

ENGINEERING DEPARTMENT

CRUISE 250

Summer 2009

SEA TRAINING II



CRU 250 SEA TRAINING II (ENGINE)

This instruction contains the requirements for your commercial cruise project report. **IT IS DUE MONDAY, SEPTEMBER 14, 2009 AT 1600.** Failure to turn project in on time will result in lowering of your CRU 250 grade 1 letter grade per day late.

You must complete 60 days sea time to complete CRU 250. These 60 days MUST be documented by Discharge Papers. If you do not complete the 60 days, you will get an Incomplete for CRU 250. **EVEN IF YOU DID NOT COMPLETE 60 DAYS, YOU MUST TURN YOUR PROJECT IN ON TIME** documenting the days you did complete.

The project will be graded on accuracy, completeness, neatness, and organization. The paper must be typed. System diagrams may be in original pencil or computer generated. If you include computer-generated drawings, attach your rough pencil sketches. Xerox copies of system diagrams are not acceptable. Photographs of areas and equipment are encouraged. Photographs should be identified. Your final grade will be based on:

Ship's Officer Evaluation(s) 30%

Provide "Ship's Officer Review of Cadet Performance" forms (page 9) to the Chief Engineer and First Assistant Engineer. Provide additional forms to their reliefs, if these officers rotate during your cruise. The officers may provide copies and discuss their completed evaluations with you, or they may simply mail the evaluation to the Engineering Technology Department at the address on the evaluation form. If you sail with more than one Chief Engineer or First Assistant Engineer, your grade will be an average of all the evaluations. Make sure that your evaluations cover the entire time period.

Completion of Practical Factors 20%

Discuss your practical factor requirements (pages 10 and 11) with the Chief Engineer or First Assistant Engineer when you report aboard and tailor the list to your ship. If a signoff cannot be completed, explain why in the introduction to your project.

Cruise Project Report 50%

Your cruise project report will be scored using the rubric included at the end of the cruise project report instructions.

It is recommended that you bring the following reference:

Modern Marine Engineer's Manual, Volumes 1 and 2

Remember, this is a unique and exciting opportunity. Try to learn as much from it as you can. Good luck and have fun!

CRUISE PROJECT REPORT INSTRUCTIONS

YOUR CRUISE PROJECT REPORT SHOULD FULLY DISCRIBE YOUR COMMERCIAL CRUISE EXPERIENCE AND THE SHIP TO WHICH YOU WERE ASSIGNED. This document contains the minimum requirements for your commercial cruise project, and serves as a guide for your report. Write a clear and comprehensive report concerning what you did and what you learned.

Your commercial cruise notebook shall include:

**DISCHARGE PAPERS OR PROPERLY ENDORSED SAILING ORDERS
COMPLETED PERFORMANCE REPORTS (UNLESS SENT TO THE ACADEMY)
PRACTICAL FACTOR PERFORMANCE SIGNOFF CHECK OFF SHEET**

- I. INTRODUCTION**
- II. JOURNAL**
- III. MAIN PROPULSION**
- IV. AUXILIARY SYSTEMS**
- V. ELECTRIC PLANT**
- VI. SAFETY OF LIFE AT SEA (SOLAS)**

The cruise project report should be completed in the following format.

- There should be dividers to separate each of the sections listed above. These dividers should be properly marked to identify the section.
- The system drawings should be placed in the section that is used to describe the system.
- Pictures taken should be imbedded in the section that discusses the equipment or system that the pictures are used to describe. Pictures should be labeled for proper identification.
- The font size used in the report should be not smaller than 10 or larger than 12 for writing and 14 for titles.
- DO NOT use plastic page covers. This makes the project difficult to read and comment on.

Introduction

- a. Give a general description of your ship; when and where it was built, the type of propulsion, who owns it, what type of cargo it carries, and the routine ports of call.
- b. Explain the engine department organization and the responsibilities of each member, both licensed and unlicensed.
- c. Explain how the ship gets maintenance support when needed.
- d. Discuss any problems you encountered on cruise that affected your ability to meet the sea training requirements outlined in these instructions.

NOTE: If you are riding more than one ship, a separate introduction is required for each ship.

Journal

This is the most important section of your project. The journal should be a daily recording of what you did during your cruise and your personal reflections concerning any material or personnel problems encountered. Include any major evolutions in the propulsion plant, significant preventive or corrective maintenance, special projects, and/or other activities in which you participated. Comment on any troubleshooting of operational problems and the impact of required corrective maintenance on ship operations. Include a discussion of the engineering skills you acquired and your personal observations regarding the leadership and management of the Engineering Department.

The journal must be type written, double-spaced 10 point or larger font. Do not confuse quality and quantity. Your daily entries do not have to be long and involved to meet the expectations described above.

Main Propulsion

Describe your ship's main propulsion plant including the type of engine(s) and basic operating characteristics; maximum ship speed, shaft horsepower, type of fuel, fuel consumption, etc. Include a general plant arrangement drawing.

- a. For steam-powered vessels the Main Propulsion section shall include descriptions and sketches of the:
 - (1). Propulsion boilers and combustion controls
 - (2). Propulsion turbines and controls
 - (3). Feed and condensate auxiliaries; main condenser, condensate and feed pumps, deaerating feed tank and feed heaters
 - (4). Reduction gear, shaft line and propeller
- b. For diesel-powered vessels the Main Propulsion section shall include descriptions and sketches of the:
 - (1). Main engine(s) and propulsion controls
 - (2). Main engine auxiliaries; fuel oil, lube oil, jacket water, combustion air, exhaust and start air
 - (3). Reduction gear, shaft line and propeller
- c. For gas turbine vessels the Main Propulsion section shall include descriptions and sketches of the:
 - (1). Main engine(s) and propulsion controls
 - (2). Support systems; intake and exhaust arrangements, engine enclosure and starting mechanism
 - (3). Reduction gear, shaft line and propeller
- d. For electric-powered vessels the Main Propulsion section shall include descriptions and sketches of the:
 - (1). Propulsion power generator(s)
 - (2). Propulsion power distribution and conditioning
 - (3). Main motor(s) and propulsion controls
 - (4). Shaft line and propeller, Z-Drive, or motor pod

Auxiliary Engineering Systems

Describe each of your ship's auxiliary engineering systems including basic operating characteristics; capacity, flow rate, power requirements, etc. Include a sketch of the system.

Auxiliary engineering systems may include:

- Auxiliary Boiler and/or Waste Heat Boiler
- Refrigeration System
- Air Conditioning System
- Distilling Plant(s)
- Compressed Air System(s)
- Hydraulic Power System(s)
- Steering Gear
- Sewage Treatment System
- Bilge System and Oily Waste Separator
- Ballast System

Electric Plant

Describe your ship's electric plant including basic operating characteristics; number and type of generators, normal and maximum electrical loads, voltage(s) supplied, emergency (backup) power, etc. Include an electrical distribution sketch.

Electrical equipment may include:

- Ship service generator(s)
- Main switchboard
- Remote switchboards (load centers)
- Transformers
- Inverters and power conditioners
- Emergency generator(s)
- Emergency switchboard
- Emergency batteries

Safety of Life at Sea (SOLAS)

- a. Describe each of your ship's fire detection and fixed firefighting systems including basic operating characteristics; alarm features, extinguishing agent, activation method, etc.
- b. Describe the escape routes from the engine room including emergency breathing and personal protection equipment available along the route.
- c. Describe your ship's outfitting of lifeboats and/or life rafts including, the type of survival craft, capacity, etc.

CRU 250 – COMMERCIAL CRUISE PROJECT RUBRIC

Report Section	Incomplete (1-2)	Developing (3)	Accomplished (4)	Exemplary (5)	Raw Score	Weight	Final Score
Introduction	Elements of the ship's description and employment are missing	Description of ship and its employment provides an understanding of the sea experience	Description of ship, Engine Department organization and maintenance support activities included	Description of ship, Engine Department organization, and support activities, reflection on overall training value of commercial cruise experience included		X 1	
Journal	Some daily entries for the sea training period are missing	Activities of each day are briefly described, significant operational problems or repairs are included	Activities, operations, repairs described, engineering lessons learned and basic skills attained from participation in plant operation and maintenance are described	Activities, operations, repairs, engineering lessons learned and basic skills attained are described, comments on the effectiveness of observed leadership and management styles are included		X 4	
Propulsion Systems	Some system design features, basic construction or performance characteristics are not included	All system design features, basic construction and performance characteristics are included	Complete propulsion system description, propulsion controls, safety features and system automation are described	Complete propulsion system description, propulsion controls, safety features and automation included, system operating procedures and maintenance requirements are briefly described		X 3	
Auxiliaries	Some systems are missing, system design features, basic construction and performance characteristics are not always included	Design features, basic construction and performance characteristics are included for each system	Complete system descriptions included, controls, safety features and automation for each system are described	Complete system descriptions included, controls, safety features and automation are described , operating procedures and maintenance requirements for each system are briefly described, environmental regulations for discharges are included		X 3	

CRU 250 – COMMERCIAL CRUISE PROJECT RUBRIC

Report Section	Incomplete (1-2)	Developing (3)	Accomplished (4)	Exemplary (5)	Raw Score	Weight	Final Score
Electric Plant	Some design features or operating characteristics of the electric plant are not included	All design features and operating characteristics of the electric plant are included	Complete electric plant description, plant controls, safety features and automation are included	Complete electric plant description, plant controls, safety features and automation are included, electric plant operating procedures and maintenance requirements are briefly described		X 2	
SOLAS	Some design features or operating characteristics of firefighting systems and survival craft are not included	All design features and operating characteristics of firefighting systems and survival craft are included	Complete description of firefighting systems and survival craft, escape routes from the engine room are identified, availability of breathing apparatus is included	Complete description of firefighting systems and survival craft, escape routes from the engine room are identified, availability of breathing apparatus is included, ship's training program is briefly described		X 1	
Drawings	Some system drawings missing; rough, unfinished sketches	All drawings complete; major components and connections are neatly drawn	All drawings complete; control and safety devices are labeled	All drawings complete; flow path operating parameters are annotated		X 3	
Grammar & Spelling	Frequent grammar, spelling errors, writing style is rough and unprofessional	Some grammatical, spelling errors, generally readable with some rough spots	Few grammatical, spelling errors; mature, readable style	No grammatical, spelling errors; very well written		X 2	
Appearance & Formatting	Sections, drawings and photographs out of order, report handwritten, sloppy formatting	Sections, drawings and photographs in logical sequence, formatting rough but readable	Formatting generally good, but could be improved	Well formatted, very readable		X 1	
						Total	

PRACTICAL FACTOR SIGNOFF SHEET

As a cadet on a commercial vessel, you will notice some differences from sailing on the GOLDEN BEAR. The ship's officers will not start-up and secure equipment just for training. For this reason it is important for you to be there when any equipment changes are made.

The following is a list of procedures you may assist with or observe. Discuss these practical factor requirements with the Chief Engineer or First Assistant Engineer shortly after you arrive onboard and tailor the list to your ship. Complete as much of the list as possible. If a signoff cannot be completed, explain why in the introduction to your project.

Start and/or secure main engine	<hr/> Signature / Date
Start and/or secure ship service generator	<hr/> Signature / Date
Light off and/or secure auxiliary boiler	<hr/> Signature / Date
Start and/or secure distilling plant	<hr/> Signature / Date
Pump bilges, start and/or secure Oily Waste Separator	<hr/> Signature / Date
Secure, clean and start lube oil or fuel oil purifier	<hr/> Signature / Date
Bunker or transfer fuel oil	<hr/> Signature / Date
Observe ship maneuvering from the Engine Control Room	<hr/> Signature / Date
Test Emergency Diesel prior to Arrival or Departure	<hr/> Signature / Date

PRACTICAL FACTOR SIGNOFF SHEET

Test Steering Gear prior to Departure	<hr/> Signature / Date
Start/operate/secure <hr/> System/Equipment	<hr/> Signature / Date
Start/operate/secure <hr/> System/Equipment	<hr/> Signature / Date
Start/operate/secure <hr/> System/Equipment	<hr/> Signature / Date
FOR MANNED ENGINE ROOMS stand at least one entire sea watch with each watch standing engineer. Discuss his/her specific duties for the watch.	8-12 Watch: <hr/> Signature / Date 12-4 Watch: <hr/> Signature / Date 4-8 Watch: <hr/> Signature / Date
FOR UNMANNED ENGINE ROOMS make rounds with the duty engineer for at least one day. Discuss his/her specific duties for the watch.	<hr/> Signature / Date