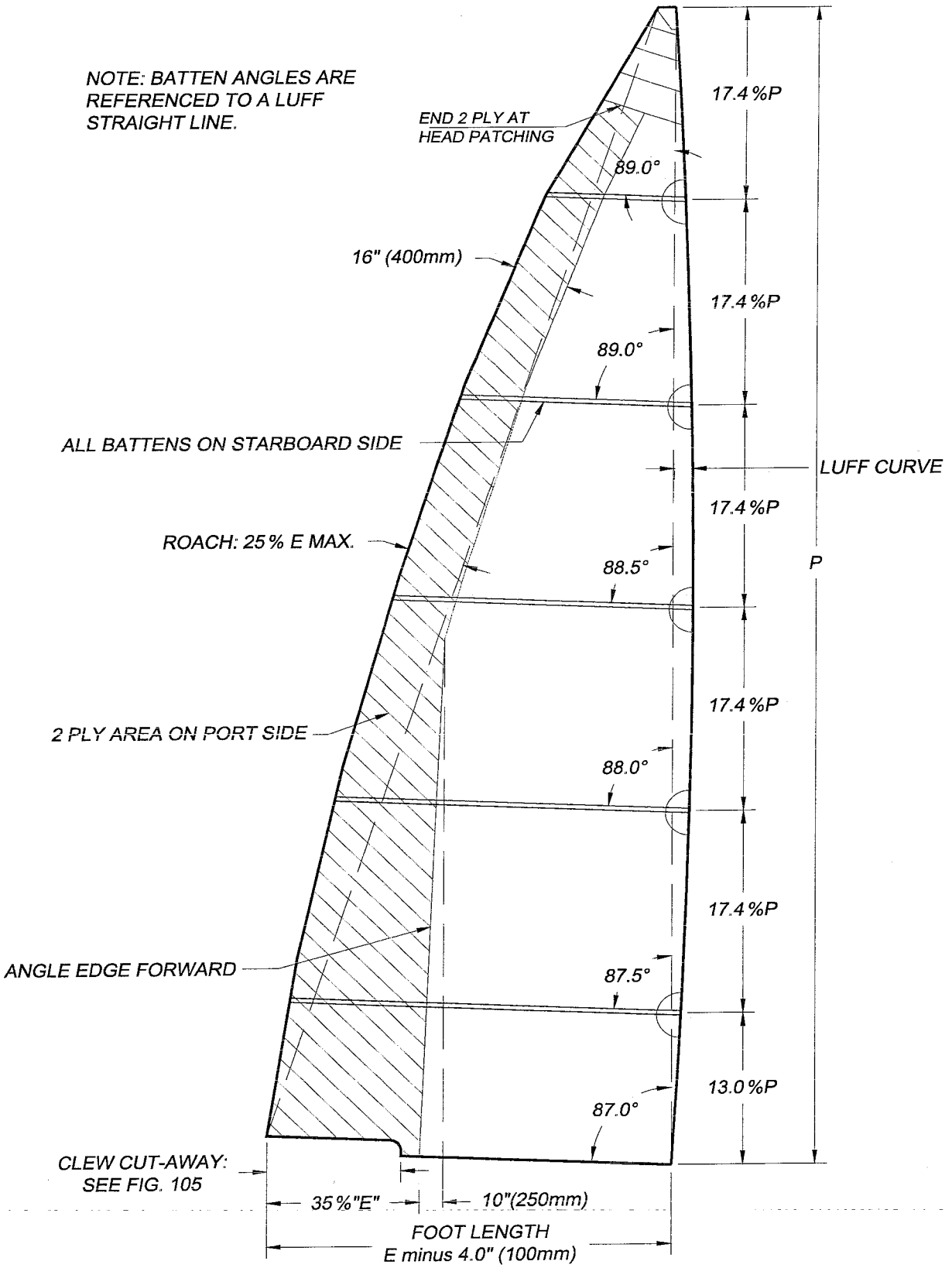
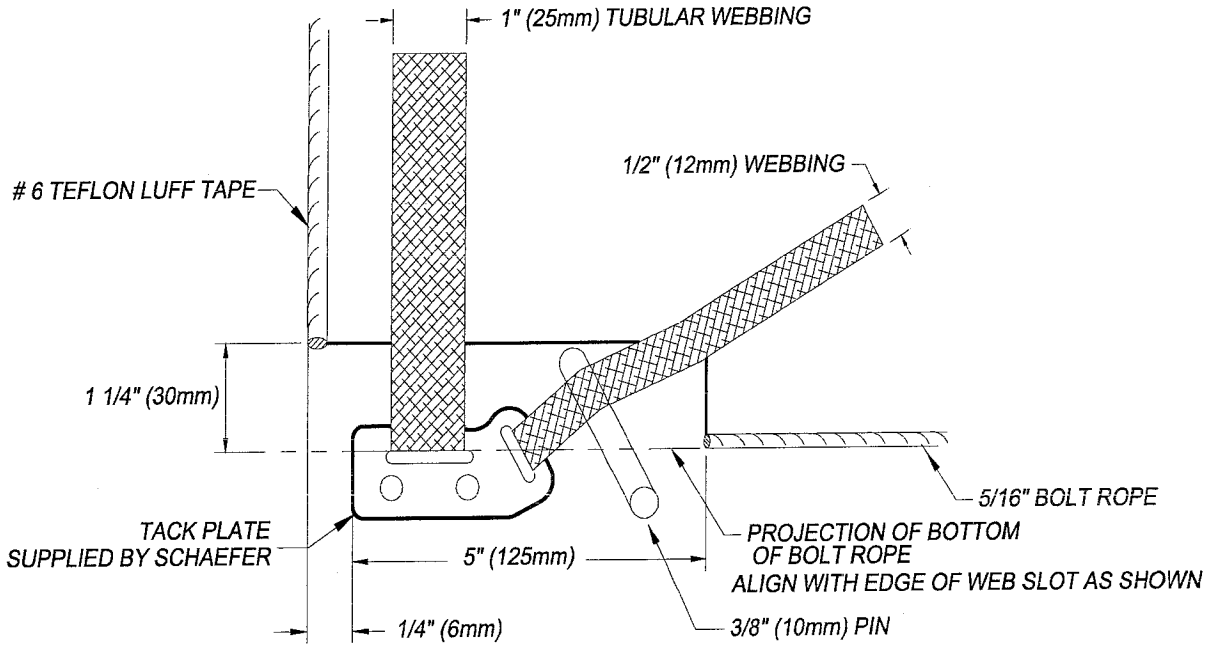


FIG. 103
5 BATTEN SAIL LAYOUT
Luff lengths up to 45ft.



Tack Details

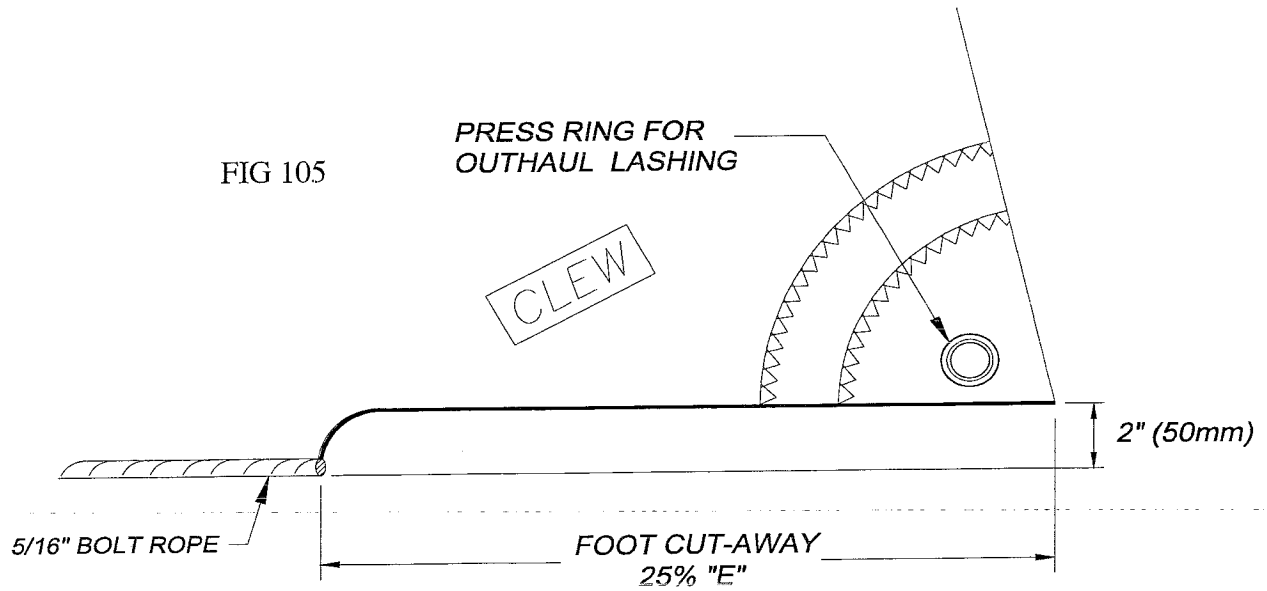
1. Remove 1 1/4" x 5" area from corner.
2. Using supplied Tack Fitting, align top edge of 1" webbing slot with the projection of the lower edge of the foot bolt rope. Align front edge of tack fitting with the projection of the forward edge of the luff as shown in fig. 104.
3. Sew in webbing as shown. Place a 3/8" (10mm) pin under the diagonal webbing as shown. Be sure the pin is not under the sail. The diagonal webbing should be slightly slack or loose.
4. Tack patching must be kept to a minimum to avoid bulk and allow easier furling of sail.



Clew Details

1. Remove area from corner shown in fig. 105.
2. Install a press ring of appropriate strength and size. Because the foot is partially loose footed, the load on the ring may be greater than a conventional clew. A larger rings will create un-necessary bulk when furling.
3. Keep patching to a minimum to avoid bulk and allow easier rolling of sail.

FIG 105



Head Details:

1. Headboard plates must not exceed 4 1/2" (115 mm) across the top and must have two halyard holes. The aft hole is required to keep the halyard out of the track.
2. Use the stainless steel slug (35-386) supplied by Schaefer in the sailmaker kit. The stamped **"UP"** designates the top. The top of the slug should align with the top of the headboard. End the luff tape 3" below the top of the headboard. Burn the end of the luff tape well to prevent fraying. Remove cloth in the middle of the laminate equal to the thickness of the slide from the area where the slug inserts into the headboard. This keeps the headboard flat and avoids exceeding a maximum of 1/2" (12mm) thickness with rivets. **DO NOT install the slide off center** as shown in fig. 109 or the headboard will not fit in the track. Mark and drill holes in slug, aligning top edges with a 1/4" gap between headboard and slide form Fig. 107. **Take care to align the slug parallel to the luff.** If the slug is not parallel, it will create friction when hoisting and lowering the sail.
3. **The maximum thickness including rivets must not exceed 1/2" (12 mm). See fig. 108.** Be sure the heads and the rolled end of the rivets are smooth and free of burrs. This is important to check, otherwise if too thick it will not fit in the mast track.

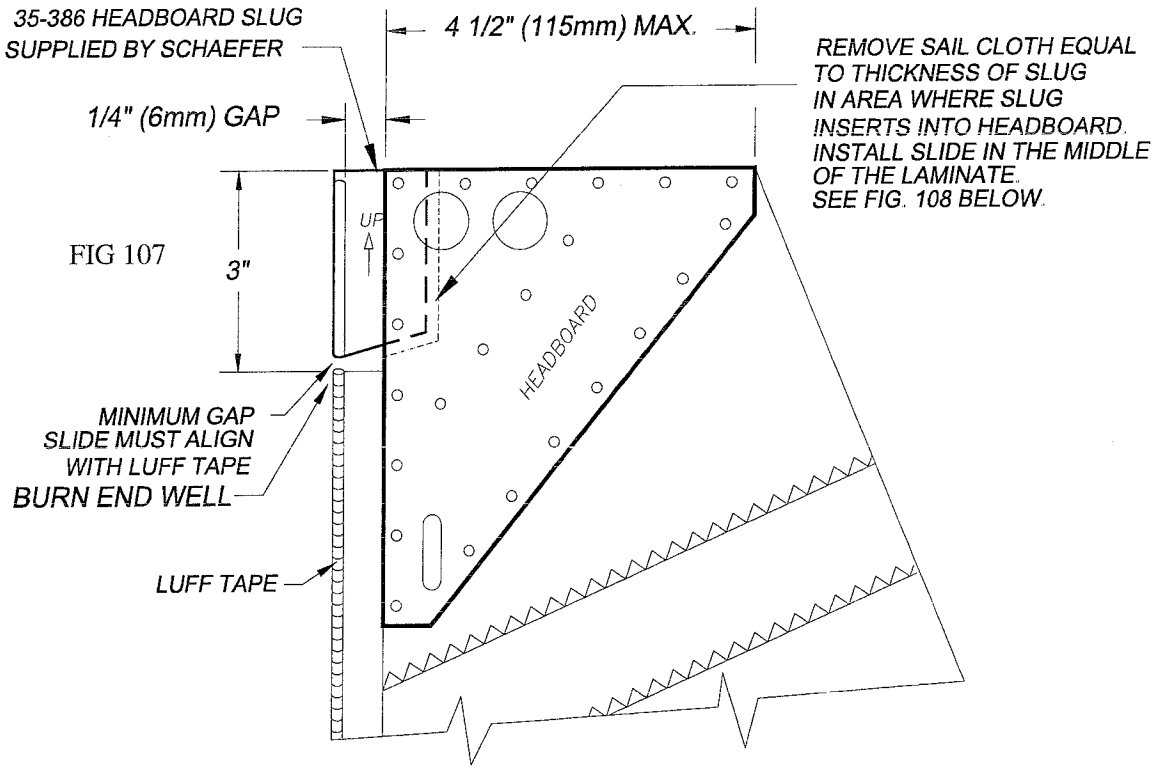


FIG 107

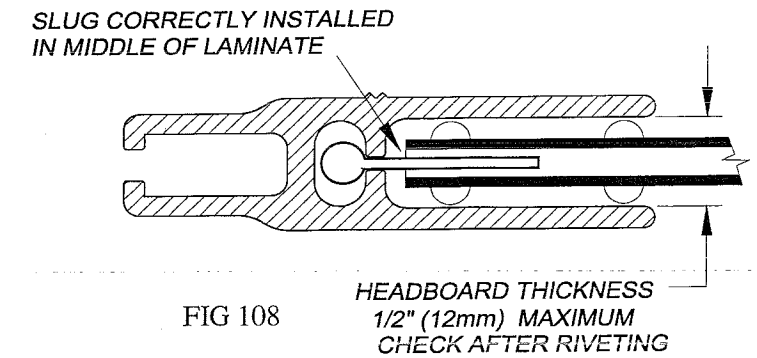


FIG 108

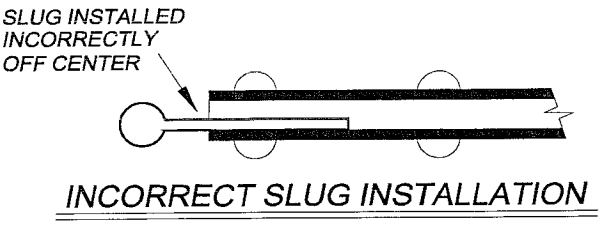


FIG 109

Batten Pocket Details

1. Use aft-loading batten pockets, attached to the **STARBOARD** side ONLY.
2. Offset the batten receptacle 3/8" from edge of luff tape. See fig. 110A. This is critical for a proper lead into the feeder. A Schaefer sailmaker tool part number 86-076 is available for installing the receptacles.
3. Use flat, tapered battens with a maximum width of .78" (20.0 mm) and maximum tip thickness of .160" (4.0 mm) at the tapered end. Radius the forward end of the batten to match the receptacle. See notes on page four.
4. For batten angles and locations, see fig. 102 or 103.
5. Avoid excessive sail cloth build-up. The receptacle thickness with sail cloth can not exceed 1/2" (12 mm) to slide freely in track. See FIG. 110B. Do not use shims under the receptacle.
6. Bolt on the receptacle using **a thread locker. If thread locker is not used, the batten pockets will come apart from vibrations.** There is a left and right half. Be sure the end of the screws do not project beyond the pocket, thus creating a sharp edge that can rip the sail. Short and long screws are included in the sailmaker's kit. **Do not over-tighten the screws or the receptacle may crack.** Gamma and Beta receptacles are different and not interchangeable. Check part numbers on receptacles shown below.
7. **Check the sail by sliding the Schaefer tool part number 86-076 through the luff length of the sail. The headboard and batten receptacles should slide freely through the gage.**

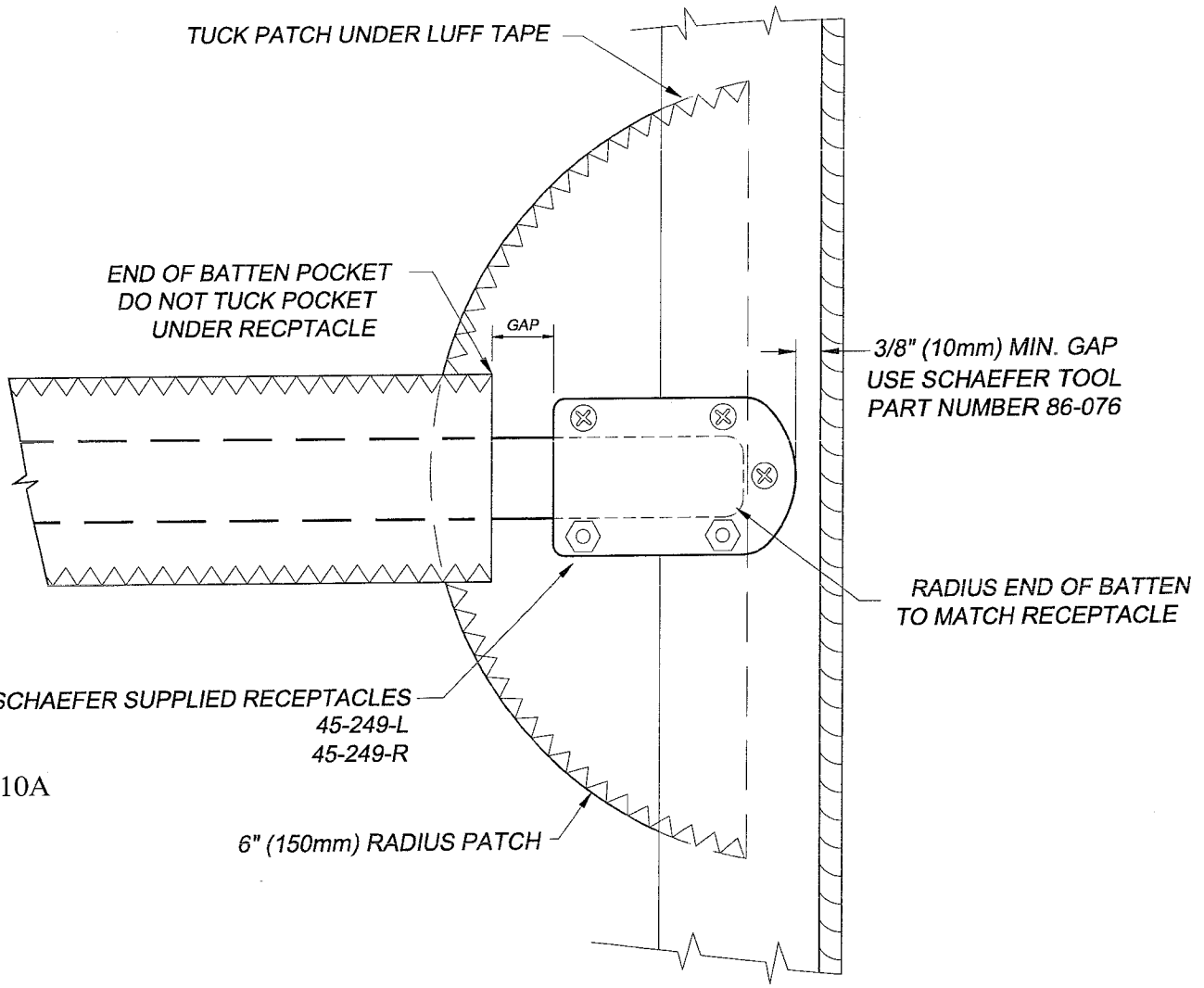


FIG. 110A

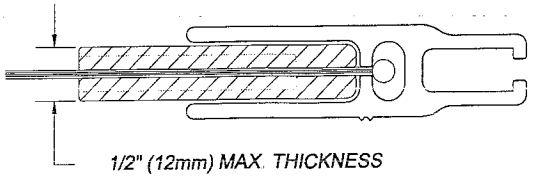
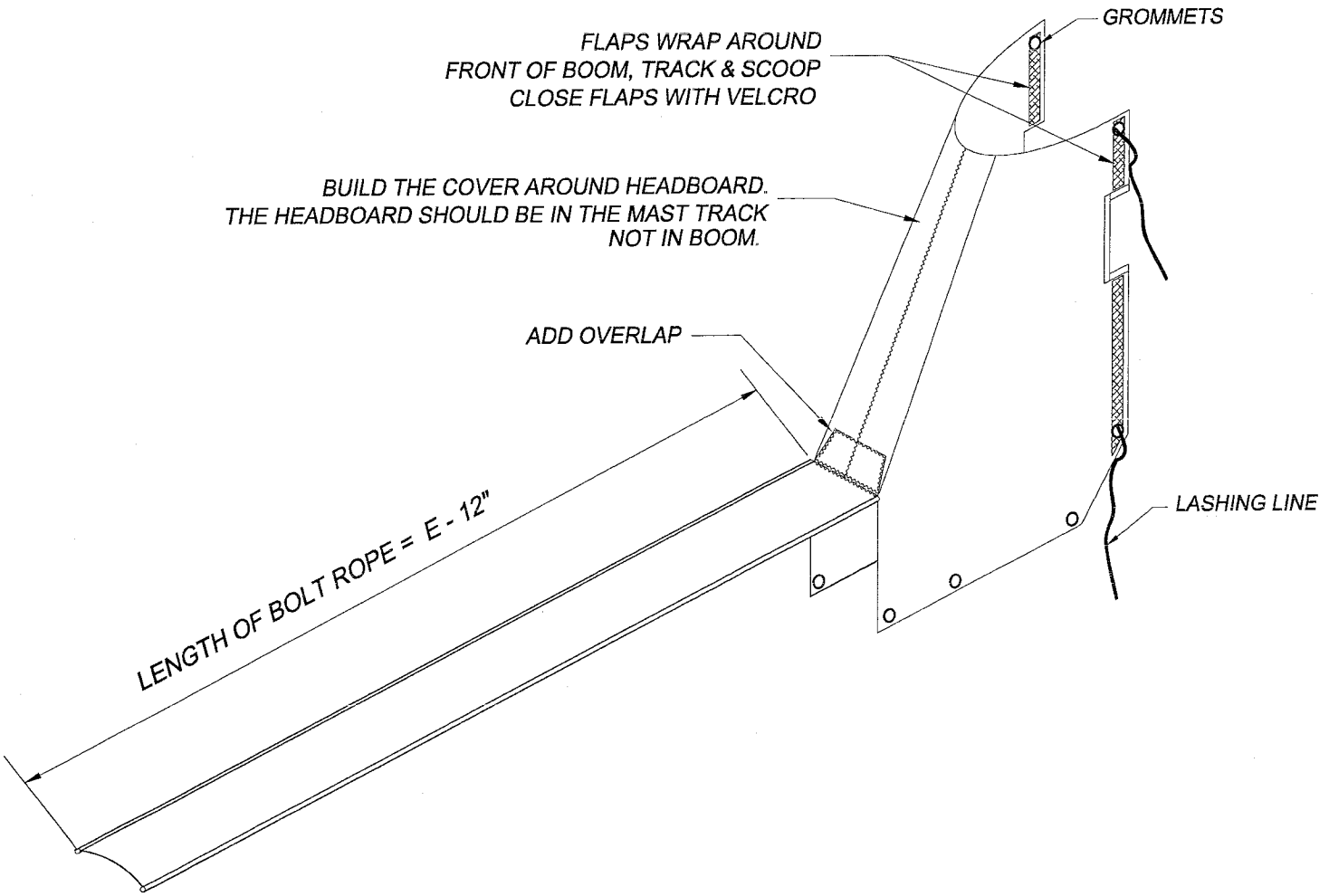
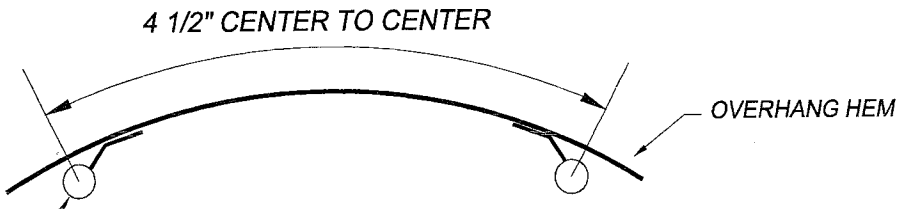


FIG. 110B

Beta Boom Cover Details

A boom cover is not included in the kit. This is a guide for making a sail cover. Use a color that matches the existing boat colors. This guide requires leaving the headboard in the track which is recommended for easier sail hoisting. Check with the customer to find the preferences.





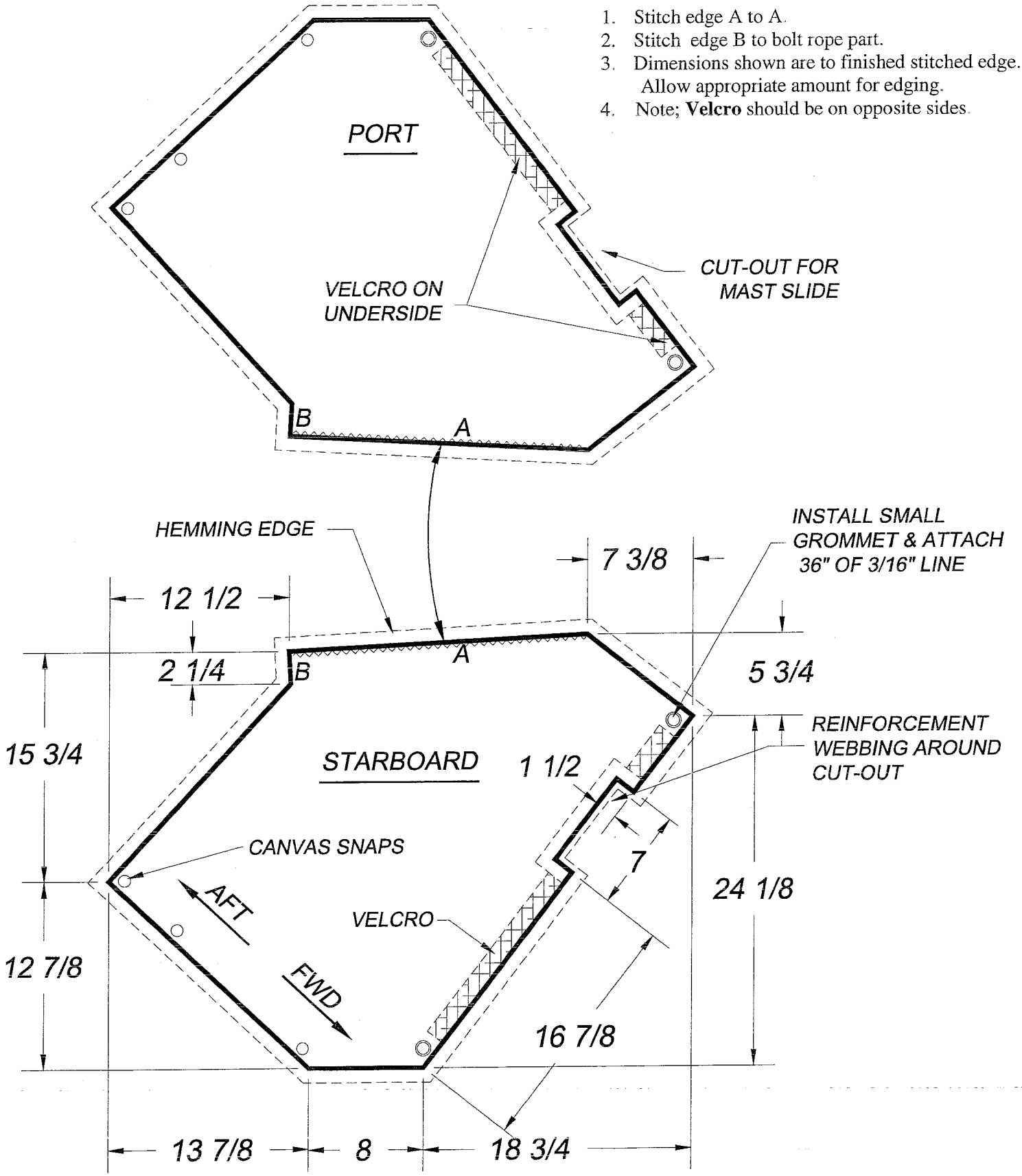
RECOMMEND KEDER L585 AWNING ROPE FROM BAINBRIDGE INETERNATIONAL

USE 5/16" DIAMETER ROPE MINMUM.
OR EQUIVALENT STIFF AWNING ROPE.
ROPE SHOULD BE STIFF FOR PUSHING

Beta Boom Cover Details

NOTES:

1. Stitch edge A to A.
2. Stitch edge B to bolt rope part.
3. Dimensions shown are to finished stitched edge. Allow appropriate amount for edging.
4. Note; **Velcro** should be on opposite sides.



(541) 386-7677 Fax 386-7669

RBS

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