

Subject :

Failure of safety devices for main diesel engines and suitable emergency measures for addressing such failures

NKTECHNICAL INFORMATION

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To: Shipowners and Manufacturer concerned

Recently, an incident occurred in which the safety device of the main diesel engine on an NK classed ship failed when sailing through a narrow channel. The failure led to a shut down of the engine resulting in the ship drifting for about 45 minutes. Fortunately, it did not result in any serious casualties. However, it should be noted that the ship could not be controlled for a long time while passing through a narrow strait. For your reference, we would like to inform you of the state of affairs, cause of the trouble, and measures which can be taken to avoid such an accident. You are kindly requested to review this matter with care and take appropriate action accordingly.

The situation with regard to the drifting was as described below.

The safety devices transmitted a trip signal (engine stop signal) intermittently due to trouble with the electric power supply, and the engine was stopped. This also made it impossible to re-start the engine even at engine side and in spite of there having been no abnormalities found with the engine itself. The trouble with the power supply to the safety device was found to be caused by secular deterioration of electronic parts in the device, resulting in the output voltage of the power supply becoming unstable. This led to an error in the logic circuit of the safety device. As a result, a trip signal was outputted intermittently and the engine could not be restarted.

In the meantime Rules of Class NK for Automatic and Remote Control Systems was amended on 1996, that is, for the new built ship with class application dated on and after 1st July 1996, all safety devices of main engine are to be provided with override arrangement except the safety device for over speed and lubricating oil low pressure of main bearings and a thrust bearing. Therefore for most troubles of safety devices, shut down of main engine is able to be avoided by the mentioned override arrangement.

However, it should be borne in mind that trouble in which override arrangement do not function rarely happens. On the other hand, some electronic parts comprising remote control devices and safety devices used with main engines have a relatively short life. Consequently, it is important to carry out maintenance to ensure normal operating condition of such devices on a regular basis.

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Although it is assumed that you already perform such type of maintenance work on these systems, in view of the trouble mentioned above, we sincerely recommend that you should take the following actions whether the override arrangement is installed or not.

1. Periodic maintenance work on all such devices by the manufacturers or the like should be reliably enforced when appropriately convenient.
2. A suitable operating manual on emergency running methods should be prepared as one means of handling such problems in case of failure of the safety devices of the main engine.
3. Periodic enforcement of drills should be carried out in accordance with the manual.

Please feel free to contact the Machinery Department at the Head Office of the Society for further details at Fax. +81 3 5226 2024.

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