ORAL EXAMS QUESTIONS –SOUTH SHIELDS

EXAMINAL – IAN BELL

CANDIDATE – MIMI SHAAPERA – EOOW

DATE- 18/06/2019

STATUES - PASS

- You are given one hour notice, bridge calls and ask to prepare main engine, what will you do.
- Why drain air receivers. I mentioned we don't want water and oil in the air receivers.
- How would oil go into your air receivers and what are the dangers of having water in your air receivers.
- What features are in place to prevent air start explosion.
- What would happen if there is oil in your engine and you don't turn the engine with indicator cocks opened? I said hydraulic lock and he asked what hydraulic lock is. He wanted to know where the impact will be, (crankshaft.)
- Bridge calls and ask for another generator, you lost automation. How would you start the generator manually?
- If synchroscope is going in the opposite direction (anti-clock wise) what does it mean and what would you do.
- What would happen if there is a prime mover failure? What is reverse power?
- What other safeties are there on the switch board. Explain preferential trip.
- What are the checks on steering gear, steering gear regulations and how would you carry out emergency steering.
- What pumps do you have on your jacket water systems?
- Draw the jacket water system and explain.
- What is the purpose of the expansion tank?
- What other pumps do you have and what are the used for.
- What can you tell me about positive displacement pump? what is self-priming
- You jacket water outside temperature keeps rising what could be the course. I mentioned it could be that the 3-way valve is faulty and he asked how the 3-way valve works. Here I didn't mention dirty or faulty cooler because he said outside temperature from engine.
- If the economiser exhaust gas temperature keeps rising, what could be the danger of this?
- What are your actions if there is a scavenge fire in the engine room.
- Take me through enclosed space entry procedure. What are the toxic gasses you are checking for in an enclosed space? What are the rescue gears?
- You are in the control room and you get alarm saying no water in your boiler what are your actions. I said I would check if the drains open, check for leaks, check blow down valves and feed water pumps but he specifically wanted to hear check boiler gauge glass. Then he asked me how to blow down the boiler gauge glass.
- On the switch board, you have the insulation resistance meter, what is the minimum resistance value.
- Where would earth fault occur?
- He drew a terminal box and ask me to demonstrate how to carry out insulation resistance test.
- He asked what life boat I had on my vessel (freefall life boat) and he asked how to launch freefall life boat.

Date: 18 June, 2019

Name: Akosu Orbem Jethro – EOOW

Result: PASS

Examiner: Ian Bell

Duration: 55 mins

I sat and waited in the waiting area. He came, collected my TRB and workbook. Went in his office and came back out after 10 minutes and invited me into his office.

He told me during the exam, he will be nodding and maybe shaking his head but I should be relaxed because neither would mean I was right or wrong.

- DRAW ME A SEWAGE TREATMENT PLANT AND EXPLAIN (I drew and explained, diagram don't have to be perfect.)
- Why is the blower important?
- What would happen if the blower fails? (explained aerobic and anaerobic bacteria)
- How would I fix the problem if I discover the blower is not working? (Problem with motor, isolate, put off circuit breaker, lock and tag-out)
- How would I know the motor power is off? (This is proving dead)
- What electrical faults could there be in a motor? (Earth faults, short circuit, low insulation, continuity problem)
- So if I needed to enter the sewage plant, what would I do? (enclosed space entry procedure)
- What are the safety gears for enclosed space entry?
- So I am on watch and I get boiler water low alarm? What will I do? (Check boiler on auto or manual, check boiler gauge glass and blowdown. He boringly listened to me talk about checks on blowdown down valves, overboard valves, water control valve, if pump running etc until I mentioned gauge glass blowdown and that lighted up his mood I guess)
- How do you blowdown gauge glass? (I drew and explained)
- Why don't we want a boiler low level alarm? (Will get low low level alarm and eventually get severe damage to boiler tubes (Boiler tubes will crack and bust)
- Bridge calls and ask to put DG on board. How do you start DG manually and synchronise?
- What would happen if one DG prime mover fails? (Reverse power, I then went on to explain reverse power)
- What would happen if we get reverse power on one DG? (Will get preferential trips (relay 1-110%, 5 sec, relay 2-115%, 10sec, relay 3 – 120%, 15sec preferential trips. If load on running DG still high @150% OCIT (Over current invert time) will trip circuit breaker and there will be blackout. 3rd DG will try to start, if doesn't start and emergency generator will start after 45 seconds). He looked impressed when I said all these
- What are the other protection and trip on the switchboard?
- What are the indications of a scavenge fire and what will I do if I get a scavenge fire? (I forgot to mention to shut scavenge drain)
- Why would exhaust temperature lead to economiser fire? (This is because I mentioned high exhaust temperature can lead to economiser fire and damage to engine components during a scavenge fire) – If too much soot accumulation in economiser, it could lead to a fire.)

- I also said scavenge fire can lead to crankcase fire/explosion. He asked me how? (Damage to stuffing box and can get leak of combustion gases during scavenge fire through the stuffing box into the crankcase and leading to a possible explosion.
- What is stuffing box made of? (I said Rings and a sealing arrangement)
- How do I perform steering gear tests? What are the steering gear protections and trips?
- How do I operate emergency steering gear?
- What would I do if I get an oil mist detector alarm?
- Bilge well is full, what I will do?
- How do I operate OWS? OWS regulations

During the exam he noted down some of my answers. I dug myself plenty of holes because I wasn't keeping my answers short and simple. I however, managed to dig myself out in some cases. Lesson: keep answers short and simple. He was very calm and allowed me plenty of time to think. I thought he was very nice. You will get tensed but try to keep calm at all times and you will remember what you already know. If you don't understand a question, you can ask to re-phrase so you don't answer a wrong question. Good-luck

18 June 2019 - EOOW ORALS

EXAMINER – IAN BELL

KINGSLEY OGUNLEYE – PASS

TOOK MY TRB AND MY WORKBOOK IN, CAME BACK FOR ME ABOUT 20MINS LATER.

- TALK ME THROUGH WHAT YOU WILL BE CHECKING FOR IN THE PURIFIER ROOM (Check the ventilation, no spill or water under the gratings, noise or excessive vibration on the purifier, portable extinguisher in place etc...).
- WHAT PARAMETERS WILL YOU BE CHECKING ON THE PURIFIER AND WHAT YOU EXPECT TO FIND (back pressure, inlet temp, inlet/outlet pressure)
- THE BRIDGE CALLS FOR EXTRA GEN BUT THE ETO IS WORKING ON THE AUTOMATION NETWORK, HOW WILL YOU MANUALLY START THE GEN AND SYNCH. (Carry out visual checks on the DG – fuel v'v, LO sump, JCW temp etc. also remember to turn the DG before starting from local. Remember Frequency, Voltage, and Phase angle has to be same before synchronizing).
- WHAT OTHER TRIPS ARE THERE ON THE MSB. WHAT IS THE REVERSE POWER TRIP AND WHEN DOES IT ACTIVATE?
- WHAT HAPPENS WHEN THE REVERSE POWER TRIP ACTIVATES (PMS tries to bring on another DG and if situation persist, DG will trip on overload, there will be blackout and the Em'cy DG comes on).
- WHAT IS PREFERENTIAL TRIP?
- WHAT DOES THE EM'CY DG SUPPLY.
- WHAT ARE YOUR ACTIONS IN EVENT OF OMD ALARM? (I mentioned enclosed space entry in my answer).
- ENCLOSED SPACE ENTRY PROCEDURE (Remember to state Oxygen should be minimum of 20%, Permit should be signed by responsible person – C/E).
- WHAT WILL YOU DO IF YOUR BILGE IS FULL (Transfer to Bilge holding tank), AFTER A WHILE THE BILGE LEVEL IS NOT DROPPING (Check the pressure gauges on the pump, check the suction strainer for blockage).
- WHAT WILL YOU DO IF THE BILGE HOLDING TANK IS FULL (Pump overboard through OWS).
- OWS PROCEDURE AND REGULATIONS.
- WHAT TYPE OF PUMP IS USED FOR BILGES, WHAT ARE THE PUMP CHARACTERISTICS? WHAT OTHER TYPES OF PUMP IN THE ENGINE ROOM? (Centrifugal pump)
- WHERE WILL YOU FIND THE CENT. PUMP?
- WHAT CHECKS DO YOU CARRY OUT ON THE STEERING GEAR AND WHAT ARE THE REGULATIONS (Looking for Pre-Departure test procedure).
- WHAT ARE THE SAFETIES AND TRIPS?
- WHAT IS THE EMERGENCY STEERING PROCEDURE AND REGULATION?
- HOW DO YOU TEST FOR INSULATION RESISTANCE, WHAT VALUE IS EXPECTED (Draws a circuit and asks me to show how to test, 500v dc on 440 AC system – 1MOhm)
- WHAT DO YOU DO WHEN THERE IS LOW BOILER WATER LEVEL ALARM?
- BOILER GUAGE GLASS BLOW DOWN PROCEDURE.
- HOW WILL YOU DEAL WITH SMOULDERING RAGS IN THE PAINT LOCKER? (Use the FIRE acronym).

  Kept my answers short and simple. He allowed me some time to think about my answers. He rephrased/repeated the questions.

EOOW ORAL Q

Name: Marcus McVittie

Date: 21/09/18

Examiner: T Maddison

Result: Pass

Time: 50 Minutes

- Took me into the office and checked my passport, discharge book and had a look through my TRB
- Asked about the ships Id sailed on, whether they were UMS and differences between container ship and tanker machinery
- Talk me through a set of UMS rounds (described checks on each piece of machinery in detail and he listed them down to reference later)
- What does economiser manometer show? How would you reduce high differential pressure? (soot blow, water wash)
- What do the HT & LT systems supply? How do they function together?
- Why drain air bottles? What does a lot of oil indicate? Problems this would cause?
- Conditions required for start airline explosion?
- Start airline safety devices
- Purpose of auxiliary blowers
- How do we deal with bilges (holding tank, OWS)
- How to operate OWS
- What goes in the ORB
- Sewage plant – why are the blowers important? What happens if they fail, and what gases would this give off?
- Generator engine trips (stopped once I had listed 5 or 6)
- Generator switchboard trips (wanted me to mention preferential trips and reverse power specifically)

- OMD how does it work? Causes of oil mist and its dangers
- Crankcase safeties in case of explosion
- Emergency generator checks, on load & off load testing
- What is SMS and how does it relate to the engine room?
- What is a DPA and what is their purpose?
- Enclosed space entry procedure

- BA kit checks. What other equipment should fireteams have? (looking for flashlight and hatchet)
- Asked about firefighting appliances (extinguishers, hoses & foam branches)
- Moved onto different types of fixed fire appliances
- How do you deploy water mist? (local push button, automatically)
- Advantages of water mist?
- CO2 deployment procedure (which spaces have CO2)
- What to do after deployment of CO2 (boundary cool, leave as long as possible to cool, prepare for re-entry)
- Rest hours, why are they important and how much should you have?
- Free fall lifeboat launch procedure?
- What are tanker lifeboats required to have? (air supply & sprinklers)

He referred back to my UMS rounds for most of the questions and kept flicking through my TRB machinery pages to find things more specific to my ships. He asked occasional questions in between such as 'how many generators, what OWS manufacturer, how many lifeboats/rescue boats' but these were fairly random, and he didn't mark down any of my responses

I stopped whenever I felt I had given enough of an answer and if he wanted more he would push for it. He would guide me whenever I was missing

something important from my response and he noted down all of my answers to the questions, especially safety critical ones.

EOOW Oral Questions
Joshua Collins
25/09/2018
Examiner: Mr. Maddison
Duration: 50 minutes
Result: Pass

Invited me into the room, checked my discharge book and passport and had a brief look through my TRB, while asking what kind of vessels I was on, and if they were UMS or watchkeeping. All my previous vessels were UMS:

- Asked me to go through my night round. *I started in my cabin, informing the bridge and checking weather conditions, before inspecting funnel smoke colour. After that, mentioned external machinery spaces (steering gear, emergency gen), control room (alarms list, any standing orders, earth faults) and finally all auxi machinery and main engine checks.*

He then asked questions about different areas/machinery I mentioned:

- Amount of fuel for emergency generator.
- Steering gear alarms: *I mentioned low gravity tank alarm, and high/low pressure but I came back to this at the end because he was after one more that I couldn't remember. I said that if the running motor had failed and the standby/emergency had started, this would trigger an alarm, which was what he was looking for.*
- Boiler trips and alarms: Asked how the flame failure can be tested, and why it's important.
- How to parallel a generator and take the other one offline.
- Generator trips and how to simulate a reverse power trip.
- Asked what would happen if the load was still high after a preferential trip. *Emergency generator would fire up.*
- How does it know when to fire up? *When voltage to the ESB is lost.*
- How could this be tested?
- Earth faults: how and why they are tested.
- Why is important to drain air bottles?
- Starting air line explosions: how do they occur?
- Protection devices on starting air manifold and receivers.
- Why are the blowers important on the STP?
- What regulates bilge water from being pumped directly overboard? *OWS*
- The oil content alarm exceeds 15ppm; what would happen? *3-way valve would redirect oily water back to the bilge tank.*
- Where would you record any OWS operation, and what information would be included?
- Steering gear checks before leaving port/anchorage.
- Emergency steering drills.
- What is an OMD and how does it work?
- How would the oily mist ignite? *Hitting a hotspot, caused by metal to metal contact.*
- What other protections are there against explosions? *Crankcase explosion doors, and explained how they work, and why they don't remain open.*
- Explain a risk assessment and permit to work.
- Explain the procedure for entering an enclosed space.
- What are the entry control officer's responsibility?

- Apart from the level of oxygen, what else would be tested? *Flammable and toxic gases.*
- What would the entry control officer do if communications were lost with the team inside the space?
- What other way, besides a VHF radio, could the ECO communicate with the team? *Safety/life line.*
- BA checks.
- Asked what fixed firefighting installation was on board. *CO_2.*
- Asked about the procedure for releasing CO_2. *I mentioned mustering, stopping ventilation, closing quick close valves, dampers etc. prior to release. Also mentioned boundary cooling if required/possible.*
- Asked about SOPEP equipment what it's used for.
- During bunkering, there is a fuel oil spill on deck that can't be contained, what would you do? *I mentioned using a Wilden pump to transfer the oil to a dirty oil/overflow tank and inform the Harbour Master, which he was happy with.*

I kept all answers short and accurate and didn't waffle to avoid digging myself a hole. He was happy to let me take my time and come back to the steering gear alarms at the end. He was always giving positive responses, so I knew I was heading in the right direction. The important thing, is to take a moment to process the question and answer with confidence.

Examiner: Neil Smith

Candidate: Uchenna Godwin

Examined On: steam and motor

Time: 50minutes

Status: pass

Took my MNTB and workbook and asked me to wait. After 5minutes, he called me inside. Asked if I have gone through the MGN 69 syllabus and I said yes.

STEAM QUESTIONS

- One boiler is online and the other boiler has just been worked on. Flash up the boiler that has just been worked on.
- Why do we fire the boiler intermittently?
- What is buckling in boiler?
- Why do we leave the vents opened during boiler flash up procedures?
- How is expansion catered for in the boiler?
- How do you know that the boiler is actually expanding?
- Mention boiler safeties and alarms
- You flash up your boiler but the water level inside the boiler keeps reducing. What could be the cause?
- What will you do if the chloride level in your boiler is very high?
- Where is the boiler shipside blow down valve located on your ship?
- How do you blowdown your boiler?
- Two gauge glasses on the boiler have different readings, what will you do to ascertain which of them is giving the correct boiler water level?
- Boiler gauge glass blow down procedures
- Mention the tests carried out in your boiler
- Main turbine start up procedure from cold
- How do you warm through the main turbine?
- Mention your main turbine safeties and alarms

MOTOR QUESTIONS

- Start your generator from cold and synchronise it to the bus-bar
- Mention your generator safeties and alarms
- Mention your switch-board safeties
- How does dead front panel protect the switch-board?
- Two generators are running but suddenly the load on one of the generator starts reducing. What could happen to the generator whose load is reducing?
- What is reverse power?
- Mention the loads on the emergency switch-board
- How does oil mist occur in the crankcase?
- What are the protections you have on your crankcase?
- What will be your action after a crankcase explosion?

- How does the crankcase relief door work?
- What will be your action on hearing and oil mist alarm?
- What are the causes of starting air explosions?
- What safeties are fitted in the starting air lines to prevent explosion?
- What checks do you carry out in your steering gear?
- Start the regulations governing the steering gear
- What are the protections on the steering gear motor?
- What is single phasing?
- Effects of single phasing?
- What is special about the auxiliary steering gear motor?
- Describe emergency steering gear operation in your ship
- You have high bilge well alarm, what will you do?
- How do you lower your bilge holding tank?
- How does the oily water separator work?
- What do you record on your oil record book before and after operating the oily water separator?
- What regulation governs the discharge of oily water at sea?
- There is fire in the paint locker room and the ship is in black-out, how do you inform the bridge about the fire?

MCA ORAL STEAM AND MOTOR QUESTIONS

NAME: YUSUF JOSHUA

EXAMINER: IAN BELL

DATE: 11th Sept. 2018

STATUS: PASS

He started by asking for the company I worked for and the regions we traded.

HE THEN GAVE ME A BRIEF OF THE VARIOUS SYSTEM WE WOULD BE LOOKING THROUGH.

He then went further to say we would be assuming that the automation system of the ship has failed and hence we would be doing everything manually.

- Asked me to start no.2 boiler assuming no 1 has been running for few days (he was after flashing up from cold).
- Asked me why you open vents while flashing up boiler.
- Asked me what needs to be in place before firing the boiler (I missed fuel needs to be in circulation)
- Asked me what I must do before firing the boiler (he was after purging the boiler)
- He then asked me of my actions when I find the two-boiler gauge giving different water level
- He then asked me to draw a gauge glass and take him through the process of blowing down.
- He asked me how I would blow down the boiler when the chief engineer ask me to.

We moved to Main engine,

- He asked me to draw the turbine arrangement on my ship.
- Asked me to run up the main turbine engine from cold (I wanted assuming the main condenser was already in vacuum condition since one boiler was already ruining, but he obviously wanted me to start from cold from he's facial expression)
  (forgot to shut drain after admitting main steam)
- Asked about expansion of Turbine casing
- What is an enclosed space
- Take me through the procedure for going into an enclosed space (ask me the type of lighting you'd use in an enclosed space)

CLASSIFICATION: 3 - Confidential

- Asked me to state full steering gear regulations and then test carried out during pre-sailing checks
- He then asked me what was special about steering gear motors and the trips.
- Asked me to start a diesel generator assuming it was a main engine
- He then asked me to manually parallel the generator to the switchboard.
- Asked me about generator protection and switchboard protection
- He then asked what will happen if there was prime mover failure
- He asked about turbine trips.
- What was the regulations concerning bilge system.
- what type of pump is required for bilge pumping and also the entries made to oil record book.
- When you have high exhaust temperature for a single cylinder
- Asked how a scavenge space looked
- Causes of scavenge fire
- Asked about actions on getting OMD alarm.
- And where I would be on getting this alarm.

GOOD LUCK

CLASSIFICATION: 3 - Confidential

Chris Tutty

Examiner: Ian Bell

Date: 07/09/2018

Pass

- Took my TRB and workbook while I stayed in the corridor, came back after around 10 mins to get me
- Asked me what type of ships I'd been on and where I'd been
- Asked me to briefly go through my rounds
- As I had mentioned purifiers on my rounds, he asked what I would be looking for in the purifier room
- The bridge has called and need extra power, the electrician is working on the power management system so it needs to be done manually. The engine is cold so needs to be started too. What do you do?
- Why do you turn the engine over with indicator cocks open?
- How would water get in the combustion space? What type of damage could this cause?
- Asked how to parallel the generators
- What if the synchroscope was travelling in the wrong direction?
- The generator is up and running and on the board, then the prime mover fails. What happens?
- Other generator and switchboard trips and alarms
- What is in place to prevent overload? Explain preferential trips?
- Explain emergency generator start up and what is on emergency switchboard.
- Steering gear regs and tests
- You get a low water level alarm from the boiler, what do you do?
- How do you blow down the gauge glass?
- You check and it turns out that the water level is very low, almost empty. What do you do?
- What type of pumps are on the jacket water system?
- What can you tell me about centrifugal pumps?
- What other types of pumps do we have on the ship?
- What are the features of a positive displacement pump and when would you use it?
- What feature does a positive displacement pump have that a centrifugal pump doesn't?
- What other systems use positive displacement pumps?
- Draw the jacket water system and explain
- The outlet temperature from the main engine is high and getting higher by the second, what could it be? What would you do?
- How would you know if there was a blockage in the seawater pump? What would you check?
- How does the oil mist detector work?
- The oil mist alarm goes off, what do you do?
- The electrician is busy so you're going to have to do some electrical work, what do you need for every electrical job?
- You are going to start working on it, what do you do first?
- How do you prove something is dead?

- He then drew a terminal box and said what device do you use for insulation testing, then asked me to show him how
- You are finishing your watch, you are very tired and it is also lunchtime, and you come across a pile of smouldering rags in the paint locker. What are your first actions?
- The fire is huge now, what do you do?
- Is there any ways close by the paint locker that the fire could be tackled or anything you could do to prevent anything further happening?

He then told me I had passed and how to apply for my CoC. Throughout the exam he questioned things further, so don't say anything you don't know how to answer a further question on. He gave little nudges in the right direction if I was close or had missed a small thing. He was patient and if I wasn't instantly sure gave me time to get my mind round stuff and answer logically.

MCA Oral Examination Steam/motor

Name: okoye C.D

Date: 03/09/2018

Status: Pass

- Asked me what my date of birth was
- Asked to draw a cross section of a two-stroke engine and explain.
- Asked what would cause high exhaust temperatures.
- Asked what could cause one unit of the engine to have an elevated temperature.
- Asked to draw a jacket water system.
- Asked what control air is used for.
- Asked what the pressure of control air is.
- Asked to describe a four stoke engine.
- What would cause cooling water outlet temperature to be high.
- Maintenance on the cooling water system.
- What are the treatments for the jacket water.
- Diesel generator safeties.

We then moved on to steam.

- How to take over watch.
- Why you check the air blower for the sewage plant.
- Actions to take if you have hydrogen sulphide in the sewage treatment plant.
- Regulation on the sewage plant.
- Checks on the main turbine.
- Safeties on the main turbine.
- Why the condenser is maintained under vacuum.
- Types of turbine.
- The difference of the turbines.
- What compounding is.
- Boiler safeties.
- What are the checks on the boiler that tells you the boiler is operating fine.
- Procedures for CO2 flooding.
- What is ISM and describe.
- B.A checks.

MCA Oral Examination Steam/Motor Questions

Name: Adams Arome Maxwell

Examiner: Ian Bell

Date: 11/09/2018

Status: Steam Pass, Motor Pass

Time: 60 minutes

He collected my TRB, certificates and ship's report book, asked me to wait while he went it. He ushered me in 10 minutes later, told me to neglect his body language and just go on with my answers.

- "You are on a ship which has been in dock for six months. Now you're about to leave, how would you start your boiler, main engine, generator and parallel it?"

I explain the procedures for starting the boiler and main turbines from cold.

During my explanation he added;

- "What if one boiler is already firing?"

Hereafter, I had to give my answers for both situations such as which fuel to use to light up boiler, when to change over fuel, use of atomizing air or agonizing steam.

I reiterated the positions of my drains and vents, remembering to shut drains after use and the right sequence of closing vents. My explanation was based on R.A, F.O, L.O, water levengine cooling water, Combustion and control air, control oil, intermittent firing, purging, steam etc. I avoided mentioning figures for parameters like pressure and temperature except when asked.

- "Now your boiler is firing but you keep getting high water level alarm. What would you do?"

Blowdown at controlled rate, check if the feed pump is stuck in the open position. He wanted more answer couldn't come up with more so I explained the effect:

carry over of water to superheaters.

- What is carry over?
- What would happen if water is carried over the the main turbine?
- What safety would prevent that?

Boiler trip.

- What other boiler trip?

In starting the main engine, I mentioned L.O:

- What does LO do?
- What is control oil used for?
- What other valve before turbine apart from main steam stop valve?

- Why do you need sea water through main condenser?
- How is the main condenser under vacuum?
- Why is the main condenser under vacuum?
- Main engine trips?
- "Now assuming it's a 2 stroke engine, start your main engine and parallel to main switchboard as a generator"

Wanted me to explain the procedures for starting the 2 stroke engine from cold when it's up and running then I'll treat as a generator and parallel it to switchboard.

I didn't understand but went ahead to explain procedures for starting a generator and paralleling it as an incoming generator. (I stated I would use starting air)

- How does a synchroscope work?
- What happens if it's going anti-clockwise?
- How do you share the load between generators?
- What happens if the prime mover fails?
- Switchboard trips?
- What are fuses and would you you test?

Open circuit.

- "You're on duty and you get an alarm on sewage plant that your blower failed and it's an electrical fault. What would you do?"
- What is in the electrical permit to work?
- How do you prove dead and why?
- Increasing temperature at the economizer. What does it mean?

High exhaust temperature

- What else would cause high exhaust temperature for both motor and Steam engines?
- Why would you keep water circulation?
- Temperature has risen to 1000°C after stopping engine.

Was looking for boundary cooling

- What is hydrogen fire?
- What action would you take thereafter?

Stop water circulation and use fixed fire system

- "You're on a big container ship. You just had lunch and decided to go for some sunshine on deck where you perceived something is burning. What would you do?

Raise the alarm. Use FIRE acronym.

- "You find it's the paint locker door opened. What would you do?
- What if the fire escalated?
- Full regulations for steering gear?
- What's a gyroscope?
- What would the short circuit affect?

Motor

- What other thing would affect a motor?

Open circuit

- Any alarm on steering gear?

Overload and low oil alarm

Took me back to the generator I paralleled and ask me what else I would have done? (Open drains for starting air receiver)

- Difference between 2 stroke engine from 4 stroke engine. Use very simple diagrams.
- What would happen if there's water in the combustion space above the piston crown for both engines?

***The examiner was under supervision, there was a supervisor also present. I was responsible for every word I said because the examiner picked on almost every point I made. Hence, I gave reasons for my actions.

MCA Oral Examination Steam/motor questions;

Name: Williams Joel

Examiner: Asif Hanif

Date: 03/09/2018

status: Pass

Took my TRB while I sat outside and waited for him. After some minutes, he called me in and asked me to sit down.

Went through my NOE and pointed out I applied for a combined ticket, so the exam would cover both plants. He mentioned he will be using the guidelines for the MGN (69) for the examination. Quizzed me if I had gone through the MGN and I said it contained the syllabus for the EOOW examination.

- Asked me to draw a simple/basic steam cycle.
- How do you prepare a steam plant for departure from port, what tank levels would you check?
- Draw a complete steam cycle and explain each ancillary. Why is the main condenser maintained under vacuum? How is oxygen given off from the deaerator? What is the pressure of at boiler outlet? How is expansion of steam in the main turbine achieved?
- What are the main turbine safeties? What are the main boiler safeties? I missed high exhaust gas temperature and he told me I left out one which is important for diesel engines as well and occurs up. Then I mentioned high exhaust temperature.
- How is the boiler water condition maintained? What tests are carried out on the boiler water? what different types of alkalinity tests are carried out?
- On a steam ship, the ship is anchored, what parameters are you checking for in your plant and why?

We then moved to diesel engines.

- How do you prepare a motor plant for departure from port, what tank levels would you check? I mentioned after slow turning function with indicator cocks open, you can proceed to ECR and transfer control to bridge. He said I missed something out which was trying the engine astern and ahead before transferring control to bridge.
- What are the differences between a two stroke and a four stroke? What is a stroke for an engine? Explain a four-stroke diesel engine? draw a cross section view of a two stroke. Why have crosshead and stuffing box on two stroke engines? I mentioned crankcase with regards to stuffing box and he proceeded.
- What are the Main Engine safeties?
- What are the safeties on the starting air system and why are they there?

- Explain the MGE jacket water system? How heat transfer achieved? What pumps are used in the system and why? What is the pump impeller made up of and why?
- How do you parallel two generators manually? How do you know the generators are is phase?
- What are the safeties that help avoid dangers when paralleling generators?
- Can you test a reverse power trip and depending on the answer, how?
- What is an enclosed space and what are the dangers of an enclosed space?
- Where can you find enclosed space entry procedures?
- What is ISM?
- What are the main conventions?
- BA checks and procedures. What is the minimum pressure for a BA set?
- You find a fire, what are your actions? I used the **FIRE** acronym (find, inform, restrict, extinguish/escape).
- What are the different types of fixed firefighting installations. I mentioned dry powder and he asked where is it used? (Cargo)
- He quizzed me on boil-off gas from the cargo and how we used it under laden/ballast voyages.

At the end of the orals, he explained the trying of the engines for me and that I only missed that. Total time spent was 50 minutes.

William Straker Oral Exam

02/07/2018

Examiner: Asif Hanif

Exam duration: 1 hour

Result: Pass

- Took my TRB and made me wait outside for 10 mins
- Went into the room and asked me about my past ships
- Started by asking about how the main engine starts, I said signal by bridge or ECR, he was looking for the air start system
- Talked about the components of the air start system
- Asked about main air receiver safeties
- Asked about air compressor and compressor safeties, I said bursting disk, low oil pressure alarm and he kept saying there was something else. Came back to this later. He was looking for relief valve on each stage.
- Asked about jacket water system, told me to draw it and describe components
- Asked how you would detect a crankcase fire, I said OMD
- Went on to crankcase explosions, asked about hot-spots and how crankcase explosions occur. He said what would you do if there was an OMD alarm, I said slowdown, stop, cool and inspect, he said there was something missing. I went through everything I could think of, even boundary cooling. He kept saying there was something missing. He was looking for the heat transfer through the stuffing box which could start a scavenge space fire.
- Asked about jacket water treatment, I said what tests you could do, missed nitrites, but led me in the right direction.
- He asked why we treat jacket water, I said to stop corrosion and to reduce scaling.
- He asked why scaling was bad, I said could reduce flow and if any broke off it could damage seals or equipment in the system. He said there was something missing, was looking for loss of heat transfer efficiency in the cooler
- Asked about boiler system and boiler water tests.

- Asked why we test for chlorides, I said it shows there might be an ingress of sea water.
- He asked where this could come from and I said the condenser, seemed happy and moved straight on.
- Asked me about prime movers, asked how I would replace the bottom end bearing, I had to go through the whole isolation and dismantling process: HP pipes, Injector, rocker arm assembly, cylinder head, piston
- Asked how I would take the conrod off and how many bolts there were on it
- Asked about 4 stroke and 2 stroke engines
- Asked how to sync a gen to the board
- Asked about main switchboard safeties

That's all that I can remember, he didn't focus on safety as much as I thought he would, more on technical machinery questions. I think he wanted to know I knew what I was talking about. Was thorough but lead me to the correct answers at some points. Went back to some questions at the end to allow me to try again.

David Hadfield

T. Maddison 25/06/18

Result - pass 1hr

Went into the exam room, flicked through my workbook but didn't actually read any of it

1. Describe rounds and what you check
2. What do you check on boilers
3. Boiler alarms and trips
4. How does LT cooler work and how do you cool HT
5. How does MGPS work and why do we use it
6. How does FWG work and why do you have a vacuum
7. Steering gear alarms and emergency steering procedure
8. What do you do if you check the bilge and it's full, I said pump to holding tank or use OWS to pump overboard
9. When can you use OWS and where/what do you record it in
10. Parallel a generator manually
11. Generator/switchboard trips
12. What is powered by battery backup
13. Enclosed space entry procedure
14. Water mist release manual and auto
15. CO2 release procedure
16. Lifeboat launch
17. Explain how OMD works and what to do when alarm goes off
18. What's the danger of start air lines and what devices prevent explosion
19. What type of sewage treatment plant and how does it work
20. How and when can you use emergency bilge pump
21. What do you do in the event of a prime mover failure

Ross Taviner
Result - Pass
19/06/18 - 1:30pm
Examiner: Ian Bell
Duration: 45mins

- Took my TRB and workbook for 10 mins and went into the room.
- Asked what ships id sailed on, then asked where I'd been in the world.
- Started by saying you're an engineer on watch, you go into the purifier room, what are you checking.
- Went onto the sewage plant – how it works etc, I said I sailed with MBRs he asked me to explain and draw a the sewage system.
- What happens if the blowers fail, what are the dangers?
- Said the motor for the sewage compressor had failed, what could be the issue?
- Before working on the motor, how would I make sure it was dead?
- Asked how we might get current leakage.
- Why do we do insulation resistance tests? What do you used to carry them out? Minimum value?
- Drew a terminal box and asked me to carry out and IR test.
- Asked how and where do we often get earths? How do we find them?
- Said the captain requested more power and you need to start another Generator, automation has failed how would you do so manually.
- How does an AVR work?
- What would happen in the event of a prime mover failure.
- What main switchboard trips are there and why?
- Went onto steering gear checks and regulation's.
- How do you use emergency steering?
- Said we wanted to pump bilges from a low area of the engine room, which pump would I use? What are the characteristics of PD pumps? What other type of pumps are there (centrifugal) why wouldn't I used it. Bilge pumping regulations. What would you do once you've finished pumping bilges (ORB). What do you include in the ORB?
- What are the causes of Oil mist?

- Took my TRB and workbook in while I sat in the corridor. Was gone about 20 mins then came and got me
- Said I was taking over a watch, what things would I check. Listened, but stopped me before I had finished and said that's ok.
- The bridge has called and said they need more power, but the electrician is working on the power management system so I need to put it on the board manually. I started talking about how to synchronise etc, but he stopped me and said you can't just put an engine this size on cold. So I said that you could warm through the generator by running the jacket water through it, heating fuel if required, open the indicator cock to allow any water or particles to be blown out, open the starting air valve and starting any lube oil pumps, then do one slow turn of the engine.
- He asked why there would be water in there and what would happen if you started the engine without the indicator cocks open first
- The engine is now on and so what do you do? I explained about running it without load for five minutes and then synchronising the voltage and frequency, with the synchroscope going in a clockwise direction. He asked why it would be going the opposite way.
- Said a prime mover has failed, what will happen? I said we could get reverse power.
- What can happen if we get reverse power?
- What protection is there against this?
- What other trips does the generator have? I answered and the last one was overload. He said "oh we wouldn't want overload would we, we wouldn't want that to trip." And sat silent for a while. I couldn't tell what was going on as he hadn't asked me a question and he wasn't looking at me. He told me at the end he had wanted me to say that preferential trips would prevent overload, but as I say I wasn't aware he was looking for an answer.
- Asked for the steering gear regs and what you test prior to departure
- Asked about how long the emergency generator should take to start in the event of blackout.
- What runs off the emergency switchboard?
- You get an alarm saying that water level is low in the boiler, what do you do? I made a point of saying that you don't introduce water as it can cause thermal shock. I said you would check the gauge glass to make sure the level was actually low and it wasn't a sensor problem. If it was then shut the boiler down and cool it before bringing it slowly back up to heat after
- How do you blow down the gauge glass?
- Asked me to draw jacket water system and explain it
- What is the header tank for?
- Why is it so high up?
- What type of pumps are in the jacket water system?
- What do you need when working aloft? I said permit to work. He said what else? Risk assessment.
- He said the bilge well is full, what do you do? I explained the OWS regs. He said ok, it has been through the OWS so now what? I said put it to the bilge holding tank.
- He said you start the pump to put the water to the bilge holding tank and come back and the level is the same. Why? I said there is a problem with the pump so I would isolate and find out what. He said how would you find out what the problem was? He tried to help by saying what do all pumps have, and I said could it be a motor fault but he said no that's running fine. In the end it turned out he meant pressure gauges. He asked me what type of pressure

gauges you had on pumps. I said there could be a blockage in the line and he said how would you know? I said the pressure would be zero on the inlet if it was there.

- What are the pressure readings you can expect from the inlet and discharge from a pump?
- What type of pump is used for the bilge pump? Why? What does self-priming mean?
- The turbocharger is surging, there is a high exhaust gas temperature, and there is black smoke and sparks coming out the funnel. Why is this? I made a mistake here and describes crankcase fire rather than scavenge fire, stupid really.
- You have finished your watch and are very tired, it is lunchtime and you walk past the paint locker. Inside you see some rags and things smouldering, what do you do? I said raise alarm, put it out if I think it is safe to, if not go to muster, close doors and ventilation to the paint room. He said there will be something there to tackle fire at the paint store. I said CO2 for just that room.
- How do you find an earth fault?
- Where do earth faults usually occur?
- Why do they occur in these places?
- There is another device on the switchboard called an insulation resistance meter, what is the minimum value allowed?
- He drew a terminal box and said what equipment do you use to do an insulation test? And show him the procedure to do this.

In the comments on my NOE it says pumps, synchronising, water in engine, scavenge fire.

Kris Law

Pass

11/06/18

T Maddison

- Took me in his room, sat me down while he had a look at my book
- Asked me to talk through a round
- Asked what to do at handover
- Steering gear tests and alarms
- Asked why you would need relief valves on steering gear
- How to operate in emergency
- OWS, regulations and how to operate
- When is it ok to not discharge of oil properly (Flooding)
- 2 Diesel generators are running, how to manually put another on the board and then take one off (I went blank when he asked what would you do to the engine you want to take off the board, I said stop it, he was saying before that, I said remove breaker, he said before that. He was looking for reduce the load to 0 by removing the fuel via governor)
- Boiler mountings and alarms
- Boiler water tests
- FWG how it works
- What to do to distilled water to make it potable (Put through mineralizers and water dosing)
- Air compressors
- What causes air explosion
- How to prevent it
- Sewage plant
- What to do if it becomes anaerobic
- Emergency generator regulations, what it powers, how does it know when to come on
- How to do on load and off load tests
- Fire in engine room
- CO2 procedure (boundary cool)
- Enclosed space
- BA checks
- How to lower a lifeboat
- How to prevent someone releasing the lifeboat when it isn't in water (Release lever in lifeboat has a water sensor that pushes up when touching water allowing to release)

Was very helpful guiding me in the right directions

Jack Kennedy Oral Exam

1st June 2018 13:30

Duration: 50 minutes

Examiner: Ian Bell

- Took my TRB and Workbook and went inside.
- Took me into exam room 20 minutes later
- Sat down and asked me what ships I had been on
- Started by saying I had just came down to engine room about to take over my watch and noticed the bilge well was full.
- Bilge holding tank is also full so I said OWS and over board
- Asked regulations of OWS
- Said that I'd pumped out bilge but it was filling up quickly again and I had found out there is a massive hole in a main seawater line, what do I do?
- What type of pump is used for bilge, why? Why not centrifugal?
- What are the characteristics of a centrifugal pump?
- Bridge phone and ask for more power but automation is faulty, put gen on board and parallel manually.
- Ask about gen trips and switchboard safety devices
- All is okay, power is sufficient and then you get a prime mover failure on one of your engines, what happens? Looking for load swapping over and then trips again
- You're on watch and you get an OMD alarm, what do you do?
- Got onto crankcase explosions, how do they happen? What is there to protect from explosions?
- Explosion doors, how do they work?
- I said something about flame arrestors and fire so then he asked there's a fire in the engine room, what do you do? I explained CO2 procedure.
- Engine has been stopped, you must enter crankcase to find the problem, how do you go about entering it? (Enclosed Space)
- Asked what are the gases you are testing for when you atmosphere test.
- I mentioned BA somewhere so he asked me the checks
- You've carried out the maintenance on the crankcase and everything is okay, how would you go about starting the engine.
- Stopped me as soon as I said steering gear and asked how I'd do the checks, what are the regs and how id operate the emergency steering.
- Why do we blow over on air?
- He then startled me by saying that you blow over the air on the main engine but when you told me how to start the generator you never blew it by air, why? I sort of panicked here but got round it by saying that I did turn the generator over with the cocks open but it was with a bar and only if maintenance had been carried out or it had been stopped for a long time.
- Then said there's another device on the switchboard called an Insulation Resistance meter, what is the minimum value allowed?
- He then asked what I'd use to test the insulation of a motor and then drew a terminal box in front of me and gave me two pencils and asked me to show him how I'd test it.
- He then said "Ok I have seen enough, Pass. But this by no means means you're the best 4th engineer in the world."
- Exam was ended

Result = PASS

Throughout the exam he was very hot on my word choice but also forgiving, for example at one point I said frequency was lagging and he stopped me and said be careful how I word things. If I looked confused he would try get the answer out me by asking in a different way. Just stay calm, think about what he's looking for you to say and you'll smash it.

If you have any questions or want to know how I answered then email me anytime: jack.kennedy17@live.com.

Good Luck.

Name : Muhamad Faris Talif

Examiner : Asif Hanif

Date : 1/6/2018

Duration : 1 Hr

Took my TRB and ask to wait outside for 10 mins.

1. Go through a watch-keeping round. Various questions are asked on equipment during rounds.
2. Checks on emergency generator, how long does it required to run?
3. What is the expected exhaust gas temperature? Steam pressure? What maintenance do you do on economiser? (Soot blow, water wash)
4. Why do you drain air receiver? When you drain the air receiver you spotted oil, is it normal, why? What are the safety devices for compressor?
5. Draw and explain 2-stroke engine and difference between 4-stroke. What are the mountings on 2-stroke cylinder head?
6. Main engine trips and alarms.
7. What causes scavenge fire and what actions to take? Any safety on crank case?
8. How do you start and synchronise a generator?
9. Explain your procedures before doing maintenance to sea water pump? (Permit to work, risk assessment, isolation, etc.)
10. Insulation resistance test procedure? Why? Minimum reading?
11. How do you operate OWS on your ship? What do you record in ORB?
12. What are main conventions related to ship?
13. What is MARPOL? Describe air pollution according to MARPOL, when entering UK waters what type of fuel do you use? (Low sulphur MDO)
14. Do you know the current regulation regarding sulphur content?
15. What is COSWP.
16. Actions to take during fire? On-board fixed fire-fighting system?

When I got stuck he would help to rephrase the question until I remember the answer.

Jonathan Morris-Pass (14/05/18)
EOOW Orals
Examiner: Asif Hanif
Time 45min

Took my TRB as I waited outside the exam room for about 15 minutes. Went into the exam room and asked me what ship that I had been on. And what engines they where.

- Asked me to explain how a 2 stroke and a 4 stroke worked.
- Asked me to draw a 2 stroke and explain
- Asked about main engine trip and why we have them
- What is an oil mist detector
- High and rising exhaust gas in on unit what would you do? What can cause it said fire in the scav space or incomplete combustion, he was also looking for possible sticking of an exhaust valve.
- Asked about the bilges and where dose that go
- Went onto OWS what regs are on it
- What type of pump is used (what different types of Positive displacement pumps there are?
- When can you pump bilges out not using the OWS
- What pump would you use for emergency bilge suction
- Boiler trips, safety devises and mountings.
- Asked me to draw a fuel oil system and explain
- Asked about visco meter and why its important
- What would you check on your service tank
- Asked about putting generator on the board
- Safety for the generator (trip)
- What is reverse power?
- Asked about the boilers and what safety mountings there are (said about burner fail and he asked why is this important)
- Asked about what temperature the hot well was at and why its at that temperature
- What are earth faults and why are they important to fix
- What is short circuit
- Boiler water tests (what are chlorides where do they come from)
- There is a fire what do you do (didn't ask about activating the C02) asked what if the fire was only small
- What types of fire extinguishers are there and what types of fire can you use them on
- What keeps you safe on ship, SMS

The last question that he asked me was what has the MCA published that keeps you safe, he was on about a book and he said COSWP and I said that I knew about this and explained what it was and about M-notices but said that I didn't know that COSWP was by the MCA.

Alex Kemp- Pass

15/05/18 EOOW Oral Exam

Time: 50 mins

Examiner: Asif Hanif

Took my TRB had a look at it for 20 mins before I was taken into the exam room.

- Took me into the exam room, asked me if my last ship was UMS
- Asked about night time rounds, what you check etc
- How you hand over a watch
- What keeps you safe in the engine room? (SMS, COSWP etc)
- Asked me to explain a two stroke engine, and to draw a cross section
- Asked about hydraulic actuated exhaust valves
- Turbocharger, what does it do? What would you check?
- Asked about the aftercooler
- Told me to draw a jacket water system and explain it
- Why do we need to treat jacket water?
- Wanted to know about heat transfer of jacket water system
- What pumps would you use on a jacket water system and why?
- Whats the different between centrifugal and positive displacement pumps?
- Main engine trips, why we need them
- OMD what is it?
- Procedures of an OMD alarm and what to do after
- Boiler trips and safety mountings
- Flame failure, what is it? Why we need it
- Procedures for firing a boiler up from cold
- What would you do if you got a high steam pressure boiler alarm?
- Main engine maintenance, procedures for pulling a cylinder head?
- How to start a main engine or generator?
- How to synchronise and put on the board?
- What else can you use if the synchro scope is broken? (I said PMS, he said indicator lamps)
- Asked what sewage treatment plant I had on board, how it worked?
- Sewage checks on the plant
- What would happen if the blowers failed on the STP?
- There is a fire, what are your actions?
- Enclosed space entry, what is it? What are you testing for?
- Actions upon entering an enclosed space?

I think that's everything, generally went well. Missed checking the lube oil on the turbocharger and indicator lamps if synchro scope isn't working.

OOW Orals questions

Alex Ralph
30th April 2018
Examiner: Mr. Maddison
Duration: 50 minutes

- Invited me into the room, looked at my Discharge book, and briefly at my TRB.
- Started by asking what ships I had sailed on and whether they were UMS or watchkeeping.
- Asked me to explain a round of the Engine room before going UMS and what machinery you wound check (I said alarm list, general condition of the ER using the computer screen, Funnel smoke, Exh gas boiler, jacket header tk, AC room, Aux boiler, Generators, compressors, Main engine, Bilge levels, Steering gear) – he just let me go through the whole round while he listed and noted down what I'd said.
- Went into a little more detail on some of the areas I'd mentioned:
- Asked what I would I expect to see when checking the funnel smoke(should be colourless) and anything else you could potentially see - Black, white or blue smoke, sparks and what could cause them
- I mentioned sparks and he said if there are just a few sparks, not enough for a fire, how would you prevent this? Soot blow
- Asked how to put another generator on the board
- How would you take the other generator off the board – reduce the load to 0 before removing the breaker
- What does reverse power protection do?
- Asked what preferential trip does
- Asked if there were any other switchboard protections
- Said the Preferential trips had gone but the load was still too high, what would happen? Emergency generator would start
- How does the Emergency generator know when to start? When voltage is lost to Emg switchboard
- Can you test this? Trip the breaker to the emg switchboard to simulate blackout
- Which equipment runs off the Emg switchboard?
- Is there any other means of power should the emergency generator not work? Batteries
- What will the batteries power? Main one he was looking for was lighting
- How does a purifier work?
- Is the interface always the same? No, changes depending on the density of the oil, by changing gravity disc, back pressure etc.
- What happens to the sludge/contaminants in the oil? Goes to the sludge tank and pumped ashore
- How is oil prevented from going overboard with water? OWS
- Regulations of oil discharge
- Where would you record any OWS operations? Oil record book
- What information would you include in the ORB?
- Is there a situation where you can pump oily water overboard? Emergency flooding
- Which pump would you use for emg bilge suction?
- Asked about Steering gear alarms
- Emg steering operation
- Under emergency steering how would you know when to operate the steering gear? Comms with bridge, ships heading indicator etc.
- OMD, what does it do?
- Causes of hotspots
- Any protection against explosions? Crankcase explosion doors – then explained how they work
- Causes of start air line explosions
- Asked about safety/protection devices in start air manifold and air receiver
- Asked about boiler trips and alarms

CLASSIFICATION: 3 - Confidential

- I mentioned flame failure and he asked how you could test the flame sensor – I was overthinking the question here but all he was looking for was to remove the sensor, so it couldn't detect the flame
- Asked what was important to check regarding the sewage treatment plant – make sure there was oxygen supply – why? Prevent anaerobic process and hydrogen sulphide
- Asked me to take him through the procedure for enclosed space entry
- I mentioned keep a person on the entry and he asked what their responsibilities would be
- Asked about BA checks – As part of this I mentioned making sure the set holds its pressure, but he wanted to hear that you'd be checking for leaks, I should have made this clearer but got there in the end
- Asked what fixed fire fighting where on board – CO2
- Wanted to know the procedure before releasing – muster, stop ventilation, machinery etc.
- Then wanted to know the procedure for releasing and the steps you'd take after
- I mentioned boundary cooling, he asked how and why you'd do it
- He asked about sopep equipment on board – Said that it was specifically used for oil spill emergencies and he wanted to know what sort of equipment there was and where it was kept

Throughout the exam he would let me take my time, there were a few times where I wasn't quite sure what he was asking so I paused to think, and he would rephrase the question in a way that pointed towards the answer he was looking for. He would also nod and give responses when I gave the answer he was looking for so I knew I was on the right track. If I gave answers that weren't specifically what he was looking for he'd guide me in the right direction.

I made a small mistake when explaining the CO2 system but because most it was right he corrected me and explained where I went wrong and the correct procedure. As long as you show you're confident with most areas, especially safety, you should be ok if you slip up on something small! If you're unsure don't try and guess because you could dig yourself a hole, ask if the question can be rephrased or if you can come back to it.

CLASSIFICATION: 3 - Confidential

Stephen Walllace EOOW Oral

Location: South Tyneside College

Date: 29 March 2018

Name: Stephen Wallace

Time: 1hr Result: pass

Took my TRB and told me to wait outside for 5/10 minutes

Took me into the exam office Checked my discharge book and passport

Quizzed me on my date of birth

How does a 4 stroke engine work?

How does air enter the system?

What happens to the air after the turbocharger?

Ask me to go through preparations for a watch I missed the boiler and he guided me to it which was nice of him

Asked me to draw jacket water system

How do you remove air from the system?

What keeps you safe in the engine room? (really vague question, he just listened to me ramble on about required ppe and safety regulations)

What is a SMS?

Asked about steering gear checks what regulations

Asked about a high voltage job preparation

Asked what life saving appliance were on board

Checks on a boiler

What to do if steam production is too high and What if running on economisers?

How to restart a boiler after maintenance

Asked what dangers are in an enclosed space

What is a fire door How do you know it's a fire door (I said the label letter number etc.

He said where else and was looking for the fire plan

I think that's everything. Any question he asked he had a desired answer for so if I said something else that was not wrong but not what he was looking for he would reply with "yes but..." then asked me in another way

Katie Napier- Passed

OOW Orals

25th January 2018- 1 hour

Mr Maddison

- Took me into the room and had a look at my discharge book my TRB and workbook.
- Ask what ships I was on and if it was rounds or UMS.
- Asked me to take him through my round before I changed over to UMS.
- Let me go through my whole rounds then started asking random questions.
- First started with a Generator, what alarms would you find, what trips, then how would you start it up and then put onto the board.
- I kept missing overload for the trips but he helped me by asking about preferential trips, then I eventually got overload.
- Ask about main switchboard trips.
- Can the main switchboard and emergency switchboard have power at the same time? Why not?
- Asked what runs off the emergency switchboard
- Couldn't remember all of them so asked to come back to that question
- How to start up emergency generator on and off load.
- Spoke about safety's on a Compressor.
- Asked about the sateys on the air bottles and the start manifold. He helped me remember non-return valve for the manifold.
- Then asked about the observation tank and if there was oil present where would it come from.
- I mentioned OMD in the generator trips so asked how it works.
- Then said I had an OMD alarm on the main engine, you have slowed down and everyone knows what happpens – he was looking for oil hits the hot spot then cools down and becomes mist then hits the hot spot and ignites.
- Asked how you get hot spots.
- Is there any prevention to stop it getting worse? Was looking for Explosion doors but if they open then don't close once the pressure is relived then more oxygen is added creating secondary explosion.
- Moved onto enclosed space, asked me to take him through the procedure.
- Asked about BA checks.
- Asked what fixed fire fighting equipment I had, said co2 and water mist.
- Asked to talk him through the co2 starting procedure.
- Asked if there was anything else could be done once co2 is in engine room. I said monitor temps, boundary cool and check co2 room for pins being up.
- Asked where would the water for boundary cooling come from, emergency fire pump which runs off the emergency switchboard.

Think that's it, but the whole time he was trying to lead me in the right direction and was happy to give me a minute to think if I got stuck.

D Campbells oral exam, Examiner; T. Maddison
Date; 19/06/17 Duration; 40 Minutes
Pass

- Took Me into exam room
- Asked what ships I was on, and if they were UMS or watchkeeping ships
- Asked me to take him round an UMS round. (I started in the control room, what I would check in there; Main deck- funnel, emergency genny, fan room; Steering gear…; Main engine room rounds, telling him what i would check and why.
- After I completed my rounds he asked me about equipment which I told him about on my rounds. (Bilge system, OWS, LT & HT systems, FWG (salinometer dug a bit deeper here asking what was the max ppm), etc…)
- Steering gear checks/Emergency steering gear operation
- Boiler safety mountings and emergency trips (talked about flame failure for a bit, wanting to know how this can occur and what device is used to detect flame failure
- Emergency generator checks and regulations
- Start a generator engine and put onto the board
- Reverse power what is this?
- Other switch board and generator safety trips
- OMD operation and safety devices in crankcase, explosion relief doors
- Why we might get start air line explosions, what safety devices are put in place to stop this.
- OWS operation and regs.
- Oil record book, What its used for an what you would write in it.
- Emergency bilge suction, why you would use it etc…
- What sewage tank I had, why air was important
- Enclosed Space entry procedure
- Earth faults and how they are located
- Fixed fire system, how to release and what you would shut down
- BA checks
- Fire suit requirements (Helmet, trousers, tunic, smoke hood..etc…)
- Life boats, features of a TEMPSC difference between the free fall life boat and davit launched.
- Launching a life boat procedure
- Exam was ended

I think that was it

Jake Percival
EOOW Oral South shields
Examiner: Asif Hanif
Time: 1 hour

- Asked me to draw a jacket water system whilst he looked at me TRB, after finishing asked me to explain the system
- Asked about jacket water tests, why we do them, what it prevents, typical readings, why scale is undesirable, expected temperatures
- Purpose of header tank on the system
- three way control valve for cooler bypass, how it works
- cross section of 2 stroke, explain engine and differences between 2 and 4 strokes
- asked about trips and alarms for main engine
- purpose of turbocharger and charge air cooler
- warming 2 stroke from cold
- 1 hour notice checks
- steering gear checks, regulations
- oil mist alarm, what to do,
- how OMD works
- entering crankcase for inspection, enclosed space entry
- where to find information on enclosed space entry
- main engine cold in harbour condition, what would you be checking on watch (i said dg's boilers and sewage the last thing he was looking for was fridge rooms, hinted toward cook being unhappy)
- asked about maintaining cold engine in low temperatures, talked about leaving cooling water circulating
- asked about checks on refrige machinery, asked about ref cycle, how to measure refrigerant level
- sewage checks, hydrogen sulphide what to do
- checks on dg, synchronising to the board
- generator breaker trips (reverse power, under voltage, OCIT, under/over frequency
- Talked about ISM code
- What is the purpose of SMS
- Asked what main conventions apply to ships
- asked for 6 annexes of marpol
- asked about OWS machinery
- Testing insulation resistance, how to do it, what is its purpose, what is expected reading
- asked about short circuit
- asked about earth faults

- Said i was on my rounds and id discovered a fire, what would be my actions
- asked about fixed fire fighting systems
- asked about checks on a boiler
- boiler cycle for firing
- boiler trips/alarms
- asked how to warm through from cold
- ignitor operation and how main burner will start
- boiler water tests, how to rectify abnormal results
- asked about correct way to blow boiler down

He asked a few more things that i cant remember, everything he asked he wanted to know what, why etc and a lot more detail about things. Would also dig deeper into my answers and question what i was saying.

Sarah Spence EOOW Oral
26/6/17 1 hr 10 mins
Examiner M Groark
Pass.

Didn't bother looking at my work book or Trb. Briefly looked at my discharge book but didn't ask for any info on the ships.

You have a high and rising uptake temperature, what do you do?
Draw the feed water system and explain what it goes through?
What does the steam feed?
(I mentioned hydrogen fires at some point) What happens during a hydrogen fire?
What does an observation tank do?
Why is it kept at a high temperature?
What would cause of the uptake fire?
What can you do while the fire is ongoing? (he was looking for start a DG and secure main engine)
What machinery would you stop while this is all going on? (He suggested fuel pumps as an example so I mentioned FWG, purifiers.. don't really know where he was going with this as other than the FWG not working properly and taking heat from the JCW when ship not moving.)
How to start a DG? Seemed fine when I said using PMS.
What parameters need to be considered when paralleling?
One generator will have 1000kw, the other has 50kw, what could happen?
What is reverse power?
What other trips are there on a switchboard?
What are preferential trips?
Give some examples of this that will trip first?
If you get reverse power, and the 1st generator trips due to overloading what will happen?
How does EG start up?
What position are the breakers in when this happens? Why?
What is powered by the EG?
What voltage will it produce if the MSB is rated at 440v?
(Mentioned lights and navigation) What V are these at? How are they connected to the 440v? (Transformer)
What type of pump is usually used for pumping bilge?
What are centrifugal pumps normally used for?
How are they primed?
How is a SW pump primed?
If you go to pump bilge from a full well and nothing happens, what do you check?
How do you normally pump bilge? (I said to holding tank, my company don't generally pump ovbd)
How does an OWS work? He drew 2 chambers and expected me to tell him at what happened in each and what point/level the water went in and out of each stage.
What are the regulations on OWS?
You want to start the sewage after it tripped earlier, how do you do that?
How does a STP work?
Why do you need air?
Does it only pump from the chlorination tank?
The air compressor on the sewage is showing as in the on position but isn't running, what could be the cause? (he was looking for the breaker might need to be reset)
How do you prepare and start the main engine?
What safeties do you get on a main engine?
Why do we use turning gear?
What do amps indicate?
If you have a motor driving a pump, and the amps were high, how would you know if the problem was the motor or the pump?
What tests would you do on a motor?
What is IR testing? What is the minimum value?
He drew a terminal box and gave me 2 pens as probes and told me to show him where I would test across.
How does a megger tester work?

EOOW IAMI ORALS

TYNE DOCK

LAST YEARS

(REMEMBER WHEN YOU COMPLETE YOUR ORALS LET US KNOW WHAT QUESTIONS YOU WERE ASKED)

Motor Oral
2/12/2014

Draw and label a 2 two stroke engine

Indications and what to do if a scavenge fire occurs

Scavenge space inspection

Economiser

Enclosed Space Entry

How to flash up an Auxiliary Boiler

Boiler flame failure your actions

Name the boiler mountings

Airline start explosions where how

Watch keeping walk round

Oily Water Separator regulations

Main engine start up routine

Paralleling Generators

Switchboard Safeties

Electrical Isolation procedure

Testing procedure on an electric motor

Maintenance on an Air Compressor

What checks to do on lifting gear?

What do you need to take to the lifeboat in an abandon ship situation?

Motor Oral Mr Maddison
24/11/14

Describe how you take over a watch at sea

You see sparks coming out of the Funel – actions

Boiler Gauge Glass – how many - how to blow down if level not correct

Incinerator how to set up, safety (exhaust temp high), paper work

Air Bottle – drain what comes out ?

Air line explosion

Leaking air start valve how found

Sewage check (aerobic system)

What is the Feed system Observation tank for.

Running Generator checks (from start to stopping)

Generator Oil gauge line breaks (oil over genny) what to do

Bus bar safety checks for O/H

Earth fault how to detect how to clear.

Reverse Power check (descvribe how to do a physical check)

Blackout – describe what happens – what supplied – actions to start Main Genny – transfer of Power from Emg. To Main

What is the difference between Ht and LT cooling systems and which equipment supplied.

Fresh water generator describe how it operates – why a vacuum required – treatment of Fresh Water required before drinking

Centrifugal Purifier – describe action – how to set up a new gravity disc.

OWS rules regulations and operation

ME

Crankcase explosion – how it happens – action of the explosion door – how does the oil mist detector on your ship works.

Fuel oil system – viscotherm ? fuel oil temp – taking bunkers -.

Chief Engineer Standing Orders what is said – checks on taking over a watch

Fire fighting equipment what was on board your vessel

Explain High Fog, Foam, Release of CO2

Enclosed space entry – checks paper work

Fire Drill

BA – tests – face amsk – Bottle pressure – capacity.

Oral Questions 28th October 2014
Mr. Groak, 60 mins Pass

What could cause High and rising Exhaust temps, how to deal with exhaust uptake fires. What if there was only a small amount of sparks from the funnel.

1hr Notice – go through usual procedures, how does the turning gear interlock work. What might cause the engine not to kick over on air?

Pre departure steering Gear checks, safeties fitted to the steering gear

How to parallel a generator manually and then to load share when connected
What changes can be made when FA, what checks should be made on expected parameters.

Starting airline explosions, how are they caused, how are they prevented, how to find a leaking air start vale, how do you find a leaking air start valve

ME Cooling water system Centralised system explain HT and LT systems, what to check on the FW generator and expected parameters what is the header tank for.

Starting the auxi Boiler – what is flame fail, what could have caused it and how to rectify?

What boiler safeties are there?

Sketch and describe the interaction between the auxi boiler and economiser.

Positive displacement pumps – where are they found and why, what must a positive displacement pump have and why

What other pumps are onboard
Sketch a centrifugal pump

How is oil mist formed, what prevents a secondary explosion

Fixed firefighting on board, what to do before releasing CO_2

Low exhaust Temp on one unit of a generator – what actions do you take, what could cause this.
How to take a Generator off line, when to open the circuit breaker, who to inform
Sketch electrical distribution, what is supplied from Emg. Switchboard 440v, 220v and 24v.
How do breaker and interlock work between Main and Emergency switchboard.

How to test a fuse, how to connect a new motor, draw terminals on 3 ph. motor, test insulation resistance and continuity test.

ORAL Questions 14th October 2014
Mr. Maddison 45 mins Result 45 mins
He started by taking my TRB and Work Book and inspected for about 15 mins
He called me into the exam room and stated the oral session

- Ship at anchorage – Bridge gives 1hr notice of stand bye – actions to be taken
- (He wanted the procedure for starting and preparing the main engine, preparing a second generator and steering gear checks.)
- Discussion on Steering Gear checks, safety and change over to local control.

- Asked about manual Paralleling of a second generator, including checks prior to starting the engine.
- Then asked about manual load shedding and disengaging a generator, preparing it for maintenance and overhaul. Asked what you would check before shedding load to remove a generator.
- Went on to ask about what safety features are on the switchboard and asking about low load trips and when they would trip. What are preferential trips, how they work, interlocks on the board etc. he was keen on finding out at what power level (KW) the generator automatically removed from the board.
- Asked about Earth Faults – how do you find an earth fault, what the main causes are and why they are bad?
- Wanted to know what routine checks are done on the emergency generator, both weekly and monthly. I mentioned that the fuel tank must have at least 18 hrs worth of fuel after testing.
- Next he asked about OMDs (Oil Mist Detector) what types are there and about hot spots.
- Asked what features are fitted to protect from crankcase explosions.
- Bilge pumping, describe full system from bilges to OWS. Can you pump directly overboard
- Bilge Injection V/V – where is it and how do you recognise it when can it be used.
- Can a ship sail without an OWS (yes but only with special dispensation)
- Cause of Starting Air explosions – what causes them and what safety devices are fitted to prevent them.
- Asked what Boiler were on my ships and what checks do we do every day. Why is the hot well temperature kept at 90 degrees
- Moved on to Purifiers, asked what checks you make on rounds, what temperature you expect, what pressure. New fuel on board not pumping properly what do you do?
- Sewage System – how does it work – each chambers – what checks (daily, weekly, monthly)
- Emergency scenarios – BA sets what checks do you make as you fit it to yourself, when does the whistle sound
- Fixed Fire Fighting systems – asked about main systems, how they work and their differences. Asked how the water mist is achieved and how it works.

- CO2 – checks prior to release – how does the system release work – how do we know the CO2 has been released.
- Asked what EEBDs are located throughout the ship and how long they last for.
- Asked about Lifeboat – what type you would expect on tankers (fully enclosed / water spray)
- Enclosed entry space – checks and certificate.

Combined Steam / Motor 10:30 9th September 2014

Examiner: Mr Groake

Candidate: Daniel Stain time taken 1hr 15 min

* He came out took trb and work books takes 30 to 45min

* Discharge book and passport confirmed type of exam

* Draw Closed feed system (he said this is how he starts all steam related exams so practice this !!)

* One boiler cold other warm (fire on HFO) he is looking for the proper procedure including safeties I explained the concept of swelling and shrinkage of the boiler water when filling up and this seemed to go down well. But be prepared to go off on a tangent and highlight safety

* Why do we purge the boiler? Plain and simply has after boiler explosion

* You mentioned intermittent firing how long could the process take procedures? I said half a day at least because of experience at sea

* Coupling, boiler safeties, turbine safeties wanted everything I knew

* 1 hours' notice for turbine – cooling, L.O – mention checking gravity tank, turning gear, ensure drains are open (mine were automatic), gland steam, vacuum, testing turbine ahead and astern

* Jumped straight to T/A just asked what the main details of the final opening of the main valve (slowly until is critical and then slowly allowing governor to take over)

* Paralleling

* MSB safeties T/A safeties

* Jumped to 1 hours' notice on motor

* Oil in the air start line (ignited by a leaking air start valve)

* OMD was very specific he wanted the process of how it was leading to crankcase explosion, mist rising up cooling down with trapped oxygen then touching hot bearing again and igniting

* Sewage treatment plant dangerous gases because air compressor stopped – methane ammonia I couldn't remember the ammonia but I said it was a dangerous gas and it was a risk this was all he was after and that if I couldn't smell anything restarting the plant was suitable

* How would you know motor was at fault – went to town here on fault finding he asked about testing the fuse and all the safeties on the motor what would high start-up amps indicate I said seizure then he moved on

* Ok replace the motor procedure for testing spare , continuity min 1 MΩ, insulation test, test meter Ø to Ø , Ø to earth etc.

* Ok procedure for installing – I said RA and then LOTO he stopped me there exam and said I had passed and gave feedback

Questions
15th July 2014 EOOW – Mr Groak, Total time – 1 hour

Started with 1 hours' notice and the procedures to go through;
Check the steering gear

- Draw steering gear system and explain (4 ram system – didn't need to be perfect as long as you could describe the safeties and alarms that are associated with the system)
  - Auto isolation (Low level alarms)
  - Motor on stand-by
  - Full range of motion
  - Nav aids present in steering gear (rudder indicator and compass)
  - Comms with bridge

Manual start of second generator

- Wanted complete setup
  - Air valve open and ready
  - Indicator cocks open and engine turned over
  - Fuel supplied
  - LO system ready
- What to look for from indicator cocks (water)
  - Where it would come from (cracked cylinder)
  - Indications if indicator cocks not checked (emulsion of LO and low level alarm on HT system expansion tank)
- Slow turning generator with turning gear in place (whilst indicator cocks open, :P)
- When started check voltage and frequency (ensure you know the values, he will ask)
  - Then asked about the other electrical supplies onboard (440/220/24)
- Synchronising generator onto bus bar (governor control and then load sharing after ACB is closed)

- Trips associated with generator (Reverse power, overcurrent, over speed and another I can't remember sorry)

Boiler switch over
- Swapping from EGB to boiler (just wanted general start up procedure, purging, ignition, flame monitoring)
- He drew boiler section and asked me to put on the mountings (Safety v/vs, level gauges, scum v/v, blow down v/vs)
- Asked about the tests on the boiler water (pH, chloride)
  - For chloride he asked why it was bad, where it came from, what chlorides were and how they would enter the boiler system (boiler fouling, sea water, salts, through a leak in sea water coolers)

HT system
- Wanted me to draw the system and how temperature was managed
  - Wanted the system explaining, interaction with LT system and fresh water production
  - HE also asked about where you would use high quality distilled water (boiler)

Pumps
- Asked what type of pump the main HT pumps were (centrifugal)
- Asked where else they can be found (sea water, ballast, fire)
- Asked what other pumps were present onboard (positive displacement)
- Where would they be found? (bilge, hydraulic systems)

Auxiliary blowers started
- Compensating for turbo becoming less efficient when slowing

Jacket cooling water pre-heating
- Just wanted to make sure you were aware of it to maintain temperature

Air Start system
- Describe the safeties in the system (relief v/vs on air compressor, isolating v/vs on air receivers, flame trap, oil separator after air compressors)
- Wanted to know what to do with air receivers, why do it, why is it important to remove oil/moisture (drain them, to remove oil, prevent possible fire from leaky start air v/v)

Sewage system
- How it works in general
- Why is it important to have aeration (bacteria in the sewage system – system dependant :P)
- What happens if there is none (bacteria colony dies)
- What is the smell that you will have (after hydrogen sulphide)
- What is the chemical formula for it (H_2S)
- Is that good (No – dangerous atmosphere)

EOOW - 07/07/14 – Maddison – 40 mins – Pass

- Looked at TRB and workbook for 15mins
- Previous ships
- UMS walk round, what are you checking
- Gone ums, alarm goes what do you do (cancel alarm, dead man system, contact bridge, deal with alarm)
- Asked what is LT system
- FWG, what's the salinity
- Sewage plant, checks and problems (build of methane gas etc. when air blower stops)
- Bilges, holding tank, ows and regs
- Emergency Bilge suction
- Steering Gear, alarms and emergency steering
- Start airline, safety features and how a fire in it would occur
- OMD, how it works, what are we trying to avoid, crankcase explosion procedure
- Parallel Generator and take the other off the board
- Generator trips (pref, reverse power, low voltage and overload)
- Earth faults, how do you know you have one and how would you find it
- Emg Gen, how does it start and how do you test
- Enclosed Space entry
- BA checks
- Fireman suit checks (helmet, jacket, trousers, gloves, torch, radio, axe)
- HI-Fog system
- CO2 system
- Taking bunkers and there is a spill, what do you do

Steam + Motor, 24th June 2014, Mr. Groark (1hr 10mins, PASS)

1. One boiler Cold, One boiler running. Procedures to flash up the cold boiler. Then how to couple boiler.
2. Boiler Water test. What do we test for?
3. 1 hour notice given, how to prepare steam plant. Safeties on the main turbine (warm thru Turbines, steering gear checks)

4. Sketch and Describe 4 ram steering gear. Safety features and Emergency Steering procedures.
5. Checks and how to run up a generator and parallel to the board. Asked about generator trips. Why is it important to balance the load when paralleling? What happens when overload? (Preferential trips)
6. Why is there an ammeter fitted on the turning gear? (to indicate piston seizure)
7. Goes into air start system. What checks you do? If there is oil in reservoir, where did it come from? What can cause this? What are your actions?
8. Talking about the air compressor, if I were to do maintenance on it, how do I do it? (risk assessment, PTW, Isolation processes, drain water and oil, drain unloader)
9. From that, he asked about checks on a motor? (Insulation test, continuity test, check fans and bearings) he drew up a terminal block and asked how to do it?
10. Gives a scenario, where a black out happens. How does the Emergency generator starts? Asked about what the Emergency switchboard supplies.(440V- steering gear, Emg fire pump, 220V- Lighting, Nav Aids, 24V- battery charger)
11. On FAOP, what systems do u start or shut down? (FWG, BILGES)
12. Bilges, what type of pump? What is an advantage of it? Asked me about the MARPOL annex regarding pumping bilges? ORB – what to fill after pumping bilges? (positive displacement pump, no pressure head needed)
13. What sort of fixed firefighting system I have onboard esp. in the engine room? And how does the system activate. (he wanted to know about HI FOG and how it works, fire head detectors)

END

14th April 2014

- Ship particulars and UMS rounds
- (Begin rounds with check funnel) what would you see?
- Saw sparks. What does that indicate? (Exhaust gas boiler fire)
- How do you control an EGB fire?

- Turbo charger surging, what do you do?
- What do you check before taking over a watch?
- What do you check in the control room?
- Switchboards in control room has an earth fault lamp on, how do you find it?
- What is an earth fault?
- Where would be the most common places for an earth fault to occur and why? (water or heat, breakdown of insulation, outside winches)
- Draw a terminal block and show how you would test for dead system and how to use a mega to test for earth fault.
- Safety features on a boiler.
- Boiler alarms for burner trip, what would you do and what could be the reason for this?
- What do you check on a sewage plant?
- Sewage plant breaks, what are the problems and why do you not want them? (Methane and other noxious gases. Health reasons)
- What is the purpose of a J.C.W. chemical dosing tank?
- Why do you put chemicals in?
- Draw a J.C.W. system and explain the various pieces of equipment? (don't forget 3 way valve and temperature controller)
- On a fuel line on a generator a pressure gauge has sheared and is spraying hot fuel over a running generator, what do you do? (This question was a curve ball. Get the fitter to rig up a plate or something to deflect the fuel away from the generator while you go and start another generator (not in the same room if it can be helped) and stop the one with the leak.)
- High exhaust temperature in a unit, what do you do?
- O.M.D. alarm goes off, what do you do?

- Fire in the engine room, what steps do you take to control it? (fixed firefighting and quick closing valves)
- What do the quick closing valves do? (will shut down all plant machinery. this is in relation to the above question)
- How do operator quick closing valves?
- You hear a fire alarm, what do you do?
- What are the signals for general alarm, fire alarm, man overboard?
- How do you pump bilges using the O.W.S.?
- What rules and regulations govern the O.W.S. (can you buy it from just anyone?)
- Where can you pump bilges?
- What type of pump is your bilge pump?
- Advantages and disadvantage of this type of pump.
- What information goes into the oil record book? (don't forget when you cross the international date line to put time, date and position)
- What is Marpol?
- What are the annexes of Marpol?
- Emergency generator, what does it do? How does it start and what does it supply?
- How does the emergency generator know when to start?
  - How do you put a generator on the board from dead ship? (with the emergency generator then switching over)
- How do you parallel a generator with one that's already running?
- How do you take one off the board?

10th March 2014 **Steam / Motor Combined** **Mr. Groark**

1. Draw a closed loop steam system from Boiler to Main Turbine and back to the boiler.
2. You have 2 Boilers, one boiler in normal working condition the other in cold condition, talk me through how you flash the cold boiler and couple to the boiler in use.
3. How to start you alternator? Safety features turbine and alternator side.
4. How you put an alternator on the main switch board (paralleling). If synchroscope turns anti clock wise what does it mean and how do you correct it.
5. How do you warm through the main turbine / safety features!!
6. Main Condenser, how do you maintain a vacuum in the condenser?
7. Boiler water tests, why do we do it, what are the tests
8. How do we remove oxygen in the boiler water
9. Steering gear, draw a simple four ram steering gear system, describe safety features and tests, how do we operate the steering gear from the steering flat.
10. Prepare Main Diesel engine for departure.
11. Air start system, air start explosions, leaking air start valve – explain
12. Turning gear, purpose of, why is an ammeter fitted to the S>G. motor starter
13. Main switch board protection devices
14. Earth fault, earth lamps – how do we find an earth fault
15. Cause of an earth fault,
16. How do we check for faults on the motor with earth fault – isolation/insulation/continuity?
17. Paint store small fire actions (F.I.R.E.)
18. Fixed firefighting in paint store – explain actions
19. After Full Away – what do you do – (FWG, BILGES etc.?)

1.5 hours passed

27th Feb 2014
EOOW ORALS – Passed

- Describe taking over a watch
- Asked the following questions as he walked round :-
- Boiler safeties set pressure, drain pipe, design
- Soot blow economiser
- Purifier – Gravity Disc – how to size from chart in manufacturer's instructions.
- Black out – what happens how do you recover from this position – (emg genny / main genny how do you change over)
- Main Generators walk round obs
- Synchronise and reverse current procedure
- Steering gear walk round and Stand Bye routine
- Refrigeration plant checks / gas / belt tightness
- F.W generator low temp / low pressure explain
- Fresh water how do we protect / treatment
- Oil Mist detector / crankcase explosion / relief doors
- Fire – wearing an Air Bottle and its checks
- Bilge injection system – explain where it is how we find it.

EOOW ORALS 04/02/2014
Passed

- 2nd Officer phones ER sparks / soot coming from funnel, what are your actions (check funnel / economiser)
- How would you fight an economiser fire? (Stop engine (bridge permission) increase flow through econ if possible, boundary cool.
- How do you maintain engine temps with engine stopped (where do we get the steam necessary to keep engine hot – flash boiler)
- HT system sketch a system
- What is the jacket water header tank for
- Boiler questions – describe what mountings where on the boiler – GG, Feed check vvs etc.
- Burner flashing routine, flame failure action (re-purge)
- Steering gear checks and safety
- Run up a generator and synchronise it manually
- Electric motor will not start how do you check / what do you check / safety tags when working. Fuses OK, meggar test – each phase to earth.
- What FIXED firefighting equipment did you have onboard – describe action
-
- i.e. CO2 or Water Mist – how is it operated manually or automatically.

EOOW Jan 2014 **Mr Groak**

1. Draw emergency power distribution system.
2. How is it connected to Main Switchboard
3. What is the electric Interlock between these systems (sketch and explain)
4. How to start and test emergency fire pump in normal conditions.

5. How to operate the emergency steering gear system
6. Describe a scenario where 1 genny running, more power required, 2nf Genny would not start and 3rd was under repair. What would be your actions?
7. What are preference trips how are they activated manual / automatic?
8. What is supplied from main switchboard 440/220v how would above affect the scenario and preference trips.
9. Ships blacks out what happens and how quickly
10. When ready to start Main Generator what is the procedure for connecting main to switchboard with Emergency Genny running?
11. What is available to start in dead ship mode?
12. Kick over a D/E and water comes out of indicator cock what actions do you take.
13. Air compressors how to start, safeties fitted, why do we drain air bottle, leaky air start vv how found and actions.
14. 1 hrs notice Main Eng. checks.
15. Walk round checks on Sewage system / fresh water generator.
16. OWS start and regs
17. AC accommodation check on running, why do we need to keep evaporator water drains clear, what is Legionella Bacteria.
18. SPARKS FROM THE FUNNEL WHERE FROM / ACTION.
19. Sparks do not stop – economiser fire – your actions.

Passed

EOOW ORALS 14/01/2014 Mr Maddison

1. Started to discuss vessel I had been on.

2. I'm about to take over a watch, what do I do and how.(speak to Duty engineer, alarm list, notice board, machinery maintenance, C/E standing orders, full ER walk round.) quote pressure / temps / speeds of various pieces of equipment.

3. After walk round he questioned me on Air Compressor safeties, Air start Line, Procedure to follow if there was an Air Start line leak)

4. Asked various questions on steering Gear operation of 4 Ram, steering gear alarms, what would occur if the motor was overloaded, what is hydraulic lock(lock rams in position for safety) , if auto change over on rams failed, what is auto pilot, what is hydraulic lock. Leaks in system how identified (header tank, Low/LowLow level alarms? advantages and disadvantages of 4 ram, what is single failure criteria.

5. Asked what Chemicals are stored in steering gear, asked what else would be there (PPE, oil, chemicals (eye wash) data sheets)

6. Asked why I said Hot well was 90°c (to keep oxygen level low). What Oil in sight glass would indicate!

7. How do I pump bilges, what if holding tank full, OWs what conditions for use, Oil Record Book how to fill it in. how do you dispose of sludge, what type was your bilge pp, what type was your sludge pp.

8. Start Main Engine from 1 hours' notice. How would I find water in the cylinders and problems associated with that,

9. How would you synchronise your generator on the board. Do you have an Emg Gen set, how do you test it, how is it connected to the EMG switchboard. Electrical safeties on your generator – reverse power, what is reverse power, what happens if your generator is overloaded – ref trip. How does your emg genny connect to the board if blackout occurs, how does the emg. genny come on (voltage relay detector). What services does it supply?

10. Treatment of FWG, checks on FWG, asked about HT and LT systems.

11. Checks in Purifier room checks on purifier, how does purifier self-sludge?

12. Asked about Oil Mist Detector fails what else will be indication (cc relief door) how does the oil ignite in a cc explosion.

13. Operation of relief doors in cc

14. Earth Faults how indicated – what could happen – procedure to find and isolate.

15. How does the CO2 system work – released – advantages and disadvantages – quick close valves –

16. Launching the Lifeboat, what's fitted to your lifeboats (water mist, air supply0 what would you expect to find inside the lifeboat (EPIRB, Charts, sea sickness tablets, first aid radar reflectors, food, water, flares.

17. Checks on BA sets and fireman's PPE

18. Fire detection heads

Passed

25/6/13 Allan Macdonald EOOW Exam 55 minutes
Examiner– Mr Groark

1. What ships did you sail on?
2. Its 8pm, take a round.
3. Tell me about different smoke you might see coming from the funnel
4. How would you be able to tell it was an uptake fire
5. What causes an uptake fire
6. What would you do if there was an uptake fire
7. I forgot to mention the turbocharger, so he asked me about the turbocharger.
8. What prevents an uptake fire
9. Draw the boiler system
10. How do you flash up a boiler
11. What is purging
12. What could cause a flame failure
13. What pumps are your fresh water pumps
14. What other pumps do you have and why
15. Tell me about OWS regulations

16. What do you put in the ORB
17. Draw the ht system
18. What would you do if the outlet temperature was rising
19. Check on coolers
20. What would you do if you were taking a cooler apart and ensure it was the exact same as before (count/mark the amount of threads on the stud)
21. Lube oil is spraying from the generator, what do you do?
22. What would you give the motorman (something to deflect the oil and fire extinguisher)
23. How do you start the other generator
24. How to you parallel generators
25. What trips are there on an emergency switchboard, and explain them
26. What could trip this generator
27. What is motoring
28. What are the preferential trips
29. How do you take the generator off the board
30. How could you test the reverse power trip? (wasn't so much of a question, more telling me that he would put the load down as far as possible until the generator would trip, he would then know the trip works)
31. What would happen if you didn't put another generator on the board
32. How do you do an insulation test?
33. How do you check the insulation?
34. If you had no meter, how would you know (3 lamps)
35. What could cause a low earth reading
36. How do you do a continuity test
37. Checks on the fresh water generator and regulations.
38. Checks on the air receiver and air compressor
39. Why would there be oil and water in the air receiver
40. Safety devices on the air compressor
41. What is an unloader
42. Checks on a purifier
43. Why is the back pressure on a purifier important
44. What are the safety devices on an engine
45. What is a crankcase explosion

46. How does an oil mist detector work
47. A float switch in a fuel tank is broken, how would you fix it? (this question was about enclosed spaces)
48. I said Risk Assessment, Permit to Work then said Coswp chapter 17 and I was going to explain what was on this, but as soon as I said it, he wrote Pass on my NOE.

MCA ORALS June 24th 2013 (time taken 1 hr. 10 min)

1. Draw a 2 stroke eng
2. What is the scavenge space for?
3. What issues arise from this space
4. How would you deal with these issues?
5. Describe operation of the exhaust vv
6. ABOUT YOUR VESSEL
7. You receive 1 hour notice of departure discuss your actions
8. How does oil enter the air receiver
9. How is the air compressor piston lubricated
10. How can you tell if you have passing piston rings
11. What actions would you take to repair this defect
12. How is there a fire risk with the air start lines
13. How can you tell if an air start valve is passing
14. Describe starting an auxiliary generator and manual synchronisation
15. What trips do your circuit breakers have
16. What other protection is built into reduce the likelihood of a blackout
17. Procedure of starting the main engine
18. Why is it necessary to pre heat a large diesel engine
19. What can cause high current on the turning gear
20. You go to turn the ME on air but it will not turn – why
21. How can water enter the combustion space
22. You start the engine and allow it to idle for a period but notice the exhaust temp. are all normal except 1 unit which is 60c what can cause this
23. How would you rectify this situation

24. After a period of time your oil mist detector alarm goes off, what are your actions and how do oil mists develop
25. What are the risks associated with oil mists
26. Your boiler trips off on flame failure, what are your actions
27. What can cause flame failure
28. Describe the process of re-firing the boiler
29. What trips are present on a stm boiler
30. What are the hazards with high water levels in a stm boiler
31. Carry on with the pre-departure check list
32. How does the CPP operate
33. How do you test the CPP
34. How is it powered if the engine is not run
35. What safety features are present in a steering gear
36. How and what would you test pre-departure on the above Q.35
37. Regarding the emergency switch board, what else is powered from here
38. What kind of nav aids are there, which is the most important
39. On your way back to the control room you smell a foul smell from the sewage unit what could this be
40. What is the risk with the gases
41. He air pump motor needs to be replaced, there is a 'used but good' motor in the store, how would you check the condition
42. Demonstrate how you would check the continuity and insulation resistance
43. What is the minimum acceptable insulation resistance
44. Describe the procedure for carrying out the replacement
45. Back to pre-departure – what are your actions on returning to the control room
46. How is the switchboard arranged for departure
47. When full away on passage do you run the safety gennie only
48. Describe the process of synchronising and removing aux gennies
49. After your watch you go to your cabin, and the way you smell smoke in the laundry. A small fire has just begun at the back of the tumble dryer, what would you do.
50. Finish 1 hour 10 mins

MCA ORALS Mr Groak 24th June 2013 (time taken 1 hr.,)

1. Pre UMS checks what are they
2. So you have checked the Funnel – smoke is BLACK possible cause
3. There is a few sparks, what is it, (possible up take fire) (he said it could be but let's say it is not)
4. What do you check to prove an uptake fire
5. How do you get rid of the soot on the economiser
6. OK so what do you check next
7. What are you checking on the boiler
8. Draw your boiler
9. What safety features do you have
10. Gauge glass showing different level what do you do
11. How do you blow through GG
12. The glass breaks what is fitted in case of this
13. What trips do you have
14. What must be done every time before the boiler starts
15. What do you check next
16. What is the ME expansion tank for and how does it feed into the system
17. What is it for
18. Why do you need a pressure head
19. What is good about a centrifugal pump
20. Where do you find centrifugal pumps on-board
21. What other types of pumps did you have
22. Where would you find a PD pump

23. What are the regs for pumping bilges
24. Other than bilges what else goes in the oil record book
25. Where next on walk round
26. How does a sewage treatment system work
27. The compressor fails what happens to the sewage plant
28. How can this be fixed
29. How do you overhaul a sewage plant
30. What in the air conditioning plant can cause ill effect to humans 9ligionnaires disease in the trunking from water)
31. Cylinder heads M>E> he drew a PLAN VIEW I had to draw on parts
32. What do you check
33. What can cause an air start line explosion
34. How to minimise the risk
35. High pressure fuel pipes what are they constructed like (double skin)
36. Why
37. How will you know there's a leak when UMS
38. What checks on the T/C
39. What is between the TC and scavenge space
40. Why
41. What is local control (possibly means control room control)
42. Purifier checks
43. What is special about a purifier room instead of a space
44. Sludge tank level high why – bad fuel
45. How would you know FO was bad – drain – FOBAS
46. Fresh water generator

47. Salinity high – why (poor vac, temp, demister blocked)
48. Generators pre-starting checks
49. Once running one exhaust temp is low – what do you check
50. Starting generator and switching load from number one to incoming
51. If I remove all load from the outgoing m/c and continue to slow the governor what will happen
52. Generator electrical trips
53. Earth faults how do you detect (indication on your switchboard)
54. Common earth faults
55. Finding where the fault is
56. Testing motor, continuity and insulation
57. Minimum resistance an insulation test
58. Fire in the paint store – what to do
59. Fire extinguisher does not work – what do you do.

Examiner: Mr Groark Duration: 1hr 10mins

1. Difference between 2 stroke & 4 stroke. Draw them
2. How is the exhaust valve actuated in a 2 stroke
3. How do you get air into the engine (2 stroke & 4 Stroke)
4. Purpose of an air cooler 5. Auxy blowers, what are they?
6. Problems associated with scavenge space ; (I mentioned dew point and scav fires)
7. Procedure for dealing with a scavenge fire
8. Take an engine room round at 9PM
9. Smoke & sparks from the funnel, what would you suspect and what are your actions?
   Got a grilling here: Went all around the houses, talking about the soot burnt off in the economiser, high exhaust temps, no water in the economiser giving high temps, hydrogen

fires, where all he wanted was me to say a fire in the uptakes. Confused construction of an Exhaust Gas Boiler with an Economiser and he latched onto this

10. How would you deal with an uptake fire
11. What is high exhaust gas temperature indicative of
12. Temperatures of exhaust
13. How does the jacket water header tank link into its system
14. What is its purpose
15. Draw HT/LT system and explain how it works
16. How is the HT water cooled
17. If the HT temp rises what would happen
18. What would your actions be?
19. What would suspect if the temps were rising
20. Checks on a purifier while running
21. Where would oil in the air bottle come from
22. Procedure for overhauling an air compressor
23. LO spraying from fractured pipe onto generator, what would your actions be? ***Grilled me on this one too, I said call the chief, take that generator off the board and run up another; he said the chiefs old fashioned and doesn't want to know. He was saying are you the only one in the engine room said ask another engineer to help he said no engineers, so I said motorman and he was happy enough with that. (weird) He was wanting me to say get the motorman to hold up something to deflect the lo away from the engine while I was running it down. Give the motorman a fire extinguisher.***
24. Paralleling generators manually
25. How do you remove a generator from the board manually
26. What does it mean when the syncroscope is running anticlockwise **Too Slow**
27. How do you rectify this ***Adjust governor***
28. How do you load share
29. What would happen if you put the incoming generator on the board when they were not in phase
30. What trips are on generator circuit breaker
31. What is motoring of generators & what would happen if this occurred ***He wanted overloading of the switchboard here***
32. How do you overhaul a motor

33. What tests would you carry out on the windings?

Continuity & Insulation Test
He drew a junction box of a motor with the terminals and gave me two pens and asked me to show him

34. What else would you check on the motor ***Bearings & Fan***

35. How do flash up a boiler manually

36. What is purging

37. Why could the boiler have gone out on flame failure

38. How is the boiler lit

39. How does a pilot injector work

40. How would you carry out an emergency steering drill

41. How do you change over to emergency steering system

Got properly stuck here, he was taking about taking out pins and putting them back in other places etc.

42. How do you pump bilges

43. What regulations do you have with respect to pumping bilges

44. What gets entered into oil record book when pumping bilges

45. Where does the OWS take suction from

46. What happens if the ppm is over 15 in the discharge

47. What type of pump was the OWS pump

48. What type of pump was the bilge pump

49. What other types of pumps did you have

50. Give me examples of usage for each type of pump

51. What would happen if you ran a centrifugal pump with the outlet valve closed

52. What would happen if you ran a positive displacement pump with the outlet valve closed

53. Fire in the laundry , actions

54. What type of extinguisher would you use

55. What safety checks would you make if you were in the fire party

56. How do you check your BA set

Examiner: Groark June 10th 2013 Duration: 1hr

Situation: You are going full ahead on a sea passage with a full reefer container load, switchboard:

a. **Generator 1 – On**
b. **Generator 2 – On**
c. **Generator 3 – Standby**
d. **Generator 4 – Down for maintenance**

1. What trips and safeguards are on the board?

Generator 1 trips

2. How could this have occurred? (Reverse Power Trip) How?

3. Explain motoring? How could this have occurred?

4. What could then happen to the board?

5. You say shed load, what is the proper name for that? (Preferential tripping)

6. What would you consider to be non-essential services?

7. In this situation the load was too great, what would happen to Generator 2? (Over-current)

8. What has happened to the ship?

9. In a blackout how does the main engine trip? (Low LO pressure trip)

10. How does the emergency generator automatically start?

11. What is fed from the emergency switchboard?

12. How do we prevent overloading this switchboard?

13. So what order will services be restored?

3rd Engineer has informed you the reason generator 3 did not start was because when he was completing maintenance yesterday he forgot to open starting air, it is now open now and ready to start.

14. What are your actions?
15. So you started it from the control room automatically, why? (Emergency situation, may need to manoeuvring)
16. How does this come onto the board?
17. What happens to the emergency switchboard, in particular the breakers and services it supplies?
18. We have time now, start Generator 2 manually and parallel. What does an AVR do?
19. Board is restored, and you reset breakers in the control room, what happens to the pumps that tripped, what are your actions? (Standbys kick in, set tripped to standby)
20. What is fuel starvation? How could this have occurred? (viscotherm reset)
21. What else may need reset? (ME hydraulic bracing, steering gear)

Instruction from the chief: prepare ME to start

22. What do you need to be careful of in this situation when engaging the turning gear? (propeller rotating – turning the engine)
23. What are you checking?
24. Say there is a fluctuation of amps, what might this indicate?
25. What could come out of the indictor cocks in this situation? (carbon/fuel, water)
26. Why could there be carbon/fuel?
27. What is the action you are doing by engaging the turning gear and turning the engine?
28. What is the importance of purging the ME cylinders, what are the dangers of not doing this?
29. Where could water come from?
30. How could this have happened in this situation? (thermal shock – insufficient cooling when engine shut down)
31. Engine has been blown on air, what must you do before blowing on fuel? (aux blowers)
32. How do aux blowers work? Are they on all the time?
33. How does a turbocharger work? Draw one

34. What else do you need to reset? (aux boiler)

35. Manually start boiler:

36. How does pilot ignition work?

37. Is the steam valve open on aux boiler? What about EGB? What is special about these valves?

38. What is water hammer? How does it occur? Why is it undesirable?

39. What services will you need to restore? (AC, refrigeration, Purifiers, FWG)

40. On the FWG what is the salinity alarm level? What can cause high salinity? (low shell temp, break in vacuum, insufficient SW flow, internal filter blocked)

41. What are the FWG regulations?

42. What other plant changes could be made?

43. What are the regulations regarding OWS? (I said 12Nm from the coast, any areas excluding the Antarctic – he told me there is no distance requirement, be worth double checking this)

44. How does the OWS ensure substances above 15ppm do not go overboard?

45. What would you enter in ORB?

46. What do you check on the sewage plant?

47. You notice the air compressor is not working, what are the dangers, what gasses?

48. What are your actions? (set to soil inlet to overboard, explain full risk assessment, describe repair)

49. How can you improve ventilation and what oxygen level would you be happy to work in?

50. What tests can be done on the motor? (He drew a junction; demo continuity/insulation).

51. You are walking past the air handling unit and smell burning, what are your actions? (raise alarm, enter room if safe to do so, isolate power and attack with powder extinguisher)

52. Fire gets worse when attacked with extinguisher, your actions? (close door, muster)

That will do, you passed

ORALS Tyne Dock 7th June 2013

- 1 hour notice, checks, who's in ECR?
    - CE in ECR, checks around main engine. Turn on gear, then air.
    - Check JW at temp
    - Start aux blowers
    - Turn engine on turning gear check for full movement
- Steering gear checks and regs
    - Check pumps and aux pumps, hyd oil level, comms, 35 to 30
- Emgy steering gear
    - Runs to destruction, powered from emcee gen
- Why turn engine? Why ammeter on turning gear?
    - Check for free turning. Ammeter will increase if Eng. can't turn
- Air bottle drain, why?
    - Remove water and oil, don't want in start airline could cause fire/explosion
- How you know if fire in start air line? What causes?
    - Back of hand, feels hot, peeling paint
    - Leaking start air valve, heat, air, fuel or oil from air resv
- Start airline preventative explosion?
    - Flame traps/gauze,
- Why oil/water in resv
    - LO from comp, piston rings/scraper damaged, always topping up, always running, cant pressurize resv
- How to dismantle air comp?
    - Lock out, tag out, drain air, drain oil, isolate
- Can you dismantle at 1 hour notice? Why?
    - No, need all comp, change preferences, make last to come online
- Electric motor testing

- Check bearings, fan blades, check insulation with mega tester, continuity test with multimetre, drew terminal box, used pens as probes to show how

- How do you know chain block/slings are of correct type?
  - Clear markings of SWL, visual checks, check manuals for machinery
- Manually sync gen, purpose of synchroscope?
  - Synchrosope makes sure in phase, measures voltage and frequency
- Why you share load between gen? Safety features?
  - Encase sudden increase in load causes gen trip
  - Over current relay
  - Preferential trip
  - Low voltage trip
- How you know if motoring?
  - Switch board overload
- Why do you pre heat ME?
  - Don't want thermal stresses, can cause cyl liners to fail or crack
- Crack in cyl liner, how do you know?
  - HT exp tank level getting low
- Purpose of HT exp tank?
  - Positive suction head for pump, allows water to expand
- Why use centrifugal pump?
  - High volume flow rate, but needs priming
- Other centrifugal pumps on-board?
  - Ballast, general service, emgncy bilge injection, fire pumps
- Other pumps on-board? Used for?
  - Positive displacement for oil transfer
- Why positive displacement for bilges?
  - Always creates suction, doesn't aerate bilge water

- Bilge pumping regs O.B?
    - 15ppm, CE only open O.B valve
- ORB filling in what info? Who fills in?
    - Time, date, lat and long, amount, soundings
    - Only chief
    - Captain has to sign bottom each page
- High exh and scavenge temp on one unit, why?
    - Scavenge fire, high jacket temp
- How do you know scavenge fire? Funnel?
    - High jacket temp, high scavenge temp, black smoke from funnel, insufficient combustion, turbo surging
- EGB safety features
    - Auto start aux blr, high press safety valves
    - Low and high water level alarms
- Flame failure on aux blr, what checks you do?
    - Check FO inlet press, air fan running. Wanted me to say, check the flame sensor, clean if necessary. Look in sight glass to confirm
- LO spraying on only gen running, what u do?
    - Tell bridge possible blackout, start stby gen, send oiler down with metal sheet and fire extinguisher, deflect oil away from gen
- If you hit gen emcy stop what happens?
    - Stby gen auto comes online, then if blackout, emcy gen comes online
- Emcy gen supply's what?
    - Emcy steering gear, emcy fire pump, bridge nav stuff, emcy lighting

Examiner: Mr Groark **Tyne Dock**
Time: 55mins **Result: Pass**

Started talking about my companies routes, noticed all ships had been four-stroke

- Draw a cross-section of a two stroke engine
- How does the exhaust valve work
- What's between Turbocharger and Air Receiver/Manifold
- What's the purpose of Charge Air cooler
- Name all major components on two-stroke (that had been drawn)

He starts talking about scavenge space, how it gets dirty etc.

- What could happen in the scavenge space that's dangerous
- How would you know one had started
- How do you deal with one initially
- Further actions if it gets worse

Gives the scenario of 1 Hour notice to departure, what actions would I take

- Why is a centrifugal pump used for sea-water cooling
- What are the benefits of frequency controlling pump (ship specific)
- How would oil get into the air receivers
  (Talked about carry over from the compressor, how ring wear allows more oil onto cylinder surface which then gets mixed into air)
- Why is oil in receivers dangerous
- What prevents air start explosions spreading
- How would cooling water enter the cylinder
- What would cause the exhaust valve seats to fail
  (Wanted the word "cracked" specifically, due to thermal stress - took bloody ages!)
- Draw your ships HT system
- Explain how the HT system works
- What are the normal temperatures in/out - what are the alarm/slow down/stop set-points
- What actions would you take if the temperatures gradually rise above normal
- What's placed between HT pump and main engine *(Pre-heater, this followed on from above)*
- How do you connect a generator manually
- What does the synchroscope do, what does it compare
- What are the trips on a generator (mechanical and electrical inclusive)
- What is the reverse power trip
- What parameters would you check on a running generator
- What would happen if the generators fuel supply was restricted *(it slows down, then stops)*
- Did you have economizers on-board, what's their purpose

- You notice high exhaust gas temperatures after the economisers, and bridge reports black smoke and sparks from funnel - what would you suspect
- How is a soot fire started/caused
- What safety features were included in the Thermal Oil system
- What trips did the boiler have
- Boiler trips due to flame failure, what would you check
- What's purging
- What fittings would you expect to find on a steam boiler

He draw's two gauge glasses, one high and one low

- Two gauge glasses show different levels, which reading would you go by
- Gauge glass checking procedure
- What safety features are on a gauge glass if it were to fail *(steel balls on steam/water)*

Moves onto electrical questions

- Were earth leakage trips fitted on your ship
- What resistance did the alarm sound, what's the minimum resistance
  (I said mine were 6MΩ, i had no idea but he accepted that - the minimum is 1MΩ)
- What are the usual suspects for earth leakages (said Galley, Laundry etc.)
- Why are they dangerous
- How would you narrow down earth leakages
- Assuming a winch motor is the cause, how would you test it
  (For this he wanted the whole process, Permit to Work, isolating procedure, lock & tag)
- Show the test procedure
- What prevents main switch board overloading
- What do the preferential trips affect
- What does the emergency switchboard power

Moving on from electrical...

- What type of steering gear have you sailed with
- How does rotary vane work *(did a sketch here to help describe)*
- What safety feature s does it have
- How would you deal with loss of steering on passage

ETO is testing Emergency generator, leaves the compartment and you notice a small fire starting where fuel is leaking onto exhaust lagging

- What would your initial actions be
- What extinguisher could you use
- How do you check your fire equipment

MCA Tyne dock – EOOW – 21st May 2013 –
Examiner N.Phillips – 1hr 10 mins - PASS

- What ships have you sailed on?
- What engines did you have on the container ships?
- What model number was the Sulzer? (first ship I sailed on)
- Draw a cross section of that engine
- Draw the turbocharger
- Kept asking what else is on the engine, i.e auxiliary blowers etc.
- How would you prepare that engine for departure?
- What are you checking on the turning gear?
- The engine isn't turning, what do you do? Why isn't it turning?
- How is the engine tested? How do you run it on fuel?
- Let's say you are now at sea and get a call for standby for arrival, what do you do?
- Ok so you are going to put another generator on, how? How do you put it on the board?
- What controls the voltage?
- What is an AVR? What does it control?
- Then what do you do?
- So you've checked the generator and there is a big oil leak, what do you do?
- The other generator that you say you are going to start has been shut down for maintenance, how do you prepare it?
- Let's say it doesn't start, what do you do? You have no other generators.
- What else do you do to prepare for arrival?
- How do you ensure the oily water separator is not discharging?
- How do you keep the jackets warm when the engine is shut down and why?
- Draw the HT system for that engine
- How is the HT cooled?
- What does the expansion tank do?
- What kind of pumps are the HT pumps?
- What is the main disadvantage of a centrifugal pump?
- What other types of pumps are there?
- Explain positive displacement pumps
- What was the bilge pump? Draw it
- Draw a screw pump, how does it operate?
- Draw a gear pump, how does it operate?
- What are the different parts made of?
- You say pump casing, what is the proper name for that?
- What does a positive displacement pump have that a centrifugal doesn't?
- What does the main engine LO supply? What is the pressure of the system? Draw it
- You are the duty engineer, there is a fire in the engine room, and what do you do?
- Are you in a fire team? How would you check your BA?
- What could you do as an engineer to prevent fires in the engine room?
- What about the exhaust valve? What have the engine manufacturers done to prevent fires in this area?
- What is the exhaust temp and the deviation between units?

- What do you have on board in regards to fire safety?
- What detectors do you have? What detectors are over the engine?
- Where can we use the oily water separator? What kind of pump supplies it?
- What do you write in the oil record book? Who else signs it? What gets done on a weekly basis in regards to the oil record book?
- What information and documents do you have on board to help you in your job?
- Briefly explained COSWP, ISM and SMS, SOLAS.
- What else? MARPOL.
- What else? M Notices. Explain.
- Oh so you know MGN 35 about Watertight doors, have you read it? What does it say then?

- **IAMI – Class 4 ORALS 11th May 2013**
-
- Taking over a UMS watch in the evening, start from where you want
- IG system- explain in comparison to using flue gas from oil fired boiler
- What burners were in use on the oil fired boilers
- Why is atomising steam used, why not used with diesel, how can we use the boiler if no atomising steam is available
- What is special about the HP fuel pipes on the main engine (double skinned to a drain tank)
- Steering gear- comparisons between 2 ram and 4 ram, benefits. Also rotary vane, what are the advantages/disadvantages of each type
- Bunkering- full procedure
- The bunkering line from the barge has split, oil is on deck but not yet spilled over the side- what are your immediate actions
- What would be included in the SOPEP gear on deck while bunkering
- Sewage plant- what are you checking for. How is the tank aerated, why does this need to be done. What will happen if this air supply is not available, specifically what gas will be produced as the plant becomes anaerobic
- HT and LT system, describe the system. What is supplied by each system
- Purifiers, what do we check while they are in operation
- What is ISM, why was it implemented
- Explain SMS
- Why do we do risk assessments, choose a task and tell me what you would expect to put on the risk assessment
- Incinerator- what did you burn in it
- Oily water separator, when can we use it, and where. What do we fill in while using, what information would be collected
- Emergency generator, how do we test it. What does the emergency switchboard power. Explain what happens inside the switchboard upon blackout, bus ties etc.
- Explain about the oil mist detector, purpose and how a crankcase explosion is caused
- What does water/oil in the air receiver indicate, why is it undesirable. What could happen if oil accumulates in the start air line
- What safeguards against start air explosion are there in the line
- What would you suspect was happening if oil/water in the receiver were excessive

- What would bubbles in the refrigerant compressor crankcase inspection glass indicate
- Enclosed space entry, cargo tank as an example. What is the full procedure for entry
- **Time taken: 45mins**

4TH MCA ORALS 6TH FEBRUARY 2013

- What would you do before taking over a watch
- What are your pre UMS checks
- What safety features are fitted to a 2 stage air compressor
- What signs of wear can be seen without dismantling an air compressor
- What are the typical pressure values for an air receiver
- What safety features are fitted to the air start line
- How many starts must an air receiver give – 2 st / 4 st
- What are the indications of a leaking air start valve
- What fitting on a boiler shows the level inside the boiler
- How do you blow down a boiler gauge glass
- If you find no water in a boiler gauge glass, what are your immediate actions
- If you find a small amount of oil in a boiler gauge glass, what are the likely causes and your immediate actions
- What boiler test is carried out and why?
- What are the differences between cylinder lubricating and crankcase lubricating oils
- Can you check the condition of a piston without pulling it
- Where does cooling water enter the jackets at the top or bottom
- Draw and explain a simple 2 stroke slow speed marine engine
- Explain how a turbo charger works and why the air is cooled before entering the scavenge space.
- Draw the star and delta connections
- Why are high loads on starting a motor undesirable
- Why are earth faults undesirable and how are they shown on the switchboard
- If earth faults are present can they be left
- How can you go about finding an earth fault
- What are the actions to be taken in the event of a scavenge fire.
- What can cause a scavenge fire
- What are the actions to be taken in the event of a crankcase explosion
- What is the purpose of a crankcase explosion relief valve
- How does an oil mist detector work
- How is a CO2 system released in an emergency and how do you know it is being released.
- What are the disadvantages to using a CO2 system?
- What other fixed systems can also be present on-board
- What entries are made in the oil record book and why

- How does the oily separator work and its principles
- What is the minimum allowable PPM for oily water effluence pumped over board?
- What happens if the effluent is over 15ppm how does the OWS know and deal with it?
- What must be entered into the oil record book before and after pumping the bilges
- What can be the cause of a bilge well level not dropping, whilst pumping?
- What ISM documents are kept to ensure the ship is operating how it should
- What is the purpose of a collision bulkhead
- What is a double bottom
- What is a floor
- How is access gained through floors
- Why do we not want slack tanks
- TIME TAKEN 1 HR 20 mins !!!!

Tyne Dock Jan 2013 Examiner : David Angus
Result – Pass. Duration 40-45 minutes

1. One hour's notice given to E.R. As duty engineer describe preparation, actions and procedure for departure.

2. Purpose of turning engine, what equipment used.

3. What is the purpose of the ammeter on the turning gear?

4. Where will water originate from if you have water coming out of the indicator cock?

5. Start Air safety devices.

6. Scenario: Hot air pipe during maneuvering – what actions do you take and what are the risks involved?

7. Where does oil come from in the air bottles/receivers?

8. What will excessive oil in the air receiver indicate?

9. Reason for draining settling tanks – what do you expect? Where does the water come from, if excess water what will you suspect?

10. What other way can you tell that an oil heating coil is damaged/leaking?

11. Purpose of the H.T. expansion tank?

12. Sketch the H.T. system of your last ship.

13. Parallel operation of generators and load sharing.

14. Explain reverse power.

15. Describe with a sketch how to test a motor.

16. What instrument is used to test a motor?

17. Explain under voltage and Synchroscope.

18. How will you know the generator is in phase?

19. Scenario – During maneuvering one diesel exhaust temperature on one unit indicates 110°C – what will be your action? What will you suspect?

20. What are the requirements for pumping bilges?

21. Scenario – Bilge level is high – what will be your actions?

22. How will you know an air compressor is not functioning properly or has lost efficiency?

23. Procedure for isolating a motor.

24. Scenario – You find fire in a Laundry tumble drier – what will be your actions – what extinguisher used and why?

25. Fire gets out of hand – what are your actions?

26. What will cause a boiler to trip on Flame Failure?

27. What will you check when you get the alarm?

28. Boiler blow down – Why?

29. Boiler gauge glass, purpose and how to blow down.

30. What are SECA areas – how do you abide by it?

31. What are the checks done in the Steering Gear Rm prior to departure?

32. Protection and special requirements for steering gear motors? (Overload alarm and connected to Emergency Switchboard)

33. What is the oxygen content of Inert Gas – If too high what are your actions?

34. Where will you find centrifugal pumps?

35. What kind of pumps are used for the bilge – why?

36. What are positive displacement pumps used for on board?

37. L.O. pressures and Scavenge Air pressures on engines.

38. How does a turbocharger work?

39. What do you need to have running when in maneuvering mode?

40. What are Preferential Trips? When do they come in handy?

Meeting with MCA Tyne Examiners.
Friday 12th October 2012

The MCA engineering examiners raised the following points:

EOOW candidates for oral need to improve their knowledge in the following areas:

Risk Assessment - the basics. For example, what could happen if we **didn't** put the turning gear in when working on the main engine?

Basic parts of the ship, e.g. what is the keel?

The importance of free surface effect.

What do **YOU** do in the event of a blackout?

Should be able to draw a diagram showing the sinusoidal waveform of an ac generator to show the effect of machines being out of phase when attempting to parallel.

The acronym FIRE!!!!!

MARINE ENGINEER CADET PORTFOLIO SELECTION OF POSSIBLE QUESTIONS FOR CLASS 4 ELECTRICAL QUESTIONS

1. Detail the safety precautions necessary before electrical work is carried out

2. What test instrumentation would normally be used for routine tests and maintenance?

3. Detail how you would test a fuse and be able to determine if it was correct or not.

4. What is a live line tester?

5. What are the main components of a direct on line starter?

6. Explain the operation of a Direct on Line (DOL) starter

7. . What is the function of the Over Current Relay (OCR)?

8. What is the main difference in function between the OCR and back up fuses?

9. Why is **manual** resetting of an overload important?

10. When replacing main contactor contacts, how many should be replaced and why?

11. What kind of current surge could you expect when starting an induction motor DOL?

12. Why doesn't the fuse blow when an induction motor is started?

13. What is the function of a sealing (or retaining) auxiliary contact in a starter?

14. Why is single phasing protection necessary for 3 phase motors?

15. How could you detect single phasing in a running motor?

16. What would be the symptoms of a single phased motor when attempting to start it?

17. How is under voltage protection provided in a starter?

18. Explain how a fluorescent light works

19. What would be the effect of removing a starter from a fluorescent lamp-after it was lit?

20. What would you suspect if a fluorescent light continually flashed on starting?

21. What electrical tests would you carry out on an electrical motor undergoing maintenance?

22. Why should the measurement of insulation resistance ideally be carried out when the motor is hot?

23. What factors affect deterioration of insulation in an electrical motor?

24. What safety precautions must you take before carrying out maintenance to batteries?

25. What first aid treatment would you apply if you are splashed with electrolyte from a battery?

26. What SG reading would you expect from a fully charged battery?

27. What routine maintenance functions would you carry out on unsealed lead acid batteries?

28. Why are you unable to determine the state of an alkaline battery from SG readings?

29. How would you determine the state of charge of an alkaline battery?

30. Why should lead acid and alkaline cells never be mixed?

31. Briefly explain how a self excited rotating field type ac generator works

32. What two types of rotor construction are generally used with rotating field armatures?

33. Where is each type likely to be used?

34. What is the purpose of an AVR?

35. How does it do this?

36. What is the likely consequence of trying to close a generator circuit breaker onto live bus bars when it is out of synchronism?

37. Detail how you would safely ensure synchronisation of an incoming generator to live bus bars.

38. Once a generator has been manually synchronised to a bus bar explain what you would do to ensure the shared load.

39. How would you ensure correct kVAr sharing?

EOOW (Motor) Oral Exam 19/2/12
Start 1330, Finish 1415 Result - Pass
MCA Tyne Examiner: T Maddison

Tell me about your ship

Asked a lot of questions as the ship is a self-propelled jack up, how does the jacking system work, how do you get cooling water when jacked up, fire pump water supply?

I told him about out deep well pump setup, and that one deep well was supplied from emgy genny, he then asked what else was supplied from emgcy genny.

Asked about OWS, do we use it, can we use it when jacked up?

Asked if we comply with ISMC

Asked about fire drill, BA checks, what equipment you would take with you, wanted to hear that you would take an axe into accommodation fire, I also said torch, and escape set for a casualty, stretcher, fire hose, and check fire hose has pressure before going in.

Asked about variable speed motors for our thrusters, then asked about earth fault monitoring, earth lamps, how to find a major earth fault.

Asked about purifiers, ship runs on MGO so do the purifiers actually do much work.

Asked if we had boilers or thermal oil – (I said we don't so he didn't ask any more.)

Asked if our engine had oil mist detectors, (I said no, he wanted to know how else we could detect a dangerous situation in the crank case, c/c pressure and temp at bearings.)

Asked about sewage treatment, ours is a holding tank with chemical dosing on discharge, (wanted to know if we can use it jacked up, I said yes provided the current is running above 4 knots.)

690V switchboard, what maintenance do you do, test breakers etc.?

(I said we used the manufacturers recommended test equipment on the breakers and observe switchboard parameters throughout the watch.)

Asked about enclosed space entry, (testing, comms, BA set etc. at entrance, wanted to hear about presence of toxic gas, explosive gas, and lack of oxygen.)
Asked if we had any anchors

OOW Class four questions 23/03/09

Watch keeping checks before taking over the watch

Check funnel emissions.

Check fresh water expansion tank, what is the purpose of the expansion tank? Checks to be made?

Check steering flat, what checks to be made? Would there be a problem with the steering gear pump motor running while in port?

Refrigeration flat, checks to be made? Describe a fridge system, how is the temperature controlled? What will the compressor cut out on?

Temperatures in refrigeration rooms? What would be the problem if the temperatures were to low?

Enter the engine room, checks on main engine, purifier room, what checks on purifiers? Why are the purifiers in a separate room to the engine room?

Checks on fuel tanks? What type of valve is fitted to dram the water from the fuel? Where would the water originate from?

Checks on generators and prime mover, if one prime mover trips on low L.O. pressure what will happen, what safety devices are fitted to prevent this from happening. What safety device is fitted to prevent the generator from tripping again once brought back online?

How to parallel generators? Draw the sinusoidal wave form to show this.

After inspecting bilges, level is found high, what would you do? Where are bilges pumped to?

After entering control room how would you know if an earth fault was apparent?

What is the engine room log? And what is there apart from the engine room log? What is entered into the blank spaces on the log book?

Where was your muster point in case of fire alarm? What would you need to do as the duty engineer if the fire alarm was activated?

Gas leak when discharging cargo (LPG) what would be your first actions? What must not be carried out in the engine room if a gas leak is apparent? Should all ventilation be shut off? What could possibly happen to the generators if they were?

Fixed fire system on deck?? What type?

(Duration of oral 60 minutes. *(Pass)*)

E.O.O.W. (ORAL.QUA) CL4

Students Name : Srinivasan Alagirinathan
Course : E.O.O.W.
Surveryors Name: Chowdhry
MCA : Aberdeen, 24th Oct. 2008 Time taken: 70 mins. Result: Pass.

Documents checks.

Company history and routes sailed on.

Talks on Experience and types of ships sailed on.

Taking over Engine Room Watch as EOOW.

What safety device do you have on the Air Vents?

What was your Economiser Steam Pressure?

Steering Gear checks before departure.

How do you burn waste oil in the Incinerator and how often do u burn rags?

What would you do if the Sewage plant was on Manual mode?

What are the causes for single unit exhaust high temperature and then for all units?

What is the temp. diff. between in and outlet of Air Cooler?

What is the type of manometer in air cooler and what is the normal pressure difference?

What is the cause for FWG shell temp high and how much is your FWG shell temp?

How would you check if the stern tube functioning perfectly?
How much is the Starting Current of a motor,How can you reduce starting current?

Draw the star-delta circuit?

What are the safeties on an Air compressor?

Paralleling of generators.

Bunkering Procedures.

How do you set the desludge timer?

What Is the cause of Purifier Over flowing?

How high temperature of oil affects Overflow?

If all bunker tanks are full which tanks would you use and why?

If all tanks are kept half what would happen?

What is Free Surface Effect?

What is Bilge keel and shear strake?

What is Risk Assessment?

What is SOPEP Plan?

What are the procedures for enclosed space entry?

In tankers,what is the relations of IG plant and Boilers?

What is the limit of the O2 content in IG and how do u obtain it?

What is air fuel ratio?

What is the action if the deck seal low level alarm activates?

(Duration 1 hr 10 Mins, Outcome – Pass)

Jack Bray O5NGA July 2006

Class 4 - oral questions

Describe walk round and checks made before taking over a watch:

- How do you know if emissions are from main engine, boiler generators?
- What does white smoke indicate?
- Checks made on a refrigeration system and ideal temperatures?
- Describe checks done at steering flat and draw diagram of steering gear system?

- What supplies the motors (MSB and ESB)? What else does emergency generator supply?

- Draw cross section of boiler and describe checks?

- Checks done on viscotherm? What does it do?

» What is stern tube head tanker for? Describe oil flow to stern tube?

- Checks done on generator? How do you synchronise a generator?

- Checks on purifier? Draw cross section of a purifier and describe how it works and how it is driven?

- Describe checks on main engine? OMD how does it work and what creates oil mist? (Worn piston rings allowing piston to rub on liner!!)

- Bilges: where are they pumped to? How does oily water separator work and what is filled in the oil record book?

- Earth fault: how do you find one? If on a motor how do you test for it?

- Full description of enclosed space entry procedure?

- How does intrinsically safe equipment work?

- Fire fighting equipment? Procedure for releasing CO2 (fixed system)?

- How do you identify a CO2 extinguisher from others? *(Red with Black panel, cone and thicker wall due to high pressure)*

- Fire fighting equipment on deck? *(Tanker - fixed foam monitors*)

    - how are they supplied?

- What lifeboats did I have? Equipment that may be found in a lifeboat? What would be taken as well - SART and EPIRB.

ORAL QUESTIONS MCA TYNE DOCK 05/07/2006

WHAT KIND OF SYSTEM DO YOU OPERATE ON UR SHIP? UMS

WHEN DOES YOUR WATCH START 8 am in the morning

TELL ME HOW YOU WILL TAKE OVER AN ENGINE ROOM WATCH ON YOUR SHIP

WHY ARE THEY TWO DIFFERENT WATER TANKS? DO THEY CONTAIN THE SAME WATER?
One is for the boiler and contains distilled water with no chemical added while the other is passed through silver ion and mineral treatment. The distilled is latter treated with chemical before going to the boiler.

HOW WOULD YOU CARRY OUT THE ENGINE ROOM ROUNDS I will start from the funnel

WHAT DO YOU SEE COMING OUT OF THE FUNNEL? Check for White or black smoke. White smoke means there could be too much air in the boiler or a safety valve has lifted. Black smoke means there is too much fuel.

WHAT DO YOU DO? Adjust the air flow to suit.

THEN THE EXHAUST FAN ROOM

WHAT DO YOU CHECK FOR? Leaks, air leak, irregular noise, check pneumatic valve for leaks

THEN DOWN AT THE DEAERATOR. WHAT DO YOU CHECK? Level, leak, tempt and pressure
WHAT ARE THE VALUES About 135 degrees and 2.8bar THAT IS ABOUT THE BOILING POINT

WHAT IS THE FUNCTION OF THE DEAERATOR? Removes oxygen and act as suction head for the boiler feed pump I will then check the FD fan.
WHAT ARE YOU CHECKING THE DROUGHT FAN FOR? Noise leaks, linkage & amps. Then check the incinerator for leaks.

THE INCINERATOR IS NOT WORKING BY THIS TIME. WHAT DOES IT BURN? Garbage and sludge

HOW IS THE SLUDGE BURNT It is transferred by a pump to a waste oil tank for burning.
Then I check the soot blower and down to the boiler firing platform.

WHAT DOES THE BOILER BURN?
It is dual fuel. (Oil and gas i.e. methane). I will check the rail temperature, leaks, fire, steam leaks etc

WHAT KIND OF FIRE DO YOU EXPECT TO SEE? Bright colour means its okay but dark means not!!!

WHAT WILL YOU CHECK ON THE FRIDGE COMPRESSOR ?
YOU CHECK? I will check the fridge system pressure, temperature.
Bearing temperature, pressure, flow through the glasses, steam leaks.

WHAT PREVENTS STEAM FROM COMING OUT OF THE TURBINE SHAFT END

DRAW A LABYRINTH

WHERE DOES THE STEAM COME FROM?

WHAT KIND OF CONTROL SYSTEM DO TOU HAVE ONBOARD FOR VALVES?

HYDRAULIC OR PNEUMATICS Pneumatics

TELL ME WHAT DO YOU CHECK ON YOUR COMPRESSOR? Leaks, level I will check the belt to see if it is wobbling.

HOW DO YOU CHECK THE BELT FOR BREAKS OR MARKS? IS IT
WHEN IT CUTS OUT THAT YOU QUICKLY CHECK IT? No I will check it when it is due for maintenance for safety reasons.

HOW DO YOU SEE WATER LEAKS ON THE COMPRESSOR? There is a drier set that dries the wet air. (Not sure about this answer) there is a transparent glass on the line that shows the flow.

WHAT INFORMATION NOTICES IS PUBLISHED BY THE MCA? WHAT INFORMATION DO THEY GIVE? MGN (BLUE) - advice and guidance MSN (WHITE) - laws which must be followed MIN (GREEN) - information like, exam dates, change of address etc

WHAT OTHER ONE?

HOW DOES THE EVAPORATOR WORK?

DRAW THE TYPE OF EVAPORATOR ON YOUR SHIP

WHAT DOES YOUR BOILER RATED AT 60BAR AND 5 l()°f OPFRA I'l
APART FROM THE MAIN ENGINE TURBINE? Turbine generator AND feed pumps.

RUN UP AND PARALLEL YOUR AUXILIARY TURBINE ALTERNATOR WITH THE ONE ONLINE AND SHUT DOWN THE OTHER. THE DIESEL IS PUT ON AS A BACKUP.
WHERE DOES THE TURBINE ALTERNATOR EXHAUST TO? The main condenser. By pass valve to main condenser is used to maintain the vacuum.

WHAT IS POWER FACTOR

IF THE SYNCHROSCOPE CLOSES AT 6 'O'CLOCK WHAT IS THE EFECT?

HOW DO YOU BRING A GENERATOR TO A DEAD SWITCHBOARD?

AS YOU ARE GOING ALONG IN THE ENGINE ROOM THEN AN EQUIPMENT THAT IS NOT PROPERLY FIXED TEARS YOUR OVERLLS. WHAT DO YOU DO?
I will isolate the area and inform the CHIEF ENG, SSO. I will also report it at the safety meeting.

WHAT IF THE CHIEF DOES NOTHING? Tell the SSO

WHAT OTHER THING COULD CAUSE SUCH A PROBLEM ONBOARD WHILE GOING ON ROUNDS Hot pipes!!!

WHAT IS DONE TO PROTECT HOT PIPES FROM CAUSING A FIRE? The lagging is made to withstand a very high temperature.

Bye.

(Outcome not given)

MCA CLASS 4 OOW QUESTIONS - David Angus

Watch handover

Funnel emissions - Black smoke, Blue Smoke, Steam.

Checks on incinerator and sludge tank?

Boiler - safety devices, alarms. What would you do if water drum level could not be verified? why should you check hotwell for oil?, where does it come from?

Alarms and trips on fridge compressors, can you check oil level when running?

Alarms and trips on Air compressors, why do you drain water from air receiver, what dangers could the oil pose

What checks do you perform on steering gear, how many pumps running - @ standby? @ full away?

Draw F.W.G, how does it work? what checks on system?

Syncronise a generator

Small engine fire what would you do? Small switchboard fire what would you do? What extinguishers would you use

High exhaust temp on one unit, why?

What checks are performed on G/E

Why is back pressure important on purifiers?, problems if incorrect?

Why are purifiers in separate compartment?

Checks on main engine?

What do you check in the control room?

What is a bilge keel?

What and where are collision bulkheads?

How are-frames-numbered and from where?

Earth fault on 220v system, what are most likely causes? How do you trace? Fault on 3 phase motor how do you check for earth fault

With diagram of terminals how to test insulation of motor? Acceptable limit?

Sketch 4-stroke diesel and 2-stroke heavy oil fuel systems showing expected temperatures and pressures.

Describe and explain quick closing valves.

Discuss the differences between the two types of fuel system

Describe how you would change over from HFO to DO and back stating dangers involved.

Explain the procedure for cleaning HFO filters whilst the engine is running.

Describe what a viscotherm is and how it works.

How do you know what temperature to maintain HFO at for pumping and combustion?

A unit on your engine has a knocking sound and high exhaust temperature what do you suspect the problem is?

Explain tappet clearances and state what effect too large or too small tappets has on the engine.

How do you re-time a 4-stroke engine. What are the problems involved in incorrect injection timing?

You are in charge of a bunkering operation what do you do and what checklists do you carry out?

What equipment is available at the connection. What fire fighting equipment is used?

Oil has spilled into the sea during bunkering. What do you do? Would you use oil dispersant chemical?

Explain what a syncroscope measures?

What would happen if the breaker was closed at 20 to 12 instead of 5 to 12?

Draw phasor diagrams to explain.

What switchboard safety device would operate and why?

Explain the actions you would take on noticing an earth fault.

If the fault was traced to a galley exhaust fan how would you go about checking the motor, -isolation etc.

Explain star and delta terminal connections.

Explain how you would carry out continuity resistance tests and insulation resistance tests on the motor. State expected values.

You are on the bottom plates when you notice that the bilge water is rising. What do you do?

Describe and explain the EBI.

What dangers are involved in the engine room?

(Duration 1 ½ hours – Result Pass)

Where does it exhaust to?

- Exhaust pressure?

- Why/whats the use of the exhaust steam? Hot filters?
- What do you check?
- What kind of filters?
- How are they cleaned?
- What safety features are on the filters?

Workshop What do you check?

- Safety features? Diesel generator room:
- What checks?
- How do you start diesel generator from cold?
- What check do you make when running/not running? Turbo Alternator:
- What do you check during rounds?
- Where does it exhaust to? Sewage plant:
- What checks?
- Explain how it works ._.,,,._•—Where-does-the-sewage-go to from accommodation?
- If you don't pump overboard what else can you do to it/
- Where can you store it? Gravity tank:
- Why?
- How do you check it?
- Explain how it works
- How do you know its full? Purifier/fuel oil room:
- Checks?
- What type of pump?
- What other kind of pump is positive displacement?
- How many bunker tanks?
- Where does the fuel oil pump take suction?
- Why not from the main bunker tanks?
- Why do we need settling tanks? Evaporators:
- Checks/
- Draw the evaporator system and explain Air compressor:
- What kind of air compressor?
- Safety devices?
- Why is there a relief valve?
- Temperature/pressure? Air dryer/bottles:
- What type of dryer?
- How does it work?
- Why is water bad in air?
- Whats the air for?

OOW III/l Oral 26/6/06
Questions based on 87,000dwt Bulk Carrier
Main Engine - Sulzer RTA58T-B

You have just come from your cabin to take over a watch. Take me from there on a walk round of the engine room.

Funnel - check smoke.

Enter through steering gear flat. What type of steering gear was fitted? What checks do you make on the steering gear? How many pumps are normally running when at sea? How many run on standby? Why?

Check fresh water tank levels. Up steps, into engine room.

Check air cylinders & drain any moisture. Where does the moisture come from? What safety devices are fitted to the cylinders? Where does the relief valve exhaust to? Up steps, check J.W. header tank. Back down, check boiler.

What are you checking for? How many gauge glasses are there? Are they at the same height? What do you check on the burner? When main engine is full away, how is the steam pressure controlled in the boiler while using the economiser?

Move to incinerator. What checks would you make? Check sludge tank. Where does the sludge oil come from? Check diesel oil service tank and drain any water.

What checks do you make to the purifiers? What would you do if you found something wrong?

Check F.O. mixing tank, viscotherm and flow meter. What is the mixing tank for? Where does the fuel oil return to from the main engine? Where would the flow meter be positioned? Why?

Go to generator flat. What checks do you make on running and stationary machinery?

Check domestic fresh water pumps. Explain system briefly. Why is there a UV filter in the system?

Go to compressors. What checks do you make? Can you check the oil while the compressor is running? What safety devices are fitted? What is the purpose of the bursting disc in the heat exchanger (C.W.)? What is fitted to prevent over-pressure?

Go to exhaust flat. Check injectors and exhaust valves. Why should the exhaust valve rotate?

Go down steps to check air cooler and turbo charger. What checks do you make? If there is a large diff. Pressure, how do you clean?

What is the purpose of the gravity tank fitted on this particular ship? What is different about the shaft bearings?

How does the air cooler maintain the correct temperature of the air in the scavenge space? What would be the effect if the air was too cold?

Move around to the fuel pumps and exhaust valve actuators. Make checks.

Check condition of primary bilge separating tank - drain water to the bilge holding tank & oil to the dirty oil tank.

Check sewage tank. What type of sewage tank was fitted? How is the air circulated in the tank? Is there any chemical dosing in the tank?

Check J.W. pumps and coolers. Check crosshead lube oil pumps.

Check L.O. cooler. What type of cooler was used?

Check fresh water generator. Ensure chemical dosing is correct (chlorine based chemical injection system on this model).

Check condenser and hot well tank. What checks do you make? Where is the hot well tank filled from? What should you look for particularly on the surface of the water?

Move down steps to the tank top.
Check stern tube. What is the stem tube for? How does it work? What is fitted between the stern tube and thrust block and what checks would you make to it? What is the function of the thrust block?

What checks would you make around the main engine on the tank top? What is the purpose of the relief valves on the crankcase doors? What type of pump is used for the main engine lubrication system? What other pumps do you have on the vessel?
Why does the bilge pump have to be of positive-displacement type.
What type of pump is the fuel oil transfer pump? How would you pump the contents of the bilge holding tank overboard? What other activities are recorded in the oil record book?

Go to the control room. What legal document would you need to check?

What other factors do you need to consider when taking over the watch?

On the switchboard, what functions are displayed (voltage, frequency, power etc.)?

What state should the earth lamps be in normally?

With the aid of a diagram, show how you would check the insulation of a motor.

What fire fighting equipment was available in the engine room?

You come to the generator flat and find a generator is on fire. What do you do?

What fire fighting equipment is available for use in the engine control room?

(Duration and Outcome not given)

TRANSCRIBED VERBATIM – ANSWERS ARE NOT NECESSARILY COMPLETE OR CORRECT.

Class 4 EOOW 22/06/09 Candidate C. Thangasthan
Examiner David Angus Tynedock MCA

Asked about the ship that I sailed.

What will you check for the funnel ?

How will you <*check ?*> oil in the A/C Compressor ?. Will you use dipstick ?. (*No dipstick, only through sightglass.)*

Coming to L.T. and H.T. Tank
What will you check in the H.T. Tank ?
(For level, vapour release and gas release)

Other uses for the H.T. Tank ?
(For compensate water loss and give positive pressure to the pumps.)

Coming to the boiler, what will you check ?
(Check the level, check for any leakages, check for any gas leakages near and around the exhaust gas boiler.)

If the boiler water level is reducing, what will you do ?
(Check for boiler blowdown valve in closed position.
Check for feed valve open.
Check for feed pump running, check hotwell and filter.

Again he told, even though it is reducing ?
(*Then I will change over the pump)*

Still it is reducing ?

(I will inform the bridge and reduce the engine speed to reduce the temperature so that the evaporation rate will reduce. Now we can investigate the problem).

What is the other maintenance you can carry out on Exhaust Gas Boiler ?
(Soot Blow, Chemical or Steam Blow)

If the boiler pressure is going on raising how you control ?
(By opening the dump condenser valve)

(Then I go the generator platform).
How you will start generator and take on load and run in parallel to run with other generator ?.

Purifier and what you check ?.

Draw purifier cross-section and show the interface ?

Then to the M.E. Cylinder head.
If one unit exhaust gas is high, what is the reason ?

Reason for maintaining the Air Cooler temperature in M.E. ?

What is the presence of lubricator in M.E. and why the lubricator is absent in generator ?

What will you check in Hotwell Observation Tank ?

What are the safeties in Air Compressor ?

Advantages for Plate type coolers compared with tube type coolers ?.

Causes for scavenge fire ?

If you are working in workshop then how you will know scavenge fire has taken place ?
(T/C Surge)

What is the action for the above question ?
(Inform Bridge, reduce r.p.m. to D. Slow, increase cylinder lubricator. Cut off fuel to that particular unit).

Then he asked even though it is continuing, what will you do ?.
(Stop the engine and fixed CO_2 for scavenge, but he was not satisfied)

What is the temperature of CO_2 ?.
(It is low temperature).

Then he told you use low temp CO_2 in high temp engine what will happen ?.
(I reply crack may take place)

Then what will you do ?
(I answered I will keep the engine in stop and keep it ideal for the fire to be extinguished by itself. After that we open and check).

Causes for crankcase explosion. What is the safety equipment fitted ? And how it works ?.

Type of pump in main cool sea water pump and why ?

One of the sea water line burst what is your action ?.

How will you empty the Aft bilge ?.
(Line Diagram)

Types of fire extinguisher in engine room ?.
(CO_2, Foam, Dry Powder)

Which extinguisher is harmful for you ?
(CO_2)

For oil fire what will you use ?.

(Duration and Outcome not given)

TRANSCRIBED VERBATIM – ANSWERS ARE NOT NECESSARILY COMPLETE OR CORRECT.

Class 4 EOOW 30/06/09 Candidate C. Thangasthan
Examiner David Angus Tynedock MCA
Time 15:30 to 16:35 1hr 05 mins Result – Pass

All documents , MNTB books checked.

What is your last ship ?
(L.P.G.)

What system you follow ?.
(UMS)

As duty engineer how you will manned engine room procedure ?.
(Same procedure i.e. how you will take over watch).

When taking round following questions he asked.

Funnel different types of smoke and indication.

Spark is coming from funnel how you will deal with that.
(Explain about soot fire).

A/C and Refrigeration checks, draw the diagram of refrigeration system and explain how various temperature maintain.
(Fish, Meat, Veg, Lobby).

How this different temp. cut out. Explain the cutout system with your same diagram which u draw.

What type of boiler u have.
(Composite)

When main engine is FULL AWAY How your composite boiler system work, explain with diagram of differentiate Boiler and economizer how excess steam adjusted.
Incinerator , what U R burning, how records are kept, in which book ?.
(Oil Record Book).

What other records are kept in Oil Record Book ?.

Purifier Room, what are the checks ?.

Explain how purifier is working, with diagram.

What is interface ?

How you will achieve selection of the Gravity Disc ?

Desludge Timing – On what factors you decide.

F.O. Service and Settling Tank drain. If more water in Service Tank give reasons.

M.E. Cylinder Head Platform what R the checks.
(Exh Temperature, Air Cooler press drop, T/C pressure drop.

Explain leaking of air start valve symptoms and risk.

What safeties U have in UR ships to prevent air start leaking (hot gases.)

M.E. Jacket Cooling System, my ship Central Cooling System. i.e. H.T. and L.T.

Explain the system.

Chemical adding for J.C.W. , what is the purpose ?.

Generator Platform checks. What R the safeties ?

What safeties in main electrical panel box ?.

Explain reverse power trip.

If M/E air coo,ler pressure drop showing more reading what is UR action ?.

Air compressor checks, safeties, starting procedure.

F.W. generators, all Temp, starting procedure, water sterilization of UR ship, explain.

Explain M.E. cooling system.

Mist detector, explain with diagram.

Crank case explosion, sketch crank case explosion relief door.

What is UR M/E 2 stroke/4 stroke.
(2 stroke)

Draw 2 stroke tining diagram.

Fire fighting systems of UR ships ?.

Expalin microfog system, how U will operate.

D.C.P. & CO_2 portable extinguishers what R the contents in it ?.

UR ships lifeboat what R the things available in lifeboat ?.

UR ship is on fire, what systems U have in UR lifeboat tp pass through that dangerous zone ?.
(Enclosed lifeboat with sprinkler system)

Result – Pass, Duration 1 hr 5 mins)

TRANSCRIBED VERBATIM – ANSWERS ARE NOT NECESSARILY COMPLETE OR CORRECT.

MCA Oral Questions April 2009

2 hrs arrival notice ?.

Start of generator & parallel to busbar ?.

What will happen if the governor control knobs (freq) of incoming generator is kept on raising ?.

Generator on fire, what action to be taken ?.

Auxiliary boiler start up procedure from cold condition.

Boiler burner how it operates ?.

Fresh water generator stopping procedure ?.

Air start compressor starting procedure ?.

Why drain air bottles ?.

As in charge carry out fire drill in engine room.

Stripping of motor ?.

Stripping of main sea water p/p.

Steering gear regulations.

Steering gear signal from bridge to steering gear room.

Duration not given, result - Pass

Tyne Dock 16/12/2009 Examiner : David Angus

Result – Pass.

1. What type of turbine had I sailed before ?
2. Preparation for a boiler survey – How to shut down 1 boiler.
3. Draw an E.S.D. III boiler
4. Inspection in the furnace, what are we looking for ?.
5. Risk assessment about the hazards of shutting down a boiler.
6. Asked about boiler mountings and safety valve, gauge glass. I explained the Consolidated safety valve and the advantages and operation of it.
7. Asked about superheater and attemperation.
8. Draw 60 bar steam line to main turbine.
9. How to maintain circulation in superheater when M/E shut down.
10. Draw a main turbine layout.
11. Explain about manoeuverung valve construction and hhow to control the steam to the turbine.
12. Emergency running.
13. Bled steam, how many and which stages.
14. Asked tro explain about Astern Guardian valve and operation. (Servo Oil)
15. Astern Spray ? – before or after turbine ?
16. Ship entering port – T/A no voltage – Why ?
17. Draw AVR and explain its operation.
18. Is there any way to get excitation if no AVR ?. (Iexplained about injecting d.c. using a battery.
19. Asked about last ship's fire fighting system ?
20. I told him hot foam – was having a chat about this because he said he had never heard of it.
21. How much foam in the tank ?
22. Tests to be carried out on the foam ?
23. Inert gas lines from boiler to tanks – safety systems ?.

NO MORE QUESTIONS.