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Vision and Mission

The aim of the Australian Transport Safety Bureau is to maintain and improve transport safety and public confidence through excellence in

- *independent investigation of transport accidents and other safety occurrences;*
- *safety data research and analysis; and*
- *safety communication and education.*

Investigating without systemic issues? –

A look at two helicopter accidents

AO-2009-031 – Collision with terrain 120 km west of Paraburdoo, WA

25 or 26 June 2009

VH-HXO, Robinson Helicopter Company R22 Beta II

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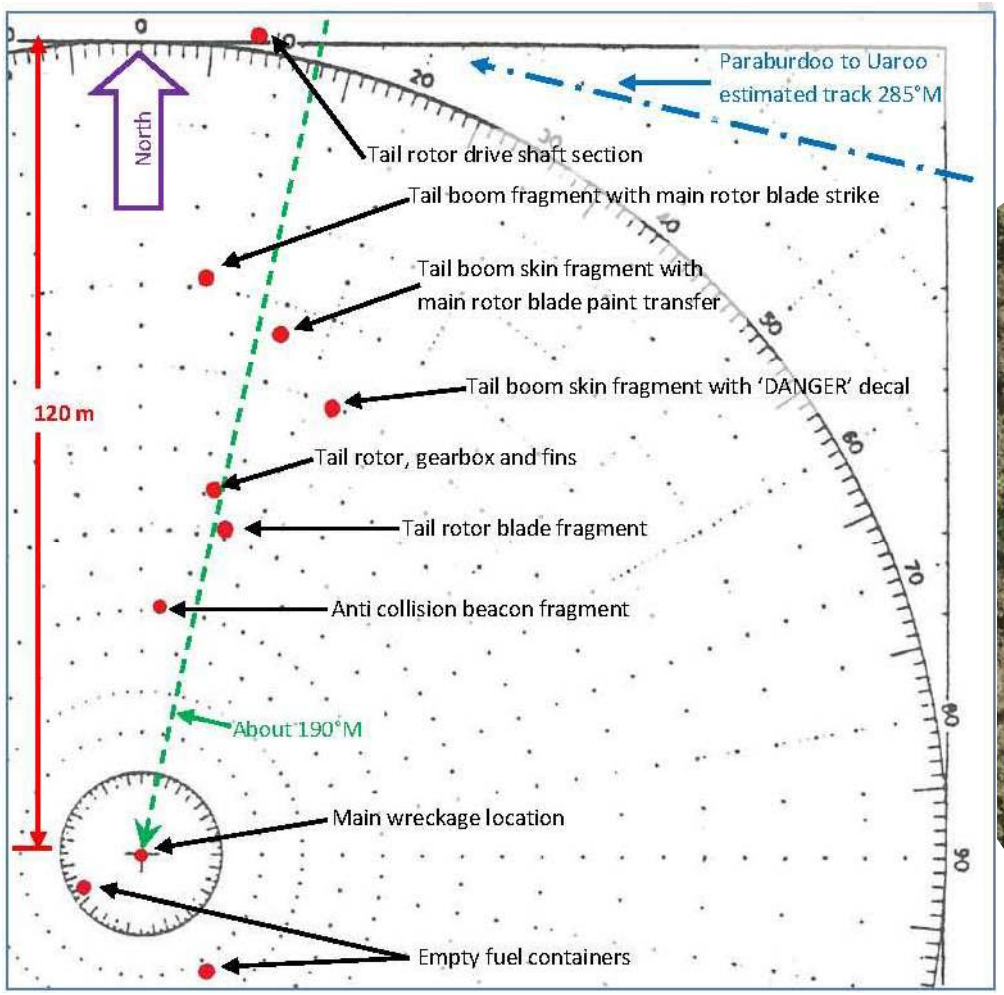
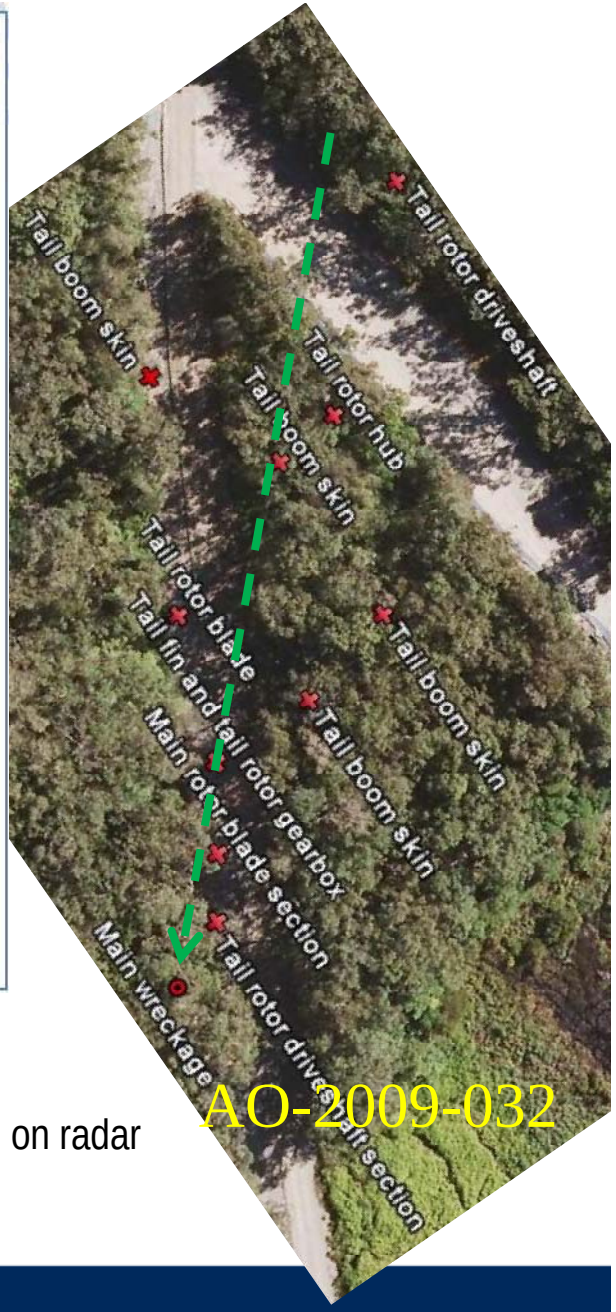
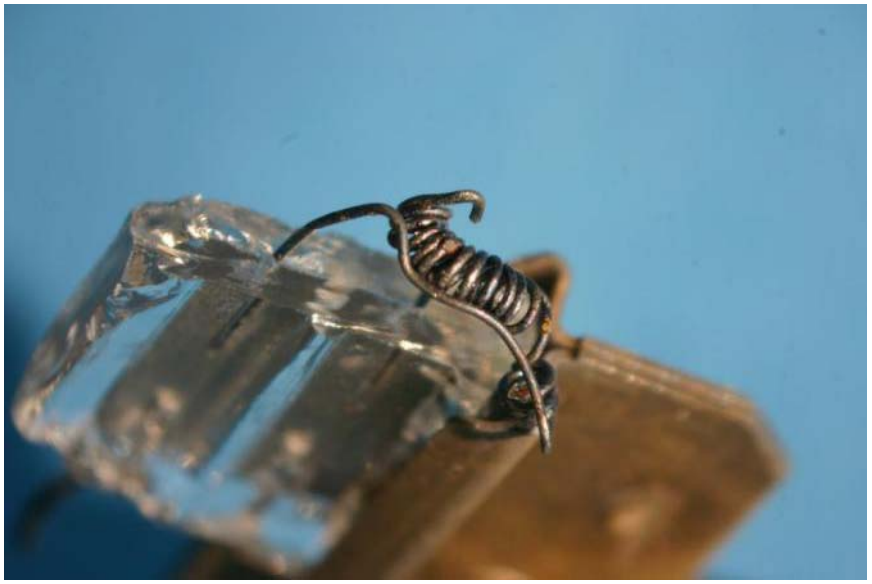
Wreckage Examination





AO-2009-032

- On track Paraburdoo to Uaroo
- Wreckage trail about 90 degrees to planned track
- Similar layout and length to VH-OML which was last observed on radar at 150' – Over control accident



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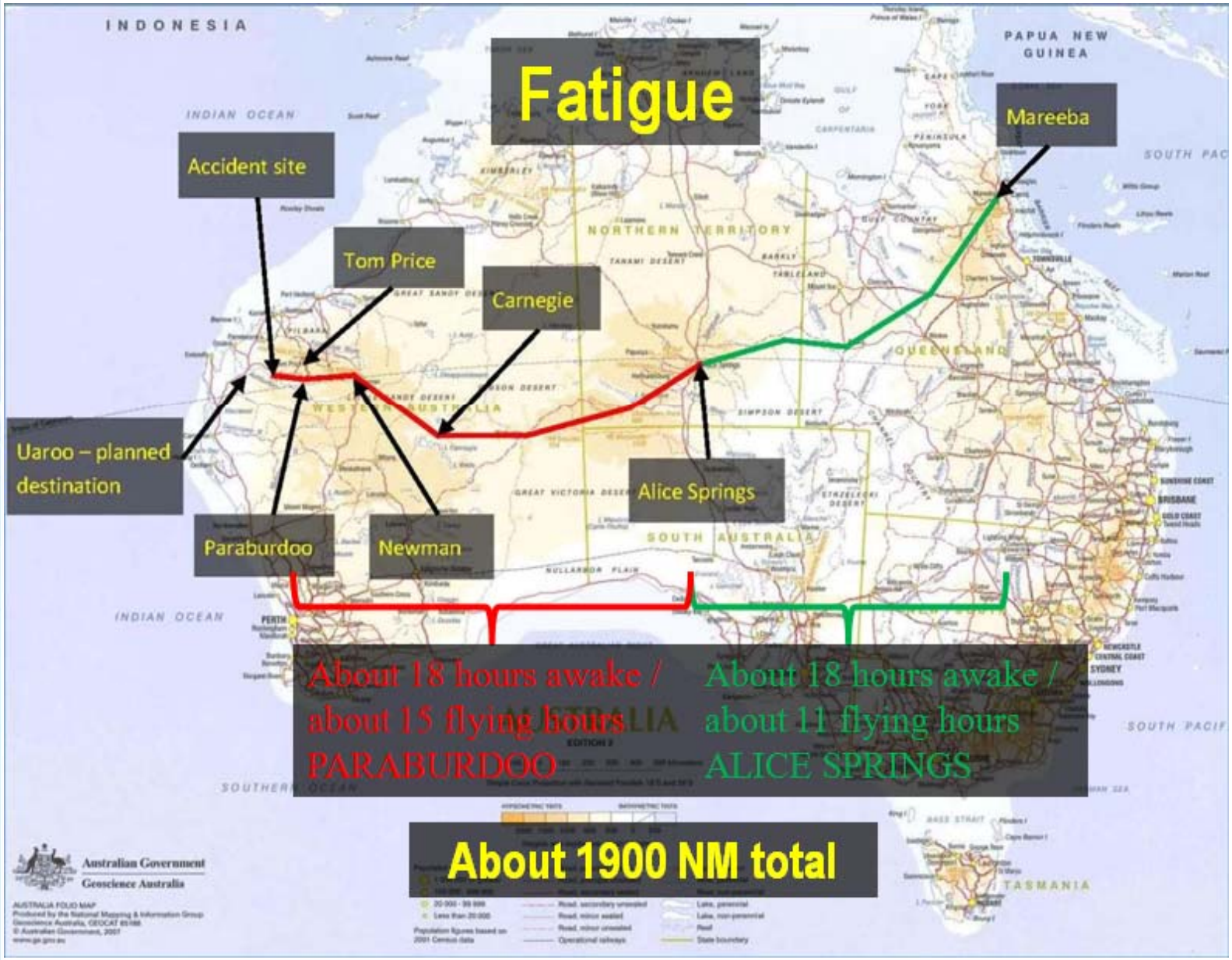
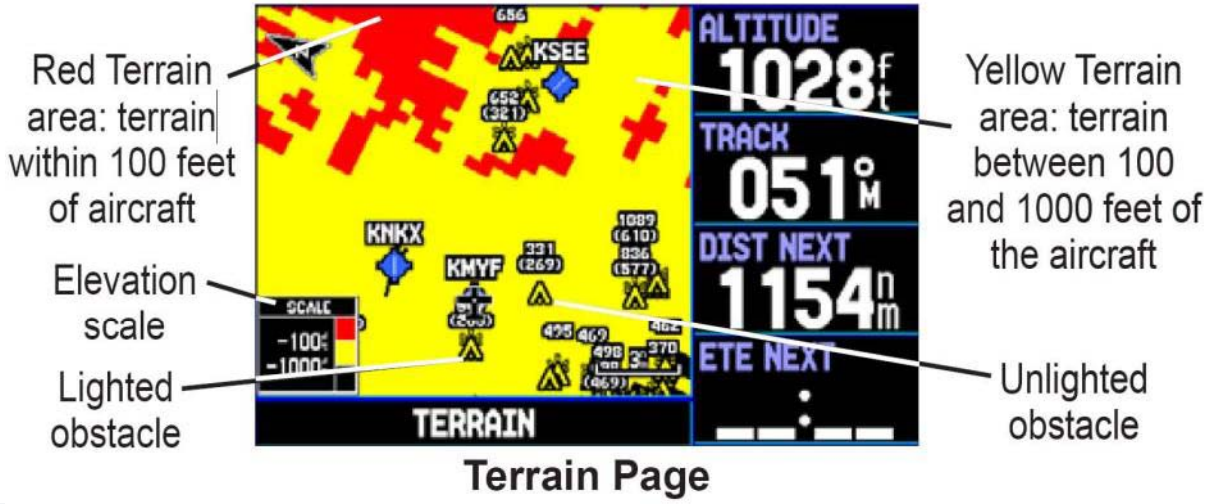

Fatigue
Accident site
Tom Price
Carnegie
Mareeba
Uaroo – planned destination
Alice Springs
Paraburdoo
Newman
About 18 hours awake / about 15 flying hours PARABURDOO
About 18 hours awake / about 11 flying hours ALICE SPRINGS
About 1900 NM total
INDONESIA
PAPUA NEW GUINEA
INDIAN OCEAN
NORTHERN TERRITORY
QUEENSLAND
SOUTH AUSTRALIA
TASMANIA
Australian Government
Geoscience Australia

Garmin GPS 296

Panel Page



Terrain Page

Engine rotation?

Figure 1:- Oil cooler mounted in position

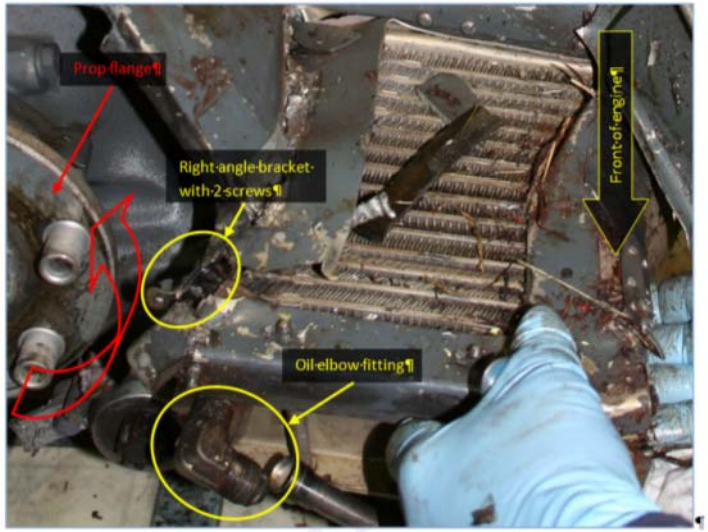


Figure 2:- Damage to oil cooler from ring gear

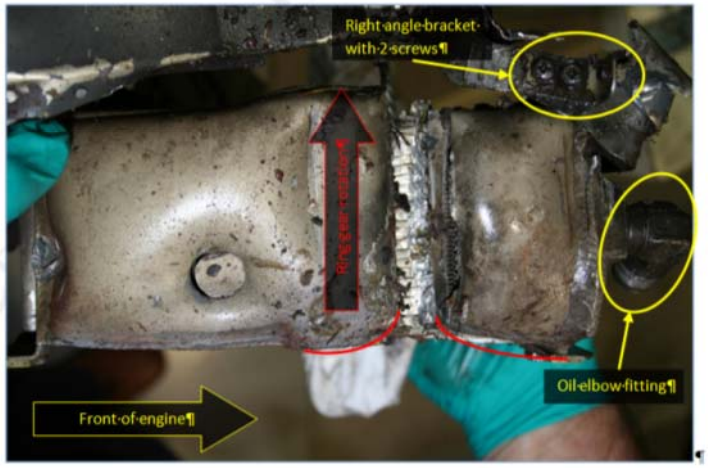


Figure 3:- Rotational 'swipe' marks in oil cooler

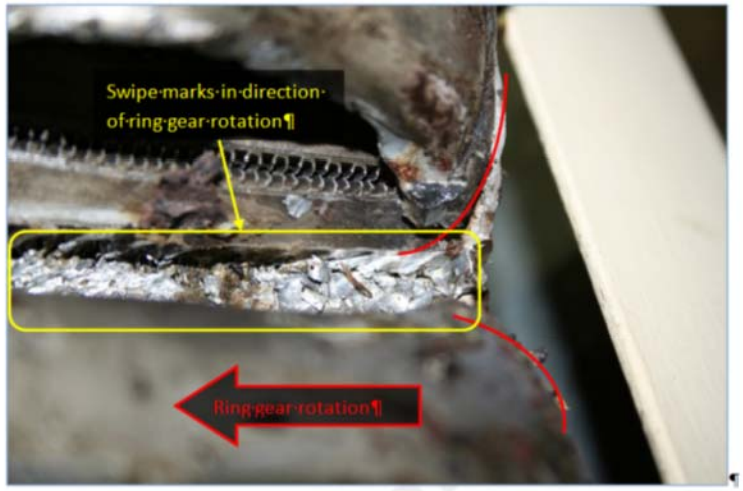
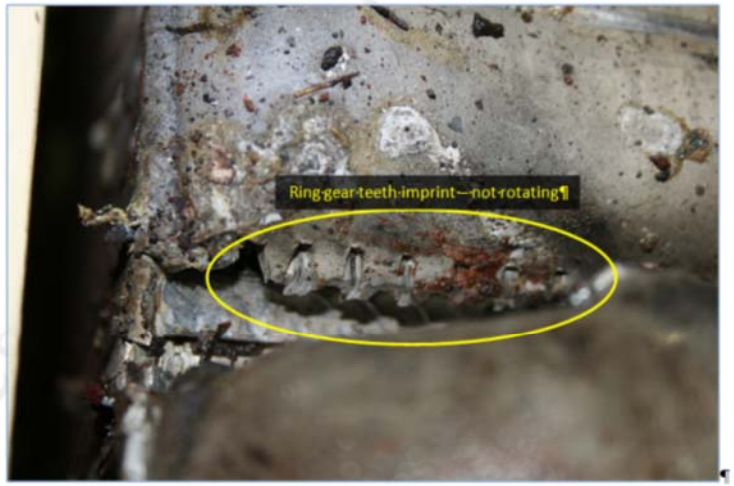
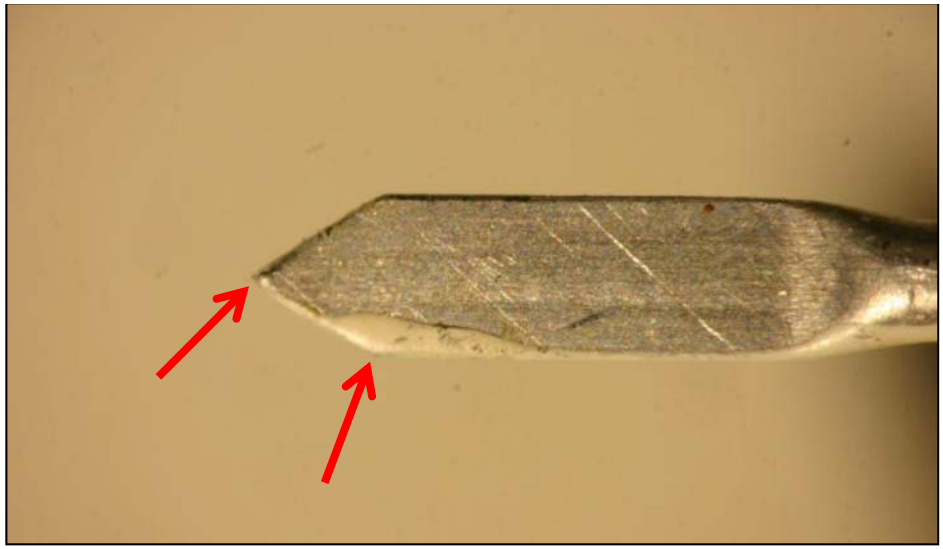
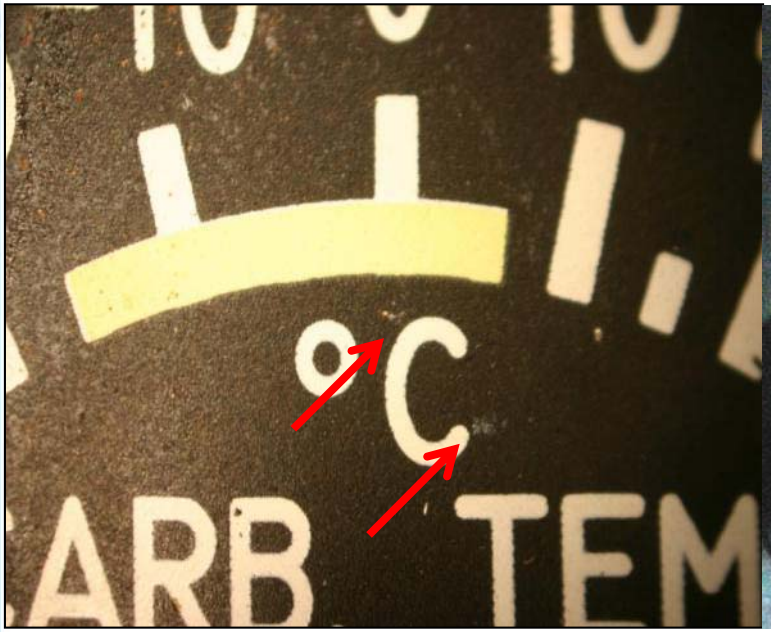


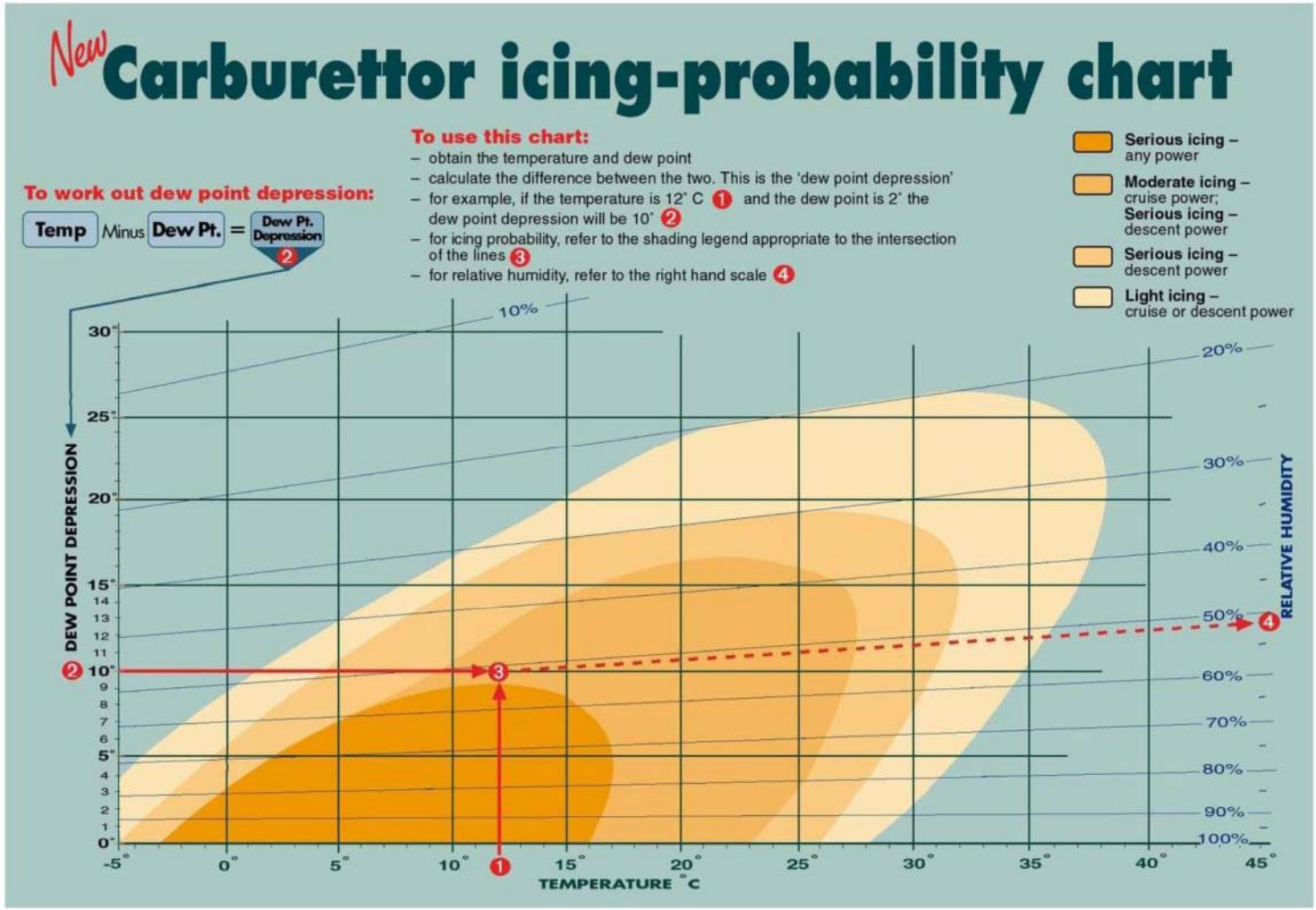
Figure 4:- non-rotational ring gear teeth imprint






°C
ARB TEM


VH-OML



•Humidity 100% both night of 25th (13 degrees C) and morning of 26th (10 degrees C)

AO-2009-031 Collision with terrain, VH-HXO

Contributing safety factors

- Loss of control of the helicopter was a result of pilot control inputs leading to the main rotor blades contacting the tail boom in-flight.

Other safety factors

- The pilot would have experienced a significant level of fatigue towards the end of the second day of his journey, but his fatigue level at the time of the accident could not be determined.
- Conditions around the time of the accident were conducive to serious carburettor icing.
- The night visual flight rules rated pilot was likely operating the day visual flight rules equipped helicopter at night.

Other key findings

- There was no pre-existing mechanical defect associated with the airframe or engine.
- Recorded fuel uploads and evidence from the fuel containers on site confirmed that the helicopter had adequate fuel for the planned flight
- The investigation was unable to determine if the engine was operating or not, at the time that the main rotor blades contacted the tail boom in-flight.

AO-2009-031 Collision with terrain

The investigation did not identify any organisational or systemic issues that might adversely affect the future safety of aviation operations. However, the accident does provide a timely reminder of the need for pilots conducting private operations to consider the impact of fatigue; particularly, during a long flight over a number of days, as was the case in this occurrence.

AO-2010-092 – Collision with terrain 44 km WSW Rolleston, QLD

9 November 2010

VH-TCG, Robinson Helicopter Company R22 Beta II

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No on-site investigation

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AO-2010-092 Collision with terrain

Contributing safety factors

- The pilot had not met the competency standard required to operate a helicopter unsupervised.
- The pilot was conducting aerial stock mustering without having received any training for low flying or mustering tasks.

The investigation did not identify any organisational or systemic issues that might adversely affect the future safety of aviation operations. However, the accident does provide a timely reminder of the importance of ensuring that flight crews have the appropriate competencies and currency before engaging in highly-skilled tasks.

Common factors between VH-HXO and VH-TCG

- Both private operations
- Both violations of the Civil Aviation Regulations (Australia)
- No Organisational or Systemic Issues

How do we make these types of occurrences add safety value?

- More short investigations
- More clearly stated safety messages from each occurrence
- More research investigations / safety issue investigations utilising richer occurrence data

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ATSB - Jun10/ATS894

ATSB TRANSPORT SAFETY REPORT
Aviation Research and Analysis Report – AR-2008-045
Final

Improving the odds: Trends in fatal and non-fatal accidents in private flying operations

Summary

Forty-four per cent of all accidents and over half of fatal accidents between 1999 and 2008 were attributed to private operations. These figures far surpassed the proportions for any other flying category, even though private operations contributed to less than 15 per cent of the hours flown in that decade.

This report aims to identify the factors contributing to fatal accidents in private operations and how these factors differed from non-fatal accidents. This was achieved through exploring common occurrence types (what happened), contributing factors (why the accident happened), contributing pilot errors, and aircraft and pilot characteristics.

Three occurrence types accounted for the majority of fatal accidents: collision with terrain (90%); loss of control (44%); and wirestrikes (12%). When all incidents and accidents are taken into account, the likelihood of being killed was about 36 per cent for a collision with terrain occurrence, 30 per cent for loss of control occurrences, and about 50 per cent for a wirestrike. For non-fatal accidents, there was greater variability in the common occurrence types - forced landings, hard landings, problems with the landing gear, and total power loss/ engine failure were also common.

Problems with pilots' assessing and planning were identified as contributing factors in about half of fatal accidents in private operations, and about a quarter involved problems with aircraft handling. Other contributing factors associated with fatal accidents to a smaller extent were visibility, turbulence, pilot motivation and attitude, spatial disorientation, and monitoring and checking. Non-fatal accidents were just as likely to involve aircraft handling problems, but had fewer contributing factors than fatal accidents.

Action errors and decision errors were both common to fatal accidents. Violations, while less frequently found, were mostly associated with fatal accidents.

In light of the contributing factors that were associated with fatal accidents in private operations, the report provides advice to pilots for improving the odds of a safe flight. Pilots are encouraged to make decisions before the flight, continually assess the flight conditions (particularly weather conditions), evaluate the effectiveness of their plans, set personal minimums, assess their fitness to fly, set passenger expectations by making safety the primary goal, and to seek local knowledge of the route and destination as part of their pre-flight planning. Also, becoming familiar with the aircraft's systems, controls and limitations may alleviate poor aircraft handling during non-normal flight conditions. Finally, pilots need to be vigilant about following rules and regulations that are in place – they are there to trap errors made before and during flight. Violating these regulations only removes these 'safety buffers'.

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ATSB TRANSPORT SAFETY REPORT
Aviation Research and Analysis – AR-2009-041

Avoidable Accidents No. 1

Low-level flying

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Aviation Short Investigations
AB-2011-040
Final

Aviation Short Investigation Bulletin:
First Quarter 2011

Issue 5

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