

Date: Mon, Jan 11, 2010 at 2:02 PM

Subject: Scholes cabin 5: The engine room

Hi Stirling,

I went on a tour of the engine room last night, with the chief engineer. You would really have enjoyed it. I imagine that in the tropics it must be really hot, but among the icebergs it is just right. Really noisy - you have to wear earplugs all the time, which means that most of the time our guide was pointing at things and using sign language to explain what they do! The engine room runs right from the bottom of the ship to the exhaust stack, but is not very wide or long. It is sort of like a giant jungle-gym in the middle of the ship, with lots of ladders and catwalks, and pipes leading everywhere. It is clean and painted in bright colours, but everything is a bit oily to keep it from rusting.

This ship has two turbocharged diesel engines, each with six cylinders. But since they are joined by a fixed gear that turns the single propeller shaft, they are really one 12 cylinder engine that just happens to be split in half. There are also a whole lot of other engines, powering generators and compressors. The ship can generate nearly 2 MW of power - that is enough for a small town! When the engines are running at normal cruising speed (like now) they use about 15 tonnes of diesel a day. If we are pushing through heavy ice, we use 30 tonnes a day. When we were just ticking over, like at Atka Bukta, they only use about 6 tonnes a day, and the ship has to burn another 3 tonnes in a boiler to provide the extra heat for the ship, which normally comes from the waste heat in the exhaust. Fortunately, we loaded over a million litres in Cape Town, and we still have plenty left. The fuel for this trip alone cost over R10 million! (Imagine putting that on the Petrol Card).

The propeller always turns in one direction, even if we are going in reverse (astern, they say). The propeller has a variable pitch, so they just twist it the other way and we go backwards. When we are standing still, the prop keeps turning, but the blades are flat to the water, so we don't go anywhere. We also have 'thrusters' in the bow and stern, which are sort of cross-ways propellers in tubes. They can hold us in one place for oceanographic work or helicopter landings.

The steering controls have their own room, immediately below the poop deck. A complicated system of little hydraulic levers converts the electronic signals from the autopilot on the bridge into huge pressures on the rudder.

I took a bunch of pictures for you. Right now we are in mushy ice again as we try to get back to the iceshelf, east of B15K. [Bit later: we are now at Penguin Bukta, waiting for the caterpillar drivers, so we can start pumping fuel and flying off stores].

Love,

Dad