



*One Design*

For any question you may have on tuning your Melges 20 for speed, contact one of our Audi MELGES 20 experts listed below:

**ONE DESIGN ZENDA**

Andy Burdick . Harry Melges . Jim Gluek  
262 275 9728 F 262 275 8012  
[harry@melges.com](mailto:harry@melges.com)  
[andy@melges.com](mailto:andy@melges.com)  
[jim@melges.com](mailto:jim@melges.com)

# **Audi MELGES 20 Tuning Guide**

The following tuning guide is meant to be a good starting point when setting up your Audi MELGES 20. Depending on total crew weight, wind and sea condition and sailing style you may have to alter your set up slightly from what is given here. As you read this tuning guide, write down any questions you might have and we will be happy to discuss them in detail with you. The goal of this tuning guide is to achieve a rig set up that is fast in all conditions upwind and down. Your new North sails are designed with this "all around" philosophy in mind.

### Pre-Race Preparation

One of the most important items you and your team can do in preparing for high performance racing is to have your Audi MELGES 20 ready to race. Listed in this section are just a few items we feel are critical for success on the racecourse.

#### TRAILER AND BOAT

Make sure when transporting your Melges 20 keel bulb always sits perfectly in the keel bed of the trailer. If the boat is sitting where she belongs on the trailer you will find the bulb resting perfectly in the keel bed with space in the keel box both in front and in back of the keel. Also packing pre-cut foam between the keel edges / sides and the keel box will help prevent any movement of the keel when trailing. Many teams seal the top of the keel bulb and the top of the keel box with plastic so that dirt and other debris cannot scratch or damage any part of the keel when traveling.

#### HULL, RUDDER AND KEEL

Class rules do not allow re-shaping of these items.

**Hull** - For traveling to regattas and general care of your new boat the investment of our bottom trailing cover and 1 piece top cover is well worth the

protection it affords.

**Rudder** - The rudder should always be removed when not in use and kept in its padded rudder bag. Remember to always put away dry.

**Keel** - We just talked about taking care of your keel when the boat is on the trailer. When lowering the keel either with the keel crane or by picking the boat up with an electric hoist make sure you have rinsed out the keel box along with the keel guides. Make sure the keel box is free of any lines or padding. Also, make sure you keep the boat level when raising or lowering the keel or the boat on the keel to ensure the keel fin does not get damaged.

#### LAUNCHING AND RETRIEVING THE MELGES 20

Believe it or not this is when most damage occurs to Audi MELGES 20's. When trailer launching make sure the keel box is well packed with padding, as the keel wants to shift as soon as the transom starts floating. To ramp launch you will need to use the keel retractor crane and lift the keel so that the bulb is just touching the hull. Make sure you pad the keel well on the leading and trailing edges and make sure you take great care when using the keel retraction crane.

When using an electric hoist be sure to keep the boat level or maybe a few inches down in the bow. Again we are trying to protect the keel. Also by holding the bow down just a few inches we are protecting the spreaders from possibly hanging up on the hoist arm as the spreaders pass the arm. Keep in mind when you lower the bow the keel fin is vulnerable so care must be taken not to damage the keel fin.

When launching on a hoist it is best to use the keel retractor crane. Hook the keel retractor to the lifting ring on the keel, make sure the lift ring is screwed all the way in the top of the keel. Take a

tension on the keel lift winch and securely tie off the winch handle to the horn cleat. Install the lifting straps to the lifting pins alongside of the keel utilizing a luggage tag type install. Also, install the longer aft lifting strap through the top rudder gudgeon at the transom using a rudder pin. When hooking up the hoist, put one of the lifting straps over the hook, then the aft leg, then the last lifting strap. Now when you lift the boat take care not to hit the spreaders on the hoist arm. It is best to have the boat at 90 degrees to the hoist arm and hold the bow slight down to keep the rig off the hoist. Keep the keel padding in place until the keel is ready to be lowered and be sure to always hold onto the winch handle, keep all body parts away from keel and take great care when lifting the keel or lowering the keel.

It is a good idea to put some soap and water on the keel guide blocks and in the keel box to allow the keel to seat more easily. If the keel guide blocks do not line up fore and aft perfectly, put a body on the bow or the stern to help tilt the boat to line up the keel guides.

#### DECK PREPARATION

The factory Audi MELGES 20 comes ready to race. There are a few small class legal modifications that really help with sailing the boat.

- ▶ With your spinnaker up at maximum hoist mark the halyard with a black permanent marker.
- ▶ With your bow sprit fully extended also mark the tack line/bow sprit extender line. Make sure that you have the proper knot tied in the end of the line to account for it being tied to the tack of the spinnaker. It is best to tie the loop with about a 65mm or 2.5" loop to prevent the tack of the kite from binding on the bow sprit end plug.
- ▶ The bow sprit is shock corded to retract. Ensure that the shock cord is adjusted so that it is just enough to retract the bow

sprit and not retract with too much force.

▶ Attach a Carabiner on the bottom of the boom at the supplied eyestrap. We will place the spinnaker halyard tail in this hook for spinnaker douses. You will find that by placing the tail through this hook that the halyard will not re-cleat itself when the spinnaker is on the way down.

▶ Attach shockcord from the top of the forward stanchion to the upper shroud above the turnbuckle to prevent the spinnaker sheet from dropping in and catching on the shroud car.

## Practice - Practice - Practice!

It has been said that each mark rounding can be worth a minute on the course. Now that is a reference between the first group and the last group of boats. That is a lot of time and a majority of it comes at the corners and the first few minutes of a race. Knowing how your Audi MELGES 20 accelerates off the starting line is something you need to practice. Sets at the windward mark are critical, especially if you want to gybe right away. Having the ability to pass between two leeward gate marks absolutely requires that you and your crew understand all three spinnaker takedowns, the Mexican, the windward and the leeward. You do not have to have rock star crews in the Audi MELGES 20 class to be successful; you do need to have a regular steady crew who are willing to practice. If we had "Time On The Boat Meters" you would find the top finishing boats in our class had the most accumulated time together sailing the Audi MELGES 20.

## Rig Set-Up

### MAST DOWN

As the Audi MELGES 20 comes almost completely ready to race straight from the factory there is very little to do to prepare your boat and mast to be competitive. With the mast down, pull all the halyards down and tie off at the bottom, also make sure the turnbuckles are set evenly with similar amount of threads showing at the top and bottom of the open body. Another thing we like to do is tie some light weight shock cord between the two lower shrouds around the front of the mast 6" - 8" down from their attachment points, also above the lower spreader between the intermediates and the diamond stays, and also between the Intermediates and around the front side of the forestay about 12" below their attachment points. This keeps the head of the spinnaker from getting jammed between the shrouds and mast on hoists and keeps the kite from getting caught above the lower spreader on a take down.

### Double check the spreader angle and symmetry:

Using an angle finder, level the mast using the mast base, check the spreader sweep by placing a straight edge from tip to tip on the diamond shroud or use a string pulled tight. The upper spreader should measure from the string to the aft side of the mast track 9.2cm and the lower spreader should measure 31cm.

To make sure the spreaders are symmetrical, use an angle finder and find zero or level at the mast base, then check the angle on the port spreader and then the starboard spreader. Adjust as needed to make symmetrical and at the same time maintaining the correct sweep.

Once the rig is ready to step you can slide the mast aft, place the diamond stay over the keel and lock in the mast base to the mast step deck plate. Rest

the mast in the mast support on the rear mast hold down bunk. Now, attach the Intermediate shrouds to the outer shroud cars, make sure the shroud cars are all the way forward on the tracks. Also, attach the lower shrouds to the inner sidestay cars and insure that they are all the way forward on the tracks. You will want to ease both intermediates and lowers out at least  $\frac{3}{4}$  of the way on the turnbuckles to ease in attaching the forestay for the very first mast stepping.

Set the diamond stays so that there is approximately 75mm (3") of prebend in the mast. By tensioning the diamond stays you put more prebend in the rig. The diamonds accomplish two important tuning tasks. First, they put prebend in the mast to better fit the luff curve in the mainsail and set the rig up to sail in a wide variety of conditions without needing a backstay. The other important aspect of the diamond stays is that they support the top of the mast when you are flying the Asymmetrical spinnaker. So, it is important to have enough tension on the diamonds to support the mast with the A sail flying. Refer to tuning matrix chart.

Before stepping the mast it is best to pre furl the jib furler so it is ready to go before stepping the mast. When furling the jib it should furl counter clockwise, so, to wind up the drum turn it clockwise until the drum has filled up with the furling line.

It is possible to step the mast alone but will be easier if you have some one pull forward on the forestay as you walk up the mast. Ensure that the mast base stays securely locked in the deck plate and does not come out as you are walking the mast up. Also, place a sail bag over the keel to protect the mast and keel from scratching when raising and lowering the mast. The spinnaker sail bag works well for this.

Once the mast is up, attach the Forestay to the furling tang.

## MAST UP

With mast stepped attach a 15M or 50' tape measure to the main halyard and hoist to the top and lock off on the halyard latch.

Check to see that the mast is close to centered by measuring to the deck edge on both sides of the boat at the shroud tracks. At this point the intermediate shrouds should be tightened to 250KG or 551lbs. on a Loos Model A tension gauge or the Harken gauge and the lowers should be loose. Tighten/loosen the upper shrouds on each side so that the mast is centered side to side.

Now measure from the top of the mast to the intersection of the transom and the bottom of the hull. This measurement should be 9400mm or 30'10". Tighten or loosen the turnbuckle on the forestay to achieve this measurement. You will have to adjust the intermediate tension when adjusting the forestay to maintain a constant tension on the intermediates of 250Kg when checking the mast rake.

With the lower shroud car two holes aft measure the lower shroud tension at 130Kg and sight up the mast on the aft tunnel side to insure that it is straight side

to side.

Also, the diamond tension should always be measured with this tension on the intermediates and lowers as the tension will change on the diamonds as tension changes on the intermediates and lowers. The diamonds should read a tension of approximately 95Kg. or 210lbs. when the intermediates are set at 250Kg. tension. Be sure to adjust the diamond stays to this setting with the tension gauge.

Finally, recheck to be sure the mast tip is centered side to side and that the mast rake is 9400mm or 30'10".

## RIG TENSION

The tension on the upper shrouds is critical to the upwind shape of primarily the jib and to a smaller degree the mainsail. For maximum speed it is important to adjust the shroud car position on the upper and lower shrouds depending on wind and sea conditions. The Audi MELGES 20 is designed with shroud tracks on ramps to facilitate ease of rig tune with minimal turnbuckle adjusting. As the wind increases you can move the intermediate shroud cars aft to increase rig tension and headstay tension. This in turn helps flatten the jib and depower the rig. So as you

start to get overpowered start to move the intermediate shroud cars aft on the tracks. You will want to be all the way aft by approximately 18knots of wind. It is best to move the tracks on the leeward side of the boat with the least amount of load, take care to pull aft on the shroud as low as possible when pulling up the car stop pin as these are under load and will fly forward rapidly if care is not taken when adjusting these. The class rules allow for purchase on the sidestay cars to allow the cars to be adjusted more easily. A 2:1 or 3:1 purchase tied to the stanchion and lead to the bottom stuff on the turnbuckle will allow for easier adjusting of the shroud cars.

The lower shrouds control the side-to-side sag or bend of the mast and to a smaller degree how much the mast can bend forward in the middle. We set the lowers so that when both cars are all the way forward in approximately 8 knots of wind there is approximately 10mm of sag in the mast at the lower spreader. Below is a chart of the settings on the upper and lower shrouds that we have found fast:

## RIG TENSION CHART

	WIND SPEED	INTERMEDIATES	LOWERS	DIAMONDS	HEADSTAY	
BASE SETTING	0-8 knots Light-Medium	Loos 250 Kg, or 550 lbs	10mm leeward sag	95 Kg. or 210lbs.	Base	BASE SETTING
	8-12 knots Medium	1 to 2 holes aft on tracks	Base to aft 1	+ 2 Full Turns from Base	+ 2 Full Turns from Base	
	12-18 knots Medium-Heavy	3 holes to max aft	Base to 1 or 2 holes aft	+ 6 Full Turns from Base	+ 4 Full Turns from Base	
	18+ knots Heavy	Max aft	3 holes aft, sight up mast, no sag	+ 8 Full Turns from Base	+ 6 Full Turns from Base	

After you have set up the uppers to the correct wind speed, sail the boat on both tacks checking the mast sag side to side and adjusting the lowers according to the wind speed. Also, check the mainsail depth. If the main is overbending or showing a wrinkle into the mast below the bottom spreader you either need to ease off the diamond tension a bit if the breeze is lighter or pull the lowers aft on the tracks if it is breezier. This will straighten the lower mast section and increase headstay tension flattening the jib.

Note that in heavy seas you will want to err a little bit on the light side (for more power) and in flat water you can err a little bit in the tight side. While class rules allow you to adjust your shrouds anytime during a race we like to set the boat up for the lightest wind speed we expect to see on the first beat. Then if the wind speed changes significantly during a leg we adjust our shrouds according to our chart.

Having a base setting using your light medium numbers is a good way to leave the dock each day for the races.

## Sail Trim

### MAINSAIL TRIM

Because the Audi MELGES 20 does not have a backstay or main traveler it is relatively simple to trim the main and steer requiring very little movement by the helmsperson. Like other boats main trim on the Audi MELGES 20 is keyed off the end of the top batten. In light to moderate air we trim the main so that the telltale on the top batten is stalled about 25% of the time (the second telltale from the top - at the second batten, is flying 100% of the time). As the wind increases both telltales will fly all the time. In light to moderate air

the back end of the top batten should be parallel to the centerline on the boat, in heavy air it will be pointed out as much as 30 degrees. With the square top mainsail on the Audi MELGES 20 it is important to not over trim the mainsail. Twist is your friend, when it doubt, ease it out to get the boat going through the water.

Following is an overview of each main control and how it should be adjusted.

### OUTHHAUL

The bottom of the main generally needs to be on the flat side. Keep the outhaul tight (clew at black band) in conditions when the crew is on the rail. When the crew is in the boat you can ease the clew in 25mm or 1" from the black band. Clew should be 50mm or 2" in from band downwind.

### VANG

We use the vang upwind as soon as the boat is overpowered. At the early stages of being overpowered we simply snug the vang to help induce mast bend and flatten the mainsail. As you become more overpowered we pull the vang harder to flatten the mainsail. Generally in flat water you can pull the vang harder than in waves. In waves you need more twist up high and power down low so it is important to experiment with the vang tension in a given condition to see what provides the best performance. Downwind adjust the vang so the top batten telltale is always flowing, twist is generally good. Generally the vang with the slack taken out of it upwind will be too tight for downwind sailing. We like to make a mark on the vang itself for an approximate downwind setting and then ease the vang to that mark just before rounding the weather mark.

### CUNNINGHAM

We use the Cunningham on the Audi MELGES 20 as another one of the depowering tools. We pull on just enough to remove any horizontal

wrinkles in the sail as soon as we start to get overpowered. As you become overpowered experiment with a very hard Cunningham to flatten the main, pull the draft forward and twist open the head. Again, different wave conditions warrant different settings so you must experiment to find the fast setting. Downwind the Cunningham should be off.

### JIB TRIM

Because the jib on the Audi MELGES 20 is a high aspect sail (tall and skinny) it is very sensitive to small adjustments in jib sheet tension. Tightening or easing the jib sheet 1/2" can have a big effect on boat speed and pointing.

The Audi MELGES 20 jib halyard is set up on a halyard lock system similar to the mainsail. There may be some fine-tuning required to set the jib height off the deck. You want the jib set up so that the foot of the jib is curling on the deck at least 25mm at the midpoint for endplate effect. This will require either a long shackle at the head or a lashing with some small line to set the jib at the optimal height for your given mast rake.

Generally in light to medium breeze set the jib lead so that when luffing slowly into the wind the luff breaks evenly. As the wind builds you will want to move the lead aft to flatten the foot and twist the head of the jib to depower.

In winds below about 14 knots it is legal to inhaul the windward jib sheet to narrow the sheet angle on the jib. This is legal to do and is fast. It only requires a slight tension on the windward sheet to make a noticeable difference. Take care not to over inhaul as this will be slow.

We have placed a telltale on the upper leech (near the spreaders) of the jib to help you judge how tight or loose the sheet should be. **The general rule of thumb is to trim the sheet hard enough so**

**that the upper leech telltale is just on the edge of stalling.** Just as with the mainsail it will be easy to stall the telltale in light air and very hard to stall in heavy air even with the sheet trimmed very hard.

### JIB CLOTH TENSION

Adjust the small line at the tack of the jib so the luff of the sail has some slight wrinkles coming off it. It will be necessary to change the tension depending on the wind speed to keep the wrinkles the same in most conditions. In very heavy air, tension the luff so that the sail is smooth. In flat water it will sometimes be fast to carry some horizontal wrinkles off the luff.

### LEECHCORD

Be sure that your leechcord is not too tight. It is very easy to put a lot of tension on the cord in heavy air and have it too tight in light air. The key is to just stop the flutter in the leech if there is any.

### SPINNAKER TRIM

Spinnaker trim on the Audi MELGES 20 is much easier than that of a conventional poled boat. There are a few tricks that can make you faster downwind and make your sail handling easier.

You will want to set up the spinnaker sheets to always gybe inside the luff of the kite. So the tack line would be over the top of the spinnaker sheet as it comes aft to the kite. When rigging – “tack over sheet” is your reminder.

Always trim the kite so it is on the edge of collapsing on the luff, it is not fast to over trim the kite.

### GYBING THE ASYMMETRIC

On the gybe, the fastest method is to have the trimmer ease the kite as the boat heads down, then the forward crew starts to trim the new sheet as quickly as possible to fill the kite on the new gybe.

This is called the pre gybe and requires the driver to bear away to almost dead down wind and wait for the clew of the kite to be about half way from the headstay to the side shrouds before turning onto the new gybe.

### MEXICAN GYBE

In heavier wind the Mexican style gybe works the best. It is also best to sail with the jib out downwind in planing conditions. So, the trimmer will want to trim the jib in so that it is snug, the driver goes into the gybe straight away, the trimmer trims the kite in as the boat heads down, the kite fills and backs into the tight jib once the wind hits the kite and jib on the other tack, trimmer blows off the sheet and trims the new sheet as quickly as possible and releasing the jib sheet as soon as possible. When performed properly the kite will blow across the headstay and fill with a pop on the leeward side.

### SPINNAKER SETS

Forward crew pulls the spinnaker halyard up and the second crew pulls the tack/pole out. Or, vice/verse, either way works well.

### SPINNAKER DOUSE

There are three types of takedowns: the windward, the leeward, and the “Mexican”.

The windward douse is used when doing a port rounding and you are approaching the mark on port tack. The “Mexican” is for rounding a mark to port but your approach is relatively shallow on a starboard tack. The leeward douse is for rounding a mark to starboard while on starboard tack or when you approach the mark at a very sharp angle while on starboard tack and you will have to gybe quickly around a mark leaving it to port.

For the leeward douse, you can either grab the lazy sheet off of the clew, or grab the sheet just above the anti hiking pad

to strap the foot. The helmsperson then must bear off slightly, the clew should be pulled in under the mainsail to prevent the kite from blowing over the leech of the mainsail, and then the tack line must be blown off completely. The halyard should then be fed down as the crew gather the spinnaker. The key here is to maintain the tack and foot of the kite and keep it out of the water, also watch for the kite blowing behind the leach of the mainsail.

For the windward douse, the skipper can sail low, while the crew start to trim the windward sheet to pull the kite around to the windward side the forward crew should blow off the tack to unload the pressure off the kite. The clew should be grabbed inside the shrouds and start to stuff the kite in the bag gathering leach first for about 1/3 and then grab both. Steer under the foot to keep the kite on the deck.

For the “Mexican”, as you approach the leeward mark on starboard, the helmsperson should bear off into a slow gybe, the trimmer will over-trim the sheet as the boat gybes to port. Just as the boat is headed directly down wind and the mainsail begins to gybe, blow off the halyard. The spinnaker will blow against the rig and fall on the deck. When the sail is 2/3rds the way down release the tack and stuff the spinnaker in its bag. Practice of these three douses is vital to success on the racecourse.

### CREW POSITIONING

Generally in light wind, you want to sit as far forward as possible between the stanchions. Downwind, you will want to also sit forward and heel the boat to windward as soon as you have enough pressure to sail deep. As the wind builds you want to move the weight aft upwind so the middle crew is centered on the mainsheet swivel. Downwind when planning put one body aft of the helm and everyone slide aft as far as possible.

### Conclusion

---

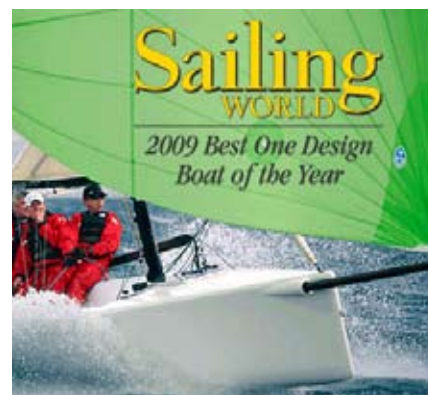
The Audi MELGES 20 is one of the most exciting new boats available today with rapidly growing fleets and excellent one design racing. We hope all of the tips we mentioned are helpful to your Audi MELGES 20 sailing program. Let us remind you that these are the most important and obvious helpful hints that we have provided. Our experts will be happy to go further in detail with you anytime.

Many thanks for your purchase of North Audi MELGES 20 sails. Our goal is to provide you with the fastest, longest lasting and easiest to use sails on the market. We are constantly going to regattas and are always learning more about how to make these exciting boats go fast. Please contact us either in Zenda or San Diego if you have any questions and we look forward to seeing you on the water soon.

### Contact North Sails

---

For tuning information and complete details on how to setup your Audi MELGES 20 sails contact the North Melges experts listed on the cover of this guide.



### NORTH SAILS ONE DESIGN QUALITY CONTROL CHECK

MAINSAIL		JIB		SPINNAKER	
Corners		Corners		Corners	
Cunningham		Battens		Leech cord	
Tack slug		Telltails		Measurements stamp at head	
Leech cord		Leech telltails		North Logo	
Foot chord		Foot cord		Bag	
Numbers		Trim line			
Country Code		Leech Cord			
Battens		Clew Blocks			
Batten End Cap		Measurements stamp at head			
Leech Telltails		North Logo			
Insignia		Bag			
Spreader dots					
Measurements stamp at head					
North Logo					
Bag					

Checked by: \_\_\_\_\_

Date: \_\_\_\_ / \_\_\_\_ / \_\_\_\_