Flying 15 2663

Intro

Different Designs

The Flying Fifteen is known as a ‘restricted’ class, which mean that some variation in hull shape and cockpit layout is allowed within measured limitations – this is done to allow owners to develop their boats to suit themselves, and also to allow hulls to be built by many different people without undue difficulty. However, as always happens, the allowed measurement tolerances can be exploited to subtly change the hull shape of the boat, and these changes, together with different materials and construction methods, means that some boats and some boat builders have a better reputation than others. In the Classic fleet, the general consensus of opinion is that the early ‘Windebank’ hulls are the type to have.

Roy Windebank designed a series of Flying Fifteen designs, starting in the late 1970’s with the Mk1, with the 2,3,4 and 9 following over the next few years; new boats being built today are essentially a development of the ‘9’, and although minor refinements are still taking place, this design is generally regarded as the end of the evolutionary cycle.

The differences between the designs is very minor and not worth getting too excited about, although it is generally acknowledged that the biggest jumps took place between ‘3’ and ‘4’, and ‘4’ and ‘9’ – so much so that the sail numbers used to define the three Flying Fifteen fleets – Classic, Silver and Modern – are chosen to approximate when these design changeovers took place. Incidentally, if you’re wondering why the designs jump straight from ‘4’ to ‘9’, that is because Roy made several copies of the Mk 4 mould, which he numbered 5,6,7 and 8.

Roy was himself a boat builder as well as a designer, and built many Flying Fifteens, although his moulds were also used by other builders both in the UK and abroad. The cache his boats attract (justified or not), and the fact that the design differences are invisible to the untrained eye, mean that many more Windebanks are advertised for sale now than were ever built in the first place!

A new Console

One of the most significant differences between modern boats and those of an older vintage is the trend towards using an aft mainsheet bridle to centre-line the boom, rather than a traveller in the middle of the boat. Ultimately, both systems have their own merits in terms of sail control, but doing away with the central traveller also has the major advantage of allowing more room in the cockpit, and giving the helm the freedom to move forward easily in light winds.

Almost all ‘classic’ Fifteens were originally equipped with a central traveller; in some cases this was mounted on a wooden or aluminium bar across the cockpit, whilst others actually incorporated this bridge as part of the GRP deck moulding. On some hulls, such as the Shepherd for example, this bridge is fairly compact and can be cut out if desired, but on other types the central bridge is much more substantial, making the conversion more difficult. On the Wyche and Coppock hull the bridge effectively separates the cockpit into two parts, and is so large that it even incorporates a forward-facing seat for the crew!

We wished to convert 2663 to an aft-bridle system, and also fit a modern-style ‘Ovington’ centre console. Fortunately the traveller and existing small GRP console on our boat were easily removed, and the resulting holes in the decks glassed-up.

A new console was ordered from Ovington at a cost of £130, which arrived very promptly; there are two (or even three) variations available of the Ovington console – we chose the latest narrow type, which gives slightly more space in the cockpit than the earlier versions.

The Ovi console is very substantially built, as in a modern boat it is also used as a mounting point for the toe straps. It is consequently fairly heavy, but fortunately we were able to remove quite a bit of material from it’s base and front side, in order to mount it around the front floor tank in our boat.

Great attention was given to bonding in the console to cope with the substantial mainsheet loads it would receive during crash gybes and so on – it has now survived lots very hard racing without any hint of cracking or movement, so it seems we did a good job.

It will be seen in the photos that underneath the console we constructed a wooden ‘shelf’ device, through which various control lines emerge. What isn’t so obvious is that this shelf is also used to terminate several purchase systems that run under the front floor – including the very highly-loaded kicking strap and rig tension systems. The top of the shelf is angled in such as way that the various systems are at different heights, which helps keeps them clear of each other, but more importantly it ensured that the whole construction is in compression, the loads being transmitted into the front floor tank and hull of the boat.

Internal Layout and Buoyancy Tanks

When our boat was built, The Flying Fifteen rules contained a clause permitting boats without full-height side tanks to have a slightly lower weight limit. I believe this was an attempt to help out the older wooden vessels by giving the new GRP boats (which tended to have integral side tanks) a slight penalty.

The consequence of this is that GRP boats were instead built with the side decks supported on ‘posts’, with smaller side tanks underneath. This is a poor configuration for a number of reasons, and the rules were subsequently changed to remove the aforementioned clause – however boats of 2663’s vintage are stuck with these small side tanks, which do at least provide a convenient shelf for running ropes and mounting fittings out of the way of the cockpit.

Our boat also features the fairly common low front buoyancy tank, which again provides plenty of space for the chute-launched spinnaker as well as other gear and control systems.

The stern contains a conventional full-size tank, and our boat is also fitted with twin floor tanks, although we have also seen Porter Fifteens of a similar age to ours without this feature. In actual fact, when we bought our boat there were an additional two small floor tanks mounted either side of the original centre console, behind the front tanks. These were considered completely superfluous and were removed to save weight and make more space.

The front floor tanks which remain have a central ‘channel’ between them which allow access to the keel bolts, and also provide a useful space in which to run various control systems as described earlier. This channel is covered whilst sailing by a removable floorboard.

Painting the Boat

Once the various fibreglassing jobs had been completed, the decks and cockpit area were prepared for several coats of high-build two-pack epoxy primer. This was sprayed with a borrowed compressor, with the sprayer wearing the necessary air-breathing equipment required for this kind of paint.

Spraying took place inside the previously mentioned polythene enclosure in order to reduce dust, with various heaters being deployed to maintain the temperature on the cold winter evenings.

Once everything was primed and any final filling and fairing carried out, it was time for three coats of plain white topcoat, again using two-pack paint. Once this was fully hardened, considerable time was spent masking the decks for the light grey panels, and also masking for a dark grey waterline stripe on the hull. The waterline stripe in particular took a great deal of care – apart from basic height measurements it was entirely done by ‘eye’, and the end result was spot-on.

We made arrangements with the paint supplier that the light grey used for the deck panels be made ‘matt’, by the addition of an extra ingredient during the mixing process. In reality it was still fairly glossy, and the white paint even more so. As we weren’t entirely happy with the effect we chose the lightly sand (with 1200 grade wet’n’dry) the whole of the decks, then moderately polish them back with rubbing compound. This removed the excess shine and left a very ‘gelcoat-like’ finish.

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Fitting Out

In many ways this was the biggest – and most expensive - part of the whole project, but we were at least fortunate in being able to start from a completely blank canvas rather than working around numerous old systems and fittings as with most rebuilds of classic fifteens.

Again we copied the tried and tested Ovington layout as much as possible, tweaking where necessary to suit our boat. The end result has been very successful, with only a couple of minor changes needed in the light of experience. All the systems work properly, and the layout of the cockpit is probably simpler and less cluttered than any other Fifteen I have seen.

Rather than trying to describe each system in detail, some of the main features are listed below, together with several photos of the cockpit and decks from different angles.

Mainsheet

Following the removal of the traveller as previously described, the new mainsheet uses the now common ‘split bridle’ system; the 8mm mainsheet has two 4mm ‘tails’ spliced side-by-side into one end, each of are attached to either side of the rear deck, more or less level with the rudder post. A block at the rear end of the boom leads the mainsheet up and forwards (along the underside of the boom) to the middle of the boat, where a second block on the boom sends it down to the centre-jammer mounted on the aft end of the centre console.

The purpose of the split bridle is to enable the boom to be centre-lined without using excessive sheet tension – for this to work however requires the 4mm bridle ropes to pull right through the aft boom block when the mainsheet is fully in – I see many boats where the 4mm – 8mm join is below the block, which prevents the system working properly.

In stronger winds an additional purchase is required, so two extra blocks are provided to facilitate this; rather than going straight into the centre-jammer, the mainsheet in this case is led to an extra block on the console, and then back up to an extra block on the boom, after which it goes back down through the jammer as before.

Two further tweaks are added to the mainsheet system, both of which are designed to prevent the mainsheet catching things when it goes slack during tacks and gybes. The first of these tweaks is a length of 4mm shock cord led from each corner of the transom to the rear end of the tiller, thus preventing the mainsheet getting caught around this point. The second tweak is to run a sailcloth ‘sleeve’ under the boom to prevent the mainsheet hanging down and decapitating the helm at inopportune moments.

Jib Sheets

Expensive Frederiksen jib tracks are mounted on the inner side decks, adjusted by control lines (3mm purple Spectra) that are led around the front of the mast to cleats on the opposite side. Yellow 5mm shock cord led beneath the side decks pull the jib cars in the opposite direction.

In retrospect, we mounted the jib tracks slightly too low on the side decks, but rather than move them we have tended to keep the cars further back on the tracks, and use slightly less sheet tension to compensate.

The jib sheet turning blocks and cleats are mounted on custom-made alloy platforms opposite the console, with teak 'wedges' providing the right angle for the sheets to be cleated and uncleated easily in strong winds.

The loads imposed by the jib sheets tended to distort the side decks slightly, especially in strong winds; eventually (two years after the original fitting out) we got around to epoxying a wooden strut underneath each deck, from the back of the track to the gunwale. At the same time some of the original foam stringers under the flat surface of the side decks were replaced by lightweight wooden struts. Although this added a little bit of weight, the combined effect was to completely eliminate the flexing (and cracking of paint) that had been taking place, and make the boat much nicer to sail.

Spinnaker Sheets

Conventional large cam cleats are mounted on the gunwales just aft of the chainplates and behind the twinning lines (described later). The twinners are used to pull the guy down into these gunwale cleats, which are then used to hold the spinnaker pole back on runs and broad reaches.

The continuous sheets themselves are made from tapered 4mm / 6mm white Spectra, and pass through blocks mounted at the aft end of the cockpit, before being led forward through turning blocks mounted under the side decks, just forward of the console. These forward blocks were originally ratchet blocks, but these were found to be unnecessary (Mike having strong arms!), and replaced with standard 25mm ball blocks.

In front of the blocks are large cam cleats, fitted with Harken roller-type front fairleads. These fairleads were a later addition, and enable the sheets to be pulled easily from funny side angles (such as when the helm is steering the spinnaker through a gybe).

The spinnaker sheet system on 2663 is particularly neat compared to other Fifteens I have sailed, as everything is tucked away beneath the side decks – it is not uncommon to see boats with the sheets running along the top of the decks where they (and the turning blocks and cleats) are constantly being sat on by the helm. As well as being uncomfortable this can be a major irritation for the crew when running, as the helm sitting on the sheet prevents it being adjusted.

Kicking Strap

As with most systems, the intention here was to hide away the mechanical bits as much as possible – where many boats have a complicated kicker purchase system 'on display' (and in the way of the crew) between the mast and boom, ours has a simple 5mm Spectra line (less potentially damaging than wire), which is led to a hidden purchase under the floor.

To facilitate fast rigging, a clip is used to fasten the Spectra line to the base of the mast, after which it passes around a block on the boom and returns to the mast step.

Attached to the mast step (the loads thus counteracted by mast compression) are two all-stainless 25mm ballrace blocks. These blocks are actually mounted on top of one another to keep them both on the centreline and as close to the mast as possible, and are also reinforced with extra stainless steel strapping to takes the loads.

The 'bottom' block of these two is part of the rig-tension system (described later), whilst the 'top' block, which also incorporates a swivel, is for the kicking strap. This block turns the spectra line along the floor of the boat, where it is attached to a 19mm triple ball-block.

4mm pre-stretched line (yellow) runs between this triple block, and another one mounted under the console 'shelf' described earlier. Finally the two rope tails are led out sideways from each side of the shelf, across the floor and vertically up to cleats mounted on the inner-edge of the side deck. The kicking strap is the only system which is led to the side decks in this way, as it is vital that it can be adjusted at all times even when the helm is fully hiked. All other systems are single-ended and are led the centre console.

Rig Tension

The wire jib halyard ends in a loop, which exits the mast downward through a slot in the mast wall. Attached to this loop via a hook is the top block in a 2:1 purchase (again using wire), which turns around the aforementioned block at the mast step and is led along the floor. Attached to the end of this wire is a second purchase system along the floor that is identical to that already described for the kicking strap, even down the to yellow rope, which is really confusing!

Finally the rig tension system is cleated vertically on the front face of the console, with the rope tail being returned beneath the floor where it is taken away by shock cord.

It is important to be able to replicate rig-tension settings, so the system is calibrated on the mast. The system wasn't designed to be adjustable whilst racing, so consequently the cleat can only really be operated whilst standing in the centre of the boat. This was probably a mistake as there are definitely some benefits to be had from dumping rig tension when running downwind. As it is we only tend to do so on really long downwind legs, and usually forget to put it back on before heading up wind again!

Outhaul

This system is really neat as all the purchase is contained within the boom, with a single black 4mm pre-stretched line running from the front end of the boom to the floor, and back to the top of the console. A fairly heavy shock cord system pulls against the outhaul inside the boom, in order to put curve back into the mainsail when the outhaul is released; without this there is often insufficient power in the wind to overcome the friction of the outhaul, even though the foot bolt rope of most mainsails are themselves elasticated these days.

Cunningham

A short length of green 4mm pre-stretched line is fastened permanently to the mainsail; one end is terminated in an inglefield clip, with the other end passing through the Cunningham hole and being tied

to the tack, thus providing a 2:1 purchase. Within the boat, via a second inglefield clip, the line continues straight down to the floor and back to the centre console via another 2:1 purchase.

The Cunningham system tends to be used only occasionally, in survival conditions.

Mast Ram

The mast ram (pusher) system operates in opposition to the mast puller, which is described later. Both systems originate from the mast lever, which hangs down underneath the foredeck approximately 12 inches in front of the mast. The lever is connected to the mast just below the gate by an aluminium strut, whilst from the bottom of the lever the two systems (ram and puller) are led backwards and forwards respectively.

In the case of the ram, a 4:1 rope purchase (using red 4mm spectra) is provided, which of course multiplies the purchase the lever itself provides. This line is then led down to the floor, and back to the top of the console.

Mast Puller

The mast puller is only used in light winds, so is led to the front bulkhead (aft end of foredeck), where it can be operated by the crew.

Running forward from the mast lever is a 3:1 purchase system underneath the foredeck using yellow 4mm pre-stretched line, which then runs back and exits through one of three large plastic deck bushes that are set into the front bulkhead; behind each of these (and consequently very neatly hidden) is a cam cleat mounted upside-down.

It is obviously fairly important when using either the ram or puller to ensure that it's counterpart is released; both are fairly powerful systems, and damage could potentially occur if they were used against each other.

Twinning Lines

The Twinning lines probably caused more problems on our boat than any other system, largely because this was one area where we chose not to copy proven Ovington practice.

Conventional fairleads were mounted by the chainplates but then, wishing to keep the side decks clear of fittings, we chose instead to lead the twinning lines through slots in the deck then, via a small turning block, to cleats mounted under the decks beside the spinnaker sheet cleats.

Another advantage of this system was seen to be that, because the twinner cleats were further back, the helm would be able to control the twinners through the gybes whilst the crew was dealing with the pole, therefore speeding the manoeuvre up. Unfortunately this did not work in practice as the cleat was still in an awkward location, and to make matters worse the continuous twinning line rope had a nasty habit of getting tangled up with the spinnaker sheet next to it.

We quite quickly changed back to a conventional ‘cleat on the deck’ system, with the line led across the boat in front of the mast, which also kept the cockpit clearer.

No sooner than we had done that, we hit our next set of problems – firstly we found that the lightweight 4mm line we were using for the twinners stretched sufficiently in gusts for the spinnaker guy to rise a few millimetres and pop out of the gunwale cleat, with consequence loss of control of the sail. This was cured by using 3mm purple Spectra instead.

The second problem was that the original fairleads mounted by the chainplates were themselves too weak – on two or three occasions they simply snapped under the pressure of the twinner line – usually in the middle of a big race out at sea! Eventually the fairleads were replaced with a more substantial version incorporating stainless steel ferrules.

The twinners themselves terminate in a small stainless steel ring through which the spinnaker sheets pass. The sheets have strategically placed knots in them, with free-running plastic bobbles (rope stoppers) on the sheets, forward of the knots but aft of the stainless steel ring. The knots can go through the aft turning blocks, but the bobble prevents them going forward of the stainless steel ring.

The knots are located on the sheets so that, with the twinner not-quite-fully-in (i.e. with the guy just above the gunwale cleat), the spinnaker pole is held just off the forestay. This means that the crew doesn’t have to spend time carefully adjusting the guy in the gunwale cleat during gybes or windy close reaches. All-in-all this is a very nice system, although we did eventually use whipping twine on the sheets to catch the bobble, rather than a knot – experience proved that whipping twine goes through the blocks more easily, and that once used a few times the knots go so tight that they cannot be undone again.

Jib Furler

A dead simple system this, comprising of a Ronstan swivel at the top of the jib, a Harken furling drum on the bow and a twin in-line block to lead the line (3mm purple Spectra) back to one of the hidden front-bulkhead cleats.

We have never used a ‘disc’ at the top of the jib, or anything else to prevent the spinnaker halyard getting caught whilst furling the jib. This used to be a major irritation which we always intended to sort out properly, but in fact it doesn’t seem to happen anymore as our new jib rolls much more tightly when being furled.

Spinnaker Up / Downhaul.

The spinnaker is chute-launched, and sits on top of the bow tank and side-tank when not in use. There has always been a theoretical risk that the spinnaker would get caught in the mast puller purchase that passes above it under the foredeck. Although this never actually happened we eventually added a mesh fabric cover when we took delivery of our new sails.

The spinnaker up and downhaul is a continuous 4mm pre-stretched line that is led to rear of the cockpit down one side of the boat, then back to the base of the mast along the centreline; two cleats are provided – one on the rear of the console to act on the uphaul, and one on the rear corner of the

starboard side tank for the downhaul. In both cases the cleats can be operated from a wide variety of angles – being able to drop the spinnaker whilst hiking hard on an overpowered reach is especially helpful!

Spinnaker Chute Cover

This is a basic system that uses shock cord to close the chute, and rope to open it, the rope being a lightweight 4mm line cleated in one of the 'hidden' cleats behind the front bulkhead.

Spinnaker Pole Outhaul

A 'Spiro' pole launcher is used, with the pole itself being held alongside the boom by blue 5mm shock cord when not being used. On the side of the mast, just above the gate, is mounted a Ronstan vertical swivel jammer through which the pole outhaul (white 6mm pre-stretch) is led.

The forward end of the pole has a Fico end fitting, with the release line (purple 3mm Spectra) running beneath the pole.

Toe straps

Separate padded toe straps are provided for helm and crew, each of which have basic length-adjustment provided by a buckle system in the middle of the boat. Shock cord in the front, back and middle keep the toe straps held off the floor.

Spinnaker Pole Uphaul

This is a simple system using a pink 4mm line that attaches to the outboard end of the (single ended) pole, is led upwards to a through-deck block in the front face of the mast, then down inside the mast before exiting the mast foot and being led backwards along the floor. Via inglefield clips the line continues backwards and eventually exits from the top of the centre console.

Spinnaker Pole Downhaul

The pole downhaul (3mm purple Spectra) disappears through the foredeck just in front of the mast, and is elasticated under the deck to act against the cleated uphaul. It also incorporates a strategically located 'stopper' that limits the travel and prevents the pole from 'flying' on tight reaches. The range of movement for the pole downhaul is quite large (from pole fully out, to stowed alongside the boom), so the rope and elastic passes backwards and forwards beneath the foredeck several times to accommodate the required amount of travel.

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