

**NATIONAL TRANSPORTATION SAFETY BOARD**

**Office of Aviation Safety**

**Washington, DC 20594**

**Group Chairman's Factual Report**

**March 16, 2005**

**SYSTEMS GROUP CHAIRMANS'S FACTUAL REPORT ADDENDUM**  
**REGARDING DME INDICATOR**

**DCA05MA004**

**A. ACCIDENT**

**Location:** Kirksville, Missouri  
**Date:** October 19, 2004  
**Time:** 1945 central daylight time (CDT)  
**Aircraft:** British Aerospace Jetstream 32, N875JX  
Corporate Airlines Flight 5966

**B. SYSTEMS GROUP**

**Chairman:** Carolyn Deforge  
National Transportation Safety Board  
Office of Aviation Safety (AS-40)  
Washington, DC

**Members:** Jesse Pruneda  
Federal Aviation Administration  
Aviation Safety Inspector  
Kansas City, Missouri  
  
Richard Callahan  
BAe Systems  
Repair Station Accountable Manager  
Union, Kentucky  
  
Richard Holt  
Corporate Airlines  
Avionics Manager  
Smyrna, Tennessee

: Brian McDermid  
Air Accidents Investigation Branch  
Inspector of Air Accidents (Engineering)  
Farnborough, England

### **C. SUMMARY:**

On October 19, 2004, about 7:45 p.m. central daylight time (CDT), a British Aerospace Jetstream 3201 twin-engine turboprop airplane, operating as American Connection flight 5966 (a feeder commuter for American Airlines), crashed during an instrument approach to the Kirksville Regional Airport in Kirksville, Missouri. The airplane carried 2 crewmembers and 13 passengers. The flight was being operated as a scheduled Part 121 airline flight. It departed from St. Louis, Missouri, about 6:45 p.m. and was destined for Kirksville.

The flight was being vectored by the Kansas City Air Route Traffic Control Center (ARTCC) for the Localizer Distance Measuring Equipment (LOC-DME) approach to runway 36 at Kirksville. The airplane was cleared to descend from 15,000 feet. The airplane crashed about 4 miles from the runway during the approach. Eleven of the 13 passengers and the 2 flight crewmembers were fatally injured. The two surviving passengers received serious injuries. The airplane was destroyed by impact and post-impact fire.

American Connection is owned and operated by Corporate Airlines, a commuter airline based in Smyrna, Tennessee.

### **D. DETAILS OF THE INVESTIGATION:**

The systems group met at Rockwell Collins Wichita Service Center in Wichita, Kansas on February 17, 2005 to examine the First Officer's DME Indicator, Model IND-42A, P/N 622-6524-003, S/N 3316. Maintenance records indicate that this unit was repaired by Instrument Tech Corporation of Addison, TX, on October 9, 2004. The unit had been submitted for repair because the display was unreadable. Instrument Tech removed and replaced the display, and performed an acceptance test on the unit. It was then returned to Corporate Airlines, where it was installed on the accident aircraft on October 16, 2004.

Visual examination of the indicator found it to be bent, as well as having experienced crush damage (See Figure 1). The display itself was not cracked and was removed from the indicator. A date code of "9648" was noted on the back of the display.



**Figure 1 - DME Indicator**

The casing was cut open to allow examination of the internal components and circuit boards. Corrosion was visible throughout the interior of the unit, but there was no evidence of arcing or shorting in the electrical components. All items on the circuit boards appeared to be secure.

The two potentiometers for the display power supply were found to be in a nominal position. Poor solder quality was apparent in a repaired area, but electrical continuity was not compromised. A date code of 0688 was present on the A2 circuit board; the A1 circuit board had a date code of 3888.

The push button switch operated freely with no binding. The display was cleaned with a brush and installed in a known good unit. Power was applied to the good unit and the display was found to operate correctly with all segments clear and legible (See Figure 2). The A1 card was then installed in the known good unit, along with the display from the accident unit, and found to operate correctly.



**Figure 2 - Accident Display Installed in Slave Unit**

Examination of the A2 card under ultraviolet light found evidence of Humiseal, a moisture barrier, on both the U1 (microprocessor) and U12 (EPROM) chips, as well as in the sockets on the board itself. The U1 chip was cleaned prior to installation in the slave unit to prevent damage to the slave unit. After installation in the slave unit, the U1 chip was found to operate correctly. The U12 chip was removed and also cleaned prior to installation in the slave unit. The unit was found to operate correctly.