

# ALERT BULLETIN

AB 2007:5/3-3  
3/6/07  
717354

TO: Avion de Transport Regional

INFO: FAA (AFS-230, AFS-200, AFS-300, AFS-900, ANM-100, SEA-AEG), AASC, AIA, ALPA, AMFA, APA, ASAP, ATA, IATA, IAM, ICASS, IFALPA, NATA, NTSB, PAMA, RAA, TWU

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

SUBJ: ATR-42 STABILIZER/TRIM CABLE FEED-TRHOUGH ICE CONTAMINATION

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 an ATR-42 captain who alleges that during a climb out in light rain with +3C, considerable forward pressure was required to control pitch. The reporter stated that the aircraft was clear of ice/frost during the preflight check and that all de-ice and anti-ice systems were activated during the climb. The captain indicated that during autopilot operation the pitch trim had run full forward. The crew decided to return for landing. Subsequent to initiation of descent, the pitch controls resumed normal operation. Post flight maintenance inspections discovered water frozen in the tail section. Reporter investigation suggests that the cable fed through holes to the stabilizer and/or trim that were frozen.

(Keywords: Control Restrictions, Frozen Water, Tail Section)

To properly assess the usefulness of our FYI 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 Harvey Hartmann or Don Purdy at (408) 541-2800 or email at [hhartmann@mail.arc.nasa.gov](mailto:hhartmann@mail.arc.nasa.gov), [dpurdy@mail.arc.nasa.gov](mailto:dpurdy@mail.arc.nasa.gov).



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## ACN: 717354

### Time

Date : 200611

Day : Tue

Local Time Of Day : 1801 To 2400

### Place

Locale Reference.Airport : ZZZ.Airport

State Reference : US

Altitude.MSL.Bound Lower : 10000

Altitude.MSL.Bound Upper : 13000

### Environment

Flight Conditions : IMC

### Aircraft / 1

Controlling Facilities.ARTCC : ZZZ.ARTCC

Make Model : ATR 42

### Person / 1

Function.Oversight : PIC

Function.Flight Crew : Captain

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### Person / 2

Function.Flight Crew : First Officer

### Person / 3

Function.Controller : Radar

### Events

Anomaly.Aircraft Equipment Problem : Critical

Anomaly.Inflight Encounter : Weather

Independent Detector.Aircraft Equipment.Other Aircraft Equipment : Autoplt 'Mistrim' Warning

Independent Detector.Other.Flight CrewA : 1

Independent Detector.Other.Flight CrewB : 2

Resolatory Action.Other : Return To Departure Airport

Consequence.Other : Maintenance Action

### Narrative

WE DEPARTED ZZZ AT XA45Z. WEATHER AT DEP WAS LIGHT RAIN AND +3 DEGS CENTIGRADE. UPON ENTERING CLOUDS WE ACTIVATED ALL DEICE AND ANTI-ICE SYSTEMS ON THE ACFT. WE CLBED OUT ON THE INSTRUMENT DEP. I HAND FLEW THE PLANE UP TO 10000 FT MSL AND THEN ACTIVATED THE AUTOPLT. THE AUTOPLT FLEW THE PLANE FROM 10000 FT UP TO 13000 FT AND LEVELED OUT FOR CRUISE. DURING THE CLB OUT WE ENCOUNTERED LIGHT TO MODERATE MIXED ICING. AFTER LEVEL OFF THE AUTOPLT DISPLAYED THE CAPT 'PITCH MISTRIM.' AT THIS POINT I DISCONNECTED THE AUTOPLT AND HAD TO HOLD CONSIDERABLE FORWARD PRESSURE ON THE YOKE TO KEEP THE ACFT FROM CLBING. I ALSO NOTICED THAT THE AUTOPLT HAD RUN THE PITCH TRIM FULL FORWARD. AT THIS POINT THE FO AND I DECIDED TO RETURN TO ZZZ. SO WE ASKED FOR VECTORS FOR THE ILS APCH. AS WE DESCENDED AND CONFIGURED FOR APCH, THE PITCH CONTROLS BEGAN TO ACT NORMALLY. WE NO LONGER HAD TO APPLY FORWARD PRESSURE ON THE CONTROLS TO MAINTAIN LEVEL FLT. WE LANDED NORMALLY AT ZZZ AND NOTIFIED DISPATCH AND MAINT CONTROL OF OUR PROBS.

CALLBACK CONVERSATION WITH RPTR REVEALED THE FOLLOWING INFO: THE RPTR STATED THE AIRPLANE WAS CHKED FOR ICE OR FROST ON THE PREFLT CHK AND NONE WAS NOTED. THE AIRPLANE WAS DISPATCHED IN A LIGHT RAIN AND +3 DEGS CENTIGRADE AND THE FLT CONTROLS WERE FREE AND OPERATED NORMALLY. THE ANTI-ICE SYSTEMS WERE ACTIVATED WHEN ENTERING CLOUDS AND REMAINED ON DURING THE ENTIRE FLT. THE AUTOPLT WAS ENGAGED AT 10000 FT AND CLBED THE AIRPLANE UP TO 13000 FT WHERE IT LEVELED THE AIRPLANE AND THEN DISPLAYED 'PITCH MISTRIM.' AUTOPLT WAS DISCONNECTED AND HAND FLOWN WHERE IT WAS NOTED FORWARD PRESSURE WAS REQUIRED TO MAINTAIN LEVEL FLT. RETURNED TO THE DEP ARPT WHERE MAINT DISCOVERED WATER FROZEN IN THE TAIL AREA.

### **Synopsis**

AN ATR42 ON CLBOUT AT 10000 FT WITH AUTOPLT ENGAGED LEVELED OFF AT 13000 FT THEN DISPLAYED 'PITCH MISTRIM.' FLT CREW DISCONNECTED AUTOPLT AND RETURNED TO DEP ARPT CITING NEED FOR CONSIDERABLE FORWARD ELEVATOR PRESSURE.