

RS400

OWNER'S MANUAL

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INTRODUCTION

Congratulations on the purchase of your new RS400 and thank you for choosing an RS. We are confident that you will have many hours of great sailing and racing in this truly excellent design.

Important Note

The RS400 is an exciting boat to sail and offers fantastic performance. It is a light weight racing dinghy and should be treated with care. **In order to get the most enjoyment from your boat and maintain it in top condition, please read this manual carefully.**

Whilst your RS boat has been carefully prepared, it is important that new owners should check that shackles, knots and mast step bolts etc. are tight. This is especially important when the boat is new, as travelling can loosen seemingly tight fittings and knots. It is also important to regularly check such items prior to sailing. Make sure that you have a basic tool kit with you the first time you rig the boat in case there are tuning / settings changes that you wish to make.

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RIGGING INSTRUCTIONS

1). The top straps are adjustable for length and reach. Spend time setting the straps to suit your size and preferred hiking position. You may wish to experiment with different settings after sailing the boat because correct toe strap adjustment will greatly effect your comfort afloat.

2). Prior to stepping the mast in the boat, ensure all halyards are “lowered” so that you can reach them when the mast is vertical. Lift the mast into the boat, locating the heel tenon in the step on the cockpit floor. Attach the mast ram to the plate on the front of the mast at deck level. The mast is now reasonable secure while you attach the shrouds to the chain plates. New fixtures and fittings are designed and constructed to exact tolerances, so you may find some parts of the rig attachment quite stiff. This will improve with use.

Note, the spreaders are supplied in a “safe” mid range setting. Alterations are made at the owner’s risk – more extreme settings may result in rig failure.

Rigging the Jib

3). Shackle the jib tack to the bar across the aft end of the spinnaker shute. Attach the jib head to the block on the jib halyard. There is a 2:1 purchase on the halyard at the head of the jib. Ensure that the halyard is not twisted.

4). Hoist the jib until the halyard wire emerges from the exit point on the mast below the gooseneck. Hook the cascade tensioner through the eye on the jib halyard, ensuring that the purchase is not twisted. Tension the halyard using the control which emerges on either side of the thwart.

5). The jib sheet leads from the sail, through the block on a track on the floor, up through the thwart and into the cleat. It may be rigged “continuous”(with both end of the sheet tied onto the sail), or with the middle of the sheet tied to the sail and the ends loose in the boat.

Rigging the asymmetric spinnaker

6). The spinnaker halyard emerges from the mast near the bottom on the starboard side. Thread the halyard as follows:

- Through the forward block on the floor to starboard of the mast step.
- Through the cleat and block on the forward starboard side of the centreboard case.
- Through a block tied on to the aft, starboard toe strap bar.
- Through a block tied to the aft, port toe strap bar.
- Through the spinnaker shute(above the sailcloth tray) and out of the shute mouth.

7). Tie the rope which emerges from the forward end of the bowsprit on to the tack of the spinnaker. Tie the halyard on to the head of the sail. Tie one end of the tack of the spinnaker sheet to the clew of the sail. Lead the other

end through the ratchet block next to the shroud chain plate(ensure you thread it the correct way through the ratchet, which only grips under load) across the boat, through the other ratchet block, around the front on the jib and tie onto the clew of the spinnaker.

The downhaul ties on to a patch in the middle of the spinnaker. It should lead outside of the sheets so that it does not tangle on either gybe.

8). Ensure all the battens are in place, with the ties secured firmly. Attach the clew of the sail to the block on the outhaul bar fitted to the aft end of the boom. Attach the tack to the gooseneck boom casting, using the split pin. Tie the halyard to the sail head.

9). Ensure the boat is absolutely head to wind. Feed the mainsail bolt rope through the sail feeder and hoist the sail. Pre bending the mast will ease the load on the halyard while hoisting and can be applied by winding the mast ram forward and easing the jib halyard. Hoist to the top and cleat the halyard at the base of the mast.

10). Fit the boom to the gooseneck and fasten the tack strap through the tack cringle and around the mast.

11). Pass the loose end of the cunningham control line through the cringle above the tack and tie off around the mast.

Rudder and centreboard

12). The rudder drops on to the pintle and gudgeon on the transom. To lower the rudder, wait until you are in deep water, ensure the pivot wing nut is eased and tension the downhaul rope under the tiller. Finally tighten the wing nut on the rudder stock for a positive fit between blade and stock.

13). The centreboard has a friction pad to adjust the fit within the case. If the board is too stiff or too free, tighten or loosen the screws through the friction pad. In order to do this, the centreboard has to be down, either with the boat on its side ashore, or alongside a pontoon in deep water.

Adjusting the centreplate friction

The friction pad which holds the centreboard in position is pre-set at the factory after a few sails it may be necessary to adjust this setting:-

(1) Whilst the boat is on the launching trolley and trailer base raise the bow of the boat as far as it will go.

(2) Armed with a good "Posidrive" screwdriver and a short piece of wood or plastic approx. 25 x 5 mm in section get under the boat near the forward end of the centreboard slot gasket.

(3) Insert the piece of wood through the slot in the gasket and rotate it to spread the gasket.

(4) The two screws locating and compressing the centreplate friction pad should be readily visible

(5) Adjust the friction pad as desired screwing in to increase centreplate friction.

TUNING AND SAILING TIPS

Battens

In very light winds, less tension on the mainsail battens will allow the battens to “pop” from one tack to another more easily.

Cunningham

To open the upper leech in very light winds, use some cunningham tension. Ease the cunningham for maximum power in the mid wind range and then progressively tighten it to bend the mast and open the leech as the wind increases.

Kicker

Little or no kicker is required in light winds. Progressively increase the tension as the wind increases. Ease the kicker somewhat(not altogether) off wind, to ease control of the boat.

Rig Tension

Rig tension is applied using the jib halyard. In general terms, medium rig tension is required in light winds, maximum in the middle wind band and then ease it off as the boat becomes over-powered. When you ease the halyard in strong winds, the mast rake increases and the upper leech feathers more effectively.

Asymmetric Spinnaker

To hoist the sail, first pull the pole out(cleat on port side of centreboard case). Ensure the pole outhaul is fully tight, as this also draws the tack of the sail down to the correct distance from the end of the pole. Then hoist the sail. The halyard is lead so that the helm and crew may hoist the sail.

If the desired course is a beam or close reach then tighten the windward pole “tweaker” on the aft end of the centreboard case until the pole is in line with the boat. If you wish to sail lower, with the wind aft of the beam, progressively pull the pole around to windward to increase the projected area of the spinnaker. As with any spinnaker, trim the sail as “free” as possible.

To gybe the spinnaker, simply release the windward pole tweaker, take up the slack on the other tweaker line, free the original spinnaker sheet as the boat gybes and set the new sheet.

To lower the spinnaker, the important thing is too firstly release ALL the spinnaker related cleat – both the pole tweakers, the pole outhaul and the halyard. If any of these are left cleated the sail will not fully drop. Either the helm or the crew can pull the sail down, but in most situations it is a job better performed by the crew.

Centreboard

When sailing off wind with the spinnaker set, the centre of effort in the rig is a long way forward, so to counteract the tendency for lee helm, leave the centreboard right down. Probably the only time the centreboard should be raised is when two sail reaching, otherwise leave it down to stabilise the boat.

Tacking

Most crews find it faster to tack facing back in the boat. The jib sheets and cleats are then to hand. The helmsperson needs to be careful not to over-steer as the boat turns very easily.

First time out

Apologies to all the highly experience, race winning and world girdling yachtsmen amongst you for this last piece of advice! New boats always take some getting used to. If it is blowing the doors off and the waves are dumping o the beach, why not curb that impatience to get afloat in your new toy. If the conditions are favourable the chances are that you'll have more fun and learn the techniques used in an RS400 far more quickly.

Care and Maintenance

By Richard Woof – the builder

There are four key areas of care:

1. Keep your dinghy well drained and ventilated
2. Wash with fresh water (internally and externally) on a regular basis
3. Have damage repaired promptly.
4. Tie your dinghy correctly to the trailer for towing

1. Keep your dinghy well drained and ventilated

All composite structures, no matter what they are made from absorb moisture which increases weight and under additional circumstances causes cosmetic blistering and raised fibre pattern. Obviously in dealing with a marine environment, equipment gets wet which in itself is not a problem. The problem starts when moisture is trapped for any length of time - e.g. a dinghy is left with a PVC cover on for several weeks, the cover fills with water and pulls the cover tight over the foredeck and sidedecks, the moisture trapped between the cover and the deck alters in salinity and creates the start of an osmotic cell.

To help avoid this situation

- a) Ensure the boat is kept at an angle that allows water to run off the cover and internal water to drain out of tanks and self bailer.
- b) If using a PVC cover, make sure it is removed and the boat well ventilated at least once a week. Better still, get a breathable cover - polycotton, acrylic or cotton duck.
- c) When using an undercover, make sure the cover has an opening by the self bailer to prevent water draining from the cockpit and filling the undercover. Do not leave the undercover on for long periods.
- d) Trailer cradles should be covered with a free draining material, in order to prevent an osmotic cell. All recent RS trailers are supplied with a ribbed rubber cradle liner. If your trailer cradles do not have this, a rubber kit is available through your RS dealer.

2. Wash with fresh water

Fresh water evaporates far quicker than salt water, so if your dinghy has been sailed in salt water, don't stop at the sails, fittings and external surfaces, wash the tanks out as well. This is not as daft as it sounds - all RS tanks are vented and sooner or later water will enter, particularly after prolonged capsizes. When this happens, drain the tanks and lightly spray a fresh water hose pipe into the tank to lift off the salt water and then the tank will have a much better chance of drying out.

3. Damage

Hull damage falls into three categories:

a) **SERIOUS** e.g. large hole, split, crack or worse. Don't be too distressed! Get the remains back to your RS dealer, most problems can be repaired by the builder.

b) **MEDIUM** e.g. small hole or split, gel crazing. If this occurs during an event, sailing can often be continued, as long as leaking can be prevented by drying off the area and applying a strong adhesive tape. Sail repair tape, duck tape or "denso" tape works well with the ends of the tape cut to a radius to prevent the corners peeling back. CAUTION - if the damage has occurred on or close to a heavily loaded point, then a close inspection should be made to ensure joints or laminate are fit for the prevailing conditions. If in doubt, ask an RS dealer. With this type of damage, get it fixed as soon as possible at your local RS dealer.

c) **SMALL** e.g. chip, scratching. This type of damage is obviously not life threatening but needs to be attended to, firstly to keep the boat looking good and secondly to prevent water ingress into the laminate.

This type of damage can be rectified by you the owner, if you wish. Buy the correct colour gel coat repair kit from your RS dealer and either wait for a dry warm day outside or preferably put your boat in a dry warm place under cover. Start by carefully drying the area to be repaired.

N E A T N E S S A N D C A R E
I S T H E S E C R E T O F A
G O O D R E P A I R !

If the damage is a single scratch or score mark, make sure it is clean by gently re-scratching with the tip of a sharp craft knife. If the damage is more general, etch up with a medium grade abrasive - say 80 grit (no wet or dry paper because it will leave a grey discoloration). Blow off the dust, don't wipe; this may leave fluff or contamination which will spoil the quality of the repair.

If your hand is not steady, mask around the prepared area with masking tape (always remove the tape while the gel coat is liquid)

The gel coat you get from the dealer has a wax additive in it so, when it cures, a tack free surface is produced. This tack free surface makes final shaping and finishing of the repair easier but also means that if you have to recoat the repair, the surface should be abraded or solvent wiped to remove the paraffin wax which helps create the tack free surface.

Stir the tin of gel coat, then decant a small quantity into a suitable container and add 2% catalyst. As a guide use 2 drops of catalyst (match head size) per full tin lid measure from an RS gel coat tin. Mix thoroughly and carefully apply to the repair area with a suitable instrument e.g. artist's brush, cocktail stick, match stick etc.

The speed of cure depends on temperature - on a warm day, the repair will be workable in 1-2 hours, if cooler, it may have to be left overnight. The shaping and finishing is done firstly with a file or fine abrasive 180 - 240 grit and then rubbing down with wet or dry abrasive 400 grade, then 600 grade, then 800 and finally 1200 grade. Finally polish with a proprietary polishing compound.

4.Tying down your dinghy correctly

Tying your RS dinghy correctly to the trailer is obviously important, but damage can be caused by tying down too tightly or too loosely. The boats are well located on their trailers and it is therefore only necessary to apply sufficient tension to hold the boat in contact with the cradles or keel and gunwale support. Tying the boat too loosely will allow it to move around on its supports, running the risk of scuffing the hull, but too tightly and there is a risk of structural damage. Do not use ratchet straps unless they are used very gently.

Foils

The foils are GRP with a foam core. Look after them as you do the hull. Wash with fresh water regularly. Repair any chips as soon as possible.

If you intend to travel a lot with the boat, then an RS padded rudder bag will be a worthwhile investment.

Spars

The spars are aluminium alloy. Wash regularly and check the fastenings of all fittings are secure. Take care not to scratch the anodised finish to the spars, particularly when travelling with the boat.

Sail Care Guide

By Hyde Sails

Good racing sails today are expensive items, yet it is surprising how many people are prepared to neglect or mistreat them. The rules for correct sail care are easy and simple to implement.

1. The jib and mainsail should be stored dry, out of direct sunlight when not in use (Ultra-Violet light damages sailcloth), and rolled:

- * Ensure there are no folds in the cloth as you roll the sail.

- * If you do have a fold or crease, unroll the sail and let the crease drop out. **DO NOT PULL IT OUT!!** This action can tear sailcloth.

2. Asymmetric spinnakers should be stored dry and loose if possible, do not leave them in the chute with the corners hanging out! Do not dry spinnakers by allowing them to flap in the wind.

3. When using brand new sails for the first time, try to ensure that the conditions are not too extreme because the high loads on new sailcloth can diminish the racing life of the sail. This particularly applies to the Hard Dacron jib which may get a lot of those 'Little white score marks'. Do not allow sails to flap unnecessarily. Where possible, take sails down between races and as soon as possible after sailing.

4. If your sail is stained in any way, try to remove it using normal detergent and warm water. Do not attempt to launder the sail yourself.

6. Repairs should be temporarily fixed using sticky number cloth or sail repair tape and then returned to a sailmaker for a professional repair.

7. Check the batten tension regularly, slack battens can work their way out of the luff retaining caps and damage the sailcloth. The battens should be tensioned enough in the pockets so that when the boat is sailing there are no wrinkles in the batten pockets. Watch out for wear and tear, especially around the batten pockets and bolt rope.

8. Make sure that all shackles, pins and sharp objects that the spinnaker might travel over are well taped (preferably using PVC tape). Untaped shackles or frayed wires are the most common cause of major tears in spinnakers.

RS CLASS ASSOCIATION

www.rs-association.com

The RS Class Association is highly active and you really should join.

The **RS Racing Circuits** are the envy of the dinghy world, with great competition and a fantastic and friendly social life. The RS Association also organises **Training Events** throughout the year. **Social** highlights such as the RS Ball are not to be missed!

The Class Association produces regular, informative Newsletters, and a Yearbook. There is also an extremely comprehensive RS Association web site, part of which is only accessible to RS members.

In addition, the Association maintains the Class Rules, which are the "fabric" of any one design class. Without these the Class would disintegrate and values would tumble.

The Association relies on the support of the owners of the boats to financially survive. Membership costs only £33.00 per year (£15 for Youth membership) and without it, you won't even know what you are missing!

You should have received a membership application form with your new boat, but if not, please contact the RS Class Membership Secretary Jill Line on 01275 872466, jill@the-j-team.fsnet.co.uk, or see under 'Documents' on the website.

Members receive a voucher towards the cost of boat insurance with Noble Marine Insurance.

Any other queries about the Association should be directed to the RS Association Administrator, Heather Chipperfield, on 01590 610273, heatherc@rs-association.com.

INSURANCE

The class Association has organised an insurance scheme with M A Noble Insurance Brokers. They are highly efficient to deal with and always fair when it comes to making a claim.

Contact Noble Insurance on:

Tel. 01636 707606

Fax. 01636 707632