



2.3 Electrics

Installation

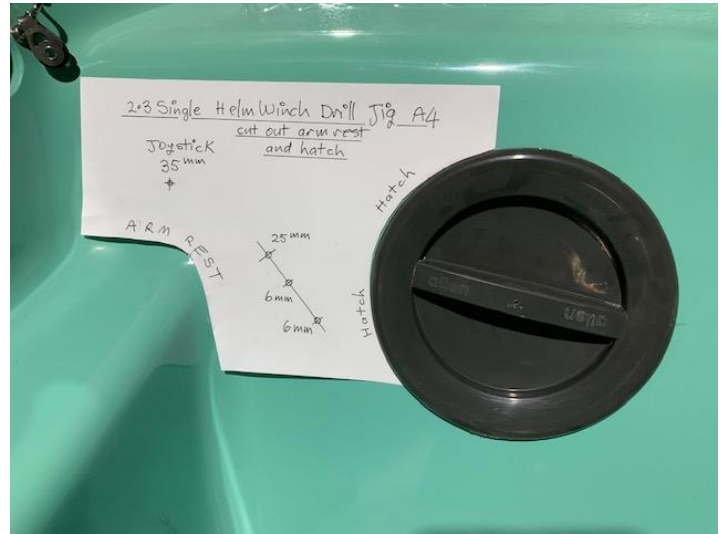
Manual

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ELECTRICS INSTALLATION MANUAL – 2.3 Single

Fitting the helm winch and control box support saddles.

1. Print the template on an A4 page and cut out the armrest and hatch lines. Use masking or other tape to hold the helm winch locating template to the starboard side of the aft bulkhead as per the picture. Use a 2mm (1/8th) drill bit (the smaller the pilot hole the more accurate it will be) to drill pilot holes through the bulkhead. There are 4 holes, the 3 upper holes attach the winch, and are in a straight line, the lower hole to the left is for the joystick lead. Take care to be very precise with the group of 3. The distance from the top hole to the centre hole is 35mm, between the centre and lower hole it is 25mm.



Print template on page 7.

2. Remove the template and drill the top hole out with a 1" holesaw, the 2 below this with 6mm bit. (1/4"). Also drill the single hole to the upper left with a 35mm holesaw.

3. Pre fit the helm motor, use a small round file, half round file and sand paper to enlarge the holes as necessary. But do not overdo it as the winch wants to be tight.

4. Fit the helm motor using 2 x 6mm x 12mm long Pan head metal thread screws.

5. Prepare to drill holes for saddle to be attached inside the aft chamber. Draw a horizontal line above the aft inspection port. Drill 3/16" holes to position the saddle on the centerline.



The saddle will have a short stop to attach the hook on the control box. The stop will also support the helm winch lead to keep it elevated if the control box is removed from the boat.

6. Pop rivet both saddle on inside of chamber (not as per this picture, only shown like this to facilitate drilling the holes), reverse the saddle and fit on the inside of the chamber) with stop in place.

Fitting the mainsheet winch.

7. In the top of the console, on the centerline, 120mm behind the aft edge of the mast (4 fingers as per picture), mark and



drill a pilot hole and cut out with dull 1" holesaw (It doesn't need to be a sharp holesaw as a slightly smaller hole is good) for the main sheet deck grommet. Knock the grommet in place with a piece of timber.

The grommet is placed on the centerline as this will facilitate the fitting of an 80 rpm winch in the future if it is desired. However the guide sheave on the 40 rpm mainsheet winch is positioned off centre to the starboard side about 20mm. This requires the cheeks of the guide sheave to be twisted about 10 degrees using an adjustable spanner which is a very simple operation, just fit the shifters jaws over the cheeks and push. Put another way, the mainsheet comes off the sheave which is offset, and passes thru the deck grommet which is on the centre line, so the alignment of the sheave needs to be adjusted so the rope doesn't chafe.



8. Feed the mainsheet up through the grommet and pull the winch up under the console. Position the mainsheet winch by pulling it as far aft as possible to where the motor touches the centerboard case, and check that the winch frame is as high as possible, the 4 lugs pulled hard up against the fiberglass. Make sure all 4 lugs are on the outside of the console.

9. Hold the winch in place with a few turns of the mainsheet around the winch and console. Drill the 4 x 6mm locating screw holes. A right angle drill will be needed for the 2 forward holes. Be careful not to allow the bit to dig into and strip the 6mm thread on the frame once it has passed through the fiberglass console. It's a good idea to drill pilot holes of 5mm (3/16"), then follow up with 1/4" when the winch is removed.



Installing the control box and wiring loom.

10. The control box is suspended on the loop of cord on the saddle attached just above the aft inspection port. Hang it in there with the mainsheet winch lead and battery leads facing to the port side.

11. First an overview. The battery lead (blue connector) and mainsheet winch lead (white connector) exit the chamber thru a 29mm hole (a 2 hole rubber bung acts as the

seal) bored below the upper seat tube, offset to starboard. The 2 leads will pass over the steering line (which crosses the bulkhead) down the cockpit floor and be tied to that saddle to which is hooked the reefing line shockcord plastic hook. The leads then run forward along the skeg, then thru a 22mm hole bored near the aft starboard corner of the console as close as possible to the cockpit floor. Observe how the swing of the joystick doesn't foul the 2 leads where they will pass through the hole in the console.

12. If the manual steering isn't fitted you need to set it up to make sure the servo leads don't foul the steering lines. Now we can see where the servo leads need to run, mark the hole position for them to exit the aft compartment. Drill a pilot hole and bore it out with a 29mm holesaw. Feed the leads thru the hole, then down to the saddle, tie the leads to the saddle, then run them forward to the console.

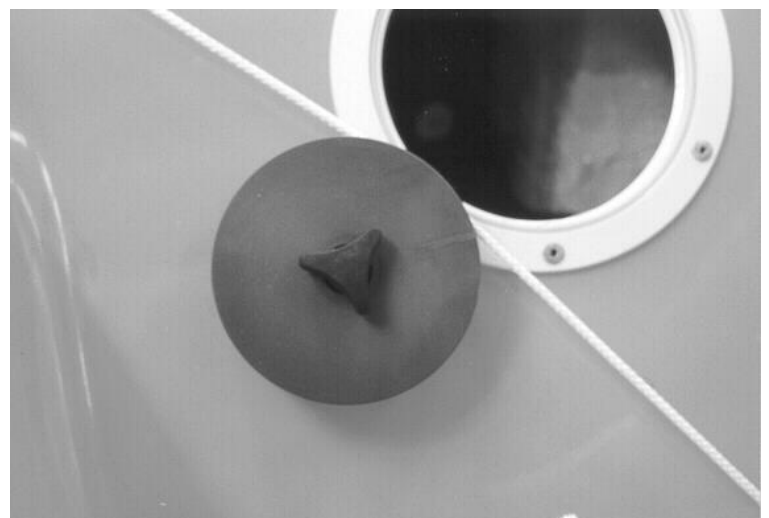
13. Work the joystick and note where you need to bore the 22mm hole to pass the leads through to ensure they stay clear of the steering lines. The sheet winch lead is led up and along the port side of the centerboard case where it is jammed in place with a small piece of foam. It is plugged into the white connector on the winch. The blue battery lead plugs into the battery inside the console alongside the centerboard case.



Adjusting the steering.

14. First an overview. Manual steering has 2 steering lines of equal length, both are dead ended at the joystick, with the live end adjusted at the tiller. With servo steering the steering line on the port side (at the joystick) is replaced with 2 lines, both dead ended at the servo winch drum, the shorter of the 2 going to the tiller, the other to the joystick. Both are adjusted to correctly set up the steering. The following procedure describes how to set up the steering.

15. Fit the helm winch drum to the winch ensuring that its clutch has properly engaged. Place the steering line which goes from the top starboard steering block diagonally down to the port side steering block so it passes and rests in the forward rope groove of the grey winch drum.



16. Using the servo controller (joystick), rotate the drum clockwise till it stops at its limit switch. Make a pencil mark as per figure 1.

17. Rotate the drum anti clockwise till it stops at the other limit switch and make a second pencil mark as per figure 2.

18. Midway between those 2 pencil lines is the attachment point for the steering lines (figure 2). Just under one rotation of the drum is full hard over to hard over of the rudders, so this point represents the mid point. Remove the drum and drill a 5mm ($3/16''$) hole into the groove in from both sides to take the 2 servo steering line ends.



19. Next sort out the 4mm steering lines. The normal manual steering line on a 2.3 is 2.35m long, and one should be attached at the manual joystick in the bottom hole with a knot close to its end. Thread it through the blocks on the starboard side, up diagonally to the port side and back to the tiller. Pass its end through one end of the tiller connector.

20. The other steering line is in 2 pieces as it has to be attached to the helm winch drum. The shorter of the 2 is 1.35m and rides in the rear groove of the drum so remove the drum, pass the end through the hole and tie a knot close to its end. Its other end goes up through the blocks on the starboard side to the tiller connector.

21. The other piece of steering line (1.75m long) is fitted to run in the front groove of the drum, then diagonally down and forward on the port side then to the joystick holder.

22. It passes in the groove under the joystick holder, then up through the upper hole in the joystick holder, and here it will be tied off with 3 or more clove hitches. If you want a $3/16''$ third hole can be drilled an 1" higher and off centre through the joystick holder and the line passes through it and then tied off. But first just thread the steering line leaving a tail of about 400mm.

23. A trick here is to use a plastic cable tie fitted through the bottom hole in the joystick and pass it under the steering lines and back onto itself to prevent them derailing. This cable tie should be fitted on all joystick holders, manual and servo and will help prevent derailments

24. The principle here is that with the manual joystick standing vertical, the hole drilled in the grey drum at right angles to the steering lines (figure 3), and the tiller in the middle should have the 3 elements all in the centre allowing maximum and equal movement from side to side. So set it all up

Figure 1

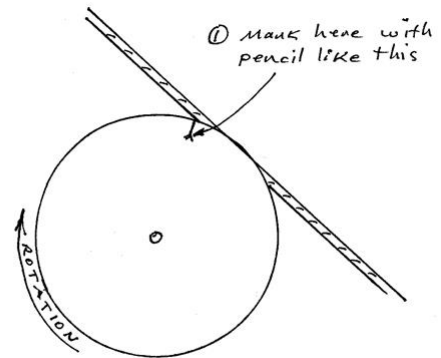


Figure 2

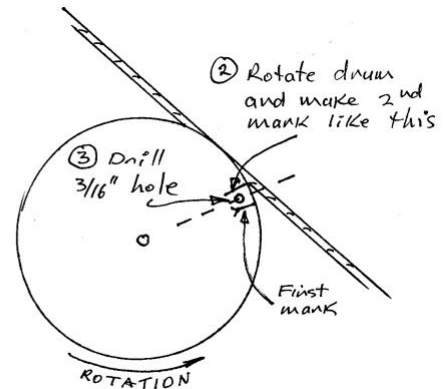
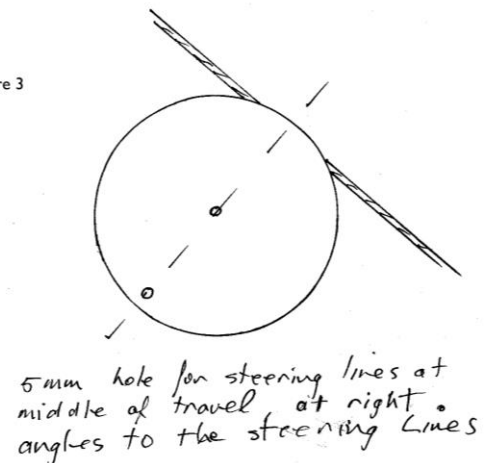


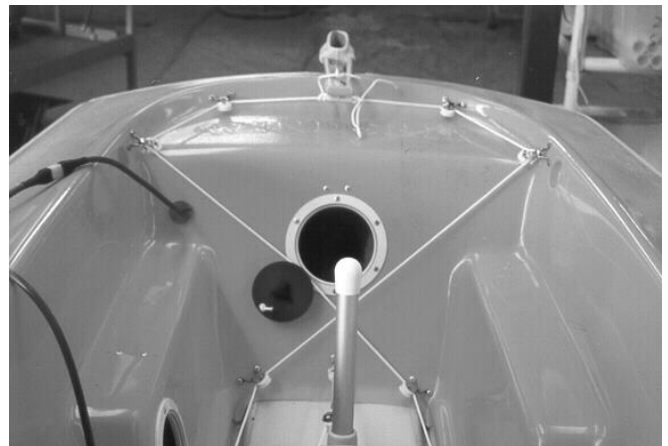
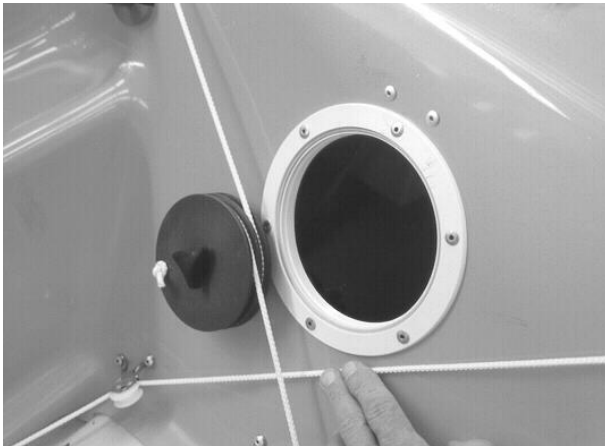
Figure 3



like this and pull the steering lines reasonably tight and tie them off at the tiller connector, and pull tight the steering line at the joystick holder and fasten it with clove hitches.

25. All the above applies to fitting the 2.3 Single steering. Generally we do not recommend fitting servo equipment to wide seat models, but it is done, so there will be variations we need to address. For the 2.3 Wide there will be a variation in where to fit the helm winch. And because the aft cockpit bulkhead is not a flat plane, but curved, care will need to be taken where the winch is fitted, and a guide sheave will need to be fitted to bring the steering line into alignment. This block will be fitted on the centerline so the mainsheet winch and battery leads, which exit the bulkhead and run down to the saddle below, can be tied to it to keep them tidy. Another variation between the models is in the lengths of the steering lines, but otherwise the setup should be the same.

26. This means there are 3 adjustments, 2 at the tiller connector and 1 at the joystick. Fit the rudder box and adjust these lines while running the steering back and forth till you have the ropes reasonably tight with both joystick and tiller in the centre, and with equal travel of the tiller to port and starboard.



27. Prepare the rubber bungs. The 35mm single hole needs to be drilled out before being split, while the 2 hole bung needs to be split to the holes on opposite sides.

28. Fit a 2m traveller with tandem traveller block.

29. The helm winch lead should pass through the loop of cord which suspends the control box. This is to ensure that if the helm winch is removed the lead end and connector are never lying in the bilge and getting wet. Or vice versa if the control box is removed.

30. The joystick lead exits via a hole with its rubber bung to seal it. When the joystick is removed the joystick female connector should be brought up towards the bung to ensure it is never lying in the bilge and getting wet.

203 Single Helm Winch Drill Jig A4

cut out arm rest
and hatch

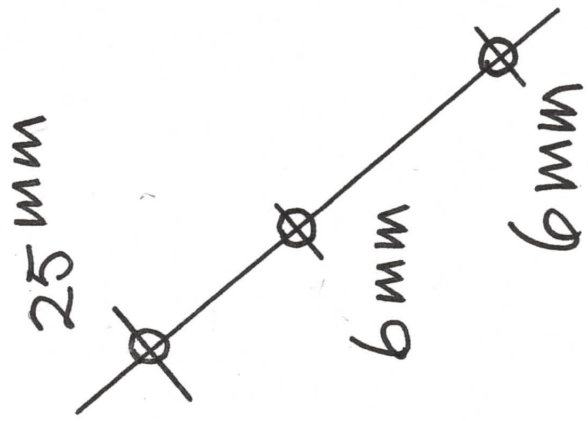
Joystick

35 mm



ARM REST

cut along dash line



Hatch
cut along dash line

Hatch