Aviation Investigation Final Report

Location:	Fort Payne, Alabama	**Accident Number:**	ATL05LA118
Date & Time:	June 30, 2005, 08:16 Local	**Registration:**	N4200N
Aircraft:	Piper PA-31P	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	2 Minor
Flight Conducted Under:	Part 91: General aviation - Executive/Corporate		

Analysis

Shortly after liftoff, about 20 feet above the ground, the pilot noticed a drop in the right engine manifold pressure. As the airplane began a right roll, efforts by the pilot to arrest the roll failed. When the pilot decided to put the airplane back on the ground, the right wing collided with the ground, the airplane cart wheeled and came to rest on its belly and burst into flames. Examination of the wreckage site revealed the aircraft located approximately 200 feet on the northwest side of the runway 22 centerline. The left fuel tank was ruptured and the left side of the airplane was fire damaged. Further examination revealed that the right engine's aft clamp connecting the turbocharger compressor outlet to the intercooler piping was broken, and the coupling was not secured to the turbocharger assembly. The examination also revealed that the aft clamp used to secure the coupling to the turbocharger assembly was not a T-bolt style clamp but, a standard automotive adjustable clamp. According to the engine manufacturer, the intercooler assembly and associated systems were produced by American Aviation, Inc., as a Supplemental Type Certificate (STC) SE3800NM product. When the STC installation was accomplished on the accident airplane was not determined.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The loss of engine power due to the failure of the aft clamp connecting the turbocharger

compressor outlet to the intercooler ducting which resulted in reduced aircraft performance during takeoff.

Findings

Occurrence #1: LOSS OF ENGINE POWER(PARTIAL) - MECH FAILURE/MALF
Phase of Operation: TAKEOFF

Findings
1. (C) EXHAUST SYSTEM,TURBOCHARGER - INOPERATIVE
2. (C) INDUCTION AIR DUCTING - DISCONNECTED
3. (C) AIRCRAFT PERFORMANCE - REDUCED
4. (C) MISCELLANEOUS,BOLT/NUT/FASTENER/CLAMP/SPRING - FAILURE
5. 1 ENGINE

Occurrence #2: FORCED LANDING
Phase of Operation: TAKEOFF

Occurrence #3: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: EMERGENCY LANDING

Findings
6. TERRAIN CONDITION - GROUND

Occurrence #4: FIRE
Phase of Operation: EMERGENCY LANDING

Factual Information

On June 30, 2005 at 0816 central daylight time a Piper PA-31P, N4200N, registered to a private owner and operated by Max Pack, collided with the ground and burst into flames while maneuvering for a forced landing after an attempted take off from runway 22 at Isbell Field in Fort Payne, Alabama. The corporate flight operated under the provisions of Title 14 CFR Part 91. Instrument meteorological conditions prevailed at the time of the accident and an instrument flight plan was filed. The airplane was substantially damaged. The pilot and passenger received minor injuries. The flight originated from Isbell Field, Fort Payne, Alabama on June 30, 2005 at the time of the accident.

The pilot preformed the preflight checklist and no problems were noted. The airplane departed from runway 22 and at approximately 20 feet above the ground, the pilot noticed the reading from the right manifold pressure gauge dropped. The pilot stated that the airplane began to roll to the right. To avoid rolling over, the pilot put counter flight controls. The pilot was unable to regain control of the airplane and pushed the yoke forward to put the airplane on the ground. The right wing collided with the ground; the airplane cart wheeled and came to rest on its belly. A post-crash fire ensued.

Examination of the wreckage site revealed the aircraft located approximately 200 feet on the northwest side of the runway 22 centerline. The left fuel tank was ruptured and the left side of the airplane was fire damaged.

Further examination revealed that the right engine's aft clamp connecting the turbocharger compressor outlet to the intercooler piping was broken and the coupling was lose at the turbocharger assembly. The examination also revealed that the aft clamp used to secure the above mentioned coupling to the turbocharger assembly was not a T-bolt style clamp but, a standard automotive adjustable clamp.

The right engine was removed from the site and shipped to Textron Lycoming in Williamsport, Pennsylvania for further examination. During the functional test, required test equipment was fitted on the engine as it was installed in the test cell. The engine was operated at various power settings and was run up to full throttle at 3140 rpm, and 45-inches of manifold pressure. The first functional engine run was approximately 25 minutes.

A second test run was performed. The aft clamp connecting the turbocharger compressor outlet to the intercooler piping was removed. The engine was started and achieved a maximum power setting of 2200 rpm, and only 28 inches of manifold pressure. The second functional engine was approximately 5 minutes.

According to the engine manufacturer, the intercooler assembly and associated systems were produced by American Aviation, Inc., as a Supplemental Type Certificate (STC) SE3800NM product.. When the STC installation was accomplished on the accident airplane was not

determined.

Pilot Information

Certificate:	Commercial	**Age:**	24,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 1	**Last FAA Medical Exam:**	June 1, 2004
Occupational Pilot:	UNK	**Last Flight Review or Equivalent:**	March 1, 2005
Flight Time:	1486 hours (Total, all aircraft), 79 hours (Total, this make and model), 1215 hours (Pilot In Command, all aircraft), 29 hours (Last 90 days, all aircraft), 4 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	**Registration:**	N4200N
Model/Series:	PA-31P	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	31P-7530006
Landing Gear Type:	Retractable - Tricycle	**Seats:**	7
Date/Type of Last Inspection:	February 1, 2005 Annual	**Certified Max Gross Wt.:**	7800 lbs
Time Since Last Inspection:		**Engines:**	2 Reciprocating
Airframe Total Time:	4022.5 Hrs as of last inspection	**Engine Manufacturer:**	Lycoming
ELT:	Installed, not activated	**Engine Model/Series:**	TIGO-541-E1A
Registered Owner:		**Rated Power:**	425 Horsepower
Operator:		**Operating Certificate(s) Held:**	None
Operator Does Business As:	Max Pak	**Operator Designator Code:**	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument (IMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	K4A9,877 ft msl	**Distance from Accident Site:**	0 Nautical Miles
Observation Time:	13:20 Local	**Direction from Accident Site:**	0°
Lowest Cloud Condition:		**Visibility**	3 miles
Lowest Ceiling:	Broken / 500 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	/	**Turbulence Type Forecast/Actual:**	/
Wind Direction:		**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.03 inches Hg	**Temperature/Dew Point:**	23°C / 22°C
Precipitation and Obscuration:			
Departure Point:	Fort Payne, AL (4A9)	**Type of Flight Plan Filed:**	IFR
Destination:	Gulfport, MS (GPT)	**Type of Clearance:**	IFR
Departure Time:	08:15 Local	**Type of Airspace:**	

Airport Information

Airport:	Isbell Field 4A9	**Runway Surface Type:**	Asphalt
Airport Elevation:	877 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	22	**IFR Approach:**	None
Runway Length/Width:	5001 ft / 100 ft	**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	1 Minor	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 Minor	**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 Minor	**Latitude, Longitude:**	34.473609,-85.721389

Administrative Information

Investigator In Charge (IIC):	Gagne, Catherine
Additional Participating Persons:	Dave Hargett; FSDO 09 Birmingham; Birmingham, AL
Original Publish Date:	February 28, 2006
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=61836