Aviation Investigation Final Report

Location:	BLOUNTVILLE, Tennessee	**Accident Number:**	ATL96LA045
Date & Time:	February 7, 1996, 03:45 Local	**Registration:**	N2200J
Aircraft:	PIPER PA-32-RT-300	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	2 None
Flight Conducted Under:	Part 91: General aviation - Instructional		

Analysis

The night instrument instruction flight was cruising at 9,000 feet, VFR on top, when the left half of the top engine cowling ripped off and lodged on the horizontal stabilizer. The airplane was difficult to control, and would not maintain level flight. The instructor and the student diverted to a nearby airport and landed uneventfully. An FAA inspector examined the airplane and stated that the left cowl pin was missing, but it did not fail, having been torn away along with the surrounding cowling material. The manager of the shop where the airplane was repaired stated that he had previously observed worn side latches and pin grommets that allowed the upper cowl pin to slide out of the lower pin hole, which would allow air flow to rip off the upper cowling. There were no FAA malfunction/defect reports of a similar failure, and the manufacturer did not have records of any previous failure.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: Inadequate maintenance, and subsequent in-flight separation of the cowling, due to worn cowling components.

Findings

Occurrence #1: AIRFRAME/COMPONENT/SYSTEM FAILURE/MALFUNCTION
Phase of Operation: CRUISE

Findings

1. (C) MISCELLANEOUS,AIRFRAME - SEPARATION
2. (C) MAINTENANCE - INADEQUATE - OTHER MAINTENANCE PERSONNEL

Factual Information

On February 7, 1996, at 0345 eastern standard time a PA-32-RT-300, N2200J, made a forced landing at Tri-City Regional Airport, Blountville, Tennessee, after a portion of the engine cowling departed the airplane and struck the right horizontal stabilizer. The dual training flight was operated under the provisions of Title 14 CFR Part 91, and instrument flight rules. An instrument flight plan was active and visual meteorological conditions prevailed. The airplane was enroute to Charlottesville, Virginia, and was approximately 35 miles southwest of Holston Mountain VOR at the time of the accident. The instrument rated certified flight instructor and his student were not injured, and the airplane was substantially damaged. The instrument instruction flight had departed Birmingham, Alabama about 0115 the same day.

Both pilots agreed that during the preflight inspection the engine cowling was not opened, the cowling looked normal, and no fasteners were missing. According to the flight instructor, the airplane was above a cloud layer in visual meteorological conditions, at 9000 feet when approximately 1/2 of the engine cowling departed the airplane. Full up elevator was needed to maintain level flight. The flight instructor noted that the elevator trim was reacting opposite it's normal direction. They diverted to Tri-City Regional Airport. The morning following the accident the flight instructor found pieces of the engine cowling lying next to the airplane.

The airplane maintenance records revealed that the airplane passed a 100 hour inspection on October 6, 1995, and had accumulated 51 hours since this inspection. A discrepancy report was filed on October 26, 1995 for a drip of oil on the head (left cowling). This discrepancy was resolved on October 27, 1995.

The FAA Air Safety Representative that examined the airplane stated that the cowling had become lodged in the elevator and dislodged upon touchdown. All of the pieces of the cowling were recovered except for the left cowl pin. He stated that both of the left cowl latches were attached, and in the latched position. The FAA Coordinator stated that there are no maintenance or difficulty reports on this airplane's cowling, and that the cowl pin did not fail. The manufacturer had no record of a similar previous failure in the same make and model airplane.

Pilot Information

Certificate:	Commercial; Flight instructor	**Age:**	27,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Right
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine; Instrument airplane	**Toxicology Performed:**	No
Medical Certification:	Class 1 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	August 16, 1995
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	1612 hours (Total, all aircraft), 15 hours (Total, this make and model), 1489 hours (Pilot In Command, all aircraft), 130 hours (Last 90 days, all aircraft), 48 hours (Last 30 days, all aircraft), 3 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	PIPER	**Registration:**	N2200J
Model/Series:	PA-32-RT-300 PA-32-RT-3	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Utility	**Serial Number:**	32R798504
Landing Gear Type:	Retractable - Tricycle	**Seats:**	6
Date/Type of Last Inspection:	October 6, 1995 100 hour	**Certified Max Gross Wt.:**	3600 lbs
Time Since Last Inspection:	51 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	2944 Hrs	**Engine Manufacturer:**	LYCOMING
ELT:	Installed, not activated	**Engine Model/Series:**	IO-540-K1G5D
Registered Owner:	SIR SPEEDY LANCE-A-LOT, INC.	**Rated Power:**	300 Horsepower
Operator:	STEVEN A WALTERS	**Operating Certificate(s) Held:**	None
Operator Does Business As:		**Operator Designator Code:**	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Night/bright
Observation Facility, Elevation:	TRI ,1519 ft msl	**Distance from Accident Site:**	35 Nautical Miles
Observation Time:	07:53 Local	**Direction from Accident Site:**	25°
Lowest Cloud Condition:	Unknown	**Visibility**	7 miles
Lowest Ceiling:	Overcast / 3500 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	/	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	0°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30 inches Hg	**Temperature/Dew Point:**	-3°C / -8°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	BIRMINGHAM , AL (BHM)	**Type of Flight Plan Filed:**	IFR
Destination:	CHARLOTTESVILLE, VA (CHO)	**Type of Clearance:**	IFR
Departure Time:	01:15 Local	**Type of Airspace:**	Class E

Airport Information

Airport:	TRI-CITY REGIONAL AIRPORT TRI	**Runway Surface Type:**	Asphalt
Airport Elevation:	1519 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	5	**IFR Approach:**	None
Runway Length/Width:	8000 ft / 150 ft	**VFR Approach/Landing:**	Forced landing;Full stop;Traffic pattern

Wreckage and Impact Information

Crew Injuries:	2 None	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 None	**Latitude, Longitude:**	36.530872,-82.319633(est)

Administrative Information

Investigator In Charge (IIC):	Hicks, Preston
Additional Participating Persons:	ROCKY DAVIDSON; NASHVILLE , TN JIM MATTHEWS; NASHVILLE , TN
Original Publish Date:	November 11, 1996
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=3691