

NATIONAL TRANSPORTATIONS SAFETY BOARD
Office of Aviation Safety
Washington, DC 20594

SUMMARY OF ENGINE/AIRFRAME EXAMINATION

-- CEN21LA216

DETAILS OF EXAMINATION

An on-site examination was conducted at by technical representatives from Airbus Helicopter and Safran engines. The helicopter sustained significant fire/thermal damage, and large part of the helicopter was consumed by the post-crash fire.

Engine

- The engine an Arriel 1D1 sustained significant thermal/heat damage in the post-crash fire.
- The axial compressor had some slight FOD damage, and the gas generator could not be rotated by hand.
- The free turbine exhibited evidence of blade shedding with deformation of the containment shield.
 - The free turbine blade shedding is consistent with the overspeed resulting from the rupture of the engine-to-MGB coupling shaft caused by ground contact during the accident sequence while powered.
- Damage to the engine appeared to be the result of the impact of the aircraft with the ground, post crash fire, and over-speed protection blade shedding.

Airframe

- The helicopter was equipped with the “old” style collective; hydraulic cut-off switch was the unguarded push-button type.
- The helicopter did not have the crash-fire resistant fuel cell.
- Fire damage prevented a flight control continuity check from the collective and cyclic to the rotor system.
- Fire damage prevented a flight control continuity check to the anti-torque pedals; however, the pitch change mechanism at the tail rotor was intact and operated.
- No preimpact abnormalities were noted during the exam

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