Beaufort Gyre Exploration Project: Dispatch 10: The Engine Room Tour

Gety Ward
July 26, 2008

Chief Engineer Don Stortts kindly gave us an engine systems tour today. Don has been going to sea for 36 years, and he clearly knows this ship the tour truly fascinating. Here is what I learned.

The LSSL is propelled by a diesel/ electric motor system. Diesel fuel is used to power five generators producing 6600 volts AC each. This voltag three motors, each powering one of three propellers. Each propeller is 4575mm (about 15 feet) in diameter and weighs 24,634 kg (about 54,000 Question: Why does it float?

The LSSL in dry dock in Halifax. Stern view. Note man in lower left for perspective. Photo courtesy of Don Stortts.

This rather small and simple looking hunk of m transfers the thrust of the propellers to the ship

The ship can carry 3.6 million liters of fuel, and needs a 7000-liter oil change at least every 5000 hours. Just in case, the LSSL carries 60,000 lite by the propeller is transferred to the ship via the thrust box. It seems quite small and inconsequential for its major role in ship movement. There a

Question: what would happen if the thrust was NOT transferred to the ship?

The engine room is loud. Hearing protection must be worn at all times. Watch the video on my PolarTREC site to get a glimpse of this place.

The rudder steers the ship. On an icebreaker, there are extra features such as ice horn above to deflect ice away from the rudder stock (the post from being defected too far over if it is pushed by a hunk of ice. Yes, hunks of ice can weigh more than the ship.

The engine room is loud. We wore ear plugs. When working, communication is best done using lights. Each color represents a different signal.

The LSSL in drydock. Note the *ice horn* abov the rudder rod.The bow also has an *ice knife* itself up on a piece of ice. Photo courtesy of Do

The Engineering team can do almost anything. They carry tools, spare parts and the knowledge to repair and maintain every part of the ship. An make it.

The tool room with everything, absolutely everything! "We can repair anything except a broken heart."

Big Red, the biggest monkey wrench.

The ship's distiller use the steam from the boiler to boil the water. This process is done under a vacuum to lower the boiling point to about 70C s is not hot enough to sterilize, so chlorine is added to 0.2/0.5 parts per million (just like municipal water supplies). The ship is currently using abou burned, except hazard waste and recyclables. The incinerator works 24/7 just like the crew.

The ship's incinerator-- here all garbage is burned, except hazardous waste. None is put into the ocean. The Arctic has a zero discharge rule: nothing considered a pollutant may be discharged, dumped, from the ship.

After our tour, Don answered our many questions. Thank you Don! He left us with this thought: "What good is an ice breaker without an ice make

All photos by PolarTREC teacher Gerty Ward unless indicated.

Last updated: October 2, 2015

Copyright ©2007 Woods Hole Oceanographic Institution, All Rights Reserved.
Mail: Woods Hole Oceanographic Institution, 266 Woods Hole Road, Woods Hole, MA 02543, USA.
E-Contact: info@whoi.edu; press relations: media@whoi.edu, tel. (508) 457-2000
Problems or questions about the site, please contact webdev@whoi.edu