ALERT BULLETIN

AB 2004:128/3-75
11/9/04
629102

TO: Boeing Commercial Airplane Company

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

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

SUBJ: B757-200 SINGLE ENGINE RAM AIR TURBINE SIMULATION DEMONSTRATION

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:

A B757-200 captain reported that during a simulation problem, the check airman demonstrated a potential series of events that could be experienced in real flight with serious results. The aircraft was reportedly established at the marker, configured for single engine landing, gear down, flaps 20, and an APU failure was introduced resulting in one electrical source. Following the APU failure, the reporter claims "...the simulator demo showed a loss of both rudder and aileron authority to the point of loss of aircraft control." The check airmen then demonstrated that deployment of the ram air turbine (RAT) would provide ample hydraulic authority to return normal control responses. The reporter noted that the RAT deployment procedure is currently "...not part of any engine failure procedure checklist..." and suggests that it should be included "...in the book."

(Keywords: APU Failure, Ram Air Turbine (RAT), Engine Failure Checklist)

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
625 Ellis Street * Suite 305 * Mountain View * CA * 94043

ACN: 629102

Time

Date : 200408

Day : Fri

Place

Locale Reference.Airport : ZZZ.Airport

State Reference : US

Person / 1

Function.Flight Crew : Captain

ASRS Report : 629102

Person / 2

Function.Observation : Company Check Pilot

Events

Anomaly.Aircraft Equipment Problem : Critical

Anomaly.Maintenance Problem : Improper Documentation

Anomaly.Other Anomaly : Loss Of Aircraft Control

Anomaly.Other Anomaly : Unstabilized Approach

Independent Detector.Other.Flight CrewA : 1

Independent Detector.Other.Flight CrewB : 2

Resolutory Action.Flight Crew : Overcame Equipment Problem

Consequence.Other.Other : Training Accomplished

Narrative

I UNDERSTAND THAT THE SIM IS NOT THE AIRPLANE. HOWEVER, THE CHECK AIRMAN SHOWED US SOMETHING I THINK COULD BE SERIOUS. HE PUT US AT THE MARKER CONFIGURED FOR LNDG SINGLE ENG, GEAR DOWN, FLAPS 20, RUDDER ADJUSTED PROPERLY. HE FAILED THE APU, SO WE WERE DOWN TO 1 ELECTRICAL SOURCE. DURING THE APCH, THE ACFT BECAME UNCONTROLLABLE. WE TRIED IT AGAIN AND PUT OUT THE RAT THIS TIME, TO A HAPPY ENDING. IF THE SIM IS SIMILAR TO THE ACFT, THIS COULD BE A SERIOUS PROB AND SHOULD BE IN THE BOOK THAT IN CASE OF APU NOT START (OR PLACARDED INOP) TO PUT OUT THE RAT. IT IS NOT THERE NOW, AND A SERIOUS ACCIDENT COULD TAKE PLACE WITHOUT WARNING. CALLBACK CONVERSATION WITH RPTR REVEALED THE FOLLOWING INFO: THE RPTR DISCUSSED THE RAMIFICATIONS OF AN ENG FAILURE ON THE ELECTRICAL AND HYDRAULIC SYSTEMS OF THE B757. AMONG OTHER SYSTEM ANOMALIES, ONE OF THE TWO ELECTRIC PUMPS FOR THE CTR HYDRAULIC SYSTEM (ONE OF THREE SYSTEMS) IS SHUT DOWN. THE SIMULATOR DEMO SHOWED A LOSS OF BOTH RUDDER AND AILERON AUTHORITY TO THE POINT OF LOSS OF ACFT CTL. THE CHECK AIRMAN DEMONSTRATED THAT DEPLOYING THE 'RAT' (RAM AIR TURBINE [AIR DRIVEN HYDRAULIC PUMP]) WOULD PROVIDE AMPLE ADDITIONAL HYDRAULIC AUTHORITY TO RETURN NORMAL CTL RESPONSE. HE STRONGLY NOTED THAT RAT DEPLOYMENT IS 'NOT' PART OF ANY ENG FAIL PROC CHECKLIST. RPTR DID ACKNOWLEDGE THE APPARENT DICHOTOMY OF THE LACK OF ANY SUCH SIMULATOR FLT CTL PROBS DURING ENG FAILURE AT TKOF PROCS, WHICH ARE ROUTINELY FLOWN TO 1500 FT OR MORE BEFORE ANY CHECKLIST PROC IS INITIATED. THE REQUIREMENT TO START THE APU (NOTED AS 'IF AVAILABLE') IS NOT PART OF THE IMMEDIATE ACTION STEPS OF SUCH A PROC AND IS ONLY PART OF 'TIME PERMITTING' OR 'REFERENCE ACTION' STEPS. THUS, THE STARTING OF THE APU COULD WELL NOT BE INITIATED UNTIL SEVERAL MINUTES AFTER THE ENG FAILURE.

Synopsis

A B757 CAPT RPTS THAT COMPANY TRAINING CHECK AIRMEN ARE DEMONSTRATING A LOSS OF AILERON AND RUDDER CTL AUTHORITY ON APCHES WHEN AN ENG FAILS AND THE APU IS NOT AVAILABLE TO ALLOW FULL ELECTRIC CTR HYDRAULIC SYSTEM CAPABILITY. THIS DEMO IS DONE IN THE SIMULATOR AND AUTHORIZED BY THE COMPANY. NONETHELESS, HIS COMPANY DISPATCHES THESE ACFT WITH INOPERATIVE APU'S AND WITH NO FAA APPROVED PROC TO COMPENSATE FOR THIS SHORTCOMING.