



FINAL SUMMARY REPORT FOR THE ADC-3000

AIR 13-03

DATE: 13 March, 2013

LOCATION: Thomson-McDuffie County Airport, GA

AIRLINE CUSTOMER: The Vein Guys (owned by Pavilion Group LLC)

DATE OF INCIDENT: 20 February, 2013

AIRCRAFT TYPE / TAIL: Beechcraft Premier IA/N777VG sn: RB-208

DESCRIPTION / PART# / SERIAL#:

ADC-3000 / 822-1109-016 / 2FWFL and 2FWBP

REPORTED PROBLEM: A Beechcraft Premier IA corporate jet, registered N777VG, was destroyed in a landing accident at Thomson-McDuffie County Airport, GA, USA. The airplane departed Nashville-John C. Tune Airport, TN about 18:25 CST on a flight to Thomson-McDuffie County Airport, GA. Preliminary reports indicate, that the pilot aborted the landing on runway 10. The plane went airborne off the end of the runway but hit the top of a 60-foot-tall cast-concrete utility pole. The impact sheared the left wing from the plane, causing the aircraft to catch fire. It continued airborne for about a quarter mile through trees before crashing into a wooded area and caught fire.

IFF Reported to (Authority) FAA

Test Date: 7/29/2013

Cognizant Engineer: Mark Niday

Quality Engineer Witness: Farhan Mansoor

Person performing Teardown: Randy Wilson

Authorities and/or outside companies to be present if any:

Ernest Hall, Senior Air Safety Investigator, Beechcraft Corporation

Ralph Hicks, Senior Air Safety Investigator, National Transportation Safety Board

PURPOSE

The purpose of this document is to provide a summary report of the investigation conducted at Rockwell Collins on two air data computers referenced above.

OVERVIEW

Two air data computers, model ADC-3000, Rockwell Collins part number 822-1109-016, serial numbers 2FWFL and 2FWBP, were received by Rockwell Collins. They were inspected, tested and disassembled. The NVM memory was read as part of the testing and it was analyzed. The units were reassembled and returned.

ASSESSMENT

The mounts of both ADC's were damaged which did not occur during crash safety testing to DO-160D category B (20 g) during qualification, indicating that acceleration beyond 20 g was encountered during the accident. The ADC is only rated for operational shock to 6 g so they were clearly stressed beyond their design requirements. Because of the ADC's function of providing flight critical data, reuse of these damaged units is prohibited for safety reasons per Rockwell Collins policy RC-QMS-I-641.

Some dents and scrapped paint were observed on the chassis of 2FWFL. When opened, the card mounting rails in 2FWFL were bent down and the A4 and A5 circuit card assemblies were loose. 2FWBP was covered in dirt, obscuring the view of surface defects. Otherwise the cards appeared normal and there was no FOD, loose or damaged components, signs of mud or other liquid within the ADC's.

Both ADC's functioned normally in every way per the PTR. The ADC-3000.VER test and ADC-3000.HW tests from the PTR were performed with the only failure being based on the batteries' age requiring that they need to be replaced before being returned to service to ensure a long service life. Batteries in both units were still fully functional.

The ADC-3000.VER test recorded the NVM containing the fault log from each ADC. This was analyzed.

2FWBP showed a final power cycle with weight coming off wheels at 4 minutes after power on and weight on wheels again at 44 minutes after power on. Ps pressure measured 29.57348 inHg and Qc pressure measured 0.52655inHg when weight returned on wheels. Following the weight on wheels, within the 44th minute after power on, 3 faults were indicated. In order, they were for a bad Ps counter, a bad Qc counter and an unexpected interrupt. These are mostly likely from extreme acceleration causing electrical connections between the circuit cards within the ADC to fail.

2FWFL's NVM showed a final power cycle with weight coming off wheels at 4 minutes after power on and a return to weight on wheels at 44 minutes after power on. PS pressure measured 29.57553inHg and Qc pressure measured 0.52773inHg when weight returned to wheels. There were no other entries after that in the NVM.

After testing, the units were completely disassembled and all of the cards were examined and photographed. The card mounting rails in 2FWFL were photographed as they were bent to the point that the A4 and A5 circuit card assemblies were loose.