Auxiliary blower failure

21b

Marine Engine Accident Report

Reading for gist:

- Read the text below quickly (1 min) and say what happened in the above accident – in one single sentence

Auxiliary blower failure
MARS Report 200907

While approaching the pilot station of a port with a relatively difficult approach, the sudden failure of the main engine auxiliary blowers resulted in imminent danger due to the close proximity of rocky shoals. A Lloyd's open form (LOF) was signed in haste and salvage tugs were called for immediate assistance. A serious casualty was averted, the vessel anchored safely and both blowers were repaired with shore assistance.

On investigation, the following facts came to light. Both blowers had been used occasionally for several days prior to approaching port. This was due to insufficient scavenge pressure resulting from inferior fuel from one particular bunker tank. While trying out engines before entering port limits, no.1 blower bearings seized and the motor windings burnt out. At the same time, no.2 blower motor was checked and the insulation was observed to be zero. Despite this, the crew felt that the blower could be operated for the short distance to the berth and the master decided to proceed to embark the pilot with only no.2 auxiliary blower in operation.

Unfortunately, immediately after the pilot boarded, no. 2 blower motor also burnt out and vessel's main engine was immobilised, leading to an emergency situation.

Mariners should take note that the auxiliary blowers are meant to be used only during starting and low RPM manoeuvring, when the turbochargers cannot deliver the minimum required scavenge pressure to ensure efficient combustion. Should there be any need to use an auxiliary blower under normal sea speed, it is a definite indication of a fault in the scavenge system and immediate attention to identify and rectify this is needed. Auxiliary blowers are vital for main engine manoeuvring and their planned maintenance schedules should never be compromised.

Root cause

The crew grossly underestimated the risk involved in attempting to run the blower with zero motor insulation while proceeding to pick up the pilot in closed waters.

Vocabulary work

- Write down the **new words** from the text above and
- look these words up in an on-line dictionary

Write down at least six questions about the text below?

- Mariners should take note that the auxiliary blowers are meant to be used only during starting and low RPM manoeuvring, when the turbochargers cannot deliver the minimum required scavenge pressure to ensure efficient combustion.
- Should there be any need to use an auxiliary blower under normal sea speed, it is a definite indication of a fault in the scavenge system and immediate attention to identify and rectify this is needed.
- Auxiliary blowers are vital for main engine manoeuvring and their planned maintenance schedules should never be compromised.

Read the text for specific information:

1. What happend immediately after the LOF was signed?
2. Why had both blowers been used occasionally for several days prior to approaching port?
3. What was found about No 1 blower and No 2 blower?
4. Why did the master decide to proceed to embark the pilot with only No.2 auxiliary blower in operation?
5. What happened immediately after the pilot boarded?

Discussion

- What was the rooot cause of the accident?
- Your own comments?
- Any lesson to be learnt?

Design two MCT tests for the following text:

MCT 1. terms

MCT 2. sentences

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Unfortunately, immediately after the pilot boarded, no. 2 blower motor also burnt out and vessel's main engine was immobilised, leading to an emergency situation.

Making your own dictionary of technical terms

1. Single out 5 – 7 terms from the text which you think are most important for you as future marine engineer

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On investigation, the following facts came to light. Both blowers had been used occasionally for several days prior to approaching port. This was due to insufficient scavenge pressure resulting from inferior fuel from one particular bunker tank. While trying out engines before entering port limits, no.1 blower bearings seized and the motor windings burnt out. At the same time, no.2 blower motor was checked and the insulation was observed to be zero. Despite this, the crew felt that the blower could be operated for the short distance to the berth and the master decided to proceed to embark the pilot with only no.2 auxiliary blower in operation.

Unfortunately, immediately after the pilot boarded, no. 2 blower motor also burnt out and vessel's main engine was immobilised, leading to an emergency situation.

Underline the verbs in the following text:

While approaching the pilot station of a port with a relatively difficult approach, the sudden failure of the main engine auxiliary blowers resulted in imminent danger due to the close proximity of rocky shoals. A Lloyd's open form (LOF) was signed in haste and salvage tugs were called for immediate assistance. A serious casualty was averted, the vessel anchored safely and both blowers were repaired with shore assistance.

On investigation, the following facts came to light. Both blowers had been used occasionally for several days prior to approaching port. This was due to insufficient scavenge pressure resulting from inferior fuel from one particular bunker tank. While trying out engines before entering port limits, no.1 blower bearings seized and the motor windings burnt out. At the same time, no.2 blower motor was checked and the insulation was observed to be zero. Despite this, the crew felt that the blower could be operated for the short distance to the berth and the master decided to proceed to embark the pilot with only no.2 auxiliary blower in operation.

Unfortunately, immediately after the pilot boarded, no. 2 blower motor also burnt out and vessel's main engine was immobilised, leading to an emergency situation

Which **nouns** are used as object to the verbs underlined?

While *approaching* the **pilot station** of a port with a relatively difficult approach, the sudden failure of the main engine auxiliary blowers resulted in imminent danger due to the close proximity of rocky shoals. A Lloyd's open form (LOF) *was signed* in haste and salvage tugs *were called* for immediate assistance. A serious casualty was averted, the vessel anchored safely and both blowers *were repaired* with shore assistance.

On investigation, the following facts came to light. Both blowers *had been used* occasionally for several days prior to approaching port. This was due to insufficient scavenge pressure resulting from inferior fuel from one particular bunker tank. While *trying out* engines before entering port limits, no.1 blower bearings seized and the motor windings burnt out. At the same time, no.2 blower motor *was checked* and the insulation was observed to be zero. Despite this, the crew felt that the blower *could be operated* for the short distance to the berth and the master decided to proceed to *embark* the pilot with only no.2 auxiliary blower in operation.

Unfortunately, immediately after the pilot boarded, no. 2 blower motor also burnt out and vessel's main engine *was immobilised*, leading to an emergency situation

Find the subjects for the underlined verbs :

- While approaching the pilot station of a port with a relatively difficult approach, the sudden failure of the main engine auxiliary blowers resulted in imminent danger due to the close proximity of rocky shoals.
- A Lloyd's open form (LOF) was signed in haste and salvage tugs were called for immediate assistance.
- A serious casualty was averted, the vessel anchored safely and both blowers were repaired with shore assistance.
- On investigation, the following facts came to light.
- Both blowers had been used occasionally for several days prior to approaching port.
- This was due to insufficient scavenge pressure resulting from inferior fuel from one particular bunker tank.
- While trying out engines before entering port limits, no.1 blower bearings seized and the motor windings burnt out.
- At the same time, no.2 blower motor was checked and the insulation was observed to be zero.
- Despite this, the crew felt that the blower could be operated for the short distance to the berth and the master decided to proceed to embark the pilot with only no.2 auxiliary blower in operation.
- Unfortunately, immediately after the pilot boarded, no. 2 blower motor also burnt out and vessel's main engine was immobilised, leading to an emergency situation

Put the chunks of the sentences below in the right order

a. **Mariners should take note**
b. to ensure efficient combustion
c. to be used only during starting and low RPM manoeuvring,
d. that the auxiliary blowers are meant when the turbochargers cannot deliver the minimum required scavenge pressure

Put the chunks of the sentences below in the right order

- Should there be any need
- to use an auxiliary blower under normal sea speed,
- it is a definite indication of
- a fault in the scavenge system
- and immediate attention
- to identify and rectify this is needed.

Put the chunks of the sentences below in the right order

- should never be compromised
- auxiliary blowers are vital
- and their planned maintenance schedules
- for main engine manoeuvring

Jumbled sentences:
Put them in the correct order:

a. **While approaching the pilot station of a port with a relatively difficult approach, the sudden failure of the main engine auxiliary blowers resulted in imminent danger due to the close proximity of rocky shoals.**

b. Unfortunately, immediately after the pilot boarded, no. 2 blower motor also burnt out and vessel's main engine was immobilised, leading to an emergency situation

c. While trying out engines before entering port limits, no.1 blower bearings seized and the motor windings burnt out.

d. A serious casualty was averted, the vessel anchored safely and both blowers were repaired with shore assistance.

e. On investigation, the following facts came to light.

f. Both blowers had been used occasionally for several days prior to approaching port.

g. This was due to insufficient scavenge pressure resulting from inferior fuel from one particular bunker tank.

h. At the same time, no.2 blower motor was checked and the insulation was observed to be zero.

i. A Lloyd's open form (LOF) was signed in haste and salvage tugs were called for immediate assistance.

j. Despite this, the crew felt that the blower could be operated for the short distance to the berth and the master decided to proceed to embark the pilot with only no.2 auxiliary blower in operation.

Writing and speaking skills

1. **Individual work**: read the text of the accident once again

- make your notes, and
- write down the story of this accident in 200 words

2. **Pair work:** Using your notes tell the story of the accident to your partner

Damage to engine crankshaft and connecting rod
MARS Report 201044

The vessel was en route to a loading port, when the chief engineer commenced routine maintenance of no. 1 auxiliary engine, as per the maintenance programme. On opening the crankcase, a crack was found in no. 1 unit cylinder liner, from where jacket cooling water was found to be leaking into the crankcase. This liner was replaced by a spare one. Additionally, all the main bearings were found to be worn out excessively and these were also renewed from ship's spares. No. 5 unit crankpin bearing was found to be damaged and the ship's staff renewed this as well. However, no systematic investigation was made to ascertain the reasons for these serious defects. Ovality measurements for connecting rods or readings of the crankpins were not checked at this stage for any of the units, especially no. 5, the one with the severely damaged bearing.

- The engine was assembled and tested but had to be stopped immediately when loud knocking sounds were heard from the crankcase. On re-inspection, the newly fitted no. 5 crankpin bearing was found to have seized and the crankpin was deeply scored. Instead of conducting a proper investigation to determine the causes for the repeated failure of this bearing, the chief engineer attempted to 'repair' the crankpin by means of emery tape and files, which only caused more damage.
  At this stage, the chief engineer informed the office about the breakdown and repair work in progress. The office immediately instructed him to measure and report on the ovality of all connecting rod ends. These were all found to be beyond acceptable limits, thus all connecting rods were found unusable. As no. 5 crankpin was seriously damaged, the crankshaft was found beyond use and had to be scrapped.
- As a result of the ship's staff's not observing the maker's maintenance instructions and poor engineering practice, the company incurred an unplanned expenditure of nearly US$ 100,000.