

BEGINNER'S GUIDE TO RIGGING THE GP14

Introduction

Because the GP 14 is not a true one-design boat, it has many variations in the way it can be rigged, although this has become more standardised in recent boats.

This guide is designed not only as a beginner's guide for those new to the Class but also to help more experienced sailors to find easier ways to operate their boat. It is impossible to represent all the many possible rigging combinations, but I hope these examples will help newcomers 'puzzle out' their boat's rigging, which in many cases will differ in detail from the illustrations. I welcome any comments which might help to make this guide more useful or more accurate.



1 The Mast

Fitting (For most a 2man job)

- 1) Before fitting the mast, ensure that all rope ends are present (not lost in mast!) and are not tangled. This is best done with mast vertical.
- 2) Stand mast vertical beside boat and lift into boat and ensure its base is correctly slotted in.
- 3) Lean mast aft and fit each shroud in turn in the marked holes (yes you did mark them at the end of last season didn't you?)
- 4) Return mast to vertical and check that mast is approx. 25 mm aft of mast gate position with shrouds taut.
- 5) Push mast forward and engage mast gate.
- 6) Check mast pre-bend by pulling down main halyard tight to gooseneck. The gap between mast and halyard should be 15-20mm. If not, move shroud pins up (to reduce bend) or down until setting is correct.
- 7) Attach forestay using the pin most forward of the two on the bow deck. This should be fitted using rope as the main attachment with a piece of parallel shock cord to prevent sag when tension is applied to rig.

2 Jib/Genoa

Rig tension The front (luff) of the foresail should be attached to the boat using the rear of the two pins on the bow deck. After it has been raised, the jib wire must be tensioned to a pre-set value, which causes the mast to straighten and the shrouds to become taut. Correct rig tension is essential to prevent luff sag and to maintain the necessary amount of mast bend. The usual device for achieving this on older boats is the Highfield lever, which on modern boats has been largely superseded by a multi purchase pulley system, which allows jib tension to be altered on the water. this device also permits the foresail to be lowered and re-tensioned whilst on the water in the event, for example, of the spinnaker becoming fouled on the jib shackle.

Highfield lever tensioning system

Pull jib rope down until the wire loop of the jib wire is exposed and engage this on the lever hook and engage lever pivot in required slot. Ensure rope is moved up the loop so that it does not become trapped between the lever hook and the wire.

With one person applying tension to the forestay, pull down the lever until it is vertical. Note that some boats have the lever system inverted and it is necessary to push the lever up to tension the rig which is somewhat more difficult.



CAUTION!
Highfield levers are notorious for injuries to fingers if not operated safely. It is essential to keep fingers well clear when "closing" the lever, and to positively control the lever when "opening" it. Push it home with the ball (or base) of the hand, and when opening it use the ball of one hand to prevent it suddenly flying through its full travel.

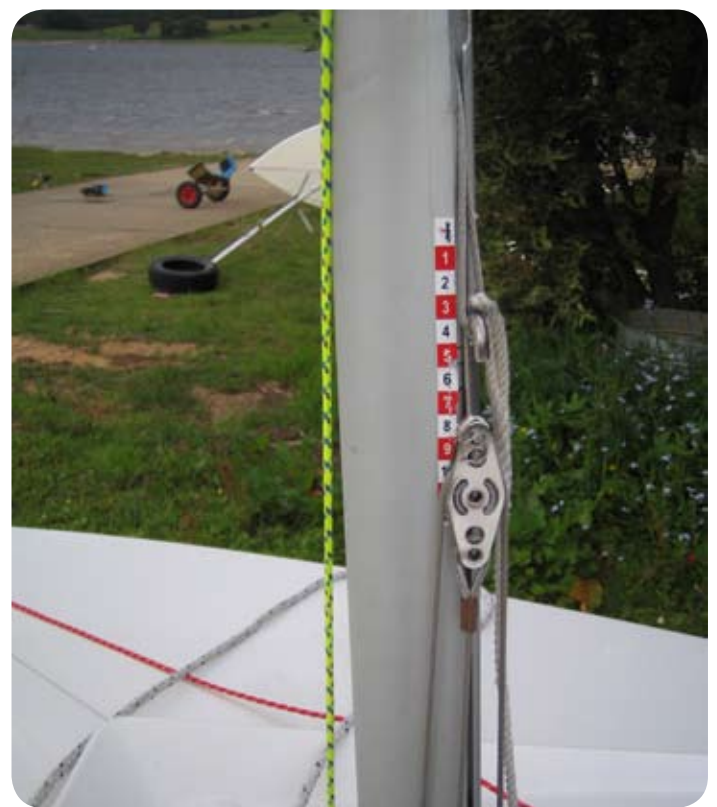
Multi purchase pulley tensioning system



System retrofitted to series 2 Don Marine FRP boat.



Standard modern arrangement using a combination of rope and wire



The positions of the wire loop at various tension levels should be noted by marking the mast in permanent ink or by use of a self adhesive proprietary calibration scale.

In order to obtain correct settings in the first place, the use of a rig tension gauge is essential. The normal rig tension is 400 lbs measured on the shroud for Series 2 boats and series 1 boats which have had the mast step conversion. Series 1 boats with the mast step conversion can be easily identified, since the mast has a tenon at the bottom rather than a square end.

For other Series 1 boats, it is wise to limit rig tension to 350 lbs. Particular care is necessary if there is any doubt about the soundness of the area around the mast base, as there will be a lot of force on the bottom of the mast.

Rigging of jib and genoa sheets

The use of a jib rather than a genoa requires cleats which are closer to the centre of the boat than for a genoa and they are sheeted inside rather than outside the shrouds.

Genoa sheeting – sheet ends within the boat (most common system)



Attach sheet to sail by threading loop through the clew eye and both tails through the loop.

Lead the sheets outside the shrouds and thread through the travellers and cleats; tie figure of eight knot

Through-deck sheeting

When threading the genoa sheet, remember to ensure the rope is fed through the below deck pulley before threading it through the side deck hole.

Setting of genoa sheet traveller position

The traveller position is set so that when fully sheeted in an imaginary continuation of the genoa sheet from traveller to sail luff intersects the luff midway up its length. To check on the setting, sail the boat fully sheeted close-hauled and luff up (head up to wind) until the telltails on the mainsail begin to break. If all telltails break at the same time then the traveller is correctly set.



3 Mainsail

There are a number of alternative rigging possibilities including the use of centre or transom main, the use of wire or rope halyard and kicker, and the various possibilities for positioning of kicker and outhaul controls.

Transom Main



Centre main The tails of the mainsheet hawses which are attached to the boat corner are normally whipped into the mainsheet.



Halyard

Wire Halyard



There are two methods for handling the main halyard:

Using a looped wire pulled through the mast by rope tail (as for the jib halyard) and retained by securing the loop on a toothed rack.

Lower end of mast showing rope tail, wire loop and toothrack.

By use of a full rope halyard using Dynema or Kevlar. This is retained with a clam on the mast and is pulled up via a pulley below.



Lower end of mast showing rope, cleat and pulley

Kicker

The kicker is a multi purchase pulley system which controls the boom (prevents it lifting) and allows the shape of the mainsail to be altered to suit varying wind conditions. It does this by tightening the leech of the sail and applying mast bend. For racing it is important that the kicker is accessible to the helm at all times since this control plays a vital part in efficient sail trimming. In order to achieve this the boat is normally be rigged so that kicker controls come to the seat on each side of the boat.

Note regarding re installing kicker

Where 2 control lines are used for the kicker and Cunningham make sure before attaching kicker to mast that the kicker assembly is correctly routed between the two lines.

It is easier to install the kicker if the boom is installed in the gooseneck and held in a horizontal position by temporarily attaching main halyard.



Cascaded pulley system (this can be a combination of wire and rope or all rope)

Cunningham



This is a device providing extra flattening for the mainsail in heavy weather and consists of a rope with a loop on the end which passes through the eye or pulley on the luff of the mainsail approx 300 mm above the gooseneck. The end is anchored to the mast by tying the end to the gooseneck. The other end, after passing through the sail eye/pulley is attached to the fixed end of a pulley in order to allow control lines to be directed through the pulley to each side of the boat via pulleys on the floor (this is essential since the Cunningham only tends to be used in hiking conditions)

4.Spinnaker

This guide concentrates on the use of a two to one gearing for the spinnaker halyard. Some people have used one to one and others have used four to one, but two to one is the norm. The use of twinning lines is well established and a great aid to racing, but can be considered optional

Halyard

In order to facilitate rapid hoisting, the halyard is normally hoisted using 2:1 gearing. This allows the helm to hoist the sail most or all of the way up in a single pull. The gearing can be provided using a pulley and ring system running up the forestay or via a pulley running along the bottom of the boat. Series 1 boats normally use the former method since the floor construction made it difficult to use a pulley along the floor, whereas most series 2 boats use the latter system as it allows faster hoisting (less rope). When attaching the sail to the halyard, a stopper knot and bobble approx 100mm from the attached sail is used to keep the sail away from the mast.

On series 1 boats, the halyard is normally taken back to a cleat on the centreboard casing.

On series 2 boats the halyard normally runs via a floor mounted pulley beneath the transom to a floor mounted cleat and pulley behind the centreboard casing. This gives sufficient length for the 2/1 pulley on the floor to operate.



Picture shows arrangement for sail hoisted via 2:1 gearing pulley running up forestay. The red rope is the halyard and is attached to the sail. The white rope passes via the mast pulley to the cleating arrangement within the boat (frequently positioned on the centreboard case).



Gearing pulley within boat (normal on Series 2 boats picture above). The green/black rope in the foreground goes to a pulley beneath the rear deck (picture below) and returns to the floating pulley. The pink and yellow rope going through this pulley is the spinnaker halyard. One end is attached to the boat (preferably the mast) and the other (via the pulley) to the sail (via sheaves on the mast).



Spinnaker Sheet

It is normal to use a tapered sheet consisting of thick rope with two thinner tails. The sheets pass behind the crew and across the boat via cleats on each side. These cleats are rarely used when racing, but are very useful when cruising.

Twinning Lines

Twinning lines are optional for cruising but considered essential for racing since they permit rapid setting of the sail and prevent contact between pole and genoa luff. The stopper knot on the spinnaker sheet (which allows the sheet to be controlled by a stainless steel ring tied to the twinning line) should be set so that the pole is approximately 50mm from the genoa luff with the pole at its highest position and the line fully engaged. Note that with through-deck sheeting, a knot can not be used. It is normal in this case either to use cotton whipping on the spinnaker sheet or, with tapered sheets, to set the twinners so that they are set correctly when the bobble is stopped by the change in rope diameter. The other end of the twinning line has an identical arrangement on the other side of the boat.



Picture shows the spinnaker flying with the pole in a normal (non light wind) position.

Pole uphaul / Downhaul

The pole should be adjustable so that it can be raised from low position (horizontal) to high position (90 degrees to genoa luff). Normal rigging uses a rope uphaul and elastic downhaul, and incorporates a device below the deck to limit the rope travel to allow the pole to go just above the 'high position' in windy conditions when upward wind force exceeds elastic strength. The best arrangement is to employ an arrangement with elastic running via two fixed pulleys along the front side panel with a rope running via a pulley to the lower part of the pole loop (the lower end of the rope is attached to the boat, and the length adjusted during set-up to limit the upward pole travel).



An alternative arrangement for the elastic is to tie it (below front deck) to the pole loop rope and to run it via a single pulley to a fixing point on the boat floor. In this arrangement, a suitably positioned stopper knot in the rope below the front deck is used to limit pole height in high winds.

The uphaul control should be accessible to the helm (or crew if preferred) and is normally positioned on the centreboard casing.

Pole loop



The loop in which the pole sits should be just big enough for the pole to fit at its broadest. The loop should form the upper end of the lower rope (the one connected to the elastic) and should be attached to the uphaul by a thumbknot and loop which is untied during de-rigging. This means that the pole does not have to be removed from the loop during de-rigging and that carefully set rope-length settings are maintained.

Pole stowage during sailing

It is normal to stow the pole with the front hanging from its loop and its rear in a double plastic covered wire sling attached to the boom.

Picture pole stowed with uphaul set to normal (non light wind) height.



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