

# Facts About the Engine Room

Celebrity Mercury

Celebrity **X** Cruises®

## Facts About the Engine Room

The Engine Room is situated on Deck 0 and runs almost the full length of the ship.

At the heart of Celebrity Mercury are the engines that propel her massive seventy-eight thousand tons through the sea at 22.5 knots and generate the considerable electrical power to transport her approximately 2100 guests and 900 plus crew members in comfort and safety.

Providing the propulsion for Celebrity Mercury are two pairs of nonreversible, four -stroke engines - M.A.N. B+W Type 48/60 with an output of 2 x 9,450 KW (12,852 HP) and 2 x 6,300 KW (8,568 HP). Total: 31,500 KW (42,840 HP)

Each pair transmitting its power via a RENK gearbox to it's respective propeller shaft, diameter: 614mm and to variable pitch propellers, diameter: 5,800mm.

All engines are elastically mounted in order to minimize vibration during the ship's operation for our guests comfort.

Auxiliary plant - the supply feed for Celebrity Mercury's main electrical switchboard comes from six generators: the 4 x 4,320 KW auxiliary diesel generator sets totalling 17,280 KW and the two combined shaft diesel generators / motors of 5,200 KW each. Power enough to supply electricity to a town with more than 10,000 inhabitants. Electrical automation aboard Celebrity Mercury is controlled by the Damatic XD system is to serve as an integrated alarm, monitoring and control system for main and auxiliary engines and the related machinery systems. In the engine control room engineers are provided with full graphic information through which monitored values may be inspected or controlled.

Optimum maneuverability is achieved by two controllable pitch propellers, three bow thrusters and two stern thrusters of 1,400 KW at 6,600 volts each, and two active, joystick operated rudders which give Celebrity Mercury ultimate maneuverability sideways when docking without assistance of tug boats.

Celebrity Mercury carries 2,698 metric tons (713,756 U.S. gallons) of fuel IFO 380, enough for two weeks voyage at full speed. Besides the main and auxiliary power plant, there are 6 waste heat recover boilers mounted in the engine exhaust uptakes coupled with two oil fire boilers designed to produce steam for fuel to heat fresh water, swimming pools, jacuzzi and steam for the laundry equipment and galleys.

The ship is equipped with Blahm + Voss fin stabilizers which counteract the effects of wave action providing us with the smoothest ride under all conditions. Length of each fin, 6,000mm and effective fin area 15m<sup>2</sup>.

The 2 evaporators flash type "serk como" can each produce 650 metric tons or 332,892 gallons of fresh water per day out of sea water for boilers feed, cooling water systems, and for washing and drinking requirements. The average consumption of portable water per day is 750 metric tons or about 250 liters (66 gallons) per person per day.

The air conditioning plant consists of 4 large units 4,500 KW each using environmentally friendly 22 type freon. There are always 2 or 3 in operation depending on the outside temperature and the others are used for backup.

## Commonly Asked Questions

- Q. What is the total power output of Celebrity Mercury?  
A. 48.7 MW or equivalent to the power output of 700 medium sized family cars.
- Q. What is the fuel consumption?  
A. At the service speed of 21 knots consumption is 180 tons per day, this equates to 94.3 gallons per mile.
- Q. What is the diameter of the propeller and shafting?  
A. Each of the 4 blade propellers are of controllable pitch and are 5.8m (19.1 ft.) in diameter and weigh 16.4 tons. The propeller shafts are 61.5 feet long and 23 inches in diameter.
- Q. How big is each engine?  
A. Each engine is about the size of a big truck. Each cylinder is 480mm bore and 600mm stroke, operating on the 4-stroke cycle.
- Q. At what speed do the engines run?  
A. The engines are running at 500 RPM.
- Q. What is the range when all fuel tanks are full?  
A. At service speed Celebrity Mercury carries enough fuel for 14 days of continuous sailing, but more economical at the slower speeds.



Q. How many personnel are there in the Technical Department?

A. Engineers, Electronic, and Electrical Officers number 5. There are 42 additional technicians from mechanics and plumbers to air condition mechanics.

Q. How many Engineers actually run the propulsion plant?

A. The installation was designed and certified by the Classification Society to be unmanned. However, one Second Engineer is always on duty in the control room, assisted by three technical staff on rotating shifts of 4 hours on and 8 hours off.

Q. When the vessel arrives in port does everything stop?

A. Most definitely not. This is the time when maintenance and checks can be performed. There are always two engines running in port to keep lights, air conditioning, and galleys functioning.

Q. How do the stabilizers work?

A. The Blohm & Voss fin stabilizers are controlled by a gyroscope which uses the effect of centrifugal inertia to maintain its position under any conditions. It controls a hydraulic pump that alters the angle of the fin which is shaped much like an airplane wing. The action of the water over the wing either provides "lift" or "dive" to counter the effects of bad weather.

Q. Are computers used in the machinery spaces?

A. Of course, very extensively. There is a very sophisticated alarm and monitoring system which alerts the duty engineer to any function which is outside of the established parameters.

Q. Why do Engine Officers wear gold stripes with purple?

A. Engineers wear these colors in recognition of their British colleagues on board the Titanic. When it sank, all engineers went down with the ship.