SS&S Chapter 11 Instructor Guide
More on Sail Trim and Boat Handling

This chapter is the appropriate place to discuss the finer points of sailing skills that the instructor chooses

Slide 1: **More on Sail Trim and Boat Handling** No comment

Slide 2: **More on Sail Trim and Boat Handling**

Part 2 Chapter 11 No comment

Slide 3: Lesson Objectives

- Fine tuning rigging
- Weather and lee helm
- Sail shape effects
- Head sail types
- Rigging for heavy winds
- Capsizing & recovery

No comment

Slide 4: Standing Rigging Tuning

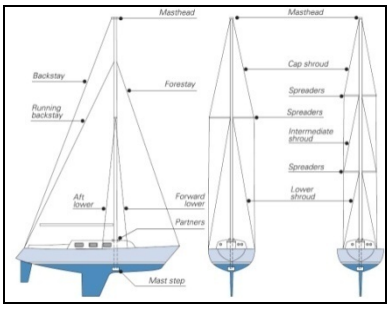
- Rake usually specified by boat manufacturer
- Rake sometimes altered slightly based on experience
- Boat “feel” may indicate need to alter tuning
- Inspection while under load give clues to needed adjustments
- Backstays are sometimes adjusted while under sail
- Marking turnbuckles w/ paint shows old adjustment setting

Affects of center force on sail

Light winds –- use less rake

Heavy winds –use more rake

Slide 5: Fractional Rigs



- Running Backstays sometimes adjusted on each tack

Definition: Sailboat with multiple stays, i.e., upper & lower forestays, upper & lower side stays etc.

Slide 6: Lee and Weather Helm No comment

- Balanced helm sails without holding tiller
- Small weather helm preferred
- Helm balance- hull and sails (center of effort)
- Effected by wind strength and direction

Slide 7: Weather/Lee Helm Problems No comment

- Can be poor boat design
- Poor selection of sail size and shape
- Centerboard set wrong
- Mast positioned incorrectly
- Sails set incorrectly

Slide 8: Mainsail Trim/Shape Summary No comment

- Assume a boat is close hauled:
- As wind subsides the draft (belly) should be larger
- As winds increase the belly must be smaller
- As winds increase it needs ability to spill excessive wind power
- All the mainsail adjustments interact to make the best compromise

Slide 9: Mainsheet-Effects on Sail No comment

- Mainsail tightening causes sail to move towards boat centerline
- Causes downward boom force and improves windward pointing
- On choppy seas the main may be eased to keep wind flowing over the sail

Slide 10: Mainsheet Traveler No comment

- Boom forces transferred transversely
- Allows mainsail (dumping) in heavy winds

Slide 11: Backstay Tensioner No comment

- Allowing backstay to be slightly tightened or loosened
- Loosened - better in light wind conditions
- Tightening- improves the heavy wind performance

Slide 12: Boom Vang No comment

- Controls downward tension
- Independent of the main sheet
- Optionally connected to side- preventing an accidental jibe

Slide 13: Outhaul No comment

- Regulates force pulling the mainsail clew aft
- Regulates sail draft
- Changes light wind / heavy wind performance

Slide 14: Cunningham

- The Cunningham - cringle located about a ft. above the mainsail tack
- Controls mainsail luff bagginess

Less bagginess makes sail flatter – points better

Slide 15: Headsails

- Headsails come in many sizes and weights
- Storm jibs
- Working jibs
- Jibs extending back from the forestay to the mast (a 100% genoa)
- Jibs or genoas can be much larger extending back much further

Jib called a genoa when 100% or larger
Larger genoas give more drive but difficult to transverse in a tack

Slide 16: Headsail Trim

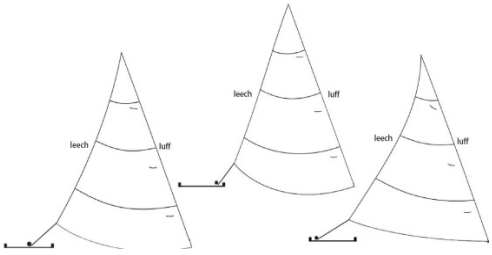
No Comment

- Headsail sheets are in pairs and connected to the sail clew
- Each sheet lead to a jib block mounted on both sides of the deck
- Most boats employ a rail allowing a jib block to be adjustable fore and aft, -- called a “jib car”
- Jib block are adjusted to make sail fuller or flatter to match wind conditions

Slide 17: Headsail Trim

Use this slide to support slide 16

Toy boat won’t have jib cars, but by simulating the cars, and moving the sheet fore and aft will show sail shape changes



Slide 18: Spinnaker

- A very large light weight sail for light wind running/reaching applications
- Often employs a pole to hold in position
- Often maddening to set, fly or lower
- Often dispatched for use and retracted from a chute in the bow
- Some are a generic design and others designed for special applications

Some specialize in sailing a broad reach (Spanker)

Slide 19 Sudden Bad Weather-Squalls

- Squalls arrive fast –lasting a short time
- Put on life jacket
- Drop centerboard
- Drop all sails
- Secure loose materials
- Drop anchor
- Consider strapping crew to prevent being battered (weak/elderly)

Squalls can be very violent

Slide 20: Stronger Winds

No comment

- Old conditions: Sailing well with moderate winds
- New Conditions: Winds/ waves increase considerably
- Actions:
    - If closed hauled- move to a slightly lower course
    - Make mainsail flatter
    - Straighten mast
    - Loose the mainsheet slightly

Slide 21: Winds Continue Getting Stronger

No comment

- Consider changing from close-hauled to a reach
- Partially reef the genoa if equipped with “roller reefing”
- Partially reef the main
    - Tighten topping lift to prevent boom from falling

Slide 22: Wind Very Strong-Lowering Sails

- Douse the main or Jib (genoa)
  - Depends on boat design
  - Try both options
  - Helm feel determines best option
- Dousing both sails
  - Best option when no sail control is possible

Consider lashing crew to stationary objects (retards exhaustion)

Slide 23: Knockdown

- Boat is heeled over but can recover
  - Condition is fearful but not harmful
  - Ballasted keel boats usually recover by themselves

Account for everybody
Gather loose items
Standing on centerboard

Slide 24: Capsize

- Determine if your boat is "non'-self righting"
  - Manage your boat in heavy weather accordingly
  - If capsized, stay with boat-wear life jacket
  - Account for all passengers
  - Have an EPERB

Capsize – knockdown terms used interchangeably
Capsize in this case is overturning with no capability of recovery

Slide 25: Capsize Recovery

No comment

- Some boats capsize very easily
- With these tender boats- practice capsizing in good weather and in standing water

Slide 26: Recovery Procedure No comment

- Release the sheets
- Recover loose gear –especially the rudder
- Use centerboard for leverage to right the boat
- There are tricks to aid recovery- practice will disclose them
- One trick: After boat is upright, pull in mainsheet slightly to give boat a tiny drive. This prevents pulling the boat over while climbing inside.

Slide 27: Disabled Rudder No comment

- Sailing w/o rudder is possible
    - Adjusting jib and mainsail can head boat in any direction
    - Backwind the jib to come about
    - Paddle used as substitute rudder
    - Shifting crew weight can affect steering