This report is the National Regulator’s preferred method for surveyors to monitor and record the *initial construction or alteration – machinery and engineering* survey. It is a minimum set of information expected by the National Regulator, it is not intended to be an exhaustive list.

**Survey Details**

Vessel name Unique identifier

|  |  |  |
| --- | --- | --- |
|       |  |       |

Details and serial number of main engine(s) Name of Surveyor

|  |  |  |
| --- | --- | --- |
|       |  |       |

**Result - In order (Y) / Not In order (N) / Not Applicable (NA**

**Bilge System**

|  |  |  |  |
| --- | --- | --- | --- |
| **Item** | **Survey checks** | **Y/N/NA** | **Surveyor Comments/ drawing / document reference** |
| Bilge pump number, type and capacity  | Confirm pump design requirement Confirm pump specification is suitableVerify / inspect pump/s are installed Retain record of compliance | choose |       |
| Bilge system piping | Confirm piping design material diameter and thickness requirement Confirm pipe material specification is suitableVerify pipes are installed as per design | choose |       |
| Flexible hose installations | Determine minimum bend radius and maximum lengthsMeasure installed bend radius and lengthsConfirm correct pipe terminations | choose |       |
| Bilge system arranged to prevent back flooding | Confirm back flooding design requirementVerify / inspect installation | choose |       |
| Bilge suctions arrangement | Confirm bilge suction design is arranged to facilitate drainage of water over a range of heelsVerify / inspect installation | choose |       |
| Drive mechanism for pumps are guarded | Inspect guards are in place and suitable | choose |       |
| Bilge suction strainer (for vessels ≥ 20m) | Inspect bilge suction pipes are fitted with a mud box, strum box or strainer | choose |       |
| Bilge Manifold with non-return valves (for vessels ≥ 25m) | Confirm design requirementVerify / inspect installation | choose |       |

**Inlets & Discharges**

|  |  |  |  |
| --- | --- | --- | --- |
| **Item** | **Survey checks** | **Y/N/NA** | **Surveyor Comments/ drawing / document reference** |
| Arrangement and type of inlet and discharge valves or cocks  | Confirm inlet and discharge valve design requirementVerify / inspect installation for correct type and arrangement | choose |       |
| Valves and cocks material | Confirm required valve material (bronze, ductile steel or equivalent specifications)Verify / inspect valves installedRetain record of compliance | choose |       |
| Valves greater than 50mm bore are flanged type | Verify valves greater than 50mm bore are flanged type | choose |       |
| Stand pipes are at least 1.25 times the required thickness of the hull plating | Confirm design requirementVerify / inspect installation | choose |       |
| Sea inlet gratings | Confirm design requirement for removable gratings for sea inlets Verify / inspect gratings are fitted on the outside of all seawater inlets | choose |       |

**Fuel Systems**

|  |  |  |  |
| --- | --- | --- | --- |
| **Item** | **Survey checks** | **Y/N/NA** | **Surveyor Comments/ drawing / document reference** |
| Non-portable tank location | Verify fuel tanks are located, not over accesses, hot surfaces, electrical equipment or ignition surfacesVerify fuel tanks are adequately supported  | choose |       |
| Additional requirements for fuel with flashpoints less than 60ºC | Verify tank installation meets additional requirement for low flashpoint fuels (NSCV C5A 4.10) e.g. compartment etc | choose |       |
| Ventilation | Verify tank spaces are adequately ventilated to open airVerify each tank is fitted with a vent pipe, remote from tank space vent | choose |       |
| Fuel lines | Verify fuel lines are of the correct type and end fittings | choose |       |
| Fuel system electrical bonding | Verify metallic fuel system components are electrically bonded | choose |       |
| Remote fuel shut-off | Verify fuel shut off valve is correctly configuredWitness function test of fuel shut off valve | choose |       |

**Exhaust System**

|  |  |  |  |
| --- | --- | --- | --- |
| **Item** | **Survey checks** | **Y/N/NA** | **Surveyor Comments/ drawing / document reference** |
| Exhaust piping | Confirm piping specifications is suitableVerify / inspect installed piping | choose |       |
| Exhaust piping and silencers are water-cooled, shielded or insulated | Verify / inspect configuration installed | choose |       |
| Exhaust incorporates a riser or other device to prevent back flooding | Verify / inspect configuration installed | choose |       |
| Exhaust discharge arrangement | Verify / inspect discharge is fitted with a non-return valve, flap or other permitted arrangement  | choose |       |

**Monitors, Alarms and Shutdowns**

|  |  |  |  |
| --- | --- | --- | --- |
| **Item** | **Survey checks** | **Y/N/NA** | **Surveyor Comments/ drawing / document reference** |
| Vessel is fitted with essential monitoring instrumentation | Engine oil pressure Cooling water outletExhaust tempEngine gearbox oil pressureCharging rate of generator Battery meterEngine RPMRudder position indicator | choose |       |
| Bilge alarms | Confirm vessel is fitted with bilge alarms (as required) audible at the bridgeVerify alarm function in all compartments  | choose |       |
| Engine alarms | Verify vessel fitted with sufficient audible or visual engine alarmsEngine oil pressure Exhaust water outlet tempOther:       | choose |       |
| Remote shutdown of main propulsion engines  | Confirm design requirementVerify installation and function | choose |       |
| Any fuel transfer system(s) are fitted with a relief valve | Confirm design requirementVerify installation and functionRetain record of compliance | choose |       |
| Fuel transfer system(s) shutdowns  | Confirm fuel transfer system(s) have shutdowns both inside and outside the space containing the pumpVerify shut down function | choose |       |

**Identification of Machinery Controls and Equipment**

|  |  |  |  |
| --- | --- | --- | --- |
| **Item** | **Survey checks** | **Y/N/NA** | **Surveyor Comments/ drawing / document reference** |
| Bilge Manifold labelling (for vessels > 25m) | Verify marking / labelling is complete and appropriate | choose |       |
| Identification of piping, valves & cocks air pipes, vents & sounding pipes  | Verify marking / labelling is complete and easily identifiable by form, colour, symbol or word | choose |       |

**Compressed Air Systems**

|  |  |  |  |
| --- | --- | --- | --- |
| **Item** | **Survey checks** | **Y/N/NA** | **Surveyor Comments/ drawing / document reference** |
| Unfired pressure vessels design and, construction | Verify controls applied in design and manufacture and compliant with AS 1210 of Class rules | choose |       |
| Air compressor system relief valve  | Verify air compressor has suitably sized relief valve fitted and has current test certificateRetain record of compliance | choose |       |
| Compressor air cooler relief valve or safety diaphragm | Verify air compressor air cooler is fitted with a relief valve or safety diaphragm | choose |       |
| Pressure gauge is fitted between the air compressor after cooler and discharge | Verify a pressure gauge is fitted between the air compressor after cooler and system discharge | choose |       |
| Pressure piping used in compressed air systems  | Verify pressure piping meets the specifications of AS 4041 Retain record of compliance | choose |       |

**Hydraulic Systems**

|  |  |  |  |
| --- | --- | --- | --- |
| **Item** | **Survey checks** | **Y/N/NA** | **Surveyor Comments/ drawing / document reference** |
| Hydraulic pumps pressure relief protection | Verify hydraulic pumps have pressure relief fitted on the discharge side | choose |       |
| Hydraulic fluid specification  | Verify hydraulic fluid is non-flammable or has a flashpoint ≥ 157ºC | choose |       |
| Hydraulic hose specification | Verify hydraulic hoses comply with AS 3791Retain record of compliance | choose |       |
| Hydraulic piping specification | Verify hydraulic pipes comply with AS 3791Retain record of compliance | choose |       |
| Nylon Hydraulic tubing application | Verify Nylon hydraulic tubing is only used in hand hydraulic systems and is installed within the limitations of the standard | choose |       |

**Inboard Low Flashpoint Engine Installations**

|  |  |  |  |
| --- | --- | --- | --- |
| **Item** | **Survey checks** | **Y/N/NA** | **Surveyor Comments/ drawing / document reference** |
| Additional requirements for inboard engines operating on fuel having a flashpoint less than 60ºC | Verify engine installation meets additional requirement for inboard engines operating on low flashpoint fuels (NSCV C5A 2.14.3)  | choose |       |

**Refrigeration Systems**

|  |  |  |  |
| --- | --- | --- | --- |
| **Item** | **Survey checks** | **Y/N/NA** | **Surveyor Comments/ drawing / document reference** |
| Refrigeration system design and construction  | Verify refrigeration systems are designed, constructed and tested in accordance with AS/NZS 16771 & 16772Retain record of compliance | choose |       |
| Refrigeration machinery space ventilation | Verify spaces containing refrigeration machinery are ventilated to the outside air | choose |       |
| Refrigerated spaces alarm arrangement and test  | Verify refrigerated spaces are fitted with an alarm that can only be activated and cancelled from within the space and that is audible from outside the spaceWitness alarm function test | choose |       |
| Refrigerated space exit light and alarm in the event of power failure | Verify refrigerated space has means to locate exit and alarm in the event of power failureWitness exit light and alarm function test in dead ship scenario | choose |       |
| Refrigerated spaces door configuration | Verify doors to refrigerated spaces can be operated from both inside and outside the spaceWitness door emergency exit from inside space function test  | choose |       |

**Design approval compliance**

|  |  |  |  |
| --- | --- | --- | --- |
| **Item** | **Survey checks** | **Y/N/NA** | **Surveyor Comments/ drawing / document reference** |
| In accordance with approved plans | The vessel’s engineering systems are constructed in accordance with the approved plans and design documentation. | choose |       |

**Surveyor’s declaration**

I declare that:

* I have conducted survey(s) as indicated, of the above mentioned vessel, in accordance with the applicable standards as set out in Marine Order 503 Certificates of Survey, and that to the extent evident from the inspection/s carried out I am satisfied that the vessel meets the standards.
* I consent to the Australian Maritime Safety Authority using and disclosing the information provided in this form for purposes associated with the administration of the Marine Safety (Domestic Commercial Vessel) National Law Act 2012.
* I understand and acknowledge that the Australian Maritime Safety Authority, as the National Regulator, may ask that I provide any information or document that the National Regulator reasonably considers necessary in relation to this recommendation.

Signature of surveyor Date

|  |  |  |
| --- | --- | --- |
|  |  |       |