CONCORSO PUBBLICO, PER TITOLI ED ESAMI, PER LA COPERTURA DI N. 2 POSTI A TEMPO INDETERMINATO DI PERSONALE DELLA FIGURA PROFESSIONALE DI PILOTA DI ELICOTTERO DEL CORPO PERMANENTE DEI VIGILI DEL FUOCO DELLA PROVINCIA AUTONOMA DI TRENTO, CATEGORIA C, LIVELLO EVOLUTO, 1^ POSIZIONE RETRIBUTIVA

DOMANDE PROVA ORALE DI DATA 8 MAGGIO 2025

INGLESE

Text 1

Crash During Takeoff of Carson Helicopters, Inc. Firefighting Helicopter Under Contract to the U.S. Forest Service

What Happened
On August 5, 2008, about 1941 Pacific daylight time, a Sikorsky S-61N helicopter, N612AZ, impacted trees and terrain during the initial climb after takeoff from Helispot 44 (H-44), located at an elevation of about 6,000 feet in mountainous terrain near Weaverville, California. The pilot-in-command, the safety crewmember, and seven firefighters were fatally injured; the copilot and three firefighters were seriously injured. Impact forces and a postcrash fire destroyed the helicopter, which was being operated by the U.S. Forest Service (USFS) as a public flight to transport firefighters from H-44 to another helispot. The USFS had contracted with Carson Helicopters, Inc. (CHI) of Grants Pass, Oregon, for the services of the helicopter, which was registered to CHI and leased to Carson Helicopter Services, Inc. of Grants Pass. Visual meteorological conditions prevailed at the time of the accident, and a company visual flight rules flight plan had been filed.

What We Found
We determined that the probable causes of this accident were the following actions by Carson Helicopters: 1) the intentional understatement of the helicopter's empty weight, 2) the alteration of the power available chart to exaggerate the helicopter's lift capability, and 3) the practice of using unapproved above-minimum specification torque in performance calculations that, collectively, resulted in the pilots relying on performance calculations that significantly overestimated the helicopter's load-carrying capacity and did not provide an adequate performance margin for a successful takeoff; and insufficient oversight by the USFS and the Federal Aviation Administration (FAA).

Contributing to the accident was the failure of the flight crewmembers to address the fact that the helicopter had approached its maximum performance capability on their two prior departures from the accident site because they were accustomed to operating at the limit of the helicopter's performance.

Contributing to the fatalities were the immediate, intense fire that resulted from the spillage of fuel upon impact from the fuel tanks that were not crash resistant, the separation from the floor of the cabin seats that were not crash resistant, and the use of an inappropriate release mechanism on the cabin seat restraints.

What We Recommended

The safety issues involve the accuracy of hover performance charts, USFS and FAA oversight, flight crew performance, accident survivability, weather observations at helispots, fuel contamination, flight recorder requirements, and certification of seat supplemental type certificates. Safety recommendations concerning these issues are addressed to the FAA and the USFS.

Text 2

Crash Following Encounter with Instrument Meteorological Conditions After Departure from Remote Landing Site

What Happened

On March 30, 2013, at 2320 Alaska daylight time, a Eurocopter AS350 B3 helicopter, N911AA, impacted terrain while maneuvering during a search and rescue (SAR) flight near Talkeetna, Alaska. The airline transport pilot, an Alaska state trooper serving as a flight observer for the pilot, and a stranded snowmobiler who had requested rescue were killed, and the helicopter was destroyed by impact and postcrash fire. The helicopter was registered to and operated by the Alaska Department of Public Safety (DPS) as a public aircraft operations flight under 14 Code of Federal Regulations Part 91. Instrument meteorological conditions (IMC) prevailed in the area at the time of the accident. The flight originated at 2313 from a frozen pond near the snowmobiler's rescue location and was destined for an off-airport location about 16 mi south.

After picking up the stranded, hypothermic snowmobiler at a remote rescue location in dark night conditions, the pilot, who was wearing night vision goggles (NVG) during the flight, encountered IMC in snow showers within a few minutes of departure. Although the pilot was highly experienced with SAR missions, he was flying a helicopter that was not equipped or certified for flight under instrument flight rules (IFR). The pilot was not IFR current, had very little helicopter IFR experience, and had no recent inadvertent IMC training. Therefore, conducting the flight under IFR was not an option, and conducting the night flight under visual flight rules in the vicinity of forecast IFR conditions presented high risks. After the helicopter encountered IMC, the pilot became spatially disoriented and lost control of the helicopter.

What We Found

We determined that the probable cause of this accident was the pilot's decision to continue flight under visual flight rules into deteriorating weather conditions, which resulted in the pilot's spatial disorientation and loss of control. Also causal was the Alaska Department of Public Safety's punitive culture and inadequate safety management, which prevented the organization from identifying and correcting latent deficiencies in risk management and pilot training. Contributing to the accident was the pilot's exceptionally high motivation to complete search and rescue missions, which increased his risk tolerance and adversely affected his decision-making.

What We Recommended

As a result of this investigation, the NTSB makes 3 safety recommendations to the FAA and 7 safety recommendations to the state of Alaska, 44 additional states, the Commonwealth of Puerto Rico, and the District of Columbia that conduct law enforcement public aircraft operations

Text 3

Weather Encounter and Subsequent Collision into Terrain, Bali Hai Helicopter Tours, Inc., Bell 206B, N16849

What Happened

On September 24, 2004, about 1642 Hawaiian standard time, a Bell 206B helicopter, N16849, registered to and operated by Bali Hai Helicopter Tours, Inc., of Hanapepe, Hawaii, impacted mountainous terrain in Kalaheo, Hawaii, on the island of Kauai, 8.4 miles northeast of Port Allen Airport, in Hanapepe. The commercial pilot and the four passengers were killed, and the helicopter was destroyed by impact forces and postimpact fire.

The nonstop sightseeing air tour flight was operated under the provisions of 14 Code of Federal Regulations Part 91 and visual flight rules with no flight plan filed. Instrument meteorological conditions prevailed near the accident site.

The safety issues include the influence of pilot experience and operator scheduling on in-flight decision-making; the lack of FAA oversight of Part 91 air tour operators; the need for national air tour safety standards; and the lack of direct FAA surveillance of commercial air tour operators in Hawaii.

What We Found

We determined that the probable cause of this accident was the pilot's decision to continue flight under visual flight rules into an area of turbulent, reduced visibility weather conditions, which resulted in the pilot's spatial disorientation and loss of control of the helicopter. Contributing to this accident was the pilot's inexperience in assessing local weather conditions, inadequate Federal Aviation Administration (FAA) surveillance of Special Federal Aviation Regulation 71 operating restrictions, and the operator's pilot-scheduling practices that likely had an adverse impact on pilot decision-making and performance.

What We Recommended

Nine safety recommendations were addressed to the FAA regarding:

local weather-training programs for newly hired Hawaii air tour pilots;
evaluation of operational practices for commercial air tour helicopter pilots;
Honolulu Flight Standards District Office control of the annual safety meetings, as required under approved certificates of waiver or authorization;
evaluation of the safety impact of the altitude restrictions in the State of Hawaii;
national air tour safety standards; and
the potential benefits of automatic dependent surveillance-broadcast technology for Hawaii air tour operators.

Text 4

Air transportation safety investigation A24P0092

Collision with terrain
West Coast Helicopters Maintenance and Contracting Ltd.
Airbus AS350 B2 (helicopter), C-GWCT
Port Hardy Airport (CYZT), British Columbia, 35 NM SW

15 August 2024
The occurrence
On 15 August 2024, an Airbus AS350 B2 helicopter, operated by West Coast Helicopters Maintenance and Contracting Ltd., was transporting passengers and equipment from the Port McNeill Airport, British Columbia, to a remote NAV CANADA facility. After disembarking a group of passengers at the site, the aircraft began longline operations with only the pilot on board.

When the helicopter was reported overdue, a second company helicopter was diverted to begin a search. The wreckage was found in a nearby ravine. The pilot was fatally injured. The TSB is investigating.

Investigation information
Map showing the location of the occurrence

Class of investigation
This is a class 4 investigation. These investigations are limited in scope, and while the final reports may contain limited analysis, they do not contain findings or recommendations. Class 4 investigations are generally completed within 220 days. For more information, see the Policy on Occurrence Classification.

TSB investigation process
There are 3 phases to a TSB investigation

Field phase: a team of investigators examines the occurrence site and wreckage, interviews witnesses and collects pertinent information.
Examination and analysis phase: the TSB reviews pertinent records, tests components of the wreckage in the lab, determines the sequence of events and identifies safety deficiencies. When safety deficiencies are suspected or confirmed, the TSB advises the appropriate authority without waiting until publication of the final report.
Report phase: a confidential draft report is approved by the Board and sent to persons and corporations who are directly concerned by the report. They then have the opportunity to dispute or correct information they believe to be incorrect. The Board considers all representations before approving the final report, which is subsequently released to the public.

Text 5

Aircraft Accident Report AAR 2/2023

Sikorsky S-92A, G-MCGY

Downwash from landing helicopter resulting in fatal injury to uninvolved person, Derriford Hospital, Plymouth, Devon, 4 March 2022.

The helicopter, G-MCGY, was engaged on a Search and Rescue mission to extract a casualty near Tintagel, Cornwall and fly them to hospital for emergency treatment. The helicopter flew to Derriford Hospital (DH), Plymouth which has a Helicopter Landing Site (HLS) located in a secured area within one of its public car parks. During the approach and landing, several members of the public in the car park were subjected to high levels of downwash from the landing helicopter. One person suffered fatal injuries, and another was seriously injured.

The investigation identified the following causal factors:

The persons that suffered fatal and serious injuries were blown over by high levels of downwash from a landing helicopter when in publicly accessible locations near the DH HLS.

Whilst helicopters were landing or taking off, uninvolved persons were not prevented from being present in the area around the DH HLS that was subject to high levels of downwash.

The investigation identified the following contributory factors:

The HLS at DH was designed and built to comply with the guidance available at that time, but that guidance did not adequately address the issue of helicopter downwash.

The hazard of helicopter downwash in the car parks adjacent to the HLS was not identified, and the risk of possible injury to uninvolved persons was not properly assessed.

A number of helicopter downwash complaints and incidents at DH were recorded and investigated. Action was taken in each case to address the causes identified, but the investigations did not identify the need to manage the downwash hazard in Car Park B, so the actions taken were not effective in preventing future occurrences.

Prior to this accident, nobody at DH that the AAIB spoke to was aware of the existence of Civil Aviation Publication (CAP) 1264, which includes additional guidance on downwash and was published after the HLS at DH was constructed. The document was not retrospectively applicable to existing HLS.

The operator of G-MCGY was not fully aware of the DH HLS Response Team staff's roles, responsibilities, and standard operating procedures.

The commander of G-MCGY believed that the car park surrounding the DH HLS would be secured by the hospital's HLS Response Team staff, but the co-pilot believed these staff were only responsible for securing the HLS.

The DH staff responsible for the management of the HLS only considered the risk of downwash causing harm to members of the public within the boundary of the HLS and all the mitigations focused on limiting access to this space.

Text 6

Aircraft Accident Report AAR 3/2015

G-SPAO, 29 November 2013

Eurocopter (Deutschland) EC135 T2+ (G-SPAO), crashed in Glasgow City Centre, Scotland, on 29 November 2013.

The helicopter departed Glasgow City Heliport (GCH) at 2044 hrs on 29 November 2013, in support of Police Scotland operations. On board were the pilot and two Police Observers. After their initial task, south of Glasgow City Centre, they completed four more tasks; one in Dalkeith, Midlothian, and three others to the east of Glasgow, before routing back towards the heliport. When the helicopter was about 2.7 nm from GCH, the right engine flamed out. Shortly afterwards, the left engine also flamed out. An autorotation, flare recovery and landing were not achieved and the helicopter descended at a high rate onto the roof of the Clutha Vaults Bar, which collapsed. The three occupants in the helicopter and seven people in the bar were fatally injured. Eleven others in the bar were seriously injured.

Fuel in the helicopter's main fuel tank is pumped by two transfer pumps into a supply tank, which is divided into two cells. Each cell of the supply tank feeds its respective engine. During subsequent examination of the helicopter, 76 kg of fuel was recovered from the main fuel tank. However, the supply tank was found to have been empty at the time of impact. It was deduced from wreckage examination and testing that both fuel transfer pumps in the main tank had been selected off for a sustained period before the accident, leaving the fuel in the main tank, unusable. The low fuel 1 and low fuel 2 warning captions, and their associated audio attention-getters, had been triggered and acknowledged, after which, the flight had continued beyond the 10-minute period specified in the Pilot's Checklist Emergency and Malfunction Procedures.

The helicopter was not required to have, and was not fitted with, flight recorders. However, data and recordings were recovered from non-volatile memory (NVM) in systems on board the helicopter, and radar, radio, police equipment and CCTV recordings were also examined.

During the investigation, the EC135's fuel sensing, gauging and indication system, and the Caution Advisory Display and Warning Unit were thoroughly examined. This included tests resulting from an incident involving another EC135 T2+.

Despite extensive analysis of the limited evidence available, it was not possible to determine why both fuel transfer pumps in the main tank remained off during the latter part of the flight, why the helicopter did not land within the time specified following activation of the low fuel warnings and why a MAYDAY call was not received from the pilot. Also, it was not possible to establish why a more successful autorotation and landing was not achieved, albeit in particularly demanding circumstances.

Text 7

Aircraft Accident Report - Loss of Control

Sundance Helicopters, Inc. - Eurocopter AS350-B2, N37SH

Near Las Vegas, Nevada - December 7, 2011

7) Executive Summary

On December 7, 2011, about 1630 Pacific standard time, a Sundance Helicopters, Inc., Eurocopter AS350-B2 helicopter, N37SH, operating as a "Twilight tour" sightseeing trip, crashed in mountainous terrain about 14 miles east of Las Vegas, Nevada. The pilot and four passengers were killed, and the helicopter was destroyed by impact forces and postimpact fire. The helicopter was registered to and operated by Sundance as a scheduled air tour flight under the provisions of 14 Code of Federal Regulations (CFR) Part 135. Visual meteorological conditions with good visibility and dusk light prevailed at the time of the accident, and the flight operated under visual flight rules. The helicopter originated from Las Vegas McCarran International Airport, Las Vegas, Nevada, about 1621 with an intended route of flight to the Hoover Dam area and return to the airport. The helicopter was not equipped, and was not required to be equipped, with any on-board recording devices. The accident occurred when the helicopter unexpectedly climbed about 600 feet, turned about 90° to the left, and then descended about 800 feet, entered a left turn, and descended at a rate of at least 2,500 feet per minute to impact. During examination of the wreckage, the main rotor fore/aft servo, one of the three hydraulic servos that provide inputs to the main rotor, was found with its flight control input rod not connected. The bolt, washer, self-locking nut, and split pin (sometimes referred to as a "cotter pin" or "cotter key") that normally secure the input rod to the main rotor fore/aft servo were not found. The investigation revealed that the hardware was improperly secured during maintenance that had been conducted the day before the accident. The nut became loose (likely because it was degraded)1 and, without the split pin, the nut separated from the bolt, the bolt disconnected, and the input rod separated from the linkage while the helicopter was in flight, at which point the helicopter became uncontrollable and crashed.

Text 8

AIB investigation to AS350 B3e Ecureuil, G-MATH

Loss of control during hydraulics-off training,

Wycombe Air Park, Buckinghamshire, 5 May 2017.

8) Summary:
The accident occurred whilst the helicopter was engaged in hydraulic failure training. An instructor was in the left seat of the helicopter, a pilot under training in the right seat and another pilot under training, who was a passenger on this flight, was seated in the rear.

The right-seat pilot was performing a hydraulics-off approach, to finish in a run-on landing. The instructor became dissatisfied with the approach parameters and took control in the latter stages, performing a hydraulics-off go-around into a left-hand circuit, before lining up the helicopter on final approach for the pilot to make a second attempt. Once again, the instructor took control late in the approach and performed another go-around. On this occasion, the left turn onto the downwind was flown with a higher angle of bank (AOB). The instructor was unable to control the roll attitude and the helicopter rolled left, beyond 90° AOB, descended rapidly and struck the ground, coming to rest on its left side.

All three occupants were seriously injured. The right-seat pilot died some weeks later from injuries sustained in the accident.

No technical issues were identified and a definitive reason why the instructor was unable to roll the helicopter back to a level attitude could not be determined.

The investigation concluded that clearer instructions in the AS350 flight manual for hydraulics-off flight would help prevent similar accidents in future. In response to this accident, the helicopter manufacturer has taken safety actions including: amending the AS350 flight manual to limit the AOB to 30° during hydraulics-off flight and the inclusion of warnings not to conduct low speed manoeuvres with hydraulics off due to the danger of loss of control. It has also prepared a safety video describing how to perform hydraulics-off training.

Text 9

Report on the accident to Agusta A109E,

G-CRST near Vauxhall Bridge, Central London

16 January 2013

Synopsis

At 0820 hrs on 16 January 2013 the Air Accidents Investigation Branch (AAIB) was notified that a helicopter flying over central London had collided with a crane and crashed into the street near Vauxhall Bridge. A team of AAIB inspectors and support staff arrived on the scene at 1130 hrs. The helicopter was flying to the east of London Heliport when it struck the jib of a crane, attached to a building development at St George Wharf, at a height of approximately 700 ft amsl in conditions of reduced meteorological visibility. The pilot, who was the sole occupant of the helicopter, and a pedestrian were fatally injured when the helicopter impacted a building and adjacent roadway.

The investigation identified the following causal factors: 1. The pilot turned onto a collision course with the crane attached to the building and was probably unaware of the helicopter's proximity to the building at the beginning of the turn.

2. The pilot did not see the crane or saw it too late to take effective avoiding action. The investigation identified the following contributory factor: 1. The pilot continued with his intention to land at the London Heliport despite being unable to remain clear of cloud. Ten Safety Recommendations have been made.

Causal Factors

1. The pilot turned onto a collision course with the crane attached to the building and was probably unaware of the helicopter's proximity to the building at the beginning of the turn.
2. The pilot did not see the crane or saw it too late to take effective avoiding action.

Contributory Factor

1. The pilot continued with his decision to land at the London Heliport despite being unable to remain clear of cloud.

Text 10

Robinson R44 Raven I, G-OUEL, 30 July 2003

Synopsis

The helicopter departed on a VFR flight from a private site near Hawick in Scotland to route to Barton Airfield in Manchester. Initially it flew southwards at 1,500 feet amsl but as it approached hills, whose tops were reportedly covered by an area of low cloud, it turned away from the planned route and probably entered cloud. As the turn continued the helicopter accelerated, entered a rapid descent and the main rotor blades struck the tailboom. Most of the tailboom detached, the rotors virtually stopped and the helicopter impacted the ground at the bottom of a valley, fatally injuring the pilot. A number of military aircraft were operating in the area at the time of the accident but none of these could have influenced the safe progress of the flight. No signs of pre-accident malfunction of the helicopter were found, but full determination of its pre-impact serviceability was prevented by extensive post-crash fire damage. The available evidence indicated that the accident followed a main rotor blade strike on the tailboom, probably caused by excessively low rotor RPM. The control loss and low rotor RPM may have resulted from spatial disorientation and mishandling of the controls but the possibility that aircraft malfunction had contributed to the accident could not be eliminated.

[…]

Pilot's flying experience

The pilots flying log-book and licence were not recovered. The hours quoted below are therefore estimated from other available information. The pilot carried out training for his Private Pilot's Licence/Helicopter (PPL/H) on the Enstrom helicopter, which included instrument flying appreciation. He completed the requirements and was issued with his JAR PPL/H on 24 September 2002. He amassed 76 hours on the Enstrom before carrying out a type conversion onto the R44. His R44 rating was issued on 17 January 2003. At the time of the accident he was estimated to have flown 20 hours on the R44.

[…]

Conclusions

It was likely that the helicopter had entered IMC during a turn away from an area of low cloud on its planned route. Shortly afterwards control had been lost and the aircraft descended rapidly, possibly as the result of spatial disorientation. An excessively low rotor RPM had probably resulted and led to contact of the main rotor blades with the tailboom, causing most of it to detach, stoppage of the rotors and non-survivable ground impact. Rapid reduction in rotor RPM to a hazardous level can result from small delays in applying appropriate control inputs. The control loss and low rotor RPM may have resulted from mishandling of the controls but the possibility that aircraft malfunction had contributed to the accident could not be eliminated.

Text 11

Aircraft Accident Report AAR 1/2016

G-WNSB, 23 August 2013

Report on the accident to Eurocopter AS332 L2 Super Puma, G-WNSB on approach to Sumburgh Airport in the Shetland Islands, 23 August 2013.

Summary
At 1717 hrs UTC on 23 August 2013, an AS332 L2 Super Puma helicopter with sixteen passengers and two crew on board crashed in the sea during the approach to land at Sumburgh Airport. Four of the passengers did not survive.

The purpose of the flight was to transport the passengers, who were employees of the UK offshore oil and gas industry, to Aberdeen. On the accident flight, the helicopter had departed the Borgsten Dolphin semi-submersible drilling platform in the North Sea, to route to Sumburgh Airport for a refuelling stop. It then planned to continue to Aberdeen Airport.

The commander was the Pilot Flying (PF) on the accident sector. The weather conditions were such that the final approach to Runway 09 at Sumburgh Airport was flown in cloud, requiring the approach to be made by sole reference to the helicopter's instruments, in accordance with the Standard Operating Procedure (SOP) set out in the operator's Operating Manual (OM). The approach was flown with the autopilot in 3-axes with Vertical Speed (V/S) mode, which required the commander to operate the collective pitch control manually to control the helicopter's airspeed. The co-pilot was responsible for monitoring the helicopter's vertical flightpath against the published approach vertical profile and for seeking the external visual references necessary to continue with the approach and landing. The procedures permitted the helicopter to descend to a height of 300 ft, the Minimum Descent Altitude (MDA) for the approach, at which point a level-off was required if visual references had not yet been acquired.

Although the approach vertical profile was maintained initially, insufficient collective pitch control input was applied by the commander to maintain the approach profile and the target approach airspeed of 80 kt. This resulted in insufficient engine power being provided and the helicopter's airspeed reduced continuously during the final approach. Control of the flightpath was lost and the helicopter continued to descend below the MDA. During the latter stages of the approach the helicopter's airspeed had decreased below 35 kt and a high rate of descent had developed.

The decreasing airspeed went unnoticed by the pilots until a very late stage, when the helicopter was in a critically low energy state. The commander's attempt to recover the situation was unsuccessful and the helicopter struck the surface of the sea approximately 1.7 nm west of Sumburgh Airport. It rapidly filled with water and rolled inverted, but was kept afloat by the flotation bags which had deployed.

Search and Rescue (SAR) assets were dispatched to assist and the survivors were rescued by the Sumburgh-based SAR helicopters that attended the scene.

Text 12

Schweizer 269C-1, G-LINX, 22 September 2009

Synopsis

The helicopter, which was on a training flight, suffered an in-flight emergency and subsequently crashed, fatally injuring both occupants. Examination of the wreckage revealed that the main rotor was turning at low speed on impact, but the reason for this could not be established. The investigation concluded that the most likely cause of the accident was a loss of control during an attempted forced landing downwind. The helicopter was being flown at 400 ft immediately prior to the emergency, which would have reduced the probability of a successful outcome.

[…]

Operational issues

With the exception of the single report of black puffs of smoke emanating from the helicopter as it flew north from Blackpool, the flight appears to have proceeded unremarkably until the helicopter descended over the sands north of Knott End. Radar resolution was insufficient to determine the exact nature of the manoeuvres north of Knott End, but indicated average rates of descent that are typically achieved during practice autorotations. From that point until the end of the flight there is no record of the helicopter having climbed above 500 ft, although there were no reported cloud or airspace restrictions that would have prevented it from doing so.

After these manoeuvres the helicopter turned south to follow the east bank of the River Wyre at approximately 400 ft. There were no indications of flight control or other difficulties until the mayday call shortly before the final descent. Transmission of the mayday indicates that the instructor had identified an emergency situation and, although it was not possible to determine what this was, the mayday itself was delivered in a voice that, according to family members, sounded calm and held no sense of panic. Analysis of the final transmission, however, suggests that the helicopter was by then no longer in controlled flight.

[...]

Information provided by the manufacturer and experienced pilots indicates that a landing downwind without power is likely to be difficult to accomplish safely. A pilot faced with this situation might try to reduce the apparent high ground speed by applying aft cyclic control, which could result in an airspeed below that for minimum rate of descent. There might then be insufficient energy stored in the rotor to reduce the resulting high rate of descent, such that the impact would not be survivable. Having elected to land downwind, normal control could be maintained by maintaining the correct airspeed throughout the descent and allowing the helicopter to touch down with high forward ground speed. However, the outcome would then depend on how smooth and level the terrain was over which the aircraft would then slide to a halt.

Conclusion

The pilot responded to an emergency situation, apparently associated with a loss of power, the cause of which the investigation was unable to identify. The subsequent manoeuvres, initiated from a height of approximately 400 ft, were accompanied by a loss of rotor rpm and did not result in a safe landing. Operating the helicopter at greater height and in a position from which an into-wind landing could have been accomplished would have increased the opportunities for a safe outcome.

Text 13

Grand Canyon Helicopter Crash

Project Summary: Aviation Investigation - 54 Docket Items - WPR18MA087

Description: N155GC, EUROCOPTER EC130

Mode: Aviation

NTSB Number: WPR18MA087

Date of Accident: 02/10/2018

City: Peach Springs

State/Region: AZ

Country: United States

Project Type: Investigation

What Happened

The pilot of the helicopter was conducting his third air tour flight of the day, transporting six passengers to the operator's plateau landing site, known as Quartermaster, on the south bank of the Colorado River within the Grand Canyon. He was appropriately rated for this flight and was experienced executing approaches and landings at Quartermaster. Following an uneventful flight to the area, the pilot began a descent and approach from across the river to a ravine on the west side of the landing site. The accident helicopter was the ninth of ten helicopters scheduled to land at the site that afternoon, and because all of the pads on the east side of the site were occupied, the pilot initiated a descending left turn toward a landing pad located on the west side of the site, aligning the helicopter on an east-northeasterly heading. Photographs of the landing site windsock near the time of the accident indicated winds at magnitudes of 15 kts or greater from the north-northwest, resulting in tailwind conditions during approaches to the west pads. A pilot on the ground at the landing site reported that the accident helicopter began to decelerate as it approached the landing pads and entered a nose-up attitude, then turned left toward the landing pads, transitioned through several pitch oscillations, and drifted aft. The left turn continued through 720° of rotation before the helicopter descended into a canyon just west of the landing pads and impacted terrain. Photos indicated that the helicopter’s final impact in the canyon was immediately followed by a postcrash fire. Postaccident examination of the helicopter and engine revealed no evidence of mechanical anomalies that would have precluded normal operation.

What We Found

We determined the probable cause(s) of this accident to be a loss of tail rotor effectiveness, the pilot’s subsequent loss of helicopter control, and collision with terrain during an approach to land in gusting, tailwind conditions in an area of potential dondrafts and turbulence.

GRUPPO A

A1. Quali sono le caratteristiche della pioggia congelante (freezing rain) e quali sono i pericoli associati al volo?

A2. Cosa indica un'isoterma di 0°C e come può influenzare la formazione di ghiaccio in volo?

A3. Quali fenomeni atmosferici possono causare wind shear e in che modo influenzano le operazioni di volo?

A4. Quali sono le caratteristiche di un rotore di coda tipo Fenestron e come si confrontano con i rotori di coda tradizionali?

A5. Cosa si intende per stato di vortice o anello vorticoso e come può essere riconosciuto e recuperato?

A6. Spiega il fenomeno della dissimmetria di portanza e come viene compensato nei moderni elicotteri.

A7. Quali sono le parti principali del Codice della Navigazione Italiana?

A8. Descrivi il fenomeno dell'ipossia e i suoi effetti sul pilota durante il volo.

A9. Quali sono i limiti del tasso alcolemico per l'inizio di un volo secondo la normativa vigente?

A10. Quali sono i principali sintomi del disorientamento spaziale e come possono essere mitigati?

A11. In un avvicinamento strumentale, qual è il gradiente minimo richiesto per il segmento di mancato avvicinamento (se non diversamente specificato)?

A12. Come si calcola il rateo variometrico minimo necessario per rispettare un profilo di discesa stabilito?

A13. Qual è la differenza tra DA(DH) e MDA(MDH) e quali criteri si adottano nelle procedure CDFA?

A14. Descrivi la relazione tra GS, TAS e IAS in funzione della quota.

GRUPPO B

B1. Cosa occorre durante il rifornimento di un elicottero in relazione alla normativa?

B2. Quanto personale antincendio per eliporti ed elisuperfici è necessario In presenza di impianti automatici di rilevazione ed estinzione?

B3.Quanto è il tempo di risposta dei sistemi antincendio sugli eliporti ed elisuperfici a livello del terreno?

B4. Quali sono le classi antincendio degli eliporti e delle elisuperfici?

B5. Quali sono le principali responsabilità e doveri di un gestore di un a elisuperficie?

B6. È permesso atterrare in zone non preparate, di notte, in CAT? E in Hems? Con quale approvazione e equipaggiamenti?

B7. Cosa bisogna fare prima di atterrare in un'elisuperficie temporanea? A chi e come vanno fatte le comunicazioni?

B8. Secondo il DM 1° febbraio 2006, quali caratteristiche deve avere un pilota di elicottero per operare su elisuperfici site in elevazione?

B9. Secondo il REGOLAMENTO LIBERALIZZAZIONE DELL'USO DELLE AREE DI ATTERRAGGIO (AVIO-IDRO-ELISUPERFICI), Edizione n° 1 del 05/05/2023 Quanti movimenti massimi annuali possono essere svolti su una elisuperficie occasionale?

B10. Cosa si intende per aviosuperficie in pendenza?

B11. Secondo il REGOLAMENTO INFRASTRUTTURE A SERVIZIO DELL'ATTIVITA' HEMS Edizione n° 1 del 22 dicembre 2016, le elisuperfici in elevazione devono essere gestite e autorizzate da Enac anche sotto i 100 movimenti annui?

B12. Quanto è il tempo di risposta per il servizio antincendio su elisuperfici ed eliporti in elevazione?

B13. Cosa si intende per elisuperficie in elevazione?

GRUPPO C

C1. Quali sono i documenti obbligatori da tenere a bordo di un aeromobile?

C2. L'HTL o Helicopter Technical Log deve essere in formato cartaceo o può essere tenuto in formato elettronico? In caso positivo, esiste una particolare approvazione per poterlo fare?

C3. Il piano di volo operativo cosa è? Le informazioni comuni presenti sull'HTL possono essere omesse o devono esser riportate integralmente?

C4. Come pianifichi un volo di trasferimento, ad esempio da Trento a Firenze?

C5. Nel caso di un cantiere in montagna, in cui devi trasportare materiali misti di costruzione, cemento in sacchi, benne di calcestruzzo, lamiere, travi e finestre, come pianifichi e svolgi il lavoro?

C6. Nel caso di una chiamata per intervento di una persona caduta in un crepaccio su un ghiacciaio in Trentino, come pianifichi il soccorso? Al decollo hai a disposizione l'HTCM, il tecnico di elisoccorso (TE), il medico, l'infermiere e il cinofilo e cane da valanga.

C7. Nel manuale di volo del AS350B3, dove trovi le informazioni di massa e bilanciamento aggiornate?

C8. Le prestazioni relative ai consumi sono in una parte approvata o non approvata del manuale di volo dell'As350B3? E i diagrammi di Hoge e Hige?

C9. Quali sono le limitazioni di atterraggio in pendenza per un AS350B3?

C10. Il manuale operativo di un operatore aereo da chi deve essere approvato? In quante parti è diviso? A cosa si riferiscono sono le parti del manuale?

C11. Chi sono le nominated person? Esse devono essere autorizzate da una NAA?

C12. Dove si trovano le procedure di emergenza degli elicotteri aziendali all'interno del manuale operativo?

C13. Cosa è l'A.I.P.? Dove si trovano le regole del volo V.F.R.? GEN, ENR o AD?

GRUPPO D

D1. Chi provvede alla manutenzione, mantenimento dell'efficienza e dell'agibilità in condizioni di sicurezza e, se occorre, alla gestione delle superfici per l'elisoccorso, escluse quella a servizio dei presidi sanitari?

D2. Da chi sono svolti i soccorsi tecnici urgenti presso l'aeroporto Gianni Caproni di Mattarello secondo la LP 1°luglio 2011 n.9?

D3. Il candidato illustri la procedura prevista dal contratto collettivo in caso di assenza per malattia

D4. Il candidato illustri, sulla base di quanto previsto dal codice di comportamento dei dipendenti della Provincia autonoma di Trento, se ed eventualmente con quali limiti, il dipendente pubblico può ricevere regali o altre utilità.

D5. Il candidato illustri le modalità per la segnalazione di un illecito ("whistleblowing")

D6. Il candidato illustri in quali casi il codice di comportamento dei dipendenti provinciali prevede l'obbligo di astensione

D7. Il candidato illustri i principi generali previsti dal codice di comportamento, a cui il dipendente deve conformare la propria condotta.

D8. Il candidato indichi come il dipendente provinciale deve comportarsi nella vita sociale, secondo il codice di comportamento

D9. Il candidato illustri cosa prevede il codice di comportamento in merito all'utilizzo dei mezzi di informazione e dei social media

D10. Il candidato illustri le modalità di utilizzo delle risorse informatiche in base a quanto stabilito dal codice di comportamento

Trento, 8 maggio 2025

I MEMBRI ESPERTI:

f.to dott.ssa Paola Rigotti, anche con funzioni di Presidente;

f.to com.te Piergiorgio Rosati;

f.to com.te Simone Ganassi;

f.to dott.ssa Silvia Coppola, membro esperto aggiunto;

IL SEGRETARIO VERBALIZZANTE:

f.to dott.ssa Serena Prezzi