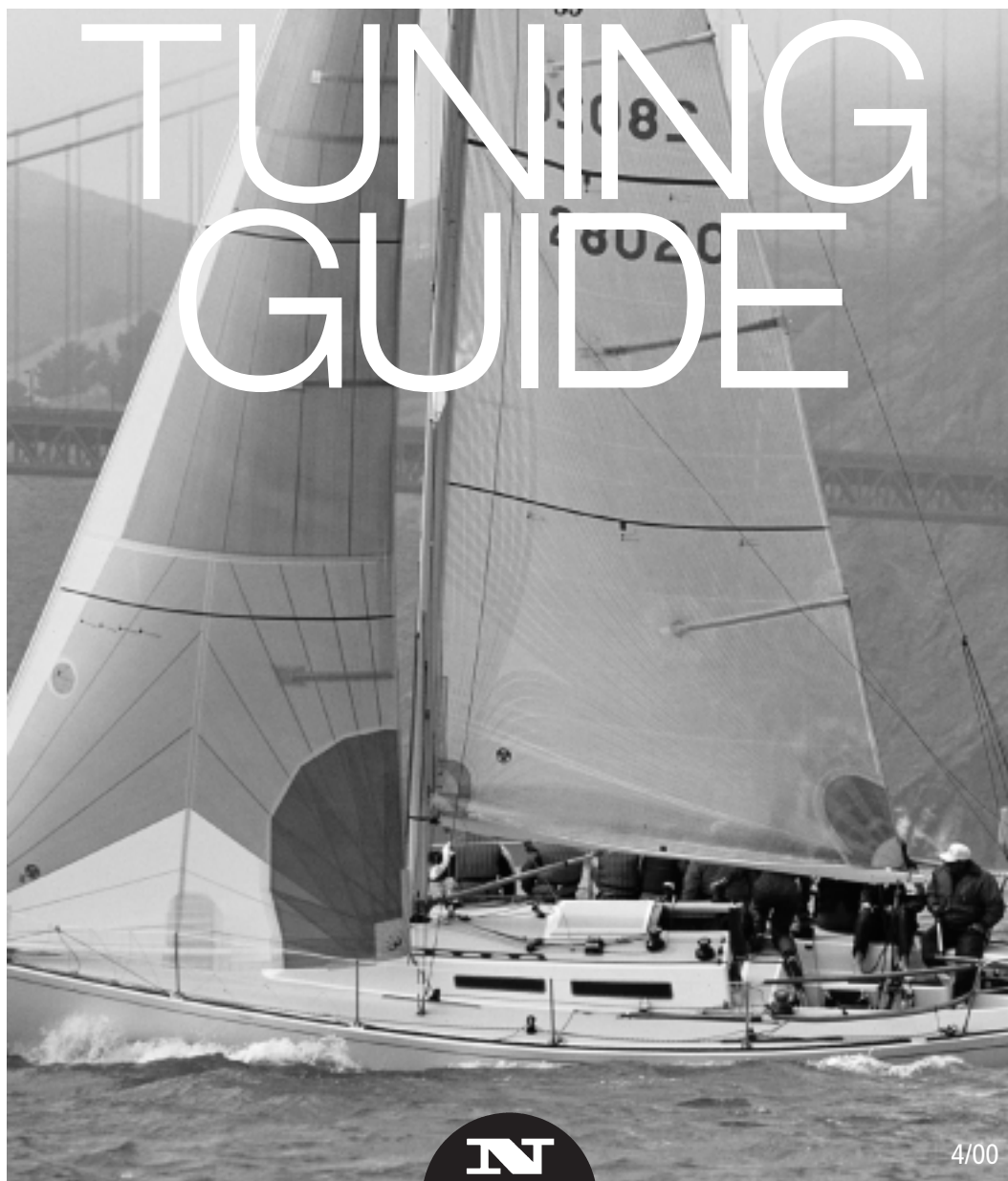


SOLUTIONS FOR TODAY'S SAILORS

J/35

TUNING GUIDE



NORTH SAILS

4/00

The original concept of the J/35 developed in 1985 still holds true 15 years later. The J/35 provides excellent one-design racing as well as casual sailing in the company of friends and family. The ongoing strength of the class amidst a sea of new one-designs shows an admirable commitment by sailors in the class. In the popular Sailing World/NOOD Regattas, the J/35 class continues to have one of the strongest showings. Race weeks at Key West and Whidbey Island are other top events for the J/35 class. Today, more than 70% of the boats still actively race — a testimony to the enduring success of this design.

Winning ways in one-design racing form the very foundation of North Sails. By placing knowledge in your hands we all become smarter sailors. Some of the best and brightest within North Sails have contributed to this guide — their names are listed with a page of helpful tuning tips on page 18.

We hope you enjoy the presentation of this tuning guide. North personnel and many cooperative boatowners have invested a lot of time to make this guide as helpful as possible for you. There are lots of photos showing sail trim over a wide range of conditions and an overview of the sail inventory. 3DL sails are featured almost exclusively in upwind sails, both for weight savings and use over a wider wind range. Our comments on sail trim are written as if we were sailing onboard your boat with you.

As always, we want to know what you think. Call us and let us know if you have some go-fast tips we haven't tried. We hope you enjoy the tuning guide, and we look forward to another healthy 15 years of racing the J/35!

A handwritten signature in black ink that reads "Tom Whidden". The signature is written in a cursive, flowing style. A long, thin horizontal line extends from the top of the "T" to the left, ending in a small hook.

Tom Whidden, CEO North Sails

J/35 *Tuning Guide*



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Thanks to the J/35 "Test Team" of (l to r) Andreas Josenhans, Sharon Benton, Jody Lutz, Matthew Hirsch, Tom and Cindy Hirsch (owners of J/35 AIRBORNE) and Jeff Heath. Thanks also to Perry Lewis of North Sails Midwest and John Gladstone of North Sails San Diego.

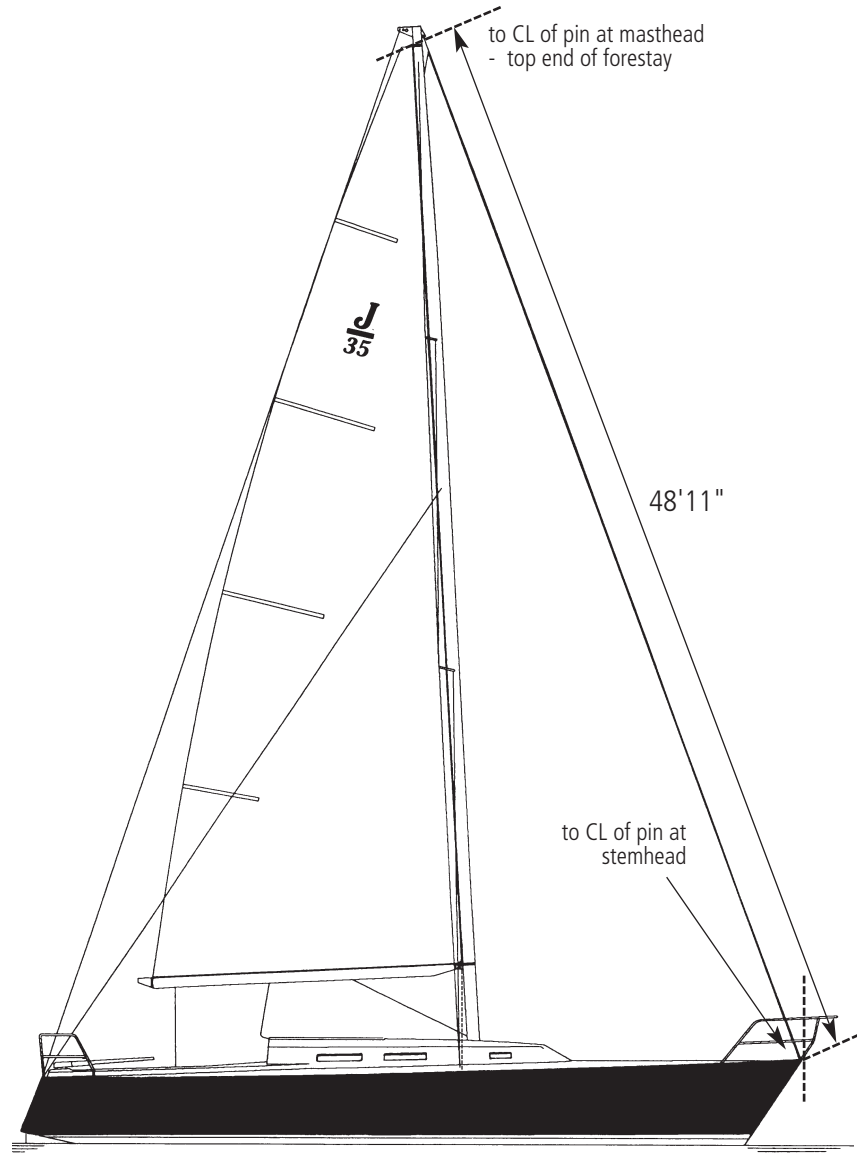


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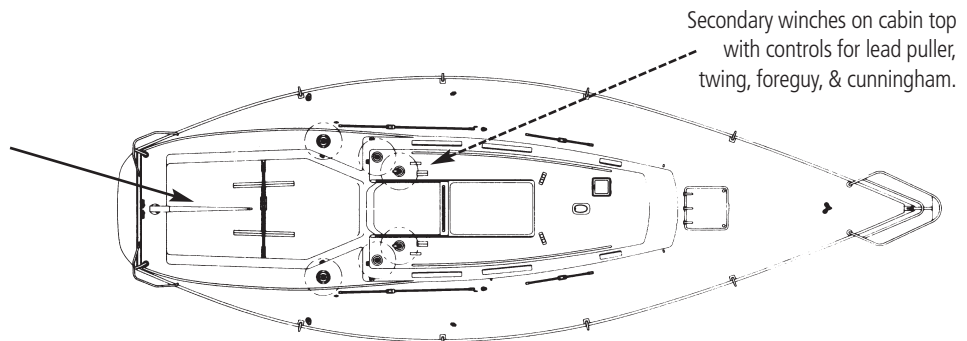
SAILPLAN and DECK LAYOUT

RACING PREP

- ▶ Race with a SMOOTH bottom!
Fair the keel to make it symmetrical with a perfect trailing edge.
- ▶ Speedo paddle wheel should be 3-4 feet ahead of the forward point of the keel at the root.
- ▶ Stow all gear within two feet of the mast. Only bring what you need, leave the rest ashore.
- ▶ If you are required to carry a raft, position it to be sure you can get it topside in 15 seconds (or less).
- ▶ Don't adjust any ballast after 2100 the night before racing. (IYRU rule 22.2)
- ▶ 2:1 traveler control, 5:1 mainsheet with 2:1 fine-tune for easier adjustments upwind.
- ▶ Mount primary winches even with forward edge of cockpit to prevent overrides. (Try using a sissy bar.)
- ▶ Genoa lead track, car, block should be low profile with a ratchet block and 3:1 puller.
- ▶ Move the secondary winches, hal-yard jammers and pole lift cleat aft to either side of the companionway to clear off the cabin top. This helps the crew get across the deck faster when tacking.



Sawed-off tiller with telescoping extension. The helmsman should be able to move between the traveler & tiller without getting hit by the boom.



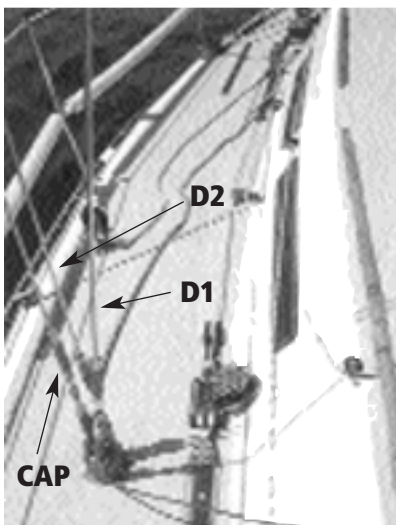
SETTING UP THE RIG

Headstay length — Headstay should be 48'11" from centerline of the pin passing through the upper mast tang to the centerline pin of the tang at the bottom of the headstay (see photos at right). The headstay should be adjusted according to increases in wind speed. The range setting from light air to heavy air is 2".

Centering the spar — Center the spar with the main halyard to the cap shrouds. The mast should be placed 14'8" from the stem sheer line to the front face of the mast.

Mast butt location — Move the mast collar max-aft. The mast butt should be max-forward to produce 1.5" of pre-bend. This opens the slot between the main and genoa making it easier to generate more tension on the headstay with the limited amount of backstay adjustment permitted by the class. Be sure to lubricate the step and bolts.

Tensioning the Shrouds — Install the cap shroud on the aft outside hole, the lower diagonal shroud (D1) on the forward hole, and the diagonal shroud (D2) on the inside hole (see photo). Since we want to encourage the mast to bend forward down low, we put the D1 on the forward hole. We put the cap shroud on the aft hole to help keep it as tight as possible. Once hand tightened, add the following number of turns to the verticals and diagonals. For tuning purposes, tie the shrouds together before you go sailing, which allows easy adjustment. Once final adjustments are made, be sure to pin the shrouds and tape generously to avoid chafe.



Rig Tension

(# of turns past hand-tight)

CAPS18.0 turns

D1s 4.0 turns

D2sHand tight

This is a good baseline tension which optimizes speed and shape for a



headstay length of 48'11" in a wind strength of 0-6 knots true. In 7-12, shorten the headstay to 48'10". For wind speeds over 12 true, shorten the headstay to 48'9.5".

Mastbend — Five factors control bend; Backstay tension, runner load, prebend or headstay length, mast butt position and finally partner hole position. What happens when we change any of the five factors? For example, if we:

- Make the headstay 1" longer** - we are adding prebend which flattens the main in the lower-half and softens the headstay.
- Pull the runner/checkstay** - total bend is reduced, the headstay is tightened, and the mainsail gets deeper.
- Move the butt aft** - we add prebend.
- Bend the mast with backstay tension** - bending increases headstay tension. This flattens both sails and moves the draft aft.



J/35 *Tuning Guide*

GOING SAILING

All North sails include an adhesive backed sticker applied at the clew. This contains critical structural redline information. If the sail is used outside the posted zone, there is a significant likelihood of permanent damage.



The information contained on the sticker has been developed based on laminate testing, yarn modulus and density. This information does not provide any safety factor. Remember, wind force increases at a rate of the windspeed³. When your sails are used within their designed wind range, you will maintain the designed shape longer, which translates into more fast races.

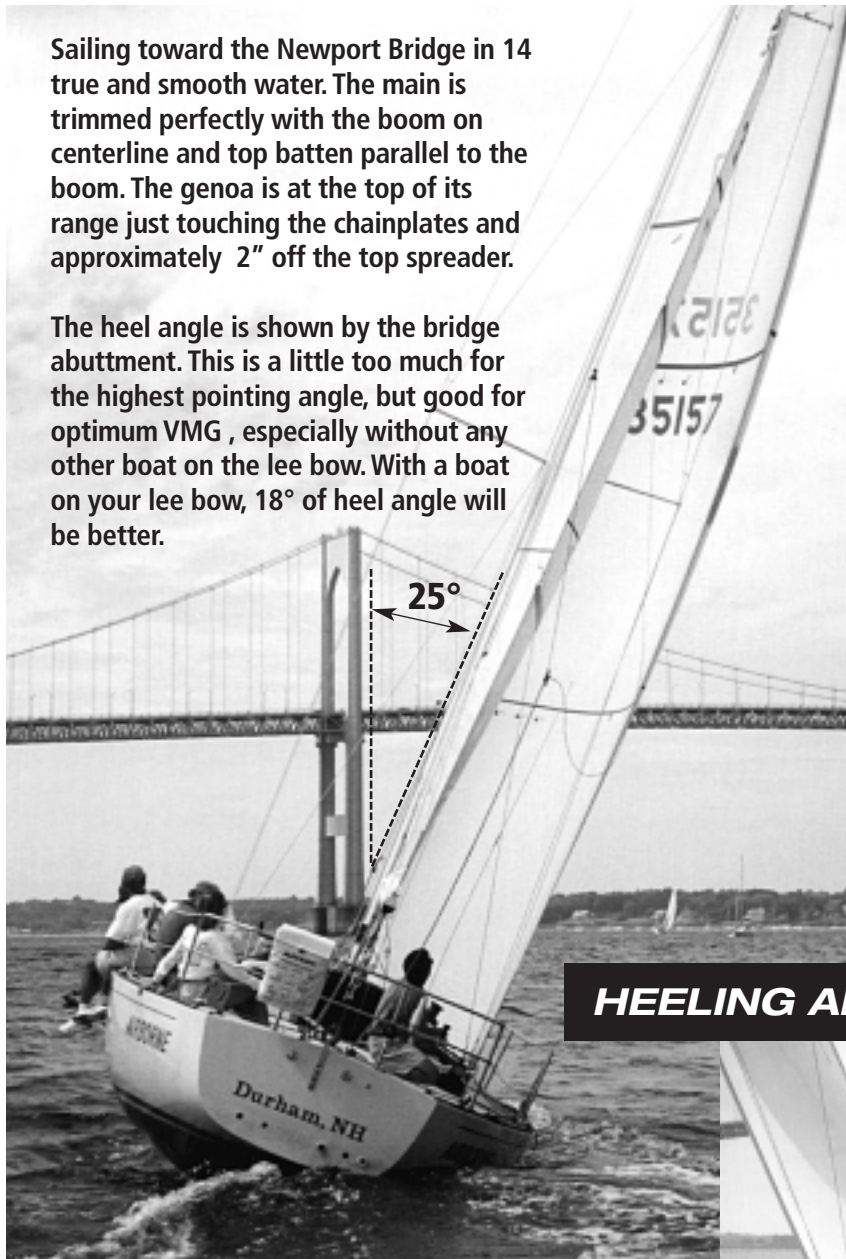


AIRBORNE sailing in 14 true. Mainsail is hoisted to the black band, and the genoa lead is perfect, allowing the sail to be trimmed in next to the chainplate and top spreader. 3DL sails are designed to optimize wind ranges, in the J/35 class with two headsails permitted, range is paramount. It's also critical to sail with the halyard taut to prevent mid-leech sag. We recommend a large diameter uncovered 3/8" (core) Vectran or T900 for a centerline halyard. Halyard stretch accounts for much range robbing mid-leech sag. Equip your boat with a good halyard to get the best out of your 3DL sails.

UPWIND SAILING - LIGHT/MODERATE AIR

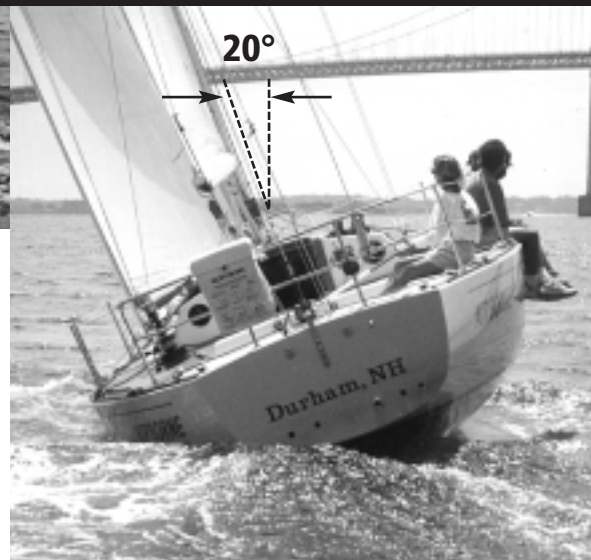
Sailing toward the Newport Bridge in 14 true and smooth water. The main is trimmed perfectly with the boom on centerline and top batten parallel to the boom. The genoa is at the top of its range just touching the chainplates and approximately 2" off the top spreader.

The heel angle is shown by the bridge abutment. This is a little too much for the highest pointing angle, but good for optimum VMG, especially without any other boat on the lee bow. With a boat on your lee bow, 18° of heel angle will be better.



HIKE! The difference between sitting and hiking on a J/35 is just under 1000 ft./lbs. If you are hiking hard, and feel this isn't contributing to anything except a sore butt, here's a short list of the positives of hiking. Allows harder sheeting... more pointing, will cause the keel to be deeper... more pointing, less pitching... more pointing and less rudder angle which contributes to more speed and.... you guessed it, more pointing. So when you're out on the rail, encourage your crewmembers to HIKE! First to finish means first back to the dock for all the shoreside fun.

HEELING ANGLE



AIRBORNE (right) is sailing with optimum heel angle for the best VMG. In a fleet start and close quarters it will pay to point higher, trim the sails in harder and reduce the heeling angle. NOTE: The nice, light touch on the helm. Cindy Hirsch (owner) steers with minimal tiller motion and is looking forward at the open water between the hiking crew and the mast. Her focus must be well in front of the bow to see waves and puffs early enough to respond.



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UPWIND SAILING - LIGHT/MODERATE AIR

AIRBORNE is showing good fore and aft trim sailing upwind in 14 knots true wind speed in flat water. Heeling angle, crew placement and hiking are crucial for speed-building. The first crew should sit just aft of the chainplate, with the rest hiking cheek-to-cheek. Here are some other fast notes based on this set-up:

Genoa Trim

Touching chainplate, leech is 4" away from the top spreader.

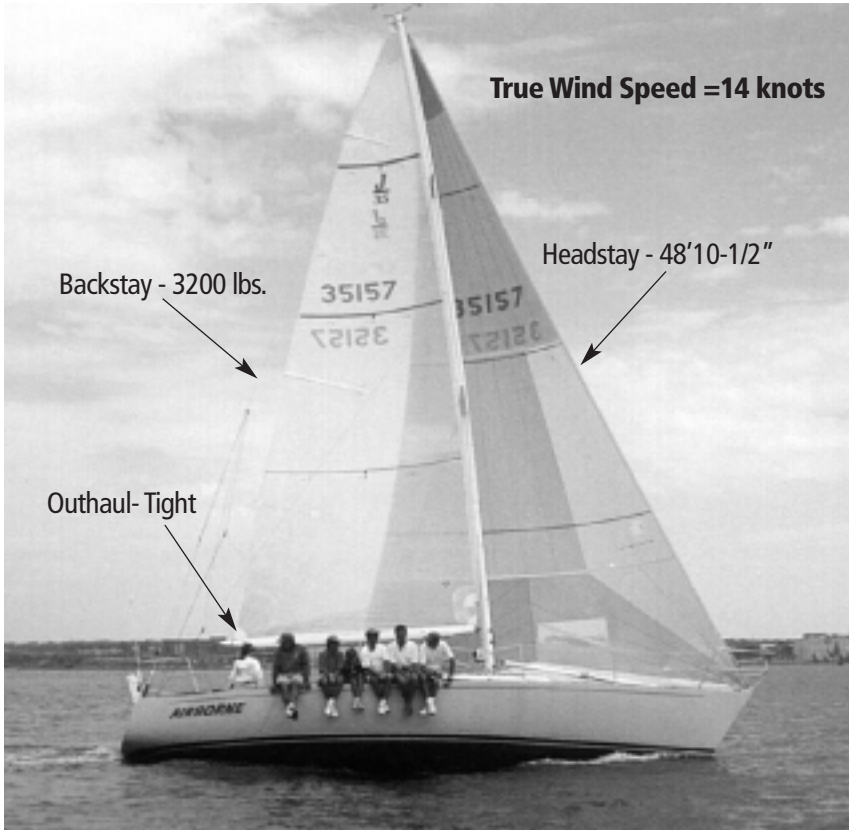
Mainsheet tension sufficient to bring the top batten parallel to the boom, or 2° open, since boom is 6" below centerline.

Checkstay tension to position draft ahead of center - this equals just under 1000 lbs.

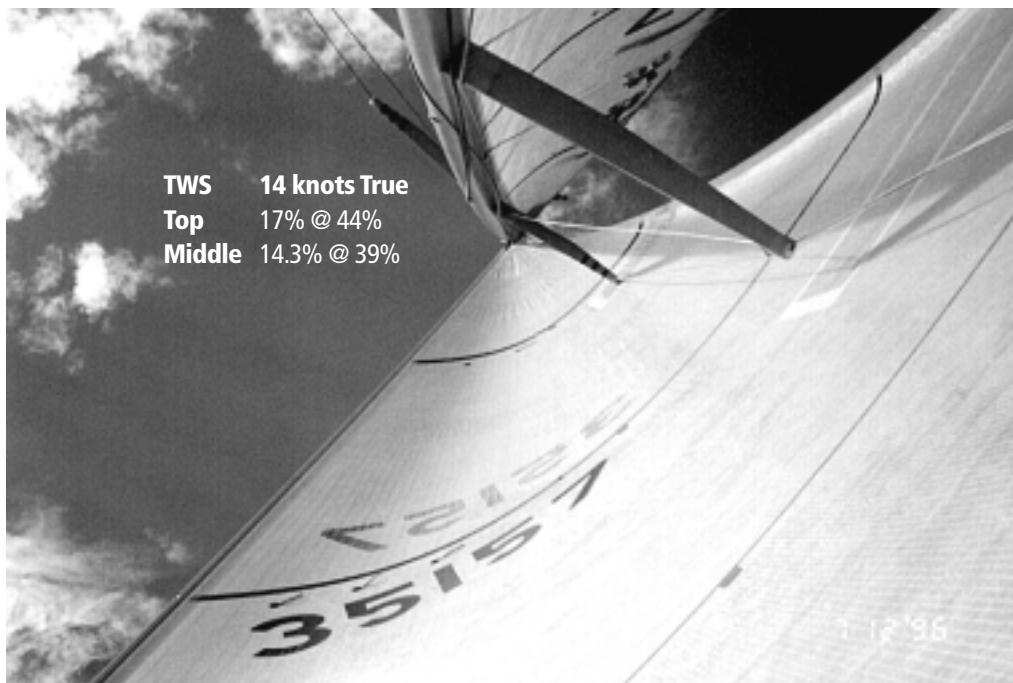
Mastbend curve is even.

Cunningham tensioned to carry only a few 1' wrinkles from the bottom 1/4 to the tack.

Steering to 4th telltale (4th gear)



This is what FAST looks like.



TWS	14 knots True
Top	17% @ 44%
Middle	14.3% @ 39%

155% Medium #1
Genoa 8820 dpi
(high modulus
Kevlar)
Range is 0-15 (14
true). The mid-
leech at the top of
the range is 6"
away from the
lower spreader.

J/35 Tuning Guide



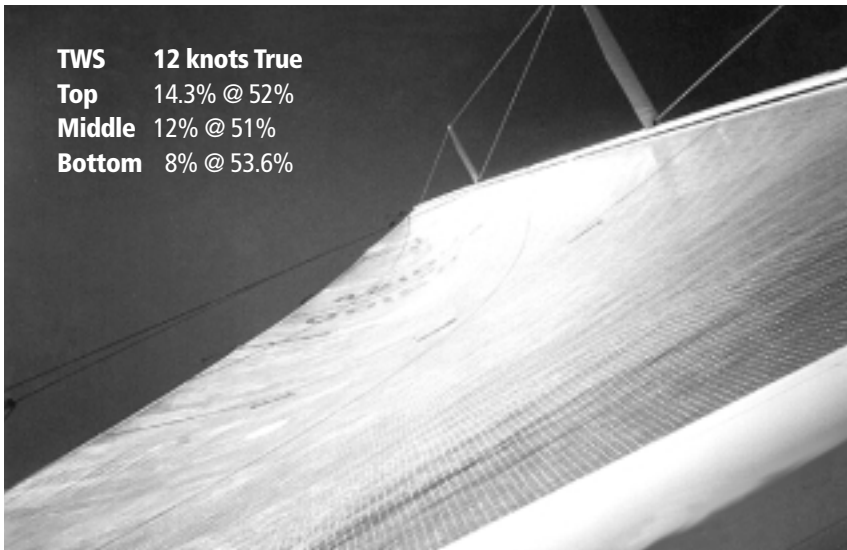
MAINSAIL TRIM



Perry Lewis, (l), of North Sails Midwest with Bob Alice, (r), owner of J/35 MIST APPROACH reviewing Bob's onboard sail log and racing notes. Keeping a photo log of your sails will provide you with a "sailmakers eye" for trim, shape, draft position, mast bend, rig tension and headstay sag which helps to repeat fast settings. A log is a great motivational tool to keep the crew involved, especially when gearing up for the new sailing season.

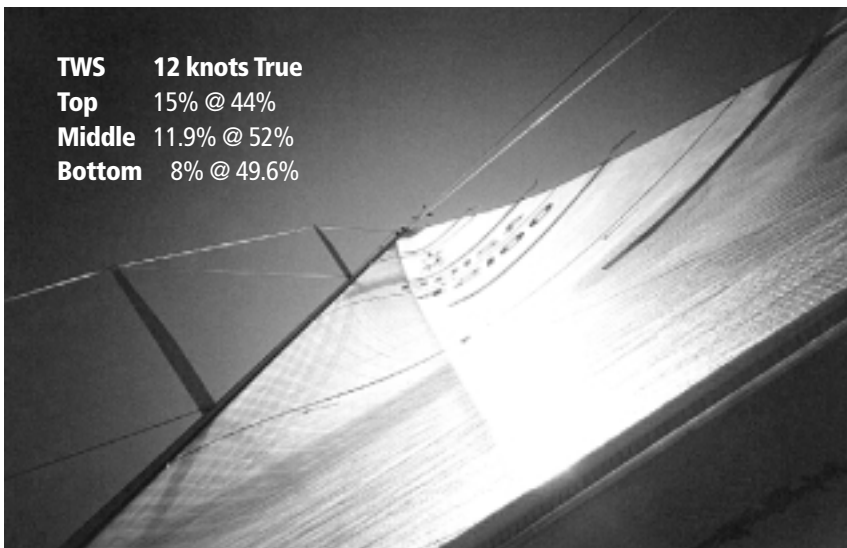
Maintaining a log is especially helpful to your sailmaker when evaluating your sail inventory. Notes on wind speed, wind angle, number of hours and your comments are just a few suggestions of items to include.

On the next page are photos of the mainsail and genoa taken from "the trimmers view" to give you an eye for max speed set-up. Your North sailmaker can show you how to measure chord depth and draft location of sail photos taken from the correct angle. In most cases, a disposable camera kept onboard is sufficient for all the pictures you need to keep a sail log.



TWS 12 knots True
Top 14.3% @ 52%
Middle 12% @ 51%
Bottom 8% @ 53.6%

3DL 12600 dpi set-up for 12 true, flat water at the Newport NOOD Regatta. The sail is sheeted very hard for highest pointing angle. All telltales are flying and there is no backwinding present.



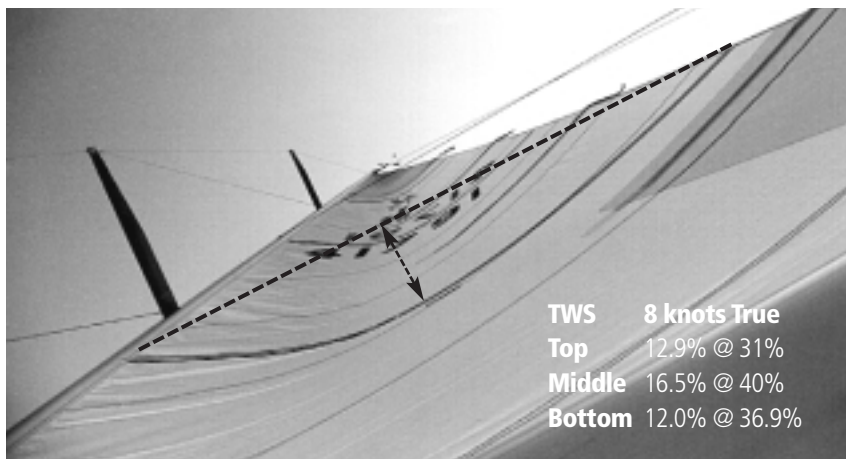
TWS 12 knots True
Top 15% @ 44%
Middle 11.9% @ 52%
Bottom 8% @ 49.6%

The same mainsail as above, but note the backwinding. This is caused by two things; genoa trim and traveler position. In this photo, the genoa is sheeted extremely hard. The backwinding is not hurting performance...yet. You can minimize the backwinding by setting-up the mainsail flatter with the traveler positioned high. The top batten is beyond parallel by two degrees. Tighter headsail trim minimizes the slot and reduces twist. As a result, the sail sets straighter vertically, without closing the leech and applying the 'air brake'. Try this in 8-14k true, no chop, no pitching. And don't forget to hike hard!



J/35 Tuning Guide

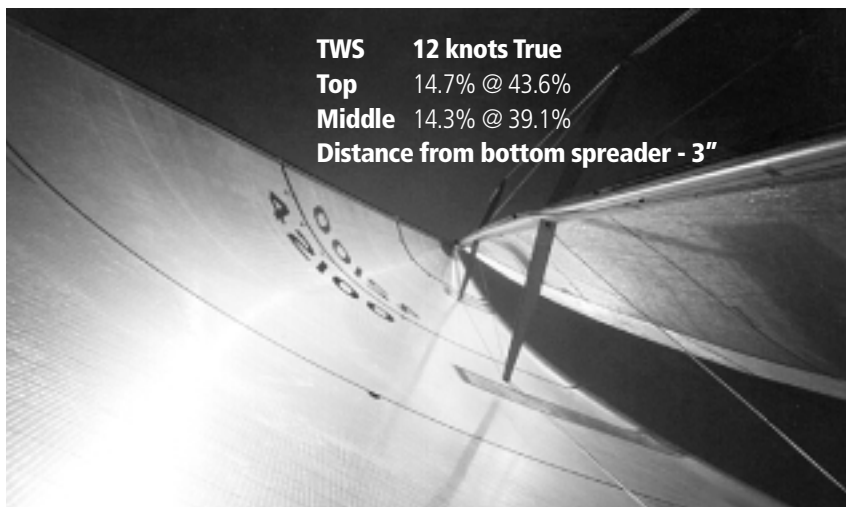
SAIL TRIM - LIGHT / MODERATE AIR



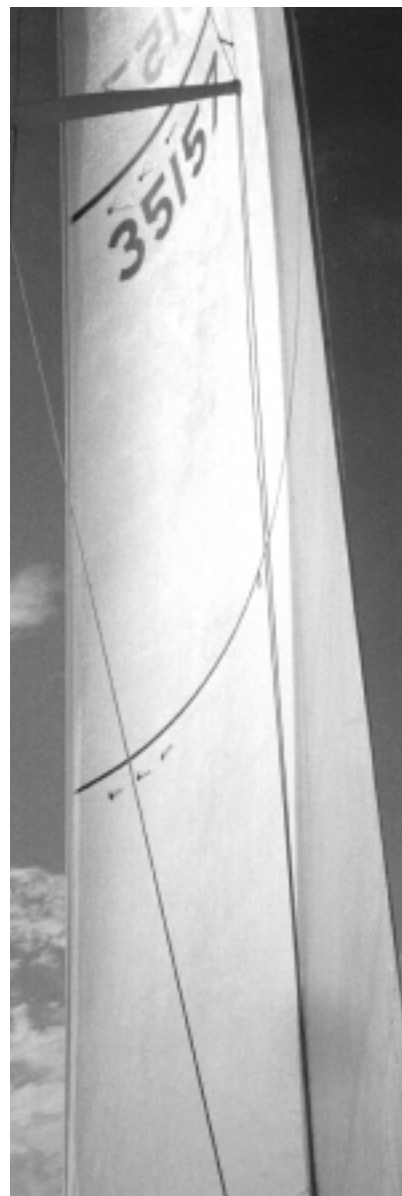
155% Medium #1 onboard AIRBORNE in 15 knots true. Here's a look at the leading edge of the sail from the feeder back to the sail numbers. The telltales are installed in a row in order to provide a guide when steering in 1st, 2nd, or 3rd gear. This sail is at maximum loading for the denier per inch (dpi). Even at full load, you can see minimal vertical curvature or "sag" away from the rig.

Fatal Attraction's Dacron mainsail powered up in 8 knots true. These numbers are too deep for a generic sail, but it sure works on a J/35. This sail is set-up perfectly for lighter wind. Sail trimmers are speed doctors...they can adjust boat speed through varying conditions - a good mainsail trimmer knows how the boat will perform in a wide range of wind and sea conditions and knows what adjustments are necessary to achieve the best shape for pointing, heel angle, speed and power.

GENOA TRIM - MODERATE AIR



155% Medium #1 genoa at the Newport NOOD Regatta. The top spreader is creating a dimple, but is not hurting the sail. As long as the pressure is occurring in the middle of the patch, it's O.K, but not recommended. Onboard Tom Harrington's OBSTREPEROUS, this sail was instrumental for upwind speed, and was a key to their J/35 N.A. victory. This sail is sheeted hard for flat water and max headstay tension. This is the same design as the sail shown on page 8.



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THE TRIMMERS VIEW - #3 JIB - HEAVY AIR



Left and below are two views of a three year-old 103% #3 jib in 24 knots true. We don't normally choose to sail in this much breeze for a tuning session, but this sail is functioning perfectly. The top stripe is twisted approximately 15 degrees off the centerline. The leech is clean and open and the luff telltales from 1/4 to 1/2 to 3/4 are tipped upward progressively. The sail construction is not today's North "state of the art," yet the shape still delivers the goods. We also like this sail for its straight, flat exit from the leech which helps minimize mainsail backwinding. The bottom half is nice and flat which allows the helmsman to steer in high point mode. The knuckled entry provides power when needed, especially in really big waves. A sailmaker sitting to leeward trimming this sail, might think "Wow, there is minimal curvature from 20% of the chord length to the leech." (Translation: Nice shape, feels fast, good power.)

Another test of a good #3 is, how close does the sail fly in front of the spreaders? The set-up of this sail is perfect; the halyard is taut and the lead position is set to allow the top chord to twist while keeping the bottom half relatively flat. The high-aspect ratio of the #3 (4.0 vs. 2.21 for the M#1) places a premium on sheet tension. The difference between blistering fast in 22 true and unbearably slow can be as little as 1.5" on the sheet. Try setting-up your #3 like the pictures and make small sheet adjustments to keep you in the fast groove for the sea state.





J/35 Tuning Guide

SPEED TIPS FOR HEAVY AIR



North 3DL Mainsail 12600 dpi in 24k True (29k approx.) This sail is handling the loads nicely. The top is flat, open and twisted. The draft is located forward in the bottom half of the sail, and not too far aft up top. Cunningham is loaded to position the draft. The vang is aggressively loaded with 100 lbs. (with feet braced, use both hands!) on the tail of the purchase system. The most critical element is sheet tension.

A good rule of thumb is to sheet the sail harder until the boat heels too much, or has too much helm. When this occurs, flatten the sail and move the draft forward. The old rule of when in doubt, let it out may be O.K. Since this makes the sail less powerful, you may want to adjust other shape controls first, then ease the sheet as little as necessary.

RUNNER & VANG

Small speed gains generate big wins, especially when sailing in heavy air. The 3DL mainsail (at left) is nicely powered up, showing a clean leech with linear twist from the boom to the head. Tensioning the checkstay or runner on the J/35 produces exactly the opposite sail adjustment compared to a fractional rig. When you tighten the runner, the mast becomes straighter. Mastbend flattens the main, added runner deepens it. The best way to get this right is to bend the mast with the hydraulic backstay, then add checkstay/runner until the sail is shaped right for the conditions. The desired sail shape has the draft ahead of center. Do this by juggling cunningham and checkstay load. Don't forget to pull the outhaul to the black band. In wind speeds above 18 true, take-up 3 turns on the D2s, and 2 turns on the D1s.

Using Vang in Heavy Air

The use of boom vang in heavy air (over 18 true) comes very naturally to some sailors and raises objections among others. Here is why it works on a J/35. The downforce generated on the leech allows mainsheet play with less resistance. When you use the vang, you bend the spar forward. In breeze over 18, we suggest you shorten the headstay to 48'-10" or 9.5m. This eliminates prebend and creates the impression the main has too much low luff curve. The vang adds just enough mastbend to fair the mastbend curve back to the original design.



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J/35 UPWIND SAIL SETTINGS

MAINSAIL	TRUE WIND SPEED			
	0-6 kts true	7-12 kts true	13-19 kts true	20+ kts true
Backstay	Very Soft	800 to 2000 psi	2100 to 4200 psi	3100 to 4200 psi
Outhaul	Eased 1.5" from black band.	Eased 1" from black band	Eased .5" from black band	Maximum
Boom Position	Centerline	3" above centerline to even with centerline	Centerline to 4" below centerline Amount of helm dictates location	Boom 6" and below centerline Helm dictates exact location
Cunningham	NONE	Remove 50% of wrinkles	Remove all wrinkles	Remove all wrinkles plus 1"
Vang	NONE	NONE	Slack removed	Aggressive for vang sheeting
Checkstay Tension - %	NONE	Increasing 0-50% deep draft to standard draft.	50%-90% Standard draft	90%-100% keeping draft standard relative to backstay tension
Heel Angle	10° - 12°	5° - 10° max	15° - 18° max	20° - 22° max
Crew weight Distribution	Low - Dogs in house and forward	Forward, sitting close together hiking hard enough to flatten boat.	Hiking Hard	Hiking even Harder!
HEADSAIL				
Headstay	Max. length-48'-11"	48'-10"	48'-9.5"	48'-9.0"
Halyard	Eased with small wrinkles	Eased with small wrinkles	Firm - No wrinkles	Firm - No wrinkles
Genoa leads Top Spreader/Shroud Base	Top 5" to 8" Base 6" to 8"	Top 3" to 0" Base 4" to 0"	Top 0" to 12" Base Touching base	2nd batten down is parallel to centerline for #3 Jib
Headsail Choice	Class / 155% Medium #1 or AP1	Class / 155% Medium #1 or AP1	Class / 150% Genoa or AP1	Class / #3



J/35 Tuning Guide

SPINNAKER TRIM - LIGHT/MODERATE AIR



Running in 12 knots true (6 apparent). The driver has a clear view of the water ahead - important for keeping the boat up to speed downwind, avoiding kelp, and staying in sync with wind variations and the cause and effect of tiny steering changes.

The clews are even height, but to maintain sailing at the best VMG, the set-up could be improved by;

- Squaring the pole until the luff rises vertically to fly with maximum projection and balance. Extremely critical in light air.
- Pulling the twing will make the cross-section at the radial head/belly joining seam more symmetric. This reduces some of the lost energy being vented at the leech. This works best in conjunction with weather heel.

Onboard AIRBORNE flying a .6 Polyester spinnaker in 12 true (left and below). The spotter looking aft from below the boom is in the best position to see the puffs tracking toward the boat from astern. The communication from the spotter to the driver is critical. The discussion might go like this, "Puff is six lengths back and will track 1.5 lengths to weather. How about going up 5° and catching it?" Or, "Now we are in the puff, let's bear away 5° to stay in the puff."



Spinnaker trimming is an art which is improved by the level of concentration of the trimmer. After a really fast downwind leg, the best trimmers will say they didn't see anything that happened on that leg. Sailing in these conditions, the pole height should be set to generate a 4" to 6" curl - short enough to be controllable and long enough to let the sail breathe. Once the pole height suits the trimmer, pull the leech down hard with the twing to make the leech mirror the luff. If you are not sure when to twing, look back at a competitors sail and look



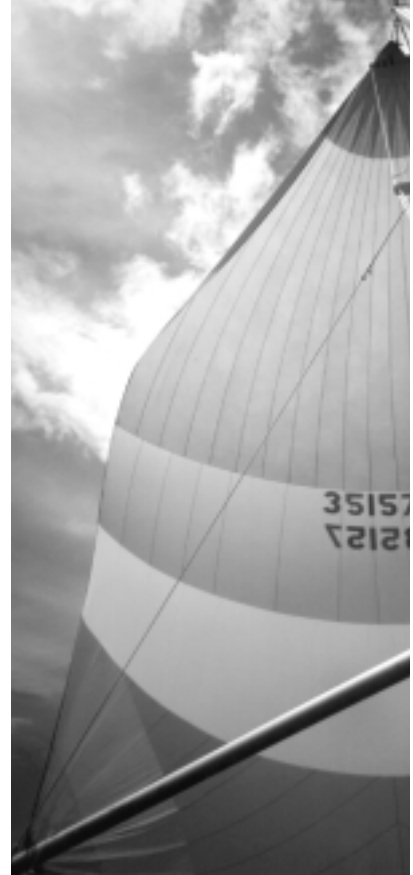
for asymmetry. Also, make sure the boat isn't heeling, and watch the speed carefully. When sailing dead downwind, heel the boat to windward and keep the weight forward, just like light air.

If you are reaching, the .75 oz. does a great job. Move your crew weight back to control heel and keep the rudder immersed, and pull the pole back as far as possible, but don't let the lower part of the spinnaker luff sag aft and to leeward. Adjust the power with the mainsheet and vang tension, and try to keep a slight windward helm.

SPINNAKER TRIM - Judging the curl...



AIRBORNE in great downwind trim. There are only two people in the cockpit, and the remaining crew are seated down low facing aft. For more speed, the rig could be pulled further forward by easing the backstay 5" and aggressively tightening the genoa halyard which should be snapped to the tack.



.6 Polyester in 14 knots true

The photos (above and right) highlight the trimmers view of the spinnaker. Jody (at left) is trimming the spinnaker - gauging luff curl as one of his trim indicators. When sailing in VMG mode, the spinnaker luff should fly vertically off the pole—in this case the pole could go forward by 1'. In the photo (above left), you can see the luff rising vertically from the pole and the amount of curl. This is the max amount of curl since any more would cause the spinnaker to rollerfurl away some speed. In the photo (right) the curl is just a bit small for optimum but it will rebound with a nice snap, which is fast.

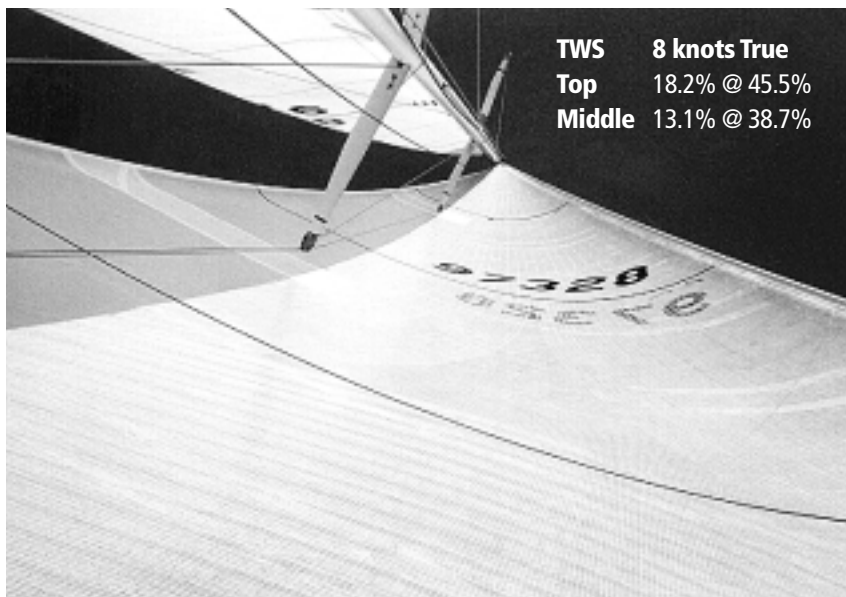
Spinnaker Controls

	Action	Effect
Sheet	Trim	Increase angle of attack; reduces depth
Guy	Trim	Reduces angle of attack; increases projected area
Pole Height	Raise	Reduces depth; reduces twist; destabilizes sail
Twing	Tighten	Reduces twist, increases depth, stabilizes sail



J/35 Tuning Guide

SAIL INVENTORY



TWS 8 knots True
Top 18.2% @ 45.5%
Middle 13.1% @ 38.7%

The photo (above) of the Medium #1 onboard Bob & Kathy Patterson's Fastlane.* Same design as shown on page 8.

UPWIND SAILS

Cloth Weight (denier/in.)

Regatta 3DL Mainsail	12600 dpi Aramid
Dacron Mainsail	7.8 oz. NorDac
Regatta 3DL 155% Medium #1 Genoa	8820 dpi Aramid
Regatta 3DL 155% All Purpose #1 Genoa	12600 dpi Aramid
(If you are going to sail with <u>one</u> overlapping 155% genoa, we recommend this one. The heavier dpi will help maintain the original designed shape after many hours of use across a wide range of sailing conditions.)	
Regatta 3DL 150% #2 Genoa	14700 dpi Aramid
Regatta 3DL 103% #3 Jib	16800 dpi Aramid
103% #3 Jib	225TX Kevlar

SPINNAKERS

.6 Nylon or Poly Runner Design

The combination of the 2-sail rule in the class and the use of windward-lee-ward courses make this the sail of choice in most conditions.

.75 Nylon All Purpose Design

Used primarily in wind speeds over 18k true, and closer reaching angles.

Set-Up your Medium #1 as an All Purpose Genoa

Increase the range of your 3DL Medium #1 to perform as an All Purpose Genoa by shifting gears to match a wide range of conditions, from 8-18 true. If you are going to purchase a single overlapping 155% headsail, we recommend the 3DL-12600 dpi Medium #1 Genoa. Here are a few suggestions on how to get the best speed and range from your Medium #1.

- ▶ By changing the headstay length, backstay pressure and lead position, your boat will have that extra bit of speed that is so crucial in gaining the advantage in class racing.
- ▶ Use the range of headstay as posted plus 1/2" either way. In very light air, go to 48'-11.5". The boat will go really fast if steering and crew motion is minimized. For wind speed to 19 True, use 48'-9".
- ▶ In ultra-light situations, use just enough halyard tension to have 1' wrinkles.
- ▶ For windspeed over 15 knots true, set the lead so the bottom 1/3 of the sail touches the upper shroud and the leech is 15" off the top spreader.
- ▶ Make sure the backstay tension can hit 4300 psi and use it windspeeds over 14 true. Sail with minimum heel and maximum hike!

JIBING AND DOUSING THE SPINNAKER

Jibing

1. Foredeck crew takes lazy guy to the bow, facing aft. As pole is tripped by the mast person, the pit crew eases the pole down. Foredeck crew shouts "MADE", as soon as the guy is fixed at the pole end. The mast person assists the pit to raise the pole on the opposite gybe.
2. The sheet trimmer releases the old sheet, allowing the new guy to be pulled around on the other side. While the pole is being tripped, it is O.K. to free-fly the chute through the gybe. In heavy air, the trimmer should judge on the side of over-trim to keep the boat under control. The guy trimmer should square the pole to the wind, bringing it aft as the boat turns downwind.
3. The mainsail trimmer should bring the main to centerline. As the pole goes up on the new gybe, the sail is eased and trimmed for speed.
4. The driver should make sure the spinnaker is full and drawing, steering the boat slowly and smoothly

through the gybe. It is better to take a few seconds to complete a clean jibe than to rush and be faced with a tangled, contorted spinnaker. Not to mention the screaming and shouting, while the speedo plummets.

5. The remaining crew should move across quickly to keep the boat balanced and up to speed.
6. Helmsman and new trimmer fine-tune trim for new jibe and course.

Leeward Takedown

The difference between a great takedown and a mess is coordination, communication, and practice. Each person should have a clear understanding of his own tasks. A "heads-up" approach to understanding the overall sequence in the takedown also provides each crewmember the necessary time to react in case of a fire drill - there could be a crowd at the mark forcing a late gybe, boats rounding the mark can tack unexpectedly, etc. When the takedown is a well-timed,

effortless maneuver, it can mean big speed gains at the leeward mark. Each crewmember can focus on the next leg more quickly and move on to the rail for the upwind leg.

1. The bowperson opens the forward hatch and with the lazy guy in hand led under the headsail foot and over the lifelines, pulls the sail down when the halyard is released. The mast person hoists the genoa, tightens the outhaul, cunningham, and assists in the takedown to be sure the headsail is clear to tack.
2. As the genoa is hoisted, the trimmer should not trim the sail before the spinnaker is released - this will cause the spinnaker to collapse. The mast and pit crew work together to hoist the genoa, release the spinnaker halyard and lower the topping lift/spinnaker pole once the guy trimmer eases the pole forward. If the competition is hot on your tail, you may want to get the boat up to speed before doing the clean-up.

DOWNWIND SAIL TRIM SETTINGS

ADJUSTMENT	DESCRIPTION
BACKSTAY	Completely off, allowing mast to go forward. Sighting along upper shrouds, straight mast is ideal. Take the genoa halyard forward and clip it to the tack bar and tighten to bring the mast all the way forward.
CUNNINGHAM	Off. If the mainsail still has a ridge running vertically directly behind the mast, ease the main halyard 3".
VANG	Play vang, keeping telltales near top batten flying on both sides of mainsail. Do not stall upper leech. The top batten should be parallel to the boom.
HEEL	In light air, position half the crew to leeward, half to windward and forward. Crew should be seated on the deck instead of the cabin. As wind builds and apparent wind angle exceeds 90°, boat should be heeled to weather. This increases luff projection and effectively raises spinnaker area into more wind velocity aloft. It also decreases pressure on the helm for best VMG.



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TIPS & TECHNIQUES

When running in less than 20 knots, keep the crew weight forward, low and wide to lower the CG and dampen the rolling moments."

Jack Slattery, North Sails Northeast

"To get the best downwind VMG, ask one of your crew to face aft and position the boat in the lanes of strongest wind and clear air."

Dan Neri, North Sails Rhode Island

"When tacking downwind, memorize how far the pole is from the headstay so it can be duplicated on the opposite gybe."

Benz Faget, North Sails New Orleans

"If you put more than three people in the cockpit, the boat does a wheelie, and there is no room to move."

Chris Shining, NS San Francisco

"Best running VMG is achieved by setting the twings low and carrying 2°-5° of weather heel allowing the rudder to develop slight lee helm."

Perry Lewis, North Sails Midwest

"If another boats windex tail is pointing at you, reposition your boat to clear."

Hugh Beaton, North Sails Toronto

"Taping the spinnaker sheet to the guy will allow you to put both into the pole preventing a lock-out."

Ken Read, North Sails Rhode Island

"Spinnaker halyards can be uncovered, small diameter 9mm Spectra, but using high-modulus Vectran/Technora (9mm) for the main and genoa halyards works the best."

Jody Lutz, North Sails East

"When running, positioning the crew weight forward to keep the knuckle immersed to maximize running length. That's fast!"

Ron LaNeve, North Sails New Jersey

"If you need to add weight in order to meet the float lines, fill one tank at a time right to the top."

Dave Miller, North Sails Vancouver

"On a windward-leeward course, you do not need to release the vang to go downwind."

Henry Little, North Sails Rhode Island

"When sailing upwind (under 11 knots true) with full crew weight on the rail, keep the lower mainsail leech touching the checkstay to induce weather helm."

Will Keyworth, NS Chesapeake

"In winds over 14knots true, you lose three boat-lengths per tack. Compare the number of tacks you do to the boat which won the beat."

Jack Christiansen, North Sails Seattle

" Keep the main and genoa halyards in the self-tailing winches so they don't slip and can be adjusted during a tack."

Jon Gardner, North Sails San Diego

"Storing all loose gear aft of the bulkhead on the floor improves the CG."

Henry Bossett, NS New Jersey

"Did you know, every antennae, halyard and external block carries a weight and windage penalty?"

John Gladstone, NS San Diego

"Keep a log of your headstay length/windspeed relationship to be able to repeat fast settings."

Jeff Madrigali, NS San Francisco

"Pulling the rig forward downwind stabilizes the spinnaker, reduces the rudder motion to maintain a steady course and tightens the vang."

Jim (Fuzz) Foster, North Sails Hawaii

"When you tail the genoa sheet hard enough and tack slowly enough it is possible to keep the genoa clew inside the lifelines."

Bear Hovey, North Sails East

"When sailing upwind in under 6 knots, ask your crew to stay below to condense the CG and control pitching."

Chris Shining, NS San Francisco

"Tie the D1 and V1 together tightly to minimize windage."

Bill Herrschaft, NS Marina del Rey

"For windward spinnaker takedowns, use a bow bag in the forward hatch which eliminates the need to re-pack the chute. You are ready to go for the next hoist."

Jeff Holstrum, North Sails Seattle

Thanks to everyone who contributed to this tuning guide. There's lots of talent racing in the J/35 class, if you need help with speed, give any one of these guys a call, they are happy to help.

SAIL CARE & STORAGE

In Use

- Keep sails out of sun when not in use by using sail bags and main-sail cover. If you are a cruiser using a roller furling genoa, a leech cover is recommended for the genoa.
- Look out for exposed cotter pins in the rigging or other sharp edges to tear the sail. Tape up where necessary.
- When leaving the boat, ease the halyard on a roller furling headsail to prevent permanent luff stretching. Similarly, ease the main out-haul if the foot is not a loose foot or shelf design.
- Avoid letting sails flog. This damages the cloth and reduces sail performance. Adjust the genoa fairlead and the leech cord to stop leech flutter. Do not motor directly upwind with the sails flogging.
- Dry sails before stowing them to avoid mildew. Nylon spinnakers can bleed color between panels if stored wet.
- Storage on board should be in a dry, ventilated space away from hot items such as the engine, heater or cabin lights. Laminated sails can be ruined by soaking in petroleum products such as diesel or gasoline. If they become exposed, clean gently with detergent and water, allow to dry and keep your fingers crossed that you caught it before the adhesive was weakened.
- Excess heat can distort or weaken sails. Do not keep them in a closed car trunk or other closed container which can build up heat in the sun.

Cleaning

- Cleaning sails annually to remove dirt and salt before winter storage. Take sails to your sailmaker for washing or wash them yourself using a mild laundry detergent and a brush. Do not use excessive agitation. Dry before folding for storage.
- Oil stains can be treated with a number of industrial solvents and even some household spray cleaners. For laminated sails, however, do not use any cleaner more powerful than a household detergent as they can break down the adhesive in the laminate.
- In very damp climates, spraying Lysol into the sail bag before closing will help reduce the chance of mildew.
- Mildew should be killed as soon as it appears to stop it from spreading. Small areas can be sprayed with Lysol spray. Larger areas can be washed with a 25% solution of Clorox Bleach and water (NOTE: Kevlar or Nylon sails should never be exposed to Clorox!!!). Soak for 15 minutes and then rinse thoroughly with a hose. Stains will fade slowly with sunlight exposure once the mildew is dead. Storing sails dry in a well ventilated area reduces the

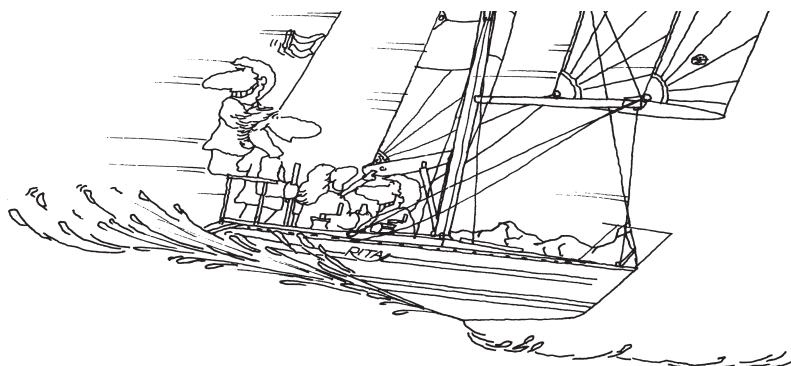
chance for mildew. Wet roller furling sails should be rolled up loosely to allow them to dry.

Maintenance

- Small tears in lightly loaded areas (not near the leech) can be temporarily patched with sail repair tape or even duct tape to stop the tear from enlarging.
- A few broken stitches probably won't cause a failure unless they are near the leech. If they are there, have the sail restitched before the seam lets go completely and makes the repair more difficult.
- Take your sails in for an annual inspection and maintenance. If this is not practical, spread them out and look for wear, broken stitches and rips.

Storage

- Store sails for the off season in a warm dry space away from hot items like furnaces, hot water pipes and electric heaters.
- Sails should be folded rather than stuffed to avoid unnecessary creasing which breaks down the material. Look out for exposed cotter pins in the rigging or other sharp edges to tear the sail. Tape up where necessary.





J/35 *Tuning Guide*

WORLDWIDE SALES & SERVICE

At North Sails, we view each sail purchase as the beginning of a long and rewarding relationship. We base this expectation on a strong service commitment that includes preventive maintenance, sound advice, education and expert repairs. Your nearby North loft offers a wide range of services including...

- ▶ **annual checkover**
- ▶ **sail washing**
- ▶ **winter storage**
- ▶ **sail tune-up**
- ▶ **retrofitting**
- ▶ **seminars**
- ▶ **educational resources**

North Sails is a network of over 100 lofts in 28 countries around the world. Each offers knowledgeable, friendly, personal sales and service. Our size and worldwide reach also means North has the world's most expansive sailmaking database. It would be hard to find a sailboat for which we cannot make a fast, durable and long lasting sail.



North Sails Lofts

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Atlanta	770-945-2800
Cape Cod	508-778-6550
Carolina	252-728-7481
Channel Islands	805-984-8100
Chesapeake	410-269-5662
Colorado	303-694-2345
Detroit	810-776-1330
East	203-877-7621
Ft. Lauderdale	954-522-8840
Gulf Coast	727-898-1123
Hampton	757-722-4000
Hawaii	808-591-9192
Huntington Beach	714-898-1234
Long Island	631-673-5700
Marina Del Rey	310-827-8888
Midwest	773-489-1308
New Jersey	732-528-8899
New Orleans	504-831-1775
Newport Beach	949-642-7238
Northeast	978-745-1400
One-Design East	203-877-7627
One-Design Central	614-418-9410
One-Design Chesapeake	410-269-5662
One-Design West	619-226-1415

One-Design Zenda	262-275-9728
Oregon	503-282-4282
Puerto Rico	787-863-3761
Rhode Island	401-683-7997
San Diego	619-224-2424
San Francisco	510-522-5373
Seattle	206-632-5753
South Carolina	843-744-7245
Texas	281-334-7559
Vermilion	440-967-9576

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Atlantic	902-634-3343
Toronto	416-259-9644
Vancouver	604-271-2111
Quebec	514-748-8368

Europe

Austria	43-7666 7997
Benelux	32-3-325 67 20
Denmark	45-39-20 40 90
Espana (Pontevedre)	34-98-654-8132
Espana (Palma)	34-71-725-752
Finland	35-82-247 10 00
France	33-297-53 78 58
France-Mediterranee	33-493-36 66 17
Germany	49-40-745 77 78

Germany-Bodensee	49-7543-16 89
Greece	30-1-417-4669
Italy	39-0185-3526
Norway-West	47-66-79 89 14
Norway East One-Design	47-67-53 77 29
Sweden	46-8-765 15 30
Sweden-Gothenberg	46-31-29 11 52
Sweden-Kalmar	46-480-41 12 99
Sweden-Malmö	46-4-015 4101
Switzerland	412-278-23222
Switzerland (Schweitz)	417-168-68525
Turkey	90-212-696-99 15
UK	44-2380-453109
UK One-Design	44-1703-45 52 20

International

Argentina	54-1-147-250200
Australia-Melbourne	613-953-40363
Australia-Sydney	612-999-75966
Brazil	55-12-472-2607
Chile	56-32-970-504
Guadeloupe	590-908044
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Japan (Kansai)	81-79-826-7771
New Zealand	649-359-5999
South Africa, Capetown	27-21-511-2154
South Africa, Durban	27-31-332-3624