

Chapter Twelve

2018 SUMMER CRUISE OF AVANTI

The 28th Voyage Dunedin to Nelson

Bill and Margaret McIndoe

Homeward Bound

Akaroa to Careys Bay

The Last Chapter

Explain the Theory

I had solved the problem with the echo sounder and the depths were now showing on the instrument. The wind speed dial also was now working. After much thought I figured out the following reason for the failure in the echo-sounder and the wind speed instrument. This is a lesson in the importance of understanding how some of the electrical components of your yacht work and how they are wired up.

Perturbation

The echo-sounder is my best friend. Under some circumstances it is possible to navigate safely with only it as an aid but if it has failed and without it I feel lost and naked. From my reading I knew that if the 12v power for the sounder is over 16.5v the sounder will close down and not give the depth. But how could the 12v power jump to over 16.5v. It must be something to do with one of the two alternators driven by the main engine. When the engine is running the alternator develops 14.4v D/C (direct current) to charge the batteries which run all (what is known as) the 12v electrical system in the boat, including the sounder. If the alternator is producing a voltage higher than 12v that higher voltage is transmitted to every part of the electrical system. The sounder will accept say 16.5v but higher than that, to protect its own electrical circuits, it is designed to close down.

Thinks at 02:10 in the morning

Now listen here, this is what I was thinking in the middle of the night. If I do not solve this problem I am going to have to replace the echo-sounder at considerable expense for a new unit, slipping the boat, much work and a total cost of about \$1000. So Bill you better get on with the thinking.....

An alternator produces say 18v A/C (alternating current) which is modified by three diodes to 14.4v D/C (direct current) which the batteries require for charging. If one of these diodes burns out the 18v is leaked as a spike into the whole system. This high voltage spike is received by the batteries and some other electrical gear such as lights, and does no harm. However the sounder doesn't like it and closes down - no depth reading.

Then came a stroke of brilliance in my middle-of-the-night thinking. If the motor is not started there will be no alternator running and no 18v spike. The sounder, being then driven solely from the battery's clean 12v supply, should work normally and give the depth. When this thought struck me at 02:10 in the morning I leapt out of my bunk, scrambled into the cockpit with my torch, trying not to wake the others in my excitement,. Being tied up at the Picton marina the engine was of course not running. To my delight when I switched on the sounder it worked perfectly with a good depth signal. In the morning when all were awake I started the engine and the proof was there. The sounder gave no depth - the spikes were back preventing the sounder from working. I am on the track of a solution. The smaller second alternator must have a burnt out diode, and when running is producing an 18v A/C spike which closes down the sounder.

The Solution

By altering the battery supply and master isolating switches I arranged for the damaged alternator to be disconnected from the system. With no spikes the 14.4v current was generated only from the main large (and good) alternator for the batteries and the sounder etc and everything worked perfectly. The electrical error I was faced with was described to me years ago by a Frenchman and he gave me the correct word to use - "Perturbation" surely a beautiful word that can be used in any number of circumstances. It comes from "perturbed" - go on have fun, look it up in a good OED and try using it.

The next step is to remove the alternator and see if it can be repaired. Otherwise replace the alternator with a new one. *Theoretically the Problem is solved. Practically I have found a way around it.*

Departing Akaroa

After careful scrutiny of the 10 day Metvuw weather forecast I could see a window in the weather suitable for us to squeeze through from Akaroa to Port Chalmers. From early Wednesday morning to midday Thursday would be good sailing weather and we could get home in that tight little window if departure was set at a ridiculous time of 02:40 in the morning. Craig's assessment of the weather agreed with this and Margaret was willing to go along with such an outlandish sailing time. If we left earlier there would still be a southerly blowing and the SE swell would not have had time to run itself out. If we left later the southerly front moving up the South Island would catch us somewhere near Oamaru before us getting to Taiaroa Heads. So yes, that was settled! Wakey, wakey at 02:30 and under way by 03:00 was the ticket.

When the alarm went off all were soon up and dressed. While Craig made for himself a cup of brewed coffee I switched on the navigation lights and all the electronic navigation gear, started the engine and went to the foredeck to ready the mooring rope for letting go. Margaret rolled and stowed our bedding and tidied up down below. The moon was obscured by clouds and it was dark outside. Our radar set was malfunctioning so I was back relying on the good old "mark one eyeball" for spotting moored yachts which had no lights and sighting navigation markers and buoys on reefs and other hazards.

When clear of the Glen Bay small craft mooring area and the green light marker on Green Point reef there would be no boats anchored between us and the Heads. There was no wind at all so I increased speed to 6kts heading down the eastern shore of the harbour, outward bound for the open sea.

Akaroa Heads

At the heads the heavy swell warning noted on the chart was not evident on this day. A long incoming 2m swell from the south, lengthened by the incoming tide, was breasted by Avanti with grace, as I turned to course 180°T heading for Taiaroa Heads, 158nm distant. I calculated ETA at our Careys Bay wharf would be 09:00 on Thursday.

Our Haven lies Ahead

Gently the miles unfolded across Canterbury Bight. One rolling swell at a time surged under Avanti's crested bows as she headed towards our home in the Great Southern Ocean. Looking aft at the turbulence of the wake was looking into the past, stretching to the far horizon where the adventures of a sailing lifetime began. This year we will be 90 and 88 years and our muscles and old bones are telling us that this was the last of our long coastal voyages in Avanti. Starless nights at sea and boisterous sun-shadowed days will be memories, no longer part of life. No more will we cast off the mooring lines of home and sail our ocean to see our friends and our secret and lovely places. In this realisation there is no sadness; these facts have always been a part of the even tenure of our lives. We have always been able to grasp the opportunities to find adventure and then seek quietude in our own haven.

Don't Mess with the Princess

Approaching Taiaroa Heads in the dawning we had company. The tourist ship Sun Princess, a blaze of lights, was steaming at 6kts towards Pilotage Station Alpha to pick up the Pilot from the Pilot Launch. The ship, which carried 2500 passengers, looked immense so close in the early morning light. Turning to port she headed for the harbour entrance. It is considered bad form to obstruct a large ship when it is manoeuvring for harbour entry. Also they have right of way and it is probably a hanging offence to obstruct their route. I stayed well clear and when she had entered Otago Harbour at 8kts and us at 5.5kts we were soon left behind in the channel by of this great white ship.

By the time we arrived at Careys Bay the Sun Princess, assisted by two tugs, was making a stern board into her berth. I bought Avanti alongside our wharf and threw the grapnel to secure the stern. Margaret and Craig picked up the fore and aft breasts, the back spring and the fore spring ropes from the wharf and I hauled in on grapnel rope to bring the stern in alongside the wharf. The time was 09:00, the arrival time correctly calculated the day before.

When we sail from Akaroa at 03:00 in the morning on Wednesday 7 March 2018, (to beat the pending southerly front) and get crew back "home in time for tea" was not easy and such an early start not really such a brilliant idea. When we arrived at Careys Bay Thursday 8 March, 30 hours later, Gae Wilson came down to collect Craig and they departed. Margaret and I walked off the boat and went home, only 160m away, with tooth brush and the bread. Home was lovely after 2 months away. Not lost at sea but at that moment certainly lost for words. Exhausted, to bed early, floor still rolling, huge error rate when typing (every fifth letter corrected in this little bit). Slept intermittently, groggy in the morning, worried about automatic bilge pump operation and mysterious leak in Avanti. Trolley loads of stuff to bring off the boat, sort and take ashore. When the origin of the mysterious water in the bilges is understood I will keep you informed with a special leak report.

The wonderful thing is that everything can only get better. Good days ahead getting our Dunedin lives in order and a few items to be repaired in Avanti after her 2 months splendid work cruising the New Zealand Pacific east coast and the Marlborough Sounds (including confronting three tropical depressions - ex cyclones). Easter only days away, autumn and winter are all good sailing seasons for small excursions and there are still many good Otago Harbour miles left in our tanks.

End of Chapter Twelve
Final Chapter in the Avanti 2018 Cruise Series
Written by M M (Bill) McIndoe
Tuesday 13 March 2018
at Home
1 Slant Street, Careys Bay
Port Chalmers