Software suspected in YF-22 ATF accident

BY GRAHAM WARWICK
IN ATLANTA

The sole flyable Lockheed/Boeing/General Dynamics YF-22 advanced tactical fighter (ATF) prototype crashed on the runway at Edwards AFB, California, on 25 April. Lockheed test pilot Tom Morgenfeld escaped with minor injuries, but the aircraft was heavily damaged and will not fly again, says the USAF.

The aircraft was on a test flight to gather data for the F-22 engineering and manufacturing development (EMD) programme. The crash occurred on the second of two low approaches at Edwards. The aircraft had just tanked for a planned supersonic test which was cancelled because of bad weather, so Morgenfeld was burning off fuel by doing a series of touch and goes. The aircraft was therefore heavy, with flaps and landing gear down.

Just before touchdown, Morgenfeld engaged afterburner then retracted the gear to go around. The YF-22’s thrust-vectoring nozzles and taileron were observed moving rapidly and symmetrically, and the aircraft experienced severe pitch oscillations to minus 35° (81°M) above the runway. The pilot appeared to shut down the engines to stop the pitch oscillations, and make a forced landing. The aircraft impacted the runway gear up, skidding “several thousand feet” and caught fire.

Morgenfeld escaped from the aircraft on the ground. The aft port side of the YF-22 is damaged where it impacted the runway and the left side of the aircraft is badly fire damaged.

The USAF speculates that the combination of low altitude, heavy aircraft, rapid cycling of gear, flight controls and nozzles might have put a transient maximum load on the flight-control logic. The service believes that the software fix needed would be relatively straightforward.

The Pratt & Whitney YF-119-powered YF-22 was one of two prototypes built by Lockheed for the competitive ATF demonstration/validation (dem/val) programme. When the USAF selected the F-22/F119 airframe/engine combination, Lockheed put the P&W-powered prototype back in the air to gather loads, vibration and acoustics data for use in the design of the EMD F-22.

Earlier this year the USAF decided to curtail the planned 100h test programme, and flying was scheduled to end on 27 May. The YF-22 was on its 29th flight in the EMD phase and had logged 61.6h when it crashed. Including dem/val flying, the aircraft had logged 104.6h overall in 70 flights. The USAF says the YF-22 had accomplished more than 90% of the test objectives. Lockheed says the flight tests collected all of the loads data and most of the other high-priority data, which is already being used in the second F-22 internal-design iteration. The external design has already been frozen, and a highly accurate windtunnel model, which will measure aerodynamic loads, was ready for testing in late April.

The USAF says it has no plans for additional flight testing until the EMD F-22’s first flight in 1996. The second YF-22, which was powered by General Electric YF120s, is being used by Lockheed — minus its engines — as an engineering mockup.

Japan releases OH-X requests

The Japan Technical Research and Development Institute (TRDI) has issued a request for proposals to Fuji, Kawasaki and Mitsubishi for the OH-X new scout helicopter.

The Japan Ground Self-Defense Force will require some 200 OH-X to operate in the scout role for attack helicopters from 1999. The OH-X will be armed with a pair of lightweight air-to-air missiles.

The OH-X, to be developed in Japan, will be a tandem two-seat helicopter powered by two 600kW (800shp)-class engines, to be developed by Mitsubishi. Composite construction will be used extensively and the OH-X will feature target sighting by television and forward-looking infra-red and laser range finding.

The companies will submit their proposals within a month, and the TRDI expects to select a prime contractor in September. OH-X development will begin in fiscal year 1992. The total development cost is estimated at Y78 billion ($586 million).

UK attack-helicopter timetable delayed

BY MIKE GAINES

The UK Ministry of Defence Procurement Executive (MoD(PE)) says that its preferred 1997 in-service date for the Army Air Corps attack helicopter could be delayed for up to three years, while it waits for the most cost-effective replacement for the Westland Lynx.

The move opens the door for Eurocopter. Its Tiger helicopter will not be available until 1999.

The in-service date is based on 12 production-standard helicopters, with their weapons, cleared for service use. The current schedule proposed by the MoD(PE) called on manufacturers to reply to requests for information by 30 April. A request for proposals (RFP) is expected to be issued in October, closing in May 1993.

The MoD(PE) expects to complete its review of the RFPs by November 1993. Recommendations, based on a “not-to-exceed” price, would then be put to the MoD Central Committee for full implementation approval in May 1994, with a contract award expected a month later. Fixed prices will be agreed just before submission to the Committee, but will need to be made available in March 1994.

If this timetable is adhered to, the first attack helicopter will be delivered in March 1997.

CASUALTIES

PAKISTAN
A Pakistan air force AAC MFI-17B Mushak crashed on 22 April at Karachi after the solo student bailed out. Two people on the ground were killed.

ITALY
An Italian air force Aermacchi MB.339 crashed into Lake Garda on 22 April just after take off from Villafranca AB. The student, Lt Andrea Gasaldi and his instructor, Capt Enrico Mosca, were killed.

USA
A US Air Force McDonnell Douglas F-15C Eagle crashed near Stuttgart, Germany, on 21 April. The pilot was killed.