**Operations in Case of Bridge Equipment Failure**

This drill/ checklist may be laminated, posted for easy reference.

All navigating officers should be thoroughly familiar with the contingency measures applicable to various bridge navigational equipment, in case of their respective failure and in the overall effect on the navigation of the vessel. Such situation warrants that the actions required are carried out promptly.

This checklist should be used in the event of a failure to Radar/ ARPA/ Gyro/ GPS/ Navtex/ AIS/ VHF and Echo Sounder.

After a drill the effectiveness must be analyzed and a proper debriefing must be conducted with the ship staff.

Complete SM025D for Drill Scenario, Description, Debrief and Training as appropriate.

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| **Vessel:** |  |  | **Date:** |  |
| **Port / Location:** |  |  | | | |

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| **General Guidelines in Case of Equipment Failure** | | **Tick (√)** |
|  | Watch officer to notify Master and C/Eng (if applicable) |  |
|  | Adopt contingency measures immediately, (Example, switch over to back up systems, Radar, Gyro, GPS, ECDIS etc.) |  |
|  | Notify TCC via First Alert notification, |  |
|  | Follow trouble shooting procedures as per Makers equipment manual to identify the fault |  |
|  | Revisit and Amend passage plan, if the failure is impacting the passage |  |
|  | Obtain guidance from shore management and equipment Maker for remote trouble shooting and rectification procedures. If possible, repair by using shipboard spares. |  |
|  | Risk assessment to be completed and sent to MSD for approval. (if applicable) |  |
|  | Make appropriate logbook entries. Enter defect in PMS (defect reporting). |  |
|  | Notify Class /Flag State and Port authorities in consultation with MSD. |  |
|  | Confirm vessel is using at least two independent means to ascertain vessels position. |  |
| **Gyro Failure** | | **Tick (√)** |
|  | Observe magnetic compass heading, changeover to manual steering and steer by magnetic compass |  |
|  | Check for the possibility to change over to secondary gyro |  |
|  | Check for the possibility to use TMC (Transmitting Magnetic Compass), if available |  |
|  | Switch radars to “Head Up” display and commence manual radar plotting |  |
|  | Consider the effects of gyro compass failure on other navigational aids |  |
|  | Check compass error from Compass Error Book on each course |  |
|  | Verify magnetic compass error as soon as possible |  |
|  | If determining positions by radar, use cross point of 3-4 ranges than that of bearings. |  |
|  | Confirm alignment of all the gyro repeaters, if switched to the secondary Gyro |  |
|  | Ensure parallel indexing technique is deployed on the radars, if vessel is coasting |  |
| **RADAR / ARPA** | | **Tick (√)** |
|  | In case of one radar failure, confirm the performance of the Operational radar is as per Maker’s parameters. |  |
|  | Passage Plan updated/ amended. As far as practicable, wide berth to be given to all dangers including potential fishing areas and offshore traffic. Bridge team meeting carried out. |  |
|  | In case of ARPA failure, manual radar plotting is carried out. |  |
|  | AIS transceiver to be actively used for obtaining target information, BUT not to be used for collision avoidance. |  |
|  | In reduced visibility, dense traffic areas, sound and visual signaling equipment to be ready and used accordingly. |  |
|  | Requirement for additional look out while sailing in coastal/congested water or reduced visibility. |  |
| **GPS** | | **Tick (√)** |
|  | In case of one GPS receiver failure, confirm performance of Operational GPS is closely monitored as per Maker’s parameters. |  |
|  | Position monitoring sensor on ECDIS is manually changed over to Operational GPS. |  |
|  | In case of both GPS failure, manual position plotting using LOP to be implemented. (Celestial, Radar & Visual) |  |
|  | Radar over lay function to be utilized to ensure vessel is navigating safely. |  |
|  | GPS function from other equipment (AIS, SATC) to be utilized to compare position. |  |
|  | Possibility of Jamming and or spoofing must be considered as the reason for failure, if other vessels in the vicinity are experiencing similar issues. |  |
| **Navtex** | | **Tick (√)** |
|  | To obtain all applicable Navtex messages from official web site as mentioned in Digital ALRS Volume 5. |  |
|  | If unable to obtain relevant Navtex / Navarea messages, contact MSD |  |
|  | Obtain information from VTIS / Local authorities / Agents |  |
|  | Sat C fully functional and providing all Safenet messages |  |
| **Echo Sounder** | |  |
|  | Passage Plan updated and bridge team meeting carried out. Route amended to avoid passage transit away from navigational hazards/shallow water as much as practicable. |  |
|  | Where available, use doppler log on bottom track to get depth information. |  |
|  | Consider CATZOC on ECDIS & compared with charted depth. |  |
|  | The depth and sea room throughout the passage must be confirmed locally through agents and the pilots and compared with the charted depth. |  |
|  | Engine Room team must report any abnormal vibrations or noise if observed during the passage. Also, ME load is to be observed to check for any large variation indicating reduction in UKC. |  |
|  | Proper information exchange with pilot during pilotage to obtain local information and pilot's action during shallow water passage. |  |
|  | Transits through the shallow areas are planned at HW as far as possible to do so |  |
| **VHF** | | **Tick (√)** |
|  | In case of one VHF failure, confirm performance of Operational VHF closely monitored and as per Maker’s parameters. |  |
|  | Bridge team informed. Requirement for additional look out while sailing in coastal/congested water or reduced visibility. Limitation of responding and sending VHF DSC alert when navigating in Sea Area A1. |  |
|  | In case of both VHF unit failure, use of Lifeboat emergency VHF set to be considered. In such case VHF range is considerably reduced. |  |
|  | In case of independent VHF set provided in CCR, consider replacing same on bridge. |  |
|  | AIS message option to other vessels and VTIS to consider. |  |
|  | As far as practicable, wide berth to be given to all dangers including potential fishing areas and offshore traffic. |  |
| **AIS** | | **Tick (√)** |
|  | Bridge team informed. |  |
|  | Local VTIS monitoring AIS – Advance notification to the port and local authorities. All VHF notification to be carried out promptly. |  |
|  | Safety message to be broadcast on VHF at frequent intervals indicating AIS failure and any condition constrained by draft |  |
|  | Continuous radio watch to be maintained on VHF Ch 16 and relevant channels to each VTS sectors |  |
|  | Inform pilot during Pilot / master exchange information. AIS pilot plug not available. |  |

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| **Other actions if required:** | | | | | |
| **Drill Officer:** |  |  | **Master:** |  |
| **Signature:** |  |  | **Signature:** |  |