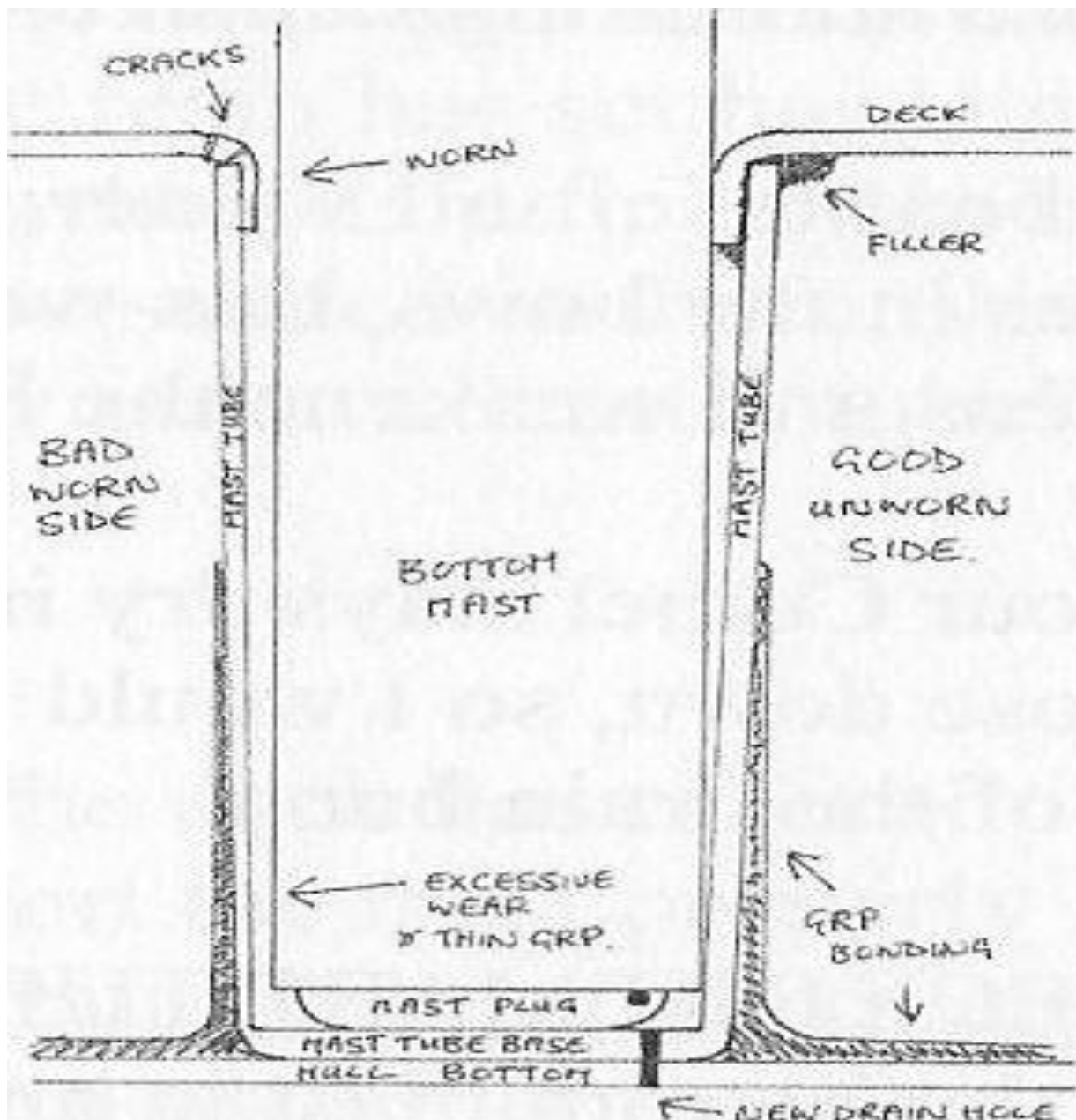


The Comet Mast Hole

Andy Simmons, Comet Dinghies. Perihelion 126

With the vast majority of Comets being built way back in the late 80's and into the 90's we are beginning to see a few age-related problems on some of these older Comets.

The most important one of these is the mast hole at the deck and the bottom of the mast tube. The drawing shows a cross section of the mast tube in a Comet. One half shows, in theory, how it is when new, the other shows how it wears.



This article was originally published in the Comet Class Association's Magazine, Perihelion. This, and other articles, are available to Class Association members via the Comet Class Association website.

www.cometsailing.org.uk



Comet Class Association

HOW THEY ARE BUILT

The bottom of the mast tube is bonded into the bottom of the hull with a jig when the hull is still in the mould. When the deck is bonded on to the hull, there is an overlapping join with filler at the deck hole. On later boats from 450? onwards there is a flange on the top of the mast tube for extra bonding area plus the front screws of the downhaul and outhaul blocks pass into this flange as well.

HOW IT WEARS

Depending on how clean the mast tube is kept, the mast will always wear through the anodizing at the bottom and around the deck hole area. This shouldn't cause alarm as the metal mast tube is 4mm thick. If a Comet is here for repair and even if the mast deck hole isn't damaged, I will often paint a new coat of gelcoat around the deck hole if it looks worn with the GRP showing instead of gelcoat. This sometimes needs a bit of sanding to get the mast back in! Don't forget there will always be a bit of play as the unworn part of the mast has to go through.

Even if the deck hole looks fine it's a good idea to check the wear at the bottom of the mast tube as serious wear here can have disastrous results! Basically, the mast wears the GRP tube so thin that the tube becomes detached from the bottom of the hull and the mast tilts over maybe 10 or 20 degrees causing a lot of damage to the deck.

Excessive wear in this area can be weakened by the boat blowing off the trolley with no apparent damage, but the final "break" usually happens after a slamming capsize or even a very hard gybe.

If a boat is left all winter, or more, nose down, with a gallon or two of water in the bows, this water seems to "stew" going stagnant and slowly softens and weakens the hull/mast tube bond.

If your Comet stays dry inside, then fine but it can get in around the hatch if nose down, so I would always prop the nose up to allow a bit of drain out of the drain bung.

CHECKING MAST TUBE BOTTOM WEAR

Put the bottom mast in and using a couple of thin wooden wedges, a disassembled wooden springy clothes peg is ideal, jamb them in the gap between mast and

This article was originally published in the Comet Class Association's Magazine, Perihelion. This, and other articles, are available to Class Association members via the Comet Class Association website.

www.cometsailing.org.uk



Comet Class Association

deck to take up any play. With your hand on the mast 15" above the deck, check how much the mast moves side to side and fore and aft. The movement of the mast 15" above the deck is the same as the play or wear at the bottom of the mast. Even on a new boat there has to be some play but if the mast can move more than 6mm or 1/4" total side to side etc. then I might worry.

REPAIRING THE WEAR

The boat must be levelled so that the mast tube is dead vertical. Using a 2' piece of wood, say 1 x 1/2" with a piece of rag wrapped round the end, the bottom couple of inches of mast must be cleaned. The rag can be wet but use kitchen paper to make sure its thoroughly dry. When you look down there with a torch you sometimes see where the mast plug has worn the middle of the bottom into a depression. I have occasionally seen my feet or the dinghy park down there when the bottom mast plug has been missing for a while and the mast end has worn a crescent shaped hole clean through the bottom.

To repair this, you can pour a small amount of gelcoat resin neatly down the middle of the mast tube trying not to get it on the sides. This makes a new mast base (put a bit of masking tape on the hull if you actually have a hole through).

Use a 1" "throwaway" paint brush taped to the stick to paint a thin coat a couple of inches up the sides of the tube. Ideally this renews the bottom of the mast tube taking away most of the play and delaying further wear. Sometimes too much resin is put on the sides or the resin sets too fast and the bumps don't flow out. The day after, check the resin has set hard and see if the mast goes fully in. It should be obvious when its properly in but if its tight to twist and not fully down it needs to be sanded in there. We have and can supply pieces of tube with sandpaper on or a "cutter tube" to sort this.

REPAIRING DECK MAST HOLE

Recently we have had a few early Comets where the deck has cracked partly or even all around the hole. This can't support the mast properly and has to be fixed. This repair isn't really D.I.Y. but I'll briefly explain what I do. The deck blocks are removed and make a note if one of the front downhaul and outhaul screws have stripped.

The deck GRP is ground back with to sound GRP with a very gradual chamfer or gradient. The remains of the deck still inside the top of the mast tube are

This article was originally published in the Comet Class Association's Magazine, Perihelion. This, and other articles, are available to Class Association members via the Comet Class Association website.

www.cometsailing.org.uk

Comet Class Association

removed and new GRP is bonded on from the deck down into the top 1" or so of mast tube. After setting, this is usually added to with another layer and after more sanding new gelcoat is applied and sanded and polished. As I said, this isn't really a D.I.Y proposition and usually is a 5 hour job.

When the mast tube breaks away from the hull, the damage around the deck hole is usually so large that after grinding back to sound GRP on the deck the hole exposed is big enough to get your arm in with an angle grinder to clean the inside of the hull before re-bonding the old or a new mast tube back in. great care needs to be taken on getting the position and rake spot on.

I used to avoid putting an inspection hatch in the deck but nowadays a white one put on the foredeck forward of the mast hole could help a repair. With the boat the right way up new GRP could be added to the new mast tube and hull join, and with the boat upside down, new GRP could be put around the deck and mast tube join, reinforcing and "mending" a cracked deck hole. The cracks around the deck hole could possibly be sorted by just filler and a bit of gelcoat. This type of "fix" could be D.I.Y but isn't what I would do here, but I do have the skill to do the more difficult but better repair described previously. Sorry if that sounds a bit big headed!

Even if there are no cracks around the mast hole, the deck can become neatly unbonded from the mast tube especially on older Comets without the flange on the top of the tube. What happens is that when sailing, and the rig tensioned up the deck lifts neatly off the tube and as soon as you come in the ropes are loosened and the deck neatly fits back on. To test this, without mast fitted, try lifting the deck up using a bit of rope in the deck kicker block, you may have to put a knee on the deck edge as well. This is quite a simple mend with epoxy glue or even polyester filler and I can give you some advice.

ANOTHER HOLE IN A COMET

In the past, Comets have taken their masts down when derigged. Invariably there is usually a bit of water in the tube and I always recommend you wash it out with a hose now and then. Nowadays with the introduction of Zippers on standard sails and the Xtras more masts are being left up, some all year round. Water from rain running down the mast and whilst sailing never goes. Weighing up the pros and cons I have started drilling a 3mm drain hole in the bottom of the boat dead central or alongside the keelband on older boats exactly 2664mm

This article was originally published in the Comet Class Association's Magazine, Perihelion. This, and other articles, are available to Class Association members via the Comet Class Association website.

www.cometsailing.org.uk



Comet Class Association

from the transom with a tape measure end hooked on the transom and the tape running alongside the keelband or down the centre. Pieces of masking tape can hold it in position. The hole will emerge towards the side of the mast base when viewed down the hole. An off-centre hole helps the mast hole drain away from the bottom mast plug. When sailing, only a bit of clean water is in there lubricating the mast swivel. As soon as the boat is out of the water it drains away and stays dry. We are also drilling a 3mm hole in the side of the mast bottom plug just below the end of the tube to drain water in from rain and capsizes. RS Aeros have a similar hole in their hulls.

Andy Simmons, Comet Dinghies