

6/14/2006

FOR YOUR INFORMATION

2006-49/3-12

686032

To: Airbus Industries

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

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

Re: A320 AIRFRAME VIBRATION

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 enclosed deidentified report.

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, dpurdy@mail.arc.nasa.gov.



Aviation Safety Reporting System
385 Moffet Park Dr · Suite 200 · Sunnyvale · CA · 94089



ACN: 686032

Time

Date : 200601

Day : Sun

Local Time Of Day : 1801 To 2400

Place

Locale Reference.Airport : ZZZ.Airport

State Reference : US

Altitude.MSL.Single Value : 1700

Aircraft / 1

Controlling Facilities.Tower : ZZZ.Tower

Make Model : A320

Person / 1

Function.Oversight : PIC

Function.Flight Crew : Captain

ASRS Report : 686032

Person / 2

Function.Flight Crew : First Officer

Person / 3

Function.Flight Attendant : On Duty

Events

Anomaly.Aircraft Equipment Problem : Critical

Anomaly.Other Anomaly.Other : Airframe Vibration

Independent Detector.Other.Flight CrewA : 1

Independent Detector.Other.Flight CrewB : 2

Independent Detector.Other.Other : 3

Resolutive Action.None Taken : Anomaly Accepted

Consequence.Other : Maintenance Action

Narrative

THE APCH WAS NORMAL UP TO FULL FLAP EXTENSION. FLAPS 1 AND THEN 2 EXTENSIONS WERE MADE WHILE WELL OUTSIDE THE FAF AND GEAR EXTENSION WAS MADE JUST BEFORE THE FAF. FLAPS FULL WAS SELECTED JUST INSIDE THE FAF, I WOULD GUESS AT ABOUT 1400 FT AGL. STARTING AT ABOUT 1000 FT TO 500 FT WE FELT A VIBRATION VERY SIMILAR TO THAT EXPERIENCED WITH FULL SPDBRAKE EXTENSION INFLT WITH A CORRESPONDING AND FAIRLY LOUD AERODYNAMIC ROARING SOUND THAT WAS IMMEDIATELY NOTICED BY ME AND MY FO. MY FIRST THOUGHT WAS THAT THE SPDBRAKES HAD SOMEHOW BECOME DEPLOYED. WE BOTH CHKED TO MAKE SURE THAT THEY WERE INDEED DOWN AND ARMED FOR LNDG. AT THAT POINT, IT SEEMED TO BE TAKING MORE POWER THAN NORMAL TO HOLD OUR APCH SPD WHICH MADE ME THINK THAT WE COULD HAVE HAD SOME INFLT ICING. I VERBALIZED THIS TO THE FO AND HE SCANNED THE R WING FROM HIS WINDOW. WHILE THERE WERE NO VISUAL INDICATIONS OF ICING ON THE ICE PROBE, I ASKED THE FO TO TURN THE WING HEAT ON. AFTER TURNING THE WING HEAT ON, THE FO AGAIN CHKED THE WING AND SAW THAT THE WING STILL APPEARED TO BE COMPLETELY CLEAN. THE BUFFETING NOISE AND VIBRATION CONTINUED AND I VERBALIZED THAT I WAS GOING TO ADD SOME SPD TO THE APCH AND CONTINUE TO LAND. THE FO AGREED AND WE CONTINUED TO A NORMAL LNDG. THE VIBRATION ENDED AS WE TOUCHED DOWN ON THE RWY. I DID NOTICE THAT ON APCH I WAS USING A LITTLE MORE POWER THAN NORMAL. GENERALLY I WOULD HAVE HAD ABOUT 2600 LBS PER HOUR FUEL FLOW ON EACH ENG DURING THE LAST 1000 FT. ON THIS APCH I SEEM TO RECALL NEEDING CLOSE TO 3400 LBS PER HOUR TO HOLD MY SPD. UPON CLEARING THE RWY, THE FO AND I BOTH AGREED THAT THE VIBRATION WE FELT WAS WAY OUT OF THE ORDINARY AND NEEDED TO BE WRITTEN UP. I LET THE FO GO AHEAD AND LEAVE AFTER WE REACHED THE GATE. I CALLED MAINT TO GIVE THEM A HEADS UP ON THE FORTHCOMING WRITE UP AND THEN CALLED MAINT OPS CTL ON MY PHONE. I THINK IT WAS WHILE I WAS TALKING TO MAINT CTL THAT THE 2 FLT ATTENDANTS THAT WERE SITTING IN THE REAR OF THE ACFT CAME FORWARD TO BRIEF ME ON THEIR EXPERIENCE DURING THE APCH. THEY BOTH TOLD ME THAT THE VIBRATION AND NOISE THEY FELT WAS FAR GREATER THAN ANYTHING THEY HAD EXPERIENCED BEFORE AND THAT THEY HAD STARTED PRAYING AS THEY WERE BOTH SURE THAT THE AIRPLANE WAS ABOUT TO CRASH. THE FEELING I GOT WAS THAT SEVERAL PAX IN THE BACK OF THE AIRPLANE WERE ALSO VERY CONCERNED ABOUT THE NOISE AND VIBRATION. WHEN I ASKED THE FLT ATTENDANTS WHERE THEY THOUGHT THE NOISE AND VIBRATION WERE COMING FROM THEY BOTH SAID IT SEEMED TO BE COMING UP FROM THE FLOOR. THEY WERE BOTH VISIBLY SHAKEN BY THE EXPERIENCE AND I DO NOT DOUBT THAT THEY HAD BEEN PRETTY SCARED. I CONTINUED TO EXPLAIN THE BEST I COULD WHAT I SENSED AND FELT DURING THE FINAL STAGES OF THE APCH TO MAINT. MAINT TOLD ME THAT HE BELIEVED IT TO BE A KNOWN FLAP PROBLEM WITH THE AIRBUS FLEET BUT DID NOT ELABORATE. AT THIS POINT, OUR MECHANICS ARRIVED AND I ONCE AGAIN EXPLAINED THE PROBLEM TO THEM. I ALSO FILLED OUT ONE OF THE VIBRATION FORMS ON THE ACFT AND GAVE IT TO ONE OF THE MECHANICS. AT THIS POINT THE OUTBOUND CREW SHOWED UP AND I BRIEFED THEM ON WHAT HAD TRANSPIRED. I THEN WENT OUT AND COMPLETED THE POST FLT INSPECTION FOR MYSELF TO SEE IF THERE WAS ANYTHING OBVIOUS THAT I COULD SEE THAT COULD EXPLAIN THE VIBRATION AND NOISE. THERE WAS NO TRACE OF ICE AND THERE WERE NO OBVIOUS CLUES AS TO WHAT HAD CAUSED OUR EXPERIENCE.

CALLBACK CONVERSATION WITH RPTR REVEALED THE FOLLOWING INFO: THE RPTR STATED THAT IN HIS FOLLOWUP ABOUT THIS EVENT, HE WAS TOLD ABOUT AN INBOARD FLAP ATTACH BEARING WORN OUT OF LIMITS AND THE FLAP MOVEMENT AROUND THE BEARING. ADDITIONALLY, THE RPTR SAID THE FLAP ACTUATOR WAS AT OR BEYOND WEAR LIMITS. ALSO OF GREAT CONCERN TO THIS RPTR WAS THAT DURING TROUBLESHOOTING, FAILED RUDDER ATTACH BOLTS WERE FOUND. RPTR STATED IT WAS ASSUMED THE BOLT FAILURES WERE THE RESULT OF THE VIBRATIONS.

Synopsis

AN A320 CREW RPTS AIRFRAME VIBRATION ON FINAL AFTER FLAP EXTENSION CAUSED BY A WORN FLAP BEARING AND FLAP ACTUATOR.