HUMAN FACTORS CITED IN V-22 CRASH

Graham Warwick, Washington DC

US Marine Corps investigators have blamed the 8 April fatal crash of a Bell Boeing MV-22 Osprey tiltrotor on "human factors," rather than pilot error, recognising that actions by the lead aircraft in the night landing exercise and crew co-ordination issues on both MV-22s contributed to the accident.

As a result of the accident, which killed the four aircrew and 15 passengers on board, the USMC is revamping training to emphasise crew co-ordination, situational awareness and the potential dangers of high descent rates at low airspeeds. The MV-22 crashed after entering a vortex ring state in helicopter mode when the pilot descended too fast at low airspeed.

Testing is under way to explore the V-22's high descent-rate flight characteristics and develop techniques for vortex ring state recovery. The USMC also is trying to develop a system to warn pilots when they are entering vortex ring conditions.

Investigators believe the sequence of events running up to the crash began when the lead MV-22 arrived at the initial point for the approach 2,000ft (600m) higher than planned. Instead of going around, the pilot initiated a rapid descent to the landing zone, forcing the second Osprey to follow.

The lead aircraft arrived too high because the co-pilot, who was supposed to tell the pilot when to begin the descent, spent 25s looking around the cockpit for something he had dropped. The USMC says administrative action has been taken against the crew.

A tailwind unknown to the pilots of both aircraft forced them to reduce airspeed to avoid overshooting the landing zone, the report says. The mishap aircraft increased its descent rate while simultaneously slowing and manoeuvring to position behind the lead Osprey. The combination of high descent rate, low airspeed and control inputs caused one of the aircraft's rotors to enter vortex ring state and the aircraft departed controlled flight.

The MV-22 flight manual limits descent rate to 800ft/min (4m/s) at airspeeds below 40kt (75Km/h). The aircraft was descending at 1,800ft/min when it entered vortex ring state, investigators say.

The Osprey will recover from rotor stall if the nacelles are tilted down. Although the crash aircraft was below 400ft when vortex ring occurred, officials believe the pilot could have recovered to a heavy landing given adequate warning of the condition.

Officials say a warning system could be developed using existing equipment. If successful, the system could be applied to all rotorcraft. But Gen Fred McCorkle, deputy commandant for Marine Corps aviation, believes developing the system will be "difficult."

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Note: vortex ring state: *effet d'anneau tourbillonnaire.*

TRAVAIL A EFFECTUER

1) Traduction : (20 points)

Traduire le titre et les paragraphes grisés (paragraphes 1, 4 et 6).

2) Composition en anglais : (20 points)

What is meant by " human factors " in aeronautics? Give examples.

What would you suggest to prevent mishaps due to the "human element" in this field ? (220 / 250 mots. Indiquer le nombre de mots utilisés à la fin du travail).

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