Aviation Investigation Final Report

Location:	Telluride, Colorado	**Incident Number:**	DEN03IA032
Date & Time:	January 4, 2003, 09:00 Local	**Registration:**	N270KA
Aircraft:	Hawker Siddeley HS-125-700A	**Aircraft Damage:**	Minor
Defining Event:		**Injuries:**	6 None
Flight Conducted Under:	Part 135: Air taxi & commuter - Non-scheduled		

Analysis

The crew had started the auxiliary power unit (APU) approximately 30 minutes prior to starting engines. The crew and 4 passengers were on board the airplane, when the crew started the number 2 engine and smelled smoke. The crew turned around to observe smoke in the cabin. The crew shut down the number 2 engine, the APU, and all electrical switches. The crew and passengers got off the airplane through the main cabin door. An inspection of the airplane revealed a venturi fan unit motor located aft of the rear cabin bulkhead had overheated and failed. Components and wiring in the vicinity of the venturi were charred. No other anomalies were found. The venturi was an older model identified in 1994 as being subject to fan motor overheating. A 1994 AD required that the older units be inspected every 4 years. The unit on the incident airplane was installed in 1999.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this incident to be: the overheated and burned venturi fan motor.

Findings

Occurrence #1: AIRFRAME/COMPONENT/SYSTEM FAILURE/MALFUNCTION
Phase of Operation: STANDING - ENGINE(S) OPERATING

Findings
1. (C) ELECTRICAL SYSTEM,ELECTRIC MOTOR - OVERTEMPERATURE
2. (C) ELECTRICAL SYSTEM,ELECTRIC MOTOR - BURNED
3. MAINTENANCE,MODIFICATION - DELAYED - COMPANY/OPERATOR MANAGEMENT

Factual Information

On January 4, 2003, approximately 0900 mountain standard time, a Hawker Siddeley HS-125-700A, N270KA, operated by Key Air, Incorporated, and piloted by an airline transport pilot, encountered smoke in the cockpit during engine start in preparation for takeoff at the Telluride Regional Airport, Telluride, Colorado. The airplane was shut down and an emergency evacuation was accomplished. Airport fire department units responded to the airplane. The captain, first officer, and four passengers on board were not injured. Visual meteorological conditions prevailed at the time of the incident. The unscheduled, domestic business flight from Telluride, Colorado, to Oxford, Connecticut, was being conducted on an instrument flight rules plan under the provisions of Title 14 CFR Part 135. The cross-country flight was originating at the time of the incident.

According to the company, the crew had started the auxiliary power unit (APU) approximately 30 minutes prior to starting engines. The crew and 4 passengers were on board the airplane. The crew started the number 2 engine and smelled smoke. They turned around to observe smoke in the cabin. The crew shut down the number 2 engine, the APU, and all electrical switches. The crew and passengers got off the airplane through the main cabin door.

An inspection of the airplane revealed a venturi fan unit, located aft of the rear cabin bulkhead, was charred. Insulation, wires, and air ducts in the immediate vicinity of the unit were also charred. No other anomalies were found. An examination of the venturi fan unit showed the motor had overheated and subsequently failed.

According to the company, the venturi unit was installed in 1999. The unit, part number 207640-10, serial number 53-3671, was an older model identified by Hawker, in 1994, as being subject to in-service failure due to the fan motor overheating and resulting in smoke generation in the cabin. On February 22, 1994, Hawker Aircraft issued an Alert Service Bulletin requiring the inspection of all existing units at that time. A few months later, an Airworthiness Directive was issued requiring a minimum inspection period of 4 years on the unit. The company's Chief Pilot stated that a new thermal fuse unit was produced in 1994 or 1995, which senses heat earlier and shuts the unit down before tripping the circuit breaker.

Following the incident, the company replaced the venturi units in its other two Hawker airplanes with the thermal fuse type unit.

Pilot Information

Certificate:	Airline transport	**Age:**	61,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Front
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	
Instrument Rating(s):	Airplane; Helicopter	**Second Pilot Present:**	Yes
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 1 None	**Last FAA Medical Exam:**	September 6, 2002
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	December 4, 2002
Flight Time:	10663 hours (Total, all aircraft), 3060 hours (Total, this make and model), 6518 hours (Pilot In Command, all aircraft)		

Co-pilot Information

Certificate:	Airline transport	**Age:**	32,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Rear
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 1 None	**Last FAA Medical Exam:**	November 22, 2002
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	August 30, 2002
Flight Time:	4650 hours (Total, all aircraft), 350 hours (Total, this make and model), 1600 hours (Pilot In Command, all aircraft), 150 hours (Last 90 days, all aircraft), 35 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Hawker Siddeley	**Registration:**	N270KA
Model/Series:	HS-125-700A	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	NA0307
Landing Gear Type:	Retractable - Tricycle	**Seats:**	10
Date/Type of Last Inspection:	September 24, 2002 Annual	**Certified Max Gross Wt.:**	25000 lbs
Time Since Last Inspection:	155.5 Hrs	**Engines:**	2 Turbo fan
Airframe Total Time:	12051.8 Hrs at time of accident	**Engine Manufacturer:**	Garrett-AiResearch
ELT:	Not installed	**Engine Model/Series:**	TFE731-3R-1H
Registered Owner:	Crusader Aviation, Inc.	**Rated Power:**	3700 Lbs thrust
Operator:	Key Air Incorporated	**Operating Certificate(s) Held:**	On-demand air taxi (135)
Operator Does Business As:	Key Air Incorporated	**Operator Designator Code:**	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	TEX,9078 ft msl	**Distance from Accident Site:**	25 Nautical Miles
Observation Time:	08:49 Local	**Direction from Accident Site:**	270°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	5 knots / None	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	150°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.42 inches Hg	**Temperature/Dew Point:**	9°C / -8°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Telluride, CO (TEX)	**Type of Flight Plan Filed:**	IFR
Destination:	Oxford, CT	**Type of Clearance:**	IFR
Departure Time:	09:00 Local	**Type of Airspace:**	Class D

Airport Information

Airport:	Telluride Regional Airport TEX	**Runway Surface Type:**	Asphalt
Airport Elevation:	9078 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	27	**IFR Approach:**	None
Runway Length/Width:	6870 ft / 100 ft	**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	2 None	**Aircraft Damage:**	Minor
Passenger Injuries:	4 None	**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	6 None	**Latitude, Longitude:**	37.953887,-107.908607

Administrative Information

Investigator In Charge (IIC):	Bowling, David
Additional Participating Persons:	Doug Hansen; Federal Aviation Administration; Salt Lake City, UT
Original Publish Date:	August 26, 2003
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=56340