Assignment 2

Pre-Training Assignment Multiple Choice Questions

Use the following "EEDI Technical File" and "**IMO MEPC Resolution 245(66) on 2014 Guidelines on the Method of Calculation of the Attained Energy Efficiency Design Index (EEDI) for New Ships" and** calculate Attained EEDI by completing Section 6 of EEDI Technical File (last page)

SAMPLE OF EEDI TECHNICAL FILE

1 Data

1.1 General information

Shipbuilder	JAPAN Shipbuilding Company
Hull No.	12345
IMO No.	94111XX
Kind of ship	Bulk carrier

1.2 Principal particulars

Length overall	250.0 m
Length between perpendiculars	240.0 m
Breadth, moulded	40.0 m
Depth, moulded	20.0 m
Summer load line draught, moulded	14.0 m
Deadweight at summer load line draught	150,000 tons

1.3 Main engine

Manufacturer	JAPAN Heavy Industries Ltd.
Type	6J70A
Maximum continuous rating (MCR)	15,000 kW x 80 rpm
SFC at 75% MCR	165.0 g/kWh
Number of set	1
Fuel type	Diesel Oil

1.4 Auxiliary engine

Manufacturer	JAPAN Diesel Ltd.
Type	5J-200
Maximum continuous rating (MCR)	600 kW x 900 rpm
SFC at 50% MCR	220.0 g/kWh
Number of set	3
Fuel type	Diesel Oil

1.5 Ship speed

Ship speed in deep water at summer load line draught at 75% of MCR	14.25 knots

2 Power Curves

The power curves estimated at the design stage and modified after the speed trials are shown in figure 2.1.

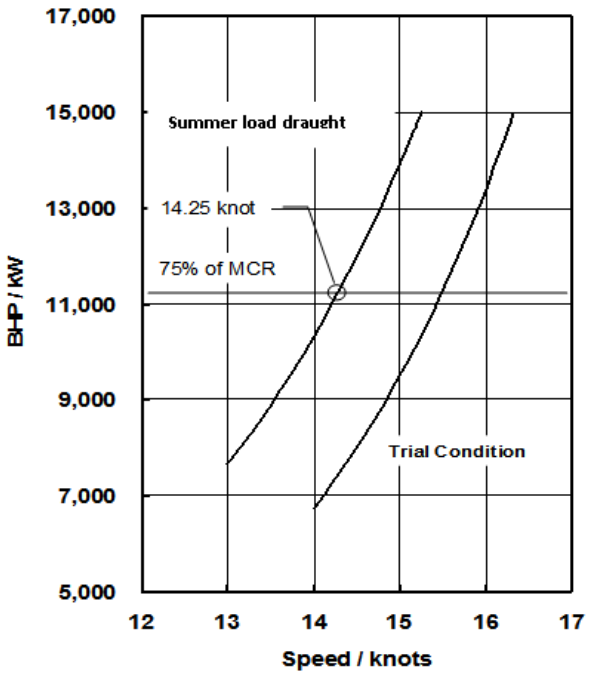

Figure 2.1: Power curves

3 Overview of Propulsion System and Electric Power Supply System

3.1 Propulsion system

3.1.1 Main engine: Refer to subparagraph 1.3.

3.1.2 Propeller

Type	Fixed pitch propeller
Diameter	7.0 m
Number of blades	4
Number of set	1

3.2 Electric power supply system

3.2.1 Auxiliary engines

Refer to subparagraph 1.4.

3.2.2 Main generators

Manufacturer	JAPAN Electric
Rated output	560 kW (700 kVA) x 900 rpm
Voltage	AC 450 V
Number of set	3

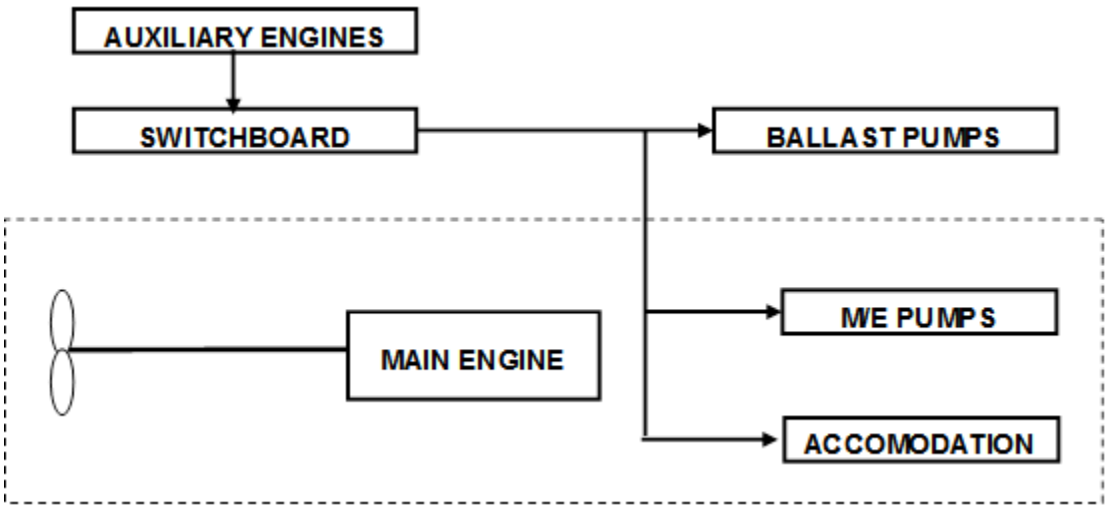

Figure 3.1: Schematic figure of propulsion and electric power supply system

4 Estimation Process of Power Curves at Design Stage

Power curves are estimated based on model test results. The flow of the estimation process is shown below.

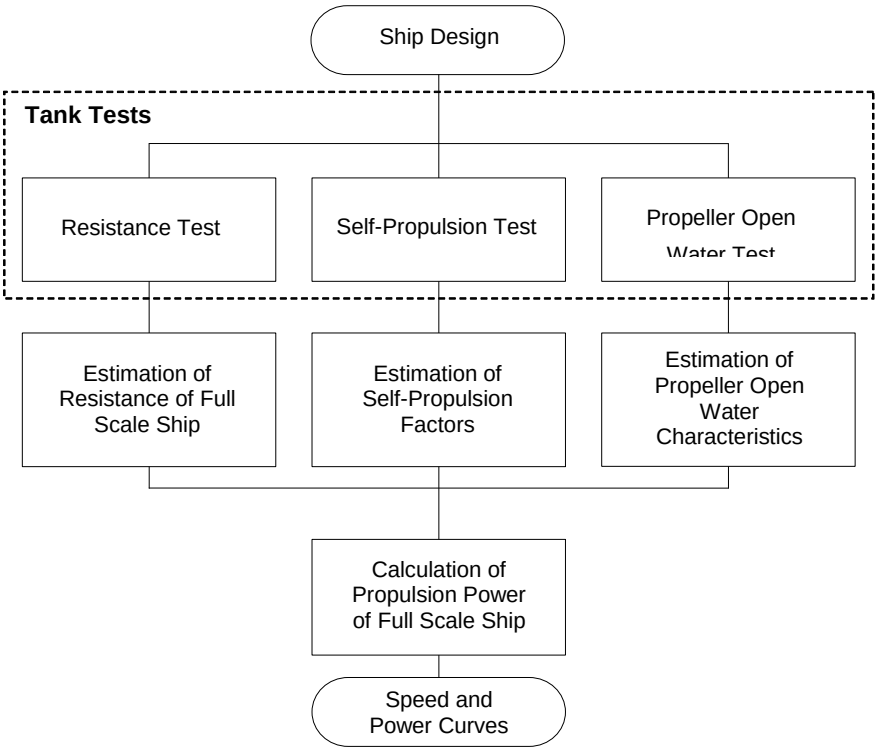

Figure 4.1: Flow-chart of process for estimating power curves

5 Description of Energy Saving Equipment

5.1 Energy saving equipment of which effects are expressed as $P_{AEeff(i)}$ and/or $P_{eff(i)}$ in the EEDI calculation formula

N/A

5.2 Other energy saving equipment

N/A

6 Calculated Value of attained EEDI

6.1 Basic data

Type of Ship	Capacity DWT	Speed V_{ref} (knots)

6.2 Main engine

MCR_{ME} (kW)	Shaft Gen.	P_{ME} (kW)	Type of Fuel	C_{FME}	SFC_{ME} (g/kWh)

6.3 Auxiliary engines

P_{AE} (kW)	Type of Fuel	C_{FAE}	SFC_{AE} (g/kWh)

6.4 Ice class

6.5 Innovative electrical energy efficient technology

6.6 Innovative mechanical energy efficient technology

6.7 Cubic capacity correction factor

6.8 Calculated value of attained EEDI

Attained EEDI: …….. g-CO_2/ton mile