



# Hydraulic headache

Gilbert Park shows how he replaced his boat's hydraulic hoses following a steering failure

I bought my three-year old Jeanneau Merry Fisher 855 in November. After a full survey I sailed her back to Emsworth a few days later, with no problems. She sat in her mud berth over the winter without being used, apart from some maintenance.

In April I decided it was time to get the outboard engines serviced and a stopcock changed, on the advice of the surveyor, for which she'd need to come out of the water. I arranged to take her 500m to Emsworth Yacht Harbour, on a Friday evening. As the boat floated off the mud I started the various checks and noticed that the steering was very light.

## ABOUT THE AUTHOR



Gilbert Park has been sailing for more than 40 years and has worked his way through almost the entire Drascombe range. Boats with sails were proving difficult with increasing age so he made the switch to motor boats. First a RIB, then a Seaward and now a Jeanneau 855. He enjoys the tinkering and maintenance that goes with owning any sort of boat.

**ABOVE** Gilbert Park's Jeanneau Merry Fisher 855 lost steering when a hydraulic hose ruptured

Further examination revealed no movement of the engines when the wheel was turned.

Looking at the hoses it became apparent that there was a hole in one where the manufacturers had put a right angle bend and a cable tie. There was a further cable tie holding the hose in position. This resulted in excessive flexing of the hoses with cracking of the outer core exposing the wire reinforcement that rusted away. The loss of strength once this had occurred meant rupture of the hose was inevitable. Fortunately I was able to get a tow to the waiting berth.

I asked several boatyards about replacing the hoses, but nobody was available at the time so it was down to me. With patience and lots of viewing of 'how



There's a right angle bend in the flexible hose near the cable tie – and that proved a weak spot under constant movement when the boat was being steered



After removal the hole is clearly seen along with the rusted ends of the wire reinforcement. The lower hose also shows rust staining indicating that its inner core was deteriorating as well

to' videos it turned out to be fairly straightforward.

The first thing to do was to find someone who could make replacement hoses once I removed the old ones: Pirtek in Portsmouth were happy to oblige. Replacement oil was also needed. Jeanneau are very specific about the oil (ISO 22) you should use. Pirtek could supply this, but only in five gallon drums – far too much for my needs. I tried all the nearby chandlers but, although they had oil for a steering system, it was the wrong specification. So it was online to a well known auction site where I found exactly the right oil in a 5lt container – still too much but some spare wouldn't go amiss.

I carefully marked the connections and once I'd removed the hoses I took them to Pirtek. They suggested that instead of fabric covered, wire reinforced tubing I instead use nylon hoses that wouldn't suffer the same problem. Stainless steel connectors were not in stock, but were ordered for the next day. In addition, I bought a screw-in spigot for the oil reservoir and a right angle connector to avoid a repeat of the problem.

## Tackling the job



**1** Before removing anything mark it up and photograph where it all goes. Here you can see the back of the steering pump and the old hose connections. I carefully pulled the hoses through from the stern, having first attached mousing lines to each so the new ones could later be pulled back along the same route.



**2** The new hoses were marked up to match the old ones, and the ends were taped to stop any debris getting in. The hoses were then attached to the mousing line with a sliding hitch that was also given a protective layer of tape, and finally some cable ties provided extra security to ensure the line stayed attached to the hose.

## Step by step



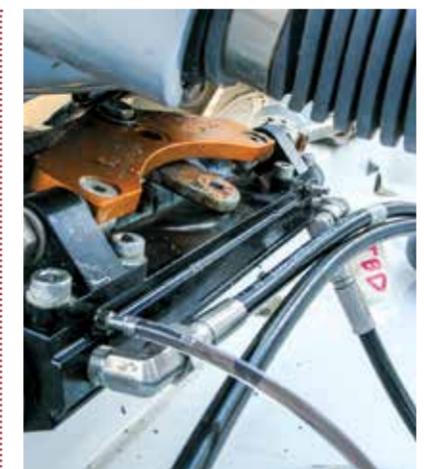
**3** Both hoses pulled through with only a little difficulty with the tape, knots and cable ties still in place having done their jobs. The hoses were connected up at both ends guided by the markings copied from the original hoses. Care should be taken not to overtighten the connections.



**4** Filling up the oil reservoir with a funnel would be messy so I bought a threaded spigot to fit into the filler hole on the reservoir and bought some clear plastic tubing to fit it.



**5** Old washing up liquid bottles fitted the tubing and I punched holes in their bases to allow air in and the oil to run down when filling and bleeding the system. To bleed the system turn the wheel from port to starboard and back again, jerking it occasionally, until air stops coming out of the bleed valves at the steering ram at the stern.



**6** Bleeding the system from both the port and starboard bleed nipples at first produced black oil that was obviously way past its best.



**7** The one-way valve in the tube system stopped working so in the end I used a plain piece of tube, and loosened the valve nipples a quarter turn to let air and oil out as I turned the wheel.



**8** Once all the bleeding was completed I tightened up the nipples and carefully removed the tubing and bottle of oil. The reservoir was now overfull and needed some oil removed.



**TIP**  
Do not remove the oil reservoir cap if the engine is running – if you have power steering you could find oil coming out under pressure.



**9** Like a mini dipstick, the spigot moulded into the oil reservoir cap shows what the correct level of oil needs to be.

**10** Rather than just putting the cap back in, spilling oil everywhere, I used a medicine dropper to remove the excess.



**11** All back together and working. Notice the effect the new right angle connector has on the run of hoses. The boat is now kept indoors so future deterioration should be minimal.

### Inspect your hydraulic system

What this failure made me realise is that I need to check the steering system regularly. The thought of it failing crossing Lyme Bay still fills me with horror.

seals and connections both inside and outside the boat for wear or deterioration. Cracking and/or discolouration may indicate that failure is imminent.

- Does the steering feel normal when you turn the wheel smartly from side to side? If it feels 'notchy' air may have got into the system.
- Do twin engines move at the same time?
- Overly light or heavy steering may warrant further investigation before taking the boat out to sea.
- Check the oil level in the reservoir. Oil doesn't evaporate and if the level falls there's a leak.
- Carefully check all hoses, seals and connections both inside and outside the boat for wear or deterioration. Cracking and/or discolouration may indicate that failure is imminent.
- Remove the cap from the reservoir and check the colour of the oil. It should be clear and almost the same colour (may be slightly darker) as when it was put in. If it's black, the oil has deteriorated, so the cause should be found and rectified and then the oil changed. If it's milky then water is getting in.
- Check the steering ram to ensure none of the fittings are loose, that it moves without hindrance and that there are no leaks from any of the seals.