

# Safety News

## Component Redesign Sought

A component on Boeing 777 Rolls-Royce RB211 Trent 800 series engines should be redesigned to eliminate the possibility of an icing buildup similar to those that have been cited in two engine thrust rollbacks in 2008, the U.S. National Transportation Safety Board (NTSB) says.

In safety recommendations to the U.S. Federal Aviation Administration (FAA) and the European Aviation Safety Agency (EASA), the NTSB also said that after the redesign of the fuel/oil heat exchanger (FOHE) is complete, operators should be required to install the new system on affected 777s at the next maintenance check or within six months.

Rolls-Royce has indicated that redesign already has begun and that the system should be ready for installation within 12 months, the NTSB said.

In issuing its recommendations, the NTSB cited the Jan. 17, 2008, crash of a British Airways 777-200ER just short of the landing runway at London Heathrow Airport after a flight from Beijing. One person was seriously injured and 12

received minor injuries in the crash, and the airplane was substantially damaged. The U.K. Air Accidents Investigation Branch (AAIB) said in preliminary reports that an accumulation of ice on the FOHE restricted the flow of fuel to the engines, resulting in a dual-engine thrust rollback.

The NTSB also cited a Nov. 26, 2008, incident involving a single-engine thrust rollback in a Delta Air Lines 777 during the cruise segment of a flight from Shanghai, China, to Atlanta. The flight crew performed Boeing's published procedure to recover engine performance and resumed normal flight.

Since the incidents, Boeing has developed additional procedures for dealing with the problem, and the FAA and EASA have incorporated those procedures into airworthiness directives.

"While the procedures may reduce the risk of a rollback in one or both engines due to FOHE ice blockage, they add complexity to flight crew operations, and the level of risk reduction is not well established," the NTSB said. "And because



U.S. National Transportation Safety Board

the recovery procedure requires a descent, the aircraft may be exposed to other risks such as rising terrain or hazardous weather, or the inability to achieve maximum thrust during a critical phase of flight, such as during a missed approach."

As a result, the NTSB said a redesign of the FOHE was "the only acceptable solution" to the safety risk.

Because two similar events occurred within one year, without corrective action, NTSB Acting Chairman Mark V. Rosenker said, "We believe that there is a high probability of something similar happening again."

## Overheated Temperature Probe

The Spanish aviation accident investigation body has recommended that Boeing be required to include in various information manuals instructions on dealing with overheating of the ram air temperature probe while an airplane is on the ground.

The Comisión de Investigación de Accidentes e Incidentes de Aviación Civil cited the Aug. 20, 2008, crash of a McDonnell Douglas MD-82 after takeoff from Madrid-Barajas Airport. The crash killed 154 people, 18 were seriously injured, and the airplane was destroyed.

Before takeoff, the crew had returned to the gate so the overheated temperature probe could be examined by maintenance personnel, who disabled the circuit breaker that supplied power to the probe. A preliminary investigation found that the airplane's flaps and slats were not in takeoff configuration, "resulting in the failure of the airplane to climb properly," and that the crew did not receive an automated takeoff configuration warning during the takeoff roll, the commission said.

The commission said that the steps that should be taken to find the cause of high ram air temperature indications on the ground are not specifically cited in the manufacturer's maintenance manuals, and that airworthiness instructions do not address two possible problems involving temperature probe heating: improper heating on the ground and no heat while airborne.

The commission recommended that the European Aviation Safety Agency and the U.S. Federal Aviation Administration require Boeing to add relevant information to the aircraft maintenance manual, troubleshooting manual and fault isolation manual.



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### NVG Alert

Certain light emitting diode (LED) lighting systems are not visible through night vision goggles (NVG), and NVG users should exercise caution when flying near areas where these lighting systems may be operating, the U.S. Federal Aviation Administration (FAA) says.

The FAA cited a report issued in 2008 by the Canadian Air Force Directorate of Flight Safety, which identified the problem, which involves some obstruction lighting systems that use red LEDs. The lights are visible to the naked eye but not through NVGs.

“Aviation Red light ranges from about 610 to 700 nanometers (nm), and NVGs approved for civil aviation ... are only sensitive to energy ranging from 665 to about 930 nm,” the FAA said in *Safety Alert for Operators*, No. 09007. “Because LEDs have a relatively narrow emission band and do not emit infrared energy like incandescent lights, it is possible for them to meet FAA requirements for Aviation Red but be below the range in which NVGs are sensitive.”



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### Zero Fuel Weight Changes

The U.S. Federal Aviation Administration (FAA) has issued a policy change to prevent operators from claiming that the applicable operating rules for their aircraft have been changed by obtaining supplemental type certificates (STCs) that reduce the aircraft's maximum zero fuel weight (MZFW).

The FAA said it is “aware that persons have obtained STC or amended TC [type certificate] approvals to change an aircraft's FAA-approved limitation and then use the approvals to change the applicability of operating rules they operate under. The STC (or amended TC) may or may not actually make a change to the aircraft.”

Because the changes are not changes in type design, the original TC still determines whether the aircraft is operated under U.S. Federal Aviation Regulations Part 125 or less stringent regulations, the FAA said.

### Investigative Cooperation

The Italian flight safety board, the Agenzia Nazionale per la Sicurezza del Volo (ANSV), says it has established a new “effective spirit of cooperation” with the Italian Ministry of Justice for the investigation of aviation accidents.

“In particular, the Ministry of Justice invited the directors of public prosecutions with the appeals courts to stipulate that, in the case of an accident involving an aircraft and immediately following the event, in compatibility with search and rescue activities, there shall be no tampering with or alteration of evidence before the arrival of the assigned ANSV investigators,” the ANSV said.

According to the agreement, the recovery of wreckage also should be coordinated with the ANSV.

The ANSV statement followed criticism by aviation safety organizations, including Flight Safety Foundation, of prosecutors in Italy and France for their interference in accident investigations in both countries.

The investigations involved the Nov. 27, 2008, crash of an Air New Zealand Airbus A320 off the coast of France and the Feb. 7, 2009, crash of a Cessna Citation in Rome. Seven people were killed when the A320, on a post-maintenance test flight, plunged into the Mediterranean Sea during an approach to Perpignan Airport. Two pilots — the only people in the Citation — were killed after encountering a thunderstorm after

departure from Rome to pick up personnel for an emergency medical services flight.

Flight Safety Foundation said in late February that investigations of both accidents had been delayed “because law enforcement authorities seized vital evidence before safety investigators could examine it.” Some of the evidence was subsequently returned to investigators.

“Unless there is evidence of sabotage, law enforcement and judicial authorities need to step aside, allow accident investigators immediate access to the wreckage and to surviving crew and passengers, and let safety professionals do their job,” said Foundation President and CEO William R. Voss. “To prevent another tragedy, it's far more important that we learn what happened and why than to build a criminal case.”



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### Multimillion-Dollar Penalty

Southwest Airlines will pay a \$7.5 million civil penalty to resolve U.S. Federal Aviation Administration (FAA) enforcement actions for operating 46 airplanes on 59,791 flights without performing required inspections for fatigue cracking in the fuselage, the FAA says.

The penalty could double if Southwest does not perform 13 safety improvements outlined in an agreement with the FAA. Those improvements include increasing the number of on-site technical representatives for heavy maintenance vendors, granting FAA inspectors improved access to information used to track maintenance activities, rewriting FAA-approved manuals and designating a quality assurance manager who does not have responsibility for air carrier certification.

The penalty stemmed from what the FAA said was Southwest's failure, during parts of 2006 and 2007, to comply with a 2004 airworthiness directive that required repetitive inspections of some fuselage areas to detect fatigue cracks. When the penalty was first proposed, Southwest said that the missed inspections



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were "one of many routine and redundant inspections" involving "an extremely small area in one of the many overlapping inspections" aimed at early detections of fatigue cracking.

"This agreement furthers aviation safety by requiring important improvements to the airline's safety program," FAA Acting Administrator Lynne A. Osmus said. "Some of those safety measures exceed FAA regulations."

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*Japanese accident investigators inspect the wreckage of a FedEx McDonnell Douglas MD-11 cargo plane that crashed on landing at Narita International Airport east of Tokyo on March 23. The two pilots — the only people in the airplane — were killed.*

### In Other News ...

A RINC has launched an air-ground data link communications service in **Brazil** that covers all major South American air routes. GLOBALink/VHF ACARS is being carried over the Brazilian Department of Airspace Control's air and ground facilities. ... **Airservices Australia** plans to upgrade three of its air traffic control towers with technology provided jointly by Nav Canada and Sensis Corp. The upgrade is intended to provide controllers with immediate access to flight data and voice communications, and to monitor the airports and their surrounding airspace, Nav Canada said.

**Correction ...** The source was cited incorrectly for Table 1 on p. 35 of the February issue of ASW. The correct source is: Lambregts, A.A.; Nesemeier, G.; Wilborn, J.E.; Newman, R.L. "Airplane Upsets: Old Problem, New Issues." Paper presented at American Institute of Aeronautics and Astronautics Modeling and Simulation Technologies Conference and Exhibit, Aug. 18–21, 2008. AIAA 2008-6867.

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