Rudder Maintenance

Why maintain your rudders?

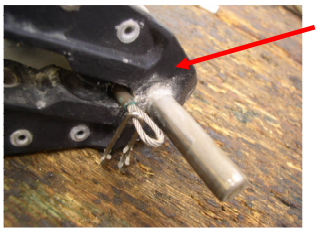
Rudder maintenance is very important with both Dart 15's & 18's, as they are over engineered, and suffer from electro-chemical corrosion. If your rudders are not regularly serviced, they may; seize in one position, flick up as soon as the wind picks up, making steering impossible, or even worse vibrate causing turbulence that will act as a handbrake and slow you down!

Comment [s1]: When two dissimilar metals come into contact with water they behave like a simple electric cell, the current generated causes corrosion.

Rudders should be checked before each sail and serviced at least twice a year depending on the duration and frequency of your sails

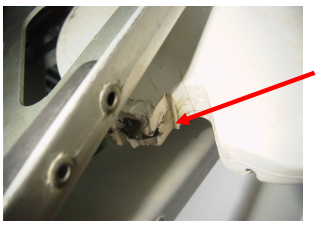
Pre sailing checks

Check your rudder rotates around the ('A' frame - D30084) freely



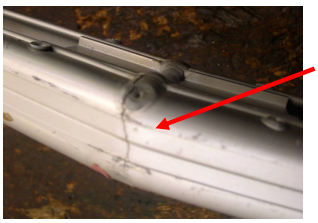
Check for visual signs of corrosion

Use a special water resistant grease to keep lubricated



Check for fractures / damage on your rudder blade – D00092)

Adding glass fibres to a cellulose Gel-coat will give additional strength



Check for splits on your tiller arm

It is possible to weld the tiller arm; however, the anodised coating must first be removed. Once welded the arm should be painted with a special aluminium primer to prevent corrosion

Comment [P.N.2]: A chemical finishing process that thickenss the aluminiums protective oxide film

Rudder Service Sequence

Stage 1
Soak the rubber bolts in a corrosion releasing agent such as CRC. Failing this I have found light oils or Cola drinks to be very effective

Stage 2
Use a socket or ring spanner to loosen the nut.

Note: Never use an open ended spanner as this can cause damage to the nut and prevent removal

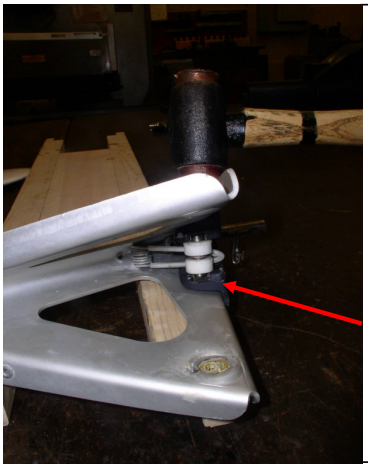
Stage 3
Use a copper hide mallet to strike the nut and free the (bolt - D50119) from the (aluminium bearing D40180)
Note: The rudder has been placed on to wooden blocks to allow the bolt to fall free

Stage 4
Undo the bolt and pull the bolt free, you may need an 8mm aluminium drift to force the bolt free. Steel drifts should not be used, as they will damage the threads and may prevent you from removing the bolt from the bearing.

Comment [M3]: a aluminium rod slightly smaller than the stainless steel bolt D40180

Note: In the worst cases, bolts may need to be hack-sawed through, the (spacing washer D50169) and bolt, in order to separate the rudder from the 'A' frame.

Comment [L4]: Hack-sawing through the washer will prevent damage to the 'A' frame and rudder blade



Stage 5

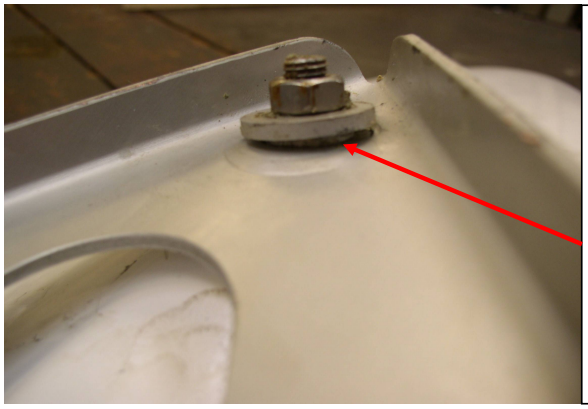
Check the alignment of the ‘A’ frame casting, Knocks to the rudders whilst sailing will result in the casting to open outwards. This will cause the rudder lifting bushes to jam or fall out during sailing.

Note: Support the ‘A’ frame with wooden blocks and use a wooden mallet with light blows re-align the casting.

Allow approximately 2mm either side of the (roller bushes pin - D40171) at the forward end of the (casting – D90012) as a guide.

Stage 6
Clean the bolt and bearing with a wire brush and apply a water resistant grease to all surfaces.
The photo illustrates the correct sequence to assemble the bolt and washers

Note: New nylon locking nut must be used each time the rudders are re-assembled or you will run the risk of the nuts running loose



Stage 7
Use a plain nut to re-assemble your rudder, this will allow you to run the nut back and forth without damaging a nylon locking nut and ensuring the shoulder washer fits tightly to the ‘A’ frame.

Note: The poorly aligned washer shown in the photo will cause the rudder assembly to work loose

Stage 8
Remember to re-check that your rudder is working smoothly and lock firmly, in the up and lowered positions, as any movement in the lowered possition will cause drag and slow the boat down.

Good Sailing

Matt Smith Engineering Lecturer I.W College

SECTION 5 **Rudder stock**

KEY
- for **Dart 18** only
- for **Dart 15** only
- Universal