**ENGINEERING AUDIT FORM**

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| --- | --- | --- | --- | --- |
| Vessel: |  |  | Period : |  |
| Name of Auditor: |  |  | Port/Voyage : |  |

| **Rating Matrix** | | | |
| --- | --- | --- | --- |
| **Rating No.** | **Explanation** | **Rating No.** | **Explanation** |
| **5** | Exceeds company standards and expectations | 2 | Not compliant, risk level requires remedial action |
| 4 | Compliant with company standards | 1 | Not compliant, risk level requires immediate action. Comment required with suggested remedial action. |
| 3 | Not compliant with company standards but compliant with minimum industry standards. Comment with justification/suggested area for improvement | N/A | Not Applicable |
| NS | Not Seen |  |  |

| **No.** | **Checks** | **Rating** | **Remarks / Observation** | **Reference Document** |
| --- | --- | --- | --- | --- |
|  | **Chief Engineer** |  |  |  |
| **1.** | **Operations** |  |  |  |
| 1.1 | Ability to take charge of engine room whilst manoeuvring in/out of port |  |  |  |
| 1.2 | Ability to communicate instructions to engine room staff and bridge during manoeuvring |  |  |  |
| 1.3 | Ability to create work lists in consultation with Second Engineer and Chief Officer taking into operational requirements |  |  |  |
| 1.4 | Ability to ensure that all safety requirements and procedures are followed with the use of JHA where necessary |  |  |  |
| 1.5 | Ensure that Oil Record book is completed correctly |  |  |  |
| 1.6 | Taking part in daily work meetings |  |  |  |
| **2.0** | **Main/Aux Engines** |  |  |  |
| 2.1 | Ability to take power calculations and make necessary adjustments and changes to engine settings |  |  |  |
| **3.0** | **Emergency and Safety Systems** |  |  |  |
| 3.1 | Demonstrate the ability to activate the fixed fire extinguishing system covering various areas including the deck foam |  |  |  |
| 3.2 | Demonstrate a knowledge of the different electrical preference trips and the circuits involved |  |  |  |
| **4.0** | **Administrative** |  |  |  |
| 4.1 | Print current status of planned maintenance system and review number of overdue jobs |  |  |  |
| 4.2 | Ability to create a defect report in the Bassnet. |  |  |  |
|  | **Second Engineer** |  |  |  |
| **1.0** | **Operations** |  |  |  |
| 1.1 | Ability to take responsibility of engine room in the absence of the Chief Engineer |  |  |  |
| 1.2 | Ability to make a daily work list, delegate work to the engine room staff and ensure that work is completed correctly and recorded in the maintenance system with spares used |  |  |  |
| **2.0** | **Main/Aux Engines** |  |  |  |
| 2.1 | Ability to take power calculations for a running main or auxiliary engine and indicate any changes required to engine settings |  |  |  |
| 2.2 | Test the over-speed function of main engine |  |  |  |
| 2.3 | Manoeuvre main engine from emergency stand (If in port turn main engine on air from this position) |  |  |  |
| 2.4 | Knowledge of the main engine bridge control system and evidence of fault finding ability |  |  |  |
| **3.0** | **Cargo System** |  |  |  |
| 3.1 | Calibrate the inert gas fixed oxygen analyzer |  |  |  |
| 3.2 | Test cargo or ballast pump trips, preferably cargo pumps, if all in use then ballast pump can be tested |  |  |  |
| **4.0** | **Boiler and Steam Systems** |  |  |  |
| 4.1 | Test the boiler trips and alarms |  |  |  |
| 4.2 | Knowledge of the boiler combustion control system and evidence of fault finding ability |  |  |  |
| **5.0** |  |  |  |  |
|  | Operate quick closing valves, those required for operation may be disconnected prior to testing |  |  |  |
|  | Display knowledge of the means of testing the various types of fire/smoke detector on board and show records of tests |  |  |  |
|  | Start inert gas system and show knowledge of the means of testing alarm and trips |  |  |  |
| **6.0** | **Administrative** |  |  |  |
|  | Locate work schedule for coming month in the planned maintenance system. Verify that there are no overdue jobs |  |  |  |
|  | Indicate work plan for port stay |  |  |  |
|  | Display knowledge of the means of creating a work request and how to complete it |  |  |  |
| **7.0** | **Electrical** |  |  |  |
|  | Understand electrical starter diagrams and recognize the various components |  |  |  |
|  | Understand electronic logic circuits. Identify logic gates and show an understanding of their function |  |  |  |
|  | **Third Engineer** |  |  |  |
| **1.0** | **Workshop Ability** |  |  |  |
| 1.1 | Ability to sharpen lathe tools and turn a thread on the lathe |  |  |  |
| 1.2 | Demonstrate the ability to carry out both electric arc and gas welding |  |  |  |
| **2.0** | **Electrical** |  |  |  |
| 2.1 | Isolate an electrical circuit and measure insulation resistance |  |  |  |
| 2.2 | Ability to recognize the difference between AC/DC circuits and provide examples where they would be used onboard the vessel |  |  |  |
| 2.3 | Manually parallel two generators and equalize the load then take the original machine off load |  |  |  |
| 2.4 | Load test of the emergency generator |  |  |  |
| 2.5 | Understand electrical diagrams and recognize the basic components |  |  |  |
| 2.6 | Align an electrical motor and pump |  |  |  |
| 2.7 | Demonstrate an ability to use the portable electrical instruments |  |  |  |
| 2.8 | Ability to use the pressure and temperature calibration equipment |  |  |  |
| **3.0** | **Auxiliaries** |  |  |  |
| 3.1 | Isolate and open up a fuel oil filter for cleaning, on completion of cleaning prime filter and place into service without causing a pressure surge |  |  |  |
| 3.2 | Operate the oily water separator and correctly pump bilges overboard. Understand the correct procedure and Marpol requirements |  |  |  |
| 3.3 | Transfer sludge to the incinerator tank and operate the incinerator |  |  |  |
| 3.4 | Isolate and open up main seawater suction strainer taking into consideration all safety precautions |  |  |  |
| **4.0** | **Boiler and Steam Systems** |  |  |  |
| 4.1 | Display knowledge of correct method for checking boiler water gauge glasses |  |  |  |
| 4.2 | Ability to check the differential cell unit for transmitting a signal to remote the indicators |  |  |  |
| 4.3 | Demonstrate or describe the procedure to isolate a section of the steam system and after ensuring system is depressurized repack a valve gland |  |  |  |
| **5.0** | **Emergency and Safety Systems** |  |  |  |
| 5.1 | Operate a water, dry powder or foam extinguisher and recharge after use. Display knowledge of where the extinguisher would be used |  |  |  |
| 5.2 | Operate emergency steering gear maintain communication with the bridge |  |  |  |
| 5.3 | Test the steering gear alarms including single phase and overload alarms |  |  |  |
| 5.4 | Indicate the location of emergency stops |  |  |  |
| 5.5 | Start the inert gas system, carry out adjustment of the oxygen percentage level. Display knowledge of the positions of all valves in the engine room before and after system has been started |  |  |  |
| **6.0** | **Administration** |  |  |  |
| 6.1 | Locate the work schedule for the coming month in the planned maintenance system. Verify that there are no jobs outstanding more than one month |  |  |  |
| 6.2 | Display knowledge of the means to make a work request and the method to complete that request |  |  |  |
| 6.3 | Display knowledge of the means of ordering spare parts. Demonstrate how to print out an inventory of item machinery under his control. Check any three items to ensure inventory is correct |  |  |  |
|  | **Fourth Engineer** |  |  |  |
| **1.0** | **Workshop Ability** |  |  |  |
| 1.1 | Ability to sharpen lathe tools and turn a thread on the lathe |  |  |  |
| 1.2 | Demonstrate the ability to carry out both electric arc and gas welding |  |  |  |
| **2.0** | **Electrical** |  |  |  |
| 2.1 | Isolate an electrical circuit and measure insulation resistance |  |  |  |
| 2.2 | Ability to recognize the difference between AC/DC circuits and provide examples where they would be used onboard the vessel |  |  |  |
| 2.3 | Manually parallel two generators and equalize the load then take the original machine off load |  |  |  |
| 2.4 | Load test of the emergency generator |  |  |  |
| 2.5 | Demonstrate an ability to use the portable electrical instruments |  |  |  |
| 2.6 | Demonstrate a knowledge of the risks associated with electricity and an awareness of relevant precautions |  |  |  |
| **3.0** | **Auxiliaries** |  |  |  |
| 3.1 | Isolate and open up a fuel oil filter for cleaning, on completion of cleaning prime filter and place into service without causing a pressure surge |  |  |  |
| 3.2 | Operate the oily water separator and correctly pump bilges overboard. Understand the correct procedure and Marpol requirements |  |  |  |
| 3.3 | Transfer sludge to the incinerator tank and operate the incinerator |  |  |  |
| 3.4 | Isolate and open up main seawater suction strainer taking into consideration all safety precautions |  |  |  |
| **4.0** | **Boiler and Steam Systems** |  |  |  |
| 4.1 | Display knowledge of correct method for checking boiler water gauge glasses |  |  |  |
| 4.2 | Ability to check the differential cell unit for transmitting a signal to remote indicators |  |  |  |
| 4.3 | Demonstrate or be able to describe the procedure to isolate a section of the steam system and after ensuring system is depressurized repack a valve gland |  |  |  |
| **5.0** | **Emergency and Safety Systems** |  |  |  |
| 5.1 | Operate a water, dry powder or foam extinguisher and recharge after use. Display knowledge of where the extinguisher would be used |  |  |  |
| 5.2 | Operate emergency steering gear maintain communication with the bridge |  |  |  |
| 5.3 | Test the steering gear alarms including single phase and overload alarms |  |  |  |
| 5.4 | Indicate the location of emergency stops |  |  |  |
| 5.5 | Start the inert gas system, carry out adjustment of the oxygen percentage level. Display knowledge of the positions of all valve in the engine room before and after system has been started |  |  |  |
| **6.0** | **Administration** |  |  |  |
| 6.1 | Locate the work schedule for the coming month in the planned maintenance system. Verify that there are no jobs outstanding more than one month |  |  |  |
| 6.2 | Display knowledge of the means to make a work request and the method to complete that request |  |  |  |
| 6.3 | Display knowledge of the means of ordering spare parts. Demonstrate how to print out an inventory of an item machinery under his control. Check any three items to ensure inventory is correct |  |  |  |
|  | **Electrical Officer** |  |  |  |
| **1.0** | **Electrical** |  |  |  |
| 1,1 | Demonstrate a knowledge of the risks associated with electricity and an awareness of relevant precautions |  |  |  |
| 1.2 | Understand power distribution systems and emergency operating procedures |  |  |  |
| 1.3 | Indicate the means of carrying out a load test of the emergency generator |  |  |  |
| 1.3 | Understand electrical starter diagrams and recognize the various components |  |  |  |
| 1.5 | Demonstrate a knowledge of the preference trip and emergency stop circuits and the components attached to each circuit |  |  |  |
| **2.0** | **Instrumentation and Automation** |  |  |  |
| 2.1 | Demonstrate means of testing pressure and temperature transmitters |  |  |  |
| 2.2 | Demonstrate the means of adjustment of the remote boiler water level transmitter |  |  |  |
| 2.3 | Demonstrate the method of testing different types of alarms and trips |  |  |  |
| 2.4 | Understand electronic logic circuits. Identify logic gates and show an understanding of their function |  |  |  |
| **3.0** | **Administration** |  |  |  |
| 3.1 | Locate the work schedule for the coming month in the planned maintenance system. Verify that there are no jobs outstanding more than one month |  |  |  |
| 3.2 | Display knowledge of the means to make a work request and the method to complete that request |  |  |  |
| 3.3 | Ability to ensure that work permits are correctly completed and filed |  |  |  |
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| **Auditor - Brief Summary of the overall audit and recommendation** |
| **Comments:** |
| **Observations:** |

Notes: 1. Audit is to be conducted by Auditor at least once every 12 months.

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| **Name of Auditor:** |  |  |  |
| **Signature:** |  |  |  |
| **Date:** |  |  |  |