

ALERT BULLETIN

AB 2005:6/3-4

1/19/05

638618

TO: Bombardier Inc., Canadair

INFO: FAA (ASY-300, AFS-200, AFS-300, AFS-900, LGB-AEG, MKC-AEG, AEU-100, AAI-200, ANM-100), AASC, ASAP, AMFA, ALPA, APA, AIA, ATA, CAAC, IAM, IATA, ICAO, ICASS, IFALPA, NATA, NBAA, NTSB, PAMA, RAA, TWU

FROM: Linda J. Connell, Director
NASA Aviation Safety Reporting System

SUBJ: CRJ200 FALSE GPWS WARNINGS

We recently received an ASRS report describing a safety concern which may involve your area of operational responsibility. We do not have sufficient details to assess either the factual accuracy or possible gravity of the report. It is our policy to relay the reported information to the appropriate authority for evaluation and any necessary follow-up. We feel you should be aware of the following:

ASRS received a report from a CRJ200 first officer that encountered multiple GPWS warnings during an IMC descent from 12,000 feet to 10,000 feet. In response to the initial GPWS warnings, the flight crew climbed to 13,500 feet, and the warnings stopped. The GPWS warnings began again when the crew started a descent to 10,000 feet. The crew verified they were not in danger of impacting terrain, and continued descent to VFR conditions. After the aircraft landed, maintenance determined that the probable cause of the false GPWS warnings was ice. On climb out, the GPWS warnings recurred around 8,500 feet MSL. A subsequent maintenance inspection found that the cause of the false GPWS warnings was hot bleed air directed on the radio altimeter antenna from a sheared Number 1 pack bleed supply line duct. The Number 2 pack bleed supply line was also found cracked. The ducting and antenna were all located in the aircraft's aft equipment bay.

(Keywords: GPWS, False Warnings)

To properly assess the usefulness of our AB service, we would appreciate it if you would take the time to give us your feedback on the value of the information that we have provided. Please contact Michael Jengo at (650) 969-3969 or mjengo@mail.arc.nasa.gov.



Aviation Safety Reporting System
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ACN: 638618

Time

Date : 200411

Day : Mon

Local Time Of Day : 1201 To 1800

Place

Locale Reference.Airport : ZZZ.Airport

State Reference : US

Altitude.MSL.Bound Lower : 11000

Altitude.MSL.Bound Upper : 13500

Environment

Flight Conditions : Mixed

Aircraft / 1

Controlling Facilities.ARTCC : ZZZ.ARTCC

Make Model : Regional Jet 200

Person / 1

Function.Flight Crew : First Officer

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Person / 2

Function.Oversight : PIC

Function.Flight Crew : Captain

Person / 3

Function.Controller : Radar

Person / 4

Function.Maintenance : Technician

Events

Anomaly.Aircraft Equipment Problem : Critical

Anomaly.Altitude Deviation : Excursion From Assigned Altitude

Anomaly.Maintenance Problem : Improper Documentation

Anomaly.Maintenance Problem : Improper Maintenance

Anomaly.Non Adherence : FAR

Anomaly.Non Adherence : Published Procedure

Independent Detector.Aircraft Equipment.Other Aircraft Equipment : GPWS False Warnings

Independent Detector.Other.Flight CrewA : 1

Independent Detector.Other.Flight CrewB : 2

Resolatory Action.None Taken : Detected After The Fact

Consequence.Other : Maintenance Action

Narrative

I WAS THE FLYING PLT AND INITIATED A DSCNT FROM 12000 FT TO OUR ASSIGNED ALT OF 10000 FT IN IMC. AS THE THRUST LEVERS WERE RETARDED, WE GOT A 'GEAR HORN.' A FEW SECONDS LATER, DSCNTING THROUGH APPROX 11000 FT WE GOT MULTIPLE GPWS WARNINGS INCLUDING: 'TERRAIN TERRAIN..WHOOO WHOOP PULL UP' AND 'SINK RATE' ALL THE WHILE WITH OUR GEAR HORN GOING OFF AND THE RADIO ALTIMETER INDICATING IMMINENT GND IMPACT. IN RESPONSE, THE CAPT IMMEDIATELY TOOK THE CTLS AND INITIATED A CLB. WE REACHED AN ALT OF APPROX 13500 FT AND THE WARNINGS STOPPED. ATC CALLED US AND SAID THAT THEY NEEDED BEST RATE DOWN TO 10000 FT FOR TFC. AS THE CAPT STARTED OUR DSCNT BACK DOWN, THE WARNINGS CAME BACK ON, INCLUDING THE RADIO ALTIMETER INDICATING CLOSE PROXIMITY TO THE GND. WE VERIFIED THAT WE WERE NOT IN DANGER OF IMPACTING TERRAIN AND PROCEEDED TO OUR NEW ASSIGNED ALT OF 9000 FT WHERE WE CAME INTO VFR CONDITIONS. AFTER LNDG, MAINT DETERMINED THAT THE PROBABLE CAUSE OF OUR FALSE WARNINGS WAS ICE. WE WERE RELEASED TO TKOF BACK TO ZZZ. CLBING BACK OUT, WE AGAIN GOT THE GPWS WARNINGS AROUND 8500 FT MSL. WE NOTED A SAT OF -6, TAT OF FIVE AND NO ICE ANNUNCIATION. UPON LNDG IN ZZZ, MAINT AGAIN INSPECTED THE AIRPLANE AND FOUND THAT THE #1 PACK SUPPLY LINE WAS SHEARED IN TWO AND THAT THE #2 SUPPLY LINE WAS ALSO CRACKED. THE BROKEN SUPPLY LINE WAS CAUSING HOT BLEED AIR TO LEAK INTO THE AFT EQUIP BAY WHERE THE RADIO ALTIMETER ANTENNA IS LOCATED. FACTORS LEADING TO THE ALT DEV: 1. DSCNT IN IMC AT 1500 FPM WITH RISING TERRAIN. 2. MULTIPLE GPWS WARNINGS AND RADIO ALTIMETER READING ALL INDICATING IMMINENT GND IMPACT. HAD THE INDICATIONS OCCURRED DURING CRUISE OR IN VMC, WE WOULD NOT HAVE MADE THE CLB IN RESPONSE. HOWEVER, WITH MULTIPLE WARNINGS IN IMC, WITH RISING TERRAIN, A CLB WAS MADE WHICH LED TO OUR ALT DEV. CALLBACK CONVERSATION WITH RPTR REVEALED THE FOLLOWING INFO: THE RPTR STATED THE CAUSE OF THE FALSE WARNING WAS HOT BLEED AIR DIRECTED ONTO THE RADIO ALTIMETER ANTENNA FROM A SHEARED #1 PACK BLEED SUPPLY LINE DUCT. THE #2 PACK BLEED SUPPLY LINE WAS ALSO FOUND CRACKED. THE DUCTING AND ANTENNA ARE ALL LOCATED IN THE AFT EQUIP BAY.

Synopsis

A CRJ-200 ON DSCNT FROM 12000 FT REACHING 11000 FT GOT MULTIPLE GND PROX WARNINGS. INITIATED CLB TO 13000 FT, WARNINGS STOPPED. ON APCH TO LNDG WARNINGS CONTINUED. CAUSED BY BLEED AIR LEAK ON RADIO ALTIMETER ANTENNA.