Diagnosing Under-The-Deck Problems

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As a beginner, it will be natural to think it's all very complex under the deck patches. When you get in there for the first time, you'll find it's simpler than you might expect.

What You Will See Under Those Patches

The basic kit below deck is :-

- A rudder servo linked to the rudder itself via a bar... that is sometimes adjustable, sometimes... less! There will be some scope there for adjusting, no matter what.
- The rudder servo has a signal cable that threads to the pot, then plugs in to channel 1 of the receiver. The cable carries both signal and power.
- A Mainsheet winch with one signal cable on it going to Channel three of the receiver in the pot. On top of the winch, you will see the drum holding the sheet. The winch cable can carry power as well as signal. That drum will be mounted on splines or a hex nut, so that you can easily adjust its position right there in situ.
- There may possibly be a cable running from the battery in the pot, direct to the winch to deliver electrical power around the boat. The battery can deliver power to the whole circuit in the boat either by being wired directly to the winch, or you can also plug directly into a spare channel port on the receiver - and let the receiver distribute the power around the boat from there.
- Within the "pot", you have the radio receiver ("Rx") and the battery

Tip : If you want to remove the rudder servo or the winch, first tie a piece of line to the plug at the receiver pot to aid rethreading the wires back in later.

Tip : The rudder and winch connect to their correct channel socket on the receiver – there is a right way round and a wrong way round for these connectors so take a note. Before you unplug anything from the receiver, take a photo of the wiring with your phone so that you can put it all back correctly at the end of the proceduire.

Diagnosing a Problem

For myself, I can say that I've had two problems in two years.... Not too bad! On each occasion, of course, my fellow Club Members gather around in copious numbers to help the Beginner out!!

As you can see from the simplicity of the description above, there's not too many components to fail down there. The fastest way to the solution from my Club-mates is basically by a simple process of elimination.

Is it a Quick Repair that is Needed?

Check your batteries in the transmitter or in the boat?

Does your boat respond to the rudder but not to mainsheet – or indeed the other way around?

1/ Simply visually check that your linkage from the rudder to the rudder servo is still intact? Can you quickly join it back up?

2/ If the rudder is responding, but the mainsheet is dead – visually check that the mainsheet has not jumped off the winch-drum. The most common cause, by the way, is probably that the retriever shock-cord is too slack causing the sheet to jump off the drum. Tighten it up, and slip the sheet back around the drum. If you need to take the drum off the winch capstan, it's dead easy.

Tip : Before detaching the mainsheet drum, just use some sticky tape secure the sheet, or sheet hook, to the deck to hold it in a known position. It can be useful.

Or Something Else?

A quick visual inspection will reveal if it is a simple failure as described above. However, if it's not that simple, it's a quick process of elimination to chase it through.

Was I Out of Range?

When I had this problem, the first I knew was that the boat went into "Failsafe" mode, which happens when the transmitter and on-boat receiver lose contact with each other. The first thing to ask is whether the boat was simply out of range?

A/ Check your battery strength? Try a new battery.

B/ If it all seems to work when you stand right next to the boat, it could be all the obvious things – battery , carbon, antenna etc.... but consider doing a walk-away range check, or get your local supplier to run a range check on the transmitter for you.

Check the Connections

Is it a connector problem? Do your connections look good, feel good – and, not being funny, ... sound good? On my boats I have XT30 and XT60 connectors. In quiet

surroundings, I notice that with a fully charged battery I can hear a little click (spark) when I push the connectors together. So there is a circuit of you hear that.

You may have a simple voltmeter at home to try. This will be the best test of all of whether there is voltage in the circuit. It will need fine pointed ends on the test cables. If you don't have one, probably one of your club mates will have one in the toolbox. By the way, they are very low cost on Amazon – probably £7-£20 will see you with a nice one.

If the battery connector feels unreasonably tight, consider popping a tiny smear of Vaseline on it.

Is it the Transmitter?

Try your transmitter on a second boat if you have one. Most likely if you power off the transmitter then power it back on – if all looks normal, then probably your transmitter is OK. Try new transmitter batteries though. Try a second transmitter of you have one.

I wouldn't recommend pairing the transmitter to a friend's boat, or a friend's transmitter to your boat …. Without fully thinking through the downstream implications of that action!

Is it the On-Boat Radio Receiver?

It's not universal, but most receivers will have an LED. If the receiver has power from the onboard battery., on my own Futaba kit (I must check my radiomaster and spektrum transmitters to see if this is the same) , the Receiver LED shows red if it is powered and connected. but unpaired. It shows green if it has successfully paired to your transmitter. If no LED is illuminated, the receiver is not receiving power. Whatever you see, react accordingly.

If there is no illumination of the LED, check for moisture at the receiver. To my astonishment, my club-mates were very relaxed about popping the plastic casing off the receiver – to reveal a little printed circuit board inside there. In the event of any moisture in the works, you will probably see tell-tale signs inside. Drying it out in the airing cupboard is apparently a good option. There are also some good water repellent sprays – see our website for more details. Remember to mount your receiver as high up in the pot as you can (not rolling in the bilges), using a tiny piece of Velcro. Also check that your antenna wires, if you have them, are not a hopeless jumbled tangle. If you think water may be entering via the pot lid, consider a smear of vaseline around the threads.

Not all brands will be the same, but my Futaba kit seems to allow each transmitter to hold several receiver identities in its memory. However, each Receiver will only be paired to one transmitter at a time. If you need to swap transmitter, you just need to do the pairing process again – takes 20 seconds or less.

Consider powering the boat by plugging the battery directly into one of the spare receiver ports. Hopefully that will illuminate the LED, but check that the connector where the battery meets the boat is OK. If there is current flowing, you may hear a little click or spark when you plug in. Try a voltmeter, if you have one, to check the connectors.

You Suspect the Winch or The Servo?

In the process of elimination, we are just near the end. You have tracked through the receiver, and both power and pairing are OK.

This is where you realise why the top competitors seem to have a spare winch and spare servo ready to go in the tool-box.

Possibly, the winch which does most of the work , is more likely to fail than the rudder servo. Just pop another winch in and see. As in the Tip above, tie some line on the ends of the cables where they appear in the pot. This makes threading new cables through the boat much, much easier.

Tip : as mentioned above, tape the mainsheet or mainsheet hook to the deck. ALSO stick a couple of pieces or tape around the drum to hold the sheet on the drum in exactly the position it was in. Take a photo of it. If you end up dropping the drum, this really helps.

Tip : mount the new winch. Note your joystick position, and before remounting the drum, check that the winch rotates if the joystick is moved. It might be useful to count the number of rotations from one extreme of the joystick to the other. On an F6 Marblehead, depending on drum size, you probably hope to see 4-6 rotations. Return the joystick to the original position.

You should be good-to-go now. Be aware that even if you use the same brand of winch and transmitter, you may need to recalibrate your centre points and End-Limits.

If your rudder servo turns out to be the failed component, it's basically the same routine. Remember - Photograph everything before you begin and tape things in place.