

# Safety News

## Fan Blade Warning

The U.S. National Transportation Safety Board (NTSB), citing failures of General Electric (GE) CF34-3B1 turbofan engines on two Bombardier CRJ200s, is recommending that aviation authorities in the United States and Canada take steps to remove from other GE regional jet engines any fan blades that were the products of a faulty manufacturing process.

Both engine failures involved fan blades that fractured because of a material defect introduced when the blades were forged, the NTSB said. The blades were among 28,000 manufactured by Teleflex Aerospace Manufacturing Group in San Luis Potosí, Mexico.

The NTSB said that it issued the recommendations because of its concern that “until the fan blades with the forging problem are removed from service, undercowl fires are likely to result from damage caused during these events.”

No one was injured in the two incidents, both of which ended with safe emergency landings, and there was no airplane structural damage, the NTSB said.

The first incident occurred July 27, 2006, on an Air Nostrom CRJ200 as it climbed through 23,000 ft after departure from Barcelona, Spain; the crew discharged both fire bottles after receiving a no. 1 engine fire warning. At the time, the blade had accumulated 10,896 hours and 8,899 cycles since new.



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The second occurred May 24, 2007, on an Atlantic Southeast Airlines CRJ200 in cruise at 23,000 ft en route from Syracuse, New York, U.S., to Atlanta. The blade had accumulated 5,845 hours and 4,717 cycles since new.

The recommendations to the U.S. Federal Aviation Administration (FAA) included a call to require GE Aviation to “define a reasonable maximum time frame below 4,717 cycles since new for these Teleflex fan blades and require that the blades be removed from service before that limit is exceeded.” A similar recommendation said that Transport Canada should require Bombardier to redesign a portion of the engine throttle gearbox on CRJ100s and CRJ200s “to ensure that it can withstand the loads generated by a fan blade separation or similar event.”

## Voluntary Reporting at Risk?

Pilots’ organizations say voluntary safety reporting systems are jeopardized by a judge’s decision to allow reports from Comair’s aviation safety action program (ASAP) to be scrutinized as part of a crash liability case.

The decision by U.S. District Court Judge Karl Forester involves several lawsuits filed against Comair as a result of the Aug. 27, 2006, crash of a Bombardier CRJ100ER during an attempted takeoff in Lexington, Kentucky, U.S. The crew had inadvertently taxied onto an incorrect runway — only half as long as the runway that had been assigned for takeoff. Forty-nine of the 50 people in the airplane were killed, and one — the first officer — received serious injuries.

John Prater, president of the Air Line Pilots Association, International (ALPA), said the judge’s decision

“undoes a lot of hard work we’ve all accomplished in airline safety and sets us back by decades.”

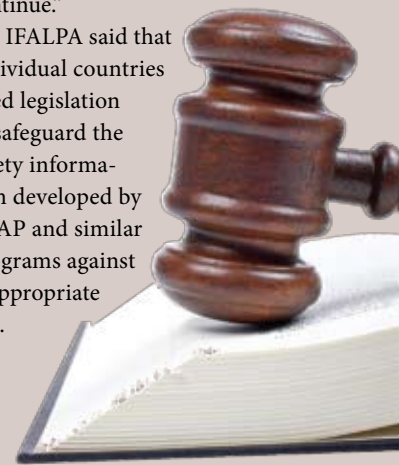
Comair’s ASAP — like similar programs at other airlines — is designed as a confidential reporting system under which airline employees are encouraged to report perceived safety problems, including their own errors, without fear of punishment.

“Our passengers get more benefits from nonpunitive safety reporting programs like the one this judge is undermining than virtually any program in aviation safety,” Prater said. He said that if ASAP data are released, “it will bring pre-emptive, proactive safety solutions in our industry to a screeching halt.”

The International Federation of Air Line Pilots’ Associations (IFALPA) agreed, describing ASAP as “one of the best opportunities to continuously

improve the safety and efficiency of the air transport system. Because the maintenance of such systems requires individuals and organizations to be very forthcoming, there has always been a concern that inappropriate use of the program output could possibly have a chilling effect on the willingness to continue.”

IFALPA said that individual countries need legislation to safeguard the safety information developed by ASAP and similar programs against inappropriate use.



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### Simulated Air Traffic Towers

The U.S. Federal Aviation Administration (FAA) has expanded its use of air traffic control tower simulators in the training of new air traffic controllers. Tower simulators, which were first used in 2006, are being deployed at 19 additional locations, the FAA said.

The simulators are intended to incorporate the latest technology into the training program, said FAA Acting Administrator Robert A. Sturgell. "Experience tells us that real-life training scenarios make a critical difference," Sturgell said.

The tower simulation system includes a large graphic depiction of the airport and surrounding areas, and can be adjusted for different weather and lighting conditions. Synthetic voice response and voice recognition allow student controllers to give and receive responses as they would in a control tower. The simulator does not involve actual air traffic control operations.



U.S. National Aeronautics and Space Administration

### Flight Deck ADS-B

Airbus and ACSS have agreed to certify ACSS's T3CAS — a system that combines a traffic-alert and collision avoidance system (TCAS), terrain awareness and warning system (TAWS) capability and a Mode S transponder in a single unit — on Airbus single-aisle and long-range airplanes.



©ACSS

ACSS said the integrated platform for Airbus will include automatic dependent surveillance–broadcast (ADS–B) capability.

The agreement will make T3CAS standard equipment on A318/319/320/321 and A330/340 airplanes, ACSS said.

### ADS-B Sites Proposed

Airlines participating in a Eurocontrol project have identified 70 airports in Europe where automatic dependent surveillance–broadcast (ADS–B) would be most useful. Under the ADS–B Pioneer Airlines Project, Eurocontrol will discuss with air navigation service providers (ANSPs) whether implementation of ADS–B at those airports would be feasible.

Many of the airports are in countries where ANSPs have been participating with Eurocontrol in ADS–B trials: Austria, France, Germany, Greece, Italy, Sweden, Turkey and the United Kingdom. Other airports are in Norway, Moldova, Romania, Spain and Ukraine.

Most of the airports currently are without surveillance-based air traffic control service and are locations where the introduction of radar would be difficult and costly, Eurocontrol said.

The ADS–B Pioneer Airlines Project, begun in 2007, is intended to help airlines obtain airworthiness approval for existing ADS–B equipment.

### Penalty Proposed for Inspection Failure

The U.S. Federal Aviation Administration (FAA) has proposed a US\$10.2 million civil penalty against Southwest Airlines for operating 46 Boeing 737s that had not undergone mandatory inspections for fatigue cracking in the fuselage.

The FAA said that Southwest did not comply with a September 2004 airworthiness directive that required repetitive inspections of some fuselage areas to detect fatigue cracks. The violations occurred from June 18, 2006, to March 14, 2007; during that period, the airplanes were operated on 59,791 flights, the FAA said. The FAA said that, after Southwest discovered that the required inspections had not been informed, it continued to operate the airplanes until March 23, 2007, on an additional 1,451 flights.

Southwest said that the proposed penalty concerns "one of many routine and redundant inspections" that involved "an extremely small area in one of the many overlapping inspections" designed to detect early indications of cracking.

The company said that after discovering the missed inspection area, it disclosed the matter to the FAA and re-inspected the airplanes in March 2007. Safety of flight was never an issue, the airline said.



© Southwest Airlines

# Cockpit Smoke Solution

**According to Air Safety Week, at least once a day somewhere in North America a plane has to make an unscheduled or emergency landing because of a smoke and in-flight fire event.**

Statistics from FAA Service Difficulty Reports clearly show that in-flight fires, smoke or fumes are one of the most significant causes of unscheduled or emergency landings and account for 3 precautionary landings per day based on 1,089 events during a 10 month period in 1999.

A pilot encountering smoke in the cockpit so thick that the instruments cannot be seen can utilize a relatively simple device, which provides a clear view.

a Jeppesen navigation manual. When needed, the pilot removes the IVU (Inflatable Vision Unit) from the EVAS case and pulls a tab to activate the system. The IVU inflates with one lobe above and one below the glareshield. According to EVASWorldwide, the manufacturer, the whole process takes 15-20 seconds. The pilot leans forward, placing his smoke goggles in contact with the EVAS clear window, giving him an unimpaired view of both vital instruments and the outside world.

After it is activated, EVAS is continually pressurized with filtered cockpit air to

EVASWorldwide uses a fleet of mobile cockpit demonstration units to show potential customers the benefits of the system. EVAS demonstrations use a fog generator to reduce cockpit vision so the pilot cannot see his hand in front of his face. Smoke goggles offer no vision improvement, though they do protect the eyes. After EVAS is deployed, the pilot can clearly see both the vital instruments and out through the windshield. It is truly an amazing experience. Most pilots are sold on the benefits of EVAS on the spot.



**Normal cockpit visibility**



**Uncontrolled smoke in the cockpit  
-No visibility**



**Uncontrolled smoke in the cockpit  
-Visibility with EVAS**

The Emergency Vision Assurance System (EVAS) provides a clear space of air through which a pilot can see flight instruments and out the front windshield for landing. The pilot still relies on the oxygen mask for breathing, smoke goggles for eye protection and employs approved procedures for clearing smoke from the aircraft. When smoke evacuation procedures are not sufficient, EVAS provides emergency backup allowing the pilot to see and fly the aircraft to a safe landing.

EVAS measures 3 x 8.5 x 10 inches when stowed, the approximate space of

maintain volume, and preserve a clear view. The device is independent of aircraft power, relying on a self-contained battery-power supply, pump and filters in each storage case. EVAS systems are designed to run for at least two hours, and filter down to .01 microns. The system requires virtually no installation.

While FAA regulations require smoke detectors, fire extinguishers, smoke goggles and oxygen masks, pilots point out that these safeguards and all other systems and equipment for flight safety are useless if the pilots cannot see to control and land the aircraft.

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### Increasing Errors

Operational errors involving reduced vertical separation minimum (RVSM) aircraft being flown at incorrect flight levels are increasing, according to a report by Eurocontrol.

The 2007 European RVSM Safety Monitoring Report showed a continued increase, which was attributed to erroneous actions by both air traffic control (ATC) and flight crews and to incorrect planning by aircraft operators.

The International Federation of Air Line Pilots' Associations (IFALPA), in its analysis of the information, said that the errors included ATC issuance of clearances to incorrect flight levels or to aircraft not approved for operations in RVSM airspace and, ATC failures to detect and correct pilots' erroneous readback clearances, as well as flight crew failures to obtain ATC clearance for climbs or descents, or failures to climb in compliance with ATC instructions.

IFALPA said that countries and air navigation service providers should ensure that measures exist to "facilitate the early

detection of any trends adverse to the safety of aircraft operating in RVSM airspace and the development and implementation of appropriate mitigations aimed at reducing operational risk, and that all factors that contribute to the operational errors in RVSM airspace are addressed."



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### Training Initiatives

The Civil Aviation Safety Authority of Australia (CASA) has begun implementing new flight training initiatives, which CASA CEO Bruce Byron says are designed to "[get] the regulator involved in some flight tests and [work] more closely with approved testing officers."

The initiatives will include the establishment of a national office of flight training examiners, who will oversee flight training and take over the testing of some pilots, including flight instructors. The new office will oversee approved testing officers and monitor their professional development, Byron said.

"CASA has no intention of taking over all flight tests," he said. "Rather, these initiatives strengthen the relationship between the regulator and approved testing officers in support of our shared interest in safety."

The initiatives are part of an ongoing effort to increase CASA's emphasis on flight training and to press for "even higher standards of performance."



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### In Other News ...

Eurocontrol has released guidance material to help air navigation service providers develop contingency plans for dealing with "challenging circumstances," including disruption of service. ... The **U.S. Federal Aviation Administration** has amended flight data recorder regulations to increase the duration of some cockpit voice recorder (CVR) recordings and increase the recording rate for digital flight data recorders (ASW, 01/08, p. 47). The changes are intended to improve the quality of recorded information and "increase the potential for retaining important information needed for accident and incident investigations," the FAA said.

**Correction ...** A story in the March 2008 issue incorrectly stated the Internet address for lithium-battery safety guidance from the U.S. Department of Transportation; the correct address is <<http://safetravel.dot.gov>>.

Compiled and edited by Linda Werfelman.