

MSF: Crankcase failure

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The Marine Safety Forum has published [Safety Alert 21-19](#) relating to a crankcase failure.

What happened?

A vessel suffered a crankcase failure on one of four diesel generators, which resulted in two small fires and excessive damage to the pistons, con-rods, and the engine block.

Fortunately, no personnel were injured during this event and due to the swift actions from the crew and additional barriers already in place, the situation was quickly and effectively controlled, and any potential secondary damage to surrounding machinery was prevented.

What went right?

- The vessel had plexiglass guards surrounding the diesel generators which meant that there was less secondary damage than normally results from these types of failures.
- No-one was working nearby – by design and planning. The Chief Engineer's standing orders required that no prolonged work scopes would be carried out alongside a running diesel generator.
- The Emergency Response Plan was effectively implemented by the well trained and drilled crew.

What went wrong?

After investigation, it was found that a main bearing had worn out. It had been very hot at some point.

When the main bearing cap was dismantled, the upper bearing was located in the bearing cap, with the result that the bearing had been turning on the crankshaft.

This blocked the lubrication hole on the main bearing, and the con-rod at one cylinder received its oil supply from this main bearing.

This meant that this cylinder con-rod also lost its oil supply. This was probably the main failure from the start.

The investigation also noted that:

- The diesel generator had recently undergone a major overhaul.
- The maintenance of the diesel generator was in order as per manufacturer's instructions.
- The running hours were well below manufacturer's guidance.

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